



(REVIEW ARTICLE)



## Exploring Herbal Soaps: Types, Health Benefits, and Practical Applications

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### Abstract

Due to their skin-friendly qualities and little environmental effect, herbal soaps have grown in popularity as a natural alternative to synthetic soaps. The extracts from a variety of medicinal plants known for their traditional therapeutic benefits are used to make these soaps. Essential oils, plant extracts, and powders are examples of natural components that are high in bioactive molecules such as flavonoids, alkaloids, tannins, and saponins, which give them their antimicrobial, antioxidant, anti-inflammatory, and hydrating qualities. The growing interest in herbal soaps, their manufacturing processes, and their medicinal value are all examined in this review. It draws attention to widely used herbs like Aloe vera, Neem, Tulsi, Turmeric, and Mimosa pudica, discussing their traditional uses and modern relevance in skincare. The texture, lather, and moisturizing capacity of the finished product are greatly influenced by the selection of base ingredients, which may include glycerin, coconut oil, or castor oil. The most popular ways to make herbal soap, such as the cold process, hot process, and melt-and-pour methods, are also covered. Herbal soaps are appropriate for all skin types, especially sensitive and acne-prone skin, because they not only cleanse the skin but also have calming, healing, and revitalizing effects. Herbal compositions are biodegradable and less likely to cause skin irritation, allergic reactions, or long-term skin damage than chemical-based soaps. Their increasing popularity is a result of the rising consumer demand for organic, environmentally friendly, and sustainable personal care goods. The review also highlights the significance of phytochemical screening of plant extracts, quality control, and standardization in the production of herbal goods. These items must undergo safety assessments and dermatological testing in order to demonstrate their effectiveness, safety, and market acceptability. In conclusion, using herbal soaps is a holistic and environmentally responsible way to take care of your skin. The combination of plant-based components, traditional knowledge, and cutting-edge formulation approaches holds great promise for herbal cosmetics. Continued research and development in this area might result in the creation of high-quality, safe, and effective herbal cleaning products that meet the increasing demand for natural skincare options.

**Keywords:** Herbal soap; Medicinal plant; Anti-oxidant; Hydration; Anti-microbial

### 1. Introduction

The story of makeup starts a tale that follows through human history as it changed over time. Many years ago, about 3000 BC, our ancestors used different colors to adorn themselves in a bid to attract the animals they aimed to catch. Moreover, they colored their skin and adorned their bodies to frighten off potential threats, be it other people or wild creatures<sup>[1]</sup>.

Herbal soap making is a form of medicine. It mainly uses parts of plants like leaves, stems, roots, and fruits to help heal wounds or sickness and to support overall health by including ingredients that fight fungi and bacteria. This kind of solution has properties that kill germs, is used on the skin, and comes in different types such as lotions, gels, soaps, liquid extracts, and creams. Various skin problems have been addressed by the features of certain soaps and creams.

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The benefits of these herbal healing products include fighting bacteria, germs, inflammation, worms, diabetes, as well as providing antioxidants, among other things. Herbal soaps effectively clean the skin by removing dirt, oil, and impurities without stripping away its natural moisture. They can also help keep the skin's natural pH level balanced and prevent excessive dryness<sup>[2]</sup>.

Herbal soap is a type of soap made from natural ingredients sourced from different plants and herbs. Typical components of herbal soap include rosemary, mint, lavender, and chamomile. These plants contain beneficial vitamins, minerals, and essential oils that can help improve skin health in many ways. Herbal soap is especially popular among people with dry or sensitive skin because it is known for its soothing, refreshing, and healing properties. Nowadays, some beauty products on the market are mixed with harmful substances, and many are of low quality, which increases the risk of negative skin reactions and even skin issues<sup>[3]</sup>.

Unlike store-bought soap, herbal soap is free from artificial colors, fluoride, flavorings, or other extra ingredients. Because herbal soaps harness the power of natural plants, which are commonly used to heal different health issues and skin problems, they offer significant healing advantages. Importance, availability, cost-effectiveness, and suitability. The precious offerings from Mother Nature are clear in the increasing popularity of herbal beauty products around the globe<sup>[4]</sup>.

