

Dr. Duke's Phytochemical and Ethnobotanical Database

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 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.
Allium schoenoprasum	Leaf	--	--		--
Alocasia macrorrhiza	Plant	--	--		--
Ananas comosus	Fruit	1000	4700	-0.6457922708636072	--
Angelica archangelica	Plant	--	--		--
Angelica archangelica	Root	--	--		--
Annona muricata	Plant	--	--		--
Annona squamosa	Plant	--	--		--
Apium graveolens	Pt	--	--		--
Apium graveolens	Root	--	--		--
Apium graveolens	Shoot	--	--		--

Plant	Part	Low PPM	High PPM	StdDev	Reference
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	12100	-0.16400723769458544	Morton, J.F., Major Medicinal Plants. 1977. Atlas of Medicinal Plants of Middle America. Bahamas to Yucatan. 1981.
Berberis vulgaris	Plant	--	--		--
Berberis vulgaris	Fruit	--	--		Jim Duke's personal files.
Borago officinalis	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.
Brassica oleracea	Stem	--	--		--
Brassica oleracea var. botrytis l.	Plant	--	--		--
Brassica oleracea var. botrytis l.	Flower	--	--		--
Brassica oleracea var. capitata l.	Leaf	--	--		Jim Duke's personal files.
Brassica oleracea var. gemmifera	Leaf	--	--		--
Brassica oleracea var. italica	Plant	--	--		Jim Duke's personal files.
Brassica oleracea var. sabellica l.	Leaf	--	--		--
Calendula officinalis	Flower	6400	6400	-1	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Camellia sinensis	Leaf	--	--		--
Capsella bursa-pastoris	Plant	--	--		--
Carica papaya	Fruit	3150	23333	0.567329421438877	--
Carica papaya	Latex Exudate	4400	4400		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Cephaelis ipecacuanha	Plant	--	--		--
Chaenomeles lagenaria	Fruit	--	--		--
Chelidonium majus	Plant	--	--		--
Chenopodium ambrosioides	Fruit	--	--		--
Cichorium intybus	Plant	--	--		--
Citrus aurantiifolia	Fruit	2000	2000	-0.8215787018847368	--
Citrus aurantium	Plant	--	--		--
Citrus mitis	Fruit Juice	2000	2000		--
Citrus paradisi	Fruit	400	600	-0.9127272216734706	--
Citrus reticulata	Fruit	1800	2100	-0.8150680933283987	--
Citrus sinensis	Fruit	600	2000	-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	--	--		--

Plant	Part	Low PPM	High PPM	StdDev	Reference
<i>Cryptostegia grandifolia</i>	Latex Exudate	--	--		--
<i>Cydonia oblonga</i>	Seed	--	--		--
<i>Daphne mezereum</i>	Bark	--	--		--
<i>Datura stramonium</i>	Plant	2120	2120	-0.6235911066661377	--
<i>Daucus carota</i>	Root	--	--		--
<i>Elytrigia repens</i>	Rhizome	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
<i>Equisetum arvense</i>	Plant	--	--		--
<i>Eriobotrya japonica</i>	Leaf	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
<i>Euonymus atropurpureus</i>	Plant	--	--		--
<i>Euphorbia tirucalli</i>	Plant	--	--		--
<i>Fagopyrum esculentum</i>	Leaf	15100	15100	0.6105708397676417	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
<i>Ficus carica</i>	Fruit	30200	30200	1.0144129110026165	--
<i>Ficus carica</i>	Leaf	23400	23400	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.
<i>Ficus carica</i>	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.
<i>Foeniculum vulgare</i>	Fruit	--	--		--

Plant	Part	Low PPM	High PPM	StdDev	Reference
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	8000	-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	6300	-0.5416225339621972	--
Ginkgo biloba	Pollen Or Spore	--	--		Jim Duke's personal files.
Glycine max	Seed	700	1000		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	Flower	6233	56667	1	--
Hibiscus sabdariffa	Leaf	--	12500	0.2822875522116279	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.

Plant	Part	Low PPM	High PPM	StdDev	Reference
Hibiscus sabdariffa	Stem	--	6000		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Hippophae rhamnoides	Fruit	15000	29000	0.9362856083265589	--
Juglans regia	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Kalanchoe daegrिमontiana	Plant	--	--		--
Kalanchoe pinnata	Leaf	--	--		--
Lactuca sativa	Leaf	600	600	-1.2202398023716667	--
Lactuca scariola	Latex Exudate	--	--		--
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	36600	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.

Plant	Part	Low PPM	High PPM	StdDev	Reference
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	3730	-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	--	--		--
Nicotiana tabacum	Leaf	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Opuntia ficus-indica	Fruit	180	1700	-0.8411105275537513	--
Opuntia ficus-indica	Plant	--	--		--
Opuntia ficus-indica	Leaf	--	950	-1.176047821354511	--
Panax ginseng	Root	--	--		--
Panax quinquefolius	Plant	--	--		--
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	3800	-0.7043877478706504	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Petroselinum crispum	Root	--	--		--
Physalis ixocarpa	Fruit	116	1500	-0.8541317446664275	--
Physalis peruviana	Plant	--	--		--

Plant	Part	Low PPM	High PPM	StdDev	Reference
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	5100	1.4110455698284867	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Prunus armeniaca	Fruit	7000	22000	0.4805430093828897	--
Prunus cerasus	Fruit Juice	--	--		--
Prunus domestica	Fruit	15000	15000	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	--	--		--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Rheum rhabarbarum	Pt	--	--		--
Ribes rubrum	Fruit	2600	2600	-0.782515050546708	--
Ribes uva-crispa	Fruit	7300	7300	-0.4765164483988158	--
Rosa canina	Fruit	15000	62200	3.0978076490308193	--
Rosa centifolia	Flower	--	--		--
Rosa gallica	Flower	--	--		--
Rosa laevigata	Fruit	--	--		--
Rosa spp	Fruit	--	--		--
Rubus chingii	Fruit	--	--		--
Rubus fruticosus	Leaf	--	--		--
Rubus idaeus	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Ruta graveolens	Leaf	--	--		--
Salvia officinalis	Plant	--	--		--
Sambucus nigra	Fruit	1200	19000	0.2852247526927457	--
Sanguinaria canadensis	Plant	--	--		--
Sarcostemma acidum	Plant	--	--		--
Schisandra chinensis	Plant	--	--		--
Schisandra chinensis	Fruit	5000	33333	1.2183902770726902	--

Plant	Part	Low PPM	High PPM	StdDev	Reference
Sclerocarya caffra	Fruit	--	--		--
Solanum tuberosum	Tuber	1120	1120		--
Sophora pachycarpa	Leaf	--	--		--
Sorbus aucubaria	Fruit	19000	39000	1.5873464639603723	--
Spinacia oleracea	Leaf	--	4300	-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	-0.787454463162349	Kinghorn, A. D. (Ed.) 2002. Medicinal and Aromatic Plants - Industrial Profiles. Stevia. The genus Stevia. Taylor & Francis. New York, NY. 211 pp.
Tamarindus indica	Fruit	10000	10000	-0.30073001737768623	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
Tamarindus indica	Leaf	15000	15000	0.5979445594770258	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 macrocarpon	Fruit	--	--		Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
Vaccinium myrtillus	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Vaccinium vitis-idaea	Fruit	--	--		--

Plant	Part	Low PPM	High PPM	StdDev	Reference
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	--	--		--
Vanilla planifolia	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Viburnum opulus	Bark	--	--		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.
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	2000	-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	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.