



FOMULATION AND EVALUATION OF HERBAL HAIR SERUM

Ms. Khushi Johari*, Mr. Rahul Jat, Mr. B.N. Birla, Mrs. Anjali Patidar, Mr. Aman Karma

Charak institute of pharmacy, Choli Roade, Mandleshwar – 451221

Abstract: The cost increase in worldwide living standard has created a rise in demand for cosmetic products. In recent years, the beauty and personal care industry has witnessed a significant shift towards natural and herbal products. One such product that has gained immense popularity is the Herbal Hair Serum. This innovative hair care solution combines the goodness of natural ingredients with the latest advancements in cosmetic science to provide a holistic approach to hair health. Some common features and benefits of herbal hair serums are Nourishment, Miniaturization, Strengthening, Reducing Dandruff, Shine and Smoothness etc. The main objective of this study to formulate herbal hair serum using herbal ingredients and expedients like Alovera, Rose water, Almond oil to improve overall hair health and appearance using natural, herbal ingredients. We are successfully formulating herbal hair serum and evaluate many parameters like organoleptic properties, pH, Viscosity, Homogeneity and Spreadability etc. were performed. All the results are found within the standard criteria.

Keywords: Herbal, Hair Serum, Alovera, Herbal Innovation

1. INTRODUCTION:

The cost increase in worldwide living standard has created a rise in demand for cosmetic products. The importance of cosmetics has increased as many people want to stay young and attractive. Cosmeceuticals refers to the combination of the cosmetics industry with the pharmaceutical industry. Cosmetics companies produce cosmetics and pharmaceutical ones produce medicines. Cosmeceuticals are skincare products that combine cosmetics and medicines.

Serum is one of the cosmetic products with very high concentration of active ingredient in their formula for providing intensive nutrition to the deeper skin layer and non-greasy finish product which suitable for skin^[1].

Highlights of Hair Serum:

Hair serum is the styling product that coats the surface of the hair known as hair serum. It is basically a hair care product in liquid form, its consistency thicker than water. Hair serum is not just meant for hair styling. They are

also for treating multiple hair concerns like dry hair, dull hair, and unmanageable hair. There are different types of hair serums for different hair goals. Depending on the products formula, a hair serum might reduce frizz, add shine, or straighten the hair. This is silicone-based styling product that is designed to coat the surface of hair to help impart added shine, smoothness hydration, humidity and pollution protection. Intended to be used on wet hair.

Suitable types of hairs for using hair serum: ^[2]

- Straight
- Wavy
- Curly
- Coily

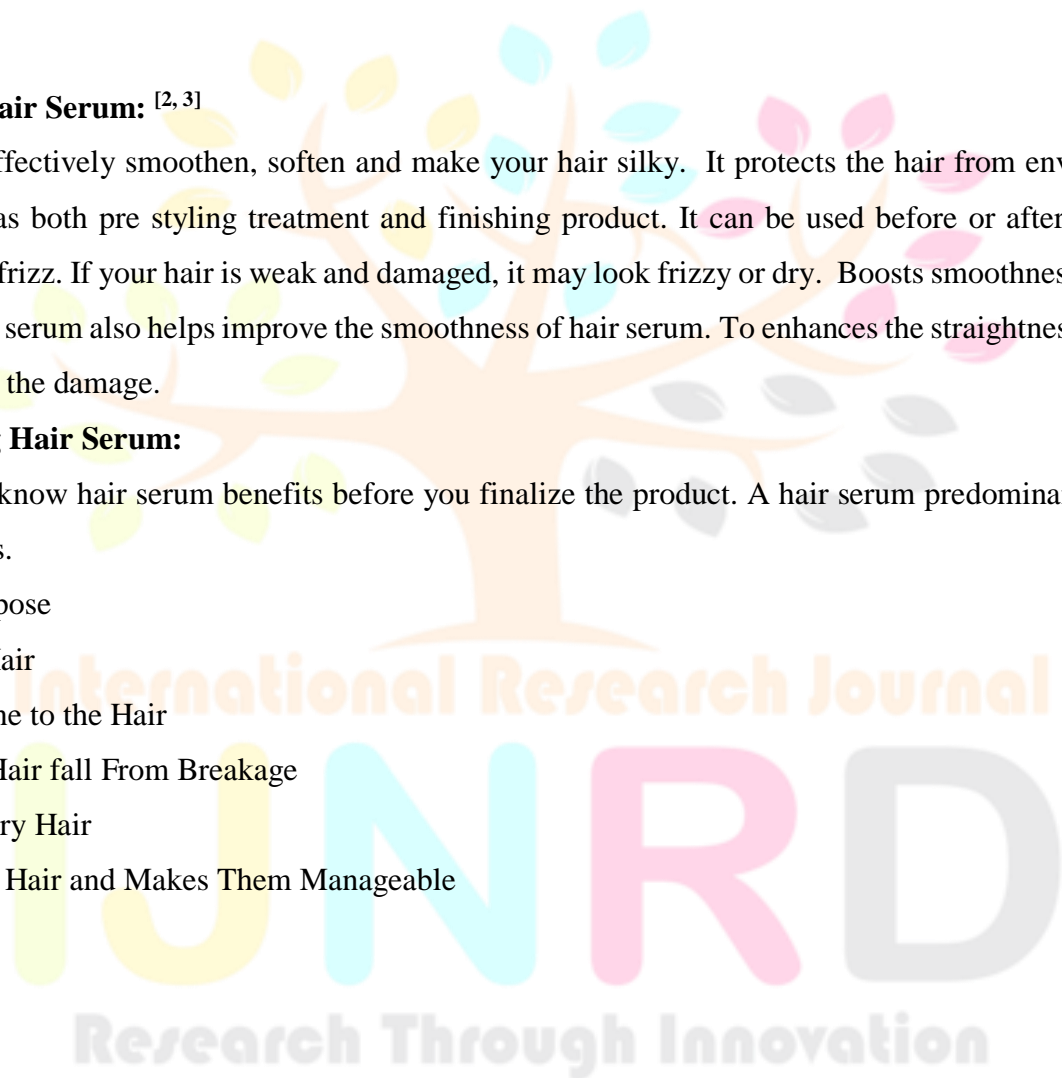
Advantages of Hair Serum: ^[2,3]

