

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in Beta vulgaris

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	2''-O-ALPHA-L-RHAMNOSYLISOVITEXIN	Leaf		30.0		--
0	2''-O-BETA-D-XYLOSYLISOVITEXIN	Leaf		200.0		--
0	3-HYDROXYTYRAMINE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	3-O-(BETA-D-GLUCOPYRAMOSYL-(1-6)-BETA-D-GLUCOPYRANOSYL)-ISORHAMNETIN	Leaf		60.0		--
0	ACETAMIDE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	ACONITIC-ACID	Plant				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
11	ADENINE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	ADIPIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	ALANINE	Root	560.0	4338.0	0.4412042274099843	USDA's Ag Handbook 8 and sequelae)
12	ALLANTOIN	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
15	ALPHA-LINOLENIC-ACID	Root	40.0	315.0	-0.6222019681781472	USDA's Ag Handbook 8 and sequelae)
15	ALPHA-LINOLENIC-ACID	Leaf	316.0	3160.0	-0.7100367130624211	--
0	ALPHA-SPINASTERYLGLUCOSIDE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
32	ALPHA-TOCOPHEROL	Root	0.5	3.6	-1.1769646985527407	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
32	ALPHA-TOCOPHEROL	Leaf	321.0	439.0	0.35927304562664447	Jim Duke's personal files.*
5	ALUMINUM	Root	1.0	420.0	-0.08712633399832509	--
14	ARGININE	Root	380.0	2997.0	-0.3886990633481032	USDA's Ag Handbook 8 and sequelae)
2	ARSENIC	Root	0.01	0.08	-0.20408211266611795	ACTA AGRIC SCAND SUPPL 22: 1980
112	ASCORBIC-ACID	Root	50.0	868.0	-0.14978616745086681	--
112	ASCORBIC-ACID	Leaf	120.0	3696.0	-0.10097839366506348	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	ASH	Root	7600.0	140000.0	2.0685940802719145	--
0	ASH	Leaf	15000.0	250000.0	2.3106721759278104	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
3	ASPARTIC-ACID	Root	1060.0	8360.0	-0.20719379324946055	USDA's Ag Handbook 8 and sequelae)
0	BARIUM	Root	17.0	70.0	-1.0	--
53	BETA-CAROTENE	Root	0.0	438.0	2.3642545272136704	--
0	BETA-INDOLEACETIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
47	BETA-SITOSTEROL	Root				Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
47	BETA-SITOSTEROL	Leaf		130.0	-1.0063608461922844	--
3	BETAGARIN	Plant				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
14	BETAINE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	BETALAMIC-ACID	Plant				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	BETANIDINE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
5	BETANIN	Root				Stuppner, H., Egger, R. 1996. Application of Capillary Zone Electrophoresis to the Analysis of Betalains from Beta vulgaris. J. Chromatogr, 735: 409-413.
5	BETANIN	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	BETANINE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	BETAVULGARIN	Leaf				--
4	BORON	Root	1.0	80.0	2.0686336024652223	--
0	BROMINE	Root	2.0	16.0	0.9139256619697997	ACTA AGRIC SCAND SUPPL 22: 1980
3	CADMIUM	Root	0.01	0.33	-0.5322309593207406	ACTA AGRIC SCAND SUPPL 22: 1980
102	CAFFEIC-ACID	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
28	CALCIUM	Leaf	700.0	17368.0	-0.0730545959775421	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
28	CALCIUM	Root	120.0	4200.0	-0.35076486765280085	--
2	CAMPESTEROL	Leaf				Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
0	CARBOHYDRATES	Root	95000.0	794000.0	-0.4625269106364368	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CARBOHYDRATES	Leaf	36000.0	609000.0	-0.022662302144463308	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
77	CHLOROGENIC-ACID	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
24	CHROMIUM	Root	0.001	0.33	-0.49416528207760696	ACTA AGRIC SCAND SUPPL 22: 1980
23	CITRIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	COBALT	Root	0.001	0.42	-0.5360925141125041	ACTA AGRIC SCAND SUPPL 22: 1980
2	CONIFERIN	Seed				--
2	CONIFERIN	Root				--
2	CONIFERIN	Plant				--
12	COPPER	Root	0.6	17.0	0.5844884448285068	--
2	CYSTINE	Root	180.0	1420.0	1.181476498312086	USDA's Ag Handbook 8 and sequelae)
0	D-ALPHA-OXYGLUTARIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	D-RIBULOSE	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	DAUCIC-ACID	Plant				Chemical Constituents of Oriental Herbs (3 diff. books)
0	DIHYDROCAFFEIC-ACID	Plant				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	DIOXYMALONIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
