



Review Article

A REVIEW OF HERBAL MEDICATIONS FOR THE TREATMENT OF ALOPECIA

Sandip Suresh Khandagale^{1*}, Chaitanaya Laxman Ratnaparkhe, Samir Raju Sayyad, Vivek Dipak Shelar, Amol Vilas Supekar, Vikram Sadashiv Sarukh

^{*1}Assistant Professor, Department of Pharmaceutics, Abasaheb Kakade College of B Pharmacy, Bodhegaon, Maharashtra, India.

Article info

Article History:

Received: 28-08-2023

Accepted: 21-09-2023

Published: 12-10-2023

KEYWORDS:

Hair,
Hair loss,
Alopecia Areata,
Fenugreek,
Eclipta.

ABSTRACT

Alopecia is a condition that causes baldness and hair loss. It is a medical disorder that causes hair loss, often from the scalp or head skin. There are several factors that might contribute to hair loss, including genetics, environment, pollutants, different drugs, nutritional deficiencies, etc. Hair loss condition is essentially divided into numerous groups based on hair loss pattern and its various causes. Hairs are the development of follicles that are present on our skin and are described as "increased epithelial structure created by the keratinization of germ cells" in the definition of hair. Herbal remedies are used both externally and inwardly to stop hair loss and early greying. Promises of improved hair growth and less hair loss. The foundation of all medical research is herbs. Since herbal medications have fewer negative side effects than synthetic treatments and more positive outcomes, almost 80% of individuals have started using them. Several synthetic therapies, including corticosteroids, dithranol, tretinoin, minoxidil, zinc, systemic cortisone, irritants, immunosuppressant's, finasteride, and azelaic acid, are currently available to treat hair loss (androgenetic and areata), but none of these treatments have been shown to have positive and long-lasting effects on patients. These medications' synthetic side effects, such as erythema, scaliness, pruritus, dermatitis, itching, etc., are also linked to their usage. So, in order to address the issue of hair loss, we looked into nature's treasures and discovered a number of herbs that have a track record of successfully treating hair loss. These herbal medicines' claimed modes of action include improved scalp blood circulation, DHT and 5-Reductase blockers, aromatherapy, and nutritional support. *Phyllanthus Emblica*, *Oscimum sanctum*, *Allium cepa*, *Allium sativum*, *Thea Sinensis*, *Eclipta alba*, *Cocas nucifera*, *Sesamum indicum*, *Centella asiatica*, *Terminalia Chebula*, *Embllica officinalis*, and *Trigonella Foenum graecum* are a few examples of herbal medications used to treat alopecia.

INTRODUCTION

One of the crucial body components that develop from the skin's ectoderm is hair. It serves as a protective appendage and is regarded as an accessory structure of the skin, along with sebaceous glands, sweat glands, and nails. Because they are formed from the epidermis during embryonic development, they are also known as epidermal derivatives.

The term "enhanced epithelium" refers to hair. Hair is a growth of hair follicles that are seen in the

skin. It is a structure that is created as a consequence of "Gem cells" being keratinized. Chemical elements such as carbon (C), nitrogen (N), sulphur (S), and oxygen make up the keratin that makes up hair (O). Although each person's rate of hair growth is different, on average, hair grows between 15 and 30mm every month.^[2]

A dermatological disorder called alopecia the prevalent both aesthetic and primary care problems have been recognized for more than 2000 years. It is predicted to have a global spread and harm 0.2% to 2% of humanity. There are several synthetic medications available to cure hair loss, which is irreversible and has harmful side effects. The use of herbal remedies is a more effective technique to treat alopecia.^[2]

Access this article online	
Quick Response Code	
	https://doi.org/10.47070/ijapr.v11iSuppl4.2974
Published by Mahadev Publications (Regd.) publication licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0)	

All hair grows in three cyclical stages:

