

## Dr. Duke's Phytochemical and Ethnobotanical Databases

### List of Plants for ASPARTIC-ACID

Plant	Part	Low PPM	High PPM	StdDev	Reference
Abelmoschus esculentus	Fruit	1450.0	14820.0	0.6124010179892998	--
Acacia senegal	Plant				Pakistan Encyclopedia Planta Medica. 1986.
Acacia farnesiana	Plant	7040.0	37770.0	1.3374636299085358	--
Allium sativum var. sativum	Bulb	0.1	11736.0	1.0	--
Allium sativum var. sativum	Leaf				--
Allium cepa	Bulb	640.0	6967.0	-1.0	USDA's Ag Handbook 8 and sequelae)
Allium schoenoprasum	Leaf	2590.0	32400.0	0.33884520103249316	USDA's Ag Handbook 8 and sequelae)
Allium ampeloprasum	Plant				--
Aloe vera	Plant				Pakistan Encyclopedia Planta Medica. 1986.
Aloe vera	Leaf				Waller, G. R., Mangiafico, S., Ritchey, C. R. 1978. A Chemical Investigation of Aloe barbadensis. Proc. Okla. Acad. Sci. 58: 69-.
Alpinia galanga	Leaf				--
Amaranthus sp.	Leaf	2290.0	27549.0	0.03264038550956568	--
Anacardium occidentale	Seed	15050.0	15310.0	-0.6461947700116154	--
Ananas comosus	Fruit	293.0	4222.0	-0.7799223200234909	--
Anastatica hierochuntica	Fruit				--
Angelica sinensis	Root				Jim Duke's personal files.
Angelica archangelica	Leaf				--
Apium graveolens	Pt	1130.0	23880.0		USDA's Ag Handbook 8 and sequelae)
Apium graveolens	Shoot				--
Arachis hypogaea	Seed	31900.0	36968.0	1.2765054640295876	--
Arctium lappa	Root	1770.0	8850.0	-0.1433959040036098	USDA's Ag Handbook 8 and sequelae)
Artemisia dracunculus	Root				--
Artemisia dracunculus	Leaf				--
Artocarpus altilis	Seed	8170.0	18685.0	-0.3465773866018333	USDA's Ag Handbook 8 and sequelae)
Asimina triloba	Fruit	424.0	5167.0	-0.6557719563301444	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
<i>Asparagus officinalis</i>	Shoot	3550.0	45805.0	0.7703735908865186	--
<i>Astragalus membranaceus</i>	Root				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
<i>Avena sativa</i>	Seed		7000.0	-1.3839193496072566	Jim Duke's personal files.*
<i>Averrhoa carambola</i>	Fruit	510.0	5615.0	-0.5969154876162616	USDA's Ag Handbook 8 and sequelae)
<i>Bacopa monnieri</i>	Plant				Wealth of India.
<i>Basella alba</i>	Leaf	1080.0	15650.0	-0.7184482766028467	--
<i>Bertholletia excelsa</i>	Seed	13550.0	14019.0	-0.7608039676359202	--
<i>Beta vulgaris</i>	Root	1060.0	8360.0	-0.20719379324946055	USDA's Ag Handbook 8 and sequelae)
<i>Borago officinalis</i>	Leaf				Jim Duke's personal files.
