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REVIEW ARTICLE **OPEN ACCESS**

A Review on *Adathoda vasica*

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ABSTRACT

The effectiveness of herbal drugs are due to its potency and possessing different powerful pharmacological activities such as antioxidants, enzyme inhibitors, immuno-suppressive, anti inflammatory, anticancer etc*. Adhatoda vasica comprises of a wide range of phyto-chemicals which possesses activities like antimicrobial, cardiovascular protection, anti inflammatory and other important activities.*

Keywords: *Immuno-suppressive, Adhatoda vasica Nees, cardiovascular protection*

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INTRODUCTION

Adhatoda vasica is a type of shrub growing throughout the Indian peninsula. *It* has been spread through the temperate regions of South Asia. It is a popular drug in the field of traditional medicine. It is mainly used for the prevention along with the management of different respiratory disorders like cold, severe cough, chronic bronchitis, asthma, tuberculosis etc. It is known commonly as vasaka or malabar nut tree. It is one of the best expectorant in both Ayurvedic and Unani Systems of Medicine. *Adhatoda vasica Nees* belongs to the family Acanthaceae which are commonly known as Adosa. They are found in many regions of India and throughout the world. It is a popular drug which are using in traditional Unani and Ayurvedic systems of medicine.

The leaves, bark, the root bark, the fruit and flowers of Vasaka are useful in the removal of intestinal parasites.

Vasaka is used for treating:

1. Cold
2. Cough
3. Chronic bronchitis
4. Asthma

Table No: 1

Botanical Name	***Adhatoda vasica* Nees.**
Kingdom	Plantae
Order	Lamiales
Family	Acanthaceae
Genus	Justicia
Species	J. adhatoda

Table No: 1 (Continued) (Vernacular Names) [1]

Language	Names
Hindi	Adusa
Telugu	Addasaramu
Tamil	Adutota

English	Malabar Nut
Marathi	Adulsa
Kannada	Sanna adusoge
Malayalam	Atalodakam, Cittaladokam
Gujarati	Ardusi

Fig. 1. Malabar Nut Plant (Source : Google Images)

Habitat [2]: Spread throughout the entire India. It is also seen on the wastelands in different habitats and different types of soil. It is also grown in other countries like Sri Lanka, Malaysia etc.

Descriptions about the plant

1. Whole Structure: A dense evergreen shrub with 1 to 2.5 metres height.
2. Stem: Bark is Yellowish in colour. It is glabrous with branches
3. Leaves: It is having ascending leaves with 12 to 20 centimetre in length, alternate, simple, opposite elliptic-lanceolate, acuminate, tapering to the base, minutely puberulous having dark green colour above and pale colour beneath it.
4. Flowers: They are white in colour, with dense spikes as auxillary preduncled spikes 2.5 to 7.5 centimetre length. They are arranged towards end of the branches, peduncles are stout in nature. They are shorter than leaves.
5. Calyx: They are having 8 to 12 mm in length, hairy outside, tube having 12 mm length, upper having up to 22 mm length, elliptic, sub-acute glabrous, 5 to 7 nerved, closely reticulate, bracteoles having 18 mm long, 1-nerved, margin ciliate, deeply five-lobed;
6. Filaments: They are hairy at the base, the lower anther cells speculate at the base or more in length, clavate, pubescent.
7. Seeds: They are orbicular.
8. Ovary and lower position of style are hairy with capsule having 18 mm length.
9. Stamens: They are Glabrous [3].

Table No 2 (Chemical Composition) [4-5]

SL.NO	PARTS	COMPOSITION
1	Whole Plant	Alkaloids, Tannins, Flavinoids, Terpenes, Sugar and Glucosides. The main alkaloid is Vasicine
2	Leaves	Vasicine and Vasicinone
3	Root	Vasicinolone, Vasicol, Peganine, Sitosterol
4	Flowers	b-sitosterol-D- glucoside, kaempferol

ACTIONS OF *ADATHODA VASICA*

1. Anti-inflammatory activity: By Rajput et al., 2004; Chakraborty and Brantner, 2001 proves that the aqueous and alcoholic extract of *Adhatoda vasica* Nees showed anti-inflammatory in rats which are using carrageenan induced rat paw oedema model. The efficacy was found to be comparable to diclofenac sodium [6].
2. Hepatoprotective activity: By Pandit et al., 2004, Ethanolic extract of *Adhatoda vasica* Nees exhibited significant reduction of liver enzymes such as SGOT, SGPT and ALP in CCl4 induced hepatotoxicity model of rats and offered protection of hepatocytes against damage by toxin [7].

3. Bronchodilator activity: One study done to analyse the bronchodilator action both in normal and histamine induced bronchoconstriction in guinea pigs lungs & heart shows that Vasicinone which is an important alkaloid in *Adathoda vasica*, exhibited powerful bronchodilator action both in normal and histamine induced bronchoconstriction in guinea pigs lungs but vasicine exhibited bronchoconstriction with negative inotropic effects on heart. In vitro studies, vasicinone produced tracheal relaxation comparable to theophylline incarbachol and histamine induced constriction. It showed inhibitory effects on histamine release and showed anti-anaphylactic activity in both in vitro and in vivo studies in rats. However, vasicine exhibited bronchoconstrictor, cardiac depressant and devoid of anti-anaphylactic activity. By Sharma et al., 1983b, [8] Vasicine exhibited marked bronchodilatory effects compared to theophylline in vivo and in vitro studies which could be explained on the basis of fast degradation of vasicine in the body Vasicine exhibited significant respiratory stimulant activity that was found to be increased in the presence of vasicinone (Gupta et al., 1977a) [9].

FOLKLORE USES

1. Juice of leaves taken along with honey and ginger juice is good for chronic and acute cough.
2. Inhaling the smoke of dried leaves of the plant relieves Asthma.
3. Leaves which are grinded in the form of paste are good in rheumatic swelling.
4. Roots taken in the form of decoction is good for urinary retention[15].
5. Intake of 1 table spoon of leaf juice with honey cures Cough and Bleeding.
6. 15ml of leaf juice mixed with 15 gm jaggery is effective for excessive menstruation.
7. Intake of decoction of whole plant taken along with sugar is effective for Bleeding piles [10].

DISCUSSION

Adathoda vasica is a popular herb used in traditional systems of medicine due to its beneficial effects particularly in bronchitis. The leaves, root bark, the fruit and flowers of the plant are useful in removing of parasites from the intestine. It is also used for treating cold, cough, chronic bronchitis and asthma. During the acute stages of Bronchitis especially when the sputum is thick and sticky. It will liquefy the sputum and make them eliminate out. In the treatment of Asthma, inhaling the smoke of the dried leaves of *Adathoda vasica*. The juice from its leaves given in doses of 2 to 4 grams is effective for diarrhea and dysentery. A poultice prepared from the leaves have beneficial effect on fresh wounds, rheumatic joints and inflammatory swellings [11].

CONCLUSION

Adhatoda vasica is a well-known herb using in indigenous systems of medicine especially in Bronchitis by aiding the bronchial function with bronchodilatory, expectorant and mucolytic properties. The leaves, bark, fruit and the flowers are also helpful in removing intestinal parasites [12]. A wide range of phyto-chemical constituents have been isolated from *Adhatoda vasica* which possesses activities like antimicrobial, cardiovascular protection, anti-inflammatory and other important activities. The present article constitutes a review on the morphology, medicinal properties, ethno medicinal uses with its phyto chemical analysis.

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