

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	WATER	Leaf	864000.0	926000.0	0.5905074771129576	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	WATER	Root	865000.0	881340.0	0.733691163849793	USDA's Ag Handbook 8 and sequelae)
0	CARBOHYDRATES	Root	95000.0	794000.0	-0.4625269106364368	--
0	CARBOHYDRATES	Leaf	36000.0	609000.0	-0.022662302144463308	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
15	FIBER	Leaf	4000.0	279000.0	1.452590411305937	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
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.
0	PROTEIN	Leaf	16000.0	270000.0	0.5801518232133148	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	ASH	Leaf	15000.0	250000.0	2.3106721759278104	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
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	ASH	Root	7600.0	140000.0	2.0685940802719145	--
15	FIBER	Root	8000.0	90000.0	0.04193139754777649	--
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.
14	POTASSIUM	Leaf	4380.0	61798.0	1.3889349229084433	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	FAT	Leaf	2000.0	58000.0	0.03064519993255828	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
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.)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
14	POTASSIUM	Root	3033.0	50000.0	2.5057949026475304	--
4	PHOSPHORUS	Root	260.0	45580.0	7.390730333501335	--
0	NITROGEN	Root	2600.0	35830.0	0.9726859841750741	ACTA AGRIC SCAND SUPPL 22: 1980
8	GLUTAMIC-ACID	Root	3930.0	30994.0	1.3370135300475792	USDA's Ag Handbook 8 and sequelae)
28	CALCIUM	Leaf	700.0	17368.0	-0.0730545959775421	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
1	SODIUM	Leaf	1300.0	16571.0	2.2958387060549112	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	FAT	Root	1000.0	16000.0	-0.2294322736898297	--
3	ASPARTIC-ACID	Root	1060.0	8360.0	-0.20719379324946055	USDA's Ag Handbook 8 and sequelae)
1	SODIUM	Root	590.0	6705.0	2.60917608632812	USDA's Ag Handbook 8 and sequelae)
4	PHOSPHORUS	Leaf	290.0	5946.0	0.17930367212570686	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
2	LEUCINE	Root	630.0	4968.0	0.3558822256981897	USDA's Ag Handbook 8 and sequelae)
3	ALANINE	Root	560.0	4338.0	0.4412042274099843	USDA's Ag Handbook 8 and sequelae)
1	SERINE	Root	540.0	4259.0	0.5044937361249509	USDA's Ag Handbook 8 and sequelae)
65	MAGNESIUM	Root	130.0	4200.0	0.8718291096104009	--
28	CALCIUM	Root	120.0	4200.0	-0.35076486765280085	--
4	LYSINE	Root	530.0	4180.0	0.4061670574806671	USDA's Ag Handbook 8 and sequelae)
3	VALINE	Root	520.0	4100.0	0.016624403740957434	USDA's Ag Handbook 8 and sequelae)
4	PUFA	Root	500.0	3943.0	-0.48476339853379624	USDA's Ag Handbook 8 and sequelae)
112	ASCORBIC-ACID	Leaf	120.0	3696.0	-0.10097839366506348	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
27	LINOLEIC-ACID	Root	460.0	3628.0	0.18872562307250482	USDA's Ag Handbook 8 and sequelae)
0	KILOCALORIES	Root	430.0	3610.0	0.5362060653597072	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)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	ISOLEUCINE	Root	440.0	3470.0	1.3896281933737457E-4	USDA's Ag Handbook 8 and sequelae)
7	PHENYLALANINE	Root	420.0	3312.0	0.37733807919126017	USDA's Ag Handbook 8 and sequelae)
0	KILOCALORIES	Leaf	210.0	3310.0	0.47054597631831413	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
15	ALPHA-LINOLENIC-ACID	Leaf	316.0	3160.0	-0.7100367130624211	--
0	PROLINE	Root	380.0	2997.0	0.6980948158657292	USDA's Ag Handbook 8 and sequelae)
14	ARGININE	Root	380.0	2997.0	-0.3886990633481032	USDA's Ag Handbook 8 and sequelae)
8	TYROSINE	Root	350.0	2760.0	1.213042723775461	USDA's Ag Handbook 8 and sequelae)
12	GLYCINE	Root	290.0	2287.0	-0.3761711380939947	USDA's Ag Handbook 8 and sequelae)
