

C ALPHA-PHELLANDRENE

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ALPHAPHELLANDRENE

*Unless otherwise noted all references are to Duke, James A. 1992. Handbook of phytochemical constituents of GRAS herbs and other economic plants. Boca Raton, FL. CRC Press.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Abies alba	Leaf	5	7	-0.30935714579220713	--
Abies balsamea	Plant	--	--		--
Achillea millefolium	Leaf	--	--		--
Acinos alpinus	Shoot	18	18	-0.26364091553399255	Velasco-Negueruela,A., Perez-Alonso,M.J., Jiminez,S.M. and Garcia,F.M. 1993. The Volatile Constituents of Acinus alpinus (L.) Moench ssp. meridionalis (Nyman). P.W. Ball Growing in Spain. Flav. & Frag. J. 8:127-130.)
Acinos alpinus	Shoot	--	18	-0.26364091553399255	Velasco-Negueruela,A., Perez-Alonso,M.J., Jiminez,S.M. and Garcia,F.M. 1993. The Volatile Constituents of Acinus alpinus (L.) Moench ssp. meridionalis (Nyman). P.W. Ball Growing in Spain. Flav. & Frag. J. 8:127-130.)
Agathosma betulina	Leaf Essent. Oil	--	--		--
Allium sativum var. sativum	Bulb	--	--		Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
Anethum graveolens	Leaf	20	8025	5.376830730634647	--
Anethum graveolens	Seed	125	7469	1.5339306210630879	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Anethum graveolens	Essential Oil	--	--		--
Anethum graveolens	Shoot Essent. Oil	248800	525100	1.4141949197576593	--
Anethum graveolens	Seed Essent. Oil	--	--		--
Anethum graveolens	Root Essent. Oil	--	--		--
Angelica archangelica	Fruit	--	--		--
Angelica archangelica	Root Essent. Oil	--	225000		--
Angelica archangelica	Leaf Essent. Oil	--	678000	1.751978121762097	--
Angelica archangelica	Seed Essent. Oil	--	--		--
Angelica archangelica	Root	--	--		--
Apium graveolens	Fruit	--	2000	0.431635886715178	--
Apium graveolens	Seed Essent. Oil	--	2000	-0.8573553114168811	--
Artemisia dracunculus	Plant	--	--		--
Artemisia dracunculus	Essential Oil	--	--		--
Artemisia dracunculus	Leaf Essent. Oil	--	--		--
Boswellia sacra	Essential Oil	--	24000	-0.1285055418541296	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Boswellia sacra	Resin, Exudate, Sap	--	0.6		Chiavari, G., Gtalletti, G. C., Piccaglia, R., Mohamud, M. A. 1991. Differentiation Between Resins Boswellia carterii and Boswellia frereana (Frankincense) of Somali Origin. J. Essent. Oil Res. 3 (3):185-186.
Boswellia serrata	Resin, Exudate, Sap	--	--		Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.
Canarium indicum	Essential Oil	15100	37750	0.1376349678224283	--
Capsicum annum	Fruit	--	--		--
Capsicum frutescens	Fruit	--	--		--
Carica papaya	Fruit	--	--		--
Carthamus tinctorius	Bud	0.01	0.01		--
Carthamus tinctorius	Leaf	0.01	0.01	-0.3143142988548442	--
Carum carvi	Fruit	3	6	-0.5736201696885931	--
Carum carvi	Seed	3	6	-0.5312072630899651	--
Cinnamomum camphora	Leaf	--	5	-0.3107755014610589	--
Cinnamomum verum	Leaf	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Cinnamomum verum	Leaf Essent. Oil	--	--		--
Cinnamomum verum	Root Bark	--	--		--
Cinnamomum verum	Bark Essent. Oil	--	--		--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Cinnamomum verum	Stem Bark	--	--		--
Cistus ladaniferus	Plant	3	210	0.294035494982487	--
Citrus aurantiifolia	Fruit	20	20	-0.5665622033948856	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Citrus aurantium	Leaf	1	20	-0.3001378339446704	--
Citrus limon	Essential Oil	20	20	-0.5926545907300464	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Citrus limon	Petiole	--	2		--
Citrus paradisi	Pericarp	1	2		--
Citrus reticulata	Fruit	5	6	-0.5736201696885931	--
Citrus sinensis	Fruit	12	14	-0.5695870460921888	--
Cleonia lusitanica	Leaf	1	2	-0.31290303496433663	Perez-Alonso, M., Velasco-Negueruela, A., and Lopez-Saez, A. 1991. The Essential Oil of Cleonia lusitanica. J. Ess. Oil Res., 3: 441-442.
