

P Terminalia chebula

Common Name(s)

Black Myrobalan, Chebulic Myrobalan, Ink Nut, Myrobalan

How Used

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Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
0	1,2,3,4,6-PENTAGALLOYLGLUCOSE	Fruit	--	--	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	1,3,6-TRIGALLOYLGLUCOSE	Fruit	--	--	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	2,3(S)-HEXAHYDROXY-DIPHENOYL-D-GLUCOSE	Leaf	--	304.7	Lin,T.C.,et al.1990.Tannins and Related Compounds.CII.Structures of Terchebulin, an Ellagitannin Having a Novel Tetraphenylcarboxylic Acid (Terchebulic Acid) and Biogenetically Related Tannins from Terminalia chebula Retz. Chem Pharm Bull 38 11:3004-3008.
0	2,3-DI-O-GALLOYL-BETA-D-GLUCOSE	Leaf	--	13.8	Lin,T.C.,et al.1990.Tannins and Related Compounds.CII.Structures of Terchebulin, an Ellagitannin Having a Novel Tetraphenylcarboxylic Acid (Terchebulic Acid) and Biogenetically Related Tannins from Terminalia chebula Retz. Chem Pharm Bull 38 11:3004-3008.

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	2-ALPHA-HYDROXY-MICROMERIC-ACID	Leaf	--	106.2	Singh, C. 1990. 2-alpha-hydroxymicromeric acid, a Pentacyclic Triterpene from Terminalia chebula. Phytochemistry, 29 7: 2348-2350.
0	3,6-DIGALLOYLGLUCOSE	Fruit	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	9-(2-HYDROXY-ETHOXY-METHYL)-GUANIDINE	Plant	--	--	Hozumi, T., Ooyama, H., Shiraki, K., Kurokawa, M., Nakano, M., Morohashi, M., Nanba, T. 1996. Geum Japonicum or Other Plant Extracts for Prevention of Herpes Virus Infection Recurrence. Patent-Japan Kokai Tokyo Koho-08,268,901: 8 pp.
0	ARABINOSE	Fruit	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	ARACHIDIC-ACID	Seed Oil	--	--	Miglani, B. D., Chawla, A. S. 1974. Chemical Investigation of the Oil of Terminaliaa chebula. J. Inst. Chem. (Calcutta) 46: 189-.
14	ARGININE	Fruit	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	ARJUNGENIN	Pericarp	--	230	Reddy, B. M., Rao, N. K., Ramesh, M., Appa Rao, A. V. N., Lin, L. J., Lin, L. Z., Cordell, G. A. 1994. Chemical Investigation of the Fruits of Terminalia chebula. Int. J. Pharmacog 32 (4):352-356.
0	ARJUNGENIN	Fruit	--	--	Lu, P. P., Liu, X. G., Li, X. C., Zhang, D. C., Yokoi, T. 1992. Triterpenes of Terminalia chebula Retz. Chih Wu Hsueh Pao 34 (2): 126-132.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
0	ARJUNGLUCOSIDE I	Stem Bark	166.6	--	Kundu, A. P., Mahato, S. B. 1993. Triterpenoids and their Glycosides from Terminalia chebula. Phytochemistry 32 4: 999-1002.
0	ARJUNGLUCOSIDE I	Pericarp	--	300	Reddy, B. M., Rao, N. K., Ramesh, M., Appa Rao, A. V. N., Lin, L. J., Lin, L. Z., Cordell, G. A. 1994. Chemical Investigation of the Fruits of Terminalia chebula. Int. J. Pharmacog 32 (4):352-356.
5	ARJUNOLIC-ACID	Fruit	--	--	Lu, P. P., Liu, X. G., Li, X. C., Zhang, D. C., Yokoi, T. 1992. Triterpenes of Terminalia chebula Retz. Chih Wu Hsueh Pao 34 (2): 126-132.
112	ASCORBIC-ACID	Fruit	920	920	-0.22728617216267144 List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	ASPARAGINE	Fruit	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	BEHENIC-ACID	Seed Oil	--	--	Miglani, B. D., Chawla, A. S. 1974. Chemical Investigation of the Oil of Terminaliaa chebula. J. Inst. Chem. (Calcutta) 46: 189-.
0	BELLERICOSIDE	Stem Bark	100	--	Kundu, A. P., Mahato, S. B. 1993. Triterpenoids and their Glycosides from Terminalia chebula. Phytochemistry 32 4: 999-1002.
0	BETA-GLUCOGALLIN	Fruit	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
47	BETA-SITOSTEROL	Fruit	--	--	Lu, P. P., Liu, X. J., Li, X. G., Wen, J. Q. 1991. Chemical Constituents of Fruits of Terminalia chebula Retz. Shanghai Yike Daxue Xuebao 18 (3): 233-235.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
47	BETA-SITOSTEROL	Bark	--	--	Beri, R. M. 1970. Phytosterol in Some Plant Materials. Indian Oil Soap J. 35: 274-275.
8	CHEBULAGIC-ACID	Leaf	2523.8	5300	1
8	CHEBULAGIC-ACID	Fruit	--	258.6	