17	FARNESOL	Root Essent. Oil				--
17	FARNESOL	Essential Oil				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	FAT	Root	1000.0	16000.0	-0.2294322736898297	--
0	FAT	Leaf	2000.0	58000.0	0.03064519993255828	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	FAT	Seed	28000.0	70000.0	-1.0291763330491175	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
61	FERULIC-ACID	Leaf				--
15	FIBER	Root	8000.0	90000.0	0.04193139754777649	--
15	FIBER	Leaf	4000.0	279000.0	1.452590411305937	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
15	FOLACIN	Root	0.8	8.0	1.879478715404913	USDA's Ag Handbook 8 and sequelae)
12	FORMALDEHYDE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
22	GABA	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	GALACTOSE	Root				--
1	GALACTOSE	Plant				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
7	GLUCOSE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
8	GLUTAMIC-ACID	Root	3930.0	30994.0	1.3370135300475792	USDA's Ag Handbook 8 and sequelae)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	GLUTARIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
12	GLYCINE	Root	290.0	2287.0	-0.3761711380939947	USDA's Ag Handbook 8 and sequelae)
0	GLYCOCEREBROSIDE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	GLYOXALIC-ACID	Sprout Seedling				USDA's Ag Handbook 8 and sequelae)
1	GLYOXYLIC-ACID	Root				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
1	GUANINE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	GUANOSINE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	HETEROXANTHIN	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	HEXOSANS	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
7	HISTIDINE	Root	200.0	1577.0	-0.20948317136853128	USDA's Ag Handbook 8 and sequelae)
0	HOMOGENTISINIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	HYDANTOIN	Sprout Seedling				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	HYDROCAFFEIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	HYPOXANTHIN	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	HYPOXANTHOSINE	Plant				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
8	INOSINE	Plant				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	INVERTASE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
6	IRON	Root	5.0	165.0	-0.20194277471449604	--
6	IRON	Leaf	7.0	392.0	0.07303896870284142	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
1	ISOBETANIN	Root				Stuppner, H., Egger, R. 1996. Application of Capillary Zone Electrophoresis to the Analysis of Betalains from Beta vulgaris. J. Chromatogr, 735: 409-413.
3	ISOLEUCINE	Root	440.0	3470.0	1.3896281933737457E-4	USDA's Ag Handbook 8 and sequelae)
75	KAEMPFEROL	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	KAEMPFEROL-GLYCOSIDE	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	KILOCALORIES	Root	430.0	3610.0	0.5362060653597072	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	KILOCALORIES	Leaf	210.0	3310.0	0.47054597631831413	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	L-ARABINOSE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	L-AZETIDINE-2-CARBOXYLIC-ACID	Root				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	LEAD	Root	0.01	3.5	0.19221513782960292	--
2	LEUCINE	Root	630.0	4968.0	0.3558822256981897	USDA's Ag Handbook 8 and sequelae)
27	LINOLEIC-ACID	Root	460.0	3628.0	0.18872562307250482	USDA's Ag Handbook 8 and sequelae)
11	LITHIUM	Root	0.36	0.6		--
4	LYSINE	Root	530.0	4180.0	0.4061670574806671	USDA's Ag Handbook 8 and sequelae)
65	MAGNESIUM	Root	130.0	4200.0	0.8718291096104009	--
1	MALONIC-ACID	Root				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
14	MANGANESE	Root	3.0	90.0	0.5288104069776015	--
1	MELILOTIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	MERCURY	Root	0.0	0.016	-0.45460780356449726	ACTA AGRIC SCAND SUPPL 22: 1980



Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
15	METHIONINE	Root	170.0	1341.0	0.4540719233816342	USDA's Ag Handbook 8 and sequelae)
2	MOLYBDENUM	Root		0.1	-0.46089530570591497	ACTA AGRIC SCAND SUPPL 22: 1980
13	MUFA	Root	270.0	2219.0	-0.042210550390970464	USDA's Ag Handbook 8 and sequelae)
0	NEOBETANIN	Root		20.0		Alard, d., Wray, V., Grotjahn, L., Reznik, H., Strack, D. 1985. Neobetanin: Isolation and Identification from Beta vulgaris. Phytochemistry, 24(10): 2383-2385.
