



Formulation and Evaluation of Herbal Anti-Dandruff Shampoo

Nitin Kumar², Abhishek Bisai², Deborah Yukti Tandi¹, Vinita Singh¹, Harish Sharma¹ and Gyanesh Kumar Sahu^{1*}

¹Rungta Institute of Pharmaceutical Sciences and Research, Kohka, Kurud, Bhilai, India

²Rungta Institute of Pharmaceutical Sciences, Kohka, Kurud, Bhilai, India

*Corresponding Author: Gyanesh Kumar Sahu, Dean and Professor, Rungta Institute of Pharmaceutical Sciences and Research, Kohka, Kurud, Bhilai, India.

Received: April 23, 2024

Published: May 19, 2024

© All rights are reserved by Gyanesh Kumar Sahu., et al.

Abstract

Dandruff is a common disorder caused by Pityrosporum yeast which affects the scalp condition. Dandruff cannot be eradicated completely but can only be managed and controlled effectively. Preparation of Herbal shampoo using the extract of Amla powder, Hibiscus (leaf), Bhringraj, Reetha, Neem, Shikakai, and Aloe gel, etc in different quantities. Evaluation of herbal shampoo conducted with Organoleptic and physical-chemical characteristics. These shampoos leverage natural extracts to deliver essential oils and nutrients to the hair follicles, stimulating the formation of new and robust while maintaining a dandruff-free scalp. It showed cleansing and detergency, low surface tension, good foam, stability, and anti-dandruff properties. The pH of herbal shampoo was found to be around 6.4 which is good for the scalp. The shampoo was quite a good product fairly producing foams. The shampoo was containing subjected to evaluation parameters such as visual inspection, pH, viscosity, percentage of solids, soil distribution, surface tension, foamability foaming stability. The primary objective of this research was to remove the detrimental synthetic component from the anti-dandruff shampoo formulation and substitute it with a secure natural ingredient.

Keywords: Herbal Shampoo; Dandruff-free; Natural Ingredient

Introduction

The most common cosmetic item utilized in our daily lives to clean our hair and scalp is certainly shampoo. Herbal shampoos fall under the category of cosmetic preparations and are primarily used to cleanse the hair and scalp with age-old Ayurvedic herbs [1]. They are primarily used to remove oils, toxins from the environment, dandruff, filth, etc, and nourish your hair easily. Herbal shampoo uses plant-based herbs as an alternative to commercially available synthetic shampoo [2]. Dandruff is a benign, persistent condition that arises when the scalp becomes dry or oily and generates white flakes of dead skin that manifest in the hair or on the shoulders. Although it is inoffensive. But dandruff can be disturbing for those who have it [3].

Causes of Dandruff

- **Malassezia:** A fungus that naturally lives on the scalp, but can overgrow and lead to dandruff in some people.
- **Diet:** A poor diet lacking in certain nutrients, such as zinc, vitamin B, and omega-3 fatty acids, can contribute to dandruff [4].
- **Stress:** Stress can weaken the immune system and lead to an increase in dandruff.
- **Seborrheic Dermatitis:** An inflammatory skin condition that affects areas rich in oil glands, like the scalp [5].
- **Hormonal Changes:** Hormonal fluctuations, such as those that occur during puberty, pregnancy, or menstruation, can trigger dandruff [6].
- **Genetics:** Some people may be genetically predisposed to having a more oily or dry scalp, which can influence dandruff [7].

Symptoms of Dandruff

- Flakes of dead skin appear on the scalp and in the hair.
- Itchy scalp.
- Dryness or greasiness of the scalp.
- Redness or irritation of the scalp [8].
- Flakes may be visible on clothing or shoulders.
- The scalp may feel tight or uncomfortable.
- Sometimes accompanied by mild hair loss [9].

Benefits of herbal shampoo

- Nourishing
- Cleansing
- Hydrating
- Balancing
- Antioxidant
- Eco-friendly [10]

Material and Methods

Following herbal ingredients are used in the formulation of herbal shampoo [11].

Table 1: List of Herbal Ingredients

S. No.	Ingredients
01.	Amla Extract
02.	Bhringraj Extract
03.	Reetha Extract
04.	Hibiscus
05.	Shikakai extract
06.	Neem
07.	Aloe gel
08.	Activated Charcol
09.	Rose Water
10.	HPMC (hydroxypropyl methylcellulose)

Description of herbal ingredients of herbal shampoo [11,12].

Table 2: Description of Herbal ingredient.

