

P **Hordeum vulgare**

Common Name(s)

Barley, Barleygrass

How Used

F

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
30	(+)-CATECHIN	Seed	--	--		
0	(+)-CORYDINE	Root	--	--		
1	(+)-GLAUCINE	Root	--	--		
0	(R)-EPI-HETERODENDRIN	Sprout Seedling	--	--		
0	1,4-BENZOQUINONE	Root	--	--		
0	1,4-BENZOQUINONE	Tissue Culture	--	--		
0	1,4-BENZOQUINONE	Leaf	--	--		
0	1-(3-AMINO-PROPYL)-PYROLLINIUM	Sprout Seedling	--	--		
0	2'-DEOXYMUGINEIC ACID	Root	--	--		

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
0	2-CARBOXYARABINITOL	Leaf	--	814	1.6729805373372688	Moore, B. D., Isidoro, E., Seemann, J. R. 1993. Distribution of 2-Carboxyarabinitol Among Plants. <i>Phytochemistry</i> 34 3: 703-707. Dept. Biochem. Univ. Nevada Reno 89557, USA.
0	28-ISOFUCOSTEROL	Embryo	--	--		
0	28-ISOFUCOSTEROL	Seed	--	--		
0	3-HYDROXY-MUGENIC-ACID	Root	--	--		
0	5,7-DIHYDROXY-3',4',5'-TRIMETHOXY-FLAVONE	Shoot	--	--		
0	5-HYDROXY-TRANS-FERULIC-ACID	Plant	--	--		
0	ABSCISIC-ACID	Seed	--	--		
1	ACONITIC-ACID	Root	--	--		
0	ACONOTIC-ACID	Root	--	--		
32	AESCULETIN	Protoplast	--	--		
32	AESCULETIN	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
33	AESCULIN	Protoplast	--	--		
0	ALKYL RESORCINOL	Seed	--	--		
3	ALPHA-ALLOCRYPTOPINE	Root	--	--		
0	ALPHA-KETO-GLUTARIC-ACID	Seed	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.</i> Taylor & Frost, London. 791 pp.

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
32	ALPHA-TOCOPHEROL	Sprout Seedling	--	--		
32	ALPHA-TOCOPHEROL	Tissue Culture	--	--		
32	ALPHA-TOCOPHEROL	Seed	3	11	-0.6960177480084532	Jim Duke's personal files.*
32	ALPHA-TOCOPHEROL	Root	--	--		
32	ALPHA-TOCOPHEROL	Leaf	--	--		
0	ALPHA-TOCOQUINONE	Root	--	--		
0	ALPHA-TOCOQUINONE	Leaf	--	--		
0	ALPHA-TOCOQUINONE	Sprout Seedling	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	ALPHA-TOCOQUINONE	Tissue Culture	--	--		
5	ALUMINUM	Seed	7	7	-0.35199825506698773	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
5	ALUMINUM	Stem	212	212	-0.7859500634899037	
0	AMMONIA	Seed	8130	8130	0.5437773586650575	
0	AMMONIA(NH3)	Seed	--	8130	1.362190737564736	
0	APIGENIN-7-O-BETA-D-GLUCOSIDE	Leaf	--	--		

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
2	ARSENIC	Sprout Seedling	0.01	0.01		Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
112	ASCORBIC-ACID	Seed	--	--	-0.33845664486186666	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
112	ASCORBIC-ACID	Stem	3300	3300	-0.07434961362635317	
0	ASH	Seed	9000	132000	2.530126814681668	Jim Duke's personal files.*
0	ASH	Stem	81000	81000	0.6239267870190052	
0	ASH	Plant	61000	235000	2.0592947527160543	Jim Duke's personal files.*
0	BARWIN	Seed	6	6		
53	BETA-CAROTENE	Seed	--	1	-0.36679931650710623	Jim Duke's personal files.*
53	BETA-CAROTENE	Stem	312	312	1.4040090844278104	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
53	BETA-CAROTENE	Plant	149	660	2.8473075887780093	Jim Duke's personal files.*
0	BETA-GLUCAN	Seed	--	--		
47	BETA-SITOSTEROL	Plant	--	--		
47	BETA-SITOSTEROL	Embryo	--	--		
47	BETA-SITOSTEROL	Sprout Seedling	--	980	1.3218930544492802	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
14	BETAINE	Root	234	234	-0.34965983970112485	
14	BETAINE	Shoot	1.8	1.8	-0.5768792410175753	

