

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in Malus domestica

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
60	CINNAMALDEHYDE	Fruit				--
30	(+)-CATECHIN	Leaf				--
0	ASCORBIDASE	Plant				--
1	ETHYL-NONANOATE	Plant				--
0	3,4-BENZOPYRENE	Fruit				--
0	OCTA-TRANS-3-CIS-5-DIEN-1-OL-ACETATE	Essential Oil				--
7	CYANIDIN	Leaf				--
9	SINAPIC-ACID	Fruit				--
0	HYDROXYCINNAMIC-ACID	Fruit		1340.0		--
0	N-HEPTANOIC-ACID	Plant				--
0	PROPYL-2-METHYLBUTYRATE	Plant				--
1	HEXYL-ACETATE	Fruit				--
0	PECTASE	Plant				--
1	PROCYANIDIN-B-1	Pericarp				--
24	ETHANOL	Plant				--
4	ISOCHLOROGENIC-ACID	Plant				Stitt, Paul. Why George should eat broccoli.
0	2-HEXENAL	Plant				--
0	N-PROPIONIC-ACID	Plant				--
44	QUERCITRIN	Fruit				--
0	GUANIDINOACETIC-ACID	Shoot				--
7	AVICULARIN	Pericarp				--
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.
5	PHYLLOQUINONE	Fruit		0.06	-0.22359887323159108	--
0	OCT-CIS-5-ENE-1,3-DIOL-GLYCOSIDE	Fruit Juice				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	2-(1,1-DIMETHYLETHYL)-CYCLOHECYLACETATE	Fruit				--
62	GALLIC-ACID	Pericarp				--
0	N-NONANOL-2-NONANOL	Plant				--
0	CAFFEETANNIN	Plant				--
1	PYRROLIDINE	Fruit Epidermis		1.5		--
0	GAMMA-METHYL-PROLINE	Plant				--
44	QUERCITRIN	Pericarp				--
0	METHYL-GUANIDINE	Shoot				--
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	PROCYANIDIN-G	Leaf				--
4	METHYL-BENZOATE	Fruit				--
75	KAEMPFEROL	Fruit		2.0	-0.5794291374991353	--
2	BETA-ALANINE	Fruit				--
16	ACETIC-ACID	Plant				--
0	D-L-NONACOSANOL	Plant				--
0	I-PENTYL-I-PENTANOATE	Plant				--
0	1,3,3,-TRIMETHYL-DIOXA-2,7-BICYCLO(2,2,1)HEPTANE	Fruit				--
25	P-COUMARIC-ACID	Leaf				--
0	ETHYL-METHYLBUTYRATE	Plant				--
0	20-HYDROXYURSOLIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	OCTA-TRANS-3-CIS-5-DIEN-1-OL	Essential Oil				--
0	CUTIN	Fruit Epidermis				--
0	N-HEHYL-N-HEXANOATE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	PROPANOL	Plant				--
1	ETHYL-PROPIONATE	Fruit				--
3	MANNOSE	Plant				--
1	PROCYANIDIN-B-1	Leaf				--
0	ISOBUTYL-FORMATE	Plant				--
0	2-HEPTANOL	Plant				--
0	N-PROPANOL	Plant				--
0	QUERCETIN-ARABINOSIDE	Plant				--
6	GUANIDINE	Shoot				--
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	MYO-INOSITOL	Pollen Or Spore		4500.0		--
0	TRANS-ABSCISIC-ACID	Fruit Juice				--
0	JASMONIC-ACID	Fruit				--
0	OCT-CIS-5-ENE-1,3-DIOL	Fruit Juice				--
0	VOMIFOLIOL-1-O-BETA-D-XYLOPYRANOSYL-6-O-BETA-D-GLUCOPYRANOSIDE	Fruit				--
62	GALLIC-ACID	Fruit				--
0	PYROXIDINE	Plant				--
0	GAMMA-GUANIDINOPROPIONIC-ACID	Shoot				--
1	PYRROLIDINE	Pericarp		1.5		--
0	METHYL-FORMATE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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	PHLORETAMIDE	Fruit				--
0	PROCYANIDIN-E	Leaf				--
1	ISOVALERALDEHYDE	Fruit				--
7	INDOLE-3-ACETIC-ACID	Stem Bark				--
0	BENZYL-AMINE	Fruit Epidermis		0.6		--
6	ACETALDEHYDE	Plant				--
0	D-GLUCONIC-ACID	Plant				--
0	I-PENTYL-FORMATE	Plant				--
0	-D-GLUCITOL	Plant				--
0	N-NONANOIC-ACID	Plant				--
0	METHYL-GUANIDINE	Stem				--
2	ETHYL-ISOBUTYRATE	Plant				--
8	LACTIC-ACID	Plant				--
0	2-PROPANOL	Plant				--
0	OCTA-CIS-3-CIS-5-DIEN-1-OL-ACETATE	Essential Oil				--
0	CREATINE	Shoot				--
1	HEXYL-FORMATE	Plant				--
0	N-DECANOL	Plant				--
2	ETHYL-ISOBUTYRATE	Fruit				--
1	PROCYANIDIN-B-1	Fruit Juice				--
