

## Dr. Duke's Phytochemical and Ethnobotanical Databases

### List of Plants for LEUCINE

Plant	Part	Low PPM	High PPM	StdDev	Reference
Abelmoschus esculentus	Fruit	1050.0	10500.0	1.1477318684831908	USDA's Ag Handbook 8 and sequelae)
Acacia farnesiana	Seed	3700.0	3750.0	-1.27607066721136	Rizk, A.F.M. and Al-Nowaihi, A.S., The Phytochemistry of the Horticultural Plants of Qatar, Scientific and Applied Research Centre, University of Qatar.
Acacia farnesiana	Leaf	6000.0	32190.0	2.414102856680727	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
Acacia senegal	Plant				Pakistan Encyclopedia Planta Medica. 1986.
Albizia lebbek	Seed				Wealth of India.
Allium cepa	Bulb	410.0	4469.0	-1.0	USDA's Ag Handbook 8 and sequelae)
Allium schoenoprasum	Leaf	1670.0	20875.0	0.6716266169457046	USDA's Ag Handbook 8 and sequelae)
Allium ampeloprasum	Plant				--
Allium sativum var. sativum	Bulb	0.3	7392.0	1.0	--
Allium sativum var. sativum	Leaf				--
Aloe vera	Leaf		6952.0	-1.4724738413689846	--
Alpinia galanga	Leaf				--
Amaranthus sp.	Leaf	1950.0	23458.0	1.069400910117208	--
Anacardium occidentale	Seed	12850.0	13072.0	-0.38377984142154015	--
Ananas comosus	Fruit	24.0	1407.0	-0.7853327434466933	--
Anethum graveolens	Seed	9250.0	10018.0	-0.6761051130330088	USDA's Ag Handbook 8 and sequelae)
Anethum graveolens	Fruit	9250.0	10018.0	1.0452643502878531	--
Angelica sinensis	Root				Jim Duke's personal files.
Apium graveolens	Pt	310.0	6530.0		USDA's Ag Handbook 8 and sequelae)
Arachis hypogaea	Seed	16960.0	20653.0	0.341864521409679	--
Arctium lappa	Root	320.0	1600.0	-1.5972475612886774	USDA's Ag Handbook 8 and sequelae)
Artemisia dracunculus	Shoot				--
Artemisia dracunculus	Root				--

Plant	Part	Low PPM	High PPM	StdDev	Reference
<i>Artemisia dracunculus</i>	Leaf				--
<i>Artocarpus altilis</i>	Fruit	650.0	2210.0	-0.6146244091918053	--
<i>Artocarpus altilis</i>	Seed	5630.0	12875.0	-0.4026364486603939	USDA's Ag Handbook 8 and sequelae)
<i>Asimina triloba</i>	Fruit	466.0	5002.0	-0.0210781212221325	--
<i>Asparagus officinalis</i>	Shoot	1330.0	17161.0	0.09014535160843963	--
<i>Avena sativa</i>	Seed	6000.0	14000.0	-0.2949527778801378	Jim Duke's personal files.*
<i>Avena sativa</i>	Plant		18000.0	0.4870195094224758	Jim Duke's personal files.*
<i>Averrhoa carambola</i>	Fruit	400.0	4400.0	-0.14905622486029266	USDA's Ag Handbook 8 and sequelae)
<i>Basella alba</i>	Leaf	1010.0	14640.0	-0.28854477985039456	--
<i>Bertholletia excelsa</i>	Seed	11870.0	12281.0	-0.45949342683236916	--
<i>Beta vulgaris</i>	Root	630.0	4968.0	0.3558822256981897	USDA's Ag Handbook 8 and sequelae)
<i>Bixa orellana</i>	Seed	6340.0	8140.0	-0.8558650541221829	--
<i>Borago officinalis</i>	Leaf				Jim Duke's personal files.