Herbal cleaner medicine refers to one or more medicines that include substances fighting bacteria and fungi. These products are often made from natural parts of plants such as leaves, stems, roots, and fruits to help heal injuries or sickness and keep people healthy. This type of medicine has the ability to fight germs and is available in many forms for the skin, like creams, gels, cleaners, liquid extracts, and ointments. Different creams and cleaning products have been used to treat various skin conditions<sup>[5]</sup>.

Several commercial soaps contain harsh chemicals that can annoy the skin, so choosing a natural herbal soap could be a smarter option. Herbal soaps are crafted with genuine herbs and natural ingredients that are beneficial for the skin and are less likely to cause negative reaction <sup>[6]</sup>.

Since long ago, people have relied on drugstores for health remedies. Various plants, including their leaves, stems, and roots, have been used to treat a range of sicknesses and ailments. Even though many manufactured drugs have been replaced by synthetic options, ayurvedic products continue to stand out due to their trustworthiness and safety <sup>[7]</sup>.

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## **2. Benefits**

### **2.1. Cleansing and Detoxifying**

Cleansing items help remove dirt, old skin cells, and mess that can clog the pores of the skin. Commonly used cleansers include natural oils like coconut oil, sesame oil, and palm oil.

### **2.2. Soothing and calming**

Herbal soaps often contain plants and natural extracts known for their relaxing and soothing qualities. Elements such as chamomile, lavender, calendula, and aloe vera can assist in reducing skin discomfort, redness, and swelling, offering comfort for issues like eczema, psoriasis, or sunburn <sup>[8]</sup>.

### **2.3. Moisturizing**

The hydration helps the skin to feel soft and stretchy. It gives a glowing look and lowers the risk of wrinkles. Some natural hydrating agents include plant glycerin, sorbitol, rose water, jojoba oil, aloe vera, and iris. These oils form a barrier that prevents dryness, leaving the skin feeling soft, elastic, smooth, and well-hydrated <sup>[9]</sup>.

### **2.4. Anti-Aging Effects**

A lot of natural soaps have components rich in antioxidants, like green tea, rosemary, or turmeric, which help combat free radicals and minimize visible signs. These antioxidants protect the skin from damage due to oxidative stress, helping it appear youthful and radiant.

### 2.5. Gentle and Mild

Herbal soaps are gentle and soft on the skin, making them a great choice for people with sensitive skin. These soaps offer a more comfortable and better option than regular soaps since they do not contain strong chemicals, fake scents, or man-made ingredients that could cause skin irritation [10].

### 2.6. Aromatherapy Benefits

Herbal soaps usually have essential oils that offer calming effects during your shower or bath. The nice scents from essential oils like lavender, peppermint, or citrus can improve your spirits, calm your thoughts, and help create a peaceful spa-like environment.

### 2.7. Environmentally friendly

Herbal soaps are generally eco-friendly and can decompose on their own.

## 3. Herbal Soap

Herbal soap is a form of soap made from natural materials sourced from healing plants, including plant extracts, essential oils, and ground herbs. In contrast to traditional soaps that have artificial chemicals, herbal soaps use the calming qualities of herbs to wash, hydrate, and safeguard the skin. They are usually environmentally friendly, gentle on the skin, and lack harsh ingredients, which makes them appropriate for every skin type, even sensitive skin.

