

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in *Valeriana officinalis*

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
9	TERPINOLENE	Root				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
78	LUTEOLIN	Root				--
0	KESSENE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	CITRONELLOL-ISOVALERATE	Leaf Essent. Oil	15900.0	18000.0		--
2	ASPARAGINE	Rhizome				--
0	(-)-ACTINIDINE	Root				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	VALEROSIDE-A	Rhizome		440.0		--
0	BALDRIANIC-ACID	Root				--
0	GAMMA-VALENE	Rhizome				--
1	CATALASE	Root				--
1	N-BUTYL-VALERATE	Leaf Essent. Oil	4.0	24600.0		--
47	BETA-SITOSTEROL	Plant				Lokar, L. C., Martini, F. 1997. Chemotaxonomic Investigations on the Genus <i>Valeriana</i> L. in the Northeastern Italy and in Tuscany. I. Phytosterols. Dept. of Biology, University of Trieste. <i>Allionia</i> 35: 103-115.
4	ACTINIDINE	Root		0.5		--
31	CARYOPHYLLENE	Rhizome Essent. Oil				--
2	VALERENONE	Rhizome				--
0	ALLO-AROMADENDRENE	Root	0.0	195.0		Father Nature's Farmacy: The aggregate of all these three-letter citations.
2	VALTRATE	Root	4000.0	18000.0		--
0	VALERENOL-HEXANDRATE	Root				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ISOBORNYL-ISOVALERATE	Root				Medline (post 1990 searches filed in my computer)
0	ALPHA-KESSYL-ALCOHOL	Root				--
0	ISOVALTRATE	Rhizome		5280.0		--
35	BORNEOL	Essential Oil				--
0	VALERANONE	Root	555.0	11120.0		--
0	VALERENOL	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
1	MYRTENYL-ACETATE	Root				--
6	EUGENYL-ACETATE	Root				--
0	EUGENOL-ISOVALERATE	Leaf Essent. Oil				--
0	(-)-BORNEOL-ACETATE	Root				--
0	ISOVALTRATE	Root	500.0	6300.0		--
0	BETA-VALENE	Root				--
0	LIPASE	Root				--
0	KESSANE	Plant				--
0	CARVYL-ACETATE	Root				--
0	ALLO-AROMADENDRENE	Root Essent. Oil				--
0	EUGENYL-ISOVALERATE	Root				Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
0	VALEROSIDATE	Root		15000.0		--
10	AZULENE	Root				--
0	DELTA-VALENE	Rhizome				--
3	ALPHA-CURCUMENE	Root				--
0	ISOBORNEOL-ISOVALERATE	Leaf Essent. Oil	112500.0	478000.0		--
0	KANOKOSIDES	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	(-)-PACIFIGORGIOL	Essential Oil	7000.0	86000.0		--
0	HOMOACEVALTRATE	Root		300.0		--
0	CHATINENE	Root				--
31	CARYOPHYLLENE	Essential Oil				--
0	VALERENOLIC-ACID	Root				--
1	ACEVALTRATE	Root		120.0		--
47	BETA-SITOSTEROL	Rhizome				--
0	VALEROSIDE-A	Root		440.0		--
0	VALERANONE	Leaf	70.0	1720.0		Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	PEROXIDASE	Plant				--
0	ISOBORNYL-ISOVALERATE	Leaf	260.0	12190.0		Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	KESSANE	Root Essent. Oil				--
