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Review

Biochemical Properties and Cosmetic Uses of *Commiphora myrrha* and *Boswellia serrata*

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Abstract: Organic materials have been the subject of numerous recent cosmetics studies. Plant extracts and/or plant-derived resources in the Middle East have significant potential in many cosmetic fields because they exhibit useful properties that promote the repair of cellular functions and improve skin conditions. Multiple organic substances from these resources have long-lasting environmental effects, extensive storage capacities, and affect human physiological activity. Recent studies have revealed that *Commiphora myrrha* (myrrh) and *Boswellia serrata* (frankincense) extracts can prevent aging, acne, and spots while enhancing skin moisture and suppleness. Given that myrrh and frankincense exhibit anti-inflammatory and antioxidant characteristics that significantly improve human health, their utilization in various cosmetic products has received attention from global cosmetic corporations. This review details the bioactive compounds and cosmeceutical properties of myrrh and frankincense and their use in cosmetic formulations.

Keywords: *Commiphora myrrha*; *Boswellia serrata*; frankincense; cosmetics; antioxidant; antiaging

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1. Introduction

Since antiquity, plants have been utilized in cosmetics and have been the focus of modern scientific research. Drawing increasingly complex images has become possible because of the improved understanding of the skin and plants over time. Plants are sophisticated organisms that respond to their surroundings by producing various metabolites. Phytomolecules applied to the skin affects skin cells and influences the health and appearance of the skin. Physicochemical and ethnobotanical studies have identified various plants with the potential to improve contemporary cosmetic products [1]. Plants provide high-value active compounds for medicinal and aesthetic purposes. Targeted at improving skin problems and appearance, humans have utilized plants for thousands of years, which have been developed into modern cosmetics. The skin serves as the body's interface to the exterior world and actively defends against threats. Therefore, the ability of plants to produce chemicals that can protect and calm the skin is essential. Modern cosmetics can adjust skin elasticity in addition to hydrating the skin and reducing redness [2].

The family Burseraceae contains about 18 genera, an estimated 560–600 species [3,4]. Since antiquity, these species have been used for their aromatic properties and medicinal applications. Thus, their spruce trees and shrubs often play a prominent role in the ethnobotany of their surrounding environment. Although the Burseraceae species are spread worldwide, studies and information are limited to the genera in Asia and Africa, such as *Commiphora* (myrrh), *Canarium* (incense elemi), and *Boswellia* (frankincense). Indigenous tribes have employed the resins of this species for various uses in traditional medicine, including its application as an external agent (cosmetics), for treating wounds (dressings), preventing the deterioration of extremities and broken teeth, or as an antiseptic and disinfectant. Moreover, inhaling the smoke can induce anesthetic effects [5].

This review aims to introduce *C. Myrrha* and *B. Serrata* and determine their chemical composition, their activities as antioxidants, antimicrobials, and anti-inflammatories, as well as their influential role in promoting health in the human body. Specifically, and especially, their effective activity against acne and wrinkles, and many of the excellent effects and higher values of these plants in cosmetics.

2. *Commiphora myrrha*

The *Commiphora* species has high medical importance. It abounds mostly under mountains and in rocky settings in Saudi Arabia, notably east of Tihama [6,7]. *Commiphora* forms a particular element of Saudi flora [6], and its trees are spread on the sands of the Red Sea, west and southwest of the Kingdom of Saudi Arabia (KSA). They have a wide ecological range between 1 and 2100 m above sea level and are found in tropical and semi-tropical areas [6–9]. They are also found in Somalia [6–11]. Some species are located mainly in Africa (specifically in Ethiopia, Somalia, and Kenya) [10] and Asia (specifically India [6,8,12] and Pakistan [8]).

The family Burseraceae, including the *Commiphora* species, are trees or shrubs with vertical resinous channels protruding from the bark. The leaves are compounded, spirally organized, and densely packed at the twig tips. Small and solitary (or in groups), the flowers grow on the branches [3] (Figure 1). *Commiphora myrrha* is a reddish-brown oligomycin known as one of the oldest medicines used by humanity, as it dates back to 2800 BC, according to the medical texts of ancient Egypt [13–16].

