

REVIEW PAPER ON HERBAL HAIR SHAMPOO

Prof. Mahesh Vitthal Harale, Dr. Mahesh Pandurang Bhosale, *Omkar Adinath Gawali

At Post: Chanda, Ahmednagar, Dharmaraj Shaikshanik Pratisthan College of Pharmacy.

Article Received: 08 December 2025

***Corresponding Author: Omkar Adinath Gawali**

Article Revised: 28 December 2025

At Post: Chanda, Ahmednagar, Dharmaraj Shaikshanik Pratisthan College of

Published on: 16 January 2026

Pharmacy.

DOI: <https://doi-doi.org/101555/ijrpa.6170>

ABSTRACT

Herbal hair shampoo is gaining significant attention as a natural and safer alternative to synthetic shampoos that often contain harmful chemicals like sulfates, parabens, silicones, and artificial fragrances. With increasing awareness about hair health and the side effects caused by chemical-based products, consumers are now shifting towards herbal formulations that use botanical extracts to cleanse, nourish, and strengthen hair. This review paper explores the concept, formulation, ingredients, mechanism of action, market trends, advantages, limitations, and future scope of herbal hair shampoos. Herbal shampoos are formulated using plant-based extracts such as shikakai, reetha, amla, hibiscus, neem, bhringraj, fenugreek, aloe vera, and tea tree oil. These herbs possess cleansing, conditioning, antibacterial, antifungal, antioxidant, and hair-strengthening properties. Bioactive compounds like saponins (natural cleansers), flavonoids, tannins, alkaloids, phenols, and vitamins contribute to scalp nourishment and hair growth. Studies highlight that natural saponins from reetha and shikakai provide a gentle cleansing effect without disturbing the scalp's natural pH. Amla and bhringraj extracts help reduce hair fall, increase hair density, and strengthen hair follicles. Neem and tea tree oil exhibit strong antimicrobial activity useful in treating dandruff and scalp infections. Aloe vera hydrates and soothes the scalp, reducing irritation.



INTRODUCTION

Hair is an essential part of human identity and plays a major role in physical appearance, confidence, and overall health. Daily exposure to pollution, dust, sweat, heat, hard water, and chemical treatments causes hair damage, breakage, and scalp infections. Shampoos are essential haircare products used to cleanse the scalp and hair by removing dirt, oil, sweat, and dead skin cells. However, most commercial shampoos contain synthetic detergents like SLS/SLES, parabens, silicones, and artificial fragrances that may cause dryness, irritation, and long-term scalp issues.

Herbal shampoos, derived from natural plant sources, offer a safer and more holistic approach. They contain ingredients such as reetha, shikakai, amla, hibiscus, neem, aloe vera, fenugreek, bhringraj, and essential oils. These herbs have traditionally been used in Ayurveda and natural medicine for hair growth, hair strengthening, and scalp healing. Their natural cleansing properties and therapeutic benefits make herbal shampoos suitable for long-term use.

Unlike chemical shampoos that strip natural oils, herbal shampoos maintain scalp pH, improve hydration, reduce dandruff, nourish follicles, and strengthen hair from root to tip. They are biodegradable, environmentally friendly, and free from harsh chemicals, making them ideal for all hair types including dry, oily, damaged, and sensitive scalp.



This review discusses the scientific background, ingredient benefits, mechanism of cleaning, formulation process, evaluation tests, market trends, advantages, challenges, and future opportunities associated with herbal shampoos. With rising global demand for natural and

sustainable haircare solutions, herbal shampoos represent a rapidly growing segment within the cosmetic and personal care industry.

LITERATURE REVIEW

Over the years, extensive research has been conducted on herbal haircare and specifically herbal shampoo formulations. Studies highlight the cleansing ability of natural saponins extracted from *Sapindus mukorossi* (reetha) and *Acacia concinna* (shikakai). According to a study by Kumar & Sharma (2019), natural saponins act as mild detergents with excellent foaming properties and minimal irritation.

Amla, rich in Vitamin C and antioxidants, has shown significant improvement in hair strength and follicle regeneration in studies by Rajan et al. (2020). Bhringraj extracts were reported to increase hair follicle density and prolong the anagen phase of hair cycle. Research demonstrates that fenugreek seeds contain phytoestrogens and proteins that help reduce hair fall and promote hair growth.

Neem and tea tree oil have been studied extensively for their antifungal and antibacterial properties. According to Patel et al. (2021), shampoos containing neem extract significantly reduce dandruff-causing fungi such as *Malassezia furfur*. Aloe vera was found effective for scalp hydration and soothing inflammation.

