Plant Archives Vol. 21, Supplement 1, 2021 pp.333-337 e-ISSN:2581-6063 (online), ISSN:0972-5210

Plant Archives

Journal homepage: http://www.plantarchives.org
doi link : https://doi.org/10.51470/PLANTARCHIVES.2021.v21.S1.053

REVIEW ARTICLE: *TERMINALIA ARJUNA*: A POTENTIAL ANTI-HYPERLIPIDEMIC DRUG

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ABSTRACT

Now a day, whole world is suffering from various diseases. Only few people are lucky who are not having any kind of diseases. From the big list of diseases, Hyperlipidemia is very common diseases in current scenario which only occur due to improper diet, consumption of high fatty things, smoking, or with food incompatibility. In this the fat or bad cholesterol is accumulate over the heart which cause so many problems like difficulty in breath, may increase heart rate, decrease blood supply etc. In ayurveda this disease is known as Medoroga means disease of fat which directly correlated with hridyaroga. There are so many plants which help to reduce hyperlipidemia. From them Arjuna shows excellent result in the curing of hyperlipidemia. In this current study, the review on the effect of Terminalia arjuna on hyperlipidemia as per ayurvedic literature is done.

Keywords **:** Hyperlipideima, Arjuna, Pharmacological Activities.

Introduction

Hyperlipidemia illness has tormented mankind since artifact. In 2002, coronary heart Epidemiological proof firmly upheld the positive connection between's blood lipids, hyperlipidemia and its complexities, basically CHD (Giorgio *et al*., 1982). This relationship has been appeared between and inside societies (Gordon and Rifkind, 1989; Jones, 1990; Levy *et al.,* 1979). The hyperlipidemia is generally characterized as conditions in which the convergence of cholesterol or fatty oil conveying lipoproteins in plasma surpasses a subjective typical breaking point (Goodman and Gilman, 1970). These lipoproteins store in the interstitial space of courses emerging from aorta, limiting the blood flexibly to the heart. This wonder is known as atherosclerosis. Higher affidavit of lipoproteins totally hindered the blood flexibly to the heart, and subsequently myocardial localized necrosis (MI) happens, which is usually known as respiratory failure. It is only cured by the change in diet plan or with physical exertion and also with suitable herbal medication. Arjuna is considered as excellent herb for hyperlipidemia its botanical name is Terminalia arjuna belongs to family Combretaceae. It is ancient drug, belongs to Nyagrodhadhigana. It is defined in every ancient literature book because it is very common and effect drug of ayurvedic system of medicines. It is also used in premeha, raktapitta, kashaya, kasa, vicharchika, decrease stress and anxiety (Vaidya Laksmipati Shastri, 1999). It contains glycoside, flavonoids, tannins and minerals.

Plants Profile

Profile	Arjuna
Botanical Name	Terminalia arjuna
Family	Combretaceae
Part used	Bark
Kingdom	Plantae
Subkingdom	Tracheophytes
Division	Mangoliophyta
Sub Division	Angiospermae
Class	Mangoliopsida
Sub Class	Rosids
Order	Myrtales
Genus	Terminalia
Species	Arjuna

Synonyms of Plants

Language	Arjuna
Sanskrit	Kakubha, Partha, Svetavaha (The Ayurvedic Pharmacopoeia of India, 2001)
Hindi	Arjuna (The Ayurvedic Pharmacopoeia of India, 2001)
Bengali	Arjuna (The Ayurvedic Pharmacopoeia of India, 2001)
Punjabi	Arjon (The Ayurvedic Pharmacopoeia of India, 2001)
Gujrati	Sadad, Arjuna, Sajada (The Ayurvedic Pharmacopoeia of India, 2001)
Kannada	Bilimati, Neermti, Mathichakke, KudreKivimse, Mati (The Ayurvedic Pharmacopoeia of India, 2001)
Kashmiri	-

Malyalam	Velamruthi, Kelemasuthu, Nirmsuthu, Matimora, Toremati (The Ayurvedic Pharmacopoeia of India, 2001)
Oriya	Arjuna (The Ayurvedic Pharmacopoeia of India, 2001)
Urdu	Arjun (The Ayurvedic Pharmacopoeia of India, 2001)
Tamil	Marudam (The Ayurvedic Pharmacopoeia of India, 2001)
Telugu	Maddi (The Ayurvedic Pharmacopoeia of India, 2001)
Marathi	Arjuna, Sadada (The Ayurvedic Pharmacopoeia of India, 2001)

