

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

**Chemicals found in Brassica oleracea var. italica**

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
15	FIBER	Leaf	10760.0	122866.0	-0.47818554218157117	USDA's Ag Handbook 8 and sequelae)
28	CALCIUM	Leaf	360.0	54247.0	2.4468006382605774	--
8	GLUTAMIC-ACID	Leaf	3750.0	40275.0	0.12712766718145815	USDA's Ag Handbook 8 and sequelae)
14	POTASSIUM	Leaf	3178.0	37270.0	0.3058332790917791	--
3	ASPARTIC-ACID	Leaf	2130.0	22876.0	-0.262328714251028	USDA's Ag Handbook 8 and sequelae)
14	ARGININE	Leaf	1450.0	15573.0	-0.25040545078848814	USDA's Ag Handbook 8 and sequelae)
4	LYSINE	Leaf	1410.0	15143.0	0.5181729835111131	USDA's Ag Handbook 8 and sequelae)
2	LEUCINE	Leaf	1310.0	14069.0	-0.3764770761728601	USDA's Ag Handbook 8 and sequelae)
15	ALPHA-LINOLENIC-ACID	Leaf	1290.0	13855.0	1.243183883058032	USDA's Ag Handbook 8 and sequelae)
3	VALINE	Leaf	1280.0	13747.0	0.29552238675671566	USDA's Ag Handbook 8 and sequelae)
3	ALANINE	Leaf	1180.0	12673.0	0.017867252591863454	USDA's Ag Handbook 8 and sequelae)
14	SULFUR	Leaf	1200.0	11800.0	1.6302603378370644	ACTA AGRIC SCAND SUPPL 22: 1980
3	ISOLEUCINE	Leaf	1090.0	11707.0	-0.09196747371544084	USDA's Ag Handbook 8 and sequelae)
1	SERINE	Leaf	1000.0	10740.0	-0.003085924608790074	USDA's Ag Handbook 8 and sequelae)
112	ASCORBIC-ACID	Leaf	911.0	10360.0	0.5173558895778465	--
4	THREONINE	Leaf	910.0	9773.0	-0.005488458413534491	USDA's Ag Handbook 8 and sequelae)
4	PHOSPHORUS	Leaf	644.0	9090.0	0.7577587277969241	--
7	PHENYLALANINE	Leaf	840.0	9022.0	-0.32366072893862124	USDA's Ag Handbook 8 and sequelae)
1	GLUCORAPHANIN	Leaf	255.0	8990.0		--
8	TYROSINE	Leaf	630.0	6766.0	-0.34477094479123366	USDA's Ag Handbook 8 and sequelae)
7	HISTIDINE	Leaf	500.0	5370.0	-0.0031655528062669996	USDA's Ag Handbook 8 and sequelae)
13	PALMITIC-ACID	Leaf	470.0	5048.0	-0.2927982427753776	USDA's Ag Handbook 8 and sequelae)
27	LINOLEIC-ACID	Leaf	380.0	4081.0	-0.6928297779549968	USDA's Ag Handbook 8 and sequelae)
15	METHIONINE	Leaf	340.0	3652.0	0.46965125289987986	USDA's Ag Handbook 8 and sequelae)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
29	TRYPTOPHAN	Leaf	290.0	3115.0	0.10979300838520059	USDA's Ag Handbook 8 and sequelae)
1	SODIUM	Leaf	252.0	3091.0	-0.09830203577402047	USDA's Ag Handbook 8 and sequelae)
65	MAGNESIUM	Leaf	214.0	3072.0	-0.406886321355332	USDA's Ag Handbook 8 and sequelae)
18	OLEIC-ACID	Leaf	240.0	2578.0	-0.3066324749217592	USDA's Ag Handbook 8 and sequelae)
2	CYSTINE	Leaf	200.0	2148.0	-0.6472110127615397	USDA's Ag Handbook 8 and sequelae)
1	ALPHA-LIPOIC-ACID	Plant	95.0	940.0	-1.0	--
3	ACETONE	Root		800.0		--
8	STEARIC-ACID	Leaf	70.0	752.0	-0.13186141525885503	USDA's Ag Handbook 8 and sequelae)
1	GLUCOBRASSICIN	Leaf	30.0	580.0		--
3	ACETONE	Leaf		500.0		Jim Duke's personal files.
32	ALPHA-TOCOPHEROL	Leaf	7.0	439.0	0.35927304562664447	--
1	4-HYDROXY-GLUCOBRASSICIN	Leaf	3.0	325.0		--
1	GLUCOIBERIN	Leaf	0.0	248.0		--
1	GLUCONASTURTIN	Leaf	0.0	145.0		--
53	BETA-CAROTENE	Leaf	9.0	138.0	-0.5369565297726103	--
77	ZINC	Leaf	4.0	118.0	0.19739995136190341	--
6	IRON	Leaf	8.0	109.0	-0.6442917506016965	--
4	SILICON	Leaf	1.0	90.0	-0.14550202645318341	ACTA AGRIC SCAND SUPPL 22: 1980
4	BORON	Leaf	1.0	85.0	0.6469238451071857	--
39	NIACIN	Leaf	6.4	83.0	-0.17638140110322484	--
14	MANGANESE	Leaf	2.0	80.0	-0.32688920745367256	--
7	SALICYLATES	Leaf	6.0	65.0	-0.435551873962273	--
11	PANTOTHENIC-ACID	Leaf	5.35	63.0	0.8524389937224381	USDA's Ag Handbook 8 and sequelae)
12	COPPER	Leaf	0.68	52.0	0.6699011255650867	--
9	SINAPIC-ACID	Leaf		40.0	-0.5050096614914733	--
10	ALPHA-AMYRIN	Bud	5.0	30.0		Jim Duke's personal files.

