

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in Citrus sinensis

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
176	QUERCETIN	Fruit		3.4	-0.7856446697799095	Jim Duke's personal files.
112	ASCORBIC-ACID	Fruit	500.0	4071.0	-0.03136646807240172	--
102	CAFFEIC-ACID	Fruit	2.0	50.0	-0.3296566072538586	--
102	CAFFEIC-ACID	Fruit Juice				Jim Duke's personal files.
87	RUTIN	Pericarp		6100.0		Jim Duke's personal files.
87	RUTIN	Leaf		9000.0	-0.44580487824979076	Jim Duke's personal files.
77	ZINC	Fruit	0.9	13.0	-0.5205322406758267	--
71	THYMOL	Fruit	0.0	0.1	-0.7071067811865474	--
65	MAGNESIUM	Fruit	98.0	1075.0	-0.4884044378711737	--
62	CAFFEINE	Leaf		6.0	-0.9423311788449318	Jim Duke's personal files.
62	CAFFEINE	Flower		62.0	1.0998533626601497	Jim Duke's personal files.
62	CAFFEINE	Bud		0.3		Jim Duke's personal files.
61	FERULIC-ACID	Fruit	10.0	30.0	-0.7627700713964738	--
61	FERULIC-ACID	Pericarp	20.0	180.0	1.0	--
61	FERULIC-ACID	Fruit Juice				Jim Duke's personal files.
60	LIMONENE	Fruit	8300.0	9700.0	0.6409395320453212	--
60	LIMONENE	Fruit Juice	1.0	278.0		--
60	SELENIUM	Fruit	0.0	0.002	-0.38569128420884563	--
56	NARINGENIN	Pericarp	35000.0	45800.0		Jim Duke's personal files.
53	BETA-CAROTENE	Pericarp				Jim Duke's personal files.
53	LINALOOL	Fruit Juice	0.15	4.69	1.0000000000000004	--
53	LINALOOL	Fruit	30.0	530.0	-0.43753461385311765	--
53	BETA-CAROTENE	Fruit	1.0	28.0	-0.0966771336129336	--
47	BETA-SITOSTEROL	Fruit		170.0	-0.570881270243894	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
39	NIACIN	Fruit	2.0	31.0	-0.39701223426716226	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
35	GERANIOL	Fruit	0.7	1.0	-0.6057972802749785	--
34	MYRICETIN	Fruit		0.5	-0.7536633445071549	Jim Duke's personal files.
34	DIOSMIN	Flower				Jim Duke's personal files.
34	DIOSMIN	Pericarp				--
32	ALPHA-TOCOPHEROL	Fruit	4.0	29.0	-0.6752411923996696	--
31	HESPERIDIN	Pericarp		63500.0	0.38878029269733505	Jim Duke's personal files.
31	HESPERIDIN	Flower				Jim Duke's personal files.
31	HESPERIDIN	Fruit				Jim Duke's personal files.
31	CARYOPHYLLENE	Pericarp				--
31	HESPERIDIN	Fruit Juice		110.0		Jim Duke's personal files.
31	THIAMIN	Fruit	1.0	7.0	0.21342198396383905	--
31	CARYOPHYLLENE	Pericarp Essent. Oil				Jim Duke's personal files.
