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Formulation and Evaluation of Soya Herbal Shampoo: A Nourishing Herbal Hair Cosmetic



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ABSTRACT

The main objective of this study is to prepare and evaluate polyherbal shampoo as a cosmetic from various herbal ingredients to minimize the side effects that occur from use of the synthetic ingredients in hair shampoo. Soya powder is a source of protein that is helpful by providing essential amino acids with flavonoids, isoflavonoids, tannins, etc. Along with soya powder, various herbal ingredients which are used in shampoo are hibiscus, neem, henna, amla, shikakai, ritha, and aloe vera. Various evaluation parameters were determined using quality control tests like visual assessment and physiochemical analysis, to emphasize on safety, efficacy, and quality of the formulated herbal shampoo. The results of all the parameters are within the acceptable range. The prepared formulation will be helpful to remove grease, dirt, dandruff and helps to promote hair growth and strengthen the hair also used to minimize the darkness of the hair, so an attempt was made to formulate herbal shampoo that is free from adverse effects.

INTRODUCTION

Shampoos are probably the most widely used cosmetics products for cleansing hairs and scalp in our daily life[1]. Shampoos are not only used to treat scalp disorders but they are also used to prevent hair shaft damage. A number of the ingredients were added to the shampoo to treat the disease condition and those ingredients act as cleansing agents, conditioning agents, special care ingredients or they act as additives to stabilize formulation. Generally, all shampoos are made up of different components such as special care ingredients which are designed to treat specific problems, conditioning agents intended to enhance the softness and gloss of the hair, additives to maintain stability and comfort of the formulation, and cleansing agents [2]. Herbal shampoos are cosmetics preparations that with the use of traditional ayurvedic herbs are meant for cleansing the hair and scalp just like regular shampoo. They are used for the removal of oils, dandruff, dirt, environmental pollution, etc. The herbal shampoo is important, as people nowadays prefer herbal products to the chemical, as they proved to enhance health. The awareness and need for cosmetics with herbs are on the rise, primarily because it is believed that these products are safe and free from side effects [3-7].

A large number of herbal materials are available and reported to have beneficial effects on hair. The present herbal shampoo was formulated by use of various ingredients in powder form: hibiscus, henna, neem, amla, shikakai, ritha, banyan, aloe, sandalwood, almond which have proven effects as a nourishing component, strengthen the hair, prevent the hair loss or used as a hair growth promoter. The common problems of hair include hair falling, white hairs, dandruff, split end hairs, etc. which occur due to tension, hormonal disturbance, improper food intake, and low vitamin. A proper selection of herbal ingredients with the required amount will be helpful to minimize all the problems associated with hair [8-15]. Soya protein powder is a rich source of protein that will be helpful to nourish the hair by supplying essential amino acids and nitrogen [16-21].

The prepared herbal shampoo was evaluated for different parameters including visual assessment, pH, percent of solid content, rheological parameters, dirt dispersion, foam ability- foam stability, and skin sensitization test. In this investigation, an attempt was made to develop herbal shampoo by use of natural ingredients to nourish the hair, promote hair growth and strengthen the hair devoid of side effects observed by the use of synthetic ingredients.

Ideal properties of herbal shampoo:

1. It should not irritate the eyes or skin after application.
2. It should be stable throughout the usage.
3. It should produce enough foam.
4. It should be easy to apply and remove after rising with water.
5. It should completely remove dust or fatty substances on application.
6. It should leave hair soft, lustrous, and non-dry with good manageability to satisfy consumer's needs.

MATERIAL AND METHOD

Collection of plant material:

All the plant materials like soya protein powder, Henna leaf, neem leaf, amla fruits, shikakai fruits, ritha fruits, aloe vera gel, banyan root, sandalwood powder, the almond powder were collected from a local market and all were subjected to storage condition as per the requirement.

List of chemicals:

Soya protein powder, Hibiscus leaf powder, Henna leaf powder, Neem leaf powder, Amla Fruits powder, Shikakai Fruits powder, Ritha Fruits powder, Alovera Gel, Banyan root powder, Sandalwood powder, Almond powder (Tandulwadkar Herbs - Bavadekar), Agar powder (HIMEDIA), Methyl Paraben (Ozone^R International Mumbai).