Coleus barbatus	Leaf Essent. Oil	--	94300	-0.49783406126367846	Jim Duke's personal files.
Coleus barbatus	Stem Essent. Oil	--	94300		Jim Duke's personal files.
Coriandrum sativum	Fruit	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Coriandrum sativum	Essential Oil	--	--		--
Coridothymus capitatus	Shoot	22	22	-0.2534837649460229	Lagouri, V., Blekas, G., Tsimidou, M., Kokkini, S., and Boskou, D. 1993. Composition and Antioxidant Activity of Essential Oils from Oregano Plants Grown Wild in Greece. Z. Lebensm Unters Forsch 197: 20-23.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Cuminum cyminum	Fruit	--	60	-0.5463965854128641	--
Cuminum cyminum	Seed	60	60	-0.9184826797367149	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Cuminum cyminum	Seed Essent. Oil	--	8400	0.7805772238273097	--
Curcuma longa	Leaf	--	2325	1.3345170744070258	--
Curcuma longa	Rhizome	--	1945	1	--
Curcuma xanthorrhiza	Rhizome	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Cymbopogon nardus	Plant	24	96	-0.500476583525581	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Daucus carota	Root	--	--		--
Elettaria cardamomum	Fruit	--	--		Duke, J. A. and duCellier, J. L. 1993. CRC Handbook of Alternative Cash Crops. CRC Press. Boca Raton, FL 33431. 536 pp. US \$312.50.
Elsholtzia polystachya	Leaf	2.4	2.4	-0.3126193638305662	Mathela,C.S., Melkani,A.B., Bisht,J.C., Pant,A.K., Bestmann,H.J., Erler,J., Kobold,U., Rauscher,J. and Vostrowsky,O. 1992. Chemical Varieties of Essential Oils from Elsholtzia polystachya from Two Different Locations in India. Planta Medica 58: 376-379.
Elsholtzia polystachya	Leaf	--	0	-0.3143213906331884	Mathela,C.S., Melkani,A.B., Bisht,J.C., Pant,A.K., Bestmann,H.J., Erler,J., Kobold,U., Rauscher,J. and Vostrowsky,O. 1992. Chemical Varieties of Essential Oils from Elsholtzia polystachya from Two Different Locations in India. Planta Medica 58: 376-379.
Eucalyptus albens	Shoot	--	25	-0.24586590200504566	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Eucalyptus angulosa	Leaf	--	3	-0.3121938571299107	Bignell,C.M.,Dunlop,P.J.,Brophy,J.J.,and Jackson, J.F.1994.Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus.Part I.Subgenus Symphyomyrtus,Section Dumaria,Series Incrassatae.Flavour and Fragrance J.9(3):113-7
Eucalyptus astringens	Shoot	--	0.1	-0.3090941644151568	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus behriana	Leaf	2.7	2.7	-0.31240661048023843	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subgenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus blakelyi	Shoot	--	40	-0.20777658730015938	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus bosistoana	Shoot	--	120	-0.004633575540765823	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus botryoides	Shoot	--	0.1	-0.3090941644151568	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus brassiana	Leaf	--	0	-0.3143213906331884	Singh, A. K., Gupta, K. C., & Brophy, J. J. 1991. Chemical Constituents of the Leaf Essential Oil of Eucalyptus brassiana S. T. Blake. Journal of Essential Oil Res. 3: 45-7.
