

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in Piper nigrum

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	N-FORMYLPYPERIDINE	Fruit				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	N-ISOBUTYL-11-(3,4-METHYLENEDIOXY-PHENYL)-UNDECA-TRANS-2-TRANS-4-TRANS-10-TRIENAMIDE	Fruit		7.0		--
0	TOCOPHEROLS	Fruit		0.3		Charalambous, G. (Ed.). 1994. Spices, Herbs and Edible Fungi. Elsevier Science B. V. Amsterdam. 764 pp.
0	BETA-CARYOPHYLLENE	Leaf Essent. Oil		30000.0	-0.22730263739281492	--
0	CIS-SABINENE-HYDRATE	Fruit				--
0	P-MENTH-8-EN-1-OL	Fruit Essent. Oil		300.0		--
0	PIPEROLEIN-A	Fruit				--
0	N-ISOBUTYL-EICOSA-TRANS-2-TRANS-4-CIS-8-TRIENAMIDE	Fruit		105.0		--
0	CIS-TRANS-PIPERINE	Fruit				--
0	POLYSACCHARIDES	Fruit		450000.0	1.0	--
0	1(7),2-P-MENTHADIEN-4-OL	Fruit				--
0	(-)-PHELLANDRENE	Seed Essent. Oil				--
0	HENTRIACONTAN-16-ONE	Stem		40.0		--
0	ISOBUTYL-ISOVALERATE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	EPOXYDIHYDROCARYOPHYLLENE	Essential Oil				--
0	ALPHA-THUJENE	Fruit Essent. Oil	7300.0	29000.0	-0.22630241280017493	--
0	TRANS-NEROLIDOL	Fruit Essent. Oil		1200.0		--
0	ALPHA-BISABOLENE	Fruit Essent. Oil		21200.0		--
0	CARYOPHYLLA-3(12),7(15)DIEN-4-BETA-OL	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	MONOTERPENES	Fruit	7000.0	20800.0		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYL-OCTANOATE	Fruit				--
0	N-5-(4-HYDROXY-3-METHOXY-PHENYL)-PENT-TRANS-2-DIENOYL-PIPERIDINE	Fruit		9.0		--
0	2-METHYL-PENTANOIC-ACID	Fruit				--
0	CIS-CARVEOL	Fruit Essent. Oil		50.0	-1.0	--
0	BETA-CARYOPHYLLENE	Seed				--
0	CIS-P-2-MENTHEN-1-OL	Fruit				--
0	CARBOHYDRATE	Fruit		648100.0	-0.7817175730480762	USDA's Ag Handbook 8 and sequela)
0	N-HEPTADECENE	Fruit Essent. Oil		25300.0		--
0	ASH	Fruit	42932.0	60000.0	0.08639308861203618	--
0	N-(2-METHYLPROPYL)-DECA-TRANS-2-TRANS-4-DIENAMIDE	Fruit				--
0	CIS-NEROLIDOL	Fruit Essent. Oil		2000.0		--
0	LIPASE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	HENTRIACONTAN-16-ONE	Leaf				--
0	ISOBUTYL-CAPROATE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	ALPHA-TERPINEOL ACETATE	Fruit Essent. Oil		8600.0	-1.0	--
0	TRANS-CIS-PIPERINE	Fruit				--
0	ALPHA-AMORPHENE	Fruit Essent. Oil		15100.0		--
0	CARYOPHYLLA-2,7(15)-DIEN-4-OL	Fruit				--
0	N-TRIDECANE	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	BETA-PINONE	Plant				J.S. Glasby Dict.Plis Containing 2ndary Metabolite. 1991.
