Phytotherapeutic Soap Formulation for Psoriasis: Formulation and Evaluation

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ABSTRACT:

This study explores an herbal soap as a natural alternative for managing psoriasis, a chronic skin condition characterized by inflammation, redness, itching, and scaling. Conventional treatments, such as corticosteroids, can be effective but may have side effects with long-term use. The soap is formulated using botanicals like neem, aloe vera, turmeric, nutmeg, and liquorice, which have anti-inflammatory, antibacterial, antifungal, and skin-soothing properties. These ingredients work together to reduce irritation, flaking, and redness while improving skin hydration and texture. Produced using traditional cold-process methods, the soap was evaluated for safety and effectiveness through small-scale trials and user feedback. Results indicate that regular use provides relief for mild to moderate psoriasis without adverse reactions. Beyond its therapeutic effects, the soap offers a cost-effective, plant-based skincare solution, reducing reliance on chemical treatments. The study highlights the potential of herbal formulations in dermatology and encourages further research into natural skincare alternatives for managing chronic skin conditions.

Key words: Aloevera, Turmeric, Neem, Liquorice, Nutmeg, Rose water, Vit.E capsule

INTRODUCTION:

The human skin, the largest and most sensitive organ of the body, functions as a protective barrier against environmental factors such as temperature fluctuations, UV radiation, infections, and diseases. Known as the cutaneous membrane, the skin plays a crucial role in overall health. [1] The skin, the body's largest organ, envelops the entire external surface. It comprises three distinct layers, each with unique an atomical structures and functions:

1) Epidermis

2) Dermis

3) Hypodermis [2]

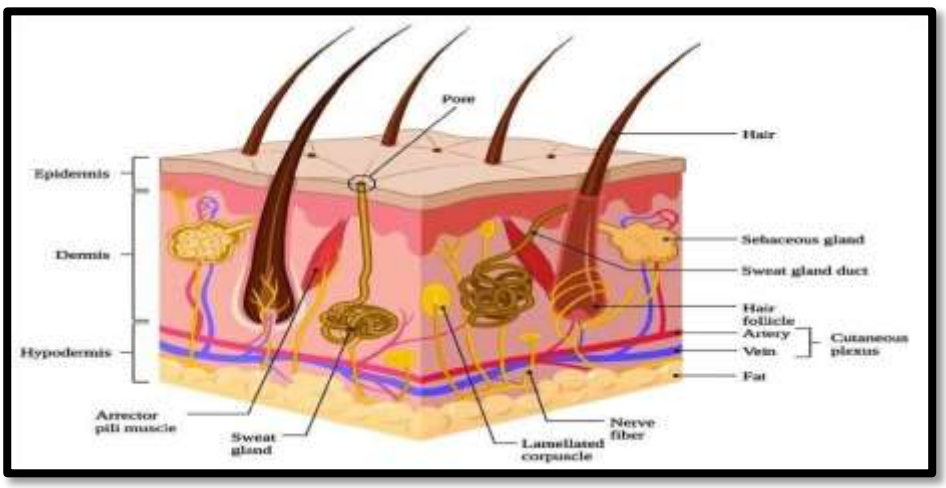


Figure no.1: Structure of Human Skin Layer

1] Epidermis (Outer Layer): This layer serves as the body's first line of defence, shielding against water loss, temperature changes, and pathogens. It consists of stratified squamous epithelial cells, keratinocytes (responsible for keratin production), and melanocytes (which produce pigmentation).

2] Dermis (Middle Layer): Supporting the epidermis, the dermis aids in temperature regulation and sensory perception. It comprises connective tissues (collagen, elastin), blood vessels, nerve endings, hair follicles, sweat glands, and sebaceous glands, all of which contribute to skin health.

3] Hypodermis (Innermost Layer): Also known as subcutaneous tissue, this layer anchors the skin to underlying muscles and bones. It is primarily composed of adipose tissue (fat cells), connective tissue, and nerve endings, helping to maintain skin elasticity and providing insulation. [3]

Multifunctional Role of Skin: The skin serves numerous essential functions, ensuring both protection and overall physiological balance:

- Barrier protection: shields against external stressors, including pathogens, water loss, and environmental damage.
- Immune defence: Contains Langerhans cells, which detect and combat infections.
- Homeostasis Regulation: Maintains body temperature, fluid balance, and electrolyte levels.
- Endocrine Function: Produces essential hormones like melanin (for pigmentation) and vitamin D.
- Exocrine Function: Secretes sweat and sebum, helping to regulate hydration and body temperature.
- Sensory Detection: Houses nerve endings that sense touch, pain, pressure, temperature, and vibrations.
- Diagnostic Indicator: Reflects overall health through visible changes in skin color, texture, and condition.
- Cell Regeneration & Shedding: Continuously replenishes damaged cells and removes dead skin to maintain skin integrity. [4]

