

PREPARATION AND EVALUATION OF HERBAL SHAMPOO

Sharvari Sachin Badade¹, Dr. Nitin M Gawai.²

Mahadev Kanchan College of Pharmaceutical Education and Research, India¹

Principal, Mahadev Kanchan College of Pharmaceutical Education and Research, India²

Abstract: The present work describes the preparation and evaluation of a herbal shampoo formulated from naturally derived ingredients such as shikakai, reetha, amla and selected essential oils. The herbal materials were processed and incorporated into a shampoo formulation. The finished preparation was assessed using quality parameters including physical appearance, pH, solid content, viscosity, dirt dispersion, wetting time, skin sensitization and foaming ability. The formulation showed a pH of 5.1, 4.76% solid content and a recorded viscosity of 2.6 cP. Light dirt dispersion, a wetting time of 48 seconds, good foaming ability and no skin irritation in the reported observation were recorded. The formulation also showed physical stability during the one-month observation period. The findings indicate acceptable physical and physicochemical characteristics under the reported evaluation conditions.

Keywords: Herbal shampoo; shikakai; reetha; amla; hibiscus; aloe vera; pH; formulation; evaluation

I. INTRODUCTION

Herbal shampoos are preparations intended to cleanse the hair and scalp using plant-derived ingredients. Shikakai, reetha and amla are traditionally used in hair-care preparations, while other botanical ingredients may be incorporated to provide additional formulation characteristics. The present study focuses on the preparation and evaluation of a herbal shampoo using amla, shikakai, hibiscus, aloe vera, reetha, flax seeds and lemon oil.

The objective was to prepare the formulation and assess selected physical and physicochemical properties, including appearance, pH, solid content, viscosity, dirt dispersion, wetting time, skin sensitization and foaming ability. Previous studies have described herbal and polyherbal shampoo formulations and their evaluation using similar quality parameters [1]–[7].

II. LITERATURE REVIEW

Earlier studies have reported the formulation and evaluation of herbal shampoos prepared from plant extracts or powders. Reported investigations have considered parameters such as pH, cleansing performance, foaming characteristics, stability and general physicochemical properties [1]–[7]. More recent work has also examined polyherbal formulations containing ingredients such as hibiscus and amla [8], while other studies have evaluated herbal shampoo formulations prepared from different botanical combinations [9]. Comparative evaluation of herbal and commercial shampoos has also been reported [10]. These studies provide the background for evaluating a botanical shampoo through basic quality-control parameters.

III. METHODS AND MATERIALS

A. Materials

The formulation used amla seeds, shikakai powder, hibiscus, aloe vera powder, lemon oil, reetha powder, flax seeds and distilled water. The quantities used in the reported formulation are given in Table I.

B. Preparation of Plant Materials

The source project describes preparation of selected herbal powders by cleaning or washing the plant material, drying it, grinding it to a fine powder and sieving the powder through sieve no. 120 before use in the formulation. Hibiscus petals, shikakai pods, reetha fruits and amla fruits were processed in this manner.

C. Formulation Procedure

The ingredients were weighed according to the formulation. The herbal ingredients were boiled in water on a medium flame, cooled and filtered. Shikakai, amla and reetha powders were triturated with a sufficient quantity of water containing aloe vera powder. The resulting mixture was transferred to a beaker and 0.1 mL lemon oil was added with constant stirring. The final preparation was stored in a suitable container for evaluation.

D. Formulation Composition

TABLE I. FORMULATION COMPOSITION OF THE HERBAL SHAMPOO

Sr. No.	Ingredient	Quantity
1	Amla seeds	2 g
2	Shikakai powder	3 g
3	Hibiscus	2 g
4	Aloe vera powder	3 g
5	Lemon oil	0.1 mL
6	Reetha powder	3 g
7	Flax seeds	2 g
8	Distilled water	15 mL

E. Evaluation of the Prepared Shampoo

The prepared formulation was evaluated by physical appearance/visual inspection, pH, percentage solid content, viscosity, dirt dispersion, stability, cleaning action, foaming ability and skin sensitization as described in the source project. The reported numerical and qualitative observations are presented in Table II. No numerical detergency value or foam-stability value was reported in the source project, so these values are not added here.

For pH determination, 0.1 g of shampoo was mixed with 9 mL of water and measured at 27 °C. Solid content was determined as described in the source project. Viscosity was measured using a Brookfield viscometer. Dirt dispersion was assessed by adding shampoo and ink to distilled water and observing the amount of ink in the foam. Stability was observed through organoleptic properties during one month. Wetting time and foaming ability were also assessed using the procedures reported in the project.

