



An overview of *Marutham* (*Terminalia arjuna*)

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ABSTRACT

Marutham (*Terminalia arjuna*) is very valued herb of the Indian Siddha system of medicine. It is used for numerous types of ailment processes and specially as a cardiac tonic. Seeing these facts many scientific studies were carried out and its cardioprotective /antihypertensive/anti-stress/ activities were studied in detail. This analysis highlights several medicinal properties of *T. arjuna* through different studies such as cardioprotective, antioxidant, hypotensive effect.

Keywords:

Marutham, *Terminalia arjuna*, herbal drug, Siddha Medicine, Coronary artery disease.

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INTRODUCTION

Indian Medicinal plants play a crucial role in health maintenance and are the major raw resources for both traditional and conservative medicine preparations; still most of the people choose herbal medicines than conventional medicines.¹ Around the world, traditional system of medicine has extended as a chief important system of Medicine in angle with protection, viable growth and search for innovative consumption patterns of plant properties. Traditional medicine system includes the knowledge, skills and practices based on the presumptions, beliefs and experiences of traditional communities to protect their health problems. Traditional herbal medicines are deliberated to be of massive importance among different rural or native groups in many developing countries.² According to WHO, almost 80% of the world's population depending on traditional medicine and in India 60% of the people in rural areas use herbal medicines.¹ During the last few years, use of herbal supplements increased from 2.5% to 12%.³ In recent years, there has also been an increasing demand for nanoparticles derived from medicinal plants like *Terminalia* family due to their applications in various fields of research like medicine, catalysis, energy and materials.^{4,5,6}

Botanical description

It is a large size deciduous tree. The height of the arjuna tree reaches upto 60-85 feet. Stem buttressed trunk and a vast spreading crown from which the branches drop downwards. Stem bark could be easily peeled which is smooth and grey in colour. Leaves are alternately arranged, lanceolate in shape, when mature dorsal lamina purple in colour. Flowers are borne on auxiliary spike with unisexual flowers, tepals are greenish yellow.

Phytochemical constituents of various parts of *Terminalia arjuna*

Arjunic acid, arjunolic acid, arjunic acid, arjunin, arjunenin, arjunetin, arjun glucoside II, Gallic acid, ethyl gallate flavone luteolin have been isolated from stem barks⁷. The Heartwood contains beta sitosterol, oleanolic acid, a trihydroxy triterpene carboxylic acid, ellagic acid and cardenoid.

Pharmacological actions of *Terminalia arjuna*

Triterpenoids present in *Terminalia arjuna* is essentially responsible for its cardio protective activity. Arjunic acid, arjunetin and arjunenin were assessed for their prospective to prevent CYP2C9, CYP3A4 and CYP2D6 enzymes in human liver microsomes⁸. They have validated that extract of *T. arjuna* indicated effective inhibition of all three enzymes in human liver microsomes with IC₅₀ values less than 35 microgram/ml.

Enzymes kinetics studies proposes that the extracts of *T. arjuna* indicated promptly reversible non-competitive inhibition of all three enzymes in human liver microsomes. The stem bark is used as a cardioprotective agent in hypertension and ischaemic heart diseases. The bark powder is reported to exert Hypocholesterolaemic and antioxidant effect in humans by Gupta et al., 2001. The bark is used as a cardio tonic, in bilious affections, for sores and as an antidote for poisons⁹. The doses of *Terminalia arjuna* methanol extract can provide post-ischemic myocardial preservation. The stimulation and expression of HSP72 recommend a vital role for the *Terminalia arjuna* methanol extract in myocardial cell protection after regional myocardial IR injury¹⁰. *Terminalia arjuna* possesses the anticancer activity through quenching free radicals induced by the DEN. Hence, it was suggested that their aggression of liver cancer may be due to the antioxidant activity of *T. arjuna*¹¹.

Uses of *Terminalia arjuna* in Siddha Medicine:

Terminalia arjuna is widely used in Siddha system of Medicine for ailments like fever, leucorrhea, abdominal pain. The stem bark is a main ingredient in decoction for diabetes¹². Some preparations using arjuna tree and its common indications are listed in the table.

Siddha Medicine	Indication	Ref. no
Astabairava kuligai	64 types of fever	13
Aavarai decoction	Diabetes, Leu-	12

Table No. 1. Some preparations using Arjuna

DISCUSSION

Terminalia arjuna is widely used in all traditional system of Medicines. It is evident from the studies that it is an effective cardiac tonic. In Siddha system of medicine, it is indicated for diabetes, intense thirst, leucorrhoea, abdominal ailments¹². The bark decoction is given for bronchial asthma, fever. The phytochemicals of *Terminalia arjuna* effectively prevent CYP2C9, CYP3A4 and CYP2D6 enzymes in human liver microsomes⁸ thereby inhibiting drug interactions and enhancing the bioavailability of drugs⁸. Various studies and Siddha literatures stand support for the effective pharmacological activity of *Terminalia arjuna*.

CONCLUSION

On the basis of the presented literature indications, Marutham (*T. arjuna*) is mainly used for treatment of cardiovascular disease including Myocardial infarction, hypertension and high cholesterol. Also, it is proven to prevent the liver microenymes that interact with drugs. So it is the best choice drug for cardiovascular diseases, to tone up heart and also in post ponding ageing process due to its antioxidant property.

FINANCIAL SUPPORTS

Nil

CONFLICTS OF INTEREST

None declared.

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