Factors Affecting Skin Health:

The skin's delicate balance is influenced by a combination of genetic, immunological, and environmental factors. Recent years have seen an increase in skin allergies due to external irritants that weaken its protective barrier:

- Genetic Influences: Inherited traits such as eczema and atopy, as well as genetic mutations affecting skin structure. [5]
- Immunological Disruptions: Overactive immune responses, allergies, and sensitivities contribute to skin-related conditions. [6]
- Environmental Stressors: Harsh soaps and cleansers, climate change, pollution, exposure to irritants (chemicals, fragrances), poor diet, lifestyle choices, and excessive use of antibiotics or antimicrobials impact skin health. [7]

Psoriasis: Psoriasis is a chronic inflammatory skin disorder characterized by red, scaly plaques, often affecting areas like the scalp and lumbosacral region. It is driven by immune system dysfunction, leading to abnormal activation and interaction of immune cells as well as the presence of irregular antigens.

Environmental Triggers:

Several environmental and lifestyle factors can exacerbate psoriasis symptoms:

- Smoking and Alcohol Consumption
- Infections
- Chronic Stress
- Obesity

- Weather Changes
- Exposure to Certain Pharmaceuticals
- Skin Trauma
- UV Radiation
- Hormonal Fluctuations. [8-12]

Figure no.2: Protective and Risk Factors of Psoriasi

Symptoms:

1) Dry cracked skin
2) Patches on skin
3) Itching
4) Poor sleep quality [13]

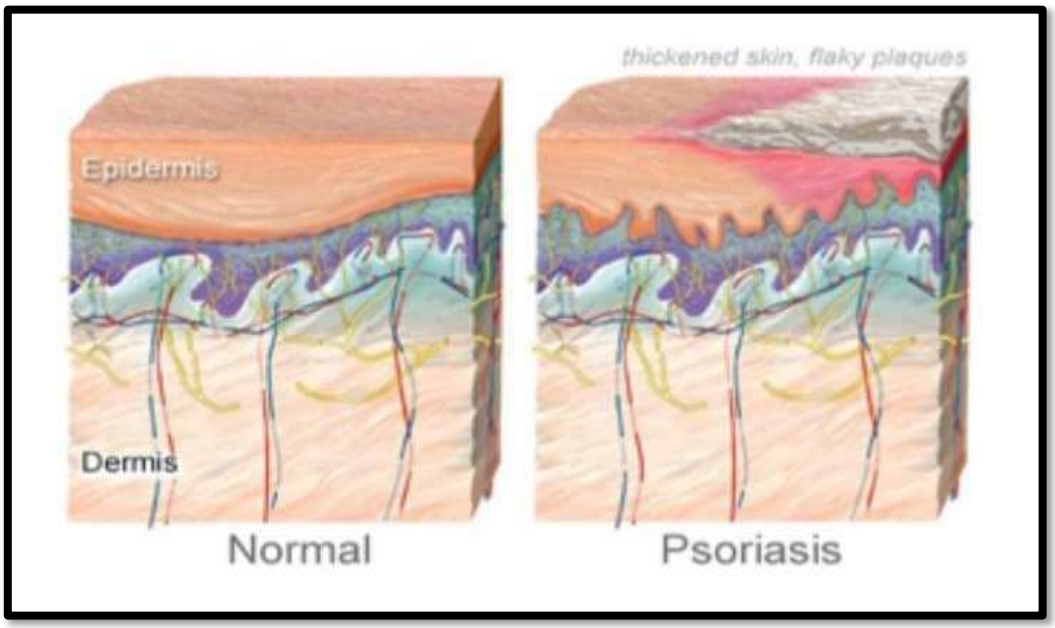


Figure no.3: Normal Skin Vs Disease Affected Skin

Managing Psoriasis by Herbal Soap:

Soap plays a vital role in maintaining hygiene by removing dirt and odors from the body. Herbal soaps, crafted from natural ingredients such as seeds, fruit peels, and flowers, offer additional skincare benefits. These soaps possess antibacterial properties, help slow down aging, and protect the skin from damage. Furthermore, they are free from artificial colors and fragrances, making them a more natural choice for cleansing. [14]. One of the key advantages of herbal soap is its ability to cleanse without stripping the skin of its natural oils. This allows for the effective removal of dirt, oil, and impurities while preserving the skin's pH balance. By preventing excessive dryness, herbal soap supports healthy and well-hydrated skin, making it a gentle and beneficial option for skincare [15].