Classification of Arjuna as per different literatures

Literature	Classification
Charak	Kashayaskandha, Udardaprashamana (Acharya Vishwanath Dwivedi and pandit Narhari, 2003)
Shushrut	Nyagrodhadi, Salasaradi (Acharya Vishwanath Dwivedi and pandit Narhari, 2003)
Vagbhat	Nyagrodhadi, Virtarvadi (Acharya Vishwanath Dwivedi and pandit Narhari, 2003)
Bhavprakash Nighantu	Vatadi (Acharya Vishwanath Dwivedi and pandit Narhari, 2003)
Dhanvantari Nighantu	Amradi, Swati Nakshatra Vriksha (Acharya Vishwanath Dwivedi and pandit Narhari, 2003)
Bhavprakasha	Nyagrodhadi, Salasaradi (Acharya Vishwanath Dwivedi and pandit Narhari, 2003)
Raj Nighantu	Prabhadradi (Acharya Vishwanath Dwivedi and pandit Narhari, 2003)
Kaidev Nighantu	Aushadhi (Acharya Vishwanath Dwivedi and pandit Narhari, 2003)
Nighantu Adarsh	Bibhitakadi (Acharya Vishwanath Dwivedi and pandit Narhari, 2003)

Importance of Arjuna in Vedic Astrology

- Those have confidence in Vedic soothsaying accept that stars (nakshatras) practice effect on individuals for an incredible duration. There are 27 nakshatras present and each individual has a nakshatra allotted to her or him relying upon the date and season of birth.
- Each nakshatra has a particular representative tree related with it. Hindu sacred writings order people to plant and think about their specific nakshatra related tree to accomplish harmony and flourishing and avoid fiendish impacts.
- The Arjuna tree is related with the fifteenth star Swati. In this way it is accepted that people born in this particular nakshatra should plant and do care of arjuna tree (Dr. Brahmanand Tripathi, 1994).

Morphological Characters of Arjuna

Plant Part	Description
Bark	Smooth, dim outside, tissue hued inside chipping off in enormous level meager pieces. Heart wood dim earthy colored, hard, variegated with dull hued streaks. Stem once in a while long or straight, frequently fluted.
Leaves	Basic as a rule sub inverse hard 10/15/4-7 cm. elongated or elliptic oval, unfeeling or sub acute coriaceous, once in a while spatulate, pale dull green above, pale earthy colored underneath, shallowly crenate, serrate in the upper part or a few times through out
Flower	Sessile, white in short axillaries spikes or in terminal panicles.

Bark of Arjuna Plant

Leaves of Arjuna Plant

Flowers of Arjuna Plant

Chemical Composition of Arjuna

- The main chemical composition of arjuna are triterpenoids saponin (arjun glycosides, arjunic and arjunolic corrosive and arjungenin) (Biswas *et al.,* 2011).
- Magnesium, Flavonoids (luteolin, arjunone, arjunolone), gallic and ellagic corrosive, phytosterols, calcium, zinc and copper, Oligomeric Proanthocyanidines (OPCs) (Kaur C and Kapoor, 2002).

Properties and Actions of Plants

Rasa-Panchak	Arjuna
Rasa	Kashaya (The Ayurvedic Pharmacopoeia of India, 2001)
Guna	Ruksha (The Ayurvedic Pharmacopoeia of India, 2001)
Veerya	Sheeta (The Ayurvedic Pharmacopoeia of India, 2001)
Vipak	Katu (The Ayurvedic Pharmacopoeia of India, 2001)
Karma	Bhagnasandhanakara, Hridya, Kaphahara, Pittahara, Vranananasana, Vyanga Hara (The Ayurvedic Pharmacopoeia of India, 2001)

Action of Arjuna

- It was suggested that Arjun's alcoholic assemblage in rabbit induces myocardial warmth paralyze protein 72 and induces myocardial endogenous cell reinforcement antagonists, offering cardio-confirmation against myocardial ischemic–reperfusion injury-related oxidant weight (Singh UP *et al.,* 2004).
- The cardio-defensive effect of the dynamic phyto-component of arjun's bark beside carbon tetrachloride and sodium fluoride provoked oxidative weight, it appears thatin the course of its cell fortification properties, has in like manner been documented (Singh *et al.,* 2004).
- In the above models, ferric decreasing/antioxidant prevention agent power test uncovered that ethanol remove improved the heart intracellular cell reinforcement action (Gauthaman *et al.,* 2008).

