

Dr. Duke's Phytochemical and Ethnobotanical Database

Chemicals Found in *Anethum graveolens*

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|------------------------|------------------|---------|----------|--------|--------------------|
| 0 | (+)-ALPHA-PHELLANDRENE | Shoot | -- | -- | | |
| 2 | (+)-CARVONE | Essential Oil | -- | -- | | |
| 2 | (+)-CARVONE | Seed | -- | -- | | |
| 2 | (+)-CARVONE | Seed Essent. Oil | -- | -- | | |
| 0 | (+)-CIS-CARVEOL | Seed Essent. Oil | -- | -- | | |
| 0 | (+)-LIMONENE | Seed Essent. Oil | -- | -- | | |
| 0 | (+)-LIMONENE | Essential Oil | -- | -- | | |
| 0 | (+)-TRANS-CARVEOL | Seed Essent. Oil | -- | -- | | |
| 0 | (-)-CARVONE | Seed Essent. Oil | -- | -- | | |
| 0 | (-)-CIS-CARVEOL | Seed Essent. Oil | -- | -- | | |
| 0 | (-)-DIHYDROCARVONE | Seed | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|--------------------------------|------------------|---------|----------|--------|--|
| 0 | (-)-LIMONENE | Seed Essent. Oil | -- | -- | | |
| 0 | (-)-LIMONENE | Essential Oil | -- | -- | | |
| 0 | (-)-TRANS-CARVEOL | Seed Essent. Oil | -- | -- | | |
| 0 | 1,4-TERPINENOL | Plant | -- | -- | | |
| 0 | 1,5-CINEOL | Seed Essent. Oil | -- | -- | | |
| 0 | 1,5-CINEOLE | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 0 | 1-DIHYDROCARVEOL | Seed | 75 | 490 | | |
| 0 | 1-DIHYDROCARVEOL | Leaf | 10 | 30 | | |
| 0 | 1-METHYL-4-ISOPROPENYL-BENZENE | Fruit | -- | -- | | |
| 0 | 1-METHYL-4-ISOPROPENYL-BENZENE | Seed | -- | -- | | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 0 | 1-METHYL-4-ISOPROPENYL-BENZENE | Essential Oil | -- | -- | | |
| 0 | 2-DIHYDROCARVEOL | Seed | 155 | 1000 | | |
| 0 | 2-DIHYDROCARVEOL | Leaf | 10 | 30 | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|---|---------------|---------|----------|--------|---|
| 0 | 2-NONANOL | Plant | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 0 | 3',4'-DIMETHOXYQUERCETIN | Leaf | -- | -- | | |
| 0 | 3,6-DIMETHYL-2,3,3A,4,5,7A-HEXAHYDROBENZOFURAN | Leaf | 240 | 750 | | |
| 0 | 3,6-DIMETHYL-2,3,4,5,8,9-HEXAHYDROBENZOFURAN | Plant | -- | -- | | |
| 0 | 3,6-DIMETHYL-3-ALPHA-4,5,7-ALPHA-TETRAHYDROCOUMARAN | Seed | -- | -- | | |
| 0 | 3,6-DIMETHYL-3-ALPHA-4,5,7-ALPHA-TETRAHYDROCOUMARAN | Essential Oil | -- | -- | | |
| 0 | 3,6-DIMETHYL-3A,4,5,7A-TETRAHYDROCOUMARAN | Fruit | -- | -- | | |
| 0 | 3,6-DIMETHYLCOUMARAN | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 0 | 3,6-DIMETHYLCOUMARAN | Essential Oil | -- | -- | | |
| 0 | 3,7-DIMETHYL-4,5,6,9-TETRAHYDROCOUMARAN | Fruit | -- | -- | | |
| 0 | 3,7-DIMETHYL-4,5,6,9-TETRAHYDROCOUMARAN | Seed | -- | -- | | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 0 | 4'-METHOXY-KAEMPFEROL | Leaf | -- | -- | | |
| 0 | 4-ALPHA-DIMETHYLSTYRENE | Root | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|---|------------------|---------|----------|---------------------|---|
| 0 | 4-METHYL-AESCULETIN | Seed Essent. Oil | -- | -- | | |
| 10 | 5-METHOXY-PSORALEN | Seed | -- | -- | | |
| 0 | 6,7-DIHYDRO-8,8-DIMETHYL-2H,8H-BENZO-(1,2B:5,4')-DIPYRAN-2,6-DIONE | Plant | -- | -- | | J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991. |
| 0 | 6,7-DIHYDRO-8,8-DIMETHYL-2(H),8(H)BENZO-(1,2B,5,4B'-DIPYRAN-2-6-DIONE | Seed | -- | -- | | |
| 0 | 6,7-DIHYDRO-8,8-DIMETHYL-2(H),8(H)BENZO-(1,2B,5,4B'-DIPYRAN-2-6-DIONE | Shoot | -- | 80 | | |
| 0 | 6-OCTADECENOIC-ACID | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 0 | 7-OCTADECENOIC-ACID | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 32 | AESCULETIN | Seed | -- | -- | | |
| 32 | AESCULETIN | Seed Essent. Oil | -- | -- | | |
| 0 | ALPHA,ALPHA-BETA-TRIMETHYLBENZYL-ALCOHOL | Root | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 0 | ALPHA-CADINENE | Leaf | 1 | 3 | -0.4224867804418495 | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|--------------------------|-------------------|---------|----------|----------------------|---|
| 0 | ALPHA-CARVONE | Seed Essent. Oil | -- | 400000 | | |
| 0 | ALPHA-CUBEBENE | Shoot | -- | -- | | |
| 0 | ALPHA-DIMETHYLSTYRENE | Root | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 15 | ALPHA-LINOLENIC-ACID | Fruit | 1500 | 1624 | -0.41702058222254973 | |
| 15 | ALPHA-LINOLENIC-ACID | Seed | 1500 | 1624 | -0.29885281200374875 | USDA's Ag Handbook 8 and sequelae) |
| 0 | ALPHA-P-DIMETHYL-STYRENE | Seed | 10 | 75 | -0.4800153607373193 | |
| 0 | ALPHA-P-DIMETHYL-STYRENE | Leaf | 5 | 45 | 3.2968315661477114 | |
| 0 | ALPHA-P-DIMETHYL-STYRENE | Essential Oil | -- | -- | | |
| 0 | ALPHA-P-STYRENE | Shoot Essent. Oil | -- | 1800 | | |
| 11 | ALPHA-PHELLANDRENE | Leaf | 20 | 8025 | 5.376830730634647 | |
| 11 | ALPHA-PHELLANDRENE | Seed | 125 | 7469 | 1.5339306210630879 | |
| 11 | ALPHA-PHELLANDRENE | Essential Oil | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|--------------------|-------------------|---------|----------|----------------------|--------------------|
