

Formulation and Evaluation of Herbal Shampoo

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Abstract: *The aim of this present study is to prepare and formulate an herbal shampoo and to assess to its physicochemical function emphasis on safety, efficacy, eliminating harmful synthetic ingredient, substitute with safe natural ingredients. In the present study, herbal shampoo was formularizing suitable ingredient such as hibiscus rosa-sinensis, embolic official's acacia spends indica, eclipta prostrate aloe bardadensis and cassia articulate in different proportions to formulate and evaluate its physicochemical properties. The result indicated that this can be used as a potential alternative for cleaning and managing hair in a natural and effective way instead of synthetic source. The finding of this investigational reveal that chemical has sometimes been the cause of adverse effects among consumers. The present work confirmed the successful preparation of herbal shampoo using natural ingredient. All used to formulate shampoo are safer and the physicochemical evolution shoed ideal result. There are large numbers of medicinal plant which are reported to have beneficial effects on hair commonly used in formulation of shampoo.*

It is extremely difficult to prepare a herbal shampoo using a signal material that be milder and safer than the synthetic ones and at the same time would compete favorable with, detergency and solid content.

Keywords: Herbal shampoo, natural and healthy evaluation of shampoo spends indicia

I. INTRODUCTION

Shampoos are most probably used as cosmetics. it is hair care product that is used for cleaning and hair in our daily life. Shampoos are most likely utilized as beautifying agent and are a viscous solution of detergents containing on wet hair, messaging into the hair, and cleansed by rising with water. The purpose of using shampoo is to remove dirt that is build 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 popularized due to natural origin which is safer, increases consumer demand and free from side effects.

In synthetic shampoos, surfactants are added mainly for their cleansing and foaming property but the continuous use of these surfactant leads to serious effects such as eye irritation scalp irritation loss of hair, and dryness of hairs. Alternative to synthetic shampoo we can use shampoos containing natural herbals. However, formulating cosmetic product containing only natural substances are very difficult. There are a number of medicinal plants with potential effects on hair used traditionally over years around the world and are incorporated in shampoo formulation. The medicinal plants may be used in extracts from, their powdered from, crude form, or their derivatives. To develop a shampoo containing an only one natural substances which would be safer with milder effect, then the synthetic shampoo is difficult and also it possess god foaming, detergency, and solid content as such synthetic shampoo. Hence, we considered in detailing an unadulterated natural cleanser utilizing conventional technique using regularly utilized plant material for hair washing.

In synthetic shampoos, surfactants are add mainly for their cleansing and foaming property, but the continues use of these surfactants leads to serious effects such as eye irritation, scalp irritation, loss of hair and, and dryness of hair. Alternative to synthetic shampoos containing natural herbal

BENEFITS OF HERBAL SHAMPOO

- More shine
- Less hair loss
- Long lasting color
- All natural no chemical
- Keep healthy natural oils
- Wont irritate skin or scalp



Function of herbal shampoo-

- Lubrication
- Conditioning
- Hair growth
- Maintenance of hair colour
- medication

Desired Properties of Herbal Shampoo-

- Ease of application
- removal of more debris
- Easy wet combing
- Fragrance
- Low level of irritation
- Well preserved
- Good stability

Advantages of Herbal Shampoo-

- Pure and organic ingredient
- Free from side effects
- No synthetic additives
- Earth and skin friendly
- No surfactants
- No animal testing
- No petroleum based ingredients

INGREDIENTS

Sr. no	Materials required	Quantity to be weighed
1	Soap nut extract	0.5g
2	Amla extract	0.5g
3	Shikakai extract	0.5g
4	Hibiscus	0.5g
5	Bhringraj extract	0.5g
6	Senna extract	0.5g
7	Aloe vera	1g
8	Gelatin	q.s
9	Lemon juice	q.s
10	Rose oil	q.s

II. METHODS

Plants

The plant materials required for the present study were obtained from in and around Chennai, TamilNadu, and authenticated by the botanist Dr. P Jayaraman, Director, Plant Anatomy Research Center, Chennai.

Preparation of extract

About 100 g of each powdered plant materials, namely *H. rosa-sinensis*, *E. officinalis*, *A. concinna*, *S. indica*, *E. prostrata*, *A. Barbadensis*, and *C. auriculata*, were homogenized. The powdered material was extracted with distilled water by boiling for 4 h. The extract of each plant material was separated and evaporated.

Formulation of herbal shampoo

Formulation of the herbal shampoo was done as per the formula given in Table1. To the gelatin solution (10%), added the herbal extract and mixed by shaking continuously at the time interval of 20 min. 1 ml of lemon juice was also added with constant stirring. To improve aroma in the formulation, sufficient quantity of essential oil (rose oil) was added and made up the volume to 100 ml with gelatin.

Evaluation of herbal shampoo

The prepared formulation was evaluated for product performance which includes organoleptic characters, pH, physicochemical characterization, and for solid content. To guarantee the nature of the items, particular tests were performed for surface tension, foam volume, foam stability, and wetting time using standard protocol.

Visual assessment

The prepared formulation was assessed for color, clarity, odor, and froth content.

pH determination

The pH of the prepared herbal shampoo in distilled water (10% v/v) was evaluated by means of pH analyzer at room temperature.