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
4	BIOTIN	Seed	0.1	0.902	-0.5283838545861084	Jim Duke's personal files.*
4	BORON	Seed	2	6	-0.8591148525952217	Betting on Boron, Unpublished draft by J. A. Duke on file at USDA, draft and papers relating to boron percentages. Includes Internat. Z. Vit. Ern. Forschung 43:1973 (boron).
102	CAFFEIC-ACID	Seed	--	--		
102	CAFFEIC-ACID	Fruit	--	--		
28	CALCIUM	Plant	800	10400	-0.34115856607431033	Jim Duke's personal files.*
28	CALCIUM	Seed	160	4100	-0.008525145677961804	Jim Duke's personal files.*
28	CALCIUM	Sprout Seedling	720	720	-0.580774133760098	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
28	CALCIUM	Stem	11000	11000	-0.8397648224115174	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
1	CALMODULIN	Shoot	--	--		
1	CALMODULIN	Cotyledon	--	--		
2	CAMPESTEROL	Sprout Seedling	--	330	1	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
4	CANDICINE	Sprout Seedling	--	--		
0	CARBOHYDRATES	Stem	801000	801000	0.716589328801054	
0	CARBOHYDRATES	Plant	265000	785000	0.7250258483008089	Jim Duke's personal files.*

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	CARBOHYDRATES	Seed	608000	868000	1.3695009296259926	Jim Duke's personal files.*
43	CATECHIN	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	CELLULOSE	Plant	190000	322000	0.14010383620503333	Jim Duke's personal files.*
77	CHLOROGENIC-ACID	Fruit	--	--		
77	CHLOROGENIC-ACID	Seed	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
20	CHOLINE	Seed	928	1617	-0.0521139565220809	
24	CHROMIUM	Stem	31	31	3.464002072370349	
0	CHRYSOERIOL-7-GALACTOSIDE	Leaf	--	--		
0	CHRYSOERIOL-7-O-BETA-D-GLUCOSIDE	Leaf	--	--		
2	CITRININ	Seed	--	--		
2	COBALT	Stem	49	49	1.4481845216144724	
12	COPPER	Seed	1	20	0.4703525387576021	Jim Duke's personal files.*
12	COPPER	Sprout Seedling	8	8	-0.99861782933251	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
57	COUMARIN	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
0	CYANIDIN-3-ARABINOSIDE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	CYANIDIN-3-GLUCOSIDE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	CYCLIC-AMP	Sprout Seedling	--	--		
0	CYCLIC-AMP	Seed	--	--		
0	CYSTATHIONE	Sprout Seedling	--	0.07		
0	CYSTATHIONINE	Sprout Seedling	0.07	0.07		
2	CYSTINE	Seed	1000	2000	-0.8000073846519989	Jim Duke's personal files.*
0	DIAMINO-PROPANE	Sprout Seedling	--	--		
4	DICENTRINE	Root	--	--		
2	DIETHYL-AMINE	Seed	5.7	5.7		
2	DIMETHYL-AMINE	Seed	1.6	1.6	-1.0309167098137846	
0	EPIHETERODENDRIN	Sprout Seedling	--	--		
30	ESCULETIN	Plant	--	--		
29	ESCULIN	Plant	--	--		

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	ETHYL-AMINE	Seed	3.4	3.4	1.0808342911737019	
0	FAT	Seed	5000	55000	-1.1081866985369908	Jim Duke's personal files.*
0	FAT	Stem	29000	29000	-0.002226795336038504	
0	FAT	Plant	19000	64000	0.17884052742918724	Jim Duke's personal files.*
61	FERULIC-ACID	Seed	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	FERULOYLQUINIC-ACID	Leaf	--	--		
0	FERULOYLSHIKIMIC ACID	Leaf	--	--		
15	FIBER	Stem	134000	134000	-0.6321812822436766	
15	FIBER	Plant	128000	446000	1.6501518476432595	Jim Duke's personal files.*
15	FIBER	Seed	5000	151000	0.12808518644382472	Jim Duke's personal files.*
15	FOLACIN	Seed	--	1.48	-0.46327972185260347	
23	FOLIC-ACID	Seed	--	1.5	-0.35317919194008696	Jim Duke's personal files.*
8	FRUCTOSE	Seed	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	GIBBERELLIN	Seed	--	--		
0	GIBBERELLIN-A-1	Sprout Seedling	--	--		
0	GIBBERELLIN-A-3	Sprout Seedling	--	--		