Herbal soap offers several benefits:

- Natural Ingredients: Made from natural components, they help maintain healthy skin without harmful chemicals.
- Antibacterial: It helps kill bacteria, keeping your skin clean and healthy.
- Protected Skin Barriers: Herbal soap supports the skin's natural defences, keeping it protected from damage [16].
- Maintain Skin Health: It nourishes the skin, promoting overall health.
- Enhance Skin Fairness: Many herbal soaps can brighten your skin tone naturally.
- Improved Skin Texture: Regular use can lead to smoother and softer skin.
- Reduced Appearance of Wrinkles: It can help minimize fine lines, promoting a youthful look [17].
- Lesser side effects
- Better safety and efficacy
- Easily available
- Potent therapeutic effect.
- Cost friendly.
- Greater variety.
- No animal testing required.

Psoriasis is a widespread chronic skin condition affecting millions globally, characterized by red, scaly patches that cause significant discomfort. While conventional treatments offer relief, they often come with limitations and potential drawbacks, prompting interest in alternative approaches. Among these, herbal remedies have gained attention for their potential to alleviate symptoms while supporting overall skin health. [18]

Psoriasis is an inflammatory autoimmune disorder that leads to excessive skin cell growth in the epidermis [19]. Severe cases are often associated with various comorbidities, a significant decline in quality of life, and an increased risk of cardiovascular complications and mortality [20]. Although several conventional treatments exist—including topical steroids, vitamin D- based medications, retinoids, immunosuppressants, and UV radiation therapy (ranging between 311 and 313 nm)—these methods primarily slow disease progression rather than offering a cure. Moreover, they may cause undesirable side effects [21].

As a result, many individuals turn to complementary and alternative therapies, either as standalone treatments or in conjunction with traditional options. Recent trials have shown promising outcomes in the use of multiherb formulations for psoriasis management, highlighting the potential of plant-based remedies in providing relief and improving skin health [22]. Commonly used supplements for skin health include

turmeric (Curcuma longa), milk thistle (Silybum marianum), dandelion (Taraxacum officinale), olive leaf, nettle leaf (Urtica dioica L), omega-3, and artichoke. Turmeric, in particular, is recognized for its anti-inflammatory, antibacterial, and antioxidant properties. Research suggests that curcumin, its

active compound, may have medicinal benefits in managing various skin conditions such as psoriasis, atopic dermatitis, and eczema [23].

Previous studies indicate that turmeric and its active compound, curcumin, have shown significant improvements in skin disease severity compared to control groups [24,25]. Additionally, milk thistle seed extract enhances the levels of the essential antioxidant enzyme superoxide dismutase in cell cultures while inhibiting leukotriene production—key inflammatory mediators linked to psoriasis and other skin disorders [26,27]. Furthermore, dandelion exhibits hepatoprotective, antioxidant, anti-inflammatory, and immune-boosting properties, making it a beneficial addition to skin health treatments. [28].

LITERATURE REVIEW

1. Dwi Atmanto et al (2019):

The reported of Influence of the Addition of the Essential Oil of Cinnamon (Cinnamomum burmanii) in Soap Against Skin Care, Cinnamon contains the compound eugenol 3.11% and cinnamaldehyde (90.24%) and coumarin (53.46%), which can reduce acne blemishes on an oily face and have a thinning effect on stain and acne busting speed. In addition, cinnamon also contains vitamin C that plays and protects the skin from UV rays from bad influences that cause premature aging and prevent the formation of melanin. Cinnamon can be processed into oil through distillation. The Cinnamon essential oil can be mixed in cosmetic products such as herbal soap and utilized for skin care. For this research, the herbal soap was developed with a mixture of cinnamon oil. The process began from the preparation of materials by processing Cinnamon Bark essential oil into cinnamon and mixing with essential oils in the formula herbal soap to become a soap product.[49]

2. Attaullah, Anjum Aruna Govindarajulu, Mohana Priya K, Mubeena K.F, Summera Rafiq and Shaik Jasmine Shahina et al (2021):
reported of formulation of herbal soap against acne causing bacteria, the use of herbs on skin disorders has been done for thousands of years. Herbal remedies, including those for many kinds of disorder especially skin disorders, are currently gaining popularity among patients. In Asia, especially in south East Asian countries, herbal treatments that have been used from ages are now being studied scientifically. In India, records of Ayurvedic medicine, a method of medicine with natural roots date back to about 3000 BC.[50]

