



A NATURAL HAIR TONIC FOR ALOPECIA

Dr. P Premkumar¹, Nikhila. M.Nair^{2}, Jency Abraham², Dr. Shajan A³*

¹ Research guide, Professor, Dep. Of Pharmaceutics, SIMATS, Saveetha college of Pharmacy, Thandalam, Chennai- 600077

² Research Scholar, Dep. Of Pharmaceutics, SIMATS, Saveetha college of Pharmacy, Thandalam, Chennai- 600077

³ Research Co-guide, HOD ,Dep of pharmaceutics, Nazareth college of pharmacy, Thiruvalla-689546, kerala

*Corresponding author: Nikhila.M.Nair

Telephone no. +919645497963

Email : nikhilamnair89@gmail.com

ABSTRACT :

Alopecia since the dawn of mankind, has affected all ethnicities and both sexes to varying degrees. In allopathy, the treatment of all hair problems is expensive and cannot be afforded by poor people. Herbal hair preparations are free from various side effects which are chemically synthesized, for example, Minoxidil has side effects of local irritation, itching and burning sensations are frequent. Instead of using various formulations for different hair problems, there is a necessity to formulate one single preparation which overcomes maximum hair problems. Since ancient times, cow pee has been utilized to treat a variety of human illnesses. It is a crucial and integral component of PanchgavyaChikitsa ("Cowpathy"). The protocol study was approved by the Institute Animal Ethical Committee for animal experimentation. The study was performed and gave good hair growth activity. To improve people's health and way of life, it is important to raise public awareness of the value and variety of uses of cow urine. In this study, cow urine is used along with methi (fenugreek) and aloe vera to formulate a hair tonic to cure the alopecia. Formulated hair tonic is having excellent hair growth-promoting activity, with good antifungal activity. It will act as a potent herbal alternative without any side effects.

Keywords: Alopecia, public awareness, protocol, cow urine

INTRODUCTION :

Hair tonic is a cosmetic dosage form used to promote hair growth in baldness or hair loss. Its application is allowed only for preventing hair loss and thinning, itchy scalp, and dandruff. Hair care dosage forms are abundantly available in the market. Chemicals, which can give side effects to health, are still widely used as the active components even though there are many potential natural ingredients for stimulating hair growth. Many plants have the properties as hair fertilizer, such as Hibiscus, Cuban jute and Aloe vera etc. Cow urine holds a special place in medicine. It is the most potent substance of animal origin and has countless medicinal benefits. Cow's urine has got anti-fungal and anti-bacterial activity, hence control dandruff and scalp infections. Its anti-oxidant properties reduce hair loss. Alopecia areata is a complex genetic, immune-mediated disease that targets anagen hair follicles. The disease affects children and adults and is characterized by round or oval patches of hair loss, loss of all scalp hair (alopecia totalis), body hair (alopecia universalis), or ophiasis pattern hair loss. Treatment and Research Center in Indore, has reported that Gomutra is capable of treating a wide range of illness.

ALOPECIA :

Alopecia is a condition that causes baldness on the head or other regions of the body where is ordinarily found. Low self-esteem brought on by the distressing disease has a negative psychological and social impact on suffers. Most people experience hair loss or alopecia at some point in their life, more and more patient seeking treatment. The most prevalent type of alopecia include androgenic(common baldness), alopecia areata, and chemotherapy-induced alopecia. Numerous factors, such as stress, hormones, nutrition, various illness, and prescription drugs for cancer are causes of the condition.

The distinction between normal and pathological hair loss in paediatrics can be studied by knowing fundamental understanding hair biology. The root of hair is anchored in the follicle, involution of the epidermis, and the proteinaceous shaft of hair. Hair loss is caused by a variety of reasons including genetics, hormones, exposure to the environment, drugs, and nutrition. A multimodel strategy is necessary for treating hair loss, and using CAM may have additional advantages. The cycle of hair follicle depends on vitamins and trace minerals, which also act as hormones, antioxidants, immunomodulators and cofactors for enzymes to maintain homeostasis.



Fig no. 1: Stages of hair loss

HAIR GROWTH CYCLE :

Anagen, catagen, telogen, and exogen are four phases in cyclical growth of hair. Anagen,catagen,telogen, and shedding are the stages of normal hair follicle’s growth, degeneration, resting and shedding cycles(exogen).

Anagen:True anagen starts four weeks after birth and is the growth phase.The stem cells present within the bulge region begin to proliferate at the onset of anagen to produce a new lower HF.The anagen growth phase of human scalp hairs can last between two and eight years.

