



CODEN [USA]: IAJPBB

ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

SJIF Impact Factor: 7.187

<https://doi.org/10.5281/zenodo.17713635>Available online at: <http://www.iajps.com>

Review Article

REVIEW OF POLYHERBAL ANTIDANDRUFF SHAMPOOShubham Prakash Bodkhe^{1*}, Angad Shivram Bidve², Vaishnavi Prakash Bhosale³, Ms. Sapna Ghuge⁴, Dr. Kavita Kulkarni⁵^{1*,2,3} Student, Shri Sai Institute of Pharmacy and Research, Chh. Sambhajinagar, Maharashtra, India⁴ Assistant Professor, Shri Sai Institute of Pharmacy and Research, Chh. Sambhajinagar, Maharashtra, India⁵ Principal, Shri Sai Institute of Pharmacy and Research, Chh. Sambhajinagar, Maharashtra, India**Abstract:**

The aim of the present work was to develop the herbal antidandruff shampoo and evaluate the formulated shampoos for physical parameters. The herbal antidandruff shampoos were prepared using plant leaves extract namely *Mimosa pudica*, *Hibiscus labeo*, *Azadirachta indica*, *Lacosoni alnervis* and *Murraya koenigi* in varying concentrations. The plant extracts were prepared by boiling in distilled water followed by concentration. The herbal shampoo formulations included ingredients, oleic acid, EDTA, Sodium Lauryl Sulphate, Tween 80, Span 80, methyl paraben, propyl paraben, rosemary oil, and triethonalmine. A total of six formulations were made by gradually increasing the concentration of herbal extract. All the prepared formulations were evaluated for visual appearance, pH, formability, dirt dispersion, viscosity, and antimicrobial activity. All the formulations showed satisfactory results and the antimicrobial activity revealed that formulation, F6 having highest concentration of leaves extract showed significant results in comparison to other formulations and standard drug used for study. The present outcome of the studies revealed that herbal shampoos can be prepared easily from the natural plant sources having antimicrobial properties and herbal antidandruff shampoos are better alternatives than synthetic shampoos.

KEY WORDS: Herbal shampoo, pH, Sodium lauryl sulphate, Viscosity, Foam ability**Corresponding author:****Shubham Prakash Bodkhe,**

Student,

Shri Sai Institute of Pharmacy and Research,

Chh. Sambhajinagar, Maharashtra, India-431003

Email ID: shubhambodkhe877@gmail.com

QR CODE



Please cite this article in press *Shubham Prakash Bodkhe et al., Review Of Polyherbal Antidandruff Shampoo, Indo Am. J. P. Sci, 2025; 12(11).*

INTRODUCTION:

A shampoo is a preparation of surfactant in a suitable form –liquid,solid or powderwhich when used under the specified conditions will remove surface grease,dirt and skin debris from the hair shaft and scalp without adversely affecting the user .

What Is Herbal Shampoo?

Herbal shampoo is a type of cosmetic preparation that uses herbs from plants as an alternative to the synthetic shampoo available in the market.

Advantages:

1. It is pure and it involves organic ingredients.
2. Free from side effects.
3. There is no use of synthetic additives.
4. No use of petroleum based ingredients
5. It is skin friendly.

Disadvantages:

1. The artificial additives used in synthetic shampoos can cause significant irritation to sensitive people.
2. It leads to toxicity in the nervous system and even cancer.
3. The active ingredients used in synthetic shampoos can cause headache, nausea, dizziness, and sometimes it causes vomiting.
4. It causes more harmful effects

Application of Herbal Shampoo

1. More Shine
2. Less Hair Loss
3. Long Lasting Colour
4. Stronger and More Fortified Hairs
5. All Natural, No Chemicals
6. Won't Irritate Skin or Scalp
7. Keep Healthy Natural Oil.

Method of Herbal Shampoo:

1. Collection of plant materials
2. Preparation of plant leaves extract
3. Method of preparation of herbal shampoo formulations
4. Evolution Of Herbal Shampoo :
5. Visual appearance
6. Clarity
7. Dirt dispersion test
8. Foamability test
9. Determination of viscosity
10. Antidandruff activity
11. PH

Formulation Strategies

- Selection criteria for herbs
- Extraction methods (aqueous, hydroalcoholic, etc.) Formulation

approaches for polyherbal shampoos
Standardization of herbal extracts

Evaluation Parameters

- Physicochemical tests: pH, viscosity, foam height, surface tension Organoleptic properties: appearance, odor, texture
- Performance tests:
- Anti-dandruff efficacy (in vitro/in vivo methods) Skin irritation studies
- Stability studies

DRUG PROFILE AND EXCIPIENTS PROFILE**Neem (Azadirachta indica)**

Neem, scientifically known as *Azadirachta indica*, belongs to the family Meliaceae and is widely recognized for its potent medicinal properties. Taxonomically, it falls under the order Rutales, suborder Rutinae, and subfamily Melioideae, within the tribe Melieae. The plant contains several bioactive constituents, including azadirachtin, nimbolin, nimbin, nimbidin, and nimbidol, which contribute to its diverse therapeutic effects. Neem exhibits significant antioxidant, anti-inflammatory, antidiabetic, and anti-dandruff activities, making it a common ingredient in herbal formulations aimed at scalp health and hair care.

