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BHARANGYADI KWATHA: A PHARMACOGNOSTICAL AND THERAPEUTIC REVIEW OF *BHARANGI* AND *SHUNTHI* IN THE MANAGEMENT OF RESPIRATORY DISORDERS

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ABSTRACT

Background *Bharangyadi Kwatha* is a simple Ayurvedic formulation prepared from the roots of *Bharangi* [*Clerodendrum serratum* (L.) Moon] and dried rhizomes of *Shunthi* (*Zingiber officinale* Roscoe). Both drugs possess *Katu Rasa*, *Ushna Virya*, *Kapha-Vatahara*, *Dipana*, *Pachana* and *Shothahara* properties. The formulation is mainly indicated in respiratory conditions associated with excessive *Kapha*, obstruction of respiratory channels, cough and difficulty in breathing.

Materials and Methods Classical Ayurvedic texts, the Ayurvedic Pharmacopoeia of India, the Ayurvedic Formulary of India and published scientific literature were reviewed. Information related to taxonomy, morphology, pharmacognosy, chemical constituents, therapeutic properties and dosage was compiled and critically analysed.

Results *Bharangi* is predominantly *Kapha-Vatahara*, *Shothahara*, *Kasahara* and *Shwasahara*, whereas *Shunthi* exhibits *Dipana*, *Pachana*, *Amapachana*, anti-inflammatory and bronchodilator-supportive activities. Their combination may reduce bronchial congestion, improve digestion and facilitate the expulsion of accumulated secretions.

Discussion The formulation acts at both gastrointestinal and respiratory levels. Its *Ushna*, *Tikshna* and *Laghu* qualities may correct *Agnimandya*, digest *Ama*,

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liquefy obstructing *Kapha* and restore the normal movement of *Vata*. **Conclusion** *Bharangyadi Kwatha* is a rational two-drug formulation for *Kapha-Vata*-predominant respiratory disorders. Available classical and experimental evidence supports its anti-inflammatory, expectorant, antiallergic and digestive potential.

Keywords: *Bharangi*, *Shunthi*, *Bharangyadi Kwatha*, *Tamaka Shwasa*, bronchial asthma, pharmacognosy

INTRODUCTION

Respiratory disorders such as bronchial asthma are characterised by recurrent breathlessness, cough, wheezing, chest tightness and variable airflow limitation. In Ayurveda, these manifestations show considerable similarity with *Tamaka Shwasa*, in which aggravated *Vata* becomes obstructed by *Kapha* in the *Pranavaha Srotas*. The obstructed movement of *Prana Vata* produces difficulty in breathing, while accumulated *Kapha* causes cough, expectoration and audible respiratory sounds. Management therefore requires drugs capable of reducing *Kapha*, regulating *Vata*, relieving obstruction and restoring the normal functioning of the respiratory channels.¹

Bharangi is an important medicinal root used in disorders such as *Kasa*, *Shwasa*, *Hikka*, *Jwara*, *Pinasa* and inflammatory swelling. Its *Katu-Tikta Rasa*, *Laghu-Ruksha Guna* and *Ushna Virya* make it useful in conditions dominated by thick *Kapha* and obstructed *Vata*. The root is traditionally administered as a decoction or as an ingredient of compound formulations for respiratory and inflammatory diseases.²

Shunthi, the dried rhizome of *Zingiber officinale*, is one of the most frequently used Ayurvedic drugs for correcting *Agni* and digesting *Ama*. Its *Katu Rasa*, *Ushna Virya*, *Madhura Vipaka* and *Laghu-Snigdha Guna* support digestion without excessively aggravating *Vata*. When combined with *Bharangi*, it may enhance digestion, absorption and respiratory action while reducing the heaviness and stagnation caused by aggravated *Kapha*.³

MATERIALS AND METHODS

This narrative drug review was prepared by collecting information from *Charaka Samhita*, *Sushruta Samhita*, *Bhavaprakasha Nighantu*, *Dhanvantari Nighantu*, the Ayurvedic Pharmacopoeia of India and the Ayurvedic Formulary of India. Scientific information was obtained from pharmacognostical studies, experimental research and review articles on *Clerodendrum serratum* and *Zingiber officinale*. Data were organised under botanical identity,

distribution, morphology, microscopy, chemical composition, Ayurvedic properties, pharmacological actions and dosage.⁴