S. No.	Ingredient	Biological source	Uses
1.	Amla extract	Dried fruits of Embelica officinalis	Hair growth promoters, Make hair darker
2.	Bhringraj extract	Dried leaf of Eclipta alba	Prevent Alopecia of hair
3.	Reetha extract	Dried fruits of Sapindus mukorossi	Removing dandruff from the scalp and controlling hair fall
4.	Hibiscus	Dried leaves and flower of Hibiscus rosea	Colouring agent, Conditioning agent, foam base and Anti-dandruff
5.	Shikakai extract	Dried fruit of Acacia concinna	Promotes hair development and foam base
6.	Neem extract	Dried leaves of Azadirachta indica	Antidandruff
7.	Aloe	Fresh leaves of Aloe vera	Conditioning agent and hair growth promoter
8.	Rose water	Distillation of fresh pellets of Rosa centifolia	Provide moisture and strengthen the hair follicles

Formulation table

Table 3: Formulation table for herbal shampoo [13].

S. No.	Ingredient	Part of plant (used)	Quantity taken
01.	Amla Extract	Powder	10 gm
02.	Bhringraj extract	Leaf	5 gm
03.	Reetha extract	Powder	20 gm
04.	Hibiscus	Leaf	10 gm
05.	Shikakai extract	Powder	5 gm
06.	Neem extract	Leaf	10 gm
07.	Aloe	Leaf	20 gm
08.	Activated Charcoal	---	q.s.
09.	Rose water	Flower	q.s.
10.	HPMC	---	q.s.

Preparation of herbal shampoo

Method of preparation of extract

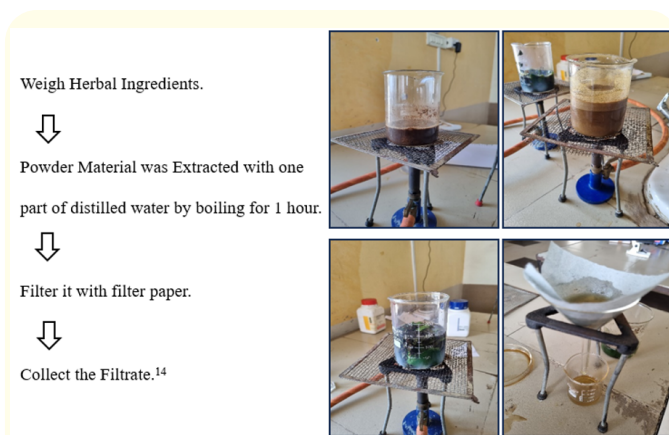


Figure 1: Extract.

Method of preparation herbal shampoo

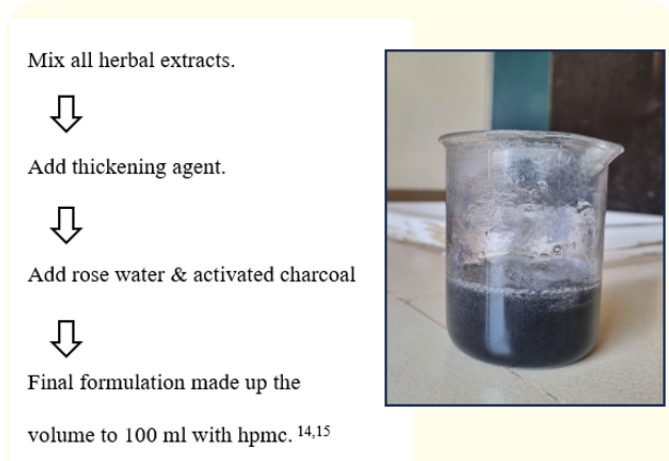


Figure 2: Final herbal shampoo formulation.

Evaluation

To evaluate and prepared formulations, several quality control tests including visual assessment, physicochemical controls conditioning performance tests were performed [16].

- Appearance - The transparency, odor, foaming ability and color of the prepared product were evaluated.
- pH determination - The shampoo solution prepared in distilled water was measured at room temperature using a pH meter [15].

- Viscosity - Viscosity of herbal shampoo was measured using a viscometer. 10 ml of shampoo is placed in a beaker, and a spindle is immersed in it for approximately 5 minutes. Subsequently, a measurement is obtained.
- Foaming and foaming stability - The entire amount of foaming after shaking for 1 min was recorded. The volume of foam is calculated. Immediately after shaking, the amount of foam shake was recorded at 1 min intervals for 4 min.
- Skin irritation - Skin irritation can be verify by applying a some amount of product to the skin and check after some minutes for local irritation or inflammatory reactions [18].

Result

Table 4: Result.

