

**Review Article**

Essential Oils: Magical Ingredients for Skin Care

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Abstract: It is a natural tendency of human to look them attractive and younger. For this purpose, they largely depend on several skin care products including herbal as well as chemical ones. But chemical ones have a variety of side effects which are not acceptable to beauty conscious people. That's why, they are highly intended to use herbal ingredients as these are perfectly safe. Nowadays, essential oils are the most popular ingredients used for daily skin care activities. They have become good alternative and complementary therapies with mainstream cosmetic products and have gained the momentum. Essential oils (EOs) are mainly the volatile aromatic compounds of herbs and spices and these oils are generally extracted from the flowers, barks, seeds, stem, leaves, roots, fruits and other parts of the plant. Nowadays, essential oils are being randomly incorporated in variety of skin care products for their different biological activities such as antimicrobial, anti-inflammatory and antioxidative properties and hence protect skin from environmental damages and help to cure certain skin ailments for keeping skin youthful, healthy, fresh. This review paper focuses on some essential oils which have extreme skin benefits and play a great role to deliver a beautiful as well as charming skin.

Keywords: Essential Oil, Herbs, Skin Care, Magical Ingredients, Anti-inflammatory, Anti-oxidant

1. Introduction

Skin is one of the major protective organs of human body. It nurses many actions particularly: protection, thermoregulation, percutaneous absorption, secretory, and sensory. Skin is affected several problems like dryness, eczema, acne, dullness, wrinkles, pimples, ageing, bad spot etc. These skin problems are caused for several environmental effect like dust, heavy metal, particulate matter, UV radiation etc. Skin care products are used to medicate this type of skin diseases. These products are comprised of numerous chemical toxins, chemicals, toxic matter, chemical dyes, and their derived products, those are not hygiene for human health and side effects dispenser of countless diseases. Hence, the allopathic system is insufficient for healthy benefits and there is a need to choose herbal skin care products [1]. Essential oil of several herbs shows magical property which plays a vital role to medicate skin problem. Essential oils extracted from different parts of herbs like seed, bark, leaves, berries, roots, rhizomes, seeds, stems, fruits and flowers. Essential oil of these herbs shows antioxidant, anti-inflammatory, antiseptic, emollient,

anti-seborrheic, anti-keratolytic activity and antibacterial properties. Each essential oil has active ingredients which show significant properties in skin care cosmetics. The necessity of herbal skin care product is rising swiftly in comparison to synthetic ones due to their better effectiveness. The components present in the herbs do not possess any objectionable effect on the skin of the human body, rather nourish the skin with essential nutrients [2]. Herbal ingredients, especially, essential oils provide not only skin care protection but also necessary minerals for human body.

2. Essential oil of Different Herbs Used in Skin Care

Rosehip (*Rosa canina* L.) seed oil:

Rosehip essential oil, also known as rosehip seed oil, is extracted from the seeds of rosehip plants. It is a rich source of some essential fatty acids e.g. oleic, palmitic, linoleic, and gamma linolenic acid which impart good skin texture and

proper hydration level of skin. The oil contains high amount of vitamin C, an inevitable anti-aging ingredient, and retinoids that provide bright skin and can fight against acne. The combination of vitamin C and the fatty acids enhances collagen production and also prevents any premature signs of aging.

Rosehip oil is very much effective for tissue and cell regeneration in the skin. It has been used as a folk remedy for a long time in case of wound healing as well as reduction of scars and fine lines. For example, topical use of rosehip seed oil significantly improves post-surgical scars and inflammation [3].

In case of wrinkles and age spots, rosehip essential oil is best. It also helps to flourish skin elasticity. A study has found that rosehip oil wonderfully improves the crow's-feet wrinkles, moisture level and elasticity of skin [4]. Moreover, this oil can extremely calm inflammation and soothe irritation; that's why it is very beneficial to the people suffering from rosacea, eczema etc. This is because rosehip seed oil is enriched with essential fatty acids and antioxidants including pro-vitamin A, which impart high protection against any kind of inflammation and oxidative damage of the skin [5]. It is also helpful for acne-prone skin; it can combat acne due to having anti-microbial as well as anti-inflammatory properties and this oil is less comedogenic.



Figure 1. Rosehip.



Figure 2. Carrot.

Carrot (*Daucus carota L.*) seed oil:

The root vegetable, carrot, is full of hidden properties in its seeds. The essential oil found from the seeds shows anti-oxidative activities [6]. It is enriched with antioxidants which are highly efficient for neutralizing free radicals that cause inflammation and wrinkle [7]. Carrot seed oil is considered as one of the best essential oils having anti-aging properties. Its antioxidants can impede aging by restraining the healthy cells from breakdown. It develops cell regeneration process, keeps skin smooth and thus helps to rejuvenate the skin. The initial signs of premature aging are caused by sun damage. In order to prevent the skin from the adverse effects of environmental aging, carrot seed oil can extremely be efficient. This essential oil contains high portion of flavonoids and carotenoids that can prevent inflammation, repair damaged skin by regeneration of vitamin A and E and defend the skin from sun damage and other free radicals. It is also helpful for reducing scars as well as wrinkles in mature skin.

