

Formulation and Evaluation Antidandruff Herbal Shampoo

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Abstract

The main objective of this study is to formulate and evaluate an Herbal shampoo which is 100% Herbal and does not show any side effect. The herbal shampoo which is chemical free shows no side effect and gives smooth, shiny, dirt-free hairs on subsequent uses. This formulation contains all the herbal ingredients like Acacia Concinna, Sapindus Mukorossi, Hibiscus Sabduriffa, Trigonella-Foenium-graecum, and Aloe Barbedensis Miller along with Castor oil, onion oil and lavender oil by saponification method. It gives foams naturally by soapnuts not by any other chemicals which can damage the hairs as well as scalp. These formulations of shampoo was evaluated by different methods like ph, percent of Solids, Foam formation: (Shake Test) , Foam quality and retention, Surface tension, Skin irritation test, Visual stability, Viscosity, Dirt dispersion test, Visual assessment, etc. 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.

Keywords: Herbal drug; Herbal drug extract; Formulation; Evaluation

Introduction

Shampoo formulation is the only one preparation for cleaning the hairs and scalp for human being. As using the mild or chemical free shampoos are prevent the hair problem like hair falls, dandruff, and unto serious problems like eye irritation, itching of skin, etc. The herbal shampoos are better to use in a day-to-day life than chemical containing shampoo. Herbal shampoos some time not gives the foams to satisfy the psychological requirement but this are cleanse the hair safely as well as scalp also by giving benefits like hair growth, prevent dandruff, shiny and glossy, thicken hairs, etc. The herbal shampoo is important, as people's now days prefer herbal products than chemical ones for they proved to enhance health of hairs. The awareness and need for cosmetics with herbs are on the rise, primarily because it is believed that this products are safe and free from side effects. A shampoo is basically a solution of a detergent containing suitable additives for other benefits such as hair conditioning enhancement, lubrication, medication etc. Now-a-days many synthetic, herbal, medicated and non-medicated shampoos are available in the market but popularity of herbal shampoo among consumers is on rise because of their belief that these products being of natural origin are safe and free from side effects.

Ideal properties of herbal shampoo [1-8]

- It should be easily removed on rinsing with water.
- It should leave the hair non dry, soft, lustrous with good manageability and minimum fly away.
- It should impart a pleasant fragrance to the hair.
- It should not cause any side effects / irritation to skin or eye.
- It should not make the hand rough and chapped.

Importance of this formulation

- The crude drugs which selected for this formulation are totally natural and improves the hairs quality.
- This formulation does not make any irritation to the eyes or the skin during cleansing of hairs.
- Clean the hairs oil as well as protects sebum also on scalp.

Objectives of this formulation

- To formulate the herbal shampoo
- To evaluate the herbal shampoo
- To reduce side effects of chemical formulation
- To improve hairs texture
- To imparting gloss to hair and to maintain their manageability and oiliness for hairs.
- To make hairs shiny and healthy
- To reduce the side effects caused by chemical containing shampoo
- To clean hairs safely

Collection of materials

The collection of material like Alovera leaf, Hibiscus, Fenugreek seeds were collected from my home Garden and rest of Collected from SMBT Campus in Dhamangaon, Nashik. The onion oil was prepared by me at home by adding 1-2 onions in coconut oil, heat them on slow flame then filter it and filtrate was collected. Castor oil and lavender oil was collected from the pharmaceuticals lab of SMBT Institute of Diploma pharmacy, Dhamangaon.

Method of Preparation

Preparation of Aloe Vera gel

- Collect the raw material.

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- Wash leaf and remove base and tip of the leaf.
- Leaf is cut into section.
- Extract mucilage part of the leaves into mixing jar
- Heat it and add agar-agar powder.
- Grinding /homogenization of unpasteurized juice

Decoction method: weighed all the ingredients as per formula. Take all ingredients like alovera, fenugreek, nutgrass, shikaki fruit, some flowers and leaves of hibiscus one by one in 1/4th quantity of water then heat them on very slow flame till the quantity become less than half of total quantity.