0	TETRADECYL-ACETATE	Leaf				--
12	ESTRAGOLE	Essential Oil				--
0	ISOBUTYL-BUTYRATE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	2-BUTANOL	Plant				--
0	N-PENTYL-OCTANOATE	Plant				--
1	CATALASE	Plant				--
4	QUERCETIN-3-RHAMNOGLUCOSIDE	Plant				--
1	GLYOXYLIC-ACID	Plant				--
0	METHYL-2-XI-ACETOXY-20-BETA-HYDROXY-URSONATE	Pericarp				--
0	N-ALPHA-ACETYL-L-ARGININE	Stem				--
8	INOSITOL	Plant				--
0	N-1-N-5-N-10-TRI-TRANS-4-COUMAROYL-SPERMIDINE	Flower				--
89	URSOLIC-ACID	Pericarp				--
2	FRIEDELIN	Heart Wood				--
0	GAMMA-GUANIDINOBUTYRIC-ACID	Shoot				--
0	PROPYL-BUTYRATE	Fruit				--
2	METHYL-CAPROATE	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.
0	PROCYANIDIN-D-1	Leaf				--
4	ISOPROPYL-ACETATE	Fruit				--
7	INDOLE-3-ACETIC-ACID	Leaf				--
0	ABSCISIC-ACID	Fruit				--
0	I-PENTANOL	Plant				--
0	N-METHYL-PHENETHYLAMINE	Fruit		1.2		--
0	BUTYL-VALERIANATE	Plant				--
30	HYPEROSIDE	Heart Wood				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
0	ETHYL-HEXANOATE	Plant				--
0	L-QUINIC-ACID	Plant				--
0	2-PHENETHYLACETATE	Plant				--
0	OCTA-CIS-3-CIS-5-DIEN-1-OL	Essential Oil				--
0	COUMARIC-ACID	Plant				--
14	SHIKIMIC-ACID	Plant				--
1	HEXYL-BUTYRATE	Plant				--
0	N-COUMARYL-QUINIC-ACID	Plant				--
27	PROCYANIDINS	Leaf				--
6	ETHYL-ACETATE	Fruit				--
0	MALVIDIN-MONOGLYCOSIDE	Plant				--
1	PROCYANIDIN-B-1	Fruit				--
0	TETRADECENYL-ACETATE	Leaf				--
0	BUTANAL	Fruit				--
0	ALPHA-OXOGLUTARIC-ACID	Plant				--
3	ISOBUTYL-ACETATE	Plant				--
0	2,4-METHYLENE-CHOLESTEROL	Pollen Or Spore				--
0	N-PENTYL-FORMATE	Plant				--
0	QUERCETIN-3-O-XYLOSIDE	Fruit Epidermis				--
4	GLYCOLIC-ACID	Plant				--
2	REYNOUSTRIN	Fruit Juice				--
0	N-ALPHA-ACETYL-L-ARGININE	Shoot				--
0	PHOSPHATIDYL-SERINE	Fruit		4.0		--
89	URSOLIC-ACID	Wax				--
1	PHLORETIN-GLUCOSIDE	Fruit		1.0		--
22	ISOQUERCITRIN	Pericarp				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CREATINE	Stem				--
0	GAMMA-GUANIDINOBUTRAMIDE	Shoot				--
0	PHLORETIN-4'-O-BETA-D-GLUCOPYRANOSIDE	Leaf		6486.0		--
2	METHYL-BUTYRATE	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	PROCYANIDIN-C-1	Pericarp				--
2	ISOAMYL-ACETATE	Fruit				--
0	AMMONIA	Fruit		235.0	-1.0	--
9	BENZYL-ACETATE	Plant				--
0	7-HEXANOIC-ACID	Plant				--
4	D-CATECHIN	Fruit				--
0	I-PENTANOIC-ACID	Plant				--
0	N-METHYL-PHENETHYLAMINE	Exocarp		1.3		--
0	BUTYL-PROPIONATE	Plant				--
43	PROTocatechuic-acid	Fruit				--
0	ARABINOSE	Plant				--
0	ETHYL-DODECANOATE	Plant				--
0	L-MALIC-ACID	Plant				--
0	2-PENTANOL	Plant				--
0	NONENOIC-ACID	Plant				--
1	HEXYL-ACETATE	Plant				--
1	N-BUTYL-PROPIONATE	Fruit				--
1	N-BUTYL-PROPIONATE	Plant				--
13	P-HYDROXY-BENZOIC-ACID	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
17	PROCYANIDIN-A-2	Leaf				--
0	BUTAN-2-ONE	Fruit				--
30	HYPEROSIDE	Fruit Juice				--
0	ISOAMYL-PROPIONATE	Plant				--
0	19-HYDROXYURSONIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	N-PENTYL-DECANOATE	Plant				--
1	QUERCETIN-3-O-RHAMNOSIDE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	QUERCETIN-3-O-RUTINOSIDE	Plant				--
1	L-ARGININE	Stem				--
87	RUTIN	Fruit				--
0	PHENYLBENZOATE	Fruit				--
3	ISOQUERCETIN	Fruit Juice				--
0	PROPYL-ACETATE	Fruit				--
4	COSMOIIN	Heart Wood				--
2	METHYL-BUTYRATE	Fruit				--
1	METHYL-AMINE	Fruit Epidermis		4.5		--
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.
