



FORMULATION AND EVALUATION OF HERBAL ANTI DANDRUFF SHAMPOO

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ABSTRACT :

With a focus on safety and efficacy, the current study aims to create and analyze an antidandruff shampoo made with natural components. It cleans out debris and dandruff, encourages hair development and shine, and fortifies and darkens hair. Among hair care products, the shampoo industry is most likely the largest. since the shampoos are one of the cosmetic product used in daily as the hair is special and cherished feature of humans. Since the majority of the constituents in shampoos are chemicals, they have come under heavy criticism because of the possibility of adverse effects from use. The main objective is to study how to eliminate harmful synthetic ingredients from antidandruff shampoo formulation and substitute them with safe natural ingredient for example Onion and Hibiscus. The shampoo was prepared by taking the extracts of Onion and Hibiscus in different proportions. Several physicochemical tests were performed for visual assessment, wetting time, pH, assurance of solid contents, surface tension, detergency, dirt dispersion, conditioning performance, foam stability. The formulated herbal shampoo is black or brown in colour with demonstrable good froth stability, detergency, good cleansing, smoothing effect. Low surface tension, optimum pH and conditioning activity.

KEYWORDS : pH, Herbal shampoo, Natural ingredients, Hair Dandruff, Cleansing action, Dirt removal, Smoothing effect

INTRODUCTON :

The most common cosmetic issue and a key source of public concern in both industrialized and developing nations is dandruff. The word "dandruff" has Anglo-Saxon roots; it combines the words "tan," which means "totter," and "drof," which means "dirty." Dandruff is a long-term scalp ailment that causes epidermal cell shedding, scaling, itching, and redness of the scalp. Dead cells are shed by the scalp in an almost undetectable manner, however occasionally they appear as flakes known as dandruff. Dead cells are almost invisible when they are shed by the scalp, but sometimes they show up as dandruff flakes. A portion of dandruff is frequently composed of parakeratosis cells. After being treated with detergent, roughly 487,000 cells/sq cm are liberated in the physiological spectrum of scaling. The usage of natural products in cosmetics has increased during the last few decades. Natural botanical extracts are used in their unrefined form. Over the past few decades, natural products have been used in cosmetics at an increasing rate. Unrefined natural botanical extracts are utilized. Certain plants that are frequently utilized in shampoo formulations include tulsi, henna, neem, lemon, hibiscus, and onion, which have some sort of anti-dandruff effect. Shampoo is a hair care product that is used to clean hair. It often takes the shape of a thick liquid. Shampoo is meant to clear away undesired accumulation in between hair strands without eliminating excessive sebum to cause the hair to become unmanageable. Generally, to make shampoo, a co-surfactant (cocamido propyl betaine) and a surfactant (sodium lauryl sulfate or sodium laureate sulfate) are combined with water. because of the possible downside. Many factors, including dry or oily skin, excessive or insufficient hair washing, stress in the diet, sensitivity to hair products, and skin disorders like pityriasis, seborrheic dermatitis, dermatitis, or eczema, can result in dandruff. Dandruff with shed skin can be caused by an overabundance of yeast. Many natural herbal ingredients are used, such as hibiscus and onions.



Classification of Dandruff

Depending upon the symptoms the dandruff is classified into two main types:

- A. Dry dandruff
- B. Oily dandruff

1] Dry dandruff

It is also known as pityriasis simplex, and it is characterized by an excessive amount of microscopic scales forming on the scalp. This kind of dandruff doesn't result in a significant loss of hair. There is no evidence of skin irritation in this kind. First appearing in the middle of the scalp, the scales later extend to the frontal, parietal, and occipital regions of the scalp.

2] Oily dandruff

It is known as Pityriasis steatoides in clinical settings. The scalp's sebum production could be the cause. During puberty, it could happen. The scalp may be inflamed, and the oily, yellow-colored scales may be filthy. These causes could lead to hair loss in this condition. This kind of dandruff most commonly affects the scalp, under the ears, across the breast bone, and in the armpits.

