

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in Citrus sinensis

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
62	CAFFEINE	Flower		62.0	1.0998533626601497	Jim Duke's personal files.
53	LINALOOL	Fruit Juice	0.15	4.69	1.0000000000000004	--
0	LINALOL	Fruit Juice	0.15	4.69	1.0000000000000002	--
0	TETRADECANAL	Fruit	5.0	9.0	1.0	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
61	FERULIC-ACID	Pericarp	20.0	180.0	1.0	--
9	SINAPIC-ACID	Pericarp	45.0	100.0	1.0	--
25	P-COUMARIC-ACID	Pericarp	5.0	75.0	1.0	--
0	FERULOYL-PUTRESCINE	Fruit	0.0	5.0	1.0	--
2	METHANOL	Fruit Juice	0.8	80.0	1.0	--
0	VALENCENE	Fruit Juice	0.04	15.3	0.9999999999999999	--
2	DODECANAL	Fruit	5.0	20.0	0.9948320067476139	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
9	SINAPIC-ACID	Fruit	7.0	19.0	0.784062560233975	--
11	TYRAMINE	Fruit	0.0	1.0	0.7071067811865478	--
60	LIMONENE	Fruit	8300.0	9700.0	0.6409395320453212	--
31	HESPERIDIN	Pericarp		63500.0	0.38878029269733505	Jim Duke's personal files.
2	ASPARAGINE	Fruit	200.0	1800.0	0.3373215168393527	--
7	SALICYLATES	Fruit	0.0	200.0	0.236750790358027	--
16	P-CYMENE	Fruit	3590.0	4070.0	-0.04098189676522262	--
5	PHYLLOQUINONE	Fruit		0.001	-0.23285139490462353	--
7	ALPHA-CAROTENE	Fruit	0.19	1.9	-0.26808750426637384	--
22	GAMMA-AMINOBUTYRIC-ACID	Fruit	40.0	730.0	-0.27868808492512787	--
13	BETA-PINENE	Fruit	11.0	13.0	-0.29742687330503664	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
9	OXALIC-ACID	Fruit		87.0	-0.3015516499208378	Watt, J.M. and Breyer-Brandwijk, M.G. 1962. The Medicinal and Poisonous Plants of Southern and Eastern Africa. E. & S. Livingstone, Ltd. Edinburg & London. 1457 pp.
2	CAMPESTEROL	Fruit		40.0	-0.31972036696488193	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
102	CAFFEIC-ACID	Fruit	2.0	50.0	-0.3296566072538586	--
9	CAMPHENE	Fruit		0.1	-0.35176349319281713	--
23	TERPINEN-4-OL	Fruit		0.1	-0.358333842321623	--
22	MYRCENE	Fruit	130.0	140.0	-0.36272097374914564	--
0	SUGARS	Fruit	39600.0	119800.0	-0.38969414389870244	--
23	ALPHA-TERPINEOL	Fruit	2.0	3.0	-0.40604181620664676	--
53	LINALOOL	Fruit	30.0	530.0	-0.43753461385311765	--
87	RUTIN	Leaf		9000.0	-0.44580487824979076	Jim Duke's personal files.
13	ALPHA-TERPINENE	Fruit	1.0	2.0	-0.44934612100297294	--
19	CARVONE	Fruit	2.0	10.0	-0.49999993853473	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	CAROTENOIDS	Fruit	12.0	35.0	-0.5036534891621087	--
