

# C ALPHA-MUUROLENE

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ALPHAMUUROLENE

\*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	--	--		--
Agathosma betulina	Leaf Essent. Oil	--	--		--
Ageratum conyzoides	Shoot	--	380	3.9743162254042654	R. Vera, (1993); Chemical composition of the essential oil Ageratum conyzoides L. (Asteraceae) from Reunion, Flavour Fragr. J., Vol.8, 257-260.
Angelica archangelica	Root	10	120		--
Angelica archangelica	Root Essent. Oil	--	--		--
Boswellia sacra	Essential Oil	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Boswellia sacra	Resin, Exudate, Sap	--	66800		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.
Callicarpa americana	Leaf	--	2	-0.7037504760694602	--
Carthamus tinctorius	Bud	0.09	0.09		--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Citrus paradisi	Pericarp	--	2		--
Coridothymus capitatus	Shoot	0	0	-0.3456072526178631	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.
Elsholtzia polystachya	Leaf	6	6	-0.48468418001670993	Mathela,C.S., Melkani,A.B., Bisht,J.C., Pant,A.K., Bestmann,H.J., Eler,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	--	6	-0.48468418001670993	Mathela,C.S., Melkani,A.B., Bisht,J.C., Pant,A.K., Bestmann,H.J., Eler,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.
Humulus lupulus	Fruit	35	35	-0.6984779293060631	--
Illicium verum	Fruit	1	1	-0.7365604334696394	--
Juniperus communis	Fruit	54	542	-0.13060058780802927	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Juniperus communis	Fruit Essent. Oil	--	--		--
Laurus nobilis	Leaf	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Magnolia denudata	Bulb	--	--		--
Magnolia denudata	Flower	--	--		--
Magnolia denudata	Leaf	--	--		--
Magnolia denudata	Twig	--	--		--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Matricaria recutita	Plant	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
Melaleuca alternifolia	Leaf	0.001	30	0.829713596299792	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Melaleuca alternifolia	Essential Oil	--	2600		--
Melissa officinalis	Shoot	3	24	-0.07276998032172868	Deutsche Apot. Ziit. 129(4):155-163. W. Schulze et al. Die Melisse.
Micromeria myrtifolia	Shoot	3	3	-0.3115025935808463	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.
Myroxylon balsamum	Plant	--	--		--
Myrtus communis	Plant	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Nepeta racemosa	Shoot	21	21	-0.10687463935874549	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	--	21	-0.10687463935874549	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	Plant	--	--		Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
Origanum onites	Shoot	33	33	0.029543996789321722	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	2	-1.1214296958515246	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.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Origanum vulgare	Shoot	0	0	-0.3456072526178631	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 vulgare	Plant	6	6	-0.4094108413426202	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	3.5	3.5	-0.8544226254106854	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	15	1.1926315813024149	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Panax quinquefolius	Root Essent. Oil	2007	9855	1	--
Pelargonium graveolens	Essential Oil	--	--		--
Pimenta dioica	Leaf	45	45	1.65121222064976056	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Pimenta dioica	Leaf Essent. Oil	--	--		--
Pimenta dioica	Fruit	--	315	-0.3848573067824942	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Pimenta racemosa	Leaf	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Pinus sylvestris	Stem	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Pinus sylvestris	Wood	--	--		--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Pinus sylvestris	Essential Oil	--	--		--
Pinus sylvestris	Leaf Essent. Oil	9900	93000		--
Piper cubeba	Fruit	1200	2400	1.9504962573662254	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Ptychopetalum olacoides	Root Essent. Oil	--	8000	-1	Uber Bucek, E., Fournier, G., Dadoun, H. 1987. Volatile Constituents of Ptychopetalum olacoides Root Oil. Planta Med. 53, 2: 231.
Rheum palmatum	Rhizome	--	19		--
Rosmarinus officinalis	Leaf	2	2	-0.7037504760694602	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	Leaf	--	0	-0.8132836240958353	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	Leaf	--	2	-0.7037504760694602	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	Plant	--	--		--
Salvia dorisiana	Shoot	2.8	3.8	-0.3024080178376419	Tucker, A.O. & Maciarelllo, M.J. 1994. The Essential Oil of Salvia dorisiana Standley. J. Ess. Oil Res. 6: 97-8.
Salvia officinalis	Leaf Essent. Oil	--	--		--
Satureja montana	Plant	1	15	1.1926315813024149	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Satureja thymbra	Shoot	0.1	0.1	-0.3444704306499626	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.
Sideritis mugronensis	Flower	1	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	35	50	1.9250450765635436	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	13	13	-0.19782039679079028	Burzaco, A., Velasco-Negueruela, A. and Perez-Alonso, M.J. 1992. Essential Oil Analysis of Sideritis pauli Pau. FFJ7: 47-8. 1992.
Syzygium aromaticum	Plant	--	--		--
Syzygium aromaticum	Fruit	--	--		--
Syzygium aromaticum	Leaf	3.3	5.5	-0.5120674670233037	Charalambous, G. (Ed.). 1994. Spices, Herbs and Edible Fungi. Elsevier Science B. V. Amsterdam. 764 pp.
Tagetes lucida	Shoot	--	--		Bicchi, C., Fresia, M., Rubiolo, P., Monti, D., Franz, C., Goehler, I. 1997. Constituents of Tagetes lucida Cav. ssp. lucida essential oil. Flavor & Fragrance, 12(1): 47-52.
Tamarindus indica	Fruit Essent. Oil	--	2000		--
Teucrium asiaticum	Shoot	9.94	9.94	-0.23260714900854745	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	2.4	2.4	-0.3183235253882496	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
Teucrium oxylepis	Shoot	0.54	0.54	-0.3394684139912	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	2.24	2.24	-0.3201424405368906	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	0.87	0.87	-0.3357169014971282	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	1.93	1.93	-0.32366658863738224	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.
Zea mays	Plant	--	--		--
Zea mays	Leaf	--	--		--
Zingiber officinale	Rhizome	--	--		--
Zingiber officinale	Rhizome Essent. Oil	--	--		--