Catagen: Catagen is the time of HF’s rapid involution, during which the lower two thirds of the HF rapidly deteriorate over the course of two three weeks,leaving only club hair encased in an epithelial cap.

Telogen:Following catagen,telogen is the phase of HF cycling during which hair is shed or lost .

Exogen:Old hair shafts can be passively lost by the mechanical forces ,but exogenous shedding is typically an active process.



Fig no. 2: Hair growth cycle

TYPES OF ALOPECIA

1)ALOPECIA AREATA

Alopecia areata(AA) isa complex auto immune condition that causes non scarring hair loss.It typically presents with sharply demarcated round patches of hairloss and may present at any age.There are many types of hair loss. Alopecia areata is one of the most common type.

This type of hair loss usually begins in children and young adults, but it can start at any age. People of all skin tones and genders get alopecia areata.

The word “areata” means patchy. Because this disease often causes patchy hair loss, it’s usually called alopecia areata. “Alopecia” means hair loss.

There are different medical name for this type of hair loss.

- **Alopecia barbae:** A person has patchy hair loss on their beard.
- **Alopecia ophiasis:** A person has a band or strip of hair loss on their scalp.
- **Alopecia totalis:** A person has lost all the hair on their scalp.
- **Alopecia universalis:** A person has lost all the hair on their scalp and everywhere else on their body. This is rare.

Many therapies are available for the treatment of alopecia areata, including topical, systemic, and injectable modalities.This activitydiscusses the pathophysiology, evaluation and treatment strategies for alopecia areata and highlights the role of the interprofessional team in optimizing patient care.

SYMPTOMS OF ALOPECIA AREATA

Alopecia areata seems to have a genetic basis.

- 1) Hair loss is the main symptom of alopecia areata. Hair typically sheds in small patches on the scalp. These hair patches are often several centimetres or less.
- 2) Hair loss may also occur on other parts of the face, such as the eyebrows, eyelashes, and beard, as well as other parts of the human body.
- 3) For starters, you might first notice clumps of hair on your tabs or in the shower. If these spots are on the back of your head, someone may even bring them to your attention.
- 4) Other medical conditions might also cause hair to fall out in a similar pattern. Hair loss alone is not used to diagnose alopecia areata.
- 5) In severe conditions, some people may also experience more extensive hair loss. This often indicates a different kind of alopecia.
- 6) The hair loss issue that is associated with alopecia areata is unpredictable. Your hair may grow back to normal at any time and then may fall out again. The extent of hair loss and regrowth of the same varies greatly from person to person.

ETIOLOGY

Alopecia areata is also known as an 'autoimmune disease'. This is one of those annoying conditions where the affected person's body's immune system, which usually fights off harmful bacteria and viruses, accidentally attacks itself.

So all the tiny cells in the immune system known as T cells, gather around the base of a hair follicle and try to kill it. But at some point, our immune attacking ability must come to an end and the hair grows back to normal.

A recent illness like a viral infection or certain medications for other medical conditions can trigger Alopecia areata.

It has also been observed that some people can link the onset of their alopecia to a tense life event, while many can't.

2)ANDROGENIC ALOPECIA

Although AGA is frequently referred as**Male pattern baldness** ,both men and women can be severely affected by the disorder.

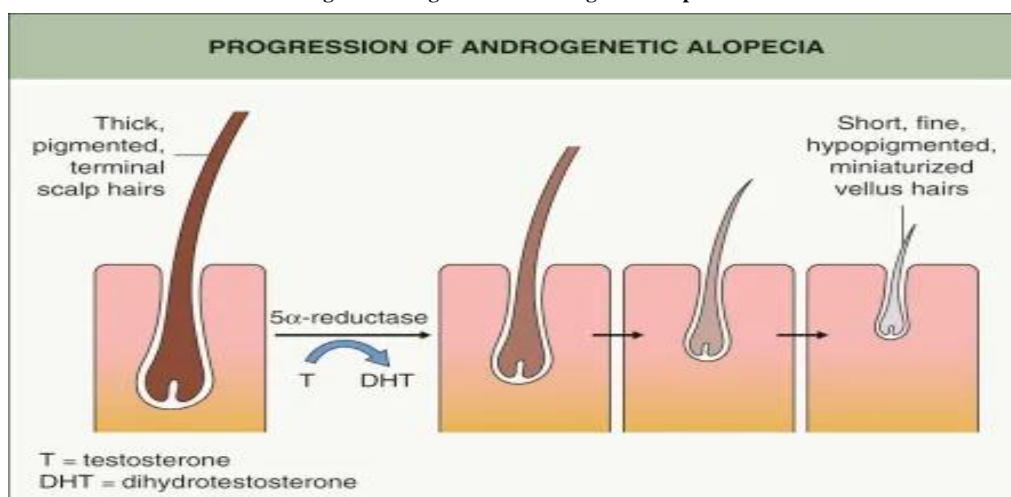
Women often experience widespread hair loss over the top of their scalp, but men typically exhibit hairline regression around the temples and balding at the vertex. In men typical androgenic hair loss starts above the vertex, or crown ,of the head .

