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# CRITICAL ANALYSIS ON THE BENEFITS OF BHARANGI

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**ABSTRACT**

***Bharangi in the treatment of respiratory disorders mainly- Kasa, Shwasa, Hikka, Kshatshina, Nasaroga, Swarbheda& also in Apsmara, Prameha, Pandu, Kushtha & VishaChikitsa. Charaka has not incorporated Bharangiinto Mahakashaya (50 groups of drugs according to action) but included it in Harit Shak varga. Sushrutahas categorized it in PippalyadiGana. He has mentioned it as a Panacea for epilepsy and also as Stanyashodhak (lactodepurant). Charaka, Sushruta, as well as Vagbhata have cited its usefulness in respiratory complaints. Approximately 54 synonyms of Bharangi are described in various Nighantus. Amongst these, maximum numbers of synonyms i.e. 18 are enlisted in SodhalNighantu. Dhanwantari Nighantu: In this Nighantu, synonyms of Bharangi like Angarvalli, Padma, Brahmahyashtika which explain external morphology of Bharangi & Kasaghni which tells us pharmacological activity of Bharangi are mentioned. The aqueous extract of the root bark (10 to 500µg/ml) exhibited a graded inhibition of histamine responses on the isolated guinea pig ileum and tracheal chain, but did not affect the response to acetylcholine or barium chloride. The ethanolic extract of the root bark per se showed histamine release similar to that affected by compound 48/80 in chopped pieces of guinea pig lung. However, the per cent of histamine release (37.8) caused by compound 48/80 was reduced to 7.1 when the extract was reincubated with the histamine liberator 48/80.***

**KEYWORDS:** ***Bharangi, Charaka, Sushruta, Nighantu, extract***

## INTRODUCTION

The information of *Bharangi* is found in *Vedic* literature, *Brihatrayi Samhita*, *Laghutrayi Samhita*, Various *Rasagranthas*, *Nighantus*& the various textbooks of *Dravyagunavidnyan*. *Charak* has mentioned *Bharangi* in the treatment of respiratory disorders mainly- *Kasa, Shwasa, Hikka, Kshatshina, Nasaroga, Swarbheda*& also in *Apsmara, Prameha, Pandu, Kushtha* & *VishaChikitsa*.[1]

*Sushrut Samhita* (1000 B.C. to 500 A.D.): In this *Samhita Bharangi* is included in the treatment of *Jwar, Shwas, Kasa, Hikka&Yakshma*. Sushrut has cited its usefulness in the treatment of surgical disorders like *Arsha, Arbuda, Granthi, Vrana* & *Moodhagarbha.Ashtanga Hridaya Samhita* (6th Century A.D.): *Vagbhata*, an author of this *Samhita* has mentioned *Bharangi*in *Chikitsa* of *Kapha*&*Vataroga* as well as in the treatment of Gynecological disorders like- *Rajonasha,Yonirog, Gulma*& Pediatric disorders like *Mruttikajanya Pandu*.

*Charaka* has not incorporated *Bharangi*into *Mahakashaya* (50 groups of drugs according to action) but included it in *Harit Shak varga*. *Sushruta*has categorized it in *PippalyadiGana*. He has mentioned it as a *Panacea* for epilepsy and also as *Stanyashodhak* (lactodepurant). *Charaka, Sushruta*, as well as Vagbhat have cited its usefulness in respiratory complaints.

In the *Sharangadhar Samhita*, references of *Bharangi* are found in various formulations indicated in the treatment of *Jwar, Kasa, Kushtha, Mandagni*&*Vatrog*. *Bharangi* is included in*Kwath*formulation viz. - *Katphaladi*(in *Jwara*), *Kshudradi* (in *Sheetjwara*), *BrihatManjishthadi*(in *Kushtha*), *Maharasnadi*(in *Vatroga*).

In *Bhavprakasha* Samhita: The use of *Bharangi*formulations not only in *Jwara, Kasa, Vatroga, Kushtha* and *Mandagni* but also in *Shwas, Hikka, Apsmar, Gulma, Shotha, Streeroga*and *Balroga, Masoorika, Karnaroga, Snayuka, Prameha, Kshatkshina*etc.

