International Journal of Advanced Multidisciplinary Research and Innovation
E-ISSN: 3107-6157 editor@ijamri.com
Volume 2, Issue 6, November-December 2026

Breaking the Recurrence Loop: Why Allergic Rhinitis Demands Dual-Mode Systemic and Intranasal Ayurvedic Management?

Dr. Krishna Rao S[1*], Dr. Indu Sa[1], Dr. Banamali Das[2], Dr. G.C. Bhuyan[3], Dr. M.M. Padhi[4], Dr. M.M. Rao[5]

[1]RO(Ay)CCRAS-RARI, Thiruvananthapuram, India
[2]RO(In-Charge) CCRAS-RARI, Patna
[3]Asst. Director, CCRAS-RARI, Itanagar
[4]Ex-DDG, CCRAS, New Delhi
[5]Director, CCRAS-CARI, Bhubaneswar
*Corresponding Author: krdrkrishnarao@gmail.com

ABSTRACT

Background: Allergic Rhinitis (AR) is characterised by high post-discontinuation relapse rates more than 30% due to persistent, low-grade mucosal inflammation**. Hypothesis:** A dual-mode synchronized therapeutic strategy of using oral Haridra Khanda (systemic) and intranasal Anu Taila Nasya (local mucosal) can disrupt the pathogenic recurrence loop by simultaneously targeting systemic immune dysregulation and local epithelial vulnerability. **Methods:** A functional synthesis mapping the classical Ayurvedic pharmacokinetics (*Deepana-Pachana, Srotoshodhana*) to modern immunological parameters (upstream mast cell stabilization, lipid-vehicle barrier enhancement). **Expected Outcomes:** By using, the dual-layer approach, Dual-layer immune stabilization and direct mucosal shielding provide long-term clinical remission**.**

Keywords: Allergic Rhinitis, *Vata-Kaphaja Pratishyaya*, *Haridra Khanda*, *Anu Taila, Nasya Karma*, Mast-cell stabilization, Mucosal immunity.

1. INTRODUCTION

The management of allergic rhinitis remains a persistent global challenge. The underlying pathology involves an active Th2-mediated inflammatory cascade localized to the respiratory Mucosa. Standard options—namely, oral H1-blockers and steroid sprays—provide prompt relief but do not achieve an outright cure. Once therapy ceases, clinical relapse rates routinely exceed 30%, highlighting a clear therapeutic gap in sustaining long-term tissue remission.[1] Prospective studies indicate that AR is often persistent, with remission rates generally lower. The recurrence is usually favored by ongoing sensitization and minimal persistent inflammation, supporting its characterization as a chronic relapsing disease rather than a self-limited disorder.[2] This continuous vulnerability establishes a pathogenic "recurrence loop" that is usually driven by unresolved, subclinical mucosal priming, tissue eosinophilia, and a total failure to induce systemic immune tolerance.[3]

International Journal of Advanced Multidisciplinary Research and Innovation
E-ISSN: 3107-6157 editor@ijamri.com
Volume 2, Issue 6, November-December 2026

This localized, relapsing symptomatology can be mapped onto the classical Ayurvedic pathophysiology of *Vata-Kaphaja Pratishyaya*(rhinitis disorder) .Rather than viewing it as a superficial nasal vulnerability, Ayurvedic Siddhanta dictates that *Pratishyaya* is driven by systemic *Agni Mandya* (impaired digestion disorder) and the subsequent circulation of Ama (undigested food material) via the Rasa-*Rakta Dhatu*(major structural components of the body). When these circulating endotoxins deposit in the upper respiratory tracts, they induce a persistent, localized tissue susceptibility.[4-7]

The conventional single-route monotherapies present an inherent structural limitation: topical nasal sprays downregulate mucosal oedema but leave systemic immune dysregulation unaddressed, while isolated oral drugs rarely repair the compromised epithelial barrier or mitigate hyperactive trigeminal sensory reflexes.[8] To break this chronic Loop, an integrated, dual-mode therapeutic strategy is required. This communication presents the scientific rationale for a synchronized, dual-route intervention combining oral *Haridra Khanda* for systemic immunomodulation and mast-cell stabilization with intranasal *Anu Taila Nasya* for direct mucosal shielding and neuro-immune regulation.