1	CHEBULANIN	Fruit	--	--	Tokura, K., Kagawa, S. 1993. Anticancer Agents Containing Chebulanin from Terminalia chebula. Patent-Japan Kokai Tokyo Koho-07 138,165: 4 pp.
0	CHEBULIC-ACID	Leaf	--	300.4	Lin,T.C.,et al.1990.Tannins and Related Compounds.CII.Structures of Terchebulin, an Ellagitannin Having a Novel Tetraphenylcarboxylic Acid (Terchebolic Acid) and Biogenetically Related Tannins from Terminalia chebula Retz. Chem Pharm Bull 38 11:3004-3008.
0	CHEBULIC-ACID	Fruit	--	8620.6	
0	CHEBULIC-ACID-TRIETHYL-ESTER	Fruit	--	--	Lu, P. P., Liu, X. J., Li, X. G., Wen, J. Q. 1991. Chemical Constituents of Fruits of Terminalia chebula Retz. Shanghai Yike Daxue Xuebao 18 (3): 233-235.
6	CHEBULINIC-ACID	Fruit	--	11241.3	
0	CHEBULOSIDE-I	Stem Bark	--	--	Kundu, A. P., Mahato, S. B. 1993. Triterpenoids and their Glycosides from Terminalia chebula. Phytochemistry 32 4: 999-1002.
0	CHEBULOSIDE-II	Stem Bark	--	--	Kundu, A. P., Mahato, S. B. 1993. Triterpenoids and their Glycosides from Terminalia chebula. Phytochemistry 32 4: 999-1002.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	CHEBUPENTOL	Fruit	--	--		Lu, P. P., Liu, X. G., Li, X. C., Zhang, D. C., Yokoi, T. 1992. Triterpenes of Terminalia chebula Retz. Chih Wu Hsueh Pao 34 (2): 126-132.
0	COLOSOLIC-ACID	Leaf	--	312.5		Singh, C. 1990. 2-alpha-hydroxymicromeric acid, a Pentacyclic Triterpene from Terminalia chebula. Phytochemistry, 29 7: 2348-2350.
13	CORILAGIN	Fruit	724	8500		
13	CORILAGIN	Leaf	--	293	-1	Lin,T.C.,et al.1990.Tannins and Related Compounds.CII.Structures of Terchebulin, an Ellagitannin Having a Novel Tetraphenylcarboxylic Acid (Terchebolic Acid) and Biogenetically Related Tannins from Terminalia chebula Retz. Chem Pharm Bull 38 11:3004-3008.
5	DAUCOSTEROL	Fruit	--	--		Lu, P. P., Liu, X. J., Li, X. G., Wen, J. Q. 1991. Chemical Constituents of Fruits of Terminalia chebula Retz. Shanghai Yike Daxue Xuebao 18 (3): 233-235.
0	DEHYDROSHIKIMIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	DIHYDROSHIKIMIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
51	ELLAGIC-ACID	Leaf	--	379	-0.6995114391849991	Lin,T.C.,et al.1990.Tannins and Related Compounds.CII.Structures of Terchebulin, an Ellagitannin Having a Novel Tetraphenylcarboxylic Acid (Terchebolic Acid) and Biogenetically Related Tannins from Terminalia chebula Retz. Chem Pharm Bull 38 11:3004-3008.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
51	ELLAGIC-ACID	Fruit	--	690	-0.49557477046092807
0	FAT	Fruit	400000	400000	2.413915735487906 List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	FAT	Seed	343000	364000	0.5194268305131962
0	FIXED-OIL	Seed	--	--	Miglani, B. D., Chawla, A. S. 1974. Chemical Investigation of the Oil of Terminaliaa chebula. J. Inst. Chem. (Calcutta) 46: 189-.
8	FRUCTOSE	Fruit	10000	10000	-0.7809376482767042
62	GALLIC-ACID	Leaf	--	53.3	-0.8698914721339668 Lin,T.C.,et al.1990.Tannins and Related Compounds.CII.Structures of Terchebulin, an Ellagitannin Having a Novel Tetraphenylcarboxylic Acid (Terchebolic Acid) and Biogenetically Related Tannins from Terminalia chebula Retz. Chem Pharm Bull 38 11:3004-3008.
62	GALLIC-ACID	Fruit	--	4310	-0.8577693162343898
1	GALLIC-ACID-ETHYL-ESTER	Fruit	--	--	
0	GENTIOBIOSE	Fruit	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
7	GLUCOSE	Fruit	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	HEXAOXYDIPHENIC-ACID	Fruit	--	--	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
22	ISOQUERCITRIN	Fruit	--	--		Polovyanov, G. G. 1974. Flavonoids from the Fruit of the Yellow Myrobalan Plum. Chem. Nat. Comp. 10 (5): 690-.
27	LINOLEIC-ACID	Seed	80100	84800	-0.1912587968305897	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
27	LINOLEIC-ACID	Seed Oil	--	--		Miglani, B. D., Chawla, A. S. 1974. Chemical Investigation of the Oil of Terminaliaa chebula. J. Inst. Chem. (Calcutta) 46: 189-.
