

FORMULATION, EVALUATION AND COMPARATIVE STUDY OF HERBAL ANTI-DANDRUFF SHAMPOO

Prashant P. Nikumbh, Sandip S. Chaudhari, *Tarannum R. Sayyad, Manish N. Patil, Akshay B. Patil, Mohd. Shahid A. Khatik and Mayur R. Bhurat

Shri Prakashchand Jain College of Pharmacy and Research, Palaskhedha (BK) Jamner 424206, Maharashtra, India.

***Corresponding Author: Tarannum R. Sayyad**

Shri Prakashchand Jain College of Pharmacy and Research, Palaskhedha (BK) Jamner 424206, Maharashtra, India.

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ABSTRACT

Aim and Objective the end of this present study is to prepare and formulate an herbal soap and to assess its physiochemical function that emphasis on safety, efficacy, barring dangerous synthetic component, and cover with safe natural ingredients. Methods The expression of soap using the excerpts of psidium guajava, sapindusmukorossi, Acacia concinna, Hibiscus rosea Lawsonia Inermis, Azadiractra Indica, Aloe barbadensis in different proportions. Evaluation of organoleptic, physicochemical, and performance tests in terms of visual assessment, wetting down time test, pH, assurance of solid contents, face pressure, detergency, dirt dissipation, conditioning performance, froth volume, and stability was performed. Results the created cleaner was clear and good charming. It demonstrated good head stability, detergency, good sanctification, small bubble size, low face strain, and prosecution of good exertion. Conclusion The physicochemical evaluation of the formulated soap showed ideal results. Still, to ameliorate its quality, product performance, and safety, farther development was needed.

KEYWORDS: Antidandruff, Guava leaf, Shampoo, Herbal, Evaluation.

INTRODUCTION

Products may be defined as the medication which are meant for sanctification, modifying the texture, changing of the color, giving life to the stressed-out hair, furnishing aliment to the hair and giving the healthy look to the hair. There are colorful types of hair normal hair, unctuous hair, dry hair, varies from one mortal to other mortal. In moment fast life peoples don't have time to look on their constitution also? The causes of Hair falling is, splitting of hair, white hairs and Dandruff etc. The reasons of hair problem are pressure, crown infection, hormones disturbances, lower vitamin, food, minerals, and large chemical soap use. Cleanliness of hair and crown are among the most important particular life consideration moment Dandruff is the major ornamental problem and great public concern both in developed and developing countries. The word dandruff is combination of "tan" meaning "tetter" and "drof" meaning "dirty". Dandruff is a habitual crown condition leading to scaling, itching, greenishness of crown by slipping epidermal cells. Scalp sheds dead cells in nearly unnoticeable way but occasionally sheds as visible flakes called dandruff. Dandruff is a cluster of coenocytes retained by cohesion with one another and detach from face of stratum carenum. Parakeratosis cells frequently make up a part of dandruff. In physiological diapason of

scaling about, 1000 cells/ sq cm get released after soap treatment. During the once decades there has been increase in use of natural products in cosmetics.

Classification of Dandruff

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

A. Dry dandruff

B. Oily dandruff.

A) Dry dandruff

It is also called as pityriasis simplex characterize by excessive formation of minute scales which accumulate on the scalp area. In this type of dandruff there is no excessive hair loss. The inflammation on the skin is not observed. The scales are first found in middle of the scalp and then spread to frontal, parietal and occupational areas.

B) Oily dandruff

It is also called as pityriasis steatoides. It arrives on the scalp with sebum production. It is mostly found in young men following puberty. Inflammation of varied intensity developed on the scalp along with oily scales of dirty yellow colour. Hair fall is most commonly found in this condition. The most common site affected by this type of

dandruff is scalp, behind the ears, over breast bone, armpits.