Eucalyptus camaldulensis	Shoot	--	225	0.261991627393438	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Eucalyptus ceratocorys	Leaf	--	6	-0.310066323626633	Bignell,C.M.,Dunlop,P.J.,Brophy,J.J.,and Jackson, J.F.1994.Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus.Part I.Subgenus Symphyomyrtus,Section Dumaria,Series Incrassatae.Flavour and Fragrance J.9(3):113-7
Eucalyptus citriodora	Shoot	--	0.1	-0.3090941644151568	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus citriodora	Leaf Essent. Oil	--	1000	-0.8574494059207024	--
Eucalyptus cladocalyx	Shoot	--	80	-0.10620508142046267	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus cuprea	Leaf	6.4	6.4	-0.3097826524928626	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subgenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus dealbata	Shoot	--	695	1.4554568214798744	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus desquamata	Leaf	0	15	-0.3036837231167999	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subgenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus diversicolor	Shoot	--	25	-0.24586590200504566	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Eucalyptus dolichorhyncha	Leaf	--	105	-0.23985771801846906	Bignell,C.M.,Dunlop,P.J.,Brophy,J.J.,and Jackson, J.F.1994.Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus.Part I.Subgenus Symphyomyrtus,Section Dumaria,Series Incrassatae.Flavour and Fragrance J.9(3):113-7
Eucalyptus erythrandra	Leaf	--	7	-0.30935714579220713	Bignell,C.M.,Dunlop,P.J.,Brophy,J.J.,and Jackson, J.F.1994.Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus.Part I.Subgenus Symphyomyrtus,Section Dumaria,Series Incrassatae.Flavour and Fragrance J.9(3):113-7
Eucalyptus fasciculosa	Leaf	22	22	-0.29871947827581863	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subgenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus forrestiana	Leaf	--	285	-0.11220570782180732	Bignell,C.M.,Dunlop,P.J.,Brophy,J.J.,and Jackson, J.F.1994.Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus.Part I.Subgenus Symphyomyrtus,Section Dumaria,Series Incrassatae.Flavour and Fragrance J.9(3):113-7
Eucalyptus globulus	Leaf	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
Eucalyptus globulus	Shoot	--	3000	7.3085148477973965	--
Eucalyptus globulus	Leaf Essent. Oil	1000	343000	0.46075475134298666	--
Eucalyptus globulus	Fruit Essent. Oil	--	83000	0.7081332746915394	--
Eucalyptus globulus	Essential Oil	--	1000	-0.5736860307676445	--
Eucalyptus incrassata	Leaf	--	205	-0.1689399345758792	Bignell,C.M.,Dunlop,P.J.,Brophy,J.J.,and Jackson, J.F.1994.Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus.Part I.Subgenus Symphyomyrtus,Section Dumaria,Series Incrassatae.Flavour and Fragrance J.9(3):113-7

Plant	Part	Low PPM	High PPM	StdDev	Reference
Eucalyptus intertexta	Leaf	5.5	5.5	-0.31042091254384596	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subgenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus largisparsa	Leaf	4.6	4.6	-0.31105917259482935	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subgenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus leucoxyton	Leaf	22	22	-0.29871947827581863	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subgenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus maculata	Shoot	--	30	-0.23316946377008357	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus maideni	Shoot	--	45	-0.1950801490651973	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus melanophloia	Leaf	80	80	-0.2575871638791165	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subgenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus melliodora	Shoot	--	170	0.12233080680885507	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus moluccana	Shoot	--	0.1	-0.3090941644151568	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Eucalyptus occidentalis	Shoot	--	0.1	-0.3090941644151568	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus ochrophloia	Leaf	0.5	0.5	-0.31396680171597546	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subgenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus odorata	Leaf	4.4	4.4	-0.3112010081617144	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subgenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus oviformis	Shoot	--	180	0.14772368327877924	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus polyanthemos	Shoot	--	365	0.6174918979723765	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus populnea	Leaf	1.8	1.8	-0.3130448705312218	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subgenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus porosa	Leaf	865	865	0.29911743614521386	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subgenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus punctata	Shoot	--	125	0.008062862694196265	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Eucalyptus saligna	Shoot	--	12	-0.2788766414159471	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus siderophloia	Shoot	--	11	-0.2814159290629395	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus sideroxylon	Shoot	--	530	1.0364743597261254	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus sp	Plant	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Eucalyptus sparsa	Leaf	1555	1555	0.7884501418990839	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subgenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus stoatei	Leaf	--	21	-0.29942865611024455	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1994. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part I. Subgenus Symphyomyrtus, Section Dumaria, Series Incrassatae. Flavour and Fragrance J. 9(3):113-7
Eucalyptus tereticornis	Shoot	--	25	-0.24586590200504566	Zrira, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus tetraptera	Leaf	--	110	-0.23631182884633958	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1994. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part I. Subgenus Symphyomyrtus, Section Dumaria, Series Incrassatae. Flavour and Fragrance J. 9(3):113-7

Plant	Part	Low PPM	High PPM	StdDev	Reference
Eucalyptus viridis	Leaf	0	0.5	-0.31396680171597546	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subgenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eupatorium triplinerve	Plant	535	535	2.5590918591502247	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Ferula assa-foetida	Essential Oil	--	--		--
Foeniculum vulgare	Fruit	44	6600	2.750681954647649	--
Foeniculum vulgare	Plant	135	135	-0.22866981982545245	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Foeniculum vulgare	Seed	44	6600	1.2462875979297328	--
Foeniculum vulgare	Essential Oil	1000	198000	3.2393816351437663	Jim Duke's personal files.
