

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in Echinacea purpurea

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	13-HYDROXY-OCTADECACIS-9-TRANS-11-CIS-15-TRIENNOIC-ACID	Shoot				Jim Duke's personal files.
0	2,3-DICAFFEOYL-TARTARIC-ACID	Shoot		3400.0		Jim Duke's personal files.
0	2-CAFFEOYL-3-COUMAROYL-TARTARIC-ACID	Shoot		120.0		Jim Duke's personal files.
0	2-CAFFEOYL-3-FERULOYL-TARTARIC-ACID	Shoot		1600.0		Jim Duke's personal files.
0	2-CAFFEOYL-TARTARIC-ACID	Shoot		1000.0		Jim Duke's personal files.
0	2-FERULOYL-TARTARIC-ACID	Shoot		400.0		Jim Duke's personal files.
0	3,4-EPOXY-TRIDECA-1,5-DIENE-7,9,11-TRIYNE	Stem				Jim Duke's personal files.
0	3,4-EPOXY-TRIDECA-1,5-DIENE-7,9,11-TRIYNE	Root	800.0	11000.0	1.0	Jim Duke's personal files.
0	4-O-METHYL-GLUCURONOARABINOXYLAN	Shoot		2600.0		Jim Duke's personal files.
5	ALUMINUM	Root	197.0	786.0	0.10925347177124488	--
6	ARABINO GALACTAN	Shoot				Jim Duke's personal files.
6	ARABINO GALACTAN	Tissue Culture				Jim Duke's personal files.
112	ASCORBIC-ACID	Root	212.0	843.0	-0.16407727962118843	--
0	ASH	Root	20080.0	80000.0	0.35526479427075014	--
53	BETA-CAROTENE	Root	0.6	2.2	-0.4223548942066434	--
47	BETA-SITOSTEROL	Root				Jim Duke's personal files.
14	BETAINE	Plant				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
14	BETAINE	Root				Jim Duke's personal files.
35	BORNEOL	Shoot				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
12	BORNYL-ACETATE	Shoot				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
28	CALCIUM	Root	826.0	3290.0	-0.4504262877394521	--
31	CARYOPHYLENE	Shoot				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
6	CARYOPHYLENE-EPOXIDE	Shoot				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	CHICHORIC-ACID	Flower				Jim Duke's personal files.
0	CHICHORIC-ACID	Leaf				Jim Duke's personal files.
0	CHICHORIC-ACID	Stem				Jim Duke's personal files.
0	CHICHORIC-ACID	Root				Jim Duke's personal files.
0	CHICHORIC-ACID-DIMETHYL-ETHER	Flower				Jim Duke's personal files.
0	CHICHORIC-ACID-DIMETHYL-ETHER	Leaf				Jim Duke's personal files.
0	CHICHORIC-ACID-DIMETHYL-ETHER	Stem				Jim Duke's personal files.
0	CHICHORIC-ACID-DIMETHYL-ETHER	Root				Jim Duke's personal files.
0	CHICHORIC-ACID-MONOMETHYL-ETHER	Stem				Jim Duke's personal files.
0	CHICHORIC-ACID-MONOMETHYL-ETHER	Root				Jim Duke's personal files.
0	CHICHORIC-ACID-MONOMETHYL-ETHER	Flower				Jim Duke's personal files.
0	CHICHORIC-ACID-MONOMETHYL-ETHER	Leaf				Jim Duke's personal files.
24	CHROMIUM	Root	0.5	1.9	-0.18124589408844657	--
14	CICHORIC-ACID	Shoot				Jim Duke's personal files.
14	CICHORIC-ACID	Root	123.0	21000.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
14	CICHORIC-ACID	Flower	12000.0	31000.0		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	CICHORIENIC-ACID	Root				Jim Duke's personal files.