- 1) **Anagen (Growth Phase)**– The anagen can be short, from 2 to 8 years. About 80% of hair is normally in the anagen phase.
- 2) **Catagen (Regression)**– During the recession phase, growth activity increases and the hair moves to the next stage. The regression period lasts 10-14 days.
- 3) **Telogen**– Telogen is the state in which the hair enters a resting state. This phase lasts 90-100 days. Usually 50 to 100 random hairs fall out every day. An increase of 100 or more hairs per 6 ingredients Hair loss or alopecia condition, which may be temporary.^[5,13]

Male Pattern Hair Loss

Alopecia is the medical term for hair loss that results in thinned hair. Male pattern baldness is the term used to describe the condition when it is caused by heredity and androgens. Alopecia is the term used when androgenetic alopecia exposes a portion of the scalp. Hair loss on the crown and front of the head, as well as a receding hairline, are characteristics of male alopecia. As shown in fig. 1.

A hereditary disorder known as androgenic alopecia results from a genetic predisposition to the effects of Dihydrotestosterone (DHT) in specific regions of the scalp. The hair follicles eventually get smaller as a result of this, resulting in fewer and thinner hairs over time. A protein called 5-reductase controls the synthesis of DHT. Multiple genes have a role, which explains why hair loss manifests differently in different families in terms of its start, progression, pattern, and severity. Genes associated with susceptibility are inherited from both parents. Genetic tests this time. Baldness prediction is inaccurate.^[12,13]

Female Pattern Hair Loss

Male pattern baldness, often referred to as female pattern baldness or alopecia, is the most prevalent kind of hair loss in women. Hair loss mostly affects the parietal and temporal areas. The majority of vulnerable women are impacted by it after menopause, although it can also start at adolescence and affects roughly one-third of all susceptible women. About 100–125 hairs per day are lost in normal hair loss. These hairs are thankfully replaceable. When hairs stop growing back or when you lose more than 125 hairs each day, you are experiencing true hair loss. Alopecia can be passed down genetically from any parent in the family.^[1,14]

History of Alopecia

A list of treatments for various illnesses may be found on a 3,500-year-old papyrus from ancient Egypt. Comprising "bite". Most likely alopecia areata (AA). Treatment for AA as it has been for more than 500 years. Celsus identified AA around 30 AD and offered scarification and caustic substances as treatments. AA

presents as patchy scalp baldness or "snake coils." He provided the first "modern" description of AA in 1813, although the majority of the therapy still included caustic substances. Infectious agents (1843), neuropathies (1858), physical injury and psychological stress (1881), local inflammation (1891), decayed teeth (1902), poisons (1912), and endocrine problems all appeared in the middle of the nineteenth century (1913). With the introduction of corticosteroid chemicals in 1952 and the first proof that AA was an autoimmune illness in the 1950s, new therapies were created (1958). Research is moving more and more toward identifying hair-specific autoantibodies (1995). Implicitly, an immunohistological investigation has suggested the potential participation of lymphocytes in AA (1980s). However, research supports their role. Only the function in developing rodent models was published (1990s). A new age in AA research has begun thanks to interest in genetic research, particularly whole-genome association study (2000s). Genetics is a current area of ongoing AA research. The microbiome, dietary regulators, atopy, immune cell types involved in AA pathogenesis, major antigen targets, immune cell processes influencing hair growth, and of course the creation of new therapies based on these discoveries.

The German physician Johannes Jonston (1603-1675) originally described an alopecia patch in his book "Medicina Practica" (1664).^[3]

Types of Hair Loss in Alopecia

a) Alopecia Areata (primary stage)

An autoimmune condition known as alopecia areata frequently causes hair loss on the scalp. When one or more tiny, round, faultless, smooth patches are typically the first to appear.

Alopecia areata is a relatively brief condition in which patients have recurrent episodes of hair loss; nevertheless, it does not progress to Alopecia Totalis or Universalis.

b) Temporary Alopecia Areata

Smooth, spherical patches that go fully bald over a few weeks and most frequently grow back over a few months are typical in people with alopecia areata.

