

# List of Plants

## BETA-BISABOLENE

### Chemid

BETABISABOLENE

\*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
Alpinia galanga	Rhizome	2.0	7775.0	1.0	*
Alpinia galanga	Rhizome Essent. Oil	--	5700.0	-1.0	*
Alpinia galanga	Leaf	--	305.0	-0.1	*
Alpinia galanga	Leaf Essent. Oil	--	5700.0	-0.99	*
Angelica archangelica	Root Essent. Oil	--	--		*
Angelica archangelica	Root	8.0	72.0	-1.2	*
Artemisia herba-alba	Plant	--	--		*
Artemisia capillaris	Essential Oil	--	--		*
Cannabis sativa	Flower Essent. Oil	--	--		*
Cannabis sativa	Plant	--	--		Turner, C. E., El Sohly, M. A., Boeren, E. G. 1980. Constituents of Cannabis sativa L. XVII. A Review of the Natural Constituents. J Natural Products, 432: 169-234.
Cannabis sativa	Leaf Essent. Oil	--	--		*
Centella asiatica	Shoot	--	--		Jim Duke's personal files.
Chamaemelum nobile	Plant	--	--		*
Citrus limon	Essential Oil	23.0	400.0	-1.0	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Citrus aurantiifolia	Fruit	--	90.0	-0.86	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Citrus paradisi	Pericarp	--	--		*
Citrus limon	Leaf Essent. Oil	--	8000.0	-0.45	Jim Duke's personal files.
Citrus limon	Petiole	--	25.0		*
Coleus barbatus	Root Essent. Oil	--	13000.0	-0.43	Jim Duke's personal files.
Copaifera spp	Gum	--	--		*
Coridothymus capitatus	Shoot	--	44.0	-0.47	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.
Cuminum cyminum	Seed	60.0	360.0	-0.6	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Cuminum cyminum	Fruit	60.0	360.0	-0.63	*
Curcuma longa	Rhizome	--	--		*
Daucus carota	Root	--	116.0	-0.04	*
Daucus carota	Shoot	--	38.0	-0.49	*
Daucus carota	Seed	100.0	3500.0	1.41	*
Illicium verum	Fruit	1.0	75.0	-0.87	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Lantana camara	Shoot	--	32.0	-0.5	*
Laurus nobilis	Leaf	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

Lavandula latifolia	Plant	1.0	15.0	-0.6	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Lavandula x hybrida	Shoot	20.0	42.0	-0.48	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.
Lindera benzoin	Leaf	--	11.0	-0.42	*
Litsea glaucescens	Shoot	3.0	20.0	-0.53	Tucker, et al, EB46(1):21-24.1992
Murraya koenigii	Leaf	--	--	-0.43	*
Myristica fragrans	Essential Oil	--	--		*
Myrrhis odorata	Leaf Essent. Oil	--	17000.0	1.66	*
Myrtus communis	Plant	--	1.0	-0.65	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Nepeta racemosa	Shoot	--	9.0	-0.56	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	--	9.0	-0.56	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 suave	Shoot	--	205.0	-0.06	J. Nat. Prod. 44: 308.
Ocimum tenuiflorum	Leaf	--	2970.0	2.81	*
Ocimum basilicum	Plant	--	6.5	-0.63	Die Nahrung. Pino, J., Rosado, A., Goire, I., Roncal, E., and Garcia, I. 1993. Analysis of the Essential Oil from Cuban Basil. Die Nahrung 37: (5): 501-504.
Ocimum basilicum	Shoot Essent. Oil	--	2600.0	1.0	*
Ocimum basilicum	Plant	--	6.5	-0.63	Die Nahrung. Pino, J., Rosado, A., Goire, I., Roncal, E., and Garcia, I. 1993. Analysis of the Essential Oil from Cuban Basil. Die Nahrung 37: (5): 501-504.
Origanum onites	Plant	--	246.0	0.27	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Origanum vulgare	Plant	--	200.0	0.09	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	Shoot Essent. Oil	--	1500.0	-1.0	*
Origanum onites	Shoot	--	1415.0	2.99	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	--	270.0	0.1	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	--	45.0	-0.49	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	Essential Oil	--	38100.0	1.0	*
Origanum vulgare	Plant	3.0	640.0	1.74	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Origanum vulgare	Plant	--	20.0	-0.58	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	--	80.0	-0.36	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 onites	Shoot	--	1415.0	2.99	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.
Panax ginseng	Plant	--	--		*

