



A Comprehensive Review on Herbal Soap

**Madhu Gudipati¹, N. Siri Abhigna², M. Anusha³, Ch. Dhruva Kumar⁴,
Sri Lakshmi⁵, A. Sudharshan Reddy⁶, P. Srinivasa Babu⁷**

^{1,2,3,4,5,6 & 7}Department of Pharmaceutics, Vignan Pharmacy College, Vadlamudi-522 213
Chebrole Mandal, Guntur Dt, Andhra Pradesh, India.

ABSTRACT:

The majority of herbal supplements are based on a number of botanical substances that have a long history of use in traditional or folk medicine and do not have any negative effects on the human body of the many botanical compounds that are currently offered on the market. The soaps with multiple herbal elements are those made from natural ingredients. To create polyherbal goods, many herbal plants and products are combined. These soaps were developed to replace synthetic soap. This herbal soap improves human health while minimising negative side effects. In today's world, herbal soap is quite important. It prevents environmental pathogen contamination. The term "herbal cosmetics" also applies to ayurvedic cosmetics. Cosmetics by themselves are insufficient to take care of skin and other body parts due to the numerous chemical poisons and microorganisms that can damage and infect skin. Due to the neem (*Azadirachta indica*) tree's extensive array of medical benefits, neem leaves have gained prominence throughout the world.

KEYWORDS: Cosmetics, Polyherbal Soap, Formulation, Antibacterial.

INTRODUCTION:

The word cosmetic comes from the Greek word "kosm tikos," which means to have the ability to plan and decorate. As cosmetics evolved throughout the course of human history, a consistent narrative about their beginnings emerged. In prehistoric times, around 3000 BC, man utilised colour as adornment to entice the animals he wanted to hunt. He also used colour to shield himself from enemy attack by decorating his body and colouring his skin (whether man or animal) [1].

The cosmetics, according to the Drugs and Cosmetics Act is defined as articles intended to be rubbed, poured, sprinkled or sprayed on, introduced into or otherwise applied to the human body or any part thereof for cleansing, beautifying, promoting attractiveness or altering the appearance. The cosmetic does not come under the preview of drug license. The herbal cosmetics are the preparations containing phytochemical from a variety of botanical sources, which influences the functions of skin and provide nutrients necessary for the healthy skin or hair. The natural herbs and their products when used for their aromatic value in cosmetic preparation are termed as herbal cosmetics. The Drug and Cosmetics Act specify

that herbs and essential oils used in cosmetics must not claim to penetrate beyond the surface layers of the skin nor should have any therapeutic effect [2].

Herbal soap preparation is a medicine or drugs it contains Antibacterial and antifungal agents which mainly uses of part of plants such as like leaves, stem, roots and fruits to treatment for a injury or disease or to achieve good health. This preparation possess antimicrobial property are administered topically and available to apply in various forms like creams, lotion gel, soap, solvent extract or ointment. The variety of creams and soap properties have been used to treat various skin disorders. Mostly skin infection is caused by fungi, staphylococcus aureus and streptococcus species. Ethnomedically, juice and extract from leaves of the plants are topically applied as antimicrobial and anti-inflammatory agents in treatment of skin disease including eczemas, ringworm and pruritus. The succulent gel form is used to disorders of psoriasis. Crude preparation of soapy plant is able to soften the skin epidermis enhance greater penetration and cleaning acne and also promote healing and resolution in quickly in time [3, 4].

Neem, tulsi, shikekai, and reetha are all natural plant constituents in the herbal soap reviewed in this article, and their combination exhibits antibacterial, antifungal, and anti-inflammatory properties. Neem, which is the principal ingredient in this soap, has medicinal qualities. Neem leaf and its extract have anti-inflammatory, antioxidant, antifungal, antibacterial, antimalarial, immunomodulatory, and anticarcinogenic properties. The most medicinally valuable herb is tulsi. Tulsi reduces blood glucose levels, making it useful for those with diabetes. In cases of severe acute respiratory syndrome, tulsi is also employed. Its leaf juice treats cough, cold, fever, and bronchitis. Tulsi is also employed as the primary ingredient in this herbal soap since it has antifungal, anti-inflammatory, and stress-relieving properties [5].

