

Dr. Duke's Phytochemical and Ethnobotanical Database

List of Plants for BETA-BOURBONENE

| Plant | Part | Low PPM | High PPM | StdDev | Reference |
|----------------------|---------------------|----------------|-----------------|----------------------|--|
| Acinos alpinus | Shoot | 20 | 20 | -0.2600573163374 | 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 | -- | 20 | -0.2600573163374 | 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.) |
| Agastache rugosa | Shoot | -- | -- | | Jim Duke's personal files. |
| Boswellia sacra | Essential Oil | -- | -- | | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| Boswellia sacra | Resin, Exudate, Sap | -- | 10000 | | 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. |
| Calamintha nepeta | Leaf | 8 | 8 | -0.5168073241260414 | Akgul, A., De Pooter, H.L., and De Buyck, L.F. 1991. The Essential Oils of Calamintha nepeta subsp. glandulosa and Ziziphora clinopodioides from Turkey. J. Ess. Oil Res., 3: 7-10. |
| Calamintha nepeta | Shoot | 5 | 5 | -0.39348912091230565 | Kirimer, N., Baser, K.H.C., Ozek, T. and Kurkcuoglo, M. 1992. Composition of the Essential Oil of Calamintha nepeta subsp. glandulosa. J. Ess. Oil Res. 4:189-190 |
| Callicarpa americana | Leaf | -- | 3 | -0.5477054809216564 | -- |
| Chamaemelum nobile | Plant | -- | -- | | -- |
| Glechoma hederacea | Plant | 1 | 6 | -0.4787226141963027 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |

| Plant | Part | Low PPM | High PPM | StdDev | Reference |
|----------------------|--------|---------|----------|-----------------------|---|
| Hypericum perforatum | Plant | 0.25 | 4.5 | -0.489936417763645 | -- |
| Hyptis suaveolens | Shoot | 15 | 15 | -0.3045345845290352 | 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 | -- | 15 | -0.3045345845290352 | 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. |
| Leonotis leonurus | Se | 4 | 4 | | 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 Leonotis leonurus R. Br. J. Ess. Oil Res. 3: 451-3 |
| Lonicera japonica | Flower | 0.001 | 0.062 | -0.7693715123563478 | Schlotzhauer, W.S., S.D. Pair, and R.J. Horvat. 1996. Volatile constituents from the flowers of Japanese Honeysuckle. J. Agric. Food Chem. 44:206-209. |
| Lycopus virginicus | Plant | 53 | 132 | 0.46323688546044917 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| Magnolia denudata | Bark | -- | -- | | -- |
| Magnolia denudata | Bulb | -- | -- | | -- |
| Magnolia denudata | Flower | -- | -- | | -- |
| Magnolia denudata | Twig | -- | -- | | -- |
| Melissa officinalis | Shoot | 1 | 48 | -0.010984614464242788 | Deutsche Apot. Ztit. 129(4):155-163. W. Schulze et al. Die Melisse. |
| Mentha longifolia | Shoot | 1 | 535 | 4.321101307401028 | -- |
| Mentha pulegium | Plant | 15 | 30 | -0.2993017571188262 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| Mentha spicata | Leaf | 2 | 50 | -0.2572628070428749 | -- |

| Plant | Part | Low PPM | High PPM | StdDev | Reference |
|-----------------------|---------------|---------|----------|-------------------------|---|
| Mentha spicata | Essential Oil | -- | -- | | -- |
| Micromeria congesta | Leaf | 45 | 55 | -0.22636465024725982 | 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 | 10 | 10 | -0.3490118527206704 | 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 fruticosa | Shoot | -- | 10 | -0.3490118527206704 | 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 myrtifolia | Shoot | 0.1 | 0.1 | -0.4370768437401082 | 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 varia | Shoot | 0 | 0 | -0.43796638910394087 | 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 | -- | | -- |
| Monarda didyma | Flower | 10 | 10 | -0.5826574853920841 | Flavour and Fragrance Journal, 6: 80. |
| Monarda didyma | Leaf | 50 | 90 | -0.010077552677954457 | -- |
| Monarda didyma | Plant | 5 | 70 | -0.00026699532303189845 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| Monarda fistulosa | Plant | 1 | 62 | -0.06007394768219075 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| Myroxylon balsamum | Plant | -- | -- | | -- |
| Nepeta racemosa | Shoot | 50 | 50 | 0.006806292812411298 | 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 | -- | 50 | 0.006806292812411298 | 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 | -- | -- | | -- |
| Ocimum basilicum | Shoot Essent. Oil | -- | 3800 | -1.183040531089796 | -- |
| Ocimum gratissimum | Flower | 95 | 145 | 1.9537073405462937 | Charles, D.J. and Simon, J.E. 1992. A New Geraniol Chemotype of Ocimum gratissimum L. J. Ess. Oil Res. 4: 231-234. |
| Ocimum gratissimum | Leaf | 40 | 70 | -0.13367017986041468 | Charles, D.J. and Simon, J.E. 1992. A New Geraniol Chemotype of Ocimum gratissimum L. J. Ess. Oil Res. 4: 231-234. |
| Origanum vulgare | Plant | 2 | 2 | -0.5086260903758821 | 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 | 9 | -0.45629500706161813 | 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 | 8 | 8 | -0.46377087610651296 | 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 | -- | 7500 | -0.07953213654385216 | -- |
| Panax ginseng | Flower Essent. Oil | -- | -- | | -- |
| Panax ginseng | Shoot | -- | -- | | -- |
| Pelargonium citrosum | Shoot | -- | 1 | -0.4290709354656138 | 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. |

