

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in Malus domestica

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
0	LEAD	Fruit	0.002	64.0	3.294104898397132	--
0	MEVALONIC-ACID	Fruit	30.0	36.0	1.9898059802462824	--
25	P-COUMARIC-ACID	Fruit	15.0	460.0	1.836295249622603	--
44	QUERCITRIN	Leaf	600.0	9015.0	1.7298124819748746	--
61	FERULIC-ACID	Fruit	4.0	95.0	1.7162326606420661	--
4	BORON	Fruit	1.0	110.0	1.410811087811246	--
20	BENZOIC-ACID	Leaf	98.0	710.0	1.3479809099758226	--
176	QUERCETIN	Pericarp	58.0	263.0	1.0	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
8	PHLORIDZIN	Leaf	54000.0	140000.0	1.0	--
1	PROCYANIDIN-B-2	Leaf	150.0	900.0	0.9999999999999998	--
0	CARBOHYDRATES	Fruit	152250.0	948550.0	0.8859136568099041	--
0	FLUORINE	Fruit	0.1	2.1	0.7378739376517985	ACTA AGRIC SCAND SUPPL 22: 1980
0	WATER	Fruit	809000.0	896000.0	0.5453564376102144	--
24	PECTIN	Fruit	1400.0	66585.0	0.16029071562128944	--
77	ZINC	Fruit	0.0	35.0	0.1413570623516533	--
1	MERCURY	Fruit	0.0	0.02	0.10095423065636192	--
47	BETA-SITOSTEROL	Fruit	110.0	660.0	0.07292039240169416	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
8	FRUCTOSE	Fruit	50100.0	60800.0	0.04916971831634761	--
2	ARSENIC	Fruit	0.001	0.43	0.014133429185321438	--
53	BETA-CAROTENE	Fruit	0.0	76.0	-0.0038939984397263717	--
6	IRON	Fruit	1.1	123.0	-0.039580333705947705	--
102	CAFFEIC-ACID	Fruit	85.0	1270.0	-0.10378621224302456	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	CAMPESTEROL	Fruit	10.0	60.0	-0.14986892201478846	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
0	SUGAR	Fruit	60100.0	166000.0	-0.15008461399428302	--
7	SALICYLATES	Fruit	0.8	60.0	-0.16469419114376535	--
1	SODIUM	Fruit	0.0	133.0	-0.1713385458263085	--
5	ALUMINUM	Fruit	0.4	129.0	-0.18599251654737567	--
0	FAT	Seed	180000.0	230000.0	-0.1863991011784708	--
0	LINOLENIC-ACID	Fruit	870.0	5411.0	-0.1866295815550338	--
0	PHYTATE	Fruit	630.0	4040.0	-0.2108482779177121	--
14	MANGANESE	Fruit	0.0	29.0	-0.2123152729972876	--
5	PHYLLOQUINONE	Fruit		0.06	-0.22359887323159108	--
13	MUFA	Fruit	150.0	935.0	-0.24039423421132997	USDA's Ag Handbook 8 and sequelae)
8	STEARIC-ACID	Fruit	70.0	435.0	-0.25037310927026857	--
2	PHYTOSTEROLS	Fruit	120.0	745.0	-0.2581394518581099	USDA's Ag Handbook 8 and sequelae)
112	ASCORBIC-ACID	Fruit	20.0	402.0	-0.2594938543964892	--
6	MYRISTIC-ACID	Fruit	20.0	124.0	-0.26329389964394695	--
0	SFA	Fruit	580.0	3610.0	-0.29989489934752117	USDA's Ag Handbook 8 and sequelae)
13	PALMITIC-ACID	Fruit	480.0	2986.0	-0.31904990505316816	--
2	PALMITOLEIC-ACID	Fruit	10.0	62.0	-0.3340992517515945	--
0	ASH	Fruit	2300.0	43000.0	-0.3538278176314037	--
0	KILOCALORIES	Fruit		3419.0	-0.36687576531452953	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
4	PUFA	Fruit	1050.0	6535.0	-0.3716987814442892	USDA's Ag Handbook 8 and sequelae)
4	TIN	Fruit		0.0	-0.3771396188984718	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	FAT	Fruit	3210.0	34200.0	-0.3800352407430785	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	SILICON	Fruit	0.0	70.0	-0.3810148443665756	--
60	SELENIUM	Fruit		0.0	-0.38618723699673646	--
2	MOLYBDENUM	Fruit	0.077	0.43	-0.3990584824882058	--
15	LUTEIN	Fruit	0.4	5.0	-0.4027761600563295	--
0	BROMINE	Fruit		1.0	-0.42563543443835	ACTA AGRIC SCAND SUPPL 22: 1980
31	THIAMIN	Fruit	1.0	2.0	-0.4266044741562528	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
7	LAURIC-ACID	Fruit	10.0	63.0	-0.44474745342800637	--