Causes of dandruff

Dandruff is characterized as a hyper proliferation of the scalp epidermis accompanied with scalp itching and redness. Dandruff is apparently caused by a fungus called *Malassezia restricta* and *Malassezia globosa*. *Malassezia* formerly called *Pityrosporum* is a yeast causing infection of skin and scalp. It often causes itching. Warm and humid atmosphere, overcrowding, and poor personal hygiene are ideally suited for the growth of *Malassezia*. Dandruff affects 5% of the population and mostly occurs after puberty, between 20 and 30 years and dandruff affects males more than females. Dandruff occurs exclusively on skin in areas with high levels of sebum. Symptoms of dandruff mainly include itching, flakes, and redness of scalp. Dandruff can be treated in two ways, using herbal-based antidandruff shampoo and using chemical-based antidandruff shampoo.

Treatment of dandruff

The main two ways of dandruff treatment are using chemical-based anti-dandruff shampoo and herbal based anti-dandruff shampoo. There are various shampoos and scalp preparations available in the market, against dandruff, which contain chemicals and which may cause certain side effects. The plant includes several compounds, which behave in a biological way against dandruff causing agents. Synthetic shampoos can cause side effects, like itching, irritation, loss of hair, nausea, headache and increased scaling. The usage of these synthetics causes adverse effects, skin irritation, allergy, hair breakage, skin discoloration, unexpected hair colour and cancer. In the Indian medicine system, various plants are used in the dandruff treatment as Brahmi, Bengal gram, Reetha, Hibiscus, Liquorice, Marigold. These formulations are herbal based, with viable substitutes for synthetic drugs. Over the last few decades, natural products have shown a tremendous increase in herb based cosmetics. There are many herbal shampoos available nowadays, containing herbal ingredients like essential oils and extracts of plants. Many plants have beneficial effects on hair. Traditional medicine in India is endowed with magical and religious beliefs and the World Health Organization is engaged in setting up definite guidelines for appraisal of traditional medicine of major effectiveness. Medicinal plants are rich in antioxidants, known to treat different diseases. The antioxidant potential is tested at various levels. Preparations used in hair care are available in the form of creams, dyes, pomades, powders, tonics, etc. Hence, the knowledge from Ayurveda and herbals will be enhanced by information on the evidence-basis of these plants. Drugs from the herb resources are quickly accessible, cheap, safe, efficient and rarely have side effects.

MATERIALS COLLECTION

The different parts of plant which having antidandruff or hair care property were selected. The parts of plants was selected like leaves, fruits, roots or flowers of herbal plants.

PREPARATION

- Drying of Ingredient – All the required herbal ingredient subjected to dry in sunlight for drying and removal of moisture.
- Size Reduction – The dried ingredient were crushed and reduced the size separately with the help of hand driven mixer.
- Sieving – After size reduction the fine powders are sieved through sieve no:120 and collected.
- Weighing- The all sieved powder weighed individually according to formulation.
- Mixing – All powdered ingredient were mixed thoroughly with the help of mortar and pistle and make a homogenous fine powder.
- Collection and storage – The powder mixture was collected and stored in a plastic container for evaluation and use.

FORMULATION OF HERBAL ANTI-DANDRUFF SHAMPOO

The Evaluation of powdered of anti-dandruff of herbal shampoo includes various parameters after formulation and compounding.

Table 1: Organoleptic evaluation of harbal shampoo.

Sr	Material	Quantity
1	Gauva leaf	2.5 gm
2	Reetha	2.5 gm
3	Shikakai	2 gm
4	Neem	1 gm
5	Heena	1.5 gm
6	Hibiscus	0.5 gm
7	Aloe Vera	1 gm
8	Methyl Paraben	1 mL 0.05% solution
9	Gelatin	q.s
10	Rose Oil	q.s

Table 2: Description of the ingredients of the herbal shampoo.