0	PEROXIDASE	Plant				--
0	PROCYANIDIN-C-1	Leaf				--
3	TRIACONTANOL	Plant				--
5	HEXANAL	Fruit				--
0	(+)-EPICATECHIN	Fruit				--
20	BENZOIC-ACID	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	FARNESENE	Fruit Epidermis				--
0	LUTEOXANTHIN	Fruit				--
0	6-METHYL-HEPTEN-5-EN-2-ONE	Fruit				--
0	D-2-METHYLBUTAN-1-OL	Plant				--
0	I-HEXANOIC-ACID	Plant				--
0	N-METHYL-BETA-PHENETHYLAMINE	Fruit		1.2		--
0	BUTYL-CAPROATE	Plant				--
0	GALACTARIC-ACID	Plant				--
0	ANILINE	Fruit Epidermis		1.7		--
0	ETHYL-DECENOATE	Plant				--
0	L-EPICATECHIN	Fruit				--
0	2-METHYL-PROPEN-1-AL	Fruit				--
2	NONACOSANE	Plant				--
3	HEXANOL	Plant				--
0	AMMONIA	Pericarp		1029.0		--
0	N-BUTYL-OCTANOATE	Plant				--
0	POMONIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	BUTYL-ACETATE	Fruit				--
0	P-COUMARYL-QUINIC-ACID	Fruit				--
8	PHLORIZIN	Pericarp				--
0	GUANIDINOACETIC-ACID	Stem				--
0	ALPHA-AMINO-BUTYRIC-ACID	Plant				--
0	DIHYDROXYTRICARBALLYLIC-ACID	Fruit		1.0		--
0	ISOAMYL-BUTYRATE	Plant				--
0	19-HYDROXYURSOLIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	N-PENTYL-AMINE	Fruit		0.3	-0.9999999999999999	--
0	CAPRYLIC-ESTER	Plant				--
2	QUERCETIN-3-O-BETA-D-GLUCOSIDE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
3	GLYCERIC-ACID	Plant				--
0	N-METHYL-PHENETHYLAMINE	Pericarp		1.3		--
1	L-ARGININE	Shoot				--
87	RUTIN	Fruit Juice				--
3	XYLOSE	Plant				--
0	PENTAN-2-ONE	Fruit				--
47	BETA-SITOSTEROL	Heart Wood				--
77	CHLOROGENIC-ACID	Pt				--
0	BUTYL-ACETATE	Plant				--
3	METHYL-ACETATE	Plant				--
4	TIN	Fruit		0.0	-0.3771396188984718	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	PENTYL-HEXANOATE	Plant				--
0	PROCYANIDIN-C-1	Fruit Juice				--
0	TRANS-N-HEX-3-EN-1-OL	Plant				--
1	ETHYL-VALERATE	Fruit				--
30	(+)-CATECHIN	Bark				--
0	ETHYL-VALERIANATE	Plant				--
0	5,6-EPOXY-10'-APO-5,6-DIHYDRO-BETA-CAROTENE-3,10'-DIOL	Plant		20000.0		--
0	I-DECANOIC-ACID	Plant				--
1	N-HEXYL-PROPIONATE	Plant				--
0	BUTYL-BUTYRATE	Plant				--
0	PROPYL-PROPIONATE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	GALACTANASE	Plant				--
22	ISOQUERCITRIN	Fruit Juice				--
0	ANILINE	Fruit		1.5		--
0	ETHYL-CROTONATE	Plant				--
0	KILOCALORIES	Fruit		3419.0	-0.36687576531452953	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	2-METHYL-PENTAN-2-OL	Plant				--
23	CITRIC-ACID	Plant				--
60	SELENIUM	Fruit		0.0	-0.38618723699673646	--
0	HEXACOSANOL	Plant				--
1	METHYL-AMINE	Pericarp		4.5		--
0	N-BUTYL-N-HEXANOATE	Plant				--
2	POMOLIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	BENZYL-AMINE	Pericarp		0.6		--
2	PROPIONALDEHYDE	Fruit				--
8	PHLORIDZIN	Fruit Juice				--
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.
