



GLOBAL JOURNAL OF MEDICAL RESEARCH: B
PHARMA, DRUG DISCOVERY, TOXICOLOGY & MEDICINE
Volume 21 Issue 2 Version 1.0 Year 2021
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

A Detailed Review on Plant Material used in Hair Growth or in Alopecia

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Abstract- Alopecia areata is a condition that causes hair to fall out in tiny patches, which may be unnoticeable. These patches will however, bind and then become noticeable. The disease develops when the immune system attacks the hair follicles, which results in hair loss. In the form of solitary or multiple patches of alopecia, the most prominent site affected is the scalp. Alopecia areata occurs in males and females of all ages, but in infancy there is always an onset. At some stage in their lives, over 147 million people worldwide have, had or may develop alopecia areata. Some important classes of Alopecia were involved by Alopecia areata, Moderate Transient AA, Transient AA, Alopecia Totalis, Ophiasis AA, Alopecia Universalis. Genetic predisposition, autoimmunity, and environmental factors play a major role in the etiopathogenesis of AA. Corticosteroids are the most popular drugs for the treatment of this disease. Marigolds (*Calendula officinalis*) contain triterpenoid esters, flavoxanthin and auroxanthin carotenoids. Most leaves contain lutein (80%), zeaxanthin (5%) and beta-carotene.

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GJMR-B Classification: NLMC Code: QV 704, WR 460



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A Detailed Review on Plant Material used in Hair Growth or in Alopecia

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Abstract- Alopecia areata is a condition that causes hair to fall out in tiny patches, which may be unnoticeable. These patches will however, bind and then become noticeable. The disease develops when the immune system attacks the hair follicles, which results in hair loss. In the form of solitary or multiple patches of alopecia, the most prominent site affected is the scalp. Alopecia areata occurs in males and females of all ages, but in infancy there is always an onset. At some stage in their lives, over 147 million people worldwide have, had or may develop alopecia areata. Some important classes of Alopecia were involved by Alopecia areata, Moderate Transient AA, Transient AA, Alopecia Totalis, Ophiasis AA, Alopecia Universalis. Genetic predisposition, autoimmunity, and environmental factors play a major role in the etiopathogenesis of AA. Corticosteroids are the most popular drugs for the treatment of this disease. Marigolds (*Calendula officinalis*) contain triterpenoid esters, flavoxanthin and auroxanthin carotenoids. Most leaves contain lutein (80%), zeaxanthin (5%) and beta-carotene. Flavonol glycosides, triterpene oligoglycosides, oleanane-type triterpene glycosides, saponins, sesquiterpene glucosides are present in *C. officinalis* flowers and the flowers, which produce 29.8mg/100g, are a rich source of lutein. The Withanolides-which are triteroene lactones-with anolides, withaferin A, alkaloids, steroidal lactones and cuscohygrine are the principal phytochemical constituents of Ashwagandha (*Withaniasamniifera*).

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I. INTRODUCTION

Alopecia is a condition in which patchy, confluent or diffuse sample hair loss happens from special regions of the frame, usually from the scalp.¹ In 1

2% of cases, the condition may additionally unfold to the complete scalp or epidermis known as either alopecia total is or alopecia universal is, respectively. occurrence of alopecia is approximately zero.1-zero.2% with entire life chance of men and women similarly.² some sufferer loss all the hair from their heads (Alopecia total is)³ or all frame hairs (Alopecia universal is).⁴ AA is a non-scarring kind of Alopecia.⁵ It's miles one of the maximum common place shape of hair loss visible through dermatologists and debts for 25% of all the alopecia case.⁶ It turned into first described with the aid of Cornelius Celsus, and the term AA become coined by Sauvagein1760.⁷ It accounts for 2-3% of the new dermatology instances in United Kingdom and Americas, three.eights% in China, and 0.7% in India.^{7,8} In popular population, the prevalence become anticipated at 0.1-zero.2% with a lifetime threat of 1.7%.⁸ It is able to arise at any age. The youngest become four-months-antique, and the oldest turned into in late seventies.⁹ Twenty percent of cases have been kids, and 60% of AA patients had their first patch earlier than twenty years of age.¹⁰ Highest incidence changed into between 30-fifty nine yrs of age.¹ family contributors are affected in eight.7-20% of instance.^{7,9}



Figure 1: Localized patch of AA



Figure 2: Ophiasis

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a) *Marigold (Calendula)*¹¹: (*Asteraceae*)

• Part Used- Flowers

It is a family of Asteraceae of herbaceous annual and perennial plants, sometimes referred to as marigold.^{12,13} It is used because of its nematocidal, cosmetic and pharmaceutical properties. Antioxidants

are present in the essential oil of the flower.¹⁴ Calendula is used topically to treat acne, minimize inflammation, control bleeding, and soothe irritated tissue in suspension or in tincture.¹⁵ Some bacteria provide growth-promoting substances to plants and play an important role in phosphate solubilization.³²