| 11 | ALPHA-PHELLANDRENE | Shoot Essent. Oil | 248800 | 525100 | 1.4141949197576593 | |
| 11 | ALPHA-PHELLANDRENE | Seed Essent. Oil | -- | -- | | |
| 11 | ALPHA-PHELLANDRENE | Root Essent. Oil | -- | -- | | |
| 28 | ALPHA-PINENE | Fruit | 24 | 1001 | -0.4574419530274206 | |
| 28 | ALPHA-PINENE | Seed | 12 | 1001 | -0.394802482900677 | |
| 28 | ALPHA-PINENE | Leaf | 25 | 405 | -0.19825008164168667 | |
| 28 | ALPHA-PINENE | Essential Oil | -- | -- | | |
| 28 | ALPHA-PINENE | Shoot Essent. Oil | 17500 | 31700 | 1.9801582592954505 | |
| 28 | ALPHA-PINENE | Seed Essent. Oil | -- | -- | | |
| 0 | ALPHA-PYRONENE | Leaf | 2 | 6 | | |
| 13 | ALPHA-TERPINENE | Leaf | 0.1 | 2100 | 0.7727809471570283 | |
| 13 | ALPHA-TERPINENE | Shoot Essent. Oil | -- | 3400 | -0.7201742929072495 | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|------------------|-------------------|---------|----------|----------------------|--|
| 13 | ALPHA-TERPINENE | Seed Essent. Oil | -- | -- | | |
| 13 | ALPHA-TERPINENE | Essential Oil | -- | -- | | |
| 23 | ALPHA-TERPINEOL | Plant | -- | -- | | |
| 23 | ALPHA-TERPINEOL | Leaf | 0.1 | 20 | -0.5551409616382911 | |
| 23 | ALPHA-TERPINEOL | Essential Oil | -- | 83800 | 2.9380498160693636 | |
| 0 | ALPHA-THUJENE | Fruit | 36 | 231 | -0.3826530299675151 | |
| 0 | ALPHA-THUJENE | Seed | 36 | 231 | -0.09092270877057655 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 0 | ALPHA-THUJENE | Leaf | 10 | 25 | -0.3676513337976657 | |
| 0 | ALPHA-THUJENE | Leaf Essent. Oil | -- | 33400 | 1.3792500393171634 | |
| 0 | ALPHA-THUJENE | Essential Oil | -- | -- | | |
| 0 | ALPHA-THUJENE | Shoot Essent. Oil | -- | 10600 | 0.6195817292104092 | |
| 32 | ALPHA-TOCOPHEROL | Leaf | 16 | 147 | -0.6328641971482494 | |
| 5 | ALUMINUM | Plant | 4 | 210 | -0.3394094982503418 | ACTA AGRIC SCAND SUPPL 22: 1980 |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|---------------------------------|------------------|---------|----------|--------|---|
| 0 | ANETHOFURAN | Essential Oil | -- | 169000 | | |
| 36 | ANETHOLE | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 0 | ANISIC-ALDEHYDE | Plant | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 101 | APIGENIN | Leaf | -- | -- | | |
| 0 | APIGENIN-7-O-BETA-D-GLUCURONIDE | Leaf | -- | -- | | |
| 2 | APIOL | Essential Oil | -- | -- | | |
| 2 | APIOL | Shoot | -- | -- | | |
| 2 | APIOL | Root Essent. Oil | -- | -- | | |
| 2 | APIOL | Seed | -- | -- | | |
| 20 | APIOLE | Root | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|---------------------------|------------------|---------|----------|----------------------|---|
| 0 | ARGINASE | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 14 | ARGININE | Fruit | 12630 | 13678 | 2.498859968309268 | |
| 14 | ARGININE | Seed | 12630 | 13678 | -0.46418798189668253 | USDA's Ag Handbook 8 and sequelae) |
| 2 | ARSENIC | Plant | 0.01 | 0.06 | -0.44843252644734777 | ACTA AGRIC SCAND SUPPL 22: 1980 |
| 112 | ASCORBIC-ACID | Plant | 1214 | 1440 | -0.2556325868627872 | |
| 112 | ASCORBIC-ACID | Seed | -- | 1150 | 0.35194448135668727 | |
| 0 | ASH | Fruit | 64000 | 84000 | 0.707881426838069 | |
| 0 | ASH | Plant | 26000 | 205880 | 1.5332133347973154 | |
| 0 | ASH | Seed | 64000 | 84000 | 1.0864005763968383 | |
| 0 | BENZOIC-ACID-METHYL-ESTER | Seed Essent. Oil | -- | -- | | |
| 0 | BENZYL-ETHER | Plant | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 0 | BENZYL-ETHER | Essential Oil | -- | -- | | |
| 26 | BERGAPTEN | Fruit | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|--------------------|------------------|---------|----------|---------------------|---|
| 26 | BERGAPTEN | Seed | -- | -- | | |
| 26 | BERGAPTEN | Seed Essent. Oil | -- | -- | | |
| 0 | BETA-CARYOPHYLLENE | Plant | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 0 | BETA-CARYOPHYLLENE | Essential Oil | -- | -- | | |
| 5 | BETA-ELEMENE | Fruit | 12 | 77 | -0.4611977234510915 | |
| 5 | BETA-ELEMENE | Seed | 12 | 77 | -0.6456318401912606 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 13 | BETA-EUDES MOL | Essential Oil | -- | -- | | |
| 2 | BETA-MYRCENE | Plant | -- | -- | | |
| 2 | BETA-MYRCENE | Seed Essent. Oil | -- | -- | | |
| 2 | BETA-MYRCENE | Essential Oil | -- | -- | | |
| 3 | BETA-PHELLANDRENE | Fruit | 168 | 1925 | -0.1401637043460988 | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-------------------|-------------------|---------|----------|----------------------|--|
| 3 | BETA-PHELLANDRENE | Root | 168 | 1925 | | |
| 3 | BETA-PHELLANDRENE | Leaf | 120 | 2100 | 4.5514578733129 | |
| 3 | BETA-PHELLANDRENE | Seed | 25 | 1925 | -0.06920272549899337 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 3 | BETA-PHELLANDRENE | Essential Oil | -- | 31600 | 1.724225349934716 | |
| 3 | BETA-PHELLANDRENE | Shoot Essent. Oil | 82100 | 169300 | 1 | |
| 3 | BETA-PHELLANDRENE | Root Essent. Oil | -- | -- | | |
