

P **Cynara cardunculus**

Common Name(s)

Artichoke

How Used

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Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	1,3-DI-O-CAFFEYLQUINIC-ACID	Flower	--	--	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
1	1,4-DICAFFEYLQUINIC-ACID	Flower	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	1,5-DI-O-CAFFEYLQUINIC-ACID	Flower	--	--	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	1-CAFFEYLQUINIC-ACID	Flower	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	11,13-DIHYDROXY-8-DEOXYGROSHEIMIN	Leaf	--	--	Jim Duke's personal files.

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	13-CHLORO-11-HYDROXY-8-DEOXYGROSHEIMIN	Leaf	--	--	Jim Duke's personal files.
3	3,5-DI-O-CAFFEYOYLQUINIC-ACID	Leaf	--	--	Jim Duke's personal files.
0	3-CAFFEYOYLQUINIC-ACID	Flower	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	4,5-DICAFFEOYL-QUINIC-ACID	Leaf	--	--	
0	4-CAFFEYOYLQUINIC-ACID	Flower	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	5-CAFFEYOYLQUINIC-ACID	Flower	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	8-EPIGROSHEIMIN	Leaf	--	--	
0	AESCULETIN-6-O-BETA-D-GLUCOSIDE	Leaf	--	--	Jim Duke's personal files.
0	ALPHA-CADRENE	Flower	--	--	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
101	APIGENIN	Leaf	--	--	Jim Duke's personal files.
0	APIGENIN-4',7-DIGLUCOSIDE	Flower	--	--	Jim Duke's personal files.
1	APIGENIN-7-O-RUTINOSIDE	Leaf	--	--	Jim Duke's personal files.
1	APIGENIN-7-O-RUTINOSIDE	Stem	--	--	Jim Duke's personal files.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	APIGENIN-7-RUTINOSIDE	Flower	--	--		Jim Duke's personal files.
0	APIGENIN-7-RUTINOSIDE	Leaf	--	--		Jim Duke's personal files.
0	APIGENIN-7-RUTINOSIDE	Stem	--	--		Jim Duke's personal files.
112	ASCORBIC-ACID	Flower	--	828	-0.5798802122982235	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	ASH	Flower	10600	106000	0.8538417707610751	
53	BETA-CAROTENE	Flower	1	20	-0.3130330779045825	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
3	BETA-SELINENE	Essential Oil	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
47	BETA-SITOSTEROL	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	BETA-TARAXASTEROL	Plant	--	--		Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
4	BORON	Flower	2	5	-1.2189545947870004	Betting on Boron, Unpublished draft by J. A. Duke on file at USDA, draft and papers relating to boron percentages. Includes Internat. Z. Vit. Ern. Forschung 43:1973 (boron).
102	CAFFEIC-ACID	Leaf	--	--		Jim Duke's personal files.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
102	CAFFEIC-ACID	Flower	--	--		
0	CAFFEYOYL-4-QUINIC-ACID	Flower	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
28	CALCIUM	Flower	120	5286	-0.13404923516382297	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	CARBOHYDRATES	Flower	105000	755000	0.5084647750009713	
31	CARYOPHYLLENE	Essential Oil	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
77	CHLOROGENIC-ACID	Shoot	--	--		Jim Duke's personal files.
77	CHLOROGENIC-ACID	Flower	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
77	CHLOROGENIC-ACID	Leaf	--	--		
12	COPPER	Flower	2	24	1.54707550654479	USDA's Ag Handbook 8 and sequelae)
0	COSMOSIDE	Leaf	--	--		Jim Duke's personal files.
4	COSMOSIIN	Flower	--	--		Jim Duke's personal files.
4	COSMOSIIN	Leaf	--	--		Jim Duke's personal files.
4	COSMOSIIN	Stem	--	--		Jim Duke's personal files.
0	CRYPTOCHLOROGENIC-ACID	Leaf	--	--		