2	MALTOSE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	MANNITOL-ISOMER	Pericarp	--	100		Reddy, B. M., Rao, N. K., Ramesh, M., Appa Rao, A. V. N., Lin, L. J., Lin, L. Z., Cordell, G. A. 1994. Chemical Investigation of the Fruits of Terminalia chebula. Int. J. Pharmacog 32 (4):352-356.
6	MASLINIC-ACID	Leaf	--	312.5	1.3973453443025725	Singh, C. 1990. 2-alpha-hydroxymicromeric acid, a Pentacyclic Triterpene from Terminalia chebula. Phytochemistry, 29 7: 2348-2350.
0	MYROBALANIN	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	NEOCHEBULAGIC-ACID	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	NEOCHEBULIC-ACID	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
18	OLEIC-ACID	Seed Oil	--	--		Miglani, B. D., Chawla, A. S. 1974. Chemical Investigation of the Oil of Terminaliaa chebula. J. Inst. Chem. (Calcutta) 46: 189-.
18	OLEIC-ACID	Seed	200100	213000	0.7718848508656724	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
9	OXALIC-ACID	Bark	--	--		Bharadwaj, K., Chandra, V. 1983. Comparative Incidence of Calcium Oxalate as a Source of Oxalic Acid in Barks of Seven Species of Terminalia. Biol. Mem. 8 1/2: 54-62.
25	P-COUMARIC-ACID	Plant	--	--		Kim, J. S., Lee, G. D., Kwon, J. H., Yoon, H. S. 1993. Indentification of Phenolic Antioxidative Components in Terminalia chebula Retz. Han'guk Nonghwa Hakhoe Chi 36 4: 239-243.
13	PALMITIC-ACID	Seed Oil	--	--		Miglani, B. D., Chawla, A. S. 1974. Chemical Investigation of the Oil of Terminaliaa chebula. J. Inst. Chem. (Calcutta) 46: 189-.
13	PALMITIC-ACID	Fruit	--	--		Lu, P. P., Liu, X. J., Li, X. G., Wen, J. Q. 1991. Chemical Constituents of Fruits of Terminalia chebula Retz. Shanghai Yike Daxue Xuebao 18 (3): 233-235.
24	PECTIN	Fruit	2080	2080	-0.6055528056020009	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	PENTAGALLOYL-BETA-D-GLUCOSE	Fruit	--	--		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
4	PHOSPHORIC-ACID	Fruit	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	PROLINE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
12	PUNICALAGIN	Leaf	--	51429	1	Lin,T.C.,et al.1990.Tannins and Related Compounds.CII.Structures of Terchebulin, an Ellagitannin Having a Novel Tetraphenylcarboxylic Acid (Terchebulic Acid) and Biogenetically Related Tannins from Terminalia chebula Retz. Chem Pharm Bull 38 11:3004-3008.
12	PUNICALAGIN	Fruit	--	131		Lin,T.C.,et al.1990.Tannins and Related Compounds.CII.Structures of Terchebulin, an Ellagitannin Having a Novel Tetraphenylcarboxylic Acid (Terchebulic Acid) and Biogenetically Related Tannins from Terminalia chebula Retz. Chem Pharm Bull 38 11:3004-3008.
7	PUNICALIN	Leaf	--	117	-1	Lin,T.C.,et al.1990.Tannins and Related Compounds.CII.Structures of Terchebulin, an Ellagitannin Having a Novel Tetraphenylcarboxylic Acid (Terchebulic Acid) and Biogenetically Related Tannins from Terminalia chebula Retz. Chem Pharm Bull 38 11:3004-3008.
176	QUERCETIN	Fruit	--	--		Polovyanov, G. G. 1974. Flavonoids from the Fruit of the Yellow Myrobalan Plum. Chem. Nat. Comp. 10 (5): 690-.
1	QUINIC-ACID	Fruit	15000	15000	1.174010563697763	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	RHAMNOSE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
87	RUTIN	Fruit	--	--		Polovyanov, G. G. 1974. Flavonoids from the Fruit of the Yellow Myrobalan Plum. Chem. Nat. Comp. 10 (5): 690-.
1	SENNOSIDE-A	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
14	SHIKIMIC-ACID	Fruit	22000	22000	1	
11	SORBITOL	Fruit	--	--		
8	STEARIC-ACID	Seed Oil	--	--		Miglani, B. D., Chawla, A. S. 1974. Chemical Investigation of the Oil of Terminalia chebula. J. Inst. Chem. (Calcutta) 46: 189-.
7	SUCCINIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
14	SUCROSE	Fruit	10000	10000	-0.675913070766718	
0	SUGAR	Fruit	85000	85000	-0.6988615703668221	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
35	TANNIN	Fruit	1090	355000	2.513227153575772	
0	TANNINS	Fruit	20000	45000	-0.4012118489129089	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	TERCHEBIN	Fruit	--	--		