0	BETA-CARYOPHYLLENE	Fruit	1.0	2.0	-0.5058677869700708	--
15	CITRONELLOL	Fruit	0.7	1.0	-0.5060981097957616	--
0	TRANS-SABINENE-HYDRATE	Fruit	0.0	0.1	-0.5231287251565837	--
5	SABINENE	Fruit	11.0	13.0	-0.5315196015036519	--
0	VIT-B-6	Fruit	1.0	5.0	-0.538913394725687	USDA's Ag Handbook 8 and sequelae)
10	NEROL	Fruit	0.7	1.0	-0.5477997473775594	--
0	LINALOL	Fruit	30.0	530.0	-0.5486782133862986	--
5	BETA-ELEMENE	Fruit	0.7	1.0	-0.565275335737646	--
11	ALPHA-PHELLANDRENE	Fruit	12.0	14.0	-0.5695870460921888	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
15	LUTEIN	Fruit	0.0	3.0	-0.575590894746515	--
2	UNDECANAL	Fruit	0.7	1.0	-0.5758305509285185	--
3	SILVER	Fruit	0.027	0.055	-0.5875909007853288	--
0	ALPHA-THUJENE	Fruit	0.7	1.0	-0.5955809256752451	--
8	DELTA-3-CARENE	Fruit	7.0	9.0	-0.5981394247478974	--
2	ALPHA-HUMULENE	Fruit	0.0	0.1	-0.5986253681056065	--
0	DECANAL	Fruit	18.0	21.0	-0.6027493593021571	--
35	GERANIOL	Fruit	0.7	1.0	-0.6057972802749785	--
0	MEVALONIC-ACID	Fruit		0.5	-0.6071834425016228	Jim Duke's personal files.
0	OCTANAL	Fruit	12.0	14.0	-0.6131393394849658	--
0	ALPHA-CUBEBENE	Fruit	0.7	1.0	-0.6220320233548484	--
23	ALPHA-TERPINEOL	Fruit Juice	0.09	1.1	-0.6501250791550391	--
11	GAMMA-TERPINENE	Fruit	1.0	2.0	-0.6509562680883627	--
0	(Z)-BETA-OCIMENE	Fruit	2.0	3.0	-0.6648405774204937	--
0	ALPHA-COPAENE	Fruit	0.7	1.0	-0.6881248888845418	--
25	P-COUMARIC-ACID	Fruit	5.0	17.0	-0.6943231755501756	--
0	OCTYL-ACETATE	Fruit		10.0	-0.7063104401414774	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	BETA-CUBEBENE	Fruit		10.0	-0.7068656261481132	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