| 3 | BETA-PHELLANDRENE | Seed Essent. Oil | -- | -- | | |
| 13 | BETA-PINENE | Plant | -- | -- | | |
| 13 | BETA-PINENE | Leaf | 1 | 40 | -0.3701299985454314 | |
| 13 | BETA-PINENE | Leaf Essent. Oil | -- | 13600 | -0.3687230671050535 | |
| 13 | BETA-PINENE | Shoot Essent. Oil | -- | -- | | |
| 13 | BETA-PINENE | Essential Oil | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|---------------------------|------------------|---------|----------|----------------------|---|
| 47 | BETA-SITOSTEROL | Plant | -- | 490 | -0.10551968168882546 | |
| 47 | BETA-SITOSTEROL | Seed Essent. Oil | -- | -- | | |
| 47 | BETA-SITOSTEROL | Seed | -- | -- | | |
| 47 | BETA-SITOSTEROL | Root | -- | -- | | |
| 0 | BETA-SITOSTEROL-GLUCOSIDE | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 0 | BETA-SITOSTEROL-GLYCOSIDE | Fruit | -- | -- | | |
| 0 | BETA-SITOSTEROL-GLYCOSIDE | Seed | -- | -- | | =ICMR(Indian Council of Medical Research).1976.Medicinal Plants of India.Vol.1.Indian Council of Med. Res.Cambridge Printing Works, New Delhi.487 pp;ICMR.1987.Medicinal Plants of India.Vol.2.Indian Council of Med. Res.Cambr. Printing Works,New Delhi.600pp |
| 3 | BETA-TERPINEOL | Fruit | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-----------------|------------|---------|----------|----------------------|--|
| 3 | BETA-TERPINEOL | Plant | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 3 | BETA-TERPINEOL | Seed | -- | -- | | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 4 | BORON | Plant | 4 | 35 | -0.4551354442400374 | |
| 4 | BORON | Seed | 28 | 50 | 1.2280232969498832 | Betting on Boron, Unpublished draft by J. A. Duke on file at USDA, draft and papers relating to boron percentages. Includes Internat. Z. Vit. Ern. Forschung 43:1973 (boron). |
| 0 | BROMINE | Plant | 1 | 6 | -0.8145201350468994 | ACTA AGRIC SCAND SUPPL 22: 1980 |
| 10 | BUTYL-PHTHALIDE | Root | -- | -- | | Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989. |
| 3 | CADMIUM | Plant | 0.02 | 1 | -0.33413040437309494 | ACTA AGRIC SCAND SUPPL 22: 1980 |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|---------------|------------|---------|----------|----------------------|---|
| 102 | CAFFEIC-ACID | Fruit | -- | -- | | |
| 102 | CAFFEIC-ACID | Seed | -- | -- | | |
| 102 | CAFFEIC-ACID | Leaf | -- | 1140 | -0.5577746068901522 | |
| 0 | CALAMENENE | Leaf | 1 | 3 | -0.584716751803048 | |
| 28 | CALCIUM | Fruit | 14003 | 17671 | 3.1878884648612305 | |
| 28 | CALCIUM | Plant | 1900 | 21453 | 0.8411434580787619 | |
| 28 | CALCIUM | Seed | 14003 | 17671 | 2.483896866251749 | |
| 2 | CAMPESTEROL | Plant | -- | 490 | 1.9454938284556806 | Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.) |
| 9 | CAMPHENE | Plant | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 41 | CAMPHOR | Root | -- | -- | | |
| 0 | CARBOHYDRATES | Fruit | 551700 | 597491 | -0.9913792273955132 | |
| 0 | CARBOHYDRATES | Plant | 558200 | 602000 | -0.45327014330730514 | |
| 0 | CARBOHYDRATES | Seed | 551700 | 597491 | 0.2944435139648482 | |
| 0 | CAROTENE | Seed | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-------------|-------------------|---------|----------|--------------------|---|
| 0 | CAROTENOIDS | Leaf | 465 | 465 | 1.0000000000000002 | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 37 | CARVACROL | Plant | -- | -- | | |
| 37 | CARVACROL | Leaf | 165 | 450 | 0.1349696974520959 | |
| 37 | CARVACROL | Seed Essent. Oil | -- | -- | | |
| 1 | CARVEOL | Leaf | 225 | 600 | 0.9999999999999998 | Wealth of India. |
| 19 | CARVONE | Plant | -- | -- | | |
| 19 | CARVONE | Seed | 4100 | 46200 | 1.3184783989470024 | |
| 19 | CARVONE | Leaf | 0.1 | 6365 | 1.0223609522154844 | |
| 19 | CARVONE | Shoot Essent. Oil | -- | 145000 | 1.4134474688959218 | |
| 19 | CARVONE | Root | -- | -- | | |
| 19 | CARVONE | Leaf Essent. Oil | -- | 774300 | | |
| 19 | CARVONE | Essential Oil | 273800 | 456000 | 0.9613797011049258 | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|--------------------------|------------------------|---------|----------|---------------------|---|
| 19 | CARVONE | Seed Essent. Oil | 170000 | 455800 | -0.9391038099371176 | |
| 0 | CARVOTANACETONE | Fruit | -- | -- | | |
| 0 | CARVOTANACETONE | Seed | -- | -- | | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 0 | CARVOTANACETONE | Root Essent. Oil | -- | -- | | |
| 0 | CARVOTANACETONE | Essential Oil | -- | -- | | |
| 77 | CHLOROGENIC-ACID | Fruit | -- | -- | | |
| 77 | CHLOROGENIC-ACID | Seed | -- | -- | | |
| 24 | CHROMIUM | Plant | 0.01 | 0.29 | -0.8360358979548524 | ACTA AGRIC SCAND SUPPL 22: 1980 |
| 0 | CINEOLE | Plant | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 0 | CIS-3-HEXEN-1-OL | Leaf | 0.1 | 365 | -0.4917978922098716 | |
| 0 | CIS-3-HEXEN-1-YL-ACETATE | Leaf | 0.1 | 15 | | |
