

List of Plants

BETA-BOURBONENE

Chemid

BETABOURBONENE

*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
<i>Acinos alpinus</i>	Shoot	--	20.0	-0.26	Velasco-Negueruela, A., Perez-Alonso, M.J., Jimenez, S.M. and Garcia, F.M. 1993. The Volatile Constituents of <i>Acinos alpinus</i> (L.) Moench ssp. <i>meridionalis</i> (Nyman). P.W. Ball Growing in Spain. <i>Flav. & Frag. J.</i> 8:127-130.)
<i>Acinos alpinus</i>	Shoot	--	20.0	-0.26	Velasco-Negueruela, A., Perez-Alonso, M.J., Jimenez, S.M. and Garcia, F.M. 1993. The Volatile Constituents of <i>Acinos alpinus</i> (L.) Moench ssp. <i>meridionalis</i> (Nyman). P.W. Ball Growing in Spain. <i>Flav. & Frag. J.</i> 8:127-130.)
<i>Agastache rugosa</i>	Shoot	--	--		Jim Duke's personal files.
<i>Boswellia sacra</i>	Essential Oil	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
<i>Boswellia sacra</i>	Resin, Exudate, Sap	--	10000.0		Chiavari, G., Gtalletti, G. C., Piccaglia, R., Mohamud, M. A. 1991. Differentiation Between Resins <i>Boswellia carterii</i> and <i>Boswellia frereana</i> (Frankincense) of Somali Origin. <i>J. Essent. Oil Res.</i> 3 (3):185-186.
<i>Calamintha nepeta</i>	Shoot	--	5.0	-0.39	Kirimer, N., Baser, K.H.C., Ozek, T. and Kurkcuoglu, M. 1992. Composition of the Essential Oil of <i>Calamintha nepeta</i> subsp. <i>glandulosa</i> . <i>J. Ess. Oil Res.</i> 4:189-190
<i>Calamintha nepeta</i>	Leaf	--	8.0	-0.52	Akgul, A., De Pooter, H.L., and De Buyck, L.F. 1991. The Essential Oils of <i>Calamintha nepeta</i> subsp. <i>glandulosa</i> and <i>Ziziphora clinopodioides</i> from Turkey. <i>J. Ess. Oil Res.</i> , 3: 7-10.
<i>Callicarpa americana</i>	Leaf	--	3.0	-0.55	*
<i>Chamaemelum nobile</i>	Plant	--	--		*
<i>Glechoma hederacea</i>	Plant	1.0	6.0	-0.48	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
<i>Hypericum perforatum</i>	Plant	0.25	4.5	-0.49	*
<i>Hyptis suaveolens</i>	Shoot	--	15.0	-0.3	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. <i>J. Ess. Oil Res.</i> 5: 321.
<i>Hyptis suaveolens</i>	Shoot	--	15.0	-0.3	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. <i>J. Ess. Oil Res.</i> 5: 321.
<i>Leonotis leonurus</i>	Se	--	4.0		Pedro, L.G., Barroso, J.G., Marques, N.T., Ascensao, L., Pais, M.S.S. and Scheffer, J.J.C. 1991. Composition of the Essential Oil from Sepals of <i>Leonotis leonurus</i> R. Br. <i>J. Ess. Oil Res.</i> 3: 451-3
<i>Lonicera japonica</i>	Flower	0.001	0.062	-0.77	Schlottzauer, W.S., S.D. Pair, and R.J. Horvat. 1996. Volatile constituents from the flowers of Japanese Honeysuckle. <i>J. Agric. Food Chem.</i> 44:206-209.
<i>Lycopus virginicus</i>	Plant	53.0	132.0	0.46	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
<i>Magnolia denudata</i>	Bulb	--	--		*
<i>Magnolia denudata</i>	Twig	--	--		*
<i>Magnolia denudata</i>	Bark	--	--		*
<i>Magnolia denudata</i>	Flower	--	--		*
<i>Melissa officinalis</i>	Shoot	1.0	48.0	-0.01	Deutsche Apot. Zitt. 129(4):155-163. W. Schulze et al. Die Melisse.

