

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in Theobroma cacao

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|-----------------|------------|----------|----------|---------------------|--|
| 0 | CARBOHYDRATES | Fruit | 343000.0 | 816665.0 | 0.18065678536256444 | J Cell Biochem VOL. 22=1995 |
| 0 | FAT | Seed | 371000.0 | 582300.0 | 1.6692910162467098 | -- |
| 0 | WATER | Fruit | | 580000.0 | -0.8286411411444385 | J Cell Biochem VOL. 22=1995 |
| 0 | CARBOHYDRATES | Seed | 347000.0 | 445000.0 | -0.3115865270747604 | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses |
| 18 | OLEIC-ACID | Seed | 122430.0 | 227100.0 | 0.8877951296368191 | -- |
| 8 | STEARIC-ACID | Seed | 111300.0 | 215450.0 | 4.109143355899089 | -- |
| 13 | PALMITIC-ACID | Seed | 89040.0 | 180500.0 | 3.024699622330506 | -- |
| 0 | PROTEIN | Seed | 100000.0 | 180000.0 | -0.4785438804290316 | -- |
| 0 | PHENOLICS | Seed | | 130000.0 | 1.0 | Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin. |
| 0 | FAT | Fruit | 44000.0 | 104760.0 | 0.15889636363871001 | J Cell Biochem VOL. 22=1995 |
| 15 | FIBER | Fruit | 43000.0 | 102380.0 | -0.3708195428012696 | J Cell Biochem VOL. 22=1995 |
| 30 | POLYPHENOLS | Seed | 78000.0 | 100000.0 | 1.0 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | OLEO-DIPALMATIN | Seed | 76500.0 | 92800.0 | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | ASH | Fruit | 38000.0 | 90475.0 | 0.8755538014219674 | J Cell Biochem VOL. 22=1995 |
| 6 | FURFURAL | Exocarp | | 90000.0 | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 5 | STARCH | Seed | 50000.0 | 90000.0 | -0.891522967457591 | -- |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|--------------------|------------|---------|----------|----------------------|--|
| 1 | CELLULOSE | Seed | | 90000.0 | -0.23884916161035874 | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 15 | FIBER | Seed | 59000.0 | 89000.0 | -0.36147740264683753 | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses |
| 25 | OPCS | Seed | | 80000.0 | | -- |
| 0 | TANNINS | Seed | | 75400.0 | 0.46682727652711586 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 5 | STARCH | Hb | | 60000.0 | | -- |
| 0 | POLYHYDROXYPHENOLS | Seed | 20000.0 | 60000.0 | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 0 | PURINE | Seed | 30000.0 | 40000.0 | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 0 | ALKALOIDS | Seed | 30000.0 | 40000.0 | 1.258570715061275 | -- |
| 0 | SUGARS | Seed | 20000.0 | 40000.0 | -0.4051939134225381 | Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin. |
| 1 | CATECHINS | Seed | 30000.0 | 40000.0 | 1.0 | -- |
| 14 | SUCROSE | Seed | 18000.0 | 37000.0 | -0.17153022515909322 | -- |
| 0 | WATER | Seed | | 36000.0 | -0.7352763653505671 | -- |
| 21 | THEOBROMINE | Seed | 10000.0 | 35000.0 | 2.234049191141325 | -- |
| 0 | LEUCOCYANIDINS | Seed | 14000.0 | 35000.0 | | -- |
| 27 | LINOLEIC-ACID | Seed | 7420.0 | 29115.0 | -0.6683734051471023 | -- |
| 0 | PROTEIN | Fruit | 12000.0 | 28570.0 | -1.0848822697889617 | J Cell Biochem VOL. 22=1995 |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|---------------|------------|---------|----------|----------------------|--|
| 0 | L-EPICATECHIN | Flower | | 27000.0 | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | NITROGEN | Seed | | 22800.0 | -0.10548081217201899 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | PENTOSANS | Seed | | 15000.0 | -1.3271673489237144 | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 0 | PURINE | Root | | 14000.0 | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 21 | THEOBROMINE | Testa | 936.0 | 13000.0 | 1.0376929371594854 | -- |
| 62 | CAFFEINE | Seed | 500.0 | 12900.0 | -0.4658272368460845 | -- |
| 27 | LINOLEIC-ACID | Plant | 10700.0 | 12230.0 | -0.39147043061187325 | -- |
