

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in Avena sativa

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CARBOHYDRATES	Seed	562000.0	775000.0	0.9999001412733444	--
5	STARCH	Seed	500000.0	600000.0	1.1736828138582762	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	PENTOSANS	Hull Husk	320000.0	360000.0	1.0	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	CARBOHYDRATES	Plant	265000.0	861000.0	1.2143728174932495	--
15	FIBER	Plant	122000.0	417000.0	1.43574425001656	Jim Duke's personal files.*
6	FURFURAL	Hull Husk	100000.0	132000.0		--
13	LIGNIN	Hull Husk	100000.0	150000.0	-1.0	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	PROTEIN	Seed	74000.0	232000.0	-0.01597695077093895	Jim Duke's personal files.*
0	WATER	Seed	48000.0	213000.0	-0.05605353286919712	Jim Duke's personal files.*
0	SUGARS	Plant	30000.0	93000.0	-0.22286679279323657	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
8	GLUTAMIC-ACID	Seed	29000.0	31000.0	-0.4519999471714031	Jim Duke's personal files.*
0	SUGARS	Seed	20000.0	50000.0	-0.14394703178324852	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	ASH	Seed	19000.0	96000.0	1.4473321359680458	--
0	ASH	Plant	18040.0	82000.0	-0.7048006092883108	--
0	PROTEIN	Plant	15840.0	72000.0	-0.8315036968096554	--
1	AVENIN	Seed	11200.0	185600.0		--
0	FAT	Seed	11000.0	97000.0	-0.8869576751709459	--
15	FIBER	Seed	10000.0	289000.0	1.2177567557101374	--
0	PHYTATE	Seed	8970.0	10000.0	-0.30876780753705974	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	LEUCINE	Seed	6000.0	14000.0	-0.2949527778801378	Jim Duke's personal files.*
9	PHYTIC-ACID	Hull Husk	5600.0	8700.0		--
0	KILOCALORIES	Plant	4529.0	4540.0	1.1415923130022652	--
3	VALINE	Seed	4000.0	11000.0	-0.12458055729354042	Jim Duke's personal files.*
7	PHENYLALANINE	Seed	4000.0	10000.0	-0.1839547111693311	Jim Duke's personal files.*
3	ISOLEUCINE	Seed	4000.0	9000.0	-0.1903246733732836	Jim Duke's personal files.*
0	KILOCALORIES	Seed	3740.0	4710.0	-0.11644557042776867	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
28	CALCIUM	Plant	3146.0	14300.0	0.07601124250227355	--
4	THREONINE	Seed	3000.0	7000.0	-0.2544416663340577	Jim Duke's personal files.*
14	ARGININE	Seed	3000.0	13000.0	-0.492896993165164	Jim Duke's personal files.*
65	MAGNESIUM	Plant	2640.0	12000.0	2.4628926226809362	--
14	POTASSIUM	Seed	2200.0	8900.0	-0.3227574844725049	Jim Duke's personal files.*
8	TYROSINE	Seed	2000.0	14000.0	1.4498681987287636	Jim Duke's personal files.*
4	LYSINE	Seed	2000.0	7000.0	-0.6906340633332377	Jim Duke's personal files.*
0	FAT	Plant	1540.0	7000.0	-0.6531012955597851	--
14	SULFUR	Seed	1500.0	3100.0	0.31967317026072223	Jim Duke's personal files.*
2	CYSTINE	Seed	1000.0	5000.0	1.2870395709433473	Jim Duke's personal files.*
7	CHLORINE	Plant	1000.0	5700.0	-0.16621641797392214	Jim Duke's personal files.*
15	METHIONINE	Seed	1000.0	4000.0	-0.0812868777702854	Jim Duke's personal files.*
5	SAPONINS	Seed	1000.0	13000.0	-0.3206748989657371	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
7	HISTIDINE	Seed	1000.0	6000.0	-0.03298707830764554	Jim Duke's personal files.*
2	AVENACOSIDES	Plant	1000.0	15000.0		--
