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COMMIPHORA MYRRHA OIL FOR ACNE MANAGEMENT IN SKINCARE PRODUCTS

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Abstract

Commiphora myrrha, commonly known as myrrh, has been used for centuries in traditional medicine to treat various skin conditions, including acne. Originating from Somalia, Kenya, and other parts of northeastern Africa and Arabia, myrrh resin possesses potent antibacterial and anti-inflammatory properties, which are effective in combating acne-causing bacteria and reducing inflammation. Recent studies emphasize the use of myrrh oil in modern skincare products due to its ability to reduce oxidative stress, prevent free radical damage, and soothe irritated skin. The oil contains bioactive components such as sesquiterpenes and phenolic compounds, which contribute to its antioxidant and anti-inflammatory effects, making it beneficial for acne-prone skin. Moreover, myrrh's astringent properties help balance oil production, reducing excess sebum and preventing clogged pores. Traditional applications, such as mixing myrrh oil with carrier oils, remain popular in managing acne and other skin conditions like eczema and psoriasis. Despite its promising therapeutic benefits, further scientific research is needed to fully validate myrrh's efficacy and safety in dermatology, particularly in terms of dosage and long-term use.

Keywords: Commiphora myrrha, acne treatment, antibacterial properties, anti-inflammatory effects, skincare products

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Introduction

Commiphora myrrha, commonly known as myrrh, has been utilized for centuries as a natural remedy in various cultures. Predominantly found in Somalia, Kenya, the northeastern part of Africa, and the southern part of Arabia, myrrh has a rich history in traditional medicine. According to the World Health Organization (WHO) monographs on selected medicinal plants [1], *Commiphora myrrha* is documented for its topical use in treating mild inflammation of the oral and pharyngeal mucosa, and as a gargle or mouth rinse for conditions such as aphthous ulcers, pharyngitis, tonsillitis, common cold, and gingivitis.

Traditional medicine has employed myrrh gum resin to address a variety of ailments, including skin disorders like acne [2], dermatitis, and psoriasis. The resin is produced by the *Commiphora myrrha* tree, known for its fragrant bark and adaptation to desert climates.

Ancient civilizations, such as the Greeks and Egyptians, esteemed myrrh for its medicinal properties and incorporated it into diverse pharmacological preparations.

Despite its extensive traditional use, the efficacy and safety of *Commiphora myrrha* have not been thoroughly investigated through scientific research. More studies are needed to validate its potential benefits, determine appropriate dosages, and establish optimal methods of administration. Before using myrrh or any of its derivatives, it is advisable to consult a healthcare professional, particularly if one is taking medication or has underlying medical concerns.

Traditional Uses in Dermatology

Acne Treatment

One of the main traditional applications of *Commiphora myrrha* is in the treatment of acne. The resin's potent antibacterial properties aid in combating the bacteria responsible for acne breakouts. Additionally, its anti-inflammatory qualities help reduce redness, swelling, and irritation associated with acne. Traditional remedies often involve creating a paste or solution using myrrh resin and applying it directly to the affected areas. The soothing properties of myrrh may promote healing and prevent the spread of new infections.

Eczema and Psoriasis

Commiphora myrrha has also been a reliable means of treating eczema—a chronic inflammatory skin condition marked by dry, itchy, and irritated patches. The resin's moisturizing and anti-inflammatory properties can provide relief from eczema symptoms and promote skin healing. Similarly, myrrh may offer therapeutic benefits for psoriasis, a chronic skin illness characterized by thickened, scaly regions. Regular application of myrrh treatments can help soften the skin, reduce redness, and prevent scaling.

Applications in Oral Health

Apart from its topical application on the skin, *Commiphora myrrha* has potential benefits for maintaining oral health. It has been used for ages as a natural remedy for gum disease, gingivitis, and toothaches. The resin's antibacterial properties combat oral bacteria, while its anti-inflammatory properties lessen gum inflammation and promote tooth health. Mouthwashes or gargles containing myrrh are commonly used to reduce pain and prevent further oral infections.

Other Traditional Uses

Commiphora myrrha has been utilized in traditional medicine to treat a wide range of ailments beyond dermatological and dental applications. It has been used as a digestive aid to support healthy digestion and alleviate symptoms of indigestion, gas, and bloating. Myrrh is also believed to boost immunity and enhance the body's defenses against disease and infection. Additionally, it has been used as an analgesic to reduce pain and suffering caused by various illnesses, including menstrual cramps and arthritis.

