

## Dr. Duke's Phytochemical and Ethnobotanical Databases

### Chemicals found in Coffea arabica

| Activities Count | Chemical                   | Plant Part | Low PPM | High PPM | StdDev | Reference Citation   |
|------------------|----------------------------|------------|---------|----------|--------|--|
| 0                | 10-O-METHYLCAFFESTOL       | Seed       |         |          |        | --   |
| 0                | 2,3,5-TRIMETHYLPHENOL      | Seed       |         |          |        | Jim Duke's personal files.   |
| 0                | 2-ETHYLPHENOL              | Seed       |         |          |        | Jim Duke's personal files.   |
| 0                | 2-METHOXY-4-ETHYLPHENOL    | Seed       |         |          |        | Jim Duke's personal files.   |
| 0                | 24-METHYLENE-CYCLOARTENOL  | Seed       |         |          |        | --   |
| 0                | 24-METHYLENEPHENOL         | Seed       |         |          |        | --   |
| 2                | 3,4-DICAFFEOYL-QUINIC-ACID | Seed       |         |          |        | --   |
| 3                | 3,5-DICAFFEOYL-QUINIC-ACID | Seed       |         |          |        | --   |
| 0                | 4,5-DICAFFEOYL-QUINIC-ACID | Seed       |         |          |        | --   |
| 0                | 4-ETHYLPHENOL              | Seed       |         |          |        | Jim Duke's personal files.   |
| 0                | 4-METHOXY-4-VINYLPHENOL    | Seed       |         |          |        | Jim Duke's personal files.   |
| 0                | 5-AVENASTEROL              | Seed       |         |          |        | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 0                | 7-STIGMASTEROL             | Seed       |         |          |        | --   |
| 6                | ACETALDEHYDE               | Seed       |         |          |        | --   |
| 11               | ADENINE                    | Seed       |         |          |        | --   |
| 0                | ALLANTOIC-ACID             | Leaf       |         |          |        | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 12               | ALLANTOIN                  | Leaf       |         |          |        | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 32               | ALPHA-TOCOPHEROL           | Seed       |         |          |        | Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.  |
| 0                | ARABINO GALACTOSE          | Seed       |         |          |        | --   |
| 0                | ARABINOSE                  | Seed       |         |          |        | --   |

| Activities Count | Chemical                | Plant Part | Low PPM | High PPM | StdDev               | Reference Citation   |
|------------------|-------------------------|------------|---------|----------|----------------------|--|
| 0                | ARACHIDIC-ACID          | Seed       |         |          |                      | --   |
| 0                | ASH                     | Seed       |         | 37400.0  | -0.31521697993801695 | --   |
| 2                | ASPARAGINE              | Seed       |         |          |                      | --   |
| 3                | ASPARTIC-ACID           | Seed       |         |          |                      | --   |
| 0                | ATRACTYLIGENIN          | Seed       |         |          |                      | --   |
| 53               | BETA-CAROTENE           | Leaf       | 20.0    | 25.0     | -1.0290654853904624  | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 47               | BETA-SITOSTEROL         | Seed       | 520.0   | 530.0    | -0.42759619083407946 | --   |
| 0                | BETA-TOCOPHEROL         | Seed       |         |          |                      | Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.                              |
| 0                | CAFESTEROL              | Seed       |         |          |                      | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 2                | CAFESTOL                | Seed       |         | 6000.0   |                      | --   |
| 102              | CAFFEIC-ACID            | Fruit      |         |          |                      | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 102              | CAFFEIC-ACID            | Leaf       |         |          |                      | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.                             |
| 62               | CAFFEINE                | Seed       | 600.0   | 32000.0  | 0.32954849831842203  | --   |
| 0                | CAFFEOL                 | Seed       |         |          |                      | --   |
| 0                | CAFFEYOYL-3-QUINIC-ACID | Seed       |         |          |                      | --   |
| 0                | CAFFETANNIC-ACID        | Seed       |         | 84600.0  |                      | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.                             |
| 0                | CAHWEOL                 | Seed       |         |          |                      | --   |