0	VALERANONE	Rhizome				--
0	PENTYL-VALERATE	Leaf Essent. Oil	1800.0	22200.0		--
4	VALERENIC-ACID	Root				--
0	PENTYL-VALERATE	Leaf	4.0	565.0		Father Nature's Farmacy: The aggregate of all these three-letter citations.
2	MYRTENOL	Plant				--
0	EUDESMOL	Root				--
0	EUGENOL-ISOVALERATE	Root Essent. Oil				--
0	BORNEOL-ACETATE	Rhizome				--
3	(-)-BORNEOL	Root				--
0	ISOVALEROXY- DIHYDROVALTRATE	Rhizome				--
0	BETA-SITOSTEROL- STEARATE	Root				--
0	TRANS-VALERENOL- ISOVALERATE	Root				--
19	D-LIMONENE	Leaf	125.0	1400.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
37	CARVACROL	Root	10.0	195.0		--
0	EREMOPHILENE	Plant				--
60	LIMONENE	Root Essent. Oil				--
0	VALERINE	Leaf				--
0	BETA-VALENE	Rhizome				--
0	PEROXIDASE	Root				--
0	ISOBORNEOL-ISOVALERATE	Root Essent. Oil				--
75	KAEMPFEROL	Plant				--
0	(-)-MYRTENOL-ISOVALERATE	Root				--
0	7-BETA-ACEVALTRATE	Root				--
1	CATALASE	Plant				--
0	VALERENOLIC-ACID	Root Essent. Oil				--
0	ACETOXY-VALEPOTRIATUM	Plant				--
1	SERINE	Rhizome				--
0	VALEROSIDATUM	Root				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	VALERANINE	Root				--
0	PATCHOLYL-ALCOHOL	Root				--
2	ISOBORNYL-ACETATE	Root	55.0	3030.0		--
0	VALERANONE	Root Essent. Oil				--
0	PATCHOULYL-ALCOHOL	Root				--
0	VALERENAL	Plant				--
0	PACIFIGORGIOL	Leaf	16.0	2195.0		Father Nature's Farmacy: The aggregate of all these three-letter citations.
22	MYRCENE	Plant				--
0	ERGNOPHYLINE	Root				--
0	EO	Root Essent. Oil		5000.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	BORNEOL-ACETATE	Essential Oil				--
0	GAMMA-VALENE	Root				--
3	(-)-BORNEOL	Root Essent. Oil				--
0	ISOVALEROXY-HYDROXY-DIHYDROVALTRATE	Root				--
47	BETA-SITOSTEROL	Root				--
0	TRANS-VALERENOL-ACETATE	Root				--
0	GAMMA-CADINENE	Root				--
0	CHATININE	Leaf				--
0	STIGMASTEROL-ACETATE	Plant				Lokar, L. C., Martini, F. 1997. Chemotaxonomic Investigations on the Genus Valeriana L. in the Northeastern Italy and in Tuscany. I. Phytosterols. Dept. of Biology, University of Trieste. Allionia 35: 103-115.
14	ARGININE	Rhizome				--
2	ELEMOL	Root				--
0	VALERIDINE	Root				--
0	VALECHLORIN	Plant				--
0	ISOVALEROXY-HYDROXY-DIDROVALTRATE	Root	25.0	1000.0		--
0	(-)-MYRTENOL	Leaf	3.0	60.0		Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	1-ALPHA-ACEVALTRATE	Root				--
0	ACETOXYVALERENOIC-ACID	Root	10.0	1680.0		--
16	ACETIC-ACID	Root				--
0	VALERINE	Root				--
0	VALERANAL	Leaf	130.0	2590.0		Father Nature's Farmacy: The aggregate of all these three-letter citations.
13	PALMITIC-ACID	Plant				--
6	GUAIAZULENE	Root Essent. Oil				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ISOBORNEOL-ACETATE	Leaf Essent. Oil	2600.0	8400.0		--
0	VALERANAL	Leaf Essent. Oil	56000.0	101500.0		--
0	MYRTEN-1-OL-ISOVALERATE	Rhizome				--
0	VALEPOTRIATUM	Plant				--
0	(+)-EREMOPHILENE	Root Essent. Oil				--
11	GAMMA-TERPINENE	Root				--
0	(-)-BETA-PINENE	Root Essent. Oil				--
5	DIHYDROVALTRATE	Root				--
0	TRANS-VALERENOL	Root				--
0	KESSYL-2-OL-ACETATE	Root				--
0	CHATININE	Root				--
12	STIGMASTEROL	Plant				Lokar, L. C., Martini, F. 1997. Chemotaxonomic Investigations on the Genus Valeriana L. in the Northeastern Italy and in Tuscany. I. Phytosterols. Dept. of Biology, University of Trieste. Allionia 35: 103-115.
