

A Review on Formulation and Evaluation of Herbal Serum

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Abstract: In the mammalian system, the hair follicle is known to be the most significant organ that determines appearance, gender distinction, provides intense temperature protection, and plays a role in self-defense. The younger generations have begun to suffer from extreme hair loss problems due to many lifestyle-related changes such as fatigue, anxiety, intake of junk foods, use of different hairstyling/coloring methods, etc. The loss of hair is not temporary in most cases, but it results in alopecia. Many people suffering from hair loss are in search of multiple treatments due to extreme anxiety and tension, from mythology to traditional and therapeutic healing to the use of minoxidil and finasteride. To improve hair growth and to prevent hair loss, hair root activation is required. Hair plays an important role within the personality of human and for his or her care we use plenty of cosmetic products. Herbal formulations always have activity and relatively lesser or no side effects with synthetic. A number of herbal principles have been commended with hair growth promoting action and formulating them into appropriate cosmeceuticals can be well acknowledged as far as the patient compliance is concerned. The objective of the present research work was to develop a hair serum formulation with linseed which is often used in Ayurvedic medicines and it stimulates hair follicles causing growth. Flaxseed is used in formulation of hair oil, hair gel and which helps in moisturizing and nourishes the hair and with Hibiscus leaves extract which is known as a hair growth promoter and a hair conditioner as well. Rice water are useful for the hair shine, smooth, Lusters, hair Strength, also use as chemical free hair cleanser and maintain the pH of the scalp. Another important reason to use rice water for hair is the fact that it helps hair growth, and you can see the increase in a short span itself. As the rice water helps protect the hair from damage, the hair remains healthy. The protein boost that the rice water gives to the hair helps it grow fast.

Key words: flaxseed, hibiscus, rice water, hair care, herbal hair serum.

INTRODUCTION

Hairs are the integral part of human beauty. People are using herbs for cleaning, beautifying and managing hair since the ancient era. As the time has passed synthetic agents have taken a large share but today people are getting aware of their harmful effects on hairs skin and eyes. These regions attracted to community towards the herbal products, which are less expensive and have negligible side effects.(1)

Hair care items are wanted to give extra advantages, for example, improving the hair, making it simple to deal with or fixing harms. Moreover, there are exceptional items for the treatment of specific hair issues, for example, dandruff. In human, hair has an aesthetic function impacting our appearance. Today, it has social, sexual and mental importance, Changes in the pattern of the hair, for example, going bald, hair abundance or variety change, may adversely influence the confidence of the individuals . Hair is a complex structure made by many components that act as a unit, with the biological purpose of protecting the scalp and enhancing physical attractiveness. 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 AND SCALP CARE

Hair care and Scalp care may appear separate, but are actually intertwined because hair grows from beneath the skin. Scalp skin, just like any other skin on the body must be kept healthy to assure good hair product. Hair and scalp care is important for not only to enhance appearance, but also for our overall hygiene. A scalp treatment will involve some exfoliation to get relieve of all the dead skin, leaving a layer of fresh,

healthy skin back. The sebaceous glands in the human skin produces sebum, which is composed primarily of fatty acids. Sebum acts to cover hair and skin, and can inhibit the growth of microorganisms on the skin. This oleaginous substance gives hair moistness and shine and serves as a defensive substance by preventing the hair from drying out or absorbing over extravagant quantities of external substances. Cleaning hair removes extra sweat and oil, as well as unwanted products from the hair and scalp. Various cosmetic products are used in hair and scalp care. Most of them are cleanser, conditioner, serums, moisturizers, gels etc.

