

A Review on Herbal Drugs Used For Hair Growth Promotion

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ABSTRACT

Androgenic alopecia is a common form of hair loss in both male and female. In men, it is also known as male pattern baldness, and in female, it is also known as female pattern hair loss. In men, hair is loss in a well-defined pattern, beginning above temples. Over time, the hairline moves back (recedes) to form a characteristic "M" shape. Hair also thins at the top of the head (vertex or crown), often progressing to partial pattern to partial or complete baldness.

Alopecia areata This is anti-inflammatory that causes the follicle to stopping the producing of hair sudden Hair fall in small patches on the head is a symptom the most common forms of the disease including alopecia totalis, in which all Hair on the head is lasting and alopecia universal is in which all hair on the entire body is lost. Androgenic alopecia this is common problem in main front hair thin receding. The major factor is DHT hormone (di hydro testosterone hormone) which is a byproduct of testosterone. The testosterone is majorly male sex hormone. In men androgenic alopecia problem now, a day is very common about 70% men is suffer by this problem and this problem create by various etiological factor such as stress, hormonal disbalance, Insomnia, poor sanitation, disbalance biological rhythm. This problem come in men within lack of confidence, personality poor and sometime cause severe chronic disease like heart failure, angina pectoris, myocardial infarction etc.

Keywords: hair growth; Phytoconstituents; Nano carriers, Nano architectonics technology, molecular mechanisms, Androgenic Alopecia,

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INTRODUCTION

Alopecia areata is an autoimmune disorder which symptoms are hair loss. This disease found in the 2% of the world population. These are some factors which responsible for alopecia like environmental factor, immunological factor, psychological factor, anxiety and depression. Androgenic alopecia generally found in both male and female and it place significant value for hair. It also affects the psychology of the patient. Those people suffer from the alopecia in adult age feel lack of confidence in their daily life. The reason of alopecia generally due to anxiety and depression. Diagnosis of anxiety and depression is very mandatory because it can produce life threatening condition like patient can suicide or sudden raise in blood pressure and depression. Hair growth has three types of stages Anagen phase (active growth phase), Catagen phase (Regression phase) Resting phase, Exogenous phase (Shedding phase). Disorder of Hair- Anagen effluvium (anagen disrupt)-Cause Chemical therapeutic agents, agent which induced poisoning- Example

-Boric acid, mercury, (Thallium radiation)-Clinical drop of all hair from the scalp-Treatment-cooling of scalp. Androgenic alopecia (Both male and female hair loss) - Cause-Effect by endocrine system by androgens (di hydro

testosterone)-Clinical features at beginning bi temporal recession and sometimes bald patch on scalp -treatment Drug used in treatment are Propecia minoxidil and finasteride hair transplant. Congenital disorders-cause- Congenital at rich a with papules ectodermal dysplasia. Telogen effluvium-cause-Telogen Hairs shedding with no scars, high fever also causes shedding surgery crash diet etc. Clinical Features-Decreasing uniformity and density of hair all over scalp it can be checked by positive hair pull test-Treatment-The best procurement is less frequent shampooing of Hair and then get hair in years

Folliculitis- An inflammatory condition affecting hair follicles, leading to red, itchy bumps that can resemble acne. Hirsutism -This condition involves excessive hair development in females, typically in areas where men usually grow hair, such as the face, chest, and back.it is often caused by hormonal imbalance, particularly enhances level of androgens [1].

Structure of Hair

Hairs structure in detail -Hair is a complex tissue whose structure and biology are only partially Understood. Hair consist of keratin cell glued due to the cell membrane complex that together make three concentric shape: cuticle, cortex and medulla. The pigment cortex is depending for the stretch at capacity and color composites, whereas the 5-10 layers of single-like cells of the non-

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pigmented Cuticle are dependent for high chemical and physical resistance and shining. Hair originating from the hair follicular structure. The hair follicular structure is covered by a broad capillary system that provide the growth of hair with the essential metabolite's material. The germinative center surround the hair bulb papilla's is prepared by matrix cellular structure (Keratinocytes and melanocytes present on the layer. Melanocyte and pigments play an essential role in the incorporate of basic drug into Hair. Every Hair belongs to a sebaceous gland with the duct leading to the upper place of the root to sure that the matured hair is bathed in sebum for two to three day prior to reach the skin surface membrane. The Hair development cycles is consisting of the Anagen Active growing stage, Catagens transition stage and Telogen resting stage. Scalps Hair development 0.6-1.4 centimeter

per month in common.^{2,3} it should be noted down, however, that there is important difference both in the proportion.

Anagen stage/Telogen stage Hair and in develop rate at various anatomical places [2].

Hair Shaft- The visible part of the Hair that extends above the surface of the skin. It consists of three layers: the cuticle, cortex, and medulla. The cuticle, the outermost layer, is compared of overlapping scales that protect the inner layer and contribute to hair growth and elasticity. The cortex, the middle layer. The medulla, the inner layer made up of dead keratinized cells. it consists of three layer-the medullas is an innermost layer and cortex is middle layer and cuticle is outermost layer which protect and give structure to the hair [3].

