

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in Brassica oleracea var. capitata I.

| Activities Count | Chemical                           | Plant Part | Low PPM | High PPM | StdDev | Refernce Citation  |
|------------------|------------------------------------|------------|---------|----------|--------|--|
| 3                | -METHOXYBRASSITIN                  | Leaf       |         | 30.0     |        | Jim Duke's personal files.   |
| 0                | 1,2-DITHIACYCLOPENT-4-ENE-3-THIONE | Leaf       |         |          |        | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 0                | 1-CYANO-2,3-EPITHIOPROPANE         | Leaf       |         |          |        | --   |
| 0                | 1-CYANO-2,3-EPITHIOPROPANE         | Plant      |         |          |        | --   |
| 0                | 1-CYANO-2-HYDROXY-3-BUTENE         | Leaf       |         |          |        | --   |
| 0                | 1-CYANO-2-HYDROXY-3-BUTENE         | Plant      |         |          |        | --   |
| 0                | 1-CYANO-3,4-EPITHIOBUTANE          | Plant      |         |          |        | --   |
| 0                | 1-CYANO-3,4-EPITHIOBUTANE          | Leaf       |         |          |        | --   |
| 0                | 1-CYANO-3,4-EPITHIOPENTANE         | Leaf       |         |          |        | --   |
| 0                | 1-CYANO-3,4-EPITHIOPENTANE         | Plant      |         |          |        | --   |
| 0                | 1-CYANO-3-METHYL-SULFINYL-PROPANE  | Plant      |         |          |        | --   |
| 0                | 1-CYANO-3-METHYL-SULFINYL-PROPANE  | Leaf       |         |          |        | --   |
| 0                | 1-CYANO-3-METHYL-THIO-PROPANE      | Leaf       |         |          |        | Jim Duke's personal files.   |
| 0                | 1-CYANO-4-METHYL-SULFINYL-BUTANE   | Leaf       |         |          |        | --   |
| 0                | 1-CYANO-4-METHYL-SULFINYL-BUTANE   | Plant      |         |          |        | --   |
| 0                | 1-CYANO-4-METHYL-THIO-BUTANE       | Leaf       |         |          |        | Jim Duke's personal files.   |
| 0                | 1-METHOXY-3-INDOYL-METHYL          | Plant      |         |          |        | --   |
| 0                | 1-METHOXY-3-INDOYL-METHYL          | Leaf       |         |          |        | --   |
| 0                | 1-METHOXY-GLUCOBRASSICIN           | Leaf       |         |          |        | Jim Duke's personal files.   |
| 0                | 1-O-FERULOYL-BETA-D-GLUCOSE        | Leaf       |         |          |        | Jim Duke's personal files.   |
| 0                | 1-O-P-COUMAROYL-BETA-D-GLUCOSE     | Leaf       |         |          |        | Jim Duke's personal files.   |
| 0                | 1-O-SINAPOYL-BETA-D-GLUCOSE        | Leaf       |         |          |        | Jim Duke's personal files.   |

| Activities Count | Chemical                                | Plant Part | Low PPM | High PPM | StdDev | Reference Citation                |
|------------------|---|------------|---------|----------|--------|-----------------------------------|
| 0                | 2-HYDROXY-4-PENTENYLISOTHIOCYANATE      | Leaf       |         |          |        | --                                |
| 0                | 2,4,5-TRITHISHEXANE                     | Leaf       |         |          |        | Wealth of India.                  |
| 0                | 2-BUTANONE                              | Leaf       |         |          |        | Wealth of India.                  |
| 0                | 2-HYDROXY-1-CYANO-BUT-3-ENE             | Leaf       |         |          |        | Jim Duke's personal files.        |
| 0                | 2-HYDROXY-3-BUTENYL-GLUCOSINOLATE       | Leaf       |         |          |        | --                                |
| 0                | 2-METHOXY-PHENOL                        | Leaf       |         |          |        | --                                |
| 0                | 2-METHOXY-PHENOL                        | Plant      |         |          |        | --                                |
| 0                | 2-METHYL-THIO-PROPYL-GLUCOSINOLATE      | Leaf       |         |          |        | --                                |
| 0                | 2-PHENETHYL-CYANIDE                     | Leaf       |         |          |        | Wealth of India.                  |
| 0                | 2-PHENYL-ETHYL-GLUCOSINOLATE            | Leaf       |         |          |        | USDA's Ag Handbook 8 and sequela) |
| 0                | 2-PROPENYL-GLUCOSINOLATE                | Leaf       |         |          |        | --                                |
| 0                | 2-PROPENYL-GLUCOSINOLATE                | Plant      |         |          |        | --                                |
| 0                | 3-(METHYLTHIO)-PROPYL-ISOTHIOCYANATE    | Leaf       |         |          |        | --                                |
| 0                | 3-BUTENYL-GLUCOSINOLATE                 | Leaf       |         |          |        | --                                |
| 1                | 3-BUTENYL-ISOTHIOCYANATE                | Leaf       |         |          |        | --                                |
| 0                | 3-HYDROXY-METHYL-INDOLE                 | Leaf       |         |          |        | --                                |
| 0                | 3-INDOYL-ACETONITRILE                   | Leaf       |         |          |        | Wealth of India.                  |
| 0                | 3-INDOYL-METHYL-GLUCOSINOLATE           | Plant      |         |          |        | --                                |
| 0                | 3-INDOYL-METHYL-GLUCOSINOLATE           | Leaf       |         |          |        | --                                |
| 0                | 3-METHYL-SULFINYL-PROPYL-GLUCOSINOLATE  | Leaf       |         |          |        | --                                |
| 0                | 3-METHYL-SULFINYL-PROPYL-ISOTHIOCYANATE | Leaf       |         |          |        | --                                |
| 0                | 3-METHYL-THIO-PROPYL-CYANIDE            | Leaf       |         |          |        | Wealth of India.                  |

