

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in *Malus domestica*

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ARABINOSE	Plant				--
0	VOMIFOLIOL-1-O-BETA-D-XYLOPYRANOSYL-6-O-BETA-D-GLUCOPYRANOSIDE	Plant				--
0	NITROGEN	Fruit	280.0	4000.0	-0.7448119387296798	ACTA AGRIC SCAND SUPPL 22: 1980
0	2-PENTANOL	Plant				--
0	N-BUTYL-N-HEXANOATE	Plant				--
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.
0	PROPYL-N-PENTANOATE	Plant				--
0	BUTYL-CAPROATE	Plant				--
0	PENTYL-BUTYRATE	Plant				--
0	ISOAMYL-BUTYRATE	Plant				--
0	AROMADENDRIN-3-O-BETA-D-GLUCOSIDE	Heart Wood				--
0	METHYL-VINYL-KETONE	Fruit				--
0	ETHYL-DECENOATE	Plant				--
0	N-HEXYL-N-HEXANOATE	Plant				--
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	GALACTANASE	Plant				--
0	TRANS-ABSCISIC-ACID	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	N-PENTYL-2-METHYLBUTYRATE	Plant				--
0	19-HYDROXYURSONIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	KILOCALORIES	Fruit		3419.0	-0.36687576531452953	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	HEXACOSANOL	Plant				--
0	ANILINE	Pericarp		1.7		--
0	6-METHYL-HEPTEN-5-EN-2-ONE	Fruit				--
0	STRONTIUM	Fruit	0.165	8.6	-0.9690625512009637	--
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		--
0	QUERCETIN-3-O-ALPHA-ARABINOFURANOSIDE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	CAPRYLIC-ESTER	Plant				--
0	ANILINE	Fruit Epidermis		1.7		--
0	VIT-B-6	Fruit	1.0	3.0	-0.8751338727185397	--
0	2-METHYL-PROPEN-1-AL	Fruit				--
0	ETHYL-VALERIANATE	Plant				--
0	PROPYL-FORMATE	Plant				--
0	BUTYL-BUTYRATE	Plant				--
0	PENTANOL	Plant				--
0	N-ALPHA-ACETYL-ARGININE	Shoot				--
0	METHYL-PROPIONATE	Plant				--
0	ETHYL-CROTONATE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	METHYL-VALERATE	Fruit				--
0	RUBIDIUM	Fruit	0.27	10.0	-0.6798204139542442	ACTA AGRIC SCAND SUPPL 22: 1980
0	POLYGALACTURONASE	Plant				--
0	OCTANE-1,3-DIOL	Fruit Juice				--
0	I-BUTYL-PROPIOANTE	Plant				--
0	GAMMA-GUANIDINOBUTRAMIDE	Stem				--
0	BUTYL-ACETATE	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.Plis Containing 2ndary Metabolite. 1991.
0	PROCYANIDIN-OLIGOMERS	Fruit				--
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				--
0	BARIUM	Fruit	0.22	8.6	-0.8622422515184034	--
0	5,6-EPOXY-10'-APO-5,6-DIHYDRO-BETA-CAROTENE-3,10'-DIOL	Plant		20000.0		--
0	N-HEXANOL	Plant				--
0	DIGALACTOSYL-DIGLYCERIDE	Fruit	49.0	107.0		--
0	QUERCETIN-3-O-RUTINOSIDE	Plant				--
0	CAPROIC-ACID-AMYL-ESTER	Plant				--
0	ANILINE	Fruit		1.5		--
0	2-METHYL-PENTAN-2-OL	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	N-BUTYL-DECANOATE	Plant				--
0	PHYTATE	Fruit	630.0	4040.0	-0.2108482779177121	--
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.
