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A REVIEW: HARBAL THERAPY USED IN HAIR LOSS

Jayashri Rathod*, Shyam Rathod, Shital Rathod, Snehal Rathod

Valmik Naik College of Pharmacy Telwadi, Ta. Kannad, Dist. Chh. Sambhjinagar.

***Corresponding Author: Jayashri Rathod, Shyam Rathod**

Valmik Naik College of Pharmacy Telwadi, Ta. Kannad, Dist. Chh. Sambhjinagar.

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ABSTRACT

Alopecia, or hair loss, is a prevalent dermatological and psychological issue that affects people of all ages. The natural hair growth cycle is disrupted by a number of causes, including hormonal imbalances, autoimmune illnesses, stress, infections, pollutants, genetic predispositions, and dietary inadequacies. Herbal therapies are becoming more popular as safer, all-encompassing alternatives to conventional medicines, which frequently offer little relief or have negative side effects. The several types of alopecia, the process of the hair development cycle, and the anatomical and physiological features of hair are all summarized in this overview. It draws attention to the therapeutic potential of a number of medicinal herbs that have long been used to stop hair loss and encourage hair growth. Herbal remedies work in a variety of ways, including providing vital nutrients, improving scalp microcirculation, acting as antioxidants, and blocking dihydrotestosterone (DHT) by suppressing 5-α-reductase. Plants that show promise in stimulating hair follicles, enhancing scalp health, and decreasing hair shedding include Ginkgo biloba, Phyllanthus emblica, Allium cepa, Lavandula angustifolia, Rosmarinus officinalis, Juglans regia, and Glycyrrhiza glabra. In addition to promoting additional scientific validation to establish standardized formulations and clinical efficacy, this review highlights the value of herbal therapy as a complementary or alternative method in controlling various forms of alopecia.

KEYWORDS: Lavender, Ginkgo biloba, Phyllanthus embelica, Allium cepa L., Rosmarinus officinalis, and Hairs.

INTRODUCTION

Hair

All mammals, including humans, have hair as a distinguishing feature. It serves a number of functions, including protecting the skin from damage and helping to keep the body temperature steady. For example, scalp hair protects the head and neck from sunshine, cold, and physical harm, while eyebrows and lashes keep foreign things out of the eyes. Hair also contributes significantly to social and sexual communication and enhances the sense of touch on the skin's surface. The psychological effects of hair conditions like hirsutism and hair loss highlight how crucial hair is to a person's quality of life. Except for certain places like the palm of the hand, the buccal surface of the lip, the sole of the foot, and parts of the external genitalia, mammalian skin generates hair all over the body. Human hair grows differently in different parts of the body. The scalp, eyelashes, and eyebrows have longer, thicker, and highly pigmented hair, while the majority of the body surface has microscopic, almost colorless hair. Additionally, hair varies in length, diameter, cross-sectional shape, color (brown to black or yellow to reddish brown), and form (straight, helical, or wavy).[1]

Hair Structure and its characteristics

Each hair on the human body grows from its own unique hair follicle, which is comprised of two main components: the hair bulb and the hair shaft.

The Hair bulb

The developing hair cells, including the melanocytes that produce melanin, the pigment that gives hair its color, are housed in the hair bulb, which is found at the base of each hair follicle.

The Hair shafts

The hair shaft, visible above the scalp, is composed of compacted and fused keratin protein. It iscomprisedof three layers.

The Cuticle

The cuticle, a protective covering that covers human hair, is made up of six to ten layers of cells that range in thickness from 0.2 to 0.5 mm. By decreasing the flow of moisture into and out of the underlying cortex, it also preserves the hydration balance and flexibility of the hair.

The Cortex

The cortex, which is made up of long keratin filaments joined by hydrogen and disulfide bonds, is what gives hair its primary bulk and color. The cortical cells, which range in size from 3 to 6 mm in diameter and up to 100 mm in length, are densely packed and directed.

The Medulla

The medulla, the innermost layer of hair, is found in thicker hair types. Its transparent cells and air voids combine to form a thin, squishy core.[2, 3]

