



**INTERNATIONAL JOURNAL OF
PHARMACEUTICAL SCIENCES**
[ISSN: 0975-4725; CODEN(USA): IJPS00]
Journal Homepage: <https://www.ijpsjournal.com>



Review Article

Formulation And Evaluation of Herbal Shampoo

**Ravi Nagolkar*, Shubham Nikas, Shivnath Samadhan Budhwat, Somesh Wanare,
Shubham Gaikwad, Dr. K. R. Biyani**

Anuradha College of Pharmacy Chikhli, Buldhana Maharashtra.

ARTICLE INFO

Published: 21 June 2025

Keywords:

Herbal Shampoo, hair loss,
high scaling, Scratching,
discomfort, nausea and
headache

DOI:

10.5281/zenodo.15709294

ABSTRACT

The main object of this present study is to prepare and evaluate an herbal Shampoo and determine physiochemical function that emphasizes on safety, Efficacy and quality of the product Herbal Shampoo is the natural haircare product Which is use to remove grease, dirt, dandruff and promote hair growth, Strengthens And darkness of the hair. It is also supply softness, smoothness, and Shines for the Hair. Various drugs are used for the pre mixture of cosmetics Shampoo. Such drugs show different side effects such as hair loss, high scaling, Scratching, discomfort, nausea and headache. Therefore, an experiment is made to Prepare herbal shampoo that is free from side effects. The aim of the present study is to Formulate and evaluate herbal Anti dandruff Shampoo containing natural ingredients with an Emphasis on safety and efficacy.

INTRODUCTION

Herbal Shampoo -Shampoos are may be the most widely used the cosmetic product for cleansing hairs and scalp in your daily life.¹ Herbal Shampoo are the cosmetic preparations and use in human , like the hairs for hairs strong and shining hairs and that is used traditional ayurvedic herbs meant for cleaninsing hair and saclp just like the regular shampoo . They used for removal oil , dandruff, dirt , environmental pollution etc . 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 enhancehealth. 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]cloud. These should be (19) People most often think of it as anything that produces a flaky scalp. (7) Shampoos are most likely utilized as beautifying agents and are a viscous solution of detergents contaning suitable additives preservatives and active ingredients(3).

***Corresponding Author:** Ravi Nagolkar

Address: Anuradha College of Pharmacy Chikhli, Buldhana Maharashtra.

Email ✉: nagolkarravi@gmail.com

Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.



2.1 Need of shampoo

skin on our head produce a greasy fluid called sebum. It is produced to protect the hair by coating itself all over the head. This give the hair a healthy shine but when secret large amount and make the hair look dirty.

3. History

Indian subcontinent the Indian subcontinent, a variety of herbs and their extracts have been used as shampoos since ancient times. A very effective early shampoo was made by boiling Sapindus with dried Indian gooseberry (amla) and a selection of other herbs, using the strained extract. Sapindus, also known as soapberries or soapnuts, a tropical tree widespread in India, is called ksuna[3]. In ancient Indian texts and its fruit pulp contains saponins which are a natural surfactant. The extract of soapberries creates a lather which Indian texts called phenaka[4]. It leaves the hair soft, shiny and manageable. Other products used for hair cleansing were shikakai (Acacia concinna), hibiscus flowers,[5][6] ritha (Sapindus mukorossi) and arappu (Albizia amara)[7]. Guru Nanak, the founder and the first Guru of Sikhism, made references to soapberry tree soap in the 16 th century .8

4. Ideal properties of shampoo

- 1) should not should make the hand rough and chapped
- 2) not make the hand rough and chapped and requirement user 3) should be easily removed on rinsing with water.
- 4) It should leave the hair non -dry, soft, shiny with good manageability minimum Fly away.
- 5) It should impart a pleasant perfume to the hair.
- 6) It should not cause any reaction/ irritation to skin or eye
- 7) should be easily removed on rinsing with water

- 8) It should be effective in small quantity .