7	PHENYLALANINE	Rhizome				--
0	DIHYDROVALEPOTRIATUM	Plant				--
5	ISOVALERIC-ACID	Root Essent. Oil				--
0	TRIDECA-12-ENE-2-4-6-8-10-PENTAYNE	Root				--
60	LIMONENE	Root				--
1	N-VALERALDEHYDE	Leaf	5.0	315.0		Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	SACCHAROSE	Plant		50000.0		--
5	ISOVALERIC-ACID	Root				--
0	(-)-MYRTENOL	Root				--
1	ACEVALTRATE	Plant				--
0	CAPRONIC-ACID	Plant		204000.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ACETOXYVALERENIC-ACID	Root				--
0	8-EPIKESSANOL	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	ALPHA-METHYL-KETONE-PYRROLE	Root				--
9	VALERIC-ACID	Root				--
6	VALEPOTRIATES	Tissue Culture		103000.0		Medline (post 1990 searches filed in my computer)
0	P-CYMOL	Root				--
7	ISOBORNEOL	Root				Medline (post 1990 searches filed in my computer)
5	GLUTAMINE	Rhizome				--
0	ISOBORNEOL-ACETATE	Root Essent. Oil				--
1	ACEVALTRATE	Tissue Culture	100.0	120.0		--
0	MYRTEN-1-OL	Rhizome				--
16	P-CYMENE	Root				--
0	ALPHA-ELAEOSTEARIC-ACID	Seed Oil		446000.0		--
0	BORNEOL-ACETATE	Rhizome Essent. Oil				--
20	GAMMA-LINOLENIC-ACID	Plant		62000.0		--
0	(-)-BETA-PHELLANDRENE	Root Essent. Oil				--
0	ACETOXYVALTRATE	Root				--
3	BETA-PHELLANDRENE	Root				--
0	ISOVALERAMIDE	Root				--
0	KESSYL-6-OL-ACETATE	Root				--
0	DELTA-BISABOLENE	Root	8.0	150.0		Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	STIGMASTANOL	Plant				Lokar, L. C., Martini, F. 1997. Chemotaxonomic Investigations on the Genus Valeriana L. in the Northeastern Italy and in Tuscany. I. Phytosterols. Dept. of Biology, University of Trieste. Allionia 35: 103-115.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	ALANINE	Rhizome				--
0	DIDROVALTRATE	Root	50.0	1000.0		--
0	BETA-METHYL-VALERIC-ACID	Root Essent. Oil				--
0	ALPHA-VALENE	Root				--
0	CIS-VALERENOL-ISOVALERATE	Root				--
0	ISOVALERIANIC-ACID	Root		200000.0		--
0	(-)-MYRTENOL	Leaf Essent. Oil	1200.0	2400.0		--
9	CAMPHENE	Root Essent. Oil				--
4	VALERENIC-ACID	Root Essent. Oil				--
0	7-EPIDEACETYLIISOVALTRATE	Plant				--
0	VALERIANONE	Root				--
0	VALDIATE	Root				--
25	P-COUMARIC-ACID	Plant				--
0	HOMODIDROVALTRATE	Root				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
5	GLUTAMINE	Root				--
53	BETA-CAROTENE	Root				--
0	VALENOL	Root				--
0	MAALIOL	Root				--
1	DIHYDROCARVYL-ACETATE	Root				--
0	DIDROVALTRATE	Tissue Culture		40.0		--
0	(+)-BETA-BISABOLENE	Root Essent. Oil				--
0	(-)-BETA-ELEMENE	Root Essent. Oil				--
0	ACETOXYVALTRATE	Rhizome				--
13	BETA-IONONE	Root				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	N-VALERALDEHYDE	Leaf Essent. Oil	2200.0	12300.0		--
0	BETA-CARYOPHYLLENE	Root Essent. Oil				--
10	SQUALENE	Plant				Lokar, L. C., Martini, F. 1997. Chemotaxonomic Investigations on the Genus Valeriana L. in the Northeastern Italy and in Tuscany. I. Phytosterols. Dept. of Biology, University of Trieste. Allionia 35: 103-115.
