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### “Formulation and Performance Analysis of a Plant-Based Herbal Shampoo with Bhringraj and Aloe Vera”

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#### ABSTRACT:

The current study focuses on the development as well as evaluation of a plant-based herbal shampoo that includes major Ayurvedic components like Bhringraj and Aloe Vera. Additional herbal components such as Soap Nut extract, Amla, Shikakai, Hibiscus, and Rose Oil were added to improve the formulation's cleansing, conditioning, and nourishing capabilities. The major goal was to create a gentle, chemical-free shampoo with good cleansing action and positive benefits on hair and scalp health. The herbal extracts were combined in appropriate amounts, and the final shampoo formulation was tested for various physicochemical qualities; it produced a better outcome. This study supports the use of natural plant-based components as a feasible alternative to synthetic shampoo formulations, increasing hair care while minimizing negative effects.

**Keywords:** Ayurvedic, Herbal, Shampoo, Formulation, Analysis.

#### Introduction:

Consumers' preferences for herbal and natural cosmetic products have increased in recent years as they become more aware of the potential ill effects of synthetic chemicals.<sup>1</sup> Hair care, particularly shampoos, has undergone a considerable shift toward formulas based on traditional medicinal plants recognized for their therapeutic and beauty properties.<sup>2</sup> Herbal shampoos provide various benefits, including mild cleansing action, scalp nourishing, and reduced hair loss.<sup>3,4</sup>

Shampoos are most likely used for beauty. It is a hair care product used to clean the scalp and hair on a daily basis.<sup>5</sup> Shampoos are most frequently used as beauty products and are a viscous solution of detergents with appropriate additives, preservatives, and active substances.<sup>6</sup> It is normally applied to wet hair, massaged into it, and then rinsed with water. The objective of shampoo is to eliminate debris from the hair without removing too much sebum.<sup>7</sup> Many synthetic shampoos are available in the market today, both medicated and nonmedicated; however, herbal shampoo has gained popularity due to its natural nature, which is safer, improves customer demand, and is devoid of side effects.<sup>8</sup>

A shampoo is essentially a detergent solution with appropriate additives for additional benefits such as improved hair conditioning, lubrication, medication, and so on.<sup>9</sup> There are various synthetic, herbal, medicated, and non-medicated shampoos on the market today, but the popularity of herbal shampoo among customers is growing due to their perception that these products are safe and free of adverse effects.<sup>10</sup> Synthetic surfactants are added to shampoo to provide foaming and washing action, but their constant usage causes hair dryness, hair loss, and scalp and irritation to the eye.<sup>11</sup>

**Main Ingredients of Herbal Shampoo:**

Fig No. 1 Ingredients of shampoo nut, Amla, Shikakai, Hibiscus, Rose Oil, Bhringraj, Aloe Vera.

**Formulation Profile of Herbal Shampoo:**

Table No. 1 Formulation Profile of Herbal Shampoo.

Sr. No	Ingredients	Quantity
1.	Soap Nut	1 gm.
2.	Amla	0.5 gm.

3.	Shikakai	1 gm.
4.	Hibiscus	1 gm.
5.	Bhringraj	0.5 gm.
6.	Aloe Vera.	2 gm.
7.	Rose Oil	q. s.

### Desired Properties of Herbal Shampoo.

- Benefits include ease of use.
- Debris elimination,
- Easy wet combing.
- A pleasant aroma.
- Low itchiness.
- Very well kept.
- High durability.

### Procedure for Preparing of Herbal Shampoo.

1. Combine Nut extract and Shikakai extract in a 200 mL beaker and stir thoroughly.
2. Amla leaves powder and extract of hibiscus were introduced.
3. Neem, Amla, and Aloe vera extracts were added.
4. The solution was agitated for 15 minutes before adding rose oil.
5. The shampoo was produced and stored in a clear container.

### Physical Evaluation Parameter and Results of Herbal Shampoo:

Table No. 2 Physical Evaluation Parameter Herbal Shampoo.

Sr No.	Evaluation Test	Observation
1.	Color	Light Brown
2.	Transparency	Clear
3.	Oduor	pleasant
4.	pH	7
5.	Foam Volume	Up to 22 ml
6.	Foam Type	Small
7.	Surface Tension (dynes/cm)	35.01
8.	Wetting Time (s)	112 sec.

9.	Stability	Stable at Room Temp.
10.	Foamability	Good

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### Discussion:

Herbal conditioners are commonly used since they do not have side effects as compared to standard shampoos and use pure herbal ingredients rather than synthetic chemicals. Herbal shampoo does not require experiments with animals and is safe for the environment and the skin.

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### Conclusion:

The herbal shampoo was made by blending different natural ingredients. Based on the overall results, we can conclude that the herbal shampoo formulation was more beneficial. There are no chemicals introduced that are harmful to humans.

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### Conflict of Interests:

The authors declare no financial or personal interests that may have influenced the work presented in this paper.

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