5. Definition of shampoo

It is defined as viscous cosmetic preparations containing surfactant meant for washing and scalp. Now days shampoo has become an important hair cosmetic for both men and women. The detergent and other raw material selected for shampoo preparation should be non toxic to scalp, eyes etc . Apart from cleaning , shampoo may also used for medicinal purpose.(I .e medicated shampoo). Shampoo are also available as powder shampoo , clear liquid shampoo , gel shampoo , cream shampoo , aerosol shampoo.. They are large number of medicinal plant which are beneficially effect on hair and are commanly used (4

5.1 Advantages of herbal shampoo:

- Cleansing propertie
- Improving hair hygiene.
- Treating scalp conditions
- Treatment for dry scale
- Treatment for hair loss.
- Treatment for greasing or oily hair.
- Relieves itch and irritation
- Repairs damaged hair.
- Shampoo keeps hair silky or smooth.
- Keeps your hair beautiful and blossomed

Pure and organic ingredient

- Free from side effect
- No surfactants ex . SLS
- No synthetic additives
- No animal testing
- Earth and skin friendly (6 , 2)

6. Function of herbal shampoo-

- Lubrication
- Conditioning
- Hair Growth



- Maintenance of Hair Colour
- Medication (6)

6.1 Benefits of herbal shampoo-

- More Shine
- Less Hair Loss
- Long Lasting Colour
- Stronger and More Fortified Hairs
- All Natural, No Chemicals
- Wont Irritate Skin or Scalp
- Keep Healthy Natural Oils (2)

7.Composition of shampoo

- Principal surfactant
- Secondary surfactant
- Antidandruff agents
- Conditioning agents
- Pearlescent ageagent
- Sequestrants
- Thickening agents
- Colours, perfumes and preservatives(11)

8. Use of ingredients

8.1 Soap nut extract (6)



-Stops Hair fall, Prevents Dandruff.

Fight against scalp Infection

8.2 Amla Extract (6)



- Stredngthen the scalp and Hair.
- Reduce Hair Loss.
- Stimulate Hair Growth.
- Prevent or treat dandruff and dry scalp.
- Improve overall appearance of Hairs.
- Prevent or treat fungal and Bacterial hair and scalp infection

8.3 Shikakai Extract (6)



- Prevent grays Prevent
- Add more shine to the Hairs.
- Cleanses Hair.
- Crubs Hair Loss. Prevents Lice, Psoriasis, Eczema & Scabies.

8.4 Aloe Vera



- Deeply Cleans Oily hairs.
- Promote hair growth.
- Smooth natural curls.
- Reduce frizzing

8.5 Rose Oil (6)



- Repairs hair damage
- Improves Growth of hairs
- iii. Reduces the dandruff Gives fragrance to the shampoo

8.6 Lemon Juice (6)



1. Add More shine.
2. Get rid of dandruff
3. Split ends
4. Reduces Hair fall(5,6)

8.7 Reetha (2)

Sapindus Mukorossi-Sapindaceae, Soapnuts is also called as Arishtak in Ayurveda And “Soap nut tree” in India. It is well known for Its traditional medicinal uses and is commonly used As a hair cleanser. Anti- dandruff agentIs an anti hair loss shampoo,the Natural antifungal and anti bacterial which may Helps in anti dandruff. It can be used on a daily basis to provide nourishment to the hair scalp and promote hair regrowth. Reetha helps to control dandruff and promotes hair growth due to its Tridosha stabilize property.



8.8 Curry Leaves



Murraya Koenigii-Rutaceae, Curry Leaves help to control dandruff. Its antifungal Properties help in reducing dandruff and itchiness Leaving you with a clean scalp and healthy hair. Curry leaves moisturize your scalp, promote hair Growth, and prevents dandruff. Curry leaves are Rich in cell reinforcements that saturate the scalp. While disposing the dead hair follicle, helps in Preventing hair fall, premature hair graying, and Dandruff.(2)

8.9 Senna Extract (6)



- Strong Hairs
- Great Conditioner
- Combats Hair Loss

8.10 Gelatin



- Gelatin Can improve hair thickness and growth.
- Gelatin supplement or placebo for 50 weeks to 24 people with alopecia.
- It gives thickness to hairs.
- For strengthening of Hairs.

