

Dr. Duke's Phytochemical and Ethnobotanical Database

Chemicals Found in Ginkgo biloba

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
30	(+)-CATECHIN	Leaf	--	--		Jim Duke's personal files.
30	(+)-CATECHIN	Tissue Culture	--	--		Jim Duke's personal files.
4	(+)-CATECHOL	Leaf	--	--		Jim Duke's personal files.
7	(+)-GALLOCATECHIN	Leaf	--	--		Jim Duke's personal files.
38	(-)-EPICATECHIN	Leaf	--	--		Jim Duke's personal files.
21	(-)-EPIGALLOCATECHIN	Leaf	--	--		Jim Duke's personal files.
3	3,4-DIHYDROXYBENZOIC-ACID	Leaf	--	--		
1	6-(PENTADECYL)-SALICYLIC-ACID	Leaf	--	--		Jim Duke's personal files.
2	6-HEPTADECENYLSALICYLIC-ACID	Leaf	--	--		Jim Duke's personal files.
2	6-HEPTADECENYLSALICYLIC-ACID	Fruit	--	--		Jim Duke's personal files.
2	6-PENTADECENYLSALICYLIC-ACID	Leaf	--	--		Jim Duke's personal files.
16	ACACETIN	Leaf	--	--		
16	ACETIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
16	ACETIC-ACID	Pollen Or Spore	--	--		Jim Duke's personal files.
1	AFZELIN	Pollen Or Spore	--	141		
3	ALANINE	Seed	2400	5352	-0.7251578440244862	USDA's Ag Handbook 8 and sequelae)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
