

Dr. Duke's Phytochemical and Ethnobotanical Database

Chemicals Found in *Papaver somniferum*

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-------------------------------------|---------------|---------|----------|--------|---|
| 0 | (+)-LAUDANIDINE | Fruit | -- | -- | | |
| 0 | (+)-RETICULINE | Latex Exudate | -- | -- | | |
| 0 | (+)-RETICULINE | Fruit | -- | -- | | |
| 0 | (-)-ALPHA-NARCOTINE | Inflorescence | -- | -- | | |
| 0 | (-)-NARCOTOLINE | Inflorescence | -- | -- | | |
| 0 | (-)-SCOULERINE | Plant | -- | -- | | |
| 0 | (-)-SCOULERINE | Latex Exudate | -- | -- | | |
| 0 | 10-HYDROXYCODEINE | Latex Exudate | -- | -- | | |
| 0 | 10-NONACOSANOL | Latex Exudate | -- | -- | | Chemical Constituents of Oriental Herbs (3 diff. books) |
| 0 | 13-OXOCRYPTOPINE | Plant | -- | -- | | |
| 0 | 16-HYDROXYTHEBAINE | Plant | -- | -- | | |
| 0 | 20-HYDROXY-TRICOSANYLCYCLOHEXANE | Fruit | -- | 36 | | |
| 0 | 4-HYDROXY-BENZOIC-ACID | Pericarp | -- | -- | | |
| 0 | 4-METHYL-NONACOSANE | Fruit | -- | 3.2 | | |
| 0 | 5'-O-DEMETHYLNARCOTINE | Plant | -- | -- | | |
| 0 | 5-HYDROXY-3,7-DIMETHOXYPHENANTHRENE | Latex Exudate | -- | -- | | |
| 0 | 6-ACTEONLYDIHYDROSANGUINARINE | Plant | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|----------------------|---------------|---------|----------|----------------------|--|
| 0 | 6-METHYL-CODEINE | Plant | -- | -- | | Father Nature's Farmacy: The aggregate of all these three-letter citations. |
| 0 | 6-METHYL-CODEINE | Fruit | -- | -- | | |
| 0 | ACONITASE | Latex Exudate | -- | -- | | |
| 32 | AESCULETIN | Pericarp | -- | -- | | |
| 3 | ALANINE | Seed | 11780 | 12637 | 0.5273634907250652 | |
| 0 | ALKALOIDS | Latex Exudate | 50000 | 250000 | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 5 | ALLOCRYPTOPINE | Plant | -- | -- | | Father Nature's Farmacy: The aggregate of all these three-letter citations. |
| 15 | ALPHA-LINOLENIC-ACID | Seed | 1400 | 5564 | -0.22115561650586155 | |
| 2 | ALPHA-NARCOTINE | Plant | -- | -- | | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 17 | APOMORPHINE | Plant | -- | -- | | Father Nature's Farmacy: The aggregate of all these three-letter citations. |
| 0 | APOREINE | Fruit | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-----------------|----------------|---------|----------|----------------------|--|
| 0 | ARABINOSE | Fruit | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | ARACHIDIC-ACID | Seed | 1720 | 1920 | -0.4678536622769215 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | ARACHIDIC-ACID | Seed Oil | -- | -- | | |
| 14 | ARGININE | Seed | 19950 | 21401 | -0.1371677842175051 | |
| 112 | ASCORBIC-ACID | Seed | -- | -- | -0.33845664486186666 | |
| 112 | ASCORBIC-ACID | Fruit | -- | 1120 | -0.21485077361679586 | |
| 112 | ASCORBIC-ACID | Tissue Culture | -- | -- | | |
| 0 | ASH | Seed | 65450 | 75060 | 0.8175065645162889 | |
| 3 | ASPARTIC-ACID | Seed | 22020 | 23622 | 0.09170736062604648 | |
| 1 | BEHENIC-ACID | Latex Exudate | -- | -- | | |
| 130 | BERBERINE | Plant | -- | -- | | Father Nature's Farmacy: The aggregate of all these three-letter citations. |
| 53 | BETA-CAROTENE | Seed | -- | -- | | |
