

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in Echinacea purpurea

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
77	ZINC	Root	1.3	5.1	-0.8355779101426338	--
0	WATER	Root		749000.0	-0.13250827284057254	--
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.
0	UNDECA-TRANS-2-CIS-4-DIENE-8,10-DIYNOIC-ACID-ISOBUTYLAMIDE	Root		5.6	-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-CIS-2-TRANS-4-DIENE-8,10-DIYNOIC-ACID-ISOBUTYLAMIDE	Root		12.8	-1.0	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-2-TRANS-4-CIS-DIENE-8,10-DIYNOIC-ACID-ISOBUTYLAMIDE	Root				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-8,10-DIYNOIC-ACID-ISOBUTYLAMIDE	Shoot				Jim Duke's personal files.
0	UNDECA-2-CIS-4-TRANS-DIENE-8,10-DIYNOIC-ACID-ISOBUTYLAMIDE	Root				Jim Duke's personal files.
1	TUSSILAGINE	Root	15.0	60.0		--
0	TUSSILAGIN	Plant				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	TRIDECA-TRANS-2-CIS-7-DIENE-10,12-DIYNOIC-ACID-ISOBUTYLAMIDE	Root		4.4	-0.9999999999999998	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.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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-8,10,12-TRIENE-2,4,6-TRIYNE	Flower				Jim Duke's personal files.
0	TRIDECA-8,10,12-TRIENE-2,4,6-TRIYNE	Root	200.0	300.0	1.0	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-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-1,3-DIENE-5,7,9,11-TETRAYNE	Root		100.0		Jim Duke's personal files.
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.
4	TIN	Root	4.3	17.0	0.05222691114208539	--
0	THIAMINE	Root	0.7	2.6	-0.3397593870321354	--
14	SUCROSE	Root		34000.0	-0.9160418188104167	Jim Duke's personal files.
5	STARCH	Root	30120.0	120000.0	-0.818804895582863	--
1	SODIUM	Root	23.0	90.0	-0.4708671369343761	--
4	SILICON	Root	8.0	30.1	-0.20463462833135423	--
60	SELENIUM	Root	0.5	2.1	-0.21306605490417255	--
4	RUTOSIDE	Leaf				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
87	RUTIN	Leaf				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
15	RIBOFLAVIN	Root	3.0	12.0	1.734423986242379	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	RHAMNOARABINOGALACTAN	Root				Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
0	RHAMNOARABINOGALACTAN	Shoot				Jim Duke's personal files.
0	RESIN	Root	5020.0	20000.0	-1.1686515095574843	--
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.
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	PROTEIN	Root	23092.0	92000.0	-0.2966070707869874	--
14	POTASSIUM	Root	2031.0	8090.0	-0.5629990790704673	--
0	POLYSACCHARIDE-F	Tissue Culture				Jim Duke's personal files.
0	POLYSACCHARIDE-E	Tissue Culture				Jim Duke's personal files.
0	POLYSACCHARIDE-A	Tissue Culture				Jim Duke's personal files.
0	POLYSACCHARIDE	Plant				Jim Duke's personal files.
4	PHOSPHORUS	Root	198.0	790.0	-0.47928982526561387	--
0	PENTADECA-TRANS-2-CIS-9-DIENE-12,14-DIYNOIC-ACID-ISOBUTYLAMIDE	Shoot		8.0		Jim Duke's personal files.
0	PENTADECA-TRANS-2-CIS-9-DIENE-12,14-DIYNOIC-ACID-(2-HYDROXY-ISOBUTYL)-AMIDE	Shoot		10.0		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.
25	P-COUMARIC-ACID	Fruit Juice				Jim Duke's personal files.
39	NIACIN	Root	17.0	68.0	0.5147577614900641	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
14	MANGANESE	Root	3.0	10.1	-0.4252699671884822	--
65	MAGNESIUM	Root	467.0	1860.0	-0.3732958440640499	--
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.
0	ISOTUSSILAGINE	Root	15.0	60.0		Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
6	IRON	Root	18.0	70.0	-0.3399578709623491	--
19	INULIN	Root	42670.0	170000.0	-0.5352651016442753	--
1	HETEROXYLAN	Shoot				Jim Duke's personal files.
0	GUM	Root	20080.0	80000.0	-1.0883506063091624	--
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.
12	GLYCINE	Plant				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	--
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.
0	GERMACRANEDIOL-EPOXIDE-CINNAMIC-ACID-ESTER	Root				Jim Duke's personal files.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	GERMACRA-4(15)-5-TRANS-10(14)-TRIEN-1-BETA-OL	Shoot		42.1		Jim Duke's personal files.
