

## **SKIN CARE- THE NATURAL WAY**

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## Abstract

Skin care is part of health and well-being, depending on lifestyle, environment, and age. The use of natural oils in skincare has gained significant attention from researchers and dermatologists alike, as they offer numerous advantages for skin health and appearance. Over the past few years, facial oils have evolved from being specialized items to becoming vital parts of numerous skincare routines. Sourced from various plants, these oils provide a wide range of advantages, including intense moisturization and anti-aging properties. These oils are a rich blend of essential fatty acids, vitamins, and antioxidants, which work synergistically to nourish, protect and rejuvenate the skin. Understanding their characteristics, helps a user to integrate them into their skincare routine, to achieve glowing and healthy skin. The growing interest in natural skincare solutions has led to increased research and clinical studies exploring the efficacy of these oils in treating various skin conditions, and protecting against environmental damage. This review summarizes the potential of natural skincare oils as a health-oriented and feasible method for the prevention and treatment of skin diseases.

**Keywords:** skincare, plant-based oils, essential oil, carrier oil, anti-aging

## Introduction

The largest organ in our body, our skin, serves purposes other than warmth. This affects our appearance and how we feel, serves as a shield, and helps us breathe. People from ancient civilizations, including Egypt, Greece, and India, used plant-based oils for skincare for millennia and found them to be efficient in calming and healing the skin. Synthetic cosmetics are popular and readily available. Many of these products, can aggravate skin issues, including irritation. Therefore, there is an increasing trend of people looking for natural substitutes that are safer for the environment and skin. <sup>[1]</sup> Natural oils are both emollients (smoothing the skin) and moisturizers, acting as both occlusives, which form a barrier to lower water loss. Essential oils have anti-inflammatory, antibacterial, and wound-healing properties. Their popularity stems from growing consumer demand in cosmetics for "clean" and botanical components. Compared to petroleum-based oils, natural oils are matched with traditional mineral oil-based moisturizers. Although petroleum-based products are stable and efficient occlusives, they lack the bioactive properties of plant oils. <sup>[2]</sup>

Depending on their fatty acid content, some natural oils can upset the skin barrier and cause opposite reactions, including irritation or increased water loss. Formulating difficulties also arise from variations in the oil composition and possible allergenicity or oxidation tendencies.

## **Use of Essential Oils in Ancient Civilizations**

### ***Ancient Egypt***

Egyptians were pioneers in the utilization of essential oils. They made use of aromatic plants, such as frankincense, myrrh, and cedarwood, for almost every purpose. These high-energy oils were used to preserve corpses while mummifying, perform important roles in spiritual rituals, and were mixed into exquisite perfumes and ointments for beauty and spiritual purification.

### ***Ancient China***

More than 2,000 years ago, the Chinese were already employing aromatherapy. Herb oils, such as cinnamon, ginger, and sandalwood, have been utilized to balance qi (life energy) in traditional medicine. These herbal remedies aid mental health, treat skin problems, and contribute to increased overall vitality.

### ***Ancient India (Ayurveda)***

In India, essential oils were and continue to be a key component of Ayurvedic medicine. Sandalwood, turmeric, and basil oils have been used to cure wounds, calm the mind, and sharpen the focus. They were also used in therapeutic massages (Abhyanga), with oil combinations determined by one's body type (dosha), and in spiritual ceremonies to facilitate meditation and relaxation.

### ***Ancient Greece and Rome***

Influenced by Egyptian wisdom, Romans and Greeks adopted essential oils in their way of life. Hippocrates, the father of medicine, prescribed aromatic baths and steam therapy to avoid illness. Lavender, rosemary, and myrtle oils were applied to clean wounds, soothe the mind, and raise the spirit. The Romans went so far as added fragrant oils to their renowned public baths and incorporated them as an integral component of massage therapy.

### ***Islamic Golden Age***

During this time of great scientific and cultural development, scientists such as Avicenna (Ibn Sina) developed distillation methods to yield pure essential oils, such as renowned rose oil.

These oils have been extensively applied in medicine, cosmetics, perfumery, and religious rituals, but they also occupy a central position in everyday hygiene and personal care. <sup>[5]</sup>

## **Harmful Effects of Chemical Creams**

### **1. Skin Irritation and Allergies**

Many chemical-based creams are packed with synthetic ingredients, such as preservatives (such as parabens), artificial fragrances, colorants, and solvents. These can easily irritate the skin, causing redness, itching, or even allergic reactions, especially in sensitive skin.

### **2. Hormone Disruption**

Some Common chemicals, such as parabens and phthalates, can mimic hormones in the body. This can result in hormonal balance, and may even affect reproductive health over time.

### **3. Toxic Buildup Over Time**

Using chemical creams daily might not seem harmful at first, but long-term exposure, even to tiny amounts, can lead to the buildup of toxins in the body. The full impact of this is not always clear, but it raises concerns regarding potential long-term health effects.

### **4. Sun Sensitivity**

Of certain ingredients in sunscreens and other skincare products can make the skin more sensitive to sunlight. This can lead to reactions such as rashes or burns when exposed to sunlight.

