

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.
0	(+)-GALLOCATECHOL	Leaf	--	--		Jim Duke's personal files.
0	(+)-PINITOL	Pollen Or Spore	--	76		Jim Duke's personal files.
0	(+)-SESAMIN	Heart Wood	--	--		Jim Duke's personal files.
0	(+)-SESAMIN	Wood	--	--		Jim Duke's personal files.
0	(-)-EPI-GALLO-CATECHOL	Leaf	--	--		Jim Duke's personal files.
38	(-)-EPICATECHIN	Leaf	--	--		Jim Duke's personal files.
0	(-)-EPICATECHOL	Leaf	--	--		Jim Duke's personal files.
21	(-)-EPIGALLOCATECHIN	Leaf	--	--		Jim Duke's personal files.
0	(E)-ATLANTONE	Heart Wood	--	--		Jim Duke's personal files.
0	(Z)-ATLANTONE	Heart Wood	--	--		Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	1,4-DIMETHYL-2,5-DIISOPROPYLBENZENE	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
0	1,4-DIMETHYL-2,5-DIISOPROPYLBENZENE	Essential Oil	--	--		Jim Duke's personal files.
0	10,11-(E)-6-OXO-DIHYDROATLANTONE	Plant	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
0	10,11-(E)-DIHYDROATLANTONE	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	10,11-(Z)-DIHYDROATLANTONE	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	10-HEPTACOSANOL	Leaf Wax	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	10-NONACOSANOL	Leaf	--	--		
0	13-NONACOSANOL	Leaf	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	15-BETULAPRENOL	Leaf	--	--		Jim Duke's personal files.
0	16-BETULAPRENOL	Leaf	--	--		Jim Duke's personal files.
0	17-BETULAPRENOL	Leaf	--	--		Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	18-BETULAPRENOL	Leaf	--	--		Jim Duke's personal files.
0	19-BETULAPRENOL	Leaf	--	--		Jim Duke's personal files.
0	2,5,8-TRIMETHYLDIHYDRONAPHTHALENE	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gokeikagaku Kaishi 61(9): 1119-1122.
0	2-CARBOXYARABINITOL	Leaf	--	--		Jim Duke's personal files.
0	2-HEXENAL	Plant	--	--		
0	2-ISOPROPYLPHENOL	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gokeikagaku Kaishi 61(9): 1119-1122.
0	2-ISOPROPYLPHENOL	Essential Oil	--	--		Jim Duke's personal files.
0	20-BETULAPRENOL	Leaf	--	--		Jim Duke's personal files.
0	21-BETULAPRENOL	Leaf	--	--		Jim Duke's personal files.
0	24ALPHA-ETHYLLATHOSTEROL	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	3'-O-METHYLMYRICETIN-3-RUTINOSIDE	Leaf	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gokeikagaku Kaishi 61(9): 1119-1122.
0	3'-O-METHYLMYRICETRIN-3-O-GLUCOSIDE	Leaf	--	--		
3	3,4-DIHYDROXYBENZOIC-ACID	Leaf	--	--		
0	3-O-[2''-O-6''-O-BIS-(ALPHA-L-RHAMNOSYL)-BETA-D-GLUCOSYL-ISORHAMNETIN	Leaf	--	--		
0	3-O-[2''-O-6''-O-BIS-(ALPHA-L-RHAMNOSYL)-BETA-D-GLUCOSYL-KAEMPFEROL	Leaf	--	--		
0	3-O-[2''-O-6''-O-BIS-(ALPHA-L-RHAMNOSYL)-BETA-D-GLUCOSYL-QUERCETIN	Leaf	--	--		
0	3-O-[2''-O-[6''-O-(P-(BETA-D-GLUCOSYLOXY)-TRANS-CINNAMOYL)-BETA-D-GLUCOSYL]-ALPHA-L-RHAMNOSYL-KAEMPFEROL	Leaf	--	--		
0	3-O-[2''-O-[6''-O-(P-(BETA-D-GLUCOSYLOXY)-TRANS-CINNAMOYL)-BETA-D-GLUCOSYL]-ALPHA-L-RHAMNOSYL-QUERCETIN	Leaf	--	--		
0	3-O-[2''-O-[6''-O-(P-HYDROXY-TRANS-CINNAMOYL)-BETA-D-GLUCOSYL]-ALPHA-L-RHAMNOSYL-7-O-(BETA-D-GLUCOSYL)-QUERCETIN	Leaf	--	--		
0	3-O-[2''-O-[6''-O-(P-HYDROXY-TRANS-CINNAMOYL)-BETA-D-GLUCOSYL]-ALPHA-L-RHAMNOSYL-QUERCETIN	Leaf	--	--		
0	3-O-[2''-O-[6''-O-(P-HYDROXY-TRANS-CINNAMOYL)-BETA-D-GLUCOSYL]-ALPHA-L-RHAMNOSYL]-KAEMPFEROL	Leaf	--	--		
0	4'-METHOXYPYRIDOXINE	Seed	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gokeikagaku Kaishi 61(9): 1119-1122.