0	NEOBETANIN	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
39	NIACIN	Root	2.0	32.0	-0.5286048579830713	--
39	NIACIN	Leaf	4.0	68.0	-0.3588352402371107	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
3	NICKEL	Root	0.0	2.5	0.23545089462187527	--
0	NITROGEN	Root	2600.0	35830.0	0.9726859841750741	ACTA AGRIC SCAND SUPPL 22: 1980
0	OCTACOSAN-1-OL	Root				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	OLEANOLIC-ACID-3-O-BETA-D-GLUCOPYRANOSIDE	Root				--
18	OLEIC-ACID	Root	270.0	2129.0	0.028613646599413095	USDA's Ag Handbook 8 and sequelae)
5	ORNITHINE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
9	OXALIC-ACID	Root		404.0	-0.40279401570173323	Watt, J.M. and Breyer-Brandwijk, M.G. 1962. The Medicinal and Poisonous Plants of Southern and Eastern Africa. E. & S. Livingstone, Ltd. Edinburg & London. 1457 pp.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	OXYCITRONIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
25	P-COUMARIC-ACID	Plant				--
13	P-HYDROXY-BENZOIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
13	PALMITIC-ACID	Root	210.0	1656.0	-0.32320450211702656	USDA's Ag Handbook 8 and sequelae)
11	PANTOTHENIC-ACID	Root	1.5	11.8	-0.822025786396079	USDA's Ag Handbook 8 and sequelae)
0	PENTOSANS	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
7	PHENYLALANINE	Root	420.0	3312.0	0.37733807919126017	USDA's Ag Handbook 8 and sequelae)
4	PHOSPHORUS	Root	260.0	45580.0	7.390730333501335	--
4	PHOSPHORUS	Leaf	290.0	5946.0	0.17930367212570686	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	PHYTATE	Root	30.0	370.0		--
2	PHYTOSTEROLS	Root	250.0	1972.0	2.6750890076116427	USDA's Ag Handbook 8 and sequelae)
2	PHYTOSTEROLS	Leaf		210.0	-0.7631206262135088	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
14	POTASSIUM	Root	3033.0	50000.0	2.5057949026475304	--
14	POTASSIUM	Leaf	4380.0	61798.0	1.3889349229084433	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	PRAEBETANINE	Root				--
0	PREBETANIN	Root				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	PROLINE	Root	380.0	2997.0	0.6980948158657292	USDA's Ag Handbook 8 and sequelae)
0	PROTEIN	Seed	110000.0	150000.0	-0.745409416770239	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	PROTEIN	Root	12850.0	143000.0	0.2760979843587698	--
0	PROTEIN	Leaf	16000.0	270000.0	0.5801518232133148	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	PROTOPORPHYRIN	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
4	PUFA	Root	500.0	3943.0	-0.48476339853379624	USDA's Ag Handbook 8 and sequelae)
176	QUERCETIN	Plant				--
0	QUERCETIN-GLUCOSIDE	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	QUINIC-ACID	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	RAFFINOSE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	RAPHANOL	Seed				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	RAPHANOL	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	RAPHANOL	Plant				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
15	RIBOFLAVIN	Root	0.2	3.9	-0.0381979129798729	--
15	RIBOFLAVIN	Leaf	1.7	26.0	-0.05598689717877004	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	RUBIDIUM	Root	0.76	32.0	2.5964404656512277	ACTA AGRIC SCAND SUPPL 22: 1980
7	SALICYLATES	Root	2.0	15.0	-0.6489446664726789	--
34	SALICYLIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
5	SAPONINS	Root		58000.0	0.10991363498738571	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
0	SEDOHEPTULOSE	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
60	SELENIUM	Root		0.002	-0.3623106990048751	ACTA AGRIC SCAND SUPPL 22: 1980
1	SERINE	Root	540.0	4259.0	0.5044937361249509	USDA's Ag Handbook 8 and sequelae)
0	SFA	Root	220.0	1735.0	-0.4567016981643995	USDA's Ag Handbook 8 and sequelae)
4	SILICON	Root	1.0	83.0	0.038371684428601074	ACTA AGRIC SCAND SUPPL 22: 1980
0	SKATOLE	Root				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
1	SODIUM	Root	590.0	6705.0	2.60917608632812	USDA's Ag Handbook 8 and sequelae)
1	SODIUM	Leaf	1300.0	16571.0	2.2958387060549112	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
8	STEARIC-ACID	Root	10.0	79.0	-0.6950094104911273	USDA's Ag Handbook 8 and sequelae)
0	STRONTIUM	Root	16.0	70.0	-1.0	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
14	SUCROSE	Root		270000.0	1.482333586643039	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
14	SULFUR	Root	130.0	2000.0	-0.21353007063213605	ACTA AGRIC SCAND SUPPL 22: 1980
6	SYRINGIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
6	TARTARIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
31	THIAMIN	Root	0.1	2.4	-0.38024650234914276	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
31	THIAMIN	Leaf	0.6	14.0	1.1869303740705777	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
4	THREONINE	Root	440.0	3470.0	-0.07145998210477424	USDA's Ag Handbook 8 and sequelae)
4	TIN	Root	0.8	2.8	-1.3911987269995683	--
0	TITANIUM	Root	0.5	9.8	-1.0000000000000002	--
0	TRICARBALLYL-ACID	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
29	TRYPTOPHAN	Root	170.0	1341.0	1.6215555191215911	USDA's Ag Handbook 8 and sequelae)
8	TYROSINE	Root	350.0	2760.0	1.213042723775461	USDA's Ag Handbook 8 and sequelae)
3	VALINE	Root	520.0	4100.0	0.016624403740957434	USDA's Ag Handbook 8 and sequelae)
24	VANILLIC-ACID	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
28	VANILLIN	Root				--
0	VIT-B-6	Root	0.5	3.6	-1.7614273244491558	USDA's Ag Handbook 8 and sequelae)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	VULGAXANTHIN-I	Plant				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	VULGAXANTHIN-II	Plant				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	WATER	Root	865000.0	881340.0	0.733691163849793	USDA's Ag Handbook 8 and sequelae)
0	WATER	Leaf	864000.0	926000.0	0.5905074771129576	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
3	XYLOSE	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
77	ZINC	Root	3.0	70.0	2.0068925301263634	--
0	ZIRCONIUM	Plant				--