

C PROLINE

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ubiquitous

Yes

*Unless otherwise noted all references are to Duke, James A. 1992. Handbook of phytochemical constituents of GRAS herbs and other economic plants. Boca Raton, FL. CRC Press.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Abelmoschus esculentus	Fruit	450	14930	2.9987180634006636	--
Acacia farnesiana	Leaf	4080	21890	1.5418615186449842	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
Allium ampeloprasum	Plant	--	--		--
Allium cepa	Bulb	370	4033	-1	USDA's Ag Handbook 8 and sequelae)
Allium sativum var. sativum	Bulb	1.3	2400	1	--
Allium sativum var. sativum	Leaf	--	--		--
Allium schoenoprasum	Leaf	1850	23125	1.7207379254141373	USDA's Ag Handbook 8 and sequelae)
Aloe vera	Leaf	3339	3339	-1.1450504019821863	--
Alpinia galanga	Leaf	--	--		--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Amaranthus sp.	Leaf	1210	14556	0.4796108569081685	--
Anacardium occidentale	Seed	6900	7019	-0.848087096872728	--
Ananas comosus	Fruit	31	963	-0.8357784281624211	--
Anastatica hierochuntica	Plant	--	--		--
Angelica sinensis	Root	--	--		Jim Duke's personal files.
Apium graveolens	Leaf	170	3208	-1.1640243366273353	USDA's Ag Handbook 8 and sequelae)
Arachis hypogaea	Seed	11540	15362	0.7909722522543554	--
Arctium lappa	Root	520	2600	0.43323535572821265	USDA's Ag Handbook 8 and sequelae)
Artemisia dracunculus	Leaf	--	--		--
Artemisia dracunculus	Root	--	--		--
Artocarpus altilis	Seed	3690	8440	-0.5689185321946043	USDA's Ag Handbook 8 and sequelae)
Asimina triloba	Fruit	282	3648	-0.0986392372232873	--
Asparagus officinalis	Shoot	1620	20903	1.4024674410990334	--
Astragalus membranaceus	Root	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Avena sativa	Root	276	2.4	-1.2997594393680416	--
Avena sativa	Shoot	150	1.3	-0.7081532669989642	--
Averrhoa carambola	Fruit	260	2860	-0.31497654912646694	USDA's Ag Handbook 8 and sequelae)
Basella alba	Leaf	700	10145	-0.15927483560902458	--
Bertholletia excelsa	Seed	7620	7884	-0.6781498636239054	USDA's Ag Handbook 8 and sequelae)

Plant	Part	Low PPM	High PPM	StdDev	Reference
Beta vulgaris	Root	380	2997	0.6980948158657292	USDA's Ag Handbook 8 and sequelae)
Brassica chinensis	Leaf	310	6625	-0.6691088047000515	--
Brassica oleracea var. botrytis l.	Leaf	1140	12244	0.14474263630065312	--
Brassica oleracea var. botrytis l.	Flower	860	11110		--
Brassica oleracea var. capitata l.	Leaf	2380	31821	2.980259571782197	USDA's Ag Handbook 8 and sequelae)
Brassica oleracea var. italica	Leaf	1140	12244	0.14474263630065312	USDA's Ag Handbook 8 and sequelae)
Brassica oleracea var. sabellica l.	Leaf	1960	12610	0.19775378195045876	--
Brassica oleracea var. viridis l.	Leaf	670	10981	-0.038189267949905695	--
Brassica rapa	Leaf	310	6625	-0.6691088047000515	USDA's Ag Handbook 8 and sequelae)
Cajanus cajan	Seed	9550	11830	0.09707825475742879	--
Calathea allouia	Root	2610	2870	0.6133664747134254	--
Camellia sinensis	Leaf	--	--		--
Capsella bursa-pastoris	Plant	--	--		--
Capsicum annum	Fruit	370	5047	0.28544185332563193	--
Capsicum frutescens	Fruit	870	7099	0.8487973914288358	--
Carica papaya	Fruit	100	895	-0.8544471302048274	USDA's Ag Handbook 8 and sequelae)
Carum carvi	Seed	9170	10180	-0.2270794734050652	Revised USDA data received 1993.
