

List of Plants

CHOLINE

Chemid

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Dosage

LD50=400 (ipr rat)

LD50=200 (scu cat)

MLD 800 mg/kg (scu rbt) Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.

MLD 70 mg/kg (ivn rbt) Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.

LD50=6,700 (orl rat)

RDA=500 mg/day

*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
Abrus precatorius	Seed	--	--		=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
Achillea millefolium	Plant	--	--		Tunon, H., Thorsell, W., and Bohlin, L. 1993. Mosquito Repelling Activity of Compounds Occurring in Achillea millefolium L. (Asteraceae). Economic Botany 48(2): 111-120, 1994.
Acorus calamus	Rhizome	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Acorus calamus	Root	--	2600.0	-0.11	*
Adonis vernalis	Plant	--	--		*
Aesculus hippocastanum	Flower	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Alisma plantago-aquatica	Rhizome	--	--		*
Allium sativum var. sativum	Bulb	--	--		*
Allium cepa	Bulb	--	830.0		Dakshinamurti, K. 1955. Choline Content of South Indian Foods. Curr. Sci., 24: 194-195.
Aloe vera	Plant	--	--		Pakistan Encyclopedia Planta Medica. 1986.
Althaea officinalis	Plant	--	--		Pakistan Encyclopedia Planta Medica. 1986.
Amorphophallus konjac	Root	--	--		*
Anastatica hierochuntica	Plant	--	--		*
Angelica sinensis	Root	--	2470.0	-0.12	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
Apium graveolens	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Arachis hypogaea	Seed	--	--		*
Areca catechu	Seed	--	--		*
Arnica montana	Flower	--	--		*
Artemisia cina	Flower	--	--		*

<i>Artemisia abrotanum</i>	Plant	--	--		*
<i>Artemisia vulgaris</i>	Leaf	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
<i>Asparagus officinalis</i>	Rhizome	--	--		*
<i>Astragalus membranaceus</i>	Root	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
<i>Atropa belladonna</i>	Root	--	--		*
<i>Avena sativa</i>	Root	--	0.2	-0.41	*
<i>Avena sativa</i>	Shoot	--	0.3	-0.77	*
<i>Avena sativa</i>	Seed	134.0	1712.0	0.04	*
<i>Ballota nigra</i>	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
<i>Borago officinalis</i>	Leaf	--	--		*
<i>Brassica oleracea</i> var. <i>capitata</i> L.	Leaf	--	1200.0	-0.42	Wealth of India.
<i>Canavalia ensiformis</i>	Seed	--	--		*
<i>Capparis spinosa</i>	Leaf	--	100.0	-0.48	*
<i>Capparis spinosa</i>	Fruit	--	370.0	-0.53	*
<i>Capparis spinosa</i>	Plant	--	--		*
<i>Capsella bursa-pastoris</i>	Plant	2000.0	10000.0	-0.09	*
<i>Capsicum annum</i>	Pericarp	--	297.0	-1.0	*
<i>Capsicum annum</i>	Seed	--	360.0	-1.24	*
<i>Carica papaya</i>	Leaf	--	200.0	-0.48	Jim Duke's personal files.
<i>Catharanthus roseus</i>	Plant	--	--		Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.
<i>Centaurea calcitrapa</i>	Plant	--	--		*
<i>Cephaelis ipecacuanha</i>	Plant	--	--		*
<i>Chamaemelum nobile</i>	Plant	--	--		*
<i>Chelidonium majus</i>	Fruit	--	--		*
<i>Chrysanthemum cinerariifolium</i>	Plant	--	--		*
<i>Chrysanthemum x morifolium</i>	Flower	--	--		*
<i>Cichorium intybus</i>	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
<i>Citrus sinensis</i>	Fruit	70.0	160.0	-0.57	*
<i>Coffea arabica</i>	Seed	--	300.0	-1.29	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
<i>Convallaria majalis</i>	Plant	--	--		*
<i>Coriandrum sativum</i>	Seed	--	1387.0	-0.27	*
<i>Crataegus laevigata</i>	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.