87	RUTIN	Leaf	0.0	8885.0	-0.45294433702030634	--
24	CHROMIUM	Fruit	0.005	0.3	-0.4654957769727276	--
18	OLEIC-ACID	Fruit	140.0	871.0	-0.4740320725940964	--
14	SUCROSE	Fruit	24000.0	36200.0	-0.49014841841433165	--
3	SILVER	Fruit	0.011	0.086	-0.4995614833070808	--
14	POTASSIUM	Fruit	1110.0	12140.0	-0.5110685274797335	--
2	COBALT	Fruit	0.005	0.043	-0.5299096696083117	--
0	ZIRCONIUM	Fruit	0.22	0.86	-0.546541741871023	--
32	ALPHA-TOCOPHEROL	Fruit	2.0	37.0	-0.5521025162177928	--
3	CADMIUM	Fruit	0.002	0.026	-0.5672128851607269	--
75	KAEMPFEROL	Fruit		2.0	-0.5794291374991353	--
176	QUERCETIN	Fruit	2.5	41.0	-0.582618968173555	--
3	NICKEL	Fruit	0.004	0.645	-0.5833033975627046	--
15	ALPHA-LINOLENIC-ACID	Fruit	180.0	1120.0	-0.6452626880371877	--
0	RUBIDIUM	Fruit	0.27	10.0	-0.6798204139542442	ACTA AGRIC SCAND SUPPL 22: 1980
38	(-)-EPICATECHIN	Leaf	150.0	900.0	-0.6820874109972213	--
0	TITANIUM	Fruit	0.055	3.0	-0.6858409400678522	--
12	COPPER	Fruit	0.24	4.0	-0.6863742487163819	--
4	PHOSPHORUS	Fruit	68.0	925.0	-0.6958662309301713	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
7	GLUCOSE	Fruit	17200.0	18200.0	-0.7019443383136035	--
39	NIACIN	Fruit	1.0	7.0	-0.7178505836876389	--
0	NITROGEN	Fruit	280.0	4000.0	-0.7448119387296798	ACTA AGRIC SCAND SUPPL 22: 1980
34	MYRICETIN	Fruit		0.5	-0.7536633445071549	--
15	FOLACIN	Fruit	0.02	0.2	-0.7547576455042277	USDA's Ag Handbook 8 and sequelae)
28	CALCIUM	Fruit	43.0	570.0	-0.75834467805693	--
65	MAGNESIUM	Fruit	48.0	478.0	-0.7648501234386748	--
15	RIBOFLAVIN	Fruit		1.3	-0.7944081953947483	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
3	VALINE	Fruit	40.0	560.0	-0.8032333881374735	--
0	EO	Fruit	25.0	35.0	-0.8192816022307305	--
12	GLYCINE	Plant	80.0	497.0	-0.8208359653564842	--
2	ASPARAGINE	Fruit		171.0	-0.825458790451801	--
8	AMYGDALIN	Seed	6000.0	13800.0	-0.8422024808761887	--
11	LITHIUM	Fruit	0.044	0.172	-0.8448748858580687	--
0	BARIUM	Fruit	0.22	8.6	-0.8622422515184034	--
15	FIBER	Fruit	5200.0	49636.0	-0.8685372806832163	USDA's Ag Handbook 8 and sequelae)
4	LYSINE	Fruit	20.0	746.0	-0.8724121045963826	--
0	VIT-B-6	Fruit	1.0	3.0	-0.8751338727185397	--
8	TYROSINE	Fruit	40.0	249.0	-0.8990776765345502	--
11	PANTOTHENIC-ACID	Fruit	1.0	4.0	-0.8996713902808875	USDA's Ag Handbook 8 and sequelae)
2	LEUCINE	Fruit	120.0	746.0	-0.9258535515942413	--
8	GLUTAMIC-ACID	Fruit	156.0	1244.0	-0.9333642189445454	--
3	ISOLEUCINE	Fruit	50.0	497.0	-0.9433250929721118	--
15	METHIONINE	Plant	20.0	124.0	-0.9578509469925256	--
14	SULFUR	Fruit	1.65	23.0	-0.9685087927350676	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	STRONTIUM	Fruit	0.165	8.6	-0.9690625512009637	--
21	CHLOROPHYLL	Fruit	0.0	1.0	-0.9710352631864654	--
0	N-PENTYL-AMINE	Fruit		0.3	-0.9999999999999999	--
0	AMMONIA	Fruit		235.0	-1.0	--
0	PHENOLICS	Plant	1100.0	3400.0	-1.0	--
8	ESTRONE	Seed	0.1	0.13	-1.0000000000000002	--
29	TRYPTOPHAN	Fruit	20.0	124.0	-1.0195295627538696	--
7	PHENYLALANINE	Fruit	50.0	311.0	-1.0455516744717288	--
0	PROLINE	Plant	20.0	435.0	-1.0472597877182985	--
14	ARGININE	Fruit	60.0	373.0	-1.0500818434124615	USDA's Ag Handbook 8 and sequelae)
3	ASPARTIC-ACID	Fruit	210.0	2115.0	-1.056731649443471	USDA's Ag Handbook 8 and sequelae)
7	HISTIDINE	Fruit	30.0	187.0	-1.0696353953245137	--
4	THREONINE	Fruit	30.0	435.0	-1.0736073129874002	--
2	CYSTINE	Plant	30.0	187.0	-1.078139109591067	--
77	CHLOROGENIC-ACID	Fruit	5.0	15.0	-1.0935971883111022	--
1	SERINE	Fruit	80.0	497.0	-1.1107007920496865	USDA's Ag Handbook 8 and sequelae)