In ancient time the written information on ayurveda like charaka samhitha and varnya kashaya has explained the usage of herbs in getting glowing complexion. The herbs used were chandana, nagkeshara, padmak, khus, yashtimadhu, manjistha, sariva, payasya, seta (sweta durva) and lata (shyama durva). These ayurvedic herbs are used to purify blood and eliminate vitiated doshas like (vata, pitta, kapha) from the body as they are mainly responsible for skin disorders and other diseases. The herbs mentioned in khushtagna mahakashaya effective in skin disorders, include khadira, abhaya, amalaki, haridra, bhallataka, saptaparna, karavira, vidanga and jati. Some of the natural products used in ancient times include, the use of indigo and raktachandan as bindi/tika, madder root for beautifying lips and cheeks, aloe as skin protectant, chandan, vetiver and haldi as face packs [6].

The use of ayurvedic herbs adds cosmetic value to the products. The ayurveda is well known for the permanent cure for ailments and it is likely evident from the present market trends that the herbal cosmetic product will succeed in capturing the market. The knowledge about the structure and basic function of the skin and its appendages and knowledge of natural or herbal care or remedies for its problems will help to widen the importance of herbal cosmetics. The skin has the natural ability in continuously repairing to maintain its normal function. In young age the common skin problem are greasy skin and acne and during old age the skin becomes dry [7, 8]. To have a better skin, it is important to understand how our skin functions and to take proper precautions to maintain it. The skin are classified into 4 groups and for each class appropriate ingredients should be used to maintain its natural functionality (Table - 1).

Skin Types and Basic Skin Care:

The requirements for the basic skin care

- Cleansing agent, which remove the dust, dead cells and dirt that chokes the pores on the skin. Some of the common cleansers include vegetable oils like coconut, sesame and palm oil.
- Use of Toners: The toners help to tighten the skin and keep it from being exposed to many of the toxins that are floating in the air or other environmental pollutants. Some of the herbs used as toners are witch hazel, geranium, sage, lemon, ivy burdock and essential oils.
- Moisturizing: The moisturizing helps the skin to become soft and supple. Moisturizing shows a healthy glow and are less prone to aging. Some of the herbal moisturizers include vegetable glycerin, sorbitol, rose water, jojoba oil, aloe vera and iris.

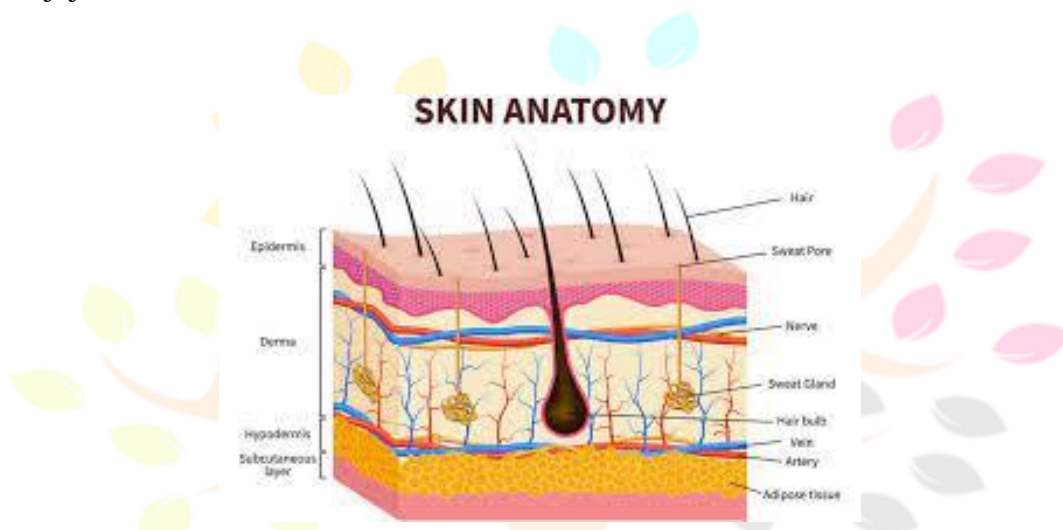


Figure 1: Skin Anatomy

The herbal remedies used for special skin problems are given in (Table - 2).

