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A CRITICAL REVIEW OF *BHARANGI (CLEDODENDRM SERRATUM)*

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ABSTRACT

Imbalance of *Dosha* leads to various diseases formation in human body including Non Communicable Diseases. Change in lifestyle and diet of common people has important role in disease formation. Among diseases present, there are many diseases which doesn't has proper treatments available for complete cure. Whereas *Ayurveda* is a complete system of holistic medicine, in which a number of drugs with multiple beneficial actions are mentioned but scientific research is required to prove the effects of this drugs. *Bharangi (Clerodendrum serratum*) is a well-known drug mentioned in *Ayurveda* for various purposes by *Acharya Charaka, Acharya Sushruta, Acarya Vagbhata* and most of *Nighantus.* Hence, plant *Bharangi* is being selected for complete Medicinal Plant Review.

KEYTERMS: *Bharangi(Clerodendrum serratum)*, Ayurveda, Medicinal Plant.

INTRODUCTION

Bharangi is a common herbal drug found in the most of the places. It is commonly used in many preparations as a main drug and used for many diseases. It show therapeutic index as anti-bacterial, anti-helminthic, anti-inflammatory etc. It has *Kirimighna* activity according to *Raj Nighantu*. It is also used as *Jwarghna, Shothaghna* and used in treatment of *Shwasa, Kasa*. It is mentioned in *Pippalyadi Gana* by *Acharya Sushruta* and has been used for *Granthi, Apachi, Arbud, Arochaka, Kasa, Shwasa, Shotha* and *Jwara*. Root is the part used for *medicinal purpose.*

Habitat[2]

Clerodendrum serratum is more or less found throughout India, in forests upto 1500 metres altitude and globally in Ceylon, Malaysia, Penninsula etc.

Habit[3]

It is a shrub with a height of 0.9 – 2.4 metres, scarcely woody, not much branched with stems bluntly quadrangular. Leaves are often ternate and opposite reaching as much as 28 cms long but usually 12.5 -14 by 5.7- 6.3 cms. They bear the shape of oblong or elliptic with acute tip and coarsely and sharply serrate margin. The base of the leaves is acute and glabrous in texture. Flowers are numerous, showy, in lax pubescent dichotomous cymes, with a pair of acute bracts at each branching and a flower in the fork, each in the axil of a large leafy bract and collectively forming a long lax terminal usually pyramidal erect panicle 15-25 cms long. Pedicels are often twisted so as to make the large lower corolla – lobe appear uppermost and bracts are 1.3 – 3.8 cms long from obovate to lanceolate shaped, pubescent and often coloured. Calyx is 5mm long, puberulous, cup-shaped, truncate. Corolla is glabrous outside, pale blue coloured, the larger lower lobe is dark bluish purple coloured. Drupe is 6mm long, succulent, broadly obovoid, normally four lobed with one pyrene in each.

Literature Review

Literature review of Bharangi (Clerodendrum serratum.) was done from Vedas upto recent works to obtain thorough knowledge about Bharangi.

Brihatrayis

In *Charaka Samhita*[4] it is mentioned and used in *Prameha* as a content of *Lodhrasava* (Chi.6/42), *Kushta* as a content of *Kanakkshiri Tailam* (Chi.7/11), *Mool Churna* is used as *Pradhamana Nasya* in *Apasmara* (Chi.10/20), in *Pandu* as a content of *Vyoshadi Ghrita* (Chi.16/120), in *Hikka* and *Shwasa* as *Bharangi-Nagaradi Yoga*(Chi17/110), in *Kasa* as a content of *Chitrakadi Lepa* (Chi.18/54) and *Agastiharitaki*(Chi.18/58)

- In *Shushruta Samhita*[5] *Bharangi* is mentioned in *Arkadi Gana*, *Pippalyadi Gana* and *Samshamaniya Varga* and used for wound in *Prahemapidaka* as a content of *Dhanvantari Ghrita* (Chi.12/5), in *Vatagranthi* (Chi.18/5), *Pakva Vrana* Chi.18/40), *Kaphapittaj Jwara* as *Bharngyadi Kwatha* (U.39/197), *Shwasa* as a content of *Shrungyadi Ghritam* (U.51/21), in *Shwasa* as *Bharngyadi Leha*(U.51/44), *Kasa* as a content of *Agastyavaleha* (U.52/43) and in *Apasmara* as *Bharngyadi Suraprayoga* (U.61/38- 40)

