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TESI DI LAUREA

Valutazione della distribuzione dei terpenoidi in *Cannabis sativa* L.

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Riassunto

La ricerca ha constatato che la concentrazione dei terpenoidi della pianta di *Cannabis sativa* L., generalmente, aumenta passando da infiorescenze in posizioni basse ad infiorescenze in posizioni alte della pianta. Essendo l'aroma influenzato dalla concentrazione di questa classe di metaboliti, è corretto tenere in considerazione tale relazione, ma è fondamentale considerare separatamente l'infiorescenza apicale, che avendo mostrato di possedere concentrazioni dei metaboliti significativamente differenti da quelle delle altre infiorescenze, dichiara di possedere un profilo aromatico diverso.
Al fine della ricerca è stato necessario analizzare mediante gascromatografia le infiorescenze femminili di una pianta di *C. sativa*, e ottenere informazioni di tipo qualitativo e quantitativo sui terpenoidi separati, mediante l'utilizzo di uno spettrometro di massa come rivelatore, con analizzatore a singolo quadrupolo. Successivamente sono state fatte elaborazioni statistiche che hanno permesso di ottenere i risultati sulla modalità di distribuzione di questa classe molto importante di metaboliti; se i terpenoidi per le piante hanno principalmente funzione protettiva, per l'uomo l'importanza è dovuta non solo all'aromaticità come già anticipato, ma agiscono anche in sinergia con i fitocannabinoidi, un'altra fondamentale classe di metaboliti presente nelle piane del genere *Cannabis*, potenziandone l'attività ed aumentandone la permeabilità.

Abstract

Research has declared that the terpenoid concentration of the *Cannabis sativa* L. plant, generally, increases from inflorescences in low to inflorescences in high positions of the plant. As the aroma is influenced by the concentration of this class of metabolites, it is correct to take this relationship into consideration, but it is fundamental to consider separately the apical inflorescence, which, having been shown to possess metabolite concentrations significantly different from those of the other inflorescences, declares to possess a different aroma profile.

For the purpose of this research, it was necessary to analyze the female inflorescences of a *C. sativa* plant by using gas chromatography, and to obtain qualitative and quantitative information on the separated terpenoids by using a mass spectrometer as a detector, with a single quadrupole analyzer. Subsequently statistical processing was carried out to obtain results on the mode of distribution of this very important class of metabolites; while terpenoids for plants have mainly a protective function, for humans their importance is due not only to their aromaticity as already mentioned, but they also act in synergy with phytocannabinoids, another fundamental class of metabolites present in plants of the *Cannabis* genus, enhancing their activity and increasing their permeability.

1. Introduzione

1.1. Storia, diffusione e utilizzi storici nel mondo

La storia della pianta *Cannabis sativa* L. è intrinseca allo sviluppo dell'essere umano ed è proprio per questo che è difficile rintracciare la sua area geografica autoctona. Si ritiene che questa specie sia stata una delle prime ad essere addomesticata, già dai primi tempi del Neolitico (Rull, 2022), e una delle prime testimonianze del suo utilizzo a fine terapeutico è documentata nella più antica Farmacopea cinese, lo “Shen Nung Pen Ts'ao Ching" scritto nel I secolo a.C. (Pisanti, et al., 2019).

Fig. 1 - Mappa dell’Asia Centrale. Fonte: Dati cartografici ©2023 Google.

L’area geografica autoctona del genere *Cannabis* è stata difficile da determinare anche a causa di una sua particolarità, ovvero la sua capacità di riacquistare le proprie caratteristiche selvatiche entro 50 generazioni (Small, 1975) e, in effetti, si è trovata allo stato selvatico in più luoghi (Fig. 1): a sud del Mar Caspio (in Azerbaigian, Iran e Turkmenistan), vicino al fiume Irtysh (dal Kazakistan alla Siberia Occidentale), nel deserto di Kirghiz (in Kirghizistan) e in Dauria (una zona della Mongolia confinante con Russia e Cina) (Candolle, 1883).

Il luogo di origine di *C. sativa* è ancora oggetto di dibattito tra opinioni contrastanti che difendono singoli o multipli territori situati in diverse parti del continente eurasiatico. Troviamo, in particolare, che secondo Ibn Waḥshiyya dovrebbe essere tra l’India e la Cina (Hämeen-Anttila, 2006), tra l’India e il Giappone per Linneo

Fig. 2 - Mappa dell'altopiano tibetano nord-orientale. Fonte: Dati cartografici ©2023 Google.

(Linnaeus, 1738), in Russia per Winterschmidt (Winterschmidt, 1818), in Iran per Lamarck (Lamarck, 1785) e in Asia Centrale per de Candolle (Candolle, 1883).

Per cercare di fare chiarezza su luogo d'origine e spostamenti della pianta, studi recenti basati sui microfossili, ossia fossili di polline, hanno permesso di concludere che l'origine di *C. sativ*a sia nell'altopiano tibetano nord-orientale (McPartland, et al., 2018) (Fig. 2), territorio caratterizzato da alluvioni frequenti, corsi d'acqua prosperosi, e da una forte concimazione operata da branchi di grandi mammiferi selvatici. Trattandosi di una pianta infestante, la sua diffusione non è stata difficile e si è basata sullo sfruttamento di fiumi, persone e animali (Small, 2015). La pianta, infatti, sebbene si trovasse in Europa già 200 mila anni fa (McPartland, et al., 2018), ha sfruttato lo spostamento degli Sciiti asiatici nel 700 a.C. per iniziare a popolare abbondantemente anche il continente europeo (Candolle, 1883; Bakels, et al., 2000). Ad ogni modo è vicino al Lago di Albano che si è trovato il più antico fossile della pianta nel territorio europeo, ed è datato 11500 a.C.; i più antichi fossili di semi, invece, sono stati trovati in Romania e in Svizzera, e sono datati tra 7000 e 5000 a.C., e il più antico fossile di polline è stato trovato in Estonia orientale ed è datato 5600 a.C..

Gli studi sui fossili di polline hanno permesso di comprendere anche come sia avvenuta l'evoluzione della specie: è stata la deriva genetica a dare il via alla differenziazione di *C. sativa* in *C. sativa* subsp. *sativa* (europea) e *C. sativa* subsp. *indica* (asiatica), e non la selezione umana, ossia, è stata la casuale nascita indotta dai cambiamenti climatici. In effetti, tali cambiamenti hanno obbligato la pianta a spostarsi in luoghi più caldi durante le glaciazioni e in luoghi più freddi quando l'ambiente diventava più caldo e umido, e gli spostamenti hanno generato le mutazioni (McPartland, et al., 2018).

L'importanza storica della pianta è sicuramente dovuta al suo utilizzo a fine tessile: *C. sativa* molto probabilmente rappresenta la più antica pianta da fibra coltivata dall'uomo (Lamarck, 1785), e in effetti, i primi ritrovamenti di tessuti fatti di canapa sono datati 2000 a.C.. Oltre all'importanza tessile, un altro utilizzo storico importante è quello della produzione della carta, la cui più antica testimonianza si trova in Cina ed è datata all'anno 0. È anche emerso che testi come la Bibbia di Gutenberg, la prima bozza e la seconda stesura della Dichiarazione d'Indipendenza degli Stati uniti, sono stati scritti su carta di *C. sativa*; inoltre, essendo una carta particolarmente lucida, forte e resistente a calore e muffa, è stata utilizzata anche per la pittura, tant'è che ha fornito la base di opere di Rembrandt e di Van Gogh (McPartland, et al., 2018).

1.1.1. Storia, diffusione e utilizzi storici in Italia

Per quanto riguarda l'Italia, i pollini di *C. sativa* più antichi risalgono al 4500 a.C. e si trovano in tre siti dell'Emilia-Romagna (Piacenza, Parma e Forlì), ed essendo che quell'ambiente all'epoca era già stato antropizzato e deforestato, si ritiene che la canapa da cui originassero potesse essere coltivata e non selvatica.

Di sicuro la pianta in Italia si è diffusa maggiormente tra 500 e 300 a.C., e il poeta romano Lucilio (170/148-103 a.C.) è stato il primo a scrivere del suo uso in questo territorio: nell'Impero romano veniva utilizzata a scopo militare per la costruzione di vele e di corde per le imbarcazioni. Tuttavia, la grande vera diffusione risale al Medioevo durante l'età dei comuni, dove la pianta rappresentava una grande fonte di guadagno per i regni perché era molto apprezzata per la produzione di tessuti a fini domestici (McPartland, et al., 2018).

Nel complesso, in Italia ed in Europa, gli anni più legati all'uso di *C. sativa* sono compresi tra 1400 e 1800 d.C.: veniva impiegata per la produzione di tessuti e i suoi scarti per la produzione di carta. In Italia la massima espansione della coltivazione si è vista agli inizi del 1900 d.C., con, come territori principali, le province del nord di Ferrara, Bologna, Rovigo e Modena, e le province del sud di Napoli e Caserta (Allavena, 1962). Precisamente, nel 1910 erano 80.000 gli ettari coltivati a *C. sativa* e i maggiori centri di produzione erano a Ferrara e a Carmagnola: l'Italia dall'inizio del Novecento alla Seconda guerra mondiale nella classifica riguardante quantità di superfici coltivate a *C. sativa* è stata solo dietro alla Russia con i suoi 690.000 ettari coltivati.

Dopo la comparsa sul mercato delle fibre sintetiche, la posizione in classifica dell'Italia nell'ambito di produzione di tessuti a base di *C. sativa* è notevolmente scesa per colpa dell'arretratezza meccanica, e dopo la Seconda guerra mondiale anche la quantità di superficie coltivata con questa pianta ha iniziato a diminuire, portando la coltivazione nel 1970 a soli 1000 ettari (Schluttenhofer, et al., 2017).
Per quanto riguarda la produzione di carta, invece, il declino sia in Italia che nel resto del mondo è avvenuto prima, perché a metà del 1800 d.C., con la rivoluzione industriale, la richiesta di carta aumentava ma non era possibile sostenerla solamente con gli scarti della lavorazione di *C. sativa* e quindi sono state cercate alternative. Ritornando in Italia e alla produzione tessile, le cause del declino della coltivazione sono state due: la mancata industrializzazione e il proibizionismo. In effetti la difficoltà nella lavorazione di questa pianta era grande e viste le condizioni di lavoro difficili e il progressivo abbandono del lavoro agricolo negli anni Sessanta, c'è stata un'enorme diminuzione della sua coltivazione. Per quanto riguarda il proibizionismo, il regime fascista, con i decreti contro gli stupefacenti del 1923, ha definito la pianta e i suoi prodotti un "nemico della razza", causando una forte diminuzione nell'utilizzo. Successivamente, con il proibizionismo americano e con le forti pressioni da parte di altri Paesi, l'ONU nel 1961 ha dichiarato *C. sativa* uno stupefacente e ha imposto che dovesse essere eliminata dal mondo entro trent'anni, cercando così di proibirne l'uso e la coltivazione. L'Italia infatti nello stesso anno, sottoscrivendo la convenzione internazionale "Convenzione Unica delle Sostanze Stupefacenti", si è posta l'obiettivo di debellare la pianta entro venticinque anni.

1.2. Tassonomia e classificazione

La famiglia delle *Cannabaceae* è composta da 170 specie distribuite all'interno di dieci generi, i due da sempre collocati all'interno di questa famiglia sono *Cannabis* e *Humulus*, mentre gli altri otto venivano precedentemente considerati appartenenti alla famiglia delle *Celtidaceae*, e sono *Celtis*, *Pteroceltis*, *Aphananthe*, *Chaetachme*, *Gironniera*, *Lozanella*, *Trema* e *Parasponia*. Questi otto generi sono stati inseriti nella famiglia delle *Cannabaceae* solo in seguito ad analisi genetiche condotte nel 2003 dall'Angiosperm Phylogeny Group (Angiosperm Phylogeny, 2003).

La pianta *Cannabis sativa* L. è classificata come segue:

- regno: *Plantae*
- divisione: *Magnoliopsida*
- ordine: *Rosales*
- famiglia: *Cannabaceae*
- genere: *Cannabis*
- specie: *Cannabis sativa* L.
- sottospecie:
    - *Cannabis sativa* subsp. *sativa* anche detta "Cannabis sativa"
    - *Cannabis sativa* subsp. *indica* anche detta "Cannabis indica"
    - *Cannabis sativa* subsp. *ruderalis* anche detta "Cannabis ruderalis"

C. sativa si può differenziare da tutte le altre piante in base ad alcune caratteristiche fondamentali:

- pianta annuale: completa il suo ciclo di vita in un anno;
- impollinazione anemofila: il vento trasporta il polline dalle piante maschili alle femminili (solo il 12% delle piante da fiore sono impollinate dal vento);
- pianta dioica: i fiori sono unisessuali e sono portati su piante diverse (solo il 7% delle piante da fiore sono dioiche);
- pianta brevidiurna (subsp. *sativa* e *indica*) o fotoperiodo indipendente (subsp. *ruderalis*): le prime due sono sottospecie che richiedono un fotoperiodo breve per fiorire, ovvero fioriscono quando le notti si allungano

e i giorni si accorciano, la terza, anche detta autofiorente, fiorisce indipendentemente dalle ore di illuminazione;

- produce terpeni: molecole che conferiscono aroma e sapore caratteristici, ma che possiedono anche proprietà terapeutiche;
- produce fitocannabinoidi: molecole con proprietà terapeutiche che vengono prodotte in grande quantità solo dalla pianta *C. sativa*; infatti, sebbene anche altre piante come *Echinacea purpurea* L., *Echinacea angustifolia* DC., *Acmella oleracea* L. e *Theobroma cacao* L., li producano, essa è l'unica pianta a produrne ad alte concentrazioni.

In Species Plantarum del 1753 (Linnaeus, 1753), testo che rappresenta il punto di partenza della nomenclatura botanica, Linneo coniò il binomio "*Cannabis sativa*" e successivamente Lamarck (Lamarck, 1785) nel 1785 coniò il binomio "*Cannabis indica*" per identificare piante che si potevano distinguere, secondo lui, per morfologia, fitochimica e areale geografico di origine.
Il problema principale della tassonomia di *C. sativa* è stato capire se *C. sativa* e *C. indica* fossero specie o solamente sottospecie differenti. È stato uno studio sul DNA condotto da Small e Cronquist nel 1976 che ha permesso di definirle, data la scarsa differenza fra le due piante, come differenti sottospecie (varietà) di una stessa specie, ossia *C. sativa*: la terminologia corretta è quindi *C. sativa* subsp. *sativa* e *C. sativa* subsp. *indica* (Small, et al., 1976). Gli stessi autori hanno poi ulteriormente distinto le due sottospecie, in base ad alcune differenze morfologiche e al contenuto di Δ^9-tetraidrocannabinolo (THC) presente all'interno della pianta:

- *C. sativa* subsp. *sativa* subsp. *sativa,* a basso contenuto di THC, con tratti di domesticazione;
- *C. sativa* subsp. *sativa* subsp. *spontanea,* a basso contenuto di THC, con tratti selvatici;
- *C. sativa* subsp. *indica* subsp. *indica,* ad alto contenuto di THC, con tratti di domesticazione;
- *C. sativa* subsp. *indica* subsp. *kafiristanica,* ad alto contenuto di THC, con tratti selvatici.

Con basso contenuto di THC si intende una concentrazione minore dello 0,3% nelle sommità femminili essiccate. Tuttavia, oggi, distinguere le piante è difficile e poco utile perché l'incrocio e l'ibridazione hanno cancellato in gran misura le differenze (Small, 2017).

Nel 1922, l'agronomo russo Nikolaj Vavilov (Vavilov, 1922) è intervenuto per dare rilevanza e autorità alla sottospecie precedentemente riconosciuta anche da altri studiosi detta *ruderalis*; questa sottospecie è stata distinta dalle altre due per la morfologia, la fitochimica e per il caratteristico tratto autofiorente.
La sottospecie *ruderalis* indica una popolazione che non viene influenzata geneticamente dall'addomesticamento, ovvero, che mantiene uno stato selvatico. Nel nostro caso, *C. sativa* subsp. *ruderalis,* grazie alla dispersione mediata in passato dagli esseri umani, da corsi d'acqua e da animali, vanta di un'ampia distribuzione geografica e si può infatti trovare in moltissimi ambienti differenti (Small, 2015).

1.3. Morfologia e fenologia

C. sativa è una pianta erbacea annuale, che viene seminata ad inizio primavera e conclude il suo ciclo produttivo a settembre.
Il suo apparato radicale è rappresentato da un fittone con sottili ramificazioni laterali che può raggiungere 1,5 m di profondità, una profondità tale da permettere alla pianta di ricavare acqua ed elementi nutritivi anche in periodi di siccità.
Il fusto è subconico o cilindrico, di colore verde o giallognolo e, nelle parti giovani, è coperto da una leggera peluria.
Le due foglie cotiledonari sono piccole, caduche e carnose, il primo paio di foglie adulte è formato da foglie semplici, singole e opposte, le successive paia di foglie adulte sono invece palmatosette e opposte, hanno stipole, picciolo, lembo dentato e margini seghettati; in particolare, il secondo paio è costituito da foglie composte con 3-4 foglioline e le successive paia sono costituite da foglie composte con 3-11 foglioline. Con la fioritura il numero di foglioline per foglia diminuisce, fino ad arrivare a una sola fogliolina in prossimità dei fiori.

La canapa è solitamente una pianta dioica, ovvero rappresentata da individui con infiorescenze maschili e femminili distinte, ma possono comparire anche individui monoici in condizioni di estremo stress (Moliterni, et al., 2004). Per la produzione di semi si utilizzano varietà monoiche, mentre per la produzione di infiorescenze si utilizzano varietà dioiche di sesso femminile.

Le differenze principali tra le infiorescenze maschili e quelle femminili (Fig. 3) stanno nel fatto che le prime nascono sullo stelo alla base di foglie e germogli e sono riunite in pannocchie terminali, mentre le seconde nascono dalle brattee e sono riunite in piccoli gruppi alle ascelle delle brattee formando delle corte spighe; le prime sono molto meno ricche di tricomi ghiandolari rispetto alle seconde; le prime dopo che rilasciano il polline iniziano a seccare (verso fine estate), mentre le seconde continuano a vegetare per permettere la maturazione del seme (fino all'autunno), e queste ultime hanno tempi di maturazione diversi in base alla posizione in cui si trovano sulla pianta, in base quindi alla quantità di luce che ricevono (Magagnini, et al., 2018).

Fig. 3 - Infiorescenza di C. sativa: a sinistra infiorescenza femminile, a destra infiorescenza maschile. Fonte: https://dutch-passion.com/it/.

Per quanto riguarda invece il seme, si tratta di un achenio, un frutto secco indeiscente, formato da un pericarpo a due valve rigido, di forma ovoidale e di colore uniforme o venato, dal grigio al marrone. La lunghezza è di 3-5 mm e la larghezza è di 2-3 mm. Il peso di 1000 semi è di 20-24 g per varietà dioiche o di 16-20 g per varietà monoiche. Il quantitativo medio di olio contenuto nel seme è del 31,9%, e quello di proteine è del 33,7% (Kriese, et al., 2004).

Per la semina in pieno campo, i semi vengono posti a circa 30 mm di profondità e germogliano generalmente entro una settimana dalla semina, quando raggiungono la somma termica di 96°C. Per la produzione di canapa da seme è solito usare una densità di semina di 30-75 piante/m², mentre per la coltivazione di infiorescenze di canapa, la densità di semina è di 1,1 piante/m^2 (Rosenthal, 2009).
Per promuovere la crescita vegetativa la coltura necessita di 6 ore di buio e 18 ore di luce al giorno, mentre per promuovere la fioritura necessita di almeno 12 ore di buio, infatti, essendo una pianta brevidiurna, la canapa vira dalla fase vegetativa a quella riproduttiva quando la lunghezza del giorno è inferiore al fotoperiodo critico. La pianta fiorisce per questo motivo a fine estate o inizio autunno. Tuttavia, le varietà della sottospecie *ruderalis*, hanno la fioritura indipendente dal fotoperiodo, e raggiungono quindi la fase riproduttiva circa a tre mesi dalla germinazione.
Il clima più favorevole per l'accrescimento di *C. sativa* è quello caldo-umido, ma il caldo eccessivo, le carenze idriche e il ristagno idrico sono fattori di pericolo. Il terreno ideale deve essere sciolto, sabbioso, torboso, ricco di sostanza organica e soprattutto privo di strati impermeabili. L'eventuale presenza di inquinanti come metalli pesanti può causare uno stress che comporta l'incremento della produzione di CBD (Husain, et al., 2019) e di composti fenolici (Ullah, et al., 2019). Il fabbisogno idrico varia da 200 a 450 mm in base alle temperature dell'ambiente circostante, ad esempio rispettivamente in nord Italia e in sud Italia. La canapa non richiede elevati input di concimazione, ma il giusto apporto di elementi nutritivi rende la pianta vigorosa e più produttiva. La produzione di biomassa è favorita dalla presenza di azoto perché si tratta di una pianta nitrofila, e per questo possono essere necessarie concimazioni di 60 kg/ha di azoto (Tang, et al., 2017), ma per quanto riguarda potassio (Finnan, et al., 2013) e fosforo (Ivonyi, et al., 1977) questa pianta non ha esigenze tali da renderne necessaria la concimazione.
Le piante che vivono in condizioni ideali crescono fino a 10 cm/giorno e producono una maggior quantità di principi attivi rispetto alle altre; inoltre, i fiori femminili se non impollinati aumentano la produzione di resina e perciò anche quella di metaboliti come fitocannabinoidi e terpeni. Uno studio ha dimostrato che il contenuto di CBD, e in misura minore di THC, aumenta anche all'aumentare della temperatura e diminuisce all'aumentare dell'umidità (Sikora, et al., 2011).

La canapa per la produzione di fibra è abbastanza competitiva nei confronti delle malerbe, grazie alle densità di semina elevate e alla rapida velocità di accrescimento (Berger, 1969; Lotz, et al., 1991). La pianta può subire tuttavia danni per colpa di diversi patogeni: le radici possono essere attaccate da *Pyralidae Latreille* e dai funghi dei generi *Fusarium* e *Pythium*, le foglie, soprattutto se coltivate in serra, da oidio, ragnetto rosso (*Tetranychus urticae*), afidi (*Aphidoidea*) e mosca bianca (*Aleyrodidae*), e il fusto da piralide (*Pyralidae Latreille*).

1.3.1. Sottospecie di *C. sativa*

Le sottospecie di *C. sativa* si differenziano per diversi fattori, come morfologia (altezza, portamento, forma e dimensione di foglie e fiori), fitochimica (fitocannabinoidi prevalenti e concentrazioni, possibili utilizzi ed effetti) e habitat caratteristico, ma anche per fattori come stabilità genetica, resistenza a stress climatici, a patogeni e a malattie.

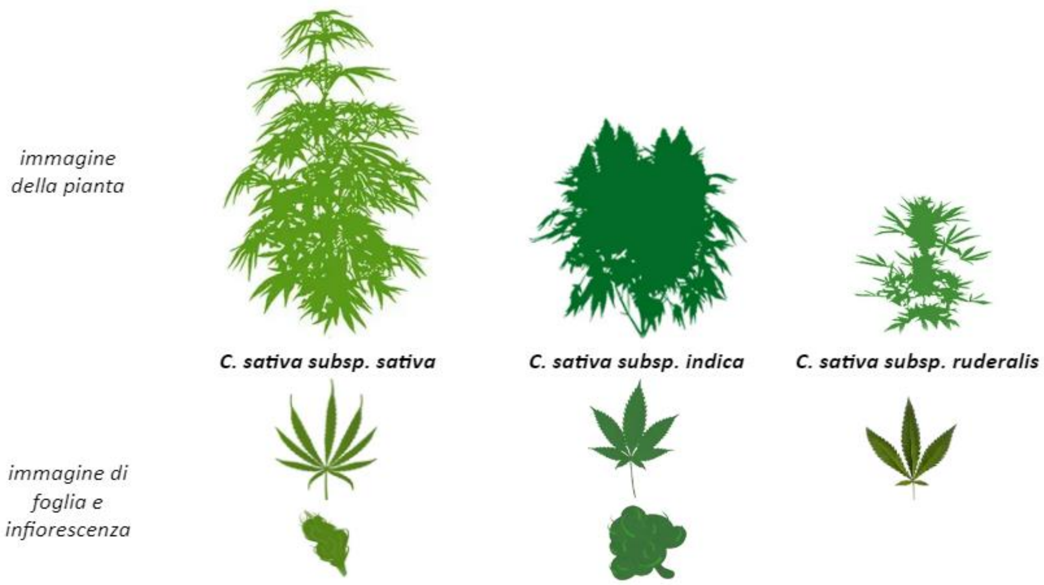


Fig. 4 - Differenze morfologiche tra le sottospecie di C. sativa. Fonte: elaborazione propria.

Le tre sottospecie *C. sativa* subsp. *sativa*, *C. sativa* subsp. *indica* e *C. sativa* subsp. *ruderalis* possono essere distinte dunque per i caratteri presenti in tabella (Tab. 1), ed è possibile osservare alcune delle distinzioni morfologiche in base alla figura sovrastante (Fig. 4).

Tab. 1 - Caratteristiche distintive delle sottospecie di C. sativa.

	C. sativa subsp. *sativa*	*C. sativa* subsp. *indica*	*C. sativa* subsp. *ruderalis*
altezza	la più alta	altezza intermedia	la più bassa
portamento	colonnare (chioma a forma cilindrica)	tozzo e cespuglioso, molto più espanso di *C. sativa* subsp. *sativa*	molto compatto
forma delle foglie	lunghe con lame strette	grandi con lame larghe	lunghe con lame larghe simili a *C. sativa* subsp. *indica*
colore delle foglie	verde non molto scuro	verde scuro ma anche rosso/viola vicino ai fiori	verde più chiaro di *C. sativa* subsp. *indica*
densità dei fiori	radi	densi	moderatamente densi
posizione dei fiori	i femminili si sviluppano lungo il gambo e i rami, non si raggruppano intorno ai nodi del ramo	i femminili si sviluppano intorno ai nodi del ramo formando densi grappoli	
areale d'origine	caratteristica dell'Europa	caratteristica dell'Asia, delle montagne di Pakistan e Afghanistan	caratteristica dell'Europa e dell'Asia

clima ideale	ambienti caldi e tropicali	ambienti più freschi rispetto a *C. sativa* subsp. *sativa*	ambienti di ogni tipologia, anche freddi e alpini, è meno sensibile rispetto le altre due
fitocannabinoidi	produce più CBD che THC	produce in egual misura CBD e THC, e la quantità prodotta è maggiore rispetto a *C. sativa* subsp. *sativa*	produce più CBD che THC, ma il THC spesso arriva ad una concentrazione > 3%
terpenoidi	donano un odore erbaceo o dolce	donano un odore acre o sgradevole	
effetti	energizzante ed euforizzante, ha scarsa capacità intossicante	rilassante e sedativa, ha elevata capacità intossicante	
utilità terapeutica	trattamento di depressione, mal di testa, nausea, mancanza di appetito	trattamento di insonnia, dolore, infiammazione, spasmi muscolari, epilessia, glaucoma	
altre utilità	canapa per fini industriali, da fibra e da olio	canapa per fini terapeutici	canapa per fini industriali se contiene poco THC

1.3.2. Altre tipologie

Cannabis femminizzata: si tratta di piante intersessuali di sesso femminile economicamente importanti perché producono una quantità maggiore di resina, anche più ricca di fitocannabinoidi, rispetto alle piante maschili.

Cannabis industriale: la canapa industriale è rappresentata da piante a stelo alto, che producono poco fogliame e fibre lunghe che offrono una vasta gamma di usi industriali, ma di questa pianta si utilizzano anche i semi per l'estrazione dell'olio; spesso contiene livelli estremamente bassi di THC ma elevate quantità di CBD, infatti, nella maggior parte dei casi contiene meno dello 0,3% di THC.

Cannabis terapeutica: *Cannabis* terapeutica viene distinta da *Cannabis* industriale in base al quantitativo di THC e non in base al quantitativo di fitocannabinoidi totali (Barcaccia, et al., 2020). Questo tipo di pianta produce molti fitocannabinoidi e in particolare i prodotti ottenuti contengono una concentrazione di THC maggiore dello 0,6%. L'alta concentrazione di questi metaboliti ne rende plausibile l'utilizzo in ambito terapeutico. In Italia solo lo Stabilimento Chimico Farmaceutico Militare di Firenze, il CREA di Rovigo e il GRiCa (Gruppo Ricerca sulle Piante Officinali dell'Università di Padova) possiedono l'autorizzazione per la coltivazione e la ricerca sperimentale su questo tipo di piante (Cappello Fusaro, et al., 2022).

Cannabis light ("legale"): le piante di questo gruppo producono molto CBD e un quantitativo di THC minore dello 0,6%, ma essendo che con la legge del 2 dicembre 2016 n°242 vengono definiti stupefacenti i prodotti con concentrazione di THC maggiore dello 0,3-0,6%, questo tipo di *Cannabis* è solitamente identificabile come stupefacente (Cappello Fusaro, et al., 2022).

1.4. Metaboliti di interesse

1.4.1 Tricomi ghiandolari

I tricomi nelle piante hanno lo scopo di creare una superficie appiccicosa che possa facilitare l'attaccarsi del polline per la riproduzione, ma sono anche importantissime strutture con funzione difensiva, infatti formano uno strato che impedisce ai parassiti di penetrare nella pianta, che impedisce alla pianta di subire i danni da parte delle radiazioni ultraviolette, alcuni contengono sostanze in grado di inibire la crescita di funghi, o sostanze amare che rendono la pianta meno appetibile per gli animali, e altri aiutano a isolare la pianta dalle temperature estreme, prevenendone la disidratazione e proteggendola dal congelamento.

I tricomi sono protuberanze dell'epidermide che possono essere distinte in tricomi ghiandolari e tricomi non ghiandolari: è all'interno dei tricomi ghiandolari che viene accumulata la resina oleosa caratteristica di *C. sativa*, una miscela contenente fino al 90% dei metaboliti secondari di interesse farmacologico prodotti dalla pianta, tra i quali troviamo fitocannabinoidi, terpeni e fenoli (Rodziewicz, et al., 2019).

Questi tricomi ghiandolari si trovano principalmente sulle piante femminili, in particolar modo a livello delle infiorescenze, ma la disposizione ed il numero dipende dalla varietà; ad esempio, quelle terapeutiche hanno le ghiandole più grandi e sono presenti in numero maggiore confrontandole ad altre varietà non terapeutiche. Inoltre, è stato notato che vi è una maggiore concentrazione di CBD e una minore di THC nelle piante più resinose rispetto alla concentrazione dei due presente nelle piante poco resinose.

Quando colpiti, i tricomi secernono il loro contenuto attraverso i pori presenti nella membrana che costituisce le loro teste, e dopo la secrezione degenerano, creando così una massa di resina appiccicosa distribuita liberamente sulla parte di pianta nella zona sulla quale si trovavano.

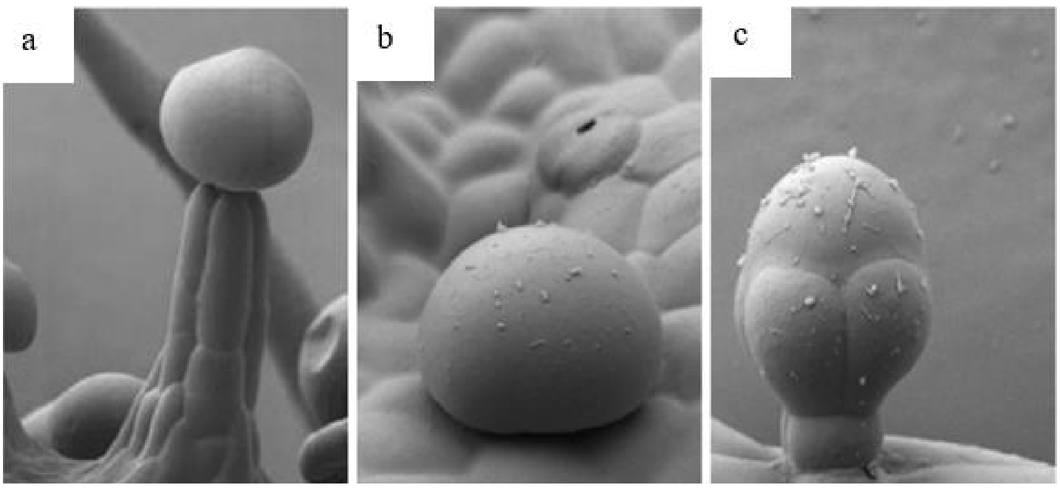


Fig. 5 - Immagini Cryo-SEM dei tre tipi di tricomi ghiandolari di C. sativa: tricoma peduncolato (a); tricoma bulboso (b); tricoma sessile (c). Scala: barra di 20 µm. Livingston, S. J., Quilichini, T. D., Booth, J. K., Wong, D. C., Rensing, K. H., Laflamme-Yon.

I tricomi ghiandolari presenti sulla pianta vengono distinti in tre tipologie (Fig. 5), in base a morfologia e contenuto: tricomi bulbosi, tricomi sessili e tricomi peduncolati (Hammond, et al., 1973).

I tricomi sessili sono costituiti da un brevissimo peduncolo e da una testa globosa formata da cellule secretorie costituenti un disco e una cavità sottocuticolare che ha lo scopo di immagazzinare i metaboliti secondari (Hammond, et al., 1977). Questi tricomi sono abbondanti nelle varietà con alto contenuto di fitocannabinoidi e sono anche quelli più ricchi di terpeni; si trovano sulle antere, sui piccioli, sugli steli e soprattutto sulle foglie vegetative, ma la concentrazione di metaboliti diminuisce con l'invecchiamento della foglia, mentre quelli che si trovano sui fiori sono in realtà tricomi peduncolati immaturi. Sia per via della forma a volte appuntita sia per via delle sostanze che producono, hanno funzione insetticida e fungicida.
I tricomi peduncolati sono simili ai tricomi sessili, hanno anch'essi una testa globosa, seppur un po' più grande, ma la differenza principale sta nel fatto che possiedono un lungo peduncolo multicellulare che solleva la testa (Mahlberg, et al., 2004; Potter, 2009). Questi tricomi accumulano i metaboliti secondari in una zona compresa tra il peduncolo e la testa, e sono quelli che producono più fitocannabinoidi, forse perché hanno la testa di dimensione maggiore rispetto ai sessili (Mahlberg, et al., 2004; Potter, 2009; Turner, et al., 1978). Si trovano soprattutto sulle infiorescenze femminili ed è durante la fioritura che il peduncolo si allunga, trasformando il tricoma che prima poteva sembrare sessile in un tricoma peduncolato.
I tricomi bulbosi sono i più piccoli ma questo non impedisce loro di accumulare nella testa una resina ricca di fitocannabinoidi.

Uno studio condotto sui tricomi ghiandolari della varietà "Finola", e poi verificato anche con varietà di *C. sativa* terapeutica ad alto acido tetraidrocannabinolico (THCA) ha permesso di dimostrare che i tricomi sessili presenti sui calici dei fiori immaturi diventano tricomi peduncolati al compimento della maturazione dei fiori, e che questi tricomi sessili sono anatomicamente e biochimicamente distinti da quelli presenti sulle antere e sulle foglie vegetative (Livingston, et al., 2020). I tricomi sessili quindi sui calici immaturi diventano tricomi peduncolati, infatti, il loro contenuto in termini di metaboliti è più simile a quello dei tricomi peduncolati presenti sui calici maturi, e meno simile a quello dei tricomi sessili presenti su altri organi maturi come le foglie e le antere. In particolare, il contenuto in terpeni dei tricomi peduncolati e dei tricomi sessili nei calici è dominato da monoterpeni, mentre il contenuto in terpeni dei tricomi sessili nelle foglie è dominato da sesquiterpeni, e il contenuto di fitocannabinoidi dei tricomi peduncolati e dei tricomi sessili nei calici è molto simile (Livingston, et al., 2020).

1.4.2. Flavonoidi

I flavonoidi sono una classe di metaboliti secondari che rientra nel gruppo dei polifenoli. Sono costituiti da uno scheletro di base detto fenilcromano o flavano, formato da un anello aromatico legato in posizione 2 o 3 al cromano, ottenendo quindi il 2-fenilcromano o il 3-fenilcromano. Sono presenti esclusivamente nel regno vegetale e sono ubiquitari perché si trovano in tutte le piante ma più frequentemente in forma glicosilata. *C. sativa* produce una grande quantità di flavonoidi e si concentrano specialmente in fiori, foglie e stelo, strutture in cui arrivano a rappresentare il 2,5% del peso secco. I più importanti sono le cannaflavine A e B (che sono un'esclusiva di questa pianta), l'apigenina, il kaempferolo, la quercetina, la vitexina e l'isovitexina, la luteolina e l'orientina (Zager, et al., 2019).

Le principali funzioni di questi metaboliti consistono nell'attrazione di insetti impollinatori, nel favorire il proliferare di microrganismi simbionti utili nel terreno, nella protezione nei confronti di microrganismi patogeni e delle radiazioni ultraviolette. Il ruolo protettivo lo riflettono anche sull'uomo, infatti sono associati ad un ampio spettro di effetti benefici per la salute, esercitati per mezzo delle loro proprietà antiossidanti, antinfiammatorie, antimutagene e anticancerogene.

1.4.3. Terpeni

I terpeni sono idrocarburi insaturi formati dalla condensazione di unità isopreniche, ossia strutture costituite da 5 atomi di carbonio. I composti maggiormente presenti nelle infiorescenze di *C. sativa* sono i monoterpeni, formati quindi da 2 unità isopreniche, come D-limonene, β-mircene, α-pinene, β-pinene, β-phellandrene, terpinolene e linalolo, e i sesquiterpeni, formati da 3 unità isopreniche, come β-cariofillene e l'α-umulene.

In *C. sativa* sono circa 200 e costituiscono l'1-3% del peso secco della pianta e il 10-20% del contenuto dei tricomi ghiandolari, ma essendo volatili, vengono persi anche semplicemente a causa di elevate temperature, del tempo atmosferico, della conservazione e dei processi industriali. I monoterpeni, sebbene siano i più abbondanti, a seguito dei processi di essiccazione, estrazione e conservazione, calano moltissimo in quantità, facendo allora prevalere i sesquiterpeni (Russo, 2011).

Per la pianta la loro funzione è quella protettiva nei confronti di patogeni come funghi, batteri e insetti, ma anche nei confronti degli stress ambientali. Tale protezione avviene sinergicamente con i fitocannabinoidi, infatti monoterpeni e sesquiterpeni donando viscosità e collosità alla resina permettono di intrappolare gli insetti, mentre i fitocannabinoidi acidi agiscono proprio come insetticidi (Sirikantaramas, et al., 2005; Russo, 2011).

Per l'uomo invece l'importanza dei terpeni è legata sicuramente all'aromaticità, sono infatti i responsabili dell'aroma di *C. sativa* e tra tutti, i più importanti da questo punto di vista, sono monoterpeni come α-pinene, β-pinene, D-limonene, β-mircene e β-phellandrene. L'altra grande importanza dei terpeni per l'uomo è rappresentata dall'effetto entourage: terpeni e terpenoidi, ovvero terpeni in cui uno o più atomi di carbonio sono legati ad atomi diversi, come l'ossigeno, agiscono in sinergia con i fitocannabinoidi (Russo, 2011) potenziandone l'attività ed aumentandone la permeabilità. In effetti, è stato dimostrato come una concentrazione di terpenoidi maggiore dello 0,05% nei prodotti ad uso terapeutico provochi un aumento dell'effetto farmacologico dei fitocannabinoidi (Kuttan, et al., 2017). Secondo i risultati di vari studi randomizzati controllati sull'uomo, i terpenoidi hanno un effetto diretto sul cervello paragonabile a quello del THC, con utilità nella terapia del dolore o dei sintomi della sclerosi multipla (Russo, et al., 2006; Huestis, 2007). L'utilità dei terpeni e dei terpenoidi è dovuta al fatto che, essendo molecole lipofile, sono capaci di attraversare non solo le membrane cellulari, ma anche l'importante e molto selettiva barriera ematoencefalica.

1.4.3.1. Estrazione, analisi e metabolomica dei terpeni

Vista la volatilità dei terpeni, è importante prestare attenzione alle perdite che possono essere indotte dal calore nelle fasi di estrazione e di essiccazione.
La distillazione in corrente di vapore acqueo è la tecnica estrattiva preferibile, in quanto la pianta viene utilizzata direttamente allo stato fresco, evitando così perdite di terpeni con il processo di essiccazione. Inoltre, la temperatura del vapore acqueo permette di vaporizzare e trascinare con sé solo i terpeni, lasciando i fitocannabinoidi nella porzione vegetale utilizzata, in quanto essi hanno temperature di ebollizione maggiori. L'olio essenziale che si ottiene viene facilmente separato dall'acqua per via della densità inferiore rispetto ad essa e viene purificato ulteriormente con un'altra distillazione, ottenendo un prodotto con purezza del 99% e contenente fino a 100 diversi possibili terpeni.
L'estrazione con fluido supercritico è un'altra possibile tecnica estrattiva, ma offre sia svantaggi che vantaggi. Viene sconsigliata perché porta all'ottenimento di un estratto con profilo terpenico diverso rispetto a quello originario della pianta, infatti, vengono persi i monoterpeni semplici e vengono concentrati i monoterpeni alcolici, eteri, chetonici e i sequiterpeni (Sexton, et al., 2018). Viene invece consigliata perché permette di ottenere una resa in olio essenziale maggiore rispetto alla resa data dalla distillazione in corrente di vapore, per via del fatto che utilizzando temperature minori avvenga in minor quantità la degradazione dei terpeni termolabili (Sexton, et al., 2018). La tecnica prevede l'uso di anidride carbonica per fattori come la sua atossicità, l'affinità con le molecole apolari come appunto i terpeni, la facilità di smaltimento, il basso costo, e la facilità di utilizzo, perché raggiunge lo stato supercritico a 31°C e 74 bar, condizioni di temperatura e pressione facili da creare, e ritorna allo stato gassoso in condizioni ambientali, permettendone un facile allontanamento e il recupero.

Per fini esclusivamente analitici, la tecnica di analisi preferibile è la microestrazione in fase solida dello spazio di testa. Per l'analisi qualitativa si consiglia invece l'uso della gascromatografia, con, come detector, lo spettrometro di massa (GC-MS), mentre, per l'analisi quantitativa, si consiglia la gascromatografia con il detector a ionizzazione di fiamma (GC-FID).

La metabolomica offre informazioni sull'attività metabolica della pianta in base a fattori ambientali quali stress biotici o abiotici, come cambiamenti climatici, apporto idrico, presenza di pesticidi, qualità del suolo, temperatura, altitudine, quantità di radiazioni ultraviolette: *C. sativa* è abbondantemente influenzata da questi fattori, infatti, la produzione di metaboliti secondari può subire notevoli variazioni. Inoltre, si è osservato, ad esempio, come la quantità di metaboliti prodotti aumenti con l'aumentare della luce, ma diminuisca con l'aumentare della fertilità del suolo (Langenheim, 1994). Tuttavia, in base alle conoscenze attuali resta impossibile prevedere correttamente l'effetto sulla produzione di terpeni (Fischedick, et al., 2010).

1.4.4. Fitocannabinoidi

I fitocannabinoidi sono una classe di terpenofenoli costituiti da 21 atomi di carbonio (o 22 nel caso delle forme carbossilate), hanno quindi una struttura terpenofenolica perché originano dall'unione tra un gruppo alchil-resorcinolico e un gruppo terpenico. I principali, ad esempio, sono formati da un gruppo penta-resorcinolico legato ad un gruppo monoterpenico para-orientato, ossia in relazione 1,4 con il gruppo resorcinolico (Hanuš, et al., 2016).

È importante utilizzare il termine fitocannabinoidi e non il termine generale cannabinoidi per indicare questa classe di composti, in quanto esistono i fitocannabinoidi, ovvero i metaboliti secondari della pianta, ma esistono anche gli endocannabinoidi, molecole segnale dell'organismo umano, e i fitocannabinoidi sintetici, quelli quindi prodotti per sintesi chimica in laboratorio.

Costituiscono fino al 10-30% del peso secco della pianta e sono più di 100, ma vengono distinti in 11 chemiotipi principali: (-)-trans-Δ^9-tetraidrocannabinolo (Δ^9-THC, anche comunemente indicato come THC), (-)-trans-Δ^8-tetraidrocannabinolo

(Δ^8-THC), cannabigerolo (CBG), cannabicromene (CBC), cannabidiolo (CBD), cannabindiolo (CBND), cannabielsoina (CBE), cannabiciclolo (CBL), cannabinolo (CBN), cannabitriolo (CBT) e chemiotipo miscellaneo (ElSohly, et al., 2005).

I fitocannabinoidi originano dall'acido cannabigerolico (CBGA), molecola ottenuta dall'alchilazione dell'acido olivetolico con il geranilpirofosfato (Russo, 2011).
A partire dal CBGA per azione di enzimi ossidoreduttasi, come il THCA-sintasi, il CBDA-sintasi e il CBCA-sintasi, si formano fitocannabinoidi in forma acida come l'acido tetraidrocannabinolico (THCA), l'acido cannabidiolico (CBDA) e l'acido cannabicromenico (CBCA) (Taura, et al., 2007).
I fitocannabinoidi acidi, grazie ad una decarbossilazione innescata dal calore, quindi ad una reazione non enzimatica, vengono convertiti nei corrispondenti derivati neutri, come il THC, il CBD, il CBC (Kimura, et al., 1970). Tale reazione non può quindi avvenire con la sola assunzione da parte dell'uomo di materiale vegetale fresco di *C. sativa* (Raikos, et al., 2014).
A partire da THCA e THC con una degradazione ossidativa si ottengono invece l'acido cannabinolico (CBNA) e il CBN; a partire da CBDA e CBD con una degradazione ossidativa si ottengono l'acido cannabindiolico (CBNDA) e il CBND (ElSohly, et al., 2005). Tutti gli altri fitocannabinoidi derivano da riarrangiamenti degli altri tramite reazioni di ciclizzazione, di insaturazione, di ossidazione e altre (ElSohly, et al., 2005).
I fitocannabinoidi sono composti da tre parti: la catena isoprenilica, il gruppo resorcinolico e la sua catena laterale:

- La catena isoprenilica può differire per il numero di unità isopreniche, quindi può essere monoterpenica, come nella maggior parte dei fitocannabinoidi, o sesquiterpenica; può essere lineare, come in CBG, monociclica, come in CBD e THC, o biciclica, come in CBL. Inoltre, a seconda dell'eventuale presenza di un ponte di ossigeno tra la catena isoprenilica e la parte resorcinolica, e in base alla posizione del ponte, si distinguono il chemiotipo CBC, che deriva da precursori isoprenilici lineari, e i chemiotipi THC, CBE e il miscellaneo cannabifurano (CBF), che derivano da precursori monociclici.

- Il gruppo resorcinolico può differire per la presenza del gruppo carbossilico, infatti, se presente, si ottengono i fitocannabinoidi acidi, ma se assente, si ottengono i fitocannabinoidi neutri. Il gruppo resorcinolico può essere legato alla catena isoprenilica da un legame C-C o da un legame C-O addizionale tra un carbonio della catena isoprenilica e uno dei due atomi di ossigeno fenolici della parte resorcinolica. In presenza del gruppo carbossilico dei fitocannabinoidi acidi, si possono formare i fitocannabinoidi di tipo 1 se il gruppo carbossilico è adiacente al gruppo ossidrilico libero, come l'acido Δ^9-tetraidrocannabinolico A (THCA-A), o i fitocannabinoidi di tipo 2 se l'ossigeno adiacente al gruppo carbossilico è impegnato in un legame con la catena resorcinolica, come l'acido Δ^9-tetraidrocannabinolico B (THCA-B) (Hanuš, et al., 2016). Un'altra differenza riguarda l'alchilazione dell'ossigeno fenolico, che frequentemente avviene con un gruppo metilico, oppure avviene l'ossidazione a idrochinone o al resorcinolo idrossilato (Hanuš, et al., 2016).
- Infine, il tipo di sostituzione sul gruppo resorcinolico è quasi per tutti i fitocannabinoidi 1,4 con la catena isoprenilica e la catena alchilica laterale in relazione para, mentre solo pochi appartengono alla serie anomala in cui i due gruppi sostituenti sono in relazione orto (1,2) (Hanuš, et al., 2016). Il sostituente chetidico del gruppo resorcinolico è una catena alchilica lineare che generalmente è costituita da un numero dispari di atomi di carbonio, quindi, quando gli atomi sono cinque si hanno gli olivetoidi, e questi sono i più abbondanti, quando sono tre si hanno i varidinoidi e quando è uno si hanno gli orcinoidi.

1.4.3.2. Estrazione, analisi e metabolomica dei fitocannabinoidi

Per mantenere intatti i metaboliti in termini di tipologia, quindi, per ottenere un estratto ricco in fitocannabinoidi acidi, occorre eseguire un'estrazione sulla droga fresca a temperatura ambiente. Al contrario, per ottenere un estratto ricco in fitocannabinoidi neutri, occorre eseguire un'estrazione a temperature maggiori di 80°C per alcune ore oppure eseguire un preventivo riscaldamento in stufa alla temperatura di 120°C per un'ora allo scopo di decarbossilare totalmente i

fitocannabinoidi. In questi ultimi due casi, tuttavia, sussiste il grande problema della perdita per evaporazione e/o decomposizione dei metaboliti estratti.
L'estrazione solido-liquido è la tecnica migliore, e utilizza un solvente organico come etanolo al 96% (v/v), perché i fitocannabinoidi sono molecole lipofile, affini a solventi apolari. È possibile utilizzare anche la variante del Soxhlet ma solo quando non è necessario recuperare i fitocannabinoidi acidi (Pandohee, et al., 2015; Wianowska, et al., 2015); con l'estrattore Soxhlet vengono eseguiti più cicli estrattivi automaticamente sullo stesso campione permettendo un'estrazione più esaustiva.
In alternativa all'etanolo si esegue un'estrazione alla temperatura di 110 °C in oli come olio d'oliva, olio di semi, olio di trigliceridi a media catena. In questo caso le rese di estrazione sono elevate, e si ottiene un estratto con rapporto di 70:30 tra fitocannabinoidi acidi e i corrispondenti derivati neutri (Citti, et al., 2016).
L'estrazione con fluido supercritico rappresenta il metodo più ecologico e anche in questo caso prevede l'uso di CO_2 per le stesse ragioni di quanto visto per l'estrazione dei terpeni. Tuttavia, per i fitocannabinoidi si utilizza anche un co-solvente come l'etanolo, che raggiunge lo stato supercritico a 50°C e 155 bar. Il problema è che l'etanolo si trova allo stato liquido a pressione atmosferica, e non allo stato gassoso come l'anidride carbonica, e quindi viene raccolto assieme ai fitocannabinoidi estratti e questo rende obbligatoria una purificazione con il processo di "winterizzazione": si mantiene l'estratto etanolico per 24 ore alla temperatura di -20 °C, dopodiché si filtra l'estratto rimuovendo le parti solide costituite dalle impurezze grasse e si ottiene l'estratto purificato. Con l'uso del co-solvente la resa in fitocannabinoidi passa dal 40% al 90% (Omar, et al., 2013).

La cromatografia su strato sottile (TLC) è il metodo più veloce e pratico per la determinazione analitica dei fitocannabinoidi, ma è meno sensibile e accurato, quindi, viene utilizzata solo come metodo preliminare allo scopo di verificare la presenza o l'assenza dei fitocannabinoidi. Si utilizza la TLC in fase inversa, ossia con fase stazionaria apolare costituita da gel di silice funzionalizzato con catene a 18 atomi di carbonio e con fase mobile costituita da solventi polari come acqua, metanolo e acido acetico (Fischedick, et al., 2009; German-pharmacopoeia, 2018).

Per l'analisi qualitativa si utilizza la gascromatografia con, come detector, uno spettrometro di massa (GC-MS), che separa le molecole in base al rapporto massa su carica (m/z).
Il metodo quantitativo dell'Unione Europea impiegato dalle forze dell'ordine per verificare la concentrazione di THC nei campioni (Reg. (EU) 2017/1155) consiste nell'estrazione dei fitocannabinoidi in esano e nella successiva analisi con gascromatografia con detector a ionizzazione di fiamma (GC-FID). La GC-FID è una tecnica molto utilizzata, e prevede come fase stazionaria una colonna funzionalizzata con fenil-metil-silossano al 5% lunga 25-30 m, e utilizza come gas carrier elio.
Per la gascromatografia, sia con MS che con FID, il campione deve essere riscaldato a 300°C per consentire di portare allo stato gassoso i fitocannabinoidi, ma questa temperatura provoca la decarbossilazione dei composti acidi ottenendo i derivati neutri, quindi, il segnale che si ottiene per ogni molecola neutra, come ad esempio il THC, corrisponde alla somma del suo precursore acido, come il THCA, e della forma neutra ottenuta, quindi il THC stesso.
Per eliminare il problema si può condurre preventivamente la derivatizzazione dei fitocannabinoidi acidi, quindi, si fanno reagire con molecole apposite a livello del gruppo carbossilico allo scopo di impedire la decarbossilazione. Tuttavia, la derivatizzazione non è consentita dal metodo comunitario (Reg. (EU) 2017/1155).
La cromatografia liquida ad alte prestazioni HPLC in fase inversa (RP-HPLC) è la tecnica preferibile per la determinazione dei fitocannabinoidi, e prevede l'uso di una fase stazionaria apolare formata da catene idrofobiche a 18 atomi di C e una fase mobile polare formata da una miscela di acqua e un solvente organico come l'acetonitrile. I detector più comunemente impiegati sono UV, DAD e MS. Il primo detector sfrutta la capacità di assorbimento delle radiazioni UV dei gruppi cromofori dei fitocannabinoidi, ossia innanzitutto del gruppo resorcinolico ed eventualmente dei gruppi aromatici costituenti la parte isoprenilica; si utilizza la lunghezza d'onda di 228 nm, che permette di ottenere buoni picchi di assorbimento sia da parte di fitocannabinoidi acidi che di fitocannabinoidi neutri. Il secondo detector permette di utilizzare più lunghezze d'onda, ottenendo molti più segnali di

assorbimento. Il terzo detector supera i limiti pratici dei primi due, infatti, ha una maggior sensibilità in termini di concentrazione ed è più accurato e preciso.

Per quanto riguarda la metabolomica, al contrario di quanto detto per i terpeni, le concentrazioni ed i rapporti dei fitocannabinoidi possono essere previsti in base ai fattori ambientali che influenzano la vita della pianta.

1.5. Utilizzo alimentare, cosmetico e medicinale

Gli utilizzi di *C. sativa* sono moltissimi, vanno dalla produzione di fibra e di carta, all'utilizzo in bioedilizia per la formazione di pannelli, alla produzione di bioplastiche, al florovivaismo, all'utilizzo per la produzione di olio a fine alimentare e all'utilizzo in ambito cosmetico e medicinale.

1.5.1. Uso alimentare

Il seme di *C. sativa* contiene proteine ad alto valore biologico (circa il 34% del peso), sali minerali, vitamina E ed un olio (circa il 32% del peso) ricco di acidi grassi insaturi ed essenziali quali omega-6 ed omega-3 in rapporto di 3:1; questo è il rapporto che permette all'organismo di sfruttarli al meglio, ed è stato studiato che basta assumere un cucchiaio di olio di semi di canapa al giorno per soddisfare le necessità giornaliere di queste molecole estremamente importanti per l'organismo (Fiorini, et al., 2019). Gli acidi grassi omega 3 e omega 6 infatti entrano nella costituzione delle membrane cellulari, permettono di ottenere eicosanoidi, riducono i livelli plasmatici di trigliceridi, abbassano la concentrazione di colesterolo LDL e aumentano quella di colesterolo HDL nel sangue. In particolare, gli eicosanoidi derivati degli omega-3 come l'acido eicosapentaenoico (EPA) e l'acido docosaesaenoico (DHA) hanno effetto antinfiammatorio e antiaggregante, mentre, degli eicosanoidi derivati dagli omega-6 solo quelli che si comportano come gli omega 3 come l'acido gamma-linolenico (GLA) hanno ruolo benefico, mentre altri hanno un ruolo pro-infiammatorio e aggregante, come l'acido arachidonico (AA).

Dopo la produzione di olio, i residui della spremitura vengono trasformati in farina, la quale oltre ad essere ricca di fibre, proteine e sali minerali, ha la peculiarità di essere priva di glutine ed è adatta, dunque, all'utilizzo da parte di soggetti celiaci.

1.5.2. Uso cosmetico

La cosmetica sfrutta l'olio di semi di canapa per ottenere un'ampia gamma di prodotti dall'effetto principalmente riequilibrante, emolliente ed idratante della pelle normale e mista. I prodotti cosmetici a base di questo olio sfruttano gli acidi grassi essenziali, i fitocannabinoidi aggiunti (in particolare il CBD), e molecole antiossidanti. Gli acidi grassi essenziali hanno proprietà emollienti e nutrienti in quanto arricchiscono di lipidi lo strato corneo della pelle formando una barriera contro la perdita d'acqua e vengono impiegati per la sintesi di ceramidi. Il CBD invece è una molecola lipofila che vanta di proprietà idratanti e seboregolatrici perché aiuta a trattenere acqua nella pelle e ristabilisce la funzionalità del film idrolipidico che ne impedisce la perdita per evaporazione. Le molecole dall'attività antiossidante sono ad esempio polifenoli e flavonoidi, che vengono sfruttati per contrastare i radicali liberi dell'ossigeno, i quali determinano danni ai tessuti cutanei, facendo sì che la pelle sembri sempre meno giovane. Si possono ottenere così detergenti per affinità, creme viso e corpo idratanti, balsami e detergenti per capelli, ma anche prodotti *anti-aging* sfruttando l'effetto antiossidante. Inoltre, essendo che l'olio di semi di canapa è di per sé un prodotto molto penetrante, viene utilizzato nella formulazione di oli abbronzanti e oli da massaggio.

1.5.3. Uso medicinale

1.5.3.1. Normativa di riferimento

C. sativa in Italia è stata collocata nella seconda delle cinque tabelle allegate al Testo unico delle sostanze stupefacenti e psicotrope, e in tale tabella (detta Tabella II), il cui ultimo aggiornamento risale alla Legge 16 maggio 2014, n. 79, si trovano i prodotti *Cannabis foglie e infiorescenze*, *Cannabis olio* e *Cannabis resina*.
C. sativa è stata collocata anche nella quinta di queste cinque tabelle (detta Tabella dei medicinali), il cui ultimo aggiornamento risale al DM 29 luglio 2022. Si trova

nella sezione B della Tabella dei medicinali, quella contenente i medicinali soggetti a prescrizione medica non ripetibile. Nel dettaglio, si trovano tre prodotti derivati da *C. sativa*: “delta-9-tetraidrocannabinolo”, “trans-delta-9-tetraidrocannabinolo o Dronabinol” e “medicinali di origine vegetale a base di Cannabis (sostanze e preparazioni vegetali, inclusi estratti e tinture)”. Questi ultimi sono inclusi nell’allegato III-bis del Testo unico delle sostanze stupefacenti e psicotrope per via della loro forte attività analgesica, e pertanto hanno modalità prescrittive semplificate perché impiegabili nella terapia del dolore; si parla di medicinali a base di cannabis per il trattamento sintomatico di supporto ai trattamenti standard.

Dal 2006 in Italia i medici possono prescrivere preparazioni magistrali, da far allestire da un farmacista in farmacie autorizzate, a base di sostanze attive ottenute dalle infiorescenze di *C. sativa* essiccate e macinate. Le preparazioni magistrali includono prodotti da utilizzare facendo decotti o che sono da assumere per inalazione con un vaporizzatore.
Per la realizzazione di queste preparazioni magistrali venivano importati in Italia solo i prodotti commercializzati dall’Office of Medicinal Cannabis (Organismo Olandese per la Cannabis), ma dal 2016 anche l’Italia ha avviato la sua produzione di *C. sativa* per uso medico nello Stabilimento Chimico Farmaceutico Militare di Firenze (SCFM) per garantire l’accesso alle terapie a costi adeguati e in modo altrettanto sicuro.
Attualmente in Europa si possono coltivare legalmente 68 piante di *C. sativa*, tutte varietà in cui la concentrazione di THC nelle infiorescenze è minore dello 0,3% nel prodotto finito e minore dello 0,6% quando la pianta si trova ancora nel campo. Le varietà di *C. sativa* conformi alle direttive europee al momento prodotte in Italia nello SCFM sono Cannabis FM2 (con concentrazione di THC del 5-8% e di CBD del 7,5-12%) e Cannabis FM1 (con concentrazione di THC del 13-20% e di CBD minore dell’1%).
In Italia può essere prescritta Cannabis ad uso medico (DM 9/11/2015) quando le terapie convenzionali o standard sono inefficaci per il trattamento delle seguenti patologie: dolore cronico; dolore cronico associato a sclerosi multipla; dolore cronico associato a lesioni del midollo spinale; nausea e vomito causati da

chemioterapia, radioterapia e terapie per HIV; glaucoma. La prescrizione vale anche per: stimolazione dell'appetito nella cachessia, nell'anoressia, nella perdita dell'appetito in pazienti oncologici o affetti da AIDS e nell'anoressia nervosa; riduzione dei movimenti involontari della sindrome di Gilles de la Tourette.

1.5.3.2 Farmacocinetica e farmacodinamica dei fitocannabinoidi

Via di somministrazione

È stato osservato che la biodisponibilità dei cannabinoidi assunti tramite la via orale è molto bassa (pari al 6-14%) (Huestis, 2007; Lucas, et al., 2018) e viene ulteriormente limitata dall'effetto di primo passaggio. La biodisponibilità utilizzando la via inalatoria è invece più alta (pari al 10-31%) e l'assorbimento è più rapido, e pertanto il metodo di assunzione preferibile quando l'effetto richiesto deve essere rapido è quello della vaporizzazione, oppure quello che sfruttala via oro-mucosale. Un'altra via di assunzione utilizzabile è quella sublinguale, che permette di ottenere risultati farmacocinetici intermedi tra quelli della via orale e quelli della via oro-mucosale.

Distribuzione

Il THC si distribuisce rapidamente nei tessuti, specialmente in quelli molto vascolarizzati. È importante considerare che il passaggio del metabolita in una donna in gravidanza non viene bloccato dalla barriera ematoplacentare, pertanto, può raggiungere il feto; il metabolita riesce anche ad entrare nella composizione del latte materno, rappresentando un sito di esposizione per il neonato (Karschner, et al., 2011).

Metabolismo

I cannabinoidi vengono metabolizzati principalmente nel fegato, dagli enzimi citocromiali: il THC viene idrossilato nel C9 dall'isoforma 2C9 del CYP450 ottenendo l'11-idrossi-Δ-9-tetraidrocannabinolo (11-OH-THC), una molecola fortemente psicoattiva, e il CBD viene convertito in 11-idrossi-Δ-9-tetraidrocannabinolo dall'isoforma 2C19 del CYP540. Per via del fatto che il metabolismo sfrutta citocromi anche impiegati nel metabolismo di xenobiotici molto usati come antibiotici macrolidi, antimicrobici, calcio antagonisti, inibitori della proteasi HIV e inibitori della pompa protonica, è possibile che avvengano interazioni con l'uso concomitante di questi farmaci (Sachse-Seeboth, et al., 2009).

Escrezione

I metaboliti della cannabis vengono escreti con le urine tramite coniugazione con acido glucuronico, con le feci, e si è osservata la loro presenza anche nel latte materno.

Endocannabinoidi

Gli endocannabinoidi sono neuromodulatori eicosanoidi che intervengono nei meccanismi di modulazione del dolore, dell'infiammazione, dell'appetito e della memoria: nel complesso sono importantissimi regolatori dell'omeostasi del corpo, e i fitocannabinoidi ne mimano l'effetto.

I principali endocannabinoidi sono l'anandamide (AEA) e il 2-arachidonoilglicerolo (2-AG), i quali vengono sintetizzati all'occorrenza da derivati dell'acido arachidonico con stimolo indotto dalla depolarizzazione e sono situati nella membrana cellulare, hanno un effetto locale di tipo autocrino o paracrino e una breve vita.

I recettori per gli endocannabinoidi CB1 e CB2 sono recettori a sette domini transmembrana accoppiati alle proteine G (GPCR) (recettori metabotropici).

I CB1 si concentrano nel sistema nervoso centrale ma si trovano anche nel sistema nervoso periferico: modulano gli effetti psicoattivi dei cannabinoidi e inibiscono il rilascio dei neurotrasmettitori GABA e/o glutammato (il GABA crea un'iperpolarizzazione ossia un potenziale inibitorio mentre il glutammato crea una depolarizzazione ossia un potenziale eccitatorio). I CB2 si concentrano in cellule e tessuti del sistema immunitario, specialmente nei linfociti B e nelle cellule NK, e modificano la risposta infiammatoria ed immunitaria, ma si trovano anche in piccole quantità in cuore, polmoni, testicoli, ovaio, midollo osseo, timo, utero e sistema nervoso centrale a livello delle cellule della glia, ossia cellule capaci di liberare citochine proinfiammatorie, prostaglandine ed amminoacidi eccitatori: l'attivazione del recettore in queste cellule inibisce il rilascio di citochine con un effetto antinfiammatorio.

Normalmente il meccanismo di trasmissione nervosa consiste nei seguenti passaggi:

1. un potenziale d’azione provoca una depolarizzazione sul terminale assonico del neurone presinaptico;
2. la depolarizzazione fa aprire canali per il Ca^{++};
3. il Ca^{++} si lega a proteine regolatrici inducendo l'esocitosi del neurotrasmettitore;
4. il neurotrasmettitore si lega ai recettori di membrana presenti sul neurone postsinaptico;
5. il legame scatena la risposta, che solitamente consiste nell’apertura o chiusura di canali ionici, generando quindi un potenziale che in base alle variazioni ioniche può essere:
   a. depolarizzante (eccitatorio);
   b. iperpolarizzante (inibitorio).

Gli endocannabinoidi agiscono invece come messaggeri retrogradi a livello del SNC (Wilson, et al., 2002), retrogradi perché sono i neuroni postsinaptici che inducono il rilascio di questi neurotrasmettitori, influenzando i recettori dei neuroni presinaptici, e la trasmissione retrograda come nel caso dei cannabinoidi può inibire i neuroni presinaptici dal rilascio di neurotrasmettitori aggiuntivi, modulando l’attività neuronale. Il meccanismo è dunque il seguente:

1. un potenziale d’azione provoca una depolarizzazione sul terminale assonico del neurone postsinaptico;
2. la depolarizzazione fa aprire canali per il Ca^{++};
3. il Ca^{++} attiva gli enzimi responsabili della sintesi degli endocannabinoidi;
4. gli endocannabinoidi vengono esocitati;
5. gli endocannabinoidi si legano al recettore CB1 presente sul neurone presinaptico (Wilson, et al., 2001);
6. il legame determina la chiusura dei canali del Ca^{++} nel neurone presinaptico con un effetto inibitorio;
7. viene dunque inibito il rilascio del neurotrasmettitore (Wilson, et al., 2002):
   a. GABA: soppressione dell’inibizione indotta dalla depolarizzazione, quindi, attivazione del neurone postsinaptico perché il GABA,

neurotrasmettitore inibitorio, non viene secreto, e dunque, viene a meno l'inibizione ma avviene l'attivazione del segnale nervoso;

b. glutammato: soppressione dell'eccitazione indotta dalla depolarizzazione, quindi, inibizione del neurone postsinaptico perché il glutammato, neurotrasmettitore eccitatorio, non viene secreto, e dunque, viene a meno l'eccitazione ma avviene l'inibizione del segnale nervoso.

Il dolore acuto è un dolore di durata limitata, causato da un danno o da una patologia, ma quando non viene ridotto, o se persiste lo stimolo doloroso, diventa dolore persistente, e se, nonostante la risoluzione del danno, il sintomo doloroso dovesse persistere o peggiorare, il dolore diventa dolore cronico o neuropatico. Il dolore cronico è una malattia molto impattante sulla qualità della vita.
In base alle conoscenze attuali, sebbene gli endocannabinoidi intervengano sempre in presenza di stimoli dolorosi, l'uso dei fitocannabinoidi nel dolore acuto non si è dimostrato utile, mentre recentemente la National Academies of Science, Engineering, and Medicine ha evidenziato l'efficacia dell'uso di fitocannabinoidi nel trattamento del dolore cronico (neuropatico) dell'adulto, in particolare in caso di tumori, fibromialgia, artrite reumatoide, sclerosi multipla (National Academies of Sciences, 2017), questo per via degli effetti neuroprotettivi ed antinfiammatori. L'effetto analgesico dei fitocannabinoidi è esplicato attraverso la stimolazione dei propri recettori CB1 e CB2, con lo stesso meccanismo degli endocannabinoidi:

- inibizione della secrezione di GABA e di glutammato;
- attivazione di sistemi antiinfiammatori;
- attivazione ad un livello spinale dei recettori delta e K degli oppiacei (gli oppioidi bloccano il trasferimento del segnale dolorifico dal midollo spinale al cervello);
- attivazione da parte di vie che coinvolgono la sostanza grigia periacqueduttale di interneuroni inibitori che inducono il rilascio di cefaline, le quali, a livello presinaptico riducono il rilascio di sostanza P e a livello postsinaptico producono un potenziale graduato inibitorio che inibisce la trasmissione nervosa con meccanismo simile a quello della morfina.

I principali fitocannabinoidi finora presi in questione sono stati il THC e il CBD. Il THC è un agonista parziale dei recettori CB1 e CB2. Il CBD è meno affine a questi recettori e per lo più rallenta le proteine di membrana che trasportano i fitocannabinoidi per la loro degradazione prolungando l'attivazione del recettore CB1 da parte del THC, ma essendo un antagonista non competitivo dei recettori CB1 e CB2, riduce gli effetti avversi del THC sull'umore.

Il CBD è un agonista inverso dei recettori CB2 delle cellule della glia: gli agonisti di tali cellule inducono la produzione di sostanze pro-infiammatorie, ossia, citochine pro-infiammatorie, ciclossigenasi e lipossigenasi, ma gli agonisti inversi inducono la riduzione della sintesi di tali sostanze, e quindi allevia il dolore con effetto antinfiammatorio (Merighi, et al., 2010): il CBD ha un importante ruolo nel dolore cronico e nella neuroinfiammazione, (Klein, 2005; Borgelt, et al., 2013; Baron, 2018) e non avendo effetto psicoattivo non causa dipendenza.

1.5.3.3. Casi di utilizzi in ambito terapeutico

Spasticità muscolare

La spasticità è una patologia che consiste in un aumento anomalo del tono muscolare, capace di rendere i muscoli rigidi e di creare spasmi muscolari involontari, ed è dovuta alla mancata inibizione dei riflessi spinali. I sintomi sono rigidità muscolare, affaticamento muscolare, spasmi muscolari isolati incontrollabili o spasmi involontari in serie, riflessi tendinei esagerati, contrattura permanente dei muscoli e dolore derivante da muscoli tesi o da spasmi. La malattia è provocata da lesioni alle cellule del sistema nervoso sul midollo spinale o sull'encefalo insorte per colpa di traumi, Sclerosi Multipla (SM), ictus, paralisi cerebrale, Sclerosi Laterale Amiotrofica (SLA), malattia di Krabbe. È pertanto comune nei soggetti che soffrono di: malattie neurodegenerative come SM, SLA, e Paralisi Cerebrale Spastica (PCI); problematiche causate da danni sul sistema vascolare con ictus cerebrale e trauma cranico; traumi provocati dalla mancata ossigenazione dei tessuti durante il parto; problematiche della prima infanzia insorte in gravidanza per via di toxoplasmosi o rosolia (spasticità cerebrale infantile); traumi fisici come trauma cranico e spinale.

I recettori CB1 e CB2 dei cannabinoidi sono utili nel controllo della spasticità da SM (Pryce, et al., 2014), infatti, fitocannabinoidi ed endocannabinoidi, inibendo il rilascio di glutammato, inducono un effetto inibitorio dell'eccitabilità neuronale, riuscendo allora a limitare gli spasmi.

Epilessia

L'epilessia è una malattia neurologica frequente nella popolazione ed è caratterizzata dall'insorgenza di crisi epilettiche (o comiziali). Queste crisi sono eventi provocati da scariche elettriche anomale, ad alta frequenza, a livello della corteccia cerebrale, prodotte da gruppi di neuroni per colpa di ipereccitazione causata da tre possibili eventi: aumentata attività glutammatergica, ridotta attività GABAergica, alterazione dei canali ionici (Reddy, 2016). In effetti, i farmaci antiepilettici bloccano l'azione dell'acido glutammico, stimolano l'azione del GABA o modulano i canali ionici alterati. Ci sono più studi in vivo che confermano la validità dell'uso di fitocannabinoidi nel trattamento dell'epilessia, e hanno permesso l'approvazione negli Usa e in Europa di un farmaco a base di CBD (Epidiolex) per il trattamento delle crisi epilettiche resistenti nella sindrome di Lennox-Gastaut e nella sindrome di Dravet. Sembra infatti che il CBD in terapia aggiuntiva ad altri farmaci antiepilettici riduca la frequenza delle convulsioni (Porter, et al., 2013), sembra che un rapporto CBD:Δ9-THC di 20:1 abbia efficacia anticonvulsivante tale da permettere miglioramento del sonno, dell'umore e delle abilità motori (Treat, et al., 2017) e sembra che l'uso di CBD non mini alla sicurezza di bambini e adolescenti nel trattamento terapeutico dell'epilessia. Il meccanismo d'azione di questo fitocannabinoide si basa sull'inibizione dell'ipereccitabilità neuronale perché riesce a modulare i canali del calcio dall'alterata attività (TRPV, T-Type Ca^{++}).

Nausea e vomito

Nausea e vomito sono meccanismi adattativi dell'organismo che rappresentano ad esempio la conseguenza diretta di trattamenti chemioterapici, radioterapici e a base di oppioidi (Sharkey, et al., 2014), e si manifestano con l'attivazione di recettori serotoninergici e dopaminergici presenti nel centro del vomito e nel tratto gastrointestinale, ma sono coinvolti anche recettori acetilcolinergici, istaminergici, degli oppioidi e dei cannabinoidi (Todaro, 2012). In alcuni studi preclinici è stata dimostrata l'efficacia del Δ9-THC nel ridurre nausea e vomito tramite l'inibizione dell'attivazione neuronale indotta dagli stimoli emetici in alcune regioni del complesso vagale dorsale (Van Sickle, et al., 2003); uno studio clinico randomizzato in doppio cieco ha dimostrato l'efficacia del Nabiximols, estratto contenente CBD e THC, nella prevenzione di nausea e vomito indotti da chemioterapia (CINV) senza lo sviluppo di gravi effetti avversi (Duran, et al., 2010; Mersiades, et al., 2018).

Anoressia

L'anoressia nervosa è un disturbo alimentare in cui i soggetti rifiutano di nutrirsi per diverse cause e motivi. La maggior parte degli studi su cannabinoidi ed anoressia sono stati svolti su pazienti affetti da HIV, in quanto fino al 25% di queste persone soffre di anoressia (Badowski, et al., 2018). Gli endocannabinoidi regolano l'appetito attraverso vie biochimiche che coinvolgono l'ipotalamo, il rombencefalo, il sistema limbico, il tratto gastrointestinale e il tessuto adiposo. Ad esempio, i recettori CB1 nell'ipotalamo e nel sistema limbico partecipano al circolo limbico della ricompensa al cibo, e il nabilone, un derivato sintetico del Δ-9-THC che attualmente costituisce anche il farmaco Cesamet utilizzato per il trattamento della CINV, favorisce il consumo di carboidrati e il consumo calorico. In pazienti oncologici trattati con Dronabinol si è osservato il miglioramento nel gusto (Brisbois, et al., 2011; Kleckner, et al., 2019) ed essendo che l'alterazione del gusto condiziona la mancanza di appetito, questo rappresenta un fenomeno molto positivo.

Glaucoma

Il glaucoma è una malattia del nervo ottico provocata dall'aumento della pressione intraoculare (IOP) a seguito di danni al tessuto. Infatti, i trattamenti che abbassano la IOP riducono il rischio d'insorgenza, il danno e rallentano la progressione del danno preesistente, che altrimenti potrebbe provocare anche la riduzione della vista fino alla cecità. L'attivazione dei recettori CB1 da parte dei cannabinoidi riduce i valori di IOP (Song, et al., 2000; Porcella, et al., 2001; Chien, et al., 2003), ma i fitocannabinoidi essendo anche neuroprotettori prevengono la morte delle cellule della retina proteggendo dall'insorgenza del danno alla base del glaucoma (El-Remessy, et al., 2003; Crandall, et al., 2007).

Disturbi del sonno

Recentemente uno studio osservazionale condotto su 1000 soggetti ha evidenziato un notevole beneficio con l'assunzione di *C. sativa* per contrastare i disturbi del sonno (Bachhuber, et al., 2019), e in generale anche con altri studi volti a valutare l'effetto della pianta per il trattamento di altri disturbi, si è spesso dimostrato un effetto positivo sull'insonnia.

Morbo di Crohn

La malattia di Crohn è una malattia infiammatoria cronica che riguarda la parete di tutto il tratto gastrointestinale e consiste nella formazione di ulcere intestinali. Se non curata adeguatamente, può provocare effetti dannosi come l'insorgenza di stenosi e/o fistole. Le cause sono solo parzialmente conosciute, si pensa in un'insorgenza multifattoriale, costituita dalla somma di eventi quali predisposizione genetica, reazione immunologica esagerata verso certi antigeni e fattori ambientali poco noti. Uno studio preclinico sugli animali ha dimostrato che il THC e il CBD possono limitare l'infiammazione intestinale e la gravità della malattia (Couch, et al., 2018). Uno studio randomizzato controllato su pazienti refrattari alla terapia convenzionale ha dimostrato l'utilità dell'utilizzo degli estratti di *C. sativa* anche sull'uomo per via dell'azione antinfiammatoria, ha dimostrato la possibilità di interrompere l'uso dei farmaci cortisonici in alcuni dei pazienti e ha dimostrato di favorire aumento dell'appetito e miglioramento del sonno (Naftali, et al., 2013).

Sindrome di Tourette

La Sindrome di Gilles de la Tourette è una malattia neuropsichiatrica che consiste nell'emissione di rumori e suoni involontari e incontrollati, e da movimenti del volto e/o degli arti denominati tic fisici motori e tic vocali (fonatori). Le cause sono

ancora sconosciute, ma si pensa che i responsabili siano fattori genetici, neurologici o ambientali.
Molti studi hanno dimostrato che i fitocannabinoidi sono capaci di ridurre i tic motori della sindrome di Tourette (Sandyk, et al., 1988; Moss, et al., 1989), infatti, in Italia (DM novembre 2015), è stata riconosciuta la possibilità di utilizzare *Cannabis* per il trattamento di questa patologia.

1.6. Prodotti stupefacenti e tossicità

Secondo Paolo Ranalli, 2020, le varietà di *C. sativa* ad alto contenuto di THC sono da considerare uno stupefacente perché in grado di modificarne le capacità percettive, emotive, cognitive o motorie, e così come altri stupefacenti possono creare assuefazione, tolleranza e dipendenza.
L'utilizzo della pianta nel mondo è certamente dovuto quindi anche alla sua azione stupefacente di tipo psichedelica, di alterazione della percezione della realtà, dell'ambiente e dell'io: il THC con il suo effetto agonista sui recettori CB1 ha un'azione eutrofizzante ansiolitica, che ne induce l'uso a scopo ricreazionale.

1.6.1 Tipologie di prodotti

La marijuana consiste nelle infiorescenze delle piante femminili di *C. sativa*, cime che vengono raccolte a fine estate e vengono fatte seccare. La concentrazione di THC di questo prodotto è variabile, ma mediamente si aggira attorno al 1-7%, e solo raramente raggiunge concentrazioni alte come il 30%. L'hashish è la resina prodotta dalle infiorescenze delle piante femminili di *C. sativa*, che viene raccolta per strofinamento o con altre tecniche e può anche essere purificata tramite bollitura in acqua e poi modellata in varie forme. La concentrazione di THC mediamente si aggira intorno al 2-12%, ma sono possibili concentrazioni anche del 28%; a basse concentrazioni si parla di forme "dolci", mentre ad alte concentrazioni si parla di forme "forti". L'olio di hashish è un liquido denso di un colore che va dall'ambrato al nero, e deriva dall'estrazione dell'hashish con un apposito solvente apolare che

poi viene allontanato. La concentrazione di THC è molto alta rispetto agli altri prodotti, e mediamente si aggira intorno al 30-70%.
Per quanto riguarda il consumo, la marijuana e l'hashish possono essere fumati, causando però una riduzione della biodisponibilità del THC del 20-50%, possono essere anche utilizzati per preparare bevande come decotti o alimenti come biscotti, e in questo caso la biodisponibilità si riduce del 88-96% e l'assorbimento del THC avviene molto lentamente.

I prodotti a base di *C. sativa* non alterano lo stato d'animo, ma esaltano quello esistente. Dopo 5 minuti dall'assunzione si possono manifestare ansia, irrequietezza ed iperattività, ma velocemente questi sintomi vengono soppiantati da una sensazione di rilassamento mentale, di euforia, di benessere interiore, accompagnati da una sensazione di calore, sudorazione e iperemia congiuntivale. Dopo 15-20 minuti sopraggiunge l'esaltazione della creatività e dell'inventiva, della fantasia, diminuiscono i freni inibitori e si manifestano disturbi delle percezioni, quindi, si avverte leggerezza e alterazione dello spazio circostante. Tra gli effetti c'è il senso di fame dovuto all'ipoglicemia, ma non solo aumenta l'appetito, bensì il cibo viene apprezzato maggiormente, e la fame è accompagnata dalla disidratazione di bocca e gola, sensazione che induce l'aumento della sete. Successivamente insorge la sonnolenza, il sonno è privo di sogni, ma non provoca malessere al risveglio. Nonostante l'assunzione di prodotti a base di *C. sativa* possa alterare le percezioni, il ricordo di quanto accade durante l'effetto della droga non viene rimosso. In caso di sovradosaggio si verificano sonnolenza e confusione, ma non effetti respiratori e cardiovascolari che possano risultare letali.
La sindrome d'astinenza si manifesta con irrequietezza, irritabilità, disturbi del sonno e nausea, tuttavia, tolleranza e dipendenza fisica sono piuttosto limitate. L'assunzione cronica è comunque dannosa per via dell'effetto teratogeno, di riduzione dell'attività del sistema immunitario, di diminuzione della fertilità maschile e della libido.

1.6.2 Tossicità e rischio acuto

A livello fisico *C. sativa* determina leggere alterazioni della frequenza dei battiti cardiaci e della pressione sanguigna, ma si tratta di effetti definibili non pericolosi, mentre gli effetti indesiderati più frequenti sono attacchi di ansia e di panico, disorientamento e confusione. Il rischio più concreto dato dall'assunzione di tale droga è indiretto ed è rappresentato dalla possibilità di causare incidenti, come quelli stradali, ma anche incidenti provocati da comportamenti irresponsabili in generale. Ad ogni modo, l'utilizzo della sola canapa in forma di marijuana o hashish non aumenta il rischio di morte, perché è tendenzialmente impossibile raggiungere una dose letale di THC, sia perché si tratta di una molecola poco tossica, sia perché il corpo tende naturalmente ad eliminare sostanze estranee quando assunte in quantità elevate tramite l'induzione dell'emesi.

1.6.3 Tossicità e rischio cronico

Il quantitativo di THC introdotto fumando una porzione di marijuana o hashish impiega da 5 a 30 giorni ad uscire dal corpo, ma essendo una molecola lipofila si accumula in tessuti e organi grassi dell'organismo, come nel cervello, e l'uso consecutivo ne porta ad un accumulo maggiore che rende plausibile il rischio di gravi effetti secondari a lungo termine. Sembra inoltre che il THC alteri le funzioni del cervello creando una dipendenza.

È stato anche ipotizzato che *C. sativa* causi la manifestazione dei sintomi di psicosi in soggetti che probabilmente la svilupperebbero nel corso della vita, così come la manifestazione della schizofrenia nei soggetti già sovraccaricati, ansiosi e in condizioni di instabilità mentale (Andre, et al., 2016). Infine, l'uso regolare per via inalatoria si è dimostrato in grado di causare una bronchite cronica capace di ridurre la funzionalità polmonare, ma anche modifiche del tessuto che potrebbero diventare la base di un cancro. Tuttavia, essendo che solitamente *C. sativa*, se fumata, viene utilizzata assieme al tabacco, non è stato ancora possibile dimostrare se sia da sola in grado di provocare il cancro, o se sia l'effetto sinergico a quello del tabacco, o se sia solamente il tabacco a provocarlo.

Le controindicazioni assolute all'utilizzo di cannabinoidi includono pazienti di età inferiore ai 25 anni (nei preparati con THC), stato di gravidanza, con anamnesi personale di schizofrenia e con severe problematiche cardiache.

2. Scopo della ricerca

La ricerca ha voluto determinare le modalità con cui i terpenoidi si distribuiscono nella pianta di *C. sativa*, cercando le eventuali differenze nella modalità di distribuzione, sia in base alla posizione delle infiorescenze analizzate, sia in base alla dimensione del palco portante tali infiorescenze, con lo scopo di poter comprendere, in base a queste modalità, se le varie infiorescenze di una stessa pianta si possano definire o meno differenti, e si possano riunire in gruppi in base a caratteristiche comuni.

3. Materiali e metodi

3.1. Prelievo delle infiorescenze

Le infiorescenze femminili necessarie per l'analisi sono state prelevate da un'unica pianta di *C. sativa* denominata S45R, un incrocio sperimentale che rappresenta una varietà ad alto tenore di terpeni coltivata presso l'azienda Canvasalus S.r.l.. Le infiorescenze raccolte sono state numerate da P1 a P18 in funzione della posizione originale sulla pianta: sono stati definiti i palchi P con i numeri da 1 a 17, con 1 ad indicare quello più basso e 17 ad indicare quello più alto, questo perché nella pianta erano presenti 17 nodi da cui partivano le varie ramificazioni. Ad eccezione dell'infiorescenza numero 18, non corrispondente ad una ramificazione perché trattasi di quella apicale, per ogni punto di ramificazione (per ogni posizione) erano presenti più palchi. Stabilito questo, per ogni posizione, sono state raccolte una o due infiorescenze: per ognuna delle posizioni comprese tra 1 e 10 sono state prelevate due infiorescenze, l'una derivante da un palco in posizione opposta a quello dell'altra, mentre per ognuna delle posizioni comprese tra 11 e 17 è stata prelevata una sola infiorescenza, e infine è stata prelevata l'infiorescenza apicale numero 18.

I palchi sono stati poi classificati in funzione della dimensione D: abbiamo definito palchi grandi con DG, medi con DM e piccoli con DP. Per poterli differenziare in questi termini li abbiamo osservati e confrontati, dividendoli in questi tre gruppi in funzione della lunghezza del palco. Per fare questo, visualizzando la pianta come un cono con la base parallela al terreno e posta nel punto più basso della pianta, e con l'apice corrispondente all'infiorescenza 18, abbiamo determinato la dimensione in funzione di quanto ogni palco si avvicinasse al limite immaginario del cono, corrispondente all'apotema. I palchi che arrivavano all'apotema sono stati definiti DG, quelli che non arrivavano all'apotema perché lunghi ⅓ in meno del necessario sono stati definiti DM e quelli che non arrivavano all'apotema perché lunghi tra ⅔ e ½ in meno sono stati definiti DP. Nei casi in cui sono state prelevate due infiorescenze per una stessa posizione (numeri da 1 a 10), quando entrambi i loro palchi avevano la stessa dimensione sono stati aggiunti i numeri 1 e 2 a seguito della lettera corrispondente alla dimensione (Fig. 6), (Tab. 2).

Dopo la raccolta i campioni sono stati inseriti separatamente in sacchetti e conservati sottovuoto in congelatore fino al momento dell'analisi gascromatografica.

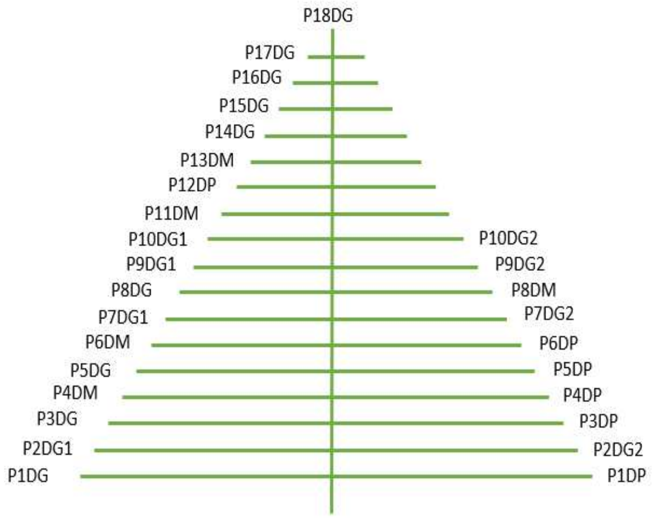


Fig. 6 - Denominazione infiorescenze. Fonte: elaborazione propria.

Tab. 2 - Denominazione infiorescenze.

Codice infiorescenza	Palco	Dimensione	Replica	Codice infiorescenza	Palco	Dimensione	Replica
P1DG	P01	G	1	P8DG	P08	G	1
P1DP	P01	P	2	P8DM	P08	M	2
P2DG1	P02	G	1	P9DG1	P09	G	1
P2DG2	P02	G	2	P9DG2	P09	G	2
P3DG	P03	G	1	P10DG1	P10	G	1
P3DP	P03	P	2	P10DG2	P10	G	2
P4DM	P04	M	1	P11DM	P11	M	1
P4DP	P04	P	2	P12DP	P12	P	1
P5DG	P05	G	1	P13DM	P13	M	1
P5DP	P05	P	2	P14DG	P14	G	1
P6DM	P06	M	1	P15DG	P15	G	1
P6DP	P06	P	2	P16DG	P16	G	1
P7DG1	P07	G	1	P17DG	P17	G	1
P7DG2	P07	G	2	P18DG	P18	G	1

3.2. Analisi gascromatografica

La gascromatografia (GC) è una tecnica di separazione cromatografica in cui si utilizza una fase mobile capace di fluire attraverso una colonna in cui è posta una fase stazionaria, e all'uscita della colonna, grazie ad un rivelatore, viene segnalato il passaggio dei diversi metaboliti separati dal campione in analisi ad un sistema di elaborazione dei segnali con lo scopo di produrre un gas-cromatogramma per permettere determinazioni qualitative e quantitative.

La GC può essere classificata in base allo stato fisico della fase stazionaria e in base al tipo di colonna utilizzata. La tecnica impiegata per questo studio è stata la cromatografia gas-solido (GSC), quindi la fase stazionaria è un solido in forma particellare (particelle porose), la fase mobile è un gas inerte che ha lo scopo di trascinare i metaboliti lungo la colonna, ed è stato l'elio, e il meccanismo cromatografico che sovraintende la separazione è l'adsorbimento. L'alternativa sarebbe stata la cromatografia gas-liquido (GLC) con fase stazionaria liquida e come meccanismo di separazione la ripartizione. Il secondo criterio prende in considerazione la colonna cromatografica, le sue caratteristiche geometriche e la collocazione della fase stazionaria al suo interno. È stata utilizzata colonna capillare di tipo HP-5MS: in questo tipo di colonne la fase stazionaria si trova depositata in forma di un film sottile sulla parete della colonna ma viene lasciato vuoto il canale centrale della colonna stessa, allo scopo di agevolare il flusso della fase mobile permettendo un migliore contatto tra le fasi. La colonna capillare Ultra Inert (UI) HP-5MS di Agilent è una colonna apolare in fase (5%-fenil)-metilpolisilossano, presenta caratteristiche di spurgo molto basse ed è stata scelta perché ideale per la gascromatografia accoppiata a spettrometro di massa (GC-MS); la lunghezza è di 30 m, il diametro di 0,250 mm e lo spessore del film di 0,250 μm.

Per l'analisi GC è stata scelta la variante dello spazio di testa per la fase di vaporizzazione dei metaboliti presenti nel campione di canapa. Questa tecnica viene utilizzata per la determinazione di composti volatili presenti in tracce in campioni solidi o in una grande massa di solvente. Consiste nell'iniettare in colonna il vapore che si trova in equilibrio termodinamico con il campione da analizzare,

situato all’interno di un contenitore chiuso ermeticamente detto vial. Dunque, il vapore si arricchisce dei metaboliti volatili nello spazio di testa, ossia il volume sovrastante la matrice in analisi, nel nostro caso solida, e in questo spazio viene immersa grazie alla perforazione di un setto siliconico una siringa, dalla quale verrà fatta uscire una fibra capace di legare i metaboliti volatili e portarli in colonna cromatografica.
Il campione di ogni infiorescenza inserito nelle vial pesava circa 300 mg, ma essendo stato precedentemente solamente congelato e non essiccato, sono stati aggiunti anche 2 g di solfato anidro di sodio per trattenere l’umidità. Il campione nella vial è stato vaporizzato grazie all’aumento della temperatura nel sistema, ogni vial infatti è stata scaldata nella camera di incubazione fino a raggiungere 50°C, mantenendo questa temperatura per 20 minuti. Dopodiché è stata inserita la siringa ed è stata esposta la fibra per 7 minuti. Una volta raggiunta la colonna cromatografica, la velocità del flusso del gas è stata di 30 cm/s.

Per quanto riguarda alcune delle condizioni operative, rilevante è l’utilizzo della temperatura. In gascromatografia si può operare con due regimi di temperatura: isoterma e programmata. Per l’analisi è stata effettuata un’eluizione programmata, ossia, a gradiente di temperatura; come modalità di gradiente è stata effettuata quella lineare multirampa, perché la temperatura è stata aumentata in modalità differenti durante il processo. In particolare, lo strumento ha lavorato a temperatura di 40°C per 1 minuto, poi è stato effettuato un incremento di temperatura di 3°C al minuto fino ad arrivare a 160°C, e poi, senza stabilizzarsi a questa temperatura, è stato effettuato un nuovo incremento di 10°C al minuto, fino ad arrivare a 250°C, stabilizzandosi a questa temperatura per 1 minuto. Nel complesso, quindi, sono stati impiegati 55 minuti. Con l’eluzione a temperatura programmata, aumentando la temperatura del forno in cui è contenuta la colonna aumenta la tensione di vapore del soluto, ed essendo che questa è proporzionale al peso molecolare, all’aumentare della temperatura verranno differentemente separati i composti, facendo eluire prima quelli con peso molecolare minore, con tensione di vapore più bassa, e poi quelli con peso molecolare maggiore. In questo modo i picchi saranno ben separati e le basi dei picchi più ristrette perché viene aumentata la risoluzione.

Il rivelatore o detector in GC è un dispositivo posto subito dopo il termine della colonna con la funzione di indicare la presenza di ciascun componente in uscita dalla stessa, e di fornire la misura della propria concentrazione. Nell'analisi è stato scelto come rivelatore lo spettrometro di massa, eseguendo quindi una GC-MS. Lo strumento in una camera di ionizzazione produce ioni e li separa in fase gassosa in base al loro rapporto massa/carica (m/z). Infatti, le molecole da analizzare, uscite dalla colonna cromatografica, con la fase di ionizzazione vengono bombardate da una specifica sorgente con elettroni ad alta energia ed alcune di esse si convertono in ioni positivi per perdita di un elettrone. Successivamente, nella fase di separazione delle masse, grazie ad un analizzatore, gli ioni positivi vengono accelerati per effetto di un campo elettrico e vengono convogliati verso un campo magnetico, in cui subiscono una variazione della loro traiettoria in base allo specifico rapporto m/z. Infine, in base al rapporto m/z gli ioni vengono registrati in successione grazie al rivelatore di ioni producendo lo spettro di massa, un grafico che riporta l'intensità degli ioni (corrente ionica) in funzione del rapporto m/z. Essendo che durante il processo di iniziale di bombardamento elettronico, accanto alla ionizzazione si ha la frammentazione della molecola, dal tipo di frammenti ionici registrati si possono ottenere informazioni sulla struttura della sostanza in analisi che ha permesso di generarli. Sono possibili, dunque, sia determinazioni quantitative che qualitative.

L'analizzatore a singolo quadrupolo è costituito da quattro barre di metallo in cui è applicata una differenza di potenziale, generata da una corrente continua ed alternata. Gli ioni, a causa di tale differenza, subiranno nel loro transito delle oscillazioni che potranno essere stabili, permettendo così allo ione di uscire dal quadrupolo, o instabili inducendo così collisione dello ione con le barre del quadrupolo. A determinati valori della tensione applicata, solo ioni aventi un certo rapporto m/z usciranno dal quadrupolo e saranno convogliati al rivelatore. Variando nel tempo la tensione, tutti gli ioni saranno messi in condizione di percorrere l'analizzatore e di giungere al detector per la loro determinazione.

Per indurre la ionizzazione, come sorgente, è stata scelta la tecnica dell'impatto elettronico (EI): il campione gassoso transita nella camera di ionizzazione incrociando perpendicolarmente un flusso di elettroni generati da un filamento incandescente di tungsteno. All'impatto si genera una miscela di ioni positivi, i quali vengono accelerati verso la camera di separazione da un campo elettrico opportunamente tarato e poi convogliati verso un campo magnetico. Modulando l'energia del flusso di elettroni è possibile modificare la composizione della miscela di ioni prodotta dall'impatto: fino a circa 14 eV avviene la semplice ionizzazione della molecola, e questo può essere utile a determinare con precisione il peso molecolare, mentre con energia compresa tra 14 e 70 eV, lo ione molecolare viene frammentato e lo spettro dei frammenti aiuterà a definire la struttura della molecola.

Sono state sottoposte a GC tutte le infiorescenze prelevate, quindi è stata eseguita un'analisi qualitativa con lo scopo di identificare tutti i metaboliti che sono stati separati in base al tempo di ritenzione (Aquisition Time (min)) alle condizioni operative scelte, tra cui tutti i terpenoidi, la classe di composti studiati nell'analisi, e un'analisi quantitativa allo scopo di determinarli in termini di concentrazione in base al Counts, un numero che esprime l'intensità di risposta del sensore e pertanto è dipendente dal numero di ioni rilevati, infatti con la relazione "Area del picco = Counts * min" si può determinare la quantità di ogni molecola eluita. Nella figura

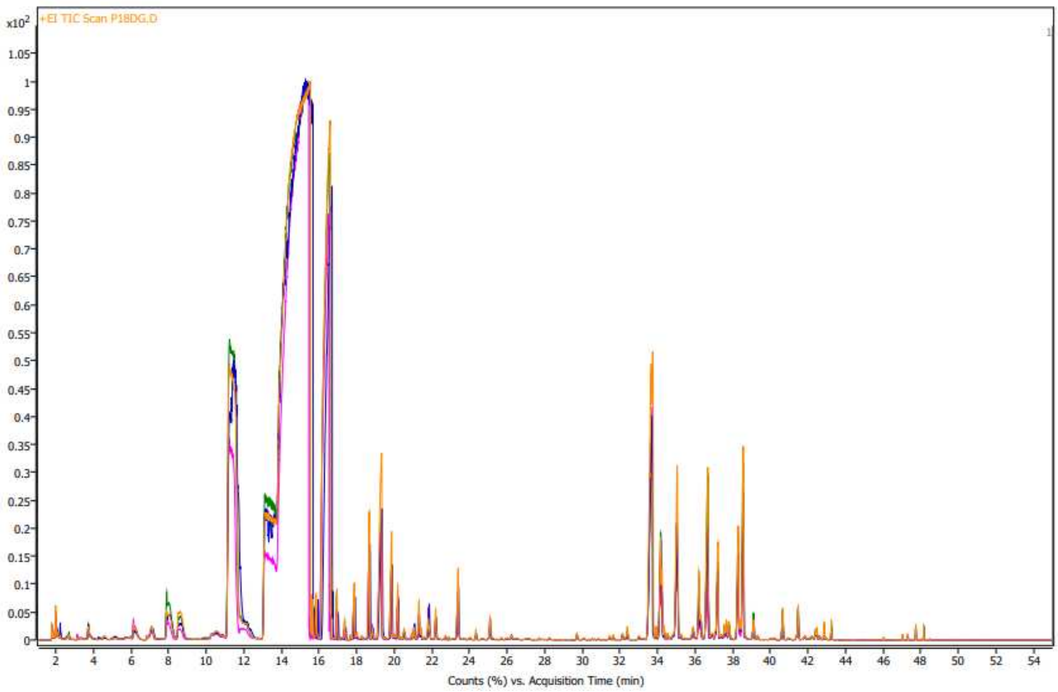


Fig. 7 - Sovrapposizione dei cromatogrammi risultanti dall'analisi gascromatografica delle infiorescenze denominate P1DG (picchi rosa), P6DM (picchi verdi), P12DP (picchi blu) e P18DG (picchi arancioni).

seguente si può osservare l'immagine (Fig. 7) data dalla sovrapposizione dei cromatogrammi ottenuti analizzando in GC le infiorescenze P1DG, P6DM, P12DP e P18DG. Risulta evidente che ci siano differenze qualitative e quantitative a riguardo delle molecole eluite, rappresentate ciascuna con un picco più o meno lungo e stretto; la ricerca vuole infatti ottenere chiare informazioni sull'andamento della distribuzione di queste molecole, in particolare, dei terpenoidi.

3.3. Analisi statistica

Innanzitutto, è stata effettuata utilizzando il coefficiente di Kendall la regressione fra la posizione sul fusto della pianta e l'area rilevata per ciascuna molecola evidenziata con la gascromatografia, corrispondente alla loro concentrazione. Nel testo vengono riportati solo i grafici i cui coefficienti sono risultati significativi.

Successivamente è stata eseguita l'ANOVA per determinare se esistessero differenze significative fra le posizioni delle differenti infiorescenze per quanto riguarda la concentrazione di tutte le molecole determinate. Lo stesso test è stato utilizzato per verificare se esistessero differenze anche in base alle dimensioni delle ramificazioni. In entrambi i casi le medie sono state separate utilizzando il metodo SNK con $P \leq 0.05$.

Allo scopo di raggruppare i differenti palchi (Lletí, et al., 2004) per similitudine rispetto alla concentrazione di tutte le molecole contemporaneamente è stato utilizzato il metodo K-MEANS (MacQueen, 1967), metodo non supervisionato (unsupervised machine learning algorithm), raggruppando i palchi per 2, 3, 4 e 5 gruppi. La scelta del migliore è stata fatta utilizzando il metodo "silhouette" (Naghizadeh, 2020).

Per definire quali fossero le molecole che consentissero di separare maggiormente i palchi fra di loro è stata utilizzata l'analisi PCA (Bro, 2014) e sono state rappresentate in forma grafica solo le prime due componenti principali.

4. Risultati e discussione

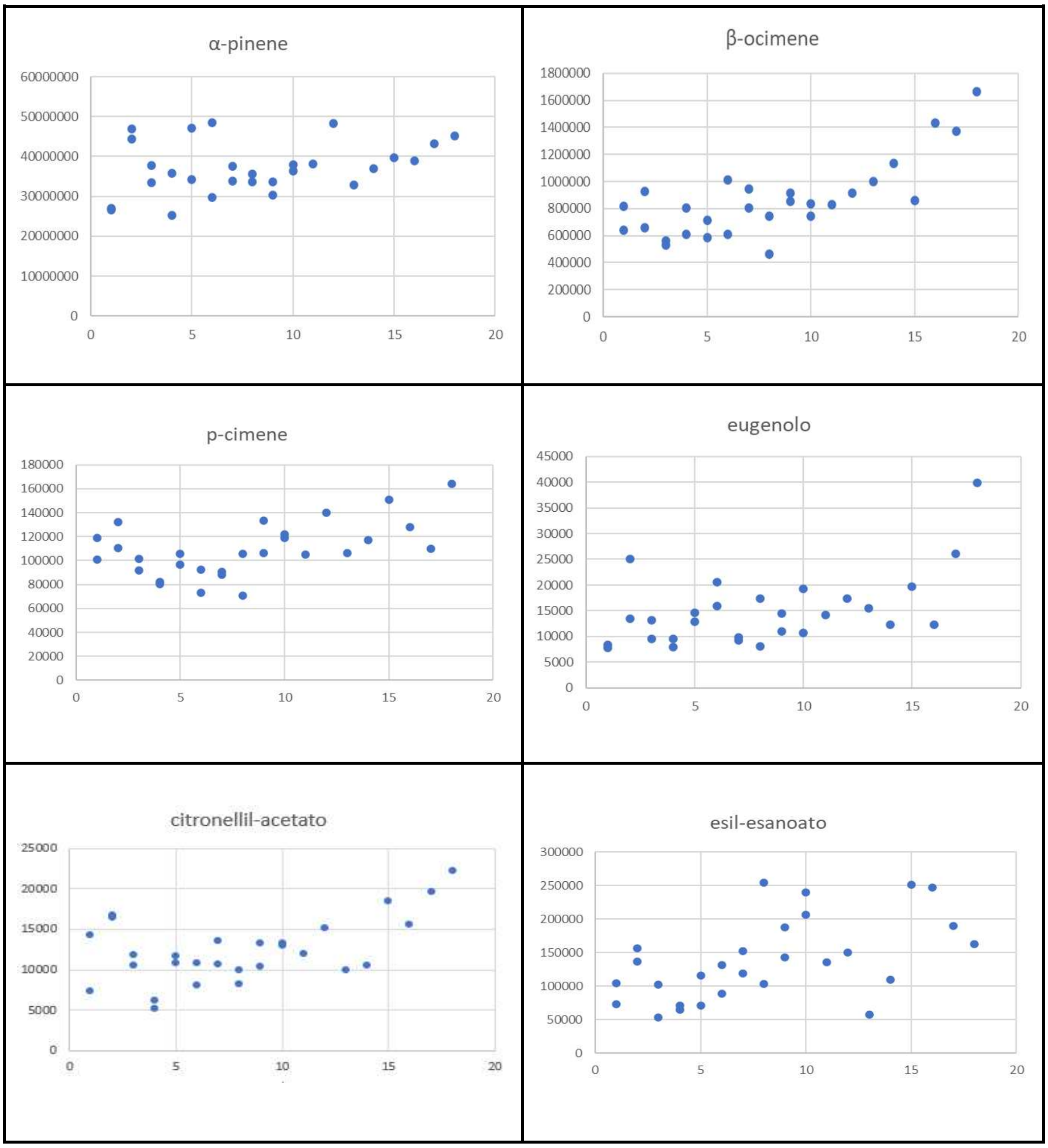
4.1 Relazione tra l'area del picco delle molecole e la posizione del palco

Utilizzando il test di Kendall è stato possibile determinare se esistesse una relazione tra l'area del picco di ogni molecola riconosciuta mediante GC, dipendente dalla concentrazione, e la posizione del palco portante l'infiorescenza. Di tutte le 67 molecole identificate mediante GC solo sei sono risultate significative al test: α-pinene, β-ocimene, p-cimene, eugenolo, citronellil-acetato ed esil-esanoato. Per queste, infatti, il punteggio (*score*) dato dal test era superiore a 100 (ad eccezione dell'α-pinene in cui il punteggio era di 96) ed in effetti, per queste sei molecole si può affermare l'esistenza di una relazione tra l'area del picco e la posizione del palco, perché la probabilità di sbagliare affermando questo concetto è solo del 5%. Nei grafici sottostanti presenti in tabella (Tab. 3 (a-b)) su cui si è basato il test di Kendall si può valutare dunque l'andamento dell'area del picco di ogni metabolita (espressa in Counts * min) in base alla posizione del palco (espressa con il numero corrispondente ed indicata sull'asse delle ascisse), e si può constatare anche semplicemente osservandoli, che ci sia un aumento della concentrazione di queste sei molecole partendo dal palco 1 con le infiorescenze più basse ed arrivando al palco 18 con l'infiorescenza apicale, mentre, per tutte le altre molecole, come ad esempio per alcuni dei terpeni più abbondanti, tra cui D-limonene, β-mircene, umulene, β-cariofillene, linalolo e β-pinene, non si dimostra possibile dichiarare che ci sia un aumento di concentrazione spostandosi dai palchi inferiori ai palchi superiori, ma nemmeno che ci sia qualunque altro tipo di relazione.