29	TRYPTOPHAN	Fruit	90.0	680.0	-0.23921305471754814	USDA's Ag Handbook 8 and sequelae)
28	CALCIUM	Fruit	210.0	5615.0	0.4058414049804431	--
28	ALPHA-PINENE	Fruit Juice		0.22	-0.9999999999999999	--
28	ALPHA-PINENE	Plant				--
28	ALPHA-PINENE	Fruit	35.0	40.0	-0.7083402631126611	--
27	LINOLEIC-ACID	Fruit	180.0	1359.0	-0.33622644162700344	USDA's Ag Handbook 8 and sequelae)
26	BERGAPTEN	Pericarp				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
25	P-COUMARIC-ACID	Fruit Juice				Jim Duke's personal files.
25	P-COUMARIC-ACID	Fruit	5.0	17.0	-0.6943231755501756	--
25	P-COUMARIC-ACID	Pericarp	5.0	75.0	1.0	--
24	PECTIN	Pericarp				Jim Duke's personal files.
24	PECTIN	Fruit	1300.0	5900.0	-0.5601993872457034	--
24	ETHANOL	Fruit Juice	64.0	900.0	1.0	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
24	CHROMIUM	Fruit	0.005	0.385	-0.45355683651553846	--
23	ALPHA-TERPINEOL	Fruit	2.0	3.0	-0.40604181620664676	--
23	ALPHA-TERPINEOL	Fruit Juice	0.09	1.1	-0.6501250791550391	--
23	CITRIC-ACID	Fruit	5600.0	9800.0	-0.4912433942967182	--
23	TERPINEN-4-OL	Fruit		0.1	-0.358333842321623	--
22	MYRCENE	Fruit	130.0	140.0	-0.36272097374914564	--
22	SCOPARONE	Bark		162.5		Jim Duke's personal files.
22	GAMMA-AMINOBUTYRIC-ACID	Fruit	40.0	730.0	-0.27868808492512787	--
20	CHOLINE	Fruit	70.0	160.0	-0.5734302834278399	--
20	CITRONELLAL	Fruit	4.0	5.0	-0.9952774234291415	--
19	D-LIMONENE	Fruit Juice				Jim Duke's personal files.
19	CARVONE	Fruit	2.0	10.0	-0.49999993853473	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
18	OLEIC-ACID	Fruit	20.0	1510.0	-0.4691070855395464	USDA's Ag Handbook 8 and sequelae)
16	P-CYMENE	Fruit	3590.0	4070.0	-0.04098189676522262	--
16	LYCOPENE	Pericarp				Jim Duke's personal files.
16	ACETIC-ACID	Plant				--
15	ALPHA-LINOLENIC-ACID	Fruit	70.0	528.0	-0.913356590105175	USDA's Ag Handbook 8 and sequelae)
15	RIBOFLAVIN	Fruit	0.0	3.0	-0.4303249009534089	--
15	OSTHOL	Root				Jim Duke's personal files.
15	FOLACIN	Fruit	0.0	2.0	-0.019192793995839758	USDA's Ag Handbook 8 and sequelae)
15	LUTEIN	Fruit	0.0	3.0	-0.575590894746515	--
15	FIBER	Fruit	3740.0	47000.0	-0.8934118438004772	--
15	TANGERETIN	Pericarp				Jim Duke's personal files.
15	LUTEIN	Pericarp				Jim Duke's personal files.
15	METHIONINE	Fruit	200.0	1510.0	0.6791094324753408	USDA's Ag Handbook 8 and sequelae)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
