

Review Article



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“ROLE OF ANJANA (COLLYRIUM) IN OCULAR THERAPEUTICS: AN AYURVEDIC AND CONTEMPORARY REVIEW”

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ABSTRACT

Introduction: Ocular disorders have been a major concern since ancient times, significantly affecting quality of life. Ayurveda, the traditional Indian system of medicine, has provided detailed descriptions of ocular health and its management. Among the therapeutic measures, *Anjana* (collyrium) holds a unique place for the prevention and management of *Netra Roga* (eye diseases). Classical texts such as *Sushruta Samhita* and *Ashtanga Hridaya* elaborate on types, formulations, and indications of *Anjana*. **Methods:** This review systematically analyzed Ayurvedic classical texts, modern pharmacological evidence, and clinical research. Databases including PubMed, Scopus, and Google Scholar were searched using terms “Anjana,” “Ayurveda collyrium,” “ocular therapeutics,” and “Ayurvedic ophthalmology.” Articles published between 2000–2025 were considered, alongside relevant Sanskrit commentaries. Inclusion criteria focused on studies related to ocular benefits of *Anjana*, traditional formulations, and modern pharmacological validation. **Results:** *Anjana* is classified into *Lekhana* (scraping), *Ropana* (healing), and *Prasadana* (clarifying). Formulations such as *Sauviranjana*, *Rasanjana*, and *Eladi Anjana* are indicated in various conditions like *Abhishyanda* (conjunctivitis), *Timira* (refractive errors), and *Arma* (pterygium). Modern validation has shown antimicrobial, anti-inflammatory, antioxidant, and wound-healing properties of many ingredients like *Haridra*, *Yashtimadhu*, and *Triphala*. Clinical trials suggest *Anjana* promotes symptomatic relief in chronic conjunctivitis, computer vision syndrome, and dry eye disease. **Discussion:** Classical principles of *Anjana* resonate with modern pharmacological findings, bridging tradition with science. However, more standardized clinical studies, safety evaluations, and formulation optimization are necessary. **Conclusion:** *Anjana* remains a significant Ayurvedic intervention in ocular therapeutics, offering holistic management for eye health. Future translational research can establish its role as a complementary therapy in ophthalmology.

KEYWORDS: *Anjana*, Ayurveda, Collyrium, *Netra Roga*, Ocular therapeutics

INTRODUCTION

Ayurveda provides a holistic understanding of health and disease, including detailed descriptions of ocular disorders (*Netra Roga*)^[1]. Among the therapies for maintaining ocular health, *Anjana* (application of medicated collyrium) is one of the most frequently practiced and extensively described measures. It is said to preserve vision, alleviate symptoms, and prevent disease progression^[2-3].

Classical Ayurvedic texts such as the *Sushruta Samhita*, *Charaka Samhita*, and *Ashtanga Hridaya* highlight the classification of *Anjana* into *Lekhana*, *Ropana*, and *Prasadana*, each with specific therapeutic indications^[4-5]. Numerous herbal, mineral, and herbo-mineral formulations were prescribed for conditions such as *Abhishyanda* (inflammatory eye diseases), *Timira* (early refractive errors), and *Arma* (pterygium)^[6-7].

The aim of this review is to systematically analyze classical references of *Anjana*, correlate them with modern scientific evidence, and critically evaluate its role in ocular therapeutics^[8]. Objectives include: (i) to compile Ayurvedic references of *Anjana* and its applications, (ii) to assess pharmacological and clinical validation of its formulations, and (iii) to explore its relevance in present-day ophthalmic practice^[9-10].

MATERIALS AND METHODS

A comprehensive literature search was conducted between January–April 2025. Primary Ayurvedic sources included *Sushruta Samhita*, *Ashtanga Hridaya*, *Charaka Samhita*, and *Nighantus* (Ayurvedic lexicons). Secondary sources included commentaries like *Dalhana's Nibandhasangraha* and *Arundatta's Sarvanganasundara*^[11-12].

Databases searched were PubMed, Scopus, Web of Science, and Google Scholar with keywords: “*Anjana*,” “Ayurvedic collyrium,” “*Netra Roga*,” “ocular therapeutics,” and “Ayurvedic ophthalmology.”^[13] The inclusion criteria were studies on pharmacological activities of *Anjana* ingredients, clinical trials on Ayurvedic ophthalmic formulations, and reviews published between 2000–2025. Exclusion criteria included unrelated articles and studies lacking primary evidence. Both textual reviews and experimental/clinical studies were included to create a thematic synthesis^[14-15].

OBSERVATION AND RESULTS

1. Concept and Classification of *Anjana*

The concept of *Anjana* has been elaborated in the *Sushruta Samhita*, *Ashtanga Hridaya*, and subsequent Ayurvedic texts as a specialized therapy for ocular health. It is primarily defined as the application of medicated collyrium into the conjunctival sac with therapeutic or preventive intent. The rationale is to cleanse, pacify aggravated doshas, and restore clarity of vision.

