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## PREPARATION AND EVALUATION OF HERBAL SHAMPOO

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Article Info	Abstract
<b>Article History</b> Received on: 12-05-2024 Revised on: 04-06-2024 Accepted on: 16-06-2024	<b>Aim and Objective:</b> The aim of this presents formulation and evaluation herbal shampoo and to assess its physicochemical function that emphasis on safety, efficacy, eliminating harmful ingredient, and substitute with safe natural ingredients. <b>Material and Methods:</b> The formulation of shampoo using the extracts of Hibiscus, Ritha, Alovera, methi, amla, flax seeds, curry leaves and neem leaves different proportions. Evaluation of organoleptic, physicochemical, and performance tests in terms of wetting time test, pH, solid contents, surface tension, dirt dispersion, foam Stability, cleaning action and Viscosity was performed. <b>Results:</b> The created cleanser was clear and good appealing. It demonstrated good foam stability, detergency, good cleansing, small bubble size, low surface strain, and execution of good conditioning. <b>Conclusion:</b> The physicochemical evaluation of the formulated shampoo showed ideal results. However, to improve its quality, product performance, and safety, further development was required.
	<b>Keywords:</b> Herbal shampoo, Evaluation, formulation of herbal shampoo and Ritha.

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### Introduction

Herbal medicine is the study of pharmacognosy and the application of medicinal herbs as a foundation for traditional medicine. Chemical formulations made up of many compounds that can heal hair problems but also cause hair damage. According to certain worldwide study, the ingredients in herbal shampoo cause cancer. Surfactants (synthetic) are added to synthetic shampoos for their cleansing and foaming properties, but long-term use causes major side effects such as eye irritation, scalp irritation, hair loss, and hair dryness. Shampoos containing natural herbs can be used as an alternative to synthetic shampoo [1].

The most popular products for cleaning our hair and scalp on a daily basis are likely herbal shampoos. Herbal shampoos are cosmetic products made with traditional Ayurveda herbs that are intended to clean the hair and scalp in the same way as ordinary shampoo. Most likely [2], shampoos are utilised as cosmetics. Shampoos, a thick mixture of detergents with the proper ingredients, are probably used as beautifying agents. Herbal cosmetics are becoming more popular and in demand, largely because it is thought that they are risk-free and have no negative side

effects. They are employed to remove oils, dandruff, environmental pollutants, and other impurities. Herbal shampoos aim at providing essential nutrients to the hair and at the same time have a slight cleansing action to remove the hair's excess oil content. Shampoos, that are a sticky mixture of detergents with the right additions, preservatives, and active Ingredients, are probably used as enhancing results [3].

Shampoos are probably the most widely used cosmetic products for cleansing hairs and scalp in our daily life. 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 [4, 5].

### Dandruff [6]

Dandruff is a common condition that causes the skin on the scalp to flake. It isn't contagious or serious. But it can be embarrassing and difficult to treat. Mild dandruff can be treated with a gentle daily shampoo.

### Shampoo [7]

Shampoo is a basic hair care product that accounts for the majority of hair care products. Shampoo comes in a viscous liquid state, with the exception of a waterless solid form such as a bar. Shampoo was created to replace soap in the cleansing of the scalp and hair by removing undesirable sebum, dandruff, dust, and hair care product residues.

### Need of Shampoo [8, 9]

Sebum is a fatty fluid produced by the skin of our heads. It's made to protect the hair by coating the entire head with it. This gives the hair a healthy sheen, but too much of it makes the hair look unclean.

### Classification of Shampoo [10-15]

Based on Appearance.

- Powder shampoo
- Liquid shampoo or lotion shampoo
- Gel shampoo or Solid shampoo
- Cream shampoo
- Oil shampoo
- Miscellaneous anti dandruff shampoo or medicated shampoo

Based on Use or Function.

- Conditioning shampoo
- Antidandruff shampoo
- Therapeutic shampoo
- Baby shampoo
- Balancing shampoo
- Clarifying shampoo

Based on origin:

- Herbal shampoo
- Egg shampoo

### Problems Related To Hair:

- Dandruff
- Dry hair
- Split ends
- Oily hair
- Hair loss
- Heat damage
- Colour damage

## Aim and Objectives

### Aim

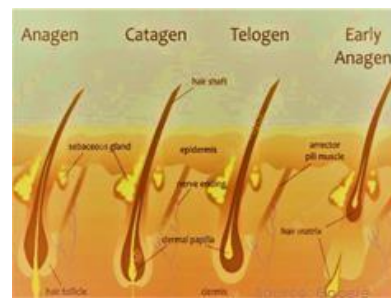
### Preparation and Evaluation of Herbal Shampoo.