| Plant | Part | Low PPM | High PPM | StdDev | Reference |
|---------------------------------|----------------------|---------|----------|----------------------|--|
| <i>Pelargonium graveolens</i> | Essential Oil | -- | -- | | -- |
| <i>Perilla frutescens</i> | Shoot Essent. Oil | -- | 12000 | 1.262572667633647 | 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 albescens</i> | Shoot | 16 | 54 | 0.04238810736571947 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| <i>Pycnanthemum montanum</i> | Shoot | 91 | 104 | 0.4871607892820716 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| <i>Pycnanthemum pilosum</i> | Flower | 10 | 35 | -0.11296029540349557 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| <i>Pycnanthemum pilosum</i> | Leaf | 10 | 35 | -0.34995727742972005 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| <i>Pycnanthemum tenuifolium</i> | Shoot | 16 | 400 | 3.120215066226877 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| <i>Pycnanthemum virginianum</i> | Shoot | 6 | 232 | 1.6257788549879333 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| <i>Salvia gilliesii</i> | Shoot | 44 | 44 | -0.04656642901755096 | 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 cilicica</i> | Shoot | 2 | 2 | -0.42017548182728676 | 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 | 533 | 3.4610603724632867 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| <i>Satureja montana</i> | Plant | 4 | 85 | 0.11187104035039094 | -- |

| Plant | Part | Low PPM | High PPM | StdDev | Reference |
|----------------------------|--------|---------|----------|-----------------------|--|
| Sideritis athoa | Shoot | 4 | 4 | -0.4023845745506327 | Ozek, T., Baser, K.H.C. and Tumen, G. 1993. The Essential Oil of Sideritis athoa Papanikolaou Et Kokkini. J. Ess. Oil Res. 5: 669-670. |
| Sideritis germanicolpitana | Plant | 6 | 9 | -0.45629500706161813 | J. Essential Oil, 4: 533. |
| Sideritis mugronensis | Flower | 10 | 15 | -0.48871804739436636 | 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 | 15 | 25 | -0.41175359102095016 | 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 | 10 | 10 | -0.3490118527206704 | Burzaco, A., Velasco-Negueruela, A. and Perez-Alonso, M.J. 1992. Essential Oil Analysis of Sideritis pauli Pau. FFJ7: 47-8. 1992. |
| Stevia rebaudiana | Flower | -- | -- | | Kinghorn, A. D. (Ed.) 2002. Medicinal and Aromatic Plants - Industrial Profiles. Stevia. The genus Stevia. Taylor & Francis. New York, NY. 211 pp. |
| Stevia rebaudiana | Leaf | -- | -- | | Kinghorn, A. D. (Ed.) 2002. Medicinal and Aromatic Plants - Industrial Profiles. Stevia. The genus Stevia. Taylor & Francis. New York, NY. 211 pp. |
| Syzygium aromaticum | Leaf | -- | -- | | Charalambous, G. (Ed.). 1994. Spices, Herbs and Edible Fungi. Elsevier Science B. V. Amsterdam. 764 pp. |
| Teucrium asiaticum | Shoot | 0.87 | 0.87 | -0.4302273444385963 | 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 cyprium | Leaf | 105 | 105 | 0.08261691770889089 | 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 | 90 | 90 | -0.010077552677954457 | 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. |

| Plant | Part | Low PPM | High PPM | StdDev | Reference |
|---------------------------|-------|---------|----------|-----------------------|--|
| Teucrium kotschyanum | Leaf | 640 | 640 | 3.3887196948397023 | 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 micropodioides | Leaf | 20 | 20 | -0.44265174781656524 | 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 oxylepis | Shoot | 0.34 | 0.34 | -0.43494193486690963 | 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 | 2.92 | 2.92 | -0.4119916644800259 | 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 | 2.45 | 2.45 | -0.4161725276900396 | 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 | 1.56 | 1.56 | -0.42408948142815067 | 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 | 4.88 | 4.88 | -0.3945565753489049 | 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. |
| Thymus cilicicus | Shoot | 47 | 47 | -0.019880068102569832 | 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 funkii | Shoot | 8 | 8 | -0.36680275999732453 | 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 funkii | Shoot | -- | 8 | -0.36680275999732453 | 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. |

| Plant | Part | Low PPM | High PPM | StdDev | Reference |
|----------------------|-------|---------|----------|----------------------|---|
| Thymus longicaulis | Shoot | 9 | 9 | -0.3579073063589975 | 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 longicaulis | Shoot | -- | 0 | -0.43796638910394087 | 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 longicaulis | Shoot | -- | 9 | -0.3579073063589975 | 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 mastichina | Plant | 10 | 10 | -0.4488191380167233 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| Thymus riatarum | Shoot | 0.1 | 0.1 | -0.4370768437401082 | 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 x citriodorus | Plant | 20 | 20 | -0.37406044756777473 | 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. |
| Vitex agnus-castus | Leaf | -- | 0.2 | -0.5650084487272009 | 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 Vitex agnus-castus L. J. Essential Oil Research, 2: 115-119. |