This pattern in female AGA is known as **female pattern baldness**.Androgenic alopecia affects 70% of all males and roughly 40% of women during their lifetimes.

MECHANISM

Dihydrotestosterone , a potent androgen , is created when the enzyme 5-alpha reductace breaks down testosterone in the gonads and other regions of the body like the liver and the brain (DHT) .The body converts about 10% of the testosterone it produces in to DHT . 11 DHT , a sex steroid similar to testosterone, has a higher binding affinity than other androgens and accelerates the balding process .As androgens link to hair follicle receptors, follicles gradually weaken, shrink,which kills the cells that make up the follicles .The interaction of androgens with hair follicles causes a shorter telogen lifespan and a longer anagen lifespan.

Fig no. 3: Progression of androgenetic alopecia



COSMETICS :

The Drugs and Cosmetics Act defines cosmetics as any article intended to be rubbed, poured, sprinkled or sprayed on, or introduced into or otherwise applied to human body or any part thereof for cleansing, beautifying, promoting attractiveness, or altering the appearance.

The usage of cosmetics is so high and popular, that made most of the countries to pass laws to control manufacture of cosmetics as they involved the health of masses. In our country the British rulers introduced the Drugs Act in 1940 and included cosmetics also in it in the year 1945 and renamed it as The Drugs and Cosmetics Act, 1940.

“Cosmetic” is from the Greek word kosmos (related to cosmos), meaning to arrange, order, or adorn. Cosmetics are pharmaceutical products that are used for improving skin appearance and body odor. These products are available in various forms, ranging from lotions, creams, powders, tonics and so forth. Cosmetics are used for cleansing, protecting, and moisturizing the skin. Generally, consumers prefer to choose cosmetics that have less harmful effects on their skin. “Cosmeceutical” products have now been developed by many pharmaceutical industries. According to a cosmeceutical is the combination of a topical cosmetic and a pharmaceutical that is used for enhancing beauty through ingredients that have biological functions related to the skin. The topical cosmetic, which contains antioxidants, is used to protect human skin against the damage caused by ultraviolet radiation (UVR) and by free radicals.

The use of cosmetics dates back to Vedic period and stone age era. References can be found in Charaka samhita, Sushruta samhita etc. about preparation used for hair, lips, hand and fingers, eyes, and skin. Currently, the cosmetics are used by masses with great force and has become an essential commodity of life. It plays a major role in social gatherings, exercising psychological effects apart from beautifying the users. Cosmetics clubbed with other agents also help the body therapeutically like preventing sunburns, skin infections, hair growth, protection from cold blisters, killing germs and bacteria etc.

According to European regulation a cosmetic product is any substance of mixture intended to be placed in contact with external part of human body or with the teeth and mucous membrane of oral cavity with a view exclusively or mainly to clean them, protecting them, perfuming them, changing their appearance, keeping them in good condition or correcting body odour.

FDA, through federal food drug and Cosmetics act regulated cosmetic that are required to be safe for consumer.

History Of Cosmetics

Cosmetics have been in use for thousands of years, with ancient Egyptians and Sumerians using them. In Europe, the use of cosmetics continued into the Middle Ages—where the face was whitened and the cheeks rouged—though attitudes towards cosmetics varied throughout time, with the use of cosmetics being openly frowned upon at many points in Western history. Regardless of the changes in social attitudes towards cosmetics, ideals of appearance were occasionally achieved through the use of cosmetics by many. According to one source, early major developments in cosmetics include

- Kohl used by ancient Egyptians
- Castor oil also used in ancient Egypt as a protective balm
- Skin creams made of beeswax, olive oil, and rose water, described by the Romans
- Vaseline and lanolin in the nineteenth century.