S. No.	Parameters	Observed Value
1.	Colour	Light-Black
2.	Clarity	Clear and Good
3.	pH	6.4
4.	Viscosity	12992
5.	Skin irritation	No irritation on skin
6.	Foaming ability and Foaming stability	50 ml

Conclusion

The formulated herbal anti-dandruff shampoo offers a promising solution to the persistent issue of dandruff, leveraging the power of natural ingredients to provide effective relief. Through meticulous research and development, this shampoo combines a blend of botanical extracts known for their anti-fungal and anti-inflammatory properties, targeting the root cause of dandruff while soothing the scalp. Its gentle yet potent formula not only eliminates existing flakes but also prevents their recurrence, promoting a healthier scalp environment. The formulated herbal anti-dandruff shampoo stands as a testament to the effectiveness of herbal remedies in combating common scalp issues. With its gentle yet powerful formulation, it offers a holistic approach to dandruff management, providing users with confidence and comfort in their hair care routine.

Bibliography

1. Dr. Ojash Patel, *et al.* "Preparation and evaluation of herbal antidandruff shampoo". *International Journal of Science and Research* 7 (2022): 942.
2. Potluri A., *et al.* "A review article on Formulation and evaluation of Herbal Anti-Dandruff Shampoo". *Indian jnl of Research in Pharmacy and Biotechnology* 1.6 (2013): 835-839.
3. Suriyaprakash TNK., *et al.* "A Formulation and evaluation of polyherbal shampoos for their antimicrobial and anti-lice activity". *Elixir Pharmacy* 39 (2011): 4639-4642.
4. Prachi S and Sonal D. "A research article on preparation of Herbello- an herbal antidandruff shampoo". *Biological Sciences IJPBS* 5.2 (2015): 220-228.
5. Prabhmanju M., *et al.* "An overview Herbal vs. chemical substances as antidandruff ingredients which are more effective in the management of dandruff". *Egyptian Dermatology Online Journal* 5.2 (2009): 1-8.
6. Mainkar AR and Jolly CI. "Formulation of natural shampoos". *International Journal of Cosmetic Science* 23 (2001): 59-62.
7. Shinde PR., *et al.* "Formulation Development and Evaluation of Herbal Antidandruff Shampoo". *International Jnl of research in Cosmetic Science* 3.2 (2013): 25.33.
8. Manju M Nair, *et al.* "Preparation and evaluation of herbal antidandruff shampoo". *National Journal of Pharmaceutical Sciences* 2.1 (2022): 10-16.
9. Sarath Chandra., *et al.* "Development and evaluation of antidandruff shampoo based on natural sources". *Journal of Pharmacognosy and Phytotherapy* 1 (2021): 4.
10. Chandran S., *et al.* "Development and evaluation of antidandruff shampoo based on natural sources". *Journal of Pharm Phototherapeutics* 1.4 (2013): 10-14.
11. Potluri A., *et al.* "A review article on Formulation and evaluation of Herbal Anti-Dandruff Shampoo". *Indian jnl of Research in Pharmacy and Biotechnology* 1.6 (2013): 835-839.
12. Snehal W., *et al.* "Original research paper on Preparation and Evaluation of Antidandruff polyherbal powder Shampoo". *Pharmacophore an International Research Jnl* 5.1 (2014): 77-84.
13. Santhanam J., *et al.* "A research article on Antifungal activity of Jasminum sambac against Malassezia sp. And Non-Malassezia sp. Isolated from Human skin samples". *Journal of Mycology* (2014).
14. Prachi S and Sonal D. "A research article on preparation of Herbello- an herbal antidandruff shampoo". *Biological Sciences IJPBS* 5.2 (2014): 220-228.
15. Prabhmanju M., *et al.* "An overview Herbal vs. chemical substances as antidandruff ingredients which are more effective in the management of dandruff". *Egyptian Dermatology Online Journal* 5.2 (2014): 1-8.
16. Potluri A., *et al.* "Formulation and Evaluation of Herbal Antidandruff Shampoo". *International Journal of Ayurvedic Medicine* 1.6 (2013): 835-839.
17. Sharma RM., *et al.* "Evaluation of prepared herbal shampoo formulations and to compare formulated shampoo with marketed shampoos". *International Journal of Pharmacy and Pharmaceutical Sciences* 3.4 (2011): 402-405.
18. Snehal W., *et al.* "Original research paper on Preparation and Evaluation of Antidandruff polyherbal powder Shampoo". *Pharmacophore an International Research Jnl* 5.1 (2014): 77-84.