| 47 | BETA-SITOSTEROL | Seed | 520 | 550 | -0.4199216005919147 | Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.) |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-----------------|---------------|---------|----------|---------------------|---|
| 47 | BETA-SITOSTEROL | Fruit | -- | -- | | |
| 4 | BORON | Seed | 15 | 95 | 3.362596404439195 | 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). |
| 102 | CAFFEIC-ACID | Leaf | -- | -- | | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 102 | CAFFEIC-ACID | Pericarp | -- | -- | | |
| 28 | CALCIUM | Seed | 13807 | 16214 | 2.216307236056363 | |
| 2 | CAMPESTEROL | Seed | 200 | 240 | -0.1263974543876007 | Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.) |
| 1 | CANADINE | Plant | -- | -- | | |
| 0 | CAOUTCHOUC | Latex Exudate | 50000 | 100000 | 0.9231280046840273 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | CARBOHYDRATES | Seed | 236900 | 254130 | -1.0701424676432536 | |
| 1 | CATALASE | Latex Exudate | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-----------------|---------------------|---------|----------|---------------------|--|
| 0 | CERYL-PALMITATE | Latex Exudate | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 20 | CHOLINE | Plant | -- | -- | | |
| 24 | CHROMIUM | Seed | 13.4 | 13.4 | 1.269730108106075 | |
| 23 | CITRIC-ACID | Latex Exudate | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 2 | COBALT | Seed | 0.4 | 0.4 | -0.1885954172151604 | |
| 0 | CODAMINE | Plant | -- | -- | | |
| 0 | CODAMINE | Latex Exudate | -- | 10 | | |
| 0 | CODAMINE | Fruit | -- | -- | | |
| 14 | CODEINE | Latex Exudate | 5000 | 25000 | | |
| 14 | CODEINE | Plant | -- | -- | | |
| 14 | CODEINE | Fruit | 400 | 1320 | | |
| 14 | CODEINE | Resin, Exudate, Sap | -- | 34700 | | |
| 14 | CODEINE | Gum | -- | 35000 | | |
| 14 | CODEINE | Seed | 0.1 | 440 | | |
| 14 | CODEINE | Shoot | -- | 14 | | |
| 14 | CODEINE | Hypocotyl | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-----------------|----------------|---------|----------|--------------------|---|
| 14 | CODEINE | Tissue Culture | 34 | 200 | | |
| 14 | CODEINE | Inflorescence | -- | -- | | |
| 14 | CODEINE | Leaf | 60 | 430 | | |
| 14 | CODEINE | Stem | -- | 100 | | |
| 14 | CODEINE | Root | 100 | 200 | | |
| 0 | CODEINE-N-OXIDE | Latex Exudate | -- | -- | | Chemical Constituents of Oriental Herbs (3 diff. books) |
| 0 | CODEINE-N-OXIDE | Fruit | -- | 50 | | |
| 0 | CODEINONE | Plant | -- | -- | | Father Nature's Farmacy: The aggregate of all these three-letter citations. |
| 12 | COPPER | Seed | 16 | 23 | 0.7424671767599702 | |
| 3 | COPTISINE | Plant | -- | -- | | |
| 3 | COPTISINE | Seed | -- | -- | | |
| 3 | COPTISINE | Root | -- | -- | | |
| 3 | COPTISINE | Stem | -- | -- | | |
| 3 | COPTISINE | Leaf | -- | -- | | |
| 2 | COREXIMINE | Plant | -- | -- | | |
| 3 | CORYTUBERINE | Plant | -- | -- | | Father Nature's Farmacy: The aggregate of all these three-letter citations. |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|--------------------------|----------------|---------|----------|-------------------|---|
| 0 | COTARNOLINE | Fruit | -- | -- | | |
| 1 | CRYPTOPINE | Plant | -- | -- | | |
| 1 | CRYPTOPINE | Latex Exudate | -- | -- | | |
| 1 | CRYPTOPINE | Gum | -- | 1000 | | |
| 1 | CRYPTOPINE | Fruit | -- | -- | | |