Frankincense (*Boswellia sacra*) essential oil:

Generally, frankincense is native to the Middle East and India, but now it has been recognized as one of the most common essential oils throughout the world. This is really wonderful for all skin types- such as acne and blemish-prone skin, aging skin, dry skin etc. Frankincense essential oil has anti-inflammatory and antibacterial properties which make it beneficial to acne-prone skin. It alleviates oily and acne-prone skin and provides lipids for aging skin. It also acts as a natural toner, improves skin-tone and removes the appearance of pores. It is a powerful astringent and hence greatly effective for reducing wrinkles, fine lines, scars or any stretch marks of skin. Besides, frankincense essential oil promotes new cell generation, maintains skin elasticity and soothes dry and chapped skin [8]. It helps to lessen or prevent the appearance of sunspots, age spots, splotchiness and thus evens out the skin tone [9].

Geranium (*Pelargonium graveolens*) essential oil:

This sweet-smelling essential oil is extracted from *Pelargonium graveolens* species. The main chemical constituents of geranium essential oil are linalool, geranyl formate, citronellol and geraniol which make it very efficient for various skin problems such as acne and blemish-prone skin, dry skin, aging skin, dermatitis, eczema etc. It is considered as a strong anti-inflammatory ingredient [10]. By using this oil, one can maintain perfect skin elasticity and get smooth skin. It also enhances blood circulation to the skin; thus helps to heal bruises, burns, cuts, broken capillaries, ringworm, dermatitis, eczema and other skin conditions.

Researchers found geranium essential oil as antimicrobial, antibacterial and antiseptic in nature and it is able to diminish acne breakouts, skin irritations and skin infections when applied topically [11]. Since it is a natural cicatrisant, it boosts up the wound healing process and regeneration of new skin cells. The oil has also been studied for its potential moisture balance and renewal of skin cells in people with acne [12]. It also treats scar tissue and removes almost all types of skin-spots like dark spots and marks left by acne and sunburn,

red marks, age spots, marks from skin irritation etc.

Geranium essential oil has alkaline properties that help to reduce excess oil of skin, unblock pores and keep a healthy natural sebum balance in it. Such alkalinity makes this oil a key addition to soaps and it can even out moisture level of skin and hence provide fresher, supple and younger looking skin. Its astringent property helps to tighten the skin and diminishes the appearance of the symptoms of aging e.g. sagging and wrinkling skin and enhances natural glow of skin. Moreover, geranium oil calms and soothes irritated skin by keeping skin conditioned; it fights against the skin that is affected by harsh weather conditions or prone to blemishes.



Figure 3. Frankincense.



Figure 4. Geranium.

Lavender (*Lavandula angustifolia*) essential oil:

Lavender possesses an individual aroma which is specified due to its relaxing properties. Its essential oil smells amazing; it is very popular in aromatherapy as it can relax our body and mind and also can help to adapt stress. Besides, it has potential skin benefits too.

Lavender essential oil provides strong anti-inflammatory

properties [13]. It can boost up the wound healing process and enhance the collagen production system [14]. Therefore, it has become a wonderful remedy for aging, mature as well as blemish-prone skin. It is recognized as the best oil for healing skin conditions like burns, cuts and dull looking skin.

Skin damage mainly occurs due to oxidative stress from free radicals. Lavender oil contains antioxidants which can fight against those free radicals and thus mitigate overall stress. A study found that this essential oil helps protect against oxidative stress in the brain [15]. Because of these anti-oxidative effects, the appearance of wrinkles as well as fine lines can be reduced when used topically to the skin. Moreover, lavender essential oil helps our body to produce some of the strongest antioxidants e.g. glutathione, catalase and superoxide dismutase [15]. Due to having antimicrobial as well as antioxidant characteristics, lavender essential oil mixed with aloe vera or coconut oil may have extreme positive effects on the skin [16].

Lavender essential oil significantly enhances blood circulation on skin which allows oxygen and other nutrients to reach skin for renewal and healing. It removes old skin cells and regenerates new cells and hence maintains skin texture. It is also suitable for dry, oily and normal skin types and best for oily skin whitening. It heals the skin, soothes the nerves and reduces hyper pigmentation. It also maintains proper moisture level. Its anti-inflammatory properties help to diminish symptoms of pain, redness and swelling while also lowering the risk of infection.



Figure 5. Lavender.



Figure 6. Neroli.

Neroli (*Citrus aurantium*) essential oil:

Neroli essential oil is extracted from bitter orange tree flowers. It is considered as a great ingredient for all skin types such as oily, sensitive as well as mature skin. According to the National Centre for Complementary and Integrative Health (NCCIH), neroli essential oil may be helpful in case of variety of skin ailments. It is full of antioxidant, anti-inflammatory properties which provide important skin benefits. This oil contains a natural chemical, citral, which causes regeneration of cells. That's why, it is very much effective for preventing as well as healing stretch marks, fine lines etc.

The antibacterial properties of neroli essential oil can heal blemish-prone skin [17]. Moreover, fungal infections like athlete's foot and jock itch can be cured by using the oil. The oil is also good for wrinkle treatment as it helps to improve skin elasticity. Due to the presence of compound citral, neroli essential oil helps to balance out sebum without drying the skin.

