



A Review on Formulation and Evaluation of Herbal Antidandruff Shampoo

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ABSTRACT

Shampoos are products that clean the hair shaft and scalp of surface oil and grime. Because the majority of the constituents in shampoos are chemicals, there have been serious attacks as a result of the possibility of side effects associated with their use. The study's major goal was to replace dangerous synthetic components in anti-dandruff shampoo formulations with a safer natural substance. It also attempted to incorporate modern formulation processes into a single composition based on natural ingredients. Reetha fruits, licorice solan, Bengal gram seeds, brahmi leaves, green gram seeds, and other Ayurvedic ingredients such as banana roots, pomegranate seeds, hibiscus leaves, marigold flowers, and citrus fruits were used to make the herbal shampoo. All of the ingredients were made with extracts. Various formulas were tested using Dove shampoo that was already on the market. Based on the evaluation criteria and stability, Formulation 4 was deemed to be the optimum formulation. When the test data was analyzed, it was discovered that formulation four of the Anti-Dandruff Herbal Shampoo possessed all of the desirable attributes of an ideal shampoo that was both more effective and cost-efficient than the Dove Anti-Dandruff Shampoo. It's possible that a stable, effective anti-dandruff shampoo will emerge to replace commercially available synthetic shampoos.

Keywords: anti-dandruff, evaluation, formulation, herbal, shampoo and synthetic

Introduction

Plants possess a variety of chemical substances that help them defend themselves against insects, fungus, herbivores, and mammals. Dandruff is a widespread scalp ailment that affects over half of the population during puberty, regardless of sex or ethnicity. Keratinocytes are well known for their role in the expression and development of immune reactions during dandruff formation. The intensity of dandruff varies with the seasons, with winter being the worst. The majority of dandruff symptoms are addressed with specific shampoos. People with dandruff may experience social or self-esteem issues, necessitating therapy for both psychological and medical reasons.

Shampoo is a hair care product that comes in the form of a viscous liquid and is used to clean hair. Shampoo's purpose is to remove the undesired build-up in between the hairs without removing so much sebum that the hair becomes unmanageable. Shampoo is prepared by mixing a surfactant (sodium lauryl sulphate or sodium Laureth sulphate) with a co-surfactant (cocamide propyl betaine) in water.

Because synthetic shampoos have negative side effects, a herbal anti-dandruff shampoo has been developed and thoroughly tested. Various plants and their parts, such as reetha, Liquorice, Brahmi, Hibiscus, Bengal gram, and marigold, have been utilized in Indian medicine to cure dandruff. Traditionally, only single plants have been employed, and there are no systematic reports on the usage of such recipes as entirely natural ingredients that we have created.

Definition of Shampoo

Shampoo is a cosmetic preparation for washing the hair and scalp that comes in an easy-to-use container. Its purpose is to remove accumulated sebum, scalp debris, and hair grooming treatment residues from the hair. Shampoo also has additional purposes such as lubrication, conditioning, bodybuilding, static charge avoidance, medication, and so forth. Finally, the entire shampoo recipe must be clinically safe to use for an extended period of time. [1].

The action of shampoo on hair

The shampoo's original purpose was to clean the hair. Hair dirt can be divided into three categories. Oily clays, soluble clays, and insoluble particulate matter are all examples of clays that can make full contact with the soil surface. The aqueous medium is next used to remove any soluble soil. Oily dirt is removed through a process known as rollup, which involves the movement of the soil by the detergent solution. Electrostatic repulsion between the soil and the hair fibre tends to remove insoluble particle soils. Repulsion between surfactant molecules adsorbed on hair fibres and molecules dissolved in the soil supports this hypothesis. The detergent micelles make contact with the lipid surface for a finite amount of time during the soil removal process, during which time they absorb an increment of lipid. Assimilation results in the formation of lipid-detergent co-micelles, which then detach and float away into the bulk water solution. The hydrocarbon domain generated by the nonpolar portions of the detergent molecules is represented by

the rectangular core of diagrammatic micelles in Figure 9, while the smaller circles indicate the polar heads of these particles. [2]

Materials and Methods

All plant components were obtained in and around Latur, including reetha, fruits, Liquorice stolon, Bengal gram seeds, Brahmi leaves, green gram seeds, and banana roots, Pomegranate seeds, Hibiscus leaves, Marigold flowers, and Lemon fruits. Plant components were collected and washed in tap water before being dried in the shade. The shade dried material was pulverized and kept for later use in an airtight container.