Figure 3: Marigold

b) *Ashwagandha (Withaniasomnifera)*: (*Salonaceae*)

• Part Used- Roots

It is also commonly planted in the Saloniaceae or nightshade family as winter cherry.^{16,17} It aids in the fight against free radicals in the scalp and hair follicles, promoting healthy hair development. Multiple other species are morphologically similar in the genus withania.¹⁷ It is commonly used in the treatment of various illnesses, such as asthma, bronchitis, inflammatory disorders, ulcers, issues with the stomach.¹⁸ Several studies have shown that ashwagandha is a very effective solution to treating neurological conditions such as Parkinson's and Alzheimer's.¹⁹



Figure 4: Withaniasomnifera

c) *Emblica officinalis (Amla)*: (*Euphorbiaceae*)

• Part used-Fruit

It is one of the most commonly used herbs in Indian homes and indigenous medicine texts.²⁰ In traditional medicine, Emblica is used to stimulate hair growth. The fruits contain tannins as well as antioxidants Emblicanin A and B, and when hydrolyzed, one yields gallic acid, ellagic acid, and glucose, while the other yields only ellagic acid and glucose.²¹ Emblica is said to help with iron metabolism. It is necessary for normal hair growth and good hair care.²²



Figure 5: Amla

d) *Acacia concinna (Shikakai)*: (*Mimosaceae*)

• Part Used- Leaves and Pods

Commercially, *Acacia concinna* is grown in India and Far East Asia. Spinasterol, acacic acid, lactone, and the natural sugars glucose, arabinose, and rhamnose are all produced when the shikakai plant is hydrolyzed. Shikakai can reinforce your hair strands and reduce hair fall if you use it on a daily basis. It is high in Vitamin C, as well as Vitamins A, D, E, K, and other antioxidants, all of which are essential for healthy and rapid hair growth.^{23,24}



Figure 6: Shikakai

e) *Polygonum multiflorum* (*Fallopia multiflora*): (*Polygonaceae*)

- Part Used- Roots

It is a well-known traditional Chinese herbal medicine that is widely spread in northeast Asia. It is also used to prevent kidney and liver ageing, nourish the blood, strengthen and stabilise the lower back and knees, and fortify the muscles, tendons, and bones.^{25,26} P. multiflorum roots have also been shown to have hair growth activity in traditional medicine, and several studies have shown that they have a significant impact on hair growth and colour.²⁷



Figure 7: Fallopia multiflora

f) *Centella asiatica* (*Brahmi booty*): (*Alpiaceae*)

- Part used-Leaves

Centella asiatica is a fragrant, small plant native to India. Asiatic and brahmic acids are found in Brahmi booty. It is also widely used in the treatment of alopecia. It serves as a make a sign for hair growth. It is extremely important for strengthening hair follicles and nourishing the scalp. *Centella asiatica* leaves are used to treat bacterial, viral, and parasitic infections like urinary tract infection, leprosy, cholera, dysentery, syphilis, the common cold, influenza, and tuberculosis.²⁸



Figure 8: Brahmi booty

g) *Zizyphus jujube*(*Jujuba*): (*Rhamnaceae*)

- Part Used- Seeds

It is widely disseminated in Europe and Southeast Asia. Its fruits are edible, and various sections have medicinal properties such as antifertility, analgesic, and diabetes prevention.^{29,30} The essential oil of

Zizyphus jujuba also has a hair-growth-promoting effect. Z. jujuba seeds have been used to treat anti-insomnia and anxiety.³¹



Figure 9: Jujuba

Botanical Name	Family	Medicinal Part
Marrigold	Asteraceae	Flower
Ashwagandha	Salonaceae	Root
Emblcaofficinna	Euphorbiaceae	Fruit
Acacia concinna	Mimosaceae	Leaves & Pods
Polygonum multiflorum	Polygonaceae	Roots
Centella asiatica	Alpiaceae	Leaves
Zizyphus jujube	Rhamnaceae	Seeds

II. CONCLUSION

Alopecia areata has a major effect on the appearance and mental health of those who are affected. The current project focuses on various plants that people use to treat dermatological conditions and hair care. Ashwagandha helps to encourage healthy hair growth by stimulating the development of DHEA, a natural hormone in your body that is an ultimate antioxidant. Amla's phytonutrients, vitamins, and minerals help to boost scalp circulation and promote healthy hair growth. Ayurvedic medicine uses Brahmi, a creeping herb. It contains alkaloids that are thought to activate hair-growth proteins. The essential oil of jujuba has a hair-growth-promoting effect.

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