3	ALANINE	Fruit	70.0	435.0	-1.2861845168681025	USDA's Ag Handbook 8 and sequelae)
0	PROTEIN	Fruit	1870.0	12800.0	-1.2962859772396575	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
77	CHLOROGENIC-ACID	Leaf	100.0	1200.0	-1.3240006985895736	--
0	PROPYL-BUTYRATE	Plant				--
1	PROCYANIDIN-B-1	Pericarp				--
0	PECTIN-DEMETHOXYXYLASE	Plant				--
12	IODINE	Plant				--
30	(+)-CATECHIN	Leaf				--
8	PHLORIZIN	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ANILINE	Fruit		1.5		--
0	2-METHYL-PENTAN-2-OL	Plant				--
38	(-)-EPICATECHIN	Fruit Juice				--
0	N-BUTYL-DECANOATE	Plant				--
1	ETHYL-PROPIONATE	Plant				--
0	CYANIDIN-7-ARABINOSIDE	Plant				--
0	4-P-COUMAROYLQUINIC-ACID	Fruit				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
1	HEXYL-BUTYRATE	Fruit				--
0	ALPHA-ALANINE	Fruit				--
0	N-PENTANOIC-ACID	Plant				--
0	1-OCTYL-ACETATE	Plant				--
0	ABSCISIC-ACID	Fruit Juice				--
0	METHYL-N-PENTANOATE	Plant				--
0	ETHYL-CAPROATE	Plant				--
0	METHYL-NONAN-3-ONE	Fruit				--
0	CITRAMALIC-ACID	Plant				--
0	POLYGALACTOSYL-DIGLYCERIDE	Plant				--
0	OCT-CIS-5-ENE-1,3-DIOL-GLYCOSIDE	Fruit Juice				--
0	I-BUTYL-OCTANOATE	Plant				--
62	GALLIC-ACID	Pericarp				--
0	BUTANOL	Plant				--
2	DIETHYL-AMINE	Fruit		3.0		--
60	CINNAMALDEHYDE	Fruit				--
0	CAPROALDEHYDE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	PROCYANIDIN-G	Leaf				--
0	PHLORETIN-XYLOGLUCOSIDE	Fruit	1.0	3.0		--
0	ISOPROPYL-BUTYRATE	Plant				--
0	PUTRESCINE	Bud				Wang, S. Y., Faust, M. 1994. Changes in Polyamine Content During Dormancy in Flower Buds of 'Anna' Apple. J. Amer. Soc. Hort. Sci., 119(1): 70-73.
0	HEPTACOSANE	Plant				--
7	AVICULARIN	Fruit				--
0	AMYL-ACETATE	Fruit				--
0	OCTENOIC-ACID	Plant				--
0	4-HYDROXYMETHYLPROLINE	Plant				--
11	SORBITOL	Leaf				--
0	N-HEX-1-EN-3-OL	Plant				--
1	PROCYANIDIN-B-1	Leaf				--
7	INDOLE-3-ACETIC-ACID	Plant				Stitt, Paul. Why George should eat broccoli.
25	P-COUMARIC-ACID	Leaf				--
87	RUTIN	Pericarp				--
0	AMYL-PROPIONATE	Plant				--
89	URSOLIC-ACID	Fruit Epidermis				--
2	NEOXANTHIN	Fruit Epidermis				--
0	2-METHYL-BUTAN-2-OL	Plant				--
7	AVICULARIN	Pericarp				--
0	N-BUTANOL	Plant				--
0	ETHYL-PHENACETATE	Plant				--
0	CYANIDIN-3-GALACTOSIDE	Plant				--
0	2-(1,1-DIMETHYLETHYL)-CYCLOHECYLACETATE	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	PROPYL-ACETATE	Plant				--
0	FR	Plant				--
0	N-OCTANONE	Plant				--
0	1-NONYL-ACETATE	Plant				--
8	STEARIC-ACID	Seed				Fathy, M. M., Abd El Megid, R. M. 1995. A Comparative Study of the Lipid Contents and the Antimicrobial Activity of Certain Rosaceous Seeds. Zagazig J Pharm Sci, 4(2): 121-127.
0	METHYL-I-PENTANOATE	Plant				--
1	ETHYL-BUTYRATE	Plant				--
4	METHYL-BENZOATE	Fruit				--
2	REYNOUTRIN	Fruit				--
0	CIS-N-HEX-3-EN-1-OL	Plant				--
0	PIPECOLINIC-ACID	Plant				--
0	OCT-CIS-5-ENE-1,3-DIOL	Fruit Juice				--
30	HYPEROSIDE	Fruit				--
62	GALLIC-ACID	Fruit				--
1	HEXYL-ACETATE	Fruit				--
2	METHANOL	Plant				--
0	DIASTASE	Plant				--
77	CHLOROGENIC-ACID	Pericarp	8.0	18.0		--
1	PYRUVIC-ACID	Plant				--
4	CALCIUM-OXALATE	Plant				--
0	PROCYANIDIN-E	Leaf				--
0	PHLORETIN-4'-O-BETA-D-GLUCOPYRANOSIDE	Fruit		6486.0		--
7	INDOLE-3-ACETIC-ACID	Stem Bark				--
0	HEMICELLULOSE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
6	ACETALDEHYDE	Fruit Juice				Miyake, T., Shibamoto, T. 1993. Quantitative Analysis of Acetaldehyde in Foods and Beverages. J. Agr. Food Chem, 41(11): 1968-1970.