DRUG REVIEW

Bharangyadi Kwatha contains equal proportions of *Bharangi Mula* and *Shunthi Kanda*. The root of *Bharangi* constitutes the principal respiratory drug, while *Shunthi* performs *Dipana*, *Pachana*, *Amapachana* and *Kapha-Vatahara* actions. The decoction form extracts water-soluble constituents and permits administration of the drugs in a warm form, which is beneficial in *Kapha*-dominant respiratory conditions. The combination is particularly suitable when respiratory symptoms coexist with poor appetite, indigestion, heaviness, thick sputum and inflammatory congestion.⁵

Composition of *Bharangyadi Kwatha*

S. No.	Ayurvedic drug	Botanical name	Family	Part used	Proportion
1	<i>Bharangi</i>	<i>Clerodendrum serratum</i> (L.) Moon	Lamiaceae, formerly Verbenaceae	Root	1 part
2	<i>Shunthi</i>	<i>Zingiber officinale</i> Roscoe	Zingiberaceae	Dried rhizome	1 part

Taxonomical Classification

Classification	<i>Bharangi</i>	<i>Shunthi</i>
Kingdom	Plantae	Plantae
Division	Angiosperms	Angiosperms
Class	Eudicots	Monocots
Order	Lamiales	Zingiberales
Family	Lamiaceae	Zingiberaceae
Genus	<i>Clerodendrum</i>	<i>Zingiber</i>
Species	<i>C. serratum</i>	<i>Z. officinale</i>
Accepted botanical name	<i>Clerodendrum serratum</i> (L.) Moon	<i>Zingiber officinale</i> Roscoe

Vernacular Names

Language	<i>Bharangi</i>	<i>Shunthi</i>
Sanskrit	<i>Bharangi</i>	<i>Shunthi, Nagara</i>
Hindi	Bharangi	Sonth
English	Blue glory	Dry ginger
Bengali	Bamun Hatee, Bhuijam	Shunth
Gujarati	Bharangee	Sunth
Marathi	Bharangi	Sunth
Kannada	Gantubarangee	Shunti
Malayalam	Cheruthekku	Chukku
Tamil	Sirutekku	Sukku
Telugu	Gantabharangi	Sonti

Synonyms

Drug	Important synonyms
<i>Bharangi</i>	<i>Angaravalli, Brahmanayashtika, Padma, Vatari, Kasaghni, Bhriguja</i>
<i>Shunthi</i>	<i>Nagara, Vishvabheshaja, Vishva, Mahoushadha, Srngavera, Ardraka-Shushka</i>

Geographical Distribution

Bharangi is distributed in tropical and subtropical regions of India and is commonly found in forest margins, open scrublands and hilly areas. It occurs in the Himalayan region, Uttar Pradesh, Bihar, West Bengal, Odisha, Maharashtra, Madhya Pradesh, Karnataka, Kerala and Tamil Nadu. *Shunthi* is obtained by drying the mature rhizomes of cultivated ginger. Ginger is extensively cultivated in Kerala, Karnataka, Meghalaya, Assam, Arunachal Pradesh, Odisha, West Bengal and other warm, humid regions of India. It is also cultivated throughout tropical Asia, Africa and the Caribbean region.⁶

Morphological Characteristics***Bharangi***

Clerodendrum serratum is an erect, slightly woody and usually aromatic shrub, approximately 1–3 metres in height. The stem is bluntly quadrangular when young and becomes woody with

age. Leaves are simple, opposite or occasionally arranged in whorls of three, elliptic to lanceolate, serrated along the margin and acute at the apex. Flowers are bluish-purple and arranged in terminal panicles. The corolla has a long tube with spreading lobes, and the stamens project beyond the corolla. Fruits are drupaceous and become dark blue or black when mature. The roots are cylindrical, branched, hard, woody and light brown externally.⁷

Shunthi

Zingiber officinale is a perennial aromatic herb with an underground, branched and fleshy rhizome. The aerial pseudostems are formed by overlapping leaf sheaths and usually reach 0.6–1.2 metres in height. Leaves are narrow, lanceolate, alternate and arranged in two rows. Flowers arise in dense spikes from separate shoots. The cultivated plant rarely produces viable seeds and is commonly propagated through pieces of rhizome. The fresh rhizome is pale yellow, aromatic and pungent, whereas drying produces the harder and more concentrated drug known as *Shunthi*.

