

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in Piper nigrum

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
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.
8	DELTA-3-CARENE	Fruit	500.0	2000.0	2.7325194789368674	--
5	SABINENE	Fruit	1500.0	10000.0	2.605271050216115	--
0	BETA-CARYOPHYLLENE	Fruit Essent. Oil	160000.0	352000.0	2.205325345517652	--
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.)
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.
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
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.
6	IRON	Fruit	24.0	407.0	1.0869711226719216	--
22	MYRCENE	Fruit Essent. Oil	22300.0	64000.0	1.0393197116265955	--
0	POLYSACCHARIDES	Fruit		450000.0	1.0	--
6	BETA-BISABOLENE	Fruit Essent. Oil	21200.0	111600.0	1.0	--
8	CARYOPHYLLENE-OXIDE	Fruit Essent. Oil		9000.0	1.0	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
61	PIPERINE	Fruit	5000.0	150000.0	1.0	--
0	ALPHA-COPAENE	Fruit Essent. Oil	8200.0	15800.0	1.0	--
13	BETA-PINENE	Fruit Essent. Oil	85000.0	138000.0	0.9556217102868814	--
10	PIPERIDINE	Fruit	606.0	2700.0	0.7468101297426346	--
12	COPPER	Fruit	9.0	20.0	0.5588968590110831	--
5	SABINENE	Fruit Essent. Oil	85000.0	204000.0	0.47619676977008224	--
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.
60	LIMONENE	Fruit	1500.0	8000.0	0.397130905101767	--
28	ALPHA-PINENE	Fruit Essent. Oil	45000.0	94000.0	0.39522346445492856	--
28	ALPHA-PINENE	Fruit		3810.0	0.2759330241103953	--
28	CALCIUM	Fruit	2700.0	4989.0	0.26138541132704457	--
0	PROTEIN	Fruit	108386.0	123888.0	0.1928969684345906	USDA's Ag Handbook 8 and sequelae)
77	ZINC	Fruit	11.2	35.7	0.16241717653889182	--
0	FAT	Fruit	30940.0	100000.0	0.12253986651771635	--
2	PHYTOSTEROLS	Fruit	550.0	1028.0	0.10644427802757993	--
65	MAGNESIUM	Fruit	1809.0	2319.0	0.08763983825273146	USDA's Ag Handbook 8 and sequelae)
0	ASH	Fruit	42932.0	60000.0	0.08639308861203618	--
15	FIBER	Fruit	130056.0	148449.0	0.06390968642828075	USDA's Ag Handbook 8 and sequelae)
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.)
24	CHROMIUM	Fruit	3.0	3.5	-0.01602978329031414	--
20	CHOLINE	Seed		1642.0	-0.028583716787024864	--
14	MANGANESE	Fruit	19.0	56.0	-0.03428079513973251	--
15	ALPHA-LINOLENIC-ACID	Fruit	2200.0	2458.0	-0.03933424045785113	USDA's Ag Handbook 8 and sequelae)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	NICKEL	Fruit	0.7	2.4	-0.04957166517347313	--
1	SODIUM	Fruit	320.0	627.0	-0.1244930806267503	USDA's Ag Handbook 8 and sequelae)
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.
27	LINOLEIC-ACID	Fruit	13200.0	14750.0	-0.1472997456034458	USDA's Ag Handbook 8 and sequelae)
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.)
7	SALICYLATES	Fruit	10.0	65.0	-0.1503568703758442	--
53	BETA-CAROTENE	Fruit	0.114	0.128	-0.1505532074368425	--
13	PALMITIC-ACID	Fruit	12200.0	13633.0	-0.1532986318862056	USDA's Ag Handbook 8 and sequelae)
31	CARYOPHYLLENE	Fruit	1000.0	6000.0	-0.21726348790373295	--
13	BETA-PINENE	Fruit		2355.0	-0.2223943577434541	--
0	ALPHA-THUJENE	Fruit Essent. Oil	7300.0	29000.0	-0.22630241280017493	--
0	BETA-CARYOPHYLLENE	Leaf Essent. Oil		30000.0	-0.22730263739281492	--
6	MYRISTIC-ACID	Fruit	700.0	782.0	-0.23225222845607665	USDA's Ag Handbook 8 and sequelae)
14	POTASSIUM	Fruit	11718.0	15077.0	-0.251221490492334	USDA's Ag Handbook 8 and sequelae)
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.
