

List of Plants

ALPHA-TERPINENE

Chemid

ALPHATERPINENE

Dosage

LD50=1,680 mg/kg (orl rat) Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.

*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
Achillea millefolium	Leaf	2.0	1120.0	0.27	*
Acinos alpinus	Shoot	--	0.5	-0.48	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	--	0.5	-0.48	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.)
Acorus calamus	Plant	--	--		*
Agathosma betulina	Leaf Essent. Oil	--	--		*
Agathosma betulina	Leaf	--	--		*
Ageratum conyzoides	Plant	4.0	30.0	-0.46	*
Aloysia citrodora	Plant	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Anethum graveolens	Shoot Essent. Oil	--	3400.0	-0.72	*
Anethum graveolens	Essential Oil	--	--		*
Anethum graveolens	Leaf	0.1	2100.0	0.77	*
Anethum graveolens	Seed Essent. Oil	--	--		*
Angelica archangelica	Root Essent. Oil	--	--		*
Angelica archangelica	Root	--	6.0	-0.66	*
Angelica archangelica	Fruit	--	--		*
Apium graveolens	Fruit Essent. Oil	--	1000.0	-0.83	*
Apium graveolens	Leaf Essent. Oil	--	--		*
Apium graveolens	Seed Essent. Oil	--	1000.0	-1.01	*
Apium graveolens	Leaf	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

<i>Artemisia salsoloides</i>	Shoot	--	2650.0	6.95	V. Kaul, P. Weyerstahl, H. Wahlberg, H. Marschall, (1992); Volatile constituents of the essential oil and the absolute of <i>Artemisia salsoloides</i> Willd. from Ladakh, <i>Flavour and Fragrance journal</i> , Vol.7, 299-305.
<i>Artemisia capillaris</i>	Essential Oil	--	--		*
<i>Artemisia annua</i>	Leaf	4.0	11715.0	5.74	*
<i>Aspalathus linearis</i>	Leaf Essent. Oil	--	--		*
<i>Barosma betulina</i>	Leaf	--	--		*
<i>Boswellia sacra</i>	Resin Essent. Oil	--	--		Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of <i>Olibanum</i> . <i>Plant Med.</i> 53 (4): 382-384.
<i>Boswellia serrata</i>	Essential Oil	--	--		*
<i>Brassica oleracea</i> var. <i>capitata</i> L.	Shoot	--	14.0	-0.44	*
<i>Callicarpa americana</i>	Leaf	--	0.55	-0.31	*
<i>Carica papaya</i>	Fruit	--	--		*
<i>Carum carvi</i>	Seed	6.0	12.0	-0.51	Lawrence, B.M., <i>Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.</i>
<i>Chamaemelum nobile</i>	Plant	--	--		*
<i>Chrysanthemum x morifolium</i>	Plant	6.0	24.0	-0.47	Wealth of India.
<i>Chrysanthemum parthenium</i>	Shoot	--	45.0	-0.36	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of <i>Tanacetum parthenium</i> (L.) Schultz-Bip. <i>Flavor and Fragrance Journal</i> 11(6): 367-71.
<i>Cinnamomum verum</i>	Bark Essent. Oil	--	--		*
<i>Cinnamomum verum</i>	Plant	42.0	168.0	-0.25	*
<i>Cinnamomum verum</i>	Leaf Essent. Oil	--	--		*
<i>Cinnamomum camphora</i>	Leaf	--	24.0	-0.3	*
<i>Cinnamomum verum</i>	Stem Bark	--	--		*
<i>Cinnamomum verum</i>	Root Bark	--	--		*
<i>Cinnamomum aromaticum</i>	Plant	--	--		*
<i>Cinnamomum verum</i>	Leaf	90.0	180.0	-0.22	*
<i>Cistus ladaniferus</i>	Leaf	2.0	140.0	-0.24	*
<i>Citrus limon</i>	Essential Oil	--	70.0	-0.78	Lawrence, B.M., <i>Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.</i>
<i>Citrus aurantium</i>	Leaf	--	1.0	-0.31	*
<i>Citrus paradisi</i>	Pericarp	--	1.0		*
<i>Citrus reticulata</i>	Fruit	0.7	1.0	-0.45	*
<i>Citrus aurantiifolia</i>	Fruit	--	80.0	-0.01	Lawrence, B.M., <i>Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.</i>
<i>Citrus limon</i>	Petiole	--	8.0		*
<i>Citrus limon</i>	Pericarp	--	--		Jim Duke's personal files.
<i>Citrus sinensis</i>	Fruit	1.0	2.0	-0.45	*
<i>Coleus barbatus</i>	Stem Essent. Oil	--	4000.0		Jim Duke's personal files.
<i>Coleus barbatus</i>	Leaf Essent. Oil	--	4000.0	-0.4	Jim Duke's personal files.
<i>Coriandrum sativum</i>	Fruit	1.0	15.0	-0.38	Lawrence, B.M., <i>Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.</i>

