

REVIEW ON FORMULATION AND EVALUATION OF HERBAL SHAMPOO

Sagar Swamini Navnath^{1*}, Labade Ashwini Digambar² and Prof. Tagad A. V.³

Research Scholar: B. Pharmacy, Ashvin College of Pharmacy, Manchi Hill Sangamner (413714)



*Corresponding Author: Sagar Swamini Navnath

Research Scholar: B. Pharmacy, Ashvin College of Pharmacy, Manchi Hill Sangamner (413714).

Article Received on 22/10/2024

Article Revised on 12/11/2024

Article Accepted on 02/12/2024

ABSTRACT

The primary goal of this study is to make and assess a herbal shampoo and identify its physiochemical function, with an emphasis on the product's quality, safety, and efficacy. Herbal shampoo is a natural hair care solution that is used to encourage hair growth, thickness, and blackness while also removing oil, grime, and dandruff. Additionally, it gives hair shine, smoothness, and softness. A variety of medications are utilised in the pre-mixture of cosmetic shampoo. Various adverse effects, including hair loss, excessive scaling, scratching, pain, nausea, and headaches, are reported with these medications. Thus, a trial is conducted to create a herbal shampoo that has no negative effects.^[1] With a focus on safety and effectiveness, the current study aims to formulate and assess a herbal anti-dandruff shampoo using natural ingredients.^[2]

KEYWORDS: herbal shampoo, cosmetics, aloe vera, dandruff, Hibiscus rosa-sinesis, Azadirachta indica, soap nut tree, Murraya paniculata.

INTRODUCTION

In our daily lives, herbal shampoos are arguably the most popular cosmetic products used to clean our hair and scalps. Herbal shampoos are cosmetic preparations made with traditional ayurvedic herbs that are intended to cleanse hair and scalp in the same way as conventional shampoo. They are employed to remove pollutants from the environment, oils, and hair, among other things. As an alternative to the synthetic shampoos on the market, shampoo is a type of cosmetic mixture made from plant-based herbs. The significance of herbal shampoos is that people now prefer herbal products over chemical ones because they have been shown to improve.^[1] Shampoos are probably used as cosmetics; they are a viscous solution of detergents containing appropriate additives, preservatives, and active ingredients three. It's a persistent, innocuous ailment that manifests as white flakes of dead skin in the hair or on the shoulders when the scalp gets greasy or dry. The most common misconception is that it causes a flaky scalp.^[7] No matter what kind of water is used, what kind of soil or fat needs to be removed from hair, a good shampoo should almost instantly produce a lot of foam. People psychologically always prefer a high foam product, even though concept foam formation is not released to the Cleaning effect. A drying impact on the hair is one of the adverse effects of some excellent shampoos. The result is hair that is too dry to comb or handle. Therefore, adequate hair conditioning is equally crucial to take into account.

Certain shampoos might cause corneal clouding and eye irritation. They ought to be^[19]

Definition of Herbal Shampoo

Most likely, shampoos are used for cosmetic purposes. In our daily lives, we utilise this hair care product to clean our scalp and hair. Most frequently used as beautifying agents, shampoos are a sticky detergent solution with appropriate preservatives, additives, and active ingredients. Typically, it is massaged into damp hair, applied, and then washed with water. Herbal shampoo is used to clean the hair of debris and makeup without removing a significant amount of sebum. There are already a lot of artificial shampoos available on the market, both medicated and non-medicated. However, natural shampoos have gained popularity since they are safe, enhance customer demand, and have no negative side effects.^[16] According to its definition, HS is a formulation of a surfactant (surface active substance) in an appropriate liquid, solid, or power form that, when applied as directed, will remove surface oil, grime, and skin debris from the hair shaft and scalp without negatively affecting the user's hair, scalp, or health. There are numerous varieties of HS, including powder, liquid, lotion, cream, jelly, aerosol, and specialised HS (such as conditioning, anti-dandruff, baby, and two layers). However, herbal shampoo will be the norm in HS coming forward. Together with a plant extract, it has all natural elements. It aids in the adaptation of hairs' standards for hydration, lustre, growth, thickening, and