<i>Brassica nigra</i>	Leaf	760.0	11192.0	-0.819526492144372	USDA's Ag Handbook 8 and sequelae)
<i>Brassica rapa</i>	Leaf	880.0	18806.0	0.35300679016605274	USDA's Ag Handbook 8 and sequelae)
<i>Brassica oleracea</i> var. <i>sabellica</i> l.	Leaf	2310.0	14865.0	-0.25389545117691864	--
<i>Brassica oleracea</i> var. <i>gemmifera</i>	Leaf	1520.0	10853.0	-0.8717314806790757	USDA's Ag Handbook 8 and sequelae)
<i>Brassica napus</i> var. <i>napobrassica</i>	Root	380.0	3675.0	-0.3939386812418397	USDA's Ag Handbook 8 and sequelae)
<i>Brassica oleracea</i> var. <i>botrytis</i> l.	Flower	1160.0	15000.0		--
<i>Brassica oleracea</i> var. <i>viridis</i> l.	Leaf	970.0	15900.0	-0.09450853927892945	--
<i>Brassica rapa</i>	Root	330.0	4060.0	-0.17067414205242645	--
<i>Brassica oleracea</i> var. <i>botrytis</i> l.	Leaf	1310.0	14069.0	-0.3764770761728601	--
<i>Brassica chinensis</i>	Leaf	880.0	18806.0	0.35300679016605274	--
<i>Brassica oleracea</i> var. <i>italica</i>	Leaf	1310.0	14069.0	-0.3764770761728601	USDA's Ag Handbook 8 and sequelae)
<i>Brassica oleracea</i>	Stem	670.0	7445.0		--
<i>Brassica oleracea</i> var. <i>capitata</i> l.	Leaf	630.0	8423.0	-1.2459442303526156	USDA's Ag Handbook 8 and sequelae)

Plant	Part	Low PPM	High PPM	StdDev	Reference
Cajanus cajan	Seed	13110.0	17325.0	0.023312293537063582	--
Calathea allouia	Root	4440.0	4885.0	0.30774987049631625	--
Camellia sinensis	Leaf				--
Capsella bursa-pastoris	Plant				--
Capsicum annuum	Fruit	440.0	6002.0	0.19151009080138937	USDA's Ag Handbook 8 and sequelae)
Capsicum frutescens	Fruit	1050.0	8568.0	0.7370114428537464	USDA's Ag Handbook 8 and sequelae)
Carica papaya	Fruit	160.0	1432.0	-0.7800180381461054	USDA's Ag Handbook 8 and sequelae)
Carum carvi	Seed	12180.0	13520.0	-0.3408978107463804	Revised USDA data received 1993.
Castanea dentata	Seed	2987.0	5335.0	-1.124356339934288	--
Castanea sativa	Seed	1144.0	2518.0	-1.3939962515680493	--
Castanea mollisima	Seed	2701.0	4807.0	-1.1748958760871548	--
Ceratonia siliqua	Seed		30550.0	1.2891936678205187	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
Chenopodium ambrosioides	Plant				--
Chenopodium album	Leaf	3500.0	22295.0	0.8903023801294192	--
Cicer arietinum	Seed	11520.0	15530.0	-0.1485029856189895	--
Cichorium intybus	Leaf	390.0	8976.0	-1.160783880324028	USDA's Ag Handbook 8 and sequelae)
Cichorium endivia	Leaf	980.0	15781.0	-0.11283418422179005	--
Citrullus lanatus	Fruit		2120.0	-0.6337573482739223	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Citrullus lanatus	Seed		21100.0	0.3846508332663674	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Citrus sinensis	Fruit	230.0	1136.0	-0.8429441489050677	USDA's Ag Handbook 8 and sequelae)
Citrus reticulata	Fruit	50.0	1290.0	-0.8102055642534455	--
Cnidioscolus chayamansa	Leaf	3600.0	17980.0	0.2258052546803145	--
Cocos nucifera	Leaf				Jim Duke's personal files.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Cocos nucifera	Seed	2470.0	4660.0	-1.1889665424024416	USDA's Ag Handbook 8 and sequelae)
Colocasia esculenta	Root	1110.0	3780.0	-0.33304835237199976	--
Colocasia esculenta	Leaf	3920.0	27335.0	1.6664473424152801	--
Corchorus olitorius	Leaf	2470.0	31580.0	2.3201646767215256	--
Coriandrum sativum	Fruit				--
Coriandrum sativum	Leaf				--
Crocus sativus	Bulb				--
Cryptotaenia japonica	Root				--
