

REVIEW ARTICLE ON : FORMULATION, EVALUATION AND COMPARISON OF HERBAL SHAMPOO WITH MARKETED SHAMPOO

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Abstract

The study aimed to formulate a pure herbal shampoo and to evaluate and compare its Physicochemical properties with marketed synthetic and herbal shampoos. The Herbal shampoo was formulated by adding the extract of bhringraj, amla, lemon, neem, Tulsi, henna, Hibiscus, and bramhi. A small amount of Methyl paraben was added as a preservative, and pH was adjusted with citric acid. Several tests were performed to determine the physicochemical properties of both prepared and marketed shampoo, such as visual inspection, pH, wetting time, % of solid content, foam value and stability, surface tension, detergency, and dirt dispersion. The formulated shampoo showed good cleansing and detergency, low surface tension, small bubble size, and good foam stability after 5 minutes. The prepared shampoo and commercial shampoo also showed comparable results for % solid content. The result indicated that the formulated shampoo has excellent conditioning performance, on par with commercially available shampoo.

KEYWORDS: Herbal shampoo, cosmetic, Antibacterial and Antifungal.

Introduction

Shampoos are most probably used as cosmetics. It is a hair care product that is used for cleaning the scalp and hair in our daily life. Shampoos are most likely utilized

as beautifying agents and are a viscous solution of detergents containing suitable additives, preservatives, and active ingredients. It is usually applied on wet hair, massaged into the hair, and cleansed by rinsing with water. The purpose of using shampoo is to remove dirt that is built up on the hair without stripping out much of the sebum.

Many synthetic shampoos are present in the current market, both medicated and non-medicated; however, herbal shampoo is popularized due to its natural origin, which is safer, increases consumer demand, and is free from side effects. In synthetic shampoos, synthetic surfactants are added mainly for their cleansing and foaming property, but the continuous use of these surfactants leads to serious effects such as eye irritation, scalp irritation, loss of hair, and dryness of hairs. As an alternative to synthetic shampoo, we can use shampoos containing natural herbals. However, formulating cosmetic products containing only natural substances is very difficult.

A number of medicinal plants with potential effects on hair have been used traditionally

over the years around the world and are incorporated in shampoo formulation. These medicinal plants may be used in extract form, their powdered form, crude form, or their derivatives. It is difficult to develop a shampoo containing only one natural substance which would be safer with milder effects than synthetic shampoo, and it should also possess good foaming, detergency, and solid content as synthetic shampoo. Hence, the researchers considered detailing an unadulterated natural cleanser utilizing a conventional technique using regularly utilized plant material for hair washing.

Today people are aware of synthetic products and their harmful side effects on hair, skin, and eyes, which makes consumers prefer herbal products over synthetic products. Herbal products have negligible side effects.

Shampoos are of various types, like powder shampoo, clear liquid shampoo, lotion shampoo, solid gel shampoo, medicated shampoo, liquid herbal shampoo, etc., regarding instability criteria. According to the nature of the ingredients, they may be simple or plain shampoo, antiseptic or antidandruff shampoo, and nutritional shampoo containing vitamin, amino acids proteins hydrolysate.

Types of shampoo:

Shampoos are of the following types:

1. Powder Shampoo
2. Clear liquid shampoo
3. Lotion shampoo

4. Solid gel shampoo
5. Medicated shampoo
6. Liquid herbal shampoo
7. Baby shampoo
8. Anti-dandruff shampoo
9. Conditioning shampoo
10. Two-layer shampoo

ANATOMY OF HAIR:

Hair is made up of 95% keratin, a fibrous, helical protein (shaped like a helix) that forms part of the skin and all its attachments (body hair, nails, etc.).

The hair structure consists of 3 different parts:

- **Medulla:** It is the innermost layer of the hair shaft, made up of an amorphous, soft, oily substance.
- **Cuticle:** Thin protective outer layer that contains nutrients beneficial for hair growth. It is highly keratinized with cells shaped like scales that are layered one over the other, measuring about 60 micrometers long and about 6 micrometers wide.
- **Cortex:** It is the main constituent of the hair, containing long keratin chains which give elasticity, suppleness, and resistance to the hair. The cells of the cortex are joined together by an intercellular cement rich in lipids and proteins.

