

Herbal Components In Cosmetic Preparations- An Emerging Industry

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ABSTRACT

Herbal cosmetics are defined as “natural cosmetics” which contain phytochemicals from plant sources, which affect the function of skin and hair and provide necessary nutrients to them. With the development of progress, human race has been appealed by herbs and their successful cures. At that time, there were no cosmetic creams and no surgeries were performed to enhance the beauty. They just had knowledge of nature and it proved beneficial to them for curing various problems and diseases. These cosmetics not only embellish the skin but also guard it from external environment. Cosmetics singly are not satisfactory to protect body and skin. Cosmetics need to be associated with active principles to control the harm and aging of the skin. Herbal cosmetics are cropping up as the convenient solution to ongoing complications. These cosmetics are the preparations in which cosmetics are linked to bioactive ingredients obtained from variety of plants. These contain phytochemicals which serve the dual purpose- they intensify the skin, hair, nails and body and the biological ingredients present in them, influence biological functions of skin. The herbs provide vitamins, proteins, antioxidants, essential oils, proteins and terpenoids. Herbal cosmetics include hair and skin preparations such as hair tonic, hair dyes, hair oils, lotions, creams, face-packs, face-wash, and powders. The present trend towards herbal cosmetics is inclining at a good pace and their demand has increased manifold from past decade. The market research shows inclining shift in the herbal trade and herbal cosmetic industry. The present day enthusiasm of purchasers in natural beauty care products has been empowered by fall in trust in ongoing makeup as they contain engineered synthetics which may hurt skin and body.

Scientific evaluations of herbs have been conducted. It is needless to mention about plants like *Aloe vera*, *Azadirachta indica*, *Mimosa tenuiflora*, *Lawsonia inermis*. This review highlights the significance of herbal cosmetics and their advantages. The study aimed at reviewing the importance of hair and skin cosmetics for the treatment of baldness, alopecia, greying of hair, dandruff, acne, antiaging, antiinflammatory. Ethereal oils bestow numerous advantages, for example, a lovely smell, particularly in perfumes and to grant sparkle or molding in hair care items, and for improving the skin flexibility.

Keywords: Herbal cosmetics, phytochemicals, antiaging, antiinflammatory

INTRODUCTION

Herbal cosmetics, the beautifying agents are alluded to as items acquired by combining plant or their extracts/ products alongside restorative fixing which is utilized as a base to strengthen appearance, cleaning and mending the body [1]. According to European Commission, the cosmetic products are “any substances/ preparations meant to be kept in contact with the numerous external parts of the human body (epidermis, hair, nails, lips and external genital organs) or with the teeth and the mucous membranes of the buccal cavity with a view to completely or mainly cleaning them, perfuming them, altering their appearance and correcting body odours and/or protecting them or keeping them in good condition” [2].

Plants possess biologically active compounds known as phytochemicals which protect the skin [3]. Herbs have been used in retaining and intensifying human beauty as they possess many advantageous properties like moisturizing, sunscreen, antioxidant, and antimicrobial effects. Herbal cosmetics not only make the skin smooth but also provide essential minerals required for skin, restores and protect them [4].

Herbs do not bring sudden cure but make the body in a proper tune with nature. They are made from pure plants and possess lesser side effects. In comparison to other beauty products, herbal products are safe to use and there is no need to be worried about getting skin problems like rashes and itching. The relation between human and herbs are since ages. Since, the dawn of history, herbs are used as natural healers and purifying agents for the body [5]. From the stoneage, people are using plants and their extracts to shield themselves from diseases. Plant juice/extracts have been

proved advantageous in many cultures since ancient period [6]. For example, henna is used since ancient times for natural colouring of hair. People have been using herbs like sandalwood and turmeric for skin protection. Natural beauty care products were used in the imperial Indian forts to highlighten lewd intrigue and keep general cleanliness [7]. Apart from medical uses, herbal drugs have been used since ancient times for embellishment of skin.

According to the site of application, herbal cosmetics are divided into various types such as an application on skin, nails, eyes, hair, and dentifrices. Herbal cosmetics for skin may be classified as powders, creams, lotions, and deodorants. For hair cosmetics, they are divided into shampoo, tonic, hair waving preparations. In the case of teeth and mouth, they can be categorized as dentifrices and mouthwashes. For nails, they can be used as manicure preparations. Other classification can be done as fresh herb juice/oleoresins made from part of the plant or whole plant. Countries such as India and China maintained relation with herbs for centuries and still the system prevails. In many developing countries, a great percentage of the population depends on traditional practices and their repository of medicinal plants to fulfil health and beauty related needs. In the present scenario, the trend is changing from chemical based products to herbal products [8].