<i>Mentha spicata</i>	Leaf	2.0	50.0	-0.26	*
<i>Mentha pulegium</i>	Plant	15.0	30.0	-0.3	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
<i>Mentha spicata</i>	Essential Oil	--	--		*
<i>Mentha longifolia</i>	Shoot	1.0	535.0	4.32	*
<i>Micromeria fruticosa</i>	Shoot	--	10.0	-0.35	Fleisher, Z. and Fleisher, A. 1991. The Essential Oil of <i>Micromeria fruticosa</i> (L.) Druce subsp. <i>barbata</i> (Boiss et. Ky.), P.H. Davis. Aromatic Plants of the Holy Land and the Sinai. Part VII. J. Ess. Oil Res 3: 477-479.
<i>Micromeria congesta</i>	Leaf	45.0	55.0	-0.23	Kirimer, N., Ozek, T., and Baser, K.H.C. 1991. Composition of the Essential Oil of <i>Micromeria congesta</i> . J. Ess. Oil Res., 3: 387-393.
<i>Micromeria myrtifolia</i>	Shoot	--	0.1	-0.44	Ozek, T., Kirimer, N., and Baser, K.H.C. 1992. Composition of the Essential Oil of <i>Micromeria myrtifolia</i> Boiss. et Hohen. J. Ess. Oil Res., 4: 79-80.
<i>Micromeria fruticosa</i>	Shoot	--	10.0	-0.35	Fleisher, Z. and Fleisher, A. 1991. The Essential Oil of <i>Micromeria fruticosa</i> (L.) Druce subsp. <i>barbata</i> (Boiss et. Ky.), P.H. Davis. Aromatic Plants of the Holy Land and the Sinai. Part VII. J. Ess. Oil Res 3: 477-479.
<i>Micromeria varia</i>	Shoot	--	--		*
<i>Micromeria varia</i>	Shoot	--	--	-0.44	Pedro, L.G., et al. 1995. Composition of the Essential oil of <i>Micromeria varia</i> Benth. ssp. <i>thymoides</i> (Sol. ex Lowe) Perez var. <i>thymoides</i> , and endemic species of the Madeira Archipelago. flav. & Fragr. J. 10(3): 199-202.
<i>Monarda fistulosa</i>	Plant	1.0	62.0	-0.06	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
<i>Monarda didyma</i>	Plant	5.0	70.0	-0.0	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
<i>Monarda didyma</i>	Leaf	50.0	90.0	-0.01	*
<i>Monarda didyma</i>	Flower	--	10.0	-0.58	Flavour and Fragrance Journal, 6: 80.
<i>Myroxylon balsamum</i>	Plant	--	--		*
<i>Nepeta racemosa</i>	Shoot	--	50.0	0.01	Baser, K.H.C., Ozek, T., Akgul, A. and Tumen, G. 1993. Composition of the Essential Oil of <i>Nepeta racemosa</i> Lam. J. Ess. Oil Res. 5: 215-7.
<i>Nepeta racemosa</i>	Shoot	--	50.0	0.01	Baser, K.H.C., Ozek, T., Akgul, A. and Tumen, G. 1993. Composition of the Essential Oil of <i>Nepeta racemosa</i> Lam. J. Ess. Oil Res. 5: 215-7.
<i>Ocimum gratissimum</i>	Flower	95.0	145.0	1.95	Charles, D.J. and Simon, J.E. 1992. A New Geraniol Chemotype of <i>Ocimum gratissimum</i> L. J. Ess. Oil Res. 4: 231-234.
<i>Ocimum basilicum</i>	Plant	--	--		*
<i>Ocimum basilicum</i>	Shoot Essent. Oil	--	3800.0	-1.18	*
<i>Ocimum gratissimum</i>	Leaf	40.0	70.0	-0.13	Charles, D.J. and Simon, J.E. 1992. A New Geraniol Chemotype of <i>Ocimum gratissimum</i> L. J. Ess. Oil Res. 4: 231-234.
<i>Origanum vulgare</i>	Shoot Essent. Oil	--	7500.0	-0.08	*
<i>Origanum vulgare</i>	Plant	--	8.0	-0.46	Sezik, E., Tumen, G., Kirimer, N., Ozek, T., and Baser, K.H.C. 1993. Essential Oil Composition of Four <i>Origanum vulgare</i> Subspecies of Anatolian Origin. J. Ess. Oil Res., 5: 425-431.
<i>Origanum vulgare</i>	Plant	--	9.0	-0.46	Sezik, E., Tumen, G., Kirimer, N., Ozek, T., and Baser, K.H.C. 1993. Essential Oil Composition of Four <i>Origanum vulgare</i> Subspecies of Anatolian Origin. J. Ess. Oil Res., 5: 425-431.
<i>Origanum vulgare</i>	Plant	--	2.0	-0.51	Sezik, E., Tumen, G., Kirimer, N., Ozek, T., and Baser, K.H.C. 1993. Essential Oil Composition of Four <i>Origanum vulgare</i> Subspecies of Anatolian Origin. J. Ess. Oil Res., 5: 425-431.
<i>Panax ginseng</i>	Shoot	--	--		*
<i>Panax ginseng</i>	Flower Essent. Oil	--	--		*
<i>Pelargonium graveolens</i>	Essential Oil	--	--		*
<i>Pelargonium citrosum</i>	Shoot	--	1.0	-0.43	Matsuda, B. M., et al. 1996. Essential Oil Analysis and Field Evaluation of the Citrosa Plant ' <i>Pelargonium citrosum</i> ' as a Repellent Against Populations of <i>Aedes</i> Mosquitoes. J. Am. Mosq. Contr. Assoc. 12(1):69-74.
<i>Perilla frutescens</i>	Shoot Essent. Oil	--	12000.0	1.26	Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of <i>Perilla frutescens</i> (L.) Britton. J. Essent. Oil Res., 7(4): 429-432.
<i>Pycnanthemum tenuifolium</i>	Shoot	16.0	400.0	3.12	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