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	GIBBERELLINS	Sprout Seedling	--	--	
0	GLAUCENTRINE	Root	--	--	
0	GLUCODIFRUCTOSE	Seed	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
7	GLUCOSE	Seed	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
8	GLUTAMIC-ACID	Seed	32000	38000	-0.15666375176263259 Jim Duke's personal files.*
2	GLUTEN	Seed	--	--	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	GLYCINE-BETAINE	Leaf	--	--	
5	GRAMINE	Shoot	--	--	
5	GRAMINE	Root	--	--	
5	GRAMINE	Protoplast	--	--	
5	GRAMINE	Leaf	--	--	
5	GRAMINE	Sprout Seedling	--	--	
12	HERNIARIN	Plant	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
3	HETERODENDRIN	Plant	--	--	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	HEXACOSAN-1-AL	Leaf	--	--	
0	HEXACOSAN-1-OL	Leaf	--	--	
3	HORDATINE-A	Sprout Seedling	--	--	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
3	HORDATINE-B	Sprout Seedling	--	--	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	HORDEIN-B	Caryopsis	--	--	
8	HORDENINE	Sprout Seedling	63	63	
8	HORDENINE	Root	--	--	
0	HORDEUM-PROTEIN	Seed	3	80	
0	HORDEUMIN	Seed	--	--	
0	HORSATINE	Plant	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	HYDROXAMIC-ACID	Protoplast	--	--	
0	HYDROXAMIC-ACID	Leaf	--	--	

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
0	INDOLE-3-CARBOXALDEHYDE	Sprout Seedling	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	INDOLE-3-CARBOXYLIC-ACID	Sprout Seedling	--	--		
6	IRON	Seed	40	100	-0.2360003199095645	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
6	IRON	Sprout Seedling	100	100	-0.4462591736837504	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
6	IRON	Stem	160	160	-0.5446816797924848	
4	ISOORIENTIN	Leaf	--	--		
0	ISOORIENTIN-3'-METHYL-ETHER	Leaf	--	--		
0	ISOORIENTIN-7-ARABINOSYL-GLUCOSIDE	Leaf	--	--		
0	ISOORIENTIN-7-FERULYL-GLUCOSIDE	Leaf	--	--		
0	ISOORIENTIN-7-O-BETA-D-GLUCOSIDE	Leaf	--	--		
0	ISOORIENTIN-7-RHAMNOGLUCOSIDE	Leaf	--	--		
4	ISOVITEXIN	Leaf	--	--		
0	ISOVITEXIN-7-DIGLUCOSIDE	Leaf	--	--		
0	ISOVITEXIN-7-O-BETA-D-DIGLUCOSIDE	Leaf	--	--		
0	ISOVITEXIN-7-O-BETA-D-GLUCOSIDE	Leaf	--	--		

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	JASMONIC-ACID	Fruit	--	--		
1	LEUCOCYANIDIN	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
13	LIGNIN	Plant	15000	77000	-1.044805693940176	Jim Duke's personal files.*
27	LINOLEIC-ACID	Leaf	--	--		
27	LINOLEIC-ACID	Seed	2185	24035	-0.7118993494812657	Jim Duke's personal files.*
0	LINOLENIC-ACID	Seed	22	242	-0.5756374336657255	Jim Duke's personal files.*
0	LINOLENIC-ACID	Leaf	--	--		
15	LUTEIN	Sprout Seedling	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	LUTEOLIN-7-O-BETA-D-GLUCOSIDE	Leaf	--	--		
0	LUTONARIN	Shoot	--	--		
0	LUTONARINE	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	LUTONARINE-3'-METHYLETHER	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	LUTONARINE-3'-METHYLETHER	Shoot	--	--		
65	MAGNESIUM	Seed	100	2300	-0.25527141304000667	Jim Duke's personal files.*

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
65	MAGNESIUM	Sprout Seedling	1670	1670	-0.5837462312888009 Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
65	MAGNESIUM	Stem	2250	2250	-1.0594120332843735
1	MALONIC-ACID	Seed	--	--	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
2	MALTOSE	Seed	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
14	MANGANESE	Seed	2	120	0.8281082278982284
14	MANGANESE	Sprout Seedling	26	26	0.8429272304235246 Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
14	MANGANESE	Stem	60	60	-1.1875470930251946
18	MANNITOL	Root	--	--	
23	MELATONIN	Seed	--	--	Hattori, A., et. al. 1995. Identification of Melatonin in Plants and its Effects on Plasma Melatonin Levels and Binding to Melatonin Receptors in Vertebrates. Biochem. Mol. Biol. Int., 35(3): 627-634.
1	MERCURY	Sprout Seedling	0.07	0.07	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
15	METHIONINE	Seed	1000	4000	-0.0812868777702854 Jim Duke's personal files.*

