

**Dr. Duke's Phytochemical and Ethnobotanical Database**

**List of Plants for CAMPHOR**

| <b>Plant</b>          | <b>Part</b>            | <b>Low PPM</b> | <b>High PPM</b> | <b>StdDev</b>        | <b>Reference</b>   |
|-----------------------|------------------------|----------------|-----------------|----------------------|--|
| Achillea millefolium  | Leaf                   | 20             | 1780            | -0.18433975802654748 | --   |
| Acinos alpinus        | Shoot                  | 1              | 1               | -0.15724505495450056 | 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                  | --             | 1               | -0.15724505495450056 | 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        | Rhizome                | --             | --              |                      | Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.   |
| Alpinia galanga       | Rhizome                | --             | --              |                      | --   |
| Alpinia galanga       | Rhizome<br>Essent. Oil | --             | --              |                      | --   |
| Alpinia officinarum   | Rhizome                | --             | --              |                      | Wealth of India.   |
| Ammi visnaga          | Essential Oil          | --             | --              |                      | --   |
| Amomum compactum      | Seed                   | --             | --              |                      | 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.   |
| Anethum graveolens    | Root                   | --             | --              |                      | --   |
| Annona squamosa       | Plant                  | --             | --              |                      | --   |
| Artemisia annua       | Leaf                   | 100            | 6460            | -0.0534217853770054  | --   |
| Artemisia dracunculus | Shoot                  | 20             | 200             | -0.14976698900024374 | --   |

| Plant                    | Part             | Low PPM | High PPM | StdDev               | Reference  |
|--------------------------|------------------|---------|----------|----------------------|--|
| Artemisia dracunculus    | Essential Oil    | --      | --       |                      | --   |
| Artemisia dracunculus    | Leaf Essent. Oil | --      | 20000    | -0.7174269876896714  | --   |
| Artemisia herba-alba     | Plant            | 580     | 773      | -0.26114344972520515 | --   |
| Artemisia salsoloides    | Shoot            | --      | 210000   | 7.734143750713728    | V. Kaul, P. Weyerstahl, H. Wahlberg, H. Marschall, (1992); Volatile constituents of the essential oil and the absolute of Artemisia salsoloides Willd. from Ladakh, Flavour and Fragrance journal, Vol.7, 299-305. |
| Artemisia vulgaris       | Plant            | --      | --       |                      | Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.  |
| Calamintha nepeta        | Leaf             | 1       | 1        | -0.2488796284474433  | 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.                                |
| Cannabis sativa          | Leaf Essent. Oil | --      | --       |                      | --   |
| Cannabis sativa          | Essential 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.   |
| Capsicum frutescens      | Fruit            | --      | --       |                      | --   |
| Centella asiatica        | Essential Oil    | --      | --       |                      | --   |
| Chrysanthemum parthenium | Shoot            | --      | 640      | -0.13323257181495227 | 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.   |

| Plant                      | Part              | Low PPM | High PPM | StdDev               | Reference   |
|----------------------------|-------------------|---------|----------|----------------------|---|
| Chrysanthemum x morifolium | Flower            | --      | --       |                      | Wealth of India.  |
| Cinnamomum camphora        | Leaf              | 96      | 220000   | 4.682939389519441    | --  |
| Cinnamomum verum           | Plant             | --      | --       |                      | --  |
| Cinnamomum verum           | Leaf              | --      | 5        | -0.24878995860316278 | --  |
| Cinnamomum verum           | Essential Oil     | --      | --       |                      | --  |
| Cinnamomum verum           | Root Bark         | --      | --       |                      | --  |
| Cinnamomum verum           | Bark Essent. Oil  | --      | --       |                      | --  |
| Cinnamomum verum           | Stem Bark         | --      | --       |                      | --  |
| Cleonia lusitanica         | Leaf              | 5       | 7        | -0.24874512368102253 | Perez-Alonso, M., Velasco-Negueruela, A., and Lopez-Saez, A. 1991. The Essential Oil of Cleonia lusitanica. J. Ess. Oil Res., 3: 441-442. |
| Coleus barbatus            | Leaf Essent. Oil  | --      | 2500     | -0.8262065309494772  | Jim Duke's personal files.  |
| Coleus barbatus            | Stem Essent. Oil  | --      | 2500     |                      | Jim Duke's personal files.  |
| Coriandrum sativum         | Fruit             | 100     | 1300     | 1.6456434313757062   | --  |
| Coriandrum sativum         | Seed Essent. Oil  | --      | 58300    | 1                    | --  |
| Coriandrum sativum         | Essential Oil     | --      | --       |                      | --  |
| Crocus sativus             | Silk Stigma Style | --      | --       |                      | --  |

