

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in *Abelmoschus esculentus*

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	12,13-EPOXYOLEIC-ACID	Seed				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	2-O-(D-GALACTOPYRANOSYLURONIC-ACID)-L-RHAMOSE	Fruit				Wealth of India.
0	3,5,3',4',5-PENTAHYDROXY-7-METHOXYFLAVONOL-5'-DIGLUCOSIDE	Flower				Wealth of India.
0	3-METHYL-1-BUTANOL	Fruit				Wealth of India.
0	4-O-BETA-D-GALACTOPYRANOSYL-D-GALACTOSE	Fruit				Wealth of India.
0	9-HEXADECENOIC-ACID	Seed				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
3	ALANINE	Fruit	730.0	7300.0	1.4119535146978326	USDA's Ag Handbook 8 and sequelae)
0	ALPHA-TERPENYL-ACETATE	Leaf				Wealth of India.
32	ALPHA-TOCOPHEROL	Seed		304.0	0.23458917070322294	Wealth of India.
32	ALPHA-TOCOPHEROL	Oil		310.0	-0.2423137964331492	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	ARABINOSE	Fruit		180.0		Wealth of India.
14	ARGININE	Fruit	840.0	8450.0	1.1043565641994444	--
112	ASCORBIC-ACID	Fruit	130.0	2340.0	-0.13899484248695484	--
112	ASCORBIC-ACID	Plant	190.0	2340.0	-0.044349356222101836	--
0	ASH	Seed		47400.0	-0.014440680295344115	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	ASH	Fruit	7000.0	70000.0	0.3453465628728832	USDA's Ag Handbook 8 and sequelae)
3	ASPARTIC-ACID	Fruit	1450.0	14820.0	0.6124010179892998	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
47	BETA-SITOSTEROL	Fruit		150.0	-0.5971588891273873	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
28	CALCIUM	Seed	2100.0	2820.0	-0.24360731908228206	--
28	CALCIUM	Fruit	810.0	8100.0	0.9792809325023206	USDA's Ag Handbook 8 and sequelae)
2	CAMPESTEROL	Fruit		30.0	-0.4046460894399287	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
0	CARBOHYDRATE	Fruit	76300.0	760000.0	0.16728374427310336	USDA's Ag Handbook 8 and sequelae)
0	CARBOHYDRATES	Fruit	76300.0	760000.0	-0.12236009010138874	--
7	CHLORINE	Plant		410.0	-1.3865978906762788	Wealth of India.
53	CITRAL	Leaf				Wealth of India.
53	CITRAL	Fruit				Wealth of India.
12	COPPER	Fruit	1.0	9.0	-0.2972270275515491	USDA's Ag Handbook 8 and sequelae)
0	CYANIDIN-3-GLUCOSIDE-4'-GLUCOSIDE	Flower				Rizk, A.F.M. and Al-Nowaihi, A.S., The Phytochemistry of the Horticultural Plants of Qatar, Scientific and Applied Research Centre, University of Qatar.
0	CYANIDIN-3-SAMBUBIOSIDE	Flower				Wealth of India.
0	CYANIDIN-4'-GLUCOSIDE	Flower				Rizk, A.F.M. and Al-Nowaihi, A.S., The Phytochemistry of the Horticultural Plants of Qatar, Scientific and Applied Research Centre, University of Qatar.
0	CYCLOHEXANOL	Fruit				Wealth of India.
2	CYSTINE	Fruit	180.0	1900.0	0.9062078723935358	--
24	ETHANOL	Fruit				Wealth of India.
0	FAT	Seed	160000.0	220000.0	-0.23907267817038622	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	FAT	Fruit	1000.0	10000.0	-0.5648728941733404	USDA's Ag Handbook 8 and sequelae)
