

Formulation And Evaluation of Herbal Shampoo Powder For Hair Care

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Abstract- The study aimed to formulate an herbal powder shampoo and evaluate its physicochemical properties. The herbal liquid shampoo was formulated by adding the fine powder of Shikakai, Methi, Hibiscus, Neem, Ashwagandha, Reetha, Amla, Cinnamon, Kalonji and Rose. Several tests such as Organoleptic character (Odor, Color and Texture), Bulk density, tapped density, Moisture content, Dirt dispersion, pH, Water solubility and Foaming index were performed to determine the physicochemical properties. All the evaluation parameters give the satisfactory results.









I. INTRODUCTION

Hair are the integral part of human beauty . people are using herb for cleaning, beautifying and managing hair since the ancient era. As time has passed synthetic agents have taken a large share but today people are getting aware of there harmful effects on hairs, skin and eyes.these regions attracted to community towards the herbal products , which are less expensive and have negligible side effects. Hear cleansers or shampoo are use not only for cleansing purpose but also for imparting gloss to hair and to maintain their manageability and oiliness for hairs. herbal powder shampoo offer several advantages, including a chemical-free formula that eliminates sulfate, parabens , and artificial additives, making them gentle on the scalp and ideal for sensitive skin. Their eco-friendly and sustainable nature ensures minimal packaging and no water wastage while their long shelf life prevent microbial growth, eliminating the need for preservatives .These shampoo are customizable, allowing users to mix them with water , yogurt, or herbal infusion for enhanced Benefits.To use herbal powder shampoo, one must mix the powder with water or Rose water to create a paste, apply it to the scalp and , massage gently for a few minutes, leave it on for five to ten minutes to allow nutrients to penetrate the scalp.

The essential component of human attractiveness hair. Since ancient times, people have used herbs to clean adorn, and manage their hair.shampoos and hair cleansers are used for more than just cleaning; they also provide hair a glossy finish and keep it manageable and oilily. These natural alternatives often contain ingredient like aloe vera, chamomile, and essential oils, which not only nourish the hair but also promote overall scalp health.As consumers seek to

embrace more holistic approaches to beauty,the demand for herbal formulations continue to grow, reflecting a broader shift towards sustainability and wellness in personal care routines. The primary function of shampoo is aimed at the cleansing of the hair necessitated by accumulated sebum, dust, scalp debris, etc.The essential component of human beauty is hair. Herbs are being used by people to clean, style, and manage their hair. Since the beginning of time. Despite the fact that hair has been styled, cut , and even dyed since the beginning of time, cleaning has not received as much attention.

Table 1 List of ingredients used in herbal shampoo powder

Sr.no	Common name	Picture	Botanical name	Part use	Uses
1	Shikakai		Acacia concinna	Powder	Detergent
2	Reetha		Sapindus indica	Fruit	Detergent
3	Rose		Rosa Centifolia	Petals	Flavoring agent
4	Bhringraj		Eclipta prostrate	Leaves	Greying hair
5	Neem		Azadirachta indica	Leaves	Antiseptic/Antibacterial
6	Ashwagandha		Withaniasomnifera	Root	Improves circulation
7	Aloevera		Aloe vera (L)burm f.	Leaves	Anti dandruff
8	Cinnamon		Cinnamomum verum	Bark	Antifungal
9	Amla		Emblica officinalis	Fruit	Anti-dandruffagent
10	Hibiscus		Hibiscus rosa-sinensis	Flower	Conditioninzagent
11	Henna		Lawsonia inermis	Leaves	Antifungal
12	Methi		Trigonella Linn	Seed	Cleansing

Formulation And Preparation of Herbal Shampoo Powder :-

* Formulation table:-

Table no.1 Formulation of herbal shampoo Powder

Sr.no	Ingredient	quantity
1	Amla	13.3gm
2	Reeta	10gm
3	Shikakai	23.3gm
4	Hibiscus	13.3gm
5	Rose	2gm
6	Neem	13.3gm
7	Ashwagandha	4.6gm
8	Aloevera	5gm
9	Cinnamon	2gm
10	Methi	4.6gm
11	Henna	6.6gm
12	Bhringraj	2gm
	Total	100 gram

Experimental work :-

1. Collection of plant material :-

- HIBISCUS ROSASINENSIS (HIBISCUS)
- W. SOMNIFERA (ASHWAGANDHA)
- AZADIRACHTA INDICA(NEEM)
- ACACIA CONCINNA (SHIKAKKAI)
- EGLANTINE ROSE (ROSE)
- LAWSONIA INERMIS L. (HEENA)
- CINNAMOMUM VERUM (CINNAMON)

2. DRYING: Drying dried in shade in shade for 5 days.

3. GRINDING: All the dried leaf grinded into fine powder.

4. WEIGHING: All the powder herbs were weighted on digital weight machine according to formulation.



5. SIEVING: All the powder herbs were passed through sieve no. 80 to obtain very fine powder particles.



6. MIXING: Mix all The Powder Herbs Together.



7. PACKAGING AND LABELLING: The formulation of dry herbal shampoo powder was well stored into an air tight container and labeled.

