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THE POWER OF PLANTS: A REVIEWOF HERBAL ADDITION IN HAIR COSMETICS

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Abstract: This study aims to examine the importance of medicinal plants in the treatmentof hair problems such as baldness, hair loss, gray hair, dryness and various types of dandruff. Various herbal ingredients used in the recipe are: Aloe Vera, Alma, Curry Leaves, Camphor, Coconut oil, Eclipta, Hibiscus, Heena, Neem, Fenugreek, Sage, Apamarg, Onion, Grape seed, Jatamanshi, rosemary, thyme, tulsi, garlic and people. All ingredients provide essential nutrients such as vitamins, terpenes and various essential oils to support the activity of the sebaceous glands and the overall skin and hair care.

Index Terms **-** Medicinal Plants, Hair problems,

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I.INTRODUCTION

The word cosmetics derives from the Greek word "kosm tikos", which means possession of power, order, adornment.[1] The birth of cosmetics creates a continuous narrative through human history as it evolves. Old man in 3000 BC He used colors for decoration to charm the animals he wanted to hunt, and man survived a rival's attack by coloring his skin and adorning his body to protect himself to protect himself from the enemy man or animal) to instill fear.[2] The origin of cosmetics has been associated with hunting, combat, religion and gullibility, and later with medicine.[3] Herbal cosmetics, referred to herein as products, are formulated using a variety of licensed cosmetic ingredients toform a base on which one or more herbal ingredients are used to provide only specific cosmetic benefits known as "herbal cosmetics" from herbs be designated.[4] From the 1990s, the cosmetics manufacturer redesigned the term "cosmeceuticals"; describe over-the-counter skin care products[5] that provide therapeutic benefits by adding botanical active ingredients such as alpha hydroxy acid, retinoic acid, ascorbic acid and coenzyme .[6] Health, habits, everyday work, climatic conditions and care were responsible for the beauty of the skin and hair of people.[7] Skin becomes dehydrated due to excessive summer heat causing wrinkles, freckles, blemishes, blemishes and sunburn. The extreme winter causes damage to the skin and coat in the form of tears, cuts, maceration, infection and hair loss.[8] They only had to rely on the knowledge and information about nature accumulated in Ayurveda. The science of Ayurveda has used many herbs and plants to create cosmetics that beautify and protect against external aggressions. Cosmetics, within the meaning of the Medicines and Cosmetics Act, are understood to be objects intended to be rubbed, poured, sprinkled or dipped into the body or any other part of the body in order to cleanse, beautify, beautify or enhance its appearance to change. Herbal cosmetics refer to cosmetics that use medicinal plants and their products for their aromatic properties in beauty preparations. This has led to the demand of herbal consumers for natural products and natural products in beauty preparations. 95% of hair consists of keratin; this is a spiral protein fiber (like a spiral) thatforms part of the skin and all its attached structures (body hair, nails, etc.). [9]

1.1 DEFINATION OF COSMETICS:

"Cosmetics, within the meaning of the Medicines and Cosmetics Act, are substances that are applied, poured, sprinkled or sprayed, placed or otherwise applied to the human body for the purpose of cleansing or beautifying thehuman body or part of it, increasing its attractiveness or changing its appearance."

1.2 DEFINATION OF HERBAL COSMETICS:

Herbal cosmetics consist of a variety of beauty ingredients to form a base where one or more herbs are used to treat various skin conditions. Plants are often used to create new chemicals for cosmetics and medicine.

1.3 COSMETICS FOR THE HAIR:

1. Hair preparation
2. Shampoos
3. Rinses & conditioners
4. Oily scalp hair tonics
5. Hair dressings
6. Fixatives
7. Bleaches
8. Depilatories [10]