| 1 | CRYPTOPINE | Tissue Culture | -- | -- | | |
| 7 | CYCLOARTENOL | Latex Exudate | -- | -- | | Chemical Constituents of Oriental Herbs (3 diff. books) |
| 0 | CYCLOARTENONE | Latex Exudate | -- | -- | | Chemical Constituents of Oriental Herbs (3 diff. books) |
| 0 | CYCLOLAUDENOL | Latex Exudate | -- | -- | | |
| 0 | CYCLOLAUDENONE | Latex Exudate | -- | -- | | Chemical Constituents of Oriental Herbs (3 diff. books) |
| 2 | CYSTINE | Seed | 4530 | 4859 | 1.188948364030366 | |
| 1 | D-GLUCOSE | Plant | -- | -- | | |
| 0 | D-MANNOHEPTULOSE | Fruit | -- | -- | | Chemical Constituents of Oriental Herbs (3 diff. books) |
| 5 | DAUCOSTEROL | Fruit | -- | -- | | |
| 0 | DESMETHYLEPIPORPHYROXINS | Plant | -- | -- | | Father Nature's Farmacy: The aggregate of all these three-letter citations. |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|---------------------|----------------|---------|----------|----------------------|--|
| 1 | DEXTROSE | Latex Exudate | 27000 | 33000 | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | DIASTASE | Fruit | -- | -- | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 0 | DIHYDROPROTOPINE | Plant | -- | -- | | |
| 0 | DIHYDROSANGUINARINE | Plant | -- | -- | | |
| 0 | DIHYDROSANGUINARINE | Tissue Culture | -- | -- | | |
| 0 | DOPA-DECARBOXYLASE | Latex Exudate | -- | -- | | |
| 20 | DOPAMINE | Tissue Culture | -- | -- | | |
| 20 | DOPAMINE | Latex Exudate | -- | -- | | |
| 0 | EMULSIN | Fruit | -- | -- | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 2 | ERYTHRITOL | Fruit | -- | -- | | Chemical Constituents of Oriental Herbs (3 diff. books) |
| 0 | FAT | Seed | 400000 | 550000 | 1.4991553625628231 | |
| 61 | FERULIC-ACID | Pericarp | -- | -- | | |
| 15 | FIBER | Seed | 58080 | 71818 | -0.49714940919128525 | |
| 0 | FIXED-OIL | Plant | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-------------------------------------|---------------|---------|----------|----------------------|--|
| 0 | FUMARASE | Latex Exudate | -- | -- | | |
| 0 | GADOLEIC-ACID | Seed | 400 | 429 | -0.6684981302639723 | |
| 0 | GLAUDINE | Plant | -- | -- | | |
| 0 | GLUTAMATE-OXALOACETATE-TRANSAMINASE | Latex Exudate | -- | -- | | |
| 0 | GLUTAMATE-PYRUVATE-TRANSAMINASE | Latex Exudate | -- | -- | | |
| 8 | GLUTAMIC-ACID | Seed | 45410 | 48713 | 0.2953271998679615 | |
| 12 | GLYCINE | Seed | 11230 | 12047 | 0.15829068106143418 | |
| 0 | GLYOXYLATE-REDUCTASE | Latex Exudate | -- | -- | | |
| 0 | GNOSCOPINE | Plant | -- | -- | | |
| 0 | GNOSCOPINE | Fruit | -- | -- | | |
| 7 | HISTIDINE | Seed | 5280 | 5664 | -0.12231192018547095 | |
| 0 | HYDROCOTARNINE | Plant | -- | -- | | |
| 0 | HYDROCOTARNINE | Fruit | -- | -- | | |
| 0 | HYDROXYCODEINE | Plant | -- | -- | | |
| 0 | INVERTASE | Latex Exudate | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 12 | IODINE | Seed | 0.006 | 0.006 | -0.27786693191236994 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|--------------------------|---------------|---------|----------|----------------------|--|
| 6 | IRON | Seed | 91 | 143 | -0.03620914616399296 | |
| 5 | ISOBOLDINE | Plant | -- | -- | | |
| 5 | ISOBOLDINE | Latex Exudate | -- | -- | | |
| 0 | ISOCITRATE-DEHYDROGENASE | Latex Exudate | -- | -- | | |
| 0 | ISOCITRATE-LYASE | Latex Exudate | -- | -- | | |