| Activities Count | Chemical   | Plant Part | Low PPM | High PPM | StdDev | Reference Citation         |
|------------------|--|------------|---------|----------|--------|----------------------------|
| 0                | 3-O-(2-O-{BETA-D-GLUCOPYRANOSYL})-6-O-(4-O-{BETA-D-GLUCOPYRANOSYL})-5-O-BETA-D-GLUCOPYRANOSYL)...CYANIDIN      | Leaf       |         | 16.0     |        | Jim Duke's personal files. |
| 0                | 3-O-(2-O-{BETA-D-GLUCOPYRANOSYL})-6-O-(4-O-{BETA-D-GLUCOPYRANOSYL})TRANS-FERULYL)...CYANIDIN                   | Leaf       |         | 0.5      |        | Jim Duke's personal files. |
| 0                | 3-O-(2-O-{BETA-D-GLUCOPYRANOSYL})-6-O-(4-O-{BETA-D-GLUCOPYRANOSYL})TRANS-P-COUMARYL)...CYANIDIN                | Leaf       |         | 0.3      |        | Jim Duke's personal files. |
| 0                | 3-O-(6-O-{TRANS-FERULYL})-2-O-BETA-D-GLUCOPYRANOSYL)...CYANIDIN  | Leaf       |         | 0.2      |        | Jim Duke's personal files. |
| 0                | 3-O-(6-O-{TRANS-P-COUMAROYL})-2-O-BETA-D-GLUCOPYRANOSYL)...CYANIDIN  | Leaf       |         | 27.0     |        | Jim Duke's personal files. |
| 0                | 3-O-(6-O-{TRANS-SINAPL})-2-O-(BETA-D-GLUCOPYRANOSYL)-BETA-D-GLUCOPYRANOSYL5-O-(BETA-D-GLUCOPYRANOSYL)-CYANIDIN | Leaf       |         | 0.1      |        | Jim Duke's personal files. |
| 0                | 3-PENTANONE  | Leaf       |         |          |        | Wealth of India.           |
| 0                | 4-(METHYLTHIO)-BUTYL-ISOTHIOCYANATE  | Leaf       |         |          |        | --                         |
| 0                | 4-CAFFOYLQUINIC-ACID   | Plant      |         |          |        | --                         |
| 0                | 4-CAFFOYLQUINIC-ACID   | Leaf       |         |          |        | --                         |
| 0                | 4-EPITHIOBUTANE  | Leaf       |         |          |        | Wealth of India.           |
| 1                | 4-HYDROXY-GLUCOBRASSICIN   | Leaf       |         |          |        | Jim Duke's personal files. |
| 0                | 4-HYDROXY-INDO-3-YL-METHYL-GLUCOSINOLATE   | Seed       |         |          |        | Jim Duke's personal files. |
| 0                | 4-HYDROXY-INDOYL-3-YL-METHYL-GLUCOSINOLATE   | Leaf       |         |          |        | Jim Duke's personal files. |
| 3                | 4-METHOXYBRASSININ   | Leaf       |         | 1.0      |        | Jim Duke's personal files. |

| Activities Count | Chemical                               | Plant Part | Low PPM | High PPM | StdDev               | Reference Citation                 |
|------------------|--|------------|---------|----------|----------------------|------------------------------------|
| 0                | 4-METHYL-SULFINYL-BUTYL-GLUCOSINOLATE  | Leaf       |         |          |                      | --                                 |
| 0                | 4-METHYL-SULFINYL-BUTYL-ISOTHIOCYANATE | Leaf       |         |          |                      | --                                 |
| 0                | 4-METHYL-THIO-BUTYL-CYANIDE            | Leaf       |         |          |                      | Wealth of India.                   |
| 0                | 4-METHYL-THIO-BUTYL-GLUCOSINOLATE      | Leaf       |         |          |                      | --                                 |
| 0                | 4-P-COUMAROYLQUINIC-ACID               | Plant      |         |          |                      | --                                 |
| 0                | 4-P-COUMAROYLQUINIC-ACID               | Leaf       |         |          |                      | --                                 |
| 0                | 4-PENTENYL-CYANIDE                     | Leaf       |         |          |                      | --                                 |
| 1                | 4-PENTENYL-ISOTHIOCYANATE              | Leaf       |         |          |                      | --                                 |
| 1                | 4-PENTENYL-ISOTHIOCYANATE              | Plant      |         |          |                      | --                                 |
| 0                | 5-FERULOYLQUINIC-ACID                  | Plant      |         |          |                      | --                                 |
| 0                | 5-FERULOYLQUINIC-ACID                  | Leaf       |         |          |                      | --                                 |
| 0                | 5-P-COUMAROYLQUINIC-ACID               | Plant      |         |          |                      | --                                 |
| 0                | 5-P-COUMAROYLQUINIC-ACID               | Leaf       |         |          |                      | --                                 |
| 0                | 5-VINYLOXAZOLIDINE-2-THIONE            | Plant      |         |          |                      | --                                 |
| 0                | 5-VINYLOXAZOLIDINE-2-THIONE            | Leaf       |         |          |                      | --                                 |
| 6                | ACETALDEHYDE                           | Leaf       |         |          |                      | Wealth of India.                   |
| 3                | ACETONE                                | Leaf       |         |          |                      | Wealth of India.                   |
| 3                | ALANINE                                | Leaf       | 420.0   | 5615.0   | -1.623763228742012   | USDA's Ag Handbook 8 and sequelae) |
| 0                | ALKYL-NITRILES                         | Leaf       |         |          |                      | --                                 |
| 0                | ALLYL-CYANIDE                          | Plant      |         |          |                      | --                                 |
| 0                | ALLYL-CYANIDE                          | Leaf       |         |          |                      | --                                 |
| 0                | ALLYL-GLUCOSINOLATE                    | Seed       |         |          |                      | Jim Duke's personal files.         |
| 16               | ALLYL-ISOTHIOCYANATE                   | Leaf       |         | 20.0     |                      | Jim Duke's personal files.         |
| 0                | ALPHA-AMYLASE                          | Leaf       |         |          |                      | Wealth of India.                   |
| 15               | ALPHA-LINOLENIC-ACID                   | Leaf       | 460.0   | 6150.0   | -0.16397504102874608 | USDA's Ag Handbook 8 and sequelae) |