Coriandrum sativum	Seed Essent. Oil	200.0	19700.0	0.21	*
Coriandrum sativum	Essential Oil	--	--		*
Coridothymus capitatus	Shoot	--	130.0	-0.12	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.
Crocus sativus	Silk Stigma Style	--	--		*
Cuminum cyminum	Seed	--	27.0	-0.49	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Cuminum cyminum	Seed Essent. Oil	--	5000.0	-0.75	*
Cuminum cyminum	Fruit	--	27.0	-0.31	*
Cunila origanoides	Shoot	--	644.0	1.32	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Curcuma longa	Rhizome	--	23.0	-1.0	*
Curcuma longa	Leaf	--	37.0	-0.29	*
Daucus carota	Seed	20.0	40.0	-0.48	*
Daucus carota	Root	--	28.0	-0.45	*
Elettaria cardamomum	Root Essent. Oil	--	7000.0	-0.65	*
Elettaria cardamomum	Fruit	21.0	60.0	-0.12	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	--	0.2	-0.31	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	--	0.2	-0.31	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 pilosa	Shoot	--	10.0	-0.45	*
Ephedra sinica	Shoot	--	21.0	-0.42	*
Eucalyptus diversicolor	Shoot	--	0.1	-0.48	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	Shoot	--	0.1	-0.48	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 camaldulensis	Shoot	--	0.1	-0.48	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	--	0.1	-0.48	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 blakelyi	Shoot	--	0.1	-0.48	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 polyanthemus	Shoot	--	0.1	-0.48	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	--	145.0	-0.07	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 maculata	Shoot	--	0.1	-0.48	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 dealbata	Shoot	--	0.1	-0.48	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	--	7.0	-0.31	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.