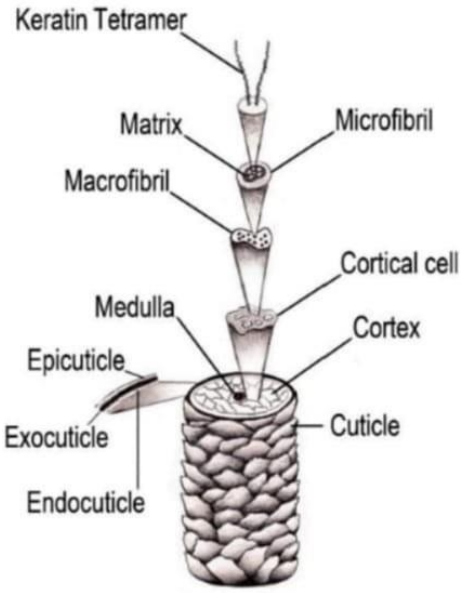

figure 1: the hierarchical structure of hair

1.4 ANATOMY OF HAIR

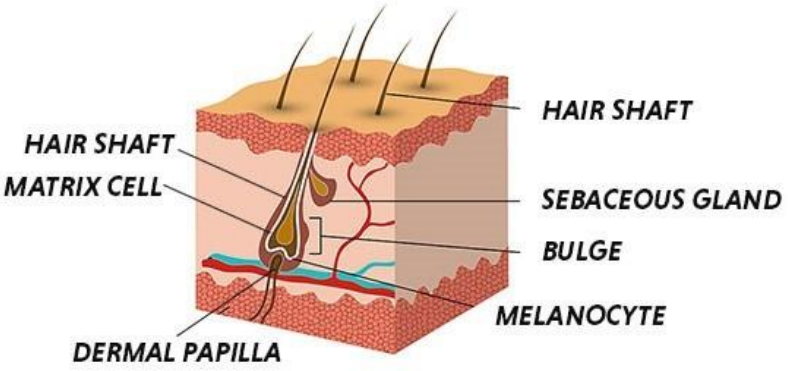

figure 2: structure of hair

The hair structure consists of 3 different parts:

Medulla: It is the inner layer of the hair shaft and is made of an amorphous, soft, oily substance**.**
Cuticle: thin, protective layer that contains the nutrients necessary for hair growth. It is highly keratinized, with scale-like cells arranged side by side, approximately 60 microns long and 6 microns wide.
Cortex: It is the main component of the hair and contains long keratin chains that give the hair flexibility, softness and durability. Cortical cells are held together by intercellular cement rich in lipids and proteins [11]

1.5 GROWTH CYCLE OF HAIR:

Hair growth cycle consists of four phases:

Anagen (growth phase): It is the growth phase. This stage lasts for many years.

Catagen (transformation phase): During this period, hair folliclesshrink and hair growth slows down.
Telogen (telogen): Telogen, the phase in which hair growth stops andnew hair begins to grow, triggers hair growth
Exogenous phase: the final phase of the hair growth cycle, when the hairstrands completely fall out. Scalp and fall. [12]

figure 3: hair growth cycle

II. HAIR PROBLEMS:

Hair loss: The main causes of hair loss are stress, medications, hormonal changes and various hair products that can cause hair loss.
Oily hair/Oily hair: Oily hair is caused by the overproduction of natural oils (sebum) on the scalp. Sebum is produced by the sebaceous glands, which sometimes work "overtime" to produce excess oil.
Dandruff: Dandruff is a non-medical, harmless skin condition that affects the scalp and can cause hair loss. It is scaly and attached to thehair roots.
Dry hair: Dry hair occurs due to lack of protein in the diet. Menopause, anemia, hormonal imbalances and birth control pills can cause dry hair.
Split ends: Split ends occur when the ends of your hair dry out and dueto other reasons such as exposure to extreme weather conditions. In addition to hair care products, hair care techniques such as straightening and curling can also cause split ends. [13]

III. HERB USED IN DIFFERENT HAIR DISORDER

1. AMLA:

Common name: Amla, Indian Gooseberry
Systemic name: Embolic medicine
Biological source: dried and fresh fruits ofmedicinal plants
Family: Phyllanthus family
Chemical constituents: tannins; lutein-
gallic acid; ellagic acid and glucose; Fruit Gum and Vitamin C
Uses: Vitamin C in Amla can act as antioxidants in the body. Alma purifies the blood and improves natural hair color, preventing premature graying. It contains antibacterial and antifungal properties to prevent dandruff and other fungal infections and improve scalp health. [14]

