

A Review on: Herbal Soap

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Abstract

Most of the commercial soaps and detergent contain chemical that can be harmful to the skin. Using a natural herbal soap and detergent can be a good alternative. Bacterial skin infections are most common amongst people, requiring significant attention for treatment and also for maintaining healthy skin. Ayurvedic beauty care products are too known as home grown beauty care products. Ayurvedic cosmetics are also known as the herbal cosmetics the natural content in the herbs does not have any side effect on the human body most herbal supplement are based on several botanical ingredients with long histories of traditional or folk medicine usage. The final goal of this review is to evaluate dermatological activities of the ingredients.

Keywords: Herbal, Soap, Skin, Aroma, Anti-Bacterial

Introduction:

The most vulnerable part of body, skin epidermis, needs to be protected from being exposed to pathogenic bacteria. Nosocomial infection has become a crucial problem in the outcome of hospital healing, leading to prolonged hospitalization with the risk of transience. The Health Care Workers' (HCWs) hands are the main routes of exposure of drug-resistant pathogens and severe infections [1]. This therefore evokes utility of antiseptics for hand cleaning process. Many of the chemical antiseptic are commercially available as sanitizers consisting alcohol, chlorhexidine and so on. These hand-washes help to control contagious disease transmission associated with health care more effectively but they produce diverse effects on prolonged use. Their repeated application can lead to dermal irritation and also pathogen resistance. Some of the causative agents for skin infections are species such as *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Bacillus subtilis* and *Escherichia coli*. Some researchers have shown that growing resistance in microbes towards chemical antiseptics has led to severe disease outbreaks. The plants have traditionally been a strong source of anti-infective agents. Plant-based antimicrobials are a huge untapped medicinal source. They are effective in treating infectious diseases while at the same time attenuating many of the side effects often associated with synthetic antimicrobials. The leaves of *Terminalia catappa* (Almond Tree) have antioxidant, sudorific and antibacterial effects, and used as remedy for leprosy. These natural sources have phytochemicals like tannins, quercetin, kaempferol. *Curcuma longa* (Turmeric) has a wide range of medicinal and pharmacological applications and is used as a spice, preservative, coloring matter. It has anti-inflammatory, anti-HIV, antibacterial, antioxidant, nematocidal, anti-parasitary, antispasmodic and anti-carcinogenic activity. Likewise, *Garcinia indica* rinds generally referred to as Kokum are loaded source of organic acids primarily hydroxyl-citric acid and other garcinol contains [2]. Soap is a blend of sodium salts of various naturally occurring fatty acids. If the fatty acid salt has potassium rather than sodium, a softer lather is the product. Soap is produced by saponification or basic hydrolysis reaction of a fat or oil.