There is increasing demand for herbal cosmetics as people are aware of harmful effects of chemicals used in other cosmetics. The demand for herbal cosmetics has increased its pace and expected to continue the same trend in coming years. In India, the business of herbal cosmetics is inclining at the rate of 15-20% per annum which is much higher than other high brand cosmetics [9]. US demand for herbal cosmetics increased by 7.6% per year, reached about US\$ 5 billion in 2005 [10]. Indian herbal cosmetics market is increasing at a rapid speed and has broken all market dimensions. With increasing beauty concerns among both the genders, the Indian cosmetics sector is expected widen remarkably in the future. The research brought to light booming media promotion and growing European culture's influence are chief aspects driving the cosmetics sector in India. Moreover, growing purchasing power and advancing fashion consciousness in the country will majorly contribute to the growth of the herbal cosmetic market, which is predicted to record a CAGR of around 17% during 2011-2016.

In order to make the herbal cosmetics safer to use, quality control measures should be undertaken [11]. Herbal cosmetics should be officially controlled, as done in the case of allopathic medicines,

by establishing legal rules and regulations. The right use of herbal cosmetic products of 'assured quality' is sure to produce favourable remedial effects on the users and reduce the threat associated with them. Quality control for efficacy and safety of these cosmetics is of prime importance. For determining the quality of an ingredient or compound, its identity, purity, assay can be performed. Even the physical, chemical and biological properties can be checked [8].

HERBS USED FOR HAIR

Amla (Indian gooseberry, Emblic, Myrobalan) is obtained from fruits of plant *Emblica officinalis* (Euphorbiaceae) [1, 12]. Amla is rich in vitamin C, and also a good source of tannins and minerals like calcium, iron, and phosphorus. [3]. It is used in the treatment of hair and scalp. Fixed oil present in amla is used for strengthening and promoting hair growth. It is also used for enriching hair growth and pigmentation of hair and give nourishment to hair [13]. Consumption of green vegetables juice with 2-3 amla fruits can prevent hair graying. It has the astonishing effects on hair and skin. Amla stimulates the hair follicles and enhance the hair growth and gives complete nourishment to hair roots [14].

Jatamansi (Musk-root, Indian nard, Indian spikenard) is obtained from the roots of *Nardostachys jatamansi* (Caprifoliaceae) [15]. The plant contains a number of constituents but the main active principles in the plant are sesquiterpenes. The principal sesquiterpene is Jatamansone or valeranone. Other components include α -patchoulense, angelicin, β -eudesemo, β -atchoulense, β -sitosterol, calarene, elemol, jatamansin, jatamansinol, jatamansone. Alkaloids named as actidine and nardal have also been reported [16]. It is reported to promote hair growth [17].

Lawsonia (Henna, Mehendi, Samphire, Cypress shrub) is obtained from leaves of *Lawsonia inermis* (Lythraceae). Leaves contain 2-hydroxy-1,4-naphthoquinone, 1, 4dihydroxynaphthalene, 1,4-naphthoquinone, 1,2-dihydroxy-glucoxyloxynaphthalene and 2-hydroxy-1,4-diglucoxyloxynaphthalene, gallic acid, glucose, mannitol, fats, resins and mucilage. Henna leaves promote healthy hair growth and mainly used in colouring of hair [18, 19].

Shikakai (Soap pod, Soap nut) is obtained from fruits of *Acacia concinna* (Leguminosae). It contains 5% saponins, kinmoonosides A-C, consinnosides, lupeol, spinasterol. These are used for washing of hair and to promote hair growth. It is also beneficial as it removes dandruff [12].

Burdock root (Arctii, Begger's button, Burr seed) is obtained from roots of *Arctium lappa* (Asteraceae). It contains phenylacetaldehyde, benzaldehyde, lignin, arctigenin, sesquiterpene, lactones. It promotes hair growth [20].