6	GUANIDINE	Stem				--
0	1-OCTYL-ACETATE	Plant				--
0	N-PENTYL-2-METHYLBUTYRATE	Plant				--
0	CAPROIC-ACID-AMYL-ESTER	Plant				--
0	QUERCETIN-3-O-ALPHA-GALACTOSIDE	Fruit Epidermis				--
5	GLUTAMINE	Plant		20.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
2	FARNESENE	Pericarp				--
0	METHYL-VINYL-KETONE	Fruit				--
0	CIS-2,TRANS-4-ABSCISIC-ACID	Stem Bark				--
2	REYNOUSTRIN	Pericarp				--
0	3-HYDROXYPHLORIDZIN	Fruit Juice				--
77	CHLOROGENIC-ACID	Seed				--
0	BUTANOL	Plant				--
0	ALPHA-ALANINE	Fruit				--
0	PENTYL-BUTYRATE	Plant				--
0	PROCYANIDIN-C-1	Fruit				--
0	TRANS-N-HEX-2-EN-1-OL	Plant				--
1	ETHYL-FORMATE	Fruit				--
30	(+)-CATECHIN	Seed				--
7	AVICULARIN	Fruit				--
1	ETHYL-PROPIONATE	Plant				--
0	4-HYDROXYMETHYLPROLINE	Plant				--
9	OXALIC-ACID	Plant				--
0	CYANIDIN-7-ARABINOSIDE	Plant				--
0	I-BUTYL-PROPIOANTE	Plant				--
0	N-HEXYL-OCTANOATE	Plant				--
0	PROPYL-N-PENTANOATE	Plant				--
7	FUMARIC-ACID	Plant				--
0	ISOAMYL-BUTYRATE	Fruit				--
0	METHYL-2-XI-ACETOXY-20-BETA-HYDROXY-URSONATE	Fruit Epidermis				--
0	AMYL-PROPIONATE	Plant				--
0	ETHYL-CAPROATE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
22	ISOQUERCITRIN	Fruit				--
0	2-METHYL-BUTAN-2-OL	Plant				--
0	CITRAMALIC-ACID	Plant				--
87	RUTIN	Fruit Epidermis				--
0	HEPTENOIC-ACID	Plant				--
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.
1	N-BUTYL-FORMATE	Plant				--
0	POLYPHENOLASE	Plant				--
0	OXALOACETIC-ACID	Plant				--
0	PHLORETIN-XYLOSIDE	Fruit Juice				--
7	SUCCINIC-ACID	Plant				--
1	AMYL-FORMATE	Fruit				--
0	GIBBERELLIN-A-62	Seed				--
2	DIETHYL-AMINE	Fruit		3.0		--
12	IODINE	Plant				--
0	1-NONYL-ACETATE	Plant				--
0	N-PENTENOIC-ACID	Plant				--
0	CAPROALDEHYDE	Plant				--
0	QUERCETIN-3-O-ALPHA-ARABINOFURANOSIDE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	METHYL-PROPIONATE	Plant				--
7	AVICULARIN	Fruit Juice				--
44	QUERCITRIN	Fruit Juice				--
0	VOMIFOLIOL-1-O-BETA-D-XYLOPYRANOSYL-6-O-BETA-D-GLUCOPYRANOSIDE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	1-MONOOLEIN	Seed				--
77	CHLOROGENIC-ACID	Fruit Juice				--
0	BROMINE	Fruit		1.0	-0.42563543443835	ACTA AGRIC SCAND SUPPL 22: 1980
0	PENTANOL	Plant				--
0	PROCYANIDIN-B-5	Leaf				--
0	TRANS-ABSCISIC-ACID	Fruit				--
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.