7	ALPHA-CAROTENE	Tissue Culture	--	--		Jim Duke's personal files.
5	ALPHA-IONONE	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
15	ALPHA-LINOLENIC-ACID	Seed	210	468	-0.32164924804323036	USDA's Ag Handbook 8 and sequelae)
15	ALPHA-LINOLENIC-ACID	Leaf	--	--		Jim Duke's personal files.
18	AMENTOFLAVONE	Leaf	3.8	5	-1	
17	ANACARDIC-ACID	Fruit	--	--		
17	ANACARDIC-ACID	Plant	--	--		Jim Duke's personal files.
17	ANACARDIC-ACID	Seed	--	--		
17	ANACARDIC-ACID	Testa	--	--		Jim Duke's personal files.
17	ANACARDIC-ACID	Fruit Epidermis	--	--		Jim Duke's personal files.
17	ANACARDIC-ACID	Leaf	--	--		
101	APIGENIN	Leaf	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
101	APIGENIN	Pollen Or Spore	--	109		Jim Duke's personal files.
14	ARGININE	Seed	4200	9366	-0.5574710966820287	USDA's Ag Handbook 8 and sequelae)
112	ASCORBIC-ACID	Seed	150	545	-0.011266545914812775	
112	ASCORBIC-ACID	Fruit	--	640	-0.24469573012689724	Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
112	ASCORBIC-ACID	Leaf	--	--		
2	ASPARAGINE	Fruit	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
3	ASPARTIC-ACID	Seed	5430	12109	-0.6901386529117167	USDA's Ag Handbook 8 and sequelae)
7	ASTRAGALIN	Leaf	--	18000	1	
1	BEHENIC-ACID	Pollen Or Spore	--	--		Jim Duke's personal files.
20	BENZOIC-ACID	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
53	BETA-CAROTENE	Seed	1	4	-0.17927152633495164	
53	BETA-CAROTENE	Leaf	7.2	30	-1.007290752841	
53	BETA-CAROTENE	Tissue Culture	--	--		Jim Duke's personal files.
13	BETA-EUDESOL	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
13	BETA-EUDESOL	Heart Wood	--	--		Jim Duke's personal files.
13	BETA-IONONE	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
13	BETA-IONONE	Essential Oil	--	--		Jim Duke's personal files.
47	BETA-SITOSTEROL	Leaf	--	--		Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
47	BETA-SITOSTEROL	Pollen Or Spore	--	--		Jim Duke's personal files.
47	BETA-SITOSTEROL	Seed	--	--		Jim Duke's personal files.
4	BIFLAVONES	Leaf	--	--		
13	BILOBALIDE	Leaf	0.25	330		
13	BILOBALIDE	Plant	--	--		Jim Duke's personal files.
13	BILOBALIDE	Shoot	--	--		Jim Duke's personal files.
13	BILOBALIDE	Root	--	--		Jim Duke's personal files.
3	BILOBETIN	Leaf	8	19000		
5	BILOBOL	Fruit	--	--		Jim Duke's personal files.
5	BILOBOL	Testa	--	--		Jim Duke's personal files.
5	BILOBOL	Seed	--	--		
6	BUTYRIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
28	CALCIUM	Seed	20	109	-0.7192814043300865	
28	CALCIUM	Leaf	2640	11000	-0.5081650418038481	
4	CALCIUM-OXALATE	Leaf	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
2	CAMPESTEROL	Seed	--	--		Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	CAPROIC-ACID	Fruit	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
5	CAPRYLIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	CARDANOL	Fruit	--	--		
3	CARDANOL	Seed	--	--		Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
3	CARDANOL	Testa	--	--		Jim Duke's personal files.
4	CARDOL	Fruit	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
20	CHOLINE	Leaf	--	--		Jim Duke's personal files.
24	CHROMIUM	Leaf	0.7	2.9	-0.39890184230621223	
23	CITRIC-ACID	Seed	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
23	CITRIC-ACID	Pollen Or Spore	--	--		Jim Duke's personal files.
2	COBALT	Leaf	--	--		
12	COPPER	Seed	3	6	-0.7995157719201157	USDA's Ag Handbook 8 and sequelae)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
13	CYSTEINE	Seed	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
2	CYSTINE	Seed	230	513	-1.7530921610405406	USDA's Ag Handbook 8 and sequelae)
4	D-CATECHIN	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
5	DAUCOSTEROL	Leaf	--	--		Jim Duke's personal files.
2	ELEMOL	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
2	ELEMOL	Heart Wood	--	--		Jim Duke's personal files.
5	ERGOSTEROL	Seed	--	--		Jim Duke's personal files.
15	FIBER	Seed	5000	13000	-0.961586382822488	
13	FORMIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
13	FORMIC-ACID	Pollen Or Spore	--	--		Jim Duke's personal files.
8	FRUCTOSE	Seed	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
1	GALACTOSE	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
22	GAMMA-AMINOBUTYRIC-ACID	Seed	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
2	GAMMA-CAROTENE	Tissue Culture	--	--		Jim Duke's personal files.
14	GAMMA-TOCOPHEROL	Leaf	--	140		Jim Duke's personal files.
11	GINKGETIN	Fruit	--	--		
11	GINKGETIN	Leaf	12	4600		
7	GINKGOIC-ACID	Fruit	--	--		
7	GINKGOLIC-ACID	Fruit	--	--		
7	GINKGOLIC-ACID	Leaf	--	--		Jim Duke's personal files.
10	GINKGOLIDE-A	Root Bark	--	100		
10	GINKGOLIDE-A	Leaf	0.05	300		
10	GINKGOLIDE-A	Plant	--	--		Jim Duke's personal files.
10	GINKGOLIDE-A	Tissue Culture	--	--		Jim Duke's personal files.
10	GINKGOLIDE-A	Sprout Seedling	--	--		Jim Duke's personal files.
10	GINKGOLIDE-A	Shoot	--	--		Jim Duke's personal files.
10	GINKGOLIDE-A	Root	--	--		Jim Duke's personal files.
12	GINKGOLIDE-B	Root Bark	--	--		
12	GINKGOLIDE-B	Leaf	0.05	2500		Jim Duke's personal files.
12	GINKGOLIDE-B	Tissue Culture	--	--		Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
12	GINKGOLIDE-B	Plant	--	--		Jim Duke's personal files.
12	GINKGOLIDE-B	Sprout Seedling	--	--		Jim Duke's personal files.
12	GINKGOLIDE-B	Shoot	--	--		Jim Duke's personal files.
12	GINKGOLIDE-B	Root	--	--		Jim Duke's personal files.
4	GINKGOLIDE-C	Root Bark	--	--		
4	GINKGOLIDE-C	Leaf	0.05	120		Jim Duke's personal files.
4	GINKGOLIDE-C	Plant	--	--		Jim Duke's personal files.
4	GINKGOLIDE-C	Sprout Seedling	--	--		Jim Duke's personal files.
4	GINKGOLIDE-C	Shoot	--	--		Jim Duke's personal files.
4	GINKGOLIDE-C	Root	--	--		Jim Duke's personal files.
1	GINKGOLIDE-J	Leaf	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
1	GINKGOLIDE-J	Shoot	--	--		Jim Duke's personal files.
1	GINKGOLIDE-J	Root	--	--		Jim Duke's personal files.
17	GINKGOLIDES	Leaf	--	1000		
3	GINNOL	Fruit	--	--		
3	GINNOL	Leaf	--	1260		Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	GINNOL	Pollen Or Spore	--	463		Jim Duke's personal files.