Bioactive Compounds and Pharmacological Properties

Plants have been utilized for thousands of years to treat skin conditions and enhance appearance, and many have been incorporated into modern cosmetics. The skin, which actively defends against environmental threats, serves as the body's interface with the external environment. Thus, it is essential that plants used in skincare are capable of producing substances that protect and soothe the skin [31].

The *Commiphora* genus, including myrrh, has been reported to contain a range of bioactive substances, such as sugars, lignans, terpenoids, flavonoids, and steroids [1]. Other sesquiterpenes with distinct pharmacological properties have also been derived from the resin. Collagen and myrrh are two nutrients that contribute to keeping skin looking young, smooth, and wrinkle-free. Research has shown that myrrh is a strong antioxidant that may shield and repair damage to cells and the immune system. Initial investigations suggest that myrrh is an effective essential oil to include in natural skincare regimens to maintain skin's youthful and healthy appearance [3].

Antimicrobial and Antioxidant Activities

Myrrh essential oil has long been used in traditional Chinese and Ayurvedic medicine. Due to its deep, comforting, and pleasant scent, it can help people who are ill. Its antibacterial properties have been recognized for a long time, and it has been used to purify the air of infectious ailments. Myrrh oil has a dual action that makes it helpful against germs because it has been shown to help activate the immune system in addition to directly killing bacteria [4].

Combining myrrh oil with additional ingredients yields a multitude of natural skincare solutions. For skin care and toning, one might make a homemade frankincense and myrrh lotion. It provides lipids to aging skin and calms oily, acne-prone skin [5].

Recent studies have indicated that extracts of *Boswellia serrata* (frankincense) and *Commiphora myrrha* (myrrh) help keep the skin supple and moisturized while delaying the appearance of wrinkles, acne, and spots. Due to the anti-inflammatory and antioxidant qualities of myrrh and frankincense, which significantly improve human health, international cosmetic companies are interested in incorporating them into a variety of cosmetic products [6]. It has been found that both furanodienone and curzerene, compounds found in myrrh, affect viral replication through multiple stages of the viral life cycle [7].

Additionally, it has been verified that certain concentrations of refined myrrh, geranium, and lemon essential oils may inhibit the growth of *Streptococcus mutans*, a bacterium associated with dental caries [8]. Myrrh has been utilized for millennia for its circulatory, sanitary, analgesic, antirheumatic, antidiabetic, and schistosomicidal properties [9].

The antibacterial, anti-inflammatory, and antioxidant qualities of combined extracts of *Commiphora*, Geranium (*Pelargonium graveolens*), and *Phyllanthus emblica* have been investigated for their potential as raw materials for functional cosmetics [10].

Essential oils are a primary resource for the cosmetics sector since they not only add pleasant fragrances to products but also serve as active components and preservatives, providing specific health benefits to the skin [11].

Applications in Skincare and Dermatology

Myrrh has been a popular skin remedy for infections, acne, and wounds for many years [12]. *Commiphora molmol*, a notable variety of myrrh, has been effectively employed as an antibacterial agent [13].

Acne Treatment

Commiphora myrrh oil's antioxidant properties make it useful for acne treatment. Acne is a common skin condition characterized by increased sebum secretion, bacterial overgrowth, and inflammation. Oxidative stress and the presence of free radicals can exacerbate acne symptoms and intensify the inflammatory response. Myrrh oil, as an antioxidant, helps reduce oxidative stress and prevent free radical damage to acne-prone skin.

Two of the bioactive components of the oil, sesquiterpenes and phenolic compounds, have been shown to exhibit antioxidant and anti-inflammatory properties. These characteristics may lessen acne symptoms by targeting the underlying causes of inflammation and oxidative damage. Myrrh oil helps shield skin cells from oxidative damage and neutralizes free radicals, reducing inflammation and expediting the healing process.

The antibacterial properties of myrrh are reinforced by its antioxidant qualities. Acne is often accompanied by bacterial colonization of the skin, particularly *Propionibacterium acnes*. These bacteria produce reactive oxygen species (ROS), which exacerbate oxidative stress in acne-prone skin. By scavenging ROS produced by these bacteria, myrrh oil's antioxidant properties can help lessen their harmful effects on the skin.