| 3 | ALANINE | Seed | | 10400.0 | 0.051822040311835675 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 8 | GLUTAMIC-ACID | Seed | | 10200.0 | -1.3295703563860357 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | ALKALOIDS | Leaf | | 10000.0 | 0.062309440096893175 | Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin. |
| 0 | OXALATES | Seed | 6000.0 | 10000.0 | | -- |
| 1 | SERINE | Seed | | 8800.0 | -0.3400469562928065 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|--------------------|------------|---------|----------|----------------------|--|
| 23 | CITRIC-ACID | Seed | 4500.0 | 7500.0 | 0.007355725552878182 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | PROLINE | Seed | | 7200.0 | -0.8125279763894483 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 16 | ACETIC-ACID | Seed | 1520.0 | 7100.0 | 1.3864579714312821 | -- |
| 3 | VALINE | Seed | | 5700.0 | -0.7773276247624422 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 8 | TYROSINE | Seed | | 5700.0 | -0.4728461096051886 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 7 | PHENYLALANINE | Seed | | 5600.0 | -0.7093928366416996 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 3 | ISOLEUCINE | Seed | | 5600.0 | -0.624169861411402 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 4 | PHOSPHORUS | Seed | 3600.0 | 5571.0 | 0.05751506388486866 | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses |
| 0 | KILOCALORIES | Fruit | 531.0 | 5310.0 | 2.5052266068859748 | J Cell Biochem VOL. 22=1995 |
| 0 | CYANIDIN-GLYCOSIDE | Seed | 4000.0 | 5000.0 | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 9 | OXALIC-ACID | Seed | 1520.0 | 5000.0 | 0.3447985152060364 | -- |
| 4 | PHOSPHORUS | Fruit | 500.0 | 5000.0 | 0.5418734067690828 | J Cell Biochem VOL. 22=1995 |
| 36 | THEOPHYLLINE | Seed | 0.0 | 4739.0 | 1.7330040388042545 | -- |
| 2 | LEUCINE | Plant | | 4500.0 | -0.9511481830727361 | -- |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|---------------------------------|------------|---------|----------|---------------------|--|
| 30 | ANTHOCYANINS | Seed | | 4000.0 | 1.0 | Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin. |
| 0 | PHOSPHOLIPIDS | Plant | 255.0 | 3319.0 | -1.7600853913673296 | -- |
| 0 | PHOSPHOLIPIDS | Seed | 255.0 | 3319.0 | -0.6578549027249627 | Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp. |
| 28 | CALCIUM | Fruit | 1300.0 | 3095.0 | -0.1756747356051228 | J Cell Biochem VOL. 22=1995 |
| 7 | GLUCOSE | Seed | 1000.0 | 3000.0 | -0.5077819441641488 | -- |
| 1 | CHOLESTEROL | Oil | 0.0 | 2800.0 | 1.0 | Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp. |
| 8 | FRUCTOSE | Seed | | 2000.0 | -0.5987994606248948 | -- |
| 4 | THREONINE | Seed | | 1400.0 | -1.5071309379745554 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 2 | PHOSPHATIDYL-CHOLINE | Seed | 92.0 | 1328.0 | -1.0 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 28 | CALCIUM | Seed | 800.0 | 1100.0 | -0.5594989895943375 | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses |
| 0 | 3-ALPHA-L-ARABINOSIDYL-CYANIDIN | Seed | | 1000.0 | | -- |
| 0 | 3-BETA-D-GALACTOSIDYL-CYANIDIN | Seed | | 1000.0 | | -- |
| 12 | GLYCINE | Seed | | 900.0 | -1.4533713326030981 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|----------------|------------|---------|----------|----------------------|--|
| 4 | LYSINE | Seed | | 800.0 | -1.5304571248204542 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 7 | HISTIDINE | Seed | | 800.0 | -1.4153953454644674 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 14 | ARGININE | Seed | | 800.0 | -1.009489821300081 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 62 | CAFFEINE | Testa | 130.0 | 723.0 | 1.364120501373702 | -- |
| 0 | PHYTATE | Seed | 10.0 | 530.0 | -1.5112480559438948 | Phytate in Food. Harland & Oberleas. Wld. Rev. Nutr. Diet, 52: 235-259. |