| Activities Count | Chemical              | Plant Part      | Low PPM | High PPM | StdDev               | Reference Citation                 |
|------------------|-----------------------|-----------------|---------|----------|----------------------|------------------------------------|
| 13               | ALPHA-TERPINENE       | Shoot           |         | 14.0     | -0.4419839668650155  | --                                 |
| 23               | ALPHA-TERPINEOL       | Shoot           |         | 3.6      | -0.28212583849065603 | --                                 |
| 0                | ALPHA-THUJENE         | Shoot           |         | 18.0     | -0.23235009860030018 | --                                 |
| 32               | ALPHA-TOCOPHEROL      | Leaf            | 0.4     | 170.0    | -0.5547164006283091  | --                                 |
| 5                | ALUMINUM              | Leaf            | 1.0     | 4350.0   | 3.88787055877884     | --                                 |
| 5                | ALUMINUM              | Plant           |         |          |                      | --                                 |
| 0                | AMMONIA               | Leaf            | 3800.0  | 11060.0  | 0.15612858815626557  | Jim Duke's personal files.         |
| 0                | AMMONIA(NH3)          | Leaf            | 3800.0  | 11060.0  | 1.0                  | --                                 |
| 0                | ANILINE               | Leaf            | 1.0     | 4.0      | 1.0000000000000002   | Jim Duke's personal files.         |
| 1                | ANTHERAXANTHIN        | Leaf            |         |          |                      | Jim Duke's personal files.         |
| 0                | ANTHOXANTHINS         | Sprout Seedling |         |          |                      | Jim Duke's personal files.         |
| 14               | ARGININE              | Leaf            | 690.0   | 9225.0   | -0.6852151846414809  | USDA's Ag Handbook 8 and sequelae) |
| 2                | ARSENIC               | Leaf            | 0.004   | 0.007    | -0.8279453340767596  | --                                 |
| 112              | ASCORBIC-ACID         | Leaf            | 190.0   | 6774.0   | 0.18462078457948597  | --                                 |
| 0                | ASH                   | Leaf            | 6000.0  | 98072.0  | -0.3661126680519266  | --                                 |
| 3                | ASPARTIC-ACID         | Leaf            | 1190.0  | 15910.0  | -0.7020365569499997  | USDA's Ag Handbook 8 and sequelae) |
| 0                | BARIUM                | Leaf            | 1.0     | 87.0     | -0.8073788630571049  | --                                 |
| 1                | BENZOPHENONE          | Leaf            |         |          |                      | --                                 |
| 0                | BENZYL-AMINE          | Leaf            | 2.8     | 3.3      | -0.9021648104927832  | Jim Duke's personal files.         |
| 0                | BENZYL-GLUCOSINOLATE  | Leaf            |         |          |                      | --                                 |
| 20               | BENZYL-ISOTHIOCYANATE | Leaf            |         |          |                      | --                                 |
| 0                | BETA-AMYLASE          | Leaf            |         |          |                      | Wealth of India.                   |
| 53               | BETA-CAROTENE         | Leaf            | 0.6     | 12.0     | -1.085679790019065   | --                                 |
| 47               | BETA-SITOSTEROL       | Leaf            | 70.0    | 700.0    | -0.6989515844936766  | --                                 |
| 4                | BORON                 | Leaf            | 1.0     | 145.0    | 2.281522481918345    | --                                 |
| 3                | BRASSININ             | Leaf            |         | 1.3      |                      | Jim Duke's personal files.         |
| 0                | BROMINE               | Leaf            | 0.2     | 37.0     | -0.22008318704091276 | ACTA AGRIC SCAND SUPPL 22: 1980    |