Table 1- Skin Types and Their Care [9, 10]

Skin type	Features	Suitable Skin Care	
		Herbal	Essential oils
Normal	Has even tone, soft, smooth texture, no visible pores or, blemishes and no greasy, patches or flaky areas. Has a clear, fine, textured, supple and, smooth surface which is, neither greasy nor dry.	Pomegranate leaves, juice, Herbal Face Pack, Gingili Oil	Chamomile Fennel, Geranium, Lavender, Lemon, Rose, Sandal Wood, Patchouli.
Dry	Low level of sebum and, prone to sensitivity. Has, a parched look, feels, "tight .Chapping and, cracking are signs of, extremely dry, dehydrated skin.	Aloe Vera, Olive Oil, Calendula Comfrey	Chamomile Fennel, Geranium, Lavender, Lemon, Rose, Sandal Wood, Patchouli, Almond, Avocado
Oily	Shiny, thick and dull colored Chronically	Aloe Vera, Burdock Root chamomile	Bergamot, Cypress Frankincense

	oily skin has coarse pores and pimples and other embarrassing blemishes. Prone to black heads	Horsetail, Oat Straw, Thyme, Lavender, Lemon Grass, Liquorice, Rose Buds, Witch Hazel Cucumber, Cedar Wood	Geranium, juniper, Lavender, Lemon, Sage Evening Primrose
Combination	Some parts of your face are dry or flaky, while the center part of your face, nose, chin, and forehead (called the Tzone) is oily. Combination skin can also describe conditions where wrinkles and breakouts or rosacea and dry skin are present at the same time.	Witch Hazel, Menthol, Aloe Vera, Turmeric, Wheat Germ, Sweet Flag	Citrus Oils, Jasmine Oil, Sandal Wood

Table 2: Special skin problem and Herbal remedies [11, 12]

S. No	Skin Problem	Features	Remedies
1	Chapped skin	Rough texture which sometimes causes the skin to crack	Application of oils of St.John Wort, Olive Oil or Mashed Avocado after bathing or massaging with warm Olive Oil, Mustard or Coconut Oil half an hour before bathing
2	Withered Skin	Very tough texture, full of wrinkles	Carrot Juice along with a mixture of egg white and honey
3.	Sallow skin	No colour look, skin becomes lusterless and shows lack of vitality	Inclusion of Vitamin B in diet
4.	Sensitive skin	React quickly to both heat and cold. Sunburns and wind burns occur easily. Skin become dry delicate and prone to allergic reactions. Detergents , Cosmetics and alcohol can cause irritation leaving skin red and blotchy with visible surface veins	Use of essential oil of Chamomile, Lavender, Neroli, Rose and Sandal Wood Oil.
5.	Acne	Pockets of infection that manifest as red sores, boils and pimples.	Usage of Red Sandal Wood Oil.

Soap:

Soap is common cleansing agent well known to everyone. Many authors defined soap indifferent ways. Warra, regarded it as any cleaning agent, manufactured in granules, bars, flakes, or liquid form obtained from by reacting salt of sodium or potassium of various fatty acids that are of natural origin (salt of non-volatile fatty acids). Soap can also be said to be any water-soluble salt of fatty acids containing eight or more carbon atoms. Soaps are produced for varieties of purpose ranging from washing, bathing, medication etc. The cleansing action of the soap is due to the negative ions on the hydrocarbon chain attached to the carboxylic group of the fatty acids. The affinity of the hydrocarbon chain to oil and grease, while carboxylic group to water is the main reason soap is being used mostly with water for cleaning purposes [13].