C) Ophiasis Alopecia Areata

Strips of hair are lost due to peristaltic alopecia areata. It frequently arises in the occipital region of the head, which is progressive, and is harder to treat because most medications promote dementia. A course of action in these areas.

d) Alopecia Totalis

Hair loss throughout the whole scalp. Removal of all body hair, including eyelashes and eyebrows. Trichotillomania- This kind of hair loss is characterised by the patient's obsessive or dull self-pulling.

f) Traction Alopecia

Hair straightening that bundles the hair tightly can cause a lot of traction on the hair roots and lead to the development of adhesive alopecia.^[19]

g) Chemotherapy and hair loss

Chemotherapy is an action reserved for cancer patients, but it also marks normal cells and hair follicles. This causes hair loss and is called the anagen phase Alopecia alopecia.

h) Diffuse Alopecia

Unwanted hair loss on the entire scalp without reinforcement. Hair loss as a side effect of beauty treatments- Beauty treatments such as hair colouring, dyeing, straightening, softening, feathering, and perming that contain harsh chemicals can cause hair loss in some people. telogen effluvium (TE) and Chronic telogen effluvium (CTE) Nutrient deficiencies, crash diets High fever, Anemia, blood loss, hormonal imbalance, and pregnancy can all cause telogen effluvium.^[2,5,13,20]

Symptoms

Hair loss can occur in different ways, depending on its cause. It can occur suddenly or gradually, affecting only the scalp or the entire body. Signs and symptoms of hair loss may also include:

- **Gradual Thinning on Top of Head:** This is the most prevalent form of hair loss that occurs as people age. Hair loss in males frequently starts around the forehead's hairline. Women typically stretch out a portion of their hair. An increasing number of elderly women are developing a hair loss pattern known as the receding hairline (fibrosing alopecia frontal).

▪ **Circular or Patchy Bald Spots**

Some people lose hair in circular or patchy bald spots on the scalp, beard or eyebrows. The skin can be itchy and painful before the hair falls out.

- **Sudden Loosening of Hair:** Physical or emotional surprise can motive hair to fall out. Even after combing, washing, or gently tugging your hair, a small amount of hair may fall out. This type of hair

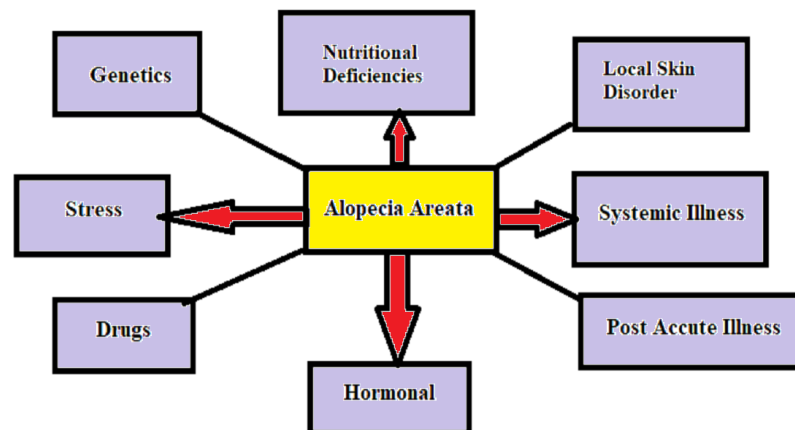
loss is usually the cause of general thinning hair, but it is temporary.

