INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES
[ISSN: 0975-4725; CODEN(USA): IJPS00]
Journal Homepage: https://www.ijpsjournal.com

OPEN ACCESS

Research Article

Formulation And Evaluation of Polyherbal Soap

Rashmi C.*, Nisar Ahmed, Rachelle Lizanne Roche, Mohammed Sufiyan, Mohammed Afnan, Srujan M. N., Harshini K. M.

Farooqia College of Pharmacy, Mysuru.

ARTICLE INFO

Published: 18 Sept. 2025
Keywords:
Polyherbal soap, Skin, Cosmetics, Herbal ingredients, Preparation, Evaluation
DOI:
10.5281/zenodo.17153252

ABSTRACT

Herbal soaps have drawn considerable attention as an alternative to synthetic cleansing bars, largely due to their natural composition, environmental compatibility, and non-side effective attributes. The study Begins with the overview of herbal soap, its types and its composition. The main objective of this work is to formulate and evaluate a polyherbal soap made up of natural active ingredients such as neem, lemon, beetroot, honey, turmeric, saffron, aloe vera, almond oil, vitamin e and lavender oil. Soap base is prepared using certain chemical which are mandatory in the process of soap base formation. Where lye formation is essential for a soap to form. The formulation was carried by double boiling method. Base was formulated on a water bath then it was melted and all the natural active ingredients were added. Then the product was poured into the mould. Finally, evaluation was carried out for parameters such as organoleptic, physiochemical, safety and phytochemical evaluations. Herbal soap helps in moisturizing, clearing acne, brightening and de-tanning the skin. Thus, in the present work we found good properties of polyherbal soap with cost effective benefits and minimal side effects.

INTRODUCTION

Cosmetics:

The word cosmetic is derived from the Greek word “kosmetikos” meaning having the power, arrange, skill in decorating.[1] The Drugs and Cosmetics act define cosmetics as anything that is meant to be rubbed, poured, sprinkled, sprayed, or otherwise applied to the human body or any portion of it in order to clean, enhance beauty, promote attractiveness, or change appearance.[2]

Herbal Cosmetics:

Herbal cosmetics are beauty products formulated primarily with plant derived ingredients, such as

***Corresponding Author:** Rashmi C.
Address: *Farooqia College of Pharmacy, Mysuru.*
Email ✉: rashmic257@gmail.com

Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

herbs, botanical extracts, essential oils, and natural substances. Unlike conventional cosmetics that contain synthetic chemicals, herbal cosmetics harness the power of nature to nourish and enhance the skin, offering a holistic approach to skincare. These products have gained popularity due to their perceived safety, efficacy, and minimal environmental impact. Herbal cosmetics are infused with natural emollients and humectants that help to replenish moisture, keeping the skin soft, supple, and well-hydrated along with these they emphasize anti-inflammatory and healing properties.[3]

Advantages of herbal cosmetics:

- Natural product
- Safe to use
- Compatible with all skin type
- Wide selection to choose from
- No side effects[4]

Skin:

The skin is the largest organ of the body, accounting for about 15% of the total adult body weight. It is also known as the integument.[5]

It performs many vital functions: -

- Protection against external physical, chemical, and biologic assailants.
- Prevention of excess water loss from the body.
- Thermoregulation.