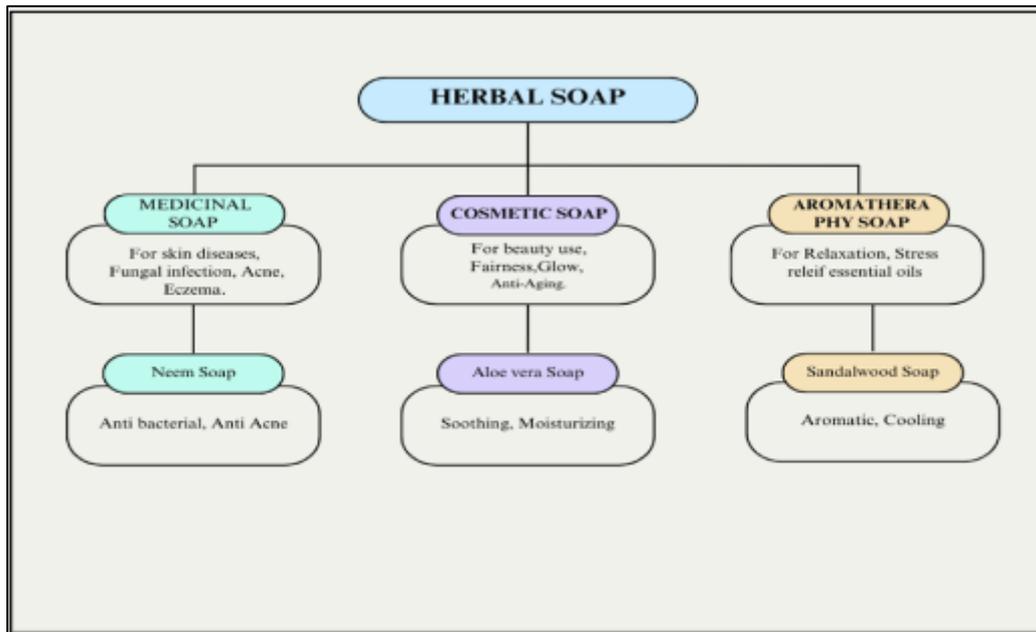


Figure 1 Types of Herbal Soap<sup>[11]</sup>

### 3.1. Type of soap

- Laundry soaps
- Cleaning soaps
- Personal soaps
- Novelty soaps
- Perfumed soaps
- Guest soaps
- Beauty soaps
- Medicated soaps
- Glycerine soaps
- Transparent soaps

### 3.1.1. Laundry Soaps

Laundry detergents are cleaning products designed to take away various kinds of dirt, such as oil, marks, and organic leftovers like sweat or food bits from clothes. They come in three forms: liquid, powder, and gel, each with its own benefits. Liquid detergents work really well on oily or greasy marks and mix easily in both hot and cold water. Powdered versions are budget-friendly and great for tough cleaning, while gels are milder and safer for fragile materials. The choice of detergent often relies on how hard the water is, what kind of fabric it is, and what type of washing machine is used [12,13].

### 3.1.2. Cleaning Soaps

Cleaning soaps are made to remove dirt, oil, and leftover materials using gentle ingredients instead of rough particles. In contrast to all-purpose cleaners, which might have strong chemicals or scrubbing elements for tough jobs, cleaning soaps offer a softer option. ideal for regular use on Delicate places like skin or soft fabrics. They maintain cleanliness without damaging surfaces or triggering allergies, which makes them ideal for household chores and light industrial work [14].

### 3.1.3. Personal soaps

Personal soaps are made for daily hygiene and are available in various shapes, colors, and ingredient combinations to cater to different skin types and preferences. These soaps may contain additional features such as moisturizers, essential oils, or herbal extracts to enhance skin health. One particular kind is antibacterial soap, which has ingredients like triclosan or chlorhexidine to lower or eliminate germs on the skin, helping to prevent bacteria and viruses when hands are washed often [15,16].

### 3.1.4. Novelty soaps

Novelty soaps are designed for children and people who like different products, often shaped like playful figures such as animals, cartoon characters, or objects like rubber ducks and soap on a string. These soaps offer two key advantages: they wash the skin and make bath time more enjoyable. Their eye-catching designs encourage kids to practice good hygiene while also providing entertainment. Many novelty soaps are made with mild ingredients that are safe for sensitive skin, making sure they are both safe and fun to use [17].