Panax quinquefolius	Root Essent. Oil	6251.0	58670.0	1.71	*
Panax ginseng	Root Essent. Oil	--	--		*
Pastinaca sativa	Root	--	--		*
Pelargonium graveolens	Essential Oil	--	--		*
Petasites hybridus	Rhizome	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Petroselinum crispum	Seed	--	22.0	-0.81	*
Petroselinum crispum	Leaf	--	2.76	-0.43	*
Pimpinella anisum	Plant	--	--		*
Pimpinella anisum	Tissue Culture	--	--		*
Pimpinella anisum	Essential Oil	--	--		*
Piper auritum	Leaf	--	--		Tramil
Piper cubeba	Fruit Essent. Oil	--	20000.0	-1.0	*
Piper nigrum	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Piper nigrum	Fruit Essent. Oil	21200.0	111600.0	1.0	*
Piper cubeba	Fruit	1500.0	3000.0	1.6	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Plectranthus barbatus	Root Essent. Oil	--	13000.0	-0.43	*
Plectranthus incanus	Shoot	--	30.0	-0.51	Shah, G.C., Bhandari, R. & Mathela, C.S. 1992. 1,2-Epoxy-p-Menthane Derivatives from some Labiatae Species. J. Ess. Oil Res. 4: 57-59.
Psidium guajava	Fruit	--	2000.0	0.75	*
Psidium guajava	Pericarp Essent. Oil	--	--		*
Ptychopetalum olacoides	Root Essent. Oil	--	4000.0	-0.85	Uber Bucek, E., Fournier, G., Dadoun, H. 1987. Volatile Constituents of Ptychopetalum olacoides Root Oil. Planta Med. 53, 2: 231.
Satureja thymbra	Shoot	--	--	-0.58	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 cilicica	Shoot	--	60.0	-0.43	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	20.0	400.0	0.84	*
Scutellaria parvula	Plant	--	54.0	-0.45	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Sideritis germanicolpitana	Plant	17.0	41.0	-0.5	J. Essential Oil, 4: 533.
Tagetes lucida	Shoot	--	30.0	-0.51	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.
Teucrium polium	Shoot	--	12.0	-0.55	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	--	255.0	-0.15	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	--	--	-0.43	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	--	--	-0.43	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 cyprum	Leaf	--	--	-0.43	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 gnaphalodes	Shoot	--	--	-0.58	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.
Thymus capitatus	Plant	20.0	40.0	-0.51	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Thymus funkii	Shoot	--	--	-0.58	Vila, R., et al. 1995. Composition and study of the variability of the essential oil of Thymus funkii Cousson. Flav. & Fragr. J. 10(6): 379-383.
Thymus longicaulis	Shoot	--	355.0	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 serpyllum	Plant	68.0	1012.0	3.14	*
Thymus x citriodorus	Plant	--	130.0	-0.17	Stahl-Biskup, E. and Holthuijzen, J. 1995. Essential oil and glycosidally bound volatiles of lemon-scented thyme, Thymus x citriodorus (Pers.) Schreb. Flav. & Fragr. J. 10: 225-229.
Thymus longicaulis	Shoot	--	345.0	0.29	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 riatarum	Shoot	--	575.0	0.87	Iglesias, J., Vila, R., Canigual, S., Bellakdhar, and Il Idrissi, A. 1991. Analysis of the Essential Oil of Thymus riatarum. J. Ess. Oil Res. 3: 43-4.
Thymus capitatus	Shoot	--	45.0	-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. & Fragr. J. 8: 331-7.
Thymus funkii	Shoot	--	--		Vila, R., et al. 1995. Composition and study of the variability of the essential oil of Thymus funkii Cousson. Flav. & Fragr. J. 10(6): 379-383.
Thymus longicaulis	Shoot	--	345.0	0.29	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.
Umbellularia californica	Plant	10.0	40.0	-0.51	*
Valeriana officinalis	Leaf Essent. Oil	6200.0	9000.0	-0.22	*
Valeriana officinalis	Root	2.0	165.0	1.25	*
Zingiber officinale	Rhizome	5.0	3600.0	-1.0	*
Zingiber officinale	Rhizome Essent. Oil	25000.0	105100.0	1.0	*