| Activities Count | Chemical                        | Plant Part      | Low PPM | High PPM | StdDev               | Reference Citation   |
|------------------|---------------------------------|-----------------|---------|----------|----------------------|--|
| 0                | BUTANEDIONE                     | Leaf            |         |          |                      | Wealth of India.   |
| 0                | BUTENYL-CYANIDE                 | Leaf            |         |          |                      | --   |
| 0                | BUTYL-CYANIDE                   | Leaf            |         |          |                      | --   |
| 0                | BUTYL-GLUCOSINOLATE             | Leaf            |         |          |                      | --   |
| 0                | BUTYL-GLUCOSINOLATE             | Plant           |         |          |                      | --   |
| 3                | CADMIUM                         | Leaf            | 0.005   | 0.39     | -0.7049760687664525  | --   |
| 102              | CAFFEIC-ACID                    | Leaf            | 0.5     | 77.0     | -0.7052449652453338  | --   |
| 0                | CAFFEIC-ACID-4-O-BETA-GLUCOSIDE | Leaf            |         |          |                      | Jim Duke's personal files.   |
| 28               | CALCIUM                         | Leaf            | 290.0   | 19500.0  | 0.07261994398817469  | --   |
| 2                | CAMPESTEROL                     | Leaf            | 20.0    | 200.0    | 0.2661820241306193   | Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.) |
| 0                | CARBOHYDRATES                   | Leaf            | 53700.0 | 717969.0 | 0.8439262119671483   | USDA's Ag Handbook 8 and sequelae)   |
| 19               | CARVONE                         | Plant           |         |          |                      | --   |
| 19               | CARVONE                         | Leaf            |         |          |                      | --   |
| 7                | CHLORINE                        | Leaf            |         | 120.0    | -0.6424824717432082  | Wealth of India.   |
| 77               | CHLOROGENIC-ACID                | Plant           |         |          |                      | --   |
| 77               | CHLOROGENIC-ACID                | Leaf            |         |          |                      | --   |
| 20               | CHOLINE                         | Leaf            |         | 1200.0   | -0.41570896085813536 | Wealth of India.   |
| 24               | CHROMIUM                        | Leaf            | 0.001   | 8.7      | 0.09697947030973238  | --   |
| 0                | CIS-HEXEN-1-OL                  | Leaf            |         |          |                      | Wealth of India.   |
| 23               | CITRIC-ACID                     | Leaf            |         |          |                      | Jim Duke's personal files.   |
| 2                | COBALT                          | Leaf            | 0.001   | 2.9      | -0.28164862353295    | --   |
| 12               | COPPER                          | Leaf            | 0.3     | 87.0     | 1.6330864488132748   | --   |
| 10               | CROCETIN                        | Leaf            |         |          |                      | Jim Duke's personal files.   |
| 0                | CYANIDIN-3,5-DIGLUCOSIDE        | Sprout Seedling |         | 229.0    |                      | --   |

| Activities Count | Chemical  | Plant Part      | Low PPM | High PPM | StdDev              | Reference Citation   |
|------------------|---|-----------------|---------|----------|---------------------|--|
| 0                | CYANIDIN-3-(DI-P-COUMAROYL)-SOPHOROSIDE-5-GLUCOSIDE | Sprout Seedling |         | 229.0    |                     | Jim Duke's personal files.   |
| 0                | CYANIDIN-3-(DIFERULYL)-SOPHOROSIDE-5-GLUCOSIDE      | Sprout Seedling |         | 214.0    |                     | Jim Duke's personal files.   |
| 0                | CYANIDIN-3-(DISINAPYL)-SOPHOROSIDE-5-GLUCOSIDE      | Sprout Seedling |         | 257.0    |                     | Jim Duke's personal files.   |
| 0                | CYANIDIN-3-(P-COUMAROYL)-SOPHOROSIDE-5-GLUCOSIDE    | Sprout Seedling |         | 200.0    |                     | Jim Duke's personal files.   |
| 0                | CYANIDIN-3-FERULYL-SOPHOROSIDE-5-GLUCOSIDE          | Sprout Seedling |         | 243.0    |                     | Jim Duke's personal files.   |
| 0                | CYANIDIN-3-MALONYL-SOPHOROSIDE-5-GLUCOSIDE          | Sprout Seedling |         | 171.0    |                     | Jim Duke's personal files.   |
| 0                | CYANIDIN-3-SINAPYL-SOPHOROSIDE-5-GLUCOSIDE          | Sprout Seedling |         | 200.0    |                     | Jim Duke's personal files.   |
| 0                | CYANIDIN-3-SOPHOROSIDE-5-GLUCOSIDE                  | Sprout Seedling |         | 257.0    |                     | --   |
| 0                | CYANIDIN-5-O-GLUCOSIDE-3-O-SOPHOROSIDE              | Leaf            |         |          |                     | --   |
| 5                | CYANIN  | Leaf            |         |          |                     | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 3                | CYCLOBRASSININ                                      | Leaf            |         | 4.3      |                     | Jim Duke's personal files.   |
| 2                | CYSTINE   | Leaf            | 100.0   | 1337.0   | -1.3307804728746868 | USDA's Ag Handbook 8 and sequelae)   |
| 0                | DEHYDROASCORBIC-ACID                                | Shoot           |         |          |                     | Jim Duke's personal files.   |
| 0                | DIINDOLYLMETHANE                                    | Plant           |         |          |                     | --   |
| 0                | DIINDOLYLMETHANE                                    | Leaf            |         |          |                     | --   |
| 2                | DIMETHYL-AMINE                                      | Leaf            | 2.0     | 2.8      | -1.0000000000000004 | Jim Duke's personal files.   |
| 2                | DIMETHYL-DISULFIDE                                  | Leaf            |         |          |                     | Wealth of India.   |
| 0                | DIMETHYL-TRISULFIDE                                 | Leaf            |         |          |                     | Wealth of India.   |