13	MUFA	Root	270.0	2219.0	-0.042210550390970464	USDA's Ag Handbook 8 and sequelae)
18	OLEIC-ACID	Root	270.0	2129.0	0.028613646599413095	USDA's Ag Handbook 8 and sequelae)
14	SULFUR	Root	130.0	2000.0	-0.21353007063213605	ACTA AGRIC SCAND SUPPL 22: 1980
2	PHYTOSTEROLS	Root	250.0	1972.0	2.6750890076116427	USDA's Ag Handbook 8 and sequelae)
0	SFA	Root	220.0	1735.0	-0.4567016981643995	USDA's Ag Handbook 8 and sequelae)
13	PALMITIC-ACID	Root	210.0	1656.0	-0.32320450211702656	USDA's Ag Handbook 8 and sequelae)
7	HISTIDINE	Root	200.0	1577.0	-0.20948317136853128	USDA's Ag Handbook 8 and sequelae)
2	CYSTINE	Root	180.0	1420.0	1.181476498312086	USDA's Ag Handbook 8 and sequelae)
15	METHIONINE	Root	170.0	1341.0	0.4540719233816342	USDA's Ag Handbook 8 and sequelae)
29	TRYPTOPHAN	Root	170.0	1341.0	1.6215555191215911	USDA's Ag Handbook 8 and sequelae)
112	ASCORBIC-ACID	Root	50.0	868.0	-0.14978616745086681	--
32	ALPHA-TOCOPHEROL	Leaf	321.0	439.0	0.35927304562664447	Jim Duke's personal files.*
53	BETA-CAROTENE	Root	0.0	438.0	2.3642545272136704	--
5	ALUMINUM	Root	1.0	420.0	-0.08712633399832509	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
6	IRON	Leaf	7.0	392.0	0.07303896870284142	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	PHYTATE	Root	30.0	370.0		--
15	ALPHA-LINOLENIC-ACID	Root	40.0	315.0	-0.6222019681781472	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.)
0	2''-O-BETA-D-XYLOSYLISOVITEXIN	Leaf		200.0		--
6	IRON	Root	5.0	165.0	-0.20194277471449604	--
47	BETA-SITOSTEROL	Leaf		130.0	-1.0063608461922844	--
14	MANGANESE	Root	3.0	90.0	0.5288104069776015	--
4	SILICON	Root	1.0	83.0	0.038371684428601074	ACTA AGRIC SCAND SUPPL 22: 1980
4	BORON	Root	1.0	80.0	2.0686336024652223	--
8	STEARIC-ACID	Root	10.0	79.0	-0.6950094104911273	USDA's Ag Handbook 8 and sequelae)
77	ZINC	Root	3.0	70.0	2.0068925301263634	--
0	BARIUM	Root	17.0	70.0	-1.0	--
0	STRONTIUM	Root	16.0	70.0	-1.0	--
39	NIACIN	Leaf	4.0	68.0	-0.3588352402371107	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	3-O-(BETA-D-GLUCOPYRAMOSYL-(1-6)-BETA-D-GLUCOPYRANOSYL)-ISORHAMNETIN	Leaf		60.0		--
0	RUBIDIUM	Root	0.76	32.0	2.5964404656512277	ACTA AGRIC SCAND SUPPL 22: 1980
39	NIACIN	Root	2.0	32.0	-0.5286048579830713	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	2"-O-ALPHA-L-RHAMNOSYLISOVITEXIN	Leaf		30.0		--
15	RIBOFLAVIN	Leaf	1.7	26.0	-0.05598689717877004	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
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.
12	COPPER	Root	0.6	17.0	0.58448844448285068	--
0	BROMINE	Root	2.0	16.0	0.9139256619697997	ACTA AGRIC SCAND SUPPL 22: 1980
7	SALICYLATES	Root	2.0	15.0	-0.6489446664726789	--
31	THIAMIN	Leaf	0.6	14.0	1.1869303740705777	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
11	PANTOTHENIC-ACID	Root	1.5	11.8	-0.822025786396079	USDA's Ag Handbook 8 and sequelae)
0	TITANIUM	Root	0.5	9.8	-1.0000000000000002	--
15	FOLACIN	Root	0.8	8.0	1.879478715404913	USDA's Ag Handbook 8 and sequelae)
15	RIBOFLAVIN	Root	0.2	3.9	-0.0381979129798729	--
32	ALPHA-TOCOPHEROL	Root	0.5	3.6	-1.1769646985527407	--
0	VIT-B-6	Root	0.5	3.6	-1.7614273244491558	USDA's Ag Handbook 8 and sequelae)
0	LEAD	Root	0.01	3.5	0.19221513782960292	--
4	TIN	Root	0.8	2.8	-1.3911987269995683	--
3	NICKEL	Root	0.0	2.5	0.23545089462187527	--
31	THIAMIN	Root	0.1	2.4	-0.38024650234914276	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
11	LITHIUM	Root	0.36	0.6		--
2	COBALT	Root	0.001	0.42	-0.5360925141125041	ACTA AGRIC SCAND SUPPL 22: 1980
3	CADMIUM	Root	0.01	0.33	-0.5322309593207406	ACTA AGRIC SCAND SUPPL 22: 1980
24	CHROMIUM	Root	0.001	0.33	-0.49416528207760696	ACTA AGRIC SCAND SUPPL 22: 1980
2	MOLYBDENUM	Root		0.1	-0.46089530570591497	ACTA AGRIC SCAND SUPPL 22: 1980