- **Hair Loss all Over:** Some Medical Conditions and Treatments B. Chemotherapy for cancer can lead to hair loss all over the body. Hair usually grows back.
- **Patches of Dandruff that Spread all over the scalp:** This is a symptom of ringworm. It can be accompanied by broken hair, redness, swelling, and sometimes discharge.^[6,7]

Causes

Hair loss is typically related to one or more of the following factors

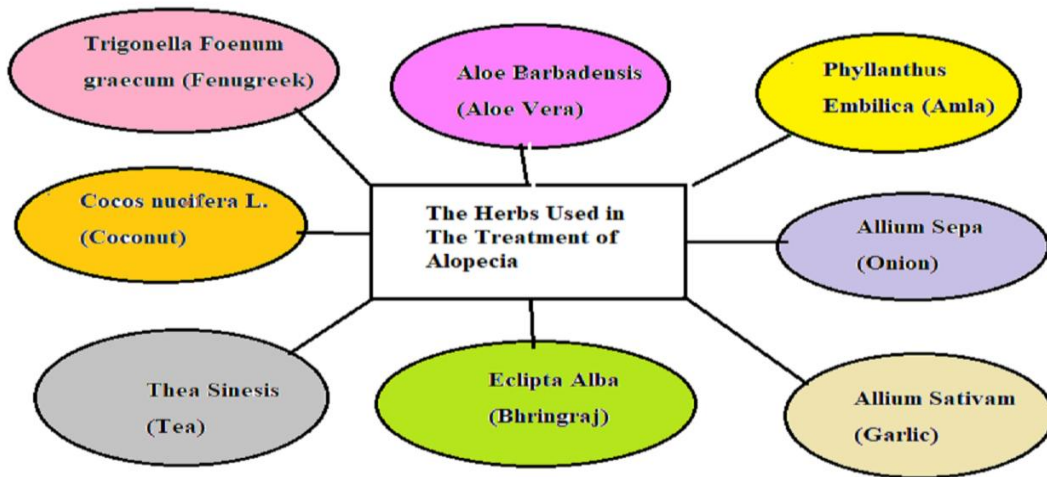
- **Family History (Heredity):** A hereditary disease that develops with ageing is the most frequent cause of hair loss. Male hormonal alopecia, male pattern baldness, and female pattern baldness are all terms used to describe this illness. It often occurs gradually and in predictable patterns, with women experiencing thinning hair above the head and males experiencing receding hairlines and bald patches.
- **Hormonal Changes and Medical Conditions:** Permanent or temporary hair loss can result from a number of circumstances, including hormonal changes brought on by pregnancy, childbirth, menopause, and thyroid issues. Alopecia areata, which affects the immune system and results in patchy hair loss, ringworm infections of the scalp, and trichotillomania, a disorder characterised by compulsive hair pulling, are examples of medical illnesses.
- **Medications and Supplements:** Some drugs, including those for cancer, arthritis, depression, heart issues, gout, and high blood pressure, can cause hair loss as adverse effects.
- **Radiation Therapy to the Head**
Hair may not regrow as quickly as it formerly did. Many people experience hair thinning months after a physical or mental shock, which is a highly upsetting occurrence. Temporary hair loss results from this kind.



Flowchart no. 1

- Hairstyles and treatments:** Traction alopecia is a kind of hair loss that is brought on by over-styling and pulling hairstyles like braids. Hair loss can also be brought on by curling and hot oil treatments. If scarring develops, hair loss could be irreversible.^[6,7,17]

The Herbs Used in the Treatment of Alopecia



Flowchart No.2

1. *Aloe Barbadensis (Aloe Vera)*
2. *Phyllanthus Embilica (Amla)*
3. *Allium Sepa (Onion)*
4. *Allium Sativam (Garlic)*
5. *Eclipta Alba (Bhringraj)*
6. *Thea Sinesis (Tea)*
7. *Trigonella Foenum graecum (Fenugreek)*
8. *Cocos nucifera L. (Coconut)*
9. *Prunus amygdalus (Almond)*
10. *Oscimum sanctum (Tulsi)*

Aloe Barbadensis (Aloe Vera)

- Chemical constituents:** Barbaloin, Aloe- Emodin, Aloenin.
- Mechanism of action:** Aloe vera includes vitamins A, C, and E, which strengthen and repair hair strands. These three vitamins encourage healthy cell development, support cell regeneration, and add shine to hair. Aloe vera gel also contains folic acid and vitamin B12. You can prevent hair loss with these two substances.
- Uses:** In Aloe vera aloenin is the main constituent which Promoting hair growth in alopecia condition.^[19]