| 0 | CIS-CARVEOL | Fruit | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|--------------------|---------------|---------|----------|---------------------|---|
| 0 | CIS-CARVEOL | Seed | -- | -- | | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 0 | CIS-DIHYDROCARVONE | Fruit | 36 | 12782 | | |
| 0 | CIS-DIHYDROCARVONE | Seed | 36 | 12782 | 1.414205737599967 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 0 | CIS-DIHYDROCARVONE | Leaf | 40 | 110 | | |
| 0 | CIS-DIHYDROCARVONE | Essential Oil | -- | -- | | |
| 0 | CIS-LIGUSTILIDE | Root | -- | -- | | |
| 3 | CIS-OCIMENE | Essential Oil | -- | -- | | |
| 2 | COBALT | Plant | 0.002 | 0.29 | -0.4679399461194481 | ACTA AGRIC SCAND SUPPL 22: 1980 |
| 12 | COPPER | Fruit | -- | 8 | -0.3750564717845157 | |
| 12 | COPPER | Plant | 1.7 | 17 | 0.33037825900684764 | |
| 12 | COPPER | Seed | 8 | 8 | -0.6181060132518703 | USDA's Ag Handbook 8 and sequelae) |
| 0 | COUMARINS | Seed | -- | -- | | Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp. |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|----------------------|------------|---------|----------|---------------------|---|
| 0 | D-(+)-CARVONE | Fruit | 5196 | 37653 | | |
| 0 | D-(+)-CARVONE | Seed | 5196 | 37653 | | |
| 0 | D-(+)-DIHYDROCARVONE | Fruit | 168 | 1925 | | |
| 0 | D-(+)-DIHYDROCARVONE | Seed | 168 | 1925 | | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 0 | D-(+)-LIMONENE | Fruit | 3972 | 31416 | | |
| 0 | D-(+)-LIMONENE | Seed | 3972 | 31416 | | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 0 | D-8-DEHYDRO-P-CYMENE | Seed | -- | -- | | Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp. |
| 0 | D-ALPHA-PHELLANDRENE | Fruit | 516 | 7469 | | |
| 0 | D-ALPHA-PHELLANDRENE | Seed | 516 | 7469 | 1 | |
| 0 | DECANAL | Fruit | 24 | 154 | 1.7690158710879875 | |
| 0 | DECANAL | Seed | 24 | 154 | | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 8 | DELTA-3-CARENE | Leaf | -- | 0.1 | -0.4906741021305423 | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-----------------------------|-------------------|---------|----------|---------------------|--|
| 0 | DELTA-5,6-OCTADECENOIC-ACID | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 9 | DELTA-CADINENE | Leaf | 1 | 3 | -0.4510248293697561 | |
| 2 | DIHYDROCARVEOL | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 2 | DIHYDROCARVEOL | Leaf | 150 | 400 | 0.916253604438744 | |
| 0 | DIHYDROCARVONE | Leaf | 390 | 1050 | -1 | Wealth of India. |
| 0 | DIHYDROCARVONE | Seed Essent. Oil | -- | -- | | |
| 0 | DIHYDROCARVONE | Essential Oil | -- | 400900 | 1.999909888648586 | |
| 0 | DIHYDROCARVONE | Leaf Essent. Oil | -- | 1700 | | |
| 0 | DIHYDROCARVONE | Root | -- | -- | | |
| 0 | DILL-ETHER | Leaf | 60 | 3495 | | |
| 0 | DILL-ETHER | Seed | 45 | 300 | | |
| 0 | DILL-ETHER | Shoot Essent. Oil | -- | 290200 | | |
| 0 | DILL-ETHER | Essential Oil | -- | -- | | |
| 0 | DILL-FURAN | Essential Oil | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-------------|-------------------|---------|----------|--------|--|
| 0 | DILLANOL | Seed | -- | -- | | |
| 0 | DILLANOSIDE | Plant | -- | -- | | |
| 0 | DILLANOSIDE | Seed | -- | -- | | |
| 6 | DILLAPIOL | Root Essent. Oil | -- | -- | | |
| 6 | DILLAPIOL | Seed | -- | -- | | |
| 6 | DILLAPIOL | Plant | -- | -- | | |
| 6 | DILLAPIOL | Essential Oil | 223000 | 266300 | | |
| 6 | DILLAPIOL | Leaf Essent. Oil | -- | 200 | | |
| 6 | DILLAPIOL | Shoot Essent. Oil | -- | 3100 | | |
| 0 | DILLAPIOLE | Fruit | 1440 | 40425 | 1 | |
| 0 | DILLAPIOLE | Seed | 1440 | 40425 | 1 | |
| 0 | DILLAPIOLE | Leaf | 100 | 375 | | |
| 0 | DILLAPIONAL | Seed Essent. Oil | -- | -- | | |
| 7 | DIPENTENE | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|----------|-------------------|---------|----------|---------------------|---|
| 0 | EICOSANE | Root | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 16 | ELEMICIN | Plant | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 16 | ELEMICIN | Shoot Essent. Oil | -- | -- | | |
| 0 | EO | Fruit | 12000 | 77000 | 0.6766879839519779 | |
| 0 | EO | Plant | 5600 | 15000 | 0.39984481264221844 | |
| 0 | EO | Root | 300 | 500 | -0.631241020868696 | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 0 | EO | Leaf | 1640 | 15000 | 0.30477802284223493 | |
| 0 | EO | Seed | 12000 | 77000 | 0.4229268931630007 | |
| 0 | EO | Shoot | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|--------------|------------------|---------|----------|----------------------|--|
| 5 | ERGOSTEROL | Seed Essent. Oil | -- | -- | | |
| 30 | ESCULETIN | Fruit | -- | -- | | |
| 30 | ESCULETIN | Seed | -- | -- | | Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989. |
| 76 | EUGENOL | Plant | -- | -- | | |
| 76 | EUGENOL | Leaf | 280 | 750 | -0.7280702362058284 | |
| 76 | EUGENOL | Essential Oil | -- | -- | | |
| 0 | FAT | Fruit | 68000 | 180200 | 0.7351010154890802 | |
| 0 | FAT | Plant | 43000 | 47000 | -0.06928247240962923 | |