Causes of dandruff

- Dry skin
- Irritated , Oily skin
- Malassezia-yeast like fungus
- Other skin conditions
 - Eczema
 - Psoriasis
 - Seborrheic derma

Treatment:-

- Follow healthy diet
- Avoid stress
- Shampoo uses a blend of unique ingredients to manage dandruff.
- Regular cleansing with shampoo
- Try a hot-oil mask
- Use the natural ingredient.
- Use to home remedies for remove the dandruff.
- To reduce oil and skin cell buildup.

WHICH ARE THE NATURAL INGREDIENT ARE USE TO REMOVE THE DANDRUFF ?

- Tea tree oil
- Onion peel
- Lemongrass oil
- Aloe Vera gel
- Baking soda
- Zinc
- Hibiscus leaves, and flower
- Coconut oil
- Aspirin
- Omega -3 fatty acid
- Dietary changes

What is mean by herbal shampoo?

A shampoo is a mixture of surfactant in a liquid, solid, or powder form that, when applied according to the instructions, removes surface oils and grime from the scalp and hair shaft without harming the user. Pure and organic ingredients are used to make herbal shampoos; no artificial additives or surfactants are used, and there are no negative effects. this shamppo are tested on animal, unlike synthetic shampoo brands. Herbal shampoo containing suitable ingredient such as hibiscus, onion, reetha, acacia concinna, aloe vera , bhringraj leaves, henna ,neem oil, lemon grass oil, etc

Ideal properties of herbal shampoo:-

- Evaluation of herbal shampoo
- Physical appearance
- Determination of pH.
- Determine percent of solids contents.
- Rheological evaluation.
- Dirt dispersion.
- Skin sensitization test, 8. Stability test.

Classification of shampoo :**1. Based on Appearance**

- Powder shampoo: Dry shampoo is a product that cleans your scalp of oil, debris, and grime without the need for washing. It's often used to keep hair looking good after working out, extend the longevity of a blowout, etc. It can also be helpful for those with impairments who struggle to take showers on their own.
- Liquid shampoo or lotion shampoo:- Shampoo is typically a viscous liquid, with the exception of certain waterless solid forms, such as bars.
- Gel shampoo :- Shampoo is used to treat skin conditions including psoriasis, seborrheic dermatitis, or dandruff that result in a scaly, itchy scalp. Associated Article. Dandruff symptoms, causes, and treatments.
- Cream shampoo:- Many consumers prefer cream shampoos or cream paste shampoos, which are thickened and rendered opaque by suspended particles, because of their plastic substance and visual attractiveness.

2. Based on Use or Function

- Conditioning shampoo:- The same advantages of a conventional shampoo are provided by a conditioning shampoo, such as dust, debris, and pollution removal from the hair. But it also has other conditioner-like ingredients that make hair smoother and easier to maintain than it would be in the absence of the conditioner. Of all racial and gender identities, almost half of postpubertal individuals suffer from dandruff, a common scalp problem. The exact nature and aetiology of dandruff have been a topic of discussion from the time of the Greeks, extended until the late nineteenth century during the age of Sabouraud, and continuing to this day.
- Antidandruff shampoo:- Dandruff shampoo contains antifungal and antibacterial agents to help minimize flaking and irritation, buildup, and excessive sebum production in your scalp.
- Therapeutic shampoo:- This medication is administered topically to the hair or scalp to treat dandruff, other scaly, itchy skin conditions (such psoriasis or seborrheic dermatitis), and environmental pollutants and other contaminant particles that progressively accumulate in hair. It is designed especially to be used on babies and young children, replacing ingredients in ordinary shampoo with ones that are supposed to be less irritating to the eyes.

3. Based on origin:

- Herbal shampoo:- Herbal shampoos are those that are infused with natural component extracts. The nicest thing about these shampoos is that they give the longest-lasting and best effects. These shampoos don't include any harsh ingredients and don't damage hair.
- Egg shampoo:- Egg shampoo is a natural shampoo made from whisked eggs. Because eggs include protein, vitamins, and emulsifiers that help dissolve oil, they are a potent and healthful substitute for chemical hair cleaning. Additionally, eggs can be used to moisturize and condition hair.