15	TANGERETIN	Fruit Juice				Jim Duke's personal files.
15	CITRONELLOL	Fruit	0.7	1.0	-0.5060981097957616	--
15	TANGERETIN	Fruit				--
15	MALIC-ACID	Fruit	600.0	2000.0	-0.8215787018847368	--
14	SULFUR	Fruit	46.0	1000.0	-0.28853428975640755	--
14	SUCROSE	Fruit		47000.0	-0.41357367622327157	--
14	ARGININE	Fruit	230.0	4908.0	0.15957250579145005	--
14	POTASSIUM	Fruit	1400.0	13772.0	-0.3666795712783593	--
14	BETAINE	Fruit	390.0	630.0	-1.0398613033298902	--
14	MANGANESE	Fruit	0.0	8.0	-0.3507865335531638	--
13	ALPHA-TERPINENE	Fruit	1.0	2.0	-0.44934612100297294	--
13	BETA-PINENE	Fruit	11.0	13.0	-0.29742687330503664	--
13	GERANIAL	Fruit	6.0	7.0	-0.9983227361677096	--
13	PALMITIC-ACID	Fruit	130.0	982.0	-0.35024794688904615	USDA's Ag Handbook 8 and sequelae)
12	GLYCINE	Fruit	50.0	7097.0	1.3509995174874219	--
12	COPPER	Fruit	0.44	5.5	-0.569630082366932	--
12	STIGMASTEROL	Fruit		20.0	-0.8951703667819086	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
12	NARINGIN	Flower				Jim Duke's personal files.
12	NARINGIN	Fruit				--
12	NARINGIN	Pericarp				Jim Duke's personal files.
12	NARINGIN	Fruit Juice				Jim Duke's personal files.
11	ALPHA-PHELLANDRENE	Fruit	12.0	14.0	-0.5695870460921888	--
11	TYRAMINE	Fruit	0.0	1.0	0.7071067811865478	--
11	LITHIUM	Fruit	0.108	1.54	0.890343380696948	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
11	PERILLALDEHYDE	Fruit		2.0	-0.7326583054413682	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
11	GAMMA-TERPINENE	Fruit	1.0	2.0	-0.6509562680883627	--
11	PANTOTHENIC-ACID	Fruit	2.0	19.0	0.05712424299404392	USDA's Ag Handbook 8 and sequelae)
11	GAMMA-TERPINENE	Fruit Juice	0.04	0.46	-1.0	--
10	NEROL	Fruit	0.7	1.0	-0.5477997473775594	--
9	DELTA-CADINENE	Pericarp				--
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.