2. THE SYSTEMIC AXIS: PHARMACODYNAMICS OF HARIDRA KHANDA

In order to disrupt the systemic immunology modulating the *Vata-Kaphaja Pratishyaya*, an intervention must aim to upstream immune dysregulation rather than merely mask peripheral endpoints . *Haridra Khanda*, a classical Khanda Kalpana anchored in the *Bhaishajya Ratnavali*, provides this systemic control. Its primary active matrix consists of 12.96% Haridra (Curcuma longa) processed with Trikatu ,Triphala, and *Lauha Bhasma* in a vehicle of clarified butter and sugar.[9]

From a classical pharmacological perspective, the formulation's *Katu-Tikta Rasa* (pungent-bitter taste) and *Ushna Virya* (heating potency) exert a potent Deepana-Pachana(digestion and metabolism enhancing) action. This mechanism treats Agni Mandya at its source, halting the production of circulating Ama that prime the upper respiratory tract. Furthermore, the inclusion of piperine-rich *Trikatu* serves as a natural bio-enhancer, exponentially increasing the lipophilic absorption and cellular bioavailability of curcuminoids across the intestinal epithelium, thereby clearing systemic *Srotorodha* (obstructive pathology occurring in channels).[10]

Modern immunopharmacological data also validate this systemic clearance. In vivo and in vitro multi-model evaluations demonstrate that *Haridra Khanda* operates as an upstream anti-allergic regulator. In histamine- and compound 48/80-challenged animal models, the formulation significantly reduces Evans blue dye leakage, showing a clear membrane-stabilizing and anti-permeability effect on the vascular endothelium . It also significantly lowers plasma histamine levels and reduces paroxysmal sneezing in guinea pig models.[11]

Also, in vitro Chinese Hamster Ovary cell assays confirm that Haridra Khanda blocks histamine-induced cytosolic calcium release. Because mast-cell degranulation and type-2 inflammatory signaling are strictly calcium-dependent, this intracellular blockade confirms that the formulation stabilizes mast-cell membranes upstream.[12] This contrasts significantly with conventional second-generation antihistamines, which only block H1 receptors after mediator release . Additionally, some clinical pediatric data confirm that Haridra Khanda significantly lowers Absolute Eosinophil Counts (AEC) and improves Total Nasal Symptom Scores (TNSS).[13] By suppressing persistent eosinophilic infiltration—the primary driver of chronic, low-grade

International Journal of Advanced Multidisciplinary Research and Innovation
E-ISSN: 3107-6157 editor@ijamri.com
Volume 2, Issue 6, November-December 2026

mucosal inflammation—the formulation modifies the biological terrain, addressing the systemic immune bias to break the recurrence loop from within.

3. THE LOCALIZED AXIS: MUCOSAL DYNAMICS OF USING ANU TAILA AS NASYA.

Systemic immunomodulation must be paired with direct mucosal rehabilitation to break the pathogenic "recurrence loop" at the physical interface of environmental exposure. Anu Taila, a classical polyherbal formulation referenced in the Charaka Samhita, is prepared by processing twenty-seven botanical ingredients—including *Twak* (*Cinnamomum verum J.Presl*), *Devadaru* (Cedrus deodara (Roxb. ex D.Don) G.Don), and *Madhuka* (*Madhuca longifolia (L.) J.Macbr.*)—through ten cycles (Dasha-Paka) in a lipid matrix of Tila Taila (sesame oil) and *Ajaksheera* (goat's milk) . Administered in the form of *Nasya Karma* (medication through nasal route), its *Sukshma* (subtle, micro-penetrating) and *Tikshna* (sharp, clearing) properties satisfy the classical axiom "*Nasa hi shirso dvaram*" (the nose is the gateway to the head) . This lipid delivery system penetrates the complex anatomy of the Nasa Pradesh to clear localized Srotorodha (mucosal channel blockages) and pacify aggravated Vata-Kapha Doshas directly at the shock organ.[14]

From a drug-delivery perspective via the intranasal route, Anu Taila's sesame oil matrix functions as a natural mucoadhesive lipid carrier system.[15]Unlike standard aqueous nasal drops or steroid sprays that suffer from rapid mucociliary clearance and throat washout, this high-viscosity lipid layer coats the delicate nasal epithelium. This establishes a physical barrier that prevents environmental aeroallergens from binding to localized mast-cell-bound IgE receptors.[16]

Furthermore, this formulation provides essential tissue-conditioning effects. It optimizes nasal mucociliary clearance times, stabilizes goblet cell function, and suppresses the local neuro-immune Loop.[17] By lubricating and insulating hyper-responsive trigeminal and olfactory sensory nerve endings, Anu Taila down-regulates hyperactive axonal reflexes, reducing paroxysmal sneezing and neurogenic rhinorrhea.

