



A REVIEW ON HERBAL SOAP FORMULATION AND DERMATOLOGICAL ACTIVITIES OF *EVOLVULUS ALSINOIDES*

**Dr. M. Sakthivel¹, Dr. S. Mohamed Halith², K. Gayathri³, M. Haalid Mohammad³, S. Harshaa^{3*},
M. Imzeerah Safiya³, M. Jafirah Ahlam³**

¹Professor and HOD, Department of Pharmaceutics, Dhanalakshmi Srinivasan College of pharmacy, Perambalur, Tamil Nadu, India.

²Principal, Dhanalakshmi Srinivasan College of Pharmacy, Perambalur, Tamil Nadu, India.

³Students, Department of Pharmaceutics, Dhanalakshmi Srinivasan College of Pharmacy, Perambalur, Tamil Nadu, India.



***Corresponding Author: S. Harshaa**

Students, Department of Pharmaceutics, Dhanalakshmi Srinivasan College of Pharmacy, Perambalur, Tamil Nadu, India.

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ABSTRACT

Herbal cosmetics are gaining popularity because of their natural sources, safety, and fewer side effects in contrast to synthetic cosmetic items. Herbal soaps are significant in ensuring skin cleanliness and supporting healthy skin. Herbal soaps are created with plant-derived components that have healing attributes, including antibacterial, antioxidant, antiseptic, and skin-nourishing benefits. In this project, an herbal soap was created using the extract from *EVOLVULUS ALSINOIDES*, a medicinal plant frequently utilized in traditional medicine. This plant is recognized for its healing, anti-inflammatory, and antioxidant qualities, making it advantageous for applications in skin care. The inclusion of this herbal extract in soap assists in purifying the skin while offering extra protective and nourishing properties. The skin, as the body's largest organ, needs adequate care and cleanliness to uphold its protective roles. Herbal soaps made from natural components aid in gently cleansing the skin, keeping it moisturized, and preventing different skin issues without leading to irritation. This study aims to showcase the plant profile and advantages of herbal soap made with the *Evolvulus alsinoides*, while underscoring the significance of herbal components in cosmetic products. Utilizing these natural formulations encourages safer and environmentally friendly options compared to traditional synthetic cosmetic products.

KEYWORDS: Herbal Soap, Skin care, *Evolvulus alsinoides*, Natural Ingredients.

INTRODUCTION

Cosmetics are the products used to cleanse, bedeck, and enhance the appearance of the mortal body. The word dress is deduced from the Greek word "Kosmetics", which means 'Skill in decorating.' With the advancement of wisdom and technology, the conception of cosmetics has evolved into cosmeceuticals, which are products that combine both ornamental products because they're considered safer, more effective, and have smaller side goods compared to synthetic phrasing. Herbal cosmetics are the medications thar contain natural constituents attained from shops similar as leaves, flower, seeds, roots, and excerpts. These constituents retain medicinal and remedial parcels that help nourish,

cover, and maintain healthy skin. Traditional systems of drugs similar as Ayurveda have a long emphasized the use of herbal constituents for skin care and beauty treatments. Due to their natural origin and comity with the mortal body, herbal ornamental products similar as detergents, soaps, creams, and poultices have gained significantly fashion ability worldwide.^[1]

The skin is the largest organ of the mortal body and plays an important part in guarding the body from environmental factors, microorganisms, and dangerous substance. It also performs several essential physiological functions including temperature regulation, sensitive perception, and vitamin D conflation.

Structurally, the skin consists of three major layers the epidermis, dermis, and hypodermis. Proper skin care is essential for maintain its defensive function and overall health.^[5]

Herbal soaps are extensively used ornamental products that help maintain skin hygiene while furnishing fresh remedial benefits. Unlike synthetic soaps that may contain harsh chemicals, herbal soaps are prepared using natural constituents and factory excerpts that are gentle on the skin. These soaps retain parcels similar as antibacterial, antioxidant, antiseptic, and moisturizing goods that help ameliorate skin health.^[11] One of the important medicinal shops used in herbal ornamental phrasing is *EVOLVULUS ALSINOIDES*. It's a small imperishable condiment extensively used in traditional drug due to its antioxidant, anti-inflammatory, and remedial parcels. The factory contains colorful bioactive composites that contribute to skin alimnt and protection. Incorporating this herbal excerpt into cleaner phrasing can enhance the medicinal and ornamental value of the product. Thus, the present study focuses on the part of herbal constituents, particularly *Evolvulus Alsinoides*, in the expression of herbal cleaner for effective and natural skin care.^[20]



