

A Review On Formulation and Evaluation of Herbal Shampoo

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Abstract: *The present study focuses on the formulation and evaluation of an herbal shampoo containing natural extracts for preventing hair loss and maintaining hair conditioning. The prepared shampoo was tested for various physicochemical parameters such as pH, foam formation, viscosity, conditioning, and wettability. The rheological study indicated good thixotropic behavior, confirming suitable viscosity. The formulation showed high and stable foam production, with a pH value around 5, which is compatible with the scalp and hair. The wetting time was observed to be 5 minutes, indicating good spreading ability. Based on the wettability, conditioning, and foaming results, the formulated herbal shampoo was found to be of good quality and suitable for commercial introduction in the market.*

Keywords: Herbal Shampoo, Cosmetic, Hair Care, Scalp, Viscosity, Foam

I. INTRODUCTION

Since ancient times, people have used natural ingredients from plants and herbs to take care of their health, skin, and hair. Nature provides many useful materials that help protect, heal, and enhance beauty.

Hair is often seen as a reflection of a person's overall health. Washing hair with shampoo is the most common way to keep it clean. The main purpose of shampoo is to remove oil (sebum), dirt, and dead skin from the scalp and hair. Different types of shampoos are made to suit different hair needs—such as oily hair, dandruff, or hair loss problems.

Shampoos usually come in liquid, cream, or gel form. Their thickness depends on the ingredients used, like natural oils, fatty alcohols, gums, or other thickening agents. In India, women traditionally use herbal cleansers like Shikakai and Reetha, which clean the hair naturally without causing damage.

Today, people prefer herbal shampoos over synthetic (chemical) ones because they are safer, gentler, and made from natural sources.

Definition:

Herbal hair shampoo

Herbal hair shampoo is a hair-cleansing preparation made from natural plant-based ingredients such as herbs, extracts, and essential oils. It is designed to clean the scalp and hair while providing additional benefits like nourishment, conditioning, and protection against problems such as dandruff, hair fall, and dryness — without the use of harsh synthetic chemicals.



Fig. 1 Herbal Hair Shampoo



Ideal Properties of A Shampoo:

1. It should be easy to wash off and leave the hair soft, shiny, and easy to manage.
2. It should have a pleasant smell that covers the bad odor of wet hair.
3. It should make wet hair easy to comb.
4. It should clean the hair and scalp properly by removing dirt, oil, leftover hair products, and dead skin cells.
5. It should be safe and non-toxic for hair and scalp.
6. It should work well even when used in small amounts.
7. It should not cause irritation or damage to hair or skin.

Types of Shampoo

- Aerosol Shampoo
- Lotion Shampoo
- Jelly Shampoo
- Cream Shampoo
- Powder Shampoo
- Liquid Shampoo
- Specialized Shampoo :
- Baby Shampoo
- Two Layer Shampoo
- Anti-dandruff Shampoo
- Conditioning Shampoo

Advantages of Herbal Hair Shampoo

- Produced using natural plant extracts such as aloe vera, hibiscus, neem, amla, and bhringraj.
- Contains no harsh chemicals like parabens or sulfates, making it gentle on the scalp and hair.
- Keeps the scalp's natural oils intact, avoiding dryness and roughness.
- Enhances blood circulation and nourishes hair roots to encourage hair growth.
- Uses natural antifungal and antibacterial herbs to reduce dandruff, itching, and irritation of the scalp.
- When used regularly, it prevents split ends and hair loss. gives hair a natural sheen and lustrous texture.
- Less harmful and biodegradable, making it environmentally friendly.
- All hair types and delicate skin can use it. frequently has a nice, organic scent from essential oils and plants.

ANATOMY OF HAIR –

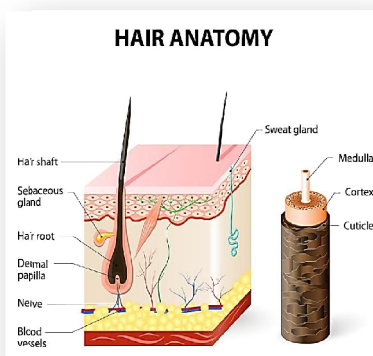


Fig.2 Anatomy of Hair

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1. **Hair Shaft:** The visible portion of the hair above the skin.
2. **Hair Root:** The portion of hair located inside the hair follicle, a little pocket beneath the epidermis.
3. **Sebaceous Gland:** A little gland that secretes oil at the hair root. It produces sebum, or oil, which maintains hair lustrous and silky.
4. **Dermal Papilla:** The hair root's base. It uses blood arteries to deliver nutrients to the hair.
5. **Nerve:** Facilitates touch or pain perception through the hair.
6. **Blood Vessels:** These provide the hair root with nourishment and oxygen to promote growth.
7. **Sweat Gland:** Produces perspiration to keep the body cool.
8. **Inside the shaft, the hair structure:** The outer layer, or cuticle, shields the hair. The middle layer, or cortex, is what gives hair its texture, color, and strength. The inner core, or medulla, is sometimes absent from fine hair.