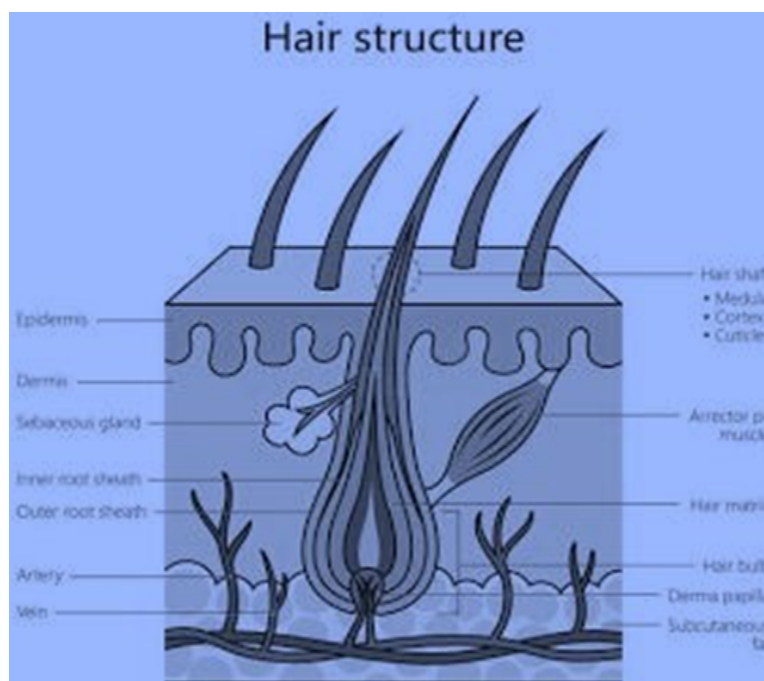


Figure-1 Structure of hair

Oxidative stress and apoptosis both are responsible for hair loss. The molecular processes behind hair follicle cycling are still a mystery. Hair follicles growth in humans is now being studied in more detail, which has laid the background for understanding crucial regulation. In recent year research on oldest herbal treatment has gained important by the lack of highly effective and safe product which is used in hair development. In this study we make a nanogel which is loaded by a herb and that herbs name is Hibiscus rosa-sinensis, Allium cepa L (onion) and Aloevera (aloe barbadensis miller) triethanolamine is used as a neutralizing agent for Carbopol 940 and tween 80 is used for association of hydrophilic layer and hydrophobic layer [4].

The hair cycle transition is controlled by several growth stimulatory or inhibitory factors. Alopecia can be categorized into several classes. It is caused by genetic

factors and inadequate androgen signaling. The skin is the body largest and most protective organ but sometimes it can become dry due to many etiology factors that can cause irritation or allergies, such as UV rays, dirt's, night makeup. A serum is a skin care product that you apply to your skin after cleansing and before moisturizing to deliver ingredients directly to the skin serum is particularly suitable for this task because it is made of small molecules that penetrating the skin and creates a high concentration of active ingredients, this make them a fool for identifying skin issues such as discoloration and signs of aging. Cosmeceuticals refers to the combination of the cosmetic industry and the pharmaceutical industry, cosmetics companies produce cosmetics and pharmaceuticals companies produce medicines. Cosmeceuticals are skin care products that combine cosmetics and medication [5].



Figure-2 Hibiscus rosa-sinensis, Allium cepa L, Aloe barbadensis miller.

MANAGEMENT OF HAIR LOSS TREATMENT

There are several ways affect the stimulate of hair growth. Parameter which affect hair develop are linear develop rate of hair, increase in hair fiber diameter alteration in hair cycle, Telogen shortening or anagen prolongation. (a) Reduction of deficiency of vitamins, nutrients and minerals which can be normal causes of alopecia (b) Therapy which effect female pattern balding called anti-androgenic therapy. (c) Drugs used to treat hair loss may be multibillions-dollar business, worldwide but there is suitable treatment that are not very developed yet the two drugs approved by USFDA to treat male pattern baldness (1) Minoxidil (2) Finasteride [6].

Hair gummies (Androgenic alopecia for act as DHT blocker). Minoxidil 1.5% (Male and female pattern baldness), Hair Transplant surgery, androgen antagonism and circulation side effects desquamation, itching, gynecomastia, dermatitis or Rash. Androgenic alopecia goal to decrease androgenic activity. Minoxidil (Rogaine) and finasteride (Propecia)are for only on male (Rogaine ultra). The mechanisms by which minoxidil activates hair development is unknown, but it appears to activate hair follicles. Various hair oil is also available and various hair growth serum but still the main cause of hair fall is mystery [7].



Figure-3 Hair growth cycle

MALE PATTERN BALDNESS

Hair loss resulting in thinning is referred as alopecia. When it's associated with hormones androgens (Majorly male hormone) and genetics, it's referred to as androgenetic alopecia. When androgenetic alopecia exposes a space of the scalp it is called baldness. Male

pattern bald is described by a subsiding hairline the susceptibility genes are acquired from both mother and father but in case of genetics the DHT hormone have very sensitive for scalp and thinning hair line. Various etiology factor is responsible in male for baldness e.g. stress, hormonal disbalance, poor life style, Shampoo, oil etc.

after stage 5 chances of hair back will very less. In case of DHT hormone hair fall from forehead in circular manner firstly thinning hair and then some time later completely

bald. Most of the hair fall was normal but dangerous happen them the hair is thinning and receding hair line and after some time in future will completely bald [8].