9	DELTA-CADINENE	Pericarp Essent. Oil				Jim Duke's personal files.
9	SINAPIC-ACID	Fruit Juice				Jim Duke's personal files.
9	TERPINOLENE	Fruit	1.0	2.0	-0.7498060467737104	--
9	CAMPHENE	Fruit		0.1	-0.35176349319281713	--
9	SINAPIC-ACID	Fruit	7.0	19.0	0.784062560233975	--
9	SINAPIC-ACID	Pericarp	45.0	100.0	1.0	--
8	HORDENINE	Fruit		0.0		--
8	QUERCETAGETIN	Fruit Juice				Jim Duke's personal files.
8	FRUCTOSE	Fruit		23800.0	-0.555436040816387	--
8	TYROSINE	Fruit	160.0	1208.0	-0.501692988706999	USDA's Ag Handbook 8 and sequelae)
8	NOBILETIN	Fruit				--
8	GLUTAMIC-ACID	Fruit	60.0	7097.0	-0.4778760905604569	--
8	NOBILETIN	Pericarp				Jim Duke's personal files.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
8	NOBILETIN	Fruit Juice				Jim Duke's personal files.
8	AURAPTENE	Fruit				--
8	DELTA-3-CARENE	Fruit	7.0	9.0	-0.5981394247478974	--
7	SALICYLATES	Fruit	0.0	200.0	0.236750790358027	--
7	ALPHA-CAROTENE	Fruit	0.19	1.9	-0.26808750426637384	--
7	HISTIDINE	Fruit	180.0	1359.0	-0.24792284510655177	USDA's Ag Handbook 8 and sequelae)
7	CHLORINE	Fruit	12.0	32.0	-0.6800304631000254	--
7	ALPHA-CAROTENE	Pericarp				Jim Duke's personal files.
7	SUCCINIC-ACID	Fruit				--
7	SCUTELLAREIN	Fruit				--
7	GLUCOSE	Fruit		23600.0	-0.644631124988246	--
7	PHENYLALANINE	Fruit	310.0	2340.0	-0.34187787905261324	USDA's Ag Handbook 8 and sequelae)
7	SCUTELLAREIN	Fruit Juice				Jim Duke's personal files.
6	NEOHESPERIDIN	Fruit Juice				Jim Duke's personal files.
6	BUTYRIC-ACID	Fruit				--
6	PROPIONIC-ACID	Plant				--
6	ACETALDEHYDE	Fruit Juice	3.0	15.0	1.0	--
6	STACHYDRINE	Fruit				--
6	NEOHESPERIDIN	Pericarp		28000.0		Jim Duke's personal files.
6	ETHYL-ACETATE	Fruit Juice	0.01	0.58		--
6	IRON	Fruit	1.0	8.0	-0.49575433892938076	--
5	HEXANAL	Fruit Juice	0.02	0.65		--
5	SYNEPHRINE	Fruit	15.0	43.0		--
5	PHYLLOQUINONE	Fruit		0.001	-0.23285139490462353	--
5	CAPRYLIC-ACID	Fruit				--
5	NERYL-ACETATE	Fruit	0.7	1.0	-0.724098948454428	--
5	GLUTAMINE	Fruit	30.0	630.0	0.1767951575504613	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
5	ALUMINUM	Fruit	1.0	165.0	-0.17551933701223474	--
5	LIMONIN	Seed				Jim Duke's personal files.
5	SYNEPHRINE	Pericarp				Jim Duke's personal files.
5	LIMONIN	Fruit				--
5	LIMONIN	Fruit Juice				Jim Duke's personal files.
5	GERANYL-ACETATE	Fruit	0.0	0.1	-0.9446827484165164	--
5	BETA-ELEMENE	Fruit	0.7	1.0	-0.565275335737646	--
5	LIMONIN	Twig				Jim Duke's personal files.
5	ZEAXANTHIN	Fruit		2.0	-1.0	--
5	SABINENE	Fruit	11.0	13.0	-0.5315196015036519	--
5	BETA-ELEMENE	Pericarp Essent. Oil				Jim Duke's personal files.
5	ZEAXANTHIN	Pericarp				Jim Duke's personal files.
5	LIMONIN	Branches				Jim Duke's personal files.
5	SABINENE	Fruit Juice	0.0	0.15		--
5	ZEAXANTHIN	Tissue Culture				Jim Duke's personal files.
5	LIMONIN	Bark				Jim Duke's personal files.
5	LIMONIN	Root				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.
4	SILICON	Fruit		2.0	-0.6019449725946585	ACTA AGRIC SCAND SUPPL 22: 1980
4	LYSINE	Fruit	470.0	3548.0	-0.1467119613903352	USDA's Ag Handbook 8 and sequelae)
4	BORON	Fruit	1.89	27.5	-0.25022637010687165	--
4	OSTHOLE	Root				--
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.
4	PHOSPHORUS	Fruit	136.0	1980.0	-0.3754207541761312	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	NERAL	Fruit	4.0	5.0	-0.8791176720401793	--
4	4-VINYL-GUAIACOL	Fruit Juice				Jim Duke's personal files.
4	THREONINE	Fruit	150.0	1132.0	-0.7838698402029908	USDA's Ag Handbook 8 and sequelae)
3	SILVER	Fruit	0.027	0.055	-0.5875909007853288	--
3	NICKEL	Fruit	0.01	0.55	-0.6121948588601274	--
3	VALINE	Fruit	100.0	3020.0	-0.29566746601618277	--
3	CADMIUM	Fruit	0.001	0.138	-0.23805307615553817	--
3	ALANINE	Fruit	30.0	3775.0	0.02652939797970876	--
3	SESELIN	Root				Jim Duke's personal files.
3	NOOTKATONE	Pericarp Essent. Oil				Jim Duke's personal files.
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.
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.
3	CAPRIC-ACID	Fruit				--
3	BRASSINOLIDE	Pollen Or Spore				Jim Duke's personal files.
3	OBACUNONE	Seed				Jim Duke's personal files.
3	MANNOSE	Fruit				--
3	NOOTKATONE	Fruit		1.0		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
3	ISOLEUCINE	Fruit	250.0	1888.0	-0.5255451749979052	USDA's Ag Handbook 8 and sequelae)
3	XYLOSE	Fruit				--
3	HEXANOL	Fruit Juice	0.02	0.22		--
3	ASPARTIC-ACID	Fruit	70.0	8607.0	-0.2038383572771155	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	VIOLAXANTHIN	Fruit				--
2	VIOLAXANTHIN	Pericarp				Jim Duke's personal files.
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.)