Curry Leaves (Murraya koenigii)

Curry leaves, derived from *Murraya koenigii* (L.) Spreng., belong to the family Rutaceae. They are categorized under the kingdom Plantae, subkingdom Tracheobionta, superdivision Spermatophyta, and division Magnoliophyta, with the class Magnoliopsida and subclass Rosidae. These leaves are rich in phytochemical constituents such as mahanimbine, murrayamine, murrayazolinol, mahanimbinol, murrayakoeninol, and bicyclomahanimbine. Owing to these compounds, curry leaves possess prominent antimicrobial, anti-inflammatory, antipyretic, and anti-dandruff properties, making them valuable in natural therapeutic and cosmetic formulations.

Henna Leaves (Lawsonia inermis)

Henna leaves, obtained from *Lawsonia inermis* (synonym: *Alceanna spinosa*), belong to the family Lythraceae. Classified under kingdom Plantae and division Tracheophyta, these leaves contain key active constituents such as phenols and anthraquinone glycosides, which contribute to their medicinal potential. Henna is traditionally recognized for its antimicrobial, antiparasitic, antioxidant, and anti-dandruff activities. Due to these properties, henna leaves are widely included in herbal hair formulations to enhance scalp health and prevent microbial infections.

Hibiscus Leaves (*Hibiscus syriacus*)

Hibiscus leaves (synonym: *Bombacoidendron zoll*) are obtained from *Hibiscus syriacus*, a species belonging to the family Malvaceae. Classified under kingdom Plantae and genus *Hibiscus*, the plant is known for its rich phytochemical profile. Its leaves contain potent active compounds such as anthocyanins and polyphenols (including protocatechuic acid and quercetin). These constituents confer various therapeutic benefits, including anti-inflammatory, antibacterial, antidepressant, and anti-dandruff actions. Hibiscus is widely used in traditional hair care due to its strengthening and scalp-soothing effects.

Mimosa Leaves (*Mimosa pudica*)

Mimosa leaves, derived from *Mimosa pudica* L., are classified under the family Mimosaceae, division Magnoliophyta, and class Magnoliopsida.

Commonly known as “Laajvanti,” the plant contains several active constituents such as norepinephrine, D-pinitol, and β -sitosterol. These bioactive compounds contribute to its diverse pharmacological actions, including antimicrobial, anti-inflammatory, anticonvulsant, antidiarrhoeal, and antifertility activities. Due to these properties, *Mimosa pudica* is incorporated into herbal formulations targeting scalp infections and inflammation.

MATERIALS & METHOD:**Collection of plant materials:**

For the present study, five different Indian plants selected, Neem, *Mimosa pudica*, Hibiscus, Henna and Curry leaves. These plant leaves were collected from the Sai college campus and packed in polybag for further use. The selected plant leaves were depicted

**Experimental Work (Procedure)****1. Preparation of Herbal Extract Mixture**

Equal quantities of each selected herbal extract were used in the formulation. Precisely 1 mL each of henna, neem, mimosa, hibiscus, and curry leaf extracts was measured and transferred into a clean beaker. These extracts were mixed thoroughly to obtain a uniform herbal blend and kept aside for further incorporation into the shampoo base.

2. Preparation of the Aqueous Shampoo Base

A required quantity of distilled water was taken in a clean beaker to serve as the base medium. Sodium lauryl sulfate (6 g) was slowly dissolved in the water with gentle stirring to minimize foam formation. Subsequently, EDTA (0.15 g) was added to act as a chelating agent, followed by methyl paraben (0.2 g) as a preservative, ensuring complete dissolution of each component.

3. Incorporation of Surfactants and Additives

To adjust the pH and improve the foaming properties of the formulation, triethanolamine (3 mL) was added gradually with continuous mixing. Tween 80 (1 mL) was incorporated as a mild

surfactant and emulsifier to stabilize the formulation. Oleic acid (4 mL) was then added slowly to impart a smooth and creamy texture to the shampoo base.