| 36 | THEOPHYLLINE | Testa | 130.0 | 257.0 | 1.0617119603565899 | -- |
| 62 | CAFFEINE | Petiole | 51.0 | 252.0 | 1.3383130789607725 | -- |
| 21 | THEOBROMINE | Petiole | 174.0 | 223.0 | 1.2182825031280367 | -- |
| 36 | THEOPHYLLINE | Petiole | 58.0 | 188.0 | 0.1867718419094071 | -- |
| 0 | CHLORIDE | Seed | | 120.0 | -0.6613721823540172 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 112 | ASCORBIC-ACID | Fruit | 30.0 | 70.0 | -0.2801366159826427 | J Cell Biochem VOL. 22=1995 |
| 39 | NIACIN | Seed | 17.0 | 50.0 | 0.21294979342958875 | -- |
| 39 | NIACIN | Fruit | 19.0 | 45.0 | -0.20985653043855088 | J Cell Biochem VOL. 22=1995 |
| 1 | (-)-SALSOLINOL | Seed | 0.007 | 40.0 | | -- |
| 0 | IRON-OXIDE | Seed | | 40.0 | -1.0 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 6 | IRON | Seed | 36.0 | 37.0 | -0.5287176209786577 | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses |
| 112 | ASCORBIC-ACID | Seed | | 31.0 | -0.3198458318942361 | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|--------------------------------|------------|---------|----------|----------------------|--|
| 12 | COPPER | Seed | | 24.0 | 0.8331720560940928 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | BETA-PHENYLETHYLAMINE | Seed | 0.0 | 22.0 | | -- |
| 2 | NICOTINAMIDE | Seed | | 21.0 | -1.0 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 11 | PANTOTHENIC-ACID | Seed | 13.0 | 20.0 | 0.34109708334068634 | -- |
| 0 | EO | Plant | | 10.0 | -0.7393686069051985 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 53 | LINALOOL | Seed | | 5.0 | -0.5895891599202989 | -- |
| 0 | LINALOL | Seed | | 5.0 | -0.6999883964509279 | -- |
| 31 | THIAMIN | Fruit | 1.8 | 4.2 | -0.14499283258341247 | J Cell Biochem VOL. 22=1995 |
| 15 | RIBOFLAVIN | Seed | 1.0 | 4.0 | 0.18234587940570884 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 15 | RIBOFLAVIN | Fruit | 1.6 | 3.8 | -0.25899158592219057 | J Cell Biochem VOL. 22=1995 |
| 31 | THIAMIN | Seed | 1.0 | 3.0 | -0.8551170555321612 | -- |
| 43 | PYRIDOXINE | Seed | | 1.0 | -1.1536599429026273 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 5 | PHYLLOQUINONE | Seed | | 0.02 | -1.1351915229662497 | -- |
| 7 | SALICYLATES | Seed | | 0.0 | -0.3401776874861938 | -- |
| 0 | 3-BETA-D-GALACTOSIDYL-CYANIDIN | Leaf | | | | -- |
| 11 | NICOTINIC-ACID | Plant | | | | -- |
| 1 | VERBASCOSIDE | Seed | | | | -- |
| 4 | RUTOSIDE | Leaf | | | | -- |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|--------------------------------|-----------------|---------|----------|--------|--|
| 0 | MANNAN | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 1 | GLYCERIN | Plant | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 176 | QUERCETIN | Leaf | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | D-GALACTOSE | Plant | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 53 | BETA-CAROTENE | Plant | | | | -- |
| 12 | STIGMASTEROL | Plant | | | | -- |
| 1 | CHRYSOERIOLO-7-O-GLUCOSIDE | Plant | | | | J.S. Glasby Dict. Pls Containing 2ndary Metabolite. 1991. |
| 3 | AMYL-BUTYRATE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 11 | TYRAMINE | Seed | | | | -- |
| 25 | P-COUMARIC-ACID | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 8 | LACTIC-ACID | Seed | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 2 | CAMPESTEROL | Sprout Seedling | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 4 | TRYPTAMINE | Seed | | | | -- |
| 0 | 3-BETA-D-GALACTOSIDYL-CYANIDIN | Flower | | | | -- |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|-------------------|-----------------|---------|----------|--------|--|
| 0 | LINOLENIC-ACID | Plant | | | | Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin. |
| 0 | INVERTASE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 24 | VANILLIC-ACID | Seed | | | | -- |
| 87 | RUTIN | Leaf | | | | -- |