### 3.1.5. perfumed soaps

Scented soaps are made by adding special components like essential oils, artificial scents, or natural fragrances to create a nice smell when used. These soaps clean the skin and also give a better sensory experience, helping with relaxation, improving mood, or even providing health benefits through aromatherapy. Common scents are lavender, rose, sandalwood, and citrus. Certain scented soaps also have moisturizing ingredients, making them good for both beauty and skin care purposes[18].

### 3.1.6. Guest soaps

Guest soaps are tiny, nicely shaped bars meant for brief use by guests. Usually located in homes, hotels, and inns, they are set in the main or specific guest bathrooms to show kindness to visitors. These soaps often have beautiful forms like flowers, seashells, or shapes with straight lines and may have gentle scents or moisturizing elements. Besides their useful role, guest soaps also add beauty, improving the look of bathroom areas[19].

### 3.1.7. Beauty soaps

Beauty soaps are created to provide more than just cleaning; they also offer cosmetic and skin-care advantages. Usually, they have pleasant scents and contain special ingredients designed for different skin types, including dry, oily, or sensitive skin. Typical ingredients feature glycerin for moisture, natural oils such as coconut or almond for nourishment, and plant extracts that help calm or brighten the skin. The goal of these soaps is to improve the look, feel, and health of the skin, which makes them favored for everyday use and essential in personal care routines.

### 3.1.8. Medicated soaps

Medicated soap and ordinary soap are very similar. But, medicated soap has additional components such as antiseptics and disinfectants that regular soap does not have [20].

### 3.1.9. Glycerine soaps

Glycerine soaps are known for their see-through look and the glycerol they keep, which is a natural result of making soap. Glycerine is a strong humectant, meaning it pulls in and holds moisture from the air or the lower layers of the skin, helping to keep the skin hydrated and stop it from getting dry. In addition to keeping the skin moist, glycerine helps the skin's natural protective barrier, improves flexibility, and aids in skin healing—making it particularly good for sensitive or dry skin. These qualities make glycerine soaps a mild and nourishing option, often preferred in skincare products that cleanse without removing natural oils while providing a calming and skin-friendly effect [21,22].

### 3.1.10. Transparent soap

Transparent soaps, commonly known as clear soaps, are made using unique methods and ingredients that enable light to shine through them, resulting in a see-through look. In contrast to regular opaque soaps, these recipes typically include components like sugar, glycerin, and types of alcohol such as ethanol or isopropyl alcohol. The process of making them demands higher heat and careful monitoring to avoid any cloudiness. Although most transparent soaps have glycerin for its skin-hydrating qualities, some do not, making the choices in the formulation very important for reaching the intended clarity and skin advantages [23].

**Table 1** Skin types and its care

Skin type	Features	Suitable herbs for skin
Normal	Has a steady color, gentle feel, even surface, without noticeable holes or imperfections and without oily spots or dry flaking. Has a clean, delicate surface that is soft and even and is not oily or dry.	Pomegranate leaves juice, Herbal Face Pack, Gingili Oil
Dry	Limited oil production and likely to be sensitive. Appears dry and feels tight. Flaking and splitting are indications of very dry, water-starved skin.	Aloe Vera, Olive Oil, Calendula Comfrey
Oily	Shiny, heavy, and lackluster skin that is always oily has large pores and spots along with other unappealing marks. It is likely to develop blackheads.	Aloe Vera, Burdock Root chamomile. Horsetail, Oat Straw, Thyme, Lavender, Lemon Grass, Liquorice, Rose Buds, Witch Hazel Cucumber, Cedar Wood
Combination	Some areas of your face may feel rough or dry, whereas the middle sections such as your nose, chin, and forehead (known as the T zone) tend to be greasy. Combination skin can also refer to situations where you experience both wrinkles and breakouts, or rosacea alongside dry skin at the same time..	Witch Hazel, Menthol, Aloe Vera, Turmeric, Wheat Germ, Sweet Flag

## 3.2. Phytochemical Constituents in Herbal Soaps

Phytochemical components in herbal soap are natural substances from plants that offer health advantages and are included in the soap for their therapeutic and cosmetic qualities. These components are derived from various plant parts, including leaves, roots, flowers, and seeds, and may vary depending on the particular herbs used.