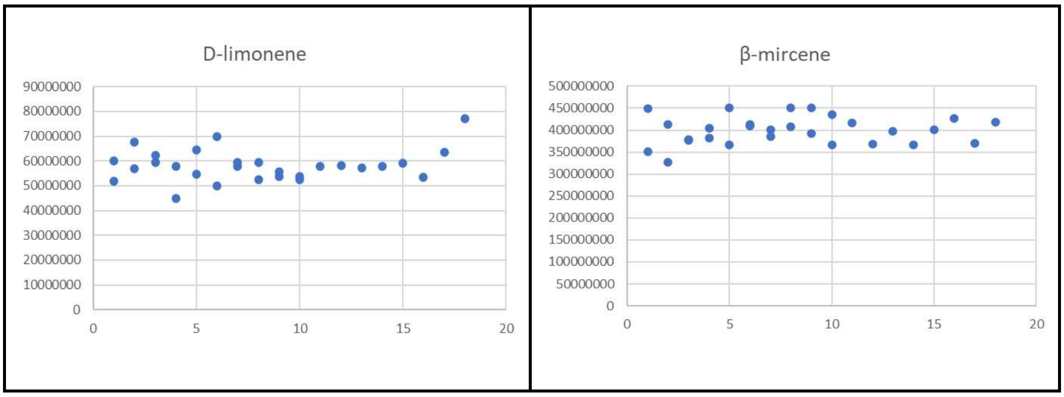
Tuttavia, sia per le molecole risultate significative sia per le altre, si è constatato che risulta spesso corretto affermare che nell'infiorescenza in posizione 18 la concentrazione di ogni molecola è maggiore rispetto a quella nelle altre posizioni perché l'area dei picchi è generalmente maggiore. Questo ad ogni modo non è sempre verificato, come nel caso del β-pinene, perché la sua concentrazione nell'infiorescenza apicale è minore di quella in altre infiorescenze.

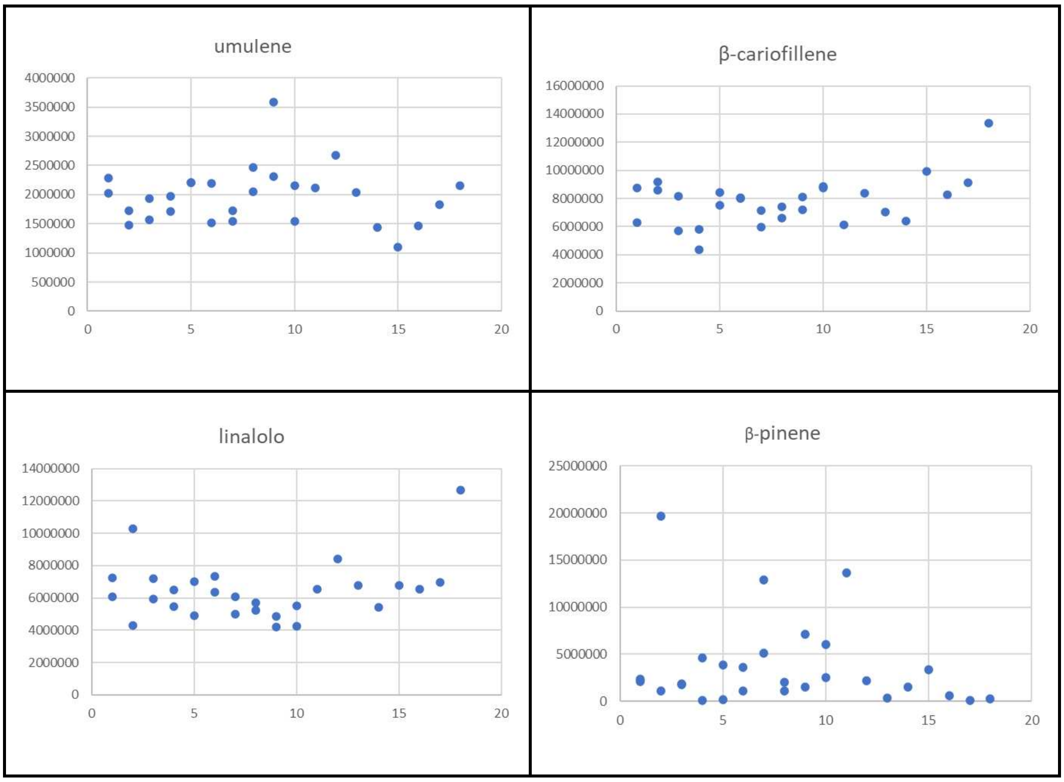
Tab. 3 - Grafici distribuzione per molecola: molecole significative in base al test (a); molecole significative in base alla concentrazione ma non in base al test (b).

(a)



(b)





4.2 Differenze dell'area del picco delle molecole in relazione alla posizione del palco

Lo scopo del test di ANOVA è stato quello di determinare se ci fossero differenze significative dell'area del picco di ogni molecola in base alla posizione del palco.

Una volta eseguito il test ANOVA le medie sono state separate con il test Tukey ($P \leq 0.05$).

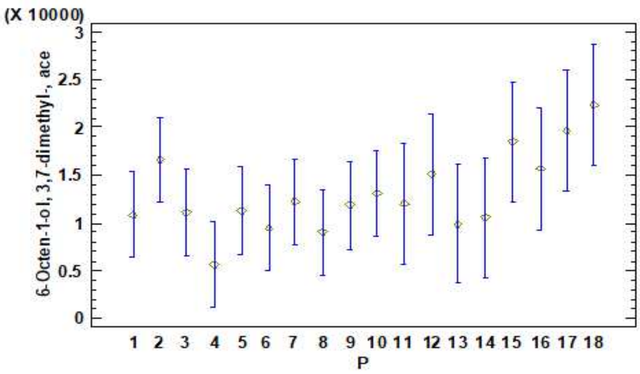
Nell'immagine seguente (Fig. 8 (a-j)) è possibile osservare, per le molecole che mostrano in base alla posizione del palco differenze significative, sia il P-Value, sia il grafico ottenuto con il test di Tukey (test di separazione fra le medie) in cui si osservano nelle ascisse i numeri dei palchi (P) e nelle ordinate l'area del picco della molecola (count * min). Le molecole in questione sono: citronellol-acetato (S), etil-esanoato, β-ocimene, β-cariofillene, clovene, p-cimene, esanale, eugenolo, trans-3-carene-2-olo e ylangene.

Le molecole per cui l'area del picco varia in maniera significativa in base alla posizione del palco non per forza sono le stesse che sono risultate significative anche al precedente test di Kendall. Infatti, non per tutte l'area varia in maniera

specifica, con una precisa relazione in base alla posizione del palco. Per alcune la differenza è data da una maggiore concentrazione in una posizione centrale della pianta, come nel palco 12 per l'etil-esanoato, per altre è data da una concentrazione maggiore in alcune posizioni, come nei palchi 2 e 17 per l'esanale, e per altre ancora è data da una concentrazione maggiore nelle posizioni più alte della pianta, come per il citronellol-acetato (S). Tuttavia, per alcune molecole la differenza consiste proprio nell'aumento della loro concentrazione passando dai palchi più bassi a quelli più alti; infatti, l'area dei picchi aumenta passando dai palchi più bassi a quelli più alti, e solo in questi casi, esse sono risultate significative sia al test di Kendall che al test di ANOVA; queste molecole sono β-ocimene, p-cimene ed eugenolo.
In conclusione, non è possibile stabilire un chiaro andamento, ma si può nuovamente affermare che, in alcuni casi, ci sia una differenza della concentrazione delle molecole che consiste in un aumento delle stesse nelle posizioni più alte della pianta, in particolar modo a livello dell'infiorescenza apicale.
Questo risultato però può giustificare in parte l'utilizzo di un'infiorescenza raccolta da una posizione alta della pianta per ricavare quantitativi di terpenoidi maggiori.

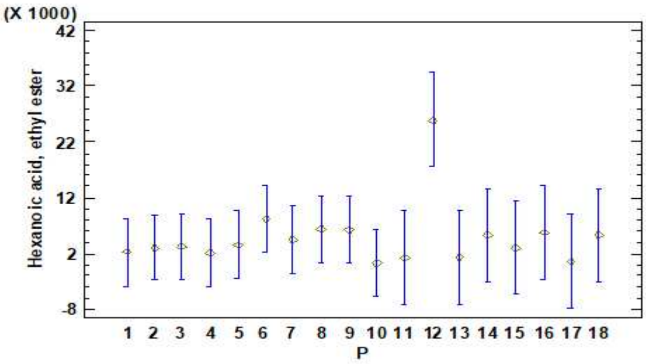
(a) ANOVA Table for 6-Octen-1-ol, 3,7-dimethyl-, acetate by P (citronellol-acetato (S))

Source	***Sum of Squares***	***Df***	***Mean Square***	***F-Ratio***	***P-Value***
Between groups	3.91368E8	17	2.30217E7	5.79	0.0037
Within groups	3.97823E7	10	3.97823E6		
Total (Corr.)	4.31151E8	27			



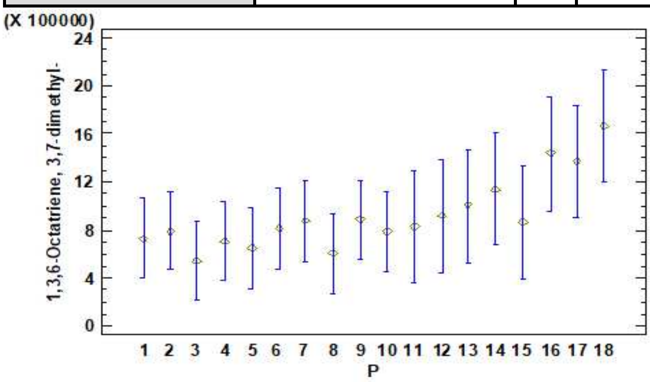
(b) ANOVA Table for Hexanoic acid, ethyl ester by P (etil-esanoato)

Source	***Sum of Squares***	***Df***	***Mean Square***	***F-Ratio***	***P-Value***
Between groups	6.02146E8	17	3.54203E7	5.07	0.0063
Within groups	6.98252E7	10	6.98252E6		
Total (Corr.)	6.71971E8	27			



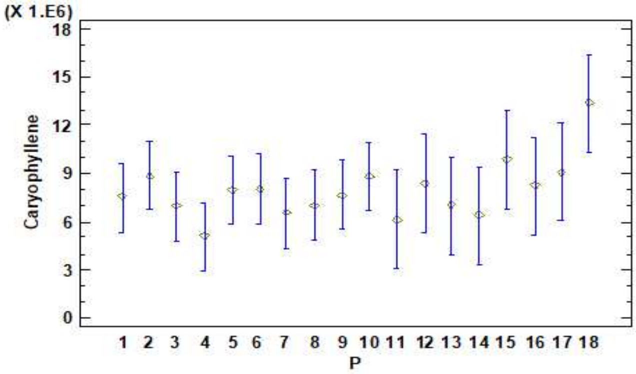
(c) ANOVA Table for 1,3,6-Octatriene, 3,7-dimethyl by P (β-ocimene)

Source	***Sum of Squares***	***Df***	***Mean Square***	***F-Ratio***	***P-Value***
Between groups	1.86079E12	17	1.09458E11	5.04	0.0064
Within groups	2.17119E11	10	2.17119E10		
Total (Corr.)	2.07791E12	27			



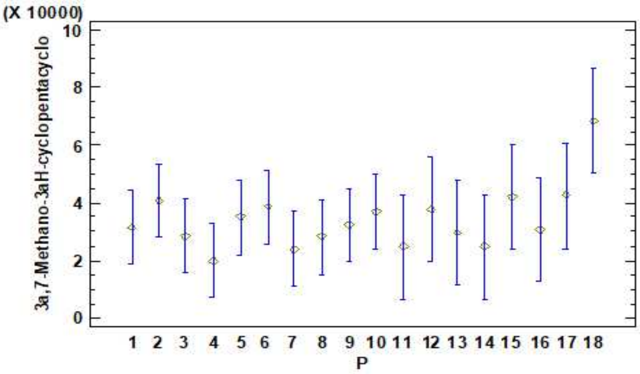
(d) ANOVA Table for Caryophyllene by P (β-cariofillene)

Source	***Sum of Squares***	***Df***	***Mean Square***	***F-Ratio***	***P-Value***
Between groups	6.83296E13	17	4.01939E12	4.34	0.0114
Within groups	9.26912E12	10	9.26912E11		
Total (Corr.)	7.75987E13	27			



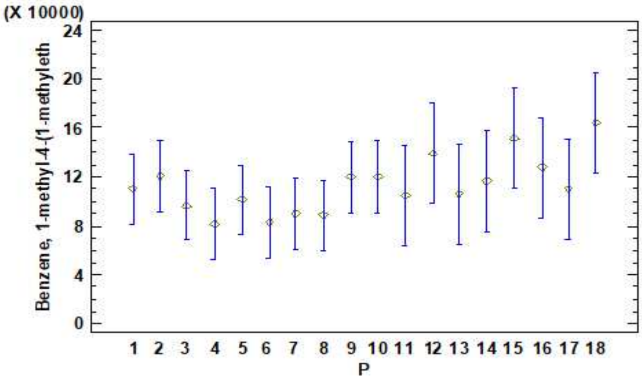
(e) ANOVA Table for 3a,7-Methano-3aH-cyclopentacyclooctene, 1,4,5,6,7,8,9,9a-octahydro-1,1,7-trimethyl-, [3aR-(3a.alpha.,7.alpha.,9a.beta.)] by P (clovene)

Source	***Sum of Squares***	***Df***	***Mean Square***	***F-Ratio***	***P-Value***
Between groups	2.40731E9	17	1.41607E8	4.32	0.0115
Within groups	3.27509E8	10	3.27509E7		
Total (Corr.)	2.73482E9	27			



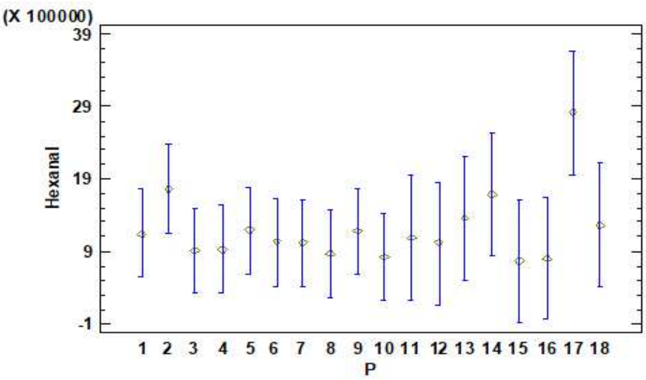
(f) ANOVA Table for Benzene, 1-methyl-4-(1-methylethyl) by P (p-cimene)

Source	***Sum of Squares***	***Df***	***Mean Square***	***F-Ratio***	***P-Value***
Between groups	1.19219E10	17	7.0129E8	4.20	0.0128
Within groups	1.66964E9	10	1.66964E8		
Total (Corr.)	1.35916E10	27			



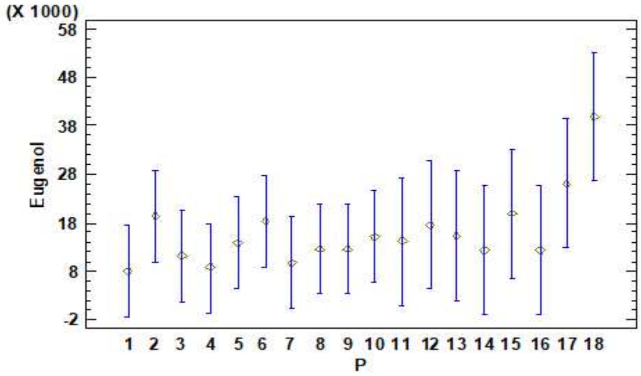
(g) ANOVA Table for Hexanal by P (esanale)

Source	***Sum of Squares***	***Df***	***Mean Square***	***F-Ratio***	***P-Value***
Between groups	4.79587E12	17	2.8211E11	3.94	0.0161
Within groups	7.15724E11	10	7.15724E10		
Total (Corr.)	5.51159E12	27			



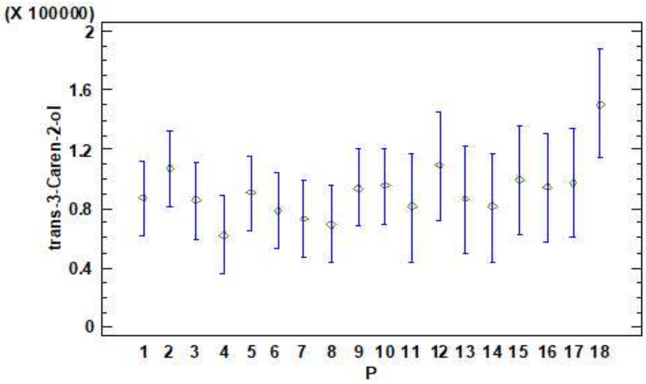
(h) ANOVA Table for Eugenol by P (eugenolo)

Source	***Sum of Squares***	***Df***	***Mean Square***	***F-Ratio***	***P-Value***
Between groups	1.12972E9	17	6.64539E7	3.81	0.0182
Within groups	1.7463E8	10	1.7463E7		
Total (Corr.)	1.30435E9	27			



(i) ANOVA Table for trans-3-Caren-2-ol by P (trans-3-carene-2-olo)

Source	***Sum of Squares***	***Df***	***Mean Square***	***F-Ratio***	***P-Value***
Between groups	8.21425E9	17	4.83191E8	3.65	0.0211
Within groups	1.32357E9	10	1.32357E8		
Total (Corr.)	9.53783E9	27			



(j) ANOVA Table for Ylangene by P (ylangene)

Source	***Sum of Squares***	***Df***	***Mean Square***	***F-Ratio***	***P-Value***
Between groups	2.23967E9	17	1.31745E8	2.86	0.0472
Within groups	4.60032E8	10	4.60032E7		
Total (Corr.)	2.6997E9	27			

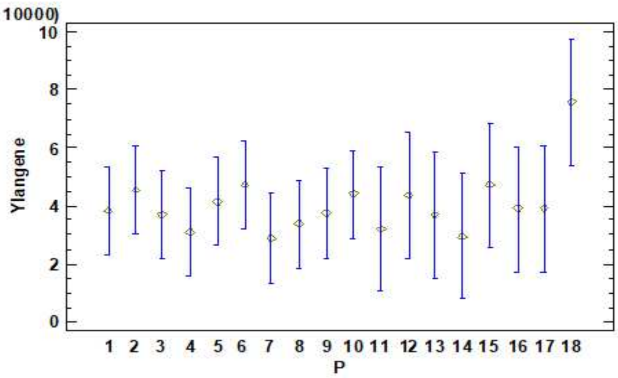


Fig. 8 - Tabella ANOVA con P-Value e grafico test di separazione fra le medie delle molecole significative: citronellol-acetato (S (a)), etil-esanoato (b), β-ocimene (c), β-cariofillene (d), clovene (e), p-cimene (f), esanale (g), eugenolo (h), trans-3-carene-2-olo (i) e ylangene (j).

4.3 Differenze dell'area del picco delle molecole in relazione alla dimensione del palco

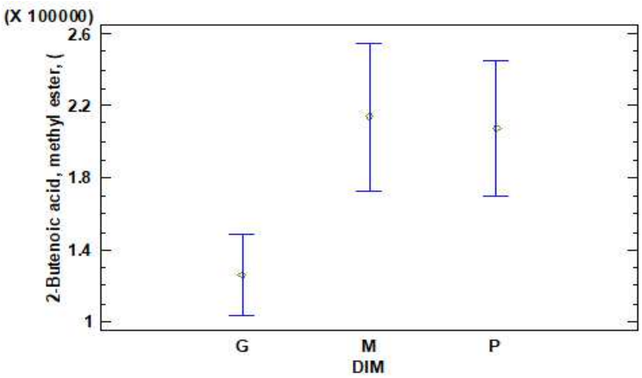
Lo scopo del test di ANOVA in questo caso è stato quello di determinare se ci fossero differenze significative dell'area del picco di ogni molecola in base alla dimensione del palco da cui derivava ciascuna infiorescenza. La differenza anche in questo caso si dimostra significativa o meno, in base al P-Value, che deve essere minore di 0,05, ossia minore del 5%.

Nell'immagine seguente (Fig. 9 (a-f)) è possibile osservare, per le molecole che mostrano in base alla dimensione del palco differenze significative, sia il P-Value, sia il grafico ottenuto con il test di Tukey (test di separazione fra le medie) in cui si osservano nelle ascisse i numeri dei palchi (P) e nelle ordinate l'area del picco della molecola (count * min). Le molecole in questione sono: metil-crotonato, citronellil-acetato, 2-esenolo (E), trans-4-tujanolo, 2-metilpropanale e p-cimene.

Si può constatare osservando i grafici che l'area del picco aumenta all'aumentare della dimensione del palco solo per citronellil-acetato e p-cimene, dove infatti la concentrazione si è osservata maggiore nei palchi grandi (DG), mentre per le altre quattro molecole la concentrazione maggiore si trova nei palchi di dimensione media (DM), quasi sempre con valori simili a quella dei palchi di dimensione piccola (DP): non è possibile affermare dunque, in base al risultato del test, che la concentrazione vari sempre in base alla dimensione della ramificazione, e nemmeno che vari con aumento o decremento in funzione del crescere della stessa. Questo risultato permette di dedurre che, la raccolta e l'utilizzo di un'infiorescenza portata da una ramificazione di grande dimensione, non obbligatoriamente permetterà di usufruire di una più grande quantità di principi attivi; anzi, la differenza di concentrazione non si dimostra quasi mai significativa, quindi, non si può affermare che ci siano motivazioni valide a sostegno dell'idea che in funzione della dimensione della ramificazione ci siano concentrazioni diverse di terpenoidi.

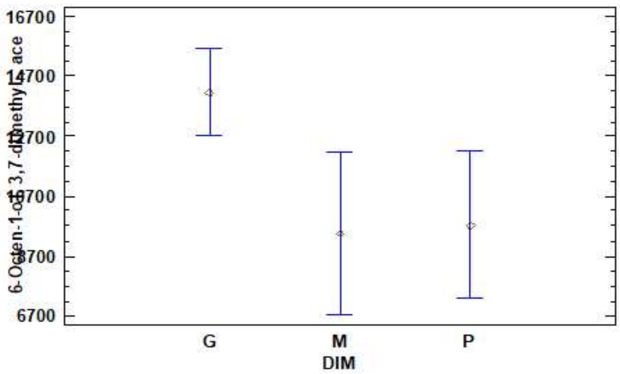
(a) ANOVA Table for 2-Butenoic acid, methyl ester, (2E) by DIM (metil-crotonato)

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	4.76112E10	2	2.38056E10	8.76	0.0013
Within groups	6.7925E10	25	2.717E9		
Total (Corr.)	1.15536E11	27			



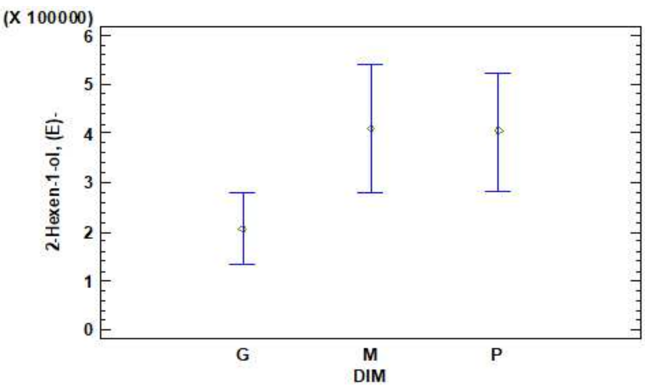
(b) ANOVA Table for 6-Octen-1-ol, 3,7-dimethyl-, acetate by DIM (citronellil-acetato)

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.37189E8	2	6.85944E7	5.83	0.0083
Within groups	2.93962E8	25	1.17585E7		
Total (Corr.)	4.31151E8	27			



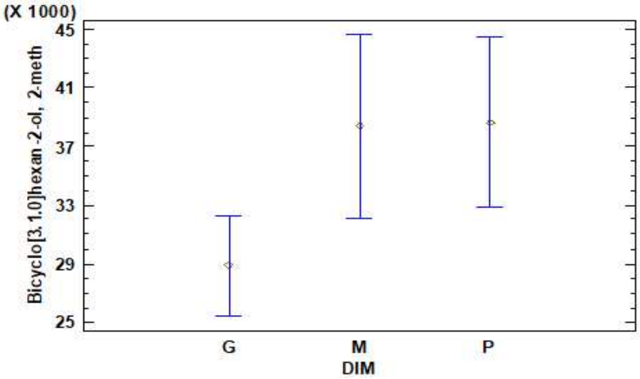
(c) ANOVA Table for 2-Hexen-1-ol, (E) by DIM (2-esenolo (E))

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	2.69429E11	2	1.34714E11	4.85	0.0166
Within groups	6.94537E11	25	2.77815E10		
Total (Corr.)	9.63966E11	27			



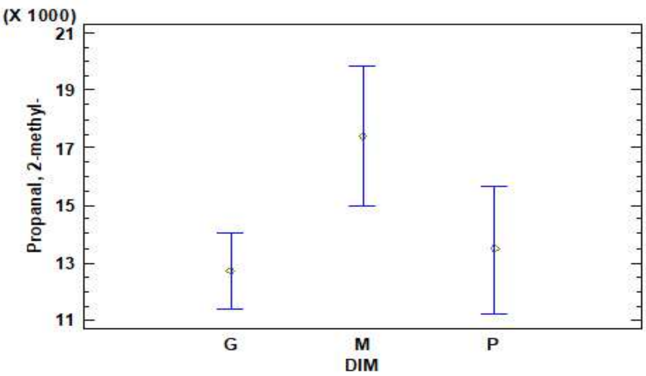
(d) ANOVA Table for Bicyclo[3.1.0]hexan-2-ol, 2-methyl-5-(1-methylethyl)-, (1.alpha.,2.beta.,5.alpha.) by DIM (trans-4-tujanolo)

Source	***Sum of Squares***	***Df***	***Mean Square***	***F-Ratio***	***P-Value***
Between groups	6.23315E8	2	3.11657E8	4.81	0.0171
Within groups	1.62026E9	25	6.48104E7		
Total (Corr.)	2.24357E9	27			



(e) ANOVA Table for Propanal, 2-methyl by DIM (2-metilpropanale)

Source	***Sum of Squares***	***Df***	***Mean Square***	***F-Ratio***	***P-Value***
Between groups	8.56844E7	2	4.28422E7	4.47	0.0218
Within groups	2.39422E8	25	9.57688E6		
Total (Corr.)	3.25107E8	27			



(f)   ANOVA Table for Benzene, 1-methyl-4-(1-methylethyl) by DIM (p-cimene)

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.37595E9	2	1.68797E9	4.13	0.0282
Within groups	1.02156E10	25	4.08625E8		
Total (Corr.)	1.35916E10	27			

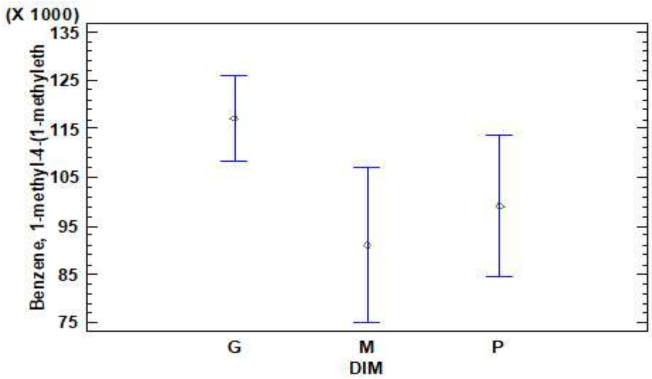


Fig. 9 - Tabella ANOVA con P-Value e grafico test di separazione fra le medie delle molecole significative: metil-crotonato (a), citronellil-acetato (b), 2-esenolo (E) (c), trans-4-tujanolo (d), 2-metilpropanale (e) e p-cimene (f).

4.4 Analisi statistica multivariata

Grazie all'analisi statistica multivariata, utilizzando tutte le informazioni relative all'area del picco di ogni molecola, si è cercata la presenza di eventuali correlazioni, legami, tra le molecole. Osservando dunque l'area del picco di ognuna delle 68 molecole presenti in ciascun palco, si è cercato per ogni confronto con le altre 67 molecole il coefficiente di correlazione R. Questo coefficiente assume valori compresi tra -1 e 1, e indica correlazioni differenti a seconda del valore:

- $0 < R \leq 1$: le molecole considerate sono correlate positivamente, quindi, all'aumentare della concentrazione di una aumenta anche la concentrazione dell'altra, o, al diminuire della concentrazione di una diminuisce anche la concentrazione dell'altra (es. molecole M5 e M15) ($R = 1$ indica la massima correlazione positiva);

- R = 0: le molecole considerate non sono correlate, quindi, al variare della concentrazione di una non varia la concentrazione dell'altra (es. molecole M8 e M19);
- $-1 \leq R < 0$: le molecole considerate sono correlate negativamente, quindi, all'aumentare della concentrazione di una diminuisce la concentrazione dell'altra, o, al diminuire della concentrazione di una aumenta la concentrazione dell'altra (es. molecole M2 e M25) (R = -1 indica la massima correlazione negativa).

In base al valore di R, nel grafico matrice delle correlazioni tra molecole (Fig. 10) si osserva una colorazione rossa quando R = 1, blu quando R = -1, bianca quando R = 0, che diventa sempre più vicina al rosso quando R aumenta e si avvicina ad 1, o che diventa sempre più vicina al blu quando R diminuisce e si avvicina a -1, indicando rispettivamente correlazioni deboli ma comunque positive e correlazioni deboli ma comunque negative.

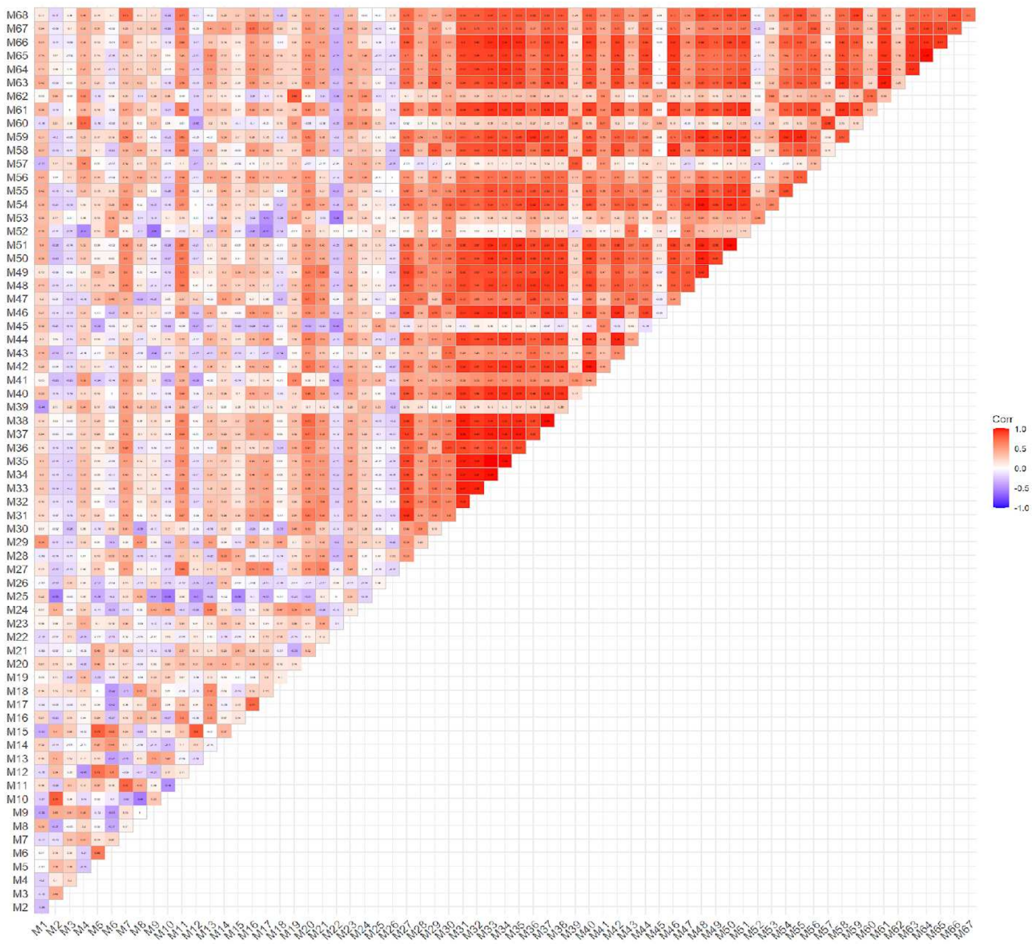


Fig. 10 - Matrice delle correlazioni tra molecole.

Una correlazione di tipo positivo può essere dovuta ad esempio ad una via biosintetica in cui, a partire da un metabolita, in base a determinati stimoli, avviene un incremento della produzione di due o più molecole. Una correlazione di tipo negativo invece può essere dovuta ad una via biosintetica in cui, in base a determinati stimoli, a partire da un metabolita di partenza ne viene prodotto uno piuttosto che un altro.

L'esistenza di correlazioni tra le molecole prodotte dalla pianta è da considerarsi importante perché a seconda del tipo, positivo, neutro o negativo, potrebbe variare la concentrazione delle stesse, e a seconda della modalità con cui varia la concentrazione, l'infiorescenza assume caratteristiche aromatiche differenti e da tenere in considerazione a seconda dello scopo.

Nella tabella seguente (Tab. 4) si può leggere l'equivalenza tra il nome di ogni molecola e la sigla associata dal programma.

Tab. 4 - Tabella equivalenza nome molecola e sigla associata.

M1	**M2**	**M3**	**M4**	**M5**	**M6**
1,3-Butadiene, 2-methyl-	Acetic acid, methyl ester	Propanal, 2-methyl-	2,3-Butanedione	Acetic acid	Furan, 3-methyl-
M7	**M8**	**M9**	**M10**	**M11**	**M12**
1-Butanol	1-Penten-3-ol	Furan, 2-ethyl-	Butanoic acid methyl ester	1-Butanol, 2-methyl-	2-Pentenal, (E)-
M13	**M14**	**M15**	**M16**	**M17**	**M18**
2-Butenoic acid, methyl ester, (E)-	2,3-Butanediol	Hexanal	Ethanol, 2-(methylthio)-	2-Hexenal, (E)-	2-Hexen-1-ol, (E)-
M19	**M20**	**M21**	**M22**	**M23**	**M24**

1-Hexanol	.alpha.-Pinene	Camphen e	Bicyclo[3.1.1]heptane, 6,6-dimethyl-2-methylene-, (1S)-	alpha.-Phellandren e	Hexanoic acid, ethyl ester
M25	**M26**	**M27**	**M28**	**M29**	**M30**
beta.-Myrcene	Benzene, 1-methyl-3-(1-methylethyl)-	D-Limonene	1,3,6-Octatriene, 3,7-dimethyl-	Bicyclo[3.1. 0]hexan-2-ol, 2-methyl-5-(1-methylethyl)-, (1.alpha.,2.b eta.,5.alpha.)-	Benzene, 1-methyl-4-(1-methylethyl)-
M31	**M32**	**M33**	**M34**	**M35**	**M36**
Cyclohexene , 4-methyl-1-(methylethen yl)-	1,6-Octadien-3-ol, 3,7-dimethyl-	Bicyclo[2. 2.1]hepta n-2-ol, 1,3,3-trimethyl-	trans-2-Pinanol	1,5,7-Octatrien-3-ol, 3,7-dimethyl-	trans-3-Caren-2-ol
M37	**M38**	**M39**	**M40**	**M41**	**M42**
2,4,6-Octatriene, 2,6-dimethyl-, (E,Z)-	2,4,6-Octatriene, 2,6-dimethyl-	2,7-Octadien-4-ol, 2-methyl-6-methylene -, (S)-	Borneol	3-Cyclohexen -1-ol, 4-methyl-1-(1-methylethyl)-, (R)-	3-Cyclohexene-1-methanol, .alpha.,.alpha. 4-trimethyl-
M43	**M44**	**M45**	**M46**	**M47**	**M48**

1-Cyclohexene-1-carboxaldehyde, 2,6,6-trimethyl-	6-Octen-1-ol, 3,7-dimethyl-, (R)-	[1,1'-Bicyclopentyl]-2-one	Bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimethyl-, acetate, (1S-endo)-	6-Octen-1-ol, 3,7-dimethyl-, acetate	3a,7-Methano-3aH-cyclopentacyclooctene, 1,4,5,6,7,8,9,9a-octahydro-1,1,7-trimethyl-, [3aR-(3a.alpha.,7.alpha.,9a.beta.)]
M49	**M50**	**M51**	**M52**	**M53**	**M54**
Eugenol	Ylangene	Copaene	Hexanoic acid, hexyl ester	Bicyclo[7.2.0]undec-4-ene, 4,11,11-trimethyl-8-methylene-	Caryophyllene
M55	**M56**	**M57**	**M58**	**M59**	**M60**
Bicyclo[3.1.1]hept-2-ene, 2,6-dimethyl-6-(4-methyl-3-pentenyl)-	1H-Cyclopropa[a]naphthalene, 1a,2,3,5,6,7,7a,7b-octahydro-1,1,7,7a-tetramethyl-, [1aR-(1a.alpha.,7.alpha.,7a.alpha.,7b.alpha.)]-	.alpha.-Caryophyllene	Naphthalene, 1,2,3,4,4a,5,6,8a-octahydro-4a,8-dimethyl-2-(1-methylethenyl)-, [2R-(2.alpha.,4a.alpha.,8a.beta.)]-	Cyclohexene, 1-methyl-4-(5-methyl-1-methylene-4-hexenyl)-, (S)-	Naphthalene, 1,2,3,4-tetrahydro-1,6-dimethyl-4-(1-methylethyl)-, (1S-cis)-
M61	**M62**	**M63**	**M64**	**M65**	**M66**

Naphthalene, 1,2,3,4,4a,5, 6,8a-octahydro-4a,8-dimethyl-2-(1-methylethylidene)-, (4aR-trans)-	.gamma.-Elemene	Naphthalene, decahydro-4a-methyl-1-methylene-7-(1-methylethylidene)-, (4aR-trans)-	Guaiol	2-Naphthalenemethanol, 1,2,3,4,4a,5, 6,7-octahydro-.alpha.,.alpha.,4a,8-tetramethyl-, (2R-cis)-	2-Naphthalenemethanol, decahydro-.alpha.,.alpha.,4a-trimethyl-8-methylene-, [2R-(2.alpha.,4a.alpha.,8a.beta.)]-
M67	**M68**				
5-Azulenemethanol, 1,2,3,3a,4,5, 6,7-octahydro-.alpha.,.alpha.,3,8-tetramethyl-, [3S-(3.alpha.,3a.beta.,5.alpha.)]-	.alpha.-Bisabolol				

L'analisi statistica multivariata definite le correlazioni esistenti tra le molecole, interviene per ridurre il numero di informazioni eliminando quelle ridondanti, creando una nuova serie di variabili riassuntive di tutte le precedenti per semplificare tutte le informazioni fino ad ottenere solo quelle fondamentali per la discriminazione fra i palchi. Le informazioni ridondanti sono quelle che si ripetono e che non forniscono nuove informazioni, ad esempio, sapere che M5 sia correlata positivamente ad M15 è sufficiente: sarebbe superfluo dire che se aumenta o diminuisce la concentrazione di M5 rispettivamente aumenta o diminuisce la concentrazione di M15 e che se aumenta o diminuisce la concentrazione di M15 rispettivamente aumenta o diminuisce la concentrazione di M5. Fornire questo tipo di informazione renderebbe più complesso proseguire con le analisi, allora si devono ridurre. Il programma PCA (Principal Component Analysis) ha potuto definire una serie di componenti (COMP), ciascuna delle quali capace di ridurre le 68 variabili in questione (68 perché ha considerato l'area del picco di ciascuna delle 68 molecole) in un *riassunto* più o meno completo delle informazioni fondamentali, caratterizzanti e discriminanti. La COMP1 è riuscita a riassumere il 44% della variabilità dei dati, la COMP2 ha spiegato un altro 10,5% della variabilità (e dalla loro somma si ottiene quindi il 54,5% della variabilità), la COMP3 ha riassunto un'altra piccola percentuale, la COMP4 un'altra percentuale più piccola ancora e infine la COMP17 ha permesso di raggiungere il 100% della variabilità. Si è creata dunque una riduzione, contenente solamente le informazioni importanti e non ridondanti, in 17 variabili invece che 68. Essendo che le COMP1 e 2 assieme permettono di spiegare circa il 55% delle informazioni, sono le componenti più importanti. Il metodo elbow ha permesso di ottenere un grafico scree plot in cui osservare la percentuale di variabilità spiegata da ciascun componente (Fig. 11), e questo grafico conferma quanto detto precedentemente. Infatti, essendo che il gomito che delinea il cambiamento di pendenza nel grafico si trova in corrispondenza della COMP2, è alla seconda componente che ci si può fermare per spiegare la gran parte della variabilità: non è necessario considerare anche ulteriori successive componenti.

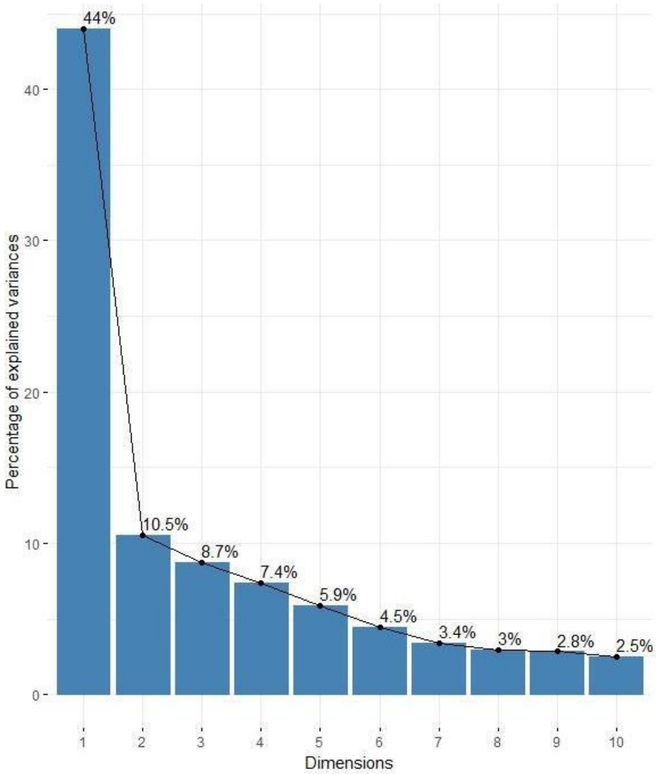


Fig. 11 - Scree plot.

Considerando allora solamente le componenti COMP1 e COMP2, è stato creato un grafico (Fig. 12) che posiziona nelle ascisse le molecole e nelle ordinate l'efficacia nel contribuire a determinare COMP1 e COMP2 contemporaneamente. Il grafico permette dunque di osservare quali molecole, contribuiscono a determinare maggiormente le due componenti. Queste molecole saranno identificate con delle linee lunghe perché l'efficacia è alta e si troveranno sulla sinistra, vicino all'origine. Le molecole in questione sono: clovano (M48), neo-allo-ocimene (M37), 2-etilfenciolo (M33), otrienolo (M35), (+)-calarene (M61) e cariofillene (M54) (Cattell, 1966).

Le molecole che invece permettono la minor spiegazione delle componenti, perché spiegano meno le differenze di concentrazioni, che quindi si possono definire ubiquitarie perché non variano molto fra i palchi, sono: acetato di metile (M2), m-cimene (M26), 2-metilpropanale (M3), metilbutanoato (M10), biciclopentil-2,2'-dione (M45) e β-mircene (M25).

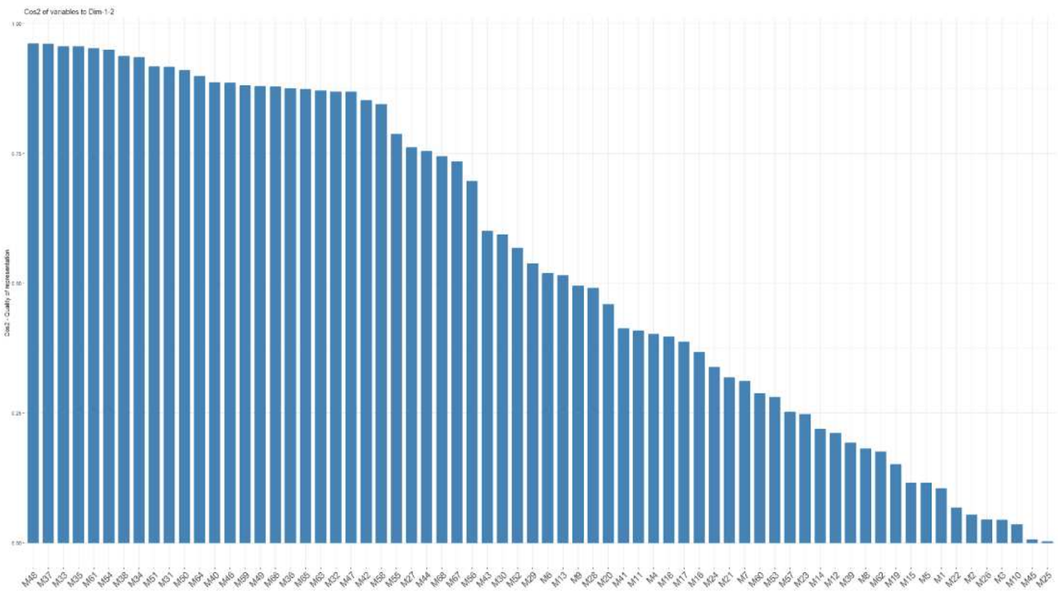


Fig. 12 - Efficacia nel descrivere le molecole.

È possibile osservare il grafico dell'area media dei picchi (Fig. 13) in cui si mostra la media dei valori dell'area dei picchi di ogni molecola fra tutte le infiorescenze, per comprendere come non ci sia correlazione tra la grandezza di questo valore e la significatività nello spiegare le componenti. Le molecole che mostrano l'area del picco media maggiore sono in ordine decrescente: β-mircene (M25) (che è la molecola meno significativa di tutte nel rappresentare le componenti), D-limonene

(M27), canfene (M21), α-pinene (M20), α-fellandrene (M23) e cariofillene (M54) (che è la sesta molecola più significativa nel rappresentare le componenti).

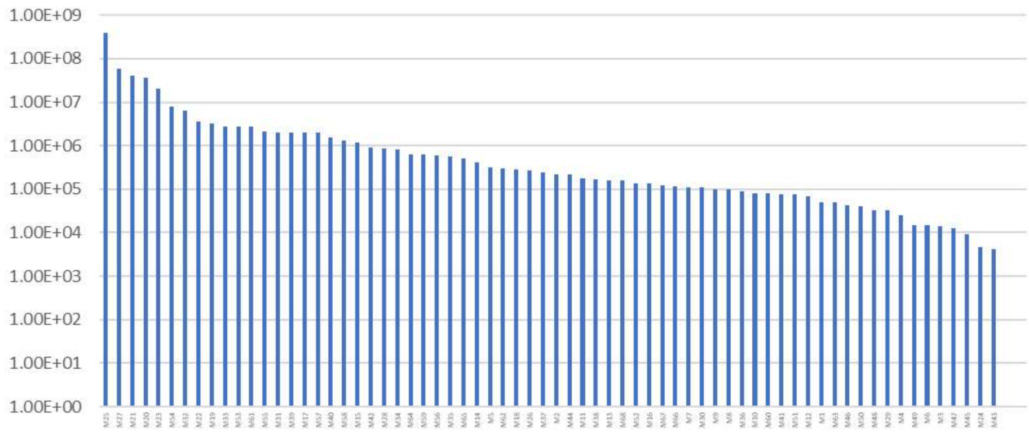


Fig. 13 - Area media dei picchi.

È stato creato successivamente un altro grafico (rappresentazione dei vettori relativi a ciascuna molecola nell'analisi PCA nei primi due assi COMP1 e COMP2) raffigurante le percentuali di variabilità spiegate dalle prime due componenti dell'analisi delle componenti principali (Fig. 14) in cui l'asse delle ascisse spiega il 44% delle informazioni e l'asse delle ordinate il 10,5% delle informazioni: il primo rappresenta la COMP1 e il secondo la COMP2. In questo grafico le molecole (Mn) sono rappresentate con dei vettori con origine nell'intersezione degli assi e con verso uscente, diretto verso la circonferenza esterna. Si può osservare come ad altezza coincidente con quella dell'asse delle ascisse e delle ordinate sia attribuito il valore 0, come nel punto dato dall'intersezione della circonferenza con l'asse delle ascisse, sia attribuito il valore 1 a destra e -1 a sinistra, e come nel punto dato dall'intersezione della circonferenza con l'asse delle ordinate, sia attribuito il valore 1 in alto e -1 in basso. Questi valori indicano la quantità con cui i soggetti del grafico, le molecole, sono in grado di contribuire a spiegare le rispettive componenti; pertanto, il valore di 1 indica la massima contribuzione alla differenziazione, il valore di -1 indica la massima contribuzione alla differenziazione ma in senso negativo, e valori intermedi indicano contributi poco rilevanti. Ogni vettore rappresenta una molecola, ha lunghezza differente a seconda di quanto permette di contribuire alla spiegazione della componente considerata,

infatti, vettori lunghi e diretti verso i valori di 1 sono quelli che rappresentano le molecole che sono maggiormente in grado di discriminare le infiorescenze.
I vettori sono colorati con sfumature che vanno dal blu all'arancione in funzione della capacità di contribuire nella spiegazione delle componenti: vettori azzurri contribuiscono in maniera negativa, vettori arancioni contribuiscono in maniera positiva.
Le molecole che contribuiscono maggiormente sono quelle identificate con vettori di colore arancione scuro e di una lunghezza tale da permettergli di toccare o di avvicinarsi molto alla circonferenza nel I quadrante del piano cartesiano. Queste molecole sono quelle che, spiegando maggiormente le componenti, permettono di effettuare maggiormente le discriminazioni tra le infiorescenze. In altri termini sono in grado di valutare quanto diverse tra loro sono le infiorescenze.
Le molecole che nel grafico precedente (Fig. 12) si trovavano sulla sinistra ed erano rappresentate da barre alte sono le stesse che in questo grafico sono rappresentate da vettori arancioni lunghi che arrivano vicino alla circonferenza nel I quadrante del piano. Sono infatti le molecole che meglio rappresentando la COMP1, meglio consentono di spiegare il 44% della variabilità e di effettuare discriminazione.

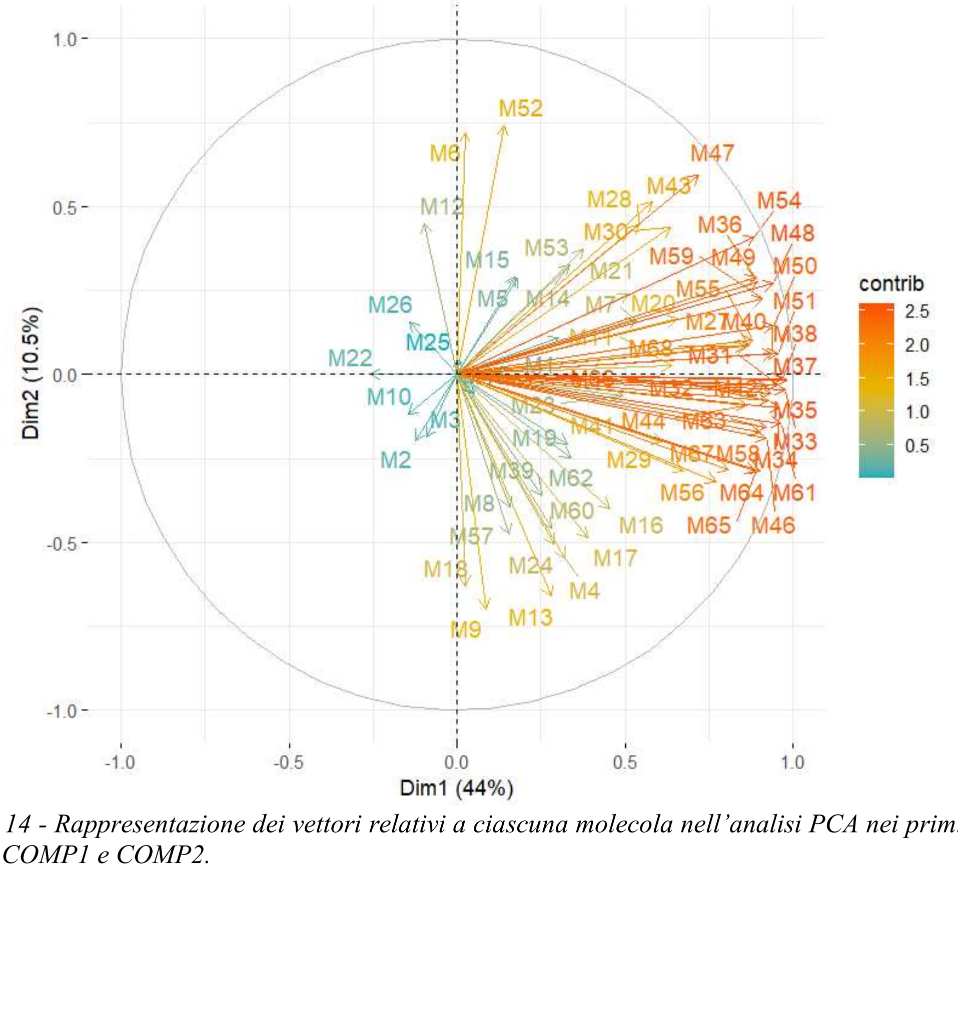


Fig. 14 - Rappresentazione dei vettori relativi a ciascuna molecola nell'analisi PCA nei primi due assi COMP1 e COMP2.

In un altro grafico (Fig. 15) in cui si trovano gli stessi assi, si osservano dei punti corrispondenti ai palchi, quindi, 18 punti (per i palchi da 1 a 10 in cui sono state raccolte due infiorescenze, è stato usato il valore medio di ogni coppia) che più sono lontani fra loro, più indicano che i palchi sono differenti in base alla concentrazione delle molecole delle loro infiorescenze.
In questo grafico sono nuovamente rappresentati in rosso e posizionati nel I quadrante i soggetti in grado di spiegare maggiormente le componenti. Due punti situati vicino all'asse delle ascisse distanti ma tra loro indicano palchi molto differenti tra loro, perché sull'asse considerato viene spiegato il 44% della variabilità, mentre due punti situati vicino all'asse delle ordinate ma distanti tra loro indicano palchi meno differenti tra loro, perché l'asse spiega solo il 10,5% della variabilità.
Si può osservare come il palco 18 sia nel I quadrante il più lontano dall'origine e sia quello colorato con l'arancione più scuro di tutti. Questo palco, infatti, è quello che viene maggiormente spiegato dalla COMP1 che infatti, discrimina bene il palco in base alla concentrazione delle molecole. Allo stesso tempo, risulta essere un palco sottoposto a molta discriminazione perché appunto il contenuto molecolare è diverso da quello delle infiorescenze degli altri palchi.

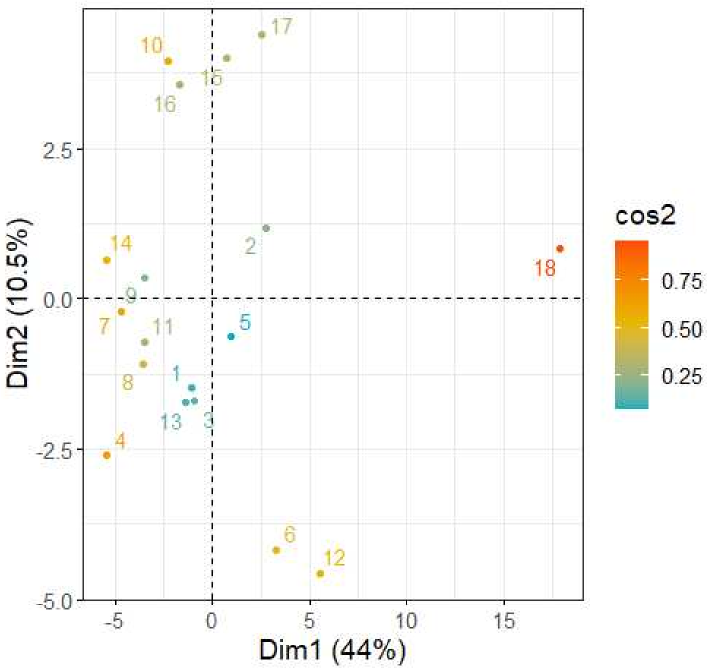


Fig. 15 - Rappresentazione dei palchi nell'analisi PCA nei primi due assi COMP1 e COMP2.

A questo punto è stato creato uno stesso tipo di grafico (Fig. 16) contenente però sia i vettori sia i punti. Si può osservare come sia il palco 18 ad essere il più lontano da tutti gli altri, quindi sia quello più differenziato: è molto diverso perché ci sono molte molecole che lo discriminano in quanto presenti in concentrazione diversa rispetto alla concentrazione che hanno negli altri palchi.
Altri palchi sono meno discriminati, ad esempio il palco 5 è quello meno differenziato. Il palco 15 invece che si trova vicino all'asse della COMP2 è discriminato bene principalmente dalla molecola M52 perché è quella che più si avvicina, e che quindi permette più efficacemente di differenziarlo dagli altri palchi.

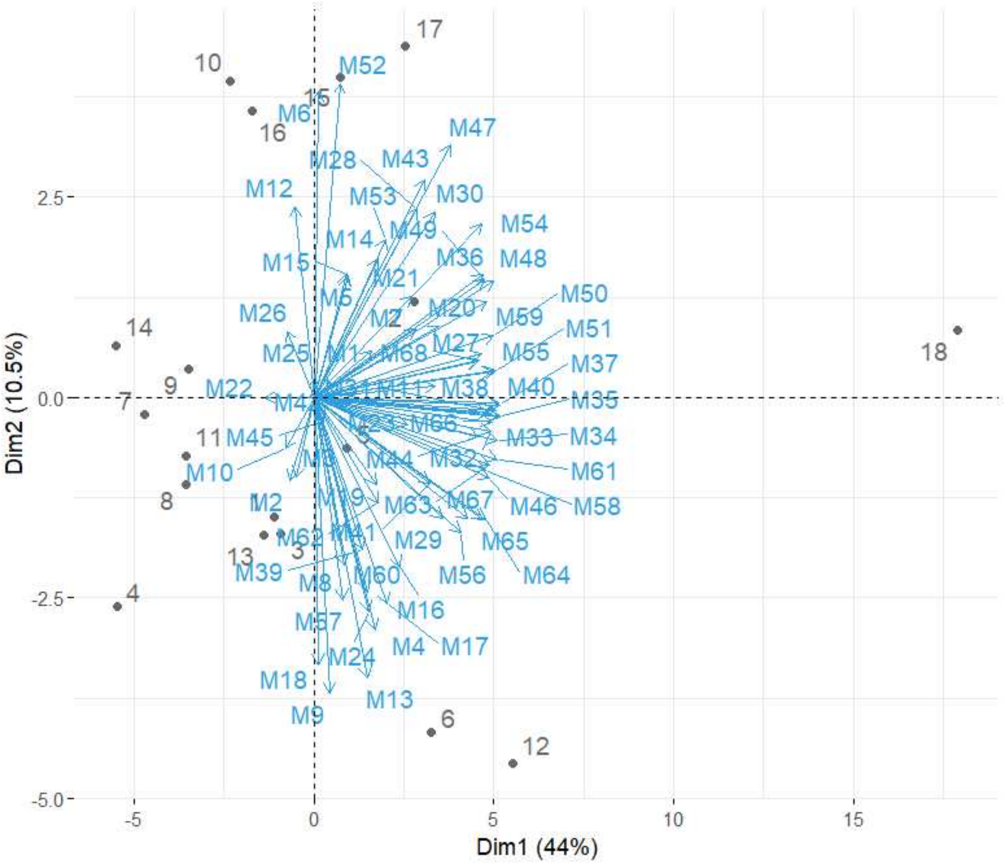


Fig. 16 - Rappresentazione dei vettori relativi a ciascuna molecola e dei palchi nell'analisi PCA nei primi due assi COMP1 e COMP2.

4.5 Intelligenza artificiale

L'intelligenza artificiale per mezzo del programma R ha permesso di concludere l'analisi. L'obiettivo di questa analisi è stato quello di definire se alcune infiorescenze, in base alla posizione del palco, si differenziassero dalle altre, creando quindi gruppi di infiorescenze in base alle similitudini tra di loro e alle differenze con le infiorescenze di altri gruppi.

Il programma ha calcolato la distanza di ciascuno dei 18 palchi rispetto agli altri in 68 dimensioni, perché sono 68 le molecole considerate, e infatti, è stata la concentrazione delle molecole a permettere di determinare la distanza (e la vicinanza) tra i palchi.

Prima, è stata studiata la correlazione eventualmente esistente tra le molecole, adesso invece si parla di correlazione eventualmente esistente tra i palchi.

Il grafico risultante (Fig. 17) permette di osservare allora la correlazione tra i palchi in base al contenuto, ossia in base alla concentrazione delle molecole, sempre dipendente dall'area del picco. Il colore rosso indica una grande correlazione tra i palchi considerati, il colore bianco indica una correlazione più debole, il colore grigio indica una scarsa correlazione e il colore nero semplicemente è dato dal confronto del palco con lo stesso.

Si può osservare come, quasi solamente con il palco 18 ci siano delle correlazioni indicate di colore rosso: il palco 18, tra tutti, è il più correlato con ognuno degli altri perché ogni infiorescenza ha molecole in comune con quella del palco 18 (elevata correlazione).

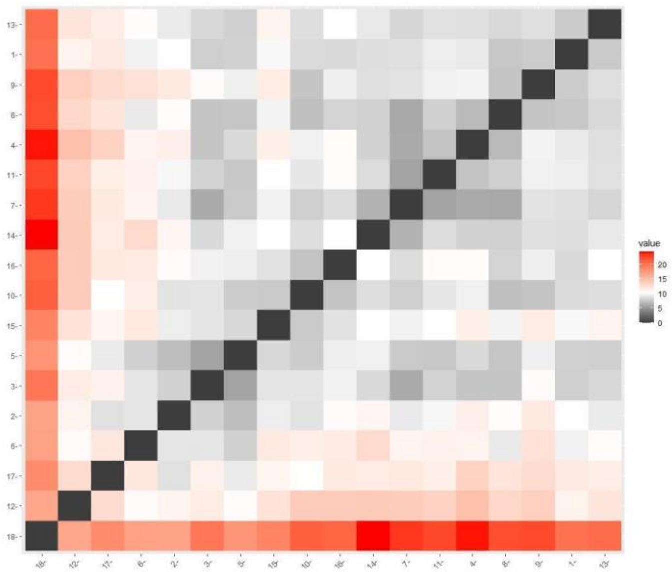


Fig. 17 - Matrice correlazione palchi.

Invece, per le altre infiorescenze, le correlazioni non sono quasi mai indicate con il colore rosso, sono solamente di colori vicino al bianco, e questo indica che tra di loro sono non correlate. Dunque, ogni palco è molto correlato con il palco 18, ma ogni palco è solo poco correlato con ognuno degli altri. Il palco 18 infatti, ripetendo quanto già osservato, è l'unico che si può definire, anche grazie a questo tipo di analisi, molto differente dagli altri.

Questo perché, essendo che l'infiorescenza del palco 18 è la prima a formarsi, le altre sembrerebbero svilupparsi utilizzando le medesime vie metaboliche dell'infiorescenza principale e questo sarebbe il motivo per il quale si dimostrano molto correlate.

A sostegno dell'idea secondo cui solo il palco 18 porti un'infiorescenza distinguibile nettamente dalle altre, è stato calcolato con il programma R il numero di clusters, ossia il numero di gruppi omogenei con cui si potessero distinguere i palchi in base al contenuto di ogni metabolita in termini di concentrazione (Fig. 18).

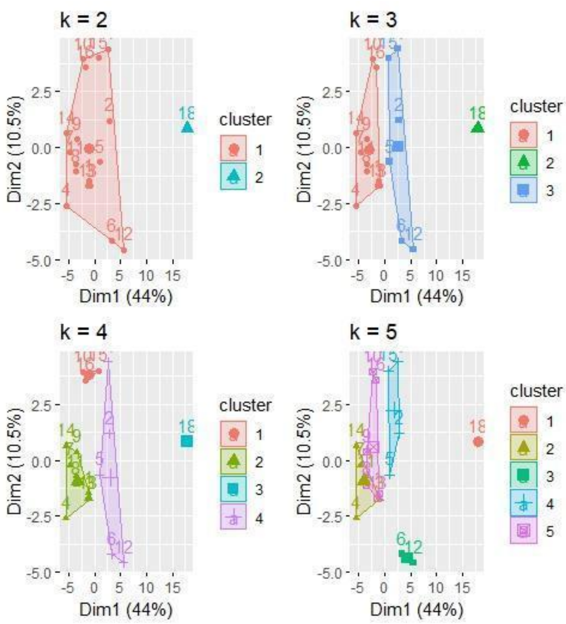


Fig. 18 - Numero di gruppi.

Il numero ottimale di gruppi in base al grafico silhouette del calcolo delle K-MEANS (Fig. 19), che mostra nelle ascisse il numero di gruppi che possono essere creati e nelle ordinate l'incremento o decremento di significatività legato all'aumento di cluster definiti, è due. Infatti, come dimostrato, solamente un'infiorescenza si distingue da tutte le altre, ed è quella portata sul palco 18, mentre tutte le altre sono raggruppabili in uno stesso gruppo.

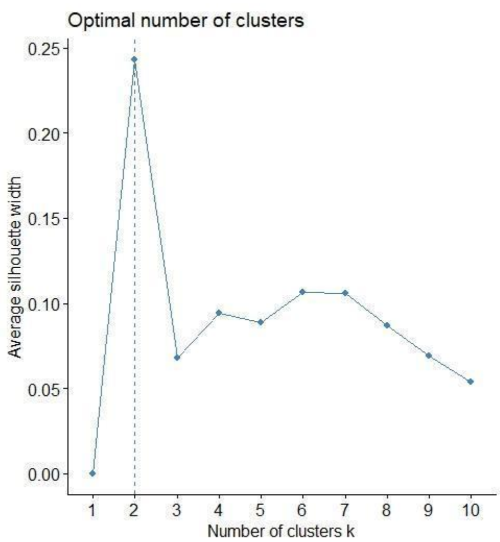


Fig. 19 - Silhouette.

Con il programma R è possibile visualizzare graficamente il motivo con cui il numero di gruppi di palchi possa essere semplicemente di 2, infatti, chiedendo al programma di creare un alto numero di gruppi, come 3, 4, o 5, in nessun caso uno dei gruppi potrà comprendere l'infiorescenza del palco 18, e nessun gruppo nemmeno vi si avvicina. Il palco 18 è discriminato dalla concentrazione di tante molecole e questo lo rende diverso da tutti gli altri.

5. Conclusioni

La ricerca ha avuto l'obiettivo di analizzare l'eventuale relazione tra la posizione dei palchi e la concentrazione delle molecole presenti all'interno della varietà sperimentale S45R di *C. sativa*. I risultati ottenuti indicano che solo per sei molecole la concentrazione varia con un definito andamento, nel dettaglio, aumenta passando dai palchi più bassi ai palchi più alti, ma che generalmente, la concentrazione massima si trova nell'infiorescenza apicale. L'analisi statistica effettuata ha dichiarato però che solo dieci molecole mostrano differenze di concentrazione significative in base alla posizione, ma che per tre di esse la differenza di concentrazione consiste in un aumento della stessa da posizioni basse a posizioni alte.

Questi dati indicano che, poiché la posizione dell'infiorescenza sembrerebbe influenzare la concentrazione di alcune molecole, si potrebbe considerare lecita una raccolta mirata delle stesse. Infatti, dato che il profilo aromatico della pianta è influenzato dai terpenoidi, è possibile selezionare infiorescenze con caratteristiche aromatiche differenti in base alla concentrazione dei terpenoidi presente, valutando quelli che si desidera che siano contenuti nel prodotto finale e in quale concentrazione, tenendo conto dei risultati ottenuti mediante la gascromatografia.

Considerando invece la dimensione dei palchi, si è osservata solo in sei casi una differenza significativa della concentrazione delle molecole in funzione di essa, e solo in due di questi si è trovato un aumento del contenuto di terpenoidi nei palchi di dimensione grande.

Sebbene allora si sia dimostrato possibile affermare la quasi sempre constatata presenza di una concentrazione maggiore di molecole nelle infiorescenze portate dai palchi più alti della pianta, non sembra lecito affermare per mezzo di questi dati che la concentrazione sia maggiore nei palchi di dimensione maggiore. La dimensione del palco non si è dimostrata infatti statisticamente influente sulla concentrazione delle principali molecole.

Per comprendere ulteriormente le differenze e le similitudini dei palchi tra di loro, sono state effettuate ulteriori analisi utilizzando altri programmi. I risultati hanno dimostrato che l'infiorescenza apicale si differenzia da tutte le altre infiorescenze in quanto mostra una concentrazione di molte molecole differente rispetto a quella degli altri palchi. Ogni infiorescenza, ad eccezione di quella apicale, presenta infatti alcune molecole in concentrazioni simili a quelle evidenziate nelle alte infiorescenze, e per questo motivo, si possono raggruppare tutte le infiorescenze sulla base di caratteristiche comuni, ad eccezione di quella apicale, che forma un gruppo separato.

Questo studio dichiara che, sebbene la concentrazione delle molecole aumenti generalmente lungo il profilo della pianta, la concentrazione nell'infiorescenza apicale risulta troppo differente per considerare questa infiorescenza simile alle altre. Questa discrepanza nella concentrazione delle molecole potrebbe indicare una specificità o una peculiarità dell'infiorescenza apicale rispetto alle altre parti della pianta.

In conclusione, nella scelta delle infiorescenze sulla base delle caratteristiche aromatiche, deve essere tenuta in considerazione la posizione sulla pianta piuttosto che la dimensione del palco. Inoltre, è fondamentale considerare separatamente l'infiorescenza apicale, poiché mostra un profilo aromatico molto diverso rispetto alle altre infiorescenze.

6. Allegati

Allegato 1: ANOVA palchi posizione e dimensione

Allegato 2: Grafici distribuzione per molecola

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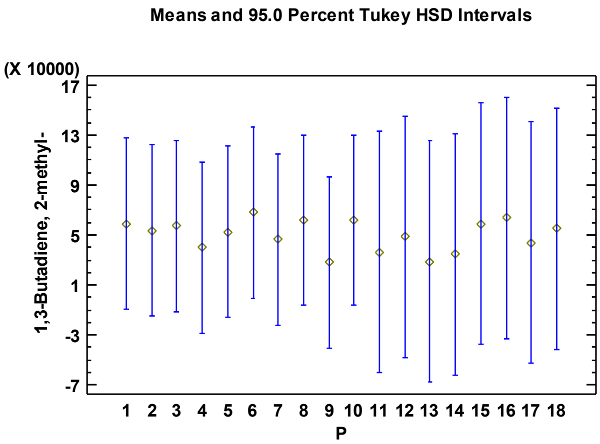
Allegato 1: ANOVA palchi posizione e dimensione

ANOVA Table for 1,3-Butadiene, 2-methyl- by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.90916E9	17	2.29951E8	0.25	0.9944
Within groups	9.30427E9	10	9.30427E8		
Total (Corr.)	1.32134E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1,3-Butadiene, 2-methyl- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.247145, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1,3-Butadiene, 2-methyl- from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 1,3-Butadiene, 2-methyl- for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1,3-Butadiene, 2-methyl- by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
9	2	27947.0	X
13	1	28768.0	X
14	1	34749.0	X
11	1	36233.0	X
4	2	39751.0	X
17	1	43937.0	X
7	2	46490.0	X
12	1	48426.0	X
5	2	52634.0	X
2	2	53599.0	X
18	1	55177.0	X
3	2	57179.5	X
15	1	58778.0	X
1	2	58985.0	X
10	2	61960.0	X
8	2	62002.5	X
16	1	63541.0	X
6	2	68019.5	X

Contrast	Sig.	Difference	+/- Limits
1 - 2		5386.0	136825.
1 - 3		1805.5	136825.
1 - 4		19234.0	136825.
1 - 5		6351.0	136825.
1 - 6		-9034.5	136825.
1 - 7		12495.0	136825.
1 - 8		-3017.5	136825.
1 - 9		31038.0	136825.
1 - 10		-2975.0	136825.
1 - 11		22752.0	167576.
1 - 12		10559.0	167576.
1 - 13		30217.0	167576.
1 - 14		24236.0	167576.
1 - 15		207.0	167576.
1 - 16		-4556.0	167576.
1 - 17		15048.0	167576.
1 - 18		3808.0	167576.
2 - 3		-3580.5	136825.
2 - 4		13848.0	136825.
2 - 5		965.0	136825.
2 - 6		-14420.5	136825.
2 - 7		7109.0	136825.
2 - 8		-8403.5	136825.
2 - 9		25652.0	136825.
2 - 10		-8361.0	136825.
2 - 11		17366.0	167576.
2 - 12		5173.0	167576.
2 - 13		24831.0	167576.
2 - 14		18850.0	167576.
2 - 15		-5179.0	167576.
2 - 16		-9942.0	167576.
2 - 17		9662.0	167576.
2 - 18		-1578.0	167576.
3 - 4		17428.5	136825.
3 - 5		4545.5	136825.
3 - 6		-10840.0	136825.
3 - 7		10689.5	136825.
3 - 8		-4823.0	136825.
3 - 9		29232.5	136825.
3 - 10		-4780.5	136825.
3 - 11		20946.5	167576.
3 - 12		8753.5	167576.
3 - 13		28411.5	167576.
3 - 14		22430.5	167576.
3 - 15		-1598.5	167576.
3 - 16		-6361.5	167576.
3 - 17		13242.5	167576.
3 - 18		2002.5	167576.
4 - 5		-12883.0	136825.
4 - 6		-28268.5	136825.
4 - 7		-6739.0	136825.
4 - 8		-22251.5	136825.
4 - 9		11804.0	136825.
4 - 10		-22209.0	136825.
4 - 11		3518.0	167576.
4 - 12		-8675.0	167576.
4 - 13		10983.0	167576.
4 - 14		5002.0	167576.
4 - 15		-19027.0	167576.
4 - 16		-23790.0	167576.
4 - 17		-4186.0	167576.
4 - 18		-15426.0	167576.
5 - 6		-15385.5	136825.

5 - 7		6144.0	136825.
5 - 8		-9368.5	136825.
5 - 9		24687.0	136825.
5 - 10		-9326.0	136825.
5 - 11		16401.0	167576.
5 - 12		4208.0	167576.
5 - 13		23866.0	167576.
5 - 14		17885.0	167576.
5 - 15		-6144.0	167576.
5 - 16		-10907.0	167576.
5 - 17		8697.0	167576.
5 - 18		-2543.0	167576.
6 - 7		21529.5	136825.
6 - 8		6017.0	136825.
6 - 9		40072.5	136825.
6 - 10		6059.5	136825.
6 - 11		31786.5	167576.
6 - 12		19593.5	167576.
6 - 13		39251.5	167576.
6 - 14		33270.5	167576.
6 - 15		9241.5	167576.
6 - 16		4478.5	167576.
6 - 17		24082.5	167576.
6 - 18		12842.5	167576.
7 - 8		-15512.5	136825.
7 - 9		18543.0	136825.
7 - 10		-15470.0	136825.
7 - 11		10257.0	167576.
7 - 12		-1936.0	167576.
7 - 13		17722.0	167576.
7 - 14		11741.0	167576.
7 - 15		-12288.0	167576.
7 - 16		-17051.0	167576.
7 - 17		2553.0	167576.
7 - 18		-8687.0	167576.
8 - 9		34055.5	136825.
8 - 10		42.5	136825.
8 - 11		25769.5	167576.
8 - 12		13576.5	167576.
8 - 13		33234.5	167576.
8 - 14		27253.5	167576.
8 - 15		3224.5	167576.
8 - 16		-1538.5	167576.
8 - 17		18065.5	167576.
8 - 18		6825.5	167576.
9 - 10		-34013.0	136825.
9 - 11		-8286.0	167576.
9 - 12		-20479.0	167576.
9 - 13		-821.0	167576.
9 - 14		-6802.0	167576.
9 - 15		-30831.0	167576.
9 - 16		-35594.0	167576.
9 - 17		-15990.0	167576.
9 - 18		-27230.0	167576.
10 - 11		25727.0	167576.
10 - 12		13534.0	167576.
10 - 13		33192.0	167576.
10 - 14		27211.0	167576.
10 - 15		3182.0	167576.
10 - 16		-1581.0	167576.
10 - 17		18023.0	167576.
10 - 18		6783.0	167576.
11 - 12		-12193.0	193500.
11 - 13		7465.0	193500.

11 - 14		1484.0	193500.
11 - 15		-22545.0	193500.
11 - 16		-27308.0	193500.
11 - 17		-7704.0	193500.
11 - 18		-18944.0	193500.
12 - 13		19658.0	193500.
12 - 14		13677.0	193500.
12 - 15		-10352.0	193500.
12 - 16		-15115.0	193500.
12 - 17		4489.0	193500.
12 - 18		-6751.0	193500.
13 - 14		-5981.0	193500.
13 - 15		-30010.0	193500.
13 - 16		-34773.0	193500.
13 - 17		-15169.0	193500.
13 - 18		-26409.0	193500.
14 - 15		-24029.0	193500.
14 - 16		-28792.0	193500.
14 - 17		-9188.0	193500.
14 - 18		-20428.0	193500.
15 - 16		-4763.0	193500.
15 - 17		14841.0	193500.
15 - 18		3601.0	193500.
16 - 17		19604.0	193500.
16 - 18		8364.0	193500.
17 - 18		-11240.0	193500.

* denotes a statistically significant difference.

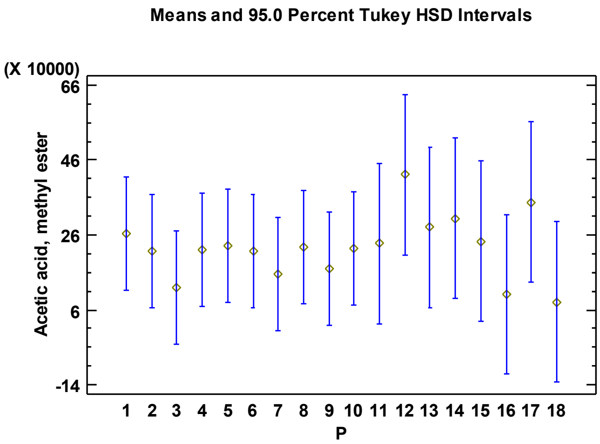
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Acetic acid, methyl ester by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.38694E11	17	8.15845E9	1.79	0.1751
Within groups	4.55618E10	10	4.55618E9		
Total (Corr.)	1.84256E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of Acetic acid, methyl ester into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.79063, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Acetic acid, methyl ester from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Acetic acid, methyl ester for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Acetic acid, methyl ester by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
18	1	80897.0	X
16	1	101679.	X
3	2	120297.	X
7	2	157036.	X
9	2	168800.	X
6	2	215422.	X
2	2	217698.	X
4	2	220943.	X
10	2	224306.	X
8	2	226954.	X
5	2	231627.	X
11	1	237943.	X
15	1	243563.	X
1	2	262060.	X
13	1	280198.	X
14	1	303738.	X
17	1	347929.	X
12	1	421281.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		44362.0	302778.
1 - 3		141763.	302778.
1 - 4		41117.5	302778.
1 - 5		30433.5	302778.
1 - 6		46638.5	302778.
1 - 7		105024.	302778.
1 - 8		35106.5	302778.
1 - 9		93260.0	302778.
1 - 10		37754.0	302778.
1 - 11		24117.0	370826.
1 - 12		-159221.	370826.
1 - 13		-18138.0	370826.
1 - 14		-41678.0	370826.
1 - 15		18497.0	370826.
1 - 16		160381.	370826.
1 - 17		-85869.0	370826.
1 - 18		181163.	370826.
2 - 3		97401.0	302778.
2 - 4		-3244.5	302778.
2 - 5		-13928.5	302778.
2 - 6		2276.5	302778.
2 - 7		60662.0	302778.
2 - 8		-9255.5	302778.
2 - 9		48898.0	302778.
2 - 10		-6608.0	302778.
2 - 11		-20245.0	370826.
2 - 12		-203583.	370826.
2 - 13		-62500.0	370826.
2 - 14		-86040.0	370826.
2 - 15		-25865.0	370826.
2 - 16		116019.	370826.
2 - 17		-130231.	370826.
2 - 18		136801.	370826.
3 - 4		-100646.	302778.
3 - 5		-111330.	302778.
3 - 6		-95124.5	302778.
3 - 7		-36739.0	302778.
3 - 8		-106657.	302778.
3 - 9		-48503.0	302778.
3 - 10		-104009.	302778.
3 - 11		-117646.	370826.
3 - 12		-300984.	370826.
3 - 13		-159901.	370826.
3 - 14		-183441.	370826.
3 - 15		-123266.	370826.
3 - 16		18618.0	370826.
3 - 17		-227632.	370826.
3 - 18		39400.0	370826.
4 - 5		-10684.0	302778.
4 - 6		5521.0	302778.
4 - 7		63906.5	302778.
4 - 8		-6011.0	302778.
4 - 9		52142.5	302778.
4 - 10		-3363.5	302778.
4 - 11		-17000.5	370826.
4 - 12		-200339.	370826.
4 - 13		-59255.5	370826.
4 - 14		-82795.5	370826.
4 - 15		-22620.5	370826.
4 - 16		119264.	370826.
4 - 17		-126987.	370826.
4 - 18		140046.	370826.
5 - 6		16205.0	302778.

5 - 7		74590.5	302778.
5 - 8		4673.0	302778.
5 - 9		62826.5	302778.
5 - 10		7320.5	302778.
5 - 11		-6316.5	370826.
5 - 12		-189655.	370826.
5 - 13		-48571.5	370826.
5 - 14		-72111.5	370826.
5 - 15		-11936.5	370826.
5 - 16		129948.	370826.
5 - 17		-116303.	370826.
5 - 18		150730.	370826.
6 - 7		58385.5	302778.
6 - 8		-11532.0	302778.
6 - 9		46621.5	302778.
6 - 10		-8884.5	302778.
6 - 11		-22521.5	370826.
6 - 12		-205860.	370826.
6 - 13		-64776.5	370826.
6 - 14		-88316.5	370826.
6 - 15		-28141.5	370826.
6 - 16		113743.	370826.
6 - 17		-132508.	370826.
6 - 18		134525.	370826.
7 - 8		-69917.5	302778.
7 - 9		-11764.0	302778.
7 - 10		-67270.0	302778.
7 - 11		-80907.0	370826.
7 - 12		-264245.	370826.
7 - 13		-123162.	370826.
7 - 14		-146702.	370826.
7 - 15		-86527.0	370826.
7 - 16		55357.0	370826.
7 - 17		-190893.	370826.
7 - 18		76139.0	370826.
8 - 9		58153.5	302778.
8 - 10		2647.5	302778.
8 - 11		-10989.5	370826.
8 - 12		-194328.	370826.
8 - 13		-53244.5	370826.
8 - 14		-76784.5	370826.
8 - 15		-16609.5	370826.
8 - 16		125275.	370826.
8 - 17		-120976.	370826.
8 - 18		146057.	370826.
9 - 10		-55506.0	302778.
9 - 11		-69143.0	370826.
9 - 12		-252481.	370826.
9 - 13		-111398.	370826.
9 - 14		-134938.	370826.
9 - 15		-74763.0	370826.
9 - 16		67121.0	370826.
9 - 17		-179129.	370826.
9 - 18		87903.0	370826.
10 - 11		-13637.0	370826.
10 - 12		-196975.	370826.
10 - 13		-55892.0	370826.
10 - 14		-79432.0	370826.
10 - 15		-19257.0	370826.
10 - 16		122627.	370826.
10 - 17		-123623.	370826.
10 - 18		143409.	370826.
11 - 12		-183338.	428193.
11 - 13		-42255.0	428193.

11 - 14		-65795.0	428193.
11 - 15		-5620.0	428193.
11 - 16		136264.	428193.
11 - 17		-109986.	428193.
11 - 18		157046.	428193.
12 - 13		141083.	428193.
12 - 14		117543.	428193.
12 - 15		177718.	428193.
12 - 16		319602.	428193.
12 - 17		73352.0	428193.
12 - 18		340384.	428193.
13 - 14		-23540.0	428193.
13 - 15		36635.0	428193.
13 - 16		178519.	428193.
13 - 17		-67731.0	428193.
13 - 18		199301.	428193.
14 - 15		60175.0	428193.
14 - 16		202059.	428193.
14 - 17		-44191.0	428193.
14 - 18		222841.	428193.
15 - 16		141884.	428193.
15 - 17		-104366.	428193.
15 - 18		162666.	428193.
16 - 17		-246250.	428193.
16 - 18		20782.0	428193.
17 - 18		267032.	428193.

* denotes a statistically significant difference.

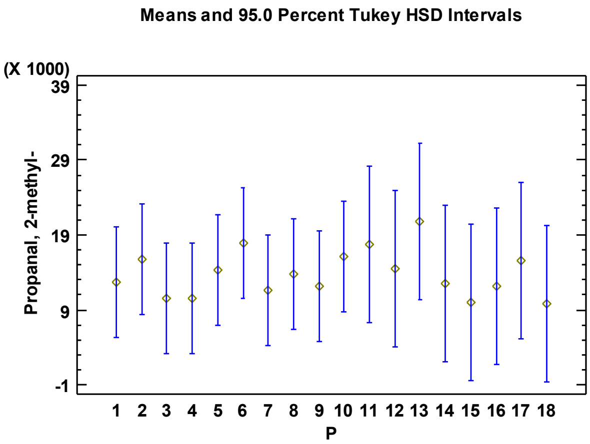
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Propanal, 2-methyl- by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	2.16449E8	17	1.27323E7	1.17	0.4111
Within groups	1.08658E8	10	1.08658E7		
Total (Corr.)	3.25107E8	27			

The StatAdvisor
The ANOVA table decomposes the variance of Propanal, 2-methyl- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.17178, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Propanal, 2-methyl- from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Propanal, 2-methyl- for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Propanal, 2-methyl- by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
18	1	9862.0	X
15	1	10035.0	X
3	2	10508.5	X
4	2	10557.5	X
7	2	11556.5	X
16	1	12093.0	X
9	2	12093.5	X
14	1	12472.0	X
1	2	12687.0	X
8	2	13748.5	X
5	2	14265.5	X
12	1	14572.0	X
17	1	15572.0	X
2	2	15803.5	X
10	2	16137.5	X
11	1	17782.0	X
6	2	17870.5	X
13	1	20812.0	X

Contrast	Sig.	Difference	+/- Limits
1 - 2		-3116.5	14786.1
1 - 3		2178.5	14786.1
1 - 4		2129.5	14786.1
1 - 5		-1578.5	14786.1
1 - 6		-5183.5	14786.1
1 - 7		1130.5	14786.1
1 - 8		-1061.5	14786.1
1 - 9		593.5	14786.1
1 - 10		-3450.5	14786.1
1 - 11		-5095.0	18109.2
1 - 12		-1885.0	18109.2
1 - 13		-8125.0	18109.2
1 - 14		215.0	18109.2
1 - 15		2652.0	18109.2
1 - 16		594.0	18109.2
1 - 17		-2885.0	18109.2
1 - 18		2825.0	18109.2
2 - 3		5295.0	14786.1
2 - 4		5246.0	14786.1
2 - 5		1538.0	14786.1
2 - 6		-2067.0	14786.1
2 - 7		4247.0	14786.1
2 - 8		2055.0	14786.1
2 - 9		3710.0	14786.1
2 - 10		-334.0	14786.1
2 - 11		-1978.5	18109.2
2 - 12		1231.5	18109.2
2 - 13		-5008.5	18109.2
2 - 14		3331.5	18109.2
2 - 15		5768.5	18109.2
2 - 16		3710.5	18109.2
2 - 17		231.5	18109.2
2 - 18		5941.5	18109.2
3 - 4		-49.0	14786.1
3 - 5		-3757.0	14786.1
3 - 6		-7362.0	14786.1
3 - 7		-1048.0	14786.1
3 - 8		-3240.0	14786.1
3 - 9		-1585.0	14786.1
3 - 10		-5629.0	14786.1
3 - 11		-7273.5	18109.2
3 - 12		-4063.5	18109.2
3 - 13		-10303.5	18109.2
3 - 14		-1963.5	18109.2
3 - 15		473.5	18109.2
3 - 16		-1584.5	18109.2
3 - 17		-5063.5	18109.2
3 - 18		646.5	18109.2
4 - 5		-3708.0	14786.1
4 - 6		-7313.0	14786.1
4 - 7		-999.0	14786.1
4 - 8		-3191.0	14786.1
4 - 9		-1536.0	14786.1
4 - 10		-5580.0	14786.1
4 - 11		-7224.5	18109.2
4 - 12		-4014.5	18109.2
4 - 13		-10254.5	18109.2
4 - 14		-1914.5	18109.2
4 - 15		522.5	18109.2
4 - 16		-1535.5	18109.2
4 - 17		-5014.5	18109.2
4 - 18		695.5	18109.2
5 - 6		-3605.0	14786.1

5 - 7		2709.0	14786.1
5 - 8		517.0	14786.1
5 - 9		2172.0	14786.1
5 - 10		-1872.0	14786.1
5 - 11		-3516.5	18109.2
5 - 12		-306.5	18109.2
5 - 13		-6546.5	18109.2
5 - 14		1793.5	18109.2
5 - 15		4230.5	18109.2
5 - 16		2172.5	18109.2
5 - 17		-1306.5	18109.2
5 - 18		4403.5	18109.2
6 - 7		6314.0	14786.1
6 - 8		4122.0	14786.1
6 - 9		5777.0	14786.1
6 - 10		1733.0	14786.1
6 - 11		88.5	18109.2
6 - 12		3298.5	18109.2
6 - 13		-2941.5	18109.2
6 - 14		5398.5	18109.2
6 - 15		7835.5	18109.2
6 - 16		5777.5	18109.2
6 - 17		2298.5	18109.2
6 - 18		8008.5	18109.2
7 - 8		-2192.0	14786.1
7 - 9		-537.0	14786.1
7 - 10		-4581.0	14786.1
7 - 11		-6225.5	18109.2
7 - 12		-3015.5	18109.2
7 - 13		-9255.5	18109.2
7 - 14		-915.5	18109.2
7 - 15		1521.5	18109.2
7 - 16		-536.5	18109.2
7 - 17		-4015.5	18109.2
7 - 18		1694.5	18109.2
8 - 9		1655.0	14786.1
8 - 10		-2389.0	14786.1
8 - 11		-4033.5	18109.2
8 - 12		-823.5	18109.2
8 - 13		-7063.5	18109.2
8 - 14		1276.5	18109.2
8 - 15		3713.5	18109.2
8 - 16		1655.5	18109.2
8 - 17		-1823.5	18109.2
8 - 18		3886.5	18109.2
9 - 10		-4044.0	14786.1
9 - 11		-5688.5	18109.2
9 - 12		-2478.5	18109.2
9 - 13		-8718.5	18109.2
9 - 14		-378.5	18109.2
9 - 15		2058.5	18109.2
9 - 16		0.5	18109.2
9 - 17		-3478.5	18109.2
9 - 18		2231.5	18109.2
10 - 11		-1644.5	18109.2
10 - 12		1565.5	18109.2
10 - 13		-4674.5	18109.2
10 - 14		3665.5	18109.2
10 - 15		6102.5	18109.2
10 - 16		4044.5	18109.2
10 - 17		565.5	18109.2
10 - 18		6275.5	18109.2
11 - 12		3210.0	20910.7
11 - 13		-3030.0	20910.7

11 - 14		5310.0	20910.7
11 - 15		7747.0	20910.7
11 - 16		5689.0	20910.7
11 - 17		2210.0	20910.7
11 - 18		7920.0	20910.7
12 - 13		-6240.0	20910.7
12 - 14		2100.0	20910.7
12 - 15		4537.0	20910.7
12 - 16		2479.0	20910.7
12 - 17		-1000.0	20910.7
12 - 18		4710.0	20910.7
13 - 14		8340.0	20910.7
13 - 15		10777.0	20910.7
13 - 16		8719.0	20910.7
13 - 17		5240.0	20910.7
13 - 18		10950.0	20910.7
14 - 15		2437.0	20910.7
14 - 16		379.0	20910.7
14 - 17		-3100.0	20910.7
14 - 18		2610.0	20910.7
15 - 16		-2058.0	20910.7
15 - 17		-5537.0	20910.7
15 - 18		173.0	20910.7
16 - 17		-3479.0	20910.7
16 - 18		2231.0	20910.7
17 - 18		5710.0	20910.7

* denotes a statistically significant difference.

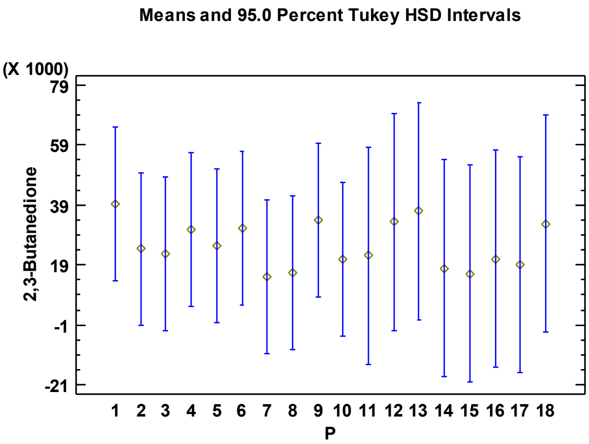
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 2,3-Butanedione by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.54252E9	17	9.07367E7	0.70	0.7539
Within groups	1.30262E9	10	1.30262E8		
Total (Corr.)	2.84514E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2,3-Butanedione into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.696573, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2,3-Butanedione from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 2,3-Butanedione for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2,3-Butanedione by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
7	2	15216.0	X
15	1	16131.0	X
8	2	16468.5	X
14	1	17911.0	X
17	1	19094.0	X
10	2	21025.5	X
16	1	21037.0	X
11	1	22044.0	X
3	2	22819.5	X
2	2	24311.0	X
5	2	25483.5	X
4	2	30752.5	X
6	2	31093.5	X
18	1	32636.0	X
12	1	33378.0	X
9	2	33862.0	X
13	1	36943.0	X
1	2	39504.0	X

Allegato 1: ANOVA palchi posizione e dimensione

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		15193.0	51195.6
1 - 3		16684.5	51195.6
1 - 4		8751.5	51195.6
1 - 5		14020.5	51195.6
1 - 6		8410.5	51195.6
1 - 7		24288.0	51195.6
1 - 8		23035.5	51195.6
1 - 9		5642.0	51195.6
1 - 10		18478.5	51195.6
1 - 11		17460.0	62701.5
1 - 12		6126.0	62701.5
1 - 13		2561.0	62701.5
1 - 14		21593.0	62701.5
1 - 15		23373.0	62701.5
1 - 16		18467.0	62701.5
1 - 17		20410.0	62701.5
1 - 18		6868.0	62701.5
2 - 3		1491.5	51195.6
2 - 4		-6441.5	51195.6
2 - 5		-1172.5	51195.6
2 - 6		-6782.5	51195.6
2 - 7		9095.0	51195.6
2 - 8		7842.5	51195.6
2 - 9		-9551.0	51195.6
2 - 10		3285.5	51195.6
2 - 11		2267.0	62701.5
2 - 12		-9067.0	62701.5
2 - 13		-12632.0	62701.5
2 - 14		6400.0	62701.5
2 - 15		8180.0	62701.5
2 - 16		3274.0	62701.5
2 - 17		5217.0	62701.5
2 - 18		-8325.0	62701.5
3 - 4		-7933.0	51195.6
3 - 5		-2664.0	51195.6
3 - 6		-8274.0	51195.6
3 - 7		7603.5	51195.6
3 - 8		6351.0	51195.6
3 - 9		-11042.5	51195.6
3 - 10		1794.0	51195.6
3 - 11		775.5	62701.5
3 - 12		-10558.5	62701.5
3 - 13		-14123.5	62701.5
3 - 14		4908.5	62701.5
3 - 15		6688.5	62701.5
3 - 16		1782.5	62701.5
3 - 17		3725.5	62701.5
3 - 18		-9816.5	62701.5
4 - 5		5269.0	51195.6
4 - 6		-341.0	51195.6
4 - 7		15536.5	51195.6
4 - 8		14284.0	51195.6
4 - 9		-3109.5	51195.6
4 - 10		9727.0	51195.6
4 - 11		8708.5	62701.5
4 - 12		-2625.5	62701.5
4 - 13		-6190.5	62701.5
4 - 14		12841.5	62701.5
4 - 15		14621.5	62701.5
4 - 16		9715.5	62701.5
4 - 17		11658.5	62701.5
4 - 18		-1883.5	62701.5
5 - 6		-5610.0	51195.6

5 - 7		10267.5	51195.6
5 - 8		9015.0	51195.6
5 - 9		-8378.5	51195.6
5 - 10		4458.0	51195.6
5 - 11		3439.5	62701.5
5 - 12		-7894.5	62701.5
5 - 13		-11459.5	62701.5
5 - 14		7572.5	62701.5
5 - 15		9352.5	62701.5
5 - 16		4446.5	62701.5
5 - 17		6389.5	62701.5
5 - 18		-7152.5	62701.5
6 - 7		15877.5	51195.6
6 - 8		14625.0	51195.6
6 - 9		-2768.5	51195.6
6 - 10		10068.0	51195.6
6 - 11		9049.5	62701.5
6 - 12		-2284.5	62701.5
6 - 13		-5849.5	62701.5
6 - 14		13182.5	62701.5
6 - 15		14962.5	62701.5
6 - 16		10056.5	62701.5
6 - 17		11999.5	62701.5
6 - 18		-1542.5	62701.5
7 - 8		-1252.5	51195.6
7 - 9		-18646.0	51195.6
7 - 10		-5809.5	51195.6
7 - 11		-6828.0	62701.5
7 - 12		-18162.0	62701.5
7 - 13		-21727.0	62701.5
7 - 14		-2695.0	62701.5
7 - 15		-915.0	62701.5
7 - 16		-5821.0	62701.5
7 - 17		-3878.0	62701.5
7 - 18		-17420.0	62701.5
8 - 9		-17393.5	51195.6
8 - 10		-4557.0	51195.6
8 - 11		-5575.5	62701.5
8 - 12		-16909.5	62701.5
8 - 13		-20474.5	62701.5
8 - 14		-1442.5	62701.5
8 - 15		337.5	62701.5
8 - 16		-4568.5	62701.5
8 - 17		-2625.5	62701.5
8 - 18		-16167.5	62701.5
9 - 10		12836.5	51195.6
9 - 11		11818.0	62701.5
9 - 12		484.0	62701.5
9 - 13		-3081.0	62701.5
9 - 14		15951.0	62701.5
9 - 15		17731.0	62701.5
9 - 16		12825.0	62701.5
9 - 17		14768.0	62701.5
9 - 18		1226.0	62701.5
10 - 11		-1018.5	62701.5
10 - 12		-12352.5	62701.5
10 - 13		-15917.5	62701.5
10 - 14		3114.5	62701.5
10 - 15		4894.5	62701.5
10 - 16		-11.5	62701.5
10 - 17		1931.5	62701.5
10 - 18		-11610.5	62701.5
11 - 12		-11334.0	72401.4
11 - 13		-14899.0	72401.4

11 - 14		4133.0	72401.4
11 - 15		5913.0	72401.4
11 - 16		1007.0	72401.4
11 - 17		2950.0	72401.4
11 - 18		-10592.0	72401.4
12 - 13		-3565.0	72401.4
12 - 14		15467.0	72401.4
12 - 15		17247.0	72401.4
12 - 16		12341.0	72401.4
12 - 17		14284.0	72401.4
12 - 18		742.0	72401.4
13 - 14		19032.0	72401.4
13 - 15		20812.0	72401.4
13 - 16		15906.0	72401.4
13 - 17		17849.0	72401.4
13 - 18		4307.0	72401.4
14 - 15		1780.0	72401.4
14 - 16		-3126.0	72401.4
14 - 17		-1183.0	72401.4
14 - 18		-14725.0	72401.4
15 - 16		-4906.0	72401.4
15 - 17		-2963.0	72401.4
15 - 18		-16505.0	72401.4
16 - 17		1943.0	72401.4
16 - 18		-11599.0	72401.4
17 - 18		-13542.0	72401.4

* denotes a statistically significant difference.

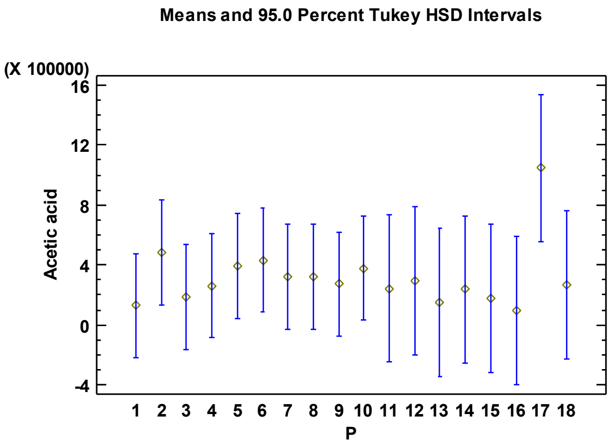
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Acetic acid by P

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Between groups	8.59371E11	17	5.05512E10	2.09	0.1186
Within groups	2.42091E11	10	2.42091E10		
Total (Corr.)	1.10146E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of Acetic acid into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.08811, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Acetic acid from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Acetic acid for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Acetic acid by P

Method: 95.0 percent Tukey HSD

P	Count	Mean	Homogeneous Groups
16	1	93937.0	XX
1	2	129305.	X
13	1	149308.	XX
15	1	178792.	XX
3	2	187582.	X
14	1	236729.	XX
11	1	243882.	XX
4	2	260700.	XX
18	1	265012.	XX
9	2	272498.	XX
12	1	293159.	XX
8	2	320450.	XX
7	2	321665.	XX
10	2	378377.	XX
5	2	393107.	XX
6	2	433014.	XX
2	2	481985.	XX
17	1	1.04675E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-352680.	697932.
1 - 3		-58277.0	697932.
1 - 4		-131395.	697932.
1 - 5		-263802.	697932.
1 - 6		-303709.	697932.
1 - 7		-192360.	697932.
1 - 8		-191146.	697932.
1 - 9		-143194.	697932.
1 - 10		-249072.	697932.
1 - 11		-114578.	854788.
1 - 12		-163855.	854788.
1 - 13		-20003.5	854788.
1 - 14		-107425.	854788.
1 - 15		-49487.5	854788.
1 - 16		35367.5	854788.
1 - 17	*	-917445.	854788.
1 - 18		-135708.	854788.
2 - 3		294403.	697932.
2 - 4		221285.	697932.
2 - 5		88878.0	697932.
2 - 6		48971.0	697932.
2 - 7		160320.	697932.
2 - 8		161535.	697932.
2 - 9		209487.	697932.
2 - 10		103608.	697932.
2 - 11		238103.	854788.
2 - 12		188826.	854788.
2 - 13		332677.	854788.
2 - 14		245256.	854788.
2 - 15		303193.	854788.
2 - 16		388048.	854788.
2 - 17		-564765.	854788.
2 - 18		216973.	854788.
3 - 4		-73118.0	697932.
3 - 5		-205525.	697932.
3 - 6		-245432.	697932.
3 - 7		-134083.	697932.
3 - 8		-132869.	697932.
3 - 9		-84916.5	697932.
3 - 10		-190795.	697932.
3 - 11		-56300.5	854788.
3 - 12		-105578.	854788.
3 - 13		38273.5	854788.
3 - 14		-49147.5	854788.
3 - 15		8789.5	854788.
3 - 16		93644.5	854788.
3 - 17	*	-859168.	854788.
3 - 18		-77430.5	854788.
4 - 5		-132407.	697932.
4 - 6		-172314.	697932.
4 - 7		-60965.0	697932.
4 - 8		-59750.5	697932.
4 - 9		-11798.5	697932.
4 - 10		-117677.	697932.
4 - 11		16817.5	854788.
4 - 12		-32459.5	854788.
4 - 13		111392.	854788.
4 - 14		23970.5	854788.
4 - 15		81907.5	854788.
4 - 16		166763.	854788.
4 - 17		-786050.	854788.
4 - 18		-4312.5	854788.
5 - 6		-39907.0	697932.

