WWW.IJRPR.COM

International Journal of Research Publication and Reviews

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

"FORMULATION AND EVALUATION OF HERBAL SHAMPOO"

Ms. Renuka Ganesh Shinde[1], Ms. Nikita Bharat Magar[2], Mr. Kakasaheb Sominath Dakle[2], Mr. Kailas Anjaba Tirukhe[3], Mr. Aniket Narayan Tompe[4]

[1] Student of Bachelor in Pharmacy, Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad.
[2] Student of Bachelor in Pharmacy, Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad.
[3] Department of Pharmaceutics, Faculty of Pharmaceutics, Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad.
[4] Department of Quality Assurance, Rajarshi Shahu College of Pharmacy, Buldhana

INTRODUCTION

A shampoo is essentially a detergent solution that has the right components for Other benefits include lubrication, hair conditioning, medication, and enlargement, to name a few. Synthetic surfactants are used in shampoo formulation mainly for foaming and cleansing purposes. activity, but regular use results in rashes around the eyes and scalp, dry hair, and hair loss. Although it is challenging to make cosmetics with entirely natural raw ingredients, medicinal compositions are thought of as a synthetic shampoo alternative. Numerous plants are used for medical purposes. They are frequently included in shampoo formulations and are said to have positive benefits on hair. These plant materials can be employed as derivatives, refined extracts, powders, or crude forms. Making a herbal shampoo with just one natural ingredient that is safer than synthetic ones while yet competing favourably with its foaming, detergency, and solid content is really challenging. As a result, we thought of creating a pure herbal shampoo using plant ingredients that are widely and historically used in India for hair cleaning. Additionally, we have attempted to transform a single formulation into two distinct states, such as liquid shampoo and powder, which is solid state.

Content:

Shampoo:

A shampoo is a product that contains a surfactant, sometimes referred to as a surface active ingredient, in a form that is appropriate for the product—liquid, solid, or powder—that, when used as prescribed, will eliminate dirt, surface oil, and skin debris from the scalp and hair shaft without endangering the user.

- Shampoo comes in a variety of forms
- Including liquid
- Solid cream, jelly,
- Powder, lotion, aerosol foam
- Speciality shampoo
- Specialized shampoo.
- Conditioning shampoo
- Antidandruff shampoo
- Baby shampoo
- Two layer shampoo

Ideal Shampoo Characters:

The dust and excessive scum should be removed completely and properly.

- Hair should be washed thoroughly.
- Should generate a significant amount of foam
- Shampoo removal should be easy after rinsing with water.
- Should result in hair that is soft, lustrous, manageable, and not dry.
- It should leave the hair smelling nice.
- The hand shouldn't get chapped or dry out.
- There shouldn't be any negative effects like skin or eye irritation.

Problem Related to hair:

- Dandruff
- Dry hair
- Hair loss
- Heat damage
- Color damage

Advantages Of shampoo:

- Shampoo keeps hair silky and smooth.
- Shampoo is easy to rinse.
- There is minimum skin and eye irritation.
- Is less toxic.
- It is slightly acidic.
- Causes less damage to hair.
- Repairs damaged hair.

Literature Review

In 2013, Jaya Preethi p. et al. Despite being safer and more effective than synthetic shampoos, it is unlikely that herbal shampoos will be widely used in the current market. A more drastic strategy for making herbal shampoo more widely used would be to alter customer expectations by emphasising effectiveness and safety. The focus of this research is on composition, kinds, assessment techniques, and a short overview of herbal shampoo formulations.

Dessai Prabhat et al. (2016) Shampooing is the most popular hair treatment. Formulations of herbal shampoos were created, and designed shampoos were compared with marketed shampoos. Despite being safer and more effective than synthetic shampoos, it is unlikely that herbal shampoos will be widely used in the current market. A more drastic strategy for making herbal shampoo more widely used would be to alter customer expectations by emphasising effectiveness and safety. We have assessed and contrasted two commercially available shampoos with the herbal shampoo developed in a prior research. The results of this study show that customers have sometimes experienced negative side effects as a result of synthetic preservatives.