71	THYMOL	Fruit	0.0	0.1	-0.7071067811865474	--
0	CIS-SABINENE-HYDRATE	Fruit		0.1	-0.7071067811865477	--
0	OCTANOL	Fruit	0.0	0.1	-0.7071067811865478	--
28	ALPHA-PINENE	Fruit	35.0	40.0	-0.7083402631126611	--
5	NERYL-ACETATE	Fruit	0.7	1.0	-0.724098948454428	--
11	PERILLALDEHYDE	Fruit		2.0	-0.7326583054413682	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
9	TERPINOLENE	Fruit	1.0	2.0	-0.7498060467737104	--
34	MYRICETIN	Fruit		0.5	-0.7536633445071549	Jim Duke's personal files.
61	FERULIC-ACID	Fruit	10.0	30.0	-0.7627700713964738	--
176	QUERCETIN	Fruit		3.4	-0.7856446697799095	Jim Duke's personal files.
0	(E)-BETA-OCIMENE	Fruit	0.7	1.0	-0.795218715224166	--
15	MALIC-ACID	Fruit	600.0	2000.0	-0.8215787018847368	--
0	NONANAL	Fruit	3.0	4.0	-0.8226919978166914	--
4	NERAL	Fruit	4.0	5.0	-0.8791176720401793	--
0	GAMMA-CADINENE	Fruit	1.0	2.0	-0.9084313290424243	--
2	PHYTOSTEROLS	Fruit		240.0	-0.9087217260357541	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
15	ALPHA-LINOLENIC-ACID	Fruit	70.0	528.0	-0.913356590105175	USDA's Ag Handbook 8 and sequelae)
62	CAFFEINE	Leaf		6.0	-0.9423311788449318	Jim Duke's personal files.
5	GERANYL-ACETATE	Fruit	0.0	0.1	-0.9446827484165164	--
20	CITRONELLAL	Fruit	4.0	5.0	-0.9952774234291415	--
13	GERANIAL	Fruit	6.0	7.0	-0.9983227361677096	--
2	CITRONELLYL-ACETATE	Fruit	0.0	0.1	-0.9999999999999998	--
28	ALPHA-PINENE	Fruit Juice		0.22	-0.9999999999999999	--
0	OCTANAL	Fruit Juice	0.0	0.28	-1.0	--
11	GAMMA-TERPINENE	Fruit Juice	0.04	0.46	-1.0	--
2	NERYL-FORMATE	Fruit		10.0	-1.0	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
1	N-METHYL-TYRAMINE	Fruit	0.0	2.0	-1.0	--
0	ZETA-CAROTENE	Fruit	0.0	2.0	-1.0	--
0	MUTATOXANTHIN	Fruit		2.0	-1.0	--
5	ZEAXANTHIN	Fruit		2.0	-1.0	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ALPHA-BERGAMOTENE	Fruit		6.0	-1.0	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	ALPHA-SINENSAL	Fruit	1.0	2.0	-1.0	--
0	VALENCENE	Fruit	3.0	4.0	-1.0	--
0	ALPHA-SINESAL	Fruit		3.0	-1.0	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
2	FARNESENE	Fruit	0.0	0.1	-1.0	--
0	PHYTOFLUENE	Fruit	0.0	4.0	-1.0	--
0	OCTOPAMINE	Fruit	0.0	1.0	-1.0	--
0	DECANAL	Fruit Juice	0.0	0.15	-1.0000000000000002	--
14	BETAINE	Fruit	390.0	630.0	-1.0398613033298902	--
0	CITFLAVANONE	Root				Jim Duke's personal files.
0	NOBELITIN	Fruit				--
0	BETA-ZEACAROTENE	Pericarp				Jim Duke's personal files.
0	JASMONIC-ACID	Fruit				Jim Duke's personal files.
0	5,6-DIHYDRO-BETA-BETA-CAROTEN-3,3',5,6-TETROL	Fruit Juice				--
0	3-(4-METHYL-HEXYL)-PYRIDINE	Pericarp Essent. Oil				Jim Duke's personal files.
0	LIMONOATE-A-RING-LACTONE	Fruit				Jim Duke's personal files.
15	LUTEIN	Pericarp				Jim Duke's personal files.
8	NOBILETIN	Fruit				--
0	ETROGOL	Root				Jim Duke's personal files.
7	SCUTELLAREIN	Fruit				--
0	2'-TRANS-O-FERULOYL-GALACTARIC-ACID	Pericarp				Jim Duke's personal files.
0	ISOSINENSETIN	Pericarp				Jim Duke's personal files.
0	NARINGENIN-4-BETA-D-GLUCOSIDE	Plant				--
3	NOOTKATONE	Pericarp Essent. Oil				Jim Duke's personal files.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	HEXANOL	Fruit Juice	0.02	0.22		--
0	ICHANGIN-17-O-BETA-D-GLUCOSIDE	Seed				Jim Duke's personal files.
2	VIOLAXANTHIN	Pericarp				Jim Duke's personal files.
9	DELTA-CADINENE	Pericarp				--
1	TRANS-2-HEXENOL	Fruit Juice	0.0	0.1		--
0	GIBBERELIC-ACID	Fruit				Jim Duke's personal files.
0	PHYTOENE	Fruit	0.0	2.0		--
0	CRYPTOFLAVIN	Pericarp				--
0	3-METHYL-BUTAN-1-OL	Fruit Juice				Jim Duke's personal files.
0	NEOCHROME-B	Pericarp				Jim Duke's personal files.
8	AURAPTENE	Fruit				--
3	SUBAPHYLLIN	Leaf				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
2	BETA-CRYPTOXANTHIN	Pericarp				Jim Duke's personal files.
0	ABSCISIC-ACID	Tissue Culture				Jim Duke's personal files.
0	4-PHENYL-PYRIDINE	Pericarp Essent. Oil				Jim Duke's personal files.
3	MANNOSE	Fruit				--
0	NARINGIN-7-O-ALPHA-L-RHAMNO-GLUCOSIDE	Fruit Juice				Jim Duke's personal files.
0	CASTASTERONE	Pollen Or Spore				Jim Duke's personal files.
0	NEUROSPORIN	Pericarp				Jim Duke's personal files.
0	BETA-SINESAL	Pericarp				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
2	ELEMOL	Root Bark		28200.0		Jim Duke's personal files.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	4-(3-METHYL-2-BUTENOXY)-ISO-NITROSO-ACETOPHENONE	Pericarp		48.0		Jim Duke's personal files.
0	2-PHENYL-PYRIDINE	Pericarp Essent. Oil				Jim Duke's personal files.
31	CARYOPHYLLENE	Pericarp Essent. Oil				Jim Duke's personal files.
5	LIMONIN	Fruit				--
0	LINOMIN	Leaf				Jim Duke's personal files.
0	BETA-SINENSAL	Pericarp				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	ETHYL-SUBERENOL	Root Bark		700.0		Jim Duke's personal files.