30	(+)-CATECHIN	Pt				--
0	ETHYL-PHENACETATE	Plant				--
0	3-PENTANOL	Plant				--
0	CYANIDIN-3-GALACTOSIDE	Plant				--
0	I-BUTYL-OCTANOATE	Plant				--
0	N-HEXANOL	Plant				--
0	PROPYL-FORMATE	Plant				--
30	HYPEROSIDE	Pericarp				--
2	METHYL-2-METHYL-BUTYRATE	Plant				--
0	(Z)-HEX-2-ENAL	Fruit				--
3	AMYL-BUTYRATE	Plant				--
1	ETHYL-BUTYRATE	Plant				--
0	ISOPROPYL-BUTYRATE	Plant				--
0	2-METHYL-BUT-3-EN-1-OL	Fruit				--
0	CIS-N-HEX-3-EN-1-OL	Plant				--
0	HEPTACOSANE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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	N-BUTYL-DECANOATE	Plant				--
38	(-)-EPICATECHIN	Pericarp				--
0	POLYGALACTURONASE	Plant				--
0	ANILINE	Pericarp		1.7		--
0	PHLORETIN-2'-XYLOGLUCOSIDE	Fruit Juice				--
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.
0	GAMMA-GUANIDINOPROPIONIC-ACID	Stem				--
7	INDOLE-3-ACETIC-ACID	Plant				Stitt, Paul. Why George should eat broccoli.
0	1-MONO-LINOLEIN	Seed				--
0	N-PENTANOIC-ACID	Plant				--
4	CALCIUM-OXALATE	Plant				--
0	QUERCETIN-3-O-RUTINOSIDE	Plant				--
0	N-ALPHA-ACETYL-ARGININE	Shoot				--
0	METHYL-N-PENTANOATE	Plant				--
0	AROMADENDRIN-3-O-BETA-D-GLUCOSIDE	Heart Wood				--
8	PHLORIZIN	Plant				--
0	N-HEXYL-N-HEXANOATE	Plant				--
34	MYRICETIN	Fruit		0.5	-0.7536633445071549	--
102	CAFFEIC-ACID	Fruit Juice				--
11	ADENINE	Root				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	DIASTASE	Plant				--
0	TRANS-2-HEXENOIC-ACID	Plant				--
30	(+)-CATECHIN	Pericarp				--
2	ASPARAGINE	Fruit		171.0	-0.825458790451801	--
0	ETHYL-PENTANOATE	Plant				--
0	3-HYDROXY-OCTYL-BETA-D-GLUCOSIDE	Fruit				--
0	OCTENOIC-ACID	Plant				--
0	CYANIDIN-3-ARABINOSIDE	Plant				--
30	HYPEROSIDE	Fruit				--
0	N-HEX-1-EN-3-OL	Plant				--
0	PROPYL-BUTYRATE	Plant				--
0	FR	Plant				--
1	N-HEXYL-PROPIONATE	Fruit				--
0	VALERALDEHYDE	Fruit				--
0	PECTIN-DEMETHOXYXYLASE	Plant				--
4	PROCYANIDIN-B-4	Leaf				--
0	AMYL-ACETATE	Plant				--
0	ETHYL-AMINE	Fruit		3.0		--
0	2-METHYL-BUT-2-EN-1-AL	Fruit				--
2	NEOXANTHIN	Fruit Epidermis				--
0	CIS-2,TRANS-4-ABSCISIC-ACID	Bark				--
15	RIBOFLAVIN	Fruit		1.3	-0.7944081953947483	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	HEMICELLULOSE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
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 <i>Malus domestica</i> leaves. <i>Nat. Prod. Lett.</i> , 4(1): 57-60.
0	N-BUTANOL	Plant				--
38	(-)-EPICATECHIN	Fruit				--
0	POLYGALACTOSYL-DIGLYCERIDE	Plant				--
3	AMYL-BUTYRATE	Fruit				--
0	OCTANE-1,3-DIOL-GLYCOSIDE	Fruit Juice				--
6	ACETALDEHYDE	Fruit				--
0	GAMMA-GUANIDINOBTYRIC-ACID	Stem				--
0	IDAEIN	Plant				--
0	1-DECYL-ACETATE	Plant				--
0	N-OCTANONE	Plant				--
8	PHLORIZIN	Leaf				--
0	METHYL-I-PENTANOATE	Plant				--
101	APIGENIN	Heart Wood				--
176	QUERCETIN	Heart Wood				--
0	METHYL-VALERATE	Fruit				--
1	METHYL-AMINE	Fruit		5.6		--
4	BIOTIN	Plant				--
3	ACETONE	Plant				--
0	DEHYDROASCORBIC-ACID	Plant				--
30	(+)-CATECHIN	Fruit				--
0	ETHYL-OCTANOATE	Plant				--