4. Addition of Herbal Extracts

The previously prepared herbal extract mixture was slowly introduced into the shampoo base with gentle, continuous stirring to ensure uniform distribution of the active constituents. After complete mixing, distilled water q.s. was added to adjust the final volume (e.g., 100 mL). The formulation was stirred thoroughly until a homogeneous and consistent shampoo was obtained. The pH was checked and adjusted to the desired range of 5.5–6.5 using either triethanolamine or citric acid.

5. Storage

The final formulation was transferred into clean, dry, and labeled containers. The shampoo was stored in a cool, dry place, protected from direct sunlight to maintain stability and prevent degradation of active components.

Formulation Design

Ingredients	F1 (10%)
Henna leaves extract	1 mL
Neem leaves extract	1 mL
Hibiscus leaves extract	1 mL
Curry leaves extract	1 mL
Mimosa leaves extract	1 mL
Oleic acid	4 mL
Sodium lauryl sulfate	6 g
Triethanolamine	3 mL
EDTA	0.15 g
Methyl paraben	0.2 g
Tween 80	1 mL
Distilled water	q.s.

Evaluation Test Procedures

1. Organoleptic Evaluation

The shampoo was evaluated visually under normal lighting to determine color, odor, texture, and overall appearance. This basic inspection ensures aesthetic acceptability and uniformity of the formulation.

2. Determination of pH

To ensure safety and compatibility with the scalp, the pH was determined by diluting the shampoo 1:10 with distilled water. The pH was measured using a digital pH meter, ensuring it remained within the ideal range of 4.5–6.5.

3. Foam Height and Stability Test

Foaming ability and stability were assessed using the Ross–Miles method. Shampoo was diluted (1:10) and shaken vigorously in a graduated cylinder for one minute. Foam height was measured immediately and after 5 minutes to evaluate stability.

4. Surface Tension Measurement

A stalagmometer was used to measure the surface tension of a 1% shampoo solution. Lower surface tension values typically correlate with better cleansing activity. Results were compared with standard reference values.

5. Dirt Dispersion Test

To determine the cleansing efficiency, one drop of India ink was added to a test tube containing diluted shampoo. After shaking, the distribution of ink was observed. Ink trapped in foam indicates poor cleansing, while dispersion in water indicates good detergency.

6. Viscosity Measurement

Consistency and flow properties were determined using a Brookfield viscometer at room temperature. Appropriate viscosity ensures ease of application and consumer acceptability.

7. Wetting Time

A canvas disk was placed gently on the surface of the shampoo solution. The time taken for the disk to sink was recorded, indicating the wetting efficiency of the shampoo.

8. Antidandruff Activity

Antifungal activity against *Malassezia* species was

assessed using the agar diffusion method. Shampoo samples were placed in wells on Sabouraud Dextrose Agar (SDA) plates inoculated with fungal culture. The plates were incubated at 28°C for 3–5 days, and the zone of inhibition was measured to determine antidandruff efficacy.

DISCUSSION:

Review of polyherbal antidandruff shampoo, particularly those targeting dandruff and lice infestation, has gained considerable attention due to rising consumer preference for natural and safe alternatives over synthetic agents. In this study, the formulation and evaluation of a polyherbal shampoo using various plant extracts demonstrated promising results in terms of both efficacy and physicochemical stability.

The selected herbal ingredients, including Neem (*Azadirachta indica*), Reetha (*Sapindus mukorossi*), Hibiscus (*Hibiscus rosa-sinensis*), Aloe vera, and Tulsi (*Ocimum sanctum*), were chosen based on their well-documented antimicrobial, antifungal, and insecticidal properties. These herbs, either alone or in combination, have shown significant potential in inhibiting the growth of *Malassezia furfur* (a primary causative agent of dandruff) and repelling or eliminating lice.

CONCLUSION:

The review of a polyherbal shampoo using natural ingredients with known anti-dandruff properties. The selected herbal extracts demonstrated synergistic activity and were incorporated into a shampoo base that met standard physicochemical parameters including pH, viscosity, foaming ability, and stability. The formulation showed effective cleansing action, acceptable organoleptic properties, and exhibited significant anti-dandruff activity upon evaluation.

Thus, the developed polyherbal shampoo represents a promising, safe, and eco-friendly alternative to synthetic formulations, catering to the increasing demand for herbal personal care products.