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	ARSENIC	Root	0.01	0.08	-0.20408211266611795	ACTA AGRIC SCAND SUPPL 22: 1980
1	MERCURY	Root	0.0	0.016	-0.45460780356449726	ACTA AGRIC SCAND SUPPL 22: 1980
60	SELENIUM	Root		0.002	-0.3623106990048751	ACTA AGRIC SCAND SUPPL 22: 1980
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.
0	L-ARABINOSE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	BETAVULGARIN	Leaf				--
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	HYDANTOIN	Sprout Seedling				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	GLYCO CEREBROSIDE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
61	FERULIC-ACID	Leaf				--
0	QUERCETIN-GLUCOSIDE	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	CONIFERIN	Seed				--
5	ORNITHINE	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
102	CAFFEIC-ACID	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	SEDOHEPTULOSE	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
176	QUERCETIN	Plant				--
3	XYLOSE	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	CONIFERIN	Root				--
0	ALPHA-SPINASTERYLGLUCOSIDE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	TRICARBALLYL-ACID	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	GLUTARIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
34	SALICYLIC-ACID	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.
1	MELILOTIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	CONIFERIN	Plant				--

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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	KAEMPFEROL-GLYCOSIDE	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
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	OLEANOLIC-ACID-3-O-BETA-D-GLUCOPYRANOSIDE	Root				--
0	PROTOPORPHYRIN	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
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.
75	KAEMPFEROL	Plant				--
0	HOMOENTISINIC-ACID	Root				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.
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.



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17	FARNESOL	Root Essent. Oil				--
0	VULGAXANTHIN-II	Plant				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
23	CITRIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
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.
12	ALLANTOIN	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	PENTOSANS	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	GALACTOSE	Root				--
0	BETANINE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	DIOXYMALONIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
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.
0	VULGAXANTHIN-I	Plant				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

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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.
0	HEXOSANS	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.
5	BETANIN	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	RAPHANOL	Seed				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
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.
0	DAUCIC-ACID	Plant				Chemical Constituents of Oriental Herbs (3 diff. books)
77	CHLOROGENIC-ACID	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
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.
3	ADIPIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

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0	HETEROXANTHIN	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
12	FORMALDEHYDE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	BETANIDINE	Root				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.
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.
0	D-RIBULOSE	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
28	VANILLIN	Root				--
1	GALACTOSE	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.
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.
6	TARTARIC-ACID	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

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0	INVERTASE	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.
14	BETAINE	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.
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	NEOBETANIN	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
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	PRAEBETANINE	Root				--
24	VANILLIC-ACID	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
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.
1	ACONITIC-ACID	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
25	P-COUMARIC-ACID	Plant				--
6	SYRINGIC-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.
1	GUANINE	Root				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.
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.)
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	ACETAMIDE	Root				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	OXYCITRONIC-ACID	Root				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	GLYOXALIC-ACID	Sprout Seedling				USDA's Ag Handbook 8 and sequelae)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
1	QUINIC-ACID	Leaf				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	ZIRCONIUM	Plant				--