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An open labelled, two armed ,prospective, randomized controlled Phase II, clinical study to evaluate efficacy of Herbal Anti-Dandruff Hair Mask in Darunak Vyadhi (Dandruff)

Dr.Chavan Sheetal Suryakant¹,Dr.Umesh Yeolekar²,Dr.Pankaj Dixit³,Dr. Bhalerao Anuradha⁴,
Mr.Shewale Gaurav Kumar⁵

¹Associate Professor Dept. of Rognidan,A.S.S. Ayurved Mahavidyalaya ,Nashik 422003

²Professor & HOD Dept. of Shalakyatantra ,Matoshri Aarabai Darade Ayurved College Babhulgaon Yeola Nashik.

³Professor Dept of Shalyatantra , Ayurved Seva Sangh. Ayurved Mahavidyalaya,Nashik 422003

⁴Assistant Professor Dept. of Rognidan, A.S.S. Ayurved Mahavidyalaya ,Nashik 422003

⁵BAMS, A.S.S. Ayurved Mahavidyalaya,Nashik 422003

Corresponding author: Dr. Sheetal Chavan

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Abstract

Dandruff (Darunak Vyadhi) is one of the most prevalent scalp disorders, primarily caused by the vitiation of Vata and Kapha doshas, and is characterized by itching, flaking, and dryness of the scalp. In modern dermatology, it is associated with Malassezia yeast overgrowth and excess sebum production. Increasing pollution, stress, and chemical-based cosmetic use have aggravated scalp and hair problems in the present era. To address these issues, an Ayurvedic herbal anti-dandruff hair mask was formulated and evaluated for its efficacy. The herbal mask, containing Amla, Neem, Jatamansi, Bramhi, Bhringraj, Hibiscus, Tulsi, Nagarmotha ,Yashimadhu exhibited antifungal, antibacterial, and scalp-nourishing properties. It was observed that the herbal formulation effectively controlled dandruff, improved scalp hygiene, reduced flakiness, and strengthened hair roots. Thus, the study concludes that the herbal anti-dandruff hair mask is a safe, natural, and affordable Ayurvedic alternative to chemical-based hair products, promoting healthy, dandruff-free, and well-nourished hair.

Keywords – Darunak Vyadhi, Herbal Hair Mask, Scalp Health

Introduction :

Dandruff, known in Ayurveda as *Darunak Vyadhi*, is a common scalp disorder that arises due to the vitiation of Vata and Kapha doshas. It is characterized by itching, flaking of the scalp, irritation, and dryness. In modern dermatological terms, dandruff is associated with excessive shedding of dead scalp cells caused by *Malassezia* yeast overgrowth, seborrheic dermatitis, or excess sebum production. This condition not only causes physical discomfort such as itching and scaling but also leads to psychological effects like embarrassment and reduced confidence, particularly in young adults. Continuous dandruff can further result in hair fall, rough texture of hair, and weak hair roots, ultimately affecting the overall health and appearance of the hair.

Current Hair and Scalp Problems : In the present era, due to changing lifestyle habits and increased environmental stress, hair-related issues have become very common. Some of the most prevalent problems include:

1. Dandruff and Dry Scalp – Caused by fungal infection, pollution, or excessive use of chemical-based products.
2. Hair Fall and Thinning – Resulting from stress, nutritional deficiencies, hormonal imbalance, and frequent hair styling.
3. Premature Greying – Linked to oxidative stress and deficiency of essential minerals.
4. Oily Scalp and Clogged Pores – Due to excessive sebum secretion and dirt accumulation.
5. Split Ends and Rough Hair – Because of frequent heat exposure, lack of nourishment, and improper hair care.

These problems have increased due to urban pollution, irregular diets, mental stress, and over-dependence on chemical-based product. Considering the limitations and side effects of chemical-based hair products, there is a growing interest in Ayurvedic and herbal alternatives. The present study is designed to evaluate the efficacy of a herbal anti-dandruff hair mask, formulated using natural ingredients with antifungal, antibacterial, and scalp-nourishing properties.

This herbal hair mask aims to: Control dandruff and scalp flaking, Reduce hair fall and improve hair strength, Maintain scalp pH and prevent dryness or oiliness, Promote overall scalp and hair health.

Thus, the study emphasizes safe, natural, and holistic management of dandruff (*Darunak Vyadhi*) using Ayurvedic principles and herbal formulations, aligning with modern cosmetology and trichology needs.

Aim And Objectives:

1. **Primary Objective(Aim):** The primary aim of this study is to assess the effectiveness of a herbal hair mask *incontrolling* dandruff and providing a healthy, itch-free scalp with nourished hair.
2. **Secondary Objective:** To assess its role in nourishing hair and preventing premature greying.

Hypothesis :

The herbal hair mask is effective in removing dandruff and reducing hair fall.