0	4-4'-(PENTA-CIS-1-CIS-5-DIENE-1-5-DIYNYL)-DIPHENOL	Leaf	--	22.7		Jim Duke's personal files.
0	4-HYDROXY-BENZOIC-ACID	Leaf	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	4-HYDROXYANACARDIC-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.
0	4-HYDROXYGINKGOLIC-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.
0	4-O-METHYL-PYRIDOXINE	Seed	--	--		
0	4-O-METHYL-PYRIDOXINE	Leaf	--	--		
0	5'-METHOXYBILOBETIN	Leaf	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	5-6-EPOXYLUTEIN	Tissue Culture	--	--		Jim Duke's personal files.
0	6-(HEPTADECADIENYL)-SALICYLIC-ACID	Leaf	--	--		Jim Duke's personal files.
0	6-(PENTACEC-CIS-ENYL)-SALICYLIC-ACID	Leaf	--	--		Jim Duke's personal files.
0	6-(PENTACEC-CIS-ENYL)-SALICYLIC-ACID	Fruit	--	--		Jim Duke's personal files.
0	6-(PENTADEC-8-ENYL)-2,4-DIHYDROXYBENZOIC-ACID	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	6-(PENTADEC-8-ENYL)-RESORCYCLIC-ACID	Seed	--	--		Jim Duke's personal files.
1	6-(PENTADECYL)-SALICYLIC-ACID	Leaf	--	--		Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	6-(TRIDEC-8-ENYL)-RESORCYCLIC-ACID	Seed	--	--		Jim Duke's personal files.
0	6-(TRIDECYL)-SALICYLIC-ACID	Fruit	--	--		Jim Duke's personal files.
0	6-(TRIDECYL)-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.
0	6-HYDROXYKYNURENIC-ACID	Leaf	--	--		
2	6-PENTADECENYLSALICYLIC-ACID	Leaf	--	--		Jim Duke's personal files.
0	8-HYDROXY-3-(6'-PENTADECENYL)-3-4-DIHYDRO-ISO-COUMARIN	Fruit	--	--		Jim Duke's personal files.
0	8-HYDROXY-3-HEPTADECYL-3-4-DIHYDRO-ISO-COUMARIN	Fruit	--	--		Jim Duke's personal files.
0	8-HYDROXY-3-TRIDECYL-3-4'-DIHYDRO-ISO-COUMARIN	Fruit	--	--		Jim Duke's personal files.
16	ACACETIN	Leaf	--	--		
0	ACENAPHTHENE	Essential Oil	--	--		Jim Duke's personal files.
0	ACENAPHTHENE	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	ACETIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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)
7	ALPHA-CAROTENE	Tissue Culture	--	--		Jim Duke's personal files.
0	ALPHA-HEXENAL	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	ALPHA-HYDROXY-PALMITIC-ACID	Seed	--	--		
5	ALPHA-IONONE	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gokeikagaku 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.
0	ALPHA-SESAMIN	Wood	5000	5000		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
18	AMENTOFLAVONE	Leaf	3.8	5	-1	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
0	APIGENIN-3-O-GLUCOSIDE	Leaf	--	--		
0	ARABINOSE	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
0	ARACHIDIC-ACID	Pollen Or Spore	--	--		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.
112	ASCORBIC-ACID	Leaf	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ASH	Seed	14000	38000	-0.29717040195945654	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	ASH	Leaf	11520	48000	-1.248319836630157	
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	
0	AUROXANTHIN	Tissue Culture	--	--		Jim Duke's personal files.
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-EUDES MOL	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
13	BETA-EUDES MOL	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 Gokeikagaku Kaishi 61(9): 1119-1122.
13	BETA-IONONE	Essential Oil	--	--		Jim Duke's personal files.
47	BETA-SITOSTEROL	Leaf	--	--		Jim Duke's personal files.
47	BETA-SITOSTEROL	Pollen Or Spore	--	--		Jim Duke's personal files.
47	BETA-SITOSTEROL	Seed	--	--		Jim Duke's personal files.
0	BETULAPRENOLS	Plant	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gokeikagaku Kaishi 61(9): 1119-1122.
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.
