



Use of herbal plants in cosmetics: A mini review

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Abstract

Vegetal extracts and herbs have been used for cosmetic purposes, to obtain colorants, fragrances and products for soothing and protecting skin by many cultures since ages, and till a few centuries ago, plants were, for centuries, the only way. Cosmetology first took birth in Egypt and India. The medicinal plants have varied origins, ranging from wildcrafting traditional China to contemporary horticultural production systems in countries of North America and Europe. Herbal cosmetics products have an edge in the market due to the combination of their efficiency and wide acceptability. The current article deals with the literature of herbal cosmetic associated with current status, advantages, origins, and properties related to herbal cosmetic.

Keywords: synthetic cosmetics, herbal cosmetics, anti-inflammatory, anti-aging, rejuvenating

Introduction

The word cosmetic was derived from the Greek word, *kosmetikos* meaning the skill to decorate. The cosmetics may be defined as articles to be rubbed, poured, sprinkled or sprayed on, applied to the human body or any part thereof for cleansing and enhancing beauty. Cosmetics and pharmaceuticals together are referred as cosmeceuticals. Only products that are applied topically, such as creams, lotions and ointments can be referred as cosmeceuticals. Products which are ingested orally are known as nutricosmetics.

The skin diseases are commonly found among all age groups and are largely be due to exposure towards sunlight, microbes, chemical agents, toxin in the environment. They can also be caused due to malnutrition and dehydration particularly during summers causing pigmentation, sunburns wrinkles, freckles and blemishes. On the other hand, extreme cold conditions can potentially damage the skin in the form of cracks and cuts. Here, comes in play the herbal techniques that utilizes many herbs and floras to make cosmetics for beautification and enrichment of body while not causing any side effects.

Circa 2500 and 1550 B.C of Indus valley civilization contains the earliest records of the application of cosmetic substances. In more recent decades, with the advancement of chemistry and petrochemistry, as synthetic raw materials of concern to the cosmetic industry became easily available in generous amounts and at affordable prices, they largely replaced natural extracts and derivatives. However, in the last few years cosmetic ingredients derived from plants have made a compelling comeback, and claims referring to "plant origin", "natural origin" and "naturally derived"—naming just a few—have grown as a blooming trend in the sphere of beauty. This trend turnabout is principally consumer-driven and has several reasons; they include the increasing aversion for animal-derived products, ecological cares and—probably the most significant—the influx of news about the safety of certain controversial cosmetic ingredients that in modern times has taken over the media and the web.

It has been rightly said that 'there is a plant for every need on every continent'. For instance, looking at natural means

to obtain soap, soapwort (*Saponaria officinalis*) will be discovered in Europe; yucca (*Yucca glauca*) in Southern USA; soapnut (*Sapindus indica*) in India; endod (*Phytolacca dodecandra*) in Africa and soap bark (*Quillaja saponaria*) in South America ^[1].

Advantages of Herbal Cosmetics Over Synthetic

Herbal cosmetics are the current trend in the industry of beauty and fashion. These natural products are gaining popularity as in present scenario most women choose natural products over chemicals for their personal care to enhance their beauty. These products supply the body with nutrients and enhance health while providing satisfaction as these are free from synthetic chemicals and have relatively less side-effects compared to the synthetic cosmetics.

Natural products

The name is itself suggestive that herbal cosmetics are natural and free from all the dangerous synthetic chemicals which otherwise may prove to be harmful to the skin. In place of conventional synthetic products, various plant extracts and derivatives are used in these products, e.g. aloe-vera gel and coconut oil ^[2].

Safe to use

In comparison to other competing beauty products, natural cosmetics are relatively safe to use. They are hypo-allergenic and duly tested and cited by dermatologists to be safe to use. Since they are made of natural ingredients, people don't have to trouble themselves thinking about skin rashes or uncomfortable skin itchiness.

Compatible with all Skin Types

Natural cosmetics are suitable for all skin types. Irrespective of the color of skin, whether dark or fair, one will find an appropriate natural cosmetic in the wide range of available foundations, eye shadows, and lipsticks. In fact, women with oily or sensitive skin can also apply them too and never have to complain about degenerating skin condition.

This is in strike contrast to coal tar derived colours used extensively in synthetic cosmetics; coal tar is identified as a

human carcinogen and the foremost concern with using coal tar as a colour is that they can potentially cause cancer^[3].

Range of Products

Natural cosmetics may be relatively a new type in the beauty industry or but nevertheless, they already offer a variety of beauty products for all makeup enthusiastic folks out there to pick from. One will definitely find the right match from a variety of foundation, eye shadow, lipstick, blush, mascara, concealer and many more which are all naturally formulated.

Budget Friendly

Natural cosmetics don't cause pocket burns. In fact, some of these products are far more affordable than synthetic ones. They are often offered at runaway prices and are sold for relatively cheap prices during annual sales. One just needs to look around to grab super deals on them. World Health Organization currently promotes traditional herbal cures in natural health care programs as these drugs are easily available at low cost and are comparatively safe^[4].