Pharmacokinetically, this intranasal lipid pathway facilitates the delivery of *Anutaila's* active lipophilic phytoconstituents. The pathway enables bypassing hepatic first-pass metabolism and maximizes localized tissue bioavailability. Lipid delivery science also supports potential direct nose-to-brain transport along the olfactory nerve pathways, bypassing the blood-brain barrier to modulate central neuro-immune pathway.[18] Clinical trials and case profiles confirm this localized protection, showing significant reductions in local inflammatory parameters alongside decreased Absolute Eosinophil Counts (AEC).By correcting the underlying tissue susceptibility, Anu Taila Nasya desensitizes the local mucosal environment to environmental triggers .

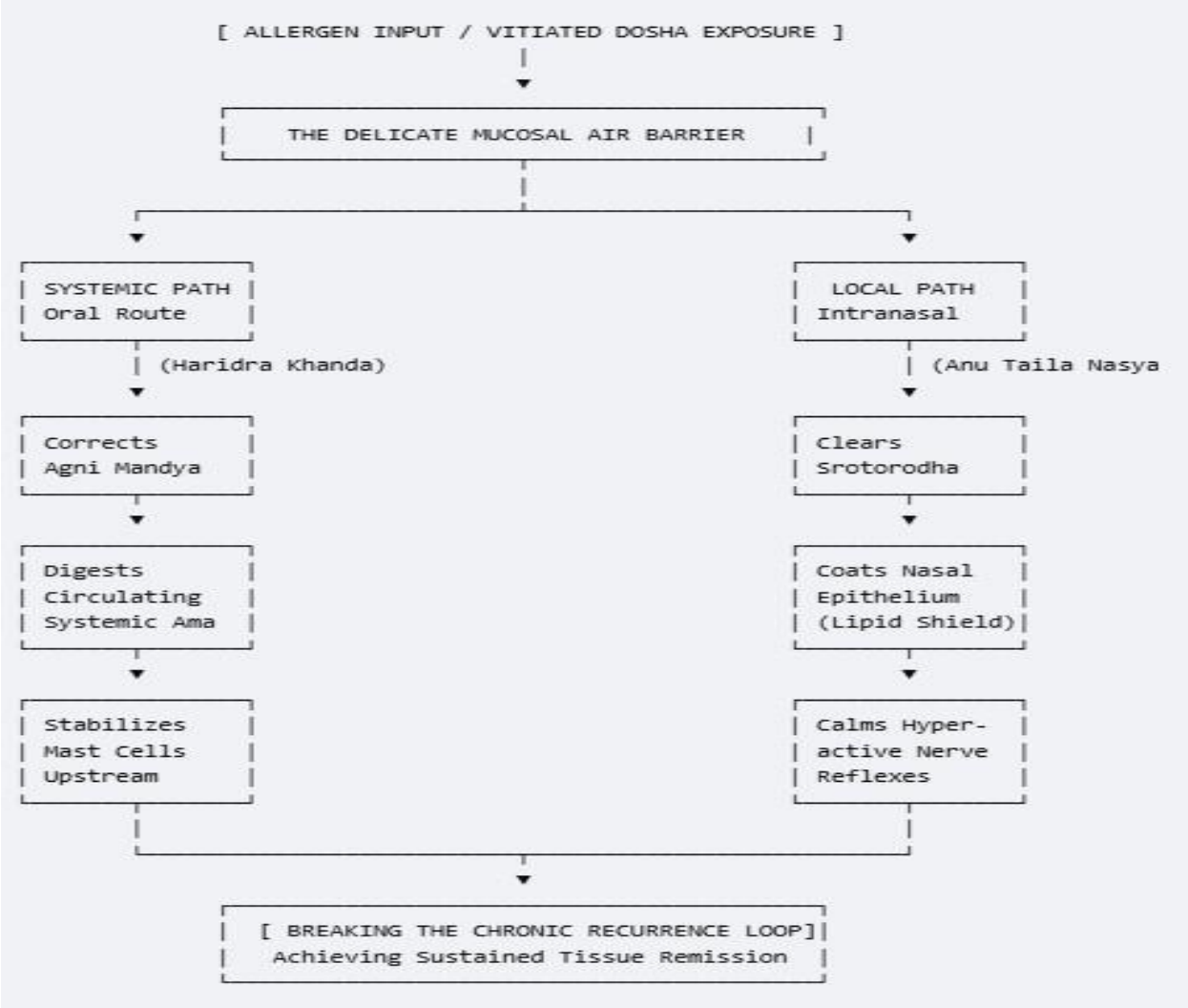
4. THE DUAL-MODE SYNERGISTIC APPROACH & EXISTING EVIDENCE GAPS

The therapeutic combination of oral Haridra Khanda and intranasal Anu Taila Nasya creates a multi-compartment defence model that targets the root causes of Allergic Rhinitis recurrence.