

# Review on Herbal Hair Oil: Formulation and Evaluation

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**Abstract:-** The complex microenvironment of the skin, which includes several tissue layers, three glands that bathe hair in secretions, and numerous vascular systems that can deliver medications to hair at various levels along the hair shaft, is home to the tiny organs (follicles) that give rise to hair. The medulla, cortex, and cuticle are its three separate layers. The medulla is the innermost layer of your hair, while the cortex is what gives it its strength and color. Amino acids, the building blocks of proteins, are also found in your hair. Studies have demonstrated the ability of herbs and herbal drugs to stimulate hair growth.

The primary problems associated with hair loss include fading, dandruff, and hair loss, which both men and women find quite concerning. Herbal hair oils have gained attention by being compared to synthetic medications, which can have side effects like burning, itching, and localized irritation. The many kinds of hair oils and their possible advantages for hair are covered in this abstract. It also emphasizes how little is known about the precise effects of hair oils on the hair and scalp. The importance of herbal hair oil for hair health is emphasized in this abstract, along with how it can prevent hair loss, manage frizz, and enhance hair health.

The ingredients that are commonly used to manufacture herbal hair oil, like coconut, sesame, and mustard oils, are also highlighted. The blend offers anti-hair loss properties as well as other positive effects like decreased hair pigmentation, increased blood circulation in the scalp and roots, antifungal effects, and decreased graying and hair growth.

**Keywords:-** Hair, Herbal Hair oil, Hair Growth, Herbal Cosmetics.

## I. INTRODUCTION

One of the most significant and obvious characteristics that enhances a person's overall appearance is their hair. [1] It is a unique and treasured characteristic of humans, particularly women, but its primary purposes are to protect the skin from mechanical harm and to support homeothermy; for instance, eyelashes and eyebrows keep objects out of the eyes, and scalp hair shields the head and neck from the sun, cold, and physical harm.

The complex microenvironment of the skin, which consists of several tissue layers, three glands that secrete substances that bathe hair, and numerous vascular systems that can deliver medications to hair at various levels along the hair shaft, is home to the tiny organs (follicles) that give rise to hair. Hair loss is referred to as "Khalitya" in ancient literature such as Ayurveda, which fall under the category of "Shiroroga," which means ailment of the head and scalp.

Under the notion of "Dinacharyas," it explained Shiro Abhyanga, or head oiling, and how it is much more than just a cosmetic practice. [3] These hair follicles are strengthened by the herbal hair oil, which promotes and nurtures hair development. Many different herbs have been used to treat hair. Aloe vera pulp, Tulsi, Hibiscus guava leaves, coconut oil, almond oil, and methi are a few of these herbs. Because of their positive effects and relatively low or nonexistent adverse effects compared to synthetic medications, herbal formulations have always attracted a lot of attention.

Alopecia, greying of the hair, split ends, dandruff, frizzy hair, and other hair issues can be resolved with the use of hair oil preparation. [3] Herbal hair oils are formulations that are strong, healthy, and devoid of seborrhea and hair flakes. They generally consist of boiling amla, coconut, almond, olive, jojoba, and sesame oils, as well as a powdered herb blend.

## II. ANATOMY OF HAIR

Hair follicles produce the external skin outgrowth known as hair. It consists of a tip, a shaft, and a root. Depending on the type of hair and the area of the body where the follicle is located, a human hair shaft's diameter can vary from 15 to 120 micrometers.[5]

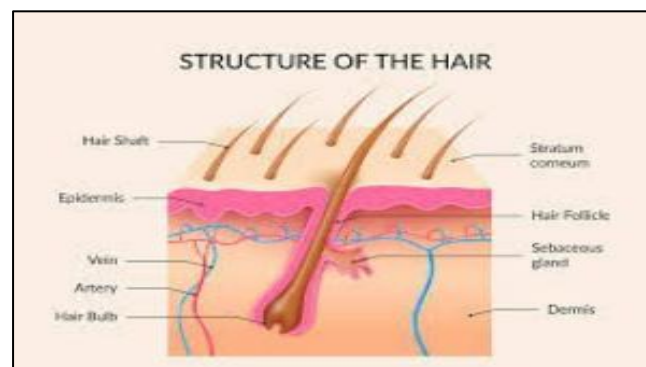


Fig 1 Structure of the Hair

### A. The Following are some Characteristics of Hair Anatomy:

#### ➤ Hair Shaft and Hair Root :

The hair's shaft is its outermost section. The root is the part of the hair that extends deeply into the dermis and occasionally into the layer beneath the skin.

The root and shaft are made up of the following three concentric layers.