Herbs Used in Cosmetics

Dry Skin Treatment

Aloe

It is an ingredient used in many cosmetics due to its tendency to moisturize and soften the skin. Hailing from parts of Southern Africa, the aloe vera plant has fleshy spiny-toothed leaves and red or yellow flowers. One can simply place a cut across one of the aloe vera leaves to quickly obtain the soothing gel.

Aloe Vera consists of a generous amount of more than 75 nutrients and 200 other ingredients, which comprise of 20 minerals, 18 amino acids and 12 vitamins. Due to its anti-inflammatory and soothing qualities, aloe vera juices and gels are favorably used in cosmetic products for its toning, moisturizing and skin-protective effect, exhibited in the face and body creams, hair care products and natural deodorants.

When it comes to production, Western Europe is the leader in global aloe vera extracts market, followed by the Asia-Pacific region. In Europe, by 2021, France is pitched to have the highest compound and annual growth.

Coconut oil

Coconut oil originates from coconut palm tree *Cocos nucifera*, family Arecaceae, specifically from the fruit or seed. Given the fact that the melting point of coconut oil is 24 to 25 °C (75-76 °F), it can be used comfortably in both liquid or solid forms and thus, is frequently utilized in cooking and baking. Coconut oil works as a great choice of skin moisturizer and softener. A study actually claims that extra virgin coconut oil is exceptionally effective and safe when applied as a moisturizer, with no worry of unfavorable reactions.^[5]

Sunflower oil

Obtained from sunflower seeds of *Helianthus annuus*, family Asteraceae, it is a non-volatile oil consisting of lecithin, tocopherols, carotenoids and waxes. When applied as a cosmetic product, it has soothing effects and is considered a non-comedogenic skincare product.

Olive oil

A liquid fat obtained from olives, *Olea europaea* and family Oleaceae, olive oil is comes from a traditional tree crop of the Mediterranean Basin. Olive oil is very beneficial for dry skin because of the numerous antioxidants, vitamin E and vitamin K present within it that offer anti-aging benefits.

Joboba oil

Joboba oil is the liquid produced in the seed of the *Simmondsia chinensis*, a shrub and it comprises of nutrients like Vitamin E and B, as well as antioxidants and minerals like chromium, copper, and zinc, that all nourish and protect skin. Furthermore, organic, cold-pressed, jojoba oil has the highest level of antioxidants and nutrients.

Latin 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

Source: Herbal Plants: Used as a cosmetics, J. Nat. Prod. Plant Resource., 2011, 1 (1): 24-32

Fig 1: Herbal plant for Skin care

Anti-ageing

Golden Root

Rhodiola rosea is a plant in the Crassulaceae family that thrives in cold regions of the world. Due to its antioxidative properties, the Rhodiola root has been for decades used in the traditional medical practices in Europe and Asia to enhance an organism's resistance to physical stress, currently^[6].

Carrot

Daucus carota belonging to family Apiaceae is a helpful herb since ages due to its the abundance of Vitamin A available in it along with other essential vitamins. Carrot seed oil is profoundly used for anti-ageing, revitalizing and rejuvenating. Because of its properties to promote the formation of new cells and eventual reduction in wrinkles, it acts as natural toner and rejuvenator for the skin.

Ginkgo

Coming from the huge ginkgo tree, *Ginkgo biloba* belongs to family Ginkgoaceae, Ginkgo is best known as a circulatory tonic, majorly for strengthening the tiny little capillaries to all the organs, and especially to the brain. Due to flexibility, capillaries are able to supply more oxygen to the brain and eyes (consequently, protecting against degenerative eye diseases like damage to the macula of the eye).

Hair Care

Amla

Plant *Embllica Officinalis*, Family Euphorbiaceae, popularly known as Amla is abundant in vitamin C, tannins and minerals like phosphorus, iron and calcium which renders nutrition to hair and additionally, helps in the darkening of hair, also preventing premature greying of hair.

Almond oil

Obtained from *Prunus dulcis*, almond oil essentially consists of 78% of fat and very small amounts of super-unsaturated Omega-3 essential fatty acids. Time and again, it has been

proved to be remarkably nourishing, as a softening agent and an aide to strengthen the hair. Moreover, almond oil also turns out to be an excellent cleansing agent. Almond oil has been around for many ages, even before its popularity as a market agro-product.

Shikakai

Shikakai, *Acacia concinna* is a climbing shrub native to Asia and is rich with saponins, vitamins and antioxidants that make hair shiny. Additionally, this natural cleanser lathers in a mild manner and thus cleanses scalp gently while improving hair's texture and inducing sebum secretion which helps reverse the dryness of your scalp.

Bhringraj

Bhringraj oil contains the extracts of the false daisy (*Eclipta alba*) and is an inactive carrier oil. It is a natural remedy that is often used to promote hair growth, luster, and strength. It can help in treating baldness if used regularly and activating the hair follicles, resulting in increased hair growth.