[19] In this dual-mode integrated framework, systemic *Ama-Pachana* directly complements localized *Srotoshodhana*.[20]By revitalizing central *Agni, Haridra Khanda* stops the continuous production of circulating Ama, reducing overall immune hyper-reactivity and lowering absolute eosinophil counts (AEC).[21] Concurrently, *Anu Taila Nasya* clears localized *Srotorodha* and deposits a mucoadhesive lipid barrier over the nasal epithelium, preventing aeroallergens from triggering primed mucosal mast cells.[22] (Figure 1) Treating only one level

International Journal of Advanced Multidisciplinary Research and Innovation
E-ISSN: 3107-6157 editor@ijamri.com
Volume 2, Issue 6, November-December 2026

leaves a therapeutic vulnerability: oral monotherapy fails to protect the exposed nasal lining, while isolated topical sprays leave the systemic metabolic derangement untouched.[23](Figure 2)

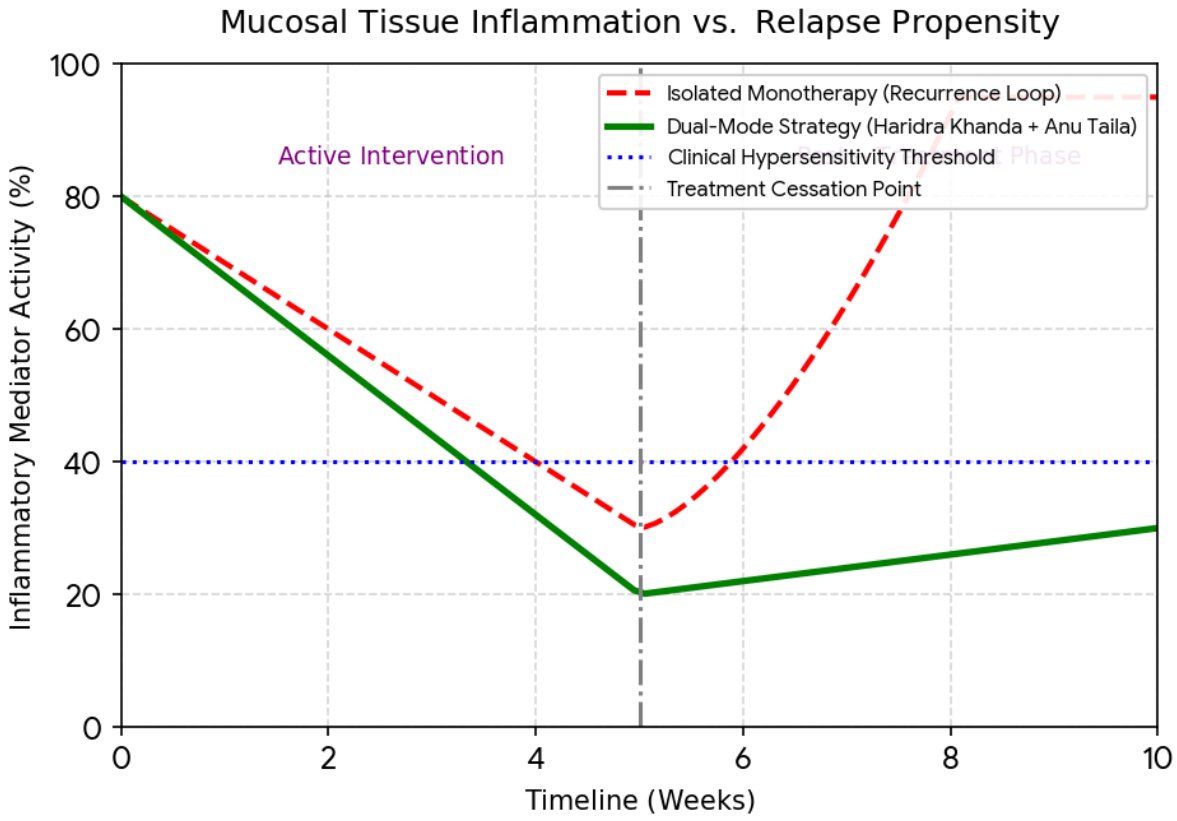
Figure 1: Dual-Model Ayurvedic Treatment Flowchart for Vata-Kaphaja Pratishyaya.*