Myrrh (*Commiphora myrrha*) essential oil:

Myrrh essential oil is extensively used in case of aging, chapped and irritated skin types.

It deals with certain antioxidant properties [18] which help to improve skin tone, firmness as well as skin elasticity. It may significantly remove the appearance of wrinkles and fine lines.

Myrrh has been recognized as one of the best essential oils that can heal skin irritations and chapped skin [19]. This antioxidant rich essential oil helps to enhance blood circulation and thus gives brighter, more refined and fresh looking skin. It may boost up wound healing process and fight against infection causing microbes when topically applied. Besides, it also inhibits the growth of various skin fungi, including ringworm and athlete's foot.

Tea Tree (*Melaleuca alternifolia*) essential oil:

Tea tree essential oil has become one of the most well-known essential oils that are used frequently for their skin benefits. The oil is extracted from the needle-like leaves of the tea tree (*Melaleuca alternifolia*) plant and it has been extensively used as an herbal remedy for a variety of health problems, mostly for skin problems. It is recognized as one of the best essential oils for acne and blemish-prone skin because of its anti-inflammatory, anti-bacterial, anti-fungal and anti-viral properties. Due to antibacterial properties, tea tree oil can expel off acne-causing bacteria and promote wound healing. It can regulate oil production and hence combat breakouts before they even start [20]. It also helps to fight against bacteria and inflammation, both of which are responsible for acne breakouts [21].

Rose (*Rosa spp*) essential oil:

Roses are one of the most popular flowers in the world. Some species of this flower have great medicinal value. The essential oil extracted from this flower is highly known as a wonderful remedy for dry skin as well as aging or mature skin. Rose essential oil provides several therapeutic compounds, mainly antimicrobial and anti-inflammatory compounds, which enhance healing, texture and tone of skin [22]. Due to the anti-inflammatory effects, it helps to reduce redness,

puffiness and improve stressed-looking skin. This can also be effective in case of skin ailments such as psoriasis and dermatitis.

A study reported an interesting fact that inhalation of rose essential oil can resist moisture loss from the skin [23]. Besides, this essential oil can mitigate stress as well as anxiety that result an increase of cortisol level and thus promotes skin aging and breakouts. It is good for skin cell renewal and helps to keep fresh looking skin [24]. Rose essential oil stimulates blood circulation as well as collagen synthesis to the skin and gives a youthful complexion. It is highly helpful for keeping skin hydrated, lightening dark spots, eliminating pimples and also for reducing fine lines and wrinkles. That's why this essential oil has been recommended as an inevitable ingredient for skin nourishment.



Figure 7. Myrrh.



Figure 8. Tea tree.

Patchouli (*Pogostemon cablin*) essential oil:

Patchouli essential oil is mostly famous for its good anti-inflammatory properties. Several studies have showed that this essential oil possesses effective response against inflammation. For instance, swelling is assumed to be one of the major ailments caused by inflammation. It has been reported that one component of patchouli oil is capable of mitigating chemically induced swelling in the paws and ears of mice [25].

Patchouli essential oil helps to boost up new cell regeneration and reduce the appearance of fine lines and wrinkles. Besides, it provides antibacterial, anti-fungal and antiseptic properties and so this oil acts efficiently in case of severe skin disorders like eczema, dermatitis, psoriasis and acne. It can also treat dry and cracked skin, remove scars, spots etc.

Ultraviolet radiation is extremely responsible for skin damage and ageing. Patchouli essential oil seems to have protective effects towards this harmful radiation. A research found that mice treated with patchouli oil before exposure to ultraviolet radiation had been assessed with potential protective effects [26]. Researchers also found that mice treated with patchouli oil had less wrinkle formation and an increase in collagen content.



Figure 9. Rose.



Figure 10. Patchouli.

Ylang ylang (*Cananga odorata*) essential oil:

Ylang ylang essential oil is recognized as very unique throughout the world due to its amazing as well as rich floral fragrance. It is suitable to all skin types. It can control oil production and thus can prevent breakouts. Ylang ylang

essential oil has some antioxidant effects that facilitate skin cells regeneration. It helps to improve skin elasticity and reduce fine lines [27].

Specifically, ylang ylang essential oil provides potential healing properties; it decreases the number of free radicals while repairing damage to skin's proteins and fats. This oil contains good anti-ageing properties and also can combat skin pigmentation.

Clary sage (*Salvia sclarea*) essential oil:

Clary sage is a sweet-smelling herb, similar to the type of sage, a spice like herb. But it is different in both taste and medicinal uses. The essential oil extracted from it possesses antioxidant properties. A study reported that clary sage essential oil is very much effective to prevent DNA as well as protein damage caused by free radicals [28-29]. Free radicals are the chemicals which are supposed to be responsible for several skin damages [30]. Moreover, clary sage essential oil has astringent properties which give anti-aging benefits to the skin and develop a fresh-looking skin by reducing sagging, fine lines and dark circles. It also has antimicrobial effects.



Figure 11. Ylang ylang.



Figure 12. Clary sage.