5 - 7		71442.0	697932.
5 - 8		72656.5	697932.
5 - 9		120609.	697932.
5 - 10		14730.0	697932.
5 - 11		149225.	854788.
5 - 12		99947.5	854788.
5 - 13		243799.	854788.
5 - 14		156378.	854788.
5 - 15		214315.	854788.
5 - 16		299170.	854788.
5 - 17		-653643.	854788.
5 - 18		128095.	854788.
6 - 7		111349.	697932.
6 - 8		112564.	697932.
6 - 9		160516.	697932.
6 - 10		54637.0	697932.
6 - 11		189132.	854788.
6 - 12		139855.	854788.
6 - 13		283706.	854788.
6 - 14		196285.	854788.
6 - 15		254222.	854788.
6 - 16		339077.	854788.
6 - 17		-613736.	854788.
6 - 18		168002.	854788.
7 - 8		1214.5	697932.
7 - 9		49166.5	697932.
7 - 10		-56712.0	697932.
7 - 11		77782.5	854788.
7 - 12		28505.5	854788.
7 - 13		172357.	854788.
7 - 14		84935.5	854788.
7 - 15		142873.	854788.
7 - 16		227728.	854788.
7 - 17		-725085.	854788.
7 - 18		56652.5	854788.
8 - 9		47952.0	697932.
8 - 10		-57926.5	697932.
8 - 11		76568.0	854788.
8 - 12		27291.0	854788.
8 - 13		171142.	854788.
8 - 14		83721.0	854788.
8 - 15		141658.	854788.
8 - 16		226513.	854788.
8 - 17		-726299.	854788.
8 - 18		55438.0	854788.
9 - 10		-105879.	697932.
9 - 11		28616.0	854788.
9 - 12		-20661.0	854788.
9 - 13		123190.	854788.
9 - 14		35769.0	854788.
9 - 15		93706.0	854788.
9 - 16		178561.	854788.
9 - 17		-774251.	854788.
9 - 18		7486.0	854788.
10 - 11		134495.	854788.
10 - 12		85217.5	854788.
10 - 13		229069.	854788.
10 - 14		141648.	854788.
10 - 15		199585.	854788.
10 - 16		284440.	854788.
10 - 17		-668373.	854788.
10 - 18		113365.	854788.
11 - 12		-49277.0	987025.
11 - 13		94574.0	987025.

11 - 14		7153.0	987025.
11 - 15		65090.0	987025.
11 - 16		149945.	987025.
11 - 17		-802867.	987025.
11 - 18		-21130.0	987025.
12 - 13		143851.	987025.
12 - 14		56430.0	987025.
12 - 15		114367.	987025.
12 - 16		199222.	987025.
12 - 17		-753590.	987025.
12 - 18		28147.0	987025.
13 - 14		-87421.0	987025.
13 - 15		-29484.0	987025.
13 - 16		55371.0	987025.
13 - 17		-897441.	987025.
13 - 18		-115704.	987025.
14 - 15		57937.0	987025.
14 - 16		142792.	987025.
14 - 17		-810020.	987025.
14 - 18		-28283.0	987025.
15 - 16		84855.0	987025.
15 - 17		-867957.	987025.
15 - 18		-86220.0	987025.
16 - 17		-952812.	987025.
16 - 18		-171075.	987025.
17 - 18		781737.	987025.

* denotes a statistically significant difference.

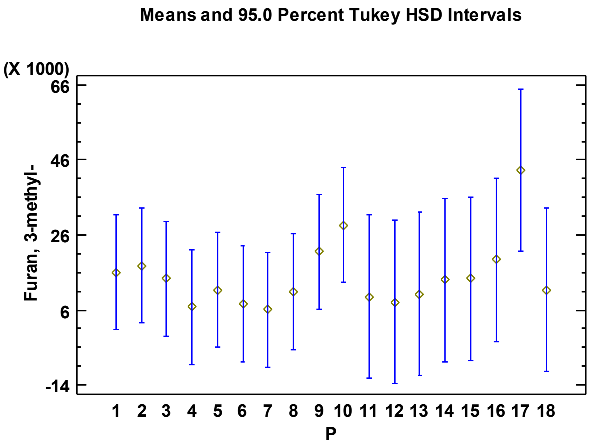
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 2 pairs, indicating that these pairs show statistically significant differences at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Furan, 3-methyl- by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.86919E9	17	1.09952E8	2.34	0.0863
Within groups	4.69183E8	10	4.69183E7		
Total (Corr.)	2.33837E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of Furan, 3-methyl- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.34348, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Furan, 3-methyl- from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Furan, 3-methyl- for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Furan, 3-methyl- by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
7	2	6131.5	X
4	2	6747.5	X
6	2	7691.5	X
12	1	8066.0	X
11	1	9590.0	X
13	1	10239.0	X
8	2	10842.5	X
5	2	11307.0	X
18	1	11357.0	X
14	1	13982.0	X
3	2	14321.0	X
15	1	14383.0	X
1	2	16059.5	X
2	2	17849.0	X
16	1	19372.0	X
9	2	21510.0	X
10	2	28608.0	X
17	1	43297.0	X

Allegato 1: ANOVA palchi posizione e dimensione

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-1789.5	30725.2
1 - 3		1738.5	30725.2
1 - 4		9312.0	30725.2
1 - 5		4752.5	30725.2
1 - 6		8368.0	30725.2
1 - 7		9928.0	30725.2
1 - 8		5217.0	30725.2
1 - 9		-5450.5	30725.2
1 - 10		-12548.5	30725.2
1 - 11		6469.5	37630.6
1 - 12		7993.5	37630.6
1 - 13		5820.5	37630.6
1 - 14		2077.5	37630.6
1 - 15		1676.5	37630.6
1 - 16		-3312.5	37630.6
1 - 17		-27237.5	37630.6
1 - 18		4702.5	37630.6
2 - 3		3528.0	30725.2
2 - 4		11101.5	30725.2
2 - 5		6542.0	30725.2
2 - 6		10157.5	30725.2
2 - 7		11717.5	30725.2
2 - 8		7006.5	30725.2
2 - 9		-3661.0	30725.2
2 - 10		-10759.0	30725.2
2 - 11		8259.0	37630.6
2 - 12		9783.0	37630.6
2 - 13		7610.0	37630.6
2 - 14		3867.0	37630.6
2 - 15		3466.0	37630.6
2 - 16		-1523.0	37630.6
2 - 17		-25448.0	37630.6
2 - 18		6492.0	37630.6
3 - 4		7573.5	30725.2
3 - 5		3014.0	30725.2
3 - 6		6629.5	30725.2
3 - 7		8189.5	30725.2
3 - 8		3478.5	30725.2
3 - 9		-7189.0	30725.2
3 - 10		-14287.0	30725.2
3 - 11		4731.0	37630.6
3 - 12		6255.0	37630.6
3 - 13		4082.0	37630.6
3 - 14		339.0	37630.6
3 - 15		-62.0	37630.6
3 - 16		-5051.0	37630.6
3 - 17		-28976.0	37630.6
3 - 18		2964.0	37630.6
4 - 5		-4559.5	30725.2
4 - 6		-944.0	30725.2
4 - 7		616.0	30725.2
4 - 8		-4095.0	30725.2
4 - 9		-14762.5	30725.2
4 - 10		-21860.5	30725.2
4 - 11		-2842.5	37630.6
4 - 12		-1318.5	37630.6
4 - 13		-3491.5	37630.6
4 - 14		-7234.5	37630.6
4 - 15		-7635.5	37630.6
4 - 16		-12624.5	37630.6
4 - 17		-36549.5	37630.6
4 - 18		-4609.5	37630.6
5 - 6		3615.5	30725.2

5 - 7		5175.5	30725.2
5 - 8		464.5	30725.2
5 - 9		-10203.0	30725.2
5 - 10		-17301.0	30725.2
5 - 11		1717.0	37630.6
5 - 12		3241.0	37630.6
5 - 13		1068.0	37630.6
5 - 14		-2675.0	37630.6
5 - 15		-3076.0	37630.6
5 - 16		-8065.0	37630.6
5 - 17		-31990.0	37630.6
5 - 18		-50.0	37630.6
6 - 7		1560.0	30725.2
6 - 8		-3151.0	30725.2
6 - 9		-13818.5	30725.2
6 - 10		-20916.5	30725.2
6 - 11		-1898.5	37630.6
6 - 12		-374.5	37630.6
6 - 13		-2547.5	37630.6
6 - 14		-6290.5	37630.6
6 - 15		-6691.5	37630.6
6 - 16		-11680.5	37630.6
6 - 17		-35605.5	37630.6
6 - 18		-3665.5	37630.6
7 - 8		-4711.0	30725.2
7 - 9		-15378.5	30725.2
7 - 10		-22476.5	30725.2
7 - 11		-3458.5	37630.6
7 - 12		-1934.5	37630.6
7 - 13		-4107.5	37630.6
7 - 14		-7850.5	37630.6
7 - 15		-8251.5	37630.6
7 - 16		-13240.5	37630.6
7 - 17		-37165.5	37630.6
7 - 18		-5225.5	37630.6
8 - 9		-10667.5	30725.2
8 - 10		-17765.5	30725.2
8 - 11		1252.5	37630.6
8 - 12		2776.5	37630.6
8 - 13		603.5	37630.6
8 - 14		-3139.5	37630.6
8 - 15		-3540.5	37630.6
8 - 16		-8529.5	37630.6
8 - 17		-32454.5	37630.6
8 - 18		-514.5	37630.6
9 - 10		-7098.0	30725.2
9 - 11		11920.0	37630.6
9 - 12		13444.0	37630.6
9 - 13		11271.0	37630.6
9 - 14		7528.0	37630.6
9 - 15		7127.0	37630.6
9 - 16		2138.0	37630.6
9 - 17		-21787.0	37630.6
9 - 18		10153.0	37630.6
10 - 11		19018.0	37630.6
10 - 12		20542.0	37630.6
10 - 13		18369.0	37630.6
10 - 14		14626.0	37630.6
10 - 15		14225.0	37630.6
10 - 16		9236.0	37630.6
10 - 17		-14689.0	37630.6
10 - 18		17251.0	37630.6
11 - 12		1524.0	43452.0
11 - 13		-649.0	43452.0

11 - 14		-4392.0	43452.0
11 - 15		-4793.0	43452.0
11 - 16		-9782.0	43452.0
11 - 17		-33707.0	43452.0
11 - 18		-1767.0	43452.0
12 - 13		-2173.0	43452.0
12 - 14		-5916.0	43452.0
12 - 15		-6317.0	43452.0
12 - 16		-11306.0	43452.0
12 - 17		-35231.0	43452.0
12 - 18		-3291.0	43452.0
13 - 14		-3743.0	43452.0
13 - 15		-4144.0	43452.0
13 - 16		-9133.0	43452.0
13 - 17		-33058.0	43452.0
13 - 18		-1118.0	43452.0
14 - 15		-401.0	43452.0
14 - 16		-5390.0	43452.0
14 - 17		-29315.0	43452.0
14 - 18		2625.0	43452.0
15 - 16		-4989.0	43452.0
15 - 17		-28914.0	43452.0
15 - 18		3026.0	43452.0
16 - 17		-23925.0	43452.0
16 - 18		8015.0	43452.0
17 - 18		31940.0	43452.0

* denotes a statistically significant difference.

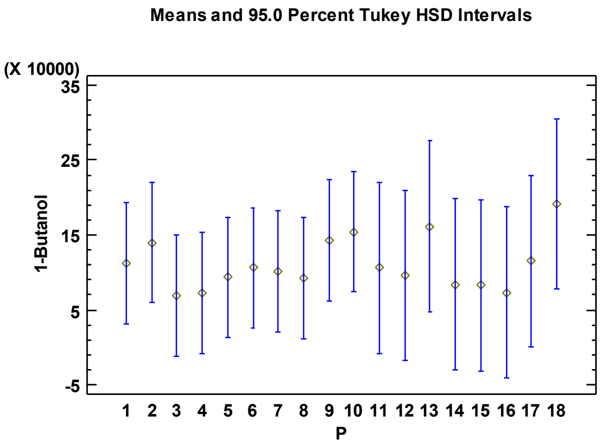
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 1-Butanol by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	2.76836E10	17	1.62845E9	1.26	0.3649
Within groups	1.29504E10	10	1.29504E9		
Total (Corr.)	4.0634E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1-Butanol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.25745, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1-Butanol from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 1-Butanol for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1-Butanol by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
3	2	68423.0	X
4	2	72140.5	X
16	1	73344.0	X
15	1	82712.0	X
14	1	83803.0	X
8	2	92974.0	X
5	2	93345.5	X
12	1	95845.0	X
7	2	101748.	X
11	1	105984.	X
6	2	106045.	X
1	2	111896.	X
17	1	115227.	X
2	2	139960.	X
9	2	142458.	X
10	2	154296.	X
13	1	160998.	X
18	1	191275.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-28064.0	161423.
1 - 3		43472.5	161423.
1 - 4		39755.0	161423.
1 - 5		18550.0	161423.
1 - 6		5850.5	161423.
1 - 7		10148.0	161423.
1 - 8		18921.5	161423.
1 - 9		-30562.0	161423.
1 - 10		-42400.0	161423.
1 - 11		5911.5	197702.
1 - 12		16050.5	197702.
1 - 13		-49102.5	197702.
1 - 14		28092.5	197702.
1 - 15		29183.5	197702.
1 - 16		38551.5	197702.
1 - 17		-3331.5	197702.
1 - 18		-79379.5	197702.
2 - 3		71536.5	161423.
2 - 4		67819.0	161423.
2 - 5		46614.0	161423.
2 - 6		33914.5	161423.
2 - 7		38212.0	161423.
2 - 8		46985.5	161423.
2 - 9		-2498.0	161423.
2 - 10		-14336.0	161423.
2 - 11		33975.5	197702.
2 - 12		44114.5	197702.
2 - 13		-21038.5	197702.
2 - 14		56156.5	197702.
2 - 15		57247.5	197702.
2 - 16		66615.5	197702.
2 - 17		24732.5	197702.
2 - 18		-51315.5	197702.
3 - 4		-3717.5	161423.
3 - 5		-24922.5	161423.
3 - 6		-37622.0	161423.
3 - 7		-33324.5	161423.
3 - 8		-24551.0	161423.
3 - 9		-74034.5	161423.
3 - 10		-85872.5	161423.
3 - 11		-37561.0	197702.
3 - 12		-27422.0	197702.
3 - 13		-92575.0	197702.
3 - 14		-15380.0	197702.
3 - 15		-14289.0	197702.
3 - 16		-4921.0	197702.
3 - 17		-46804.0	197702.
3 - 18		-122852.	197702.
4 - 5		-21205.0	161423.
4 - 6		-33904.5	161423.
4 - 7		-29607.0	161423.
4 - 8		-20833.5	161423.
4 - 9		-70317.0	161423.
4 - 10		-82155.0	161423.
4 - 11		-33843.5	197702.
4 - 12		-23704.5	197702.
4 - 13		-88857.5	197702.
4 - 14		-11662.5	197702.
4 - 15		-10571.5	197702.
4 - 16		-1203.5	197702.
4 - 17		-43086.5	197702.
4 - 18		-119135.	197702.
5 - 6		-12699.5	161423.

5 - 7		-8402.0	161423.
5 - 8		371.5	161423.
5 - 9		-49112.0	161423.
5 - 10		-60950.0	161423.
5 - 11		-12638.5	197702.
5 - 12		-2499.5	197702.
5 - 13		-67652.5	197702.
5 - 14		9542.5	197702.
5 - 15		10633.5	197702.
5 - 16		20001.5	197702.
5 - 17		-21881.5	197702.
5 - 18		-97929.5	197702.
6 - 7		4297.5	161423.
6 - 8		13071.0	161423.
6 - 9		-36412.5	161423.
6 - 10		-48250.5	161423.
6 - 11		61.0	197702.
6 - 12		10200.0	197702.
6 - 13		-54953.0	197702.
6 - 14		22242.0	197702.
6 - 15		23333.0	197702.
6 - 16		32701.0	197702.
6 - 17		-9182.0	197702.
6 - 18		-85230.0	197702.
7 - 8		8773.5	161423.
7 - 9		-40710.0	161423.
7 - 10		-52548.0	161423.
7 - 11		-4236.5	197702.
7 - 12		5902.5	197702.
7 - 13		-59250.5	197702.
7 - 14		17944.5	197702.
7 - 15		19035.5	197702.
7 - 16		28403.5	197702.
7 - 17		-13479.5	197702.
7 - 18		-89527.5	197702.
8 - 9		-49483.5	161423.
8 - 10		-61321.5	161423.
8 - 11		-13010.0	197702.
8 - 12		-2871.0	197702.
8 - 13		-68024.0	197702.
8 - 14		9171.0	197702.
8 - 15		10262.0	197702.
8 - 16		19630.0	197702.
8 - 17		-22253.0	197702.
8 - 18		-98301.0	197702.
9 - 10		-11838.0	161423.
9 - 11		36473.5	197702.
9 - 12		46612.5	197702.
9 - 13		-18540.5	197702.
9 - 14		58654.5	197702.
9 - 15		59745.5	197702.
9 - 16		69113.5	197702.
9 - 17		27230.5	197702.
9 - 18		-48817.5	197702.
10 - 11		48311.5	197702.
10 - 12		58450.5	197702.
10 - 13		-6702.5	197702.
10 - 14		70492.5	197702.
10 - 15		71583.5	197702.
10 - 16		80951.5	197702.
10 - 17		39068.5	197702.
10 - 18		-36979.5	197702.
11 - 12		10139.0	228286.
11 - 13		-55014.0	228286.

11 - 14		22181.0	228286.
11 - 15		23272.0	228286.
11 - 16		32640.0	228286.
11 - 17		-9243.0	228286.
11 - 18		-85291.0	228286.
12 - 13		-65153.0	228286.
12 - 14		12042.0	228286.
12 - 15		13133.0	228286.
12 - 16		22501.0	228286.
12 - 17		-19382.0	228286.
12 - 18		-95430.0	228286.
13 - 14		77195.0	228286.
13 - 15		78286.0	228286.
13 - 16		87654.0	228286.
13 - 17		45771.0	228286.
13 - 18		-30277.0	228286.
14 - 15		1091.0	228286.
14 - 16		10459.0	228286.
14 - 17		-31424.0	228286.
14 - 18		-107472.	228286.
15 - 16		9368.0	228286.
15 - 17		-32515.0	228286.
15 - 18		-108563.	228286.
16 - 17		-41883.0	228286.
16 - 18		-117931.	228286.
17 - 18		-76048.0	228286.

* denotes a statistically significant difference.

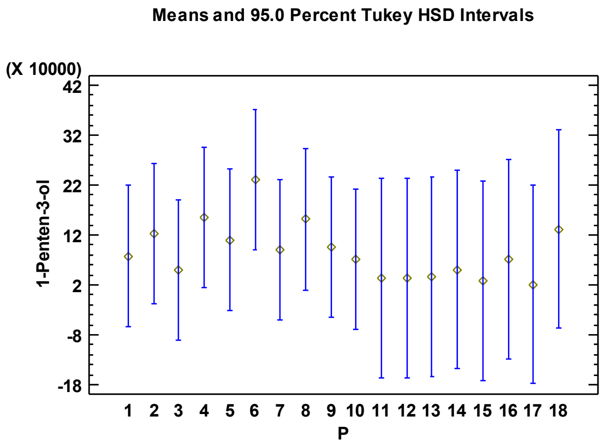
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 1-Penten-3-ol by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	8.284E10	17	4.87294E9	1.23	0.3782
Within groups	3.95616E10	10	3.95616E9		
Total (Corr.)	1.22402E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1-Penten-3-ol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.23174, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1-Penten-3-ol from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 1-Penten-3-ol for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1-Penten-3-ol by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
17	1	21295.0	X
15	1	28317.0	X
11	1	33373.0	X
12	1	34619.0	X
13	1	36594.0	X
3	2	49564.5	X
14	1	50994.0	X
16	1	71246.0	X
10	2	71810.5	X
1	2	77971.0	X
7	2	90945.0	X
9	2	95311.0	X
5	2	110229.	X
2	2	123226.	X
18	1	131903.	X
8	2	151451.	X
4	2	154939.	X
6	2	230910.	X

Allegato 1: ANOVA palchi posizione e dimensione

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-45255.0	282137.
1 - 3		28406.5	282137.
1 - 4		-76968.0	282137.
1 - 5		-32257.5	282137.
1 - 6		-152939.	282137.
1 - 7		-12974.0	282137.
1 - 8		-73480.0	282137.
1 - 9		-17340.0	282137.
1 - 10		6160.5	282137.
1 - 11		44598.0	345546.
1 - 12		43352.0	345546.
1 - 13		41377.0	345546.
1 - 14		26977.0	345546.
1 - 15		49654.0	345546.
1 - 16		6725.0	345546.
1 - 17		56676.0	345546.
1 - 18		-53932.0	345546.
2 - 3		73661.5	282137.
2 - 4		-31713.0	282137.
2 - 5		12997.5	282137.
2 - 6		-107684.	282137.
2 - 7		32281.0	282137.
2 - 8		-28225.0	282137.
2 - 9		27915.0	282137.
2 - 10		51415.5	282137.
2 - 11		89853.0	345546.
2 - 12		88607.0	345546.
2 - 13		86632.0	345546.
2 - 14		72232.0	345546.
2 - 15		94909.0	345546.
2 - 16		51980.0	345546.
2 - 17		101931.	345546.
2 - 18		-8677.0	345546.
3 - 4		-105375.	282137.
3 - 5		-60664.0	282137.
3 - 6		-181346.	282137.
3 - 7		-41380.5	282137.
3 - 8		-101887.	282137.
3 - 9		-45746.5	282137.
3 - 10		-22246.0	282137.
3 - 11		16191.5	345546.
3 - 12		14945.5	345546.
3 - 13		12970.5	345546.
3 - 14		-1429.5	345546.
3 - 15		21247.5	345546.
3 - 16		-21681.5	345546.
3 - 17		28269.5	345546.
3 - 18		-82338.5	345546.
4 - 5		44710.5	282137.
4 - 6		-75971.0	282137.
4 - 7		63994.0	282137.
4 - 8		3488.0	282137.
4 - 9		59628.0	282137.
4 - 10		83128.5	282137.
4 - 11		121566.	345546.
4 - 12		120320.	345546.
4 - 13		118345.	345546.
4 - 14		103945.	345546.
4 - 15		126622.	345546.
4 - 16		83693.0	345546.
4 - 17		133644.	345546.
4 - 18		23036.0	345546.
5 - 6		-120682.	282137.

5 - 7		19283.5	282137.
5 - 8		-41222.5	282137.
5 - 9		14917.5	282137.
5 - 10		38418.0	282137.
5 - 11		76855.5	345546.
5 - 12		75609.5	345546.
5 - 13		73634.5	345546.
5 - 14		59234.5	345546.
5 - 15		81911.5	345546.
5 - 16		38982.5	345546.
5 - 17		88933.5	345546.
5 - 18		-21674.5	345546.
6 - 7		139965.	282137.
6 - 8		79459.0	282137.
6 - 9		135599.	282137.
6 - 10		159100.	282137.
6 - 11		197537.	345546.
6 - 12		196291.	345546.
6 - 13		194316.	345546.
6 - 14		179916.	345546.
6 - 15		202593.	345546.
6 - 16		159664.	345546.
6 - 17		209615.	345546.
6 - 18		99007.0	345546.
7 - 8		-60506.0	282137.
7 - 9		-4366.0	282137.
7 - 10		19134.5	282137.
7 - 11		57572.0	345546.
7 - 12		56326.0	345546.
7 - 13		54351.0	345546.
7 - 14		39951.0	345546.
7 - 15		62628.0	345546.
7 - 16		19699.0	345546.
7 - 17		69650.0	345546.
7 - 18		-40958.0	345546.
8 - 9		56140.0	282137.
8 - 10		79640.5	282137.
8 - 11		118078.	345546.
8 - 12		116832.	345546.
8 - 13		114857.	345546.
8 - 14		100457.	345546.
8 - 15		123134.	345546.
8 - 16		80205.0	345546.
8 - 17		130156.	345546.
8 - 18		19548.0	345546.
9 - 10		23500.5	282137.
9 - 11		61938.0	345546.
9 - 12		60692.0	345546.
9 - 13		58717.0	345546.
9 - 14		44317.0	345546.
9 - 15		66994.0	345546.
9 - 16		24065.0	345546.
9 - 17		74016.0	345546.
9 - 18		-36592.0	345546.
10 - 11		38437.5	345546.
10 - 12		37191.5	345546.
10 - 13		35216.5	345546.
10 - 14		20816.5	345546.
10 - 15		43493.5	345546.
10 - 16		564.5	345546.
10 - 17		50515.5	345546.
10 - 18		-60092.5	345546.
11 - 12		-1246.0	399003.
11 - 13		-3221.0	399003.

11 - 14		-17621.0	399003.
11 - 15		5056.0	399003.
11 - 16		-37873.0	399003.
11 - 17		12078.0	399003.
11 - 18		-98530.0	399003.
12 - 13		-1975.0	399003.
12 - 14		-16375.0	399003.
12 - 15		6302.0	399003.
12 - 16		-36627.0	399003.
12 - 17		13324.0	399003.
12 - 18		-97284.0	399003.
13 - 14		-14400.0	399003.
13 - 15		8277.0	399003.
13 - 16		-34652.0	399003.
13 - 17		15299.0	399003.
13 - 18		-95309.0	399003.
14 - 15		22677.0	399003.
14 - 16		-20252.0	399003.
14 - 17		29699.0	399003.
14 - 18		-80909.0	399003.
15 - 16		-42929.0	399003.
15 - 17		7022.0	399003.
15 - 18		-103586.	399003.
16 - 17		49951.0	399003.
16 - 18		-60657.0	399003.
17 - 18		-110608.	399003.

* denotes a statistically significant difference.

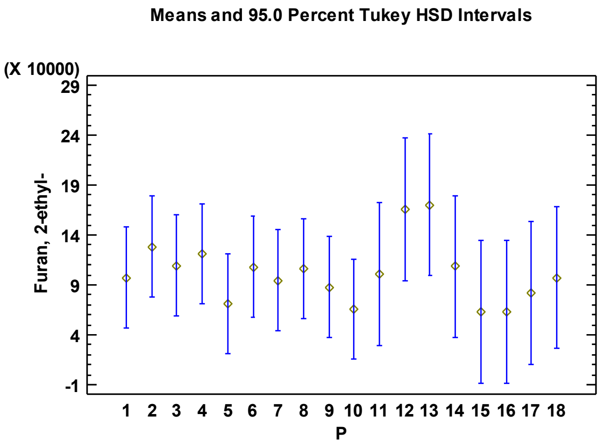
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Furan, 2-ethyl- by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.95732E10	17	1.15137E9	2.29	0.0927
Within groups	5.03851E9	10	5.03851E8		
Total (Corr.)	2.46117E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of Furan, 2-ethyl- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.28514, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Furan, 2-ethyl- from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Furan, 2-ethyl- for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Furan, 2-ethyl- by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
15	1	62778.0	X
16	1	62948.0	X
10	2	65876.5	X
5	2	71427.0	X
17	1	82229.0	X
9	2	87701.5	X
7	2	94661.0	X
1	2	97373.5	X
18	1	97429.0	X
11	1	100559.	X
8	2	106385.	X
6	2	108089.	X
14	1	108529.	X
3	2	109325.	X
4	2	121338.	X
2	2	128294.	X
12	1	165487.	X
13	1	170232.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-30920.5	100687.
1 - 3		-11951.5	100687.
1 - 4		-23964.0	100687.
1 - 5		25946.5	100687.
1 - 6		-10715.5	100687.
1 - 7		2712.5	100687.
1 - 8		-9011.5	100687.
1 - 9		9672.0	100687.
1 - 10		31497.0	100687.
1 - 11		-3185.5	123316.
1 - 12		-68113.5	123316.
1 - 13		-72858.5	123316.
1 - 14		-11155.5	123316.
1 - 15		34595.5	123316.
1 - 16		34425.5	123316.
1 - 17		15144.5	123316.
1 - 18		-55.5	123316.
2 - 3		18969.0	100687.
2 - 4		6956.5	100687.
2 - 5		56867.0	100687.
2 - 6		20205.0	100687.
2 - 7		33633.0	100687.
2 - 8		21909.0	100687.
2 - 9		40592.5	100687.
2 - 10		62417.5	100687.
2 - 11		27735.0	123316.
2 - 12		-37193.0	123316.
2 - 13		-41938.0	123316.
2 - 14		19765.0	123316.
2 - 15		65516.0	123316.
2 - 16		65346.0	123316.
2 - 17		46065.0	123316.
2 - 18		30865.0	123316.
3 - 4		-12012.5	100687.
3 - 5		37898.0	100687.
3 - 6		1236.0	100687.
3 - 7		14664.0	100687.
3 - 8		2940.0	100687.
3 - 9		21623.5	100687.
3 - 10		43448.5	100687.
3 - 11		8766.0	123316.
3 - 12		-56162.0	123316.
3 - 13		-60907.0	123316.
3 - 14		796.0	123316.
3 - 15		46547.0	123316.
3 - 16		46377.0	123316.
3 - 17		27096.0	123316.
3 - 18		11896.0	123316.
4 - 5		49910.5	100687.
4 - 6		13248.5	100687.
4 - 7		26676.5	100687.
4 - 8		14952.5	100687.
4 - 9		33636.0	100687.
4 - 10		55461.0	100687.
4 - 11		20778.5	123316.
4 - 12		-44149.5	123316.
4 - 13		-48894.5	123316.
4 - 14		12808.5	123316.
4 - 15		58559.5	123316.
4 - 16		58389.5	123316.
4 - 17		39108.5	123316.
4 - 18		23908.5	123316.
5 - 6		-36662.0	100687.

5 - 7		-23234.0	100687.
5 - 8		-34958.0	100687.
5 - 9		-16274.5	100687.
5 - 10		5550.5	100687.
5 - 11		-29132.0	123316.
5 - 12		-94060.0	123316.
5 - 13		-98805.0	123316.
5 - 14		-37102.0	123316.
5 - 15		8649.0	123316.
5 - 16		8479.0	123316.
5 - 17		-10802.0	123316.
5 - 18		-26002.0	123316.
6 - 7		13428.0	100687.
6 - 8		1704.0	100687.
6 - 9		20387.5	100687.
6 - 10		42212.5	100687.
6 - 11		7530.0	123316.
6 - 12		-57398.0	123316.
6 - 13		-62143.0	123316.
6 - 14		-440.0	123316.
6 - 15		45311.0	123316.
6 - 16		45141.0	123316.
6 - 17		25860.0	123316.
6 - 18		10660.0	123316.
7 - 8		-11724.0	100687.
7 - 9		6959.5	100687.
7 - 10		28784.5	100687.
7 - 11		-5898.0	123316.
7 - 12		-70826.0	123316.
7 - 13		-75571.0	123316.
7 - 14		-13868.0	123316.
7 - 15		31883.0	123316.
7 - 16		31713.0	123316.
7 - 17		12432.0	123316.
7 - 18		-2768.0	123316.
8 - 9		18683.5	100687.
8 - 10		40508.5	100687.
8 - 11		5826.0	123316.
8 - 12		-59102.0	123316.
8 - 13		-63847.0	123316.
8 - 14		-2144.0	123316.
8 - 15		43607.0	123316.
8 - 16		43437.0	123316.
8 - 17		24156.0	123316.
8 - 18		8956.0	123316.
9 - 10		21825.0	100687.
9 - 11		-12857.5	123316.
9 - 12		-77785.5	123316.
9 - 13		-82530.5	123316.
9 - 14		-20827.5	123316.
9 - 15		24923.5	123316.
9 - 16		24753.5	123316.
9 - 17		5472.5	123316.
9 - 18		-9727.5	123316.
10 - 11		-34682.5	123316.
10 - 12		-99610.5	123316.
10 - 13		-104356.	123316.
10 - 14		-42652.5	123316.
10 - 15		3098.5	123316.
10 - 16		2928.5	123316.
10 - 17		-16352.5	123316.
10 - 18		-31552.5	123316.
11 - 12		-64928.0	142393.
11 - 13		-69673.0	142393.

11 - 14		-7970.0	142393.
11 - 15		37781.0	142393.
11 - 16		37611.0	142393.
11 - 17		18330.0	142393.
11 - 18		3130.0	142393.
12 - 13		-4745.0	142393.
12 - 14		56958.0	142393.
12 - 15		102709.	142393.
12 - 16		102539.	142393.
12 - 17		83258.0	142393.
12 - 18		68058.0	142393.
13 - 14		61703.0	142393.
13 - 15		107454.	142393.
13 - 16		107284.	142393.
13 - 17		88003.0	142393.
13 - 18		72803.0	142393.
14 - 15		45751.0	142393.
14 - 16		45581.0	142393.
14 - 17		26300.0	142393.
14 - 18		11100.0	142393.
15 - 16		-170.0	142393.
15 - 17		-19451.0	142393.
15 - 18		-34651.0	142393.
16 - 17		-19281.0	142393.
16 - 18		-34481.0	142393.
17 - 18		-15200.0	142393.

* denotes a statistically significant difference.

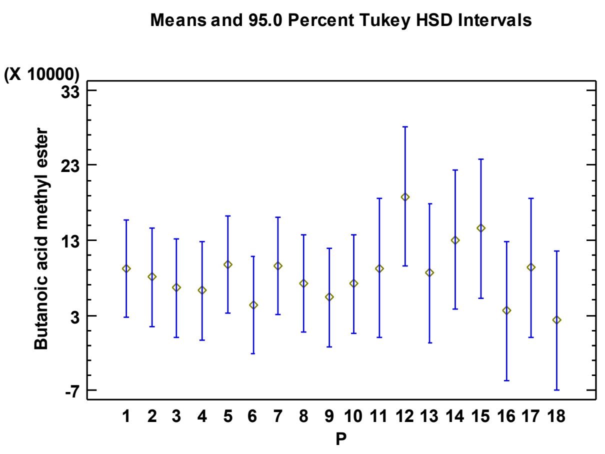
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Butanoic acid methyl ester by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.06332E10	17	1.80195E9	2.12	0.1146
Within groups	8.51762E9	10	8.51762E8		
Total (Corr.)	3.91508E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of Butanoic acid methyl ester into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.11556, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Butanoic acid methyl ester from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Butanoic acid methyl ester for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Butanoic acid methyl ester by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
18	1	23042.0	X
16	1	36185.0	X
6	2	43742.5	X
9	2	53779.5	X
4	2	63081.5	X
3	2	66576.5	X
10	2	71590.5	X
8	2	72439.0	X
2	2	80743.0	X
13	1	86332.0	X
1	2	92099.5	X
11	1	92332.0	X
17	1	93199.0	X
7	2	95903.5	X
5	2	97384.0	X
14	1	130203.	X
15	1	145331.	X
12	1	188392.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		11356.5	130913.
1 - 3		25523.0	130913.
1 - 4		29018.0	130913.
1 - 5		-5284.5	130913.
1 - 6		48357.0	130913.
1 - 7		-3804.0	130913.
1 - 8		19660.5	130913.
1 - 9		38320.0	130913.
1 - 10		20509.0	130913.
1 - 11		-232.5	160335.
1 - 12		-96292.5	160335.
1 - 13		5767.5	160335.
1 - 14		-38103.5	160335.
1 - 15		-53231.5	160335.
1 - 16		55914.5	160335.
1 - 17		-1099.5	160335.
1 - 18		69057.5	160335.
2 - 3		14166.5	130913.
2 - 4		17661.5	130913.
2 - 5		-16641.0	130913.
2 - 6		37000.5	130913.
2 - 7		-15160.5	130913.
2 - 8		8304.0	130913.
2 - 9		26963.5	130913.
2 - 10		9152.5	130913.
2 - 11		-11589.0	160335.
2 - 12		-107649.	160335.
2 - 13		-5589.0	160335.
2 - 14		-49460.0	160335.
2 - 15		-64588.0	160335.
2 - 16		44558.0	160335.
2 - 17		-12456.0	160335.
2 - 18		57701.0	160335.
3 - 4		3495.0	130913.
3 - 5		-30807.5	130913.
3 - 6		22834.0	130913.
3 - 7		-29327.0	130913.
3 - 8		-5862.5	130913.
3 - 9		12797.0	130913.
3 - 10		-5014.0	130913.
3 - 11		-25755.5	160335.
3 - 12		-121816.	160335.
3 - 13		-19755.5	160335.
3 - 14		-63626.5	160335.
3 - 15		-78754.5	160335.
3 - 16		30391.5	160335.
3 - 17		-26622.5	160335.
3 - 18		43534.5	160335.
4 - 5		-34302.5	130913.
4 - 6		19339.0	130913.
4 - 7		-32822.0	130913.
4 - 8		-9357.5	130913.
4 - 9		9302.0	130913.
4 - 10		-8509.0	130913.
4 - 11		-29250.5	160335.
4 - 12		-125311.	160335.
4 - 13		-23250.5	160335.
4 - 14		-67121.5	160335.
4 - 15		-82249.5	160335.
4 - 16		26896.5	160335.
4 - 17		-30117.5	160335.
4 - 18		40039.5	160335.
5 - 6		53641.5	130913.

5 - 7		1480.5	130913.
5 - 8		24945.0	130913.
5 - 9		43604.5	130913.
5 - 10		25793.5	130913.
5 - 11		5052.0	160335.
5 - 12		-91008.0	160335.
5 - 13		11052.0	160335.
5 - 14		-32819.0	160335.
5 - 15		-47947.0	160335.
5 - 16		61199.0	160335.
5 - 17		4185.0	160335.
5 - 18		74342.0	160335.
6 - 7		-52161.0	130913.
6 - 8		-28696.5	130913.
6 - 9		-10037.0	130913.
6 - 10		-27848.0	130913.
6 - 11		-48589.5	160335.
6 - 12		-144650.	160335.
6 - 13		-42589.5	160335.
6 - 14		-86460.5	160335.
6 - 15		-101589.	160335.
6 - 16		7557.5	160335.
6 - 17		-49456.5	160335.
6 - 18		20700.5	160335.
7 - 8		23464.5	130913.
7 - 9		42124.0	130913.
7 - 10		24313.0	130913.
7 - 11		3571.5	160335.
7 - 12		-92488.5	160335.
7 - 13		9571.5	160335.
7 - 14		-34299.5	160335.
7 - 15		-49427.5	160335.
7 - 16		59718.5	160335.
7 - 17		2704.5	160335.
7 - 18		72861.5	160335.
8 - 9		18659.5	130913.
8 - 10		848.5	130913.
8 - 11		-19893.0	160335.
8 - 12		-115953.	160335.
8 - 13		-13893.0	160335.
8 - 14		-57764.0	160335.
8 - 15		-72892.0	160335.
8 - 16		36254.0	160335.
8 - 17		-20760.0	160335.
8 - 18		49397.0	160335.
9 - 10		-17811.0	130913.
9 - 11		-38552.5	160335.
9 - 12		-134613.	160335.
9 - 13		-32552.5	160335.
9 - 14		-76423.5	160335.
9 - 15		-91551.5	160335.
9 - 16		17594.5	160335.
9 - 17		-39419.5	160335.
9 - 18		30737.5	160335.
10 - 11		-20741.5	160335.
10 - 12		-116802.	160335.
10 - 13		-14741.5	160335.
10 - 14		-58612.5	160335.
10 - 15		-73740.5	160335.
10 - 16		35405.5	160335.
10 - 17		-21608.5	160335.
10 - 18		48548.5	160335.
11 - 12		-96060.0	185139.
11 - 13		6000.0	185139.

11 - 14		-37871.0	185139.
11 - 15		-52999.0	185139.
11 - 16		56147.0	185139.
11 - 17		-867.0	185139.
11 - 18		69290.0	185139.
12 - 13		102060.	185139.
12 - 14		58189.0	185139.
12 - 15		43061.0	185139.
12 - 16		152207.	185139.
12 - 17		95193.0	185139.
12 - 18		165350.	185139.
13 - 14		-43871.0	185139.
13 - 15		-58999.0	185139.
13 - 16		50147.0	185139.
13 - 17		-6867.0	185139.
13 - 18		63290.0	185139.
14 - 15		-15128.0	185139.
14 - 16		94018.0	185139.
14 - 17		37004.0	185139.
14 - 18		107161.	185139.
15 - 16		109146.	185139.
15 - 17		52132.0	185139.
15 - 18		122289.	185139.
16 - 17		-57014.0	185139.
16 - 18		13143.0	185139.
17 - 18		70157.0	185139.

* denotes a statistically significant difference.

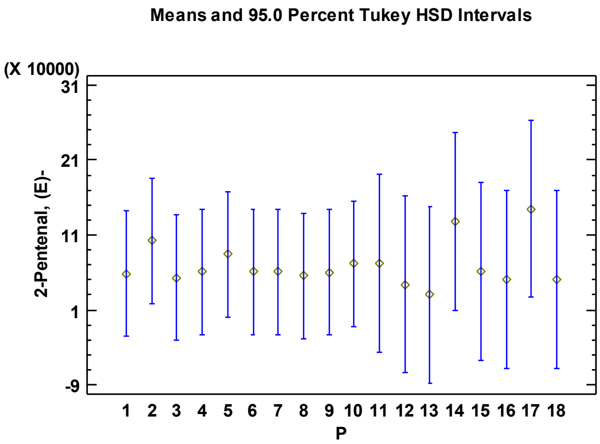
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 2-Pentenal, (E)- by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.65587E10	17	9.74043E8	0.70	0.7515
Within groups	1.39238E10	10	1.39238E9		
Total (Corr.)	3.04825E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2-Pentenal, (E)- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.699555, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2-Pentenal, (E)- from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 2-Pentenal, (E)- for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2-Pentenal, (E)- by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
13	1	30267.0	X
12	1	44282.0	X
18	1	50929.0	X
16	1	50937.0	X
3	2	52496.5	X
8	2	55417.0	X
1	2	57920.5	X
9	2	59799.5	X
6	2	60619.0	X
4	2	60959.0	X
7	2	61065.0	X
15	1	61680.0	X
10	2	71349.5	X
11	1	72573.0	X
5	2	84293.0	X
2	2	102673.	X
14	1	128248.	X
17	1	144864.	X

Allegato 1: ANOVA palchi posizione e dimensione

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-44752.0	167379.
1 - 3		5424.0	167379.
1 - 4		-3038.5	167379.
1 - 5		-26372.5	167379.
1 - 6		-2698.5	167379.
1 - 7		-3144.5	167379.
1 - 8		2503.5	167379.
1 - 9		-1879.0	167379.
1 - 10		-13429.0	167379.
1 - 11		-14652.5	204997.
1 - 12		13638.5	204997.
1 - 13		27653.5	204997.
1 - 14		-70327.5	204997.
1 - 15		-3759.5	204997.
1 - 16		6983.5	204997.
1 - 17		-86943.5	204997.
1 - 18		6991.5	204997.
2 - 3		50176.0	167379.
2 - 4		41713.5	167379.
2 - 5		18379.5	167379.
2 - 6		42053.5	167379.
2 - 7		41607.5	167379.
2 - 8		47255.5	167379.
2 - 9		42873.0	167379.
2 - 10		31323.0	167379.
2 - 11		30099.5	204997.
2 - 12		58390.5	204997.
2 - 13		72405.5	204997.
2 - 14		-25575.5	204997.
2 - 15		40992.5	204997.
2 - 16		51735.5	204997.
2 - 17		-42191.5	204997.
2 - 18		51743.5	204997.
3 - 4		-8462.5	167379.
3 - 5		-31796.5	167379.
3 - 6		-8122.5	167379.
3 - 7		-8568.5	167379.
3 - 8		-2920.5	167379.
3 - 9		-7303.0	167379.
3 - 10		-18853.0	167379.
3 - 11		-20076.5	204997.
3 - 12		8214.5	204997.
3 - 13		22229.5	204997.
3 - 14		-75751.5	204997.
3 - 15		-9183.5	204997.
3 - 16		1559.5	204997.
3 - 17		-92367.5	204997.
3 - 18		1567.5	204997.
4 - 5		-23334.0	167379.
4 - 6		340.0	167379.
4 - 7		-106.0	167379.
4 - 8		5542.0	167379.
4 - 9		1159.5	167379.
4 - 10		-10390.5	167379.
4 - 11		-11614.0	204997.
4 - 12		16677.0	204997.
4 - 13		30692.0	204997.
4 - 14		-67289.0	204997.
4 - 15		-721.0	204997.
4 - 16		10022.0	204997.
4 - 17		-83905.0	204997.
4 - 18		10030.0	204997.
5 - 6		23674.0	167379.

5 - 7		23228.0	167379.
5 - 8		28876.0	167379.
5 - 9		24493.5	167379.
5 - 10		12943.5	167379.
5 - 11		11720.0	204997.
5 - 12		40011.0	204997.
5 - 13		54026.0	204997.
5 - 14		-43955.0	204997.
5 - 15		22613.0	204997.
5 - 16		33356.0	204997.
5 - 17		-60571.0	204997.
5 - 18		33364.0	204997.
6 - 7		-446.0	167379.
6 - 8		5202.0	167379.
6 - 9		819.5	167379.
6 - 10		-10730.5	167379.
6 - 11		-11954.0	204997.
6 - 12		16337.0	204997.
6 - 13		30352.0	204997.
6 - 14		-67629.0	204997.
6 - 15		-1061.0	204997.
6 - 16		9682.0	204997.
6 - 17		-84245.0	204997.
6 - 18		9690.0	204997.
7 - 8		5648.0	167379.
7 - 9		1265.5	167379.
7 - 10		-10284.5	167379.
7 - 11		-11508.0	204997.
7 - 12		16783.0	204997.
7 - 13		30798.0	204997.
7 - 14		-67183.0	204997.
7 - 15		-615.0	204997.
7 - 16		10128.0	204997.
7 - 17		-83799.0	204997.
7 - 18		10136.0	204997.
8 - 9		-4382.5	167379.
8 - 10		-15932.5	167379.
8 - 11		-17156.0	204997.
8 - 12		11135.0	204997.
8 - 13		25150.0	204997.
8 - 14		-72831.0	204997.
8 - 15		-6263.0	204997.
8 - 16		4480.0	204997.
8 - 17		-89447.0	204997.
8 - 18		4488.0	204997.
9 - 10		-11550.0	167379.
9 - 11		-12773.5	204997.
9 - 12		15517.5	204997.
9 - 13		29532.5	204997.
9 - 14		-68448.5	204997.
9 - 15		-1880.5	204997.
9 - 16		8862.5	204997.
9 - 17		-85064.5	204997.
9 - 18		8870.5	204997.
10 - 11		-1223.5	204997.
10 - 12		27067.5	204997.
10 - 13		41082.5	204997.
10 - 14		-56898.5	204997.
10 - 15		9669.5	204997.
10 - 16		20412.5	204997.
10 - 17		-73514.5	204997.
10 - 18		20420.5	204997.
11 - 12		28291.0	236710.
11 - 13		42306.0	236710.

11 - 14		-55675.0	236710.
11 - 15		10893.0	236710.
11 - 16		21636.0	236710.
11 - 17		-72291.0	236710.
11 - 18		21644.0	236710.
12 - 13		14015.0	236710.
12 - 14		-83966.0	236710.
12 - 15		-17398.0	236710.
12 - 16		-6655.0	236710.
12 - 17		-100582.	236710.
12 - 18		-6647.0	236710.
13 - 14		-97981.0	236710.
13 - 15		-31413.0	236710.
13 - 16		-20670.0	236710.
13 - 17		-114597.	236710.
13 - 18		-20662.0	236710.
14 - 15		66568.0	236710.
14 - 16		77311.0	236710.
14 - 17		-16616.0	236710.
14 - 18		77319.0	236710.
15 - 16		10743.0	236710.
15 - 17		-83184.0	236710.
15 - 18		10751.0	236710.
16 - 17		-93927.0	236710.
16 - 18		8.0	236710.
17 - 18		93935.0	236710.

* denotes a statistically significant difference.

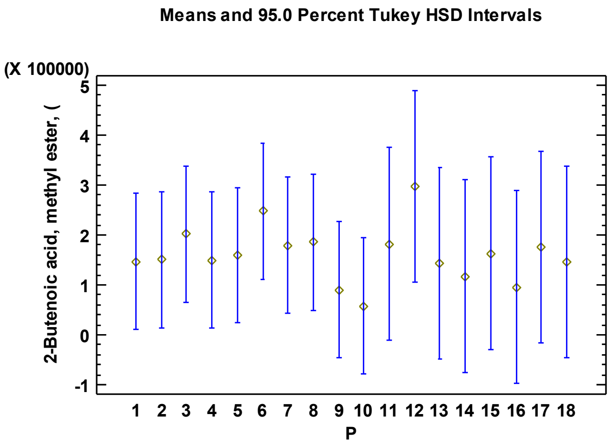
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 2-Butenoic acid, methyl ester, (by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	7.86258E10	17	4.62505E9	1.25	0.3672
Within groups	3.69104E10	10	3.69104E9		
Total (Corr.)	1.15536E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2-Butenoic acid, methyl ester, (into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.25305, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2-Butenoic acid, methyl ester, (from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 2-Butenoic acid, methyl ester, (for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2-Butenoic acid, methyl ester, (by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
10	2	57817.0	X
9	2	89880.5	X
16	1	95227.0	X
14	1	117043.	X
13	1	143281.	X
18	1	146267.	X
1	2	146982.	X
4	2	149105.	X
2	2	150392.	X
5	2	159460.	X
15	1	163207.	X
17	1	175718.	X
7	2	178801.	X
11	1	181788.	X
8	2	185999.	X
3	2	202158.	X
6	2	248013.	X
12	1	297187.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-3410.0	272520.
1 - 3		-55176.0	272520.
1 - 4		-2123.0	272520.
1 - 5		-12478.0	272520.
1 - 6		-101031.	272520.
1 - 7		-31819.5	272520.
1 - 8		-39017.0	272520.
1 - 9		57101.0	272520.
1 - 10		89164.5	272520.
1 - 11		-34806.5	333767.
1 - 12		-150206.	333767.
1 - 13		3700.5	333767.
1 - 14		29938.5	333767.
1 - 15		-16225.5	333767.
1 - 16		51754.5	333767.
1 - 17		-28736.5	333767.
1 - 18		714.5	333767.
2 - 3		-51766.0	272520.
2 - 4		1287.0	272520.
2 - 5		-9068.0	272520.
2 - 6		-97621.0	272520.
2 - 7		-28409.5	272520.
2 - 8		-35607.0	272520.
2 - 9		60511.0	272520.
2 - 10		92574.5	272520.
2 - 11		-31396.5	333767.
2 - 12		-146796.	333767.
2 - 13		7110.5	333767.
2 - 14		33348.5	333767.
2 - 15		-12815.5	333767.
2 - 16		55164.5	333767.
2 - 17		-25326.5	333767.
2 - 18		4124.5	333767.
3 - 4		53053.0	272520.
3 - 5		42698.0	272520.
3 - 6		-45855.0	272520.
3 - 7		23356.5	272520.
3 - 8		16159.0	272520.
3 - 9		112277.	272520.
3 - 10		144341.	272520.
3 - 11		20369.5	333767.
3 - 12		-95029.5	333767.
3 - 13		58876.5	333767.
3 - 14		85114.5	333767.
3 - 15		38950.5	333767.
3 - 16		106931.	333767.
3 - 17		26439.5	333767.
3 - 18		55890.5	333767.
4 - 5		-10355.0	272520.
4 - 6		-98908.0	272520.
4 - 7		-29696.5	272520.
4 - 8		-36894.0	272520.
4 - 9		59224.0	272520.
4 - 10		91287.5	272520.
4 - 11		-32683.5	333767.
4 - 12		-148083.	333767.
4 - 13		5823.5	333767.
4 - 14		32061.5	333767.
4 - 15		-14102.5	333767.
4 - 16		53877.5	333767.
4 - 17		-26613.5	333767.
4 - 18		2837.5	333767.
5 - 6		-88553.0	272520.

5 - 7		-19341.5	272520.
5 - 8		-26539.0	272520.
5 - 9		69579.0	272520.
5 - 10		101643.	272520.
5 - 11		-22328.5	333767.
5 - 12		-137728.	333767.
5 - 13		16178.5	333767.
5 - 14		42416.5	333767.
5 - 15		-3747.5	333767.
5 - 16		64232.5	333767.
5 - 17		-16258.5	333767.
5 - 18		13192.5	333767.
6 - 7		69211.5	272520.
6 - 8		62014.0	272520.
6 - 9		158132.	272520.
6 - 10		190196.	272520.
6 - 11		66224.5	333767.
6 - 12		-49174.5	333767.
6 - 13		104732.	333767.
6 - 14		130970.	333767.
6 - 15		84805.5	333767.
6 - 16		152786.	333767.
6 - 17		72294.5	333767.
6 - 18		101746.	333767.
7 - 8		-7197.5	272520.
7 - 9		88920.5	272520.
7 - 10		120984.	272520.
7 - 11		-2987.0	333767.
7 - 12		-118386.	333767.
7 - 13		35520.0	333767.
7 - 14		61758.0	333767.
7 - 15		15594.0	333767.
7 - 16		83574.0	333767.
7 - 17		3083.0	333767.
7 - 18		32534.0	333767.
8 - 9		96118.0	272520.
8 - 10		128182.	272520.
8 - 11		4210.5	333767.
8 - 12		-111189.	333767.
8 - 13		42717.5	333767.
8 - 14		68955.5	333767.
8 - 15		22791.5	333767.
8 - 16		90771.5	333767.
8 - 17		10280.5	333767.
8 - 18		39731.5	333767.
9 - 10		32063.5	272520.
9 - 11		-91907.5	333767.
9 - 12		-207307.	333767.
9 - 13		-53400.5	333767.
9 - 14		-27162.5	333767.
9 - 15		-73326.5	333767.
9 - 16		-5346.5	333767.
9 - 17		-85837.5	333767.
9 - 18		-56386.5	333767.
10 - 11		-123971.	333767.
10 - 12		-239370.	333767.
10 - 13		-85464.0	333767.
10 - 14		-59226.0	333767.
10 - 15		-105390.	333767.
10 - 16		-37410.0	333767.
10 - 17		-117901.	333767.
10 - 18		-88450.0	333767.
11 - 12		-115399.	385401.
11 - 13		38507.0	385401.

11 - 14		64745.0	385401.
11 - 15		18581.0	385401.
11 - 16		86561.0	385401.
11 - 17		6070.0	385401.
11 - 18		35521.0	385401.
12 - 13		153906.	385401.
12 - 14		180144.	385401.
12 - 15		133980.	385401.
12 - 16		201960.	385401.
12 - 17		121469.	385401.
12 - 18		150920.	385401.
13 - 14		26238.0	385401.
13 - 15		-19926.0	385401.
13 - 16		48054.0	385401.
13 - 17		-32437.0	385401.
13 - 18		-2986.0	385401.
14 - 15		-46164.0	385401.
14 - 16		21816.0	385401.
14 - 17		-58675.0	385401.
14 - 18		-29224.0	385401.
15 - 16		67980.0	385401.
15 - 17		-12511.0	385401.
15 - 18		16940.0	385401.
16 - 17		-80491.0	385401.
16 - 18		-51040.0	385401.
17 - 18		29451.0	385401.

* denotes a statistically significant difference.

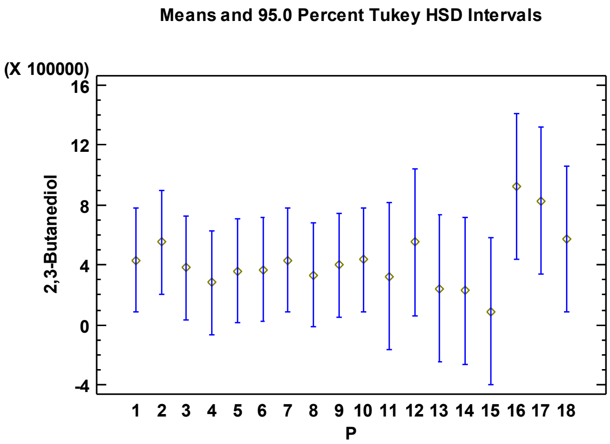
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 2,3-Butanediol by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	7.53026E11	17	4.42957E10	1.86	0.1595
Within groups	2.38075E11	10	2.38075E10		
Total (Corr.)	9.91102E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2,3-Butanediol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.86057, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2,3-Butanediol from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 2,3-Butanediol for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2,3-Butanediol by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
15	1	91470.0	X
14	1	226651.	X
13	1	243172.	X
4	2	282839.	X
11	1	323598.	X
8	2	332832.	X
5	2	360168.	X
6	2	368602.	X
3	2	382711.	X
9	2	397784.	X
1	2	430439.	X
7	2	430486.	X
10	2	435371.	X
12	1	551132.	X
2	2	553021.	X
18	1	574003.	X
17	1	827635.	X
16	1	924799.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-122583.	692120.
1 - 3		47728.0	692120.
1 - 4		147600.	692120.
1 - 5		70271.0	692120.
1 - 6		61837.0	692120.
1 - 7		-47.5	692120.
1 - 8		97606.5	692120.
1 - 9		32654.5	692120.
1 - 10		-4932.5	692120.
1 - 11		106841.	847670.
1 - 12		-120694.	847670.
1 - 13		187267.	847670.
1 - 14		203788.	847670.
1 - 15		338969.	847670.
1 - 16		-494361.	847670.
1 - 17		-397197.	847670.
1 - 18		-143565.	847670.
2 - 3		170311.	692120.
2 - 4		270183.	692120.
2 - 5		192854.	692120.
2 - 6		184420.	692120.
2 - 7		122535.	692120.
2 - 8		220189.	692120.
2 - 9		155237.	692120.
2 - 10		117650.	692120.
2 - 11		229423.	847670.
2 - 12		1889.0	847670.
2 - 13		309849.	847670.
2 - 14		326370.	847670.
2 - 15		461551.	847670.
2 - 16		-371778.	847670.
2 - 17		-274614.	847670.
2 - 18		-20982.0	847670.
3 - 4		99872.0	692120.
3 - 5		22543.0	692120.
3 - 6		14109.0	692120.
3 - 7		-47775.5	692120.
3 - 8		49878.5	692120.
3 - 9		-15073.5	692120.
3 - 10		-52660.5	692120.
3 - 11		59112.5	847670.
3 - 12		-168422.	847670.
3 - 13		139539.	847670.
3 - 14		156060.	847670.
3 - 15		291241.	847670.
3 - 16		-542089.	847670.
3 - 17		-444925.	847670.
3 - 18		-191293.	847670.
4 - 5		-77329.0	692120.
4 - 6		-85763.0	692120.
4 - 7		-147648.	692120.
4 - 8		-49993.5	692120.
4 - 9		-114946.	692120.
4 - 10		-152533.	692120.
4 - 11		-40759.5	847670.
4 - 12		-268294.	847670.
4 - 13		39666.5	847670.
4 - 14		56187.5	847670.
4 - 15		191369.	847670.
4 - 16		-641961.	847670.
4 - 17		-544797.	847670.
4 - 18		-291165.	847670.
5 - 6		-8434.0	692120.

5 - 7		-70318.5	692120.
5 - 8		27335.5	692120.
5 - 9		-37616.5	692120.
5 - 10		-75203.5	692120.
5 - 11		36569.5	847670.
5 - 12		-190965.	847670.
5 - 13		116996.	847670.
5 - 14		133517.	847670.
5 - 15		268698.	847670.
5 - 16		-564632.	847670.
5 - 17		-467468.	847670.
5 - 18		-213836.	847670.
6 - 7		-61884.5	692120.
6 - 8		35769.5	692120.
6 - 9		-29182.5	692120.
6 - 10		-66769.5	692120.
6 - 11		45003.5	847670.
6 - 12		-182531.	847670.
6 - 13		125430.	847670.
6 - 14		141951.	847670.
6 - 15		277132.	847670.
6 - 16		-556198.	847670.
6 - 17		-459034.	847670.
6 - 18		-205402.	847670.
7 - 8		97654.0	692120.
7 - 9		32702.0	692120.
7 - 10		-4885.0	692120.
7 - 11		106888.	847670.
7 - 12		-120646.	847670.
7 - 13		187314.	847670.
7 - 14		203835.	847670.
7 - 15		339016.	847670.
7 - 16		-494313.	847670.
7 - 17		-397149.	847670.
7 - 18		-143517.	847670.
8 - 9		-64952.0	692120.
8 - 10		-102539.	692120.
8 - 11		9234.0	847670.
8 - 12		-218300.	847670.
8 - 13		89660.0	847670.
8 - 14		106181.	847670.
8 - 15		241362.	847670.
8 - 16		-591967.	847670.
8 - 17		-494803.	847670.
8 - 18		-241171.	847670.
9 - 10		-37587.0	692120.
9 - 11		74186.0	847670.
9 - 12		-153348.	847670.
9 - 13		154612.	847670.
9 - 14		171133.	847670.
9 - 15		306314.	847670.
9 - 16		-527015.	847670.
9 - 17		-429851.	847670.
9 - 18		-176219.	847670.
10 - 11		111773.	847670.
10 - 12		-115761.	847670.
10 - 13		192199.	847670.
10 - 14		208720.	847670.
10 - 15		343901.	847670.
10 - 16		-489428.	847670.
10 - 17		-392264.	847670.
10 - 18		-138632.	847670.
11 - 12		-227534.	978805.
11 - 13		80426.0	978805.

11 - 14		96947.0	978805.
11 - 15		232128.	978805.
11 - 16		-601201.	978805.
11 - 17		-504037.	978805.
11 - 18		-250405.	978805.
12 - 13		307960.	978805.
12 - 14		324481.	978805.
12 - 15		459662.	978805.
12 - 16		-373667.	978805.
12 - 17		-276503.	978805.
12 - 18		-22871.0	978805.
13 - 14		16521.0	978805.
13 - 15		151702.	978805.
13 - 16		-681627.	978805.
13 - 17		-584463.	978805.
13 - 18		-330831.	978805.
14 - 15		135181.	978805.
14 - 16		-698148.	978805.
14 - 17		-600984.	978805.
14 - 18		-347352.	978805.
15 - 16		-833329.	978805.
15 - 17		-736165.	978805.
15 - 18		-482533.	978805.
16 - 17		97164.0	978805.
16 - 18		350796.	978805.
17 - 18		253632.	978805.

* denotes a statistically significant difference.

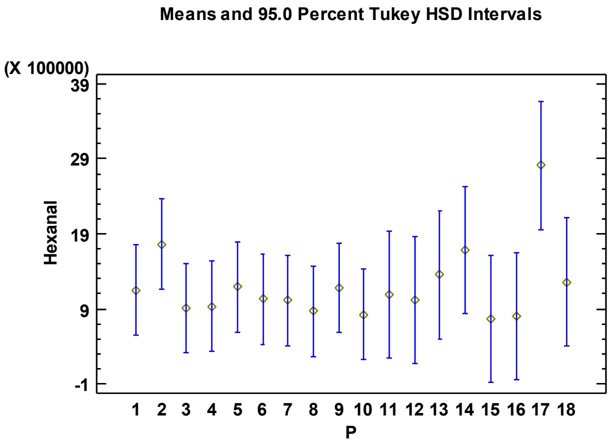
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Hexanal by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	4.79587E12	17	2.8211E11	3.94	0.0161
Within groups	7.15724E11	10	7.15724E10		
Total (Corr.)	5.51159E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of Hexanal into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 3.9416, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean Hexanal from one level of P to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean Hexanal for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Hexanal by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
15	1	762600.	X
16	1	801953.	X
10	2	822994.	X
8	2	868684.	X
3	2	907268.	X
4	2	933681.	X
7	2	1.00952E6	X
12	1	1.01654E6	X
6	2	1.03241E6	X
11	1	1.09316E6	X
1	2	1.14945E6	X
9	2	1.17852E6	X
5	2	1.19304E6	X
18	1	1.25993E6	XX
13	1	1.35334E6	XX
14	1	1.6869E6	XX
2	2	1.76313E6	XX
17	1	2.81051E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-613677.	1.20004E6
1 - 3		242184.	1.20004E6
1 - 4		215771.	1.20004E6
1 - 5		-43592.0	1.20004E6
1 - 6		117041.	1.20004E6
1 - 7		139928.	1.20004E6
1 - 8		280768.	1.20004E6
1 - 9		-29070.5	1.20004E6
1 - 10		326458.	1.20004E6
1 - 11		56290.5	1.46975E6
1 - 12		132913.	1.46975E6
1 - 13		-203887.	1.46975E6
1 - 14		-537452.	1.46975E6
1 - 15		386852.	1.46975E6
1 - 16		347499.	1.46975E6
1 - 17	*	-1.66106E6	1.46975E6
1 - 18		-110474.	1.46975E6
2 - 3		855860.	1.20004E6
2 - 4		829447.	1.20004E6
2 - 5		570085.	1.20004E6
2 - 6		730718.	1.20004E6
2 - 7		753605.	1.20004E6
2 - 8		894445.	1.20004E6
2 - 9		584606.	1.20004E6
2 - 10		940135.	1.20004E6
2 - 11		669967.	1.46975E6
2 - 12		746589.	1.46975E6
2 - 13		409790.	1.46975E6
2 - 14		76225.0	1.46975E6
2 - 15		1.00053E6	1.46975E6
2 - 16		961175.	1.46975E6
2 - 17		-1.04739E6	1.46975E6
2 - 18		503203.	1.46975E6
3 - 4		-26413.0	1.20004E6
3 - 5		-285776.	1.20004E6
3 - 6		-125143.	1.20004E6
3 - 7		-102256.	1.20004E6
3 - 8		38584.5	1.20004E6
3 - 9		-271254.	1.20004E6
3 - 10		84274.5	1.20004E6
3 - 11		-185893.	1.46975E6
3 - 12		-109271.	1.46975E6
3 - 13		-446070.	1.46975E6
3 - 14		-779635.	1.46975E6
3 - 15		144668.	1.46975E6
3 - 16		105315.	1.46975E6
3 - 17	*	-1.90325E6	1.46975E6
3 - 18		-352657.	1.46975E6
4 - 5		-259363.	1.20004E6
4 - 6		-98729.5	1.20004E6
4 - 7		-75842.5	1.20004E6
4 - 8		64997.5	1.20004E6
4 - 9		-244841.	1.20004E6
4 - 10		110688.	1.20004E6
4 - 11		-159480.	1.46975E6
4 - 12		-82858.0	1.46975E6
4 - 13		-419657.	1.46975E6
4 - 14		-753222.	1.46975E6
4 - 15		171081.	1.46975E6
4 - 16		131728.	1.46975E6
4 - 17	*	-1.87683E6	1.46975E6
4 - 18		-326244.	1.46975E6

5 - 6		160633.	1.20004E6
5 - 7		183520.	1.20004E6
5 - 8		324360.	1.20004E6
5 - 9		14521.5	1.20004E6
5 - 10		370050.	1.20004E6
5 - 11		99882.5	1.46975E6
5 - 12		176505.	1.46975E6
5 - 13		-160295.	1.46975E6
5 - 14		-493860.	1.46975E6
5 - 15		430444.	1.46975E6
5 - 16		391091.	1.46975E6
5 - 17	*	-1.61747E6	1.46975E6
5 - 18		-66881.5	1.46975E6
6 - 7		22887.0	1.20004E6
6 - 8		163727.	1.20004E6
6 - 9		-146112.	1.20004E6
6 - 10		209417.	1.20004E6
6 - 11		-60750.5	1.46975E6
6 - 12		15871.5	1.46975E6
6 - 13		-320928.	1.46975E6
6 - 14		-654493.	1.46975E6
6 - 15		269811.	1.46975E6
6 - 16		230458.	1.46975E6
6 - 17	*	-1.7781E6	1.46975E6
6 - 18		-227515.	1.46975E6
7 - 8		140840.	1.20004E6
7 - 9		-168999.	1.20004E6
7 - 10		186530.	1.20004E6
7 - 11		-83637.5	1.46975E6
7 - 12		-7015.5	1.46975E6
7 - 13		-343815.	1.46975E6
7 - 14		-677380.	1.46975E6
7 - 15		246924.	1.46975E6
7 - 16		207571.	1.46975E6
7 - 17	*	-1.80099E6	1.46975E6
7 - 18		-250402.	1.46975E6
8 - 9		-309839.	1.20004E6
8 - 10		45690.0	1.20004E6
8 - 11		-224478.	1.46975E6
8 - 12		-147856.	1.46975E6
8 - 13		-484655.	1.46975E6
8 - 14		-818220.	1.46975E6
8 - 15		106084.	1.46975E6
8 - 16		66730.5	1.46975E6
8 - 17	*	-1.94183E6	1.46975E6
8 - 18		-391242.	1.46975E6
9 - 10		355529.	1.20004E6
9 - 11		85361.0	1.46975E6
9 - 12		161983.	1.46975E6
9 - 13		-174816.	1.46975E6
9 - 14		-508381.	1.46975E6
9 - 15		415922.	1.46975E6
9 - 16		376569.	1.46975E6
9 - 17	*	-1.63199E6	1.46975E6
9 - 18		-81403.0	1.46975E6
10 - 11		-270168.	1.46975E6
10 - 12		-193546.	1.46975E6
10 - 13		-530345.	1.46975E6
10 - 14		-863910.	1.46975E6
10 - 15		60393.5	1.46975E6
10 - 16		21040.5	1.46975E6
10 - 17	*	-1.98752E6	1.46975E6
10 - 18		-436932.	1.46975E6
11 - 12		76622.0	1.69712E6

11 - 13		-260177.	1.69712E6
11 - 14		-593742.	1.69712E6
11 - 15		330561.	1.69712E6
11 - 16		291208.	1.69712E6
11 - 17	*	-1.71735E6	1.69712E6
11 - 18		-166764.	1.69712E6
12 - 13		-336799.	1.69712E6
12 - 14		-670364.	1.69712E6
12 - 15		253939.	1.69712E6
12 - 16		214586.	1.69712E6
12 - 17	*	-1.79397E6	1.69712E6
12 - 18		-243386.	1.69712E6
13 - 14		-333565.	1.69712E6
13 - 15		590738.	1.69712E6
13 - 16		551385.	1.69712E6
13 - 17		-1.45718E6	1.69712E6
13 - 18		93413.0	1.69712E6
14 - 15		924303.	1.69712E6
14 - 16		884950.	1.69712E6
14 - 17		-1.12361E6	1.69712E6
14 - 18		426978.	1.69712E6
15 - 16		-39353.0	1.69712E6
15 - 17	*	-2.04791E6	1.69712E6
15 - 18		-497325.	1.69712E6
16 - 17	*	-2.00856E6	1.69712E6
16 - 18		-457972.	1.69712E6
17 - 18		1.55059E6	1.69712E6

* denotes a statistically significant difference.

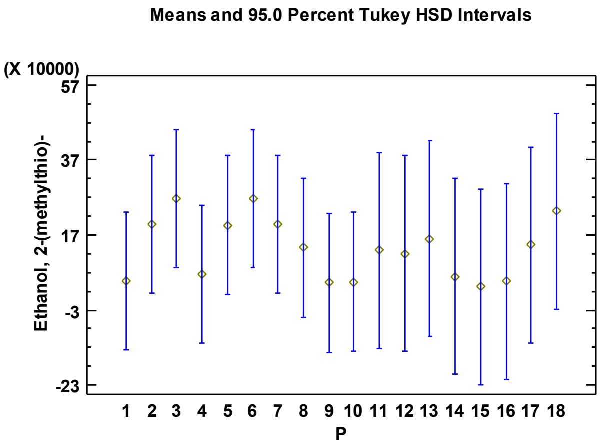
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 13 pairs, indicating that these pairs show statistically significant differences at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Ethanol, 2-(methylthio)- by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.85891E11	17	1.09348E10	1.62	0.2218
Within groups	6.76589E10	10	6.76589E9		
Total (Corr.)	2.5355E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of Ethanol, 2-(methylthio)- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.61616, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Ethanol, 2-(methylthio)- from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Ethanol, 2-(methylthio)- for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Ethanol, 2-(methylthio)- by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
15	1	32410.0	X
9	2	42928.5	X
10	2	45386.5	X
16	1	46944.0	X
1	2	47136.0	X
14	1	59489.0	X
4	2	66276.5	X
12	1	120050.	X
11	1	129484.	X
8	2	136561.	X
17	1	143285.	X
13	1	160938.	X
5	2	196283.	X
2	2	198472.	X
7	2	199052.	X
18	1	233482.	X
3	2	266319.	X
6	2	267791.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-151336.	368966.
1 - 3		-219183.	368966.
1 - 4		-19140.5	368966.
1 - 5		-149147.	368966.
1 - 6		-220655.	368966.
1 - 7		-151916.	368966.
1 - 8		-89424.5	368966.
1 - 9		4207.5	368966.
1 - 10		1749.5	368966.
1 - 11		-82348.0	451889.
1 - 12		-72914.0	451889.
1 - 13		-113802.	451889.
1 - 14		-12353.0	451889.
1 - 15		14726.0	451889.
1 - 16		192.0	451889.
1 - 17		-96149.0	451889.
1 - 18		-186346.	451889.
2 - 3		-67847.0	368966.
2 - 4		132196.	368966.
2 - 5		2189.5	368966.
2 - 6		-69319.0	368966.
2 - 7		-580.0	368966.
2 - 8		61911.5	368966.
2 - 9		155544.	368966.
2 - 10		153086.	368966.
2 - 11		68988.0	451889.
2 - 12		78422.0	451889.
2 - 13		37534.0	451889.
2 - 14		138983.	451889.
2 - 15		166062.	451889.
2 - 16		151528.	451889.
2 - 17		55187.0	451889.
2 - 18		-35010.0	451889.
3 - 4		200043.	368966.
3 - 5		70036.5	368966.
3 - 6		-1472.0	368966.
3 - 7		67267.0	368966.
3 - 8		129759.	368966.
3 - 9		223391.	368966.
3 - 10		220933.	368966.
3 - 11		136835.	451889.
3 - 12		146269.	451889.
3 - 13		105381.	451889.
3 - 14		206830.	451889.
3 - 15		233909.	451889.
3 - 16		219375.	451889.
3 - 17		123034.	451889.
3 - 18		32837.0	451889.
4 - 5		-130006.	368966.
4 - 6		-201515.	368966.
4 - 7		-132776.	368966.
4 - 8		-70284.0	368966.
4 - 9		23348.0	368966.
4 - 10		20890.0	368966.
4 - 11		-63207.5	451889.
4 - 12		-53773.5	451889.
4 - 13		-94661.5	451889.
4 - 14		6787.5	451889.
4 - 15		33866.5	451889.
4 - 16		19332.5	451889.
4 - 17		-77008.5	451889.
4 - 18		-167206.	451889.
5 - 6		-71508.5	368966.

5 - 7		-2769.5	368966.
5 - 8		59722.0	368966.
5 - 9		153354.	368966.
5 - 10		150896.	368966.
5 - 11		66798.5	451889.
5 - 12		76232.5	451889.
5 - 13		35344.5	451889.
5 - 14		136794.	451889.
5 - 15		163873.	451889.
5 - 16		149339.	451889.
5 - 17		52997.5	451889.
5 - 18		-37199.5	451889.
6 - 7		68739.0	368966.
6 - 8		131231.	368966.
6 - 9		224863.	368966.
6 - 10		222405.	368966.
6 - 11		138307.	451889.
6 - 12		147741.	451889.
6 - 13		106853.	451889.
6 - 14		208302.	451889.
6 - 15		235381.	451889.
6 - 16		220847.	451889.
6 - 17		124506.	451889.
6 - 18		34309.0	451889.
7 - 8		62491.5	368966.
7 - 9		156124.	368966.
7 - 10		153666.	368966.
7 - 11		69568.0	451889.
7 - 12		79002.0	451889.
7 - 13		38114.0	451889.
7 - 14		139563.	451889.
7 - 15		166642.	451889.
7 - 16		152108.	451889.
7 - 17		55767.0	451889.
7 - 18		-34430.0	451889.
8 - 9		93632.0	368966.
8 - 10		91174.0	368966.
8 - 11		7076.5	451889.
8 - 12		16510.5	451889.
8 - 13		-24377.5	451889.
8 - 14		77071.5	451889.
8 - 15		104151.	451889.
8 - 16		89616.5	451889.
8 - 17		-6724.5	451889.
8 - 18		-96921.5	451889.
9 - 10		-2458.0	368966.
9 - 11		-86555.5	451889.
9 - 12		-77121.5	451889.
9 - 13		-118010.	451889.
9 - 14		-16560.5	451889.
9 - 15		10518.5	451889.
9 - 16		-4015.5	451889.
9 - 17		-100357.	451889.
9 - 18		-190554.	451889.
10 - 11		-84097.5	451889.
10 - 12		-74663.5	451889.
10 - 13		-115552.	451889.
10 - 14		-14102.5	451889.
10 - 15		12976.5	451889.
10 - 16		-1557.5	451889.
10 - 17		-97898.5	451889.
10 - 18		-188096.	451889.
11 - 12		9434.0	521797.
11 - 13		-31454.0	521797.

11 - 14		69995.0	521797.
11 - 15		97074.0	521797.
11 - 16		82540.0	521797.
11 - 17		-13801.0	521797.
11 - 18		-103998.	521797.
12 - 13		-40888.0	521797.
12 - 14		60561.0	521797.
12 - 15		87640.0	521797.
12 - 16		73106.0	521797.
12 - 17		-23235.0	521797.
12 - 18		-113432.	521797.
13 - 14		101449.	521797.
13 - 15		128528.	521797.
13 - 16		113994.	521797.
13 - 17		17653.0	521797.
13 - 18		-72544.0	521797.
14 - 15		27079.0	521797.
14 - 16		12545.0	521797.
14 - 17		-83796.0	521797.
14 - 18		-173993.	521797.
15 - 16		-14534.0	521797.
15 - 17		-110875.	521797.
15 - 18		-201072.	521797.
16 - 17		-96341.0	521797.
16 - 18		-186538.	521797.
17 - 18		-90197.0	521797.

* denotes a statistically significant difference.

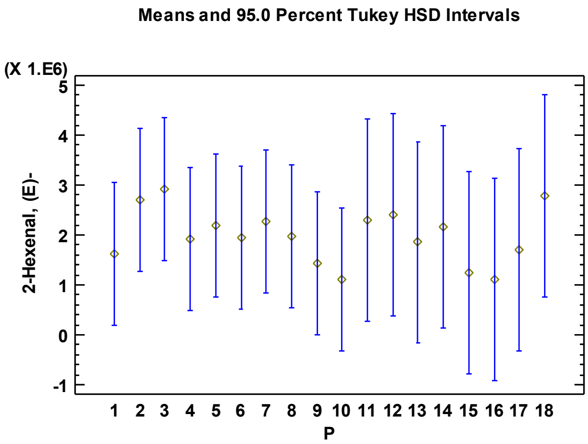
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 2-Hexenal, (E)- by P

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Between groups	7.7724E12	17	4.572E11	1.12	0.4393
Within groups	4.06876E12	10	4.06876E11		
Total (Corr.)	1.18412E13	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2-Hexenal, (E)- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.12368, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2-Hexenal, (E)- from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 2-Hexenal, (E)- for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2-Hexenal, (E)- by P

Method: 95.0 percent Tukey HSD

P	Count	Mean	Homogeneous Groups
10	2	1.10295E6	X
16	1	1.11609E6	X
15	1	1.24621E6	X
9	2	1.43125E6	X
1	2	1.60925E6	X
17	1	1.707E6	X
13	1	1.85164E6	X
4	2	1.91057E6	X
6	2	1.9341E6	X
8	2	1.9672E6	X
14	1	2.16485E6	X
5	2	2.17833E6	X
7	2	2.25938E6	X
11	1	2.30013E6	X
12	1	2.41134E6	X
2	2	2.69365E6	X
18	1	2.78336E6	X
3	2	2.91436E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-1.08441E6	2.86125E6
1 - 3		-1.30512E6	2.86125E6
1 - 4		-301323.	2.86125E6
1 - 5		-569084.	2.86125E6
1 - 6		-324860.	2.86125E6
1 - 7		-650139.	2.86125E6
1 - 8		-357959.	2.86125E6
1 - 9		177993.	2.86125E6
1 - 10		506297.	2.86125E6
1 - 11		-690889.	3.5043E6
1 - 12		-802090.	3.5043E6
1 - 13		-242391.	3.5043E6
1 - 14		-555608.	3.5043E6
1 - 15		363034.	3.5043E6
1 - 16		493152.	3.5043E6
1 - 17		-97757.0	3.5043E6
1 - 18		-1.17412E6	3.5043E6
2 - 3		-220712.	2.86125E6
2 - 4		783085.	2.86125E6
2 - 5		515324.	2.86125E6
2 - 6		759549.	2.86125E6
2 - 7		434269.	2.86125E6
2 - 8		726449.	2.86125E6
2 - 9		1.2624E6	2.86125E6
2 - 10		1.5907E6	2.86125E6
2 - 11		393519.	3.5043E6
2 - 12		282318.	3.5043E6
2 - 13		842017.	3.5043E6
2 - 14		528800.	3.5043E6
2 - 15		1.44744E6	3.5043E6
2 - 16		1.57756E6	3.5043E6
2 - 17		986651.	3.5043E6
2 - 18		-89708.0	3.5043E6
3 - 4		1.0038E6	2.86125E6
3 - 5		736036.	2.86125E6
3 - 6		980260.	2.86125E6
3 - 7		654981.	2.86125E6
3 - 8		947161.	2.86125E6
3 - 9		1.48311E6	2.86125E6
3 - 10		1.81142E6	2.86125E6
3 - 11		614231.	3.5043E6
3 - 12		503030.	3.5043E6
3 - 13		1.06273E6	3.5043E6
3 - 14		749512.	3.5043E6
3 - 15		1.66815E6	3.5043E6
3 - 16		1.79827E6	3.5043E6
3 - 17		1.20736E6	3.5043E6
3 - 18		131004.	3.5043E6
4 - 5		-267761.	2.86125E6
4 - 6		-23536.5	2.86125E6
4 - 7		-348816.	2.86125E6
4 - 8		-56636.0	2.86125E6
4 - 9		479316.	2.86125E6
4 - 10		807620.	2.86125E6
4 - 11		-389566.	3.5043E6
4 - 12		-500767.	3.5043E6
4 - 13		58932.0	3.5043E6
4 - 14		-254285.	3.5043E6
4 - 15		664357.	3.5043E6
4 - 16		794475.	3.5043E6
4 - 17		203566.	3.5043E6
4 - 18		-872793.	3.5043E6
5 - 6		244225.	2.86125E6

5 - 7		-81055.0	2.86125E6
5 - 8		211125.	2.86125E6
5 - 9		747077.	2.86125E6
5 - 10		1.07538E6	2.86125E6
5 - 11		-121805.	3.5043E6
5 - 12		-233006.	3.5043E6
5 - 13		326693.	3.5043E6
5 - 14		13476.0	3.5043E6
5 - 15		932118.	3.5043E6
5 - 16		1.06224E6	3.5043E6
5 - 17		471327.	3.5043E6
5 - 18		-605032.	3.5043E6
6 - 7		-325280.	2.86125E6
6 - 8		-33099.5	2.86125E6
6 - 9		502852.	2.86125E6
6 - 10		831156.	2.86125E6
6 - 11		-366030.	3.5043E6
6 - 12		-477231.	3.5043E6
6 - 13		82468.5	3.5043E6
6 - 14		-230749.	3.5043E6
6 - 15		687894.	3.5043E6
6 - 16		818012.	3.5043E6
6 - 17		227103.	3.5043E6
6 - 18		-849257.	3.5043E6
7 - 8		292180.	2.86125E6
7 - 9		828132.	2.86125E6
7 - 10		1.15644E6	2.86125E6
7 - 11		-40750.0	3.5043E6
7 - 12		-151951.	3.5043E6
7 - 13		407748.	3.5043E6
7 - 14		94531.0	3.5043E6
7 - 15		1.01317E6	3.5043E6
7 - 16		1.14329E6	3.5043E6
7 - 17		552382.	3.5043E6
7 - 18		-523977.	3.5043E6
8 - 9		535952.	2.86125E6
8 - 10		864256.	2.86125E6
8 - 11		-332930.	3.5043E6
8 - 12		-444131.	3.5043E6
8 - 13		115568.	3.5043E6
8 - 14		-197649.	3.5043E6
8 - 15		720993.	3.5043E6
8 - 16		851111.	3.5043E6
8 - 17		260202.	3.5043E6
8 - 18		-816157.	3.5043E6
9 - 10		328304.	2.86125E6
9 - 11		-868882.	3.5043E6
9 - 12		-980083.	3.5043E6
9 - 13		-420384.	3.5043E6
9 - 14		-733601.	3.5043E6
9 - 15		185042.	3.5043E6
9 - 16		315160.	3.5043E6
9 - 17		-275750.	3.5043E6
9 - 18		-1.35211E6	3.5043E6
10 - 11		-1.19719E6	3.5043E6
10 - 12		-1.30839E6	3.5043E6
10 - 13		-748688.	3.5043E6
10 - 14		-1.0619E6	3.5043E6
10 - 15		-143263.	3.5043E6
10 - 16		-13144.5	3.5043E6
10 - 17		-604054.	3.5043E6
10 - 18		-1.68041E6	3.5043E6
11 - 12		-111201.	4.04641E6
11 - 13		448498.	4.04641E6

11 - 14		135281.	4.04641E6
11 - 15		1.05392E6	4.04641E6
11 - 16		1.18404E6	4.04641E6
11 - 17		593132.	4.04641E6
11 - 18		-483227.	4.04641E6
12 - 13		559699.	4.04641E6
12 - 14		246482.	4.04641E6
12 - 15		1.16512E6	4.04641E6
12 - 16		1.29524E6	4.04641E6
12 - 17		704333.	4.04641E6
12 - 18		-372026.	4.04641E6
13 - 14		-313217.	4.04641E6
13 - 15		605425.	4.04641E6
13 - 16		735543.	4.04641E6
13 - 17		144634.	4.04641E6
13 - 18		-931725.	4.04641E6
14 - 15		918642.	4.04641E6
14 - 16		1.04876E6	4.04641E6
14 - 17		457851.	4.04641E6
14 - 18		-618508.	4.04641E6
15 - 16		130118.	4.04641E6
15 - 17		-460791.	4.04641E6
15 - 18		-1.53715E6	4.04641E6
16 - 17		-590909.	4.04641E6
16 - 18		-1.66727E6	4.04641E6
17 - 18		-1.07636E6	4.04641E6

* denotes a statistically significant difference.

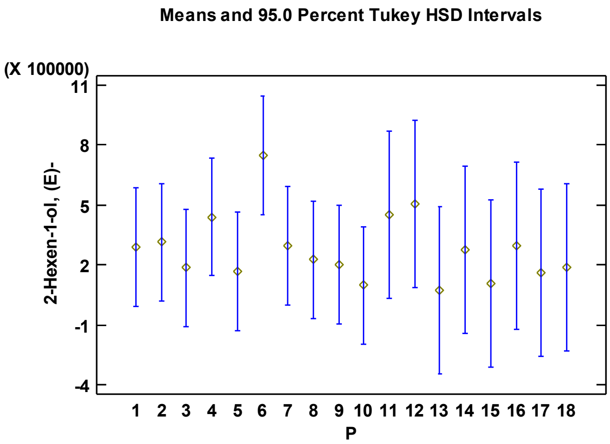
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 2-Hexen-1-ol, (E)- by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	7.90987E11	17	4.65287E10	2.69	0.0574
Within groups	1.72978E11	10	1.72978E10		
Total (Corr.)	9.63966E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2-Hexen-1-ol, (E)- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.68985, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2-Hexen-1-ol, (E)- from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 2-Hexen-1-ol, (E)- for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2-Hexen-1-ol, (E)- by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
13	1	75108.0	XX
10	2	97851.0	X
15	1	108686.	XX
17	1	161221.	XX
5	2	168835.	XX
3	2	184917.	XX
18	1	187920.	XX
9	2	202069.	XX
8	2	225297.	XX
14	1	275580.	XX
1	2	288433.	XX
7	2	295053.	XX
16	1	297242.	XX
2	2	314590.	XX
4	2	439166.	XX
11	1	449683.	XX
12	1	503880.	XX
6	2	747800.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-26157.5	589956.
1 - 3		103516.	589956.
1 - 4		-150734.	589956.
1 - 5		119598.	589956.
1 - 6		-459368.	589956.
1 - 7		-6620.0	589956.
1 - 8		63135.5	589956.
1 - 9		86364.0	589956.
1 - 10		190582.	589956.
1 - 11		-161251.	722546.
1 - 12		-215448.	722546.
1 - 13		213325.	722546.
1 - 14		12852.5	722546.
1 - 15		179747.	722546.
1 - 16		-8809.5	722546.
1 - 17		127212.	722546.
1 - 18		100513.	722546.
2 - 3		129674.	589956.
2 - 4		-124576.	589956.
2 - 5		145756.	589956.
2 - 6		-433210.	589956.
2 - 7		19537.5	589956.
2 - 8		89293.0	589956.
2 - 9		112522.	589956.
2 - 10		216739.	589956.
2 - 11		-135093.	722546.
2 - 12		-189290.	722546.
2 - 13		239482.	722546.
2 - 14		39010.0	722546.
2 - 15		205904.	722546.
2 - 16		17348.0	722546.
2 - 17		153369.	722546.
2 - 18		126670.	722546.
3 - 4		-254250.	589956.
3 - 5		16082.0	589956.
3 - 6		-562884.	589956.
3 - 7		-110136.	589956.
3 - 8		-40380.5	589956.
3 - 9		-17152.0	589956.
3 - 10		87065.5	589956.
3 - 11		-264767.	722546.
3 - 12		-318964.	722546.
3 - 13		109809.	722546.
3 - 14		-90663.5	722546.
3 - 15		76230.5	722546.
3 - 16		-112326.	722546.
3 - 17		23695.5	722546.
3 - 18		-3003.5	722546.
4 - 5		270332.	589956.
4 - 6		-308634.	589956.
4 - 7		144114.	589956.
4 - 8		213869.	589956.
4 - 9		237098.	589956.
4 - 10		341315.	589956.
4 - 11		-10517.0	722546.
4 - 12		-64714.0	722546.
4 - 13		364058.	722546.
4 - 14		163586.	722546.
4 - 15		330480.	722546.
4 - 16		141924.	722546.
4 - 17		277945.	722546.
4 - 18		251246.	722546.
5 - 6		-578966.	589956.

5 - 7		-126218.	589956.
5 - 8		-56462.5	589956.
5 - 9		-33234.0	589956.
5 - 10		70983.5	589956.
5 - 11		-280849.	722546.
5 - 12		-335046.	722546.
5 - 13		93726.5	722546.
5 - 14		-106746.	722546.
5 - 15		60148.5	722546.
5 - 16		-128408.	722546.
5 - 17		7613.5	722546.
5 - 18		-19085.5	722546.
6 - 7		452748.	589956.
6 - 8		522503.	589956.
6 - 9		545732.	589956.
6 - 10	*	649949.	589956.
6 - 11		298117.	722546.
6 - 12		243920.	722546.
6 - 13		672692.	722546.
6 - 14		472220.	722546.
6 - 15		639114.	722546.
6 - 16		450558.	722546.
6 - 17		586579.	722546.
6 - 18		559880.	722546.
7 - 8		69755.5	589956.
7 - 9		92984.0	589956.
7 - 10		197202.	589956.
7 - 11		-154631.	722546.
7 - 12		-208828.	722546.
7 - 13		219945.	722546.
7 - 14		19472.5	722546.
7 - 15		186367.	722546.
7 - 16		-2189.5	722546.
7 - 17		133832.	722546.
7 - 18		107133.	722546.
8 - 9		23228.5	589956.
8 - 10		127446.	589956.
8 - 11		-224386.	722546.
8 - 12		-278583.	722546.
8 - 13		150189.	722546.
8 - 14		-50283.0	722546.
8 - 15		116611.	722546.
8 - 16		-71945.0	722546.
8 - 17		64076.0	722546.
8 - 18		37377.0	722546.
9 - 10		104218.	589956.
9 - 11		-247615.	722546.
9 - 12		-301812.	722546.
9 - 13		126961.	722546.
9 - 14		-73511.5	722546.
9 - 15		93382.5	722546.
9 - 16		-95173.5	722546.
9 - 17		40847.5	722546.
9 - 18		14148.5	722546.
10 - 11		-351832.	722546.
10 - 12		-406029.	722546.
10 - 13		22743.0	722546.
10 - 14		-177729.	722546.
10 - 15		-10835.0	722546.
10 - 16		-199391.	722546.
10 - 17		-63370.0	722546.
10 - 18		-90069.0	722546.
11 - 12		-54197.0	834324.
11 - 13		374575.	834324.

11 - 14		174103.	834324.
11 - 15		340997.	834324.
11 - 16		152441.	834324.
11 - 17		288462.	834324.
11 - 18		261763.	834324.
12 - 13		428772.	834324.
12 - 14		228300.	834324.
12 - 15		395194.	834324.
12 - 16		206638.	834324.
12 - 17		342659.	834324.
12 - 18		315960.	834324.
13 - 14		-200472.	834324.
13 - 15		-33578.0	834324.
13 - 16		-222134.	834324.
13 - 17		-86113.0	834324.
13 - 18		-112812.	834324.
14 - 15		166894.	834324.
14 - 16		-21662.0	834324.
14 - 17		114359.	834324.
14 - 18		87660.0	834324.
15 - 16		-188556.	834324.
15 - 17		-52535.0	834324.
15 - 18		-79234.0	834324.
16 - 17		136021.	834324.
16 - 18		109322.	834324.
17 - 18		-26699.0	834324.

* denotes a statistically significant difference.

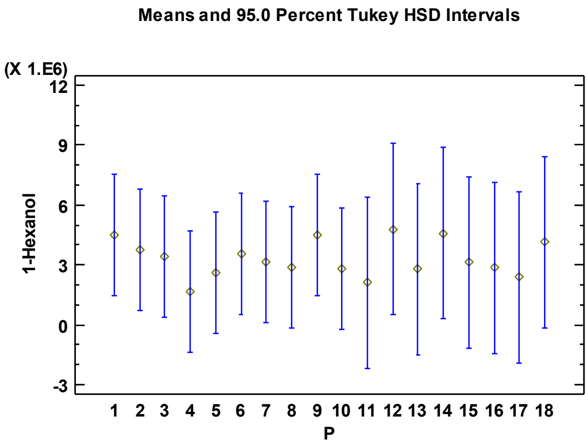
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 1 pair, indicating that this pair shows a statistically significant difference at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 1-Hexanol by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	2.09164E13	17	1.23037E12	0.67	0.7729
Within groups	1.82818E13	10	1.82818E12		
Total (Corr.)	3.91981E13	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1-Hexanol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.673006, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1-Hexanol from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 1-Hexanol for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1-Hexanol by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
4	2	1.64263E6	X
11	1	2.10676E6	X
17	1	2.3801E6	X
5	2	2.59646E6	X
13	1	2.77959E6	X
10	2	2.82971E6	X
16	1	2.85139E6	X
8	2	2.90539E6	X
15	1	3.13636E6	X
7	2	3.15413E6	X
3	2	3.40669E6	X
6	2	3.55935E6	X
2	2	3.7484E6	X
18	1	4.14748E6	X
9	2	4.4944E6	X
1	2	4.49572E6	X
14	1	4.57744E6	X
12	1	4.79845E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		747327.	6.06503E6
1 - 3		1.08904E6	6.06503E6
1 - 4		2.85309E6	6.06503E6
1 - 5		1.89926E6	6.06503E6
1 - 6		936374.	6.06503E6
1 - 7		1.34159E6	6.06503E6
1 - 8		1.59034E6	6.06503E6
1 - 9		1320.0	6.06503E6
1 - 10		1.66601E6	6.06503E6
1 - 11		2.38896E6	7.42812E6
1 - 12		-302724.	7.42812E6
1 - 13		1.71613E6	7.42812E6
1 - 14		-81719.5	7.42812E6
1 - 15		1.35936E6	7.42812E6
1 - 16		1.64433E6	7.42812E6
1 - 17		2.11563E6	7.42812E6
1 - 18		348247.	7.42812E6
2 - 3		341712.	6.06503E6
2 - 4		2.10576E6	6.06503E6
2 - 5		1.15194E6	6.06503E6
2 - 6		189047.	6.06503E6
2 - 7		594268.	6.06503E6
2 - 8		843009.	6.06503E6
2 - 9		-746007.	6.06503E6
2 - 10		918688.	6.06503E6
2 - 11		1.64164E6	7.42812E6
2 - 12		-1.05005E6	7.42812E6
2 - 13		968804.	7.42812E6
2 - 14		-829046.	7.42812E6
2 - 15		612035.	7.42812E6
2 - 16		897004.	7.42812E6
2 - 17		1.3683E6	7.42812E6
2 - 18		-399080.	7.42812E6
3 - 4		1.76405E6	6.06503E6
3 - 5		810225.	6.06503E6
3 - 6		-152665.	6.06503E6
3 - 7		252556.	6.06503E6
3 - 8		501297.	6.06503E6
3 - 9		-1.08772E6	6.06503E6
3 - 10		576977.	6.06503E6
3 - 11		1.29993E6	7.42812E6
3 - 12		-1.39176E6	7.42812E6
3 - 13		627093.	7.42812E6
3 - 14		-1.17076E6	7.42812E6
3 - 15		270324.	7.42812E6
3 - 16		555293.	7.42812E6
3 - 17		1.02659E6	7.42812E6
3 - 18		-740792.	7.42812E6
4 - 5		-953827.	6.06503E6
4 - 6		-1.91672E6	6.06503E6
4 - 7		-1.5115E6	6.06503E6
4 - 8		-1.26276E6	6.06503E6
4 - 9		-2.85177E6	6.06503E6
4 - 10		-1.18708E6	6.06503E6
4 - 11		-464127.	7.42812E6
4 - 12		-3.15581E6	7.42812E6
4 - 13		-1.13696E6	7.42812E6
4 - 14		-2.93481E6	7.42812E6
4 - 15		-1.49373E6	7.42812E6
4 - 16		-1.20876E6	7.42812E6
4 - 17		-737465.	7.42812E6
4 - 18		-2.50484E6	7.42812E6
5 - 6		-962890.	6.06503E6

5 - 7		-557669.	6.06503E6
5 - 8		-308928.	6.06503E6
5 - 9		-1.89794E6	6.06503E6
5 - 10		-233249.	6.06503E6
5 - 11		489701.	7.42812E6
5 - 12		-2.20199E6	7.42812E6
5 - 13		-183133.	7.42812E6
5 - 14		-1.98098E6	7.42812E6
5 - 15		-539902.	7.42812E6
5 - 16		-254933.	7.42812E6
5 - 17		216363.	7.42812E6
5 - 18		-1.55102E6	7.42812E6
6 - 7		405221.	6.06503E6
6 - 8		653962.	6.06503E6
6 - 9		-935054.	6.06503E6
6 - 10		729641.	6.06503E6
6 - 11		1.45259E6	7.42812E6
6 - 12		-1.2391E6	7.42812E6
6 - 13		779757.	7.42812E6
6 - 14		-1.01809E6	7.42812E6
6 - 15		422988.	7.42812E6
6 - 16		707957.	7.42812E6
6 - 17		1.17925E6	7.42812E6
6 - 18		-588127.	7.42812E6
7 - 8		248741.	6.06503E6
7 - 9		-1.34027E6	6.06503E6
7 - 10		324421.	6.06503E6
7 - 11		1.04737E6	7.42812E6
7 - 12		-1.64432E6	7.42812E6
7 - 13		374537.	7.42812E6
7 - 14		-1.42331E6	7.42812E6
7 - 15		17767.5	7.42812E6
7 - 16		302737.	7.42812E6
7 - 17		774032.	7.42812E6
7 - 18		-993348.	7.42812E6
8 - 9		-1.58902E6	6.06503E6
8 - 10		75679.5	6.06503E6
8 - 11		798629.	7.42812E6
8 - 12		-1.89306E6	7.42812E6
8 - 13		125796.	7.42812E6
8 - 14		-1.67205E6	7.42812E6
8 - 15		-230974.	7.42812E6
8 - 16		53995.5	7.42812E6
8 - 17		525291.	7.42812E6
8 - 18		-1.24209E6	7.42812E6
9 - 10		1.66469E6	6.06503E6
9 - 11		2.38764E6	7.42812E6
9 - 12		-304044.	7.42812E6
9 - 13		1.71481E6	7.42812E6
9 - 14		-83039.5	7.42812E6
9 - 15		1.35804E6	7.42812E6
9 - 16		1.64301E6	7.42812E6
9 - 17		2.11431E6	7.42812E6
9 - 18		346927.	7.42812E6
10 - 11		722949.	7.42812E6
10 - 12		-1.96874E6	7.42812E6
10 - 13		50116.0	7.42812E6
10 - 14		-1.74773E6	7.42812E6
10 - 15		-306653.	7.42812E6
10 - 16		-21684.0	7.42812E6
10 - 17		449611.	7.42812E6
10 - 18		-1.31777E6	7.42812E6
11 - 12		-2.69169E6	8.57725E6
11 - 13		-672833.	8.57725E6

11 - 14		-2.47068E6	8.57725E6
11 - 15		-1.0296E6	8.57725E6
11 - 16		-744633.	8.57725E6
11 - 17		-273338.	8.57725E6
11 - 18		-2.04072E6	8.57725E6
12 - 13		2.01885E6	8.57725E6
12 - 14		221004.	8.57725E6
12 - 15		1.66209E6	8.57725E6
12 - 16		1.94705E6	8.57725E6
12 - 17		2.41835E6	8.57725E6
12 - 18		650970.	8.57725E6
13 - 14		-1.79785E6	8.57725E6
13 - 15		-356769.	8.57725E6
13 - 16		-71800.0	8.57725E6
13 - 17		399495.	8.57725E6
13 - 18		-1.36788E6	8.57725E6
14 - 15		1.44108E6	8.57725E6
14 - 16		1.72605E6	8.57725E6
14 - 17		2.19735E6	8.57725E6
14 - 18		429966.	8.57725E6
15 - 16		284969.	8.57725E6
15 - 17		756264.	8.57725E6
15 - 18		-1.01112E6	8.57725E6
16 - 17		471295.	8.57725E6
16 - 18		-1.29608E6	8.57725E6
17 - 18		-1.76738E6	8.57725E6

* denotes a statistically significant difference.