<i>Pycnanthemum montanum</i>	Shoot	91.0	104.0	0.49	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
<i>Pycnanthemum pilosum</i>	Leaf	10.0	35.0	-0.35	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
<i>Pycnanthemum albescens</i>	Shoot	16.0	54.0	0.04	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
<i>Pycnanthemum virginianum</i>	Shoot	6.0	232.0	1.63	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
<i>Pycnanthemum pilosum</i>	Flower	10.0	35.0	-0.11	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
<i>Salvia gilliesii</i>	Shoot	--	44.0	-0.05	Velasco-Negueruela, A. et al. 1993. The Essential Oil of <i>Salvia gilliesii</i> Benth. J. Ess. Oil Res. 5: 319-320.
<i>Salvia officinalis</i>	Leaf Essent. Oil	--	--		*
<i>Satureja montana</i>	Plant	4.0	85.0	0.11	*
<i>Satureja cilicica</i>	Shoot	--	2.0	-0.42	Tumen, G. Baser, K.H.C. and Kirimer, N. 1993. The Essential Oil of <i>Satureja cilicica</i> P.H. Davis. J. Ess. Oil Res. 5: 547-548.
<i>Satureja douglasii</i>	Plant	--	533.0	3.46	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
<i>Sideritis mugronensis</i>	Flower	10.0	15.0	-0.49	Manez, S., Jimenez, A., and Villar, A. 1991. Volatiles of <i>Sideritis mugronensis</i> Flower and Leaf. J. Ess. Oil Res., 3: 395-397.
<i>Sideritis pauli</i>	Shoot	--	10.0	-0.35	Burzaco, A., Velasco-Negueruela, A. and Perez-Alonso, M.J. 1992. Essential Oil Analysis of <i>Sideritis pauli</i> Pau. FFJ7: 47-8. 1992.
<i>Sideritis germanicolpitana</i>	Plant	6.0	9.0	-0.46	J. Essential Oil, 4: 533.
<i>Sideritis mugronensis</i>	Leaf	15.0	25.0	-0.41	Manez, S., Jimenez, A., and Villar, A. 1991. Volatiles of <i>Sideritis mugronensis</i> Flower and Leaf. J. Ess. Oil Res., 3: 395-397.
<i>Sideritis athoa</i>	Shoot	--	4.0	-0.4	Ozek, T., Baser, K.H.C. and Tumen, G. 1993. The Essential Oil of <i>Sideritis athoa</i> Papanikolaou Et Kokkini. J. Ess. Oil Res. 5: 669-670.
<i>Stevia rebaudiana</i>	Leaf	--	--		Kinghorn, A. D. (Ed.) 2002. Medicinal and Aromatic Plants - Industrial Profiles. <i>Stevia</i> . The genus <i>Stevia</i> . Taylor & Francis. New York, NY. 211 pp.
<i>Stevia rebaudiana</i>	Flower	--	--		Kinghorn, A. D. (Ed.) 2002. Medicinal and Aromatic Plants - Industrial Profiles. <i>Stevia</i> . The genus <i>Stevia</i> . Taylor & Francis. New York, NY. 211 pp.
<i>Syzygium aromaticum</i>	Leaf	--	--		Charalambous, G. (Ed.). 1994. Spices, Herbs and Edible Fungi. Elsevier Science B. V. Amsterdam. 764 pp.
<i>Teucrium salviastrum</i>	Shoot	--	1.56	-0.42	Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six <i>Teucrium</i> Species from the Iberian Peninsula and the Balearic Islands. <i>Phytochemistry</i> 29(4): 1165-9.
<i>Teucrium kotschyanum</i>	Leaf	--	640.0	3.39	Arnold, N., Bellomaria, B., Velentini G. and Rafaiani, S.M. 1991. Comparative Study on Essential Oil of Some <i>Teucrium</i> Species from Cyprus. <i>J. Ethnopharm.</i> 35: 105-113.
<i>Teucrium scorodonia</i>	Shoot	--	4.88	-0.39	Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six <i>Teucrium</i> Species from the Iberian Peninsula and the Balearic Islands. <i>Phytochemistry</i> 29(4): 1165-9.
<i>Teucrium asiaticum</i>	Shoot	--	0.87	-0.43	Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six <i>Teucrium</i> Species from the Iberian Peninsula and the Balearic Islands. <i>Phytochemistry</i> 29(4): 1165-9.
<i>Teucrium pseudoscorodonia</i>	Shoot	--	2.45	-0.42	Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six <i>Teucrium</i> Species from the Iberian Peninsula and the Balearic Islands. <i>Phytochemistry</i> 29(4): 1165-9.
<i>Teucrium divaricatum</i>	Leaf	--	90.0	-0.01	Arnold, N., Bellomaria, B., Velentini G. and Rafaiani, S.M. 1991. Comparative Study on Essential Oil of Some <i>Teucrium</i> Species from Cyprus. <i>J. Ethnopharm.</i> 35: 105-113.
<i>Teucrium oxylepis</i>	Shoot	--	2.92	-0.41	Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six <i>Teucrium</i> Species from the Iberian Peninsula and the Balearic Islands. <i>Phytochemistry</i> 29(4): 1165-9.
<i>Teucrium micropodioides</i>	Leaf	--	20.0	-0.44	Arnold, N., Bellomaria, B., Velentini G. and Rafaiani, S.M. 1991. Comparative Study on Essential Oil of Some <i>Teucrium</i> Species from Cyprus. <i>J. Ethnopharm.</i> 35: 105-113.
<i>Teucrium cyprium</i>	Leaf	--	105.0	0.08	Arnold, N., Bellomaria, B., Velentini G. and Rafaiani, S.M. 1991. Comparative Study on Essential Oil of Some <i>Teucrium</i> Species from Cyprus. <i>J. Ethnopharm.</i> 35: 105-113.

