



# REVIEW ON DEVELOPMENT AND EVALUATION OF HERBAL HAIR SERUM

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**Abstract-** Today, humanity uses various products to enhance beauty and elegance and look youthful and attractive. In mammalian systems, hair follicles are known to be the most important organs that determine appearance and sexual differentiation and strong thermal protection and protection. This generation is beginning to suffer from extreme hair loss. This is due to many life-related changes such as: Examples: using different hairstyling/coloring styles, eating junk food, fatigue, etc. Hair is one of the most important parts of the body with protective functions. The main objective of the current research is to develop an herbal hair serum for general purpose only. Herbal supplements are still commonly used by average people because they have fewer side effects are less safe, and have less protective effects. Current reviews found the herbal formulation to be effective in improving hair consistency.

Average citizens still use herbal preparations for lower side effects and safety profile and lower protection. A current review has shown that herbal preparations are effective in increasing hair consistency.

**Keywords:** Citrus sinensis, Flaxseed, Castor oil Painting, Cosmetic, Herbs, Effective ,etc.

**Introduction-**The increasing price of hair serums due to global living standards has increased the demand for cosmetics. Human hair commonly affects attachment to the anagen, telogen, and catagen phases of many inflammatory skin diseases. More and more people want to say that young and attractive cosmetic companies make cosmetics, and pharmaceutical companies make medicine, and the importance of cosmetics is increasing.

Cosmeceutics are skin care products that combine cosmetics and medicine. The hair serum is one of the cosmetic products with a very high content of active ingredients that nourishes the deeper skin layer and provides a suitable non-greasy final product for the skin. Citrus Synensis, Zingiber officinale, Nigella sativa, hibiscus, almond oil, vitamin E, aloe Vera, rose water, these are the ingredients of the hair serum

Citrus Synesis, has amazing benefits for your hair. When used daily, these scrubs will make your hair smoother and shinier. Nigella sativa is a period-flowering plant native to Mediterranean countries and India, commonly known as black cumin. Castor oil painting, also known as castor oil. Almond oil helps with its hair-nourishing and skin-softening properties.

## **HIGHLIGHT OF HERBAL HAIR SERUM-**

Hair serum is a styling agent that coats the surface of the hair. Hair serum is a liquid hair care product. It's thicker than water. Hair serums are silicone-based styling products that coat the surface of your hair to give it extra shine, moisture, and softness.

Hair serums are applied to wet hair, which is suitable for using hair serums.

1]Straight

2]Wavy

3]Curly

4]Coily

## **ADVANTAGE OF HAIR SERUM –**

- 1]Protects hair from environmental influences.
- 2] Hair serum can effectively soften, smooth and smooth hair.
- 3) Control frizz.
- 4) Increase smoothness.
- 5) Improve straightness and sharpness
- 6) To protect against damage

## **DISADVANTAGE OF HAIR SERUM**

If you continue to use it for a few days, your hair will become heavy, flat and lack luster.

Accumulation on the scalp can cause dryness, peeling, and skin irritation.

## **SIDE EFFECT OF USING HAIR SERUM –**

1. Normal use and excessive use can cause problems Hair becomes unhealthy and eventually becomes dry.
2. This is what happens when you apply serum to your scalp For inflammation.
3. The silicone contained in hair serum is Long hair is harmful to your hair.
4. Avoid applying to the scalp as much as possible. It can become oily and cause inflammation.

## **BENEFITS OF USING HAIR SERUM-**

To know the benefits of hair serums before finalizing your product. The main benefits of hair serum are as follows:

- 1) Protect your hair- Hair serum forms a layer on top of your hair. Therefore, it provides excellent protection against heat, sunlight, damage, dirt, dust and environmental pollution. Hair serum prevents hair damage.
- 2) Hair care- It nourishes the hair and makes it manageable. Hair serum fills the cracks in the hair follicles and nourishes brittle and damaged hair.
- 3) Multipurpose: Hair serum solves many hair problems, not just a single problem. No wonder it is called the complete solution to all hair problems. Just a few drops will nourish your hair and transform its appearance.
- 4) Adds shine to your hair. Hair serums form a layer on many hairs that acts as a light reflector, adding shine. Hair serums are made up of amino acids and protect hair that has been colored or chemically treated.