Macroscopic and Microscopic Study According to API

Bharangi Root

Macroscopic characters: The mature root occurs in cylindrical, slightly tapering and frequently branched pieces. It may reach several centimetres in thickness. The external surface is light brown to greyish brown, longitudinally wrinkled and marked by root scars and elongated lenticels. The fracture is hard and fibrous. The transverse surface shows a relatively thin bark, broad wood, prominent medullary rays and distinct concentric growth rings. The drug possesses a characteristic odour and a bitter, slightly pungent taste.

Microscopic characters: A transverse section shows a multilayered cork composed of tangentially elongated brown cells. Beneath the cork lies the secondary cortex containing thin-walled parenchymatous cells. Stone cells and fibres may occur in the cortical region. The secondary phloem contains sieve elements, phloem parenchyma and fibres. The secondary xylem forms the major part of the root and consists of vessels, tracheids, wood fibres and xylem parenchyma. Medullary rays are distinct and extend radially through the xylem. Starch grains and prismatic crystals of calcium oxalate may be observed in the parenchymatous cells.

Shunthi Rhizome

Macroscopic characters: The dried rhizome occurs in laterally compressed, irregularly branched pieces. The branches are short, flattened and somewhat obovate. The outer surface is buff, pale yellowish brown or light brown, with longitudinal striations and circular scars of scale

leaves and roots. The fracture is short with projecting fibres. The cut surface shows an outer cortical region, a distinct endodermal line and a broad central stele containing scattered vascular bundles. The odour is strongly aromatic and the taste is characteristically pungent.

Microscopic characters: A transverse section shows an outer cork composed of several layers of compressed brown cells. The cortex consists of thin-walled parenchymatous cells containing abundant starch grains and oleoresin cells. Fibrovascular bundles are scattered in the cortex. A distinct endodermis separates the cortex from the central stele. The stele contains numerous closed collateral vascular bundles, associated fibres, vessels and parenchymatous ground tissue. Oil cells containing yellowish-brown contents are scattered throughout. Starch grains are abundant, simple, flattened, oval or irregular, with an eccentric hilum.⁸

Chemical Composition

Drug	Major chemical constituents
<i>Bharangi</i> root	D-mannitol, serratagenic acid, clerodermic acid, oleanolic acid, ursolic acid, β -sitosterol, stigmasterol, spinasterol, γ -sitosterol, clerosterol, lupeol, luteolin, apigenin, scutellarein, hispidulin, acteoside, martynoside and phenolic compounds
<i>Shunthi</i> rhizome	6-Gingerol, 8-gingerol, 10-gingerol, 6-shogaol, paradols, zingerone, gingerdiones, diarylheptanoids, zingiberene, β -bisabolene, β -sesquiphellandrene, ar-curcumen, camphene, borneol, cineole and starch

Ayurvedic Properties

Property	<i>Bharangi</i>	<i>Shunthi</i>
<i>Rasa</i>	<i>Katu, Tikta</i>	<i>Katu</i>
<i>Guna</i>	<i>Laghu, Ruksha</i>	<i>Laghu, Snigdha</i>
<i>Virya</i>	<i>Ushna</i>	<i>Ushna</i>
<i>Vipaka</i>	<i>Katu</i>	<i>Madhura</i>
<i>Dosha Karma</i>	<i>Kapha-Vatahara</i>	<i>Kapha-Vatahara</i>
Principal Karma	<i>Shwasahara, Kasahara, Shothahara, Jwarahara, Dipana, Pachana</i>	<i>Dipana, Pachana, Amapachana, Rochana, Shwasahara, Kasahara, Shulahara</i>
Therapeutic indications	<i>Kasa, Shwasa, Hikka, Pinasa, Jwara, Shotha</i>	<i>Agnimandya, Aruchi, Ajirna, Adhmana, Kasa, Shwasa, Shula</i>