<i>Eucalyptus tereticornis</i>	Shoot	--	0.1	-0.48	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.
<i>Eucalyptus globulus</i>	Fruit Essent. Oil	--	--		*
<i>Eucalyptus saligna</i>	Shoot	--	40.0	-0.37	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.
<i>Eucalyptus astringens</i>	Shoot	--	0.1	-0.48	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.
<i>Eucalyptus oviformis</i>	Shoot	--	30.0	-0.4	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.
<i>Eucalyptus melliodora</i>	Shoot	--	0.1	-0.48	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.
<i>Eucalyptus globulus</i>	Shoot	--	0.1	-0.48	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.
<i>Eucalyptus cladocalyx</i>	Shoot	--	0.1	-0.48	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.
<i>Eucalyptus botryoides</i>	Shoot	--	0.1	-0.48	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.
<i>Eucalyptus sideroxylon</i>	Shoot	--	22.0	-0.42	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.
<i>Eucalyptus bosistoana</i>	Shoot	--	0.1	-0.48	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.
<i>Eucalyptus punctata</i>	Shoot	--	45.0	-0.36	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.
<i>Eucalyptus albens</i>	Shoot	--	0.1	-0.48	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.
<i>Eucalyptus occidentalis</i>	Shoot	--	0.1	-0.48	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.
<i>Eucalyptus maidenii</i>	Shoot	--	0.1	-0.48	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.
<i>Foeniculum vulgare</i>	Seed Essent. Oil	--	--		Jim Duke's personal files.
<i>Foeniculum vulgare</i>	Plant	--	135.0	-0.3	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
<i>Foeniculum vulgare</i>	Seed	--	1.0	-0.51	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
<i>Foeniculum vulgare</i>	Fruit	--	1.0	-0.45	*
<i>Helianthus annuus</i>	Flower	--	--		Rizk, A.F.M. and Al-Nowaihi, A.S., The Phytochemistry of the Horticultural Plants of Qatar, Scientific and Applied Research Centre, University of Qatar.
<i>Hypericum perforatum</i>	Plant	1.0	18.0	-0.47	*
<i>Hyptis suaveolens</i>	Shoot	--	--	-0.48	Mallvarapu, G.R., Ramesh, S., Kaul, P.N., Bhattacharya, A.K., and Rao, B.R.R. 1993. The Essential Oil of <i>Hyptis suaveolens</i> (L.) Poit. J. Ess. Oil Res. 5: 321.
<i>Hyptis suaveolens</i>	Shoot	--	--	-0.48	Mallvarapu, G.R., Ramesh, S., Kaul, P.N., Bhattacharya, A.K., and Rao, B.R.R. 1993. The Essential Oil of <i>Hyptis suaveolens</i> (L.) Poit. J. Ess. Oil Res. 5: 321.
<i>Hyptis suaveolens</i>	Plant	--	130.0	-0.31	Recently became Internat. J. Crude Drug Res. 28(1,2,3,4):1990, page 74.

