

**CLINICAL EFFICACY OF NIMBA BEEJ TAILA PRATIMARSHA NASYA IN CASES OF  
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DOI: <https://doi.org/10.5281/zenodo.19345349>

**How to cite this Article:** \*<sup>1</sup>Dr. Archana Yadav, <sup>2</sup>Dr. Varun Pandey, <sup>3</sup>Prof. Anjana Dwivedi, <sup>4</sup>Lecturer Dr. Anant Krishna (2026). Clinical Efficacy Of Nimba Beej Taila Pratimarsha Nasya In Cases Of Akala Palitya. World Journal of Pharmaceutical and Medical Research, 12(4), 207–213.

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Article Received on 03/03/2026

Article Revised on 23/03/2026

Article Published on 01/04/2026

**ABSTRACT**

Lustrous, dark hair represents a significant cosmetic ideal, contributing substantially to individual confidence. Within the Ayurvedic paradigm, hair is conceptualized as a *Upadhatu* of the *Asthi dhatu*, with its development traceable to the seventh gestational month. Premature greying, termed *Palitya*, presents a common concern. While greying associated with advancing age (*Kalajaneet Palitya*) is a natural phenomenon, premature onset often correlates with chronic stress, environmental pollution, dietary modifications, and smoking. *Nimba Beej Taila* mentioned in *Sharangdhar Samhita (Madhyam Khand)*<sup>[1]</sup>, *Vang Sen (Kshudra Rogadhikar)*<sup>[2]</sup>, *Vrunda Madhav (Kshudra Rogadhikar)*<sup>[3]</sup> and in *Bhaishajya Ratnavali (Kshudraroga chikitsa)*<sup>[4]</sup> for the treatment of *Akala Palitya*.. A total of 30 patients were selected from OPD and IPD of State Ayurvedic Medical College and Hospital, Lucknow after fulfilling inclusion and exclusion criteria randomly. All 30 patients were included in a single group and given 90 days of *Pratimarsha Nasya*. In the present study it was observed that, though there was significant result in *Akala Palitya* and associated symptoms.

**KEYWORDS:** *Akala Palitya, Nimba Beej Taila, Nasya Karma.*

**INTRODUCTION**

Within the Ayurvedic framework, *Akala Palitya* is classified as a *Rasapradoshaj Vyadhi*, primarily attributed to vitiated *Pitta dosha*. Contemporary trends indicate a concerning rise in the prevalence of premature hair greying (*Akala Palitya*), a condition traditionally observed in midlife but now increasingly manifesting in individuals as young as their early twenties. Modern contributing factors include chronic stress, lifestyle, environmental pollution, dietary modifications, and smoking. The pigmentation process is governed specifically by *Bhrajak pitta*, responsible for skin and hair color, analogous to melanocyte activity and melanin production. Dysregulation of *Bhrajak pitta* is posited to lead to insufficient melanin synthesis, resulting in premature depigmentation. Initial management attempts

often involve ineffective home remedies or topical applications, driving increased reliance on chemical hair dyes. These synthetic alternatives, however, frequently damage hair quality. Ayurveda proposes *Nasya* (nasal administration of medicated oils) as a primary therapeutic intervention for *Palitya*, alongside specific yoga practices described in classical texts, presenting a potential avenue for safer and more holistic management.

**AYURVEDIC CONCEPT**

In Ayurveda, *Palitya* (hair greying) is classified as a *Kshudra roga* (minor disease), categorized primarily into two types: *Akala Palitya* (premature greying) and *Kala Palitya* (senile greying). The pathogenesis of premature greying is predominantly attributed to an excess of the *Ushna* (hot) *guna* inherent to *Pitta dosha*. Furthermore,

the classical text *Astanga Hridaya* provides a detailed framework for *Palitya*, classifying subtypes based on the predominance of the vitiated *dosha(s)*: *Vataja*, *Pittaja*, *Kaphaja*, *Dwandaja* (involving two doshas), and *Tridoshaja* (involving all three doshas).<sup>[5]</sup> This etiological classification is foundation for understanding the diverse presentations of *Palitya* and guiding targeted therapeutic interventions.