Phyllanthus Embilica (Amla)

- Chemical Constituents:** Ascorbic Acid (Vitamin C), Gallic Acid, Ellagic Acid.
- Mechanism of Action:** Antifungal properties of the *Amla* that help prevent dandruff and other fungal infections and improve scalp health. *Amla* is a powerful 5-alpha reductase inhibitor. Vitamin B12 and folic acid are also present in aloe vera gel. finasteride, a drug used to treat hair loss in both

men and women, also works by inhibiting 5-alpha-reductase.

- Uses:** *Amla* used to treat hair loss in both men and women baldness. *Amla* prevents dandruff and improve scalp health as well as purifies blood.^[11,13]

Allium Cepa (Onion)

- Chemical Constituents:** Protein (albumin), allyl propyl disulphide, diallyl sulphide, alliin, allicin.
- Mechanism of Action:** Zinc aids in the production of essential scalp oil and guards against dandruff-related hair loss. The body's red blood cells receive oxygen thanks in part to iron. It is essential for maintaining healthy hair and proper hair development.
- Uses:** sulphur present in onion promotes strong, thick hair, thereby preventing hair loss and promoting hair growth. Collagen supports the production of healthy skin cells and hair growth. ^{[13][19]}

Allium Sativam (Garlic)

- Chemical Constituents:** Allicin, amino acids, Essential oil (0.06–0.1%) contains allyl propyl disulphide, diallyl disulphide.
- Mechanism of Action:** Garlic has antibacterial properties, killing germs and bacteria that cause scalp damage and further hinders hair growth. Raw garlic is known to be rich in vitamin C, Promotes hair health. It also stimulates the production of collagen, which promotes hair growth.
- Uses:** Raw garlic is rich in vitamins and minerals such as vitamin B-6, vitamin C, manganese and selenium, all of which promote healthy hair.^[10,14,15]

Eclipta Alba (Bhringraj)

Chemical Constituents: Wedelolactone, Daucoesterol.

- **Mechanism of Action:** *Eclipta Alba* methanol extract promotes anagen in hair follicles in the telogen (resting) phase, thereby increasing hair growth.
- **Uses:** It nourishes the scalp and hair follicles, favouring the hair follicles to regrow more hair. The herb rich in vitamin E, the false daisy plant, nourishes the hair scalp and strengthens the hair strands. Moisturizes the skin, making it lustrous and healthy.^[13,19]

***Thea Sinensis (Tea):* Chemical Constituents:** Caffeine, Catechin, Theaflavin.

Mechanism of Action: Tea contains caffeine, which stimulates hair follicles and increases blood flow to the scalp.

- **Uses:** Epigallocatechin gallate (EGCG) contained in tea prevents hair loss by inhibiting the activity of hormones that cause hair loss and promotes hair growth by stimulating hair follicles.^[14,15,16,20]

Trigonella Foenum graecum (Fenugreek)

- **Chemical Constituents:** The main components present in fenugreek seeds are carbohydrates, proteins, lipids, alkaloids, flavonoids, fibers, saponins, steroidal saponins, vitamins and minerals, and nitrogen compounds, which can be divided into non-volatile and volatile components.
- **Mechanism of Action:** Various plant compounds in fenugreek can interact with a chemical in the body known as DHT (dihydrotestosterone). When DHT attaches to hair follicles, sooner or later it leads to hair loss. Fenugreek can reduce the ability of DHT to bind to hair follicles.
- **Uses:** Fenugreek is an excellent source of proteins and amino acids that help repair hair shafts damaged by dehydration, heat styling, chemicals, sun damage, or colour treatments. Promotes the integration of the cuticle into the hair shaft. and promotes thicker hair growth.^[11,19]

Cocos nucifera L. (Coconut)