15	FIBER	Seed		210200.0	0.5955384973174893	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
15	FIBER	Fruit	9400.0	94000.0	-0.4498972510420309	USDA's Ag Handbook 8 and sequelae)
0	FLAVONOIDS	Flower	4800.0	25000.0	-0.4636926248936486	Wealth of India.
15	FOLACIN	Fruit	0.7	10.0	3.249984323819219	USDA's Ag Handbook 8 and sequelae)
1	GALACTOSE	Fruit		4800.0		Wealth of India.
0	GALACTURONIC-ACID	Fruit		360.0		Wealth of India.
14	GAMMA-TOCOPHEROL	Oil		430.0	0.23400336123986246	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
8	GLUTAMIC-ACID	Fruit	2710.0	27100.0	1.0787835766302012	USDA's Ag Handbook 8 and sequelae)
12	GLYCINE	Fruit	440.0	4400.0	0.30769740137959467	USDA's Ag Handbook 8 and sequelae)
7	GOSSYPETIN	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	GOSSYPETIN-3-GLUCOSIDE-8-RHAMNOGLUCOSIDE	Flower				Wealth of India.
2	GOSSYPETIN-8-GLUCOSIDE	Flower				Wealth of India.
0	GOSSYPETIN-8-RHAMNOGLUCOSIDE	Flower				Wealth of India.
54	GOSSYPOL	Seed	32.0	70.0	-0.5463535177026004	--
7	HISTIDINE	Fruit	310.0	3100.0	0.9727269415226906	USDA's Ag Handbook 8 and sequelae)
6	IRON	Fruit	8.0	150.0	0.06752138925955396	--
2	ISOBUTYL-ALCOHOL	Leaf				Wealth of India.
2	ISOBUTYL-ALCOHOL	Fruit				Wealth of India.
3	ISOLEUCINE	Fruit	550.0	6900.0	0.9797840477819103	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	KILOCALORIES	Fruit	180.0	3800.0	0.21179742548842775	--
2	LEUCINE	Fruit	1050.0	10500.0	1.1477318684831908	USDA's Ag Handbook 8 and sequelae)
27	LINOLEIC-ACID	Seed	32575.0	89760.0	-0.1487610244098318	--
4	LYSINE	Fruit	810.0	8100.0	1.0322270292855846	USDA's Ag Handbook 8 and sequelae)
65	MAGNESIUM	Fruit	380.0	6000.0	1.792156703535766	--
14	MANGANESE	Fruit	10.0	100.0	0.2558494650725795	USDA's Ag Handbook 8 and sequelae)
15	METHIONINE	Fruit	210.0	2100.0	1.4056535776128818	USDA's Ag Handbook 8 and sequelae)
3	MUCILAGE	Fruit		6000.0	-0.7970811413304553	Wealth of India.
13	MUFA	Fruit	170.0	1700.0	-0.22925702420668695	USDA's Ag Handbook 8 and sequelae)
6	MYRISTIC-ACID	Seed	360.0	1540.0	-0.2758432857450111	--
39	NIACIN	Fruit	10.0	100.0	0.525398020316708	USDA's Ag Handbook 8 and sequelae)
18	OLEIC-ACID	Seed	43920.0	100190.0	-0.15547958517496932	--
9	OXALIC-ACID	Fruit	8.0	103.0	-0.30066937175115394	--
0	P-TOLUALDEHYDE	Fruit				Wealth of India.
13	PALMITIC-ACID	Seed	33920.0	66440.0	0.6712717296107207	--
2	PALMITOLEIC-ACID	Seed	730.0	880.0	-0.27734359101749956	Wealth of India.
11	PANTOTHENIC-ACID	Fruit	2.0	24.0	0.3760561207523544	USDA's Ag Handbook 8 and sequelae)
24	PECTIN	Fruit				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
24	PECTIN	Seed		21500.0	-0.39959623198666455	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	PENTOSANS	Seed		142700.0	1.33610550594868	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	PHENYALANINE	Fruit	650.0	6500.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
7	PHENYLALANINE	Fruit	650.0	6500.0	1.100844146055086	USDA's Ag Handbook 8 and sequelae)
4	PHOSPHORUS	Seed		7900.0	0.6729743152569793	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
4	PHOSPHORUS	Fruit	630.0	6300.0	0.9367351316792745	USDA's Ag Handbook 8 and sequelae)
5	PHYLLOQUINONE	Plant		0.4	-0.0356363719455349	Booth, S. L., Suttie, J. W. 1998. Dietary intake and adequacy of vitamin K. J. Nutrition, 128(5): 785-788.