Approximately 54 synonyms of *Bharangi* are described in various *Nighantus*. Amongst these, maximum numbers of synonyms i.e. 18 are enlisted in *SodhalNighantu*. *Dhanwantari Nighantu*: In this *Nighantu*, synonyms of Bharangi like *Angarvalli, Padma, Brahmahyashtika* which explain external morphology of *Bharangi*&*Kasaghni* which tells us pharmacological activity of *Bharangi* are mentioned. *Madanpal Nighantu*: *Bhanji, Bhrugubhawa, Gandhaparvani,Kharashak, Shukramata* etc. are the synonyms available in this *Nighantu.Sodhal Nighantu:* Synonyms like *Bhargawi, Bhramarpriya, Kalingvalli, Kharapushpa, Matibhranshanivarini, Phajji, Shukranama*, and *Varvarak* are found only in this *Nighantu. Kaiyadev Nighantu*: In this *Nighantu*, synonyms like *Bhangura, Bhargi, Hansi, Mahagardabhagandhika, Margaparvani, Palindi* are included. *Raj Nighantu: Angarvallari, Bhramareshta, Brahmanyashti, Gardabhishaka,Varvari, Vatari* etc. are the synonyms found in *Raj Nighantu*. [2]

*Bhavprakash Nighantu*: In this, synonyms of *Bharangi* like *Brahmani, Hanjika* are available. *Shaligram Nighantu: Durva, Mukhadouta* are the synonyms seen in this *Nighantu*. *Mahoushadha Nighantu*: This *Nighantu* has mention of synonyms like *Brahmi, Kharashaka, Margavi, Samdevsuta, Shakramatruka*. *LaghuNighantu: Barbaraka, Bhargawa,*

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*Bhramara, Kalankvalli* are the synonyms fond in *Laghu Nighantu.*

Synonyms of Bharangi like Brahmanyashti, Kalankvalli, Angarparni, Hansi, Kharashak, Varvari, Barbarak, Padma, Surupa, Mahagardabhagandhika help us to identify the plant Bharangi by external characters. Bhargi, Kasaghni, Vatari, Matibhrahshanivarini, Mukhadhouta, Durva, Hanjika, Bhanji, Margani etc. are the synonyms which explain the pharmacological action of Bharangi. Some synonyms of Bharangi like Brahmani, Bhargawa, Bhargawi, Bhrugubhawa, and Brahmasuvarchala have mythological relation. Gardabhashak, Bhramara, Bhramareshta, Bhrungaja, Margani etc. are the synonyms linked with the names of animals. Synonyms like Kalingvalli & Margani show habitat of Bharangi while Varsha is the synonym which explains availability & growth of the plant in particular season. [3]

**Morphology**

Perennial Shrub: scarcely woody 0.9 to 2.4 m high shoots from a thick woody root. Stems: bluntly quadrangular, young parts usually glabrous. Leaves: 10-20.3cm long, 3.8 to 6.4 cm broad, rough, sessile or nearly so (stout petiole-6mm long) opposite or sometimes ternate, passing upwards into bracts, narrowly obovate-oblong or sub-elliptic; acute or acuminate, usually coarsely and sharply serrate, sometimes but rarely only dentate, glabrous, base acute. Flowers: Many, blue purple or white arranged in dichotomous cymes, the whole forming a lax, and sub pyramidal panicle. Bracts: long from obovate to laceolate, pubescent, often colored, a pair of acute bracts branching and a flower in the fork. Calyx: Cup shaped, shortly 5 lobed, truncate, not enlarged in fruits, lobes very small, triangular, acute, ciliolate. Corolla: glabrous outside, pale blue, the larger lower lobe dark bluish purple. Corolla tube: up to 1-3cm long, cylindrical, hairy with filaments much curved, densely hairy at base, ovary, style-glabrous. Drupes: 6mm long, broadly obovoid, rather succulent, dark purple when ripe, normally 4 lobed with pyrene in each lobe. Root: Hard, woody, thick, cylindrical up to 5cm thick, external surface light brown having elongated lenticels. Bark: Thin, easily separated from a broad wood. Flowering period: May to August. [4]