## 3.3. Phytochemical Constituents in Herbal Soaps

### 3.3.1. Alkaloids

#### Function

Alkaloids are chemicals that have nitrogen in them and are recognized for their strong effects on living organisms. In plant-based soaps, they offer benefits like fighting bacteria, reducing swelling, and easing pain.

#### Sources

- Neem (*Azadirachta indica*) – widely used for its antibacterial activity.
- Tulsi (*Ocimum sanctum*) – has soothing and healing properties.

- Mimosa pudica – exhibits wound-healing and anti-inflammatory action due to alkaloids like
- Mimosine<sup>[24]</sup>.

### 3.3.2. Flavonoids

#### Function

Flavonoids are strong substances that fight against harmful effects, helping to shield the skin from sun damage, lessen swelling, and reduce oxidative damage, which plays a role in aging and harming the skin.

#### Sources

- Green tea (*Camellia sinensis*) – rich in epigallocatechin gallate (EGCG).
- Chamomile (*Matricaria chamomilla*) – calming and anti-irritant effects.
- Turmeric (*Curcuma longa*) – contains curcumin with strong antioxidant action.
- Citrus peels – source of hesperidin and rutin, which brighten skin tone<sup>[25]</sup>.

### 3.3.3. Tannins

#### Function

Tannins are natural compounds that fall under the category of polyphenols and are recognized for their ability to tighten skin and fight off germs. They assist in firming up the skin, reducing the size of pores, and regulating the amount of oil produced.

#### Sources

- Witch hazel (*Hamamelis virginiana*) – a natural astringent used in skincare.
- Oak bark (*Quercus* spp.) – used traditionally for skin infections and wounds.
- Tea leaves (*Camellia sinensis*) – a rich source of catechins and theaflavins<sup>[26]</sup>.

## 3.4. Soap Base

### 3.4.1. Glycerine Base (Transparent Soap Base)

A clear soap base made with glycerine, often referred to as a "melt-and-pour" base, is a smooth and see-through material designed for simple use and personalized soap-making. Notable for its see-through look, this base includes glycerol mixed with natural oils, cleaning agents, and occasionally sugar or alcohol to enhance its clarity and ability to melt. This base works wonderfully for the melt-and-pour soap technique, allowing creators to easily melt the base, add favorites like plant extracts or essential oils, and pour it into molds without needing much equipment or dealing with lye, making it ideal for newcomers and hobbyists <sup>[27,28]</sup>.

### 3.4.2. Castile Soap Base

Traditional soaps made from olive oil usually consist entirely of olive oil, which is famous for its smooth feel and mild cleaning properties. Nowadays, many versions add coconut or palm oils to enhance the foam and make the soap harder—coconut oil increases the bubbles while palm oil helps with strength and shape, resulting in a well-rounded soap bar perfect for everyday use.

These soaps are very gentle and moisturizing, making them perfect for babies and people with soft or sensitive skin. Olive oil works to keep the skin's natural moisture and smooths its feel while usually not removing the skin's oils like regular soaps do. You can find olive oil soaps in both liquid and solid versions, and they are commonly used in natural cleansers for the face and body. Their soft ingredients, along with optional additions like plant extracts or essential oils, make them well-liked in natural skincare practices. They clean effectively without harming the skin's protective layer, which is why they are great for daily and mild cleaning<sup>[29]</sup>.