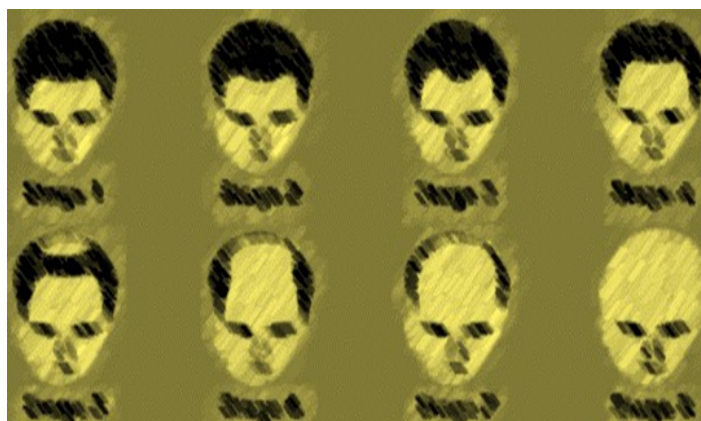


Figure-4 hair loss stage in men

FEMALE PATTERN BALDNESS

In case of female hair fall is very less because very quantity minor quantity present androgen and androgen is a male sex hormone which is present in women very less quantity. In female majorly, hormone present which name is estrogen and this estrogen have not any bi product like a testosterone which bi product is DHT. The most widely

recognized type of going bald found in ladies is androgenetic alopecia, also referred as female pattern alopecia or baldness. This is viewed as hair thinning predominantly over the highest and sides of the top. It affects approximately one-third of all susceptible women, but is most ordinarily seen after menopause, although it's going to begin as early as puberty [9].

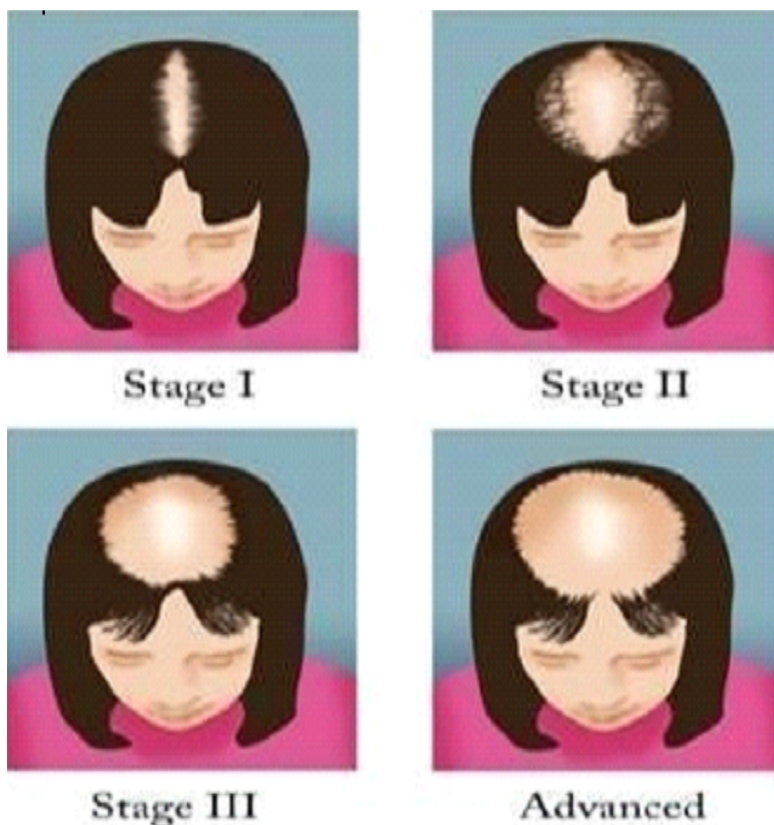


Figure-5 Hair loss stage in female

HERBAL DRUGS (MECHANISM OF ACTION)

Hibiscus rosa-sinesis

Chemical constituent- Flavonoids, tannins.

Mechanism of Action

The main mechanism of action of *Hibiscus rosa sinensis* is maintain the disbalance of hormone and increase anagen phase. *Hibiscus rosa sinensis* contain compounds that block 5-alpha reductase, an enzyme that change testosterone (Majorly male sex hormone) into DHT (dihydrotestosterone) Particularly in androgenetic alopecia, broad DHT levels are linked to hair follicle shrinkage and hair loss. The extracts from the flowers and leaves increase the scalp microcirculations, which ensures that hair follicle receive the best potential nutrition and oxygen. Stronger and thicker hair strand are supported by this stimulation of follicular activity. Extracts from *hibiscus rosa-sinensis* promote the growth of keratinocytes and dermal papilla cell, which are essential for the preparation of hair shaft and for securing hair in follicles

The 'active ingredients, flavonoids and tannins, increase the anagen phase of hair development cycle.

Uses Strengthening hair follicle cell proliferation, develop hair strand elongation, and enhance follicular activity are the methods used to achieve above. *Hibiscus rosa sinensis* extract exhibit strong antioxidant and pain relief effects. These characteristics promote a healthier scalp environment that support hair development by protect hair follicles from oxidative stress and inflammatory damage. Hair strength and density are increased as a result of these effects. Formulation contain hibiscus flower act as a good hair develop by increasing the anagen phase. [10].

Onion *Allium Cepa L*

Chemical constituent -albumin, magnesium, allyl propyl disulphide and vitamins-A, B, C, E diallyl sulphide, zinc, alliin, calcium allacin.

