



Indian medicinal plants: For hair care and cosmetics

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ABSTRACT

Plants act as a source of food and medicine from long times. A wide range of plant oils are used in cosmetics and toiletry preparations. Women are obsessed with looking beautiful. So, they use various beauty products that have herbs to look charming and young. Indian herbs and their significance is popular worldwide. Herbal Cosmetics have growing demand in the world market and is an invaluable gift of nature. Herbal formulations always have attracted considerable attention because of their good activity and comparatively lesser or nil side effects with synthetic drugs. Herbs and spices have been used in maintaining and enhancing human beauty since time immemorial. Herbs such as Sandalwood and Turmeric have long been used by Indian women for skin care. This paper reviews the utility of some Indian medicinal plants in hair care and cosmetics. The association between Ayurveda and cosmeceuticals has also been highlighted in the paper.

Keywords: Herbs, Hair care, Cosmetics, Herbal products, Medicinal plants



INTRODUCTION

Recently a large number of cosmetic and toiletry formulations have been developed based on Indian Herbs. Apart from traditionally documented applications, some modern trials have also established the utility of Indian herbs in Personal Care products. Herbal Cosmetics, referred as Products, are formulated, using various permissible cosmetic ingredients to form the base in which one or more herbal ingredients are used to provide defined cosmetic benefits only, shall be called as "Herbal Cosmetics". The demand of herbal medicines is increasing rapidly due to their lack of side effects.[1] The best thing of the herbal cosmetics is that it is purely made by the herbs and shrubs. The natural content in the herbs does not have any side effect on the human body; instead enrich the body with nutrients and other useful minerals. European Directives 93/35/EEC (European Commission), defined "cosmetic products", as any substance or preparation intended to be placed in contact with the various external parts of the human body (epidermis, hair system, nails, lips and external genital organs) or with the teeth and the mucous membranes of the oral cavity with a view exclusively or mainly to cleaning them, perfuming them, changing their appearance and/or

correcting body odors and/or protecting them or keeping them in good condition.[2] However, now there is growing scientific evidence that plants possess a vast and complex arsenal of active ingredients (photochemical) that are able not only to calm or smooth the skin but actively restore, heal and protect the skin. Cosmeceuticals are topical cosmetic—pharmaceutical hybrids intended to enhance health and beauty through ingredients that influence the skin's biological function.[3] The various topical application products that delay and/or reverse visible signs of aging are termed anti-aging cosmeceuticals. Research trends in anti-aging skin care products are moving towards developing new plant extracts and botanical ingredients based on their traditional medicinal uses.[4] Ayurveda is one of the most ancient medical traditions practiced in India, Sri Lanka and other South Asian countries have a sound philosophical and experiential basis.[5] Atharvaveda, Charak Samhita[6] and Sushruta Samhita are its main classics, giving detailed descriptions of over 700 herbs. Ayurveda has several formulations for management of aging and related conditions. Its literature describes over 200 herbs, minerals and fats to maintain and enhance the health and beauty of the skin.[7] Today there is once again a revival of preference for natural

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products, and in recent years there has been a great upsurge in the study of Indian herbs.[8]

OBJECTIVES

1. To describe the role of some plants for curing dermatological disorders, hair care and cosmetics has been reviewed
2. To highlight the dual use of some plants both as curative and cosmetics.
3. To describe the association between Ayurveda and cosmetics on the basis of survey of literature.

SOME IMPORTANT MEDICINAL PLANTS FOR HAIR CARE AND COSMETICS

1. Anti-Aging Treatment

Golden Root: *Rhodiola rosea* (Roseroot, Aaron's rod) is a plant in the Crassulaceae family that grows in cold regions of the world. The *Rhodiola* root has long been used in the traditional medical systems in Europe and Asia to increase an organism's resistance to physical stress[9], currently; it is widely thought to have antioxidative properties.[10]

Carrot: It is obtained from the plant *Daucus carota* belonging to family Apiaceae. It is a valuable herb since ages as it is rich natural source of Vitamin A along with other essential vitamins. Carrot seed oil is indicated for anti-aging, revitalizing and rejuvenating. As it promotes the formation of new cells and helps in reducing wrinkles. It acts as Natural toner and rejuvenator for the skin.[11]

Ginkgo: Ginkgo comes from the ginkgo tree. It belongs to family Ginkgoaceae, which grows to a huge size. Ginkgo Biloba prevents the visible signs of ageing that appear on the skin like wrinkles, fine lines and dryness of the skin when combined with turmeric, honey and ginseng. It is a natural sunscreen. It can reduce hair thinning and hair loss. It has proved to be beneficial for male baldness of various types too. *Ginkgo Biloba* is extremely rich in Vitamin E and thus, prevents skin problems like scars, stretch marks, acne, patchiness and pimples. It replenishes the skin and keeps it healthy and fresh. Ginkgo also protects the nervous system and fights oxidation.