Hyssopus officinalis	Leaf	1.0	1880.0	0.66	*
Illicium verum	Fruit	--	70.0	-0.07	*
Juniperus sabina	Plant	--	--		*
Juniperus communis	Fruit	16.0	640.0	3.12	*
Laurus nobilis	Leaf Essent. Oil	--	--		*
Laurus nobilis	Leaf	14.0	300.0	-0.16	*
Lavandula x intermedia	Plant	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Lavandula latifolia	Plant	4.0	11.0	-0.49	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Lavandula x hybrida	Shoot	1.0	9.0	-0.46	Tucker, A.O., Maciarelo, M.J., Angell, S., Espailat, J.R., and French, E.C. 1993. The Essential Oil of Lavandula x hybrida Balb. ex Ging., a Distinct Hybrid from L. x heterophylla Poir. (Labiatae). J. Ess. Oil Res. 5: 443-445.
Lepechinia calycina	Plant	--	115.0	-0.33	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Levisticum officinale	Root	1.0	10.0	-0.62	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Lindera benzoin	Fruit	4.0	6.0	-0.43	*
Lindera benzoin	Twig	7.0	9.0		*
Litsea glaucescens	Shoot	60.0	75.0	-0.27	Tucker, et al, EB46(1):21-24.1992
Magnolia denudata	Leaf	--	--		*
Magnolia denudata	Bulb	--	--		*
Magnolia denudata	Twig	--	--		*
Magnolia denudata	Bark	--	--		*
Melaleuca alternifolia	Root Essent. Oil	--	92400.0	1.41	*
Melaleuca alternifolia	Leaf	190.0	4375.0	1.95	*
Melaleuca alternifolia	Essential Oil	13000.0	99000.0	2.0	*
Melaleuca alternifolia	Resin, Exudate, Sap	--	--		*
Melaleuca alternifolia	Leaf Essent. Oil	--	4000.0	-0.4	*
Mentha pulegium	Essential Oil	--	1000.0	-0.75	*
Mentha pulegium	Plant	--	20.0	-0.47	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
Mentha longifolia	Shoot	--	170.0	-0.0	*
Mentha x piperita	Plant	--	20.0	-0.47	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Micromeria varia	Shoot	--	3.0	-0.47	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 juliana	Leaf	--	15.0	-0.3	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 myrtifolia	Shoot	--	--	-0.48	Ozek, T., Kirimer, N., and Baser, K.H.C. 1992. Composition of the Essential Oil of Micromeria myrtifolia Boiss. et Hohen. J. Ess. Oil Res., 4: 79-80.
Micromeria fruticosa	Shoot	--	7.0	-0.46	Fleisher, Z. and Fleisher, A. 1991. The Essential Oil of Micromeria fruticosa (L.) Druce subsp. barbata (Boiss et. Ky.), P.H. Davis. Aromatic Plants of the Holy Land and the Sinai. Part VII. J. Ess. Oil Res 3: 477-479.
Micromeria thymifolia	Leaf	--	5.0	-0.31	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 congesta	Leaf	--	2.0	-0.31	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 fruticosa	Shoot	--	7.0	-0.46	Fleisher, Z. and Fleisher, A. 1991. The Essential Oil of Micromeria fruticosa (L.) Druce subsp. barbata (Boiss et. Ky.), P.H. Davis. Aromatic Plants of the Holy Land and the Sinai. Part VII. J. Ess. Oil Res 3: 477-479.
Micromeria varia	Shoot	--	3.0	-0.47	*
Micromeria teneriffae	Leaf	--	90.0	-0.27	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.
Monarda citriodora	Flower	--	320.0	1.41	Collins, J.E., Bishop, C.D., Deans, S.G. and Svoboda, K.P. 1994. Composition of the Essential Oil from the Leaves and Flowers of Monarda citriodora var. citriodora grown in the United Kingdom. J. Ess. Oil Res. 6: 27-9.
Monarda punctata	Plant	550.0	1740.0	2.12	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Monarda didyma	Leaf	10.0	15.0	-0.3	*
Monarda fistulosa	Plant	3.0	3193.0	4.31	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Monarda didyma	Flower	--	25.0	-0.62	Flavour and Fragrance Journal, 6: 80.
Monarda citriodora	Leaf	--	120.0	-0.25	Collins, J.E., Bishop, C.D., Deans, S.G. and Svoboda, K.P. 1994. Composition of the Essential Oil from the Leaves and Flowers of Monarda citriodora var. citriodora grown in the United Kingdom. J. Ess. Oil Res. 6: 27-9.
Monarda didyma	Plant	5.0	40.0	-0.44	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Murraya koenigii	Leaf	--	65.0	-0.28	*
Myrciaria dubia	Fruit	--	--		*
Myristica fragrans	Seed Essent. Oil	8000.0	40000.0	1.54	*
Myristica fragrans	Seed	400.0	3200.0	2.0	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Myristica fragrans	Essential Oil	14000.0	42000.0	0.4	*
Myrrhis odorata	Essential Oil	--	100.0	-0.77	Hussain, R.A., et. al. 1990. Sweetening Agents of Plant Origin: Phenylpropanoid Constituents of Seven Sweet-Tasting Plants. Econ. Bot. 44 2: 174-182. Program Collab. Res. Pharm. Sci. Coll. Pharmacy Univ. Illinois at Chicago IL 60680, USA.
Myrtus communis	Shoot	--	4.0	-0.47	*
Nepeta racemosa	Shoot	--	13.0	-0.44	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.
Nepeta racemosa	Shoot	--	13.0	-0.44	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 basilicum	Essential Oil	--	400.0	-0.77	*
Ocimum gratissimum	Shoot	--	29.0	-0.4	Vostrowsky, O., Garbe, W., Bestmann, H.J. and Maia, J.G.S. 1990. Essential Oil of Alfavaca, Ocimum gratissimum, from Brazilian Amazon. Zeitschr. Naturforschung 45(C): 1073-6.
Ocimum basilicum	Leaf Essent. Oil	--	600.0	-0.7	*
Ocimum basilicum	Plant	1.0	10.0	-0.49	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
Ocimum gratissimum	Plant	60.0	370.0	0.06	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Ocimum basilicum	Shoot Essent. Oil	--	300.0	-0.96	*
Origanum onites	Plant	--	47.0	-0.43	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Origanum vulgare	Plant	--	2.0	-0.5	Sezik, E., Tumen, G., Kirimer, N., Ozek, T., and Baser, K.H.C. 1993. Essential Oil Composition of Four Origanum vulgare Subspecies of Anatolian Origin. J. Ess. Oil Res., 5: 425-431.
Origanum vulgare	Plant	--	3.0	-0.5	Sezik, E., Tumen, G., Kirimer, N., Ozek, T., and Baser, K.H.C. 1993. Essential Oil Composition of Four Origanum vulgare Subspecies of Anatolian Origin. J. Ess. Oil Res., 5: 425-431.