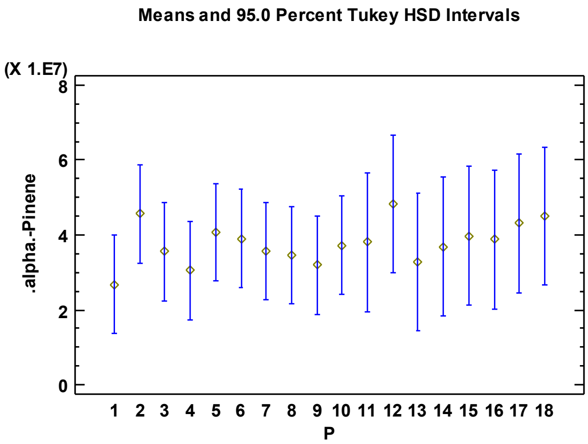
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for .alpha.-Pinene by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	8.05536E14	17	4.73845E13	1.40	0.3003
Within groups	3.39162E14	10	3.39162E13		
Total (Corr.)	1.1447E15	27			

The StatAdvisor
The ANOVA table decomposes the variance of .alpha.-Pinene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.3971, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean .alpha.-Pinene from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean .alpha.-Pinene for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for .alpha.-Pinene by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
1	2	2.67912E7	X
4	2	3.05523E7	X
9	2	3.19567E7	X
13	1	3.28337E7	X
8	2	3.46498E7	X
3	2	3.55982E7	X
7	2	3.56284E7	X
14	1	3.68799E7	X
10	2	3.72225E7	X
11	1	3.81017E7	X
16	1	3.88153E7	X
6	2	3.90343E7	X
15	1	3.97828E7	X
5	2	4.07038E7	X
17	1	4.31581E7	X
18	1	4.50848E7	X
2	2	4.5654E7	X
12	1	4.82272E7	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-1.88628E7	2.61233E7
1 - 3		-8.80699E6	2.61233E7
1 - 4		-3.76104E6	2.61233E7
1 - 5		-1.39126E7	2.61233E7
1 - 6		-1.22431E7	2.61233E7
1 - 7		-8.83721E6	2.61233E7
1 - 8		-7.85863E6	2.61233E7
1 - 9		-5.16544E6	2.61233E7
1 - 10		-1.04313E7	2.61233E7
1 - 11		-1.13105E7	3.19944E7
1 - 12		-2.1436E7	3.19944E7
1 - 13		-6.04248E6	3.19944E7
1 - 14		-1.00887E7	3.19944E7
1 - 15		-1.29916E7	3.19944E7
1 - 16		-1.2024E7	3.19944E7
1 - 17		-1.63669E7	3.19944E7
1 - 18		-1.82936E7	3.19944E7
2 - 3		1.00558E7	2.61233E7
2 - 4		1.51018E7	2.61233E7
2 - 5		4.95023E6	2.61233E7
2 - 6		6.61971E6	2.61233E7
2 - 7		1.00256E7	2.61233E7
2 - 8		1.10042E7	2.61233E7
2 - 9		1.36974E7	2.61233E7
2 - 10		8.4315E6	2.61233E7
2 - 11		7.55237E6	3.19944E7
2 - 12		-2.57315E6	3.19944E7
2 - 13		1.28203E7	3.19944E7
2 - 14		8.77416E6	3.19944E7
2 - 15		5.87123E6	3.19944E7
2 - 16		6.83878E6	3.19944E7
2 - 17		2.4959E6	3.19944E7
2 - 18		569227.	3.19944E7
3 - 4		5.04595E6	2.61233E7
3 - 5		-5.1056E6	2.61233E7
3 - 6		-3.43612E6	2.61233E7
3 - 7		-30221.5	2.61233E7
3 - 8		948354.	2.61233E7
3 - 9		3.64155E6	2.61233E7
3 - 10		-1.62433E6	2.61233E7
3 - 11		-2.50346E6	3.19944E7
3 - 12		-1.2629E7	3.19944E7
3 - 13		2.76451E6	3.19944E7
3 - 14		-1.28167E6	3.19944E7
3 - 15		-4.1846E6	3.19944E7
3 - 16		-3.21705E6	3.19944E7
3 - 17		-7.55993E6	3.19944E7
3 - 18		-9.48661E6	3.19944E7
4 - 5		-1.01515E7	2.61233E7
4 - 6		-8.48207E6	2.61233E7
4 - 7		-5.07617E6	2.61233E7
4 - 8		-4.09759E6	2.61233E7
4 - 9		-1.4044E6	2.61233E7
4 - 10		-6.67028E6	2.61233E7
4 - 11		-7.54941E6	3.19944E7
4 - 12		-1.76749E7	3.19944E7
4 - 13		-2.28144E6	3.19944E7
4 - 14		-6.32762E6	3.19944E7
4 - 15		-9.23055E6	3.19944E7
4 - 16		-8.263E6	3.19944E7
4 - 17		-1.26059E7	3.19944E7
4 - 18		-1.45326E7	3.19944E7
5 - 6		1.66948E6	2.61233E7

5 - 7		5.07538E6	2.61233E7
5 - 8		6.05395E6	2.61233E7
5 - 9		8.74715E6	2.61233E7
5 - 10		3.48127E6	2.61233E7
5 - 11		2.60213E6	3.19944E7
5 - 12		-7.52338E6	3.19944E7
5 - 13		7.87011E6	3.19944E7
5 - 14		3.82393E6	3.19944E7
5 - 15		920999.	3.19944E7
5 - 16		1.88855E6	3.19944E7
5 - 17		-2.45434E6	3.19944E7
5 - 18		-4.38101E6	3.19944E7
6 - 7		3.4059E6	2.61233E7
6 - 8		4.38448E6	2.61233E7
6 - 9		7.07767E6	2.61233E7
6 - 10		1.81179E6	2.61233E7
6 - 11		932659.	3.19944E7
6 - 12		-9.19286E6	3.19944E7
6 - 13		6.20063E6	3.19944E7
6 - 14		2.15445E6	3.19944E7
6 - 15		-748477.	3.19944E7
6 - 16		219072.	3.19944E7
6 - 17		-4.12381E6	3.19944E7
6 - 18		-6.05048E6	3.19944E7
7 - 8		978575.	2.61233E7
7 - 9		3.67177E6	2.61233E7
7 - 10		-1.59411E6	2.61233E7
7 - 11		-2.47324E6	3.19944E7
7 - 12		-1.25988E7	3.19944E7
7 - 13		2.79473E6	3.19944E7
7 - 14		-1.25145E6	3.19944E7
7 - 15		-4.15438E6	3.19944E7
7 - 16		-3.18683E6	3.19944E7
7 - 17		-7.52971E6	3.19944E7
7 - 18		-9.45638E6	3.19944E7
8 - 9		2.69319E6	2.61233E7
8 - 10		-2.57268E6	2.61233E7
8 - 11		-3.45182E6	3.19944E7
8 - 12		-1.35773E7	3.19944E7
8 - 13		1.81615E6	3.19944E7
8 - 14		-2.23003E6	3.19944E7
8 - 15		-5.13295E6	3.19944E7
8 - 16		-4.1654E6	3.19944E7
8 - 17		-8.50829E6	3.19944E7
8 - 18		-1.0435E7	3.19944E7
9 - 10		-5.26588E6	2.61233E7
9 - 11		-6.14501E6	3.19944E7
9 - 12		-1.62705E7	3.19944E7
9 - 13		-877040.	3.19944E7
9 - 14		-4.92322E6	3.19944E7
9 - 15		-7.82615E6	3.19944E7
9 - 16		-6.8586E6	3.19944E7
9 - 17		-1.12015E7	3.19944E7
9 - 18		-1.31282E7	3.19944E7
10 - 11		-879134.	3.19944E7
10 - 12		-1.10047E7	3.19944E7
10 - 13		4.38884E6	3.19944E7
10 - 14		342658.	3.19944E7
10 - 15		-2.56027E6	3.19944E7
10 - 16		-1.59272E6	3.19944E7
10 - 17		-5.9356E6	3.19944E7
10 - 18		-7.86228E6	3.19944E7
11 - 12		-1.01255E7	3.69439E7
11 - 13		5.26797E6	3.69439E7

11 - 14		1.22179E6	3.69439E7
11 - 15		-1.68114E6	3.69439E7
11 - 16		-713587.	3.69439E7
11 - 17		-5.05647E6	3.69439E7
11 - 18		-6.98314E6	3.69439E7
12 - 13		1.53935E7	3.69439E7
12 - 14		1.13473E7	3.69439E7
12 - 15		8.44438E6	3.69439E7
12 - 16		9.41193E6	3.69439E7
12 - 17		5.06905E6	3.69439E7
12 - 18		3.14238E6	3.69439E7
13 - 14		-4.04618E6	3.69439E7
13 - 15		-6.94911E6	3.69439E7
13 - 16		-5.98156E6	3.69439E7
13 - 17		-1.03244E7	3.69439E7
13 - 18		-1.22511E7	3.69439E7
14 - 15		-2.90293E6	3.69439E7
14 - 16		-1.93538E6	3.69439E7
14 - 17		-6.27826E6	3.69439E7
14 - 18		-8.20493E6	3.69439E7
15 - 16		967549.	3.69439E7
15 - 17		-3.37533E6	3.69439E7
15 - 18		-5.30201E6	3.69439E7
16 - 17		-4.34288E6	3.69439E7
16 - 18		-6.26956E6	3.69439E7
17 - 18		-1.92667E6	3.69439E7

* denotes a statistically significant difference.

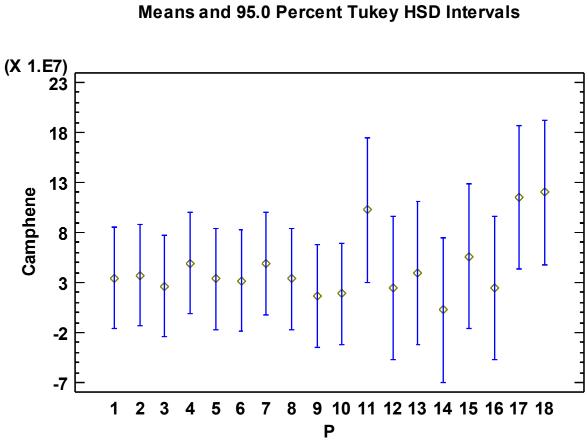
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Camphene by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	2.11278E16	17	1.24281E15	2.43	0.0778
Within groups	5.11576E15	10	5.11576E14		
Total (Corr.)	2.62435E16	27			

The StatAdvisor
The ANOVA table decomposes the variance of Camphene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.42938, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Camphene from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Camphene for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Camphene by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
14	1	2.38389E6	X
9	2	1.65161E7	X
10	2	1.89453E7	X
12	1	2.43776E7	X
16	1	2.44846E7	X
3	2	2.64724E7	X
6	2	3.19061E7	X
8	2	3.35613E7	X
5	2	3.38355E7	X
1	2	3.45493E7	X
2	2	3.69226E7	X
13	1	3.95977E7	X
7	2	4.89717E7	X
4	2	4.93849E7	X
15	1	5.62999E7	X
11	1	1.02368E8	X
17	1	1.15264E8	X
18	1	1.19826E8	X

Contrast	Sig.	Difference	+/- Limits
1 - 2		-2.3733E6	1.01456E8
1 - 3		8.07687E6	1.01456E8
1 - 4		-1.48356E7	1.01456E8
1 - 5		713784.	1.01456E8
1 - 6		2.64312E6	1.01456E8
1 - 7		-1.44224E7	1.01456E8
1 - 8		987952.	1.01456E8
1 - 9		1.80332E7	1.01456E8
1 - 10		1.5604E7	1.01456E8
1 - 11		-6.78184E7	1.24258E8
1 - 12		1.01716E7	1.24258E8
1 - 13		-5.04841E6	1.24258E8
1 - 14		3.21654E7	1.24258E8
1 - 15		-2.17507E7	1.24258E8
1 - 16		1.00647E7	1.24258E8
1 - 17		-8.07147E7	1.24258E8
1 - 18		-8.52772E7	1.24258E8
2 - 3		1.04502E7	1.01456E8
2 - 4		-1.24623E7	1.01456E8
2 - 5		3.08709E6	1.01456E8
2 - 6		5.01642E6	1.01456E8
2 - 7		-1.20491E7	1.01456E8
2 - 8		3.36126E6	1.01456E8
2 - 9		2.04065E7	1.01456E8
2 - 10		1.79773E7	1.01456E8
2 - 11		-6.54451E7	1.24258E8
2 - 12		1.25449E7	1.24258E8
2 - 13		-2.6751E6	1.24258E8
2 - 14		3.45387E7	1.24258E8
2 - 15		-1.93774E7	1.24258E8
2 - 16		1.2438E7	1.24258E8
2 - 17		-7.83414E7	1.24258E8
2 - 18		-8.29039E7	1.24258E8
3 - 4		-2.29125E7	1.01456E8
3 - 5		-7.36309E6	1.01456E8
3 - 6		-5.43375E6	1.01456E8
3 - 7		-2.24993E7	1.01456E8
3 - 8		-7.08892E6	1.01456E8
3 - 9		9.95632E6	1.01456E8
3 - 10		7.5271E6	1.01456E8
3 - 11		-7.58953E7	1.24258E8
3 - 12		2.09477E6	1.24258E8
3 - 13		-1.31253E7	1.24258E8
3 - 14		2.40885E7	1.24258E8
3 - 15		-2.98275E7	1.24258E8
3 - 16		1.98779E6	1.24258E8
3 - 17		-8.87916E7	1.24258E8
3 - 18		-9.33541E7	1.24258E8
4 - 5		1.55494E7	1.01456E8
4 - 6		1.74788E7	1.01456E8
4 - 7		413226.	1.01456E8
4 - 8		1.58236E7	1.01456E8
4 - 9		3.28688E7	1.01456E8
4 - 10		3.04396E7	1.01456E8
4 - 11		-5.29828E7	1.24258E8
4 - 12		2.50073E7	1.24258E8
4 - 13		9.78723E6	1.24258E8
4 - 14		4.7001E7	1.24258E8
4 - 15		-6.91504E6	1.24258E8
4 - 16		2.49003E7	1.24258E8
4 - 17		-6.58791E7	1.24258E8
4 - 18		-7.04416E7	1.24258E8
5 - 6		1.92934E6	1.01456E8

5 - 7		-1.51362E7	1.01456E8
5 - 8		274168.	1.01456E8
5 - 9		1.73194E7	1.01456E8
5 - 10		1.48902E7	1.01456E8
5 - 11		-6.85322E7	1.24258E8
5 - 12		9.45786E6	1.24258E8
5 - 13		-5.76219E6	1.24258E8
5 - 14		3.14516E7	1.24258E8
5 - 15		-2.24645E7	1.24258E8
5 - 16		9.35088E6	1.24258E8
5 - 17		-8.14285E7	1.24258E8
5 - 18		-8.5991E7	1.24258E8
6 - 7		-1.70655E7	1.01456E8
6 - 8		-1.65517E6	1.01456E8
6 - 9		1.53901E7	1.01456E8
6 - 10		1.29609E7	1.01456E8
6 - 11		-7.04616E7	1.24258E8
6 - 12		7.52852E6	1.24258E8
6 - 13		-7.69153E6	1.24258E8
6 - 14		2.95222E7	1.24258E8
6 - 15		-2.43938E7	1.24258E8
6 - 16		7.42154E6	1.24258E8
6 - 17		-8.33578E7	1.24258E8
6 - 18		-8.79203E7	1.24258E8
7 - 8		1.54104E7	1.01456E8
7 - 9		3.24556E7	1.01456E8
7 - 10		3.00264E7	1.01456E8
7 - 11		-5.3396E7	1.24258E8
7 - 12		2.45941E7	1.24258E8
7 - 13		9.37401E6	1.24258E8
7 - 14		4.65878E7	1.24258E8
7 - 15		-7.32826E6	1.24258E8
7 - 16		2.44871E7	1.24258E8
7 - 17		-6.62923E7	1.24258E8
7 - 18		-7.08548E7	1.24258E8
8 - 9		1.70452E7	1.01456E8
8 - 10		1.4616E7	1.01456E8
8 - 11		-6.88064E7	1.24258E8
8 - 12		9.18369E6	1.24258E8
8 - 13		-6.03636E6	1.24258E8
8 - 14		3.11774E7	1.24258E8
8 - 15		-2.27386E7	1.24258E8
8 - 16		9.07671E6	1.24258E8
8 - 17		-8.17027E7	1.24258E8
8 - 18		-8.62652E7	1.24258E8
9 - 10		-2.42922E6	1.01456E8
9 - 11		-8.58516E7	1.24258E8
9 - 12		-7.86155E6	1.24258E8
9 - 13		-2.30816E7	1.24258E8
9 - 14		1.41322E7	1.24258E8
9 - 15		-3.97839E7	1.24258E8
9 - 16		-7.96853E6	1.24258E8
9 - 17		-9.87479E7	1.24258E8
9 - 18		-1.0331E8	1.24258E8
10 - 11		-8.34224E7	1.24258E8
10 - 12		-5.43233E6	1.24258E8
10 - 13		-2.06524E7	1.24258E8
10 - 14		1.65614E7	1.24258E8
10 - 15		-3.73546E7	1.24258E8
10 - 16		-5.53931E6	1.24258E8
10 - 17		-9.63187E7	1.24258E8
10 - 18		-1.00881E8	1.24258E8
11 - 12		7.79901E7	1.43481E8
11 - 13		6.277E7	1.43481E8

11 - 14		9.99838E7	1.43481E8
11 - 15		4.60678E7	1.43481E8
11 - 16		7.78831E7	1.43481E8
11 - 17		-1.28963E7	1.43481E8
11 - 18		-1.74588E7	1.43481E8
12 - 13		-1.522E7	1.43481E8
12 - 14		2.19937E7	1.43481E8
12 - 15		-3.19223E7	1.43481E8
12 - 16		-106975.	1.43481E8
12 - 17		-9.08863E7	1.43481E8
12 - 18		-9.54488E7	1.43481E8
13 - 14		3.72138E7	1.43481E8
13 - 15		-1.67023E7	1.43481E8
13 - 16		1.51131E7	1.43481E8
13 - 17		-7.56663E7	1.43481E8
13 - 18		-8.02288E7	1.43481E8
14 - 15		-5.3916E7	1.43481E8
14 - 16		-2.21007E7	1.43481E8
14 - 17		-1.1288E8	1.43481E8
14 - 18		-1.17443E8	1.43481E8
15 - 16		3.18153E7	1.43481E8
15 - 17		-5.8964E7	1.43481E8
15 - 18		-6.35265E7	1.43481E8
16 - 17		-9.07794E7	1.43481E8
16 - 18		-9.53419E7	1.43481E8
17 - 18		-4.5625E6	1.43481E8

* denotes a statistically significant difference.

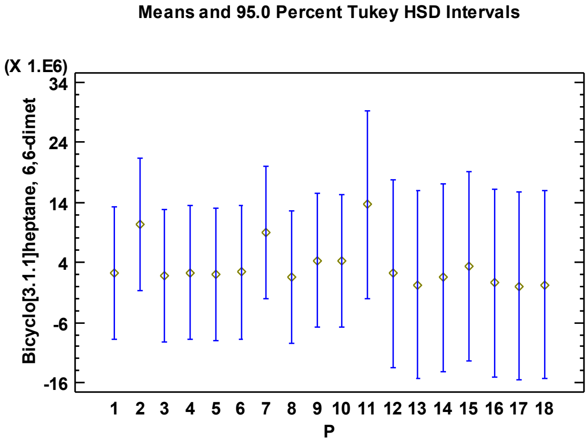
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Bicyclo[3.1.1]heptane, 6,6-dimet by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.32635E14	17	1.95668E13	0.80	0.6678
Within groups	2.43596E14	10	2.43596E13		
Total (Corr.)	5.76232E14	27			

The StatAdvisor
The ANOVA table decomposes the variance of Bicyclo[3.1.1]heptane, 6,6-dimet into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.803246, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Bicyclo[3.1.1]heptane, 6,6-dimet from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Bicyclo[3.1.1]heptane, 6,6-dimet for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Bicyclo[3.1.1]heptane, 6,6-dimet by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
17	1	99667.0	X
18	1	251955.	X
13	1	332684.	X
16	1	615168.	X
14	1	1.5507E6	X
8	2	1.57078E6	X
3	2	1.81965E6	X
5	2	2.02564E6	X
12	1	2.15699E6	X
1	2	2.24125E6	X
4	2	2.36088E6	X
6	2	2.39451E6	X
15	1	3.36071E6	X
10	2	4.24803E6	X
9	2	4.35832E6	X
7	2	8.99375E6	X
2	2	1.03942E7	X
11	1	1.36848E7	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-8.15292E6	2.21391E7
1 - 3		421599.	2.21391E7
1 - 4		-119632.	2.21391E7
1 - 5		215612.	2.21391E7
1 - 6		-153257.	2.21391E7
1 - 7		-6.7525E6	2.21391E7
1 - 8		670472.	2.21391E7
1 - 9		-2.11707E6	2.21391E7
1 - 10		-2.00678E6	2.21391E7
1 - 11		-1.14436E7	2.71147E7
1 - 12		84263.5	2.71147E7
1 - 13		1.90857E6	2.71147E7
1 - 14		690548.	2.71147E7
1 - 15		-1.11946E6	2.71147E7
1 - 16		1.62608E6	2.71147E7
1 - 17		2.14158E6	2.71147E7
1 - 18		1.9893E6	2.71147E7
2 - 3		8.57452E6	2.21391E7
2 - 4		8.03329E6	2.21391E7
2 - 5		8.36854E6	2.21391E7
2 - 6		7.99967E6	2.21391E7
2 - 7		1.40043E6	2.21391E7
2 - 8		8.8234E6	2.21391E7
2 - 9		6.03586E6	2.21391E7
2 - 10		6.14614E6	2.21391E7
2 - 11		-3.29067E6	2.71147E7
2 - 12		8.23719E6	2.71147E7
2 - 13		1.00615E7	2.71147E7
2 - 14		8.84347E6	2.71147E7
2 - 15		7.03346E6	2.71147E7
2 - 16		9.77901E6	2.71147E7
2 - 17		1.02945E7	2.71147E7
2 - 18		1.01422E7	2.71147E7
3 - 4		-541231.	2.21391E7
3 - 5		-205987.	2.21391E7
3 - 6		-574856.	2.21391E7
3 - 7		-7.1741E6	2.21391E7
3 - 8		248873.	2.21391E7
3 - 9		-2.53867E6	2.21391E7
3 - 10		-2.42838E6	2.21391E7
3 - 11		-1.18652E7	2.71147E7
3 - 12		-337336.	2.71147E7
3 - 13		1.48697E6	2.71147E7
3 - 14		268949.	2.71147E7
3 - 15		-1.54106E6	2.71147E7
3 - 16		1.20448E6	2.71147E7
3 - 17		1.71998E6	2.71147E7
3 - 18		1.5677E6	2.71147E7
4 - 5		335244.	2.21391E7
4 - 6		-33624.5	2.21391E7
4 - 7		-6.63287E6	2.21391E7
4 - 8		790104.	2.21391E7
4 - 9		-1.99743E6	2.21391E7
4 - 10		-1.88715E6	2.21391E7
4 - 11		-1.1324E7	2.71147E7
4 - 12		203896.	2.71147E7
4 - 13		2.0282E6	2.71147E7
4 - 14		810180.	2.71147E7
4 - 15		-999831.	2.71147E7
4 - 16		1.74571E6	2.71147E7
4 - 17		2.26122E6	2.71147E7
4 - 18		2.10893E6	2.71147E7
5 - 6		-368869.	2.21391E7

5 - 7		-6.96811E6	2.21391E7
5 - 8		454860.	2.21391E7
5 - 9		-2.33268E6	2.21391E7
5 - 10		-2.22239E6	2.21391E7
5 - 11		-1.16592E7	2.71147E7
5 - 12		-131349.	2.71147E7
5 - 13		1.69295E6	2.71147E7
5 - 14		474936.	2.71147E7
5 - 15		-1.33507E6	2.71147E7
5 - 16		1.41047E6	2.71147E7
5 - 17		1.92597E6	2.71147E7
5 - 18		1.77368E6	2.71147E7
6 - 7		-6.59924E6	2.21391E7
6 - 8		823728.	2.21391E7
6 - 9		-1.96381E6	2.21391E7
6 - 10		-1.85353E6	2.21391E7
6 - 11		-1.12903E7	2.71147E7
6 - 12		237520.	2.71147E7
6 - 13		2.06182E6	2.71147E7
6 - 14		843804.	2.71147E7
6 - 15		-966206.	2.71147E7
6 - 16		1.77934E6	2.71147E7
6 - 17		2.29484E6	2.71147E7
6 - 18		2.14255E6	2.71147E7
7 - 8		7.42297E6	2.21391E7
7 - 9		4.63543E6	2.21391E7
7 - 10		4.74572E6	2.21391E7
7 - 11		-4.69109E6	2.71147E7
7 - 12		6.83676E6	2.71147E7
7 - 13		8.66106E6	2.71147E7
7 - 14		7.44305E6	2.71147E7
7 - 15		5.63304E6	2.71147E7
7 - 16		8.37858E6	2.71147E7
7 - 17		8.89408E6	2.71147E7
7 - 18		8.74179E6	2.71147E7
8 - 9		-2.78754E6	2.21391E7
8 - 10		-2.67725E6	2.21391E7
8 - 11		-1.21141E7	2.71147E7
8 - 12		-586208.	2.71147E7
8 - 13		1.2381E6	2.71147E7
8 - 14		20076.0	2.71147E7
8 - 15		-1.78993E6	2.71147E7
8 - 16		955611.	2.71147E7
8 - 17		1.47111E6	2.71147E7
8 - 18		1.31882E6	2.71147E7
9 - 10		110284.	2.21391E7
9 - 11		-9.32652E6	2.71147E7
9 - 12		2.20133E6	2.71147E7
9 - 13		4.02563E6	2.71147E7
9 - 14		2.80761E6	2.71147E7
9 - 15		997604.	2.71147E7
9 - 16		3.74315E6	2.71147E7
9 - 17		4.25865E6	2.71147E7
9 - 18		4.10636E6	2.71147E7
10 - 11		-9.43681E6	2.71147E7
10 - 12		2.09105E6	2.71147E7
10 - 13		3.91535E6	2.71147E7
10 - 14		2.69733E6	2.71147E7
10 - 15		887320.	2.71147E7
10 - 16		3.63286E6	2.71147E7
10 - 17		4.14837E6	2.71147E7
10 - 18		3.99608E6	2.71147E7
11 - 12		1.15279E7	3.13094E7
11 - 13		1.33522E7	3.13094E7

11 - 14		1.21341E7	3.13094E7
11 - 15		1.03241E7	3.13094E7
11 - 16		1.30697E7	3.13094E7
11 - 17		1.35852E7	3.13094E7
11 - 18		1.34329E7	3.13094E7
12 - 13		1.8243E6	3.13094E7
12 - 14		606284.	3.13094E7
12 - 15		-1.20373E6	3.13094E7
12 - 16		1.54182E6	3.13094E7
12 - 17		2.05732E6	3.13094E7
12 - 18		1.90503E6	3.13094E7
13 - 14		-1.21802E6	3.13094E7
13 - 15		-3.02803E6	3.13094E7
13 - 16		-282484.	3.13094E7
13 - 17		233017.	3.13094E7
13 - 18		80729.0	3.13094E7
14 - 15		-1.81001E6	3.13094E7
14 - 16		935535.	3.13094E7
14 - 17		1.45104E6	3.13094E7
14 - 18		1.29875E6	3.13094E7
15 - 16		2.74555E6	3.13094E7
15 - 17		3.26105E6	3.13094E7
15 - 18		3.10876E6	3.13094E7
16 - 17		515501.	3.13094E7
16 - 18		363213.	3.13094E7
17 - 18		-152288.	3.13094E7

* denotes a statistically significant difference.

The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

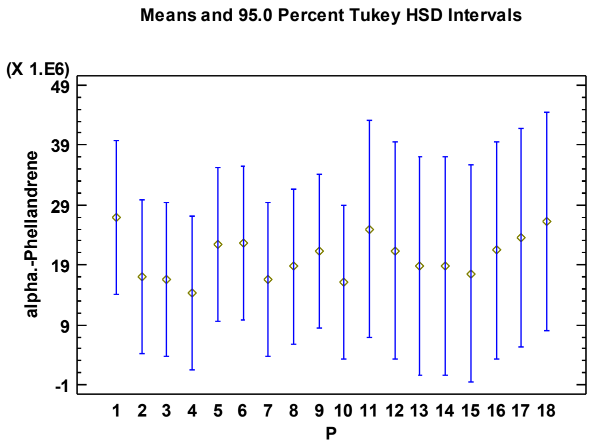
ANOVA Table for alpha.-Phellandrene by P

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Between groups	3.76158E14	17	2.2127E13	0.67	0.7718
Within groups	3.2814E14	10	3.2814E13		
Total (Corr.)	7.04299E14	27			

The StatAdvisor

The ANOVA table decomposes the variance of alpha.-Phellandrene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.674313, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean alpha.-Phellandrene from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean alpha.-Phellandrene for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for alpha.-Phellandrene by P

Method: 95.0 percent Tukey HSD

P	Count	Mean	Homogeneous Groups
4	2	1.43377E7	X
10	2	1.62013E7	X
7	2	1.65619E7	X
3	2	1.65802E7	X
2	2	1.69454E7	X
15	1	1.75835E7	X
8	2	1.8717E7	X
13	1	1.87949E7	X
14	1	1.88093E7	X
9	2	2.12949E7	X
12	1	2.13872E7	X
16	1	2.14378E7	X
5	2	2.24396E7	X
6	2	2.26931E7	X
17	1	2.35975E7	X
11	1	2.49698E7	X
18	1	2.62399E7	X
1	2	2.69019E7	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		9.95642E6	2.56953E7
1 - 3		1.03216E7	2.56953E7
1 - 4		1.25641E7	2.56953E7
1 - 5		4.46227E6	2.56953E7
1 - 6		4.20874E6	2.56953E7
1 - 7		1.034E7	2.56953E7
1 - 8		8.18483E6	2.56953E7
1 - 9		5.60698E6	2.56953E7
1 - 10		1.07006E7	2.56953E7
1 - 11		1.93207E6	3.14702E7
1 - 12		5.51469E6	3.14702E7
1 - 13		8.10694E6	3.14702E7
1 - 14		8.0926E6	3.14702E7
1 - 15		9.31832E6	3.14702E7
1 - 16		5.46402E6	3.14702E7
1 - 17		3.30434E6	3.14702E7
1 - 18		662006.	3.14702E7
2 - 3		365222.	2.56953E7
2 - 4		2.60771E6	2.56953E7
2 - 5		-5.49415E6	2.56953E7
2 - 6		-5.74767E6	2.56953E7
2 - 7		383563.	2.56953E7
2 - 8		-1.77159E6	2.56953E7
2 - 9		-4.34944E6	2.56953E7
2 - 10		744169.	2.56953E7
2 - 11		-8.02434E6	3.14702E7
2 - 12		-4.44173E6	3.14702E7
2 - 13		-1.84947E6	3.14702E7
2 - 14		-1.86382E6	3.14702E7
2 - 15		-638094.	3.14702E7
2 - 16		-4.49239E6	3.14702E7
2 - 17		-6.65208E6	3.14702E7
2 - 18		-9.29441E6	3.14702E7
3 - 4		2.24248E6	2.56953E7
3 - 5		-5.85937E6	2.56953E7
3 - 6		-6.1129E6	2.56953E7
3 - 7		18341.0	2.56953E7
3 - 8		-2.13681E6	2.56953E7
3 - 9		-4.71466E6	2.56953E7
3 - 10		378947.	2.56953E7
3 - 11		-8.38957E6	3.14702E7
3 - 12		-4.80695E6	3.14702E7
3 - 13		-2.2147E6	3.14702E7
3 - 14		-2.22904E6	3.14702E7
3 - 15		-1.00332E6	3.14702E7
3 - 16		-4.85762E6	3.14702E7
3 - 17		-7.0173E6	3.14702E7
3 - 18		-9.65963E6	3.14702E7
4 - 5		-8.10185E6	2.56953E7
4 - 6		-8.35538E6	2.56953E7
4 - 7		-2.22414E6	2.56953E7
4 - 8		-4.37929E6	2.56953E7
4 - 9		-6.95714E6	2.56953E7
4 - 10		-1.86354E6	2.56953E7
4 - 11		-1.0632E7	3.14702E7
4 - 12		-7.04943E6	3.14702E7
4 - 13		-4.45718E6	3.14702E7
4 - 14		-4.47152E6	3.14702E7
4 - 15		-3.2458E6	3.14702E7
4 - 16		-7.1001E6	3.14702E7
4 - 17		-9.25979E6	3.14702E7
4 - 18		-1.19021E7	3.14702E7
5 - 6		-253529.	2.56953E7

5 - 7		5.87771E6	2.56953E7
5 - 8		3.72256E6	2.56953E7
5 - 9		1.14471E6	2.56953E7
5 - 10		6.23831E6	2.56953E7
5 - 11		-2.5302E6	3.14702E7
5 - 12		1.05242E6	3.14702E7
5 - 13		3.64467E6	3.14702E7
5 - 14		3.63033E6	3.14702E7
5 - 15		4.85605E6	3.14702E7
5 - 16		1.00175E6	3.14702E7
5 - 17		-1.15794E6	3.14702E7
5 - 18		-3.80027E6	3.14702E7
6 - 7		6.13124E6	2.56953E7
6 - 8		3.97609E6	2.56953E7
6 - 9		1.39824E6	2.56953E7
6 - 10		6.49184E6	2.56953E7
6 - 11		-2.27667E6	3.14702E7
6 - 12		1.30595E6	3.14702E7
6 - 13		3.8982E6	3.14702E7
6 - 14		3.88386E6	3.14702E7
6 - 15		5.10958E6	3.14702E7
6 - 16		1.25528E6	3.14702E7
6 - 17		-904408.	3.14702E7
6 - 18		-3.54674E6	3.14702E7
7 - 8		-2.15515E6	2.56953E7
7 - 9		-4.733E6	2.56953E7
7 - 10		360606.	2.56953E7
7 - 11		-8.40791E6	3.14702E7
7 - 12		-4.82529E6	3.14702E7
7 - 13		-2.23304E6	3.14702E7
7 - 14		-2.24738E6	3.14702E7
7 - 15		-1.02166E6	3.14702E7
7 - 16		-4.87596E6	3.14702E7
7 - 17		-7.03565E6	3.14702E7
7 - 18		-9.67798E6	3.14702E7
8 - 9		-2.57785E6	2.56953E7
8 - 10		2.51575E6	2.56953E7
8 - 11		-6.25276E6	3.14702E7
8 - 12		-2.67014E6	3.14702E7
8 - 13		-77889.0	3.14702E7
8 - 14		-92230.0	3.14702E7
8 - 15		1.13349E6	3.14702E7
8 - 16		-2.72081E6	3.14702E7
8 - 17		-4.8805E6	3.14702E7
8 - 18		-7.52283E6	3.14702E7
9 - 10		5.0936E6	2.56953E7
9 - 11		-3.67491E6	3.14702E7
9 - 12		-92291.5	3.14702E7
9 - 13		2.49996E6	3.14702E7
9 - 14		2.48562E6	3.14702E7
9 - 15		3.71134E6	3.14702E7
9 - 16		-142959.	3.14702E7
9 - 17		-2.30265E6	3.14702E7
9 - 18		-4.94498E6	3.14702E7
10 - 11		-8.76851E6	3.14702E7
10 - 12		-5.1859E6	3.14702E7
10 - 13		-2.59364E6	3.14702E7
10 - 14		-2.60798E6	3.14702E7
10 - 15		-1.38226E6	3.14702E7
10 - 16		-5.23656E6	3.14702E7
10 - 17		-7.39625E6	3.14702E7
10 - 18		-1.00386E7	3.14702E7
11 - 12		3.58262E6	3.63387E7
11 - 13		6.17487E6	3.63387E7

11 - 14		6.16053E6	3.63387E7
11 - 15		7.38625E6	3.63387E7
11 - 16		3.53195E6	3.63387E7
11 - 17		1.37226E6	3.63387E7
11 - 18		-1.27007E6	3.63387E7
12 - 13		2.59225E6	3.63387E7
12 - 14		2.57791E6	3.63387E7
12 - 15		3.80363E6	3.63387E7
12 - 16		-50667.0	3.63387E7
12 - 17		-2.21036E6	3.63387E7
12 - 18		-4.85269E6	3.63387E7
13 - 14		-14341.0	3.63387E7
13 - 15		1.21138E6	3.63387E7
13 - 16		-2.64292E6	3.63387E7
13 - 17		-4.80261E6	3.63387E7
13 - 18		-7.44494E6	3.63387E7
14 - 15		1.22572E6	3.63387E7
14 - 16		-2.62858E6	3.63387E7
14 - 17		-4.78827E6	3.63387E7
14 - 18		-7.4306E6	3.63387E7
15 - 16		-3.8543E6	3.63387E7
15 - 17		-6.01399E6	3.63387E7
15 - 18		-8.65632E6	3.63387E7
16 - 17		-2.15969E6	3.63387E7
16 - 18		-4.80202E6	3.63387E7
17 - 18		-2.64233E6	3.63387E7

* denotes a statistically significant difference.

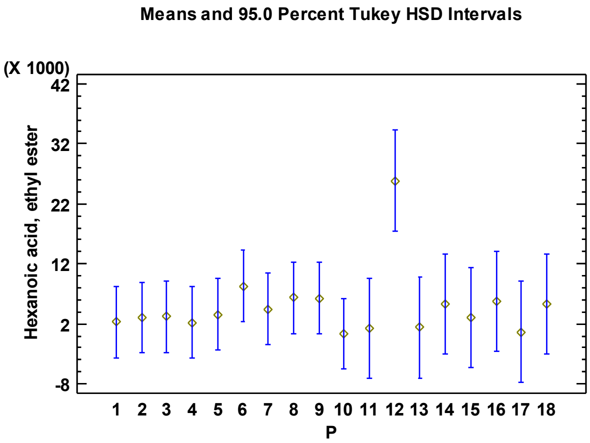
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Hexanoic acid, ethyl ester by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	6.02146E8	17	3.54203E7	5.07	0.0063
Within groups	6.98252E7	10	6.98252E6		
Total (Corr.)	6.71971E8	27			

The StatAdvisor
The ANOVA table decomposes the variance of Hexanoic acid, ethyl ester into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 5.07272, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean Hexanoic acid, ethyl ester from one level of P to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean Hexanoic acid, ethyl ester for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Hexanoic acid, ethyl ester by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
10	2	330.5	X
17	1	674.0	X
11	1	1217.0	X
13	1	1408.0	X
4	2	2223.5	X
1	2	2264.0	X
15	1	2998.0	X
2	2	3073.0	X
3	2	3170.0	X
5	2	3570.0	X
7	2	4496.0	X
14	1	5271.0	X
18	1	5293.0	X
16	1	5796.0	X
9	2	6248.5	X
8	2	6370.5	X
6	2	8286.0	X
12	1	25854.0	X

Allegato 1: ANOVA palchi posizione e dimensione

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-809.0	11853.0
1 - 3		-906.0	11853.0
1 - 4		40.5	11853.0
1 - 5		-1306.0	11853.0
1 - 6		-6022.0	11853.0
1 - 7		-2232.0	11853.0
1 - 8		-4106.5	11853.0
1 - 9		-3984.5	11853.0
1 - 10		1933.5	11853.0
1 - 11		1047.0	14517.0
1 - 12	*	-23590.0	14517.0
1 - 13		856.0	14517.0
1 - 14		-3007.0	14517.0
1 - 15		-734.0	14517.0
1 - 16		-3532.0	14517.0
1 - 17		1590.0	14517.0
1 - 18		-3029.0	14517.0
2 - 3		-97.0	11853.0
2 - 4		849.5	11853.0
2 - 5		-497.0	11853.0
2 - 6		-5213.0	11853.0
2 - 7		-1423.0	11853.0
2 - 8		-3297.5	11853.0
2 - 9		-3175.5	11853.0
2 - 10		2742.5	11853.0
2 - 11		1856.0	14517.0
2 - 12	*	-22781.0	14517.0
2 - 13		1665.0	14517.0
2 - 14		-2198.0	14517.0
2 - 15		75.0	14517.0
2 - 16		-2723.0	14517.0
2 - 17		2399.0	14517.0
2 - 18		-2220.0	14517.0
3 - 4		946.5	11853.0
3 - 5		-400.0	11853.0
3 - 6		-5116.0	11853.0
3 - 7		-1326.0	11853.0
3 - 8		-3200.5	11853.0
3 - 9		-3078.5	11853.0
3 - 10		2839.5	11853.0
3 - 11		1953.0	14517.0
3 - 12	*	-22684.0	14517.0
3 - 13		1762.0	14517.0
3 - 14		-2101.0	14517.0
3 - 15		172.0	14517.0
3 - 16		-2626.0	14517.0
3 - 17		2496.0	14517.0
3 - 18		-2123.0	14517.0
4 - 5		-1346.5	11853.0
4 - 6		-6062.5	11853.0
4 - 7		-2272.5	11853.0
4 - 8		-4147.0	11853.0
4 - 9		-4025.0	11853.0
4 - 10		1893.0	11853.0
4 - 11		1006.5	14517.0
4 - 12	*	-23630.5	14517.0
4 - 13		815.5	14517.0
4 - 14		-3047.5	14517.0
4 - 15		-774.5	14517.0
4 - 16		-3572.5	14517.0
4 - 17		1549.5	14517.0
4 - 18		-3069.5	14517.0

5 - 6		-4716.0	11853.0
5 - 7		-926.0	11853.0
5 - 8		-2800.5	11853.0
5 - 9		-2678.5	11853.0
5 - 10		3239.5	11853.0
5 - 11		2353.0	14517.0
5 - 12	*	-22284.0	14517.0
5 - 13		2162.0	14517.0
5 - 14		-1701.0	14517.0
5 - 15		572.0	14517.0
5 - 16		-2226.0	14517.0
5 - 17		2896.0	14517.0
5 - 18		-1723.0	14517.0
6 - 7		3790.0	11853.0
6 - 8		1915.5	11853.0
6 - 9		2037.5	11853.0
6 - 10		7955.5	11853.0
6 - 11		7069.0	14517.0
6 - 12	*	-17568.0	14517.0
6 - 13		6878.0	14517.0
6 - 14		3015.0	14517.0
6 - 15		5288.0	14517.0
6 - 16		2490.0	14517.0
6 - 17		7612.0	14517.0
6 - 18		2993.0	14517.0
7 - 8		-1874.5	11853.0
7 - 9		-1752.5	11853.0
7 - 10		4165.5	11853.0
7 - 11		3279.0	14517.0
7 - 12	*	-21358.0	14517.0
7 - 13		3088.0	14517.0
7 - 14		-775.0	14517.0
7 - 15		1498.0	14517.0
7 - 16		-1300.0	14517.0
7 - 17		3822.0	14517.0
7 - 18		-797.0	14517.0
8 - 9		122.0	11853.0
8 - 10		6040.0	11853.0
8 - 11		5153.5	14517.0
8 - 12	*	-19483.5	14517.0
8 - 13		4962.5	14517.0
8 - 14		1099.5	14517.0
8 - 15		3372.5	14517.0
8 - 16		574.5	14517.0
8 - 17		5696.5	14517.0
8 - 18		1077.5	14517.0
9 - 10		5918.0	11853.0
9 - 11		5031.5	14517.0
9 - 12	*	-19605.5	14517.0
9 - 13		4840.5	14517.0
9 - 14		977.5	14517.0
9 - 15		3250.5	14517.0
9 - 16		452.5	14517.0
9 - 17		5574.5	14517.0
9 - 18		955.5	14517.0
10 - 11		-886.5	14517.0
10 - 12	*	-25523.5	14517.0
10 - 13		-1077.5	14517.0
10 - 14		-4940.5	14517.0
10 - 15		-2667.5	14517.0
10 - 16		-5465.5	14517.0
10 - 17		-343.5	14517.0
10 - 18		-4962.5	14517.0
11 - 12	*	-24637.0	16762.7

11 - 13		-191.0	16762.7
11 - 14		-4054.0	16762.7
11 - 15		-1781.0	16762.7
11 - 16		-4579.0	16762.7
11 - 17		543.0	16762.7
11 - 18		-4076.0	16762.7
12 - 13	*	24446.0	16762.7
12 - 14	*	20583.0	16762.7
12 - 15	*	22856.0	16762.7
12 - 16	*	20058.0	16762.7
12 - 17	*	25180.0	16762.7
12 - 18	*	20561.0	16762.7
13 - 14		-3863.0	16762.7
13 - 15		-1590.0	16762.7
13 - 16		-4388.0	16762.7
13 - 17		734.0	16762.7
13 - 18		-3885.0	16762.7
14 - 15		2273.0	16762.7
14 - 16		-525.0	16762.7
14 - 17		4597.0	16762.7
14 - 18		-22.0	16762.7
15 - 16		-2798.0	16762.7
15 - 17		2324.0	16762.7
15 - 18		-2295.0	16762.7
16 - 17		5122.0	16762.7
16 - 18		503.0	16762.7
17 - 18		-4619.0	16762.7

* denotes a statistically significant difference.

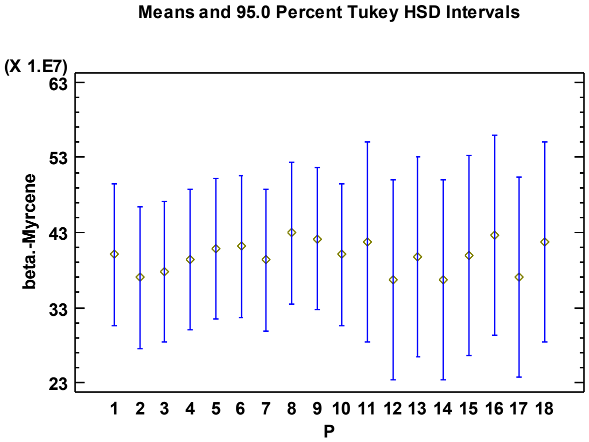
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 17 pairs, indicating that these pairs show statistically significant differences at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for beta.-Myrcene by P

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Between groups	1.03169E16	17	6.06878E14	0.34	0.9745
Within groups	1.76494E16	10	1.76494E15		
Total (Corr.)	2.79663E16	27			

The StatAdvisor
The ANOVA table decomposes the variance of beta.-Myrcene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.343852, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean beta.-Myrcene from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean beta.-Myrcene for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for beta.-Myrcene by P

Method: 95.0 percent Tukey HSD

P	Count	Mean	Homogeneous Groups
14	1	3.66937E8	X
12	1	3.67473E8	X
2	2	3.70086E8	X
17	1	3.70547E8	X
3	2	3.77556E8	X
7	2	3.9333E8	X
4	2	3.94022E8	X
13	1	3.97487E8	X
15	1	4.00238E8	X
1	2	4.00422E8	X
10	2	4.00752E8	X
5	2	4.08544E8	X
6	2	4.11643E8	X
11	1	4.17166E8	X
18	1	4.17819E8	X
9	2	4.21387E8	X
16	1	4.26253E8	X
8	2	4.29299E8	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		3.03354E7	1.88447E8
1 - 3		2.28655E7	1.88447E8
1 - 4		6.39999E6	1.88447E8
1 - 5		-8.1225E6	1.88447E8
1 - 6		-1.12208E7	1.88447E8
1 - 7		7.09219E6	1.88447E8
1 - 8		-2.88769E7	1.88447E8
1 - 9		-2.09654E7	1.88447E8
1 - 10		-329742.	1.88447E8
1 - 11		-1.67443E7	2.30799E8
1 - 12		3.29491E7	2.30799E8
1 - 13		2.935E6	2.30799E8
1 - 14		3.34847E7	2.30799E8
1 - 15		183744.	2.30799E8
1 - 16		-2.58311E7	2.30799E8
1 - 17		2.98744E7	2.30799E8
1 - 18		-1.73972E7	2.30799E8
2 - 3		-7.46993E6	1.88447E8
2 - 4		-2.39354E7	1.88447E8
2 - 5		-3.84579E7	1.88447E8
2 - 6		-4.15562E7	1.88447E8
2 - 7		-2.32432E7	1.88447E8
2 - 8		-5.92123E7	1.88447E8
2 - 9		-5.13008E7	1.88447E8
2 - 10		-3.06651E7	1.88447E8
2 - 11		-4.70797E7	2.30799E8
2 - 12		2.61366E6	2.30799E8
2 - 13		-2.74004E7	2.30799E8
2 - 14		3.14928E6	2.30799E8
2 - 15		-3.01517E7	2.30799E8
2 - 16		-5.61665E7	2.30799E8
2 - 17		-461048.	2.30799E8
2 - 18		-4.77326E7	2.30799E8
3 - 4		-1.64655E7	1.88447E8
3 - 5		-3.0988E7	1.88447E8
3 - 6		-3.40862E7	1.88447E8
3 - 7		-1.57733E7	1.88447E8
3 - 8		-5.17423E7	1.88447E8
3 - 9		-4.38309E7	1.88447E8
3 - 10		-2.31952E7	1.88447E8
3 - 11		-3.96098E7	2.30799E8
3 - 12		1.00836E7	2.30799E8
3 - 13		-1.99305E7	2.30799E8
3 - 14		1.06192E7	2.30799E8
3 - 15		-2.26817E7	2.30799E8
3 - 16		-4.86966E7	2.30799E8
3 - 17		7.00889E6	2.30799E8
3 - 18		-4.02627E7	2.30799E8
4 - 5		-1.45225E7	1.88447E8
4 - 6		-1.76208E7	1.88447E8
4 - 7		692200.	1.88447E8
4 - 8		-3.52769E7	1.88447E8
4 - 9		-2.73654E7	1.88447E8
4 - 10		-6.72973E6	1.88447E8
4 - 11		-2.31443E7	2.30799E8
4 - 12		2.65491E7	2.30799E8
4 - 13		-3.46499E6	2.30799E8
4 - 14		2.70847E7	2.30799E8
4 - 15		-6.21624E6	2.30799E8
4 - 16		-3.22311E7	2.30799E8
4 - 17		2.34744E7	2.30799E8
4 - 18		-2.37972E7	2.30799E8
5 - 6		-3.09828E6	1.88447E8

5 - 7		1.52147E7	1.88447E8
5 - 8		-2.07544E7	1.88447E8
5 - 9		-1.28429E7	1.88447E8
5 - 10		7.79275E6	1.88447E8
5 - 11		-8.62185E6	2.30799E8
5 - 12		4.10716E7	2.30799E8
5 - 13		1.10575E7	2.30799E8
5 - 14		4.16072E7	2.30799E8
5 - 15		8.30624E6	2.30799E8
5 - 16		-1.77086E7	2.30799E8
5 - 17		3.79968E7	2.30799E8
5 - 18		-9.27474E6	2.30799E8
6 - 7		1.8313E7	1.88447E8
6 - 8		-1.76561E7	1.88447E8
6 - 9		-9.74461E6	1.88447E8
6 - 10		1.0891E7	1.88447E8
6 - 11		-5.52356E6	2.30799E8
6 - 12		4.41698E7	2.30799E8
6 - 13		1.41558E7	2.30799E8
6 - 14		4.47055E7	2.30799E8
6 - 15		1.14045E7	2.30799E8
6 - 16		-1.46104E7	2.30799E8
6 - 17		4.10951E7	2.30799E8
6 - 18		-6.17646E6	2.30799E8
7 - 8		-3.59691E7	1.88447E8
7 - 9		-2.80576E7	1.88447E8
7 - 10		-7.42193E6	1.88447E8
7 - 11		-2.38365E7	2.30799E8
7 - 12		2.58569E7	2.30799E8
7 - 13		-4.15719E6	2.30799E8
7 - 14		2.63925E7	2.30799E8
7 - 15		-6.90844E6	2.30799E8
7 - 16		-3.29233E7	2.30799E8
7 - 17		2.27822E7	2.30799E8
7 - 18		-2.44894E7	2.30799E8
8 - 9		7.91148E6	1.88447E8
8 - 10		2.85471E7	1.88447E8
8 - 11		1.21325E7	2.30799E8
8 - 12		6.18259E7	2.30799E8
8 - 13		3.18119E7	2.30799E8
8 - 14		6.23616E7	2.30799E8
8 - 15		2.90606E7	2.30799E8
8 - 16		3.04574E6	2.30799E8
8 - 17		5.87512E7	2.30799E8
8 - 18		1.14796E7	2.30799E8
9 - 10		2.06357E7	1.88447E8
9 - 11		4.22105E6	2.30799E8
9 - 12		5.39145E7	2.30799E8
9 - 13		2.39004E7	2.30799E8
9 - 14		5.44501E7	2.30799E8
9 - 15		2.11491E7	2.30799E8
9 - 16		-4.86574E6	2.30799E8
9 - 17		5.08397E7	2.30799E8
9 - 18		3.56816E6	2.30799E8
10 - 11		-1.64146E7	2.30799E8
10 - 12		3.32788E7	2.30799E8
10 - 13		3.26474E6	2.30799E8
10 - 14		3.38144E7	2.30799E8
10 - 15		513486.	2.30799E8
10 - 16		-2.55014E7	2.30799E8
10 - 17		3.02041E7	2.30799E8
10 - 18		-1.70675E7	2.30799E8
11 - 12		4.96934E7	2.66504E8
11 - 13		1.96793E7	2.66504E8

11 - 14		5.0229E7	2.66504E8
11 - 15		1.69281E7	2.66504E8
11 - 16		-9.08679E6	2.66504E8
11 - 17		4.66187E7	2.66504E8
11 - 18		-652892.	2.66504E8
12 - 13		-3.00141E7	2.66504E8
12 - 14		535618.	2.66504E8
12 - 15		-3.27653E7	2.66504E8
12 - 16		-5.87802E7	2.66504E8
12 - 17		-3.07471E6	2.66504E8
12 - 18		-5.03463E7	2.66504E8
13 - 14		3.05497E7	2.66504E8
13 - 15		-2.75126E6	2.66504E8
13 - 16		-2.87661E7	2.66504E8
13 - 17		2.69394E7	2.66504E8
13 - 18		-2.03322E7	2.66504E8
14 - 15		-3.33009E7	2.66504E8
14 - 16		-5.93158E7	2.66504E8
14 - 17		-3.61033E6	2.66504E8
14 - 18		-5.08819E7	2.66504E8
15 - 16		-2.60149E7	2.66504E8
15 - 17		2.96906E7	2.66504E8
15 - 18		-1.7581E7	2.66504E8
16 - 17		5.57055E7	2.66504E8
16 - 18		8.4339E6	2.66504E8
17 - 18		-4.72716E7	2.66504E8

* denotes a statistically significant difference.

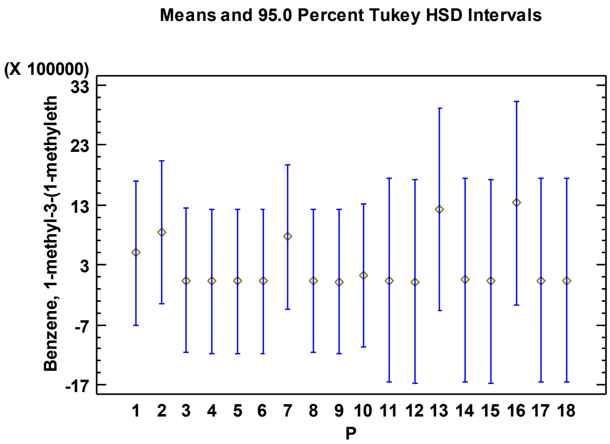
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Benzene, 1-methyl-3-(1-methyleth by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	4.34936E12	17	2.55845E11	0.89	0.5968
Within groups	2.86172E12	10	2.86172E11		
Total (Corr.)	7.21109E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of Benzene, 1-methyl-3-(1-methyleth into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.894025, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Benzene, 1-methyl-3-(1-methyleth from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Benzene, 1-methyl-3-(1-methyleth for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Benzene, 1-methyl-3-(1-methyleth by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
12	1	19841.0	X
9	2	23475.0	X
4	2	27667.5	X
6	2	29336.5	X
5	2	30882.0	X
8	2	31282.0	X
15	1	31364.0	X
17	1	39063.0	X
18	1	40955.0	X
11	1	43072.0	X
3	2	45584.5	X
14	1	49162.0	X
10	2	126752.	X
1	2	496914.	X
7	2	766415.	X
2	2	843020.	X
13	1	1.22779E6	X
16	1	1.3326E6	X

Contrast	Sig.	Difference	+/- Limits
1 - 2		-346107.	2.39959E6
1 - 3		451329.	2.39959E6
1 - 4		469246.	2.39959E6
1 - 5		466032.	2.39959E6
1 - 6		467577.	2.39959E6
1 - 7		-269502.	2.39959E6
1 - 8		465632.	2.39959E6
1 - 9		473439.	2.39959E6
1 - 10		370162.	2.39959E6
1 - 11		453842.	2.93889E6
1 - 12		477073.	2.93889E6
1 - 13		-730872.	2.93889E6
1 - 14		447752.	2.93889E6
1 - 15		465550.	2.93889E6
1 - 16		-835686.	2.93889E6
1 - 17		457851.	2.93889E6
1 - 18		455959.	2.93889E6
2 - 3		797436.	2.39959E6
2 - 4		815353.	2.39959E6
2 - 5		812138.	2.39959E6
2 - 6		813684.	2.39959E6
2 - 7		76605.0	2.39959E6
2 - 8		811738.	2.39959E6
2 - 9		819545.	2.39959E6
2 - 10		716268.	2.39959E6
2 - 11		799948.	2.93889E6
2 - 12		823179.	2.93889E6
2 - 13		-384765.	2.93889E6
2 - 14		793858.	2.93889E6
2 - 15		811656.	2.93889E6
2 - 16		-489579.	2.93889E6
2 - 17		803957.	2.93889E6
2 - 18		802065.	2.93889E6
3 - 4		17917.0	2.39959E6
3 - 5		14702.5	2.39959E6
3 - 6		16248.0	2.39959E6
3 - 7		-720831.	2.39959E6
3 - 8		14302.5	2.39959E6
3 - 9		22109.5	2.39959E6
3 - 10		-81167.5	2.39959E6
3 - 11		2512.5	2.93889E6
3 - 12		25743.5	2.93889E6
3 - 13		-1.1822E6	2.93889E6
3 - 14		-3577.5	2.93889E6
3 - 15		14220.5	2.93889E6
3 - 16		-1.28701E6	2.93889E6
3 - 17		6521.5	2.93889E6
3 - 18		4629.5	2.93889E6
4 - 5		-3214.5	2.39959E6
4 - 6		-1669.0	2.39959E6
4 - 7		-738748.	2.39959E6
4 - 8		-3614.5	2.39959E6
4 - 9		4192.5	2.39959E6
4 - 10		-99084.5	2.39959E6
4 - 11		-15404.5	2.93889E6
4 - 12		7826.5	2.93889E6
4 - 13		-1.20012E6	2.93889E6
4 - 14		-21494.5	2.93889E6
4 - 15		-3696.5	2.93889E6
4 - 16		-1.30493E6	2.93889E6
4 - 17		-11395.5	2.93889E6
4 - 18		-13287.5	2.93889E6
5 - 6		1545.5	2.39959E6

5 - 7		-735533.	2.39959E6
5 - 8		-400.0	2.39959E6
5 - 9		7407.0	2.39959E6
5 - 10		-95870.0	2.39959E6
5 - 11		-12190.0	2.93889E6
5 - 12		11041.0	2.93889E6
5 - 13		-1.1969E6	2.93889E6
5 - 14		-18280.0	2.93889E6
5 - 15		-482.0	2.93889E6
5 - 16		-1.30172E6	2.93889E6
5 - 17		-8181.0	2.93889E6
5 - 18		-10073.0	2.93889E6
6 - 7		-737079.	2.39959E6
6 - 8		-1945.5	2.39959E6
6 - 9		5861.5	2.39959E6
6 - 10		-97415.5	2.39959E6
6 - 11		-13735.5	2.93889E6
6 - 12		9495.5	2.93889E6
6 - 13		-1.19845E6	2.93889E6
6 - 14		-19825.5	2.93889E6
6 - 15		-2027.5	2.93889E6
6 - 16		-1.30326E6	2.93889E6
6 - 17		-9726.5	2.93889E6
6 - 18		-11618.5	2.93889E6
7 - 8		735133.	2.39959E6
7 - 9		742940.	2.39959E6
7 - 10		639663.	2.39959E6
7 - 11		723343.	2.93889E6
7 - 12		746574.	2.93889E6
7 - 13		-461370.	2.93889E6
7 - 14		717253.	2.93889E6
7 - 15		735051.	2.93889E6
7 - 16		-566184.	2.93889E6
7 - 17		727352.	2.93889E6
7 - 18		725460.	2.93889E6
8 - 9		7807.0	2.39959E6
8 - 10		-95470.0	2.39959E6
8 - 11		-11790.0	2.93889E6
8 - 12		11441.0	2.93889E6
8 - 13		-1.1965E6	2.93889E6
8 - 14		-17880.0	2.93889E6
8 - 15		-82.0	2.93889E6
8 - 16		-1.30132E6	2.93889E6
8 - 17		-7781.0	2.93889E6
8 - 18		-9673.0	2.93889E6
9 - 10		-103277.	2.39959E6
9 - 11		-19597.0	2.93889E6
9 - 12		3634.0	2.93889E6
9 - 13		-1.20431E6	2.93889E6
9 - 14		-25687.0	2.93889E6
9 - 15		-7889.0	2.93889E6
9 - 16		-1.30912E6	2.93889E6
9 - 17		-15588.0	2.93889E6
9 - 18		-17480.0	2.93889E6
10 - 11		83680.0	2.93889E6
10 - 12		106911.	2.93889E6
10 - 13		-1.10103E6	2.93889E6
10 - 14		77590.0	2.93889E6
10 - 15		95388.0	2.93889E6
10 - 16		-1.20585E6	2.93889E6
10 - 17		87689.0	2.93889E6
10 - 18		85797.0	2.93889E6
11 - 12		23231.0	3.39354E6
11 - 13		-1.18471E6	3.39354E6

11 - 14		-6090.0	3.39354E6
11 - 15		11708.0	3.39354E6
11 - 16		-1.28953E6	3.39354E6
11 - 17		4009.0	3.39354E6
11 - 18		2117.0	3.39354E6
12 - 13		-1.20794E6	3.39354E6
12 - 14		-29321.0	3.39354E6
12 - 15		-11523.0	3.39354E6
12 - 16		-1.31276E6	3.39354E6
12 - 17		-19222.0	3.39354E6
12 - 18		-21114.0	3.39354E6
13 - 14		1.17862E6	3.39354E6
13 - 15		1.19642E6	3.39354E6
13 - 16		-104814.	3.39354E6
13 - 17		1.18872E6	3.39354E6
13 - 18		1.18683E6	3.39354E6
14 - 15		17798.0	3.39354E6
14 - 16		-1.28344E6	3.39354E6
14 - 17		10099.0	3.39354E6
14 - 18		8207.0	3.39354E6
15 - 16		-1.30124E6	3.39354E6
15 - 17		-7699.0	3.39354E6
15 - 18		-9591.0	3.39354E6
16 - 17		1.29354E6	3.39354E6
16 - 18		1.29164E6	3.39354E6
17 - 18		-1892.0	3.39354E6

* denotes a statistically significant difference.

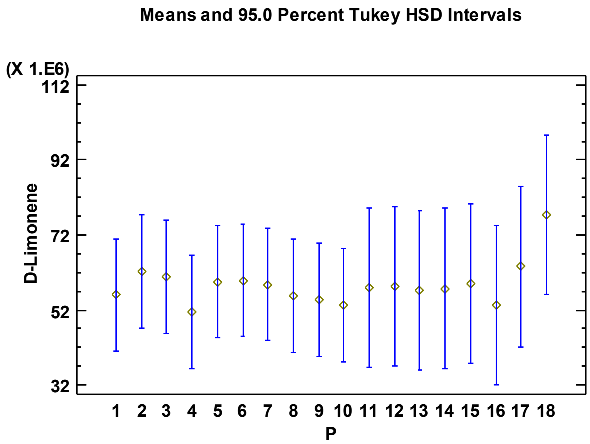
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for D-Limonene by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	6.58542E14	17	3.87378E13	0.86	0.6206
Within groups	4.48862E14	10	4.48862E13		
Total (Corr.)	1.1074E15	27			

The StatAdvisor
The ANOVA table decomposes the variance of D-Limonene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.863022, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean D-Limonene from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean D-Limonene for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for D-Limonene by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
4	2	5.14905E7	X
10	2	5.3217E7	X
16	1	5.33616E7	X
9	2	5.47994E7	X
8	2	5.58397E7	X
1	2	5.604E7	X
13	1	5.71053E7	X
14	1	5.77734E7	X
11	1	5.7943E7	X
12	1	5.82188E7	X
7	2	5.87823E7	X
15	1	5.9102E7	X
5	2	5.95744E7	X
6	2	5.9858E7	X
3	2	6.08709E7	X
2	2	6.23409E7	X
17	1	6.35443E7	X
18	1	7.72395E7	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-6.3009E6	3.00525E7
1 - 3		-4.83087E6	3.00525E7
1 - 4		4.54951E6	3.00525E7
1 - 5		-3.53441E6	3.00525E7
1 - 6		-3.81796E6	3.00525E7
1 - 7		-2.7423E6	3.00525E7
1 - 8		200276.	3.00525E7
1 - 9		1.24065E6	3.00525E7
1 - 10		2.82296E6	3.00525E7
1 - 11		-1.90299E6	3.68066E7
1 - 12		-2.17875E6	3.68066E7
1 - 13		-1.06529E6	3.68066E7
1 - 14		-1.73339E6	3.68066E7
1 - 15		-3.06195E6	3.68066E7
1 - 16		2.67842E6	3.68066E7
1 - 17		-7.50432E6	3.68066E7
1 - 18		-2.11995E7	3.68066E7
2 - 3		1.47003E6	3.00525E7
2 - 4		1.08504E7	3.00525E7
2 - 5		2.76649E6	3.00525E7
2 - 6		2.48294E6	3.00525E7
2 - 7		3.5586E6	3.00525E7
2 - 8		6.50118E6	3.00525E7
2 - 9		7.54155E6	3.00525E7
2 - 10		9.12386E6	3.00525E7
2 - 11		4.39791E6	3.68066E7
2 - 12		4.12215E6	3.68066E7
2 - 13		5.23561E6	3.68066E7
2 - 14		4.56751E6	3.68066E7
2 - 15		3.23895E6	3.68066E7
2 - 16		8.97932E6	3.68066E7
2 - 17		-1.20343E6	3.68066E7
2 - 18		-1.48986E7	3.68066E7
3 - 4		9.38038E6	3.00525E7
3 - 5		1.29646E6	3.00525E7
3 - 6		1.01291E6	3.00525E7
3 - 7		2.08858E6	3.00525E7
3 - 8		5.03115E6	3.00525E7
3 - 9		6.07153E6	3.00525E7
3 - 10		7.65384E6	3.00525E7
3 - 11		2.92789E6	3.68066E7
3 - 12		2.65212E6	3.68066E7
3 - 13		3.76559E6	3.68066E7
3 - 14		3.09749E6	3.68066E7
3 - 15		1.76892E6	3.68066E7
3 - 16		7.50929E6	3.68066E7
3 - 17		-2.67345E6	3.68066E7
3 - 18		-1.63686E7	3.68066E7
4 - 5		-8.08392E6	3.00525E7
4 - 6		-8.36747E6	3.00525E7
4 - 7		-7.2918E6	3.00525E7
4 - 8		-4.34923E6	3.00525E7
4 - 9		-3.30885E6	3.00525E7
4 - 10		-1.72655E6	3.00525E7
4 - 11		-6.45249E6	3.68066E7
4 - 12		-6.72826E6	3.68066E7
4 - 13		-5.61479E6	3.68066E7
4 - 14		-6.28289E6	3.68066E7
4 - 15		-7.61146E6	3.68066E7
4 - 16		-1.87109E6	3.68066E7
4 - 17		-1.20538E7	3.68066E7
4 - 18		-2.5749E7	3.68066E7
5 - 6		-283550.	3.00525E7

5 - 7		792113.	3.00525E7
5 - 8		3.73469E6	3.00525E7
5 - 9		4.77506E6	3.00525E7
5 - 10		6.35737E6	3.00525E7
5 - 11		1.63142E6	3.68066E7
5 - 12		1.35566E6	3.68066E7
5 - 13		2.46912E6	3.68066E7
5 - 14		1.80102E6	3.68066E7
5 - 15		472457.	3.68066E7
5 - 16		6.21283E6	3.68066E7
5 - 17		-3.96992E6	3.68066E7
5 - 18		-1.76651E7	3.68066E7
6 - 7		1.07566E6	3.00525E7
6 - 8		4.01824E6	3.00525E7
6 - 9		5.05861E6	3.00525E7
6 - 10		6.64092E6	3.00525E7
6 - 11		1.91497E6	3.68066E7
6 - 12		1.63921E6	3.68066E7
6 - 13		2.75267E6	3.68066E7
6 - 14		2.08457E6	3.68066E7
6 - 15		756007.	3.68066E7
6 - 16		6.49638E6	3.68066E7
6 - 17		-3.68637E6	3.68066E7
6 - 18		-1.73815E7	3.68066E7
7 - 8		2.94257E6	3.00525E7
7 - 9		3.98295E6	3.00525E7
7 - 10		5.56526E6	3.00525E7
7 - 11		839311.	3.68066E7
7 - 12		563546.	3.68066E7
7 - 13		1.67701E6	3.68066E7
7 - 14		1.00891E6	3.68066E7
7 - 15		-319656.	3.68066E7
7 - 16		5.42072E6	3.68066E7
7 - 17		-4.76203E6	3.68066E7
7 - 18		-1.84572E7	3.68066E7
8 - 9		1.04038E6	3.00525E7
8 - 10		2.62269E6	3.00525E7
8 - 11		-2.10326E6	3.68066E7
8 - 12		-2.37903E6	3.68066E7
8 - 13		-1.26556E6	3.68066E7
8 - 14		-1.93366E6	3.68066E7
8 - 15		-3.26223E6	3.68066E7
8 - 16		2.47814E6	3.68066E7
8 - 17		-7.7046E6	3.68066E7
8 - 18		-2.13997E7	3.68066E7
9 - 10		1.58231E6	3.00525E7
9 - 11		-3.14364E6	3.68066E7
9 - 12		-3.4194E6	3.68066E7
9 - 13		-2.30594E6	3.68066E7
9 - 14		-2.97404E6	3.68066E7
9 - 15		-4.30261E6	3.68066E7
9 - 16		1.43777E6	3.68066E7
9 - 17		-8.74498E6	3.68066E7
9 - 18		-2.24401E7	3.68066E7
10 - 11		-4.72595E6	3.68066E7
10 - 12		-5.00171E6	3.68066E7
10 - 13		-3.88825E6	3.68066E7
10 - 14		-4.55635E6	3.68066E7
10 - 15		-5.88491E6	3.68066E7
10 - 16		-144543.	3.68066E7
10 - 17		-1.03273E7	3.68066E7
10 - 18		-2.40224E7	3.68066E7
11 - 12		-275765.	4.25006E7
11 - 13		837701.	4.25006E7

11 - 14		169601.	4.25006E7
11 - 15		-1.15897E6	4.25006E7
11 - 16		4.58141E6	4.25006E7
11 - 17		-5.60134E6	4.25006E7
11 - 18		-1.92965E7	4.25006E7
12 - 13		1.11347E6	4.25006E7
12 - 14		445366.	4.25006E7
12 - 15		-883201.	4.25006E7
12 - 16		4.85717E6	4.25006E7
12 - 17		-5.32557E6	4.25006E7
12 - 18		-1.90207E7	4.25006E7
13 - 14		-668100.	4.25006E7
13 - 15		-1.99667E6	4.25006E7
13 - 16		3.7437E6	4.25006E7
13 - 17		-6.43904E6	4.25006E7
13 - 18		-2.01342E7	4.25006E7
14 - 15		-1.32857E6	4.25006E7
14 - 16		4.4118E6	4.25006E7
14 - 17		-5.77094E6	4.25006E7
14 - 18		-1.94661E7	4.25006E7
15 - 16		5.74037E6	4.25006E7
15 - 17		-4.44237E6	4.25006E7
15 - 18		-1.81375E7	4.25006E7
16 - 17		-1.01827E7	4.25006E7
16 - 18		-2.38779E7	4.25006E7
17 - 18		-1.36951E7	4.25006E7

* denotes a statistically significant difference.

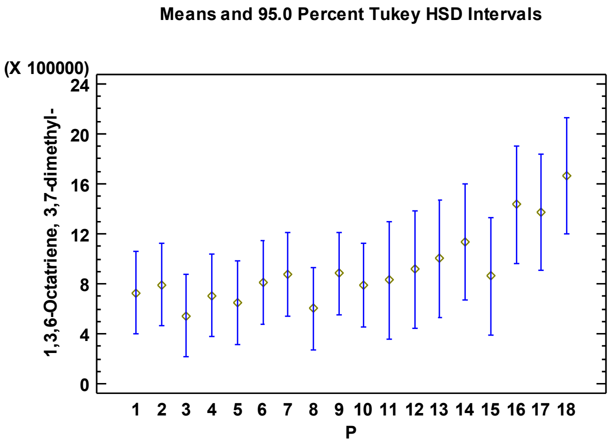
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 1,3,6-Octatriene, 3,7-dimethyl- by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.86079E12	17	1.09458E11	5.04	0.0064
Within groups	2.17119E11	10	2.17119E10		
Total (Corr.)	2.07791E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1,3,6-Octatriene, 3,7-dimethyl- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 5.04141, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean 1,3,6-Octatriene, 3,7-dimethyl- from one level of P to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean 1,3,6-Octatriene, 3,7-dimethyl- for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1,3,6-Octatriene, 3,7-dimethyl- by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
3	2	545132.	X
8	2	603015.	XX
5	2	648501.	XXX
4	2	705450.	XXX
1	2	729966.	XXX
10	2	790569.	XXX
2	2	793686.	XXX
6	2	811698.	XXX
11	1	830174.	XXXX
15	1	861147.	XXXX
7	2	876651.	XXXX
9	2	884294.	XXXX
12	1	914019.	XXXX
13	1	1.00066E6	XXXX
14	1	1.13495E6	XXXX
17	1	1.37188E6	XXX
16	1	1.43221E6	XX
18	1	1.66387E6	X

Contrast	Sig.	Difference	+/- Limits
1 - 2		-63720.5	660956.
1 - 3		184834.	660956.
1 - 4		24516.0	660956.
1 - 5		81465.0	660956.
1 - 6		-81732.0	660956.
1 - 7		-146686.	660956.
1 - 8		126951.	660956.
1 - 9		-154329.	660956.
1 - 10		-60603.5	660956.
1 - 11		-100209.	809503.
1 - 12		-184054.	809503.
1 - 13		-270694.	809503.
1 - 14		-404988.	809503.
1 - 15		-131182.	809503.
1 - 16		-702242.	809503.
1 - 17		-641917.	809503.
1 - 18	*	-933906.	809503.
2 - 3		248554.	660956.
2 - 4		88236.5	660956.
2 - 5		145186.	660956.
2 - 6		-18011.5	660956.
2 - 7		-82965.0	660956.
2 - 8		190671.	660956.
2 - 9		-90608.0	660956.
2 - 10		3117.0	660956.
2 - 11		-36488.0	809503.
2 - 12		-120333.	809503.
2 - 13		-206973.	809503.
2 - 14		-341267.	809503.
2 - 15		-67461.0	809503.
2 - 16		-638521.	809503.
2 - 17		-578196.	809503.
2 - 18	*	-870185.	809503.
3 - 4		-160318.	660956.
3 - 5		-103369.	660956.
3 - 6		-266566.	660956.
3 - 7		-331519.	660956.
3 - 8		-57883.0	660956.
3 - 9		-339162.	660956.
3 - 10		-245437.	660956.
3 - 11		-285042.	809503.
3 - 12		-368887.	809503.
3 - 13		-455527.	809503.
3 - 14		-589821.	809503.
3 - 15		-316015.	809503.
3 - 16	*	-887075.	809503.
3 - 17	*	-826750.	809503.
3 - 18	*	-1.11874E6	809503.
4 - 5		56949.0	660956.
4 - 6		-106248.	660956.
4 - 7		-171202.	660956.
4 - 8		102435.	660956.
4 - 9		-178845.	660956.
4 - 10		-85119.5	660956.
4 - 11		-124725.	809503.
4 - 12		-208570.	809503.
4 - 13		-295210.	809503.
4 - 14		-429504.	809503.
4 - 15		-155698.	809503.
4 - 16		-726758.	809503.
4 - 17		-666433.	809503.
4 - 18	*	-958422.	809503.

5 - 6		-163197.	660956.
5 - 7		-228151.	660956.
5 - 8		45485.5	660956.
5 - 9		-235794.	660956.
5 - 10		-142069.	660956.
5 - 11		-181674.	809503.
5 - 12		-265519.	809503.
5 - 13		-352159.	809503.
5 - 14		-486453.	809503.
5 - 15		-212647.	809503.
5 - 16		-783707.	809503.
5 - 17		-723382.	809503.
5 - 18	*	-1.01537E6	809503.
6 - 7		-64953.5	660956.
6 - 8		208683.	660956.
6 - 9		-72596.5	660956.
6 - 10		21128.5	660956.
6 - 11		-18476.5	809503.
6 - 12		-102322.	809503.
6 - 13		-188962.	809503.
6 - 14		-323256.	809503.
6 - 15		-49449.5	809503.
6 - 16		-620510.	809503.
6 - 17		-560185.	809503.
6 - 18	*	-852174.	809503.
7 - 8		273636.	660956.
7 - 9		-7643.0	660956.
7 - 10		86082.0	660956.
7 - 11		46477.0	809503.
7 - 12		-37368.0	809503.
7 - 13		-124008.	809503.
7 - 14		-258302.	809503.
7 - 15		15504.0	809503.
7 - 16		-555556.	809503.
7 - 17		-495231.	809503.
7 - 18		-787220.	809503.
8 - 9		-281279.	660956.
8 - 10		-187554.	660956.
8 - 11		-227159.	809503.
8 - 12		-311004.	809503.
8 - 13		-397644.	809503.
8 - 14		-531938.	809503.
8 - 15		-258132.	809503.
8 - 16	*	-829192.	809503.
8 - 17		-768867.	809503.
8 - 18	*	-1.06086E6	809503.
9 - 10		93725.0	660956.
9 - 11		54120.0	809503.
9 - 12		-29725.0	809503.
9 - 13		-116365.	809503.
9 - 14		-250659.	809503.
9 - 15		23147.0	809503.
9 - 16		-547913.	809503.
9 - 17		-487588.	809503.
9 - 18		-779577.	809503.
10 - 11		-39605.0	809503.
10 - 12		-123450.	809503.
10 - 13		-210090.	809503.
10 - 14		-344384.	809503.
10 - 15		-70578.0	809503.
10 - 16		-641638.	809503.
10 - 17		-581313.	809503.
10 - 18	*	-873302.	809503.
11 - 12		-83845.0	934733.

11 - 13		-170485.	934733.
11 - 14		-304779.	934733.
11 - 15		-30973.0	934733.
11 - 16		-602033.	934733.
11 - 17		-541708.	934733.
11 - 18		-833697.	934733.
12 - 13		-86640.0	934733.
12 - 14		-220934.	934733.
12 - 15		52872.0	934733.
12 - 16		-518188.	934733.
12 - 17		-457863.	934733.
12 - 18		-749852.	934733.
13 - 14		-134294.	934733.
13 - 15		139512.	934733.
13 - 16		-431548.	934733.
13 - 17		-371223.	934733.
13 - 18		-663212.	934733.
14 - 15		273806.	934733.
14 - 16		-297254.	934733.
14 - 17		-236929.	934733.
14 - 18		-528918.	934733.
15 - 16		-571060.	934733.
15 - 17		-510735.	934733.
15 - 18		-802724.	934733.
16 - 17		60325.0	934733.
16 - 18		-231664.	934733.
17 - 18		-291989.	934733.

* denotes a statistically significant difference.

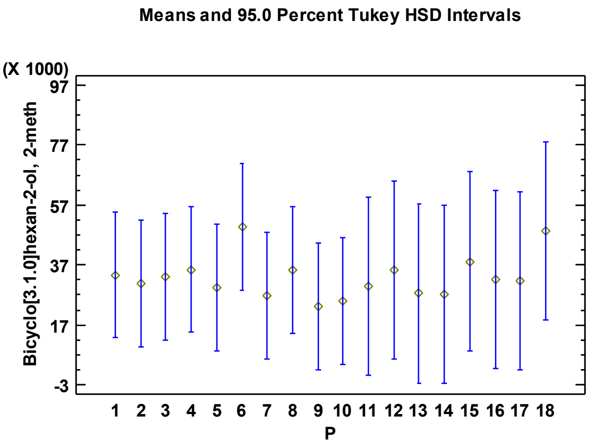
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 11 pairs, indicating that these pairs show statistically significant differences at the 95.0% confidence level. At the top of the page, 4 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Bicyclo[3.1.0]hexan-2-ol, 2-meth by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.36089E9	17	8.00526E7	0.91	0.5870
Within groups	8.8268E8	10	8.8268E7		
Total (Corr.)	2.24357E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of Bicyclo[3.1.0]hexan-2-ol, 2-meth into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.906926, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Bicyclo[3.1.0]hexan-2-ol, 2-meth from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Bicyclo[3.1.0]hexan-2-ol, 2-meth for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Bicyclo[3.1.0]hexan-2-ol, 2-meth by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
9	2	23217.0	X
10	2	24865.5	X
7	2	26754.5	X
14	1	27132.0	X
13	1	27495.0	X
5	2	29505.0	X
11	1	29890.0	X
2	2	30729.0	X
17	1	31690.0	X
16	1	32217.0	X
3	2	32928.5	X
1	2	33701.0	X
8	2	35182.0	X
12	1	35319.0	X
4	2	35497.5	X
15	1	38185.0	X
18	1	48337.0	X
6	2	49739.0	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		2972.0	42143.0
1 - 3		772.5	42143.0
1 - 4		-1796.5	42143.0
1 - 5		4196.0	42143.0
1 - 6		-16038.0	42143.0
1 - 7		6946.5	42143.0
1 - 8		-1481.0	42143.0
1 - 9		10484.0	42143.0
1 - 10		8835.5	42143.0
1 - 11		3811.0	51614.4
1 - 12		-1618.0	51614.4
1 - 13		6206.0	51614.4
1 - 14		6569.0	51614.4
1 - 15		-4484.0	51614.4
1 - 16		1484.0	51614.4
1 - 17		2011.0	51614.4
1 - 18		-14636.0	51614.4
2 - 3		-2199.5	42143.0
2 - 4		-4768.5	42143.0
2 - 5		1224.0	42143.0
2 - 6		-19010.0	42143.0
2 - 7		3974.5	42143.0
2 - 8		-4453.0	42143.0
2 - 9		7512.0	42143.0
2 - 10		5863.5	42143.0
2 - 11		839.0	51614.4
2 - 12		-4590.0	51614.4
2 - 13		3234.0	51614.4
2 - 14		3597.0	51614.4
2 - 15		-7456.0	51614.4
2 - 16		-1488.0	51614.4
2 - 17		-961.0	51614.4
2 - 18		-17608.0	51614.4
3 - 4		-2569.0	42143.0
3 - 5		3423.5	42143.0
3 - 6		-16810.5	42143.0
3 - 7		6174.0	42143.0
3 - 8		-2253.5	42143.0
3 - 9		9711.5	42143.0
3 - 10		8063.0	42143.0
3 - 11		3038.5	51614.4
3 - 12		-2390.5	51614.4
3 - 13		5433.5	51614.4
3 - 14		5796.5	51614.4
3 - 15		-5256.5	51614.4
3 - 16		711.5	51614.4
3 - 17		1238.5	51614.4
3 - 18		-15408.5	51614.4
4 - 5		5992.5	42143.0
4 - 6		-14241.5	42143.0
4 - 7		8743.0	42143.0
4 - 8		315.5	42143.0
4 - 9		12280.5	42143.0
4 - 10		10632.0	42143.0
4 - 11		5607.5	51614.4
4 - 12		178.5	51614.4
4 - 13		8002.5	51614.4
4 - 14		8365.5	51614.4
4 - 15		-2687.5	51614.4
4 - 16		3280.5	51614.4
4 - 17		3807.5	51614.4
4 - 18		-12839.5	51614.4
5 - 6		-20234.0	42143.0

5 - 7		2750.5	42143.0
5 - 8		-5677.0	42143.0
5 - 9		6288.0	42143.0
5 - 10		4639.5	42143.0
5 - 11		-385.0	51614.4
5 - 12		-5814.0	51614.4
5 - 13		2010.0	51614.4
5 - 14		2373.0	51614.4
5 - 15		-8680.0	51614.4
5 - 16		-2712.0	51614.4
5 - 17		-2185.0	51614.4
5 - 18		-18832.0	51614.4
6 - 7		22984.5	42143.0
6 - 8		14557.0	42143.0
6 - 9		26522.0	42143.0
6 - 10		24873.5	42143.0
6 - 11		19849.0	51614.4
6 - 12		14420.0	51614.4
6 - 13		22244.0	51614.4
6 - 14		22607.0	51614.4
6 - 15		11554.0	51614.4
6 - 16		17522.0	51614.4
6 - 17		18049.0	51614.4
6 - 18		1402.0	51614.4
7 - 8		-8427.5	42143.0
7 - 9		3537.5	42143.0
7 - 10		1889.0	42143.0
7 - 11		-3135.5	51614.4
7 - 12		-8564.5	51614.4
7 - 13		-740.5	51614.4
7 - 14		-377.5	51614.4
7 - 15		-11430.5	51614.4
7 - 16		-5462.5	51614.4
7 - 17		-4935.5	51614.4
7 - 18		-21582.5	51614.4
8 - 9		11965.0	42143.0
8 - 10		10316.5	42143.0
8 - 11		5292.0	51614.4
8 - 12		-137.0	51614.4
8 - 13		7687.0	51614.4
8 - 14		8050.0	51614.4
8 - 15		-3003.0	51614.4
8 - 16		2965.0	51614.4
8 - 17		3492.0	51614.4
8 - 18		-13155.0	51614.4
9 - 10		-1648.5	42143.0
9 - 11		-6673.0	51614.4
9 - 12		-12102.0	51614.4
9 - 13		-4278.0	51614.4
9 - 14		-3915.0	51614.4
9 - 15		-14968.0	51614.4
9 - 16		-9000.0	51614.4
9 - 17		-8473.0	51614.4
9 - 18		-25120.0	51614.4
10 - 11		-5024.5	51614.4
10 - 12		-10453.5	51614.4
10 - 13		-2629.5	51614.4
10 - 14		-2266.5	51614.4
10 - 15		-13319.5	51614.4
10 - 16		-7351.5	51614.4
10 - 17		-6824.5	51614.4
10 - 18		-23471.5	51614.4
11 - 12		-5429.0	59599.2
11 - 13		2395.0	59599.2

11 - 14		2758.0	59599.2
11 - 15		-8295.0	59599.2
11 - 16		-2327.0	59599.2
11 - 17		-1800.0	59599.2
11 - 18		-18447.0	59599.2
12 - 13		7824.0	59599.2
12 - 14		8187.0	59599.2
12 - 15		-2866.0	59599.2
12 - 16		3102.0	59599.2
12 - 17		3629.0	59599.2
12 - 18		-13018.0	59599.2
13 - 14		363.0	59599.2
13 - 15		-10690.0	59599.2
13 - 16		-4722.0	59599.2
13 - 17		-4195.0	59599.2
13 - 18		-20842.0	59599.2
14 - 15		-11053.0	59599.2
14 - 16		-5085.0	59599.2
14 - 17		-4558.0	59599.2
14 - 18		-21205.0	59599.2
15 - 16		5968.0	59599.2
15 - 17		6495.0	59599.2
15 - 18		-10152.0	59599.2
16 - 17		527.0	59599.2
16 - 18		-16120.0	59599.2
17 - 18		-16647.0	59599.2

* denotes a statistically significant difference.

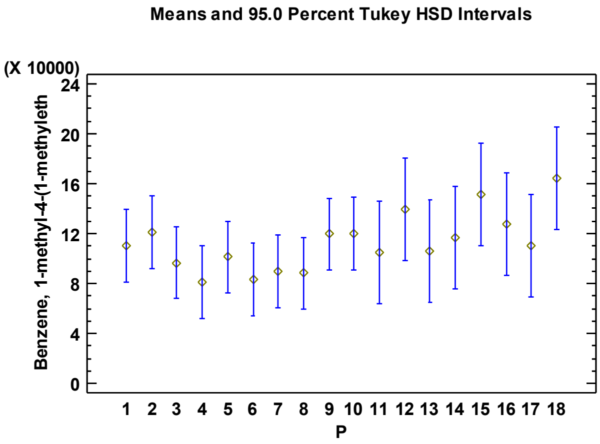
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Benzene, 1-methyl-4-(1-methyleth by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.19219E10	17	7.0129E8	4.20	0.0128
Within groups	1.66964E9	10	1.66964E8		
Total (Corr.)	1.35916E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of Benzene, 1-methyl-4-(1-methyleth into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 4.20024, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean Benzene, 1-methyl-4-(1-methyleth from one level of P to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean Benzene, 1-methyl-4-(1-methyleth for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Benzene, 1-methyl-4-(1-methyleth by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
4	2	81101.5	X
6	2	83016.5	X
8	2	88280.0	X
7	2	89470.0	X
3	2	96670.0	XX
5	2	101175.	XX
11	1	105127.	XX
13	1	106424.	XX
1	2	109960.	XX
17	1	110036.	XX
14	1	116874.	XX
9	2	119621.	XX
10	2	120345.	XX
2	2	121134.	XX
16	1	127803.	XX
12	1	139897.	XX
15	1	150923.	XX
18	1	164139.	X

Contrast	***Sig.***	***Difference***	***+/- Limits***
1 - 2		-11173.5	57961.0
1 - 3		13290.0	57961.0
1 - 4		28858.5	57961.0
1 - 5		8785.5	57961.0
1 - 6		26943.5	57961.0
1 - 7		20490.0	57961.0
1 - 8		21680.0	57961.0
1 - 9		-9661.0	57961.0
1 - 10		-10384.5	57961.0
1 - 11		4833.0	70987.4
1 - 12		-29937.0	70987.4
1 - 13		3536.0	70987.4
1 - 14		-6914.0	70987.4
1 - 15		-40963.0	70987.4
1 - 16		-17843.0	70987.4
1 - 17		-76.0	70987.4
1 - 18		-54179.0	70987.4
2 - 3		24463.5	57961.0
2 - 4		40032.0	57961.0
2 - 5		19959.0	57961.0
2 - 6		38117.0	57961.0
2 - 7		31663.5	57961.0
2 - 8		32853.5	57961.0
2 - 9		1512.5	57961.0
2 - 10		789.0	57961.0
2 - 11		16006.5	70987.4
2 - 12		-18763.5	70987.4
2 - 13		14709.5	70987.4
2 - 14		4259.5	70987.4
2 - 15		-29789.5	70987.4
2 - 16		-6669.5	70987.4
2 - 17		11097.5	70987.4
2 - 18		-43005.5	70987.4
3 - 4		15568.5	57961.0
3 - 5		-4504.5	57961.0
3 - 6		13653.5	57961.0
3 - 7		7200.0	57961.0
3 - 8		8390.0	57961.0
3 - 9		-22951.0	57961.0
3 - 10		-23674.5	57961.0
3 - 11		-8457.0	70987.4
3 - 12		-43227.0	70987.4
3 - 13		-9754.0	70987.4
3 - 14		-20204.0	70987.4
3 - 15		-54253.0	70987.4
3 - 16		-31133.0	70987.4
3 - 17		-13366.0	70987.4
3 - 18		-67469.0	70987.4
4 - 5		-20073.0	57961.0
4 - 6		-1915.0	57961.0
4 - 7		-8368.5	57961.0
4 - 8		-7178.5	57961.0
4 - 9		-38519.5	57961.0
4 - 10		-39243.0	57961.0
4 - 11		-24025.5	70987.4
4 - 12		-58795.5	70987.4
4 - 13		-25322.5	70987.4
4 - 14		-35772.5	70987.4
4 - 15		-69821.5	70987.4
4 - 16		-46701.5	70987.4
4 - 17		-28934.5	70987.4
4 - 18	*	-83037.5	70987.4

5 - 6		18158.0	57961.0
5 - 7		11704.5	57961.0
5 - 8		12894.5	57961.0
5 - 9		-18446.5	57961.0
5 - 10		-19170.0	57961.0
5 - 11		-3952.5	70987.4
5 - 12		-38722.5	70987.4
5 - 13		-5249.5	70987.4
5 - 14		-15699.5	70987.4
5 - 15		-49748.5	70987.4
5 - 16		-26628.5	70987.4
5 - 17		-8861.5	70987.4
5 - 18		-62964.5	70987.4
6 - 7		-6453.5	57961.0
6 - 8		-5263.5	57961.0
6 - 9		-36604.5	57961.0
6 - 10		-37328.0	57961.0
6 - 11		-22110.5	70987.4
6 - 12		-56880.5	70987.4
6 - 13		-23407.5	70987.4
6 - 14		-33857.5	70987.4
6 - 15		-67906.5	70987.4
6 - 16		-44786.5	70987.4
6 - 17		-27019.5	70987.4
6 - 18	*	-81122.5	70987.4
7 - 8		1190.0	57961.0
7 - 9		-30151.0	57961.0
7 - 10		-30874.5	57961.0
7 - 11		-15657.0	70987.4
7 - 12		-50427.0	70987.4
7 - 13		-16954.0	70987.4
7 - 14		-27404.0	70987.4
7 - 15		-61453.0	70987.4
7 - 16		-38333.0	70987.4
7 - 17		-20566.0	70987.4
7 - 18	*	-74669.0	70987.4
8 - 9		-31341.0	57961.0
8 - 10		-32064.5	57961.0
8 - 11		-16847.0	70987.4
8 - 12		-51617.0	70987.4
8 - 13		-18144.0	70987.4
8 - 14		-28594.0	70987.4
8 - 15		-62643.0	70987.4
8 - 16		-39523.0	70987.4
8 - 17		-21756.0	70987.4
8 - 18	*	-75859.0	70987.4
9 - 10		-723.5	57961.0
9 - 11		14494.0	70987.4
9 - 12		-20276.0	70987.4
9 - 13		13197.0	70987.4
9 - 14		2747.0	70987.4
9 - 15		-31302.0	70987.4
9 - 16		-8182.0	70987.4
9 - 17		9585.0	70987.4
9 - 18		-44518.0	70987.4
10 - 11		15217.5	70987.4
10 - 12		-19552.5	70987.4
10 - 13		13920.5	70987.4
10 - 14		3470.5	70987.4
10 - 15		-30578.5	70987.4
10 - 16		-7458.5	70987.4
10 - 17		10308.5	70987.4
10 - 18		-43794.5	70987.4
11 - 12		-34770.0	81969.2

11 - 13		-1297.0	81969.2
11 - 14		-11747.0	81969.2
11 - 15		-45796.0	81969.2
11 - 16		-22676.0	81969.2
11 - 17		-4909.0	81969.2
11 - 18		-59012.0	81969.2
12 - 13		33473.0	81969.2
12 - 14		23023.0	81969.2
12 - 15		-11026.0	81969.2
12 - 16		12094.0	81969.2
12 - 17		29861.0	81969.2
12 - 18		-24242.0	81969.2
13 - 14		-10450.0	81969.2
13 - 15		-44499.0	81969.2
13 - 16		-21379.0	81969.2
13 - 17		-3612.0	81969.2
13 - 18		-57715.0	81969.2
14 - 15		-34049.0	81969.2
14 - 16		-10929.0	81969.2
14 - 17		6838.0	81969.2
14 - 18		-47265.0	81969.2
15 - 16		23120.0	81969.2
15 - 17		40887.0	81969.2
15 - 18		-13216.0	81969.2
16 - 17		17767.0	81969.2
16 - 18		-36336.0	81969.2
17 - 18		-54103.0	81969.2

* denotes a statistically significant difference.

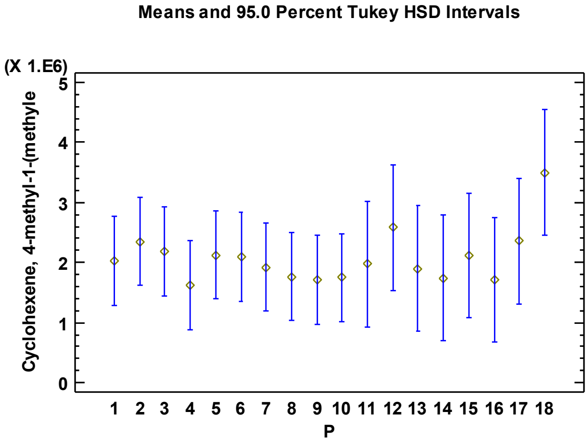
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 4 pairs, indicating that these pairs show statistically significant differences at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Cyclohexene, 4-methyl-1-(methyle by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.9112E12	17	2.30071E11	2.14	0.1112
Within groups	1.07563E12	10	1.07563E11		
Total (Corr.)	4.98683E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of Cyclohexene, 4-methyl-1-(methyle into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.13894, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Cyclohexene, 4-methyl-1-(methyle from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Cyclohexene, 4-methyl-1-(methyle for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Cyclohexene, 4-methyl-1-(methyle by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
4	2	1.62226E6	X
9	2	1.7118E6	XX
16	1	1.71237E6	XX
14	1	1.74566E6	XX
10	2	1.74933E6	XX
8	2	1.76719E6	XX
13	1	1.90319E6	XX
7	2	1.92115E6	XX
11	1	1.97179E6	XX
1	2	2.02392E6	XX
6	2	2.0939E6	XX
15	1	2.12232E6	XX
5	2	2.12616E6	XX
3	2	2.1869E6	XX
2	2	2.34688E6	XX
17	1	2.3584E6	XX
12	1	2.58398E6	XX
18	1	3.49847E6	X

Contrast	Sig.	Difference	+/- Limits
1 - 2		-322960.	1.47115E6
1 - 3		-162981.	1.47115E6
1 - 4		401658.	1.47115E6
1 - 5		-102243.	1.47115E6
1 - 6		-69981.0	1.47115E6
1 - 7		102769.	1.47115E6
1 - 8		256728.	1.47115E6
1 - 9		312117.	1.47115E6
1 - 10		274593.	1.47115E6
1 - 11		52129.5	1.80178E6
1 - 12		-560064.	1.80178E6
1 - 13		120727.	1.80178E6
1 - 14		278262.	1.80178E6
1 - 15		-98398.5	1.80178E6
1 - 16		311549.	1.80178E6
1 - 17		-334484.	1.80178E6
1 - 18		-1.47455E6	1.80178E6
2 - 3		159980.	1.47115E6
2 - 4		724618.	1.47115E6
2 - 5		220718.	1.47115E6
2 - 6		252979.	1.47115E6
2 - 7		425729.	1.47115E6
2 - 8		579688.	1.47115E6
2 - 9		635077.	1.47115E6
2 - 10		597553.	1.47115E6
2 - 11		375090.	1.80178E6
2 - 12		-237104.	1.80178E6
2 - 13		443687.	1.80178E6
2 - 14		601222.	1.80178E6
2 - 15		224562.	1.80178E6
2 - 16		634509.	1.80178E6
2 - 17		-11523.5	1.80178E6
2 - 18		-1.15159E6	1.80178E6
3 - 4		564638.	1.47115E6
3 - 5		60738.0	1.47115E6
3 - 6		92999.5	1.47115E6
3 - 7		265750.	1.47115E6
3 - 8		419709.	1.47115E6
3 - 9		475097.	1.47115E6
3 - 10		437574.	1.47115E6
3 - 11		215110.	1.80178E6
3 - 12		-397083.	1.80178E6
3 - 13		283707.	1.80178E6
3 - 14		441242.	1.80178E6
3 - 15		64582.0	1.80178E6
3 - 16		474529.	1.80178E6
3 - 17		-171503.	1.80178E6
3 - 18		-1.31157E6	1.80178E6
4 - 5		-503900.	1.47115E6
4 - 6		-471639.	1.47115E6
4 - 7		-298889.	1.47115E6
4 - 8		-144930.	1.47115E6
4 - 9		-89541.0	1.47115E6
4 - 10		-127065.	1.47115E6
4 - 11		-349528.	1.80178E6
4 - 12		-961721.	1.80178E6
4 - 13		-280931.	1.80178E6
4 - 14		-123396.	1.80178E6
4 - 15		-500056.	1.80178E6
4 - 16		-90109.0	1.80178E6
4 - 17		-736141.	1.80178E6
4 - 18	*	-1.87621E6	1.80178E6
5 - 6		32261.5	1.47115E6

5 - 7		205012.	1.47115E6
5 - 8		358971.	1.47115E6
5 - 9		414359.	1.47115E6
5 - 10		376836.	1.47115E6
5 - 11		154372.	1.80178E6
5 - 12		-457821.	1.80178E6
5 - 13		222969.	1.80178E6
5 - 14		380504.	1.80178E6
5 - 15		3844.0	1.80178E6
5 - 16		413791.	1.80178E6
5 - 17		-232241.	1.80178E6
5 - 18		-1.37231E6	1.80178E6
6 - 7		172750.	1.47115E6
6 - 8		326709.	1.47115E6
6 - 9		382098.	1.47115E6
6 - 10		344574.	1.47115E6
6 - 11		122111.	1.80178E6
6 - 12		-490083.	1.80178E6
6 - 13		190708.	1.80178E6
6 - 14		348243.	1.80178E6
6 - 15		-28417.5	1.80178E6
6 - 16		381530.	1.80178E6
6 - 17		-264503.	1.80178E6
6 - 18		-1.40457E6	1.80178E6
7 - 8		153959.	1.47115E6
7 - 9		209348.	1.47115E6
7 - 10		171824.	1.47115E6
7 - 11		-50639.5	1.80178E6
7 - 12		-662833.	1.80178E6
7 - 13		17957.5	1.80178E6
7 - 14		175493.	1.80178E6
7 - 15		-201168.	1.80178E6
7 - 16		208780.	1.80178E6
7 - 17		-437253.	1.80178E6
7 - 18		-1.57732E6	1.80178E6
8 - 9		55388.5	1.47115E6
8 - 10		17865.0	1.47115E6
8 - 11		-204599.	1.80178E6
8 - 12		-816792.	1.80178E6
8 - 13		-136002.	1.80178E6
8 - 14		21533.5	1.80178E6
8 - 15		-355127.	1.80178E6
8 - 16		54820.5	1.80178E6
8 - 17		-591212.	1.80178E6
8 - 18		-1.73128E6	1.80178E6
9 - 10		-37523.5	1.47115E6
9 - 11		-259987.	1.80178E6
9 - 12		-872180.	1.80178E6
9 - 13		-191390.	1.80178E6
9 - 14		-33855.0	1.80178E6
9 - 15		-410515.	1.80178E6
9 - 16		-568.0	1.80178E6
9 - 17		-646600.	1.80178E6
9 - 18		-1.78667E6	1.80178E6
10 - 11		-222464.	1.80178E6
10 - 12		-834657.	1.80178E6
10 - 13		-153867.	1.80178E6
10 - 14		3668.5	1.80178E6
10 - 15		-372992.	1.80178E6
10 - 16		36955.5	1.80178E6
10 - 17		-609077.	1.80178E6
10 - 18		-1.74914E6	1.80178E6
11 - 12		-612193.	2.08051E6
11 - 13		68597.0	2.08051E6

11 - 14		226132.	2.08051E6
11 - 15		-150528.	2.08051E6
11 - 16		259419.	2.08051E6
11 - 17		-386613.	2.08051E6
11 - 18		-1.52668E6	2.08051E6
12 - 13		680790.	2.08051E6
12 - 14		838325.	2.08051E6
12 - 15		461665.	2.08051E6
12 - 16		871612.	2.08051E6
12 - 17		225580.	2.08051E6
12 - 18		-914487.	2.08051E6
13 - 14		157535.	2.08051E6
13 - 15		-219125.	2.08051E6
13 - 16		190822.	2.08051E6
13 - 17		-455210.	2.08051E6
13 - 18		-1.59528E6	2.08051E6
14 - 15		-376660.	2.08051E6
14 - 16		33287.0	2.08051E6
14 - 17		-612745.	2.08051E6
14 - 18		-1.75281E6	2.08051E6
15 - 16		409947.	2.08051E6
15 - 17		-236085.	2.08051E6
15 - 18		-1.37615E6	2.08051E6
16 - 17		-646032.	2.08051E6
16 - 18		-1.7861E6	2.08051E6
17 - 18		-1.14007E6	2.08051E6

* denotes a statistically significant difference.