Allium sativum extract was used in the formulation and evaluation of a herbal shampoo by Swarnlata Saraf et al. (2011). Allium sativum, a member of the Alliaceae family, has antiviral, antitumor, antitumor, antimutagenic, anti-inflammatory, and antixidant qualities. Utilising the benefits of A. sativum extract, the study's objective was to create a shampoo that incorporates herbal constituents and assess the natural herbal shampoo. These formulations were then tested for physicochemical parameters, and the findings demonstrated the creation of stable herbal shampoos.

Need Of Work :

Efficacy Testing:

Conducting efficacy testing to determine how well the herbal shampoo performs in terms of cleansing, conditioning, and addressing specific hair and scalp issues such as dandruff, hair loss, and dryness.

Safety Assessment:

Performing comprehensive safety assessments to ensure that the herbal shampoo is safe for use. This may include skin irritation testing, and potentially even long-term safety studies to assess any potential adverse effects associated with prolonged use.

Optimization of Formulation:

Exploring ways to optimize the formulation of the herbal shampoo to improve its stability, consistency, scent, and overall user experience. This might involve experimenting with the use of additional natural ingredients or additives to enhance its performance and appeal.

Shelf-Life Studies:

Conducting shelf-life studies to determine the stability and longevity of the herbal shampoo over time, including how it holds up under various storage conditions (e.g., temperature fluctuations, exposure to light or air). This information would be important for establishing expiration dates and storage recommendations for the product.

Consumer Acceptance Studies:

Conducting consumer acceptance studies to gauge how well the herbal shampoo is received by potential users in terms of factors such as scent, texture, efficacy, and overall satisfaction. This feedback can be invaluable for refining the formulation and marketing of the product to better meet the needs and preferences of consumers.

Plan of work :