| 0 | ISOCORYPALMINE | Plant | -- | -- | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 3 | ISOLEUCINE | Seed | 9050 | 9708 | -0.09998279304064013 | |
| 22 | ISOQUERCITRIN | Flower | -- | -- | | |
| 2 | ISOQUINOLINE | Plant | -- | -- | | |
| 0 | KILOCALORIES | Seed | 5330 | 5718 | 0.6724550008044287 | |
| 0 | L-DOPA-DECARBOXYLASE | Latex Exudate | -- | -- | | |
| 0 | LACTATE-DEHYDROGENASE | Latex Exudate | -- | -- | | |
| 8 | LACTIC-ACID | Latex Exudate | 10000 | 20000 | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | LANTHOPINE | Plant | -- | -- | | |
| 0 | LANTHOPINE | Fruit | -- | -- | | |
| 0 | LAUDANIDINE | Plant | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-------------------|---------------|---------|----------|----------------------|--|
| 0 | LAUDANIDINE | Latex Exudate | -- | 30 | | |
| 1 | LAUDANINE | Plant | -- | -- | | |
| 1 | LAUDANINE | Latex Exudate | -- | 100 | | |
| 4 | LAUDANOSINE | Plant | -- | -- | | |
| 4 | LAUDANOSINE | Fruit | -- | -- | | |
| 4 | LAUDANOSINE | Latex Exudate | -- | -- | | |
| 4 | LAUDANOSINE | Gum | -- | -- | | |
| 7 | LAURIC-ACID | Seed Oil | -- | -- | | |
| 0 | LAUROLEIC-ACID | Seed Oil | -- | -- | | |
| 20 | LECITHIN | Seed | 28000 | 28000 | 0.024823897304513683 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 2 | LEUCINE | Seed | 14840 | 15919 | -0.11126836523363871 | |
| 1 | LIGNOCERIC-ACID | Latex Exudate | -- | -- | | |
| 27 | LINOLEIC-ACID | Seed | 300335 | 309465 | 1.7336932275463397 | |
| 27 | LINOLEIC-ACID | Seed Oil | -- | -- | | |
| 27 | LINOLEIC-ACID | Latex Exudate | -- | -- | | |
| 0 | LINOLENOLEIC-ACID | Seed Oil | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|----------------------|---------------|---------|----------|---------------------|--|
| 0 | LIPASE | Latex Exudate | -- | -- | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 4 | LYSINE | Seed | 10990 | 11789 | -0.0419384760006119 | |
| 65 | MAGNESIUM | Seed | 3148 | 15600 | 4.99947138282473 | |
| 11 | MAGNOFLORINE | Latex Exudate | -- | -- | | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979. |
| 0 | MALATE-DEHYDROGENASE | Latex Exudate | -- | -- | | |
| 15 | MALIC-ACID | Latex Exudate | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | MALTASE | Latex Exudate | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 14 | MANGANESE | Seed | 29 | 68 | 0.18035715210387018 | |
| 0 | MECONIC-ACID | Latex Exudate | 100000 | 100000 | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | MECONIC-ACID | Gum | -- | -- | | |
| 0 | MECONIDINE | Fruit | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|------------|---------------------|---------|----------|--------------------|--|
| 0 | MECONIN | Latex Exudate | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | MECONINE | Latex Exudate | -- | -- | | |
| 0 | MECONISIN | Latex Exudate | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 15 | METHIONINE | Seed | 4700 | 5042 | 0.1877773797959893 | |
| 22 | MORPHINE | Fruit | 150 | 4100 | | |
| 22 | MORPHINE | Leaf | 28 | 700 | | |
| 22 | MORPHINE | Latex Exudate | 30000 | 250000 | | |
| 22 | MORPHINE | Plant | 900 | 1800 | | |
| 22 | MORPHINE | Root | 200 | 3900 | | |
| 22 | MORPHINE | Stem | 10 | 30 | | |
| 22 | MORPHINE | Gum | -- | 115000 | | |