Teucrium oxylepis	Shoot	--	0.34	-0.43	Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six Teucrium Species from the Iberian Peninsula and the Balearic Islands. <i>Phytochemistry</i> 29(4): 1165-9.
Thymus cilicicus	Shoot	--	47.0	-0.02	Tumen, G., Koyuncu, M., Kirimer, N., and Baser, K.H.C. 1994. Composition of the Essential Oil of <i>Thymus cilicicus</i> Boiss. & Bal. <i>J. Ess. Oil Res.</i> 6: 97-8.
Thymus funkii	Shoot	--	8.0	-0.37	Vila, R., et al. 1995. Composition and study of the variability of the essential oil of <i>Thymus funkii</i> Cousson. <i>Flav. & Fragr. J.</i> 10(6): 379-383.
Thymus x citriodorus	Plant	--	20.0	-0.37	Stahl-Biskup, E. and Holthuijzen, J. 1995. Essential oil and glycosidally bound volatiles of lemon-scented thyme, <i>Thymus x citriodorus</i> (Pers.) Schreb. <i>Flav. & Fragr. J.</i> 10: 225-229.
Thymus longicaulis	Shoot	--	9.0	-0.36	Baser, K.H.C., Ozek, T., Kirimer, N. and Tumen, G. 1993. The Occurrence of Three Chemotypes of <i>Thymus longicaulis</i> C. Presl subsp. <i>longicaulis</i> in the same Population. <i>J. Ess. Oil Res.</i> 5: 291-5.
Thymus longicaulis	Shoot	--	--	-0.44	Baser, K.H.C., Ozek, T., Kirimer, N. and Tumen, G. 1993. The Occurrence of Three Chemotypes of <i>Thymus longicaulis</i> C. Presl subsp. <i>longicaulis</i> in the same Population. <i>J. Ess. Oil Res.</i> 5: 291-5.
Thymus riararum	Shoot	--	0.1	-0.44	Iglesias, J., Vila, R., Canigual, S., Bellakdhar, and Idrissi, A. 1991. Analysis of the Essential Oil of <i>Thymus riararum</i> . <i>J. Ess. Oil Res.</i> 3: 43-4.
Thymus funkii	Shoot	--	8.0	-0.37	Vila, R., et al. 1995. Composition and study of the variability of the essential oil of <i>Thymus funkii</i> Cousson. <i>Flav. & Fragr. J.</i> 10(6): 379-383.
Thymus longicaulis	Shoot	--	9.0	-0.36	Baser, K.H.C., Ozek, T., Kirimer, N. and Tumen, G. 1993. The Occurrence of Three Chemotypes of <i>Thymus longicaulis</i> C. Presl subsp. <i>longicaulis</i> in the same Population. <i>J. Ess. Oil Res.</i> 5: 291-5.
Thymus mastichina	Plant	--	10.0	-0.45	Lawrence, B.M., <i>Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.</i>
Vitex agnus-castus	Leaf	--	0.2	-0.57	Ekundayo, O., Laakso, I., Holopainen, M., Hiltunen, R., Oguntimein, B., and Kauppinen, V. 1990. The Chemical Composition and Antimicrobial Activity of the Leaf Oil of <i>Vitex agnus-castus</i> L. <i>J. Essential Oil Research</i> , 2: 115-119.