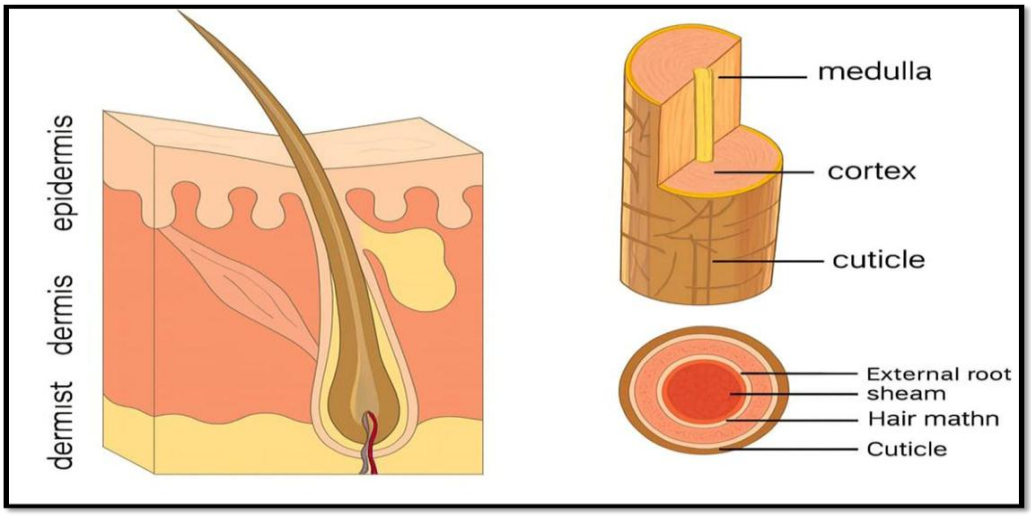

Figure 1: Hair structure.

Types Of Hair Loss

a) Alopecia Areata (prime stage): This common autoimmune illness causes hair loss on the scalp and other parts of the body. Usually, it begins with one or more tiny, smooth, spherical, non-scarring spots. Mild Brief Alopecia Areata: A patient who frequently has brief alopecia areata but never develops alopecia totalis or universalis.

b) Temporary Alopecia Areata: Patients with severe Alopecia Areata may develop Alopecia Totalis or Alopecia Universalis.

c) Ophiasis Alopecia Areata: This kind of alopecia is characterized by a band-like loss of hair. Since most medications have a delayed effect on the progressive or occipital regions of the scalp, it is more challenging to treat.

d) Alopecia Totalis: Hair loss across the scalp.

e) Alopecia Universalis: Loss of all body hair, including lashes and eyebrows Alopecia with scar rings Scarring alopecia is the term for any inflammatory process (burns, bacterial infections, ringworm, injuries) that results in the irreversible loss of follicles in the affected area. Trichotillomania: This kind of hair loss is referred to as dull self-pulling or compulsive pulling by the patient.

f) Traction Alopecia: When hair is tied too tightly, it can create a lot of traction at the hair roots and lead to adhesion. Alopecia

g) Chemotherapy and hair loss: Chemotherapy only affects cancer patients, but it also damages healthy cells and hair follicles. This is referred to as anagen effluvium kind of alopecia and results in hair loss.

h) Diffuse Alopecia: Unnecessary hair loss throughout the scalp without the development of a reinforcing. Hair loss as a side effect of beauty treatments: Some people may have hair loss as a result of any beauty procedures that use harsh chemicals, such as hair colors, dyes, straightening, softening, rebounding, perming, etc. Chronic telogen effluvium (CTE) and telogen effluvium (TE) Dietary deficiencies and crash diets Telogen effluvium, a kind of hair loss, can be brought on by high-grade fever, anemia, blood loss, hormonal imbalance, pregnancy, etc. The words "telogen" and "fluvium" refer to the latent phase of hair.

Hair Loss Symptoms

Hair loss can be caused by a number of circumstances, some of which are listed below:

- Acute sickness
- Autoimmune diseases
- Chemicals (hair dyes**)**
- Medications used in chemotherapy.
- Diabetes
- Postpartum hair loss
- Hair styling products
- Hair styling methods
- High iron deficiency
- Nutritional deficits
- Additional fungal infections

• Physical injuries to the scalp
• Toxins Inadequate blood flow
• Malnourishment or poor diet
• Prescription medications
• Psychological Exposure to radiation
• Ringworm,
• Skin conditions
• Stress
• Abrupt weight loss
• Thyroid illness and surgery

The Mechanism of the Hair Growth Cycle

The anagen phase is followed by the catagen and telogen phases in the exhausting cycle of hair growth. In the anagen phase, the hair is actively growing while in the catagen phase it is characterized by the degeneration and resorption of the lower region of the hair follicle. The resting phase, where the hair is inactive, is called telogen phase after this phase the growth of the hair follicle resumes in the scalp, a hair growth cycle has three main phases: Anagen, catagen, and telogen. The anagen phase is the growth cycle typically lasts 3-5 years. Ninety percent of the 1,000,000 hair follicles on a healthy scalp are always in the anagen stage of hair growth. When a follicle starts to go dormant at the end of the growth period, it enters the catagen stage. For three to four months, there is a dormant or resting phase known as the telogen stage. An old hair falls out when the dormant phase is over. After then, a hair follicle goes back to the anagen stage, and new hair starts to develop. Depending on a person's age and hair follicles, the average rate of hair growth is approximately half an inch every month. In a typical hair growth cycle, 50–60 scalp hairs are lost per day on average, and new hairs start to sprout from these follicles. When fewer new hair enters the regrowth stage, hair loss starts.