0	PROPYL-BUTYRATE	Plant				--
0	PECTIN-DEMETHOXYXYLASE	Plant				--
0	ETHYL-CAPROATE	Plant				--
0	METHYL-NONAN-3-ONE	Fruit				--
0	CITRAMALIC-ACID	Plant				--
0	POLYGALACTOSYL-DIGLYCERIDE	Plant				--
0	LINOLENIC-ACID	Fruit	870.0	5411.0	-0.1866295815550338	--
0	OCT-CIS-5-ENE-1,3-DIOL-GLYCOSIDE	Fruit Juice				--
0	I-BUTYL-OCTANOATE	Plant				--
0	BUTANOL	Plant				--
0	ALPHA-ALANINE	Fruit				--
0	TITANIUM	Fruit	0.055	3.0	-0.6858409400678522	--
0	N-PENTANOIC-ACID	Plant				--
0	1-OCTYL-ACETATE	Plant				--
0	ABSCISIC-ACID	Fruit Juice				--
0	METHYL-N-PENTANOATE	Plant				--
0	PHLORETIN-XYLOGLUCOSIDE	Fruit	1.0	3.0		--
0	ISOPROPYL-BUTYRATE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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				--
0	AMYL-ACETATE	Fruit				--
0	OCTENOIC-ACID	Plant				--
0	4-HYDROXYMETHYLPROLINE	Plant				--
0	N-HEX-1-EN-3-OL	Plant				--
0	CAPROALDEHYDE	Plant				--
0	PROCYANIDIN-G	Leaf				--
0	AMYL-PROPIONATE	Plant				--
0	2-METHYL-BUTAN-2-OL	Plant				--
0	N-BUTANOL	Plant				--
0	ETHYL-PHENACETATE	Plant				--
0	CYANIDIN-3-GALACTOSIDE	Plant				--
0	2-(1,1-DIMETHYLETHYL)-CYCLOHECYLACETATE	Fruit				--
0	PROPYL-ACETATE	Plant				--
0	CIS-N-HEX-3-EN-1-OL	Plant				--
0	PIPECOLINIC-ACID	Plant				--
0	OCT-CIS-5-ENE-1,3-DIOL	Fruit Juice				--
0	BROMINE	Fruit		1.0	-0.42563543443835	ACTA AGRIC SCAND SUPPL 22: 1980
0	FR	Plant				--
0	N-OCTANONE	Plant				--
0	1-NONYL-ACETATE	Plant				--
0	METHYL-I-PENTANOATE	Plant				--
0	HEMICELLULOSE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
0	3-PENTANOL	Plant				--
0	N-HEPTANOL	Plant				--
0	DIASTASE	Plant				--
0	PROCYANIDIN-E	Leaf				--
0	PHLORETIN-4'-O-BETA-D-GLUCOPYRANOSIDE	Fruit		6486.0		--
0	URONIC-ACID	Fruit	7.0	1440.0		--
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		--
0	CYANIDIN-3-ARABINOSIDE	Plant				--
0	VOMIFOLIOL-1-O-BETA-D-XYLOPYRANOSYL-6-O-BETA-D-GLUCOPYRANOSIDE	Fruit				--
0	PROPYL-2-METHYLBUTYRATE	Plant				--
0	PECTASE	Plant				--
0	IDAEIN	Plant				--
0	METHYL-GUANIDINE	Stem				--
0	GLUCOCEREBROSIDE	Plant	34.0	49.0		--
0	ETHYL-AMINE	Fruit		3.0		--
0	CIS-2,TRANS-4-ABSCISIC-ACID	Bark				--
0	N-1-N-5-N-10-TRI-TRANS-4-COUMAROYL-SPERMIDINE	Flower				--
0	N-OCTANOL-2-OCTANOL	Plant				--
0	1-MONO-LINOLEIN	Seed				--
0	METHYL-HEXANOATE	Plant				--
0	ISOCITRIC-ACID	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	GUANIDINOSUCCINIC-ACID	Shoot				--
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		--
0	DEHYDROASCORBIC-ACID	Plant				--
0	PROCYANIDIN-D-1	Leaf				--
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				--