| Plant                | Part                   | Low PPM | High PPM | StdDev               | Reference  |
|----------------------|------------------------|---------|----------|----------------------|--|
| Curcuma longa        | Tuber                  | --      | --       |                      | --   |
| Curcuma longa        | Rhizome<br>Essent. Oil | --      | 600      | -1                   | --   |
| Cymbopogon nardus    | Plant                  | 15      | 60       | -0.6234615654171126  | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.   |
| Daucus carota        | Seed                   | --      | --       |                      | --   |
| Elettaria cardamomum | Fruit                  | 7       | 20       | -0.8661900913537282  | 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 cristata  | Shoot                  | 4       | 4        | -0.15713232029187357 | Kobold, U., Vostrowsky, O., Bestmann, H.J., Bisht, J.C., Pant, A.K., Melkani, A.B. and Mathela, C.S. 1987. Terpenoids from Elsholtzia Species; II. Constituents of Essential Oil from a New Chemotype of Elsholtzia cristata. Planta Medica 1987: 268-271. |
| Foeniculum vulgare   | Fruit                  | 10      | 180      | -0.5522109010125488  | --   |
| Foeniculum vulgare   | Seed                   | 10      | 180      |                      | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.   |
| Glycyrrhiza glabra   | Root                   | --      | --       |                      | --   |
| Hedeoma drummondii   | Plant                  | 1       | 786      | -0.254537369074441   | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.   |
| Hedeoma reverchonii  | Plant                  | 31      | 31       | -0.6381982068688171  | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.   |
| Helianthus annuus    | 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.   |

| Plant                  | Part             | Low PPM | High PPM | StdDev               | Reference  |
|------------------------|------------------|---------|----------|----------------------|--|
| Hyptis suaveolens      | Shoot            | 12      | 12       | -0.15683169452486825 | 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            | --      | 12       | -0.15683169452486825 | 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. |
| Hyssopus officinalis   | Flower           | 125     | 1240     | -0.4037256527367186  | --   |
| Hyssopus officinalis   | Leaf             | 10      | 3280     | -0.17537277359849665 | --   |
| Hyssopus officinalis   | Essential Oil    | --      | --       |                      | --   |
| Juniperus communis     | Fruit            | 1       | 7        | -0.8917009005689489  | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.   |
| Juniperus communis     | Essential Oil    | --      | --       |                      | --   |
| Lantana camara         | Shoot            | --      | 1        | -0.15724505495450056 | --   |
| Larrea tridentata      | Plant            | --      | --       |                      | --   |
| Laurus nobilis         | Plant            | --      | --       |                      | --   |
| Laurus nobilis         | Leaf Essent. Oil | --      | --       |                      | --   |
| Lavandula angustifolia | Flower           | --      | --       |                      | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.   |
| Lavandula latifolia    | Plant            | 480     | 3300     | 1.0229769967733227   | --   |
| Lavandula sp           | Shoot            | --      | --       |                      | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.         |

| Plant                  | Part   | Low PPM | High PPM | StdDev               | Reference  |
|------------------------|--------|---------|----------|----------------------|--|
| Lavandula x hybrida    | Shoot  | 660     | 890      | -0.12383801659603667 | Tucker, A.O., Maciarello, M.J., Angell, S., Espaillat, 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. |
| Lavandula x intermedia | Plant  | 542     | 1620     | 0.1692681126745783   | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.   |
| Lepechinia calycina    | Plant  | 875     | 875      | -0.20931112461920998 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.   |
| Levisticum officinale  | Root   | 1       | 10       |                      | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.   |
| Lippia alba            | Plant  | --      | --       |                      | Grenand, P., Moretti, C., and Jacquemin, H. 1987. Pharmacopees Traditionnelles en Guyane. l'ORSTROM, Paris. 569 pp.  |
| Lippia dulcis          | Plant  | --      | --       |                      | --   |
| Magnolia fargesii      | Flower | --      | --       |                      | --   |
| Magnolia kobus         | Flower | --      | --       |                      | --   |
| Melaleuca alternifolia | Leaf   | 0.001   | 0.001    | -0.24890202349105242 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.   |
| Micromeria croatica    | Leaf   | 140     | 140      | -0.24576360135869563 | 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 juliana     | Leaf   | 65      | 65       | -0.24744491093895515 | 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  | 0.5     | 0.5      | -0.15726384406493837 | 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.  |