SCALP SERUM



Figure 1 Scalp Serum

Serum is a concentrate of active constituents, which targets specific skin and hair care businesses, and the constituents are important, and made up of small molecules. Serums can also be said to be as thin consistence topical products that contain concentrated quantities of active constituents. The difference between hair and scalp serum is that one focuses on hair and other focus on scalp, but there are numerous serum formulations that can be applied on both hair and scalp

Types of serum available for hair and scalp care:-

- Oil based Serum
- Spray serum
- Water based Serum
- Silicone based serums
- Serums for other issues

Ideal characteristics of Scalp serums:-

- They must be gentle to scalp and hair, don't dry or damage it.
- Long lasting effect.
- Enhances smooth and luster of the hair and make it easy to comb.
- Well tolerated and non-allergic.
- Should be easy to use.
- Should have regional effect.
- Should be easy applied and readily washed off.

Applications :-

- Nourishes and moisturizes hair and scalp.
- They helps make hair strong, shining and lustrous.
- Smoothens scalp and conditions the hair.
- They neutralize free radical damage in hair.
- Medicated serums have antimicrobial property and are used to treat split ends, dandruff, hair fall, scalp infections etc.
- They can be used as hair growth booster and prevent hair loss.

Suitable types of hairs for using hair serum:-

1. Straight
2. Wavy
3. Curly
4. 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.

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.

1) 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.

2) 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.

3) 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.

4) 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.

5) 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.

6) Nourishes Hair and Makes Them Manageable

Hair serums fill the follicular cracks and revive brittle and damaged hair. Hair serum makes hair more manageable which further makes it easy to style them. Time, energy, patience. Everything is saved.

AIM AND OBJECTIVE

Aim:

To prepare and evaluate linseed (flaxseed) the polyherbal hair serum.

Objective:

1. The present study was intended to use different herbs to formulate herbal hair serum for general purposes (hair application).
2. Explain the efficacy of various hair regrowth serum.
3. To develop linseed(flaxseed) polyherbal hair serum.

4. To evaluate the prepared linseed (flaxseed) polyherbal hair serum.

MATERIAL AND PROFILE:

Flaxseed, hibiscus petals powder, rice collected from local store. And aloe vera are collected from home garden.

NATURAL RESOURCES USED IN PREPERATION

1] FLAXSEED :-

Botanical Name -Linum usitatissimum

Family -linaceae

Constituent:

The seed includes roughly 40% lipids, 30% dietary fibre, and 20% protein. The chemical makeup of plants varies greatly between kinds and is also influenced by the environment in which they are cultivated. The seed contains 76 percent of the protein and 75 percent of the lipids found in the cotyledons. Only 23% of the lipids and 16% of the protein are found in the endosperm. Flaxseed's lipid makeup makes it a good source of Omega 3 fatty acids, particularly -linolenic acid (ALA), which can account for up to 52% of total fatty acids. Flaxseed is also a good source of phenolic compounds known as lignans, a colloid gum, and high-quality protein.

Uses:-

Flax is a functional food or a source of functional nutrients since it includes alpha-linolenic acid, lignans, and polysaccharides (other than starch), all of which have anti-inflammatory properties. Despite the fact that scientific data supports flaxseed use, many people are unaware of the benefits of this substance and its potential applications in food production. Flax seed gel can be used as a moisturiser on the scalp and hair to help encourage hair growth and strengthen existing hair. Oils, creams, ointments, pastes, and gels are examples of topical formulations. Gels are becoming more popular these days since they are more stable and may provide controlled release than other semisolid preparations. Gel formulations can improve drug bioavailability by improving absorption properties. Pure Flaxseed Hair Gel will elongate and define curls, no matter what hair type or curl type, and give "wet curly look". Flaxseed also used as –

- Controlling frizz and dryness.
- Enhancing the hair's natural look.
- Protecting against damage.