Sri Dwiyanti, Siti Sulandjari, Titik Winanti, IGP. Asto, Lilik Anifah et al (2021): The reported of cypirus rotundus l: formulation and evaluation antiseptic soap, soap is a product that is one of the people's needs, used as a body cleansing agent, which is available in many forms and perfume that can be selected according to your needs. Natural soap products are rarely used in the market. Today's soap products use a lot of artificial ingredients as their active ingredients, which have side effects on human skin because they have the potential to irritate users with sensitive skin. This study aims to describe the antiseptic soap formula and evaluate the antiseptic soap from c. rotundus.[51]

3. Komal Sharma et al (2022):

The present work involves the preparation of a medicinal soap using marigold petals extract, known for its effectiveness in treating skin issues such as irritation, burns, wounds, and rashes. Marigold contains powerful antioxidants and anti-inflammatory compounds that help treat infections, reduce swelling, improve blood circulation, ease muscle spasms, and slow down the aging process by combating free radical damage. in this study, marigold petal extract was incorporated into the formulation of herbal marigold soap, aiming to provide a natural remedy for various skin problems. the results suggest that the herbal marigold soap is safe and

beneficial for human skin, offering therapeutic properties that can help alleviate skin conditions and promote healthier skin overall. this natural soap provides an alternative to chemical-laden products, harnessing the healing power of marigold for skin care.[52]

4. Amrita Majumdar, Bhavay Thakkar, Shobhit Saxena, Pradeep Dwivedi and Vijaya Tripathi et al (2023): Herbal soap is a natural plant variation of traditional soap that is frequently made using botanical plants herbs and plant-based ingredients. Some of the most commonly used herbs in herbal soap as a cleansing include lavender, chamomile.[53]

5. Raja Kumar, Md Shoaib Akhtar, Mansi Gupta et al (2023):

The formulation of the herbal soap included neem, Aloe Vera, tulsi, and vitamin C The chemical ingredients of neem, also need anti-inflammatory, anti-hyperglycemic, antiulcer, anti-malarial, anti-fungal, and antibacterial. Products for skin care purposes contain tocopherol acetate, glycerin, and vitamin C. [54]

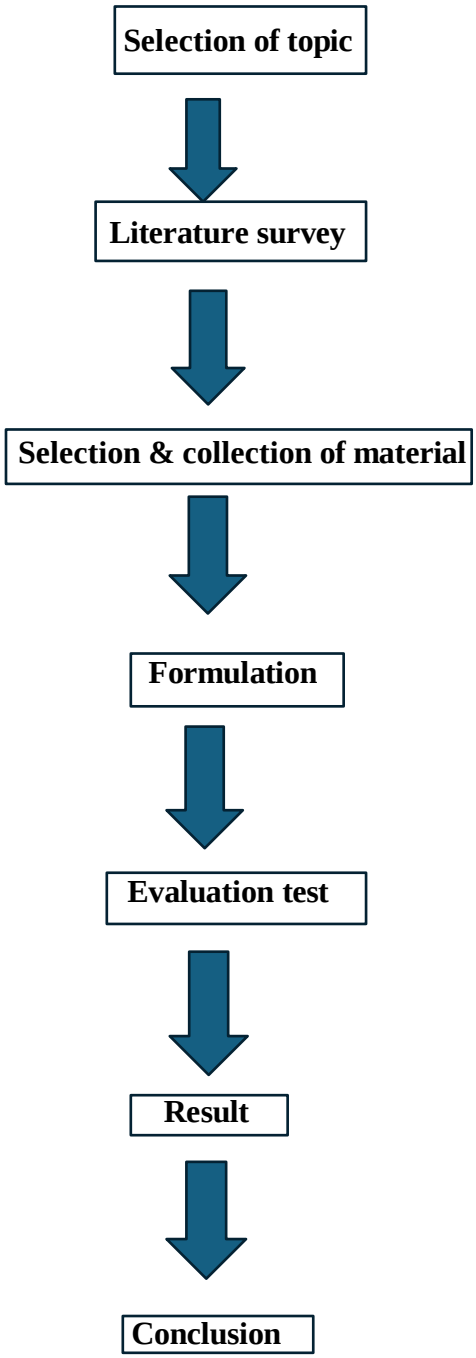
6. Nimase Pratiksha Ashok, Ghangale Chandrakant Pavan, Pange Abhishek Yuvraj et al (2024):
Psoriasis, a chronic inflammatory skin condition, poses significant challenges for affected individuals, often requiring long-term management strategies. Traditional treatments, while effective, may carry adverse effects and limitations. In response, this study explores a novel herbal soap formulation for psoriasis management, leveraging the synergistic benefits of natural ingredients. Our formulation incorporates a glycerin soap base, chosen for its gentle cleansing properties and moisture retention capabilities. Complementing this base are potent herbal extracts: Aloe Vera powder, renowned for its moisturizing and healing properties; Neem, celebrated for its antibacterial and anti- fungal effects; Nutmeg, recognized for its anti-inflammatory and antioxidant properties; Turmeric, a well-known anti-inflammatory agent; and Liquorice Root, prized for its soothing and anti-inflammatory benefits.[55]