0	PHYTATE	Fruit	50.0	2900.0	-0.36066152801713924	--
2	PHYTOSTEROLS	Fruit	240.0	2400.0	1.8739668130211007	--
14	POTASSIUM	Seed		8200.0	-0.3843179358862292	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
14	POTASSIUM	Fruit	2200.0	32500.0	1.2902544800325078	--
0	PROLINE	Fruit	450.0	14930.0	2.9987180634006636	--
0	PROTEIN	Seed	193800.0	200600.0	-0.2952962121414026	--
0	PROTEIN	Fruit	2000.0	122000.0	0.16758750745380976	--
4	PUFA	Fruit	270.0	2700.0	-0.6462376868898586	USDA's Ag Handbook 8 and sequelae)
176	QUERCETIN	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	QUERCETIN-3-DIGLUCOSIDE	Flower				Wealth of India.
0	QUERCETIN-3-TRIGLUCOSIDE	Flower				Wealth of India.
0	QUERCETIN-4'-DIGLUCOSIDE	Flower				Wealth of India.
1	QUERCETIN-4'-GLUCOSIDE	Flower				Wealth of India.
0	QUERCETIN-5-GLUCOSIDE	Flower				Wealth of India.
0	QUERCETIN-5-RHAMNOGLUCOSIDE	Flower				Wealth of India.
0	QUERCETIN-7-GLUCOSIDE	Flower				Wealth of India.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	RHAMNOSE	Fruit		600.0		Wealth of India.
15	RIBOFLAVIN	Seed		1.4	-0.8141150164097362	Wealth of India.
15	RIBOFLAVIN	Fruit	0.6	7.0	0.42634167420268376	--
7	SALICYLATES	Fruit		5.0	-0.3224047195908981	--
1	SERINE	Fruit	440.0	4510.0	0.30609586354325435	--
0	SFA	Fruit	260.0	2600.0	-0.32206148620495856	USDA's Ag Handbook 8 and sequelae)
1	SODIUM	Fruit	10.0	1000.0	-0.08912190953477618	--
5	STARCH	Seed		89200.0	-0.8947625059380864	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
8	STEARIC-ACID	Seed	7200.0	10120.0	-0.34582040476667064	--
12	STIGMASTEROL	Root		60.0	-0.4716637501266192	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
0	SUGAR	Seed		40300.0	-0.45814866271946514	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
14	SULFUR	Fruit	140.0	1400.0	-0.010141453327068681	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
31	THIAMIN	Seed		6.9	0.07535737236571377	Wealth of India.
31	THIAMIN	Fruit	0.8	20.0	1.8774907750760779	--
4	THREONINE	Fruit	650.0	6500.0	1.4475659616717724	USDA's Ag Handbook 8 and sequelae)
29	TRYPTOPHAN	Fruit	170.0	1710.0	1.2063373108893063	--
8	TYROSINE	Fruit	480.0	8700.0	2.602797189816478	--
3	VALINE	Fruit	910.0	9100.0	0.9588044065437552	USDA's Ag Handbook 8 and sequelae)
0	VIT-B-6	Fruit	2.0	22.0	2.3189606682135615	USDA's Ag Handbook 8 and sequelae)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	WATER	Seed		98900.0	-0.49390282770605765	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	WATER	Fruit	880000.0	895000.0	0.5410083440065604	--
77	ZINC	Fruit	6.0	60.0	0.8935039976101535	USDA's Ag Handbook 8 and sequelae)