

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in *Vigna unguiculata*

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
7	HISTIDINE	Fruit	900.0	7407.0	3.9924504515813624	USDA's Ag Handbook 8 and sequelae)
7	PHENYLALANINE	Fruit	1540.0	12675.0	3.2423846520743265	USDA's Ag Handbook 8 and sequelae)
14	ARGININE	Fruit	1960.0	16131.0	3.1531669404365434	USDA's Ag Handbook 8 and sequelae)
8	TYROSINE	Fruit	1150.0	9465.0	2.919793317228445	USDA's Ag Handbook 8 and sequelae)
1	MERCURY	Seed	0.0	0.58	2.901693112322827	--
15	METHIONINE	Fruit	400.0	3292.0	2.8735190369416084	USDA's Ag Handbook 8 and sequelae)
4	LYSINE	Fruit	1840.0	15144.0	2.8565781387586036	USDA's Ag Handbook 8 and sequelae)
15	FOLACIN	Fruit		8.9	2.8004724701196486	--
3	ISOLEUCINE	Fruit	1500.0	12346.0	2.6154630077298107	USDA's Ag Handbook 8 and sequelae)
2	CYSTINE	Fruit	420.0	3457.0	2.530399427274486	USDA's Ag Handbook 8 and sequelae)
29	TRYPTOPHAN	Fruit	320.0	2634.0	2.5031222990647755	USDA's Ag Handbook 8 and sequelae)
2	LEUCINE	Fruit	2000.0	16461.0	2.4149702003554046	USDA's Ag Handbook 8 and sequelae)
0	TITANIUM	Seed	0.2	84.0	2.3610348068554363	--
4	THREONINE	Fruit	1040.0	8560.0	2.3038919214076166	USDA's Ag Handbook 8 and sequelae)
31	THIAMIN	Shoot	3.5	35.0	2.0225641716396563	--
15	FOLACIN	Seed	6.5	7.2	1.9027560004660504	USDA's Ag Handbook 8 and sequelae)
0	RUBIDIUM	Seed	13.0	39.0	1.867598229659653	--
3	VALINE	Fruit	1620.0	13333.0	1.8321891822914884	USDA's Ag Handbook 8 and sequelae)
0	LEAD	Seed	0.4	8.4	1.7415492539694504	--
0	PROTEIN	Shoot	41000.0	401174.0	1.7137953975462468	--
4	BORON	Seed	3.0	60.0	1.7023728763919526	--
16	VANADIUM	Seed	0.21	2.4	1.6930882198424906	--
0	PROTEIN	Fruit	28000.0	230453.0	1.6214471323206652	USDA's Ag Handbook 8 and sequelae)
15	ALPHA-LINOLENIC-ACID	Fruit	700.0	5761.0	1.4564667030059364	USDA's Ag Handbook 8 and sequelae)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
14	POTASSIUM	Shoot	4550.0	44520.0	1.4507822800952703	--
1	SODIUM	Shoot	70.0	685.0	1.246977776398358	--
0	STRONTIUM	Seed	2.0	60.0	1.1374390139425143	--
5	ALUMINUM	Seed	6.0	840.0	1.0345858754946278	--
65	MAGNESIUM	Fruit	374.0	4160.0	0.9401297999441377	USDA's Ag Handbook 8 and sequelae)
15	RIBOFLAVIN	Fruit	1.1	9.0	0.8546749617807301	USDA's Ag Handbook 8 and sequelae)
3	ASPARTIC-ACID	Seed	29380.0	32085.0	0.8430145949362645	USDA's Ag Handbook 8 and sequelae)
31	THIAMIN	Seed	9.0	10.0	0.8149652509512033	USDA's Ag Handbook 8 and sequelae)
2	MOLYBDENUM	Seed	0.0	8.0	0.8013968154161384	--
4	LYSINE	Seed	16460.0	17975.0	0.7959882108316335	USDA's Ag Handbook 8 and sequelae)
8	STEARIC-ACID	Shoot	80.0	783.0	0.7071067811865476	--
18	OLEIC-ACID	Shoot	130.0	1272.0	0.7071067811865476	--
15	ALPHA-LINOLENIC-ACID	Shoot	440.0	4305.0	0.7071067811865475	--
0	SFA	Shoot	660.0	6458.0	0.7071067811865475	--
13	MUFA	Shoot	220.0	2153.0	0.7071067811865472	--
0	CARBOHYDRATES	Seed	619000.0	676095.0	0.6068316899613161	USDA's Ag Handbook 8 and sequelae)
31	THIAMIN	Fruit	0.8	10.0	0.5974378588358942	USDA's Ag Handbook 8 and sequelae)
