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Preparation And Evaluation Of Polyherbal Shampoo

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ABSTRACT:

The key object of this present research study is preparation and evaluation of a polyherbal Shampoo to determine physiochemical function that emphasises on safety, Efficacy and quality of the product. Herbal Shampoo is the natural haircare product Which is use to remove oil, dirt, dandruff and stimulate hair growth, Strenthness and darkness of the hair. It is also supply softness, silkiness, and Shines for the hair. The herbal active ingredients and their uses in hair activity, and used in the preparation of shampoo and they are shikakai, reetha, amla, neem, aloe-vera, onion, garlic, gaur gum. Prepared polyherbal shampoo have evaluated parameters of polyherbal shampoos such as physical appearance, PH determination, determination of percentage solid content, foam stability test, viscosity test , skin irritation test, stability study, antimicrobial activity was performed and we found that the prepared polyherbal shampoo has key beneficial effect for hair.

KEYWORDS: Herbal shampoo, Strenthness, Darkness, Amla.

INTRODUCTION:

In our daily lives, shampoos are arguably the most popular cosmetic product used to clean our hair and scalp. In essence, a shampoo is a detergent solution with appropriate ingredients for additional advantages include medicine, enhancement, hair conditioning, and lubrication, among others. Now-a-days there are a lot of synthetic, herbal, medicated, and non-medicated shampoos on the market, but Consumer preference for herbal shampoo is growing as a result of these products' natural sources are risk-free and devoid of negative consequences. Shampoo is formulated with synthetic surfactants primarily for foaming and cleaning properties Activity, but frequent usage causes dry hair, hair loss, and rashes around the eyes and scalp.[1]

Recently herbal medicines are more considered as safe with fewer side effects than synthetic drug for the treatment of dandruff therefore in the global market. Natural remedies including herbal formulation are in abundant demand. It is a very good attempt to formulate and evaluate the polyherbal shampoo along with the stability studies. The polyherbal shampoo showed a synergistic effect as compared to individual with good stability.[2]

The formulation of a polyherbal shampoo involves selecting herbal ingredients with cleansing, conditioning, antimicrobial, and hair-strengthening properties. Commonly used ingredients include: Shikakai (Acacia concinna): Natural cleanser, promotes hair growth, Reetha (Sapindus mukorossi): Produces natural lather, cleanses scalp, Amla (Phyllanthus emblica): Strengthens hair, prevents dandruff, Aloe vera: Moisturizes scalp, reduces irritation, Neem (Azadirachta indica): Antibacterial, anti-dandruff properties.[3]

MATERIALS AND METHODS:

MATERIALS:

Shikakai(Acacia concinna), Reetha (Sapindus mukorossi), Amla (Phyllanthus emblica), Aloe vera(Aloe barbadensis Miller), Neem(Azadirachta indica), Onion(Allium cepa L), Garlic (Allium sativum L), Gaur gum(Cyamopsis tetragonoloba L. Taub.)[4]

METHODS:

METHOD OF PREPARATION OF HERBAL SHAMPOO:

A) For Decoction:

Table No. 01: Formulation of Decoction

Sr. no	Ingredients	Quantity (per 50 ml)
1	Aloe Vera Leaf	5 grams (about 1 leaf)
2	Neem Leaf	5 grams (about 10-15 leaves)
3	Amla Fruit	5 grams (1 fruit, dried or fresh)
4	Shikakai Fruit	5 grams (dried or fresh)
5	Reetha	5 grams (dried or fresh)
6	Onion	1 small onion (approximately 50 grams)
7	Garlic	2-3 cloves (approximately 5 grams)

Decoction Process:

- Start by preparing a decoction. A decoction is a liquid extract made by boiling the ingredients. Here's how you can make it:
- Crush the neem leaves, aloe vera leaf (remove the gel), amla fruit, shikakai pods, reetha pods, onion, and garlic.
- Add these crushed ingredients to a small pot and pour about 200 ml of water.

- Bring the mixture to a boil and then simmer for about 15-20 minutes until the water is reduced to about half.
- Let the decoction cool, and then strain it to remove any solid particles.[5]

B) For Shampoo Preparation:

Table No. 02: Formulation of Shampoo

Sr. no	Ingredients	Quantity (per 50 ml)
1	Decoction Liquid	Approx. 50ml
2	Guar Gum	1/2 teaspoon (about 2gm)
3	Almond Oil	1 teaspoon (about 2ml)

Shampoo Preparation:

Once you have your decoction, you can make the shampoo. Here's how:

- ✓ In a clean container, pour 50 ml of the decoction.
- ✓ Add 1 teaspoon of guar gum. Guar gum acts as a natural thickening agent to give your shampoo the right consistency. Stir it well to dissolve it into the decoction.
- ✓ Add 1 teaspoon of almond oil to the mixture. Almond oil can add extra nourishment to your hair.
- ✓ Mix the ingredients thoroughly until you have a consistent shampoo-like consistency.[6]

EVALUATION TEST FOR POLYHERBAL SHAMPOO:

A) Physical appearance /visual assessment:

The formulations prepared and evaluated in terms of their clarity, foam producing ability..