22	SCOPARONE	Bark		162.5		Jim Duke's personal files.
2	SINENSETIN	Pericarp				Jim Duke's personal files.
56	NARINGENIN	Pericarp	35000.0	45800.0		Jim Duke's personal files.
0	NOMILINIC-ACID-17-O-BETA-D-GLUCOSIDE	Seed				Jim Duke's personal files.
5	HEXANAL	Fruit	1.0	2.0		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	HEPTAMETHOXY-FLAVONE	Fruit Juice				Jim Duke's personal files.
0	PHLORIN	Plant				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	CRENULATIN	Root Bark		60.0		Jim Duke's personal files.
3	BRASSINOLIDE	Pollen Or Spore				Jim Duke's personal files.
3	SUBAPHYLLIN	Fruit				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CRYPTOFLAVIN-B	Pericarp				Jim Duke's personal files.
5	CAPRYLIC-ACID	Fruit				--
0	3-HYDROXY-ETHYL- HEXANOATE	Fruit Juice				Jim Duke's personal files.
0	3-PROPYL-PYRIDINE	Pericarp Essent. Oil				Jim Duke's personal files.
1	MALONIC-ACID	Plant				--
0	NARINGIN-GLUCOSIDE	Flower				Jim Duke's personal files.
0	BETA-SINESAL	Fruit		6.0		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
31	CARYOPHYLENE	Pericarp				--
0	3-METHYL-BUTAN-1-OL	Fruit				--
0	2-PENTYLPYRIDINE	Pericarp Essent. Oil				Jim Duke's personal files.
0	LIMONEXIC-ACID	Fruit				--
0	LIMONIN-17-O-BETA-D- GLUCOSIDE	Seed				Jim Duke's personal files.
0	ALPHA-SINENSAL	Pericarp				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
1	ETHYL-BUTYRATE	Fruit Juice	0.08	1.02		--
0	5,6-DIHYDRO-BETA-BETA- CAROTENE-3,3',5,6- TETROL	Fruit Juice				Jim Duke's personal files.
2	SINENSETIN	Fruit Juice				Jim Duke's personal files.
0	NOMILINIC-ACID- GLUCOSIDE	Fruit Juice				Jim Duke's personal files.
5	HEXANAL	Fruit Juice	0.02	0.65		--
0	TETRA-O-METHYL- SCUTELLAREIN	Fruit				--
0	3,3',4,5,6,7,8- HEPTAMETHOXY- FLAVONE	Fruit Juice				Jim Duke's personal files.
2	CONIFERIN	Pericarp				Jim Duke's personal files.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	4,7-DIMETHYL-BICYCLO(3.2.1)-OCT-TRANS-3-EN-6-ONE	Pericarp Essent. Oil				Jim Duke's personal files.
0	ARABAN	Fruit				--
6	STACHYDRINE	Fruit				--
0	CRYPTOFLAVIN-A	Pericarp				Jim Duke's personal files.
0	OCTAN-1-AL	Fruit				Jim Duke's personal files.
3	CAPRIC-ACID	Fruit				--
2	SINENSETIN	Plant				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	ALPHA-HYDROXY-CAROTENE	Pericarp				Jim Duke's personal files.
0	3-PHENYL-PYRIDINE	Pericarp Essent. Oil				Jim Duke's personal files.
12	NARINGIN	Flower				Jim Duke's personal files.
0	3-METHYL-BUT-1-ENE	Essential Oil				Jim Duke's personal files.
0	2-METHYL-5-PHENYL-PYRIDINE	Pericarp Essent. Oil				Jim Duke's personal files.
0	ISOSAKURANETIN	Fruit				--
0	LIMONIN-GLUCOSIDE	Fruit Juice				Jim Duke's personal files.
4	TRANS-2-HEXENAL	Pericarp				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
6	ETHYL-ACETATE	Fruit Juice	0.01	0.58		--
5	SABINENE	Fruit Juice	0.0	0.15		--
0	5,8-EPOXY-5,5',8'-TETRAHYDRO-BETA-BETA-CAROTENE-3,3',5',6'-TETROL	Fruit Juice				Jim Duke's personal files.