Historically, the absence of regulation of the manufacture and use of cosmetics, as well as the absence of scientific knowledge regarding the effects of various compounds on the human body for much of this time period, led to a number of negative adverse effects upon those who used cosmetics, including deformities, blindness and in some cases death. Many cosmetic products available at this time were still either chemically derived from natural resources commonly found in the kitchen, such as food colouring, berries and beetroot. Examples of the prevalent usage of harmful cosmetics include the use of ceruse (white lead) throughout a number of different cultures, such as during the restoration, in the West, and blindness caused by the mascara Lash Lure (In 1933, more than a dozen women were blinded and one woman died from using a permanent mascara called Lash Lure. Lash Lure contained p-phenylenediamine, an untested chemical). At the time, there were no regulations to ensure the safety of products. During the 19th century, there was a high number of incidences of lead poisoning due to the fashion for red and white lead makeup and powder, leading to swelling and inflammation of the eyes, weakened tooth enamel and blackening skin, with heavy use known to lead to death. Usage of white lead was not confined only to the West, with the white Japanese face makeup known as oshiroi also produced using white lead. In the second part of the 19th century, scientific advances in the production of makeup led to the creation of makeup free of hazardous substances such as lead.

Classification of cosmetics

Based on widely used body parts

- Hair cosmetics
- Face cosmetics
- Eye makeup
- Nail cosmetics
- Lip decorators

Based on physical form

- Emulsion: Cold cream, Vanishig cream
- Powders: Face powder, Talcum powder, Tooth powder
- Sticks: Lipstick, Deodorant sticks
- Oils: Hair oils
- Soap: Shampoo soap, Shaving soap, Toilet soap
- Jellies: Hand jellies

- Paste: Tooth paste, Deodorant paste
- Aerosol: After shave spray, Hair perfumes
- Solutions: Aftershave lotions, Hand lotions, Astringent lotions

Based on the function

- Skin whitening and /or de pigmenting cosmeceuticals
- Moisturizing cosmeceuticals
- Anti wrinkle cosmeceuticals
- Sunscreen cosmeceuticals
- Anti-photo aging cosmeceutical

Based on color cosmetics

- Lip makeup products: Lipstick, lip gloss, lip balm and lip liner
- Eye makeup products: Mascara, eye liner, eye shadow, eye makeup remover
- Facial makeup products: Facial foundation, blush, concealer
- Nail care products: Nail polish, nail hardener, nail moisturizer

Safety Concerns Of Cosmetics

Some of the safety concerns that may be associated with cosmetics and personal care products include:

- Irritation and scratches on the ocular region
- Serious Infections related to eyes
- Contaminants in products produced in any other country than the U.S.A
- distribution of bacteria on dermal surface
- Allergic reactions or sensitivity to components listed in product
- Hazards related to fire for aerosol products The effect of the cosmetics must not exceed over a specific period of time.

Therapeutic indications of cosmetics

- ❖ Moisturization
- ❖ Anti wrinkle or aging effects
- ❖ Anti oxidants
- ❖ Skin lightening or de pigmentation
- ❖ Sunscreens
- ❖ Hair strengthening, hair fall arrest, hair growth stimulation, textural hair improvement
- ❖ Reduction of scars in face
- ❖ Treatment of specific disorders, eg: Acne, rosacea, melasma
- ❖ Miscellaneous uses

KURUNTHOTTI



Fig no. 4: Kurunthotti

- Family - Malvaceae
- English name - Cuban jute, jelly leaf
- Malayalam name – kurunthotti
- Alopecia areata (AA) is a complex alopecia or baldness is excessive loss of hair from the head or body. The two main causes are:
- Family history: the most common cause is heredity condition called male-pattern baldness.
- Hormonal changes: temporary hair loss as seen in pregnancy, child by alopecia areata (AA) is a complex autoimmune condition that causes non-scarring hair loss. It typically presents with sharply demarcated round patches of hair loss and may present at any age. Three main types of the condition- alopecia areata, alopecia totalis and alopecia universalis.

HIBISCUS PLANT



Fig no. 5: Hibiscus

Antioxidant activity, antibacterial properties, color and FT-IR spectral analysis of flowers belonging to hibiscus and cassia species were investigated. Radical scavenging activity of sample extracts were determined based on the percent inhibition of DPPH and ferric reducing anti oxidant power (FRAP) assays. Total phenolics were estimated based on the Folin-Ciocalteu method, while, vanillin-HCl and aluminium chloride methods were employed to estimate total tannins and flavanoids in the sample extracts, respectively. The flower extracts to encompass high amount of antioxidant compounds and exhibit significant antioxidant activities, which depended on extraction solvents.