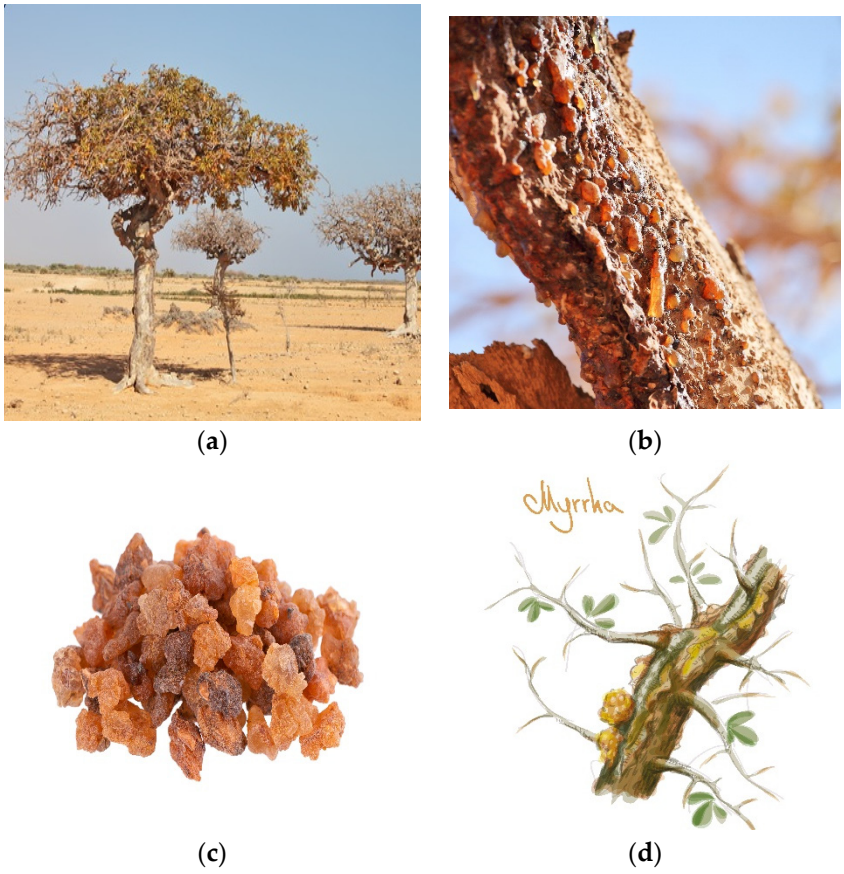

Figure 1. (**a**) *Commiphora myrrha* tree; (**b**) resin appears from the tree trunk; (**c**) *C. Myrrha* resin; (**d**) illustration of *C. Myrrha* plant. All pictures and illustrations do not have any copyright issues.

The Arabic term "Murr", which means "Bitter", describes the flavor and balsamic aroma of myrrh [17]. Myrrh is an aromatic resin extracted from the *Commiphora* tree. Historically, myrrh was extremely expensive, as it cost more than gold. The most outstanding physician in the Middle Ages, the Muslim physician Al-Razi, used the myrrh plant to

treat kidney and bladder diseases and stomach bloating [12]. Its essential oils (EOs) have been used to manufacture perfumes and cosmetics and in aromatherapy as incense and for medicinal purposes for centuries [12,18,19]. Medicinally, it has been utilized as an emmenagogue, antispasmodic, antiparasitic, antitussive, and astringent. Leprosy, syphilis, and other infectious disorders, as well as cancer, have all been cured by myrrh. It is also a component of traditional medical practices in China, the Middle East, and Africa [17] and has been used since antiquity for several medicinal applications [20,21].

3. *Boswellia serrata*

Boswellia serrata resin, olibanum, or frankincense, is obtained from the Burseraceae family [22,23]. *Boswellia* is a relatively small genus with approximately 28 species [24]. Since antiquity, humans have employed medicinal plants, such as the Indian frankincense tree (*Boswellia serrata*), as medicines. *Boswellia serrata* is a medium-sized deciduous tree primarily found in India, Asia, and Africa. It has had a significant impact on curing various ailments [25–27] in Saudi Arabia [28], Southern Arabia, Oman [29–32], Pakistan [33], Nigeria, Yemen, and Somalia [31,34,35].

Boswellia serrata is a medium to large tree that grows up to 18 m tall and 2.4 m wide. The leaves are imparipinnate with opposing leaflets, alternating, packed at the terminals of the branches, and typically serrated. It is hermaphroditic; the flowers are tiny and white and grow in axillary racemes. Its thin, greenish-grey bark changes from yellow or red to deciduous petals that are 3–5 in number, imbricated, and eventually turn an ash color. The bark sheds in smooth, papery flakes of flaming red and secretes tiny drops of resin. After an injury or a natural break to the bark, exudate containing oleo gum resin is produced. The oleo gum resin is aromatic, clear, and golden yellow, which eventually transforms into crusts and brownish-yellow tears or drips [31,36–38] (Figure 2).