0	METHYL-HEPTANOATE	Fruit				--
0	HENTRIACONTANONE	Stem				=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
0	2,8-P-MENTHADIEN-1-OL	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	FAT	Fruit	30940.0	100000.0	0.12253986651771635	--
0	8-TRANS-PIPERAMIDE-C-9-1	Fruit		197.0		--
0	BETA-BISABOLOL	Fruit Essent. Oil		2000.0		--
0	N-HEPTADECANE	Fruit Essent. Oil		56600.0		--
0	LINALOL	Fruit				--
0	(-)-3,4-DIMETHOXY-3,4-DEMETHYLENEDIOXY-CUBEBIN	Leaf				--
0	CUMAPERINE	Fruit				--
0	HENTRIACONTAN-16-OL	Stem		40.0		--
0	NEROL-ACETATE	Fruit Essent. Oil		2000.0		--
0	ALPHA-GUAIENE	Fruit				--
0	THUJENE	Seed Essent. Oil				--
0	CARYOPHYLLA-2,7(15)-DIEN-4-BETA-OL	Fruit				--
0	N-NONANE	Fruit				--
0	ISOPIPERINE	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	RESIN	Fruit		5000.0	-0.7191073491736661	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	DELTA-ELEMENE	Fruit Essent. Oil		16200.0		--
0	HENTRIACONTANOL	Stem				=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
0	1-TERPINEN-5-OL	Fruit				--
0	6-TRANS-PIPERAMIDE-C-7-1	Fruit		98.0		--
0	CIS-CARVEOL	Fruit				--
0	LIMONEN-4-OL	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	(-)-CUBEBIN	Leaf				--
0	CARVETONACETONE	Fruit				--
0	N-NONADECANE	Fruit				--
0	GUINEENSINE	Fruit		31.0		--
0	N-TRIDECANE	Fruit Essent. Oil		67800.0		--
0	ALPHA-CUBEBINE	Fruit				--
0	CUBEBINE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	ISOCHAVICINE	Fruit				--
0	DL-LIMONENE	Essential Oil				--
0	PIPEROLEINE-B	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	BETA-FARNESENE	Fruit				--
0	PROTEIN	Fruit	108386.0	123888.0	0.1928969684345906	USDA's Ag Handbook 8 and sequelae)
0	METHYL-CYCLOHEPTA-2,4-DIEN-6-ONE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	BETA-FARNESENE	Fruit Essent. Oil				--
0	HENTRIACONTANE	Stem				=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
0	1-TERPINEN-4-OL	Fruit				--
0	EPOXYDIHYDROCARYOPHYLLENE	Fruit				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	4-METHYL-TRITRIACONTANE	Leaf				--
0	RHAMNETIN-O-TRIGLUCOSIDE	Fruit				--
0	CIS-2,8-MENTHADIEN-2-OL	Fruit				--
0	P-CYMENE-8-OL	Fruit		15.0	-1.0	--
0	ALPHA-TRANS-BERGAMOTENE	Fruit				--
0	3,4-DIHYDROXY-6-(N-ETHYL-AMINO)-BENZAMIDE	Fruit				--
0	N-METHYL-PYRROLINE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	GLOBULOL	Fruit Essent. Oil		26200.0		--
0	N-TRANS-FERULOYL-PIPERIDINE	Fruit		11.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ALPHA-COPAENE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	CALAMENENE	Fruit Essent. Oil				--
0	CRYPTONE	Fruit				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	HENTRIACONTAN-16-ONE	Plant				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	(+)-LIMONENE	Essential Oil				--
0	1,8-MENTHADIEN-2-OL	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	EO	Fruit		15000.0	-0.5284067258944188	--
0	2-TRANS-PIPERAMIDE-C-5-1	Fruit		75.0		--
0	RETROFRACTAMIDE-A	Fruit		4.0		--
0	P-CYMENE-8-METHYL-ETHER	Fruit				--
0	M-MENTHA-3(8),6-DIENE	Seed Essent. Oil				--
0	PIPERICINE	Fruit		0.4		--
0	ALPHA-THUJENE	Fruit				--
0	1-(2,4-DODECADIENOYL)-PYRROLIDINE	Fruit		10.0		--
