



---

## A Narrative Review on Herbal Shampoo

**Anshul Sharma, Shikha Virk**

Chandigarh College of Pharmacy, Landran Mohali 140307

Corresponding authors: anshulsharma52511@gmail.com, bassi1990shikha@gmail.com

**Abstract** The aim of the study is to formulate a pure herbal shampoo and to compare its physiological properties with marketed synthetic shampoos. The herbal shampoo was formulated by adding the extracts of *Sapindus mukorossi*, *Phyllanthus emblica* and *Acacia concinna* in different proportions to a solution. Shampoos are the cosmetics preparations that meant for cleansing the hairs by removal of the dirt grease from the hair shaft and scalp. There are different types of synthetic shampoos available in the market, but these shampoos shows many harmful effects on the hairs and scalp like dryness of hairs and hair fall. Due to these reasons herbal shampoos are formulated as an alternative to synthetic shampoos because of safe and traditionally used ingredients in them. Herbal shampoos are used for cleansing of the hairs, also smoothing of hair surface, good health of hairs, dandruff free hairs etc. therefore an attempt is made to formulate herbal shampoos that is safer in terms of health and is chemical free.

**Keywords** Herbal Shampoo, *Sapindus mukorossi*, *Phyllanthus emblica*, *Acacia concinna*

---

### 1. Introduction

Hair is an integral part of human beauty. In humans, it serves as lot of purposes like protection against external factors, sebum, apocrine sweat and pheromonas productions and thermoregulations. Hair care products are used for many purposes like cleaning, modifies hair texture, provides nourishment to hair and give a healthy look to hair.

### Herbal shampoo

Shampoos are the most widely used cosmetic products for cleansing hairs and scalp in our daily life. Herbal shampoos are the cosmetic preparations that with use of traditional ayurvedic herbs are meant for cleansing the hairs and scalp like regular shampoos. The herbal shampoos is important, as people nowadays prefer herbal products than chemical ones to enhance health.

### Benefits of herbal shampoo

- It provides shine to hairs.
- Also minimizes the loss of hairs.
- Provides a long lasting natural colour to hairs.
- It must include all natural ingredients and is chemical free.
- It wont irritate skin or scalp.

### Ideal properties of herbal shampoo

- It should effectively and completely remove dust or entrapped materials from hairs
- It should produce a good amount of foam that will satisfy physiological requirements of user.
- It should be easily removed on rinsing with water.
- It should not make hands rough and chapped.

### Advantages of herbal shampoos

- It includes all pure and organic ingredient.
- It is free from all kind of side effects.
- It doesn't include surfactant like SLS
- No animal testing
- It must be skin friendly.

## 2. Material required for the preparation of herbal shampoo

**2.1 Reetha fruit:** It is scientifically known as *sapindus mukorossi*; is a large deciduous tree of *sapindaceae* family. It is commonly known by names like soapberry, soapnut, washnut, aritha, dodan, dodani.



Figure 1: 2.1 Reetha fruit

### Properties of Reetha

- It may have antifungal activity.
- It may have antibacterial activity.
- It may have anti-protozoal activity.

### Potential Uses of Reetha for Hairs

- Reetha is a popular ingredient of many ayurvedic shampoos and cleansers.
- The dried fruit powder may be used as a foaming agent in shampoos.
- It may clean the oily secretions in the skin and might be used as a cleanser for hair and a hair tonic as it forms a natural lather.
- It may also be used for removing lice from hairs.

However, it is always best to consult your doctor and only use them if recommended.

**2.2 Amla:** *phyllanthua emblica*, also known as emblic, emblic myrobalan, myrobalan, Indian gooseberry, Malacca tree or amla .



Figure 2: Amla Fruit

**Benefits of gooseberry for hairs**

- Natural hair straightener
- It can do good for hair by making it seem smooth and silky.
- It can also be used as a herbal treatment for preventing dandruff and dry hair for over centuries in india.
- It can prevent premature greying.
- It can also act as natural hair conditioner.
- Also prevents hair problems.

**2.3 Heena leaves:** Heena is a dye prepared from lawsonia inermis, also known as heena tree, the mignonette tree and Egyptian privet. Heena can also refer to the temporary body art resulting from the staining of skin from dyes.



*Figure 3: Heena Leaves*

**Properties of heena leaf powder**

- Heena has power to cover grey hairs.
- It has antifungal and antimicrobial properties which can kill infection causing germs on scalp and hair lice.
- Heena fades away dandruff and rejuvenates the hairs from roots.
- Hydrates the hair and also helps in promoting hair growth.
- Acts as a natural hair conditioner
- Controls scalp infections and itching.