0	BILOBALIDE-A	Leaf	--	--		Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	BILOBANONE	Wood	20000	20000		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	BILOBANONE	Heart Wood	--	--		Jim Duke's personal files.
0	BILOBANONE	Leaf	--	--		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.
0	CARBOHYDRATES	Seed	381000	838400	1.2518645496771927	
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.
0	CARDANOLS	Leaf	--	--		
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.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CERYL-ALCOHOL	Twig	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
20	CHOLINE	Leaf	--	--		Jim Duke's personal files.
24	CHROMIUM	Leaf	0.7	2.9	-0.39890184230621223	
0	CIS-NEOXANTHIN	Tissue Culture	--	--		Jim Duke's personal files.
0	CIS-VIOLAXANTHIN	Tissue Culture	--	--		Jim Duke's personal files.
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)
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.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
0	D-GALLOCATECHIN	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	D-GLUCARIC-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.
5	DAUCOSTEROL	Leaf	--	--		Jim Duke's personal files.
0	DI-TRANS-POLY-CIS-OCTADECAPRENOL	Leaf	--	2660		
0	DIHYDRO-GINKGOLIC-ACID	Fruit	--	--		Jim Duke's personal files.
0	DNA	Flower	32700	35700		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	DOCOSAN-1-OL	Pollen Or Spore	--	445		Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	DOCOSANOL	Pollen Or Spore	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	DOLICHOL	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 Gokeikagaku Kaishi 61(9): 1119-1122.
2	ELEMOL	Heart Wood	--	--		Jim Duke's personal files.
0	EO	Wood	50000	50000	0.1710888075673346	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	EPIGALLOCATECHOL	Leaf	--	--		Jim Duke's personal files.
5	ERGOSTEROL	Seed	--	--		Jim Duke's personal files.
0	FAT	Seed	16000	38020	-1.1976264322692631	
0	FAT	Leaf	5520	23000	-0.666792373215361	
15	FIBER	Seed	5000	13000	-0.961586382822488	
0	FIBER(CRUDE)	Leaf	--	100000	-0.7146241028272484	
0	FIBER(DIETARY)	Leaf	--	350000	-0.29464124786862994	
0	FLAVONOIDS	Leaf	--	--		Jim Duke's personal files.
0	FLAVOXANTHIN	Tissue Culture	--	--		Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
0	GADOLEIC-ACID	Seed	100	223	-0.6995055326721517	USDA's Ag Handbook 8 and sequelae)
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.
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.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	GAMMA-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.
0	GAMMA-EUDESOL	Heart Wood	--	--		Jim Duke's personal files.
14	GAMMA-TOCOPHEROL	Leaf	--	140		Jim Duke's personal files.
0	GINGOLIDE-C	Leaf	--	--		Jim Duke's personal files.
11	GINKGETIN	Fruit	--	--		
11	GINKGETIN	Leaf	12	4600		
0	GINKGO-FLAVONE-GYLCOSIDES	Leaf	--	--		Jim Duke's personal files.
0	GINKGO-POLYPRENOL-120	Leaf	--	--		Jim Duke's personal files.
0	GINKGO-POLYPRENOL-15	Leaf	--	--		Jim Duke's personal files.
0	GINKGO-POLYPRENOL-16	Leaf	--	--		Jim Duke's personal files.
0	GINKGO-POLYPRENOL-17	Leaf	--	--		Jim Duke's personal files.
0	GINKGO-POLYPRENOL-18	Leaf	--	--		Jim Duke's personal files.
0	GINKGO-POLYPRENOL-19	Leaf	--	--		Jim Duke's personal files.
0	GINKGO-POLYPRENOL-20	Leaf	--	--		Jim Duke's personal files.
0	GINKGO-POLYPRENOL-21	Leaf	--	--		Jim Duke's personal files.
0	GINKGO-POLYPRENOL-22	Leaf	--	--		Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	GINKGO-POLYPRENOL-85	Leaf	--	--		Jim Duke's personal files.
