

# A Review on Formulation and Evaluation of Herbal Hair Serum

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**Abstract:** Hair is an essential part of a person's identity, and we use a variety of beauty products to care for it. Herbal formulations have always had good activity and little or no side effects over synthetic ones. This study aims to demonstrate the effectiveness of a polyherbal hair serum for the treatment of common hair problems such as baldness, alopecia, hair loss, grey hair, dryness, and the most common dandruff. Cosmetics are being used on an extensive basis for their various uses in day-to-day life. Mankind uses various items to enhance beauty and elegance in order to appear young and charming. Hair root activation is essential to promote hair growth and prevention of hair loss. Because of their smaller side effect and a high effective safety record, ordinary people still use herbal dyes. The purpose of this study was to use different source to make herbal hair serum for general use (hair operation). The formulated oil was analysed for its organoleptic properties, acid value, saponification value, viscosity, ph.etc. All the criteria were found to be correct and within the accepted guidelines.

**Keywords:** Aloe Vera, Hibiscus, Amala, Almond Oil, Rose Water, Vitamin E.

## I. INTRODUCTION

Hair serum is a lightweight, liquid product designed to enhance the appearance and health of hair. The demand for cosmetic items has increased as a result of the growth in living standards throughout the world. The desire of many individuals to remain youthful and appealing has led to a growth in the significance of cosmetics. The term "cosmeceuticals" describes the fusion of the pharmaceutical and cosmetics industries. Pharmaceutical firms make medications, whereas cosmetics companies make cosmetics. Cosmetics and medications are combined in skincare products called cosmetic products.<sup>1</sup>

In this formulation five ingredient use – aloe vera (it can reduce dandruff and unblock hair follicles that may be blocked by excess oil), hibiscus (to stimulate hair growth), amla (promote hair growth and strengthen hair enough to prevent breakage and fall), almond oil (protect your hair from sun damage), vitamin e (helps seal out moisture, reduce breakage, and protect the hair from damage)

a serum is a type of cosmetic product that contains a high concentration of active ingredients in its composition to provide deep skin nutrition and a non-greasy finish that is good for skin.<sup>1</sup>

### BENEFITS OF USING HAIR SERUM:

Before you finalize the product, it is important to know the benefits. A hair serum has mainly the following benefits:

#### 1) Multi-purpose

Hair serum is used to treat the various hair related problems. Few drops of hair serum make your hair shiny and silky it turns your bad day into the good day. It is one remedy to multiple hair issue.<sup>7</sup>

#### 2) Protect hair

Acts It against the heat, sun damage, dirt, dust, pollution When hair serum applied on hair it forms the thin layer on hair It protects the hair from the hair damage.<sup>8</sup>

#### 3) Shine to the hair

The layer formed by hair serum acts as a reflector of light thus making your hair look shiny. Hair serums contain amino acids that protect coloured and chemically treated hair.<sup>9</sup>

**4) Prevents hair loss from breakage**

Hair serum acts as a lubricant for such hair and makes detangling easy. And the result is less hair fall.<sup>10</sup>

**5) Nourishment of hair**

Hair serum makes hair more manageable which further makes it easy to style them. Hair serums fill the follicular gaps and revitalize brittle and damaged hair. Time and energy is saved.<sup>11</sup>

**ADVANTAGES OF HAIR SERUM:**

- 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 hair weak and damaged, it may look frizzy or dry.
- It protects against the damage.<sup>12</sup>

**PLANT PROFILE:**

**1) ALOE VERA:**



**Fig-Aloe Vera**

**SCIENTIFIC NAME:** *Aloe barbadensis* Miller

**SYNONYME:** aloe, Musab bar, kumari

**BIOLOGICAL SOURCE:** The biological source of aloe is the dried juice from the leaves of various species of the Aloe plant

**KINGDOM:** plantae

**ORDER:** asparaguses

**FAMILY:** liliaceae

**GENUS:** aloe L.- aloes

**CHEMICAL CONSTITUENTS:** Aloe vera are measure source of anthraquinone glycoside. Aloe vera contain aloin, barbaloin, aloe-emodin. The drug also contains aloetic acid I, homometallic aloes one, chrysophanic acid, chrysemminic acid, galacturonic acid, cholinesaponile, glucosamine, hexuronic acid.<sup>3</sup>

**GEOGRAPHICAL SOURCE:** Mostly found in Africa and India.

**USES:**

To make stronger hair

Improve texture of hair

Repair dead skin on the scalp

Aloe vera gel is slightly viscous & clear liquid having good moisturizing properties.