<i>Brassica rapa</i>	Root	630.0	7750.0	-0.28661565537184647	--
<i>Brassica oleracea</i> var. <i>capitata</i> l.	Leaf	1190.0	15910.0	-0.7020365569499997	USDA's Ag Handbook 8 and sequelae)
<i>Brassica chinensis</i>	Leaf	1080.0	23080.0	-0.24945182652340953	--
<i>Brassica rapa</i>	Leaf	1080.0	23080.0	-0.24945182652340953	USDA's Ag Handbook 8 and sequelae)
<i>Brassica oleracea</i> var. <i>sabellica</i> l.	Leaf	2950.0	18985.0	-0.5079364110557509	--
<i>Brassica oleracea</i> var. <i>botrytis</i> l.	Leaf	2130.0	22876.0	-0.262328714251028	--
<i>Brassica oleracea</i> var. <i>viridis</i> l.	Leaf	1200.0	19668.0	-0.4648240859676949	--
<i>Brassica napus</i> var. <i>napobrassica</i>	Root	870.0	8410.0	-0.20068380455090434	USDA's Ag Handbook 8 and sequelae)
<i>Brassica oleracea</i> var. <i>italica</i>	Leaf	2130.0	22876.0	-0.262328714251028	USDA's Ag Handbook 8 and sequelae)
<i>Cajanus cajan</i>	Seed	17940.0	24000.0	0.12526450756794208	--
<i>Calathea allouia</i>	Root	7650.0	8415.0	-0.20003280568104873	--
<i>Cannabis sativa</i>	Plant				Turner, C. E., El Sohly, M. A., Boeren, E. G. 1980. Constituents of <i>Cannabis sativa</i> L. XVII. A Review of the Natural Constituents. J Natural Products, 432: 169-234.
<i>Capsella bursa-pastoris</i>	Plant				--
<i>Capsicum annum</i>	Fruit	1200.0	16504.0	0.8336382798513058	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Capsicum frutescens	Fruit	2860.0	23338.0	1.7314621798304917	USDA's Ag Handbook 8 and sequelae)
Carica papaya	Fruit	490.0	4387.0	-0.7582452723944939	USDA's Ag Handbook 8 and sequelae)
Carum carvi	Seed	20840.0	23130.0	0.048029804288976026	Revised USDA data received 1993.
Castanea dentata	Seed	8071.0	14362.0	-0.7303539639293852	--
Castanea sativa	Seed	3381.0	7438.0	-1.3450356714047427	--
Castanea mollissima	Seed	8522.0	15169.0	-0.6587121184740685	--
Centella asiatica	Plant				=ICMR(Indian Council of Medical Research).1976.Medicinal Plants of India.Vol.1.Indian Council of Med. Res.Cambridge Printing Works, New Delhi.487 pp;ICMR.1987.Medicinal Plants of India.Vol.2.Indian Council of Med. Res.Cambr. Printing Works,New Delhi.600pp
Ceratonia siliqua	Seed		42300.0	1.7498565420565382	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
Chenopodium album	Plant	4310.0	27457.0	0.4967613362353675	--
Cicer arietinum	Seed	22700.0	25660.0	0.2726318724450497	USDA's Ag Handbook 8 and sequelae)
Cichorium endivia	Leaf	1300.0	20934.0	-0.3849116356580627	--
Citrullus lanatus	Seed		25500.0	0.2584277890834008	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Citrullus lanatus	Fruit		4594.0	-0.7310504308235704	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Citrus paradisi	Fruit	810.0	4700.0	-0.7171245699225177	--
Citrus sinensis	Fruit	70.0	8607.0	-0.2038383572771155	--
Citrus reticulata	Fruit	240.0	6206.0	-0.5192722442905813	--
Cnidioscolus chayamansa	Leaf	8495.0	42470.0	0.9744837275869931	--
Cocos nucifera	Seed	3250.0	6130.0	-1.4611540528862226	USDA's Ag Handbook 8 and sequelae)
Cocos nucifera	Leaf				Jim Duke's personal files.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Cocos nucifera	Endosperm				Jim Duke's personal files.