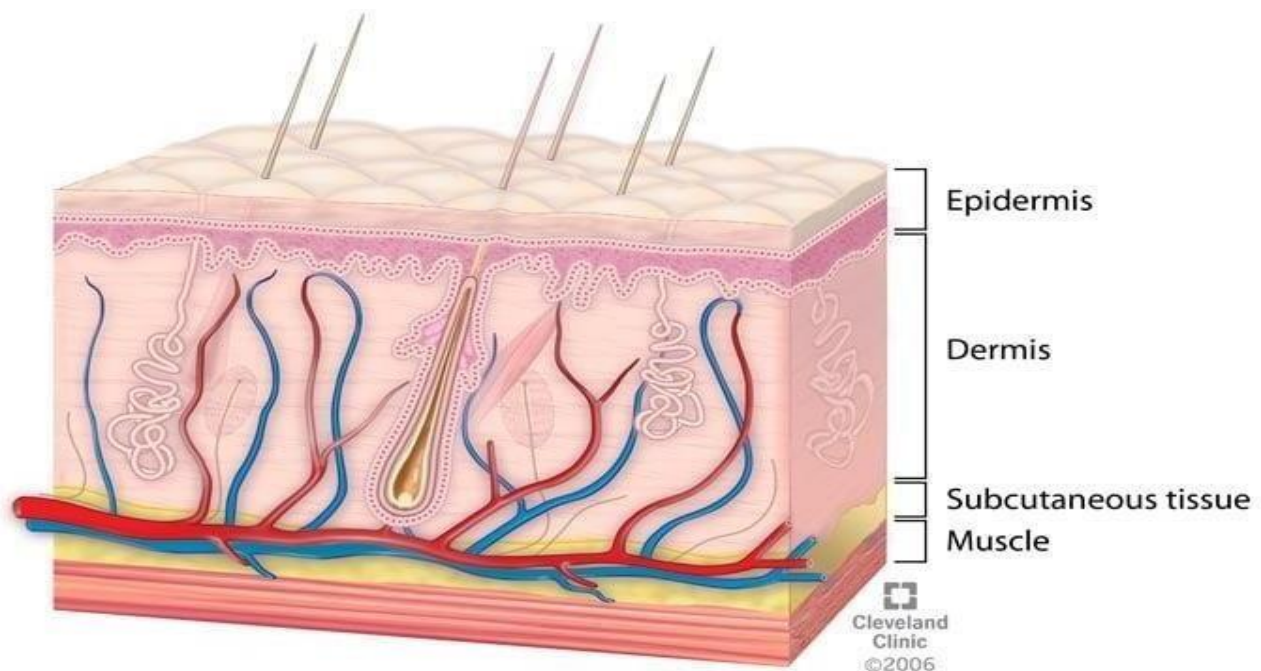
Most commercial soaps contain chemicals that can be harmful to the skin and using a naturalherbal soap can be a good alternative. Herbal soaps are made using natural herbs and ingredients that are healthier and beneficial for the skin and are less likely to cause any damaging effect .[3] Some of the natural soap manufacturers also use aroma treatment and herbal treatments to offer the best skin treatment way out for your skin. Made of rare herbs and 100% natural ingredients, herbal soaps are found to be highly beneficial for the skin. The herbs infused in these soaps have therapeutic and healing uniqueness that offer specific benefits to the skin, such as nourishment, strength, healing, and moisturizing. These soaps also contain super fatty oils, Vitamin E, Aloe, and essential oils that are allied to the goodness of skin and overall health [4]

Herbal soaps are also effective in curing different skin problems. These soaps also contain glycerin, which is generally not used in marketable soaps. Glycerine helps in retaining the moisture in the skin there by making these soaps for dry skin conditions. Herbal soap preparations are medicines or drugs which contain anti-bacterial & antifungal agents which mainly uses parts of plants such as like leaves, stem, roots & fruits for treatment for an injury or disease or to achieve good health. These preparations possess anti-microbial properties and are administered topically and available to apply in various forms like creams, gels, soaps, solvent extracts, or ointments[5] Soaps are used for staying fresh and for hygienic purposes but after effect of using chemical soap is dry skin, skin damage and skin allergies. Soaps made from chemicals lead to many skin infections and diseases also. They clog the pores of skin and hinder the cells from breathing. By delaying the natural regeneration process of skin, it makes the skin age faster. Moreover, the use of chemicals leads to severe damage to the environment also. Being the largest sense organ of the human body, skin not only as first line of protection but also prevent damage of the body by protecting the pores. Chemicals like SLS, DEA, BHT, triclosan, isopropyl alcohol, various smell perfumes, and color dyes can even lead to cancers in individuals [6-11].Herbal soaps are usually handmade and have 100% organic ingredients which impart only goodness to skin and are safe to environment too. a few herbs work well to naturally dye your products. Some herbs are wonderful for relaxing and stress relief. Other herb additives will give benefits to the skin, such as reducing acne or soothing irritation. Plus, there are herbs that contain a variety of healthy minerals and vitamins that are very beneficial. Herbal soaps are prepared by organic natural substances; they result in smoothening and rejuvenating the skin. Even the fragrance of herbal soap relaxes the mind without affecting environment. They will be devoid of artificial color and aroma. Moreover, chemical soaps have animal fat and lack the essential oils from plant extract which give a natural and pleasing aroma [12- 15]. Soap is the product of a chemical process called saponification, which occurs when acids in the form of animal or vegetable fats are combined with an alkali (a solution of sodium hydroxide and water, called lye) and produce a mixture of soap and glycerine. Quite simply, it's a slippery substance that produces bubbles. Soap making is an ancient craft. ancient people may have revealed soap when fat and ash met and saponified as they cooked over open pits. A soap manufactory was uncovered in the ruins at Pompeii, and the Greek physician Mr. Galen wrote concerning soap in the second century. It's hard to believe that as recent as the last century, soap had to be labeled as to it's use. Also during this time, soap fell out of fame as some modest Victorians believed "soap baths" as outrageous and sinful. Some of the famous brand name soaps that you buy today are actually not soap at all. Nowhere on the packages does the word "soap" come out, rather the products are labelled "beauty bars" or "deodorant bars". They are synthetic detergents. These "beauty bars" also contain chemical components called "builders" that increase the efficiency of the soap. This book will teach you how to make own "NATURAL SOAP". Starting with a soap bar, you can add your own natural ingredients, creating a product superior to a synthetic chemical blend that is commercially available.