HERBS USED FOR SKIN

Turmeric (Haldi, Indian Saffron, Wat gum). It is obtained from rhizomes of the plants of *Curcuma longa* (Zingiberaceae) and its main chemical components are curcumin (60%), dihydrocurcumin, monodemethoxycurcumin, cyclocurcumin, and desmethoxycurcumin. It has been reputed as antibacterial, antiaging, and used for treatment of acne, reduction of skin pigmentation, and removal of dead cells [21].

Aloe (Grihakanya, Kanya, Ghritakumari, Vipulasrava, Sthuladala, Dirgha patra) is obtained from dried juice of different species of *Aloe* (Liliaceae). Aloe contains nataloins, which yield oxalic acid, nitric acid, and picric acid. Other constituents are sterols, amino acids, lipids [22]. The plant can prevent aging of the skin by stimulating the production of elastin, and collagen. For beauty purposes, it is used in creams, lotions shampoos, and soaps. The gel repairs the skin and lightens the dark spots on the face and reduces the intensity of pigmentation [23].

Carrot (Orange root) is obtained from the roots of *Daucus carota* (Apiaceae). Main constituents of carrot are carotenes, carotenoids, polyphenols. It also contains vitamin A, carbohydrates, fats, protein, crude fibers, iron, and potassium [24]. It is used as antioxidant because it neutralizes the effects of free radicals. It is also used as antiaging, revitalizing and rejuvenating agent. It promotes formation of new cells and reduces wrinkles [3, 25].

Tomato (Tomate, Tomatillo) is obtained from the fruits of *Solanum lycopersicum* (Solanaceae). Tomatoes contain vitamins such as A, B, and C and lycopene. Tomato is good source of vitamin C

vitamin A, through its content in β -carotene, provitamin A- phyosterols [26]. Antioxidants neutralize free radicals, present beneath the lipid membrane and skin cover. Lycopene which is present in tomatoes scavenges lipid radicals and reduces lipid peroxidation. Erythema caused by UV radiation can be prevented by lycopene. It may reduce the lethal effects caused by UV light on the skin. These also protect against both the short term (sunburn) and long term cumulative effects of the sun [27].

Garlic (Lasun, Lashun) is obtained from bulbs of *Allium sativum* (Liliaceae). The most biologically active and important compounds in garlic is allicin. It has been known to contain 33 sulphur compounds, the minerals like selenium, zinc, germanium, calcium, and vitamins A, B1 and C, several enzymes, fibers and water. It also contains 17 amino acids: histidine, aspartic acid, threonine, glutamine, glycine, cysteine, valine, isoleucine, methionine, leucine, tryptophan, phenylalanine, lysine, arginine, swine, proline, alanine, [28]. It is used as an antioxidant, in the treatment of acne, dark spots, and pimples, as as antiaging agent. It minimizes pores [29].

Cucumber (Kheera) is obtained from fruits of *Cucumis sativus* (Cucurbitaceae). It contains cucurbitacins, phyosterol, fatty acids, phenolic acids, vitamins, minerals, essential oils, sugars, pectin, starch, vitamin C. An aqueous extract of the cucumber fruit was found to contain terpenoids, glycosides, carbohydrates, tannins, steroids, and, flavonoids. The major fatty acids in cucumbers are palmitic acid (23.6-27.5%), linoleic acid (22.7-26.3%), and linolenic acid (40-46%). It is good for baby skin, and may be applied to the eye area or mucous membranes. It also soothes skin irritations and reduces swelling. The acids present in kheera help in water retention [30].

Pomegranate (Granada, Dulim, Pomo punico) is obtained from the fruits of *Punica granatum* (Lythraceae). It contains phenolic punicalagins, gallic acid, fatty acids, catechins, quercetin, rutin, and other flavonols, flavones, flavanones, anthocyanidins. It is an antioxidant, anti-inflammatory agent, rejuvenates dry skin, and used in the treatment of acne [31].

Tea tree oil (Melaleuca oil, Melasol, Teebaumol oil) is isolated from the leaves of *Melaleuca alternifolia* (Myrtaceae). It contains mixture of components, major component is terpinen-4-ol, terpinolene, 1,8-cineole, pinene, limonene. It is an antiinflammatory, antimicrobial, antibacterial,

antifungal, antiseptic agent. Tea tree oil is used as a face and body cleanser, toner, healer, scar remover and itch reliever. It is also used for treating other superficial irritations and rashes, also employed as a topical formulation [32].