| 22 | MORPHINE | Resin, Exudate, Sap | -- | 196000 | | |
| 22 | MORPHINE | Seed | 0.3 | 390 | | |
| 22 | MORPHINE | Shoot | 39 | 1000 | | |
| 22 | MORPHINE | Hypocotyl | -- | -- | | |
| 22 | MORPHINE | Inflorescence | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|--|----------------|---------|----------|--------|--|
| 0 | MORPHINE-N-OXIDE | Latex Exudate | -- | -- | | Chemical Constituents of Oriental Herbs (3 diff. books) |
| 0 | MORPHINE-N-OXIDE | Fruit | -- | 60 | | |
| 0 | MORPHINE-N-OXIDE | Stem | -- | -- | | |
| 0 | MYO-INOSITOL | Fruit | -- | -- | | Chemical Constituents of Oriental Herbs (3 diff. books) |
| 6 | MYRISTIC-ACID | Seed Oil | -- | -- | | |
| 1 | MYRISTOLEIC-ACID | Seed Oil | -- | -- | | |
| 0 | N-METHYL-14-DEACETYLISOPORPHYROXINE | Plant | -- | -- | | J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991. |
| 0 | N-METHYL-14-O-DESMETHYLEPIPORPHYROXINE | Plant | -- | -- | | Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705. |
| 0 | NARCEINAMIDE | Fruit | -- | -- | | |
| 6 | NARCEINE | Fruit | -- | 38 | | |
| 6 | NARCEINE | Plant | -- | -- | | |
| 6 | NARCEINE | Latex Exudate | 20 | 2000 | | |
| 6 | NARCEINE | Tissue Culture | -- | -- | | |
| 6 | NARCEINE | Gum | -- | -- | | |
| 0 | NARCEINE-IMIDE | Plant | -- | -- | | |
| 0 | NARCEINONE | Fruit | -- | 31 | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|----------------|---------------------|---------|----------|---------------------|--|
| 0 | NARCERINE | Fruit | -- | 20 | | Chemical Constituents of Oriental Herbs (3 diff. books) |
| 0 | NARCOTALINE | Plant | -- | -- | | J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991. |
| 6 | NARCOTINE | Latex Exudate | 10000 | 70000 | | |
| 6 | NARCOTINE | Plant | -- | 14 | | |
| 6 | NARCOTINE | Fruit | -- | 200 | | |
| 6 | NARCOTINE | Resin, Exudate, Sap | -- | 60000 | | |
| 6 | NARCOTINE | Gum | -- | 62500 | | |
| 6 | NARCOTINE | Shoot | -- | -- | | |
| 6 | NARCOTINE | Seed | 0.8 | 2300 | | |
| 0 | NARCOTOLINE | Plant | -- | 167 | | |
| 0 | NARCOTOLINE | Fruit | -- | -- | | |
| 0 | NARCOTOLINE | Root | -- | -- | | |
| 0 | NARCOTOLINE | Latex Exudate | -- | -- | | |
| 2 | NEOPINE | Plant | -- | -- | | |
| 2 | NEOPINE | Latex Exudate | -- | 50 | | |
| 2 | NEOPINE | Fruit | -- | -- | | |
| 39 | NIACIN | Seed | 9.2 | 11 | -0.9544805684815751 | |
| 11 | NICOTINIC-ACID | Leaf | -- | 1000 | 0.4235889253321141 | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|----------------------|---------------------|---------|----------|---------------------|---|
| 0 | NONACOSAN-1,8-DIOL | Fruit | -- | 10 | | |
| 0 | NONACOSAN-1-OL | Fruit | -- | -- | | |
| 0 | NORMORPHINE | Plant | -- | -- | | |
| 0 | NORNARCEINE | Plant | -- | -- | | Father Nature's Farmacy: The aggregate of all these three-letter citations. |
| 0 | NORSANGUINARINE | Tissue Culture | -- | -- | | |
| 2 | NOSCAPINE | Latex Exudate | 40000 | 60000 | | |
| 2 | NOSCAPINE | Resin, Exudate, Sap | -- | -- | | |
| 2 | NOSCAPINE | Plant | -- | -- | | |
| 2 | NOSCAPINE | Gum | -- | -- | | |
| 0 | O-METHYLSOMNIFERINE | Inflorescence | -- | -- | | |
| 0 | OCTACOSAN-1-OL | Fruit | -- | -- | | |
| 0 | OCTADECADIENOIC-ACID | Seed | -- | -- | | |
| 0 | OCTADECENOIC-ACID | Seed | -- | -- | | |
