

FORMULATION AND EVALUATION OF HERBAL SHAMPOO

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ABSTRACT

The objective of this study is to formulate and evaluate herbal shampoo for cosmetic purpose from herbal ingredients. Neem powder, Amla powder, Shikakai powder, Ritha powder, Alo-vera gel was procured from local market in powdered form ayurvedic shop and prepared by homemade method, then prepared decoction of these ingredients and mixing with each other and evaluated for its organoleptic and physio-chemical characteristics. Herbal shampoo is used to cleansing of the hair also conditioning, smoothing, of the hair surface, good health of hair, hair free of dandruff, dirt grease and lice above all, its safety benefits are expected. The advantage of herbal cosmetics is their non-toxic nature, reduce the allergic reactions and time-tested usefulness of many ingredients. Thus, in present work, we found good properties for the herbal shampoo and further optimization study benefits of herbal shampoo on human use as cosmetic product.

KEYWORDS: Cosmetic, Herbal shampoo, Ayurvedic, Dandruff, Conditioning.

1. INTRODUCTION

- Shampoos are probably the most widely used cosmetic products for cleansing hairs and scalp in our daily life.
- Herbal shampoos are the cosmetic preparations that with the use of traditional ayurvedic herbs are meant for cleansing the hair and scalp just like the regular shampoo.
- They are used for removal of oils, dandruff, dirt, environmental pollutions etc. Herbal shampoo is a type of cosmetic preparation that uses herbs from plants as an alternative to the synthetic shampoo available in the market.

- The herbal shampoo is important, as people nowadays prefer herbal products than chemical ones for, they proved to enhance.
- The awareness and need for cosmetics with herbs are on the rise, primarily because it is believed that these products are safe and free from side effects

2. Literature review

Sr. no	Source of literature	Studied for
1.	Pawan Maurya, Shashikant Maury, Piyush Yadav, Manoj Kumar Yadav, Suraj Maurya, Satyam Jaysawal, A REVIEW ARTICLE ON: HERBAL SHAMPOO, Department of pharmacy Prasad Institute Of Technology (JETIR), Jaunpur, Uttar Pradesh (India), JETIR May2021, Volume 8, Issue 5	Herbal shampoo is used to cleansing of the hair also conditioning, smoothing, of the hair surface, good health of hair, hair free of dandruff, dirt grease and lice above all, it's safety benefits are expected. The advantage of herbal cosmetics is their non-toxic nature, reduce the allergic reactions and time tested usefulness of many ingredients.
2.	Priya D. Gaikwad, Kamini V. Mulay, Madhavee D. Borade, Formulation and Evaluation of Herbal Shampoo (IJSR), K. T. Patil College of Pharmacy, Osmanabad, Maharashtra, India, Volume 9 Issue 3, 2018	-The selection of active ingredients for hair care shampoo is often based on the ability of the ingredient to prevent damage to skin as well as to improve the quality of the skin by way of cleansing, nourishing, and protecting the skin. -Ayurvedic Herbal Shampoos, in contrast, comprise of ayurvedic ingredients & essential herbs that not only cleanse the hair and scalp mildly but the purpose of hair care can also have a curative effect for long-term benefits.
3.	Suyog Sunil Bhagwat, FORMULATION AND EVALUATION OF HERBAL SHAMPOO (IJCRT), Dr. N. J. Paulbudhe College of Pharmacy, Ahmednagar 414003. Maharashtra, Volume 8, Issue 9 September 2020	Amla fruit uses Stimulate Hair Growth, Reduce Hair Loss, Prevent or treat dandruff and dry scalp, Prevent or treat Fungal and Bacterial hair and Scalp infections, Improve overall appearance of Hairs.
4.	Dhayanithi S, Enjamamul HOQUE, Pallavi N, Dr. Kavitha PN and Dr. Saraswathi, Formulation and evaluation of herbal shampoo, National Journal of Pharmaceutical Sciences 2021; 1(2): 88-93	Determination percentage solid content : A Clean dry china dish was weighed and 4 grams of shampoo was added to it. The weight of dish and shampoo was noted. The exact weight of shampoo was calculated. Place the china dish with herbal shampoo on hot plate until the liquid portion was evaporated. The weight of shampoo (solids) after drying was calculated.