| Activities Count | Chemical                                    | Plant Part | Low PPM | High PPM | StdDev               | Reference Citation   |
|------------------|---|------------|---------|----------|----------------------|--|
| 0                | ERYTHRO-1-CYANO-2-HYDROXY-3,4-EPITHIOBUTANE | Plant      |         |          |                      | --   |
| 0                | ERYTHRO-1-CYANO-2-HYDROXY-3,4-EPITHIOBUTANE | Leaf       |         |          |                      | --   |
| 0                | ESTERASE                                    | Leaf       |         |          |                      | Wealth of India.   |
| 0                | ETHYL-AMINE                                 | Leaf       |         | 1.3      | -0.9999999999999999  | Jim Duke's personal files.   |
| 0                | ETHYL-METHYL-AMINE                          | Leaf       |         | 0.9      |                      | Jim Duke's personal files.   |
| 0                | FAT   | Leaf       | 1090.0  | 33559.0  | -0.45638542079053585 | USDA's Ag Handbook 8 and sequelae)   |
| 0                | FAT   | Seed       |         | 350000.0 | 0.44568382272451457  | Wealth of India.   |
| 61               | FERULIC-ACID                                | Leaf       | 4.0     | 20.0     | 0.7463143926113956   | --   |
| 0                | FERULIC-ACID-B-BETA-D-GLUCOSIDE             | Leaf       |         |          |                      | Jim Duke's personal files.   |
| 15               | FIBER                                       | Leaf       | 6000.0  | 106960.0 | -0.6748814720634182  | USDA's Ag Handbook 8 and sequelae)   |
| 0                | FLUORINE                                    | Leaf       | 0.02    | 2.5      | -0.6306780150359617  | ACTA AGRIC SCAND SUPPL 22: 1980  |
| 15               | FOLACIN                                     | Leaf       | 0.45    | 9.0      | -0.08866046072610245 | USDA's Ag Handbook 8 and sequelae)   |
| 23               | FOLIC-ACID                                  | Leaf       |         | 0.133    | -0.9999999999999999  | Wealth of India.   |
| 7                | FUMARIC-ACID                                | Leaf       |         |          |                      | Jim Duke's personal files.   |
| 11               | GAMMA-TERPINENE                             | Shoot      |         | 14.0     | -0.38466149952482603 | --   |
| 1                | GLUCOBRASSICANAPIN                          | Seed       |         | 0.1      |                      | --   |
| 1                | GLUCOBRASSICIN                              | Leaf       |         |          |                      | --   |
| 1                | GLUCOBRASSICIN                              | Plant      |         |          |                      | --   |
| 0                | GLUCOERUCIN                                 | Leaf       |         |          |                      | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 1                | GLUCOIBERIN                                 | Leaf       |         |          |                      | Jim Duke's personal files.   |



| Activities Count | Chemical                    | Plant Part | Low PPM | High PPM | StdDev               | Reference Citation   |
|------------------|-----------------------------|------------|---------|----------|----------------------|--|
| 0                | GLUCOIBERVERIN              | Leaf       |         |          |                      | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 1                | GLUCONAPIN                  | Seed       |         | 2.3      |                      | --   |
| 1                | GLUCORAPHANIN               | Leaf       |         |          |                      | Jim Duke's personal files.   |
| 8                | GLUTAMIC-ACID               | Leaf       | 2700.0  | 36099.0  | -0.09866810879436606 | USDA's Ag Handbook 8 and sequelae)   |
| 12               | GLYCINE                     | Leaf       | 270.0   | 3610.0   | -1.8075432436080534  | USDA's Ag Handbook 8 and sequelae)   |
| 2                | GOITRIN                     | Leaf       |         |          |                      | --   |
| 2                | GOITRIN                     | Plant      |         |          |                      | --   |
| 0                | HEXACOSAN-1-OL              | Leaf       |         |          |                      | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 0                | HEXOXIDASE                  | Leaf       |         |          |                      | Wealth of India.   |
| 18               | HISTAMINE                   | Leaf       |         |          |                      | Wealth of India.   |
| 7                | HISTIDINE                   | Leaf       | 250.0   | 3343.0   | -1.0204275283909108  | USDA's Ag Handbook 8 and sequelae)   |
| 0                | HYDROXYDIMETHYLBENZOPHENONE | Leaf       |         |          |                      | --   |
| 3                | INDOLE-3-ACETONITRILE       | Leaf       |         |          |                      | --   |
| 3                | INDOLE-3-ACETONITRILE       | Plant      |         |          |                      | --   |
| 0                | INDOLE-3-ALDEHYDE           | Leaf       |         |          |                      | Wealth of India.   |
| 32               | INDOLE-3-CARBINOL           | Leaf       |         |          |                      | --   |
| 32               | INDOLE-3-CARBINOL           | Plant      |         |          |                      | --   |
| 0                | INDOLE-3-CARBOXALDEHYDE     | Shoot      |         |          |                      | Jim Duke's personal files.   |
| 0                | INDOLE-3-CARBOXYLIC-ACID    | Leaf       |         |          |                      | Wealth of India.   |
| 0                | INDOYL-3,3'-DIMETHANE       | Shoot      |         |          |                      | Jim Duke's personal files.   |
| 6                | IRON                        | Leaf       | 4.0     | 151.0    | -0.5378327745918356  | --   |