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5	ALUMINUM	Leaf	1.0	27.0	-0.7515974845433717	ACTA AGRIC SCAND SUPPL 22: 1980
4	BORON	Stem		21.0	-0.7419113414039952	--
15	RIBOFLAVIN	Leaf	1.1	21.0	-0.07942432526480918	--
61	FERULIC-ACID	Leaf		13.0	0.08918222301645602	--
25	P-COUMARIC-ACID	Leaf		13.0	-0.3465642412720655	--
15	FOLACIN	Leaf	0.64	8.4	-0.15226470429048047	USDA's Ag Handbook 8 and sequelae)
31	THIAMIN	Leaf	0.6	8.0	-0.06349209547044472	USDA's Ag Handbook 8 and sequelae)
102	CAFFEIC-ACID	Leaf		8.0	-0.7148173591555008	--
3	NICKEL	Leaf	0.3	7.0	-0.28467312579555515	ACTA AGRIC SCAND SUPPL 22: 1980
2	MOLYBDENUM	Leaf	0.1	3.76	0.6801012829363977	--
5	PHYLLOQUINONE	Leaf		1.79	-1.3371909672181328	--
2	MOLYBDENUM	Stem		1.76	-0.13934558811150258	--
2	COBALT	Leaf	0.02	0.6	-0.29531921745391343	ACTA AGRIC SCAND SUPPL 22: 1980
5	PHYLLOQUINONE	Inflorescence		0.31		--
3	CADMIUM	Leaf	0.01	0.18	-0.7863999904697607	ACTA AGRIC SCAND SUPPL 22: 1980
24	CHROMIUM	Leaf	0.005	0.18	-0.6314530785674829	ACTA AGRIC SCAND SUPPL 22: 1980
1	MERCURY	Leaf	0.002	0.09	1.1722789664445759	ACTA AGRIC SCAND SUPPL 22: 1980
60	SELENIUM	Leaf	0.002	0.024	-0.3807027917986485	--
60	SELENIUM	Stem		0.015	-0.42886426089167784	--
2	ARSENIC	Leaf		0.01	-0.8114109228193096	ACTA AGRIC SCAND SUPPL 22: 1980
1	PROGOITRIN	Leaf		0.0		--
32	INDOLE-3-CARBINOL	Leaf				Stitt, Paul. Why George should eat broccoli.
7	FUMARIC-ACID	Plant				Jim Duke's personal files.
176	QUERCETIN	Leaf				Stitt, Paul. Why George should eat broccoli.
15	MALIC-ACID	Plant				Jim Duke's personal files.

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3	INDOLE-3-ACETONITRILE	Leaf				Stitt, Paul. Why George should eat broccoli.
2	NONACOSANE	Leaf				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
23	CITRIC-ACID	Plant				Jim Duke's personal files.
18	CINNAMIC-ACID	Leaf				Stitt, Paul. Why George should eat broccoli.
5	SULFORAPHANE	Plant				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
13	P-HYDROXY-BENZOIC-ACID	Leaf				Stitt, Paul. Why George should eat broccoli.
2	TRANS-FERULIC-ACID	Leaf				Stitt, Paul. Why George should eat broccoli.
2	PHYTOSTEROLS	Plant				--
7	SUCCINIC-ACID	Plant				Stitt, Paul. Why George should eat broccoli.
1	NEOGLUCOBRASSICIN	Leaf				Jim Duke's personal files.
24	VANILLIC-ACID	Plant				Stitt, Paul. Why George should eat broccoli.
9	PHYTIC-ACID	Leaf				Stitt, Paul. Why George should eat broccoli.
21	CHLOROPHYLL	Leaf				Stitt, Paul. Why George should eat broccoli.
12	STIGMASTEROL	Plant				Stitt, Paul. Why George should eat broccoli.
1	HEXYL-ACETATE	Plant				Jim Duke's personal files.
34	SALICYLIC-ACID	Leaf				Stitt, Paul. Why George should eat broccoli.
24	ETHANOL	Plant				Jim Duke's personal files.
77	CHLOROGENIC-ACID	Leaf				Stitt, Paul. Why George should eat broccoli.
2	DIMETHYL-DISULFIDE	Plant				Jim Duke's personal files.
10	SQUALENE	Plant				Stitt, Paul. Why George should eat broccoli.

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9	BETA-AMYRIN	Bud				Jim Duke's personal files.
87	RUTIN	Leaf				Stitt, Paul. Why George should eat broccoli.
75	KAEMPFEROL	Leaf				Stitt, Paul. Why George should eat broccoli.
7	ALPHA-CAROTENE	Plant				Jim Duke's personal files.
3	PHENETHYL-ISOTHIOCYANATE	Leaf				Stitt, Paul. Why George should eat broccoli.
2	METHANOL	Plant				Jim Duke's personal files.
2	BETA-CRYPTOXANTHIN	Plant				Jim Duke's personal files.
1	TRIACONTAN-1-OL	Leaf				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
47	BETA-SITOSTEROL	Plant				Stitt, Paul. Why George should eat broccoli.
1	QUINIC-ACID	Leaf				Jim Duke's personal files.
7	SINIGRIN	Plant				Stitt, Paul. Why George should eat broccoli.
16	ALLYL-ISOTHIOCYANATE	Leaf				Stitt, Paul. Why George should eat broccoli.
44	QUERCITRIN	Leaf				Stitt, Paul. Why George should eat broccoli.