Used as an anti-inflammatory agent.<sup>4</sup>

2) **HIBISCUS:**



**Fig - Hibiscus**

**SCIENTIFIC NAME:** *Hibiscus rosa-sinensis L*

**SYNONYMES:** Rose mallow, Chinese hibiscus

**BIOLOGICAL SOURCE:** Hibiscus rosa-sinensis

**KINGDOME:** plantae

**ORDER:** malvales

**FAMILY:** malvaceae

**GENUS:** hibiscus

**CHEMICAL CONSTITUENTS:** Anthocyanins (cyanidin), Flavonoids (quercetin), Vitamins (C, B1, B2, B6), Minerals (potassium, calcium, iron),

**GEOGRAPHICAL SOURCE:** Mostly found in Asia and Africa

**USES:**

Add volumes of hair and thicken hairs

Treat the problems related to dandruff

It stops the hair loss and make healthy hair

Use as emollient trap moisture in hair and prevent dry hair freezing.<sup>3</sup>

3) **AMLA:**



**Fig –Amla**

**SCIENTIFIC NAME:** *Phyllanthus emblica*

**SYNONYME:** amla, Indian goose berry

**BIOLOGICAL SOURCE:** it is dried and fleshy fruits of *Phyllanthus emblica* Linn

**KINGDOME:** plantae

**ORDER:** malpighiales

**FAMILY:** phyllanthaceae

**GENUS:** *Phyllanthus*

**SPECIES:** *emblica*

**CHEMICAL CONSTITUENTS:** Ascorbic acid, vitamin ellagitannins, emblicanin A

-Amla fruits are also rich in mineral matters like phosphorus, iron and calcium. It contains appreciable amount of pectin. Amla fruits are also rich in mineral matters like phosphorus, iron and calcium. It contains appreciable amount of pectin.<sup>3</sup>

**GEOGRAPHICAL SOURCE:** Mostly found in India and Sri Lanka

**USES:**

It used for nourishing the scalp

Strengthens hair and root

It is used as hair growth remedy Amla fruits are largely used in Indian medicines.

It is riches with vit E that enhance the blood circulation to the scalp Provide sufficient fresh oxygen to hair follicles.<sup>4</sup>

#### 4) ALMOND OIL:

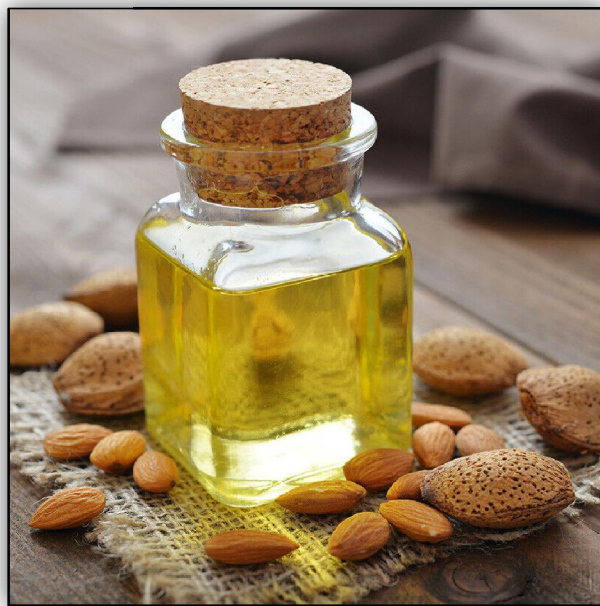


Fig - Almond Oil

**SCIENTIFIC NAME:** *Prunus Amygdalus dulcis*

**SYNONYM:** *Prunus Amygdalus*, sweet almond oil, dulcis

**BIOLOGICAL SOURCE:** Almond oil is extracted from the kernels of sweet almonds (*Prunus dulcis*), which are the edible seeds of the almond tree.

**KINGDOME:** plantae

**ORDER:** Rosales

**FAMILY:** Rosaceae

**GENUS:** prunus

**CHEMICAL CONSTITUENTS:** Fatty acids: Oleic acid (55-85%), Linoleic acid (20-35%), Palmitic acid (5-10%), Stearic acid (2-5%), vitamin(e.g., beta-sitosterol), Volatile compounds (e.g., benzaldehyde, linalool)

**GEOGRAPHICAL SOURCE:** Mostly found in Spain and Italy

**USES:**

Applying almond oil topically helps slow down the aging process and shield skin from sun damage.

Almond oil can help with cellular defence by minimizing UV-induced DNA damage and averting the potential chemical and structural alterations.<sup>5</sup>

### 5) ROSE WATER:



**Fig – Rose Water**

**SCIENTIFIC NAME:** *Rosa damascene water*

**SYNONYM:** Rosa gallica var,damascena, Rosa moschata var,

**BIOLOGICAL SOURCE:** Rose water is obtained through steam distillation of fresh flowers of Rosa damascena, commonly known as Damask rose.