| Activities Count | Chemical                             | Plant Part | Low PPM | High PPM | StdDev              | Reference Citation                 |
|------------------|--------------------------------------|------------|---------|----------|---------------------|------------------------------------|
| 3                | ISOLEUCINE                           | Leaf       | 610.0   | 8156.0   | -1.0067475834172068 | USDA's Ag Handbook 8 and sequelae) |
| 1                | ISOMENTHOL                           | Plant      |         |          |                     | --                                 |
| 1                | ISOMENTHOL                           | Leaf       |         |          |                     | --                                 |
| 0                | JASMONIC-ACID                        | Leaf       |         |          |                     | Jim Duke's personal files.         |
| 75               | KAEMPFEROL                           | Leaf       | 100.0   | 300.0    | 0.7719941193159421  | Jim Duke's personal files.         |
| 0                | KAEMPFEROL-3-0-SOPHOROSIDE           | Leaf       |         |          |                     | Jim Duke's personal files.         |
| 0                | KAEMPFEROL-3-FERULOYL-SOPHOROSIDE    | Leaf       |         |          |                     | Jim Duke's personal files.         |
| 0                | KAEMPFEROL-3-SINAPOYL-SOPHOROSIDE    | Leaf       |         |          |                     | Jim Duke's personal files.         |
| 0                | KAEMPFEROL-3-SOPHOROSIDE-7-GLUCOSIDE | Leaf       |         |          |                     | Jim Duke's personal files.         |
| 1                | KAEMPFEROL-7-GLUCOSIDE               | Leaf       |         |          |                     | Jim Duke's personal files.         |
| 0                | KILOCALORIES                         | Leaf       | 240.0   | 3209.0   | 0.30774280957054606 | USDA's Ag Handbook 8 and sequelae) |
| 0                | LANTHANUM                            | Leaf       | 6.7     | 20.3     | 0.2661910237598584  | --                                 |
| 0                | LEAD                                 | Leaf       | 0.002   | 5.8      | -0.5277415619793002 | --                                 |
| 2                | LEUCINE                              | Leaf       | 630.0   | 8423.0   | -1.2459442303526156 | USDA's Ag Handbook 8 and sequelae) |
| 27               | LINOLEIC-ACID                        | Leaf       | 350.0   | 4680.0   | -0.5915925758908295 | USDA's Ag Handbook 8 and sequelae) |
| 11               | LITHIUM                              | Leaf       | 0.28    | 1.4      | -0.5009219035070377 | --                                 |
| 15               | LUTEIN                               | Leaf       |         |          |                     | Jim Duke's personal files.         |
| 4                | LYSINE                               | Leaf       | 570.0   | 7621.0   | -1.1945584518019292 | USDA's Ag Handbook 8 and sequelae) |
| 65               | MAGNESIUM                            | Leaf       | 100.0   | 2228.0   | -0.7327834927036897 | --                                 |
| 15               | MALIC-ACID                           | Leaf       |         |          |                     | Jim Duke's personal files.         |
| 14               | MANGANESE                            | Leaf       | 1.0     | 45.0     | -0.3850752536362415 | --                                 |
| 63               | MENTHOL                              | Plant      |         |          |                     | --                                 |
| 63               | MENTHOL                              | Leaf       |         |          |                     | --                                 |
| 1                | MERCURY                              | Leaf       | 0.0     | 0.013    | -0.7852856690881739 | --                                 |
| 15               | METHIONINE                           | Leaf       | 120.0   | 1604.0   | -1.232498891016048  | USDA's Ag Handbook 8 and sequelae) |

| Activities Count | Chemical                              | Plant Part | Low PPM | High PPM | StdDev               | Reference Citation         |
|------------------|---------------------------------------|------------|---------|----------|----------------------|----------------------------|
| 1                | METHYL-AMINE                          | Leaf       | 3.4     | 22.7     | -0.17805026197044863 | Jim Duke's personal files. |
| 0                | METHYL-SULFINYL-ALKYL-ISOTHIOCYANATES | Leaf       |         |          |                      | --                         |
| 0                | METHYL-SULFONYL-ALKYL-ISOTHIOCYANATES | Leaf       |         |          |                      | --                         |
| 0                | MEVALONIC-ACID                        | Leaf       |         |          |                      | Wealth of India.           |
| 2                | MOLYBDENUM                            | Leaf       | 0.1     | 8.7      | 2.9605996324651915   | --                         |
| 0                | MONOBUTYLPHTHALATE                    | Leaf       |         |          |                      | --                         |
| 0                | MONOOCTYLPHTHALATE                    | Leaf       |         |          |                      | --                         |
| 0                | N-(1)-METHOXYBRASSININ                | Leaf       |         | 63.0     |                      | Jim Duke's personal files. |
| 0                | N-BUTYL-ISOTHIOCYANATE                | Leaf       |         |          |                      | Wealth of India.           |
| 0                | N-HEXANAL                             | Leaf       |         |          |                      | Wealth of India.           |
| 0                | N-METHYL-ANILINE                      | Leaf       |         | 0.3      | -0.9999999999999999  | Jim Duke's personal files. |
| 0                | N-METHYL-BETA-PHENETHYLAMINE          | Leaf       | 0.5     | 2.0      |                      | Jim Duke's personal files. |
| 0                | N-METHYL-PHENETHYLAMINE               | Leaf       | 0.5     | 3.7      | 1.3779456365238765   | Jim Duke's personal files. |
| 1                | N-NONACOSANE                          | Leaf       |         |          |                      | Jim Duke's personal files. |
| 0                | N-PENTYL-AMINE                        | Leaf       | 0.6     | 1.4      | 1.4094277159494513   | Jim Duke's personal files. |
| 0                | NAPOLEIFERIN                          | Seed       |         | 0.1      |                      | --                         |
| 6                | NARCOTINE                             | Leaf       |         |          |                      | Jim Duke's personal files. |
| 2                | NEO-CHLOROGENIC-ACID                  | Leaf       |         |          |                      | --                         |
| 2                | NEO-CHLOROGENIC-ACID                  | Plant      |         |          |                      | --                         |
| 1                | NEOGLUCOBRASSICIN                     | Plant      |         |          |                      | --                         |
| 1                | NEOGLUCOBRASSICIN                     | Leaf       |         |          |                      | --                         |
| 2                | NEOMENTHOL                            | Plant      |         |          |                      | --                         |
| 2                | NEOMENTHOL                            | Leaf       |         |          |                      | --                         |
| 2                | NEOXANTHIN                            | Leaf       |         |          |                      | Jim Duke's personal files. |
| 39               | NIACIN                                | Leaf       | 3.0     | 40.0     | -0.6994157399536978  | --                         |
| 3                | NICKEL                                | Leaf       | 0.02    | 8.7      | -0.24617700855562716 | --                         |