2. Dry Skin Treatment

Terminalia bellerica (Gaertn.) Roxb: It belongs to Combretaceae family. A paste prepared from seeds pounded with the seeds of *Terminalia chebula* and *Quercus infectoria* and mixed with coconut oil is applied twice a day against rash.[12]

Coconut oil: Coconut oil comes from the fruit or seed of the coconut palm tree *Cocos nucifera*, family Arecaceae. The melting point of coconut oil

is 24 to 25 °C (75-76 °F) and thus it can be used easily in both liquid and solid forms and is often used in cooking and baking. Coconut oil is excellent as a skin moisturizer and softener. A study found that coconut oil helped prevent protein loss from the wet combing of hair when used for fourteen hours. [13]

Aloe: A native of southern Africa, the aloe vera plant has fleshy spiny-toothed leaves and red or yellow flowers. It is an ingredient in many cosmetics because it heals moisturizes, and softens skin.

Sunflower oil: It is the non-volatile oil expressed from sunflower seeds obtained from *Helianthus annuus*, family Asteraceae. Sunflower oil contains lecithin, tocopherols, carotenoids and waxes. In cosmetics, it has smoothing properties and is considered noncomedogenic.

Trichosanthes lobata Roxb: It belongs to Cucurbitaceae family. Whole plant paste is applied once a day for one year on the affected parts to cure leprosy.

Cynodon dactylon (Linn.) Pers: It belongs to family Poaceae. Pounded leaves boiled in coconut oil is applied once a day till the cure for various kinds of skin diseases.

3. Dandruff Treatment

Ayurved has numerous natural medications wherein the most common herbs include Neem, Kapoor (naphthalene), and Lawsonia inermis (Henna), Terminalia chebula (Hirda), Terminalia bellirica, (Behada) and Emblica officinalis (Amalaki) Prunus Dulcis (Magic Nut), Eclipta prostrata, (Bringaraj), Precatory Bean (Rosary Pea), Acorus calamus (Sweet Flag), Ceiba pentandra (Cashmere tree) .

Neem: The herb, *Azadirachta indica*, family Meliaceae has been found to have the properties of a Blood purifier, beauty enhancer. It is used for a number of medicinal purposes. Some areas where it can be used is in the treatment of common cosmetic problems.[14]

Henna: Henna comes from the plant, as shown in figure 3, *Lawsonia inermis* family Lythraceae, which contain a dye molecule called Lawsons, which when processed becomes Henna powder. Henna has a natural affinity with the proteins in our hair, making it able to "stain" the colour onto the hair shaft. [15]

Delete- as shown in figure 3

4. Skin Protection

Zapaya (Carica Papaya L.): It belongs to the Caricaceae Family. Decoction of the bark is effective in cases of worms, intestinal parasites, hemorrhages, constipation, skin rashes, cuts, malaria, liver and spleen disorders. Decoction of

the flowers is used as a heart tonic and as an emmenagogue. Fruit of the plant is given in helminthiasis, dyspepsia, abortion and gonorrhoea, as galactagogue and externally applied in eczema, psoriasis and ulcers.[16]

Green Tea: Green tea is tea made solely with the leaves of *Camellia sinensis* belonging to family Theaceae. Whether applied topically or consumed as a beverage or dietary supplement, green tea is a premiere skin protectant. Studies suggest that the catechins in green tea are some 20 times stronger in their antioxidant powers than even vitamin E. Men, women and children need to position this super shield on their side against the ravaging effects of the sun.[17]