3	GLUCOMANNAN	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
7	GLUCOSE	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
8	GLUTAMIC-ACID	Seed	8360	18643	-0.7962775692479128	USDA's Ag Handbook 8 and sequelae)
12	GLYCINE	Seed	2320	5174	-0.6690108388262893	USDA's Ag Handbook 8 and sequelae)
7	HISTIDINE	Seed	1020	2275	-0.8876875742517191	USDA's Ag Handbook 8 and sequelae)
1	HOMOSERINE	Seed	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
6	IRON	Seed	10	26	-0.5798269910065945	
6	IRON	Leaf	2	8	-0.9003002405301712	
3	ISOLEUCINE	Seed	2090	4661	-0.6114097088220455	USDA's Ag Handbook 8 and sequelae)
22	ISOQUERCITRIN	Leaf	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
11	ISORHAMNETIN	Leaf	--	--		
75	KAEMPFEROL	Leaf	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	KAEMPFEROL-3-RHAMNOGLUCOSIDE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
8	LACTIC-ACID	Pollen Or Spore	--	--		Jim Duke's personal files.
7	LAURIC-ACID	Pollen Or Spore	--	--		Jim Duke's personal files.
2	LEUCINE	Seed	3160	7047	-0.8099200212559403	USDA's Ag Handbook 8 and sequelae)
27	LINOLEIC-ACID	Seed	5780	12889	-0.8073993840380734	USDA's Ag Handbook 8 and sequelae)
27	LINOLEIC-ACID	Leaf	--	--		Jim Duke's personal files.
15	LUTEIN	Leaf	--	--		Jim Duke's personal files.
15	LUTEIN	Tissue Culture	--	--		Jim Duke's personal files.
78	LUTEOLIN	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
4	LYSINE	Seed	2060	4594	-0.8748533155304336	USDA's Ag Handbook 8 and sequelae)
65	MAGNESIUM	Seed	270	602	-0.9249547994302867	USDA's Ag Handbook 8 and sequelae)
65	MAGNESIUM	Leaf	240	1000	-1.2069561543337646	
15	MALIC-ACID	Pollen Or Spore	--	--		Jim Duke's personal files.
14	MANGANESE	Seed	1	3	-0.6293316926390775	USDA's Ag Handbook 8 and sequelae)
14	MANGANESE	Leaf	0.7	3	-0.4548985090553243	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	MANNOSE	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
15	METHIONINE	Seed	550	1226	-0.7216701395403058	USDA's Ag Handbook 8 and sequelae)
13	MUFA	Seed	6190	13815	-0.6916668126130565	USDA's Ag Handbook 8 and sequelae)
34	MYRICETIN	Leaf	--	--		
6	MYRISTIC-ACID	Seed	60	133	-0.29426213257444195	USDA's Ag Handbook 8 and sequelae)
6	MYRISTIC-ACID	Pollen Or Spore	--	--		Jim Duke's personal files.
2	NEOXANTHIN	Leaf	--	--		Jim Duke's personal files.
39	NIACIN	Seed	12	134	2.727415188315172	
39	NIACIN	Leaf	84	350	3.071296935479944	
2	NONACOSANE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
18	OLEIC-ACID	Seed	5120	11418	-0.8852375473786731	USDA's Ag Handbook 8 and sequelae)
18	OLEIC-ACID	Leaf	--	--		Jim Duke's personal files.
25	OPCS	Leaf	--	--		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	Pollen Or Spore	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
16	P-CYMENE	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
16	P-CYMENE	Essential Oil	--	--		Jim Duke's personal files.
13	P-HYDROXY-BENZOIC-ACID	Leaf	--	--		Jim Duke's personal files.
13	P-HYDROXY-BENZOIC-ACID	Plant	--	--		Tyler, V.E.. 1982. The Honest Herbal. George F. Stickley Co., Philadelphia PA. 263 pp.
