



## A review on antidandruff shampoo

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### ABSTRACT

Dandruff is a common disorder affecting the scalp condition caused by yeast *Pityrosporum*. Dandruff cannot be completely eliminated but can only be managed and effectively controlled. Symptoms of dandruff mainly include Presence of fragments, Itching of the scalp, and Redness around the scalp. Dandruff can be treated in two ways. They include chemical based antidandruff shampoo and herbal based antidandruff shampoo containing antibacterial and antifungal ingredients like ketoconazole, selenium sulfide, zinc pyrithione etc. The anti-dandruff shampoo only slow down the scalp flaking and have their own disadvantages like loss of hair, increased scaling, itching, irritation, nausea, headache, vomiting, photosensitivity. Herbal extracts formulations are viable alternative to synthetic drugs. Now-a-days, many herbal shampoos are available in the market which contains herbal ingredients such as plant extracts and essential oils. In the present review we discuss about the causes, synthetic chemical, various herbs and the evaluation parameters for the anti-dandruff shampoo.

### INTRODUCTION

Antidandruff shampoo are formulated to reduce the visible flakes and soothe the scalp, they target the underlying cause of dandruff. They typically contain active ingredients such as zinc pyrithione, ketoconazole or selenium sulfide, which are designed to help control the growth of *Malassezia*, a type of yeast that can contribute to dandruff. Antidandruff shampoo is a complicated Formula, because it containing combination of surfactant, conditioners, hair softeners and anti dandruff agents. pH of the products, solubility of actives, and deposition of actives are playing a crucial role in anti dandruff shampoo. Varieties of antidandruff agents are used widely in various antidandruff preparations such as climbazole, ketoconazole etc.

### WHAT IS DANDRUFF

Dandruff is related to seborrheic dermatitis (SD), which causes itchy and flaky skin, but it only occurs on the scalp. It's so common that it affects about half Trusted Source of the global adult population.

#### Types of dandruff

##### 1. Dry skin dandruff

This is a common type of dandruff. It tends to happen more often in the winter months as cold weather and indoor. Heating can dry out your skin, including the skin on your scalp. Washing your hair frequently in hot water can also lead to dry skin dandruff. A scalp that's too dry can become irritated and shed skin cells.

##### 2. Oily skin dandruff

Just below the surface of your skin are glands that produce sebum, an oily substance that helps moisturize and protect your skin. When these Sebaceous glands produce too much sebum, it can make you hair oily. Also, the excess oil can clump together, irritating your scalp and causing dandruff.

##### 3. Fungus-related dandruff

A type of common fungus called *Malassezia* Trusted Source is found on the skin of every human being. In some people, it can trigger an inflammatory response that produces dandruff.

##### 4. Disease-related dandruff

Some common skin conditions, including psoriasis, eczema, and seborrheic dermatitis, can affect your scalp and cause dandruff.

### CAUSES OF DANDRUFF

Here are a few likely culprits:

1. Secretions from your sebaceous glands.
2. Fungal colonization on the surface of your skin.
3. Not shampooing enough, which may cause skin cells to accumulate and create flakes and itching.
4. Over brushing the hair on the head, creating too much friction with the sensitive skin on the scalp.
5. Yeast called *Malassezia*, which aggravates your scalp and causes excess skin cell growth.

**SYMPTOMS OF DANDRUFF**

- Flakes
- Itchiness
- Dryness
- Redness

**ADVANTAGES OF ANTI-DANDRUFF SHAMPOO**

- Cleansing properties
- Improving hair hygiene
- Treating scalp condition
- Treatment for dry scalp
- Treatment for hair loss

**DISADVANTAGES OF ANTI-DANDRUFF SHAMPOO**

- Continuous expose to the shampoo can cause headache
- It may also cause sourness in eye , nose , throat and lungs.
- Sodium lauryl sulphate commonly used in shampoo which may harm skin , eye and may be carcinogenic.

**COMPOSITION OF ANTI-DANDRUFF SHAMPOO**

The following are the ingredients used for preparation of shampoos. They include Primary surfactants e.g. Sodium lauryl sulphate, triethanol lauryl sulphate. Secondary surfactants e.g. Dialkyl sulphosuccinates, monoalkyl sulphosuccinates. Germicides and Antidandruff agent's e.g. Salicylic acid, Benzoic acid. Conditioning agents e.g. Fatty substances like lanolin, oils. Pearlescent agent's e.g.4 Methyl 7-diethylamino coumarin. Sequestrates e.g. Sodium salt of EDTA. Thickening agents e.g. Alginates. Preservatives e.g. Formaldehyde, methyl paraben, propyl paraben. Solubilizing agents' e.g. Aliphatic alcohols, Urea etc.

