

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in *Nigella sativa*

| Activities Count | Chemical   | Plant Part       | Low PPM | High PPM | StdDev               | Refernce Citation |
|------------------|--|------------------|---------|----------|----------------------|-------------------|
| 0                | WATER  | Seed             |         | 55000.0  | -0.6623654398299681  | --                |
| 3                | VALINE   | Seed             | 6500.0  | 8325.0   | -0.45403308662925973 | --                |
| 8                | TYROSINE   | Seed             | 12925.0 | 16530.0  | 2.035948584281161    | --                |
| 29               | TRYPTOPHAN   | Seed             |         |          |                      | --                |
| 0                | TIRUCALLOL   | Seed Oil         |         |          |                      | --                |
| 16               | THYMOQUINONE   | Seed Oil         |         |          |                      | --                |
| 16               | THYMOQUINONE   | Seed             |         |          |                      | --                |
| 16               | THYMOQUINONE   | Seed Essent. Oil |         |          |                      | --                |
| 71               | THYMOL   | Seed Oil         |         |          |                      | --                |
| 8                | THYMOHYDROQUINONE  | Seed             |         |          |                      | --                |
| 4                | THREONINE  | Seed             | 2615.0  | 3345.0   | -1.0720451105922753  | --                |
| 0                | TELFAIRIC-ACID   | Seed Oil         |         |          |                      | --                |
| 2                | TARAXEROL  | Seed Oil         |         |          |                      | --                |
| 35               | TANNIN   | Seed             |         |          |                      | --                |
| 12               | STIGMASTEROL   | Seed             |         |          |                      | --                |
| 12               | STIGMASTEROL   | Seed Oil         |         |          |                      | --                |
| 0                | STIGMASTANOL   | Seed Oil         |         |          |                      | --                |
| 0                | STIGMAST-7-EN-3-BETA-OL  | Seed Oil         |         |          |                      | --                |
| 8                | STEARIC-ACID   | Seed             | 8722.0  | 10192.0  | -0.3442582492571594  | --                |
| 8                | STEARIC-ACID   | Seed Oil         | 18100.0 | 60400.0  | -0.4460212029284245  | --                |
| 1                | SODIUM   | Seed             |         | 980.0    | 0.8399533537817474   | --                |
| 1                | SERINE   | Seed             | 4210.0  | 5385.0   | -0.9945334501663213  | --                |
| 87               | RUTIN  | Seed             |         | 200.0    | -0.8642978830410316  | --                |
| 0                | RESIN  | Seed             |         |          |                      | --                |
| 0                | QUERCETIN-3-O-BETA-GLUCOPYRANOSYL-(1,2)-O-BETA-GALACTOPYRANOSYL-(1,2)-BETA-GLUCOPYRANOSIDE | Seed             |         | 1380.0   |                      | --                |

| Activities Count | Chemical  | Plant Part       | Low PPM  | High PPM | StdDev               | Refernce Citation |
|------------------|---|------------------|----------|----------|----------------------|-------------------|
| 0                | QUERCETIN-3-O-(6-FERULOYL-BETA-GLUCOPYRANOSYL)-(1,2)-BETA-GALACTOPYRANOSYL-(1,2)-BETA-GLUCOPYRANOSIDE | Seed             |          | 240.0    |                      | --                |
| 2                | QUERCETIN-3'-GLUCOSIDE  | Seed             |          | 440.0    |                      | --                |
| 0                | PROTEIN   | Seed             | 210000.0 | 271900.0 | 0.3389542125628668   | --                |
| 0                | PROLINE   | Seed             | 11350.0  | 14520.0  | 0.6255535812768888   | --                |
| 14               | POTASSIUM   | Seed             |          | 5820.0   | -0.5936234706928918  | --                |
| 2                | PHYTOSTEROLS  | Seed             |          | 5100.0   | 0.7509831240988885   | --                |
| 7                | PHENYLALANINE   | Seed             | 16850.0  | 21560.0  | 1.1965145457535273   | --                |
| 2                | PALMITOLEIC-ACID  | Seed Oil         |          | 2000.0   | -0.7427413770332781  | --                |
| 13               | PALMITIC-ACID   | Seed Oil         | 120000.0 | 171200.0 | -0.07081453176760302 | --                |
| 13               | PALMITIC-ACID   | Seed             | 22464.0  | 50523.0  | 0.3428523734085393   | --                |
| 18               | OLEIC-ACID  | Seed Oil         | 244600.0 | 262400.0 | -0.3071795173799937  | --                |
| 18               | OLEIC-ACID  | Seed             | 89911.0  | 184912.0 | 0.5409849990838309   | --                |
| 0                | OBTUSIFOLIOL  | Seed Oil         |          |          |                      | --                |
| 4                | NIGELLONE   | Plant            |          |          |                      | --                |
| 4                | NIGELLONE   | Seed Essent. Oil |          |          |                      | --                |
| 4                | NIGELLONE   | Seed             |          |          |                      | --                |
| 0                | NIGELLINE   | Seed Essent. Oil |          |          |                      | --                |
| 0                | NIGELLIN  | Seed             |          |          |                      | --                |
| 0                | NIGELLIMINE-N-OXIDE   | Seed             |          | 0.2      |                      | --                |
| 0                | NIGELLIMINE   | Seed             |          | 0.13     |                      | --                |
| 0                | NIGELLIDINE   | Seed             |          |          |                      | --                |
| 0                | NIGELICINE  | Seed             |          |          |                      | --                |
| 6                | MYRISTIC-ACID   | Seed             | 567.0    | 1082.0   | -0.2818389018415849  | --                |
| 6                | MYRISTIC-ACID   | Seed Oil         | 1900.0   | 18000.0  | 1.404878717372541    | --                |
| 15               | METHIONINE  | Seed             | 13100.0  | 16750.0  | 3.2110061010876816   | --                |