13	PALMITIC-ACID	Seed	2880	6422	-0.5670943519713945	
13	PALMITIC-ACID	Leaf	--	251000	4.4947785234866116	Jim Duke's personal files.
13	PALMITIC-ACID	Pollen Or Spore	--	--		Jim Duke's personal files.
13	PALMITIC-ACID	Fruit	--	--		Jim Duke's personal files.
2	PALMITOLEIC-ACID	Seed	790	1761	-0.256195566417164	USDA's Ag Handbook 8 and sequelae)
11	PANTOTHENIC-ACID	Seed	1	4	-1.3347125379851006	USDA's Ag Handbook 8 and sequelae)
7	PHENYLALANINE	Seed	1710	3813	-0.8216455270835238	USDA's Ag Handbook 8 and sequelae)
4	PHOSPHORUS	Seed	1240	3268	-0.5510734530365442	
4	PHOSPHORUS	Leaf	1440	6000	0.1892389688834186	
5	PINITOL	Leaf	--	--		
14	POTASSIUM	Seed	5100	11394	-0.10342639043560727	
14	POTASSIUM	Leaf	2880	12000	-0.8100334258677413	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
34	PROANTHOCYANIDINS	Leaf	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
11	PROCYANIDIN	Leaf	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
1	PRODELPHINIDIN	Leaf	--	--		
6	PROPIONIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
43	PROTOCATECHUIC-ACID	Leaf	--	--		Jim Duke's personal files.
43	PROTOCATECHUIC-ACID	Plant	--	--		Tyler, V.E.. 1982. The Honest Herbal. George F. Stickley Co., Philadelphia PA. 263 pp.
4	PUFA	Seed	6180	13795	-0.7009231111054428	USDA's Ag Handbook 8 and sequelae)
1	PYRUVIC-ACID	Pollen Or Spore	--	--		Jim Duke's personal files.
176	QUERCETIN	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
176	QUERCETIN	Tissue Culture	--	--		Jim Duke's personal files.
4	QUERCETIN-3-RHAMNOGLUCOSIDE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
44	QUERCITRIN	Leaf	--	0.5	-0.6243960698019103	Jim Duke's personal files.
1	QUINIC-ACID	Leaf	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	RAFFINOSE	Flower	40000	40000		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
1	RAFFINOSE	Wood	10000	20000		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
15	RIBOFLAVIN	Seed	1	3	-0.20090831129253928	
15	RIBOFLAVIN	Leaf	0.3	1.2	-0.17223654048552425	
87	RUTIN	Leaf	6	30000	0.8579223754965293	Jim Duke's personal files.
87	RUTIN	Plant	--	--		Tyler, V.E.. 1982. The Honest Herbal. George F. Stickley Co., Philadelphia PA. 263 pp.
3	SCIADOPITYSIN	Leaf	--	--		
60	SELENIUM	Leaf	0.5	2	-0.22887772529853118	
1	SERINE	Seed	2900	6467	-0.5058246480060101	USDA's Ag Handbook 8 and sequelae)
14	SHIKIMIC-ACID	Leaf	--	--		
4	SILICON	Leaf	0.5	2	-0.40724322979061855	
1	SODIUM	Seed	70	160	-0.4617295086785716	
1	SODIUM	Leaf	72	300	-0.5940028377357823	
5	STARCH	Seed	407400	680000	1.497636661907824	
8	STEARIC-ACID	Seed	160	357	-0.5576443525355296	USDA's Ag Handbook 8 and sequelae)
8	STEARIC-ACID	Pollen Or Spore	--	--		Jim Duke's personal files.

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12	STIGMASTEROL	Pollen Or Spore	--	--		
12	STIGMASTEROL	Leaf	--	--		Jim Duke's personal files.
7	SUCCINIC-ACID	Leaf	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
7	SUCCINIC-ACID	Pollen Or Spore	--	--		Jim Duke's personal files.
14	SUCROSE	Seed	3600	3600	-0.6466733517479153	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
14	SUCROSE	Wood	10000	20000		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
35	TANNIN	Leaf	--	--		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.
31	THIAMIN	Seed	2	5	-0.37795068225120004	USDA's Ag Handbook 8 and sequelae)
4	THREONINE	Seed	2680	5976	-0.18733331249617388	USDA's Ag Handbook 8 and sequelae)
71	THYMOL	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
29	TRYPTOPHAN	Seed	710	1583	-0.4723632597485982	USDA's Ag Handbook 8 and sequelae)
8	TYROSINE	Seed	610	1360	-1.407563246247056	USDA's Ag Handbook 8 and sequelae)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	VALERIANIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	VALINE	Seed	2830	6311	-0.5273131819394478	USDA's Ag Handbook 8 and sequelae)
24	VANILLIC-ACID	Leaf	--	--		Jim Duke's personal files.
24	VANILLIC-ACID	Plant	--	--		Tyler, V.E.. 1982. The Honest Herbal. George F. Stickley Co., Philadelphia PA. 263 pp.
2	VIOLAXANTHIN	Leaf	--	--		Jim Duke's personal files.
3	XYLOSE	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
5	ZEAXANTHIN	Tissue Culture	--	--		Jim Duke's personal files.
77	ZINC	Seed	3	8	-1.054186300875964	USDA's Ag Handbook 8 and sequelae)
77	ZINC	Leaf	0.6	2.3	-0.5126529515217503	