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.
9	CAMPHENE	Fruit		120.0	-0.3020426178192843	--
102	CAFFEIC-ACID	Fruit		6.0	-0.33780275264769194	--
11	GAMMA-TERPINENE	Fruit Essent. Oil	100.0	11000.0	-0.34330658093433575	--
4	PHOSPHORUS	Fruit	700.0	2040.0	-0.3571963668725839	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
18	OLEIC-ACID	Fruit	13700.0	15309.0	-0.3627535701002104	USDA's Ag Handbook 8 and sequelae)
7	LAURIC-ACID	Fruit	400.0	447.0	-0.44001415319735687	USDA's Ag Handbook 8 and sequelae)
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).
3	BETA-PHELLANDRENE	Fruit Essent. Oil		41000.0	-0.47230877878271366	--
15	RIBOFLAVIN	Fruit	0.4	2.8	-0.4731582297112136	--
31	THIAMIN	Fruit	0.5	1.6	-0.4778065908058602	--
2	COBALT	Fruit	0.3	0.4	-0.48669151400918487	--
0	EO	Fruit		15000.0	-0.5284067258944188	--
11	ALPHA-PHELLANDRENE	Fruit Essent. Oil	6800.0	36000.0	-0.5597624933275978	--
16	P-CYMENE	Fruit		150.0	-0.5599100466638004	--
53	LINALOOL	Fruit		90.0	-0.5606025868093102	--
13	ALPHA-TERPINENE	Fruit Essent. Oil		3000.0	-0.5711872077128709	--
39	NIACIN	Fruit	2.0	14.5	-0.6175885994937399	--
23	TERPINEN-4-OL	Fruit Essent. Oil		1900.0	-0.669433558721516	--
53	LINALOOL	Fruit Essent. Oil		2200.0	-0.6866142547714452	--
60	LIMONENE	Fruit Essent. Oil	130500.0	210600.0	-0.6891296619826244	--
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	CARBOHYDRATES	Fruit		648100.0	-0.7207468961442081	--
19	CARVONE	Fruit Essent. Oil		50.0	-0.7219111602348719	--
9	TERPINOLENE	Fruit Essent. Oil		1000.0	-0.7286391135831505	--
0	CARBOHYDRATE	Fruit		648100.0	-0.7817175730480762	USDA's Ag Handbook 8 and sequelae)
5	BETA-ELEMENE	Fruit Essent. Oil		900.0	-0.8343192281159078	--
23	ALPHA-TERPINEOL	Fruit Essent. Oil		1000.0	-0.910301229242406	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CIS-CARVEOL	Fruit Essent. Oil		50.0	-1.0	--
0	ALPHA-TERPINEOL ACETATE	Fruit Essent. Oil		8600.0	-1.0	--
2	DIHYDROCARVEOL	Fruit Essent. Oil		100.0	-1.0	--
1	TRANS-CARVEOL	Fruit Essent. Oil		100.0	-1.0	--
3	BETA-SELINENE	Fruit Essent. Oil		6400.0	-1.0	--
0	P-CYMENE-8-OL	Fruit		15.0	-1.0	--
7	PIPERITONE	Fruit Essent. Oil		400.0	-1.0	--
2	ALPHA-HUMULENE	Fruit Essent. Oil	2100.0	19500.0	-1.0	--
0	ALPHA-CUBEBENE	Fruit Essent. Oil		16200.0	-1.0	--
0	ALPHA-GUAIENE	Fruit Essent. Oil		1100.0	-1.0	--
15	CITRONELLOL	Fruit Essent. Oil		200.0	-1.0	--
0	ALPHA-BULNESENE	Fruit Essent. Oil		8200.0	-1.0	--
9	CAMPHENE	Fruit Essent. Oil	1000.0	1400.0	-1.0221892865520528	--
32	ALPHA-TOCOPHEROL	Fruit		0.054	-1.1207877074947452	Charalambous, G. (Ed.). 1994. Spices, Herbs and Edible Fungi. Elsevier Science B. V. Amsterdam. 764 pp.
19	ACETYL-CHOLINE	Seed		23.0	-1.1887435300844578	--
0	KILOCALORIES	Fruit	2550.0	2856.0	-1.2219755197031514	USDA's Ag Handbook 8 and sequelae)
47	BETA-SITOSTEROL	Stem		160.0	-1.327402794862025	--
0	WATER	Fruit	103109.0	107091.0	-2.8848937391548306	USDA's Ag Handbook 8 and sequelae)
29	SAFROLE	Fruit				--
22	GABA	Fruit				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
5	EUGENOL-METHYL-ETHER	Leaf Essent. Oil				--
0	N-ISOBUTYL-11-(3,4-METHYLENEDIOXY-PHENYL)-UNDECA-TRANS-2-TRANS-4-TRANS-10-TRIENAMIDE	Fruit		7.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	2-UNDECANONE	Fruit				--
15	CITRONELLOL	Essential Oil				--
11	ALPHA-PHELLANDRENE	Seed Essent. Oil				--
0	TOCOPHEROLS	Fruit		0.3		Charalambous, G. (Ed.). 1994. Spices, Herbs and Edible Fungi. Elsevier Science B. V. Amsterdam. 764 pp.
29	SAFROLE	Fruit Essent. Oil				--
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.
22	MYRCENE	Fruit				--
0	P-MENTH-8-EN-1-OL	Fruit Essent. Oil		300.0		--
61	PIPERINE	Seed Essent. Oil				--
20	BENZOIC-ACID	Fruit				--
0	N-ISOBUTYL-EICOSA-TRANS-2-TRANS-4-CIS-8-TRIENAMIDE	Fruit		105.0		--
0	CIS-TRANS-PIPERINE	Fruit				--
0	1(7),2-P-MENTHADIEN-4-OL	Fruit				--
9	CAMPHENE	Seed Essent. Oil				--
0	(-)-PHELLANDRENE	Seed Essent. Oil				--
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				--
3	ELEMENE	Fruit		225.0		--
0	PIPEROLEIN-A	Fruit				--
19	D-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
0	CIS-SABINENE-HYDRATE	Fruit				--
0	TRANS-NEROLIDOL	Fruit Essent. Oil		1200.0		--
0	ALPHA-BISABOLENE	Fruit Essent. Oil		21200.0		--
11	NEROLIDOL	Fruit				--
1	TRANS-CARVEOL	Fruit				--
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	CARYOPHYLLA-3(12),7(15)DIEN-4-BETA-OL	Fruit				--
0	HENTRIACONTAN-16-ONE	Stem		40.0		--
2	OCIMENE	Seed Essent. Oil				--
0	EPOXYDIHYDROCARYOPHYLLENE	Essential Oil				--
3	BETA-SELINENE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
76	EUGENOL	Leaf Essent. Oil				--
0	N-5-(4-HYDROXY-3-METHOXY-PHENYL)-PENT-TRANS-2-DIENOYL-PIPERIDINE	Fruit		9.0		--
0	2-METHYL-PENTANOIC-ACID	Fruit				--
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
5	SABINENE	Seed Essent. Oil				--

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-HEPTADECENE	Fruit Essent. Oil		25300.0		--
61	PIPERINE	Seed				--
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	BETA-CARYOPHYLLENE	Seed				--
11	PERILLALDEHYDE	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.
0	CIS-P-2-MENTHEN-1-OL	Fruit				--
0	TRANS-CIS-PIPERINE	Fruit				--
0	ALPHA-AMORPHENE	Fruit Essent. Oil		15100.0		--
0	N-TRIDECANE	Fruit				--
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	CARYOPHYLLA-2,7(15)-DIEN-4-OL	Fruit				--
0	HENTRIACONTAN-16-ONE	Leaf				--
11	NEROLIDOL	Fruit Essent. Oil				--



Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	ALPHA-HUMULENE	Fruit				--
2	DIHYDROCARVEOL	Essential Oil				--
0	BETA-PINONE	Plant				J.S. Glasby Dict.Plis Containing 2ndary Metabolite. 1991.
2	ELEMOL	Fruit Essent. Oil		1100.0		--
2	MYRTENOL	Fruit Essent. Oil		2000.0		--
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	8-TRANS-PIPERAMIDE-C-9-1	Fruit		197.0		--
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
75	KAEMPFEROL	Fruit				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	METHYL-HEPTANOATE	Fruit				--
0	(-)-3,4-DIMETHOXY-3,4- DEMETHYLENEDIOXY- CUBEBIN	Leaf				--
0	CUMAPERINE	Fruit				--
0	BETA-BISABOLOL	Fruit Essent. Oil		2000.0		--
2	TRANS-PINOCARVEOL	Fruit				--
0	LINALOL	Fruit				--
3	CIS-OCIMENE	Fruit				--
0	N-HEPTADECANE	Fruit Essent. Oil		56600.0		--
61	PIPERINE	Stem		1100.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	THUJENE	Seed Essent. Oil				--
0	N-NONANE	Fruit				--
5	TERPINYL-ACETATE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	CARYOPHYLLA-2,7(15)-DIEN-4-BETA-OL	Fruit				--
0	HENTRIACONTAN-16-OL	Stem		40.0		--
0	NEROL-ACETATE	Fruit Essent. Oil		2000.0		--
0	ALPHA-GUAIENE	Fruit				--
0	DELTA-ELEMENE	Fruit Essent. Oil		16200.0		--
31	MYRISTICIN	Fruit Essent. Oil				--
0	1-TERPINEN-5-OL	Fruit				--
3	CEDROL	Fruit Essent. Oil		700.0		--
0	6-TRANS-PIPERAMIDE-C-7-1	Fruit		98.0		--
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
87	RUTIN	Fruit				--
0	ISOPIPERINE	Fruit				--
20	METHYL-EUGENOL	Fruit				--
76	EUGENOL	Fruit				--
0	(-)-CUBEBIN	Leaf				--
47	BETA-SITOSTEROL	Leaf				--
2	P-METHYL-ACETOPHENONE	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
19	CARVONE	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	CIS-CARVEOL	Fruit				--
3	N-HENTRIACONTANE	Stem		110.0		--
10	PIPERIDINE	Essential Oil				--
3	AR-CURCUMENE	Fruit				--
6	ACETOPHENONE	Fruit Essent. Oil		5000.0		--
0	N-NONADECANE	Fruit				--
9	TERPINOLENE	Fruit				--
0	CARVETONACETONE	Fruit				--
0	GUINEENSINE	Fruit		31.0		--
0	N-TRIDECANE	Fruit Essent. Oil		67800.0		--
0	ALPHA-CUBEBINE	Fruit				--
9	DELTA-CADINENE	Fruit Essent. Oil		1200.0		--
13	ALPHA-TERPINENE	Seed Essent. Oil				--
0	CUBEBINE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	DL-LIMONENE	Essential Oil				--
0	PIPEROLEINE-B	Fruit				--
0	BETA-FARNESENE	Fruit				--
0	BETA-FARNESENE	Fruit Essent. Oil				--
22	MYRCENE	Seed Essent. Oil				--
0	1-TERPINEN-4-OL	Fruit				--
0	4-METHYL-TRITRIACONTANE	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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	RHAMNETIN-O-TRIGLUCOSIDE	Fruit				--
0	ISOCHAVICINE	Fruit				--
0	METHYL-CYCLOHEPTA-2,4-DIEN-6-ONE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	EPOXYDIHYDROCARYOPHYLLENE	Fruit				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
32	ALPHA-TOCOPHEROL	Resin, Exudate, Sap		1000.0		--
7	ASTRAGALIN	Fruit				--
41	CAMPHOR	Fruit				--
0	CIS-2,8-MENTHADIEN-2-OL	Fruit				--
3	N-HENTRIACONTANE	Leaf				--
10	PIPERIDINE	Seed				--
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.
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.
2	HEXANOIC-ACID	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
37	CARVACROL	Fruit				--
0	GLOBULOL	Fruit Essent. Oil		26200.0		--
0	N-TRANS-FERULOYL-PIPERIDINE	Fruit		11.0		--
0	ALPHA-COPAENE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
9	DELTA-CADINENE	Leaf Essent. Oil				--
9	TERPINOLENE	Seed Essent. Oil				--
0	CRYPTONE	Fruit				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	(+)-LIMONENE	Essential Oil				--
5	BETA-ELEMENE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
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.
1	CARYOPHYLLENE-ALCOHOL	Fruit Essent. Oil		700.0		--
0	2-TRANS-PIPERAMIDE-C-5-1	Fruit		75.0		--
0	CALAMENENE	Fruit Essent. Oil				--
0	RETROFRACTAMIDE-A	Fruit		4.0		--
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.
5	METHYL-CINNAMATE	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
16	P-CYMENE	Fruit Essent. Oil				--
13	BETA-PINENE	Seed Essent. Oil				--
0	1-(2,4-DODECADIENOYL)-PYRROLIDINE	Fruit		10.0		--
3	AR-CURCUMENE	Fruit Essent. Oil		2600.0		--
0	P-CYMENE-8-METHYL-ETHER	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.
18	CINNAMIC-ACID	Fruit				--
0	M-MENTHA-3(8),6-DIENE	Seed Essent. Oil				--
0	PIPERICINE	Fruit		0.4		--
0	ALPHA-THUJENE	Fruit				--
0	N-BUTYOPHENONE	Fruit				--
0	HELIOTROPIN	Fruit				Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
2	GERMACRENE-D	Fruit Essent. Oil	400.0	49300.0		--
0	N-PENTADECENE	Fruit Essent. Oil		17900.0		--
0	ALPHA-CIS-BERGAMOTENE	Fruit				--
1	CUPARENE	Fruit Essent. Oil		13800.0		--
3	ALPHA-SELINENE	Fruit Essent. Oil		700.0		--
0	(+)-LIMONENE	Seed Essent. Oil				--
61	PIPERINE	Shoot				--
0	BETA-CUBEBINE	Fruit				--
22	ISOQUERCITRIN	Fruit				--
67	1,8-CINEOLE	Fruit				--
31	CARYOPHYLLENE	Seed Essent. Oil				--
0	2-TRANS-8-TRANS-PIPERAMIDE-C-9-2	Fruit		5.0		--

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
0	PIPERETTINE	Fruit	234.0	8200.0		--
44	QUERCITRIN	Fruit				--
0	METHYL-CARVACROL	Fruit				--
0	PIPERYLINE	Fruit				--
0	DIHYDROCARVONE	Fruit				--
16	P-CYMENE	Seed Essent. Oil				--
0	1-(2,4-DECADIENOYL)-PYRROLIDINE	Fruit		30.0		--
35	BORNEOL	Fruit				--
0	L-ALPHA-PHELLANDRENE	Fruit				--
0	PIPERCIDE	Fruit		13.0		--
23	ALPHA-TERPINEOL	Fruit				--
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.
2	MYRTENOL	Fruit				--
5	GERANYL-ACETATE	Fruit				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	CRYPTONE	Essential Oil				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ALPHA-SANTALENE	Fruit Essent. Oil				--
0	TERPIN-1-EN-4-OL	Fruit Essent. Oil				--
0	P-MENTH-TRANS-2-EN-1-OL	Fruit Essent. Oil		100.0		--
61	PIPERINE	Seed Oil				--
0	BETA-CARYOPHYLLENE-ALCOHOL	Fruit				--
2	ALPHA-HUMULENE	Leaf Essent. Oil				--
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	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
35	BORNEOL	Fruit Essent. Oil				--
0	PIPERANINE	Fruit				--
0	QUERCETIN-3-O-ALPHA-D-GALACTOSIDE	Fruit				--
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	PIPERONIC-ACID	Fruit				--
2	DIHYDROCARVEOL	Fruit				--
0	TRICHOSTACHINE	Fruit				--
0	PIPERANINE	Seed Oil		320.0		--
13	ALPHA-TERPINENE	Fruit				--
0	P-CYMEN-8-OL	Fruit Essent. Oil				--



Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
13	BETA-PINENE	Essential Oil				--
5	MYRTENAL	Fruit				--
11	GAMMA-TERPINENE	Fruit				--
0	CALAMENENE	Fruit				--
0	GERANIOL-ACETATE	Fruit Essent. Oil		1200.0		--
2	N-ISOBUTYL-OCTADECAN-2-TRANS-4-DIENAMIDE	Fruit				--
0	4,10,10-TRIMETHYL-7-METHYLENE-BICYCLO-(6.2.0)DECANE-4-CAR...	Plant				--
0	CRYPTONE	Fruit Essent. Oil				--
28	ALPHA-PINENE	Seed Essent. Oil				--
0	SPATHULENOL	Fruit Essent. Oil		29600.0		--
0	P-MENTH-CIS-2-EN-1-OL	Seed Essent. Oil				--
61	PIPERINE	Leaf				--
0	BETA-CARYOPHYLLENE	Fruit				Chemical Constituents of Oriental Herbs (3 diff. books)
0	ALPHA-GURJUNENE	Fruit Essent. Oil		7800.0		--
11	GAMMA-TERPINENE	Seed Essent. Oil				--
0	1,8(9)-P-MENTHADIEN-4-OL	Fruit				--
0	2-TRANS-4-TRANS-8-TRANS-PIPERAMIDE-C-9-3	Fruit		69.0		--
0	BETA-CUBEBENE	Fruit Essent. Oil				--
0	PYRROPERINE	Seed				--
0	(Z)-OCIMENOL	Fruit		135.0		--
2	PIPERONAL	Fruit				--
0	DELTA-ELEMENE	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.
0	TRANS-TRANS-PIPERINE	Fruit		30000.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ALPHA-CIS-BERGAMOTENE	Seed Essent. Oil				--
3	ISOPULEGOL	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	CHAVICINE	Fruit				--
60	LIMONENE	Seed Essent. Oil				--
2	PHENYLACETIC-ACID	Essential Oil				--
3	ALPHA-SELINENE	Fruit				--
25	P-COUMARIC-ACID	Fruit				--
0	GAMMA-MUUROLENE	Fruit				--
0	CALAMENE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
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	CLOVENE	Fruit Essent. Oil		1400.0		--
0	SESQUISABINENE	Seed Essent. Oil				--
18	RHAMNETIN	Fruit				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
31	MYRISTICIN	Fruit				--
0	P-MENTH-CIS-2-EN-1-OL	Fruit Essent. Oil		200.0		--
61	PIPERINE	Leaf Essent. Oil				--
0	GAMMA-MUUROLENE	Fruit Essent. Oil		7300.0		--
0	1,1,4-TRIMETHYLCYCLOHEPTA-2,4-DIEN-6-ONE	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CAR-3-ENE	Fruit Essent. Oil	28200.0	151000.0		--
0	1-PIPERYL-PYRROLIDINE	Fruit				--
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	BETA-CARYOPHYLLENE	Essential Oil				--
1	PYRROLIDINE	Seed				--
0	PIPEROLEIN-C	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
9	DELTA-CADINENE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
20	CITRONELLAL	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	TRANS-SABINENE-HYDRATE	Fruit Essent. Oil		1400.0		--
0	ALPHA-CIS-BERGAMOTENE	Fruit Essent. Oil				--
8	UBIQUINONE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	ISOCHAVINIC-ACID	Fruit				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
8	CARYOPHYLLENE-OXIDE	Fruit				Chemical Constituents of Oriental Herbs (3 diff. books)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	KAEMPFEROL-3-O-ARABINOSYL-7-O-RHAMNOSIDE	Fruit				--
2	PELLITORINE	Fruit				--
0	ALPHA-SANTALENE	Fruit				--
1	ISOCARYOPHYLLENE	Fruit Essent. Oil				--
3	BETA-PHELLANDRENE	Seed Essent. Oil				--
0	SESQUISABINENE	Plant				J.S. Glasby Dict.Plis Containing 2ndary Metabolite. 1991.
0	GAMMA-CADINENE	Fruit				--
6	BUTYRIC-ACID	Fruit				--
5	EUGENOL-METHYL-ETHER	Fruit Essent. Oil				--
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				--
28	ALPHA-PINENE	Essential Oil				--
0	SESQUISABINENE	Fruit				--
176	QUERCETIN	Fruit				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	P-MENTH-8-EN-2-OL	Fruit Essent. Oil				--
61	PIPERINE	Root				--
6	BETA-BISABOLENE	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	N-ISOBUTYL-EICOSA-TRANS-2-TRANS-4-DIENAMIDE	Fruit		190.0		--
0	DIHYDROPIPERCIDE	Fruit				--
0	1(7),2-P-MENTHADIEN-6-OL	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
0	CAR-3-ENE	Seed Essent. Oil				--
0	1-ALPHA-PHELLANDRENE	Essential Oil				--
0	TOCOPHEROLS	Resin, Exudate, Sap		5400.0		--
0	PIPERYLIN	Fruit				--
0	M-METHYL-ACETOPHENONE	Fruit				--
0	PIPEROLEIN-B	Fruit		160.0		--
53	CITRAL	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	TRANS-PINOCARVEOL	Seed Essent. Oil				--
0	TRANS-SABINENE-HYDRATE	Fruit				--
1	ISOCARYOPHYLLENE	Fruit				--
0	CARYOPHYLLENE-KETONE	Fruit				--
30	HYPEROSIDE	Fruit				--
2	OCIMENE	Fruit Essent. Oil		1000.0		--
0	GAMMA-CADINENE	Fruit Essent. Oil				--
1	ALPHA-ZINGIBERENE	Fruit Essent. Oil		50100.0		--