

A review article on herbal cosmetics for skin

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Abstract: Number of herbal plants are available naturally; they having different ingredients or constitution used in cosmetics formulation. Herbal cosmetics always have attracted considerable attention because their good activity and comparatively lesser side effect with synthetic. Herbal cosmetics manufactured and used for daily purpose include herbal cleansers, moisturizers, toner etc. Herbal cosmetics have medicinal benefits which affect the biological functioning of skin depends upon type ingredients they contain. These products enhance and improve the skin functioning by boosting collagen growth by eradicating harmful effects of free radicals, maintain keratin structure and making skin healthier. The current review on importance of herbal cosmetics, the herbs used in them and their advantages.

Keywords: Cosmeceuticals, Herbs, Anti-aging, Natural, Antioxidant.

I. INTRODUCTION

The herbal Cosmetics referred as product, are formulated using various cosmetic ingredients to form the base in which one or more herbal ingredients are used to provide cosmetic benefits called as "Herbal Cosmetics" [1].

Term Cosmeceuticals is adapted by cosmetic manufacturer in beginning of 1990's to describe the OTC skin care product that claims therapeutic benefits by addition of plant based active ingredients such as retinoic acid, ascorbic acid, coenzyme Q10. These active ingredients serve many purposes viz. increase skin elasticity, delay skin aging, by antioxidant property protection against UV radiation and to check degradation of collagen [2].

The beauty of the skin depends on health, habits, routine, environmental conditions and maintenance. Skin becomes dehydrated during the summer and causes wrinkles, freckles, imperfections, pigmentation and sunburn. In winter, skin damage occurs in the form of cracks, cuts, macerations and infections. Skin diseases are common to all age groups and may be due to exposure to microorganisms, chemicals, toxins, microbes, chemical agents, biological toxins present in the environment and also partly due to malnutrition [3]. The natural content in plants does not cause side effects in the human body; Instead, it enriches the body with nutrients and other useful minerals [4]. The only factor to rely on was the knowledge of nature compiled in Ayurveda. The science of Ayurveda had used many herbs and flowers to create cosmetics to beautify and protect against external effects. The cosmetic is not included in the preview of the drug license. Herbal cosmetics are preparations containing phytochemicals from a variety of botanical sources, which influence the functions of the skin. wherein one or more herbal ingredients are used to provide cosmetic benefits defined only as "herbal cosmetics." It is a common opinion that chemical-based cosmetics are harmful to the skin and increased awareness among consumers of herbal products has caused the demand for natural products and natural extracts in cosmetic preparations. The growing demand for natural products has created new avenues in the cosmeceutical market. The Law on Medicines and Cosmetics specifies that herbs and essential oils used in cosmetics should not be intended to penetrate beyond the superficial layers of the skin or have any therapeutic effect. Legal requirements and regulatory procedures for herbal cosmetics they are the same as for other chemical ingredients used in cosmetics [5].

II. BASIC SKIN CARE

Skin is the outermost covering of body. It is the largest organ of body.

It constitutes the first line of defence, skin contains many cells and structures, it is divided into three main layers,

1. Epidermis: outermost layer varies in thickness in different regions of body. Provide waterproof barrier and create our skin tone. Epidermis is divided into five layers.

The stratum basal called keratinocytes is cell that manufacturer and stores the protein keratin. Keratin is a fibrous protein that gives hair, nails, and skin their hardness and water resistance property. The stratum basal called keratinocytes is cell that manufacturer and stores the protein keratin. Keratin is a fibrous protein that gives hair, nails, and skin their hardness and water resistance property

Markel cell, which is responsible for stimulate sensory nerves. melanocyte produces the pigment melanin gives skin colour, protect living cells of epidermis from ultraviolet radiation.

Stratum spinosum is spiny in appearance due to the cell processes that join the cells via structure called desmosomes.

Stratum lucidum is smooth, translucent layer of the epidermis.

Stratum corneum is most superficial layer and it expose to the outside environment Keratin is a fibrous protein that gives hair, nails, and skin their hardness and water resistance property.

2. Dermis: The dermis, contains tough connective tissue hair follicles and sweat glands. Also contain the collagen, protein which is responsible for skin strength and elasticity.

3.Hypodermis: Hypodermis is made up of fat and connective tissue. Fat serves as insulation for body.

Functions of skin

- Protection
- Sensation
- Regulation of heat
- Control of evaporation
- Absorption
- Water resistant.[6]

Skin type and skin care

To have better skin, it is very important to understand how our skin functions and take proper care to maintain it. The skin classified into 4 type and for each type appropriate ingredients are used to maintain its natural functionality “table no.1” [7].