3	ALANINE	Root				--
9	DELTA-CADINENE	Root				--
2	ELEMOL	Essential Oil				--
0	VALERIANOL	Root Essent. Oil				--
0	ALPHA-METHYL-2-PYRROLYL-KETONE	Plant				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	CIS-VALERENOL-ACETATE	Root				--
0	RESIN	Root				Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
0	KESSYL-6-OL	Root				--
0	(-)-LIMONENE	Root Essent. Oil				--
102	CAFFEIC-ACID	Plant				--
9	CAMPHENE	Rhizome Essent. Oil				--
0	VALERENAL	Essential Oil				--
0	2-ACETYL-PYRROLE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	VALERIANOLIC-ACID	Root				--
8	TYROSINE	Root				--
0	OXYDASE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	HOMODEOXYDODIDROVALTRATE	Root				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
8	GLUTAMIC-ACID	Root				--
7	ISOBORNEOL	Root Essent. Oil				--
0	ISOEUGENYL-ISOVALERATE	Root				Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
0	OXYDASE	Root				--
22	MYRCENE	Root Essent. Oil				--
0	VALECHLORINE	Root				--
0	DEOXYDODIDROVALTRATE	Root				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
16	P-CYMENE	Root Essent. Oil				--
13	FORMIC-ACID	Root				--
0	(-)-AR-CURCUMENE	Root Essent. Oil				--
2	VALTRATE	Plant				--
5	BETA-ELEMENE	Root				--
6	VALEPOTRIATES	Rhizome				--
7	CYCLOARTENOL	Plant				Lokar, L. C., Martini, F. 1997. Chemotaxonomic Investigations on the Genus Valeriana L. in the Northeastern Italy and in Tuscany. I. Phytosterols. Dept. of Biology, University of Trieste. Allionia 35: 103-115.
0	N-(2-(4-HYDROXY-PHENYL)-ETHYL)-ACTINIDINIUM	Root		300.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	DEACETYLSOLAVTRATE	Root				Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
2	ELEMOL	Root Essent. Oil				--
0	ISOVALERIANIC-ACID	Leaf Essent. Oil		8400.0		--
0	ALPHA-KESSYL-ALCOHOL	Plant				--
9	TERPINOLENE	Root Essent. Oil				--
35	BORNEOL	Root	5.0	460.0		--
0	KESSYL-2-OL	Root				--
0	BORNYL-ISOVALERIANATE	Root	15.0	300.0		Father Nature's Farmacy: The aggregate of all these three-letter citations.
9	CAMPHENE	Essential Oil				--
0	VALERENAL	Root Essent. Oil				--
0	(S)-(-)-ACTINIDINE	Root				--
0	VALERIANOL	Root				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
71	THYMOL	Root	3.0	860.0		--
3	GUAIOL	Root				--
0	BETA-METHYL-GLUCOSIDE	Leaf				--
0	BORNEOL-ISOVALERIANATE	Root Essent. Oil		15000.0		--
0	(-)-CARYOPHYLLENE	Root Essent. Oil				--
0	MAALI-ALCOHOL	Rhizome				--
0	TRIDECEN-(1)-PENTAIN(3,5,7,9,11)	Root				--
0	MYRTENYL-ISOVALERATE	Rhizome				--
0	LEDOL	Root				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CITRONELLOL-ISOVALERATE	Leaf	36.0	460.0		Father Nature's Farmacy: The aggregate of all these three-letter citations.