0	CYANIDIN-3,5-DIGLUCOSIDE	Cotyledon				--
0	PROPANOL	Plant				--
0	I-PROPANOL	Plant				--
0	AMYL-ACETATE	Plant				--
0	QUERCETIN-ARABINOSIDE	Plant				--
0	LEAD	Fruit	0.002	64.0	3.294104898397132	--
0	HYDROXYCINNAMIC-ACID	Fruit		1340.0		--
0	CREATINE	Stem				--
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				--
0	AMMONIA	Fruit		235.0	-1.0	--
0	METHYL-2-XI-ACETOXY-20-BETA-HYDROXY-URSONATE	Pericarp				--
0	GUANIDINOACETIC-ACID	Shoot				--
0	ASH	Fruit	2300.0	43000.0	-0.3538278176314037	--
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	FLUORINE	Fruit	0.1	2.1	0.7378739376517985	ACTA AGRIC SCAND SUPPL 22: 1980
0	QUERCETIN-GLUCOSIDE	Pericarp	9.0	20.0		--
0	DECENOIC-ACID	Plant				--
0	BUTANAL	Fruit				--
0	PYROXIDINE	Plant				--
0	PROCYANIDIN-C-1	Pericarp				--
0	PHLORETAMIDE	Fruit				--
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		--
0	QUERCETIN-ARABINOSIDE	Pericarp	18.0	37.0		--
0	PROLINE	Plant	20.0	435.0	-1.0472597877182985	--
0	I-PENTYL-I-PENTANOATE	Plant				--
0	PROPYL-BUTYRATE	Fruit				--
0	GAMMA-METHYL-PROLINE	Plant				--
0	PHOSPHATIDYLIC-ACID	Fruit	3.0	6.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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				--
0	(+)-EPICATECHIN	Fruit				--
0	ASCORBIDASE	Plant				--
0	ZIRCONIUM	Fruit	0.22	0.86	-0.546541741871023	--
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	D-L-NONACOSANOL	Plant				--
0	BUTAN-2-ONE	Fruit				--
0	CAFFEETANNIN	Plant				--
0	PROCYANIDIN-C-1	Leaf				--
0	ISOBUTYL-FORMATE	Plant				--
0	N-PENTYL-OCTANOATE	Plant				--
0	2-HEXENAL	Plant				--
0	ETHYL-METHYLBUTYRATE	Plant				--
0	PHENYLBENZOATE	Fruit				--
0	CUTIN	Fruit Epidermis				--
0	PROPYL-ACETATE	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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	QUERCETIN-3-O-XYLOSIDE	Fruit Epidermis				--
0	PHOSPHATIDYL-SERINE	Fruit		4.0		--
0	N-METHYL-PHENETHYLAMINE	Fruit		1.2		--
0	1,3,3,-TRIMETHYL-DIOXA-2,7-BICYCLO(2,2,1)HEPTANE	Fruit				--
0	QUERCETIN-3-O-RUTINOSIDE	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	D-GLUCONIC-ACID	Plant				--
0	PROCYANIDIN-C-1	Fruit Juice				--
0	PHENOLICS	Plant	1100.0	3400.0	-1.0	--
0	ISOBUTYL-BUTYRATE	Plant				--
0	2-HEPTANOL	Plant				--
0	MONOGALACTOSYL-DIGLYCERIDE	Plant	12.0	42.0		--
0	PENTAN-2-ONE	Fruit				--
0	SFA	Fruit	580.0	3610.0	-0.29989489934752117	USDA's Ag Handbook 8 and sequelae)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CREATINE	Shoot				--
0	I-PENTANOL	Plant				--
0	GAMMA-GUANIDINOBUTYRIC-ACID	Shoot				--