Mechanism of Action

The mechanism action of *Allium cepa L* was reduce dandruff because in this present zinc. Zinc aids in the production of essential scalp oil and guards against dandruff related hair loss. Onion has extensive antibacterial and antifungal properties which have been attributed to allacin. Many researchers attribute the effect of lowering blood lipids to the oxidizing power of Sulphur compounds in garlic. The aforementioned compounds oxidize the Sulphur groups of lipids -synthesizing enzymes,

thereby reducing and preventing the body from synthesizing lipids. Onion cause a significant increase in fibrinolytic activity. Stimulate vasodilation. Hence the antihypertensive effect may be due to this. Onion help increase the level of oxygenated blood in hair.

Uses Sulphur present in onion promotes strong, thick hair, thereby preventing hair fall and generate hair development. Collag en supports the production of healthy skin cells and hair development. For those who want to use onion juice to improve hair health or increase hair regrowth, it is easy. Peel about four onion and chop them. Use a juicer or any other method that is easier for you. Extract the onion juice. Another way is to put the onion pieces in a blender and make a paste. Put the paste in a coarse cloth and squeezes to extract the juice. Apply the onion juice to the scalp and hair roots. A few drops of lemon juice or essential oil can reduce the strong smell of onions. Peppermint, lavender or rosemary extracts can be making good option. It has also been found essential in patchy baldness. [11].

(*Aloe barbadensis miller*) Aloe-Vera

Chemical constituents -Barbaloin, Aloe-Emodin, Aloenin.

Mechanism of action

the main mechanism of action of *Aloe barbadensis miller* because in this aloenin was repair a scalp 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. Various types of herbal ingredients that are commonly used in hair loss prevent cosmetic were obtained. Aloevera extract contains several bioactive compounds, such as vitamin A and vitamin C, essential amino acids, copper (Cu), inositol, enzymes, and various minerals that are beneficial as antioxidants in balance the health of the Scalp and hair follicles. These bio actives compounds also act as biological stimulant that can support the process of hair cell proliferation and regrowth and have effective anti-inflammatory properties in inhibiting androgenetic activity of alopecia which is one of the main pathophysiological mechanisms that can cause hair loss. Uses in Aloe vera aloenin is the important constituent which Promoting hair develop in alopecia condition [12].

(Table-1) Plants, formulations, Sources and mechanism of actions.

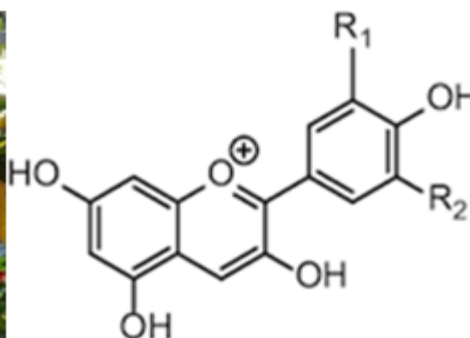
SI No.	Plant	Formulation	Source	Mechanism of Action
1	Hibiscus rosa-sinensis	Hair gel	H. rosa-sinensis Linn Family- Malvaceae	Increases circulation to the scalp can improve blood flow, delivering essential nutrients to the follicles.
2	Aloe barbadensis miller (Aloe-vera)	Hair gel	<i>Aloe vera (L.)</i> Burm Family— Asphodelaceae	Enhancing scalp health through its moisturizing.
3	Allium cepa L (onion)	Juice	<i>Allium cepa L.,</i> Family— Alliaceae.	Due to its sulfur content and potential to improve blood circulation to the scalp.

ANALYSIS OF HERBAL DRUGS

Herbal drugs wholly or parts or extracts or their formulations are analyzed by routine quality control

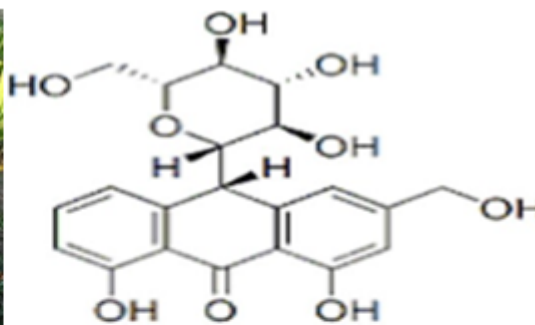
methods. These includes high performance thin layer chromatography, high performance liquid chromatography, Uv visible spectrophotometry, gas chromatography, paper chromatography, colour

chromatography, etc. [13]

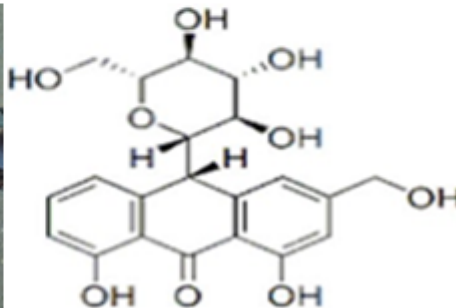


Anthocyanins

Hibiscus rosa sinensis



Aloe barbadensis miller Barbaloin



Allium cepa onion Allyl propyl disulfide

Figure-6 *Hibiscus rosa-sinensis*, *Allium cepa*, *Alo barbadensis miller* herbal drugs and their main chemical constituent

Safety and toxicity aspects of hibiscus extracts

Commonly made from *hibiscus rosa sinensis* sabdariffa, *hibiscus rosa sinensis* extracts are generally accepted to be safe when used in moderation. Hibiscus rosa sinensis calyx extracts have shown in animal experiments to have minimal acute and sub-acute toxicity profiles. Rats long term toxicity tests have revealed appreciable negative effects, indicating its general safety for use in foods and medicines.