1	SODIUM	Plant	862.0	3920.0	-0.08708138356494911	--
14	SULFUR	Plant	800.0	4100.0	0.1026280463781624	Jim Duke's personal files.*
4	PHOSPHORUS	Plant	618.0	2810.0	-0.3741734298409137	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
14	POTASSIUM	Plant	598.0	2720.0	-1.3304292991673436	--
4	PHOSPHORUS	Seed	500.0	10200.0	1.2807700551263885	Jim Duke's personal files.*
7	CHLORINE	Seed	500.0	1900.0	3.160532696671519	Jim Duke's personal files.*
28	CALCIUM	Seed	400.0	4800.0	0.12003541790252584	--
65	MAGNESIUM	Seed	300.0	2900.0	-0.018215347061146407	Jim Duke's personal files.*
20	CHOLINE	Seed	134.0	1712.0	0.03730095447113204	--
1	SODIUM	Seed	100.0	1600.0	1.824152591251745	Jim Duke's personal files.*
112	ASCORBIC-ACID	Plant	26.0	120.0	-0.5655146584691259	--
6	IRON	Seed	20.0	300.0	0.6932609533256522	Jim Duke's personal files.*
14	MANGANESE	Seed	20.0	204.0	1.8744753503352685	Jim Duke's personal files.*
39	NIACIN	Plant	17.0	75.0	-0.024042680398474098	--
53	BETA-CAROTENE	Plant	16.0	72.0	-0.3372351827937805	--
39	NIACIN	Seed	6.0	44.0	0.03334512236633281	Jim Duke's personal files.*
32	ALPHA-TOCOPHEROL	Seed	4.4	10.1	-0.6988762675539839	Jim Duke's personal files.*
11	PANTOTHENIC-ACID	Seed	4.4	28.3	1.2104233244034384	Jim Duke's personal files.*
4	SILICON	Plant	4.0	18.3	-0.4358023545388019	--
11	PANTOTHENIC-ACID	Plant	3.5	45.3	0.9128756483055993	Jim Duke's personal files.*
6	IRON	Plant	3.0	13.5	-0.7224047313177726	--
31	THIAMIN	Seed	2.6	12.1	1.3159899428962132	--
0	CAROTENE	Plant	2.6	702.0	0.3623054192861281	Jim Duke's personal files.*
12	COPPER	Seed	2.4	25.7	0.987370350962101	Jim Duke's personal files.*
4	BORON	Seed	2.0	7.0	-0.8116798946510148	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).
43	PYRIDOXINE	Plant	1.76	3.08		Jim Duke's personal files.*
4	TIN	Plant	1.3	6.0	-1.008758312691185	--
24	CHROMIUM	Plant	0.9	3.9	-0.4995358912242695	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
31	THIAMIN	Plant	0.9	4.0	-0.3059929673424499	Jim Duke's personal files.*
15	RIBOFLAVIN	Seed	0.66	11.7	3.1334031477822193	Jim Duke's personal files.*
2	COBALT	Plant	0.4	1.7	-0.4218779584044709	--
0	THIAMINE	Plant	0.4	2.0	-0.4618949437111338	--
15	RIBOFLAVIN	Plant	0.4	2.0	-0.6558678757056521	--
60	SELENIUM	Plant	0.3	1.3	-0.3695058107533004	--
43	PYRIDOXINE	Seed	0.22	2.4	-0.8240428163590194	Jim Duke's personal files.*
4	BIOTIN	Seed	0.132	1.4	-0.5261329414364116	Jim Duke's personal files.*
14	MANGANESE	Plant	0.1	0.5	-0.6913213438464151	--
2	COBALT	Seed	0.0	0.32	-0.19206513214434717	Jim Duke's personal files.*
29	TRYPTOPHAN	Seed	0.0	3000.0	-0.1108675145369685	Jim Duke's personal files.*
0	CAROTENE	Seed	0.0	0.22	-1.0	Jim Duke's personal files.*
15	FOLACIN	Seed	0.0	0.75	-0.7652388262743898	--
23	FOLIC-ACID	Seed	0.0	0.75	-0.35541240931301027	Jim Duke's personal files.*
4	LYSINE	Plant		14000.0	0.48205927294439394	Jim Duke's personal files.*
0	HEX-CIS-3-EN-1-OL	Seed				--
176	QUERCETIN	Hay		310.0		--
13	BETA-IONONE	Seed				--
0	AVENACOSIDE-A	Shoot				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	DEC-TRANS-2-TRANS-4-DIEN-1-AL	Seed				--
0	5-HYDROXY-N-HENTRIACONTAN-14,16-DIONE	Seed				Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.
