

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

**Chemicals Found in Juglans regia**

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	ALANINE	Seed	6090	6320		USDA's Ag Handbook 8 and sequelae)
32	ALPHA-TOCOPHEROL	Seed	--	135	-0.30217727729088373	
14	ARGININE	Seed	21030	21825		USDA's Ag Handbook 8 and sequelae)
112	ASCORBIC-ACID	Seed	--	52	-0.3072385069806799	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
112	ASCORBIC-ACID	Fruit	4500	15000	0.6481658854669692	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
112	ASCORBIC-ACID	Leaf	8000	13000	0.762314249085842	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
3	ASPARTIC-ACID	Seed	14750	15310	-0.6461947700116154	USDA's Ag Handbook 8 and sequelae)
7	AVICULARIN	Leaf	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
53	BETA-CAROTENE	Seed	--	1	-0.36679931650710623	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
13	BETA-EUDES MOL	Leaf	12	30	-0.5318378338885462	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.
47	BETA-SITOSTEROL	Seed	310	1765	0.046309756619596035	
47	BETA-SITOSTEROL	Plant	--	--		
13	BETULIN	Bark	--	--		Jim Duke's personal files.
22	BETULINIC-ACID	Stem Bark	40	40	-0.4119646484414538	Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	BIOTIN	Seed	0.02	0.02	-0.5323454617295746	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
4	BORON	Seed	0.5	12	-0.57450510492998	Betting on Boron, Unpublished draft by J. A. Duke on file at USDA, draft and papers relating to boron percentages. Includes Internat. Z. Vit. Ern. Forschung 43:1973 (boron).
102	CAFFEIC-ACID	Seed	1	6	-0.7651606778705059	
102	CAFFEIC-ACID	Testa	15	115		
102	CAFFEIC-ACID	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
28	CALCIUM	Seed	610	1100	-0.5594989895943375	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
2	CAMPESTEROL	Seed	20	85	-0.44657155091027756	
7	CHLORINE	Seed	230	230	-0.2671406395628038	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
77	CHLOROGENIC-ACID	Seed	10	28	-0.6162051230799662	
77	CHLOROGENIC-ACID	Testa	220	800		
1	CHOLESTEROL	Seed	--	12	-1	
23	CITRIC-ACID	Fruit	--	--		
12	COPPER	Seed	3	15	0.01682814208698858	
7	CYANIDIN	Leaf	--	--		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
2	CYSTINE	Seed	3450	3580	0.29917067862821656	USDA's Ag Handbook 8 and sequelae)
1	DELTA-5-AVENASTEROL	Seed	20	105		
1	DELTA-7-AVENASTEROL	Seed	--	2		
4	DELTA-TOCOPHEROL	Seed	--	2090	1	
51	ELLAGIC-ACID	Testa	550	2770		
51	ELLAGIC-ACID	Fruit	--	--		
51	ELLAGIC-ACID	Seed	30	105	-1	
76	EUGENOL	Leaf	10	30	-0.8126620622600426	
61	FERULIC-ACID	Seed	0.4	1	-0.43142499823659564	
61	FERULIC-ACID	Testa	10	65		
15	FIBER	Seed	14000	92000	-0.3377888902714829	
15	FOLACIN	Seed	1	2	-0.24818556527818036	
23	FOLIC-ACID	Seed	1	2	-0.35169038035813815	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
62	GALLIC-ACID	Fruit	--	--		
1	GALLOYLGLUCOSE	Plant	--	--		Gruenwald, J. et al. 1998. PDR for Herbal Medicine. 1st ed. Medical Economics Co., Montvale, NJ. 1244 pp. (abbreviated as PHR or Physicians Herbal Reference in my mind)
14	GAMMA-TOCOPHEROL	Seed	172	3675	2.0688914075925595	
2	GERMACRENE-D	Leaf	--	--		Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
8	GLUTAMIC-ACID	Seed	28090	29155	-0.5298421301041434	USDA's Ag Handbook 8 and sequelae)
12	GLYCINE	Seed	7550	7835	-0.45069114378426517	USDA's Ag Handbook 8 and sequelae)
7	HISTIDINE	Seed	3590	3725	-0.6377906951887551	USDA's Ag Handbook 8 and sequelae)
14	HYPERIN	Leaf	2000	2000	1	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
30	HYPEROSIDE	Leaf	--	--		
8	INOSITOL	Leaf	--	--		
6	IRON	Seed	22	28	-0.5705343782742424	
3	ISOLEUCINE	Seed	5660	5875	-0.5890794417906717	USDA's Ag Handbook 8 and sequelae)
16	JUGLONE	Seed	60	205	-1	
16	JUGLONE	Testa	1980	7630		
16	JUGLONE	Leaf	--	--		
75	KAEMPFEROL	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