0	CINNAMOYL-ECHINADIOL	Root		1000.0		Jim Duke's personal files.
0	CINNAMOYL-ECHINAXANTHOL	Root		1000.0		Jim Duke's personal files.
2	COBALT	Root	4.0	14.8	-0.2239738444132915	--
0	CYANIDIN-3-O-(6-O-MALONYL-BETA-D-GLUCOPYRANOSIDE)	Flower				Jim Duke's personal files.
5	CYANIN	Flower				Jim Duke's personal files.
0	DODECA-2,4,8,10-TETRAEN-1-OIC-ACID-ISOBUTYLAMIDE	Root		166.7	-1.0	Jim Duke's personal files.
0	DODECA-2-TRANS-4-CIS-8,10-DIYNOIC-ACID-ISOBUTYLAMIDE	Shoot				Jim Duke's personal files.
0	DODECA-2-TRANS-4-CIS-DIENE-8,10-DIYNOIC-ACID-2-METHYL-BUTYLAMIDE	Root				Jim Duke's personal files.
0	DODECA-2-TRANS-4-CIS-DIENE-8,10-DIYNOIC-ACID-ISOBUTYLAMIDE	Root				Jim Duke's personal files.
0	DODECA-2-TRANS-4-TRANS-10-TRANS-TRIEN-8-YNOIC-ACID-ISOBUTYLAMIDE	Root				Jim Duke's personal files.
0	DODECA-2-TRANS-4-TRANS-8-CIS-10-CIS-TETRAENOIC-ACID-ISOBUTYLAMIDE	Root				Jim Duke's personal files.
0	DODECA-2-TRANS-4-TRANS-8-CIS-10-CIS-TETRAENOIC-ACID-ISOBUTYLAMIDE	Shoot				Jim Duke's personal files.
0	DODECA-2-TRANS-4-TRANS-8-CIS-TRIENOIC-ACID-ISOBUTYLAMIDE	Root				Jim Duke's personal files.
0	DODECA-2-TRANS-4-TRANS-8-CIS-TRIENOIC-ACID-ISOBUTYLAMIDE	Shoot				Jim Duke's personal files.
0	DODECA-2-TRANS-4-TRANS-DIENOIC-ACID-ISOBUTYLAMIDE	Root				Jim Duke's personal files.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	DODECA-2-TRANS-4-TRANS-DIENOIC-ACID-ISOBUTYLAMIDE	Shoot				Jim Duke's personal files.
0	DODECA-2E,4E,8Z,10E/Z-TETRAENOIC-ACID-ISOBUTYLAMIDES	Shoot				Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
0	DODECA-CIS-2-TRANS-4-DIENE-8,10-DIYN-1-OIC-ACID-ISOBUTYLAMIDE	Root		166.7	-1.0	Jim Duke's personal files.
0	DODECA-TRANS-2-CIS-4-DIENE-8,10-DIYNOIC-ACID-2-METHYL-BUTYLAMIDE	Root		2.8		Jim Duke's personal files.
0	DODECA-TRANS-2-CIS-4-DIENE-8,10-DIYNOIC-ACID-ISOBUTYLAMIDE	Root		4.4	-0.9999999999999994	Jim Duke's personal files.
0	DODECA-TRANS-2-TRANS-4-CIS-8-CIS-10-TETRAENOIC-ACID-ISOBUTYLAMIDE	Root		16.7		Jim Duke's personal files.
0	DODECA-TRANS-2-TRANS-4-CIS-8-TRANS-10-TETRAENOIC-ACID-ISOBUTYLAMIDE	Root		16.7		Jim Duke's personal files.
0	DODECA-TRANS-2-TRANS-4-CIS-8-TRIENOIC-ACID-ISOBUTYLAMIDE	Root		2.8		Jim Duke's personal files.
0	DODECA-TRANS-2-TRANS-4-TRANS-10-TRIEN-8-YNOIC-ACID-ISOBUTYLAMIDE	Root		1.1		Jim Duke's personal files.
0	ECHINACEA-FACTOR-A	Root				Jim Duke's personal files.
0	ECHINACEA-FACTOR-B	Root				Jim Duke's personal files.
0	ECHINACEA-POLYSACCHARIDE	Tissue Culture				Jim Duke's personal files.
0	ECHINACEA-POLYSACCHARIDE-VII-A	Root				Jim Duke's personal files.
0	ECHINACEA-PURPUREA-POLYSACCHARIDE	Shoot				Jim Duke's personal files.
0	ECHINACEA-PURPUREA-POLYSACCHARIDE-I	Root				Jim Duke's personal files.
1	ECHINACIN-B	Root				Jim Duke's personal files.
10	ECHINACOSIDE	Root				Jim Duke's personal files.
0	EO	Root	628.0	2500.0	-0.5370357854651269	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	EO	Flower	1300.0	4800.0	-0.2635198701703331	Jim Duke's personal files.