Procedure of Formulation of Herbal Shampoo Powder:

- Formulation of herbal shampoo powder
- Drying: All the powder are in dry form and grinded.
- Weighing: All the required herbal powders for shampoo preparation were weighed individuall
- Mixing: All these fine ingredients were mixed thoroughly by mixer to form a homogenous fine powder
- Sieving: Then this fine powder was passed through sieve no: 80, to get the sufficient quantity of fine powder
- Packing and labeling: Then it was packed and labeled suitably. Preparation Quantity taken for 100g of Herbal Powder Shampoo

Evaluation Of Prepared herbal Shampoo Powder :-

To evaluate the prepared formulations, physicochemical tests viz., Organoleptic character (Odor, Color and Texture), Bulk density, Tapped density, Moisture content, Dirt dispersion, pH, Water solubility and Foaming index were carried out.

1. Organoleptic character: Organoleptic evaluation studies were performed by taking the samples randomly for the parameters like color, Odour and texture.

2. General powder characteristics:

General powder characteristics include evaluation of those parameters which are going to affect the external properties (like flow properties, appearance, packaging criteria etc.) of the preparation, Characteristics evaluated under this section are powder form, particle size angle of repose and bulk density. Samples for all these evaluations were taken at three different levels i.e. from top, middle and lower level.

I. Particle size

Particle size is a parameter, which affect various properties like spread ability, grittiness etc., particle size was determined by sieving method by using I.P. Standard sieves by mechanical shaking for 10 min.

II. Angle of repose

It is defined as the maximum angle possible in between the surface of pile of powder to the horizontal flow.

Funnel Method

Required quality of dried powder is taken in a funnel placed at a height of 6cm from a horizontal base. The powder was allowed to flow to form a heap over the paper on the horizontal plane. The height and radius of the powder were noted and recorded the angle of repose (θ) can be calculated by using the formula.



Bulk density:

The bulk density of a powder is the ratio of the mass of an untapped powder sample and its volume, including the contribution of inter particulate void volume. Hence, the bulk

density depends on both the density of powder particles and the spatial arrangement of particles in the powdered. The bulk density is expressed in g/cm^3 . A volume of 50 ml graduated cylinder was taken and required amount of herbal shampoo. Powder was added to the graduated cylinder. This was transferred to bulk density apparatus and bulk density was calculated. It is an important property for packaging and uniformity in the bulk of the product

Mass of powder (M)

Bulk density = $\frac{\text{Mass of powder (M)}}{\text{Bulk Volume of the powder (Vb)}}$

Tapped density:-

The tapped density is an increased bulk density attained after mechanically tapping a container containing the powder sample. After observing the initial powder volume or mass, the measuring cylinder or vessel is mechanically tapped for 1 min and volume or mass readings are taken until little further volume or mass change was observed. It was expressed in grams per cubic centimeter (g/cm^3).

Mass of powder (M)

Tapped density= $\frac{\text{Mass of powder (M)}}{\text{Tapped volume of the powder (vt)}}$



3. Physicochemical Evaluation:-

1. pH:

The pH of 10% shampoo solution in distilled water was determined at room temperature 25°C . The pH was measured by using pH paper.



2. Water Solubility:

Solubility is defined as the ability of the substance to soluble in a solvent. One gram of the powder is weighed accurately and transferred into a beaker containing 100 ml of water. This was shaken well and warmed to increase the solubility. Then cooled and filter it, the residue obtained is weighed and noted.

3. Moisture content:

Moisture content in the formulation is very important as it contains herbs which are liable to be attacked by weather. 2gm of powder was taken and kept in an oven and dried up to two constant reading and %moisture content was calculates as w/w.



4. Dirt dispersion:

Two drops of herbal shampoo were added in a large test tube contain 10 ml of distilled water. 1 drop of India ink was added; the test tube was stoppered and shakes it ten times. The amount of ink in the foam was estimated as Light.

5. Washability

Formulations were applied on the skin and then ease and extent of washing with water were checked manually.



Result And Discussion :-

Sir.no	Evaluation test	Result
1.	Organoleptic evaluation a) Color b) Odour c) Taste d) Texture	Light brown Characteristic Bitter Smooth and fine powder
2.	General Powder Characteristics a) Particle Size b) Angle Of Repose c) Bulk Density d) Tap Density	0.177mm 31° 1.2g/cm3 2.5g/cm3
3.	Physicochemical Characteristics a) pH b) Solubility c) Washability d) Dirt Dispersion e) Moisture Content f) Wetting Time g) Foaming Index h) Skin/Eye Irritation Test i) Stability	7 Soluble in water with moderate heating Easily washable with water Moderate / light 9.01gm remain out of 10gm 60sec Good foaming No harmful effect on skin Stable at room temperature

- The present work was formulation and evaluation of herbal shampoo powder using different kinds of plant herbs like Neem, Hibiscus, Shikakai, reetha, ashwagandha, aloe vera
- All the plant materials were collected from the college medicinal garden fresh. Then air dried the collected materials then milled, and sieved.
- Further, the powders were used as per the formulation table and formulated as herbal shampoo powder.

Summary and conclusion:

Herbal powder shampoo using Shikakai, Methi, Hibiscus, Neem, Ashwagandha, Reetha, Amla, Cinnamon, and Rose were prepared and evaluations were carried out for those following parameters viz., Organoleptic character (Odor, Color and Texture), Bulk density, Tapped density, Moisture content, Dirt dispersion, pH, Water solubility and Foaming index. The evaluation parameters data were shown in acceptable range. Further studies are appreciated for comparing this preparation with marketed one and establishing some effective results for hair cleansing action and conditioning effect as well. The herbal powder shampoo was formulated based upon traditional knowledge and emphasis was to formulate a stable and functionally effective. The formulated shampoos were not only safer than the chemical

conditioning agents, but also greatly reduce the hair loss during combing as well as strengthen the hair growth.

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