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## Herbal Hair Serum

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**Abstract:** Nowadays, cosmetics are becoming more high demand in daily life and it was used frequently by many of people per year. Mankind uses various products to enhance beauty and elegance to look young and charming. Cosmetics thus play a vital role in human life. Now days, herbal cosmetic are widely used because of the belief that they have fewer side effects and better safety. Hair is one of the primary parts of the body which acts as a protective appendage. The main objective of the present work is to develop an herbal hair serum for general purpose (daily use) using various herbs with this evaluate the characteristics of cosmetic serum and to identify the best formulation of cosmetic serum. Three formulations of cosmetic serum (H1, H2 and H3) with different concentration of excipients have been developed. They were evaluated for its physical appearance, pH, homogeneity test, viscosity, spread ability test and stability test. All the parameters were found to be good and within the standards. Current research has revealed that herbal formulations are effective in enhancing hair consistency.

**Keywords:** Cosmetic, hair, herbs, formulation, effective, Enhance beauty, Charming, Vital role.

### 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.

Hair growth is based on a dynamic and precisely regulated mechanism that is not fully understood. It is a cyclical mechanism involving hair shaft synthesis, elongation, and ultimately shedding. Human hair usually comprises follicles of anagen, catagen, and telogen phases. The hair follicle in the anagen phase actively accumulates cytochrome and easily develops the hair shaft. When the hair

follicle matures into the anagen hair follicle, the telogen hair follicle is not able to develop neonatal hair shafts. Alopecia Areata (AA) is a recurrent immune-mediated skin disorder with a non-scarring loss of hair. In the general population, it has an incidence range of 1.7 percent and 2.1 percent, with higher prevalence in young patients (21-40 years) and no significant difference in incidence between males and females reported. This condition may have a detrimental effect on the quality of life of patients in a manner close to that reported for other skin diseases such as dermatitis and psoriasis. AA's pathogenesis can be explained by the inflammatory cascades involving a breakdown of the hair follicle's immune privilege, associated with T lymphocyte invasion, and an autoimmune process that creates autoantigens from proteins associated with melanogenesis. In addition, different variables, including family backgrounds, genetic bases, environmental factors, illnesses, medications, injuries, potential emotional stress, and oxidative stress, can be implicated in AA pathogenesis. Defective antioxidant defense or exaggerated expression of reactive oxygen species (ROS) has been reported to predispose to oxidative stress, which is believed to play a significant role in many inflammatory skin disorders such as AA. In this respect, several studies have documented that AA has a detrimental effect on the blood and skin tissue's oxidant-antioxidant balance. AA's latest clinical treatments are centered primarily on immune regulation using numerous forms of medications, including topical and systemic steroids, phototherapy, and immune suppressants such as cyclosporine and methotrexate; meanwhile, certain vitamins and micronutrients are expected to play a role in the treatment of AA and can alleviate oxidative stress.

Citrus sinensis (orange peel) has shown remarkably positive results on hair. Daily use can make the hair smoother and shinier with these peels. They are filled with antioxidants and help to treat the harm caused by pollutants as well. Daily use of orange peels, filled with a lot of vitamin C, makes the hair bouncy and shiny and reduces dryness and dullness of hair. In addition, orange peels, a huge source of vitamin B12 and vitamin E, assist in hair development. They also delay the pace at which the hair begins to turn gray.

The present study intended to use extracts of different herbs to formulate herbal hair serum for the improvement of hair quality.

## 2. Literature review:

**Ajay Kumar Meena \*, Ajay Yadav, M M Rao., 2011.** Herbal medicines have been used from the earliest times to the present day. The ethnobotanical pharmacology is as old as man himself. Herbal medicines exhibit a remarkable therapeutic diversity. Aloe vera. is an Ayurvedic plant which is used in several traditional medicines to treat a variety of diseases

**R.K. Roy et al., 2007,** concluded from the study that hair growth initiation time was significantly reduced to half on treatment with the petroleum ether extracts. The time required for complete hair growth was also considerably reduced.

**Takahashi T et al., 1998,** studied the profile of the active fraction of the proanthocyanidins was elucidated by thiolytic degradation and tannase hydrolysis. We found that the constitutive monomers were epicatechin and catechin; and that the degree of polymerization was 3.5. It was demonstrated the possibility of using the proanthocyanidins extracted from grape seeds as agents inducing hair growth.

**Waldon, D.J, 1993.,** attempts to solve the problem of follicle degeneration, we cultured follicles at the air-surface interface on a modified collagen matrix (Gelfoam). The results show that follicles cultured at the air-liquid interface maintain a better morphology and produced greater hair growth than follicles cultured on tissue culture plastic.

**Westgate, G.E., et al., 1993.** Reported the prolonged in vitro growth of isolated human hair follicles for at least 9 days. It is also shown that the patterns of keratin synthesis, as determined by [35S] methionine labelling, do not alter with maintenance.