Gossypium sp	Plant	--	--		--
Hypericum perforatum	Plant	0.3	5.4	-1.1319046038135718	--
Hyptis suaveolens	Plant	285	285	0.8167408097904264	Recently became Internat. J. Crude Drug Res. 28(1,2,3,4):1990, page 74.
Hyptis suaveolens	Shoot	2	2	-0.30426951788587125	Mallvarapu, G.R., Ramesh, S., Kaul, P.N., Bhattacharya, A.K., and Rao, B.R.R. 1993. The Essential Oil of Hyptis suaveolens (L.) Poit. J. Ess. Oil Res. 5: 321.
Hyptis suaveolens	Shoot	--	2	-0.30426951788587125	Mallvarapu, G.R., Ramesh, S., Kaul, P.N., Bhattacharya, A.K., and Rao, B.R.R. 1993. The Essential Oil of Hyptis suaveolens (L.) Poit. J. Ess. Oil Res. 5: 321.
Hyssopus officinalis	Flower	12	120	-1	Flavour and Fragrance Journal, 6: 69.
Hyssopus officinalis	Leaf	5	320	-0.08738448361690086	--
Hyssopus officinalis	Essential Oil	--	--		--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Illicium verum	Fruit	435	435	-0.35734391683141264	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Juniperus communis	Fruit	26	300	-0.4254028775207352	--
Juniperus communis	Essential Oil	--	--	--	--
Laurus nobilis	Leaf	0	120	-0.22922005050208058	--
Laurus nobilis	Leaf Essent. Oil	--	--	--	--
Laurus nobilis	Fruit Essent. Oil	--	100700	1.1856174256264056	--
Lavandula latifolia	Plant	2	13	-1.0789371319130339	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Lepechinia calycina	Plant	30	50	-0.8210691766077838	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Levisticum officinale	Root	1	10	--	--
Lindera benzoin	Fruit	2300	3135	1.0038352969550377	--
Lindera benzoin	Leaf	--	0.1	-0.3142504728497459	--
Mangifera indica	Flower	--	--	--	--
Melaleuca alternifolia	Leaf	10	50	-0.27886249891189346	--
Melaleuca alternifolia	Essential Oil	--	19000	-0.22528390900924156	--
Melaleuca bracteata	Leaf	120	500	0.04026752657976088	Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
Mentha longifolia	Shoot	11	70	-0.13159795789038686	Planta Medica, 57: A83, 1991.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Mentha pulegium	Plant	30	60	-0.7513751346333919	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
Mentha pulegium	Essential Oil	--	3000	-0.5349746839055997	--
Mentha x rotundifolia	Leaf	16	280	-0.1157515969939368	--
Micromeria teneriffae	Leaf	20	20	-0.3001378339446704	Kirimer, N., Ozek, T., and Baser, K.H.C. 1991. Composition of the Essential Oil of Micromeria congesta. J. Ess. Oil Res., 3: 387-393.
