

## Review Article



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**“ABHRAKA BHASMA: CLASSICAL INDICATIONS AND MODERN PHARMACOLOGICAL STUDIES”****Ms. Priya Bhaware<sup>1</sup>****AFFILIATIONS:**

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**ABSTRACT**

**Introduction:** Abhraka Bhasma, a herbo-mineral preparation derived from mica, is one of the most esteemed formulations in Ayurveda. Traditionally, it is prepared through a series of Shodhana (purification) and Marana (calcination) processes, rendering mica into a bioabsorbable nano-structured form. It has been widely indicated in *Rasayana* therapy, respiratory disorders, anemia, infertility, and neurodegenerative conditions. In recent decades, modern pharmacological studies have attempted to validate these traditional claims. **Methods:** A systematic literature search was conducted using Ayurvedic classical texts (*Rasatarangini*, *Rasaratna Samuccaya*, *Bhaishajya Ratnavali*), scientific databases (PubMed, Scopus, Web of Science, AYUSH Research Portal), and peer-reviewed journals. Inclusion criteria were studies on classical references, experimental pharmacology, toxicity evaluations, and clinical trials on Abhraka Bhasma. Exclusion criteria included non-peer-reviewed sources and anecdotal reports. **Results:** Classical texts describe more than 70 formulations containing Abhraka Bhasma, prescribing it for *Kasa* (cough), *Shwasa* (asthma), *Panduroga* (anemia), and as a potent *Rasayana*. Modern studies reveal its antioxidant, adaptogenic, anti-inflammatory, hematinic, immunomodulatory, neuroprotective, and reproductive health-enhancing properties. Toxicological studies suggest safety at therapeutic doses, while nano-scale characterization has demonstrated particle sizes <100 nm, indicating higher bioavailability. Clinical studies, although limited, support its use in chronic respiratory and hematological disorders. **Discussion:** Comparative analysis highlights concordance between classical claims and modern pharmacological findings. However, gaps remain in large-scale randomized clinical trials, standardization protocols, and long-term safety evaluations. **Conclusion:** Abhraka Bhasma represents a unique example where traditional wisdom aligns with modern pharmacology. Further multidisciplinary research integrating Ayurveda, nanotechnology, and biomedicine may open new therapeutic avenues. **KEYWORDS:** Abhraka Bhasma, Ayurveda, classical indications, pharmacological studies, Rasayana

## INTRODUCTION

Abhraka Bhasma, prepared from mica through intricate pharmaceutical processes, occupies a central role in Rasashastra due to its wide therapeutic spectrum<sup>[1-2]</sup>. The ancient Ayurvedic pharmacopeia recognizes it as a *Rasayana* drug, capable of promoting longevity, immunity, and vitality. Its inclusion in several formulations underscores its significance in managing both acute and chronic ailments<sup>[3-4]</sup>.

In traditional practice, Abhraka Bhasma is indicated in *Shwasa-Kasa* (respiratory diseases), *Panduroga* (anemia), *Jwara* (fever), *Agnimandya* (digestive impairment), and reproductive disorders<sup>[5-7]</sup>. The meticulous process of *Shodhana* and *Marana* not only detoxifies mica but also transforms it into a micro- to nano-particulate bioabsorbable form, enhancing its therapeutic efficacy<sup>[8]</sup>.

The objective of this review is to critically analyze the classical indications of Abhraka Bhasma as described in Ayurvedic texts and correlate them with findings from modern pharmacological and clinical studies, with an emphasis on therapeutic potential, safety, and research gaps<sup>[9-10]</sup>.

## MATERIALS AND METHODS

**Databases searched:** PubMed, Scopus, Web of Science, AYUSH Research Portal, Google Scholar<sup>[11]</sup>.

**Keywords used:** “Abhraka Bhasma,” “mica Bhasma,” “Ayurveda herbo-mineral medicine,” “Rasayana drugs,” “Ayurveda pharmacology.”<sup>[12]</sup>

**Inclusion criteria:**<sup>[13]</sup>

- References from classical Ayurvedic texts.
- Preclinical and clinical studies evaluating Abhraka Bhasma.
- Pharmacological, analytical, and toxicological research.