Sr. No	Common name	picture	Botanical source	Parts used	Category
1	Gauva leaf		Dried leaves of <i>Psidium guajava</i>	leaf	antidandruff agent
2	Reetha		Dried Fruits of <i>Sapindus mukorossi</i>	fruits	Detergent & antidandruff
3	Shikakai		Dried pods of <i>Acacia concinna</i>	powder	Antidandruff
4	Neem		Dried Leaves of <i>Azadirachta indica</i>	leaf	Prevent hair loss & hair growth
5	Heena		Henna Dried Leaves of <i>Lawsonia inermis</i>	leaf	Growth of hair
6	Hibiscus		Dried Leaves & flower <i>Hibiscus rosea</i>	Leaf, flowers	Prevent the dryness of hairs
7	Aloe Vera		Dried Leaves of <i>Aloe barbadensis</i>	Leaf	coolant

Organoleptic evaluation for parameters like colour, odour, taste and texture was carried out. Colour and texture was evaluated by vision and touch sensation respectively.

a) Particle size

Particle size is a parameter, affecting various factors such as dispersion, stiffness, etc. Particle size was determined by filtering using I.P.

b) Angle of repose

It is defined as the maximum angle that can occur between piles of powder to a horizontal flow. Good flow property is essential in formulation of any powder. The angle of response of herbal shampoo. This confirms that the powder has good flow property.

c) Bulk Density

Bulk Density is the ratio between a given powder's weight and its bulk volume. Required the amount of powder will be dried and filled in a measuring cylinder of up to 50 ml. The cylinder is then closed into a solid wood surface from a height of 1 inch per 2 second intervals. Powder volume is measured. The powder is then weighed. This is repeated to get average values.

Bulk Density is calculated using the form below given formula....

$$\text{Bulk Density} = \frac{\text{Mass of the herbal powder shampoo}}{\text{Volume of the herbal powder shampoo}} \text{---(eq-1)}$$

d) Tapped Density

Tapped density is the increased density of the bulk detected after tapping a container containing a powder sample. After seeing the first dose of flour or weight, measuring cylinder or vessel typing for 1 minute and

volume or weigh treading is taken until additional volume or weight change is observed. It was revealed per cubic centimeter (g / cm³).

$$\text{Tapped Density} = \frac{\text{Weight of powder}}{\text{Tapped volume of powder}} \text{---(eq-2)}$$

Physicochemical evaluation



Fig 1: pH determination test.

a) pH Determination

The pH of 10% shampoo solution in distilled water was determined at room temperature 25°C. The pH was measured by using pH Paper.

b) Washability

Formulated Shampoo Forms are applied to the artificial hair and it is easier wash with the level of water bath checked by hand.



Fig 2: Form applied.



Fig 3: After washing and drying.

c) Solubility

Solubility is defined as the ability of a substance to dissolve in a solvent. One gram of the powder is carefully weighed and transferred to a beaker containing 100 ml of water. This stirred well and warmed to increase melting.

d) Percentage of Solid Contents

Four grams of the prepared shampoo were placed in a clean dry evaporating dish. The weight of the dish and shampoo was determined. The liquid portion of the shampoo was evaporated by placing on a hot plate. Then the weight of the shampoo solid contents after complete drying was.



Fig 4: loss of drying.

e) Skin /eye irritation test

Examination of eye and skin irritation reveals that herbal shampoo powder does not indicate any side effect on skin and eye. This is due to the lack of synthetic surfactants. Most of these synthetic surfactants produce

inflammation of the eyelid and irritation of the cornea. But this time formulation of herbal shampoo powder, the use of all ingredients is found naturally. So does not produce any harmful effects on the skin and eyes.

6. Skin Irritation Test Skin irritation tests are performed using a patch opener. For many cosmetic products, whether commercial or home-made, this is recommended you do a patch test on your skin before using it. This is to make sure you do not have an allergy reaction to the product and if you do, it will only be confined to a small area of skin and so on is easily handled.

Step 1- Pour or squeeze out a little of the cosmetic preparation to your wrist.

Step 2- A small amount of the preparation on the pulse of your wrist or the crook of your elbow.

Step 3- Leave the preparation unwashed for a period of 15-20 min.

Step 4- Watch for signs of an allergic reaction. Typical signs will include redness, a rash, any form of breakouts on the skin, itchiness, pain, flaking etc. Some people may also experience nausea or respiratory reactions. If any of these signs present themselves, cease use immediately.