There are four types of skin

For healthy skin the basic skin care is important. The following three step is important for basic skin care:

Cleansing; The cleansing is important to remove dirt, dead cell, and pollutants that chokes the pores. The more you avoid this basic step the more skin issues developed. The herbal cleansers remove the dirt and pollutants.

Aloe Vera is widely use in skin cosmetics. It acts good cleansing agent when combined with glycerine.

Camphor has deep cleansing action, the cooling and awakening effects. It removes makeup and impurities completely.

Toning: Timbers are help to tight the skin and protect skin from toxins which are floating in the air or other pollutants.

Grape seed oil is use astringent which is useful for skin toning and tightening,

Fresh lemon juice is use as toner. Lemon peel oil acts as natural astringent.

Moisturizing: The moisturizer is use for skin to smooth and supple. Moisturiser also show glow and less prone to aging.

Rose water and rose infusion of petals refreshes and hydrate the skin.

Roses are suitable for all skin type. Violet are slightly astringent; leaf and flower of violet is juicy and moisturizing. Violets are anti-inflammatory and helps in heal cuts and wound [5].

Table 1 Skin Classification

Skin type	Characteristics	Suitable skin care
Normal skin	Has even tone, soft, smooth, no visible pores, no greasy patches or flaky areas. Has clear, fine, supple and smooth surface which is neither oily nor dry.	Herbal- Pomegranate Leaves juice, gingili oil. Essential Oils- Chamomile, Lavender, lemon
Dry skin	Low level of sebum and prone to sensitivity. Has parched look, feels tight. Chapping sign cracking of dehydrated and extremely dry skin.	Herbal- Calendula, olive oil, aloe vera. Essential oils- fennel, rose oil, almond oil, sandal wood, avocado.
Oily skin	Shiny, thick and dull complexion. Oily skin has coarse pores and pimples and other embarrassing blemishes. Prone to black heads.	Herbal- rose buds, oat straw, Thyme, Chamomile, Aloe vera, Lemon grass. Essential oils- Juniper, Lemon, Lavender, Sage.
Combination skin	Some parts of your face are dry or flaky, while the centre part of face, nose, chin and forehead is oily.	Herbals- menthol, turmeric, sweet flag, aloe vera. Essential oils- Citrus oil, Jasmine. Sandal wood oil.

III. HERBS USE IN COSMETICS

Skin care

Coconut oil: It's produced by crushing copra, the dried kernel, which contains about 60-65% of the oil. Coconut oil contain about 60-65% of the oil. Coconut oil contains a high percent of glycerides of lower acids. Coconut Oil springs from the fruit or seed of the coconut tree *Cocos nucifera* belonging to family *Arecaceae*. The melting point of coconut oil is 24 to 25^o C and thus can be used easily in liquid or solid forms and is often used in cooking. Coconut oil is great as a skin moisturizer and skin softener [8].

Sunflower oil: It is the non-volatile oil extracted from sunflower seeds obtained from *Helianthus Annuus*, family *Asteraceae*. Sunflower contains lecithin, tocopherols, carotenoids and waxes. It has smoothing properties and is considered non-comedogenic. A simple yet cost-effective oil, well tried and tested for generations in very wide variety of emulsions formulated for face and body Products [9].

Aloe vera: Aloe vera is herbal plant species belonging to Liliaceae family that is found only in cultivation, having no naturally occurring populations, although closely related aloes do have presence in northern Africa. Aloe vera contains amino acids like leucine, isoleucine, saponin glycosides that provide cleansing action, vitamins A, C, E, B, choline, B12 and folic acid and provide antioxidant activity [10].

Antiaging

Carrot: it's obtained from *Daucus carota* belonging to Apiaceae family. it's a valuable herb since ages as because of its richness in vitamin A alongside other essential vitamins. Carrot seed oil is used as anti-aging, revitalizing and rejuvenating agent [9]. From β -carotene carrot gets its characteristic and bright orange colour, and lesser amounts of α -carotene and γ -carotene. α and β -carotenes are partly metabolized into vitamin A in humans [11].