| 0 | FAT | Seed | 68000 | 180200 | -0.44871351459820963 | |
| 6 | FENCHONE | Leaf | 1 | 15 | -0.40382222941102286 | |
| 61 | FERULIC-ACID | Fruit | -- | -- | | |
| 61 | FERULIC-ACID | Seed | -- | -- | | |
| 15 | FIBER | Fruit | 177230 | 264869 | 1.1625047691716495 | |
| 15 | FIBER | Leaf | 119300 | 128000 | -0.41469774487153704 | |
| 15 | FIBER | Seed | 177230 | 264869 | 1.0272142583335766 | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|------------------|------------|---------|----------|----------------------|---|
| 26 | FLAVONE | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 0 | FLUORINE | Plant | 0.1 | 5.3 | -0.5842309569009599 | ACTA AGRIC SCAND SUPPL 22: 1980 |
| 6 | FURFURAL | Plant | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 0 | GAMMA-PINENE | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 0 | GAMMA-SITOSTEROL | Fruit | -- | -- | | |
| 0 | GAMMA-SITOSTEROL | Seed | -- | -- | | |
| 11 | GAMMA-TERPINENE | Fruit | 12 | 77 | -0.6371546249494475 | |
| 11 | GAMMA-TERPINENE | Seed | 12 | 77 | -0.8148071104880178 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 11 | GAMMA-TERPINENE | Leaf | 0.1 | 30 | -0.314079686023923 | |
| 35 | GERANIOL | Fruit | 24 | 154 | 0.33290806848468324 | |
| 35 | GERANIOL | Seed | 24 | 154 | -1 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 2 | GERMACRENE-D | Leaf | 70 | 190 | -0.37126607051679333 | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|--------------|------------------|---------|----------|---------------------|---|
| 0 | HEXADECANE | Root | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 7 | HISTIDINE | Fruit | 3200 | 3466 | 1.229336833484955 | |
| 7 | HISTIDINE | Seed | 3200 | 3466 | -0.7066452608029122 | USDA's Ag Handbook 8 and sequelae) |
| 30 | HYPEROSIDE | Leaf | -- | -- | | |
| 25 | IMPERATORIN | Seed Essent. Oil | -- | -- | | |
| 6 | IRON | Fruit | 114 | 230 | 0.3848598276758552 | |
| 6 | IRON | Plant | 23 | 755 | 0.1508119809777941 | |
| 6 | IRON | Seed | 114 | 230 | 0.3680195076933262 | |
| 6 | IRON | Leaf | -- | -- | | |
| 0 | ISODILLAPIOL | Essential Oil | -- | -- | | |
| 16 | ISOEUGENOL | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 3 | ISOLEUCINE | Fruit | 7670 | 8307 | 1.4023694860203781 | |
| 3 | ISOLEUCINE | Seed | 7670 | 8307 | -0.2787525308175236 | USDA's Ag Handbook 8 and sequelae) |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-----------------------------------|-------------------|---------|----------|--------|--|
| 0 | ISOMYRISTICIN | Leaf | -- | -- | | Wealth of India. |
| 0 | ISOPIPERITENONE | Shoot Essent. Oil | -- | 4000 | | |
| 22 | ISOQUERCITRIN | Leaf | -- | -- | | |
| 11 | ISORHAMNETIN | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 0 | ISORHAMNETIN-3-GLUCURONIDE | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 0 | ISORHOIFOLIN | Leaf | -- | -- | | |
| 0 | ISOTHYMOL | Leaf | 2 | 5 | | |
| 75 | KAEMPFEROL | Fruit | -- | -- | | |
| 75 | KAEMPFEROL | Seed | -- | -- | | Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989. |
| 0 | KAEMPFEROL-3-GLUCURONIDE | Leaf | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 0 | KAEMPFEROL-3-O-BETA-D-GLUCURONIDE | Seed | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-------------------------|-------------------|---------|----------|---------------------|------------------------------------|
| 0 | KAEMPFEROL-GLYCOFLAVONE | Seed | -- | -- | | |
| 7 | LAURIC-ACID | Fruit | 100 | 108 | -0.4441927698072271 | |
| 7 | LAURIC-ACID | Seed | 100 | 108 | -0.5113625956002235 | USDA's Ag Handbook 8 and sequelae) |
| 0 | LEAD | Plant | 0.05 | 0.8 | -0.5492766752904812 | ACTA AGRIC SCAND SUPPL 22: 1980 |
| 2 | LEUCINE | Fruit | 9250 | 10018 | 1.0452643502878531 | |
| 2 | LEUCINE | Seed | 9250 | 10018 | -0.6761051130330088 | USDA's Ag Handbook 8 and sequelae) |
| 60 | LIMONENE | Plant | -- | -- | | |
| 60 | LIMONENE | Leaf | 125 | 3735 | 3.4814383627388343 | |
| 60 | LIMONENE | Essential Oil | 467000 | 628800 | 2.882227993253224 | |
| 60 | LIMONENE | Shoot Essent. Oil | -- | 119200 | 0.3094342045722538 | |
| 60 | LIMONENE | Leaf Essent. Oil | -- | 214300 | 0.2690608628408047 | |
| 60 | LIMONENE | Seed Essent. Oil | -- | -- | | |
| 60 | LIMONENE | Root Essent. Oil | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|----------------------|---------------|---------|----------|----------------------|---|
| 0 | LINALOL | Plant | -- | -- | | |
| 53 | LINALOOL | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 53 | LINALOOL | Essential Oil | -- | -- | | |
| 7 | LINALYL-ACETATE | Seed | -- | -- | | Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp. |
| 27 | LINOLEIC-ACID | Fruit | 9600 | 10397 | -0.2087139721578888 | |
| 27 | LINOLEIC-ACID | Seed | 9600 | 10397 | -0.828751087439793 | USDA's Ag Handbook 8 and sequelae) |
| 27 | LINOLEIC-ACID | Plant | -- | -- | | |