Rosemary (*Salvia rosmarinus*) essential oil:

Rosemary is a popular herb with its distinct flavor; it is also very well-known for both its antioxidant and antimicrobial properties. The antioxidants can prevent wrinkles formation

by inhibiting the free radicals from hampering the skin's elasticity. Thus the natural oxidative defenses of rosemary herb may combat free radicals and protect the skin from damage. There was a strong evidence that rosemary essential oil showed significant results in case of reducing free radicals while using at 10 mg/kg doses for seven days [31]. It also possesses good anti-inflammatory as well as analgesic properties. It helps to promote blood circulation and decrease overall inflammation, which cause benefits to skin. The key ingredients of this essential oil, for instance, esters can significantly control the excess sebum.



Figure 13. Rosemary.



Figure 14. Sandalwood.

Sandalwood (*Santalum album*) essential oil:

Sandalwood essential oil has become an inevitable skin care ingredient nowadays because of its excellent anti-inflammatory properties [32]. Therefore, it may be frequently applied for the treatment of certain inflammatory skin diseases [33]. In addition to these properties, sandalwood essential oil can effectively restore moisture to the skin. If the skin retains proper hydration level, one can easily achieve supple, refreshed and plumper skin. Besides, this oil also helps to lessen the appearance of fine lines and wrinkles.

Sandalwood essential oil has astringent effects which enhance fresh-skin cell turnover and decrease dead-skin cell buildup. Hence, it helps to get rid of dull-looking skin and improve the brightness of skin naturally. This essential oil is efficient in reducing blackheads as well as blemishes and also can be used as a remedy for skin rashes, swelling etc.

Chamomile (*Anthemis nobilis*) essential oil:

This essential oil has been used for centuries since it is considered as potential multi-purpose herbal remedy due to its soothing and calming effects. Chamomile oil contains azulene which may enhance moisture and alleviate inflammation. It helps to accelerate wound healing process and also can be used for a wide range of skin conditions like sunburn, boils, psoriasis etc.

Lemon (*Citrus lemon L*) essential oil:

Lemon, like other citrus fruits, is a rich source of vitamin C content which offers extreme health benefits. It can boost our immune system which also develops our skin health. Besides, lemon essential oil is very much beneficial to skin as it is full of powerful ingredients necessary for various skin problems. The essential oil is basically extracted from the peel of lemon fruit. It contains both antioxidant and antimicrobial properties [34]. The high content of vitamin C in lemon oil helps to slow the ageing process; that's why most anti-ageing products nowadays use it in their formulations.

It was noted that lemon essential oil may lessen the damages occurred by oxidation process [35]. It is effective in preventing sun damage, which can lead to wrinkle formation on skin. Lemon essential oil can also fight against inflammation as well as free radicals which are mainly responsible for acne and photo aging [36].



Figure 15. Chamomile.



Figure 16. Lemon.

Pomegranate (*Punica granatum*) essential oil:

Pomegranate is one of the most delicious fruits which offer a variety of health benefits. Like the fruit, its seeds are also beneficial and this is mainly in skin care. The essential oil of pomegranate is found from its seeds and this oil is highly suggested to use in skin care. It has both antioxidant and anti-inflammatory properties that offer healthier and more even skin. Due to high antioxidants, pomegranate essential oil is able to protect the skin from free radicals and enhance new skin cell regeneration. It is also a rich source of vitamin C which helps to boost up collagen production and thus improves skin elasticity. According to research, pomegranate oil can decrease oxidative stress and hence prevents wrinkle formation on skin [37]. Further, this oil can reduce photo aging, sunspots, inflammation and skin cancer cells.



Figure 17. Pomegranate.



Figure 18. Helichrysum.

Helichrysum (*Helichrysum italicum*) essential oil:

Helichrysum is an aromatic flower native to both Asia and Africa. It is known as cousin of the sunflower. The essential oil of this flower offers certain skin care benefits. For instance, the oil has anti-inflammatory and antibacterial properties which are effective in skin healing, especially in case of wounds as well as scars. It has been reported that helichrysum essential oil contains an anti-inflammatory substance named as arzanol which promotes wound healing process [38]. It also has powerful antioxidants that increase cell regeneration and combat against free radicals and thus can prevent skin scars [39].

Moreover, helichrysum essential oil is one of the most

potent and trustworthy essential oils that may be perfect for removing age spots, scars, wrinkles, infections, rashes etc. by increasing cell turnover and collagen production. Another study found that this oil can impart both anti-inflammatory and antiseptic properties that are very much helpful for people undergoing surgery [40].

Lemongrass (*Cymbopogon citratus*) essential oil:

Lemongrass is a tropical, grassy plant mainly used in cooking and herbal medicine. Besides, it has great skin care benefits too. Its essential oil can be derived from the leaves and stalks of the plant. The oil contains a powerful, citrus scent. Nowadays, this oil is being randomly used in various skin care formulations because of having specific scent as well as several astringent properties.

Lemongrass essential oil can fight against pimples since it is considered as a good antimicrobial agent. It is also very much effective to exfoliate dead skin cells. This essential oil renders both antibacterial and anti-fungal properties which makes it a multi-purpose powerhouse in case of skin. Moreover, lemongrass essential oil provides anti-aging properties and can treat signs of skin aging, it also serves as a natural antioxidant too [41].