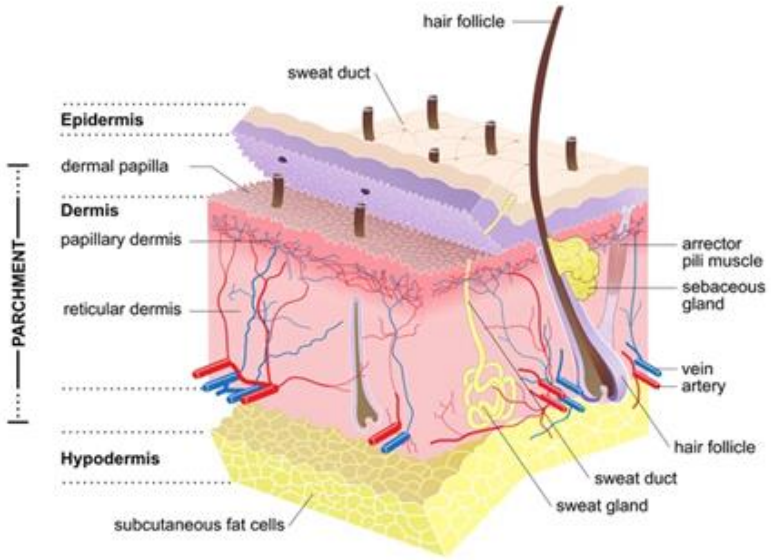


Fig no 1: Structure of Skin

The skin is continuous, with the mucous membranes lining the body's surface. The skin is made up of three distinct structural layers, viz., epidermis, dermis and hypodermis. The derivatives of skin include nails, hair, sebaceous gland, and sweat glands.

Layers of skin:

- Epidermis
- Dermis
- Subcutaneous[6]

Problems related to Skin:

Acne, Acne scars, Eczema, Hives, Skin rashes, Dry and cracked skin, Psoriasis, Sun damage, Skin dullness. [7]

Soap:

Soap is a salt of fatty acid used in a variety of cleansing and lubricating products. Soaps are surfactant usually used for washing and bathing and other types of housekeeping. Soaps are used to remove dirt including dust microorganism, strains bad smells from the body. Commercial soaps usually are made up of toxic mercury aluminium, barium, bis-phenol, plastics and other chemicals, which are absorbed into the body via internal organs from vaporization of the chemicals as well as skin absorption with negative side effects.[8]

Herbal soap:

Herbal soap is a type of soap which is made by using natural herbs and plants. The popular herbs include Neem, Orange Peel Powder, Lemon, Almond Oil, Olive Oil, lavender, mint, rosemary, and chamomile. These herbs are rich in essential oils, vitamins, and minerals, which are known to be good for the skin.

Fig no 2: Herbal Soap

Herbal soap is believed to soothe, restore, and heal the skin, thus becoming one of the most popular choices among people suffering from sensitive or dry skin. Herbal soaps have gained popularity in the market due to their immense benefits, be it on skin health or general well-being. They provide a soft and wholesome alternative to artificially produced soaps, often packed with harsh chemicals and artificial fragrances. Herbal soap is also eco-friendly. It is made using natural ingredients that are biodegradable and do not harm the environment. Herbal soap is cruelty-free, as it is crafted without the use of any animal products or by products, making it a compassionate and ethical choice for conscientious consumers. The use of herbs in herbal soap provides various benefits, such as soothing and healing the skin, providing a natural fragrance, and reducing stress and anxiety through aromatherapy.[9]

Types of Herbal Soaps:

Antibacterial and Medicinal Soaps: Antibacterial and medicinal herbal soaps often focus on ingredients such as neem, tea tree oil, thyme, or turmeric, which are documented for their antimicrobial actions. These formulations are commonly used by individuals prone to acne, fungal infections, or excessive perspiration. The presence of these herbs can help reduce the risk of minor skin infections when used routinely as part of a broader hygiene regimen.

Moisturizing Soaps: Moisturizing soaps prioritize ingredients with high emollient and humectant properties. Shea butter, cocoa butter, avocado oil, and honey are common in these formulations, all of which help the skin retain moisture and recover from dryness. These soaps are particularly popular in colder climates or among individuals with conditions like eczema or psoriasis, where dryness can exacerbate itching or inflammation.

Exfoliating Soaps: Exfoliating herbal soaps target the removal of dead skin cells, often by including mild abrasives or enzymatic agents. Common abrasives include ground oats, crushed walnut

shells, or coffee grounds, which perform mechanical exfoliation to refine skin texture and enhance blood flow.

Aromatic and Relaxing Soaps: Aromatic and relaxing herbal soaps emphasize the sensory and emotional experiences associated with bathing. Essential oils like lavender, chamomile, and sandalwood are frequently chosen for their reputed calming or uplifting effects. Several studies on aromatherapy suggest that inhalation of these aromatic compounds can help lower stress levels, reduce anxiety, or improve mood.[13]

Composition:

Base oils: Herbal soaps are typically made with a blend of different base oils, such as olive oil, coconut oil, palm oil, or castor oil. These oils provide moisturizing properties and help to create a rich lather.