**THE COMMON INGREDIENTS OF SHAMPOO ARE:**

The formulation of anti-dandruff shampoo involves combining various active and inactive ingredients to effectively target and eliminate dandruff while also providing cleansing and conditioning benefits to the hair and scalp. These are:-

- Anti-fungal agents
- Surfactants
- Conditioning Agents
- Opacifiers
- Foaming agents
- Preservatives
- Fragrances
- Thickeners and stabilizers
- pH adjusters
- Specialty additives

**FORMULATION OF HERBAL ANTI-DANDRUFF SHAMPOO:-****Equipment:**

Calibrated PH Meter, Ostwald viscometer, volumetric flask, Whatman filter paper, separating funnel, Beaker, Test tube, stalagmometer, Weight scale, Canvas paper, specific gravity bottle, Burette stand.

**Preparation of plant leaves extract**

1. All the plant leaves collected were dried for a period of three days.
2. All the dried leaves were coarsely powdered for preparing dried extract.
3. In 500ml beaker add take 350ml of water and add 10g of dried extract powdered leaves and boil for 30 minutes.
4. After 30 minutes of heating followed by concentration, cool the extract for few minutes, filter using filter paper and collect the filtrate in a conical flask and cover it with cotton plug.

**Method of preparation of herbal shampoo formulations****Table 1: Formulation design of herbal antidandruff shampoo**

Sr. No.	Ingredients	Quantity
1	Henna leaves extract	1ml
2	Neem leaves extract	1ml
3	Hibiscus Leaves extract	1ml
3	Curry leaves extract	1ml
4	Mimosa leaves extract	1ml
5	Oleic Acid	4ml
6	Sodium lauryl sulphate	6g
7	Triethanolamine	3ml
8	EDTA	0.15g
9	Methyl paraben	0.2g
10	Tween80	1ml
11	Water	qs.
12	Perfume	qs.

1. In 250 ml beaker take 40 ml of water and add 4 ml of oleic acid.
2. Dissolve it completely by mechanical stirrer.
3. Add 6g of sodium lauryl sulphate and stir.
4. Heat gently at 60°C.
5. When both get dissolved reduce stirring speed and add 3 ml of triethanolamine and continue stirring for 5 minutes.
6. After that, EDTA and Methyl paraben together were added and stirring continued till it becomes clear liquid.
7. In another beaker take 30 ml of water and add tween 80 and stir it for 10 minutes and required quantity of plant extracts were added.
8. This liquid was added to above one and stir for 20 minutes.
9. Filter the liquid and the filtered liquid was used for evaluating parameters.

**EVALUATION**

The prepared formulations were evaluated for product performance which includes :-

**1. Visual appearance**

The formulations were visually inspected and the colour of each formulation was noted and recorded.

**2. Clarity**

The formulations were visually checked whether it is clear or not and recorded.

**3. pH**

The pH of the prepared herbal shampoo in distilled water (10% v/v) was evaluated by means of pH analyser at room temperature.

**4. Dirt dispersion test**

In a test, tube take 10 ml of distilled water and add 2 drops of shampoo and one drop of Indian ink dye. The test tube is closed with thumb and shaken for 10 minutes. The level of appearance of ink dye test tube was observed and based on that, level was graded as none, slight, moderate and heavy

**5. Wetting time (sec)**

A cotton ball weighing of about 0.44gm was taken and added it to container containing shampoo. Time taken for cotton to sink at bottom of the formulation was measured as wetting time .

**6. Foamability test**

The stability of foam was determined by using cylinder shakes method. About 25 ml of shampoo taken in 250 ml measuring cylinder and shaken for 10 minutes. The total foam volume was measured after 1 minute and foam stability was determined by recording foam volume from 1 to 4 minute

**7. Skin Irritation Test:**

Prepared herbal shampoo was applied on skin for 5 minutes after that was washed and tested for irritation or inflammation to the skin.

**8. Stability study:**

The sample taken formulation was taken and kept at room temperature ( $30 \pm 2^\circ\text{C}$ ) as well as refrigerator ( $4 \pm 2^\circ\text{C}$ ) for duration of one month. The samples were tested for their physical appearance, pH, viscosity, % cleaning action and foam Stability.

**RESULT AND DISCUSSION**

A straightforward mixing procedure was used to create herbal shampoo. Herbal anti-dandruff shampoo was created by adding the necessary amount of herbal ingredients according to the formulation table. The creation and evaluation of a natural anti-dandruff shampoo made using Heena leave, neem leaves, hibiscus and other herbs are the focus of the current effort. The manufactured herbal anti-dandruff shampoo was put through several tests to determine its effectiveness. The results showed that it was affordable, effective at treating dandruff or dermatitis while boosting the natural health of hair and making it shine. Therefore, it was determined from the current investigation that the formula for the herbal anti-dandruff shampoo has an excellent standard. The manufactured herbal shampoo was discovered to be in compliance. The formulation's pH range, good stability, cleaning ability, foam generation, and viscosity.

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