| Activities Count | Chemical                           | Plant Part | Low PPM | High PPM | StdDev               | Reference Citation                 |
|------------------|------------------------------------|------------|---------|----------|----------------------|------------------------------------|
| 0                | NITROGEN                           | Leaf       | 2100.0  | 37500.0  | -0.31355959259454924 | ACTA AGRIC SCAND SUPPL 22: 1980    |
| 0                | NONACOSAN-15-ONE                   | Leaf       |         |          |                      | Jim Duke's personal files.         |
| 18               | OLEIC-ACID                         | Leaf       | 130.0   | 1738.0   | -0.4270491551154374  | USDA's Ag Handbook 8 and sequelae) |
| 0                | OXALATE                            | Leaf       | 1000.0  | 13370.0  | -0.6286842595909218  | USDA's Ag Handbook 8 and sequelae) |
| 9                | OXALIC-ACID                        | Leaf       | 30.0    | 350.0    | -0.46587265245095044 | --                                 |
| 25               | P-COUMARIC-ACID                    | Leaf       | 0.5     | 9.0      | -0.34761449277437817 | --                                 |
| 0                | P-COUMARIC-ACID-O-BETA-D-GLUCOSIDE | Leaf       |         |          |                      | Jim Duke's personal files.         |
| 13               | PALMITIC-ACID                      | Leaf       | 190.0   | 2540.0   | -0.34161769750550813 | USDA's Ag Handbook 8 and sequelae) |
| 11               | PANTOTHENIC-ACID                   | Leaf       | 1.4     | 19.0     | -0.4522700715808781  | USDA's Ag Handbook 8 and sequelae) |
| 24               | PECTIN                             | Leaf       |         | 45700.0  | 0.25679811036022554  | Wealth of India.                   |
| 0                | PHENETHYL-CYANIDE                  | Leaf       |         |          |                      | Wealth of India.                   |
| 3                | PHENETHYLAMINE                     | Leaf       | 2.1     | 8.6      | 1.371596163583519    | Jim Duke's personal files.         |
| 7                | PHENYLALANINE                      | Leaf       | 390.0   | 5214.0   | -1.3064553511172092  | USDA's Ag Handbook 8 and sequelae) |
| 0                | PHENYLETHYL-ISOTHIOCYANATE         | Leaf       |         |          |                      | USDA's Ag Handbook 8 and sequelae) |
| 3                | PHEOPHYTIN-A                       | Leaf       |         |          |                      | Jim Duke's personal files.         |
| 0                | PHOSPHOLIPIDS                      | Leaf       | 80.0    | 2400.0   | -1.0                 | --                                 |
| 4                | PHOSPHORUS                         | Leaf       | 214.0   | 6500.0   | 0.2812324573807496   | --                                 |
| 5                | PHYLLOQUINONE                      | Flower     | 0.19    | 3.39     |                      | --                                 |
| 2                | PHYTOSTEROLS                       | Leaf       | 110.0   | 1471.0   | -0.32996654372555645 | USDA's Ag Handbook 8 and sequelae) |
| 14               | POTASSIUM                          | Leaf       | 1140.0  | 42500.0  | 0.5367783866081342   | --                                 |
| 1                | PROGOITRIN                         | Seed       |         | 1.9      |                      | --                                 |
| 1                | PROGOITRIN                         | Leaf       |         |          |                      | Jim Duke's personal files.         |
| 0                | PROLINE                            | Leaf       | 2380.0  | 31821.0  | 2.980259571782197    | USDA's Ag Handbook 8 and sequelae) |
| 0                | PROP-2-ENYL-ISOTHIOCYANATE         | Leaf       |         |          |                      | Jim Duke's personal files.         |
| 0                | PROP-2-ENYL-ISOTHIOCYANATE         | Plant      |         |          |                      | --                                 |

| Activities Count | Chemical                            | Plant Part | Low PPM | High PPM | StdDev               | Reference Citation   |
|------------------|-------------------------------------|------------|---------|----------|----------------------|--|
| 0                | PROPENYL-CYANIDE                    | Leaf       |         |          |                      | --   |
| 0                | PROPYL-GLUCOSINOLATE                | Leaf       |         |          |                      | --   |
| 0                | PROPYL-GLUCOSINOLATE                | Plant      |         |          |                      | --   |
| 0                | PROTEIN                             | Leaf       | 10780.0 | 179425.0 | -0.3234213176764084  | --   |
| 43               | PROTocatechuic-acid                 | Plant      |         |          |                      | --   |
| 43               | PROTocatechuic-acid                 | Leaf       |         |          |                      | --   |
| 176              | QUERCETIN                           | Leaf       | 2.0     | 100.0    | -0.35041307015361245 | Jim Duke's personal files.   |
| 2                | QUERCETIN-3'-GLUCOSIDE              | Leaf       |         |          |                      | Jim Duke's personal files.   |
| 0                | QUERCETIN-3-SINAPoyl-SOPHOROSIDE    | Leaf       |         |          |                      | Jim Duke's personal files.   |
| 0                | QUERCETIN-3-SOPHOROSIDE             | Leaf       |         |          |                      | Jim Duke's personal files.   |
| 0                | QUERCETIN-3-SOPHOROSIDE-7-GLUCOSIDE | Leaf       |         |          |                      | Jim Duke's personal files.   |
| 1                | QUINIC-ACID                         | Leaf       |         |          |                      | Jim Duke's personal files.   |
| 0                | RHODANIDES                          | Leaf       |         |          |                      | --   |
| 15               | RIBOFLAVIN                          | Leaf       | 0.0     | 4.0      | -0.15911158075734227 | --   |
| 0                | RUBIDIUM                            | Leaf       | 0.4     | 27.5     | -0.5034963105526798  | ACTA AGRIC SCAND SUPPL 22: 1980  |
| 0                | RUBROBRASSINCHLORIDE                | Leaf       |         |          |                      | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 2                | S-METHYL-CYSTEINE-SULFOXIDE         | Leaf       |         |          |                      | --   |
| 0                | S-METHYL-METHIONINE-SULFOXIDE       | Leaf       |         |          |                      | --   |
| 7                | SALICYLATES                         | Leaf       | 0.0     | 15.0     | -0.5443718299803298  | --   |
| 0                | SEC-BUTYL-ISOTHIOCYANATE            | Seed       |         |          |                      | Jim Duke's personal files.   |
| 60               | SELENIUM                            | Leaf       | 0.003   | 0.25     | -0.36333818399043666 | --   |
| 1                | SERINE                              | Leaf       | 710.0   | 9493.0   | -0.28585718245130637 | USDA's Ag Handbook 8 and sequelae)   |
| 4                | SILICON                             | Leaf       | 1.0     | 25.0     | -0.33883359710015254 | ACTA AGRIC SCAND SUPPL 22: 1980  |