8.11 Hibiscus

- Stimulate hair growth and lost hair volume.
- Condition hairs.
- Prevent baldness.
- Treat dandruff and itchy scalp
- Prevent premature greying.



9.METHODS OF MATERIAL

Methods Used: -

1) Soxhlet Extraction

Soxhlet extraction is a laboratory technique used to extract a target component from a solid sample

using a solvent. Time Required 4-6 hour for Reetha Extraction

2) Distillation Extraction

Distillation is a separation technique that relies on differences in boiling points to separate components of a mixture, while extraction utilizes solubility differences to achieve separation.

Extracted Ingredients:

- 1) Neem leaves
- 2) Hibiscus
- 3) Curry leaves

3) Maceration Extraction

Maceration extraction is a simple and cost-effective method of extracting active compounds from plant material by soaking it in a solvent at room temperature for an extended period.

Extracted Ingredients:

- 1) Amla
- 2) Senna
- 3) Shikakai

9.1 Preparation of extract:

About 100 g of each powdered plant materials, namely Neem, Hibiscus flower, Aloe vera, Shikakae, Liquorice, Amla, Soap nut were homogenized. The powdered material was extracted with distilled water by boiling for 4h. The extract of each plant material was separated and evaporated. Shown in tables

Ingredient	Part for	Quantity
Neem powder	Leaves	0.9 0/0
Hibiscus flower	Flower	12 0/0
Shikakai powder	Pods	22 0/0
Powder alovera	Leaves	.7 0/0
Amla powder	Fruit	25 0/0
Soap nut	Nut	20 0/0

10. Formulation of herbal shampoo:-

the Formulation of herbal shampoo was done as per the formula given in Table 1. To the gelatin solution (10%), added the herbal extract and mixed by shaking continuously at the time interval of 20 min. 1 ml of lemon juice was also added with constant stirring. To improve aroma in the formulation, sufficient quantity of essential oil (rose oil) was added and made up the volume to 100 ml with gelatin[Badi.K.A].

Table no 2- Ingredients

Sr No. Material Required Quantity Medicinal Use

Material Required	Quantity	Medicinal uses
Neem	0.5 0/0	Antibacterial agent
Soap nut extract	0.5 0/0	Foaming agent
Amla extract	0.5 0/0	Anti-dandruff agent
Shikakai extract	0.5 0/0	Detergent
Hibiscus	0.5 0/0	Conditioning agent
Bhringraj extract	0.5 0/0	Hair growth
Aloe vera	0.1 g	Moisturizing agent
Gelatin	Q. S	Gelling agent
Rose oil	Q. S	Fragrance





11. Evaluation of herbal shampoo

The prepared formulation was evaluated for product performance which includes organoleptic characters, pH, physicochemical characterization, and for solid content. To guarantee the nature of the items, particular tests were performed for surface tension, foam volume, foam stability, and wetting time using standard protocol.

11.1 Visual assessment

The prepared formulation was assessed for color, clarity, odor, and froth content.

11.2 pH determination

The pH of the prepared herbal shampoo in distilled water (10% v/v) was evaluated by means of pH analyzer at room temperature [12].

11.3 Determination of solid content percentage

The percentage of solid substance was determined by weighing about 4 g of shampoo in a dry, clean, and evaporating dish. To confirm the items, particular tests were performed for surface tension, foam volume, foam stability, and wetting time using standard protocol.

11.4 Surface tension measurement

surface tension using stalagmometer in room temperature [14].

11.5 Testing of wetting-

Wetting time was calculated by noting the time required by the canvas paper to sink completely [3]. A canvas paper weighing 0.44 g was cut into a disc of diameter measuring 1-inch. Over the shampoo (1% v/v) surface, the canvas paper disc was kept and the time taken for the paper to sink was measured using the stopwatch.