| Activities Count | Chemical  | Plant Part     | Low PPM  | High PPM | StdDev                | Reference Citation |
|------------------|---|----------------|----------|----------|-----------------------|--------------------|
| 0                | MELANTHIN   | Seed           |          | 15000.0  |                       | --                 |
| 0                | MELANTHIN   | Plant          |          | 15000.0  |                       | --                 |
| 0                | MELANTHIGENIN   | Seed           |          |          |                       | --                 |
| 4                | LYSINE  | Seed           | 16200.0  | 20700.0  | 1.1651039918885149    | --                 |
| 0                | LOPHENOL  | Seed Oil       |          |          |                       | --                 |
| 0                | LIPASE  | Seed           |          |          |                       | --                 |
| 0                | LINOLENIC-ACID  | Seed           | 2484.0   | 2912.0   | -0.5290258499227667   | --                 |
| 0                | LINOLENIC-ACID  | Seed Oil       | 5700.0   | 7000.0   | -0.9728331838140885   | --                 |
| 27               | LINOLEIC-ACID   | Seed           | 128124.0 | 233459.0 | 1.0824662737938955    | --                 |
| 27               | LINOLEIC-ACID   | Seed Oil       | 487600.0 | 576300.0 | 0.7282570051649796    | --                 |
| 2                | LEUCINE   | Seed           | 23130.0  | 29595.0  | 1.1977821961803903    | --                 |
| 0                | KAEMPFEROL-3-O-BETA-GLUCOPYRANOSYL-(1,2)-O-BETA-GALACTOPYRANOSYL-(1,2)-BETA-GLUCOPYRANOSIDE | Seed           |          | 100.0    |                       | --                 |
| 3                | ISOLEUCINE  | Seed           | 8570.0   | 10960.0  | 0.05977431737810226   | --                 |
| 6                | IRON  | Seed           |          | 140.0    | -0.050148065262521205 | --                 |
| 7                | INDOLE-3-ACETIC-ACID  | Tissue Culture |          | 14.0     |                       | --                 |
| 9                | HEDERAGENIN   | Seed           |          | 10000.0  |                       | --                 |
| 0                | GRAMISTEROL   | Seed Oil       |          |          |                       | --                 |
| 12               | GLYCINE   | Seed           | 8840.0   | 20700.0  | 1.4093637414578815    | --                 |
| 8                | GLUTAMIC-ACID   | Seed           | 28085.0  | 35900.0  | -0.24526461038526376  | --                 |
| 7                | GLUCOSE   | Seed           |          |          |                       | --                 |
| 0                | FIXED-OIL   | Seed           |          | 380000.0 | 0.7938038750907974    | --                 |
| 15               | FIBER   | Seed           |          | 55000.0  | -0.6299472095675233   | --                 |
| 0                | FAT   | Seed           | 354900.0 | 416000.0 | 0.7933294308711564    | --                 |
| 0                | EO  | Seed           | 4000.0   | 16000.0  | -0.3482296375405711   | --                 |
| 0                | EO  | Seed Oil       |          | 4500.0   |                       | --                 |