<i>Crataegus rhipidophylla</i>	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
<i>Crataegus laevigata</i>	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
<i>Crataegus rhipidophylla</i>	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
<i>Crataegus monogyna</i>	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
<i>Crataegus laevigata</i>	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
<i>Crataegus</i> sp.	Plant	--	--		*
<i>Cuminum cyminum</i>	Seed	--	3003.0	1.25	*
<i>Daucus carota</i>	Shoot	--	73.0	-0.67	*
<i>Daucus carota</i>	Root	--	36.0	-0.41	*
<i>Dictamnus albus</i>	Root	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
<i>Digitalis purpurea</i>	Leaf	--	--		*
<i>Digitalis lanata</i>	Leaf	--	1000.0	-0.43	*
<i>Elettaria cardamomum</i>	Seed	--	4195.0	2.37	*
<i>Elettaria cardamomum</i>	Pericarp	--	2663.0	1.0	*
<i>Euphorbia hirta</i>	Plant	--	--		*
<i>Euphrasia officinalis</i>	Plant	--	--		Tyler, V.E.. 1982. The Honest Herbal. George F. Stickley Co., Philadelphia PA. 263 pp.
<i>Foeniculum vulgare</i>	Seed	--	--		*
<i>Ganoderma lucidum</i>	Fruit	--	--		*
<i>Ginkgo biloba</i>	Leaf	--	--		Jim Duke's personal files.
<i>Glechoma hederacea</i>	Plant	--	--		*
<i>Gloriosa superba</i>	Bulb	--	--		*
<i>Glycine max</i>	Seed	--	2.49	-1.57	*
<i>Glycyrrhiza glabra</i>	Root	--	--		Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
<i>Gossypium</i> sp	Seed	--	--		*
<i>Gymnema sylvestre</i>	Leaf	--	--		Willaman, J. J., Li, H. L. 1970. Alkaloid-Bearing Plants and their Contained Alkaloids. 1957-1968. Lloydia 33S: 1-286.
<i>Hamamelis virginiana</i>	Leaf	--	2000.0	-0.37	*
<i>Helianthus tuberosus</i>	Tuber	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
<i>Helianthus annuus</i>	Seed	--	1200.0	-0.44	*
<i>Hordeum vulgare</i>	Seed	928.0	1617.0	-0.05	*
<i>Humulus lupulus</i>	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
<i>Hyoscyamus niger</i>	Plant	--	--		*
<i>Hypericum perforatum</i>	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
<i>Hypericum perforatum</i>	Leaf	--	--		*
<i>Hypericum perforatum</i>	Shoot	34.0	1000.0	0.57	*

Hyssopus officinalis	Plant	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
Ilex paraguariensis	Leaf	--	--		*
Lactuca sativa	Leaf	--	--		*
Lagenaria siceraria	Fruit	640.0	16020.0	2.73	*
Lens culinaris	Seed	--	2230.0	0.52	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Leonurus cardiaca	Plant	--	--		*
Linum usitatissimum	Seed	910.0	1180.0	-0.46	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Lippia javanica	Plant	--	--		Neidlein, R., Staehle, R. 1974. Constituents of Lippia javanica. III. Deutsche Apot. Ztit., 114: 1588.
Luffa aegyptiaca	Fruit	104.0	2090.0	-0.17	*
Lycium barbarum	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Lycium chinense	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Lycium chilense	Root	--	--		*
Lycopersicon esculentum	Shoot	--	48.0	-0.7	*
Lycopersicon esculentum	Root	--	36.0	-0.41	*
Malva neglecta	Plant	--	--		*
Marrubium vulgare	Plant	2000.0	20000.0	1.27	*
Marrubium vulgare	Flower	--	2000.0	-1.38	*
Marrubium vulgare	Leaf	--	2000.0	-0.37	*
Marrubium vulgare	Shoot	--	2000.0	1.91	*
Matricaria recutita	Flower	3400.0	3800.0	0.95	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Medicago sativa	Shoot	--	1710.0	1.52	*
Medicago sativa	Plant	--	--		*
Medicago sativa	Tissue Culture	--	--		*
Mentha x piperita	Plant	--	--		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.
Menyanthes trifoliata	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Moringa oleifera	Fruit	--	4230.0	0.27	*
Moringa oleifera	Leaf	--	4230.0	-0.23	*
Morus alba	Leaf	--	--		*
Mucuna pruriens	Seed	--	--		*
Nerium oleander	Plant	--	--		*
Olea europaea	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Oryza sativa	Seed	--	880.0	-0.75	*
Pachyrhizus erosus	Tuber	--	--		*
Panax quinquefolius	Plant	1000.0	2000.0	-1.18	*
Panax ginseng	Root	1000.0	2000.0	-0.18	*