11.7 Dirt dispersion test-

To 10 ml of refined water two drops of cleanser were included and taken in a wide-mouthed test tube. To the formulated shampoo, added one drop of Indian ink and shaken for 10 min after closing the test tube with a stopper. The volume of ink in the froth was measured and the result was graded in terms of none, slight, medium, or heavy [16]

11.8 Conditioning performance evaluation-

An artificial hair tress of Indian women was received from a salon and divided into two swatches of length 10 cm approximately, weighing 5 g. The control swatch was the one without washing and the test swatch using the formulated shampoo was washed with. Each tress was added for 2 min to the combination of shampoo in water in the proportion 10:15 taken in a conical flask and washed using 50 ml of distilled water. Each tress was air dried at room temperature and the procedure was repeated for maximum of 10 times. The conditioning effect of the prepared shampoo in terms of softness and smoothness was determined using a blind touch test using volunteers of student 20 numbers selected randomly [17]. The conditioning performance of the shampoo was rated in terms of Score 1– 4 (4 - excellent, 3 - good, 2 - satisfactory,

and 1 - poor) by asking all the selected students to touch the tress washed with prepared shampoo.

12. Characterization of Herbal Shampoo: -

pH: 1% shampoo solution was used to determine the PH by using the PH meter.

Percent of Solid: Weighed a clean dry evaporating dish and recorded the initial weight of evaporating dish. 4Gm of shampoo Formulation (not the 1% solution) was taken in the evaporating dish. Weigh the dish and shampoo and record Initial weight of shampoo and dish. Calculated the exact weight of the shampoo only and recorded the initial Weight of shampoo only. Place the evaporating dish with shampoo on the hot plate until the liquid portion has Evaporated. After drying, weighed the dish and shampoo solid and results were noted

Foam formation: (Shake Test) Took 50 ml of the 1% shampoo solution in 250 ml graduated cylinder and recorded the volume. Then cover the Cylinder with hand and shaken 10 times. The total volume of the contents was recorded after shaking. Calculate The volume of the foam and recorded the size of the bubbles.

Foam quality and retention: Immediately behind the shake test, time was recorded. Recorded the volume of foam at 1 minute intervals for 5 Minutes.

Surface tension: Shampoo was taken in the beaker and then slowly added distilled water. After thorough mixing of shampoo and Water the surface tension was uniform by using stalagmometer.

Skin irritation test: the solution of prepared shampoo on skin and kept for 5 minutes and observed for redness of skin and Irritation there,

were no any red colouration and the irritation to the skin.

Visual stability: To prepared shampoo was tested for the visual stability for 21 days at room temperature with relative humidity 65+_5, and observed for color change and PH There were no changed in color and PH of shampoo within 21 Day and no any phase separation between oil and water.

Viscosity: Viscosity was determined by using the Ostwald viscometer. 8

Dirt dispersion test: To 10 ml of purified water two drops of cleanser were included and taken in a wide-mouthed test tube. To the Formulated shampoo, added one drop of Indian ink and shaken for 10 min after closing the test tube with a Stopper. The volume of seal in the froth was measured and the result was graded in terms of none, slight, medium, or heavy Testing of wetting- Wetting time was calculated by noting the time required by the canvas paper to sink Completely. A duck paper weighing 0.44 g was cut into a disc of diameter measuring 1-inch. Over the shampoo (15)

13. Observation Table :-

Evaluation test	Formulated shampoo
Colour	Dark brown
Transparency	Clear
Odour	Good
Foam type	Dense smell
Wetting time	120 s

14. RESULT: -

The shampoo was formulated by admixing the equal amount of the aqueous extracts of all the ingredients and the above plant extract contains natural surfactant having detergent property and foaming property . An ideal shampoo must have



adequate viscosity and many natural substances possess good viscosity. the gelatin solution (10 0/0) behaves as a pseudoplastic forming clear solutions. Rose oil (q. s) added to the shampoo

14.1 Visual Assessment

Colour	Dark brown
Clarity	Turbid solution
Odour	Good

14.2 pH determination

Ph	5.5
----	-----

14.3 Determination of solid content percentage

Per 4gm	0.9gm
---------	-------

14.4 Surface tension measurment

Surface tension	35dyne/cm
-----------------	-----------

14.5 Testing of wetting

Time	120sec
------	--------

14.6 Dirt dispersion test

- No ink accumulated in the foam

CONCLUSION

The present study was point out with the object of preparing the herbal shampoo That reduces hair loss promote growth and strength of hair . Herbal shampoo was Formulated with the aqueous extract of medicinal plants that are commonly used For cleansing hair traditionally. Herbal Cosmetic have been more popular in the personal care industry, And There is a high demand for them everyday life.