| Activities Count | Chemical             | Plant Part       | Low PPM | High PPM | StdDev              | Refernce Citation |
|------------------|----------------------|------------------|---------|----------|---------------------|-------------------|
| 0                | EICOSADIENOIC-ACID   | Seed             | 8979.0  | 10525.0  | 1.0                 | --                |
| 0                | EICOSADIENOIC-ACID   | Seed Oil         |         | 25000.0  |                     | --                |
| 0                | DITHYMOQUINONE       | Seed Oil         |         |          |                     | --                |
| 0                | DEHYDROASCORBIC-ACID | Leaf             |         | 295.0    |                     | --                |
| 2                | DAMASCENINE          | Plant            |         |          |                     | --                |
| 19               | D-LIMONENE           | Seed             |         |          |                     | --                |
| 2                | CYSTINE              | Seed             |         |          |                     | --                |
| 0                | CYMENE               | Seed             |         |          |                     | --                |
| 3                | CYCLOEUCALENOL       | Seed Oil         |         |          |                     | --                |
| 7                | CYCLOARTENOL         | Seed Oil         |         |          |                     | --                |
| 1                | CITROSTADIENOL       | Seed Oil         |         |          |                     | --                |
| 1                | CHOLESTEROL          | Seed Oil         |         |          |                     | --                |
| 1                | CHOLESTEROL          | Seed             |         |          |                     | --                |
| 19               | CARVONE              | Seed             | 2250.0  | 9600.0   | -0.6862496231316305 | --                |
| 19               | CARVONE              | Seed Essent. Oil |         |          |                     | --                |
| 0                | CARBOHYDRATES        | Seed             |         | 339600.0 | -0.7304674205410945 | --                |
| 2                | CAMPESTEROL          | Seed Oil         |         |          |                     | --                |
| 2                | CAMPESTEROL          | Seed             |         |          |                     | --                |
| 0                | CAMPESTANOL          | Seed Oil         |         |          |                     | --                |
| 28               | CALCIUM              | Seed             |         | 10600.0  | 1.185251516140852   | --                |
| 0                | BUTYROSPERMOL        | Seed Oil         |         |          |                     | --                |
| 47               | BETA-SITOSTEROL      | Seed Oil         |         |          |                     | --                |
| 47               | BETA-SITOSTEROL      | Seed             |         | 3218.0   | 0.6038687377128678  | --                |
| 9                | BETA-AMYRIN          | Seed Oil         |         |          |                     | --                |
| 7                | ASTRAGALIN           | Seed             |         | 200.0    | 0.9999999999999999  | --                |
| 3                | ASPARTIC-ACID        | Seed             | 10670.0 | 13650.0  | -0.793562134888723  | --                |
| 2                | ASPARAGINE           | Seed             |         | 0.0      | -1.0                | --                |

| Activities Count | Chemical                  | Plant Part | Low PPM | High PPM | StdDev               | Refernce Citation |
|------------------|---------------------------|------------|---------|----------|----------------------|-------------------|
| 0                | ASH                       | Seed       | 38000.0 | 53000.0  | 0.15399404750455267  | --                |
| 112              | ASCORBIC-ACID             | Leaf       |         | 2577.0   | -0.20480733468379336 | --                |
| 14               | ARGININE                  | Seed       | 41500.0 | 53050.0  | 1.2029671680482314   | --                |
| 12               | ARACHIDONIC-ACID          | Seed Oil   |         | 24900.0  | 1.0                  | --                |
| 0                | ARACHIDIC-ACID            | Seed Oil   |         | 1900.0   | -1.2808213362473546  | --                |
| 0                | ARABIC-ACID               | Seed       |         |          |                      | --                |
| 2                | ALPHA-SPINASTEROL         | Seed Oil   |         |          |                      | --                |
| 2                | ALPHA-SPINASTEROL         | Seed       |         |          |                      | --                |
| 3                | ALANINE                   | Seed       | 8000.0  | 10255.0  | 0.020997940933240138 | --                |
| 0                | 7-DEHYDRO-AVENASTEROL     | Seed Oil   |         |          |                      | --                |
| 0                | 5-DEHYDRO-AVENASTEROL     | Seed Oil   |         |          |                      | --                |
| 5                | 24-METHYLENE-CYCLOARTANOL | Seed Oil   |         |          |                      | --                |
| 0                | 24-METHYL-LOPHENOL        | Seed Oil   |         |          |                      | --                |
| 0                | 24-ETHYL-LOPHENOL         | Seed Oil   |         |          |                      | --                |