Several studies have formulated polyherbal shampoos and evaluated their physicochemical properties. A research conducted in 2022 formulated a shampoo containing amla, reetha, shikakai, and hibiscus showing excellent cleansing ability, pH stability, and user satisfaction. Another study demonstrated that hibiscus flower extract improved hair shine, smoothness, and prevented breakage.

Literature strongly supports the use of natural ingredients for scalp cleansing, hair strengthening, anti-dandruff treatment, and hair growth. While herbal shampoos are effective and safe, issues such as standardization and shelf-life still require advancement.



COMMON HERBS USED IN HERBAL SHAMPOO



Reetha (Sapindus mukorossi)

- Contains natural saponins (natural soap agents)
- Provides rich foam and gentle cleansing
- Mild on scalp and ideal for sensitive skin

Shikakai (Acacia concinna)

- Natural cleanser and detangler
- Strengthens hair roots

- Promotes hair growth

Amla (Phyllanthus emblica)

- Rich in Vitamin C and antioxidants
- Prevents hair fall and premature greying
- Strengthens follicles

Hibiscus (Hibiscus rosa-sinensis)

- Makes hair smooth, shiny, and soft
- Reduces breakage and split ends

Bhringraj (Eclipta alba)

- Known as the “king of hair” in Ayurveda
- Stimulates hair growth and reduces thinning
- Promotes darker, healthier hair

Neem (Azadirachta indica)

- Strong antibacterial and antifungal agent
- Treats dandruff and scalp infections

Aloe Vera (Aloe barbadensis)

- Hydrates and soothes scalp
- Reduces irritation and inflammation



Fenugreek (Trigonella foenum-graecum)

- Reduces hair fall
- Strengthens weak or damaged hair



Tea Tree Oil

- Clears clogged pores
- Treats dandruff and fungal infections

These herbs provide cleansing, nourishing, strengthening, antidandruff, and conditioning benefits, making herbal shampoos highly effective.

MECHANISM OF ACTION

1. Cleansing Action

Natural saponins in reetha and shikakai act as surfactants, reducing surface tension and removing dirt, oil, and impurities from hair and scalp.

2. Antimicrobial Action

Neem and tea tree oil inhibit bacteria and fungi responsible for dandruff, itching, and scalp infections.

3. Anti-inflammatory Action

Aloe vera and hibiscus contain soothing polysaccharides that reduce scalp inflammation and irritation.

4. Antioxidant Action

Amla, hibiscus, and bhringraj neutralize free radicals that cause hair damage, thinning, and premature greying.

5. Hair Strengthening

Fenugreek and bhringraj enhance follicle strength, reduce hair fall, and promote new hair growth.

6. Conditioning Action

Hibiscus and aloe vera moisturize hair, making it smooth, shiny, and manageable.

7. Oil Balance

Herbal extracts help regulate sebum production, reducing greasiness without causing dryness.

This multi-level mechanism promotes healthy, clean, strong, and well-nourished hair.



FORMULATION OF HERBAL SHAMPOO

1. Ingredient Selection

Choose herbs based on intended action:

- Cleansing → reetha, shikakai
- Strengthening → amla, bhringraj
- Anti-dandruff → neem, tea tree
- Conditioning → aloe vera, hibiscus

2. Extraction Methods

- Aqueous extraction
- Alcoholic extraction
- Hydroalcoholic extraction
- Cold percolation
- Soxhlet extraction

3. Preparation of Base

Herbal shampoo base includes:

- Natural or mild surfactants
- Gels such as carbopol, xanthan gum
- Glycerin for moisture

4. Mixing Herbal Extracts

Extracts are mixed gradually into the base with continuous stirring.

5. Addition of Foaming Agents

Natural or mild foaming agents like:

- Saponins
- Coco-glucoside

- Decyl glucoside

6. Preservatives

Natural preservatives:

- Sodium benzoate
- Potassium sorbate
- Essential oils

7. pH Adjustment

Shampoo pH should be 5–7.

8. Perfume and Color

Natural essential oils and plant colors are added.

9. Packaging

Stored in airtight bottles to prevent oxidation and microbial contamination.



EVALUATION PARAMETERS

1. pH Test

Should be between 5–7 to avoid scalp irritation.

2. Viscosity

Determines flow and thickness of shampoo.

3. Foaming Ability

Measured by foam height and stability.

4. Dirt Dispersion Test

Checks cleaning efficiency without harsh action.

5. Solid Content Test

Ensures proper concentration of ingredients.

6. Surface Tension Test

Lower surface tension indicates better cleansing.

7. Stability Studies

Conducted under different temperatures and storage conditions.

8. Antimicrobial Activity

Tested against dandruff-causing fungi.

9. Wetting Time

Time taken for hair to become fully wet.

10. Conditioning Effect

Assessed by smoothness, shine, and detangling.

MARKET TRENDS & COMMERCIAL PRODUCTS

Herbal haircare is one of the fastest growing sectors in the cosmetic industry.