Origanum vulgare	Plant	9.0	178.0	-0.23	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Origanum majorana	Essential Oil	--	68000.0	1.13	*
Origanum majorana	Leaf	138.0	1620.0	0.52	*
Origanum minutiflorum	Shoot	125.0	145.0	-0.07	Baser, K.H.C., Tumen, G., Sezik, E. 1991. The Essential Oil of Origanum minutiflorum O. Schwarz and P.H. Davis. J. Ess. Oil Res. 3: 445-446.
Origanum vulgare	Plant	--	1.0	-0.5	Sezik, E., Tumen, G., Kirimer, N., Ozek, T., and Baser, K.H.C. 1993. Essential Oil Composition of Four Origanum vulgare Subspecies of Anatolian Origin. J. Ess. Oil Res., 5: 425-431.
Origanum syriacum	Shoot	--	990.0	2.29	Fleisher, A. & Fleisher, Z. 1991. Chemical Composition of Origanum syriacum L. Essential Oil. J. Ess. Oil Res. 3: 121-123.
Origanum sipyleum	Shoot	--	15.0	-0.44	Baser, K.H.C., Ozek, T., Kurkcuoglu, M. and Tumen, G. 1992. Composition of the Essential Oil of Origanum sipyleum of Turkish Origin. J. Ess. Oil Res. 4: 139-142.
Origanum onites	Shoot	--	350.0	0.5	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 majorana	Plant	183.0	1830.0	2.26	*
Origanum vulgare	Shoot Essent. Oil	6200.0	13700.0	0.09	*
Origanum majorana	Leaf Essent. Oil	--	20000.0	1.0	*
Origanum vulgare	Plant	--	435.0	0.15	Sezik, E., Tumen, G., Kirimer, N., Ozek, T., and Baser, K.H.C. 1993. Essential Oil Composition of Four Origanum vulgare Subspecies of Anatolian Origin. J. Ess. Oil Res., 5: 425-431.
Origanum syriacum	Shoot	--	990.0	2.29	Fleisher, A. & Fleisher, Z. 1991. Chemical Composition of Origanum syriacum L. Essential Oil. J. Ess. Oil Res. 3: 121-123.
Origanum sipyleum	Shoot	--	410.0	0.67	Baser, K.H.C., Ozek, T., Kurkcuoglu, M. and Tumen, G. 1992. Composition of the Essential Oil of Origanum sipyleum of Turkish Origin. J. Ess. Oil Res. 4: 139-142.
Origanum sipyleum	Shoot	--	325.0	0.43	Baser, K.H.C., Ozek, T., Kurkcuoglu, M. and Tumen, G. 1992. Composition of the Essential Oil of Origanum sipyleum of Turkish Origin. J. Ess. Oil Res. 4: 139-142.
Origanum onites	Shoot	--	350.0	0.5	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 vulgare	Shoot	--	495.0	0.91	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.
Origanum syriacum	Shoot	--	990.0	2.29	Fleisher, A. & Fleisher, Z. 1991. Chemical Composition of Origanum syriacum L. Essential Oil. J. Ess. Oil Res. 3: 121-123.
Origanum sipyleum	Shoot	--	325.0	0.43	Baser, K.H.C., Ozek, T., Kurkcuoglu, M. and Tumen, G. 1992. Composition of the Essential Oil of Origanum sipyleum of Turkish Origin. J. Ess. Oil Res. 4: 139-142.
Pastinaca sativa	Root	--	--		*
Pavonia odorata	Root	--	250.0	1.73	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Petroselinum crispum	Seed Essent. Oil	--	--		*
Petroselinum crispum	Leaf	--	0.24	-0.31	*
Petroselinum crispum	Fruit Essent. Oil	--	18000.0	1.41	*
Peumus boldus	Leaf	3.0	12.0	-0.31	*
Pimenta dioica	Fruit	--	3.0	-0.44	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Pimenta dioica	Leaf	--	11.0	-0.31	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Pimpinella anisum	Essential Oil	--	--		*
Pinus sylvestris	Leaf Essent. Oil	--	34500.0	2.27	*