Coffea arabica	Seed				--
Colocasia esculenta	Root	1920.0	6540.0	-0.4441573818769071	--
Corchorus olitorius	Leaf	5670.0	46150.0	1.206772682673444	--
Coriandrum sativum	Fruit				--
Crocus sativus	Bulb				--
Cryptotaenia japonica	Root				--
Cryptotaenia japonica	Shoot				--
Cucumis sativus	Fruit	320.0	8101.0	-0.2703146366727064	--
Cucurbita pepo	Fruit	1020.0	12143.0	0.26070734221460257	USDA's Ag Handbook 8 and sequelae)
Cucurbita foetidissima	Seed	29165.0	37280.0	1.304203426584803	--
Cucurbita spp	Fruit	1440.0	22785.0	1.6588112262617924	--
Cucurbita pepo	Seed	24770.0	41080.0	1.6415504064239652	--
Daucus carota	Root	1370.0	11220.0	0.1651775603079552	--
Dioscorea pentaphylla	Root	1360.0	7330.0	-0.34129956043971876	--
Fagopyrum esculentum	Seed		12000.0	-0.9400417445557275	--
Ficus carica	Fruit	1760.0	3447.0	-0.8817387558566588	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
Foeniculum vulgare	Seed	18333.0	20111.0	-0.2199834936411372	USDA's Ag Handbook 8 and sequelae)
Foeniculum vulgare	Fruit	18333.0	20111.0	1.3075116786258043	--
Fragaria spp	Fruit	1380.0	16370.0	0.8160338896556354	USDA's Ag Handbook 8 and sequelae)
Ginkgo biloba	Seed	5430.0	14815.0	-0.6901386529117167	USDA's Ag Handbook 8 and sequelae)
Glechoma hederacea	Plant				Chemical Constituents of Oriental Herbs (3 diff. books)
Glycine max	Shoot				--
Glycine max	Seed	45890.0	50175.0	2.4489637700126963	--
Harpagophytum procumbens	Root		160.0	-1.2748319398126813	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Helianthus annuus	Seed	24460.0	25800.0	0.2850604453864925	USDA's Ag Handbook 8 and sequelae)
Helianthus tuberosus	Tuber		16852.0	-1.326448129350463	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.
Hibiscus sabdariffa	Plant				CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
Ipomoea batatas	Root	2730.0	10383.0	0.056200349494124	--
Ipomoea aquatica	Leaf	6500.0	86320.0	3.742383369038316	--
Juglans cinerea	Seed	30960.0	32030.0	0.8381319412806977	--
Juglans regia	Seed	14750.0	15310.0	-0.6461947700116154	USDA's Ag Handbook 8 and sequelae)
Juglans nigra	Seed	24620.0	25740.0	0.2797339141258742	USDA's Ag Handbook 8 and sequelae)
Lablab purpureus	Seed	2560.0	31130.0	0.7582339723714224	--
Lactuca sativa	Leaf	1420.0	23667.0	-0.21239921330717404	--
Larrea tridentata	Plant		5700.0	-1.276840894293783	--
Lens culinaris	Seed	31020.0	34900.0	1.0929176865802754	USDA's Ag Handbook 8 and sequelae)
Lens culinaris	Sprout Seedling	14330.0	47765.0	-0.962036911884795	USDA's Ag Handbook 8 and sequelae)
Lentinus edodes	Fruit				--
Lepidium meyenii	Root		9170.0	-0.10173197633284997	Taylor, Leslie. 2005. The Healing Power of Rainforest Herbs. SquareOne Publisher, Garden City Park, NY. 519 pp.
Linum usitatissimum	Seed		0.557	-2.0052985487141943	--
Lupinus albus	Seed	38770.0	43290.0	1.837744307856741	--
Lycium barbarum	Fruit		12000.0	0.24192056760280514	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Lycopersicon esculentum	Fruit	1230.0	20332.0	1.3365457848440367	--
Macadamia spp	Seed	8270.0	8500.0	-1.250756068091798	USDA's Ag Handbook 8 and sequelae)

Plant	Part	Low PPM	High PPM	StdDev	Reference
Malus domestica	Fruit	210.0	2115.0	-1.056731649443471	USDA's Ag Handbook 8 and sequelae)
Mangifera indica	Fruit	420.0	4100.0	-0.7959501976643252	--
Manihot esculenta	Root	1810.0	5750.0	-0.5470152033140955	--
Mentha x piperita	Leaf	4430.0	20750.0	-0.3965260834123852	USDA's Ag Handbook 8 and sequelae)
Mentha spicata	Leaf	3880.0	26850.0	-0.011481891557127021	USDA's Ag Handbook 8 and sequelae)
Momordica charantia	Seed		90.0	-1.9973581997884697	Jim Duke's personal files.