Papaver somniferum	Plant	--	--		*
Paullinia cupana	Seed	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
Petasites hybridus	Rhizome	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Peumus boldus	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Phaseolus vulgaris	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Pimpinella anisum	Plant	--	--		*
Pimpinella anisum	Seed	--	3950.0	2.14	*
Pinellia ternata	Stem	--	--		*
Pinus sylvestris	Flower	--	3400.0	0.43	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Piper nigrum	Seed	--	1642.0	-0.03	*
Pistacia lentiscus	Seed	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
Pisum sativum	Root	--	61.0	-0.41	*
Pisum sativum	Shoot	--	121.0	-0.61	*
Pisum sativum	Fruit	--	2060.0	-0.18	*
Pisum sativum	Seed	1970.0	2800.0	1.06	*
Plantago asiatica	Plant	--	--		*
Plantago major	Seed	--	--		*
Prunus serotina	Leaf	--	356.0	-0.47	*
Pueraria montana	Root	--	--		*
Rhizophora mangle	Leaf	--	--		*
Sambucus nigra	Bark	--	--		*
Sambucus nigra	Leaf	--	--		*
Sambucus nigra	Flower	--	--		*
Satureja montana	Shoot	--	--		*
Sesamum indicum	Seed	--	1320.0	-0.33	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Sinapis alba	Seed	--	--		*
Solanum tuberosum	Tuber	330.0	1000.0		*
Solanum melongena	Fruit	--	520.0	-0.5	*
Stachys officinalis	Plant	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
Strophanthus hispidus	Seed	--	--		*
Strophanthus gratus	Seed	--	--		*
Strychnos nux-vomica	Seed	--	--		*
Symphytum officinale	Root	--	--		*
Syzygium cumini	Fruit	70.0	430.0	-0.52	Morton, J.F., Major Medicinal Plants. 1977. Atlas of Medicinal Plants of Middle America. Bahamas to Yucatan. 1981.
Taraxacum mongolicum	Plant	--	--		*
Taraxacum officinale	Root	390.0	1120.0	-0.28	*

<i>Teucrium montanum</i>	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
<i>Teucrium botrys</i>	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
<i>Teucrium chamaedrys</i>	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
<i>Teucrium scordium</i>	Plant	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
<i>Trifolium pratense</i>	Plant	--	--		*
<i>Trigonella foenum-graecum</i>	Seed	--	500.0	-1.1	*
<i>Trigonella foenum-graecum</i>	Leaf	--	13500.0	0.34	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
<i>Triticum aestivum</i>	Root	--	48.0	-0.41	*
<i>Triticum aestivum</i>	Shoot	--	121.0	-0.61	*
<i>Triticum aestivum</i>	Seed	530.0	1800.0	0.12	*
<i>Tussilago farfara</i>	Leaf	--	--		*
<i>Tussilago farfara</i>	Flower	--	--		*
<i>Urtica dioica</i>	Inflorescence	--	4800.0		Jim Duke's personal files.
<i>Urtica dioica</i>	Leaf	--	4900.0	-0.19	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
<i>Valeriana officinalis</i>	Leaf	52000.0	58000.0	3.08	*
<i>Valeriana officinalis</i>	Root	3540.0	30000.0	3.14	*
<i>Valeriana officinalis</i>	Stem	--	30000.0		*
<i>Vicia faba</i>	Fruit	50.0	340.0	-0.54	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
<i>Vigna radiata</i>	Seed	1670.0	1856.0	0.17	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
<i>Vigna unguiculata</i>	Seed	--	2020.0	0.33	*
<i>Vigna unguiculata</i>	Seed	--	2020.0	0.33	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
<i>Vigna mungo</i>	Seed	--	2060.0	0.36	*
<i>Withania somnifera</i>	Root	--	--		*
<i>Zea mays</i>	Seed	--	430.0	-1.17	*
<i>Zea mays</i>	Root	--	36.0	-0.41	*
<i>Zea mays</i>	Shoot	--	85.0	-0.65	*