



An Overview of the Most Important Effective Medicinal Plants on Hair Growth and Treatment of Alopecia

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Abstract

Hair loss is one of the problems that affects both men and women in different ages. This hair loss can have many causes. Some are caused by treatable problems and for some no effective cure has yet been found. Lawsonia inermis, Spinacia oleracea, Nigella sativa, Cinnamomum verum, Glycyrrhiza glabra, Matricaria chamomilla, Thymus vulgaris, Allium sativum, Allium stipitatum, Arctium lappa, Linum usitatissimum, Aloe vera, Zingiber officinal, Altighaber officinale, Lavandula angustifolia, Mentha piperita, Salvia officinalis, Ocimum basilicum, Urtica dioica, and Achillea millefolium stimulate hair growth and treat baldness. It can be said that the use of herbal medicines that are from natural sources do not have the side effects of chemical medicines. Herbal hair loss treatment products usually affect hair follicles and also regulate scalp fat or increase the health of hair grafts and prevent hair loss.

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Dear editor;

Hair is one of the most important factors in human beauty. Hair loss is a disease that occurs for various reasons. A person with this problem often suffers from mental insecurity [1,2]. Lack of protein and nutrients, smoking, hormonal factors, heredity, infections, taking certain medications, stress, and nervous tension are the most important causes of hair loss [3,4]. From ancient times the herbal remedies and herbal medicines have been of great value so that in the past when chemical medicines were not discovered and became popular, people who got sick went to a doctor or sage and were treated with herbal medicines [5]. In modern medicine, there are very few topical medications that can help hair growth or prevent hair loss. But in traditional medicine, there are relatively good treatments to both prevent hair loss and increase hair growth. Of course, these treatments are time-consuming and this does not happen only in traditional Iranian medicine and in all scientific schools of skin, hair loss is difficult to treat and this issue should be considered [6,7]. *Lawsonia inermis*, *Spinacia oleracea*, *Nigella sativa*, *Cinnamomum verum*, *Glycyrrhiza glabra*, *Matricaria chamomilla*, *Thymus vulgaris*, *Allium sativum*, *Allium stipitatum*, *Arctium lappa*, *Linum usitatissimum*, *Aloe vera*, *Zingiber officinale*, *Althaea officinalis*, *Trigonella foenum*, *Allium cepa*, *Salvia rosmarinus*, *Lavandula angustifolia*, *Mentha piperita*, *Salvia officinalis*, *Ocimum basilicum*, *Urtica dioica*, and *Achillea millefolium* stimulate hair growth and treat baldness. Many of the medicinal and therapeutic effects of medicinal plants are due to their active ingredients [8,9]. However, it is important to note that these plants are recommended in traditional medicine. Therefore, more studies are needed to prove its effectiveness in humans to prove their effectiveness in improving hair growth.

Mechanism of action of medicinal plants in alopecia

Hair is a stringy biosubstance that originates from dermal follicles. Hair follicles are mini-organs that produce hair shafts and regenerate in a predictable cycle which is referred to as the hair cycle. The hair growth cycle consists of 4 stages known as the anagen (active growth phase), catagen (small transitional regressive phase), telogen (short resting phase) and exogen (shedding phase). Some plants and their active ingredients promote active hair development during the

anagen phase, while others prevent hair apoptosis during the catagen phase. To impact hair development via diverse biological pathways, topically applied active components of herbal products must be capable to pass the epidermal barrier and reach the appropriate areas of the hair follicles. Following that, herbal formulations may impact hair development by stimulating or inhibiting the activities of a various growth factors, enzymes, cytokines, signaling pathways, and hormones [10,11].

In general, plants prevent alopecia in three ways such as nutritional assistance such as minerals, vitamins etc, blocking the DHT hormone that causes hair loss and Enhanced scalp blood Circulation [12].

The anti- alopecia mechanisms of some medicinal plants are as follows:

Spinacia oleracea

Spinach contains nutrients such as potassium, copper, iron, manganese, magnesium, zinc, vitamin K, vitamin C, vitamin E and vitamin A in its leaves. Vitamin A in this plant helps to maintain hair healthy by moisturizing the scalp [13,14].

Allium cepa L.

Its components include minerals such as zinc, magnesium, potassium, calcium and some chromium. It also contains nutrients such as albumin, allicin, diallyl sulfide, alliin and allyl propyl disulfide. The zinc in this plant prevents dandruff which causes hair loss. Also, the iron in it, which is involved in oxygenation of red blood cells, also helps maintain healthy hair [12].

Nigella sativa

Nigella sativa has high levels of protein, carbs, and important unsaturated fatty acids, including linoleic acid and gamma linolenic acid (Omega3 and 6). These substances have a crucial function in blood circulation, subsequently stimulates hair growth [15].

Aloe vera

Calcium, potassium, iron chloride and phosphorus are among the minerals found in it. This plant also contains vitamins (vitamins M, A, C, B and E) and chemical compounds like amino acids, saponins and anthraquinones [16]. As previously said, iron improves hair development by increasing blood circulation and oxygen availability [12].

Salvia Rosmarinus

Nutrients in this plant include protein, minerals (potassium, phosphorus, iron, calcium, sodium) and vitamins (C, B, E) [17]. Rosemary oil is recognized for its vasodilating characteristics, which help the hair follicles to have better blood circulation [18]. Rosemary oil also acts as an inhibitor to prevent DHT hormone from attaching to its receptor [19].

Thymus vulgaris

The leaves of this plant are rich in minerals such as calcium, selenium, iron, manganese, potassium and magnesium. This plant is also a rich source of protein and important vitamins including vitamins C, E, B and A [20]. Thyme oil is used to treat dandruff and prevent hair loss [18,21].

Salvia officinalis

The oil of this plant is rich in minerals (calcium and potassium) and vitamins (C, B, E). Sage oil can readily penetrate the scalp and supply these nutrients to the hair follicles, which are essential for hair development and growth. This allows several hair strands to develop from a mono follicle, making the hair thicker and stronger [22].

Lavandula angustifolia

Lavender oil is used to eliminate dandruff and lice. This oil stimulates hair follicles by improving blood circulation and accelerates hair growth [18]. Also, lavender oil's antifungal and antibacterial qualities can help hair and scalp stay healthy [23].

Juglans regia L

The constituents of this plant include fatty acids (oleic acid, linoleic acid and linolenic acid) and minerals (potassium, calcium, phosphorus, manganese, zinc, iron, copper and magnesium). Zinc aids in the production of much-needed oil on the scalp, as well as the prevention of dandruff, which can lead to hair loss. Also, the copper in this plant leads to hair regrowth in people who have complete hair loss [12].

Hibiscus plant

Hibiscus is rich in iron, calcium, vitamin C, phosphorus, vitamin B1, niacin and riboflavin. This herb is used to reduce dandruff and develop thicker hair. It's also good for hair rejuvenation [24].

Henna plant

Henna is a plant suitable for dandruff and balancing the pH of the scalp. This plant restores the normal function of sebaceous glands by removing excess hair fat. The nutrients in henna repair the damage to the hair and strengthen it [24,25].

Finally, the use of herbal medicines is recommended because they are usually produced from medicinal plants. In addition to not having the side effects of chemical and surgical drugs, have a good effect and they are effective in preventing and treating hair loss. Hair loss medications are a wide variety of medications that can be treated in a variety of ways. Some of them affect hair follicles, some of them regulate scalp fat, and some of them increase the health of hair grafts and prevent hair loss.

Authors' contribution

All authors contributed equally to the manuscript.

Conflicts of interest

The authors declared no competing interests.

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