AIM AND OBJECTIVE:

Aim: Phytotherapeutic soap formulation for psorasis: Evaluation and formulation Objective:

- To Promoting overall skin health which gives safe & sensitive skin.
- To Relieving itching, cracking & redness which reduce symptoms of Psoriasis.
- To shows antibacterial, antifungal & anti-inflammatory effects which may works against Psoriasis disease.
- To Provide moisturizing & hydrating property.
- To Use of herbal ingredients shows non irritating & any side effect.

PLAN OF WORK


Selection of topic
Literature survey
Selection & collection of material
Formulation
Evaluation test
Result
Conclusion

PHARMACEUTICAL INGREDIENTS & EXCIPIENT PROFILE:

1] Aloe Vera

Figure no.4: Aloe vera

- Kingdom: Plantae
- Division: Magnoliophyta
- Class: Liliopsida
- Order: Asparagales
- Family: Asphodelaceae/ Liliaceae.
- Genus: Aloe
- Scientific name: Aloe Barbadensis miller
- Part Used: Leaves
- Colour: Green colour

Aloe Vera is highly valued for its ability to provide a smoothing effect on the skin, helping to improve texture and enhance its overall appearance. It nourishes the skin by supplying essential vitamins, minerals, and antioxidants, supporting its natural functions and promoting a healthy, radiant look. The plant is also known for its hydrating properties, which help maintain moisture levels in the skin, providing a cooling and soothing effect. This makes it particularly effective in relieving irritation caused by dryness, sunburn, and environmental stressors. Additionally, Aloe Vera exhibits antiseptic qualities, aiding in the protection of the skin against bacteria and infections. Its healing properties contribute to wound recovery, making it a valuable ingredient in skincare products [29].

2] Turmeric Powder:

Figure no.5: Turmeric powder

- Kingdom: Plantae
- Division: Magnoliophyt
- Class: Liliopsida
- Order: Zingiber ales
- Family: Zingiberaceae
- Genus: Curcuma
- Scientific name: Curcuma longa

Turmeric has been widely used in traditional medicine across various cultures, primarily due to its active compound, curcumin. Curcumin exhibits strong antibacterial, antifungal, and anti- tumor properties, making turmeric a valuable ingredient in dermatology. It is particularly renowned for its remarkable wound-healing capabilities.

The dried turmeric powder contains approximately 3-5% curcumin, which contributes to its potent antioxidant, anti-inflammatory, and protective effects. In skincare, turmeric plays a crucial role in slowing the signs of aging, shielding the skin from UV radiation damage, and promoting natural healing for conditions such as psoriasis and dry skin. Additionally, its antimicrobial properties help prevent microbial contamination in soaps, making it a beneficial addition to cosmetic formulations [30].

3] Neem Powder:

Figure no. 6: Neem powder

- Kingdom: Plantae
- Phylum: Magnoliophyte
- Class: Magnoliopsida
- Order: Sapindales
- Family: Meliaceae
- Genus: Azadirachta
- Species: A. indica

Neem (Azadirachta indica), a native tree of the Indian subcontinent, has long been revered in Ayurvedic medicine for its extensive medicinal properties. It is particularly recognized for its potential in managing psoriasis, a skin condition characterized by inflammation and discomfort. Studies have highlighted neem's anti-inflammatory effects, reinforcing its role in psoriasis treatment. Among the key bioactive compounds found in neem are nimbidic acid, a triterpenoid presents in its seeds and leaves, which exhibits significant anti-inflammatory properties that may help alleviate psoriasis symptoms. Additionally, neem oil contains limonoid compounds, such as nimbidin and nimbin, which contribute to its therapeutic benefits. The presence of gedunin, another triterpenoid in neem leaves and seeds, further expands its medicinal potential, offering a holistic approach to skin health.

Scientific research continues to emphasize neem’s effectiveness in reducing inflammation, making it a promising natural remedy for psoriasis management. Its rich pharmacological profile underscores its broad therapeutic applications, strengthening its significance in herbal

skincare solutions [31,32]. Neem’s pharmacological properties contribute to a comprehensive approach to psoriasis management. Its anti-inflammatory effects, driven by compounds such as nimbidin and nimbin, directly address the underlying mechanisms of psoriasis. By targeting inflammation mediators, neem presents a promising avenue for symptom relief and potential therapeutic benefits in dermatological care [33, 34]. Neem's immunomodulatory effects play a crucial role in addressing the immune-driven nature of psoriasis. By regulating immune responses, neem helps restore balance and control the excessive skin cell proliferation that contributes to psoriatic symptoms. Its ability to moderate immune activity offers a promising approach to managing inflammation and reducing the severity of the condition [35, 36].