2	ARSENIC	Fruit	0.001	0.154	-0.33956845146287234	--
2	VIOLAXANTHIN	Tissue Culture				Jim Duke's personal files.
2	BETA-MYRCENE	Fruit				Jim Duke's personal files.
2	NERYL-FORMATE	Fruit		10.0	-1.0	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
2	MOLYBDENUM	Fruit	0.1	0.385	-0.4080774738511709	--
2	ELEMOL	Root Bark		28200.0		Jim Duke's personal files.
2	CYSTINE	Fruit	100.0	755.0	-0.2882040289158333	USDA's Ag Handbook 8 and sequelae)
2	METHYL-BUTYRATE	Fruit Juice	0.01	0.1		--
2	CRYPTOXANTHIN	Fruit				--
2	NOMILIN	Fruit Juice				Jim Duke's personal files.
2	ALPHA-HUMULENE	Fruit	0.0	0.1	-0.5986253681056065	--
2	FARNESENE	Fruit	0.0	0.1	-1.0	--
2	METHANOL	Fruit Juice	0.8	80.0	1.0	--
2	CONIFERIN	Pericarp				Jim Duke's personal files.
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.)
2	COBALT	Fruit	0.001	0.055	-0.5284569584957359	--
2	SINENSETIN	Pericarp				Jim Duke's personal files.
2	LEUCINE	Fruit	230.0	1136.0	-0.8429441489050677	USDA's Ag Handbook 8 and sequelae)
2	CITRONELLYL-ACETATE	Fruit	0.0	0.1	-0.9999999999999998	--

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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.
2	SINENSETIN	Fruit Juice				Jim Duke's personal files.
2	SINENSETIN	Fruit				--
2	NOOTKATOL	Fruit				Jim Duke's personal files.
2	BETA-CRYPTOXANTHIN	Fruit				--
2	DODECANAL	Fruit	5.0	20.0	0.9948320067476139	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
2	PALMITOLEIC-ACID	Fruit	30.0	226.0	-0.30412481168854	USDA's Ag Handbook 8 and sequelae)
2	UNDECANAL	Fruit	0.7	1.0	-0.5758305509285185	--
2	NOMILIN	Seed				Jim Duke's personal files.
2	BETA-CRYPTOXANTHIN	Pericarp				Jim Duke's personal files.
2	ASPARAGINE	Fruit	200.0	1800.0	0.3373215168393527	--
1	N-METHYL-TYRAMINE	Fruit	0.0	2.0	-1.0	--
1	GALACTOSE	Fruit				--
1	CHOLESTEROL	Fruit				--
1	QUINIC-ACID	Fruit				--
1	DELPHINIDIN-3-GLUCOSIDE	Fruit				--
1	N-METHYL-TYRAMINE	Pericarp				Jim Duke's personal files.
1	SERINE	Fruit	40.0	2410.0	-0.43531280247846904	--
1	ANTHERAXANTHIN	Fruit				--
1	CAPROIC-ACID	Fruit				--
1	6,7-DIMETHOXYCOUMARIN	Bark		162.0		Jim Duke's personal files.
1	TRANS-2-HEXENOL	Fruit Juice	0.0	0.1		--
1	NEOHESPERIDIN-DIHYDROCHALCONE	Pericarp				Jim Duke's personal files.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
1	ANTHERAXANTHIN	Tissue Culture				Jim Duke's personal files.
1	ETHYL-BUTYRATE	Fruit Juice	0.08	1.02		--
1	MERCURY	Fruit	0.0	0.001	-0.7865389313824043	--
1	NORDENTATIN	Root Bark		300.0		Jim Duke's personal files.
1	NARIRUTIN	Fruit Juice				Jim Duke's personal files.
1	SODIUM	Fruit	0.0	29.0	-0.1812007490262155	--
1	NARIRUTIN	Pericarp				Jim Duke's personal files.
1	XANTHYLETIN	Root Bark		45000.0		Jim Duke's personal files.
1	MALONIC-ACID	Fruit				--
1	XANTHYLETIN	Root				Jim Duke's personal files.
1	MALONIC-ACID	Plant				--
1	HYDROXYPROLINE	Leaf				Jim Duke's personal files.
1	XANTHOXYLETIN	Root Bark		24000.0		Jim Duke's personal files.
1	XANTHOXYLETIN	Root				Jim Duke's personal files.