Figure 2: Herbal Soap

In addition to basic raw materials, other substances are added to the composition in order to improve its application. For examples soap made for medicinal purposes other medicinal importance ingredients are added to it to produce medicated soaps. In addition to potassium and sodium salt, other metals such as calcium, magnesium and chromium are also used to produce metallic insoluble soap that are not used as cleaning agents, but are used for other purposes [14]. Other properties of the soap such as hardness are function of the metallic element present in the salt. For example soap made up of Sodium salts shows little hardness compare to potassium salts soaps, provided the same fat or oil is used in both cases. These are characteristically different from soaps made from divalent metals such as magnesium, calcium, aluminum or iron which are not water soluble, Soaps are use for laundry and cleaning purposes, though the used of calcium soap in the formulation of animal feed have been reported. It is generally known that soap is produced by the saponification of a triglyceride (fat or oil). In the process the triglyceride is reacted with a strong alkali such as; potassium or sodium hydroxide to produce glycerol and fatty acid salts [15, 16].

The salt of the fatty acid is called soap. The History of Manufacturing of Soap:

The Discovery and the Art of Soap-making up to 1660. Soap, in the sense of the product obtained by the action of a base on fats and oils, has played an important part in the history of civilization, but its discovery was quite accidental and its usefulness but slowly appreciated. It is quite impossible, therefore, to follow the lead of Liebig and others and try to assess past civilizations by reference to their knowledge or ignorance of soap. Were it otherwise, the Fanti of West Africa and the Gauls of the first century A.D., who apparently discovered soap independently, had reached a higher degree of civilization than the Egyptians or the Greeks, to both of whom soap was unknown [17].

Both the Egyptians and Greeks, however, were acquainted with medicinal preparations in which alkalis, tallow and various vegetable oils were present, together with several other ingredients. The Papyrus Ebers records the use of such ointments for herpes and for removing fat round the eyes. Many kinds of lead plasters were also known. Again, the Berlin Papyrus gives instructions for making an ointment with natron and tallow, and Hippocrates used mixtures of oil and soda as ingredients of purgatives. According to early manuscripts the Assyrians used a mixture of castor-oil and alkali as a head wash In addition to this knowledge the preparation of alkaline lyes from the ashes of plants was well known to nearly all nations from very early times; but their use in the manufacture of soap appears to have taken place at any rate not earlier than the Christian era [18, 19].

MATERIAL AND METHODS:**Chemicals:**

These include stearic acid, soft paraffin, ethanol, orange oil.

Collection, identification and processing of plant: [20]

The leaves of *Azadiracta indica*, *Ocimum tenuiflorum*, and seeds of *Sapindus mukorossi* and pods of *Acacia concinna* were collected from different matured plant. The leaves were dried in hot air oven, pulverized and stored in airtight bottles for the studies.

Extraction:

The *Azadiracta 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 occasional agitation. Then filtered.

Formulation of herbal soap:

To obtain extract of *Azadiracta indica*, *Ocimum tenuiflorum*, *Sapindus mukorossi* and *Acacia concinna* powder was incorporated 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 taken. Glycerin basic soap was melted first and to it 1gm stearic acid, 0.70gm soft paraffin, 5ml ethanol were added. Extract was incorporated into melted solution with continuous agitation for 30 minutes until molten mixture became homogeneous. The semisolid mixture was poured into a mould and allowed to solidify [21].

Contents of the Soap: [22]**Neem**

Botanical name:

Azadiracta indica

Part typically used: Leaves

Color: Green

Description: Compound alternate, rachis 15-25cm long, 0.1cm thick, leaflet with oblique, serrate, 7-8.5 cm long and 1-1.7 cm wide slightly yellowish green in color.