**Exclusion criteria:**<sup>[14]</sup> Non-authentic sources, anecdotal reports, and non-peer-reviewed articles.

**Type of studies reviewed:** Classical textual descriptions, experimental pharmacology, clinical case studies, and reviews (1990–2025)<sup>[15]</sup>.

## OBSERVATION AND RESULTS

### 1. Classical Indications of Abhraka Bhasma

Abhraka Bhasma is one of the most widely prescribed herbo-mineral formulations in Ayurvedic therapeutics. Its indications, as described in *Charaka Samhita*, *Sushruta Samhita*, *Rasaratna Samuccaya*, and *Rasatarangini*, extend across multiple systems of medicine.

- Respiratory Disorders: Abhraka Bhasma is specifically mentioned for *Kasa* (chronic cough), *Shwasa* (asthma, dyspnea), and *Rajayakshma* (a condition resembling tuberculosis). It is used both as a standalone medicine and as part of compound formulations such as *Abhrakadi Vati* and *Bhringrajasaava*.
- Hematological and Nutritional Deficiencies: In *Panduroga* (anemia), *Kshaya* (tissue depletion), and *Jwara* (chronic fevers), Abhraka Bhasma is recommended to restore hemoglobin, vitality, and immunity.
- Digestive and Metabolic Disorders: It is prescribed for *Agnimandya* (low digestive fire), *Grahani* (malabsorption), and *Arsha* (piles). Its role in strengthening the *Agni* (digestive power) is repeatedly emphasized.
- Rasayana Therapy: The Rasayana property is particularly significant, with claims of promoting *Medha* (intellect), *Bala* (strength), *Ojas* (immunity), and *Ayushya* (longevity).

These indications reflect the multi-systemic approach of Ayurveda, where a single preparation is tailored to correct fundamental imbalances.

### 2. Pharmaceutical Considerations

The therapeutic potential of Abhraka Bhasma lies not only in the raw mineral but in the complex pharmaceutical processing.

- Shodhana (Purification): Raw mica undergoes purification using herbal media such as *Triphala kwatha*, *Kanji*, *Nimbu swarasa*, or cow's urine. This process detoxifies and renders mica brittle for subsequent processing.
- Marana (Calcination): Purified mica is triturated with herbal juices, made into pellets, and subjected to repeated *puta* (calcination cycles). Each cycle reduces particle size and transforms the material into bioabsorbable ash.
- Classical Quality Control Tests: Ayurvedic tests like *Rekhapurnata* (fineness when rubbed between fingers), *Varitaratva* (ability to float on water), and *Nirdhuma* (smokeless heating) ensure suitability for therapeutic use.

These pharmaceutical principles have recently been substantiated by modern characterization studies, which show nanoparticle formation and the presence of trace bioavailable minerals.

### 3. Modern Pharmacological Findings

#### 3.1 Antioxidant and Adaptogenic Properties

Tripathi and Pandey (2003) demonstrated significant

free radical scavenging activity of Abhraka Bhasma in DPPH and superoxide assays. This correlates with its Rasayana indication. Adaptogenic properties, including enhanced tolerance to stress-induced ulcers and hypothermia, were observed in animal models.

### 3.2 Anti-inflammatory Activity

Experimental studies on carrageenan-induced paw edema in rats revealed significant inhibition of inflammation, suggesting a role in conditions like arthritis, bronchial inflammation, and COPD. These effects align with classical claims in *Shwasa-Kasa*.

### 3.3 Hematopoietic and Hematinic Effects

Animal studies reported by Jagtap and Khadabadi (2006) demonstrated increased hemoglobin levels, red blood cell counts, and serum iron after Abhraka Bhasma administration in anemia-induced rat models. This validates its classical indication in *Panduroga*.

### 3.4 Neuroprotective and Cognitive Benefits

Gupta and Sharma (2012) studied Abhraka Bhasma's role in memory and stress. Rats treated with Bhasma showed improved learning, reduced oxidative stress in brain tissue, and enhanced hippocampal function. This substantiates classical claims of improving *Medha* and *Smriti*.

### 3.5 Reproductive Health Benefits

Pandey et al. (2015) reported enhanced sperm count, motility, and testosterone levels in male rats treated with Abhraka Bhasma. Classical texts describe it as a *Vrishya* (aphrodisiac), and modern data provides experimental backing.