## 3. Plant Of Work

### 3.1 Selection of Herbs and Excipients

- Search of Herbs
- Selection of Properties of Herb
- Selected Drug Which has Compatible Properties for the chosen Project

### 3.2. Extraction of herbs used in formulation

- Aloe Vera
- Almond Oil
- Rose Water
- Vitamin E

## 4. Formulation of Hair Serum

### Collect the Extraction

- Add 3 Mg Aloe vera gel
- Add 17 ml Rose water
- Add 1 ml almond oil
- Add 1 Vitamin E capsule
- Formation Prepared
- Formation was kept in Container

## 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:  
Straight, Wavy, Curly, Coily

## 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 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.
- Hair serum is also reduces the tangles and promote the shine.
- To enhances the straightness and curls.
- It protects against the damage

## 7. Side Effects of Using Hair Serum:

- Regular use and over application can make the hair unhealthy and ultimately dry.
- Applying the serum on the scalp can lead to inflammation.
- Silicones present in the hair serum can be harmful for the hair in the long hair.
- Scalp application should be avoided as it might make it oily or can lead to inflammation

## 8. 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 A hair serum solves a lot of hair issues and not just one problem. There is a reason it is called a one stop solution for all your hair woes. Hair serum transforms a bad hair day into a good hair day. With just a few drops, your hair will feel and look different.
- Protects Hair Hair serum forms a layer on hair strands. It thus acts as an excellent protect against heat, sun damage, dirt, dust and pollution. It prevents your hair from getting damaged. This is why it is advised to use a heat protecting serum before using hot styling tools.
- Gives Shine to the Hair The layer formed by hair serum acts as a reflector of light thus making your hair look shiny and lustrous. Hair serums consist of amino acids which protect colored and chemically treated hair.
- Prevents Hair fall From Breakage When our hair becomes a tangled mess, we tend to lose a lot of hair strands because of the wear and tear that goes into detangling. Hair serum acts as a lubricant for such hair and makes detangling easy. And the result is less hair fall.
- Best for Dry Hair The most to benefit from hair serums are those who have dry and frizzy hair. Hair serums lock in the moisture and makes hair smooth and shiny.

- g) Nourishes Hair and Makes Them Manageable Hair serums fill the follicular cracks and revive brittle and damaged hair. Hair serum makes hair more
- h) manageable which further makes it easy to style them. Time, energy, patience. Everything is saved.

## 9. Materials and Methods:

The crude drug required in our project was procured from nearby Ayurvedic Medical shop. The following ingredients were used for the preparation of the herbal hair serum formulation.

### 9.1. Ingredients of Hair Serum:

#### Aloe vera:

Two substances from Aloe vera – a clear gel and its yellow latex – are used to manufacture commercial products. Aloe gel typically is used to make topical medications for skin conditions, such as burns, wounds, frostbite, rashes, psoriasis, cold sores, or dry skin. Aloe latex is used individually or manufactured as a product with other ingredients to be ingested for relief of constipation. Aloe latex may be obtained in a dried form called resin or as "aloe



dried juice". There is conflicting evidence regarding whether Aloe vera is effective as a treatment for wounds or burns. There is some evidence that topical use of aloe products might relieve symptoms of certain skin disorders, such as psoriasis, acne, or rashes, but topical application may cause an allergic reaction in some people. Aloe vera gel is used commercially as an ingredient in yogurts, beverages, and some desserts, but at high or prolonged doses, ingesting aloe latex or whole leaf extract can be toxic. Use of topical aloe vera in small amounts is likely to be safe. Aloe vera has long been used for treating hair loss. It also soothes the scalp and conditions hair. It can reduce dandruff and unblock hair follicles that may be blocked by excess oil. You can apply pure aloe vera gel to your scalp and hair a few times per week.



#### Vitamin E:

Vitamin E may have various roles as a vitamin. Many biological functions have been postulated, including a role as a fat-soluble antioxidant. In this role, vitamin E acts as a radical scavenger, delivering a hydrogen (H) atom to free radicals. At 323 kJ/mol, the O-H bond in tocopherols is about 10% weaker than in most other phenols. This weak bond allows the vitamin to donate a hydrogen atom to the peroxy radical and other free radicals, minimizing their damaging effect. The thus-generated tocopheryl radical is recycled to tocopherol by a redox reaction with a hydrogen donor, such as vitamin C. Vitamin E affects gene expression and is an enzyme activity regulator, such as for protein kinase C (PKC) – which plays a role in smooth muscle growth – with vitamin E participating in deactivation of PKC to inhibit smooth muscle growth. Vitamin E-rich oil can help replace that protective layer and bring back shine. Oil in general also

helps seal out moisture, reduce breakage, and protect the hair from damage.