Essential oils: Essential oils are derived from various plants and are used in herbal soaps to provide fragrance and therapeutic benefits. Examples include lavender oil for relaxation, tea tree oil for its antibacterial properties, or eucalyptus oil for its soothing effects.

Herbs or botanicals: Dried herbs or botanicals are often added to herbal soaps for their healing or exfoliating properties. Examples include chamomile flowers for soothing, calendula petals for their anti- inflammatory properties, or oatmeal for gentle exfoliation.

Natural colorants: Some herbal soaps may use natural colorants derived from plants or minerals, such as turmeric pow der for a yellow colour, spirulina powder for green, or activated charcoal for black.

Additional ingredients: Depending on the desired proper ties, other ingredients may be added to herbal soaps, such as shea butter for extra moisture, aloe vera gel for soothing, or honey for its antibacterial and moisturizing properties.[10]

Saponification:

Saponification is a type of reaction between a strong alkali such as sodium or potassium and oils. This reaction is very much necessary for a soap preparation. When alkali is thoroughly mixed with oils, this reaction takes place.[12]

Benefits of Using Herbal Soap:

- It effectively cleans the skin, by removing dirt, oil, and impurities without stripping away the skin's natural oils.
- Protect skin against allergens, chemicals and stress.
- Promote nourishment to skin.
- Fight body odour and refreshes the skin
- Help to premature aging of skin
- Treats acne
- Treat various epidermal dysfunction such as eczema, psoriasis, acne, tanning etc.[11]

ADVANTAGES:

- Herbal soap are paraben and sulphate free.
- Natural ingredients.
- Handmade soap.
- Targets skin problem.
- In herbal soaps colourants agents are not added.
- Herbal soap is no tested-on animals.

- Herbal soap is nourishing and moistening the skin.[14]

METHODOLOGY

MATERIALS

Collection of ingredients: This thesis deals with the formulation and evaluation of poly-herbal soap by using herbal ingredients i.e., Neem, Lemon, Beetroot, Honey, Turmeric, Saffron, Aloe vera, Almond oil, Lavender oil, Coconut oil, and Reetha. Neem leaves were collected from local area of Mysore and extracted through decoction process. Lemon, Beetroot and Aloe vera were purchased from local market and juice was collected. Turmeric and Reetha was purchased in the form of powder. Saffron, almond oil, lavender oil and coconut oil were also purchased from local market of Mysore.

Equipment's: Beaker, Test tubes, Measuring cylinder, Filter paper, Funnel, Glass rod, Volumetric flask, Dropper, Water bath, Tripod stand.

Formulation Of Poly-Herbal Soap:

Preparation of soap base: To prepare soap base add coconut oil (50ml), heat oil for 5 min. on water bath then add NaOH solution to oil (10 gm NaOH+ 100 ml H2O) stir continually for 8 -10 min, add reetha (5ml) stir for 2 min add 5 ml glycerine stir 2- 3 min continuous, Add steric acid (1gm) for hardening, 2ml ethanol as solvent and stir for 5-8 min.[21]

Table no 1: Formulation of soap base

SL.NO	Ingredients	Quantity	uses
1	Coconut oil	50ml	moisturizer
2	Sodium hydroxide	10%	Lye
3	Reetha	5ml	Surfactant
4	glycerine	5ml	Humectant
5	Steric acid	1gm	Hardening agent
6	Ethanol	2ml	solvent

Preparation of poly-herbal soap: The poly-herbal soap is prepared by adding the herbs simultaneously to the above prepared base on a water bath. Then it is poured into the soap mould for a desired shape. It is kept for some time to solidify.[7]