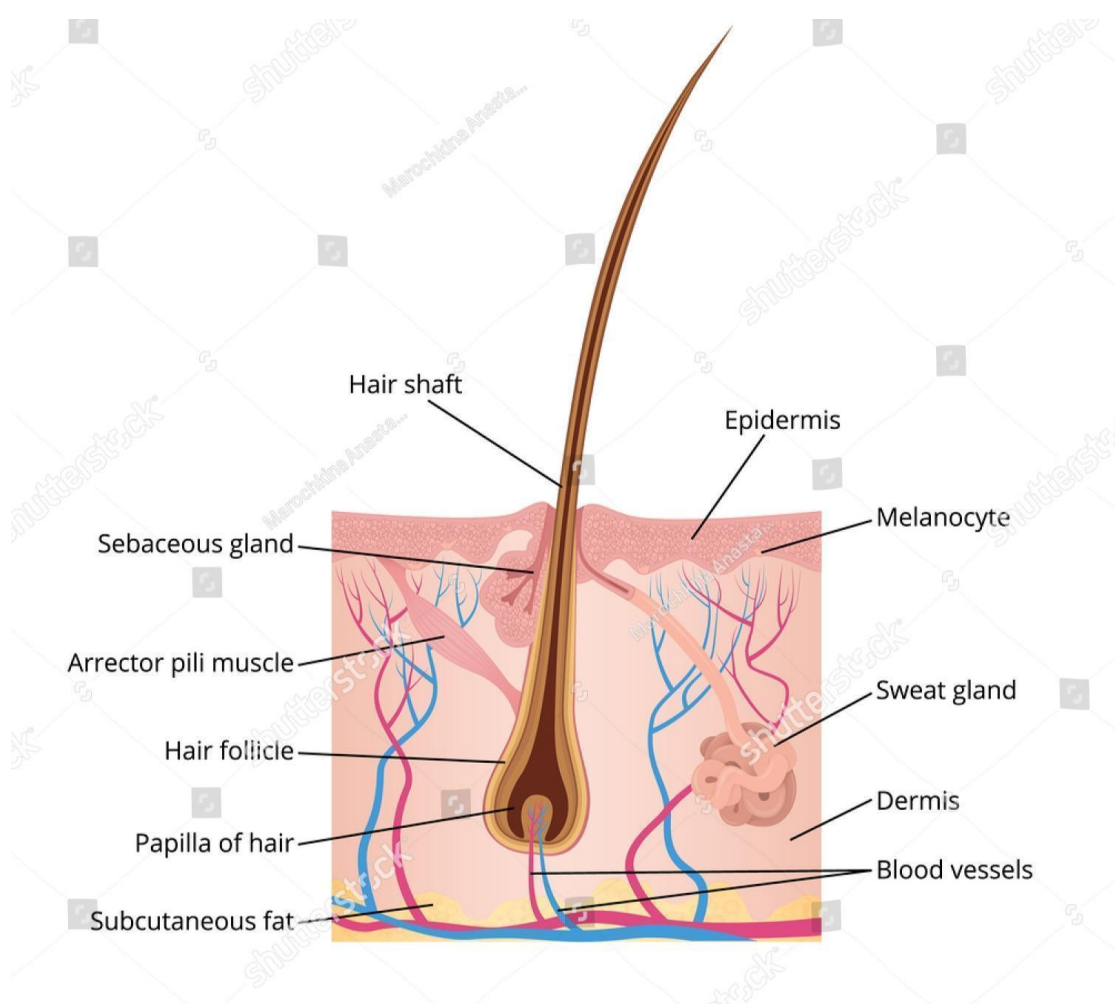
root strength.^[17] Shampoos containing herbal extracts are made entirely of natural materials. Enhancing the moisture content, growth, thickness, and strength of hair roots are some of the benefits it offers hair. What matters most is that there are no negative effects from using herbal shampoos. In comparison to synthetic shampoos, herbal shampoos work better and are safer. Unlike any other ab delhi, herbal shampoos are completely natural. chemical additions of bohhot dur. Shampoos made with herbs won't irritate the scalp or skin. Hair loss can be stopped by utilising herbal shampoos. Human beauty is primarily derived from the hair. Numerous individuals utilised natural products, which are less costly and have fewer adverse effects. Natural extracts and resources have been used for beauty and health care reasons since ancient times. Numerous therapeutic plants are commonly utilised and have positive effects on hair.^[4]