0	N-PENTYL-FORMATE	Plant				--
0	PHOSPHATIDYL-INOSITOL	Fruit	53.0	59.0		--
0	L-QUINIC-ACID	Plant				--
0	3-HYDROXYPHLORIDZIN	Fruit Juice				--
0	AMMONIA	Pericarp		1029.0		--
0	BENZYL-AMINE	Fruit Epidermis		0.6		--
0	BUTYL-ACETATE	Fruit				--
0	SUGAR	Fruit	60100.0	166000.0	-0.15008461399428302	--
0	N-METHYL-PHENETHYLAMINE	Exocarp		1.3		--
0	-D-GLUCITOL	Plant				--
0	N-METHYL-PHENETHYLAMINE	Pericarp		1.3		--
0	NONENOIC-ACID	Plant				--
0	2-PROPANOL	Plant				--
0	FAT	Seed	180000.0	230000.0	-0.1863991011784708	--
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	PROTEIN	Fruit	1870.0	12800.0	-1.2962859772396575	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	BUTYL-VALERIANATE	Plant				--
0	PROCYANIDIN-C-1	Fruit				--
0	PEROXIDASE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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	I-PENTANOIC-ACID	Plant				--
0	GIBBERELLIN-A-62	Seed				--
0	GAMMA-GUANIDINOBUTRAMIDE	Shoot				--
0	TRANS-N-HEX-3-EN-1-OL	Plant				--
0	N-PENTYL-DECANOATE	Plant				--
0	2-BUTANOL	Plant				--
0	CAROTENOIDS	Plant	0.0	126.0		--
0	PHOSPHATIDYL-GLYCEROL	Fruit	8.0	27.0		--
0	L-MALIC-ACID	Plant				--
0	1-MONOOLEIN	Seed				--
0	BENZYL-AMINE	Fruit	0.3	3.0		--
0	BENZYL-AMINE	Pericarp		0.6		--
0	ABSCISIC-ACID	Fruit				--
0	N-METHYL-BETA-PHENETHYLAMINE	Fruit		1.2		--
0	EO	Fruit	25.0	35.0	-0.8192816022307305	--
0	WATER	Fruit	809000.0	896000.0	0.5453564376102144	--
0	2-PHENETHYLACETATE	Plant				--
0	N-BUTYL-OCTANOATE	Plant				--
0	FAT	Fruit	3210.0	34200.0	-0.3800352407430785	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	PROPYL-PROPIONATE	Plant				--
0	BUTYL-PROPIONATE	Plant				--
0	PROCYANIDIN-B-5	Leaf				--
0	PENTYL-HEXANOATE	Plant				--
0	ISOAMYL-PROPIONATE	Plant				--
0	MEVALONIC-ACID	Fruit	30.0	36.0	1.9898059802462824	--
0	ETHYL-DODECANOATE	Plant				--
0	P-COUMARIC-ACID-1	Leaf	0.0	320.0		--
0	LUTEOXANTHIN	Fruit				--
0	PHLORETIN-2'-XYLOGLUCOSIDE	Fruit Juice				--
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				--
0	N-PENTYL-AMINE	Fruit		0.3	-0.9999999999999999	--
0	2,4-METHYLENE-CHOLESTEROL	Pollen Or Spore				--
0	CARBOHYDRATES	Fruit	152250.0	948550.0	0.8859136568099041	--
0	PHOSPHATIDYL-ETHANOLAMINE	Fruit	101.0	124.0		--
0	L-EPICATECHIN	Fruit				--
0	7-HEXANOIC-ACID	Plant				--
0	(Z)-HEX-2-ENAL	Fruit				--
0	DIPHOSPHATIDYL-GLYCEROL	Fruit	4.0	6.0		--
0	QUERCETIN-3-O-ALPHA-GALACTOSIDE	Fruit Epidermis				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	PROCYANIDIN-B-2	Fruit	2.0	10.0		--
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.