9	SINAPIC-ACID	Fruit Juice				Jim Duke's personal files.
0	NOMILIN-17-O-BETA-D-GLUCOSIDE	Seed				Jim Duke's personal files.
0	HESPERIDIN-7-O-ALPHA-L-RHAMNO-GLUCOSIDE	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
61	FERULIC-ACID	Fruit Juice				Jim Duke's personal files.
0	PECTINESTERASE	Fruit				Jim Duke's personal files.
0	CITRUSINS	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	4,7-DIMETHYL-BICYCLO(3.2.1)-OCT-CIS-3-EN-6-ONE	Pericarp Essent. Oil				Jim Duke's personal files.
0	APOVIOLAXANTH-10'-AL	Pericarp				--
0	SINESETIN	Plant				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
25	P-COUMARIC-ACID	Fruit Juice				Jim Duke's personal files.
3	OBACUNONE	Seed				Jim Duke's personal files.
0	CAROTENOIDS	Pericarp	12.0	35.0		--
0	ALPHA-COPAENE	Pericarp				--
0	3-PENTYL-PYRIDINE	Pericarp Essent. Oil				Jim Duke's personal files.
0	LUTOXANTHINS	Fruit	0.0	6.0		--
12	NARINGIN	Pericarp				Jim Duke's personal files.
0	GALACTURONIC-ACID	Fruit				--
0	3-HYDROXY-ETHYL-HEXANOATE	Fruit				Jim Duke's personal files.
2	VIOLAXANTHIN	Tissue Culture				Jim Duke's personal files.
0	NEOCHROME-A	Pericarp				Jim Duke's personal files.
0	2-METHYL-5-(1-METHYL-ETHENYL)-PYRIDINE	Pericarp Essent. Oil				Jim Duke's personal files.
0	ISORHOIFOLIN	Pericarp				--
5	LIMONIN	Seed				Jim Duke's personal files.
0	ETA-CAROTENE	Pericarp				--
2	VIOLAXANTHIN	Fruit				--
0	HESPERIDIN-7-O-ALPHA-L-RHAMNO-GLUCOSIDE	Fruit Juice				Jim Duke's personal files.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
87	RUTIN	Pericarp		6100.0		Jim Duke's personal files.
1	DELPHINIDIN-3-GLUCOSIDE	Fruit				--
0	ZETA-CAROTENE-B	Pericarp				Jim Duke's personal files.
11	NEROLIDOL	Flower				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
2	NOMILIN	Fruit Juice				Jim Duke's personal files.
0	NEOERIOCITRIN	Flower				Jim Duke's personal files.
0	P-HYDROQUINONE	Root Bark		80.0		Jim Duke's personal files.
0	CITRUSININE-II	Root Bark		40.0		--
0	2-(METHYL-AMINO)-BENZYL-ALCOHOL	Pericarp Essent. Oil				Jim Duke's personal files.
0	APIGENIN-7-O-ALPHA-L-RHAMNO-GLUCOSIDE	Leaf				--
0	TETRA-O-METHYL-SCUTELLAREIN	Fruit Juice				Jim Duke's personal files.
0	SINENSIAXANTHIN	Fruit				--
0	COUMARIC-ACID	Fruit Juice				Jim Duke's personal files.
1	NORDENTATIN	Root Bark		300.0		Jim Duke's personal files.
0	VALENCIACHROME	Fruit		0.0		--
0	3-OCTYL-PYRIDINE	Pericarp Essent. Oil				Jim Duke's personal files.
0	LUTEOLIN-7-O-BETA-D-RUTINOSIDE	Leaf				Jim Duke's personal files.
12	NARINGIN	Fruit Juice				Jim Duke's personal files.
0	ALPHA-YLANGENE	Pericarp				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	GALACTAN	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	BETA-CRYTOXANTHIN	Fruit				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	3,3',4,5,6,7,8-HEPTAMETHOXY-FLAVONE	Fruit				Jim Duke's personal files.