This book contains practical, easy-to-follow instruction for creating your own hand-milled soap and other bath products. From the experience, perhaps you will develop a kinship with generations of home-makers who, using recipes handed down for centuries, produced bath and beauty products for their household using simple ingredients, herbs from the garden, and expected fragrances. I've included secrets for hand milling your own soap from a store bought soap base with other ingredients to make a superior, quality bar. The addition to the basic white soap include fragrant essential oils, herbs, flowers, colorants and rich oils to greatly improve the quality and appeal of the soap. Recipes are presented for extra than 20 different hand milled soaps. Only easy equipment is required (most of what you need is likely already in your kitchen), and the ingredients are common and readily obtainable in grocery stores, natural food markets, or easily grown in a home garden. There are also a variety of packaging and labelling ideas and plans for creaming unique and attractive gift collections with soap and bath produces that will delight family and friends, children and adults even the family dog. You can make your own bath products at home and package them elegantly for a fraction of the cost of store bought wares. Another advantage is knowing what's in your home made products many store bought products, including soaps, are not required to list their ingredients. Enjoy the process of creating your own personal care products and fragrance blends and presenting them in a professional, eye catching manner. It's another way to say, "I care, so I made it myself" [16-18]

Skin anatomy:

Skin is the largest organ in the body. It covers the body's entire external surface, serving as a first-order barrier against pathogens, UV light, and chemicals, and provides a mechanical barrier to injury. It also regulates temperature and amount of water released into the environment.



LIST OF HERBS WITH ITS FUNCTIONAL PROPERTIES USED TO FORMULATE HERBAL SOAPS:-[19-26]

1) ALOE-VERA LEAF POWDER

Family:- Asphodelaceae Synonym:- Aloe Barbidensis Properties:-

- Helps skin with irritation, sunburn, or inflammation.
- This herb is soothing and contains antioxidants, vitamin C, and other minerals (which allow the skin to heal faster than it normally would).
- It may improve skin and prevent wrinkles.



2) Beet Root Powder

Synonym: *Beta vulgaris* Family:- *Amaranthaceae* Properties:-

- Imparts shades of pinks and light reds.
- It has nutrients, such as beta-carotene, vitamin B5, vitamin B1, vitamin C, glycine, magnesium, phosphorus, potassium, selenium, tryptophan, tyrosine, and zinc.
- Several parts of this plant are used as antioxidant, antidepressant, antimicrobial, antifungal, anti-inflammatory, diuretic and carminative.



3) Orange Peel Powder:

Synonym: *Citrus sinensis* Family:- *Rutaceae* Properties:-

- It has lovely citrus scent
- It has anti-microbial and anti-bacterial properties.
- Clears out acne and acne scars.



4) Burdock Root Powder

Synonym:- *Arctium lappa* Family :- *Asteraceae* Properties:-

- It helps in treating chronic skin conditions, such as eczema, psoriasis, acne, boils, styes, herpes, carbuncles, cankers, and syphilitic sores.



5) Pomegranate Fruit Powder Herbs

Synonym: *Punica granatum* Family:- *Lythraceae* Properties:-

- It has high level of antioxidants and vitamins, which leads to promoting healthy cell growth by nourishing the skin.
- It has anti-inflammatory and anti-aging properties.



6) Green Tea Powder Herbs:

Synonym:- *Camellia sinensis* Family:- *Theaceae* Properties:-

- This herb has both antioxidant properties and gentle exfoliation abilities that make it nice for softening skin.



