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Review Article

Formulation And Evaluation of Herbal Hair Conditioner

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ABSTRACT

Hair plays a crucial role in protecting the scalp. Hair conditioners are skincare products specifically designed for application to the hair ends, serving the purposes of cleansing, conditioning, and rinsing. These products enhance the hair's shine and smoothness, increase its luster, and primarily work to prevent breakage, minimize split ends, and improve manageability. Herbal conditioners often incorporate key ingredients such as fenugreek, hibiscus flowers, and curry leaves. These products have been evaluated and analyzed based on physicochemical parameters, including efficiency and stability studies. A more innovative approach to promoting herbal conditioners could reshape consumer expectations, highlighting their safety and effectiveness. All tested herbal conditioners demonstrated a pH level within the acceptable range, comparable solid percentages, stable lather, and high viscosity, along with favorable wetting properties when compared to synthetic alternatives.

INTRODUCTION

Herbal products have experienced a notable increase in popularity over the past decade, with usage rates among 20-30% of the population. These products are sourced from natural materials, such as flowers, stems, bark, seeds, leaves, and medicinal plants. Hair conditioners, a specific category of hair care products, are formulated to nourish the hair following shampooing, helping to restore its natural condition and leaving it soft, shiny, and easy to manage. Suitable for all hair types, these conditioners provide hydration and


smooth the hair cuticle. Formulations that incorporate powerful antioxidants can assist in reducing UV damage, which may result in alterations to hair color and protein breakdown. However, it is essential to recognize that plant-based conditioners may still contain certain chemicals and sulfates.

Hair Anatomy:

Hair functions as an integrated system characterized by distinct chemical and physical properties. It is a complex structure made up of

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various morphological components that work in unison. The shaft represents the visible portion of the hair that is attached to the skin, while the roots are located beneath the skin, extending into its deeper layers. In mammals, the hair shaft is categorized into three primary regions:

- a) Cuticle
- b) Cortex
- c) Medulla

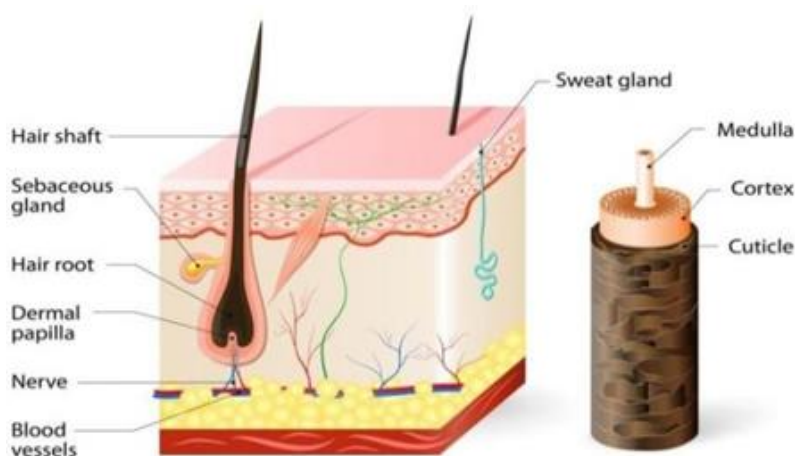


Fig: 2 Hair Anatomy

Advantages of herbal conditioner:

- 1) Improves hair shine and softness.
- 2) Reduces split ends.

Disadvantages of other conditioner available in market:

- 1) Harmful to hair and potentially toxic.
- 2) Can lead to redness on the scalp.