0	EPOXY-VALENCENE	Pericarp Essent. Oil				Jim Duke's personal files.
0	NEO-BETA-CAROTENE	Pericarp				Jim Duke's personal files.
0	PHYTOFLUENE-B	Pericarp				Jim Duke's personal files.
0	ISOPRENE	Essential Oil				Jim Duke's personal files.
5	LIMONIN	Fruit Juice				Jim Duke's personal files.
26	BERGAPTEN	Pericarp				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	EPOXY-VALENCENE	Fruit				--
0	VALENCIC-ACID	Root				Jim Duke's personal files.
6	NEOHESPERIDIN	Fruit Juice				Jim Duke's personal files.
7	ALPHA-CAROTENE	Pericarp				Jim Duke's personal files.
8	NOBILETIN	Pericarp				Jim Duke's personal files.
0	METHYL-N-METHYL-ANTHRANILATE	Fruit	0.0	0.1		--
0	HEPTULOSE	Fruit				--
0	TAU-CAROTENE	Pericarp				--
0	ERIOCITRIN	Pericarp				Jim Duke's personal files.
0	CITRUSININE-I	Root Bark		80.0		--
0	N-N-DIMETHYL-ANILINE	Pericarp Essent. Oil				Jim Duke's personal files.
1	ANTHERAXANTHIN	Fruit				--
7	SCUTELLAREIN	Fruit Juice				Jim Duke's personal files.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	MUTATOCHROME	Fruit				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
2	SINENSETIN	Fruit				--
0	ALPHA-COPAENE	Pericarp Essent. Oil				Jim Duke's personal files.
3	NOOTKATONE	Fruit		1.0		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	3-METHYL-PYRIDINE	Pericarp Essent. Oil				Jim Duke's personal files.
0	LUTEOLIN-7-O-ALPHA-L-RHAMNO-GLUCOSIDE	Fruit				Jim Duke's personal files.
0	FR	Juice				--
0	XYLOSYL-VITEXIN	Leaf				Jim Duke's personal files.
0	2-TRANS-O-FERULOYL-GLUCARIC-ACID	Pericarp				Jim Duke's personal files.
0	VALENCENE	Pericarp Essent. Oil				Jim Duke's personal files.
1	NARIRUTIN	Pericarp				Jim Duke's personal files.
0	PHYTOFLUENE-A	Pericarp				Jim Duke's personal files.
0	ISOPENTENYL-PSORALENS	Fruit				--
5	LIMONIN	Twig				Jim Duke's personal files.
0	AURAPTENOL	Pericarp				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	EPOXY-NOOTKATONE	Pericarp				--
0	VALENCIAXANTHIN	Fruit		3.0		--
31	HESPERIDIN	Flower				Jim Duke's personal files.
1	QUINIC-ACID	Fruit				--
0	ZETA-CAROTENE-A	Pericarp				Jim Duke's personal files.
0	NEOXANTHIN-B	Pericarp				Jim Duke's personal files.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	BETA-CITRAURIN	Pericarp				Jim Duke's personal files.
8	NOBILETIN	Fruit Juice				Jim Duke's personal files.
0	HEPTANAL	Fruit	3.0	5.0		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
15	TANGERETIN	Fruit				--
0	ERIOCITRIN	Flower				Jim Duke's personal files.
0	CITRUNOBIN	Root Bark				--
0	N-N-DIMETHYL-3-METHYL-ANILINE	Pericarp Essent. Oil				Jim Duke's personal files.
0	ISORHOIFOLIN	Flower				Jim Duke's personal files.
0	MEVALONIC-ACID	Pericarp		6.0		Jim Duke's personal files.
0	CITRUSIN-IV	Fruit		6.0		Jim Duke's personal files.
2	NOOTKATOL	Fruit				Jim Duke's personal files.
62	CAFFEINE	Bud		0.3		Jim Duke's personal files.
1	MALONIC-ACID	Fruit				--
16	ACETIC-ACID	Plant				--
0	3-HEPTYL-PYRIDINE	Pericarp Essent. Oil				Jim Duke's personal files.
2	BETA-MYRCENE	Fruit				Jim Duke's personal files.
0	FLAVOXANTHIN	Pericarp				Jim Duke's personal files.
0	2-METHYL-1-PROPANOL	Fruit Juice	0.0	0.07		--
1	N-METHYL-TYRAMINE	Pericarp				Jim Duke's personal files.
0	NARINGIN-7-O-ALPHA-L-RHAMNO-GLUCOSIDE	Fruit				--
15	OSTHOL	Root				Jim Duke's personal files.
0	ISOLUTEIN	Pericarp				Jim Duke's personal files.
5	LIMONIN	Branches				Jim Duke's personal files.
5	ZEAXANTHIN	Pericarp				Jim Duke's personal files.
0	VALENCIACHROME	Plant				--
31	HESPERIDIN	Fruit				Jim Duke's personal files.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
6	PROPIONIC-ACID	Plant				--
0	DEACETYL-NOMILIN	Seed				Jim Duke's personal files.
0	3-HYDROXY-5,8-EPOXY-5,8-DIHYDRO-8'-APO-BETA-CAROTEN-8'-AL	Fruit Juice				Jim Duke's personal files.