2. SHIKAKAI:

Common Name: Shikakai
Systematic Name: Acacia concinna DC
Biological source:it is the dried gummyexudation of stem and branches of acacia Arabica
Family: Fabaceae
Chemical constituents: Lupeol, spinasterol,acac ic acid, lactone and the natural sugars, arabinose and rhamnose
Uses: Shikakai contains vitamins A, C, D, E and K, as well as other antioxidants that support hair growth. The micronutrients in shikakai helpsupport hair follicles for natural, rapid hair growth**.[**15**]**

3. NEEM:

Common name: Neem
Systematic name: Azadirachta indica
Biological source: it consists of leaves and otheraerial parts of Azadirachta indica
Family: lythraceous
Chemical constituents: Azadirachtin, Nimbin, Nimbidin, Gallic acid, epicatechin and catechin
Uses: Neem oil supports hair growth. The regenerative properties of neem oil promote hair growth by stimulating hair follicles**.** It also prevents excessive hair loss and thinning caused by factorsuch **as** pollution, stress and medication by increasing blood flow to the scalp**.** [16]

4. HENNA:

Common Name: Heena, Henna
Systematic Name: Lawsonia inermis
Biological source: it consists of fresh or dried leaves of the**.**ant Lawsonia-inermis
Family: Lythraceae
Chemical constituents: Lawsone is the active constituent of the henna leaves.the other Chemical constituents of henna are galic acid, white resin and sugars
Uses: Its antibacterial and anti- inflammatory properties can be effective on the hair and scalp especially in reducing premature graying and dandruff. However, you need to be especially careful when applying henna to curly and dry hair; Henna can dry out your hair. The natural form of henna is the best [17]

5. TULSI:

Common Name: Tulsi
Systematic Name: Ocimum tenuiflorum
Biological source:Tulsi consistsof the freshand dried leaves of ocimum species like ocimum sanctum L.and ocimum basilicum L etc

Family: Labiatae
Chemical constituents: eugenol, estragole, borneol, camphene, and copane
Uses: Tulsi has been used to prevent hair loss or thinning and to increase hair thickness**.** Tulsi's anti-inflammatory components are thought to relieve scalp irritation [18]

6.ALOEVERA:

Common Name: Aloe vera,
Systematic Name: Barbados aloe
Biological source: Dried juice collected by incision from the bases of the leaves of various species of aloe
Family: Asphodelaceae
Chemical constituents: Lupeol, salicyclic acid, urea nitrogen, cinnamomic acid, phenols and sulfur
Uses: Aloe vera contains vitamins A, **C** and E. All three vitamins help increasehair growth and hair shine**.** Aloe vera gel also contains vitamin B12 and folic acid**.** Both ingredients prevent hair loss**.** Promote hair growth and repair breakage. Contributes to the health of the scalp, improve hair. Aloe vera contains many ingredients and nutrients that can aid hair growth. Check hair oil. Aloe vera contains enzymes that remove excessoil (sebum) from your hair. Get rid of itchy scalp [19]

7.CALENDULA:

Common Name: Calendula
Systematic Name: Calendula officinal
Biological source: calendula flower derives from themarigold calendula officinalis
Family: Asteraceae
Chemical constituents: flavonoids, triterpenoids,glycosides, saponins, carotenoids, volatile oil, amino acids
Uses: Calendula oil helps strengthen hair**.** Rinse your hair with calendula oil to make your hair shiny and soft**.** It also soothes thescalp [20]

8.MANJISTHA/ INDIAN MADDER PLANT:

Common Name: Manjistha, Indian Madder Plant
Systematic Name: Rubia cordifolia Linn.
Biological source: obtained from dried stems of rakta pushpa rubia
Family: Rubiaceae
Chemical constituents: vasicinone and adhatodic acid
Uses: Manjistha powder can be used to treat hair problemssuch as graying of hair. Use Manjistha powder to enhance the natural color of your hair. Manjistha oil is effective in controlling hair loss**.** It helps control dandruff by getting rid of dryness**,** thus preventing hair loss**.** [21]