20	LECITHIN	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	3-BETA-19-ALPHA-DIHYDROXY-2-OXO-URS-12-EN-28-OIC-ACID	Wood		1000.0		--
6	OCTACOSANOL	Plant				--
0	CYANIDIN-3,5-DIGLUCOSIDE	Cotyledon				--
14	HYPERIN	Plant				--
0	N-HEPTANOL	Plant				--
0	PROPYL-ACETATE	Plant				--
13	FORMIC-ACID	Plant				--
1	HEXYL-BUTYRATE	Fruit				--
2	METHANOL	Plant				--
1	PROCYANIDIN-B-2	Fruit Juice				--
6	ETHYL-ACETATE	Plant				--
0	ISOCITRIC-ACID	Plant				--
0	2-METHYL-2,3-EPOXY-PENTANE	Fruit				--
2	NEO-CHLOROGENIC-ACID	Plant				--
2	REYNOUTRIN	Fruit				--
0	GUANIDINOSUCCINIC-ACID	Shoot				--
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	N-ALPHA-ACETYL-AGGININE	Shoot				--
38	(-)-EPICATECHIN	Fruit Juice				--
0	PIPECOLINIC-ACID	Plant				--
0	AMYL-ACETATE	Fruit				--
0	OCTANE-1,3-DIOL	Fruit Juice				--
11	SORBITOL	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
0	GAMMA-GUANIDINOBTURAMIDE	Stem				--
0	1-BUTANOL	Plant				--
0	N-OCTANOL-2-OCTANOL	Plant				--
1	PYRUVIC-ACID	Plant				--
35	GERANIOL	Plant				--
87	RUTIN	Pericarp				--
0	METHYL-HEXANOATE	Plant				--
0	ABSCISIC-ACID	Fruit Juice				--
0	PHLORETIN-4'-O-BETA-D-GLUCOPYRANOSIDE	Fruit		6486.0		--
0	PROCYANIDIN-OLIGOMERS	Fruit				--
89	URSOLIC-ACID	Fruit Epidermis				--
0	METHYL-NONAN-3-ONE	Fruit				--
78	LUTEOLIN	Heart Wood				--
0	ACETIC-ACID-AMYL-ESTER	Plant				--
0	DECENOIC-ACID	Plant				--
0	I-PROPANOL	Plant				--
1	MERCURY	Fruit	0.0	0.02	0.10095423065636192	--
87	RUTIN	Leaf	0.0	8885.0	-0.45294433702030634	--
21	CHLOROPHYLL	Fruit	0.0	1.0	-0.9710352631864654	--
1	SODIUM	Fruit	0.0	133.0	-0.1713385458263085	--
4	SILICON	Fruit	0.0	70.0	-0.3810148443665756	--
14	MANGANESE	Fruit	0.0	29.0	-0.2123152729972876	--
0	CAROTENOIDS	Plant	0.0	126.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
77	ZINC	Fruit	0.0	35.0	0.1413570623516533	--
0	P-COUMARIC-ACID-2	Leaf	0.0	185.0		--
7	AVICULARIN	Leaf	0.0	1425.0		--
0	P-COUMARIC-ACID-1	Leaf	0.0	320.0		--
53	BETA-CAROTENE	Fruit	0.0	76.0	-0.0038939984397263717	--
2	ARSENIC	Fruit	0.001	0.43	0.014133429185321438	--
0	LEAD	Fruit	0.002	64.0	3.294104898397132	--
3	CADMIUM	Fruit	0.002	0.026	-0.5672128851607269	--
3	NICKEL	Fruit	0.004	0.645	-0.5833033975627046	--
2	COBALT	Fruit	0.005	0.043	-0.5299096696083117	--
24	CHROMIUM	Fruit	0.005	0.3	-0.4654957769727276	--
3	SILVER	Fruit	0.011	0.086	-0.4995614833070808	--
15	FOLACIN	Fruit	0.02	0.2	-0.7547576455042277	USDA's Ag Handbook 8 and sequelae)
11	LITHIUM	Fruit	0.044	0.172	-0.8448748858580687	--
0	TITANIUM	Fruit	0.055	3.0	-0.6858409400678522	--
2	MOLYBDENUM	Fruit	0.077	0.43	-0.3990584824882058	--
8	ESTRONE	Seed	0.1	0.13	-1.0000000000000002	--
0	FLUORINE	Fruit	0.1	2.1	0.7378739376517985	ACTA AGRIC SCAND SUPPL 22: 1980
0	STRONTIUM	Fruit	0.165	8.6	-0.9690625512009637	--
0	ZIRCONIUM	Fruit	0.22	0.86	-0.546541741871023	--
0	BARIUM	Fruit	0.22	8.6	-0.8622422515184034	--
12	COPPER	Fruit	0.24	4.0	-0.6863742487163819	--
0	RUBIDIUM	Fruit	0.27	10.0	-0.6798204139542442	ACTA AGRIC SCAND SUPPL 22: 1980
0	BENZYL-AMINE	Fruit	0.3	3.0		--
5	ALUMINUM	Fruit	0.4	129.0	-0.18599251654737567	--