Hair serum can effectively smoothen, soften and make your hair silky. It protects the hair from environmental aggressors. Act as both pre styling treatment and finishing product. It can be used before or after using heat styling. Controls frizz. If your hair is weak and damaged, it may look frizzy or dry. Boosts smoothness. The anti-frizz effect of hair serum also helps improve the smoothness of hair serum. To enhances the straightness and curls. It protects against the damage.

Benefits of Using Hair Serum:

It is important to know hair serum benefits before you finalize the product. A hair serum predominantly has the following benefits.

- Multi-Purpose
- Protects Hair
- Gives Shine to the Hair
- Prevents Hair fall From Breakage
- Best for Dry Hair
- Nourishes Hair and Makes Them Manageable



2. PLANT PROFILE:

- **Aloevera:**



Fig no. 1: Plant of Aloevera

Botanical name	:	Aloe barbadency miller
Family	:	Asphodelaceae (Liliaceae)
Vernacular name	:	Gwar Patha or Ghrith Kumari
Taxonomic classification	:	Kingdom: Plantae Order: Asparagales Family: Asphodelaceae Genus: Aloe Species: A. Vera Class: Liliopsida

3. MATERIALS AND METHODS:

Materials:

The crude drug of Aloevera was procured from Medicinal Garden of Charak institute, and some ingredients are Purchase from different Manufacturers like Rose water from Dabar, Vitamine E From Evizen 400, Almond Oil from Raughan-E-Badam Shireen, Glycerin from Glow Glycerin. All the ingredintds used in this formulation have analytical and herbal grade.

Methods:

Clean all the glassware and dry them properly. Measure the accurate quantity of aloe vera, transfer it in beaker. Mix required quantity vitamin E in aloe vera. Now mix rose water to the above mixture of aloe vera and vitamin E. After stirring for few minutes, heat the prepared solution for few minutes. Add few drops of almond oil. Then add distilled water. After that stir the preparation with the help of magnetic stirrer. Transfer the preparation in

measuring cylinder and adjust the final volume to 30ml. Add few drops of preservatives. [Methyl Paraben]
Transfer final solution into container. All the batches of herbal hair serum are shown in table no. 1

Table 1: Formula Table of Herbal Hair Serum

Ingredients	H1	H2	H3	Role of Ingredient
Aloe vera	2.5 gm	3 gm	3.5 gm	Conditioner
Vitamin E	1 ml	1 ml	1 ml	For hair growth
Rose water	15 ml	17 ml	19 ml	Perfume
Almond oil	1 ml	1 ml	1 ml	For nourishment
Distilled water	6.5 ml	7.5 ml	8.5 ml	Vehicle
Glycerin	4 gm	3 gm	2 gm	Consistency