The therapeutic properties of *Boswellia serrata* have been established by numerous researchers and are well-acknowledged [38–42]. Its resin was recognized as one of the most significant medicinal herbs with exceptional efficacy in numerous therapeutic areas [43,44]. *B. Serrata* is a significant source of boswellic acid (BA) in the pharmaceutical sector. Paints and varnishes are made from high-quality turpentine from *B. Serrata*. However, the commercial applications of the *B. Serrata* oleo-primary resin are in the medication industry, western biomedicine, religious purposes, perfumes [45], and cosmetics [46]. The most significant medical applications for *B. Serrata* are the treatment of rheumatoid arthritis, osteoarthritis, Crohn's disease, and asthma [38,47–54]. It is also used to treat diseases like cough and bronchitis [37,55–57]. It is frequently prescribed in the Unani System of Medicine for skin conditions, corneal ulcers, osteoarthritis, dysentery, chronic inflammatory illnesses, wound healing, and diarrhea [36], used as an antiobesity [58] and anticonvulsant agent [59], and is beneficial in liver fibrosis [60] and several cancers [61–65]. *Boswellia* resin is used to prevent and treat colitis and ulcerative colitis. *B. Serrata* shows satisfactory antioxidant activity in the cerebrovascular system [66,67] and various inflammatory conditions [68–77] and exerts antipyretic, antiatherosclerotic, and analgesic activity [38,78–80] in inflammatory bowel disease, allergies, and arthritis, including osteoarthritis, and pain [81–85]. It has also been used as an antiseptic in mouthwashes [86] and for treating chronic inflammatory diseases [87–89]. Its acids have been evaluated for their ability to prevent the development of periodontal biofilm [90] or the prevention of infections of the skin and nails [91,92].

Additionally, it has biological effects, including antiulcer, antiulcerogenic, antibacterial, and psychopharmacological effects [35,93–98]. *Boswellia* extract was used in toxicological tests on animals, and the results indicated that it was safe to use in herbal remedies [99,100]. The principal active ingredient in BA is an aromatic compound with these therapeutic effects [42,101,102]. Moreover, the US Food and Drug Administration (USFDA) has acknowledged the safety of *Boswellia serrata* resin and authorized its use as an ingredient in feed additives [42].

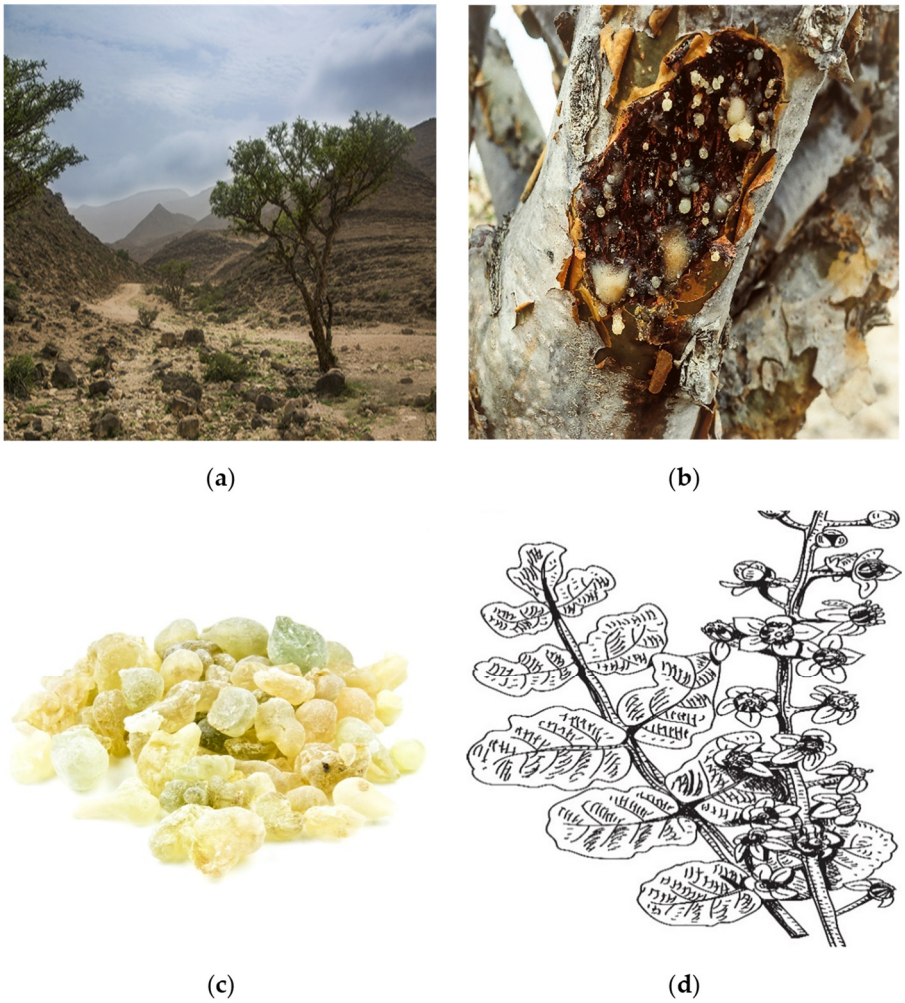

Figure 2. (**a**) *Boswellia serrata* tree; (**b**) resin appears from the tree trunk; (**c**) *B. Serrata* resin; (**d**) Illustration of *B. Serrata* plant. All pictures and illustrations do not have any copyright issues.