0	NEOXANTHIN-A	Pericarp				Jim Duke's personal files.
0	BETA-APO-CAROTEN-8-AL	Pericarp				--
0	XYLAN	Fruit				--
0	NICOTINIC-ACID-ETHYL-ESTER	Pericarp Essent. Oil				Jim Duke's personal files.
0	GLUCOSAN	Fruit				--
5	SYNEPHRINE	Fruit	15.0	43.0		--
5	BETA-ELEMENE	Pericarp Essent. Oil				Jim Duke's personal files.
0	N-METHYL-ANILINE	Pericarp Essent. Oil				Jim Duke's personal files.
0	CITRUSIN-III	Fruit		13.0		Jim Duke's personal files.
0	NONANOL	Fruit		10.0		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
1	6,7-DIMETHOXYCOUMARIN	Bark		162.0		Jim Duke's personal files.
0	3-BUTYL-PYRIDINE	Pericarp Essent. Oil				Jim Duke's personal files.
0	LOCHNOCARPOL-A	Root				Jim Duke's personal files.
0	MUTATOXANTHIN	Pericarp				Jim Duke's personal files.
0	2,4-TRANS,TRANS-O-FERULOYL-GLUCARIC-ACID	Pericarp				--
15	TANGERETIN	Pericarp				Jim Duke's personal files.
12	NARINGIN	Fruit				--
0	OBACUNONE-17-O-BETA-D-GLUCOSIDE	Seed				Jim Duke's personal files.
0	ISOCAPROIC-ACID	Fruit				--
5	LIMONIN	Bark				Jim Duke's personal files.
5	ZEAXANTHIN	Tissue Culture				Jim Duke's personal files.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
34	DIOSMIN	Pericarp				--
31	HESPERIDIN	Fruit Juice		110.0		Jim Duke's personal files.
0	PONCITRIN	Root				Jim Duke's personal files.
0	CYANIDIN-3-GLUCOSIDE	Fruit				--
0	5,8-EPOXY-5,8-DIHYDRO-10'-APO-BETA-CAROTEN-3,10'-DIOL	Fruit Juice				Jim Duke's personal files.
0	NEOPONCIRIN	Pericarp				Jim Duke's personal files.
0	BETA-APO-8'-CAROTINAL	Pericarp				Jim Duke's personal files.
1	XANTHYLETIN	Root Bark		45000.0		Jim Duke's personal files.
0	NARIRUTIN-GLUCOSIDE	Pericarp				Jim Duke's personal files.
0	GERANYL-OXY-PYRANOCOUMARIN	Root				Jim Duke's personal files.
34	DIOSMIN	Flower				Jim Duke's personal files.
4	OSTHOLE	Root				--
0	CITRACRIDONE-I	Root Bark		400.0		--
0	APIGENIN-TRIMETHYL-ETHER	Pericarp				Jim Duke's personal files.
0	ALPHA-SINESAL	Pericarp				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
8	QUERCETAGETIN	Fruit Juice				Jim Duke's personal files.
2	METHYL-BUTYRATE	Fruit Juice	0.01	0.1		--
0	CITRUSIN-II	Fruit		40.0		Jim Duke's personal files.
0	BRAYLIN	Root				Jim Duke's personal files.
0	5,8-EPOXY-5,8-DIHYDRO-8'-APO-BETA-CAROTEN-3,10'-DIOL	Fruit Juice				--
0	3-(BUT-TRANS-1-ENYL)-PYRIDINE	Pericarp Essent. Oil				Jim Duke's personal files.
0	MUTATOXANTHIN	Fruit Juice				Jim Duke's personal files.
0	SESLIN	Root				Jim Duke's personal files.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
0	2'-TRANS-O-P-COUMAROYL-GLUCARIC-ACID	Pericarp				Jim Duke's personal files.