- **Chemical Constituents:** Saturated fatty acid triglycerides make up coconut, which is extracted from the hard, dry endocarp. About 95% of the fatty acids in this oil are saturated and have 8–10 carbon atoms. The caprylic acid concentration is 2%. 50–80% of capric acid; 3% of lauric acid; and 1% of myristic acid.
- **Mechanism of action:** Lauric acid, which is included in coconut oil, binds hair proteins and shields the roots and strands of hair against damage. Coconut oil's antioxidants encourage strong hair development. Coconut oil has a reputation for penetrating the hair shaft and shielding it from contaminants in the environment

and too much heat. Anti-fungal and antibacterial qualities of coconut oil aid to shield against bacterial issues that may impede hair development. **Uses:** Hair is moisturised, which lessens damage

***Prunus amygdalus (Almond):* Chemical**

Constituents: Almonds contain 40-55% fatty oils and about 20% proteins, mucilages and emulsions. Bitter almonds contain 2.4- 4.1% of the colourless, crystalline cyanogenic glycoside amygdalin.

- **Mechanism of Action:** Almond oil includes biotin, so massaging your hair with it is a good method to give it enough of the vitamin to encourage hair growth and stop thinning.
- **Uses:** Massaging almond oil into the epidermis and scalp improves blood flow to the hair roots, promoting hair growth and strengthening hair. It helps to revitalize and produce enough keratin to make hair thicker and thinner.^[19]

Oscimum Sanctum (Tulsi)

- **Chemical Constituents:** contains 20% eugenol methyl ether, carvacrol, and around 70% eugenol. It also has caryophylline in it. Alkaloids, glycosides, saponins, tannins, significant levels of vitamin C, and trace amounts of maleic, citric, and tartaric acids have also been linked to the plant.
- **Mechanism of Action:** *Tulsi* has beneficial effects on the hair, rejuvenating the hair follicles and strengthening the hair roots to control hair loss. This herbal treatment increases blood flow to the scalp and keeps it cool.
- **Uses:** *Tulsi* has been used to prevent hair loss and thinning and improve hair thickness. The anti-inflammatory ingredients in *Tulsi* are thought to irritate the scalp.^[19]

CONCLUSION

Alopecia is the autoimmune disorder which is highly found in the urban people and rarely found in rural area. Because of in urban area there is lots of environmental problem and due to change in lifestyle. Alopecia is the condition which sometimes occurs due to the excessive use of allopathic drugs such as anticancer drugs the excessive hair loss may occurs due to the treatment of chemotherapy and in some cases family history is also responsible for this condition. Hence the many physicians suggested avoid the allopathic or synthetic drugs, about 80% of physician recommend the use herbal medicine. The male hair baldness is mainly arising due to the hormonal imbalance such as DHT. The alopecia is the disorder which is mainly recoverable in the minor condition and it is difficult. To recover in major condition of alopecia. So, by the use of herbal drugs are the best and safest alternative treatment in the alopecia, such as, aloe vera, Amla, Onion, Garlic,

Bhringraj, Tea, Fenugreek, Coconut, Almond, Tulsi. These are the some herbal drugs which have the greater efficacy in the treatment of the alopecia or hair loss. By the extraction oil from these herbal crude drugs are effectively used in treatment baldness.