Furthermore, neem's strength as an antimicrobial agent, which results from substances like azadirachtin, Nimbin, and genuine, is noteworthy. Since microbial infections can aggravate psoriasis, neem's antimicrobial properties may alleviate these infections and reduce the severity of psoriasis [37, 38]. The antioxidant properties of neem are similarly fascinating. Since increased oxidative stress is often associated with psoriasis, neem's wealth of use antioxidants, such as vitamin C, flavonoids, and carotenoids, shows promise in preventing oxidative damage and protecting skin cells [39, 40].

4] Liquorice Powder:

Figure no.7: Liquorice powder

- Kingdom: Plantae
- Family: Fabaceae
- Genus: Glycyrrhiza
- Species: G. glabra

The well-known botanical Glycyrrhiza glabra, commonly called liquorice, has been an integral part of traditional medicine for centuries, especially in Traditional Chinese Medicine and Ayurveda. It contains a diverse range of bioactive compounds, contributing to its extensive pharmacological profile. Liquorice demonstrates significant therapeutic potential for managing psoriasis, primarily due to its combination of antioxidant, immunomodulatory, and anti- inflammatory properties. These attributes help combat oxidative stress, regulate immune responses, and reduce inflammation, making it a valuable natural remedy in skincare and dermatological treatments [41, 42]. Liquorice exhibits strong anti-inflammatory properties, primarily due to its key bioactive compounds liquiritin, glycyrrhizin, and glycyrrhizic acid. These substances help regulate inflammatory responses by inhibiting pro-inflammatory cytokines such as interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF-alpha), both of which play a significant role in psoriasis development.

By effectively suppressing inflammation, liquorice offers a soothing effect on psoriasis symptoms, including redness, itching, and scaling. Its ability to modulate immune responses and reduce irritation highlights its potential as a natural remedy for managing inflammatory skin conditions [43, 44]. Liquorice possesses immune-modulating properties, making it beneficial in managing psoriasis, an autoimmune-driven condition. Its ability to rebalance immune responses helps regulate T-cell function and suppress immune cell proliferation, both of which contribute to psoriasis development.

Additionally, liquorice contains compounds that influence the activation of nuclear factor kappa B (NF-KB), a key regulator of genes associated with immune responses and inflammation. By modulating NF-KB activity, liquorice may help reduce inflammatory processes, providing therapeutic support in controlling psoriasis symptoms [45, 46]. Liquorice serves as a defender against oxidative stress, playing a crucial role in psoriasis management. Rich in antioxidants and flavonoids, it effectively neutralizes free radicals, helping to reduce oxidative damage that contributes to skin inflammation. By actively protecting skin cells from harm, liquorice supports cellular repair and healing, offering a nurturing touch to psoriasis- affected areas and promoting overall skin health [47, 48].

5] Nutmeg Powder:

Figure no. 8: Nutmeg powder

- Kingdom: Plantae
- Order: Magnoliales
- Family: Myristicaceae
- Genus: Myristica
- Species: Myristica fragrans

Nutmeg (Myristica fragrans), a spice derived from the seed of the nutmeg tree native to Indonesia's Banda Islands, has long been valued for its medicinal and therapeutic benefits. It contains a variety of bioactive compounds that contribute to its potential effectiveness in managing psoriasis. One of its most notable properties is its anti-inflammatory effect, largely attributed to compounds like myristicin and eugenol, which help soothe irritated skin by reducing redness, swelling, and itching. By calming inflammation, nutmeg can support overall skin health and provide relief from discomfort.

In addition to its anti-inflammatory benefits, nutmeg is rich in antioxidants, which play a crucial role in neutralizing free radicals and reducing oxidative stress—a factor believed to contribute to psoriasis progression. By protecting skin cells from damage, nutmeg aids in cellular repair and enhances skin resilience. Furthermore, nutmeg exhibits immunomodulatory effects, helping to regulate immune system responses that drive psoriasis symptoms. Since immune dysregulation is a major factor in the condition, compounds within nutmeg may assist in balancing immune activity, reducing flare-ups and irritation. Another valuable aspect of nutmeg is its analgesic properties, which help alleviate pain and discomfort in individuals with extensive lesions or those with psoriasis-affected areas in sensitive regions. While pain is not a primary symptom of psoriasis, nutmeg's natural pain-relieving compounds contribute to a more comfortable skin experience. Given its multifaceted therapeutic benefits, nutmeg serves as a natural and holistic remedy for psoriasis management. It can be incorporated into herbal soaps, creams, and oils to deliver nourishing, protective, and soothing Together, these properties make nutmeg a potentially helpful natural remedy for managing psoriasis symptoms.

