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Formulation and Evaluation of Herbal Hair Serum

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Abstract: Hair is a thread like protein filament that grows from follicles in mammalian skin of dermis layer. It is composed of a fibrous structural protein keratin. Hair has a significant impact on persons over all look and personality. Maintain it, we use a variety of cosmetic products, which are in high demand due to the prevalence hair related problem. In recent periods people show more interest on herbal products. It gained a popularity as a healthy alternative to the synthetic hair care product. It has benefits like reducing dandruff, hair shine, soothing of the scalp. Guava leaf is used in hair serum. It has a benefit of antioxidant property, anti-microbial, anti-inflammatory properties. Chia seeds help to moisturize, reduce frizz, conditioning and omega3, rich in fatty acid. Peppermint oil used to regulate good blood flow and helps in hair growth. Alkanet root used in the serum contains natural pigments and antioxidants compounds. This formulation contains a various phytochemical parameters including PH, spread ability, viscosity, along with stability testing, anti-microbial activity.

Keyword: Guava leaf, chia seeds, peppermint, alkanet root, hair serum

INTRODUCTION

An herbal hair serum is a leave in haircare treatment formulated with plant-based vitamins, extracts, essential oil. Hair serum can reduce hair fall, improve hair growth, anti-frizz, anti-dandruff. Herbal hair serum has high advantages so the desire of many people to stay appealing and youthful. Hair serum plays a vital role in people's life. It has an active ingredient in the formation that provides the body with lot of nutrients and helps to dissolve the most of hair problems. Guava leaf extract is used in hair serum that has an antioxidant, anti-microbial, anti-inflammatory. Chia seeds are used as a gel to moisturize, anti-frizz, conditioning, omega3 and rich in fatty acid. It also helps in scalp nourishment and hydration. Peppermint oil used to increase the blood flow and used in hair growth. Alkanet root used as a pigment and soothing of hair. These plants are used widely for hair related problems. Its phytochemical components are alkaloids, flavanone, flavonoids, essential oil, saponins, tannins, phenolics, terpenoids. This hair serum contains a base of distilled water, and glycerine. This formulation aims to treat hair fall, dandruff, and frizz control.

AIM AND OBJECTIVES

- Herbal hair serum is used to smoothen, frizz free and make hair silky.
- Hair serum guard against heat damage, dust, pollution, sun damage and protect the hair excellently.
- Hair serum gives an extra shine to the hair; it prevents hair fall.
- To provide an alternative to the synthetic hair serum.
- To provide a moisturized, smooth, anti-frizz, anti-hair fall serum.
- To improve the texture and condition of the hair.
- To carry out the evaluation test of herbal hair serum.

MATERIALS

The following herbal ingredients and excipients were used for the preparation of the herbal hair serum:

- Guava leaves
- Chia seeds
- Peppermint essential oil
- Alkanet root
- Distilled water
- Glycerine
- Sodium benzoate

GUAVA LEAVE





Fresh guava leaves (Sodium guajava) are rich in flavonoids, vitamin C, and antioxidants. They help strengthen hair follicles, reduce hair fall, promote hair growth, and improve scalp health due to their antimicrobial and anti-inflammatory properties.

CHIA SEEDS

Chia seeds (Salvia hispanica) contain omega-3 fatty acids, proteins, amino acids, zinc, and antioxidants. They form a natural gel that moisturizes the scalp, improves hair texture, reduces breakage, and supports healthy hair growth.




PEPPERMINT OIL

Peppermint essential oil (Mentha piperita) contains menthol, which stimulates blood circulation to the scalp. It promotes hair follicle activity, reduces itching and dandruff, provides a cooling sensation, and encourages healthy hair growth.



ALKANET ROOT

Alkanet root (Alkanna tinctoria) contains natural pigments and antioxidant compounds. It is traditionally used in herbal cosmetics to improve scalp health, reduce inflammation, and provide a natural reddish tint to herbal formulations.




DISTILLED WATER

Distilled water is produced by vapour and condensing the vapour into liquid in a separate container. It is used stable the hair serum. It is used as a base in this formulation.

GLYCERINE

Glycerine is also known as glycerol. It is a naturally occurring sugar alcohol, glycerine is colourless, odourless, and viscos liquid it is also used to moisturize the scalp and hair.