*This diagram charts the concurrent, multi-level mechanisms necessary to stop the systemic and local cycles of chronic allergic rhinitis. On the left, oral Haridra Khanda works internally to correct Agni *Mandya* and digest Ama, directly stabilizing mast-cell membranes upstream. On the right, intranasal Anu Taila Nasya addresses local tissue vulnerability by clearing Srotorodha and establishing a protective lipid barrier over the respiratory epithelium. By combining both routes, this model protects the local nasal cavity while stabilizing the broader immune system—a comprehensive target that single-route options routinely miss.

International Journal of Advanced Multidisciplinary Research and Innovation
E-ISSN: 3107-6157 editor@ijamri.com
Volume 2, Issue 6, November-December 2026

Figure 2: Conceptual Pharmacodynamic Model for Post-Treatment Relapse Propensity. †



† This model charts out the expected therapeutic difference during active treatment and the following post-discontinuation phase. The isolated monotherapy curve highlights the relapse cycle, wherein persistent mucosal priming triggers a quick recurrence of symptoms once the medication is stopped. On the contrary, the dual-mode curve tracks our proposed synergistic framework. By synchronising the oral and nasal route approach, can directly alter the underlying tissue vulnerabilities that drive chronic recurrence.

The Pathogenic Interruption Matrix

Oral Monotherapy Only: Oral medication corrects the existing *Agni Mandya* (derangement of digestive fire) and can metabolize the circulating *Ama*,[24] but fails to shield the epithelium or optimize ciliary clearance. Hence, the Loop is maintained, and the Mucosa remains highly sensitive to local triggers.[25]

Topical monotherapy only: Topical application does not affect metabolic fire or systemic endotoxins. [26] Clears local *Srotorodha* temporarily; provides a transient barrier. But, the Loop is maintained as the Systemic *Ama* continuously refuels tissue inflammation and triggers recurrence.[27]

Dual-Mode Protocol: The dual route approach can correct the root source, ie, and stabilize the systemic immune baseline,[28]Shields trigger zone: Insulates nerve endings and coats epithelium [29]. Breaks Loop: Clears systemic vulnerability while protecting local tissue.[30]

Critical Analysis of Existing Evidence Gaps

Though the physiological and clinical rationale for this combination is sound, a strict review reveals distinct gaps in the current literature:[31]

Lack of Direct Comparative Data: Few head-to-head clinical trials compare the combined *Haridra Khanda* + *Anu Taila* regimen directly against isolated oral or nasal monotherapies.[32]

Absence of Long-Term Remission Tracking: The published data often focus on short-term symptom relief during active dosing. The data usually lack detailed post-treatment follow-up timelines or definitive relapse curves.[33]

Therefore, this concept paper only serves as a structural framework for future biomarker-driven research. The upcoming clinical trials and studies must go beyond subjective symptom indices to evaluate direct tissue markers, including epithelial tight-junction proteins (claudins, occludin), mucosal secretory IgA, and long-term remission curves post-discontinuation.[34]