1	N-BUTYL-FORMATE	Plant				--
1	PROCYANIDIN-B-2	Leaf	150.0	900.0	0.9999999999999998	--
1	PROCYANIDIN-B-2	Fruit Juice				--
1	N-HEXYL-PROPIONATE	Fruit				--
1	ETHYL-PROPIONATE	Plant				--
1	PROCYANIDIN-B-1	Pericarp				--
1	HEXYL-BUTYRATE	Fruit				--
1	PROCYANIDIN-B-1	Leaf				--
1	ETHYL-BUTYRATE	Plant				--
1	HEXYL-ACETATE	Fruit				--
1	SODIUM	Fruit	0.0	133.0	-0.1713385458263085	--
1	PYRUVIC-ACID	Plant				--
1	PROCYANIDIN-B-1	Fruit Juice				--
1	ISOVALERALDEHYDE	Fruit				--
1	ETHYL-PROPIONATE	Fruit				--
1	MERCURY	Fruit	0.0	0.02	0.10095423065636192	--
1	PYRROLIDINE	Fruit Epidermis		1.5		--
1	PHLORETIN-GLUCOSIDE	Pericarp	10.0	15.0		--
1	PROCYANIDIN-B-1	Fruit				--
1	PYRROLIDINE	Pericarp		1.5		--
1	ETHYL-NONANOATE	Plant				--
1	PHLORETIN-GLUCOSIDE	Fruit		1.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	L-ARGININE	Stem				--
1	N-BUTYL-PROPIONATE	Fruit				--
1	HEXYL-FORMATE	Plant				--
1	GLYOXYLIC-ACID	Plant				--
1	L-ARGININE	Shoot				--
1	QUERCETIN-3-O-RHAMNOSIDE	Plant				J.S. Glasby Dict.Plis Containing 2ndary Metabolite. 1991.
1	CATALASE	Plant				--
1	HEXYL-BUTYRATE	Plant				--
1	ETHYL-VALERATE	Fruit				--
1	N-BUTYL-PROPIONATE	Plant				--
1	SERINE	Fruit	80.0	497.0	-1.1107007920496865	USDA's Ag Handbook 8 and sequelae)
1	METHYL-AMINE	Pericarp		4.5		--
1	HEXYL-ACETATE	Plant				--
1	METHYL-AMINE	Fruit Epidermis		4.5		--
1	ETHYL-FORMATE	Fruit				--
1	PROCYANIDIN-B-2	Pericarp	15.0	100.0		--
1	AMYL-FORMATE	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.
1	N-HEXYL-PROPIONATE	Plant				--
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.
2	FARNESENE	Fruit Epidermis				--
2	COBALT	Fruit	0.005	0.043	-0.5299096696083117	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	PHOSPHATIDYL-CHOLINE	Fruit	189.0	214.0		--
2	CYSTINE	Plant	30.0	187.0	-1.078139109591067	--
2	METHYL-2-METHYL-BUTYRATE	Plant				--
2	DIETHYL-AMINE	Fruit		3.0		--
2	NEOXANTHIN	Fruit Epidermis				--
2	REYNOUSTRIN	Fruit				--
2	LEUCINE	Fruit	120.0	746.0	-0.9258535515942413	--
2	METHANOL	Plant				--
2	NEO-CHLOROGENIC-ACID	Plant				--
2	PHYTOSTEROLS	Fruit	120.0	745.0	-0.2581394518581099	USDA's Ag Handbook 8 and sequelae)
2	FRIEDELIN	Heart Wood				--
2	ASPARAGINE	Fruit		171.0	-0.825458790451801	--
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.)
