

# FORMULATION AND PHARMACEUTICAL EVALUATION OF HERBAL ANTI-DANDRUFF SHAMPOO

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## Abstract:

The current study's primary goal was to create and assess the anti-graphic activity of champagne-made champagne. Plant trees. Dandruff cannot be totally removed; however, it can be efficiently treated and managed. They've become universal, medical, and economic. Anti-dandruff shampoo made from herbal plants is more effective than synthetic drugs, which have some side effects. It removes impurities and dandruff, improves hair growth and lustre, strengthens and darkens hair. The shampoo industry is growing. Among hair care products, this is most likely the largest unit. Shampoos are one of the cosmetic products that are used on a regular basis since human hair is a unique and appreciated feature. In addition to natural dandruff shampoo, effective than synthetic medications and has less adverse effects. Herbal plants, while not medications, can increase the quality, efficacy, and safety of creams. This study investigates methods for getting rid of dandruff. The combination of *Azadirachta indica* (Neem) and *Ocimum Santum* (Tulsi) cleanses the scalp of dandruff. Anti-dandruff shampoo was created using two plants with antibacterial and anti-inflammatory effects. It removes impurities and dandruff, improves hair growth and lustre, strengthens and darkens hair. Shampoo is most likely the most important unit of hair care products. Shampoos are one of the cosmetic products that are used on a regular basis since human hair is a unique and appreciated feature. Several physicochemical experiments were carried out for aesthetic evaluation, wetting time, pH, solid content assurance, surface tension, detergency, dirt dispersion, conditioning effectiveness, and foam stability. The herbal shampoo is light pink in colour and has good froth stability, detergency, good cleansing, low surface tension, optimum pH, and conditioning activity. All of these characteristics are great for a high-quality herbal shampoo that can be used on a daily basis. However, additional scientific research is required to validate its overall quality.

Keywords- Anti-dandruff shampoo, evaluation, Amla, Shikakai, Neem, Tulsi.

## 1. Introduction:

This is the problem of the bigger the cosmetics and the bigger the public. Developed and developed in the market.[1] Dandruff is a skin disease that usually affects the scalp. Symptoms may include redness and, in some cases, itching. This can lead to relationship and self-esteem issues. A more serious condition that affects the skin is called seborrheic dermatitis.[2] Scalp loses dead cells in a practically imperceptible manner, although it can also shed as visible flakes known as dandruff [3] A papilla is a grouping of keratinocyte clusters. They stick together and split from the spongy layer's surface. Suppuration occurs frequently in parakeratosis cells. After the soap treatment, around 487,000 cells/cm<sup>2</sup> leave it on a physiological scale.[4] Tulsi, henna, neem, lime, and fennel are common herbs. Anti-dandruff substances are also incorporated in the shampoo's components.[5]

## Hair Anatomy:

Hair grows from the fatty layer of the scalp's follicles. Unlike common perception, hair does not grow in single strands. Hair follicles form groupings of one to four hairs known as hairs. "Porous unit" Hair is created at the base of each hair follicle, which is where the growth mechanism is located. obtain hair follicles Nutrition derived from the blood vessels The skin is formed as cells divide and develop. While the hair is still growing beneath the skin, it takes on a smooth appearance. When the dermal layer is distributed throughout the skin, it becomes stronger and transforms into keratin.

## DANDRUFF:

When the scalp gets dry or oily and white flakes of dead skin form in the hair or shoulder, it is a harmless chronic ailment. Even though it isn't harmful, having dandruff can be embarrassing for those who do. It is usually poured after being created on the head. Dead skin cells are common and inevitable. to the back However, dandruff accelerates the normal shedding of skin cells. Skin cells generated by scalp oils clump together and resemble white scales.

## CAUSES OF DANDRUFF:

- skin that is dry.
- greasy, irritated skin.
- Using shampoo infrequently enough.

## Other skin issues:

- A. Eczema
- B. Seborrheic dermatitis
- C. Psoriasis
- D. Malassezia-like yeast fungus
- E. Hair product sensitivity



**Figure.1. Hair Dandruff**

### **Classification of Dandruff:[6]**

There are two basic categories of dandruff based on the symptoms.

- A. Dry dandruff.
- B. Oily dandruff

#### **A) Dry dandruff:**

Its symptoms are excessive and it is also known as pityriasis simplex.

the development of tiny scales that build up on the scalp.

Not a lot of hair sheds from this type of hair.