Hindus, Babylonians, Persians, Romans, Chinese, Greeks, and residents of early American civilizations have all employed natural resins, chiefly for embalming and incense at ceremonial gatherings. They had a firm conviction that when these materials were burnt, the smoke and scent they release will appease their gods and comfort their souls. Burning these organic resins had become a significant aspect of their lifestyle; they burned them during sacrifice rites and daily rituals to protect their souls from the influence of evil spirits or to honor the deceased or living [103–105].

4. Ingredients and Biological Activities of Myrrh and Frankincense

4.1. Main Ingredients and Compounds in Myrrh and Frankincense

Phytochemical examination of different extracts of *C. Myrrha* and *B. Serrata* reveals major active chemical components in the EO, gums, and resins. The main features and compounds of *C. Myrrha* and *B. Serrata* extracts are summarized in Table 1.

Table 1. Main ingredients and compounds in *Commiphora myrrha* and *Boswellia serrata*.

***Commiphora myrrha*:**	**References**
Water-soluble gum, alcohol-soluble resins, polysaccharides, and proteins; steroids, sterols, and terpenes make up the volatile oil; and furanosesquiterpenes.	[106]
3–8% essential oil, 30–60% water-soluble gum, and 25–40% alcohol-soluble resin.	[16]
Flavonoids, alkaloids, tannins, glycosides, steroids, saponins, and terpenoids. The methanolic extract is high in bioactive components, such as flavonoids and glycosides.	[107]
Myrrin, sesquiterpenes, aldehyde, eugenols, and protein.	[7]
α-, β- and γ-commiphoric acid; α- and β-heerabomyrrhol; protocatechuic acid, and pyrocathechin	[108]
2-Methoxy-5acetoxyfruranogermacr-1(10)-en-6-one and abietic acid.	[109–111]
Diterpenic acids, sesquiterpenes, 2-Methoxy-8,12-epoxygermacra-1(10) 7,11-trine-6-one, myrrhone, sandaracopimaric acid, abietic acid, dehydroabietic acid, and mansumbinone	[112]
***Boswellia serrata*:**	
Arabinose, rhamnose, glucose, galactose, fructose, galacturonic acid, and β sitosterol; phenol-o-cresol, m-cresol, p-cresol, thymol, and carvacrol; carboxylic acid-α-campholenic acid 2,2,4-trimethylcyclopent-3-en-1-yl acetic acid, and campholytic acid.	[113,114]
Portion (97.3%) in E-β-ocimene and limonene, (2.7%) sesquiterpenes, in E-caryophyllene.	[115]
Resin acids (60–70%), water-soluble gum (about 20%), and monoterpene essential oil (3–10%)	[116]
Oil (45%), α-thujene (12%), α-pinene (8%), sabinene (2.2%), β-pinene (0.7%), myrcene (3.8%), α-phellandrene (1%), pcymene (1%), limonene (1.9%), linalool (0.9%), perillene (0.5%), methylchavicol (11.6%), methyleugenol (2.1%), germacrene D (2.0%), kessane (0.9%), cembrene A (0.5%), and cembrenol (1.9%); a monoterpene 5,5-dimethyl-1-vinylbicyclo- hexane (2%), m-camphorene (0.7%); and p-camphorene (0.3%)	[117]
Diterpenes, cembrenol (serratol), incensole, and incensole acetate	[118,119]
Lipophilic pentacyclic triterpene acids of the oleanane (α-BAs), ursane-(β-BAs) and lupane-type (lupeolic acids), and an ether-insoluble fraction polysaccharide (arabinose, galactose, xylose) soluble in water	[38,120–123]

4.2. Biological Function and Activity of the Plants

4.2.1. *Commiphora myrrha*

Commiphora myrrha exhibits antibacterial and antifungal properties and is high in chemicals that aid treatment [12]. Its ethanolic extracts exerted antibacterial action against microorganisms to some extent [107]. Myrthanol A, a monoterpenoid alcohol from myrrh EO, has been proven to be more effective than hydrocortisone at reducing inflammation [15,16,124,125]. Several studies have established the antimicrobial activities of myrrh, including fasciolicidal, antibacterial, antiviral, and antifungal activities [126–128]. These inherent antibacterial and antifungal properties are due to the sesquiterpenes and furanosesquiterpenoids it contains [129–131]. Myrrh preparations have been classified as weakly sensitizing in local lymph node assay (LLNA) studies [21,132]. Caryophyllene C15H24, in myrrh oil, has an antibacterial, antitumor, and anti-inflammatory activity [133].