| 18 | OLEIC-ACID | Seed | 56230 | 71872 | -0.3882701720005955 | |
| 18 | OLEIC-ACID | Seed Oil | -- | -- | | |
| 18 | OLEIC-ACID | Latex Exudate | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-----------------|----------------|---------|----------|-------------------|--|
| 0 | OPIONIN | Latex Exudate | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | OPIUM | Latex Exudate | -- | -- | | |
| 0 | ORIENTALINE | Plant | -- | -- | | |
| 3 | ORIPAVINE | Fruit | -- | 1000 | | |
| 9 | OXALIC-ACID | Seed | 16200 | 16200 | 2.629403151554455 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | OXOSANGUINARINE | Tissue Culture | -- | -- | | |
| 0 | OXYCRYPTOPINE | Plant | -- | -- | | Father Nature's Farmacy: The aggregate of all these three-letter citations. |
| 0 | OXYDASE | Latex Exudate | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | OXYDIMORPHINE | Plant | -- | -- | | |
| 0 | OXYMORPHINE | Plant | -- | -- | | Father Nature's Farmacy: The aggregate of all these three-letter citations. |
| 0 | OXYNARCOTINE | Plant | -- | -- | | |
| 0 | OXYNARCOTINE | Fruit | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|------------------|---------------|---------|----------|----------------------|---|
| 0 | OXYSANGUINARINE | Plant | -- | -- | | |
| 25 | P-COUMARIC-ACID | Pericarp | -- | -- | | |
| 0 | P-VINYL-PHENOL | Fruit | -- | -- | | Chemical Constituents of Oriental Herbs (3 diff. books) |
| 0 | PACODINE | Plant | -- | -- | | |
| 0 | PALAUDINE | Plant | -- | -- | | Father Nature's Farmacy: The aggregate of all these three-letter citations. |
| 0 | PALAUDINE | Latex Exudate | -- | -- | | |
| 13 | PALMITIC-ACID | Seed | 38630 | 46620 | 0.26232081926786494 | |
| 13 | PALMITIC-ACID | Latex Exudate | -- | -- | | |
| 13 | PALMITIC-ACID | Seed Oil | -- | -- | | |
| 2 | PALMITOLEIC-ACID | Seed | 1300 | 1394 | -0.26500524295328565 | |
| 2 | PALMITOLEIC-ACID | Seed Oil | -- | -- | | |
| 0 | PAPAVERALDINE | Plant | -- | -- | | Father Nature's Farmacy: The aggregate of all these three-letter citations. |
| 0 | PAPAVERALDINE | Latex Exudate | -- | -- | | |
| 0 | PAPAVERAMINE | Plant | -- | -- | | Father Nature's Farmacy: The aggregate of all these three-letter citations. |
| 26 | PAPAVERINE | Fruit | 20 | 820 | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|------------------|---------------------|---------|----------|--------------------|--|
| 26 | PAPAVERINE | Latex Exudate | 5000 | 10000 | | |
| 26 | PAPAVERINE | Gum | -- | 7500 | | |
| 26 | PAPAVERINE | Resin, Exudate, Sap | -- | 4000 | | |
| 26 | PAPAVERINE | Plant | -- | -- | | |
| 26 | PAPAVERINE | Tissue Culture | -- | 45 | | |
| 26 | PAPAVERINE | Seed | 0.2 | 670 | | |
| 26 | PAPAVERINE | Root | -- | -- | | |
| 0 | PAPAVERRUBINE-C | Plant | -- | -- | | |
| 0 | PAPAVERRUBINE-D | Latex Exudate | -- | -- | | |
| 0 | PAPAVERRUBINE-D | Plant | -- | -- | | |
| 0 | PAPAVERUBINES | Plant | -- | -- | | Father Nature's Farmacy: The aggregate of all these three-letter citations. |
| 24 | PECTIN | Latex Exudate | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | PENTACOSAN-7-ONE | Fruit | -- | 28.5 | | |
| 0 | PENTOSANS | Seed | 30000 | 36000 | -0.889197654700376 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | PEROXIDASE | Latex Exudate | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-----------------------------|----------------|---------|----------|----------------------|--|