Preparation of herbal shampoo:

All ingredients were weighed according to the formula. Decoction of Hibiscus, Henna, Neem, Amla, Banyan root powder, Aloe vera gel, and Soya protein powder was prepared in one part of water. The resulting components were filtered with muslin cloth and the collected filtrate was stored separately. Decoction of Shikakai and Ritha was prepared in another part of the water. Filtered with muslin cloth and the collected filtrate was stored separately.

Both decoctions after filtration were mixed by constant stirring. To maintain the consistency of the final formulation agar was added as per the requirement. Preservatives and perfume

were added to the resulting formulation. The developed shampoo was stored in a suitable container and used for further evaluation. The composition of the developed herbal shampoo is summarized in the table (Table no.1).

Table No. 1: Formula of Herbal Shampoo

Sr. No.	Ingredients	Part of the plant used	Quantity	Purpose
1	Soya Protein powder	Seeds	20gm	Provides protein or nourishing property
2	Hibiscus Powder	Leaves	5gm	Hair growth promoter and prevent hair loss
3	Henna Powder	Leaves	5gm	Growth of hair and conditioner
4	Neem Powder	Leaves	5gm	Prevent dryness or use to treat scalp infection
5	Amla Powder	Fruits	10gm	Darkening of hairs
6	Shikakai powder	Fruits	15gm	Foam base, clean dandruff, and dirt on the scalp
7	Ritha powder	Fruits	15gm	Detergent
8	Aloe vera gel	Leaves	10ml	Conditioner
9	Banyan powder	Roots	5gm	Lustrous effect
10	Sandalwood	Wood	5gm	Increases hair density, stop hair loss, nourishment
11	Almond	Fruits	4gm	Preservative
12	Agar powder	-	2gm	Thickening agent
13	Methylparaben	-	4gm	Preservatives



Figure No. 1: Formulation of the herbal shampoo

Evaluation of herbal shampoo:

To evaluate the prepared formulations quality control tests including visual assessment and physicochemical controls such as PH and viscosity were performed. Also, to ensure the quality of products, specific tests for shampoo formulations including the determination of dry residue and moisture content tests were carried out.

Physical appearance / visual assessment

The formulation prepared was evaluated for various parameters including identification of clarity or color.

Determination of pH

The pH of the shampoo solution in distilled water was determined at room temperature by using pH paper.

Determination of percent of solids contents

A clean, dry evaporating dish was weighed, and added 4 grams of herbal shampoo was to the evaporating dish. The evaporating dish with shampoo was placed on the hot plate until all the liquid content gets evaporated. The weight of the shampoo only (solids) after drying was calculated.

Rheological evaluation

The viscosity of the shampoo was calculated by using a viscometer. The viscosity of the shampoos was measured with the temperature and the sample container size was kept constant during the study.

Dirt dispersion

10 ml of distilled water with two drops of shampoo was taken in a test tube. One drop of ink was added to the content of the test tube and shaken continuously for ten minutes. The quantity of ink in the foam was determined and reported in the form of different terms such as none, light, moderate or heavy.

Skin sensitization test

A skin sensitization test was performed on the human volunteer's skin to determine the presence of irritation after the application of the herbal shampoo.

Foaming ability and foam stability

To determine the foaming ability Cylinder, the shake method was used. One percent of the shampoo solution in water was prepared. Near about 50 ml of the resulting solution was taken in a graduated cylinder and shaken for 1 minute. The amount of foam produced after shaking was determined by repeating the procedure for 5 minutes.

RESULTS AND DISCUSSION

The shampoo was formulated by mixing an equal amount of aqueous extract from all the ingredients. The results of the evaluation test of the developed formulation were reported in a table (Table no.2).

Table No. 2: Results of evaluation test of Herbal Shampoo

Sr.No	Evaluation Test	Result obtained
1	Physical Appearance	Dark brown
2	pH	5.5
3	Percent of Solid Contents	3.5%
4	Rheological evaluation	1.82 cps
5	Dirt Dispersion	Light
6	Wetting Time	2 sec
7	Skin Sensitization	No Irritation on the skin
8	Foaming ability and foam stability	40ml

CONCLUSION

In the present study, we formulated an herbal shampoo that reduces hair loss, promotes hair growth, and strengthens the hair (nourishing the hair). All the ingredients used to formulate the shampoo are safer than synthetic commercial shampoo. To evaluate for good product performance of the prepared shampoo, many tests were performed. The result of the evaluation study of the developed shampoo revealed a comparable result for the quality control test, but further scientific validation is needed for its overall quality.

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