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
0	CYANIDOL-3,5-DIGLUCOSIDE	Flower	--	--	Jim Duke's personal files.
0	CYANIDOL-3-CAFFEYLGLUCOSIDE	Plant	--	--	J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	CYANIDOL-3-CAFFEYLSOPHOROSIDE	Plant	--	--	J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	CYANIDOL-5-GLUCOSIDE-3-CAFFEOYLSOPHOROSIDE	Flower	--	--	Jim Duke's personal files.
0	CYANIDOL-5-GLUCOSIDE-3-CAFFEYLSOPHOROSIDE	Plant	--	--	J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	CYANIDOL-DICAFFEYLSOPHOROSIDE	Plant	--	--	J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	CYANIDOL-GLUCOSIDE	Plant	--	--	J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	CYANIDOL-SOPHOROSIDE	Plant	--	--	J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	CYANOPICRINE	Leaf	--	--	Jim Duke's personal files.
0	CYNARA-SCOLYMUS-GUAIANOLIDE-I	Leaf	--	--	Jim Duke's personal files.
0	CYNARA-SCOLYMUS-GUAIANOLIDE-II	Leaf	--	--	Jim Duke's personal files.
0	CYNARAGENIN	Leaf	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	CYNARAPICRIN	Leaf	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
0	CYNARATRIOL	Leaf	--	--	Jim Duke's personal files.
0	CYNARATRIOL	Flower	--	--	Abstract (See species file)
23	CYNARIN	Leaf	200	1000	
23	CYNARIN	Shoot	--	--	Jim Duke's personal files.
0	CYNAROGENIN	Leaf	--	--	Jim Duke's personal files.
0	CYNAROLIDE	Plant	--	--	J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	CYNAROLIDE	Leaf	330	330	Jim Duke's personal files.
6	CYNAROPICRIN	Leaf	--	--	Jim Duke's personal files.
6	CYNAROPICRIN	Plant	--	--	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
6	CYNAROPICRIN	Shoot	--	--	Jim Duke's personal files.
3	CYNAROSIDE	Shoot	--	--	Jim Duke's personal files.
3	CYNAROSIDE	Flower	--	--	Jim Duke's personal files.
3	CYNAROSIDE	Leaf	--	--	Jim Duke's personal files.
3	CYNAROSIDE	Stem	--	--	Jim Duke's personal files.
0	CYNAROTRIOSIDE	Leaf	12	12	Jim Duke's personal files.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
0	DECANAL	Essential Oil	--	--	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	DEHYDROCYNAROPICRIN	Leaf	--	--	Jim Duke's personal files.
8	DICAFFEOYLQUINIC-ACID	Leaf	--	--	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
8	DICAFFEOYLQUINIC-ACID	Root	--	--	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
76	EUGENOL	Essential Oil	--	--	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	FAT	Flower	1000	20000	-0.5947121041362512 CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
61	FERULIC-ACID	Plant	--	--	
15	FIBER	Flower	11400	224000	1.1300359153518993
0	FLAVONOIDS	Flower	1000	10000	-0.8293808148728665 Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
15	FOLACIN	Flower	0.7	4.7	USDA's Ag Handbook 8 and sequelae)
3	GLYCERIC-ACID	Flower	--	--	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
3	GLYCERIC-ACID	Leaf	--	--	Jim Duke's personal files.
4	GLYCOLIC-ACID	Leaf	--	--	Jim Duke's personal files.
4	GLYCOLIC-ACID	Flower	--	--	
1	GROSHEIMIN	Leaf	--	--	Jim Duke's personal files.
1	GROSHEIMIN	Shoot	--	--	Jim Duke's personal files.
4	GROSSHEMIN	Plant	--	--	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	GROSULFEIMIN	Leaf	--	--	Jim Duke's personal files.
0	GUAIANOLIDES	Flower	--	--	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
8	HESPERETIN	Leaf	--	--	Jim Duke's personal files.
31	HESPERIDIN	Leaf	--	--	Jim Duke's personal files.
2	HETEROSIDE-B	Flower	--	--	
0	HEX-1-EN-3-ONE	Flower	--	--	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
19	INULIN	Leaf	--	--	Jim Duke's personal files.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
19	INULIN	Flower	--	--	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
6	IRON	Flower	11	101	-0.4392200183241121
0	ISOAMBERBOIN	Leaf	--	--	Jim Duke's personal files.
0	ISOAMERBOIN	Plant	--	--	J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
4	ISOCHLOROGENIC-ACID	Leaf	--	--	Jim Duke's personal files.
2	ISOCHLOROGENIC-ACID-B	Leaf	--	--	Jim Duke's personal files.
0	KILOCALORIES	Flower	470	3120	-0.4808847118611383 USDA's Ag Handbook 8 and sequelae)
7	LAURIC-ACID	Flower	20	135	-1 USDA's Ag Handbook 8 and sequelae)
27	LINOLEIC-ACID	Flower	460	3055	1.0649070428955585 USDA's Ag Handbook 8 and sequelae)
0	LINOLENIC-ACID	Flower	170	1130	-1 USDA's Ag Handbook 8 and sequelae)
78	LUTEOLIN	Leaf	--	--	
0	LUTEOLIN-3'-O-BETA-D-GLUCOSIDE	Flower	--	--	Jim Duke's personal files.
0	LUTEOLIN-4',7-DIGLUCOSIDE	Flower	--	--	Jim Duke's personal files.
0	LUTEOLIN-4'-O-BETA-D-GLUCOSIDE	Leaf	--	--	Jim Duke's personal files.
0	LUTEOLIN-4'-O-BETA-D-GLUCOSIDE	Flower	--	--	Jim Duke's personal files.
2	LUTEOLIN-4'-O-GLUCOSIDE	Leaf	--	--	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
0	LUTEOLIN-4-BETA-D-GLUCOSIDE	Flower	--	--	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	LUTEOLIN-7-BETA-D-GLUCOSIDE	Flower	--	--	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	LUTEOLIN-7-BETA-RUTINOSIDE	Flower	--	--	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	LUTEOLIN-7-GENTIOBIOSIDE	Leaf	--	--	Jim Duke's personal files.
0	LUTEOLIN-7-O-ALPHA-L-RHAMNOSYL-GLUCOSIDE	Leaf	--	--	Jim Duke's personal files.
2	LUTEOLIN-7-O-GLUCOSIDE	Leaf	--	--	
0	LUTEOLIN-7-O-RHAMNOGLUCOSIDE	Leaf	--	--	
0	LUTEOLIN-7-O-RUTINOSIDE	Flower	--	--	Jim Duke's personal files.
0	LUTEOLIN-7-O-RUTINOSIDE	Stem	--	--	Jim Duke's personal files.
0	LUTEOLIN-7-O-RUTINOSIDE	Leaf	--	--	Jim Duke's personal files.
0	LUTEOLIN-7-RUTINOSIDE	Leaf	--	--	Jim Duke's personal files.
0	LUTEOLIN-7-RUTINOSIDE	Stem	--	--	Jim Duke's personal files.
0	LUTEOLIN-7-RUTINOSIDE	Flower	--	--	Jim Duke's personal files.
0	LUTEOLIN-7-RUTINOSIDE-4'-GLUCOSIDE	Plant	--	--	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
65	MAGNESIUM	Flower	555	4275	1.05717560508962	USDA's Ag Handbook 8 and sequelae)
14	MANGANESE	Flower	2	17	-0.33261072245829	USDA's Ag Handbook 8 and sequelae)
0	MARITIMEIN	Leaf	--	--		Jim Duke's personal files.
3	MUCILAGE	Plant	--	--		
13	MUFA	Flower	50	330	-1.3887301496588274	USDA's Ag Handbook 8 and sequelae)
6	MYRISTIC-ACID	Flower	20	135	-1	USDA's Ag Handbook 8 and sequelae)
56	NARINGENIN	Flower	--	--		Jim Duke's personal files.
1	NARINGENIN-7-O-BETA-D-GLUCOSIDE	Flower	--	--		Jim Duke's personal files.
0	NARINGENIN-7-O-RUTINOSIDE	Flower	--	--		Jim Duke's personal files.
0	NARINGENIN-7-RUTINOSIDE	Flower	--	--		Jim Duke's personal files.
2	NEO-CHLOROGENIC-ACID	Leaf	--	--		
2	NEO-CHLOROGENIC-ACID	Plant	--	--		
39	NIACIN	Flower	10	82	-0.12306400442714839	
0	NON-TRANS-2-EN-AL	Flower	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	O-DIPHENOLICS	Flower	20000	20000		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	OCT-1-EN-3-ONE	Flower	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
18	OLEIC-ACID	Flower	50	330	-1.2718747149038718	USDA's Ag Handbook 8 and sequelae)
0	OXIDASE	Leaf	--	--		Jim Duke's personal files.
13	PALMITIC-ACID	Flower	290	1925	-0.5962287170150354	USDA's Ag Handbook 8 and sequelae)
11	PANTOTHENIC-ACID	Flower	3	23	1	USDA's Ag Handbook 8 and sequelae)
0	PHENOLICS	Plant	--	20000	1	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
2	PHENYL-ACETALDEHYDE	Flower	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
4	PHOSPHORUS	Flower	860	6240	1.0639103515279158	
0	PHYTATE	Flower	90	900		
14	POTASSIUM	Flower	3500	29780	1.078089816806615	
0	PROTEIN	Flower	31000	276000	1.5449237166474437	
0	PSEUDOTARAXASTEROL	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
4	PUFA	Flower	630	4185	-0.2578716704093278	USDA's Ag Handbook 8 and sequelae)