Constituents:- Flavonoids, Alkaloids, Azadirone, Nimbin, Nimbidin, Terpenoids, Steroids, Margosicacid, Vanilic acid, Glycosides, B-sitosterol, Nimbectin, Kaempeerol, Quercursertin are present in Neem Leaf

TULSI [23]

Botanical name: *ocimum tenuiflorum*

Common name: holy basil

Part of typical used: leaves

Color: Green

Chemical constituents: eugenol, terpens, germacrene

RITHA

Botanical name: sapindus mukorossi

Part typical used: seed

Colour: Brown

Uses: Detergent, surfactant

Description:- The fruit is a small leathery skinned drup 1 to 2 cm in diameter, yellow ripening blackish , containing 1 to 3 seeds

SHIKEKAI [24]

Biological name:- Acacia concinna

Common name:- shikekai

Chemical Constituents:- Spinasterone , Acacic acid

Part Typical used:- Fruits pods

Colour:- Brown

Uses:- Antidandruff detergent.

Formulation and Evaluation of Hearbal Soap

Table 3

Chemical	Source
Ethanol	Laboratory reagent
Stearic Acid	Laboratory reagent
Soft Paraffin	Laboratory reagent
Orange Oil	Laboratory reagent

Table 4

Herbal plant	Source
Neem	Plant
Shikekai	Plant
Reetha	Plant
Tulsi	Plant

Formula:

The formula shown in table 5 is suited for the preparation of herbal soap.

Table 5

S. No	Ingredients	Quantity	Use
1.	Stearic Acid	1 gm	Hardening
2.	Soft Paraffin	0.70	Hardening
3.	Ethanol	5 ml	Solvent
4.	Neem Powder	4 gm	Antibacterial
5.	Reetha	3gm	Surfactant
6.	Shikekai	2gm	Cleanser
7.	Tulsi	1 gm	Antiviral
8.	Orange oil	q.s	Perfume

Evaluation

The herbal soap formulated was evaluated for the following:

1. Organoleptic Evaluation:

- i. Colour: brown
- ii. Odour: orange
- iii. Appearance: Good

2. Physical Evaluation [25]

The herbal soap formulated was evaluated for the following properties:

- a) pH: the pH was determined by using pH paper, the pH was found to be basic in nature
- b) Foam retention: 25ml of the one percent soap solution was taken into a 100ml graduated measuring cylinder the cylinder was covered with hand and shaken 10 times. the volume of foam at 1 minutes interval for 4 minutes was recorded. it was found to be 5 minutes.
- c) Foam height: 10cm
- d) Antimicrobial test: there was various study conducted on antimicrobial activity of neem and hence according to research paper by antimicrobial activity of *Azadiricta indica* leaf, bark and seed extract.

CONCLUSION:

Since polyherbal soap is made entirely of natural ingredients, it has no negative side effects. Several soap mixtures and their preparations were offered in the current investigation. According to earlier research, the antibacterial activity of Neem was investigated, and plant extracts from *Azadiricta india*, *Ocimum tenuiflorum*, *Sapindus mukorossi*, and *Acacia concinna* were used. When the created composition was put to various tests, it performed well. It was discovered by using these soaps by a few volunteers; therefore, it is proven that soap does not provide any irritancy to skin. Also, the manufactured soap was evaluated for different physical and chemical characteristics, including pH, appearance, and odour, and showed satisfactory results. Plants naturally create a large number of secondary metabolites, and because these substances have significant medical potential, we can use herbal soaps. The majority of individuals now prefer herbal products. The outcome was beneficial for both commercial use and further development of the production of herbal soap.

REFERENCES:

1. Hughes, G.R., *J.Soc. Cosmet. Chem.*, 1959, X, 159.
2. *Encyclopaedia. Britannica*, 14th Edn; 1929.
3. Kapoor.V.P., *Herbal Cosmetics for Skin and Hair Care, Natural Product Radiance*, p 306-314.
4. Harry R.G, In: *Modern Cosmeticology*, Vol 1(Revision Eds), Wilkinson J.B., Clark.R., Green E., McLaughlin T.P., 1962, Leonard Hill (Books) Ltd, London.
5. Sankholkar.D.S, *Current Regulations and Suggested Way Forward*, *The Pharma Times*, Vol.41, No.8,2009, p 30-31