## 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 colour.
7. To imparting gloss to hair and to maintain their manageability and oiliness for hairs.
8. To reduce the formation of dandruff flakes.



**Fig 1: Hair structure**



**Fig 2: Growth Cycle of hair**

## History

In the Indian subcontinent, a range of herbs and their extracts have been used as shampoos considering historic times. A very high- quality early shampoo used to be made with the aid of boiling *Sapindus* with dried Indian gooseberry (amla) and a resolution of different herbs, the use of the strained extract. Additionally recognized as soapberries or soapsuds, a tropical tree widespread in India, is known as *ksuna* [3]. In historical Indian texts and its fruit pulp consists of saponins which are a herbal surfactant. Cleansing with hair and physique rubdown (*champu*) all through one's every day tub was an indulgence of early colonial merchants in India. When they lower back to Europe, they brought the newly realized habits, which includes the hair treatment they known as shampoo.

Herbal shampoos have been around for a long time, with ancient civilizations using plant extracts and oils to clean and beautify hair. People in places like Egypt and Greece used ingredients like olive oil, rosemary, and lavender to make their own shampoos. In India and China, traditional medicine systems like Ayurveda and Traditional Chinese Medicine have long used herbs for hair care. In more recent times, as people became more aware of the potential harm from chemicals in regular shampoos, the demand for herbal shampoos grew. Nowadays, you can find herbal shampoos everywhere, offering natural options for different hair types and needs. So, the history of herbal shampoos shows a tradition of using plants for healthy, beautiful hair, which continues today as we look for natural and sustainable ways to care for ourselves.

## Experimental Work

## Collection of Plants

Fresh parts of *Hibiscus rosea sinensis* (hibiscus leaves), *Margosa* (neem leaves) were collected from herbal garden and curry leaves are collected from local market and all leaves are washed under running water to remove contaminants while *Sapindus mukorossi* (reetha), *Phyllanthus emblica* (amla), common flax (flax seeds), *Gumkino* (guar gum) and *Trigonella foenum* (methi seeds) were collected from local market. All the green fresh ingredients were dried in shade, converted into coarse powders and sieved. Almond oil was collected from local medical shop. The raw materials were given with their biological source and uses respectively mentioned in introduction part.

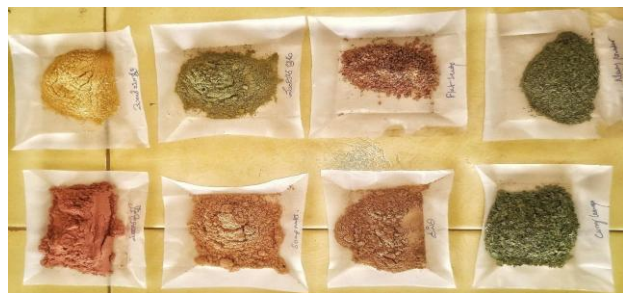


Fig No: - 3 [Ingredients of Herbal Shampoo]

### Result and Discussion

S.No	Evaluation test	Observation
1	Appearance	Clear
2	Colour	Dark brown
3	Determination of pH	6-7
4	Foaming index	500
5	Test to evaluate foaming ability and foam stability	8 cm
6	Wetting time	100 s
7	Dirt dispersion	Moderate
8	% of solid contents	12%
9	Nature of hair after washes	Soft and Smooth
10	Skin sensitization test	No Irritation
11	Speed of drying (min)	5 min
12	Easy of combing (dry )	Easy
13	Surface tension	57.155 dynes/cm
14	Viscosity	30 millipoise
15	Cleaning action	35%

#### Final Formulation: HERBAL SHAMPOO

HERBAL SHAMPOO		
Ingredients		
Soap nuts extract	20 ml	Mfg. Lic No. 2024
Rita extract	10 ml	Batch No. A
Amla extract	10 ml	Mfg. By. JAGAN'S INSTITUTE OF
Methi extract	5 ml	PHARMACEUTICAL SCIENCE'S
Senna extract	10 ml	Mfg. Dt. 17 FEB 2024