On the skin, there is no swelling. The frontal, parietal, and occipital regions of the scalp first have scales, which eventually extend to the rest of the scalp.

#### **B) Oily dandruff:**

Another name for it is pityriasis steatoides.

Together with the formation of sebum, it enters the scalp.

After puberty, it happens most frequently in young guys.

Various degrees of swelling developed on the oily and unclean yellow scaled scalp.

When this happens, the most hair falls out.




The scalp behind the ears, above the spine, and beneath the ribs are the most prevalent locations for this sort of itching.

## **2. OBJECTIVES**

Can combine components like neem, tulsi, and shikakai to create an anti-dandruff shampoo.

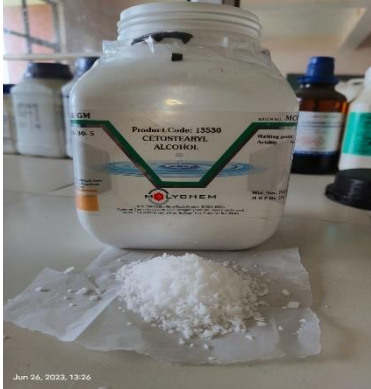
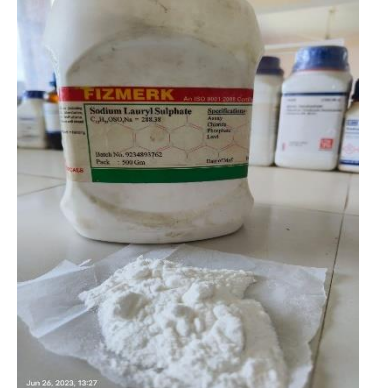
Appearance reviews, % solids, pH, foaming rate, and antibacterial efficacy against *Staphylococcus aureus* should all be considered while evaluating herbal anti-dandruff shampoo.

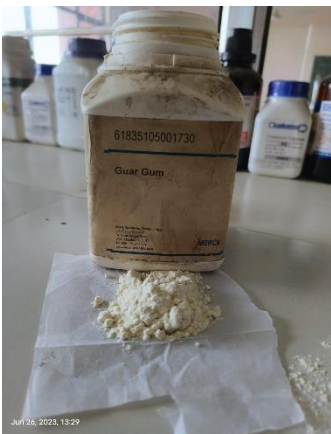

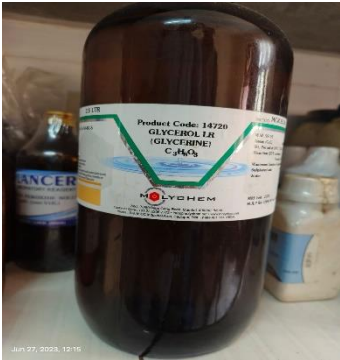

**Table.1. Herbal ingredients**

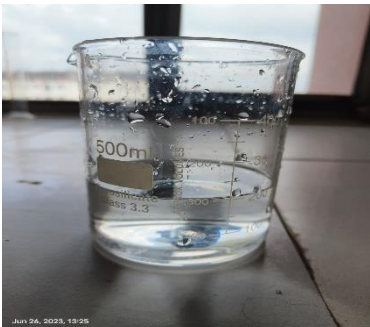
Sr. No	Common Name	Biological Name	Figure	Category
1.	Neem	Azadirachta indica		Dandruff, Acne, Psoriasis & Athlete's foot, Diabetes, Antibacterial, Skin ulcers, fever, Cardiovascular diseases
2.	Tulsi	Azadirachta indica		Natural immunity Booster, Reduce fever & Pain, Reduces cold, Antimicrobial wound healing activity, it relieve signs of asthma
3.	Amla	Phyllanthus emblica		Amla can boost hair growth, amla can reduce hair loss, amla can help balance a flaky scalp, amla can protect the hair from external damage

4.	Shikakai	Acacia concinna		controlling hair fall and dandruff, cleansing the scalp, strengthening the hair from the roots, offering relief scaling & reducing irritation
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**Table.2. Chemical ingredients**

Sr. No	Chemical Name	Figure	Category
1.	Cateosteryl alcohol		Emulsion stabilizer, Opacifying Agent Surfactant – foam booster And viscosity increasing agent opacifiers in shampoo emollient.
2.	Sodium Lauryl sulphate		Wetting agent, cosmetic detergent, fat emulsion, fat emulsifier, cosmetic detergent