4. EVALUATIONS:

The following parameters are used to evaluate the prepared herbal hair serum:

- **Physical Appearance:** Physical appearance was evaluated by observation on the texture, color and smell of the formulated cosmetic serum.
- **pH:** The pH test will be determined by using Digital pH meter. Dipper of digital pH will be deep into the sample of serum formulation and the pH value will be recorded. The pH of the formulation should have acidic pH as the skin is having an acidic pH of around 4–6.
- **Homogeneity Test:** A clean and dry object glass was smeared with the hair serum, and a cover glass was sealed. The appearance under the light of some coarse particle/homogeneity was investigated. Herbal hair serum was tested by visual examination for homogeneity and tested for some lumps, flocculates, or aggregates.
- **Viscosity:** Viscosity of the formulation is determined by Brookfield Viscometer at 100rpm, using spindle type model S6 4.5 ml of the serum. The serum will placed in a big mouth container with the spindle dipped in it for about 5 minutes before the measurement.
- **Spreadability Test:** Spreadability was measured by a parallel plate process typically used to assess and measure the spreadability of semisolid preparations. One gram hair serum was pressed between two horizontal plates of dimension 20× 20 cm, the upper of which weighed 125 g. The spread diameter was measured after 1 min. Spreadability was calculated using the following formula: $S = M \times L / T$ Where, S= Spreadability, M= Weight in the pan (tied to the upper slide), L= Length moved by the glass slide, and T = Time (in sec) taken to separate the slides completely
- **Stability Test:** The herbal hair serum was kept for three months at two separate temperatures of $4 \pm 2^\circ\text{C}$ and $30 \pm 2^\circ\text{C}$, with 65% RH. Compared with the original pH and viscosity, the pH and viscosity of the herbal hair serum were determined after three months.

5. RESULTS AND DISCUSSION:

Prepared herbal hair serum was found to be pale brown in color with pseudoplastic behavior. The texture of the formulation was smooth and lubricative, and the pH was within the acceptable limit. Herbal hair serum revealed good hair growth as well as hair weight after application with minor sensitivity for the first time. The formulation was found to be stable for seven days.

➤ Physical Appearance:

The physical appearance, color, odour and texture of the prepared herbal hair serum are visually tested. Table 2 reflects the outcomes.

Table 2: Physical Appearance of Herbal Hair Serum

Parameter	H1	H2	H3
Color	Milky	Milky	Milky
Odour	Rose type	Rose type	Rose type
Texture	Smooth	Smooth	Smooth

➤ pH, Viscosity, Homogeneity and Spreadability Test:

The pH scale is used to specify the acidity or basicity of a product in order to ensure that it is safe to use. Brookfield viscometer is used to determine the viscosity of the formulation. The value obtained is recorded in table 3.

Table 3: pH, Viscosity, Homogeneity and Spreadability of Herbal Hair Serum

Parameter	H1	H2	H3
pH	5	5.2	5.5
Homogeneity Test	Good	Good	Very Good
Viscosity	216 g/cm ³	221 g/cm ³	229 g/cm ³
Spreadability Test	Easily Spreadable	Easily Spreadable	Easily Spreadable

➤ Stability Studies:

Table 4 reveals that the herbal hair serum was stable during the research time, as these serums showed no physical instability, and there was no noticeable difference in the pH before and after the study

Table 4: Stability Study of Herbal Hair Serum

S. No	Parameter	Initial	Final
1	pH	5.5	5.6
2	Viscosity	229 Pa.s	232 Pa.s

6. CONCLUSION:

One of the key advantages of herbal hair serums is their ability to promote hair growth and reduce hair fall. Ingredients like aloe Vera, ginseng, and hibiscus are known for their hair-strengthening properties. The herbal Hair serum was successfully formulated and many types of evaluation are performed. All the parameters showed that they are within the limits and since all the ingredients added have many advantages, this hair serum will help in maintaining good growth of hair, turning grey hair to black, essential nutrients needed to preserve the proper function of the sebaceous glands and support the growth of natural hair. In the personal hygiene and health care system, the use of herbal cosmetics has changed by several folds. Therefore, the herbal cosmeceuticals individual care or personal health care industry, which is actually concentrating and paying extra care on the production of herbal-based cosmetics, has a considerable glamour.

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