Peppermint (*Mentha piperita*) essential oil:

The essential oil found from peppermint herb has a great potential in the era of cosmetic field, especially as skin care ingredients. This is mainly for its cooling as well as soothing effect since peppermint oil comprises of 30 to 50 percent menthol. It has antiseptic and antibacterial properties and can naturally cleanse skin. The cooling effect of peppermint essential oil helps to reduce irritation and inflammation due to acne. Its antimicrobial properties can diminish acne causing bacteria which helps to treat pimple.

Peppermint essential oil is highly effective in case of itching due to bug bites, hives and poison ivy. It also gives relief from itching related to diabetes, liver disease and kidney disease. Hence, this essential oil is recognized as a true skin saver. Peppermint essential oil helps to lessen the severity of pruritus which is a chronic itchy skin condition, and soothe irritation [42].



Figure 19. Lemongrass.



Figure 20. Peppermint.

Borage (*Borago officinalis*) Oil:

Borage oil is produced from the seeds of the *Borago officinalis* plant. It is rich in essential fatty acids that have great importance in the structure and function of skin [43]. The linoleic acid content of borage oil renders its therapeutic actions in AD. When applied topically in infants and children having seborrheic dermatitis or AD, borage oil has been shown to improve skin barrier function [44].

Another study revealed that borage oil has both antioxidant and anti-inflammatory effects which serve benefits to people with atopic dermatitis [5]. It accelerates skin cell action and enhances regeneration of the skin. The high amount of gamma-linoleic acid (GLA) helps to treat the skin problems, especially hypersensitivities, dermatitis, irritation and inflammation. Borage oil also can penetrate through the skin effectively and thus provides extreme benefits to a wide range of skin such as dry, mature, dehydrated and premature aging skin [45].

Bitter Apricot (*Prunus armeniaca*) Oil:

Bitter apricot oil is extracted from the seed of *Semen Armeniaca amarum* using hydro-distillation method. In Eastern medicine, this oil has been traditionally used to cure skin diseases. Researches showed that bitter apricot oil induced apoptosis of HaCaT cells through both death receptor and mitochondrial pathways. Apoptosis correlates with inhibition of the NF- κ B pathway. It has been also found that bitter apricot oil can be a potential candidate for psoriasis treatment given its pro-apoptotic effect on human keratinocytes [46].

Turmeric essential oil (*Curcuma longa*):

The sunset-yellow spice, scientifically known as *Curcuma longa*, has antimicrobial and antioxidant properties which help to cure several skin diseases e.g. psoriasis, eczema, hyperpigmentation etc. It has anti-inflammatory as well as anti-allergic activities too. It also helps in wound healing. Turmeric essential oil is recognized as great rejuvenator of skin that helps to revitalize skin and delay the signs of aging like wrinkles [47].

The main active ingredient found from turmeric essential oil is curcumin which contains anti-inflammatory enzymes

that can combat cell production and reduce uncomfortable skin patches. This essential oil is also efficient to lessen the dark spots of skin and thus helps to brighten skin shade. A study has been revealed that turmeric oil used in lotion formulation can brighten skin within three weeks with results that last just as long [48]. Again from research, it is found that both topical and oral curcumin can improve symptoms of plaque psoriasis in 9–12 weeks. [49].



Figure 21. Borage.



Figure 22. Bitter apricot.

Neem (*Azadirachta indica*) essential oil:

Neem oil derives from the fruits and seeds of the neem tree. It offers a number of benefits when applied to the skin [50]. Because the oil contains several fatty acids as well as antioxidants which are highly efficient for the skin. The fatty acids found from neem essential oil are palmitic, linoleic and oleic acids [51] which provide healthy, supple skin [52]. Therefore, it is considered as a popular ingredient in skin care products.

It has been reported in studies that neem oil renders medicinal uses by treating a variety of skin diseases like acne, psoriasis, eczema etc [50]. It also has anti-aging effects and helps to combat symptoms of skin aging e.g. wrinkles, skin, thickening and redness of skin [53]. Another study showed that cosmetic products containing neem compounds provide antibacterial properties. The authors reported that soaps containing extracts of neem leaf or neem bark prevented the growth of several strains of bacteria [54]. Moreover, neem oil can treat nail fungus and also helps to soften the skin [55].



Figure 23. Turmeric.



Figure 24. Neem.

3. Conclusion

Interest of using skin care cosmetics by people are rapidly increasing. For this reason, cosmetics industries are developing at enhancing rate world-wide. Here, herbal formulations are getting priorities nowadays due to the excess demands of the customers. This is really appreciable since chemical formulations are being discouraged; hence safer world would be attained with lesser environmental pollution. Essential oils applied in herbal skin care formulations have become a popular trend at recent years because of their excellent effects on skin, for instance, these oils help to cure variety of skin ailments-acne, pimple, eczema, psoriasis etc. and offer healthy, glowing as well as younger looking skin. Moreover, further researches will be highly encouraged in this field as some essential oils show skin allergy or other irritations. Thus better way of application of essential oils in cosmetics and investigation of further herbs having potential effects will be possible.