| 7 | LUTEOLIN-7-GLUCOSIDE | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 0 | LUTEOLIN-GLYCOSIDE | Seed | -- | -- | | |
| 4 | LYSINE | Fruit | 10380 | 11242 | 1.8459850057143503 | |
| 4 | LYSINE | Seed | 10380 | 11242 | -0.11603254287698407 | USDA's Ag Handbook 8 and sequelae) |
| 65 | MAGNESIUM | Fruit | 2449 | 2893 | 0.3534351875253372 | |
| 65 | MAGNESIUM | Plant | 560 | 6470 | 0.7461924242723924 | |
| 65 | MAGNESIUM | Seed | 2449 | 2893 | -0.02098100116423311 | USDA's Ag Handbook 8 and sequelae) |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-----------------|-------------------|---------|----------|----------------------|--|
| 14 | MANGANESE | Fruit | -- | 18 | -0.2848478380503656 | |
| 14 | MANGANESE | Plant | 8 | 435 | 2.4228210372847276 | |
| 14 | MANGANESE | Seed | 18 | 18 | -0.4424804207753204 | USDA's Ag Handbook 8 and sequelae) |
| 1 | MERCURY | Plant | 0.003 | 0.06 | -0.5009617770057098 | ACTA AGRIC SCAND SUPPL 22: 1980 |
| 15 | METHIONINE | Fruit | 1430 | 1549 | 0.7271352318996868 | |
| 15 | METHIONINE | Seed | 1430 | 1549 | -0.7141817868825112 | USDA's Ag Handbook 8 and sequelae) |
| 4 | METHYL-BENZOATE | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 6 | METHYL-CHAVICOL | Fruit | -- | -- | | |
| 6 | METHYL-CHAVICOL | Seed | -- | -- | | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 2 | MOLYBDENUM | Plant | -- | 0.1 | -0.7655179249334362 | ACTA AGRIC SCAND SUPPL 22: 1980 |
| 22 | MYRCENE | Fruit | 84 | 924 | -0.24028812670479283 | |
| 22 | MYRCENE | Leaf | 15 | 924 | -0.1311775014332694 | |
| 22 | MYRCENE | Seed | 20 | 924 | -0.5501224655274027 | |
| 22 | MYRCENE | Shoot Essent. Oil | -- | 15600 | -0.4397404959457284 | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|------------------|-------------------|---------|----------|---------------------|------------------------------------|
| 22 | MYRCENE | Essential Oil | -- | -- | | |
| 6 | MYRISTIC-ACID | Fruit | 100 | 108 | -0.2640487123172083 | |
| 6 | MYRISTIC-ACID | Seed | 100 | 108 | -0.294589404195434 | USDA's Ag Handbook 8 and sequelae) |
| 31 | MYRISTICIN | Fruit | -- | -- | | |
| 31 | MYRISTICIN | Root | -- | -- | | |
| 31 | MYRISTICIN | Seed | -- | -- | | |
| 31 | MYRISTICIN | Leaf | 45 | 220 | -0.83677421638605 | |
| 31 | MYRISTICIN | Root Essent. Oil | -- | -- | | |
| 31 | MYRISTICIN | Essential Oil | -- | 203000 | 1 | |
| 31 | MYRISTICIN | Shoot Essent. Oil | -- | 2000 | | |
| 1 | N-BUTYLPHTHALIDE | Root | -- | -- | | |
| 0 | N-UNDECANE | Leaf | 3 | 70 | | |
| 0 | NEOCNIDILIDE | Root | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|---------------|------------|---------|----------|----------------------|--|
| 2 | NEOCNIDOLIDE | Root | -- | -- | | Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989. |
| 0 | NEOPHYTADIENE | Leaf | 25 | 75 | | |
| 39 | NIACIN | Fruit | 28 | 30 | -0.41038049882634875 | |
| 39 | NIACIN | Plant | 28 | 30 | -0.6546703629814054 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 39 | NIACIN | Seed | 28 | 30 | -0.3857324434479313 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 3 | NICKEL | Plant | 0.1 | 4.7 | -0.9948320067476139 | ACTA AGRIC SCAND SUPPL 22: 1980 |
| 0 | NITROGEN | Plant | 6800 | 55300 | 2.123792178566495 | ACTA AGRIC SCAND SUPPL 22: 1980 |
| 0 | NONADECANE | Root | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 0 | NONANAL | Fruit | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|---------------------------|------------------|---------|----------|----------------------|---|
| 0 | NONANAL | Seed | -- | -- | | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 0 | OCTADECA-5,6-DIENOIC-ACID | Seed Oil | -- | -- | | |
| 0 | OCTAN-1-AL | Root Essent. Oil | -- | -- | | |
| 0 | OCTANOL | Root | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 18 | OLEIC-ACID | Fruit | 93600 | 101369 | 0.30053967859239455 | |
| 18 | OLEIC-ACID | Plant | -- | -- | | |
| 18 | OLEIC-ACID | Seed | 78000 | 101369 | -0.14578751292878622 | |
| 4 | OSTHOLE | Root | -- | -- | | Wealth of India. |
| 25 | P-COUMARIC-ACID | Leaf | -- | 16 | -0.34577655264533097 | |
| 16 | P-CYMENE | Fruit | 336 | 3773 | -0.08029864689784445 | |
| 16 | P-CYMENE | Seed | 40 | 3773 | 0.2503968578555244 | |
| 16 | P-CYMENE | Leaf | 30 | 4460 | 3.3052402930466984 | |
| 16 | P-CYMENE | Shoot | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-----------------------|------------------|---------|----------|----------------------|--|
| 16 | P-CYMENE | Leaf Essent. Oil | -- | 21700 | -0.45620901588660095 | |
| 16 | P-CYMENE | Essential Oil | -- | -- | | |
| 16 | P-CYMENE | Seed Essent. Oil | -- | -- | | |
| 16 | P-CYMENE | Root Essent. Oil | -- | -- | | |
| 0 | P-CYMENE-8-OL | Leaf | 2 | 6 | 1.0000000000000002 | |
| 0 | P-MENTHA-1,3,8-TRIENE | Leaf | 5 | 45 | | |
| 0 | P-MENTHA-2,4(8)-DIENE | Essential Oil | -- | -- | | |
| 13 | PALMITIC-ACID | Fruit | 5800 | 6281 | -0.26775372349168214 | |