5.	Ali Heyam Saad, Rasool Bazigha Kadhim, FORMULATION AND EVALUATION OF HERBAL SHAMPOO FROM ZIZIPHUS SPINA LEAVES EXTRACT (IJRAP), Department of Pharmaceutics and Pharmacy Practice, Dubai Pharmacy College, Dubai, UAE, IJRAP 2011, 2 (6) 1802-1806	To evaluate the prepared formulations including: surface tension, foam volume and foam stability, detergency, eye irritation, skin sensitization tests and preliminary stability study were also carried out.
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3. OBJECTIVES

- The major objective of the present study was to formulate and evaluate herbal shampoo by means of eliminating harmful synthetic ingredients and substitutes them with natural ingredients (herbs).
- To reduce side effects of chemical formulation.
- To imparting gloss to hair and to maintain their manage ability and oiliness for hairs.
- Herbal shampoos for hair growth are made to strengthen the hair follicles by giving essential oils and nourishment all through the root and follicles.
- This, in turn, promotes hair growth and stimulates the formation of new and healthy hair roots.
- Regular usage of Herbal shampoos can do wonders for your hairs
- The present work is oriented at the synthesis of herbal antidandruff hair formulation and the estimation of its various aspect.
- Collection of Herbal Crude Drugs.
- Extraction of Herbal Crude Drugs.
- Preparation of Herbal Antidandruff shampoo.
- Evaluation of Herbal Antidandruff shampoo

3.1 Importance used of formulation

- The selection of active ingredients for hair care shampoo is often based on the ability of the ingredient to prevent damage to skin as well as to improve the quality of the skin by way of cleansing, nourishing, and protecting the skin.
- Ayurvedic Herbal Shampoos, in contrast, comprise of ayurvedic ingredients & essential herbs that not only cleanse the hair and scalp mildly but the purpose of hair care can also have a curative effect for long-term benefits.
- Ayurvedic Herbal Hair products are crafted with natural herbs, plant extracts, and oils that are aimed at enhancing your scalp health & combatting hair issues.

- It have not make the hand rough and chapped.
- It's not give any side effects or causes irritation to the eye.
- It produces a good amount of foam to satisfy the psychological requirements.
- Herbal shampoos for hair growth are formulated to strengthen the hair follicles by delivering essential oils and nourishment all through the roots and follicles.
- This, in turn, stimulates the formation of new and healthy hair roots and promotes healthy hair growth.

4. Ingredients used in formulation

4.1 Amla fruit

Synonym: Indian gooseberry, Emblica, Amalki.

Biological source

This consists of dried, as well as fresh fruits of the plant *Emblica officinalis* Garth (*Phyllanthus emblica* Linn.), belonging to family Euphorbiaceae. It contains not less than 1.0% w/w of gallic acid calculated on dry basis.

Family: Euphorbiaceae

Uses

- Commonly used as oil or aqueous extract in hair care formulations like hair oil and shampoo.
- Strengthen the Scalp and Hair.
- Reduce premature pigment loss from hair, or greying.
- Stimulate Hair Growth.
- Reduce Hair Loss.
- Prevent or treat dandruff and dry scalp.
- Prevent or treat Fungal and Bacterial hair and Scalp infections.
- Improve overall appearance of Hairs.



Amla fruit

4.2 Ritha fruit

Synonym: Soapnut, Reetha, Biological source: It consist of dried fruit of Sapudas Trifolaius (S.I). Sapndus mukorassi(N.I)

Family: Sapindaceae

Uses

- Detergent and anti dandruff.
- It is a cleansing agent.
- Keeps scalp gentle and removes any microorganism responsible for infection.
- It nourishes hair, keep healthy and smooth.
- It shines the hair and brings back nature texture.



Ritha fruit

4.3 Shikakai fruit

Synonym: Acacia hooperiana, Acacia concinna Biological source:

It consists the fruits of the plant Acacia concinna Linn. (Leguminosae), It is a medicinal plant that grows in tropical rainforests of southern Asia and is used for washing hair.

Family: Mimosaceae

Uses

- Foam base and anti dandruff.
- Cleanses Hair.
- Add more Shine to the Hairs, □ Prevents Gray's.
- Curbs Hair Loss
- Prevents Lice, Psoriasis, Eczema & Scabies.
- Provides Nourishment to the hair and promote healthy and rapid hair growth.
- Prevents Split ends.



Shikakai fruit

4.4 Neem leaf

Synonym: *Melia azadirachta* Biological source:

Neem consists of the fresh or dried leaves and seed oil of *Azadirachta indica* J. Juss (*Melia Indica* or *M. azadirachta* Linn.).

Family: Miliaceae

Uses

- Prevent the dryness of hairs and flaking of hairs.
- Neem leaf is used for leprosy, eye disorders, bloody nose, intestinal worms, stomach upset, loss of appetite, skin ulcers, diseases of the heart and blood vessels (Cardiovascular disease), fever, diabetes, gum disease (Gingivitis), and liver problems.
- The leaf is also used for birth control and to cause abortions



Neem leaf

4.5 Methi seed

Synonym: Methi, Chandrika Biological source:

- Fenugreek (*Trigonella foenum graecum*) is an annual plant belongs to the family Leguminosae. It is the famous spices in human food.
- The seeds and green leaves of fenugreek are used in food as well as in medicinal application that is the old practice of human history.