Preparation of shampoo

Individually, 50 grams of all powdered crude medicines were obtained and extracted with distilled water at temperatures below 60 degrees Celsius. All of the crude medicines' aqueous extracts were measured and combined in the appropriate amounts. Shampoo was stored in an appropriate container and used in subsequent tests [3,4,5].

EVALUATION TEST FOR SHAMPOO: -

1. visual examination- The clarity, foam-producing capabilities, and fluidity of the produced formulations were assessed. [6]
2. The ability to foam and the stability of the foam- After 1 minute of shaking, the total volume of foam content was measured. Only the foam capacity was determined. After the shaking, the amount of vibrating foam was measured for 4 minutes at 1-minute intervals. [7]
3. Calculation of the PH- Place the PH Paper strip on a white tile. Using a clean dropper, place a drop of the sample on the pH paper. Pay attention to the PH paper's color. Now, compare the color on the PH paper to the various colors on the standard color PH chart to determine the PH value. [8]
4. Percentage of solid material- A clean, dry China dish was weighed, and 4 grams of shampoo was added. Shampoo was used to weigh the dish. The shampoo's exact weight was calculated. The shampoo-filled China dish was placed on a heated plate until the liquid portion disappeared. After drying, the weight was calculated. [9]
5. Irritation of the skin- The skin irritancy of the shampoo can be tested by applying a tiny amount to the skin and waiting a few minutes to see whether any local irritation or inflammatory reaction occurs. [10]

Results and Discussion

After immediately testing the cleaning activity on wool yarn in Grease, the stability was investigated. The created formulation's ability to remove grease from wool threads was evaluated and reported on. The cleaning effect of the formulation, which included multiple surfactants, was 33.22 percent. In this test, the commercial sample had a percentage of cleansing activity of 32.17, which was slightly lower than the herbal formulation. The presence of two surface active compounds, Shikakai and Mulethi, in optimal concentrations could be the reason for the improved percentage cleaning activity. The viscosity of this mixture was improved by using Bengal gram. It is capable of thickening water. As a result, only a modest amount was required to raise the product's viscosity. The mix of shikakai and licorice may account for the formulation's exceptional foaming ability. Natural shampoo is often thought to be inferior to its synthetic equivalent in terms of potency. However, studies show that combining natural surfactants like shikakai and licorice in the right proportions can produce enough lather for shampoo. This research suggests that the natural surfactants Shikakai and Liquorice are the best alternatives to harsh synthetic detergents in optimal quantities found in the majority of manufactured and commercial herbal shampoos. The produced formulation's antifungal activity was positive against the tested fungal pathogen *Candida albicans*, and the formulated anti-dandruff shampoo demonstrated maximum inhibition. Antifungal activity is lower in commercial formulations than in ours.

The presence of green gram and pomegranate, both of which have anti-dandruff properties, may account for the formulation's greatest antifungal effectiveness. However, this study may show that in the presence of a suitable surfactant, such as an optimum mix of shikakai and liquorice, the antidandruff properties of green gram and pomegranate may have improved. When zone of inhibition was assessed, the formulation had a maximum zone of inhibition of 20 mm, which was significantly higher than the marketed shampoo creating shampoo and after a month cleaning act and foam consistency. The extracts were shown to be high in saponins, alkaloids, flavonoids, phenolic compounds, amino acids, and other phytochemicals.

If prepared with the best ingredients in the optimal combination, antidandruff shampoo made from natural substances is the ideal solution for synthetic counterparts. After a one-month period, the formulation's stability was tested for chosen criteria. There was a marginal increase in pH for the developed formulation with an increase in temperature, and after one month, a modest increase in pH for the developed formulation with an increase in temperature was noted. When the percentage scavenging activity for the created formulation was calculated after one month, it was clear that the percentage scavenging action had decreased to a minimal level. The shampoo's overall consistency ranges from 4 to 420 degrees Celsius, and it proved effective at a temperature of [11,12,13].

Conclusion

A new Poly Herbal Anti-Dandruff Shampoo was developed using traditional wisdom and a focus on creating a stable and functionally successful anti-dandruff shampoo free of synthetic ingredients. The findings revealed that Antidandruff Herbal Shampoo provides all of the benefits of a full shampoo and is safer, more effective, and less expensive than synthetic Dove Anti Dandruff shampoo.

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