Maceration method: I was done the maceration method on soapnut by taking 1/4th quantity of soapnut in water. Then soak it at about 7-8 hours. Then filter it and filtrate was collected.

Saponification method: Take Castor oil, Lavender oil and Onion oil in beaker then add Pottasium hydroxide in above oils. Heat gently. And then filter to collect the Soap on surface of Whatman filter paper in the form of Solid.

Formulation of shampoo

- Mix all the ingredients as per quantity. Shikakai, Hibiscus and Fenugreek extract by decoction method. Soap nut extract by Figures 1-5 maceration method and add aloe Vera gel which directly taken from aloe leaf and grind it.
- Then add made soap of castor oil, onion oil and rose oil by saponification method.
- Then the extracts are taken as per formula and then mixed those ingredients by shaking continuously till all ingredients are mixed.
- Then added 1ml of lemon juice to maintain P^H and also as a preservative.
- Then it has added Gum Tragacanth as a thickening agent for maintained of consistency of Herbal shampoo as like semisolid nature.
- Then the three different formulation was done are F1, F2, F3.



Figure 1: Aloe Vera gel.



Figure 2: Extraction of drugs by decoction method (Hibiscus, Shikakai, & Fenugreek extract).



Figure 3: Extraction of drugs by maceration method (Soapnut).



Figure 4: Saponification of oils.



Figure 5: Herbal shampoo.

Evaluation of herbal shampoo [4-6]

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.

Visual assessment

The prepared formulation was assessed for colour, clarity, odour, and froth content.

P^H determination: The pH of the prepared herbal shampoo in distilled water (10% v/v) was evaluated by means of pH analyser at room temperature.

Determination of solid % shampoo [6]

The percentage solid content was determined by weighing about 4g of shampoo bar in evaporating dish. The weight of the dish

and shampoo was determined. The liquid portion of shampoo was evaporated by placing in heating mantle. Finally, the weight of solid contents after complete drying present in shampoo bar was calculated.

Foam stability test

The stability of the foam was determined using cylinder shake method. About 50 ml of formulated shampoo (1%) solution was taken in a graduated cylinder of 250 ml capacity and shaken for 10 times vigorously. Foam stability was measured by recording the foam volume of shake test after 1 min and 4 min, respectively. The total foam volume was measured after 1 min of shaking.

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 Tables 1-3 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.

Stability study [2]

All the formulated shampoo bars were taken and kept for stability study at room temperature (35°C) as well as refrigerator (4°C) over a period of Three months.

Limitations of herbals shampoo

- Natural products affect product uniformity, Quality control.
- Less stable, so preservatives should be added.

Result and Discussion

The shampoo was formulated by mixing the equal amount of the aqueous extracts of all the ingredients. The above plant extract contains phytoconstituents like saponins which is a natural surfactant having detergent property and foaming property. I was formulated three formulations of herbal shampoo F1, F2&F3, F2 is best formulation after the observation of evaluation test. An ideal shampoo must have adequate viscosity and many natural substances possess good viscosity.

Table 1: Herbal drugs and their properties.

Sr. No.	Name of Herbal Drugs	Biological source	Family	Uses
1.	Shikakai Fruit	Acacia Concinna	Leguminosae	Anti-Dandruff, cleanser, foaming base. [1]
2.	Soapnut	Sapindus Mukorossi	Sapindaceae	Foaming agent
3.	Hibiscus	Hibiscus subdariffa	Malvaceae	Hair growth promoter, stop hair loss
4.	Fenugreek seeds	Trigonella-Foenum-Graecum	Fabaceae	Fights dandruff
5.	Alovera leaf	Aloe barbadensis miller	Liliaceae	Conditioning and moisturizing hairs
6.	Nutgrass	Cyperus rotundus	Sedges	Strengthen hairs with shine.
7.	Onion oil	Allium cepa L	Amaryllidaceae	Ant falling agent
8.	Castor oil	castor beans	Euphorbiaceae	Hair growth promoter
9.	Lavender oil	Lavender flowers	Lamiaceae.	Antimicrobial properties

Table 2: Formulation.

