WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Formulation and Evaluation of Herbal Anti- Dandruff Shampoo by Using Brahmi and Reetha.

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ABSTRACT

This study aims to develop and evaluate a shampoo for cosmetic usage made of natural ingredients.

A range of herbal ingredients were used to manufacture the herbal anti-dandruff shampoo, such as Reetha lemon peel, Aloe-vera gel, henna, Brahmi hibiscus, and so on.

Next, tests were conducted on the shampoo formulation to determine its pH, viscosity, foaming stability, and inspection satisfaction.

The principal cause of the common scalp condition known as dandruff is the fungus Malassezia Restricta and M. globoso. According to recent study, dandruff can be cured by using several anti-fungal components in hair care products.

Dandruff can only be adequately managed; it cannot be totally eradicated. A shampoo is a preparation that contains surface-active substance, or surfactant, in a liquid form that is appropriate. either powdered or solid or or powder that, when used as directed, will remove skin debris, surface grease, and grime from the scalp and hair shaft without having a negative negative impact on the user.

INTRODUCTION:

There are various forms of dandruff, and each has a distinct origin. Certain types are easily handled with anti-dandruff shampoo or by making adjustments to your hair care regimen.

• Fungal dandruff.

• Dandruff Based on Oil.

• Dandruff Related to Dry Scalp.

Dandruff Caused by Skin Conditions.

Dandruff and Dry Skin

a) This kind of dandruff is typical. Wintertime temperatures and indoor heating systems can cause your skin, especially the skin on your scalp, to become parched, which is why it usually occurs more frequently.

b) Dandruff and dry skin are other consequences of regularly washing your hair in hot water.

c) An excessively dry scalp may itch and lose skin cells. White, tiny dandruff flakes are a sign of dry skin. There's a chance your scalp will itch, but not really.

d) In case the itching is really bad, you might have a more serious skin condition that needs to be treated by a doctor.

Disease-Related Dandruff

a) Psoriasis, eczema, and seborrheic dermatitis are a few common skin illnesses that can damage your scalp and result in dandruff.

Dandruff with Oily Skin

a) The glands that generate sebum, an oily material that helps moisturize and protect your skin, are located just beneath the surface of your skin. Your hair may become greasy if these sebaceous glands produce an excessive amount of sebum.

b) Extra oil can also gather and irritate your scalp, leading to dandruff.

c) Dandruff flakes from oily skin are typically larger than those from dry skin. The flakes could appear oilier and more yellow than white.

d) Seborrheic dermatitis is a more serious case of dandruff on oily skin.

Fungal dandruff.

Every individual has skin that contains a common fungus known as Malassezia. It can cause an inflammatory reaction in certain individuals, leading to dandruff or other skin disorders including eczema.

b) Treating dandruff caused by fungi may be made easier by using a shampoo containing zinc pyrithione or other chemicals that inhibit Malassezia.
c) A 2018 study found that this kind of shampoo might be used to cure or prevent eczema, psoriasis, and seborrheic dermatitis, among other scalp issues.
d) Tea tree oil-containing shampoos or diluted tea tree oil applications may also aid in the reduction of dandruff caused by fungi.

Classification of shampoo

- Powder shampoo
- Liquid shampoo
- Lotion shampoo
- Solid gel shampoo
- Liquid herbal shampoo
- Solid cream shampoo
- Aerosol foam shampoo
- Specialized shampoo
- Conditioning shampoo
- Anti dandruff Shampoo
- Baby Shampoo

Advantages of Herbal Shampoo

Since herbal shampoos don't contain any synthetic components or surfactants.

They are composed entirely of pure and organic materials without any negative effects.

Are environmentally friendly and biodegradable.

It doesn't irritate the eyes in any way. It is reasonably priced and not overly costly.

Using herbal shampoo on a regular basis can greatly benefit your hair.

You may achieve the ideal oil balance by using herbal shampoo, which is formed of natural antibacterial characteristics that shield our hair and scalp from the sun's harmful UV rays, thereby preventing skin infections.

Disadvantages of herbal shampoo

Compared to allopathic dosage forms, herbal medications have slower acting effects and necessitate long-term therapy.

Odor and taste are tough to disguise.

The majority of herbal medications are not readily accessible.

The manufacturing process is intricate and time-consuming.

INGREDIENTS AND ROLES

Ingredients	Roles
Henna	Stain and color hair shaft
Lemon peel	Skin cleanser, preservative restore
Aloe vera	Reducing irritation, moisturizer

Reetha	Promoting healthier / care scalp nutritional foam base
Brahmi	Hair growth product
Fenugreek seed	Remove flake
Sodium lauryl sulfate	Detergent/surfactant
Hibiscus	Conditioner
Sodium chloride	Thickener
Gum(acacia)	Increasing viscosity
Starch	Thickness enhancer
Water	Diluent
Rose oil	Perfume
Castor oil	Seal out moisture

PLANT PROFILE

The drug profile for Reetha is as follows:

- family: sapindaceous;
- biological source: sapindas mokoros;
- synonyms: soap nut, wash nut;
- Chemical components: protein, sugar mucilage, and saponins.