**2.4 Shikhakai:** Shikhakai also known as acacia concinna, is a shrub-like tree native to central india.



*Figure 4: Shikhakai*

**Properties of shikhakai**

- It may have anti- dandruff potential
- It may help with wound healing
- It may have anti hair fall potential
- It may be anti-inflammatory
- Antibacterial potential
- Antifungal potential
- Good antioxidant
- Help with hair fall

## 2.5 Hibiscus leaves



Figure 5: Hibiscus leaves

- stimulate hair growth and lost hair volume and luster over the years
- conditions hairs
- prevent baldness
- treat dandruff and itchy scalp
- prevents premature greying

## 2.6 Bhringraj Extract



Figure 6: 2.6 Bhringraj

- Treats baldness and help in growth of hairs
- Makes hair lustrous

## 2.7 Aloe Vera



Figure 7: Aloe vera

- 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

## 2.8 Rose oil



Figure 8: Rose Oil

- It repairs hair damage
- Improves growth of hairs
- Reduces the dandruff
- Gives fragrance to the shampoo
- 

## 2.9 Nagarmotha



Figure 9: Nagarmotha

- It is extremely useful for treating dandruff, and revitalising dull, lifeless hair.
- Regular use of the nagarmotha oil improves hair texture, adds shine and stimulates hair growth.
- By effectively alleviating stress, it also prevents hair fall and premature greying of hair.

## 2.10 Tragacanth



Figure 10: Tragacanth

- It is used for its fantastic strengthening, volumizing and conditioning properties.
- It can be a remedy to try in cases of brittle, dry, weakened, dull hairs as a substitute for conditioner or hair masks.

The gel obtained can also be used to shape the hair and create natural hairstyles.

## 3. Preparation of powder extract

The following steps are employed for formulation of Polyherbal Shampoo Powder:



- Drying : all the ingredients required for shampoo preparation are dried and grinded.
- Weighing : all herbal powders required for preparation are weighed separately.
- Size reduction: the weighed materials are subjected to size reduction using hand driven mixer individually.
- Mixing: the fine powders are mixed methodically using mixer to form a homogenous mixture
- Sieving: the mixture is passed through sieve no. 8, to get uniform size particles and reduce the lumps.
- Packing and labelling : finally, the powder was packed and labelled suitably

**Table 1:** Ingredients used for the Preparation of Powder Extract

Sr.no.	Ingredients name	Parts of plant used
1.	Reetha powder	roots
2.	Shikakai powder	fruits
3.	Heena powder	leaves
4.	Amla powder	fruits
5.	Bhringraj	leaves
6.	Nagarmotha	roots
7.	Aloe vera powder	leaves
8.	Hibiscus powder	flowers



*Figure 11: Preparation of herbal shampoo in lab*

#### Method for preparation of herbal shampoo

The following steps are involved in preparation of polyherbal shampoo:

1. Collection of materials: ingredients required for the preparation are collected and wash thoroughly and dried.
2. Weighed : ingredients are weighed individually and soaked overnight.
3. Decoction preparation : decoction of heena leaves, hibiscus leaves, aloe vera powder and amla was prepared in one part of water.
4. Filter it, by using muslin cloth. Collect filtrate.
5. Decoction of shikakai, bhringraj, nagarmotha and reetha was prepared in another part of water.
6. Filter it by using muslin cloth. Collect filtrate.
7. Mixed to each other of above filtrate with constant stirring.
8. Mixed gaur gum as thickening agent for maintenance of consistency of herbal shampoo as like semi solid nature.
9. Rose oil is added to impart fragrance to the formulation.