Figure 1: Cosmetics shop.^[4]

Cosmetics and their classification

It's hard to pin down exactly what the word "COSMETICS" means because it applies to so many different parts of the body and has such a wide range of use. Cosmetics are meant to be applied to the skin by rubbing, pouring, or sprinkling then on, and they used to make someone look more beautiful, clean their skin. It helps improve or keep the skin and hair healthy. Cosmetics help men and women look more attractive. The biggest growing part of the beauty business id cosmeceuticals. They are special products that work like medicine to improve the health and look of the skin. They are designed to achieve specific benefits, such as reducing skin irritation, protecting against the sun, preventing blemishes, and fighting signs of aging.^[2]

Classification^[2]

The preparation for cosmetics involves creating different types of beauty products. The main kinds of cosmetic formulas can be grouped into three categories.

1. Solid- They include talcum powders, face powders, mask, and other similar products.
2. Semisolid- They include cream, liniments, ointments, and wax base cream, others.
3. Liquids- They include lotion, hair oils, moisturizers, conditioner, shampoos, cleansing milk.

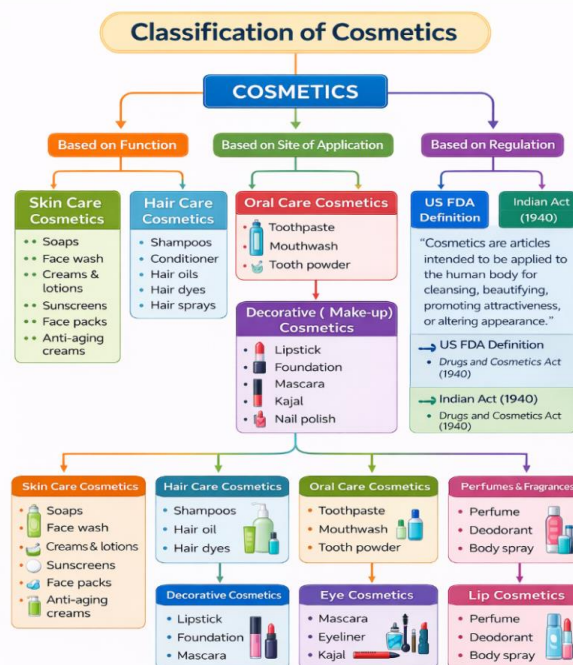


Figure 2: Classification of cosmetics.^[7]

Herbal cosmetics

Herbal cosmetics are made using different cosmetics ingredients as a foundation, and then one or more herbal components are added to help address different skin issues, as illustrated in **Figure 3**. Plants are commonly used to create new medicines for use in beauty products and medicines. The drug and cosmetics Act says that herbs and essential oils in cosmetics cannot say they go deeper than the skin's surface or have healing effects. Using juice and extracts from plants leaves on the skin is done because they have properties that fight germs and reduce inflammation, which helps with the skin problems like eczema, ringworm, and itching. Making soap with herbs gives it qualities that fight acne and protect against damage, and it uses parts of plants like leaves, stems, roots, and fruits to help with injuries, sickness, and overall health.^[3]

Advantages of Herbal cosmetics over Synthetic cosmetics

Herbal cosmetics are becoming really popular in the world of beauty and fashion today. These agents are becoming more popular because now most women choose natural product instead of chemicals for their

personal care to improve their beauty. These products give the body good nutrients, help with health, and make people feel satisfied. They don't have synthetic chemicals and cause fewer side effects compared to regular cosmetics.^[3]



Figure 3: Herbal cosmetics.^[4]

Skin and its functions

Skin is the biggest organ in the human body and serves as the outer layer that protects the inside parts of the body from outside dangers and harmful germs. It acts as a defense between the body and outside world. The skin does many important things for the body, like helping to keep the body's temperature steady, making vitamin D, and sensing things like touching, pressure, and pain.^[5] It also helps in taking in medicines and beauty products that are applied on the skin. The whole outside area of the skin in grown-ups is usually between about 1.2 and 2.2 square meters.^[6]

Skin types^[8-10]

1. Dry skin: Dry skin causes discomfort and increased sensitivity, which can occasionally result in irritation.
2. Oily skin: The over production of sebum is characteristic of oily skin; the skin appears oily or glossy.
3. Normal skin: Normal skin people are considered to be balanced and healthy state. Their skin maintains a natural moisture balance.
4. Sensitive skin: this condition may respond to various external and internal factors. It can be triggered by chemicals.
5. Combination skin: Presence of both oily and normal or dry areas on the facial surface.