Human hair

Parts of the human hairs

Dermal papillae: The androgen receptors that make up the dermal papilla are sensitive to the presence of DHT and are in charge of controlling the hair cycle and growth.

Matrix: The dermal papillae are surrounded by a matrix that includes all the active ingredients required for hair growth and the development of the various hair components, including the hair shaft, inner root sheath, and outer root sheath. The hair is composed of the dermal papillae and the matrix together.



IDEAL PROPERTIES OF HERBAL SHAMPOO

1. Dust or other contaminants trapped in hairs should be removed thoroughly and effectively
2. To achieve glossy, silky hair
3. Generate a large volume of foam.
4. Should not irritate the skin, scalp, or eyes.
5. Must eliminate dirt entirely and efficiently.
6. Give hair a pleasing scent.
7. Application Simplicity
8. Clearing Additional Debris
9. Excellently Maintained
10. Good Stability

USE OF INGREDIENTS**1) Reetha (2)**

- Prevents hair loss.
- Avoids Dandruff.
- Combat Infections of the Scalp

In Ayurveda, *sapindus mukorossi-sapindaceae*, or soapnuts, is also referred to as *arishtak*. In India, a "soap nut tree." It is widely used as a hair cleaner and is well known for its traditional medical applications. An anti-dandruff shampoo that also acts as a natural antifungal and antibacterial agent can help prevent hair loss. It can be applied every day to feed the scalp of the hair and encourage the growth of new hair. Reetha's ability to stabilise Tridosha aids in the management of dandruff and encourages hair development.

2) Carry leaves

Koenigii Murraya-Rutaceae, Dandruff can be controlled using curry leaves. Its antifungal properties aid in the reduction of itching and dandruff. Leaving your hair healthy and your scalp clean. Curry leaves help to hydrate the scalp, encourage hair growth, and stave off dandruff. Curry leaves provide the scalp with a rich layer of cell reinforcements. Helps prevent dandruff, premature greying of the hair, and hair loss by eliminating dead hair follicles. Two.^[2]

3) Aloe Vera

Aloe barbadensis Miller - Liliaceae, Shampoo made from aloe vera may help with hair loss. It has proteolytic enzymes that aid in clearing the scalp of dead skin cells, clearing clogged hair follicles, and encouraging normal hair growth. Furthermore, its anti-inflammatory qualities help calm the scalp and lessen ailments that could exacerbate hair loss.

- gets stronger.
- soothes an irritated scalp
- Deeply tides greasy hair

4) Neem: *Azadirachta indica*-Meliaceae

- . Treats Acne. Neem has an anti-inflammatory property which helps reduce acne.
- . Nourishes Skin.
- . Treats Fungal Infections.
- . Useful in Detoxification.
- . Increases Immunity.
- . Insect & Mosquito Repellent.
- . Prevents Gastrointestinal Disease.

**5) Hibiscus**

- . Genus *Hibiscus*-Malvaceae
- . Encourage the growth of hair and replenish lost lustre and volume with time
- . Hair Conditions
- . Uses finasteride and minoxidil to prevent baldness.
- . Handle Itchy Scalp & Dandruff.
- . Stops premature ageing of the skin.