| 61 | FERULIC-ACID | Seed | | | | -- |
| 0 | HAEMATIN | Seed | | | | Grenand, P., Moretti, C., and Jacquemin, H. 1987. Pharmacopees Traditionnelles en Guyane. I'ORSTROM, Paris. 569 pp. |
| 0 | MALEIC-ACID | Plant | | | | -- |
| 0 | CYCLOARTANOL | Sprout Seedling | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 0 | ASPARIGINASE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | OXALURIC-ACID | Plant | | | | Gruenwald, J. et al. 1998. PDR for Herbal Medicine. 1st ed. Medical Economics Co., Montvale, NJ. 1244 pp. (abbreviated as PHR or Physicians Herbal Reference in my mind) |
| 2 | PHENYLACETIC-ACID | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | STEARODIOLEIN | Seed | | | | Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980. |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|-------------------------|------------|---------|----------|--------|--|
| 0 | POLYPHENOL-OXIDASE | Plant | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 1 | CHOLESTEROL | Plant | | | | -- |
| 1 | AMYL-ALCOHOL | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | PROPYL-ACETATE | Seed | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 0 | P-ANISIC-ACID | Seed | | | | Jim Duke's personal files. |
| 0 | L-EPICATECHIN | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 26 | SEROTONIN | Seed | | | | -- |
| 0 | IDAEIN | Flower | | | | Chemical Constituents of Oriental Herbs (3 diff. books) |
| 0 | LYSOPHOSPHATIDYLCHOLINE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 36 | THEOPHYLLINE | Plant | | | | -- |
| 0 | METHYL-STEROLS | Seed | | | | Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp. |
| 0 | PEROXIDASE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 8 | STEARIC-ACID | Plant | | | | -- |
| 0 | POLYGALACTURONATE | Plant | | | | -- |
| 77 | CHLOROGENIC-ACID | Leaf | | | | -- |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|---------------------------------|------------|---------|----------|--------|--|
| 0 | AMYL-ACETATE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | GALLOCATECHIN | Plant | | | | -- |
| 0 | 3-ALPHA-L-ARABINOSIDYL-CYANIDIN | Leaf | | | | -- |
| 1 | BEHENIC-ACID | Plant | | | | Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin. |
| 0 | I-BUTYRIC-ACID | Plant | | | | -- |
| 9 | VALERIC-ACID | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 8 | GENTISIC-ACID | Leaf | | | | -- |
| 0 | CYANIDIN-3-GALACTOSIDE | Seed | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 0 | ASCORBIC-ACID-OXIDASE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 20 | LECITHIN | Seed | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 0 | PENTOSE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | PLANTEOSE | Plant | | | | -- |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|---------------------------------|------------|---------|----------|--------|--|
| 0 | ALPHA-THEOSTEROL | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | OLEOPALMITOSTEARIN | Seed | | | | Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980. |
| 6 | EPIGALLOCATECHIN | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | 3-ALPHA-L-ARABINOSIDYL-CYANIDIN | Flower | | | | -- |
| 1 | N-NONACOSANE | Seed | | | | Grenand, P., Moretti, C., and Jacquemin, H. 1987. Pharmacopees Traditionnelles en Guyane. l'ORSTROM, Paris. 569 pp. |
| 1 | VALERIANIC-ACID | Seed | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 0 | RHAMNOSE | Plant | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 30 | ESCULETIN | Seed | | | | Grenand, P., Moretti, C., and Jacquemin, H. 1987. Pharmacopees Traditionnelles en Guyane. l'ORSTROM, Paris. 569 pp. |
| 2 | LUTEOLIN-7-O-GLUCOSIDE | Plant | | | | J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991. |
| 0 | GALACTURONIC-ACID | Plant | | | | -- |
