

Formulation and Evaluation of Herbal Shampoo

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ABSTRACT

The objective of this study is to formulate and evaluate poly-herbal 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 local market in powdered form and rice water prepared by homemade method, then prepared decoction of these ingredients and mixing with each other and evaluated for its organoleptic and physicochemical 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, its safety benefits are expected. The advantage of herbal cosmetics is their non-toxic nature, reduce the allergic reactions and usefulness of many ingredients. That's why 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: Cosmetic, Herbal, Formulation, Evaluation

I. INTRODUCTION

Now a day's peoples are conscious about hairs due to increase in pollution hairs get damaged. Pollutants badly affect hair resulted into spilt ends, roughness, retarded growth of hairs, loss of shine of hair and hair falls. These all problems of hair are covered by shampoo but in case of synthetic shampoos they are made from chemical constituents shows side effects on hairs.

In case of polyherbal shampoos natural ingredients are involved in it, which having natural tendency as a cleanser. They show a good effect on hairs without showing any side effects on hairs. Natural ingredients are useful because of their pure qualities.

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.

Herbal formulations are considered as alternative to synthetic shampoo but formulating cosmetics using completely natural raw material is a difficult task.

There are large numbers of medicinal plants which are reported to have beneficial effects on hair and are commonly used in formulation of shampoo.

These plant products may be used in their powdered form, crude form, purified extracts or derivative form.

A. Importance of this formulation:

- The selection of active ingredients for hair care shampoo is often based on the ability of the ingredient to prevent damage to skin as well as to improve the quality of the skin by way of cleansing, nourishing, and protecting the skin.
- It not makes the hand rough and chapped.
- It not gives any side effects or causes irritation to the eye.
- It produces a good amount of foam to satisfy the psychological requirements.

B. Ideal Properties of herbal shampoo:

- Gentle and non-irritating

- pH balanced
- Free from harsh chemicals
- Nourishing and moisturizing
- Gentle cleansing
- Remove dirt and impurities effectively
- Stimulate hair growth
- Reduce hair fall
- Sulphate free
- Colour safe
- Suitable for all hair types

C. Functions of herbal shampoo:

Herbal shampoo offers a range of benefits and functions, including-

- Cleansing and nourishment
- Hair growth and strength
- Scalp health
- Moisturizes and conditions hair
- Protect hairs from damage

D. Advantages of Herbal Shampoos:

- Made from natural ingredients
- Fewer harsh chemicals
- Environmentally friendly
- Beneficial for scalp health
- Suitable for sensitive skin

E. Disadvantages of Herbal Shampoos:

- Slower visible results
- Inconsistent formulas
- Shorter shelf life
- Less lather
- May not work for all hair types

II. METHODS AND MATERIAL

Table 1: Ingredients used in formulation

Sr no	Constituents	Biological source	Family	Uses
1	Hibiscus leaf	Dried leaves of Hibiscus rosea	Malvaceae	Prevents hair loss and hair growth promoter.

Sr no	Constituents	Biological source	Family	Uses
2	Henna leaf	Dried leaves of Lawsoniainermis	Lythraceae	Growth of hair, conditioner.
3	Neem leaf	Dried leaves of Azadirachtaindica	Miliaceae	Prevent the dryness of hairs and flaking of hairs.
4	Amla fruit	Dried ripe fruits of Embelicaofficinalis	Euphorbiaceae	Darkening of hairs and hair growth promoter.
5	Shikakai fruit	Dried pods of Acacia concinna	Mimosaceae	Foam base and anti-dandruff.
6	Ritha fruit	Dried fruits of Sapindusmukorossi	Sapindaceae	Detergent and antidandruff.
7	Alovera leaf	Dried leaves of Aloe barbadensis miller	Liliaceae	Conditioner and moisturizing effect.
8	Guar gum	Powder of endosperm of the seeds of Cyamopsistetragonolobus	Leguminosae	Good emulsifier, also use in food and cosmetic industries.
9	Almond	Dried ripe seeds of Prunusamygdalus	Rosaceae	Preservative, sedative, demulcemy.
10	Rice	Obtained from paddy plant of oryza sativa	Gramineae	Provide nutrients to hair, promote hair growth, improve over-all hair health.
11	Sandalwood	Roots of the Santalum album tree	Santalaceae	Soothe and calm the scalp, reduce dandruff, Promote hair growth

Table 2: Formula of herbal shampoo

Sr no	Constituents	Part of plant used	Quantity (100 ml)
1	Hibiscus powder	Leaves	5 gm
2	Neem powder	leaves	5 gm
3	Heena powder	Leaves	5 gm
4	Amla powder	Fruit	10 gm
5	Shikakai powder	Fruit	15 gm
6	Ritha powder	Fruit	15 gm
7	Alovera gel	Leaves	10 gm
8	Guar gum	Seed	1 gm
9	Almond oil	Fruit	4 ml
10	Rice water	Seed	20 ml
11	Sandalwood powder	wood	5 gm

A. Preparation method of herbal shampoo**1) Decoction Method:**

Weigh all the ingredients according to the formula.