## MATERIALS AND METHOD -



**Fig1;CITRUS SINENSIS**

- ❖ **Citrus sinensis-** Citrus sinensis is used for long and strong hair to reduce hair loss, promote hair growth, prevent dandruff and prevent gray hair. Supple hair, UV cut hair care, control of sebum production. Citrus sinensis, commonly known as orange or sweet orange It is a small evergreen tree originally cultivated in tropical Asia. It has both antiseptic and anti-inflammatory properties, and that's what it is. Ideal for people prone to dandruff and other dental crown problems.

**Botanical name:** Citrus sinensis

**Family -** Rutaceae

**Synonym –** Orange or sweet orange

**Biological source –** It is obtained from the orange peel which is dried or fresh outer part of the pericarp of ripe or nearly ripe fruits of citrus sinensis.

**Chemical constituents –** limonene, (S)-linalool, pectin,

Uses – Anti-oxidant, anti-inflammatory, Orange oil as



Fig2;ZINGIBER OFFICINALE

- ❖ **Ginger-** Ginger (*Zingiber officinale*) is traditionally used to prevent hair loss and stimulate hair growth. Several Companies produce shampoos containing ginger extract that they claim prevent hair loss and promote hair growth



**Fig3:LINUM USITATISSIMUM**

- ❖ **Flax (*Linum usitatissimum*)** is a periodic plant of the family Linaceae with several natural compartments: Circulatory effects of Y-glutamyl on mediator-mediated hair growth. Applying black seed oil was effective enough to promote hair growth. This shows that it is a herbal hair oil painting

**Botanical name: *Linum usitatissimum***

**Family – Linaceae**

**Synonym- Linseed, flaxseed**

**Biological source - It consists of the dried fully ripe seeds of *Linum usitatissimum* Linn.**

**omega-3 fatty acid, lignans, etc**

**Uses – Anti-inflammatory, anti-oxidants, hair growth Stimulator**



**Fig4:NIGELLA SATIVA**

- ❖ **Nigella sativa** -The Nigella Sativa content caused more than 76% hair loss.  
Botanical name : Black cumin

**Family :Ranunculaceae**

**Synonym: Black caraway**

**Biological source: native to eastern Europe (Bulgaria and Romania) and wester Asia (Cyprus, Turkey, Iran and Iraq)**

**Chemical Constituents :** The volatile oil (0.4-0.45 %) contains saturated fatty acid which includes: nigellone that is the only component of the carbonyl fraction of the oil, Thymoquinone (TQ), thymohydroquinone (THQ )

**Uses: indigestion, loss of appetite, diarrhoea, dropsy, amenorrhoea and dysmenorrhoea and in the treatment of worms and skin eruptions.**



**Fig5:TRIGONELLA FOENUM GRASEUM**

- ❖ **Trigonella foenum-graecum**- Seeds are often used as a natural home remedy for hair loss and other related ailments such as: B. Use- Dandruff and dry, itchy crown of the head. Beauty publications and other popular media claim there's a secret to this. Thick, shiny hair will grow.

**Botanical name: Trigonella foenum-graecum**

**Family – Leguminous**

**Synonym – Methi, Methika, Alholva, Chandrika.**

**Biological Source – It is obtained from the dried seeds to Trigonella foenum-graecum.**

**Chemical constituents- Vitamin B, alkaloids, flavonoids, saponins, etc**

**Uses – Hair growth stimulant, antibacterial.**



**Fig6: HIBISCUS**

- ❖ **Hibiscus powder** - Stop hair loss. Keeps your hair healthy and shiny. Helps with abnormal graying. Add thicker hair Volume. Treats dandruff. Avoid curling, blanking, and breakage. help with split ends

Botanical name: Hibiscus Rosa sinensis

**Family – Malvaceae**

**Synonym – Hibiscus, Hibiscus mutabilis, Roselle.**

**Biological source – It is obtained from the petals of flower of Hibiscus Rosa sinensis.**

**Chemical constituents – Vit. A, C, amino acids, alpha hydroxyl acids, etc.**

**Uses – Hair growth stimulator, anti-dandruff, colouring Agents.**





**Fig7:CASTOR OIL**

- ❖ **Castor oil-** Moisturizes and moisturizes hair. Like other natural canvases, castor oil paintings moisturize the skin hair and crown. Healthy and shiny hair. Contains antibacterial and antifungal active ingredients. Rich in vitamin E. Strengthens hair. growth.