| Activities Count | Chemical         | Plant Part | Low PPM  | High PPM | StdDev              | Reference Citation   |
|------------------|------------------|------------|----------|----------|---------------------|--|
| 28               | CALCIUM          | Seed       | 1200.0   | 1281.0   | -0.5262569010113829 | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 28               | CALCIUM          | Leaf       | 19000.0  | 20406.0  | 0.1345247907090656  | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 0                | CAMOESTANOL      | Seed       |          |          |                     | --   |
| 0                | CAMPESTANOL      | Seed       |          |          |                     | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 2                | CAMPESTEROL      | Seed       | 110.0    | 120.0    | -0.3742741742761247 | --   |
| 0                | CAPRINIC-ACID    | Seed       |          |          |                     | --   |
| 0                | CARBOHYDRATES    | Seed       | 600000.0 | 728000.0 | 0.8131126460843718  | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0                | CARBOHYDRATES    | Leaf       | 666000.0 | 712000.0 | 0.7964570524747036  | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0                | CARNAUBIC-ACID   | Seed       |          |          |                     | --   |
| 1                | CELLULOSE        | Seed       |          |          |                     | --   |
| 77               | CHLOROGENIC-ACID | Seed       | 50000.0  | 80000.0  | 2.099473455662158   | --   |
| 0                | CHOLESTANOL      | Seed       |          |          |                     | --   |
| 1                | CHOLESTEROL      | Seed       |          |          |                     | --   |
| 20               | CHOLINE          | Seed       |          | 300.0    | -1.291686985764833  | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 23               | CITRIC-ACID      | Seed       |          |          |                     | --   |
| 1                | CITROSTADIENOL   | Seed       |          |          |                     | --   |
| 0                | COFFEASTEROL     | Seed       |          |          |                     | --   |
| 7                | CYANIDIN         | Plant      |          |          |                     | --   |
| 3                | CYCLOEUCALENOL   | Seed       |          |          |                     | --   |
| 13               | CYSTEINE         | Seed       |          |          |                     | --   |

| Activities Count | Chemical                                | Plant Part | Low PPM  | High PPM | StdDev              | Reference Citation   |
|------------------|---|------------|----------|----------|---------------------|--|
| 2                | CYSTINE                                 | Seed       |          |          |                     | --   |
| 0                | DATURIC-ACID                            | Seed       |          |          |                     | --   |
| 0                | DEXTRINS                                | Seed       |          | 8700.0   |                     | --   |
| 0                | DIHYDROLANASTEROL                       | Seed       |          |          |                     | --   |
| 0                | DIHYDROSITOSTEROL                       | Seed       |          |          |                     | --   |
| 0                | DIMETHYL-5-ALPHA-CHOLEST-7-EN-3-BETA-OL | Seed       |          |          |                     | --   |
| 0                | DIMETHYL-5-ALPHA-CHOLEST-8-EN-3-BETA-OL | Seed       |          |          |                     | --   |
| 0                | ENT-16-KAUREN-19-OL                     | Plant      |          |          |                     | J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.   |
| 0                | EO                                      | Seed       | 1000.0   | 2000.0   | -0.5252163822922106 | --   |
| 76               | EUGENOL                                 | Seed       |          |          |                     | Jim Duke's personal files.   |
| 0                | FAT                                     | Leaf       | 55000.0  | 59000.0  | 0.05057198773678454 | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 0                | FAT                                     | Seed       | 74000.0  | 170000.0 | -0.5024405631299633 | --   |
| 15               | FIBER                                   | Seed       | 229000.0 | 244000.0 | 0.8624290700798181  | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 15               | FIBER                                   | Leaf       | 175000.0 | 187000.0 | 0.3149049121779396  | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 0                | FUFURYL-ALCOHOL                         | Seed       |          |          |                     | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0                | FURFURALDEHYDE                          | Seed       |          |          |                     | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0                | GALACTAN                                | Seed       |          |          |                     | --   |
| 0                | GALACTOMANNAN                           | Seed       |          |          |                     | --   |
| 0                | GAMMA-SITOSTEROL                        | Seed       |          |          |                     | --   |

