

Dr. Duke's Phytochemical and Ethnobotanical Databases

List of Plants for MALIC-ACID

Plant	Part	Low PPM	High PPM	StdDev	Reference
Acacia nilotica	Plant				--
Aconitum napellus	Plant				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Allium cepa	Bulb				Soldatenkov, S. V., Mazurova, T. A., Ranteleev, A. N. 1960. Organic Acids of Onion and Spinach. Trudy Petergof Biol. Inst., Leningrad Gosudarst Univ Im AA Zhdanova, 18: 55-61.
Allium schoenoprasum	Leaf				--
Allium cepa	Leaf				Soldatenkov, S. V., Mazurova, T. A., Ranteleev, A. N. 1960. Organic Acids of Onion and Spinach. Trudy Petergof Biol. Inst., Leningrad Gosudarst Univ Im AA Zhdanova, 18: 55-61.
Alocasia macrorrhiza	Plant				--
Ananas comosus	Fruit	1000.0	4700.0	-0.6457922708636072	--
Angelica archangelica	Root				--
Angelica archangelica	Plant				--
Annona squamosa	Plant				--
Annona muricata	Plant				--
Apium graveolens	Root				--
Apium graveolens	Pt				--
Apium graveolens	Shoot				--
Arctostaphylos uva-ursi	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Arnica montana	Flower				--
Avena sativa	Petiole				--
Avena sativa	Hull Husk				--
Averrhoa carambola	Fruit		12100.0	-0.16400723769458544	Morton, J.F., Major Medicinal Plants. 1977. Atlas of Medicinal Plants of Middle America. Bahamas to Yucatan. 1981.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Berberis vulgaris	Fruit				Jim Duke's personal files.
Berberis vulgaris	Plant				--
Borago officinalis	Leaf				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Borago officinalis	Plant				--
Brassica oleracea var. botrytis l.	Plant				--
Brassica oleracea	Stem				--
Brassica oleracea var. botrytis l.	Flower				--
Brassica oleracea var. sabellica l.	Leaf				--
Brassica oleracea var. italica	Plant				Jim Duke's personal files.
Brassica oleracea var. gemmifera	Leaf				--
Brassica oleracea var. capitata l.	Leaf				Jim Duke's personal files.
Calendula officinalis	Flower		6400.0	-1.0	--
Camellia sinensis	Leaf				--
Capsella bursa-pastoris	Plant				--
Carica papaya	Latex Exudate		4400.0		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Carica papaya	Fruit	3150.0	23333.0	0.567329421438877	--
Cephaelis ipecacuanha	Plant				--
Chaenomeles lagenaria	Fruit				--
Chelidonium majus	Plant				--
Chenopodium ambrosioides	Fruit				--
Cichorium intybus	Plant				--
Citrus aurantium	Plant				--
Citrus mitis	Fruit Juice		2000.0		--
Citrus sinensis	Fruit	600.0	2000.0	-0.8215787018847368	--
Citrus reticulata	Fruit	1800.0	2100.0	-0.8150680933283987	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Citrus paradisi	Fruit	400.0	600.0	-0.9127272216734706	--
Citrus aurantiifolia	Fruit		2000.0	-0.8215787018847368	--
Cocos nucifera	Seed				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Convallaria majalis	Plant				--
Cornus officinalis	Fruit				--
Cryptostegia grandifolia	Latex Exudate				--
Cydonia oblonga	Seed				--
Daphne mezereum	Bark				--
Datura stramonium	Plant		2120.0	-0.6235911066661377	--
Daucus carota	Root				--
Elytrigia repens	Rhizome				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Equisetum arvense	Plant				--
Eriobotrya japonica	Leaf				Chemical Constituents of Oriental Herbs (3 diff. books)
Euonymus atropurpureus	Plant				--
Euphorbia tirucalli	Plant				--
Fagopyrum esculentum	Leaf		15100.0	0.6105708397676417	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Ficus carica	Fruit Juice				Shiraishi, S. C., Kawakami, K., Widodo, S. E., Shiraishi, M., Kitazaki, M. 1996. Organic acid profiles in the juice of fig fruits. Journal of the Faculty of Agriculture Kyushu University, 41(1-2): 29-33.
Ficus carica	Leaf		23400.0	1.658552103888763	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.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Ficus carica	Fruit		30200.0	1.0144129110026165	--
Foeniculum vulgare	Fruit				--
Foeniculum vulgare	Seed				Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.
Fragaria spp	Fruit	3500.0	8000.0	-0.4309421885044489	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Frangula purshiana	Plant				--
Galium odoratum	Plant				--
Genipa americana	Fruit		6300.0	-0.5416225339621972	--
Ginkgo biloba	Pollen Or Spore				Jim Duke's personal files.
Glycine max	Seed	700.0	1000.0		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Glycyrrhiza glabra	Root				=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
Hedera helix	Plant				--
Helianthus annuus	Leaf				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.
Hibiscus sabdariffa	Leaf		12500.0	0.2822875522116279	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Hibiscus sabdariffa	Flower	6233.0	56667.0	1.0	--
Hibiscus sabdariffa	Stem		6000.0		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Hippophae rhamnoides	Fruit	15000.0	29000.0	0.9362856083265589	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Juglans regia	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Kalanchoe daegriontiana	Plant				--
