

Herbal Plants used for the Treatment of Hair loss (Alopecia)

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Abstract- Hair loss (Alopecia) is a common and ever increasing problem in cosmetics as well as primary health care practice. It is a universal problem, having affected both sexes of all races to different extents for as long as mankind has existed. Herbal cosmetics are now emerged as the appropriate solution to the current problem, natural product are fancy in cosmetics and about 1000 kinds of plant extract have been examined with respect to hair growth and still it is a fast growing segment with a vast scope of manifold expansion in coming years. This review describe the use of some natural products for hair growth promotion, with a brief description of the major use, plant parts used, the active responsible for effect and the benefit of such product.

Keyword: - Hair loss, Natural, Plant extract/oil, Herbal plant, Alopecia

INTRODUCTION

In the last few decades there has been exponential growth in the field of herbal medicine. It is getting popularized in developing and developed countries owing to its natural origine and lesser side effect. In olden times, vaidyas used of treat patient on individual basis, and prepare drug according to the requirement to the patient. But the scene has changed now, hebal medicine are being manufacture on large scale in mechanical units, where manufactures come across may problems such as availability of good quality raw material, authentication of raw material, availability of standard proper standardization methodology o single drugs and formulation, quality control parameters etc.^{1,2}

Hair loss is a dermatologic problem that is becoming more prevalent as more natural products are discovered that can promote hair growth^{3,4}. Hair loss, or alopecia, is a frequent medical issue and a significant source of mental and physical anguish³. Androgens are considered to be one of the main causes of alopecia in addition to other factors⁴. The rate of hair growth varies from person to person, but on average, it is between 5 and 10 millimetres each

month. At the age of 15 to 30 years, hair growth reaches its peak. It has also been observed that hair development has seven different components. These consist of seven parts:the mouth, the hair shaft, and the papilla of hair. These include the oil duct, sebaceous gland, stratum granulosum, hair shaft, and papilla of hairs⁴. Natural solutions that are readily available on the market in the form of herbal formulations are utilised as anti-dandruff agents, hair conditioners, hair cleansers, hair tonics, and treatments for alopecia and lice infestation⁵. The ability of many herbal products to encourage hair development has been acknowledged⁶. The traditional medical system in India accepts a number of herbal remedies as useful in encouraging hair growth. In our research, we found that herbal cream and hair oil made from the plant *Cyperus rotundus* are useful for treating "Indralupta" (i.e., hair loss) [7,8]. The current study's objective was to formulate ethanolic extracts of these drugs in various ratios and assess the formulation's capacity to stimulate and begin hair growth in herbal hair oils and herbal creams.

Ayurveda uses three terms to describe hair issues:

1. Khalitya meaning hair loss
2. Palitya refers to early hair ageing
3. Indralupta denotes Alopecia totalis, universalis, and areata [7,8].

Hair cycle and its mechanism

A hair follicle experiences three phases during the course of its lifetime. The first is the growth phase, which lasts between two and eight years. The next phase is a resting period that might last anywhere between two and four months. When the new hair growth cycle starts, new hair follicles push out of the scalp, and the old ones start to fall off to create room for new hair development, the hair then enters the shedding stage. In the course of our typical hair loss,

we typically lose 50–100 hairs⁷. Three stages may be identified in the follicular life cycle.

1. Anagen is the active growth phase.
2. Catagen: The follicular regression phase.
3. Telogen: This stage is one of repose.

Alopecia:

Alopecia is a universal problem having affected both sexes of all races to could have an adverse effect on physiological life and self esteem between both the genders. Alopecia affects approximately 50% of men over 40 years of age and May also affect just as many as women. The majority of men and women (90%) or more want to revers, halt hair loss. Alopecia is a synonym of baldness, involves absence or loss of hair, especially of the head. Androgens are well known to cause regression and balding on the scalp in genetically disposed individual. Alopecia has also been observed as major side effect of anticancer drugs, immunosuppressant and many other drug treatments. Minoxidil, a drug of scientific origin was scientifically proved for the treatment of alopecia. Though the side effect associated with this drug has limited its pharmacological benefits hence the drug of plant origin is necessary to replace the synthetic one. India is a respiratory of medicinal plants. Besides healthcare, herbs are also used for beautification of the body and for preparation of various cosmetics. In traditional system of medicine, many plants and herbal formulation are reported for hair growth promotion.^{9,10}

Causes of hair loss:

Several Causes of hair loss are:

1. Acute illness
2. Autoimmune disorders
3. Chemicals (hair dyes)
4. Chemotherapeutic agents/ drugs.
5. Diabetes
6. Hair loss following childbirth
7. Hair styling products
8. Hair styling techniques
9. High iron deficiency
10. Nutritional deficiencies
11. Other fungal infections
12. Physical trauma to the scalp
13. Poisons
14. Poor blood circulation
15. Poor diet or malnutrition
16. Prescription drugs

