

# Review on Formulation and Evaluation of Herbal Shampoo

**Mr. Abhishek S. Chaudhari, Mr. Gaurav V. Ingole, Ms. Pranali D. Dhole,  
Dr. Abhinay Kumar Dwivedi**

Department of Pharmacognosy  
Vardhaman College of Pharmacy, Koli, Karanja (Lad), Washim, Maharashtra, India

**Abstract:** Herbal shampoos are cosmetics primarily used for hair cleansing. Multiple herbal ingredients and plant based products used in preparation of herbal shampoo according to requirement. Medicated shampoo is mixed with specific ingredients to treat specific hair problems. The study aimed to review the formulation method, ingredients and evaluation parameter of shampoo preparation. Numerous methods have been suggested to formulate and evaluate shampoo, selection and use of ingredients depends upon target and availability of formulation ingredients. Shampoos are generally used to clean dirt, make the hair lustrous shiny, promote hair growth, treatment of lice, scabies and dandruff. Shikakai, reetha, amla, neem, tulsi, lemon, orange, Aloevera, methyl, propyl paraben and sodium benzoate as preservative, citric acid could be used for pH adjustment. Evaluation of shampoo could be done by visual inspection, pH, wetting time, percentage of solid contents, foam volume and stability, surface tension, detergency, dirt dispersion etc.

**Keywords:** Shampoo, conditioning, Physicochemical properties, Formulation, evaluation

## I. INTRODUCTION

Shampoos are most commonly used as beautifying agents, and are a viscous detergent solution that includes appropriate preservatives and active ingredients. These are probably a hair care product designed to clean the scalp skin along with its hairs. The term shampoo entered the English language through India, where the Hindi word "shampoo" was used meaning to press or massage; it was used to denote cleaning through massage of the hair and skin. The development of products mainly to skin care, several cosmetic industries are focusing on hair care, with the production of safety products are paying attention to their action. For example, in recent literature the ethnicity appears as an important key factor to take into account in the clinical observation, management, and treatment of skin and hair disorders. Earlier, ordinary soap had been used for washing hair. During the early stages of shampoo, English hair stylists boiled soap in water and added herbs to give the hair shine and fragrance 2,3

Herbs:- Herbs means 'grass, or (green stack) Herbs consist of entire Plant or any Part of plant such as leaves flower, fruit, fruiting bodies, seeds, Stems, wood, bark, roots, or forms or other part which is used in various Preparation valued for their therapeutic benefits

Herbal Shampoo:- A shampoo is a preparation of a surfactant (i.e. surface active material) in a suitable form – liquid, solid or powder – which when used under the specified conditions will remove surface grease, dirt, and skin debris from the hair shaft and scalp without adversely affecting the user.

Steps for preparation of herbal shampoo-

1. Measure and prepare the ingredients in the desired proportions
2. In a mixing container, combine the surfactants and water, following the recommended ratio.
3. Gradually add the powdered amla, shikakai, and reetha to the mixture, stirring well.
4. If desired, add a few drops of essential oils for fragrance and additional benefits.
5. Mix everything thoroughly until well blended.
6. Transfer the shampoo into a suitable container for storage.
7. Label the container with the ingredients and date.
8. To use, apply a small amount of the shampoo to wet hair, lather, and rinse thoroughly.

**Ideal Properties of Shampoo:-**

1. It should effectively and completely remove dust or soil, excessive sebum or other fatty substances and loose corneal cells from the hair
2. It should produce a good amount of foam to satisfy the psychological requirements of the user.
3. It should be easily removed on rinsing with water.
4. It should leave the hair non dry, soft, lustrous with good manageability and minimum fly away.
5. It should impart a pleasant fragrance to the hair.
6. It should not cause any side-effects / irritation to skin or eye.
7. It should not make the hand rough and chapped 16-17

**Formulation of herbal shampoo :-**

The plant extracts were mixed in different proportions to obtain a shampoo whose formula Herbal Extracts were added to 10% glycerin solution and were mixed by shaking for 20 min. Methyl paraben were also added with stirring. Finally pH of the solution was adjusted by adding sufficient quantity of 1% citric acid solution. Few drops of peppermint oil were also added to impart aroma to the prepared shampoo and the final volume was made to 100 mL with glycerin solution.

**Plant Profile**

- Common name-Shikakai
- Botanical name- Acacia concinna
- Family – Fabaceae
- Synonyms –Source – Pod like Fruits

Role -It is an herb especially used for controlling hair fall and dandruff. Shikakai can be used alone or in combination with reetha and amla as a shampoo to help manage hair fall and prevent dandruff due to its cleansing and antifungal properties. It provides shine to the hair as well as prevents its greying.