Furthermore, the anti-inflammatory properties of myrrh oil can support acne treatment. Inflammation significantly impacts the development and severity of acne. By reducing inflammation, myrrh oil helps alleviate redness, swelling, and pain associated with acne lesions.

Proper Application and Precautions

Before applying myrrh oil topically to treat acne, it is essential to dilute it properly. Blending the oil with a carrier oil, such as coconut or jojoba oil, ensures effective and safe application. It is important to perform a patch test before topical application to rule out any allergic reactions or skin sensitivity.

Safety Considerations and Potential Side Effects

While myrrh oil has long-standing use in treating inflammation due to its anti-inflammatory and antioxidant qualities [14], several safety considerations must be addressed when applying it topically.

Skin Irritation and Hypersensitivity Reactions

One of the primary concerns is the potential for allergic reactions or skin irritation. Essential oils are highly concentrated substances, and individuals may experience different reactions. Symptoms of skin irritation include itching, burning, or redness, while allergic reactions might manifest as rashes, hives, or inflammation. To reduce the risk of adverse effects, perform a patch test prior to widespread use.

Photosensitivity

Myrrh oil may increase skin sensitivity to sunlight, known as photosensitivity. This suggests that the skin may be more susceptible to sunburn or other forms of solar damage following topical application. It is advised to avoid prolonged sun exposure or to take protective measures, such as wearing protective clothing or using sunscreen when using myrrh oil.

Dry Skin

Applying myrrh oil excessively or undiluted might exacerbate dryness. Strong essential oils can alter the natural moisture balance of the skin when applied in high amounts. Always dilute myrrh oil according to instructions and avoid excessive use. If excessive dryness occurs, reduce the concentration or frequency of application.

Drug Interactions

Myrrh oil may interact with certain medications or topical treatments, potentially reducing their efficacy or causing adverse effects. Before using myrrh oil topically, individuals taking medications such as anticoagulants, diabetic medications, or medications metabolized by the liver should consult a healthcare professional.

Use During Pregnancy and Breastfeeding

Caution should be exercised when using myrrh oil during pregnancy or while breastfeeding. The safety of myrrh oil in these circumstances has not been thoroughly studied. Before incorporating myrrh oil into a skincare routine during pregnancy or breastfeeding, consult a qualified aromatherapist or medical professional.

Other Considerations

Purchasing high-quality myrrh oil from reputable suppliers is essential to ensure purity and reduce the likelihood of contaminants or adulteration. Individuals with existing skin conditions like psoriasis or eczema should use myrrh oil cautiously and consult a doctor before using it.

Antimicrobial Activity

Commiphora myrrh oil has demonstrated antimicrobial activity against various microorganisms:

Bacteria

Myrrh oil has shown antibacterial activity against bacteria including *Propionibacterium acnes*, *Streptococcus pyogenes*, *Staphylococcus aureus*, *Escherichia coli*, and *Pseudomonas aeruginosa*. It compromises bacterial cell walls or membranes, inhibiting growth.

Fungi

Myrrh oil exhibits antifungal properties effective against pathogens like *Candida albicans*, which causes vaginal yeast infections and oral thrush. Its antifungal qualities help treat fungal-related disorders by inhibiting growth and spread.

Parasites

Research indicates myrrh oil may be effective against parasites such as *Leishmania tropica*, the causative agent of leishmaniasis.

Viruses

Some studies suggest potential antiviral activity against viruses like herpes simplex types 1 and 2. However, further research is needed to confirm these effects.

Conclusion

Commiphora myrrha oil offers several beneficial effects on the skin, including antimicrobial, anti-inflammatory, and antioxidant properties that may aid in treating acne and other skin conditions. However, it is vital to exercise caution when applying it topically and be aware of potential side effects such as skin irritation, allergic reactions, photosensitivity, dryness, drug interactions, and contraindications during pregnancy and breastfeeding.

By performing a patch test, properly diluting myrrh oil, avoiding excessive sun exposure, consulting with a healthcare provider, and using high-quality products, risks can be minimized. If any adverse reactions occur, discontinue use immediately and seek medical assistance for appropriate care and guidance.

Further scientific research is necessary to validate the efficacy and safety of *Commiphora myrrha*, determine appropriate dosages, and establish optimal methods of administration. Collaboration between traditional knowledge and modern scientific inquiry may unlock the full potential of myrrh in dermatological applications.

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