3	AR-CURCUMENE	Root				--
1	HOMOBALDRINAL	Root				--
0	(-)-ALPHA-PINENE	Root Essent. Oil				--
2	VALTRATE	Rhizome				--
53	BETA-CAROTENE	Plant				--
0	ANHYDROVALENOL-ISOVALERATE	Rhizome				--
2	MYRTENOL	Root	3.0	85.0		Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	BISABOLOL	Root				--
0	(+)-GAMMA-CADINENE	Root Essent. Oil				--
1	CHOLESTEROL	Plant				Lokar, L. C., Martini, F. 1997. Chemotaxonomic Investigations on the Genus Valeriana L. in the Northeastern Italy and in Tuscany. I. Phytosterols. Dept. of Biology, University of Trieste. Allionia 35: 103-115.
0	N-(2-(4-HYDROXY-PHENYL)-ETHYL)-10-HYDROXY-ACTINIDINIUM	Root		10.0		--
0	VALERIANA-PHENOL	Rhizome				--
0	ALPHA-KERZYLALCOHOL	Root				--
77	ZINC	Root				--
176	QUERCETIN	Plant				--
0	KESSYL-GLYCOL-DIACETATE	Root				--
1	BORNYL-FORMATE	Root				--
0	VALERENAL	Root	30.0	4000.0		--
0	(+)-MAALIOXIDE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
28	ALPHA-PINENE	Rhizome Essent. Oil				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	VALERIANINE	Root				--
0	ISOEUGENOL-VALERATE	Root Essent. Oil				--
0	BORNEOL-ISOVALERATE	Essential Oil				--
0	HYDROXYVALERINIC-ACID	Root				Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
0	(-)-CAMPHENE	Root Essent. Oil				--
22	MYRCENE	Root				--
0	KONGOL	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
20	CHOLINE	Stem		30000.0		--
0	SKYANTHINE	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.
3	BALDRINAL	Root				--
0	FAURINONE	Root	105.0	2080.0		Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
0	(-)-ALPHA-FENCHENE	Root Essent. Oil				--
2	VALTRATE	Tissue Culture	380.0	450.0		--
0	VALENOL-ISOVALERATE	Rhizome				--
0	KESSANE	Root				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
22	GAMMA-AMINOBUTYRIC-ACID	Rhizome				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CHOLESTERIL-N-VALERATE	Plant				Lokar, L. C., Martini, F. 1997. Chemotaxonomic Investigations on the Genus Valeriana L. in the Northeastern Italy and in Tuscany. I. Phytosterols. Dept. of Biology, University of Trieste. Allionia 35: 103-115.