References

[1] Kapoor VP. Herbal cosmetics for skin and hair care. *Nat Prod Radiance* 2005; 4: 306-14.

- [2] Gediya SK, Mistry RB, Patel UK, Blessy M, Jain HN. Herbal plants: Used as a cosmetics. *J Nat Prod Plant Resour* 2011; 1: 24-32.
- [3] Valerón-Almazán, P., Gómez-Duaso, A. J., Santana-Molina, N., García-Bello, M. A. and Carretero, G., 2015. Evolution of Post-Surgical Scars Treated with Pure Rosehip Seed Oil. *Journal of Cosmetics, Dermatological Sciences and Applications*, 5 (02), p. 161.
- [4] Phetcharat, L., Wongsuphasawat, K. and Winther, K., 2015. The effectiveness of a standardized rose hip powder, containing seeds and shells of *Rosa canina*, on cell longevity, skin wrinkles, moisture, and elasticity. *Clinical interventions in aging*, 10, p. 1849.
- [5] Lin, T. K., Zhong, L. and Santiago, J. L., 2018. Anti-inflammatory and skin barrier repair effects of topical application of some plant oils. *International journal of molecular sciences*, 19 (1), p. 70.
- [6] Ksouri, A., Dob, T., Belkebir, A., Krimat, S. and Chelghoum, C., 2015. Chemical composition and antioxidant activity of the essential oil and the methanol extract of Algerian wild carrot *Daucus carota* L. ssp. *carota*. (L.) Thell. *J Mater Environ Sci*, 6 (3), pp. 784-91.
- [7] Singh, S., Lohani, A., Mishra, A. K. and Verma, A., 2019. Formulation and evaluation of carrot seed oil-based cosmetic emulsions. *Journal of Cosmetic and Laser Therapy*, 21 (2), pp. 99-107.
- [8] Hamidpour, R., Hamidpour, S., Hamidpour, M. and Shahlari, M., 2013. Frankincense (乳香 Rǔ Xiāng; *Boswellia* species): from the selection of traditional applications to the novel phytotherapy for the prevention and treatment of serious diseases. *Journal of traditional and complementary medicine*, 3 (4), pp. 221-226.
- [9] Mikhaeil, B. R., Maatooq, G. T., Badria, F. A. and Amer, M. M., 2003. Chemistry and immunomodulatory activity of frankincense oil. *Zeitschrift für Naturforschung C*, 58 (3-4), pp. 230-238.
- [10] Boukhatem, M. N., Kameli, A., Ferhat, M. A., Saidi, F. and Mekarnia, M., 2013. Rose geranium essential oil as a source of new and safe anti-inflammatory drugs. *Libyan Journal of Medicine*, 8 (1).
- [11] Orchard, A. and van Vuuren, S., 2017. Commercial essential oils as potential antimicrobials to treat skin diseases. *Evidence-Based Complementary and Alternative Medicine*, 2017.
- [12] Sinha, P., Srivastava, S., Mishra, N. and Yadav, N. P., 2014. New perspectives on antiacne plant drugs: contribution to modern therapeutics. *BioMed research international*, 2014.
- [13] Cardia, G. F. E., Silva-Filho, S. E., Silva, E. L., Uchida, N. S., Cavalcante, H. A. O., Cassarotti, L. L., Salvadego, V. E. C., Spironello, R. A., Bersani-Amado, C. A. and Cuman, R. K. N., 2018. Effect of lavender (*Lavandula angustifolia*) essential oil on acute inflammatory response. *Evidence-Based Complementary and Alternative Medicine*, 2018.
- [14] Mori, H. M., Kawanami, H., Kawahata, H. and Aoki, M., 2016. Wound healing potential of lavender oil by acceleration of granulation and wound contraction through induction of TGF- β in a rat model. *BMC complementary and alternative medicine*, 16 (1), p. 144.