Material and Profile: -

Table no:1 Ingredient and Their Role

Sr. no	Ingredient	Role of Ingredient
1	Fenugreek seeds	Nourishes the hair.
2	Hibiscus flower	Natural conditioner
3	Curry leaves	Promote hair growth
4	Mint oil	Antimicrobial agent
5	Aloe Vera	Conditioning Agent
6	Glycerine	Moisturizer
7	Rosewater	Perfume
8	Almond oil	Soothing Agent

9	Citric acid	pH adjuster
10	Propyl paraben	Preservative

- 1. **Fenugreek:** The seeds of fenugreek are abundant in fiber, phospholipids, glycolipids, oleic acid, linolenic acid, choline, and a range of vitamins including A, B1, B2, C, nicotinic acid, and niacin, as well as numerous other advantageous compounds.
- 2. **Hibiscus Flower:** Hibiscus is well-known in herbal medicine for its ability to promote hair growth. The flowers and leaves of the hibiscus plant contain mucilage, which acts as a natural conditioner
- 3. **Curry Leaves:** Rich in vitamin C, vitamin B, protein, and antioxidants, curry leaves are vital for cell regeneration and enhancing blood circulation to the scalp's blood vessels.
- 4. **Mint oil:** This oil is a valued source of carotenes and antioxidants, offering natural

antibacterial and antifungal properties that help alleviate dandruff and various scalp issues.

5. **Aloe Vera Gel:** This gel is packed with active ingredients and minerals that aid in strengthening your hair.
6. **Glycerine:** Glycerine functions as a humectant, capable of attracting moisture from the air, thus preserving your hair's hydration and overall well-being. It is a popular choice in skin and hair care products due to its effectiveness.
7. **Propyl Paraben:** This ingredient promotes hair growth while preventing the growth of harmful bacteria and mold. It serves as an effective preservative in various formulations.

8. **Rose Water:** Rosewater provides multiple advantages for hair care, acting as a mild astringent.
9. **Almond Oil:** To achieve healthy, straight hair, it is crucial to moisturize the scalp and hair. Almond oil, rich in B-7 and biotin, significantly contributes to maintaining hair health and strength
10. **Citric acid:** Citric acid is known for its ability to balance the pH levels of the scalp, especially since many hair care products can raise scalp alkalinity.

The below table illustrates the quantity of ingredients used in 8 formulations: -

Ingredients	2	3	4	5	6	7	8
Mint extract(ml)	4	6	5.46	6.6	6.2	7.6	7
Aloevera gel (ml)	5.4	4	4.5	4	5	6.5	6
Glycerine (ml)	10	12	15	17	19	21	9
Methyl Paraben (gm)	2	3.5	3	4.5	4	5.5	5
Rose Water (ml)	5	6	6	6	6.5	5.6	7
Coconut Oil (ml)	3	4.5	4	5.5	5	6.4	7.5
Almond Oil (ml)	3	4	4	5.4	5	6.7	6

Evaluation Parameter:

The herbal hair conditioner underwent a thorough evaluation, focusing on its organoleptic properties, which include the following assessments:

- 1) **pH Assessment:** pH strips were immersed in the herbal conditioner solution, and the resulting color change was observed.
- 2) **Dirt Dispersion Evaluation:** The test tube was sealed and shaken ten times. The amount of ink present in the foam was assessed and categorized as none, light, medium, or heavy.

3) **Wetting Time Evaluation:** The wettability of surfactants is influenced by their concentration within the formulation and is typically evaluated to determine surfactant efficacy. The wetting time was measured by timing how long it took for a disc to submerge in the conditioner.

4) **Physical Characteristics:** The organoleptic properties of the conditioner were evaluated with a focus on the following aspects:

- Color
- Odor
- Texture



CONCLUSION:

The studies reviewed indicate that hair conditioners exhibit exceptional conditioning capabilities. These products are utilized after washing to improve hair smoothness, enhance shine, and repair damage caused by mechanical stress or environmental influences. Herbal hair conditioners, which are free from chemical additives, are suitable for all scalp types. The composition of hair conditioners includes ingredients that fortify, smooth, protect, and enhance the appearance of shiny, healthy hair. Various tests have been performed to evaluate the pH levels of hair rinses, dirt removal, wetting time, cleaning effectiveness, and stability, demonstrating that these conditioners are both safe and effective for use.

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