

A Review on - Formulation & Evaluation of Herbal Hair Serum.

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Abstract:-

Cosmetics are in high demand globally due to an increase in living standards and a desire to maintain a youthful appearance. Hair care is a significant aspect of this market, with a range of products available to address various hair concerns, including hair loss, dryness, and damage. Herbal hair serums, in particular, have gained popularity due to their natural ingredients and minimal side effects. The sources provide examples of formulating and evaluating herbal hair serums for enhancing hair quality and treating common hair problems. Ingredients like aloe vera, vitamin E, and various herbs are commonly used for their conditioning, hair growth-promoting, and protective properties.

These serums are evaluated based on factors like physical appearance, pH level, viscosity, spreadability, and stability to ensure their safety and efficacy. The sources highlight the growing interest in herbal cosmetics and their potential in addressing hair concerns through natural and safe means. Researchers are continuously exploring and developing new formulations using various herbs and evaluating their effects on hair growth, damage repair, and overall hair health.

Keywords:-

Hair, Herbs, Organic hair care, Ageless hair, Hair repair serum.

Introduction:-

The increased global demand for cosmetics, partially driven by a desire to appear youthful, has led to the emergence of "cosmeceuticals". Cosmeceuticals blend the lines between cosmetics and pharmaceuticals. Hair serum is a cosmeceutical product that contains a high concentration of active ingredients designed to deliver intensive nutrition to the deeper layers of the hair.

Hair serums can be applied to wet or dry hair and offer numerous benefits, including smoothing, softening, protecting hair from environmental damage, and enhancing shine. Hair serums work by coating the hair shafts, which helps to smooth the hair cuticles, making the hair appear shinier and reducing frizz. This coating also helps to protect the hair from environmental damage, such as heat and pollution.

Advantages of hair serum:-

- Hair serums can make your hair silky, smooth and soft.
- Hair serums can also help detangle hair which leads to less hair fall.
- They can protect hair from environmental aggressors, such as heat, sun damage, dirt, and pollution.
- Act as both pre styling treatment & finishing product.
- Hair serums can reduce frizz, boost smoothness and enhance shine.
- Strong initial roots.
- Reduces breakage of stronger hair.
- Dandruff free hair.
- Preventing and treating scalp infections.

Benefits :-

1. Nourishment and Hydration :-

Aloe Vera Gel and Glycerin help retain moisture in the hair, preventing dryness and making the hair soft and manageable.

2. Controls Frizz :-

A serum can rescue uncontrollable hair frizz which will boost hydration and essential oil nourishing strands.



3. STRENGTHENS THE ROOTS :-

Hair serum is a lightweight liquid that makes the hair stronger by providing it with essential nutrients.



4. Scalp Health and Dandruff Control :-

The combination of Aloe Vera and Almond oil irritated scalps and prevents infections, creating a healthier scalp environment for hair growth.

5. Lightweight and Non-Greasy Formula :-

The light oils used ensure the serum is absorbed quickly without leaving a greasy residue, making it ideal for daily use on all hair types.

6. Natural and Chemical-Free :-

Free from harsh chemicals and synthetic additives, the serum is gentle on the hair and scalp, making it suitable for sensitive skin and reducing the risk of allergic reactions or irritation.

7. Long-Term Hair Health :-

The serum provides long-term nourishment, strengthening hair strands and follicles, which results in reduced hair fall, improved hair thickness, and healthier hair overall.

This combination of ingredients makes the herbal hair serum a comprehensive solution for maintaining and improving hair health naturally.

Materials :-

1. Aloe vera :-

Aloe vera is a key ingredient in several of the herbal hair serum formulations described in the sources.

It is primarily used for its conditioning properties, making hair smoother, softer, and more manageable.

The sources also highlight aloe vera's ability to soothe the scalp, reduce dandruff, and unblock hair follicles that may be clogged by excess oil.



2. Orange Peel :-

Orange Peel (*Citrus sinensis*) is an excellent natural ingredient commonly used in herbal hair care formulations due to its rich content of vitamins, antioxidants, and essential oils. It offers multiple benefits for hair and scalp health, particularly in improving shine, reducing dandruff, and stimulating hair growth.

Benefits of Orange Peel in Herbal Hair Serum-

1. Rich in Vitamin C:

Orange peel is packed with vitamin C, which boosts collagen production, strengthens hair, and helps improve the overall health of the hair shaft. It promotes thicker and stronger hair.

2. Natural Cleansing and Dandruff Control:

The natural acidic properties of orange peel help in balancing scalp pH and removing excess oil and dirt, making it effective in cleansing the scalp and reducing dandruff.

3. Stimulates Hair Growth:

The antioxidants and vitamin content in orange peel stimulate blood circulation to the scalp, promoting healthy hair growth and reducing hair fall.

4. Adds Shine and Softness:

The natural oils in orange peel nourish the hair, adding shine and softness. It smooths the hair cuticle, making hair look glossy and healthy.

5. Controls Excess Oil:

For individuals with oily scalps, orange peel can help regulate the production of sebum, reducing greasiness while keeping the hair hydrated.