Sushruta describes three major types of *Anjana*:

- *Lekhana Anjana* (scraping collyrium) – useful in Kapha-dominant conditions such as *Abhishyanda* (inflammatory eye disease), *Arjuna* (pinguecula), and other Kapha-related ocular congestion. Its function is to reduce secretions and clear obstructions.
- *Ropana Anjana* (healing collyrium) – indicated in ulcerative and degenerative conditions. It promotes epithelial regeneration, wound healing, and tissue repair.
- *Prasadana Anjana* (clarifying collyrium) – prescribed for daily use, enhancing ocular comfort, preventing strain, and maintaining clarity of vision.

In terms of application frequency, *Nitya Anjana* is preventive, practiced daily for ocular health, while *Vyadhi Anjana* is therapeutic, tailored to specific ocular diseases.

2. Classical Formulations of *Anjana*

A wide variety of *Anjana* formulations are mentioned in classical texts, broadly categorized as herbal, mineral, and herbo-mineral. Prominent examples include:

- *Sauviranjana*: A mineral-based preparation derived from *Rasanjana* (*Berberis aristata* extract). Used in chronic conjunctivitis, blepharitis, and corneal conditions.
- *Rasanjana with Madhu*: One of the most frequently prescribed *Anjana* combinations for inflammatory disorders such as *Abhishyanda*. Honey potentiates the soothing and antimicrobial activity.
- *Triphala Anjana*: Composed of *Haritaki* (*Terminalia chebula*), *Bibhitaki* (*Terminalia bellirica*), and *Amalaki* (*Emblica officinalis*). It is indicated for general strengthening,

- improving ocular clarity, and delaying degenerative changes.
- Eladi Anjana: Formulation containing *Ela* (*Elettaria cardamomum*) and other herbs, used to soothe eye irritation and inflammation.
- Haridra Anjana: Prepared with *Curcuma longa*, effective in allergic and infective ocular conditions.

3. Mode of Action in Ayurvedic Perspective

The pharmacodynamics of Anjana are deeply rooted in Ayurvedic principles:

- *Lekhana* acts by scraping excess Kapha, thereby reducing mucus discharge and ocular heaviness.
- *Ropana* promotes *Sandhana* (healing) by supporting re-epithelialization, similar to wound-healing agents.
- *Prasadana* maintains *Netra Prasada* (ocular clarity) by reducing strain and enhancing vision.

The process of collyrium application also ensures direct local action at the ocular surface, a concept now validated in modern ophthalmology where topical drugs bypass systemic metabolism.

4. Modern Pharmacological Correlates

Many ingredients of Anjana have been pharmacologically validated:

- *Berberis aristata* (Rasanjana): Rich in berberine, which demonstrates antimicrobial, antioxidant, and anti-inflammatory properties. Studies confirm berberine's ability to inhibit bacterial growth, reduce ocular surface inflammation, and protect against oxidative stress.
- Honey (Madhu): Proven antibacterial, hydrating, and wound-healing agent. It supports epithelial regeneration and relieves ocular discomfort in dry eye disease.
- *Triphala*: Exhibits strong antioxidant potential, delays cataract formation, reduces oxidative stress, and demonstrates antimicrobial activity against ocular pathogens.
- *Haridra* (*Curcuma longa*): Curcumin acts as a potent antioxidant and anti-inflammatory compound, shown to inhibit angiogenesis and

oxidative damage in experimental eye models.

- *Yashtimadhu* (*Glycyrrhiza glabra*): Possesses anti-inflammatory and demulcent action, suitable for soothing inflamed conjunctiva.

Thus, the therapeutic principles outlined in Ayurveda align with pharmacological activities described in modern science.

5. Clinical Evidence of Anjana in Ocular Disorders

Several clinical trials and observational studies have explored the role of Anjana:

- *Triphala* Eye Drops in Computer Vision Syndrome: A clinical trial demonstrated significant reduction in eye strain, redness, and fatigue in IT professionals. Improvements in tear film stability were observed.
- *Rasanjana* with Honey in Chronic Conjunctivitis: Reported to improve discharge, congestion, and ocular irritation. Patients experienced faster recovery compared to placebo groups.
- Honey-based Anjana in Dry Eye: Honey formulations improved tear secretion, ocular surface hydration, and reduced corneal epithelial damage.
- *Triphala* vs Artificial Tears: A comparative study found that *Triphala*-based Anjana was nearly as effective as artificial tear substitutes in improving ocular comfort.
- *Jatyadi Taila Anjana* in Non-Healing Corneal Ulcers: Preliminary studies showed reduction in ulcer size, symptomatic relief, and promotion of granulation.

6. Preventive Role of Anjana

Daily use of *Prasadana Anjana* is strongly advocated in Ayurveda for preventive eye care. Texts mention its role in delaying *Timira* (refractive errors) and preserving vision in the elderly. In modern terms, this translates to prevention of oxidative stress, digital eye strain, and maintenance of tear film integrity.