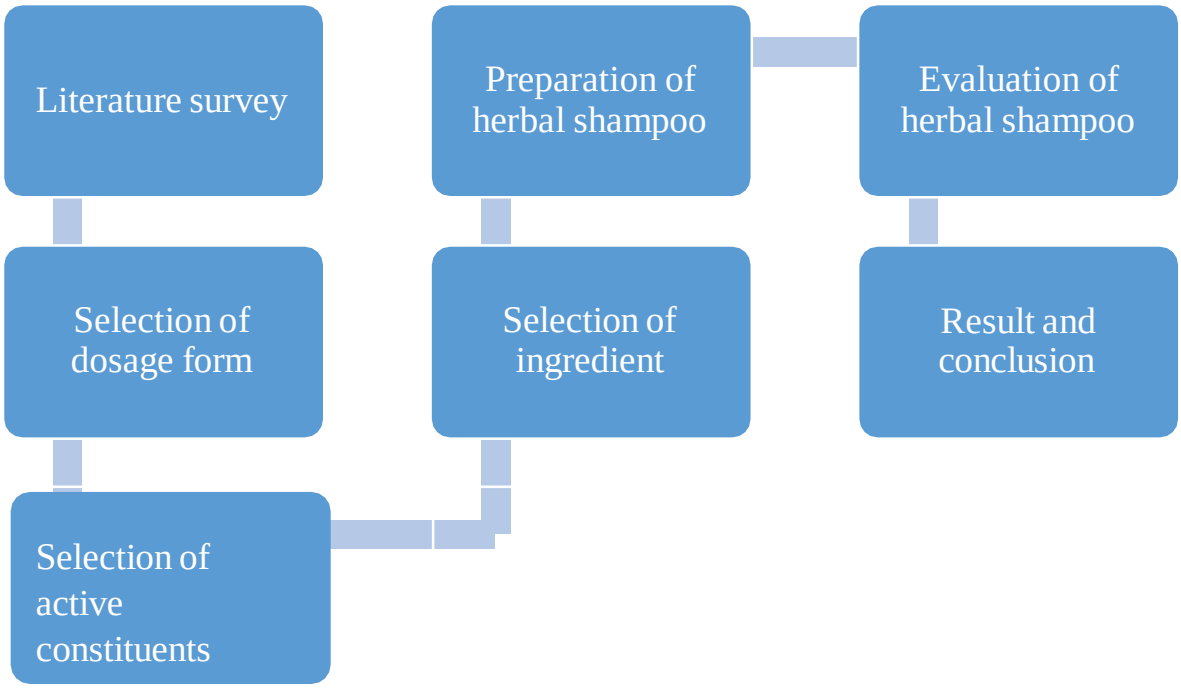

Fig1. Plan of work

CONTENTS IN HERBAL SHAMPOO

Sr. No.	Constitue nt	Biological Source	Fam ily	Chemical Constituent	Uses	Images
1.	Aloe vera leaf	Dried leaves of Aloe **barbadensis miller**	**Liliace ae**	Carbohydrate,Vita min, Mineral, Enzyme, Polysaccharide, Anthraquinone	Conditioner and moisturizing effect.	 Fig.2
2.	Neem leaf	Dried leaves of **Azadirachtai nda**	**Miliace ae**	Nimbin,Nimbid in,imonoids,fatty acid, amino acid	Prevent the dryness of hairs and flaking of hairs.	 Fig.3

3.	Amla fruit	Dried ripe fruits of **Embelicaofficin a lis**	**Eupho rbiacea e**	Tannins,alkaloid, Carbohydrate , Vitamin, flavonoids	Darkening of hairs and hair growth promoter.	 Fig.4
4.	Shikakai fruit	Dried pods of **Acacia concinna**	**Mimos aceae**	Saponins, Alkaloid, phenol,terpenoi ds,vitamin c, Minerals	Foam base and anti dandruff.	 Fig.5
5.	Reetha fruit	Dried fruits of **Sapindusmukor o ssi**	**Sapind aceae**	Saponins,triterpe noids, flavonoids,Suga r, mucilage.	Detergent and antidandruff	 Fig.6
6.	Onion	Dried bulb of **Allium cepa**	**Amaryl lidacea e**	Flavonoids, organic acid, Sugar, Saponin, Peptides	preventing hair loss andpromotin g hair growth	 Fig.7
7.	garlic	ripe bulb of **Allium sativ um linn.**	**Lili ace ae**	Allicin,Phenolic compound,withanolid e	nourishes hair roots, adds shine and elasticity to hair strands .	 Fig.8
8.	Guar gum	Powder of endosperm of **the seeds of** **Cyamopsiste trag onolobus**	**Legumi nosae**	Polysacchride, galactose, galacto mannan	Good emulsifier, also use in food and cosmetic industries.	 Fig.9

9.	Almond	Dried ripe seeds of **Prunusamygdals**	**Rosaceae**	Fats, proteins, carbohydrate, vitamin, mineral	Preservative, sedative, demulcemy.	 Fig.10

Table 1. Contents in Herbal Shampoo

METHOD OF PREPARATION OF HERBAL SHAMPOO.

Ingredients:

Aloe Vera Leaf (1 small leaf) Neem Leaf (2-3 leaves) Amla Fruit (1 fruit)
Fruit of Shikakai (2–3 pods)
Fruit of Reetha (2-3 pods)
One tiny onion
Garlic (2–3 cloves)
Guar Gum (1 teaspoon) Almond Oil (1 teaspoon)

Decoction Process:

- Prepare a decoction first. To create it, follow these steps:
- Crush the garlic, onion, neem leaves, shikakai and reetha pods, amla fruit, and aloe vera leaves (removing the gel).
- 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.

Shampoo Preparation:

You may prepare the shampoo after you have your decoction. Here's how:

1. In a clean container, pour 50 ml of the decoction.
2. 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.
3. Toss in one teaspoon of almond oil. You may give your hair more nutrients by using almond oil.
4. Thoroughly mix the ingredients until they have a consistency similar to shampoo.