**Botanical name: Ricinus communis**

**Family – Euphorbiaceae**

**Synonym - Ricinus oil.**

**Biological source - Castor oil is the fixed oil obtained by the cold expression of the seeds of Ricinus communis.**

**Chemical constituents – 80% riconeleic acid, fatty acids such as isoricinoleic, linoleic, stearic and isosteric acids.**

**Uses – Hair growth stimulator, anti-dandruff, anti-inflammatory, provides required nourishment to hair**



**Fig8:VITAMIN E**

- ❖ **Vitamin E:** Vitamin E helps maintain healthy hair as it contains natural antioxidants that help maintain a healthy crown and hair. hair growth. hair growth. Antioxidant vitamin package may help reduce and release oxidative stress destroys hair follicle cells on the top of a person's head

#### Formulation table-

Ingredient	Plant parts	Quantity%
Citrus sinensis	Pill of fruit	70
Zinziber officinale	Pill 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	-	-

#### Herbal hair serum formulation-

##### A. Collecting plant parts

Colorful factory items such as citrus sinensis and flax were collected for the production of herbal hair serum. usitatissimum, Nigella sativa, Zingiber officinale, Trigonella foenum-graecum, hibiscus smear paint Medicine Factory Garden, **Samarth Institute of Pharmacy, Ghargav, Shrigonda, Ahmednagar , India.**

##### B.

#### Formulation:-

1. Citrus sinensis peel, ginger root, flax seeds, and Nigella sativa, Trigonella foenum-graecum, and Hibiscus-Fettpaint were specifically counted and assigned. 500ml of water.
2. The relevant contents were boiled for 15 minutes.
3. After boiling 15 times, let it cool and filter.
4. Castor oil and vitamin E were added to the filtrate.
5. I stored the cured serum in a spray bottle.

## Physical appearance-

- The physical appearance, colour and feel of the herbal hair serum were visually tested. Test of homogeneity A clean and dry glass slide was smeared with hair serum and the coverslip was sealed. Appearance below in light of some coarse particles/homogeneity was investigated. The herbal hair serum was tested by visual inspection homogeneity and tested for lumps, flakes or aggregates
- PH TEST -The viscosity pH cadence was calibrated using the pH 4 and pH 7 buffer results. the electrode was also wet in the hair of serum and left until the pH normalizes after many drops.
- Viscosity- Density measurements were made using a spindle #6 Brookfield viscometer (RVDV-II PRO). tea cup, Hair serum was placed in 50 ml and the density was measured by color cycles, ie. 10, 20, 50, 100.
- Spreadability- Spreadability was measured using a plate method similar to that commonly used to assess and measure spreadability of half-plants. solid drugs. One gram of hair serum was pressed between two vertical plates measuring 20 × 20 cm, upper which was 125 g. The spread circle was measured after 1 minute. Prevalence was calculated using the following method the formula ,

$$S = H \times W/D$$

Where S = scattered,

M = weight in the film (relative to the top slide),

L = length moved by the glass, and

T = time (in seconds) required for complete separation of slides.

- Solidity -The herbal hair serum was stored for three months at two different temperatures of  $4 \pm 2$  °C and  $30 \pm 2$  °C with a relative humidity of 65 °C. Compared with the original pH and density, the pH and density of the plant hair serum were determined after three months.

## 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 orange peel powder, hibiscus powder and vitamin E work mainly by stopping premature graying of hair. Castor, fenugreek and Flax seeds 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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## Reference:-

- [1]. Ruchi Tiwari, Gaurav Tiwari, Ajeet Yadav, Vadevelan Ramachanfran Development and Evaluation of Herbal Hair Serum Research Article 2021.
- [2]. Aruna V, Amruthavalli GV, Gayathri R. Hair root activation by anagen grow- a herbal hair growth serum. Dermatol & Cosmet 2019; 1(3): 56-9.
- [3]. Begum R, Begum A. Preparation and evaluation of herbal hair oil. Int J of Res and Anal Reviews 2019; 6(1): 266-9.
- [4]. Erukainure OL, Ebuehi OA, Iqbal Chaudhary M, et al. Orange peel extracts: Chemical characterization, antioxidant, antioxidative burst and phytotoxic activities. J Diet Suppl 2016; 13(5): 585-94
- [5]. Suryawanshi NC, Vijayendra Swam SM, Nagoba Shivappa N, Wanje VV. Formulation and evaluation of herbal hair gel containing fenugreek seed extract for nourishment and hair growth. Int J Sci Res Sci Technol

2019; 6(4):