17. Psychological

18. Radiation exposurcine.

Table 1: Marketed herbal formulation¹¹

| S.NO | Formulation content | Product name |
|------|---------------------------------|-------------------------------|
| 1 | Tulsi Neem | Sidha Shampoo |
| 2 | Amla Bhringgraj | Saini Herbal Hair conditioner |
| 3 | Amla Bhringgraj | Keshamrit oil |
| 4 | Chamomile, Rosemary | Regrow Massage Oil |
| 5 | Amla,Heena | Shyamla Shampoo |
| 6 | Amla, Bhringgraj | Kesh Rakshe oil |
| 7 | Amla,Jatamansi | K-7 Taila oil |
| 8 | Amla, Bhringgraj, Brahmi | Chirayu herbal oil |
| 9 | Brahmi, Bhringgraj,S.indicum | Hibril oil |
| 10 | Brahmi, Bhringgraj, L.innemeris | Hairvit oil |

1. *Rosa-sinensis* Linn (HRS) (Hibiscus oil)

Rosa sinensis Linn (HRS) It is known that the stem, roots, flower, and leaves of the *Hibiscus rosa-sinensis* Linn (HRS) plant have all been used in traditional and folk medicine. Because of its numerous bloom colors, the glabrous shrub *Hibiscus rosa sinensis* Linn is commonly grown as an attractive plant in tropical areas. The leaves and blossoms promote hair growth and aid in ulcer healing. The plants *Eclipta alba* Hassk, *Hibiscus rosa sinensis* Linn, and *Nardostachys Jatamansi* have good hair growth-promoting properties and can be found in several formulations. These plants mainly work by prolonging the anagen period and expanding follicles.^{12,13}



fig - 1

2. *Allium sativum* L. (Garlic extract oil)

The globe over, garlic is utilised to treat a variety of illnesses. Traditional Iranian Medicine (TIM) used garlic as a treatment for a wide range of conditions,

including infections, tumours, wounds, gastrointestinal issues, and cardiovascular illnesses. Alopecia areata is distinguished by an autoimmune attack on the hair follicle, which causes hair loss, according to some research. The Allium genus includes chives, onions, scallions, shallots, and garlic (*Allium sativum*). Organosulfur compounds, which these plants generate, have antibacterial, immunomodulatory, and anti-inflammatory properties.¹¹



fig -2

3. *Nardostachys Jatamansi* DC (Jatamansi oil/extract)

It is a tiny shrub known as *Nardostachys Jatamansi* DC, often known as Jatamansi or spikenard in English. The plant's rhizomes have long been employed in traditional indigenous medical practises. It mostly comprises 1, 8-cineol, bornyl acetate, valeranone, jonon, and menthyl thymyl ether. According to rumours, *Nardostachys Jatamansi* is showing signs of hair development. *Hibiscus rosa sinensis* Linn, *Nardostachys jatamansi*, and *Eclipta alba* Hassk have great hair growth-promoting action as evidenced by an increase in follicular size and a lengthening of the anagen phase. Hexane extract of the rhizomes of *N. jatamansi* showed positive response in hair growth activity due to two compound nardin and jatamansic acid. They showed moderate reduction in hair growth time.¹⁰⁻¹⁴



fig - 3

4. *Eclipta alba* Hassk. (Bhringraj oil/extract)

Eclipta alba Hassk (Bhringaraja) grows in tropical and subtropical climates all over the world. It has been used for centuries to stop hair loss and promote hair growth. If applied to the scalp and consumed internally, the extracted juice darkens hair. Wedololactone (1.6%), dimethyl wedelolactone, desmethyl-wedelolactone-7 glucoside, ecliptal, -amyryn, luteolin-7-O-glucoside, hentriacontanol, heptacosanol, and stigmasterol are the main components of *Eclipta alba*. *Eclipta alba* is a part of several polyherbal formulations for promoting hair growth. Methanolic extract has demonstrated potential as a stimulant of hair growth. Additionally, it has been claimed that the petroleum ether extract of *E. alba* encourages follicular expansion and extends the anagen phase.¹⁰⁻¹⁴



fig - 4

5. *Triticum aestivum* (Wheat Germ Oil/extract)