2	ETHYL-ISOBUTYRATE	Fruit				--
2	PALMITOLEIC-ACID	Fruit	10.0	62.0	-0.3340992517515945	--
2	ISOAMYL-ACETATE	Fruit				--
2	REYNOUSTRIN	Fruit Juice				--
2	BETA-ALANINE	Fruit				--
2	METHYL-CAPROATE	Plant				--
2	ETHYL-ISOBUTYRATE	Plant				--
2	METHYL-BUTYRATE	Fruit				--
2	REYNOUSTRIN	Pericarp				--
2	METHYL-BUTYRATE	Plant				--
2	ARSENIC	Fruit	0.001	0.43	0.014133429185321438	--
2	PROPIONALDEHYDE	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	MOLYBDENUM	Fruit	0.077	0.43	-0.3990584824882058	--
2	QUERCETIN-3-O-BETA-D-GLUCOSIDE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
2	FARNESENE	Pericarp				--
2	NONACOSANE	Plant				--
2	POMOLIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
3	GLYCERIC-ACID	Plant				--
3	NICKEL	Fruit	0.004	0.645	-0.5833033975627046	--
3	AMYL-BUTYRATE	Fruit				--
3	VALINE	Fruit	40.0	560.0	-0.8032333881374735	--
3	ALANINE	Fruit	70.0	435.0	-1.2861845168681025	USDA's Ag Handbook 8 and sequelae)
3	ISOLEUCINE	Fruit	50.0	497.0	-0.9433250929721118	--
3	ASPARTIC-ACID	Fruit	210.0	2115.0	-1.056731649443471	USDA's Ag Handbook 8 and sequelae)
3	AMYL-BUTYRATE	Plant				--
3	SILVER	Fruit	0.011	0.086	-0.4995614833070808	--
3	ACETONE	Plant				--
3	MANNOSE	Plant				--
3	ISOQUERCETIN	Fruit Juice				--
3	CADMIUM	Fruit	0.002	0.026	-0.5672128851607269	--
3	TRIACONTANOL	Plant				--
3	XYLOSE	Plant				--
3	ISOBUTYL-ACETATE	Plant				--
3	HEXANOL	Plant				--
3	METHYL-ACETATE	Plant				--
4	PROCYANIDIN-B-4	Leaf				--
4	METHYL-BENZOATE	Fruit				--
4	THREONINE	Fruit	30.0	435.0	-1.0736073129874002	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	CALCIUM-OXALATE	Plant				--
4	BORON	Fruit	1.0	110.0	1.410811087811246	--
4	ISOPROPYL-ACETATE	Fruit				--
4	PHOSPHORUS	Fruit	68.0	925.0	-0.6958662309301713	--
4	BIOTIN	Plant				--
4	ISOCHLOROGENIC-ACID	Plant				Stitt, Paul. Why George should eat broccoli.
4	SILICON	Fruit	0.0	70.0	-0.3810148443665756	--
4	QUERCETIN-3-RHAMNOGLUCOSIDE	Plant				--
4	COSMOSIIN	Heart Wood				--
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.
