

Dr. Duke's Phytochemical and Ethnobotanical Database

Chemicals Found in *Abelmoschus esculentus*

Activity 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	7300	1.4119535146978326	USDA's Ag Handbook 8 and sequelae)
0	ALPHA-TERPENYL-ACETATE	Leaf	--	--		Wealth of India.
32	ALPHA-TOCOPHEROL	Oil	--	310	-0.2423137964331492	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
32	ALPHA-TOCOPHEROL	Seed	--	304	0.23458917070322294	Wealth of India.
0	ARABINOSE	Fruit	--	180		Wealth of India.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
14	ARGININE	Fruit	840	8450	1.1043565641994444	
112	ASCORBIC-ACID	Plant	190	2340	-0.044349356222101836	
112	ASCORBIC-ACID	Fruit	130	2340	-0.13899484248695484	
0	ASH	Fruit	7000	70000	0.3453465628728832	USDA's Ag Handbook 8 and sequelae)
0	ASH	Seed	--	47400	-0.014440680295344115	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
3	ASPARTIC-ACID	Fruit	1450	14820	0.6124010179892998	
47	BETA-SITOSTEROL	Fruit	--	150	-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	2820	-0.24360731908228206	
28	CALCIUM	Fruit	810	8100	0.9792809325023206	USDA's Ag Handbook 8 and sequelae)
2	CAMPESTEROL	Fruit	--	30	-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	760000	0.16728374427310336	USDA's Ag Handbook 8 and sequelae)
0	CARBOHYDRATES	Fruit	76300	760000	-0.12236009010138874	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
7	CHLORINE	Plant	--	410	-1.3865978906762788	Wealth of India.
53	CITRAL	Fruit	--	--		Wealth of India.
53	CITRAL	Leaf	--	--		Wealth of India.
12	COPPER	Fruit	1	9	-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	1900	0.9062078723935358	
24	ETHANOL	Fruit	--	--		Wealth of India.
0	FAT	Fruit	1000	10000	-0.5648728941733404	USDA's Ag Handbook 8 and sequelae)
0	FAT	Seed	160000	220000	-0.23907267817038622	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
15	FIBER	Fruit	9400	94000	-0.4498972510420309	USDA's Ag Handbook 8 and sequelae)
15	FIBER	Seed	--	210200	0.5955384973174893	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	FLAVONOIDS	Flower	4800	25000	-0.4636926248936486	Wealth of India.
15	FOLACIN	Fruit	0.7	10	3.249984323819219	USDA's Ag Handbook 8 and sequelae)
1	GALACTOSE	Fruit	--	4800		Wealth of India.
0	GALACTURONIC-ACID	Fruit	--	360		Wealth of India.
14	GAMMA-TOCOPHEROL	Oil	--	430	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	27100	1.0787835766302012	USDA's Ag Handbook 8 and sequelae)
12	GLYCINE	Fruit	440	4400	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.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	GOSSYPETIN-8-GLUCOSIDE	Flower	--	--		Wealth of India.
0	GOSSYPETIN-8-RHAMNOGLUCOSIDE	Flower	--	--		Wealth of India.
54	GOSSYPOL	Seed	32	70	-0.5463535177026004	
7	HISTIDINE	Fruit	310	3100	0.9727269415226906	USDA's Ag Handbook 8 and sequelae)
6	IRON	Fruit	8	150	0.06752138925955396	
2	ISOBUTYL-ALCOHOL	Leaf	--	--		Wealth of India.
2	ISOBUTYL-ALCOHOL	Fruit	--	--		Wealth of India.
3	ISOLEUCINE	Fruit	550	6900	0.9797840477819103	
0	KILOCALORIES	Fruit	180	3800	0.21179742548842775	
2	LEUCINE	Fruit	1050	10500	1.1477318684831908	USDA's Ag Handbook 8 and sequelae)
27	LINOLEIC-ACID	Seed	32575	89760	-0.1487610244098318	
4	LYSINE	Fruit	810	8100	1.0322270292855846	USDA's Ag Handbook 8 and sequelae)
65	MAGNESIUM	Fruit	380	6000	1.792156703535766	
14	MANGANESE	Fruit	10	100	0.2558494650725795	USDA's Ag Handbook 8 and sequelae)
15	METHIONINE	Fruit	210	2100	1.4056535776128818	USDA's Ag Handbook 8 and sequelae)
3	MUCILAGE	Fruit	--	6000	-0.7970811413304553	Wealth of India.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
13	MUFA	Fruit	170	1700	-0.22925702420668695	USDA's Ag Handbook 8 and sequelae)
6	MYRISTIC-ACID	Seed	360	1540	-0.2758432857450111	
39	NIACIN	Fruit	10	100	0.525398020316708	USDA's Ag Handbook 8 and sequelae)
18	OLEIC-ACID	Seed	43920	100190	-0.15547958517496932	
9	OXALIC-ACID	Fruit	8	103	-0.30066937175115394	
0	P-TOLUALDEHYDE	Fruit	--	--		Wealth of India.
13	PALMITIC-ACID	Seed	33920	66440	0.6712717296107207	
2	PALMITOLEIC-ACID	Seed	730	880	-0.27734359101749956	Wealth of India.
11	PANTOTHENIC-ACID	Fruit	2	24	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	-0.39959623198666455	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	PENTOSANS	Seed	--	142700	1.33610550594868	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	PHENYALANINE	Fruit	650	6500		
7	PHENYLALANINE	Fruit	650	6500	1.100844146055086	USDA's Ag Handbook 8 and sequelae)
4	PHOSPHORUS	Seed	--	7900	0.6729743152569793	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
4	PHOSPHORUS	Fruit	630	6300	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	2900	-0.36066152801713924	
2	PHYTOSTEROLS	Fruit	240	2400	1.8739668130211007	
14	POTASSIUM	Seed	--	8200	-0.3843179358862292	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
14	POTASSIUM	Fruit	2200	32500	1.2902544800325078	

