

**Dr. Duke's Phytochemical and Ethnobotanical Databases**

**Chemicals found in *Oenothera biennis***

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
9	BETA-AMYRIN	Fruit				--
21	LUPEOL	Inflorescence				--
9	BETA-AMYRIN	Inflorescence				--
13	LIGNIN	Seed		160000.0	2.0364308751166993	--
0	P-HYDROXYPHENYLACETIC-ACID	Plant				--
62	GALLIC-ACID	Leaf				--
47	BETA-SITOSTEROL	Inflorescence				--
18	OLEIC-ACID	Seed Essent. Oil		120000.0	-0.7071067811865472	--
21	LUPEOL	Fruit				--
4	O-COUMARIC-ACID	Plant				--
0	AMINO-ACIDS	Seed				--
13	P-HYDROXY-BENZOIC-ACID	Plant				--
2	PHYTOSTEROLS	Plant				--
15	FIBER	Seed		429000.0	2.3232206665600197	--
35	TANNIN	Herb		110000.0		--
0	CIS-6,9,12-OCTADECATRIENOIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
2	TARAXASTEROL	Leaf				--
27	LINOLEIC-ACID	Seed Essent. Oil		710000.0	1.3701812176212669	--
2	NEO-CHLOROGENIC-ACID	Leaf				--
10	ALPHA-AMYRIN	Inflorescence				--
5	STARCH	Seed				--
75	KAEMPFEROL	Leaf				--
15	ALPHA-LINOLENIC-ACID	Leaf				--
1	CELLULOSE	Seed		270000.0	1.6470502589214908	--
6	SYRINGIC-ACID	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	MUCILAGE	Plant				--
0	PHYTOSTEROL	Plant				--
1	SODIUM	Seed		180.0	-0.4299811461795394	--
15	ALPHA-LINOLENIC-ACID	Seed				--
34	SALICYLIC-ACID	Plant				--
20	GAMMA-LINOLENIC-ACID	Seed Essent. Oil		80000.0	-1.3934660285832352	--
8	GENTISIC-ACID	Plant				--
0	PHLOBAPHENE	Plant				--
0	LINOLENIC-ACID	Seed Oil				--
0	O-VANILLIC-ACID	Plant				--
0	RESIN	Plant				--
61	FERULIC-ACID	Plant				--
62	GALLIC-ACID	Plant				--
51	ELLAGIC-ACID	Leaf				--
0	CIS-LINOLEIC-ACID	Oil		700000.0		--
0	GAMMA-RESORCYLIC-ACID	Plant				--
0	FIXED-OIL	Seed		140000.0	-0.8071451166889622	--
2	ERUCIC-ACID	Seed				--
2	DIGALLIC-ACID	Leaf				--
2	PALMITOLEIC-ACID	Seed Oil				--
0	PYROCATECHUIC-ACID	Plant				--
0	FATTY-ACIDS	Seed				--
176	QUERCETIN	Herb				--
2	TARAXASTEROL	Inflorescence				--
25	P-COUMARIC-ACID	Leaf				--
9	DELPHINIDIN	Leaf				--
43	PROTocatechuic-acid	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	CAMPESTEROL	Inflorescence				--
102	CAFFEIC-ACID	Leaf				--
12	STIGMASTEROL	Inflorescence				--
6	MYRISTIC-ACID	Seed				--
2	CAMPESTEROL	Fruit				--
12	STIGMASTEROL	Fruit				--
0	OENOTHERIN	Plant				--
0	CIS-GAMMA-LINOLENIC-ACID	Oil		90000.0		--
1	OENOTHEIN-A	Leaf		1250.0		--
0	2-HYDROXY-4-METHOXYBENZOIC-ACID	Plant				--
47	BETA-SITOSTEROL	Fruit				--
14	MANGANESE	Seed	5.0	168.0	1.4260322978622513	--
12	COPPER	Seed	11.0	13.0	-0.1645816165812568	--
32	ALPHA-TOCOPHEROL	Seed	11.0	100.0	-0.41334192628374605	--
0	METHYLENE-CYCLOARTENOL	Seed	20.0	42.0		--
0	OBTUSIFOLIOL	Seed	26.0	56.0		--
14	GAMMA-TOCOPHEROL	Seed	28.0	200.0	-0.5678069938930681	--
0	GRAMISTEROL	Seed	36.0	77.0		--
4	BORON	Seed	38.0	41.0	0.8011086754520209	--
9	BETA-AMYRIN	Seed	47.0	100.0		--
7	CYCLOARTENOL	Seed	62.0	133.0	1.0	--
77	ZINC	Seed	70.0	90.0	1.273809963462215	--
6	IRON	Seed	94.0	390.0	1.1114285262814996	--
2	CAMPESTEROL	Seed	103.0	220.0	-0.16771024103568802	--
0	CITROSTADIENIOL	Seed	115.0	246.0		--
10	ALPHA-AMYRIN	Seed	125.0	266.0		--
0	DIHOMO-LINOLENIC-ACID	Seed Oil	1000.0	3000.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