Usage:

- Shake the bottle before each use, and apply the shampoo to wet hair just like you would with any other shampoo. Massage it into your scalp and hair, then rinse it out thoroughly.
- Please note that this herbal shampoo won't have the same lathering properties as commercial shampoos because it lacks synthetic foaming agents. The scent may also be quite natural and earthy due to the ingredients used. It's important to patch test any homemade product on your skin to ensure you don't have an adverse reaction to any of the ingredients.
- It’s efficacy and shelf life may vary, so make smaller batches and use it within a reasonable time frame.

Formula for herbal shampoo

Ingredient	Quantity (per 50 ml)
Aloe Vera	5 gm
Neem Leaf	5 grams (about 10-15 leaves)
Amla	5 gm
Shikakai fruit	5 grams (dried or fresh)

Reetha	5 grams (dried or fresh)
Onion	1 small onion (approximately 50 grams)
Garlic	2-3 cloves (approximately 5 grams)
Guar gum	1/2 teaspoon (about 2 grams)
Almond	5-7 almonds (about 5 grams)

Table 2. Formula for Herbal shampoo

Preparation of Ingredients:

Aloe Vera Leaf: Take the gel out of the leaf and let it dry naturally. The dry gel should be ground into a fine powder.
Neem Leaf, Amla Fruit, Shikakai Fruit, Reetha, Onion, Garlic, and Almonds: Dry these ingredients thoroughly. Once dried, grind each ingredient separately into fine powders.

Combining the Powders:

Mix all the powdered ingredients (aloe vera, neem, amla, shikakai, reetha, onion, garlic, almond, and guar gum) in a clean, dry bowl. Ensure the powders are uniformly mixed.
When a small amount of water is added, reetha begins to froth because it acts as a natural foaming agent.

Direction to use :

To use this dry powdered shampoo, take a small amount in your hand or a containerPour a tiny bit of water into it. When water is added and mixed with the powder, it should create foam due to the presence of the natural foaming agents in the mixture

Evaluation of Herbal Shampoo:

Physical appearance /visual assessment:-
The produced compositions' fluidity, clarity, and capacity to produce foam were assessed.

Calculate the percentage of solids present:
Four grammes of herbal shampoo was placed to a dry, clean evaporating dish after it had been weighed. Only the precise weight of the shampoo was determined, and the shampoo-filled evaporating dish was set on a hot plate until the liquid was gone. A substantial content of 15% to 18% was noted.

Test for skin sensitisation:
Human volunteers' skin is used in this test to determine whether or not it causes skin irritation. There were no complaints of annoyance.
Foaming ability and foam stability:-
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 recordedOnly the volume of foam was computed. Immediately following shaking, the volume of foam was measured every minute for four minutes.

Stability test

Stability and acceptability of organoleptic properties (odor and color) of formulations during the storage period of 1 month indicated that they are chemically and physically stable.

RESULT AND DECLARATION:

Sr.no	Evaluation test	Result obtained
1	**Physical appearance**	Smooth Brown
2	**pH**	6.53 to 7.12
3	**The percentage of solid components.**	15% to 18% is
4	**Foaming foaming stability ability and**	Good and Stable

5	**Skin irritation test**	No irritation seen on volunteer
6	**Stability test**	Stable

Table 3. Result and Evaluation

Result:

The herbal shampoo was successfully formulated following the guidelines outlined in the literature review. Physicochemical properties such as pH, percent of solid contents, foaming ability, foam stability, and stability tests were evaluated to assess the quality of the shampoo. The findings showed that the herbal shampoo formulation satisfied the required standards for stability, viscosity, appearance, and foaming capabilities.

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. The shampoo is a safe and efficient substitute for synthetic shampoos since it uses traditional plant components. 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.