| 43 | PROTocatechuic-ACID | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | CYANIDIN-3-GALACTOSIDE | Leaf | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|---------------------------|-----------------|---------|----------|--------|--|
| 0 | HYDROLASE | Seed | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 24 | PECTIN | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | PHYTASE | Plant | | | | -- |
| 1 | CELLULOSE | Plant | | | | -- |
| 0 | ALPHA-SITOSTEROL | Sprout Seedling | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 1 | THEOSTEROL | Testa | | | | Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin. |
| 75 | KAEMPFEROL | Leaf | | | | Grenand, P., Moretti, C., and Jacquemin, H. 1987. Pharmacopees Traditionnelles en Guyane. I'ORSTROM, Paris. 569 pp. |
| 40 | EPICATECHIN | Leaf | | | | Grenand, P., Moretti, C., and Jacquemin, H. 1987. Pharmacopees Traditionnelles en Guyane. I'ORSTROM, Paris. 569 pp. |
| 34 | PROANTHOCYANIDINS | Plant | | | | Gruenwald, J. et al. 1998. PDR for Herbal Medicine. 1st ed. Medical Economics Co., Montvale, NJ. 1244 pp. (abbreviated as PHR or Physicians Herbal Reference in my mind) |
| 5 | 24-METHYLENE-CYCLOARTANOL | Sprout Seedling | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|-------------------------------|------------|---------|----------|--------|--|
| 1 | N-BUTYLACETATE | Seed | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 0 | HAEMIN | Plant | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 0 | REDUCTASE | Plant | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 5 | ERGOSTEROL | Seed | | | | Grenand, P., Moretti, C., and Jacquemin, H. 1987. Pharmacopees Traditionnelles en Guyane. I'ORSTROM, Paris. 569 pp. |
| 78 | LUTEOLIN | Plant | | | | J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991. |
| 0 | FURFUROL | Seed | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 0 | PROTEINASE | Seed | | | | -- |
| 0 | CYANIDIN-3-BETA-L-ARABINOSIDE | Seed | | | | -- |
| 77 | CHLOROGENIC-ACID | Seed | | | | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 1 | STACHYOSE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | CELLULASE | Plant | | | | -- |
| 4 | ISOVITEXIN | Plant | | | | J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991. |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|-------------------------------|------------|---------|----------|--------|--|
| 3 | XYLOSE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | METHYL-HEPTENONE | Seed | | | | Grenand, P., Moretti, C., and Jacquemin, H. 1987. Pharmacopees Traditionnelles en Guyane. l'ORSTROM, Paris. 569 pp. |
| 0 | HAEMATIN | Plant | | | | -- |
| 11 | TYRAMINE | Plant | | | | -- |
| 1 | RAFFINOSE | Plant | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 8 | FRUCTOSE | Plant | | | | -- |
| 0 | CYANIDIN-3-BETA-L-ARABINOSIDE | Leaf | | | | -- |
| 0 | CATECHIN-TANNINS | Seed | | | | -- |
| 0 | PALMITODIOLIN | Seed | | | | Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980. |
| 0 | LIPASE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 9 | SINAPIC-ACID | Plant | | | | -- |
| 22 | CATECHOL | Plant | | | | Grenand, P., Moretti, C., and Jacquemin, H. 1987. Pharmacopees Traditionnelles en Guyane. l'ORSTROM, Paris. 569 pp. |
| 26 | SEROTONIN | Plant | | | | -- |
| 0 | OCTOIC-ACID | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 4 | ISOPROPYL-ACETATE | Plant | | | | -- |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|----------------------------|------------|---------|----------|--------|--|
| 12 | STIGMASTEROL | Seed | | | | Grenand, P., Moretti, C., and Jacquemin, H. 1987. Pharmacopees Traditionnelles en Guyane. I'ORSTROM, Paris. 569 pp. |
| 0 | MESO-INOSITOL | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | GLYCOSIDASE | Plant | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 15 | TRIGONELLINE | Seed | | | | Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980. |
