

# Formulation and Evaluation of Herbal Hair Serum

Pratiksha B. Deshmukh<sup>1</sup>, Rutuja R. Khatode<sup>2</sup>, Shital Gaikwad<sup>3</sup>

Bachelor of Pharmacy, Samarth Institute of Pharmacy, Belhe, Pune, India<sup>1,2,3</sup>

**Abstract:** *In the mammalian system, the hair follicle is known to be the most significant organ that determines appearance, gender distinction, give violent temperature protection, and plays a part in tone- defense. The youngish generation have begun to suffer from extreme hair loss problems due to numerous life- related changes similar as fatigue, anxiety, input of junk foods, use of diiferent hairstyling/ coloring styles, etc. The loss of hair isn't temporary in utmost cases, but it results in alopecia. numerous people suffering from hair loss are in hunt of multiple treatments due to extreme anxiety and pressure, from tradition to traditional and remedial mending to the use of minoxidil and finasteride. To ameliorate hair growth and to help hair loss, hair root activation is needed. Herbal dress are still generally used by average citizens because of smaller side goods and lesser protection and safety profile. The present study was intended to use different sauces to formulate herbal hair serum for general purposes (hair operation).*

**Keywords:** Citrus Sinensis, flaxseed, Nigella sativa, Zingiber officinale, castor oil painting, Trigonella foenum- graceum, Hibiscus.

## I. INTRODUCTION

It's a cyclical medium involving hair shaft conflation, extension, and eventually shedding. Human hair generally comprises follicles of anagen, catagen, and telogen phases. Imperfect antioxidants defense or inflated expression of reactive oxygen species has been reported to dispose to oxidative stress, which is believed to play a significant part in numerous inflammation skin diseases. Citrus sinensis has remarkably positive results on hair. Diurnal use can make the hair smoother and brilliant with these peels. They are filled with antioxidants and help to treat the detriment caused by adulterants as well. The richest factory source of the omega-3 adipose acid is flaxseed, i.e., "α-linolenic acid" (ALA). Flaxseed oil paintings is low in impregnated adipose acids, high in monosaturated adipose acids, and rich in polyunsaturated adipose acids. Nigella sativa (NS) is an periodic flowering factory native to the Mediterranean countries, Pakistan, and India, generally known as black cumin. The crucial pharmacologically active factors of NS are thymoquinone ( TQ), dithymoquinone ( DTQ), thymohydroquinone ( THQ), and thymol ( THY) Fenugreek seed excerpt contains a salutary supplement that also contains micronutrients similar as B- vitamins, antioxidants, and trace rudiments that are also present in the hair. Fenugreek ( Trigonella foenum- graceumL.) is a leguminous condiment. Fenugreek is native to Southern Europe, Western Asia, and the Mediterranean region. Castor oil painting, also known as Ricinus communis, is a vegetable oil painting that's rich in nutrients and comes from castor sap.

## II. MATERIAL AND METHODS

### 2.1 Citrus sinensis

Figure 1 Citrus sinensis is use for long and strong hair, reduce hair fall, hair growth, anti dandruff, help greying of hair, limp hair, UV protection hair care, control sebum creations. Citrus sinensis, generally known as orange or sweet orange, is a small evergreen tree firstly domesticated in tropical asia. Its both antiseptic & anti-inflammatory, which makes it perfect for those prone to dandruff and other crown issue.



**Fig 1: Citrus sinensis**



**Fig 2: Zingiber officinale**

### 2.2 Zingiber officinale

Figure 2 Ginger ( Zingiber officinale) has been traditionally used to check hair loss and stimulate hair growth. Several companies produce shampoo containing an extract of ginger claimed to have anti- hair loss and hair growth creation parcels.

### 2.3 Linum usitatissimum

Figure 3 Flax( Linum usitatissimum) is an periodic factory of the linaceae family with several natural parcels similar as an circular effect on hair regrowth through the conciliator of Y- glutamyl.

### 2.4 Nigella sativa

Figure 4 Black seed OilPainting was effective enough in promoting hair growth. Indicated that an herbal hair oil painting containing nigella sativa redounded in hair fallout of over to 76%.



**Fig. 3: Linum usitatissimum**



**Fig. 4: Nigella sativa**

### 2.5 Trigonella foenum- graceum

Figure 5 Seeds are constantly used as a natural home remedy for thinning hair and other affiliated conditions, similar as dandruff or a dry, itchy crown. Beauty publication and other popular media sources claim that there are the secret to growing thick, candescent hair.

### 2.6 Hibiscus Powder

Figure 6 Stop hair loss. Make your hair look healthy and lustrous. help unseasonable graying. Thicken hair and add volume. Treat dandruff. Condition against ringlet, blankness, and breakage. help split ends.