7) Marigold Flowers Whole Herbs

Synonym:- *Calendula officinalis* Family:- *Asteraceae* Properties:-

- It reduces inflammation, acne, burns, rashes, bruised or inflamed skin. Calendula provides pleasing, natural aroma to the soap.
- It is a relaxing tea especially for gastrointestinal issues, curing wounds, curing balm or salve, and even diapers rashes.
- It promotes healthy skin and hair,
- It helps to reduce varicose veins after a few weeks use.



8) Hibiscus Flowers Powder Herbs

Synonym:- *Hibiscus rosa* Family:- *Malvaceae* Properties:-

- It provides a pretty pink colour.
- It is rich in antioxidants and peptides which lead to wrinkle smoothing properties. This herb has been referred to as a natural Botox.



9) Carrot Powder Herbs

Synonym:- *Daucus carota* Family:- *Apiaceae* Properties:

- It repairs and tones the skin, reduce wrinkles and scars, and increase elasticity.
- This herb can be used to provide a natural orange colour in products.



10) Lavender Flower Powder Herbs:-

Synonym:- *Lavandula angustifolia*

Family:- *Lamiaceae*

Properties:-

- It has lovely and strong scent used in perfumes, bathing, wound healing, and natural insect repellent.
- It possesses anti-inflammatory, antiseptic antibacterial and healing property. It is found to increase tonicity of skin, therefore also used in treatment of acne, eczema, psoriasis and oily skin.

**11) Lavender Flowers Whole Herbs:-**

Synonym:-*Lavandula angustifolia*

Family:- *Lamiaceae*

Properties:

- This herb has all the same wonderful properties with same beautiful aroma, but this herb maintains the pretty flowers.

**12) Oat Straw Green Powder Herbs:-**

Synonym:- *Avena sativa* Family:- *Poaceae* or *Gramineae* Properties:-

- It helps in making skin soft and rejuvenated.



13) Cornsilk Powder Herbs:-

Synonym:-*Stigmata maidis* Family:- *Poaceae* or *Gramineae* Properties:-

1. It reduces inflammation and softens the skin.
2. Also Corn silk powder will leave hair smooth and soft.

**14) Camu Camu Fruit Powder Herbs :-**

Synonym:- *Myrciaria dubia* Family:- *Myrtaceae* Properties:-

- It has vitamin C, vitamin B1, B2, B3, beta-carotene, amino acids, phytochemicals, bioflavonoids, phosphorus, potassium, iron, antioxidants, and calcium, which are wonderful for the body. It imparts protection from premature aging by reducing free radical attack as it contains high amount of antioxidants.

**15) Comfrey Root Powder Herbs:-**

Synonym:- *Symphytum officinal* Family:- *Boraginaceae* Properties:-

- It expedites the healing process of wounds, stop bleeding, relieve pain, and help prevent infection.
- It reduces the pain associated with arthritis, sunburn, or other skin irritations.
- It is also recommended for diabetic sores to promote healing.

**16) Cocoa Powder Herbs:-**

Synonym:- *Theobroma cacao* Family:- *Malvaceae* Properties:-

- It is rich in smell and many vitamins and minerals,
- Cacao beans are rich in vitamins A, B1, B2, B3, C, E and pantothenic acid. Plus, they are rich in magnesium, calcium, iron, zinc, copper, manganese and potassium.
- It contains caffeine, which is actually beneficial to the skin.



17) Vanilla Powder Herbs:-

Synonym:- *Vanilla planifolia* Family:-*Orchidaceae* Properties:-

- It is rich in smell; it will not alter the color of product.



18) Chamomile

Synonym:- *Matricaria chamomilla*

Family:- *Asteraceae*

Properties:-

- It helps to relieve acne, wounds, cuts, burns, rashes, and even insect bites.
- It also treats restlessness, trauma and anxiety.



19) Tea Tree Oil

Synonym:-*Melaleuca alternifolia*

Family:- *Myrtaceae*

Properties:-

- It helps to penetrate the skin from its crucial condition and excessive exposure from chemical ingredients.
- This penetration capability is the main reason to allow these natural herbs to function remarkably well.



20) Peppermint

Synonym:-*Mentha piperita*

Family:- *Lamiaceae*

Properties:-

- Peppermint can be the best and alternative option treatment for the skin to relieve illness and health skinproblems.
- It is helpful for vomiting, lymph nodes, nausea, sinusitis and respiratory infections.