Decoction of Hibiscus, Henna, Neem, Amla, sandalwood was prepared in one part of water.

Filter it, by using muslin cloth. Collect filtrate.

Decoction of Shikakai, and Ritha was prepared in another part of water.

Filter it by using muslin cloth. Collect filtrate.

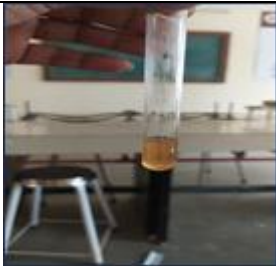
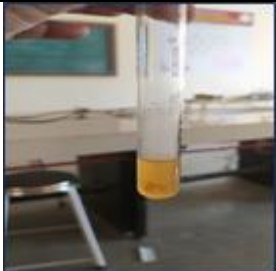




Mix above filtrate into each other with constant stirring.

Add almond oil and rice water.

Mix gaur gum as a thickening agent for maintenance of consistency of herbal shampoo as like semisolid nature.

Preservative and perfume are added lastly.

III. PRELIMINARY PHYTOCHEMICAL TESTS

Sr no	Chemical	Test	Observation	Inference	Image
1	Hibiscus	Alkaline reagent test (Flavonoids): Test solution + NaOH (few drops)	Appearance of deep yellow colour that result in less intense on acid addition	Showed the presence of flavonoids	
2	Neem	Alkaline reagent test (Flavonoids): Test solution + NaOH (few drops)	Appearance of deep yellow colour that result in less intense on acid addition	Showed the presence of flavonoids	
3	Neem	Hager's test (Alkaloids): Little quantity of filtrates + picric acid saturated solution	Yellow precipitate	Showed the presence of alkaloids	
4	Shikakai	Foam test (saponin): Alcohol extract (1 ml) + Distilled water upto 20 ml shaken in a graduated cylinder for 15 minutes	Appearance of both above the water surface	Shows the occurrence of saponins	
5	Shikakai	Hager's test (Alkaloids): Little quantity of filtrates + picric acid saturated solution	Yellow precipitate	Showed the presence of alkaloids	
6	Reetha Saponin test	Foam test (saponin): Alcohol extract (1 ml) + Distilled water upto 20 ml shaken in a graduated cylinder for 15 minutes	Appearance of both above the water surface	Shows the occurrence of saponins	

IV. 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 assure the quality of products, specific tests for shampoo formulations including the determination of dry residue and moisture content tests were carried out.

A. Physical Appearance /Visual Assessment

The formulations prepared were evaluated in terms of their clarity, foam producing ability and colour.

B. Determination of pH

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

C. Determine percent of solids contents

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

D. Rheological evaluation

The viscosity of the shampoo was calculated by using viscometer (Brook field).

E. Dirt dispersion

Two drops of shampoo were added in large test tube contain 10 ml of distilled water. One drop of ink was added in the test tube, was stopped and shake for ten times. The amount of ink in the foam was estimated as none, light, moderate or heavy.

F. Skin sensitization test

This test is performed on skin of human volunteers and checks whether it irritation on skin or not.



G. Stability test






Stability and acceptability of organoleptic properties (odour and colour) of formulations during the storage period of 1 months indicated that they are chemically and physically stable.

H. Foaming ability and foam stability

Cylinder shake method was used for determining foaming ability. 50 ml of the 1% shampoo solution was put into a 250 ml graduated cylinder and covered the cylinder with hand and shaken for 10 times were recorded. The total volumes of the foam contents after 1 minute shaking. The foam volume was calculated only. Immediately after shaking the volume of foam at 1 minute intervals for 4 minutes were recorded.

V. RESULT AND DISCUSSION

Sr so	Evaluation test	Result obtained	Image
1	Physical appearance	Dark brown, Good foaming	
2	pH	4.8	
3	Percent of solid content	4.75%	

Sr so	Evaluation test	Result obtained	Image
4	Rheological evaluation	2.6 cps	
5	Dirt dispersion	light	
6	Skin sensitization	No irritation on skin	
7	Stability test	Stable after 1 month	
8	Foaming ability and foaming stability	Foam produced after 1 min = 5.1 cm Foam remained stable after 4 min = 35 cm	

VI. CONCLUSION

The herbal shampoos are the preparations which are used for the washing and cleaning of hairs and to provide nourishment. The herbal shampoos are widely used due to their no or less side effects as compared to conventional shampoos, because it contains pure natural or herbal ingredients rather than synthetic chemicals. Herbal shampoo does not require animal testing and it is earth and skin friendly. The herbal liquid shampoo was formulated by using the various herbal ingredients. From the overall results showed neutral pH, non-irritant to the skin. Evaluation studies showed good results of appearance,

wash ability, non-irritant to the skin, foam stability, dirt dispersion activity, Rheological tests.

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