0	EO	Shoot	900.0	3200.0	-0.656845084060254	Jim Duke's personal files.
0	FAT	Root	3263.0	13000.0	-0.3294780368795451	--
0	FIBER(CRUDE)	Root		111000.0	-0.008159256327467447	--
0	FIBER(DIETARY)	Root		512000.0	1.2403190416116665	--
0	GERMACRA-4(15)-5-TRANS-10(14)-TRIEN-1-BETA-OL	Shoot		42.1		Jim Duke's personal files.
0	GERMACRANEDIOL-EPOXIDE-CINNAMIC-ACID-ESTER	Root				Jim Duke's personal files.
0	GERMACRENE-ALCOHOL	Shoot				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
2	GERMACRENE-D	Shoot		120.0	-0.3032170149983238	--
12	GLYCINE	Plant				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	GLYCINE-BETAINE	Root		4500.0	1.0	Jim Duke's personal files.
0	GLYCINE-BETAINE	Stem		5650.0	1.0	Jim Duke's personal files.
0	GLYCINE-BETAINE	Leaf		11200.0	1.0	Jim Duke's personal files.
0	GLYCINE-BETAINE	Flower		16450.0	1.0	Jim Duke's personal files.
0	GUM	Root	20080.0	80000.0	-1.0883506063091624	--
1	HETEROXYLAN	Shoot				Jim Duke's personal files.
19	INULIN	Root	42670.0	170000.0	-0.5352651016442753	--
6	IRON	Root	18.0	70.0	-0.3399578709623491	--
0	ISOTUSSILAGINE	Root	15.0	60.0		Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
0	KAEMPFEROL-3-O-RUTINOSIDE	Leaf				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.

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65	MAGNESIUM	Root	467.0	1860.0	-0.3732958440640499	--
14	MANGANESE	Root	3.0	10.1	-0.4252699671884822	--
0	METHYL-P-HYDROXYCINNAMATE	Shoot				Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
39	NIACIN	Root	17.0	68.0	0.5147577614900641	--
25	P-COUMARIC-ACID	Fruit Juice				Jim Duke's personal files.
0	P-HYDROXYCINNAMIC-ACID-METHYL-ESTER	Plant				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	PENTADECA-TRANS-2-CIS-9-DIENE-12,14-DIYNOIC-ACID-(2-HYDROXY-ISOBUTYL)-AMIDE	Shoot		10.0		Jim Duke's personal files.
0	PENTADECA-TRANS-2-CIS-9-DIENE-12,14-DIYNOIC-ACID-ISOBUTYLAMIDE	Shoot		8.0		Jim Duke's personal files.
4	PHOSPHORUS	Root	198.0	790.0	-0.47928982526561387	--
0	POLYSACCHARIDE	Plant				Jim Duke's personal files.
0	POLYSACCHARIDE-A	Tissue Culture				Jim Duke's personal files.
0	POLYSACCHARIDE-E	Tissue Culture				Jim Duke's personal files.
0	POLYSACCHARIDE-F	Tissue Culture				Jim Duke's personal files.
14	POTASSIUM	Root	2031.0	8090.0	-0.5629990790704673	--
0	PROTEIN	Root	23092.0	92000.0	-0.2966070707869874	--
176	QUERCETIN	Leaf				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	QUERCETIN-7-GLUCOSIDE	Leaf				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	RESIN	Root	5020.0	20000.0	-1.1686515095574843	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	RHAMNOARABINOGALACTAN	Shoot				Jim Duke's personal files.