- [15] Hancianu, M., Cioanca, O., Mihasan, M. and Hritcu, L., 2013. Neuroprotective effects of inhaled lavender oil on scopolamine-induced dementia via anti-oxidative activities in rats. *Phytomedicine*, 20 (5), pp. 446-452.
- [16] Marín, I., Sayas-Barberá, E., Viuda-Martos, M., Navarro, C. and Sendra, E., 2016. Chemical composition, antioxidant and antimicrobial activity of essential oils from organic fennel, parsley, and lavender from Spain. *Foods*, 5 (1), p. 18.
- [17] Ao, Y., Satoh, K., Shibano, K., Kawahito, Y. and Shioda, S., 2008. Singlet oxygen scavenging activity and cytotoxicity of essential oils from rutaceae. *Journal of Clinical Biochemistry and Nutrition*, 43 (1), pp. 6-12.
- [18] Ashry, K. M., El-Sayed, Y. S., Khamiss, R. M. and El-Ashmawy, I. M., 2010. Oxidative stress and immunotoxic effects of lead and their amelioration with myrrh (*Commiphora molmol*) emulsion. *Food and Chemical toxicology*, 48 (1), pp. 236-241.
- [19] Haffor, A. S. A., 2010. Effect of myrrh (*Commiphora molmol*) on leukocyte levels before and during healing from gastric ulcer or skin injury. *Journal of immunotoxicology*, 7 (1), pp. 68-75.
- [20] Carson, C. F., Hammer, K. A. and Riley, T. V., 2006. Melaleuca alternifolia (tea tree) oil: a review of antimicrobial and other medicinal properties. *Clinical microbiology reviews*, 19 (1), pp. 50-62.
- [21] Hammer, K. A., 2015. Treatment of acne with tea tree oil (melaleuca) products: a review of efficacy, tolerability and potential modes of action. *International journal of antimicrobial agents*, 45 (2), pp. 106-110.
- [22] Boskabady, M. H., Shafei, M. N., Saberi, Z. and Amini, S., 2011. Pharmacological effects of Rosa damascena. *Iranian journal of basic medical sciences*, 14 (4), p. 295.
- [23] Fukada, M., Kano, E., Miyoshi, M., Komaki, R. and Watanabe, T., 2012. Effect of "rose essential oil" inhalation on stress-induced skin-barrier disruption in rats and humans. *Chemical senses*, 37 (4), pp. 347-356.
- [24] Mohebitabar, S., Shirazi, M., Bioos, S., Rahimi, R., Malekshahi, F. and Nejatbakhsh, F., 2017. Therapeutic efficacy of rose oil: A comprehensive review of clinical evidence. *Avicenna journal of phytomedicine*, 7 (3), p. 206.
- [25] Liang, J. L., Wu, J. Z., Liu, Y. H., Zhang, Z. B., Wu, Q. D., Chen, H. B., Huang, Y. F., Dou, Y. X., Zhou, J. T., Su, Z. R. and Zhan, J. Y. X., 2017. Patchoulene epoxide isolated from patchouli oil suppresses acute inflammation through inhibition of NF- κ B and downregulation of COX-2/iNOS. *Mediators of Inflammation*, 2017.
- [26] Lin, R. F., Feng, X. X., Li, C. W., Zhang, X. J., Yu, X. T., Zhou, J. Y., Zhang, X., Xie, Y. L., Su, Z. R. and Zhan, J. Y. X., 2014. Prevention of UV radiation-induced cutaneous photoaging in mice by topical administration of patchouli oil. *Journal of ethnopharmacology*, 154 (2), pp. 408-418.
- [27] Tan, L. T. H., Lee, L. H., Yin, W. F., Chan, C. K., Abdul Kadir, H., Chan, K. G. and Goh, B. H., 2015. Traditional uses, phytochemistry, and bioactivities of Cananga odorata (Ylang-Ylang). *Evidence-Based Complementary and Alternative Medicine*, 2015.
- [28] Gülçin, I., UĞUZ, M. T., Oktay, M., Beydemir, Ş. and KÜFREVOĞLU, Ö. İ., 2004. Evaluation of the antioxidant and antimicrobial activities of clary sage (*Salvia sclarea* L.). *Turkish Journal of Agriculture and Forestry*, 28 (1), pp. 25-33.
- [29] Pop, A., Tofană, M., Socaci, S. A., Pop, C., Rotar, A. M. and Salantă, L., 2016. Determination of antioxidant capacity and antimicrobial activity of selected *Salvia* species. *Bull. UASVM Food Sci. Technol*, 73, pp. 14-18.
- [30] Poljšak, B. and Dahmane, R., 2012. Free radicals and extrinsic skin aging. *Dermatology research and practice*, 2012.
- [31] Rašković, A., Milanović, I., Pavlović, N., Čebović, T., Vukmirović, S. and Mikov, M., 2014. Antioxidant activity of rosemary (*Rosmarinus officinalis* L.) essential oil and its hepatoprotective potential. *BMC complementary and alternative medicine*, 14 (1), p. 225.
- [32] Dwivedi, C. and Abu-Ghazaleh, A., 1997. Chemopreventive effects of sandalwood oil on skin papillomas in mice. *European journal of cancer prevention: the official journal of the European Cancer Prevention Organisation (ECP)*, 6 (4), pp. 399-401.
- [33] Sharma, M., Levenson, C., Browning, J. C., Becker, E. M., Clements, I., Castella, P. and Cox, M. E., 2018. East Indian sandalwood oil is a phosphodiesterase inhibitor: A new therapeutic option in the treatment of inflammatory skin disease. *Frontiers in Pharmacology*, 9, p. 200.
- [34] Hsouna, A. B., Halima, N. B., Smaoui, S. and Hamdi, N., 2017. Citrus lemon essential oil: chemical composition, antioxidant and antimicrobial activities with its preservative effect against *Listeria monocytogenes* inoculated in minced beef meat. *Lipids in health and disease*, 16 (1), p. 146.
- [35] Calabrese, V., Scapagnini, G., Randazzo, S. D., Randazzo, G., Catalano, C., Geraci, G. and Morganti, P., 1999. Oxidative stress and antioxidants at skin biosurface: a novel antioxidant from lemon oil capable of inhibiting oxidative damage to the skin. *Drugs under experimental and clinical research*, 25 (6), pp. 281-287.
- [36] Maurya, A. K., Mohanty, S., Pal, A., Chanotiya, C. S. and Bawankule, D. U., 2018. The essential oil from Citrus limetta Risso peels alleviates skin inflammation: In-vitro and in-vivo study. *Journal of ethnopharmacology*, 212, pp. 86-94.
- [37] Zarfeshany, A., Asgary, S. and Javanmard, S. H., 2014. Potent health effects of pomegranate. *Advanced biomedical research*, 3.
- [38] Appendino, G., Ottino, M., Marquez, N., Bianchi, F., Giana, A., Ballero, M., Sterner, O., Fiebich, B. L. and Munoz, E., 2007. Arzanol, an anti-inflammatory and anti-HIV-1 phloroglucinol α -pyrone from *Helichrysum italicum* ssp. *microphyllum*. *Journal of natural products*, 70 (4), pp. 608-612.
- [39] Popoola, O. K., Marnewick, J. L., Rautenbach, F., Ameer, F., Iwuoha, E. I. and Hussein, A. A., 2015. Inhibition of oxidative stress and skin aging-related enzymes by prenylated chalcones and other flavonoids from *Helichrysum teretifolium*. *Molecules*, 20 (4), pp. 7143-7155.
- [40] Stea, S., Beraudi, A. and De Pasquale, D., 2014. Essential oils for complementary treatment of surgical patients: state of the art. *Evidence-Based Complementary and Alternative Medicine*, 2014.
- [41] Leelapornpisid, P., Wickett, R. R., Chansakaow, S. and Wongwattananukul, N., 2015. Potential of native Thai aromatic plant extracts in antiwrinkle body creams. *Journal of cosmetic science*, 66 (4), pp. 219-231

