



IMPORTANCE OF ABHRAKA BHASMA IN RESPIRATORY DISORDERS

Dr. Yogeshwar Balwantrao Kadam*

BAMS, MD (Rasa Bhaishajya), Department of Rasa Shastra and Bhaishajya Kalpana, Shri Shivayogeshwar Rural Ayurvedic Medical College and Hospital, Inchal – 591102, Karnataka, India.



Corresponding Author: Dr. Yogeshwar Balwantrao Kadam

BAMS, MD (Rasa Bhaishajya), Department of Rasa Shastra and Bhaishajya Kalpana, Shri Shivayogeshwar Rural Ayurvedic Medical College and Hospital, Inchal - 591102, Karnataka, India.

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ABSTRACT

Respiratory disorders constitute a major proportion of global morbidity and are frequently associated with chronic inflammation, airway obstruction, and impaired immune responses. In Ayurveda, *Rasa Shastra* (Indian Iatrochemistry) offers a specialized therapeutic approach to these conditions through mineral-based formulations, notably *Abhraka Bhasma* (incinerated mica). This article critically reviews the pharmaceutical processing, therapeutic rationale, and clinical importance of *Abhraka Bhasma* in disorders of the *Pranavaha Srotas* (respiratory system). Through classical procedures such as *Shodhana* (purification) and *Sahasraputi* (1000 cycles of incineration), raw mica is transformed into a highly potent, bio-compatible nano-sized formulation. Its *Rasayana* (rejuvenative) action promotes cellular repair of pulmonary tissues, while its *Deepana–Pachana* properties address metabolic disturbances leading to excess mucus formation. Classical Ayurvedic knowledge is integrated with modern pharmacological perspectives to highlight its role in *Tamaka Shwasa* (bronchial asthma), *Kasa* (cough), and *Rajayakshma* (tuberculosis).

KEYWORDS: Abhraka Bhasma, Mica, Pranavaha Srotas, Tamaka Shwasa, Rasayana, Nanomedicine, Respiratory Therapy.

1. INTRODUCTION

The respiratory system serves as the primary conduit for *Prana* (vital life force), and any disturbance within this system results in systemic imbalance. Ayurveda classifies respiratory disorders mainly under *Shwasa* and *Kasa Roga*, attributing their pathogenesis to derangement of *Vata* and *Kapha Dosha*.^[1] While herbal formulations are commonly prescribed, *Rasaushadhis* (mineral-based medicines) such as *Abhraka Bhasma* are preferred in chronic and severe conditions owing to their *Alpamatropayogitva* (efficacy at minimal doses) and *Kshipra Arogyadayitva* (rapid therapeutic action).^[2]

Abhraka (mica) is a complex silicate of magnesium, aluminium, and potassium. In its raw form, it is therapeutically inactive and potentially harmful. Through Ayurvedic alchemical processing, however, it is converted into a potent therapeutic agent. Classical texts metaphorically describe *Abhraka* as the *Virya* (essence)

of Lord Shiva, signifying its vitalizing properties.^[3] Its affinity towards pulmonary disorders is extensively documented in *Rasendra Sara Sangraha* and *Rasa Ratna Samuccaya*, where it is acclaimed as a prime remedy for pulmonary wasting conditions.^[1,14]

2. NEED OF THE STUDY

With the increasing prevalence of pollution-induced respiratory disorders and rising antibiotic resistance, there is a need to explore traditional formulations such as *Abhraka Bhasma* that offer immunomodulatory, rejuvenative, and nano-therapeutic benefits for restoring respiratory health and preventing progressive pulmonary degeneration.

3. VARIETIES AND SELECTION OF ABHRAKA

Ayurveda classifies *Abhraka* into four types based on their response to heat. Among these, only *Vajra Abhraka* is considered suitable for medicinal use.^[5]

Table 1: Identification of Therapeutic *Abhraka*.