Ginkgo: *Ginkgo biloba* belongs to family Ginkgoaceae, which grows to a huge size. Ginkgo used for thousands of years to treat poor blood circulation, hypertension, poor memory, and depression, particularly among the elderly; male impotence. It is also used as antioxidant and anti-inflammatory agent. *Ginkgo biloba* belongs to family Ginkgoaceae, which grows to a huge size [12]. The *Ginkgo biloba* extract EGb 761, prepared from the tree's leaves containing flavone glycosides, which has exhibited the capacity to reduce the number of ultraviolet B (UVB)-induced sunburn cells in mice [13].

Skin protection

Turmeric: turmeric is topical perennial herb *Curcuma Longa* of the family Zingiberaceae which is yellow to orange in colour [14]. Curcumin gives the yellow colour to turmeric and is responsible for most of the therapeutic effects [15]. Turmeric provides a great variety of pharmacological activities due to curcumin are antibacterial, antiparasitic, anti-HIV [16, 17]. It is also effective for prevention or treatment of psoriasis and other skin conditions such as acne, wounds, burns, eczema, sun damage to the skin and premature aging, since it inhibits the activity of phosphorylase kinase [18]. Turmeric rhizome powder has anti-inflammatory and anti-oxidant properties, hence it is used for preparation of facial creams and ointments [19].

Green tea: green tea is tea made by leaves of *Camellia sinensis* belonging to family Theaceae. Tea leaf extract absorbs ultraviolet radiation and protects the skin against its harmful effects. It is a photoprotective component use in daily care cosmetics. Polyphenolic compounds present in tea have strong antioxidant activity. Tea extract use in sunscreen cosmetic for protection against UV radiation [20].

Antioxidants

Tamarind: Tamarind or *Tamarindus indica* belonging to family Fabaceae, consists of amino acids, fatty acids and minerals of tamarind plant parts. Tamarind fruit is an excellent source of vitamin B and contain minerals, exhibit high antioxidant capacity that appear to be related to a high phenolic content, and thus, are often a crucial food source [21,22].

Vitamin C: Vitamin C is necessary for the hydroxylation of proline, procollagen, and lysine. Vitamin C improves the changes caused by photo damage. Vitamin C has been used to stimulate collagen repair, thus removing some of the effects of photo-aging on skin.

Vitamin E: (Alpha-tocopherol) is the major lipophilic antioxidant in plasma membranes and tissues. The term vitamin E collectively refers to 30 naturally occurring molecules (4 tocopherols and 4 tocotrienols), all exhibit vitamin E activity. Its major role is generally considered to be the arrest of chain propagation and lipid peroxidation by scavenging lipid peroxy radicals, hence protecting the cell membrane from destruct [23].

Herbal plants and their cosmetic application tab.2.

Table 2 List of plants with cosmetic application

Scientific name	Common name	Part uses	Uses
<i>Avena sativa</i> (Gramineae)	Oat	fruit	Skin tonic
<i>Acarus calamus</i> (Araceae)	Sweet flag	Rhizome	Dusting powder, skin lotion
<i>Centella aceatica</i> (Apiaceae)	Brahmi	Plant	Wound healing, reduce stretch mark
<i>Mesua ferrea</i> (Guttiferae)	Cobras saffron	Flower	Astringent
<i>Calendula officinalis</i> (Compositae)	Marigold	Flower	Antiseptic cream, Anti-inflammatory
<i>Panax ginseng</i> (Araliaceae)	Ginseng	Root	Stimulant blood flow to skin
<i>Zingiber zerumbet</i> (Zingiberaceae)	Zamabad	Rhizome	Skin care

IV. ADVANTAGES OF HERBAL COSMETICS

Herbs are important for prevention and health promotion properties having following advantages which are described below:

- Herbal cosmetics are natural and free from all the harmful synthetic chemicals which generally may turn out to be lethal to the skin.
- Safe to use. They are hypo-allergenic and tested and proven by dermatologists to be safe to use anytime, anywhere. Since they are made of natural ingredients, people don't have to worry about getting any skin itchiness or irritation.
- Compatible with all skin types. You will find natural cosmetics like foundation, eye shadow, and lipstick which are appropriate irrespective of your skin tone. Women with sensitive skin can also use them and never have to worry about degrading their skin condition
- These products are more affordable than synthetic ones. They are offered at economical prices and are sold for a cheap price during sales. An estimate of WHO demonstrates about 80% of world population depends on natural products for their health care, because of side effects inflicted and rising cost of modern medicine.

- The synthetic beauty products can irritate your skin, and cause pimples. They might block your pores and make your skin dry or oily. The natural ingredients used assure no side effects [24].

V. COSMETIC PREPARATION

The physical states of cosmetics preparation are divided into following three categories:

Solids: Face powders, Talcum powders, Face packs, Masks, Compact powders, Cake make-up, etc.