- [6]. Didarshetaban MB, Pour S, Reza H. Fenugreek (*Trigonella foenum-graecum* L.) as a valuable medicinal plant. *Int J Adv Biol Biomed Res* 2013; 1: 922-31.
- [7]. <https://www.slideshare.net/ArslanTahir4/ginger-zingiber-officinale>
- [8]. Gautam S, Dwivedi S, Dubey K, Joshi H. Formulation and evaluation of herbal hair oil. *Int J Chem Sci* 2012;10(1): 349-53.
- [9]. Viswanad V, Aleykutty NA, Jayakar B, Zacharia SM, Thomas L. Development and evaluation of antimicrobial herbal formulations containing the methanolic extract of *Samadera indica* for skin diseases. *J Adv Pharm Technol Res* 2012; 3(2): 106-11.
- [10]. <https://www.healthline.com/nutrition/11-proven-benefits-of-ginger#4.-Can-help-withosteoarthritis>[https://www.researchgate.net/publication/311419729\\_Evaluation\\_of\\_leave-on\\_hair\\_serum\\_containing](https://www.researchgate.net/publication/311419729_Evaluation_of_leave-on_hair_serum_containing)
- [11]. Reddy TUK, Sindhu G, Rajesh S, Aruna B, Rani KSS. Preparation and evaluation of herbal hair oil. *Indo Am. j. pharm. Sci* 2017; 4(06): 1540-6.
- [12]. Sumangala BK, Kalpana P, Aishwarya T, Krithika G. Evaluation of herbal formulations on fungal pathogens of plants: A case study. *Acta Scientific Agriculture* 2019; 3: 122-4.
- [13]. Gautam S, Dwivedi S, Dubey K, Joshi H. Formulation and evaluation of herbal hair oil. *Int J Chem Sci* 2012; 10(1): 349-53.
- [14]. Beroual K, Maameri Z, Halmi S, Benleksira B, Agabou A, Hamdi PY. Effects of *Linum usitatissimum* L. ingestion and oil topical application on hair growth in rabbit. *Int J Med Arom Plants* 2013; 3(4): 459-63.
- [15]. Mahboubi M. *Zingiber officinale* Rosc. Essential oil, a review on its composition and bioactivity. *Clin Phytosci* 2019; 5(6)
- [16]. Shah RR, Mohite SA, Patel NR. Preparation and evaluation of polyherbal hair oil- an effective cosmetic. *Asian J Pharm Res* 2018; 8(1): 36-8.
- [17]. Suryawanshi NC, Vijayendra Swamy SM, Nagoba Shivappa N, Wanje VV. Formulation and evaluation of herbal hair gel containing fenugreek seed extract for nourishment and hair growth. *Int J Sci Res Sci Technol* 2019; 6(4): 92-103
- [18]. Schulz C, Bielfeldt S, Reimann J. Fenugreek+micronutrients: Efficacy of a food supplement against hair loss 2006.
- [19]. Didarshetaban MB, Pour S, Reza H. Fenugreek (*Trigonella foenum-graecum* L.) as valuable medicinal plant. *Int J Adv Biol Biomed Res* 2013; 1: 922-31.
- [20]. Abbas AN. Ginger (*Zingiber officinale* (L.) Rosc) improves oxidative stress and trace elements status in patients with alopecia areata. *Niger J Clin Pract* 2020; 23(11): 1555-60.
- [21]. Wijaya WH, Mun'im A, Djajadisastra J. Effectiveness test of fenugreek seed (*trigonella foenum-graecum* l.) Extract hair tonic in hair growth activity. *Int J Curr Res* 2013; 5(11): 3453-60.
- [22]. Ali BH, Blunden G. Pharmacological and toxicological properties of *Nigella sativa*. *Phyther Res* 2003; 17(4): 299-305
- [23]. Majdalawieh AF, Fayyad MW, Nasrallah GK. Anti-cancer properties and mechanisms of action of thymoquinone, the major active ingredient of *Nigella sativa*. *Crit Rev Food Sci Nutr* 2017; 57(18): 3911-28.
- [24]. Zhang Q. "Development of citrus peel ethanolic extract shampoo". *IOP ConfSer: Mater SciEng* (2019): 1-6.
- [25]. Halligudi N. Pharmacological properties of Flax seed: A Review. *Hygeia J D Med* 2012; 4(2): 70-7.
- [26]. Manjula D, Josephine JLJ, Kumari P, Banu S. Formulation and evaluation of flaxseed hair gel: A natural hairtamer. *Int J Res Pharm Chem* 2018; 8(3): 487-91.
- [27]. Saleem U, Sabir S, Ahmad B. Protective role of *Nigella sativa* in chemotherapy induced alopecia. Bangladesh
- [28]. Zhang Q. Development of citrus peel ethanolic extract shampoo. *IOP Conf Serum: Mater Sci Eng* 2019; 1-6.
- [29]. Erukainure OL, Ebuehi OA, Iqbal Chaudhary M, et al. Orange peel extracts: Chemical characterization antioxidant, antioxidative burst and phytotoxic activities. *J Diet Suppl* 2016; 13(5): 585-94.