7	HISTIDINE	Seed	7550.0	8245.0	0.5638411062629439	USDA's Ag Handbook 8 and sequelae)
0	PROLINE	Seed		14050.0	0.5332177435578753	--
4	PHOSPHORUS	Fruit	590.0	4856.0	0.4981348772405696	USDA's Ag Handbook 8 and sequelae)
0	WATER	Fruit	872000.0	884560.0	0.49561424678441307	USDA's Ag Handbook 8 and sequelae)
7	PHENYLALANINE	Seed	14210.0	15518.0	0.4749924652753344	USDA's Ag Handbook 8 and sequelae)
4	THREONINE	Seed	9260.0	10112.0	0.4416956574775903	USDA's Ag Handbook 8 and sequelae)
0	WATER	Shoot		897800.0	0.4370594814561554	--
3	ALANINE	Seed	11090.0	12111.0	0.41554641297926337	USDA's Ag Handbook 8 and sequelae)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	WATER	Leaf		890000.0	0.4109041271949558	--
65	MAGNESIUM	Seed	3141.0	3952.0	0.3974229552884552	USDA's Ag Handbook 8 and sequelae)
14	POTASSIUM	Fruit	2101.0	22212.0	0.3800378247630607	USDA's Ag Handbook 8 and sequelae)
5	STARCH	Seed	390000.0	400000.0	0.3637981937344068	--
0	PROTEIN	Seed	238800.0	270598.0	0.3273722482856584	USDA's Ag Handbook 8 and sequelae)
20	CHOLINE	Seed		2020.0	0.3271935080070224	--
0	KILOCALORIES	Fruit	470.0	3868.0	0.3150776800149398	USDA's Ag Handbook 8 and sequelae)
2	LEUCINE	Seed	18640.0	20356.0	0.3134360323236914	USDA's Ag Handbook 8 and sequelae)
1	SERINE	Seed		12030.0	0.2789841931102547	--
4	PHOSPHORUS	Seed	5342.0	6375.0	0.2699793138218274	USDA's Ag Handbook 8 and sequelae)
3	NICKEL	Seed	0.0	6.0	0.2386455902980222	--
1	VERBASCOSCE	Seed		31000.0	0.212365765320629	--
8	TYROSINE	Seed	7860.0	8584.0	0.19523919945928347	USDA's Ag Handbook 8 and sequelae)
4	PUFA	Fruit	1690.0	13909.0	0.15618906438507946	USDA's Ag Handbook 8 and sequelae)
3	VALINE	Seed	11600.0	12688.0	0.08331322570410224	USDA's Ag Handbook 8 and sequelae)
8	GLUTAMIC-ACID	Seed		43190.0	0.06230694169044158	--
28	CALCIUM	Fruit	500.0	4115.0	0.059700845108082434	USDA's Ag Handbook 8 and sequelae)
3	ISOLEUCINE	Seed	9890.0	10800.0	0.039358073235131984	USDA's Ag Handbook 8 and sequelae)
0	SCANDIUM	Seed	0.001	0.005	0.03442141954107567	--
39	NIACIN	Shoot	11.2	110.0	0.026896308324385245	--
11	PANTOTHENIC-ACID	Seed	15.0	17.0	0.026882779342101273	USDA's Ag Handbook 8 and sequelae)
14	POTASSIUM	Seed	11570.0	12635.0	0.005711495570723941	USDA's Ag Handbook 8 and sequelae)
0	KILOCALORIES	Shoot	290.0	2837.0	0.0038497995209622452	--
0	ASH	Shoot	10500.0	102740.0	0.0038352567973591037	--
53	BETA-CAROTENE	Fruit	1.5	72.0	-0.011625926370826973	USDA's Ag Handbook 8 and sequelae)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
29	TRYPTOPHAN	Seed	3000.0	3276.0	-0.01674220729318565	USDA's Ag Handbook 8 and sequelae)
39	NIACIN	Fruit	1.0	59.0	-0.022700826609939526	USDA's Ag Handbook 8 and sequelae)
0	ASH	Seed	39270.0	45132.0	-0.0826567450543023	USDA's Ag Handbook 8 and sequelae)
112	ASCORBIC-ACID	Fruit	56.0	2633.0	-0.12077698361724712	USDA's Ag Handbook 8 and sequelae)
0	CESIUM	Seed	0.005	0.174	-0.12186739824619156	--
15	METHIONINE	Seed	3460.0	3779.0	-0.1383532894038235	USDA's Ag Handbook 8 and sequelae)
15	RIBOFLAVIN	Shoot	1.8	17.0	-0.1402564054554619	--
2	CYSTINE	Seed	2690.0	2938.0	-0.1474573698691876	USDA's Ag Handbook 8 and sequelae)