6. Antioxidant and Antimicrobial Properties:

Orange peel contains flavonoids and other antioxidants that protect the hair and scalp from environmental damage and free radicals. Its antimicrobial properties also help in preventing scalp infections and itchiness.

7. Refreshing Citrus Aroma:

Orange peel imparts a natural, refreshing citrus scent to the hair serum, enhancing the overall sensory experience without the need for synthetic fragrances.



3. Almond Oil :-

Almond Oil is a highly nourishing and versatile oil that is commonly used in hair care products . It is rich in essential fatty acids, vitamins, and minerals that deeply condition the hair, promote healthy hair growth, and improve the overall strength and shine of the hair.

Applications and Usage :-

- 1.The sources suggest that almond oil can be incorporated into hair serum formulations and applied directly to the scalp and hair.
2. They recommend using a few drops of almond oil for optimal results.



4. Flax Seeds :-

Flax Seeds are a nutrient-dense ingredient commonly used in hair care formulations due to their high content of omega-3 fatty acids, proteins, and antioxidants. Flax seeds provide a wide range of benefits for both hair and scalp health, making them a valuable addition to a herbal hair serum.

Benefits of Flax Seeds in Herbal Hair Serum :-

1. Rich in Omega-3 Fatty Acids:-

Flax seeds are an excellent source of omega-3 fatty acids, particularly alpha-linolenic acid (ALA), which nourishes hair follicles, promotes stronger hair, and encourages hair growth by maintaining a healthy scalp.

2. Promotes Hair Growth:-

The nutrients in flax seeds, such as vitamins E and B, magnesium, and protein, help stimulate hair follicles, promoting faster and healthier hair growth. Omega-3s also enhance blood circulation to the scalp, ensuring the follicles receive essential nutrients.

3. Hydrates and Moisturizes Hair:-

Flaxseed gel or oil is deeply hydrating, making it excellent for combating dry and brittle hair. It adds moisture to the hair shaft, leaving the hair soft, smooth, and manageable.

4. Strengthens Hair and Prevents Breakage:-

The proteins in flax seeds strengthen hair strands, reducing the risk of breakage and split ends. Regular use of flaxseed in a hair serum can result in healthier, more resilient hair.

5. Reduces Frizz and Adds Shine:-

Flaxseed gel forms a protective layer over the hair, smoothing the cuticle and reducing frizz. It also imparts a natural shine to the hair, making it look glossy and well-conditioned.

6. Balances Scalp Oil Production:-

Flax seeds help regulate sebum production, which is beneficial for both oily and dry scalps. This balancing effect keeps the scalp healthy and free from excess oil, while still maintaining moisture levels.

7. Prevents Dandruff and Scalp Inflammation:-

The anti-inflammatory properties of flax seeds help reduce scalp irritation and inflammation, which can lead to dandruff and other scalp conditions. The moisturizing properties of flaxseed gel also prevent scalp dryness and flakiness.



5.Hibiscus :-

It is also known as hibiscus rosa sinensis and is edible in appearance. Chinese hibiscus tea is actually very good for hair and is also effective at stimulating hair follicles for better growth. It even increases the follicle size.



6.Black Cumin Seeds :-

These black cumin seeds are scientifically called nigella sativa and are known to contain nutrients that stimulate hair follicles. Stress, pollution, and age can contribute to hair loss, so it's a good idea to be proactive if you want to prevent hair loss.

Cumin seeds have been used for centuries in various cultures for their medicinal properties.



7.Vitamin E:-

Vitamin E rich oil can help replace that protective layer and bring back shine .Oli is generally help seal out moisture , reduce breakage and protect the hair from damage.



Formulation Table :-

Sr. No	<u>Qty .given</u>	<u>Property</u>
Alovera gel	2gm	Cleansing agent , smoothing
Orange peel	4.5gm	Antioxidant
Black cumin seeds	3gm	Hair growth stimulant
Flaxseed	5gm	Gelling agent
Almond oil	1ml	Emollient , Shinning
Vitamin E	1ml	Presevatives
<u>Hibiscus</u>	<u>2gm</u>	<u>Hydration of hairs</u>

Procedure for Formulation of herbal hair serum

•Firstly all the glasswares are washed and dried

Solution 1:-

1. In a beaker add 5 gm of flaxseed ,in 50 ml distilled water and apply heat
2. Continue heating until clear, viscous gel formed
3. Filter the gel using muclin cloth

Solution 2:-

1. In a beaker add 1 gram of dried cumin seeds seeds in 20 ml of distilled water and boil the solution for 5 minutes.
2. Filter the solution & add about 5 gram of orange peel powder & keep the mixture at room temperature
3. Additionally add distilled water to the solution in order to make a solution free from lumps.

Solution 3:-

1. In beaker add 2 gm hibiscus powder in 40ml water.
2. Heat the solution until requisite colour is obtained.
3. Filter the solution and Store.