Anatomy of the skin

The skin has three main layers: The Epidermis, Dermis, and Hypodermis, as shown in **Figure 4**.

1. Epidermis: It is the top layer of the skin that serves as the main defense for the body. It has special cells that help protect the body, fight infections, and handle senses like touch and temperature.
2. Dermis: This layer keeps the skin strong and flexible. The dermis has connective tissues, blood vessels, nerves, hair follicles, and sweat glands that help keep the skin healthy.
3. Hypodermis: It is also called as subcutaneous layer, is the deepest layer of the skin that links the skin to muscles and bones beneath. It is mostly made up of fat and connective tissue, which help keep the body warm, store energy, and protect the organs inside.^[8]

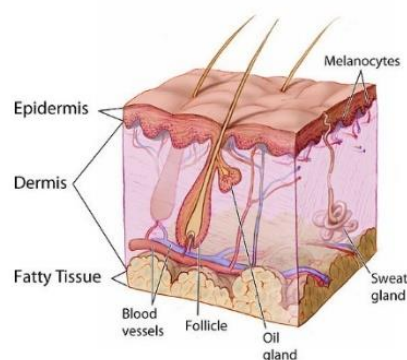


Figure 4: Anatomy of the skin.^[4]

Herbal soap

Herbs are natural items that are used to help with almost every illness and skin problem because they are very effective, not too expensive, easy to find, and work well with the body, as shown in **Figure 5**. Making herbal soap is like making a medicine that has qualities to fight bacteria, help skin stay young, protect against damage from radicals, and prevent infections. It mainly helps with injuries and illness or keeps people healthy by using parts of plants like seeds, rhizomes, nuts, leaves, flower, and pulps. Herbal soap does not contain artificial colors, flavorings, fluorides, or other additives.^[11] People have passed down the skill of making soap from one culture to another for a long time. Today, soap is made in many ways. Some people make it by hand, while others use big factories with modern machines and technology. Soaps help get rid of dirt and bad smell, and herbal soap also offer extra health benefits. Herbal soaps are made with natural ingredients, which are gentle on the skin.^[12] For better skincare, they use aromatherapy and herbal treatments. They offer special healing benefits that help make skin and hair stronger, more hydrated, more nourished, and better repaired. Glycerin in herbal soaps helps the skin stay moist and can help with skin problems.^[13]

Benefits of herbal soap^[14]

- Helps reduce signs of aging.
- Remove dirt and impurities from the skin.
- Calms and relax the skin.
- Is soft and not harsh on the skin.
- Keeps the skin hydrated and soft.



Figure 5: Herbal soap.^[4]

Plant Profile

In this study, we look at how to create and test herbal soap bar by adding the plant *Evolvulus Alsinoides*, which is known for its health benefits, into the process of making soap, as shown in **Figure 6**. *Evolvulus alsinoides* Linn, it is a type of plant that grows year after year, spreads along the ground, and is part of the Convolvulaceae plant family. It's often seen in warm areas like India, Sri Lanka, and southeast Asia. These plants usually grow in dry, rock places and open grassy areas. For a long time, this plant has been used in traditional medicine system such as Ayurveda and Unani because it helps improve brain function and supports the health of the nervous system. Many research reports say that this plant has several health benefits, like improving brain function, helping the body adjust to stress, reducing anxiety, treating depression, and fighting harmful chemicals in the body.^[15]

Other Names

- ❖ Vishnukranthi
- ❖ Shankhapushpi
- ❖ Dwarf Morning Glory



Figure 6: *Evolvulus Alsinoides*.^[4]

Taxonomy of *Evolvulus Alsinoides*^[16]

Category	Classification
Kingdom	Plantae
Division	Magnoliophyta
Class	Magnoliopsida
Order	Solanales
Family	Convolvulaceae
Genus	<i>Evolvulus</i>
Species	<i>Evolvulus alsinoides</i> (L.) L.