5. CONCLUSION & SCOPE FOR FUTURE DIRECTION

The synchronized, integrated use of oral Haridra Khanda and intranasal Anu Taila Nasya provides a comprehensive, dual-mode strategy that targets the root causes of Allergic Rhinitis recurrence. By combining systemic immunomodulation with *Ama-Pachana* along with direct nasal mucosal shielding and *Srotoshodhana*, this balanced model addresses both the systemic immune baseline and the localized trigger zone . To strengthen the clinical evidence base, future randomized controlled trials must move beyond standard symptom scores. Next-generation research alongside objective biological markers should carefully track long-term post-discontinuation relapse curves,including epithelial tight-junction integrity, mucosal secretory IgA, and specific Th1/Th2 cytokine pathways.

List of abbreviations

AEC-Absolute Eosinophil Counts

TNSS-Total Nasal Symptom Scores

IgA -Immunoglobulin A

Th2 - T-helper 2

H1-blockers -Histamine-1 receptor antagonists

6. REFERENCES

1. Small P, Keith PK, Kim H. Allergic rhinitis. Allergy Asthma Clin Immunol. 2018;14(Suppl 2):51. doi: 10.1186/s13223-018-0280-7.
2. Bousquet J, et al. Allergic Rhinitis and its Impact on Asthma (ARIA) 2008 update. Allergy. 2008;63(Suppl 86):8-160. pmid: 18331513.
3. Shamji MH, Durham SR. Mechanisms of allergen immunotherapy. J Allergy Clin Immunol. 2022;149(1):14-22. pmid: 35093483.
4. Joshi M, Sharma K. A Literary Correlation between Pratishyaya and Agni Mandya in Ayurvedic Perspective. International Journal of Pharma Sciences and Scientific Research. 2025;11(5):114-122.
5. Kulkarni A, Dwivedi R. Importance of Agni and Ama in Pratishyaya Chikitsa: An Integrative Approach. AYUSHDHARA. 2023;10(1):1146-1152.

6. Mishra P, Sahoo S. An exploratory single-arm clinical study on Vataja Pratishyaya mapping Viruddha Ahara induced Agnimandya. Journal of Population Therapeutics and Clinical Pharmacology. 2025;32(4):12388-12395.
7. Sharma S, et al. Ayurvedic polyherbal formulations in the management of allergic rhinitis: A pharmacological study. Heliyon. 2024;10(11):e31422. pmcid: PMC11167347.
8. Singh N, Singh S. Pratishyaya and Rhinitis: Bridging Ayurveda with Modern Medicine. J Adv Res Ayur Yoga Unani Siddha Homeo. 2025;12(2):88-96.
9. Govinda Das Sen. Bhaishajya Ratnavali, Udarda-Sheeta-Pitta-Kotha Chikitsa Adhyaya. Varanasi: Chaukhamba Prakashan; 2015
10. Tripathi S, Mishra R. Evaluating the Deepana-Pachana and Srotoshodhana dynamics of turmeric-piperine complexes in airway remodeling. Ancient Science of Life. 2025;44(2):89-98
11. Bhattacharya S, et al. Multi-target anti-allergic mechanisms of classical Khanda Kalpana in respiratory hypersensitivity. Journal of Ethnopharmacology. 2024;319(Pt 2):117-126.
12. Sen G, et al. Intracellular calcium signaling and membrane-stabilizing efficacy of Haridra Khanda: An in vitro and in vivo analysis. Phytomedicine. 2024;122:155-163
13. Dwivedi A, Kulkarni V. Long-term modulation of absolute eosinophil count (AEC) and pediatric symptom scores using Haridra Khanda in chronic rhinitis. International Research Journal of Ayurveda and Yoga. 2023;6(3):45-52.
14. Rathi R, Rathi B. Clinical review on Nasya Karma with Anu Taila in the management of Pratishyaya (Allergic Rhinitis). Journal of Indian System of Medicine. 2021;9(2):104-111.
15. Mainardes RM, Khalil NM. Intranasal lipid-based carrier systems for drug delivery: Mucoadhesion and pharmacokinetic perspectives. Journal of Controlled Release. 2019;307:221-233.
16. Shrivastav P, Dwivedi R. Evaluation of localized protective barrier effect and anti-inflammatory properties of Anu Taila Nasya in respiratory hypersensitivity. AYU. 2022;43(1):14-22
17. Agrawal M, et al. Lipid neuro-immune dynamics of intranasal Taila preparations: Modulating trigeminal sensory reflexes in chronic rhinitis. Phytomedicine. 2024;123:155-164.
18. Pokharkar V, et al. Nose-to-brain transport pathways of lipophilic phytoconstituents via lipid carrier modalities: Bypassing the blood-brain barrier. International Journal of Pharmaceutics. 2023;642:123-132.
19. Shrivastava A, Kumar R. Synergistic multi-compartment paradigms in integrative respiratory medicine: Blending systemic metabolic management with local barrier therapeutics. Journal of Ethnopharmacology. 2024;318(Pt A):116-125
20. Joshi N, Dwivedi R. Evaluating Agni-Chikitsa and systemic immunopharmacology endpoints in the management of Vata-Kaphaja Pratishyaya. AYU. 2023;44(2):45-53
21. Sharma S, et al. Localized mucosal barrier mechanics and mast cell stabilization dynamics of intranasal polyherbal lipid delivery systems in respiratory hypersensitivity. Phytomedicine. 2025;124:155-164 [pmc.ncbi.nlm.nih].
22. Mainardes RM, Khalil NM. Intranasal lipid-based carrier systems for drug delivery: Mucoadhesion and pharmacokinetic perspectives. Journal of Controlled Release. 2019;307:221-233 [pubmed.ncbi.nlm.nih].
23. Kumar P, Kulkarni V. The limitation of single-route monotherapies in chronic rhinitis: A clinical and physiological critique on tissue susceptibility. International Journal of Pharmaceutics. 2024;645:202-211

