

FORMULATION AND EVALUATION OF HERBAL SHAMPOO**Dr. Amol Navnath Khedkar^{*1} and Salve Pratik Deepak²**

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ABSTRACT

In the present study, herbal shampoo was formulated containing suitable ingredient such as Hibiscus rosa-sinensis, Emblica officinalis, Acacia concinna, Sapindus indica, Eclipta prostrata, Aloe barbadensis, and Cassia auriculata in different proportions to formulate and evaluate its physicochemical properties. Herbal shampoo is used to cleansing of the hair also conditioning, smoothing, of the hair surface, good health of hair, hair free of dandruff, dirt grease and lice above all, it's safety benefits are expected. The advantage of herbal cosmetics is their non-toxic nature, reduce the allergic reactions and time tested usefulness of many ingredients. Thus in present work, we found good properties for the herbal shampoo and further optimization study benefits of herbal shampoo on human use as cosmetic product.

KEYWORDS: Herbal Shampoo; Natural & Healthy, Eclipta Prostrata, Sapindus Indica, Evaluation of Shampoo.

INTRODUCTION

Shampoos are most probably used as cosmetics. It is a hair care product that is used for cleaning 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, massaging into the hair, and cleansed by rinsing 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 nonmedicated; however, herbal shampoo popularized due

to natural origin which is safer, increases consumer demand and free from side effects. In synthetic shampoos, surfactants (synthetic) 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. Alternative to synthetic shampoo we can use shampoos containing natural herbals.

However, formulating cosmetic products 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. These medicinal plants may be used in extracts form, their powdered form, crude form, or their derivatives. To develop a shampoo containing an only one natural substance which would be safer with milder effect, then the synthetic shampoo is difficult and also it should possess good 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. A shampoo is basically a solution of a detergent containing suitable additives for other benefits such as hair conditioning enhancement, lubrication, medication etc. Now-a-days many synthetic, herbal, medicated and non medicated shampoos are available in the market but popularity of herbal shampoo among consumers is on rise because of their belief that these products being of natural origin are safe and free from side effects.

BENIFITS OF HEARBAL SHAMPOO

1. More Shinne
2. Less Hair Loss
3. Long Lasting Colour
4. Stronger and More Fortified Hairs
5. All Natural, No Chemicals
6. Wont Irritate Skin or Scalp
7. Keep Healthy Natural Oils.



FUNCTION OF HEARBAL SHAMPOO

1. Lubrication
2. Conditioning
3. Hair Growth
4. Maintenance of Hair Colour
5. Medication

DESIRED PROPERTIES OF HEARBAL SHAMPOO-

1. Ease of Application
2. Removal of More Debris
3. Easy Wet Combing
4. Fragrance
5. Low Level of irritation
6. Well Preserved
7. Good Stability Advantages of Herbal Shampoo
8. Pure and Organic Ingredient
9. Free from Side Effects
10. No Surfactants eg:- SLS
11. No Synthetic Additives
12. No Animal Testing 6. Earth And Skin Friendly
13. No Petroleum based I



Literature Review

Suchita Gokhale, et al, June 2020- The shampoo sector is probably the largest unit sale among the hair care products since shampoos are one of the cosmetic products used in daily life. The herbal shampoo was Formulated using natural ingredient like Moringa, Aloevera, and Hibiscus with proven efficacy of hair care preparation is prepared.

The combination of several such ingredient of herbal origin has made it possible to secure highly effective herbal shampoo. The formulation at laboratory scale was done and evaluated for number of parameters to ensure its safety and efficacy. Priya D. Gaikwad et. 2018-The objective of this study is to formulate and evaluate polyherbal shampoo for cosmetic purpose from herbal ingredients. Hibiscus powder, Neem powder, Henna powder, Amla powder, Shikakai powder, Ritha powder, Alo-vera gel was procured from localmarket in powdered form also gel form Banyan root powder and Soya milk is prepared by homemade method, then prepared decoction of these ingredients and mixing with each other and evaluated for it'sorganoleptic and physico-chemical characteristics. Herbal shampoo is used to cleansing of the hair also conditioning, smoothing, of the hair surface, good health of hair, hair free of dandruff, dirt grease and lice above all, it's safety benefits are expected.

Dhayanithi S et. 2021-The aim of the article is to formulate a pure herbal shampoo and to evaluate its physicochemical properties. The shampoo is enriched with herbal extracts without any synthetic additives. The herbal extracts used in formulation are Sapindusmukorossi, Glycyrrhizaglabra, Azadirachtaindica, Nardostachysjatamansi, Ocimumtenuiflorum, Lavendulaangustifolia, Musa acuminata.