**6) Amla :-** *Phyllanthus emblica* - Euphorbiaceae

- . Retain moisture and balance pH levels to support the maintenance of a healthy scalp.
- . Make the hair and scalp stronger.
- . Decrease premature greying, or the loss of colour in hair.
- . Encourage the growth of hair. 4. Diminish Hair Loss.
- . Treat or avoid dry scalp and dandruff.
- . Stop or cure diseases of the scalp and hair caused by fungi and bacteria.
- . Enhance the hairs' overall look.



7) Tragacanth:- Gum tragacanth -Leguminosae
Thickening agent to preserve the semisolid consistency of herbal shampoo. The final ingredients were scented and preservatives.

- . Thickener
- . Gelling agent
- . Emulsifier



8) Rose Oil

- . It repairs damage to hair.
- . Enhances Hair Growth
- . Minimises dandruff
- . Adds aroma to the sha



MATERIALS AND METHODS

Collection of Material

Table 1: Details of the plant materials study(12)

Sr. No.	Common Name	Botanical name	Parts used	Property
1.	Reetha	Sapindus indica	Fruit	Detergent
2.	Carry leaves	Koenigii Murraya	Leaves	Antioxidant, Moisturizing agent
3.	Aloe vera	Aloe barbadensis	Leaf	Coolant
4.	Neem	Azadirachta indica	Leaves	Anti- bacterial. Anti- inflammatory, Nutritional agent
5.	Hibiscus	Hibiscus rosa sinensis	Flower	Conditioning agent
6.	Amla	Phyllanthus emblica	Fruit	Anti- dandruff agent
7.	Rose	Rosa	Flower	Fragrance

Types of Shampoo

Shampoos are of the following types

- Herbal shampoo
- Solid shampoo
- Jelly Shampoo
- Aerosol Shampoo
- Anti- dandruff Shampoo
- Traditional shampoo
- Specialized Shampoo
- Conditioning Shampoo
- Powder Shampoo
- Liquid Shampoo
- Lotion Shampoo
- Cream Shampoo

ADVANTAGES OF SHAMPOO

- Properties that clean.
- Enhancing hair care practices.
- Handling diseases of the scalp.
- Handling of dry scalp.
- Therapy for thinning hair.
- Oily or greasy hair treatment.
- Alleviates inflammation and itching.
- Restores broken hair.

Shampoo maintains hair silky or smooth and keeps your hair.

Looking gorgeous and full of flowers.

Ingredients that are pure and organic and free of side effects.

No synthetic additives.

No surfactants, such as SLS.

No Experiments on Animals.

Skin-friendly and earthly^[6, 2]

FUNCTION OF HERBAL SHAMPOO

1. Moisturing
2. Modification
3. Development of Hair
4. Preserving Colour
5. Drugs^[6]

BENEFITS OF HERBAL SHAMPOO

1. Added Glow
2. Reduced Hair Loss
3. Durable Colour
4. More robust and reinforced hair
5. Natural and Chemical-Free
6. Won't Cause Skin or Scalp Itching
7. Maintain Nutritious Natural Oils^[2]

COMPOSITION OF HERBAL SHAMPOO

Principal surfactant
 Secondary surfactant
 Antidandruff agents
 Conditioning agents
 Pearlescent ageagent
 Sequestrants
 Thickening agents
 Colours, perfumes and preservatives^[11]

Principal Surfactant

Cleaning compounds that replace soap are called surfactants. They work by decreasing the physicochemical adhesion factors that hold residues and contaminants to the hair. By dissolving these contaminants, surfactant stops them from adhering to the scalp or shaft. The type and quantity of surfactants employed, along with how successfully a shampoo removes grease, determine how cleansing it is.^[13]

Conditioner agent

Conditioners are used to reduce frizz, detangle hair, reduce friction, and enhance combability. Conditioner works by lubricating the cuticle, which decreases the hydrophilicity of the hair fibre, and by adding positive charges to the hair fibre to balance its electrical negative charge.

