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Formulation and Evaluation of Herbal Anti-Dandruff Shampoo

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ABSTRACT

The purpose of this study is to create and assess shampoo from natural constituents for cosmetic use. Herbal anti-dandruff shampoo was created utilizing a variety of herbal ingredients, including Shikakai, Reetha, Neem, Orange Peel, and Aloe-vera gel. The shampoo formulation was then tested for factors such as pH, Viscosity, foaming stability, and inspection satisfaction. The fungi Malassezia restricta and M.globoso are the primary source of the widespread ailment known as dandruff, which affects the scalp. In the current research, different anti-fungal compounds are used in hair care products to cure dandruff.

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I. INTRODUCTION

The goal of anti-dandruff products is to stop the development of dandruff flakes[1]. In both developed and underdeveloped nations, dandruff is a significant cosmetic issue. Malassezia restricta and M.globoso are two types of fungi that cause dandruff. It happens when epidermal cells on the scalp shed in bulk. About once every month, the scalp's skin regenerates. Dead cells are typically excreted from the scalp in a nearly imperceptible manner, but occasionally cell turnover becomes exceptionally rapid and dead cells are released as visible flakes, which is known as dandruff.

Shampoos are popular hair products that clean the hair and scalp and come in easy-to-use packaging. Additional uses for shampoo include lubricating, conditioning, bodybuilding, preventing the buildup of static electricity, treating illnesses, and more. The final need is that the entire shampoo formulation be long-term medically safe[4].

The manufactured herbal anti-dandruff shampoo was superior to commercial herbal shampoo because it contains neem, a natural anionic surfactant with anti-microbial and preservation properties.

EXPERIMENTAL WORK

- **Method of preparation:-**

1. Weighing:-

Using a computerized balance, each essential herbal ingredient for the creation of shampoo was precisely weighed.

2. Extraction:-

The required herbal ingredients for shampoo formulation were extracted by decoction process.

Decoction is an extraction procedure that has been used especially for water soluble and thermostable constituents. In this case, the crude plant is boiled in an open-type extractor that contains a specified volume of water and the process lasts for a specific time period.

3.Mixing:-

To produce clear shampoo, all extractions are vigorously blended. Finally, perfume is added to the mixture.

4. Storage:-

Store in a suitable container.

Table No. 1. Formulation

Sr.No.	INGREDIENTS	QUANTITY TAKEN	USES
1	Shikakai Extract	25 ml	Anti-dandruff effect
2	Reetha Extract	25 ml	Foam base effect
3	Orange peels Extract	25 ml	Anti-Oxidant effect
4	Neem Extract	3ml	Surfactant and anti-microbial effect
5	Aloe- Vera gel	60 ml	Anti-drandruff effect
6	Rose oil Q.S	Q.S	Perfume
7	Water Q.S	Q.S	Diluent

II.EVALUATION TEST FOR SHAMPOO

1. Visual inspection

The created formulations were assessed based on their fluidity, clarity, and capacity to produce foam[2].

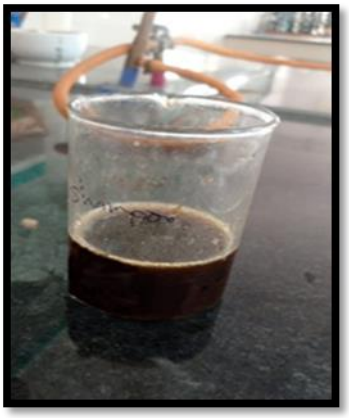

Fig.1. Visual Inspection

2. Foaming ability and foam stability:-

Foaming ability was evaluated using the cylinder shake method.3ml of shampoo was taken, and 10ml of water was added to dilute it. Shake the cylinder vigorously in under a second twice, then leave it alone for 15 uninterrupted minutes. After shaking, the total volume of foam content was measured. Only the foam volume was computed. The amount of foam produced immediately after shaking was measured four times, every one minute. The foam volume remained constant over the course of around 5 minutes, demonstrating that the shampoo's foam generation process produces foam that is both stable and exhibits higher foam properties, possibly as a result of reetha.

Fig.2.Foaming ability

3. Determination of PH:-

The pH of 10% v/v shampoo solution in distilled water was measured by using calibrated pH.

Fig.3.PH

4. Percent of solid content:-

Weighing a piece of dry, clean china, we added 4 ml of shampoo. The shampoo-filled dish was weighed. It was computed how much shampoo exactly weighed. The shampoo-filled porcelain dish was placed on the hot plate and left there until the liquid evaporated. After drying, the weight was calculated[3].

Fig.4. % of Solid content

5. Wetting test:-

The length of time the canvas paper needed to soak up all the water was determined as the wetting time. A disc with a 1-inch diameter was made from a piece of canvas paper weighing 0.44g.The canvas paper disc was placed over the shampoo (1% v/v) surface, and the amount of time it took for the paper to sink was calculated using a stopwatch.

Fig.5.Wetting Test

6. Stability study:-

The stability of the formulation was studied for a period of 4 weeks by keeping at temperature of 25-30^{o}C. The shampoo is free from microbial contamination and remains stable at room temperature.

7. Surface Tension:-

The cleaned stalagmometer was filled to mark A with the prepared shampoo that would be tested. The amount of drips that the liquid will produce as it travels from mark A to mark B was then computed once it started to rain owing to gravity. To determine the mean value, the process was performed three times. The surface tension can then be determined using the formula.

$$v_1 = \frac{n_2\rho_1}{n_1\rho_2} v_2$$

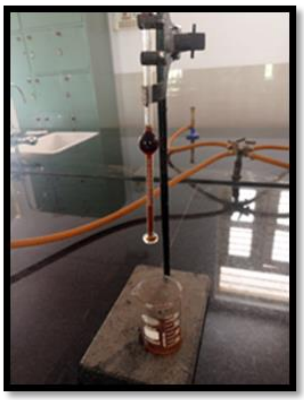

Fig.6.Surface Tension

EVALUATION PARAMETER	OBSERVATION
Appearance	Good foaming
Foam Index	Good -33.3
pH	6.5±0.01
Clarity	Clear solution
Wetting Ability	3 sec
Determination of % solid Content	35 % solid Content
Surface tension	47.78±1.5

III. RESULT AND DISCUSSION

A straightforward mixing procedure was used to create herbal shampoo. Herbal anti-dandruff shampoo was created by adding the necessary amount of herbal ingredients according to the formulation table. The tests used to evaluate this produced herbal shampoo are listed in table no. 2 below. The creation and evaluation of a natural anti-dandruff shampoo made using Shikakai Powder, Reetha, Aloe-vera gel, and other herbs are the focus of the current effort. This natural anti-dandruff shampoo was made utilizing the continuous stirring method and sodium neem extract. The manufactured herbal anti-dandruff shampoo was put through several tests to determine its effectiveness. The results showed that it was affordable, effective at treating dandruff or dermatitis while boosting the natural health of hair and making it shine. Therefore, it was determined from the current investigation that the formula for the herbal anti-dandruff shampoo has an excellent standard. The manufactured herbal shampoo was discovered to be in compliance. The formulation's pH range, good stability, cleaning ability, foam generation, and viscosity.

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