6	OCTACOSANOL	Plant				--
0	3-PENTANOL	Plant				--
0	N-HEPTANOL	Plant				--
1	PROCYANIDIN-B-1	Fruit Juice				--
0	PECTASE	Plant				--
0	IDAEIN	Plant				--
0	METHYL-GUANIDINE	Stem				--
44	QUERCITRIN	Pericarp				--
0	GLUCOCEREBROSIDE	Plant	34.0	49.0		--
3	AMYL-BUTYRATE	Plant				--
0	URONIC-ACID	Fruit	7.0	1440.0		--
2	NEO-CHLOROGENIC-ACID	Plant				--
0	2-METHYL-BUT-3-EN-1-OL	Fruit				--
0	TRANS-ABSCISIC-ACID	Fruit Juice				--
0	N-ALPHA-ACETYL-AGGININE	Shoot				--
0	ETHYL-PENTANOATE	Plant				--
0	PHLORETIN-XYLOGLUCOSIDE	Pericarp	7.0	27.0		--
9	SINAPIC-ACID	Fruit				--
0	CYANIDIN-3-ARABINOSIDE	Plant				--
0	VOMIFOLIOL-1-O-BETA-D-XYLOPYRANOSYL-6-O-BETA-D-GLUCOPYRANOSIDE	Fruit				--
0	PROPYL-2-METHYLBUTYRATE	Plant				--
13	FORMIC-ACID	Plant				--
11	ADENINE	Root				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	N-OCTANOL-2-OCTANOL	Plant				--
0	1-MONO-LINOLEIN	Seed				--
13	PALMITIC-ACID	Seed				Fathy, M. M., Abd El Megid, R. M. 1995. A Comparative Study of the Lipid Contents and the Antimicrobial Activity of Certain Rosaceous Seeds. Zagazig J Pharm Sci, 4(2): 121-127.
0	METHYL-HEXANOATE	Plant				--
0	ETHYL-AMINE	Fruit		3.0		--
1	ISOVALERALDEHYDE	Fruit				--
44	QUERCITRIN	Fruit				--
0	CIS-2,TRANS-4-ABSCISIC-ACID	Bark				--
20	LECITHIN	Plant				--
0	N-1-N-5-N-10-TRI-TRANS-4-COUMAROYL-SPERMIDINE	Flower				--
14	HYPERIN	Plant				--
2	FRIEDELIN	Heart Wood				--
1	ETHYL-PROPIONATE	Fruit				--
0	DEHYDROASCORBIC-ACID	Plant				--
1	PYRROLIDINE	Fruit Epidermis		1.5		--
0	PROCYANIDIN-D-1	Leaf				--
9	PHLORETIN	Leaf	300.0	11000.0		--
0	ISOCITRIC-ACID	Plant				--
7	INDOLE-3-ACETIC-ACID	Leaf				--
23	MELATONIN	Fruit				Hattori, A., et. al. 1995. Identification of Melatonin in Plants and its Effects on Plasma Melatonin Levels and Binding to Melatonin Receptors in Vertebrates. Biochem. Mol. Biol. Int., 35(3): 627-634.
0	GUANIDINOSUCCINIC-ACID	Shoot				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	JASMONIC-ACID	Fruit				--
0	OCTA-TRANS-3-CIS-5-DIEN-1-OL-ACETATE	Essential Oil				--
0	3-HYDROXY-OCTYL-BETA-D-GLUCOSIDE	Fruit				--
0	N-HEPTANOIC-ACID	Plant				--
0	QUERCETIN-XYLOSIDE	Pericarp	9.0	19.0		--
1	PROCYANIDIN-B-1	Fruit				--
0	I-PROPANOL	Plant				--
30	HYPEROSIDE	Heart Wood				--
1	PYRROLIDINE	Pericarp		1.5		--
35	GERANIOL	Plant				--
0	AMYL-ACETATE	Plant				--
0	N-PROPIONIC-ACID	Plant				--
0	2-METHYL-BUT-2-EN-1-AL	Fruit				--
0	N-ALPHA-ACETYL-L-ARGININE	Stem				--
0	ETHYL-OCTANOATE	Plant				--
1	PHLORETIN-GLUCOSIDE	Pericarp	10.0	15.0		--
0	CYANIDIN-3,5-DIGLUCOSIDE	Cotyledon				--
89	URSOLIC-ACID	Pericarp				--
0	PROPANOL	Plant				--
3	ACETONE	Plant				--
0	TETRADECYL-ACETATE	Leaf				--
0	N-NONANOL-2-NONANOL	Plant				--
0	1-DECYL-ACETATE	Plant				--
0	N-OCTACOSANE	Seed				Fathy, M. M., Abd El Megid, R. M. 1995. A Comparative Study of the Lipid Contents and the Antimicrobial Activity of Certain Rosaceous Seeds. Zagazig J Pharm Sci, 4(2): 121-127.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	METHYL-GUANIDINE	Shoot				--