Functions of the conditioner

Mimic the outer layer of natural lipids in hair
 Bring back the hydrophobicity
 Close the cuticle
 Reduce or eliminate friction and frizz by neutralising the negatively charged net
 Improve manageability, smoothness, and shine.^[13]

Colour perfumes and Preservatives

There aren't many different colours that can be made because the majority of the surfactants that are commonly utilised in shampoos are straw or yellow in colour. Compared to pastels, green, yellow, and orange are more accessible. When adding colour to a shampoo, the permanence of the colour is the other consideration. Reds tend to turn orange, greens to turn yellow, and blues to turn green. Whether the shampoo is exposed to UV light or just heat and ageing, these colour changes can still happen.

Secondary Surfactant

Secondary surfactants: enhanced hair condition, froth, and detergency. Conditioning agents include mineral oil, fenugreek, lanolin, herbal extracts, and derivatives of henna eggs.^[20]

Characterization of Herbal Shampoo

1. Percent of solid: A dry, clean evaporating dish was weighed, and the initial weight of the dish was noted. In the evaporating dish, 4 grammes of shampoo formulation—not the 1% solution—was taken. Weigh the dish and shampoo, then note their

initial weights. determined the precise weight of the shampoo alone and noted its beginning weight. Put the shampoo-filled evaporating dish on the hot plate and wait for the liquid to evaporate. Weighing the dish and shampoo solid after drying allowed us to record the results.

- 2. PH:-** The PH meter was used to measure the PH of a 1% shampoo solution.
- 3. Foam Formation:-** (Shake Test) Measured the volume of 50 millilitres of the 1% shampoo solution in a 250 millilitre graduated cylinder. After that, shake the cylinder ten times while covering it with your palm. After shaking, the contents' entire volume was noted. Determine how much foam there is and note how big the bubbles are.
- 4. Foam quality and retention:-** Time was noted immediately following the shake test. recorded the foam volume five minutes at one-minute intervals.
- 5. Skin irritation test:-** the prepared shampoo solution on the skin, left it for five minutes, and checked for skin redness and irritation. The S skin showed no signs of redness or irritation.
- 6. Visual stability:-** The produced shampoo was examined for colour change and PH of over the course of 21 days at room temperature with a relative humidity of 65+_5. The shampoo's colour and PH did not alter over the course of 21 days, and there was no phase separation between the water and oil.
- 7. Viscosity:-**We used the Ostwald viscometer to measure viscosity.
- 8. Surface Tension:-** Distilled water was gradually added to the beaker containing the shampoo. When shampoo and water were thoroughly mixed, a stalagmometer showed that the surface tension was consistent.
- 9. Dirt dispersion Test:-** In a test tube with a wide mouth, two drops of cleanser were added to 10 millilitres of pure water. Once the test tube was sealed with a stopper, add one drop of Indian ink to the shampoo formulation and mix for ten minutes. The amount of seal in the foam was measured, and the outcome was categorised as heavy, medium, slight, or none. Wetting-Wetting time was measured by recording how long it took the canvas paper to completely sink. A disc with a diameter of one inch was carved out of duck paper that weighed 0.44 grammes. In addition to the shampoo.^[15]

CONCLUSION

The primary goal of this formulation was to create a shampoo that was both stable and effective by incorporating all of the different kinds of chemicals that were used. Natural plant ingredients can help lessen shampoo's negative effects. Shampoo made of herbs is safer than one made of synthetics. The shampoo's PH was set at 5 to preserve the acidic mantle of the scalp. It is commonly believed that shiny hair with a smooth texture and a clean cut finish is healthy. The use of synthetic conditioning chemicals decreases hair loss or protein loss. In this study, shikakai, amla, and other plant extracts are used in place of synthetic ones to provide the desired conditioning effects. Consumer perceptions of what constitutes a good shampoo need to be changed, and formulators bear the responsibility for this.