15	TANGERETIN	Fruit Juice				Jim Duke's personal files.
0	NARINGENIN-RUTINOSIDE-4-BETA-D-GLUCOSIDE	Fruit				--
0	OBACUNONE-GLUCOSIDE	Fruit Juice				Jim Duke's personal files.
1	HYDROXYPROLINE	Leaf				Jim Duke's personal files.
5	LIMONIN	Root				Jim Duke's personal files.
1	XANTHYLETIN	Root				Jim Duke's personal files.
0	DIOSMETIN-7-O-ALPHA-L-RHAMNO-GLUCOSIDE	Leaf				Jim Duke's personal files.
4	4-VINYL-GUAIACOL	Fruit Juice				Jim Duke's personal files.
0	POLYGALACTURONIC-ACID	Fruit				--
0	CRYPTOXANTHIN-5,5',6,6'-DIEPOXIDE	Pericarp				Jim Duke's personal files.
102	CAFFEIC-ACID	Fruit Juice				Jim Duke's personal files.
1	NEOHESPERIDIN-DIHYDROCHALCONE	Pericarp				Jim Duke's personal files.
0	BERGAPTOL	Fruit				--
1	XANTHOXYLETIN	Root Bark		24000.0		Jim Duke's personal files.
0	SUBEROSIN	Root				Jim Duke's personal files.
0	CRYPTOXANTHIN-5,5',6,8'-DIEPOXIDE	Pericarp				Jim Duke's personal files.
0	CITRABASINE	Root Bark		14.0		--
0	ANTHRANILIC-ACID-METHYL-ESTER	Pericarp Essent. Oil				Jim Duke's personal files.
0	5-HEXYL-2-METHYL-PYRIDINE	Pericarp Essent. Oil				Jim Duke's personal files.
0	NARIRUTIN-GLUCOSIDE	Flower				Jim Duke's personal files.
0	BETA-CITRAURIN	Fruit Juice				Jim Duke's personal files.
2	NOMILIN	Seed				Jim Duke's personal files.
60	LIMONENE	Fruit Juice	1.0	278.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	5,8-EPOXY-5,5',8-TETRAHYDRO-BETA,BETA-CAROTEN-3,3',5',6'-TETROL	Plant				--
0	3-(4-METHYL-PHENYL)-PYRIDINE	Pericarp Essent. Oil				Jim Duke's personal files.
16	LYCOPENE	Pericarp				Jim Duke's personal files.
0	OCTADECADIENOIC-ACID	Pericarp				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
3	SESELIN	Root				Jim Duke's personal files.
0	2'-TRANS-O-P-COUMAROYL-GALACTARIC-ACID	Pericarp				Jim Duke's personal files.
5	SYNEPHRINE	Pericarp				Jim Duke's personal files.
0	NARINGENIN-RUTINOSIDE	Fruit				--
0	EPOXY-NOOTKATONE	Pericarp Essent. Oil				Jim Duke's personal files.
8	HORDENINE	Fruit		0.0		--
19	D-LIMONENE	Fruit Juice				Jim Duke's personal files.
1	XANTHOXYLETIN	Root				Jim Duke's personal files.
0	DIHYDROKAEMPFEROL-4'-METHYL-ETHER-7-O-RHAMNOSIDE	Fruit				Jim Duke's personal files.
0	2,4-TRANS-TRANS-O-DIFERULOYL-GLUCARIC-ACID	Pericarp				Jim Duke's personal files.
2	CRYPTOXANTHIN	Fruit				--
9	DELTA-CADINENE	Pericarp Essent. Oil				Jim Duke's personal files.
6	NEOHESPERIDIN	Pericarp		28000.0		Jim Duke's personal files.
0	AURAXANTHIN	Fruit	0.0	4.0		--
0	VITEXIN-XYLOSIDE	Fruit				Jim Duke's personal files.
0	SUBERENOL	Root Bark		700.0		Jim Duke's personal files.
2	BETA-CRYPTOXANTHIN	Fruit				--
0	CITFLAVANONE	Root Bark				--
1	ANTHERAXANTHIN	Tissue Culture				Jim Duke's personal files.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
28	ALPHA-PINENE	Plant				--
0	5-ACETYL-2-METHYL-PYRIDINE	Pericarp Essent. Oil				Jim Duke's personal files.
0	MERANZINE	Fruit				--
1	NARIRUTIN	Fruit Juice				Jim Duke's personal files.