### **5. Higher Risk for Vulnerable Groups**

babies, pregnant women, and those with skin conditions such as eczema are especially sensitive to the side effects of chemical creams. What is safe for one person might not be the case for someone who is more vulnerable. <sup>[4]</sup>

## Long-Term Benefits of Natural oils

- **Moisturize and help lock in water:** Sunflower oil, coconut, and jojoba oil are some of the natural oils that support your skin barrier function. This means that they trap moisture and retain water in the skin, making it silky, smooth, and elastic.
- **Repairs and Soothes:** All plant oils contain skin-friendly activities such as, vitamin E, polyphenols, and essential fatty acids. These may soothe redness, reduce irritation, and even accelerate skin healing.
- **Gentle on the Skin:** Applied in their natural, unprocessed form, natural oils will not irritate or produce allergic reactions as frequently as products made with long lists of man-made chemicals.
- **Safety:** Although a few chemical components accumulate in the body gradually, natural oils such as those with oleic and linoleic acids are safe to apply repeatedly and do not clog the system.
- **Ideal for Sensitive Skin and Babies:** Some natural oils, including coconut and sunflower oil, are gentle enough for baby skin and have even been used to cure skin conditions, such as eczema. They offer a safe and, calming alternative for anyone with sensitive or compromised skin. <sup>[5]</sup>

## Oils for Skin care

In order to make a transition to natural skincare, “carrier oils” and “essential oils” are good options. These plant oils have been used for centuries to promote healthy, radiant skin-without the use of harsh chemicals. Carrier oils, such as jojoba or coconut oil, are soft, moisturizing foundations that serve to dilute essential oils, rendering them safe for use. Essential oils, however, are extremely concentrated and have therapeutic properties that can treat everything, from acne to wrinkles. Combined, they form a potent and, tailored routine that works synergistically with the skin. Here we look at some of the top picks and the various benefits of different skin concerns and types. <sup>[6]</sup>

## Carrier Oils

Carrier oils are plant-derived oils that are used to dilute essential oils and facilitate safe skin applications. These oils are rich in fatty acids, vitamins, and other nutrients that support skin hydration and nourishment, thereby promoting overall skin health and absorption of essential oils. <sup>[7,8]</sup>

### ***Olive oil***

Olive oil has been used for centuries as a natural method of skin care, and current science is confirming what age-old wisdom has always been known. It is filled with skin-nourishing nutrients, particularly oleic acid, which is a beneficial fat that constitutes most of its makeup. In addition to oleic acid, olive oil contains potent components, such as squalene, vitamin E, and antioxidants that keep the skin supple, moisturized, and shielded from daily wear and tear.<sup>[9]</sup> When used on the skin, olive oil is a barrier that, traps moisture inside and protects the skin from dryness. Antioxidants combat free radicals that cause damage and lead to aging, fine lines, and wrinkles. It is naturally anti-inflammatory, making it a suitable choice for inflamed or sensitive skin. Some studies have indicated that it can help heal wounds and mildly protect against microbes owing, to its phytochemicals.<sup>[10]</sup>

However, this is not a perfect match. Some, especially those with oily or acne-prone skin, can clog pores or cause breakouts. If not stored properly, it can become rancid and irritate the skin. As with any ingredient, using too much can sometimes cause more harm than good.<sup>[10]</sup>

### ***Coconut oil***

Coconut oil is a popular natural ingredient in skincare, and for good reason—it offers a range of benefits that help keep the skin healthy and nourished. Studies have shown that it deeply moisturizes the skin, calms inflammation, and strengthens the natural barrier of the skin. These effects are mainly due to the rich content of medium-chain fatty acids, especially lauric acid, which also provides natural antimicrobial properties.<sup>[11]</sup>

Research also supports its use as a gentle, everyday moisturizer. Coconut oil helps the skin retain moisture, encourages barrier repair, and can be especially helpful for dry skin conditions, such as eczema and xerosis. Owing to its light weight and easy absorption, it is well suited for daily use in most skin types.<sup>[12]</sup>

In short, coconut oil not only hydrates and protects the skin, but also causes irritation and helps defend against harmful microbes, making it a simple yet powerful choice for natural skincare.

### ***Jojoba oil***

Jojoba oil, which is derived from the seeds of the \*Simmondsia chinensis\* plant, is a skin care miracle worker owing to its unique attributes. While oils are technically oils, jojoba oil is more of a liquid wax ester, and closely resembles natural oils produced by skin. Therefore, it is

amazingly well suited for regulating oil production, with no danger of clog-forced pores, a great bonus for oily or acne skin.<sup>[13]</sup>

Joboba oil is an anti-inflammatory and calming oil that is filled with essential fatty acids, vitamins B, and E. It calms angry skin and helps to repair the barrier function of the skin; therefore, it is ideal for eczema or psoriasis. Its antimicrobial action provides an additional protective layer.<sup>[13,14]</sup>

One of the best aspects of jojoba oil is how lightweight it is; therefore, it is easily absorbed into the skin without leaving behind a greasy residue. For this reason, it is popular in all kinds of skincare products, from moisturizing creams and facial cleansers to serum. It is such an appropriate skin affinity and adaptability that it is the perfect addition to whatever skin care routine someone might be looking for, whether in pursuit of everyday moisturizing or treatment for a specific condition.<sup>[14]</sup>

### ***Almond oil***

Almond oil is an active dermatological ingredient with great moisturizing effects and is, best utilized for sensitive and dry skin. Fatty acids and antioxidants are present, which nourish and calm skin. Jojoba oil almost ideally duplicates natural skin oils, and hence can regulate moisture and support the integrity of the barrier of the skin. Evening primrose oil and gamma-linolenic acid (GLA) are effective reducing inflammation and improving skin elasticity. Together, these oils soften, repair, and protect skin from environmental damage. They are age-proof because they improve collagen production and prevent oxidative injury.<sup>[15]</sup>

### ***Grapeseed oil***

Grapeseed oil is also stepping into limelight as a star ingredient in skincare, and it is not a moment too soon. It contains antioxidants, such as vitamin E and polyphenols, which fight against skin-aging free radicals. This makes it important to reduce fine lines, firming up the tautness of the skin, and imparting a youthful sheen to the skin. Experiments have confirmed that grapeseed oil, when used in the form of a nano emulsion, penetrates deeper into the skin, maximizing its anti-aging properties.<sup>[16]</sup>