0	GINKGO-POLYPRENOL-90	Leaf	--	--		Jim Duke's personal files.
0	GINKGO-POLYPRENOL-95	Leaf	--	--		Jim Duke's personal files.
0	GINKGO-POLYSACCHARIDE-GF-1	Leaf	--	--		Jim Duke's personal files.
0	GINKGO-POLYSACCHARIDE-GF-2-A	Leaf	--	--		Jim Duke's personal files.
0	GINKGO-POLYSACCHARIDE-GF-2-B	Leaf	--	--		Jim Duke's personal files.
0	GINKGO-POLYSACCHARIDE-GF-3	Leaf	--	--		Jim Duke's personal files.
7	GINKGOIC-ACID	Fruit	--	--		
0	GINKGOL	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	GINKGOL	Leaf	--	--		Jim Duke's personal files.
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.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
10	GINKGOLIDE-A	Shoot	--	--		Jim Duke's personal files.
10	GINKGOLIDE-A	Root	--	--		Jim Duke's personal files.
0	GINKGOLIDE-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.
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.
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.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
0	GINKGOLIDE-M	Root Bark	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
17	GINKGOLIDES	Leaf	--	1000		
0	GINKGOTOXIN	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	GINNOL	Fruit	--	--		
3	GINNOL	Leaf	--	1260		Jim Duke's personal files.
3	GINNOL	Pollen Or Spore	--	463		Jim Duke's personal files.
0	GINNON	Leaf	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gokeikagaku Kaishi 61(9): 1119-1122.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	GINNONE	Leaf	--	--		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 Gokeikagaku 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 Gokeikagaku 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)
0	HEPTADECA-3-6-9-TRIEN-1-OL	Essential Oil	--	--		Jim Duke's personal files.
0	HEX-CIS-3-EN-1-OL	Essential Oil	--	--		Jim Duke's personal files.
0	HEX-CIS-4-EN-1-OL	Essential Oil	--	--		Jim Duke's personal files.
0	HEX-TRANS-2-EN-1-AL	Leaf	--	--		Jim Duke's personal files.
0	HEX-TRANS-4-EN-1-OL	Essential Oil	--	--		Jim Duke's personal files.
0	HEXACOSAN-1-OL	Leaf	--	--		Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	HEXACOSANOL-1	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	HEXEN-1-AL	Leaf	--	--		Jim Duke's personal files.
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.
0	HYDROGINKGOLIC-ACID	Fruit	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	HYDROGINKGOLIC-ACID	Leaf	--	--		Jim Duke's personal files.
0	INGNOCERIC-ACID	Pollen Or Spore	--	--		Jim Duke's personal files.
0	IPURANOL	Leaf	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
6	IRON	Seed	10	26	-0.5798269910065945	
6	IRON	Leaf	2	8	-0.9003002405301712	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ISOGINKGETIN	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
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	--	--		
0	ISORHAMNETIN-3-O-GLUCOSIDE	Leaf	--	--		
0	ISORHAMNETIN-3-O-RUTINOSIDE	Leaf	--	--		
75	KAEMPFEROL	Leaf	--	--		
0	KAEMPFEROL-2-6-DIRHAMNOSYL-GLUCOSIDE	Leaf	--	--		Jim Duke's personal files.
0	KAEMPFEROL-3-0-RUTINOSIDE	Leaf	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
0	KAEMPFEROL-3-O-(2'-6-DIRHAMNOPYRANOSYL-BETA-D-GLUCOPYRANOSIDE	Leaf	--	22		Jim Duke's personal files.
0	KAEMPFEROL-3-O-(2'-O-BETA-D-GLUCOPYRANOSYL)-ALPHA-L-RHAMNOPYRANOSIDE	Leaf	--	5.3		Jim Duke's personal files.
0	KAEMPFEROL-3-O-(3'-P-COUMAROYL-GLUCOSYL-BETA(1-4)-RHAMNOSIDE)	Leaf	--	25000		Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	KAEMPFEROL-3-O-(6'''-P-COUMAROYL-GLUCOPYRANOSYL-BETA-1-4-RHAMNOPYRANOSIDE	Leaf	--	--		Jim Duke's personal files.