It nourishes the hair and helps prevent premature greying.

Materials and Methods :

Study Design :

This study was designed as an open-labeled, prospective, randomized Phase 2 clinical study. A total of 60 patients suffering from hair problems were included in the study. They were instructed to apply the herbal hair mask for a period of 60 days.

Inclusion Criteria :

1. Participants aged between 18 and 60 years.
2. Both male and female participants.
3. Individuals from any economic background.
4. Presence of white hair.
5. Participants with normal hemoglobin levels.

Exclusion Criteria :

1. Individuals suffering from life-threatening diseases or disorders.
2. Those with allergies to the ingredients used in the hair mask.
3. Pregnant women.

Study Groups :

- **Group A:** Participants applied the herbal hair mask.- for 30 patients
- **Group B:** Participants applied curd to their hair (as a comparative treatment).-30 patients

Parameters Assessed :

1. Presence of skin flakes on the scalp, hair, eyebrows, beard, mustache, or shoulders.
2. Itchy scalp.
3. Scaly, crusty scalp, especially in infants with cradle cap.

Herbal Ingredients Used :

The herbal hair mask contained a combination of Ayurvedic herbs known for their scalp-nourishing and anti-dandruff properties. These included:

1. Amla (*Embllica officinalis*) – Strengthens hair follicles and reduces dandruff.^[1]
2. Neem (*Azadirachta indica*) – Possesses antifungal and antibacterial properties.^[2]
3. Bhringraj (*Eclipta alba*) – Promotes hair growth and prevents premature greying.
4. Tulsi (*Ocimum sanctum*) – Reduces scalp infections and irritation.^[3]
5. Hibiscus (*Hibiscus rosa-sinensis*) – Strengthens roots and reduces hair fall.
6. Nagarmotha (*Cyperus rotundus*) – Helps in scalp detoxification.^[4]
7. Bramhi-(*Bacopa monnieri*)- improving blood circulation to scalp, prevent dandruff.
8. Jatamansi-(*Nardostachys Jatamansi*)-treat dandruff due to its Antimicrobial Properties.^[5]

The herbal mask was applied along with curd for 1 hour twice in week which serves as a natural conditioner.

Results:

The study analyzed three key scalp conditions: Dandruff, Scaly Scalp, and Crusty Scalp. The effectiveness of the herbal hair mask was compared to the use of curd alone as a treatment.

1.Dandruff Reduction :

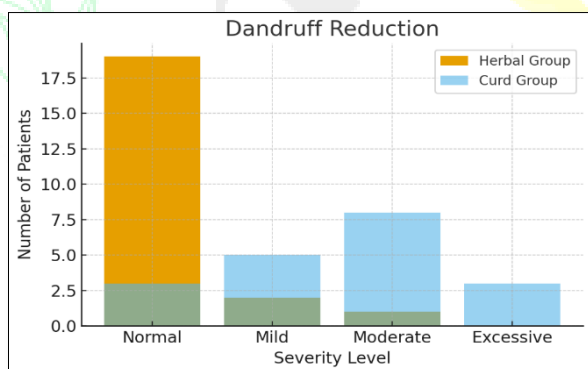
Patients were graded based on dandruff severity: Normal (0), Mild (1), Moderate (2), and Excessive (3).The herbal hair mask group showed better improvement than the curd-only group.

- Normal scalp: 19 patients in the herbal group vs. 3 in the curd group.

- Mild dandruff: 3 in the herbal group vs. 5 in the curd group.
- Moderate dandruff: 8 in the curd group vs. 4 in the herbal group.
- Excessive dandruff: 14 in the curd group vs. 4 in the herbal group.

Statistical analysis (Chi-square test, p-value = 0.001266, $p < 0.05$) confirmed significant effectiveness of the herbal mask in reducing dandruff.

Scalp condition	Severity	Herbal group (no. of patients)	Curd group (no. of patients)
Dandruff reduction	Normal	19	3
	Mild	3	5
	Moderate	4	8
	Excessive	4	14



Graph

2.Reduction in Scaly Scalp :

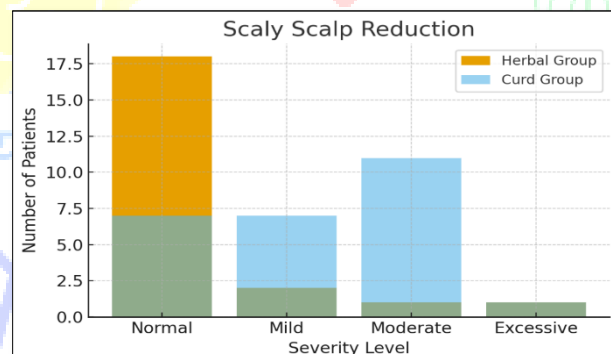
The herbal hair mask group showed significant reduction in scalp scaling.