Family: Fabaceae

Uses

- Prevents hair loss, Revives damaged hair, Fights Dandruff, prevents premature grey hair
- Seeds of Methi have been used as a remedy for stomach disorders, constipation, fever, diabetes, and anaemia.
- Many studies suggest that fenugreek has many therapeutic benefits such as liver protection, reducing inflammation, antiulcer, anticancer, antibacterial, and neuroprotective



Methi seed

4.6 Alovera leaf

Synonym: Aloe indica biological source:

- The biological source of aloe is dried latex of leaves of it.
- It is also known as curacao aloe, cape aloe and socotrine aloe.
- It belongs to the liliaceae family Family: Asphodelaceae Uses:
- Conditioner and moisturizing effect.
- 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.



Alovera leaf

4.7 Lemon oil

Synonym: Cedro oil, Limonum oil Biological source:

Volatile oil obtained by expression method, without the application of heat, from the fresh peel of the ripe fruits of Citrus limonis

Family: Rutaceae

Uses:

- Flavouring agent and it perfumery, Terpeneless Lemon oil is 20 times stronger than Lemon oil.
- Add More shine.
- Get rid of dandruff.

- Split ends.
- Reduces Hair fall.
- Gives Natural colour to hairs.
- Detox the scalp.
- Promotes the growth of hairs.
- Great hair mask for dry and damage hairs



Lemon Oil

4.8 Tragacanth

Synonym: Gum Tragacanth, tragacanth Biological source:

It is the dried gummy exudation obtained by incision from stem and branches of *Astragalus gummifer* L. *Astragalus membranaceus*, and other species of *Astragalus*.

Family: Leguminosae.

Uses

- It is used as a demulcent, emollient, thickening, suspending, □ emulsifying agent.
- Tragacanth is used both for diarrhea and constipation.
- It is also an ingredient in toothpastes, hand lotions, denture adhesives, and vaginal creams and jellies.
- In foods, tragacanth is important for stabilizing and thickening ingredients in salad dressings, foods, and beverages.



Tragacanth

5. Formulation and Evaluation of herbal shampoo

Formula of herbal shampoo

Sr. No	Ingredient	Quantity(10gm)	Parts of plant used
1	Alma	1.7gm	Fruit
2	Ritha	1.5gm	Fruit
3	Shikakai	1.5gm	Fruit
4	Neem	0.5gm	leaves
5	Methi	1.7gm	seed
6	Aloe vera	1.7gm	leaves
7	Lemon oil	q.s	Flavourig agent
8	Methyl paraben	1gm	Preservative
9	Gum Tragacanth	q.s	Thickening agent
10	Distilled water	50ml	Soaking

6. Preparation method of herbal shampoo

Decoction method

- Weighed all the ingredients according to the formula.
- Decoction of Neem, Amla, Methi seeds, Alovera gel, was prepared in one part of water.
- Filter it, by using muslin cloth. Collect filtrate.
- Decoction of Shikakai, and Ritha was prepared in another part of water.
- Filter it by using muslin cloth. Collect filtrate.
- Mixed to each other of above filtrate with constant stirring.
- Mixed gum tragacanth as a thickening agent for maintenance of consistency of herbal shampoo as like semisolid nature. Preservatives and perfume was added lastly.



7. Evaluation of herbal shampoo

7.1 Foaming index

5 ml of shampoo + 20 ml of water and volume make up to 25 ml and shake it well, after shaking the measuring cylinder, the final volume 23 ml and 45 ml foam

* $45-23=22$ ml total foam forming



7.2 Determination of pH

The pH of shampoo solution in distilled water was determined at room temperature by using pH paper. **pH: 5.4**



7.3 Determine percent of solids contents

A clean, dry evaporating dish was weighed and added 4 gram's of herbal shampoo to the evaporating dish. 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.

7.4 Rheological evaluation

The viscosity of the shampoo was calculated by using viscometer. The viscosity of the shampoos was measured with the temperature and sample containers size was kept constants during the study.

7.5 Dirt dispersion

Two drops of shampoo were added in large test tube contain 10 ml of distilled water. One drop of ink was added in the test tube, was stopped and shake for ten times. The amount of ink in the foam was estimated as none, light, moderate or heavy.

7.6 Skin sensitization test

This test is performed on skin of human volunteers and checks whether it irritation on skin or not.

7.7 Stability test

Stability and acceptability of organoleptic properties (Odour and Color) of formulations during the storage period of 2 year indicated that they are chemically and physically stable.

7.8 Nature of hair after washes

Nature of hair after wash can be done by collecting the responses of volunteers.