| Activities Count | Chemical            | Plant Part | Low PPM | High PPM | StdDev              | Reference Citation   |
|------------------|---------------------|------------|---------|----------|---------------------|--|
| 14               | GAMMA-TOCOPHEROL    | Seed       |         |          |                     | Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.                              |
| 0                | GLUCOGALACTOMANNAN  | Seed       |         |          |                     | --   |
| 8                | GLUTAMIC-ACID       | Seed       |         |          |                     | Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.                              |
| 18               | GUAIACOL            | Seed       |         |          |                     | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 0                | GUANOSINE           | Seed       |         |          |                     | --   |
| 0                | HEMICELLULOSE       | Seed       |         |          |                     | --   |
| 0                | HOMOCCELLULOSE      | Seed       |         |          |                     | --   |
| 0                | HYDROGEN-SULFIDE    | Seed       |         |          |                     | --   |
| 0                | HYPOXANTHINE        | Seed       |         |          |                     | --   |
| 6                | IRON                | Seed       | 29.0    | 31.0     | -0.5565954591757142 | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 6                | IRON                | Leaf       | 966.0   | 1032.0   | 1.6952709840911955  | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 4                | ISOCHLOROGENIC-ACID | Seed       |         |          |                     | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 16               | ISOEUGENOL          | Seed       |         |          |                     | Jim Duke's personal files.   |
| 0                | KAHWEOL             | Seed       |         | 3000.0   |                     | --   |
| 0                | L-ASPARAGINE        | Fruit      |         |          |                     | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |

| Activities Count | Chemical                                 | Plant Part | Low PPM | High PPM | StdDev               | Reference Citation   |
|------------------|--|------------|---------|----------|----------------------|--|
| 0                | L-ASPARTIC-ACID                          | Fruit      |         |          |                      | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 1                | LANOSTEROL                               | Seed       |         |          |                      | Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.                              |
| 1                | LIGNOCERIC-ACID                          | Seed       |         |          |                      | --   |
| 27               | LINOLEIC-ACID                            | Seed       |         |          |                      | --   |
| 0                | LINOLENIC-ACID                           | Seed       | 33300.0 | 72000.0  | 0.6770794300897944   | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.                             |
| 8                | M-CRESOL                                 | Seed       |         |          |                      | Jim Duke's personal files.   |
| 0                | MANNAN                                   | Seed       |         |          |                      | --   |
| 3                | MANNOSE                                  | Seed       |         |          |                      | --   |
| 15               | METHIONINE                               | Seed       |         |          |                      | --   |
| 0                | METHYL-1-5-ALPHA-STIGMAST-7-EN-3-BETA-OL | Seed       |         |          |                      | --   |
| 6                | MYRISTIC-ACID                            | Seed       |         |          |                      | --   |
| 1                | N-NONACOSANE                             | Seed       |         |          |                      | Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.                              |
| 39               | NIACIN                                   | Leaf       | 52.0    | 56.0     | -0.5047983115442195  | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 39               | NIACIN                                   | Seed       | 13.0    | 14.0     | -0.8646782329499472  | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 0                | NITROGEN                                 | Seed       | 16000.0 | 23000.0  | -0.08890229552415746 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.                             |
| 6                | O-CRESOL                                 | Seed       |         |          |                      | Jim Duke's personal files.   |
| 0                | O-XYLENOL                                | Seed       |         |          |                      | Jim Duke's personal files.   |