0	HELIOTROPIN	Fruit				Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
0	CARBOHYDRATES	Fruit		648100.0	-0.7207468961442081	--
0	N-BUTYOPHENONE	Fruit				--
0	N-PENTADECENE	Fruit Essent. Oil		17900.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ALPHA-CIS-BERGAMOTENE	Fruit				--
0	PIPERETTINE	Fruit	234.0	8200.0		--
0	(+)-LIMONENE	Seed Essent. Oil				--
0	BETA-CUBEBINE	Fruit				--
0	PIPERYLINE	Fruit				--
0	METHYL-CARVACROL	Fruit				--
0	DIHYDROCARVONE	Fruit				--
0	2-TRANS-8-TRANS-PIPERAMIDE-C-9-2	Fruit		5.0		--
0	ALPHA-CUBEBENE	Fruit Essent. Oil		16200.0	-1.0	--
0	PIPERCIDE	Fruit		13.0		--
0	L-ALPHA-PHELLANDRENE	Fruit				--
0	1-(2,4-DECADIENOYL)-PYRROLIDINE	Fruit		30.0		--
0	CRYPTONE	Essential Oil				--
0	ALPHA-SANTALENE	Fruit Essent. Oil				--
0	TERPIN-1-EN-4-OL	Fruit Essent. Oil				--
0	SESQUITERPENES	Fruit	2000.0	7800.0		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	GERMACRENE-B	Fruit Essent. Oil		18300.0		--
0	N-PENTADECANE	Fruit Essent. Oil		177800.0		--
0	5,10(15)-CADINEN-4-OL	Fruit				--
0	PIPERANINE	Fruit				--
0	P-MENTH-TRANS-2-EN-1-OL	Fruit Essent. Oil		100.0		--
0	BETA-CARYOPHYLLENE-ALCOHOL	Fruit				--
0	PIPERONIC-ACID	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	METHYL-CAFFEIC-ACID-PIPERIDIDE	Fruit				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	ARACHIDIC-ACID	Fruit				=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
0	1,8(9)-P-MENTHADIEN-5-OL	Fruit				--
0	CARVONE-OXIDE	Fruit Essent. Oil		100.0		--
0	2-TRANS-6-TRANS-PIPERAMIDE-C-7-2	Fruit		80.0		--
0	QUERCETIN-3-O-ALPHA-D-GALACTOSIDE	Fruit				--
0	PIPERANINE	Seed Oil		320.0		--
0	KILOCALORIES	Fruit	2550.0	2856.0	-1.2219755197031514	USDA's Ag Handbook 8 and sequelae)
0	P-CYMEN-8-OL	Fruit Essent. Oil				--
0	TRICHOSTACHINE	Fruit				--
0	ALPHA-COPAENE	Fruit Essent. Oil	8200.0	15800.0	1.0	--
0	CRYPTONE	Fruit Essent. Oil				--
0	SPATHULENOL	Fruit Essent. Oil		29600.0		--
0	CALAMENENE	Fruit				--
0	GERANIOL-ACETATE	Fruit Essent. Oil		1200.0		--
0	4,10,10-TRIMETHYL-7-METHYLENE-BICYCLO-(6.2.0)DECANE-4-CAR...	Plant				--
0	BETA-CUBEBENE	Fruit Essent. Oil				--
0	(Z)-OCIMENOL	Fruit		135.0		--
0	P-MENTH-CIS-2-EN-1-OL	Seed Essent. Oil				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	BETA-CARYOPHYLLENE	Fruit				Chemical Constituents of Oriental Herbs (3 diff. books)
0	ALPHA-GURJUNENE	Fruit Essent. Oil		7800.0		--
0	1,8(9)-P-MENTHADIEN-4-OL	Fruit				--
0	DELTA-ELEMENE	Fruit				--
0	2-TRANS-4-TRANS-8-TRANS-PIPERAMIDE-C-9-3	Fruit		69.0		--
0	PYRROPERINE	Seed				--
0	WATER	Fruit	103109.0	107091.0	-2.8848937391548306	USDA's Ag Handbook 8 and sequela)
0	TRANS-TRANS-PIPERINE	Fruit		30000.0		--
0	ALPHA-CIS-BERGAMOTENE	Seed Essent. Oil				--
0	CALAMENE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	SILICA	Fruit	750.0	3900.0	1.371867681308522	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	FERUPERINE	Fruit		17.0		--
0	N-ISOBUTYL-13-(3,4-METHYLENEDIOXY-PHENYL)-TRIDECA-TRANS-2-TRANS-4-TRANS-12-TRIENAMIDE	Fruit				--
0	3-METHYL-BUTYRIC-ACID	Fruit				--
0	GAMMA-MUUROLENE	Fruit				--
0	CLOVENE	Fruit Essent. Oil		1400.0		--
0	SESQUISABINENE	Seed Essent. Oil				--
0	BETA-CARYOPHYLLENE	Essential Oil				--