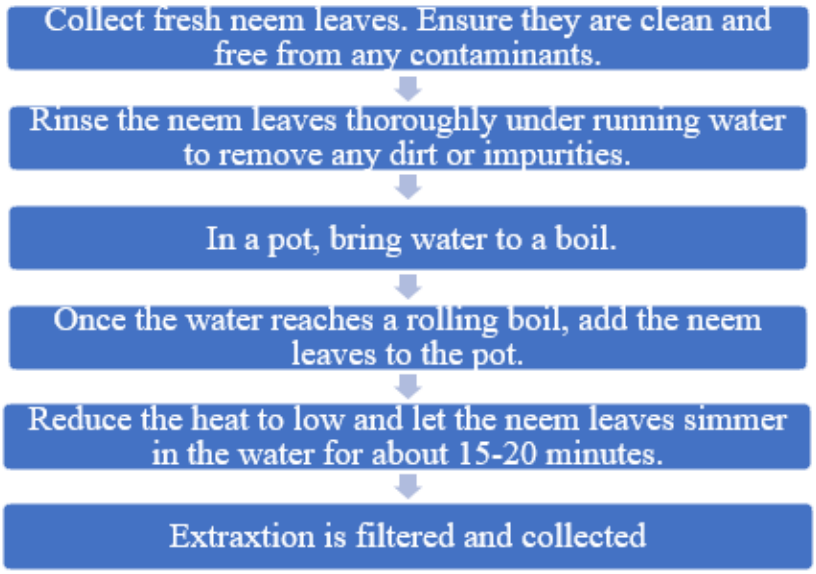
Table no 2: Formulation of poly-herbal soap

SL.NO	Ingredients	Quantity	Uses
1	Neem	8ml	Anti-bacterial, Anti-acne
2	Lemon	4ml	Skin whitening
3	Beetroot	4ml	Anti-oxidant
4	Honey	3ml	Anti-wrinkle
5	Saffron	0.5gm	De-tanning, reduces dark circles
6	Aloe vera	2ml	Moisturizing, smooth skin
7	Vitamin E	1ml	Preservative
8	Almond oil	2ml	Anti-inflammatory
9	Lavender oil	1ml	Perfuming agent
10	Soap base	25gm	Raw material for soap

Melting the base: The soap base was cut into the small piece and then put into the beaker for double boiling method and heat the glycerine cubes until its completely melt.7

Method of neem extraction: The following flow chart indicates the process of neem extraction.19

Fig no 3: Extraction of Neem



Adding of raw material: After soap base cubes completely melt then add ingredients one by one and stir the solution.

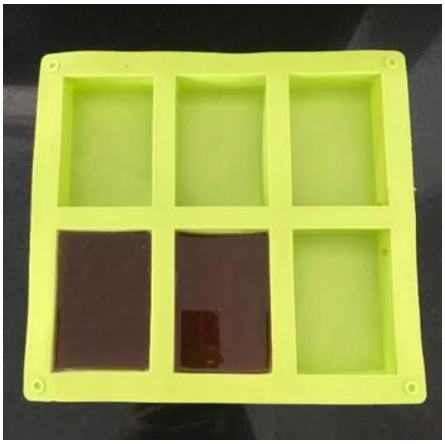


Fig no 4: Adding of raw material

Consistency: Once desired consistency acquired turn off flame then add lavender essential oil for fragrance and wait for 1-2 minutes at room temperature.

Fig no 5: Consistency

Pouring: Once desired consistency is removed the solution is pour into the moulds.

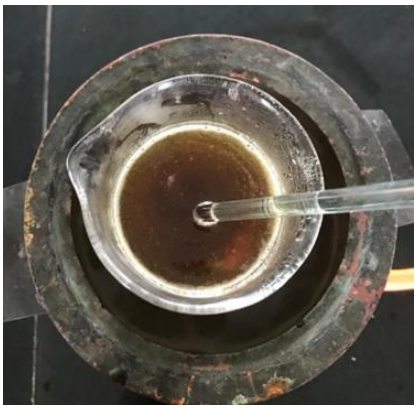


Fig no 6: Pouring

De-moulding: The moulds are kept at room temperature for 30 minutes then remove soap from mould.[7]

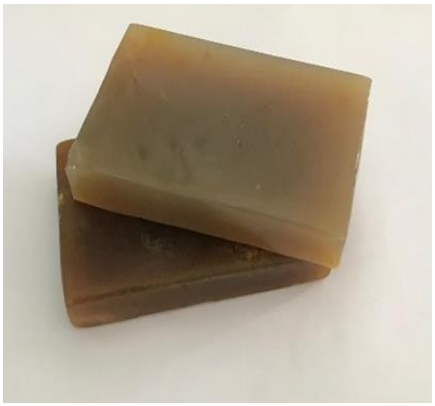


Fig no 7: De-moulding

Evaluation of poly-herbal soap:

Organoleptic Evaluation:

The organoleptic parameters include colour, odour, appearance which was evaluated manually for its physical properties.