0	(+)-ACTINIDINE	Root				--
0	VALERIADIPYRIDONE	Rhizome				--
0	ALPHA-FENCHENE	Root				--
23	ALPHA-TERPINEOL	Root Essent. Oil				--
1	N-(P-HYDROXYPHENETHYL)-ACTINIDINE	Root				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
3	ISOLEUCINE	Rhizome				--
0	BORNYL-BUTYRATE	Root				--
35	BORNEOL	Root Essent. Oil				--
0	VALERANONE	Essential Oil				--
28	ALPHA-PINENE	Essential Oil				--
2	VALERENONE	Root				J.S. Glasby Dict.Plis Containing 2ndary Metabolite. 1991.
0	TANNINS	Root				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	N-(BETA-(P-HYDROXYPHENYL)-ETHYL)-ACTINIDINE	Plant				--
22	GABA	Root				--
0	ISOEUGENOL-ISOVALERATE	Root Essent. Oil				--
0	BORNEOL-ISOVALERATE	Rhizome Essent. Oil				--
0	HOMOVALTRATE	Root				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	(-)-BORNEOL-ISOVALERATE	Root Essent. Oil				--
15	MALIC-ACID	Root				--
0	KESSYL-GLYCOL	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	CRYPTOFAURONOL	Root				--
0	ISOVALTRATES	Root				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
3	ASPARTIC-ACID	Rhizome				--
0	FAURINOL	Root				Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
0	(-)-ALLOAROMADENDRENE	Root Essent. Oil				--
3	VALINE	Rhizome				--
0	BALDRITANNIC-ACID	Root				--
0	VALENOL	Rhizome				--
0	EREMOPHILENE	Root				--
0	7-EPIDEACETYLIISOVALTRATE	Root				--
22	GAMMA-AMINOBUTYRIC-ACID	Root				--
2	CAMPESTEROL	Plant				Lokar, L. C., Martini, F. 1997. Chemotaxonomic Investigations on the Genus Valeriana L. in the Northeastern Italy and in Tuscany. I. Phytosterols. Dept. of Biology, University of Trieste. Allionia 35: 103-115.
4	ACTINIDINE	Rhizome		1.8		--
0	VALERENONIC-ACID	Root	190.0	1400.0		--
3	ALPHA-CURCUMENE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
11	GAMMA-TERPINENE	Root Essent. Oil				--
0	VALTRATE-ISOVALEROXYHYDRIN	Root				--
0	VALERENOL-VALERATE	Root				--
0	ISOVALERIANIC-ACID	Leaf	0.0	215.0		Father Nature's Farmacy: The aggregate of all these three-letter citations.
2	LEUCINE	Rhizome				--
0	VALERANONE	Leaf Essent. Oil	30400.0	67500.0		--
0	VALERENOLIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
8	STEARIC-ACID	Root				--
0	MYRTENYL-ISOVALERIANATE	Root				--
0	EUGENOL-VALERATE	Root Essent. Oil				--
0	BORNEOL-FORMATE	Root Essent. Oil				--
0	HOMODIVALTRATE	Root				Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
0	(-)-BORNEOL-ISOVALERATE	Root				--
2	ELEMOL	Leaf	3.0	36.0	-1.0467417211593815	Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	CARBOHYDRATES	Root	88500.0	750000.0	-1.02724083866397	--
13	BETA-IONONE	Leaf Essent. Oil	1800.0	3000.0	-1.0	--
6	VALEPOTRIATES	Root	1000.0	23600.0	-1.0	--
2	ELEMOL	Leaf Essent. Oil		1400.0	-1.0	--
19	D-LIMONENE	Leaf Essent. Oil		55000.0	-1.0	--
35	GERANIOL	Root	1.0	120.0	-1.0	Father Nature's Farmacy: The aggregate of all these three-letter citations.
28	ALPHA-PINENE	Root Essent. Oil		25000.0	-0.9573580453647603	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	FIBER(CRUDE)	Root		79000.0	-0.9546329903137257	--
0	ALKALOIDS	Root	500.0	2000.0	-0.8237252063158436	--
3	BETA-PHELLANDRENE	Leaf Essent. Oil		1400.0	-0.8017042912228218	--
9	CAMPHENE	Root	3.0	65.0	-0.7900657071763403	--
9	CAMPHENE	Leaf Essent. Oil		5000.0	-0.6992473325340675	--
13	ALPHA-TERPINENE	Leaf Essent. Oil		600.0	-0.698535055754104	--
112	ASCORBIC-ACID	Root		0.0	-0.6459735820044326	--
15	RIBOFLAVIN	Root	0.1	1.2	-0.6290718793872899	--
1	RAFFINOSE	Root		30000.0	-0.5987994606248946	--
60	LIMONENE	Leaf Essent. Oil	2300.0	25500.0	-0.5655050351348929	--
4	PHOSPHORUS	Root	39.0	330.0	-0.560116109548552	--
0	THIAMINE	Root	0.2	1.6	-0.5431066510912689	--
13	BETA-PINENE	Root Essent. Oil		48000.0	-0.542129322911591	--
28	ALPHA-PINENE	Root	1.0	500.0	-0.5389356389673264	Father Nature's Farmacy: The aggregate of all these three-letter citations.