| 13 | PALMITIC-ACID | Seed | 5800 | 6281 | -0.5700036394768608 | USDA's Ag Handbook 8 and sequelae) |
| 13 | PALMITIC-ACID | Plant | -- | -- | | |
| 2 | PALMITOLEIC-ACID | Fruit | 500 | 542 | -0.24636918327436183 | |
| 2 | PALMITOLEIC-ACID | Seed | 500 | 542 | -0.28545713507529 | USDA's Ag Handbook 8 and sequelae) |
| 2 | PALMITOLEIC-ACID | Plant | -- | -- | | |
| 4 | PARAFFIN | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|--------------------------------|----------------|---------|----------|---------------------|---|
| 0 | PENTADECANE | Root | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 0 | PERSICARIN | Shoot | -- | 580 | | |
| 0 | PERSICARIN | Seed | -- | -- | | |
| 0 | PETROSELINIC-ACID | Plant | -- | -- | | |
| 0 | PETROSELINIC-ACID | Seed | -- | 816000 | 1.179419422049027 | |
| 0 | PETROSELINIC-ACID-TRIGLYCERIDE | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 4 | PHELLANDRENE | Essential Oil | -- | -- | | |
| 7 | PHENYLALANINE | Fruit | 6700 | 7256 | 1.3630311294640811 | |
| 7 | PHENYLALANINE | Seed | 6700 | 7256 | -0.5116370330548264 | USDA's Ag Handbook 8 and sequelae) |
| 4 | PHOSPHORUS | Fruit | 2102 | 3723 | 0.153997696991918 | |
| 4 | PHOSPHORUS | Plant | 600 | 7625 | 1.9396126413461277 | |
| 4 | PHOSPHORUS | Seed | 2102 | 3723 | -0.430835600149335 | USDA's Ag Handbook 8 and sequelae) |
| 0 | PHYTOCHELATIN-A | Tissue Culture | -- | -- | | |
| 0 | PHYTOFLUENE | Seed | -- | -- | | Wealth of India. |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|--------------------------|------------|---------|----------|----------------------|---|
| 2 | PHYTOSTEROLS | Plant | -- | 1240 | 0.15885150061665407 | Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.) |
| 61 | PIPERINE | Seed | -- | 28.6 | -1 | |
| 0 | PIPERITOL | Leaf | 5 | 20 | 1 | |
| 14 | POTASSIUM | Fruit | 10680 | 14122 | -0.33571380248517246 | |
| 14 | POTASSIUM | Plant | 8700 | 76450 | 3.8114363499495174 | |
| 14 | POTASSIUM | Seed | 10680 | 14122 | 0.13648348307387825 | USDA's Ag Handbook 8 and sequelae) |
| 0 | PROTEIN | Fruit | 147680 | 226000 | 1.5617527309713977 | |
| 0 | PROTEIN | Plant | 199600 | 216000 | 0.34857195641171973 | |
| 0 | PROTEIN | Seed | 147680 | 226000 | -0.06935005803918042 | |
| 176 | QUERCETIN | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 0 | QUERCETIN-3-0-RUTINOSIDE | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 0 | QUERCETIN-3-GLUCURONIDE | Leaf | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|----------------------------------|------------|---------|----------|----------------------|--|
| 0 | QUERCETIN-3-GLUCURONIDE | Seed | -- | -- | | |
| 2 | QUERCETIN-3-O-BETA-D-GLUCURONIDE | Leaf | -- | -- | | |
| 2 | QUERCETIN-3-O-BETA-D-GLUCURONIDE | Shoot | -- | -- | | |
| 4 | QUERCETIN-3-RHAMNOGLUCOSIDE | Leaf | -- | -- | | |
| 0 | QUERCETIN-3-SULFATE | Shoot | -- | 770 | | |
| 0 | QUERCETIN-3-SULFATE | Seed | -- | -- | | |
| 44 | QUERCITRIN | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 44 | QUERCITRIN | Seed | -- | 500 | | |
| 15 | RIBOFLAVIN | Fruit | -- | 3 | -0.4303249009534089 | |
| 15 | RIBOFLAVIN | Plant | 3 | 3 | -0.5861819139119265 | USDA's Ag Handbook 8 and sequelae) |
| 15 | RIBOFLAVIN | Seed | 3 | 3 | -0.20090831129253928 | USDA's Ag Handbook 8 and sequelae) |
| 57 | ROSMARINIC-ACID | Plant | -- | -- | | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 0 | RUBIDIUM | Plant | 1.1 | 28 | 0.3807624787725667 | ACTA AGRIC SCAND SUPPL 22: 1980 |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|---------------|-------------------|---------|----------|----------------------|--|
| 87 | RUTIN | Leaf | -- | 1400 | -0.9176299796056019 | Varnaite, R. 1988. Rutin Content in Capsicum, Capsella, Urtica, Primula, Lepidium, Lactuca, Brassica, Anethum, Beta, Petroselinum, Allium Genera Representatives. Liet Tsr Mokslu Akad Darb Ser C, 4: 29-32. |
| 5 | SABINENE | Plant | -- | -- | | |
| 5 | SABINENE | Leaf | 5 | 15 | -0.25165177043728276 | |
| 5 | SABINENE | Essential Oil | -- | -- | | |
| 5 | SABINOL | Leaf | 1 | 3 | -1.3518433080577976 | |
| 5 | SABINOL | Shoot Essent. Oil | -- | 5000 | | |
| 29 | SAFROLE | Plant | 125 | 360 | 0.554163659253734 | |
| 29 | SAFROLE | Seed Essent. Oil | -- | -- | | |
| 0 | SALICALDEHYDE | Plant | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 7 | SALICYLATES | Seed | 70 | 945 | 4.730027580498452 | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|--------------|------------------|---------|----------|----------------------|------------------------------------|
| 44 | SCOPOLETIN | Fruit | -- | -- | | |
| 44 | SCOPOLETIN | Seed | -- | -- | | |
| 44 | SCOPOLETIN | Shoot | -- | 2 | | |
| 44 | SCOPOLETIN | Root | -- | -- | | |
| 44 | SCOPOLETIN | Seed Essent. Oil | -- | -- | | |
| 60 | SELENIUM | Plant | 0.001 | 0.012 | -0.42698636145174623 | ACTA AGRIC SCAND SUPPL 22: 1980 |
| 0 | SENKYUNOLIDE | Root | -- | -- | | |
