

**Dr. Duke's Phytochemical and Ethnobotanical Database**

**Chemicals Found in *Cynara cardunculus***

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	1,4-DICAFFEOYLQUINIC-ACID	Flower	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	3,5-DI-O-CAFFEOYLQUINIC-ACID	Leaf	--	--		Jim Duke's personal files.
101	APIGENIN	Leaf	--	--		Jim Duke's personal files.
1	APIGENIN-7-O-RUTINOSIDE	Stem	--	--		Jim Duke's personal files.
1	APIGENIN-7-O-RUTINOSIDE	Leaf	--	--		Jim Duke's personal files.
112	ASCORBIC-ACID	Flower	--	828	-0.5798802122982235	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
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.
4	BORON	Flower	2	5	-1.2189545947870004	Betting on Boron, Unpublished draft by J. A. Duke on file at USDA, draft and papers relating to boron percentages.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.
102	CAFFEIC-ACID	Flower	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
28	CALCIUM	Flower	120	5286	-0.13404923516382297	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
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)
4	COSMOSIIN	Leaf	--	--		Jim Duke's personal files.
4	COSMOSIIN	Stem	--	--		Jim Duke's personal files.
4	COSMOSIIN	Flower	--	--		Jim Duke's personal files.
23	CYNARIN	Leaf	200	1000		
23	CYNARIN	Shoot	--	--		Jim Duke's personal files.
6	CYNAROPICRIN	Leaf	--	--		Jim Duke's personal files.
6	CYNAROPICRIN	Shoot	--	--		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.
3	CYNAROSIDE	Shoot	--	--		Jim Duke's personal files.

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3	CYNAROSIDE	Flower	--	--		Jim Duke's personal files.
3	CYNAROSIDE	Leaf	--	--		Jim Duke's personal files.
3	CYNAROSIDE	Stem	--	--		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.
61	FERULIC-ACID	Plant	--	--		
15	FIBER	Flower	11400	224000	1.1300359153518993	
15	FOLACIN	Flower	0.7	4.7		USDA's Ag Handbook 8 and sequelae)
3	GLYCERIC-ACID	Leaf	--	--		Jim Duke's personal files.
3	GLYCERIC-ACID	Flower	--	--		
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.

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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.
8	HESPERETIN	Leaf	--	--		Jim Duke's personal files.
31	HESPERIDIN	Leaf	--	--		Jim Duke's personal files.
2	HETEROSIDE-B	Flower	--	--		
19	INULIN	Leaf	--	--		Jim Duke's personal files.
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	
4	ISOCHLOROGENIC-ACID	Leaf	--	--		Jim Duke's personal files.
2	ISOCHLOROGENIC-ACID-B	Leaf	--	--		Jim Duke's personal files.
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)
78	LUTEOLIN	Leaf	--	--		
2	LUTEOLIN-4'-O-GLUCOSIDE	Leaf	--	--		
2	LUTEOLIN-7-O-GLUCOSIDE	Leaf	--	--		
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)
3	MUCILAGE	Plant	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
2	NEO-CHLOROGENIC-ACID	Leaf	--	--		
2	NEO-CHLOROGENIC-ACID	Plant	--	--		
39	NIACIN	Flower	10	82	-0.12306400442714839	
18	OLEIC-ACID	Flower	50	330	-1.2718747149038718	USDA's Ag Handbook 8 and sequelae)
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)
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	
14	POTASSIUM	Flower	3500	29780	1.078089816806615	
4	PUFA	Flower	630	4185	-0.2578716704093278	USDA's Ag Handbook 8 and sequelae)
176	QUERCETIN	Leaf	--	--		Jim Duke's personal files.
15	RIBOFLAVIN	Flower	0.6	7	0.18555074753411543	
87	RUTIN	Leaf	--	--		Jim Duke's personal files.
1	SCOLYMOSE	Leaf	--	--		Jim Duke's personal files.

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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.
44	SCOPOLETIN	Leaf	--	--		Jim Duke's personal files.
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.
35	TANNIN	Plant	--	--		
2	TARAXASTEROL	Leaf	--	--		
31	THIAMIN	Flower	0.7	6	0.20238493201589755	
77	ZINC	Flower	4	36	0.1056909841399049	USDA's Ag Handbook 8 and sequelae)