B) Determination of pH:

The pH of shampoo solution in refined water was firm at room temperature by using pH meter.[7]

C) Determine percent of solids contents:

A clean, dry evaporating dish was weighed and added 4 grams of herbal shampoo to the evaporating dish. The precise weight of the shampoo was calculated and put the evaporating dish with shampoo was placed on the hot plate till the liquid portion was evaporated. The weight of the shampoo solids was calculated after drying. Normal range- 15% to 18% .[8]

D) Skin sensitization test:

This test is performed on skin of human volunteers and checks whether irritation on skin not.[9]

E) Foaming ability and foam stability:

Cylinder shake method is used for defining foaming ability. 50 ml of the 1% shampoo solution was put into a 250 ml graduated cylinder and covered the cylinder with hand and shaken for 10

times were recorded. The whole volume of the foam contents after one min shaking. The foam volume was calculated only. Immediately after shaking the volume of foam at 1 min intervals for 4 minutes were recorded.[10]

F) Viscosity Test:

The viscosity of formulation was firm by using Ostwald viscometer. 10ml of formulation is taken in a beaker and rod is dipped in it for nearby 5min. and then reading is taken.[11]

G) Anti-Microbial Test:

By using agar well diffusion method. Initially, the stock cultures of bacteria were revived by inoculation in broth media and growth at 37°C for 18hrs. The Nutrient agar media plates were ready and bores were made in the plate. Each plate was inoculated with cultures and spread evenly on the plate. After 20 min, the wells were filled with aqueous plant extract (25%, 50%, 75%, and 100%). The control wells with water prepared. All the plates were incubated at 37°C for 24 h and the diameter of the inhibition zone in mm was noted. A mixture of plant extract (75%) in the proportion (50%, 70%, 90%, 100%) was also filled in another two plates spread with bacteria Staphylococcus aureus and E.colli.[12]

H) Stability Studies:

The thermal stability of the formulation was studied by placing in glass tubes and they were placed in a humidity chamber at 45°Cand 75% relative humidity. Their appearance and physical stability were inspected for a period of 3 months at an interval of one month.[13]

RESULTS & DISCUSSION:

1. **Physical appearance/visual appearance:**

Table No. 03: Result of visual test

TEST	OBSERVATIONS
Clearity	Slightly turbid
Colour	Light brownish colour
Foam ability	It have ability to produce foam

2. Determination of pH:

The pH test results of the polyherbal shampoo showed a pH range of 5.4-5.8. This indicates that the shampoo has a slightly acidic to neutral pH.

3. Determine percent of solid contents:

The solid content results of the polyherbal shampoo showed a solid content percentage of 16.04%. This indicates that the shampoo has a moderate solid content.

4. Skin sensitization test:

The skin irritation test is performing on the volunteer named Ritesh ingavale's hand, we found that the shampoo doesn't produce any irritation to skin.

5. Foaming ability and foam stability:

The foaming ability results of the polyherbal shampoo showed a foam height of 120 mm ± 10 mm and a foam stability of 80% ± 5% after 5 minutes

6. Viscosity test:

The viscosity test results of the polyherbal shampoo showed a viscosity of 2.7cps and it reported that the shampoo has a good viscosity.

7. Anti-microbial test:

The anti-Microbial test is performed on the nutrient culture media using different concentration of shampoo. After the incubation for 24 hrs it creates the zone of inhibition and it found that the shampoo shows anti-microbial activity.