<p><b>3.</b></p>	<p>Guar Gum</p>		<p>Thickening agent Stabilizing agent.</p>
<p><b>4.</b></p>	<p>Propyl Paraben</p>		<p>Preservative, antioxidant and Antimicrobial</p>
<p><b>5.</b></p>	<p>Glycerine</p>		<p>Keeping the skin moisturised by minimising water loss. Moisturising hair to keep It moisturised and healthy.</p>
<p><b>6.</b></p>	<p>Rose Water</p>		<p>Relieves headaches, Enhances Mood, Contains antioxidants.</p>

7.	Purified Water		Solvent, conditioner, and cleanser.
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## Materials and methods:

### A) Collection of plants:

The parts of plants like Neem (leaves), Tulsi, Shikakai, Amla, collected from Herbal Garden of Moradabad Educational Trust Group of Institution Faculty of Pharmacy Moradabad 244001, UTTAR PRADESH, INDIA.

### B) Collection of chemical:

All chemicals like Cetosteryl Alcohol, Sodium Lauryl Sulphate, Guar Gum, Propyl Paraben, Rose oil and Glycerine collected from chemical store of Moradabad Educational Trust Group of Institution Faculty of Pharmacy Moradabad 244001, UTTAR PRADESH, INDIA

### C) Plant extract preparation:

Simple maceration was used to prepare the extracts. we were at the beginning Take 20 grams of each leaf of a plant such as neem or Tulsi. The deer kit was ground, air dried and then ground. Soak in 200ml of water for 48 hours dissolves after 24 hours It is filtered and the residue is immersed in the same solvent again. 24hours All extracts are mixed and then filtered. Solvents are used for evaporation in warming spirits. Dry and store in dehydrator for later use. [7-10]

### D) Anti-dandruff shampoo formulation:

The formula described in Table 3 was used to make the herbal shampoo. 0.1 M NaCl was used to create an SLS (7.5%) solution that would thicken the formulation. Shampoo was created utilising a straightforward mixing procedure. Extracts of Tulsi, shikakai, and neem were combined with additional substances.[11] To increase the aroma, and rose water add this mixture. Additionally, the shampoo contained 2 grammes of propyl paraben as a preservative, 1 capsule of vitamin E for conditioning, and activated charcoal for colouring. By adding 10 ml of guar gum extract, the final volume was increased to 100 ml.

**Table.3. Ingredients of Herbal Anti-dandruff shampoo**

Sr. No	Ingredient	Quality
1.	Neem (Extract)	10 ml
2.	Tulsi (Extract)	10 ml
3.	Amla (Extract)	10 ml
4.	Shikakai (Extract)	10 ml
5.	Cetosteryl Alcohol	2 gm
6.	Sodium Lauryl Sulphate (7.5%)	10 ml
7.	Guar gum (Extract)	10 ml
8.	Propyl paraben	2 gm
9.	Glycerine	6 ml
10.	Rose Water	q. s
11.	Vitamin E capsule	1
12.	Purified water	30 ml

**Evaluation of herbal shampoo:**

To analyse the finished composition, quality control testing is performed, which includes visual evaluation, physical and chemical control, pH, density, viscosity, surface tension, amount of foam, foam consistency, and wetting time.

**A) Examination of physical appearance/visual examination:**

The fluidity, clarity, colour, aroma, and foaming capabilities of the produced mixture were all evaluated. [12-13]

Appearance: Natural viscous appearance

Colour: Light pink

Non-Transparency: Transparency

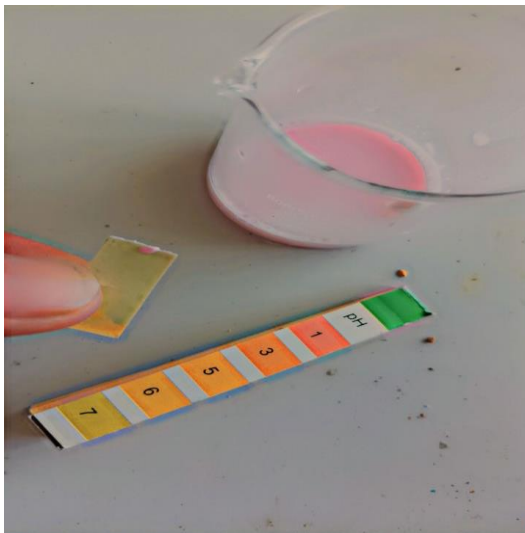
Consistency: smooth

**Figure.2. Formulated shampoo**



**B) Determination of pH:**

By combining 1 g of shampoo with 100 ml of water, a pH metre was used to calculate the pH of the shampoo formulation.[14]



**Figure.3. pH Test**

**C) Consistency-**

Consistency By hand, the created cream's consistency was assessed. Grab a small amount of shampoo and rub it with your finger.