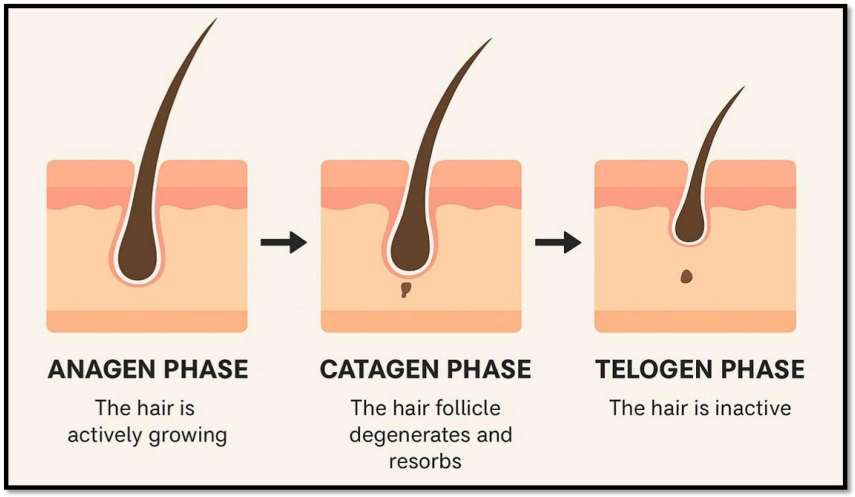

Figure 2: Hair Growth Cycle And Its Mechanism.

The Herbs Used in The Treatment of Alopecia Provide One of the Following

1. Nutritional support.
2. DHT blockers and 5-α-Reductase blockers.
3. Aromatherapy and improved scalp blood Circulation.

1. Nutritional Support

To sustain healthy hair development, minerals like calcium, copper, chromium, iodine, zinc, and magnesium are required. A mineral shortage will lessen the ability to control thyroid hormones, which prevent dry hair, hair loss, and color defects, as well as blood circulation, which supports healthy hair growth. Your body is poisoned by too much iron. Before using any mineral supplements, make sure to see your physician. B vitamins, including B6, B3, B5, and folic acid, and biotin, an antioxidant found in whole grains, egg yolks, liver, rice, and milk. For general health, vitamin A is essential. Because it keeps the hair root moist, it is also advantageous to hair follicles. Vitamin E plays a significant part in encouraging hair development and preventing hair loss since it functions as an antioxidant that improves actual circulation in the scalp through improved blood oxygen intake. The vital vitamin coenzyme Q10 (CQ-10) gives our bodies the nutrients they need to grow healthy hair. They also support strong nails and gorgeous skin, as well as general vigor. The finest sources of vitamin E, an immune-boosting antioxidant and nerve protector, are usually yogurt and soy, dark green vegetables, whole grain goods, essential fatty acids, nuts, and seedier fatty foods. Vitamin A is abundant in carrots. It is an antioxidant that aids in the scalp's production of healthy sebum. Hair loss may result from an excess of vitamin A. Numerous additional items, including fruits, eggs, spinach, and broccoli, can help prevent hair loss and encourage hair growth. The following is a summary of the several herbs that offer nutritional support.

2. DHT Blockers and 5-α-Reductase blockers[7, 8, 9, 10]

Given the recognized significance of DHT in hair loss, it is advised to treat alopecia (particularly androgenetic) with herbs that have strong DHT or 5-α-Reductase inhibiting action. Some herbs, such as Pygeum africanum, Seneroa repens, and Urtica dioica, have been shown to block DHT, while others, such as Camellia

sinensis and Panax ginseng, may be able to inhibit 5-α-Reductase (table 1). The suggested mode of action of 5-α-Reductase and DHT blockers.

3. Aromatherapy

Alopecia can be treated using aromatherapy as a complement. It makes use of highly concentrated extracts from a variety of plants, including Arnica montana, Cedrus atlantica, Lavandula agustifolia, Oscimum sanctum, Pilocarpus jabarondi, Rosmarinus officinalis, Thyme vulgaris, and others (table 2). The essential oils used in aromatherapy enter the body through the skin or the olfactory system (inhalation). Similar to oral herbs, the essential oils enter the bloodstream and attach to receptors to alter the chemical makeup. These oils provide a sense of well-being on a spiritual level in addition to strengthening and calming the nervous system on a cellular level. Although the precise pharmacological effects of these herbs and oils are yet unknown, topical herbal therapy stimulates hair follicles and has been shown to be the safest technique to treat various forms of hair loss (alopecia).

This is used to treat alopecia

a.Ginkgo biloba (family Ginkgo)

Chemical components include lactones, anthrocyanins, sitosterol, bioflavin, ginkgolides A, B, C, J, and M.