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
176	QUERCETIN	Leaf	--	--		Jim Duke's personal files.
15	RIBOFLAVIN	Flower	0.6	7	0.18555074753411543	
87	RUTIN	Leaf	--	--		Jim Duke's personal files.
0	SCOLIMOSIDE	Leaf	--	--		Jim Duke's personal files.
1	SCOLYMOSIDE	Shoot	--	--		Jim Duke's personal files.
1	SCOLYMOSIDE	Flower	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
1	SCOLYMOSIDE	Leaf	--	--		Jim Duke's personal files.
44	SCOPOLETIN	Leaf	--	--		Jim Duke's personal files.
0	SFA	Flower	350	2325	-0.9570581243513852	USDA's Ag Handbook 8 and sequelae)
1	SODIUM	Flower	850	6840	3.402041351960371	
8	STEARIC-ACID	Flower	30	200	-1.6666469339268937	USDA's Ag Handbook 8 and sequelae)
12	STIGMASTEROL	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	SYRINGOSIDE	Leaf	--	--		Jim Duke's personal files.
35	TANNIN	Plant	--	--		
2	TARAXASTEROL	Leaf	--	--		
31	THIAMIN	Flower	0.7	6	0.20238493201589755	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	TRIDEC-1-ENE-3-5-7-9-11-PENTAYNE	Root	--	--		Jim Duke's personal files.
0	TRIDECA-1-11-DIENE-3-5-7-9-TETRAYNE	Root	--	--		Jim Duke's personal files.
0	VIT-B-6	Flower	1	8	-1	USDA's Ag Handbook 8 and sequelae)
0	WATER	Flower	773000	854870	0.2786134138801274	
77	ZINC	Flower	4	36	0.1056909841399049	USDA's Ag Handbook 8 and sequelae)