| Plant                    | Part              | Low PPM | High PPM | StdDev               | Reference  |
|--------------------------|-------------------|---------|----------|----------------------|--|
| Micromeria thymifolia    | Leaf              | 10      | 10       | -0.24867787129781216 | 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.      |
| Myristica fragrans       | Seed Essent. Oil  | --      | 34000    | -1                   | --   |
| Myrtus communis          | Plant             | 12      | 18       | -0.6448042875195812  | --   |
| Nepeta cataria           | Plant             | 16      | 80       | -0.6132983644159371  | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.                 |
| Nepeta racemosa          | Shoot             | 2       | 2        | -0.1572074767336249  | 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             | --      | 2        | -0.1572074767336249  | 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             | 2       | 31       | -0.6381982068688171  | Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.                     |
| Ocimum basilicum         | Essential Oil     | 2100    | 7200     | -1.1929832436449845  | --   |
| Ocimum basilicum         | Leaf Essent. Oil  | --      | 10000    | -0.7795867266952746  | --   |
| Ocimum basilicum         | Shoot Essent. Oil | --      | 4500     | -1                   | --   |
| Ocimum canum             | Shoot             | 1900    | 4550     | 0.013698271808887719 | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.                 |
| Ocimum gratissimum       | Plant             | 2       | 35       | -0.6361655666685819  | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.   |
| Ocimum kilimandscharicum | Flower            | 2650    | 5070     | 1.3756405727887508   | Charles, D.J., and Simon, J.E. 1992. Essential Oil Constituents of Ocimum killimandscharicum Guerke. J. Ess. Oil Res., 4: 125-128.         |

| Plant                    | Part  | Low PPM | High PPM | StdDev               | Reference   |
|--------------------------|-------|---------|----------|----------------------|---|
| Ocimum kilimandscharicum | Shoot | 0.1     | 7000     | 0.10576491295426046  | Charles, D.J., and Simon, J.E. 1992. Essential Oil Constituents of Ocimum killimandscharicum Guerke. J. Ess. Oil Res., 4: 125-128.  |
| Ocimum tenuiflorum       | Leaf  | --      | --       |                      | =ICMR(Indian Council of Medical Research).1976.Medicinal Plants of India.Vol.1.Indian Council of Med. Res.Cambridge Printing Works, New Delhi.487 pp;ICMR.1987.Medicinal Plants of India.Vol.2.Indian Council of Med. Res.Cambr. Printing Works,New Delhi.600pp |
| Origanum creticum        | Plant | --      | --       |                      | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.  |
| Origanum onites          | Shoot | 0       | 0        | -0.15728263317537622 | 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 sipyleum        | Shoot | 15      | 15       | -0.15671895986224127 | 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 | --      | 13       | -0.1567941163039926  | 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 | --      | 15       | -0.15671895986224127 | 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 | --      | 10       | -0.15690685096661958 | 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 syriacum        | Shoot | 0.1     | 0.1      | -0.1572788753532887  | Fleisher, A. & Fleisher, Z. 1991. Chemical Composition of Origanum syriacum L. Essential Oil. J. Ess. Oil Res. 3: 121-123.  |
| Origanum syriacum        | Shoot | --      | 0        | -0.15728263317537622 | Fleisher, A. & Fleisher, Z. 1991. Chemical Composition of Origanum syriacum L. Essential Oil. J. Ess. Oil Res. 3: 121-123.  |