6. Kareru, P. G., Keriko, J. M., Kenji, G. M., Thiong'o, G. T., Gachanja, A. N., and Mukiira, H. N. (2010). Antimicrobial activities of skincare preparations from plant extracts. *African Journal of Traditional, Complementary and Alternative Medicines*, 7(3).
7. Bandyopadhyay, U., Biswas, K., Sengupta, A., Moitra, P., Dutta, P., Sarkar, D., ... and Banerjee, R. K. (2004). Clinical studies on the effect of Neem (*Azadirachta indica*) bark extract on gastric secretion and gastroduodenal ulcer. *Life Sciences*, 75(24), 2867-2878.
8. Sharma, J., Gairola, S., Sharma, Y. P., and Gaur, R. D. (2014). Ethnomedicinal plants used to treat skin diseases by Tharu community of district Udham Singh Nagar, Uttarakhand, India. *Journal of Ethnopharmacology*, 158, 140-206.
9. Kapoor, V. P. (2005). Herbal cosmetics for skin and hair care.4(4). 306-315.
10. Charaka Samhita, Handbook on Ayurveda, Editor, Gabriel Van Loon, 2002-2003 Vol 1.
11. Prashant, L., Kole et al, Cosmetics potential of herbal Extracts, natural Product Radiance, Vol 4(4), 2005, p 315-321.
12. The Wealth of India: A Dictionary of Indian raw Materials and Industrial products- Raw materials Series, Publication and Information Directorate, CSIR, New Delhi, Vols I-XI, 1948-1976; Revised Series IA, 1985; 2B, 1988; 3 Ca-Ci, 1992.
13. Chopra R.N., Nayar S.I., Chopra I.C., Glossary of Indian Medicinal Plants, Publications and Information Directorate, CSIR, New Delhi, 1956.
14. D'Amelio F.S, Sr, In: Botanicals A Phytocosmetic Desk Reference (Ed. FS D'Amelio, Sr), 1999, CRC Press, London.
15. Kumar S, Medicinal Plants in Skin Care Director, Central Institute of Medicinal and Aromatic Plants, Lucknow, 1994.
16. Thakur R.S., Puri, H.S., Hussain, A, In: Major Medicinal Plants of India, 1989, CIMAP, Lucknow.
17. The British herbal Pharmacopoeia, British Herbal Medicine Association, 1996.
18. Ceres A, The healing power of herbal teas. Thorsons Publishers, London, 1984.
19. Warra, A. A. (2013) Soap making in Nigeria using indigenous technology and raw materials, *African Journal of Pure and Applied Chemistry*, 7(4): 139-145
20. Okeke, S. U. N. (2009) Home economics for schools and colleges, Onitsha: Africana First publishers Plc Nigeria
21. Adaku, U. and Melody, M. (2013) Soap Production Using Waste Materials of Cassava Peel and Plantain Peel Ash as an Alternative Active Ingredient, Implication for Entrepreneurship, *IOSR Journal of VLSI and Signal Processing*,3(3): 2319 – 4197
22. Antezana, W., Calve, S., Beccaccia, A., Ferrer, P., Blas, C. D., Rebollar, P. G. and Cerisuelo, A. (2015) Effects of nutrition on digestion efficiency and gaseous emissions from slurry in growing pigs: III. Influence of varying the dietary level of calcium soap of palm fatty acids distillate with or without orange pulp supplementation, *Animal Feed Science and Technology*, 209: 128-136
23. Phanseil, O. N., Dueno, E. and Xianghong, W. Q. (1998) Synthesis of exotic soaps in the chemistry laboratory, *Journal of Chemistry Education*, 75(5): 612

24. Kuntom, A., Siew, W. L. and Tan, V. A. (1994) Characterization of Palm acid oil, Journal of American Oil and Chemical Society, 71: 525-528
25. J. R. Partington, Origine and Development of Applied Chemistry, London, 1933, 198.R. von Grot, Historische Studien aus dem Phannabologischen Institut, Halle, 1889, i, 94.