#### DEFINITION HETU

S. NO.	NIDANA	
1	<i>Aharaja Hetu</i> (Dietary)	Excess intake of sour ( <i>amla</i> ), salt ( <i>lavana</i> ), pungent ( <i>tikshna</i> ), hot ( <i>ushna</i> ), light ( <i>laghu</i> ), <i>pinyaka</i> , <i>kulathha</i> (horse gram), mustard ( <i>sarshapa</i> ), linseed ( <i>atasi</i> ), green vegetable ( <i>harita shaka</i> ), fish ( <i>matsya</i> ), goat ( <i>aja</i> ), sheep ( <i>avika</i> ), curd ( <i>dadhi</i> ), takra ( <i>butter milk</i> ), <i>kurchika</i> , water of curd ( <i>mastu</i> ), <i>suravikara</i> (type of sour alcohol) and <i>amla phala</i> (sour fruits), etc. Deficiency of Iron, Copper, vitamin B12, Calcium & Vitamin D3.
2	<i>Viharaaja Hetu</i> (life style)	Over indulgence in physical exercise, exertion, awakening during night. Excessive exposure to sunlight, smoking, intake of vitiated air and fast ( <i>upavasa</i> ).
3	<i>Manasika Hetu</i> (Psychological)	Excessive anger ( <i>Krodha</i> ), grief ( <i>Shoka</i> ), fear ( <i>Bhaya</i> ) and mental stress ( <i>mansika shrama</i> ).

#### SAMPRAPTI

According to Ayurvedic pathophysiology, *Palitya* (premature greying) arises from a cascade initiated by *Aahara* (detrimental dietary habits), *Vihara* (lifestyle factors), and *Manasika* (psychological stressors) *Hetu*. These factors collectively provoke the vitiation of *Pitta dosha*, characterized by an excess of its inherent *Ushma* (heat property). This heightened internal heat specifically disrupts *Bhrajaka Pitta*, the sub-dosha governing skin and hair pigmentation (analogous to melanin function). The vitiated *Ushma* is then carried throughout the body by the mobilizing force of *Vata dosha*. Concurrently, the accumulation and lodging of *Kapha dosha* within the hair follicles creates an environment conducive to pathology. The combination of transported *Ushma* and stagnant *Kapha* leads to *Paka* (inflammation or pathological heat) within the follicle itself. This inflammatory process ultimately manifests as the discoloration of the hair shaft, clinically recognized as *Palitya*.<sup>[7]</sup>

#### MODERN CONCEPT OF PALITYA

The presence of healthy hair is a culturally ubiquitous symbol of vitality and youthfulness. Although its biological purpose in humans is less defined than in other species, hair undeniably functions as a powerful aesthetic asset and a medium for non-verbal communication. Hair color and style are pivotal in shaping physical appearance. The perception of greying as a sign of aging means that premature canities (PGH) can exert a substantial negative impact on self-esteem. The chronology of canities exhibits racial variation; it is defined as premature if occurring before 20 years of age in Caucasians and before 30 years in Blacks, though a consensus definition for Asian cohorts is absent. On average, greying begins in the mid-thirties for Caucasians (34 ± 9.6 years) and the mid-forties for Black individuals (43.9 ± 10.3 years), with a significant

Shoka Shrama Krodha Kritah Shariroshma Shirogata |  
Keshan Sa Dosha Pachati Palitam Sambhavatyata ||<sup>[6]</sup>

The heat of the body aggravated by grief, exertion and anger moving on to the head and getting mixed with the *Doshas*, *Paka* the hairs and produces the disease *Palita*.

proportion (6-23%) of the population displaying 50% greying by the age of 50.<sup>[8]</sup> The pathophysiological model for canities centres on melanocyte depletion. In chronological (senile) canities, this is viewed as an exhaustion of replicative potential. The mechanism of premature canities, however, is more complex, implicating a genetically susceptible melanocyte reservoir prone to early failure or dysfunctional activation/migration, with potential modulation by environmental triggers, inflammatory pathways, and psychological stress.

#### AIMS AND OBJECTIVES

The present study is intended to evaluate the efficacy of *Nimba Beej Taila Pratimarsha Nasya* in *Akala Palitya*.

#### MATERIALS AND METHODS

30 patients of *Akala Palitya* fulfilling the criteria of diagnosis were selected from the OPD and IPD of State Ayurvedic College and Hospital Lucknow. After careful clinical history and examination as per proforma, patients were selected and screened for their suitability of getting enrolled in this clinical trial as per specific inclusion and exclusion criteria.

#### INCLUSION CRITERIA

- Patients between the age of 16–35 years.
- Patients presenting classical signs and symptoms of *Palitya*.
- Persons physically and mentally fit for *Nasya karma*.
- Patients having premature greying due to non-hereditary causes.
- Patients willing to follow the lifestyle regimen (*Pathya–Apathya*) during the study period.
- Patients not taking any hair dyes, chemical hair treatments, or strong topical agents for at least 2–4 weeks prior to study enrollment.