Figure 2. flaxseed

2] RICE WATER

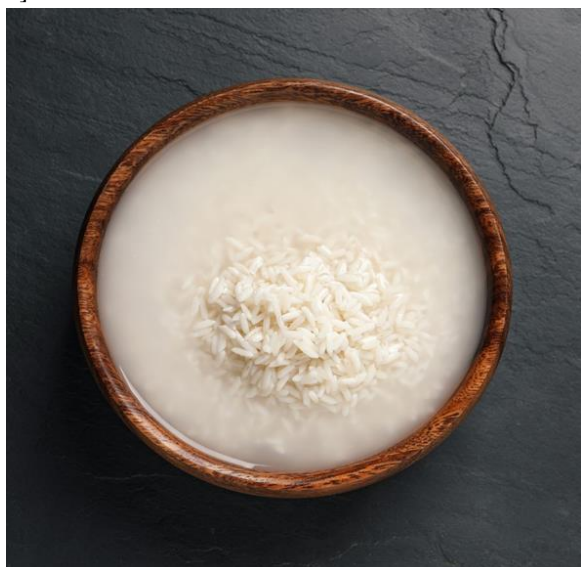


Figure 2. Rice water

Botanical name: *Oryza sativa*

Family: Graminae/ Poaceae

Constituent: The rice grain constitutes 12% water, 75–80% starch(carbohydrate), 7% protein, 3% fat and 3% fibres

Uses:-

1. Rice water for hair Strength: The amino acids in rice strengthen the hair roots. It also has inositol, which is a carbohydrate that helps to strengthen the hair. The rice water makes it easy to detangle hair which leads to less hair breakage.

2. Rice water for hair Shine, smooth and lustre: Using rice water for hair is an easy way to ensure the hair look shiny and full of lustre. As the rice water adds a layer of protection especially against the pollution in

the air, heat-inducing electronic hair appliances, chemicals in hair care products, etc.

3. Rice water for Hair growth: Another important reason to use rice water for hair is the fact that it helps hair growth, and you can see the increase in a short span itself. As the rice water helps protect the hair from damage, the hair remains healthy. The protein boost that the rice water gives to the hair helps it grow fast.

3] HIBISCUS :



Figure 4. Hibiscus flowers

Botanical name: *Hibiscus rosa-sinensis*

Family: Malvaceae

Constituent:

Hibiscus rosa-sinensis contained tannins, anthraquinones, quinines, phenols, flavanoides, alkaloids, terpenoids, saponins, cardiac glycosides, protein, free amino acids, carbohydrates, reducing sugars, mucilage, essential oils and steroids.

Uses:

1. Hibiscus for Hair Growth: Herbal hair oils are typically a combination of herbal extract such as hibiscus, mixed with a carrier oil base, such as: almond oil, coconut oil, mineral oil, jojoba oil, olive oil, walnut oil, wheat germ oil. Hibiscus is rich in vitamin C, flavonoids, amino acids, mucilage fiber, moisture content, and antioxidants. The goodness of hibiscus beautifies your hair by nourishing your locks, promoting the growth of luscious hair, and bringing out a naturally satinsoft texture to your mane

2. Hibiscus Protects Scalp From External Damage: Hibiscus plants are packed with resilient properties that keep your scalp protected from external stressors. Its impact on your scalp acts as a sunscreen to protect your hair from UVB rays. Cleansing properties of

hibiscus also help balance the pH of your scalp, fight oiliness, build-up of dandruff, and activate your hair follicles

3. Hibiscus for Hair Root Strength: Hibiscus flowers and leaves are rich in invigorating ingredients - flavonoids & amino acids. Flavonoids enhance blood circulation to your hair follicles, retransform dormant follicles into hair follicles, stimulating new hair growth. Amino acids trigger keratin production in the cells of your hair follicles, encouraging healthy hair growth

4]ALOE VERA:-

Constituent:-

Anthraquinones, resins, tannins and polysaccharides are the major chemical constituents in Aloe vera . The gel also contains vitamins A, B, C, E, B12, enzymes and amino acid. Aloe vera gel is effective for scalp and can be used not only to treat hair loss, but to promote hair growth as well. Aloe vera contains aloe emodin which promotes hair growth by stimulating hair follicle.