Determination of solid content percentage

The percentage of solid substance was determined by weighing about 4 g of shampoo in a dry, clean, and evaporating dish. To confirm the result, the procedure was repeated again. The liquid portion of the shampoo was evaporated in a dish by placing on hot plate. The percentage and the weight of the solid contents present in the shampoo were calculated after drying completely.

Surface tension measurement

The prepared shampoo in distilled water (10% w/v) was evaluated for surface tension using stalagmometer in room temperature.

Testing of wetting

Wetting time was calculated by noting the time required by the canvas paper to sink completely [3]. A canvas paper weighing 0.44 g was cut into a disc of diameter measuring 1-inch. Over the shampoo (1% v/v) surface, the canvas paper disc was kept and the time taken for the paper to sink was measured using the stopwatch.








Foam stability test

The stability of the foam was determined using cylinder shake method. About 50 ml of formulated shampoo (1%) solution was taken in a graduated cylinder of 250 ml capacity and shaken for 10 times vigorously. Foam stability was measured by recording the foam volume of shake test after 1 min and 4 min, respectively. The total foam volume was measured after 1 min of shaking.

Dirt dispersion test

To 10 ml of refined water two drops of cleanser were included and taken in a wide-mouthed test tube. To the formulated shampoo, added one drop of Indian ink and shaken for 10 min after closing the test tube with a stopper. The volume of ink in the froth was measured and the Result was graded in terms of none, slight, medium, or heavy.

DESCRIPTION OF THE INGREDIENTS

S. No.	Common name	Pictures	Botanical name	Parts used	Category
1	Hibiscus		<i>Hibiscus rosa-sinensis</i>	Flower	Conditioning agent
2	Amla		<i>Emblica officinalis</i>	Fruit	Anti-dandruff agent
3	Shikakai		<i>Acacia concinna</i>	Powder	Detergent
4	Soapnut		<i>Sapindus indicus</i>	Fruit	Detergent
5	Cassia		<i>Cassia auriculata</i>	Leaves	Anti-dandruff agent
6	Bhringraj		<i>Eclipta prostrata</i>	Leaves, flower	Hair growth
7	Aloe vera		<i>Aloe barbadensis</i>	Leaf	Coolant

Evaluation of formulated shampoo

Physical appearance

The prepared shampoo showed good characteristics in terms of foaming effect and appearance on the visual inspection of the formulation. 2.

pH

The pH of the prepared solution of shampoo using distilled water (10%) was evaluated at 25°C temperature. For enhancing and improving the hair quality, pH of the shampoo is very important and also for stabilizing the scalp and minimizing irritation to the eyes [18]. For minimizing the damage of hair using shampoo, one of the ways in the present trend is to develop shampoos having lower pH value. Lowering of pH (mild acidity) promotes tightening of the scales and prevents swelling, there by producing sheen.

Solid content

Shampoo with high solid content will be very difficult to rinse and hard to work with the hair. The prepared shampoo contains 23.25% of solid content. Thus, they considered easy to wash out when having less solid content during preparation of shampoos

Surface tension

The surface tension reduction in the prepared shampoo was found to be of about 35.18 dynes/cm³). One of the mechanisms in the detergency property is the lowering of surface tension, and this will be the marker for a good detergency effect of the shampoo which could be done by reducing the surface tension of water from 72.8 dynes/cm to the surface tension of water 32–37 dynes/cm.

Wetting time

To test the efficacy of the shampoo, wetting ability of a surfactant needs to be calculated which depends on the concentration of surfactant [19]. For the evaluation of wetting ability of the shampoo, canvas disc method is used which is an efficient, quick, easy, and reliable method. The prepared shampoo shows the wetting time of the about 120 s. The maximum of wetting time shows that the shampoo contains lower amount of detergents.

Foaming ability and foaming stability

From the consumer point of view, foam stability is one of the important needs of a shampoo. Important parameter that was considered in the shampoo evaluation was determination of foaming stability. The foam volume produced by the formulated shampoo is above 50 ml. The prepared shampoo generates uniform, small sized, compact, denser, and stable foam. The foam volume remains same throughout the period of about 5 min showing that the generated foam by the shampoo has good stability and the prepared shampoo exhibits higher foam property which may be due to the presence of both shikakai and soapnut.

Dirt dispersion test

In the dirt dispersion test using Indian ink, the volume of ink in the froth was measured and the result was graded as none, light, moderate, or heavy.

Net content

Before starting the experiment, outside of the bottle was marked at the surface level of liquid, and then at the end of the experiment, the volume of water required to fill it up to the mark was noted. If the formulated materials are paste or solid forms, then the materials were placed in an open can with the frozen material taking the weight of the container and the net content was noted.

II. CONCLUSION

The present study was carried out with the aim of preparing the herbal shampoo that reduces hair loss during combing, safer than the chemical conditioning agents as well as to strengthen the hair growth. Herbal shampoo was formulated with the aqueous extract of medicinal plants that are commonly used for cleansing hair traditionally. Use of conditioning agents (synthetic) reduces the protein or hair loss. To provide the effective conditioning effects, the present study involves the use of shikakai, amla, and other plant extracts instead of synthetic cationic conditioners. The main purpose behind this investigation was to develop a stable and functionally effective shampoo by excluding all types of synthetic additives, which are normally incorporated in such formulations. To evaluate for good product performance of the prepared shampoo, many tests were performed. The results of the evaluation study of the developed shampoo revealed a comparable result for quality control test, but further scientific validation is needed for its overall quality.

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