Kalanchoe pinnata	Leaf				--
Lactuca scariola	Latex Exudate				--
Lactuca sativa	Leaf		600.0	-1.2202398023716667	--
Lactuca virosa	Plant				--
Ledum palustre	Plant				--
Leonurus cardiaca	Plant				--
Lepidium meyenii	Root				--
Linum usitatissimum	Seed				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Lupinus albus	Seed				--
Lycopersicon esculentum	Fruit				--
Mangifera indica	Fruit	6700.0	36600.0	1.431091858608257	--
Matricaria recutita	Plant				Kameoka, H. and Nakai, K. 1987. Components of essential oil from the root of Glycyrrhiza-glabra. Nippon Gogeikagaku Kaishi 61(9): 1119-1122.
Medicago sativa	Plant				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Morus alba	Leaf				--
Musa x paradisiaca	Fruit	530.0	3730.0	-0.7089451738600872	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.
Myrciaria dubia	Fruit				Jim Duke's personal files.
Myrtus communis	Fruit				--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Nicotiana tabacum	Leaf				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Opuntia ficus-indica	Leaf		950.0	-1.176047821354511	--
Opuntia ficus-indica	Fruit	180.0	1700.0	-0.8411105275537513	--
Opuntia ficus-indica	Plant				--
Panax quinquefolius	Plant				--
Panax ginseng	Root				--
Papaver somniferum	Latex Exudate				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Passiflora edulis	Fruit	1200.0	3800.0	-0.7043877478706504	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Petroselinum crispum	Root				--
Physalis peruviana	Plant				--
Physalis ixocarpa	Fruit	116.0	1500.0	-0.8541317446664275	--
Pimenta dioica	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Piscidia piscipula	Plant				--
Pisum sativum	Seed				--
Polygonum hydropiper	Plant				--
Polygonum hydropiperoides	Plant				--
Polypodium vulgare	Root				--
Populus nigra	Plant				--
Portulaca oleracea	Plant		5100.0	1.4110455698284867	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Prunus cerasus	Fruit Juice				--
Prunus armeniaca	Fruit	7000.0	22000.0	0.4805430093828897	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Prunus domestica	Fruit		15000.0	0.024800410439220405	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Punica granatum	Fruit				--
Punica granatum	Fruit Juice				--
Pyrus communis	Fruit				--
Quassia amara	Root				--
Quisqualis indica	Fruit				--
Rheum rhabarbarum	Pt				--
Ribes uva-crispa	Fruit		7300.0	-0.4765164483988158	--
Ribes rubrum	Fruit		2600.0	-0.782515050546708	--
Rosa gallica	Flower				--
Rosa centifolia	Flower				--
Rosa spp	Fruit				--
Rosa laevigata	Fruit				--
Rosa canina	Fruit	15000.0	62200.0	3.0978076490308193	--
Rubus chingii	Fruit				--
Rubus idaeus	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Rubus fruticosus	Leaf				--
Ruta graveolens	Leaf				--
Salvia officinalis	Plant				--
Sambucus nigra	Fruit	1200.0	19000.0	0.2852247526927457	--
Sanguinaria canadensis	Plant				--
Sarcostemma acidum	Plant				--
Schisandra chinensis	Fruit	5000.0	33333.0	1.2183902770726902	--
Schisandra chinensis	Plant				--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Sclerocarya caffra	Fruit				--
Solanum tuberosum	Tuber		1120.0		--
Sophora pachycarpa	Leaf				--
Sorbus aucubaria	Fruit	19000.0	39000.0	1.5873464639603723	--
Spinacia oleracea	Leaf		4300.0	-0.7530674316188777	Soldatenkov, S. V., Mazurova, T. A., Ranteleev, A. N. 1960. Organic Acids of Onion and Spinach. Trudy Petergof Biol. Inst., Leningrad Gosudarst Univ Im AA Zhdanova, 18: 55-61.
Stevia rebaudiana	Plant		1880.0	-0.787454463162349	Kinghorn, A. D. (Ed.) 2002. Medicinal and Aromatic Plants - Industrial Profiles. Stevia. The genus Stevia. Taylor & Francis. New York, NY. 211 pp.
Tamarindus indica	Leaf		15000.0	0.5979445594770258	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Tamarindus indica	Fruit		10000.0	-0.30073001737768623	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Tussilago farfara	Flower				--
Urtica dioica	Plant				--
Vaccinium vitis-idaea	Fruit				--
Vaccinium myrtillus	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Vaccinium macrocarpon	Fruit				Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
Valeriana jatamansi	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Valeriana officinalis	Root				--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Vanilla planifolia	Fruit				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Viburnum prunifolium	Root Bark				Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
Viburnum opulus	Bark				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Vicia faba	Fruit				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Viola odorata	Flower				--
Vitis vinifera	Fruit	1500.0	2000.0	-0.8215787018847368	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Vitis vinifera	Plant				--
Zea mays	Silk Stigma Style				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Zea mays	Plant				--