Uses:- It is used as a natural mordant. One of the most valuable cosmetic properties of aloe gel is its ability to stimulate the circulation of the skin and remove the dead skin cells so giving a fresher and younger appearance to the skin. It is recommended for sunburn, insect bites and etc .



Figure 3. Aloe vera

5]VITAMIN E:-

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.

Uses:-

Prevent hair loss- vitamin E supplements improved hair growth in people with hair loss. It's thought that the vitamin's antioxidant properties helped reduce oxidative stress in the scalp. Improve scalp circulation- Vitamin E may increase blood flow, which is said to improve hair health.

Support a healthy scalp :-Vitamin E is essential for healthy skin — and this includes your scalp. Vitamin E supports the scalp and gives your hair a strong base to grow from by reducing oxidative stress and preserving the protective lipid layer.

6] ROSE WATER:-

Constituent :-

The volatiles consisted mainly of 2-phenylethanol (69.7–81.6%), linalool (1.5–3.3%), citronellol (1.8–7.2%), nerol (0.2–4.2%), geraniol (0.9–7.0%) along with rose oxides and all other characteristic minor rose compounds.

Uses :-

Rose water is beneficial to the overall health of the scalp, it can help establish a good foundation for hair growth and help prevent hair loss. "Rose petals are also high in vitamins A, B3, C, and E, which nourishes the scalp and stimulates hair follicles, promoting hair growth," says Chen.



Figure 4 Rose water

PREPARATION OF PLANT EXTRACTS

❖ Procedure for extraction of flaxseed –
Hot water extraction method

The flaxseed aqueous extract was prepared by boiling 15gm flaxseed with sufficient quantity of 250 ml distilled water with continuous stirring until thick

mucilage obtained. Then mucilage filter by using muslin cloth & stored at room temperature.

❖ Procedure for Rice water (fermented) – There are many ways one can make rice water. There are different methods soaking, boiling and fermenting. Making rice water for hair by fermentation -For this, you need to take half a cup of uncooked rice. You can use any type of rice for this. Wash the rice in flowing water to remove any impurities it might have. Then keep this washed rice in a big bowl and add two to three cups of clean water to the bowl. Once you have strained out the rice, store the water that remains in a closed glass jar in the open. Once there is a sour smell coming from the bottle, transfer this to the refrigerator. This is very potent rice water.

❖ Procedure for Extraction of hibiscus - Decoction method
10 gm of dried petal was taken in beaker an extract with 200 ml water at 90 °c for 2 hrs. Extract was filtered and stored.

❖ Procedure for extraction of Aloe Vera – Take 2 matured aloe Vera leaves were taken and washed it with water to remove dirt. The upper green layer was removed by using knife. With the help of spoon, inner transparent sticky material was taken and allowed to dry to get the powder form.

METHODOLOGY

Procedure of Herbal Hair Serum Formulation:

1. Clean all the glassware and dry them properly as per SOP.
2. Measure the accurate quantity of aqueous extract of flaxseed aloe Vera gel , decoction of hibiscus & fermented rice water transfer it in beaker.
3. Mix required quantity vitamin E in extract mixture.
4. Now mix rose water to the above mixture of extract mixture.
5. After that stir the preparation with the help of stirrer.
6. Transfer the preparation in measuring cylinder and adjust the final volume to 30ml.
7. Transfer final solution into container.

FORMULATION TABLE:-

SR NO.	INGREDIENT	PART	ROLE
1	Extraction of Flaxseed(ml)	Seed	Nourishes the hair follicle
2	Rice water fermented (ml)	Seed	Balance the scalps pH level
3	Hibiscus extract (ml)	Petal	Stimulus hair growth
4	Aloe vera gel extract (ml)	Leave	For norishment
5	Methyl paraben (gm)	-	Preservative
6	Vitamin E (ml)	-	Antioxidant
7	Rose water	Petal	Perfume

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 clamor.

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.

REFRENCE

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