4.2.2. *Boswellia serrata*

B. Serrata has been reported to possess anti-inflammatory and antiarthritic activities. The anti-inflammatory activity exerts 47% inhibitory action [30,134–136]. The analysis of the compounds of *B. Serrata* extracts revealed that its triterpenoids are effective against rheumatoid arthritis, chronic colitis, ulcerative colitis, skin allergies and ulcers, tumors, osteoarthritis, and inflammation [116,137]. BAs are a mixture of pentacyclic triterpenes acids, beta-BA, 3-acetyl beta BA, 11-ketobeta-BA, and 3-acetyl-11-keto-beta-BA, which have an essential role in its anti-inflammatory activity [63,81,138]. Various studies have reported that crude extracts of the *Boswellia* species contain an antimicrobial agent that inhibits microbial growth [139]. Silver nanoparticles prepared from an aqueous extract of Boswellia act as an antimicrobial agent on Gram-positive and Gram-negative bacteria [140]. Other studies have also disclosed that frankincense gum resin is active against *Staphylococcus aureus*, *Escherichia coli*, *Klebsiella* spp., *Pseudomonas aeruginosa*, *Proteus mirabilis*, and *Bacillus subtilis* [141]. In addition, concentrations of α-pinene (38.41%) and myrcene (15.21%)

have been reported in *B. Serrata* EO, whereas *C. Myrrha* EO was distinguished by a high furanoeudesma-1,3-diene (17.65%) content, followed by curzerene (12.97%), β-element (12.70%), and germacrene-β (12.15%), having both antimicrobial and antifungal activities [142]. The antimicrobial activity of *B. Serrata* extract has been demonstrated using disk diffusion or well plate and broth microdilution methods [49,90]. This activity has been investigated, and numerous therapeutic applications have revealed the pharmacological results, including many diseases, such as anti-inflammatory, antitumor, immunomodulatory, and inflammatory bowel diseases, in addition to its antioxidant activity [74,143]. Thus, it has been well established that *B. Serrata* possesses antibacterial and antifungal activity [44,144].

5. Cosmetic Applications of Myrrh and Frankincense

5.1. Commiphora myrrha

Commiphora myrrha is used to treat wounds, infections, acne, boils [21,145], hair, and the scalp [146,147]. It has been used to manufacture perfumes and cosmetics and used in aromatherapy [12]. The extract affected chapped and irritated skin types [148] and improved skin tone, firmness, and elasticity [149], and had a UV protection effect [150] (Figure 3).

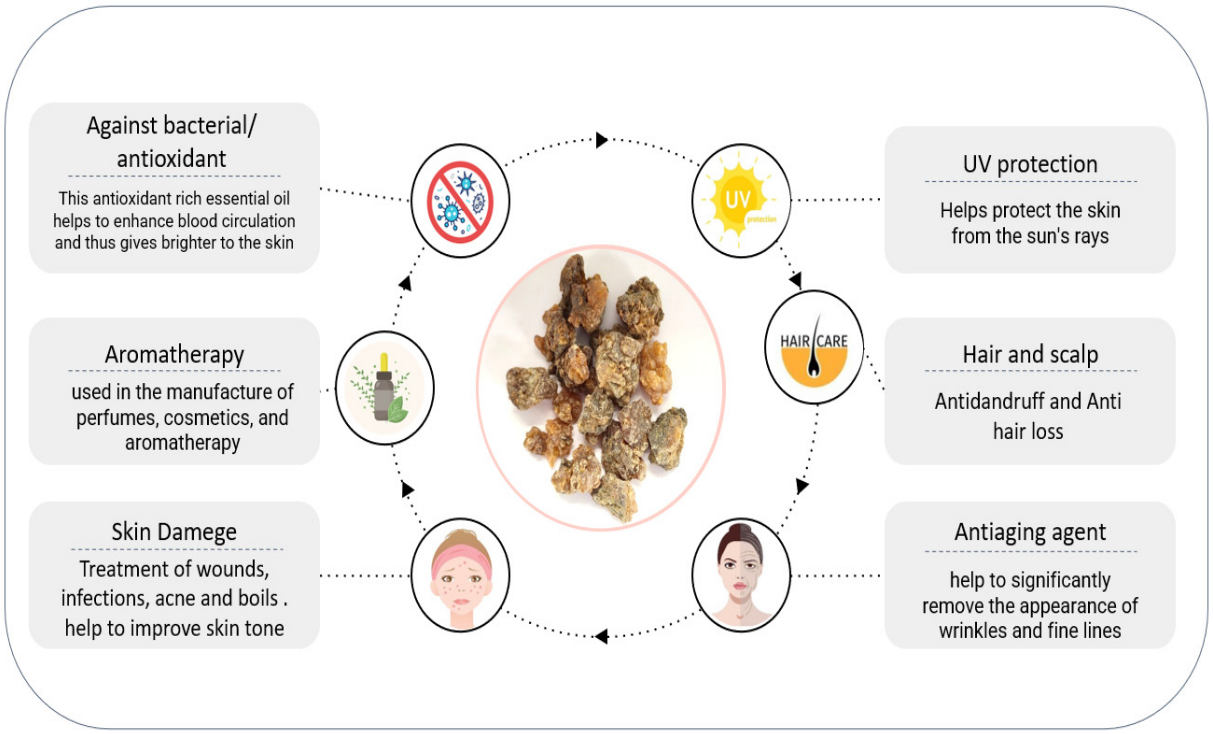

Figure 3. The illustrated summary of the cosmetic uses of *C. Myrrha*.

