

A REVIEW ON THE RECENT ADVANCES IN PHARMACOLOGICAL STUDIES OF
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ABSTRACT

Terminalia catappa (Tropical Almond) is a native species of Southeast Asia. It is commonly used as a shade giving tree in Sri Lanka but its seeds are edible and tasty. Even though it has been used in traditional medicine for wide range of ailments related to digestive, endocrine, reproductive systems and anti-cancer properties, in recent years there has been an interest in *Terminalia catappa* due to its medicinal and nutritional value. However it is not grown on a plantation scale in Sri Lanka. This review gathers the information available in the literature regarding therapeutic potential of *Terminalia catappa* in the field of ethnopharmacology. All the available information on *Terminalia catappa* was compiled from electronic databases of Google scholar, PubMed and library search. It reveals that there were more than 30 different types of actions of Antioxidant, Hepatoprotective, Anti-inflammatory, Anti metastatic, Anti diabetic, Aphrodisiac, Antitumor and Nutrient were proved by phytochemical and animal models studies. As a conclusion *Terminalia catappa* is an important underutilized fruit tree which has emerged as a good source of scientific literature for the treatment of various ailments. Thus, in the future a higher demand could be anticipated for various products of this tree.

KEYWORDS: Anti metastatic: Antioxidant: Hepatoprotective: *Terminalia catappa*.

INTRODUCTION

Man has continually investigated tropical and subtropical medicinal plants in order to assess the importance of developing natural, sustainable, and affordable drugs and cosmetics (Ake Assi. 1991). The genus *Terminalia* L. is perennial shrubs or trees of the Combretaceae, and nearly 200 species are identified (Mabberley. 2008). The genus is distributed in tropical and sub tropical regions, a few species are found in Africa, Pakistan, India, Sri Lanka and many other south Asian countries (Smith.1971). Tropical almond (*Terminalia catappa* L.) is a large tropical tree growing up to 35 m with an upright, symmetrically crown and horizontal branches. The tree has light fruit and the nut within the fruit is edible when fully ripe, tasty almost like an almond but underutilized by human however fruits are eaten by birds and bats (Kirtikr. 1998). In the phytochemical and physiochemical analysis of Seed contains 51.2 % fixed oil, Catappa oil with 54% olein, palmitin, 23.78% crude protein, 4.27% ash, 4.94% crude fiber, 51.80% fat, 16.02% carbohydrate and 548.78 Kcal calorific value and Classified in the oleic-linoleic acid group, oil contains high levels of unsaturated fatty acids, especially oleic (up to 31.48%) and linoleic (up to 28.93%) and the bark contains tannin (Matos. 2009). All parts of the plant contains secondary metabolites that are used in

traditional medicine such as in the management of cancer, rheumatism, diarrhoea, dysentery, gonorrhoea, stomach cramps and sexual dysfunction, diaphoretic, anti-diabetic, anti-indigestion, anti-dysentery (Muhammad and Mudi. 2011; Akhariyi et al. 2011), skin diseases, arthritis, headache, colic and itching (Nadkarni.1976). Even though it has been used in traditional medicine for wide range of ailments and for nutritional value, it is not grown on a plantation scale in Sri Lanka. This review gathers the information available in the literature regarding therapeutic potential of *Terminalia catappa* in the field of ethnopharmacology.

METHODOLOGY

A systematic literature search was done to identify articles and to gather the information available in the literature regarding therapeutic potential of *Terminalia catappa* in the field of ethnopharmacology. All the available information on *Terminalia catappa* was compiled from electronic databases of Google scholar, PubMed and library search. The search was completed by checking the key words of 'therapeutic potential of *Terminalia catappa*'.

RESULTS AND DISCUSSION

A total of forty two articles were taken from the thorough literature search which met the criteria for inclusion of 'therapeutic potential of *Terminalia catappa*' and 30 studies were evaluated for this review. A total of 12 studies showed the same therapeutic uses

by various methodologies. A range of clinical studies have indicated that the potential of *Terminalia catappa* in its multi spectrum of therapeutic uses. The results of an organized literature review as follows on 'therapeutic potential of *Terminalia catappa*' (Table 1).

Therapeutic potential of *Terminalia catappa* (Table 1).

Therapeutic Use / Actions	Parts Used	Reference
Antioxidant	Leaves	Kinoshita S <i>et al.</i> (2001)
Anti-Inflammatory	Leaves (Topical application)	Babayi H <i>et al.</i> (2004)
Antimicrobial	Leaves	Babayi H <i>et al.</i> (2004)
Antimetastatic	Leaves	Shu-Chen Chua <i>et al.</i> (2007)
Antinociceptive	Leaves	Ratnasooriya W D <i>et al.</i> (2002)
Hepatoprotective	Leaves	Kinoshita S <i>et al.</i> (2001) Sumitra Chanda, Kalpna Rakholiya, Rathish Nair. (2011). Xin-Hui Tang, Ling Gao <i>et al.</i> (2001). Jing Gao, Xinhui Tang <i>et al.</i> (2004) Amna Ansari (3014)
Anti-Diabetic	Leaves Fruits	Syed Mansoor Ahmed <i>et al.</i> (2005). Nagappa A N <i>et al.</i> (2003)
Aphrodisiac	Seeds	Ashok Kumar, Ritesh Aror.(2003). Ratnasooriya W D, Dharmasiri M G(2002)
Anti-inflammatory	Leaves	Fan Y M <i>et al.</i> (2003)
Anti- parasitic	Leaves	Chitmanat C <i>et al.</i> (2002)
Anti-bacterial	Leaves	Chitmanat C <i>et al.</i> (2002) Rubens Dinzedi Mbengui <i>et al.</i> (2013)
Anti-fungal	Leaves	Chitmanat C <i>et al.</i> (2002) Shikha Mandloi <i>et al.</i> (2013)
Anthelmintic	Leaves	Arzul L M, Effendy AWM, Adzemi MA <i>et al.</i> (2011)
Nutritional Properties	Seed	Matos L, Nzikou J M, Kimbonguila A <i>et al.</i> (2009). Agatemor Christian, Mark, E. Ukhun. (2006). Gbadamosi I. T., Moody J. O. <i>et al.</i> (2012).
Erythropoiesis Enhancement	Leaves	Aimola I A, Inuwa H M <i>et al.</i> (2011). Muhammad N.O. and Oloyede O.B. (2009).
Analgesic activity	Leaves	Saurabh Arjariya <i>et al.</i> (2013)
Anti-solar Agent	Seeds local application	Nevade Sidram, A., Sachin G <i>et al.</i> (2004)
Antitumor	Leaves	Saroja M and Annapoorani S. (2011). Chiou Y <i>et al.</i> , (2003)

CONCLUSION

Terminalia catappa has a number of pharmacological activities which have been mentioned above. The potential literature review revealed that *Terminalia catappa* is an important medicinal plant with diverse pharmacological spectrum. There are number of phytochemicals present in this plant such as Gallic acid, allergic acid, corilagin and unidentified flavonoids. These compounds were found to be responsible for many of the pharmacological activities. Due to the presence of these types of phyto-constituents, the different extracts may show antimicrobial, antioxidant, antibacterial, anti-diabetic, anthelmintic, antitumor and hematological activities. As a conclusion *Terminalia catappa* is an important underutilized fruit tree which has emerged as a good source of scientific literature for the treatment of

various ailments. Thus, in the future a higher demand could be anticipated for various products of this tree.

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