Moringa oleifera	Shoot	9200.0	43110.0	0.6418932393390641	USDA's Ag Handbook 8 and sequelae)
Mucuna pruriens	Seed	19850.0	42080.0	1.730325927434271	--
Murraya sp	Fruit	1080.0	3110.0	-0.9260124834383072	--
Musa x paradisiaca	Fruit	1080.0	3110.0	-0.9260124834383072	USDA's Ag Handbook 8 and sequelae)
Nasturtium officinale	Herb	1870.0	37400.0	1.0	USDA's Ag Handbook 8 and sequelae)
Nelumbo nucifera	Seed	5050.0	15303.0	-0.6468161986586874	--
Nelumbo nucifera	Rhizome	3690.0	17655.0	1.0	--
Nigella sativa	Seed	10670.0	13650.0	-0.793562134888723	--
Ocimum basilicum	Leaf		16960.0	-0.6357584583519637	USDA's Ag Handbook 8 and sequelae)
Oenothera biennis	Seed	11800.0	12593.0	-0.8873978605966162	--
Opuntia ficus-indica	Seed		15900.0	-0.5938172126155349	Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
Opuntia ficus-indica	Bud		8315.0		Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
Oryza sativa	Hay				--
Pachyrhizus erosus	Tuber	3870.0	35670.0	0.6747625575826737	--
Panax ginseng	Root				--
Panax quinquefolius	Plant	1265.0	4310.0	-1.3901518792841547	--
Panax ginseng	Leaf				--
Papaver bracteatum	Seed	17000.0	20350.0	-0.1987661441196741	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Papaver somniferum	Seed	22020.0	23622.0	0.09170736062604648	--
Perideridia gairdneri	Root		7556.0	-0.31187441152224465	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	2270.0	11000.0	0.11054452136645954	--
Phaseolus vulgaris	Seed	26130.0	29366.0	0.601633953309243	USDA's Ag Handbook 8 and sequelae)
Phaseolus vulgaris	Fruit	2550.0	26208.0	2.1085114325288035	USDA's Ag Handbook 8 and sequelae)
Phaseolus vulgaris	Leaf				--
Phaseolus vulgaris	Sprout Seedling	5460.0	58710.0	1.3787175899112203	USDA's Ag Handbook 8 and sequelae)
Phaseolus lunatus	Seed	7350.0	30802.0	0.7291156014800422	USDA's Ag Handbook 8 and sequelae)
Phoenix dactylifera	Fruit	20.0	3150.0	-0.9207574415888534	--
Phyllanthus emblica	Fruit	361.0	1785.0	-1.1000857447014651	--
Pinellia ternata	Tuber				--
Pinus edulis	Seed	10540.0	11200.0	-1.0110621613639723	USDA's Ag Handbook 8 and sequelae)
Pinus pinea	Seed	21870.0	26000.0	0.30281554958855367	--
Pistacia vera	Seed	21160.0	22012.0	-0.051221228200545865	--
Pisum sativum	Fruit	2280.0	22552.0	1.6282006074887239	--
Pisum sativum	Shoot		22.0	-1.4122668302255825	--
Pisum sativum	Seed	4950.0	23415.0	0.07333082777691317	--
Portulaca oleracea	Herb	770.0	19600.0	-1.0	--
Prunus domestica	Fruit	2490.0	16824.0	0.8756786146469363	USDA's Ag Handbook 8 and sequelae)
Prunus persica	Fruit	1170.0	8586.0	-0.20659725424807873	--
Prunus cerasus	Fruit				--
Prunus dulcis	Seed	23490.0	24571.0	0.1759553300648267	USDA's Ag Handbook 8 and sequelae)
Prunus armeniaca	Fruit	3140.0	23000.0	1.6870570762026067	USDA's Ag Handbook 8 and sequelae)

Plant	Part	Low PPM	High PPM	StdDev	Reference
Psidium cattleianum	Fruit	370.0	1915.0	-1.0830068586907402	--
Psidium guajava	Fruit	520.0	3744.0	-0.8427200701244641	USDA's Ag Handbook 8 and sequelae)
Psophocarpus tetragonolobus	Seed	31870.0	34770.0	1.0813768688489356	--
Psophocarpus tetragonolobus	Leaf	5170.0	22333.0	-0.2966039595260125	--
Psophocarpus tetragonolobus	Tuber	17350.0	40728.0	1.2126583836273015	--
Psoralea esculenta	Root		8989.0	-0.12529813542162352	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.