5.2. Boswellia serrata

Frankincense EO has anti-inflammatory and antibacterial properties for all skin types, such as acne and blemish-prone skin, aging skin, and dry skin, among others, making it particularly beneficial to acne-prone skin. It alleviates oily and acne-prone skin and provides lipids for aged skin. It is also a natural toner that improves skin tone and removes pores. It is a powerful astringent and is exceedingly effective for reducing wrinkles, fine lines, scars, or stretch marks on the skin. Frankincense EO promotes new cell generation, maintains skin elasticity, and soothes dry and chapped skin [151]. It lessens or prevents the appearance of sunspots, age spots, and splotches, thus evening out the skin tone [152]. It reduces skin redness and irritation, further promoting an even skin tone [153]. It has been used as a skin remedy for bruises and infected sores [154]. It is a potent antiwrinkle

and antiaging agent [155] and can be used for treating psoriasis, eczema [49,156], and skin diseases and as an antihair-loss remedy [38,50,51,53,54] (Figure 4).

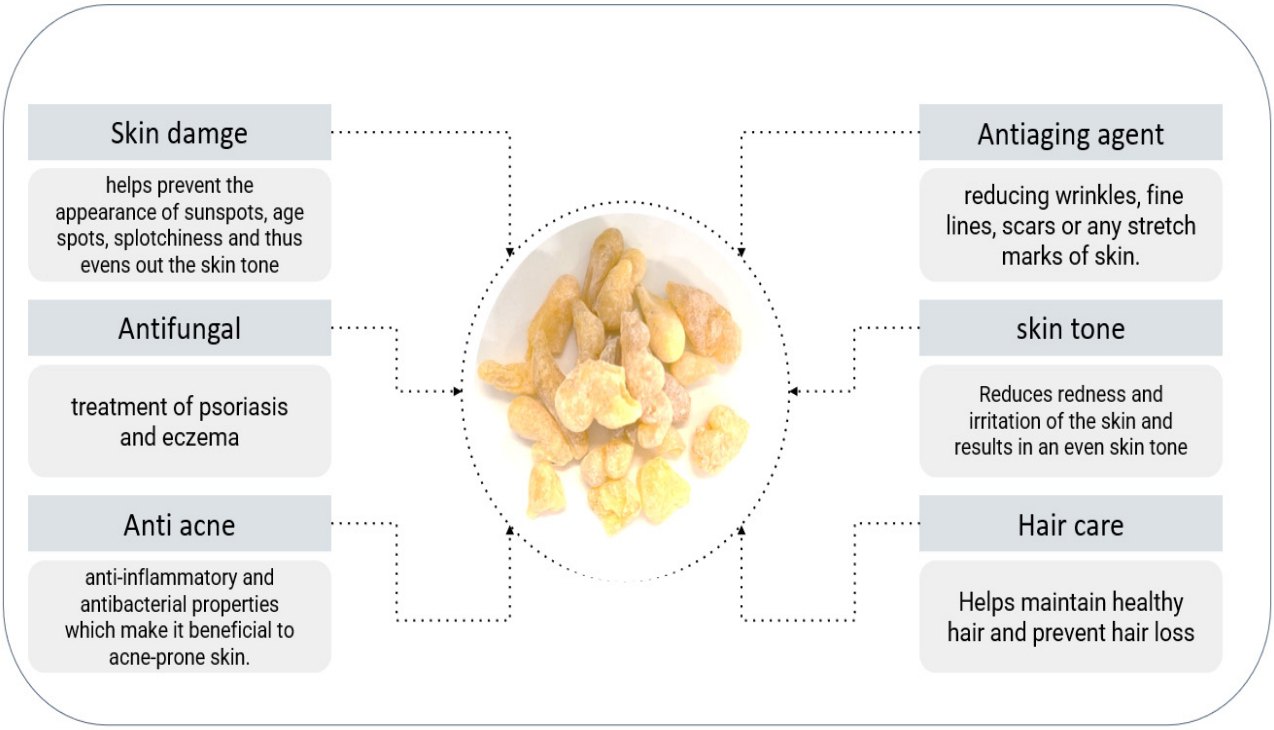

Figure 4. The illustrated summary of the cosmetic uses of *B. Serrata*.