Figure 12: Formulation of Herbal Shampoo

#### 4. Evaluation of herbal shampoo

1. **Organoleptic evaluation:** Organoleptic evaluation includes the assessment of parameters such as color, odor, texture taste etc.
2. **General powder Characteristics:** General powder characteristics includes the evaluation of parameters such bulk density, particle size and angle of repose.
  - a. **Particle size:** Particle size affects grittiness and spreading properties of powder. Particle size is determined by using microscopy techniques.
  - b. **Angle of repose:** Funnel method: Required quantity of powder is allowed to flow through a funnel which is placed at a height of 6 cm from horizontal base. The powder is allowed to flow to form a heap over the paper on the horizontal plane. The radius and the height of the powder heap is noted down.
  - c. **Bulk density:** Bulk Density is the ratio between the given mass of a powder and its bulk volume. Dried powder is filled into a 50 ml measuring cylinder upto 50 ml mark. Then the cylinder is tapped onto soft surface from a height of 1 inch at 2 second intervals. The volume of the powder is measured. The Bulk Density is calculated by using the below given formula. Bulk density = Mass of the herbal shampoo / Volume of the herbal shampoo
  - d. **Tapped density:** The tapped density is obtained after mechanically tapping container containing the powder. Dried powder is filled into 50 ml measuring cylinder upto 50 ml mark. Then the cylinder is tapped 100 times onto soft surface. The volume of powder is measured. Tapped density = Weight of powder / Tapped volume of powder
3. **Physiochemical evaluation:**
  - a. **pH determination:** ph of the shampoo helps in minimising the irritation to eyes, enhance the quality of hairs and maintain the ecological balance of the hairs. mix 1gm of shampoo with 9ml of water and determine the ph of shampoo by using ph meter.
  - b. **Solubility test:** solubility is ability of the substance to dissolve in solvent. Solubility test is done by dissolving the sample in solvent followed by slight warming, cooling and filtering. Then the residue is weighed and note down.
  - c. **Wetting time:** canvas paper is used to determine the wetting time of shampoo. The canvas is cut into disc shape with 1 inch diameter with an average weight of 0.44g. the disc was allowed to float on surface of 1% shampoo solution and the time taken by disc to start sinking in the shampoo solution is noted as weeting time.
  - d. **Dirt dispersion:** two drops of shampoo were added in a large test tube contain 10ml of distilled water. 1drop of india ink was added; the test tube was stopered and shakes it ten times. The amount of ink in the foam was estimate as none, light, moderate, or heavy.
  - e. **Rheological or viscosity evaluations** the viscosity of shampoo was determined by using brookfield viscometer. 10ml of shampoo is taken in a beaker and spindle is dipped in it for about 5min. and then reading is taken.

- f. Foaming ability and foam stability:** cylinder shake method was used for determining foaming ability. 50ml of 1% shampoo solution was put into a 250 ml graduated cylinder and covered the cylinder with hand and shaken for 10 times. The total volume of foam contents after 1- minute shaking were recorded.
- g. Cleaning action:** About 1 g of grease is spread on non-adsorbent cotton and kept in conical flask containing 1% shampoo solution. The conical flask is shaken for 1 hr in mechanical shaker. Cotton is collected, dried and weighed. The amount of grease removed is determined by using the equation given below:
- $$DP = 100 (1 - T / C)$$
- Where,  
 C - Weight of grease in control sample  
 T - Weight of grease in test sample  
 DP-Percentage of detergency power
- h. Skin sensitization test:** this test is performed on skin of human volunteers and checks whether it irritation on skin or not.
- i. Eye irritation test:** Albino rabbits can be used for performing eye irritation test. The prepared shampoo solution is allowed to fall into eyes of six albino rabbits. The damage that is caused to rabbit's eye at different time intervals is recorded. Eye Irritation can be caused due to ulceration, swelling of eyelid, blindness and hemorrhage.
- j. Nature of hair after washes:** nature of hairs after wash can be done by collecting the responses of volunteers.

#### 4. Results and discussions

**Table 2:** Results of Tests Performed

Sr.no.	Evaluation tests	Results obtained
1.	Physical appearance	Dark Brown
2.	pH	5
3.	Percentage of solid contents	4.1%
4.	Rheological evaluations	1.92cps
5.	Dirt dispersion	light
6.	Skin sensitization	No irritation on skin
7.	Stability test	Stable after 1 month
8.	Foaming ability and foaming stability	40ml
9.	Nature of hair after washes	Soft and manageable
10.	transparency	clear
11.	odour	Good
12.	Foam type	Dense, small
13.	Foam volume	22
14.	Wetting time	100s

#### 6. Conclusion

The aim of this study was to formulate a completely herbal shampoo which is apart with the synthetic shampoo available in the market. We formulated a herbal shampoo by using plant extracts which are commonly used traditionally for their hair cleansing action across asia. All ingredients used in this herbal shampoo are safer than all chemicals present in synthetic shampoos. in this shampoo we have used sheekakai, amla, retha and other plant extracts for reducing hair loss, promote growth and strength of hairs. The ph of the shampoo was adjusted to to



retain acidic mantle of scalp to evaluate for good product performance of the prepared shampoo, many tests were performed.