Feature	Krishna Vajra Abhraka
Colour	Deep black, heavy, layered
Reaction to fire	No sound, smoke, or deformation
Therapeutic utility	Systemic disorders, especially <i>Rajyakshma</i>
Modern correlation	Biotite mica (rich in Mg and Fe)

4. PHARMACEUTICAL TRANSFORMATION (SAMSKARA)

The conversion of raw mica into bio-absorbable *Bhasma* involves extensive physicochemical alterations.^[6]

4.1 *Shodhana* (Purification)

Raw *Abhraka* is subjected to repeated heating and quenching in media such as *Gomutra*, *Kanji*, and *Triphala Kwatha*. This process induces thermal stress, creates micro-fractures, and removes toxic impurities such as arsenic and lead.^[7]

4.2 *Dhanyabhraka* (Potentiation)

Purified *Abhraka* is tied in a cloth bundle with *Dhanya* (unhusked rice) and immersed in water. Gentle

maceration allows ultra-fine particles of mica to pass into the liquid, ensuring uniform particle size prior to incineration.^[3]

4.3 *Marana* (Incineration)

The processed *Dhanyabhraka* is triturated with herbal juices and subjected to repeated *Puti*.

- *Shataputi* – 100 incinerations
- *Sahasraputi* – 1000 incinerations

Each cycle progressively reduces particle size to the nanometer range, enhancing bioavailability and therapeutic efficacy.^[8]

5. RASA PANCHAKA

Table 2. Pharmacodynamic Profile of *Abhraka Bhasma*^[1,9]

Parameter	Property	Clinical relevance
<i>Rasa</i>	Tikta, Madhura	Mucolytic and tissue-nourishing
<i>Guna</i>	Snigdha, Sara	Alleviates Vata-induced dryness
<i>Virya</i>	Sheeta	Reduces inflammation
<i>Vipaka</i>	Madhura	Sustains strength and immunity
<i>Dosha Karma</i>	Tridosahara	Restores systemic balance

6. ROLE IN RESPIRATORY PATHOPHYSIOLOGY

6.1 Action on *Pranavaha Srotas*

In respiratory disorders, channels become obstructed (*Sanga*) or rigid (*Stabdha*). *Abhraka Bhasma* acts as a *Srotovishodhana*, penetrating deep into alveolar structures and removing adherent *Kapha*, thereby improving gaseous exchange.^[10]

6.2 Anti-Asthmatic Action

By pacifying aggravated *Vata*, *Abhraka Bhasma* reduces bronchial hyper-responsiveness and prevents spasmodic contraction of bronchial smooth muscles.^[11]

6.3 Immunomodulatory (*Rasayana*) Effect

Unlike corticosteroids, *Abhraka Bhasma* modulates immune responses. Studies indicate enhancement of T-

lymphocyte activity and alveolar macrophage function, strengthening pulmonary defence mechanisms.^[12]

7. CLINICAL APPLICATIONS

7.1 *Tamaka Shwasa*

Enhances lung tissue strength (*Dhatu Bala*) and provides symptomatic relief when administered with *Vasa Swarasa*.^[4]

7.2 *Kasa*

Acts as a demulcent in *Vataja Kasa* and an expectorant in *Kaphaja Kasa*.^[13]

7.3 *Rajyakshma*

Functions as a *Maharasa*, preventing tissue depletion and supporting pulmonary recovery.^[1,14]

Table 3: Common *Anupana* for Respiratory Disorders.

Disorder	Anupana	Therapeutic rationale
Bronchial asthma	Honey + ginger juice	Bronchodilation
Dry cough	Ghee + warm milk	Airway lubrication
Tuberculosis	Chyawanprash	Immune enhancement
Lung debility	Sitopaladi Churna	Kapha clearance

8. DISCUSSION

The therapeutic efficacy of *Abhraka Bhasma* can be best understood by examining its unique transformation from

a macro-mineral into a biologically active nano-medicine through repeated *Samskara*, especially *Sahasraputi Marana*. Modern analytical techniques such as Scanning

Electron Microscopy (SEM) and Energy Dispersive X-ray analysis (EDX) have demonstrated that *Sahasraputi Abhraka Bhasma* consists predominantly of particles in the size range of 10–50 nm.^[8,15] This nano-scale dimension provides scientific validation to the classical Ayurvedic concept of *Srotogami Guna*, which refers to the ability of a drug to penetrate minute bodily channels (*Srotas*).