### 3.4.3. Goat Milk Soap Base

Goat's milk soaps are made with rich recipes that feature goat's milk, which is especially high in lactic acid, fats, and key nutrients. The large amount of fatty acids and cholesterol strengthens the skin's natural defenses, boosting moisture and reducing dryness and irritation. Additionally, lactic acid serves as a mild exfoliator, encouraging the skin to renew

itself. Goat's milk also has soothing qualities, which help ease sensitive or irritated skin, making these soaps ideal for those with dry, sensitive, or eczema-prone skin [30,31,32]

#### 3.4.4. Shea Butter Soap Base

Shea butter comes from the seeds of the African shea tree, known scientifically as *Vitellaria paradoxa*. It is a soft and creamy natural fat that is appreciated for its high levels of vitamins A and E. These vitamins are important for helping the skin heal and provide protection against damage. They aid in the production of collagen and fight harmful molecules, which helps slow down the signs of aging on the skin. Shea butter is great for moisturizing, as it fills the skin with necessary oils, keeps moisture in, and calms dryness. This makes it very effective for helping the skin to heal and refresh. Its fat content, particularly oleic and stearic acid, guarantees that it spreads easily and sinks deeply into the skin without feeling heavy. Because of its caring qualities, shea butter is widely used in herbal soaps that focus on nourishing the skin, preventing aging, and providing deep hydration, offering both practical benefits and a pleasant experience [33].

#### 3.4.5. Coconut Oil Soap Base

Coconut oil-based soaps are made using coconut oil, a solid natural fat that creates strong, long-lasting bars with a creamy, foam-like lather. This happens because it contains a lot of medium-chain fatty acids, especially lauric acid, which helps with washing and makes lots of bubbles. These fatty acids also give the soap important germ-fighting and thorough cleaning abilities, making it great for people with oily or acne-prone skin. However, since coconut oil can occasionally remove the skin's natural oils, soap makers usually mix it with softer, more hydrating oils like olive or shea butter. This combination helps keep the skin moist, while still ensuring good foaming and cleaning power. Such mixtures result in a soap that cleans well without making the skin feel tight or irritated when used [34].

#### 3.4.6. Aloe Vera Soap Base

Aloe vera infused soaps contain the cooling, soothing gel or extract from the aloe plant, known for its healing properties for skin. This ingredient is great for easing inflamed or sunburnt skin, providing mild anti-inflammatory benefits while helping to lessen redness and pain. Moreover, aloe vera gel aids in healing wounds by encouraging collagen production and improving cell regeneration in injured skin. Its natural cooling sensation offers quick and refreshing relief, making these soaps particularly good for taking care of skin after sun exposure and promoting its recovery. Aloe vera's combination of antioxidant, antiseptic, and moisturizing qualities also makes it perfect for herbal products aimed at treating acne, irritation, or skin care after being in the sun. These soaps not only clean the skin but also give important soothing and healing benefits, improving overall skin health while providing a refreshing wash experience [35,36,37].

#### 3.4.7. Palm Oil / Palm Kernel Oil Base

Palm oil is commonly utilized in the production of soap because it helps create a solid texture and provides a rich, consistent lather, resulting in bars that keep their quality and last longer. The fatty acids found in palm oil, especially palmitic and stearic acids, improve the soap-making process, leading to a sturdy and enduring soap bar with dependable foam quality. This makes palm oil an important component for both mass-produced and handmade soap recipes.

However, the effects of making palm oil on the environment have caused major worries. Cutting down tropical forests for palm tree farms has resulted in deforestation, loss of animal homes, and increased greenhouse gases, especially in Southeast Asia, endangering wildlife and upsetting ecosystems. To tackle these problems, it is highly advised to choose palm oil that is sourced responsibly, like the kind that is certified by the Roundtable on Sustainable Palm Oil (RSPO), which aims to find a balance between business needs and caring for the environment and communities. [38].

#### 3.4.8. Natural Lye (Sodium Hydroxide)

Lye, which is usually found as sodium hydroxide or potassium hydroxide, is a crucial ingredient that starts the process of turning fats or oils into soap and glycerol. This happens when lye interacts with the triglycerides found in oils, breaking apart the ester bonds to produce soap molecules, which are the salts of fatty acids, along with glycerol. Although lye is very harsh before it is used, the saponification process completely eliminates any leftover lye, making sure it is not present in the finished soap and ensuring the soap is safe to apply on the skin..