- In *Ashtanga Hridaya*[6], it is mentioned in *Arkadi Gana, Surasadi Gana* and *Vatsakadi Gana* and used for *Kasa* as a content of *Kantakari Ghrit*a (Chi.3/62), *Bharangi churna* is used in *Shwasa* (Chi.4/32), in *Prameha Chikitsa* as a content of *Lodhrasava* (Chi.12/25), use of mool *Churna* is indicated in *Arsha* treatment (Chi.8/49), *Bharngyadi Churna* is indicated in treatment of *Gulma* treatment (Chi.14/21), in *Apasmara* as a content of *Mahapanchagavya Ghrita* (U.7/21) and in *Shiroroga* as a content of *Mahamayur Ghrita* (U.24/51).
- *Acharya Chakrapani*[7] has mentioned *Bharngyadhi Kwatha* in *Jwara* treatment (1/180).

Nighantu

- *Bhavaprakasha Nighantu*[8] has mentioned *Bharangi* in *Haritakyadi varga* and mentioned its uses in diseases like cough, oedema, asthama and fever.
- *Priya Nighantu*[9] has mentioned *Bharangi* in *Shatapushpadi varga* and mentioned its uses in cough, oedema, asthma and coryza.
- *Dhanvantari Nighantu*[10] has mentioned *Bharangi* in *Guduchyadi varga* and its uses in cough, oedema and asthama.
- *Madanpal Nighantu*[11] has mentioned its uses in cough, oedema, asthama and fever.
- *Raj Nighantu*[12] has mentioned *Bharangi* in *Pippalyadi varga* and mentioned its uses in *Shofa, Vrana, Daaha* and *Jwara*.
- *Kaiyadeva Nighantu*[13] has mentioned *Bharangi* in *Aushadhi varga* and mentioned its uses in *Jwara, Shwasa, Kasa, Shofa, Pinasa, Aruchi, Gulma, Yakshma*.

Synonyms

- *Angarvalli* - This plant appear like red hot coal (in colour) when fully blossomed.
- *Kharashaka* - Its leaf is rough in texture.
- *Padma* - Its flowers are red coloured like lotus.
- *Barbari* - It surrounds the diseases from all directions and destroy.
- *Baleya Shaka* - It is mainly eaten by Donkeys.
- *Brahmani* - It is pure as like Brahman
- *Brahamanyashtika* - Its stem is similar to stick of brahma or Brahman
- *Bhargi* - It destroys the diseases like swasa, kasa etc. or it is filled with the power equivalent to sun.
- *Hanjika* - It cures many diseases like swasa kasa etc.

Vernacular names[14]

Language	Name
Latin	*Clerodendrum serratum*
Sanskrit	*Bhargi*
Bengali	*Bamum hate*
Gujrati	*Bharangee*
Hindi	*Bharangi, Barangi*
Marathi	*Bharangi*
Orrisi	*Chinda, Penjura*
Kannada	*Gantabarangi, Kirithaggi, Kiritekki*
Mallyanam	*Cerytekki, Cherutekku*

Pharmacodunamics

- *Rasa : Tikta, katu*
- *Veerya : Ushna*
- *Vipaka : Katu*
- *Guna : Ruksha, Laghu*
- *Prabhva – Krimighna*

Distribution[15]

More or less throughout india, in forest up to 1500m altitude. Tarai region of Himalaya, specially Nepal, Kumaon, Bihar, western and southern India. Most of the species occurring in tropical Africa and southern Asia. The plant is distributed over scrub forest throughout the tropical and sub-tropical regions up to 1500m. Particularly in Bengal, Orissa.

Chemical composition[16,17]

• Root of plant- contains saponins, D-mannitol, stigmasterol, oleanolic acid, queretaroic acid, serratagenic acid, sitosterol, clerosterol identified as 5, 25- stimastadien-3beta o, clerodone as 3beta-hydroxyl-lupan 12-one, B- sitosterol, lupeol, A steroidal glycosides, phytosterols, ferulic acid, arabinose, scutellarcin, baicalein, serration and ursolic acid.

• Leaf of plant- contains catchin, alpha-spinosterol, luteoline, polyphonolics, diterpin-clerodin, ethycholesta-5,24 25-trine 3beta-o hispiduline and 7-o-o gluconoids of hispidulin and cruteuarein

Medicinal Uses[12]

Deepana, Kaphahara, Pachana, Ruchya, Vatahara, Shwasahara.