15	LUTEIN	Fruit	0.4	5.0	-0.4027761600563295	--
7	SALICYLATES	Fruit	0.8	60.0	-0.16469419114376535	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
11	PANTOTHENIC-ACID	Fruit	1.0	4.0	-0.8996713902808875	USDA's Ag Handbook 8 and sequelae)
31	THIAMIN	Fruit	1.0	2.0	-0.4266044741562528	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
39	NIACIN	Fruit	1.0	7.0	-0.7178505836876389	--
0	VIT-B-6	Fruit	1.0	3.0	-0.8751338727185397	--
4	BORON	Fruit	1.0	110.0	1.410811087811246	--
0	PHLORETIN-XYLOGLUCOSIDE	Fruit	1.0	3.0		--
6	IRON	Fruit	1.1	123.0	-0.039580333705947705	--
14	SULFUR	Fruit	1.65	23.0	-0.9685087927350676	--
32	ALPHA-TOCOPHEROL	Fruit	2.0	37.0	-0.5521025162177928	--
1	PROCYANIDIN-B-2	Fruit	2.0	10.0		--
176	QUERCETIN	Fruit	2.5	41.0	-0.582618968173555	--
0	PHOSPHATIDYLIC-ACID	Fruit	3.0	6.0		--
61	FERULIC-ACID	Fruit	4.0	95.0	1.7162326606420661	--
0	DIPHOSPHATIDYL-GLYCEROL	Fruit	4.0	6.0		--
40	EPICATECHIN	Fruit	4.0	11.0		--
77	CHLOROGENIC-ACID	Fruit	5.0	15.0	-1.0935971883111022	--
0	URONIC-ACID	Fruit	7.0	1440.0		--
0	PHLORETIN-XYLOGLUCOSIDE	Pericarp	7.0	27.0		--
77	CHLOROGENIC-ACID	Pericarp	8.0	18.0		--
0	PHOSPHATIDYL-GLYCEROL	Fruit	8.0	27.0		--
0	QUERCETIN-XYLOSIDE	Pericarp	9.0	19.0		--
0	QUERCETIN-GLUCOSIDE	Pericarp	9.0	20.0		--
7	LAURIC-ACID	Fruit	10.0	63.0	-0.44474745342800637	--
2	PALMITOLEIC-ACID	Fruit	10.0	62.0	-0.3340992517515945	--

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.)
1	PHLORETIN-GLUCOSIDE	Pericarp	10.0	15.0		--
0	MONOGALACTOSYL-DIGLYCERIDE	Plant	12.0	42.0		--
0	D-GALACTURONIC-ACID	Plant	13.0	54.0		--
25	P-COUMARIC-ACID	Fruit	15.0	460.0	1.836295249622603	--
1	PROCYANIDIN-B-2	Pericarp	15.0	100.0		--
0	QUERCETIN-ARABINOSIDE	Pericarp	18.0	37.0		--
0	QUERCETIN-3-RHAMNOSIDE	Pericarp	19.0	39.0		--
6	MYRISTIC-ACID	Fruit	20.0	124.0	-0.26329389964394695	--
112	ASCORBIC-ACID	Fruit	20.0	402.0	-0.2594938543964892	--
0	PROLINE	Plant	20.0	435.0	-1.0472597877182985	--
29	TRYPTOPHAN	Fruit	20.0	124.0	-1.0195295627538696	--
4	LYSINE	Fruit	20.0	746.0	-0.8724121045963826	--
40	EPICATECHIN	Pericarp	20.0	80.0		--
15	METHIONINE	Plant	20.0	124.0	-0.9578509469925256	--
0	EO	Fruit	25.0	35.0	-0.8192816022307305	--
0	QUERCETIN-GALACTOSIDE	Pericarp	28.0	60.0		--
4	THREONINE	Fruit	30.0	435.0	-1.0736073129874002	--
7	HISTIDINE	Fruit	30.0	187.0	-1.0696353953245137	--
0	MEVALONIC-ACID	Fruit	30.0	36.0	1.9898059802462824	--
2	CYSTINE	Plant	30.0	187.0	-1.078139109591067	--
0	GLUCOCEREBROSIDE	Plant	34.0	49.0		--
8	TYROSINE	Fruit	40.0	249.0	-0.8990776765345502	--
3	VALINE	Fruit	40.0	560.0	-0.8032333881374735	--
28	CALCIUM	Fruit	43.0	570.0	-0.75834467805693	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	TRIGLYCERIDE	Plant	45.0	50.0		--
65	MAGNESIUM	Fruit	48.0	478.0	-0.7648501234386748	--
0	DIGALACTOSYL-DIGLYCERIDE	Fruit	49.0	107.0		--
7	PHENYLALANINE	Fruit	50.0	311.0	-1.0455516744717288	--
3	ISOLEUCINE	Fruit	50.0	497.0	-0.9433250929721118	--
0	PHOSPHATIDYL-INOSITOL	Fruit	53.0	59.0		--
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).