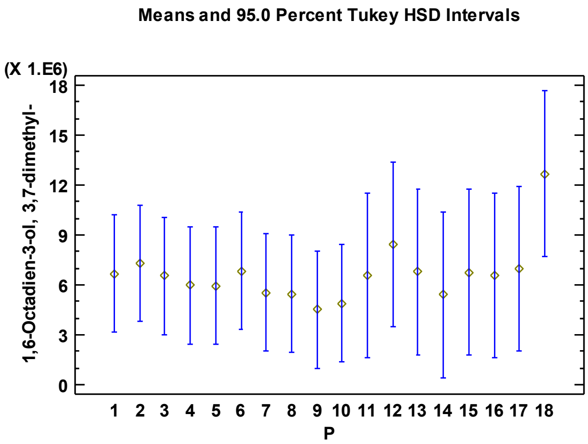
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 1 pair, indicating that this pair shows a statistically significant difference at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 1,6-Octadien-3-ol, 3,7-dimethyl- by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	6.28466E13	17	3.69686E12	1.51	0.2562
Within groups	2.4461E13	10	2.4461E12		
Total (Corr.)	8.73076E13	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1,6-Octadien-3-ol, 3,7-dimethyl- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.51133, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1,6-Octadien-3-ol, 3,7-dimethyl- from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 1,6-Octadien-3-ol, 3,7-dimethyl- for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1,6-Octadien-3-ol, 3,7-dimethyl- by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
9	2	4.51864E6	X
10	2	4.89438E6	X
14	1	5.41109E6	X
8	2	5.45365E6	X
7	2	5.54376E6	X
5	2	5.94947E6	X
4	2	5.96492E6	X
11	1	6.5493E6	X
16	1	6.55193E6	X
3	2	6.55391E6	X
1	2	6.67731E6	X
15	1	6.7698E6	X
13	1	6.77921E6	X
6	2	6.85077E6	X
17	1	6.98138E6	X
2	2	7.28558E6	X
12	1	8.42779E6	X
18	1	1.26662E7	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-608262.	7.01553E6
1 - 3		123401.	7.01553E6
1 - 4		712398.	7.01553E6
1 - 5		727846.	7.01553E6
1 - 6		-173460.	7.01553E6
1 - 7		1.13355E6	7.01553E6
1 - 8		1.22367E6	7.01553E6
1 - 9		2.15867E6	7.01553E6
1 - 10		1.78293E6	7.01553E6
1 - 11		128012.	8.59224E6
1 - 12		-1.75047E6	8.59224E6
1 - 13		-101900.	8.59224E6
1 - 14		1.26622E6	8.59224E6
1 - 15		-92482.5	8.59224E6
1 - 16		125387.	8.59224E6
1 - 17		-304066.	8.59224E6
1 - 18		-5.98892E6	8.59224E6
2 - 3		731662.	7.01553E6
2 - 4		1.32066E6	7.01553E6
2 - 5		1.33611E6	7.01553E6
2 - 6		434802.	7.01553E6
2 - 7		1.74181E6	7.01553E6
2 - 8		1.83193E6	7.01553E6
2 - 9		2.76693E6	7.01553E6
2 - 10		2.39119E6	7.01553E6
2 - 11		736273.	8.59224E6
2 - 12		-1.14221E6	8.59224E6
2 - 13		506362.	8.59224E6
2 - 14		1.87448E6	8.59224E6
2 - 15		515779.	8.59224E6
2 - 16		733648.	8.59224E6
2 - 17		304196.	8.59224E6
2 - 18		-5.38066E6	8.59224E6
3 - 4		588997.	7.01553E6
3 - 5		604445.	7.01553E6
3 - 6		-296861.	7.01553E6
3 - 7		1.01015E6	7.01553E6
3 - 8		1.10027E6	7.01553E6
3 - 9		2.03527E6	7.01553E6
3 - 10		1.65953E6	7.01553E6
3 - 11		4611.0	8.59224E6
3 - 12		-1.87388E6	8.59224E6
3 - 13		-225300.	8.59224E6
3 - 14		1.14282E6	8.59224E6
3 - 15		-215883.	8.59224E6
3 - 16		1986.0	8.59224E6
3 - 17		-427466.	8.59224E6
3 - 18		-6.11232E6	8.59224E6
4 - 5		15448.0	7.01553E6
4 - 6		-885858.	7.01553E6
4 - 7		421156.	7.01553E6
4 - 8		511272.	7.01553E6
4 - 9		1.44627E6	7.01553E6
4 - 10		1.07053E6	7.01553E6
4 - 11		-584386.	8.59224E6
4 - 12		-2.46287E6	8.59224E6
4 - 13		-814297.	8.59224E6
4 - 14		553824.	8.59224E6
4 - 15		-804880.	8.59224E6
4 - 16		-587011.	8.59224E6
4 - 17		-1.01646E6	8.59224E6
4 - 18		-6.70131E6	8.59224E6
5 - 6		-901306.	7.01553E6

5 - 7		405708.	7.01553E6
5 - 8		495824.	7.01553E6
5 - 9		1.43082E6	7.01553E6
5 - 10		1.05509E6	7.01553E6
5 - 11		-599834.	8.59224E6
5 - 12		-2.47832E6	8.59224E6
5 - 13		-829745.	8.59224E6
5 - 14		538376.	8.59224E6
5 - 15		-820328.	8.59224E6
5 - 16		-602459.	8.59224E6
5 - 17		-1.03191E6	8.59224E6
5 - 18		-6.71676E6	8.59224E6
6 - 7		1.30701E6	7.01553E6
6 - 8		1.39713E6	7.01553E6
6 - 9		2.33213E6	7.01553E6
6 - 10		1.95639E6	7.01553E6
6 - 11		301472.	8.59224E6
6 - 12		-1.57701E6	8.59224E6
6 - 13		71560.5	8.59224E6
6 - 14		1.43968E6	8.59224E6
6 - 15		80977.5	8.59224E6
6 - 16		298847.	8.59224E6
6 - 17		-130606.	8.59224E6
6 - 18		-5.81546E6	8.59224E6
7 - 8		90116.5	7.01553E6
7 - 9		1.02512E6	7.01553E6
7 - 10		649378.	7.01553E6
7 - 11		-1.00554E6	8.59224E6
7 - 12		-2.88403E6	8.59224E6
7 - 13		-1.23545E6	8.59224E6
7 - 14		132669.	8.59224E6
7 - 15		-1.22604E6	8.59224E6
7 - 16		-1.00817E6	8.59224E6
7 - 17		-1.43762E6	8.59224E6
7 - 18		-7.12247E6	8.59224E6
8 - 9		935001.	7.01553E6
8 - 10		559261.	7.01553E6
8 - 11		-1.09566E6	8.59224E6
8 - 12		-2.97414E6	8.59224E6
8 - 13		-1.32557E6	8.59224E6
8 - 14		42552.0	8.59224E6
8 - 15		-1.31615E6	8.59224E6
8 - 16		-1.09828E6	8.59224E6
8 - 17		-1.52774E6	8.59224E6
8 - 18		-7.21259E6	8.59224E6
9 - 10		-375740.	7.01553E6
9 - 11		-2.03066E6	8.59224E6
9 - 12		-3.90914E6	8.59224E6
9 - 13		-2.26057E6	8.59224E6
9 - 14		-892449.	8.59224E6
9 - 15		-2.25115E6	8.59224E6
9 - 16		-2.03328E6	8.59224E6
9 - 17		-2.46274E6	8.59224E6
9 - 18		-8.14759E6	8.59224E6
10 - 11		-1.65492E6	8.59224E6
10 - 12		-3.53341E6	8.59224E6
10 - 13		-1.88483E6	8.59224E6
10 - 14		-516709.	8.59224E6
10 - 15		-1.87541E6	8.59224E6
10 - 16		-1.65754E6	8.59224E6
10 - 17		-2.087E6	8.59224E6
10 - 18		-7.77185E6	8.59224E6
11 - 12		-1.87849E6	9.92146E6
11 - 13		-229911.	9.92146E6

11 - 14		1.13821E6	9.92146E6
11 - 15		-220494.	9.92146E6
11 - 16		-2625.0	9.92146E6
11 - 17		-432077.	9.92146E6
11 - 18		-6.11693E6	9.92146E6
12 - 13		1.64858E6	9.92146E6
12 - 14		3.0167E6	9.92146E6
12 - 15		1.65799E6	9.92146E6
12 - 16		1.87586E6	9.92146E6
12 - 17		1.44641E6	9.92146E6
12 - 18		-4.23844E6	9.92146E6
13 - 14		1.36812E6	9.92146E6
13 - 15		9417.0	9.92146E6
13 - 16		227286.	9.92146E6
13 - 17		-202166.	9.92146E6
13 - 18		-5.88702E6	9.92146E6
14 - 15		-1.3587E6	9.92146E6
14 - 16		-1.14084E6	9.92146E6
14 - 17		-1.57029E6	9.92146E6
14 - 18		-7.25514E6	9.92146E6
15 - 16		217869.	9.92146E6
15 - 17		-211583.	9.92146E6
15 - 18		-5.89643E6	9.92146E6
16 - 17		-429452.	9.92146E6
16 - 18		-6.1143E6	9.92146E6
17 - 18		-5.68485E6	9.92146E6

* denotes a statistically significant difference.

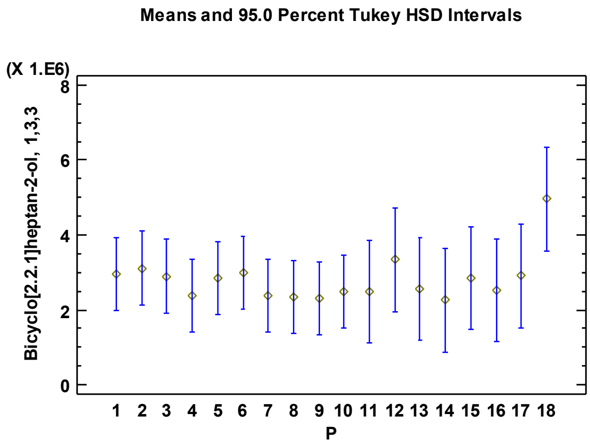
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Bicyclo[2.2.1]heptan-2-ol, 1,3,3 by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	7.67027E12	17	4.51192E11	2.39	0.0819
Within groups	1.89081E12	10	1.89081E11		
Total (Corr.)	9.56107E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of Bicyclo[2.2.1]heptan-2-ol, 1,3,3 into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.38624, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Bicyclo[2.2.1]heptan-2-ol, 1,3,3 from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Bicyclo[2.2.1]heptan-2-ol, 1,3,3 for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Bicyclo[2.2.1]heptan-2-ol, 1,3,3 by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
14	1	2.25641E6	XX
9	2	2.29376E6	X
8	2	2.33469E6	X
7	2	2.37155E6	X
4	2	2.38013E6	X
11	1	2.48911E6	XX
10	2	2.49709E6	X
16	1	2.52907E6	XX
13	1	2.55914E6	XX
5	2	2.83836E6	XX
15	1	2.85096E6	XX
3	2	2.90098E6	XX
17	1	2.90622E6	XX
1	2	2.95926E6	XX
6	2	2.99901E6	XX
2	2	3.11513E6	XX
12	1	3.34393E6	XX
18	1	4.9636E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-155865.	1.95051E6
1 - 3		58283.5	1.95051E6
1 - 4		579136.	1.95051E6
1 - 5		120905.	1.95051E6
1 - 6		-39748.5	1.95051E6
1 - 7		587715.	1.95051E6
1 - 8		624575.	1.95051E6
1 - 9		665508.	1.95051E6
1 - 10		462175.	1.95051E6
1 - 11		470158.	2.38887E6
1 - 12		-384663.	2.38887E6
1 - 13		400125.	2.38887E6
1 - 14		702852.	2.38887E6
1 - 15		108300.	2.38887E6
1 - 16		430198.	2.38887E6
1 - 17		53041.5	2.38887E6
1 - 18		-2.00434E6	2.38887E6
2 - 3		214149.	1.95051E6
2 - 4		735001.	1.95051E6
2 - 5		276770.	1.95051E6
2 - 6		116117.	1.95051E6
2 - 7		743580.	1.95051E6
2 - 8		780440.	1.95051E6
2 - 9		821373.	1.95051E6
2 - 10		618040.	1.95051E6
2 - 11		626023.	2.38887E6
2 - 12		-228798.	2.38887E6
2 - 13		555990.	2.38887E6
2 - 14		858717.	2.38887E6
2 - 15		264165.	2.38887E6
2 - 16		586063.	2.38887E6
2 - 17		208907.	2.38887E6
2 - 18		-1.84847E6	2.38887E6
3 - 4		520853.	1.95051E6
3 - 5		62621.5	1.95051E6
3 - 6		-98032.0	1.95051E6
3 - 7		529431.	1.95051E6
3 - 8		566292.	1.95051E6
3 - 9		607224.	1.95051E6
3 - 10		403892.	1.95051E6
3 - 11		411874.	2.38887E6
3 - 12		-442946.	2.38887E6
3 - 13		341841.	2.38887E6
3 - 14		644568.	2.38887E6
3 - 15		50016.0	2.38887E6
3 - 16		371914.	2.38887E6
3 - 17		-5242.0	2.38887E6
3 - 18		-2.06262E6	2.38887E6
4 - 5		-458231.	1.95051E6
4 - 6		-618885.	1.95051E6
4 - 7		8578.5	1.95051E6
4 - 8		45439.0	1.95051E6
4 - 9		86371.5	1.95051E6
4 - 10		-116961.	1.95051E6
4 - 11		-108979.	2.38887E6
4 - 12		-963799.	2.38887E6
4 - 13		-179012.	2.38887E6
4 - 14		123716.	2.38887E6
4 - 15		-470837.	2.38887E6
4 - 16		-148939.	2.38887E6
4 - 17		-526095.	2.38887E6
4 - 18	*	-2.58348E6	2.38887E6
5 - 6		-160654.	1.95051E6

5 - 7		466810.	1.95051E6
5 - 8		503670.	1.95051E6
5 - 9		544603.	1.95051E6
5 - 10		341270.	1.95051E6
5 - 11		349253.	2.38887E6
5 - 12		-505568.	2.38887E6
5 - 13		279220.	2.38887E6
5 - 14		581947.	2.38887E6
5 - 15		-12605.5	2.38887E6
5 - 16		309293.	2.38887E6
5 - 17		-67863.5	2.38887E6
5 - 18		-2.12524E6	2.38887E6
6 - 7		627463.	1.95051E6
6 - 8		664324.	1.95051E6
6 - 9		705256.	1.95051E6
6 - 10		501924.	1.95051E6
6 - 11		509906.	2.38887E6
6 - 12		-344914.	2.38887E6
6 - 13		439873.	2.38887E6
6 - 14		742600.	2.38887E6
6 - 15		148048.	2.38887E6
6 - 16		469946.	2.38887E6
6 - 17		92790.0	2.38887E6
6 - 18		-1.96459E6	2.38887E6
7 - 8		36860.5	1.95051E6
7 - 9		77793.0	1.95051E6
7 - 10		-125540.	1.95051E6
7 - 11		-117557.	2.38887E6
7 - 12		-972377.	2.38887E6
7 - 13		-187590.	2.38887E6
7 - 14		115137.	2.38887E6
7 - 15		-479415.	2.38887E6
7 - 16		-157517.	2.38887E6
7 - 17		-534673.	2.38887E6
7 - 18	*	-2.59205E6	2.38887E6
8 - 9		40932.5	1.95051E6
8 - 10		-162400.	1.95051E6
8 - 11		-154418.	2.38887E6
8 - 12		-1.00924E6	2.38887E6
8 - 13		-224451.	2.38887E6
8 - 14		78276.5	2.38887E6
8 - 15		-516276.	2.38887E6
8 - 16		-194378.	2.38887E6
8 - 17		-571534.	2.38887E6
8 - 18	*	-2.62891E6	2.38887E6
9 - 10		-203333.	1.95051E6
9 - 11		-195350.	2.38887E6
9 - 12		-1.05017E6	2.38887E6
9 - 13		-265383.	2.38887E6
9 - 14		37344.0	2.38887E6
9 - 15		-557208.	2.38887E6
9 - 16		-235310.	2.38887E6
9 - 17		-612466.	2.38887E6
9 - 18	*	-2.66985E6	2.38887E6
10 - 11		7982.5	2.38887E6
10 - 12		-846838.	2.38887E6
10 - 13		-62050.5	2.38887E6
10 - 14		240677.	2.38887E6
10 - 15		-353876.	2.38887E6
10 - 16		-31977.5	2.38887E6
10 - 17		-409134.	2.38887E6
10 - 18	*	-2.46651E6	2.38887E6
11 - 12		-854820.	2.75843E6
11 - 13		-70033.0	2.75843E6

11 - 14		232694.	2.75843E6
11 - 15		-361858.	2.75843E6
11 - 16		-39960.0	2.75843E6
11 - 17		-417116.	2.75843E6
11 - 18		-2.4745E6	2.75843E6
12 - 13		784787.	2.75843E6
12 - 14		1.08751E6	2.75843E6
12 - 15		492962.	2.75843E6
12 - 16		814860.	2.75843E6
12 - 17		437704.	2.75843E6
12 - 18		-1.61968E6	2.75843E6
13 - 14		302727.	2.75843E6
13 - 15		-291825.	2.75843E6
13 - 16		30073.0	2.75843E6
13 - 17		-347083.	2.75843E6
13 - 18		-2.40446E6	2.75843E6
14 - 15		-594552.	2.75843E6
14 - 16		-272654.	2.75843E6
14 - 17		-649810.	2.75843E6
14 - 18		-2.70719E6	2.75843E6
15 - 16		321898.	2.75843E6
15 - 17		-55258.0	2.75843E6
15 - 18		-2.11264E6	2.75843E6
16 - 17		-377156.	2.75843E6
16 - 18		-2.43454E6	2.75843E6
17 - 18		-2.05738E6	2.75843E6

* denotes a statistically significant difference.

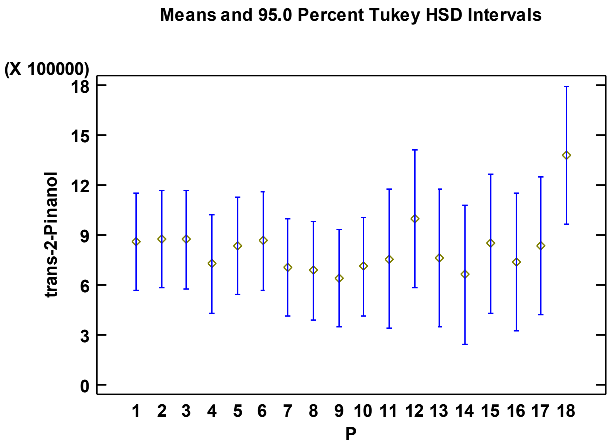
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 5 pairs, indicating that these pairs show statistically significant differences at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for trans-2-Pinanol by P

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Between groups	5.66176E11	17	3.33044E10	1.95	0.1423
Within groups	1.71055E11	10	1.71055E10		
Total (Corr.)	7.37231E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of trans-2-Pinanol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.947, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean trans-2-Pinanol from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean trans-2-Pinanol for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for trans-2-Pinanol by P

Method: 95.0 percent Tukey HSD

P	Count	Mean	Homogeneous Groups
9	2	638624.	X
14	1	661433.	XX
8	2	685534.	XX
7	2	704322.	XX
10	2	711154.	XX
4	2	726922.	XX
16	1	739463.	XX
11	1	756859.	XX
13	1	763400.	XX
17	1	836561.	XX
5	2	836989.	XX
15	1	847932.	XX
1	2	857816.	XX
6	2	863850.	XX
3	2	872115.	XX
2	2	875519.	XX
12	1	999103.	XX
18	1	1.37878E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-17703.0	586667.
1 - 3		-14299.0	586667.
1 - 4		130895.	586667.
1 - 5		20827.0	586667.
1 - 6		-6033.5	586667.
1 - 7		153494.	586667.
1 - 8		172282.	586667.
1 - 9		219192.	586667.
1 - 10		146663.	586667.
1 - 11		100957.	718518.
1 - 12		-141287.	718518.
1 - 13		94416.0	718518.
1 - 14		196383.	718518.
1 - 15		9884.0	718518.
1 - 16		118353.	718518.
1 - 17		21255.0	718518.
1 - 18		-520959.	718518.
2 - 3		3404.0	586667.
2 - 4		148598.	586667.
2 - 5		38530.0	586667.
2 - 6		11669.5	586667.
2 - 7		171197.	586667.
2 - 8		189985.	586667.
2 - 9		236895.	586667.
2 - 10		164366.	586667.
2 - 11		118660.	718518.
2 - 12		-123584.	718518.
2 - 13		112119.	718518.
2 - 14		214086.	718518.
2 - 15		27587.0	718518.
2 - 16		136056.	718518.
2 - 17		38958.0	718518.
2 - 18		-503256.	718518.
3 - 4		145194.	586667.
3 - 5		35126.0	586667.
3 - 6		8265.5	586667.
3 - 7		167793.	586667.
3 - 8		186581.	586667.
3 - 9		233491.	586667.
3 - 10		160962.	586667.
3 - 11		115256.	718518.
3 - 12		-126988.	718518.
3 - 13		108715.	718518.
3 - 14		210682.	718518.
3 - 15		24183.0	718518.
3 - 16		132652.	718518.
3 - 17		35554.0	718518.
3 - 18		-506660.	718518.
4 - 5		-110068.	586667.
4 - 6		-136928.	586667.
4 - 7		22599.5	586667.
4 - 8		41387.5	586667.
4 - 9		88297.5	586667.
4 - 10		15768.0	586667.
4 - 11		-29937.5	718518.
4 - 12		-272182.	718518.
4 - 13		-36478.5	718518.
4 - 14		65488.5	718518.
4 - 15		-121011.	718518.
4 - 16		-12541.5	718518.
4 - 17		-109640.	718518.
4 - 18		-651854.	718518.
5 - 6		-26860.5	586667.

5 - 7		132667.	586667.
5 - 8		151455.	586667.
5 - 9		198365.	586667.
5 - 10		125836.	586667.
5 - 11		80130.0	718518.
5 - 12		-162114.	718518.
5 - 13		73589.0	718518.
5 - 14		175556.	718518.
5 - 15		-10943.0	718518.
5 - 16		97526.0	718518.
5 - 17		428.0	718518.
5 - 18		-541786.	718518.
6 - 7		159528.	586667.
6 - 8		178316.	586667.
6 - 9		225226.	586667.
6 - 10		152696.	586667.
6 - 11		106991.	718518.
6 - 12		-135254.	718518.
6 - 13		100450.	718518.
6 - 14		202417.	718518.
6 - 15		15917.5	718518.
6 - 16		124387.	718518.
6 - 17		27288.5	718518.
6 - 18		-514926.	718518.
7 - 8		18788.0	586667.
7 - 9		65698.0	586667.
7 - 10		-6831.5	586667.
7 - 11		-52537.0	718518.
7 - 12		-294781.	718518.
7 - 13		-59078.0	718518.
7 - 14		42889.0	718518.
7 - 15		-143610.	718518.
7 - 16		-35141.0	718518.
7 - 17		-132239.	718518.
7 - 18		-674453.	718518.
8 - 9		46910.0	586667.
8 - 10		-25619.5	586667.
8 - 11		-71325.0	718518.
8 - 12		-313569.	718518.
8 - 13		-77866.0	718518.
8 - 14		24101.0	718518.
8 - 15		-162398.	718518.
8 - 16		-53929.0	718518.
8 - 17		-151027.	718518.
8 - 18		-693241.	718518.
9 - 10		-72529.5	586667.
9 - 11		-118235.	718518.
9 - 12		-360479.	718518.
9 - 13		-124776.	718518.
9 - 14		-22809.0	718518.
9 - 15		-209308.	718518.
9 - 16		-100839.	718518.
9 - 17		-197937.	718518.
9 - 18	*	-740151.	718518.
10 - 11		-45705.5	718518.
10 - 12		-287950.	718518.
10 - 13		-52246.5	718518.
10 - 14		49720.5	718518.
10 - 15		-136779.	718518.
10 - 16		-28309.5	718518.
10 - 17		-125408.	718518.
10 - 18		-667622.	718518.
11 - 12		-242244.	829673.
11 - 13		-6541.0	829673.

11 - 14		95426.0	829673.
11 - 15		-91073.0	829673.
11 - 16		17396.0	829673.
11 - 17		-79702.0	829673.
11 - 18		-621916.	829673.
12 - 13		235703.	829673.
12 - 14		337670.	829673.
12 - 15		151171.	829673.
12 - 16		259640.	829673.
12 - 17		162542.	829673.
12 - 18		-379672.	829673.
13 - 14		101967.	829673.
13 - 15		-84532.0	829673.
13 - 16		23937.0	829673.
13 - 17		-73161.0	829673.
13 - 18		-615375.	829673.
14 - 15		-186499.	829673.
14 - 16		-78030.0	829673.
14 - 17		-175128.	829673.
14 - 18		-717342.	829673.
15 - 16		108469.	829673.
15 - 17		11371.0	829673.
15 - 18		-530843.	829673.
16 - 17		-97098.0	829673.
16 - 18		-639312.	829673.
17 - 18		-542214.	829673.

* denotes a statistically significant difference.

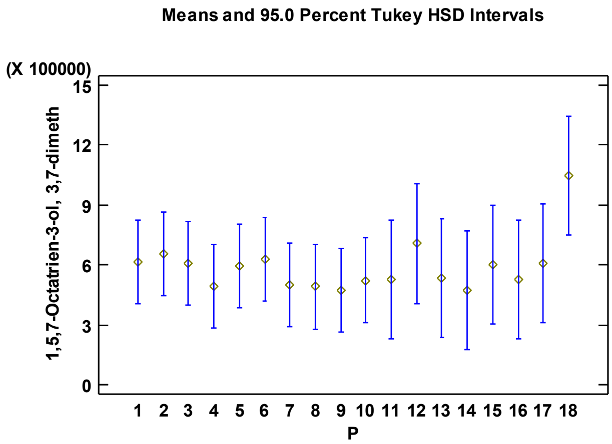
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 1 pair, indicating that this pair shows a statistically significant difference at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 1,5,7-Octatrien-3-ol, 3,7-dimeth by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.48135E11	17	2.04785E10	2.32	0.0884
Within groups	8.81335E10	10	8.81335E9		
Total (Corr.)	4.36269E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1,5,7-Octatrien-3-ol, 3,7-dimeth into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.32358, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1,5,7-Octatrien-3-ol, 3,7-dimeth from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 1,5,7-Octatrien-3-ol, 3,7-dimeth for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1,5,7-Octatrien-3-ol, 3,7-dimeth by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
14	1	473069.	XX
9	2	474521.	X
8	2	490246.	X
4	2	494548.	X
7	2	498922.	X
10	2	523426.	X
16	1	524809.	XX
11	1	526915.	XX
13	1	532331.	XX
5	2	593341.	XX
15	1	602808.	XX
3	2	606382.	XX
17	1	606729.	XX
1	2	614570.	XX
6	2	628084.	XX
2	2	655493.	XX
12	1	706783.	XX
18	1	1.04766E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-40923.0	421109.
1 - 3		8188.5	421109.
1 - 4		120023.	421109.
1 - 5		21229.5	421109.
1 - 6		-13514.0	421109.
1 - 7		115649.	421109.
1 - 8		124325.	421109.
1 - 9		140049.	421109.
1 - 10		91144.0	421109.
1 - 11		87655.0	515751.
1 - 12		-92213.0	515751.
1 - 13		82239.0	515751.
1 - 14		141501.	515751.
1 - 15		11762.0	515751.
1 - 16		89761.0	515751.
1 - 17		7841.0	515751.
1 - 18		-433091.	515751.
2 - 3		49111.5	421109.
2 - 4		160946.	421109.
2 - 5		62152.5	421109.
2 - 6		27409.0	421109.
2 - 7		156572.	421109.
2 - 8		165248.	421109.
2 - 9		180972.	421109.
2 - 10		132067.	421109.
2 - 11		128578.	515751.
2 - 12		-51290.0	515751.
2 - 13		123162.	515751.
2 - 14		182424.	515751.
2 - 15		52685.0	515751.
2 - 16		130684.	515751.
2 - 17		48764.0	515751.
2 - 18		-392168.	515751.
3 - 4		111834.	421109.
3 - 5		13041.0	421109.
3 - 6		-21702.5	421109.
3 - 7		107460.	421109.
3 - 8		116136.	421109.
3 - 9		131861.	421109.
3 - 10		82955.5	421109.
3 - 11		79466.5	515751.
3 - 12		-100402.	515751.
3 - 13		74050.5	515751.
3 - 14		133313.	515751.
3 - 15		3573.5	515751.
3 - 16		81572.5	515751.
3 - 17		-347.5	515751.
3 - 18		-441280.	515751.
4 - 5		-98793.0	421109.
4 - 6		-133537.	421109.
4 - 7		-4374.0	421109.
4 - 8		4302.0	421109.
4 - 9		20026.5	421109.
4 - 10		-28878.5	421109.
4 - 11		-32367.5	515751.
4 - 12		-212236.	515751.
4 - 13		-37783.5	515751.
4 - 14		21478.5	515751.
4 - 15		-108261.	515751.
4 - 16		-30261.5	515751.
4 - 17		-112182.	515751.
4 - 18	*	-553114.	515751.
5 - 6		-34743.5	421109.

5 - 7		94419.0	421109.
5 - 8		103095.	421109.
5 - 9		118820.	421109.
5 - 10		69914.5	421109.
5 - 11		66425.5	515751.
5 - 12		-113443.	515751.
5 - 13		61009.5	515751.
5 - 14		120272.	515751.
5 - 15		-9467.5	515751.
5 - 16		68531.5	515751.
5 - 17		-13388.5	515751.
5 - 18		-454321.	515751.
6 - 7		129163.	421109.
6 - 8		137839.	421109.
6 - 9		153563.	421109.
6 - 10		104658.	421109.
6 - 11		101169.	515751.
6 - 12		-78699.0	515751.
6 - 13		95753.0	515751.
6 - 14		155015.	515751.
6 - 15		25276.0	515751.
6 - 16		103275.	515751.
6 - 17		21355.0	515751.
6 - 18		-419577.	515751.
7 - 8		8676.0	421109.
7 - 9		24400.5	421109.
7 - 10		-24504.5	421109.
7 - 11		-27993.5	515751.
7 - 12		-207862.	515751.
7 - 13		-33409.5	515751.
7 - 14		25852.5	515751.
7 - 15		-103887.	515751.
7 - 16		-25887.5	515751.
7 - 17		-107808.	515751.
7 - 18	*	-548740.	515751.
8 - 9		15724.5	421109.
8 - 10		-33180.5	421109.
8 - 11		-36669.5	515751.
8 - 12		-216538.	515751.
8 - 13		-42085.5	515751.
8 - 14		17176.5	515751.
8 - 15		-112563.	515751.
8 - 16		-34563.5	515751.
8 - 17		-116484.	515751.
8 - 18	*	-557416.	515751.
9 - 10		-48905.0	421109.
9 - 11		-52394.0	515751.
9 - 12		-232262.	515751.
9 - 13		-57810.0	515751.
9 - 14		1452.0	515751.
9 - 15		-128287.	515751.
9 - 16		-50288.0	515751.
9 - 17		-132208.	515751.
9 - 18	*	-573140.	515751.
10 - 11		-3489.0	515751.
10 - 12		-183357.	515751.
10 - 13		-8905.0	515751.
10 - 14		50357.0	515751.
10 - 15		-79382.0	515751.
10 - 16		-1383.0	515751.
10 - 17		-83303.0	515751.
10 - 18	*	-524235.	515751.
11 - 12		-179868.	595538.
11 - 13		-5416.0	595538.

11 - 14		53846.0	595538.
11 - 15		-75893.0	595538.
11 - 16		2106.0	595538.
11 - 17		-79814.0	595538.
11 - 18		-520746.	595538.
12 - 13		174452.	595538.
12 - 14		233714.	595538.
12 - 15		103975.	595538.
12 - 16		181974.	595538.
12 - 17		100054.	595538.
12 - 18		-340878.	595538.
13 - 14		59262.0	595538.
13 - 15		-70477.0	595538.
13 - 16		7522.0	595538.
13 - 17		-74398.0	595538.
13 - 18		-515330.	595538.
14 - 15		-129739.	595538.
14 - 16		-51740.0	595538.
14 - 17		-133660.	595538.
14 - 18		-574592.	595538.
15 - 16		77999.0	595538.
15 - 17		-3921.0	595538.
15 - 18		-444853.	595538.
16 - 17		-81920.0	595538.
16 - 18		-522852.	595538.
17 - 18		-440932.	595538.

* denotes a statistically significant difference.

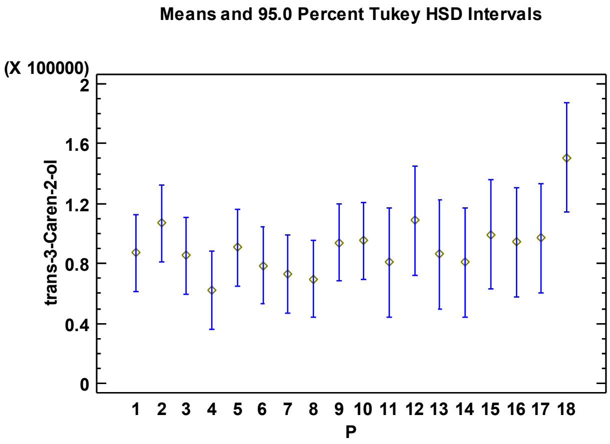
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 5 pairs, indicating that these pairs show statistically significant differences at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for trans-3-Caren-2-ol by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	8.21425E9	17	4.83191E8	3.65	0.0211
Within groups	1.32357E9	10	1.32357E8		
Total (Corr.)	9.53783E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of trans-3-Caren-2-ol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 3.65066, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean trans-3-Caren-2-ol from one level of P to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean trans-3-Caren-2-ol for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for trans-3-Caren-2-ol by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
4	2	62283.5	X
8	2	69769.5	X
7	2	72937.5	X
6	2	78794.0	X
14	1	80713.0	XX
11	1	80963.0	XX
3	2	85180.5	X
13	1	86104.0	XX
1	2	86990.5	X
5	2	90673.5	XX
9	2	93881.5	XX
16	1	94452.0	XX
10	2	95059.5	XX
17	1	96874.0	XX
15	1	99303.0	XX
2	2	106764.	XX
12	1	108885.	XX
18	1	150611.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-19773.5	51605.7
1 - 3		1810.0	51605.7
1 - 4		24707.0	51605.7
1 - 5		-3683.0	51605.7
1 - 6		8196.5	51605.7
1 - 7		14053.0	51605.7
1 - 8		17221.0	51605.7
1 - 9		-6891.0	51605.7
1 - 10		-8069.0	51605.7
1 - 11		6027.5	63203.8
1 - 12		-21894.5	63203.8
1 - 13		886.5	63203.8
1 - 14		6277.5	63203.8
1 - 15		-12312.5	63203.8
1 - 16		-7461.5	63203.8
1 - 17		-9883.5	63203.8
1 - 18	*	-63620.5	63203.8
2 - 3		21583.5	51605.7
2 - 4		44480.5	51605.7
2 - 5		16090.5	51605.7
2 - 6		27970.0	51605.7
2 - 7		33826.5	51605.7
2 - 8		36994.5	51605.7
2 - 9		12882.5	51605.7
2 - 10		11704.5	51605.7
2 - 11		25801.0	63203.8
2 - 12		-2121.0	63203.8
2 - 13		20660.0	63203.8
2 - 14		26051.0	63203.8
2 - 15		7461.0	63203.8
2 - 16		12312.0	63203.8
2 - 17		9890.0	63203.8
2 - 18		-43847.0	63203.8
3 - 4		22897.0	51605.7
3 - 5		-5493.0	51605.7
3 - 6		6386.5	51605.7
3 - 7		12243.0	51605.7
3 - 8		15411.0	51605.7
3 - 9		-8701.0	51605.7
3 - 10		-9879.0	51605.7
3 - 11		4217.5	63203.8
3 - 12		-23704.5	63203.8
3 - 13		-923.5	63203.8
3 - 14		4467.5	63203.8
3 - 15		-14122.5	63203.8
3 - 16		-9271.5	63203.8
3 - 17		-11693.5	63203.8
3 - 18	*	-65430.5	63203.8
4 - 5		-28390.0	51605.7
4 - 6		-16510.5	51605.7
4 - 7		-10654.0	51605.7
4 - 8		-7486.0	51605.7
4 - 9		-31598.0	51605.7
4 - 10		-32776.0	51605.7
4 - 11		-18679.5	63203.8
4 - 12		-46601.5	63203.8
4 - 13		-23820.5	63203.8
4 - 14		-18429.5	63203.8
4 - 15		-37019.5	63203.8
4 - 16		-32168.5	63203.8
4 - 17		-34590.5	63203.8
4 - 18	*	-88327.5	63203.8

5 - 6		11879.5	51605.7
5 - 7		17736.0	51605.7
5 - 8		20904.0	51605.7
5 - 9		-3208.0	51605.7
5 - 10		-4386.0	51605.7
5 - 11		9710.5	63203.8
5 - 12		-18211.5	63203.8
5 - 13		4569.5	63203.8
5 - 14		9960.5	63203.8
5 - 15		-8629.5	63203.8
5 - 16		-3778.5	63203.8
5 - 17		-6200.5	63203.8
5 - 18		-59937.5	63203.8
6 - 7		5856.5	51605.7
6 - 8		9024.5	51605.7
6 - 9		-15087.5	51605.7
6 - 10		-16265.5	51605.7
6 - 11		-2169.0	63203.8
6 - 12		-30091.0	63203.8
6 - 13		-7310.0	63203.8
6 - 14		-1919.0	63203.8
6 - 15		-20509.0	63203.8
6 - 16		-15658.0	63203.8
6 - 17		-18080.0	63203.8
6 - 18	*	-71817.0	63203.8
7 - 8		3168.0	51605.7
7 - 9		-20944.0	51605.7
7 - 10		-22122.0	51605.7
7 - 11		-8025.5	63203.8
7 - 12		-35947.5	63203.8
7 - 13		-13166.5	63203.8
7 - 14		-7775.5	63203.8
7 - 15		-26365.5	63203.8
7 - 16		-21514.5	63203.8
7 - 17		-23936.5	63203.8
7 - 18	*	-77673.5	63203.8
8 - 9		-24112.0	51605.7
8 - 10		-25290.0	51605.7
8 - 11		-11193.5	63203.8
8 - 12		-39115.5	63203.8
8 - 13		-16334.5	63203.8
8 - 14		-10943.5	63203.8
8 - 15		-29533.5	63203.8
8 - 16		-24682.5	63203.8
8 - 17		-27104.5	63203.8
8 - 18	*	-80841.5	63203.8
9 - 10		-1178.0	51605.7
9 - 11		12918.5	63203.8
9 - 12		-15003.5	63203.8
9 - 13		7777.5	63203.8
9 - 14		13168.5	63203.8
9 - 15		-5421.5	63203.8
9 - 16		-570.5	63203.8
9 - 17		-2992.5	63203.8
9 - 18		-56729.5	63203.8
10 - 11		14096.5	63203.8
10 - 12		-13825.5	63203.8
10 - 13		8955.5	63203.8
10 - 14		14346.5	63203.8
10 - 15		-4243.5	63203.8
10 - 16		607.5	63203.8
10 - 17		-1814.5	63203.8
10 - 18		-55551.5	63203.8
11 - 12		-27922.0	72981.5

11 - 13		-5141.0	72981.5
11 - 14		250.0	72981.5
11 - 15		-18340.0	72981.5
11 - 16		-13489.0	72981.5
11 - 17		-15911.0	72981.5
11 - 18		-69648.0	72981.5
12 - 13		22781.0	72981.5
12 - 14		28172.0	72981.5
12 - 15		9582.0	72981.5
12 - 16		14433.0	72981.5
12 - 17		12011.0	72981.5
12 - 18		-41726.0	72981.5
13 - 14		5391.0	72981.5
13 - 15		-13199.0	72981.5
13 - 16		-8348.0	72981.5
13 - 17		-10770.0	72981.5
13 - 18		-64507.0	72981.5
14 - 15		-18590.0	72981.5
14 - 16		-13739.0	72981.5
14 - 17		-16161.0	72981.5
14 - 18		-69898.0	72981.5
15 - 16		4851.0	72981.5
15 - 17		2429.0	72981.5
15 - 18		-51308.0	72981.5
16 - 17		-2422.0	72981.5
16 - 18		-56159.0	72981.5
17 - 18		-53737.0	72981.5

* denotes a statistically significant difference.

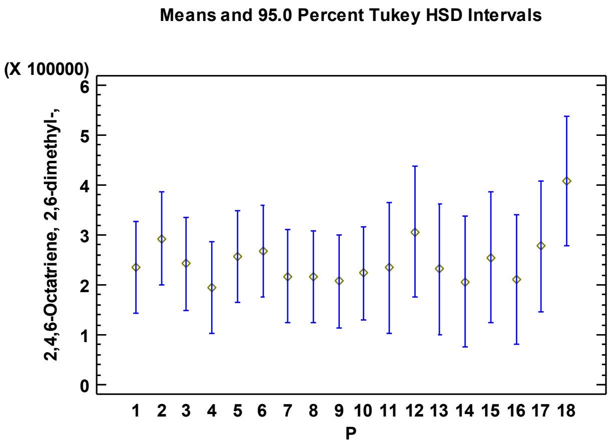
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 6 pairs, indicating that these pairs show statistically significant differences at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 2,4,6-Octatriene, 2,6-dimethyl-, by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	5.25748E10	17	3.09263E9	1.82	0.1682
Within groups	1.69875E10	10	1.69875E9		
Total (Corr.)	6.95623E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2,4,6-Octatriene, 2,6-dimethyl-, into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.82053, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2,4,6-Octatriene, 2,6-dimethyl-, from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 2,4,6-Octatriene, 2,6-dimethyl-, for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2,4,6-Octatriene, 2,6-dimethyl-, by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
4	2	194881.	X
14	1	205847.	X
9	2	207024.	X
16	1	210836.	X
8	2	216883.	X
7	2	217630.	X
10	2	223273.	X
13	1	232043.	X
11	1	234216.	X
1	2	235006.	X
3	2	242356.	X
15	1	255217.	X
5	2	256837.	X
6	2	268116.	X
17	1	277382.	X
2	2	293000.	X
12	1	306499.	X
18	1	407994.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-57994.5	184880.
1 - 3		-7350.5	184880.
1 - 4		40125.0	184880.
1 - 5		-21831.5	184880.
1 - 6		-33110.0	184880.
1 - 7		17375.5	184880.
1 - 8		18123.0	184880.
1 - 9		27982.0	184880.
1 - 10		11732.5	184880.
1 - 11		789.5	226430.
1 - 12		-71493.5	226430.
1 - 13		2962.5	226430.
1 - 14		29158.5	226430.
1 - 15		-20211.5	226430.
1 - 16		24169.5	226430.
1 - 17		-42376.5	226430.
1 - 18		-172989.	226430.
2 - 3		50644.0	184880.
2 - 4		98119.5	184880.
2 - 5		36163.0	184880.
2 - 6		24884.5	184880.
2 - 7		75370.0	184880.
2 - 8		76117.5	184880.
2 - 9		85976.5	184880.
2 - 10		69727.0	184880.
2 - 11		58784.0	226430.
2 - 12		-13499.0	226430.
2 - 13		60957.0	226430.
2 - 14		87153.0	226430.
2 - 15		37783.0	226430.
2 - 16		82164.0	226430.
2 - 17		15618.0	226430.
2 - 18		-114994.	226430.
3 - 4		47475.5	184880.
3 - 5		-14481.0	184880.
3 - 6		-25759.5	184880.
3 - 7		24726.0	184880.
3 - 8		25473.5	184880.
3 - 9		35332.5	184880.
3 - 10		19083.0	184880.
3 - 11		8140.0	226430.
3 - 12		-64143.0	226430.
3 - 13		10313.0	226430.
3 - 14		36509.0	226430.
3 - 15		-12861.0	226430.
3 - 16		31520.0	226430.
3 - 17		-35026.0	226430.
3 - 18		-165638.	226430.
4 - 5		-61956.5	184880.
4 - 6		-73235.0	184880.
4 - 7		-22749.5	184880.
4 - 8		-22002.0	184880.
4 - 9		-12143.0	184880.
4 - 10		-28392.5	184880.
4 - 11		-39335.5	226430.
4 - 12		-111619.	226430.
4 - 13		-37162.5	226430.
4 - 14		-10966.5	226430.
4 - 15		-60336.5	226430.
4 - 16		-15955.5	226430.
4 - 17		-82501.5	226430.
4 - 18		-213114.	226430.
5 - 6		-11278.5	184880.

5 - 7		39207.0	184880.
5 - 8		39954.5	184880.
5 - 9		49813.5	184880.
5 - 10		33564.0	184880.
5 - 11		22621.0	226430.
5 - 12		-49662.0	226430.
5 - 13		24794.0	226430.
5 - 14		50990.0	226430.
5 - 15		1620.0	226430.
5 - 16		46001.0	226430.
5 - 17		-20545.0	226430.
5 - 18		-151157.	226430.
6 - 7		50485.5	184880.
6 - 8		51233.0	184880.
6 - 9		61092.0	184880.
6 - 10		44842.5	184880.
6 - 11		33899.5	226430.
6 - 12		-38383.5	226430.
6 - 13		36072.5	226430.
6 - 14		62268.5	226430.
6 - 15		12898.5	226430.
6 - 16		57279.5	226430.
6 - 17		-9266.5	226430.
6 - 18		-139879.	226430.
7 - 8		747.5	184880.
7 - 9		10606.5	184880.
7 - 10		-5643.0	184880.
7 - 11		-16586.0	226430.
7 - 12		-88869.0	226430.
7 - 13		-14413.0	226430.
7 - 14		11783.0	226430.
7 - 15		-37587.0	226430.
7 - 16		6794.0	226430.
7 - 17		-59752.0	226430.
7 - 18		-190364.	226430.
8 - 9		9859.0	184880.
8 - 10		-6390.5	184880.
8 - 11		-17333.5	226430.
8 - 12		-89616.5	226430.
8 - 13		-15160.5	226430.
8 - 14		11035.5	226430.
8 - 15		-38334.5	226430.
8 - 16		6046.5	226430.
8 - 17		-60499.5	226430.
8 - 18		-191112.	226430.
9 - 10		-16249.5	184880.
9 - 11		-27192.5	226430.
9 - 12		-99475.5	226430.
9 - 13		-25019.5	226430.
9 - 14		1176.5	226430.
9 - 15		-48193.5	226430.
9 - 16		-3812.5	226430.
9 - 17		-70358.5	226430.
9 - 18		-200971.	226430.
10 - 11		-10943.0	226430.
10 - 12		-83226.0	226430.
10 - 13		-8770.0	226430.
10 - 14		17426.0	226430.
10 - 15		-31944.0	226430.
10 - 16		12437.0	226430.
10 - 17		-54109.0	226430.
10 - 18		-184721.	226430.
11 - 12		-72283.0	261459.
11 - 13		2173.0	261459.

11 - 14		28369.0	261459.
11 - 15		-21001.0	261459.
11 - 16		23380.0	261459.
11 - 17		-43166.0	261459.
11 - 18		-173778.	261459.
12 - 13		74456.0	261459.
12 - 14		100652.	261459.
12 - 15		51282.0	261459.
12 - 16		95663.0	261459.
12 - 17		29117.0	261459.
12 - 18		-101495.	261459.
13 - 14		26196.0	261459.
13 - 15		-23174.0	261459.
13 - 16		21207.0	261459.
13 - 17		-45339.0	261459.
13 - 18		-175951.	261459.
14 - 15		-49370.0	261459.
14 - 16		-4989.0	261459.
14 - 17		-71535.0	261459.
14 - 18		-202147.	261459.
15 - 16		44381.0	261459.
15 - 17		-22165.0	261459.
15 - 18		-152777.	261459.
16 - 17		-66546.0	261459.
16 - 18		-197158.	261459.
17 - 18		-130612.	261459.

* denotes a statistically significant difference.

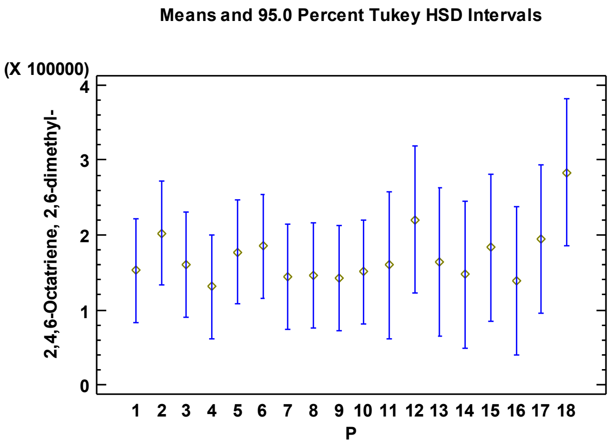
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 2,4,6-Octatriene, 2,6-dimethyl- by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	2.87205E10	17	1.68944E9	1.75	0.1847
Within groups	9.6508E9	10	9.6508E8		
Total (Corr.)	3.83713E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2,4,6-Octatriene, 2,6-dimethyl- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.75057, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2,4,6-Octatriene, 2,6-dimethyl- from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 2,4,6-Octatriene, 2,6-dimethyl- for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2,4,6-Octatriene, 2,6-dimethyl- by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
4	2	130951.	X
16	1	139049.	X
9	2	142722.	X
7	2	143873.	X
8	2	146216.	X
14	1	147216.	X
10	2	150512.	X
1	2	152304.	X
11	1	159748.	X
3	2	160729.	X
13	1	163689.	X
5	2	176988.	X
15	1	183083.	X
6	2	184967.	X
17	1	194347.	X
2	2	202279.	X
12	1	220241.	X
18	1	283375.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-49974.5	139350.
1 - 3		-8425.0	139350.
1 - 4		21353.0	139350.
1 - 5		-24683.5	139350.
1 - 6		-32662.5	139350.
1 - 7		8431.5	139350.
1 - 8		6088.5	139350.
1 - 9		9582.0	139350.
1 - 10		1792.0	139350.
1 - 11		-7444.0	170668.
1 - 12		-67937.0	170668.
1 - 13		-11385.0	170668.
1 - 14		5088.0	170668.
1 - 15		-30779.0	170668.
1 - 16		13255.0	170668.
1 - 17		-42043.0	170668.
1 - 18		-131071.	170668.
2 - 3		41549.5	139350.
2 - 4		71327.5	139350.
2 - 5		25291.0	139350.
2 - 6		17312.0	139350.
2 - 7		58406.0	139350.
2 - 8		56063.0	139350.
2 - 9		59556.5	139350.
2 - 10		51766.5	139350.
2 - 11		42530.5	170668.
2 - 12		-17962.5	170668.
2 - 13		38589.5	170668.
2 - 14		55062.5	170668.
2 - 15		19195.5	170668.
2 - 16		63229.5	170668.
2 - 17		7931.5	170668.
2 - 18		-81096.5	170668.
3 - 4		29778.0	139350.
3 - 5		-16258.5	139350.
3 - 6		-24237.5	139350.
3 - 7		16856.5	139350.
3 - 8		14513.5	139350.
3 - 9		18007.0	139350.
3 - 10		10217.0	139350.
3 - 11		981.0	170668.
3 - 12		-59512.0	170668.
3 - 13		-2960.0	170668.
3 - 14		13513.0	170668.
3 - 15		-22354.0	170668.
3 - 16		21680.0	170668.
3 - 17		-33618.0	170668.
3 - 18		-122646.	170668.
4 - 5		-46036.5	139350.
4 - 6		-54015.5	139350.
4 - 7		-12921.5	139350.
4 - 8		-15264.5	139350.
4 - 9		-11771.0	139350.
4 - 10		-19561.0	139350.
4 - 11		-28797.0	170668.
4 - 12		-89290.0	170668.
4 - 13		-32738.0	170668.
4 - 14		-16265.0	170668.
4 - 15		-52132.0	170668.
4 - 16		-8098.0	170668.
4 - 17		-63396.0	170668.
4 - 18		-152424.	170668.
5 - 6		-7979.0	139350.

5 - 7		33115.0	139350.
5 - 8		30772.0	139350.
5 - 9		34265.5	139350.
5 - 10		26475.5	139350.
5 - 11		17239.5	170668.
5 - 12		-43253.5	170668.
5 - 13		13298.5	170668.
5 - 14		29771.5	170668.
5 - 15		-6095.5	170668.
5 - 16		37938.5	170668.
5 - 17		-17359.5	170668.
5 - 18		-106388.	170668.
6 - 7		41094.0	139350.
6 - 8		38751.0	139350.
6 - 9		42244.5	139350.
6 - 10		34454.5	139350.
6 - 11		25218.5	170668.
6 - 12		-35274.5	170668.
6 - 13		21277.5	170668.
6 - 14		37750.5	170668.
6 - 15		1883.5	170668.
6 - 16		45917.5	170668.
6 - 17		-9380.5	170668.
6 - 18		-98408.5	170668.
7 - 8		-2343.0	139350.
7 - 9		1150.5	139350.
7 - 10		-6639.5	139350.
7 - 11		-15875.5	170668.
7 - 12		-76368.5	170668.
7 - 13		-19816.5	170668.
7 - 14		-3343.5	170668.
7 - 15		-39210.5	170668.
7 - 16		4823.5	170668.
7 - 17		-50474.5	170668.
7 - 18		-139503.	170668.
8 - 9		3493.5	139350.
8 - 10		-4296.5	139350.
8 - 11		-13532.5	170668.
8 - 12		-74025.5	170668.
8 - 13		-17473.5	170668.
8 - 14		-1000.5	170668.
8 - 15		-36867.5	170668.
8 - 16		7166.5	170668.
8 - 17		-48131.5	170668.
8 - 18		-137160.	170668.
9 - 10		-7790.0	139350.
9 - 11		-17026.0	170668.
9 - 12		-77519.0	170668.
9 - 13		-20967.0	170668.
9 - 14		-4494.0	170668.
9 - 15		-40361.0	170668.
9 - 16		3673.0	170668.
9 - 17		-51625.0	170668.
9 - 18		-140653.	170668.
10 - 11		-9236.0	170668.
10 - 12		-69729.0	170668.
10 - 13		-13177.0	170668.
10 - 14		3296.0	170668.
10 - 15		-32571.0	170668.
10 - 16		11463.0	170668.
10 - 17		-43835.0	170668.
10 - 18		-132863.	170668.
11 - 12		-60493.0	197070.
11 - 13		-3941.0	197070.

11 - 14		12532.0	197070.
11 - 15		-23335.0	197070.
11 - 16		20699.0	197070.
11 - 17		-34599.0	197070.
11 - 18		-123627.	197070.
12 - 13		56552.0	197070.
12 - 14		73025.0	197070.
12 - 15		37158.0	197070.
12 - 16		81192.0	197070.
12 - 17		25894.0	197070.
12 - 18		-63134.0	197070.
13 - 14		16473.0	197070.
13 - 15		-19394.0	197070.
13 - 16		24640.0	197070.
13 - 17		-30658.0	197070.
13 - 18		-119686.	197070.
14 - 15		-35867.0	197070.
14 - 16		8167.0	197070.
14 - 17		-47131.0	197070.
14 - 18		-136159.	197070.
15 - 16		44034.0	197070.
15 - 17		-11264.0	197070.
15 - 18		-100292.	197070.
16 - 17		-55298.0	197070.
16 - 18		-144326.	197070.
17 - 18		-89028.0	197070.

* denotes a statistically significant difference.

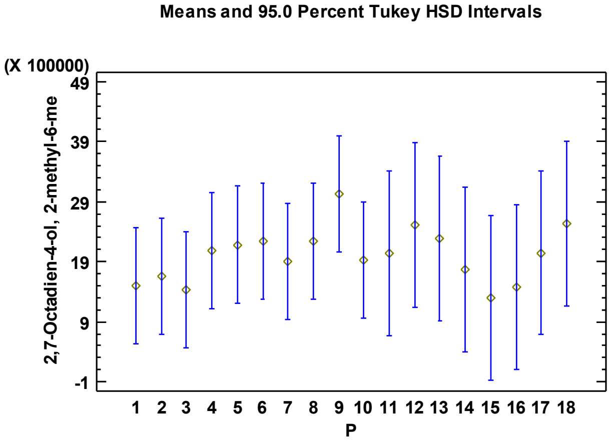
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 2,7-Octadien-4-ol, 2-methyl-6-me by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	5.2879E12	17	3.11053E11	1.67	0.2062
Within groups	1.86324E12	10	1.86324E11		
Total (Corr.)	7.15113E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2,7-Octadien-4-ol, 2-methyl-6-me into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.66942, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2,7-Octadien-4-ol, 2-methyl-6-me from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 2,7-Octadien-4-ol, 2-methyl-6-me for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2,7-Octadien-4-ol, 2-methyl-6-me by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
15	1	1.30355E6	X
3	2	1.43616E6	X
16	1	1.4773E6	X
1	2	1.4903E6	X
2	2	1.6545E6	X
14	1	1.76458E6	X
7	2	1.90808E6	X
10	2	1.92432E6	X
11	1	2.04058E6	X
17	1	2.04847E6	X
4	2	2.09439E6	X
5	2	2.1862E6	X
8	2	2.24591E6	X
6	2	2.2472E6	X
13	1	2.28441E6	X
12	1	2.50976E6	X
18	1	2.53543E6	X
9	2	3.02353E6	X

Contrast	Sig.	Difference	+/- Limits
1 - 2		-164201.	1.93623E6
1 - 3		54133.5	1.93623E6
1 - 4		-604097.	1.93623E6
1 - 5		-695904.	1.93623E6
1 - 6		-756901.	1.93623E6
1 - 7		-417788.	1.93623E6
1 - 8		-755615.	1.93623E6
1 - 9		-1.53324E6	1.93623E6
1 - 10		-434028.	1.93623E6
1 - 11		-550280.	2.37139E6
1 - 12		-1.01947E6	2.37139E6
1 - 13		-794115.	2.37139E6
1 - 14		-274280.	2.37139E6
1 - 15		186747.	2.37139E6
1 - 16		12999.5	2.37139E6
1 - 17		-558176.	2.37139E6
1 - 18		-1.04513E6	2.37139E6
2 - 3		218335.	1.93623E6
2 - 4		-439896.	1.93623E6
2 - 5		-531703.	1.93623E6
2 - 6		-592700.	1.93623E6
2 - 7		-253587.	1.93623E6
2 - 8		-591414.	1.93623E6
2 - 9		-1.36904E6	1.93623E6
2 - 10		-269827.	1.93623E6
2 - 11		-386079.	2.37139E6
2 - 12		-855266.	2.37139E6
2 - 13		-629914.	2.37139E6
2 - 14		-110079.	2.37139E6
2 - 15		350948.	2.37139E6
2 - 16		177201.	2.37139E6
2 - 17		-393975.	2.37139E6
2 - 18		-880933.	2.37139E6
3 - 4		-658230.	1.93623E6
3 - 5		-750037.	1.93623E6
3 - 6		-811035.	1.93623E6
3 - 7		-471922.	1.93623E6
3 - 8		-809749.	1.93623E6
3 - 9		-1.58737E6	1.93623E6
3 - 10		-488161.	1.93623E6
3 - 11		-604413.	2.37139E6
3 - 12		-1.0736E6	2.37139E6
3 - 13		-848248.	2.37139E6
3 - 14		-328413.	2.37139E6
3 - 15		132613.	2.37139E6
3 - 16		-41134.0	2.37139E6
3 - 17		-612309.	2.37139E6
3 - 18		-1.09927E6	2.37139E6
4 - 5		-91807.0	1.93623E6
4 - 6		-152805.	1.93623E6
4 - 7		186309.	1.93623E6
4 - 8		-151519.	1.93623E6
4 - 9		-929143.	1.93623E6
4 - 10		170069.	1.93623E6
4 - 11		53817.0	2.37139E6
4 - 12		-415370.	2.37139E6
4 - 13		-190018.	2.37139E6
4 - 14		329817.	2.37139E6
4 - 15		790843.	2.37139E6
4 - 16		617096.	2.37139E6
4 - 17		45921.0	2.37139E6
4 - 18		-441037.	2.37139E6
5 - 6		-60997.5	1.93623E6

5 - 7		278116.	1.93623E6
5 - 8		-59711.5	1.93623E6
5 - 9		-837336.	1.93623E6
5 - 10		261876.	1.93623E6
5 - 11		145624.	2.37139E6
5 - 12		-323563.	2.37139E6
5 - 13		-98211.0	2.37139E6
5 - 14		421624.	2.37139E6
5 - 15		882650.	2.37139E6
5 - 16		708903.	2.37139E6
5 - 17		137728.	2.37139E6
5 - 18		-349230.	2.37139E6
6 - 7		339113.	1.93623E6
6 - 8		1286.0	1.93623E6
6 - 9		-776338.	1.93623E6
6 - 10		322874.	1.93623E6
6 - 11		206622.	2.37139E6
6 - 12		-262566.	2.37139E6
6 - 13		-37213.5	2.37139E6
6 - 14		482622.	2.37139E6
6 - 15		943648.	2.37139E6
6 - 16		769901.	2.37139E6
6 - 17		198726.	2.37139E6
6 - 18		-288233.	2.37139E6
7 - 8		-337827.	1.93623E6
7 - 9		-1.11545E6	1.93623E6
7 - 10		-16239.5	1.93623E6
7 - 11		-132492.	2.37139E6
7 - 12		-601679.	2.37139E6
7 - 13		-376327.	2.37139E6
7 - 14		143509.	2.37139E6
7 - 15		604535.	2.37139E6
7 - 16		430788.	2.37139E6
7 - 17		-140388.	2.37139E6
7 - 18		-627346.	2.37139E6
8 - 9		-777624.	1.93623E6
8 - 10		321588.	1.93623E6
8 - 11		205336.	2.37139E6
8 - 12		-263852.	2.37139E6
8 - 13		-38499.5	2.37139E6
8 - 14		481336.	2.37139E6
8 - 15		942362.	2.37139E6
8 - 16		768615.	2.37139E6
8 - 17		197440.	2.37139E6
8 - 18		-289519.	2.37139E6
9 - 10		1.09921E6	1.93623E6
9 - 11		982960.	2.37139E6
9 - 12		513773.	2.37139E6
9 - 13		739125.	2.37139E6
9 - 14		1.25896E6	2.37139E6
9 - 15		1.71999E6	2.37139E6
9 - 16		1.54624E6	2.37139E6
9 - 17		975064.	2.37139E6
9 - 18		488106.	2.37139E6
10 - 11		-116252.	2.37139E6
10 - 12		-585439.	2.37139E6
10 - 13		-360087.	2.37139E6
10 - 14		159748.	2.37139E6
10 - 15		620774.	2.37139E6
10 - 16		447027.	2.37139E6
10 - 17		-124148.	2.37139E6
10 - 18		-611106.	2.37139E6
11 - 12		-469187.	2.73825E6
11 - 13		-243835.	2.73825E6

11 - 14		276000.	2.73825E6
11 - 15		737026.	2.73825E6
11 - 16		563279.	2.73825E6
11 - 17		-7896.0	2.73825E6
11 - 18		-494854.	2.73825E6
12 - 13		225352.	2.73825E6
12 - 14		745187.	2.73825E6
12 - 15		1.20621E6	2.73825E6
12 - 16		1.03247E6	2.73825E6
12 - 17		461291.	2.73825E6
12 - 18		-25667.0	2.73825E6
13 - 14		519835.	2.73825E6
13 - 15		980861.	2.73825E6
13 - 16		807114.	2.73825E6
13 - 17		235939.	2.73825E6
13 - 18		-251019.	2.73825E6
14 - 15		461026.	2.73825E6
14 - 16		287279.	2.73825E6
14 - 17		-283896.	2.73825E6
14 - 18		-770854.	2.73825E6
15 - 16		-173747.	2.73825E6
15 - 17		-744922.	2.73825E6
15 - 18		-1.23188E6	2.73825E6
16 - 17		-571175.	2.73825E6
16 - 18		-1.05813E6	2.73825E6
17 - 18		-486958.	2.73825E6

* denotes a statistically significant difference.

The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

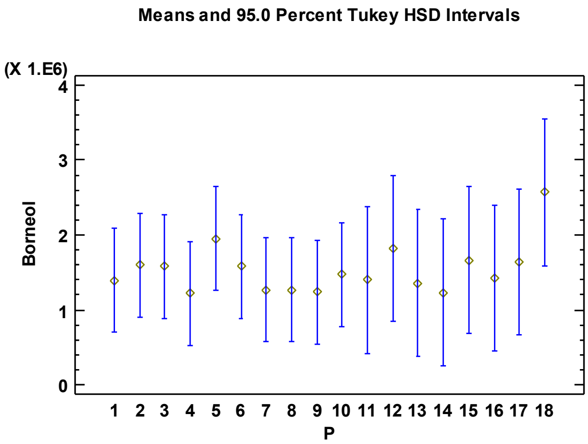
ANOVA Table for Borneol by P

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Between groups	2.38259E12	17	1.40152E11	1.47	0.2707
Within groups	9.5233E11	10	9.5233E10		
Total (Corr.)	3.33492E12	27			

The StatAdvisor

The ANOVA table decomposes the variance of Borneol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.47168, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Borneol from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Borneol for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Borneol by P

Method: 95.0 percent Tukey HSD

P	Count	Mean	Homogeneous Groups
4	2	1.22174E6	X
14	1	1.23246E6	X
9	2	1.24204E6	X
8	2	1.26422E6	X
7	2	1.26792E6	X
13	1	1.35756E6	X
1	2	1.39057E6	X
11	1	1.39752E6	X
16	1	1.42533E6	X
10	2	1.47185E6	X
3	2	1.57787E6	X
6	2	1.58287E6	X
2	2	1.598E6	X
17	1	1.64181E6	X
15	1	1.6658E6	X
12	1	1.81947E6	X
5	2	1.95234E6	X
18	1	2.56793E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-207431.	1.38426E6
1 - 3		-187303.	1.38426E6
1 - 4		168826.	1.38426E6
1 - 5		-561773.	1.38426E6
1 - 6		-192301.	1.38426E6
1 - 7		122642.	1.38426E6
1 - 8		126350.	1.38426E6
1 - 9		148523.	1.38426E6
1 - 10		-81286.0	1.38426E6
1 - 11		-6950.0	1.69537E6
1 - 12		-428900.	1.69537E6
1 - 13		33003.0	1.69537E6
1 - 14		158106.	1.69537E6
1 - 15		-275235.	1.69537E6
1 - 16		-34760.0	1.69537E6
1 - 17		-251243.	1.69537E6
1 - 18		-1.17737E6	1.69537E6
2 - 3		20127.5	1.38426E6
2 - 4		376257.	1.38426E6
2 - 5		-354343.	1.38426E6
2 - 6		15129.5	1.38426E6
2 - 7		330072.	1.38426E6
2 - 8		333781.	1.38426E6
2 - 9		355953.	1.38426E6
2 - 10		126145.	1.38426E6
2 - 11		200481.	1.69537E6
2 - 12		-221470.	1.69537E6
2 - 13		240434.	1.69537E6
2 - 14		365537.	1.69537E6
2 - 15		-67804.5	1.69537E6
2 - 16		172671.	1.69537E6
2 - 17		-43812.5	1.69537E6
2 - 18		-969939.	1.69537E6
3 - 4		356129.	1.38426E6
3 - 5		-374470.	1.38426E6
3 - 6		-4998.0	1.38426E6
3 - 7		309945.	1.38426E6
3 - 8		313653.	1.38426E6
3 - 9		335826.	1.38426E6
3 - 10		106017.	1.38426E6
3 - 11		180353.	1.69537E6
3 - 12		-241597.	1.69537E6
3 - 13		220306.	1.69537E6
3 - 14		345409.	1.69537E6
3 - 15		-87932.0	1.69537E6
3 - 16		152543.	1.69537E6
3 - 17		-63940.0	1.69537E6
3 - 18		-990066.	1.69537E6
4 - 5		-730599.	1.38426E6
4 - 6		-361127.	1.38426E6
4 - 7		-46184.5	1.38426E6
4 - 8		-42476.0	1.38426E6
4 - 9		-20303.5	1.38426E6
4 - 10		-250112.	1.38426E6
4 - 11		-175776.	1.69537E6
4 - 12		-597726.	1.69537E6
4 - 13		-135823.	1.69537E6
4 - 14		-10720.0	1.69537E6
4 - 15		-444061.	1.69537E6
4 - 16		-203586.	1.69537E6
4 - 17		-420069.	1.69537E6
4 - 18		-1.3462E6	1.69537E6
5 - 6		369472.	1.38426E6

5 - 7		684415.	1.38426E6
5 - 8		688123.	1.38426E6
5 - 9		710296.	1.38426E6
5 - 10		480487.	1.38426E6
5 - 11		554823.	1.69537E6
5 - 12		132873.	1.69537E6
5 - 13		594776.	1.69537E6
5 - 14		719879.	1.69537E6
5 - 15		286538.	1.69537E6
5 - 16		527013.	1.69537E6
5 - 17		310530.	1.69537E6
5 - 18		-615596.	1.69537E6
6 - 7		314943.	1.38426E6
6 - 8		318651.	1.38426E6
6 - 9		340824.	1.38426E6
6 - 10		111015.	1.38426E6
6 - 11		185351.	1.69537E6
6 - 12		-236599.	1.69537E6
6 - 13		225304.	1.69537E6
6 - 14		350407.	1.69537E6
6 - 15		-82934.0	1.69537E6
6 - 16		157541.	1.69537E6
6 - 17		-58942.0	1.69537E6
6 - 18		-985068.	1.69537E6
7 - 8		3708.5	1.38426E6
7 - 9		25881.0	1.38426E6
7 - 10		-203928.	1.38426E6
7 - 11		-129592.	1.69537E6
7 - 12		-551542.	1.69537E6
7 - 13		-89638.5	1.69537E6
7 - 14		35464.5	1.69537E6
7 - 15		-397877.	1.69537E6
7 - 16		-157402.	1.69537E6
7 - 17		-373885.	1.69537E6
7 - 18		-1.30001E6	1.69537E6
8 - 9		22172.5	1.38426E6
8 - 10		-207636.	1.38426E6
8 - 11		-133300.	1.69537E6
8 - 12		-555250.	1.69537E6
8 - 13		-93347.0	1.69537E6
8 - 14		31756.0	1.69537E6
8 - 15		-401585.	1.69537E6
8 - 16		-161110.	1.69537E6
8 - 17		-377593.	1.69537E6
8 - 18		-1.30372E6	1.69537E6
9 - 10		-229809.	1.38426E6
9 - 11		-155473.	1.69537E6
9 - 12		-577423.	1.69537E6
9 - 13		-115520.	1.69537E6
9 - 14		9583.5	1.69537E6
9 - 15		-423758.	1.69537E6
9 - 16		-183283.	1.69537E6
9 - 17		-399766.	1.69537E6
9 - 18		-1.32589E6	1.69537E6
10 - 11		74336.0	1.69537E6
10 - 12		-347614.	1.69537E6
10 - 13		114289.	1.69537E6
10 - 14		239392.	1.69537E6
10 - 15		-193949.	1.69537E6
10 - 16		46526.0	1.69537E6
10 - 17		-169957.	1.69537E6
10 - 18		-1.09608E6	1.69537E6
11 - 12		-421950.	1.95764E6
11 - 13		39953.0	1.95764E6

11 - 14		165056.	1.95764E6
11 - 15		-268285.	1.95764E6
11 - 16		-27810.0	1.95764E6
11 - 17		-244293.	1.95764E6
11 - 18		-1.17042E6	1.95764E6
12 - 13		461903.	1.95764E6
12 - 14		587006.	1.95764E6
12 - 15		153665.	1.95764E6
12 - 16		394140.	1.95764E6
12 - 17		177657.	1.95764E6
12 - 18		-748469.	1.95764E6
13 - 14		125103.	1.95764E6
13 - 15		-308238.	1.95764E6
13 - 16		-67763.0	1.95764E6
13 - 17		-284246.	1.95764E6
13 - 18		-1.21037E6	1.95764E6
14 - 15		-433341.	1.95764E6
14 - 16		-192866.	1.95764E6
14 - 17		-409349.	1.95764E6
14 - 18		-1.33548E6	1.95764E6
15 - 16		240475.	1.95764E6
15 - 17		23992.0	1.95764E6
15 - 18		-902134.	1.95764E6
16 - 17		-216483.	1.95764E6
16 - 18		-1.14261E6	1.95764E6
17 - 18		-926126.	1.95764E6

* denotes a statistically significant difference.

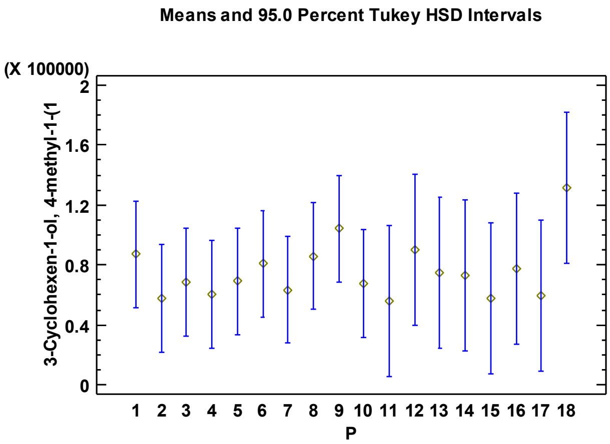
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 3-Cyclohexen-1-ol, 4-methyl-1-(1 by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	8.20341E9	17	4.82554E8	1.90	0.1509
Within groups	2.53672E9	10	2.53672E8		
Total (Corr.)	1.07401E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 3-Cyclohexen-1-ol, 4-methyl-1-(1 into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.90228, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 3-Cyclohexen-1-ol, 4-methyl-1-(1 from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 3-Cyclohexen-1-ol, 4-methyl-1-(1 for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 3-Cyclohexen-1-ol, 4-methyl-1-(1 by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
11	1	55837.0	X
2	2	57757.0	X
15	1	58032.0	X
17	1	59383.0	X
4	2	60457.5	X
7	2	63463.5	X
10	2	67484.5	X
3	2	68578.0	X
5	2	69008.5	X
14	1	73005.0	X
13	1	75011.0	X
16	1	77281.0	X
6	2	80698.0	X
8	2	86035.0	X
1	2	87091.0	X
12	1	90161.0	X
9	2	104249.	X
18	1	131622.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		29334.0	71443.0
1 - 3		18513.0	71443.0
1 - 4		26633.5	71443.0
1 - 5		18082.5	71443.0
1 - 6		6393.0	71443.0
1 - 7		23627.5	71443.0
1 - 8		1056.0	71443.0
1 - 9		-17157.5	71443.0
1 - 10		19606.5	71443.0
1 - 11		31254.0	87499.5
1 - 12		-3070.0	87499.5
1 - 13		12080.0	87499.5
1 - 14		14086.0	87499.5
1 - 15		29059.0	87499.5
1 - 16		9810.0	87499.5
1 - 17		27708.0	87499.5
1 - 18		-44531.0	87499.5
2 - 3		-10821.0	71443.0
2 - 4		-2700.5	71443.0
2 - 5		-11251.5	71443.0
2 - 6		-22941.0	71443.0
2 - 7		-5706.5	71443.0
2 - 8		-28278.0	71443.0
2 - 9		-46491.5	71443.0
2 - 10		-9727.5	71443.0
2 - 11		1920.0	87499.5
2 - 12		-32404.0	87499.5
2 - 13		-17254.0	87499.5
2 - 14		-15248.0	87499.5
2 - 15		-275.0	87499.5
2 - 16		-19524.0	87499.5
2 - 17		-1626.0	87499.5
2 - 18		-73865.0	87499.5
3 - 4		8120.5	71443.0
3 - 5		-430.5	71443.0
3 - 6		-12120.0	71443.0
3 - 7		5114.5	71443.0
3 - 8		-17457.0	71443.0
3 - 9		-35670.5	71443.0
3 - 10		1093.5	71443.0
3 - 11		12741.0	87499.5
3 - 12		-21583.0	87499.5
3 - 13		-6433.0	87499.5
3 - 14		-4427.0	87499.5
3 - 15		10546.0	87499.5
3 - 16		-8703.0	87499.5
3 - 17		9195.0	87499.5
3 - 18		-63044.0	87499.5
4 - 5		-8551.0	71443.0
4 - 6		-20240.5	71443.0
4 - 7		-3006.0	71443.0
4 - 8		-25577.5	71443.0
4 - 9		-43791.0	71443.0
4 - 10		-7027.0	71443.0
4 - 11		4620.5	87499.5
4 - 12		-29703.5	87499.5
4 - 13		-14553.5	87499.5
4 - 14		-12547.5	87499.5
4 - 15		2425.5	87499.5
4 - 16		-16823.5	87499.5
4 - 17		1074.5	87499.5
4 - 18		-71164.5	87499.5
5 - 6		-11689.5	71443.0

5 - 7		5545.0	71443.0
5 - 8		-17026.5	71443.0
5 - 9		-35240.0	71443.0
5 - 10		1524.0	71443.0
5 - 11		13171.5	87499.5
5 - 12		-21152.5	87499.5
5 - 13		-6002.5	87499.5
5 - 14		-3996.5	87499.5
5 - 15		10976.5	87499.5
5 - 16		-8272.5	87499.5
5 - 17		9625.5	87499.5
5 - 18		-62613.5	87499.5
6 - 7		17234.5	71443.0
6 - 8		-5337.0	71443.0
6 - 9		-23550.5	71443.0
6 - 10		13213.5	71443.0
6 - 11		24861.0	87499.5
6 - 12		-9463.0	87499.5
6 - 13		5687.0	87499.5
6 - 14		7693.0	87499.5
6 - 15		22666.0	87499.5
6 - 16		3417.0	87499.5
6 - 17		21315.0	87499.5
6 - 18		-50924.0	87499.5
7 - 8		-22571.5	71443.0
7 - 9		-40785.0	71443.0
7 - 10		-4021.0	71443.0
7 - 11		7626.5	87499.5
7 - 12		-26697.5	87499.5
7 - 13		-11547.5	87499.5
7 - 14		-9541.5	87499.5
7 - 15		5431.5	87499.5
7 - 16		-13817.5	87499.5
7 - 17		4080.5	87499.5
7 - 18		-68158.5	87499.5
8 - 9		-18213.5	71443.0
8 - 10		18550.5	71443.0
8 - 11		30198.0	87499.5
8 - 12		-4126.0	87499.5
8 - 13		11024.0	87499.5
8 - 14		13030.0	87499.5
8 - 15		28003.0	87499.5
8 - 16		8754.0	87499.5
8 - 17		26652.0	87499.5
8 - 18		-45587.0	87499.5
9 - 10		36764.0	71443.0
9 - 11		48411.5	87499.5
9 - 12		14087.5	87499.5
9 - 13		29237.5	87499.5
9 - 14		31243.5	87499.5
9 - 15		46216.5	87499.5
9 - 16		26967.5	87499.5
9 - 17		44865.5	87499.5
9 - 18		-27373.5	87499.5
10 - 11		11647.5	87499.5
10 - 12		-22676.5	87499.5
10 - 13		-7526.5	87499.5
10 - 14		-5520.5	87499.5
10 - 15		9452.5	87499.5
10 - 16		-9796.5	87499.5
10 - 17		8101.5	87499.5
10 - 18		-64137.5	87499.5
11 - 12		-34324.0	101036.
11 - 13		-19174.0	101036.

11 - 14		-17168.0	101036.
11 - 15		-2195.0	101036.
11 - 16		-21444.0	101036.
11 - 17		-3546.0	101036.
11 - 18		-75785.0	101036.
12 - 13		15150.0	101036.
12 - 14		17156.0	101036.
12 - 15		32129.0	101036.
12 - 16		12880.0	101036.
12 - 17		30778.0	101036.
12 - 18		-41461.0	101036.
13 - 14		2006.0	101036.
13 - 15		16979.0	101036.
13 - 16		-2270.0	101036.
13 - 17		15628.0	101036.
13 - 18		-56611.0	101036.
14 - 15		14973.0	101036.
14 - 16		-4276.0	101036.
14 - 17		13622.0	101036.
14 - 18		-58617.0	101036.
15 - 16		-19249.0	101036.
15 - 17		-1351.0	101036.
15 - 18		-73590.0	101036.
16 - 17		17898.0	101036.
16 - 18		-54341.0	101036.
17 - 18		-72239.0	101036.

* denotes a statistically significant difference.

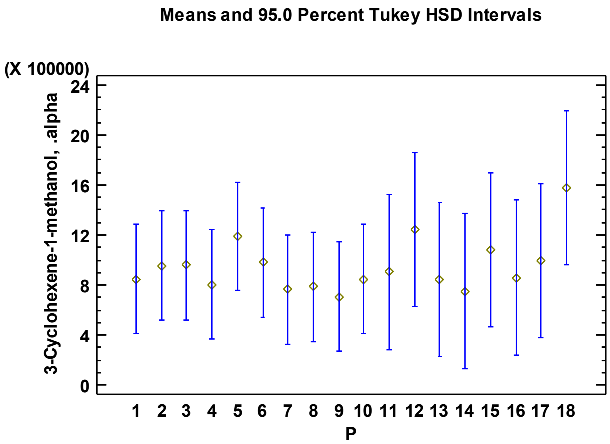
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 3-Cyclohexene-1-methanol, .alpha by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	9.86638E11	17	5.80375E10	1.53	0.2505
Within groups	3.79944E11	10	3.79944E10		
Total (Corr.)	1.36658E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of 3-Cyclohexene-1-methanol, .alpha into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.52753, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 3-Cyclohexene-1-methanol, .alpha from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 3-Cyclohexene-1-methanol, .alpha for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 3-Cyclohexene-1-methanol, .alpha by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
9	2	703785.	X
14	1	750692.	X
7	2	765799.	X
8	2	788562.	X
4	2	802335.	X
13	1	841486.	X
1	2	844835.	X
10	2	848283.	X
16	1	859719.	X
11	1	903243.	X
2	2	952572.	X
3	2	957443.	X
6	2	979866.	X
17	1	995759.	X
15	1	1.07912E6	X
5	2	1.18905E6	X
12	1	1.24279E6	X
18	1	1.57708E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-107738.	874346.
1 - 3		-112609.	874346.
1 - 4		42499.5	874346.
1 - 5		-344216.	874346.
1 - 6		-135032.	874346.
1 - 7		79035.5	874346.
1 - 8		56272.5	874346.
1 - 9		141050.	874346.
1 - 10		-3448.5	874346.
1 - 11		-58408.5	1.07085E6
1 - 12		-397952.	1.07085E6
1 - 13		3348.5	1.07085E6
1 - 14		94142.5	1.07085E6
1 - 15		-234284.	1.07085E6
1 - 16		-14884.5	1.07085E6
1 - 17		-150925.	1.07085E6
1 - 18		-732243.	1.07085E6
2 - 3		-4871.0	874346.
2 - 4		150237.	874346.
2 - 5		-236478.	874346.
2 - 6		-27294.0	874346.
2 - 7		186773.	874346.
2 - 8		164010.	874346.
2 - 9		248788.	874346.
2 - 10		104289.	874346.
2 - 11		49329.0	1.07085E6
2 - 12		-290214.	1.07085E6
2 - 13		111086.	1.07085E6
2 - 14		201880.	1.07085E6
2 - 15		-126546.	1.07085E6
2 - 16		92853.0	1.07085E6
2 - 17		-43187.0	1.07085E6
2 - 18		-624505.	1.07085E6
3 - 4		155108.	874346.
3 - 5		-231607.	874346.
3 - 6		-22423.0	874346.
3 - 7		191644.	874346.
3 - 8		168881.	874346.
3 - 9		253659.	874346.
3 - 10		109160.	874346.
3 - 11		54200.0	1.07085E6
3 - 12		-285343.	1.07085E6
3 - 13		115957.	1.07085E6
3 - 14		206751.	1.07085E6
3 - 15		-121675.	1.07085E6
3 - 16		97724.0	1.07085E6
3 - 17		-38316.0	1.07085E6
3 - 18		-619634.	1.07085E6
4 - 5		-386715.	874346.
4 - 6		-177531.	874346.
4 - 7		36536.0	874346.
4 - 8		13773.0	874346.
4 - 9		98550.5	874346.
4 - 10		-45948.0	874346.
4 - 11		-100908.	1.07085E6
4 - 12		-440451.	1.07085E6
4 - 13		-39151.0	1.07085E6
4 - 14		51643.0	1.07085E6
4 - 15		-276783.	1.07085E6
4 - 16		-57384.0	1.07085E6
4 - 17		-193424.	1.07085E6
4 - 18		-774742.	1.07085E6
5 - 6		209184.	874346.

5 - 7		423251.	874346.
5 - 8		400488.	874346.
5 - 9		485266.	874346.
5 - 10		340767.	874346.
5 - 11		285807.	1.07085E6
5 - 12		-53736.0	1.07085E6
5 - 13		347564.	1.07085E6
5 - 14		438358.	1.07085E6
5 - 15		109932.	1.07085E6
5 - 16		329331.	1.07085E6
5 - 17		193291.	1.07085E6
5 - 18		-388027.	1.07085E6
6 - 7		214067.	874346.
6 - 8		191304.	874346.
6 - 9		276082.	874346.
6 - 10		131583.	874346.
6 - 11		76623.0	1.07085E6
6 - 12		-262920.	1.07085E6
6 - 13		138380.	1.07085E6
6 - 14		229174.	1.07085E6
6 - 15		-99252.0	1.07085E6
6 - 16		120147.	1.07085E6
6 - 17		-15893.0	1.07085E6
6 - 18		-597211.	1.07085E6
7 - 8		-22763.0	874346.
7 - 9		62014.5	874346.
7 - 10		-82484.0	874346.
7 - 11		-137444.	1.07085E6
7 - 12		-476987.	1.07085E6
7 - 13		-75687.0	1.07085E6
7 - 14		15107.0	1.07085E6
7 - 15		-313319.	1.07085E6
7 - 16		-93920.0	1.07085E6
7 - 17		-229960.	1.07085E6
7 - 18		-811278.	1.07085E6
8 - 9		84777.5	874346.
8 - 10		-59721.0	874346.
8 - 11		-114681.	1.07085E6
8 - 12		-454224.	1.07085E6
8 - 13		-52924.0	1.07085E6
8 - 14		37870.0	1.07085E6
8 - 15		-290556.	1.07085E6
8 - 16		-71157.0	1.07085E6
8 - 17		-207197.	1.07085E6
8 - 18		-788515.	1.07085E6
9 - 10		-144499.	874346.
9 - 11		-199459.	1.07085E6
9 - 12		-539002.	1.07085E6
9 - 13		-137702.	1.07085E6
9 - 14		-46907.5	1.07085E6
9 - 15		-375334.	1.07085E6
9 - 16		-155935.	1.07085E6
9 - 17		-291975.	1.07085E6
9 - 18		-873293.	1.07085E6
10 - 11		-54960.0	1.07085E6
10 - 12		-394503.	1.07085E6
10 - 13		6797.0	1.07085E6
10 - 14		97591.0	1.07085E6
10 - 15		-230835.	1.07085E6
10 - 16		-11436.0	1.07085E6
10 - 17		-147476.	1.07085E6
10 - 18		-728794.	1.07085E6
11 - 12		-339543.	1.23651E6
11 - 13		61757.0	1.23651E6

11 - 14		152551.	1.23651E6
11 - 15		-175875.	1.23651E6
11 - 16		43524.0	1.23651E6
11 - 17		-92516.0	1.23651E6
11 - 18		-673834.	1.23651E6
12 - 13		401300.	1.23651E6
12 - 14		492094.	1.23651E6
12 - 15		163668.	1.23651E6
12 - 16		383067.	1.23651E6
12 - 17		247027.	1.23651E6
12 - 18		-334291.	1.23651E6
13 - 14		90794.0	1.23651E6
13 - 15		-237632.	1.23651E6
13 - 16		-18233.0	1.23651E6
13 - 17		-154273.	1.23651E6
13 - 18		-735591.	1.23651E6
14 - 15		-328426.	1.23651E6
14 - 16		-109027.	1.23651E6
14 - 17		-245067.	1.23651E6
14 - 18		-826385.	1.23651E6
15 - 16		219399.	1.23651E6
15 - 17		83359.0	1.23651E6
15 - 18		-497959.	1.23651E6
16 - 17		-136040.	1.23651E6
16 - 18		-717358.	1.23651E6
17 - 18		-581318.	1.23651E6

* denotes a statistically significant difference.

The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

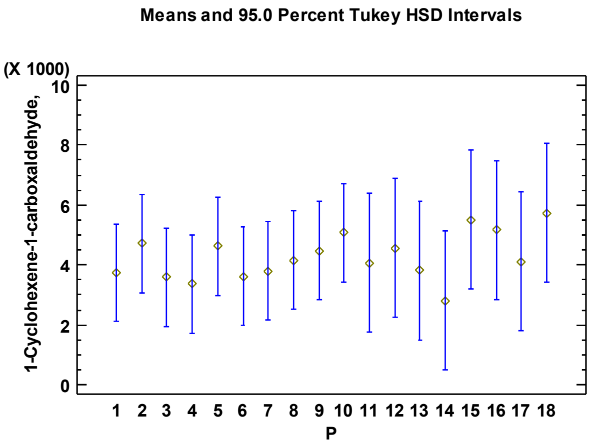
ANOVA Table for 1-Cyclohexene-1-carboxaldehyde, by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.3258E7	17	779882.	1.46	0.2753
Within groups	5.34295E6	10	534295.		
Total (Corr.)	1.86009E7	27			

The StatAdvisor

The ANOVA table decomposes the variance of 1-Cyclohexene-1-carboxaldehyde, into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.45965, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1-Cyclohexene-1-carboxaldehyde, from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 1-Cyclohexene-1-carboxaldehyde, for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1-Cyclohexene-1-carboxaldehyde, by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
14	1	2811.0	X
4	2	3376.5	X
3	2	3583.5	X
6	2	3613.0	X
1	2	3742.0	X
7	2	3793.5	X
13	1	3823.0	X
11	1	4073.0	X
17	1	4112.0	X
8	2	4159.0	X
9	2	4465.0	X
12	1	4566.0	X
5	2	4622.5	X
2	2	4710.0	X
10	2	5072.0	X
16	1	5159.0	X
15	1	5500.0	X
18	1	5726.0	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-968.0	3278.8
1 - 3		158.5	3278.8
1 - 4		365.5	3278.8
1 - 5		-880.5	3278.8
1 - 6		129.0	3278.8
1 - 7		-51.5	3278.8
1 - 8		-417.0	3278.8
1 - 9		-723.0	3278.8
1 - 10		-1330.0	3278.8
1 - 11		-331.0	4015.69
1 - 12		-824.0	4015.69
1 - 13		-81.0	4015.69
1 - 14		931.0	4015.69
1 - 15		-1758.0	4015.69
1 - 16		-1417.0	4015.69
1 - 17		-370.0	4015.69
1 - 18		-1984.0	4015.69
2 - 3		1126.5	3278.8
2 - 4		1333.5	3278.8
2 - 5		87.5	3278.8
2 - 6		1097.0	3278.8
2 - 7		916.5	3278.8
2 - 8		551.0	3278.8
2 - 9		245.0	3278.8
2 - 10		-362.0	3278.8
2 - 11		637.0	4015.69
2 - 12		144.0	4015.69
2 - 13		887.0	4015.69
2 - 14		1899.0	4015.69
2 - 15		-790.0	4015.69
2 - 16		-449.0	4015.69
2 - 17		598.0	4015.69
2 - 18		-1016.0	4015.69
3 - 4		207.0	3278.8
3 - 5		-1039.0	3278.8
3 - 6		-29.5	3278.8
3 - 7		-210.0	3278.8
3 - 8		-575.5	3278.8
3 - 9		-881.5	3278.8
3 - 10		-1488.5	3278.8
3 - 11		-489.5	4015.69
3 - 12		-982.5	4015.69
3 - 13		-239.5	4015.69
3 - 14		772.5	4015.69
3 - 15		-1916.5	4015.69
3 - 16		-1575.5	4015.69
3 - 17		-528.5	4015.69
3 - 18		-2142.5	4015.69
4 - 5		-1246.0	3278.8
4 - 6		-236.5	3278.8
4 - 7		-417.0	3278.8
4 - 8		-782.5	3278.8
4 - 9		-1088.5	3278.8
4 - 10		-1695.5	3278.8
4 - 11		-696.5	4015.69
4 - 12		-1189.5	4015.69
4 - 13		-446.5	4015.69
4 - 14		565.5	4015.69
4 - 15		-2123.5	4015.69
4 - 16		-1782.5	4015.69
4 - 17		-735.5	4015.69
4 - 18		-2349.5	4015.69
5 - 6		1009.5	3278.8

5 - 7		829.0	3278.8
5 - 8		463.5	3278.8
5 - 9		157.5	3278.8
5 - 10		-449.5	3278.8
5 - 11		549.5	4015.69
5 - 12		56.5	4015.69
5 - 13		799.5	4015.69
5 - 14		1811.5	4015.69
5 - 15		-877.5	4015.69
5 - 16		-536.5	4015.69
5 - 17		510.5	4015.69
5 - 18		-1103.5	4015.69
6 - 7		-180.5	3278.8
6 - 8		-546.0	3278.8
6 - 9		-852.0	3278.8
6 - 10		-1459.0	3278.8
6 - 11		-460.0	4015.69
6 - 12		-953.0	4015.69
6 - 13		-210.0	4015.69
6 - 14		802.0	4015.69
6 - 15		-1887.0	4015.69
6 - 16		-1546.0	4015.69
6 - 17		-499.0	4015.69
6 - 18		-2113.0	4015.69
7 - 8		-365.5	3278.8
7 - 9		-671.5	3278.8
7 - 10		-1278.5	3278.8
7 - 11		-279.5	4015.69
7 - 12		-772.5	4015.69
7 - 13		-29.5	4015.69
7 - 14		982.5	4015.69
7 - 15		-1706.5	4015.69
7 - 16		-1365.5	4015.69
7 - 17		-318.5	4015.69
7 - 18		-1932.5	4015.69
8 - 9		-306.0	3278.8
8 - 10		-913.0	3278.8
8 - 11		86.0	4015.69
8 - 12		-407.0	4015.69
8 - 13		336.0	4015.69
8 - 14		1348.0	4015.69
8 - 15		-1341.0	4015.69
8 - 16		-1000.0	4015.69
8 - 17		47.0	4015.69
8 - 18		-1567.0	4015.69
9 - 10		-607.0	3278.8
9 - 11		392.0	4015.69
9 - 12		-101.0	4015.69
9 - 13		642.0	4015.69
9 - 14		1654.0	4015.69
9 - 15		-1035.0	4015.69
9 - 16		-694.0	4015.69
9 - 17		353.0	4015.69
9 - 18		-1261.0	4015.69
10 - 11		999.0	4015.69
10 - 12		506.0	4015.69
10 - 13		1249.0	4015.69
10 - 14		2261.0	4015.69
10 - 15		-428.0	4015.69
10 - 16		-87.0	4015.69
10 - 17		960.0	4015.69
10 - 18		-654.0	4015.69
11 - 12		-493.0	4636.92
11 - 13		250.0	4636.92

11 - 14		1262.0	4636.92
11 - 15		-1427.0	4636.92
11 - 16		-1086.0	4636.92
11 - 17		-39.0	4636.92
11 - 18		-1653.0	4636.92
12 - 13		743.0	4636.92
12 - 14		1755.0	4636.92
12 - 15		-934.0	4636.92
12 - 16		-593.0	4636.92
12 - 17		454.0	4636.92
12 - 18		-1160.0	4636.92
13 - 14		1012.0	4636.92
13 - 15		-1677.0	4636.92
13 - 16		-1336.0	4636.92
13 - 17		-289.0	4636.92
13 - 18		-1903.0	4636.92
14 - 15		-2689.0	4636.92
14 - 16		-2348.0	4636.92
14 - 17		-1301.0	4636.92
14 - 18		-2915.0	4636.92
15 - 16		341.0	4636.92
15 - 17		1388.0	4636.92
15 - 18		-226.0	4636.92
16 - 17		1047.0	4636.92
16 - 18		-567.0	4636.92
17 - 18		-1614.0	4636.92

* denotes a statistically significant difference.

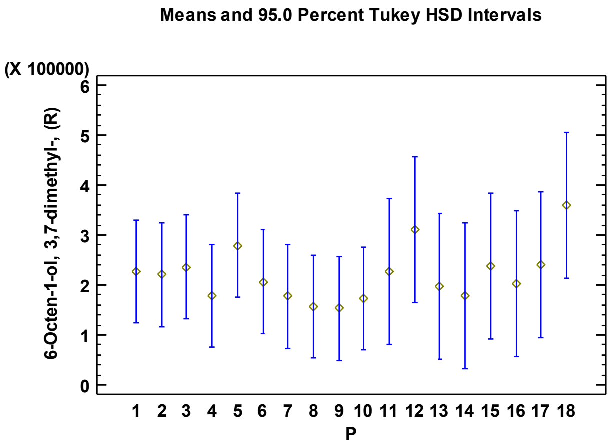
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 6-Octen-1-ol, 3,7-dimethyl-, (R) by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	6.61351E10	17	3.8903E9	1.84	0.1639
Within groups	2.11449E10	10	2.11449E9		
Total (Corr.)	8.728E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 6-Octen-1-ol, 3,7-dimethyl-, (R) into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.83983, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 6-Octen-1-ol, 3,7-dimethyl-, (R) from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 6-Octen-1-ol, 3,7-dimethyl-, (R) for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 6-Octen-1-ol, 3,7-dimethyl-, (R) by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
9	2	153166.	X
8	2	156314.	X
10	2	173433.	X
7	2	177544.	X
4	2	178051.	X
14	1	178629.	X
13	1	197174.	X
16	1	203791.	X
6	2	206817.	X
2	2	220657.	X
11	1	225819.	X
1	2	226416.	X
3	2	236538.	X
15	1	237673.	X
17	1	240112.	X
5	2	279596.	X
12	1	309714.	X
18	1	359803.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		5759.0	206266.
1 - 3		-10122.0	206266.
1 - 4		48365.0	206266.
1 - 5		-53180.0	206266.
1 - 6		19598.5	206266.
1 - 7		48871.5	206266.
1 - 8		70102.0	206266.
1 - 9		73249.5	206266.
1 - 10		52982.5	206266.
1 - 11		596.5	252623.
1 - 12		-83298.5	252623.
1 - 13		29241.5	252623.
1 - 14		47786.5	252623.
1 - 15		-11257.5	252623.
1 - 16		22624.5	252623.
1 - 17		-13696.5	252623.
1 - 18		-133388.	252623.
2 - 3		-15881.0	206266.
2 - 4		42606.0	206266.
2 - 5		-58939.0	206266.
2 - 6		13839.5	206266.
2 - 7		43112.5	206266.
2 - 8		64343.0	206266.
2 - 9		67490.5	206266.
2 - 10		47223.5	206266.
2 - 11		-5162.5	252623.
2 - 12		-89057.5	252623.
2 - 13		23482.5	252623.
2 - 14		42027.5	252623.
2 - 15		-17016.5	252623.
2 - 16		16865.5	252623.
2 - 17		-19455.5	252623.
2 - 18		-139147.	252623.
3 - 4		58487.0	206266.
3 - 5		-43058.0	206266.
3 - 6		29720.5	206266.
3 - 7		58993.5	206266.
3 - 8		80224.0	206266.
3 - 9		83371.5	206266.
3 - 10		63104.5	206266.
3 - 11		10718.5	252623.
3 - 12		-73176.5	252623.
3 - 13		39363.5	252623.
3 - 14		57908.5	252623.
3 - 15		-1135.5	252623.
3 - 16		32746.5	252623.
3 - 17		-3574.5	252623.
3 - 18		-123266.	252623.
4 - 5		-101545.	206266.
4 - 6		-28766.5	206266.
4 - 7		506.5	206266.
4 - 8		21737.0	206266.
4 - 9		24884.5	206266.
4 - 10		4617.5	206266.
4 - 11		-47768.5	252623.
4 - 12		-131664.	252623.
4 - 13		-19123.5	252623.
4 - 14		-578.5	252623.
4 - 15		-59622.5	252623.
4 - 16		-25740.5	252623.
4 - 17		-62061.5	252623.
4 - 18		-181753.	252623.
5 - 6		72778.5	206266.

5 - 7		102052.	206266.
5 - 8		123282.	206266.
5 - 9		126430.	206266.
5 - 10		106163.	206266.
5 - 11		53776.5	252623.
5 - 12		-30118.5	252623.
5 - 13		82421.5	252623.
5 - 14		100967.	252623.
5 - 15		41922.5	252623.
5 - 16		75804.5	252623.
5 - 17		39483.5	252623.
5 - 18		-80207.5	252623.
6 - 7		29273.0	206266.
6 - 8		50503.5	206266.
6 - 9		53651.0	206266.
6 - 10		33384.0	206266.
6 - 11		-19002.0	252623.
6 - 12		-102897.	252623.
6 - 13		9643.0	252623.
6 - 14		28188.0	252623.
6 - 15		-30856.0	252623.
6 - 16		3026.0	252623.
6 - 17		-33295.0	252623.
6 - 18		-152986.	252623.
7 - 8		21230.5	206266.
7 - 9		24378.0	206266.
7 - 10		4111.0	206266.
7 - 11		-48275.0	252623.
7 - 12		-132170.	252623.
7 - 13		-19630.0	252623.
7 - 14		-1085.0	252623.
7 - 15		-60129.0	252623.
7 - 16		-26247.0	252623.
7 - 17		-62568.0	252623.
7 - 18		-182259.	252623.
8 - 9		3147.5	206266.
8 - 10		-17119.5	206266.
8 - 11		-69505.5	252623.
8 - 12		-153401.	252623.
8 - 13		-40860.5	252623.
8 - 14		-22315.5	252623.
8 - 15		-81359.5	252623.
8 - 16		-47477.5	252623.
8 - 17		-83798.5	252623.
8 - 18		-203490.	252623.
9 - 10		-20267.0	206266.
9 - 11		-72653.0	252623.
9 - 12		-156548.	252623.
9 - 13		-44008.0	252623.
9 - 14		-25463.0	252623.
9 - 15		-84507.0	252623.
9 - 16		-50625.0	252623.
9 - 17		-86946.0	252623.
9 - 18		-206637.	252623.
10 - 11		-52386.0	252623.
10 - 12		-136281.	252623.
10 - 13		-23741.0	252623.
10 - 14		-5196.0	252623.
10 - 15		-64240.0	252623.
10 - 16		-30358.0	252623.
10 - 17		-66679.0	252623.
10 - 18		-186370.	252623.
11 - 12		-83895.0	291704.
11 - 13		28645.0	291704.

11 - 14		47190.0	291704.
11 - 15		-11854.0	291704.
11 - 16		22028.0	291704.
11 - 17		-14293.0	291704.
11 - 18		-133984.	291704.
12 - 13		112540.	291704.
12 - 14		131085.	291704.
12 - 15		72041.0	291704.
12 - 16		105923.	291704.
12 - 17		69602.0	291704.
12 - 18		-50089.0	291704.
13 - 14		18545.0	291704.
13 - 15		-40499.0	291704.
13 - 16		-6617.0	291704.
13 - 17		-42938.0	291704.
13 - 18		-162629.	291704.
14 - 15		-59044.0	291704.
14 - 16		-25162.0	291704.
14 - 17		-61483.0	291704.
14 - 18		-181174.	291704.
15 - 16		33882.0	291704.
15 - 17		-2439.0	291704.
15 - 18		-122130.	291704.
16 - 17		-36321.0	291704.
16 - 18		-156012.	291704.
17 - 18		-119691.	291704.

* denotes a statistically significant difference.

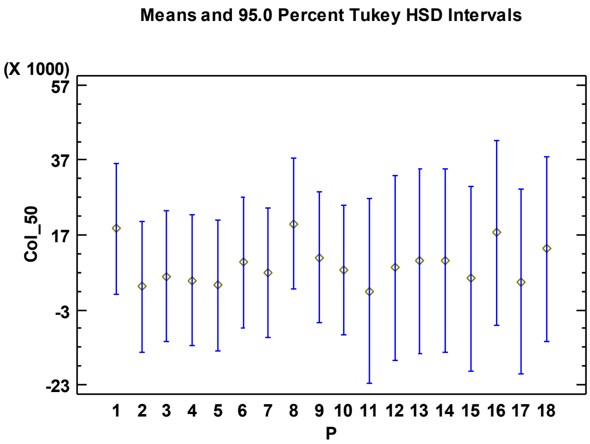
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Col_50 by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	8.05905E8	17	4.74062E7	0.79	0.6817
Within groups	6.03183E8	10	6.03183E7		
Total (Corr.)	1.40909E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of Col_50 into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.785934, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Col_50 from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Col_50 for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Col_50 by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
11	1	1907.0	X
2	2	3243.0	X
5	2	3633.0	X
17	1	4527.0	X
4	2	4934.5	X
15	1	5391.0	X
3	2	5994.0	X
7	2	6880.0	X
10	2	7649.5	X
12	1	8314.0	X
6	2	9708.0	X
13	1	10056.0	X
14	1	10166.0	X
9	2	10974.5	X
18	1	13349.0	X
16	1	17578.0	X
1	2	18751.0	X
8	2	19972.0	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		15508.0	34837.6
1 - 3		12757.0	34837.6
1 - 4		13816.5	34837.6
1 - 5		15118.0	34837.6
1 - 6		9043.0	34837.6
1 - 7		11871.0	34837.6
1 - 8		-1221.0	34837.6
1 - 9		7776.5	34837.6
1 - 10		11101.5	34837.6
1 - 11		16844.0	42667.2
1 - 12		10437.0	42667.2
1 - 13		8695.0	42667.2
1 - 14		8585.0	42667.2
1 - 15		13360.0	42667.2
1 - 16		1173.0	42667.2
1 - 17		14224.0	42667.2
1 - 18		5402.0	42667.2
2 - 3		-2751.0	34837.6
2 - 4		-1691.5	34837.6
2 - 5		-390.0	34837.6
2 - 6		-6465.0	34837.6
2 - 7		-3637.0	34837.6
2 - 8		-16729.0	34837.6
2 - 9		-7731.5	34837.6
2 - 10		-4406.5	34837.6
2 - 11		1336.0	42667.2
2 - 12		-5071.0	42667.2
2 - 13		-6813.0	42667.2
2 - 14		-6923.0	42667.2
2 - 15		-2148.0	42667.2
2 - 16		-14335.0	42667.2
2 - 17		-1284.0	42667.2
2 - 18		-10106.0	42667.2
3 - 4		1059.5	34837.6
3 - 5		2361.0	34837.6
3 - 6		-3714.0	34837.6
3 - 7		-886.0	34837.6
3 - 8		-13978.0	34837.6
3 - 9		-4980.5	34837.6
3 - 10		-1655.5	34837.6
3 - 11		4087.0	42667.2
3 - 12		-2320.0	42667.2
3 - 13		-4062.0	42667.2
3 - 14		-4172.0	42667.2
3 - 15		603.0	42667.2
3 - 16		-11584.0	42667.2
3 - 17		1467.0	42667.2
3 - 18		-7355.0	42667.2
4 - 5		1301.5	34837.6
4 - 6		-4773.5	34837.6
4 - 7		-1945.5	34837.6
4 - 8		-15037.5	34837.6
4 - 9		-6040.0	34837.6
4 - 10		-2715.0	34837.6
4 - 11		3027.5	42667.2
4 - 12		-3379.5	42667.2
4 - 13		-5121.5	42667.2
4 - 14		-5231.5	42667.2
4 - 15		-456.5	42667.2
4 - 16		-12643.5	42667.2
4 - 17		407.5	42667.2
4 - 18		-8414.5	42667.2
5 - 6		-6075.0	34837.6

5 - 7		-3247.0	34837.6
5 - 8		-16339.0	34837.6
5 - 9		-7341.5	34837.6
5 - 10		-4016.5	34837.6
5 - 11		1726.0	42667.2
5 - 12		-4681.0	42667.2
5 - 13		-6423.0	42667.2
5 - 14		-6533.0	42667.2
5 - 15		-1758.0	42667.2
5 - 16		-13945.0	42667.2
5 - 17		-894.0	42667.2
5 - 18		-9716.0	42667.2
6 - 7		2828.0	34837.6
6 - 8		-10264.0	34837.6
6 - 9		-1266.5	34837.6
6 - 10		2058.5	34837.6
6 - 11		7801.0	42667.2
6 - 12		1394.0	42667.2
6 - 13		-348.0	42667.2
6 - 14		-458.0	42667.2
6 - 15		4317.0	42667.2
6 - 16		-7870.0	42667.2
6 - 17		5181.0	42667.2
6 - 18		-3641.0	42667.2
7 - 8		-13092.0	34837.6
7 - 9		-4094.5	34837.6
7 - 10		-769.5	34837.6
7 - 11		4973.0	42667.2
7 - 12		-1434.0	42667.2
7 - 13		-3176.0	42667.2
7 - 14		-3286.0	42667.2
7 - 15		1489.0	42667.2
7 - 16		-10698.0	42667.2
7 - 17		2353.0	42667.2
7 - 18		-6469.0	42667.2
8 - 9		8997.5	34837.6
8 - 10		12322.5	34837.6
8 - 11		18065.0	42667.2
8 - 12		11658.0	42667.2
8 - 13		9916.0	42667.2
8 - 14		9806.0	42667.2
8 - 15		14581.0	42667.2
8 - 16		2394.0	42667.2
8 - 17		15445.0	42667.2
8 - 18		6623.0	42667.2
9 - 10		3325.0	34837.6
9 - 11		9067.5	42667.2
9 - 12		2660.5	42667.2
9 - 13		918.5	42667.2
9 - 14		808.5	42667.2
9 - 15		5583.5	42667.2
9 - 16		-6603.5	42667.2
9 - 17		6447.5	42667.2
9 - 18		-2374.5	42667.2
10 - 11		5742.5	42667.2
10 - 12		-664.5	42667.2
10 - 13		-2406.5	42667.2
10 - 14		-2516.5	42667.2
10 - 15		2258.5	42667.2
10 - 16		-9928.5	42667.2
10 - 17		3122.5	42667.2
10 - 18		-5699.5	42667.2
11 - 12		-6407.0	49267.8
11 - 13		-8149.0	49267.8

11 - 14		-8259.0	49267.8
11 - 15		-3484.0	49267.8
11 - 16		-15671.0	49267.8
11 - 17		-2620.0	49267.8
11 - 18		-11442.0	49267.8
12 - 13		-1742.0	49267.8
12 - 14		-1852.0	49267.8
12 - 15		2923.0	49267.8
12 - 16		-9264.0	49267.8
12 - 17		3787.0	49267.8
12 - 18		-5035.0	49267.8
13 - 14		-110.0	49267.8
13 - 15		4665.0	49267.8
13 - 16		-7522.0	49267.8
13 - 17		5529.0	49267.8
13 - 18		-3293.0	49267.8
14 - 15		4775.0	49267.8
14 - 16		-7412.0	49267.8
14 - 17		5639.0	49267.8
14 - 18		-3183.0	49267.8
15 - 16		-12187.0	49267.8
15 - 17		864.0	49267.8
15 - 18		-7958.0	49267.8
16 - 17		13051.0	49267.8
16 - 18		4229.0	49267.8
17 - 18		-8822.0	49267.8

* denotes a statistically significant difference.