1	STACHYOSE	Seed		20000.0	-0.14946118450450904	--
1	SODIUM	Fruit	39.0	333.0	-0.15237277044187197	USDA's Ag Handbook 8 and sequelae)
2	COBALT	Seed	0.0	1.2	-0.1538982679232917	--
24	CHROMIUM	Seed	0.0	3.6	-0.15803066410283484	--
0	BARIUM	Seed	1.0	60.0	-0.18088426714725162	--
0	ASH	Fruit	6000.0	49383.0	-0.18853781501070507	USDA's Ag Handbook 8 and sequelae)
0	SFA	Fruit	1050.0	8642.0	-0.1894570131429419	USDA's Ag Handbook 8 and sequelae)
112	ASCORBIC-ACID	Shoot	360.0	3523.0	-0.20054370498849433	--
77	ZINC	Seed	35.0	38.0	-0.20248035050833735	USDA's Ag Handbook 8 and sequelae)
8	STEARIC-ACID	Fruit	130.0	1070.0	-0.20826116532173825	USDA's Ag Handbook 8 and sequelae)
13	MUFA	Fruit	360.0	2963.0	-0.21086970886568804	USDA's Ag Handbook 8 and sequelae)
12	STIGMASTEROL	Seed		250.0	-0.21258318014348276	--
27	LINOLEIC-ACID	Fruit	960.0	7901.0	-0.2439287457576797	USDA's Ag Handbook 8 and sequelae)
6	IRON	Fruit	1.0	69.0	-0.25378377963695103	USDA's Ag Handbook 8 and sequelae)
13	PALMITIC-ACID	Fruit	840.0	6913.0	-0.2579148200783713	USDA's Ag Handbook 8 and sequelae)
60	SELENIUM	Seed	0.014	0.14	-0.262388354806188	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
6	IRON	Seed	86.0	94.0	-0.26387815810662096	USDA's Ag Handbook 8 and sequelae)
14	ARGININE	Seed	16850.0	18401.0	-0.26419880752937	USDA's Ag Handbook 8 and sequelae)
6	MYRISTIC-ACID	Fruit	10.0	82.0	-0.26527528291125785	USDA's Ag Handbook 8 and sequelae)
0	ZIRCONIUM	Seed	0.8	2.4	-0.27471609580504064	--
15	ALPHA-LINOLENIC-ACID	Seed	2580.0	2817.0	-0.27532673225020066	USDA's Ag Handbook 8 and sequelae)
6	MYRISTIC-ACID	Seed	10.0	11.0	-0.295859218084883	USDA's Ag Handbook 8 and sequelae)
2	PALMITOLEIC-ACID	Seed	20.0	60.0	-0.29702733695651784	--
112	ASCORBIC-ACID	Seed	16.0	17.0	-0.3282507151699402	USDA's Ag Handbook 8 and sequelae)
2	PALMITOLEIC-ACID	Fruit	10.0	82.0	-0.3304438322317098	USDA's Ag Handbook 8 and sequelae)
0	VIT-B-6	Seed	3.7	4.0	-0.3381637475413548	USDA's Ag Handbook 8 and sequelae)
12	GLYCINE	Seed		8550.0	-0.3473145994431742	--
15	RIBOFLAVIN	Seed	2.3	2.6	-0.35420998757183836	USDA's Ag Handbook 8 and sequelae)
0	FAT	Fruit	4000.0	32922.0	-0.38979650194489146	USDA's Ag Handbook 8 and sequelae)
53	BETA-CAROTENE	Seed		0.3	-0.41055580088060895	USDA's Ag Handbook 8 and sequelae)
6	IRON	Shoot	19.0	188.0	-0.41656177802271527	--
0	FAT	Shoot	2500.0	24462.0	-0.41716050743090644	--
1	SODIUM	Seed	170.0	186.0	-0.4204566374298298	USDA's Ag Handbook 8 and sequelae)
12	COPPER	Seed	9.0	10.0	-0.43669625458362493	USDA's Ag Handbook 8 and sequelae)
65	MAGNESIUM	Shoot	430.0	4207.0	-0.4549159897888148	--
14	MANGANESE	Seed	16.0	17.0	-0.4549371722329042	USDA's Ag Handbook 8 and sequelae)
28	CALCIUM	Seed	1255.0	1643.0	-0.4597727238454736	USDA's Ag Handbook 8 and sequelae)
18	OLEIC-ACID	Fruit	210.0	1728.0	-0.4674268865131115	USDA's Ag Handbook 8 and sequelae)
14	SUCROSE	Seed		15000.0	-0.4844987516547245	--
0	CARBOHYDRATES	Fruit	83500.0	687243.0	-0.5114291593351458	USDA's Ag Handbook 8 and sequelae)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	RAFFINOSE	Seed		4000.0	-0.5182147587354947	--