6	ETHYL-ACETATE	Plant				--
4	ISOPROPYL-ACETATE	Fruit				--
0	QUERCETIN-ARABINOSIDE	Plant				--
89	URSOLIC-ACID	Wax				--
22	ISOQUERCITRIN	Pericarp				--
0	HYDROXYCINNAMIC-ACID	Fruit		1340.0		--
0	CREATINE	Stem				--
4	BIOTIN	Plant				--
2	ETHYL-ISOBUTYRATE	Fruit				--
3	MANNOSE	Plant				--
0	DECENOIC-ACID	Plant				--
0	BUTANAL	Fruit				--
0	PYROXIDINE	Plant				--
0	PROCYANIDIN-C-1	Pericarp				--
0	PHLORETAMIDE	Fruit				--
4	ISOCHLOROGENIC-ACID	Plant				Stitt, Paul. Why George should eat broccoli.
0	METHYL-2-XI-ACETOXY-20-BETA-HYDROXY-URSONATE	Pericarp				--
0	GUANIDINOACETIC-ACID	Shoot				--
8	INOSITOL	Plant				--
0	OCTA-TRANS-3-CIS-5-DIEN-1-OL	Essential Oil				--
0	3-BETA-19-ALPHA-DIHYDROXY-2-OXO-URS-12-EN-28-OIC-ACID	Wood		1000.0		--
0	N-HEHYL-N-HEXANOATE	Plant				--
0	QUERCETIN-GLUCOSIDE	Pericarp	9.0	20.0		--
0	I-PENTYL-I-PENTANOATE	Plant				--
30	HYPEROSIDE	Fruit Juice				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	PROPYL-BUTYRATE	Fruit				--
0	GAMMA-METHYL-PROLINE	Plant				--
0	N-PROPANOL	Plant				--
0	2-METHYL-2,3-EPOXY-PENTANE	Fruit				--
0	N-ALPHA-ACETYL-L-ARGININE	Shoot				--
0	MYO-INOSITOL	Pollen Or Spore		4500.0		--
1	ETHYL-NONANOATE	Plant				--
1	PHLORETIN-GLUCOSIDE	Fruit		1.0		--
7	CYANIDIN	Leaf				--
0	QUERCETIN-ARABINOSIDE	Pericarp	18.0	37.0		--
17	PROCYANIDIN-A-2	Leaf				--
0	ACETIC-ACID-AMYL-ESTER	Plant				--
0	TETRADECENYL-ACETATE	Leaf				--
0	N-NONANOIC-ACID	Plant				--
0	1-BUTANOL	Plant				--
0	N-NONADECANE	Seed				Fathy, M. M., Abd El Megid, R. M. 1995. A Comparative Study of the Lipid Contents and the Antimicrobial Activity of Certain Rosaceous Seeds. Zagazig J Pharm Sci, 4(2): 121-127.
0	METHYL-FORMATE	Plant				--
24	ETHANOL	Plant				--
2	ISOAMYL-ACETATE	Fruit				--
4	QUERCETIN-3-RHAMNOGLUCOSIDE	Plant				--
87	RUTIN	Fruit				--
0	PHOSPHATIDYLIC-ACID	Fruit	3.0	6.0		--
3	ISOQUERCETIN	Fruit Juice				--
4	COSMOSIIN	Heart Wood				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
6	ETHYL-ACETATE	Fruit				--
0	D-L-NONACOSANOL	Plant				--
0	BUTAN-2-ONE	Fruit				--
0	CAFFEETANNIN	Plant				--
0	PROCYANIDIN-C-1	Leaf				--
0	ISOBUTYL-FORMATE	Plant				--
0	(+)-EPICATECHIN	Fruit				--
2	REYNOUTRIN	Fruit Juice				--
6	GUANIDINE	Shoot				--
0	ASCORBIDASE	Plant				--
0	OCTA-CIS-3-CIS-5-DIEN-1-OL-ACETATE	Essential Oil				--
0	3,4-BENZOPYRENE	Fruit				--
0	N-DECANOL	Plant				--
0	QUERCETIN-GALACTOSIDE	Pericarp	28.0	60.0		--
0	I-PENTYL-FORMATE	Plant				--
0	GUANIDINOACETIC-ACID	Stem				--
0	PHLORETIN-4'-O-BETA-D-GLUCOPYRANOSIDE	Leaf		6486.0		--
0	GAMMA-GUANIDINOPROPIONIC-ACID	Shoot				--
0	AMMONIA(NH3)	Fruit Epidermis	235.0	1029.0		--
0	TRIGLYCERIDE	Plant	45.0	50.0		--
0	N-PENTYL-OCTANOATE	Plant				--
0	2-HEXENAL	Plant				--
1	L-ARGININE	Stem				--
0	ETHYL-METHYLBUTYRATE	Plant				--
0	PHENYLBENZOATE	Fruit				--
14	SHIKIMIC-ACID	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CUTIN	Fruit Epidermis				--
0	PROPYL-ACETATE	Fruit				--
27	PROCYANIDINS	Leaf				--
8	PHLORIZIN	Pericarp				--
0	N-METHYL-PHENETHYLAMINE	Fruit		1.2		--
0	1,3,3,-TRIMETHYL-DIOXA-2,7-BICYCLO(2,2,1)HEPTANE	Fruit				--
47	BETA-SITOSTEROL	Seed				Fathy, M. M., Abd El Megid, R. M. 1995. A Comparative Study of the Lipid Contents and the Antimicrobial Activity of Certain Rosaceous Seeds. Zagazig J Pharm Sci, 4(2): 121-127.