The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

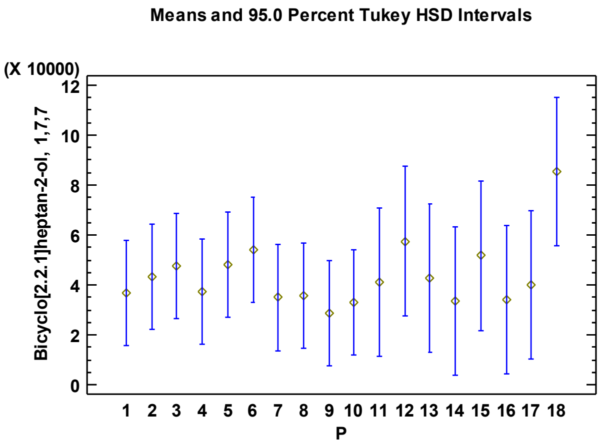
ANOVA Table for Bicyclo[2.2.1]heptan-2-ol, 1,7,7 by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.5663E9	17	2.09783E8	2.37	0.0831
Within groups	8.83553E8	10	8.83553E7		
Total (Corr.)	4.44986E9	27			

The StatAdvisor

The ANOVA table decomposes the variance of Bicyclo[2.2.1]heptan-2-ol, 1,7,7 into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.37431, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Bicyclo[2.2.1]heptan-2-ol, 1,7,7 from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Bicyclo[2.2.1]heptan-2-ol, 1,7,7 for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Bicyclo[2.2.1]heptan-2-ol, 1,7,7 by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
9	2	28821.5	X
10	2	32894.5	X
14	1	33418.0	XX
16	1	34054.0	XX
7	2	34907.0	XX
8	2	35895.0	XX
1	2	36655.5	XX
4	2	37309.5	XX
17	1	40016.0	XX
11	1	41230.0	XX
13	1	42567.0	XX
2	2	43244.0	XX
3	2	47694.0	XX
5	2	48124.0	XX
15	1	51659.0	XX
6	2	53883.0	XX
12	1	57489.0	XX
18	1	85351.0	X

Contrast	Sig.	Difference	+/- Limits
1 - 2		-6588.5	42163.8
1 - 3		-11038.5	42163.8
1 - 4		-654.0	42163.8
1 - 5		-11468.5	42163.8
1 - 6		-17227.5	42163.8
1 - 7		1748.5	42163.8
1 - 8		760.5	42163.8
1 - 9		7834.0	42163.8
1 - 10		3761.0	42163.8
1 - 11		-4574.5	51639.9
1 - 12		-20833.5	51639.9
1 - 13		-5911.5	51639.9
1 - 14		3237.5	51639.9
1 - 15		-15003.5	51639.9
1 - 16		2601.5	51639.9
1 - 17		-3360.5	51639.9
1 - 18		-48695.5	51639.9
2 - 3		-4450.0	42163.8
2 - 4		5934.5	42163.8
2 - 5		-4880.0	42163.8
2 - 6		-10639.0	42163.8
2 - 7		8337.0	42163.8
2 - 8		7349.0	42163.8
2 - 9		14422.5	42163.8
2 - 10		10349.5	42163.8
2 - 11		2014.0	51639.9
2 - 12		-14245.0	51639.9
2 - 13		677.0	51639.9
2 - 14		9826.0	51639.9
2 - 15		-8415.0	51639.9
2 - 16		9190.0	51639.9
2 - 17		3228.0	51639.9
2 - 18		-42107.0	51639.9
3 - 4		10384.5	42163.8
3 - 5		-430.0	42163.8
3 - 6		-6189.0	42163.8
3 - 7		12787.0	42163.8
3 - 8		11799.0	42163.8
3 - 9		18872.5	42163.8
3 - 10		14799.5	42163.8
3 - 11		6464.0	51639.9
3 - 12		-9795.0	51639.9
3 - 13		5127.0	51639.9
3 - 14		14276.0	51639.9
3 - 15		-3965.0	51639.9
3 - 16		13640.0	51639.9
3 - 17		7678.0	51639.9
3 - 18		-37657.0	51639.9
4 - 5		-10814.5	42163.8
4 - 6		-16573.5	42163.8
4 - 7		2402.5	42163.8
4 - 8		1414.5	42163.8
4 - 9		8488.0	42163.8
4 - 10		4415.0	42163.8
4 - 11		-3920.5	51639.9
4 - 12		-20179.5	51639.9
4 - 13		-5257.5	51639.9
4 - 14		3891.5	51639.9
4 - 15		-14349.5	51639.9
4 - 16		3255.5	51639.9
4 - 17		-2706.5	51639.9
4 - 18		-48041.5	51639.9
5 - 6		-5759.0	42163.8

5 - 7		13217.0	42163.8
5 - 8		12229.0	42163.8
5 - 9		19302.5	42163.8
5 - 10		15229.5	42163.8
5 - 11		6894.0	51639.9
5 - 12		-9365.0	51639.9
5 - 13		5557.0	51639.9
5 - 14		14706.0	51639.9
5 - 15		-3535.0	51639.9
5 - 16		14070.0	51639.9
5 - 17		8108.0	51639.9
5 - 18		-37227.0	51639.9
6 - 7		18976.0	42163.8
6 - 8		17988.0	42163.8
6 - 9		25061.5	42163.8
6 - 10		20988.5	42163.8
6 - 11		12653.0	51639.9
6 - 12		-3606.0	51639.9
6 - 13		11316.0	51639.9
6 - 14		20465.0	51639.9
6 - 15		2224.0	51639.9
6 - 16		19829.0	51639.9
6 - 17		13867.0	51639.9
6 - 18		-31468.0	51639.9
7 - 8		-988.0	42163.8
7 - 9		6085.5	42163.8
7 - 10		2012.5	42163.8
7 - 11		-6323.0	51639.9
7 - 12		-22582.0	51639.9
7 - 13		-7660.0	51639.9
7 - 14		1489.0	51639.9
7 - 15		-16752.0	51639.9
7 - 16		853.0	51639.9
7 - 17		-5109.0	51639.9
7 - 18		-50444.0	51639.9
8 - 9		7073.5	42163.8
8 - 10		3000.5	42163.8
8 - 11		-5335.0	51639.9
8 - 12		-21594.0	51639.9
8 - 13		-6672.0	51639.9
8 - 14		2477.0	51639.9
8 - 15		-15764.0	51639.9
8 - 16		1841.0	51639.9
8 - 17		-4121.0	51639.9
8 - 18		-49456.0	51639.9
9 - 10		-4073.0	42163.8
9 - 11		-12408.5	51639.9
9 - 12		-28667.5	51639.9
9 - 13		-13745.5	51639.9
9 - 14		-4596.5	51639.9
9 - 15		-22837.5	51639.9
9 - 16		-5232.5	51639.9
9 - 17		-11194.5	51639.9
9 - 18	*	-56529.5	51639.9
10 - 11		-8335.5	51639.9
10 - 12		-24594.5	51639.9
10 - 13		-9672.5	51639.9
10 - 14		-523.5	51639.9
10 - 15		-18764.5	51639.9
10 - 16		-1159.5	51639.9
10 - 17		-7121.5	51639.9
10 - 18	*	-52456.5	51639.9
11 - 12		-16259.0	59628.7
11 - 13		-1337.0	59628.7

11 - 14		7812.0	59628.7
11 - 15		-10429.0	59628.7
11 - 16		7176.0	59628.7
11 - 17		1214.0	59628.7
11 - 18		-44121.0	59628.7
12 - 13		14922.0	59628.7
12 - 14		24071.0	59628.7
12 - 15		5830.0	59628.7
12 - 16		23435.0	59628.7
12 - 17		17473.0	59628.7
12 - 18		-27862.0	59628.7
13 - 14		9149.0	59628.7
13 - 15		-9092.0	59628.7
13 - 16		8513.0	59628.7
13 - 17		2551.0	59628.7
13 - 18		-42784.0	59628.7
14 - 15		-18241.0	59628.7
14 - 16		-636.0	59628.7
14 - 17		-6598.0	59628.7
14 - 18		-51933.0	59628.7
15 - 16		17605.0	59628.7
15 - 17		11643.0	59628.7
15 - 18		-33692.0	59628.7
16 - 17		-5962.0	59628.7
16 - 18		-51297.0	59628.7
17 - 18		-45335.0	59628.7

* denotes a statistically significant difference.

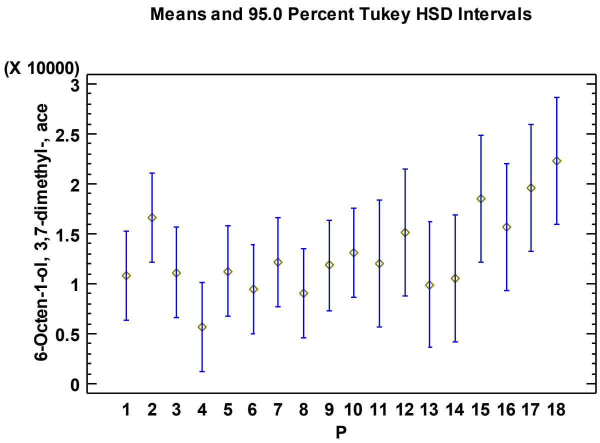
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 2 pairs, indicating that these pairs show statistically significant differences at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 6-Octen-1-ol, 3,7-dimethyl-, ace by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.91368E8	17	2.30217E7	5.79	0.0037
Within groups	3.97823E7	10	3.97823E6		
Total (Corr.)	4.31151E8	27			

The StatAdvisor
The ANOVA table decomposes the variance of 6-Octen-1-ol, 3,7-dimethyl-, ace into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 5.78692, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean 6-Octen-1-ol, 3,7-dimethyl-, ace from one level of P to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean 6-Octen-1-ol, 3,7-dimethyl-, ace for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 6-Octen-1-ol, 3,7-dimethyl-, ace by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
4	2	5678.0	X
8	2	9097.5	XX
6	2	9513.5	XX
13	1	9934.0	XXX
14	1	10548.0	XXX
1	2	10829.0	XX
3	2	11143.5	XX
5	2	11269.5	XX
9	2	11832.5	XXX
11	1	12024.0	XXX
7	2	12140.0	XXX
10	2	13089.0	XXX
12	1	15156.0	XXX
16	1	15629.0	XXX
2	2	16599.0	XX
15	1	18538.0	XX
17	1	19626.0	XX
18	1	22267.0	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-5770.0	8946.82
1 - 3		-314.5	8946.82
1 - 4		5151.0	8946.82
1 - 5		-440.5	8946.82
1 - 6		1315.5	8946.82
1 - 7		-1311.0	8946.82
1 - 8		1731.5	8946.82
1 - 9		-1003.5	8946.82
1 - 10		-2260.0	8946.82
1 - 11		-1195.0	10957.6
1 - 12		-4327.0	10957.6
1 - 13		895.0	10957.6
1 - 14		281.0	10957.6
1 - 15		-7709.0	10957.6
1 - 16		-4800.0	10957.6
1 - 17		-8797.0	10957.6
1 - 18	*	-11438.0	10957.6
2 - 3		5455.5	8946.82
2 - 4	*	10921.0	8946.82
2 - 5		5329.5	8946.82
2 - 6		7085.5	8946.82
2 - 7		4459.0	8946.82
2 - 8		7501.5	8946.82
2 - 9		4766.5	8946.82
2 - 10		3510.0	8946.82
2 - 11		4575.0	10957.6
2 - 12		1443.0	10957.6
2 - 13		6665.0	10957.6
2 - 14		6051.0	10957.6
2 - 15		-1939.0	10957.6
2 - 16		970.0	10957.6
2 - 17		-3027.0	10957.6
2 - 18		-5668.0	10957.6
3 - 4		5465.5	8946.82
3 - 5		-126.0	8946.82
3 - 6		1630.0	8946.82
3 - 7		-996.5	8946.82
3 - 8		2046.0	8946.82
3 - 9		-689.0	8946.82
3 - 10		-1945.5	8946.82
3 - 11		-880.5	10957.6
3 - 12		-4012.5	10957.6
3 - 13		1209.5	10957.6
3 - 14		595.5	10957.6
3 - 15		-7394.5	10957.6
3 - 16		-4485.5	10957.6
3 - 17		-8482.5	10957.6
3 - 18	*	-11123.5	10957.6
4 - 5		-5591.5	8946.82
4 - 6		-3835.5	8946.82
4 - 7		-6462.0	8946.82
4 - 8		-3419.5	8946.82
4 - 9		-6154.5	8946.82
4 - 10		-7411.0	8946.82
4 - 11		-6346.0	10957.6
4 - 12		-9478.0	10957.6
4 - 13		-4256.0	10957.6
4 - 14		-4870.0	10957.6
4 - 15	*	-12860.0	10957.6
4 - 16		-9951.0	10957.6
4 - 17	*	-13948.0	10957.6
4 - 18	*	-16589.0	10957.6

5 - 6		1756.0	8946.82
5 - 7		-870.5	8946.82
5 - 8		2172.0	8946.82
5 - 9		-563.0	8946.82
5 - 10		-1819.5	8946.82
5 - 11		-754.5	10957.6
5 - 12		-3886.5	10957.6
5 - 13		1335.5	10957.6
5 - 14		721.5	10957.6
5 - 15		-7268.5	10957.6
5 - 16		-4359.5	10957.6
5 - 17		-8356.5	10957.6
5 - 18	*	-10997.5	10957.6
6 - 7		-2626.5	8946.82
6 - 8		416.0	8946.82
6 - 9		-2319.0	8946.82
6 - 10		-3575.5	8946.82
6 - 11		-2510.5	10957.6
6 - 12		-5642.5	10957.6
6 - 13		-420.5	10957.6
6 - 14		-1034.5	10957.6
6 - 15		-9024.5	10957.6
6 - 16		-6115.5	10957.6
6 - 17		-10112.5	10957.6
6 - 18	*	-12753.5	10957.6
7 - 8		3042.5	8946.82
7 - 9		307.5	8946.82
7 - 10		-949.0	8946.82
7 - 11		116.0	10957.6
7 - 12		-3016.0	10957.6
7 - 13		2206.0	10957.6
7 - 14		1592.0	10957.6
7 - 15		-6398.0	10957.6
7 - 16		-3489.0	10957.6
7 - 17		-7486.0	10957.6
7 - 18		-10127.0	10957.6
8 - 9		-2735.0	8946.82
8 - 10		-3991.5	8946.82
8 - 11		-2926.5	10957.6
8 - 12		-6058.5	10957.6
8 - 13		-836.5	10957.6
8 - 14		-1450.5	10957.6
8 - 15		-9440.5	10957.6
8 - 16		-6531.5	10957.6
8 - 17		-10528.5	10957.6
8 - 18	*	-13169.5	10957.6
9 - 10		-1256.5	8946.82
9 - 11		-191.5	10957.6
9 - 12		-3323.5	10957.6
9 - 13		1898.5	10957.6
9 - 14		1284.5	10957.6
9 - 15		-6705.5	10957.6
9 - 16		-3796.5	10957.6
9 - 17		-7793.5	10957.6
9 - 18		-10434.5	10957.6
10 - 11		1065.0	10957.6
10 - 12		-2067.0	10957.6
10 - 13		3155.0	10957.6
10 - 14		2541.0	10957.6
10 - 15		-5449.0	10957.6
10 - 16		-2540.0	10957.6
10 - 17		-6537.0	10957.6
10 - 18		-9178.0	10957.6
11 - 12		-3132.0	12652.7

11 - 13		2090.0	12652.7
11 - 14		1476.0	12652.7
11 - 15		-6514.0	12652.7
11 - 16		-3605.0	12652.7
11 - 17		-7602.0	12652.7
11 - 18		-10243.0	12652.7
12 - 13		5222.0	12652.7
12 - 14		4608.0	12652.7
12 - 15		-3382.0	12652.7
12 - 16		-473.0	12652.7
12 - 17		-4470.0	12652.7
12 - 18		-7111.0	12652.7
13 - 14		-614.0	12652.7
13 - 15		-8604.0	12652.7
13 - 16		-5695.0	12652.7
13 - 17		-9692.0	12652.7
13 - 18		-12333.0	12652.7
14 - 15		-7990.0	12652.7
14 - 16		-5081.0	12652.7
14 - 17		-9078.0	12652.7
14 - 18		-11719.0	12652.7
15 - 16		2909.0	12652.7
15 - 17		-1088.0	12652.7
15 - 18		-3729.0	12652.7
16 - 17		-3997.0	12652.7
16 - 18		-6638.0	12652.7
17 - 18		-2641.0	12652.7

* denotes a statistically significant difference.

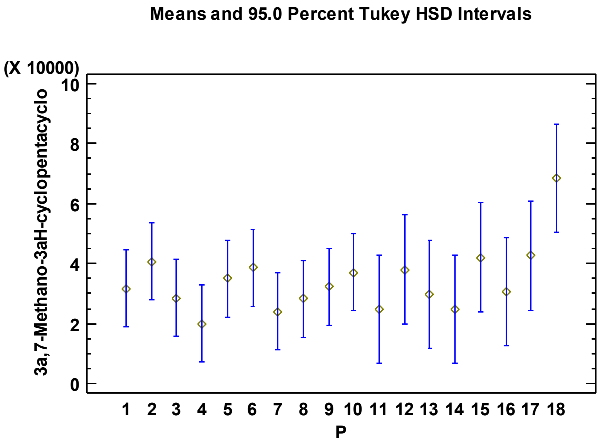
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 9 pairs, indicating that these pairs show statistically significant differences at the 95.0% confidence level. At the top of the page, 3 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 3a,7-Methano-3aH-cyclopentacyclo by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	2.40731E9	17	1.41607E8	4.32	0.0115
Within groups	3.27509E8	10	3.27509E7		
Total (Corr.)	2.73482E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of 3a,7-Methano-3aH-cyclopentacyclo into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 4.32374, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean 3a,7-Methano-3aH-cyclopentacyclo from one level of P to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean 3a,7-Methano-3aH-cyclopentacyclo for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 3a,7-Methano-3aH-cyclopentacyclo by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
4	2	19894.5	X
7	2	24116.0	X
14	1	24783.0	X
11	1	24810.0	X
8	2	28371.0	X
3	2	28606.5	X
13	1	29816.0	X
16	1	30721.0	X
1	2	31715.5	X
9	2	32324.0	X
5	2	35084.5	X
10	2	37070.0	XX
12	1	37937.0	XX
6	2	38651.5	XX
2	2	40608.5	XX
15	1	42044.0	XX
17	1	42674.0	XX
18	1	68394.0	X

Contrast	Sig.	Difference	+/- Limits
1 - 2		-8893.0	25670.6
1 - 3		3109.0	25670.6
1 - 4		11821.0	25670.6
1 - 5		-3369.0	25670.6
1 - 6		-6936.0	25670.6
1 - 7		7599.5	25670.6
1 - 8		3344.5	25670.6
1 - 9		-608.5	25670.6
1 - 10		-5354.5	25670.6
1 - 11		6905.5	31439.9
1 - 12		-6221.5	31439.9
1 - 13		1899.5	31439.9
1 - 14		6932.5	31439.9
1 - 15		-10328.5	31439.9
1 - 16		994.5	31439.9
1 - 17		-10958.5	31439.9
1 - 18	*	-36678.5	31439.9
2 - 3		12002.0	25670.6
2 - 4		20714.0	25670.6
2 - 5		5524.0	25670.6
2 - 6		1957.0	25670.6
2 - 7		16492.5	25670.6
2 - 8		12237.5	25670.6
2 - 9		8284.5	25670.6
2 - 10		3538.5	25670.6
2 - 11		15798.5	31439.9
2 - 12		2671.5	31439.9
2 - 13		10792.5	31439.9
2 - 14		15825.5	31439.9
2 - 15		-1435.5	31439.9
2 - 16		9887.5	31439.9
2 - 17		-2065.5	31439.9
2 - 18		-27785.5	31439.9
3 - 4		8712.0	25670.6
3 - 5		-6478.0	25670.6
3 - 6		-10045.0	25670.6
3 - 7		4490.5	25670.6
3 - 8		235.5	25670.6
3 - 9		-3717.5	25670.6
3 - 10		-8463.5	25670.6
3 - 11		3796.5	31439.9
3 - 12		-9330.5	31439.9
3 - 13		-1209.5	31439.9
3 - 14		3823.5	31439.9
3 - 15		-13437.5	31439.9
3 - 16		-2114.5	31439.9
3 - 17		-14067.5	31439.9
3 - 18	*	-39787.5	31439.9
4 - 5		-15190.0	25670.6
4 - 6		-18757.0	25670.6
4 - 7		-4221.5	25670.6
4 - 8		-8476.5	25670.6
4 - 9		-12429.5	25670.6
4 - 10		-17175.5	25670.6
4 - 11		-4915.5	31439.9
4 - 12		-18042.5	31439.9
4 - 13		-9921.5	31439.9
4 - 14		-4888.5	31439.9
4 - 15		-22149.5	31439.9
4 - 16		-10826.5	31439.9
4 - 17		-22779.5	31439.9
4 - 18	*	-48499.5	31439.9

5 - 6		-3567.0	25670.6
5 - 7		10968.5	25670.6
5 - 8		6713.5	25670.6
5 - 9		2760.5	25670.6
5 - 10		-1985.5	25670.6
5 - 11		10274.5	31439.9
5 - 12		-2852.5	31439.9
5 - 13		5268.5	31439.9
5 - 14		10301.5	31439.9
5 - 15		-6959.5	31439.9
5 - 16		4363.5	31439.9
5 - 17		-7589.5	31439.9
5 - 18	*	-33309.5	31439.9
6 - 7		14535.5	25670.6
6 - 8		10280.5	25670.6
6 - 9		6327.5	25670.6
6 - 10		1581.5	25670.6
6 - 11		13841.5	31439.9
6 - 12		714.5	31439.9
6 - 13		8835.5	31439.9
6 - 14		13868.5	31439.9
6 - 15		-3392.5	31439.9
6 - 16		7930.5	31439.9
6 - 17		-4022.5	31439.9
6 - 18		-29742.5	31439.9
7 - 8		-4255.0	25670.6
7 - 9		-8208.0	25670.6
7 - 10		-12954.0	25670.6
7 - 11		-694.0	31439.9
7 - 12		-13821.0	31439.9
7 - 13		-5700.0	31439.9
7 - 14		-667.0	31439.9
7 - 15		-17928.0	31439.9
7 - 16		-6605.0	31439.9
7 - 17		-18558.0	31439.9
7 - 18	*	-44278.0	31439.9
8 - 9		-3953.0	25670.6
8 - 10		-8699.0	25670.6
8 - 11		3561.0	31439.9
8 - 12		-9566.0	31439.9
8 - 13		-1445.0	31439.9
8 - 14		3588.0	31439.9
8 - 15		-13673.0	31439.9
8 - 16		-2350.0	31439.9
8 - 17		-14303.0	31439.9
8 - 18	*	-40023.0	31439.9
9 - 10		-4746.0	25670.6
9 - 11		7514.0	31439.9
9 - 12		-5613.0	31439.9
9 - 13		2508.0	31439.9
9 - 14		7541.0	31439.9
9 - 15		-9720.0	31439.9
9 - 16		1603.0	31439.9
9 - 17		-10350.0	31439.9
9 - 18	*	-36070.0	31439.9
10 - 11		12260.0	31439.9
10 - 12		-867.0	31439.9
10 - 13		7254.0	31439.9
10 - 14		12287.0	31439.9
10 - 15		-4974.0	31439.9
10 - 16		6349.0	31439.9
10 - 17		-5604.0	31439.9
10 - 18		-31324.0	31439.9
11 - 12		-13127.0	36303.7

11 - 13		-5006.0	36303.7
11 - 14		27.0	36303.7
11 - 15		-17234.0	36303.7
11 - 16		-5911.0	36303.7
11 - 17		-17864.0	36303.7
11 - 18	*	-43584.0	36303.7
12 - 13		8121.0	36303.7
12 - 14		13154.0	36303.7
12 - 15		-4107.0	36303.7
12 - 16		7216.0	36303.7
12 - 17		-4737.0	36303.7
12 - 18		-30457.0	36303.7
13 - 14		5033.0	36303.7
13 - 15		-12228.0	36303.7
13 - 16		-905.0	36303.7
13 - 17		-12858.0	36303.7
13 - 18	*	-38578.0	36303.7
14 - 15		-17261.0	36303.7
14 - 16		-5938.0	36303.7
14 - 17		-17891.0	36303.7
14 - 18	*	-43611.0	36303.7
15 - 16		11323.0	36303.7
15 - 17		-630.0	36303.7
15 - 18		-26350.0	36303.7
16 - 17		-11953.0	36303.7
16 - 18	*	-37673.0	36303.7
17 - 18		-25720.0	36303.7

* denotes a statistically significant difference.

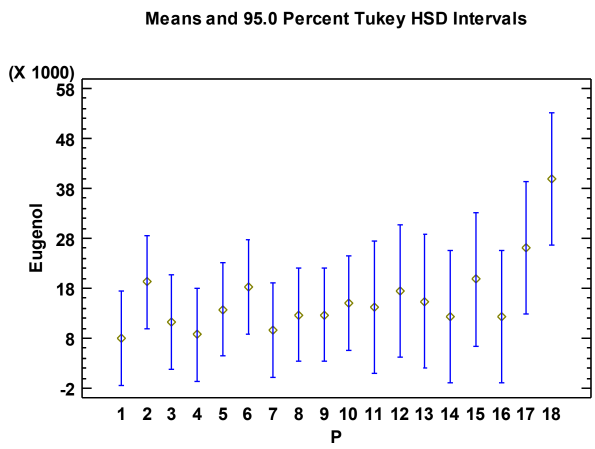
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 11 pairs, indicating that these pairs show statistically significant differences at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Eugenol by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.12972E9	17	6.64539E7	3.81	0.0182
Within groups	1.7463E8	10	1.7463E7		
Total (Corr.)	1.30435E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of Eugenol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 3.80541, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean Eugenol from one level of P to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean Eugenol for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Eugenol by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
1	2	8050.0	X
4	2	8725.0	X
7	2	9611.5	X
3	2	11315.5	X
14	1	12270.0	X
16	1	12294.0	X
9	2	12699.0	X
8	2	12724.5	X
5	2	13757.5	X
11	1	14209.0	XX
10	2	15015.5	X
13	1	15438.0	XX
12	1	17428.0	XX
6	2	18273.5	XX
2	2	19259.5	XX
15	1	19765.0	XX
17	1	26132.0	XX
18	1	39895.0	X

Contrast	Sig.	Difference	+/- Limits
1 - 2		-11209.5	18744.9
1 - 3		-3265.5	18744.9
1 - 4		-675.0	18744.9
1 - 5		-5707.5	18744.9
1 - 6		-10223.5	18744.9
1 - 7		-1561.5	18744.9
1 - 8		-4674.5	18744.9
1 - 9		-4649.0	18744.9
1 - 10		-6965.5	18744.9
1 - 11		-6159.0	22957.7
1 - 12		-9378.0	22957.7
1 - 13		-7388.0	22957.7
1 - 14		-4220.0	22957.7
1 - 15		-11715.0	22957.7
1 - 16		-4244.0	22957.7
1 - 17		-18082.0	22957.7
1 - 18	*	-31845.0	22957.7
2 - 3		7944.0	18744.9
2 - 4		10534.5	18744.9
2 - 5		5502.0	18744.9
2 - 6		986.0	18744.9
2 - 7		9648.0	18744.9
2 - 8		6535.0	18744.9
2 - 9		6560.5	18744.9
2 - 10		4244.0	18744.9
2 - 11		5050.5	22957.7
2 - 12		1831.5	22957.7
2 - 13		3821.5	22957.7
2 - 14		6989.5	22957.7
2 - 15		-505.5	22957.7
2 - 16		6965.5	22957.7
2 - 17		-6872.5	22957.7
2 - 18		-20635.5	22957.7
3 - 4		2590.5	18744.9
3 - 5		-2442.0	18744.9
3 - 6		-6958.0	18744.9
3 - 7		1704.0	18744.9
3 - 8		-1409.0	18744.9
3 - 9		-1383.5	18744.9
3 - 10		-3700.0	18744.9
3 - 11		-2893.5	22957.7
3 - 12		-6112.5	22957.7
3 - 13		-4122.5	22957.7
3 - 14		-954.5	22957.7
3 - 15		-8449.5	22957.7
3 - 16		-978.5	22957.7
3 - 17		-14816.5	22957.7
3 - 18	*	-28579.5	22957.7
4 - 5		-5032.5	18744.9
4 - 6		-9548.5	18744.9
4 - 7		-886.5	18744.9
4 - 8		-3999.5	18744.9
4 - 9		-3974.0	18744.9
4 - 10		-6290.5	18744.9
4 - 11		-5484.0	22957.7
4 - 12		-8703.0	22957.7
4 - 13		-6713.0	22957.7
4 - 14		-3545.0	22957.7
4 - 15		-11040.0	22957.7
4 - 16		-3569.0	22957.7
4 - 17		-17407.0	22957.7
4 - 18	*	-31170.0	22957.7

5 - 6		-4516.0	18744.9
5 - 7		4146.0	18744.9
5 - 8		1033.0	18744.9
5 - 9		1058.5	18744.9
5 - 10		-1258.0	18744.9
5 - 11		-451.5	22957.7
5 - 12		-3670.5	22957.7
5 - 13		-1680.5	22957.7
5 - 14		1487.5	22957.7
5 - 15		-6007.5	22957.7
5 - 16		1463.5	22957.7
5 - 17		-12374.5	22957.7
5 - 18	*	-26137.5	22957.7
6 - 7		8662.0	18744.9
6 - 8		5549.0	18744.9
6 - 9		5574.5	18744.9
6 - 10		3258.0	18744.9
6 - 11		4064.5	22957.7
6 - 12		845.5	22957.7
6 - 13		2835.5	22957.7
6 - 14		6003.5	22957.7
6 - 15		-1491.5	22957.7
6 - 16		5979.5	22957.7
6 - 17		-7858.5	22957.7
6 - 18		-21621.5	22957.7
7 - 8		-3113.0	18744.9
7 - 9		-3087.5	18744.9
7 - 10		-5404.0	18744.9
7 - 11		-4597.5	22957.7
7 - 12		-7816.5	22957.7
7 - 13		-5826.5	22957.7
7 - 14		-2658.5	22957.7
7 - 15		-10153.5	22957.7
7 - 16		-2682.5	22957.7
7 - 17		-16520.5	22957.7
7 - 18	*	-30283.5	22957.7
8 - 9		25.5	18744.9
8 - 10		-2291.0	18744.9
8 - 11		-1484.5	22957.7
8 - 12		-4703.5	22957.7
8 - 13		-2713.5	22957.7
8 - 14		454.5	22957.7
8 - 15		-7040.5	22957.7
8 - 16		430.5	22957.7
8 - 17		-13407.5	22957.7
8 - 18	*	-27170.5	22957.7
9 - 10		-2316.5	18744.9
9 - 11		-1510.0	22957.7
9 - 12		-4729.0	22957.7
9 - 13		-2739.0	22957.7
9 - 14		429.0	22957.7
9 - 15		-7066.0	22957.7
9 - 16		405.0	22957.7
9 - 17		-13433.0	22957.7
9 - 18	*	-27196.0	22957.7
10 - 11		806.5	22957.7
10 - 12		-2412.5	22957.7
10 - 13		-422.5	22957.7
10 - 14		2745.5	22957.7
10 - 15		-4749.5	22957.7
10 - 16		2721.5	22957.7
10 - 17		-11116.5	22957.7
10 - 18	*	-24879.5	22957.7
11 - 12		-3219.0	26509.3

11 - 13		-1229.0	26509.3
11 - 14		1939.0	26509.3
11 - 15		-5556.0	26509.3
11 - 16		1915.0	26509.3
11 - 17		-11923.0	26509.3
11 - 18		-25686.0	26509.3
12 - 13		1990.0	26509.3
12 - 14		5158.0	26509.3
12 - 15		-2337.0	26509.3
12 - 16		5134.0	26509.3
12 - 17		-8704.0	26509.3
12 - 18		-22467.0	26509.3
13 - 14		3168.0	26509.3
13 - 15		-4327.0	26509.3
13 - 16		3144.0	26509.3
13 - 17		-10694.0	26509.3
13 - 18		-24457.0	26509.3
14 - 15		-7495.0	26509.3
14 - 16		-24.0	26509.3
14 - 17		-13862.0	26509.3
14 - 18	*	-27625.0	26509.3
15 - 16		7471.0	26509.3
15 - 17		-6367.0	26509.3
15 - 18		-20130.0	26509.3
16 - 17		-13838.0	26509.3
16 - 18	*	-27601.0	26509.3
17 - 18		-13763.0	26509.3

* denotes a statistically significant difference.

The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 10 pairs, indicating that these pairs show statistically significant differences at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

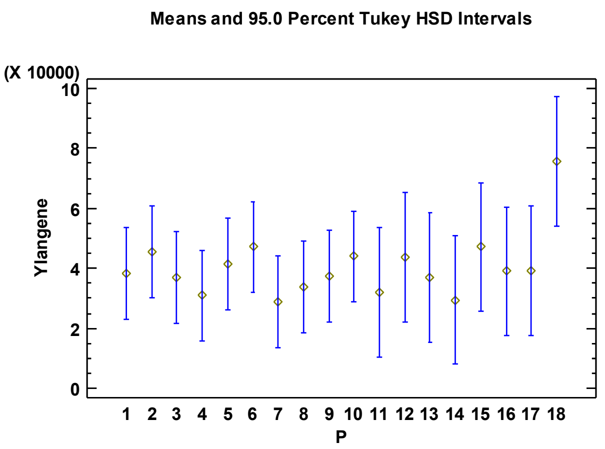
ANOVA Table for Ylangene by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	2.23967E9	17	1.31745E8	2.86	0.0472
Within groups	4.60032E8	10	4.60032E7		
Total (Corr.)	2.6997E9	27			

The StatAdvisor

The ANOVA table decomposes the variance of Ylangene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.86383, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean Ylangene from one level of P to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean Ylangene for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Ylangene by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
7	2	28937.0	X
14	1	29477.0	X
4	2	30891.0	X
11	1	31874.0	X
8	2	33853.5	X
3	2	36825.5	X
13	1	36884.0	XX
9	2	37379.5	X
1	2	38251.0	X
16	1	39061.0	XX
17	1	39154.0	XX
5	2	41320.5	XX
12	1	43808.0	XX
10	2	43951.5	XX
2	2	45502.0	XX
15	1	47124.0	XX
6	2	47158.0	XX
18	1	75569.0	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-7251.0	30424.1
1 - 3		1425.5	30424.1
1 - 4		7360.0	30424.1
1 - 5		-3069.5	30424.1
1 - 6		-8907.0	30424.1
1 - 7		9314.0	30424.1
1 - 8		4397.5	30424.1
1 - 9		871.5	30424.1
1 - 10		-5700.5	30424.1
1 - 11		6377.0	37261.8
1 - 12		-5557.0	37261.8
1 - 13		1367.0	37261.8
1 - 14		8774.0	37261.8
1 - 15		-8873.0	37261.8
1 - 16		-810.0	37261.8
1 - 17		-903.0	37261.8
1 - 18	*	-37318.0	37261.8
2 - 3		8676.5	30424.1
2 - 4		14611.0	30424.1
2 - 5		4181.5	30424.1
2 - 6		-1656.0	30424.1
2 - 7		16565.0	30424.1
2 - 8		11648.5	30424.1
2 - 9		8122.5	30424.1
2 - 10		1550.5	30424.1
2 - 11		13628.0	37261.8
2 - 12		1694.0	37261.8
2 - 13		8618.0	37261.8
2 - 14		16025.0	37261.8
2 - 15		-1622.0	37261.8
2 - 16		6441.0	37261.8
2 - 17		6348.0	37261.8
2 - 18		-30067.0	37261.8
3 - 4		5934.5	30424.1
3 - 5		-4495.0	30424.1
3 - 6		-10332.5	30424.1
3 - 7		7888.5	30424.1
3 - 8		2972.0	30424.1
3 - 9		-554.0	30424.1
3 - 10		-7126.0	30424.1
3 - 11		4951.5	37261.8
3 - 12		-6982.5	37261.8
3 - 13		-58.5	37261.8
3 - 14		7348.5	37261.8
3 - 15		-10298.5	37261.8
3 - 16		-2235.5	37261.8
3 - 17		-2328.5	37261.8
3 - 18	*	-38743.5	37261.8
4 - 5		-10429.5	30424.1
4 - 6		-16267.0	30424.1
4 - 7		1954.0	30424.1
4 - 8		-2962.5	30424.1
4 - 9		-6488.5	30424.1
4 - 10		-13060.5	30424.1
4 - 11		-983.0	37261.8
4 - 12		-12917.0	37261.8
4 - 13		-5993.0	37261.8
4 - 14		1414.0	37261.8
4 - 15		-16233.0	37261.8
4 - 16		-8170.0	37261.8
4 - 17		-8263.0	37261.8
4 - 18	*	-44678.0	37261.8

5 - 6		-5837.5	30424.1
5 - 7		12383.5	30424.1
5 - 8		7467.0	30424.1
5 - 9		3941.0	30424.1
5 - 10		-2631.0	30424.1
5 - 11		9446.5	37261.8
5 - 12		-2487.5	37261.8
5 - 13		4436.5	37261.8
5 - 14		11843.5	37261.8
5 - 15		-5803.5	37261.8
5 - 16		2259.5	37261.8
5 - 17		2166.5	37261.8
5 - 18		-34248.5	37261.8
6 - 7		18221.0	30424.1
6 - 8		13304.5	30424.1
6 - 9		9778.5	30424.1
6 - 10		3206.5	30424.1
6 - 11		15284.0	37261.8
6 - 12		3350.0	37261.8
6 - 13		10274.0	37261.8
6 - 14		17681.0	37261.8
6 - 15		34.0	37261.8
6 - 16		8097.0	37261.8
6 - 17		8004.0	37261.8
6 - 18		-28411.0	37261.8
7 - 8		-4916.5	30424.1
7 - 9		-8442.5	30424.1
7 - 10		-15014.5	30424.1
7 - 11		-2937.0	37261.8
7 - 12		-14871.0	37261.8
7 - 13		-7947.0	37261.8
7 - 14		-540.0	37261.8
7 - 15		-18187.0	37261.8
7 - 16		-10124.0	37261.8
7 - 17		-10217.0	37261.8
7 - 18	*	-46632.0	37261.8
8 - 9		-3526.0	30424.1
8 - 10		-10098.0	30424.1
8 - 11		1979.5	37261.8
8 - 12		-9954.5	37261.8
8 - 13		-3030.5	37261.8
8 - 14		4376.5	37261.8
8 - 15		-13270.5	37261.8
8 - 16		-5207.5	37261.8
8 - 17		-5300.5	37261.8
8 - 18	*	-41715.5	37261.8
9 - 10		-6572.0	30424.1
9 - 11		5505.5	37261.8
9 - 12		-6428.5	37261.8
9 - 13		495.5	37261.8
9 - 14		7902.5	37261.8
9 - 15		-9744.5	37261.8
9 - 16		-1681.5	37261.8
9 - 17		-1774.5	37261.8
9 - 18	*	-38189.5	37261.8
10 - 11		12077.5	37261.8
10 - 12		143.5	37261.8
10 - 13		7067.5	37261.8
10 - 14		14474.5	37261.8
10 - 15		-3172.5	37261.8
10 - 16		4890.5	37261.8
10 - 17		4797.5	37261.8
10 - 18		-31617.5	37261.8
11 - 12		-11934.0	43026.2

11 - 13		-5010.0	43026.2
11 - 14		2397.0	43026.2
11 - 15		-15250.0	43026.2
11 - 16		-7187.0	43026.2
11 - 17		-7280.0	43026.2
11 - 18	*	-43695.0	43026.2
12 - 13		6924.0	43026.2
12 - 14		14331.0	43026.2
12 - 15		-3316.0	43026.2
12 - 16		4747.0	43026.2
12 - 17		4654.0	43026.2
12 - 18		-31761.0	43026.2
13 - 14		7407.0	43026.2
13 - 15		-10240.0	43026.2
13 - 16		-2177.0	43026.2
13 - 17		-2270.0	43026.2
13 - 18		-38685.0	43026.2
14 - 15		-17647.0	43026.2
14 - 16		-9584.0	43026.2
14 - 17		-9677.0	43026.2
14 - 18	*	-46092.0	43026.2
15 - 16		8063.0	43026.2
15 - 17		7970.0	43026.2
15 - 18		-28445.0	43026.2
16 - 17		-93.0	43026.2
16 - 18		-36508.0	43026.2
17 - 18		-36415.0	43026.2

* denotes a statistically significant difference.

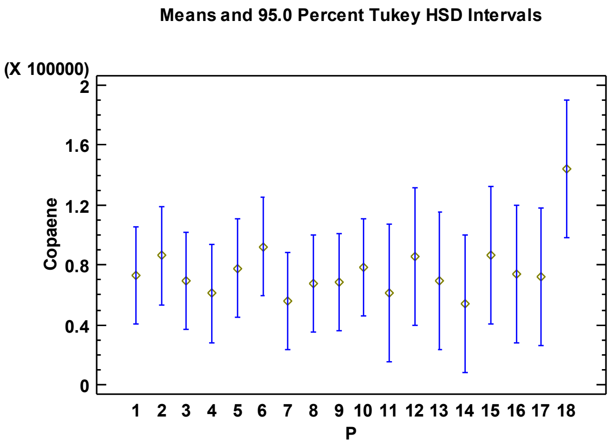
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 8 pairs, indicating that these pairs show statistically significant differences at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Copaene by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	7.95549E9	17	4.6797E8	2.23	0.0995
Within groups	2.10055E9	10	2.10055E8		
Total (Corr.)	1.0056E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of Copaene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.22784, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Copaene from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Copaene for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Copaene by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
14	1	53775.0	XX
7	2	55642.0	X
4	2	60851.0	X
11	1	61400.0	XX
8	2	67296.0	XX
9	2	68606.5	XX
3	2	69276.5	XX
13	1	69641.0	XX
17	1	72440.0	XX
1	2	72974.5	XX
16	1	73760.0	XX
5	2	77892.5	XX
10	2	78577.5	XX
12	1	85527.0	XX
2	2	86112.5	XX
15	1	86450.0	XX
6	2	92266.5	XX
18	1	143796.	X

Contrast	Sig.	Difference	+/- Limits
1 - 2		-13138.0	65011.5
1 - 3		3698.0	65011.5
1 - 4		12123.5	65011.5
1 - 5		-4918.0	65011.5
1 - 6		-19292.0	65011.5
1 - 7		17332.5	65011.5
1 - 8		5678.5	65011.5
1 - 9		4368.0	65011.5
1 - 10		-5603.0	65011.5
1 - 11		11574.5	79622.6
1 - 12		-12552.5	79622.6
1 - 13		3333.5	79622.6
1 - 14		19199.5	79622.6
1 - 15		-13475.5	79622.6
1 - 16		-785.5	79622.6
1 - 17		534.5	79622.6
1 - 18		-70821.5	79622.6
2 - 3		16836.0	65011.5
2 - 4		25261.5	65011.5
2 - 5		8220.0	65011.5
2 - 6		-6154.0	65011.5
2 - 7		30470.5	65011.5
2 - 8		18816.5	65011.5
2 - 9		17506.0	65011.5
2 - 10		7535.0	65011.5
2 - 11		24712.5	79622.6
2 - 12		585.5	79622.6
2 - 13		16471.5	79622.6
2 - 14		32337.5	79622.6
2 - 15		-337.5	79622.6
2 - 16		12352.5	79622.6
2 - 17		13672.5	79622.6
2 - 18		-57683.5	79622.6
3 - 4		8425.5	65011.5
3 - 5		-8616.0	65011.5
3 - 6		-22990.0	65011.5
3 - 7		13634.5	65011.5
3 - 8		1980.5	65011.5
3 - 9		670.0	65011.5
3 - 10		-9301.0	65011.5
3 - 11		7876.5	79622.6
3 - 12		-16250.5	79622.6
3 - 13		-364.5	79622.6
3 - 14		15501.5	79622.6
3 - 15		-17173.5	79622.6
3 - 16		-4483.5	79622.6
3 - 17		-3163.5	79622.6
3 - 18		-74519.5	79622.6
4 - 5		-17041.5	65011.5
4 - 6		-31415.5	65011.5
4 - 7		5209.0	65011.5
4 - 8		-6445.0	65011.5
4 - 9		-7755.5	65011.5
4 - 10		-17726.5	65011.5
4 - 11		-549.0	79622.6
4 - 12		-24676.0	79622.6
4 - 13		-8790.0	79622.6
4 - 14		7076.0	79622.6
4 - 15		-25599.0	79622.6
4 - 16		-12909.0	79622.6
4 - 17		-11589.0	79622.6
4 - 18	*	-82945.0	79622.6
5 - 6		-14374.0	65011.5

5 - 7		22250.5	65011.5
5 - 8		10596.5	65011.5
5 - 9		9286.0	65011.5
5 - 10		-685.0	65011.5
5 - 11		16492.5	79622.6
5 - 12		-7634.5	79622.6
5 - 13		8251.5	79622.6
5 - 14		24117.5	79622.6
5 - 15		-8557.5	79622.6
5 - 16		4132.5	79622.6
5 - 17		5452.5	79622.6
5 - 18		-65903.5	79622.6
6 - 7		36624.5	65011.5
6 - 8		24970.5	65011.5
6 - 9		23660.0	65011.5
6 - 10		13689.0	65011.5
6 - 11		30866.5	79622.6
6 - 12		6739.5	79622.6
6 - 13		22625.5	79622.6
6 - 14		38491.5	79622.6
6 - 15		5816.5	79622.6
6 - 16		18506.5	79622.6
6 - 17		19826.5	79622.6
6 - 18		-51529.5	79622.6
7 - 8		-11654.0	65011.5
7 - 9		-12964.5	65011.5
7 - 10		-22935.5	65011.5
7 - 11		-5758.0	79622.6
7 - 12		-29885.0	79622.6
7 - 13		-13999.0	79622.6
7 - 14		1867.0	79622.6
7 - 15		-30808.0	79622.6
7 - 16		-18118.0	79622.6
7 - 17		-16798.0	79622.6
7 - 18	*	-88154.0	79622.6
8 - 9		-1310.5	65011.5
8 - 10		-11281.5	65011.5
8 - 11		5896.0	79622.6
8 - 12		-18231.0	79622.6
8 - 13		-2345.0	79622.6
8 - 14		13521.0	79622.6
8 - 15		-19154.0	79622.6
8 - 16		-6464.0	79622.6
8 - 17		-5144.0	79622.6
8 - 18		-76500.0	79622.6
9 - 10		-9971.0	65011.5
9 - 11		7206.5	79622.6
9 - 12		-16920.5	79622.6
9 - 13		-1034.5	79622.6
9 - 14		14831.5	79622.6
9 - 15		-17843.5	79622.6
9 - 16		-5153.5	79622.6
9 - 17		-3833.5	79622.6
9 - 18		-75189.5	79622.6
10 - 11		17177.5	79622.6
10 - 12		-6949.5	79622.6
10 - 13		8936.5	79622.6
10 - 14		24802.5	79622.6
10 - 15		-7872.5	79622.6
10 - 16		4817.5	79622.6
10 - 17		6137.5	79622.6
10 - 18		-65218.5	79622.6
11 - 12		-24127.0	91940.2
11 - 13		-8241.0	91940.2

11 - 14		7625.0	91940.2
11 - 15		-25050.0	91940.2
11 - 16		-12360.0	91940.2
11 - 17		-11040.0	91940.2
11 - 18		-82396.0	91940.2
12 - 13		15886.0	91940.2
12 - 14		31752.0	91940.2
12 - 15		-923.0	91940.2
12 - 16		11767.0	91940.2
12 - 17		13087.0	91940.2
12 - 18		-58269.0	91940.2
13 - 14		15866.0	91940.2
13 - 15		-16809.0	91940.2
13 - 16		-4119.0	91940.2
13 - 17		-2799.0	91940.2
13 - 18		-74155.0	91940.2
14 - 15		-32675.0	91940.2
14 - 16		-19985.0	91940.2
14 - 17		-18665.0	91940.2
14 - 18		-90021.0	91940.2
15 - 16		12690.0	91940.2
15 - 17		14010.0	91940.2
15 - 18		-57346.0	91940.2
16 - 17		1320.0	91940.2
16 - 18		-70036.0	91940.2
17 - 18		-71356.0	91940.2

* denotes a statistically significant difference.

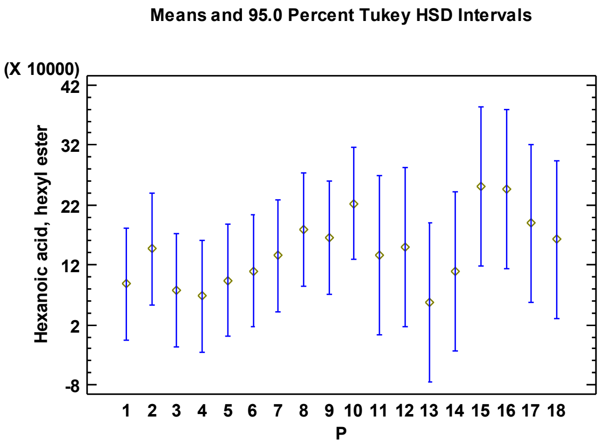
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 2 pairs, indicating that these pairs show statistically significant differences at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Hexanoic acid, hexyl ester by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	8.20455E10	17	4.82621E9	2.77	0.0526
Within groups	1.74423E10	10	1.74423E9		
Total (Corr.)	9.94879E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of Hexanoic acid, hexyl ester into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.76695, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Hexanoic acid, hexyl ester from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Hexanoic acid, hexyl ester for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Hexanoic acid, hexyl ester by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
13	1	57458.0	X
4	2	68234.0	X
3	2	77513.5	X
1	2	88635.0	X
5	2	93885.5	X
14	1	110043.	X
6	2	110199.	X
11	1	135692.	X
7	2	135809.	X
2	2	146600.	X
12	1	150000.	X
18	1	162241.	X
9	2	165376.	X
8	2	179036.	X
17	1	189337.	X
10	2	222761.	X
16	1	246836.	X
15	1	251183.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-57965.0	187338.
1 - 3		11121.5	187338.
1 - 4		20401.0	187338.
1 - 5		-5250.5	187338.
1 - 6		-21563.5	187338.
1 - 7		-47174.0	187338.
1 - 8		-90400.5	187338.
1 - 9		-76741.0	187338.
1 - 10		-134126.	187338.
1 - 11		-47057.0	229441.
1 - 12		-61365.0	229441.
1 - 13		31177.0	229441.
1 - 14		-21408.0	229441.
1 - 15		-162548.	229441.
1 - 16		-158201.	229441.
1 - 17		-100702.	229441.
1 - 18		-73606.0	229441.
2 - 3		69086.5	187338.
2 - 4		78366.0	187338.
2 - 5		52714.5	187338.
2 - 6		36401.5	187338.
2 - 7		10791.0	187338.
2 - 8		-32435.5	187338.
2 - 9		-18776.0	187338.
2 - 10		-76161.0	187338.
2 - 11		10908.0	229441.
2 - 12		-3400.0	229441.
2 - 13		89142.0	229441.
2 - 14		36557.0	229441.
2 - 15		-104583.	229441.
2 - 16		-100236.	229441.
2 - 17		-42737.0	229441.
2 - 18		-15641.0	229441.
3 - 4		9279.5	187338.
3 - 5		-16372.0	187338.
3 - 6		-32685.0	187338.
3 - 7		-58295.5	187338.
3 - 8		-101522.	187338.
3 - 9		-87862.5	187338.
3 - 10		-145248.	187338.
3 - 11		-58178.5	229441.
3 - 12		-72486.5	229441.
3 - 13		20055.5	229441.
3 - 14		-32529.5	229441.
3 - 15		-173670.	229441.
3 - 16		-169323.	229441.
3 - 17		-111824.	229441.
3 - 18		-84727.5	229441.
4 - 5		-25651.5	187338.
4 - 6		-41964.5	187338.
4 - 7		-67575.0	187338.
4 - 8		-110802.	187338.
4 - 9		-97142.0	187338.
4 - 10		-154527.	187338.
4 - 11		-67458.0	229441.
4 - 12		-81766.0	229441.
4 - 13		10776.0	229441.
4 - 14		-41809.0	229441.
4 - 15		-182949.	229441.
4 - 16		-178602.	229441.
4 - 17		-121103.	229441.
4 - 18		-94007.0	229441.
5 - 6		-16313.0	187338.

5 - 7		-41923.5	187338.
5 - 8		-85150.0	187338.
5 - 9		-71490.5	187338.
5 - 10		-128876.	187338.
5 - 11		-41806.5	229441.
5 - 12		-56114.5	229441.
5 - 13		36427.5	229441.
5 - 14		-16157.5	229441.
5 - 15		-157298.	229441.
5 - 16		-152951.	229441.
5 - 17		-95451.5	229441.
5 - 18		-68355.5	229441.
6 - 7		-25610.5	187338.
6 - 8		-68837.0	187338.
6 - 9		-55177.5	187338.
6 - 10		-112563.	187338.
6 - 11		-25493.5	229441.
6 - 12		-39801.5	229441.
6 - 13		52740.5	229441.
6 - 14		155.5	229441.
6 - 15		-140985.	229441.
6 - 16		-136638.	229441.
6 - 17		-79138.5	229441.
6 - 18		-52042.5	229441.
7 - 8		-43226.5	187338.
7 - 9		-29567.0	187338.
7 - 10		-86952.0	187338.
7 - 11		117.0	229441.
7 - 12		-14191.0	229441.
7 - 13		78351.0	229441.
7 - 14		25766.0	229441.
7 - 15		-115374.	229441.
7 - 16		-111027.	229441.
7 - 17		-53528.0	229441.
7 - 18		-26432.0	229441.
8 - 9		13659.5	187338.
8 - 10		-43725.5	187338.
8 - 11		43343.5	229441.
8 - 12		29035.5	229441.
8 - 13		121578.	229441.
8 - 14		68992.5	229441.
8 - 15		-72147.5	229441.
8 - 16		-67800.5	229441.
8 - 17		-10301.5	229441.
8 - 18		16794.5	229441.
9 - 10		-57385.0	187338.
9 - 11		29684.0	229441.
9 - 12		15376.0	229441.
9 - 13		107918.	229441.
9 - 14		55333.0	229441.
9 - 15		-85807.0	229441.
9 - 16		-81460.0	229441.
9 - 17		-23961.0	229441.
9 - 18		3135.0	229441.
10 - 11		87069.0	229441.
10 - 12		72761.0	229441.
10 - 13		165303.	229441.
10 - 14		112718.	229441.
10 - 15		-28422.0	229441.
10 - 16		-24075.0	229441.
10 - 17		33424.0	229441.
10 - 18		60520.0	229441.
11 - 12		-14308.0	264936.
11 - 13		78234.0	264936.

11 - 14		25649.0	264936.
11 - 15		-115491.	264936.
11 - 16		-111144.	264936.
11 - 17		-53645.0	264936.
11 - 18		-26549.0	264936.
12 - 13		92542.0	264936.
12 - 14		39957.0	264936.
12 - 15		-101183.	264936.
12 - 16		-96836.0	264936.
12 - 17		-39337.0	264936.
12 - 18		-12241.0	264936.
13 - 14		-52585.0	264936.
13 - 15		-193725.	264936.
13 - 16		-189378.	264936.
13 - 17		-131879.	264936.
13 - 18		-104783.	264936.
14 - 15		-141140.	264936.
14 - 16		-136793.	264936.
14 - 17		-79294.0	264936.
14 - 18		-52198.0	264936.
15 - 16		4347.0	264936.
15 - 17		61846.0	264936.
15 - 18		88942.0	264936.
16 - 17		57499.0	264936.
16 - 18		84595.0	264936.
17 - 18		27096.0	264936.

* denotes a statistically significant difference.

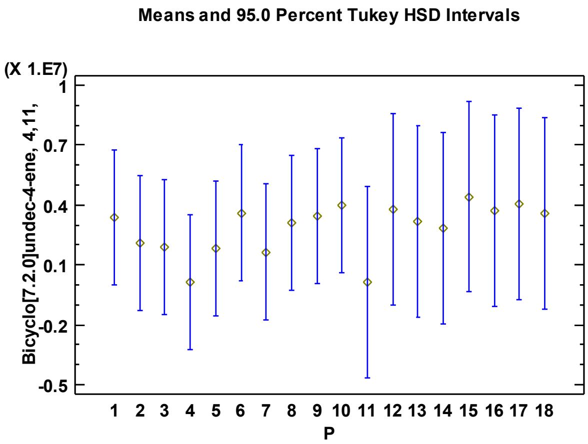
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Bicyclo[7.2.0]undec-4-ene, 4,11, by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	4.06279E13	17	2.38988E12	1.05	0.4860
Within groups	2.27678E13	10	2.27678E12		
Total (Corr.)	6.33957E13	27			

The StatAdvisor
The ANOVA table decomposes the variance of Bicyclo[7.2.0]undec-4-ene, 4,11, into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.04967, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Bicyclo[7.2.0]undec-4-ene, 4,11, from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Bicyclo[7.2.0]undec-4-ene, 4,11, for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Bicyclo[7.2.0]undec-4-ene, 4,11, by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
4	2	144262.	X
11	1	148240.	X
7	2	1.64793E6	X
5	2	1.80445E6	X
3	2	1.89562E6	X
2	2	2.09745E6	X
14	1	2.84889E6	X
8	2	3.11814E6	X
13	1	3.17599E6	X
1	2	3.36211E6	X
9	2	3.45688E6	X
18	1	3.56104E6	X
6	2	3.60466E6	X
16	1	3.71049E6	X
12	1	3.79009E6	X
10	2	3.96502E6	X
17	1	4.06222E6	X
15	1	4.41858E6	X

Contrast	Sig.	Difference	+/- Limits
1 - 2		1.26466E6	6.76837E6
1 - 3		1.46649E6	6.76837E6
1 - 4		3.21785E6	6.76837E6
1 - 5		1.55766E6	6.76837E6
1 - 6		-242554.	6.76837E6
1 - 7		1.71418E6	6.76837E6
1 - 8		243970.	6.76837E6
1 - 9		-94771.0	6.76837E6
1 - 10		-602910.	6.76837E6
1 - 11		3.21387E6	8.28953E6
1 - 12		-427977.	8.28953E6
1 - 13		186118.	8.28953E6
1 - 14		513219.	8.28953E6
1 - 15		-1.05647E6	8.28953E6
1 - 16		-348385.	8.28953E6
1 - 17		-700108.	8.28953E6
1 - 18		-198935.	8.28953E6
2 - 3		201830.	6.76837E6
2 - 4		1.95319E6	6.76837E6
2 - 5		292999.	6.76837E6
2 - 6		-1.50722E6	6.76837E6
2 - 7		449522.	6.76837E6
2 - 8		-1.02069E6	6.76837E6
2 - 9		-1.35943E6	6.76837E6
2 - 10		-1.86757E6	6.76837E6
2 - 11		1.94921E6	8.28953E6
2 - 12		-1.69264E6	8.28953E6
2 - 13		-1.07855E6	8.28953E6
2 - 14		-751444.	8.28953E6
2 - 15		-2.32114E6	8.28953E6
2 - 16		-1.61305E6	8.28953E6
2 - 17		-1.96477E6	8.28953E6
2 - 18		-1.4636E6	8.28953E6
3 - 4		1.75136E6	6.76837E6
3 - 5		91168.5	6.76837E6
3 - 6		-1.70905E6	6.76837E6
3 - 7		247692.	6.76837E6
3 - 8		-1.22252E6	6.76837E6
3 - 9		-1.56126E6	6.76837E6
3 - 10		-2.0694E6	6.76837E6
3 - 11		1.74738E6	8.28953E6
3 - 12		-1.89447E6	8.28953E6
3 - 13		-1.28038E6	8.28953E6
3 - 14		-953274.	8.28953E6
3 - 15		-2.52297E6	8.28953E6
3 - 16		-1.81488E6	8.28953E6
3 - 17		-2.1666E6	8.28953E6
3 - 18		-1.66543E6	8.28953E6
4 - 5		-1.66019E6	6.76837E6
4 - 6		-3.4604E6	6.76837E6
4 - 7		-1.50366E6	6.76837E6
4 - 8		-2.97388E6	6.76837E6
4 - 9		-3.31262E6	6.76837E6
4 - 10		-3.82076E6	6.76837E6
4 - 11		-3978.5	8.28953E6
4 - 12		-3.64582E6	8.28953E6
4 - 13		-3.03173E6	8.28953E6
4 - 14		-2.70463E6	8.28953E6
4 - 15		-4.27432E6	8.28953E6
4 - 16		-3.56623E6	8.28953E6
4 - 17		-3.91796E6	8.28953E6
4 - 18		-3.41678E6	8.28953E6
5 - 6		-1.80021E6	6.76837E6

5 - 7		156523.	6.76837E6
5 - 8		-1.31369E6	6.76837E6
5 - 9		-1.65243E6	6.76837E6
5 - 10		-2.16057E6	6.76837E6
5 - 11		1.65621E6	8.28953E6
5 - 12		-1.98564E6	8.28953E6
5 - 13		-1.37154E6	8.28953E6
5 - 14		-1.04444E6	8.28953E6
5 - 15		-2.61414E6	8.28953E6
5 - 16		-1.90605E6	8.28953E6
5 - 17		-2.25777E6	8.28953E6
5 - 18		-1.7566E6	8.28953E6
6 - 7		1.95674E6	6.76837E6
6 - 8		486523.	6.76837E6
6 - 9		147783.	6.76837E6
6 - 10		-360357.	6.76837E6
6 - 11		3.45642E6	8.28953E6
6 - 12		-185423.	8.28953E6
6 - 13		428671.	8.28953E6
6 - 14		755772.	8.28953E6
6 - 15		-813921.	8.28953E6
6 - 16		-105831.	8.28953E6
6 - 17		-457554.	8.28953E6
6 - 18		43619.0	8.28953E6
7 - 8		-1.47021E6	6.76837E6
7 - 9		-1.80896E6	6.76837E6
7 - 10		-2.31709E6	6.76837E6
7 - 11		1.49969E6	8.28953E6
7 - 12		-2.14216E6	8.28953E6
7 - 13		-1.52807E6	8.28953E6
7 - 14		-1.20097E6	8.28953E6
7 - 15		-2.77066E6	8.28953E6
7 - 16		-2.06257E6	8.28953E6
7 - 17		-2.41429E6	8.28953E6
7 - 18		-1.91312E6	8.28953E6
8 - 9		-338741.	6.76837E6
8 - 10		-846880.	6.76837E6
8 - 11		2.9699E6	8.28953E6
8 - 12		-671946.	8.28953E6
8 - 13		-57852.0	8.28953E6
8 - 14		269249.	8.28953E6
8 - 15		-1.30044E6	8.28953E6
8 - 16		-592354.	8.28953E6
8 - 17		-944077.	8.28953E6
8 - 18		-442904.	8.28953E6
9 - 10		-508139.	6.76837E6
9 - 11		3.30864E6	8.28953E6
9 - 12		-333206.	8.28953E6
9 - 13		280889.	8.28953E6
9 - 14		607990.	8.28953E6
9 - 15		-961704.	8.28953E6
9 - 16		-253614.	8.28953E6
9 - 17		-605337.	8.28953E6
9 - 18		-104164.	8.28953E6
10 - 11		3.81678E6	8.28953E6
10 - 12		174934.	8.28953E6
10 - 13		789028.	8.28953E6
10 - 14		1.11613E6	8.28953E6
10 - 15		-453565.	8.28953E6
10 - 16		254526.	8.28953E6
10 - 17		-97197.5	8.28953E6
10 - 18		403976.	8.28953E6
11 - 12		-3.64185E6	9.57192E6
11 - 13		-3.02775E6	9.57192E6

11 - 14		-2.70065E6	9.57192E6
11 - 15		-4.27034E6	9.57192E6
11 - 16		-3.56225E6	9.57192E6
11 - 17		-3.91398E6	9.57192E6
11 - 18		-3.4128E6	9.57192E6
12 - 13		614094.	9.57192E6
12 - 14		941195.	9.57192E6
12 - 15		-628498.	9.57192E6
12 - 16		79592.0	9.57192E6
12 - 17		-272131.	9.57192E6
12 - 18		229042.	9.57192E6
13 - 14		327101.	9.57192E6
13 - 15		-1.24259E6	9.57192E6
13 - 16		-534502.	9.57192E6
13 - 17		-886225.	9.57192E6
13 - 18		-385052.	9.57192E6
14 - 15		-1.56969E6	9.57192E6
14 - 16		-861603.	9.57192E6
14 - 17		-1.21333E6	9.57192E6
14 - 18		-712153.	9.57192E6
15 - 16		708090.	9.57192E6
15 - 17		356367.	9.57192E6
15 - 18		857540.	9.57192E6
16 - 17		-351723.	9.57192E6
16 - 18		149450.	9.57192E6
17 - 18		501173.	9.57192E6

* denotes a statistically significant difference.

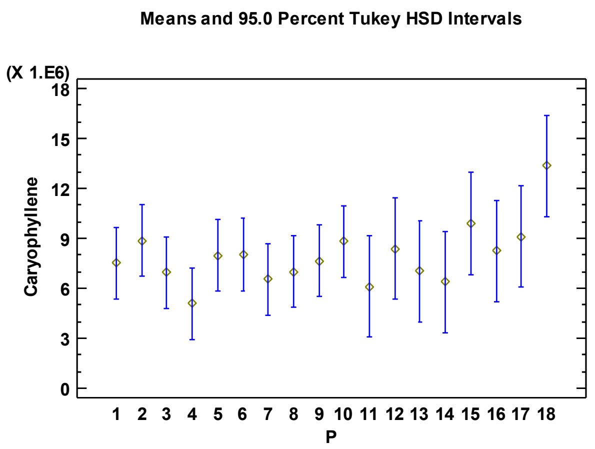
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Caryophyllene by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	6.83296E13	17	4.01939E12	4.34	0.0114
Within groups	9.26912E12	10	9.26912E11		
Total (Corr.)	7.75987E13	27			

The StatAdvisor
The ANOVA table decomposes the variance of Caryophyllene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 4.33632, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean Caryophyllene from one level of P to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean Caryophyllene for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Caryophyllene by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
4	2	5.08343E6	X
11	1	6.10483E6	X
14	1	6.38623E6	X
7	2	6.53936E6	X
3	2	6.93633E6	X
8	2	6.99621E6	X
13	1	7.03369E6	X
1	2	7.51226E6	X
9	2	7.64821E6	X
5	2	7.97077E6	X
6	2	8.03103E6	X
16	1	8.2482E6	XX
12	1	8.39101E6	XX
10	2	8.80697E6	XX
2	2	8.87833E6	XX
17	1	9.09955E6	XX
15	1	9.90719E6	XX
18	1	1.3348E7	X

Contrast	Sig.	Difference	+/- Limits
1 - 2		-1.36607E6	4.3186E6
1 - 3		575926.	4.3186E6
1 - 4		2.42883E6	4.3186E6
1 - 5		-458511.	4.3186E6
1 - 6		-518769.	4.3186E6
1 - 7		972893.	4.3186E6
1 - 8		516043.	4.3186E6
1 - 9		-135952.	4.3186E6
1 - 10		-1.29472E6	4.3186E6
1 - 11		1.40743E6	5.28918E6
1 - 12		-878749.	5.28918E6
1 - 13		478566.	5.28918E6
1 - 14		1.12603E6	5.28918E6
1 - 15		-2.39493E6	5.28918E6
1 - 16		-735945.	5.28918E6
1 - 17		-1.58729E6	5.28918E6
1 - 18	*	-5.83571E6	5.28918E6
2 - 3		1.94199E6	4.3186E6
2 - 4		3.79489E6	4.3186E6
2 - 5		907558.	4.3186E6
2 - 6		847300.	4.3186E6
2 - 7		2.33896E6	4.3186E6
2 - 8		1.88211E6	4.3186E6
2 - 9		1.23012E6	4.3186E6
2 - 10		71353.0	4.3186E6
2 - 11		2.7735E6	5.28918E6
2 - 12		487320.	5.28918E6
2 - 13		1.84463E6	5.28918E6
2 - 14		2.4921E6	5.28918E6
2 - 15		-1.02886E6	5.28918E6
2 - 16		630124.	5.28918E6
2 - 17		-221223.	5.28918E6
2 - 18		-4.46964E6	5.28918E6
3 - 4		1.8529E6	4.3186E6
3 - 5		-1.03444E6	4.3186E6
3 - 6		-1.09469E6	4.3186E6
3 - 7		396968.	4.3186E6
3 - 8		-59883.0	4.3186E6
3 - 9		-711878.	4.3186E6
3 - 10		-1.87064E6	4.3186E6
3 - 11		831506.	5.28918E6
3 - 12		-1.45467E6	5.28918E6
3 - 13		-97359.5	5.28918E6
3 - 14		550105.	5.28918E6
3 - 15		-2.97086E6	5.28918E6
3 - 16		-1.31187E6	5.28918E6
3 - 17		-2.16322E6	5.28918E6
3 - 18	*	-6.41163E6	5.28918E6
4 - 5		-2.88734E6	4.3186E6
4 - 6		-2.94759E6	4.3186E6
4 - 7		-1.45593E6	4.3186E6
4 - 8		-1.91278E6	4.3186E6
4 - 9		-2.56478E6	4.3186E6
4 - 10		-3.72354E6	4.3186E6
4 - 11		-1.02139E6	5.28918E6
4 - 12		-3.30757E6	5.28918E6
4 - 13		-1.95026E6	5.28918E6
4 - 14		-1.3028E6	5.28918E6
4 - 15		-4.82376E6	5.28918E6
4 - 16		-3.16477E6	5.28918E6
4 - 17		-4.01612E6	5.28918E6
4 - 18	*	-8.26453E6	5.28918E6

5 - 6		-60258.0	4.3186E6
5 - 7		1.4314E6	4.3186E6
5 - 8		974554.	4.3186E6
5 - 9		322559.	4.3186E6
5 - 10		-836205.	4.3186E6
5 - 11		1.86594E6	5.28918E6
5 - 12		-420238.	5.28918E6
5 - 13		937077.	5.28918E6
5 - 14		1.58454E6	5.28918E6
5 - 15		-1.93642E6	5.28918E6
5 - 16		-277434.	5.28918E6
5 - 17		-1.12878E6	5.28918E6
5 - 18	*	-5.37719E6	5.28918E6
6 - 7		1.49166E6	4.3186E6
6 - 8		1.03481E6	4.3186E6
6 - 9		382817.	4.3186E6
6 - 10		-775947.	4.3186E6
6 - 11		1.9262E6	5.28918E6
6 - 12		-359980.	5.28918E6
6 - 13		997335.	5.28918E6
6 - 14		1.6448E6	5.28918E6
6 - 15		-1.87616E6	5.28918E6
6 - 16		-217176.	5.28918E6
6 - 17		-1.06852E6	5.28918E6
6 - 18	*	-5.31694E6	5.28918E6
7 - 8		-456851.	4.3186E6
7 - 9		-1.10885E6	4.3186E6
7 - 10		-2.26761E6	4.3186E6
7 - 11		434538.	5.28918E6
7 - 12		-1.85164E6	5.28918E6
7 - 13		-494327.	5.28918E6
7 - 14		153137.	5.28918E6
7 - 15		-3.36783E6	5.28918E6
7 - 16		-1.70884E6	5.28918E6
7 - 17		-2.56018E6	5.28918E6
7 - 18	*	-6.8086E6	5.28918E6
8 - 9		-651995.	4.3186E6
8 - 10		-1.81076E6	4.3186E6
8 - 11		891389.	5.28918E6
8 - 12		-1.39479E6	5.28918E6
8 - 13		-37476.5	5.28918E6
8 - 14		609988.	5.28918E6
8 - 15		-2.91097E6	5.28918E6
8 - 16		-1.25199E6	5.28918E6
8 - 17		-2.10333E6	5.28918E6
8 - 18	*	-6.35175E6	5.28918E6
9 - 10		-1.15876E6	4.3186E6
9 - 11		1.54338E6	5.28918E6
9 - 12		-742797.	5.28918E6
9 - 13		614518.	5.28918E6
9 - 14		1.26198E6	5.28918E6
9 - 15		-2.25898E6	5.28918E6
9 - 16		-599993.	5.28918E6
9 - 17		-1.45134E6	5.28918E6
9 - 18	*	-5.69975E6	5.28918E6
10 - 11		2.70215E6	5.28918E6
10 - 12		415967.	5.28918E6
10 - 13		1.77328E6	5.28918E6
10 - 14		2.42075E6	5.28918E6
10 - 15		-1.10022E6	5.28918E6
10 - 16		558771.	5.28918E6
10 - 17		-292576.	5.28918E6
10 - 18		-4.54099E6	5.28918E6
11 - 12		-2.28618E6	6.10742E6

11 - 13		-928865.	6.10742E6
11 - 14		-281401.	6.10742E6
11 - 15		-3.80236E6	6.10742E6
11 - 16		-2.14338E6	6.10742E6
11 - 17		-2.99472E6	6.10742E6
11 - 18	*	-7.24314E6	6.10742E6
12 - 13		1.35732E6	6.10742E6
12 - 14		2.00478E6	6.10742E6
12 - 15		-1.51618E6	6.10742E6
12 - 16		142804.	6.10742E6
12 - 17		-708542.	6.10742E6
12 - 18		-4.95696E6	6.10742E6
13 - 14		647464.	6.10742E6
13 - 15		-2.8735E6	6.10742E6
13 - 16		-1.21451E6	6.10742E6
13 - 17		-2.06586E6	6.10742E6
13 - 18	*	-6.31427E6	6.10742E6
14 - 15		-3.52096E6	6.10742E6
14 - 16		-1.86198E6	6.10742E6
14 - 17		-2.71332E6	6.10742E6
14 - 18	*	-6.96174E6	6.10742E6
15 - 16		1.65899E6	6.10742E6
15 - 17		807641.	6.10742E6
15 - 18		-3.44077E6	6.10742E6
16 - 17		-851346.	6.10742E6
16 - 18		-5.09976E6	6.10742E6
17 - 18		-4.24841E6	6.10742E6

* denotes a statistically significant difference.

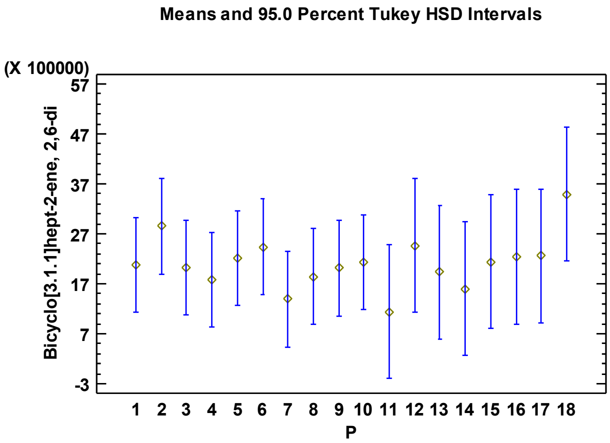
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 11 pairs, indicating that these pairs show statistically significant differences at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Bicyclo[3.1.1]hept-2-ene, 2,6-di by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	6.04682E12	17	3.55695E11	1.99	0.1350
Within groups	1.78941E12	10	1.78941E11		
Total (Corr.)	7.83623E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of Bicyclo[3.1.1]hept-2-ene, 2,6-di into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.98778, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Bicyclo[3.1.1]hept-2-ene, 2,6-di from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Bicyclo[3.1.1]hept-2-ene, 2,6-di for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Bicyclo[3.1.1]hept-2-ene, 2,6-di by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
11	1	1.13994E6	X
7	2	1.39169E6	X
14	1	1.6017E6	X
4	2	1.79172E6	X
8	2	1.8471E6	X
13	1	1.93193E6	X
9	2	2.01316E6	X
3	2	2.01673E6	X
1	2	2.08005E6	X
10	2	2.14075E6	X
15	1	2.14188E6	X
5	2	2.21901E6	X
16	1	2.23753E6	X
17	1	2.25965E6	X
6	2	2.44015E6	X
12	1	2.46243E6	X
2	2	2.85039E6	X
18	1	3.48951E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-770348.	1.89749E6
1 - 3		63316.0	1.89749E6
1 - 4		288330.	1.89749E6
1 - 5		-138961.	1.89749E6
1 - 6		-360105.	1.89749E6
1 - 7		688356.	1.89749E6
1 - 8		232949.	1.89749E6
1 - 9		66882.5	1.89749E6
1 - 10		-60700.0	1.89749E6
1 - 11		940103.	2.32394E6
1 - 12		-382384.	2.32394E6
1 - 13		148114.	2.32394E6
1 - 14		478349.	2.32394E6
1 - 15		-61839.0	2.32394E6
1 - 16		-157481.	2.32394E6
1 - 17		-179609.	2.32394E6
1 - 18		-1.40947E6	2.32394E6
2 - 3		833664.	1.89749E6
2 - 4		1.05868E6	1.89749E6
2 - 5		631388.	1.89749E6
2 - 6		410243.	1.89749E6
2 - 7		1.4587E6	1.89749E6
2 - 8		1.0033E6	1.89749E6
2 - 9		837231.	1.89749E6
2 - 10		709648.	1.89749E6
2 - 11		1.71045E6	2.32394E6
2 - 12		387964.	2.32394E6
2 - 13		918462.	2.32394E6
2 - 14		1.2487E6	2.32394E6
2 - 15		708509.	2.32394E6
2 - 16		612867.	2.32394E6
2 - 17		590739.	2.32394E6
2 - 18		-639117.	2.32394E6
3 - 4		225014.	1.89749E6
3 - 5		-202277.	1.89749E6
3 - 6		-423421.	1.89749E6
3 - 7		625040.	1.89749E6
3 - 8		169633.	1.89749E6
3 - 9		3566.5	1.89749E6
3 - 10		-124016.	1.89749E6
3 - 11		876787.	2.32394E6
3 - 12		-445700.	2.32394E6
3 - 13		84798.0	2.32394E6
3 - 14		415033.	2.32394E6
3 - 15		-125155.	2.32394E6
3 - 16		-220797.	2.32394E6
3 - 17		-242925.	2.32394E6
3 - 18		-1.47278E6	2.32394E6
4 - 5		-427291.	1.89749E6
4 - 6		-648435.	1.89749E6
4 - 7		400026.	1.89749E6
4 - 8		-55381.0	1.89749E6
4 - 9		-221448.	1.89749E6
4 - 10		-349030.	1.89749E6
4 - 11		651773.	2.32394E6
4 - 12		-670714.	2.32394E6
4 - 13		-140216.	2.32394E6
4 - 14		190019.	2.32394E6
4 - 15		-350169.	2.32394E6
4 - 16		-445811.	2.32394E6
4 - 17		-467939.	2.32394E6
4 - 18		-1.6978E6	2.32394E6

5 - 6		-221145.	1.89749E6
5 - 7		827316.	1.89749E6
5 - 8		371910.	1.89749E6
5 - 9		205843.	1.89749E6
5 - 10		78260.5	1.89749E6
5 - 11		1.07906E6	2.32394E6
5 - 12		-243424.	2.32394E6
5 - 13		287075.	2.32394E6
5 - 14		617310.	2.32394E6
5 - 15		77121.5	2.32394E6
5 - 16		-18520.5	2.32394E6
5 - 17		-40648.5	2.32394E6
5 - 18		-1.2705E6	2.32394E6
6 - 7		1.04846E6	1.89749E6
6 - 8		593054.	1.89749E6
6 - 9		426988.	1.89749E6
6 - 10		299405.	1.89749E6
6 - 11		1.30021E6	2.32394E6
6 - 12		-22279.0	2.32394E6
6 - 13		508219.	2.32394E6
6 - 14		838454.	2.32394E6
6 - 15		298266.	2.32394E6
6 - 16		202624.	2.32394E6
6 - 17		180496.	2.32394E6
6 - 18		-1.04936E6	2.32394E6
7 - 8		-455407.	1.89749E6
7 - 9		-621473.	1.89749E6
7 - 10		-749056.	1.89749E6
7 - 11		251748.	2.32394E6
7 - 12		-1.07074E6	2.32394E6
7 - 13		-540242.	2.32394E6
7 - 14		-210007.	2.32394E6
7 - 15		-750195.	2.32394E6
7 - 16		-845837.	2.32394E6
7 - 17		-867965.	2.32394E6
7 - 18		-2.09782E6	2.32394E6
8 - 9		-166067.	1.89749E6
8 - 10		-293649.	1.89749E6
8 - 11		707154.	2.32394E6
8 - 12		-615333.	2.32394E6
8 - 13		-84835.0	2.32394E6
8 - 14		245400.	2.32394E6
8 - 15		-294788.	2.32394E6
8 - 16		-390430.	2.32394E6
8 - 17		-412558.	2.32394E6
8 - 18		-1.64241E6	2.32394E6
9 - 10		-127583.	1.89749E6
9 - 11		873221.	2.32394E6
9 - 12		-449267.	2.32394E6
9 - 13		81231.5	2.32394E6
9 - 14		411467.	2.32394E6
9 - 15		-128722.	2.32394E6
9 - 16		-224364.	2.32394E6
9 - 17		-246492.	2.32394E6
9 - 18		-1.47635E6	2.32394E6
10 - 11		1.0008E6	2.32394E6
10 - 12		-321684.	2.32394E6
10 - 13		208814.	2.32394E6
10 - 14		539049.	2.32394E6
10 - 15		-1139.0	2.32394E6
10 - 16		-96781.0	2.32394E6
10 - 17		-118909.	2.32394E6
10 - 18		-1.34877E6	2.32394E6
11 - 12		-1.32249E6	2.68345E6

11 - 13		-791989.	2.68345E6
11 - 14		-461754.	2.68345E6
11 - 15		-1.00194E6	2.68345E6
11 - 16		-1.09758E6	2.68345E6
11 - 17		-1.11971E6	2.68345E6
11 - 18		-2.34957E6	2.68345E6
12 - 13		530498.	2.68345E6
12 - 14		860733.	2.68345E6
12 - 15		320545.	2.68345E6
12 - 16		224903.	2.68345E6
12 - 17		202775.	2.68345E6
12 - 18		-1.02708E6	2.68345E6
13 - 14		330235.	2.68345E6
13 - 15		-209953.	2.68345E6
13 - 16		-305595.	2.68345E6
13 - 17		-327723.	2.68345E6
13 - 18		-1.55758E6	2.68345E6
14 - 15		-540188.	2.68345E6
14 - 16		-635830.	2.68345E6
14 - 17		-657958.	2.68345E6
14 - 18		-1.88781E6	2.68345E6
15 - 16		-95642.0	2.68345E6
15 - 17		-117770.	2.68345E6
15 - 18		-1.34763E6	2.68345E6
16 - 17		-22128.0	2.68345E6
16 - 18		-1.25198E6	2.68345E6
17 - 18		-1.22986E6	2.68345E6

* denotes a statistically significant difference.

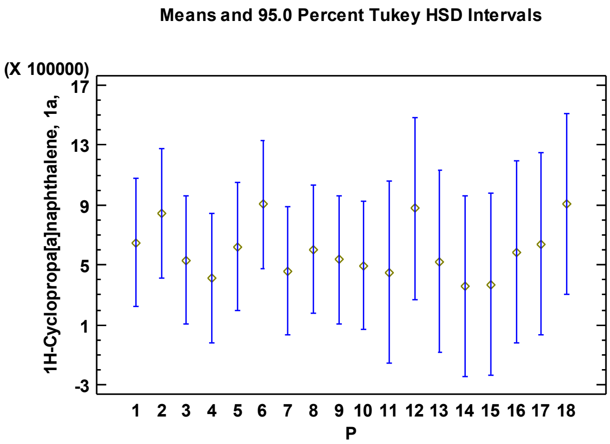
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 1H-Cyclopropa[a]naphthalene, 1a, by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	7.72451E11	17	4.54383E10	1.24	0.3741
Within groups	3.66556E11	10	3.66556E10		
Total (Corr.)	1.13901E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1H-Cyclopropa[a]naphthalene, 1a, into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.2396, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1H-Cyclopropa[a]naphthalene, 1a, from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 1H-Cyclopropa[a]naphthalene, 1a, for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1H-Cyclopropa[a]naphthalene, 1a, by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
14	1	357932.	X
15	1	371480.	X
4	2	411045.	X
11	1	449971.	X
7	2	459024.	X
10	2	495683.	X
13	1	523150.	X
3	2	533247.	X
9	2	533982.	X
16	1	587419.	X
8	2	602995.	X
5	2	622489.	X
17	1	639372.	X
1	2	650262.	X
2	2	842432.	X
12	1	878535.	X
6	2	904645.	X
18	1	906852.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-192170.	858804.
1 - 3		117015.	858804.
1 - 4		239217.	858804.
1 - 5		27773.0	858804.
1 - 6		-254383.	858804.
1 - 7		191238.	858804.
1 - 8		47266.5	858804.
1 - 9		116280.	858804.
1 - 10		154579.	858804.
1 - 11		200291.	1.05182E6
1 - 12		-228274.	1.05182E6
1 - 13		127112.	1.05182E6
1 - 14		292330.	1.05182E6
1 - 15		278782.	1.05182E6
1 - 16		62842.5	1.05182E6
1 - 17		10889.5	1.05182E6
1 - 18		-256591.	1.05182E6
2 - 3		309185.	858804.
2 - 4		431387.	858804.
2 - 5		219943.	858804.
2 - 6		-62213.0	858804.
2 - 7		383408.	858804.
2 - 8		239437.	858804.
2 - 9		308450.	858804.
2 - 10		346749.	858804.
2 - 11		392461.	1.05182E6
2 - 12		-36103.5	1.05182E6
2 - 13		319282.	1.05182E6
2 - 14		484500.	1.05182E6
2 - 15		470952.	1.05182E6
2 - 16		255013.	1.05182E6
2 - 17		203060.	1.05182E6
2 - 18		-64420.5	1.05182E6
3 - 4		122203.	858804.
3 - 5		-89241.5	858804.
3 - 6		-371398.	858804.
3 - 7		74223.0	858804.
3 - 8		-69748.0	858804.
3 - 9		-735.0	858804.
3 - 10		37564.5	858804.
3 - 11		83276.0	1.05182E6
3 - 12		-345288.	1.05182E6
3 - 13		10097.0	1.05182E6
3 - 14		175315.	1.05182E6
3 - 15		161767.	1.05182E6
3 - 16		-54172.0	1.05182E6
3 - 17		-106125.	1.05182E6
3 - 18		-373605.	1.05182E6
4 - 5		-211444.	858804.
4 - 6		-493600.	858804.
4 - 7		-47979.5	858804.
4 - 8		-191951.	858804.
4 - 9		-122938.	858804.
4 - 10		-84638.0	858804.
4 - 11		-38926.5	1.05182E6
4 - 12		-467491.	1.05182E6
4 - 13		-112106.	1.05182E6
4 - 14		53112.5	1.05182E6
4 - 15		39564.5	1.05182E6
4 - 16		-176375.	1.05182E6
4 - 17		-228328.	1.05182E6
4 - 18		-495808.	1.05182E6
5 - 6		-282156.	858804.

5 - 7		163465.	858804.
5 - 8		19493.5	858804.
5 - 9		88506.5	858804.
5 - 10		126806.	858804.
5 - 11		172518.	1.05182E6
5 - 12		-256047.	1.05182E6
5 - 13		99338.5	1.05182E6
5 - 14		264557.	1.05182E6
5 - 15		251009.	1.05182E6
5 - 16		35069.5	1.05182E6
5 - 17		-16883.5	1.05182E6
5 - 18		-284364.	1.05182E6
6 - 7		445621.	858804.
6 - 8		301650.	858804.
6 - 9		370663.	858804.
6 - 10		408962.	858804.
6 - 11		454674.	1.05182E6
6 - 12		26109.5	1.05182E6
6 - 13		381495.	1.05182E6
6 - 14		546713.	1.05182E6
6 - 15		533165.	1.05182E6
6 - 16		317226.	1.05182E6
6 - 17		265273.	1.05182E6
6 - 18		-2207.5	1.05182E6
7 - 8		-143971.	858804.
7 - 9		-74958.0	858804.
7 - 10		-36658.5	858804.
7 - 11		9053.0	1.05182E6
7 - 12		-419511.	1.05182E6
7 - 13		-64126.0	1.05182E6
7 - 14		101092.	1.05182E6
7 - 15		87544.0	1.05182E6
7 - 16		-128395.	1.05182E6
7 - 17		-180348.	1.05182E6
7 - 18		-447828.	1.05182E6
8 - 9		69013.0	858804.
8 - 10		107313.	858804.
8 - 11		153024.	1.05182E6
8 - 12		-275540.	1.05182E6
8 - 13		79845.0	1.05182E6
8 - 14		245063.	1.05182E6
8 - 15		231515.	1.05182E6
8 - 16		15576.0	1.05182E6
8 - 17		-36377.0	1.05182E6
8 - 18		-303857.	1.05182E6
9 - 10		38299.5	858804.
9 - 11		84011.0	1.05182E6
9 - 12		-344553.	1.05182E6
9 - 13		10832.0	1.05182E6
9 - 14		176050.	1.05182E6
9 - 15		162502.	1.05182E6
9 - 16		-53437.0	1.05182E6
9 - 17		-105390.	1.05182E6
9 - 18		-372870.	1.05182E6
10 - 11		45711.5	1.05182E6
10 - 12		-382853.	1.05182E6
10 - 13		-27467.5	1.05182E6
10 - 14		137751.	1.05182E6
10 - 15		124203.	1.05182E6
10 - 16		-91736.5	1.05182E6
10 - 17		-143690.	1.05182E6
10 - 18		-411170.	1.05182E6
11 - 12		-428564.	1.21453E6
11 - 13		-73179.0	1.21453E6

11 - 14		92039.0	1.21453E6
11 - 15		78491.0	1.21453E6
11 - 16		-137448.	1.21453E6
11 - 17		-189401.	1.21453E6
11 - 18		-456881.	1.21453E6
12 - 13		355385.	1.21453E6
12 - 14		520603.	1.21453E6
12 - 15		507055.	1.21453E6
12 - 16		291116.	1.21453E6
12 - 17		239163.	1.21453E6
12 - 18		-28317.0	1.21453E6
13 - 14		165218.	1.21453E6
13 - 15		151670.	1.21453E6
13 - 16		-64269.0	1.21453E6
13 - 17		-116222.	1.21453E6
13 - 18		-383702.	1.21453E6
14 - 15		-13548.0	1.21453E6
14 - 16		-229487.	1.21453E6
14 - 17		-281440.	1.21453E6
14 - 18		-548920.	1.21453E6
15 - 16		-215939.	1.21453E6
15 - 17		-267892.	1.21453E6
15 - 18		-535372.	1.21453E6
16 - 17		-51953.0	1.21453E6
16 - 18		-319433.	1.21453E6
17 - 18		-267480.	1.21453E6

* denotes a statistically significant difference.

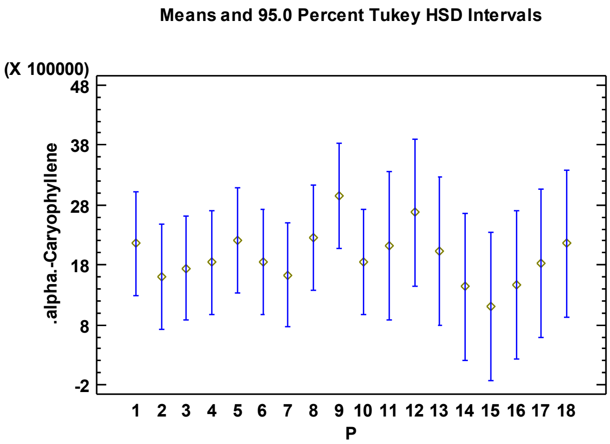
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for .alpha.-Caryophyllene by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	4.82268E12	17	2.83687E11	1.87	0.1566
Within groups	1.5136E12	10	1.5136E11		
Total (Corr.)	6.33628E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of .alpha.-Caryophyllene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.87425, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean .alpha.-Caryophyllene from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean .alpha.-Caryophyllene for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for .alpha.-Caryophyllene by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
15	1	1.10326E6	X
14	1	1.43577E6	X
16	1	1.46511E6	X
2	2	1.60046E6	X
7	2	1.63222E6	X
3	2	1.7473E6	X
17	1	1.82418E6	X
4	2	1.84263E6	X
10	2	1.84426E6	X
6	2	1.85448E6	X
13	1	2.03631E6	X
11	1	2.11574E6	X
18	1	2.15461E6	X
1	2	2.15472E6	X
5	2	2.20669E6	X
8	2	2.25506E6	X
12	1	2.67449E6	X
9	2	2.95002E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		554259.	1.74514E6
1 - 3		407415.	1.74514E6
1 - 4		312090.	1.74514E6
1 - 5		-51973.0	1.74514E6
1 - 6		300240.	1.74514E6
1 - 7		522501.	1.74514E6
1 - 8		-100340.	1.74514E6
1 - 9		-795299.	1.74514E6
1 - 10		310462.	1.74514E6
1 - 11		38979.5	2.13735E6
1 - 12		-519773.	2.13735E6
1 - 13		118408.	2.13735E6
1 - 14		718948.	2.13735E6
1 - 15		1.05146E6	2.13735E6
1 - 16		689607.	2.13735E6
1 - 17		330538.	2.13735E6
1 - 18		105.5	2.13735E6
2 - 3		-146845.	1.74514E6
2 - 4		-242169.	1.74514E6
2 - 5		-606232.	1.74514E6
2 - 6		-254020.	1.74514E6
2 - 7		-31758.5	1.74514E6
2 - 8		-654599.	1.74514E6
2 - 9		-1.34956E6	1.74514E6
2 - 10		-243798.	1.74514E6
2 - 11		-515280.	2.13735E6
2 - 12		-1.07403E6	2.13735E6
2 - 13		-435852.	2.13735E6
2 - 14		164689.	2.13735E6
2 - 15		497201.	2.13735E6
2 - 16		135348.	2.13735E6
2 - 17		-223722.	2.13735E6
2 - 18		-554154.	2.13735E6
3 - 4		-95324.5	1.74514E6
3 - 5		-459388.	1.74514E6
3 - 6		-107175.	1.74514E6
3 - 7		115086.	1.74514E6
3 - 8		-507755.	1.74514E6
3 - 9		-1.20271E6	1.74514E6
3 - 10		-96953.0	1.74514E6
3 - 11		-368435.	2.13735E6
3 - 12		-927187.	2.13735E6
3 - 13		-289007.	2.13735E6
3 - 14		311533.	2.13735E6
3 - 15		644045.	2.13735E6
3 - 16		282192.	2.13735E6
3 - 17		-76877.0	2.13735E6
3 - 18		-407309.	2.13735E6
4 - 5		-364063.	1.74514E6
4 - 6		-11850.5	1.74514E6
4 - 7		210411.	1.74514E6
4 - 8		-412430.	1.74514E6
4 - 9		-1.10739E6	1.74514E6
4 - 10		-1628.5	1.74514E6
4 - 11		-273111.	2.13735E6
4 - 12		-831863.	2.13735E6
4 - 13		-193683.	2.13735E6
4 - 14		406858.	2.13735E6
4 - 15		739370.	2.13735E6
4 - 16		377517.	2.13735E6
4 - 17		18447.5	2.13735E6
4 - 18		-311985.	2.13735E6
5 - 6		352213.	1.74514E6

5 - 7		574474.	1.74514E6
5 - 8		-48367.0	1.74514E6
5 - 9		-743326.	1.74514E6
5 - 10		362435.	1.74514E6
5 - 11		90952.5	2.13735E6
5 - 12		-467800.	2.13735E6
5 - 13		170381.	2.13735E6
5 - 14		770921.	2.13735E6
5 - 15		1.10343E6	2.13735E6
5 - 16		741580.	2.13735E6
5 - 17		382511.	2.13735E6
5 - 18		52078.5	2.13735E6
6 - 7		222261.	1.74514E6
6 - 8		-400580.	1.74514E6
6 - 9		-1.09554E6	1.74514E6
6 - 10		10222.0	1.74514E6
6 - 11		-261260.	2.13735E6
6 - 12		-820012.	2.13735E6
6 - 13		-181832.	2.13735E6
6 - 14		418708.	2.13735E6
6 - 15		751220.	2.13735E6
6 - 16		389367.	2.13735E6
6 - 17		30298.0	2.13735E6
6 - 18		-300134.	2.13735E6
7 - 8		-622841.	1.74514E6
7 - 9		-1.3178E6	1.74514E6
7 - 10		-212039.	1.74514E6
7 - 11		-483521.	2.13735E6
7 - 12		-1.04227E6	2.13735E6
7 - 13		-404093.	2.13735E6
7 - 14		196447.	2.13735E6
7 - 15		528959.	2.13735E6
7 - 16		167106.	2.13735E6
7 - 17		-191963.	2.13735E6
7 - 18		-522395.	2.13735E6
8 - 9		-694959.	1.74514E6
8 - 10		410802.	1.74514E6
8 - 11		139320.	2.13735E6
8 - 12		-419433.	2.13735E6
8 - 13		218748.	2.13735E6
8 - 14		819288.	2.13735E6
8 - 15		1.1518E6	2.13735E6
8 - 16		789947.	2.13735E6
8 - 17		430878.	2.13735E6
8 - 18		100446.	2.13735E6
9 - 10		1.10576E6	1.74514E6
9 - 11		834279.	2.13735E6
9 - 12		275527.	2.13735E6
9 - 13		913707.	2.13735E6
9 - 14		1.51425E6	2.13735E6
9 - 15		1.84676E6	2.13735E6
9 - 16		1.48491E6	2.13735E6
9 - 17		1.12584E6	2.13735E6
9 - 18		795405.	2.13735E6
10 - 11		-271482.	2.13735E6
10 - 12		-830234.	2.13735E6
10 - 13		-192054.	2.13735E6
10 - 14		408486.	2.13735E6
10 - 15		740998.	2.13735E6
10 - 16		379145.	2.13735E6
10 - 17		20076.0	2.13735E6
10 - 18		-310356.	2.13735E6
11 - 12		-558752.	2.468E6
11 - 13		79428.0	2.468E6

11 - 14		679968.	2.468E6
11 - 15		1.01248E6	2.468E6
11 - 16		650627.	2.468E6
11 - 17		291558.	2.468E6
11 - 18		-38874.0	2.468E6
12 - 13		638180.	2.468E6
12 - 14		1.23872E6	2.468E6
12 - 15		1.57123E6	2.468E6
12 - 16		1.20938E6	2.468E6
12 - 17		850310.	2.468E6
12 - 18		519878.	2.468E6
13 - 14		600540.	2.468E6
13 - 15		933052.	2.468E6
13 - 16		571199.	2.468E6
13 - 17		212130.	2.468E6
13 - 18		-118302.	2.468E6
14 - 15		332512.	2.468E6
14 - 16		-29341.0	2.468E6
14 - 17		-388410.	2.468E6
14 - 18		-718842.	2.468E6
15 - 16		-361853.	2.468E6
15 - 17		-720922.	2.468E6
15 - 18		-1.05135E6	2.468E6
16 - 17		-359069.	2.468E6
16 - 18		-689501.	2.468E6
17 - 18		-330432.	2.468E6

* denotes a statistically significant difference.

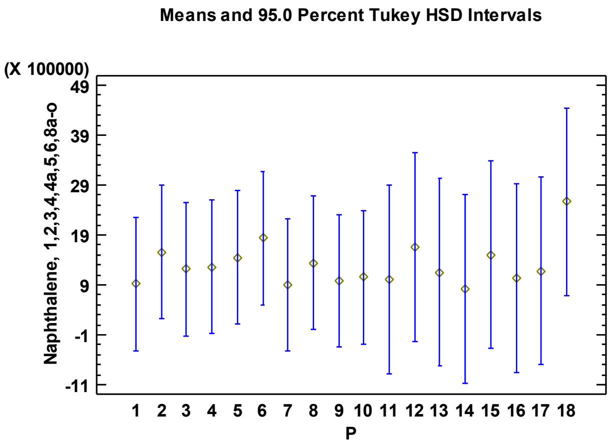
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Naphthalene, 1,2,3,4,4a,5,6,8a-o by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.8906E12	17	2.28859E11	0.65	0.7912
Within groups	3.5214E12	10	3.5214E11		
Total (Corr.)	7.412E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of Naphthalene, 1,2,3,4,4a,5,6,8a-o into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.649907, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Naphthalene, 1,2,3,4,4a,5,6,8a-o from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Naphthalene, 1,2,3,4,4a,5,6,8a-o for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Naphthalene, 1,2,3,4,4a,5,6,8a-o by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
14	1	817162.	X
7	2	905906.	X
1	2	919492.	X
9	2	982681.	X
11	1	1.00577E6	X
16	1	1.03423E6	X
10	2	1.05335E6	X
13	1	1.15316E6	X
17	1	1.18305E6	X
3	2	1.21477E6	X
4	2	1.2582E6	X
8	2	1.33902E6	X
5	2	1.45301E6	X
15	1	1.50653E6	X
2	2	1.5562E6	X
12	1	1.65551E6	X
6	2	1.83713E6	X
18	1	2.56626E6	X

Contrast	Sig.	Difference	+/- Limits
1 - 2		-636706.	2.66184E6
1 - 3		-295275.	2.66184E6
1 - 4		-338711.	2.66184E6
1 - 5		-533522.	2.66184E6
1 - 6		-917637.	2.66184E6
1 - 7		13586.0	2.66184E6
1 - 8		-419532.	2.66184E6
1 - 9		-63189.0	2.66184E6
1 - 10		-133862.	2.66184E6
1 - 11		-86273.0	3.26007E6
1 - 12		-736016.	3.26007E6
1 - 13		-233666.	3.26007E6
1 - 14		102330.	3.26007E6
1 - 15		-587041.	3.26007E6
1 - 16		-114739.	3.26007E6
1 - 17		-263554.	3.26007E6
1 - 18		-1.64677E6	3.26007E6
2 - 3		341431.	2.66184E6
2 - 4		297996.	2.66184E6
2 - 5		103184.	2.66184E6
2 - 6		-280931.	2.66184E6
2 - 7		650292.	2.66184E6
2 - 8		217175.	2.66184E6
2 - 9		573517.	2.66184E6
2 - 10		502845.	2.66184E6
2 - 11		550433.	3.26007E6
2 - 12		-99310.0	3.26007E6
2 - 13		403040.	3.26007E6
2 - 14		739036.	3.26007E6
2 - 15		49665.0	3.26007E6
2 - 16		521967.	3.26007E6
2 - 17		373152.	3.26007E6
2 - 18		-1.01007E6	3.26007E6
3 - 4		-43435.5	2.66184E6
3 - 5		-238247.	2.66184E6
3 - 6		-622362.	2.66184E6
3 - 7		308861.	2.66184E6
3 - 8		-124257.	2.66184E6
3 - 9		232086.	2.66184E6
3 - 10		161414.	2.66184E6
3 - 11		209002.	3.26007E6
3 - 12		-440741.	3.26007E6
3 - 13		61609.0	3.26007E6
3 - 14		397605.	3.26007E6
3 - 15		-291766.	3.26007E6
3 - 16		180536.	3.26007E6
3 - 17		31721.0	3.26007E6
3 - 18		-1.3515E6	3.26007E6
4 - 5		-194812.	2.66184E6
4 - 6		-578926.	2.66184E6
4 - 7		352297.	2.66184E6
4 - 8		-80821.0	2.66184E6
4 - 9		275522.	2.66184E6
4 - 10		204849.	2.66184E6
4 - 11		252438.	3.26007E6
4 - 12		-397306.	3.26007E6
4 - 13		105045.	3.26007E6
4 - 14		441041.	3.26007E6
4 - 15		-248331.	3.26007E6
4 - 16		223972.	3.26007E6
4 - 17		75156.5	3.26007E6
4 - 18		-1.30806E6	3.26007E6
5 - 6		-384115.	2.66184E6

5 - 7		547108.	2.66184E6
5 - 8		113991.	2.66184E6
5 - 9		470333.	2.66184E6
5 - 10		399661.	2.66184E6
5 - 11		447249.	3.26007E6
5 - 12		-202494.	3.26007E6
5 - 13		299856.	3.26007E6
5 - 14		635852.	3.26007E6
5 - 15		-53519.0	3.26007E6
5 - 16		418783.	3.26007E6
5 - 17		269968.	3.26007E6
5 - 18		-1.11325E6	3.26007E6
6 - 7		931223.	2.66184E6
6 - 8		498105.	2.66184E6
6 - 9		854448.	2.66184E6
6 - 10		783775.	2.66184E6
6 - 11		831364.	3.26007E6
6 - 12		181621.	3.26007E6
6 - 13		683971.	3.26007E6
6 - 14		1.01997E6	3.26007E6
6 - 15		330596.	3.26007E6
6 - 16		802898.	3.26007E6
6 - 17		654083.	3.26007E6
6 - 18		-729135.	3.26007E6
7 - 8		-433118.	2.66184E6
7 - 9		-76775.0	2.66184E6
7 - 10		-147448.	2.66184E6
7 - 11		-99859.0	3.26007E6
7 - 12		-749602.	3.26007E6
7 - 13		-247252.	3.26007E6
7 - 14		88744.0	3.26007E6
7 - 15		-600627.	3.26007E6
7 - 16		-128325.	3.26007E6
7 - 17		-277140.	3.26007E6
7 - 18		-1.66036E6	3.26007E6
8 - 9		356343.	2.66184E6
8 - 10		285670.	2.66184E6
8 - 11		333259.	3.26007E6
8 - 12		-316485.	3.26007E6
8 - 13		185866.	3.26007E6
8 - 14		521862.	3.26007E6
8 - 15		-167510.	3.26007E6
8 - 16		304793.	3.26007E6
8 - 17		155978.	3.26007E6
8 - 18		-1.22724E6	3.26007E6
9 - 10		-70672.5	2.66184E6
9 - 11		-23084.0	3.26007E6
9 - 12		-672827.	3.26007E6
9 - 13		-170477.	3.26007E6
9 - 14		165519.	3.26007E6
9 - 15		-523852.	3.26007E6
9 - 16		-51550.0	3.26007E6
9 - 17		-200365.	3.26007E6
9 - 18		-1.58358E6	3.26007E6
10 - 11		47588.5	3.26007E6
10 - 12		-602155.	3.26007E6
10 - 13		-99804.5	3.26007E6
10 - 14		236192.	3.26007E6
10 - 15		-453180.	3.26007E6
10 - 16		19122.5	3.26007E6
10 - 17		-129693.	3.26007E6
10 - 18		-1.51291E6	3.26007E6
11 - 12		-649743.	3.76441E6
11 - 13		-147393.	3.76441E6

11 - 14		188603.	3.76441E6
11 - 15		-500768.	3.76441E6
11 - 16		-28466.0	3.76441E6
11 - 17		-177281.	3.76441E6
11 - 18		-1.5605E6	3.76441E6
12 - 13		502350.	3.76441E6
12 - 14		838346.	3.76441E6
12 - 15		148975.	3.76441E6
12 - 16		621277.	3.76441E6
12 - 17		472462.	3.76441E6
12 - 18		-910755.	3.76441E6
13 - 14		335996.	3.76441E6
13 - 15		-353375.	3.76441E6
13 - 16		118927.	3.76441E6
13 - 17		-29888.0	3.76441E6
13 - 18		-1.41311E6	3.76441E6
14 - 15		-689371.	3.76441E6
14 - 16		-217069.	3.76441E6
14 - 17		-365884.	3.76441E6
14 - 18		-1.7491E6	3.76441E6
15 - 16		472302.	3.76441E6
15 - 17		323487.	3.76441E6
15 - 18		-1.05973E6	3.76441E6
16 - 17		-148815.	3.76441E6
16 - 18		-1.53203E6	3.76441E6
17 - 18		-1.38322E6	3.76441E6

* denotes a statistically significant difference.