### 3.6 Immunomodulatory Effects

Raut and Rege (2010) observed increased lymphocyte proliferation and macrophage activity in experimental models, suggesting immune enhancement. Clinically, patients with chronic respiratory illnesses reported reduced recurrence of infections.

## 4. Toxicological and Safety Evaluations

Toxicological studies in rodents (Kori & Patel, 2014) demonstrated no significant hepatotoxic or nephrotoxic effects at therapeutic doses. LD50 was found to be significantly higher than clinical doses, confirming safety. Long-term studies showed no adverse impact on reproductive or hematological systems. Importantly, particle size reduction (<100 nm) through Marana ensures better assimilation and reduced toxicity compared to raw mica.

## 5. Clinical Evidence

### 5.1 Respiratory Disorders

Singh and Rai (2011) conducted a clinical evaluation of Abhraka Bhasma in bronchial asthma. Patients receiving 250 mg/day for 6 weeks showed improved pulmonary function tests and reduced dependency on bronchodilators.

### 5.2 Hematological Disorders

Singh et al. (2019) reported significant improvement in hemoglobin, MCV, and MCH levels in patients with iron-deficiency anemia after 3 months of therapy.

### 5.3 General Health and Rasayana Benefits

Small clinical trials showed positive effects on fatigue, general immunity, and recovery from chronic illnesses, although larger randomized trials are still lacking.

## 6. Analytical and Characterization Studies

X-ray diffraction (XRD): Confirmed crystalline structure with particle size <100 nm. Scanning electron microscopy (SEM): Revealed uniform nano-scale particles with smooth morphology. Energy dispersive X-ray analysis (EDX): Showed presence of Fe, Mg, K, Ca, and trace elements in bioavailable forms. Fourier-transform infrared spectroscopy (FTIR): Detected organic functional groups from herbal media used during Marana, suggesting synergistic bioactivity. These analytical results confirm that Ayurvedic pharmaceutical methods result in a unique nano-herbomineral complex, which explains enhanced absorption and therapeutic activity.

## DISCUSSION

The review highlights that classical indications of Abhraka Bhasma show strong alignment with modern pharmacological findings. For example, the Ayurvedic description of its use in *Shwasa* and *Kasa* resonates with studies demonstrating bronchodilatory and anti-inflammatory effects. Similarly, its classical indication in *Panduroga* corresponds with evidence of hematinic activity in modern trials<sup>[16-17]</sup>.

The Rasayana claim of enhancing vitality and immunity is supported by studies indicating immunomodulatory and adaptogenic potential. Neuroprotective activity further substantiates its role in promoting mental clarity and longevity, as described in ancient texts<sup>[18]</sup>.

Despite promising evidence, challenges persist. Standardization of preparation methods across pharmacies is inconsistent, leading to variations in

chemical composition and therapeutic efficacy. Limited large-scale clinical trials restrict evidence-based validation. While toxicity studies support its safety, concerns regarding heavy metal accumulation persist among the scientific community, necessitating rigorous regulatory frameworks<sup>[19]</sup>.

Future research must focus on (1) large randomized controlled trials, (2) standardization of pharmaceutical processes, (3) integration of nanotechnology to understand bioavailability, and (4) long-term safety studies. Collaborative efforts between Ayurvedic scholars and modern scientists are essential to bridge the gap between tradition and modern evidence<sup>[20]</sup>.

## CONCLUSION

Abhraka Bhasma represents one of the most extensively utilized herbo-mineral formulations in Ayurveda, valued for its wide therapeutic applications. Classical texts describe its use in respiratory, hematological, digestive, and reproductive disorders, alongside its Rasayana benefits. Modern pharmacological research validates many of these claims, with evidence of antioxidant, anti-inflammatory, hematinic, neuroprotective, and immunomodulatory activities.

Toxicological studies affirm its safety at prescribed doses, particularly due to its nano-structured transformation through Shodhana and Marana processes. However, limitations exist in terms of standardization and high-quality clinical trials. Addressing these gaps through multidisciplinary approaches will strengthen its position in integrative medicine.

Overall, Abhraka Bhasma exemplifies the harmony between classical Ayurvedic wisdom and modern biomedical science, underscoring the need for rigorous research to expand its therapeutic potential for global healthcare.

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