0	PHYTIN-PHOSPHORUS	Fruit		1150.0	-0.13177293449153588	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	P-MENTH-CIS-2-EN-1-OL	Fruit Essent. Oil		200.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	PIPEROLEIN-C	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	ALPHA-GUAIENE	Fruit Essent. Oil		1100.0	-1.0	--
0	GAMMA-MUUROLENE	Fruit Essent. Oil		7300.0		--
0	4-METHYL-TRIACONTANE	Plant				=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
0	1,1,4-TRIMETHYLCYCLOHEPTA-2,4-DIEN-6-ONE	Fruit				--
0	CAR-3-ENE	Fruit Essent. Oil	28200.0	151000.0		--
0	1-PIPERYL-PYRROLIDINE	Fruit				--
0	KAEMPFEROL-3-O-ARABINOSYL-7-O-RHAMNOSIDE	Fruit				--
0	ALPHA-SANTALENE	Fruit				--
0	ISOCHAVINIC-ACID	Fruit				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	TRANS-SABINENE-HYDRATE	Fruit Essent. Oil		1400.0		--
0	ALPHA-CIS-BERGAMOTENE	Fruit Essent. Oil				--
0	SESQUISABINENE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	N-ISOBUTYL-11-(3,4-METHYLENEDIOXY-PHENYL)-UNDECA-TRANS-2-TRANS-4-TRANS-10-TRIENAMIDE	Seed				--
0	3,8(9)-P-MENTHADIEN-1-OL	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
0	GAMMA-CADINENE	Fruit				--
0	SESQUISABINENE	Fruit				--
0	BETA-CARYOPHYLLENE	Fruit Essent. Oil	160000.0	352000.0	2.205325345517652	--
0	P-MENTH-8-EN-2-OL	Fruit Essent. Oil				--
0	PIPEROLEIN-B	Fruit		160.0		--
0	M-METHYL-ACETOPHENONE	Fruit				--
0	N-ISOBUTYL-EICOSA-TRANS-2-TRANS-4-DIENAMIDE	Fruit		190.0		--
0	DIHYDROPIPERCIDE	Fruit				--
0	TOCOPHEROLS	Resin, Exudate, Sap		5400.0		--
0	1(7),2-P-MENTHADIEN-6-OL	Fruit				--
0	CAR-3-ENE	Seed Essent. Oil				--
0	1-ALPHA-PHELLANDRENE	Essential Oil				--
0	PIPERYLIN	Fruit				--
0	TRANS-SABINENE-HYDRATE	Fruit				--
0	GAMMA-CADINENE	Fruit Essent. Oil				--
0	ALPHA-BULNESENE	Fruit Essent. Oil		8200.0	-1.0	--
0	CARYOPHYLLENE-KETONE	Fruit				--
1	TRANS-CARVEOL	Fruit				--
1	TRANS-CARVEOL	Fruit Essent. Oil		100.0	-1.0	--
1	CARYOPHYLLENE-ALCOHOL	Fruit Essent. Oil		700.0		--
1	CUPARENE	Fruit Essent. Oil		13800.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	BEHENIC-ACID	Fruit				=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
1	SODIUM	Fruit	320.0	627.0	-0.1244930806267503	USDA's Ag Handbook 8 and sequelae)
1	CHAVICINE	Fruit				--
1	PYRROLIDINE	Seed				--
1	ISOCARYOPHYLLENE	Fruit Essent. Oil				--
1	ISOCARYOPHYLLENE	Fruit				--
1	ALPHA-ZINGIBERENE	Fruit Essent. Oil		50100.0		--
2	PHENYLACETIC-ACID	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	PIPERONAL	Essential Oil				--
2	OCIMENE	Seed Essent. Oil				--
2	ALPHA-HUMULENE	Fruit				--
2	DIHYDROCARVEOL	Essential Oil				--
2	ELEMOL	Fruit Essent. Oil		1100.0		--
2	MYRTENOL	Fruit Essent. Oil		2000.0		--
2	TRANS-PINOCARVEOL	Fruit				--
2	DIHYDROCARVEOL	Fruit Essent. Oil		100.0	-1.0	--
2	P-METHYL-ACETOPHENONE	Fruit				--
2	HEXANOIC-ACID	Fruit				--
2	L-LIMONENE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	GERMACRENE-D	Fruit Essent. Oil	400.0	49300.0		--
2	CAMPESTEROL	Fruit	30.0	60.0	-0.14986892201478846	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
2	ALPHA-HUMULENE	Fruit Essent. Oil	2100.0	19500.0	-1.0	--
2	MYRTENOL	Fruit				--
2	COBALT	Fruit	0.3	0.4	-0.48669151400918487	--