#### Rose water:

In medieval Europe, rose water was used to wash hands at a meal table during feasts. Rose water is a usual component of perfume. Rosewater ointment is occasionally used as an emollient, and rose water is sometimes used in cosmetics such as cold creams, toners and face wash. Some people use rose water as a spray applied directly to the face as a perfume and moisturizer, especially during the winter. It is also often sprinkled in Indian weddings to welcome guests. Rose Water is a mild astringent which may help to reduce oiliness and dandruff. It has anti-inflammatory properties, which may make it beneficial for certain scalp conditions, like psoriasis and eczema. Many women with curly hair swear by rose water's ability to calm down frizz and add shine.

#### Almond Oil:

Almond oil contains all kinds of healthy ingredients for hair like Omega-3 fatty acids, phospholipids, vitamin E, and magnesium. Using almond oil nourishes and strengthens your hair, and is optimal for treating hair loss and damaged hair. A few drops go a long way to add silkiness and shine and nourish the scalp. Use pure almond oil; most store brands contain only a small percentage of almond oil and a large proportion of petroleum paraffins. The nourishing oil can soften and strengthen your hair. It's rich in vitamin B-7, or biotin, so almond oil helps to keep hair and nails healthy and strong. It can also help protect your hair from sun damage, with a natural SPF. You can use almond oil as a scalp treatment.



### 9.2 Procedure of Herbal Hair Serum Formulation:

1. Clean all the glassware and dry them properly as per SOP.
2. Measure the accurate quantity of aloe vera, transfer it in beaker.
3. Mix required quantity vitamin E in aloe vera.
4. Now mix rose water to the above mixture of aloe vera and vitamin E.
5. After stirring for few minutes, heat the prepared solution for few minutes.
6. Add few drops of almond oil.
7. After that stir the preparation with the help of magnetic stirrer.
8. Transfer the preparation in measuring cylinder and adjust the final volume to 30ml.
9. Transfer final solution into container

**Formulation Table: Table 1**  
**Formulation Table of Herbal Hair Serum**

Sr.no	Ingredients	Batch H2	Role of Ingredient
1	Aloe vera	3gm	Conditioner
2	Vitamin E	1ml	For hair growth
3	Rose water	17ml	Perfume
4	Distilled water	8ml	Vehicle
5	Almond oil	1ml	For Nourishment

**10. Evaluation of Herbal Hair Serum**

The following parameters are used to evaluate the

**10.1 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 having 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.

**Determination of emolliency:**

Emolliency ,slipperiness and amount of residue left after the application of fixed amount of serum was checked

**11. Results and Discussion**

**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**

Sr. no	Parameter	Samples
1	Color	Milky
2	Odour	Rose type
3	exture	Smooth



**pH, Viscosity, Homogeneity and Spread ability 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 Spread ability Test of Herbal Hair Serum**

Sr. no	Parameter	Samples
1	pH	5.2
2	Homogeneity Test	Good
3	Viscosity	221

4	Spread ability Test	Easily Spreadable
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**12. How to Apply Hair Serum**

➤ **Shampoo your hair:**

Use shampoo to wash the oil from your hair. If you rinse without shampooing, it'll leave your hair looking oily. Shampoo your hair just once, and apply it to your scalp in the same way you applied the oil. Start at the front of your head, work your way towards your crown, and then massage from the nape area up to the crown.



➤ **Rinse and dry your hair:**

Rinse out the shampoo and pat your hair with a towel. Once it dries, your hair will look silky and shiny.



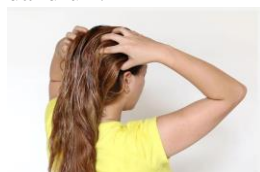
➤ **Rub a few drops of Serum into your palms:**

Just a few drops, less than half a teaspoon of Serum, should be enough to coat your hair. You don't want to go overboard, or your hair will end up looking oily for the rest of the day.



➤ **Rub the serum into your scalp:**

Put a small amount of serum onto your palm and apply it to your scalp around the root area. Using your fingers, gently start massaging at the front of your head, working your way back to the crown of your head and then massage at the nape, working up towards the crown. This will help stimulate condition your roots, and protect your hair. Massaging into the roots can also help prevent dandruff.



➤ **Comb your hair:**

Comb your dry hair until it's tangle-free. Start at the ends of your hair and work your way up to prevent painful snagging and breakage.

➤ **Run your fingers through your hair:**

Start at the ends of your hair and then slowly work up into the strands, stopping at least 5 inches (12.7cm) from the scalp. Coating the ends of your hair with Serum will tame flyaways and frizz and give your hair a sleeker look. Don't apply it too close to your roots, or your hair will look oily.



➤ **Repeat once a week for best results:**

Doing regular Serum treatments will help foster new hair growth over time. It will also make



your hair strong, smooth and soft by sealing in moisture.

### 13. Conclusion:

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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