What is even more impressive is how eco-friendly it is: grapeseed oil is typically produced from waste products in wineries, recycling trash into a valuable, green skin care ingredient. Another study has shown that encapsulating the grapeseed extract can further improve its

efficacy and stability in skin care, so it performs even better in keeping the skin healthy and defending it. <sup>[17]</sup>

Collectively, these results show that grapeseed oil not only maintains skin in a healthy and glowing condition but is also seamlessly integrated into the green, science-driven world of skincare. <sup>[16,17]</sup>

### ***Avocado Oil***

Avocado oil is a powerful moisturizer with numerous skin benefits because it contains very high levels of vitamins A, D, and E, and essential fatty acids. Avocado oil helps the water barrier of the skin and is thus best for dry or damaged skin. It has also been revealed to have a positive effect on collagen metabolism, healthy skin elasticity, and minimize the visibility of fine wrinkles. <sup>[19]</sup> Further data also show, that mixing avocado oil and green tannins improves its antioxidant as well as anti-inflammatory effects with extra protection from UV rays. <sup>[18]</sup> This not only turns avocado oil into an excellent natural moisturizer but also into a very useful ingredient for anti-aging and sun care cosmetics. Its gentle and calming nature makes it a suitable choice for application to reactive and sensitive skin types. <sup>[19]</sup>

### ***Castor oil***

Castor oil is a highly active natural skincare ingredient, particularly in dry and, irritated skin. Its primary component, ricinoleic acid, is also high during hydration, creating a barrier shield that holds moisture and repels moisture loss. Therefore, castor oil is particularly beneficial in terms of flakiness, dry spots, and roughness. <sup>[20]</sup> In addition to hydration, castor oil contains anti-inflammatory ingredients that cause irritation and soften redness. In addition, its weak antimicrobial action heals and prevents infection in minor skin breakouts or abrasions, softening the skin and, making it smooth and well-hydrated. <sup>[21]</sup>

### ***Apricot Kernel Oil***

Apricot kernel oil, produced from apricot seeds, is an excellent natural ingredient of skincare. Rich in essential fatty acids, vitamins A, C, and E, and antioxidants, it intensely moisturizes and hydrates the skin. It enhances the elasticity of the skin, giving the skin a smoother, younger appearance, by stimulating collagen production. It also possesses anti-inflammatory properties; therefore, it is ideal for calming dry or inflamed skin, eczema, and psoriasis. Its gentle texture absorbs easily, and the skin is smooth, soft, and not greasy. <sup>[22]</sup>

### ***Rosehip Oil***



Rosehip oil has become an ideal active ingredient for skincare cosmetics because of its unrivaled actions. Rosehip fruit seeds produce it with vitamins A and C and essential fatty acids that synergistically interact to feed and reconstruct the skin. It can erase scars from view, firm, and unify complexion, and trigger the growth of collagen for elasticity advantages and erasure of fine lines. In addition, rosehip oil contains calming anti-inflammatory compounds that are specifically designed to calm irritated or sensitive skin and treat conditions such as acne and sunburn.<sup>[23]</sup> The purification processes of essential oils also contribute to the improvement of the quality and efficacy of rosehip oil and, consequently, its use in dermato-cosmetic products.<sup>[24]</sup>

### ***Shea butter***

Shea butter is an ultra-moisturizing natural ingredient that has also gained popularity in popular skincare as the main player against dry, flared-up, or harmed skin. Shea butter is packed with skin-moisturizing fatty acids oleic and stearic acid and, vitamins A and E, and it profoundly moisturizes and protects the skin from daily environmental stress.<sup>[25]</sup> What makes it a special advantage is that it possesses a natural capacity for soothing inflammation and facilitating the healing process, hence making it a gentle yet efficient treatment for sensitive skin.<sup>[25]</sup>

In a human skin cell study, a cream containing shea butter, silkflo, and vitamin E was found to possess excellent moisturizing and antioxidant properties. It not only moisturizes the skin, but also protects it from oxidative damage, which accelerates aging and compromises the skin barrier.<sup>[26]</sup> All of these characteristics make shea butter an excellent ingredient for maintaining skin health, smoothness, and strength.

### ***Cocoa butter***

Cocoa butter is not just a treatment in your desserts, it is also a very moisturizing face in cosmetics. Made from cocoa beans, it's full of natural nutrients like polyphenols, flavonoids, and healthy fats that do your skin a lot of good. These antioxidants keep the skin soft and hydrated, and create a shield that traps moisture inside and protects against harsh environmental stressors.<sup>[27]</sup> Cocoa butter is full of antioxidants that fight free radicals behind premature aging. Cocoa butter also contains calming, anti-inflammatory agents that can help ease redness and irritation, making it especially suitable for sensitive skin. When applied to dry areas to moisturize them or give your face a healthy glow, cocoa butter provides soothing relief and TLC to the skin with every application.<sup>[27]</sup>

## Essential Oils

Essential oils are concentrated plant extracts with potent bioactive compounds that are, primarily used in aromatherapy, cosmetics, and pharmaceuticals. They offer a wide range of therapeutic benefits, such as antimicrobial, anti-inflammatory, and antioxidant effects, making them highly beneficial for skin health. <sup>[6,7]</sup> Since these oils can cause skin irritation or sensitization, they are diluted with a carrier oil prior to application

### *Lavender Oil*

Lavender oil is a favorite in natural skin care owing to its calming scent and skin-calming properties. Soothing but potent perfect for calming agitated or sensitive skin, de-puffing redness, and even fighting breakouts. <sup>[28]</sup> Its antibacterial effects also make it helpful in the prevention of skin clogging, and its calming nature makes it perfect for dry or sensitive skin. <sup>[29]</sup> It has also been applied to treat the skin, thus making it an appropriate solution for tiny pimples or puffed-up parts. The sensitive floral fragrance is a soothing way to enhance your day, while the oil itself quietly revives and reconditions the skin to be silky, soft, and excellently cared for. <sup>[29]</sup>

### *Tea Tree oil (Melaleuca oil)*

Tea tree oil is a top natural skincare staple, especially for oily- or acne-prone skins. Owing to its strong but skin-friendly antibacterial and anti-inflammatory ingredients, it calms breakouts, reduces redness, and eradicates blemishes without drying out the skin. <sup>[31]</sup> It is a calming reset button for troubled skin.