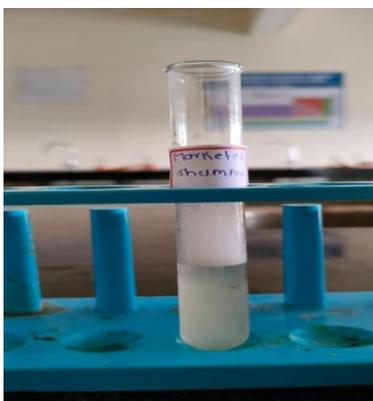


Fig. 5: Marketed Shampoo.

Step 5- Continue to use the product if you do not have a reaction. If you do not have any allergic reaction symptoms, it is likely that the preparation is all type of your skin.

f) Wetting Time

The filter paper was cut into 1-inch diameter discs having an average weight of 0.44 g. The disc was floated on the surface of shampoo solution 1% w/v.

g) Dirt Dispersion Test

Two drops of shampoo were added to 10ml of distilled water taken in a large test tube. To this solution, 1 drop of India ink was added and the test tube was stopper and shaken 10 times. The amount of ink in the foam was indicated by the rubric such as none, light, moderate heavy.

h) Foam, Volume and Stability

Take 2 ml of the 1% shampoo solution was put into a 10ml graduated test tube and covered the test tube with hand and shake for 10 minutes. 1 minute shaking was immediately recorded.

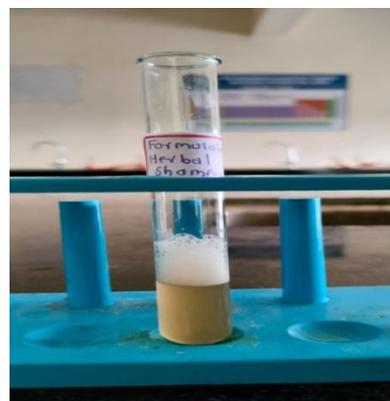


Fig. 6: Formulated Shampoo.

Observation

Table No.3: Formulation Evaluation Table

Sr.no	Evaluation parameter	Marketed formulation	Formulation of Herbal shampoo
1	Color	Light Brown	Light Brown
2	Odor	Good	Good
3	Texture	Clear	Clear
4	pH	6	5.7
5	Solid Content	14.75%	16.34%
6	Foaming Ability	80+/-3	92+/-2
7	Surface Tension	80.73	78.67
8	Skin Test	No reaction	No reaction
9	Dirt Dispersion Test	Light	Moderate

RESULT

The aim of this study was to formulate and evaluate a completely herbal shampoo which is at par with the other natural shampoo available in the market. We formulated a herbal shampoo by using plant extracts which are commonly used traditionally and lauded for their hair cleansing actions across Asia. All the ingredients used to formulate shampoo are safer than

silicones and polyquaterniums synthetic conditioning agent can greatly reduce the hair or protein loss during combing. Instead of using cationic conditioners we have used gaur leaf, Sheekakai, Amla, Neem, Aloe vera and other plant extracts to provide the antidandruff effect and conditioning effects several tests were performed to evaluate and compare the physicochemical properties of both prepared and marketed shampoos. Our prepared

shampoo showed comparable result with that of marketed shampoo for quality control tests but further research and development is required to improve its overall quality.

CONCLUSION

The herbal based shampoo are known for their non-toxic nature. It nourishes the skin of the scalp as well that as hair. It treats dandruff by removing excess oil from the scalp. Regular use of this pack leads to problem free, healthy and rich hair. Present investigations was carried out to formulate the herbal shampoo powder preparations based upon traditional knowledge and to develop few parameters for quality and purity of herbal powder shampoo. Nowadays there is strong demand for natural therapies, and this is increasing in western countries. Hence we conclude that the herbal formulation of Shampoo is effective in reducing dandruff without irritation, less adverse effect and better conditioning effect. 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.

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