Mentha extract	5 ml	Exp. Dt. 20 JAN 2025
Hibiscus extract	5 ml	
Curry extract	10 ml	
Flax extract	10 ml	
Neem extract	10 ml	
Aloe Vera	q. s	
Almond oil	q. s	
Rose water	q. s	
Vitamin-E	q. s	
Guar gum	q. s	
Lemmon juice	q. s	
Category :- Hair growth		
Storage : Store in cool and dry place		
JAGAN'S INSTITUTE OF PHARMACEUTICAL SCIENCE'S		

**1). Physical appearance / Visual inspection:** Our formulated shampoo as shown in Fig.7 was opaque and dark brown in colour. It has a good odour given by the fragrance in the ingredients and also a good foam producing ability.

**2) pH:** The pH of our formulated shampoo was 6-7, falling within the ideal pH range for shampoo which is between 5 and 7.8.

**3) Percentage of solid contents:** If the shampoo has too many solids it will be hard to work into the hair or too hard to wash out. The result of percent of solids contents was found to be 12% and it is suggestive that it can be washed out easily.

**4) Surface tension measurement:** The proper shampoo should be able to decrease the surface tension of pure water to about 40 dynes /cm. The reduction in surface tension of water from

72.8 dynes/cm to 57.155 dynes/cm by the herbal shampoos is an indication of their good Action of detergent.

**5) 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. 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 100 s. The maximum of wetting time shows that the shampoo contains lower amount of detergents.

**6) Cleaning Action:** As cleaning is the primary action of a shampoo powder, cleaning action was tested on wool yarn in grease. The results of detergency studies showed that the final formulation detergency ability was found to be 35%

**7) Dirt dispersion test:** - In the dirt dispersion test using Indian ink, the volume of ink in the froth was measured. The

amount of ink in the foam was estimated as moderate. The prepared formulation was satisfactory.

**8) Foaming ability and foam stability:** Although foam generation has little to do with the cleaning ability of shampoos, it is of importance to the consumer. The final formulation produced stable foams there was little bit change in foam volume.

**9) Stability Study:** Stability and acceptability of organoleptic properties (odour and colour) of formulations during the storage period indicated that they are chemically and physically stable. The formulated herbal shampoo is chemically and physically stable at standard room temperature of 25-30°C. The results indicate that it possesses good stability within the 3 months of stability study.

#### **10) Nature of hair after washes: -**

Nature of hair after wash can be done by collecting the responses by using hair samples. The nature of hair after washing by the formulated shampoo was soft and smooth.

#### **11) Skin irritation test:**

After application of herbal shampoo on skin no irritation and reddens was observed.

#### **12) Speed of drying**

The speed of drying was performed by applying 5ml of the shampoo in hair and dried after Washing. After observation the speed of drying of hair within 5 min.

#### **13) Easy of combing: -**

Easy of combing after washing was observed.

#### **14) Viscosity:**

The viscosity of shampoo plays an important role in determining its shelf life stability, the ease of flow on removal from packing and spreading on application to hair and product consistency in the package. The viscosity of formulated shampoo was found to be 30 millipoise.

### **Conclusion**

The main purpose behind this investigation was to develop a stable and functionally effective shampoo. The present study was carried out with the aim of preparing the herbal shampoo that provides smooth and straight effect to hairs, safer than the chemical conditioning agents.

Herbal shampoo was formulated with the aqueous extract of medicinal plants that are commonly used for cleansing and smoothening hair traditionally.

To provide the effective conditioning effects, the present study involves the use of aloe Vera, hibiscus, Curry leaves, Neem, Flax seeds, Methi, and Ritha extracts instead of synthetic cationic conditioners. The factors like UV radiations, use of harsh chemical products have direct and indirect impact on the hair.

The present work focuses on the potential of herbal extracts from cosmetic purposes. Hence we conclude that the formulation of herbal shampoo is effective in providing smoothening and shiny effect and better conditioning effect.

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 results for the quality control tests but further scientific validation is needed for its overall quality.

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### **Author Contribution**

All authors are contributed equally.

### **Conflict of Interest**

No Conflict of interest

### **Acknowledgement**

Not Declared

### **Ethical statement and inform consent**

Not Applicable

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