0	KAEMPFEROL-3-O-(6'''-P-COUMAROYL-GLUCOSYL(1-2)RHAMNOSIDE	Leaf	--	--		Jim Duke's personal files.
0	KAEMPFEROL-3-O-(6'-O-P-COUMAROYL-BETA-D-GLUCOPYRANOSYL(1-2)ALPHA-L-RHAMNOPYRANOSIDE	Leaf	--	200		Jim Duke's personal files.
0	KAEMPFEROL-3-O-(ALPHA-RHAMNOSYL(1-2)ALPHA-RHAMNOSYL(1-6))BETA-D-GLUCOSIDE	Leaf	--	700		Jim Duke's personal files.
0	KAEMPFEROL-3-O-2'-6'-DI-O-RHAMNOPYRANOSYL-GLUCOPYRANOSIDE	Leaf	--	--		Jim Duke's personal files.
0	KAEMPFEROL-3-O-ALPHA(6'''-P-COUMAROYL-GLUCOSYL-BETA-1,4-RHAMNOSIDE)	Plant	--	--		
0	KAEMPFEROL-3-O-ALPHA-(6'''-P-COUMAROYL-GLUCOSYL-BETA-1-2-RHAMNOSIDE)	Leaf	--	--		Jim Duke's personal files.
0	KAEMPFEROL-3-O-ALPHA-L-RHAMNO-GLUCOAROYL-GLUCOSYL-BETA-1-4-RHAMNOSIDE)	Leaf	--	580		Jim Duke's personal files.
0	KAEMPFEROL-3-O-ALPHA-L-[BETA-D-GLUCOPYRANOSYL(1-2)RHAMNOPYRANOSIDE]	Leaf	--	--		Jim Duke's personal files.
0	KAEMPFEROL-3-O-BETA-D-RUTINOSIDE	Leaf	--	1000		Jim Duke's personal files.
0	KAEMPFEROL-3-O-COUMAROYL-GLUCORHAMNOSIDE	Leaf	--	--		Jim Duke's personal files.
0	KAEMPFEROL-3-O-P-COUMAROYL-GLUCO-RHAMNOSIDE	Leaf	--	--		Jim Duke's personal files.
0	KAEMPFEROL-3-O-RHAMNOSIDE	Leaf	--	--		
0	KAEMPFEROL-3-O-RHAMNOSYL(1-2)RHAMNOSYL(1-6)GLUCOSIDE	Leaf	--	--		Jim Duke's personal files.
0	KAEMPFEROL-3-O-RUTINOSIDE	Leaf	40	130		Jim Duke's personal files.
0	KAEMPFEROL-3-O-[2'-O-6'''-O{P-(7''''-O-BETA-D-GLUCOPYRANOSYL)-COUMAROYL}-BETA-D-GLUCOPYRANOSYL]-ALPHA-L-RHAMNOPYRANOSIDE	Leaf	--	3.1		Jim Duke's personal files.
0	KAEMPFEROL-3-O-[6'''-O-P-COUMAROYL-BETA-D-GLUCOSYL-(1-2)-ALPHA-L-RHAMNOSIDE]	Leaf	--	--		Jim Duke's personal files.

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.
0	KAEMPFEROL-7-O-GLUCOSIDE	Leaf	--	--		
0	KAEMPFEROL-COUMAROYL-GLUCORHAMNOSIDE	Leaf	--	--		Jim Duke's personal files.
0	KILOCALORIES	Seed	1820	3975	-0.6916855702845792	USDA's Ag Handbook 8 and sequelae)
0	KYURENIC-ACID	Leaf	--	--		
0	L-EPICATECHIN	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	L-EPIGALLOCATECHIN	Leaf	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
8	LACTIC-ACID	Pollen Or Spore	--	--		Jim Duke's personal files.
0	LARICITRIN-3-O-RUTINOSIDE	Leaf	--	--		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)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