In addition to its use in acne, tea tree oil is also an anti-inflammatory agent that, helps wounds to heal when slightly injured and soothes over flare-ups of eczema. <sup>[30]</sup> Used in a face wash or individually in the form of a spot treatment, it is a soothing, cleansing boost to healthier skin.

### *Geranium oil*

Geranium oil, which is obtained from \*Pelargonium graveolens\* and \*Pelargonium roseum\*, is increasingly being used in oral care and skin. Its anti-inflammatory and antimicrobial properties, found naturally in the oil, indicate that it is a great option for oral health, destruction of germs, and periodontal diseases. <sup>[32]</sup> But that is not all to which it is utilized—geranium oil on the skin is calming and can be utilized to deal with concerns such as acne and inflammation, and the skin will feel in harmony and refreshed. <sup>[33]</sup>

In addition to its therapeutic use, geranium oil contains antioxidants that can protect the skin from damage and aging. Geranium oil tightens the skin, erases aging, and delivers radiance.<sup>[34]</sup> As a natural and multi-purpose means of application within the oral cavity or as a skin care routine, geranium oil is an option for accessible wellness.

### ***Frankincense essential oil***

Frankincense essential oil is rapidly becoming a hit in skincare because of its ability to hydrate and maintain healthy skin. Research confirms that it increases the growth of dermal fibroblasts, the skin cells that firm up the skin, and gives it a youthful appearance.<sup>[35]</sup> This makes it perfect for texture improvement, reduction of fine lines, and general skin healing.

In addition, frankincense oil has anti-inflammatory and antioxidant soothing properties that tend to soothe irritable skin and protect it from environmental stress. Regardless of the reason for wanting to boost natural healing of the skin or to address signs of aging, frankincense oil is an excellent natural ingredient that can be added to any regimen.<sup>[35]</sup>

### ***Rose oil***

Rose essential oil has long been celebrated for its remarkable benefits in skincare treatment. When packed with compounds such as flavonoids, phenolic acids, and vitamins, it deeply nourishes and hydrates the skin while offering soothing relief. Its anti-inflammatory, antioxidant, and antiseptic properties make it particularly helpful for sensitive skin, reducing irritation, and promoting a glowing, youthful complexion.<sup>[36]</sup>

Rose hydrolate, also known as Rosa flower water, is another wonderful addition to skincare, particularly for those with sensitive skins. It gently hydrates, calms, and provides much-needed soothing.<sup>[38]</sup> Beyond skincare, rose petals and other parts of the plant are being embraced in culinary and health products, offering an extra layer of wellness benefits.<sup>[37]</sup>

Overall, rose-based products, from essential oil to hydrolate and even the petals, work together to create a beautiful, natural skincare routine that leaves the skin feeling nourished, balanced, and radiant.<sup>[38]</sup>

### ***Carrot Seed Oil***

Carrot seed oil is one of the best skincare products based on its highest level of quality, yielding radiant, healthy-looking skin. It contains antioxidants, fatty acids, and vitamins, which age the skin, wipe out wrinkles, and tighten the elasticity of the skin. It is also superior in terms of radiance to the complexion by protecting the skin from environmental stress and damage.<sup>[39]</sup>

Carrot seed oil in cosmetic emulsions is a miracle as far as moisturizing, particularly dry or sensitive skin, is concerned. It is well known for its anti-inflammatory and soothing properties, calming red skin, and excluding pimples. <sup>[40]</sup>

In cosmetics, carrot seed oil not only moisturizes but also introduces a natural glow to the skin; hence, it is a perfect ingredient for most products that aimed to moisturize the skin in a bid to keep it young and healthy.

### ***Patchouli oil***

Patchouli oil has recently come under intense scrutiny in skin care, particularly when used to create peel-off masks to fight acne. Owing to its antibacterial properties, patchouli oil combats acne bacteria, reduces inflammation, and makes the skin clearer and healthier. Used in conjunction with peel-off masks, it not only fights acne, but also calms the skin, making it an excellent product for those experiencing breakouts. <sup>[41]</sup>

Another revolutionary product, patchouli oil, was mixed with drumstick oil (*Moringa oleifera*) to create a highly moisturizing body cream. The powerful blend repairs moisture, smooths out the skin texture, and softens and smooths the skin. Mixing these two oils provides nutrition and strengthens the skin barrier against water loss, thus making it very effective for dry or rough skin. <sup>[42]</sup> These products illustrate how patchouli oil can be a standalone, effective ingredient utilized in a range of skincare uses.

### ***Sandalwood Oil***

Sandalwood oil has become a popular active component in skin care, especially in the treatment of signs of aging. Owing to its very high antioxidant activity, it can reduce wrinkles, soften the skin, and normalize skin tone. <sup>[45]</sup> Sandalwood oil use over time can also protect the skin from environmental damage, thereby being a good ally in anti-aging skin care. <sup>[43]</sup>

Beyond anti-aging, sandalwood oil is a miracle in a bottle that accelerates the skin to shed dead cells, paving the way for a healthier and more youthful complexion. Empirical evidence has proven that it supports skin regeneration and defends the skin against environmental aggressors, causing the skin to glow and look well-nurtured. <sup>[43,44]</sup> With its combination of skin-beneficial properties, sandalwood oil is certainly a number one pick ingredient for young, glowing skin.