Doses[12]

Root Powder : 3-6 Grams

Root *kwatha* : 10-20 ml

Adulterant[15]

Clerodendrum indicum is used as *Bharangi*. *Clerodendrum indicum* is known in Bengal as *Bamanhati* and in telgu it is known as *Bharangi*. The bark of Gardenia turgid roxb. Is reported to be sold as *Bharangi* bark. *Picrasma quassioides benn. i*s used as Bharangi in Bengal. *Bharangi* root is sometimes substituted by *Ringani* or *Kantkari* root (*Solanum surattense Burm*. f.)

Pharmacological studies

Wound healing activity[18]:- Wound healing activity is carried out on the ethanolic extracts of root and leaves of *Clerodendrum serratum* and it was evaluated on Albino Rats. The results showed higher wound healing potency of the root extract as compared to the leaf extract. As compared with the control both the extracts demonstrated significant wound healing activity (Vidya et al., 2005)

Antioxidant activity[19]:- In DPPH radical scavenging assay, ethenolic extract of root at various concentrations (50, 100, 150, 200, 250 µg/ml) and ascorbic acid (50, 100, 150, 200, 250 µg/ml) showed the significant inhibitory activity with IC50 value 175 and 137 respectively. In reducing power assay, concentration 20-120 µg/ml shows a linear increase in reducing power, equivalent to 20 -120 µg/ml ascorbic acid. Presence of hydrophilic polyphenolic compounds is responsible to gives the greater reducing power. The IC50 values were 48 and 85 for ascorbic acid, ethanolic extract of CSR respectively. The inhibition of 73.32 ± 0.002%, and 64.49 ± 0.242% was observed for standard and ethanolic root extrat (test) respectively at maximum concentrations (Bhujbal et al., 2009).

Antiasthamatic activity[20]:- Alcoholic root extract of *Clerodendrum serratuam* at 100 and 200 mg/kg showed antiasthamatic activity in oval bumin induced experimental mice. In this model the antiasthamatic activity is probabaly acting through inhibition of inflammatory mediators like histamine, serotonin and prostaglandins due to cyclooxygenase inhibitors (Thalla et al., 2012).

Anticancer activity[21]:- Aqueous and methanolic extract of roots of Clerodendrum serratum were screened using Dalton's Lymphoma Ascites (DLA) cell model at the dose 100 mg and 200 mg/kg body weight for in vivo anticancer activity. The parameters analysed were mean survival time, body weight analysis, percentage increase in life span, haematological parameters and biochemical parameters. As compared to aqueous extract methanolic extract exhibit significant anticancer activity (Zalke et al., 2010).

Anti-inflammatory activity[22]:- Anti-inflammatory activity is carried out on the carrageenan induced odema in rats. The ethanolic root extract of Clerodendrum serratum showed significant antiinflammatory activity, and also in the cotton pellet model in experimental mice, rats and rabbits at concentrations of 50, 100 and 200 mg/kg (Narayan et al., 1999).

Spermatotoxic activity[23]:- Methanolic extract of Clerodendrum serratum at dose 100, 300 and 500 mg/kg shows significant spermatotoxic activity in male albino rats. The Clerodendrum serratum treatment result in impairment of male fertility in the rat by both spermatogenesis and cauda epididymal spermatozoa (Sarathchandiran et al., 2014).

Antiulcer activity[24]:- The methanolic extract of Clerodendrum serratum root (200mg/kg) possess significant antiulcer activity in a dose dependent manner by improving gastric mucosal defence mechanism. It shows significant decrease in number of ulcer, ulcer score and ulcer index in ethanol induced ulcer.

CONCLUSION

On comprehensive review of Bharangi it is found that Bharangi is described in Vedas, Brihatrayies & Laghutraies. Various synonyms like Angarvall, Kharashaka, Padma, Barbari, Baleya Shaka, Brahmani, Brahamanyashtika and Hanjika are described in various Nigantus. Bharangi (Clerodendrum serratum.) belongs to family Verbenaceae. It is used in traditional ayurvedic medicine as antihelminthic, antipyretic, Kasahara and Shwasahara. Bharangi is having Ruksha, Laghu Gunas, Tikta - Katu rasa, Ushan Veerya and Katu Vipaka. On account of above properties it is Kaasaghna, Shwasaghna, Shothaghna, Jwarahara, Gulmaghna, Bhramahara, Vrananashaka, Krimighni, Dahahara, Kshayahara, Hikkahara, Yakshmanashaka and AruChighna.

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