0	CAMPESTANOL	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	GERANIOL-ACETONE	Seed				--
0	AVENACOSIDE-A	Seed				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
15	MALIC-ACID	Hull Husk				--
0	STIGMAST-7-EN-3-BETA-OL	Seed				--
9	TRICIN	Leaf				--
0	3'-HYDROXYAVENALUMIC-ACID	Fruit				--
0	ISOVITEXIN-2'-O-RHAMNOSIDE	Stem				--
0	CHLOROPHYLL-A	Plant				Stitt, Paul. Why George should eat broccoli.
0	FIBER(CRUDE)	Plant		173000.0	1.2755446864775144	--
3	ISOLEUCINE	Plant		13000.0	0.629975306413423	Jim Duke's personal files.*
0	SILICON-OXIDE	Ash				--
24	PECTIN	Plant		800.0	-0.774079561685048	Wealth of India.
0	OCTAN-1-OL	Seed				--
5	ALUMINUM	Plant				--
31	CARYOPHYLLENE	Seed				--
0	HEXAN-1-AL	Seed				--
0	LUTEOLIN-6-C-GLUCOSYL-ARABINOSIDE	Leaf				--
0	HEPTANAL	Seed				--
0	BETA-HYDROXY-BETA-METHYL-GLUTARIC-ACID	Petiole				--
0	AVENACIN-B-2	Plant				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	DEC-TRANS-2-EN-1-AL	Seed				--
22	MYRCENE	Seed				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	5-HYDROXY-3',5'-DIMETHOXY-GLUCOSIDE	Leaf				--
3	VALINE	Plant		12000.0	0.45057332688469326	Jim Duke's personal files.*
47	BETA-SITOSTEROL	Seed				--
0	GAMMA-MUUROLENE	Seed				--
0	AVENACINS	Root				--
0	LUTEOLIN-6-C-GLUCOSYL-O-ARABINOSIDE	Leaf				--
0	STIGMAST-7-EN-3-BETA-OL	Leaf				--
0	TRANS-NON-2-ENAL	Seed				--
0	29-ISOFUCOSTEROL	Seed				--
0	ISOVITEXIN-2'-O-ARABINOSIDE	Leaf				--
0	CAFFEIC-ACID-ESTER	Seed				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	ORGOETHIONENINE	Seed				Wealth of India.
0	OCTAN-1-AL	Seed				--
77	ZINC	Plant				--
8	FRUCTOSE	Root				--
0	LUTEOLIN-6-C-GLUCOSIDE	Leaf				--
0	TRANS-BETA-OCIMENE	Seed				--
0	HEPTAN-1-AL	Seed				--
0	BETA-CYCLOCITRAL	Seed				--
0	AVENACIN-A-1	Plant				--
0	VITAMIN-B-2	Seed		1.3	1.0	--
0	METHOXY-MALIC-ACID	Petiole				--
4	4-VINYL-GUAIACOL	Seed				--
0	URONIC-ACIDS	Plant				--
47	BETA-SITOSTEROL	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	ASPARTIC-ACID	Seed		7000.0	-1.3839193496072566	Jim Duke's personal files.*
0	ISOSWERTISIN-O'-RHAMNOSIDE	Leaf		16.0		--
60	SELENIUM	Bran				--
0	TRANS-HEPT-2-ENAL	Seed				--
0	2-CARBOXYARABINITOL	Leaf		517.0	0.7377260172344527	Moore, B. D., Isidoro, E., Seemann, J. R. 1993. Distribution of 2-Carboxyarabinitol Among Plants. Phytochemistry 34 3: 703-707. Dept. Biochem. Univ. Nevada Reno 89557, USA.
0	ISOVITEXIN-2'-O-ALPHA-L-ARABINOSIDE	Shoot				--
14	SUCROSE	Plant				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	ISOSWERTISIN-2'-O-ALPHA-L-RHAMNOSIDE	Shoot				--