Pharmacological Actions

Anti-inflammatory and Antiallergic Activity of *Bharangi*

Experimental studies indicate that extracts of *Clerodendrum serratum* possess significant anti-inflammatory activity. Triterpenoids, sterols, flavonoids and phenolic constituents may contribute to the inhibition of inflammatory mediators and reduction of tissue oedema. Antiallergic and mast-cell-stabilising effects reported for the plant provide a scientific basis for its traditional application in allergic rhinitis and bronchial asthma. Its antioxidant activity may further protect respiratory tissues from oxidative damage associated with chronic inflammation.⁹

Respiratory and Expectorant Activity of *Bharangi*

The traditional *Kasahara* and *Shwasahara* indications of *Bharangi* suggest its ability to reduce cough and respiratory difficulty. Its pungent, bitter and heating properties may help liquefy thick bronchial secretions and promote their expulsion. Preclinical observations suggest bronchodilator-supportive, antiasthmatic and antihistaminic potential. The plant has also demonstrated analgesic, antipyretic, antimicrobial, hepatoprotective and antioxidant activities, although well-designed clinical trials remain limited.

Digestive and Anti-inflammatory Activity of *Shunthi*

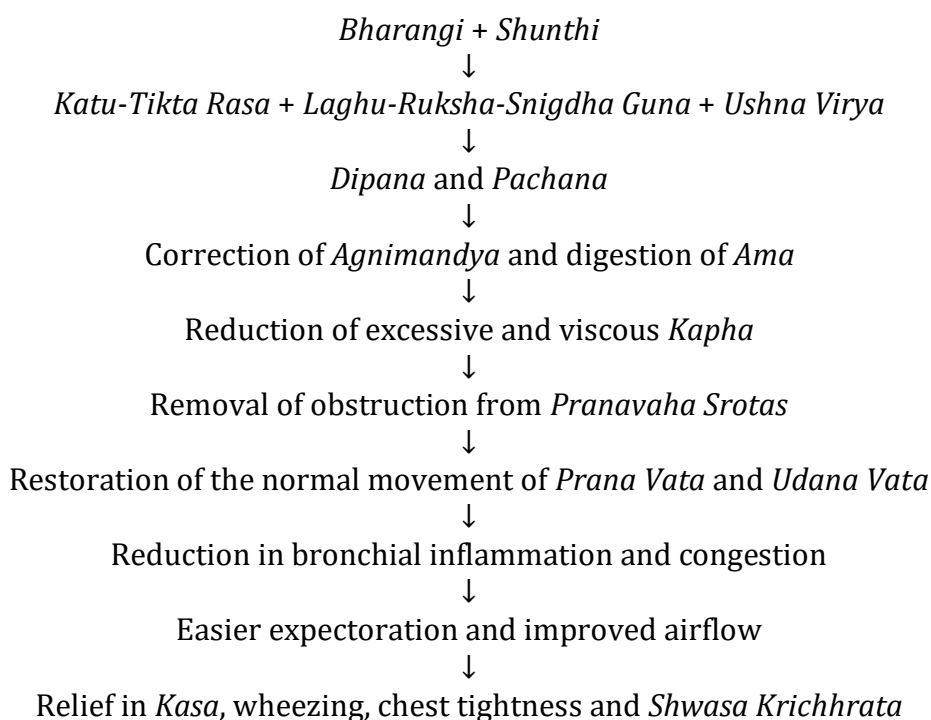
Gingerols, shogaols and related phenolic compounds of *Shunthi* exhibit anti-inflammatory and antioxidant actions through modulation of cyclooxygenase, lipoxygenase and pro-inflammatory signalling pathways. Ginger also stimulates salivary and gastric secretions, supports gastrointestinal motility and reduces nausea, abdominal discomfort and flatulence. These actions correspond with the classical properties of *Dipana*, *Pachana*, *Rochana* and *Amapachana*.¹⁰

Respiratory Action of *Shunthi*

The pungent and aromatic constituents of *Shunthi* may support the clearance of respiratory secretions and reduce inflammatory congestion. Experimental studies indicate possible bronchodilatory, antitussive, antimicrobial and immunomodulatory activities. Its warming action may be particularly useful in respiratory symptoms aggravated by cold exposure. By improving digestive metabolism, *Shunthi* may also reduce the continued formation of *Ama* and pathological *Kapha*, thereby supporting the long-term management of recurrent respiratory complaints.