9.JASMINE:

Common Name: Jasmine
Systematic Name: Jasminum officinale
Biological source: it is derived fromplant Jasminum officinale
Family: Oleaceae
Chemical constituents: Benzyl acetate, linalool, enzyl alcohol, indole, benzylbenzoate, cis-jasmone
Uses: One of the best benefits of jasmine oil isits ability to stimulate hair growth. Its rejuvenating properties stimulate hair follicles and increase blood circulation in the scalp. This blood supply promotes hair growth**,** makeshair strong and healthy**,** and helps prevent hair loss and thinning [22]

10.LAVENDER:

Common Name: Lavender
Systematic Name: Lavandulaangustifolia
Biological source: it is obtained from the flower of Lavandula angustifolia
Family: Lamiaceae
Chemical constituents: linalool, linalyl acetate, 1,8-cineole, terpinen-4-ol, and camphor
Uses: Lavender is known for providing
silky softness and smoothness while moisturizing the hair**.** If you're looking for something truly nourishing**,** we recommend our Argan oiland Lavender Leave-
in Smoothie Conditioner**,** which is designed to help tame frizz and leaveyour hair with a wonderful aroma**.** [23]

11.INDIAN SARSAPARILLA/ANANTMULI:

Common Name: Anantmuli, IndianSarsaparilla
Systematic Name: Hemidesmus indicus
Biological source: sarsaparilla is obtained from the dried roots of severaltropical species of smilax
Family: Zingiberaceae
Chemical constituents: saponin, glycoside, sarsaponin, and dextrose
Uses: Sarsaparilla contains hair growth hormone. A decoction of the rootsis used as shampoo to stimulate hair growth**.** [24]

12.FENUGREEK:

Common Name: Fenugreek, Greek- clover, Greek hay, Assamese
Systematic Name: Trigonella foenum-graecum
Biologicalsource: fenugreek consists of dried of Trigonellafoenum graceum
Family: Fabaceae
Chemical constituent: carbohydrates, proteins, lipids,alkaloids, flavonoids, fibers and saponins
Uses: Fenugreek hair oil improveblood circulation content and helps reduce dandruff. Fenugreek seeds have high protein and niacin and are known for their ability to fight hair loss and dandruff. It also treats dry hair, controls baldness and hair thinning.[25]

13.BHRINGRAJ:

Common Name: False daisy, Yerba de tago Karisalankanni, and Bhringraj
Systematic Name: Eclipta alba
Biological source: it is obtained from plantEclipta alba hassk
Family: Asteraceae
Chemical constituent: Hentriacontacol, heptacosanol,and stigmasterol ecliptal,eclabatin
Uses: Eating Bhringraj will help in hair growth.Bhringraj has antibacterial, antiinflammatory and antiallergic properties and is one of the main ingredients in herbal preparations used to treat hair. It also helpsprevent hair loss and gray hair**.** [26]

14.CHAMOMILE:

Common Name: Chamomile, Italian camomilla, German chamomile, Hungarian chamomile, Wild chamomile or Scented mayweed
Systematic Name: Matricaria chamomilla
Biological source: it is obtained from dried flower head of Chrysanthemum cineraria folium
Family: Asteraceae
Chemical constituents: flavonoids, coumarins, volatile oils, terpenes, sterols, organic acids, and polysaccharides
Uses: Chamomile oil is known to promote hair growth as it improves blood circulation to the scalp and hair follicles. This way, your scalp will be healthy and able to absorb the nutrientsnecessary for hair growth. Chamomile oil can also help hair growth by stimulating collagen production**.**[27]

15.SAGE:

Common Name: Garden sage, Common sage
Systematic Name: Salvia officinalis
Biological source: it is obtained from driedleaves of salvia officinalis
Family: Lamiaceae
Chemical constituents:1-8-cineole, camphor,borneol,and viridiflorol
Uses: In addition to controlling hair loss, sage may also help stimulate the growth of new hair follicles. Sage can help improve blood circulation in the scalp and strengthen hair follicles. Regular use of sage can help improve overall hair quality and repair dry or thinning hair.[28]

