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Preparation And Evaluation Of Hair Growth Nutrient Herbal Shampoo

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Abstract :

The increasing demand for natural and safe hair care products has driven research into herbal alternatives to conventional shampoos. This study presents the formulation and comprehensive evaluation of a herbal shampoo aimed at promoting hair growth, utilizing a synergistic blend of traditional botanicals. The shampoo was prepared by homogenizing methi, shikakai, amla, reetha, bhringraj, and orange peel powders each selected for their reputed benefits in hair nourishment into a 10% w/v gelatin solution to ensure uniform dispersion and stability. Jasmine oil was incorporated for its preservative and aromatic properties, while coconut oil was added to enhance conditioning effects. The resulting formulation underwent rigorous physicochemical assessment, including determination of pH, physical appearance, density, and percentage solid content. The herbal shampoo exhibited a balanced pH suitable for scalp health, pleasant aroma and appearance, optimal density, and consistent solid content, reflecting its stability and user acceptability. These findings underscore the potential of this herbal formulation as a safe, effective, and eco-friendly alternative for hair growth promotion, supporting the integration of traditional herbal knowledge into modern personal care products.[1, 2]

Keywords : *Herbal shampoo, hair growth, natural ingredients, plant-based formulation, Shikakai.*

I. Introduction :

Shampoo is an essential hair care product used worldwide for cleansing the scalp and hair by removing dirt, excess sebum, sweat, and product residues. Over time, shampoos have evolved from simple cleansing agents to specialized formulations designed to address a variety of hair and scalp needs, including moisturizing, volumizing, colour protection, and dandruff control. The market today offers a wide range of shampoo types, such as clear liquid shampoos, cream shampoos, gel shampoos, powder shampoos, and specialized variants like medicated and conditioning shampoos, each tailored for specific hair concerns and preferences. [3]

Despite their widespread use and convenience, many commercial shampoos rely heavily on synthetic surfactants, preservatives, and fragrances. Prolonged or frequent use of such products can strip the hair of its natural oils, leading to dryness, scalp irritation, increased hair fragility, and sometimes allergic reactions. Additionally, the environmental impact of synthetic chemicals in personal care products has become a growing concern, prompting a shift in consumer preference toward safer, eco-friendly alternatives. [4]

Herbal shampoos, formulated with plant-derived ingredients, have gained significant attention as natural and holistic alternatives to conventional products. These formulations are valued for their mild cleansing action, minimal side effects, and the traditional belief in their efficacy for promoting hair growth and scalp health. Ingredients such as methi (fenugreek), shikakai, amla, reetha, bhringraj, and orange peel have been extensively used in traditional medicine for their nourishing, strengthening, and cleansing properties. Jasmine oil and coconut oil further enhance the formulation by imparting fragrance, preservation, and conditioning benefits. [5,6,7]

Despite the rich heritage of herbal hair care in traditional systems, there is a need for systematic scientific evaluation to validate the safety, stability, and efficacy of multi-herbal shampoo formulations. The present study aims to prepare a herbal shampoo incorporating these botanicals and to evaluate its physicochemical properties, including pH, physical appearance, density, and solid content. By bridging traditional knowledge with scientific assessment, this research seeks to contribute to the development of safe, effective, and sustainable hair care solutions.[8]

II. Materials and Method :

Herbal powders of shikakai, bhringraj, methi, amla, reetha, and other botanicals were collected from the local vendors and the remaining ingredients from the pharmacognosy lab, in KBIPER.

1. **Methi (Fenugreek) Powder –**
   Biological source: ***Trigonella foenum-graecum***. Methi seeds contain proteins, nicotinic acid, and lecithin, which help strengthen hair follicles, reduce dandruff, and support hair growth. [9]

Figure no. 1 Methi Seeds

2. **Shikakai Powder –**
   Biological source: ***Acacia concinna***. Known as the "hair fruit," shikakai is rich in saponins, vitamins A, C, D, and E, which help in gentle cleansing, reducing scalp irritation, and preventing hair fall. [10]

Figure no. 2 Shikakai powder

3. **Amla Powder –**

Biological source: Derived from the fruit of ***Phyllanthus emblica*** (also known as Emblica officinalis), amla powder is traditionally recognized for its rich vitamin C content and is included for its nourishing effect on hair.[11]

Figure no. 3 Amla powder

4. **Reetha Powder –**

Biological source: ***Sapindus mukorossi.*** Reetha, or soapnut, contains natural surfactants called saponins that produce mild lather and cleanse the scalp without stripping natural oils. [12]

Figure no. 4 Reetha powder

5. **Bhringraj Powder –**

Biological source: Obtained from the leaves of the ***Eclipta alba plant*** (commonly known as False Daisy), this powder is traditionally valued in ayurvedic medicine for promoting healthy hair. [13]