## DISCUSSION

Serratagenic acid, queretaroic acid, some phytosterols, saponins, two iridiod glycosides, ferulic acid, arabinose, scutellarein baicalein are some important chemical constituents reported. Major: D-mannitol, γ-sitosterol, hydrolysis of crude saponin fraction gives oleanolic acid, queretaroic acid and serratagenic acid. Others: Glucose, Sigmasterol. From the bark the sapogenic mixture contains three major triterpenoid constitutents-oleonolic acid, queretaroic acid and serratagenic acid. The root bark yields a glycoside material, phenolic in natures. D-Mannitol is isolated from the bark with a yield of 10.9%.The powdered stem contains D-mannitol, D-glucoside of sitosterol and Cetyl alcohol. Soponin are isolated from root bark. [5]

The aqueous extract of the root bark (10 to 500µg/ml) exhibited a graded inhibition of histamine responses on the isolated guinea pig ileum and tracheal chain, but did not affect the response to acetylcholine or barium chloride. Higher concentrations blocked both acetylcholine and barium chloride partially. The alcoholic and chloroform extracts were found to be ineffective in the above two experiments. The aqueous extract (0.5 to 1g/ kg i.v.) partially blocked the histamine responses on the blood pressure of anaesthetized dog but did not significantly affect the responses to acetylcholine and adrenaline. The ethyl acetate fraction (0.1-1µg/ml) of the aqueous extract showed inhibition of histamine responses on the guinea pig ileum. It was found to be approximately 100 times more potent than the crude extract (Sachdev et al., 1964). [6]

The ethanolic extract of the root bark per se showed histamine release similar to that affected by compound 48/80 in chopped pieces of guinea pig lung. However, the per cent of histamine release (37.8) caused by compound 48/80 was reduced to 7.1 when the extract was reincubated with the histamine liberator 48/80 (Gupta and Gupta, 1967). The alcoholic fraction isolated from aqueous extract of the root produced a delayed hypotensive effect accompanied by broncho-constriction. Repeated administration of the extract showed diminution of its hypotensive and broncho-constrictor response as well as that of compound 48/80. The responses to histamine were not found to be altered. The anaphylactic broncho-constrictor response in sensitized isolated guinea pig lung was found to be inhibited after continuous perfusion of the alcoholic fraction suggesting anti-asthmatic potential. It was substantiated by another experiment wherein the alcoholic fraction administered at 2 mg/kg i.p. for 15 d showed 66.6 to 70.2 percent protection against anaphylactic bronchoconstrictor response in sensitized isolated guinea pig lung which was found to be associated with histamine depletion from the lung. This decrease in histamine in lung was associated with increase in abdominal skin and stomach histamine level (Gupta et al., 1967). The saponin derived from the plant caused dual effect of potentiation (at high concentration of 1 mg) and inhibition (at low concentration of 50µg) of histamine release induced by compound 48/80 in normal guinea pig chopped lung. At low concentration, it also inhibited the histamine releasing effect of antigen in sensitized rat chopped lung tissue but not that of the antigen in sensitized guinea pig chopped lung tissue. [7]

However, saponin (20mg/kg i.p.) failed to produce any effect in vivo against broncho-constrictor aerosols of histamine and acetylcholine in guinea pigs (Gupta, 1970). The in vitro sensitivity of the rat lung tissue to histamine was diminished after saponin treatment for 3wk while the sensitivity to acetylcholine was not significantly changed. The content of slow reacting substance-A (SRS-A) in the isolated lung of chronically treated guinea pigs and rats, was also found to be reduced markedly (Gupta, 1970). Further, chronic administration of the saponin (20mg/kg) for three weeks (Gupta, 1968) and for six weeks (Gupta, 1970) caused a gradual increase in resistance of guinea pigs against antigen egg albumin (Gupta, 1968, 1970). The lung extract from chronically saponin treated guinea pig exhibited inhibition of histamine induced contraction in isolated guinea pig ileum, on addition of