- Medulla: The shaft's center.
- Cortex: Makes up the majority of the shaft and is situated outside the medulla.
- Cuticle: Hair's outermost layer, made up of a single layer of thin, flat, highly keratinized cells.[6]

#### ➤ Hair Follicle:

The center of biological activity, such as hair development, is the hair follicle.[8]

#### ➤ Functions of Hair:

- The main function of hair in animals is to guard against cold and keep body heat warm.
- Individuals of a species can use the different colors and patterns of their hair coats for concealing as well as for sexual recognition and attraction.
- Apocrine sweat, sebum production, thermoregulation, and protection from environmental aggressors are just a few of the functions that human hair fulfills.
- Additionally, a person's hair affects their sexual and social connections.
- Temperature control [9]

#### ➤ Herbal Hair Oil:

Hair oil is one type of hair care product. Hair care products are product formulations that are used to clean, change the texture of hair, nourish hair, and maintain the appearance of healthy hair. Furthermore, compared to traditional cosmetics, herbal cosmetics are less harmful and easier to locate. Herbal hair oil is an essential part of herbal cosmetics. For a variety of hair problems, herbal hair oil is becoming more and more popular.[10] Essential oils have antibacterial, antifungal, anti-inflammatory, and antioxidant properties that promote an increase in the density of the hair shafts, a cleaning effect on the hair bulb, and the strengthening of the entire bulb/stem system. [11]They can also have an impact on the cellular function of the skin following topical application. [12]

- **Hair Oils Are Used To Treat Hair And Scalp In Many Ways, Including: Hair Growth:** Some hair oils can promote hair growth and prevent hair loss
- **Scalp Health:** Hair oils can keep the scalp hydrated and relieve irritation
- **Frizz:** Hair oils can prevent frizz and add shine
- **Dandruff:** Hair oils can help prevent dandruff
- **Premature Graying:** Regular use of hair oils can help prevent premature graying

#### ➤ Benefits of Herbal Hair Oil:

- Encourage the growth of natural hair.
- hydrates the scalp.[10]
- Increase hair development.
- Prevent dandruff.
- Stress reduction and smoother, glossier hair are two benefits.
- Give your hair a natural, healthy appearance.[7]

#### ➤ The Different Herbs use in the Formulation of Herbal Hair Oil:-

- *Aloe vera*



Fig 2 Aloe vera

- ✓ **Biological Source:** aloe vera is the dried juice from the leaves of the *Aloe barbadensis miller* plant
- ✓ **Family :** Liliaceae

#### ✓ Uses :

- Proteolytic enzymes included in aloe vera pulp help to regenerate dead skin cells on the scalp.
- It also works wonders as a conditioner, leaving your hair feeling silky and lustrous.
- It promotes hair growth, lessens dandruff, stops scalp irritation, and nourishes your hair.[4]

- *Tulsi*



Fig 3 Tulsi

- ✓ **Biological Source:** Tulsi consists of the fresh and dried leaves of *Ocimum* species like *Ocimum sanctum* L. and *Ocimum basilicum* L.

- ✓ **Family :** Labiatae

- ✓ *Uses:*

- One effective treatment for hair loss is tulsi.
- Vitamin K and antioxidants abound in tulsi, which also promotes hair growth and blood circulation, among other benefits.[13]

- *Hibiscus*



Fig 4 Hibiscus

- ✓ **Biological Source:** It is the flower of the plant *Hibiscus syriacus* or *Hibiscus rosa-sinensis*

- ✓ **Family :** Malvaceae

- ✓ *Uses:*

- *Hibiscus rosa-sinensis* leaves and flowers contain anti-aging and hair-growth- promoting qualities [11].

- *Neem*



Fig 5 Neem

- ✓ **Biological Source:** It is obtained from fully matured seeds of *Azadirachta indica* Linn

- ✓ **Family :** Meliaceae

- ✓ *Uses :*

- Hair loss can be effectively treated with the herb neem, which is well- known for its medicinal properties.
- Neem is good to get rid of dandruff because of its antibacterial and anti- inflammatory characteristics.

- *Methi*



Fig 6 Methi

- ✓ **Biological Source:** The biological source of methi, also known as fenugreek, is the dried seeds of the *Trigonella foenum-graecum* plant

- ✓ **Family :** Fabaceae

- ✓ *Uses:*

- Methi's protein and amino acid content can help thicken hair.
- Methi's lecithin can help strengthen hair.