- Patients ready to attend follow-up visits regularly and comply with study procedures.
- Patients who provide written informed consent. (Important for ethical approval).
- Patients with mild to moderate grades of *Palitya* (not complete grey scalp).
- Patients with no active scalp infections or inflammatory scalp diseases.

#### EXCLUSION CRITERIA

1. Age above 35 years or below 16 years.
2. Positive family history / hereditary causes of greying (strong genetic predisposition).
3. Complete or near-complete scalp greying.
4. Active scalp diseases or infections.
5. Recent (<4 weeks) use of hair dyes, chemical straightening/perm, or strong topical hair agents.
6. Current or recent systemic chemotherapy, radiotherapy, or immunosuppressive therapy.
7. Known autoimmune disease, hormonal imbalance or uncontrolled endocrine disorders affecting hair (untreated thyroid disease, Cushing's, uncontrolled diabetes).
8. Nutritional deficiencies causing hair changes that are untreated (e.g. severe iron-deficiency anemia, B12 deficiency) unless corrected prior to enrollment.
9. Pregnant or lactating women.
10. Persons unfit for *Nasya*: active epistaxis, nasal polyps, severe deviated nasal septum, recent nasal/sinus surgery, acute upper respiratory infection.

**FOLLOW-UP** - every 30<sup>th</sup> day up to duration of trial.

#### ASSESSMENT CRITERIA<sup>[9]</sup>

- SUBJECTIVE PARAMETER
- OBJECTIVE PARAMETER

#### SUBJECTIVE PARAMETER

- Colour of hair (Kesh Vairvanyata)
- Dry Split hair (Rooksha Sphutha)
- Oiliness (Snigdhta)
- Burning sensation of scalp (Daha)

#### OBJECTIVE PARAMETER

- Random hair count

#### SUBJECTIVE CRITERIA

Scoring/grading pattern was applied for all the mentioned subjective criteria.

#### Colour of hair (Kesha Varna)

Hair Color	Grade
Krishna Varna (Black Color)	0
Shyava Varna (ash coloured)	1
Shwetha (white hair)	2

#### Dry split hair (Rooksha Sphutha)

Dry Split Hair	Grade
Absent	0
Dryness felt	1
Dryness visible	2

#### Snigdhta (oiliness)

Oiliness of Hair	Grade
Absent	0
Oiliness felt	1
Oiliness visible	2

#### Daha (burning sensa on of scalp)

Burning Sensation of Scalp	Grade
Absent	0
Ocassional	1
Continuous	2

#### OBJECTIVE PARAMETER

Number of Grey Hair	Grade	Severity
1 to 10 grey hair	1	Mild
10 to 25 grey hair	2	Moderate
More than 25 grey hair	3	Severe

#### DIET AND EXERCISE

Patients were advised to take diet which is indicated for *Pitta shaman* and to avoid *Hetu of Pitta prakopa*. Modification of life-style according to '*Pathyavihara*' was advised. Patients were encouraged for regular healthy diet and advised to avoid '*Apathya-ahara-vihara*'.

Severity Assessment Scales for assessing the severity of *Palitya* in each patient the below adopted scores and assessed as follows.

#### SEVERITY GRADE POINTS

- Absent - 0 (0)
- Mild- 1(1-4 score)
- Moderate- 2(5-8 score)
- Severe- 3(>8 score)

#### CRITERIA FOR ASSESSMENT

Efficacy of the treatment was assessed on the basis of relief produce by drug on the cardinal sign and symptoms (subjective criteria) and improvement in the objective parameter before and after treatment.

Assessment was done on the basis of improvement in the sign and symptom for the purpose.

#### RESULTS

The study was carried out in patients of *Akala Palitya* in a single group where 90 days of *Pratimarsha Nasya Karma* was done. Data was collected from the patient on the 1st day before treatment and on every 30th day, during treatment.

Effect of treatment was assessed on the basis of changes found in gradation of both subjective and objective parameters before and after treatment.