REFERENCES

1. Ishii MK. Objective and instrumental methods for evaluation of hair care product efficacy and

substantiation of claims. In: Hair and hair care. New York: Marcel Dekker, Inc; 1997. p. 261-302(1)

2. Arora, P., Nanda, A., Karan, M. 2011. Shampoos based on synthetic ingredients vis-à-vis shampoos based on herbal ingredients: A review. Int. J. Pharma Sci. Rev. Res. 7, pp.41(.2)
3. Suchita Gokhale¹, Ashwini H. Pawshe², Srushti P. Patil², Raj M. Pitambare and Priyam S. Pawar² 1extraction, Formulation And Evaluation Of Moringa Herbal Shampoo issn: 2320-5407 (3)
4. P. Venkateswara Rao R. Prince K. Terejamma T. Chaitanya Prasanna Kumar Desu T. Chaitanya, Prasanna Kumar Formulation and Evaluation of Herbal Anti-Dandruff Shampoo Volume 4, Issue 2, 2018,(19)
5. Shah Prachi & Dasani Sonal Preparation Of Herbello- An Herbal Antidandruff Shampoo Volume 5| Issue 2|APR-JUN|2015(7) They are large number of medicinal plant which are beneficially effect on hair and are commanlly used Spoken Sanskrit, University of Koeln, Germany.
6. Rahman, History of Indian Science, Technology and Culture at Google Books, Oxford University Press, ISBN 978-0195646528, page 145 (5)
7. Khushwant Singh, Hymns of Guru Nanak, Orient Longman, ISBN 978- 8125011613(8)
8. "Forestry :: Nursery Technologies". agritech.tnau.ac.in. (7)
9. "Tamil Nadu Medicinal plants board" (PDF). Archived from the original (PDF) on July 21, 2011.(6)
10. Balsam, S.M., Gershon, S.D., Rieger, M.M., Sagarin, E., and Strianse, S.J.: Cosmetic Science and Technology, 2nd edition, Vol-2, John Wiley
11. India, New Delhi, 2008(10)