### References

- [1]. Mainkar AR, Jolly CI. Formulation of natural shampoos. *Int J Cosmet Sci* .
- [2]. Aghel N, Moghimipour B, Dana RA. Formulation of a herbal shampoo using total saponins of *Acanthophyllum squarrosum*. *Iran J Pharm Res*.
- [3]. Potluri A, Asma SS, Rallapally N, Durrivel S, Harish GA. Review on herbs used in anti-dandruff shampoo and its evaluation parameters. *Indo Am J Pharm Res*.
- [4]. Shinde PR, Tatiya AU, Surana SJ. Formulation development and evaluation of herbal antidandruff shampoo. *Int J Res Cosmet Sci* .
- [5]. Firthouse PU. Effects of *Ocimum sanctum* and *Azadiracta indica* on the formulation of antidandruff herbal shampoo powder. *Der Pharm Lett* .
- [6]. Pooja A, Arun N, Maninder K. Shampoos based on synthetic ingredients vis-à-vis shampoos based on herbal ingredients: A review. *Int J Pharm Sci Rev Res*
- [7]. Kapoor VP. Herbal cosmetics for skin and hair care. *Nat Prod Radiance* .
- [8]. Sanskrit Lexicon, Monier-Williams Dictionary (1872) .
- [9]. Spoken Sanskrit, University of Koeln, Germany.
- [10]. Rahman, History of Indian Science, Technology and Culture at Google Books, Oxford University Press, ISBN 978-0195646528, page 145 © 2021 JETIR May 2021, Volume 8, Issue 5 www.jetir.org (ISSN-2349-5162) JETIR2105847 Journal of Emerging Technologies and Innovative Research (JETIR) www.jetir.org g375
- [11]. "Tamil Nadu Medicinal plants board" (PDF). Archived from the original (PDF) on July 21, 2011.
- [12]. Gaud RS, Gupta GD. *Practical Physical Pharmacy*. 1st ed. New Delhi: C.B.S. Publisher and Distributer; 2001. p. 81-105.
- [13]. Mainkar AR, Jolly CI. Evaluation of commercial herbal shampoos. *Int J Cosmet Sci* 2000;22:385-91.
- [14]. Klein K. Evaluation of shampoo foam. *Cosmet Toilet Mag* 2004;119:32-5.
- [15]. Ali HS, Kadhim RB. Formulation and evaluation of herbal shampoo
- [16]. Kothari S, Patidar K, Solanki R. Polyherbal Anti-Dandruff Shampoo: Basic Concept, Benefits, and Challenges. *Asian J. Pharm.* 2018; 12(3): S849- 58.
- [17]. Mottram F.J. Hair Shampoos. In: Butler H. (eds) *Poucher's Perfumes, Cosmetics and Soaps*. 10th ed. Great Britain: academic publishers; 1993.
- [18]. Joshi N, Patidar K, Solanki R, Mahawar V. Preparation and evaluation of herbal hair growth promoting shampoo formulation containing Piper betle and *Psidium guajava* leaves extract. *Int. J. Green Pharm.* 2018; 12(4): S835- 39.
- [19]. Pundkar A S, Ingale S P. Formulation and evaluation of herbal liquid shampoo. *World J. Pharm. Res.* 2020;9(5):901-11.
- [20]. <https://activilong.com/en/content/95-structure-composition-of-the-hair/retrieved> on 19/08/2021
- [21]. <https://www.webmd.com/skin-problems-and-treatments/picture-of-the-hair/retrieved> on 20/08/2021
- [22]. Haritha PN, Supraja P, Samreen S, Hrudayanjali, Qureshi M, Sandya P, Swetha T., A Review on Polyherbal Shampoo Powder. *Int. J Pharm Res.* 2021; 21(2): 346-63.
- [23]. Jacob Rhea, Sakthivel KM, Kannan N, Guruvayoorappan C. Formulation of cost effective herbal shampoo powder: a comparative study with market shampoos. *Int. J. Curr. Res.* 2015;7(2):12645-49.
- [24]. Patil SS, Mane YJ, Mohite SK. Formulation and evaluation of herbal shampoo powder. *Int. J. Adv. Res.* 2015;3(3):939-46.
- [25]. Pundkar A S, Ingale S P. Formulation and evaluation of herbal liquid shampoo. *World J. Pharm. Res.* 2020;9(5):901-11.
- [26]. Snehal W, Nitin K, Vaibhav B. Preparation & evaluation of antidandruff polyherbal powder shampoo.

- Pharmacophore. 2014; 5(1): 77-84.
- [27]. A. N. Kaila, Textbook of industrial Pharmacognosy, CBS publishers and distributors, New Delhi :268.
- [28]. B. M. Mithal and R. N. Saha, Handbook of cosmetics, first edition, Vallabh Prakashan 2003: 1-10,110-121.
- [29]. C. K. Kokate, A. P. Purohit, S. B. Gokhle, Pharmacognosy, 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.
- [30]. A. R. Mainkar and C. I. Jolly, Formulation of natural shampoo, International Journal of cosmetics science, 2001, 23: 59-62.