There are not many worries about hypersensitivity or allergies reaction when hibiscus rosa-sinensis extract are applied topically for scalps and hair development treatments. Nonetheless, certain occurrence of allergic contact dermatitis has been documented in people who are susceptible to the plant's flavonoids or anthocyanins. for users with known plant allergies, patch testing and close

observation are advised. According to studies, in order to prevent irritation and attain the intended effectiveness, topicals formulation containing *hibiscus rosa sinensis* should maintain ideal concentration of 2-5% of active extracts. Sensitive people may get irritated by higher amounts, particularly if they are administered frequently without adequate formulations balancing [14].

PROCESS OF HAIR ROOTS DEVELOPMENT CYCLES VARIATIONS.

Various keys process in hair development cycles that concerns to Hair drop relationships of Exogen hair shedding to an anagens stage and telogens stage. whenever exogen stage occurs in a specific series during fast anagen then old then old telogen stage Hair fibers is shedding but replace very fast with novel anagen stage hair fibers. due contrast, whenever exogen stage birth predominant during

telogen stage then the shedding hair is do not immediate replace. The net results are a Hair follicle that do not containing any other Hair fibers as a such it does not donating to a hair coverage any other areas. The long the durations of the telogen stages perhaps the broad chances of exogen birth during telogen stage. The long the durations of kenogen stage When a Hair follicle a devoid of any other hair fibers, the lacking hair coverage is maintaining. Consequent, a priority the growth of treatment for several hair drop is the growth of growth cycle deviations that decrease telogen stage and prolong anagen stage durations [15].

Comprehensive information which possesses scientific and traditional evidence about herbals drugs for hair drop. Various types of medications is available to a treating hair drop in various systems of treatment like allopathic drug, homeopathy drug, ayurveda drug or can be surgically like transplantation but none of them is fully satisfactorily. To avoid or decrease unwanted side effects of allopathic medicaments like finasteride, minoxidil but some time finasteride shows erectile dysfunction So most of person switch over to herbal medicine. To prevention the hair drops and redevelop of hairs different herbals are being used like Aloe vera (*Alo barbadensis miller*), Hibiscus (*Hibiscus rosa sinesis*), Onion (*Allium cepa L*) etc. which is been discuss below with very comprehensive details which possess scientific and oldest tradition evidence about herbals to stop hair drop, and we hope that you will found your answer here and get back to your originality hair [16].

Composition of hair growth cycle.

Hairs are the outgrowths from the follicles existing on the skin. Hair is composed of keratin with chemical constituents such as Carbons(C), Nitrogen’s (N), Sulphur’s (S), & Oxygen’s (O). Hair development fluctuates from one individual to another but on average hair grows about 15-29 mm/ month. It is also called as epidermal subsidiaries as they begin from the epidermis during embryological advancement [12-13]. Every hair

falls in following three cyclic stages.

Anagens (Growth stage)

The anagen stage can be short as 2 years to up to 8 years. Around 79 % of hair is generally in anagen stage. On a solid scalp, there are around 1,000,000 hair and 90% of the follicles are constantly in the anagen period of hair development.

Catagen (Involution stage)

In the catagen stage, the development action increments and hair move to the following stage, catagen stage is between 10-14 days.

Telogen (Resting stage)

The telogen stage is a state at which the hairs move into resting state. This stage goes on for 89-100 days. All in all, 50100 hair at irregular is shed each day. An increment of in excess of 100 hair for each 6-constituents a condition of going bald or alopecia [17]

DISORDERS OF HAIR LOSS

Androgens are a source of significant psychological and physical stress Considered one of the most important causes of hair loss from a number of etiology factor. As anagen phase shortens, the number of sensitive hair follicles decreases, causing thin terminal hair to turn in fine vellus hairs, androgenic alopecia results. Intra-follicular transformation of testosterone to di-hydro testosterone is carried out by 5reductase type-2 enzyme. Hair loss and follicular shrinkage are common in both sexes, and are thought to be a physiological side effect of sexual stimulation but in male this problem is majorly show in male because androgenic hormone is more e.g. testosterone which was biproduct is DHT (dihydrotestosterone) and this DHT accumulated in hair follicles and decrease their growth. In case of female androgenic hormone is present in very less quantity because in female more quantity hormone present which name is estrogen therefore this problem is not general in female [18].