4	GLYCOLIC-ACID	Plant				--
4	LYSINE	Fruit	20.0	746.0	-0.8724121045963826	--
4	D-CATECHIN	Fruit				--
5	GLUTAMINE	Plant		20.0		--
5	PHYLLOQUINONE	Fruit		0.06	-0.22359887323159108	--
5	HEXANAL	Fruit				--
5	ALUMINUM	Fruit	0.4	129.0	-0.18599251654737567	--
6	ACETALDEHYDE	Fruit				--
6	IRON	Fruit	1.1	123.0	-0.039580333705947705	--
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				--
6	MYRISTIC-ACID	Fruit	20.0	124.0	-0.26329389964394695	--
6	ETHYL-ACETATE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
6	ETHYL-ACETATE	Fruit				--
6	GUANIDINE	Shoot				--
6	GUANIDINE	Stem				--
6	ACETALDEHYDE	Plant				--
7	AVICULARIN	Leaf	0.0	1425.0		--
7	FUMARIC-ACID	Plant				--
7	SALICYLATES	Fruit	0.8	60.0	-0.16469419114376535	--
7	AVICULARIN	Fruit				--
7	AVICULARIN	Pericarp				--
7	INDOLE-3-ACETIC-ACID	Plant				Stitt, Paul. Why George should eat broccoli.
7	GLUCOSE	Fruit	17200.0	18200.0	-0.7019443383136035	--
7	INDOLE-3-ACETIC-ACID	Stem Bark				--
7	INDOLE-3-ACETIC-ACID	Leaf				--
7	CYANIDIN	Leaf				--
7	LAURIC-ACID	Fruit	10.0	63.0	-0.44474745342800637	--
7	HISTIDINE	Fruit	30.0	187.0	-1.0696353953245137	--
7	PHENYLALANINE	Fruit	50.0	311.0	-1.0455516744717288	--
7	AVICULARIN	Fruit Juice				--
7	SUCCINIC-ACID	Plant				--
8	PHLORIZIN	Plant				--
8	STEARIC-ACID	Fruit	70.0	435.0	-0.25037310927026857	--
8	PHLORIZIN	Leaf				--
8	GLUTAMIC-ACID	Fruit	156.0	1244.0	-0.9333642189445454	--
8	FRUCTOSE	Fruit	50100.0	60800.0	0.04916971831634761	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
8	PHLORIDZIN	Leaf	54000.0	140000.0	1.0	--
8	TYROSINE	Fruit	40.0	249.0	-0.8990776765345502	--
8	INOSITOL	Plant				--
8	AMYGDALIN	Seed	6000.0	13800.0	-0.8422024808761887	--
8	PHLORIZIN	Pericarp				--
8	LACTIC-ACID	Plant				--
8	ESTRONE	Seed	0.1	0.13	-1.0000000000000002	--
8	PHLORIDZIN	Fruit Juice				--
9	OXALIC-ACID	Plant				--
9	SINAPIC-ACID	Fruit				--
9	PHLORETIN	Leaf	300.0	11000.0		--
9	BENZYL-ACETATE	Plant				--
11	LITHIUM	Fruit	0.044	0.172	-0.8448748858580687	--
11	SORBITOL	Leaf				--
11	ADENINE	Root				--
11	PANTOTHENIC-ACID	Fruit	1.0	4.0	-0.8996713902808875	USDA's Ag Handbook 8 and sequelae)
12	IODINE	Plant				--
12	ESTRAGOLE	Essential Oil				--
12	GLYCINE	Plant	80.0	497.0	-0.8208359653564842	--
12	COPPER	Fruit	0.24	4.0	-0.6863742487163819	--
13	FORMIC-ACID	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.
13	MUFA	Fruit	150.0	935.0	-0.24039423421132997	USDA's Ag Handbook 8 and sequelae)
13	PALMITIC-ACID	Fruit	480.0	2986.0	-0.31904990505316816	--
13	P-HYDROXY-BENZOIC-ACID	Fruit				--
14	HYPERIN	Plant				--
14	MANGANESE	Fruit	0.0	29.0	-0.2123152729972876	--
14	SHIKIMIC-ACID	Plant				--
14	SULFUR	Fruit	1.65	23.0	-0.9685087927350676	--
14	POTASSIUM	Fruit	1110.0	12140.0	-0.5110685274797335	--
14	SUCROSE	Fruit	24000.0	36200.0	-0.49014841841433165	--
14	ARGININE	Fruit	60.0	373.0	-1.0500818434124615	USDA's Ag Handbook 8 and sequelae)
15	LUTEIN	Fruit	0.4	5.0	-0.4027761600563295	--
15	ALPHA-LINOLENIC-ACID	Fruit	180.0	1120.0	-0.6452626880371877	--
15	RIBOFLAVIN	Fruit		1.3	-0.7944081953947483	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
15	METHIONINE	Plant	20.0	124.0	-0.9578509469925256	--
15	FOLACIN	Fruit	0.02	0.2	-0.7547576455042277	USDA's Ag Handbook 8 and sequelae)
15	FIBER	Fruit	5200.0	49636.0	-0.8685372806832163	USDA's Ag Handbook 8 and sequelae)
16	ACETIC-ACID	Plant				--
17	PROCYANIDIN-A-2	Leaf				--
18	OLEIC-ACID	Fruit	140.0	871.0	-0.4740320725940964	--
20	BENZOIC-ACID	Plant				--
20	LECITHIN	Plant				--
20	BENZOIC-ACID	Leaf	98.0	710.0	1.3479809099758226	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
21	CHLOROPHYLL	Fruit	0.0	1.0	-0.9710352631864654	--
22	ISOQUERCITRIN	Fruit				--
22	ISOQUERCITRIN	Pericarp				--
22	ISOQUERCITRIN	Fruit Juice				--
23	CITRIC-ACID	Plant				--
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.