- [42] Elsaie, L. T., El Mohsen, A. M., Ibrahim, I. M., Mohey-Eddin, M. H. and Elsaie, M. L., 2016. Effectiveness of topical peppermint oil on symptomatic treatment of chronic pruritus. *Clinical, Cosmetic and Investigational Dermatology*, 9, p. 333.
- [43] Wright, S., 1991. Essential fatty acids and the skin. *British Journal of Dermatology*, 125 (6), pp. 503-515.
- [44] Tolleson, A. and Frithz, A., 1993. Transepidermal water loss and water content in the stratum corneum in infantile seborrheic dermatitis. *Acta dermato-venereologica*, 73 (1), p. 18.
- [45] Korać, R. R. and Khambholja, K. M., 2011. Potential of herbs in skin protection from ultraviolet radiation. *Pharmacognosy reviews*, 5 (10), p. 164.
- [46] Li, K., Yang, W., Li, Z., Jia, W., Li, J., Zhang, P. and Xiao, T., 2016. Bitter apricot essential oil induces apoptosis of human HaCaT keratinocytes. *International immunopharmacology*, 34, pp. 189-198.
- [47] Kumar, K. K., Sasikanth, K., Sabareesh, M. and Dorababu, N., 2011. Formulation and evaluation of diacerein cream. *Asian J Pharm Clin Res*, 4 (2), pp. 93-98.
- [48] Srivilai, J., Phimmuan, P., Jaisabai, J., Luangtoomma, N., Waranuch, N., Khorana, N., Wisuitiprot, W., Scholfield, C. N., Champachaisri, K. and Ingkaninan, K., 2017. Curcuma aeruginosa Roxb. essential oil slows hair-growth and lightens skin in axillae; a randomised, double blinded trial. *Phytomedicine*, 25, pp. 29-38.
- [49] Sarafian, G., Afshar, M., Mansouri, P., Asgarpanah, J., Raoufinejad, K. and Rajabi, M., 2015. Topical turmeric microemulgel in the management of plaque psoriasis; a clinical evaluation. *Iranian journal of pharmaceutical research: IJPR*, 14 (3), p. 865.
- [50] Kumar, V. S. and Navaratnam, V., 2013. Neem (*Azadirachta indica*): Prehistory to contemporary medicinal uses to humankind. *Asian Pacific journal of tropical biomedicine*, 3 (7), pp. 505-514.
- [51] Kaushik, N. and Vir, S., 2000. Variations in fatty acid composition of neem seeds collected from the Rajasthan state of India.
- [52] Berbis, P., Hesse, S. and Privat, Y., 1990. Essential fatty acids and the skin. *Allergie et immunologie*, 22 (6), p. 225.
- [53] Ngo, H. T., Hwang, E., Seo, S. A., Park, B., Sun, Z. W., Zhang, M., Shin, Y. K. and Yi, T. H., 2017. Topical application of neem leaves prevents wrinkles formation in UVB-exposed hairless mice. *Journal of Photochemistry and Photobiology B: Biology*, 169, pp. 161-170.
- [54] Okoh, S. O., Okoh, O. O. and Okoh, A. I., 2019. Inhibitory effects of *Azadirachta indica* secondary metabolites formulated cosmetics on some infectious pathogens and oxidative stress radicals. *BMC complementary and alternative medicine*, 19 (1), p. 123.
- [55] Hashmat, I., Azad, H. and Ahmed, A., 2012. Neem (*Azadirachta indica* A. Juss)-A nature's drugstore: an overview. *Int Res J Biol Sci*, 1 (6), pp. 76-79.