SODIUM BENZOATE

It is used as water soluble preservatives that prevents harmful bacterial growth. It is added in the hair serum to increase the shelf life of the product.

METHOD OF FORMULATION

The following method is used for the formulation of herbal hair serum

1. COLLECTION AND PREPARATION OF RAW MATERIAL

Fresh guava leaf is collected

Wash the guava leaf in clean water and followed by distilled water

After washing dry those thoroughly using clean tissue

Alkanet root is cleaned and all the ingredients were weighed

2. EXTRACTION OF HERBAL INGREDIENTS

Guava leaf and alkanet root extract were extracted by maceration method

Then the extract is filtered into muslin cloth and then in filter paper to get a pure and clear extract

3. PREPATION OF CHIA SEED GEL

The chia seeds were soaked in a warm water for 30 mins

This soaked chia seed was filtered using a muslin cloth to get a gel

4. PREPARATION OF THE SERUM BASE

The pure herbal extracts and the chia seed gel were mixed

The mixture is stirred continuously to get a uniform solution

5. ADDITION OF ESSENTIAL OIL AND PRESERVATION

The mixture is cooled below 40°

Glycerine is added

Sodium benzoate is dissolved in small amount of distilled water

The dissolve mixture is added to the serum

The peppermint oil is added while stirring continuously to get a uniform mixing

6. HOMOGENIZATION

The mixture is stirred well until the smooth uniform consistency is achieved

Allow the mixture to stand for few minutes to remove the air bubbles

7. PACKAGING

Sterilizing the serum bottle

Under a hygienic condition the serum is filled in the sterilized bottle

The serum is closed tightly with the help of pump

Then the serum bottle is labelled

The serum is stored at a room temperature or store in refrigerator until use

METHODS OF EVALUATION

Evaluation methods were used to ensure the drug is safe, works as intended, and meets strict laws. They help to check the identity, purity, and strength of a medicine. These tests also catch bad batches and predict how long a drug stays fresh on the shelf.

PHYSICAL EVALUATION

Physical evaluation is the visual and practical testing of a hair serum's physical features, such as colour, smell, and texture. It ensures the serum is safe, easy to use, and stable on your hair.

1. APPERARANCE

This test is used to test the hair serums colour, shine and clarity

2. ODOUR

It is used to ensure that the serum has a neutral and pleasant smell

3. TEXTURE

This test is used to analyse that the serum has a smooth, greasy, or sticky when the serum is rubbed between the fingers

3. HOMOGENECITY

This test is used to verify that the serum is well mixed, and it has a no air bubbles

4. SPREAD ABIBILITY

This test helps to know that the serum is easily glides and distributes over all the hair strands

5. PH LEVEL

PH level checking test is used to measures the acidity of the hair serum and the ideal PH the matches the natural scalp PH (4.4 to 5.5) to prevent the irritation when applying on the scalp

6. VISCOSITY

This test helps to measure the serums thickness. Good serums will flow easily on the scalp. The serum should not be too sticky nor too runny

7. WASHABILITY

This test helps to check that the serum is easily washed after applying on the skin

8. MICROBIAL LIMIT TEST

This test helps to test that the serum is free from microbial contamination, and the serum has a stable shelf life

RESULT AND DISCUSSION

The reviewed studies indicate that the herbal hair serum that containing guava leaf, chia seed gel, alkanet root, peppermint oil and glycerine exhibit promising and good effect on hair fall reduction, hair growth, and scalp health improvement, and improved hair shine. Most of the formulations were well tolerated with minimal adverse effects. These despite promising findings in study methodology and limited high-quality clinical evidence highlights the need for the further use.

Herb	Active constituents	Reported benefits
Guava leaf	Flavonoids, quercetin	antioxidants
Chia seeds	Alpha linolenic acid	Moisturizes, the hair, omega3
Alkanet root	Alkannin, shikonin	Anti-inflamma-tory
Pepper-mint oil	Menthol, menthone	Muscle relaxant, cooling agent

CONCLUSION

Based on the studies that reviewed that the herbal hair serum represents the valuable improvement in the natural hair care due to their multifunctional properties and safety profiles. The synergistic effect of bioactive compound that derived from the plant that improve hair strength, scalp health, and hair fall reduction. Future research should focus on standardized formulation development, quality control, large scale clinical trials to strength the scientific evidence and facilitate clinical and commercial applications

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