2	ALPHA-HUMULENE	Leaf Essent. Oil				--
2	DIHYDROCARVEOL	Fruit				--
2	N-ISOBUTYL-OCTADECYLA- TRANS-2-TRANS-4- DIENAMIDE	Fruit				--
2	CITRONELLYL-ACETATE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	PHYTOSTEROLS	Fruit	550.0	1028.0	0.10644427802757993	--
2	PIPERONAL	Fruit				--
2	PHENYLACETIC-ACID	Essential Oil				--
2	PELLITORINE	Fruit				--
2	OCIMENE	Fruit Essent. Oil		1000.0		--
2	TRANS-PINOCARVEOL	Seed Essent. Oil				--
3	ELEMENE	Fruit		225.0		--
3	BETA-SELINENE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	CIS-OCIMENE	Fruit				--
3	CEDROL	Fruit Essent. Oil		700.0		--
3	N-HENTRIACONTANE	Stem		110.0		--
3	AR-CURCUMENE	Fruit				--
3	N-HENTRIACONTANE	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	BETA-SELINENE	Fruit Essent. Oil		6400.0	-1.0	--
3	FLUORIDE	Fruit		3.6	1.4608696696245176	=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	AR-CURCUMENE	Fruit Essent. Oil		2600.0		--
3	ALPHA-SELINENE	Fruit Essent. Oil		700.0		--
3	ALPHA-SELINENE	Fruit				--
3	ISOPULEGOL	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	BETA-PHELLANDRENE	Fruit Essent. Oil		41000.0	-0.47230877878271366	--
3	NICKEL	Fruit	0.7	2.4	-0.04957166517347313	--
3	BETA-PHELLANDRENE	Seed Essent. Oil				--
4	BORON	Fruit	0.5	18.0	-0.44149735010956404	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).
4	2-UNDECANONE	Fruit				--
4	PHOSPHORUS	Fruit	700.0	2040.0	-0.3571963668725839	--
5	EUGENOL-METHYL-ETHER	Leaf Essent. Oil				--
5	SABINENE	Fruit	1500.0	10000.0	2.605271050216115	--
5	SABINENE	Seed Essent. Oil				--
5	SABINENE	Fruit Essent. Oil	85000.0	204000.0	0.47619676977008224	--
5	TERPINYL-ACETATE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
5	BETA-ELEMENE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
5	METHYL-CINNAMATE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
5	BETA-ELEMENE	Fruit Essent. Oil		900.0	-0.8343192281159078	--
5	STARCH	Fruit	280000.0	565000.0	0.4063516312545475	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
5	GERANYL-ACETATE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
5	MYRTENAL	Fruit				--
5	EUGENOL-METHYL-ETHER	Fruit Essent. Oil				--
6	IRON	Fruit	24.0	407.0	1.0869711226719216	--
6	BETA-BISABOLENE	Fruit Essent. Oil	21200.0	111600.0	1.0	--
6	ACETOPHENONE	Fruit Essent. Oil		5000.0		--
6	BUTYRIC-ACID	Fruit				--
6	MYRISTIC-ACID	Fruit	700.0	782.0	-0.23225222845607665	USDA's Ag Handbook 8 and sequelae)
6	BETA-BISABOLENE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
7	LINALYL-ACETATE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
7	ASTRAGALIN	Fruit				--
7	LAURIC-ACID	Fruit	400.0	447.0	-0.44001415319735687	USDA's Ag Handbook 8 and sequelae)
7	PIPERITONE	Fruit Essent. Oil		400.0	-1.0	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
7	CHLORINE	Fruit	2700.0	5100.0	2.9820406376676973	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
7	SALICYLATES	Fruit	10.0	65.0	-0.1503568703758442	--
8	STEARIC-ACID	Fruit				=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
8	CARYOPHYLENE-OXIDE	Fruit Essent. Oil		9000.0	1.0	--
8	UBIQUINONE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