27	LINOLEIC-ACID	Seed	5780	12889	-0.8073993840380734	USDA's Ag Handbook 8 and sequelae)
27	LINOLEIC-ACID	Leaf	--	--		Jim Duke's personal files.
0	LINOLENIC-ACID	Leaf	--	452000	2.995693474983614	Jim Duke's personal files.
0	LINOLENIC-ACID	Seed	--	--		Jim Duke's personal files.
0	LINOLENIC-ACID	Fruit	--	--		Jim Duke's personal files.
15	LUTEIN	Leaf	--	--		Jim Duke's personal files.
15	LUTEIN	Tissue Culture	--	--		Jim Duke's personal files.
0	LUTEIN-ESTER	Leaf	--	--		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.
0	LUTEOLIN-3-O-GLUCOSIDE	Leaf	--	--		
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
0	MANNAN	Leaf	34000	34000		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	MANNOSE	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gokeikagaku 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	--	--		
0	MYRICETIN-3-O-RUTINOSIDE	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.
0	N-ALPHA-HYDROXY-PALMITOYL-GLUCOSYL-OCTADECASPHINGADIENE	Seed	--	--		Jim Duke's personal files.
0	N-HEPTACOSANE	Leaf	--	381000		Jim Duke's personal files.
0	N-PENTACOSANE	Leaf	--	174000		Jim Duke's personal files.
0	N-TRICOSANE	Leaf	--	125000		Jim Duke's personal files.
2	NEOXANTHIN	Leaf	--	--		Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
0	OCTACOSAN-1-OL	Leaf	--	--		Jim Duke's personal files.
0	OCTACOSANOL-1	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 Gokeikagaku 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. Stickle Co., Philadelphia PA. 263 pp.
0	P-TOLYL-PROPYLENE	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gokeikagaku Kaishi 61(9): 1119-1122.
0	P-TOLYL-PROPYLENE	Essential Oil	--	--		Jim Duke's personal files.
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)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
11	PANTOTHENIC-ACID	Seed	1	4	-1.3347125379851006	USDA's Ag Handbook 8 and sequelae)
0	PENTOSANS	Leaf	55000	55000	-1	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	PENTOSANS	Seed	16000	16000	-1.3063116491987934	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
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	--	--		
0	POPULNIN	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	POPULNIN	Leaf	--	1.5		Jim Duke's personal files.
0	POPULNIN	Pollen Or Spore	--	119		Jim Duke's personal files.
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	--	--		
0	PROLINE	Seed	3470	7738	-0.3655832299835854	USDA's Ag Handbook 8 and sequelae)
6	PROPIONIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	PROTEIN	Seed	43200	131000	-0.9144242564530036	
0	PROTEIN	Leaf	21600	90000	-1.2155220974066152	
0	PROTEIN-H	Seed	--	--		Jim Duke's personal files.
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.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
0	QUERCETIN-3-O-RUTINOSIDE	Leaf	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
0	QUERCETIN-3-O-(2'-O-BETA-D-GLUCOPYRANOSYL)-ALPHA-L-RHAMNOPYRANOSIDE	Leaf	--	2.8		Jim Duke's personal files.
0	QUERCETIN-3-O-(6'''-O-P-COUMAROYL-BETA-D-GLUCOPYRANOSYL(1-2)ALPHA-L-RHAMNOPYRANOSIDE)	Leaf	--	--		Jim Duke's personal files.
0	QUERCETIN-3-O-(6'''-P-COUMAROYL-GLUCOPYRANOSYL-BETA-1-4-RHAMNOPYRANOSIDE)	Leaf	--	--		Jim Duke's personal files.
0	QUERCETIN-3-O-(6'''-P-COUMAROYL-GLUCOSYL(1-2)RHAMNOSIDE)	Leaf	--	--		Jim Duke's personal files.
0	QUERCETIN-3-O-(6'''-P-COUMAROYL-GLUCOSYL-BETA(1-4)RHAMNOSIDE)	Leaf	--	21000		Jim Duke's personal files.
0	QUERCETIN-3-O-(ALPHA-RHAMNOSYL-(1-2)-ALPHA-RHAMNOSYL-(1-6))-BETA-GLUCOSIDE	Leaf	--	8000		Jim Duke's personal files.
0	QUERCETIN-3-O-(ALPHA-RHAMNOSYL-(1-2)-ALPHA-RHAMNOSYL-(1-6)-BETA-D-GLUCOSIDE)	Leaf	--	700		Jim Duke's personal files.
0	QUERCETIN-3-O-2'-6'-DI-O-RHAMNOPYRANOSYL-GLUCOPYRANOSIDE	Leaf	--	--		Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	QUERCETIN-3-O-ALPHA(6'''-P-COUMAROYL-GLUCOSYL-BETA-1,4-RHAMNOSIDE)	Plant	--	--		
