



अष्टांग शोध

A PEER-REVIEWED JOURNAL OF AYURVEDA AND ALLIED SCIENCES

Therapeutic Applications of Kankshi (*Sphatika*) in Ayurveda: A Critical Review

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Received Date: 11-05-2026

Accepted Date: 06-06-2026

Published Date: 13-06-2026

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ABSTRACT

Background: Kankshi, commonly known as Sphatika or alum, is an important mineral substance described in Ayurvedic literature under the category of Uparasa. Classical Ayurvedic scholars have extensively employed it for the management of bleeding disorders, wound care, oral diseases, and various inflammatory conditions. Before therapeutic use, Kankshi undergoes a purification process known as Shodhana, which enhances its safety and medicinal efficacy.

Aim: The present review aims to examine the traditional concepts, pharmaceutical processing methods, therapeutic applications, and scientific evidence related to Kankshi described in Ayurvedic and contemporary literature.

Materials and Methods: Relevant information was collected from classical Ayurvedic texts such as Rasa Ratna Samuccaya, Ayurveda Prakasha, Rasendra Sara Sangraha, and other Rasashastra treatises. Scientific publications indexed in academic databases including PubMed, Google Scholar, and peer-reviewed journals were also reviewed to evaluate available pharmacological and toxicological evidence.

Results: Classical literature describes Kankshi as a Kashaya-pradhana drug possessing significant hemostatic, cleansing, and healing properties. Modern investigations suggest that processed alum exhibits antimicrobial activity, supports wound management, and may assist in controlling localized bleeding. The traditional purification procedure alters its physical characteristics and improves its suitability for medicinal use.

Conclusion: Kankshi occupies an important place in Ayurvedic mineral therapeutics. When prepared and administered according to classical guidelines, it demonstrates diverse clinical applications with potential relevance in contemporary healthcare. Further scientific studies are required to strengthen evidence regarding its efficacy and safety.

Keywords: Kankshi, Sphatika, Alum, Rasashastra, Shodhana, Ayurveda, Uparasa, Mineral Drugs

INTRODUCTION

Ayurveda utilizes medicinal substances obtained from plant, animal, and mineral origins for the maintenance of health and treatment of disease. Among these, mineral-based medicines gained considerable importance with the development of Rasashastra, a specialized branch dealing with the processing and therapeutic use of metals, minerals, and herbo-mineral formulations.

Kankshi, also referred to as Sphatika, Saurashtri, and Tuvri in Ayurvedic texts, is a naturally occurring mineral compound identified with alum. It has been employed in traditional medicine for centuries due to its astringent, antimicrobial, and wound-healing properties. Classical physicians prescribed it in conditions involving excessive bleeding, oral ulcers, throat disorders, skin diseases, and abnormal discharges.

The medicinal use of Kankshi is not based solely on the raw mineral. Ayurveda emphasizes pharmaceutical processing methods that transform the substance into a therapeutically suitable form. Through Shodhana procedures, undesirable characteristics are reduced while desirable medicinal attributes are enhanced. Consequently, purified Kankshi has been incorporated into several formulations used in clinical practice.

In recent years, growing interest in traditional medicines has encouraged researchers to investigate the scientific basis of Ayurvedic mineral preparations. Studies evaluating processed alum have reported promising antimicrobial, antiseptic, and hemostatic activities, supporting many of its traditional indications.

The present review critically discusses the historical background, pharmaceutical processing, pharmacological actions, therapeutic applications, and safety considerations associated with Kankshi.

2. Historical Background and Ayurvedic Classification

2.1 Historical Overview

References to alum-like substances can be found in several traditional Ayurvedic texts. Early descriptions mainly emphasize its external application in wound care, ophthalmic preparations, and management of bleeding conditions. With the evolution of Rasashastra, Kankshi acquired a more defined identity and became an established member of the Uparasa group.

Medieval Ayurvedic scholars recognized its utility in both external and internal therapies. Owing to its characteristic astringent action, it was frequently prescribed in disorders involving excessive secretions, tissue laxity, and bleeding.

2.2 Nomenclature

Kankshi is known by several synonyms in Ayurvedic literature:

- Sphatika
- Saurashtri
- Tuvri
- Kankshi

The term "Saurashtri" is believed to be associated with the Saurashtra region, which was historically known for deposits of alum-bearing minerals. The name "Sphatika" reflects its transparent crystalline appearance.

2.3 Position in Rasashastra

Rasashastra classifies medicinal minerals into several groups according to their properties and therapeutic significance. Kankshi is included in the Uparasa category.