### ***Bergamot oil***

Bergamot oil, which is derived from bergamot orange peel, is a general-purpose skincare product that is highly acclaimed for its refreshing and stimulating qualities. Worldwide known to solve oily skin, bergamot oil is also a miracle worker for sensitive skin, which offers comfort and calmness to the skin. Bergamot oil contains antioxidants, protects the skin from external damage, and combats oxidative stress, which is the precursor to premature aging. It is especially worth its weight in gold on acne or oily skin because it can balance sebum production and remove redness, leaving the skin silky, smooth, and fragrant. <sup>[46]</sup> Even its citrusy and, reviving scent is well-loved in aromatherapy for relaxation and tension release.

### ***Eucalyptus oil***

Eucalyptus oil, which is derived from eucalyptus leaves, has been used for centuries because of its beneficial effects on the skin. It is also well known for calming irritated skin and lessening redness, so it is becoming increasingly popular for acne and minor cuts. Due to constituents like eucalyptol, eucalyptus oil also possesses natural antibacterial properties, thus making it a good skin cleaner that will not permit the skin to get infected. It is particularly suitable for oily skin, which is balanced by the regulation of sebum secretion. Moreover, its deodorizing property adds calming touch, relaxation, and de-stressing because of its other medicinal advantages. <sup>[47]</sup>

**Table 1:** Details of commonly used carrier oils

Carrier Oil	Skin Benefits	Best For	Extracted From	Primary Regions of Origin
<b>Olive Oil</b>	Rich in oleic acid, vitamin E, and antioxidants; deeply moisturizing; forms a protective barrier; anti-inflammatory; combats signs of aging.	Dry, mature, and irritated skin	Fleshy part of the olive fruit	Mediterranean Basin (e.g., Greece, Italy, Spain)
<b>Coconut Oil</b>	Deeply moisturizing; calms inflammation; strengthens skin barrier; rich in lauric acid with antimicrobial properties.	Dry skin, body butters, cracked skin	White flesh (endosperm) of the coconut fruit	Tropical regions (e.g., Philippines, Indonesia, India)
<b>Joboba Oil</b>	Mimics skin's natural sebum; non-comedogenic; balances oil production; anti-inflammatory; antimicrobial; lightweight and easily absorbed.	Oily, combination, acne-prone skin	Seeds of the jojoba plant	Southwestern USA, Mexico, and other arid regions
<b>Sweet Almond Oil</b>	Lightweight; rich in vitamins A and E; reduces inflammation; nourishes and calms sensitive skin.	Sensitive, itchy, or inflamed skin	Seeds (nuts) of the almond tree	Middle East, Mediterranean regions (e.g., Spain, Italy)
<b>Grapeseed Oil</b>	Astringent; rich in linoleic acid and vitamin E; tightens pores; reduces fine lines; imparts youthful sheen; antioxidant-rich.	Oily, acne-prone skin	Seeds of grapes (byproduct of winemaking)	Wine-producing regions (e.g., France, Italy, USA)
<b>Avocado Oil</b>	Deeply nourishing; high in oleic acid and vitamins A, D, E; restores skin barrier; improves elasticity; minimizes fine wrinkles.	Very dry or aging skin	Pulp of the avocado fruit	Central and South America (e.g., Mexico, Brazil)
<b>Castor Oil</b>	Thick texture; deeply cleansing; promotes wound healing and collagen production; anti-inflammatory; antimicrobial.	Spot treatments, lip balms, dry patches	Seeds (beans) of the castor plant	India, China, Brazil
<b>Apricot Kernel Oil</b>	Emollient; soothing; contains vitamins A & C; enhances skin elasticity; stimulates collagen production; anti-inflammatory; easily absorbed.	Sensitive and mature skin	Kernels (seeds) of the apricot fruit	Central Asia (e.g., China, Uzbekistan), Turkey, Pakistan

<b>Rosehip Oil</b>	High in essential fatty acids and vitamin C; promotes cell regeneration; reduces scars and pigmentation; firms and unifies complexion; anti-inflammatory.	Scars, pigmentation, aging skin	Seeds of the rosehip fruit	Europe, South America (e.g., Chile)
<b>Shea Butter</b>	Intensely moisturizing; anti-inflammatory; high in vitamins A & E; soothes inflammation; facilitates healing; protects against environmental stress.	Rough skin, heels, elbows, eczema	Nuts (kernels) of the shea tree	Sub-Saharan Africa (e.g., Burkina Faso, Mali, Sudan)
<b>Cocoa Butter</b>	Rich in fatty acids; forms protective barrier; naturally aromatic; antioxidant-rich; combats signs of aging; soothing and anti-inflammatory.	Stretch marks, very dry skin	Beans of the cacao tree	Central and South America (e.g., Ghana, Ivory Coast, Brazil)