Micromeria varia	Shoot	0	0	-0.30934809317985607	Pedro, L.G., et al. 1995. Composition of the Essential oil of Micromeria varia Benth. ssp. thymoides (Sol. ex Lowe) Perez var. thymoides, and endemic species of the Madeira Archipelago. flav. & Fragr. J. 10(3): 199-202.
Micromeria varia	Shoot	0	--		--
Murraya koenigii	Leaf	23	6240	4.110948296184419	--
Myrciaria dubia	Fruit	--	--		--
Myristica fragrans	Seed	180	1440	-0.46169629087131775	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Myristica fragrans	Seed Essent. Oil	4000	10000	1.1900603576383573	--
Myristica fragrans	Leaf Essent. Oil	--	--		--
Myristica fragrans	Essential Oil	7000	16000	-0.28335092930230876	--
Myrtus communis	Shoot	1	10	-0.2839552167099319	--
Nepeta racemosa	Shoot	0.1	0.1	-0.3090941644151568	Baser, K.H.C., Ozek, T., Akgul, A. and Tumen, G. 1993. Composition of the Essential Oil of Nepeta racemosa Lam. J. Ess. Oil Res. 5: 215-7.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Nepeta racemosa	Shoot	--	--		Baser, K.H.C., Ozek, T., Akgul, A. and Tumen, G. 1993. Composition of the Essential Oil of Nepeta racemosa Lam. J. Ess. Oil Res. 5: 215-7.
Ocimum gratissimum	Plant	10	125	-0.29836386179984437	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Origanum majorana	Plant	18	103	-0.4516907541435066	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Origanum majorana	Essential Oil	--	26000	-0.08979419499208481	--
Origanum onites	Shoot	45	45	-0.1950801490651973	Biondi, D., Cianci, P., Geraci, C. and Ruberto, G. 1993. Antimicrobial Activity and Chemical Composition of Essential Oils from Sicilian Aromatic Plants. Flav. & Frag. J. 8: 331-7.
Origanum onites	Shoot	--	45	-0.1950801490651973	Biondi, D., Cianci, P., Geraci, C. and Ruberto, G. 1993. Antimicrobial Activity and Chemical Composition of Essential Oils from Sicilian Aromatic Plants. Flav. & Frag. J. 8: 331-7.
Origanum syriacum	Shoot	12	12	-0.2788766414159471	Fleisher, A. & Fleisher, Z. 1991. Chemical Composition of Origanum syriacum L. Essential Oil. J. Ess. Oil Res. 3: 121-123.
Origanum syriacum	Shoot	--	40	-0.20777658730015938	Fleisher, A. & Fleisher, Z. 1991. Chemical Composition of Origanum syriacum L. Essential Oil. J. Ess. Oil Res. 3: 121-123.
Origanum syriacum	Shoot	--	12	-0.2788766414159471	Fleisher, A. & Fleisher, Z. 1991. Chemical Composition of Origanum syriacum L. Essential Oil. J. Ess. Oil Res. 3: 121-123.
Origanum vulgare	Shoot	45	45	-0.1950801490651973	Lagouri, V., Blekas, G., Tsimidou, M., Kokkini, S., and Boskou, D. 1993. Composition and Antioxidant Activity of Essential Oils from Origanum Plants Grown Wild in Greece. Z. Lebensm Unters Forsch 197: 20-23.
Origanum vulgare	Plant	2	244	0.5309952376954196	--
Origanum vulgare	Essential Oil	--	24400	-0.12076327248172064	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Origanum vulgare	Shoot Essent. Oil	--	700	-0.7133860764771591	--
Panax ginseng	Root	--	--		--
Panax ginseng	Root Essent. Oil	--	--		--
Panax ginseng	Plant	--	--		Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
Pastinaca sativa	Root	--	--		--
Pelargonium citrosum	Shoot	--	22	-0.2534837649460229	Matsuda, B. M., et al. 1996. Essential Oil Analysis and Field Evaluation of the Citrosa Plant 'Pelargonium citrosum' as a Repellent Against Populations of Aedes Mosquitoes. J. Am. Mosq. Contr. Assoc. 12(1):69-74.