6. Value-Added Cosmetic Products from *C. Myrrha* and *B. Serrata*

Since antiquity, humans have mastered the art of exploring nature to obtain vital ingredients for meeting their fundamental requirements and care for their diseases and cosmetology. Many cultures utilize natural or synthetic cosmetics to improve their skin condition and facial attractiveness. "Cosmetics" originates from the Greek term "Kosmos", meaning to adorn, and has referred to any substance intended to enhance or beautify. The botanical ingredient of a cosmetic or personal care product is derived from plants (herbs, roots, flowers, fruits, leaves, or seeds). Many plants are employed in the cosmetics industry in many Middle Eastern countries [157]. *C. Myrrha* and *B. Serrata* have several applications in cosmetics, ranging from antiaging and soothing to anti-inflammatory, encouraging faster skin renewal and increasing skin elasticity as a skin brightener. They have been used in antiaging skincare products; both plants have hit the Western market for skincare applications. The plant extracts and oils are also used for topical applications as they confer skincare benefits. Some of the cosmetic products containing *C. Myrrha* and *B. Serrata* extracts are summarized in Tables 2 and 3. In the following section, we will focus on the antioxidant, antiaging, and skin-whitening activities of *C. Myrrha* and *B. Serrata*.

Table 2. Cosmetic products containing *C. Myrrha*.

Product Name	*C. Myrrha*/Extract Included	Function
Complexion Polish—Natural Face Exfoliant, Sydney, Australia	Resin Extract	This technique helps to purify the skin and remove toxins. It is highly effective on mature skin because it helps in cell renewal
Knight Co.—Repairing Face Oil, Los Angeles, USA	Resin Extract	Antiaging.
Hey honey—911 PRO GEL, Sarasota, Florida, USA	Resin Extract	Soothe and correct acne, inflammation, and scarring.
Beb organic—Soothing Serum, Simi Valley, California, USA	Resin Extract	Treat spots from acne and damaged skin.
SheaMoisture—Raw shea butter face & body bar soap, Amityville, New York, USA	Frankincense and Myrrh Extract	Glowing skin.
Hey honey—Don't miss a spot, Sarasota, Florida, USA	Resin Extract	Natural antiseptic, astringent, and disinfectant.
Biologique Recherche—Gommage P50 Corps, Paris, France	Resin Extract	Replenishes the epidermis, antioxidant.
Biologique Recherche—Masque Gommage Mains, Paris, France	Resin Extract	Treatment of pigmentation.
Biology Recherche—Lotion P50, Paris, France	Resin Extract	Brightening.
Biologique Recherche—Creme Grand Millesime, Paris, France	Resin Extract	Antioxidant.
Biologique Recherche—Serum Renovateur 14, Paris, France	Resin Extract	Antioxidant.
SheaMoisture—Raw Shea Butter Hydrating Moisturizer W/Frankincense & Myrrh Amityville, New York, USA	Resin Extract	Anti-inflammatory, antibacterial and antiaging properties.
Biologique Recherche—Le Grand Serum, Paris, France	Resin Extract	Antiaging.
Bliss—Pore Patrol Oil Free Hydrator With Willow Bark, New York, USA	Resin Extract	Antimicrobial and antibacterial.
Biologique Recherche—Masque Creme Biofixine, Paris, France	Resin Extract	Antiwrinkle and muscle-relaxing.
Sunday 2 Sunday—Root Refresh Micellar Rinse, Airtech Pkwy, Plainfield, USA	Resin Extract	Cleans the hair and scalp.
Colleen Rothschild Beauty—Restorative Hand Cream, Texas, USA	Resin Extract	Soothes the skin.
Kiss the Moon—Glow Night-Time Face Oil, Richmond, UK	Resin Extract	Helps glow, nourish, and restore dehydrated skin.
Country Comfort—Herbal Savvy Goldenseal Myrrh, Nuevo, California, USA	Myrrh gum powder	Disinfecting ointment for psoriasis, eczema, burns, infections, cuts, wounds, scrapes, and dry skin.
Jean D'Arcel—Anti Wrinkle Lift Stick, Melbourne, Australia	Resin Extract	Antimicrobial/antibacterial.
Anne Semonin—Super Active Serum, Paris, France	Resin Extract	Reduces the depth of wrinkles and skin plumping.
Kuwait shop—Myrrh And Turmeric Lightening And Clarifying Cream, Kuwait, Kuwait	Resin Extract	Contributes to the unification and natural lightening of the skin tone.
Lush—Beauty Sleep, Vancouver, Canada	Resin Extract	Antimicrobial and antibacterial.

Table 3. Cosmetic products containing *B. Serrata*.