16.MENTHA:

Common Name: M. balsamea Willd, Peppermint, Vilayati pudina,Poduna, Pudina
Systematic Name: Mentha piperita
Biological source:obtained from freshleaves of mentha pipereta
Family: Lamiaceae
Chemical constituents: menthol, menthone cincole,and limonene
Uses: Menthol, the main component ofpeppermint oil (and responsible for its cooling effect), has been shown to
increase blood flow to the scalp. This has a positive effect on blood vessels, promoting regeneration and hair follicle depth, making the hairthicker and stronger [29]

17.GOTUKOLA:

Common Name: Gotu kola, Asiatic Pennywort, Indian pennywort, Indian waternavelwort, Wild violet, Tiger herb
Systematic Name: Centella asiatica
Biological source: it has long – stalked,greenreniform leaves of centellaasiatica
Family: Umbelliferaceae
Chemical constituents: pentacyclic triterpenes, asiaticoside,madecassoside, Asatic and madecassic acids
Uses: It promotes microcirculation, allowing hair follicles to absorb oxygen and nutrients, promoting hair

growth. How it works: Improves hair texture: Gotu Kola has been shown to help hair become healthier, shinier, and easier to manage. This herb has also been shown to reducehair loss and breakage**.**[30]

18.PRIYANGU:

Common Name: Priyangu
Systematic Name: Callicarpamacrophylla Vahl
Biological source: It is obtained from the plant callicarpa macrophylla
Family: Amaranthaceae
Chemical constituents: ursolic acid, oleanolic acid, methylbetulinate,and baurenol
Uses: priyangu is good for hair. It supports hair regeneration, prevents breakage, strengthens hair follicles, and prevents itching and dandruff**.** [31]

19.FIGWORT:

Common Name: Common figwort
Systematic Name: Scrophularia nodosa
Biological source:it is obtained fromflower of Scrophularia nodosa
Family: Moraceae: Scrophulariaceae
Chemical constituents: camphor cineole borneol anborneo lacetate
Uses: It is used to prevent dandruff andcan also be used to protect the scalp**.** [32]

20.BLACK PEPPER:

Common Name: Black pepper, Kali mirch,
Systematic Name: Piper nigrum
Biological source: it consists of dried unripe fruits of pipper nigrum linn

Family: Piperaceae
Chemical constituents: piperine, piperittine, caryophyllene and elemol
Uses: Black pepper is an herb that can help stimulate hair growth. Its main ingredient, piperine, helps improve
scalp blood circulation andstimulate hair growth**.** [33]

21.ROSEMARY:

Common name: Rosemary
Systematic name: salvia rosmarinium
Biological source: Oil of Rosemary is distilled from the flowering tops of leafy twigs of Rosmarinus officinalis,
Family: Lamiaceae
Chemical constituents: α-Pinene, 1,8-cineole, camphor, and borneol
Uses: rosemary essential oil strengthens circulation. As a result, it could prevent hair follicles from being starvedof blood supply, dying off, and leading to hair loss [34]

22. ARNICA MONTANA:

Common name: Arnica Montana
Systematic Name: wolf's bane, leopard's bane,mountain tobacco and mountain arnica
Biological source: it is obtained from driedflower head of arnica Montana
Family: Asteraceae
Chemical constituents: Sesquiterpene lactone,Helenalin, Isocomene, Arnidiol
Uses: Arnica Montana Oil is made from homeopathic medicine that helps control hair loss and promotes hair growth. Using this hair oil increases the growth power of hair, makes hair grow faster and makes hair stronger
. [35]

23.JATAMANSI:

Common Name: Jatamansi
Systematic Name: Nardostachy jatamansi
Biological source: obtained from dried roots and rhizomes of Nardostachy jatamansi
Family: Valerianacea
Chemical constituents: Jatamansi contains 1 to 2% of pale-yellow volatile oil, resin, sugar, starch and bitter principle, an alcohol and its isovaleric ester. It also contains jatamansic acid and ketones jatamansone and nardostachone.
Uses: Jatamansi root is made into a paste and applied to the scalp to promote hair growth. Extracted Jatamansi Hair oil reduces hair fall, promotes hair growth and also reduces dandruff jatamansi hair oil can also darken hair and can be used as a natural dye**.** [36]