Cucumis sativus	Fruit	230.0	5822.0	0.15324421263715543	--
Cucurbita pepo	Fruit	460.0	5476.0	0.07968869127701686	USDA's Ag Handbook 8 and sequelae)
Cucurbita foetidissima	Seed	14120.0	67000.0	4.778144601100816	Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
Cucurbita spp	Fruit	690.0	10920.0	1.23701891753307	--
Cucurbita pepo	Seed	20790.0	35835.0	1.7950676234415441	--
Daucus carota	Root	430.0	3520.0	-0.4838244048116035	--
Dioscorea pentaphylla	Root	840.0	4525.0	0.09898302865686487	--
Eryngium creticus	Shoot		9470.0	-0.4743227120760784	Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
Fagopyrum esculentum	Seed		8140.0	-0.8558650541221829	--
Ficus carica	Fruit	330.0	1580.0	-0.7485549827666241	USDA's Ag Handbook 8 and sequelae)
Fragaria spp	Fruit	310.0	3667.0	-0.3048833842735342	USDA's Ag Handbook 8 and sequelae)
Ginkgo biloba	Seed	3160.0	8620.0	-0.8099200212559403	USDA's Ag Handbook 8 and sequelae)
Glycine max	Seed	29720.0	32500.0	1.4758453638396294	USDA's Ag Handbook 8 and sequelae)
Glycine max	Shoot				--
Harpagophytum procumbens	Root				--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Helianthus tuberosus	Tuber		4384.0	-0.7698166425359898	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.
Helianthus annuus	Seed	16590.0	35500.0	1.7630018192536456	--
Humulus lupulus	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Huperzia spp	Plant				--
Hypericum perforatum	Plant				--
Ipomoea batatas	Root	890.0	4455.0	0.05838947607697155	--
Ipomoea aquatica	Leaf	1460.0	19390.0	0.44294104770076353	--
Juglans regia	Seed	9920.0	10295.0	-0.6495910003164479	USDA's Ag Handbook 8 and sequelae)
Juglans cinerea	Seed	21990.0	22750.0	0.5425868837440764	--
Juglans nigra	Seed	17040.0	17815.0	0.07021451458801957	USDA's Ag Handbook 8 and sequelae)
Lablab purpureus	Seed	1450.0	22355.0	0.5047779504478975	--
Lactuca sativa	Leaf	790.0	13167.0	-0.5153823848994168	--
Lagenaria siceraria	Fruit	360.0	8070.0	0.6311425132660325	--
Larrea tridentata	Plant		7800.0	-0.5995960804627954	--
Lens culinaris	Sprout Seedling	6280.0	20935.0	-0.4885753806055494	USDA's Ag Handbook 8 and sequelae)
Lens culinaris	Seed	20340.0	22900.0	0.5569447065147772	USDA's Ag Handbook 8 and sequelae)
Lentinus edodes	Fruit				--
Lepidium meyenii	Root		9100.0	2.752061643699893	Taylor, Leslie. 2005. The Healing Power of Rainforest Herbs. SquareOne Publisher, Garden City Park, NY. 519 pp.
Linum usitatissimum	Seed		0.316	-1.6349859893322434	--
Lupinus albus	Seed	19000.0	30625.0	1.2963725792058691	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Lycium chinense	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Lycopersicon esculentum	Fruit	330.0	5455.0	0.0752243388245229	--
Macadamia spp	Seed	4620.0	4750.0	-1.180351848740021	USDA's Ag Handbook 8 and sequelae)
Malus domestica	Fruit	120.0	746.0	-0.9258535515942413	--
Mangifera indica	Fruit	310.0	2950.0	-0.4573091322943992	--
Manihot esculenta	Root	900.0	2860.0	-0.8665636148505976	--
Medicago sativa	Plant				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Melia azedarach	Seed				--
Mentha spicata	Leaf	2470.0	17095.0	0.08951789523130926	--
Mentha x piperita	Leaf	2810.0	13160.0	-0.5164603640137028	USDA's Ag Handbook 8 and sequelae)
Momordica charantia	Seed		41.6	-1.6310343336304725	Jim Duke's personal files.