31	CARYOPHYLLENE	Leaf Essent. Oil		51000.0	-0.5095909536194779	--
0	1,8-CINEOL	Leaf Essent. Oil	37700.0	65100.0	-0.4818256731898833	--
14	MANGANESE	Root	0.7	5.6	-0.4790041559713029	--
8	FRUCTOSE	Root		9000.0	-0.4564787045656782	--
31	THIAMIN	Root		1.6	-0.45141259736321837	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
2	COBALT	Root	0.6	4.8	-0.4410243796700459	--
0	ALLO-AROMADENDRENE	Leaf Essent. Oil		9700.0	-0.42565395460505273	--
5	SABINENE	Leaf Essent. Oil	1200.0	13600.0	-0.41148866867411177	--
1	SODIUM	Root	27.0	230.0	-0.40568103697114866	--
14	POTASSIUM	Root	1215.0	10300.0	-0.4011752971664641	--
3	BETA-PHELLANDRENE	Leaf		35.0	-0.3807332732105446	Father Nature's Farmacy: The aggregate of all these three-letter citations.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
6	IRON	Root	6.0	48.0	-0.3719192616723782	--
0	PROTEIN	Root	10148.0	86000.0	-0.3639841360982529	--
4	SILICON	Root	0.1	0.9	-0.3387704380211594	--
18	OLEIC-ACID	Plant		3000.0	-0.3289098475993685	--
0	BETA-CARYOPHYLLENE	Leaf Essent. Oil	2500.0	13600.0	-0.32499336547223034	--
2	BETA-MYRCENE	Leaf	2.0	210.0	-0.32305897742328993	Father Nature's Farmacy: The aggregate of all these three-letter citations.
67	1,8-CINEOLE	Leaf	85.0	1660.0	-0.31670589111205333	--
13	ALPHA-TERPINENE	Leaf		15.0	-0.30461131542122966	Father Nature's Farmacy: The aggregate of all these three-letter citations.
6	BETA-BISABOLENE	Leaf Essent. Oil	6200.0	9000.0	-0.21732019637969832	--
15	FIBER	Root		79000.0	-0.20236031507008168	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
24	CHROMIUM	Root	0.2	1.8	-0.20117706529794718	--
7	GLUCOSE	Root		15000.0	-0.18931013947995629	--
0	BETA-CARYOPHYLLENE	Leaf	6.0	345.0	-0.16591106399250605	Father Nature's Farmacy: The aggregate of all these three-letter citations.
9	CAMPHENE	Leaf	0.0	130.0	-0.14355459328033415	Father Nature's Farmacy: The aggregate of all these three-letter citations.
5	ALUMINUM	Root	50.0	422.0	-0.0860532203055952	--
60	SELENIUM	Root	0.5	4.4	-0.04945181208643408	--
5	SABINENE	Leaf	3.0	345.0	-0.041395703025686854	Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	FAT	Root	2714.0	23000.0	0.004007840419506115	--
39	NIACIN	Root	6.0	52.0	0.051041041724226174	--
31	CARYOPHYLLENE	Leaf	115.0	1300.0	0.05756656381480434	Father Nature's Farmacy: The aggregate of all these three-letter citations.
9	TERPINOLENE	Leaf	7.0	235.0	0.06726575623522042	Father Nature's Farmacy: The aggregate of all these three-letter citations.