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
1	METHYL-AMINE	Seed	4.5	4.5	-1.2202340677772545	
0	MUGINEIC-ACID	Root	--	--		
1	N-METHYL-TYRAMINE	Fruit	--	--		
1	N-METHYL-TYRAMINE	Sprout Seedling	48	48		
1	N-METHYL-TYRAMINE	Root	--	--		
2	NEOXANTHIN	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	NH3	Seed	--	8130	0.6124277850226415	
39	NIACIN	Stem	--	--		
39	NIACIN	Seed	17	115	2.1586670632815284	Jim Duke's personal files.*
0	O-HYDROXYCINNAMIC-ACID	Seed	--	--		Jim Duke's personal files.
0	OCHROTOXIN-A	Seed	--	--		
18	OLEIC-ACID	Leaf	--	--		
18	OLEIC-ACID	Seed	1325	14575	-0.8592851537559419	Jim Duke's personal files.*
4	ORIENTIN	Leaf	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	ORIENTIN-7-O-GLUCOSIDE	Leaf	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
0	ORYZANOL	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	OXALACETIC-ACID	Seed	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
25	P-COUMARIC-ACID	Seed	--	--		
25	P-COUMARIC-ACID	Fruit	--	--		
0	P-COUMAROYL-AGMATINE	Shoot	2.5	2.5		
13	P-HYDROXY-BENZOIC-ACID	Seed	--	--		Jim Duke's personal files.
0	P-OXYBENZOIC-ACID	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	P-OXYCINNAMIC-ACID	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
13	PALMITIC-ACID	Seed	370	4070	-0.6156237435519392	Jim Duke's personal files.*
13	PALMITIC-ACID	Leaf	--	--		
2	PALMITOLEIC-ACID	Leaf	--	--		
11	PANTOTHENIC-ACID	Seed	2	12	-0.4968077273222071	Jim Duke's personal files.*
0	PENTOSANS	Plant	83000	239000	1.3444483701995555	Jim Duke's personal files.*
4	PHOSPHORUS	Plant	2300	6900	1.5912232536803737	Jim Duke's personal files.*

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
4	PHOSPHORUS	Seed	1890	9200	1.0165110377918627	Jim Duke's personal files.*
4	PHOSPHORUS	Stem	5950	5950	2.566643749048099	
5	PHYLLOQUINONE	Seed	--	0.07	-0.4540766091865	
0	PHYTATE	Seed	1640	10000	-0.30876780753705974	
9	PHYTIC-ACID	Seed	5600	11500	-0.4716099018081439	
0	PHYTIN	Seed	12000	12000	-0.5865906444504397	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
2	PHYTOSTEROLS	Sprout Seedling	--	2340	1.4787221837231173	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
10	PIPERIDINE	Seed	1	1		
0	PLASTOHYDROQUINONE-9	Root	--	--		
0	PLASTOHYDROQUINONE-9	Leaf	--	--		
0	PLASTOHYDROQUINONE-9	Tissue Culture	--	--		
0	PLASTOQUINONE	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	PLASTOQUINONE 9	Tissue Culture	--	--		
0	PLASTOQUINONE 9	Sprout Seedling	--	--		

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	PLASTOQUINONE 9	Root	--	--		
0	PLASTOQUINONE 9	Leaf	--	--		
0	POLYSACCHARIDE	Seed	--	--		
14	POTASSIUM	Stem	25000	25000	1.0285125288902355	
14	POTASSIUM	Plant	19880	44000	1.5484017600425304	Jim Duke's personal files.*
14	POTASSIUM	Seed	1600	9900	-0.2348139824528988	
14	POTASSIUM	Sprout Seedling	6130	6130	-1.621510089564705	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
2	PROCYANIDIN-B-3	Seed	--	--		
0	PRODELPHINIDIN-B-3	Seed	--	--		
0	PRODELPHINIDIN-B-3-DIMER	Seed	--	--		
0	PROLINE	Root	57	219	-1.1552542528043488	
0	PROPELARGONIDIN-DIMER	Seed	--	--		
0	PROTEIN	Plant	25000	344000	1.3975280926084976	Jim Duke's personal files.*
0	PROTEIN	Leaf	--	--		
0	PROTEIN	Seed	82000	212000	-0.19388730833174384	Jim Duke's personal files.*
0	PROTEIN	Stem	89000	89000	-0.7071067811865476	
0	PROTEIN	Root	--	--		
0	PROTOCHLOROPHYLL	Leaf	--	--		