Traditional Indications of other plant parts of Arjuna

Plant Part	Indication
Bark	• Kwath of bark is used to wash ulcer externally, and the ash of its bark recommended for scorpion sting and snake bite (Jain S *et al.,* 2009). • In Tamil Nadu, traditional healers from Kancheepuram locale, treat brain pain and kills worms of teeth by boiling bark with water and take the breathe of this water (Muthu *et al.,* 2006). • Tribal's living in Sundargarh Zone, Orissa use dried bark powder close by washing rice water helps to treat blood in urination and families living in the Malkangiri area chew the new bark and swallow the juice as a stomach settling specialist.
Fruit	The paste made up of fruit pulp is topically applied on wound. It helps to cure wounds (Muthu *et al.,* 2006).
Leaves	To treat infection of ear, fresh leaf juice is used and treatment of heart disorders, powder of bark is used by Malabar clan, Kerala (Yesodharan and Sujana, 2007; Saurabh *et al.,*2010; Kaur and Singh, 2015).

Fruits of Arjuna Plant

Other Uses of Arjuna

1. Cardiovascular System

- Terminalia arjuna is a standout amongst other cardio-defender specialists. Since days of yore, Arjuna has been a spice of decision in managing different types of heart related issues.
- It is principally believable in support the heart and its muscles. It is extremely precious in appropriate contraction and loosening of the heart muscles. It is additionally useful in supporting appropriate heartbeats.
- It is in addition controlling in choking the blood vessels that are fundamental to the rightful functioning of the heart; At most it is useful in expanding the thickness of blood.
- It is moreover useful in the extend of veins and is extremely powerful in blood coagulation of the blood if there should arise an occurrence of any wounds and in any case basic for keeping up legitimate blood thickness. It is helpful in stimulating the heart to purpose in the majority superior levels.

2. Local action

- Arjuna, is an impasse among other blood coagulants. It is widely used in preventing external

bleeding because it has the ability to locally contract the vein to freeze and stop blood.

- This moment is applied to the injury to achieve results. Arjuna is likewise one of the most influential natural enhancements, known for his powers.
- Great prognosis has been found in instances of wounds and wounds, especially in cases such as bone, tendons and cartilaginous wounds.
- It is additionally applied to injuries so as to quickly complete recurrence and recuperation.

3. **Digestive System**
   - It is similarly beneficial in keeping a fitting point in the plot related to our stomach. Due to its astringent properties. It is extremely useful in treating run and dysentery in the body.
   - It directs the development of peristalsis in the body and does not allow hydration deficiency to prevent free stool. Arjuna is decaying in nature which is incredibly useful in conditions like burning piles and diarrhea.
   - It is in general well-being tonic and is a gentle treatment in improving liver conditions, especially cirrhosis of the liver.
4. **Respiratory system**
   - Arjuna is in addition believed to be useful in removing excess solution of bodily fluid, which gets deposited in one way or another in the respiratory tract.
   - It is likewise useful in the conditioning of respiratory parcels in the amassing forest of bodily fluids.
   - It is additionally useful in eliminating with pollution occurring in the lungs and furthermore encourages expansion in the lungs range.
5. **Nervous System**
   - It is additionally viewed as a decent nerving tonic. In spite of the fact that it involves research yet great outcomes have been seen.
   - It gives solidarity to the sensory system and furthermore fortifies the reflexes.
6. **Reproductive System**
   - Arjuna helps to thick sperm and serum due to its astringent nature and the sperm that is extremely fundamental for the correct treatment of the ovum.
   - It is additionally useful for the inclusion of sperm includes and is also useful in increasing the in general staying power of the body.
7. **Endocrinal System**
   - It is in addition useful in directing the hormonal system of the body. It is incredibly useful in keeping the endocrine organs intact.
8. **Excretory System**
   - It is helpful in the condition of poly-urea and additionally regulates the recurrence of useful urine. This helps in conditioning the urinal parcel.
   - It is similarly useful in vanishing disease in the body.
9. **Skin**
   - It is exceptionally valuable in the treatment of a wide range of skin-related issues. Due to its chilly strength, it is vigorously optional in skin weaknesses.
   - Diseases such as dermatitis, tingling, rashes and certified skin conditions like psoriasis can be treated with the usual use of Arjuna.

Marketed Formulations of Arjuna

1	Arjun Kwath
2	Arjunarishta
3	Hridyamritvati
4	Parthadyarishta
5	Arjuna Ghrita
6	Nagarjunabhra Rasa
7	Arjuna Bark Powder
8	Heart Care

Conclusion

As per the studies, Hyperlipidemia is very well-known disease since ancient time. Now days which only cause by bad habits of junk, fatty food which done blockage in the arteries and veins of the heart this cause problem in breath and walking, pain in heart etc. as per current reviews herbal plant like *Terminalis Arjuna* helps to manage the high cholesterol level. Arjuna has viability as an enemy of ischemic specialist, intense cell reinforcement, and an anti-atherogenic specialist has been adequately exhibited in different exploratory and clinical investigations.

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