Solution 4:-

1. In a beaker add solution 1 & solution 2 with continuous stirring with a stirrer for 20 minutes.
2. Add hibiscus solution dropwise solution1 and solution2, mix until suitable colour is obtained and continuous stirring with glass rod.
3. Add 1ml of almond oil in solution.

Solution 5:-

1. Filter the solution.
2. Add Aloe Vera gel in beaker
3. Then 0.5gm add Vitamin E in beaker act as preservative.
4. Mix the solution using stirrer for 15 minutes.

5.Store the serum in well closed container.

Evaluation Parameters:-

1.Physical appearance :- Colour, Texture,Smell

2.ph:-The ph will be determine by using digital pH meter . Dipper of digital pH will be deep into the sample of serum formulation and the pH will be recorded . The pH of the formulation should having acidic pH as the skin is having acidic pH of around 4-6.

3. Homogeneity test:- A clean and dry glass object was smeared with the hair serum and cover glass was sealed . The appearance under the light of some coarse practice was investigated.

4. Viscosity:-Viscosity of formulation is determined by Brookfield Viscometer at 100rpm using spindle type model S6 4.5 ml of serum.The serum will be placed in big mouth container with the spindle dipped in it for 5 minutes before measurement.

5. Spreadability test:- Spreadability is measured by parallel plate process typically used to access and measure the spreadability of semisolid preparation.One gram hair serum was pressed between two horizontal plate of dimension 20*20 cm, the upper of which weighed 125g. The spread diameter was measured after 1 min . Spreadability is measured using the formula

$$S=M*L/T$$

6.Stability test:- The hair serum is kept for three months at two separate temperature and 65 Rh. Compare the original pH and viscosity .The pH and viscosity of herbal hair serum is determined after 3 months.

Conclusion:-

In conclusion, a herbal hair serum is a natural and effective way to nourish and enhance hair health. By utilizing a combination of carrier oils, essential oils, and herbal extracts, you can create a customized serum that addresses specific hair concerns, such as dryness, hair loss, or scalp issues. This DIY approach not only allows for control over the ingredients but also promotes sustainability and wellness. With careful preparation and storage, a herbal hair serum can be a valuable addition to your hair care routine, providing both immediate and long-term benefits for healthier, more vibrant hair.

References:-

1.Kokate.C.K, "Practical Pharmacognosy", Delhi Vallab Prakashan, New Delhi, first edition 2018, pg- 35-36

- 2.Saini.L, Kumar.A, et al, "Journal of Dermatology Research Reviews & Reports, Herbal Hair Serum: Design Development and evaluation ", Rudrapur (Uttarakhand), Volume 4(3),June 2023,pg 1-3
- 3.Jaydeep BhoitePriyanka Jadhav, Saylee Madkholkar, Vijay Jagtap. Research Article. To Study In-Vitro Antimicrobial Activity of Po lyherbal Handwash Formulation. Asian Journal of Pharmacy and Technology.
- 4.[1] Prof. Gujar Sagar V1, Mr. Pawar Akshay B2, Miss. Bhusari Pallavi K3, Miss. Kadu Gayatri S4t the herbal hair remedy :herbal hair serum june 2023
- 5.[2] Sakuldach M, Phakdeekul W, Kedthongma Comparisons Health Literacy to the Performance of Volunteers in Elderly Care, Pad Subdistrict Municipality, Kham Ta Kla District, Sakon Nakhon Province. Test EngManagt. 2020; 83:16398-16400
- 6.S. Budiasih, I. Masyitah, K. Jiyauddin, M.Kaleemullah, A. D.Samer, A. Mohd Fadli and EddyY., Formulation and Characterization of Cosmetic Serum Containing Argan Oil as Moisturizing Agent, Science and Technology Publications, 2018;297-304
- 7.Aruna V, Amruthavalli GV, Gayathri R. Hair root activation by anagen grow- a herbal hair growth serum. Dermatol & Cosmet 2019; 1(3): 56-9.
- 8.Gavazzani Dias MF. Hair cosmetics: an overview. In
J Trichol. 2015(1):2-15
- 9.Sultana S, Asif HM, Akhtar N, Iqbal A, Nazar H, j
Rehman RU. Nigella sativa: Monograph. J
Pharmacognosy Phytochem. 2015;4(4):103-6
- 10.Halligudi N. Pharmacological properties of Flax seed: A Review. Hygeia J D Med 2012; 4(2): 70-7.
- 11.Rohan R. Vakhariya, Srushti A. Oza, Chaitanya S. Bhingardeva, Smita J. Patil, Sofiya F. Mujawar, Dr. S. K. (2022) Formulation, Development and Evaluation of Herbal Hair Serum: A Classical Approach to Enhance Hair Quality. Mohite Rajarambapu College of Pharmacy, Kasegaon, Tal. Walwa, Dist. Sangli, Maharashtra, India.(6);100-103
- 12.Manjula D, Josephine JLJ, Kumari P, Banu S. Formulation and evaluation of flaxseed hair gel: A natural hair tamer. Int J Res Pharm Chem 2018; 8(3): 487-91