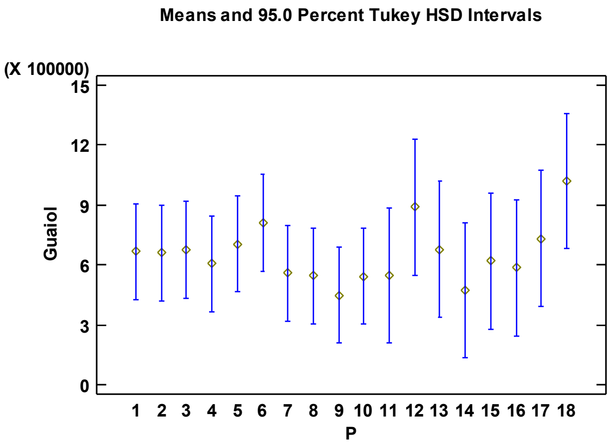
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Guaiol by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	4.53055E11	17	2.66503E10	2.32	0.0883
Within groups	1.14667E11	10	1.14667E10		
Total (Corr.)	5.67721E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of Guaiol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.32415, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Guaiol from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean Guaiol for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Guaiol by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
9	2	447361.	X
14	1	474255.	X
10	2	542372.	X
8	2	544379.	X
11	1	548468.	X
7	2	558884.	X
16	1	586533.	X
4	2	606525.	X
15	1	620275.	X
2	2	660500.	X
1	2	666915.	X
3	2	675862.	X
13	1	678320.	X
5	2	705646.	X
17	1	731858.	X
6	2	810491.	X
12	1	888633.	X
18	1	1.01921E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		6414.5	480333.
1 - 3		-8947.5	480333.
1 - 4		60390.0	480333.
1 - 5		-38731.0	480333.
1 - 6		-143576.	480333.
1 - 7		108031.	480333.
1 - 8		122536.	480333.
1 - 9		219554.	480333.
1 - 10		124543.	480333.
1 - 11		118447.	588286.
1 - 12		-221719.	588286.
1 - 13		-11405.5	588286.
1 - 14		192660.	588286.
1 - 15		46639.5	588286.
1 - 16		80381.5	588286.
1 - 17		-64943.5	588286.
1 - 18		-352298.	588286.
2 - 3		-15362.0	480333.
2 - 4		53975.5	480333.
2 - 5		-45145.5	480333.
2 - 6		-149991.	480333.
2 - 7		101617.	480333.
2 - 8		116121.	480333.
2 - 9		213139.	480333.
2 - 10		118128.	480333.
2 - 11		112032.	588286.
2 - 12		-228133.	588286.
2 - 13		-17820.0	588286.
2 - 14		186245.	588286.
2 - 15		40225.0	588286.
2 - 16		73967.0	588286.
2 - 17		-71358.0	588286.
2 - 18		-358712.	588286.
3 - 4		69337.5	480333.
3 - 5		-29783.5	480333.
3 - 6		-134629.	480333.
3 - 7		116979.	480333.
3 - 8		131483.	480333.
3 - 9		228501.	480333.
3 - 10		133490.	480333.
3 - 11		127394.	588286.
3 - 12		-212771.	588286.
3 - 13		-2458.0	588286.
3 - 14		201607.	588286.
3 - 15		55587.0	588286.
3 - 16		89329.0	588286.
3 - 17		-55996.0	588286.
3 - 18		-343350.	588286.
4 - 5		-99121.0	480333.
4 - 6		-203966.	480333.
4 - 7		47641.0	480333.
4 - 8		62145.5	480333.
4 - 9		159164.	480333.
4 - 10		64152.5	480333.
4 - 11		58056.5	588286.
4 - 12		-282109.	588286.
4 - 13		-71795.5	588286.
4 - 14		132270.	588286.
4 - 15		-13750.5	588286.
4 - 16		19991.5	588286.
4 - 17		-125334.	588286.
4 - 18		-412688.	588286.
5 - 6		-104845.	480333.

5 - 7		146762.	480333.
5 - 8		161267.	480333.
5 - 9		258285.	480333.
5 - 10		163274.	480333.
5 - 11		157178.	588286.
5 - 12		-182988.	588286.
5 - 13		27325.5	588286.
5 - 14		231391.	588286.
5 - 15		85370.5	588286.
5 - 16		119113.	588286.
5 - 17		-26212.5	588286.
5 - 18		-313567.	588286.
6 - 7		251607.	480333.
6 - 8		266112.	480333.
6 - 9		363130.	480333.
6 - 10		268119.	480333.
6 - 11		262023.	588286.
6 - 12		-78142.5	588286.
6 - 13		132171.	588286.
6 - 14		336236.	588286.
6 - 15		190216.	588286.
6 - 16		223958.	588286.
6 - 17		78632.5	588286.
6 - 18		-208722.	588286.
7 - 8		14504.5	480333.
7 - 9		111523.	480333.
7 - 10		16511.5	480333.
7 - 11		10415.5	588286.
7 - 12		-329750.	588286.
7 - 13		-119437.	588286.
7 - 14		84628.5	588286.
7 - 15		-61391.5	588286.
7 - 16		-27649.5	588286.
7 - 17		-172975.	588286.
7 - 18		-460329.	588286.
8 - 9		97018.0	480333.
8 - 10		2007.0	480333.
8 - 11		-4089.0	588286.
8 - 12		-344254.	588286.
8 - 13		-133941.	588286.
8 - 14		70124.0	588286.
8 - 15		-75896.0	588286.
8 - 16		-42154.0	588286.
8 - 17		-187479.	588286.
8 - 18		-474833.	588286.
9 - 10		-95011.0	480333.
9 - 11		-101107.	588286.
9 - 12		-441272.	588286.
9 - 13		-230959.	588286.
9 - 14		-26894.0	588286.
9 - 15		-172914.	588286.
9 - 16		-139172.	588286.
9 - 17		-284497.	588286.
9 - 18		-571851.	588286.
10 - 11		-6096.0	588286.
10 - 12		-346261.	588286.
10 - 13		-135948.	588286.
10 - 14		68117.0	588286.
10 - 15		-77903.0	588286.
10 - 16		-44161.0	588286.
10 - 17		-189486.	588286.
10 - 18		-476840.	588286.
11 - 12		-340165.	679294.
11 - 13		-129852.	679294.

11 - 14		74213.0	679294.
11 - 15		-71807.0	679294.
11 - 16		-38065.0	679294.
11 - 17		-183390.	679294.
11 - 18		-470744.	679294.
12 - 13		210313.	679294.
12 - 14		414378.	679294.
12 - 15		268358.	679294.
12 - 16		302100.	679294.
12 - 17		156775.	679294.
12 - 18		-130579.	679294.
13 - 14		204065.	679294.
13 - 15		58045.0	679294.
13 - 16		91787.0	679294.
13 - 17		-53538.0	679294.
13 - 18		-340892.	679294.
14 - 15		-146020.	679294.
14 - 16		-112278.	679294.
14 - 17		-257603.	679294.
14 - 18		-544957.	679294.
15 - 16		33742.0	679294.
15 - 17		-111583.	679294.
15 - 18		-398937.	679294.
16 - 17		-145325.	679294.
16 - 18		-432679.	679294.
17 - 18		-287354.	679294.

* denotes a statistically significant difference.

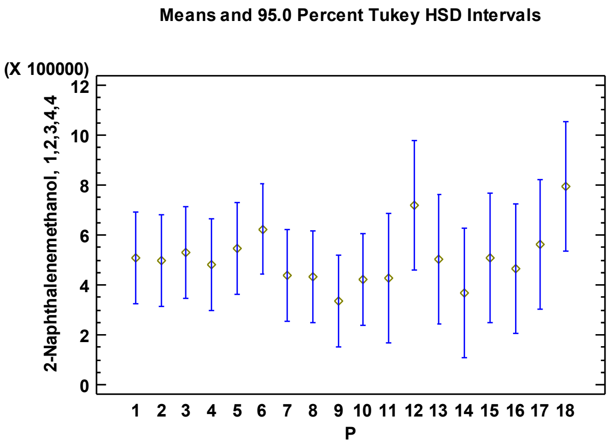
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 2-Naphthalenemethanol, 1,2,3,4,4 by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	2.83008E11	17	1.66475E10	2.49	0.0721
Within groups	6.67656E10	10	6.67656E9		
Total (Corr.)	3.49774E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2-Naphthalenemethanol, 1,2,3,4,4 into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.49343, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2-Naphthalenemethanol, 1,2,3,4,4 from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 2-Naphthalenemethanol, 1,2,3,4,4 for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2-Naphthalenemethanol, 1,2,3,4,4 by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
9	2	333746.	X
14	1	370220.	XX
10	2	419658.	XX
11	1	429367.	XX
8	2	434257.	XX
7	2	437410.	XX
16	1	465565.	XX
4	2	482827.	XX
2	2	495952.	XX
13	1	504861.	XX
15	1	507019.	XX
1	2	508401.	XX
3	2	532159.	XX
5	2	544816.	XX
17	1	560869.	XX
6	2	624058.	XX
12	1	719175.	XX
18	1	793077.	X

Contrast	Sig.	Difference	+/- Limits
1 - 2		12449.5	366522.
1 - 3		-23758.0	366522.
1 - 4		25574.5	366522.
1 - 5		-36414.5	366522.
1 - 6		-115657.	366522.
1 - 7		70991.0	366522.
1 - 8		74144.5	366522.
1 - 9		174655.	366522.
1 - 10		88743.5	366522.
1 - 11		79034.0	448896.
1 - 12		-210774.	448896.
1 - 13		3540.0	448896.
1 - 14		138181.	448896.
1 - 15		1382.0	448896.
1 - 16		42836.0	448896.
1 - 17		-52468.0	448896.
1 - 18		-284676.	448896.
2 - 3		-36207.5	366522.
2 - 4		13125.0	366522.
2 - 5		-48864.0	366522.
2 - 6		-128107.	366522.
2 - 7		58541.5	366522.
2 - 8		61695.0	366522.
2 - 9		162206.	366522.
2 - 10		76294.0	366522.
2 - 11		66584.5	448896.
2 - 12		-223224.	448896.
2 - 13		-8909.5	448896.
2 - 14		125732.	448896.
2 - 15		-11067.5	448896.
2 - 16		30386.5	448896.
2 - 17		-64917.5	448896.
2 - 18		-297126.	448896.
3 - 4		49332.5	366522.
3 - 5		-12656.5	366522.
3 - 6		-91899.0	366522.
3 - 7		94749.0	366522.
3 - 8		97902.5	366522.
3 - 9		198413.	366522.
3 - 10		112502.	366522.
3 - 11		102792.	448896.
3 - 12		-187016.	448896.
3 - 13		27298.0	448896.
3 - 14		161939.	448896.
3 - 15		25140.0	448896.
3 - 16		66594.0	448896.
3 - 17		-28710.0	448896.
3 - 18		-260918.	448896.
4 - 5		-61989.0	366522.
4 - 6		-141232.	366522.
4 - 7		45416.5	366522.
4 - 8		48570.0	366522.
4 - 9		149081.	366522.
4 - 10		63169.0	366522.
4 - 11		53459.5	448896.
4 - 12		-236349.	448896.
4 - 13		-22034.5	448896.
4 - 14		112607.	448896.
4 - 15		-24192.5	448896.
4 - 16		17261.5	448896.
4 - 17		-78042.5	448896.
4 - 18		-310251.	448896.
5 - 6		-79242.5	366522.

5 - 7		107406.	366522.
5 - 8		110559.	366522.
5 - 9		211070.	366522.
5 - 10		125158.	366522.
5 - 11		115449.	448896.
5 - 12		-174360.	448896.
5 - 13		39954.5	448896.
5 - 14		174596.	448896.
5 - 15		37796.5	448896.
5 - 16		79250.5	448896.
5 - 17		-16053.5	448896.
5 - 18		-248262.	448896.
6 - 7		186648.	366522.
6 - 8		189802.	366522.
6 - 9		290312.	366522.
6 - 10		204401.	366522.
6 - 11		194691.	448896.
6 - 12		-95117.0	448896.
6 - 13		119197.	448896.
6 - 14		253838.	448896.
6 - 15		117039.	448896.
6 - 16		158493.	448896.
6 - 17		63189.0	448896.
6 - 18		-169019.	448896.
7 - 8		3153.5	366522.
7 - 9		103664.	366522.
7 - 10		17752.5	366522.
7 - 11		8043.0	448896.
7 - 12		-281765.	448896.
7 - 13		-67451.0	448896.
7 - 14		67190.0	448896.
7 - 15		-69609.0	448896.
7 - 16		-28155.0	448896.
7 - 17		-123459.	448896.
7 - 18		-355667.	448896.
8 - 9		100511.	366522.
8 - 10		14599.0	366522.
8 - 11		4889.5	448896.
8 - 12		-284919.	448896.
8 - 13		-70604.5	448896.
8 - 14		64036.5	448896.
8 - 15		-72762.5	448896.
8 - 16		-31308.5	448896.
8 - 17		-126613.	448896.
8 - 18		-358821.	448896.
9 - 10		-85911.5	366522.
9 - 11		-95621.0	448896.
9 - 12		-385429.	448896.
9 - 13		-171115.	448896.
9 - 14		-36474.0	448896.
9 - 15		-173273.	448896.
9 - 16		-131819.	448896.
9 - 17		-227123.	448896.
9 - 18	*	-459331.	448896.
10 - 11		-9709.5	448896.
10 - 12		-299518.	448896.
10 - 13		-85203.5	448896.
10 - 14		49437.5	448896.
10 - 15		-87361.5	448896.
10 - 16		-45907.5	448896.
10 - 17		-141212.	448896.
10 - 18		-373420.	448896.
11 - 12		-289808.	518341.
11 - 13		-75494.0	518341.

11 - 14		59147.0	518341.
11 - 15		-77652.0	518341.
11 - 16		-36198.0	518341.
11 - 17		-131502.	518341.
11 - 18		-363710.	518341.
12 - 13		214314.	518341.
12 - 14		348955.	518341.
12 - 15		212156.	518341.
12 - 16		253610.	518341.
12 - 17		158306.	518341.
12 - 18		-73902.0	518341.
13 - 14		134641.	518341.
13 - 15		-2158.0	518341.
13 - 16		39296.0	518341.
13 - 17		-56008.0	518341.
13 - 18		-288216.	518341.
14 - 15		-136799.	518341.
14 - 16		-95345.0	518341.
14 - 17		-190649.	518341.
14 - 18		-422857.	518341.
15 - 16		41454.0	518341.
15 - 17		-53850.0	518341.
15 - 18		-286058.	518341.
16 - 17		-95304.0	518341.
16 - 18		-327512.	518341.
17 - 18		-232208.	518341.

* denotes a statistically significant difference.

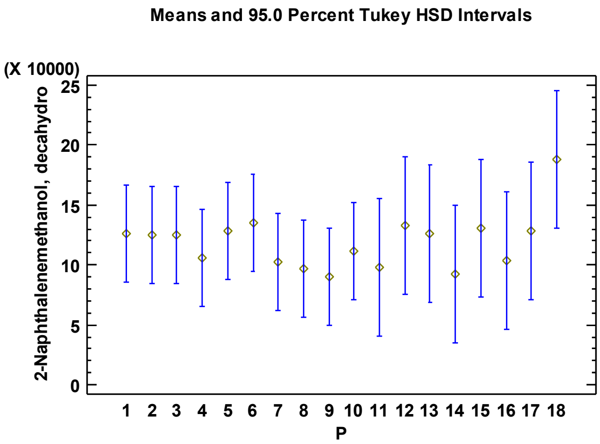
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 1 pair, indicating that this pair shows a statistically significant difference at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 2-Naphthalenemethanol, decahydro by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.11508E10	17	6.55932E8	2.00	0.1321
Within groups	3.2721E9	10	3.2721E8		
Total (Corr.)	1.44229E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2-Naphthalenemethanol, decahydro into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.00462, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2-Naphthalenemethanol, decahydro from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 2-Naphthalenemethanol, decahydro for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2-Naphthalenemethanol, decahydro by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
9	2	90335.0	X
14	1	92038.0	X
8	2	96832.0	X
11	1	97731.0	X
7	2	102911.	X
16	1	104118.	X
4	2	105894.	X
10	2	111212.	X
2	2	124519.	X
3	2	124966.	X
13	1	126118.	X
1	2	126241.	X
17	1	128255.	X
5	2	128783.	X
15	1	130225.	X
12	1	133418.	X
6	2	135521.	X
18	1	187904.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		1722.0	81140.4
1 - 3		1275.5	81140.4
1 - 4		20347.0	81140.4
1 - 5		-2541.5	81140.4
1 - 6		-9280.0	81140.4
1 - 7		23330.5	81140.4
1 - 8		29409.0	81140.4
1 - 9		35906.0	81140.4
1 - 10		15029.0	81140.4
1 - 11		28510.0	99376.3
1 - 12		-7177.0	99376.3
1 - 13		123.0	99376.3
1 - 14		34203.0	99376.3
1 - 15		-3984.0	99376.3
1 - 16		22123.0	99376.3
1 - 17		-2014.0	99376.3
1 - 18		-61663.0	99376.3
2 - 3		-446.5	81140.4
2 - 4		18625.0	81140.4
2 - 5		-4263.5	81140.4
2 - 6		-11002.0	81140.4
2 - 7		21608.5	81140.4
2 - 8		27687.0	81140.4
2 - 9		34184.0	81140.4
2 - 10		13307.0	81140.4
2 - 11		26788.0	99376.3
2 - 12		-8899.0	99376.3
2 - 13		-1599.0	99376.3
2 - 14		32481.0	99376.3
2 - 15		-5706.0	99376.3
2 - 16		20401.0	99376.3
2 - 17		-3736.0	99376.3
2 - 18		-63385.0	99376.3
3 - 4		19071.5	81140.4
3 - 5		-3817.0	81140.4
3 - 6		-10555.5	81140.4
3 - 7		22055.0	81140.4
3 - 8		28133.5	81140.4
3 - 9		34630.5	81140.4
3 - 10		13753.5	81140.4
3 - 11		27234.5	99376.3
3 - 12		-8452.5	99376.3
3 - 13		-1152.5	99376.3
3 - 14		32927.5	99376.3
3 - 15		-5259.5	99376.3
3 - 16		20847.5	99376.3
3 - 17		-3289.5	99376.3
3 - 18		-62938.5	99376.3
4 - 5		-22888.5	81140.4
4 - 6		-29627.0	81140.4
4 - 7		2983.5	81140.4
4 - 8		9062.0	81140.4
4 - 9		15559.0	81140.4
4 - 10		-5318.0	81140.4
4 - 11		8163.0	99376.3
4 - 12		-27524.0	99376.3
4 - 13		-20224.0	99376.3
4 - 14		13856.0	99376.3
4 - 15		-24331.0	99376.3
4 - 16		1776.0	99376.3
4 - 17		-22361.0	99376.3
4 - 18		-82010.0	99376.3
5 - 6		-6738.5	81140.4

5 - 7		25872.0	81140.4
5 - 8		31950.5	81140.4
5 - 9		38447.5	81140.4
5 - 10		17570.5	81140.4
5 - 11		31051.5	99376.3
5 - 12		-4635.5	99376.3
5 - 13		2664.5	99376.3
5 - 14		36744.5	99376.3
5 - 15		-1442.5	99376.3
5 - 16		24664.5	99376.3
5 - 17		527.5	99376.3
5 - 18		-59121.5	99376.3
6 - 7		32610.5	81140.4
6 - 8		38689.0	81140.4
6 - 9		45186.0	81140.4
6 - 10		24309.0	81140.4
6 - 11		37790.0	99376.3
6 - 12		2103.0	99376.3
6 - 13		9403.0	99376.3
6 - 14		43483.0	99376.3
6 - 15		5296.0	99376.3
6 - 16		31403.0	99376.3
6 - 17		7266.0	99376.3
6 - 18		-52383.0	99376.3
7 - 8		6078.5	81140.4
7 - 9		12575.5	81140.4
7 - 10		-8301.5	81140.4
7 - 11		5179.5	99376.3
7 - 12		-30507.5	99376.3
7 - 13		-23207.5	99376.3
7 - 14		10872.5	99376.3
7 - 15		-27314.5	99376.3
7 - 16		-1207.5	99376.3
7 - 17		-25344.5	99376.3
7 - 18		-84993.5	99376.3
8 - 9		6497.0	81140.4
8 - 10		-14380.0	81140.4
8 - 11		-899.0	99376.3
8 - 12		-36586.0	99376.3
8 - 13		-29286.0	99376.3
8 - 14		4794.0	99376.3
8 - 15		-33393.0	99376.3
8 - 16		-7286.0	99376.3
8 - 17		-31423.0	99376.3
8 - 18		-91072.0	99376.3
9 - 10		-20877.0	81140.4
9 - 11		-7396.0	99376.3
9 - 12		-43083.0	99376.3
9 - 13		-35783.0	99376.3
9 - 14		-1703.0	99376.3
9 - 15		-39890.0	99376.3
9 - 16		-13783.0	99376.3
9 - 17		-37920.0	99376.3
9 - 18		-97569.0	99376.3
10 - 11		13481.0	99376.3
10 - 12		-22206.0	99376.3
10 - 13		-14906.0	99376.3
10 - 14		19174.0	99376.3
10 - 15		-19013.0	99376.3
10 - 16		7094.0	99376.3
10 - 17		-17043.0	99376.3
10 - 18		-76692.0	99376.3
11 - 12		-35687.0	114750.
11 - 13		-28387.0	114750.

11 - 14		5693.0	114750.
11 - 15		-32494.0	114750.
11 - 16		-6387.0	114750.
11 - 17		-30524.0	114750.
11 - 18		-90173.0	114750.
12 - 13		7300.0	114750.
12 - 14		41380.0	114750.
12 - 15		3193.0	114750.
12 - 16		29300.0	114750.
12 - 17		5163.0	114750.
12 - 18		-54486.0	114750.
13 - 14		34080.0	114750.
13 - 15		-4107.0	114750.
13 - 16		22000.0	114750.
13 - 17		-2137.0	114750.
13 - 18		-61786.0	114750.
14 - 15		-38187.0	114750.
14 - 16		-12080.0	114750.
14 - 17		-36217.0	114750.
14 - 18		-95866.0	114750.
15 - 16		26107.0	114750.
15 - 17		1970.0	114750.
15 - 18		-57679.0	114750.
16 - 17		-24137.0	114750.
16 - 18		-83786.0	114750.
17 - 18		-59649.0	114750.

* denotes a statistically significant difference.

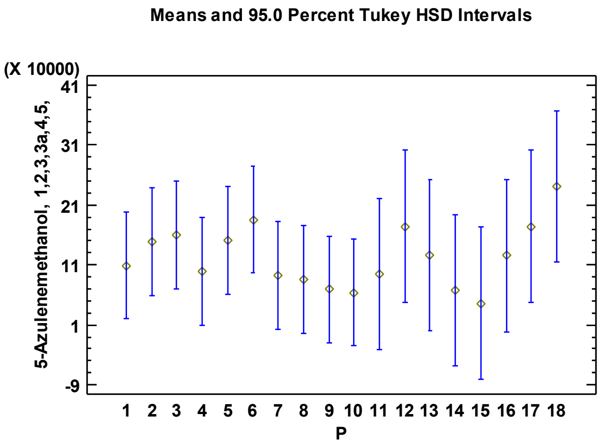
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 5-Azulenemethanol, 1,2,3,3a,4,5, by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	6.11622E10	17	3.59778E9	2.26	0.0962
Within groups	1.5953E10	10	1.5953E9		
Total (Corr.)	7.71153E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 5-Azulenemethanol, 1,2,3,3a,4,5, into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.25523, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 5-Azulenemethanol, 1,2,3,3a,4,5, from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean 5-Azulenemethanol, 1,2,3,3a,4,5, for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 5-Azulenemethanol, 1,2,3,3a,4,5, by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
15	1	45772.0	X
10	2	64188.5	X
14	1	67720.0	X
9	2	69063.5	X
8	2	86247.5	X
7	2	92273.0	X
11	1	94634.0	X
4	2	99103.0	X
1	2	109143.	X
16	1	125415.	X
13	1	126611.	X
2	2	148917.	X
5	2	150661.	X
3	2	159940.	X
12	1	174276.	X
17	1	174442.	X
6	2	185681.	X
18	1	240799.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-39774.0	179162.
1 - 3		-50797.5	179162.
1 - 4		10039.5	179162.
1 - 5		-41518.5	179162.
1 - 6		-76538.5	179162.
1 - 7		16869.5	179162.
1 - 8		22895.0	179162.
1 - 9		40079.0	179162.
1 - 10		44954.0	179162.
1 - 11		14508.5	219428.
1 - 12		-65133.5	219428.
1 - 13		-17468.5	219428.
1 - 14		41422.5	219428.
1 - 15		63370.5	219428.
1 - 16		-16272.5	219428.
1 - 17		-65299.5	219428.
1 - 18		-131657.	219428.
2 - 3		-11023.5	179162.
2 - 4		49813.5	179162.
2 - 5		-1744.5	179162.
2 - 6		-36764.5	179162.
2 - 7		56643.5	179162.
2 - 8		62669.0	179162.
2 - 9		79853.0	179162.
2 - 10		84728.0	179162.
2 - 11		54282.5	219428.
2 - 12		-25359.5	219428.
2 - 13		22305.5	219428.
2 - 14		81196.5	219428.
2 - 15		103145.	219428.
2 - 16		23501.5	219428.
2 - 17		-25525.5	219428.
2 - 18		-91882.5	219428.
3 - 4		60837.0	179162.
3 - 5		9279.0	179162.
3 - 6		-25741.0	179162.
3 - 7		67667.0	179162.
3 - 8		73692.5	179162.
3 - 9		90876.5	179162.
3 - 10		95751.5	179162.
3 - 11		65306.0	219428.
3 - 12		-14336.0	219428.
3 - 13		33329.0	219428.
3 - 14		92220.0	219428.
3 - 15		114168.	219428.
3 - 16		34525.0	219428.
3 - 17		-14502.0	219428.
3 - 18		-80859.0	219428.
4 - 5		-51558.0	179162.
4 - 6		-86578.0	179162.
4 - 7		6830.0	179162.
4 - 8		12855.5	179162.
4 - 9		30039.5	179162.
4 - 10		34914.5	179162.
4 - 11		4469.0	219428.
4 - 12		-75173.0	219428.
4 - 13		-27508.0	219428.
4 - 14		31383.0	219428.
4 - 15		53331.0	219428.
4 - 16		-26312.0	219428.
4 - 17		-75339.0	219428.
4 - 18		-141696.	219428.
5 - 6		-35020.0	179162.

5 - 7		58388.0	179162.
5 - 8		64413.5	179162.
5 - 9		81597.5	179162.
5 - 10		86472.5	179162.
5 - 11		56027.0	219428.
5 - 12		-23615.0	219428.
5 - 13		24050.0	219428.
5 - 14		82941.0	219428.
5 - 15		104889.	219428.
5 - 16		25246.0	219428.
5 - 17		-23781.0	219428.
5 - 18		-90138.0	219428.
6 - 7		93408.0	179162.
6 - 8		99433.5	179162.
6 - 9		116618.	179162.
6 - 10		121493.	179162.
6 - 11		91047.0	219428.
6 - 12		11405.0	219428.
6 - 13		59070.0	219428.
6 - 14		117961.	219428.
6 - 15		139909.	219428.
6 - 16		60266.0	219428.
6 - 17		11239.0	219428.
6 - 18		-55118.0	219428.
7 - 8		6025.5	179162.
7 - 9		23209.5	179162.
7 - 10		28084.5	179162.
7 - 11		-2361.0	219428.
7 - 12		-82003.0	219428.
7 - 13		-34338.0	219428.
7 - 14		24553.0	219428.
7 - 15		46501.0	219428.
7 - 16		-33142.0	219428.
7 - 17		-82169.0	219428.
7 - 18		-148526.	219428.
8 - 9		17184.0	179162.
8 - 10		22059.0	179162.
8 - 11		-8386.5	219428.
8 - 12		-88028.5	219428.
8 - 13		-40363.5	219428.
8 - 14		18527.5	219428.
8 - 15		40475.5	219428.
8 - 16		-39167.5	219428.
8 - 17		-88194.5	219428.
8 - 18		-154552.	219428.
9 - 10		4875.0	179162.
9 - 11		-25570.5	219428.
9 - 12		-105213.	219428.
9 - 13		-57547.5	219428.
9 - 14		1343.5	219428.
9 - 15		23291.5	219428.
9 - 16		-56351.5	219428.
9 - 17		-105379.	219428.
9 - 18		-171736.	219428.
10 - 11		-30445.5	219428.
10 - 12		-110088.	219428.
10 - 13		-62422.5	219428.
10 - 14		-3531.5	219428.
10 - 15		18416.5	219428.
10 - 16		-61226.5	219428.
10 - 17		-110254.	219428.
10 - 18		-176611.	219428.
11 - 12		-79642.0	253373.
11 - 13		-31977.0	253373.

11 - 14		26914.0	253373.
11 - 15		48862.0	253373.
11 - 16		-30781.0	253373.
11 - 17		-79808.0	253373.
11 - 18		-146165.	253373.
12 - 13		47665.0	253373.
12 - 14		106556.	253373.
12 - 15		128504.	253373.
12 - 16		48861.0	253373.
12 - 17		-166.0	253373.
12 - 18		-66523.0	253373.
13 - 14		58891.0	253373.
13 - 15		80839.0	253373.
13 - 16		1196.0	253373.
13 - 17		-47831.0	253373.
13 - 18		-114188.	253373.
14 - 15		21948.0	253373.
14 - 16		-57695.0	253373.
14 - 17		-106722.	253373.
14 - 18		-173079.	253373.
15 - 16		-79643.0	253373.
15 - 17		-128670.	253373.
15 - 18		-195027.	253373.
16 - 17		-49027.0	253373.
16 - 18		-115384.	253373.
17 - 18		-66357.0	253373.

* denotes a statistically significant difference.

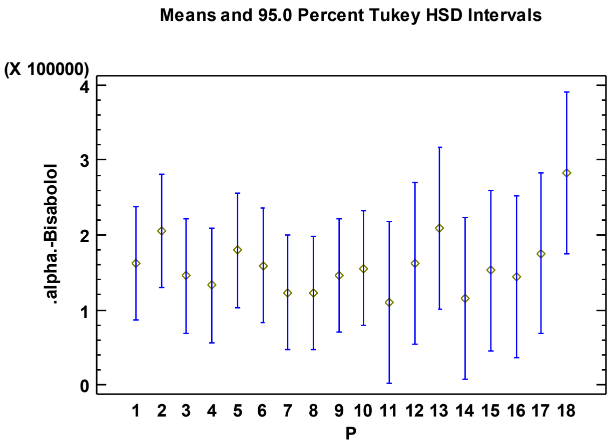
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for .alpha.-Bisabolol by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.50475E10	17	2.06162E9	1.79	0.1749
Within groups	1.15099E10	10	1.15099E9		
Total (Corr.)	4.65574E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of .alpha.-Bisabolol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.79117, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean .alpha.-Bisabolol from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean .alpha.-Bisabolol for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for .alpha.-Bisabolol by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
11	1	109684.	X
14	1	115807.	X
8	2	122565.	X
7	2	123063.	X
4	2	132789.	X
16	1	144054.	X
3	2	145446.	X
9	2	145910.	X
15	1	152427.	X
10	2	155596.	X
6	2	159114.	X
1	2	162037.	X
12	1	162440.	X
17	1	175604.	X
5	2	179480.	X
2	2	205266.	X
13	1	208888.	X
18	1	282590.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-43229.0	152181.
1 - 3		16591.5	152181.
1 - 4		29248.5	152181.
1 - 5		-17442.5	152181.
1 - 6		2923.0	152181.
1 - 7		38974.5	152181.
1 - 8		39472.5	152181.
1 - 9		16127.0	152181.
1 - 10		6441.5	152181.
1 - 11		52353.0	186383.
1 - 12		-403.0	186383.
1 - 13		-46851.0	186383.
1 - 14		46230.0	186383.
1 - 15		9610.0	186383.
1 - 16		17983.0	186383.
1 - 17		-13567.0	186383.
1 - 18		-120553.	186383.
2 - 3		59820.5	152181.
2 - 4		72477.5	152181.
2 - 5		25786.5	152181.
2 - 6		46152.0	152181.
2 - 7		82203.5	152181.
2 - 8		82701.5	152181.
2 - 9		59356.0	152181.
2 - 10		49670.5	152181.
2 - 11		95582.0	186383.
2 - 12		42826.0	186383.
2 - 13		-3622.0	186383.
2 - 14		89459.0	186383.
2 - 15		52839.0	186383.
2 - 16		61212.0	186383.
2 - 17		29662.0	186383.
2 - 18		-77324.0	186383.
3 - 4		12657.0	152181.
3 - 5		-34034.0	152181.
3 - 6		-13668.5	152181.
3 - 7		22383.0	152181.
3 - 8		22881.0	152181.
3 - 9		-464.5	152181.
3 - 10		-10150.0	152181.
3 - 11		35761.5	186383.
3 - 12		-16994.5	186383.
3 - 13		-63442.5	186383.
3 - 14		29638.5	186383.
3 - 15		-6981.5	186383.
3 - 16		1391.5	186383.
3 - 17		-30158.5	186383.
3 - 18		-137145.	186383.
4 - 5		-46691.0	152181.
4 - 6		-26325.5	152181.
4 - 7		9726.0	152181.
4 - 8		10224.0	152181.
4 - 9		-13121.5	152181.
4 - 10		-22807.0	152181.
4 - 11		23104.5	186383.
4 - 12		-29651.5	186383.
4 - 13		-76099.5	186383.
4 - 14		16981.5	186383.
4 - 15		-19638.5	186383.
4 - 16		-11265.5	186383.
4 - 17		-42815.5	186383.
4 - 18		-149802.	186383.
5 - 6		20365.5	152181.

5 - 7		56417.0	152181.
5 - 8		56915.0	152181.
5 - 9		33569.5	152181.
5 - 10		23884.0	152181.
5 - 11		69795.5	186383.
5 - 12		17039.5	186383.
5 - 13		-29408.5	186383.
5 - 14		63672.5	186383.
5 - 15		27052.5	186383.
5 - 16		35425.5	186383.
5 - 17		3875.5	186383.
5 - 18		-103111.	186383.
6 - 7		36051.5	152181.
6 - 8		36549.5	152181.
6 - 9		13204.0	152181.
6 - 10		3518.5	152181.
6 - 11		49430.0	186383.
6 - 12		-3326.0	186383.
6 - 13		-49774.0	186383.
6 - 14		43307.0	186383.
6 - 15		6687.0	186383.
6 - 16		15060.0	186383.
6 - 17		-16490.0	186383.
6 - 18		-123476.	186383.
7 - 8		498.0	152181.
7 - 9		-22847.5	152181.
7 - 10		-32533.0	152181.
7 - 11		13378.5	186383.
7 - 12		-39377.5	186383.
7 - 13		-85825.5	186383.
7 - 14		7255.5	186383.
7 - 15		-29364.5	186383.
7 - 16		-20991.5	186383.
7 - 17		-52541.5	186383.
7 - 18		-159528.	186383.
8 - 9		-23345.5	152181.
8 - 10		-33031.0	152181.
8 - 11		12880.5	186383.
8 - 12		-39875.5	186383.
8 - 13		-86323.5	186383.
8 - 14		6757.5	186383.
8 - 15		-29862.5	186383.
8 - 16		-21489.5	186383.
8 - 17		-53039.5	186383.
8 - 18		-160026.	186383.
9 - 10		-9685.5	152181.
9 - 11		36226.0	186383.
9 - 12		-16530.0	186383.
9 - 13		-62978.0	186383.
9 - 14		30103.0	186383.
9 - 15		-6517.0	186383.
9 - 16		1856.0	186383.
9 - 17		-29694.0	186383.
9 - 18		-136680.	186383.
10 - 11		45911.5	186383.
10 - 12		-6844.5	186383.
10 - 13		-53292.5	186383.
10 - 14		39788.5	186383.
10 - 15		3168.5	186383.
10 - 16		11541.5	186383.
10 - 17		-20008.5	186383.
10 - 18		-126995.	186383.
11 - 12		-52756.0	215216.
11 - 13		-99204.0	215216.

11 - 14		-6123.0	215216.
11 - 15		-42743.0	215216.
11 - 16		-34370.0	215216.
11 - 17		-65920.0	215216.
11 - 18		-172906.	215216.
12 - 13		-46448.0	215216.
12 - 14		46633.0	215216.
12 - 15		10013.0	215216.
12 - 16		18386.0	215216.
12 - 17		-13164.0	215216.
12 - 18		-120150.	215216.
13 - 14		93081.0	215216.
13 - 15		56461.0	215216.
13 - 16		64834.0	215216.
13 - 17		33284.0	215216.
13 - 18		-73702.0	215216.
14 - 15		-36620.0	215216.
14 - 16		-28247.0	215216.
14 - 17		-59797.0	215216.
14 - 18		-166783.	215216.
15 - 16		8373.0	215216.
15 - 17		-23177.0	215216.
15 - 18		-130163.	215216.
16 - 17		-31550.0	215216.
16 - 18		-138536.	215216.
17 - 18		-106986.	215216.

* denotes a statistically significant difference.

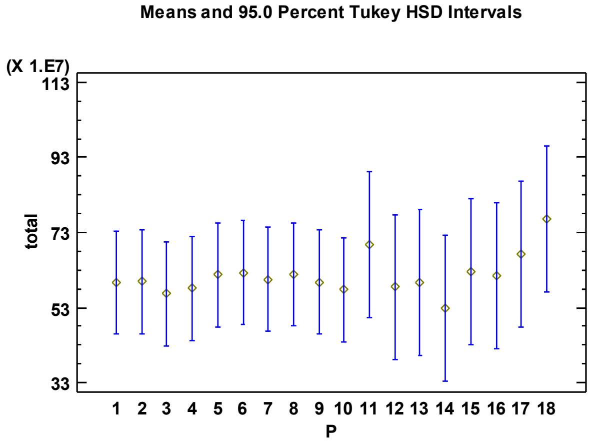
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for total by P

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	5.2667E16	17	3.09806E15	0.83	0.6501
Within groups	3.75273E16	10	3.75273E15		
Total (Corr.)	9.01944E16	27			

The StatAdvisor
The ANOVA table decomposes the variance of total into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.825547, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean total from one level of P to another at the 5% significance level.

Means Plot



This plot shows the mean total for each level of P. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for total by P

Method: 95.0 percent Tukey HSD

P	*Count*	*Mean*	*Homogeneous Groups*
14	1	5.28516E8	X
3	2	5.66533E8	X
10	2	5.7737E8	X
4	2	5.80749E8	X
12	1	5.84205E8	X
13	1	5.95479E8	X
1	2	5.9749E8	X
9	2	5.98136E8	X
2	2	5.98628E8	X
7	2	6.05429E8	X
16	1	6.14141E8	X
5	2	6.16849E8	X
8	2	6.19046E8	X
6	2	6.23241E8	X
15	1	6.2727E8	X
17	1	6.72692E8	X
11	1	6.96017E8	X
18	1	7.66246E8	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
1 - 2		-1.138E6	2.74788E8
1 - 3		3.0957E7	2.74788E8
1 - 4		1.67414E7	2.74788E8
1 - 5		-1.9359E7	2.74788E8
1 - 6		-2.57515E7	2.74788E8
1 - 7		-7.93903E6	2.74788E8
1 - 8		-2.15563E7	2.74788E8
1 - 9		-645552.	2.74788E8
1 - 10		2.01201E7	2.74788E8
1 - 11		-9.85272E7	3.36545E8
1 - 12		1.3285E7	3.36545E8
1 - 13		2.01068E6	3.36545E8
1 - 14		6.89739E7	3.36545E8
1 - 15		-2.978E7	3.36545E8
1 - 16		-1.66508E7	3.36545E8
1 - 17		-7.52023E7	3.36545E8
1 - 18		-1.68756E8	3.36545E8
2 - 3		3.2095E7	2.74788E8
2 - 4		1.78794E7	2.74788E8
2 - 5		-1.8221E7	2.74788E8
2 - 6		-2.46135E7	2.74788E8
2 - 7		-6.80103E6	2.74788E8
2 - 8		-2.04183E7	2.74788E8
2 - 9		492445.	2.74788E8
2 - 10		2.12581E7	2.74788E8
2 - 11		-9.73892E7	3.36545E8
2 - 12		1.4423E7	3.36545E8
2 - 13		3.14867E6	3.36545E8
2 - 14		7.01118E7	3.36545E8
2 - 15		-2.8642E7	3.36545E8
2 - 16		-1.55128E7	3.36545E8
2 - 17		-7.40643E7	3.36545E8
2 - 18		-1.67618E8	3.36545E8
3 - 4		-1.42156E7	2.74788E8
3 - 5		-5.03161E7	2.74788E8
3 - 6		-5.67085E7	2.74788E8
3 - 7		-3.88961E7	2.74788E8
3 - 8		-5.25134E7	2.74788E8
3 - 9		-3.16026E7	2.74788E8
3 - 10		-1.0837E7	2.74788E8
3 - 11		-1.29484E8	3.36545E8
3 - 12		-1.7672E7	3.36545E8
3 - 13		-2.89464E7	3.36545E8
3 - 14		3.80168E7	3.36545E8
3 - 15		-6.0737E7	3.36545E8
3 - 16		-4.76079E7	3.36545E8
3 - 17		-1.06159E8	3.36545E8
3 - 18		-1.99713E8	3.36545E8
4 - 5		-3.61005E7	2.74788E8
4 - 6		-4.24929E7	2.74788E8
4 - 7		-2.46805E7	2.74788E8
4 - 8		-3.82978E7	2.74788E8
4 - 9		-1.7387E7	2.74788E8
4 - 10		3.37863E6	2.74788E8
4 - 11		-1.15269E8	3.36545E8
4 - 12		-3.4564E6	3.36545E8
4 - 13		-1.47308E7	3.36545E8
4 - 14		5.22324E7	3.36545E8
4 - 15		-4.65214E7	3.36545E8
4 - 16		-3.33923E7	3.36545E8
4 - 17		-9.19437E7	3.36545E8
4 - 18		-1.85498E8	3.36545E8
5 - 6		-6.39247E6	2.74788E8

5 - 7		1.142E7	2.74788E8
5 - 8		-2.1973E6	2.74788E8
5 - 9		1.87135E7	2.74788E8
5 - 10		3.94791E7	2.74788E8
5 - 11		-7.91682E7	3.36545E8
5 - 12		3.26441E7	3.36545E8
5 - 13		2.13697E7	3.36545E8
5 - 14		8.83329E7	3.36545E8
5 - 15		-1.04209E7	3.36545E8
5 - 16		2.70818E6	3.36545E8
5 - 17		-5.58432E7	3.36545E8
5 - 18		-1.49397E8	3.36545E8
6 - 7		1.78125E7	2.74788E8
6 - 8		4.19518E6	2.74788E8
6 - 9		2.51059E7	2.74788E8
6 - 10		4.58716E7	2.74788E8
6 - 11		-7.27757E7	3.36545E8
6 - 12		3.90365E7	3.36545E8
6 - 13		2.77622E7	3.36545E8
6 - 14		9.47253E7	3.36545E8
6 - 15		-4.02847E6	3.36545E8
6 - 16		9.10065E6	3.36545E8
6 - 17		-4.94508E7	3.36545E8
6 - 18		-1.43005E8	3.36545E8
7 - 8		-1.36173E7	2.74788E8
7 - 9		7.29347E6	2.74788E8
7 - 10		2.80591E7	2.74788E8
7 - 11		-9.05882E7	3.36545E8
7 - 12		2.12241E7	3.36545E8
7 - 13		9.9497E6	3.36545E8
7 - 14		7.69129E7	3.36545E8
7 - 15		-2.18409E7	3.36545E8
7 - 16		-8.71181E6	3.36545E8
7 - 17		-6.72632E7	3.36545E8
7 - 18		-1.60817E8	3.36545E8
8 - 9		2.09108E7	2.74788E8
8 - 10		4.16764E7	2.74788E8
8 - 11		-7.69709E7	3.36545E8
8 - 12		3.48414E7	3.36545E8
8 - 13		2.3567E7	3.36545E8
8 - 14		9.05302E7	3.36545E8
8 - 15		-8.22364E6	3.36545E8
8 - 16		4.90547E6	3.36545E8
8 - 17		-5.36459E7	3.36545E8
8 - 18		-1.472E8	3.36545E8
9 - 10		2.07656E7	2.74788E8
9 - 11		-9.78817E7	3.36545E8
9 - 12		1.39306E7	3.36545E8
9 - 13		2.65623E6	3.36545E8
9 - 14		6.96194E7	3.36545E8
9 - 15		-2.91344E7	3.36545E8
9 - 16		-1.60053E7	3.36545E8
9 - 17		-7.45567E7	3.36545E8
9 - 18		-1.68111E8	3.36545E8
10 - 11		-1.18647E8	3.36545E8
10 - 12		-6.83503E6	3.36545E8
10 - 13		-1.81094E7	3.36545E8
10 - 14		4.88538E7	3.36545E8
10 - 15		-4.99E7	3.36545E8
10 - 16		-3.67709E7	3.36545E8
10 - 17		-9.53223E7	3.36545E8
10 - 18		-1.88876E8	3.36545E8
11 - 12		1.11812E8	3.88609E8
11 - 13		1.00538E8	3.88609E8

11 - 14		1.67501E8	3.88609E8
11 - 15		6.87473E7	3.88609E8
11 - 16		8.18764E7	3.88609E8
11 - 17		2.3325E7	3.88609E8
11 - 18		-7.02289E7	3.88609E8
12 - 13		-1.12744E7	3.88609E8
12 - 14		5.56888E7	3.88609E8
12 - 15		-4.3065E7	3.88609E8
12 - 16		-2.99359E7	3.88609E8
12 - 17		-8.84873E7	3.88609E8
12 - 18		-1.82041E8	3.88609E8
13 - 14		6.69632E7	3.88609E8
13 - 15		-3.17906E7	3.88609E8
13 - 16		-1.86615E7	3.88609E8
13 - 17		-7.72129E7	3.88609E8
13 - 18		-1.70767E8	3.88609E8
14 - 15		-9.87538E7	3.88609E8
14 - 16		-8.56247E7	3.88609E8
14 - 17		-1.44176E8	3.88609E8
14 - 18		-2.3773E8	3.88609E8
15 - 16		1.31291E7	3.88609E8
15 - 17		-4.54223E7	3.88609E8
15 - 18		-1.38976E8	3.88609E8
16 - 17		-5.85514E7	3.88609E8
16 - 18		-1.52105E8	3.88609E8
17 - 18		-9.35538E7	3.88609E8

* denotes a statistically significant difference.

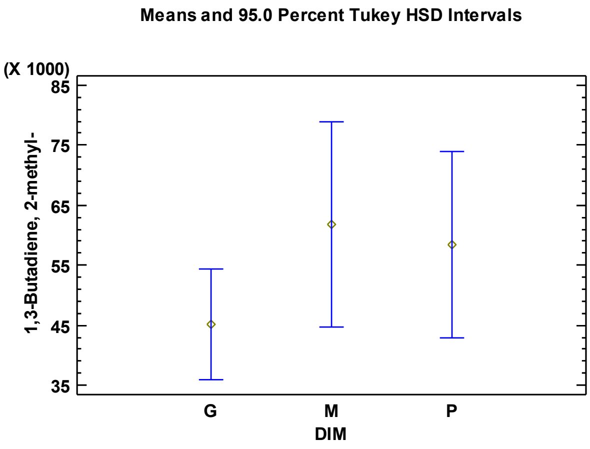
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 1,3-Butadiene, 2-methyl- by DIM

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Between groups	1.48797E9	2	7.43985E8	1.59	0.2246
Within groups	1.17255E10	25	4.69019E8		
Total (Corr.)	1.32134E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1,3-Butadiene, 2-methyl- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.58626, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1,3-Butadiene, 2-methyl- from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 1,3-Butadiene, 2-methyl- for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1,3-Butadiene, 2-methyl- by DIM

Method: 95.0 percent Tukey HSD

DIM	Count	Mean	Homogeneous Groups
G	17	45152.9	X
P	6	58386.3	X
M	5	61765.4	X

Contrast	Sig.	Difference	+/- Limits
G - M		-16612.5	27451.9
G - P		-13233.5	25623.2
M - P		3379.07	32674.3

* denotes a statistically significant difference.

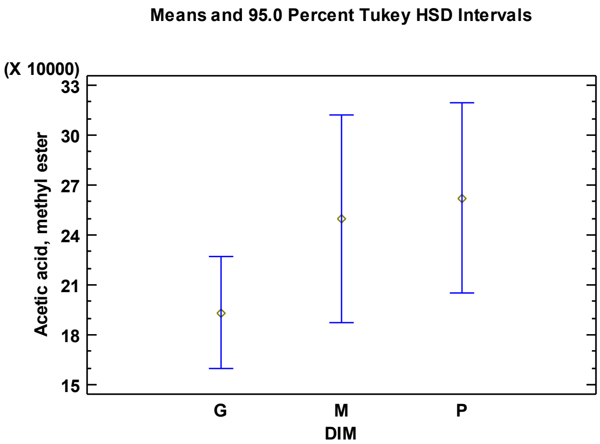
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Acetic acid, methyl ester by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	2.69653E10	2	1.34826E10	2.14	0.1384
Within groups	1.5729E11	25	6.29161E9		
Total (Corr.)	1.84256E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of Acetic acid, methyl ester into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.14295, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Acetic acid, methyl ester from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Acetic acid, methyl ester for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Acetic acid, methyl ester by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	193351.	X
M	5	249759.	X
P	6	261958.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-56408.4	100544.
G - P		-68606.7	93846.9
M - P		-12198.3	119672.

* denotes a statistically significant difference.

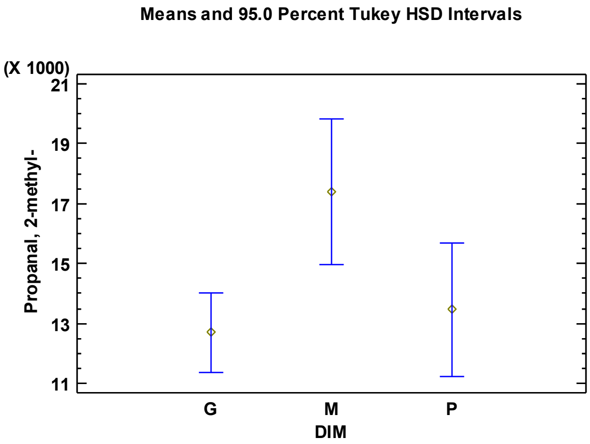
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Propanal, 2-methyl- by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	8.56844E7	2	4.28422E7	4.47	0.0218
Within groups	2.39422E8	25	9.57688E6		
Total (Corr.)	3.25107E8	27			

The StatAdvisor
The ANOVA table decomposes the variance of Propanal, 2-methyl- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 4.4735, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean Propanal, 2-methyl- from one level of DIM to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean Propanal, 2-methyl- for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Propanal, 2-methyl- by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	12699.2	X
P	6	13464.7	XX
M	5	17396.6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M	*	-4697.42	3922.74
G - P		-765.49	3661.43
M - P		3931.93	4668.99

* denotes a statistically significant difference.

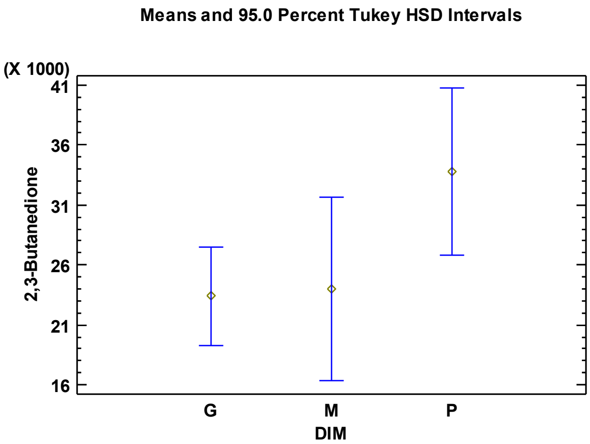
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 1 pair, indicating that this pair shows a statistically significant difference at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 2,3-Butanedione by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	4.93035E8	2	2.46517E8	2.62	0.0927
Within groups	2.35211E9	25	9.40843E7		
Total (Corr.)	2.84514E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2,3-Butanedione into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.62018, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2,3-Butanedione from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 2,3-Butanedione for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2,3-Butanedione by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	23385.3	X
M	5	24045.8	X
P	6	33744.5	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-660.506	12295.2
G - P		-10359.2	11476.2
M - P		-9698.7	14634.2

* denotes a statistically significant difference.

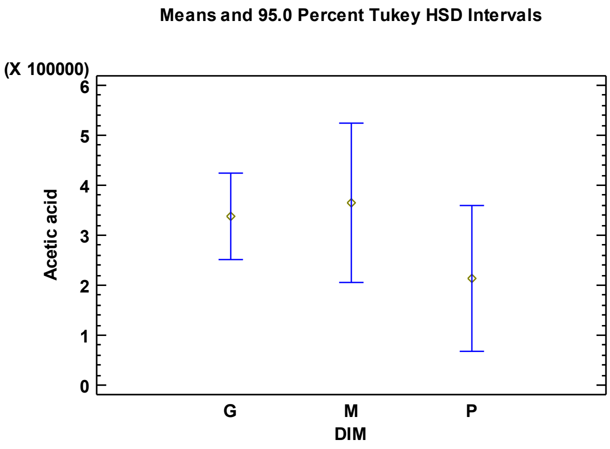
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Acetic acid by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	8.38012E10	2	4.19006E10	1.03	0.3719
Within groups	1.01766E12	25	4.07064E10		
Total (Corr.)	1.10146E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of Acetic acid into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.02934, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Acetic acid from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Acetic acid for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Acetic acid by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
P	6	213609.	X
G	17	338583.	X
M	5	365473.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-26890.7	255746.
G - P		124974.	238710.
M - P		151865.	304398.

* denotes a statistically significant difference.

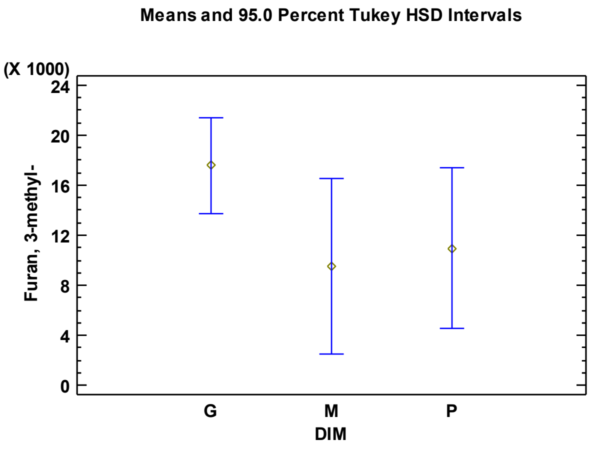
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Furan, 3-methyl- by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.56718E8	2	1.78359E8	2.25	0.1263
Within groups	1.98165E9	25	7.9266E7		
Total (Corr.)	2.33837E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of Furan, 3-methyl- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.25013, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Furan, 3-methyl- from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Furan, 3-methyl- for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Furan, 3-methyl- by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	9554.4	X
P	6	10969.3	X
G	17	17578.4	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		8024.01	11285.5
G - P		6609.08	10533.7
M - P		-1414.93	13432.4

* denotes a statistically significant difference.

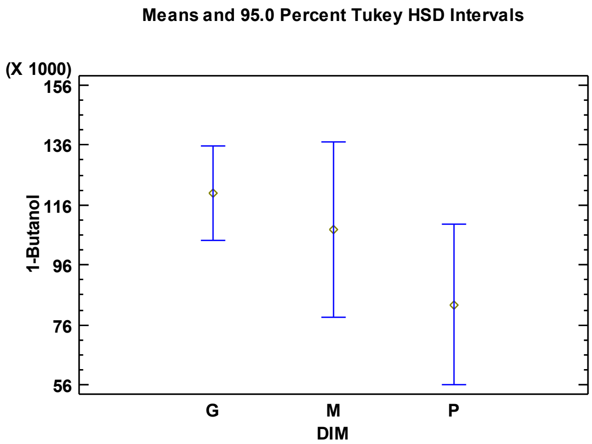
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 1-Butanol by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	6.17385E9	2	3.08693E9	2.24	0.1275
Within groups	3.44602E10	25	1.37841E9		
Total (Corr.)	4.0634E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1-Butanol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.23949, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1-Butanol from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 1-Butanol for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1-Butanol by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
P	6	82795.5	X
M	5	107717.	X
G	17	120023.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		12306.1	47061.5
G - P		37227.8	43926.6
M - P		24921.7	56014.4

* denotes a statistically significant difference.

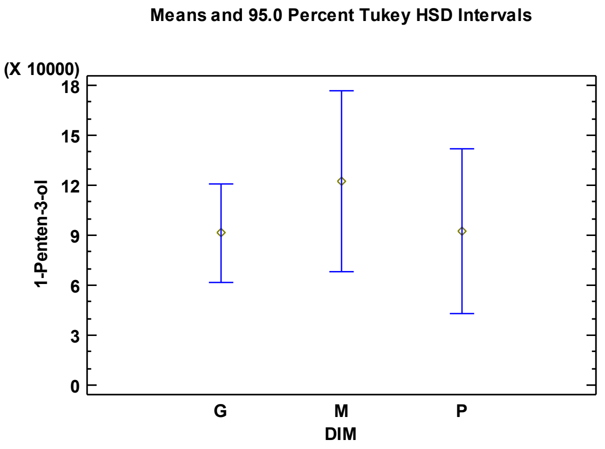
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 1-Penten-3-ol by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.89673E9	2	1.94837E9	0.41	0.6674
Within groups	1.18505E11	25	4.74019E9		
Total (Corr.)	1.22402E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1-Penten-3-ol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.411031, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1-Penten-3-ol from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 1-Penten-3-ol for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1-Penten-3-ol by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	91363.7	X
P	6	92594.8	X
M	5	122460.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-31096.7	87272.0
G - P		-1231.13	81458.6
M - P		29865.6	103874.

* denotes a statistically significant difference.

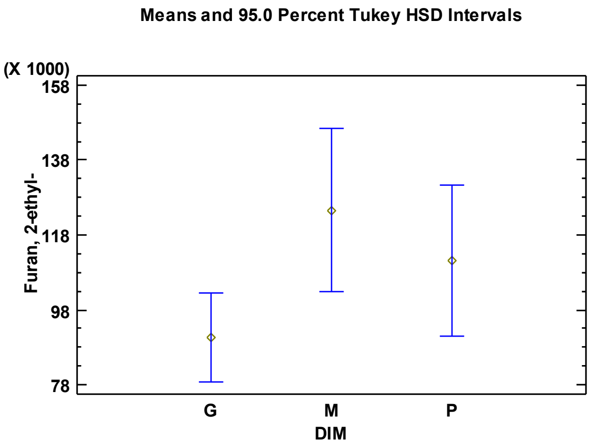
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Furan, 2-ethyl- by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	5.24117E9	2	2.62059E9	3.38	0.0501
Within groups	1.93706E10	25	7.74823E8		
Total (Corr.)	2.46117E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of Furan, 2-ethyl- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 3.38217, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Furan, 2-ethyl- from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Furan, 2-ethyl- for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Furan, 2-ethyl- by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	90641.6	X
P	6	111154.	X
M	5	124659.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-34017.8	35284.0
G - P		-20512.7	32933.7
M - P		13505.1	41996.4

* denotes a statistically significant difference.

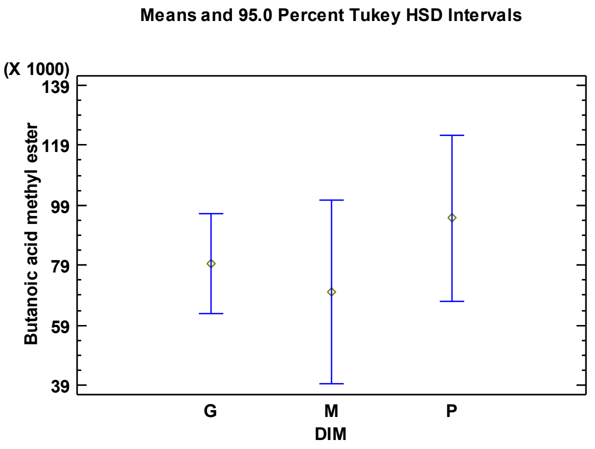
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Butanoic acid methyl ester by DIM

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Between groups	1.76385E9	2	8.81926E8	0.59	0.5620
Within groups	3.7387E10	25	1.49548E9		
Total (Corr.)	3.91508E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of Butanoic acid methyl ester into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.589728, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Butanoic acid methyl ester from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Butanoic acid methyl ester for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Butanoic acid methyl ester by DIM

Method: 95.0 percent Tukey HSD

DIM	Count	Mean	Homogeneous Groups
M	5	70040.2	X
G	17	79491.1	X
P	6	94691.0	X

Contrast	Sig.	Difference	+/- Limits
G - M		9450.86	49019.3
G - P		-15199.9	45754.0
M - P		-24650.8	58344.6

* denotes a statistically significant difference.

The StatAdvisor
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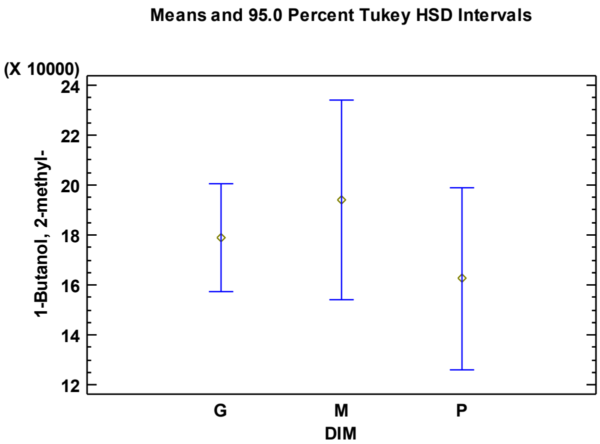
ANOVA Table for 1-Butanol, 2-methyl- by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	2.69203E9	2	1.34602E9	0.52	0.5988
Within groups	6.42749E10	25	2.571E9		
Total (Corr.)	6.6967E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1-Butanol, 2-methyl- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.523539, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1-Butanol, 2-methyl- from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 1-Butanol, 2-methyl- for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1-Butanol, 2-methyl- by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
P	6	162625.	X
G	17	179115.	X
M	5	193836.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-14720.9	64272.9
G - P		16489.5	59991.5
M - P		31210.4	76500.1

* denotes a statistically significant difference.

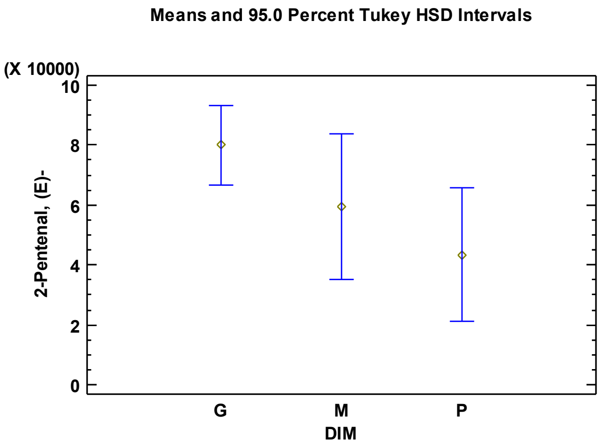
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 2-Pentenal, (E)- by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	6.48877E9	2	3.24439E9	3.38	0.0502
Within groups	2.39937E10	25	9.59749E8		
Total (Corr.)	3.04825E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2-Pentenal, (E)- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 3.38045, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2-Pentenal, (E)- from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 2-Pentenal, (E)- for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.
Multiple Range Tests for 2-Pentenal, (E)- by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
P	6	43267.7	X
M	5	59408.4	XX
G	17	80018.5	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		20610.1	39269.5
G - P	*	36750.9	36653.7
M - P		16140.7	46740.1

* denotes a statistically significant difference.

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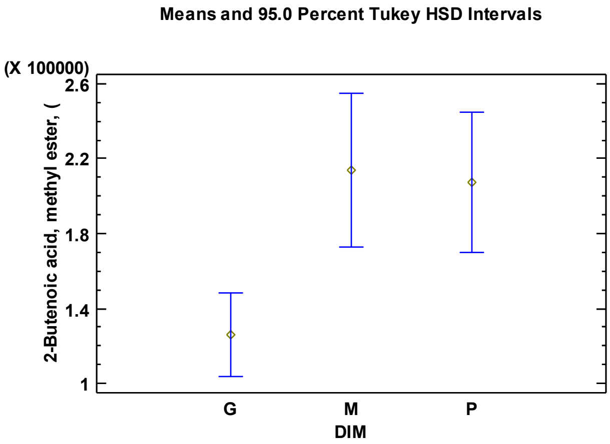
ANOVA Table for 2-Butenoic acid, methyl ester, (by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	4.76112E10	2	2.38056E10	8.76	0.0013
Within groups	6.7925E10	25	2.717E9		
Total (Corr.)	1.15536E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2-Butenoic acid, methyl ester, (into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 8.76172, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean 2-Butenoic acid, methyl ester, (from one level of DIM to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean 2-Butenoic acid, methyl ester, (for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2-Butenoic acid, methyl ester, (by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	126049.	X
P	6	207305.	X
M	5	214052.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M	*	-88002.9	66072.7
G - P	*	-81256.3	61671.4
M - P		6746.67	78642.2

* denotes a statistically significant difference.

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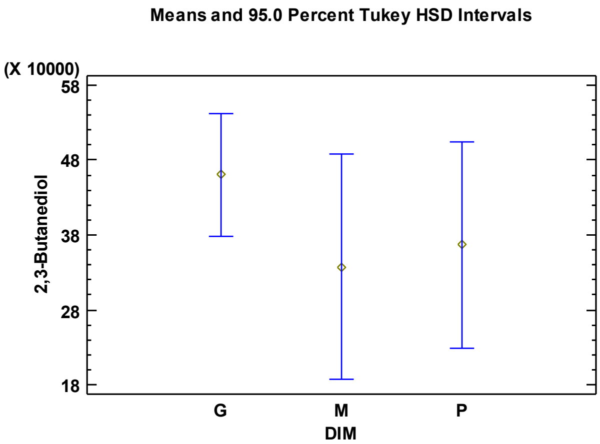
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 2 pairs, indicating that these pairs show statistically significant differences at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 2,3-Butanediol by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	7.81414E10	2	3.90707E10	1.07	0.3582
Within groups	9.1296E11	25	3.65184E10		
Total (Corr.)	9.91102E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2,3-Butanediol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.06989, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2,3-Butanediol from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 2,3-Butanediol for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2,3-Butanediol by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	337616.	X
P	6	366851.	X
G	17	460105.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		122489.	242233.
G - P		93253.9	226097.
M - P		-29234.9	288315.

* denotes a statistically significant difference.

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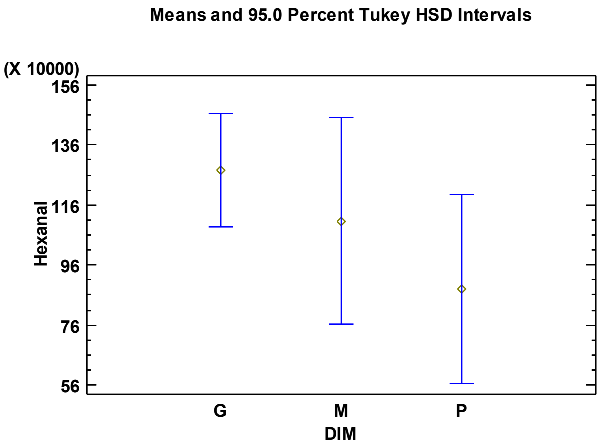
ANOVA Table for Hexanal by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	7.12118E11	2	3.56059E11	1.85	0.1774
Within groups	4.79947E12	25	1.91979E11		
Total (Corr.)	5.51159E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of Hexanal into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.85468, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Hexanal from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Hexanal for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Hexanal by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
P	6	880276.	X
M	5	1.10622E6	X
G	17	1.27586E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		169644.	555398.
G - P		395584.	518401.
M - P		225939.	661055.

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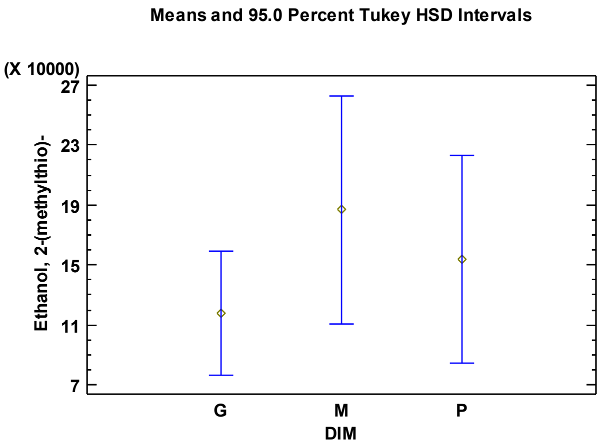
ANOVA Table for Ethanol, 2-(methylthio)- by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	2.04052E10	2	1.02026E10	1.09	0.3504
Within groups	2.33145E11	25	9.32579E9		
Total (Corr.)	2.5355E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of Ethanol, 2-(methylthio)- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.09402, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Ethanol, 2-(methylthio)- from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Ethanol, 2-(methylthio)- for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Ethanol, 2-(methylthio)- by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	117736.	X
P	6	153791.	X
M	5	186846.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-69109.4	122411.
G - P		-36055.2	114257.
M - P		33054.3	145698.

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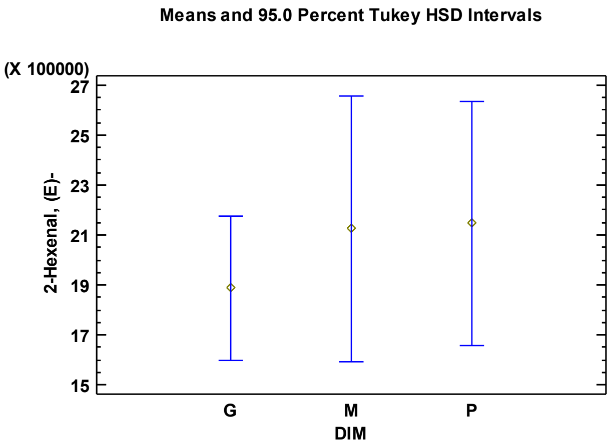
ANOVA Table for 2-Hexenal, (E)- by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	4.15344E11	2	2.07672E11	0.45	0.6400
Within groups	1.14258E13	25	4.57033E11		
Total (Corr.)	1.18412E13	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2-Hexenal, (E)- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.454393, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2-Hexenal, (E)- from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 2-Hexenal, (E)- for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2-Hexenal, (E)- by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	1.88727E6	X
M	5	2.12466E6	X
P	6	2.14597E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-237387.	856941.
G - P		-258693.	799858.
M - P		-21306.4	1.01996E6

* denotes a statistically significant difference.

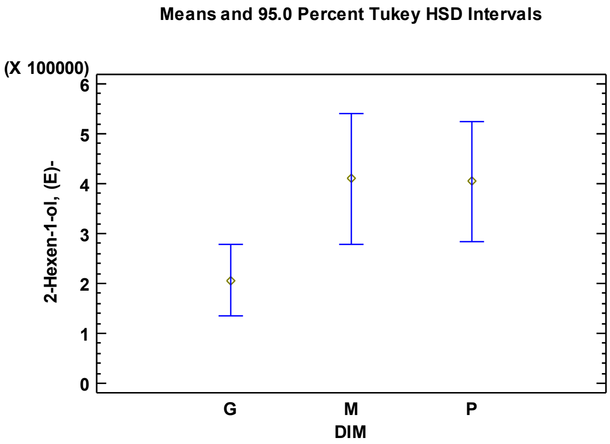
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 2-Hexen-1-ol, (E)- by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	2.69429E11	2	1.34714E11	4.85	0.0166
Within groups	6.94537E11	25	2.77815E10		
Total (Corr.)	9.63966E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2-Hexen-1-ol, (E)- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 4.84908, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean 2-Hexen-1-ol, (E)- from one level of DIM to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean 2-Hexen-1-ol, (E)- for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2-Hexen-1-ol, (E)- by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	206366.	X
P	6	404828.	X
M	5	410030.	XX

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-203664.	211278.
G - P	*	-198462.	197204.
M - P		5201.6	251471.

* denotes a statistically significant difference.

The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 1 pair, indicating that this pair shows a statistically significant difference at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

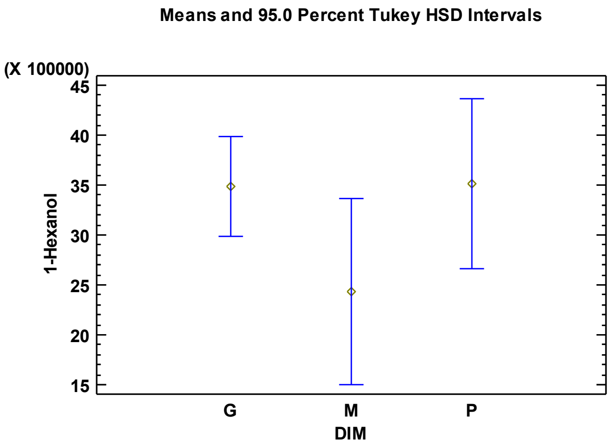
ANOVA Table for 1-Hexanol by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	4.60853E12	2	2.30426E12	1.67	0.2094
Within groups	3.45896E13	25	1.38358E12		
Total (Corr.)	3.91981E13	27			

The StatAdvisor

The ANOVA table decomposes the variance of 1-Hexanol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.66543, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1-Hexanol from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 1-Hexanol for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.
This plot shows the mean 1-Hexanol for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1-Hexanol by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	2.4318E6	X
G	17	3.48284E6	X
P	6	3.51269E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		1.05104E6	1.49101E6
G - P		-29846.0	1.39169E6
M - P		-1.08089E6	1.77465E6

* denotes a statistically significant difference.

The StatAdvisor

This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference

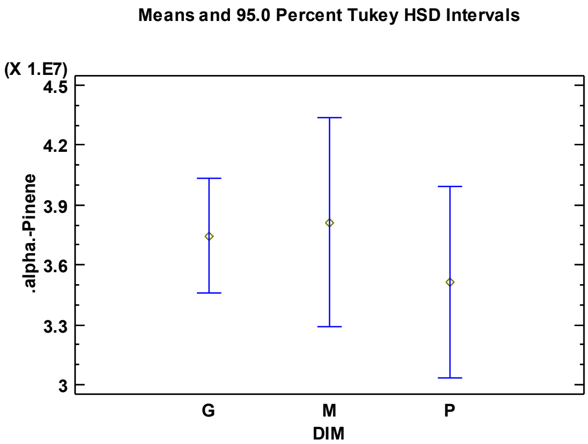
(HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for .alpha.-Pinene by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.06929E13	2	1.53465E13	0.34	0.7120
Within groups	1.11401E15	25	4.45602E13		
Total (Corr.)	1.1447E15	27			

The StatAdvisor
The ANOVA table decomposes the variance of .alpha.-Pinene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.344398, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean .alpha.-Pinene from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean .alpha.-Pinene for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for .alpha.-Pinene by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
P	6	3.51415E7	X
G	17	3.74656E7	X
M	5	3.81402E7	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-674563.	8.46157E6
G - P		2.32413E6	7.89792E6
M - P		2.99869E6	1.00713E7

* denotes a statistically significant difference.

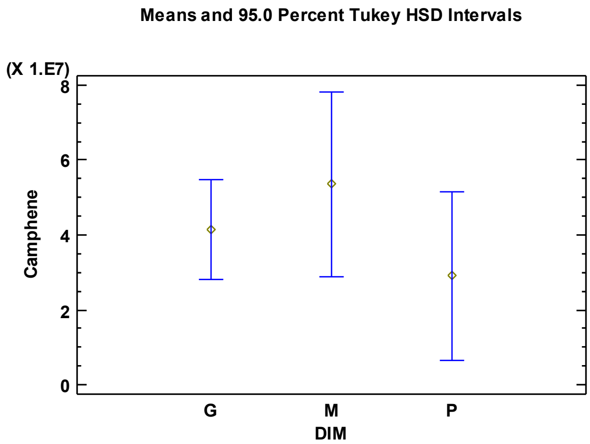
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Camphene by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.63452E15	2	8.17258E14	0.83	0.4476
Within groups	2.4609E16	25	9.8436E14		
Total (Corr.)	2.62435E16	27			

The StatAdvisor
The ANOVA table decomposes the variance of Camphene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.830243, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Camphene from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Camphene for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Camphene by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
P	6	2.91079E7	X
G	17	4.14427E7	X
M	5	5.35117E7	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-1.20691E7	3.97699E7
G - P		1.23347E7	3.71207E7
M - P		2.44038E7	4.73356E7

* denotes a statistically significant difference.

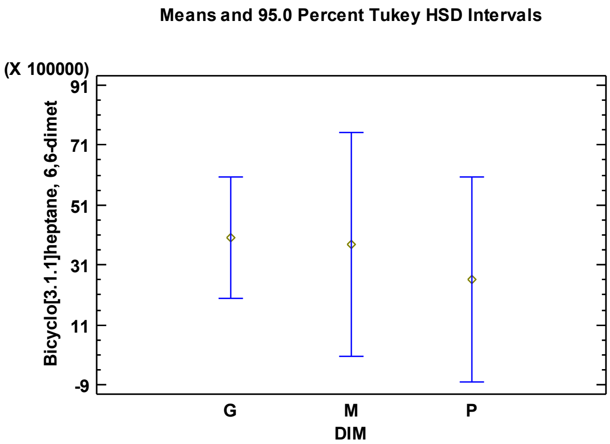
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Bicyclo[3.1.1]heptane, 6,6-dimet by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	9.00246E12	2	4.50123E12	0.20	0.8213
Within groups	5.67229E14	25	2.26892E13		
Total (Corr.)	5.76232E14	27			

The StatAdvisor
The ANOVA table decomposes the variance of Bicyclo[3.1.1]heptane, 6,6-dimet into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.198387, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Bicyclo[3.1.1]heptane, 6,6-dimet from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Bicyclo[3.1.1]heptane, 6,6-dimet for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Bicyclo[3.1.1]heptane, 6,6-dimet by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
P	6	2.60152E6	X
M	5	3.78101E6	X
G	17	4.02074E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		239733.	6.03791E6
G - P		1.41922E6	5.63571E6
M - P		1.17949E6	7.18655E6

* denotes a statistically significant difference.

The StatAdvisor
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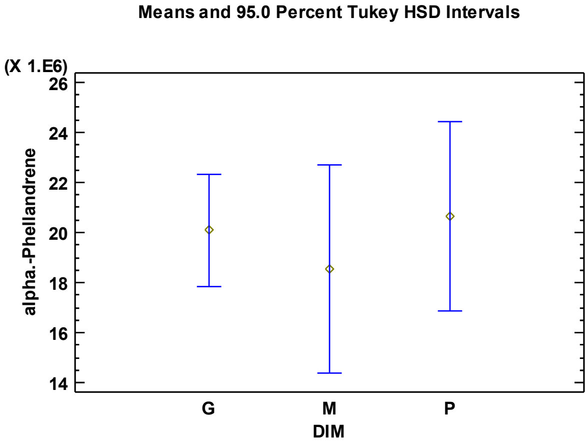
ANOVA Table for alpha.-Phellandrene by DIM

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Between groups	1.3213E13	2	6.60651E12	0.24	0.7892
Within groups	6.91086E14	25	2.76434E13		
Total (Corr.)	7.04299E14	27			

The StatAdvisor
The ANOVA table decomposes the variance of alpha.-Phellandrene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.23899, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean alpha.-Phellandrene from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean alpha.-Phellandrene for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for alpha.-Phellandrene by DIM

Method: 95.0 percent Tukey HSD

DIM	Count	Mean	Homogeneous Groups
M	5	1.85328E7	X
G	17	2.01005E7	X
P	6	2.06323E7	X

Contrast	Sig.	Difference	+/- Limits
G - M		1.56764E6	6.66458E6
G - P		-531804.	6.22064E6
M - P		-2.09945E6	7.93244E6

* denotes a statistically significant difference.

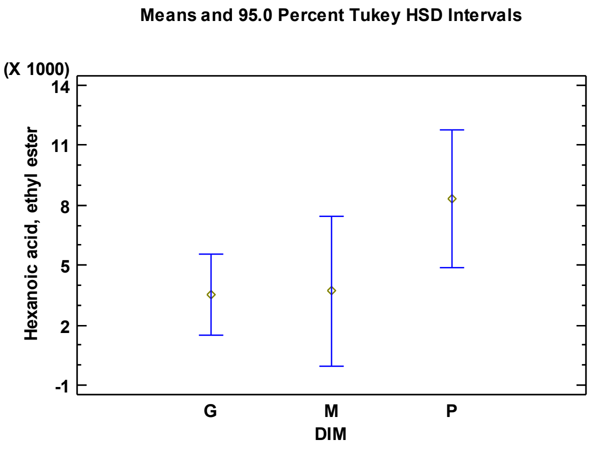
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Hexanoic acid, ethyl ester by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.05868E8	2	5.29342E7	2.34	0.1173
Within groups	5.66103E8	25	2.26441E7		
Total (Corr.)	6.71971E8	27			

The StatAdvisor
The ANOVA table decomposes the variance of Hexanoic acid, ethyl ester into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.33766, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Hexanoic acid, ethyl ester from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Hexanoic acid, ethyl ester for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Hexanoic acid, ethyl ester by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	3539.35	X
M	5	3705.0	X
P	6	8313.5	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-165.647	6031.91
G - P		-4774.15	5630.11
M - P		-4608.5	7179.41

* denotes a statistically significant difference.

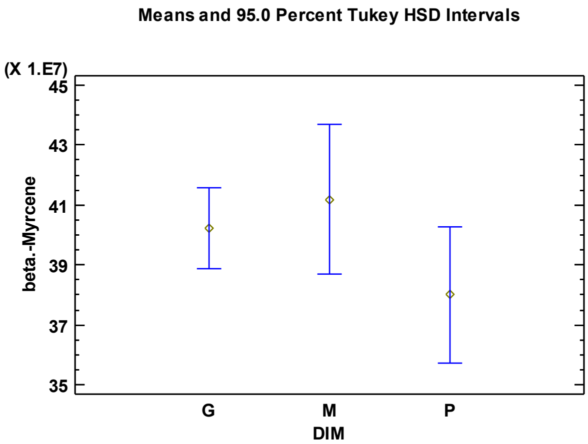
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for beta.-Myrcene by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.15197E15	2	1.57599E15	1.59	0.2243
Within groups	2.48144E16	25	9.92574E14		
Total (Corr.)	2.79663E16	27			

The StatAdvisor
The ANOVA table decomposes the variance of beta.-Myrcene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.58778, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean beta.-Myrcene from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean beta.-Myrcene for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for beta.-Myrcene by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
P	6	3.80084E8	X
G	17	4.02246E8	X
M	5	4.11862E8	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-9.61588E6	3.99355E7
G - P		2.21625E7	3.72753E7
M - P		3.17783E7	4.75327E7

* denotes a statistically significant difference.

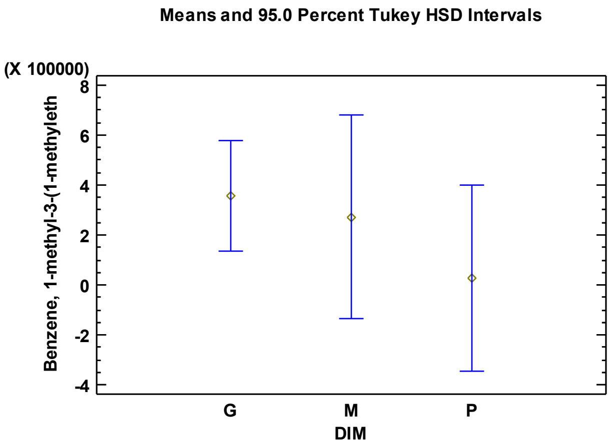
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Benzene, 1-methyl-3-(1-methyleth by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	4.88393E11	2	2.44196E11	0.91	0.4162
Within groups	6.72269E12	25	2.68908E11		
Total (Corr.)	7.21109E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of Benzene, 1-methyl-3-(1-methyleth into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.908105, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Benzene, 1-methyl-3-(1-methyleth from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Benzene, 1-methyl-3-(1-methyleth for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Benzene, 1-methyl-3-(1-methyleth by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
P	6	27141.3	X
M	5	272142.	X
G	17	358996.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		86853.9	657323.
G - P		331855.	613537.
M - P		245001.	782371.

* denotes a statistically significant difference.

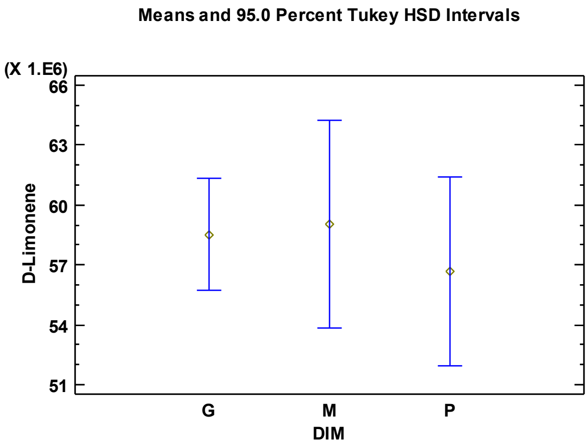
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for D-Limonene by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.92423E13	2	9.62113E12	0.22	0.8032
Within groups	1.08816E15	25	4.35265E13		
Total (Corr.)	1.1074E15	27			

The StatAdvisor
The ANOVA table decomposes the variance of D-Limonene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.221041, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean D-Limonene from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean D-Limonene for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for D-Limonene by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
P	6	5.66648E7	X
G	17	5.85185E7	X
M	5	5.90221E7	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-503577.	8.36284E6
G - P		1.85376E6	7.80577E6
M - P		2.35734E6	9.95377E6

* denotes a statistically significant difference.

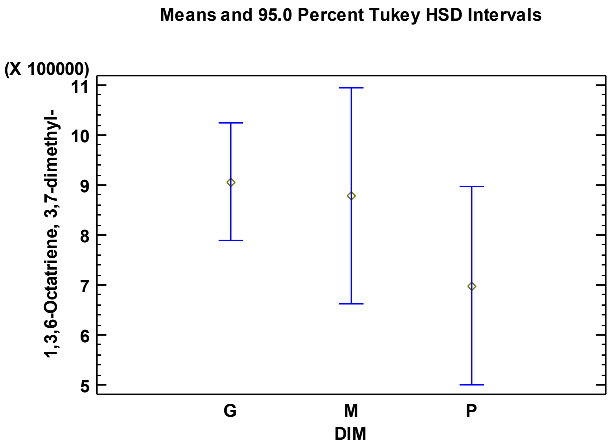
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 1,3,6-Octatriene, 3,7-dimethyl- by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.93915E11	2	9.69573E10	1.29	0.2939
Within groups	1.884E12	25	7.53599E10		
Total (Corr.)	2.07791E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1,3,6-Octatriene, 3,7-dimethyl- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.28659, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1,3,6-Octatriene, 3,7-dimethyl- from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 1,3,6-Octatriene, 3,7-dimethyl- for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.
Multiple Range Tests for 1,3,6-Octatriene, 3,7-dimethyl- by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
P	6	698565.	X
M	5	878186.	X
G	17	906148.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		27961.8	347974.
G - P		207583.	324795.
M - P		179621.	414172.

* denotes a statistically significant difference.

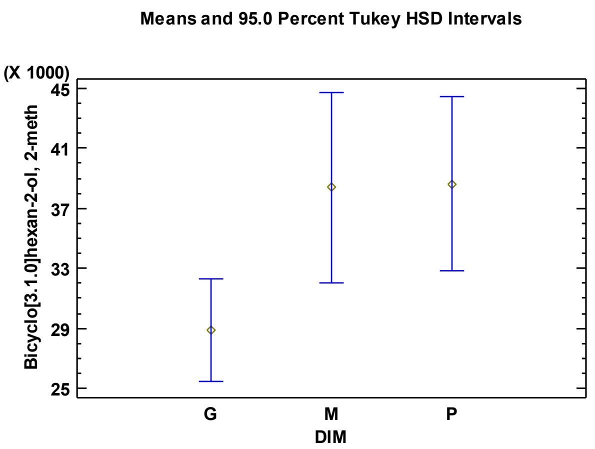
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Bicyclo[3.1.0]hexan-2-ol, 2-meth by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	6.23315E8	2	3.11657E8	4.81	0.0171
Within groups	1.62026E9	25	6.48104E7		
Total (Corr.)	2.24357E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of Bicyclo[3.1.0]hexan-2-ol, 2-meth into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 4.80876, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean Bicyclo[3.1.0]hexan-2-ol, 2-meth from one level of DIM to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean Bicyclo[3.1.0]hexan-2-ol, 2-meth for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Bicyclo[3.1.0]hexan-2-ol, 2-meth by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	28866.0	X
M	5	38394.0	XX
P	6	38635.2	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-9528.0	10204.7
G - P	*	-9769.17	9524.92
M - P		-241.167	12146.0

* denotes a statistically significant difference.

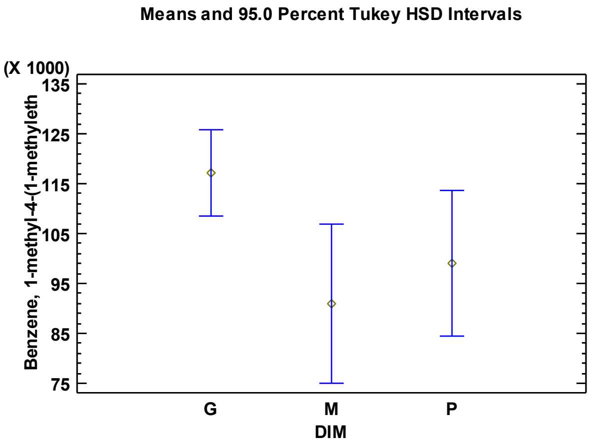
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 1 pair, indicating that this pair shows a statistically significant difference at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Benzene, 1-methyl-4-(1-methyleth by DIM

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Between groups	3.37595E9	2	1.68797E9	4.13	0.0282
Within groups	1.02156E10	25	4.08625E8		
Total (Corr.)	1.35916E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of Benzene, 1-methyl-4-(1-methyleth into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 4.13086, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean Benzene, 1-methyl-4-(1-methyleth from one level of DIM to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean Benzene, 1-methyl-4-(1-methyleth for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Benzene, 1-methyl-4-(1-methyleth by DIM

Method: 95.0 percent Tukey HSD

DIM	Count	Mean	Homogeneous Groups
M	5	90995.8	X
P	6	99035.2	XX
G	17	117269.	X

Contrast	Sig.	Difference	+/- Limits
G - M	*	26273.4	25623.6
G - P		18234.0	23916.7
M - P		-8039.37	30498.2

* denotes a statistically significant difference.

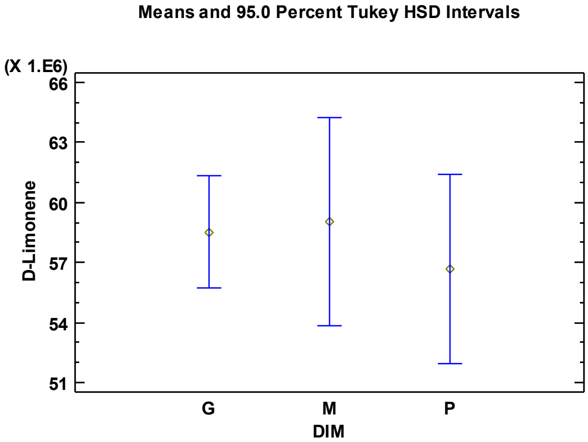
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 1 pair, indicating that this pair shows a statistically significant difference at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for D-Limonene by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.92423E13	2	9.62113E12	0.22	0.8032
Within groups	1.08816E15	25	4.35265E13		
Total (Corr.)	1.1074E15	27			

The StatAdvisor
The ANOVA table decomposes the variance of D-Limonene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.221041, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean D-Limonene from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean D-Limonene for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for D-Limonene by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
P	6	5.66648E7	X
G	17	5.85185E7	X
M	5	5.90221E7	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-503577.	8.36284E6
G - P		1.85376E6	7.80577E6
M - P		2.35734E6	9.95377E6

* denotes a statistically significant difference.

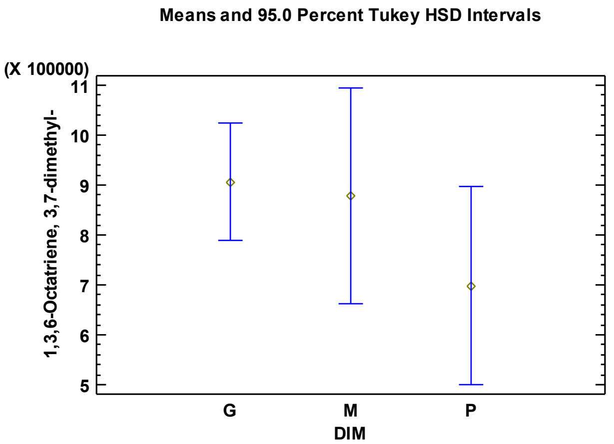
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 1,3,6-Octatriene, 3,7-dimethyl- by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.93915E11	2	9.69573E10	1.29	0.2939
Within groups	1.884E12	25	7.53599E10		
Total (Corr.)	2.07791E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1,3,6-Octatriene, 3,7-dimethyl- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.28659, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1,3,6-Octatriene, 3,7-dimethyl- from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 1,3,6-Octatriene, 3,7-dimethyl- for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1,3,6-Octatriene, 3,7-dimethyl- by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
P	6	698565.	X
M	5	878186.	X
G	17	906148.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		27961.8	347974.
G - P		207583.	324795.
M - P		179621.	414172.

* denotes a statistically significant difference.

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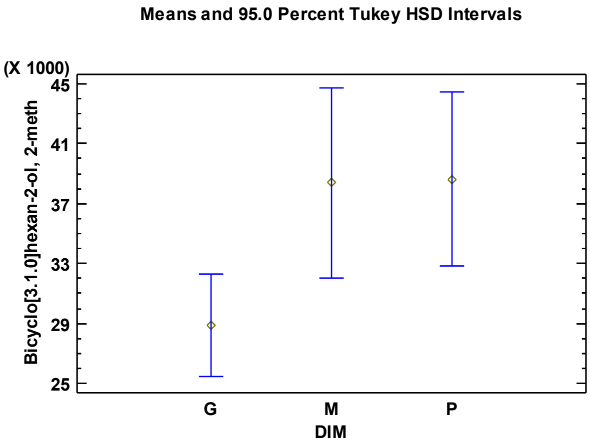
ANOVA Table for Bicyclo[3.1.0]hexan-2-ol, 2-meth by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	6.23315E8	2	3.11657E8	4.81	0.0171
Within groups	1.62026E9	25	6.48104E7		
Total (Corr.)	2.24357E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of Bicyclo[3.1.0]hexan-2-ol, 2-meth into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 4.80876, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean Bicyclo[3.1.0]hexan-2-ol, 2-meth from one level of DIM to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean Bicyclo[3.1.0]hexan-2-ol, 2-meth for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Bicyclo[3.1.0]hexan-2-ol, 2-meth by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	28866.0	X
M	5	38394.0	XX
P	6	38635.2	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-9528.0	10204.7
G - P	*	-9769.17	9524.92
M - P		-241.167	12146.0

* denotes a statistically significant difference.

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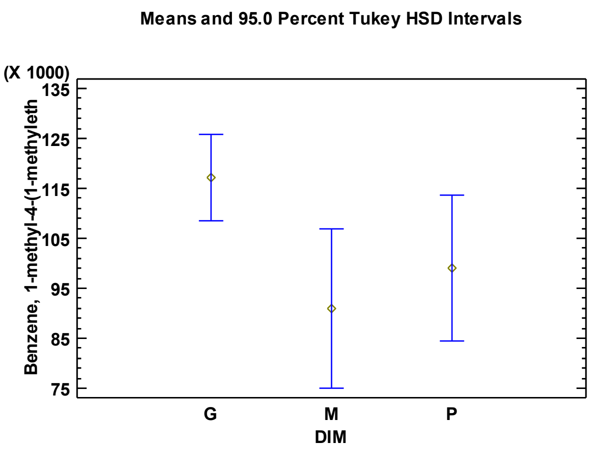
ANOVA Table for Benzene, 1-methyl-4-(1-methyleth by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.37595E9	2	1.68797E9	4.13	0.0282
Within groups	1.02156E10	25	4.08625E8		
Total (Corr.)	1.35916E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of Benzene, 1-methyl-4-(1-methyleth into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 4.13086, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean Benzene, 1-methyl-4-(1-methyleth from one level of DIM to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean Benzene, 1-methyl-4-(1-methyleth for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Benzene, 1-methyl-4-(1-methyleth by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	90995.8	X
P	6	99035.2	XX
G	17	117269.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M	*	26273.4	25623.6
G - P		18234.0	23916.7
M - P		-8039.37	30498.2

* denotes a statistically significant difference.

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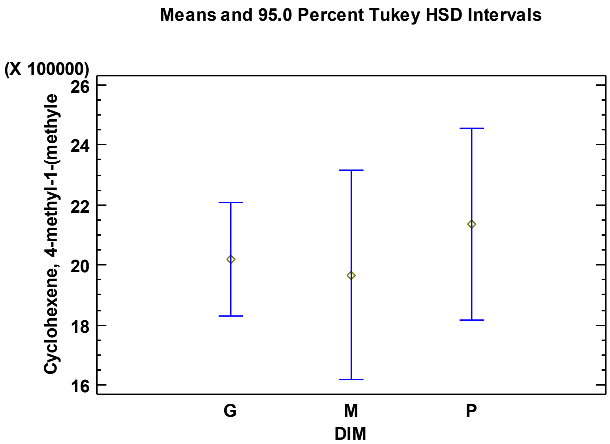
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 1 pair, indicating that this pair shows a statistically significant difference at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Cyclohexene, 4-methyl-1-(methyle by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	8.78829E10	2	4.39414E10	0.22	0.8007
Within groups	4.89895E12	25	1.95958E11		
Total (Corr.)	4.98683E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of Cyclohexene, 4-methyl-1-(methyle into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.224239, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Cyclohexene, 4-methyl-1-(methyle from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Cyclohexene, 4-methyl-1-(methyle for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Cyclohexene, 4-methyl-1-(methyle by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	1.96699E6	X
G	17	2.02028E6	X
P	6	2.1359E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		53289.9	561124.
G - P		-115617.	523746.
M - P		-168906.	667871.

* denotes a statistically significant difference.

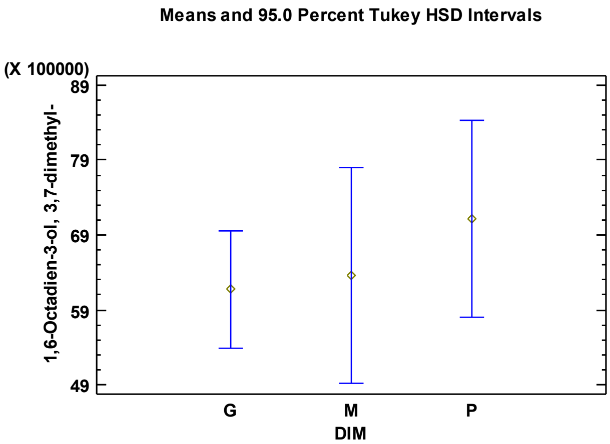
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 1,6-Octadien-3-ol, 3,7-dimethyl- by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.93668E12	2	1.96834E12	0.59	0.5617
Within groups	8.33709E13	25	3.33484E12		
Total (Corr.)	8.73076E13	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1,6-Octadien-3-ol, 3,7-dimethyl- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.590236, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1,6-Octadien-3-ol, 3,7-dimethyl- from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 1,6-Octadien-3-ol, 3,7-dimethyl- for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1,6-Octadien-3-ol, 3,7-dimethyl- by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	6.17716E6	X
M	5	6.36101E6	X
P	6	7.11747E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-183856.	2.3148E6
G - P		-940312.	2.16061E6
M - P		-756456.	2.75517E6

* denotes a statistically significant difference.

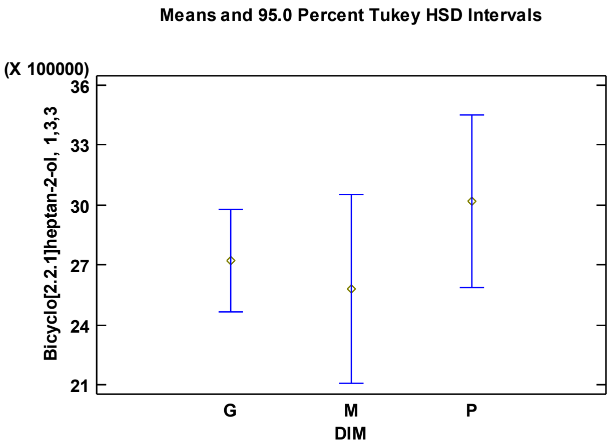
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Bicyclo[2.2.1]heptan-2-ol, 1,3,3 by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	5.78762E11	2	2.89381E11	0.81	0.4582
Within groups	8.98231E12	25	3.59292E11		
Total (Corr.)	9.56107E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of Bicyclo[2.2.1]heptan-2-ol, 1,3,3 into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.80542, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Bicyclo[2.2.1]heptan-2-ol, 1,3,3 from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Bicyclo[2.2.1]heptan-2-ol, 1,3,3 for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Bicyclo[2.2.1]heptan-2-ol, 1,3,3 by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	2.58231E6	X
G	17	2.72152E6	X
P	6	3.01682E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		139208.	759803.
G - P		-295295.	709191.
M - P		-434504.	904347.

* denotes a statistically significant difference.

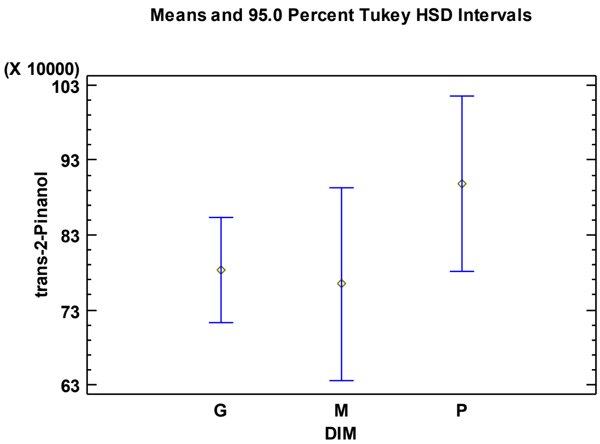
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for trans-2-Pinanol by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	6.86404E10	2	3.43202E10	1.28	0.2948
Within groups	6.6859E11	25	2.67436E10		
Total (Corr.)	7.37231E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of trans-2-Pinanol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.2833, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean trans-2-Pinanol from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean trans-2-Pinanol for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for trans-2-Pinanol by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	764393.	X
G	17	783322.	X
P	6	898462.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		18929.1	207294.
G - P		-115140.	193486.
M - P		-134069.	246729.