ADVANTAGES OF ANTI DANDRUFF 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.
- Shampoo keeps hair silky or smooth.
- It does not cause irritation to the eyes.
- Herbal shampoo are biodegradable and earth friendly.
- Oil balance is achieved by using herbal shampoo.

Formulation of Shampoo :-

- Water
- Surfactant

- Thickness
- Conditioning agent
- Preservative
- Anti –dandruff agent
- pH-buffer.

AIM AND OBJECTIVE:

AIM : Formulation And Evaluation Of Anti Dandruff Shampoo with onion and hibiscus

OBJECTIVE:

- To formulate anti-dandruff shampoo by using ingredients such as Onion and Hibiscus.
- Evaluation of herbal anti-dandruff shampoo for Appearance, Percentage solid content , pH, Foam volume and antimicrobial activity against Staphylococcus aureus
- To reduce side effects of chemical formulation.

Plan of work –

- Literature survey
- Selection of Plant
 - To select suitable herbal ingredient with antibacterial against Onion and hibiscus.
- Experimental work
 - Collection of plant
 - Extraction of plant
- Preparation of anti dandruff shampoo
- Characterization of Shampoo
 - Sensory evaluation
 - pH
 - Titrable acidity

Plant profile:-

Hibiscus

Family-Malvaceae

Order-Malvales

Kingdom-Plantae

Malvaceae, Hibiscus rosa-sinensis, Hibiscus softens, nourishes, and improves the manageability of hair follicles. Use conditioners with hibiscus as the



main component to get your hair the nourishing benefits of hibiscus. Mucilage and plant proteins found in flowers and leaves can help treat hair loss and dandruff.

Advantages of hibiscus :-

- Stop hair loss
- Make your hair look healthy and lustrous
- Prevent premature graying.
- Thicken hair and add volume.
- Treat dandruff.
- Condition against frizz
- Help to moisturizing
- Prevent split ends.
- Helps to hair growth.
- Nourishes hair for smooth and shiny look
- Control breakage
- Shiny hair

Onion

Family-Amaryllidaceae, liliaceae.

Order-Asparagales

Kingdom-Plantae

Allium cepa is a member of the liliaceae family of aromatic plants, which includes onions and other plants in the genus Allium. Due to their unusually strong scent, they are actually known as "the stinking lilies." The genus Allium contains a large variety of species. They consist of shallots, chives, garlic,



onions, and leeks. The onion, commonly referred to as the common or bulb onion, is the most widely distributed species of the allium genus of vegetables. Up until 2010, the shallot, a botanical variation of the onion, was recognized as a distinct species.

Advantages of onion:-

- Antibacterial agent
- Stimulate healthy hair growth.
- Sulphur content prevent hair breakage.
- Regrowth of hair follicles.
- Smoothing effect on hair
- Help to removing the dandruff
- Help to promotes hair development.
- Prevent thinning.
- Stimulates the scalp and boost blood circulation to hair follicles.

Aloe Vera

Family: Liliaceae

Synonym: Marathi – korphad , Hindi - Musabbar

Advantages of Aloe Vera:



- Calms an itchy scalp.
- Deep cleans oily hairs.
- Strengthens
- Aloe Vera contains proteolytic enzymes which repairs dead skin cells on scalp.
- Promote hair growth
- Smooth natural curls
- Reduce frizziness
- Detangle Hairs.

Soap Nut

Family: Sapindaceae
Synonym: reetha



Reetha shows cooling effects and acts as an excellent cleanser on the skin. Soapnuts prevent the scalp from drying and retain the softness of the skin. The mixture of soapnuts and chickpea when applied on the skin gives gentler effects on the skin. It makes skin soft and tender. It is also used in removing flakes of cells on the scalp.