Pelargonium graveolens	Essential Oil	--	--		--
Perilla frutescens	Shoot Essent. Oil	--	--		Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of Perilla frutescens (L.) Britton. J. Essent. Oil Res., 7(4): 429-432.
Petroselinum crispum	Leaf	4.3	4.3	-0.31127192594515707	--
Petroselinum crispum	Seed	0.6	210	-0.868831985294824	--
Petroselinum crispum	Fruit Essent. Oil	3000	7300	-1.3339882069903475	--
Petroselinum crispum	Seed Essent. Oil	--	1000	-1.1132822700487859	--
Peumus boldus	Leaf	0	12	-0.30581125662007763	--
Pimenta dioica	Fruit	6	6	-0.5736201696885931	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Pimenta dioica	Leaf Essent. Oil	--	--		--
Pimenta dioica	Leaf	--	59	-0.2724798984020604	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Pimenta racemosa	Leaf	0	950	0.35939755207141527	--
Pinus mugo	Leaf	--	--		Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
Pinus sylvestris	Leaf	--	--		Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
Pinus sylvestris	Leaf Essent. Oil	--	--		--
Pinus sylvestris	Essential Oil	--	--		--
Piper auritum	Leaf	--	--		Tramil
Piper cubeba	Plant	--	--		--
Piper cubeba	Fruit Essent. Oil	--	--		--
Piper cubeba	Fruit	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Piper nigrum	Fruit Essent. Oil	6800	36000	-0.5597624933275978	--
Piper nigrum	Seed Essent. Oil	--	--		--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Porophyllum ruderale	Plant	3	4	-1.1416617696899867	Loayza, I., de Groot, W., Lorenzo, D. et al. 1999. Composition of the essential oil of Porophyllum ruderale (Jacq.) Cass. from Bolivia. Flav. & Fragr. J. 14: 393-8.
Prunella vulgaris	Plant	--	280	0.7818937888032305	--
Pycnanthemum curvipes	Shoot	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Pycnanthemum tenuifolium	Shoot	2	420	0.7571527185569595	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Rosmarinus eriocalyx	Shoot	44	150	0.07154505386900671	Soriano Cano, M.C., Sotomayor Sanchez, J.A., Sanchez Gomez, P. and Garcia Vallejo, M.C. 1993. Essential Oils of the Rosmarinus eriocalyx-tomentosus Complex in Southeast Spain. J. Ess. Oil Res. 5: 243-246.
Rosmarinus eriocalyx	Shoot	44	150	0.07154505386900671	Soriano Cano, M.C., Sotomayor Sanchez, J.A., Sanchez Gomez, P. and Garcia Vallejo, M.C. 1993. Essential Oils of the Rosmarinus eriocalyx-tomentosus Complex in Southeast Spain. J. Ess. Oil Res. 5: 243-246.
Rosmarinus officinalis	Leaf	6	6	-0.310066323626633	Soliman, F.M., El-Kashoury, M.M., Fathy, M.M. and Gonaid, M.H. 1994. Analysis and Biological Activity of the Essential Oil of Rosmarinus officinalis L. from Egypt. Flavour and Fragrance J. 9: 29-33.
Rosmarinus officinalis	Leaf	--	6	-0.310066323626633	Soliman, F.M., El-Kashoury, M.M., Fathy, M.M. and Gonaid, M.H. 1994. Analysis and Biological Activity of the Essential Oil of Rosmarinus officinalis L. from Egypt. Flavour and Fragrance J. 9: 29-33.
Rosmarinus officinalis	Plant	0.1	133	-0.24260862822033083	--
Rosmarinus officinalis	Shoot	--	50	-0.18238371083023522	Tucker, A. O. and Maciarelo, M. J. 1998. The essential oils of some rosemary cultivars. Flavor and Fragrance Journal, 1: 137-142. 1986.