2	METHYL-CAPROATE	Plant				--
5	HEXANAL	Fruit				--
0	QUERCETIN-3-O-XYLOSIDE	Fruit Epidermis				--
87	RUTIN	Fruit Juice				--
0	PHOSPHATIDYL-SERINE	Fruit		4.0		--
8	LACTIC-ACID	Plant				--
47	BETA-SITOSTEROL	Heart Wood				--
1	N-BUTYL-PROPIONATE	Fruit				--
1	HEXYL-FORMATE	Plant				--
77	CHLOROGENIC-ACID	Pt				--
2	BETA-ALANINE	Fruit				--
16	ACETIC-ACID	Plant				--
0	D-GLUCONIC-ACID	Plant				--
43	PROTocatechuic-ACID	Fruit				--
0	PROCYANIDIN-C-1	Fruit Juice				--
0	ISOBUTYL-BUTYRATE	Plant				--
30	(+)-CATECHIN	Bark				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	QUERCETIN-3-O-RUTINOSIDE	Plant				--
1	GLYOXYLIC-ACID	Plant				--
0	OCTA-CIS-3-CIS-5-DIEN-1-OL	Essential Oil				--
0	20-HYDROXYURSOLIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	N-COUMARYL-QUINIC-ACID	Plant				--
0	QUERCETIN-3-RHAMNOSIDE	Pericarp	19.0	39.0		--
0	MALVIDIN-MONOGLYCOSIDE	Plant				--
0	I-PENTANOL	Plant				--
6	GUANIDINE	Stem				--
2	METHYL-BUTYRATE	Fruit				--
0	GAMMA-GUANIDINOBUTYRIC-ACID	Shoot				--
3	TRIACONTANOL	Plant				--
0	N-PENTYL-FORMATE	Plant				--
0	2-HEPTANOL	Plant				--
1	L-ARGININE	Shoot				--
0	MONOGALACTOSYL-DIGLYCERIDE	Plant	12.0	42.0		--
2	ETHYL-ISOBUTYRATE	Plant				--
0	PENTAN-2-ONE	Fruit				--
0	CREATINE	Shoot				--
8	PHLORIDZIN	Fruit Juice				--
13	P-HYDROXY-BENZOIC-ACID	Fruit				--
0	N-METHYL-PHENETHYLAMINE	Exocarp		1.3		--
0	-D-GLUCITOL	Plant				--
2	METHYL-BUTYRATE	Plant				--
12	ESTRAGOLE	Essential Oil				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	ETHYL-VALERATE	Fruit				--
1	QUERCETIN-3-O-RHAMNOSIDE	Plant				J.S. Glasby Dict.Plis Containing 2ndary Metabolite. 1991.
1	CATALASE	Plant				--
2	REYNOUTRIN	Pericarp				--
0	PHOSPHATIDYL-INOSITOL	Fruit	53.0	59.0		--
0	L-QUINIC-ACID	Plant				--
0	3-HYDROXYPHLORIDZIN	Fruit Juice				--
0	AMMONIA	Pericarp		1029.0		--
1	HEXYL-BUTYRATE	Plant				--
77	CHLOROGENIC-ACID	Seed				--
0	BENZYL-AMINE	Fruit Epidermis		0.6		--
0	BUTYL-ACETATE	Fruit				--
6	ACETALDEHYDE	Plant				--
0	D-GALACTURONIC-ACID	Plant	13.0	54.0		--
0	BETA-CAROTENE-5,6-EPOXIDE	Fruit				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	BUTYL-VALERIANATE	Plant				--
0	PROCYANIDIN-C-1	Fruit				--
0	PEROXIDASE	Plant				--
3	ISOBUTYL-ACETATE	Plant				--
30	(+)-CATECHIN	Seed				--
0	N-METHYL-PHENETHYLAMINE	Pericarp		1.3		--
4	GLYCOLIC-ACID	Plant				--
3	XYLOSE	Plant				--
0	NONENOIC-ACID	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	2-PROPANOL	Plant				--
1	N-BUTYL-PROPIONATE	Plant				--
2	PROPIONALDEHYDE	Fruit				--
0	I-PENTANOIC-ACID	Plant				--