#### Before to After Changes in Frequency of Grades of Colour of Hair

Colour of Hair	Before trial		After trial	
	No.	%	No.	%
Grade 0	0	0.0%	20	66.7%
Grade 1	19	63.3%	9	30.0%
Grade 2	11	36.7%	1	3.3%
Grade 3	0	0.0%	0	0.0%

#### Before to After Changes in Mean Grades of Colour of Hair

Colour of Hair	Mean	SD
Before trial	1.37	0.49
After trial	0.37	0.56
% change	53.17	
Significance	z=5.14, p<0.001	

#### Before to After Changes in Frequency of Grades of dry Split Hair

Dry Split Hair	Before trial		After trial	
	No.	%	No.	%
Grade 0	6	20.0%	25	83.3%
Grade 1	15	50.0%	5	16.7%
Grade 2	9	30.0%	0	0.0%
Grade 3	0	0.0%	0	0.0%

#### Before to After Changes in Mean Grades of dry Split Hair

Dry Split Hair	Mean	SD
Before trial	1.10	0.71
After trial	0.17	0.38
% change	84.85	
Significance	z=4.61, p<0.001	

#### Before to After Changes in Frequency of Grades of Oiliness

Oiliness	Before trial		After trial	
	No.	%	No.	%
Grade 0	23	76.7%	23	76.7%
Grade 1	1	3.3%	7	23.3%
Grade 2	6	20.0%	0	0.0%
Grade 3	0	0.0%	0	0.0%

#### Before to After Changes in Mean Grades of Oiliness

Oiliness	Mean	SD
Before trial	0.43	0.82
After trial	0.23	0.43
% change	46.15	
Significance	z=1.51, p=0.130	

#### Before to After Changes in Frequency of Grades of Burning Sensation

Burning sensation	Before trial		After trial	
	No.	%	No.	%
Grade 0	12	40.0%	29	96.7%
Grade 1	18	60.0%	1	3.3%
Grade 2	0	0.0%	0	0.0%
Grade 3	0	0.0%	0	0.0%

**Before to After Changes in Mean Grades of Burning Sensation**

Burning sensation	Mean	SD
Before trial	0.60	0.50
After trial	0.03	0.18
% change	94.44	
Significance	z=4.12, p<0.001	

**Before to After Changes in Frequency of Grades of Random Hair Count**

Random Hair Count	Before trial		After trial	
	No.	%	No.	%
Grade 0	0	0.0%	16	53.3%
Grade 1	14	46.7%	14	46.7%
Grade 2	12	40.0%	0	0.0%
Grade 3	4	13.3%	0	0.0%

**Before to After Changes in Mean Grades of Random Hair Count**

Random Hair Count	Mean	SD
Before trial	1.67	0.71
After trial	0.47	0.51
% change	72.00	
Significance	z=4.98, p<0.001	

**DISCUSSION**

Discussion forms an important part of all clinical trials where the observations are discussed and all the actual facts presented during the research work is presented. Mode of action of Nimba Beej Taila Nasya.

**PROBABLE MODE OF ACTION**

Nimba Beej (*Azadirachta indica*): *Tikta-Kashaya Rasa, Laghu-Ruksha Guna, Sheeta Veerya, Katu Vipaka*. Karma: *Pitta-Shamaka, Raktashodhaka, Kandughna, and Varnya*.<sup>[10,13]</sup>

Probable Mechanism: The antioxidant and anti-inflammatory constituents (nimbodin, azadirachtin) help reduce oxidative stress in hair follicles - a key factor in melanocyte degeneration. Its *Raktashodhaka* action detoxifies the scalp microcirculation, thereby maintaining healthy pigmentation.

Bhringraj (*Eclipta alba*): *Tikta-Katu Rasa, Laghu-Snigdha Guna, Ushna Veerya, Madhura Vipaka*. Karma: *Keshya, Rasayana, Kesharanjana* (restores hair color), and *Vata-Pitta Shamaka*.<sup>[11,14]</sup>

Probable Mechanism: Bhringraj enhances melanocyte activity and melanin synthesis by stimulating tyrosinase enzyme function. Phytochemicals such as wedelolactone and ecliptine support follicular regeneration and delay hair aging, promoting *Kesha Ranjana* (natural hair pigmentation).

Vijayasar (*Pterocarpus marsupium*): *Tikta-Kashaya Rasa, Laghu-Ruksha Guna, Sheeta Veerya, Katu Vipaka*. Karma: *Pitta-Shamaka, Raktashodhaka, Kusthaghna*.<sup>[12,15]</sup>

Probable Mechanism: Its strong antioxidant and anti-glycation properties prevent premature cellular aging within the follicular matrix. Flavonoids and phenolic compounds protect melanocytes from oxidative damage and maintain healthy melanin production.