Calendula: *Calendula*, pot marigold, is a genus of about 12–20 species of annual or perennial herbaceous plants in the daisy family Asteraceae. Calendula in suspension or in tincture is used topically to treat acne, reducing inflammation, controlling bleeding and soothing irritated tissue.[18] There is "limited evidence" that calendula cream or ointment is effective in treating radiation dermatitis.[19,20] In a randomized study of 254 radiation patients, topical application of 4% calendula ointment resulted in far fewer occurrences of Grade 2 or higher dermatitis than occurred in the group using trolamine. Calendula users also experienced less radiation-induced pain and fewer breaks in treatment.[21]

Turmeric: The chemicals present in turmeric are curcumin, essential oils, alkaloids and protein. The bright yellow color of turmeric is due to the curcuminoids which is the most active constituent

of turmeric. The constituents of turmeric provide it anti-inflammatory, antiseptic and antioxidant activities which makes it very beneficial in skin care. Turmeric, *Curcuma longa* is a rhizomatous herbaceous perennial plant of the ginger family Zingiberaceae. Turmeric is used in many celebrations of Hindus. Especially in Hindu wedding brides would rub with turmeric on their bodies for glowing look. New born babies also rubbed with turmeric on their forehead for good luck. Traditionally women rub turmeric on their cheeks to produce a natural golden glow

5. Hair Care

Amla: Amla is obtained from the plant *Emblica officinalis*, Family Euphorbiaceae. Amla is rich in vitamin C, tannins and minerals such as phosphorus, iron and calcium which provides nutrition to hair and also causes darkening of hair. Hibiscus consists of calcium, phosphorus, iron, vitamin B1, riboflavin, niacin and vitamin C, used to stimulate thicker hair growth and prevents premature graying of hair.[22]

Almond oil: The almond oil is obtained from *Prunus dulcis* Family: Rosaceae. The almond oil basically contains about 78% of this fat. This oil contains very small amounts of super-unsaturated Omega-3 essential fatty acids. It proves to be very nourishing, and softens and strengthens the hair. The almond oil also proves to be a very good cleansing agent. Almond oil has been used for many centuries, even before it's spread as a commercial agro-product.

Table 1: It shows the list of different herbal plants used in hair care and cosmetics.

Botanical name	Common name	Part used	Uses
<i>Acorus calamus</i>	Sweet flag	Rhizome	Aromatic, Dusting powders, Skin lotions
<i>Allium sativum</i>	Garlic	Bulb	Promotes skin healing, Antibacterial
<i>Aloe vera</i>	Aloe	Leaf	Moisturizer, Sun screen, Emollient
<i>Alpinia galanga</i>	Galanga	Rhizome	Aromatic, Dusting powders
<i>Avena sativa</i>	Oat	Fruit	Moisturizer, Skin tonic
<i>Azadirachta indica</i>	Neem	Leaf	Antiseptic, Reduce dark spots, Antibacterial
<i>Echinacea purpurea</i>	Echinacea	roots, stem, and leaves	Skin regeneration
<i>Centella asiatica</i>	Gotu kola	Plant	Wound healing, Reduce
<i>Symphytum officinale</i>	Comfrey	leaves	cell regeneration, stimulates the growth of new cells, rejuvenate the skin
<i>Crocus sativus</i>	Kesar	Flowering top	Skin cleansing lotion
<i>Aloe vera</i>	Aloe	Leaf	Moisturizer ,Shampoos
<i>Bacopa monneri</i>	Brahmi	Entire herb	Hair growth, Good for sleep, Shampoos
<i>Arctium lappa</i>	Burdock root	Roots	Promotes hair growth.

<i>Cedrus dessential oilsdara</i>	Dessential oilsdar	Wood	Soaps, Shampoos
<i>Centella asiatica</i>	Gotu kola	Plant	Hair care, Darkening of hair, Hair oil
<i>Eclipta alba</i>	Bhringraj	Plant	Promoting hair growth, Shampoos, Hair oil
<i>Acacia Concinna</i>	Shikakai	Pods	Promotes hair growth and preventing dandruff

Delete:Reduce

Essential Oils: Essential oils are natural fragrances extracted from virtually every part of a plant. Essential oils are volatile and liquid aroma compounds from natural sources, usually plants. Essential oils are not oils in a strict sense, but often share with oils a poor solubility in water. Essential oils contain mainly volatiles as terpenoids, benzenoids, fatty acid derivatives and alcohols. The FDA and other authorities recognize essential oils generally as safe. Although essential oils are widely used in cosmetics their actual mode of action is not fully understood. The uses of essential oils are determined by their chemical, physical, and sensory properties, which differ greatly from oil to oil. Each of the individual chemical compounds that can be found in oil contributes to the overall character. Essential oils can be used in several ways for cosmetic purpose like Inhalation, Baths, Massage, Compresses, Steam treatments, Room Fragrance etc [23]