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0	PROLINE	Fruit	450	14930	2.9987180634006636	
0	PROTEIN	Seed	193800	200600	-0.2952962121414026	
0	PROTEIN	Fruit	2000	122000	0.16758750745380976	
4	PUFA	Fruit	270	2700	-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.
0	RHAMNOSE	Fruit	--	600		Wealth of India.
15	RIBOFLAVIN	Seed	--	1.4	-0.8141150164097362	Wealth of India.
15	RIBOFLAVIN	Fruit	0.6	7	0.42634167420268376	
7	SALICYLATES	Fruit	--	5	-0.3224047195908981	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	SERINE	Fruit	440	4510	0.30609586354325435	
0	SFA	Fruit	260	2600	-0.32206148620495856	USDA's Ag Handbook 8 and sequelae)
1	SODIUM	Fruit	10	1000	-0.08912190953477618	
5	STARCH	Seed	--	89200	-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	10120	-0.34582040476667064	
12	STIGMASTEROL	Root	--	60	-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	-0.45814866271946514	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
14	SULFUR	Fruit	140	1400	-0.010141453327068681	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
31	THIAMIN	Fruit	0.8	20	1.8774907750760779	
31	THIAMIN	Seed	--	6.9	0.07535737236571377	Wealth of India.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	THREONINE	Fruit	650	6500	1.4475659616717724	USDA's Ag Handbook 8 and sequelae)
29	TRYPTOPHAN	Fruit	170	1710	1.2063373108893063	
8	TYROSINE	Fruit	480	8700	2.602797189816478	
3	VALINE	Fruit	910	9100	0.9588044065437552	USDA's Ag Handbook 8 and sequelae)
0	VIT-B-6	Fruit	2	22	2.3189606682135615	USDA's Ag Handbook 8 and sequelae)
0	WATER	Seed	--	98900	-0.49390282770605765	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	WATER	Fruit	880000	895000	0.5410083440065604	
77	ZINC	Fruit	6	60	0.8935039976101535	USDA's Ag Handbook 8 and sequelae)