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
0	PUTRESCINE	Sprout Seedling	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
43	PYRIDOXINE	Seed	--	11	1.2007481038374281	Jim Duke's personal files.*
1	PYRROLIDINE	Seed	--	0.9		
1	RAFFINOSE	Seed	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
15	RIBOFLAVIN	Seed	1	9	2.0986168328969494	Jim Duke's personal files.*
15	RIBOFLAVIN	Stem	27	28	1.3933794062595939	
7	SALICYLATES	Seed	--	--	-0.3401776874861938	
34	SALICYLIC-ACID	Shoot	1	1		
0	SAPONARIN	Shoot	--	--		
0	SAPONARIN	Leaf	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	SATIOMEM	Seed	--	--		
44	SCOPOLETIN	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
44	SCOPOLETIN	Protoplast	--	--		
60	SELENIUM	Stem	--	24	2.7096345976838996	
1	SERINE	Seed	5000	5000	-1.0683188967669957	Jim Duke's personal files.*

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
4	SILICON	Stem	34	34	-0.8566927096630965	
0	SILICON-DIOXIDE	Seed	5000	9000	1	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
9	SINAPIC-ACID	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	SODIUM	Sprout Seedling	256	256	-1.0708880985082736	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
1	SODIUM	Stem	2240	2240	2.208894010961217	
1	SPERMINE	Seed	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
5	STARCH	Seed	--	620000	1.2546712758706633	
8	STEARIC-ACID	Seed	130	1430	-0.534363896122953	Jim Duke's personal files.*
8	STEARIC-ACID	Leaf	--	--		
12	STIGMASTEROL	Plant	--	--		
12	STIGMASTEROL	Sprout Seedling	--	1010	1.1166454979463096	
12	STIGMASTEROL	Embryo	--	--		
14	SULFUR	Seed	200	200	-1.3206589077323676	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
6	SYRINGIC-ACID	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
31	THIAMIN	Seed	1	10	0.8149652509512033	
31	THIAMIN	Stem	13	13	0.99861782933251	
4	TIN	Stem	12	12	0.7071067811865475	
0	TOCOPHEROLS	Seed	56	71	-0.675613618744914	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
2	TRANS-FERULIC-ACID	Plant	--	--		Stitt, Paul. Why George should eat broccoli.
9	TRICIN	Shoot	--	--		
0	TRICIN-7-O-BETA-D-GLUCOSIDE	Leaf	--	--		
15	TRIGONELLINE	Seed	8.9	9	-0.4668864790645237	
4	TRYPTAMINE	Sprout Seedling	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
29	TRYPTOPHAN	Seed	1000	3000	-0.1108675145369685	Jim Duke's personal files.*
29	TRYPTOPHAN	Sprout Seedling	--	--		
11	TYRAMINE	Sprout Seedling	26	26		
8	TYROSINE	Seed	2000	6000	-0.4033504117135999	Jim Duke's personal files.*

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference	Citation
8	UBIQUINONE	Sprout Seedling	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
22	UMBELLIFERONE	Fruit	--	--		
22	UMBELLIFERONE	Sprout Seedling	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	VALINE	Seed	6000	9000	-0.3709002053950128	Jim Duke's personal files.*
24	VANILLIC-ACID	Fruit	--	--		
2	VIOLAXANTHIN	Sprout Seedling	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	VIT-K-1	Leaf	--	--		
24	VITAMIN-B-1	Seed	4.47	4.47	-0.9999999999999994	
0	VITAMIN-B-2	Seed	1.28	1.28	-1	
0	VITAMIN-K-1	Tissue Culture	--	--		
0	VITAMIN-K-1	Leaf	--	--		
0	VITAMIN-K-1	Root	--	--		
0	VITEXIN-7-O-BETA-D-DIGLUCOSIDE	Leaf	--	--		
0	VITEXIN-7-RHAMNOGLUCOSIDE	Leaf	--	--		
0	WATER	Plant	883000	883000	0.47977378407142257	Jim Duke's personal files.*

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	WATER	Seed	6000	178000	-0.19036313251240586	Jim Duke's personal files.*
0	WATER	Stem	860000	860000	0.42665454120726076	
0	WAX	Leaf	--	--		
77	ZINC	Sprout Seedling	20	20	-1.394755939064127	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
77	ZINC	Stem	21	21	-1.4164667554004475	
77	ZINC	Seed	20	30	-0.42960193727303775	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.