9	TERPINOLENE	Leaf Essent. Oil	3100.0	9200.0	0.09987956540879277	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
28	ALPHA-PINENE	Leaf	2.0	6095.0	0.17117059389793504	Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	FIBER(DIETARY)	Root		423000.0	0.2683457549147254	--
0	EO	Root	590.0	20000.0	0.2872600243161038	--
65	MAGNESIUM	Root	375.0	3180.0	0.3290823349317941	--
13	BETA-PINENE	Root	50.0	960.0	0.40905564902771346	--
28	ALPHA-PINENE	Leaf Essent. Oil	1000.0	239100.0	0.5622004446693538	--
0	GUM	Root	14160.0	120000.0	0.562939968780601	--
23	ALPHA-TERPINEOL	Leaf Essent. Oil	9500.0	75400.0	0.6587837647764052	--
0	BETA-CUBEBENE	Leaf	15.0	335.0	0.671116986901806	Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	WATER	Root		882000.0	0.7380110340947351	--
77	CHLOROGENIC-ACID	Root		7300.0	0.9018283707528216	--
32	ALPHA-TOCOPHEROL	Flower		221.0	1.0	--
7	ISOBORNEOL	Leaf Essent. Oil	18200.0	153000.0	1.0	--
2	BETA-MYRCENE	Leaf Essent. Oil	900.0	8200.0	1.0	--
0	BORNYL-ISOVALERATE	Root	250.0	9780.0	1.0	--
31	CARYOPHYLLENE	Root Essent. Oil		76000.0	1.0	--
13	BETA-PINENE	Leaf Essent. Oil	5400.0	43000.0	1.0456103749959569	--
4	TIN	Root	3.3	28.0	1.1703735322377322	--
13	BETA-PINENE	Leaf	12.0	1100.0	1.193361081814098	Father Nature's Farmacy: The aggregate of all these three-letter citations.
6	BETA-BISABOLENE	Root	2.0	165.0	1.2460935416054946	--
0	BETA-CUBEBENE	Leaf Essent. Oil	6500.0	13100.0	1.3377190100358967	--
35	BORNEOL	Leaf Essent. Oil	18200.0	153000.0	1.4070251447294047	--
19	CARVONE	Root	80.0	1640.0	1.4122006603747708	--
0	BORNEOL-ACETATE	Root Essent. Oil		315000.0	1.4142135623730943	--
0	EO	Leaf	2300.0	28000.0	1.4482555378393345	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
102	CAFFEIC-ACID	Root		5800.0	1.5698864543151345	--
13	BETA-IONONE	Leaf	4.0	75.0	1.7125460902896001	Father Nature's Farmacy: The aggregate of all these three-letter citations.
31	CARYOPHYLLENE	Root	29.0	1520.0	1.7213037548491001	Father Nature's Farmacy: The aggregate of all these three-letter citations.
7	ISOBORNEOL	Leaf	42.0	3900.0	1.727525839430272	Father Nature's Farmacy: The aggregate of all these three-letter citations.
12	BORNYL-ACETATE	Root	65.0	6300.0	1.731951097266349	--
27	LINOLEIC-ACID	Plant		165000.0	1.9964479270741882	--
23	ALPHA-TERPINEOL	Root	95.0	2365.0	1.9966237635178776	Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	ASH	Root	16874.0	143000.0	2.1542605445719727	--
0	BORNEOL-ACETATE	Leaf Essent. Oil	4000.0	335900.0	2.416530768198088	--
23	ALPHA-TERPINEOL	Leaf	22.0	1925.0	2.7888857564875424	Father Nature's Farmacy: The aggregate of all these three-letter citations.
20	CHOLINE	Leaf	52000.0	58000.0	3.080709728318331	--
20	CHOLINE	Root	3540.0	30000.0	3.1398996373571895	--
13	PALMITIC-ACID	Root		83000.0	3.577003804191027	--
28	CALCIUM	Root	4956.0	42000.0	3.7890171974850206	--
12	BORNYL-ACETATE	Leaf	9.0	8565.0	4.276392512629336	--
35	BORNEOL	Leaf	5.0	3900.0	4.352068614545992	Father Nature's Farmacy: The aggregate of all these three-letter citations.