Major Rasashastra Categories

Category	Examples	General Utility
Maharasa	Abhraka, Vaikranta, Makshika	Rejuvenation and metabolic support
Uparasa	Gandhaka, Kasisa, Kankshi, Gairika	Disease management and pharmaceutical processing
Sadharana Rasa	Navasagara, Kaparda, Kampillaka	Specific therapeutic applications
Dhatu	Gold, Silver, Copper, Iron	Preparation of metallic medicines

The inclusion of Kankshi in the Uparasa group highlights its importance as a therapeutic mineral possessing diverse medicinal actions.

3. Physicochemical Characteristics and Varieties

Classical Ayurvedic literature describes different varieties of Kankshi based on their appearance, texture, and medicinal suitability. Such classifications helped physicians select appropriate material for pharmaceutical processing and therapeutic use.

3.1 Types of Kankshi

Phulla Kankshi

This variety is comparatively light, porous, and whitish in appearance. Traditional texts regard it as superior for medicinal applications because of its ease of processing and favorable therapeutic qualities.

Pika Kankshi

Pika Kankshi is denser and darker in appearance. It is generally considered more suitable for external therapeutic procedures and industrial applications.

3.2 Ayurvedic Pharmacological Attributes (Rasa Panchaka)

The medicinal properties of Kankshi can be understood through the Ayurvedic concept of Rasa Panchaka.

- **Rasa (Taste):** Kashaya predominance with slight Amla undertone
- **Guna (Qualities):** Laghu, Ruksha, Tikshna
- **Virya (Potency):** Ushna
- **Vipaka (post-digestive effect):** Katu
- **Dosha Effect:** Primarily pacifies Kapha and Pitta while assisting in the regulation of Rakta Dhatu

These attributes explain its traditional use in conditions characterized by excessive secretions, inflammation, bleeding, and tissue disorders.

4. Shodhana (Purification) of Kankshi

The therapeutic effectiveness of Kankshi depends largely upon proper pharmaceutical processing. Ayurveda emphasizes that raw mineral substances should undergo specific purification procedures before medicinal use. These procedures help remove physical impurities, reduce undesirable effects, and improve therapeutic acceptability.

For Kankshi, the recommended purification method is Bharjana (controlled roasting). Unlike metallic substances that often require repeated heating and quenching cycles, alum undergoes a comparatively simple thermal process.

4.1 Method of Bharjana

The classical procedure involves the following steps:

1. Raw Kankshi crystals are cleaned and broken into smaller pieces.
2. The fragments are placed in an iron vessel or shallow pan.
3. Controlled heating is applied gradually.
4. During heating, the crystals liquefy due to the release of bound water.
5. Continued heating results in evaporation of moisture and expansion of the material.
6. A light, porous, white mass is obtained.
7. After cooling, the material is finely powdered and stored for therapeutic use.

4.2 Significance of Shodhana

The purification process is believed to:

- Reduce irritant properties.
- Improve stability of the drug.

- Enhance therapeutic efficacy.
- Facilitate better pharmaceutical handling.
- Increase suitability for internal and external administration.

From a modern scientific perspective, heating causes structural changes within alum crystals and removes moisture associated with the crystalline framework. These modifications may influence the physical and therapeutic behavior of the processed material.

5. Standardization and Quality Assessment

Ensuring the quality of Ayurvedic mineral preparations is essential for therapeutic success. Classical texts describe several tests that help determine whether Kankshi has been properly processed.

5.1 Traditional Parameters**Varitara**

Properly prepared powder should be light enough to spread over the surface of still water. This characteristic is considered an indicator of fine particle size.

Rekhapurnatva

When rubbed between the fingers, the powder should enter the fine creases of the skin. This demonstrates adequate fineness.

Nishchandrata

The preparation should be free from crystalline shine or luster. Absence of glitter indicates complete processing of the raw material.

5.2 Modern Evaluation Techniques

Contemporary analytical methods can be employed for further standardization:

- X-ray diffraction (XRD)
- Scanning electron microscopy (SEM)
- Transmission electron microscopy (TEM)
- Fourier transform infrared spectroscopy (FTIR)
- Elemental analysis

These techniques assist in evaluating particle characteristics, structural modifications, and chemical composition.

6. Pharmacological Actions and Therapeutic Properties

Kankshi possesses several pharmacological activities that support its extensive use in Ayurvedic practice.

6.1 Raktastambhaka (Hemostatic Action)

One of the most important therapeutic properties of Kankshi is its ability to control bleeding. Owing to its Kashaya (astringent) nature, it promotes constriction of tissues and helps reduce blood loss.

