

“Preparation and Evaluation of Hair Serum”

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ABSTRACT

The hair serum was formulated by using coconut oil, vegetable oils, argon oil, almond oil, lavender oil, lime essential oil and triphala. The cosmetics are very helpful and it is less prone to any side effects. All ingredients are easily available in market this serum not only controls frizz, enhance smoothness, reduces tangles, promotes shine, enhances straightness and protects against damage.

Coconut oil may have several benefits for our hair and scalp, it may help to moisturise and seal hair. This can help to prevent dry, flaky scalp and dandruff. Vegetable oil conditions hair prevents dandruff, promote hair growth, prevent scalp inflammation and protect hair from heat damage. Argon oil moisturises and conditions the hair.

Almond oil moisturises your scalp and strengthens hair follicles, it is a derivative of vitamin b. lavender oil can promote hair growth, prevent or kill lice, curb skin inflammation. Lime essential oil can reduce dandruff promote hair growth and enhances your hairs natural shine. Triphala boost hair volume it actively improves hair texture, promote hair growth and prevents premature greying.

To know the different parameter regarding this prepared hair serum I have performed some evaluation parameters i.e. physical appearance, homogeneity test, pH test, viscosity, spread ability etc.

Stability testing for prepared formulation was performed by storing it at different temperature condition for time period of one week to know the parameter like colour, odour, pH and smoothness of hair serum.

I. INTRODUCTION

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 Aerate (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 per cent, 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 auto antigens 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 defence 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 centred 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

➤ **Role of ingredients**

❖ **Coconut oil :-**



may have several benefits for your hair and scalp. Using it as a hair mask and leave-in treatment may help moisturize and seal hair. This can help prevent a dry, flaky scalp and dandruff, as well as split ends and hair breakage. Like other oils, coconut oil can leave the hair glistening and smooth in appearance. Some people use a few drops as a shine serum on dry hair. People who want to avoid silicones and similar ingredients may choose to replace silicone-rich shine serums with coconut oil.

❖ **Vegetable oil :-**



Hair conditioning. Vegetable oils (like sunflower and coconut oils) condition the hair.

- May Prevent Dandruff.
- May Promote Hair Growth.
- May Prevent Scalp Inflammation.
- Protects Hair From Heat Damage

Sesame and olive vegetable oils are thus good to help fighting hair loss and cell aging. Argon oil, for its part, has healing and antioxidant powers. It therefore prevents the scalp from drying out. Another very interesting vegetable oil is jojoba.

Vegetable oils have been in our culture for centuries. The high levels of unsaturated fats in these oils are important for your health. But is vegetable oil good for hair? The essential fats in vegetable oils are beneficial for damaged hair. They also help retain moisture, protect your hair from breakage, condition the hair, and minimize dryness.

❖ **Argan oil :-**



Moisturizes and conditions. Argan oil is mostly used as a moisturizer for skin and hair because it is full of fatty acids, mainly oleic acid and linoleic acid

- Improves scalp health
- Prevents styling and colouring damage
- Sun protection
- Argan oil for hair loss

Argan Oil is rich in antioxidants and high in Vitamin E which promotes strong, healthy hair. Argan Oil is known for its anti-frizz benefits and great for scalp health too. Argan Oil naturally penetrates the hair to help moisturise each layer of the hair strands, for long-term hair repair

Argan oil or “liquid gold,” as many refer to it — is made from the fresh kernels of the fruit of the argan tree in Morocco. Pure argan oil has been used for centuries for cooking and as a home remedy for health and beauty, including hair loss. Today it can be found in a number of hair and skin care products.

❖ **Almond oil :**



Applying almond oil, intensely moisturises your scalp and strengthens hair follicles, delivering thick, shiny, luscious tresses. If you have dandruff, almond oil can help you get rid of it. It comes with anti-bacterial properties that treats flaky skin and removes dead cells from your scalp.

It's a derivative of Vitamin B that's prescribed to people who suffer from problems such as thinning of hair. Almond Oil contains Biotin, and massaging your hair with almond oil is an effective way to provide your hair with a healthy dose of Biotin to promote hair growth and reduce hair thinning. Studies have shown that topical almond oil application can help prevent skin damage caused by UV radiation and help slow the aging process. Almond oil can help protect your cells by reducing DNA damage from UV rays and prevent the chemical and structural changes they can make

❖ **lavender oil-**



It can promote hair growth. Lavender essential oil recently gained attention for stimulating hair growth

- ❖ It's antimicrobial
- ❖ It may help prevent or kill head lice
- ❖ It may help curb skin inflammation
- ❖ It has a calming effect and divine fragrance.

As a beauty aid, one can use lavender oil for hair growth and not be disappointed with the results. Lavender oil is known to stimulate hair growth, fight dandruff, and soothe an itchy scalp and other infections. Its antibacterial properties also make it a good remedy for acne. Herbins lavender oil is best lavender oil for hair growth. You can use Herbins lavender essential oil for hair growth by adding 2-3 drops to 1-2 teaspoons of any carrier oil like Herbins argan oil, Herbins wheat germ oil,

Herbins jojoba oil etc. and gently massage it on hairs and scalp before sleep.