Moringa oleifera	Shoot	7910.0	37065.0	1.5509660952798279	USDA's Ag Handbook 8 and sequelae)
Morus alba	Leaf				--
Mucuna pruriens	Seed	11875.0	25175.0	0.7747050185370729	--
Murraya sp	Fruit	590.0	1699.0	-0.723256985535825	--
Musa x paradisiaca	Fruit	590.0	1699.0	-0.723256985535825	USDA's Ag Handbook 8 and sequelae)
Myrciaria dubia	Fruit				Jim Duke's personal files.
Nasturtium officinale	Herb	1660.0	33200.0	1.0	USDA's Ag Handbook 8 and sequelae)
Nelumbo nucifera	Seed	3260.0	9879.0	-0.6894100288005248	--
Nelumbo nucifera	Rhizome	690.0	3300.0	-1.0	--
Nigella sativa	Seed	23130.0	29595.0	1.1977821961803903	--
Ocimum basilicum	Leaf		10780.0	-0.8829732628709146	USDA's Ag Handbook 8 and sequelae)
Oenothera biennis	Seed	8700.0	10780.0	-0.6031673733578486	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Opuntia ficus-indica	Bud		7040.0		Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
Opuntia ficus-indica	Seed		12800.0	-0.4098153600457443	Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
Oryza sativa	Hay				--
Pachyrhizus erosus	Tuber	480.0	4425.0	-0.7603921927468064	--
Panax ginseng	Root				--
Panax quinquefolius	Plant	420.0	1530.0	-1.2675450754216828	--
Panax ginseng	Leaf				--
Papaver somniferum	Seed	14840.0	15919.0	-0.11126836523363871	--
Papaver bracteatum	Seed	11500.0	13550.0	-0.33802624619224025	--
Perideridia gairdneri	Root		3366.0	-0.5731302204873688	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	990.0	4780.0	-0.06827270429135435	--
Phaseolus vulgaris	Sprout Seedling	3020.0	32473.0	1.3936225297206044	USDA's Ag Handbook 8 and sequelae)
Phaseolus lunatus	Seed	5380.0	20595.0	0.33631282993834133	--
Phaseolus vulgaris	Seed	17250.0	19386.0	0.22058877840649277	USDA's Ag Handbook 8 and sequelae)
Phaseolus vulgaris	Fruit	1120.0	11511.0	1.3626585508389712	USDA's Ag Handbook 8 and sequelae)
Phaseolus acutifolius	Seed	21700.0	23655.0	0.6292124144606379	Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
Phoenix dactylifera	Fruit	5.0	1140.0	-0.8420937960569738	--
Phyllanthus emblica	Fruit	219.0	1084.0	-0.853998735930291	--
Pinus edulis	Seed	8340.0	8865.0	-0.7864689107304623	USDA's Ag Handbook 8 and sequelae)
Pinus pinea	Seed	17300.0	20600.0	0.336791424030698	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Pistacia vera	Seed	16770.0	17445.0	0.034798551753624236	--
Pisum sativum	Shoot		35.0	-1.166788734812189	--
Pisum sativum	Seed	3230.0	15279.0	-0.1725284090552955	--
Pisum sativum	Fruit	2280.0	22552.0	3.709844999790676	--
Portulaca oleracea	Herb	880.0	19900.0	-1.0	--
Prunus cerasus	Fruit				--
Prunus persica	Fruit	400.0	3240.0	-0.39565855080757784	--
Prunus dulcis	Seed	15520.0	16234.0	-0.08111693741516701	USDA's Ag Handbook 8 and sequelae)
Prunus armeniaca	Fruit	770.0	5640.0	0.11455315804887445	USDA's Ag Handbook 8 and sequelae)
Prunus domestica	Fruit	210.0	1419.0	-0.7827816849024111	USDA's Ag Handbook 8 and sequelae)
Psidium guajava	Fruit	550.0	3960.0	-0.24259503815064226	USDA's Ag Handbook 8 and sequelae)
Psidium cattleianum	Fruit	390.0	2015.0	-0.6560791105363921	--
Psophocarpus tetragonolobus	Leaf	3590.0	15508.0	-0.1548753696789408	--