| Activities Count | Chemical                                  | Plant Part | Low PPM | High PPM | StdDev               | Reference Citation   |
|------------------|---|------------|---------|----------|----------------------|--|
| 3                | SILVER                                    | Leaf       | 0.07    | 0.58     | 1.325475517532498    | USDA's Ag Handbook 8 and sequelae)   |
| 9                | SINAPIC-ACID                              | Leaf       | 13.0    | 67.0     | -0.361480599804423   | --   |
| 7                | SINIGRIN                                  | Seed       |         | 44.7     | -1.0000000000000002  | Abstract (See species file)  |
| 1                | SODIUM                                    | Leaf       | 141.0   | 4510.0   | 0.15372212688586484  | --   |
| 0                | SPATHULENOL                               | Shoot      |         | 90.0     | 0.07721374848575883  | --   |
| 2                | SPIROBRASSININ                            | Leaf       |         | 35.0     |                      | Jim Duke's personal files.   |
| 8                | STEARIC-ACID                              | Leaf       | 10.0    | 134.0    | -0.5345445720779654  | USDA's Ag Handbook 8 and sequelae)   |
| 0                | STRONTIUM                                 | Leaf       | 3.0     | 870.0    | 1.0343567408579153   | --   |
| 7                | SUCCINIC-ACID                             | Leaf       |         |          |                      | Jim Duke's personal files.   |
| 5                | SULFORAPHANE                              | Leaf       |         |          |                      | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 14               | SULFUR                                    | Leaf       | 385.0   | 8750.0   | 0.9153795091683222   | --   |
| 23               | TERPINEN-4-OL                             | Shoot      |         | 22.0     | -0.15806106404222492 | --   |
| 9                | TERPINOLENE                               | Shoot      |         | 3.6      | -0.7018653661292504  | --   |
| 31               | THIAMIN                                   | Leaf       | 0.5     | 10.0     | 0.35331539437656273  | --   |
| 0                | THREO-1-CYANO-2-HYDROXY-3,4-EPITHIOBUTANE | Plant      |         |          |                      | --   |
| 0                | THREO-1-CYANO-2-HYDROXY-3,4-EPITHIOBUTANE | Leaf       |         |          |                      | --   |
| 4                | THREONINE                                 | Leaf       | 420.0   | 5615.0   | -1.3995320607979895  | USDA's Ag Handbook 8 and sequelae)   |
| 0                | TITANIUM                                  | Leaf       | 0.35    | 203.0    | 0.17567539466645712  | --   |
| 4                | TRANS-2-HEXENAL                           | Leaf       |         |          |                      | Wealth of India.   |
| 0                | TRANS-2-PENTENOL                          | Leaf       |         |          |                      | Wealth of India.   |
| 1                | TRIACONTAN-1-OL                           | Leaf       |         |          |                      | --   |

| Activities Count | Chemical     | Plant Part | Low PPM  | High PPM | StdDev               | Reference Citation   |
|------------------|--------------|------------|----------|----------|----------------------|--|
| 0                | TRITHIONE    | Leaf       |          |          |                      | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 29               | TRYPTOPHAN   | Leaf       | 120.0    | 1604.0   | -1.4381325171364434  | USDA's Ag Handbook 8 and sequelae)   |
| 8                | TYROSINE     | Leaf       | 210.0    | 2807.0   | -1.443975437147642   | USDA's Ag Handbook 8 and sequelae)   |
| 8                | UBIQUINONE   | Leaf       |          |          |                      | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 3                | VALINE       | Leaf       | 520.0    | 6952.0   | -1.6094709264199443  | USDA's Ag Handbook 8 and sequelae)   |
| 16               | VANADIUM     | Leaf       | 0.48     | 14.5     | 1.31294741924759     | USDA's Ag Handbook 8 and sequelae)   |
| 5                | VERBENONE    | Shoot      |          | 7.2      | -0.24693408290616778 | --   |
| 2                | VIOLAXANTHIN | Leaf       |          |          |                      | Jim Duke's personal files.   |
| 0                | VIT-B-6      | Leaf       | 0.8      | 14.0     | -0.1327208002557497  | USDA's Ag Handbook 8 and sequelae)   |
| 0                | VIT-U        | Leaf       | 2.0      | 25.0     |                      | Jim Duke's personal files.   |
| 0                | WATER        | Leaf       | 891000.0 | 950000.0 | 0.7102430437249587   | USDA's Ag Handbook 8 and sequelae)   |
| 0                | YTTERBIUM    | Leaf       | 0.19     | 8.7      | 0.4117051291548245   | USDA's Ag Handbook 8 and sequelae)   |
| 0                | YTTRIUM      | Leaf       | 0.48     | 29.0     | 1.721486167978422    | USDA's Ag Handbook 8 and sequelae)   |
| 77               | ZINC         | Leaf       | 2.0      | 41.0     | -0.2751503815857314  | --   |
| 0                | ZIRCONIUM    | Leaf       | 1.4      | 203.0    | 2.600745699031103    | --   |