- [30]. Zhang Q. Development of citrus peel ethanolic extract shampoo. IOP Conf Ser: Mater Sci Eng 2019; 1-6.
- [31]. Patni P., Varghese D., Balekar N. and Jain D.K. Formulation and evaluation of herbal hair oil For alopecia management. *Planta Indica*. 2(3): 27-30, 2006
- [32]. Adirajan N., Ravikumar T., SShanmugasunda Ram N. and Babu M. In vivo and in vitro evaluation of hair growth potential of *Hibiscus rosa-Sinensis* Linn. *J Ethanpharm*. 88: 235-239, 2003
- [33]. Purwal, L., Gupta, S. B. N. and Pande, M.S. Development and Evaluation of Herbal Formulations for hair growth, *E- Journal of Chemistry*, Vol-5, NO-1, 34-38,2008.
- [34]. Gloor M, Fitchtler C. The basic of protein chemistry, *J. Cosmetology*, 3, p.193-194,1973.
- [35]. Rathi V., Rathi J.C., Tamizharasi S. and Pathak A.K. Plants used for hair growth promotion: A Review. *Phcog Rev*. 2(3): 165-167,2008
- [36]. Price VH. Treatment of hair loss. *N Eng. J Med*. 1999;341(13):964–973. Doi:10.1056/NEJM199909233411307
- [37]. Sinclair R. Male pattern androgenetic alopecia. *BMJ*. 1998;317 (7162):865–869. Doi:10.1136/bmj.317.7162.865
- [38]. Orasan MS, Roman II, Coneac A, Muricin A, Orasan RI. Hair loss And regeneration performed on animal models. *Clujul Med*. 2016;89 (3):327.
- [39]. Abell E. Embryology and anatomy of the hair follicle. *Dis Hair Growth*. 1993;1–19.
- [40]. Mella JM, Perret MC, Manzotti M, Catalano HN, Guyatt G. Efficacy And safety of finasteride therapy for androgenetic alopecia: A systematic review. *Arch Dermatol*. 2010;146(10):1141–1150. Doi:10.1001/archdermatol.2010.256
- [41]. Rogers NE, Avram MR. Medical treatments for male and female Pattern hair loss. *J Am Acad Dermatol*. 2008;59(4):547–566.
- [42]. Mella JM, Perret MC, Manzotti M, Catalano HN, Guyatt G. Efficacy And safety of finasteride therapy for androgenetic alopecia: A systematic review. *Arch Dermatol*. 2010;146(10):1141–1150. Doi:10.1001/archdermatol.2010.256
- [43]. Rogers NE, Avram MR. Medical treatments for male and female Pattern hair loss. *J Am Acad Dermatol*. 2008;59(4):547–566.
- [44]. Complementary A. Or Integrative Health: What's in a Name? NCCIH. National Center for Complementary and Integrative Health NCCIH; 2016.
- [45]. Hosking A-M, Juhasz M, Mesinkovska NA. Complementary and Alternative treatments for alopecia: a comprehensive review. *Skin Appendage Disorders*. 2019;5(2):72–89. Doi:10.1159/000492035
- [46]. Soleymani T, Shapiro J. The Infatuation With Biotin Supplementation: is There Truth Behind Its Rising Popularity? A Comparative Analysis of Clinical Efficacy versus Social Popularity. *J Drugs Dermatol*. 2017;16(5):496–500.
- [47]. Food U, Administration D The FDA warns that biotin may interfere With lab tests: FDA safety communication. 2018.
- [48]. Dawber R, Rundegren J. Hypertrichosis in females applying minoxidil Topical solution and in normal controls. *J Eur Acad Dermatol Venereol*. 2003;17(3):271–275. Doi:10.1046/j.1468-3083.2003.00621.x
- [49]. Friedman ES, Friedman PM, Cohen DE, Washenik K. Allergic contact Dermatitis to topical minoxidil solution: etiology and treatment. *J Am Acad Dermatol*. 2002;46(2):309–312. Doi:10.1067/mjd.2002.119104