Hibiscus –

- Synonyms: roselle, cotton rose, rose mallow
- Family: Malvaceae
- Source of biological material: hibiscus rosasinesis
- Chemical Components: steroids, quinones, and flavonoids

Rose oil substitutes include attar of roses and attar.

Family: Rosaceae

Source biological: Rosa centifolia

Constituents chemically: nonadecane, geraniol, citronellol, nerul, and linalool.

Fenugreek seed

Synonyms for Fenugreek Seed: Chandrika, Methi, and Methika

Leguminosae family

Biological source: Dried, mature Trigonella foenum-graecu seeds are used to make methi.

Chemical, structure: -. saponin glycosides, including trigonelline, tigogenin, and diosgenin

Lemon peel's

- biological source is the dried outer part of the pericarp of citrus Limoni's and citrus medica. Synonyms include Cortex limonin and Fructus Limoni's.
- The family is Rosaceae.
- The chemical composition is as follows: 90% limonene, 4% chiral, hesperidin, Neosporin, rutin, pectin, vitamin C, and calcium oxalate crystal.

Henna

- chemical composition includes lawson, white resin sugar and tannin.
- Its biological source is the plant lawsonia inermis.
- Henna's synonym is lawsone inermis.
- The family is lythraceae.

Brahmin

- Synonyms: Karivana, Manduki.
- Centella asiatica herb, either fresh or dried;
- Family: umbelliferae;
- Biological source: Centella asiatica herb, either fresh or dried.
- Saponin glycosides: brahmoside, brahminoside; chemical constitution

The following are triterpene acids: centoic, centric, isobaric, and brahmic acids.

Gum (acacia):

- Synonyms: gum Arabic, Indian gum, babul
- Family: Leguminosae
- Biological source: Indian gum is the dried, gummy exudation obtained from the steam and branches of the wild acacia Arabic tree,
- Chemical constitution: Arabian, Arabian acids resulting from the hydrolysis of l-arabicose, d-galactose, and d-glucuronic acid bark seeds.

Aloe vera

- Aloe vera is a member of the Liliaceae family.
- It is also known by the synonyms aloe and Musab bar.
- Its biological source is the leaves of the plant Barbadense miller, also known as curacao aloes.
- Its chemical makeup includes aloin, aloe emodin, aloe sin, antracene, emodin, and anthraquinone.

FORMULA

Sr. No	Ingredients	quantity
1.	Lemon peel	12 gm
2.	Reetha	8 gm

3.	Brahmi	2.05 gm
4.	Fenugreek seed	1 gm
5.	Hibiscus	3 gm
6.	Henna	5 gm
7.	Aloe vera	32 ml
8.	Sodium lauryl sulfate	4.5 gm
9.	Sodium chloride	1.74 gm
10.	Gum (acacia)	1.61 gm
11.	Starch	3 gm
12.	Water	Qs
13.	Rose oil	Qs
14.	Castor oil	Qs

ACTIONS

Procedure for Extraction

We mostly employed two kinds for extraction.

Initial procedure

Weigh each ingredient (brahmi, fenugreek seed, aloe vera, henna, lemon peel, and hibiscus) and soak it for the entire night.

After soaking for the entire night, the following morning all the ingredients were puffed out and full of water.

In the same amount of water, bring to a boil, then let cool before filtering.

The second procedure

Weigh the components after removing them.

After adding enough water, boil for 30 minutes.

After cooling, filter it.

Methodology Procedure

By decoction, the necessary herbal constituents for the shampoo manufacturing process were extracted.One extraction method that has been employed particularly for thermostable components is decoction. for solubility in water.

In this instance, an open-type extractor boils the crude plant, and the procedure takes a set amount of time.

The Reetha and lemon peel extract first blended nicely.

Next, fenugreek and hibiscus extracts were combined with the aid of a mechanical stirrer.

Next, starch and sodium chloride were added.

After adding the surfactant sodium lauryl sulfate, acacia was used as a thickening to boost viscosity.

The henna was added after a half-hour, followed by the addition of castor oil and water to maintain viscosity.