- Normal scalp: 18 patients in the herbal group vs. 7 in the curd group.

- Mild scaling: 2 in the herbal group vs. 7 in the curd group.
- Moderate scaling: 11 in the curd group vs. 6 in the herbal group.
- Excessive scaling: 4 in the herbal group vs. 5 in the curd group.

Statistical analysis (Chi-square test, p-value = 0.007732, $p < 0.05$) confirmed a significant reduction in scalp scaling.

Scalp condition	Severity	Herbal group (no. of patients)	Curd group (no. of patients)
Scaly Scalp Reduction	Normal	18	7
	Mild	2	7
	Moderate	6	11
	Excessive	4	5



Graph

3.Crusty Scalp Reduction :

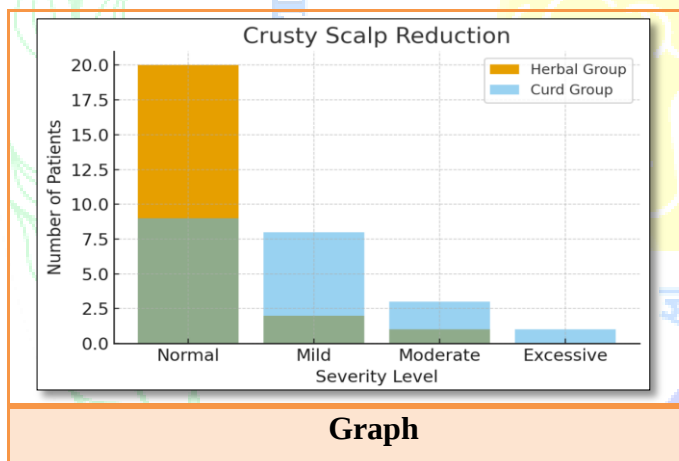
Improvement was also observed in crust formation on the scalp.

- Normal scalp: 20 patients in the herbal group vs. 9 in the curd group.
- Mild crusting: 2 in the herbal group vs. 8 in the curd group.

- Moderate crusting: 1 in the herbal group vs. 3 in the curd group.
- Excessive crusting: 7 in the herbal group vs. 10 in the curd group.

Statistical analysis (Chi-square test, p -value = 0.019789, $p < 0.05$) confirmed a significant reduction in crusty scalp issues.

Scalp condition	Severity	Herbal group (no. of patients)	Curd group (no. of patients)
Crusty Scalp reduction	Normal	20	9
	Mild	2	8
	Moderate	1	3
	Excessive	7	10



Discussion:

The study demonstrates that the Herbal Anti-Dandruff Hair Mask is significantly more effective than curd alone in treating dandruff and associated scalp conditions. The following key points highlight the findings:

1. Effectiveness in Controlling Dandruff:

The herbal mask effectively reduces dandruff, with 19 out of 30 patients achieving a normal scalp after treatment.

Compared to curd, which left 3 patients with excessive dandruff and 8 with moderate dandruff, the herbal formulation showed strong antifungal and scalp-soothing properties.

2. Reduction of Scaly Scalp:

The mask successfully improves scalp texture by reducing flakiness and dryness.

Ingredients such as Amla, Neem, Hibiscus are known for their antifungal and moisturizing properties, contributing to healthier scalp conditions.

3. Healing of Crusty Scalp:

The study indicates that the herbal mask significantly helps in removing crusty deposits from the scalp, improving scalp hygiene.

The anti-inflammatory action of herbs like *Bhringraj*, *Brahmi*, and *Jatamansi* supports scalp healing and prevents recurrent dandruff.

4. Economic and Natural Alternative:

The herbal hair mask is cheaper (costing only ₹60 per month) compared to chemical-based market products.

It is free from harmful chemicals and offers a natural alternative for individuals seeking organic hair care solutions.

Conclusion:

1. Effectiveness:

Proves to be a highly effective natural formulation for controlling dandruff (*Darunak Vyadhi*) and related scalp disorders.

2. Natural & Safe:

Made from herbal ingredients, it offers a chemical-free, safe, and holistic approach to scalp and hair care.

3. Affordable:

Provides a cost-effective option compared to commercially available synthetic hair products and medicated shampoos.

4. Better Results than Curd:

Demonstrated superior outcomes compared to curd treatment, particularly in: Reducing dandruff flakes, Decreasing scaly scalp, Healing crusty scalp conditions

5. Hair and Scalp Health:

Helps maintain scalp cleanliness, improves hair texture, and strengthens hair roots.

6. Alternative to Synthetic Products:

Can serve as a potential herbal substitute for synthetic anti-dandruff shampoos and chemical formulations.

7. Overall Outcome:

Ensures sustained dandruff control, promotes healthy scalp balance, and supports strong, lustrous hair growth.

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Declaration :

Conflict of Interest : None

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Dr. Sheetal Chavan Inter. J.Digno. and Research

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