| 4 | SILICON | Plant | 30 | 700 | 3.674360216691932 | ACTA AGRIC SCAND SUPPL 22: 1980 |
| 1 | SODIUM | Fruit | 158 | 262 | -0.15910562070334694 | |
| 1 | SODIUM | Plant | 1097 | 3308 | -0.12095943629882361 | USDA's Ag Handbook 8 and sequelae) |
| 1 | SODIUM | Seed | 158 | 262 | -0.29981285993350754 | USDA's Ag Handbook 8 and sequelae) |
| 8 | STEARIC-ACID | Fruit | 1000 | 1083 | -0.2073990310361778 | |
| 8 | STEARIC-ACID | Seed | 1000 | 1083 | -0.541892617814625 | USDA's Ag Handbook 8 and sequelae) |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|---------------|------------------|---------|----------|----------------------|---|
| 12 | STIGMASTEROL | Plant | -- | 420 | 1.1614156001580258 | Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.) |
| 12 | STIGMASTEROL | Root | -- | -- | | |
| 12 | STIGMASTEROL | Seed Essent. Oil | -- | -- | | |
| 14 | SULFUR | Plant | 1400 | 11175 | 3.111094705278092 | ACTA AGRIC SCAND SUPPL 22: 1980 |
| 0 | TANNINS | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 23 | TERPINEN-4-OL | Fruit | 12 | 77 | -0.3466854896821412 | |
| 23 | TERPINEN-4-OL | Seed | 0.1 | 77 | -0.6507040021716104 | |
| 23 | TERPINEN-4-OL | Leaf | 5 | 15 | -0.33175766291960446 | |
| 23 | TERPINEN-4-OL | Essential Oil | -- | -- | | |
| 9 | TERPINOLENE | Leaf | 0.1 | 50 | -0.1684008925639172 | |
| 0 | TETRADECANE | Root | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|---------------------|-------------------|---------|----------|----------------------|--|
| 0 | TETRAHYDROCOUMARANE | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 31 | THIAMIN | Fruit | 4 | 5 | -0.0425885992841977 | |
| 31 | THIAMIN | Plant | 4 | 5 | -0.2209949208584362 | USDA's Ag Handbook 8 and sequelae) |
| 31 | THIAMIN | Seed | 4 | 5 | -0.37795068225120004 | USDA's Ag Handbook 8 and sequelae) |
| 4 | THREONINE | Fruit | 5750 | 6227 | 1.3340819873960998 | |
| 4 | THREONINE | Seed | 5750 | 6227 | -0.4273575247230049 | USDA's Ag Handbook 8 and sequelae) |
| 71 | THYMOL | Shoot Essent. Oil | -- | 1600 | -0.6613738654809941 | |
| 1 | TOLUENE | Shoot Essent. Oil | -- | -- | | |
| 0 | TRANS-2-HEXEN-1-OL | Leaf | 0.1 | 15 | -1 | |
| 8 | TRANS-ANETHOLE | Fruit | 12 | 539 | -0.9826483469276708 | |
| 8 | TRANS-ANETHOLE | Seed | 12 | 539 | -1.3057099249333581 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 0 | TRANS-BETA-OCIMENE | Leaf | 6 | 20 | -0.7318152701857925 | |
| 1 | TRANS-CARVEOL | Fruit | 42 | 270 | 1 | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|------------------------|------------------|---------|----------|--------|---|
| 1 | TRANS-CARVEOL | Seed | 42 | 270 | 1 | Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980. |
| 0 | TRANS-DIHYDROCARVONE | Fruit | 24 | 154 | -1 | |
| 0 | TRANS-DIHYDROCARVONE | Seed | 24 | 154 | 1 | |
| 0 | TRANS-DIHYDROCARVONE | Leaf | 100 | 290 | | |
| 0 | TRANS-DIHYDROCARVONE | Essential Oil | -- | -- | | |
| 0 | TRANS-P-MENTHA-2-EN-OL | Leaf | 10 | 30 | | |
| 0 | TRIDECENE | Root | -- | -- | | Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986. |
| 22 | UMBELLIFERONE | Fruit | -- | -- | | |
| 22 | UMBELLIFERONE | Seed | -- | -- | | |
| 22 | UMBELLIFERONE | Root | -- | -- | | |
| 22 | UMBELLIFERONE | Seed Essent. Oil | -- | -- | | |
| 0 | UMBELLIPRENIN | Fruit | -- | -- | | |
| 0 | UMBELLIPRENIN | Seed | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|---------------|------------------|---------|----------|----------------------|--|
| 0 | UMBELLIPRENIN | Seed Essent. Oil | -- | -- | | |
| 1 | URANIUM | Leaf | -- | 0.16 | | Wealth of India. |
| 1 | URANIUM | Root | -- | 7.9 | 0.9999999999999998 | Wealth of India. |
| 0 | UREASE | Plant | -- | -- | | Pakistan Encyclopedia Planta Medica. 1986. |
| 3 | VALINE | Fruit | 11200 | 12130 | 1.5839770667175401 | |
| 3 | VALINE | Seed | 11200 | 12130 | 0.014590043883791455 | USDA's Ag Handbook 8 and sequelae) |
| 16 | VANADIUM | Leaf | -- | 0.84 | -0.8876491141170819 | Wealth of India. |
| 3 | VICENIN | Fruit | -- | -- | | |
| 3 | VICENIN | Seed | -- | -- | | |
| 1 | VITAMIN-K | Seed | 50 | 200 | | |
| 0 | VITAMIN-P | Leaf | -- | -- | | Wealth of India. |
| 0 | WATER | Fruit | 70310 | 83690 | -2.9866434775739372 | |
| 0 | WATER | Plant | 73000 | 830000 | 0.2528779846519487 | |
| 0 | WATER | Seed | 70310 | 83690 | -0.5522699422938635 | USDA's Ag Handbook 8 and sequelae) |
| 3 | XANTHOPHYLL | Fruit | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|---------------|------------|---------|----------|--------------------|--|
| 3 | XANTHOPHYLL | Seed | -- | -- | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 43 | XANTHOTOXIN | Seed | -- | -- | | |
| 2 | Z-LIGUSTILIDE | Root | -- | -- | | Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989. |
| 77 | ZINC | Fruit | 43 | 66 | 1.0740192620721936 | |
| 77 | ZINC | Plant | 11 | 150 | 0.9651488572052452 | |
| 77 | ZINC | Seed | 43 | 66 | 0.592445203168114 | USDA's Ag Handbook 8 and sequelae) |