Table 2 Hair disease clinical features and their treatment

Disease	Etiology	Clinical Feature	Treatment
Anagen effluvium	Shedding of telogen hairs (No scars), Secondary to Stress like high fever surgery, crash diet.	Uniform decrease in density all over scalp. Positive hair pull test.	Shampoo less frequently. Can get up to years to grow back
Alopecia Atreata	Genetic Factor, Autoimmune disease	Circular patches of hair loss, Hair grow back white	Inject steroid (Kenalog)
Traction alopecia	Hair styling like Pony tails		Hair grafts
Androgenic Alopecia	Male and female pattern baldness	Beginning with bitemporal recession, bald patch	Rogaine (Minoxidil), Propecia (Finasteride), Transplants.
Trichotillomania	Pulling hair out	Chronic, repetitive hair pulling	Self-monitoring, Stimulus control, Habit-reversal training

Causes, symptoms, diagnosis, treatment and counseling of hair loss

Both Male and Female develop this type of hair loss, which is the most common cause of hair loss worldwide. In men, this is called male pattern baldness. Baldness

refers to an excessive loss of hair that usually affects the scalp it is considered normal to shed about 50 to 100 hairs daily with new growth replacing these hairs, however if the lost hairs are not renewed or come back thinner than the one that was shed it eventually leads to baldness although

both men and women experience hair loss it is not common in women as in men and appear differently there exist two patterns in humans the male pattern baldness and the female pattern baldness men with male pattern baldness tend to develop a receding hairline and bald spots in women the hair may become thinner rather than fall out and the resulting baldness may be less severe than in men in the earliest stage of male pattern baldness the hair loss is notice at the front of the head or the temple and gradual recede to the back where the scalp in the upper and crown areas become more visible women lose hair from all over their head starting at the part line hair at the temple may also recede female and male pattern usually occurs in people in their 40 older year age and beyond

CAUSES

Genetics- Genetics play a essential role in developing baldness men and women can inherit the gene for pattern baldness from either parent you are more prone to developing baldness if your father mummy or other close relatives have experienced hair loss.

Illness- Illness hair loss can develop after a significant illness the stress from illness or surgery may prompt the body to temporarily cease such tasks as hair production such tasks as hair production some other specific such as - Syphilis, Iron deficiency, Thyroid disorder or some certain type of cancer can trigger hair loss.

Medications and Supplements- Medications and supplements hair loss can result from the use of certain medications such as those used for treating cancer, high blood pressure, arthritis and heart problems

Auto immune disease- Autoimmune disease is a rare autoimmune disease known as alopecia areata that causes the immune system and attack the hair follicles leading to hair loss

Hormonal Changes-Changes in the level of certain hormone in men and women can lead to hair loss. Androgen is a hormone that plays a role in male pattern baldness. A tumor of the pituitary gland that secretes androgens hormone may play a large role in hair loss.

Aging menopause-In women, female pattern baldness become more common after menopause . This occur because of estrogen in the body decreases

Symptoms

- (1) The most common symptoms of baldness in men are:
Bald patch on top of the scalp.
- (2) Receding hair line from the front
- (3) Partial baldness complete baldness at a later stage
- (4) The most common symptoms of baldness in women are excessive loss of hair
- (5) Overall thinning of hair
- (6) Reduction in the density of hair

Diagnosis

- (1) Your doctor will perform a physical exam on your

scalp to see the pattern of hair loss And review your medical and family history. The doctor may also carry out certain test such as blood test to uncover underlying medical conditions that may be related to your hair loss

- (2) Scalp biopsy where few hairs are plucked up from your scalp to examine the hair root and this help to determine whether loss is due to certain infection
- (3) Pull test your doctor pulls multiple hairs to see how many come out the doctor can then determine the stage of the shedding process.

Treatment-

- (1) Early diagnosis is encouraged as it can get you on a treatment plan and minimize future treatment are available and may depend on the cause of your baldness. If your baldness is caused by an underlying medical condition, treatment for such condition may be significant importance.
- (2) If the excessive hair loss is caused by a certain drug that are you are using, your doctor may stop using such medication for a while if it as result of a gene that was passed from your father and mother by genetics, drugs are available such drugs include.
- (3) Minoxidil, approved by the U.S. food and drug administration (FDA) to treat pattern male pattern baldness and women pattern baldness. Minoxidil is a topical drug applied over the scalp that activate the hair follicles develop new hair
- (4) Finasteride and dutasteride are approved by the FDA to treat Hair drops in men. They are not approved for women. This is an oral medication that is taken daily.
- (5) Spironolactone is one of the oral drugs that is used to female's pattern baldness
- (6) If hair loss is a result of iron lacking, your doctor may prescribe an iron supplement
- (7) Laser comb and helmet which act by emitting low levels of laser rays to help stimulate hair redevelop are used. This treatment is Federal Drug Administration approved.
- (8) Some people may choose hair transplant, during a hair transplant, hair is removed from another places with healthy hair growth and a transplant is made to the spot where the hair is losing A surgery of procedure to treat baldness is expensive with possible risks of bleeding and scarring.

Counseling-Going bald can be a big deal and you may have trouble accepting your new appearance. If your experience anxiety, depression, or other emotional problems you should seek counseling [19].

CAUSES OF HAIR LOSS

- **Heredity factor**
- **Poor Nutrition**

- **Hair treatment**
- **Excessive Hair styles**
- **Medication Chemotherapy**
- Hormonal Changes
- Autoimmune disease
- Vitamin Deficiency
- Physical & Emotional Stress
- Disease
- Inflammation
- Aging

Materials and Method

First step chopped onion and second step scrap the aloe vera gel by knife add citrus juice for masking strong smell of onion and crush hibiscus leaves by mixer grinder and add in onion and Aloevera mixer prepared a gel and this is only for androgenic hair fall because in androgenic hair fall biggest factor is DHT which is accumulated in our scalp and shrink hair follicles [20].