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
0	TERCHEBULIN	Fruit	--	54.4		Lin,T.C.,et al.1990.Tannins and Related Compounds.CII.Structures of Terchebulin, an Ellagitannin Having a Novel Tetraphenylcarboxylic Acid (Terchebolic Acid) and Biogenetically Related Tannins from Terminalia chebula Retz. Chem Pharm Bull 38 11:3004-3008.
0	TERFLAVIN-A	Fruit	--	16.5		Lin,T.C.,et al.1990.Tannins and Related Compounds.CII.Structures of Terchebulin, an Ellagitannin Having a Novel Tetraphenylcarboxylic Acid (Terchebolic Acid) and Biogenetically Related Tannins from Terminalia chebula Retz. Chem Pharm Bull 38 11:3004-3008.
0	TERFLAVIN-B	Leaf	--	85.7	1.0000000000000002	Lin,T.C.,et al.1990.Tannins and Related Compounds.CII.Structures of Terchebulin, an Ellagitannin Having a Novel Tetraphenylcarboxylic Acid (Terchebolic Acid) and Biogenetically Related Tannins from Terminalia chebula Retz. Chem Pharm Bull 38 11:3004-3008.
0	TERFLAVIN-C	Leaf	--	25.7		Lin,T.C.,et al.1990.Tannins and Related Compounds.CII.Structures of Terchebulin, an Ellagitannin Having a Novel Tetraphenylcarboxylic Acid (Terchebolic Acid) and Biogenetically Related Tannins from Terminalia chebula Retz. Chem Pharm Bull 38 11:3004-3008.
0	TERFLAVIN-D	Leaf	--	18		Lin,T.C.,et al.1990.Tannins and Related Compounds.CII.Structures of Terchebulin, an Ellagitannin Having a Novel Tetraphenylcarboxylic Acid (Terchebolic Acid) and Biogenetically Related Tannins from Terminalia chebula Retz. Chem Pharm Bull 38 11:3004-3008.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
0	TERMINOIC-ACID	Fruit	--	--	Lu, P. P., Liu, X. G., Li, X. C., Zhang, D. C., Yokoi, T. 1992. Triterpenes of Terminalia chebula Retz. Chih Wu Hsueh Pao 34 (2): 126-132.
0	TRIACONTANOIC-ACID	Fruit	--	--	Lu, P. P., Liu, X. J., Li, X. G., Wen, J. Q. 1991. Chemical Constituents of Fruits of Terminalia chebula Retz. Shanghai Yike Daxue Xuebao 18 (3): 233-235.
24	VANILLIC-ACID	Plant	--	--	Kim, J. S., Lee, G. D., Kwon, J. H., Yoon, H. S. 1993. Indentification of Phenolic Antioxidative Components in Terminalia chebula Retz. Han'guk Nonghwa Hakhoe Chi 36 4: 239-243.
0	WATER	Fruit	100000	100000 -2.915726070898341	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
3	XYLOSE	Fruit	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.