Psophocarpus tetragonolobus	Tuber	6400.0	15023.0	1.67571314544263	--
Psophocarpus tetragonolobus	Seed	24970.0	27242.0	0.9725558163173301	--
Psoralea esculenta	Root		2448.0	-1.1054856671779698	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	200.0	1235.0	-0.8218979159147392	--
Raphanus sativus	Root	370.0	7170.0	1.6328394082828344	--
Rehmannia glutinosa	Root	2000.0	5000.0	0.37443927830614093	--
Ribes nigrum	Fruit Juice		28.0		--
Rosmarinus officinalis	Leaf	2490.0	7725.0	-1.353434147748554	USDA's Ag Handbook 8 and sequelae)
Sambucus canadensis	Fruit	600.0	2970.0	-0.4530573680539287	USDA's Ag Handbook 8 and sequelae)
Scutellaria baicalensis	Root				--



Plant	Part	Low PPM	High PPM	StdDev	Reference
Secale cereale	Seed	9800.0	11000.0	-0.5821092332941541	USDA's Ag Handbook 8 and sequelae)
Sechium edule	Fruit	840.0	12000.0	1.4666141865184734	--
Senna obtusifolia	Seed		10900.0	-0.591681115141288	--
Sesamum indicum	Seed	4430.0	22586.0	0.5268889975147768	--
Silybum marianum	Seed				--
Sinapis alba	Seed	17830.0	19078.0	0.19110738231732044	--
Solanum tuberosum	Tuber	1240.0	7100.0	-0.14550431015983326	--
Solanum melongena	Fruit	570.0	8550.0	0.733184855037323	--
Spinacia oleracea	Leaf				--
Spinacia oleracea	Plant	2230.0	26483.0	1.3907214750103931	USDA's Ag Handbook 8 and sequelae)
Stachys officinalis	Shoot				--
Theobroma cacao	Plant		4500.0	-0.9511481830727361	--
Thymus vulgaris	Plant	4300.0	4644.0	-0.9358077276861205	USDA's Ag Handbook 8 and sequelae)
Tilia sp.	Flower				--
Trifolium pratense	Plant				--
Trigonella foenum-graecum	Seed	16160.0	19327.0	0.2149413681166838	--
Trigonella foenum-graecum	Leaf				--
Triticum aestivum	Seed	8000.0	18000.0	0.08792249600521725	--
Triticum aestivum	Plant	20000.0	26000.0	1.3392670309011199	--
Urtica dioica	Leaf				Jim Duke's personal files.
Vaccinium corymbosum	Fruit	400.0	2600.0	-0.5317150065026318	--
Valeriana officinalis	Rhizome				--
Valerianella locusta	Plant	1330.0	18470.0	0.5370890513093461	--
Vicia faba	Seed	4320.0	22735.0	0.5411511014670063	USDA's Ag Handbook 8 and sequelae)
Vigna unguiculata	Seed	2111.0	20466.0	0.32396510235553866	USDA's Ag Handbook 8 and sequelae)
Vigna radiata	Sprout Seedling	1750.0	18382.0	-0.9050471491150544	USDA's Ag Handbook 8 and sequelae)

Plant	Part	Low PPM	High PPM	StdDev	Reference
<i>Vigna aconitifolia</i>	Seed	15410.0	17062.0	-0.0018617557208985126	--
<i>Vigna unguiculata</i>	Seed	18640.0	20356.0	0.3134360323236914	USDA's Ag Handbook 8 and sequelae)
<i>Vigna radiata</i>	Seed	18470.0	20308.0	0.30884152903706713	USDA's Ag Handbook 8 and sequelae)
<i>Vigna unguiculata</i>	Fruit	2000.0	16461.0	2.4149702003554046	USDA's Ag Handbook 8 and sequelae)
<i>Vigna angularis</i>	Seed	16680.0	19270.0	0.20948539546381748	--
<i>Vitellaria paradoxa</i>	Seed		7225.0	-0.943447773023458	--
<i>Vitis vinifera</i>	Fruit	140.0	720.0	-0.9313808451068529	USDA's Ag Handbook 8 and sequelae)
<i>Zea mays</i>	Seed	3480.0	14477.0	-0.24929490146930922	USDA's Ag Handbook 8 and sequelae)
<i>Zingiber officinale</i>	Root	740.0	4257.0	-0.0564322869347267	USDA's Ag Handbook 8 and sequelae)
<i>Zingiber officinale</i>	Rhizome	740.0	4257.0	1.0	--
<i>Zingiber officinale</i>	Tuber				--