Traditionally, it is used in conditions such as:

- Epistaxis (nasal bleeding)
- Bleeding piles
- Menorrhagia
- Minor traumatic bleeding

The astringent action contributes to local tissue contraction and assists in achieving hemostasis.

6.2 Vranashodhana (Wound Cleansing)

Kankshi has long been utilized in wound management. It helps maintain cleanliness of the wound surface and assists in reducing excessive discharge.

Traditional texts describe its usefulness in:

- Chronic wounds
- Ulcerative lesions
- Non-healing sores
- Infected wounds

6.3 Vranaropana (Wound Healing)

Along with cleansing activity, Kankshi supports the healing process by creating a favorable local environment for tissue repair.

Benefits include:

- Reduction of excessive moisture
- Support of healthy granulation tissue formation
- Promotion of wound contraction
- Improvement of local tissue condition

6.4 Antimicrobial Activity

Scientific studies suggest that alum exhibits inhibitory effects against several microorganisms. This activity may contribute to its usefulness in oral infections, throat disorders, and wound care.

6.5 Kanthya Karma

Kankshi is frequently used as a gargle in disorders affecting the throat.

It may help in:

- Sore throat
- Pharyngitis
- Tonsillar inflammation
- Hoarseness of voice

Its astringent action assists in reducing local swelling and irritation.

7. Clinical Applications

Kankshi is employed both independently and as a component of various Ayurvedic formulations.

7.1 Gynecological Disorders

In Ayurvedic gynecology, Kankshi is utilized for conditions involving excessive discharge or bleeding.

Examples include:

- Asrigdara
- Yonisrava
- Excessive menstrual bleeding

Its Kashaya property is considered beneficial in controlling abnormal secretions.

7.2 Oral and Dental Disorders

Kankshi has traditionally been prescribed for:

- Mukhapaka (oral ulcers)
- Bleeding gums
- Gingivitis
- Halitosis

Mouth rinses and local applications containing Sphatika remain popular in clinical practice.

7.3 Dermatological Conditions

The drug is also used externally in various skin disorders characterized by discharge, itching, or inflammation.

Applications include:

- Eczema
- Excessive sweating
- Minor skin infections
- Chronic ulcers

7.4 Ear, Nose, and Throat Disorders

Kankshi preparations are employed in:

- Recurrent throat infections
- Tonsillitis
- Pharyngitis
- Nasal bleeding

7.5 Important Ayurvedic Formulations

Sphatika Bhasma

Purified and processed alum administered in appropriate doses according to classical recommendations.

Madhukadi Churna

A formulation used in disorders involving abnormal bleeding and excessive secretions.

Tuvarika Taila

An external preparation employed in certain chronic skin conditions and non-healing wounds.

8. Safety and Toxicological Considerations

The safety of Ayurvedic mineral medicines depends greatly on proper pharmaceutical processing and rational therapeutic use.

8.1 Importance of Proper Processing

Classical Ayurvedic texts repeatedly emphasize that inadequately processed mineral substances should not be administered therapeutically. Correct Shodhana minimizes undesirable properties and improves safety.

8.2 Potential Risks of Improperly Prepared Material

Use of improperly processed Kankshi may result in:

- Gastric irritation
- Burning sensation
- Mucosal discomfort
- Local tissue irritation

Therefore, quality control measures are essential during manufacturing.

8.3 Contemporary Safety Perspective

Available studies indicate that properly prepared and appropriately administered Kankshi demonstrates a favorable safety profile. Nevertheless, further toxicological and clinical investigations are required to establish comprehensive safety standards according to modern research protocols.

9. CONCLUSION

Kankshi (Sphatika) is a significant mineral drug described in Ayurvedic literature under the Uparasa category. Its extensive therapeutic applications in bleeding disorders, wound management, oral diseases, gynecological conditions, and throat disorders highlight its clinical importance.

The pharmaceutical process of Shodhana plays a crucial role in enhancing the safety and therapeutic utility of the drug. Classical Ayurvedic principles, supported by emerging scientific evidence, suggest that processed Kankshi possesses astringent, antimicrobial, wound-cleansing, and hemostatic properties.

Despite its long history of traditional use, additional experimental studies and well-designed clinical trials are needed to further validate its mechanisms of action, therapeutic efficacy, and safety profile. Continued interdisciplinary research may contribute to broader acceptance and integration of this valuable Ayurvedic mineral drug into evidence-based healthcare practices.

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