REFERENCES :

1. P.P. Sharma (2014), Cosmetics- Formulation manufacturing and quality control, Vandana publication 5th Edition, (4-34) (327-349)
2. The Drugs and Cosmetic Act, 1940 (2018), Universal law publishing/ LexisNexis, Haryana, India (1-17)
3. Priya D gaikwad, Kamini V. Mulay, Madhavee D. Borade (2018), Formulation and Evaluation of Herbal Shampoo, International Journal of science and research (IJSR), Volume 9 Issue 3, March 2020
4. Health Sciences Authority – health products regulation group, guidelines on the control of cosmetic products, (2019), (9-11).
5. Health Sciences Authority – health products regulation group (2018), GMP guidelines for manufacturers of cosmetic products, (2-15)
6. B.M.Mithal, R.N.Saha, (2010), A handbook of Cosmetics, M K Jain For Vallabh Prakashan, Delhi,(1-100 (105-121).
7. C K Kokate, A. P. Purohit, S. B. Ghokhle, Morality Prakashan, 49th edition (8.17-8.19) (9.9-9.15) (9.100-9.101) (10.4-10.5) (14.91-14.94) (19.2-19.4).
8. Kuntal Das, Herbal plants ans their Application on Cosmeceuticals,CBS Publishers and Distrubution, 1st edition (4-10) (46-47).
9. M. Vimaladevi, (2015), Textbook of Herbal Cosmetics, CBS Publishers and Distrubution, 1st edition, (74-102).
10. Swarnlanta Saraf, Shailendra Saraf,(2007), Cosmetics A practical Manual, Pharma Book Syndicate Publication, (17)
11. A R. Mainkar and C.1. Jolly (2001), Formulation of natural shampoo, International Journal of Cosmetic Science, (59-62).
12. WWW. Wikipedia .Com.
13. WWW. Slideshere.Com
14. https://en.m.wikipedia.org/wiki/Shampoo
15. https://www.skinsight.com/disease-groups/common-hair-problems
16. https://www.murtelacosmetics.com/blog/benefits-of-hair-shampoo/
17. https://g.co/kgs/jWKXWY
18. https://www.google.com/search?kgmid=/g/121z_8sn&hl=enIN&q=In dian+soapberry&kgs=4fe79f9974d160de&shndl=17&source=sh/x/kp/osrp/4&entrypoint=sh/x/kp/osrp
19. https://i0.wp.com/www.theayurveda.org/wpcontent/uploads/2016/06/ Driedreetha-fruits.jpg?resize=1024%2C576&ssl=1
20. https://www.google.com/search?kgmid=/m/04gt5w_&hl=enIN&q=Cy priol&kgs=c7a29bcf7b2841c2&shndl=17&source=sh/x/kp/osrp/4&entrypoint=sh/x/kp/osrp
21. https://img1.exportersindia.com/product_images/bcfull/2020/10/6555 010/na garmotha-seeds-1601820320-5600596.jpeg
22. https://n1.sdlcdn.com/imgs/g/t/6/Etheric-Orange-Peel-Powder- ComboSDL585389838-4-2c429.jpg
23. Jaya Preethi P. Padmini K, Srikanth J., Lohita M., Swetha K., Vengal Rao P. A Review on Herbal Shampoo and Its Evaluation, 2013, Vol. 3: Issue 4. Pg 153-156 11)
24. Khaloud Al Badi, Shah A. Khan. Formulation, evaluation and comparison of the herbal shampoo with the commercial shampoos,2014,301-305.
25. Prabhat Dessai and Shiny Phatarpekar, Formulation and evaluation of herbal shampoo formulations and to compare formulated shampoo with marketed shampoos, 2016 Volume5 Issue 9, 1467-1477: Formulation and evaluation of herbal shampoo 2021-2022 G.I.P.E.R, LIMB, SATARA Page | 18
26. Swarnlata Saraf, Sunil M. Hargude, Chanchal Deep Kaur and Shailendra Saraf Formulation and Evaluation of Herbal Shampoo Contai.