1	SERINE	Seed		4000.0	-1.2599694074180983	Jim Duke's personal files.*
102	CAFFEIC-ACID	Plant				Stitt, Paul. Why George should eat broccoli.
0	NUATIGENIN	Seed				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	ERGOTHIONEINE	Seed				--
0	OCT-TRANS-2-EN-1-OL	Seed				--
0	ALPHA-KETO-GLUTARIC-ACID	Petiole				--
0	XANTHOPHYLL-EPOXIDE	Sprout Seedling				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	DIHYDROHAEMATINIC-ACID	Hull Husk				--
0	LOPHENOL	Seed				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	GUANINE	Plant				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	PUTRESCINE	Leaf		1186.0		--
0	TRICIN-4'-O-BETA-D-GLUCOSIDE	Leaf				--
1	VITEXIN-2''-O-ALPHA-L-RHAMNOSIDE	Shoot				--
0	4,5-DIHYDROXY-7-METHOXY-8-C-GLUCOSYL-O-RHAMNOSIDE	Leaf				--
0	AVENANTHRAMIDE-G	Shoot		22.4		--
0	ISOORIENTIN-2'-O-ALPHA-L-ARABINOSIDE	Leaf				--
44	SCOPOLETIN	Sprout Seedling				--
0	TRICIN-7-O-BETA-D-GLUCOSIDE	Leaf				--
4	ISOVITEXIN	Plant				Stitt, Paul. Why George should eat broccoli.
12	STIGMASTEROL	Seed				--
1	CELLULOSE	Plant		305000.0	0.0010903022272763664	Jim Duke's personal files.*
15	TRIGONELLINE	Seed				Wealth of India.
0	FUR-2-ALDEHYDE	Seed				--
0	PHAEOPHORBIDE	Sprout Seedling				--
12	IODINE	Plant		0.154	-0.4470535169676872	Jim Duke's personal files.*
0	BUTENYL-ISOTHIOCYANATE	Seed				--
0	MYOINOSITOL-OXIDASE	Shoot				Wealth of India.
0	DIMETHOXY-BUTYL-BENZENE	Petiole				--
0	OCT-1-EN-3-OL	Seed				--
3	ALANINE	Seed		4000.0	-1.3086899322606569	Jim Duke's personal files.*
0	WAX	Seed		9000.0	-0.0905357460425187	--
5	DAUCOSTEROL	Seed				--
13	LIGNIN	Plant		85000.0	-0.9668714696835661	Jim Duke's personal files.*



Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
23	CITRIC-ACID	Petiole				--
0	GRAMININE	Rhizome				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
24	BENZALDEHYDE	Seed				--
6	TARTARIC-ACID	Hull Husk				--
12	COPPER	Plant		4.0	-1.1092588472799756	Jim Duke's personal files.*
24	VITAMIN-B-1	Seed		7.0	1.0000000000000002	--
15	METHIONINE	Plant		2000.0	0.009670052634868679	Jim Duke's personal files.*
0	3,4-DIMETHOXY-ACETOPHENONE	Petiole				--
0	AVENALUMIC-ACID	Fruit				--
0	BETA-HYDROXY-BETA-METHYL-GLUTARIC-ACID	Hull Husk				--
9	PHYTIC-ACID	Bran				--
0	TRANS-NON-2-EN-1-AL	Seed				--
0	ISOSWERTISIN-2'-RHAMNOSIDE	Leaf		16.0		--
0	STIGMASTADIENOL	Seed				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	CELLULOSE	Hull Husk		350000.0	-0.16222142113076254	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
1	SILICIC-ACID	Leaf				Wealth of India.
8	FRUCTOSE	Plant				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	INDOLE-3-ACETIC-ACID-GLUCOPROTEIN	Shoot				--
0	SECALOSE	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
0	BRASSICASTEROL	Seed				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
8	HORDENINE	Leaf				Wealth of India.
0	DIAMINO-PROPANE	Sprout Seedling				--
0	O'-RHAMNOSYL-8-C-D-GLUCOPYRANOSYLGENK WANIN	Sprout Seedling				Rizk, A.F.M., The Phytochemistry of the Flora of Qatar. Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.
0	AEGILOPSIN	Hull Husk				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	CHOLESTEROL	Leaf				--
4	THREONINE	Plant		16000.0	1.1658056814606805	Jim Duke's personal files.*
12	GLYCINE	Seed		2000.0	-1.294330495155266	Jim Duke's personal files.*
1	AVENIN	Root				--
0	7-O-METHOXYVITEXIN-O-RHAMNO-GLUCOSIDE	Sprout Seedling				--
0	COLAMINE	Seed				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	VITAMIN-A	Leaf		0.6		--
0	26-DESGLUCOAVENACOSIDE S	Plant				J.S. Glasby Dict.Pl's Containing 2ndary Metabolite. 1991.