8	CARYOPHYLENE-OXIDE	Fruit				Chemical Constituents of Oriental Herbs (3 diff. books)
8	DELTA-3-CARENE	Fruit	500.0	2000.0	2.7325194789368674	--
9	CAMPHENE	Seed Essent. Oil				--
9	DELTA-CADINENE	Fruit Essent. Oil		1200.0		--
9	TERPINOLENE	Fruit Essent. Oil		1000.0	-0.7286391135831505	--
9	TERPINOLENE	Fruit				--
9	CAMPHENE	Fruit Essent. Oil	1000.0	1400.0	-1.0221892865520528	--
9	DELTA-CADINENE	Leaf Essent. Oil				--
9	TERPINOLENE	Seed Essent. Oil				--
9	CAMPHENE	Fruit		120.0	-0.3020426178192843	--
9	OXALIC-ACID	Fruit	4000.0	34000.0	1.5684920731098055	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
9	DELTA-CADINENE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
10	PIPERIDINE	Essential Oil				--
10	PIPERIDINE	Seed				--
10	PIPERIDINE	Fruit	606.0	2700.0	0.7468101297426346	--
11	ALPHA-PHELLANDRENE	Seed Essent. Oil				--
11	NEROLIDOL	Fruit				--
11	ALPHA-PHELLANDRENE	Fruit Essent. Oil	6800.0	36000.0	-0.5597624933275978	--
11	PERILLALDEHYDE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
11	NEROLIDOL	Fruit Essent. Oil				--
11	GAMMA-TERPINENE	Fruit Essent. Oil	100.0	11000.0	-0.34330658093433575	--
11	GAMMA-TERPINENE	Fruit				--
11	GAMMA-TERPINENE	Seed Essent. Oil				--
12	IODINE	Fruit		0.09	-0.2902538943414157	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
12	STIGMASTEROL	Fruit	140.0	210.0	1.7404035436813556	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
12	COPPER	Fruit	9.0	20.0	0.5588968590110831	--
13	PALMITIC-ACID	Fruit	12200.0	13633.0	-0.1532986318862056	USDA's Ag Handbook 8 and sequelae)
13	BETA-PINENE	Fruit		2355.0	-0.2223943577434541	--
13	ALPHA-TERPINENE	Seed Essent. Oil				--
13	ALPHA-TERPINENE	Fruit Essent. Oil		3000.0	-0.5711872077128709	--
13	BETA-PINENE	Seed Essent. Oil				--
13	BETA-PINENE	Fruit Essent. Oil	85000.0	138000.0	0.9556217102868814	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
13	ALPHA-TERPINENE	Fruit				--
13	BETA-PINENE	Essential Oil				--
14	POTASSIUM	Fruit	11718.0	15077.0	-0.251221490492334	USDA's Ag Handbook 8 and sequelae)
14	SULFUR	Fruit	1750.0	5760.0	3.0243404637527247	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
14	MANGANESE	Fruit	19.0	56.0	-0.03428079513973251	--
15	CITRONELLOL	Essential Oil				--
15	ALPHA-LINOLENIC-ACID	Fruit	2200.0	2458.0	-0.03933424045785113	USDA's Ag Handbook 8 and sequelae)
15	FIBER	Fruit	130056.0	148449.0	0.06390968642828075	USDA's Ag Handbook 8 and sequelae)
15	RIBOFLAVIN	Fruit	0.4	2.8	-0.4731582297112136	--
15	CITRONELLOL	Fruit Essent. Oil		200.0	-1.0	--
16	P-CYMENE	Fruit Essent. Oil				--
16	P-CYMENE	Fruit		150.0	-0.5599100466638004	--
16	P-CYMENE	Seed Essent. Oil				--
18	CINNAMIC-ACID	Fruit				--
18	OLEIC-ACID	Fruit	13700.0	15309.0	-0.3627535701002104	USDA's Ag Handbook 8 and sequelae)
18	RHAMNETIN	Fruit				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
19	D-LIMONENE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
19	ACETYL-CHOLINE	Seed		23.0	-1.1887435300844578	--
19	CARVONE	Fruit				--
19	CARVONE	Fruit Essent. Oil		50.0	-0.7219111602348719	--
20	BENZOIC-ACID	Fruit				--
20	CHOLINE	Seed		1642.0	-0.028583716787024864	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
20	METHYL-EUGENOL	Fruit				--