| 7 | PHENYLALANINE | Seed | 8820 | 9461 | -0.24832088153969623 | |
| 0 | PHENYLALANINE-DECARBOXYLASE | Latex Exudate | -- | -- | | |
| 4 | PHOSPHORIC-ACID | Latex Exudate | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 4 | PHOSPHORUS | Seed | 8290 | 9277 | 1.0368589821266212 | |
| 0 | PHYTATE | Seed | 21890 | 23290 | 1.3787678314626066 | |
| 2 | PHYTOSTEROLS | Seed | 890 | 955 | -0.3885675277621441 | |
| 0 | PORPHYROXINE | Fruit | -- | -- | | |
| 14 | POTASSIUM | Seed | 5250 | 8179 | -0.38616474942864093 | |
| 0 | PROLINE | Seed | 10620 | 11392 | 0.011029112372475834 | |
| 0 | PROTEASE | Latex Exudate | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | PROTEIN | Seed | 175256 | 198532 | -0.3136921431131898 | |
| 24 | PROTOPINE | Fruit | -- | -- | | |
| 24 | PROTOPINE | Tissue Culture | -- | -- | | |
| 0 | PSEUDOMORPHINE | Plant | -- | -- | | Father Nature's Farmacy: The aggregate of all these three-letter citations. |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|---------------------------|-----------------|---------|----------|---------------------|---|
| 1 | PYRROLIDINE | Latex Exudate | -- | -- | | Chemical Constituents of Oriental Herbs (3 diff. books) |
| 0 | QUERCETIN-3-GENTIOBIOSIDE | Flower | -- | -- | | |
| 0 | R-RETICULINE | Sprout Seedling | -- | -- | | |
| 0 | R-RETICULINE | Leaf | -- | -- | | |
| 0 | R-RETICULINE | Latex Exudate | -- | -- | | |
| 0 | R-RETICULINE | Shoot | -- | -- | | |
| 10 | RETICULINE | Plant | -- | -- | | |
| 10 | RETICULINE | Fruit | -- | -- | | |
| 10 | RETICULINE | Latex Exudate | -- | -- | | |
| 3 | RHOEADINE | Plant | -- | -- | | |
| 3 | RHOEADINE | Fruit | -- | -- | | |
| 15 | RIBOFLAVIN | Seed | 1.6 | 1.93 | -0.6109902953396645 | |
| 0 | ROEMERINE | Plant | -- | -- | | Father Nature's Farmacy: The aggregate of all these three-letter citations. |
| 0 | S-RETICULINE | Leaf | -- | -- | | |
| 0 | S-RETICULINE | Latex Exudate | -- | -- | | |
| 0 | S-RETICULINE | Shoot | -- | -- | | |
| 7 | SALICYLATES | Seed | -- | -- | -0.3401776874861938 | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|----------------|----------------|---------|----------|----------------------|--|
| 0 | SALUTARIDINE | Plant | -- | -- | | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 0 | SALUTARIDINE | Latex Exudate | -- | -- | | |
| 0 | SALUTARIDINE | Leaf | -- | -- | | |
| 0 | SALUTARIDINE | Shoot | -- | -- | | |
| 0 | SALUTARIDINOL | Plant | -- | -- | | Father Nature's Farmacy: The aggregate of all these three-letter citations. |
| 0 | SALUTARIDINOLE | Plant | -- | -- | | |
| 48 | SANGUINARINE | Plant | -- | -- | | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 48 | SANGUINARINE | Tissue Culture | -- | -- | | |
| 48 | SANGUINARINE | Root | -- | -- | | |
| 48 | SANGUINARINE | Stem | -- | -- | | |
| 48 | SANGUINARINE | Leaf | -- | -- | | |
| 0 | SEDOHEPTULOSE | Fruit | -- | -- | | Chemical Constituents of Oriental Herbs (3 diff. books) |
| 1 | SERINE | Seed | 9870 | 10588 | 0.002624156751364612 | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-------------------------|---------------|---------|----------|----------------------|--|