24	PECTIN	Fruit	1400.0	66585.0	0.16029071562128944	--
24	CHROMIUM	Fruit	0.005	0.3	-0.4654957769727276	--
24	ETHANOL	Plant				--
25	P-COUMARIC-ACID	Leaf				--
25	P-COUMARIC-ACID	Fruit	15.0	460.0	1.836295249622603	--
27	PROCYANIDINS	Leaf				--
28	CALCIUM	Fruit	43.0	570.0	-0.75834467805693	--
29	TRYPTOPHAN	Fruit	20.0	124.0	-1.0195295627538696	--
30	(+)-CATECHIN	Pericarp				--
30	HYPEROSIDE	Pericarp				--
30	(+)-CATECHIN	Fruit				--
30	(+)-CATECHIN	Leaf				--
30	HYPEROSIDE	Fruit				--
30	HYPEROSIDE	Heart Wood				--
30	HYPEROSIDE	Fruit Juice				--
30	(+)-CATECHIN	Bark				--
30	(+)-CATECHIN	Seed				--
30	(+)-CATECHIN	Pt				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
31	THIAMIN	Fruit	1.0	2.0	-0.4266044741562528	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
32	ALPHA-TOCOPHEROL	Fruit	2.0	37.0	-0.5521025162177928	--
34	MYRICETIN	Fruit		0.5	-0.7536633445071549	--
35	GERANIOL	Plant				--
38	(-)-EPICATECHIN	Pericarp				--
38	(-)-EPICATECHIN	Fruit				--
38	(-)-EPICATECHIN	Fruit Juice				--
38	(-)-EPICATECHIN	Leaf	150.0	900.0	-0.6820874109972213	--
39	NIACIN	Fruit	1.0	7.0	-0.7178505836876389	--
40	EPICATECHIN	Pericarp	20.0	80.0		--
40	EPICATECHIN	Fruit	4.0	11.0		--
43	PROTocatechuic-acid	Fruit				--
44	QUERCITRIN	Leaf	600.0	9015.0	1.7298124819748746	--
44	QUERCITRIN	Pericarp				--
44	QUERCITRIN	Fruit				--
44	QUERCITRIN	Fruit Juice				--
47	BETA-SITOSTEROL	Heart Wood				--
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.
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.)
53	BETA-CAROTENE	Fruit	0.0	76.0	-0.0038939984397263717	--
60	CINNAMALDEHYDE	Fruit				--
60	SELENIUM	Fruit		0.0	-0.38618723699673646	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
61	FERULIC-ACID	Fruit	4.0	95.0	1.7162326606420661	--
62	GALLIC-ACID	Pericarp				--
62	GALLIC-ACID	Fruit				--
65	MAGNESIUM	Fruit	48.0	478.0	-0.7648501234386748	--
75	KAEMPFEROL	Fruit		2.0	-0.5794291374991353	--
77	CHLOROGENIC-ACID	Pericarp	8.0	18.0		--
77	CHLOROGENIC-ACID	Fruit	5.0	15.0	-1.0935971883111022	--
77	CHLOROGENIC-ACID	Pt				--
77	CHLOROGENIC-ACID	Leaf	100.0	1200.0	-1.3240006985895736	--
77	ZINC	Fruit	0.0	35.0	0.1413570623516533	--
77	CHLOROGENIC-ACID	Seed				--
77	CHLOROGENIC-ACID	Fruit Juice				--
78	LUTEOLIN	Heart Wood				--
87	RUTIN	Fruit Epidermis				--
87	RUTIN	Leaf	0.0	8885.0	-0.45294433702030634	--
87	RUTIN	Pericarp				--
87	RUTIN	Fruit				--
87	RUTIN	Fruit Juice				--
89	URSOLIC-ACID	Fruit Epidermis				--
89	URSOLIC-ACID	Pericarp				--
89	URSOLIC-ACID	Wax				--
101	APIGENIN	Heart Wood				--
102	CAFFEIC-ACID	Fruit	85.0	1270.0	-0.10378621224302456	--
102	CAFFEIC-ACID	Fruit Juice				--
112	ASCORBIC-ACID	Fruit	20.0	402.0	-0.2594938543964892	--
176	QUERCETIN	Heart Wood				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
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).
176	QUERCETIN	Fruit	2.5	41.0	-0.582618968173555	--