29	TRYPTOPHAN	Plant		2000.0	-0.9503762425454777	Jim Duke's personal files.*
0	AVENACIN-A-1	Root				--
1	MALONIC-ACID	Hull Husk				--
0	ISOSWERTISIN-2'-O-ALPHA-L-RHAMNOSIDE	Leaf				--
0	SILICA	Plant		36000.0	-0.6150458899014142	Wealth of India.
12	FORMALDEHYDE	Seed				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	GLUTARIC-ACID	Hull Husk				--
0	HYPOXANTHIN	Plant				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	SCOPOLIN	Sprout Seedling				--
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	DIADENOSINE-TETRAPHOSPHORIC-ACID	Sprout Seedling				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	NONAN-1-OL	Seed				--
1	ACONITIC-ACID	Plant				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	WATER	Plant		780000.0	0.038825343690180966	--
0	CHOLESTANOL	Seed				--
0	LICHENIN	Seed				--
20	CHOLINE	Shoot		0.3	-0.7676470168924543	--
0	INDOLE-3-ACETIC-ACID-GLUCOPROTEIN	Seed				--
0	GLUTARIC-ACID	Petiole				--
0	PROPANAL	Seed				--
0	AVENIC-ACIDS	Root				--
0	3,4-DIMETHOXY-ACETOPHENONE	Hull Husk				--
12	STIGMASTEROL	Leaf				--
0	2-METHYL-HEPT-2-EN-6-ONE	Seed				--
0	TRICIN-7-O-BETA-D-GLYCOSIDE	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	APIGENIN-8-C-GLUCOSYL-O-RHAMNOSIDE	Leaf				--
0	PENTANE-1,3,4-TRICARBOXYLIC-ACID	Hull Husk				--
0	ISOVITEXIN--O-ARABINOSIDE	Sprout Seedling				--
0	ISOORIENTIN-7-O-BETA-D-GLYCOSIDE	Leaf				--
1	SPERMINE	Leaf		13.0		--
0	APIGENIN-8-C-RHAMNOSYLGLUCOSIDE	Leaf				Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.
0	DIMETHOXY-BUTYL-BENZENE	Hull Husk				--
44	SCOPOLETIN	Root		10.0	-1.0	--
0	DELTA-AMINO-LEVULINIC-ACID	Sprout Seedling				--
0	NONAN-1-AL	Seed				--
16	ACETIC-ACID	Plant				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	VITEXIN-O-GLUCOSIDE	Sprout Seedling				--
0	CHOLESTANOL	Leaf				--
23	CITRIC-ACID	Hull Husk				--
0	PROLINE	Shoot		1.3	-0.7081532669989642	--
0	AVENARIN	Plant				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	TRICIN-4'-O-ALPHA-L-ARABINOSIDE	Leaf				--
0	STIGMASTANOL	Seed				--
1	MALONIC-ACID	Petiole				--
0	2,2,6-TRIMETHYL-CYCLOHEXANONE	Seed				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	TRICIN-7-O-ALPHA-L-RHAMNOSYL-HEXOSIDE	Stem				--