REFERENCES

1. R. Kaushik, D. Gupta and R. Yadav, Alopecia: Herbal Remedies, Article in International Journal of Pharmaceutical Sciences and Research. January 2011, Volume 2, Page no.1631
2. Ashwini S. Pundkar, Prachi M. Murkute, Snehal Wani, Mohini Tathe, A Review: Herbal Therapy Used in Hair Loss, Pharmaceutical Resonance, Published by DYPIPSR, Pimpri, Pune, 2020, Volume No.3, Page no.44-47.
3. David broadley, Kevin McElwee, A 'hair-raising' history of alopecia areata, Article in Experimental Dermatology. January 2020.
4. K.D. Tripathi, Essentials of Medical Pharmacology, Sixth Edition, Jaypee Brothers Medicalm Publishers, LTD. Page No.548.
5. H Rambwawasvika, P.Dzomba, L.Gwatidzo, Alopecia types, Current and future treatment, Journal of Dermatology and Cosmetology, Aug.2021, Medcurve, Volume 5, Page no 93-99.
6. Mayo Clinic, Hair Loss, www.mayoclinic.org, https://rb.gy/myd3uc, March 2022
7. WebMD Editorial Contributors, Medically Reviewed by Stephanie S. Gardner, www.webmd.com, April 2022.
8. S.B.Gokhale, Dr. C.K. Kokate, A.P. Purohit, A textbook of Pharmacognosy, 29th edition, Nirali Publication, January 2009, Page no.
9. Rajani Nalluri and Matthew Harries, Clinical Medicine, CME Dermatology, 2016, Volume no 16, Page no 74-78.
10. Dr.G.Arunachalam, Dr. V.E. Ida Christi, Dr. Prashant Kumar, A textbook of herbal drug technology, Thakur publication Pvt ltd, Lucknow, page number: 126
11. Dr.Zeeshan Afsar, essential of herbal drug technology, PV publication Page number: 39.
12. Dhariwala, Maria Yusuf, and Padmini Ravikumar. An overview of herbal alternatives in androgenetic alopecia. Journal of cosmetic dermatology 18.4 (2019): 966-975.
13. Bartere, Shivam A. et al. Exploring the potential of herbal drugs for the treatment of hair loss. GSC Biological and Pharmaceutical Sciences 16.2 (2021): 212-223.
14. Ezekwe, Nneamaka, Madelyn King, and Jasmine C. Hollinger. The use of natural ingredients in the treatment of alopecias with an emphasis on central centrifugal cicatricial alopecia: a systematic review. The Journal of Clinical and Aesthetic Dermatology 13.8 (2020): 23.
15. Hosking, Anna-Marie, Margit Juhasz, and Natasha Atanaskova Mesinkovska. Complementary and alternative treatments for alopecia: a comprehensive review. Skin appendage disorders 5.2 (2019): 72-89.
16. Ashique, Sumel, et al. "A systemic review on topical marketed formulations, natural products, and oral supplements to prevent androgenic alopecia: a review." Natural products and bioprospecting 10.6 (2020): 345-365.
17. Amin, Syed Suhail, and Sandeep Sachdeva. "Alopecia areata: A review." Journal of the Saudi Society of Dermatology & Dermatologic Surgery 17.2 (2013): 37-45.
18. Harries, M.J., et al. Management of alopecia areata. Bmj 341 (2010).
19. Pushpendra Kumar Jain and Debajyoti Das. "The wonder of herbs to treat-Alopecia." Innovare J. Med. Sci 4.5 (2016): 1-6.
20. Semwal, B. C., et al. "Alopecia: switch to herbal medicine." J Pharm Res Opin 1.4 (2011): 10-14.

Cite this article as:

Sandip Suresh Khandagale, Chaitanaya Laxman Ratnaparkhe, Samir Raju Sayyad, Vivek Dipak Shelar, Amol Vilas Supekar, Vikram Sadashiv Sarukh. A Review of Herbal Medications for the Treatment of Alopecia. International Journal of Ayurveda and Pharma Research. 2023;11(Suppl 4):5-10.

<https://doi.org/10.47070/ijapr.v11iSuppl4.2974>

Source of support: Nil, Conflict of interest: None Declared

*Address for correspondence

Dr. Sandip Suresh Khandagale

Assistant Professor,
Department of Pharmaceutics,
Abasaheb Kakade College of
B Pharmacy, Bodhegaon,
Maharashtra, India.

Email:

sandipkhandagale3300@gmail.com

Contact: 9822813329

Disclaimer: IJAPR is solely owned by Mahadev Publications - dedicated to publish quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. IJAPR cannot accept any responsibility or liability for the articles content which are published. The views expressed in articles by our contributing authors are not necessarily those of IJAPR editor or editorial board members.