14	ARGININE	Fruit	60.0	373.0	-1.0500818434124615	USDA's Ag Handbook 8 and sequelae)
4	PHOSPHORUS	Fruit	68.0	925.0	-0.6958662309301713	--
3	ALANINE	Fruit	70.0	435.0	-1.2861845168681025	USDA's Ag Handbook 8 and sequelae)
8	STEARIC-ACID	Fruit	70.0	435.0	-0.25037310927026857	--
12	GLYCINE	Plant	80.0	497.0	-0.8208359653564842	--
1	SERINE	Fruit	80.0	497.0	-1.1107007920496865	USDA's Ag Handbook 8 and sequelae)
102	CAFFEIC-ACID	Fruit	85.0	1270.0	-0.10378621224302456	--
20	BENZOIC-ACID	Leaf	98.0	710.0	1.3479809099758226	--
77	CHLOROGENIC-ACID	Leaf	100.0	1200.0	-1.3240006985895736	--
0	PHOSPHATIDYL-ETHANOLAMINE	Fruit	101.0	124.0		--
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.)
2	PHYTOSTEROLS	Fruit	120.0	745.0	-0.2581394518581099	USDA's Ag Handbook 8 and sequelae)
2	LEUCINE	Fruit	120.0	746.0	-0.9258535515942413	--
18	OLEIC-ACID	Fruit	140.0	871.0	-0.4740320725940964	--
13	MUFA	Fruit	150.0	935.0	-0.24039423421132997	USDA's Ag Handbook 8 and sequelae)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
38	(-)-EPICATECHIN	Leaf	150.0	900.0	-0.6820874109972213	--
1	PROCYANIDIN-B-2	Leaf	150.0	900.0	0.9999999999999998	--
8	GLUTAMIC-ACID	Fruit	156.0	1244.0	-0.9333642189445454	--
15	ALPHA-LINOLENIC-ACID	Fruit	180.0	1120.0	-0.6452626880371877	--
2	PHOSPHATIDYL-CHOLINE	Fruit	189.0	214.0		--
3	ASPARTIC-ACID	Fruit	210.0	2115.0	-1.056731649443471	USDA's Ag Handbook 8 and sequelae)
0	AMMONIA(NH3)	Fruit Epidermis	235.0	1029.0		--
0	NITROGEN	Fruit	280.0	4000.0	-0.7448119387296798	ACTA AGRIC SCAND SUPPL 22: 1980
9	PHLORETIN	Leaf	300.0	11000.0		--
13	PALMITIC-ACID	Fruit	480.0	2986.0	-0.31904990505316816	--
0	SFA	Fruit	580.0	3610.0	-0.29989489934752117	USDA's Ag Handbook 8 and sequelae)
44	QUERCITRIN	Leaf	600.0	9015.0	1.7298124819748746	--
0	PHYTATE	Fruit	630.0	4040.0	-0.2108482779177121	--
0	LINOLENIC-ACID	Fruit	870.0	5411.0	-0.1866295815550338	--
4	PUFA	Fruit	1050.0	6535.0	-0.3716987814442892	USDA's Ag Handbook 8 and sequelae)
0	PHENOLICS	Plant	1100.0	3400.0	-1.0	--
14	POTASSIUM	Fruit	1110.0	12140.0	-0.5110685274797335	--
24	PECTIN	Fruit	1400.0	66585.0	0.16029071562128944	--
0	PROTEIN	Fruit	1870.0	12800.0	-1.2962859772396575	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	ASH	Fruit	2300.0	43000.0	-0.3538278176314037	--
0	FAT	Fruit	3210.0	34200.0	-0.3800352407430785	--
15	FIBER	Fruit	5200.0	49636.0	-0.8685372806832163	USDA's Ag Handbook 8 and sequelae)
8	AMYGDALIN	Seed	6000.0	13800.0	-0.8422024808761887	--
7	GLUCOSE	Fruit	17200.0	18200.0	-0.7019443383136035	--
14	SUCROSE	Fruit	24000.0	36200.0	-0.49014841841433165	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
8	FRUCTOSE	Fruit	50100.0	60800.0	0.04916971831634761	--
8	PHLORIDZIN	Leaf	54000.0	140000.0	1.0	--
0	SUGAR	Fruit	60100.0	166000.0	-0.15008461399428302	--
0	CARBOHYDRATES	Fruit	152250.0	948550.0	0.8859136568099041	--
0	FAT	Seed	180000.0	230000.0	-0.1863991011784708	--
0	WATER	Fruit	809000.0	896000.0	0.5453564376102144	--