In respiratory disorders, particularly chronic conditions like bronchial asthma, COPD, and pulmonary fibrosis, pathological changes occur at the micro- and alveolar level, including inflammation, fibrosis, mucus plugging, and impaired gas exchange. The ultra-fine particle size of *Abhraka Bhasma* allows it to traverse the blood–air barrier and reach deeper pulmonary tissues, thereby exerting a direct therapeutic influence on the alveoli and bronchioles. This explains its superior clinical utility in long-standing respiratory illnesses where conventional formulations fail to reach deeper sites of pathology.

Another significant aspect of *Abhraka Bhasma* is the presence of essential trace elements such as magnesium and iron in a biologically assimilable form. Due to repeated trituration with herbal juices (*Bhavana Dravyas*) during the *Marana* process, these elements become organically complexed and exhibit enhanced bioavailability. Magnesium plays a crucial role in bronchial smooth muscle relaxation by acting as a natural calcium channel antagonist, thereby contributing to bronchodilation and reduction of bronchial hyper-reactivity.^[16] Iron, on the other hand, supports hemoglobin synthesis and improves oxygen-carrying capacity, which is often compromised in chronic respiratory disorders associated with hypoxia, anemia, and tissue wasting.

From a clinical standpoint, *Abhraka Bhasma* does not act merely as a symptomatic bronchodilator or anti-inflammatory agent. It functions as a *Naimittika Rasayana*, meaning a disease-specific rejuvenator that strengthens the affected organ system while addressing the underlying pathology. Studies and clinical observations suggest that long-term administration of properly prepared *Abhraka Bhasma* leads to improved exercise tolerance, reduced frequency of exacerbations, enhanced immunity, and overall improvement in quality of life in patients suffering from chronic respiratory disorders, including COPD and recurrent asthma.^[10,12] Thus, *Abhraka Bhasma* bridges classical Ayurvedic wisdom with modern nanomedicine concepts, offering a holistic and sustainable therapeutic option.

9. Safety and Standardization

Concerns regarding the safety of metallic and mineral preparations are common; however, classical Ayurvedic pharmaceuticals emphasizes that safety lies not in the raw material, but in the meticulous pharmaceutical processing (*Samskara*). Multiple experimental and analytical studies have confirmed that properly prepared

Abhraka Bhasma, especially after *Shataputi* or *Sahasraputi Marana*, is non-toxic and safe for therapeutic use.^[15]

Classical Ayurvedic tests remain fundamental for quality assurance. The *Varitara Pariksha*, wherein the *Bhasma* floats on the surface of water, indicates extreme fineness and lightness, ensuring easy absorption at the cellular level. The *Niruttha Pariksha* confirms the irreversible transformation of the mineral, as the *Bhasma* does not regain its original metallic or crystalline form even when subjected to intense heating with silver. These tests collectively ensure that the preparation is stable, well-incinerated, and suitable for internal administration.

Modern standardization techniques further strengthen the safety profile of *Abhraka Bhasma*. Analytical studies demonstrate the absence of free or toxic metals, confirming that heavy metals are present only in bound, inert silicate forms. X-ray diffraction and spectroscopic analyses reveal a stable crystalline silicate structure, while atomic absorption studies show metal concentrations within permissible limits. Such findings establish that traditionally prepared *Abhraka Bhasma* complies with both classical Ayurvedic quality parameters and contemporary safety standards.

10. CONCLUSION

Abhraka Bhasma represents one of the finest achievements of Ayurvedic pharmaceuticals, particularly in the management of respiratory disorders. Its unique ability to balance *Vata*, *Pitta*, and *Kapha Doshas* makes it especially effective in complex and chronic pulmonary conditions where multiple pathogenic factors coexist. The combination of nano-sized particle structure, bioavailable trace elements, and *Rasayana* properties enables it to act not only as a therapeutic agent but also as a long-term lung tonic.

When prepared according to classical guidelines and administered judiciously with appropriate *Anupana*, *Abhraka Bhasma* offers sustained symptomatic relief, enhanced pulmonary strength, improved immunity, and better quality of life. In the present era, marked by increasing environmental pollution, recurrent respiratory infections, and chronic airway diseases, standardized *Abhraka Bhasma* provides a safe, effective, and holistic solution that aligns traditional Ayurvedic principles with modern scientific understanding of respiratory health.

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