



THE ROLE OF HERBAL BIOACTIVES IN THE MANAGEMENT OF HAIR DISORDERS

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ABSTRACT

Dandruff is a common condition caused by the *Pityrosporum* yeast that affects the condition of the scalp. Dandruff cannot be completely re-moved. Shampoos are mainly used in cleaning of hair and scalp. It seems doubtful that herbal shampoo, admitting better in performance and safer, will be popular with the user. The shampoo section is one of the largest units of amid the hair care products. Herbal shampoo, crafted from pure organic ingredients without synthetic additives, play a crucial role in controlling dandruff and fostering healthy hair growth. These shampoos leverage natural extracts to deliver essential oils and nutrients to the hair follicles, stimulating the formation of new and robust while maintaining a dandruff free scalp. The purpose of this study is to study how to defeat these harmful synthetic ingredients from anti-dandruff shampoo and reserve them with unharmed natural ingredients.

Keywords: Herbal shampoo, Organic Ingredients, antidandruff shampoo, Hair

1. INTRODUCTION:

Dandruff, the excessive shedding of dead skin cell from scalp, is apparently caused by a fungal called *Malassezia Restricta* and *M. globose*. *Malassezia Restricta* which called *Pityrosporum* is a yeast causing infection of skin and scalp [1]. Shampoo are probably

the most widely used cosmetic product for cleansing hairs and scalp in our daily life. Under cosmetic preparation, herbal shampoos are mainly used for cleansing the hair and scalp with the use of traditional Ayurvedic herbs. They are mainly used for removal

of oils, environmental pollutions, dandruff, dirt, etc, and nourishes your hair smoothly. Herbal shampoo uses from plants as an alternative to the synthetic shampoo found in the market. The herbal shampoo is becoming important, as people these days prefer herbal products than chemical as chemicals have side effects and also herbal shampoo is proved to enhance hair health having no side effects. Herbal formulation are preferred as alternative to synthetic shampoo but formulating cosmetics using completely natural raw material is a difficult task [2].

1.1 Dandruff -

- It is a harmless, chronic condition that occurs when the scalp becomes dry or greasy and produces white flakes of dead skin that appear in the hair or on the shoulders.
- Although it is inoffensive but dandruff can be disturbing for those who have it.
- Skin cells are formed continuously on the scalp, so the shedding of the dead skin cells is normal process [3].



Figure 1: Dandruff Scalp

1.2 Symptoms of dandruff -

- Presence of fragments
- Itching of the scalp
- Redness around the scalp [4, 5]

1.3 Causes of Dandruff –

- Dry skin.
- Irritated, oily skin.
- Not shampooing often enough.
- Malassezia-yeast like fungus.

- Sensitivity to hair products [4, 5]

1.4 Treatment –

- Follow a healthy diet.
- Avoid stress.
- Shampoo, it is a mixture of special ingredients to control dandruff & hair fall [4].

2. HISTORY OF DANDRUFF:

- The history of dandruff extends far back, with references to it found in ancient texts. Dandruff, characterized by the shedding of dead skin cells from the scalp, has likely been a concern for humans for centuries. In ancient civilizations, various remedies were used, including herbal concoction and oils to address scalp issues.
- The understanding of dandruff improved over time. In the 19th and early 20th centuries, researchers began to identify the role of microbes in dandruff formation. The discovery of a yeast like fungus called *Malassezia furfur* in the 20th century further advanced our understanding of the condition.
- Modern anti-dandruff products, including shampoos and treatment, have evolved with scientific insights. Ingredients like Ketoconazole, zinc pyrithione, and selenium sulfide became key components in dandruff fighting formulation. Additionally, herbal and natural remedies gained popularity in response to consumer preferences for gentler, plant based solutions. Today, the ongoing research and development in dermatology continue to shape the landscape of dandruff management.

3. SHAMPOO:

A shampoo is a preparation of a surfactant in a suitable form from liquids, solid or powder which when used under the specified conditions will

- Remove surface grease
- Dirt
- Skin debris [5].

3.1 Need of shampoo –

The skin on our head produced a greasy fluid called sebum. It is produced to protect the hair by coating all over the head. This gives the hair a healthy & shiny but at that point secretes in huge amount it makes the hair look dirty [6].

3.2 Ideal properties of shampoo –

- To make hair flare and smooth.
- Produce good amount of foam.
- Should not produce displeasure to scalp, skin and eye.
- Should completely, effectively re-move dirt.
- Impart pleasant fragrance to hair.
- Good biodegradability
- Low toxicity
- Slightly acidic (pH lower than 7) since a necessary environment weakens the hair by splitting the disulphide bonds in hair keratin [7].