| Plant                        | Part             | Low PPM | High PPM | StdDev                | Reference   |
|------------------------------|------------------|---------|----------|-----------------------|---|
| Origanum syriacum            | Shoot            | --      | --       |                       | Fleisher, A. & Fleisher, Z. 1991. Chemical Composition of Origanum syriacum L. Essential Oil. J. Ess. Oil Res. 3: 121-123.        |
| Origanum vulgare             | Plant            | 0       | 40       | -0.6336247664182881   | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.  |
| Peumus boldus                | Leaf             | 1.6     | 150      | -0.24553942674799437  | --  |
| Pimenta racemosa             | Leaf             | 0       | 240      | -0.24352185525168293  | --  |
| Pimpinella anisum            | Seed Essent. Oil | --      | --       |                       | --  |
| Pinus sylvestris             | Leaf Essent. Oil | --      | --       |                       | --  |
| Piper auritum                | Leaf             | --      | --       |                       | Tramil  |
| Piper nigrum                 | Fruit            | --      | --       |                       | --  |
| Polygonum hydropiper         | Essential Oil    | --      | --       |                       | --  |
| Ptychopetalum olacoides      | Root Essent. Oil | --      | 62000    |                       | Uber Bucek, E., Fournier, G., Dadoun, H. 1987. Volatile Constituents of Ptychopetalum olacoides Root Oil. Planta Med. 53, 2: 231. |
| Pycnanthemum clinopodioides  | Shoot            | 42      | 44       | -0.15562919145684706  | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.  |
| Pycnanthemum montanum        | Shoot            | 3395    | 3880     | -0.011479136177806092 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.  |
| Pycnanthemum pycnanthemoides | Shoot            | 78      | 116      | -0.15292355955379938  | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.  |
| Pycnanthemum tenuifolium     | Shoot            | 4       | 40       | -0.1557795043403497   | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.  |

| Plant                  | Part                | Low PPM | High PPM | StdDev                | Reference  |
|------------------------|---------------------|---------|----------|-----------------------|--|
| Rhododendron dauricum  | Plant               | --      | --       |                       | --   |
| Rosmarinus eriocalyx   | Shoot               | 1590    | 2670     | -0.0569487834373576   | 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               | 1590    | 2670     | -0.0569487834373576   | 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                | 595     | 595      | -0.23556365657178782  | 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                | --      | 160      | -0.2453152521372931   | 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               | 60      | 5800     | 2.293377121920263     | --   |
| Rosmarinus officinalis | Shoot               | --      | 1030     | -0.11857706567344393  | Tucker, A. O. and Maciarelo, M. J. 1998. The essential oils of some rosemary cultivars. Flavor and Fragrance Journal, 1: 137-142. 1986.  |
| Rosmarinus officinalis | Shoot               | 320     | 1410     | -0.10429734174069223  | 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               | 1885    | 3920     | -0.009976007342779595 | 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 | Essential Oil       | 18000   | 93000    | -0.6926999479228944   | --   |
| Rosmarinus officinalis | Resin, Exudate, Sap | --      | --       |                       | --   |

| Plant                      | Part                 | Low PPM | High PPM | StdDev               | Reference   |
|----------------------------|----------------------|---------|----------|----------------------|---|
| Rosmarinus officinalis     | Shoot Essent. Oil    | --      | 76300    | 1                    | --  |
| Rosmarinus officinalis     | Leaf Essent. Oil     | --      | 121000   | -0.08961362373307821 | --  |
| Rosmarinus tomentosus      | Shoot                | 2745    | 4455     | 0.01012834082569979  | 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 x lavandulaceus | Shoot                | 330     | 2335     | -0.06953748743070451 | 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 x mendizabalii  | Shoot                | 850     | 1475     | -0.10185475738377417 | 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 canariensis         | Leaf                 | 28      | 28       | -0.24827435699854986 | Casnigueral,S., Iglesias,J., Vila,R., Virgili,A. and Ibanez,C.1994. The Essential Oil from Leaves of Salvia canariensis L. Flav. & Frag. J. 9:201-204. S. Canigueral, Facultat de Farmacia, Universitat de Barcelona, Ave.Diagonal 643,E-08028, Barcelone Spain |
| Salvia gilliesii           | Shoot                | 60      | 60       | -0.15502793992283648 | Velasco-Negueruela, A. et al. 1993. The Essential Oil of Salvia gilliesii Benth. J. Ess. Oil Res. 5: 319-320.   |
| Salvia officinalis         | Leaf                 | 0       | 9324     | -0.03988163889064865 | --  |
| Salvia officinalis         | Pericarp Essent. Oil | --      | 229000   |                      | --  |
| Salvia officinalis         | Leaf Essent. Oil     | 44000   | 458000   | 2.005169580755753    | --  |
| Salvia officinalis         | Essential Oil        | 76000   | 305000   | 0.54343127227621     | --  |

