

BHARANGI - A REVIEW ON ITSTHERAPEUTIC EFFECTS.



Medical Science

KEYWORDS : *Tamaka shwasa, Ayurveda, Clerodendrum serratum*

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ABSTRACT

Respiratory conditions are among the leading causes of morbidity and mortality in elderly people worldwide. Most important are Bronchial Asthma and Chronic Bronchitis which are correlated with *Tamaka Shwasa* and *kaphaja kasa* respectively according to Ayurveda. Ayurvedic concept is of the opinion that *Tamaka shwasa* is a *yapya vyadhi*. *Bharangi* is one of the drugs of Ayurvedic materia medica which is mainly indicated in respiratory disorders. It is botanically identified as *Clerodendrum serratum* Linn which belongs to family Verbenaceae. It has reported that root possess significant anti-inflammatory as well as anti-allergic activity, and can be useful in Asthma. Some of the chief constituents found in the plant are D-mannitol, hispidulin, cleroflavone, apigenin, scutellarein, serratagenic acid, acteoside, verbascoside, oleanolic acid, clerodermic acid, γ -sitosterol, β -sitosterol, cholestanol, clerosterol, campesterol and 24-ethyl cholesterol.

INTRODUCTION

The word *Shwasa* indicates both physiological and pathological state of respiration. *Tamaka Shwasa* (Bronchial Asthma) is one of the five types of pathological condition of *Shwasa*.¹ It is described as difficulty in taking breath. It is manifested through *pranavaha srotas*. *Vata* gets obstruction by *kapha* and travels in *pratiloma gati* and in turn causes *Shwasa*.² According to W.H.O, there are approximately 300 million people suffering from Bronchial Asthma and another 100 million will be added to this by the end of the year 2025. The prevalence in India is 3.5 % of the total global incidence.³ Curative aspects need to be explored, where many effective drugs are mentioned in *Ayurveda*. *Vata-kaphahara chikitsa* is the sheet anchor of the treatment of *Tamaka Shwasa*.⁴ *Bharangi* is one of the drug which is useful in the treatment of *Tamaka Shwasa*. The word *Bharangi* literally means that which is glorious. In *samhita kala* this drug was widely used for treatment of *shwasa, Kasa, Sotha, Vataja* disorders. It is highly valued and important ingredient of many popular Ayurvedic formulations like, *Bharangyadi kasaya, Bharangyadi churna*, *Ayaskrti, Satyadi churna, Kankasav*, *Mahavatagajankusa rasa*. *Bharangi* is found to have anti-inflammatory^{5,6}, antihistaminic, antiallergic^{7,8}, antioxidant⁹ and Hepato protective properties.¹⁰

HABITAT AND HABIT¹¹

Clerodendrum serratum Linn is found more or less throughout India in forest up to altitude 1500 meters. It is perennial shrub 3-8 ft. high.

Root: Mature root hard, woody, and cylindrical; upto 5 cm thick; external surface light brown having elongated lenticels.

Stem: Usually quadrangular.

Bark: Thin and easily separated from a broad wood which shows marked medullary rays and concentric growth rings in a transversely cut surface; short fractures; acrid taste.

Leaf: Leaves usually three at a node, sometimes opposite oblong or elliptic, serrate, alternate without stipules.

Flower: Flowers are many conspicuous, arranged in dichotomous cymes, the whole forming a lax more or less pubescent sub-persistent, obovate to lanceolate, pubescent, and often coloured.

Fruit: four lobed purple drupes.

Seed: With or without endosperm

Vernacular names¹²

Bengali: Bamunhatee, Bamanhatee, Bhuijam

Gujarati: Bharangee

Hindi: Bharangi

Kannada: Gantubarangee

Telugu: Ganttubrarangee

Urdu: Bharangi, Baharangi

Punjabi: Bhadangee

Tamil: Cheruteku

SYNONYMS

Padma¹³-flowers resemble lotus flowers

Bharangi¹³-it destroys disease, and it is having power equivalent to sun

Kasagni¹⁴-relieves *kasa*

Vatari¹⁵- useful in *Vata* disorders

GUNA – KARMA¹⁶

Bharangi is *katu, tikta, kasaya rasa, usna virya, laghu* and *ruksha guna, katu vipaka, kaphavata shamaka*. It is useful in *Shwasa, Kasa, Sotha, Vranaropana, Vata vyadhis, Gulmaghna, Jwaragna*.

PHYTOCHEMISTRY 17, 18, 19

The major groups of chemical constituents present in the *Clerodendrum* genus are carbohydrates, phenolics, flavonoids, terpenoids and steroids.

Carbohydrates

Generally, D-mannitol has been found in the roots of the Plant.

Flavonoids

The isolated flavonoids like hispidulin and cleroflavone possess potent anti-oxidant, anti-microbial, anti-asthmatic, anti-tumour and CNS binding activities. Other flavonoids isolated from plants are apigenin, 7-hydroxy flavanone, scutellarein and pectolinarigenin

Terpenes

Terpenes isolated from plant like betulin, oleanolic acid, clerodermic acid, betulinic acid, friedelin and monomelittoside had weak CNS activity, strong molluscicidal and fungi toxic activities.