21) Neem oil

Synonym:- *Azadirachat indica* Family: *Meliaceae* Properties:

- It cures the burning and soreness while lessening the redness of the erratic lesions



22) Rosemary

Synonym: *Rosmarinus officinalis*

Family: *Lamiacea*

Properties:

- It is helpful to relieve hair circulation issues, and to avoid impulsive baldness.



23) Arnica Flower

Synonym: *Arnica Montana* Family: *Asteracea* Properties:

- It can be used to cure sunburns, relieving bruises, stressed and swelling skins.



24) Sandalwood

Synonym: *Santalum album* Family: *Santalaceae* Properties:

- It is having an essential oil that helps to dampen and hydrate the dry and aging skin.
- It also relieving the irritation and itching for some greasy skin conditions.



25) Turmeric

Synonym: *Curcuma longa* Family: *Zingiberaceae* Properties:

- It is used outwardly for skin injuries and minor sores, ringworm wounds, and especially athletes' foot.



26) Basil

Synonym: *Ocimum basilicum*

Family: *Lamiaceae*

Properties:

- It is helpful for skin irritation, stings, snake and insect bite, and skin acne.
- It is also considered as a key ingredient for rubbing aromatic body that relaxes the skin



27) Barberry

Synonym: *Berberis vulgaris*

Family: *Berberidacea*

Properties: This herb is useful to lessen the eruption of the skin in psoriasis stage



28) Charcoal Powder

Properties: Natural colorant (used as soap dye)

- Natural detoxifier
- Adsorb grime, the activated charcoal will provide a deep pore clean.
- Natural odour absorber

MATERIALS AND METHODS:-MATERIALS:-

Additives Ingredients added to soap during the hand milling process. These additions impart special characteristics to the finished bar. Examples: addition of extra oils to create a super fatted soap that adds extra moisturizing qualities and makes the soap richer and milder

Anti-oxidants Ingredients that retard the deterioration of the soap by preventing natural ingredient, such as fruits or vegetables, from combining with oxygen and becoming rancid. Example: vitamin E.oil.

Antiseptics Substances that inhibit the growth of bacteria on living tissue and in the product. Example: Lavender.

Aromatic Having a fragrant smell and/or taste.

Detergent A cleanser in which petroleum distillates take the place of natural fats.

Emollients Ingredients that moisturize the skin, smooth wrinkles, improve elasticity and protect. Example: glycerine.

Herb A plant used in medicines, as food, or for fragrance which has a soft stem and which, after flowering, dies or withers to the ground. The American Herb Society's official definition is "any plant that can be used for pleasure, fragrance or physic.

Hydrating Maintaining or restoring normal proportion of fluid in the body or skin. Used in cosmetics to keep the skin moist, firm, and young looking. Example: sweet orange oil, chamomile.

Irritant A substance that produces irritation or inflammation of the skin. Examples: natural and synthetic substances.

Saponification The chemical process in which fats or oils are combined with an alkali (lye) to produce soap and glycerine.

Spice A strongly flavored, aromatic substance usually obtained from the seeds or fruit of tropical plants. With a few exceptions, spices are not grown in home gardens in the northern hemisphere. Example: cinnamon, cloves. [27-30]

METHODS:-

Method 1-

Making hand milled soap:- A basic bar of white soap can be further made up and enhanced with fragrances, colors, fillers, and oils that the saponification action would normally affect. This process is called hand milling or French milling. The basic soap is changed by grating it, remelting it and mixing in additives to greatly improve the qualities of the soap. Commercially produced hand milled soap bars are considered the finest quality of soap available for their silky hardness, fragrance and excellent emollient characteristics. Produced at home, hand milled soaps are equally outstanding and can be molded and decorated in many creative ways. Using a store bought soap as a base to make hand milled soaps makes it possible to create amazing soaps in an afternoon, rather than the days it would take if your own soap. [31]

Method 2- Extraction:

The *Azadirachta indica*, *Ocimum tenuiflorum*, *Sapindus mukorossi* and *Acacia concinna* powder was extracted with water by decoction process. 9 gm of above stated powder was taken in conical flask and extracted with water for four hours with infrequent agitation then filtered.