In both types of soap making, whether it's cold or hot, when the chemical reaction has finished and particularly after the soap has cured properly any leftover lye is either used up or evaporates. This means the final soap does not have harmful properties or leftover alkaline. Therefore, even though lye is essential for making soap, it is not dangerous in the finished product that has been made correctly [39].

### 3.5. Advantage

- **Natural Ingredients**

Created using oils from plants, herbal infusions, and natural oils does not contain strong artificial chemicals.

- **Skin-Friendly**

Soft for the skin; good for those with sensitive, allergy-sensitive, or dry skin.

- **Therapeutic Benefits**

Plants such as neem, aloe vera, turmeric, and sandalwood have properties that reduce swelling, fight off germs, and calm the skin.

- **Eco-Friendly**

Able to break down naturally and usually not containing harmful substances such as parabens, sulfates, and synthetic colors..

- **Moisturizing Effect**

Frequently includes glycerin or natural oils such as coconut or olive oil that help keep the skin hydrated.

- **Less Risk of Irritation**

The lack of artificial scents and soaps reduces the possibility of skin problems or allergic reactions<sup>[40,41,42]</sup>.

### 3.6. Disadvantage

- **Shorter Shelf Life**

Because they do not contain chemical preservatives, herbal soaps can go bad or become stale faster.

- **Less Lather**

Herbal soaps might create a smaller amount of bubbles than store-bought soaps that have ingredients to make more foam.

- **Higher Cost**

Usually costs more due to the use of natural components and handmade crafting techniques.

- **Variability in Quality**

Homemade or locally made versions might differ in how strong they are, their acidity level, and how well they work.

- **Slower Results**

Herbal soaps might need a longer period to produce effects when compared to soaps made with chemicals.

- **Storage Issues**

Can become soft or liquid in moist or wet weather because of its natural ingredients

- **Storage Conditions**

Herbal soaps are more sensitive to environmental conditions (heat, humidity, sunlight), requiring careful storage to maintain quality.

- **Marketing Claims vs. Scientific Evidence**

Many herbal soaps are marketed with exaggerated claims about therapeutic benefits, but often lack strong clinical evidence to support them.

- **Possible Interaction with Medicated Skin Treatments**

Certain herbal ingredients may interact with dermatological medications, reducing their effectiveness [43,44,45].

**Table 2** Herbal Soap and Normal Soap<sup>[46,47]</sup>

Feature	Herbal Soap	Normal Soap
Ingredients	Natural extracts (e.g. neem, aloe vera, turmeric)	Synthetic detergents, chemical fragrances, preservatives
Primary Purpose	Skin nourishment, healing properties	Cleansing with fragrance and lather
Additives	Essential oils, medicinal plant extracts	Artificial colors, alcohol, parabens
Skin Compatibility	Gentler; suitable for sensitive skin May cause irritation, dryness in sensitive individuals	May cause irritation, dryness in sensitive individuals
Environmental Impact	Biodegradable; eco-friendly formulation	May contain non-biodegradable components
Fragrance Source	Derived from herbs or essential oils	Synthetic fragrances
Antibacterial/Healing	Often contains natural antimicrobials (e.g. Mimosa pudica, neem)	Uses chemical agents like triclosan or alcohol
Commercial Availability	More common in organic or Ayurvedic shops	Widely available in supermarkets

#### 4. Conclusion

Herbal soaps offer a natural and skin-friendly option compared to regular chemical soaps. They use plant extracts and essential oils to enhance skin health, lower inflammation, and decrease the chances of irritation typically linked to synthetic ingredients. Additionally, their biodegradable nature makes them an eco-friendly choice, in line with the increasing desire for sustainable and holistic personal care products. In summary, herbal soaps blend ancient knowledge with contemporary skincare advantages, providing a gentle, effective, and environmentally responsible way to cleanse.

#### Compliance with ethical standards

##### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

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