Most often essential oils are used as:

- **Co-preservatives:** many essential oils have antibacterial activity and are added as supportive agents to synthetic preservatives.
- **Fragrance:** perfumery is the main use of essential oils in cosmetics although synthetic fragrances are more stable and have better longevity.
- **Hair care:** essential oils are used as conditioning
- Anti-dandruff & permanent waving agents.
- **Skin care:** essential oils are the ideal to topical active ingredients for any skin care product since they can penetrate the skin and bind the membranes of skin cells. Essential oils can thus have sustained effects in the skin.

Rose oil: The well-known essential oil is probably rose oil, produced from the petals of *Rosa damascena* and *Rosa centifolia*, family Rosaceae. Steam-distilled rose oil is known as "rose otto" while the solvent extracted product is known as "rose absolute". It is used more commonly in perfumery. The key flavor compounds that contribute to the distinctive scent of rose oil are beta-damascenone, beta-damascone, beta-ionone, and oxide.

Eucalyptus Oil: Eucalyptus oil is the generic name for distilled oil from the leaf of *Eucalyptus*, a genus

of the plant family Myrtaceae. Eucalyptus oil can help to get rid of dandruff, which in turn can help to promote healthy growth of hair. Just mix about 9 to 10 drops of eucalyptus oil with shampoo and then gently massages scalp for a few minutes, after which rinse it off with water. Massaging scalp with eucalyptus oil can stimulate blood circulation and thereby, making hair healthy and beautiful. [24]

Citronella oil: It is one of the essential oils obtained from the leaves and stems of different species of *Cymbopogon* family Cardiopteridaceae. The crisp, rich citrus or lemon like aroma of this oil drives away body odour and is used deodorants and body sprays, although in very small quantities, since it heavy doses it may give skin irritations. It can also be mixed with the bathing water to have a refreshing, body odour ending bath.

Antioxidants: Antioxidants, either exogenous or endogenous, whether synthetic or natural, can be effective in preventing free radical formation by scavenging them or promoting their decomposition and suppressing such disorders.[25,26-28] Currently, there is a growing interest toward natural antioxidants of herbal resources.[29-31] Epidemiological and in vitro studies on medicinal plants and vegetables strongly supported this idea that plant constituents with antioxidant activity are capable of exerting protective effects against oxidative stress in biological systems.[32-35] Free radical formation is controlled naturally by various beneficial compounds known as antioxidants.[36] In addition to fruits and vegetables, herbs of no particular nutritional value can also constitute an important source of antioxidants.[37] The leaves from black and green tea (*Camellia sinensis*), long used amongst western and Asian populations, respectively, constitute an important source of potentially health-protecting antioxidants[38,39] and world-wide represent the most popular form of daily herb consumption.

AYURVEDA AND COSMETICS

The association between Ayurveda, anti-aging and cosmeceuticals is gaining importance in the beauty and health sector. Ayurvedic cosmeceuticals date back to the Indus Valley Civilization. Ayurvedic cosmeceutical ingredients show many anti-aging Properties like (*Vranaropana*)-for deep healing,

(*Shothahara*)[40] has anti-inflammatory properties by protecting the skin against allergens, inflammatory substances, chemicals and even stress, this group of herbs provide the anti-inflammatory effect, essential to all anti-aging formulations. An important group of herbs called *Varnya*, has the ability to enhance the radiance or bright complexion of the skin. *Varnya* herbs include sandalwood, vetiver, Indian madder and Indian sarsaparilla and so on. A herb called *Tvachya* support moisture balance and provide overall nourishment to the skin. Gotu Kola, Silk Cotton Tree, Costus and Rose Petal are the most widely used.

CONCLUSION

The knowledge of medicinal plants used by the people of seems to be well known to its culture and tradition. Present work focuses on different plants used by the people to cure dermatological disorders, hair care and as cosmetics. Some of the plants were found to have dual use, both as curative and cosmetic. Further extensive ethanobotanical and ethanopharmacological study may lead to the discovery of plants and compounds for skin care and cure. Association between Ayurveda and cosmeceuticals has also been reviewed in the paper.

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