- *Coconut Oil*



Fig 7 Coconut Oil

✓ **Biological Source:** Coconut oil is obtained from the stone fruit of the coconut tree (*Cocos nucifera*)

✓ **Family :** Areaceae

✓ **Uses :** -

- Coconut oil nourishes the scalp and relieve skin irritation.[14]
- Reducing symptoms of scalp psoriasis.
- Moisturization.
- Coconut oil could help you grow your hair longer.

• *Almond Oil*



Fig 8 Almond Oil

✓ **Biological Source:** Almond oil is obtained from almond (*Prunus amygdalus*) nuts

✓ **Family :** Rosaceae

✓ **Uses :**

- Strengthen the hair.
- Protect the hair from sunlight.
- Use as scalp treatment.

• *Jasmine*



Fig 9 Jasmine

✓ **Biological Source:** derived from the white flowers of the common jasmine plant, also known as *Jasminum officinale*.

✓ **Family :** Oleaceae

✓ **Uses :**

- Depression and anxiety relief.
- Jasmine flowers provide the oil a pleasant scent and act as conditioning and antibacterial agent.

### III. METHOD OF PREPARATION

All of the raw medicine herbs are gathered and allowed to dry in the shade. The active ingredients will be preserved when drying in the shade. Shade drying is therefore better than artificial drying. A mixer was used to turn the dried crude medicines into a coarse powder. All of these coarsely grinded medications are subsequently run through mesh number 80. The resulting powders are combined to create a homogenous slurry. Coconut oil is now added and thoroughly blended. After 15 minutes of boiling, the contents were filtered through muslin fabric. Coconut oil was added to the filtrate to increase its volume. After adding a tiny bit of flavoring ingredient, the oil was finally put in an amber-colored bottle.[22]

➤ **Evaluation of Herbal Hair Oil:-**

The formulated herbal oil can be evaluated by parameters like pH, acid value, saponification value, refractive index, viscosity and organoleptic parameters

• **Sensitivity Test:-** The prepared herbal hair oil can be applied to a hand's 1 cm skin and left in the sun for 4-5 minutes.

• **Storage Stability:-** The storage stability can be carried out for the prepared herbal hair oil at a temperature of 37 °C for 5 days.

• **pH:-** A pH meter can be used to determine the herbal hair oil's pH.

• **Viscosity:-** Ostwald's viscometer can be used to measure the viscosity.

• **Specific Gravity:**

After being rinsed with distilled water and dried in a hot air oven for fifteen minutes, the specific gravity bottle was cooled, capped, weighed, and marked as (a). The sample was now put into the same specific gravity bottle, sealed, and weighed once more (b). The sample's weight per milliliter was calculated by deducting the weights (b-a).

• **Refractive Index:** A refractometer was used to determine it.

• **Organoleptic Characteristics:** Color, smell, and skin irritation were assessed by manually.[23]

#### IV. FUTURE PERSPECTIVES

- **Natural Ingredients:** Consumers are increasingly preferring natural products, and herbal hair oils are made with Natural ingredients like amla, bringraj, and neem.
- **Scalp-related Diseases:** The prevalence of scalp-related diseases like psoriasis, seborrheic dermatitis, and folliculitis is driving demand for therapeutic hair oils.
- **Plant Extracts:** Plant extracts like basil and aloe vera are popular for their ability to nourish hair.
- **Increasing Awareness:** Consumers are becoming more aware of the importance of hair nourishment and are looking for more comprehensive hair care.

#### V. CONCLUSION

India is renowned for its extensive understanding of traditional herbs and how to use them. Several medicinally significant herbs can be utilized to cure a variety of common hair issues, as this article aims to explain. Since herbal products are entirely composed of herbs and shrubs, they are the most popular. Due to the highly polluted atmosphere, both men and women in today's generation experience common hair issues like dandruff, shedding, and pigmentation issues (fading). Utilizing the herbal formulation's bioactive elements promotes healthy skin and hair by boosting the biology of the skin and hair. Many vitamins, antioxidants, different oils, proteins, terpenoids, and other nutrients are typically found in herbal formulations.

##### ➤ *Role of Herbs in Herbal Hair Oil*

- *Ingredients*
- *Importance*

- ✓ Aloe vera
- ✓ Boosting scalp health
- ✓ Tulsi
- ✓ anti- bacterial
- ✓ Hibiscus
- ✓ Controls premature greying
- ✓ Guava leaves
- ✓ anti-dandruff
- ✓ Methi
- ✓ hair growth
- ✓ Coconut oil
- ✓ moisturizes dry hair
- ✓ Almond oil
- ✓ Treat hair loss and strengthens the hairs
- ✓ Jasmine
- ✓ Conditioning agent , provide good odour

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