Advantages of Soapnuts:

- Stops Hair Fall
- Prevents Dandruff
- Fight Against Scalp Infection

Material:-

Formulation of Anti dandruff shampoo

Ingredients	Quantity
Onion	3ml
Hibiscus	3ml
Reetha	6ml
Aloe Vera	3ml
Peppermint oil	0.2ml
Glycerine	2ml
Water	12ml
Total	30ml

Method

Step 1: Prepare onion extract

Chop and peel the onion. In a blender, cut the onion and mix. To extract the juice, strain the combined concoction.

Step 2: Prepare Hibiscus extract

Put the hibiscus petals in a 50 ml water bath and boil for ten to fifteen minutes. After letting it cool, filter the liquid to extract the hibiscus.

Step 3: Prepare reetha extract

The reetha should be left in 100ml of water overnight. Boil the soaked reetha in the same water for approximately 20 minutes the next day. After allowing it to cool, strain the liquid to remove the soapnut solution.

Step 4: Extract Aloe Vera gel

Use freshly extracted aloe vera gel from the aloe vera leaf or pure aloe vera gel purchased from a store.

Step 5: Combine ingredients

Combine the hibiscus extract, aloe vera gel, onion juice, and reetha solution in a fresh basin.

Store the shampoo. Stir in 15 milliliters of water. Stir thoroughly to blend all the components before adding the glycerine and peppermint oil.

Evaluation parameter of herbal shampoo :

Physical Appearance/ Visual Inspection:

The formulations prepared were evaluated in terms of their clarity, foam producing ability and fluidity, colour, odour. as any other cosmetic product, the attractiveness of shampoo for consumers tends to be judged visually thus having good physical appearance is important, Hence formulated shampoo was checked for physical appearance.

Determination of pH:

The pH of herbal shampoo formulation were determined by using digital pH meter. 1 ml of shampoo was taken and dispersed in 10 ml of distilled water and keep aside (takes about 30 second to 2 minutes).

Determine Percent of Solids Contents:

A clean dry evaporating dish was weighed and added 4 grams of shampoo to the evaporating dish.

The dish and shampoo were weighed. The exact weight of the shampoo was calculated only and put the evaporating dish with shampoo was placed on the hot plate until the liquid portion was evaporated. The weight of the shampoo only (solids) after drying was calculated.

Dirt Dispersion:

Two drops of 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 None, Light, Moderate, or Heavy.

Foaming Ability and Foam Stability:

The foaming ability was measured using the cylinder shake method. A 250 ml graduated cylinder was filled with 50 ml of the 1% shampoo solution, covered with a hand, and shaken ten times. Following a minute of shaking, the total quantities of the foam contents were noted. Only the foam volume was computed. The volume of foam was immediately measured for four minutes, at one-minute intervals.

Skin irritation test:

A tiny amount of shampoo can be applied to the skin to test for skin irritation. After a little while to see if any localized discomfort or inflammatory response has occurred.

Result and discussion:

Result:- This herbal shampoo evaluated by some special test such as: physical test, PH, Dirt dispersion, Solid contents, Surface tension, cleaning action, Wetting time, Foaming ability & foam stability.

The herbal shampoo preparation 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 dandruff. It includes onion, hibiscus, reetha and Aloe Vera etc. which are safe to use.

Evaluation test results:

Sr.no	Evaluation Parameter	Observation
1.	Colour	Dark Brown
2.	Odour	Good
3.	pH (10% solution)	6.9
4.	% Solid content	22.50
5.	Foam volume	30
6.	Foam type	Small, Dense
7.	Skin irritation test	No irritation on skin

CONCLUSION :

Preventing dandruff and its infections was the primary goal of the herbal anti-dandruff shampoo's formulation. It was shown that compared to shampoos made with different synthetic and dangerous ingredients, the herbal anti-dandruff formulations that were made using the herbs had less negative effects. The antimicrobial test confirmed that the herbal antidandruff shampoo prevents dandruff.

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