REFERENCES:

1. H. Butler Ed.: "Paucher's Perfumes, Cosmetics & Soaps", 10th edition (1st Indian edition), Springer (India) Pvt. Ltd
2. Neelam J, Kalpana P, Rakesh S, Vadana M. Preparation and evaluation of herbal hair growth promoting shampoo. *Int J Pharm.* 2018;12:S835.
3. Harrison JL, Davis KD. Cold-evoked pain varies with skin type and cooling rate: a psychophysical study in humans. *Pain.* 1999;83:123–35.
4. Rohit Kumar B, Alok S, Mayank K, Chanchal DK, Yadav S. A comprehensive review on herbal cosmetics. *Int J Pharm Sci Res.* 2017;8:4930.
5. Kunda PB. Herbal cosmetics in ancient India. *Indian J Plast Surg.* 2008;41:S134.
6. Shreya K, Kalpana P. Development of polyherbal shampoo for antifungal activity and its comparison with commercially available shampoo. *Asian J Pharm.* 2018;12:S1021.
7. Joshi N, Paatidar K, Rakesh S, Vandana M. Preparation and evaluation of herbal hair growth promoting shampoo containing Piper betle and Psidium guajava leaves extract. *Int J Green Pharm.* 2018;12:S835.
8. Bushra TA, Eram KD, Rana AB, Lama AA. Pharmaceutical evaluation of different shampoo brands in the local Saudi market. *Saudi Pharm J.* 2018;26:98–103.
9. Vishal Rasve, Anup Kumar Chakraborty, Sachin Kumar Jain, & Sudha Vengurlekar. (2022). "Comparative evaluation of antidiabetic activity of ethanolic leaves extract of clematis triloba and their SMEDDS formulation in streptozotocin induced diabetic rats". *Journal of Population Therapeutics and Clinical Pharmacology*, 29(04), 959–971. <https://doi.org/10.53555/jptcp.v29i04.2360>.
10. Sutar M, Deshmukh S, Chavan M, Singh S. Preparation and evaluation of polyherbal shampoo powder. *Int J Pharm Bio Sci.* 2013;2:151–6.
11. Regupathi T, Chitra K, Ruckmani K, Lalitha KG, Mohan K. Formulation and evaluation of herbal hair gel for hair growth potential. *J Pharmacol Clin Res.* 2017;2:555–60.
12. Omiz F, Abdolnaser M. Cosmetic evaluation of some Iranian commercial normal hair shampoos and comparison with a new formulation. *Int J Pharmacogn.* 2015;2:259–65.
13. Vijayalakshmi A, Sangeetha S, Ranjith N. Formulation and evaluation of herbal shampoo. *Asian J Pharm Res.* 2018;11:121–4.
14. Regupathi T, Chitra K, Ruckmani K, Lalitha KG, Kumar M. Formulation and evaluation of herbal hair gel for hair growth potential. *J Pharmacol Clin Res.* 2016;2(2):1–8.
15. Ashok Kumar R, Rakesh RM. Evaluation of prepared shampoo formulation and comparison with marketed shampoo. *Int J Pharm Sci Rev Res.* 2010;3(1):120–6.
16. Maderson PF. Mammalian skin evolution: a reevaluation. *Exp Dermatol.* 2003;12:233–6.
17. Mithal BM, Saha RN. *Handbook of Cosmetics.* 1st ed. New Delhi: Vallabh Prakashan; 2000.
18. Arora P, Nanda A, Karan M. A review on shampoos based on synthetic ingredients vis-à-vis shampoos based on herbal ingredients. *Int J Pharm Sci Rev Res.* 2011;7(1):7–14.
19. Revansiddappa M, Sharadha R, Abbulu K. Formulation and evaluation of herbal anti-dandruff shampoo. *J Pharmacogn Phytochem.* 2018;7(4):764–7.
20. Krishnamoorthy JR. Activity of successive extracts of Citrus limon peel for antidandruff shampoo formulation. *Afr J Biotechnol.* 2006;5(10):960–2.
21. Ranganathan S, Mukhopadhyay T. Dandruff: the most commercially exploited skin disease. *Indian J Dermatol.* 2010;55:130–4.
22. Vishal R. Rasve, Vivek V. Paithankar, Mrunal K. Shirsat, Avinash V. Dhobale, "Evaluation of Antiulcer Activity of *Aconitum Heterophyllum* on Experimental Animal" *World Journal of Pharmacy and Pharmaceutical sciences* 2018; volume 7 issue 2. Page no. 819-839.
23. Chandrani D, Lubaina SZ, Soosamma M. A review of antifungal effect of plant extracts vs chemical substances against *Malassezia* spp. *Int J Pharm Bio Sci.* 2012;3(3):773–80.
24. Ng CH, Al-Dhalli S. Antifungal studies on herbal agents: a review. (Journal details incomplete—verify for accuracy).
25. Punyoyai C, Sirilun S, et al. Development of anti-dandruff shampoo from the fermented product of *Ocimum sanctum* Linn. *Cosmetics.* 2018;5:– (add pages if available).
26. Rai N, Abhishek, Abraham J. Formulation and evaluation of herbal anti-dandruff shampoo containing garlic-loaded solid lipid nanoparticles. *Int J Pharm Res Rev.* 2013;2(10):12–24.