

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

**Chemicals Found in *Agathosma betulina***

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	(+)-PULEGONE	Leaf	1500	3000	-0.15169172521226934	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.
8	4-TERPINEOL	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
11	ALPHA-PHELLANDRENE	Leaf Essent. Oil	--	--		
28	ALPHA-PINENE	Leaf Essent. Oil	--	--		
28	ALPHA-PINENE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
13	ALPHA-TERPINENE	Leaf Essent. Oil	--	--		
13	ALPHA-TERPINENE	Leaf	--	--		
23	ALPHA-TERPINEOL	Leaf Essent. Oil	--	--		
5	ALUMINUM	Leaf	1360	1360	0.6789856525717123	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
3	AROMADENDRENE	Leaf Essent. Oil	--	--		
112	ASCORBIC-ACID	Leaf	4900	4900	0.010737464231764774	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
3	BETA-DAMASCENONE	Leaf Essent. Oil	--	--		
5	BETA-ELEMENE	Leaf Essent. Oil	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
13	BETA-IONONE	Leaf Essent. Oil	--	--		
3	BETA-PHELLANDRENE	Leaf Essent. Oil	--	--		
13	BETA-PINENE	Leaf Essent. Oil	--	--		
3	BETA-TERPINEOL	Leaf Essent. Oil	--	--		
35	BORNEOL	Leaf Essent. Oil	--	--		
28	CALCIUM	Leaf	38800	38800	1.391343499963003	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
9	CAMPHENE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
9	CAMPHENE	Leaf Essent. Oil	--	--		
19	CARVONE	Leaf Essent. Oil	--	--		
24	CHROMIUM	Leaf	29	29	1.832564064465539	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
15	CITRONELLOL	Leaf Essent. Oil	--	--		
2	CITRONELLYL-ACETATE	Leaf Essent. Oil	--	--		
2	COBALT	Leaf	--	87	0.21821961505531773	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
19	D-LIMONENE	Leaf	--	--		Jim Duke's personal files.
13	DIOSMETIN	Leaf	--	--		Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
34	DIOSMIN	Leaf	200	500		
4	DIOSPHENOL	Leaf Essent. Oil	--	--		
4	DIOSPHENOL	Leaf	1800	3600	0.7071067811865478	
7	DIPENTENE	Essential Oil	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
12	ESTRAGOLE	Leaf Essent. Oil	--	--		
76	EUGENOL	Leaf Essent. Oil	--	--		
6	FURFURAL	Leaf Essent. Oil	--	--		
11	GAMMA-TERPINENE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
11	GAMMA-TERPINENE	Leaf Essent. Oil	--	--		
18	GUAIACOL	Leaf Essent. Oil	--	--		
31	HESPERIDIN	Leaf	10000	34000	0.7071067811865476	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
6	IRON	Leaf	867	867	1.2770392926238854	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
3	ISOMENTHONE	Leaf Essent. Oil	--	--		
3	ISOMENTHONE	Leaf	5250	8750	2.193021261596281	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
4	ISOPULEGONE	Leaf Essent. Oil	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	ISOPULEGONE	Leaf	450	900	0.7071067811865482	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.
60	LIMONENE	Leaf Essent. Oil	--	--		
65	MAGNESIUM	Leaf	2210	2210	-0.7397339063106452	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
14	MANGANESE	Leaf	675	675	0.6622735776500002	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
5	MENTHOFURAN	Leaf Essent. Oil	--	--		
63	MENTHOL	Leaf Essent. Oil	--	--		
30	MENTHONE	Leaf Essent. Oil	--	--		
3	MUCILAGE	Leaf	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
22	MYRCENE	Leaf Essent. Oil	--	--		
22	MYRCENE	Leaf	--	--		
2	MYRTENOL	Leaf Essent. Oil	--	--		
1	MYRTENYL-ACETATE	Leaf Essent. Oil	--	--		
2	NEOMENTHOL	Leaf Essent. Oil	--	--		
10	NEROL	Leaf Essent. Oil	--	--		
39	NIACIN	Leaf	--	42	-0.6750885614025129	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
16	P-CYMENE	Leaf Essent. Oil	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
6	PHENETHYL-ALCOHOL	Leaf Essent. Oil	--	--		
4	PHOSPHORUS	Leaf	6780	6780	0.33274881093925496	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
3	PIPERITENONE	Leaf Essent. Oil	--	--		
7	PIPERITONE	Leaf Essent. Oil	--	--		
14	POTASSIUM	Leaf	11700	11700	-0.8232807551707827	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
28	PULEGONE	Leaf	1650	2750	-0.32792065886702804	
176	QUERCETIN	Plant	--	--		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.
15	RIBOFLAVIN	Leaf	1.1	1.1	-0.172705289047245	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
87	RUTIN	Essential Oil	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
87	RUTIN	Leaf	--	--		
5	SABINENE	Leaf Essent. Oil	--	--		
60	SELENIUM	Leaf	--	70	4.995871526729794	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
4	SILICON	Leaf	43	43	-0.28529562369022266	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
1	SODIUM	Leaf	2760	2760	-0.15708991303999795	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
23	TERPINEN-4-OL	Leaf	--	--		Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
9	TERPINOLENE	Leaf Essent. Oil	--	--		
31	THIAMIN	Leaf	7	19	2.2289490986880964	
4	TIN	Leaf	11	11	-0.5530067419183887	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
1	TRANS-CARVEOL	Leaf Essent. Oil	--	--		
77	ZINC	Leaf	84	84	-0.01125863721237699	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.