Formulation of herbal soap:

To obtain extract of *Azadirachta indica*, *Ocimum tenuiflorum*, *Sapindus mukorossi* and *Acacia concinna* powder was included into a soap formulated with basic glycerin soap and which contain 1 gm stearic acid, 0.70gm soft paraffin. Weighed 1gm of stearic acid, 0.70gm soft paraffin, 5ml ethanol was in use. Glycerin basic soap was melted first and add it 1gm stearic acid, 0.70gm soft paraffin, 5ml ethanol were added. Extract was included into melted solution with continuous agitation for 30 minutes until molten mixture became uniform. The semisolid blend was poured into a mould and allowed to solidify. [32]

Method 3

Add 6 grammes of neem powder to a beaker, then to this beaker, add 2 grammes of tulshi, 4 grammes of aloe, 1 gramme of vitamin C, 1.5 gramme of vitamin E, 3 ml of rosewater, and 0.5 grammes of turmeric, and stir for two to three minutes. Giving a span on induction and adding some water, then taking a tiny amount of water and adding 12g of glycerine soap base in the container, causes the glycerine soap base to melt using the twofold heat technique. Mix when base has melted. All of the soap's ingredients are melted, combined, and heated to a final temperature before the addition of lavender essential oil to the preparation solution is given in a little, soap-shaped container. The final soap has been ready and is pouring [33]

Method 4

Commercial natural herbal soaps were manufactured in collaboration with the industry using 6% super fat (lye discount) and 35% water. A commercial lye calculator was used to calculate the rate of saponification for each oil used to formulate each soap. The soaps were prepared by a cold saponification or cold processing method. Sodium hydroxide (NaOH) was used as the base. The aqueous solution of NaOH was prepared and then allowed to cool for 60 min. A mixture of oils, including castor oil (5%), palm oil (20%), soybean oil (20%), olive oil (20%), coconut oil (30%), and butter (5%), was added to the NaOH solution and correctly blended to homogeneously mix the ingredients until just before trace was achieved. Parchment paper-lined molds were filled with the soap mixture and left to solidify at room temperature for 24 h. Following completion of the saponification process, each loaf of soap was removed from the mold, weighed (1.5 kg approximately), and the dimensions measured (0.05 × 0.08 × 0.38 m). The loaves were cut into 15 identical bars concurrently using a commercial wire loaf cutter. Each

bar had an equal shape, with dimensions of $0.03 \times 0.05 \times m$ and weighed approximately 0.1 kg. The bars were loaded into plastic containers and allowed to cure for a month by storing at room temperature in a dark room. After curing, kg soaps were cut from the centre of soap using a surgical blade wrapped with aluminium foil paper and kept in $-80\text{ }^{\circ}\text{C}$ for further analyses. [34]

Conclusion Herbal soaps have a strong impact on the skin, in terms of making it soft, smooth and supple. On the contrary, chemical soaps are full of damaging substances that can harm the skin as well as health. The multiple benefits of herbal soaps make them the right choice for better skin care and optimal health outcomes. From the scent to the therapeutic value and the aromatic benefits to medicinal properties, herbal soap heals, soothe and rejuvenate the skin. Herbal therapy does have the ability to heal a wide number of skin ailments. Around 80% of population in India depends on traditional health medicine and use different plant-based products for curing problems associated with skin. Compared with the conventional allopathic drugs, ayurvedic medicines have relatively low cost and can be of great benefit to the Indian people especially the poor people. Herbal medicines are a rich source of active ingredients and can be safer and cost-effective skin infection treatment ranging from rashes to dreadful skin cancer.

Abbreviations

HCW- Health Care Workers SLS- Sodium Lauryl sulphate DEA- Diethanolamine BHT- Butylated Hydroxytoluene Gm- gram
Kg- kilo gram Uv- ultra violet Min- minute
 $^{\circ}\text{C}$ - Celsius

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Author contribution

Mr Roshan Ahire and Ms Ketki Bonde review the literature, develop the manuscript and conceived the idea outline the content. Ms Rutuja Ahire and Faisal Bagwan collected the information. Mr Sandeep Sonawane edited the manuscript. All authors read and approved the final manuscript for submission.

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