Evening Primrose Oil (Evening star, sun drop, hog weed, *Oenothera*) is obtained from an extract of *Oenothera biennis* (Onagraceae). Oil contains linolenic acid, cis-9,cis-12-octadecadienoic acid, cis-delta9,12-octadecadienoic acid, emersol, extra linoleic seed oil, linolic acid polylin, telfairic acid [33]. It promotes healthy skin, and also repairs the skin. It is reputed as antiinflammatory, as well as antiaging agent [34].

Shea Butter (Karite, African butter, Shea nut tree) is obtained from kernals of fruit of *Butyrospermum parkii* (Sapodilla). It is a complex extract containing fatty acids such as oleic acid, stearic acid, linoleic acid, palmitic acid, arachidic acid. It is used as a healing fraction, moisturizer, for blemish free skin, antiwrinkle, antiinflammatory, antistretchmark, used against skin burns, wounds, insect bites and other skin problems [35].

HERBS FOR NAILS

Lavender (Spike lavender, Sweet lavender) is obtained from the flowers of *Lavandula officinalis* (Labiatae) [36]. It contains essential oil 2%-3%, anthocyanins, minerals, coumaric acid, glycolic acid, valeric acid, ursolic acid, herniarin, coumarin, phytosterols, sugars, and tannins. The essential oil consists of more than 300 components, the main one is linalool. It is basically an antifungal agent that can treat mild cases of nail and toenail fungal infections [37].

Olive Leaf (Jaitoon, Oliva) is obtained from an extract of *Olea europaea* (Oleaceae). It contains oleuropein, hydroxytyrosol, polyphenols, flavonoids, oleocanthal, elenolic acid. It can act as an antifungal against toe nail fungus, yeast and candida [38].

Thyme (Thymus, garden thyme) is obtained from flowering parts of *Thyme vulgaris* (Lamiaceae). Its main components are carvacrol, thymol methyl ether, cineol, cymene, α -pinene. It has been reputed as antiseptic, antifungal, antiviral, and antiparasitic agent [39]. =

TABLE 1- SOME PLANTS WITH COSMETIC USES

S. No.	Name of plant	Common Name	Part used	Active Constituents	Uses
1	<i>Acorus calamus</i>	Sweet flag	Rhizome	Monoterpene, β -asarone	Aromatic, dusting powder, skin lotion
2	<i>Alkanna tinctoria</i>	Alkanet	Roots	Alkannin, anchusin, anchusic acid	Colouring oil, hair dyes
3	<i>Bixa orellana</i>	Latkan	Seed pulp	Caotenoid-Bixin, nor-bixin, lutein	Colouring of hair
4	<i>Calendula arvensis</i>	Marigold	Flower	Flavonol, glycoside, Oligoglycoside	Treat acne, reduce inflammation
5	<i>Centella asiatica</i>	Gotu kola	Whole plant	Triterpenoids-asiaticoside, brahmoside	Darkening of hair
6	<i>Cassia acutifolia</i>	Senna	Leaves	Rhein, chrysophanol, emodin	Treat wounds, pimples
7	<i>Cedrus deodara</i>	Himalayan Cedar	Leaves	Sesquiterpenes, toxifolin	Treat skin ulcers, eczema, itches
8	<i>Centella asiatica</i>	Brahmi	Leaves	Essential oil, sterol, flavonol glycoside	Treat dermatitis, antiulcer activity
9	<i>Crocus sativus</i>	Saffron	Pollen	Carotenoids-Zeaxanthin, lycopene, alpha-crocin	Post bath massage
10	<i>Curcuma amada</i>	Amhaldi	Rhizome	Curcuminoids-difurocumenonol, amadannulen, starch, phenolic acid	Face pack
11	<i>Cydonia oblonga</i>	Quince seeds	Seeds	Arabinose, xylose, uronic acid	Demulcent, emulsifying agent
12	<i>Gaultheria procumbens</i>	Wintergreen oil	Fresh plant	Methyl salicylate, ethanolic alcohol	Antiseptic, antirheumatic
13	<i>Ginko</i>	Salisburia	Leaves	Flavanoids-	Antioxidant