47	BETA-SITOSTEROL	Seed	1186.0	2528.0	0.3390953743581826	--
4	PHOSPHORUS	Plant	1700.0	3700.0	0.05350457708670144	--
8	STEARIC-ACID	Seed	1875.0	12150.0	-0.30177629804017425	--
0	ALPHA-LINOLEIC-ACID	Seed	2000.0	58000.0	1.2682644549683153	--
0	AMMONIA	Seed	2300.0	2455.0	-1.2854677571761999	--
29	TRYPTOPHAN	Seed	2400.0	16000.0	4.322570870133962	--
65	MAGNESIUM	Herb	2700.0	3900.0	-0.7287122016415516	--
4	LYSINE	Seed	3100.0	3842.0	-1.1184020033617263	--
2	CYSTINE	Seed	3400.0	3629.0	0.3332591122362739	--
8	TYROSINE	Seed	3400.0	3629.0	-0.9525980773834556	--
4	THREONINE	Seed	3500.0	4600.0	-0.7913084970371281	--
7	HISTIDINE	Seed	3700.0	3949.0	-0.5782408006035382	--
4	PHOSPHORUS	Seed	4100.0	7257.0	0.5030557671108792	--
3	ISOLEUCINE	Seed	4100.0	5870.0	-0.5897174494201396	--
65	MAGNESIUM	Seed	4300.0	5300.0	0.9300089168542945	--
14	POTASSIUM	Seed	4600.0	7577.0	-0.43910673764444386	--
20	GAMMA-LINOLENIC-ACID	Seed	4860.0	48600.0	0.014450187219169939	--
8	STEARIC-ACID	Seed Oil	5000.0	19000.0	-0.7851892549060089	--
3	VALINE	Seed	5200.0	8645.0	-0.4146219429330241	--
15	METHIONINE	Seed	5400.0	5763.0	0.3739533200121928	--
3	ALANINE	Seed	5500.0	5870.0	-0.9111653402746318	--
0	PROLINE	Seed	5900.0	6297.0	-0.9899306603474678	--
7	PHENYLALANINE	Seed	6900.0	7364.0	-0.49873991542959556	--
13	PALMITIC-ACID	Seed	7500.0	31590.0	-0.047796848868014136	--
1	SERINE	Seed	8300.0	8858.0	-0.3289312266750426	--
2	LEUCINE	Seed	8700.0	10780.0	-0.6031673733578486	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CIS-GAMMA-LINOLEIC-ACID	Seed	9800.0	14000.0		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
12	GLYCINE	Seed	10500.0	11206.0	0.03669673170359155	--
3	ASPARTIC-ACID	Seed	11800.0	12593.0	-0.8873978605966162	--
28	CALCIUM	Plant	12100.0	23400.0	1.0494074625143026	--
14	POTASSIUM	Herb	12700.0	35100.0	-1.338157399199988	--
28	CALCIUM	Seed	12700.0	18000.0	2.5443203311345783	--
14	ARGININE	Seed	14100.0	15048.0	-0.40617714791759757	--
18	OLEIC-ACID	Seed	15000.0	50000.0	-0.5680708540773698	--
13	PALMITIC-ACID	Seed Oil	17000.0	86000.0	-0.6373307859084272	--
20	GAMMA-LINOLENIC-ACID	Seed Oil	19000.0	403000.0	1.0	--
18	OLEIC-ACID	Seed Oil	22000.0	119000.0	-1.0563882952435122	--
0	FAT	Plant	23000.0	43000.0	-0.12766435472464482	--
8	GLUTAMIC-ACID	Seed	26300.0	28068.0	-0.5757036221626196	--
0	BETA-LINOLEIC-ACID	Seed	42000.0	66000.0	1.0	--
0	ASH	Seed	47800.0	78000.0	0.9059347966112347	--
0	WATER	Seed	63000.0	83000.0	-0.5549177601154011	--
0	CIS-LINOLEIC-ACID	Seed	70000.0	98000.0		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
176	QUERCETIN	Leaf	91000.0	207000.0	2.9965603257230544	--
27	LINOLEIC-ACID	Seed	121500.0	227798.0	1.033962263778994	--
0	FAT	Seed	140000.0	320000.0	0.28766309174876803	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	PROTEIN	Plant	150000.0	176054.0	0.021215692220184674	--
0	PROTEIN	Cf	150000.0	176054.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
15	FIBER	Plant	156000.0	234000.0	0.08275837533773212	--
27	LINOLEIC-ACID	Seed Oil	177000.0	747000.0	1.3995386909817178	--
0	CARBOHYDRATES	Plant	460000.0	671000.0	-0.00899460548785233	--