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extract equivalent to 0.2 g of lung tissue. This inhibition was of shorter duration after addition of equivalent doses of the extract from control animals. [8]

The lung extracts from treated animals were significantly more effective when compared with controls in inhibiting the constrictor responses of SRS (Gupta, 1968). In another study, similar lung extract from the chronically saponin treated rat or guinea pig was found to inhibit the constrictor response to histamine for longer time as compared to the lung extracts from controls (Gupta, 1970). Ethanol extracts of roots Clerodendrumserratum (Linn.) Moon. showed antiasthmatic activity using isolated goat tracheal chain preparation, Clonidine induced catalepsy, Milk-induced leucocytosis& eosinophilia in mice at doses 50, 100, 200mg/kg. [9]

Ethnobotanical studies indicate that root of Bharangi is useful in the treatment of not only respiratory disorders like bronchitis, asthma, cough etc. but also in digestive disorders like stomachache, dyspepsia, diarrhoea etc. It is also effective in the management of rheumatism, inflammation, snake bite, fever & fistula. Cold and tuberculosis [Yoganarsimhan et al., 1979, 1982] Catarrhal affections [Badhe and Pandey, 1990] Bronchitis [Banerjee and Banergee, 1986, Badhe and Pandey, 1990] Asthma [Yoganarsimhan et al., 1979, 1982, Banerjee and Banergee, 1986; Dixit and Mishra, 1999, Bhandary and Chandrashekar, 2002] Cough [Yoganarsimhan et al., 1979, 1982 Dixit and Mishra, 1999; Kothari and Rao, 1999, Bhandary and Chandrashekar, 2002] Whooping cough [Jain et al., 1973] Fever [Banerjee and Banerjee, 1986, Baruah and Sarma, 1987; Sahoo and Mudgal, 1993, Savithramma Rao, 2001] Malaria [Chandra and Pandey, 1985, Sudhakar and Rao, 1985; Badhey and Pandey, 1990, Sadhale et al., 1991; Kapur et al., 1992, Kothari and Rao, 1999] Febrifuge, anti spasmodic and expectorant [Dixit and Mishra, 1999] Febrifuge [Sudhakar and Rao, 1985, Kapur et al., 1992] Body pain [Hemadri et al., 1980] Inflammation [Jain et al., 1994] Rheumatism [Baruah and Sarma, 1987; Oommachan and Masih, 1989; Kothari and Rao, 1999; Savithramma and Rao, 2001] Digestive [Karuppusamy et al., 2002] Fistula and Cholera [Kothari and Rao, 1999] Stomachache [Balasubramanian and Prasad, 1996; Hosagoudar and Henry, 1996] Dyspepsia [Savithramma and Rao, 2001] Diarrhoea [Saxena et al., 1988; Balasubramanian and Prasad, 1996]

*Bharangia - katu, tikta, kashaya rasa, laghuguna, ushnaveerya* which helps to pacify the aggravated *vata* and *kapha dosha*. Also the phyto-chemical and pharmacological profiles of bharangi has been reviewed for its anti-inflammatory, anti-allergic antiasthmatic, and bronchodilator activities. Aqueous extract of *Bharangi*has also been proved for its anti inflammatory and bronchodilatory activities Among various forms of inhalation therapy, Nebulization is a process which is a process which involves suspension of fine vaporised liquid droplets otherwise known as aerosol, to administer medication directly in to the respiratory system.