| Plant              | Part  | Low PPM | High PPM | StdDev                 | Reference   |
|--------------------|-------|---------|----------|------------------------|---|
| Salvia sclarea     | Plant | --      | --       |                        | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.                     |
| Salvia triloba     | Plant | 160     | 5040     | 1.9071754838755932     | --  |
| Sassafras albidum  | Leaf  | --      | 0        | -0.24890204590851342   | --  |
| Satureja douglasii | Plant | 2392    | 5941     | 2.3650276889785506     | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.  |
| Satureja hortensis | Plant | --      | --       |                        | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.  |
| Satureja montana   | Plant | 5       | 75       | -0.6158391646662309    | --  |
| Satureja obovata   | Leaf  | 2040    | 2040     | -0.2031704253254542    | 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 obovata   | Leaf  | --      | 2660     | -0.18927159946197541   | 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 obovata   | Leaf  | --      | 1225     | -0.22144065609760777   | 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 obovata   | Leaf  | --      | 2040     | -0.2031704253254542    | 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 obovata   | Shoot | 2510    | 4025     | -0.0060302941508350435 | Fitoterapia No.60: 277.   |
| Sideritis athoa    | Shoot | 0.5     | 0.5      | -0.15726384406493837   | 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.                                  |

| Plant                       | Part              | Low PPM | High PPM | StdDev               | Reference   |
|-----------------------------|-------------------|---------|----------|----------------------|---|
| <i>Sideritis pauli</i>      | Shoot             | 3       | 3        | -0.15716989851274923 | 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 scardica</i>   | Shoot             | 75      | 75       | -0.15446426660970153 | Menkovic, N., et al. 1991. The Essential Oil of <i>Sideritis scardica</i> . Pl. Med. 57. Suppl. 2. pp. A137-A132.   |
| <i>Stevia rebaudiana</i>    | Flower            | --      | 17       | -0.9719149200520317  | Kinghorn, A. D. (Ed.) 2002. Medicinal and Aromatic Plants - Industrial Profiles. Stevia. The genus Stevia. Taylor & Francis. New York, NY. 211 pp.                                  |
| <i>Stevia rebaudiana</i>    | Shoot             | --      | 17       | -0.15664380342048995 | Kinghorn, A. D. (Ed.) 2002. Medicinal and Aromatic Plants - Industrial Profiles. Stevia. The genus Stevia. Taylor & Francis. New York, NY. 211 pp.                                  |
| <i>Tanacetum parthenium</i> | Shoot             | --      | 24       | -0.15638075587436032 | --  |
| <i>Tanacetum parthenium</i> | Fruit Essent. Oil | --      | 189000   |                      | --  |
| <i>Tanacetum parthenium</i> | Essential Oil     | --      | 442000   | 1.342251919291669    | --  |
| <i>Tanacetum parthenium</i> | Leaf Essent. Oil  | --      | 201000   | 0.40766428831174817  | --  |
| <i>Tanacetum vulgare</i>    | Leaf              | 0       | 1800     | -0.2085506159822847  | --  |
| <i>Teucrium asiaticum</i>   | Shoot             | 0.1     | 0.1      | -0.1572788753532887  | 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. Phytochemistry 29(4): 1165-9. |
| <i>Teucrium gnaphalodes</i> | Shoot             | 6       | 6        | -0.15705716385012225 | Perez-Alonso, M.J. Velasco-Negueruela, A. and Lopez-Saez, J.A. 1993. The Essential Oils of Two Iberian <i>Teucrium</i> Species. J. Ess. Oil Res. 5: 397-402.                        |
| <i>Teucrium oxylepis</i>    | Shoot             | 0.22    | 0.22     | -0.1572743659667835  | 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. Phytochemistry 29(4): 1165-9. |

