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Research Note :

MEDICINAL USES OF *TERMINALIA ARJUNA* Roxb.: A REVIEW

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ABSTRACT: Alternative medicines are getting popularized these days because of various advantages like less or nil side effects and most of them have therapeutic values. Using of plants with medicinal values for various human ailments is a best method in alternative medicine. Among various medicinal plants *Terminalia species* are known for their potential uses. Bark of *Terminalia arjuna* contains triterpenoids, tannins, phenolic acids, glycosides, antioxidants, magnesium, copper and zinc salts. Presence of these compounds plays an important role in curing cardiac diseases, cancer treatment, urinary tract infections, lung diseases and edema. From ancient days, arjuna bark powder is used in *Ayurveda* as a cardio tonic, indigestion and bleeding disorders. Arjuna helps in maintaining the cholesterol level at the normal rate. In rural areas bark powder of arjuna is used for snake bite and scorpion sting. Leaf juice of arjuna is used to cure dysentery and ear ache. Regular therapy with *Terminalia arjuna* bark powder leads to significant regression endothelial abnormalities among smokers. Hence, in the present review paper an attempt has been made to consolidate medicinal properties of *Terminalia species*.

Keywords : *Termainalia arjuna , medicinal properties, cardio tonic, human ailments.*

Terminalia arjuna is a tree belonging to the family Combretaceae. It is commonly known as *arjuna*. It is about 20 – 25 m tall usually has a buttressed trunk and forms a wide canopy at the crown, from which branches droop downwards. It has oblong conical leaves which are green on the upper surface and brown below the surface. It has smooth grey bark and pale yellow flowers which appear between March – June; it is glabrous; 2.5 to 5 cm fibrous woody fruit divided into five wings, appears between September – November. Arjuna is usually found growing on river banks or near dry river beds in west Bengal, south and central India.

Fig. 1. *Terminalia arjuna.*

Arjuna is one of the species whose leaves are fed by the *Anthrerae mylitta*, which produces the tasar silk, a wild silk of commercial importance (Srivastava *et al.,* 6) It is one of the most versatile medicinal plants having a wide spectrum of biological activity. The thick white to pinkish grey bark has been used in India's native *Ayurvedic* medicine for over three centuries primarily as a cardiac tonic.

MEDICINAL USES

- ✓ *Terminalia arjuna* is a wide spread medicinal plant. The different parts of *Terminalia arjuna* like bark, leaves and fruits etc., have different medicinal values and are used to cure various diseases.
- ✓ The bark is the main part used in *ayurveda* as well as in Allopathy for curing various diseases.
- ✓ The bark of *arjuna* tree contains calcium salts, magnesium salts and glucosides have been used in traditional ayurvedic herbalism (Tripathi and Singh 7; Kandil et al., 2).
- ✓ According to vagbhata, Terminalia bark is cooling, *kapha*, *pitta* pacifying, cardiac restorative and help in healing wounds, tuberculosis and poisoning. Chakradatta advised to take it by processing in milk for cardiac disorders alone or with panchamula.

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Arjun for cardiac support

- ✓ In Ayurveda, bark powder is used as cardio protective and it is known as a tonic to heart diseases. Its *ksheerpaka* is highly effective to normalize high blood pressure and in many rural areas.
- ✓ Cardiomyopathy like myocardial infraction, Angina, coronary artery diseases, heart failure, hypercholesterolemia, and hypertension are cured by arjuna bark powder.
- ✓ Used as an ischemic and cardio protective agent in hypertension and ischemic heart diseases.
- ✓ Arjuna improves pumping capacity of heart by strengthening muscles and vascular system and also be useful in treating excess of cholesterol in blood (Gupta *et al*., 1). The anticoagulant and anti platelet aggregation action of arjuna keeps the blood thin and lowers the bad cholesterol while increasing the good cholesterol.
- ✓ In high blood pressure it helps to regulate disturbed rhythms and regulate the heart beat rate.
- ✓ Arjuna reduces the effect of stress and nervousness on the heart. It provides significant cardiac protection in heart attack.
- ✓ Although many ayurvedic plants have shown to help coronary artery diseases, Arjuna by far seems to be the best plant for heart health.

Diabetic

Bark extract exhibits anti diabetic activity by enhancing the peripheral utilization of glucose by correcting the impaired liver and kidney glycolysis and by limiting its gluconeogenic formation similar to insulin. It is due to the presence of tannin, saponin, flavonoids and other constituents' presence in the bark which could act synergistically or independently in enhancing the activity of glycolytic and gluconeogenic enzymes (Raghavan and Krishnakumari, 5).

Anti cancer properties

Bark of arjuna contain gallic acid, ethyl galate and flavone luteolin. Luteolin has well established record of inhibiting various cancer cell lines. Casuarinin, a hydrolysable tannin isolated from the bark of T. arjuna inhibits human non-small cell cancer A549 cell by blocking cell cycle progression in the G0/G1 phase and

Fig. 2 Bark

Fig. 3. Bark powder

inducing apoptosis (Kuo *et al.,* 3). Aqueous extract of T.arjuna play a role in the anti carcinogenic activity by reducing the oxidative stress along with inhibition of anaerobic metabolism (Verma and Vinayak, 8).

Kidney problems

Consumption of boiled arjuna tree bark liquid helps to break the kidney stones that may have formed into small pieces and then eventually flush them out via urine.

Other medicinal uses

- ✓ It works as a wonderful antioxidant so it helps in stopping early aging and help in maintaining youth.
- ✓ Arjuna is very effective in tubercular cough by stopping blood in cough and healing the ruptured arteries in lungs.
- ✓ Arjuna maintains normal urine flow and help in suppressing painful maturation

- ✓ Bark powder of arjuna has diuretic properties that cure cirrhosis
- ✓ Bark powder is also used in the treatment of gonorrhea, and spermatorrhoea. (Patil and Gaikwad, 4)
- ✓ Hot infusion of powder of bark is used to treat Asthma and also works well in Acne when applied as a paste mixed with honey.
- ✓ Bark paste is applied for bone bandage in fractures.
- ✓ Arjuna is effective in tubercular cough by stopping blood in cough and healing the ruptured arteries in lungs.
- ✓ Arjuna is diuretic taken to flush out the small stones formed in the kidneys. If bark is boiled in water and taken as a drink it is known to break the kidney stones into smaller pieces and expel out of the body.
- ✓ *Terminalia arjuna* reversing the damage by chronic smoking. Smoking causes endothelial dysfunction an early event of Antherosclerosis. It is mediated through mainly oxidative stress process. Two weeks of therapy with this medicinal herb leads to reversal of impaired function in endothelium of smokers.
- ✓ Juice of leaves is used in ear ache (otalgia).
- ✓ Leaves are used to cure ulcers and sores externally.

Conclusion

This review gives a view mainly on the biological activities of some of the *arjuna* compounds isolated, pharmacological actions of the extracts and probable medicinal applications of arjuna products. There is a need of further studies to exploit fully the medicinal values of *Termnalia arjuna* and other *Terminalia species*.

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