Synergistic Action: When used together in Taila form, these ingredients: Pacify aggravated *Pitta* and *Vata*, the main doshas in *Palitya*, purify *Rakta Dhatu* and improve microcirculation in the scalp. Nourish and rejuvenate hair follicles, enhancing *Kesha Varna* (color) and *Kesha Bala* (strength). Reduce oxidative stress and delay melanocyte apoptosis, thereby preventing or reversing premature greying. Oil base (Taila) facilitates deeper follicular penetration, enhancing bioavailability and sustained action.

*Pitta-Vata Shamaka* properties balance doshas responsible for *Palitya*, regulates oxidative and inflammatory stress. *Raktashodhana Guna* purifies blood and scalp channels improves microcirculation and detoxification *Keshya* and *Rasayana* properties nourishes hair roots promotes follicular regeneration and *Kesharanjana* properties restores natural hair color stimulates melanin synthesis, while Oil base Enhances absorption and sustains effect ensures prolonged contact and nutrient delivery.

**AYURVEDIC CORRELATION WITH MODERN INTERPRETATION**

The nasal route offers several significant advantages for drug delivery. Because medications administered intranasally bypass the gastrointestinal tract, they avoid degradation by digestive enzymes as well as the hepatic first-pass effect. This contributes to rapid absorption and a quick onset of action, particularly for smaller drug molecules that exhibit better nasal bioavailability. Drugs

that are poorly absorbed orally can also be effectively introduced into systemic circulation through this route, making it a practical alternative for long-term therapy when compared with parenteral methods.

The nasal mucosa, characterized by its porous endothelial membrane and highly vascularized epithelium, facilitates swift transfer of substances directly into the bloodstream. This efficient absorption often allows for lower doses and leads to fewer side effects. Additionally, intranasal delivery has emerged as a promising approach for bypassing the blood–brain barrier (BBB), enabling direct transport of centrally acting drugs to the central nervous system during their active phase.

Based on current anatomical and physiological understanding, the pharmacodynamics of *Nasya karma* can be summarized as follows:

1. **Vascular Pathway:** The nasal mucosa is highly vascularized, allowing rapid and efficient systemic absorption. Its rich vascular plexus enables drugs applied intranasally to reach therapeutic blood levels without intravenous access. Venous blood from the nasal region drains spontaneously into the facial vein, which lacks valves and communicates freely with intracranial circulation. This connection extends to the cavernous sinus via the pterygoid venous plexus, facilitating direct vascular transport.
2. **Neurological Pathway:** The olfactory nerve contains chemoreceptors and connects directly to the limbic system and hypothalamus—centres governing endocrine and autonomic functions. Because the hypothalamus integrates neural and endocrine activity, stimulation through intranasal administration can influence higher brain centres and thereby modulate neuroendocrine responses.
3. **Diffusion Through Nasal Mucosa:** Drug absorption begins with passage through the nasal mucus layer. Absorption occurs through several mechanisms:
4. **Paracellular (aqueous) pathway:** a passive, slower route between cells.
5. **Transcellular (lipoidal) pathway:** for lipophilic drugs, with absorption dependent on lipid solubility.

## CONCLUSION

There is significant improvement in black colour of hair, with other associated complaints like Rookshatha, Snigdhattha, Shira Shola and Kapala Daha was noticed during treatment period.

## LIMITATION OF STUDY

- The present clinical study was conducted on a limited sample size and within a restricted duration. Future studies with a larger population and longer follow-up periods are needed to validate the therapeutic efficacy and safety profile of *Nimba Beej Taila* in *Palitya*.
- Chronic toxicity, mutagenicity, and reproductive safety studies are necessary for broader clinical

application and to meet global regulatory standards.

- The Acharyas have instructed that during the course of *Nimba Beej Taila* administration, the individual should subsist exclusively on milk and rice. However, strict adherence to such dietary restrictions is highly challenging in the modern lifestyle context. This practical difficulty may have contributed to the limited therapeutic outcome.
- The *Nimba Beej Taila* used in the present study was extracted through the *Patal Yantra* method, which imparts a characteristic pungent and strong odour to the oil. Due to this, some patients experienced discomfort in its continuous administration, which affected the regularity of *Nasya* (nasal therapy). This could also be a contributing factor to the comparatively limited results obtained.
- In this study, *Nimba Beej Taila* was used as a single trial drug, without combination with any oral medication or additional local application. This monotherapeutic approach could be a factor for the marked clinical improvement.

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