| 0 | RAFFINASE | Plant | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 20 | DOPAMINE | Seed | | | | Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980. |
| 102 | CAFFEIC-ACID | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 6 | TARTARIC-ACID | Seed | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 7 | CYANIDIN | Plant | | | | -- |
| 0 | ARACHIDIC-ACID | Plant | | | | -- |
| 0 | 1-BUTYRIC-ACID | Plant | | | | -- |
| 0 | PHOSPHATIDYL-INOSITOL | Plant | | | | -- |
| 0 | O-HYDROXYPHENYLACETIC-ACID | Seed | | | | Jim Duke's personal files. |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|----------------------------------|-----------------|---------|----------|--------|--|
| 0 | MELIBIOSE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 4 | GLYCOLIC-ACID | Leaf | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 44 | QUERCITRIN | Leaf | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 2 | DIACETYL | Plant | | | | -- |
| 4 | BIOTIN | Sprout Seedling | | | | -- |
| 0 | PROPYL-ACETATE | Plant | | | | -- |
| 57 | COUMARIN | Seed | | | | Grenand, P., Moretti, C., and Jacquemin, H. 1987. Pharmacopees Traditionnelles en Guyane. I'ORSTROM, Paris. 569 pp. |
| 0 | ARABINOSE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 38 | (-)-EPICATECHIN | Leaf | | | | -- |
| 0 | P-HYDROXYPHENYLACETIC-ACID | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 13 | FORMIC-ACID | Seed | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 0 | PHOSPHATIDYL-ETHANOLAMINE | Plant | | | | -- |
| 1 | CATALASE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | 4-HYDROXY-3-METHOXY-BENZOIC-ACID | Seed | | | | Jim Duke's personal files. |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|-------------------------|------------|---------|----------|--------|--|
| 2 | NONANOIC-ACID | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 3 | ISOBUTYL-ACETATE | Seed | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 18 | VITEXIN | Plant | | | | J.S. Glasby Dict.Plis Containing 2ndary Metabolite. 1991. |
| 3 | SALSOLINOL | Seed | | | | -- |
| 3 | MANNOSE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | QUERCETIN-3-O-GLUCOSIDE | Plant | | | | J.S. Glasby Dict.Plis Containing 2ndary Metabolite. 1991. |
| 0 | DEXTRINASE | Plant | | | | -- |
| 0 | BETA-THEOSTEROL | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 6 | SYRINGIC-ACID | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 6 | PROPIONIC-ACID | Seed | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 2 | APIGENIN-7-O-GLUCOSIDE | Plant | | | | J.S. Glasby Dict.Plis Containing 2ndary Metabolite. 1991. |
| 0 | GALLOCATECHIN | Seed | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 13 | P-HYDROXY-BENZOIC-ACID | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |

| Activities Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|------------------|---------------------------|-----------------|---------|----------|--------|--|
| 0 | VERBASCOTETROSE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | SACCHAROSE | Plant | | | | -- |
| 0 | PHLOBAPHENE | Plant | | | | -- |
| 0 | PHLOBAPHENE | Seed | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 0 | MANNINOTRIOSE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | GLYCEROPHOSPHATASE | Plant | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 2 | QUERCETIN-3-O-GALACTOSIDE | Plant | | | | J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991. |
| 0 | DECARBOXYLASE | Plant | | | | -- |
| 47 | BETA-SITOSTEROL | Sprout Seedling | | | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 4 | PHENYLETHYLAMINE | Seed | | | | -- |
| 14 | SUCROSE | Plant | | | | -- |
| 1 | AMYLASE | Seed | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | P-COUMARYL-QUINIC-ACID | Leaf | | | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |