

P Carum carvi

Common Name(s)

Caraway, Carum, Comino (Sp.), Comino de prado (Sp.), Kummel (Ger.)

How Used

F

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	(+)-CARVONE	Plant	--	--	
2	(+)-CARVONE	Seed Essent. Oil	--	--	
2	(+)-CARVONE	Seed	9000	55760	
0	(+)-CIS-CARVEOL	Seed Essent. Oil	--	--	
0	(+)-DIHYDROCARVEOL	Essential Oil	--	600	
0	(+)-LIMONENE	Seed Essent. Oil	--	--	

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	(+)-TRANS-CARVEOL	Seed Essent. Oil	--	--	
0	(-)-CARVONE	Seed Essent. Oil	--	--	
0	(-)-CIS-CARVEOL	Seed Essent. Oil	--	--	
0	(-)-DIHYDROCARVONE	Essential Oil	--	10	
0	(-)-LIMONENE	Seed Essent. Oil	--	--	
0	(-)-TRANS-CARVEOL	Seed Essent. Oil	--	--	
0	(E)-BETA-OCIMENE	Seed	--	--	
0	(E)-DIHYDROCARVONE	Seed	--	--	
0	(E)-P-MENTHA-2,8-DIEN-1-OL	Seed	--	--	
0	(Z)-BETA-OCIMENE	Seed	--	--	
0	(Z)-DIHYDROCARVONE	Seed	--	--	
0	(Z)-P-MENTHA-2,8-DIEN-1-OL	Seed	--	--	
67	1,8-CINEOLE	Seed	--	0.1	-0.7134832654336017

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	1-P-MENTHENE-6-AN-OL	Seed	50	155	
0	1-P-MENTHENE-8,9-DIOL	Seed	40	125	
0	2,4-HEXADIENAL	Seed	--	--	
0	2,8-P-MENTHADIENE-1-OL	Seed	120	365	
0	2,8-P-MENTHADIENE-6-OL	Seed	110	330	
0	2-METHYL-BENZALDEHYDE	Seed	--	--	
0	4-METHYL-BENZALDEHYDE	Seed	--	--	
10	5-METHOXY-PSORALEN	Seed	--	--	
10	5-METHOXY-PSORALEN	Plant	--	--	Wealth of India.
0	8-CIS-MENTHENE	Seed	--	0.1	
21	8-METHOXY-PSORALEN	Plant	--	--	Wealth of India.
0	8-P-MENTHENE-1,2-DIOL	Seed	30	85	
0	8-P-MENTHENE-1,2-DIOL-ISOMER	Seed	30	85	
0	8-P-MENTHENE-7-AL	Seed	30	85	
0	ABSCISIC-ACID	Seed	--	0.12	-0.49402184451606584
6	ACETALDEHYDE	Fruit	--	--	
6	ACETALDEHYDE	Seed	--	--	
3	ALANINE	Seed	9140	10150	-0.0013229586167773184 Revised USDA data received 1993.
15	ALPHA-LINOLENIC-ACID	Fruit	1500	1664	-0.39890612938011816

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
15	ALPHA-LINOLENIC-ACID	Seed	1500	1664	-0.29806400798854177	USDA's Ag Handbook 8 and sequelae)
11	ALPHA-PHELLANDRENE	Fruit	3	6	-0.5736201696885931	
11	ALPHA-PHELLANDRENE	Seed	3	6	-0.5312072630899651	
28	ALPHA-PINENE	Fruit	42	540	-0.577800039343025	
28	ALPHA-PINENE	Plant	20	20	-0.46732168198180957	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
28	ALPHA-PINENE	Seed	4	540	-0.4451814085289362	
13	ALPHA-TERPINENE	Seed	6	12	-0.5062619617372923	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
23	ALPHA-TERPINEOL	Seed	--	--		
0	ALPHA-THUJENE	Seed	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	ARABINOSE	Seed	--	--		Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
14	ARGININE	Seed	12520	13900	-0.45478768617160453	Revised USDA data received 1993.
0	ASH	Fruit	56460	67620	0.28371563599880156	
0	ASH	Seed	55000	67620	0.5937289975821403	
3	ASPARTIC-ACID	Seed	20840	23130	0.048029804288976026	Revised USDA data received 1993.
7	ASTRAGALIN	Seed	--	--		

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
0	BENZOIC-ACID-4-O-BETA-D-GLUCOSIDE	Seed	--	37	-1	
53	BETA-CAROTENE	Fruit	--	2	-0.14693466516508752	
53	BETA-CAROTENE	Seed	2	2	-0.30429005311638807	
0	BETA-CARYOPHYLLENE	Seed	20	1320	0.9233136232225039	
5	BETA-ELEMENE	Essential Oil	--	--		
5	BETA-ELEMENE	Seed Essent. Oil	--	--		
0	BETA-FENCHENE	Seed	--	--		
2	BETA-MYRCENE	Seed	--	--		
3	BETA-PHELLANDRENE	Seed	--	--		Wealth of India.
13	BETA-PINENE	Fruit	270	600	-0.2786206877223514	
13	BETA-PINENE	Plant	20	20	-0.4138919250596763	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
13	BETA-PINENE	Seed	40	600	-0.6190200878086086	
47	BETA-SITOSTEROL	Root	--	--		
47	BETA-SITOSTEROL	Seed	--	420	-0.4698064371659858	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
4	CADINENE	Plant	3720	29760	1.4141020257548391	
102	CAFFEIC-ACID	Seed	--	2840	1.9446682932160153	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
28	CALCIUM	Fruit	6426	8160	0.993126554897215	
28	CALCIUM	Seed	1530	8160	0.7371261230888665	
4	CALCIUM-OXALATE	Fruit	--	--		
4	CALCIUM-OXALATE	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.
2	CAMPESTEROL	Seed	--	30	-0.5601817141925177	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	Fruit	1	900	0.021412618138643334	
9	CAMPHENE	Plant	30	30	-0.5545069597862352	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
9	CAMPHENE	Seed	1	900	1.5222256000900138	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
3	CAPRIC-ACID	Fruit	100	110	-0.6828803041071304	
3	CAPRIC-ACID	Seed	100	110	-0.5239374828451797	USDA's Ag Handbook 8 and sequelae)
0	CARBOHYDRATES	Fruit	499000	554000	-1.2239479546663645	
0	CARBOHYDRATES	Seed	300000	554000	0.12160149368264386	
37	CARVACROL	Plant	--	--		

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
37	CARVACROL	Seed	--	--		Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
37	CARVACROL	Seed Essent. Oil	--	595300		
1	CARVEOL	Plant	430	430		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
1	CARVEOL	Seed	120	3240	1	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
1	CARVEOL	Essential Oil	--	--		
19	CARVONE	Fruit	9000	44310	1.99999975413892	
19	CARVONE	Plant	3120	3120	0.11898806640618137	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
19	CARVONE	Seed	10880	44310	0.5757430989637712	
19	CARVONE	Essential Oil	264000	580000	1.456771501873754	
19	CARVONE	Seed Essent. Oil	595300	900000	1.38528277461378	
0	CARVONE-EPOXIDE(8,9)	Seed	25	80		
0	CARVYL-ACETATE	Plant	55	55		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CARVYL-ACETATE	Seed	45	90	
24	CHROMIUM	Fruit	--	15.5	1.6694676930187362
24	CHROMIUM	Seed	15.5	15.5	1.5756788450079844
0	CIS-2-CARVEOL	Seed	75	230	
0	CIS-BETA-OCIMENE	Seed	--	--	
0	CIS-CARVEOL	Seed	21	42	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	CIS-CARVEOL	Flower Essent. Oil	--	--	
0	CIS-DIHYDROCARVONE	Seed	15	50	-0.70302870575708
0	CIS-LIMONENE-DIEPOXIDE	Seed	55	160	
0	CIS-LIMONENE-EPOXIDE	Seed	300	900	
0	CIS-P-MENTH-8-EN-1-OL	Plant	--	--	
15	CITRONELLOL	Seed	--	0.1	
2	COBALT	Fruit	--	1	-0.4140559583804006
2	COBALT	Seed	1	1	-0.16257255524625883
12	COPPER	Fruit	9	13.8	0.07635430476669072
12	COPPER	Seed	9	13.8	0.2889427800893567
10	CUMINALDEHYDE	Essential Oil	--	370000	1

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
10	CUMINALDEHYDE	Plant	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
2	CYSTINE	Seed	3290	3650	0.34786844092544134	Revised USDA data received 1993.
0	D-DIHYDROPINOL	Seed	--	--		
0	D-PERILLALDEHYDE	Fruit	--	--		
0	D-PERILLALDEHYDE	Seed	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	DECAN-1-AL	Seed	--	--		
0	DECANAL	Seed	--	--		
8	DELTA-3-CARENE	Fruit	90	180	-0.31208082478300797	
8	DELTA-3-CARENE	Plant	100	100	-0.29930598714761825	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
8	DELTA-3-CARENE	Seed	90	180	-0.16222142113076254	
0	DELTA-3-CARENE-EPOXIDE	Seed	5	20		
2	DIACETYL	Fruit	--	--		
2	DIACETYL	Seed	--	--		
2	DIHYDROCARVEOL	Fruit	360	720		
2	DIHYDROCARVEOL	Plant	950	950		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
2	DIHYDROCARVEOL	Seed	200	720		
2	DIHYDROCARVEOL	Essential Oil	--	--		
0	DIHYDROCARVONE	Fruit	240	1500		
0	DIHYDROCARVONE	Plant	230	230		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	DIHYDROCARVONE	Seed	240	1500	1.222391887709424	
0	DIHYDROCARVONE	Essential Oil	--	5000	-0.5088490622892315	
1	DIHYDROCARVYL-ACETATE	Fruit	45	90		
1	DIHYDROCARVYL-ACETATE	Plant	55	55	-0.6178866361535852	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
1	DIHYDROCARVYL-ACETATE	Seed	45	90		
0	DIHYDROPINOL	Essential Oil	--	2800		
0	EICOSENOIC-ACID	Seed	1000	1800	-1.3117937762239429	
0	EO	Fruit	30000	70000	0.54062890380803	
0	EO	Plant	10000	10000	0.019853678703787233	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	EO	Seed	20000	82000	0.4861364448600147	
13	FALCARINDIOL	Root	--	290	1.3544986584188263	
0	FALCARINDION	Root	--	--		

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
0	FALCARINOL-ONE	Root	--	--		
3	FALCARINONE	Plant	--	--		Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
0	FAT	Fruit	127000	176826	0.7093306748827288	
0	FAT	Seed	100000	176826	-0.44976698613804794	
15	FIBER	Fruit	112730	155640	0.13176741912032305	
15	FIBER	Seed	112730	155640	0.6966094834523356	
0	FUCOSE	Seed	--	--		Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
6	FURFURAL	Fruit	--	--		
6	FURFURAL	Seed	--	--		
1	GALACTOSE	Seed	--	--		Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
0	GAMMA-ELEMENE	Seed	--	--		
11	GAMMA-TERPINENE	Fruit	12	14160	1.9544259127217853	
11	GAMMA-TERPINENE	Plant	270	2215	0.3668556912256766	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
11	GAMMA-TERPINENE	Seed	12	14160	1.7263032899871258	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
13	GERANIAL	Seed	--	--		
2	GERMACRENE-D	Essential Oil	--	--		
2	GERMACRENE-D	Seed Essent. Oil	--	--		
7	GLUCOSE	Seed	--	--		Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
8	GLUTAMIC-ACID	Seed	31690	35175	-0.2758530020526007	Revised USDA data received 1993.
12	GLYCINE	Seed	13220	14675	0.5382536999822551	Revised USDA data received 1993.
12	HERNIARIN	Plant	--	--		Wealth of India.
0	HEXA-2,4-DIEN-1-AL	Seed	--	--		
0	HEXADECENIC-ACID	Seed	--	1000		Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
7	HISTIDINE	Seed	5500	6105	-0.005073065220825094	Revised USDA data received 1993.

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
0	HYDROXYCOUMARINS	Seed	--	--		Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
30	HYPEROSIDE	Seed	--	--		
6	IRON	Fruit	123	286	0.6069967345672661	
6	IRON	Seed	123	286	4.874936682884126	
0	ISO-DIHYDROCARVEOL	Fruit	--	--		
0	ISO-DIHYDROCARVEOL	Seed	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	ISODIHYDROCARVONE	Fruit	--	--		
0	ISODIHYDROCARVONE	Seed	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
3	ISOLEUCINE	Seed	8260	9170	-0.16863241397137768	Revised USDA data received 1993.
22	ISOQUERCITRIN	Seed	--	--		
22	ISOQUERCITRIN	Shoot	--	--		
1	ISORHAMNETIN-3-GALACTOSIDE	Seed	--	--		Wealth of India.
1	ISORHAMNETIN-3-GLUCOSIDE	Seed	--	--		Wealth of India.
75	KAEMPFEROL	Seed	--	--		
75	KAEMPFEROL	Leaf	--	--		
75	KAEMPFEROL	Flower	--	--		

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
0	KAEMPFEROL-3-0-GALACTOSIDE	Seed	--	--		Wealth of India.
0	KAEMPFEROL-3-0-GLUCOSIDE	Seed	--	--		Wealth of India.
0	KILOCALORIES	Seed	3330	3700	-0.9069114205711409	Revised USDA data received 1993.
7	LAURIC-ACID	Fruit	100	110	-0.44416811720185917	
7	LAURIC-ACID	Seed	100	110	-0.511344659660987	USDA's Ag Handbook 8 and sequelae)
2	LEUCINE	Seed	12180	13520	-0.3408978107463804	Revised USDA data received 1993.
60	LIMONENE	Fruit	7860	30180	3.5781164025182557	
60	LIMONENE	Plant	420	420	-0.22767736339342154	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
60	LIMONENE	Seed	3000	30180	2.245951109203175	
60	LIMONENE	Essential Oil	250000	500000	2.140871457019611	
60	LIMONENE	Seed Essent. Oil	--	381600	0.7234037553203063	
0	LIMONENE-4-OL	Seed	20	55		
0	LINALOL	Fruit	48	96	-0.6231721368623974	
53	LINALOOL	Seed	5	96	-0.464767259448611	
27	LINOLEIC-ACID	Fruit	20300	46714	0.3036638054156712	
27	LINOLEIC-ACID	Seed	19600	46714	-0.5175834259469172	

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
0	LINOLENIC-ACID	Seed	600	4140	-0.5075880129054059	Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
4	LYSINE	Seed	10310	11445	-0.08853511037990262	Revised USDA data received 1993.
65	MAGNESIUM	Fruit	2580	2863	0.3395434445319955	
65	MAGNESIUM	Seed	2070	2863	0.0015393251037586135	
14	MANGANESE	Fruit	13	34	-0.17934592524588852	
14	MANGANESE	Seed	13	34	-0.24317239745397942	
0	MANNANS	Seed	--	--		Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
3	MANNOSE	Seed	--	--		Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
2	METHANOL	Fruit	--	--		
2	METHANOL	Seed	--	--		
15	METHIONINE	Seed	3610	4005	-0.07999578248445874	Revised USDA data received 1993.
0	METHYL-3,7-DIMETHYL-2,6-OCTADIENOATE	Seed	--	--		
13	MUFA	Seed	71250	79085	-0.21948429390500326	Revised USDA data received 1993.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
22	MYRCENE	Fruit	180	1560	-0.14096760282697604	
22	MYRCENE	Plant	150	150	-0.3113042330188643	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
22	MYRCENE	Seed	12	1560	-0.1814418669231581	
6	MYRISTIC-ACID	Fruit	400	444	-0.24819764617872128	
6	MYRISTIC-ACID	Seed	400	444	-0.29019087360930124	USDA's Ag Handbook 8 and sequelae)
31	MYRISTICIN	Fruit	60	420		
31	MYRISTICIN	Plant	120	120	-1	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
31	MYRISTICIN	Seed	60	420	-0.9148647060412254	
5	N-NONANAL	Fruit	6	12		
5	N-NONANAL	Seed	6	12		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
2	N-OCTANAL	Fruit	24	48		
2	N-OCTANAL	Seed	24	48		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	NEODIHYDROCARVEOL	Fruit	--	--		
0	NEODIHYDROCARVEOL	Seed	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	NEOISODIHYDROCARVEOL	Fruit	--	--		
0	NEOISODIHYDROCARVEOL	Seed	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
39	NIACIN	Fruit	21	56	-0.0628056202874991	
39	NIACIN	Seed	21	56	0.3925544644928447	USDA's Ag Handbook 8 and sequelae)
3	NICKEL	Fruit	--	7	1.349383302912262	
3	NICKEL	Seed	7	10	1.003733061132988	
18	OLEIC-ACID	Fruit	54400	95648	0.2564460151509538	
18	OLEIC-ACID	Seed	29000	241000	1.0020612909785875	
0	P-1(7),8-MENTHADIENE-6-OL	Seed	10	25		
25	P-COUMARIC-ACID	Seed	--	86	-0.2878871950232701	
16	P-CYMENE	Seed	0.1	1320	-0.39090586317354775	
0	P-MENTHA-2,8-DIEN-1-OL	Seed	--	--		
13	PALMITIC-ACID	Fruit	2000	6658	-0.2618846307910205	
13	PALMITIC-ACID	Seed	2000	6658	-0.5139018470842157	
2	PALMITOLEIC-ACID	Fruit	900	999	-0.16284284724499656	
2	PALMITOLEIC-ACID	Seed	900	999	-0.27448704739952007	USDA's Ag Handbook 8 and sequelae)
11	PERILLALDEHYDE	Seed	20	60	-0.4953847300732596	
14	PERILLYL-ALCOHOL	Plant	160	1310	-1	
14	PERILLYL-ALCOHOL	Essential Oil	--	800		
0	PETROSELINIC-ACID	Plant	33020	33020		
0	PETROSELINIC-ACID	Seed Oil	--	--		

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
0	PETROSELINIC-ACID	Seed	40000	354000	-0.8033510875816932	
7	PHENYLALANINE	Seed	8670	9625	-0.22873636959027158	Revised USDA data received 1993.
4	PHOSPHORUS	Fruit	5680	6302	0.9373426112560593	
4	PHOSPHORUS	Seed	5650	6302	0.3241524123754052	
0	PHYTATE	Seed	10190	10900	-0.19448774169058122	
0	PHYTOFLUENE	Plant	--	--		Wealth of India.
2	PHYTOSTEROLS	Fruit	--	760	-0.23881522589243726	
2	PHYTOSTEROLS	Seed	760	760	-0.4421772689232783	USDA's Ag Handbook 8 and sequelae)
0	POLYACETYLENES	Root	--	--		Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
0	POLYSACCHARIDES	Seed	--	130000	-0.6376825261439872	Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
14	POTASSIUM	Fruit	12902	15665	-0.19919899891978007	
14	POTASSIUM	Seed	10810	15665	0.2726200242002285	
0	PROLINE	Seed	9170	10180	-0.2270794734050652	Revised USDA data received 1993.
0	PROTEIN	Fruit	190521	220000	1.4813201219223062	
0	PROTEIN	Seed	190521	220000	1.478470052739822	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
4	PUFA	Seed	32720	36320	-0.5293414540891105	Revised USDA data received 1993.
176	QUERCETIN	Fruit	--	--		
176	QUERCETIN	Seed	--	--		
176	QUERCETIN	Leaf	--	--		
176	QUERCETIN	Flower	--	--		
2	QUERCETIN-3'-GLUCOSIDE	Seed	--	--		Wealth of India.
0	QUERCETIN-3-O-GALACTOSIDE	Seed	--	--		Wealth of India.
0	QUERCETIN-3-GLUCURONIDE	Seed	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
2	QUERCETIN-3-O-BETA-D-GLUCOSIDE	Seed	--	--		
2	QUERCETIN-3-O-BETA-D-GLUCURONIDE	Seed	--	--		
0	QUERCETIN-3-O-CAFFEYL-GLUCOSIDE	Seed	--	--		
0	RHAMNOSE	Seed	--	--		Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
15	RIBOFLAVIN	Fruit	3	4	-0.21615825716438572	
15	RIBOFLAVIN	Seed	3	4	0.18234587940570884	USDA's Ag Handbook 8 and sequelae)
5	SABINENE	Fruit	30	60	-0.5167574947017265	
5	SABINENE	Seed	4	60	-0.43864204594661615	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation	
7	SALICYLATES	Seed	28	30	-0.17921879008985586	
44	SCOPOLETIN	Root	--	--		
44	SCOPOLETIN	Plant	--	--	Wealth of India.	
1	SERINE	Seed	9460	10500	-0.014241088185932402	Revised USDA data received 1993.
0	SFA	Seed	6200	6880	-0.5108368608268686	Revised USDA data received 1993.
1	SODIUM	Fruit	149	212	-0.16384706454945608	
1	SODIUM	Seed	149	212	-0.17599424618728202	
5	STARCH	Fruit	--	45000	-0.3878494415116057	
5	STARCH	Seed	45000	45000	-1.0737470069854615	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
8	STEARIC-ACID	Plant	1100	1221	-0.31662981705011717	
8	STEARIC-ACID	Seed	1000	1221	-0.5263361525324093	
12	STIGMASTEROL	Seed	--	310	-0.13634492946832524	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
0	SUGARS	Fruit	--	30000	-0.7603640515097223	
0	SUGARS	Seed	30000	30000	-0.6664407950618276	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
35	TANNIN	Plant	--	--		
23	TERPINEN-4-OL	Plant	120	985	0.14761831910973383	

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
9	TERPINOLENE	Fruit	--	--		
9	TERPINOLENE	Seed	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
31	THIAMIN	Fruit	3	4	-0.17059389090821606	
31	THIAMIN	Seed	3	4	-0.6165338688916807	USDA's Ag Handbook 8 and sequelae)
4	THREONINE	Seed	7560	8390	0.056493706448137275	Revised USDA data received 1993.
17	THUJONE	Fruit	--	--		
17	THUJONE	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	TRANS-1-CARVEOL	Seed	230	690		
0	TRANS-BETA-OCIMENE	Seed	--	--		
1	TRANS-CARVEOL	Seed	105	210	-1	
1	TRANS-CARVEOL	Flower Essent. Oil	--	--		
0	TRANS-CARYOPHYLLENE-OXIDE	Seed	5	20		
0	TRANS-DIHYDROCARVONE	Fruit	177	354	1	
0	TRANS-DIHYDROCARVONE	Seed	15	354	-1	
0	TRANS-LIMONENE-DIEPOXIDE	Seed	45	140		
0	TRANS-LIMONENE-EPOXIDE	Seed	200	600		

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
0	TRICYCLEN	Fruit	--	--		
0	TRICYCLEN	Seed	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
2	TRIFOLIN	Seed	--	--		
29	TRYPTOPHAN	Seed	2440	2710	-0.20976729388732002	Revised USDA data received 1993.
8	TYROSINE	Seed	6420	7125	-0.14274154462014257	Revised USDA data received 1993.
22	UMBELLIFERONE	Root	--	--		
22	UMBELLIFERONE	Plant	--	--		Wealth of India.
3	VALINE	Seed	10370	11510	-0.061769047027664975	Revised USDA data received 1993.
0	WATER	Seed	91880	155000	-0.27862372656365736	
43	XANTHOTOXIN	Seed	--	--		
3	XYLOSE	Seed	--	--		Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
77	ZINC	Fruit	47	61	0.9235898750204936	
77	ZINC	Seed	47	61	0.592445203168114	