**KINGDOME:** plantae

**Order:** rosales

**FAMILY:** Rosaceae

**GENUS:** rosa

**CHEMICAL CONSTITUENTS:** Flavonoids, Tannins,Vitamins (B and C), Minerals(Ca, Mg, K)

**GEOGRAPHICAL SOURCE:** Mostly found in India and Iran

**USES:**

Anti-inflammatory

Moisturizer

Hair shine

6) VITAMIN E:



**Fig Vit E Capsule**

A vitamin E-rich oil can aid in regaining shine by strengthening the barrier. Generally speaking, oil minimizes breakage, seals in moisture, and shields hair from damage. Given that vitamin e includes naturally occurring antioxidants that may promote hair development, it may help maintain a healthy crown and hair. Antioxidants and vitamins can less the number of free radicals and oxidative stress that cause the hair follicle cells in one's crown to deteriorate.<sup>6</sup>

**FORMULATION TABLE:**

Sr no.	Ingredients	Quantity required	Role of ingredient
1	Aloe Vera	3gm	Conditioner
2	Hibiscus	5gm	Hair growth stimulator
3	Amla	4gm	Antioxidants
4	Almond Oil	1 ml	Nourishment
5	Rose Water	17ml	Perfume
6	Vitamin E	1ml	Hair growth
7	Methyl paraben	Q. S	Preservative
8	Distilled water	Q. S	Solvent

**FORMULATION OF HERBAL HAIR SERUM:**

Wash the all glassware's and dry it

All ingredients are wight accurately amla powder, hibiscus powder, aloe vera, almondoil, rose water and vit e

Take amla and hibiscus powder in beaker with sufficient amount of water and heat the mixture in water bath with continuous stirring till both the powders are miscible

Cool the mixture and add the aloe vera and vitamin e in given mixture and stir the mixture continuously

Then rest the mixture for five minutes and add the rose water and methyl paraben in given mixture

The serum is made up to 25 ml with distilled water

Filter the serum and transfer it into the spray bottle and store it in dry place.<sup>13</sup>

### EVALUATION PARAMETER OF HERBAL HAIR SERUM:

#### 1) APPEARANCE

- Physical appearance was evaluated by observation.
- It includes the texture, colour, and smell, consistency, are studied of herbal serum.<sup>14</sup>

#### 2) PH TEST

- The PH test is studied using various buffer solutions
- The tests are performed by using the digital PH meter
- The electrode of digital PH meter was dipped in the herbal hair serum formulation and the PH value is detected
- It should have the acidic PH because the PH of skin is acidic about the 4-6.<sup>14</sup>

#### 3) HOMOGENECITY TEST

- A clean and dry Petri dish was smeared with the hair serum and it covers with the glass seal • The appearance of herbal hair serum was observed under the light
- Check the homogeneity of particles present in the herbal serum
- Herbal hair serum tested by visual examination for homogeneity and tested for some lumps and flocculates.<sup>15</sup>

#### 4) VISCOSITY:

- The viscosity measurement was performed with spindle number 64 on a Brookfield viscometer at 100rpm
- The serum was placed in viscometer for 5-10 min before the measurement.<sup>16</sup>

#### 5) SPREADABILITY TEST

- Spread ability was measured by a sandwiched between the parallel plate process this method is used for semisolid preparations
- 2gm herbal serum will press in between the two horizontal plates of dimensions of 20 x 20cm
- The spreader diameter was measured after the 1 min.
- The spread ability was calculated by using the formula.<sup>16</sup>

$$S = M \times L / T$$

Where the, S = spread ability

M = weight in the pan

L = length moved by the glass slide

T = time taken to separate the slide completely

#### 6) STABILITY TEST

- The herbal serum was kept in various temperature for specific time period
- The test is used for the determine the stability of chemical constituents of product
- The results are then compared with the original PH and viscosity which are determined after the three months.<sup>15</sup>

## II. CONCLUSION

The herbal hair serum has been successfully formulated and was evaluated by trial and error. Produced medicinal plant hair serum provides various critical nutrients which are essential for maintaining healthy hair and scalp condition, according to research and presented results. This contains natural components that help take care of the hair and development. Antioxidant properties of herbs components including Amala powder, hibiscus powder and vitamin E work mainly by stopping premature graying of hair. Almond oil are effective hair growth stimulants. Hibiscus powder can also be used as a dye in that case. Compared to synthetic chemicals the components are not dangerous. Human days are now really interested in herbs. Because of its strength, effectiveness and increasing use in cosmetics, medicinal plants the business has a promising future.

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