20	LECITHIN	Seed	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
2	LEUCINE	Seed	9920	10295	-0.6495910003164479	USDA's Ag Handbook 8 and sequelae)
27	LINOLEIC-ACID	Seed	228000	532760	3.646906955911891	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
4	LYSINE	Seed	3880	4025	-1.0936136775146037	USDA's Ag Handbook 8 and sequelae)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
65	MAGNESIUM	Seed	1310	1945	-0.3955295854108323	
15	MALIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
14	MANGANESE	Seed	27	32	-0.26808590036914703	USDA's Ag Handbook 8 and sequelae)
23	MELATONIN	Seed	--	--		
15	METHIONINE	Seed	2800	2905	-0.36403674536632263	USDA's Ag Handbook 8 and sequelae)
13	MUFA	Seed	141750	147720	0.27704163181166935	USDA's Ag Handbook 8 and sequelae)
6	MYRISTIC-ACID	Seed	1890	1960	-0.27034512251234516	USDA's Ag Handbook 8 and sequelae)
2	NEO-CHLOROGENIC-ACID	Leaf	--	--		Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
39	NIACIN	Seed	6	31	-0.35579833160405505	
21	NICOTINE	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	36000	210300	0.7496892655690699	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
25	P-COUMARIC-ACID	Seed	0.5	3.5	-0.531796756917183	
25	P-COUMARIC-ACID	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
25	P-COUMARIC-ACID	Testa	160	600		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
13	PALMITIC-ACID	Seed	12000	49070	0.31287226883093233	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
2	PALMITOLEIC-ACID	Seed	1610	1670	-0.25837998212503066	USDA's Ag Handbook 8 and sequelae)
11	PANTOTHENIC-ACID	Seed	3	10	-0.7062839299879305	
7	PHENYLALANINE	Seed	6280	6520	-0.5995285013156589	USDA's Ag Handbook 8 and sequelae)
4	PHOSPHORUS	Seed	2800	5100	-0.06695093327969298	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
2	PHYTOSTEROLS	Seed	1080	1120	-0.3432054390873382	USDA's Ag Handbook 8 and sequelae)
42	PLUMBAGIN	Fruit	--	--		Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
14	POTASSIUM	Seed	4500	6870	-0.5012827935723053	
4	PUFA	Seed	391250	406070	2.2871876327827585	USDA's Ag Handbook 8 and sequelae)
176	QUERCETIN	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
44	QUERCITRIN	Leaf	--	--		
15	RIBOFLAVIN	Seed	1	5	0.565600070103957	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
7	SALICYLATES	Seed	3	3	-0.32408179774656004	
1	SERINE	Seed	7820	8115	-0.47132755608881166	USDA's Ag Handbook 8 and sequelae)
26	SEROTONIN	Embryo	95	95		
26	SEROTONIN	Seed	--	304	0.7071067811865477	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
9	SINAPIC-ACID	Seed	0.1	1.6	-0.5808395421134693	
9	SINAPIC-ACID	Testa	12	43		
1	SODIUM	Seed	20	130	-0.5093520524271199	
8	STEARIC-ACID	Seed	2000	21030	-0.10911045186712624	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
12	STIGMASTEROL	Seed	--	11	-0.5162655453328603	
14	SULFUR	Seed	1040	1040	-0.8455282368654037	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
4	SYRINGALDEHYDE	Seed	6	12		
4	SYRINGALDEHYDE	Testa	200	325		
6	SYRINGIC-ACID	Seed	130	600	1.7283209080301962	
6	SYRINGIC-ACID	Testa	6850	18860		
35	TANNIN	Fruit	122000	122000	0.26533014161262874	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
35	TANNIN	Leaf	90000	110000	-0.006475522921307877	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
35	TANNIN	Bark	53000	75100	-0.577222293305624	
31	THIAMIN	Seed	3	5	-0.37795068225120004	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
4	THREONINE	Seed	4480	4650	-0.7801237713974808	USDA's Ag Handbook 8 and sequelae)
29	TRYPTOPHAN	Seed	1890	1960	-0.46554258531064296	USDA's Ag Handbook 8 and sequelae)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
8	TYROSINE	Seed	4390	4555	-0.7380880232247519	USDA's Ag Handbook 8 and sequelae)
3	VALINE	Seed	7230	7505	-0.5550241423508634	USDA's Ag Handbook 8 and sequelae)
77	ZINC	Seed	25	30	-0.42960193727303775	USDA's Ag Handbook 8 and sequelae)