20	CITRONELLAL	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
22	MYRCENE	Fruit				--
22	GABA	Fruit				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
22	MYRCENE	Seed Essent. Oil				--
22	MYRCENE	Fruit Essent. Oil	22300.0	64000.0	1.0393197116265955	--
22	ISOQUERCITRIN	Fruit				--
23	ALPHA-TERPINEOL	Fruit Essent. Oil		1000.0	-0.910301229242406	--
23	TERPINEN-4-OL	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
23	TERPINEN-4-OL	Fruit Essent. Oil		1900.0	-0.669433558721516	--
23	ALPHA-TERPINEOL	Fruit				--
24	CHROMIUM	Fruit	3.0	3.5	-0.01602978329031414	--
25	P-COUMARIC-ACID	Fruit				--
27	LINOLEIC-ACID	Fruit	13200.0	14750.0	-0.1472997456034458	USDA's Ag Handbook 8 and sequelae)
28	CALCIUM	Fruit	2700.0	4989.0	0.26138541132704457	--
28	ALPHA-PINENE	Seed Essent. Oil				--
28	ALPHA-PINENE	Fruit Essent. Oil	45000.0	94000.0	0.39522346445492856	--
28	ALPHA-PINENE	Essential Oil				--
28	ALPHA-PINENE	Fruit		3810.0	0.2759330241103953	--
29	SAFROLE	Fruit				--
29	SAFROLE	Fruit Essent. Oil				--
30	HYPEROSIDE	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
31	THIAMIN	Fruit	0.5	1.6	-0.4778065908058602	--
31	MYRISTICIN	Fruit Essent. Oil				--
31	CARYOPHYLLENE	Fruit	1000.0	6000.0	-0.21726348790373295	--
31	CARYOPHYLLENE	Seed Essent. Oil				--
31	MYRISTICIN	Fruit				--
32	ALPHA-TOCOPHEROL	Resin, Exudate, Sap		1000.0		--
32	ALPHA-TOCOPHEROL	Fruit		0.054	-1.1207877074947452	Charalambous, G. (Ed.). 1994. Spices, Herbs and Edible Fungi. Elsevier Science B. V. Amsterdam. 764 pp.
35	BORNEOL	Fruit				--
35	BORNEOL	Fruit Essent. Oil				--
37	CARVACROL	Fruit				--
39	NIACIN	Fruit	2.0	14.5	-0.6175885994937399	--
41	CAMPHOR	Fruit				--
44	QUERCITRIN	Fruit				--
47	BETA-SITOSTEROL	Stem		160.0	-1.327402794862025	--
47	BETA-SITOSTEROL	Leaf				--
47	BETA-SITOSTEROL	Fruit	380.0	650.0	0.059781582959947475	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
53	LINALOOL	Fruit Essent. Oil		2200.0	-0.6866142547714452	--
53	LINALOOL	Fruit		90.0	-0.5606025868093102	--
53	BETA-CAROTENE	Fruit	0.114	0.128	-0.1505532074368425	--
53	CITRAL	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
60	LIMONENE	Fruit Essent. Oil	130500.0	210600.0	-0.6891296619826244	--
60	LIMONENE	Seed Essent. Oil				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
60	LIMONENE	Fruit	1500.0	8000.0	0.397130905101767	--
61	PIPERINE	Seed Essent. Oil				--
61	PIPERINE	Seed				--
61	PIPERINE	Stem		1100.0		--
61	PIPERINE	Fruit	5000.0	150000.0	1.0	--
61	PIPERINE	Shoot				--
61	PIPERINE	Seed Oil				--
61	PIPERINE	Leaf				--
61	PIPERINE	Leaf Essent. Oil				--
61	PIPERINE	Root				--
65	MAGNESIUM	Fruit	1809.0	2319.0	0.08763983825273146	USDA's Ag Handbook 8 and sequelae)
67	1,8-CINEOLE	Fruit				--
75	KAEMPFEROL	Fruit				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
76	EUGENOL	Leaf Essent. Oil				--
76	EUGENOL	Fruit				--
77	ZINC	Fruit	11.2	35.7	0.16241717653889182	--
87	RUTIN	Fruit				--
102	CAFFEIC-ACID	Fruit		6.0	-0.33780275264769194	--
112	ASCORBIC-ACID	Fruit		10.0	-0.2838672355464054	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
176	QUERCETIN	Fruit				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.