7	CHLORINE	Seed		100.0	-0.5339655100481104	--
0	SFA	Seed	3390.0	3702.0	-0.5420629020975146	USDA's Ag Handbook 8 and sequelae)
0	WATER	Seed	83120.0	85480.0	-0.5454009656263965	USDA's Ag Handbook 8 and sequelae)
4	TIN	Seed	0.0	0.743	-0.5558568362873569	--
0	LINOLENIC-ACID	Seed		1168.0	-0.5594717682926993	--
8	STEARIC-ACID	Seed	200.0	218.0	-0.5606601805330582	USDA's Ag Handbook 8 and sequelae)
39	NIACIN	Seed	21.0	24.0	-0.5653371145111872	USDA's Ag Handbook 8 and sequelae)
9	PHYTIC-ACID	Seed	5100.0	10270.0	-0.5654961058494626	--
15	FIBER	Shoot	13000.0	127202.0	-0.5669583695517698	--
1	LIGNOCERIC-ACID	Seed		104.0	-0.616879293507422	--
28	CALCIUM	Shoot	630.0	6164.0	-0.6258987216812653	--
13	PALMITIC-ACID	Seed	3180.0	3473.0	-0.6279417906495519	USDA's Ag Handbook 8 and sequelae)
1	BEHENIC-ACID	Seed		380.0	-0.6425757782204549	--
0	ARACHIDIC-ACID	Seed		86.0	-0.6474037548149362	--
15	FIBER	Seed	47700.0	52090.0	-0.6529250665716172	USDA's Ag Handbook 8 and sequelae)
0	CARBOHYDRATES	Shoot	48200.0	471624.0	-0.6875308105221123	--
53	BETA-CAROTENE	Shoot	0.7	6.9	-0.6931546659984213	--
4	PUFA	Shoot	1060.0	10372.0	-0.707106781186547	--
6	MYRISTIC-ACID	Shoot	10.0	98.0	-0.7071067811865472	--
2	PALMITOLEIC-ACID	Shoot	10.0	98.0	-0.7071067811865472	--
27	LINOLEIC-ACID	Shoot	600.0	5871.0	-0.7071067811865476	--
0	AMYLOSE	Seed	108420.0	111200.0	-0.7071067811865476	--
13	PALMITIC-ACID	Shoot	530.0	5185.0	-0.7071067811865476	--
3	SILVER	Seed	0.0	0.027	-0.7510465161267134	--
4	PUFA	Seed	5650.0	6170.0	-0.7590056920044231	USDA's Ag Handbook 8 and sequelae)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CERIUM	Seed	0.0	0.1	-0.777777777777779	--
13	MUFA	Seed	1140.0	1245.0	-0.7826019169513472	USDA's Ag Handbook 8 and sequelae)
2	ERUCIC-ACID	Seed	120.0	753.0	-0.8073979706388439	--
0	KILOCALORIES	Seed	3470.0	3789.0	-0.8372565090238537	USDA's Ag Handbook 8 and sequelae)
27	LINOLEIC-ACID	Seed	3080.0	3364.0	-0.8890105296646297	USDA's Ag Handbook 8 and sequelae)
18	OLEIC-ACID	Seed	1140.0	1245.0	-0.9688655804239834	USDA's Ag Handbook 8 and sequelae)
0	EUROPIUM	Seed	0.0	0.002	-0.9775595655057863	--
0	ANTIMONY	Seed	0.0	0.031	-1.0908011931060053	--
4	PHOSPHORUS	Shoot	90.0	881.0	-1.137001922652881	--
0	FAT	Seed	13100.0	14306.0	-1.3225365527478914	USDA's Ag Handbook 8 and sequelae)
0	PYROPHOSPHATASE	Leaf				--
2	ERUCIC-ACID	Shoot	80.0	783.0		--
0	BETA-AMYLASE	Seed				--
2	ERUCIC-ACID	Fruit	130.0	1070.0		USDA's Ag Handbook 8 and sequelae)
0	GALACTOSYL-ONONITOL	Seed				Yasui, T., Ohno, S. 1982. Distribution of Galactosyl Ononitol and Ononitol in Angiospermae. Nippon Nogeikagaku Kaishi, 56: 1053-1056.
0	GLYCEROPHOSPHATASE	Leaf				--
0	PHOSPHORYLASE	Seed				--
0	(-)-PHASEOLLIN	Plant				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	VIGNAFURAN	Plant				--
0	VIGNAFURAN	Leaf				--
0	GLUCOSE-6-PHOSPHATASE	Seed				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
0	SUCCINOXIDASE	Sprout Seedling				--
0	PHENYL-PHOSPHATASE	Leaf				--
0	YTTRIUM	Seed	0.21	2.4		--