0	7-DEHYDRO-AVENASTEROL	Seed				--
0	ISOORIENTIN-2'-O-BETA-D-DIGLYCOSIDE	Leaf				--
1	SPERMIDINE	Leaf		14.0		--
7	SALICYLATES	Seed		0.0	-0.3401776874861938	--
13	P-HYDROXY-BENZOIC-ACID	Seed				--
0	APIGENIN-8-C-ARABINOSYLHEXOSIDE	Leaf				Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.
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	HEXYL-ACETATE	Seed				--
0	SALICYLIC-ACID-METHYL-ESTER	Seed				--
14	BETAINE	Shoot		2.0	-0.576538228658353	--
0	AVENEIN	Sprout Seedling				Wealth of India.
0	DELTA-7-STIGMASTEROL	Seed				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	NONA-TRANS-2-TRANS-4-DIENAL	Seed				--
0	7-METHOXY-VITEXIN-O-RHAMNOSIDE	Leaf				--
0	VITEXIN-2'-RHAMNOSIDE	Leaf				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	CHOLEST-7-EN-3-BETA-OL	Seed				--
6	TARTARIC-ACID	Petiole				--
20	CHOLINE	Root		0.2	-0.4135487761450312	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ALPHA-KETO-GLUTARIC-ACID	Hull Husk				--
8	GLUTAMIC-ACID	Plant		19000.0	-0.17653409934818678	Jim Duke's personal files.*
0	PROLINE	Root		2.4	-1.2997594393680416	--
3	AVENANTHRAMIDES	Seed				--
0	SILICON-OXIDE	Plant				--
0	STIGMASTANOL	Leaf				--
15	MALIC-ACID	Petiole				--
0	1,3-AMINO-PROPYL-PYRROLINIUM	Sprout Seedling				--
0	TRICIN-4'-O-BETA-D-GLYCOSIDE	Leaf				--
0	7-DEHYDRO-AVENASTEROL	Leaf				--
2	LEUCINE	Plant		18000.0	0.4870195094224758	Jim Duke's personal files.*
0	ISOORIENTIN-2'-O-ARABINOSIDE	Leaf				--
2	PHYTOSTEROLS	Seed		580.0	-0.49166318384124835	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
25	P-COUMARIC-ACID	Seed				--
0	APIGENIN-6-C-GLUCOSYL-ARABINOSIDE	Leaf				--
0	AVENIC-ACID-A	Root				--
0	LOPHENOL	Leaf				--
5	HEXANAL	Seed				--
14	BETAINE	Root		0.1	-0.36834838536964337	--
1	DELTA-7-AVENASTEROL	Seed				Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.
1	NICOTIANAMINE	Sprout Seedling				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	7-HYDROXY-N-HENTRIACONTAN-14,16-DIONE	Seed				Rizk, A.F.M., The Phytochemistry of the Flora of Qatar. Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.
28	VANILLIN	Plant				Stitt, Paul. Why George should eat broccoli.
0	CHOLEST-7-EN-3-BETA-OL	Leaf				--
1	CHOLESTEROL	Seed				--
0	GLUCOVANILLIN	Hull Husk				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	AVENALUMIN-I	Leaf				--
0	1,3,4-PENTANE-TRICARBOXYLIC-ACID-TRIMETHYL-ESTER	Hull Husk		1.3		--
0	STIGMASTANEDIOL	Seed				--
0	1,3,4-PENTANE-TRICARBOXYLIC-ACID-TRIMETHYL-ESTER	Pericarp		1.3		--
0	TRICIN-4'-O-ALPHA-L-ARABINOSIDE	Inflorescence				--
0	5-DEHYDRO-AVENASTEROL	Seed				--
4	ISOORIENTIN	Leaf				--
2	CAMPESTEROL	Seed				--
0	FERULIC-ACID-ESTER	Seed				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
9	OXALIC-ACID	Plant		400.0	-0.5323291024119612	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	APIGENIN-6-C-GLUCOSIDE	Leaf				--
0	APIGENIN-6-C-GLUCOSYL-O-ARABINOSIDE	Leaf				--
4	ISOVITEXIN	Sprout Seedling				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	HEX-TRANS-3-ENYL-ACETATE	Seed				--
47	BETA-SITOSTEROL	Plant				Stitt, Paul. Why George should eat broccoli.
0	AVENACOSIDE-B	Shoot				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
1	DELTA-5-AVENASTEROL	Seed				--
0	6-HYDROXY-N-HENTRIACONTAN-14,16-DIONE	Seed				Rizk, A.F.M., The Phytochemistry of the Flora of Qatar. Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.
24	VANILLIC-ACID	Seed				--
0	CAMPESTANOL	Seed				--
0	FIBER(DIETARY)	Plant		620000.0	2.767466493208292	--
7	GLUCOSE	Plant				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	AVENACOSIDE-B	Seed				List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHOXY-MALIC-ACID	Hull Husk				--
0	STIGMASTA-7,24(28)-DIEN-3-BETA-OL	Seed				--
0	TRICIN-4',7-DI-O-BETA-D-GLYCOSIDE	Inflorescence				--
0	5-DEHYDRO-AVENASTEROL	Leaf				--
0	CHLOROPHYLL-B	Plant				Stitt, Paul. Why George should eat broccoli.
9	SINAPIC-ACID	Seed				--
5	PHYLLOQUINONE	Seed		0.1	-0.04540766091865027	--
61	FERULIC-ACID	Seed				--



Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
0	OCTANAL	Seed				--
0	APIGENIN-6,8-DI-C-GLUCOSIDE	Leaf				--
60	LIMONENE	Seed				--
0	ISOPROPYL-TARTARIC-ACID	Hull Husk				--