3.3 Action of shampoo –

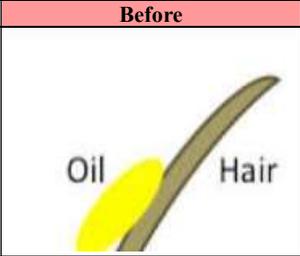
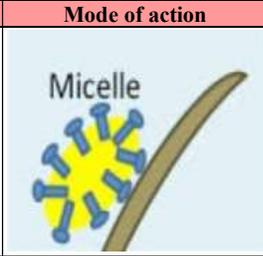
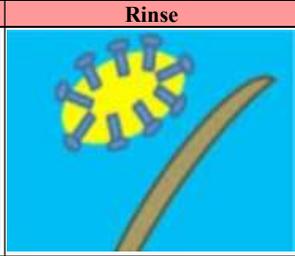
Before	Shampooing	Mode of action	Rinse
			
Oil and dirt are attached to the skin and hair	The surfactant lowers the surface tension of the water	The surfactant creates micelles around the dirt and oil that are removed from the skin and hair	The micelles with the oil, dirt and surfactant are eliminated with the water during rinse

Figure 2: Action of shampoo [8]

3.4 Advantages of shampoo –

- Cleansing properties
- Improving hair hygiene
- Treating scalp conditions
- Treatment for dry scalp
- Treatment for hair loss
- Treatment for greasing or oily hair
- Relieves itch and irritation
- Repairs damaged hair [8]

4. TYPES OF SHAMPOO

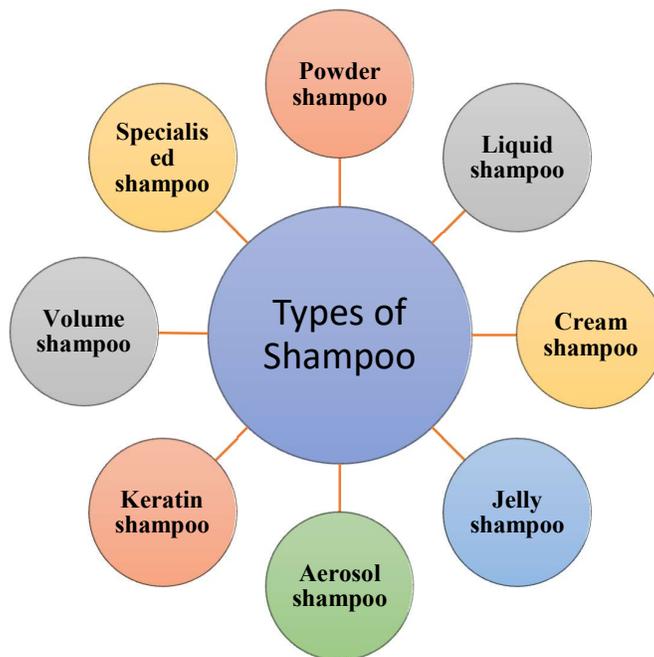


Figure 3: Types of shampoo

4.1 powder shampoo: It is available in the form of dry powder. Nowadays, these,

shampoo are not used due to the difficulty experienced in their application.

4.2 Liquid shampoo: These are clear liquid preparation that are most widely used. Some of These shampoos are transparent.

4.3 Cream shampoo: These are called as lotion shampoo which are modification of clear liquid cream shampoos

4.4 Jelly shampoo: These are transparent and thick usually made by incorporating a gelling agent.

4.5 Aerosol shampoo: They are packed in aerosol containers. The propellant added should be collaborating and should not decrease the activity of shampooing ingredients. It also called foam type of shampoo.

4.6 Keratin shampoo: When your shampoo is infused with keratin oil, you reap benefits that nourish and condition the hair and help it look shiny and smooth.

4.7 Volume shampoo: Volume shampoos make hair appear fuller, bouncier and more full of body

4.8 Specialised shampoo: Speciality shampoos are marketed to people with dandruff, color -treated hair, organic product, etc.

- A. Anti dandruff
- B. Anti hair fall
- C. Conditioner
- D. Baby [9].

5. NEED OF HERBAL:

Herbal shampoos over synthetic ones for various reasons. Herbal shampoos often contain natural ingredients that are considered gentler on the hair and scalp. They typically avoid harsh chemicals, sulphates, and artificial fragrances, making them a preferred choice for individuals with sensitive skin or allergies. The plant-based components in herbal shampoos, such as aloe vera, chamomile, or tea tree oil, are believed to offer benefits like moisturizing, soothing, and promoting overall hair health. Additionally, some individuals prefer herbal products due to environmental concerns and a desire to use more sustainable and cruelty-free options [10].