24.THYME:

Common Name: Thyme
Systematic Name: Thymus vulgaris L.
Biological Source: it is obtained from plantThymus vulgeria
Family: Labiatae
Chemical constituents: monoterpenes, bicyclic monoterpenes, monoterpenes, and bicyclic monoterpenes as well as sesquiterpene lactones

Uses: Thyme may help reduce dandruff by preventing inflammation andnourishing hair follicles, creating healthy new hair growth. Thyme can also stimulate blood circulation in the scalp and promote hair growth**.** [37]

Botanical name	**Commonname**	**Function**	**Figure**
Phyllanthus emblica	AMLA	Enhances natural hair colour, prevents dandruff and improves scalp health	
Acacia concinna	SHIKAKAI	Promote hairgrowth, Nourish the hair follicle, help hair growth	
Azadirachta indica	NEEM	Neem oil promotes hair growth, stimulates hair follicles and prevents hair loss.	
LawsoniaInermis	HENNA	Good for hair and scalp, reducedandruff	
Ocimum tenuiflorum	TULSI	Prevents hair loss, increases hair thickness and strengthens the scalp.	

Aloe barbadenis miller	ALOEVERA	Promote hair growth, help hair shine, prevent hairloss, promote heal thy scalp, control oily hair.	
Calendula officinalis	CALENDULA	Calendula oil help strengthen the hair make thehair shine, make the hair soft and smooth.	
Rubia cordifolia	MANJISHTA/INDIAN MADDER PLANT	Manjishta Powder improves natural hair colour and Manjishta Oil is used to control hair loss and reduce dandruff.	
Jasminium	JASMINE	Jasmine oil promotes hair growth, strengthens hair follicles, and controls hair loss and thinning.	

Lavendula	LAVENDER	It can moisturizethe hair, make the hair silky, soft smooth and make the hair beautiful.	
Hemidesmus, indicus	INDIAN SARSAPARILLA/ ANANTMULI	Indian sarsaparilla contains hair growth hormone. Use to remove dandruff	
Trigonella	FENUGREEK	Promote hair growth, help hair shine, prevent hair loss, promote healthy scalp,	
False daisy	BHRINGRAJ	Helps hair growthand controls hair loss	
Matricaria chamomila	CHANOMILE	Chamomile oil isused for hair growth and improves blood circulation to the scalp and hair follicles.	
Salvia Officinalis	SAGE	Control hair loss, renew hair follicles, Nourish hair follicles Control thinninghair	

Mentha pipreta L	MENTHA	Cool hair, makehair strong and thick	
Centellaasiatica	GOTUKOLA	supports hair growth, improves hair structure, gives shine tohair, controls hair loss and breakage.	
Callicapa Macrophylla	PRIYANGU	Stimulates hair regeneration, Prevents hair itching and dandruff	
Scrophularia	FIGWORT	It is used to prevent dandruff, prevent drying of the scalp and help controldandruff.	
Piper Nigrum	BLACKPEPPER	It is beneficial forhair growth and increases blood circulation in the scalp.	
Salvia rosmarinus	ROSEMARY	prevents hair lossby preventing insufficient blood flow to thehair follicles.	

MountainArnica	ARNICA MONTANA	helps control hairloss and proliferation of hair fiber cells	
Nardostachys, jatamansi	JATAMANSI	Supports hair growth, Jatamansi hair reduces hair loss, is used in natural dyes	
Thymusvulgaris	THYME	Prevents dandruff nourishes hair follicles, supports hair growth	

CONCLUSION:

It seems that the information about the medicinal plants people use is well knowndue to their culture and traditions. This article explains the role of different plants in skin, hair care and cosmetic treatment. Some plants have been found to have dual uses, both medicinal and aesthetic**.**

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