Dermatological activities of *Evolvulus Alsinoides*

Evolvulus alsinoides is a plant used in traditional medicine. It has several health benefits and is studied for its effect on the skin. Many studies done in the lab and with living organisms have shown that it works well for treating various health issues. Because the plant has active chemicals like alkaloids, flavonoids, and phenolic compounds, it has strong effects on the skin that could help improve skin health.^[17]

1. The extract from *Evolvulus alsinoides*, made using alcohol, has been found to help wound heal faster in experiments done on Wistar mice. The plant extract help tissue heals faster and speeds up the recovery process. The presence of substance like betaine, which are alkaloids, might help improve ability to heal wounds.^[18]
2. The leaves of *Evolvulus alsinoides* have a property that reduces inflammation by stopping proteins from changing shape. This activity was tested using albumin denaturation method, showing it might help lower inflammation. These qualities help the plant work well for healing skin issues that cause inflammation.^[19]
3. The raw extract from *Evolvulus alsinoides* has moderate antioxidant activity, which helps in reducing free radicals. The antioxidant ability was checked through the DPPH free radicals scavenging test. This activity might help keep skin cells safe from damage caused by harmful chemicals.^[20-21]
4. The extract made from *Evolvulus alsinoides* using methanol shows strong ability to fight against different harmful microorganisms. Research has found that it works against bacteria like *Escherichia coli*, *Bacillus cereus*, *Pseudomonas aeruginosa*, and *Staphylococcus aureus*. The extract also demonstrates the ability to fight against *Candida* species.^[22]

Methods used in formulating Herbal soap

There are several formulating methods that are been used to make herbal soap in order to maintain the maximum efficiency of the herbal plant extract.

1. Hot Process method
2. Cold Process Method
3. Melt and Pour Method
4. Re batching Method
5. Liquid Soap

➤ Hot process: The hot process of soap preparation is commonly used by small and medium-scale

producers to obtain purified neat soap free from glycerin. In this method, melted fats are placed in a kettle and gradually mixed with caustic soda solution, the heated with steam to initiate saponification, producing soap and glycerin. To separate glycerin, brine is added, causing the mixture to split into two layers: an upper layer of crude soap and lower layer containing glycerin dissolved in salt water. Finally, the mixture is allowed to settle through pitching and washing, producing purified neat soap.^[23]

- Cold process: The cold process is the easiest way to make soap and is often used when making small amounts or batches of soap. In this method, high-quality fats or oils are combined with a strong alkali solution and mixed constantly for around two hours to create a smooth blend. If hard fats are used, they

are added after the exothermic reaction between oil and alkali creates enough heat to keep them melted. Then, additives like colors and perfumes are added in. Finally, the soap becomes firm and fully sets over a period 8 to 12 days before it's ready to be used or packed.^[23]

- Melt and pour method: This method uses pre-made soap bases that are melted, mixed with things like scents and dyes, and then poured into molds to make soap. This method is easy, quick, and often used to create fancy or special soaps. Each way of making soap lets you choose different ingredients, change how the soap works, and make it fit your needs, so making soap is both a skill and an art.^[24]



Figure 7: Methods of soap making.^[4]

CONCLUSION

Herbal cosmetics have gained increasing popularity because they are derived from natural sources, are generally safer to use, and cause fewer side effects compared to synthetic cosmetic products. Herbal soaps are natural formulations that help maintain skin cleanliness and health while also providing additional therapeutic benefits. These soaps contain plant-based ingredients that possess antibacterial, anti-inflammatory, antioxidant, and skin-protective properties, making them suitable for daily use.

Evolvulus alsinoides is an important medicinal plant widely used in traditional medicine due to its various healing properties. The plant contains several bioactive compounds such as alkaloids, flavonoids, and phenolic compounds, which contribute to its medicinal and dermatological benefits. Studies have reported that it exhibits wound-healing, anti-inflammatory, and antioxidant activities, making it a suitable ingredient for herbal cosmetic formulations.

Incorporating *Evolvulus alsinoides* extract into herbal soap formulations can enhance cleansing properties while also promoting skin protection and healing. Therefore, soaps prepared with this plant extract may serve as a natural and environmentally friendly

alternative to synthetic soaps. The use of such herbal ingredients supports healthier skin and meets the growing demand for safe and eco-friendly cosmetic products. Further research is required to optimize extraction methods, improve product stability, and scientifically validate the dermatological benefits of this plant-based ingredient in cosmetic formulations.

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