0	RHAMNOARABINOGALACTAN	Root				Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
15	RIBOFLAVIN	Root	3.0	12.0	1.734423986242379	--
87	RUTIN	Leaf				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
4	RUTOSIDE	Leaf				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
60	SELENIUM	Root	0.5	2.1	-0.21306605490417255	--
4	SILICON	Root	8.0	30.1	-0.20463462833135423	--
1	SODIUM	Root	23.0	90.0	-0.4708671369343761	--
5	STARCH	Root	30120.0	120000.0	-0.818804895582863	--
14	SUCROSE	Root		34000.0	-0.9160418188104167	Jim Duke's personal files.
0	THIAMINE	Root	0.7	2.6	-0.3397593870321354	--
4	TIN	Root	4.3	17.0	0.05222691114208539	--
0	TRIDEC-1-ENE-3-5-7-9-11-PENTAYNE	Stem		100.0	-1.0	Jim Duke's personal files.
0	TRIDEC-1-ENE-3-5-7-9-11-PENTAYNE	Flower		5000.0	1.0	Jim Duke's personal files.
0	TRIDEC-1-ENE-3-5-7-9-11-PENTAYNE	Root	1.7	12500.0	1.3010874649309312	Jim Duke's personal files.
0	TRIDECA-1,3-DIENE-5,7,9,11-TETRAYNE	Root		100.0		Jim Duke's personal files.
0	TRIDECA-1-11-DIENE-3-5-7-9-TETRAYNE	Flower				Jim Duke's personal files.
0	TRIDECA-1-11-DIENE-3-5-7-9-TETRAYNE	Root		100.0	-0.5513525242543177	Jim Duke's personal files.
0	TRIDECA-2-TRANS-7-CIS-DIENE-10,12-DIYNOIC-ACID-ISOBUTYLAMIDE	Root				Jim Duke's personal files.
0	TRIDECA-8,10,12-TRIENE-2,4,6-TRIYNE	Flower				Jim Duke's personal files.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	TRIDECA-8,10,12-TRIENE-2,4,6-TRIYNE	Root	200.0	300.0	1.0	Jim Duke's personal files.
0	TRIDECA-TRANS-2-CIS-7-DIENE-10,12-DIYNOIC-ACID-(2-METHYL-BUTYL)-AMIDE	Shoot		1.2		Jim Duke's personal files.
0	TRIDECA-TRANS-2-CIS-7-DIENE-10,12-DIYNOIC-ACID-ISOBUTYLAMIDE	Root		4.4	-0.999999999999998	Jim Duke's personal files.
0	TRIDECA-TRANS-2-CIS-7-DIENE-10,12-DIYNOIC-ACID-ISOBUTYLAMIDE	Shoot		20.0		Jim Duke's personal files.
0	TRIDECA-TRANS-2-TRANS-6-CIS-8-TRIENE-10,12-DIYNOIC-ACID-ISOBUTYLAMIDE	Shoot	2.0	3.2		Jim Duke's personal files.
0	TUSSILAGIN	Plant				Jim Duke's personal files.
1	TUSSILAGINE	Root	15.0	60.0		--
0	UNDECA-2-CIS-4-TRANS-DIENE-8,10-DIYNOIC-ACID-ISOBUTYLAMIDE	Root				Jim Duke's personal files.
0	UNDECA-2-TRANS-4-CIS-8,10-DIYNOIC-ACID-ISOBUTYLAMIDE	Shoot				Jim Duke's personal files.
0	UNDECA-2-TRANS-4-CIS-DIENE-8,10-DIYNOIC-ACID-2-METHYL-BUTYLAMIDE	Root				Jim Duke's personal files.
0	UNDECA-2-TRANS-4-CIS-DIENE-8,10-DIYNOIC-ACID-ISOBUTYLAMIDE	Root				Jim Duke's personal files.
0	UNDECA-CIS-2-TRANS-4-DIENE-2,4-DIYN-1-OIC-ACID-ISOBUTYLAMIDE	Root		166.7	-1.0	Jim Duke's personal files.
0	UNDECA-CIS-2-TRANS-4-DIENE-8,10-DIYNOIC-ACID-ISOBUTYLAMIDE	Root		12.8	-1.0	Jim Duke's personal files.
0	UNDECA-TRANS-2-CIS-4-DIENE-8,10-DIYNOIC-ACID-2-METHYL-BUTYLAMIDE	Root		1.7		Jim Duke's personal files.
0	UNDECA-TRANS-2-CIS-4-DIENE-8,10-DIYNOIC-ACID-ISOBUTYLAMIDE	Root		5.6	-1.0	Jim Duke's personal files.
28	VANILLIN	Shoot		2.4		Jim Duke's personal files.
28	VANILLIN	Plant				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.



Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
0	WATER	Root		749000.0	-0.13250827284057254	--
77	ZINC	Root	1.3	5.1	-0.8355779101426338	--