**Fig 5: Trigonella foenum-graceum**



**Fig 6: Hibiscus**

### 2.7 Castor oil

Hydrate and moisturize your hair beaches. Like other natural canvases , castor oil painting provides hydration to your hair and crown. Healthy and candescent hair. Has antibacterial and antifungal parcels. Rich in vitaminE.Boost hair growth.

### 2.8 Vitamin E:

Vitamin E may help support a healthy crown and hair as it has natural antioxidant goods that could help with maintaining hair growth. The vitamins antioxidant parcels could help reduce quantum of oxidative stress and free revolutionaries that beget the hair follicle cells in a persons crown to break down

### 2.9 Formulation Herbal Hair Serum

#### A. Collection of Plant Part

For the medication of herbal hair serum, colorful factory accoutrements were collected viz., Citrus sinensis, Linum usitatissimum, Nigella sativa, Zingiber officinale, and Trigonella foenum- graecum, Hibiscus greasepaint from the medicinal factory Garden of Samarth Institute of Pharmacy, Belhe, Junnar, Pune, India.

#### B. Formulation

1. All fresh sauces, similar as Citrus sinensis peel, Zingiber officinale roots, Linum usitatissimum seeds, and Nigella sativa, Trigonella foenum- graecum, Hibiscus greasepaint were specifically counted and allocated in 500 ml of water.
2. The content appertained to over were boiled for 15 min.
3. They were permitted to cool after 15 twinkles of boiling and also filtered.
4. Castor oil painting and vitamin E were added to filtrate.
5. Subsequently, the set serum was kept in a spray bottle.

#### C. Formulation Table

Ingredients	Plant Part	Quantity %
Citrus sinensis	Peel of fruit	70
Zingiber officinale	Peel of fruit	5
Linum usitatissium	Root	5
Nigella sativa	Seed	8
Trigonella foenum-graceum	Seed	10

Hibiscus	Powder	5
Castor oil	-	0.5
Vitamin E	-	

**Table 1:** Formulation

### III. EVALUATION OF HERBAL HAIR SERUM

#### Physical Appearance

The physical appearance, color, and feel of the set herbal hair serum are visually tested.

#### 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.

#### pH Test

Viscosity The pH cadence was calibrated using pH 4 and pH 7 buffer results. also, the electrode was soaked in the hair serum and left until the pH regularized after a many twinkles.

#### Viscosity

The density dimension was performed with spindle number 6 on a Brookfield viscometer (RVDV- II PRO). In the teacup, 50 ml of hair serum was placed, and the density was measured at colorful rpm, i.e., 10, 20, 50, 100.

#### Spreadability

Spreadability was measured by a resemblant plate process generally used to assess and measure the spreadability of semi-solid medications. One gram hair serum was pressed between two vertical plates of dimension 20 × 20 cm, the upper of which counted 125 g. The spread periphery was measured after 1 min. Spreadability was calculated using the following formula

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

Where, S = Spreadability, M = Weight in the visage (tied to the upper slide), L = Length moved by the glass slide, and T = Time( in sec) taken to separate the slides fully.

#### Stability

The herbal hair serum was kept for three months at two separate temperatures of  $4 \pm 2$  °C and  $30 \pm 2$  °C, with 65 RH. Compared with the original pH and density, the pH and density of the herbal hair serum were determined after three months.

### IV. RESULT AND DISCUSSION

#### Physical Appearance

It was observed that the color of all the herbal hair serum was pale brown with a translucent look, which on the operation was set up to be smooth.

#### Homogeneity

By visual examination of the appearance and presence of any lumps, flocculates, or summations, the produced herbal hair serum was checked for unity. The unity of set serum has been shown to be fine.

#### Rheological Study

The rheological examination of set herbal hair serum was conducted, and it was observed that density was reduced as the shear rate increased. The pseudoplastic inflow was also described, which is a salutary trait for topical herbal hair serum since it guarantees optimum area content upon operation.

### **pH Determination**

The pH of the whole herbal hair serum was 7.3, which was sufficient for the hair, suggesting that the herbal hair serum was suitable for the hair.

### **Stability Studies**

The herbal hair serum was stable during the exploration time, as these serums showed no physical insecurity, and there was no conspicuous difference in the pH ahead and after the study.

### **V. CONCLUSION**

Results have shown that herbal hair serum provides colorful essential nutrients demanded to save the proper function of the sebaceous glands and support the growth of natural hair. In the particular hygiene and health care system, the use of herbal cosmetics has changed by several crowds. thus, the herbal cosmeceutical individual care or particular health care assiduity, which is actually concentrating and paying redundant care on the product of herbal- grounded cosmetics, has a considerable clamor.

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