

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/360118792>

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

Article · December 2021

DOI: 10.52547/pbp.3.2.63

CITATIONS

5

READS

29

4 authors, including:



Mohadeseh Pirhadi

Tehran University of Medical Sciences

30 PUBLICATIONS 85 CITATIONS

[SEE PROFILE](#)



Shaima R. Banoon

University of Misan

33 PUBLICATIONS 49 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



food safety [View project](#)



Psychological support of COVID-19 patients. [View project](#)



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

Sedef Özliman¹, Shaghayegh Moradi², Mohadeseh Pirhadi³, Shaima Rabeea Banoon^{4*}

¹Department of Medicinal and Aromatic Plants, Atatürk Health Care Vocational School, Afyonkarahisar Health Sciences University, Afyonkarahisar, Turkey

²MS of Food Hygiene and Safety, Student Research Committee, School of Health, Qazvin University of Medical Sciences, Qazvin, Iran

³Department of Environmental Health, Food Safety Division, Faculty of Public Health, Tehran University of Medical Sciences, Tehran, Iran

⁴Department of Biology, College of Science, University of Misan, Maysan, Iraq

Article Info

*Correspondence to:

Shaima Rabeea Banoon
shimarb@uomisan.edu.iq

Article History:

Received: 05 May 2021

Accepted: 07 April 2022

ePublished: 09 April 2022

Keywords: Medicinal plants, Alopecia, Hair growth, Treatment

Abstract

Hair loss is one of the problems that affects both men and women of different ages. This hair loss can have many causes. Some are caused by treatable problems and some 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.

How to cite this paper

Özliman S, Moradi SH, Pirhadi M, Rabeea Banoon SH. An Overview of the Most Important Medicinal Plants with Effect on Hair Growth and Treatment of Alopecia. *Plant Biotechnology Persa* 2021; 3(2): 63-67.

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, alliin, 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.

Ethical considerations

Ethical issues (including plagiarism, data fabrication, double publication, etc.) have been completely observed by the author.

Funding/Support

None.

References

1. Paus R, Cotsarelis G. The biology of hair follicles. *New England J Med* 1999; 341(7):491-7.
2. Harel S, Christiano AM. Genetics of structural hair disorders. *J Invest Dermatol.* 2012; 132(E1):E22-E6.
3. Semalty M, Semalty A, Joshi GP, Rawat MSM. Hair growth and rejuvenation: an overview. *J Dermatolog Treat* 2011; 22(3):123-32.
4. Amchova P, Kotolova H, Ruda-Kucerova J. Health safety issues of synthetic food colorants. *Regul Toxicol Pharmacol* 2015; 73(3):914-22.
5. Draelos ZK. Hair cosmetics. *Dermatol Clin* 1991; 9(1):19-27.

6. Shen Y-L, Li X-Q, Pan R-R, Yue W, Zhang L-J, Zhang H. Medicinal plants for the treatment of hair loss and the suggested mechanisms. *Current Pharmac Design* 2018; 24(26):3090-100.
7. Liu F, Hamer MA, Heilmann S, Herold C, Moebus S, Hofman A, et al. Prediction of male-pattern baldness from genotypes. *European J Human Genetics* 2016; 24(6):895-902.
8. Shahsavari S. An Overview of the Most Important Medicinal Plants Used in Iranian Traditional Medicine for the Treatment of Kidney Stones: A mini-review article. *Plant Biotechnology Persa* 2021; 3(1):1-4.
9. Ostadpoor M, Ghol-ami-Ahangaran M, Heidari SH. An Over-view of Cinnamon Properties Effects on Blood Glucose and He-moglobin A1C in Dia-betic People. *Plant Biotechnol Persa* 2020; 2(2):33-7.
10. Patel S, Sharma V, S Chauhan N, Thakur M, Dixit VK. Hair growth: focus on herbal therapeutic agent. *Curr Drug Discovery Technol* 2015; 12(1):21-42.
11. Herman A, Herman AP. Mechanism of action of herbs and their active constituents used in hair loss treatment. *Fitoterapia* 2016; 114:18-25.
12. Pundkar AS, Murkute PM, Wani S, Tathe M. A Review: Herbal Therapy Used in Hair Loss, 23.
13. Roberts JL, Moreau R. Functional properties of spinach (*Spinacia oleracea* L.) *Phytochem Bioact Food Funct* 2016; 7(8):3337-53.
14. Suo L, Sundberg JP, Everts HB. Dietary vitamin A regulates wingless-related MMTV integration site signaling to alter the hair cycle. *Experiment Biol Med* 2015; 240(5):618-23.
15. Jaafar R. The effectiveness of coconut oil mixed with herbs to promote hair growth, 2017.
16. Sandhu J, Kaur V, Kaur K. Role of herbal drugs in treatment of alopecia, 2020.
17. Ribeiro-Santos R, Carvalho-Costa D, Cavaleiro C, Costa HS, Albuquerque TG, Castilho MC, et al. A novel insight on an ancient aromatic plant: The rosemary (*Rosmarinus officinalis* L.). *Trends Food Sci Technol* 2015;45(2):355-68.
18. Abelan US, de Oliveira AC, Cacoci ÉSP, Martins TEA, Giaccon VM, Velasco MVR, et al. Potential use of essential oils in cosmetic and dermatological hair products: A review. *J Cosm Dermatol* 2022; 21(4):1407-18.
19. de Macedo LM, Santos ÉMd, Militão L, Tundisi LL, Ataíde JA, Souto EB, et al. Rosemary (*Rosmarinus officinalis* L., syn *Salvia rosmarinus* Spenn.) and its topical applications: a review. *Plants* 2020; 9(5):651.
20. Dauqan EM, Abdullah A. Medicinal and functional values of thyme (*Thymus vulgaris* L.) herb. *J Appl Biol Biotechnol* 2017; 5(2):0-2.
21. Rizwan B. Therapeutic potential of *Thymus vulgaris*: A Review, 2021.
22. Orchard A, van Vuuren S. Commercial essential oils as potential antimicrobials to treat skin diseases. *Evidence-Based Complement Alternative Med* 2017; 3(1): 1.
23. Puškárová A, Bučková M, Kraková L, Pangallo D, Kozics K. The antibacterial and antifungal activity of six essential oils and their cyto/genotoxicity to human HEL 12469 cells. *Sci Rep* 2017; 7(1):1-11.
24. Pal RS, Pal Y, Rai A, Wal P, Wal A. Synthesis and evaluation of herbal based hair dye. *The Open Dermatol J* 2018; 12(1).
25. Zaid AN, Jaradat NA, Eid AM, Al Zabadi H, Alkaiyat A, Darwish SA. Ethnopharmacological survey of home remedies used for treatment of hair and scalp and their methods of preparation in the West Bank-Palestine. *BMC Complement Alter Med* 2017; 17(1):1-15.