Latin name	Common name	Part used	Uses
<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>Centella asiatica</i>	Gotu kola	Plant	Hair care, Darkening of hair, Hair oil
<i>Citrus aurantium</i>	Orange	Peel	Soaps, Shampoos
<i>Citrus limon</i>	Lemon	Peel	Prevents hair loss
<i>Eclipta alba</i>	Bhringraj	Plant	Promoting hair growth, Shampoos, Hair oil
<i>Acacia Concinna</i>	Shikakai	Pods	promotes hair growth and preventing dandruff

Source: Herbal Plants: Used as a cosmetics, J. Nat. Prod. Plant Resource., 2011, 1 (1): 24-32

Fig 2: Herbal Plants Used for Hair care

Herbal Cosmetics in Ancient India

Undeniably, there is enough evidence of exceptional ideas of self-beautification by both men and women, in ancient India. Legions of these practices were smartly and efficiently entwined with the four seasons and the rituals of everyday life. In a very significant manner, the application of these products was intended not only towards acquiring an extrinsic pleasant and charming personality but towards attaining worthiness, longevity with excellent health and abundant happiness. The earliest mention of a beautician is from the great epic Mahabharata, where the Pandavas were in exile incognito. Draupadi served for the queen of a Northern district of India. There is a mention of her bringing a Pradhana Petik (a vanity box containing substances to beautify, essential toiletries and required accessories) for the queen.

Different leps (masks or applications) were suggested for different seasons for body beautification, thus the elements used during the winters were a little diverse from those used in summers. As a matter of fact, Ashtanga Hridaya (a 1500-year-old book of Ayurveda) proposes six various formulations to be applied for the six seasons of the year. Furthermore, special Ayurvedic Tailams (Oils) and Ghritas (Clarified butter or ghee) were applied for facial beautification. Similarly, special elements were utilised for hair washes. Many treatments have been designated for growth of hair, reducing hair fall and untimely greying. Hair

dyes, fragrant hair rinses were also in popular use along with fragrant bath powders and body deodorants [7].

Industry Regulations

Cosmetic Ingredient Review (CIR) experts have reviewed many natural extracts and their conclusions are published in the scientific literature (Antignac *et al.*, 2011). Analogous to the pharmaceutical industry in the United States, the Food and Drug Administration (FDA) academic and government experts review safety information on cosmetic ingredients. The Consumer Commitment Code promotes the reporting of serious adverse events to the FDA, maintenance of safety substantiation files on products and ingredients, and making these safety files available to the FDA for review [8].

The Federal Food, Drug, and Cosmetic (FD&C) Act specify that companies selling cosmetics cannot claim that their products treat or prevent disease or in extension, alter the structure or any function of the body; otherwise, the product is deemed to be a drug, which is controlled by a different faction of FDA regulations. There are plenty of components in personal care merchandises that are classified as over-the-counter (OTC) drugs including acne ingredients like benzoyl peroxide (FDA, 2010) and ultraviolet filters like titanium dioxide, avobenzone and zinc oxide (FDA, 2011). The FDA has asserted in official documents that these components have certain requirements for permissible limits and measurement of the same must be conducted before a product can be marketed. Medicinal plant extracts don't fall

under the realm of OTC regulations and consequently, companies must be cautious when making claims on the effectiveness of these ingredients ^[9].

Product Development

The method to bring a medicinal plant from scratch to supermarket shelves can be a complex one with numerous hurdles *en route*. Sourcing plant biomass has a stream of issues including sustainability, economics, and reproducibility/quality control. After the biomass is harvested, it must somehow be treated into a raw substance such as an extract or powder. Once a firm receives a sample of a medicinal plant, it generally has been preformulated for application in cosmetics. The extracts frequently comprise preservatives and antioxidants in order to have freshness, to reduce the chances of colour change, and prevent microbial growth. If rendered in wet form, they can be dissolved or suspended in water, glycols, natural oils, or other solvents that create the grounds of cosmetic formulas. Cosmetic companies routinely direct stability testing on raw materials to foresee any issues with colour change, odour, viscosity, precipitation, separation, or degradation of actives. Every lot that the company receives, quality control testing is necessarily performed on it to be sure of the assertion that it adheres to the physical and analytical properties of the industry standard. To avoid unfavourable cases, cosmetics firms conduct *in vitro* examination to screen for irritation in skin construct models or cell degeneration in skin cell culture ^[10].

Conclusion

Due to the extreme use of synthetically derived products in the last one and half century; their generation and application have caused serious human health hazard with several side effects leading to numerous diseases. As better options, herbal cosmetics are prepared, using permissible cosmetic elements to form the foundation in which one or more herbal ingredients are used to manage various skin ailments and for beauty enhancement. The chemical preparation of all these cosmetic products includes the addition of different natural additives like waxes, oils natural color, natural fragrances and parts of plants like leaves, etc.

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