Nitya Anjana has particular relevance in today's era of digital overuse, air pollution, and lifestyle-induced ocular stress. Its holistic role aligns with preventive ophthalmology practices.

7. Post-application Regimen and Contraindications

Ayurveda prescribes specific post-Anjana care: patients are advised to avoid immediate exposure to smoke, dust, strong wind, and intense sunlight.



Contraindications include acute inflammatory states with severe pain, where application may aggravate symptoms.

Modern parallels include avoiding topical agents during acute keratitis or severe conjunctivitis until inflammation subsides.

8. Complications and Challenges

While herbal formulations are generally safe, mineral-based Anjana preparations containing heavy metals (lead, mercury, antimony) raise concerns of toxicity. Reports of conjunctival irritation and allergic reactions have been noted with improperly prepared formulations.

The absence of standardization in raw material quality, sterility, and particle size contributes to variability in safety and efficacy. These concerns demand strict adherence to Good Manufacturing Practices (GMP) and clinical validation.

9. Modern Validation and Integrative Scope

Several Ayurvedic Anjana formulations are now undergoing scientific validation:

- Triphala extracts are being studied for antioxidant and anti-cataract properties.
- Honey-based collyrium is being trialed as a natural alternative to artificial tears.
- Curcumin nano-formulations are emerging for ocular delivery, showing potential against age-related macular degeneration.

This demonstrates scope for integrating Anjana into complementary ophthalmic practice, particularly for chronic and lifestyle-related eye disorders.

10. Summary of Clinical Outcomes

The cumulative evidence indicates that:

- Symptomatic relief: Effective in reducing ocular irritation, discharge, and strain.
- Healing action: Promotes corneal and conjunctival repair in ulcers and abrasions.
- Preventive potential: Protects against oxidative stress and early degenerative changes.
- Adjunctive role: Complements modern therapies, reducing dependency on synthetic lubricants and antimicrobials.

Thus, Anjana continues to hold promise as a safe, preventive, and therapeutic measure in ocular health.

DISCUSSION

Anjana therapy represents an intersection of traditional Ayurvedic knowledge and modern

ophthalmology. Its classification into *Lekhana*, *Ropana*, and *Prasadana* reflects a sophisticated understanding of pathophysiology in ocular disorders. For example, *Lekhana Anjana* for Kapha disorders aligns with modern antimicrobial and keratolytic actions, while *Ropana Anjana* corresponds to regenerative and anti-inflammatory therapies^[16].

Modern pharmacological studies have validated many ingredients of Anjana. *Berberine* from Rasanjana demonstrates broad-spectrum antimicrobial and antioxidant properties. *Triphala* offers free radical scavenging and protective effects against cataractogenesis. Honey-based Anjana formulations parallel artificial tear substitutes in hydrating and antimicrobial effects^[17].

Clinical studies, though limited, support the efficacy of Anjana in conditions such as chronic conjunctivitis, dry eye, and computer vision syndrome. This suggests potential integration of Anjana as a complementary therapy in ophthalmology. However, challenges remain regarding safety and standardization. Mineral-based preparations require strict toxicity evaluation, and GMP-based production is essential^[18-19].

Future research must focus on standardizing formulations, conducting RCTs with larger sample sizes, and exploring nanotechnology-based drug delivery systems for Anjana. The preventive aspect of *Prasadana Anjana* also opens possibilities for promoting ocular health in the digital era. Thus, Ayurveda's Anjana can bridge ancient ophthalmic wisdom with modern therapeutic needs^[20].

CONCLUSION

Anjana (collyrium) has been a cornerstone of Ayurvedic ocular therapeutics, with detailed descriptions in classical texts for prevention and management of *Netra Roga*. Its classification into *Lekhana*, *Ropana*, and *Prasadana* highlights its versatile applications ranging from antimicrobial to regenerative and preventive therapies.

Modern pharmacological validation of ingredients like Rasanjana, Triphala, Haridra, and Madhu confirms their antimicrobial, antioxidant, and wound-healing properties, establishing a scientific basis for Anjana. Clinical studies demonstrate promising results in conditions like conjunctivitis, dry eye, and computer vision syndrome. Preventive use of *Prasadana Anjana* also resonates with the modern concept of eye care in high-risk populations such as

screen users.

Despite its potential, challenges such as formulation standardization, sterility, and toxicity assessment of mineral-based Anjana need careful evaluation. Translational research and well-designed clinical trials are crucial to integrate Anjana into evidence-based ophthalmology.

In conclusion, Anjana remains a timeless Ayurvedic intervention that offers preventive, therapeutic, and supportive care for ocular health. With scientific validation and modernization, it can serve as a complementary approach to modern ophthalmic therapeutics, thereby improving accessibility, affordability, and sustainability of eye care.

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