Rosmarinus officinalis	Shoot	50	125	0.008062862694196265	Soriano Cano, M.C., Sotomayor Sanchez, J.A., Sanchez Gomez, P. and Garcia Vallejo, M.C. 1993. Essential Oils of the Rosmarinus eriocalyx-tomentosus Complex in Southeast Spain. J. Ess. Oil Res. 5: 243-246.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Rosmarinus officinalis	Shoot	19	50	-0.18238371083023522	Soriano Cano, M.C., Sotomayor Sanchez, J.A., Sanchez Gomez, P. and Garcia Vallejo, M.C. 1993. Essential Oils of the Rosmarinus eriocalyx-tomentosus Complex in Southeast Spain. J. Ess. Oil Res. 5: 243-246.
Rosmarinus officinalis	Leaf Essent. Oil	--	1000	-0.8574494059207024	--
Rosmarinus officinalis	Shoot Essent. Oil	--	3800	-0.7008088432805002	--
Rosmarinus officinalis	Resin, Exudate, Sap	--	--		--
Rosmarinus tomentosus	Shoot	0.1	10	-0.2839552167099319	Soriano Cano, M.C., Sotomayor Sanchez, J.A., Sanchez Gomez, P. and Garcia Vallejo, M.C. 1993. Essential Oils of the Rosmarinus eriocalyx-tomentosus Complex in Southeast Spain. J. Ess. Oil Res. 5: 243-246.
Rosmarinus x lavandulaceus	Shoot	13	220	0.24929518915847595	Soriano Cano, M.C., Sotomayor Sanchez, J.A., Sanchez Gomez, P. and Garcia Vallejo, M.C. 1993. Essential Oils of the Rosmarinus eriocalyx-tomentosus Complex in Southeast Spain. J. Ess. Oil Res. 5: 243-246.
Rosmarinus x mendizabalii	Shoot	4	22	-0.2534837649460229	Soriano Cano, M.C., Sotomayor Sanchez, J.A., Sanchez Gomez, P. and Garcia Vallejo, M.C. 1993. Essential Oils of the Rosmarinus eriocalyx-tomentosus Complex in Southeast Spain. J. Ess. Oil Res. 5: 243-246.
Salvia canariensis	Leaf	0.1	0.1	-0.3142504728497459	Casnigueral,S., Iglesias,J., Vila,R., Virgili,A. and Ibanez,C.1994. The Essential Oil from Leaves of Salvia canariensis L. Flav. & Frag. J. 9:201-204. S. Casnigueral, Facultat de Farmacia, Universitat de Barcelona, Ave.Diagonal 643,E-08028, Barcelone Spain
Salvia dorisiana	Shoot	0.5	2.1	-0.30401558912117194	Tucker, A.O. & Maciarello, M.J. 1994. The Essential Oil of Salvia dorisiana Standley. J. Ess. Oil Res. 6: 97-8.
Salvia officinalis	Leaf	--	--		Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Salvia officinalis	Leaf Essent. Oil	--	--		--
Salvia officinalis	Essential Oil	--	--		--
Sassafras albidum	Root	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Sassafras albidum	Leaf	1	6.1	-0.3099954058431905	--
Satureja cilicica	Shoot	1	1	-0.30680880553286366	Tumen, G. Baser, K.H.C. and Kirimer, N. 1993. The Essential Oil of Satureja cilicica P.H. Davis. J. Ess. Oil Res. 5: 547-548.
Satureja montana	Plant	1	325	1.0955169776879943	--
Satureja obovata	Leaf	265	265	-0.12638926451032528	Arrebola, M.L., Navaro, M.C., Jimenez, J. and Ocana, F.A. 1994. Variations in Yield and Composition of the Essential Oil of Satureja obovata. Phytochemistry 35(1): 83.
Satureja obovata	Leaf	--	--		Arrebola, M.L., Navaro, M.C., Jimenez, J. and Ocana, F.A. 1994. Variations in Yield and Composition of the Essential Oil of Satureja obovata. Phytochemistry 35(1): 83.
Satureja obovata	Leaf	--	220	-0.15830226705949071	Arrebola, M.L., Navaro, M.C., Jimenez, J. and Ocana, F.A. 1994. Variations in Yield and Composition of the Essential Oil of Satureja obovata. Phytochemistry 35(1): 83.