Drug and Dosage

Preparation	Ingredients	Method of preparation	Suggested adult dose
<i>Bharangi Churna</i>	Dried <i>Bharangi</i> root	Root is cleaned, dried and powdered	3–6 g
<i>Shunthi Churna</i>	Dried ginger rhizome	Rhizome is cleaned, dried and powdered	1–2 g
<i>Bharangyadi Kwatha Churna</i>	Equal parts of coarse <i>Bharangi</i> root and <i>Shunthi</i>	Ingredients are coarsely powdered and mixed	10–20 g for decoction
<i>Bharangyadi Kwatha</i>	Coarse powder and water	One part drug is boiled with 16 parts water and reduced to one-eighth	Approximately 40–50 mL, once or twice daily, as directed by a physician

PROBABLE MODE OF ACTION**DISCUSSION**

The therapeutic rationale of *Bharangyadi Kwatha* is based on the close relationship between *Agni*, *Ama*, *Kapha* and respiratory channel obstruction. Impaired digestive and metabolic activity produces improperly processed material that contributes to heaviness, stickiness and excessive secretions. *Shunthi* corrects this underlying digestive disturbance through *Dipana*, *Pachana* and *Amapachana*. *Bharangi* acts more directly on the respiratory system through *Kasahara*,

Shwasahara and *Shothahara* effects. Their combination therefore addresses both the causative digestive disturbance and its respiratory manifestation.¹¹

In *Tamaka Shwasa*, aggravated *Vata* moves in the reverse direction after being obstructed by *Kapha*. The *Ushna Virya* and *Katu Rasa* of both ingredients help soften, liquefy and mobilise accumulated *Kapha*. The *Laghu* and *Ruksha* qualities of *Bharangi* reduce heaviness and excessive unctuousness, while the mild *Snigdha* quality and *Madhura Vipaka* of *Shunthi* help prevent excessive aggravation of *Vata*. Thus, the formulation offers a balanced approach by reducing obstructive *Kapha* without producing marked dryness in the respiratory channels.¹²

Modern pharmacological findings complement this Ayurvedic interpretation. *Bharangi* contains flavonoids, phenolic glycosides, sterols and triterpenoids associated with anti-inflammatory, antioxidant and antiallergic activities. *Shunthi* supplies gingerols, shogaols and volatile oils with anti-inflammatory, digestive and respiratory-supportive effects. The warm decoction may also assist hydration and mobilisation of respiratory secretions. However, the current evidence is mainly based on traditional use, laboratory studies and animal experiments. Standardised clinical trials are required to establish the optimum dose, long-term safety and efficacy of *Bharangyadi Kwatha* as an adjunct in bronchial asthma. It should not replace emergency bronchodilators or other prescribed asthma treatment.¹³

CONCLUSION

Bharangyadi Kwatha is a simple and pharmacologically rational formulation containing *Bharangi* root and *Shunthi* rhizome. Its predominant *Katu-Tikta Rasa*, *Ushna Virya*, *Kapha-Vatahara*, *Dipana*, *Pachana*, *Shothahara*, *Kasahara* and *Shwasahara* properties make it suitable for respiratory disorders associated with indigestion, *Ama*, excessive secretions and airway obstruction. Available phytochemical and experimental evidence supports its anti-inflammatory, antiallergic, antioxidant, expectorant and digestive potential. Further clinical studies using authenticated drugs, standardised preparation and objective pulmonary parameters are necessary to confirm its clinical effectiveness.

CONFLICT OF INTEREST -Nil.

SOURCE OF SUPPORT- None.

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