Popular Herbal Shampoo Brands

- Himalaya Herbal Shampoo
- Khadi Natural Herbal Shampoo
- Patanjali Kesh Kanti
- Mamaearth Onion & Bhringraj Shampoo
- WOW Apple Cider Vinegar Herbal Shampoo
- Dabur Vatika Hair Shampoo

Market Growth

- Herbal haircare market growing 15–18% annually
- Increased awareness of side effects of chemical shampoos
- High demand for Ayurvedic and natural ingredients
- Global shift toward sustainable beauty products

Consumer Expectations

- Sulfate-free & paraben-free
- Natural fragrance
- Eco-friendly packaging
- Transparent ingredient lists

The demand for herbal shampoos continues to rise globally.

ADVANTAGES & LIMITATIONS

Advantages

- Safe for long-term use
- Mild and non-irritating
- Free from harsh chemicals
- Strengthens hair & prevents hair fall
- Treats dandruff and scalp infections
- Rich in natural nutrients
- Eco-friendly and biodegradable

Limitations

- Less foaming compared to synthetic shampoos
- Shorter shelf life
- Variation in herb quality and potency
- Standardization difficult
- Sometimes costlier due to extraction processes



FUTURE SCOPE

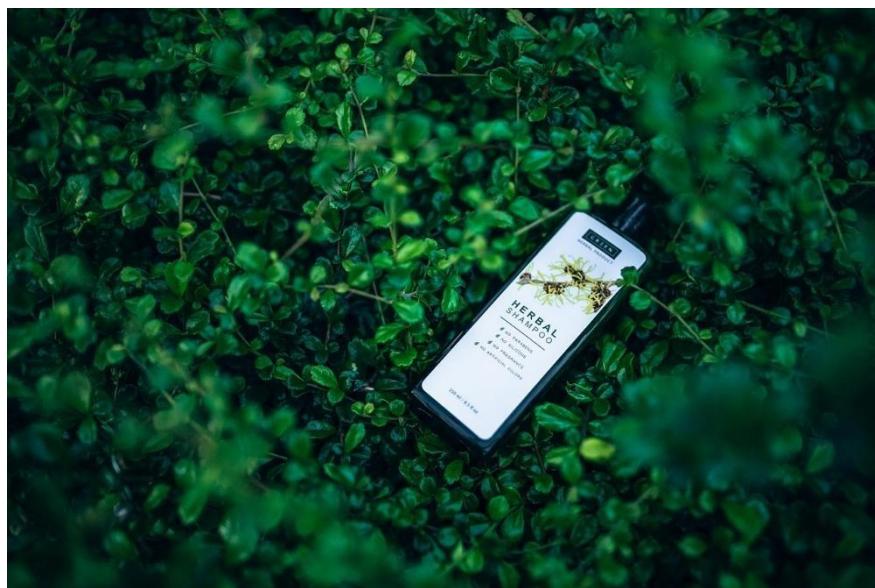
The future of herbal shampoo research and development is promising.

Areas of Future Research

- Nano-herbal formulations for improved absorption
- Advanced extraction technologies (supercritical extraction)
- Development of preservative-free shampoos

- Personalized haircare using AI-based scalp analysis
- Increasing shelf life naturally
- Creating multifunctional herbal shampoos

With increasing global preference for sustainable and natural products, herbal shampoos have a strong future both scientifically and commercially.



CONCLUSION

Herbal shampoos offer a safe, natural, and effective alternative to synthetic shampoos. They cleanse the scalp gently using natural saponins while providing nourishment, protection, and therapeutic benefits. Herbs such as reetha, shikakai, amla, hibiscus, neem, aloe vera, and bhringraj contribute to multiple benefits including reducing dandruff, preventing hair fall, promoting growth, soothing the scalp, and enhancing hair strength.

The literature strongly supports the effectiveness of herbal ingredients for haircare. While herbal shampoos face challenges related to stability, standardization, and shelf-life, ongoing research and technological advancements continue to improve their formulation quality. With increasing consumer demand for natural and eco-friendly products, the future of herbal shampoos remains bright and full of opportunities.

REFERENCES

1. Kumar & Sharma. "Natural Saponins in Herbal Shampoo Formulation." *Journal of Cosmetic Science*, 2019.

2. Rajan et al. "Effect of Amla on Hair Growth." *International Journal of Ayurveda Research*, 2020.
3. Patel et al. "Anti-dandruff Activity of Neem Extract." *Phytotherapy Journal*, 2021.
4. WHO Guidelines on Herbal Cosmetics, 2017.
5. Singh & Patel. "Polyherbal Shampoo Formulation and Evaluation." *International Journal of Pharmaceutical Sciences*, 2022.