ALOE VERA



Fig no. 6: Aloe vera

Most research has been centralized on the biological activities of the various species of aloe, which include antibacterial and antimicrobial activities of the non volatile constituents of the leaf gel. Aloe species are widely distributed in the African and the eastern European continents, and are spread almost throughout the world.

Many beneficial effects of this plant have been attributed to the polysaccharides present in the pulp. The clear pulp which is also known as gel is widely used in various medical, cosmetic, and nutraceutical applications. Studies have noted higher anti oxidative activities present in its rind.

Aloe has the ability to promote pH balance to the hair, scalp and skin. This plays a huge role in the health of our body and unfortunately, a lot of scalp issues arise due to pH imbalances. Adding aloe vera to your regimen will definitely be an asset. Research also shows that aloe vera is an anti inflammatory ingredient and can protect against UV radiation, which can strengthen and benefit both your hair and scalp. UV- protective properties will preserve colour and shine to keep your hair looking radiant.

Fenugreek Benefits For The Hair



Fig no. 7: Fenugreek

Though more studies have to be conducted to gauge fenugreek's effect on the hair, reports suggest that fenugreek for hair is beneficial in multiple ways: Fenugreek promotes the strength of your mane courtesy of its rich composition of iron and protein. These are essential nutrients for healthy hair. Fenugreek is a great source of vitamins-A, B, C, K, calcium, potassium, phosphates, folic acid, saponins, flavonoids, and many other components that are essential for healthy hair growth.

Fenugreek is a rich source of vitamins A, C, and K, folic acid, calcium, iron, potassium, and protein. These improve the scalp's health, and encourage hair growth.

The herb can alleviate scalp-related problems like dandruff and itching by inhibiting the growth of bacteria and yeast on the scalp. This is thanks to the antifungal and antibacterial properties present in fenugreek's saponins.

It's composed of something known as lecithin. This is a natural emollient which means that it moisturises and conditions the scalp to endow you with a sheen and softness, and strengthens hair from the root. This reduces dryness and breakage.

It prevents premature greying because it's rich in elements like potassium and iron.

It adds a luster and softness to your strands. It does this by repairing the hair shaft from all the damage caused by heat-styling tools. This enhances the appearance and feel of your mane.

COW URINE



Fig no. 8: Cow urine

Cow urine can also help in boosting the hair growth and making the hair shiny and strong. Moreover, if you have a fear of tickling sensation from applying an antiseptic on the wounds, you can use cow urine to get rid of it. CU contains 95% water, 2.5% urea, minerals, 24 types of salts, hormones, and 2.5% enzymes. It also contains iron, calcium, phosphorus, carbonic acid, potash, nitrogen, ammonia, manganese, iron, sulfur, phosphates, potassium, urea, uric acid, amino acids, enzymes, cytokine and lactose.

CU is an effective antibacterial agent against a broad spectrum of Gram-negative and Gram-positive bacteria and also against some drug-resistant bacteria. It acts as a bio-enhancer of some antimicrobial drugs. It has antifungal, anthelmintic, antineoplastic action,

CU contains phenolic acids (gallic, caffeic, ferulic, o-coumaric, cinnamic, and salicylic acids) which have antifungal characteristics

Cow urine is an effective disinfectant. Because of this reason, it is used for treating dandruff, scalp infections and many other infectious diseases effectively. Another proven healing property of cow urine is its antioxidant effect. This is a highly powerful healing element in cow urine which sets right damaged and non-functional tissues. Therefore, cow urine casts a rejuvenating effect on various organs and tissues, including the skin.

Overall, our results show that the investigated phenol-enriched OMWW extract is a promising ingredient for hair care to improve hair growth, prevent hair loss due to oxidative stress and maintain a healthy scalp.

It act as a good conditioner and also make our hair smooth and shiny. The main function of it is to make the hair strong and also work as anti-dandruff i.e reduces the hair dandruff. The main medicinal property that cow urine has that is antifungal, antibacterial properties.

CONCLUSION :

A hair tonic is specifically designed to help stimulate blood circulation in the hair follicles for healthy hair growth. Whether your hair is thinning, breaking apart at the ends, or falling more than usual, a hair tonic moisturizes a dry scalp, add shine to your locks, and reduce breakage and split ends.

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