| Plant                     | Part     | Low PPM | High PPM | StdDev               | Reference  |
|---------------------------|----------|---------|----------|----------------------|--|
| Teucrium oxylepis         | Shoot    | 0.06    | 0.06     | -0.15728037848212362 | 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.  |
| Teucrium polium           | Plant    | --      | --       |                      | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.  |
| Teucrium polium           | Shoot    | 1       | 1        | -0.15724505495450056 | Perez-Alonso, M.J. Velasco-Negueruela, A. and Lopez-Saez, J.A. 1993. The Essential Oils of Two Iberian Teucrium Species. <i>J. Ess. Oil Res.</i> 5: 397-402.   |
| Teucrium pseudoscorodonia | Shoot    | 0.1     | 0.1      | -0.1572788753532887  | 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.  |
| Teucrium salviastrum      | Shoot    | --      | --       |                      | 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.  |
| Teucrium scorodonia       | Shoot    | 0.28    | 0.28     | -0.15727211127353108 | 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.  |
| Thuja occidentalis        | Branches | --      | --       |                      | --   |
| Thymus broussonettii      | Shoot    | 0       | 0        | -0.15728263317537622 | Tantaoui-Elaraki, A., Lattaoui, N., Errifi, A. and Benjlali, B. 1993. Composition and Antimicrobial Activity of the Essential Oils of <i>Thymus broussonettii</i> , <i>T. zygis</i> and <i>T. saturejoides</i> . <i>J. Ess. Oil Res.</i> 5: 45-53. |
| Thymus capitatus          | Plant    | --      | --       |                      | Lawrence, B.M., <i>Essential Oils 1976-1977</i> , <i>Essential Oils 1978</i> , <i>Essential Oils 1979-1980</i> .   |
| Thymus capitatus          | Shoot    | 9       | 9        | -0.15694442918749524 | Biondi, D., Cianci, P., Geraci, C. and Ruberto, G. 1993. Antimicrobial Activity and Chemical Composition of Essential Oils from Sicilian Aromatic Plants. <i>Flav. &amp; Frag. J.</i> 8: 331-7.  |

| Plant               | Part  | Low PPM | High PPM | StdDev               | Reference   |
|---------------------|-------|---------|----------|----------------------|---|
| Thymus cilicicus    | Shoot | 940     | 940      | -0.12195910555225356 | 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 | 1135    | 1135     | -0.11463135248149939 | 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 | --      | 1135     | -0.11463135248149939 | 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 | 3       | 3        | -0.15716989851274923 | 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        | -0.15728263317537622 | 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 | --      | 3        | -0.15716989851274923 | 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 | 1       | 450      | -0.42527914589418986 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.  |
| Thymus orospedanus  | Plant | 718     | 718      | -0.28909225247843784 | J. Nat. Prod.   |
| Thymus riatarum     | Shoot | 25      | 25       | -0.15634317765348466 | 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 saturejoides | Shoot | 10      | 10       | -0.15690685096661958 | Tantaoui-Elaraki, A., Lattaoui, N., Errifi, A. and Benjilali, 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 | 5       | 45       | -0.6310839661679942  | J. Ethnopharmacology, 39: 167.  |

| Plant                | Part                | Low PPM | High PPM | StdDev               | Reference  |
|----------------------|---------------------|---------|----------|----------------------|--|
| Thymus x citriodorus | Plant               | 20      | 20       | -0.6437879674194636  | 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. &amp; Fragr. J.</i> 10: 225-229.                  |
| Thymus zygis         | Shoot               | 0.1     | 390      | -0.14262712703386787 | De Cunha, A.P. and Salguiero, L.R. 1991. The Chemical Polymorphism of <i>Thymus zygis</i> ssp. <i>sylvestris</i> from Central Portugal. <i>J. Ess. Oil Res.</i> 3: 409-12.   |
| Thymus zygis         | Shoot               | 19      | 19       | -0.15656864697873862 | Jimenez, J., Navarro, M.C., Montilla, M.P., Martin, A. and Martinez, A. 1993. <i>Thymus zygis</i> Oil: Its Effects on CCl <sub>4</sub> -Induced Hepatotoxicity and Free Radical Scavenger Activity. <i>JEO5</i> : 153-8. |
| Thymus zygis         | Shoot               | --      | 19       | -0.15656864697873862 | Jimenez, J., Navarro, M.C., Montilla, M.P., Martin, A. and Martinez, A. 1993. <i>Thymus zygis</i> Oil: Its Effects on CCl <sub>4</sub> -Induced Hepatotoxicity and Free Radical Scavenger Activity. <i>JEO5</i> : 153-8. |
| Vitex agnus-castus   | Leaf                | --      | --       |                      | Jim Duke's personal files.   |
| Vitex agnus-castus   | Flower              | --      | --       |                      | Jim Duke's personal files.   |
| Vitex agnus-castus   | Fruit               | 80      | 800      | 0.6644584615595209   | Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. <i>Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D)</i> , 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.       |
| Zingiber officinale  | Rhizome             | 1       | 60       |                      | Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.   |
| Zingiber officinale  | Rhizome Essent. Oil | --      | 1200     | 1                    | --   |