It has been used for centuries to stop hair loss and promote hair growth. If applied to the scalp and consumed, the produced juice can be used to treat blaIt is a tasteless, dull yellow oil that smells and tastes like nuts. It is a miscible in ether, benzene, petroleum ether and chloroform. wheat Germ is basically the embryo of the wheat core that is deta source to vitamins. Presently, wheat germ is widely demanded for be supervised to know that wheat germ is also a great ingredient for elements can Wheat germ oil contains saturated fatty acids (4.7%), linoleic acid (44.1%), linolic acid (10.8%), Oleic acid (30%), and unsaponifiable matter upto 4.7%.vitamine E (2 International units of vitamin E per gram of the It is used as nutritional supplement and also used as source of natural vitamin E and unsaturated fatty acid (vitamine F).The vitamin content in the oil help in hair growth, skin formation and taken skin have natural

strength so that is guarded from skin irritation sunburns and skin damage.⁷



fig - 5

6. Centella asiatica/(Brahmi extract)

It has creeping characteristics as well, but its leaves are larger and longer petiolate. The leaves are whole, orbicular, crenate, and reniform. Red stems with lengthy internodes are visible. Similar to jalbrahmi, rooting takes place at nodes. Brahmoside and bramhinoside are also found in mandukparni, and when they are hydrolyzed, they produce brahmnic acid, isobrahmnic acid, arabinose, glucose, and rhinos. Mandukparni is used as a nervine tonic, to prevent split ends, and to promote hair growth. Sedative, spasmolytic, anti-anxiety, and anti-stress effects can be seen. The medication is also used to treat syphilis, leprosy, and skin conditions.¹⁵



fig - 6

7. Cocos nucifera (Coconut oil)

Coconut oil is derived from the fruit or seed of the Arecaceae-family coconut palm tree Cocos nucifera. Coconut oil has a melting point of 24 to 25 oC (75-76 oF), making it easy to use in both liquid and solid forms. It is frequently used in baking and cooking. Coconut oil does wonders to soften and moisturise the skin. When applied for fourteen hours, coconut oil was proven to help decrease protein loss from wet combing of hair.¹⁶



fig -7

8. Ficus carica: (Anjeer extract)

The medication is made of dried Ficus sycomorus root. A small to medium-sized deciduous tree that is 15–30 feet tall, with broad ovate or nearly orbicular leaves that are more or less deeply 3-5 layers thick, rough above, and pubescent below. Its axillary fruits are often pear-shaped and vary in size and colour. Flavonoids, steroids, triterpenoids, alkaloids, and tannins are all present in figs. Its fruit, root, and leaves are used in the native system of medicine to treat a variety of ailments including hair loss, gastrointestinal issues like colitis, indigestion, and loss of appetite, respiratory issues like sore throats and coughing up bronchitis, and cardiovascular, respiratory, antispasmodic, and inflammatory remedies.^{17,18,19}



fig- 8

9. Emblica officinalis (Amla oil)

The plant Emblica officinalis, which belongs to the Euphorbiaceae family, provides amla. Amla has high levels of vitamin C, tannins, and minerals including calcium, iron, and phosphorus, all of which nourish and darken hair. Thai traditional recipes call for the herb Emblica officinalis, also known as Indian gooseberry or Amla, which may help reduce the ageing process. In addition to being a diuretic, laxative, liver tonic, refrigerant, stomachic, restorative, alterative, antipyretic, anti-inflammatory, and hair tonic, amla is also an antiulcer, anti-dyspeptic,

and digestive agent. A fixed oil produced by these gooseberries is used to fortify and encourage hair growth. The dried fruit has long been used as a crucial component of shampoo and hair oil because it enhances hair hygiene. As a result, Indian gooseberry is utilised as a hair tonic in conventional recipes to enhance pigmentation and hair growth.²⁰



fig -9

10. *Ocimum sanctum*(Tulsi)

Ocimum sanctum is an erect, heavily branched, annual plant that can be found all over India and reaches altitudes of up to 1800 metres in the Himalayas. Hindustan regards the plant as sacred, and it is frequently grown close to temples, in gardens, and in courtyards. There are two types of sacred basil; the green form is more prevalent, while the second type, which has purple leaves, is less so. The leaves are whole, serrated, and pubescent on both sides, elliptic-oblong, acute or obtuse, and acute or obtuse. Minute glands are found all over the leaves. Racemes of crimson or purple flowers with verticillate inflorescence are present. The leaves have a distinctive smell and a mildly aromatic flavour. The leaves and flowering tips are used to extract the oil using the steam distillation process. It comprises about 70% eugenol, 3% carvacrol, and 20% eugenol-methyl ether. In addition, caryophyllin is present. Alkaloids, saponin, tannin, a significant amount of vitamin C, and traces of maleic, citric, and tartaric acid are also said to be present in the plant. The oil is both insecticidal and antibacterial. The leaves are used as a diuretic, anticatarrhal, antispasmodic, stimulant, and aromatic. The juice is employed as an antiperiodic, a component of numerous medicines for treating skin conditions, and as an ear pain reliever. As a stomachic, the leaves' infusion is utilised.⁵



fig -10

CONCLUSION

The dermatological condition alopecia has been known about for more than 2000 years. Both men and women have been impacted by this issue. It is researched using a variety of available treatments, some of which are natural or synthetic in nature. However, natural products continue to gain popularity and include plant extract in formulations. Because products made of synthetic materials may be harmful to human health and have other negative effects. It's feasible that more additional plant extracts with commercial value will be discovered in the future.

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