Nanogel method of preparation

According to this review paper we prepared a nanogel by the process of distillation. In this method our three herbal drug hibiscus rosa sinensis, allium cepa, onion mixture are added by pipette in carbomer940 polymer as gelling which is dispersed in water and add some amount of tween 80 as a surfactant for bind hydrophilic layer and lipophilic layer. According to this review paper formulation we Add citrus juice for masking onion strong smell. This method is very beneficial for androgenic alopecia [21].

Hair Growth Promoting Herbal Drugs

Numerous kinds of plants which are separately utilized into various parts of globe for consideration of hair, also achieve hair development advancing action, and quantities of home-grown items admired for hair development advancing movement.

Everywhere on world, numerous poly-herbal combinations are utilized like a hair tonic, hair development advertisers, hair conditioners, hair purging specialists, hostile to dandruff specialists, just like a treatment of alopecia and lice disease. This segment of audit reports logical proof of hair development advancing exercises of plants with parts utilized, sort of concentrates, and furthermore *in-vitro*, *in-vivo* and clinical preliminary information accessible by several analyses [22].

CONCLUSIONS

In this study we take three plant first take *Hibiscus rosa sinensis* second take aloe vera and this Aloevera scrap latex by knife and mixt with *hibiscus rosa sinensis* mixture and third take onion juice (*allium cepa*) three plant mix with mixture grinder and this three-plant mixture add by micropipette in carbomer 940 dissolve in water and some amount added tween 80 tween 80 as a surfactant on magnetic stirrer. This nanogel process is known as distillation process. These three herbal plants show

promising activity for hair growth. Hibiscus rosa sinensis flower block 5 alpha reductases, an enzyme that changes testosterone (majorly male sex hormone turn into DHT which accumulate hair scalp and second plant *Allium cepa* onion which is act on the body red cells receive oxygen thanks in part to iron, and it is essential for containing healthy hair and good hair development and third herbal drug was *aloe barbadensis miller* in contents of *Aloevera* have Vitamins A,C, and E which strengthen and repair hair strands and hair shining this three are promising treatment for hair growth and majorly modulation in their cycles [23].

REFERENCES

- (1) **Azhar et al., (2025)** (Skin appendage disorder). Hair loss (HL) is a prevalent condition worldwide; it can affect both males and females of different age groups. Despite the availability of many conventional treatment options, these might be linked to causing different side effects, leading to a growing interest in natural and herbal remedies (HRs).
- (2) **Sobhan Yousefi., (2025)** The effect of onion juice on strengthening hair and Preventing hair loss. According to this study conducted on the two plants onion and garlic, they can be used as very suitable compounds in the production of food and pharmaceutical products. To do this, it is necessary to know all the organoleptic characteristics and biological activities of the two. Another very important issue is related to the smell and substances released from garlic and onion.
- (3) **Satyajit kamble., (2025)** Formulation and characterization of herbal nanogel for fungal infections, this study examined the latest advancements in medication delivery and nanogel production. The study of herbal compounds is the focus of a field of chemistry known as phytochemistry. Plants have been used medicinally because they are the safest alternative to modern allopathic medications and contain a range of therapeutic potentials. To improve drug penetration through the topical route, herbal extract is employed to make nanoparticles; the formulation with the best trapping efficacy is chosen to prepare nanogel.
- (4) **Shruti A Shinde et al., (2024)** hair growth serum incorporating *Hibiscus* Flowers, leaves, Vitamin E, Amla, curry leaves, olive oil, and peppermint oil have shown promising results.
- (5) **Abhishek Dive et al., (2024)** *Aloe barbadensis miller (Aloe-vera)* in hair cosmetic: A Comprehensive Overview. *Aloe vera* stands as a versatile and potent ingredient in hair cosmetics, boasting a rich array of properties that render it a cherished addition to beauty regimes worldwide. Its distribution of nutrients, including vitamins A, C, E, and B12, along with minerals like zinc and magnesium, contributes to its nourishing prowess. Phytochemical compounds such as anthraquinones and polysaccharides offer antioxidant and anti-inflammatory benefits, elevating its therapeutic potential. The medicinal and pharmacological facets of aloe vera are extensive. Its antibacterial, antifungal, and moisturizing attributes make it an ideal candidate for hair care products, promoting scalp health, and strengthening hair strands.
- (6) **Nanadipha L Botha et al., (2023)** nanogel and their application on dermal therapy. The known shortcomings of the most marketed topical administered drugs are that

they are linked with different toxicities that lead to their side effects and the disadvantage of the abnormal or affected organ. Their lack of curative treatment and poor effectiveness in topical therapy is the main force behind the design of new, safe, and more effective drug carriers.