Finally, rose oil was added for fragrance and then fille

Evaluation test parameters

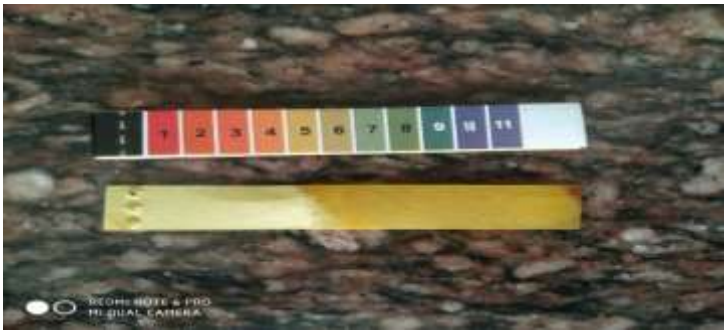
It include pH measurement, visual assessment, viscosity measurement, percentage of solid contents, surface tension measurement, wetting time, foam volume and stability, deterrency evaluation, and cleaning action.

Calculating pH

At 25 degrees room temperature, the pH of a 10% shampoo solution in distilled water was measured.

One pH paper strip was dipped into the solution, and its color was compared to the key.

Shampoo's pH must be within 6.2.



Calculating Viscosity

Ostwald's viscometer was used to measure the prepared shampoo's viscosity at room temperature.

It must fall between 1.10 and 1.40 poise.

Visual Appeal Clarity, color, odor, and texture of the formulation were assessed.

The shampoo has a light brown color.

Shampoo has a lovely smell.

Measurement of Surface Tension

Measurements were made using a 10% shampoo dilution in room temperature distilled water. Because grease and other lubricants have a significant impact on surface tension, thoroughly clean the stalagmometer with chronic acid and purified water.

The data were calculated using the equation below, where W1 is the empty beaker's weight and R2(W3-W1) NIR2/(W2-W1) N2 were The weight of the beaker containing distilled water is W2.

W3 is the Beaker's Weight Including Shampoo Solution

N1 represents the quantity of distilled water drops, while N2 denotes the quantity of shampoo solutions drops.

R1 is the distilled water's surface tension at room temperature.

The shampoo solution's surface tension is denoted by R2.

Calculating Percentages Good Content

Weighing an evaporating dish that was dry and clean, we put 4 grams of shampoo to it. Together, the dish and shampoo were weighed. Only the precise weight of the shampoo was determined, and once the liquid portion had evaporated, the evaporating dish containing the shampoo was placed on the hot plate.

Calculations were made based only on the shampoo's (solid) drying weight.

A shampoo with an excessive amount of solids will be difficult to mix into the hair and difficult to rinse out. Should there be insufficient amount, it will be too liquid and rapidly evaporate.

A decent shampoo should have a substantial content of 20% to 30%.

- **Wet Period**

  The canvas was divided into disks with an average weight of 0.44 grams and a diameter of one inch.

  The disk was placed on top of a 1% w/v shampoo solution, and a timer was used to determine how long it took for the disk to start sinking. This measurement was taken accurately, and the result was recorded as the wetting time.

- **Volume and Stability of Foam**

  The cylinder shaking method was frequently employed to assess foaming potential. A 250 ml graduated cylinder was filled with 25 ml of 1% shampoo solution, then the cylinder was shaken for 10 minutes while the lid was on.

  Following a minute of shaking, the total amount of the foam contents was noted.

After shaking the foam volume for four minutes at one-minute intervals, the volume of foam was immediately estimated.

- **Cleaning Procedure**

Put 5 grams of wool yarn and grease into a 500 milliliter flask.

Put 200 ml of water and 1 ml of shampoo in it, and shake it 50 times in 4 minutes.

Following that, drain the solution, let it dry, and then weigh the leftover grease in the flask.

The data were determined using the equation DP=100(1-T/C), where DP stands for the proportion of detergency powder.

C stands for sebum weight in the control group.

T is the sebum weight in the test specimen.

Consistency Examine For three days, watch the shampoo solution.

Stability Test

Observe the shampoo solution for 3 days.

Detergency Evaluation

Two drops of shampoo were added in a large test tube contain 10 ml of distilled water.

1 drop of red 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 high.

Shampoo that causes the ink to concentrate in the foam are considered poor quality.

The dirt should be stay in the water portion dirt that stay in the foam will be difficult to rinse away it will redeposit on the hair.

Evaluation test result

Sr. No	Parameter	Observation
1	Color	Light Brown
2	Odor	Pleasant
3	Clarity	Non-Transparent

4	Ph	5.3
5	% Of Solid Content	23%
6	Wetting Time	7
7	Viscosity	1.20 Poise
8	Surface Tension	38.49 Dynes/Cm
9	Foam Formation	30 Ml

CONCLUSION

A method for treating scalp dandruff is provided by the manufacture of antidandruff shampoo.

An efficient remedy for dandruff on the scalp is a herbal antidandruff hair shampoo that contains Reetha, Brahmi, lemon peel, fenugreek seed, Hibiscus henna, Aloe vera gel, and sodium lauryl sulfate base.

Formulated shampoos reduced hair loss in addition to being safer than chemical dandruff removers.

This study's primary goal was to design and substitute safe herbal ingredients for the hazardous synthetic chemical found in anti-dandruff shampoo.

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