	<i>adiantoides</i>			ginkgoliete, quercitin	
14	<i>Glycine max</i>	Soyabean	Seed	Fatty acid, protein, lecithin, iron	Moisturizer
15	<i>Hamamelis virginiana</i>	Witch hazel	Leaves	Flavanol glycoside, gallic	Astringent preparation
16	<i>Hedera helix</i>	Common ivy	Leaves and flowers	Sterols, germacrene, saponins	Antifungal, antibacterial
17	<i>Hyssopus officinalis</i>	Hyssop	Leaves and flowers	Essential oil- pinocamphone, α and β pinene	Fragrance component, antiviral
18	<i>Juglans regia</i>	Walnut	Fruit	Juglone, naphthaquinone glycoside	Dyeing preparation, treatment of sunburn
19	<i>Juniperus oxycedrus</i>	Juniper Tar	Whole plant	Sesquiterpene- cadalene, calacorene	Treat skin disorders like eczema, keratosis
20	<i>Lithospermum officinale</i>	Lithospermum	Leaves	Shikonin, naphthaquinone- scyllitol, cyclitol	Treat burns, wounds, ulcers
21	<i>Malva sylvestris</i>	High mallow	Leaves and flowers	Flavonoids- anthocyanins, phenolic acid	Adjunctive emollient, itch relieving property
22	<i>Pongamiap innata</i>	India beech tree	Leaves	Alkaloids- Demethoxy kanugin, gamatay, glabrin	Sunscreen
23	<i>Prunus dulics</i>	Almond	Seeds	Flavonoids, phenolic acid	Antioxidant, anti photoaging
24	<i>Santalum album</i>	Sandalwood oil	Heartwood	Sesquiterpene- santalol	Antiseptic, manufacture of soap, creams
25	<i>Vaccinium myritillus</i>	Blueberry	Fruit	Anthocyanosides, phenolic acid	Antioxidant, colouring pigment

CONCLUSION

India has well recognized traditional herbs and their formulations. They are the ancient products used by mankind. They are being listed since age old time and are reported to have side benefits in place of inauspicious effects generally produced by synthetic and chemically based products. Several plants have commercial qualities and are used for edible or medicinal purposes. In present era, human beings suffer from various skin and hair disorders due to polluted environment. The solution to this problem is use of herbal products rather than synthetic products which may have

side effects. Herbal products in cosmetics contain ingredients from the plant origin. The plants used in cosmetics do not merely intensify beauty but also have specific medicinal value. Herbal products are characterized by a better tolerability as compared with other synthetic products. Formulations for cure of hair, skin, and nails can be prepared from herbs. In general, herbs provide different vitamins, antioxidants, essential oils, and other bioactive molecules. In the formulation of herbal cosmetics, plants are used in three ways- either total extract or a single molecule obtained from the purification of extracts such as aloe gel, plant extracts, selective extract like wheat germ, ginkgo or single natural molecule like vitamins, coenzyme. These herbs tone up whole system to ensure efficacious cure. Manufacturers can take help from mother nature to provide safe and harmless substitutes for harmful chemicals. The quality and safety for herbal cosmetic products is of prime importance. It is obligatory that adequate safety testing should be conducted according to existing rules and well documented along with ingredients composition. The present trend towards cosmetics with curative potency will continue and various newer herbs will find place in cosmetic world. According to WHO, it is expected that global herbal market will rise \$5 trillion by the year 2025. Necessary attempts are required to link the current cosmetology with traditional system of medicines to get novel results for better skin and body care.

Cosmeceuticals are referred to as amalgamation of cosmetics and pharmaceuticals. They are cosmetic products with biologically active ingredients possessing beautification and medical benefits. The concept of beauty and cosmetics is as ancient as mankind and human civilization. The use of plants in the form of cosmetics was well known to the old cultures and traditions. For example, amla is used for hair problems, turmeric for skin, and lavender for nails. These herbs contain biologically active chemical components which influence the functions of skin and provide nutrition essential for healthy skin and hair. Some common cosmetics include creams, face pack, hair preparations, lipsticks, and eye preparations. The benefits of herbal cosmetics are low cost, less side effects, environmental friendly and safe to use. The use of herbs in cosmetic preparation has increased to manifolds in last few years. Personal care industry is growing at very fast pace and is expected to expand more rapidly in near future.

Now-a-days, this industry is concentrating more and more on the plants. In this article, we have tried to compile the herbs which have long history of use as cosmetics. Further, we need to explore

more number of plants that can prove advantageous for this emerging arena. The industry is ever growing and we can put efforts to enrich this industry.

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