**Table 2:** Details of commonly used essential oils

Essential Oil	Key Properties	Best Uses	Plant Part Used	Primary Regions of Origin
<b>Lavender</b> ( <i>Lavandula</i> spp.)	Soothing, antiseptic, promotes skin healing and calm	Burns, acne, irritation, all skin types	Flower spikes	Mediterranean (France, Spain, Italy)
<b>Tea Tree</b> ( <i>Melaleuca alternifolia</i> )	Antibacterial, antifungal, strong antiseptic	Acne, fungal infections, oily skin	Leaves	Australia (New South Wales, Queensland)
<b>Geranium</b> ( <i>Pelargonium graveolens</i> )	Balances sebum, tightens skin, uplifts mood	Aging, oily, or combination skin	Leaves and flowers	Southern Africa
<b>Frankincense</b> ( <i>Boswellia</i> spp.)	Regenerates skin cells, reduces scars and wrinkles	Aging skin, scarring	Resin (oleoresin)	Middle East, India, North Africa
<b>Rose</b> ( <i>Rosa damascena</i> )	Toning, anti-aging, very gentle and hydrating	Dry, mature, or sensitive skin	Fresh petals	Bulgaria, Turkey, India (Kannauj)
<b>Carrot Seed</b> ( <i>Daucus carota</i> )	High in antioxidants, rejuvenating, SPF properties	Sun-damaged, dry, or mature skin	Seeds	India, France
<b>Patchouli</b> ( <i>Pogostemon cablin</i> )	Earthy scent, antifungal, skin regenerative	Cracked skin, inflammation, body care	Dried leaves and twigs	Indonesia, Philippines
<b>Sandalwood</b> ( <i>Santalum album</i> )	Anti-inflammatory, deeply calming, hydrating	Dry and irritated skin	Heartwood	India, Australia
<b>Bergamot</b> ( <i>Citrus bergamia</i> )	Astringent, reduces oiliness and acne	Oily skin	Fruit rind	Italy (Calabria), Côte d'Ivoire
<b>Eucalyptus</b> ( <i>Eucalyptus</i> spp.)	Antibacterial, cooling, decongestant	Cleansing, body oils, chest rubs	Leaves	Australia, China



## Commercial Formulations with Essential and Carrier Oils

A number of commercial skincare products take advantage of the characteristics of essential and carrier oils to improve skin penetration and the effective delivery of active ingredients. Some of the best examples include the following:

- Skinsations®: The company provides a range of carrier oils such as coconut, hazelnut, almond, avocado, and grapeseed oils. These oils are incorporated into skin care formulations to moisturize and feed on the skin.
- Maple Holistics®: offers cold-pressed carrier oils, such as almond, castor, grapeseed, and avocado oils. They are used in skin care routines because of their moisturizing and nourishing nature.
- Mountain Rose Herbs® Tamanu Skin Serum: This serum blend tamanu oil with other carrier oils to deliver intense hydration and aid skin repair. Tamanu oil has regenerative properties.
- Volant® essential oil blends: Volant's provides essential oil blends that may be diluted with carrier oils for use on the skin. These blends target different skin conditions.
- Pranarom® Essential Oils and Blends: Pranarom offers a selection of essential oils and blends that can be incorporated into skincare products for their therapeutic value. <sup>[48]</sup>

The company emphasizes the combination of essential and carrier oils in skincare products to improve the delivery and performance of the active ingredients.

## Conclusions

The versatility of natural oils in skincare extends beyond their moisturizing properties. Many of these oils possess anti-inflammatory, antimicrobial, and antioxidant properties, making them effective in managing various dermatological conditions such as acne, eczema, and psoriasis. The ability of these oils to penetrate deep into the skin layers allows for enhanced delivery of beneficial compounds, promoting cellular regeneration and improving overall skin texture. As consumers become more conscious of the ingredients in their skincare products, the paradigm shift towards plant-based oils represents a promising trend in the pursuit of healthier, more radiant skin. This holistic approach to skincare not only addresses immediate cosmetic concerns but also contributes to long-term skin health and well-being.

## References

1. Worwood, V.A., 2016. *The complete book of essential oils and aromatherapy, revised and expanded: over 800 natural, nontoxic, and fragrant recipes to create health, beauty, and safe home and work environments*. New World Library.
2. McMullen, R.L., 2024. The benefits and challenges of treating skin with natural oils. *International Journal of Cosmetic Science*, 46(4), pp.553-565.
3. Rawlings, A.V. and Lombard, K.J., 2012. A review on the extensive skin benefits of mineral oil. *International journal of cosmetic science*, 34(6), pp.511-518.
4. Liang, W., 2020, June. Toxicity and effect of chemicals in skin care products on human health. In *IOP Conference Series: Earth and Environmental Science* (Vol. 512, No. 1, p. 012081). IOP Publishing.
5. Ribeiro, A.S., Estanqueiro, M., Oliveira, M.B. and Sousa Lobo, J.M., 2015. Main benefits and applicability of plant extracts in skin care products. *Cosmetics*, 2(2), pp.48-65.
6. Brud, W.S., 2020. Industrial uses of essential oils. In *Handbook of essential oils* (pp. 1029-1040). CRC Press.
7. Alhasso, B., Ghori, M.U. and Conway, B.R., 2022. Systematic review on the effectiveness of essential and carrier oils as skin penetration enhancers in pharmaceutical formulations. *Scientia Pharmaceutica*, 90(1), p.14.
8. Price, S. and Price, L., 2021. Carrier oils. *Aromatherapy for Health Professionals Revised Reprint E-Book*. Amsterdam, The Netherlands: Elsevier Limited, p.151.
9. Badiu, D. and Rajendram, R., 2021. Effect of olive oil on the skin. In: V.R. Preedy and R.R. Watson, eds. *Olives and olive oil in health and disease prevention*. 2nd ed. Academic Press, pp.401–413. doi: <https://doi.org/10.1016/B978-0-12-819528-4.00032-8>
10. Weisberg, E.M. and Baumann, L.S., 2021. The foundation for the use of olive oil in skin care and botanical cosmeceuticals. In: V.R. Preedy and R.R. Watson, eds. *Olives and olive oil in health and disease prevention*. 2nd ed. Academic Press, pp.425–434. doi: <https://doi.org/10.1016/B978-0-12-819528-4.00044-4>
11. Varma, S.R., Sivaprakasam, T.O., Arumugam, I., Dilip, N., Raghuraman, M., Pavan, K.B., Rafiq, M. and Paramesh, R., 2019. In vitro anti-inflammatory and skin protective properties of Virgin coconut oil. *Journal of Traditional and Complementary Medicine*, 9(1), pp.5–14. doi: <https://doi.org/10.1016/j.jtcme.2017.06.012>