Figure no. 5 Bhringraj powder

6. **Orange Peel –**

Biological source: The dried flavedo (outer layer) of orange peel is rich in limonene, flavonoids, and vitamin C. It acts as a natural cleanser and helps in managing oily scalp and dandruff. Fresh oranges were sourced from the local market; peels were sun-dried and powdered. [14]

Figure no. 6 Orange peel

7. **Jasmine Oil –**

This essential oil is sourced from the flowers of ***Jasminum grandiflorum,*** commonly referred to as Spanish jasmine. It is widely utilized for its soothing aroma . It also acts as natural preservative. [15]

Figure no. 7 Jasmine oil

8. **Coconut Oil –**

Biological source: ***Cocos nucifera***. Rich in medium-chain fatty acids such as lauric acid, coconut oil penetrates the hair shaft to reduce protein loss, enhance conditioning, and protect from damage. [16]

Figure no. 8 Coconut oil

III. Formulation table :

Table no. 1 Formulation table of herbal shampoo

Serial no.	Ingredients	Quantity taken	Uses
1.	Methi powder	2.2 gm	Promotes hair growth, reduces dandruff
2.	Shikakai powder	2.2 gm	Natural cleanser, prevents scalp dryness
3.	Amla powder	2 gm	Prevents hair fall, antioxidant rich
4.	Reetha powder	2 gm	Natural foaming agent, mild cleanser
5.	Bhringraj powder	2.2 gm	Boosts hair growth, prevents greying of hair
6.	Orange peel	1.6 gm	Fragrance, mild preservative, control Oilliness
7.	Jasmine oil	1 – 2 ml	Natural preservative, fragrance
8.	Coconut oil	1 – 2 ml	Nourishes scalp, deep conditioning

IV. Methodology :

Step 1 – Preparation of herbal extract blend

Each powdered herbal ingredient—methi, shikakai, amla, reetha, bhringraj, and orange peel—was accurately weighed and combined in appropriate ratios based on traditional formulation standards. The powders were passed through a fine sieve to ensure uniform particle size and then mixed thoroughly.

Step 2 - Preparation of the Gelatin Base

A 10% w/v gelatin solution was prepared by dissolving gelatin in distilled water with continuous stirring and gentle heating until a homogenous gel-like consistency was achieved. The solution was allowed to cool slightly to prevent degradation of herbal actives.

Step 3 - Incorporation of herbal ingredients

The blended herbal powders were slowly added into the lukewarm gelatin solution under continuous stirring to ensure even dispersion. Stirring was continued until a uniform herbal mixture was formed.

Step 4 - Addition of Oils

Once the herbal gel reached room temperature, measured quantities of coconut oil and jasmine oil were incorporated. The mixture was stirred slowly to avoid foam formation and to achieve a consistent emulsion.

Step 5 – Proper storage

The final formulation was homogenized using a mechanical stirrer at moderate speed to ensure uniform consistency. The shampoo was then transferred into sterilized, airtight containers and stored at room temperature for further evaluation.

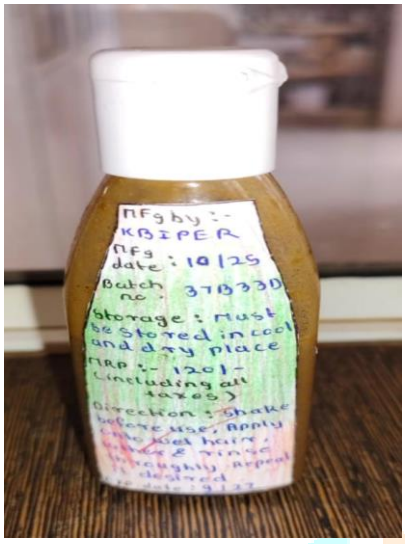

Figure no. 9

Figure no. 10

V. Evaluation tests :

Table no. 2 Evaluation tests for Herbal Shampoo

Sr. No	Tests	Observations
1.	Colour	Brownish
2.	Odour	Pleasant, Floral
3.	Washablity	Easily washable
4.	pH	6
5.	% Solid content	66 %
6.	Foam type	Dense and moderate
7.	Density	1.2 g/ml

VI. Result :

The formulated herbal shampoo was observed to be brownish in colour that was typical as natural ingredients were used. The odour of the shampoo was well accepted and pleasant . The density of the formulation was slightly more than water than ensured that the shampoo isn't too thick or too watery. It was also easily washable with water. The pH of the shampoo was similar to natural pH of the scalp that ensures it's mild nature and reduced risk of irritation.

VII. Conclusion :

From the evaluation tests, it can be concluded that the formulated herbal shampoo has acceptable physical characteristics suitable for hair care use. The natural colour and pleasant odour make it appealing, while the pH level ensures it is gentle on the scalp. The solid content and density values indicate that the shampoo has a balanced formulation that supports effective cleansing and nutrient delivery to the hair. Overall, this herbal shampoo shows potential as a safe and natural option for promoting healthy hair growth.

Table no. 3 Figures and Table : Herbal Shampoo

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