Pyrus communis	Fruit	770.0	4756.0	-0.7097675113332824	--
Raphanus sativus	Root	480.0	9300.0	-0.0848060057166038	--
Rehmannia glutinosa	Root	1000.0	39000.0	3.782127281225793	--
Ribes nigrum	Fruit Juice		23.0		--
Rosmarinus officinalis	Leaf	3910.0	12130.0	-0.9406377119029301	USDA's Ag Handbook 8 and sequelae)
Sambucus canadensis	Fruit	580.0	2871.0	-0.9574113584887939	USDA's Ag Handbook 8 and sequelae)
Scutellaria baicalensis	Root				--
Secale cereale	Seed	11770.0	13215.0	-0.8321794865282061	USDA's Ag Handbook 8 and sequelae)
Sechium edule	Fruit	1010.0	14430.0	0.561164359957125	--
Senna obtusifolia	Seed		15000.0	-0.6737151815248101	--
Sesamum indicum	Seed	9890.0	23795.0	0.10706552576082938	--
Sinapis alba	Seed	19670.0	21050.0	-0.13662327941246005	--
Solanum melongena	Fruit	1770.0	21933.0	1.546878834868426	--
Solanum tuberosum	Tuber	4340.0	24050.0	-0.560972811859512	--
Spinacia oleracea	Plant	2400.0	28502.0	0.5819483717137405	USDA's Ag Handbook 8 and sequelae)
Stachys officinalis	Shoot				--
Tribulus terrestris	Fruit				--



Plant	Part	Low PPM	High PPM	StdDev	Reference
Trigonella foenum-graecum	Seed	23220.0	29790.0	0.6392747742176127	--
Triticum aestivum	Seed	5106.0	5957.0	-1.4765122180210055	--
Urtica dioica	Leaf				Jim Duke's personal files.
Vaccinium corymbosum	Fruit	520.0	3379.0	-0.8906723270007303	--
Valeriana officinalis	Rhizome				--
Valerianella locusta	Plant	1760.0	24440.0	0.25081943572029436	--
Vicia faba	Seed	6310.0	33210.0	0.9428870560728585	USDA's Ag Handbook 8 and sequelae)
Vigna radiata	Seed	27560.0	30302.0	0.6847278409748893	USDA's Ag Handbook 8 and sequelae)
Vigna unguiculata	Seed	25730.0	32254.0	0.8580176579870061	--
Vigna angularis	Seed	23550.0	27207.0	0.40996760344799277	--
Vigna unguiculata	Seed	29380.0	32085.0	0.8430145949362645	USDA's Ag Handbook 8 and sequelae)
Vigna radiata	Sprout Seedling	4790.0	50315.0	-0.4166806780264269	USDA's Ag Handbook 8 and sequelae)
Vitis vinifera	Fruit	810.0	4167.0	-0.78714800256649	USDA's Ag Handbook 8 and sequelae)
Zea mays	Seed	2440.0	10150.0	-1.1042764584247933	USDA's Ag Handbook 8 and sequelae)
Zingiber officinale	Root	2080.0	11990.0	0.26543138626572105	USDA's Ag Handbook 8 and sequelae)
Zingiber officinale	Tuber				--
Zingiber officinale	Rhizome	2080.0	11990.0	-1.0	--
Zingiber officinale	Shoot				--