

**ROLE OF ALOE VERA AND GLYCYRRHIZA GLABRA IN RELATION WITH
COSMETIC IMPORTANCE IN MODERN TIMES – A REVIEW**Aditi Sharma^{1*}, Dr. Shuchi Mitra², Dr. Usha Sharma³ and Dr. Khem Chand Sharma⁴PG Scholar¹ Associate Professor² Professor³ Professor and HOD⁴
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Article Received on 31/03/2021

Article Revised on 21/04/2021

Article Accepted on 11/05/2021

ABSTRACT

Face is the most important organ that reflects the human personality. Any minor disfigurement in one's face may result in inferiority complex and sometimes isolation in the social life. In *Ayurvedic* literature, numerous formulae are described involving herbs and other natural ingredients. In modern days cosmetics are considered to be the essential commodities of life. It was realized by medical scientists that cosmetics not only adorn the skin but they have a huge psychological impact on users. Cosmetics may also contain some synthetic chemicals that might not suit every person and may lead to some side effects like allergies, pimples, and photosensitivity. Nowadays people are aware of all these things, so there is an increased demand of herbal and plant based cosmetics which contain least or no chemicals. *Aloe vera* and *Glycyrrhiza glabra* being herbal drugs are preferably used as cosmetics. They have been known and used for their health, beauty, medicinal and skin care properties.

KEYWORDS: Cosmetics, Aloe vera, beauty, skin care.**INTRODUCTION**

The word 'cosmetics' arises from a Greek word 'kosmeticos' which means "to adorn."^[1] According to Drugs and Cosmetics Act- "cosmetic means any article intended to be rubbed, poured, sprinkled or sprayed on, or introduced into, or otherwise applied to the human body or any part thereof for cleansing, beautifying, promoting attractiveness, or altering the appearance, and includes any article intended for use as a component of cosmetic".^[2]

The urge to adorn one's own body and to look beautiful has been an important aspect in the human race since the ancestral days. Nowadays both males and females are equally concerned about their external appearance so they are making efforts to improvise their appearance by showing equal participation into it. The women feel inspired when they have a mental feeling that they are looking good. Hence the practice of adornment or improvement of appearance continued.

Some synthetic beauty products can irritate your skin and cause pimples. They might block your pores and make your skin dry or oily. Herbal cosmetics assure no such effects; due to which they can be applied anytime, anywhere. These are the modern trend in the field of beauty and fashion. They are gaining more and more popularity as nowadays natural products are being

preferred over chemicals by most of the women for their personal care.^[3] These products not only protect skin from any kind of harmful chemicals but also act as a beautifying agent for the skin.^[4] These supply the body with nutrients, thus enhancing health and providing satisfaction as these have relatively less side-effects compared to the synthetic cosmetics.

Aloe vera and *Glycyrrhiza glabra* due to their enormous dermatological benefits have been used since long time and hence have remained an important component in the field of cosmetics.^[5]

Human skin has the tendency to absorb *Aloe vera* upto four times faster than water and thus helping the pores of the skin to open and receive the moisture and nutrients of the plant. Due to its soothing and cooling qualities, it has been recommended for a number of skin conditions.^[6]

Drug review

The main feature of the *Aloe vera* plant is its high-water content, ranging from 99-99.5%. The remaining 0.5-1.0% solid material is reported to contain over 75 different potentially active compounds including water- and fat-soluble vitamins, minerals, enzymes, simple/complex polysaccharides, phenolic compounds, and organic acids. It is a source of 19 out of 20 essential amino acids which is required by our body.^[7]

The bio active compounds are used as astringent, haemostatic, anti-septic, antibacterial, anti-inflammatory, antioxidant and also effective in treating many skin diseases, radiation injury, wound healing and burns. Nowadays the plant is widely used in skin care and as cosmetics.

Liquorice has glycyrrhizin as the major primary active ingredient responsible for its sweet taste which constitutes about 10–25% of liquorice root extract. It is a saponin compound that is comprised of a triterpenoid aglycone, glycyrrhetic acid (glycyrrhetic acid; enoxolone).^[8] The glycyrrhizin content varies between 5.5-6.4% on the basis of weight.^[9]

Pharmacological action of active principles of *Aloe vera* and *Glycyrrhiza glabra*

Aloe vera

Anti-oxidation activity

Aloe vera contains a-tocopherol (vitamin E), carotenoids, ascorbic acid (vitamin C), flavonoids and tannins and due to the presence of these substantial amounts of antioxidants, it has been used in treatment of various skin diseases.

Anti-ageing effects

It helps in manufacturing the collagen, which is the major structural component of skin, that controls the aging process of the skin and wrinkling.^[10] Due to production of collagen, it makes the skin more elastic and less wrinkled, thereby, reversing the degenerative skin changes. It improves the ability of human skin to hydrate itself and help in removal of dead skin cells.^[11]

Wound healing effects

It stimulates the skin cells responsible for wound healing i.e. fibroblasts. The healing property is related to glucomannan compound, which is enriched with mannose, known to be present in Aloe vera gel. This compound affects fibroblast growth factor, thereby stimulating the proliferation of these cells and hence increasing the production and secretion of collagen on wound site.^[12]

Skin hydration effects

Moisturising effect of cosmetic formulations containing different concentrations of lyophilised Aloe vera gel were evaluated to observe the skin hydration effect, it was noticed that the formulations having higher concentrations of 0.25% w/w and 0.50% w/w increased the water content of the stratum corneum even after a single application and when these formulations were applied for a period of two weeks, all formulations having concentrations of 0.10%, 0.25% and 0.50% w/w of Aloe vera gel powder had the same effect, thereby proving that Aloe vera gel improves skin hydration, hence acting as a complement in the treatment of dry skin.^[13]

Burn healing effect

In a clinical study, Aloe vera gel was given for the treatment of superficial and partial thickness burns, healing of burn wounds was noticed earlier in Aloe vera gel treated lesion than Vaseline gauze area, thus showing early epithelialization in the Aloe vera gel treated area, hence proving the effectiveness of Aloe vera gel for the treatment of partial thickness burn wound.^[14] For light burns and wounds, the gel can be applied several times a day and for mild sun burn, one can apply the paste on affected areas and wash it off after fifteen minutes.