6] Rose Water:

Figure 9: Rose water

- Family: -Rosaceae
- Biological source: - Rosa damascene

- Parts used: - Rose petal
- Properties: - Anti bacterial, anti-inflammatory

7] Vitamin E.

Figure no. 10: vitamin E capsule

- Rejuvenates and restores dehydrated skin
- Moisturizes the skin
- Reverses premature skin aging
- Lightens dark spots
- Acts as a cleansing agent
- Prevent wrinkles

MATERIAL AND METHODOLOGY

Table 1: formulation Table for Soap:

Sr.no	Ingredients	Sample (1)	Sample (2)	Sample (3)	Properties
1	Aloe vera gel	2ml	2ml	2.5ml	Soothing, Moisturizing
2	Turmeric powder	5gm	3gm	1.5gm	Antibacterial, Wound healing
3	Neem powder	15gm	12gm	8gm	Analgesic, Anti-bacterial
4	Liquorice powder	13gm	10gm	8gm	Anti-inflammatory, Hyperpigmentation
5	Nutmeg powder	10gm	8gm	4gm	Anti-oxidant
6	Rose water	5ml	5ml	5ml	Fragrance
7	Sodium lauryl sulphate	12gm	15gm	8gm	Foaming agent
8	Vitamin E capsule	2 capsules	2capsules	1capsule	Moisturization, Swelling, Improve skin tone
9	Bees Wax	25gm	22gm	20gm	Soap base

Figureno.11Material used in soap formulation

Table 2: Equipment & Apparatus:

Sr no.	Equipment & Apparatus
1]	Measuring Cylinder
2]	Spatula
3]	Double Boiler
4]	Heat Source
5]	pH meter / pH strips
6]	Beaker
7]	Blender
8]	Soap Moulds
9]	Cutting Tools
10]	Test tubes

Preparation of soap:

Neem leaves, Liquorice root, Nutmeg, Aloe Vera leaves, and Turmeric roots were carefully harvested from fully matured plants to ensure maximum potency. These plant materials were then dried using a hot air oven to preserve their beneficial compounds while eliminating excess moisture. Once completely dried, they were ground into a fine powder and stored in airtight containers for further study. Additionally, ready-made

Vitamin E capsules and rose extract were obtained from the local market and incorporated directly into the soap-making process. Procedure of soap formulation:

1. Accurate Measurement – Neem, Liquorice, Aloe Vera, and Turmeric powders are weighed precisely to ensure balanced formulation.
2. Melting Base Ingredients – Using the double boiler method, beeswax is melted over low heat, and coconut oil is added until it reaches a liquid state.
3. Incorporating Herbal Powders – The Neem, Liquorice, and Nutmeg powders are gradually added to the melted beeswax mixture, ensuring thorough blending.
4. Adding Aloe Vera and Turmeric – Aloe Vera gel and Turmeric powder are introduced into the mix, with continuous stirring to achieve uniform consistency.
5. Foaming Agent Addition – Sodium lauryl sulphate is incorporated to improve the soap's foaming ability and enhance lather formation.
6. Thorough Mixing – The mixture is stirred well to ensure all ingredients are properly combined.
7. Cooling Process – The heated soap mixture is removed from heat and allowed to cool slightly.
8. Fragrance Enhancement – A few drops of rose water are added to provide a pleasant scent.
9. Molding – The semi-solid mixture is poured into soap molds or suitable containers for shaping.
10. Setting and Solidification – The soap is left to cool and fully harden before removing it from the molds.
11. Curing Process – The finished soap bars are placed in a well-ventilated area for proper curing and hardening.
12. Final Curing Time – The soaps are left to cure for at least 4-5 weeks, allowing their properties to enhance for optimal results before use.

Sample no.1

sample no.2

Sample no.3

Phytochemical Tests for Herbal Soap:

1. Sample preparation:

- Soap Extraction:

- Weigh 10gm of soap
- Dissolve in 100 ml of distilled water or ethanol
- Shake thoroughly and filter to obtain a clear extract for testing.