| Activities Count | Chemical        | Plant Part | Low PPM | High PPM | StdDev               | Reference Citation   |
|------------------|-----------------|------------|---------|----------|----------------------|--|
| 0                | OBTUSIFOLIOL    | Seed       |         |          |                      | --   |
| 18               | OLEIC-ACID      | Seed       | 5920.0  | 12800.0  | -0.8738766959416714  | --   |
| 9                | OXALIC-ACID     | Fruit      |         | 154.0    | -0.2978571100852865  | Watt, J.M. and Breyer-Brandwijk, M.G. 1962. The Medicinal and Poisonous Plants of Southern and Eastern Africa. E. & S. Livingstone, Ltd. Edinburg & London. 1457 pp. |
| 25               | P-COUMARIC-ACID | Plant      |         |          |                      | --   |
| 8                | P-CRESOL        | Seed       |         |          |                      | Jim Duke's personal files.   |
| 0                | P-XYLENOL       | Seed       |         |          |                      | Jim Duke's personal files.   |
| 13               | PALMITIC-ACID   | Seed       |         | 23680.0  | -0.21100581460020332 | --   |
| 24               | PECTIN          | Seed       |         |          |                      | --   |
| 0                | PENTOSANE       | Seed       |         |          |                      | --   |
| 0                | PENTOSANS       | Seed       |         |          |                      | --   |
| 4                | PHOSPHORUS      | Seed       | 1780.0  | 1900.0   | -0.9125797887501755  | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 4                | PHOSPHORUS      | Leaf       | 1700.0  | 1816.0   | -0.580562542862247   | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 0                | PHYTATE         | Seed       | 7.0     | 370.0    | -1.5315645120943797  | --   |
| 2                | PHYTOSTEROLS    | Seed       | 920.0   | 940.0    | -0.39269135400530825 | Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)   |
| 0                | POLYAMINES      | Seed       |         |          |                      | Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.  |
| 0                | PROTEIN         | Seed       | 98700.0 | 140000.0 | -0.8343645955506414  | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.   |
| 0                | PROTEIN         | Leaf       |         | 99000.0  | -1.1257384013756186  | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |

| Activities Count | Chemical     | Plant Part | Low PPM | High PPM | StdDev               | Reference Citation   |
|------------------|--------------|------------|---------|----------|----------------------|--|
| 0                | PUTRESCINE   | Seed       |         |          |                      | Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980. |
| 1                | RAFFINOSE    | Seed       |         |          |                      | --   |
| 0                | RHAMNOSE     | Seed       |         |          |                      | --   |
| 15               | RIBOFLAVIN   | Seed       |         | 1.0      | -0.9674166926890354  | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 15               | RIBOFLAVIN   | Leaf       |         | 2.0      | -0.16848655199175794 | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 0                | SACCHAROSE   | Seed       |         |          |                      | --   |
| 7                | SALICYLATES  | Seed       | 0.0     | 10.0     | -0.2865247216874145  | --   |
| 44               | SCOPOLETIN   | Seed       |         |          |                      | --   |
| 9                | SINAPIC-ACID | Plant      |         |          |                      | --   |
| 1                | SPERMIDINE   | Seed       |         |          |                      | Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980. |
| 1                | SPERMINE     | Seed       |         |          |                      | Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980. |
| 10               | SQUALENE     | Seed       |         |          |                      | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.     |
| 1                | STACHYOSE    | Seed       |         |          |                      | --   |
| 8                | STEARIC-ACID | Seed       | 5920.0  | 12800.0  | -0.28767350524597596 | --   |
| 12               | STIGMASTEROL | Seed       | 240.0   | 270.0    | -0.18717042991843028 | --   |
| 0                | SUGAR        | Seed       |         | 4300.0   | -0.9041931273600093  | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.     |
| 41               | TANNIC-ACID  | Seed       |         |          |                      | --   |
| 35               | TANNIN       | Seed       |         | 90000.0  | 0.12467231877609526  | --   |



| Activities Count | Chemical        | Plant Part | Low PPM | High PPM | StdDev               | Reference Citation   |
|------------------|-----------------|------------|---------|----------|----------------------|--|
| 0                | TETRACOSIC-ACID | Seed       |         |          |                      | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 21               | THEOBROMINE     | Seed       | 18.0    | 20.0     | -0.49992618078868906 | --   |
| 21               | THEOBROMINE     | Leaf       |         |          |                      | --   |
| 36               | THEOPHYLLINE    | Seed       |         | 5.0      | -0.8086779488341806  | --   |
| 36               | THEOPHYLLINE    | Leaf       |         |          |                      | --   |
| 31               | THIAMIN         | Seed       |         | 2.0      | -1.0937002421726418  | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 15               | TRIGONELLINE    | Seed       | 3000.0  | 13000.0  | 2.6975560988319325   | --   |
| 0                | WATER           | Seed       | 60000.0 | 100000.0 | -0.4896816688601282  | --   |
| 0                | WAX             | Seed       | 10000.0 | 14000.0  | 1.2675004445952587   | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 1                | XANTHINE        | Seed       |         |          |                      | --   |
| 0                | XYLAN           | Seed       |         |          |                      | --   |