GROWTH CYCLE OF HAIR:

Hair growth cycle consists of four phases:

- **Anagen (growth phase):** It is the growing phase. This phase lasts for several years.
- **Catagen (transitional phase):** during this phase, the hair follicle shrinks and hair growth slows.

Ingredient used in formulation:

1. **Bhringraj**

- a. Biological Source: *Eclipta alba*
- b. Family: Asteraceae
- c. Uses: Hair Tonic.



2. **Lemon**

- a. Biological Source: *Citrus limon*
- b. Family: Rutaceae
- c. Uses: makes the root of your hair stronger and removes dandruff from your hair.



3. **Amla**

- a. Biological Source: Dried ripe fruits of *Embelica officinalis*.
- b. Family: Euphorbiaceae
- c. Uses: Darkening of hair and hair growth promoter



4. Neem

- a. Biological Source: Dried leaves of *Azadirachta indica*
- b. Family: Miliaceae
- c. Uses: Prevent the dryness of hair and flaking of hairs.
- d. and flaking of hairs.

**Need of Study**

The purpose of using herbal shampoo is to remove dirt that is built up on the hair without stripping out much of the sebum. There are a number of medicinal plants with potential effects on hair used traditionally over the years around the world and are incorporated in herbal shampoo preparation. The objective of this study is to formulate and evaluate poly-herbal shampoo for cosmetic purposes from herbal ingredients.

Hibiscus powder, Neem powder, Henna powder, Amla powder, Shikakai powder, Ritha powder, and Alo-vera gel were procured from the local market in powdered

form or gel form. Banyan root powder and Soya milk were prepared by a homemade method. A decoction of these ingredients was then prepared and mixed with each other and evaluated for its organoleptic and physico-chemical characteristics.

Herbal shampoo is used for the cleansing of the hair, as well as conditioning, smoothing of the hair surface, good health of hair, and hair free of dandruff, dirt, grease, and lice; above all, its safety benefits are expected. The advantages of herbal cosmetics are their non-toxic nature, reduction in allergic reactions, and time-tested usefulness of many ingredients. Thus, in the present work, good properties for the herbal shampoo were found, and further optimization study is beneficial for the use of herbal shampoo on humans as cosmetic products.

Method:

Preparation method of herbal shampoo by using the decoction method:

1. All ingredients are mixed properly then placed for 4 hours for the decoction process to obtain the extract.
1. The plant extract is mixed in different proportions to obtain a shampoo whose formula is shown in the above table (not provided in text).
1. Herbal extract was added to 10% gelatin solution and was mixed by shaking for 20 minutes.

1. Lemon juice (1ml) and methyl paraben were also added with stirring.
1. Finally, the pH of the solution was adjusted by adding a sufficient quantity of 1% citric acid solution.
1. A few drops of rose essential oil were also added to impart aroma to the prepared shampoo, and the final volume was made to 100ml with gelatin solution.

Conclusion

The aim of this study was to formulate a completely herbal shampoo which is compared with the synthetic shampoo available in the market. The researchers formulated a herbal shampoo by using plant extracts which are commonly used traditionally. Instead of using conditioners, Sheekakai, Amla, and other plant extracts were used to provide the conditioning effects. Several tests were performed to evaluate and compare the physicochemical properties of both prepared and marketed shampoos. The prepared shampoo showed comparable results with that of marketed shampoo for quality control tests, but further research and development are required to improve its overall quality. It can be prepared as a herbal shampoo that reduces hair loss and promotes the growth and strength of hair. Herbal shampoo was formulated with the aqueous extract of medicinal plants that are commonly used for cleansing hair traditionally. The present study involves the use of shikakai, amla, and other plant extracts instead of synthetic conditioning agents to provide effective

conditioning effects, thereby reducing protein or hair loss. All the ingredients used to formulate the shampoos are safer than generic commercial shampoo, and the physicochemical evaluation showed ideal results.

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