❖ **Lime essential oil :-**



A huge boost to the immune system Provides relief for various respiratory issues

- Reduces stress and anxiety
- Fosters good oral health
- Promotes healthy and glowing skin
- Perfect as a hair treatment
- As an effective cleaning agent
- Naturally repels insects.

The restorative and anti-aging characteristics of Lime Essential Oil are also very beneficial for your hair. Lime Essential Oil has been known to reduce dandruff, promote hair growth, and enhance your hair's natural shine. The Lime Essential Oil is great to add to your diffuser blends or when diffused alone. This essential oil is good to use during the cold and flu seasons, has many benefits for the skin and hair, can uplift your mood, can help you relax after a long day, and can purify the air.

❖ **Triphala :-**



Boosts Hair Volume. Triphala actively improves your hair texture, thereby increasing your natural hair volume.

- Promotes Hair Growth.
- Imparts A Natural Shine.
- Prevents Premature Greying.
- Nourishes Hair Roots.
- Minimizes Frizz.
- Prevents Split Ends.

Other Health Benefits Of Triphala Churn

Triphala churn being in powdered form is very easy to use. It can be used as a hair mask with water or curd or added to any other hair mask to be applied to the hair. Alternatively, you can also consume triphala churna mixed in water and jaggery.

It is rich in vitamin C, antioxidants and has anti-fungal properties as well. Triphala strengthens hair from the root, prevents hair loss and also eliminates dandruff which often causes hair fall.

Sr.No.	Ingredients	Source
1	Coconut oil	Coconut
2	Vegetable oil	Vegetables, Nuts/Seeds
3	Argan oil	Kernels
4	Almond Oil	Almonds
5	Lavender Oil	Lavender
6	Lime Essential Oil	Lime
7	Triphala	Obtained from 03 plant species

Sr. no	Ingredients	Quantity
1	Coconut oil	20ml
2	Vegetable oil	20ml
3	Argan oil	20ml
4	Almond Oil	20ml
5	Lavender Oil	20ml
6	Lime Essential Oil	5-10 drops
7	Triphala	10ml

Method of preparation

- In a bowl pour coconut oil, argan oil, lavender oil, almond oil, vegetable oil and few drops of lime essential oil.
- Add some triphala extract and mix it well and keep it on flame for heating.
- Transfer solution in container and cool it in waterbath

- Transfer the solution in spray bottle and keep it in fridge for 24 hours

Evaluation of hair serum:-

Physical Appearance

The physical appearance, to colour, and feel of the prepared herbal hair serum are visually tested. Table 2 reflects the outcomes.

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 [20].

pH Test

The pH meter was calibrated using pH 4 and pH 7 buffer solutions. Then, the electrode was soaked in the hair serum and left until the pH normalized after a few minutes [21].

Viscosity

The viscosity measurement was performed with spindle number 6 on a Brookfield viscometer (RVDV-II+PRO). In the beaker, 50 ml of hair serum was placed, and the viscosity was measured at various rpm, i.e., 10, 20, 50, 100 [20].

Spread ability

Spread ability was measured by a parallel plate process typically used to assess and measure the spread ability of semi-solid preparations. One gram hair serum was pressed between two horizontal plates of dimension 20× 20 cm, the upper of which weighed 125 g. The spread diameter was measured after 1 min. Spread ability was calculated using the following formula:

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

Where, S= Spread ability, M= Weight in the pan (tied to the upper slide), L= Length moved by the glass slide, and T = Time (in sec) taken to separate the slides completely

Features of hair serum: -

- Controls frizz. If your hair is weak and damaged, it may look frizzy or dry.
- Boosts smoothness.
- Reduces tangles.
- Promotes shine.
- Enhances straightness or curls.
- Protects against damage

Quality control method: -

- Keep it in cool and dry place
- Avoid direct exposure to sunlight

Directions for use

- For best results, apply your initial application of hair serum to clean, damp hair.
- Add 1 to 2 drops of hair serum to the palm of your hand. ...
- Apply to your hair, working from the ends up to the middle of your strands. ...

Be gentle when applying hair serum.

II. CONCLUSION: -

Results have shown that herbal hair serum provides various 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 cosmeceutical 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 clamour. As nowadays, in the coming years, it is a fast-developing market with a mammoth scope. In cosmetic formulations, the use of bioactive ingredients has a valuable impact on body characteristics and offers nutrients that are important for preserving good and beautiful hair. It can be inferred that prepared herbal hair serum has a beneficial effect on the mechanism of hair growth and increased consistency. Medicinal plants have been used for the treatment of hair diseases since antiquity because of fewer side effects and hypersensitivity reactions. It is time to dump the chemical-laden hair care products in favour of natural alternatives. The traditional system of medicine in India acclaims a number of herbal drugs for hair growth promotion. The best part is that herbal extracts will provide microprotein supplements to hair and provide enough nourishment, resulting in safe and sound hair. Herbal cosmetics have become increasingly common in the personal care industry, and there is a high demand for them in everyday life due to their lack of parabens and sulphates. The global herbal industry is projected to be worth more than US\$10 billion dollars, and it is increasing at a rate of three to four percent per year due to increased demand. In terms of production and demand of herbal products, Europe is the largest region, followed by Asia.

III. RESULT: -

Hair serum was prepared and evaluated by above mentioned methods

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