Castanea dentata	Seed	2141	3811	-1.478328304112292	--
Castanea mollisima	Seed	1632	2904	-1.6565168249870692	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Castanea sativa	Seed	1010	2222	-1.7905020192942334	--
Ceratonia siliqua	Seed	18800	18800	1.4663990822074793	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
Chenopodium album	Leaf	2230	14205	0.42877229919483034	--
Cicer arietinum	Seed	7970	16530	1.0204366319475633	--
Cichorium endivia	Leaf	590	9500	-0.2526961168771247	--
Citrullus lanatus	Fruit	2827	2827	-0.3240363604117524	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Citrullus lanatus	Seed	11800	11800	0.09118447788174708	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Citrus paradisi	Fruit	590	590	-0.9381817496597383	--
Citrus reticulata	Fruit	310	2499	-0.4140853937927713	USDA's Ag Handbook 8 and sequelae)
Citrus sinensis	Fruit	60	3473	-0.14668369100889192	--
Cnidoscolus chayamansa	Leaf	620	3100	-1.179666969769901	--
Cocos nucifera	Leaf	--	--		Jim Duke's personal files.
Cocos nucifera	Seed	1380	2605	-1.7152581345146969	USDA's Ag Handbook 8 and sequelae)
Colocasia esculenta	Root	600	2045	0.0629658333697197	--
Corchorus olitorius	Leaf	1130	20052	1.2756470768298402	--
Coriandrum sativum	Fruit	--	--		--
Crocus sativus	Bulb	--	--		--
Cucumis sativus	Fruit	120	3038	-0.2661084761331091	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Cucurbita foetidissima	Seed	8290	15390	0.7964731106716583	--
Cucurbita pepo	Fruit	260	17100	3.5944692903421607	--
Cucurbita pepo	Seed	10000	10743	-0.11647292737143848	USDA's Ag Handbook 8 and sequelae)
Cucurbita spp	Fruit	370	5855	0.5072699599471664	--
Daucus carota	Root	290	2375	0.28312608990720195	--
Dioscorea pentaphylla	Root	480	2585	0.42322807134014523	--
Fagopyrum esculentum	Seed	5965	5965	-1.0551551244383455	Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
Ficus carica	Fruit	490	2346	-0.4560899733881857	USDA's Ag Handbook 8 and sequelae)
Foeniculum vulgare	Fruit	9000	9873	1.6103706188646485	--
Foeniculum vulgare	Seed	9000	9873	-0.28739245676620806	USDA's Ag Handbook 8 and sequelae)
Fragaria spp	Fruit	190	1898	-0.5790837750793335	USDA's Ag Handbook 8 and sequelae)
Ginkgo biloba	Seed	3470	7738	-0.3655832299835854	USDA's Ag Handbook 8 and sequelae)
Glechoma hederacea	Plant	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
Glycine max	Seed	21350	23344	2.3591098196440687	USDA's Ag Handbook 8 and sequelae)
Glycine max	Shoot	--	--		--
Harpagophytum procumbens	Root	--	--		--
Helianthus annuus	Seed	11820	12500	0.2287059383143203	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Helianthus tuberosus	Tuber	2573	2573	-0.9342964673469841	Izadoost, M. & Robinson, T., Synergism & antagonism in the pharmacology of alkaloidal plants, pp 137-58 in Craker, L. & Simon, J., eds., Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture & Pharmacology, v. 2, 1987, 255pp.
Hordeum vulgare	Root	57	219	-1.1552542528043488	--
Humulus lupulus	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Hypericum perforatum	Plant	--	--		--
Ipomoea aquatica	Leaf	880	11685	0.06377752586829968	--
Ipomoea batatas	Root	710	2840	0.5933519059372906	--
Juglans cinerea	Seed	12360	12787	0.2850897370916753	--
Juglans nigra	Seed	9370	9800	-0.30173398049703354	USDA's Ag Handbook 8 and sequelae)
Juglans regia	Seed	5530	5740	-1.0993584510059582	USDA's Ag Handbook 8 and sequelae)
Lablab purpureus	Seed	1070	12822	0.29196581011330397	--
Lactuca sativa	Leaf	480	8000	-0.4699549105238691	--
Lens culinaris	Seed	11720	13200	0.36622739874689353	USDA's Ag Handbook 8 and sequelae)
Lens culinaris	Sprout Seedling	3560	11865	-1	USDA's Ag Handbook 8 and sequelae)
Lentinus edodes	Fruit	--	--		--
Lepidium meyenii	Root	--	50	-1.2680029902432413	Taylor, Leslie. 2005. The Healing Power of Rainforest Herbs. SquareOne Publisher, Garden City Park, NY. 519 pp.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Linum usitatissimum	Seed	--	0.191	-2.226996902840283	--
Lippia javanica	Plant	--	--		Neidlein, R., Staehle, R. 1974. Constituents of Lippia javanica. III. Deutsche Apot. Ztit., 114: 1588.