5.1 Advantages of herbal shampoo –

- Herbal shampoos are made out of pure and organic ingredients and there are no synthetic additives or surfactants are free of any side effects.
- Are bio-degradable and earth friendly.
- It does not cause displeasure on eyes.
- It is cheap, not much expensive.
- Daily use of herbal shampoo can do radiate your hair.
- By using herbal shampoo, you can get the perfect oil balance [11].

6. INGREDIENTS:

Table: 1 Ingredients [12]

S. No.	Ingredient	Biological source	Uses	Picture
1.	Amla extract	Dried fruits of <i>Emblica officinalis</i>	Hair growth promoter, Make hair darker	
2.	Bhringraj extract	Dried leaf of <i>Eclipta alba</i>	Prevent Alopecia of hair	
3.	Reetha Extract	Dried fruits of <i>Sapindus mukorossi</i>	Removing dandruff from scalp & control hairfall	
4.	Hibiscus	Dried leaves and flower of <i>Hibiscus rosea</i>	Colouring agent, Conditioning agent, foam base & Anti dandruff	
5.	Shikakai extract	Dried fruit of <i>Acacia concinna</i>	Promotes hair development & foam base	
6.	Neem extract	Dried leaves of <i>Azadirachta indica</i>	Antidandruff	

7.	Tulsi	Fresh leaves of <i>Ocimum sanctum</i>	Strong hair roots & Rejuvenating hair follicles	
8.	Aloe	Fresh leaves of Aloe vera	Conditioning agent & hair growth promoter	
9.	Rose oil	Distillation of fresh pellets of <i>Rosa centifolia</i>	Provide moisture & strengthen the hair follicles	

7. FORMULATION OF HERBAL SHAMPOO:

A. Method of preparation of Extract

1. Weigh herbal ingredients
2. Powder material was extracted with one part of distilled water by boiling for 4 hours.
3. Filter it with muslin cloth
4. Collect the filtrate.

B. Method of preparation herbal shampoo

1. Take aloe in q.s. quantity
2. Add prepared herbal extract
3. Add rose oil
4. Store in suitable container [12].

8. EVALUATION:

Formulation were evaluated and manufactured using several quality control test, including visual evaluation, physicochemical control, and conditioning performance tests.

8.1 Appearance: The transparency, odor, foaming ability & color of the prepared product were evaluated [13].

8.2 Foaming & foaming stability: The entire amount of foaming after shaking for 1 min was recorded. The volume of foam is calculated. Immediately after shaking, the amount of foam shake was recorded at 1 min intervals for 4 min [14].

8.3 pH determination: Take a pH paper. Pour a drop of sample on pH paper with clean pipette. Give attention to color of the pH paper. Compare the color got on pH

paper with another shade of the standard color pH card and take the pH value [15].

8.4 Percentage of solids: 4 grams of shampoo was placed in a clean, dry evaporating dish and weighed. They considered again to confirm the accurate weight of the shampoos. An evaporating dish on a hot plate was used to evaporate the liquid portion of the shampoo. Then the weight percent was determined [16].

8.5 Skin irritation: Skin irritation can be verified by applying a some amount of product to the skin and check after some minutes for local irritation or inflammatory reactions [17].

8.6 Cleansing action: the cleansing property of the herbal shampoo was evaluated by the application of the shampoo on hair that has not been washed for seven days. Shampoo was use to washed hair that had applied oil 6-8 hours before washing. The performance of the shampoo was assessed on its ability to remove oily dirt from scalp [18].

8.7 Physical appearance/visual inspection: The formulation prepared was evaluated for the color, foam producing ability, odor, clarity & fluidity [19].

9. FUTURE PROSPECTIVE:

The future prospects of herbal anti dandruff shampoo appear promising, driven by a growing preference for natural and sustainable products. Increased awareness of the potential drawbacks of synthetic ingredients may lead to a higher demand for herbal

alternatives. Research and innovation in herbal formulations could enhance efficacy, making these shampoos more competitive in the market. Additionally, as consumers prioritize health and environmental consciousness, herbal antidandruff shampoos may see sustained popularity in the beauty and personal care industry.

10. CONCLUSION:

The awareness and need for cosmetics with herbs in on the rise, as it is strongly believed that these products are safe and free from side effects. For the treatment of dandruff we have both synthetic and natural herbal shampoo. But when compared to the chemical based shampoo, herbal based shampoos are more effective in terms of safety and ease of manufacturing and in the economic point of view they are cheap. The study on herbal antidandruff shampoo underscores its potential as an effective and sustainable solution. The study suggest that herbal antidandruff shampoo not only address scalp issues but also align with the increasing demand for eco-friendly and health conscious beauty products.

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