Application Method: The medication is extracted in coconut oil and rubbed for a minimum of two minutes.

Reason: Because the medication is known to enhance cerebral microcirculation, it raises.

b. Euphorbeaceae's Phyllanthus embelica

Components include calcium, iron, phosphorus, tannin, vitamin C, and phyllemblin.

Mode of Application: Indian gooseberry oil is a useful hair tonic for boosting hair development. It is made by boiling dry Indian gooseberry pieces in coconut oil. When used as a shampoo, a blend of equal parts fresh Indian gooseberry juice and lime juice promotes hair development and inhibits hair loss.

Reason: The oxygenation of your body's red blood cells depends on iron. It is necessary for healthy hair maintenance and proper hair development. Iron deficiency will result in hair loss due to oxygen insufficiency if the amount of iron cannot be replenished through diet.

c. Allium cepa L. (Liliaceae)

Constituents: Allyl propyl disulfide, diallyl sulfide, protein (albumin), alliin, and allicin are among the constituents. Additionally, it contains traces of chromium as well as minerals including potassium, zinc, calcium, and magnesium.

Application Method: Additionally, onions have been shown to help with patchy baldness. Onion juice should be applied to the afflicted area every morning and evening until it turns red. Afterward, it should be massaged with honey.

Reason: Zinc prevents dandruff, which can lead to hair loss, and helps the scalp secrete much-needed oil. The oxygenation of your body's red blood cells depends on iron. It is necessary for healthy hair maintenance and proper hair development.

d. Lavandula and Rosmarinus officinalis (Labiatae)

Ingredients: angustifolia Miller (Labiatae) The main components of rosemary include 1, 8-cineole, borneol, camphor, bornyl acetate, and monoterpene hydrocarbons. Rosmary is a 1-2% volatile oil with 0.8-6% esters and 8-20% alcohols. Lavenanlol, linalyl acetate, linalol, lavendulyl acetate, terpineol, and cineol are the main components of lavender oil.

Mode of Application: For seven months, these oils were massaged into the scalp for at least two minutes every day.

Reason: The essential oils enter your body through your skin or olfactory system (inhalation), travel to your circulatory system (blood), attach to receptors, and alter the chemical makeup of your blood. The safest method of treating many forms of hair loss (alopecia) is topical herbal therapy, which stimulates hair follicles; nevertheless, the ideal pharmacological activities of these herbs and oils are yet unknown.

e. Juglans regia L. 27 (Juglandaceae)

Constituents: The most common fatty acid is linoleic acid (50.58–66.60%), which is followed by oleic acid (14.88–28.71%) and linolenic acid (9.16–16.42%). Trace amounts of the other fatty acids were discovered. K (911.0 – 684.3), P (434.7 – 356.2), Ca (756.7 – 388.2), Mg (444.0 – 330.8), and Na (48.9 – 26.1) have macronutrient levels of 100 g-1; Fe (6.6 – 4.3), Cu (2.8 – 1.8), Mn (5.7 – 2.7), and Zn (4.3 – 2.7). All of the walnut kernels had higher potassium concentrations than the other minerals.

Mode of Application: Another helpful method for treating hair loss is to massage walnut oil into the hair roots and apply it all over the scalp. It encourages hair development and nourishes the hair.

Reason: The fruit has vital elements that support the development of strong, healthy hair. As previously mentioned, iron improves oxygen delivery and blood circulation. Zinc prevents dandruff, which can lead to hair loss, and helps the scalp secrete much-needed oil. According to research on copper, these tripeptide complexes may even be able to restore Hair in individuals who have completely lost their hair as a result of alopecia. Copper Concentrations in healthy tissues range from 1.7 to 3.5 milligrams.

f. Glycyrrhiza glabra Linn. (Leguminosae)

Constituents; Glycyrrhizin, potassium, and calcium salts of glycyrrhizinic acid are the main components.

Mode of Application: Another effective treatment for patchy baldness is licorice paste, which is created by crushing the pieces in milk with a touch of saffron. Before retiring to bed at night, apply this paste over the bald areas.

Reason: Liquorice extract has been shown to exhibit beneficial therapeutic properties.

CONCLUSION

Because herbal therapy is safe, inexpensive, and has multiple targeted mechanisms of action, it is a useful and widely recognized method for treating hair loss. The herbs discussed in this article provide vital nutrients, enhance blood flow to the scalp, have anti-inflammatory and antioxidant properties, and block important elements like DHT that cause different types of alopecia. Onion juice, amla oil, rosemary, lavender, licorice, walnut oil, and ginkgo are examples of traditional treatments that have demonstrated promising outcomes in increasing follicular activity and hair development. More standardized clinical trials are needed to identify the best dosages, formulations, and long-term safety profiles, even if empirical and preliminary scientific data supports their efficacy.

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