Lupinus albus	Seed	14760	16480	1.0106136704880937	--
Lycium barbarum	Fruit	--	6500	0.6843480896141092	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Lycopersicon esculentum	Fruit	170	2810	-0.32870353592235396	--
Lycopersicon esculentum	Root	541	541	-0.940431214607169	--
Lycopodium clavatum	Pollen Or Spore	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Macadamia spp	Seed	3960	4075	-1.426463067606293	USDA's Ag Handbook 8 and sequelae)
Malus domestica	Plant	20	435	-1.0472597877182985	--
Mangifera indica	Fruit	180	2000	-0.551080722015724	--
Manihot esculenta	Root	760	2415	0.309812181608715	--
Melia azedarach	Seed	--	--		--
Mentha spicata	Leaf	1350	9345	-0.27514619222062164	USDA's Ag Handbook 8 and sequelae)
Mentha x piperita	Leaf	1540	7215	-0.5836536791989987	USDA's Ag Handbook 8 and sequelae)
Momordica charantia	Fruit	--	--		Jim Duke's personal files.
Moringa oleifera	Shoot	4510	21135	1.4258944352803073	USDA's Ag Handbook 8 and sequelae)
Morus alba	Leaf	--	--		--
Mucuna pruriens	Seed	9225	19555	1.614725800245469	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Murraya sp	Fruit	50	1440	-0.7048229741296588	--
Musa x paradisiaca	Fruit	400	1554	-0.6735254442350362	USDA's Ag Handbook 8 and sequelae)
Myrciaria dubia	Fruit	--	--		Jim Duke's personal files.
Nasturtium officinale	Herb	960	19200	1	USDA's Ag Handbook 8 and sequelae)
Nelumbo nucifera	Rhizome	1360	6500	1	--
Nelumbo nucifera	Seed	3440	10424	-0.17914342148285398	--
Nigella sativa	Seed	11350	14520	0.6255535812768888	--
Ocimum basilicum	Leaf	5880	5880	-0.7770140055446013	USDA's Ag Handbook 8 and sequelae)
Oenothera biennis	Seed	5900	6297	-0.9899306603474678	--
Opuntia ficus-indica	Bud	3995	3995		Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
Opuntia ficus-indica	Seed	10500	10500	-0.16421252006446033	Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
Pachyrhizus erosus	Tuber	470	4330	-0.5931933207228488	--
Panax ginseng	Root	--	--		--
Panax ginseng	Leaf	--	--		--
Panax quinquefolius	Plant	175	1120	-0.9274280071141	--
Papaver bracteatum	Seed	6800	8400	-0.57677690136218	--
Papaver somniferum	Seed	10620	11392	0.011029112372475834	--
Passiflora incarnata	Plant	--	--		--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Perideridia gairdneri	Root	5524	5524	2.3839886591088133	Izadoost, M. & Robinson, T., Synergism & antagonism in the pharmacology of alkaloidal plants, pp 137-58 in Craker, L. & Simon, J., eds., Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture & Pharmacology, v. 2, 1987, 255pp.
Persea americana	Fruit	620	2993	-0.27846276424940747	--
Phaseolus lunatus	Seed	1020	10855	-0.09446949370222676	--
Phaseolus vulgaris	Fruit	680	6989	0.8185980204778843	USDA's Ag Handbook 8 and sequelae)
Phaseolus vulgaris	Seed	9160	10294	-0.20468312127747473	USDA's Ag Handbook 8 and sequelae)
Phaseolus vulgaris	Sprout Seedling	1690	18172	1	USDA's Ag Handbook 8 and sequelae)
Phoenix dactylifera	Fruit	120	1590	-0.6636420137419976	--
Phyllanthus emblica	Fruit	652	3225	-0.2147695455164916	--
Pinus edulis	Seed	6220	6610	-0.9284389216111886	USDA's Ag Handbook 8 and sequelae)
Pinus pinea	Seed	12900	13900	0.5037488591794668	--
Pistacia vera	Seed	9470	9851	-0.29171455980837463	--
Pisum sativum	Fruit	630	6231	0.6104969006522369	--
Pisum sativum	Root	575	575	-0.9177480366608831	--
Pisum sativum	Seed	1730	8183	-0.6194085540962777	--
Pisum sativum	Shoot	23	23	-0.7059620352156295	--
Portulaca oleracea	Herb	540	13200	-1	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Prosopis glandulosa	Leaf	--	--		Carman, N. J., Dossaji, S. F., Mabry, T. J. 1974. A Populational Survey of Amino Acids in Prosopis Species from North and South America. Biochem. Syst. Ecol. 2: 73.