Phenolics

Some of the phenolic compounds isolated were *serratagenic acid, acteoside, indolizino* and *verbascoside* which possess biologically activities such as anti-oxidant, anti-microbial, anti-proliferative, antihypertensive and anti-cancer activities.

Steroids

Steroids are terpenes based on the cyclopentane perhydroxy phenanthrene ring. Chiefly, γ -sitosterol, β -sitosterol, cholestanol, clerosterol, campesterol and 24-ethyl cholesterol were reported to be isolated from the plant.

PROBABLE MODE OF ACTION OF DRUG

The pathogenesis of *Shwasa* first involves only vitiation of *Vata dosha* all over the body. This vitiated *Vata* which is in *Uraha sthana* in turn creates *rukshata*, *sankocha* and *kharata* in *Pranavaha srotas*. Vitiated *Vata* affects the prakruta *Kapha* in *Uraha sthana*, which results in *Vilomata* of *Prana vayu* through obstruction to its natural *Gati* by *Kapha*. Sometimes, *Kapha* gets vitiated independently or through *Rasa dhatwagnimandya* its *Mala*, i.e. *Kapha* gets located in *Uraha sthana* and causes obstruction to normal motion of *Vayu* which ends up with *Vilomata* of *Vayu*. In the third type, both *Vata* and *Kapha* get vitiated independently along with the production of *Ama visha*. This contributes to the manifestation of *Shwasa*. *Bharangi* having *Katu, Tikta, kasaya rasa, Usna Virya, Katu Vipaka* and *Kapha-Vataghna* properties seem to quite naturally antagonize the *Shwasa Roga*, which is *Kapha-Vata Pradhan* disease.

REFERENCES IN SAMHITASAND NIGHANTUS

Charaka samhita²⁰- *Shwasa* and *Hikka*.

Susrutha samhita²¹- *Acharya Susrutha* explained *Bharangi* as useful in *Apasmara*.

Vagbhata - *Bharangi* as *agreya dravya* in *Shwasa*

Chakradatta^{22,23}- useful in *Gandamala, Galaganda, Kuranda, Shwasa*

Vangasen^{24, 25}- useful in *Vataja Kasa, Bradhana, Kuranda*

Bhavaprakash Nighantu²⁶-*Sotha, kasa, Shwasa, Peenasa, Jwara*.

Dhanwantari Nighantu²⁷- *Gulma, Jwara, Asrug, Vata rogas, Rajyakshma, Peenasa*

Raja Nighantu²⁸- *kasa, Shwasa, Sopha, Vrana, Krimi rogas, Daha, Jwara*

THERAPEUTIC INDICATIONS

Disease	Form	Part Used	Anupana
Shwasa	Kalka	Moola	Usna jala
Vataja kasa	Ghrita	Moola	Usna jala
Apasmara	Arista	Moola	-
Asrug	Swarasa	Moola	-
Jwara	Swarasa	Moola	-
Gulma	Swarasa	Moola	-
Peenasa	Swarasa	Moola	-
Galaganda Gandamala	Pralepa	Moola	-
Kuranda	Pralepa	Moola	-
Sotha	Churna	Beeja	Ghrita
Vrana	Pralepa	Moola	
Krimi roga	Churna	Moola	
Bradhana	Churna	Moola	tandulodaka

PHARMACOLOGICAL ACTIVITIES**Anti-inflammatory activity²⁹**

The ethanolic root extract of *C. serratum* showed significant anti-inflammatory activity in carrageenan-induced oedema in rats, and also in the cotton pellet model in experimental mice, rats and rabbits at concentrations of 50, 100 and 200 mg/kg.

Bronchodilator activity³⁰

Aqueous extract of leaves possess bronchodilator property.

Allergic Asthma³¹

Icosahydric acid (IHPA) a new pentacyclic triterpenoid saponin was first isolated from roots of *Bharangi*. IHPA at the dose of 100mg/kg showed significant protection of mast cell degeneration (59.62%) as compared to standard sodium cromoglycate (64.48%). The compound also revealed significant inhibitory activity on histamine induced gout tracheal chain preparation.

Wound healing activity³²

Ethanolic extracts of roots and leaves of *Bharangi* were obtained and their wound healing potency was evaluated on Albino rats. The results show higher wound healing potency of root extract as compared to leaf extract

Anticancer activity³³

Aqueous extract and methanolic extract of roots of *Clerodendrum serratum* were screened for *in vivo* anticancer activity using Dalton's Lymphoma Ascites (DLA) cell model at the dose 100 mg and 200 mg/kg body weight. The parameters were analysed mean survival time, percentage increase in life span, body weight analysis, haematological parameters and biochemical parameters. The study revealed that methanolic extract exhibit significant anticancer activity as compared to aqueous extract. It is used in treatment of fevers, Rheumatism and Dyspepsia.

CONCLUSION

Bharangi is the drug of choice in the treatment of respiratory disorders such as *Shwasa, kasa and Peenasa*. It is also useful in the treatment of other disorders like *Sotha, Gulma, Galaganda, Vatavyadhis, Vrana* etc. The plant was found to be useful as Bronchodilator, in allergic Asthma, anti-inflammatory, anti-cancer, Hepato protective, and for its anti-microbial properties.

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