12. Karagounis, T.K., Gittler, J.K., Rotemberg, V. and Morel, K.D., 2018. Use of “natural” oils for moisturization: Review of olive, coconut, and sunflower seed oil. *Pediatric Dermatology*, doi: <https://doi.org/10.1111/pde.13621>
13. McMullen, R.L., 2024. The benefits and challenges of treating skin with natural oils. *International Journal of Cosmetic Science*, doi: <https://doi.org/10.1111/ics.12960>
14. Blaak, J. and Staib, P., 2021. An updated review on efficacy and benefits of sweet almond, evening primrose and jojoba oils in skin care applications. *International Journal of Cosmetic Science*, doi: <https://doi.org/10.1111/ics.12758>
15. Sultana, Y., Kohli, K., Athar, M., Khar, R.K. and Aqil, M., 2007. Effect of pre-treatment of almond oil on ultraviolet B–induced cutaneous photoaging in mice. *Journal of Cosmetic Dermatology*, 6(1), pp.14–19. doi: <https://doi.org/10.1111/j.1473-2165.2007.00293.x>
16. Lubis, S. and Leisyah, B., 2019. The effect of antioxidant of grapeseed oil as skin anti-aging in nanoemulsion and emulsion preparations. *Rasayan Journal of Chemistry*, 12(3), pp.1185–1194. doi: <https://doi.org/10.31788/RJC.2019.1235337>
17. Castro, M.L., Azevedo-Silva, J., Valente, D., Machado, A., Ribeiro, T., Ferreira, J.P., Pintado, M., Ramos, O.L., Borges, S. and Baptista-Silva, S., 2024. Elevating skincare science: Grape seed extract encapsulation for dermatological care. *Molecules*, 29(16), p.3717. doi: <https://doi.org/10.3390/molecules29163717>
18. Fares, M.M., Radaydeh, S.K. and AlAmeen, H.M., 2023. Green tannins/avocado oil composites: Suncare and skincare materials. *Arabian Journal of Chemistry*, 16(6), p.104764. doi: <https://doi.org/10.1016/j.arabjc.2023.104764>
19. Werman, M. J. *et al.* (1991) ‘The Effect of Various Avocado Oils on Skin Collagen Metabolism’, *Connective Tissue Research*, 26(1–2), pp. 1–10. doi: 10.3109/03008209109152159.
20. Atmanto, D., 2019. Effectiveness of utilizing VCO oil and castor oil on natural creams for dry skin treatment due to environmental factors. *Journal of Physics: Conference Series*, 1402(2), p.022093. doi: <https://doi.org/10.1088/1742-6596/1402/2/022093>
21. The Influence of Combination of Castor Oil with Aquades on Increasing Moisture over a Dry Skin. 2019. *KnE Social Sciences*, [online] 3(12), pp.328–338. doi: <https://doi.org/10.18502/kss.v3i12.4099>
22. Karadağ, M. and Omarova, S., 2024. Use of *Prunus armeniaca* L. seed oil and pulp in health and cosmetic products. *Advances in Biology & Earth Sciences*, 9(Special Issue), pp.105–110. doi: <https://doi.org/10.62476/abess105>

23. Oargă (Porumb), D.P., Cornea-Cipcigan, M. and Cordea, M.I., 2024. Unveiling the mechanisms for the development of rosehip-based dermatological products: an updated review. *Frontiers in Pharmacology*, 15, doi: <https://doi.org/10.3389/fphar.2024.1390419>
24. Kreidel, M.K. and Jhaveri, M., 2021. Introduction to essential oils and essential oil processing. In: R.N. Rupani and P.A. Lio, eds. *Integrative Dermatology*. Cham: Springer, pp.99–122. First online: 20 January 2021. doi: [https://doi.org/10.1007/978-3-030-58954-7\\_5](https://doi.org/10.1007/978-3-030-58954-7_5)
25. Andersson, A.-C. and Alander, J., 2015. Shea butter extract for bioactive skin care. *Cosmetics & Toiletries*, [online] 26 June. doi: <https://www.cosmeticsandtoiletries.com/research/literature-data/>
26. Mohanan, R., Jose, S.P., Sreevallabhan, S., Jalam, J.K., Tilwani, J., Jagmag, T., Abhyankar, M. and George, S.M., 2024. Moisturizing and antioxidant factors of skin barrier restoring cream with shea butter, Silkflo and vitamin E in human keratinocyte cells. *International Journal of Cosmetic Science*, doi: <https://doi.org/10.1111/ics.13014>
27. Scapagnini, G., Davinelli, S., Di Renzo, L., De Lorenzo, A., Olarte, H.H., Micali, G., Cicero, A.F. and Gonzalez, S., 2014. Cocoa bioactive compounds: Significance and potential for the maintenance of skin health. *Nutrients*, 6(8), pp.3202–3213. doi: <https://doi.org/10.3390/nu6083202>
28. Cavanagh, H.M.A. and Wilkinson, J.M., 2005. Lavender essential oil: A review. *Australian Infection Control*, 10(1), pp.35–37. doi: <https://doi.org/10.1071/HI05035>
29. Aundhia, C., Parmar, G., Talele, C., Sadhu, P., Sen, A.K. and Rana, P., 2024. Potential of natural products as therapeutic agents for inflammatory diseases. *Anti-Inflammatory & Anti-Allergy Agents in Medicinal Chemistry*, 23(3), pp.149–163. doi: <https://doi.org/10.2174/0118715230307969240614102321>
30. Kairey, L., Agnew, T., Bowles, E.J., Barkla, B.J., Wardle, J. and Lauche, R., 2023. Efficacy and safety of *Melaleuca alternifolia* (tea tree) oil for human health—A systematic review of randomized controlled trials. *Frontiers in Pharmacology*, 14, doi: <https://doi.org/10.3389/fphar.2023.1116077>
31. Pazyar, N., Yaghoobi, R., Bagherani, N. and Kazerouni, A., 2012. A review of applications of tea tree oil in dermatology. *International Journal of Dermatology*, doi: <https://doi.org/10.1111/j.1365-4632.2012.05654.x>
32. Cocoş, D.I., Earar, K., Dinu, M., Lungu, I., Bazbanela, C. and Galea, C., 2023. Perspectives on the use of geranium essential oil: *Pelargonium graveolens* and