Main Ingredient Hibiscus



Fig.3 Hibiscus

Synonyms : Shoe flower, China rose

Biological Source: Hibiscus consists of the flowers and leaves of *Hibiscus rosa-sinensis* Linn.

Family: Malvaceae

Chemical Constituents: Cyanidin-3-sophoroside, Vitamin C, β -sitosterol, Delphinidin, Cyanidin.

Mechanism of Action of Hibiscus on Hair

1. Promotes Hair Growth

Vitamin C, amino acids, and flavonoids found in hibiscus flowers and leaves promote blood flow in the scalp. Hair follicles are nourished by improved circulation, which also stimulates dormant follicles and encourages the creation of new hair.

2. Prevents Hair Fall

Hibiscus's phytosterols and antioxidants, such as polyphenols, fortify hair roots and lessen breakage. Additionally, they protect oxidative stress-induced hair loss by neutralizing free radicals that harm hair follicles.



Other Ingredients

Sr. No.	Plant name	Family	Uses	Figure
1	Fenugreek (Trigonella foenum-graecum)	Fabaceae	Dryness of scalp. Anti-dandruff. Inflammation problems.	
2	Amla (Phyllanthus Emblica)	Euphorbiaceae	For hair loss . To prevent graying of hair.	
3	Aloe vera (Aloe barbadensis Miller)	Asphodelaceae	Moisturising agent. Soothing property.	



4	Reetha (Sapindus mukorossi)	Sapindaceae	Use as mild soap. Control hairfall.	
5	Rose Water (Rosa Damascena)	Rosaceae	Enhances mood. For fragrance.	

EVALUATION OF HERBAL SHAMPOO:

- 1. Physical Appearance:** Customers rate shampoos based on color, clarity, and odor.
- 2. pH:** The pH values of the shampoo in 1% and 10% solutions at room temperature were measured using a pH meter and found to be 7.12 ± 0.24 °C.
- 3. Determine percent of solids contents:** Calculate the percentage of solids in the mixture. Four grams of herbal shampoo was placed to a dry, clean evaporating dish after it had been weighed. Only the precise weight of the shampoo was determined, and the evaporating dish containing the shampoo was set on the hot plate until the liquid was gone. After drying, the weight of the shampoo's solids alone was determined.
- 4. Foaming ability and foam stability:** The capacity to foam and the stability of foam. Foaming ability was assessed using the cylinder shake method. A 250 ml graduated cylinder was filled with 50 ml of the 1% shampoo solution. The cylinder was covered with the hand and shaken ten times, and the results were noted. after one minute of shaking, the total volumes of the foam contents. Only the foam volume was computed. The volume of foam was recorded immediately after shaking for four minutes at one-minute intervals.
- 5. Dirt dispersion test:** One drop of India ink and around 1% shampoo solution are put into a test container. Shake the test tube for about five minutes after stopping it. None, light, moderate, or heavy denote the quantity of ink in the foam.
- 6. Skin Irritation Test:** To assess for inflammation or skin irritation, a prepared herbal shampoo was applied for five minutes after the skin had been cleansed.

II. CONCLUSION

In addition to being safer than chemical conditioning agents, the shampoo's formulation significantly decreased hair loss while combing and strengthened hair growth. To preserve the scalp's acidic mantel, the shampoo's pH was set to 5. The formulations are preserved using a physicochemical method to mitigate the danger associated with chemical preservatives. Nevertheless, the laboratory shampoo's visual qualities—like lather and clarity—do not match those of the commercially available shampoos. The volume of the foam is one par.

Despite being safer and performing better than synthetic shampoos, it appears unlikely that herbal shampoos will be widely used in the current market. Consumers need to be actively informed by formulators about the possible negative



effects of synthetic detergent in shampoos. Consumer opinions of what constitutes a good shampoo need to be changed, and formulators bear the responsibility for this.

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