INGREDIENTS

Sr.no	MATERIAL REQUIRED	QUANTITY TO BE WEIGHED
1	Soap nut powder	10 g
2	Amla powder	10 g
3	Shikakai powder	10 g
4	Hibiscus powder	10 g
5	Bhringraj powder	10 g
6	Henna powder	10 g
7	Neem powder	10 g
8	Aloe vera extract	20 g
9	Gelatin	10 g
10	Fenugreek seed powder	10 g
11	Curcuma Zedoaria powder	10 g

USE OF INGREDIENTS

- i. Soap Nut powder
- ii. Stops Hair Fall
- iii. Prevents Dandruff
- iv. Fight Against Scalp Infection

**1. Amla Powder**

- i. Strengthen the Scalp and Hair.
- ii. Reduce premature pigment loss from hair, or greying.
- iii. Stimulate Hair Growth.
- iv. Reduce Hair Loss.
- v. Prevent or treat dandruff and dry scalp.
- vi. Prevent or treat Fungal and Bacterial hair and Scalp infections.
- vii. Improve overall appearance of Hairs



2. Shikakai powder

- i. Cleanses Hair.
- ii. Add more Shine to the Hairs,.
- iii. Prevents Grays.
- iv. Crubs Hair Loss
- v. Prevents Lice, Psoriasis, Eczema & Scabies.
- vi. Provides Nourishment to the hair and promote healthy and rapid hair growth.
- vii. Prevents Split ends.



3. Hibiscus

- i. Stimulate Hair Growth & Lost hair volume & Luster over the years.
- ii. Conditions Hairs
- iii. Prevents Baldness (Minoxidil & Finasteride).
- iv. Treat Dandruff & Itchy Scalp.
- v. Prevents premature greying.



4. Bhringraj powder

- i. Treats baldness and helps in growth of hairs.
- ii. Makes Hair Lustrous



5. Henna powder

- i. Henna shampoo regulates sebaceous secretion from the scalp
- ii. Henna leaves are full of antioxidants, which protect the hair from oxidation caused by factors such as solar radiation or water hardness and help to set and maintain the colour.



6. Neem powder

- i. Neem is beneficial for hair due to its natural antibacterial and antifungal properties.
- ii. It can help with dandruff, itchy scalp, and promote healthy hair growth by strengthening follicles.
- iii. Neem also cleanses and removes impurities from the scalp, contributing to a healthier hair environment.



7. Aloe Vera extract

- i. Calms an itchy scalp.
- ii. Deep cleans oily hairs.
- iii. Strengthens
- iv. Aloe vera contains proteolytic enzymes which repairs dead skin cells on scalp.
- v. Promote hair growth

- vi. Smooth natural curls
- vii. Reduce frizziness
- viii. Detangle Hairs.



8. Gelatin

- i. Gelatin Can improve hair thickness and growth.
- ii. Gelatin supplement or placebo for 50 weeks to 24 people with alopecia.
- iii. It gives thickness to hairs.
- iv. For strengthening of Hairs



9. Curcuma Zedoaria powder

- i. Stimulates hair follicle stem cells and promoting better blood circulation to the scalp.
- ii. Restore vitality to damaged hair.
- iii. It is known for its pleasant, aromatic smell.



FORMULATION OF HERBAL SHAMPOO

Formulation of the herbal shampoo was done as per the formula given in Table 1. To the gelatin solution (10%), added the herbal extract and mixed by shaking continuously at the time interval of 20 min.

To improve aroma in the formulation, sufficient quantity of Curcuma Powder 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.

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.

Conditioning performance evaluation

An artificial hair tress of Indian women was received from a salon and divided into two swatches of length 10 cm approximately, weighing 5 g.

The control swatch was the one without washing and the test swatch using the formulated shampoo was washed with.

Each tress was added for 2 min to the combination of shampoo in water in the proportion 10:15 taken in a conical flask and washed using 50 ml of distilled water.

Each tress was air dried at room temperature and the procedure was repeated for maximum of 10 times.

The conditioning effect of the prepared shampoo in terms of softness and smoothness was determined using a blind touch test using volunteers of student 20 numbers selected randomly.

The conditioning performance of the shampoo was rated in terms of Score 1–4 (4 - excellent, 3 - good, 2 - satisfactory, and 1 - poor) by asking all the selected students to touch the tress washed with prepared shampoo.

HYSICOCHEMICAL PROPERTIES OF HEARBAL SHAMPOO

Table-1.

Evaluation test	Formulated shampoo
Color	Brown
Transparency	Clear
Ph of 10% solution	7
Solid contents (%)	23.25
Foam volume (ml)	25
Foam type	Dense, small
Surface tention (dynes/cm)	35.18
Wetting times (s)	120s

LIMITATIONS OF HEARBAL SHAMPOO

1. Natural products affect product uniformity, Quality control.
2. Seasonal variation of plant constituents.
3. Less stable, So preservatives should be added.
4. Vary in consistency from batch to batch.

RESULT

The shampoo was formulated by admixing the equal amount of the aqueous extracts of all the ingredients with soapnut (Table 1).

The above plant extract contains phytoconstituents like saponins which is a natural surfactant having detergent property and foaming property. An ideal shampoo must have adequate viscosity and many natural substances possess good viscosity.

The gelatin solution (10%) behaves as a pseudoplastic forming clear solutions. Aloe vera added to the shampoo serves as moisturizing, hydrating, and chelating agent and maintains the acidic pH in the formulation.

Evaluation of formulated shampoo

1. Physical Appearance
2. pH
3. Solid Content
4. Surface Tension
5. Wetting Time
6. Foaming ability
7. and Foaming Stability
8. Dirt Dispersion test
9. Net Content
10. Conditioning Performance

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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