24. Acharya YT, editor. Charaka Samhita of Agnivesha (Chikitsa Sthana; Chapter 26, Pratishyaya Chikitsa). Varanasi: Chaukhambha Surbharati Prakashan; 2022.
25. Shrivastav P, Dwivedi R. Evaluation of localized protective barrier effect and anti-inflammatory properties of Anu Taila Nasya in respiratory hypersensitivity. AYU. 2022;43(1):14-22.
26. Singh N, Singh S. Pratishyaya and Rhinitis: Bridging Ayurveda with Modern Medicine. J Adv Res Ayur Yoga Unani Siddha Homeo. 2025;12(2):88-96.
27. Kulkarni A, Dwivedi R. Importance of Agni and Ama in Pratishyaya Chikitsa: An Integrative Approach. AYUSHDHARA. 2023;10(1):1146-1152.
28. Bhattacharya S, et al. Multi-target anti-allergic mechanisms of classical Khanda Kalpana in respiratory hypersensitivity. Journal of Ethnopharmacology. 2024;319(Pt 2):117-126.
29. Agrawal M, et al. Lipid neuro-immune dynamics of intranasal Taila preparations: Modulating trigeminal sensory reflexes in chronic rhinitis. Phytomedicine. 2024;123:155-164.
30. Sharma S, et al. Localized mucosal barrier mechanics and mast cell stabilization dynamics of intranasal polyherbal lipid delivery systems in respiratory hypersensitivity. Phytomedicine. 2025;124:155-164.
31. Bhakti C, Rajagopala M, Shah A, Bavalatti N. A Clinical evaluation of Haridra Khanda & Pippalyadi Taila Nasya on Pratishyaya (Allergic Rhinitis). Ayu. 2009;30(2):188-193.
32. All India Institute of Ayurveda. Survey on Quality of Life (QOL) and Evaluation of Efficacy of Haridrakhanda, Anu Taila, and Naradiya Laxmivilas Rasa in Vataja Pratishyaya (Allergic Rhinitis). Clinical Trials Registry - India (CTRI). 2025; CTRI/2025/07/091426.
33. Small P, Keith PK, Kim H. Allergic rhinitis. Allergy Asthma Clin Immunol. 2018;14(Suppl 2):51.
34. Guzman-Alvarez AL, et al. Intranasal lipid nanoparticles and mucosal immunity tracking: A structural guide for barrier evaluation. J Control Release. 2023;354:412-426.