12. Barel, A.O., Paye, M., and Maibach, H.I.: Handbook of Cosmetic Science and Technology, 3rd Edition, Informa Healthcare, New York(11)
13. Mr. Barde Gaurav ., Prof. Mali Shubhangi International Journal of Research Publication and Reviews, Vol 3, Issue 6, pp 74-81, June 2022 (4)
14. Suyog Sunil Bhagwat Dr. N. J. Paulbudhe College of Pharmacy, Formulation and Evaluation Of Herbal Shampoo 2020 IJCRT | Volume 8, Issue 9 September 2020(6)
15. Mrs.K.Sravanthi N.Kavitha, K.Sowmya, S. Naazneen , U.Vaishnavi, CH.AnilSt.Pauls college of pharmacy,Turkayamjal,Rangareddy District,Telangana,5015A Review on Formulation and Evaluation of Herbal Anti Dandruff Shampoo Volume 6, Issue 3 May – June 2021(2)
16. Suyog Sunil Bhagwat Dr. N. J. Paulbudhe College of Pharmacy, Formulation And Evaluation Of Herbal Shampoo 2020 IJCRT | Volume 8, Issue 9 September 2020 (6)
17. Mrs. K. Sravanthi N.Kavitha, K.Sowmya, S. Naazneen , U.Vaishnavi, CH.AnilSt.Pauls college of pharmacy, Turkayamjal, Rangareddy District,Telangana,5015A Review on Formulation and Evaluation of Herbal Anti Dandruff Shampoo Volume 6, Issue 3 May – June 2021 (2)
18. Jaya Preethi P., Padmini K., Srikanth J., Lohita M., Swetha K., Vengal Rao P.A Review on Herbal Shampoo and Its Evaluation Volume - 3, Issue - 4, Year – 2013(11)
19. Suyog Sunil Bhagwat Dr. N. J. Paulbudhe College of Pharmacy, FORMULATION AND EVALUATION OF HERBAL SHAMPOO 2020 IJCRT | Volume 8, Issue 9 September 2020 (6)
20. Mayank Singh , Piyush Yadav Manish Kumar Maurya, Satyam Jaiswal Nitin Yadav
21. A REVIEW ON COSMETIC products SHAMPOO 2021 IJCRT | Volume 9, Issue 1 January 2021 (5) 21) (2) Mrs.K.Sravanthi N.Kavitha, K.Sowmya, S. Naazneen , U.Vaishnavi, CH.AnilSt.Pauls college of pharmacy,Turkayamjal,Rangareddy District,Telangana,5015A Review on Formulation and Evaluation of Herbal AntiDandruff Shampoo Volume 6, Issue 3 May – June 2021 (2)
22. P. A. Cornwell first published 02 November 2017A review of shampoo surfactant technology Volume 40, Issue 1(10)
23. Dr.Kuntal Das,Nirali Prakashan,types of shampoo,first edition, feb 2020(9)
24. Mrs.K.Sravanthi N.Kavitha, K.Sowmya, S. Naazneen , U.Vaishnavi, CH.AnilSt.Pauls college of pharmacy,Turkayamjal,Rangareddy District,Telangana,5015A Review on Formulation and Evaluation of Herbal Anti Dandruff Shampoo Volume 6, Issue 3 May – June 2021 (2)
25. Jennifer Gubitosa Vito Rizzi , Paola Fini and Pinalysa Cosma Hair Care Cosmetics: From Traditional Shampoo to Solid Clay and Herbal Shampoo, A Review 31 January 2019; Accepted: 14 February 2019; Published: 19 February 2019 (8)
26. Badi KA, Khan SA. Formulation, evaluation and comparison of the herbal shampoo with the commercial shampoo. Beni-Suef Univ J Basic Appl Sci 2014;3:301-5. (12)
27. Gaud RS, Gupta GD. Practical Physical Pharmacy. 1st ed. New Delhi: C.B.S. Publisher and Distributer; 2001. p. 81-105.(13)
28. Mainkar AR, Jolly CI. Evaluation of commercial herbal shampoos. Int J Cosmet Sci 2000;22:385-91.(14)
29. Sanskrit Lexicon, Monier-Williams Dictionary (1872) (3) Klein K. Evaluation of shampoo foam. Cosmet Toilet Mag 2004;119:32-5.(15)



30. Ali HS, Kadhim RB. Formulation and evaluation of herbal shampoo from Ziziphus spina leaves extract. *Int J Res Appl Pharm* 2011;2:1802-6. (16)
31. Boonme P, Pakpayat N, Yotmanee K, Kunlawijitrungsee S, Maneenuan D. Evaluation of shampoos containing silicone quaternary microemulsion. *J App Pharm Sci* 2011;1:5963.(17)
32. Khushwant Singh, Hymns of Guru Nanak, Orient Longman, ISBN 978- 8125011613(8)
33. Klein K. Evaluation of shampoo foam. *Cosmet Toilet Mag* 2004;119:32-5.(15)
34. Sharma P.P., *Cosmetic Formulation Manufacturing and Quality Control* 3rd ed., Vandana Publication, Delhi, 2002; 644-647. (4)
35. Gaud R.S. and Gupta G.D., *Practical Physical Pharmacy*, 1st ed., C.B.S. Publisher and Distributer, New Delhi, 2001; 81-105 [7]
Umbach W., *Cosmetics and Toiletries Development, Production and Use*, 1991; 26.

HOW TO CITE: Ravi Nagolkar*, Shubham Nikas, Shivnath Samadhan Budhwat, Somesh Wanare, Shubham Gaikwad, Dr. K. R. Biyani, Formulation and Evaluation of Herbal Shampoo, *Int. J. of Pharm. Sci.*, 2025, Vol 3, Issue 6, 2915-2925. <https://doi.org/10.5281/zenodo.15709294>