The phyto chemical of *Bharangimoola Arka* (root of Clerodendrumserratum (Linn.)) on preliminary test have proven to be positive for Carbohydrates, Phenolic, Tannins and Terpenoids. Generally, previous researches on phytochemical among carbohydrates components D-mannitol was found. The components of *Bharangimoola Arka* - phenolic compound, Tannins and Terpenoids are found to be anti-inflammatory in Asthma. The Bharangimoola (Clerodendrumserratum (Linn.), due to its anti-inflammatory action succeed to restrict the underlying pathology instantly. The anti-inflammatory effects of phenolic compounds are related in previous research are; due to modulation of the expression of pro-inflammatory genes, like NOS, cyclooxygenase, lipooxygenase; acting throughout nuclear factor (NF-κB) signaling; and mitogen-activated protein kinase and activating the Nrf2/Keap1 pathway. In another way the role play of any particular phenolic antioxidant is directly associated with the capacity of the hydrogen radical donation from the phenolic group and the presence of an unpaired electron in the aromatic ring. A study is evident that the ethanolic root extract of Clerodendrumserratum (Linn.) showed significant anti-inflammatory activity in carrageenan-induced oedema in the cotton pellet model in experimental mice, rats and rabbits at concentrations of 50, 100 and 200 mg/kg. The Ices hydropicenic Acid (IHPA) pent acyclic triterpenoid saponin, first isolated component from roots of *Bharangi*, at the dose of 100mg/kg provides protection of mast cell degeneration (59.62%) in comparison to standard sodium cromoglycate (64.48%). Another components of *Bharangimoola* Saponin and D mannitol possesses antihistamine and anti-allergic effect respectively, Apigenin-7-glucoside (flavonoid) acts as antiinflammatory and antimicrobial agent. [10]

## CONCLUSION

*Bharangia* has *katu*, *tikta*, *kashaya rasa*, *laghuguna*, *ushnaveerya* which helps to pacify the aggravated *vata* and *kapha dosha*. Also the phyto-chemical and pharmacological profiles of bharangi has been reviewed for its anti-inflammatory, anti-allergic antiasthmatic, and bronchodilator activities. Aqueous extract of *Bharangi*has also been proved for its anti inflammatory and bronchodilatory activities. The phyto chemical of *Bharangimoola Arka* (root of Clerodendrumserratum (Linn.) on preliminary test have proven to be positive for Carbohydrates, Phenolic, Tannins and Terpenoids. Generally, previous researches on phytochemical among carbohydrates components D-mannitol was found. The components of *Bharangimoola Arka* - phenolic compound, Tannins and Terpenoids are found to be anti-inflammatory in Asthma.

## LIST OF REFERENCES

1. *Studies on Medicinal Plants and Drugs in Dhanwantari Nighantu, by Dr. S. D. Kamat, 2002, Published by Chowkhamba Sanskrit Pratisthan, Vanarasi.*
2. *Text Book of Medical Biochemistry 5th edition by M. N. Chatterjee & Rana Shinde published by Jaypee Brothers, New Delhi.*
3. *The Ayurvedic Pharmacopeia of India, Part-1, Volume I & III, 1989 & 2001, Published by MHF&W, New Delhi.*
4. *VanoushadhiChandroday, by Chandraraj Bhandari, Third Part, 1948, Published by Gyan Mandir, Bhanupur, Indore.*

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5. *VanoushadhiShatak, Vaidya Sri Durga Prasad Sharma, 1965, Published by Shri BaidyanathAyurved Bhawan, Kolkata.*
6. *Indigenous Drugs of India, by Chopra, Handa&Kapur, 2nd Edition, 1982, Published by Academic Publisher, Calcutta.*
7. *Medicinal Plants Chemistry & Properties by M. Danic, Published by Science Publishers, USA.*
8. *Global Initiative for Asthma Management and Prevention (GINA). Revised edn.2006. Definition and Overview, pg. no.7.*
9. *Cohn L, Elias JA, Chupp GL. Asthma: mechanisms of disease persistence and progression. Annu Rev Immunol 2004; 22:789- 815.*
10. *Bousquet J, Jeffery PK, Busse WW, Johnson M, Vignola AM. Asthma, from bronchoconstriction to airways inflammation and remodeling. Am J Respir Crit Care Med 2000; 161(5):1720-45.93.*