Product Name	*B. Serrata*/Extract Included	Function
Formula Dra Norma Bustos—Anti Stress Dérmico, Buenos Aires, Argentina	*B. Serrata* Extract	Soothes skin.
Bioearth—Siero Idratante Lenitivo, Fornovo di Taro, Italy	*B. Serrata* Extract	Soothes skin.
Smooth-E—Acne Treatment Hydrogel, Bangkok, Thailand	*B. Serrata* Extract	Relieve inflammation of acne, treat acne, and gently soothes the skin.
Cantabria Labs Biretix—Gel Ultra Purifying, Madrid, Spain	*B. Serrata* Extract	Hydrating and soothing activity.
Dermedics—YOUTH EXPERT™ Instant Relief Eye Serum, Selangor, Malaysia	*B. Serrata* Extract	Anti-irritant.
Dermedics—MESO CALM Instant Soothing Elixir, Selangor, Malaysia	*B. Serrata* Extract	Soothes irritations.
Dermedics—YOUTH EXPERT™ Physiological Micellar Water, Selangor, Malaysia	*B. Serrata* Extract	Anti-irritant.
Ossola Skincare—Prickly Pear & Marula Tinted Emulsion, Carmel-By-The-Sea, California, USA	*B. Serrata* Extract	Soothes skin.
Aveda—outer peace™ acne relief pads, New York, USA	*B. Serrata* Extract	Help wipe out blackheads and prevent new breakouts.
I image—CLEAR CELL clarifying salicylic tonic, Lantana, Florida, USA	*B. Serrata* Extract	Refresh and purify clogged pores and help soothe irritated skin.
Aveda—men pure-formance™ conditioner, New York, USA	*B. Serrata* Extract	Refreshes scalp.
Dermadoctor—Ain'T Misbehavin' Intensive 10% Sulfur Acne Mask & Emergency Spot Treatment, Kansas, USA	*B. Serrata* Extract	Helps reduce the appearance of spots and blackheads. It also helps the skin to recover
Dermalex—Rosacea Treatment, London, UK	*B. Serrata* Extract	Relieve different skin conditions.
NPURE—Day Cream Centella, Jakarta, Indonesia	*B. Serrata* Extract	Antiacne.
Flexpower—Soothe Lotion, Santa Monica, California, USA	*B. Serrata* Extract	Soothes, anti-inflammatory.
Found—Marshmallow Calming Face Serum, Los Angeles, USA	*B. Serrata* Extract	Skin conditioning.
Ausceuticals—Collagen Serum, Perth, Australia	*B. Serrata* Extract	Skin conditioning.
Aveda—Outer Peace™ Foaming Cleanser, New York, USA	*B. Serrata* Extract	Cleans deep into pores without irritation or over-drying skin.
Biodermal—Couperose Crème, Rotterdam, Netherlands	*B. Serrata* Extract	Soothes skin.
ITreatSkin—Neem Cream, Manchester, UK	*B. Serrata* Extract	Soothes and reduces skin Inflammation.
Kate Ryan—Collagen Booster Intense Repair Serum, Dayton, USA	*B. Serrata* Extract	Reduces lines and wrinkles.
LANCER—Soothe and Hydrate Serum, Beverly hills, USA	*B. Serrata* Extract	Improves skin redness while balancing skin tone.
Mitomo—Hyaluronic Acid + Lithospermum Facial Essence Mask, Tokyo, Japan	*B. Serrata* Extract	Brightening, moisturizing, and refining.
Skin Actives—Collagen Serum, Chandler, USA	*B. Serrata* Extract	Helps improve skin tone and texture.
Kate Somerville—Liquid Exfolikate, Moreno Valley, California, USA	*B. Serrata* Extract	Soothes skin.
Yadah—Anti-T Mist, Seoul, Korea	*B. Serrata* Extract	Revitalize and smoothens skin.
New Vitality Lumatone—Anti-Aging Eye Cream, New York, USA	*B. Serrata* Extract	Antiaging.

7. Summary and Future Aspect

This review summarizes the chemical structure and biological activities of *C. Myrrha* and *B. Serrata* and their uses as cosmetic ingredients. The results of previous studies re-

vealed their nutritional, pharmaceutical, and cosmetic benefits, as they were used over time. These plants are a natural source of medicines and cosmetics. They have anti-inflammatory, antibacterial, antioxidant, and anti-irritant properties. These plants are also antiaging, antiacne, and skin brightening and soothing. Additionally, they reduce the effects of spots and acne. It is also effective for hair and scalp health and antihair-loss.

Further developing value-added cosmetics may prevent many common skin disorders, such as eczema, chapped skin, wrinkles, dark spots, and hair loss. This review highlights the practical uses of *C. Myrrha* and *B. Serrata* as new and safe value-added products and cosmetic ingredients. Thus, using these plants for cosmetic value helps the growth of the cosmetic industry and the optimum exploitation of these natural resources.

From an economic perspective, finding natural sources with cosmetic properties and using them in the development of cosmetics helps to achieve the best use of these plants and is likely to reduce environmental losses, such as burning plants and dumping environmental waste, and helps expand the sources of income for countries exporting these plants.

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