Pinus sylvestris	Leaf	--	--		*
Pinus sylvestris	Essential Oil	--	--		*
Pinus sylvestris	Root	--	--		Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
Piper auritum	Leaf	--	--		Tramil
Piper nigrum	Fruit	--	--		*
Piper nigrum	Fruit Essent. Oil	--	3000.0	-0.57	*
Piper cubeba	Fruit	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
Piper cubeba	Fruit Essent. Oil	--	--		*
Piper nigrum	Seed Essent. Oil	--	--		*
Porophyllum ruderale	Plant	55.0	85.0	-0.37	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.
Ptychopetalum olacoides	Root Essent. Oil	--	2000.0	-0.77	Uber Bucek, E., Fournier, G., Dadoun, H. 1987. Volatile Constituents of Ptychopetalum olacoides Root Oil. Planta Med. 53, 2: 231.
Pycnanthemum loomisii	Shoot	33.0	168.0	-0.01	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Ravensara aromatica	Leaf	--	80.0	-0.27	*
Ribes nigrum	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Rosmarinus officinalis	Leaf Essent. Oil	--	3000.0	-0.49	*
Rosmarinus officinalis	Shoot	185.0	555.0	1.07	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	Shoot	--	5.0	-0.47	Tucker, A. O. and Maciarello, M. J. 1998. The essential oils of some rosemary cultivars. Flavor and Fragrance Journal, 1: 137-142. 1986.
Rosmarinus x mendizabali	Shoot	43.0	100.0	-0.2	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	--	4.0	-0.31	Soliman, F.M., El-Kashoury, M.M., Fathy, M.M. and Gonaïd, 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	Resin, Exudate, Sap	--	--		*
Rosmarinus eriocalyx	Shoot	150.0	550.0	1.06	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	Plant	4.0	555.0	0.33	*
Rosmarinus x lavandulaceus	Shoot	13.0	140.0	-0.09	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	Shoot Essent. Oil	--	32900.0	1.6	*
Rosmarinus officinalis	Shoot	200.0	540.0	1.03	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	150.0	550.0	1.06	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	--	4.0	-0.31	Soliman, F.M., El-Kashoury, M.M., Fathy, M.M. and Gonaïd, 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 tomentosus	Shoot	16.0	40.0	-0.37	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 dorisiana	Shoot	2.7	3.7	-0.47	Tucker, A.O. & Maciarello, M.J. 1994. The Essential Oil of Salvia dorisiana Standley. J. Ess. Oil Res. 6: 97-8.
Salvia officinalis	Leaf Essent. Oil	--	2000.0	-0.58	*
Salvia officinalis	Leaf	10.0	56.0	-0.28	*