0	FIBER(DIETARY)	Root		512000.0	1.2403190416116665	--
0	FIBER(CRUDE)	Root		111000.0	-0.008159256327467447	--
0	FAT	Root	3263.0	13000.0	-0.3294780368795451	--
0	EO	Shoot	900.0	3200.0	-0.656845084060254	Jim Duke's personal files.
0	EO	Root	628.0	2500.0	-0.5370357854651269	--
0	EO	Flower	1300.0	4800.0	-0.2635198701703331	Jim Duke's personal files.
10	ECHINACOSIDE	Root				Jim Duke's personal files.
1	ECHINACIN-B	Root				Jim Duke's personal files.
0	ECHINACEA-PURPUREA-POLYSACCHARIDE-I	Root				Jim Duke's personal files.
0	ECHINACEA-PURPUREA-POLYSACCHARIDE	Shoot				Jim Duke's personal files.
0	ECHINACEA-POLYSACCHARIDE-VII-A	Root				Jim Duke's personal files.
0	ECHINACEA-POLYSACCHARIDE	Tissue Culture				Jim Duke's personal files.
0	ECHINACEA-FACTOR-B	Root				Jim Duke's personal files.
0	ECHINACEA-FACTOR-A	Root				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	DODECA-TRANS-2-TRANS-4-CIS-8-TRIENOIC-ACID-ISOBUTYLAMIDE	Root		2.8		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-CIS-10-TETRAENOIC-ACID-ISOBUTYLAMIDE	Root		16.7		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-CIS-4-DIENE-8,10-DIYNOIC-ACID-2-METHYL-BUTYLAMIDE	Root		2.8		Jim Duke's personal files.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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-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-2-TRANS-4-TRANS-DIENOIC-ACID-ISOBUTYLAMIDE	Root				Jim Duke's personal files.
0	DODECA-2-TRANS-4-TRANS-DIENOIC-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-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-10-TRANS-TRIEN-8-YNOIC-ACID-ISOBUTYLAMIDE	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-CIS-DIENE-8,10-DIYNOIC-ACID-2-METHYL-BUTYLAMIDE	Root				Jim Duke's personal files.
0	DODECA-2-TRANS-4-CIS-8,10-DIYNOIC-ACID-ISOBUTYLAMIDE	Shoot				Jim Duke's personal files.
0	DODECA-2,4,8,10-TETRAEN-1-OIC-ACID-ISOBUTYLAMIDE	Root		166.7	-1.0	Jim Duke's personal files.
5	CYANIN	Flower				Jim Duke's personal files.
0	CYANIDIN-3-O-(6-O-MALONYL-BETA-D-GLUCOPYRANOSIDE)	Flower				Jim Duke's personal files.
2	COBALT	Root	4.0	14.8	-0.2239738444132915	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CINNAMOYL-ECHINAXANTHOL	Root		1000.0		Jim Duke's personal files.
0	CINNAMOYL-ECHINADIOL	Root		1000.0		Jim Duke's personal files.
0	CICHORIENIC-ACID	Root				Jim Duke's personal files.
14	CICHORIC-ACID	Root	123.0	21000.0		--
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.
14	CICHORIC-ACID	Shoot				Jim Duke's personal files.
24	CHROMIUM	Root	0.5	1.9	-0.18124589408844657	--
0	CHICHORIC-ACID-MONOMETHYL-ETHER	Flower				Jim Duke's personal files.
0	CHICHORIC-ACID-MONOMETHYL-ETHER	Leaf				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-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	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.
6	CARYOPHYLLENE-EPOXIDE	Shoot				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
31	CARYOPHYLLENE	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
28	CALCIUM	Root	826.0	3290.0	-0.4504262877394521	--
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.
35	BORNEOL	Shoot				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
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.
47	BETA-SITOSTEROL	Root				Jim Duke's personal files.
53	BETA-CAROTENE	Root	0.6	2.2	-0.4223548942066434	--
0	ASH	Root	20080.0	80000.0	0.35526479427075014	--
112	ASCORBIC-ACID	Root	212.0	843.0	-0.16407727962118843	--
6	ARABINOGALACTAN	Tissue Culture				Jim Duke's personal files.
6	ARABINOGALACTAN	Shoot				Jim Duke's personal files.
5	ALUMINUM	Root	197.0	786.0	0.10925347177124488	--
0	4-O-METHYL- GLUCURONOARABINOXYL AN	Shoot		2600.0		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	3,4-EPOXY-TRIDECA-1,5- DIENE-7,9,11-TRIYNE	Stem				Jim Duke's personal files.
0	2-FERULOYL-TARTARIC- ACID	Shoot		400.0		Jim Duke's personal files.
0	2-CAFFEOYL-TARTARIC- ACID	Shoot		1000.0		Jim Duke's personal files.
0	2-CAFFEOYL-3-FERULOYL- TARTARIC-ACID	Shoot		1600.0		Jim Duke's personal files.
0	2-CAFFEOYL-3- COUMAROYL-TARTARIC- ACID	Shoot		120.0		Jim Duke's personal files.
0	2,3-DICAFFEOYL- TARTARIC-ACID	Shoot		3400.0		Jim Duke's personal files.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
0	13-HYDROXY-OCTADECA-CIS-9-TRANS-11-CIS-15-TRIENNOIC-ACID	Shoot				Jim Duke's personal files.