Glycyrrhiza glabra

Anti-oxidation activity

The role of *Glycyrrhiza glabra* on the skin is mainly attributed to its antioxidant activity due to presence of triterpene saponins and flavonoids in yashtimadhu.^[15] The powerful antioxidant activity of *Glycyrrhiza glabra* is due to the phenolic content. These phenolic compounds protect biological systems against oxidative stress, due to which it is able to inhibit the onset of skin damages. The topical application of liquorice extract formulations may be of great value in dermal and cosmetic products as it maintains the skin homeostasis due to its high antioxidant content.^[16]

Anti-allergic effects

Antiallergic effects of liquorice are mainly due to glycyrrhizin, 18beta-glycyrrhetic acid and liquiritigenin. It relieves IgE- induced allergic diseases such as dermatitis, asthma etc.^[17]

Skin lightening activity

The extract of liquorice is reported to be the safest and effective pigment lightening agent. Some active compounds present in liquorice extract like glabrene, glabridine, Isoliquiritin are mainly responsible for inhibition of tyrosinase activity. Liquiritin present in liquorice extract disperse melanin, thereby inducing skin lightening.^[18] Also the skin melanin content decreases due to antioxidants present in extract. Due to good tyrosinase inhibition activity, liquorice extract can be used to formulate cosmetic formulations with depigmenting activity. The *Glycyrrhiza glabra* flavonoids present depigmenting capabilities and tyrosinase inhibition effects. The presence of a α -keto group in flavonoids is responsible for this activity.

Sun protecting activity

There have been many natural compounds which can be used as a sunscreen agents like vitamin C, kojic acid and para-aminobenzoic acid in cosmeceutical but they are not so efficient because of their instability.^[19] Glycyrrhetic acid is being used as a sun care and sunscreen agent.^[20]

Skin effects

The main skin benefits reported for *G. glabra* are based on the antioxidant and anti-inflammatory activities reporting the use of liquorice mainly for skin eruptions, including dermatitis, eczema, pruritus, and cysts. Roots

of liquorice contains glabridin, a phenolic compound (isoflavan) which acts as an anti-oxidant, anti-inflammatory, anti-eczema, anti-pruritus and other dermatitis symptoms. Ethanolic extract of *Glycyrrhiza glabra* is responsible for having positive effect on skin i.e. improvement in the viscoelastic and hydration properties of the skin.^[21] Due to antioxidant, anti-inflammatory and ultraviolet protecting properties of liquorice extract, it might be responsible for giving beneficial effects on skin.^[22]

Ayurvedic Pharmacological Properties of Drugs

Ghritakumari (Aloe vera)

It is *Tikta* in *rasa*, *guru*, *snigdha*, *pichilla* in *guna*, *sheeta* in *Veerya*, *Katu* in *vipika* and thus pacifies *Kapha dosha* due to *katu vipaka* and *Pitta dosha* due to *tikta rasa*.^[23]

Yashtimadhu (Glycyrrhiza glabra)

It is *madhura* in *rasa*, *guru*, *snigdha* in *guna*, *sheeta* in *Veerya*, *madhura* in *vipika* and thus pacifies *vata dosha* due to *guru*, *snigdha guna* and *madhura rasa* and *Pitta dosha* due to *sheeta veerya*.^[24]

Charak has included *yashtimadhu* under *varnya mahakashaya*^[25] and also under *kandughna mahakashaya*.^[26]

Acharya Sushruta^[27] and *vagbhata*^[28] has included *yashtimadhu* in *sarivadi gana* which is used in *rakta* and *pitta vikara*.

Acharya Sushruta^[29] and *vagbhata*^[30] has included *yashtimadhu* in *nyagrodhadi gana* which is used as *varnya* and in *rakta vikara*.

DISCUSSION

Cosmetics are used to enhance your appearance. They are part of a daily routine and are crucial part of almost all the people nowadays. It adds extra elegance to our appearance and makes us feel more comfortable and confident.

Many herbs and flora have been utilized to make cosmetics for beautification and protection from external factors. The natural content present in these botanicals enrich the skin with nutrients and other useful minerals.^[31]

Due to high water content of *ghritakumari*, it hydrate our skin, which is essential for healthy skin and is a good source of aminoacid which help in smooth functioning of our complex enzyme system, so improving our skin complexion. The anti-oxidant properties of *Aloe vera* remove free radicals and repair the skin cell, due to which it also act as anti-ageing agent and produce more collagen fibre to protect skin elasticity. It also has a good wound healing properties due to quick production of fibroblast.

Glycyrrhiza glabra also has good anti-oxidant properties due to presence of phenolic content. The extract of liquorice reduces pigmentation naturally and also gives protection against ultraviolet rays. For these properties of *Aloe vera* and *Glycyrrhiza glabra*, it can be used as cosmetic purpose for skin and protect it in the natural way.

CONCLUSION

Considering all these properties regarding *Aloe vera* and *Glycyrrhiza glabra*, we can conclude that these two herbal drugs are beneficial for skin, thus proving their efficacy in the preparation of various cosmetic formulations.

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