Sr.No	Ingredients	Formulation F1(20ml)	Formulation F2(20ml)	Formulation F3(20ml)
1.	Shikaki Extract	3ml	4ml	4ml
2.	Soapnut Extract	5ml	4ml	6ml
3.	Hibiscus Extract	2ml	3ml	2ml
4.	Fenugreek Extract	3ml	2ml	3ml
5.	Alovera Extract	5ml	4ml	3ml
6.	Nutgrass Extract	2ml	3ml	2ml
7.	Lemon juice	q.s	q.s	q.s
8.	Saponified soap	q.s	q.s	q.s
9.	Tragacanth	q.s	q.s	q.s

Table 3: Evaluation parameter.

Sr.No	Evaluation test	Observation (Formulations)		
		F1	F2	F3
1	Visual Assessment 1.Colour 2.Odour	Brown	Brown	Brown
		Lavender like	Lavender like	Lavender like
2	pH Determination	8	7.5	7
3	Determination of Solid %	5.3%	3.2%	3%
4	Nature of Hair After Use	Smooth & Shiny	Smooth & Shiny	Smooth & Shiny
5	Dirt Dispersion	Heavy	Moderate	Moderate
6	Viscosity	Viscous	Viscous	Viscous
7	Foaming Stability	2Min.	2Min.	2Min.
8.	Stability Test	No microbial growth is observed After 3 months	No microbial growth is observed 3 months	No microbial growth is observed 2 months

Lemon juice (few drops) added to the shampoo serves as anti-dandruff agent, natural antioxidant, and chelating agent and maintains the acidic pH in the formulation.

Conclusion

The formulated shampoos were not only safer than the chemical conditioning agent but also greatly reduce the hair loss during combing as well as strengthen the hair growth. The pH of the shampoo was adjusted to retain the acidic pH of scalp the physiochemical approach used for preservation of the formulation to avoid the risk posed by chemical preservatives herbal shampoo better in performance and safer than the synthetic one will be popular with consumers.

References

1. Fatima A, Alok S, Agarwal P, Singh P P, Verma A, et al. (2013) Benefits of herbal extracts in cosmetics: a review. International Journal of Pharmaceutical Sciences and Research 4:3746.
2. Barel AO, Paye M, Maibach HI (Eds) (2014) Handbook of cosmetic science and technology. CRC press.
3. Miao EA, Rajan JV, Aderem A (2011) Caspase-1- induced pyroptotic cell death. Immunol Rev 243: 206-214.
4. Sansonetti PJ, Phalipon A, Arondel J, Thirumalai K, Banerjee S, et al. (2000) Caspase-1 activation of IL-1 β and IL-18 are essential for Shigella flexneri-induced inflammation. Immunity 12: 581-590.
5. Rakesh MR, Ashok K, Kumar SA, Amitabh T (2010) Formulation of herbal shampoos from Asparagus racemosus, Acacia concin, Sapindus mukorossi. Int J Pharm Sci Rev Res 4:39-44.
6. Google Scholar Indexed at CrossRef
7. Potturi A, Shaheda SK, Rallapally N, Durrivel S, Harish G, et al. (2013) A Review on Herbs Used In AntiDandruff Shampoo and Its Evaluation Parameters. Research Journal of Topical and Cosmetic Sciences 4:5-13.
8. Arora P, Nanda A, Karan M (2011) Shampoos based on synthetic ingredients vis-a-vis shampoos based on herbal ingredients: a review. International Journal of Pharmaceutical Sciences Review and Research 7:42-46.
9. El-Mahmood AM, Ogbonna OB, Raji M (2010) The antibacterial activity of Azadirachta indica (Neem) associated with eye and ear infections. Journal of medicinal plant Research 4:1414-142.