Salvia officinalis	Essential Oil	--	11200.0	-0.46	*
Salvia officinalis	Et	--	1000.0		*
Sassafras albidum	Leaf	--	--	-0.31	*
Satureja douglasii	Plant	--	13.0	-0.48	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Satureja subspicata	Plant	--	4.0	-0.5	Stanic, G., Petricic, J., and Blazevic, N. 1991. Gas Chromatographic Investigations of Essential Oils of Satureja montana and Satureja subspicata from Yugoslavia. J. Ess. Oil Res., 3: 153-158.
Satureja obovata	Leaf	--	235.0	-0.19	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 montana	Plant	15.0	410.0	0.12	*
Satureja obovata	Leaf	--	120.0	-0.25	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 cuneifolia	Shoot	--	315.0	0.4	Tumen, G. 1991. The Volatile Constituents of Satureja cuneifolia. J. Ess. Oil Res., 3: 365-366.
Satureja obovata	Shoot	60.0	170.0	-0.0	Fitoterapia No.60: 277.
Satureja hortensis	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Satureja thymbra	Shoot	--	555.0	1.07	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.
Satureja obovata	Leaf	--	235.0	-0.19	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 cilicica	Shoot	--	130.0	-0.12	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 obovata	Leaf	--	55.0	-0.28	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.
Sideritis pauli	Shoot	--	3.0	-0.47	Burzaco, A., Velasco-Negueruela, A. and Perez-Alonso, M.J. 1992. Essential Oil Analysis of Sideritis pauli Pau. FFJ7: 47-8. 1992.
Sideritis germanicolpitana	Plant	2.0	12.0	-0.48	J. Essential Oil, 4: 533.
Sideritis mugronensis	Leaf	10.0	15.0	-0.3	Manez, S., Jimenez, A., and Villar, A. 1991. Volatiles of Sideritis mugronensis Flower and Leaf. J. Ess. Oil Res., 3: 395-397.
Sideritis mugronensis	Flower	--	1.0	-0.79	Manez, S., Jimenez, A., and Villar, A. 1991. Volatiles of Sideritis mugronensis Flower and Leaf. J. Ess. Oil Res., 3: 395-397.
Tanacetum parthenium	Plant	--	--		*
Tanacetum parthenium	Shoot	--	45.0	-0.36	Hendriks, H., Bos, R., and Woerdenbag, H. J. 1996. The Essential Oil of Tanacetum parthenium (L.) Schultz-Bip. Flavor and Fragrance Journal 11(6): 367-71.
Tanacetum vulgare	Plant	40.0	200.0	-0.2	*
Teucrium gnaphalodes	Shoot	--	0.5	-0.48	Perez-Alonso, M.J. Velasco-Negueruela, A. and Lopez-Saez, J.A. 1993. The Essential Oils of Two Iberian Teucrium Species. J. Ess. Oil Res. 5: 397-402.
Teucrium polium	Shoot	--	2.0	-0.48	Perez-Alonso, M.J. Velasco-Negueruela, A. and Lopez-Saez, J.A. 1993. The Essential Oils of Two Iberian Teucrium Species. J. Ess. Oil Res. 5: 397-402.
Teucrium micropodioides	Leaf	--	--	-0.31	Arnold, N., Bellomaria, B., Velentini G. and Rafaiani, S.M. 1991. Comparative Study on Essential Oil of Some Teucrium Species from Cyprus. J. Ethnopharm. 35: 105-113.
Teucrium divaricatum	Leaf	--	--	-0.31	Arnold, N., Bellomaria, B., Velentini G. and Rafaiani, S.M. 1991. Comparative Study on Essential Oil of Some Teucrium Species from Cyprus. J. Ethnopharm. 35: 105-113.
Teucrium kotschyannum	Leaf	--	--	-0.31	Arnold, N., Bellomaria, B., Velentini G. and Rafaiani, S.M. 1991. Comparative Study on Essential Oil of Some Teucrium Species from Cyprus. J. Ethnopharm. 35: 105-113.

