

# 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 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 its organoleptic 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. 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:** Cosmetic, Herbal shampoo

## 1. Introduction









"Shampoo is the cleansing preparation of the hair and scalp."




Though there are different types of skin cleansers, but the hair cleansing preparations can be grouped into only one category and are called as shampoo. They are basically water based products containing mainly surfactants.<sup>2</sup> its Primary function is of cleansing the hair of accumulated sebum, scalp, debris and residues of hair grooming preparations. The herbal shampoo although better in performance and safer than the synthetic ones will be popular with consumers.

## 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 have not make the hand rough and chapped.
- It's not give any side effects or causes irritation to the eye.
- It produces a good amount of foam to satisfy the psychological requirements.

**Table 1:** Ingredients used in formulation

Sr. No	Constituents	Biological source	Family	Uses	Images
1.	Hibiscus leaf	Dried leaves of <b>Hibiscus rosea</b>	Malvaceae	Prevents hair loss and hair growth promoter.	
2.	Henna leaf	Dried leaves of <b>Lawsoniainermis</b>	Lythraceae	Growth of hair, conditioner.	
3.	Neem leaf	Dried leaves of <b>Azadirachtaindica</b>	Miliaceae	Prevent the dryness of hairs and flaking of hairs.	
4.	Amla fruit	Dried ripe fruits of <b>Embelicaofficinalis</b>	Euphorbiaceae	Darkening of hairs and hair growth promoter.	
5.	Shikakai fruit	Dried pods of <b>Acacia concinna</b>	Mimosaceae	Foam base and anti dandruff.	
6.	Ritha fruit	Dried fruits of <b>Sapindusmukorossi</b>	Sapindaceae	Detergent and antidandruff.	
7.	Alovera leaf	Dried leaves of <b>Aloe barbadensis miller</b>	Liliaceae	Conditioner and moisturizing effect.	
8.	Banyan root	Dried roots of <b>Ficusaurea</b>	Moraceae	Lustrous effects on hairs.	

9.	Soyamilk	Dried legumes of <b>Glycine max</b>	Fabaceae	Gives proteins, edible oils.	
10.	Guar gum	Powder of endosperm of the seeds of <b>Cyamopsistetragonolobus</b>	Leguminosae	Good emulsifier, also use in food and cosmetic industries.	
11.	Almond	Dried ripe seeds of <b>Prunusamygdalus</b>	Rosaceae	Preservative, sedative, demulcemy.	

**Objectives**

- 1) To formulate the herbal shampoo.
- 2) To evaluate the herbal shampoo.
- 3) The part used for formulation is leaves, fruits and root.
- 4) To reduce side effects of chemical formulation.
- 5) To improve hairs texture.
- 6) To darkening the hair color.
- 7) To imparting gloss to hair and to maintain their manageability and oiliness for hairs.

**Preparation**

**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.	Henna powder	Leaves	5 gm
4.	Amla powder	Fruits	10 gm
5.	Shikakai powder	Fruits	15 gm
6.	Ritha powder	Fruits	15 gm
7.	Alovera gel	Leaves	10 ml
8.	Banyan powder	Roots	5 gm
9.	Soya milk	Seeds	20 gm
10.	Gaur gum	Seeds	1 gm
11.	Sandalwood	Wood	5 gm
12.	Almond	Fruits	4 gm

**Preparation method of herbal shampoo:**

**Decoction Method:**

Weghied all the ingredients according to the formula.

Decoction of Hibiscus, Henna, Neem, Amla, Banyan root powders, Alovera gel, Soya milk was prepared in one part of water.

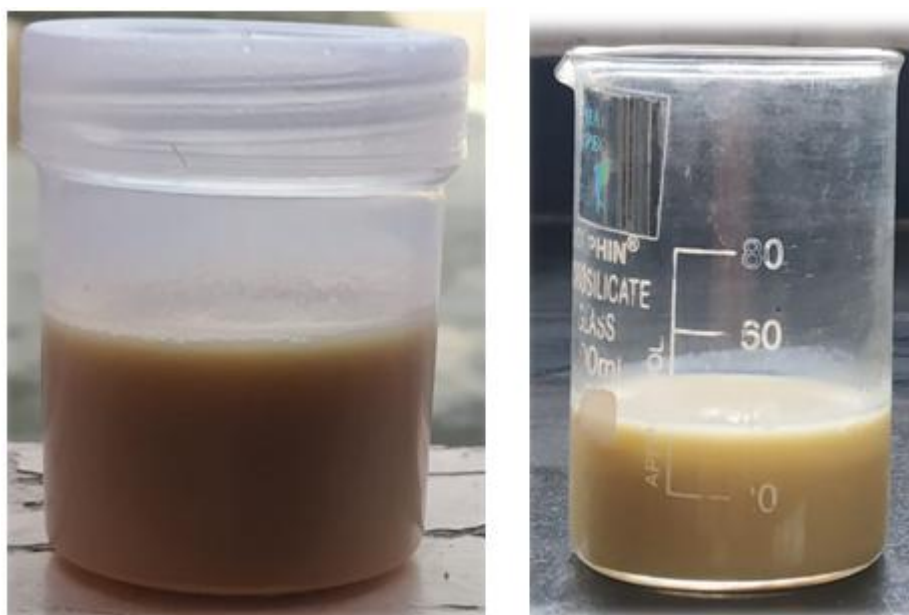
Filter it, by using muslin cloth. Collect filtrate.

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

Filter it by using muslin cloth. Collect filtrate.

Mixed to each other of above filtrate with constant stirring.

Mixed gaur gum as a thickening agent for maintenance of consistency of herbal shampoo as like semisolid nature. Preservatives and perfume was added lastly.



**Figure 1:** Formulation of 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 assure the quality of products, specific tests for shampoo formulations including the determination of dry residue and moisture content tests were carried out. The results were compared with marketed formulations.<sup>5</sup>

**Physical appearance /visual assessment**

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

**Determination of pH**

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

**Determine percent of solids contents**

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

**Rheological evaluation**

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

**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.

**Skin sensitization test**

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

**Stability test**

Stability and acceptability of organoleptic properties (odour and color) of formulations during the storage period of 2 months indicated that they are chemically and physically stable.

**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.

**Nature of hair after washes<sup>6</sup>**

Nature of hair after wash can be done by collecting the responses of volunteers

**Table 3: Result and Discussion**

Sr. No.	Evaluation tests	Results obtained
1.	Physical appearance	Dark brown, good foaming
2.	pH	5
3.	Percent of solids contents	3.8%
4.	Rheological evaluations	1.84 cps
5.	Dirt dispersion	Light
6.	Skin sensitization	No irritation on skin
7.	Stability test	Stable after two months
8.	Foaming ability and Foaming stability	50 ml
9.	Nature of hair after washes	Soft manageable

**2. Conclusion**

The formulated shampoo were not only safer than the chemical conditioning agents, but also greatly reduce the hair loss during combing as well as strengthens the hair growth. The pH of the shampoo was adjusted to 5, to retain the acidic mantle of scalp. The physicochemical approach used for preservation of the formulations to avoid the risk posed by chemical preservatives. However, the aesthetic attributes such as lather and clarity of the laboratory shampoo are not comparable with the marketed shampoos. The foam volume is one part.

In the present scenario, it seems improbable that herbal shampoo, although better in performance and safer than the synthetic ones, will be popular with consumers. Formulators must play an active role in educating the consumers about the potential harmful effects of synthetic detergent in shampoos. There is a strong need to change the consumer perceptions of a good shampoo and the onus lies with the formulators.

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