Physiochemical Evaluation:

pH: the pH was determined by using pH paper. The pH found to be 8 that is basic in nature.

Fig no 8: pH test

Foam height: 25 ml of the one soap solution was taken into 50ml graduate measuring cylinder was covered with hand and shaken 10 times. The height of the foam was found to be 22cm.

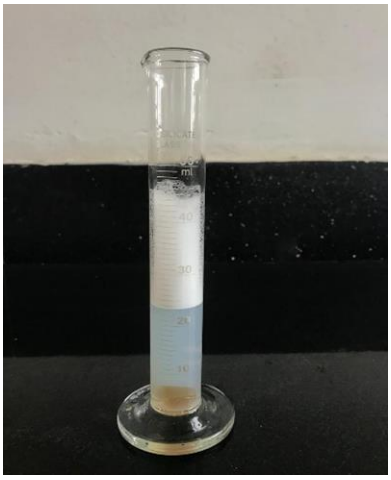


Fig No 9: Foam Height

Foam retention: 25 ml of the one soap solution was taken into 50ml graduate measuring cylinder was covered with hand and shaken 10 times. The retention time of the foam was found to be 5 minutes.

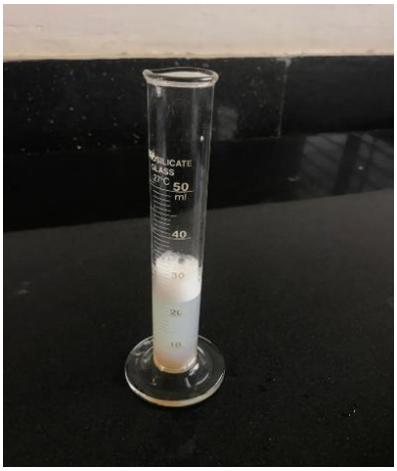


Fig no 10: Foam retention

Safety evaluation:

Skin irritancy: The soap was soaked in water and applied to the skin, allowed for 1 hour, observed the symptoms caused after applied.22.

Fig No 11: Irritancy Test

Phytochemical Evaluation:

Preliminary analysis was carried out to identify the presence of various phytoconstituents by employing standard protocols.

Tests for Alkaloids:

Dragendorff's test: By adding 1 ml of Dragendorff"s reagent to 2 ml of sample, an orange red precipitate was formed, indicating the presence of alkaloids.

Test for Flavonoids:

Shinoda's test: Ten drops of dilute HCL and a piece of magnesium were added to 2ml of sample, the resulting deep pink colour indicating the presence of flavonoids.

Test for Steroid:

Liebermann's reaction: mix 3ml of extract with 3ml of acetic anhydride heat and cool and add few drops of concentrated sulphuric acid, the resulting blue colour are produced that indicating the presence of steroids.

Test for Glycosides:

Baljet's test: For 2ml sample add 2ml sodium picrate, yellow to orange colour is produced that indicating the presence of glycosides.

Test for Tannins:

Ferric chloride test: To 1 ml sample add few drops of ferric chloride solution, it gives blue black colour.[23]

Fig No 12: Phytochemical Evaluation

RESULTS AND DISCUSSION:

The aim of the present work is to formulate and evaluate poly-herbal soap by using natural ingredients i.e., Neem, Lemon, Beetroot, Honey, Turmeric, Saffron, Aloe vera, Almond oil, Lavender oil, Coconut oil, and Reetha. Organoleptic characteristics were evaluated which

includes colour test, odour test and appearance. All the herbs were collected, initially soap base was prepared and then all the herbs were added along with the soap base by double boiling method. The formulated soap was evaluated.

Organoleptic Evaluation of the poly-herbal soap:

The formulated soap appeared to be light brown in colour, texture was smooth. The odour was floral sweet smell and rectangular in shape. Which is desirable for cosmetic formulation.