Fig.01.Shikakai ,Acacia concinna

**Plant Profile**

Common name -Amla

Botanical name: Emblica officinalis Gaertn Family-Euphorbiaceae

Part-Fruits

Benefits of amla shampoo:- Provide strength the hair follicles Facilitating faster growth Prevents Hair loss Dandruff Prevention and Antiseptic property. Moisturizes Dry. Amla has anti-oxidant, anti- fungal, and anti-bacterial properties that protect the scalp and hair from different microbial infections. It makes sure that hair will remain neat and odor free. Moreover, it will rule out the problem of itchy scalp completely.



Fig.02:Amla, Emblica officinalis

**Plant Profile**

Synonym: Soapnut, Washnut

Biological Name:- *Sapindas mukoross*

Family:- Sapindaceae

Chemical Constituent:- Saponins, Sugar mucila protein

Organoleptic character:-

Colour:- Yellowish become black Odour :- Pleasant

Taste:- Sweet then bitter

Uses:- Prevent dryness, Good for hair growth, Reetha reduce dandruff, Condition the hair prevent the scalp from lice It is commonly known by many names like soapberry, soapnut, washnut, aritha, dodan, and dodani. In countries like Japan and China, Reetha has been used for centuries. In Japan, it has been used as a life-prolonging pericarp (the part of a fruit enclosing the seeds) and in China as a fruit for managing illnesses.



Fig.3. Reetha, Sapindas mukoross

**Plant Profile**

Synonym :- Gulab,rose

Botanical name- *Rosa damascene*

Family :- Rosaceae

Chemical Constituent :- Citronellol , Geraniol , Nerol

Uses & Preparation :- Relieving headache, flavoring agent. According to literature, the distillation of rose oil is a recent invention, and most attribute it to the Arabs' Alembic in the 9th century CE. Others attribute it to the alchemists of Alexandria from 50 BCE onwards. The ancient Persians are believed to have first distilled rose oil and used it in cosmetics and medicines. Rose oil is obtained by hydro-distillation of fresh rose material. It is a labor-intensive activity carried out by family farms.



Fig . 04 Rose oil, Rosa Damascena

**II. EVALUATION OF SHAMPOO**

**Physical appearance/visual inspection:** The formulation prepared was evaluated for clarity, color, odor and foam producing ability. 3

**pH:** The pH of prepared shampoo was measured by using pH meter in room temperature . **Percentage solid Content:** 4 gm of shampoo were placed in previously clean, dry and weigh the evaporating dish. the dish and shampoo weigh again then the heat of dish and liquid portion are evaporated and weigh the solid content in of shampoo

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**Dirt dispersion test:** Two drops of shampoo were added to 10 ml distilled water taken in a large test tube. To this solution one drop of ink was added and test tube was stopper and shaken ten time. the amount of ink in the foam was indicate the none, light, moderate or heavy. Surface tension measurement:

**Surface tension:** The surface tension of 10% w/v shampoo in distilled water was measure the using stalagmometer at room temperature 7,8

**Wetting time:** A canvas paper was cut into 1-inch diameter discs having an average weight of 0.44 g. The smooth surface of disc was placed on the surface of 1% v/v shampoo solution and the stopwatch started. The time required for the disc to begin to sink was noted down as the wetting time

Foam ability and stability test: Foaming or lathering is very important to the consumer and therefore, it is considered as an important parameter in evaluation of shampoo. Shikakai Essences and formulated shampoo produced the foam volume above 100 mL (115,113 ml respectively) while dove shampoo generated a foam volume of 92 mL The foams generated by formulated shampoo were small, compact, uniform, denser and stable similar to commercial samples. All tested shampoo had the same foam volume for 5 min showing that their foam has good stability.

### III. CONCLUSION

Multiple herbal ingredients and plant based products used in preparation of herbal shampoo according to requirement. Medicated shampoo is mixed with specific ingredients to treat specific hair problems. Numerous methods have been suggested to formulate and evaluate shampoo, selection and use of ingredients depends upon target and availability of formulation ingredients. Shampoos are generally used to clean dirt, make the hair lustrous shiny, promote hair growth, treatment of lice, scabies and dandruff. Shikakai, reetha, amla, neem, tulsi, lemon, orange, Aloe vera, methyl, propyl paraben and sodium benzoate as preservative, citric acid could be used for pH adjustment. Evaluation of shampoo could be done by visual inspection, pH, wetting time, percentage of solid contents, foam volume and stability, surface tension, detergency, dirt dispersion.

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