Semi solids: Creams, Ointments, Liniments, Wax base creams, pastes, etc.

Liquids: Lotions, Moisturizers, Cleansing milk, Mouth washes, Deodorants, Liniments, Sprays, etc.

The preparation of any herbal cosmetics basically follows a similar procedure as in the case of cosmetics. In preparation, suitable bioactive ingredients of their extracts are used along with requisite ingredients basically used for cosmetics. It requires selection of suitable emulsifying agent, and modified methodology to obtain desirable product of specified parameters. The herbal cosmetics formulation is a sophisticatedly and sensitive technological profile because it retains the bioactivity of the botanical during excessive processing and ascertains their availability after application on skin. It is desirable that manufacturers should ensure the quality of products through systematic testing at their level [25].

Marketed preparation

Marketed preparation are as follows in tab. 3.

Table 3 Marketed Preparation

Product	Brand name	Company
Face Wash	Deep Cleansing Apricot Face Wash	Himalaya herbal
Cream	Herbal massage cream	Ayur Herbals
Anti-Ageing cream	Anti-aging cream	Dabur
Sunscreen	Lotus herbal safe sun	Lotus

VI. EVALUATION

The parameters tested include organoleptic characteristics, pH, viscosity, refrigeration and stability towards light. The main disadvantage of herbal ingredient is the attack of microbes rendering them unfit for human use. So, care must be taken to prevent the bacterial attack. The evaluation of herbal cosmetics is very important and there is no hard and fast code of practice, which can be laid down for all products. The evaluations of Herbal cosmetics are performed to checked the efficiency, storage, processing operation and stability requirements. The evaluation of herbal cosmetics is actually the same as that for the other common cosmetics products which are available in market. The ingredients utilised in cosmetics should be of the high quality so as to minimize the irritancy and sensitivity reaction. The physical of herbal cosmetics include the colour, odour, form of physical state, pH, and net content. The other evaluations of herbal cosmetics are sensitivity test, irritation test and grittiness. The irritancy and sensitivity test can be performed by either diagnostic testing or by the prophetic or predictive testing.

The diagnostic testing is determined by different patch tests, where one can establish the cause of dermatitis produced by cosmetics. In predictive testing, which involves the testing for primary irritants, testing for eye irritation (e.g.: rabbit eye test), testing for animal skin irritation and testing on humans for irritancy. The test will help to detect the irritant and sensitizing potential of new cosmetic ingredients. The evaluations of facial cosmetics are grouped into physical parameters, esthetic and pressure testing. Physical parameters include colour, adhesiveness, pH, net content, odour, size and shape of the particle and finally the moisture content. In esthetical, the parameters evaluated are shape control, dispersion of colour, bloom testing, adhesiveness, spreadability, covering power and finally handling test. The pressure testing is evaluated for compacts to check the presence of air pockets. The microbial test, toxicity test and stability studies were also performed for evaluating the cosmetics products. The traditional documented applications of herbs in cosmetics are available along with some modern trials which have established the utility of these materials in cosmetic preparation

Analytical methods are used to support the commercial development and application of new ingredients to ensure that specifications are met to confirm the quality of manufactured products and to satisfy that the process are operating correctly. The analytical methods are regularly employed by enforcement and regulatory authorities to ensure that the products confirm to legal standards and are safe and accurately described. The analytical chemist continues to have a major role in selecting the most appropriate method, managing the data, interpreting the results. The analytical techniques are basically classified into classical method and instrumental method. The skin evaluation can be performed by super facial sampling of the skin with image analysis of the cells. The free radical scavenger properties in cosmetics which can counteract the effect of pollution and UV light on skin can be evaluated by fluoroscan II system. The free radical scavenging properties evaluated by inhibition of UVB induced skin erythema by skin reflectance spectrophotometry [26].

VII. CONCLUSION

The use of herbal cosmetics has increased by too many folds in the personal care system and there is a great demand for herbal cosmetics. The use of bioactive ingredients in cosmetics affects the biological functions of the skin and provides the necessary nutrients for healthy skin or hair. In general, plants supply different vitamins, antioxidants, various oils, essential oils, hydrocolloids, proteins, terpenoids and other bioactive molecules. There is ample room to launch numerous herbal cosmetics inappropriate bioactive ingredients with fatty oil, essential oils, proteins and appropriate additives. It is mandatory to carry out safety tests appropriate to the existing and well-documented standards together with the composition of the ingredients.

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