Table No 3: Organoleptic Evaluation

Sl. No	Parameter	Observation
1	Colour	Light brown
2	Odour	Sweet smell
3	Texture	Smooth
4	Shape	Rectangular
5	Appearance	Good

Physiochemical Evaluation of the poly-herbal soap:

The poly-herbal soap formulated was tested for physiochemical evaluation such as pH, Foam height, and Foam retention shown in the table 5.2. The pH found was close to alkali, Foam height was found to be 22cm and retention time of foam was found to be 5 min.

Table No 4: Physiochemical Evaluation

SL.NO	Parameter	Observation
1	pH	8
2	Foam height	22cm
3	Foam retention	5min

Safety Evaluation of the poly-herbal soap:

Safety evaluation such as irritancy test was done as shown in the table 5.3. The formulation showed absence of irritation, redness or swelling. This formulation is safe to use on skin.

Table No 5: Irritancy Test

SL.NO	Parameter	Observation
1	Irritation	No
2	Redness	No
3	Swelling	No

Phytochemical Evaluation of the poly-herbal soap:

Poly-herbal soap was evaluated for phytochemical parameters showed in the table 5.4. It was found that phytochemical constituents such as alkaloids, flavonoids, glycosides, tannins and steroids were present.

Table no 6: Phytochemical Evaluation

SL.NO	Phytoconstituents	Test	Observation
1	Alkaloids	Dragendorff's test	Present
2	Flavonoids	Shinoda's test	Present
3	Steroids	Liebermann's reaction	Present
4	Glycosides	Baljet's test	Present
5	Tannins	Ferric chloride test	Present

CONCLUSION:

In conclusion, Polyherbal Soap represents a thoughtful integration of traditional herbal knowledge with modern skincare needs. By incorporating multiple herbal ingredients known for their healing, cleansing, and nourishing properties, this soap helps maintain skin health by gently removing impurities, retaining moisture, and addressing common skin concerns such as acne, inflammation, and dryness. In this study, efforts have been made to formulate and evaluate poly-herbal soap containing Neem, Lemon, Beetroot, Honey, Saffron, Aloe vera, Almond oil,

and Lavender oil. After evaluation, we found good properties of polyherbal soap, free from skin irritation conditions. It has been proved to give essential nourishment, helps in brightening the skin and clears acne. Overall, Polyherbal Soap is more than just a cleansing agent—it's a step toward healthier living and environmental responsibility.

REFERENCES

1. Kiran D, Natural radiance unveiled: A comprehensive review of herbal cosmetics and their transformative effects. Pharmaceutical sciences & analytical research journal, 2024; 6(2): 180043
2. Santosh S. Bansode, Jyoti D. Anap, Suvarna S. Dhone, Diksha B. Pansare and Namrata B. Pangavhane. A review: Herbal Cosmetics-skin and hair. International journal of pharmacognosy, 2024; 11(5): 182-189.
3. Ekhschit Bharat, Jashvinder Singh and Anil Sao. In vitro formulation and selected characterization of body soap infused with indigenous plant extract. World journal of pharmaceutical and medical research, 2024; 10(9): 190-195.
4. Davinder Kumar, Gajendra Rajora, Omprakash, Himanshu, Mamta Antil, Virender Kumar. herbal cosmetics: An overview. International journal of advanced scientific research, 2016; 1(4): 36-41.
5. Kolarsick, Paul A. J. Anatomy and Physiology of the skin. Journal of the dermatology nurses association, 2011: 203-213
6. Dr. Satya Prakash Singh, Dr. Vijay Nigam. Cosmetic science, Thakur publication Pvt. Ltd. First Edition 2021: 32-36
7. Rekha Goukonde, Jagruti Rajput, Bhakti Bansod and Gajanan Sanap. Formulation and evaluation of herbal scrub soap. World journal of biology pharmacy and health sciences, 2024; 18(03): 354-370.
8. Selvamani M, Surya Praksh R, Siva Shankar D, Subash K, Siva Guru M, L. V. Vigneswaran, and M. Senthil Kumar. Formulation and Evaluation of poly herbal soap. World Journal of pharmaceutical and Medical Research, 2022; 8(2): 170-173.
9. Sakshi Praksh Warade, Sanika Pramod Dhambare, Sanika Ramdas Zade, Sanjana Chandrashekhar Kalyankar, and Vaishnavi Badrinarayan Kayande. Formulation and Evaluation of Polyherbal Soap. International Research journal of modernization in Engineering Technology and science, 2025;7(5):8236-8241.
10. Amrita Majmudar, Bhavay Thakkar, Shobhit Saxena, Pradeep Dwivedi and Vijaya Tripathi. Herbal Soap- Trends, Benefits and preparation: A review. Acta Scientific Nutritional Health, 2023;7(9):10-15.
11. Mariya Thomas, Anisree G. S, Akhila G, Akshaya J, Pooja S, Ashila Sand Asna Nizam. Formulation of Herbal Soap. World Journal of Pharmaceutical Research, 2024; 13(19):1315-1326.
12. Priyanka Mandal, Sourav Kumar Upadhay, Bhawna Poudyal and Mahalakshmi Sampagavi. Formulation and evaluation of herbal paper soap. International journal of pharmaceuticals sciences and drug analysis, 2021; 1(2):04-09.
13. V. Gnaneshwari, R. Raveena, R. Akhila, R. Anusha, S. Hanumanthu Nayak, and S. Aishwarya. Herbal Soaps: A Comprehensive Review of Composition, Benefits and Future Directions. International Journal of Pharmacy and Industrial Research, 2025; 15(01):10-20.
14. Kiran Gurav, Pranjal Dalave and Dyaneshwar Kattikar. A Reivew on Formulation of Herbal Soap. International Journal of Pharmaceutical Research and Application, 2024;9(01):1584-1592.