IV. RESULTS AND DISCUSSION

The prepared formulation was reported as a brown, foamy and viscous liquid with characteristic odour. The measured pH was 5.1. The formulation showed 4.76% solid content, a viscosity of 2.6 cP, light dirt dispersion and a wetting time of 48 seconds. No skin irritation was observed in the reported skin-sensitization observation, and foaming ability was described as good. The formulation was also reported to remain physically and chemically stable over the one-month observation period.

TABLE II. EVALUATION RESULTS OF THE PREPARED HERBAL SHAMPOO

Evaluation Test	Observed Result
Physical appearance	Brown colour; foamy, viscous liquid
pH	5.1
Percentage solid content	4.76%
Rheological evaluation	2.6 cP
Dirt dispersion	Light
Skin sensitization	No skin irritation observed
Wetting time	48 seconds
Foaming ability	Good
One-month stability	Stable as reported

The observed pH of 5.1 falls within the mildly acidic range reported as desirable for shampoo preparations in the source project. The combination of measurable viscosity, light dirt dispersion, good foaming and a 48-second wetting time indicates that the formulation exhibited the basic physical characteristics recorded during the reported evaluation. However, because numerical detergency and foam-stability results were not provided, no quantitative conclusion is drawn for those parameters.

V. CONCLUSION

A herbal shampoo was prepared using amla, shikakai, hibiscus, aloe vera, reetha, flax seeds, lemon oil and distilled water and evaluated using selected physical and physicochemical tests. The formulation showed a pH of 5.1, 4.76% solid content, 2.6 cP viscosity, light dirt dispersion, 48-second wetting time, good foaming ability and no skin irritation in the reported observation. One-month stability was also reported. Further work may compare the formulation with marketed shampoos and provide quantitative cleansing and foam-stability data.

ACKNOWLEDGMENT

The author acknowledges Mahadev Kanchan College of Pharmaceutical Education and Research for providing support and facilities for the work.

COMPETING INTERESTS

The author declares that there are no competing interests.

AUTHORS' CONTRIBUTIONS

The author contributed to the preparation, formulation, evaluation, compilation and writing of the manuscript.

ETHICAL APPROVAL

No human or animal experimental work is reported in this study.

REFERENCES

- [1] R. Arora, K. S. Rathore and M. Bharakatiya, "Formulation and evaluation of herbal shampoo by extract of some plants," *The Pharmaceutical and Chemical Journal*, vol. 6, no. 4, pp. 74–80, 2019.
- [2] Namita and Nimisha, "Formulation and evaluation of herbal shampoo having antimicrobial potential," *International Journal of Pharmacy and Pharmaceutical Sciences*, vol. 5, pp. 708–712, 2013.
- [3] S. S. Patil, Y. J. Mane and S. K. Mohite, "Formulation and evaluation of herbal shampoo powder," *International Journal of Advanced Research*, vol. 3, no. 3, pp. 939–946, 2015.
- [4] S. Wani, N. Khot and V. V. Buchake, "Preparation and evaluation of antidandruff polyherbal powder shampoo," *Pharmacophore*, vol. 5, no. 1, pp. 77–84, 2014.
- [5] X. G. Fatima Grace, S. Rahul Raj, K. V. Sowmya, I. Reshma and S. Shanmuganathan, "Development and evaluation of a polyherbal shampoo," *Advances in Pharmaceutical and Life Sciences Research*, vol. 3, no. 1, pp. 13–16, 2015.
- [6] Y. G. Godeto et al., "Sustainable use of extracts of some plants growing in Ethiopia for the formulation of herbal shampoo and its antimicrobial evaluation," *Sustainability*, vol. 15, no. 4, p. 3189, 2023.
- [7] A. Vijayalakshmi, S. Sangeetha and N. Ranjith, "Formulation and evaluation of herbal shampoo," *Asian Journal of Pharmaceutical and Clinical Research*, vol. 11, no. 4, pp. 121–124, 2018.
- [8] A. V. Gahal, A. N. Damodar, B. K. Bongane, S. K. Gavhad and S. Solunke, "Formulation and Evaluation of Polyherbal Shampoo Using Hibiscus and Amla Extract," *International Journal of Sciences and Innovation Engineering*, vol. 2, no. 6, pp. 286–295, 2025.
- [9] S. K. Pal, S. Tiwari, S. Mishra and S. Saran, "Formulation and evaluation of herbal shampoo," *International Journal of Life Science Research Archive*, vol. 7, no. 2, 2024.
- [10] K. Al Badi and S. A. Khan, "Formulation, evaluation and comparison of the herbal shampoo with the commercial shampoos," *Beni-Suef University Journal of Basic and Applied Sciences*, vol. 3, no. 4, pp. 301–305, 2014.
- [11] N. P. Akula, "Preparation and evaluation of shampoo powder containing herbal ingredients," *Asian Journal of Pharmaceutical and Clinical Research*, vol. 8, no. 1, p. 266, 2015.