Satureja obovata	Leaf	--	265	-0.12638926451032528	Arrebola, M.L., Navaro, M.C., Jimenez, J. and Ocana, F.A. 1994. Variations in Yield and Composition of the Essential Oil of Satureja obovata. Phytochemistry 35(1): 83.
Satureja obovata	Shoot	1	30	-0.23316946377008357	Fitoterapia No.60: 277.
Satureja thymbra	Shoot	75	75	-0.11890151965542477	Lagouri, V., Blekas, G., Tsimidou, M., Kokkini, S., and Boskou, D. 1993. Composition and Antioxidant Activity of Essential Oils from Oregano Plants Grown Wild in Greece. Z. Lebensm Unters Forsch 197: 20-23.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Saussurea lappa	Root Essent. Oil	--	--		--
Sideritis mugronensis	Flower	35	270	1	Manez, S., Jimenez, A., and Villar, A. 1991. Volatiles of Sideritis mugronensis Flower and Leaf. J. Ess. Oil Res., 3: 395-397.
Sideritis mugronensis	Leaf	5	10	-0.3072296122889294	Manez, S., Jimenez, A., and Villar, A. 1991. Volatiles of Sideritis mugronensis Flower and Leaf. J. Ess. Oil Res., 3: 395-397.
Sideritis pauli	Shoot	26	26	-0.24332661435805322	Burzaco, A., Velasco-Negueruela, A. and Perez-Alonso, M.J. 1992. Essential Oil Analysis of Sideritis pauli Pau. FFJ7: 47-8. 1992.
Tanacetum parthenium	Essential Oil	--	6000	-0.4769076636125325	--
Teucrium asiaticum	Shoot	0.17	0.17	-0.3089164142798673	Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six Teucrium Species from the Iberian Peninsula and the Balearic Islands. Phytochemistry 29(4): 1165-9.
Teucrium oxylepis	Shoot	0.22	0.22	-0.30878944989751766	Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six Teucrium Species from the Iberian Peninsula and the Balearic Islands. Phytochemistry 29(4): 1165-9.
Teucrium oxylepis	Shoot	0.27	0.27	-0.3086624855151682	Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six Teucrium Species from the Iberian Peninsula and the Balearic Islands. Phytochemistry 29(4): 1165-9.
Teucrium pseudoscorodonia	Shoot	0.24	0.24	-0.3087386641445779	Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six Teucrium Species from the Iberian Peninsula and the Balearic Islands. Phytochemistry 29(4): 1165-9.
Teucrium salviastrum	Shoot	0.11	0.11	-0.3090687715386869	Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six Teucrium Species from the Iberian Peninsula and the Balearic Islands. Phytochemistry 29(4): 1165-9.
Teucrium scorodonia	Shoot	--	--		Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six Teucrium Species from the Iberian Peninsula and the Balearic Islands. Phytochemistry 29(4): 1165-9.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Thymus capitatus	Plant	1	80	-0.611987050684608	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Thymus capitatus	Shoot	7	7	-0.2915730796509092	Biondi, D., Cianci, P., Geraci, C. and Ruberto, G. 1993. Antimicrobial Activity and Chemical Composition of Essential Oils from Sicilian Aromatic Plants. Flav. & Frag. J. 8: 331-7.
Thymus riatarum	Shoot	25	25	-0.24586590200504566	Iglesias, J., Vila, R., Canigueral, S., Bellakdhar, and Il Idrissi, A. 1991. Analysis of the Essential Oil of Thymus riatarum. J. Ess. Oil Res. 3: 43-4.
Thymus vulgaris	Plant	50	425	1.7924573974319133	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
Thymus vulgaris	Essential Oil	--	12500	-0.35109578631088695	--
Trachyspermum ammi	Plant	--	--		--
Trichostemma dichotomum	Shoot	0.6	0.6	-0.3078245205916606	Tucker, A.O. and Maciarello, M.J. 1990. The Essential Oil of Trichostemma dichotomum. J. Ess. Oil Res. 2: 149-150.
Tsuga canadensis	Branches	--	--		--
Umbellularia californica	Plant	20	80	-0.611987050684608	--
Zingiber officinale	Rhizome	3	200	-1	--
Zingiber officinale	Rhizome Essent. Oil	--	4000		--