Prunus armeniaca	Fruit	1010	7400	0.9314338519400758	USDA's Ag Handbook 8 and sequelae)
Prunus cerasus	Fruit	--	--		--
Prunus domestica	Fruit	340	2297	-0.469542420448155	USDA's Ag Handbook 8 and sequelae)
Prunus dulcis	Seed	12550	13127	0.351885875016068	USDA's Ag Handbook 8 and sequelae)
Prunus persica	Fruit	290	2349	-0.45526635418043243	--
Psidium cattleianum	Fruit	180	930	-0.8448382394477065	--
Psidium guajava	Fruit	250	1800	-0.6059886691992721	USDA's Ag Handbook 8 and sequelae)
Psophocarpus tetragonolobus	Leaf	1680	7257	-0.5775704329768899	--
Psophocarpus tetragonolobus	Seed	19240	20991	1.8968412533614334	--
Psophocarpus tetragonolobus	Tuber	6790	15939	1.66057243292518	--
Psoralea esculenta	Root	1266	1266	-0.45674580251724606	Izadoost, M. & Robinson, T., Synergism & antagonism in the pharmacology of alkaloidal plants, pp 137-58 in Craker, L. & Simon, J., eds., Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture & Pharmacology, v. 2, 1987, 255pp.
Punica granatum	Fruit	--	--		--
Pyrus communis	Fruit	110	679	-0.9137477131630594	--
Raphanus sativus	Root	180	3490	1.0270008960868768	--
Rehmannia glutinosa	Root	3000	4000	1.3672485652811677	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Ribes nigrum	Fruit Juice	98	98		--
Rosa damascena	Pollen Or Spore	--	--		--
Rosmarinus officinalis	Leaf	1360	4220	-1.0174470705136651	USDA's Ag Handbook 8 and sequelae)
Sambucus canadensis	Fruit	250	1238	-0.7602800007850423	USDA's Ag Handbook 8 and sequelae)
Santalum album	Fruit	--	--		--
Scutellaria baicalensis	Root	--	--		--
Secale cereale	Seed	14910	16745	1.0626753662232822	USDA's Ag Handbook 8 and sequelae)
Sechium edule	Fruit	480	6855	0.7818096958649071	--
Senna obtusifolia	Seed	5360	5360	-1.1740129580979266	--
Sesamum indicum	Seed	8100	14277	0.5778139885838669	--
Silybum marianum	Tissue Culture	--	--		--
Sinapis alba	Seed	19440	20800	1.8593175405862599	--
Solanum melongena	Fruit	460	5700	0.4647163008799166	--
Solanum tuberosum	Tuber	740	6700	-0.13308264485534704	--
Spinacia oleracea	Plant	1120	13301	1.2034784447687357	USDA's Ag Handbook 8 and sequelae)
Tamarindus indica	Fruit	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Terminalia chebula	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Theobroma cacao	Seed	7200	7200	-0.8125279763894483	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Trigonella foenum-graecum	Seed	11980	17800	1.269939853018089	--
Triticum aestivum	Root	173	173	-1.1859432582610887	--
Triticum aestivum	Seed	17526	20447	1.789967432682405	--
Triticum aestivum	Shoot	12	12	-0.7070727978707761	--
Urtica dioica	Leaf	--	--		Jim Duke's personal files.
Vaccinium corymbosum	Fruit	250	1624	-0.6543076627207944	--
Valerianella locusta	Plant	780	10830	0.7712093500636632	--
Vicia faba	Seed	2520	13265	0.37899724864420387	USDA's Ag Handbook 8 and sequelae)
Vigna angularis	Seed	8740	10097	-0.24338558942778463	--
Vigna radiata	Seed	10950	12090	0.14815765434667028	USDA's Ag Handbook 8 and sequelae)
Vigna unguiculata	Seed	--	14050	0.5332177435578753	--
Vigna unguiculata	Seed	--	14050	0.5332177435578753	--
Vitis vinifera	Fruit	220	1132	-0.7893812127923229	USDA's Ag Handbook 8 and sequelae)
Zea mays	Root	69	69	-1.2553270966850225	--
Zea mays	Seed	2920	12147	0.15935583041046553	--
Zea mays	Shoot	11	11	-0.7071737762939713	--
Zingiber officinale	Rhizome	410	2376	-1	--
Zingiber officinale	Root	410	2376	0.2837932421997398	USDA's Ag Handbook 8 and sequelae)