8. RESULTS AND DISCUSSION

Sr. no	Evaluation tests	obtained
1.	Physical appearance	Black colour, good foaming
2.	Odour	Smell like Lemon
3.	Texture	Fine smooth
4.	PH	5.4
5.	Percent of solids contents	32%
6.	Rheological evaluations	1.6 cps
7.	Dirt dispersion	Light
8.	Skin sensitization	No irritation on skin sensation
9.	Stability test	Stable after two year
10.	Foaming ability and foaming stability	22ml
11.	Nature of hair after washes	Soft manageable

9. CONCLUSION

The present study was carried out with the aim of preparing the herbal shampoo that reduces hair loss during combing, safer than the chemical conditioning agents as well as to strengthen the hair growth. Herbal shampoo was formulated with the aqueous extract of medicinal plants that are commonly used for cleansing hair traditionally. Use of conditioning agents (synthetic) reduces the protein or hair loss.

To provide the effective conditioning effects, the present study involves the use of shikakai, amla, and other plant extracts instead of synthetic cationic conditioners.

The main purpose behind this investigation was to develop a stable and functionally effective shampoo by excluding all types of synthetic additives, which are normally incorporated in such formulations.

To evaluate for good product performance of the prepared shampoo, many tests were performed. The results of the evaluation study of the developed shampoo revealed a comparable result for quality control test, but further scientific validation is needed for its overall quality.

10. REFERENCE

1. Pawan Maurya, Shashikant Maury, Piyush Yadav, Manoj Kumar Yadav, Suraj Maurya, Satyam Jaysawal, A REVIEW ARTICLE ON: HERBAL SHAMPOO, Department of pharmacy Prasad Institute Of Technology (JETIR), Jaunpur, Uttar Pradesh (India), JETIR May, 2021; 8: 5.
2. Priya D. Gaikwad, Kamini V. Mulay, Madhavee D. Borade, Formulation and Evaluation of Herbal Shampoo (IJSR), K. T. Patil College of Pharmacy, Osmanabad, Maharashtra, India, Volume, 2018; 9: 3.
3. Suyog Sunil Bhagwat, FORMULATION AND EVALUATION OF HERBAL SHAMPOO (IJCRT), Dr. N. J. Paulbudhe College of Pharmacy, Ahmednagar 414003. Maharashtra, Volume, 2020; 8: 9.
4. Dhayanithi S, Enjamamul HOQUE, Pallavi N, Dr. Kavitha PN and Dr. Saraswathi, Formulation and evaluation of herbal shampoo, National Journal of Pharmaceutical Sciences, 2021; 1(2): 8893.
5. Ali Heyam Saad, Rasool Bazigha Kadhim, FORMULATION AND EVALUATION OF HERBAL SHAMPOO FROM ZIZIPHUS SPINA LEAVES EXTRACT (IJRAP),

- Department of Pharmaceutics and Pharmacy Practice, Dubai Pharmacy College, Dubai, UAE, IJRAP, 2011; 2(6): 1802-1806.
6. Utane R., Deo S. Itankar P, PREPARATION OF HERBAL SHAMPOO (HS) BY GREEN METHOD AND THEIR CHARACTERIZATION, Department of Chemistry, Sant Gadge Maharaj Mahavidyalaya, Hingna, Nagpur (M.S) India, J R S S I S, Vol. V, March, 2017; 254-258.
 7. Hiba Yateem, Michel Hanania and Nida' Mosleh, FORMULATION AND EVALUATION OF HERBAL SHAMPOO CONTAINING OLIVE LEAVES EXTRACT, Department of Chemistry, Bethlehem University, Bethlehem- Palestine, (IJDR), 2018; 08, 10: 23173-23176.
 8. Suchita Gokhale, Ashwini H. Pawshe, Srushti P. Patil, Raj M. Pitambare, Priyam S. Pawar, EXTRACTION, FORMULATION AND EVALUATION OF MORINGA HERBAL SHAMPOO, Assistant Professor, QA Department, June, 2020. 10.21474/IJAR01/11224
 9. P. Vinod Kumar, P. Venkateswara Rao, R.Prince, K.Terejamma¹, T.Chaitanya, Prasanna Kumar Desu, Formulation and Evaluation of Herbal Anti-Dandruff Shampoo from Bhringraj Leaves, Department of Pharmacy, Andhra Pradesh, India, (AJPS) Volume, 2018; 4, 2: 29-33.
 10. Jyoti Gahlawat, Devender Sharma, Gajendra Singh Thakur, Jitendra Chobdar, Vivek Sharma, FORMULATION AND EVALUATION OF POLYHERBAL LIQUID SHAMPOO, 1Department of Pharmaceutics Sanjivani College of Pharmaceutical Sciences, Khetri, 2019; 6, 7: 149-154.
 11. Sachin Dubey, Neelesh Nema, S. Nayak, Preparation and Evaluation of Herbal Shampoo Powder, Bansal College of Pharmacy, Kokta, Annd Nagar, Bhopal (M.P), Vol : XXVI (1) July, August, September, 2004.