- (7) **Salvador Pérez-Mora et al., (2023)** Possible hair growth in C57BL/6 Mice. We observed a remarkable and statistically significant improvement in hair growth on days 15, 18, and 21 in animals treated with the bioactive compound, surpassing the hair growth observed in animals treated solely with the vehicle or minoxidil.
- (8) **Apoorva KR Tripathi*, Vipul V Dhasade., (2022)** Formulation Development and Standardisation of Herbal Hair Tonic. Herbal cosmetics are immeasurable gift of nature have expanding demand in world market. There remain wide spans of seasoning cosmetic product to satisfy beauty regime. The presence of number of phytochemicals and botanicals within the seasoning product have twin stuff, one that they're used as cosmetics for body care and another that phytochemicals amend the biological functions of build naturally results in healthy skin and hairs. Seasoning hairdressing not solely moisturizes scalp however additionally converse dry scalp and dry hair conditions. It bestows various essential nutrients needed to take care of traditional functions of the sebaceous secretor and promote natural hair growth.
- (9) **Ashwini S. Pundkar et al., (2020)** A Review-Herbal therapy used in hair loss. Alopecia is one of the main problems amongst urban people to domination to stress environmental problems etc. So, with the help of this review article, we conclude that many herbal drugs having potency for curing alopecia with no side effects. The various types of allopathic drugs to treat hair loss but they have many side effects. *Herbs* are starting material for any medication research.
- (10) **Lalla Che Rose et al., (2020)** Potential hair growth of crude extract from *hibiscus rosa-sinesis* Linn. The *Hibiscus rosasinensis* Linn. (HRS), the national flower of Malaysia, is famous for its use in various traditional medicine. However, its usage as an activating agent has not received much attention it deserved. Therefore, this study was directed towards the use of HRS for hair growth as a substitute for the present commercially available drug. In this work, petroleum ether was used to extract both leaves and flowers of HRS. Its potential for hair growth was evaluated in vivo.
- (11) **Manisha Sharma et al., (2019)** Nanogel and its utilization in cosmeceuticals. In global market the demand for cosmeceuticals have shown an appreciable amount of increase over the past few years, especially the novel technology is more explored by the researchers as well as the marketers. Nanotechnology provides a wide platform for innovation and variation; the Nano cosmeceuticals have shown an amplifiable amount of growth. Nano cosmeceuticals such as nanogels, Nano emulsions, liposomes, niosomes, solid lipid nanoparticles.
- (12) **Gupta et al., (2019)** Rational for the exigency of nanogel based cosmeceuticals. In global market the demand for cosmeceuticals have shown an appreciable amount of enhancement over the past few years, especially the novel technology is more explored by the researchers as well as the marketers. Nanotechnology provides a wide platform for innovation and variation; the Nano cosmeceuticals have shown an amplifiable amount of growth. Nano cosmeceuticals such as nanogels, Nano emulsions, liposomes, niosomes, solid lipid nanoparticles etc.
- (13) **Nusa Tenggara Barat., (2025)** The Potential of Herbal Agents for Hair Growth: A Mechanism-Based Review of Hair Follicle Stimulation.
- (14) **Prashant Sopan, Vishal Shivaji Gaikwad, (2024)** A Review On: Herbal Hair Serum.
- (15) **Nanadipha L Botha , Paul Mushonga and Martin O Onani (2023)** Review on nanogels and their applications on dermal therapy.
- (16) **Azhar Ahmed .Azhar M. ALALI . Ebtesam Abdullah . Mohammed N. Alharbi Hamza M (2025)** Herbal Remedies for Hair loss: A Review of Efficacy and Safety.
- (17) **Rakesh K . Sindhu , Rukal Gupta , Gaurish Wadhara (2022)** Modern Herbal Nanogels: Formulation, Delivery Methods, and Applications.
- (18) **Sandip Suresh Khandagale , Chaitanaya Laxman Ratnaparkhe, Samir Raju Sayyad , Vivek Dipak Shelar (2023)** AmolA Review Of Herbal Medications for the treatment of Alopecia.
- (19) **Sruti Ranjan Mishra , Faruk Alam , Aswini kumar Sethi (2023)**....A Comprehensive Review on Medicinal Plants for the Remedy of Hair Loss.
- (20) **Pushpendra Kumar Jain , Debajyoti Das , Singhai AK (2015)**...Alternative Herbal Drugs used for treating hair disease.
- (21) **Prajakta Vasudeo Muthal ,Miss Madhuri B, Wankhade , Prof. Swati P , Deshmukh , Gayatri D . Karwate (2023)**.....A Review On Herbal Hair Growth Agents.
- (22) **Rahul Kumar ,Sunil Chandra Bhatt ,Vivek Pandey , Pushkar Rana , Shweta Rawat (2025)**....'Hibiscus Flower Extract as a natural hair growth stimulant: A comprehensive review of mechanism and application.
- (23) **K. Rashid , V. Baskar Ananda Raj, P. S Shiji Kumar , K.M Nishad (2020)**....Hair care promising herbs: A Review.
- (24) **K.C. Nurmagrianty , E.W. Agustin (2025)**.... The Effectiveness of aloe vera extract as a natural ingredient in reducing hair loss.
- (25) **Sobhan Yousefi (2025)**..... The effect of onion juice on strengthening hair and Preventing hair loss.
- (26) **Chaitanya Rarokar, Mithali Palandurkar , Dr. Renuka Mahajan (2023)**.... Development and evaluation of polyherbal formulation for alopecia.
- (27) **Lalla Che Rosa ,Nur Nadiah Syahirah Rusdi , Asnuzilawati Asari , Mohd Effendy ABD Wahid , Hamdan Suhani (2020)**....Potential hair growth of crude extract from *Hibiscus rosa-sinesis* Linn.
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- (32) **Priyanka M. Khasare , Shruti A Shinde , Shruti S Londe , Simaran A Inamdar , Shubham J Kharat (2024)(** Formulation & Evaluation of Hair growth serum from hibiscus flowers and leaves.
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