Teucrium cyprium	Leaf	--	130.0	-0.25	Arnold, N., Bellomaria, B., Velentini G. and Rafaiani, S.M. 1991. Comparative Study on Essential Oil of Some Teucrium Species from Cyprus. J. Ethnopharm. 35: 105-113.
Thymus saturejoides	Shoot	--	40.0	-0.37	Tantaoui-Elaraki, A., Lattaoui, N., Errifi, A. and Benjlali, B. 1993. Composition and Antimicrobial Activity of the Essential Oils of Thymus broussonettii, T. zygis and T. saturejoides. J. Ess. Oil Res. 5: 45-53.
Thymus broussonettii	Shoot	--	410.0	0.67	Tantaoui-Elaraki, A., Lattaoui, N., Errifi, A. and Benjlali, B. 1993. Composition and Antimicrobial Activity of the Essential Oils of Thymus broussonettii, T. zygis and T. saturejoides. J. Ess. Oil Res. 5: 45-53.
Thymus vulgaris	Plant	--	--		Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
Thymus longicaulis	Shoot	--	2.5	-0.47	Baser, K.H.C., Ozek, T., Kirimer, N. and Tumen, G. 1993. The Occurrence of Three Chemotypes of Thymus longicaulis C. Presl subsp. longicaulis in the same Population. J. Ess. Oil Res. 5: 291-5.
Thymus capitatus	Shoot	--	4.0	-0.47	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	--	215.0	0.12	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 zygis	Shoot	--	390.0	0.61	Tantaoui-Elaraki, A., Lattaoui, N., Errifi, A. and Benjlali, B. 1993. Composition and Antimicrobial Activity of the Essential Oils of Thymus broussonettii, T. zygis and T. saturejoides. J. Ess. Oil Res. 5: 45-53.
Thymus serpyllum	Plant	21.0	344.0	0.02	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Thymus longicaulis	Shoot	7.0	60.0	-0.31	Baser, K.H.C., Ozek, T., Kirimer, N. and Tumen, G. 1993. The Occurrence of Three Chemotypes of Thymus longicaulis C. Presl subsp. longicaulis in the same Population. J. Ess. Oil Res. 5: 291-5.
Thymus vulgaris	Essential Oil	--	--		*
Thymus capitatus	Plant	10.0	120.0	-0.32	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Thymus cilicicus	Shoot	--	39.0	-0.37	Tumen, G., Koyuncu, M., Kirimer, N., and Baser, K.H.C. 1994. Composition of the Essential Oil of Thymus cilicicus Boiss. & Bal. J. Ess. Oil Res. 6: 97-8.
Thymus zygis	Shoot	0.1	210.0	0.11	De Cunha, A.P. and Salguiero, L.R. 1991. The Chemical Polymorphism of Thymus zygis ssp. sylvestris from Central Portugal. J. Ess. Oil Res. 3: 409-12.
Thymus mastichina	Plant	--	1.0	-0.5	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Thymus longicaulis	Shoot	--	2.5	-0.47	Baser, K.H.C., Ozek, T., Kirimer, N. and Tumen, G. 1993. The Occurrence of Three Chemotypes of Thymus longicaulis C. Presl subsp. longicaulis in the same Population. J. Ess. Oil Res. 5: 291-5.
Trichostemma dichotomum	Shoot	--	5.5	-0.47	Tucker, A.O. and Maciarelo, M.J. 1990. The Essential Oil of Trichostemma dichotomum. J. Ess. Oil Res. 2: 149-150.
Umbellularia californica	Plant	70.0	720.0	0.58	*
Valeriana officinalis	Leaf Essent. Oil	--	600.0	-0.7	*
Valeriana officinalis	Leaf	--	15.0	-0.3	Father Nature's Pharmacy: The aggregate of all these three-letter citations.
Zingiber officinale	Rhizome Essent. Oil	--	700.0		*
Zingiber officinale	Rhizome	0.5	35.0	1.0	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.