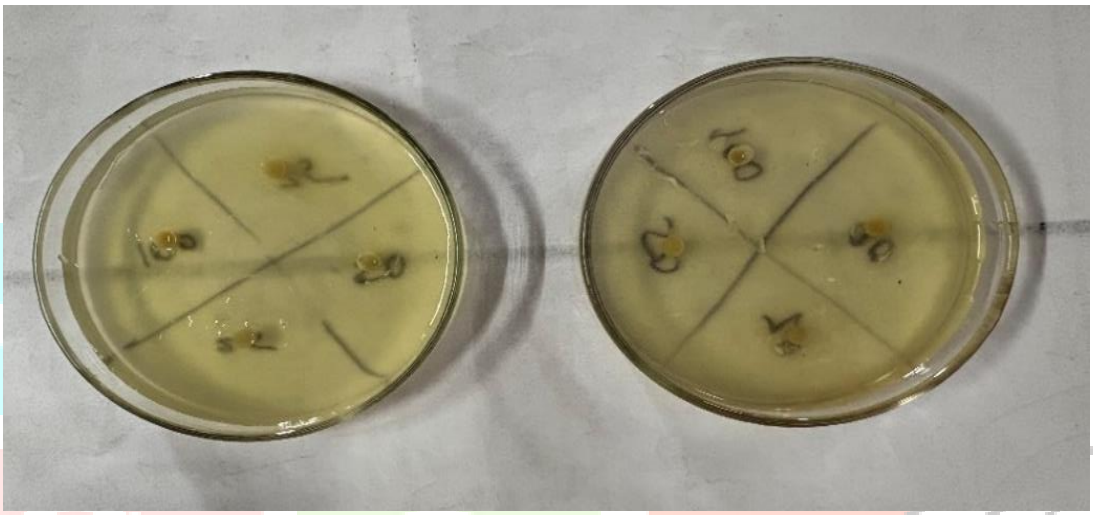

Image No. 1: Before the Application of Sample & Incubation

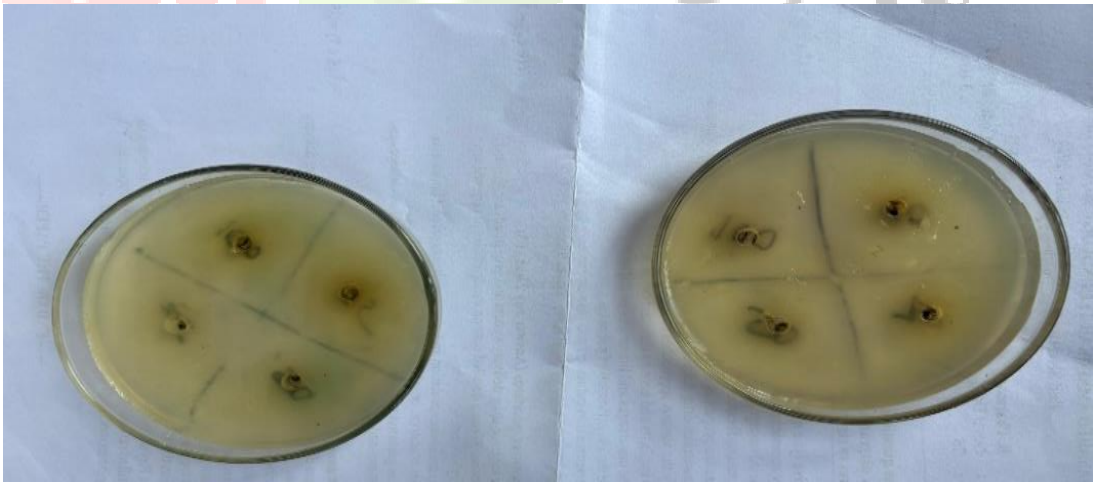

Image No. 2: Result after the Incubation of Sample

8. Stability Studies:

Stability study evaluated the polyherbal shampoo formulations over 3 months in a humidity chamber at 45°Cand 75% relative humidity. Formulation remained stable, showing no significant changes. These results emphasize the importance of stability testing in ensuring product reliability and quality.

Table No. 04: Stability Studies

SR. NO.	PARAMETERS	1ST MONTH	2ND MONTH	3RD MONTH
1	pH	5.68	5.70	5.69
2	Viscosity	2.9cps	2.2cps	2.8cps
3	% of solid contents	1i6.10	16.4	15.5

CONCLUSION:

In conclusion, the project successfully formulated a herbal shampoo with desirable physicochemical properties and efficacy. The herbal shampoo showed promising results in terms of foaming ability, stability, and overall performance. By utilizing traditional plant materials, the shampoo offers a safe and effective alternative to synthetic shampoos. Further studies and consumer trials may be warranted to validate its efficacy and acceptance in the market. Overall, the project contributes to the development of natural and sustainable cosmetic products in line with consumer preferences for herbal alternatives.

The formulation and composition of prepared antidandruff formulation had been reported very first time. Prepared formulation has significant antidandruff potential against Malassezia furfur and other dermatophytes in dandruff condition. Prepared formulation has prolonged contact time with advantage of non-synthetic base with minimum or no side effects. From this investigation it can be concluded that the prepared formulation posses a significant comparable antidandruff efficacy with marketed antidandruff formulations due to presence of Alkaloids, Glycosides, Carbohydrates, Terpenoids, Phenol, Flavonoids and tannins (Gallic acid) in the prepared formulation. Prepared formulation will serve the society from common and embarrassing superficial disorder.

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