**D) Calculating the solid content %:**

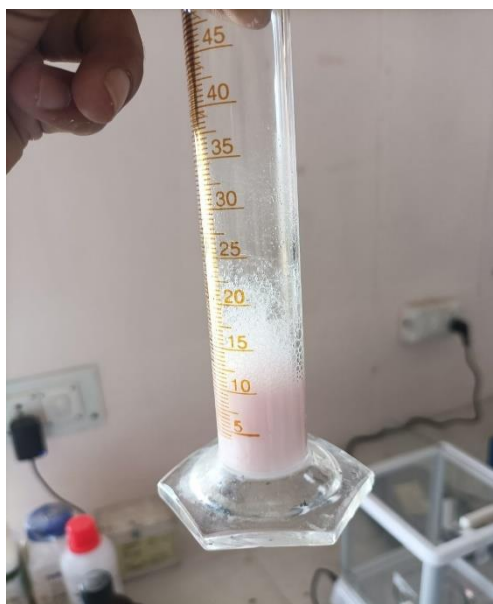
4 gm of shampoo was placed in a weighted evaporating dish that was dry and clean.. The shampoo evaporator was put on a heated plate to allow the liquid to evaporate. estimated solid mass in dried shampoo.[15].

**E) Antimicrobial Activity-**

The agar is defrosted, cooled to 45 °C, then inoculated using this technique. The agar plate will click to solidify after transferring germs to sterile petri dishes in this manner. An antibacterial substance is then put in the wells and inside using a sterilised corkscrew that is 9 mm in diameter. The marketing combination's reference point is the second slot. After 2-3 days of inoculation at 30-350°C, the diameter of the inhibitory zone was measured. declares the relative activity of various antimicrobial substances against the bacteria under research, including the diameter of the inhibition zone for each substance.[16]

**F) The foam stability test-**

The amount of foam produced immediately after shaking was measured for 10 minutes at 1-minute intervals. [16]



**Figure.4. Foam stability test**

### **G) Stability Studies:**

By adding cream and storing it in a plastic container at 45 degrees Celsius in a humid room, the stability of the formulation was verified. checks for configuration stability at 75% relative humidity every month for three months.[17]

### **H) Skin Irritation Test:**

After cleaning your skin with my homemade herbal shampoo, apply it for 5 minutes and look for any swelling or rashes.

## **DISCUSSION:**

- This shampoo can be used to obtain the benefits of these medications in an effective and simple dose form.
- Natural remedies are safer and therefore more acceptable herbal dandruff shampoo is non-toxic, safe, effective and has less side effects as compared to synthetic shampoos due to herbal ingredients, please pay attention to patient compliance.
- These Herbal Dandruff Shampoos are rated according to factors such as attendance and judgement consistency, pH, Foam Stability, and Antimicrobial Activity against *Staphylococcus aureus*.
- Figure 5 depicts a finished herbal shampoo that is black and shiny.
- It has a pleasant odour due to the aroma in the components, as well as a high foaming capacity.



**Figure.5. Anti-dandruff shampoo**

**Result:**

**Table.4. Herbal wound healing cream evaluation**

Evaluation Parameter		Observation	
Appearance		Brownish colour, Lavender odour	
pH		6.72	
Consistency		Smooth	
Foam stability test		Stable foam	
Skin irritation test		No irritation	
Antimicrobial Activity			
Sr. No	Test Microorganism	Diameter of zone of inhibition	
		Standard	Test
1.	Streptococcus	16mm	18mm

**Conclusion:**

- The primary goal of herbal anti-dandruff shampoo is to prevent dandruff-related infections.
- Herbal dandruff shampoo offers less adverse effects than synthetic fibre shampoos because it is made from natural ingredients.
- Formulated wound shampoo has received various ratings and approval for Hair We discovered that shampoo had a strong cleaning effect, good foam, and a quick soaking time.
- The shampoo has an approximate pH of 7, which might preserve the scalp's acidic layer.

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