0	GIBBERELLIN-A-62	Seed				--
22	ISOQUERCITRIN	Fruit Juice				--
0	GAMMA-GUANIDINOBUTRAMIDE	Shoot				--
0	TRANS-N-HEX-3-EN-1-OL	Plant				--
0	N-PENTYL-DECANOATE	Plant				--
0	2-BUTANOL	Plant				--
0	CIS-2,TRANS-4-ABSCISIC-ACID	Stem Bark				--
0	ETHYL-HEXANOATE	Plant				--
0	P-COUMARIC-ACID-2	Leaf	0.0	185.0		--
0	COUMARIC-ACID	Plant				--
0	POMONIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	PHLORETIN-XYLOSIDE	Fruit Juice				--
0	P-COUMARYL-QUINIC-ACID	Fruit				--
0	N-METHYL-BETA-PHENETHYLAMINE	Fruit		1.2		--
1	METHYL-AMINE	Fruit Epidermis		4.5		--
1	ETHYL-FORMATE	Fruit				--
2	QUERCETIN-3-O-BETA-D-GLUCOSIDE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	CAROTENOIDS	Plant	0.0	126.0		--
44	QUERCITRIN	Fruit Juice				--
0	PHOSPHATIDYL-GLYCEROL	Fruit	8.0	27.0		--
0	L-MALIC-ACID	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
0	1-MONOOLEIN	Seed				--
1	METHYL-AMINE	Pericarp		4.5		--
1	HEXYL-ACETATE	Plant				--
77	CHLOROGENIC-ACID	Fruit Juice				--
0	BENZYL-AMINE	Fruit	0.3	3.0		--
0	BENZYL-AMINE	Pericarp		0.6		--
0	ABSCISIC-ACID	Fruit				--
0	PROPYL-PROPIONATE	Plant				--
0	BUTYL-PROPIONATE	Plant				--
0	PROCYANIDIN-B-5	Leaf				--
0	PENTYL-HEXANOATE	Plant				--
0	ISOAMYL-PROPIONATE	Plant				--
30	(+)-CATECHIN	Pt				--
2	FARNESENE	Pericarp				--
2	NONACOSANE	Plant				--
0	2-PHENETHYLACETATE	Plant				--
0	N-BUTYL-OCTANOATE	Plant				--
1	PROCYANIDIN-B-2	Pericarp	15.0	100.0		--
4	D-CATECHIN	Fruit				--
1	AMYL-FORMATE	Fruit				--
0	I-HEXANOIC-ACID	Plant				--
0	GAMMA-GUANIDINOPROPIONIC-ACID	Stem				--
0	ISOAMYL-BUTYRATE	Fruit				--
0	GALACTARIC-ACID	Plant				--
0	ALPHA-OXOGLUTARIC-ACID	Plant				--
0	TRANS-N-HEX-2-EN-1-OL	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	2,4-METHYLENE-CHOLESTEROL	Pollen Or Spore				--
7	AVICULARIN	Fruit Juice				--
0	ETHYL-DODECANOATE	Plant				--
0	P-COUMARIC-ACID-1	Leaf	0.0	320.0		--
2	POMOLIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	LUTEOXANTHIN	Fruit				--
0	PHLORETIN-2'-XYLOGLYCOSIDE	Fruit Juice				--
1	N-HEXYL-PROPIONATE	Plant				--
0	(Z)-HEX-2-ENAL	Fruit				--
3	METHYL-ACETATE	Plant				--
0	DIPHOSPHATIDYL-GLYCEROL	Fruit	4.0	6.0		--
1	EPSILON-CAROTENE	Plant				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	QUERCETIN-3-O-ALPHA-GALACTOSIDE	Fruit Epidermis				--
0	PHOSPHATIDYL-ETHANOLAMINE	Fruit	101.0	124.0		--
0	L-EPICATECHIN	Fruit				--
1	SPERMINE	Bud				Wang, S. Y., Faust, M. 1994. Changes in Polyamine Content During Dormancy in Flower Buds of 'Anna' Apple. J. Amer. Soc. Hort. Sci., 119(1): 70-73.