* denotes a statistically significant difference.

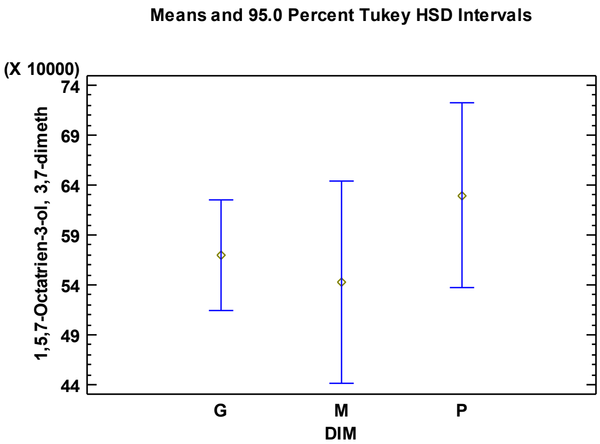
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 1,5,7-Octatrien-3-ol, 3,7-dimeth by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	2.29457E10	2	1.14728E10	0.69	0.5090
Within groups	4.13323E11	25	1.65329E10		
Total (Corr.)	4.36269E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1,5,7-Octatrien-3-ol, 3,7-dimeth into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.69394, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1,5,7-Octatrien-3-ol, 3,7-dimeth from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 1,5,7-Octatrien-3-ol, 3,7-dimeth for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1,5,7-Octatrien-3-ol, 3,7-dimeth by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	543088.	X
G	17	569958.	X
P	6	629239.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		26869.8	162987.
G - P		-59281.0	152130.
M - P		-86150.8	193993.

* denotes a statistically significant difference.

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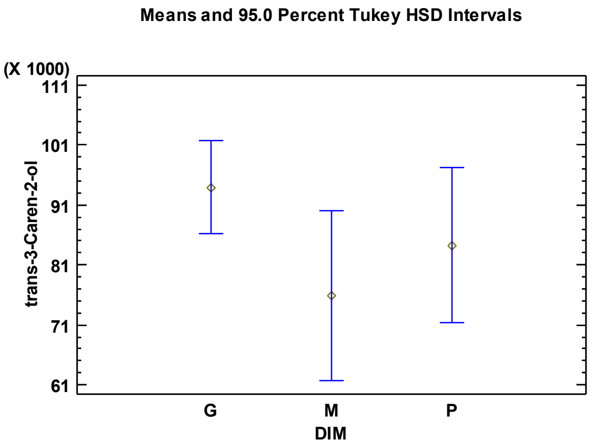
ANOVA Table for trans-3-Caren-2-ol by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.42232E9	2	7.11161E8	2.19	0.1328
Within groups	8.1155E9	25	3.2462E8		
Total (Corr.)	9.53783E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of trans-3-Caren-2-ol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.19075, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean trans-3-Caren-2-ol from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean trans-3-Caren-2-ol for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for trans-3-Caren-2-ol by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	75800.8	X
P	6	84307.2	X
G	17	93983.9	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		18183.1	22838.4
G - P		9676.72	21317.0
M - P		-8506.37	27183.1

* denotes a statistically significant difference.

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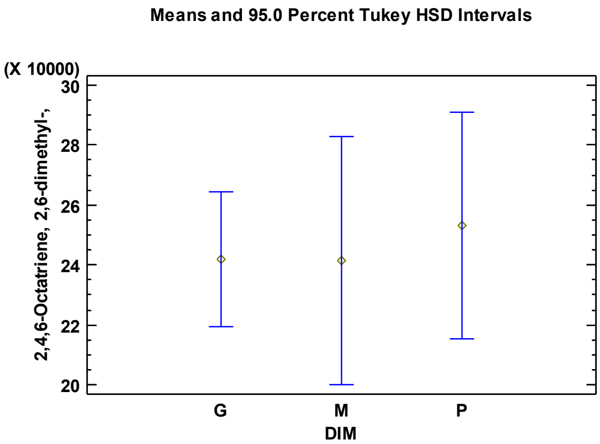
ANOVA Table for 2,4,6-Octatriene, 2,6-dimethyl-, by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	5.8836E8	2	2.9418E8	0.11	0.8993
Within groups	6.89739E10	25	2.75896E9		
Total (Corr.)	6.95623E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2,4,6-Octatriene, 2,6-dimethyl-, into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.106627, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2,4,6-Octatriene, 2,6-dimethyl-, from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 2,4,6-Octatriene, 2,6-dimethyl-, for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2,4,6-Octatriene, 2,6-dimethyl-, by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	241506.	X
G	17	242010.	X
P	6	253058.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		504.282	66580.9
G - P		-11047.6	62145.8
M - P		-11551.9	79247.1

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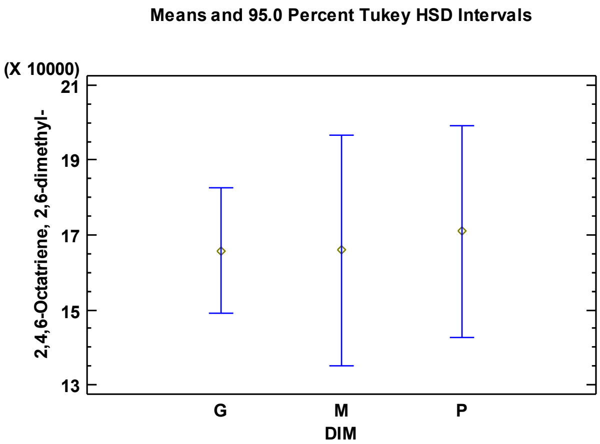
ANOVA Table for 2,4,6-Octatriene, 2,6-dimethyl- by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.21212E8	2	6.06061E7	0.04	0.9612
Within groups	3.82501E10	25	1.53E9		
Total (Corr.)	3.83713E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2,4,6-Octatriene, 2,6-dimethyl- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.0396117, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2,4,6-Octatriene, 2,6-dimethyl- from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 2,4,6-Octatriene, 2,6-dimethyl- for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2,4,6-Octatriene, 2,6-dimethyl- by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	165817.	X
M	5	165899.	X
P	6	170906.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-81.1882	49581.9
G - P		-5088.59	46279.2
M - P		-5007.4	59014.3

* denotes a statistically significant difference.

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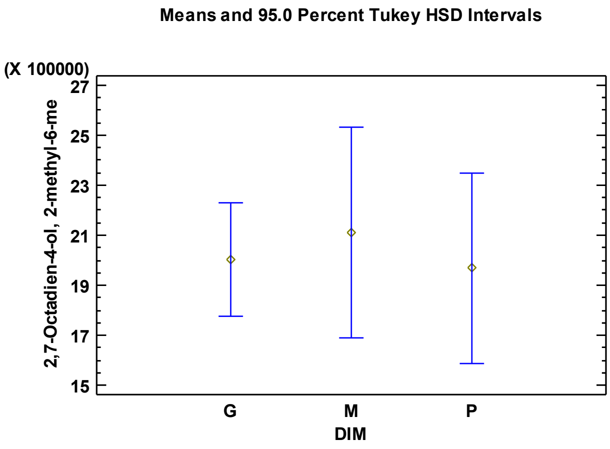
ANOVA Table for 2,7-Octadien-4-ol, 2-methyl-6-me by DIM

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Between groups	6.24703E10	2	3.12351E10	0.11	0.8961
Within groups	7.08866E12	25	2.83546E11		
Total (Corr.)	7.15113E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2,7-Octadien-4-ol, 2-methyl-6-me into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.110159, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2,7-Octadien-4-ol, 2-methyl-6-me from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 2,7-Octadien-4-ol, 2-methyl-6-me for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2,7-Octadien-4-ol, 2-methyl-6-me by DIM

Method: 95.0 percent Tukey HSD

DIM	Count	Mean	Homogeneous Groups
P	6	1.96809E6	X
G	17	2.00127E6	X
M	5	2.11103E6	X

Contrast	Sig.	Difference	+/- Limits
G - M		-109754.	674977.
G - P		33183.7	630015.
M - P		142938.	803384.

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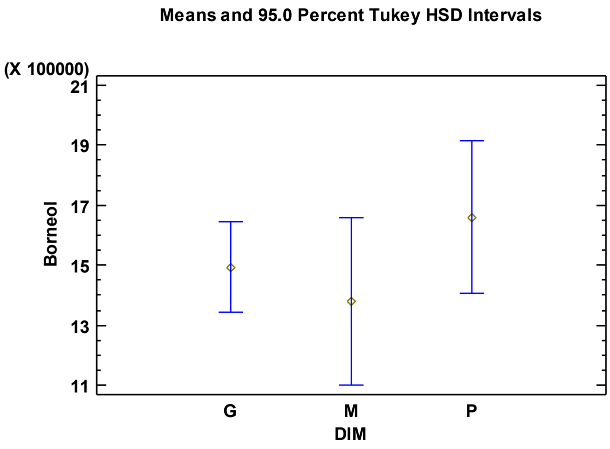
ANOVA Table for Borneol by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	2.24045E11	2	1.12023E11	0.90	0.4192
Within groups	3.11087E12	25	1.24435E11		
Total (Corr.)	3.33492E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of Borneol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.90025, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Borneol from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Borneol for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Borneol by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	1.37993E6	X
G	17	1.49339E6	X
P	6	1.65989E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		113467.	447145.
G - P		-166496.	417359.
M - P		-279963.	532209.

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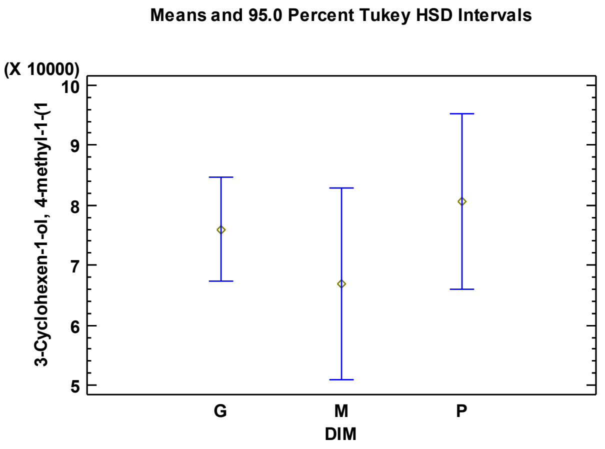
ANOVA Table for 3-Cyclohexen-1-ol, 4-methyl-1-(1 by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	5.33062E8	2	2.66531E8	0.65	0.5292
Within groups	1.02071E10	25	4.08283E8		
Total (Corr.)	1.07401E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 3-Cyclohexen-1-ol, 4-methyl-1-(1 into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.65281, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 3-Cyclohexen-1-ol, 4-methyl-1-(1 from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 3-Cyclohexen-1-ol, 4-methyl-1-(1 for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 3-Cyclohexen-1-ol, 4-methyl-1-(1 by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	66869.0	X
G	17	75996.5	X
P	6	80615.0	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		9127.47	25612.8
G - P		-4618.53	23906.7
M - P		-13746.0	30485.4

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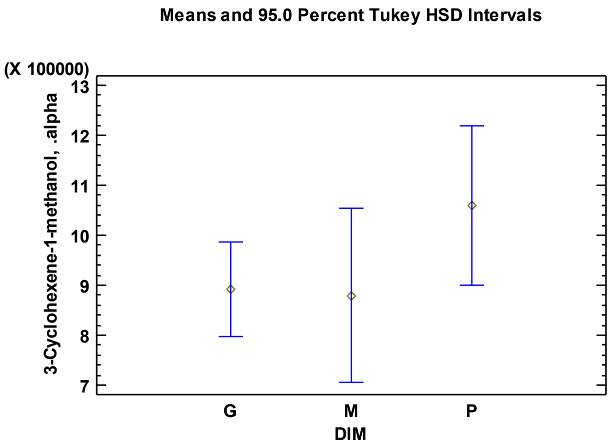
ANOVA Table for 3-Cyclohexene-1-methanol, .alpha by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.35592E11	2	6.77959E10	1.38	0.2709
Within groups	1.23099E12	25	4.92396E10		
Total (Corr.)	1.36658E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of 3-Cyclohexene-1-methanol, .alpha into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.37686, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 3-Cyclohexene-1-methanol, .alpha from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 3-Cyclohexene-1-methanol, .alpha for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 3-Cyclohexene-1-methanol, .alpha by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	879452.	X
G	17	892165.	X
P	6	1.05848E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		12713.8	281277.
G - P		-166313.	262541.
M - P		-179027.	334787.

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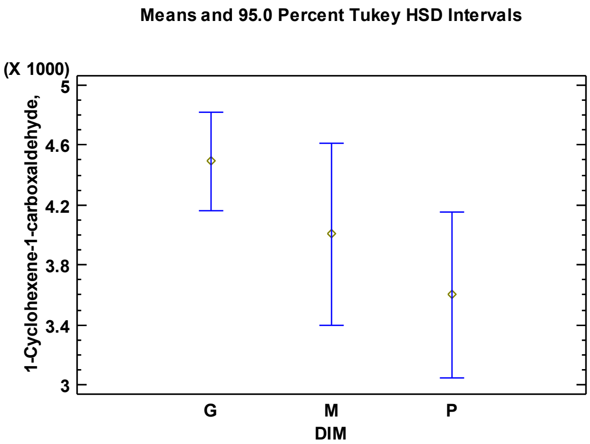
ANOVA Table for 1-Cyclohexene-1-carboxaldehyde, by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.8086E6	2	1.9043E6	3.22	0.0571
Within groups	1.47923E7	25	591693.		
Total (Corr.)	1.86009E7	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1-Cyclohexene-1-carboxaldehyde, into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 3.21839, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1-Cyclohexene-1-carboxaldehyde, from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 1-Cyclohexene-1-carboxaldehyde, for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1-Cyclohexene-1-carboxaldehyde, by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
P	6	3601.33	X
M	5	4005.4	X
G	17	4494.65	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		489.247	975.047
G - P		893.314	910.096
M - P		404.067	1160.54

* denotes a statistically significant difference.

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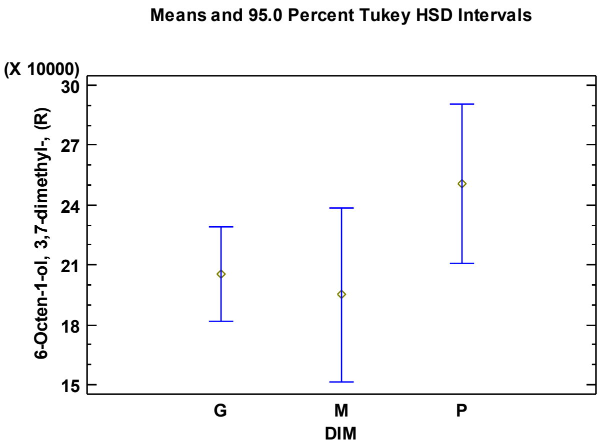
ANOVA Table for 6-Octen-1-ol, 3,7-dimethyl-, (R) by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.11328E10	2	5.56639E9	1.83	0.1817
Within groups	7.61473E10	25	3.04589E9		
Total (Corr.)	8.728E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 6-Octen-1-ol, 3,7-dimethyl-, (R) into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.82751, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 6-Octen-1-ol, 3,7-dimethyl-, (R) from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 6-Octen-1-ol, 3,7-dimethyl-, (R) for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 6-Octen-1-ol, 3,7-dimethyl-, (R) by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	195095.	X
G	17	205303.	X
P	6	250692.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		10207.4	69957.5
G - P		-45388.7	65297.4
M - P		-55596.1	83266.1

* denotes a statistically significant difference.

The StatAdvisor
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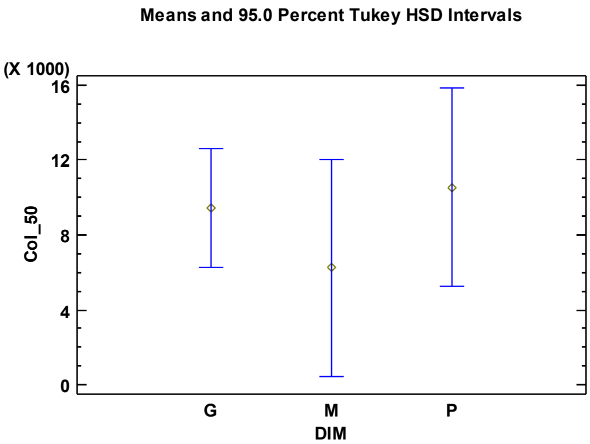
ANOVA Table for Col_50 by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	5.5049E7	2	2.75245E7	0.51	0.6077
Within groups	1.35404E9	25	5.41615E7		
Total (Corr.)	1.40909E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of Col_50 into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.508193, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Col_50 from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Col_50 for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Col_50 by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	6246.2	X
G	17	9428.0	X
P	6	10543.3	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		3181.8	9328.73
G - P		-1115.33	8707.32
M - P		-4297.13	11103.4

* denotes a statistically significant difference.

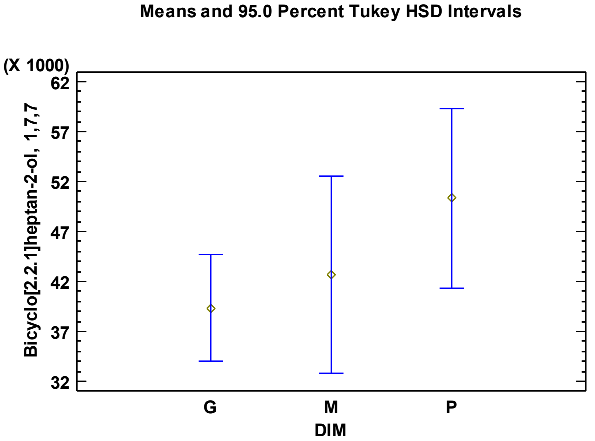
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Bicyclo[2.2.1]heptan-2-ol, 1,7,7 by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	5.38558E8	2	2.69279E8	1.72	0.1994
Within groups	3.9113E9	25	1.56452E8		
Total (Corr.)	4.44986E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of Bicyclo[2.2.1]heptan-2-ol, 1,7,7 into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.72116, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Bicyclo[2.2.1]heptan-2-ol, 1,7,7 from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Bicyclo[2.2.1]heptan-2-ol, 1,7,7 for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Bicyclo[2.2.1]heptan-2-ol, 1,7,7 by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	39342.6	X
M	5	42742.2	X
P	6	50350.8	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-3399.61	15855.0
G - P		-11008.2	14798.9
M - P		-7608.63	18871.3

* denotes a statistically significant difference.

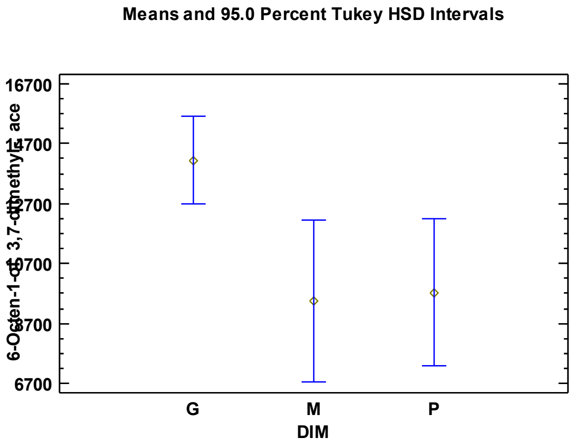
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 6-Octen-1-ol, 3,7-dimethyl-, ace by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.37189E8	2	6.85944E7	5.83	0.0083
Within groups	2.93962E8	25	1.17585E7		
Total (Corr.)	4.31151E8	27			

The StatAdvisor
The ANOVA table decomposes the variance of 6-Octen-1-ol, 3,7-dimethyl-, ace into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 5.83362, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0.05, there is a statistically significant difference between the mean 6-Octen-1-ol, 3,7-dimethyl-, ace from one level of DIM to another at the 5% significance level. To determine which means are significantly different from which others, select Multiple Range Tests from the list of Tabular Options.

Means Plot



This plot shows the mean 6-Octen-1-ol, 3,7-dimethyl-, ace for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 6-Octen-1-ol, 3,7-dimethyl-, ace by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	9459.2	X
P	6	9738.0	X
G	17	14140.1	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M	*	4680.86	4346.63
G - P	*	4402.06	4057.09
M - P		-278.8	5173.52

* denotes a statistically significant difference.

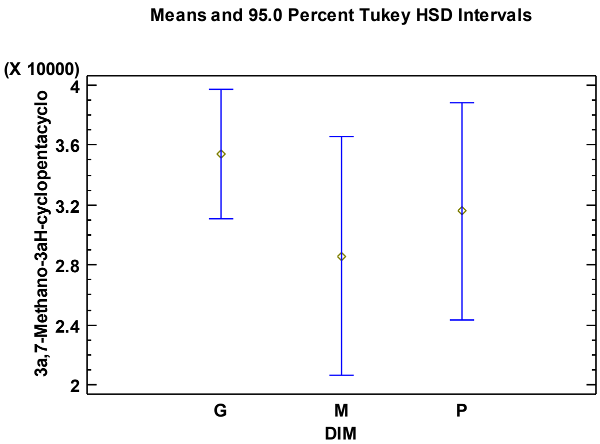
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 2 pairs, indicating that these pairs show statistically significant differences at the 95.0% confidence level. At the top of the page, 2 homogenous groups are identified using columns of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for 3a,7-Methano-3aH-cyclopentacyclo by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	2.02335E8	2	1.01167E8	1.00	0.3826
Within groups	2.53249E9	25	1.01299E8		
Total (Corr.)	2.73482E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of 3a,7-Methano-3aH-cyclopentacyclo into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.998697, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 3a,7-Methano-3aH-cyclopentacyclo from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 3a,7-Methano-3aH-cyclopentacyclo for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 3a,7-Methano-3aH-cyclopentacyclo by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	28599.6	X
P	6	31576.8	X
G	17	35388.5	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		6788.87	12757.9
G - P		3811.64	11908.1
M - P		-2977.23	15185.0

* denotes a statistically significant difference.

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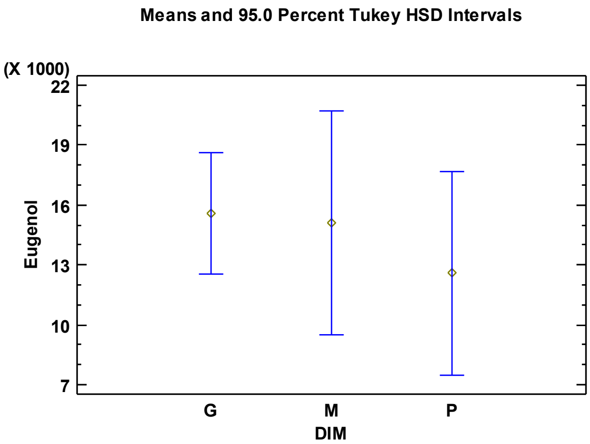
ANOVA Table for Eugenol by DIM

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Between groups	4.0916E7	2	2.0458E7	0.40	0.6714
Within groups	1.26343E9	25	5.05372E7		
Total (Corr.)	1.30435E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of Eugenol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.404811, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Eugenol from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Eugenol for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Eugenol by DIM

Method: 95.0 percent Tukey HSD

DIM	Count	Mean	Homogeneous Groups
P	6	12579.2	X
M	5	15114.0	X
G	17	15602.9	X

Contrast	Sig.	Difference	+/- Limits
G - M		488.882	9011.2
G - P		3023.72	8410.94
M - P		2534.83	10725.5

* denotes a statistically significant difference.

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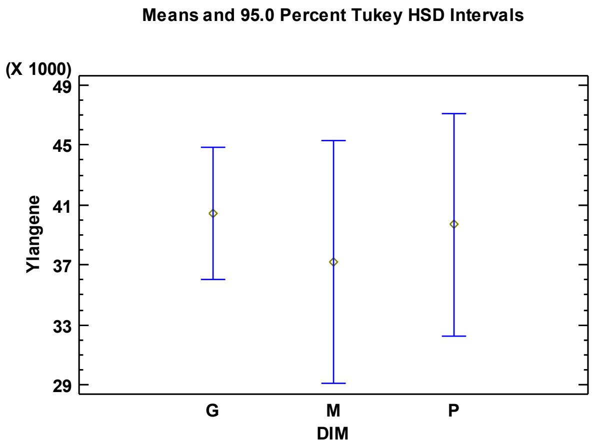
ANOVA Table for Ylangene by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.94761E7	2	1.97381E7	0.19	0.8318
Within groups	2.66023E9	25	1.06409E8		
Total (Corr.)	2.6997E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of Ylangene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.185492, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Ylangene from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Ylangene for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Ylangene by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	37211.6	X
P	6	39682.5	X
G	17	40408.1	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		3196.46	13075.7
G - P		725.559	12204.7
M - P		-2470.9	15563.3

* denotes a statistically significant difference.

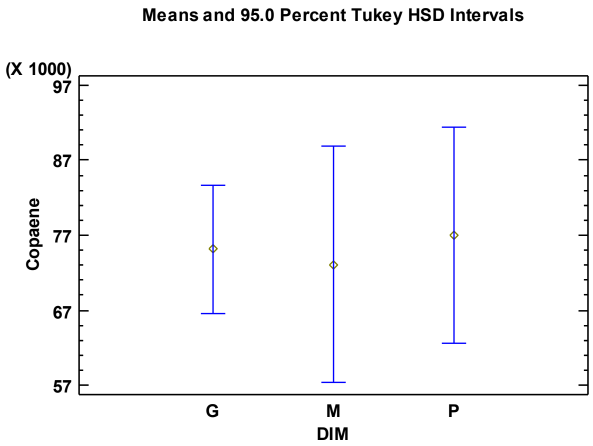
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Copaene by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	4.275E7	2	2.1375E7	0.05	0.9481
Within groups	1.00133E10	25	4.00532E8		
Total (Corr.)	1.0056E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of Copaene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.0533665, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Copaene from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Copaene for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Copaene by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	73097.2	X
G	17	75174.6	X
P	6	77054.3	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		2077.39	25368.5
G - P		-1879.75	23678.7
M - P		-3957.13	30194.6

* denotes a statistically significant difference.

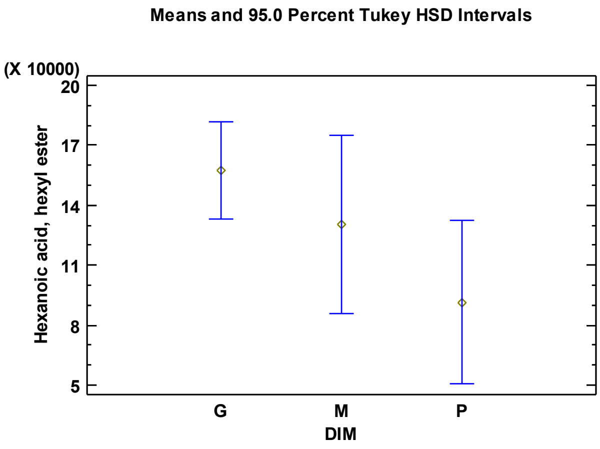
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Hexanoic acid, hexyl ester by DIM

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Between groups	1.97E10	2	9.84999E9	3.09	0.0634
Within groups	7.97879E10	25	3.19152E9		
Total (Corr.)	9.94879E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of Hexanoic acid, hexyl ester into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 3.0863, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Hexanoic acid, hexyl ester from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Hexanoic acid, hexyl ester for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Hexanoic acid, hexyl ester by DIM

Method: 95.0 percent Tukey HSD

DIM	Count	Mean	Homogeneous Groups
P	6	91580.8	X
M	5	130289.	X
G	17	157527.	X

Contrast	Sig.	Difference	+/- Limits
G - M		27238.3	71610.3
G - P		65946.1	66840.2
M - P		38707.8	85233.3

* denotes a statistically significant difference.

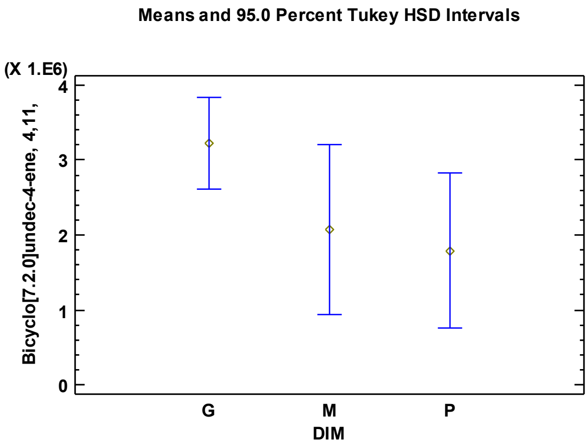
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Bicyclo[7.2.0]undec-4-ene, 4,11, by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.16866E13	2	5.8433E12	2.83	0.0783
Within groups	5.17091E13	25	2.06836E12		
Total (Corr.)	6.33957E13	27			

The StatAdvisor
The ANOVA table decomposes the variance of Bicyclo[7.2.0]undec-4-ene, 4,11, into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.82509, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Bicyclo[7.2.0]undec-4-ene, 4,11, from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Bicyclo[7.2.0]undec-4-ene, 4,11, for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Bicyclo[7.2.0]undec-4-ene, 4,11, by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
P	6	1.78602E6	X
M	5	2.07092E6	X
G	17	3.22576E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		1.15483E6	1.82302E6
G - P		1.43974E6	1.70158E6
M - P		284904.	2.16982E6

* denotes a statistically significant difference.

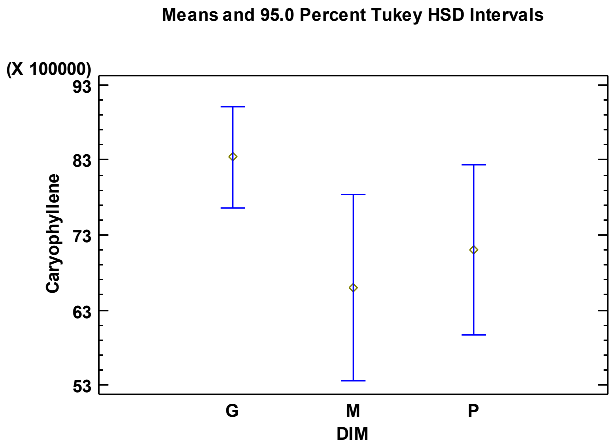
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Caryophyllene by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.51123E13	2	7.55615E12	3.02	0.0667
Within groups	6.24864E13	25	2.49946E12		
Total (Corr.)	7.75987E13	27			

The StatAdvisor
The ANOVA table decomposes the variance of Caryophyllene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 3.02312, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Caryophyllene from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Caryophyllene for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Caryophyllene by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	6.59523E6	X
P	6	7.09776E6	X
G	17	8.33892E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		1.74369E6	2.00401E6
G - P		1.24116E6	1.87052E6
M - P		-502529.	2.38525E6

* denotes a statistically significant difference.

The StatAdvisor
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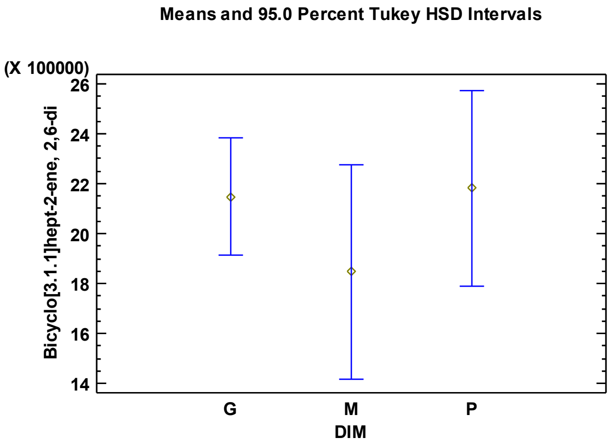
ANOVA Table for Bicyclo[3.1.1]hept-2-ene, 2,6-di by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.98255E11	2	1.99127E11	0.67	0.5210
Within groups	7.43798E12	25	2.97519E11		
Total (Corr.)	7.83623E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of Bicyclo[3.1.1]hept-2-ene, 2,6-di into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.669293, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Bicyclo[3.1.1]hept-2-ene, 2,6-di from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Bicyclo[3.1.1]hept-2-ene, 2,6-di for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Bicyclo[3.1.1]hept-2-ene, 2,6-di by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	1.84739E6	X
G	17	2.14837E6	X
P	6	2.18114E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		300979.	691408.
G - P		-32767.5	645352.
M - P		-333747.	822940.

* denotes a statistically significant difference.

The StatAdvisor
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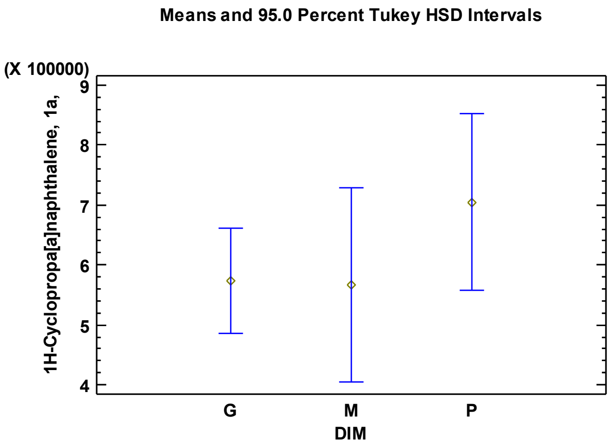
ANOVA Table for 1H-Cyclopropa[a]naphthalene, 1a, by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	8.26753E10	2	4.13377E10	0.98	0.3899
Within groups	1.05633E12	25	4.22533E10		
Total (Corr.)	1.13901E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of 1H-Cyclopropa[a]naphthalene, 1a, into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.978331, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 1H-Cyclopropa[a]naphthalene, 1a, from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 1H-Cyclopropa[a]naphthalene, 1a, for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 1H-Cyclopropa[a]naphthalene, 1a, by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	567501.	X
G	17	574088.	X
P	6	704885.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		6586.92	260560.
G - P		-130797.	243203.
M - P		-137384.	310128.

* denotes a statistically significant difference.

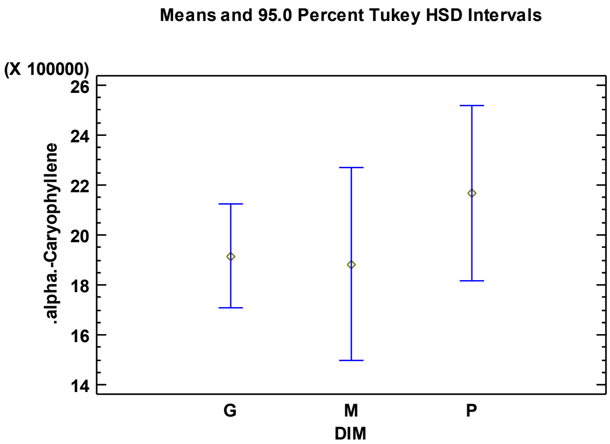
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for .alpha.-Caryophyllene by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.21714E11	2	1.60857E11	0.67	0.5213
Within groups	6.01457E12	25	2.40583E11		
Total (Corr.)	6.33628E12	27			

The StatAdvisor
The ANOVA table decomposes the variance of .alpha.-Caryophyllene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.668614, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean .alpha.-Caryophyllene from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean .alpha.-Caryophyllene for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for .alpha.-Caryophyllene by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	1.88362E6	X
G	17	1.91532E6	X
P	6	2.16777E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		31698.7	621741.
G - P		-252447.	580325.
M - P		-284146.	740020.

* denotes a statistically significant difference.

The StatAdvisor
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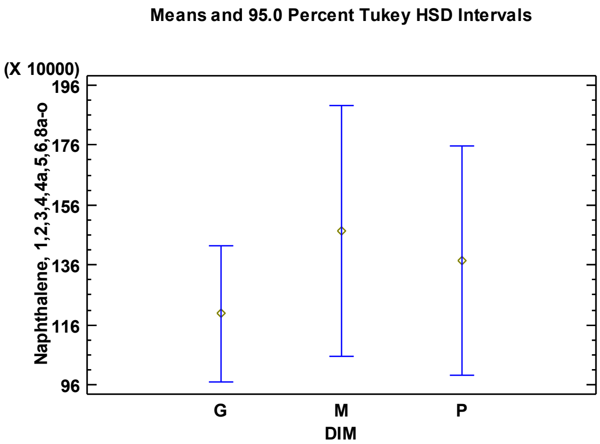
ANOVA Table for Naphthalene, 1,2,3,4,4a,5,6,8a-o by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.57777E11	2	1.78888E11	0.63	0.5388
Within groups	7.05422E12	25	2.82169E11		
Total (Corr.)	7.412E12	27			

The StatAdvisor

The ANOVA table decomposes the variance of Naphthalene, 1,2,3,4,4a,5,6,8a-o into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.633976, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Naphthalene, 1,2,3,4,4a,5,6,8a-o from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Naphthalene, 1,2,3,4,4a,5,6,8a-o for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Naphthalene, 1,2,3,4,4a,5,6,8a-o by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	1.19677E6	X
P	6	1.37522E6	X
M	5	1.47295E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-276177.	673336.
G - P		-178445.	628483.
M - P		97732.3	801430.

* denotes a statistically significant difference.

The StatAdvisor

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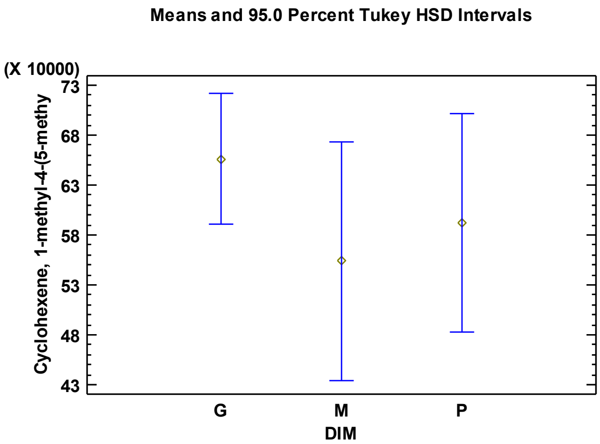
ANOVA Table for Cyclohexene, 1-methyl-4-(5-methy by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	4.85253E10	2	2.42627E10	1.05	0.3640
Within groups	5.76211E11	25	2.30484E10		
Total (Corr.)	6.24736E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of Cyclohexene, 1-methyl-4-(5-methy into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.05268, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Cyclohexene, 1-methyl-4-(5-methy from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Cyclohexene, 1-methyl-4-(5-methy for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Cyclohexene, 1-methyl-4-(5-methy by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	553687.	X
P	6	591971.	X
G	17	656222.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		102536.	192441.
G - P		64251.5	179622.
M - P		-38284.4	229051.

* denotes a statistically significant difference.

The StatAdvisor
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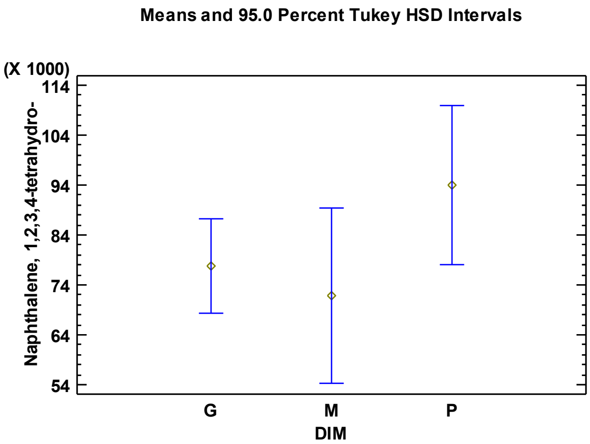
ANOVA Table for Naphthalene, 1,2,3,4-tetrahydro- by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.59719E9	2	7.98593E8	1.62	0.2174
Within groups	1.22994E10	25	4.91977E8		
Total (Corr.)	1.38966E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of Naphthalene, 1,2,3,4-tetrahydro- into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.62323, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Naphthalene, 1,2,3,4-tetrahydro- from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Naphthalene, 1,2,3,4-tetrahydro- for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Naphthalene, 1,2,3,4-tetrahydro- by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	71788.8	X
G	17	77705.2	X
P	6	93970.5	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		5916.44	28115.7
G - P		-16265.3	26242.9
M - P		-22181.7	33464.4

* denotes a statistically significant difference.

The StatAdvisor
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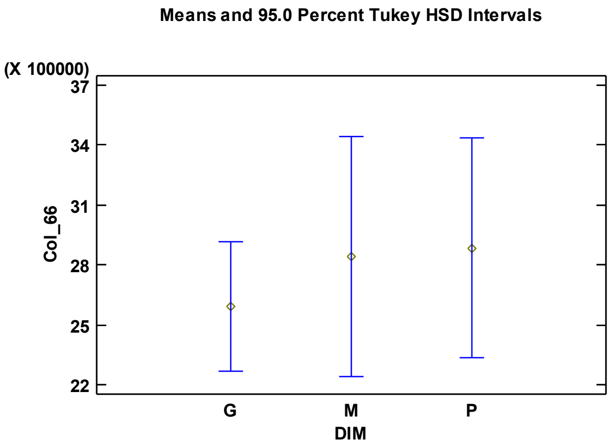
ANOVA Table for Col_66 by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	4.99573E11	2	2.49786E11	0.43	0.6557
Within groups	1.45496E13	25	5.81984E11		
Total (Corr.)	1.50492E13	27			

The StatAdvisor
The ANOVA table decomposes the variance of Col_66 into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.429198, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Col_66 from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Col_66 for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Col_66 by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	2.59321E6	X
M	5	2.84137E6	X
P	6	2.88519E6	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-248161.	967014.
G - P		-291981.	902598.
M - P		-43819.8	1.15098E6

* denotes a statistically significant difference.

The StatAdvisor
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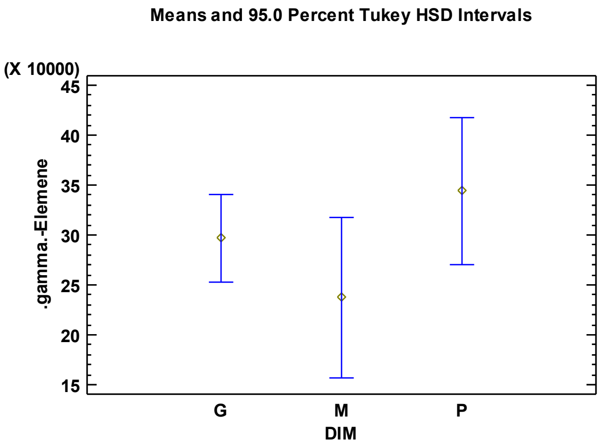
ANOVA Table for .gamma.-Elemene by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	3.10532E10	2	1.55266E10	1.48	0.2463
Within groups	2.6182E11	25	1.04728E10		
Total (Corr.)	2.92873E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of .gamma.-Elemene into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.48256, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean .gamma.-Elemene from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean .gamma.-Elemene for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for .gamma.-Elemene by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	237492.	X
G	17	296771.	X
P	6	344184.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		59279.8	129721.
G - P		-47412.8	121080.
M - P		-106693.	154398.

* denotes a statistically significant difference.

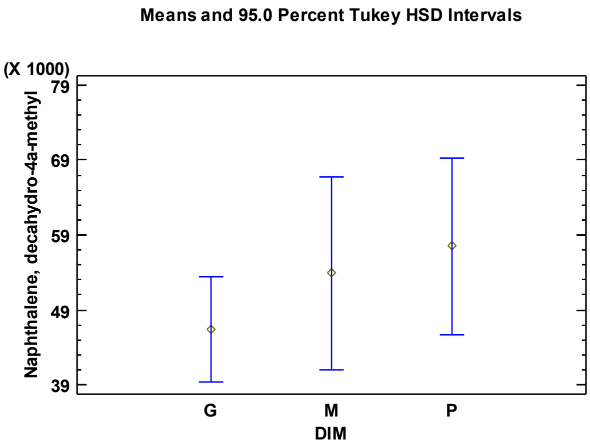
The StatAdvisor
This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. There are no statistically significant differences between any pair of means at the 95.0% confidence level. At the top of the page, one homogenous group is identified by a column of X's. Within each column, the levels containing X's form a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Tukey's honestly significant difference (HSD) procedure. With this method, there is a 5.0% risk of calling one or more pairs significantly different when their actual difference equals 0. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead.

ANOVA Table for Naphthalene, decahydro-4a-methyl by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	6.39033E8	2	3.19517E8	1.19	0.3205
Within groups	6.70483E9	25	2.68193E8		
Total (Corr.)	7.34386E9	27			

The StatAdvisor
The ANOVA table decomposes the variance of Naphthalene, decahydro-4a-methyl into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.19137, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Naphthalene, decahydro-4a-methyl from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Naphthalene, decahydro-4a-methyl for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Naphthalene, decahydro-4a-methyl by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	46339.5	X
M	5	53883.0	X
P	6	57483.5	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-7543.47	20758.7
G - P		-11144.0	19375.9
M - P		-3600.5	24707.8

* denotes a statistically significant difference.

The StatAdvisor
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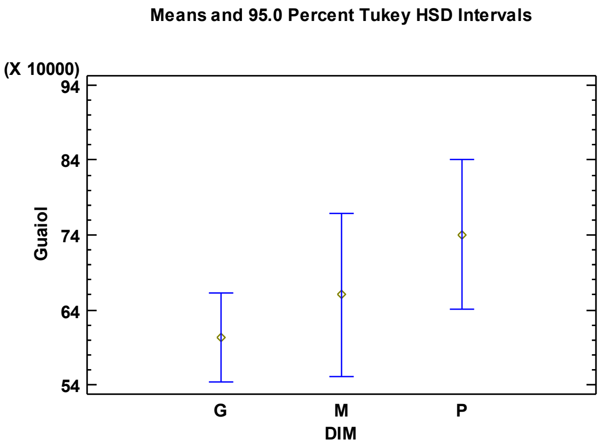
ANOVA Table for Guaiol by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	8.59106E10	2	4.29553E10	2.23	0.1286
Within groups	4.81811E11	25	1.92724E10		
Total (Corr.)	5.67721E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of Guaiol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.22885, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean Guaiol from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean Guaiol for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for Guaiol by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	602587.	X
M	5	660025.	X
P	6	740219.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-57437.9	175973.
G - P		-137632.	164251.
M - P		-80194.0	209449.

* denotes a statistically significant difference.

The StatAdvisor
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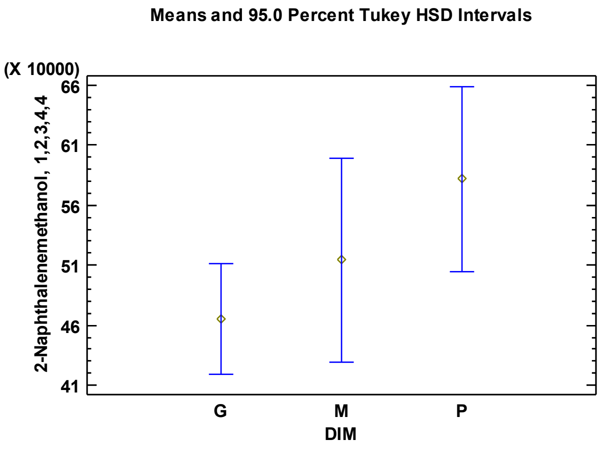
ANOVA Table for 2-Naphthalenemethanol, 1,2,3,4,4 by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	6.13369E10	2	3.06685E10	2.66	0.0898
Within groups	2.88437E11	25	1.15375E10		
Total (Corr.)	3.49774E11	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2-Naphthalenemethanol, 1,2,3,4,4 into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.65816, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2-Naphthalenemethanol, 1,2,3,4,4 from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 2-Naphthalenemethanol, 1,2,3,4,4 for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2-Naphthalenemethanol, 1,2,3,4,4 by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
G	17	465528.	X
M	5	514427.	X
P	6	581767.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-48898.2	136155.
G - P		-116238.	127085.
M - P		-67340.1	162056.

* denotes a statistically significant difference.

The StatAdvisor
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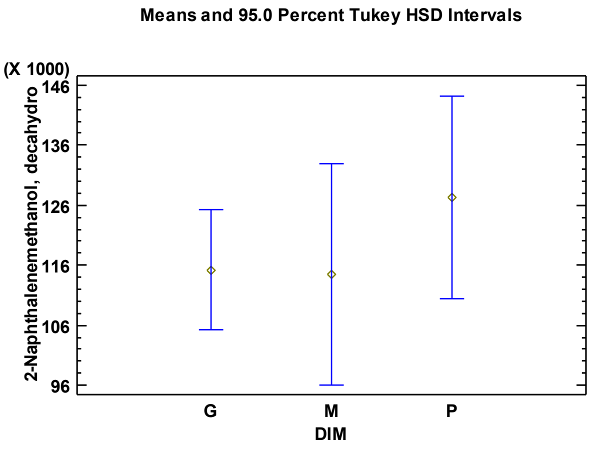
ANOVA Table for 2-Naphthalenemethanol, decahydro by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	7.07775E8	2	3.53887E8	0.65	0.5331
Within groups	1.37152E10	25	5.48607E8		
Total (Corr.)	1.44229E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 2-Naphthalenemethanol, decahydro into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.645066, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 2-Naphthalenemethanol, decahydro from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 2-Naphthalenemethanol, decahydro for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 2-Naphthalenemethanol, decahydro by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	114577.	X
G	17	115160.	X
P	6	127270.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		583.071	29689.8
G - P		-12109.0	27712.1
M - P		-12692.1	35338.0

* denotes a statistically significant difference.

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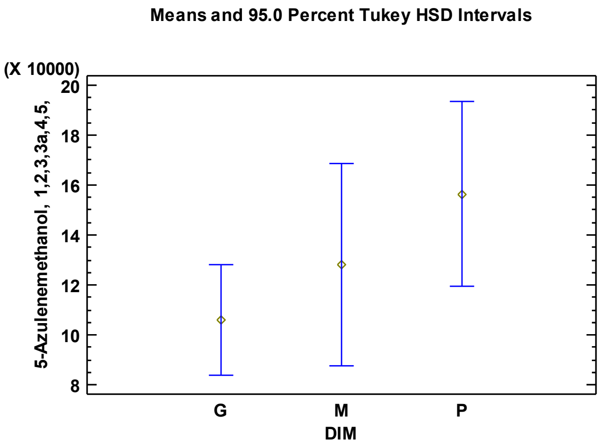
ANOVA Table for 5-Azulenemethanol, 1,2,3,3a,4,5, by DIM

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Between groups	1.15953E10	2	5.79764E9	2.21	0.1304
Within groups	6.552E10	25	2.6208E9		
Total (Corr.)	7.71153E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of 5-Azulenemethanol, 1,2,3,3a,4,5, into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 2.21217, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean 5-Azulenemethanol, 1,2,3,3a,4,5, from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean 5-Azulenemethanol, 1,2,3,3a,4,5, for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for 5-Azulenemethanol, 1,2,3,3a,4,5, by DIM

Method: 95.0 percent Tukey HSD

DIM	Count	Mean	Homogeneous Groups
G	17	105975.	X
M	5	128044.	X
P	6	156383.	X

Contrast	Sig.	Difference	+/- Limits
G - M		-22069.0	64892.4
G - P		-50407.8	60569.8
M - P		-28338.8	77237.4

* denotes a statistically significant difference.

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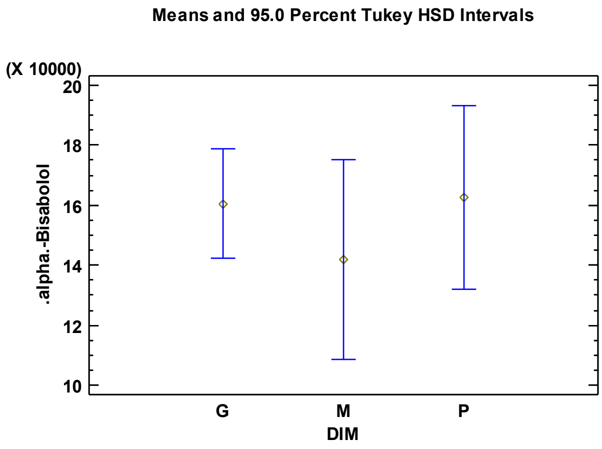
ANOVA Table for .alpha.-Bisabolol by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.51969E9	2	7.59847E8	0.42	0.6605
Within groups	4.50377E10	25	1.80151E9		
Total (Corr.)	4.65574E10	27			

The StatAdvisor
The ANOVA table decomposes the variance of .alpha.-Bisabolol into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 0.421784, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean .alpha.-Bisabolol from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean .alpha.-Bisabolol for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for .alpha.-Bisabolol by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
M	5	141944.	X
G	17	160511.	X
P	6	162601.	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		18567.7	53801.6
G - P		-2089.53	50217.7
M - P		-20657.2	64036.7

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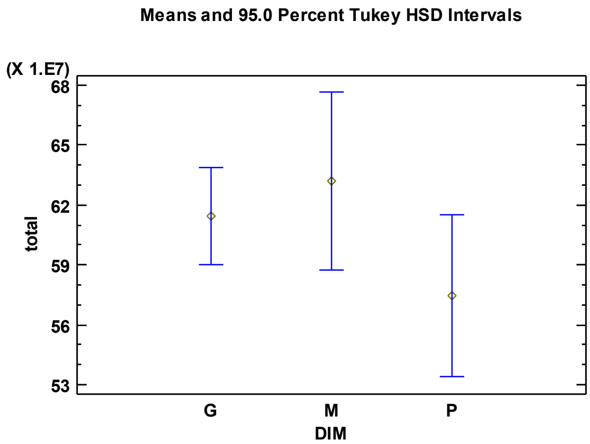
ANOVA Table for total by DIM

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	1.01656E16	2	5.08282E15	1.59	0.2243
Within groups	8.00287E16	25	3.20115E15		
Total (Corr.)	9.01944E16	27			

The StatAdvisor
The ANOVA table decomposes the variance of total into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 1.58781, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is greater than or equal to 0.05, there is not a statistically significant difference between the mean total from one level of DIM to another at the 5% significance level.

Means Plot



This plot shows the mean total for each level of DIM. It also shows an interval around each mean. The intervals currently displayed are based on Tukey's honestly significant difference (HSD) procedure. They are constructed in such a way that if all the means are the same, all the intervals will overlap 95.0% of the time. NOTE: the intervals are not exact since the number of observations at each level is not the same. You might consider using the Bonferroni procedure instead. Any pair of intervals that do not overlap vertically correspond to a pair of means which have a statistically significant difference. You can do a detailed comparison of the means by selecting Multiple Range Tests from the list of Tabular Options.

Multiple Range Tests for total by DIM

Method: 95.0 percent Tukey HSD

DIM	*Count*	*Mean*	*Homogeneous Groups*
P	6	5.74659E8	X
G	17	6.1439E8	X
M	5	6.31786E8	X

Contrast	*Sig.*	*Difference*	*+/- Limits*
G - M		-1.73961E7	7.17183E7
G - P		3.97308E7	6.6941E7
M - P		5.71269E7	8.53619E7

* denotes a statistically significant difference.

The StatAdvisor
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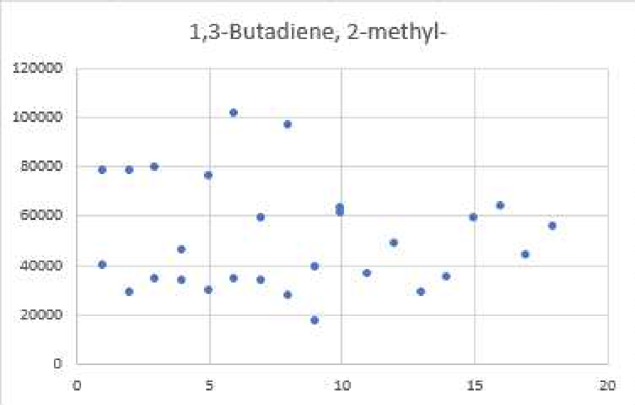
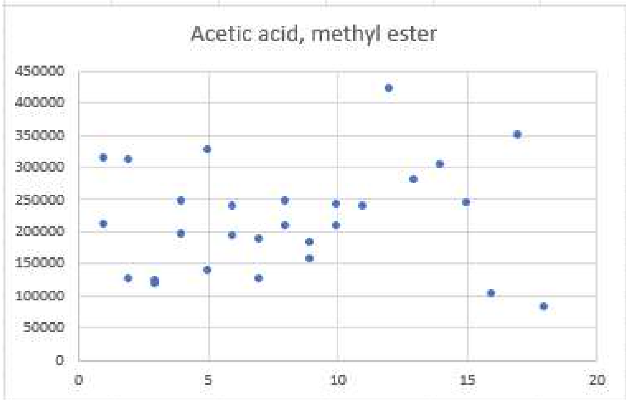
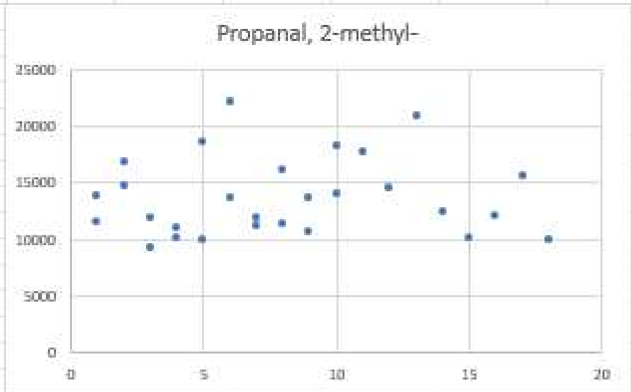
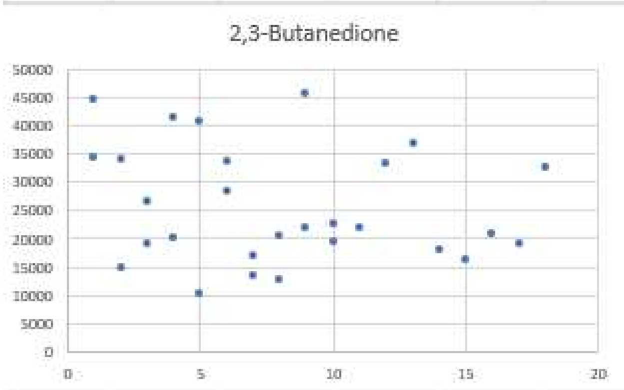
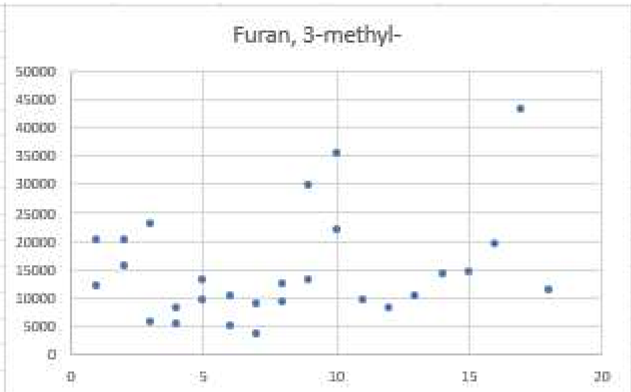
Allegato 2: Grafici distribuzione per molecola

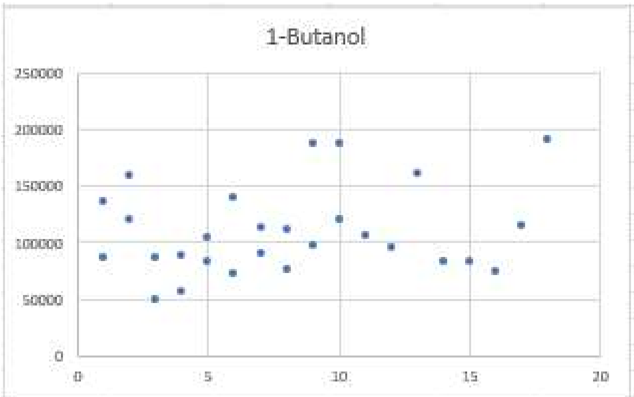


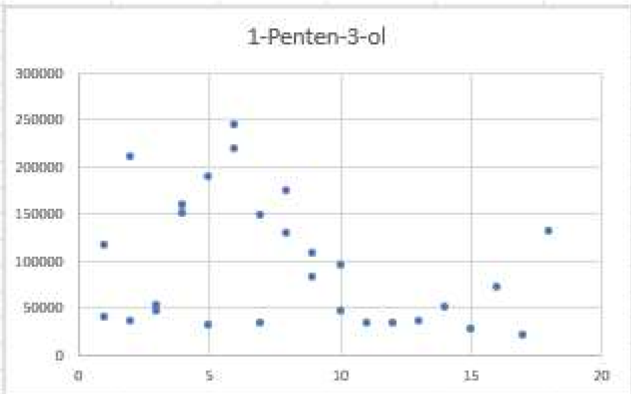


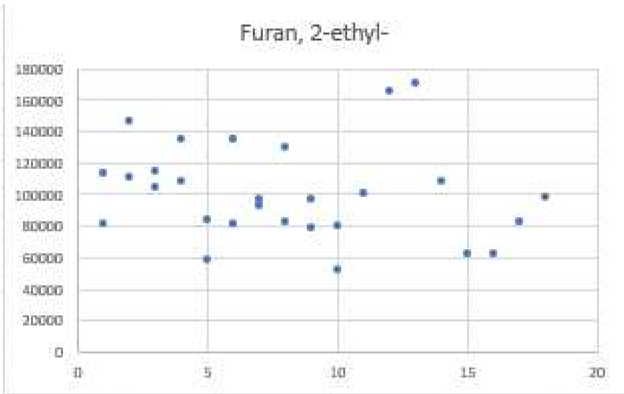




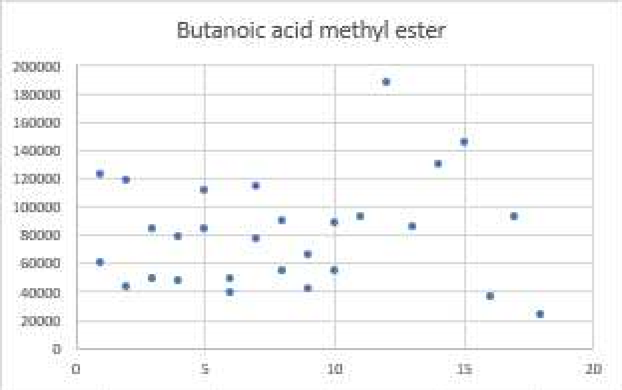


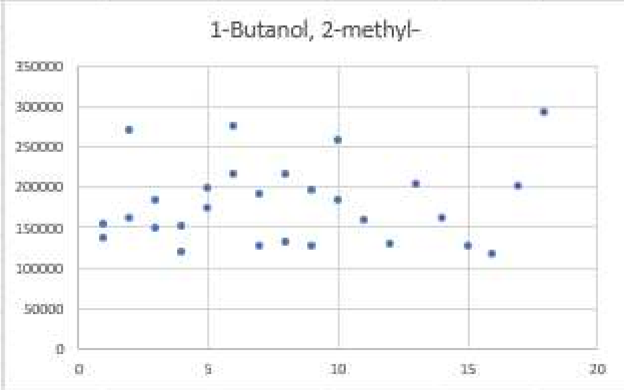


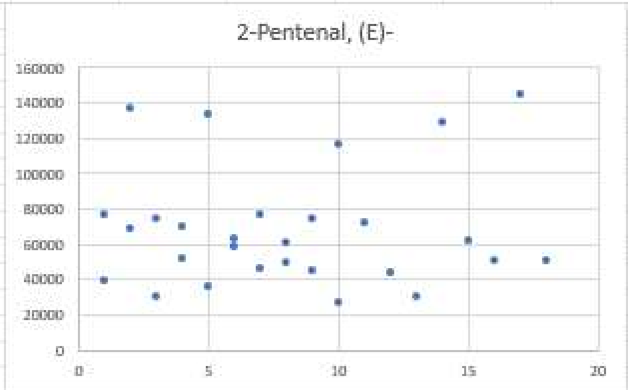


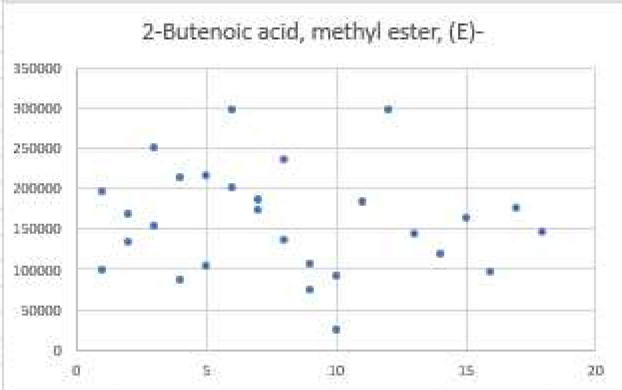


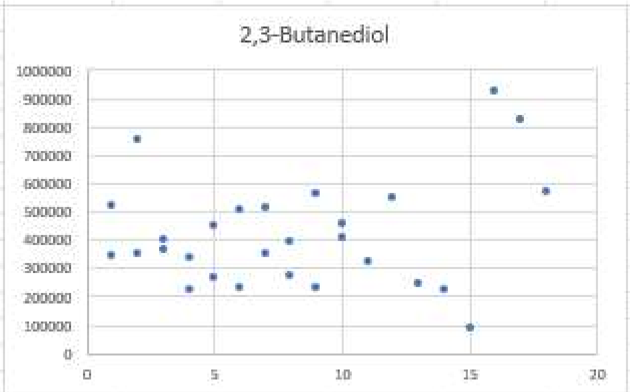
Allegato 2: Grafici distribuzione per molecola

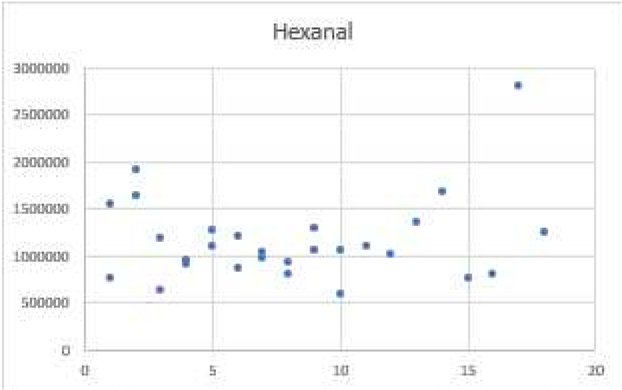


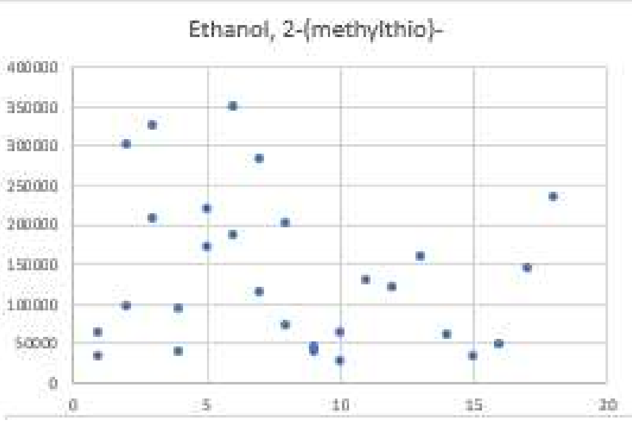


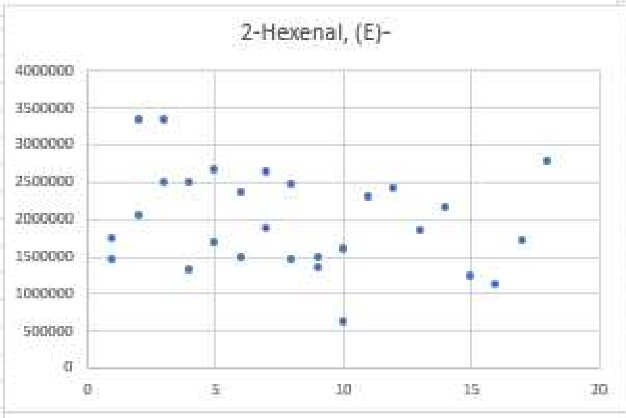




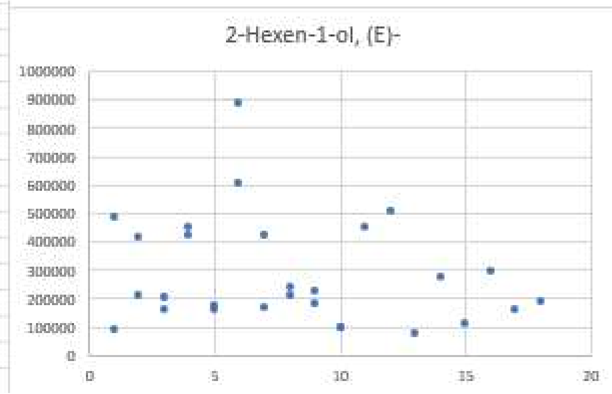


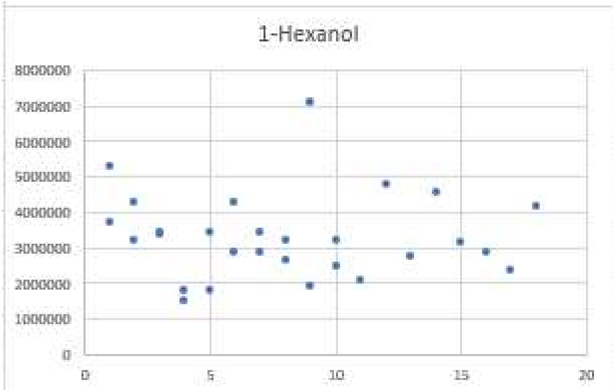


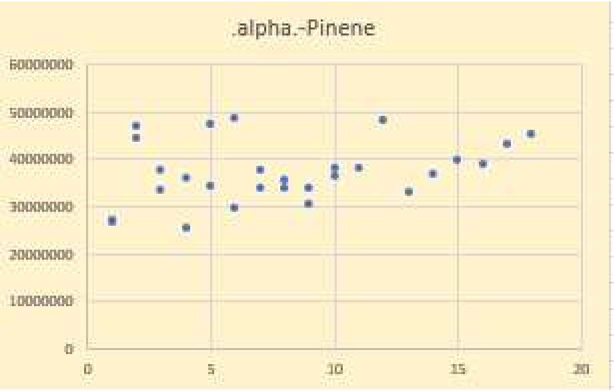


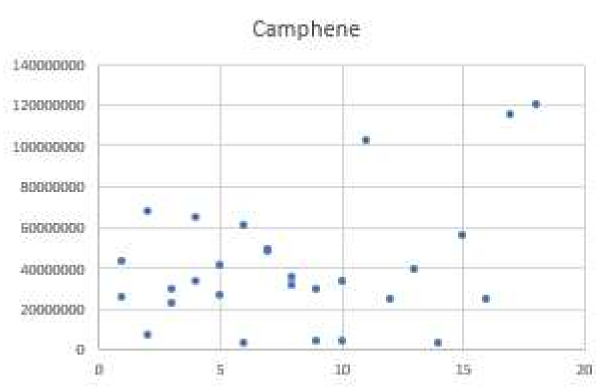


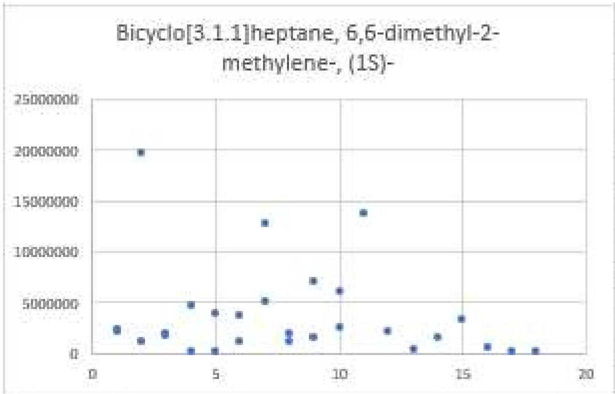
Allegato 2: Grafici distribuzione per molecola

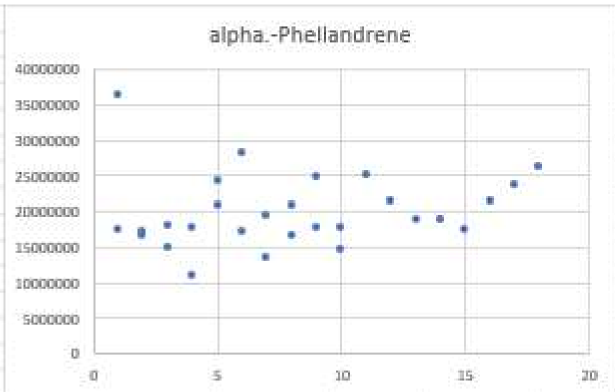


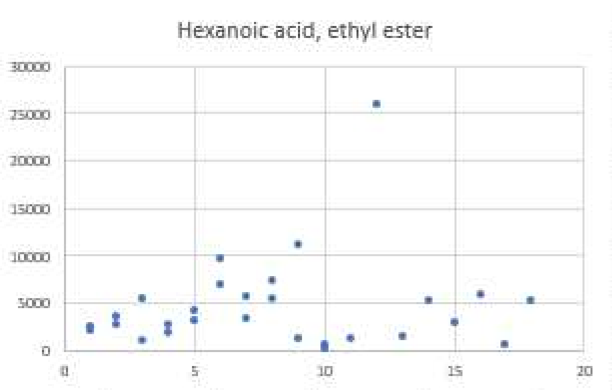


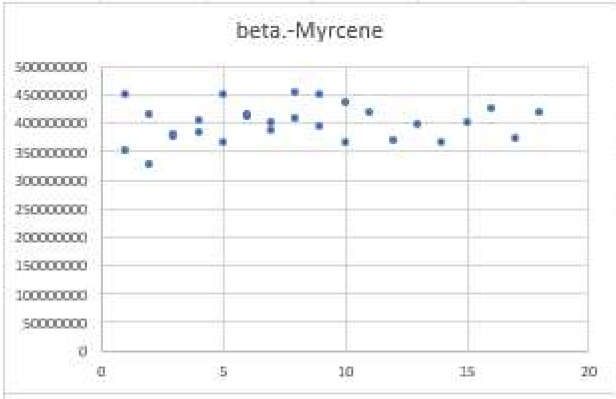




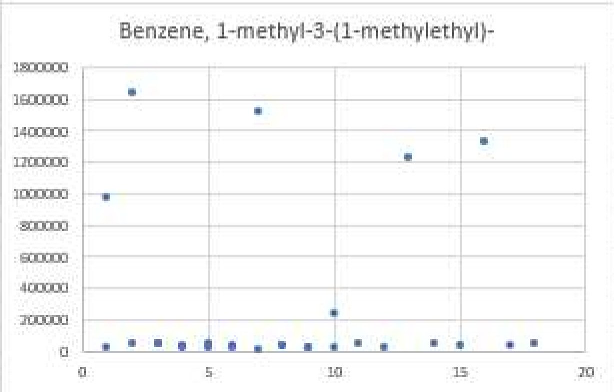


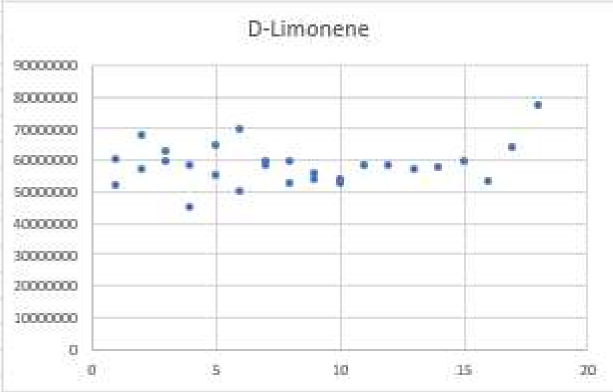


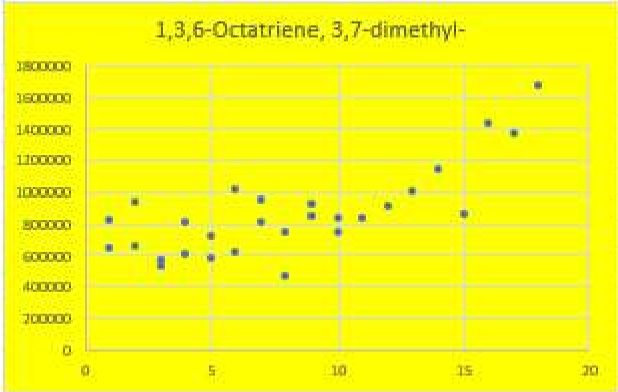


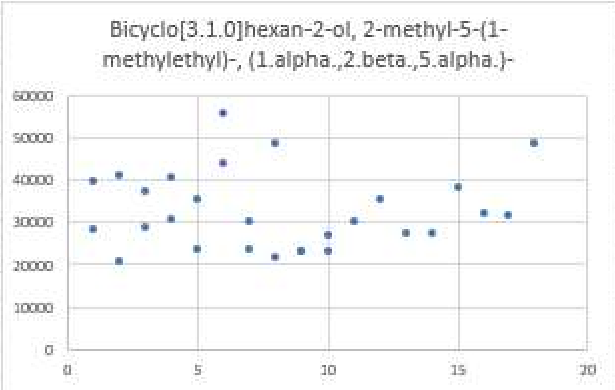


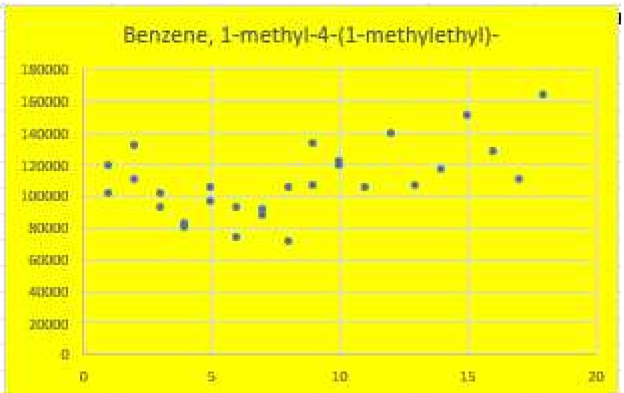
Allegato 2: Grafici distribuzione per molecola

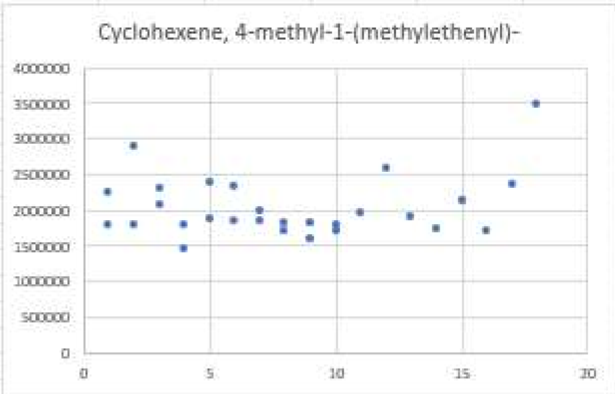


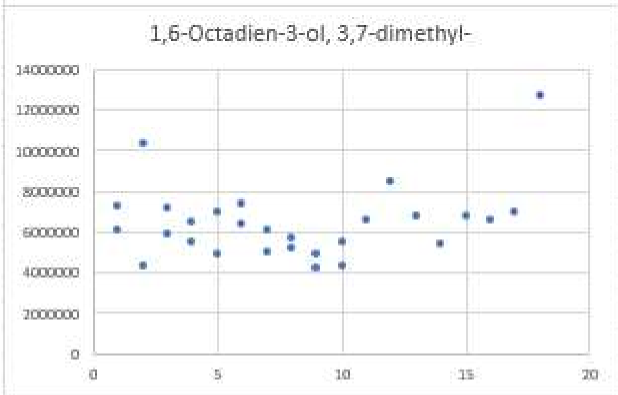


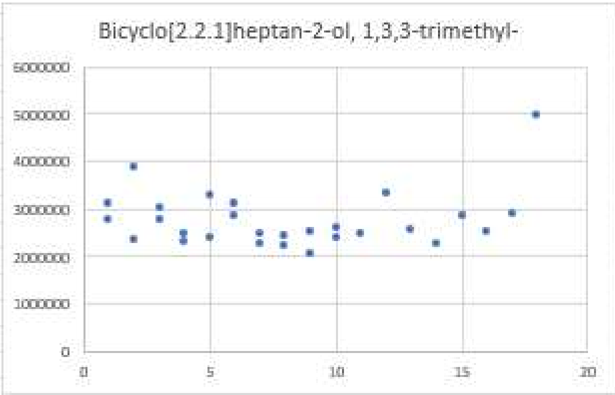




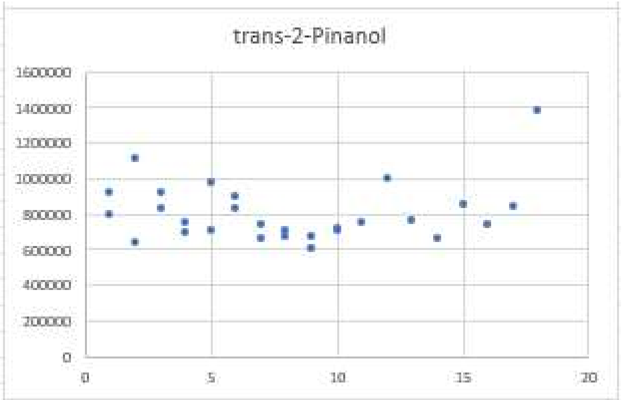


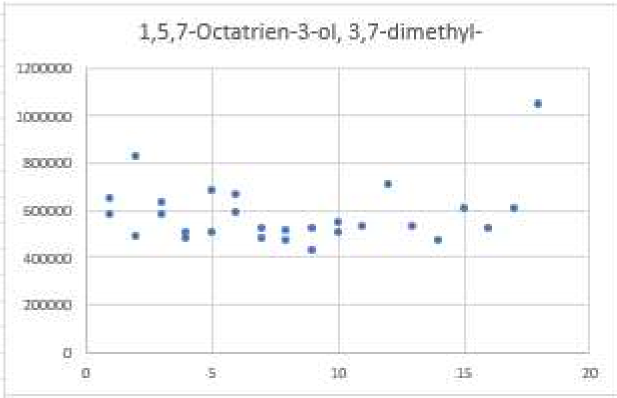


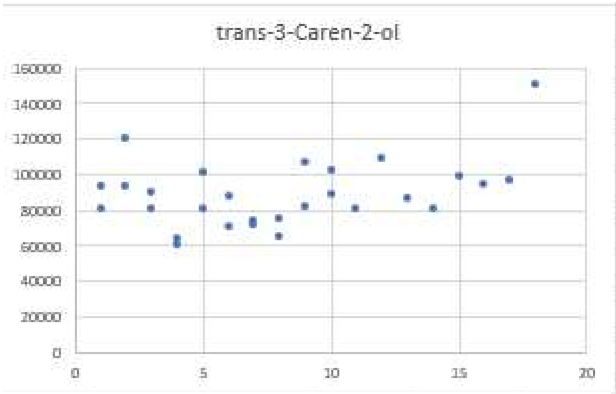


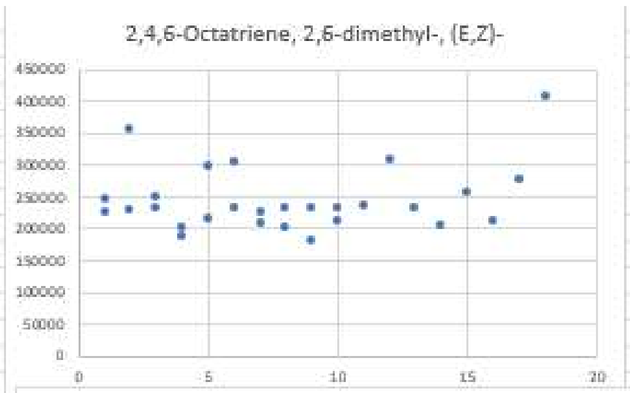


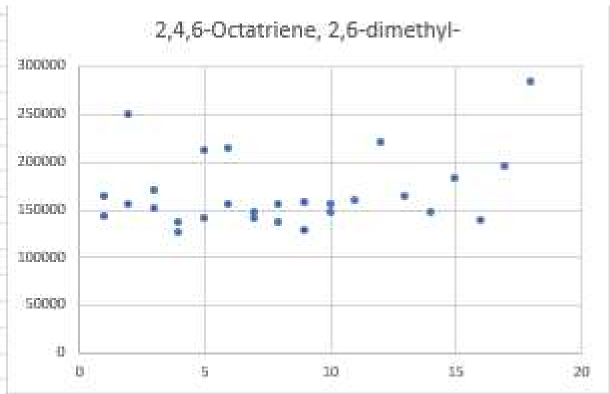
Allegato 2: Grafici distribuzione per molecola

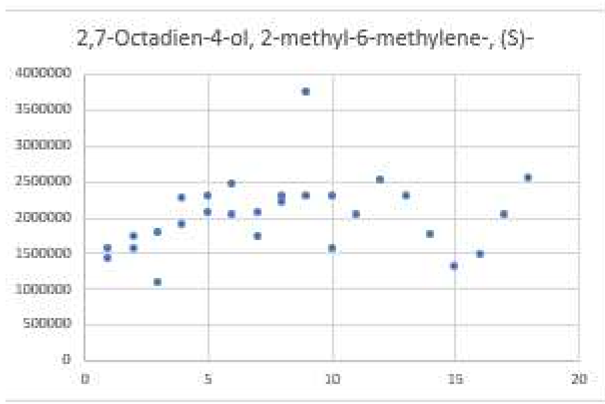


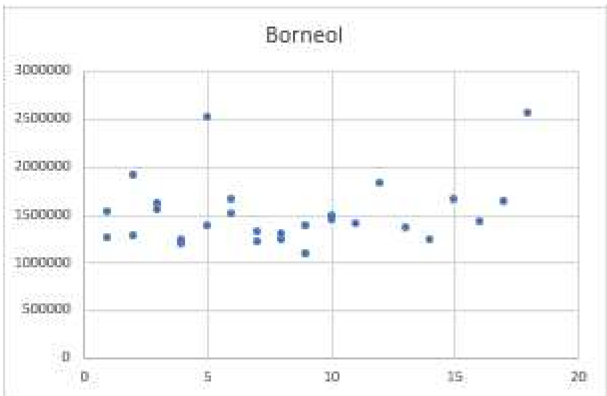


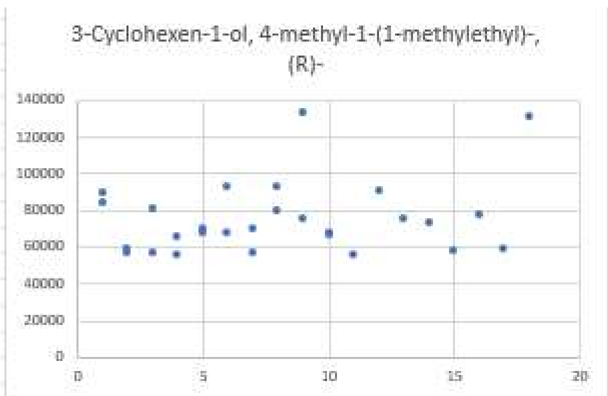




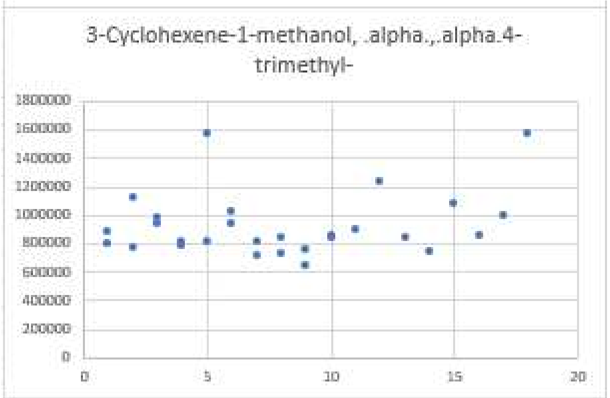


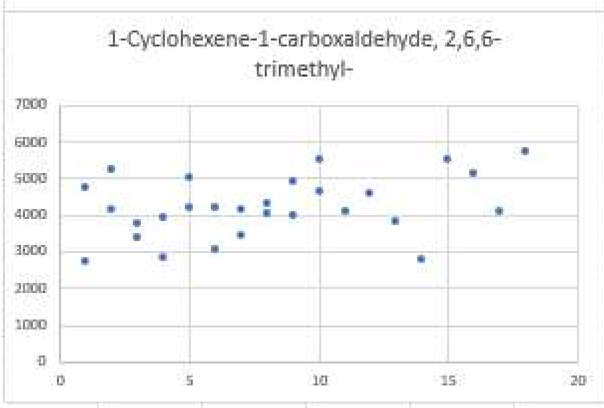


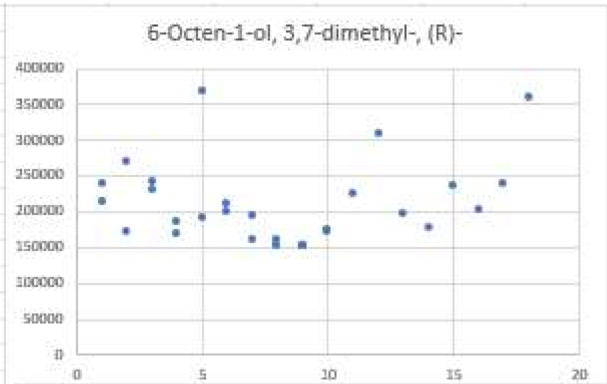


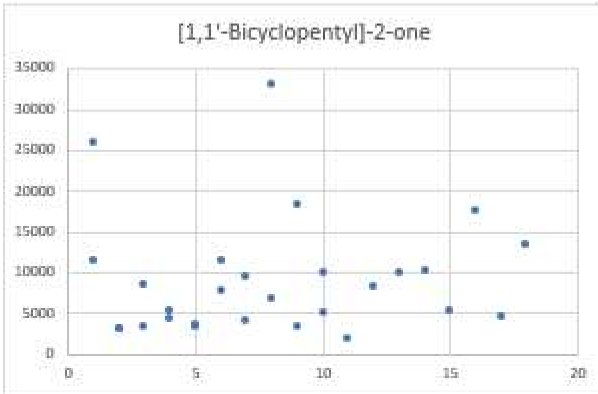


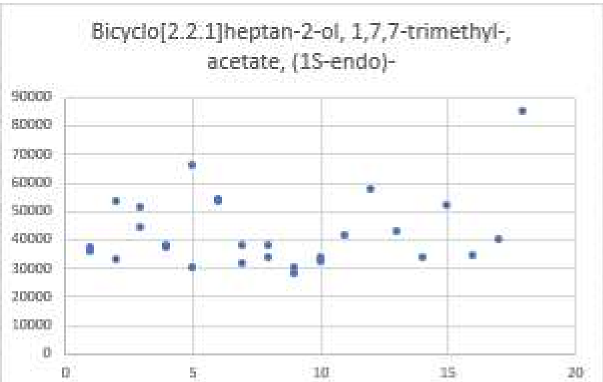
Allegato 2: Grafici distribuzione per molecola

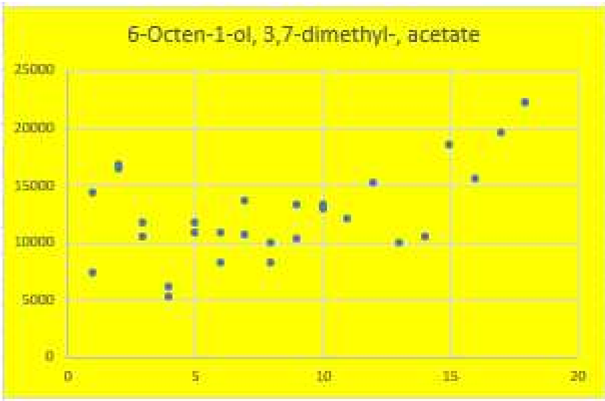


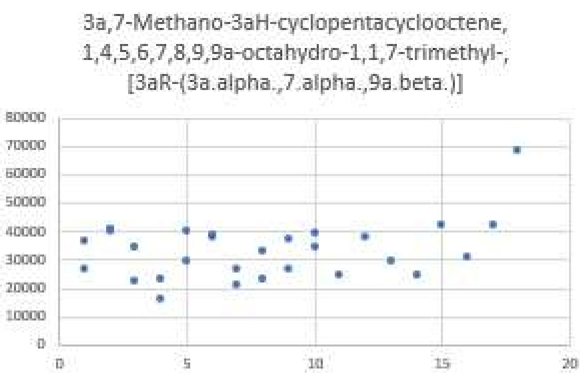


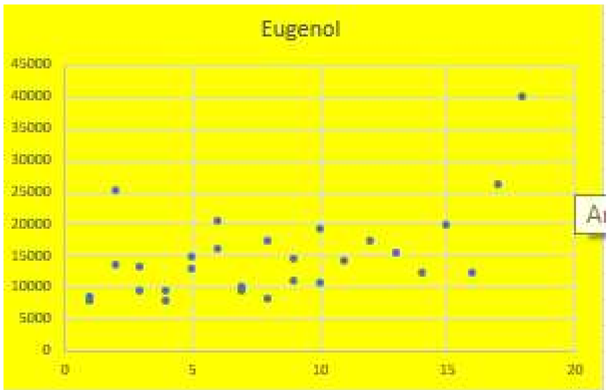




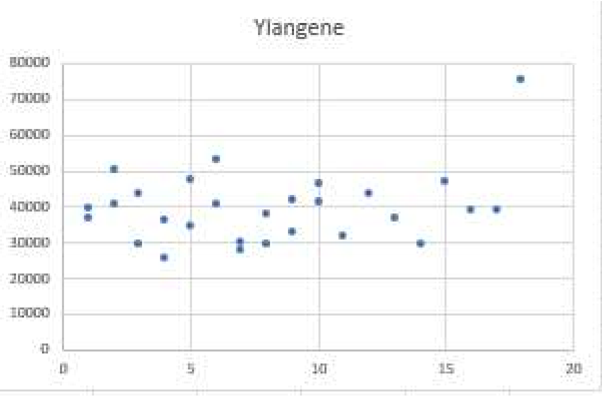


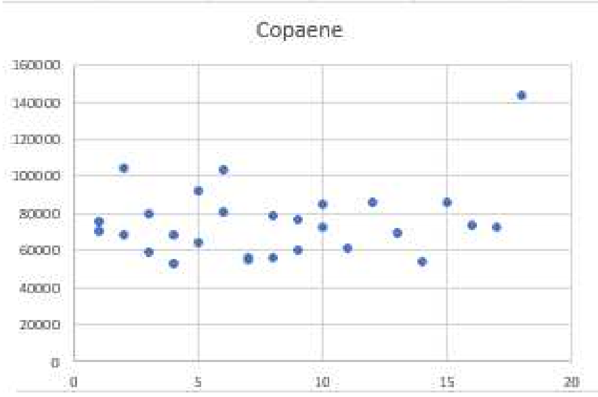


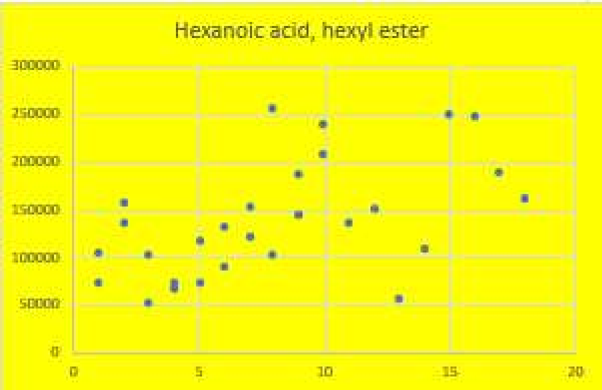


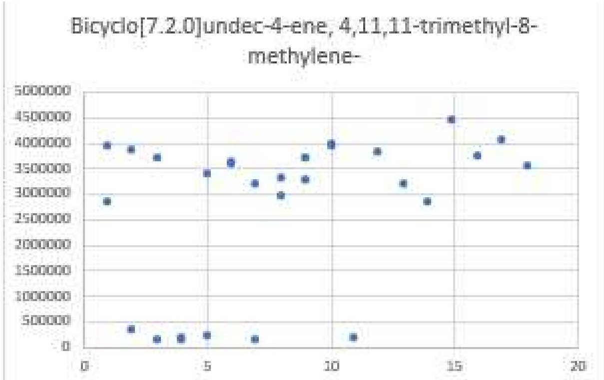


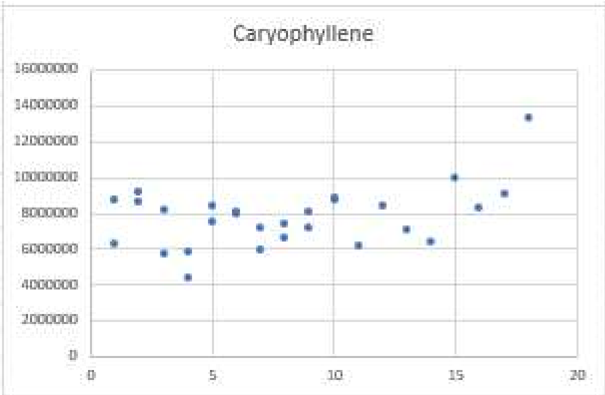
Allegato 2: Grafici distribuzione per molecola

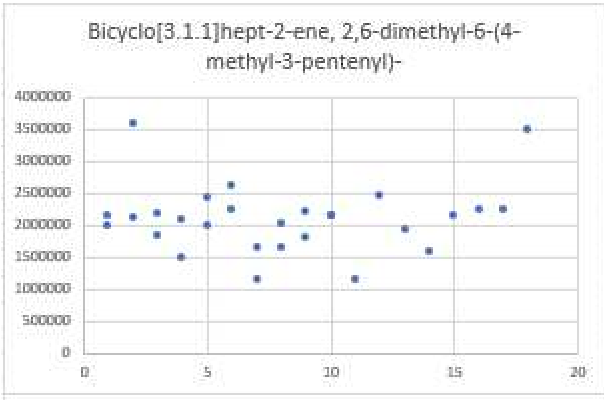


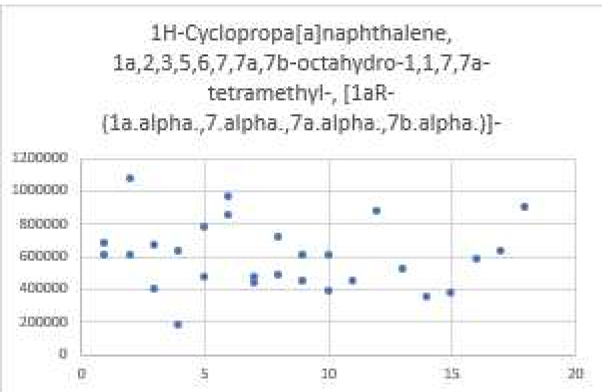


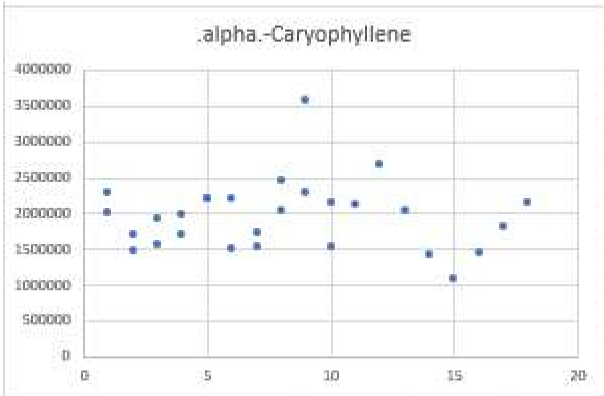




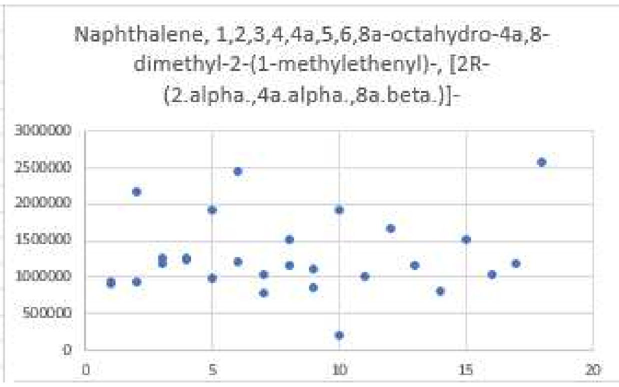


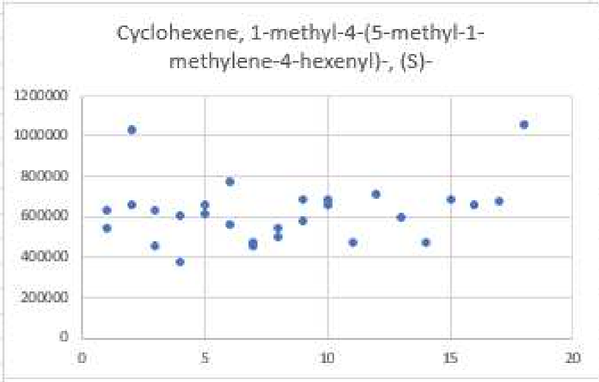


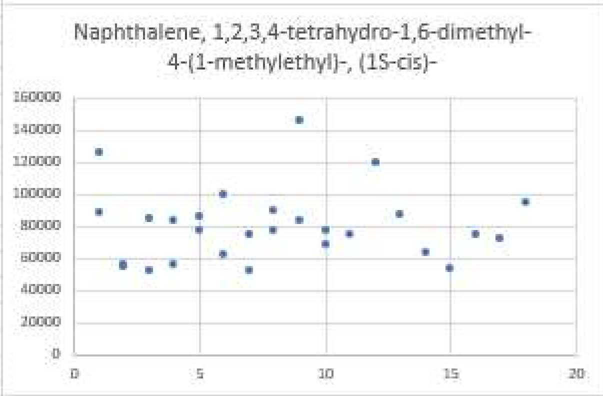


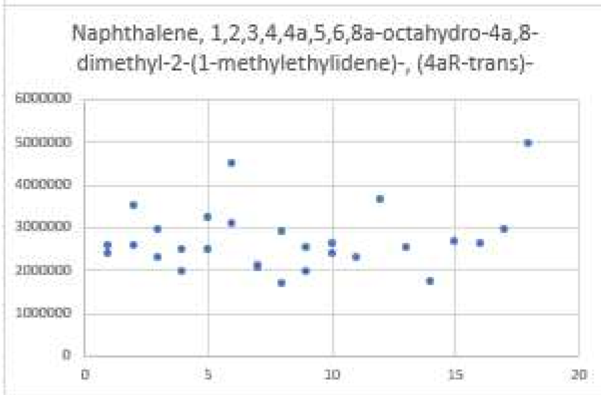


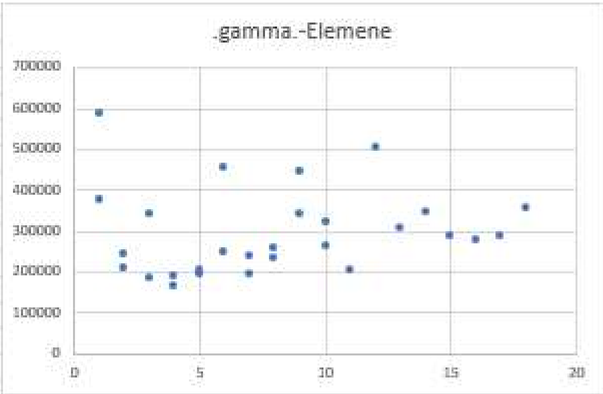
Allegato 2: Grafici distribuzione per molecola

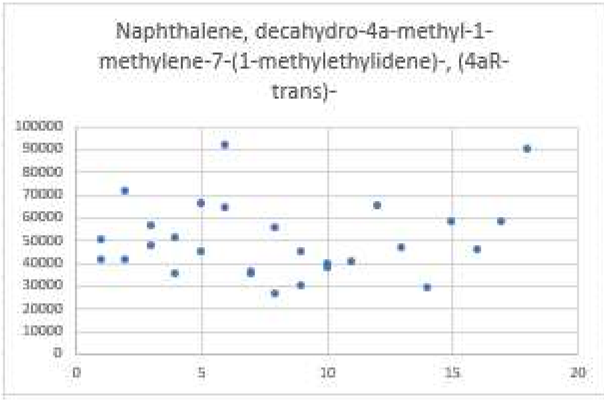


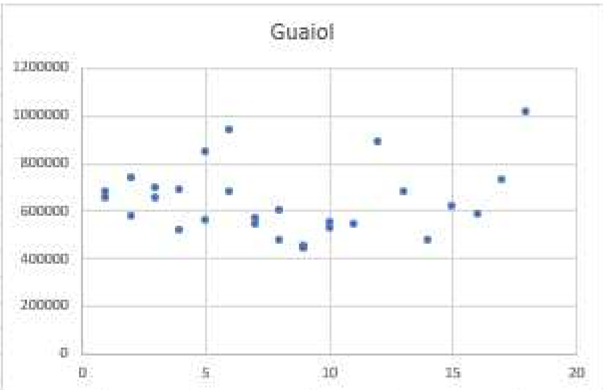


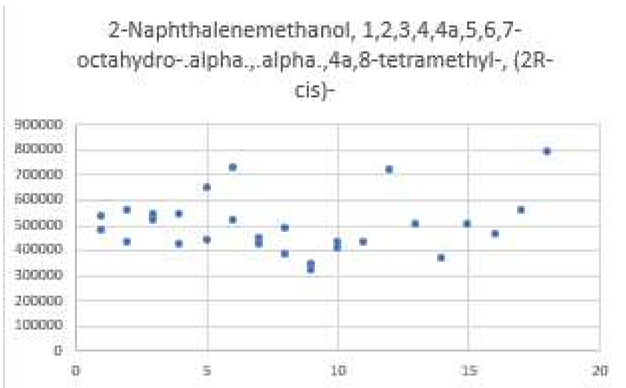












Allegato 2: Grafici distribuzione per molecola