| 9 | SINAPIC-ACID | Pericarp | -- | -- | | |
| 0 | SITOSTEROL | Latex Exudate | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 1 | SODIUM | Seed | 155 | 300 | -0.23949097118534637 | |
| 2 | SOMNIFERINE | Inflorescence | -- | -- | | |
| 10 | SQUALENE | Seed | 59 | 59 | -1.1722641630833899 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 8 | STEARIC-ACID | Seed | 5890 | 8036 | -0.39103612812530036 | |
| 8 | STEARIC-ACID | Seed Oil | -- | -- | | |
| 8 | STEARIC-ACID | Latex Exudate | -- | -- | | |
| 0 | STEPHOLIDINE | Plant | -- | -- | | |
| 0 | STEPHOLIDINE | Latex Exudate | -- | -- | | |
| 12 | STIGMASTEROL | Seed | 50 | 55 | -0.46035749483774474 | Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.) |
| 0 | SUCCINATE-DEHYDROGENASE | Latex Exudate | -- | -- | | |
| 7 | SUCCINIC-ACID | Latex Exudate | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|-----------------------|---------------------|---------|----------|--------|--|
| 0 | SULFURIC-ACID | Latex Exudate | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 6 | TARTARIC-ACID | Latex Exudate | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | TETRAHYDROCOLUMBAMINE | Latex Exudate | -- | -- | | |
| 9 | TETRAHYDROPALMATINE | Plant | -- | -- | | |
| 0 | TETRAHYDROPAPAVERINE | Plant | -- | -- | | |
| 7 | THEBAINE | Latex Exudate | 1000 | 25000 | | |
| 7 | THEBAINE | Fruit | -- | 7800 | | |
| 7 | THEBAINE | Resin, Exudate, Sap | -- | 17300 | | |
| 7 | THEBAINE | Gum | -- | 22500 | | |
| 7 | THEBAINE | Root | -- | -- | | |
| 7 | THEBAINE | Hypocotyl | -- | -- | | |
| 7 | THEBAINE | Seed | 10 | 410 | | |
| 7 | THEBAINE | Tissue Culture | 20 | 45 | | |
| 7 | THEBAINE | Plant | -- | -- | | |
| 7 | THEBAINE | Shoot | -- | -- | | |
| 7 | THEBAINE | Inflorescence | -- | -- | | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|------------------------|---------------|---------|----------|----------------------|--|
| 7 | THEBAINE | Stem | -- | -- | | |
| 7 | THEBAINE | Leaf | -- | -- | | |
| 0 | THEBAOL | Plant | -- | -- | | |
| 0 | THEBAOL | Latex Exudate | -- | -- | | |
| 31 | THIAMIN | Seed | 7.8 | 9.9 | 0.7911069322871558 | |
| 4 | THREONINE | Seed | 9050 | 9708 | 0.35132307430924015 | |
| 0 | TOCOPHEROLS | Seed | 200 | 200 | -0.5714302102468665 | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 29 | TRYPTOPHAN | Seed | 2550 | 2735 | -0.20124145083987593 | |
| 8 | TYROSINE | Seed | 6810 | 7305 | -0.10104412588518938 | |
| 0 | TYROSINE-DECARBOXYLASE | Latex Exudate | -- | -- | | |
| 0 | UREASE | Latex Exudate | -- | -- | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 3 | VALINE | Seed | 12870 | 13806 | 0.2210059089928253 | |
| 24 | VANILLIC-ACID | Pericarp | -- | -- | | |
| 0 | VIT-A | Fruit | -- | 7.2 | | |
| 0 | VIT-B-6 | Seed | 4.4 | 4.7 | -0.05123693144565975 | |
| 0 | WATER | Seed | 62250 | 73300 | -0.5921407063022331 | |

| Activity Count | Chemical | Plant Part | Low PPM | High PPM | StdDev | Reference Citation |
|----------------|------------|---------------|---------|----------|--------------------|--|
| 0 | WAX | Latex Exudate | 60000 | 136000 | | ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes. |
| 0 | XANTHALINE | Fruit | -- | -- | | |
| 77 | ZINC | Seed | 24 | 130 | 2.4094178972857168 | |