REFERENCE

1. Maurya, Shashikant Maury, Piyush Yadav, Manoj Kumar Yadav, Suraj Maurya, Satyam Jayaswal Department of pharmacy Prasad Institute Of Technology, Jaunpur, Uttar Pradesh (India) A REVIEW ARTICLE ON: HERBAL SHAMPOO 2021 JETIR, May 2021; 8.
2. Mrs. K. Sravanthi N. Kavitha, K. Sowmya, S. Naazneen, U. Vaishnavi, CH. Anil St. Pauls college of pharmacy, Turkayamjal, Rangareddy District, Telangana, 5015 A Review on Formulation and Evaluation of Herbal Anti Dandruff Shampoo, May – June 2021; 6(3).
3. Suchita Gokhale¹, Ashwini H. Pawshe², Srushti P. Patil², Raj M. Pitambare and Priyam S. Pawar² 1EXTRACTION, FORMULATION AND EVALUATION OF MORINGA HERBAL SHAMPOO ISSN: 2320-5407
4. Mr. Barde Gaurav., Prof. Mali Shubhangi International Journal of Research Publication and Reviews, June 2022; 3(6): 74-81.
5. Mayank Singh, Piyush Yadav Manish Kumar Maurya, Satyam Jayswal Nitin Yadav. A REVIEW ON COSMETIC, Products SHAMPOO 2021 IJCRT, January 2021; 9(1).
6. Suyog Sunil Bhagwat Dr. N. J. Paulbudhe College of Pharmacy, FORMULATION AND EVALUATION OF HERBAL SHAMPOO 2020 IJCRT, September 2020; 8(9).
7. SHAH PRACHI & DASANI SONAL PREPARATION OF HERBELLO- AN HERBAL ANTIDANDRUFF SHAMPOO, APR-JUN 2015; 5(2).
8. Jennifer Gubitosa Vito Rizzi, Paola Fini and Pinalysa Cosma Hair Care Cosmetics: From Traditional Shampoo to Solid Clay and Herbal Shampoo, A Review 31 January 2019; Accepted: 14 February 2019; Published: 19 February 2019.
9. Dr. Kuntal Das, Nirali Prakashan, types of shampoo, first edition, Feb 2020.
10. P. A. Cornwell first published, A review of shampoo surfactant technology, 02 November 2017; 40(1).
11. Jaya Preethi P., Padmini K., Srikanth J., Lohita M., Swetha K., Vengal Rao P.A Review on Herbal Shampoo and Its Evaluation, 2013; 3(4).
12. VIJAYALAKSHMI A*, SANGEETHA S, RANJITH N FORMULATION AND EVALUATION OF HERBAL SHAMPOO, 2018; 11(4).
13. Maria Fernanda Reis Gavazzoni Dias Hair Cosmetics, 2015; 7: 1.
14. Ken Klein, Irwin Palefsky, in Handbook for Cleaning/Decontamination of Surfaces, 2007 Shampoo Formulation
15. Prof. Shital V. Sirsat, Prof. Nikita M. Rathi, Shubham P. Thakare, Mayur S. Sapkal, Amol G. Chavare Formulation and characterization of Herbal Shampoo, April 2022; 7(4).
16. P.A.M. Sucharitha, S. Nelson Kumar, S.Shaheena Begum, S.Ayesha, Y.Vandhana, Shruthi Babu, P.Kishore Kumar Reddy PREPARATION AND EVALUATION OF HERBAL SHAMPOO FROM ETHANOLIC EXTRACT OF LEAVES AND FLOWERS ISSN- 2230-7346
17. Utane R., Deo S. and Itankar P. PREPARATION OF HERBAL SHAMPOO (HS) BY GREEN METHOD Vol. V, March 2017; 254-258.
18. Simanchal Panda FORMULATION AND EVALUATION OF HERBAL POWDERED SP. Vinod Kumar*1
19. P. Venkateswara Rao R. Prince K. Terejamma T. Chaitanya Prasanna Kumar Desu T. Chaitanya, Prasanna Kumar Formulation and Evaluation of Herbal Anti-Dandruff Shampoo, 2018; 4(2).
20. Jaya Preethi P, Padmini K., Srikanth J., Lohita M., Swetha K., Vengal Rao P.A Review on Herbal Shampoo and its Evaluation.