- Pelargonium roseum*, in dental medicine. *Romanian Journal of Medical and Dental Education*, 12(2), March–April.
33. Lohani, A., Mishra, A.K. and Verma, A., 2018. Cosmeceutical potential of geranium and calendula essential oil: Determination of antioxidant activity and *in vitro* sun protection factor. *Journal of Cosmetic Dermatology*, doi: <https://doi.org/10.1111/jocd.12789>
34. Chinnappan, S., Wong, S.Y., Liow, Y.M., Tan, Z.J., Tham, J.L., Panneerselvam, J. and Ranganathan, V., 2024. Natural essential oils for antiaging: A review. *Research Journal of Pharmacy and Technology*, 17(5). doi: <https://doi.org/10.52711/0974-360X.2024.00375>
35. Han, X., Rodriguez, D. and Parker, T.L., 2017. Biological activities of frankincense essential oil in human dermal fibroblasts. *Biochimie Open*, 4, pp.31–35. doi: <https://doi.org/10.101/biopen.2017.01.003>
36. He, A. and Putra, N.R., 2024. Rose essential oils: Current trends, mapping of extraction techniques, chemical analysis, therapeutic applications, and by-product valorization. *Canadian Journal of Chemical Engineering*, doi: <https://doi.org/10.1002/cjce.25554>
37. Chaitra, K., Gouthami, Y., Babasaheb, J.S., Meghana, B.S., Khayum, A. and Siddiqua, A., 2024. Rose petals and plates: Exploring the culinary and health wonders of roses. *The Agriculture Magazini*, 3(9), May. E-ISSN: 2583-1755.
38. Woś, K. and Kiełtyka-Dadasiewicz, A., 2021. Hydrolate rose (Rosa flower water) as an ingredient in cosmetics for sensitive skin. *Archives of Physiotherapy and Global Research*, 25(1), pp.53–67. doi: <https://doi.org/10.15442/apgr.25.1.6>
39. Singh, S. *et al.* (2018) 'Formulation and evaluation of carrot seed oil-based cosmetic emulsions', *Journal of Cosmetic and Laser Therapy*, 21(2), pp. 99–107. doi: 10.1080/14764172.2018.1469769.
40. Kothapalli, L., Raut, V. and Thomas, A., 2023. Seed oils in treatment of skin aging and photoaging. *Mini-Review Article*, 2, pp.10. doi: <https://doi.org/10.2174/2666779702666230125142357>
41. Sufriadi, E., Novebrina, T., Muhammad, S. and Dirhamsyah, M., 2022. Patchouli oil innovation in making peel-off masks to inhibit acne bacteria. *Journal of Patchouli and Essential Oil Products*, 1(2), pp.56–58. doi: <https://doi.org/10.24815/jpeop.v1i2.28823>
42. Isnaini, N., Prajaputra, V. and Maryam, S., 2023. Formulation and evaluation of O/W body cream containing patchouli oil (*Pogostemon cablin* Benth.) and drumstick oil

- (*Moringa oleifera*) as potential moisturizing agent. *Journal of Physics: Conference Series*, 9(10), pp.4292. doi: <https://doi.org/10.29303/jppipa.v9i10.4292>
43. Shahinoor, M., Rahman, D., Taher, M. and Sheikh, H., 2019. Sandalwood oil can be a miraculous tackle on skin aging, skin appearance, and wrinkle skin - A review
44. Francois-Newton, V., Brown, A., Andres, P., Mandary, M.B., Weyers, C., Latouche-Veerapen, M. and Hettiarachchi, D., 2021. Antioxidant and anti-aging potential of Indian sandalwood oil against environmental stressors in vitro and ex vivo. *Cosmetics*, 8(2), p.53. doi: <https://doi.org/10.3390/cosmetics8020053>
45. Dickinson, S.E., Olson, E.R., Levenson, C., Janda, J., Rusche, J.J., Alberts, D.S. and Bowden, G.T., 2014. A novel chemopreventive mechanism for a traditional medicine: East Indian sandalwood oil induces autophagy and cell death in proliferating keratinocytes. *Archives of Biochemistry and Biophysics*, 558, pp.143–152. doi: <https://doi.org/10.1016/j.abb.2014.06.021>
46. Keller, E., 1999. *Aromatherapy Handbook for Beauty, Hair, and Skin Care*. Inner Traditions/Bear & Co.
47. El Shiekh, R.A., Atwa, A.M., Elgindy, A.M., Mustafa, A.M., Senna, M.M., Alkabbani, M.A. and Ibrahim, K.M., 2025. Therapeutic applications of eucalyptus essential oils. *Inflammopharmacology*, 33, pp.163–182. doi: <https://doi.org/10.1007/s10787-024-01588-8>
48. Alhasso, B., Ghorri, M.U. and Conway, B.R., 2022. Systematic review on the effectiveness of essential and carrier oils as skin penetration enhancers in pharmaceutical formulations. *Scientia Pharmaceutica*, 90(1), p.14. <https://doi.org/10.3390/scipharm90010014>