3	HEXANOL	Plant				--
102	CAFFEIC-ACID	Fruit Juice				--
9	BENZYL-ACETATE	Plant				--
0	7-HEXANOIC-ACID	Plant				--
7	SUCCINIC-ACID	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	PROPYL-N-PENTANOATE	Plant				--
0	BUTYL-CAPROATE	Plant				--
4	PROCYANIDIN-B-4	Leaf				--
0	PENTYL-BUTYRATE	Plant				--
0	ISOAMYL-BUTYRATE	Plant				--
30	(+)-CATECHIN	Pericarp				--
7	AVICULARIN	Leaf	0.0	1425.0		--
3	GLYCERIC-ACID	Plant				--
0	ARABINOSE	Plant				--
0	VOMIFOLIOL-1-O-BETA-D-XYLOPYRANOSYL-6-O-BETA-D-GLUCOPYRANOSIDE	Plant				--
0	2-PENTANOL	Plant				--
38	(-)-EPICATECHIN	Pericarp				--
0	N-BUTYL-N-HEXANOATE	Plant				--
2	FARNESENE	Fruit Epidermis				--
1	PROCYANIDIN-B-2	Fruit	2.0	10.0		--
0	D-2-METHYLBUTAN-1-OL	Plant				--
0	ALPHA-FARNESENE	Fruit Epidermis				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
30	HYPEROSIDE	Pericarp				--
0	GALACTANASE	Plant				--
0	TRANS-ABSCISIC-ACID	Fruit				--
0	N-PENTYL-2-METHYLBUTYRATE	Plant				--
0	19-HYDROXYURSONIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	AROMADENDRIN-3-O-BETA-D-GLUCOSIDE	Heart Wood				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	METHYL-VINYL-KETONE	Fruit				--
0	ETHYL-DECENOATE	Plant				--
0	N-HEXYL-N-HEXANOATE	Plant				--
87	RUTIN	Fruit Epidermis				--
0	POLYPHENOLASE	Plant				--
0	OCTANE-1,3-DIOL-GLYCOSIDE	Fruit Juice				--
0	OXALOACETIC-ACID	Plant				--
0	I-DECANOIC-ACID	Plant				--
0	GAMMA-GUANIDINOBUTYRIC-ACID	Stem				--
0	N-HEXYL-OCTANOATE	Plant				--
0	VALERALDEHYDE	Fruit				--
0	METHYL-2-XI-ACETOXY-20-BETA-HYDROXY-URSONATE	Fruit Epidermis				--
0	DIHYDROXYTRICARBALLYLIC-ACID	Fruit		1.0		--
40	EPICATECHIN	Pericarp	20.0	80.0		--
0	QUERCETIN-3-O-ALPHA-ARABINOFURANOSIDE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	CAPRYLIC-ESTER	Plant				--
176	QUERCETIN	Heart Wood				--
2	PHOSPHATIDYL-CHOLINE	Fruit	189.0	214.0		--
1	METHYL-AMINE	Fruit		5.6		--
1	SPERMIDINE	Bud				Wang, S. Y., Faust, M. 1994. Changes in Polyamine Content During Dormancy in Flower Buds of 'Anna' Apple. J. Amer. Soc. Hort. Sci., 119(1): 70-73.
0	HEXACOSANOL	Plant				--
20	BENZOIC-ACID	Plant				--
0	ANILINE	Pericarp		1.7		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
9	OXALIC-ACID	Plant				--
0	6-METHYL-HEPTEN-5-EN-2-ONE	Fruit				--
0	PROPYL-FORMATE	Plant				--
0	BUTYL-BUTYRATE	Plant				--
1	PROCYANIDIN-B-2	Fruit Juice				--
0	PENTANOL	Plant				--
30	(+)-CATECHIN	Fruit				--
0	N-ALPHA-ACETYL-ARGININE	Shoot				--
5	GLUTAMINE	Plant		20.0		--
0	ANILINE	Fruit Epidermis		1.7		--
0	2-METHYL-PROPEN-1-AL	Fruit				--
38	(-)-EPICATECHIN	Fruit				--
1	N-BUTYL-FORMATE	Plant				--
0	ETHYL-VALERIANATE	Plant				--
6	ACETALDEHYDE	Fruit				--
0	BUTYL-ACETATE	Plant				--
1	N-HEXYL-PROPIONATE	Fruit				--
7	FUMARIC-ACID	Plant				--
0	ALPHA-AMINO-BUTYRIC-ACID	Plant				--
0	TRANS-2-HEXENOIC-ACID	Plant				--
0	N-PENTENOIC-ACID	Plant				--
0	19-HYDROXYURSOLIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
101	APIGENIN	Heart Wood				--
0	METHYL-PROPIONATE	Plant				--
0	ETHYL-CROTONATE	Plant				--
0	METHYL-VALERATE	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
23	CITRIC-ACID	Plant				--
0	POLYGALACTURONASE	Plant				--
0	OCTANE-1,3-DIOL	Fruit Juice				--
0	I-BUTYL-PROPIOANTE	Plant				--
0	GAMMA-GUANIDINOBUTRAMIDE	Stem				--
2	METHYL-2-METHYL-BUTYRATE	Plant				--
0	DIGALACTOSYL-DIGLYCERIDE	Fruit	49.0	107.0		--
40	EPICATECHIN	Fruit	4.0	11.0		--
0	QUERCETIN-3-O-RUTINOSIDE	Plant				--
0	CAPROIC-ACID-AMYL-ESTER	Plant				--
0	PROCYANIDIN-OLIGOMERS	Fruit				--
8	PHLORIZIN	Plant				--
22	ISOQUERCITRIN	Fruit				--
78	LUTEOLIN	Heart Wood				--
0	ROSEOSIDE	Leaf				Winterhalter, P., Guldner, A., Guldner, A., Jakob, U., Schreier, P. 1994. 3-hydroxy-5,6-epoxy-beta-ionyl-beta-d-glucopyranoside from Malus domestica leaves. Nat. Prod. Lett., 4(1): 57-60.
0	HEPTENOIC-ACID	Plant				--
3	AMYL-BUTYRATE	Fruit				--
0	5,6-EPOXY-10'-APO-5,6-DIHYDRO-BETA-CAROTENE-3,10'-DIOL	Plant		20000.0		--
0	N-HEXANOL	Plant				--