15. Shivaji M. Patil, Sujit T.Karpe, Tohit y. Shaikh, Vishal S. Raut, Sagar D. Kolhe and Sumit J. Doiphode. Formulation and Evaluation of Polyherbal Soap with Papaya, Carrot, Neem and Beetroot. International Research Journal of Modernization in Engineering Technology and Science, 2024;6(07): 95-106
16. Arti P. Pawar, Dhanashri N. Pawar and Yogita V. Dalvi. Formulation and Evaluation of Polyherbal Soap. Research J. Topical and Cosmetics Science, 2019;10(01):23-28.
17. Bhoir Manisha B, Gaikwad Maya Y and Rajora Snehal S. Formulation and Evaluation of Herbal Soap: A Comprehension Study. International Journal of Pharmaceutical Research and Application, 2024;9(04):266-272.
18. Pallavi Katyarsing Jadhav, Ayushi Suresh Jaiswal, Pratiksha Bhausaheb Hiwrale, Tejas Balasaheb Gore and Ashwini Khairnar. Formulation and evaluation of herbal scrubbing soap. World Journal of Pharmaceutical Research, 2024;13(11):1183-1197.
19. Prasad Sanjay Borade, Anil.B Jadhav and Nandkumar Shinde. Formulation and Evaluation of herbal Soap by using Moringa Oleifera as Main active constituents. International Journal of Creative Research Thoughts, 2024;12(06):684-699.
20. Amol Shingade, Vitthal Kaulage, Amol Khedhar, Prasad Wagh and Shubham Devkate. Formulation and Evaluation of Herbal Soap. International Journal for Research Trends and Innovation, 2024;9(05):353-362.
21. Prathamesh P. Kamble and Joti S. Pingle. Formulation and Evaluation of Herbal Soap. World Journal of Pharmaceutical Research, 2023;12(09),2719-2730.
22. Vaishnavi A. harkal and Swati P. Deshmukh. Formulation and Evaluation of Polyherbal Soap. GSC Biological and Pharmaceutical Sciences, 2024;27(02):068-079.
23. J. Bhavani, M. Chinnathambi, S. Sandhanam, S. Jothilingam, S. Arthi and N. Monisha. Formulation and Evaluation of Herbal Soap by using Natural Ingredients. World Journal of Pharmaceutical Research, 2023;12(06):669-688.

HOW TO CITE: Rashmi C.*, Nisar Ahmed, Rachelle Lizanne Roche, Mohammed Sufiyan, Mohammed Afnan, Srujan M. N., Harshini K. M., Formulation and Evaluation of Polyherbal Soap, Int. J. of Pharm. Sci., 2025, Vol 3, Issue 9, 2006-2016 https://doi.org/10.5281/zenodo.17153252