0	QUERCETIN-3-O-ALPHA(6'''-P-COUMAROYL-GLUCOSYL-BETA-1,4-RHAMNOSIDE)	Leaf	--	20		Jim Duke's personal files.
0	QUERCETIN-3-O-ALPHA-(6'''-P-COUMAROYL-GLUCOSYL-BETA-1-2-RHAMNOSIDE)	Leaf	--	--		Jim Duke's personal files.
0	QUERCETIN-3-O-ALPHA-L-RHAMNO-GLUCOSIDE	Leaf	--	--		Jim Duke's personal files.
0	QUERCETIN-3-O-COUMAROYL-GLUCORHAMNOSIDE	Leaf	--	--		Jim Duke's personal files.
0	QUERCETIN-3-O-P-COUMAROYL-GLUCO-RHAMNOSIDE	Leaf	--	--		Jim Duke's personal files.
0	QUERCETIN-3-O-RHAMNOSYL(1-2)RHAMNOSYL(1-6)GLUCOSIDE	Leaf	--	--		Jim Duke's personal files.
0	QUERCETIN-3-O-[2'-O-6'''-O-P-COUMAROYL)-BETA-D-GLUCOPYRANOSYL]-ALPHA-L-RHAMNOPYRANOSYL-7-O-BETA-D-GLUCOSIDE	Leaf	--	40		Jim Duke's personal files.
0	QUERCETIN-3-O-[2'-O-6'''-O-{P-(7'PYRANOSIDE'-O-BETA-D-GLUCOPYRANOSYL)-COUMAROYL)-BETA-D-GLUCOPYRANOSYL]-ALPHA-L-RHAMNOPYRANOSYL-7-O-BETA-D-GLUCOSIDE	Leaf	--	4.4		Jim Duke's personal files.
0	QUERCETIN-3-O-[6'''-O-P-COUMAROYL-BETA-D-GLUCOSYL-(1-2)-ALPHA-L-RHAMNOSIDE]	Leaf	--	--		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	--	--		
1	RAFFINOSE	Flower	40000	40000		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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	
0	SEQUOJAFLAVONE	Leaf	--	--		
0	SEQUOYITOL	Leaf	--	--		
0	SEQUOYITOL	Pollen Or Spore	--	31		Jim Duke's personal files.
1	SERINE	Seed	2900	6467	-0.5058246480060101	USDA's Ag Handbook 8 and sequelae)
0	SFA	Seed	3190	7120	-0.5084786953438746	USDA's Ag Handbook 8 and sequelae)
14	SHIKIMIC-ACID	Leaf	--	--		
4	SILICON	Leaf	0.5	2	-0.40724322979061855	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	SITOSTEROL	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	SODIUM	Seed	70	160	-0.4617295086785716	
1	SODIUM	Leaf	72	300	-0.5940028377357823	
0	SPINASTEROL	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
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.
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.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
0	SYRINGETIN-3-O-RUTINOSIDE	Leaf	--	1.4		
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.
0	TERPENE-TRILACTONES	Leaf	--	2660		
31	THIAMIN	Seed	2	5	-0.37795068225120004	USDA's Ag Handbook 8 and sequelae)
0	THIAMINE	Leaf	0.5	2	-0.7799775759670321	
4	THREONINE	Seed	2680	5976	-0.18733331249617388	USDA's Ag Handbook 8 and sequelae)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
0	TRANS-LINALOL-OXIDE	Wood	--	--		
0	TRANS-LINALOOL-OXIDE	Wood	--	--		Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
0	TRANS-LINALOOL-OXIDE	Essential Oil	--	--		Jim Duke's personal files.
0	TRANS-NEOXANTHIN	Tissue Culture	--	--		Jim Duke's personal files.
0	TRANS-VIOLAXANTHIN	Tissue Culture	--	--		Jim Duke's personal files.
0	TRICETIN	Leaf	--	--		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
0	UROSHIOLS	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.
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.
0	WATER	Seed	124000	552000	1.2448308751035961	USDA's Ag Handbook 8 and sequelae)
0	WATER	Leaf	--	760000	-0.2376635252867174	
0	WAX	Leaf	7000	10000	0.5100293229805821	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
0	Z,Z,4,4'-(1,4-PENTADIEN-1,5-DIYL)DIPHENOL	Leaf	--	--		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	