2. Phytochemical tests:

Table No.3 Qualitative Test:

Phytochemical	Test name	Procedure	Observation	Result
Alkaloid	Wagner's test	Add Wagner reagent (iodine in KI) to extract	Reddish brown precipitate	positive
	Mayer's test	Add Mayer reagent ($HgCl_2$ in KI)	Cream/White precipitate	positive
Flavonoid	Alkaline reagent test	Add NaO, then dilute HCL	Yelloe colour disappear when add acid in it	positive
Saponins	Foam test	Shake extract with water vigorously	Stable foam	positive
Tannins	Ferric chloride test	Add few drops of neutral $FeCl_3$	Blue-blackish colour	positive
Phenol	Ferric chloride test	Add few drops of neutral $FeCl_3$	Blue-blackish colour	positive
Glycoside	Keller-kiliani test	Add glacial acetic acid, $FeCl_3$andH_2SO_4	Brown ring at interface	positive

EVALUATION PARAMETERS:

Selection of sample: select sample 1 (heart shape)

1] Colour and Shape: The colour and shape of the product were evaluated by eye.

2] Odor: The fragrance of the formulation was tested by applying a small amount to the hand and noting the scent of the perfume.

3] pH: The pH of the prepared soap was measured by placing a pH strip on the freshly made soap. Additionally, 1 gram of the soap was dissolved in 10 ml of water, and a digital pH meter was used for a more precise measurement.

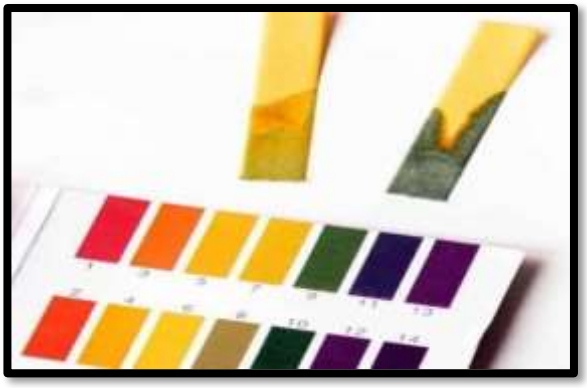


Figure no.12-PH Test

4] Foam Height: A sample of 0.5 grams of soap was mixed with 25 ml of distilled water and then transferred to a 100 ml measuring cylinder. The volume was adjusted to 50 ml with additional water. After giving the mixture 25 strokes, it was allowed to settle. The height of the foam above the liquid was then measured.

Figure no.13- Foam height

5] Foam Stability: the same amount of soap and distilled water was mixed as in the formability test. After mixing, the solution was allowed to sit undisturbed for 30 minutes. After this time, the height of the foam was measured from above the water level to assess how stable the foam was.

Figure no.14: foam stability

6] Irritation Test: the soap is applied to the skin for 10 minutes. If there's no irritation afterward, the soap is considered non-irritating.

7] Foam Retention: 25 ml solution of 1% soap is prepared and poured into a 100 ml measuring cylinder. the cylinder is then shaken 10 times for 4-5 minutes. after shaking, the volume of foam is measured every minute to see how much foam remains over time.

8] Moisture Content: 5 gm of the soap sample are weighed and placed in a pre-weighed porcelain dish. This

dish is then heated at 105°C for 2 hours in a hot air oven. after heating, the weight of the dish with the sample is recorded. the moisture content is calculated using the formula: Moisture content = (weight loss / initial weight) × 100.

9] Total Fatty Matter (TFM): To determine the total fatty matter take 5 gm of the soap sample and dissolve it in 150 ml of distilled water. Then, add 20 ml of 15% sulfuric acid (H_2SO_4) to the solution. add 7 grams of beeswax to help solidify the mixture. Heat the solution again to allow a cake to form. the cake has formed, remove, dry and then weigh it to find the total fatty matter content.

10] Foam-forming Ability: Take 1 gm of the soap sample and dissolve it in 50 ml of water in a 100 ml graduated measuring cylinder. Shake the cylinder vigorously for 2-3 minutes, then the foam Settle about 10 minutes. after settling, measure the height of the foam. Repeat this process three times and record the results. Finally, calculate the average foam height from the three trials.

RESULT:

Table no.4: Result of Formulation:

Sr no.	Parameters	Sample1	Sample2	Sample3
1	Colour	Yellowish green	Green	Dark green
2	Shape	Heart shape	Round shape	Round shape
3	Odour	Aromatic	Aromatic	Aromatic
4	PH	9.5	9.2	9.6
5	Foam height	2.3	2.5	2.0
6	Foam stability	15	13.2	14.5
7	Irritation test	No irritation	No irritation	No irritation
8	Foam retention	3min18sec	3min	2min45sec
9	Moisture content	3.5	1.5	2.7
10	Total fatty matter	37.5%	36.5%	35%
11	Foam forming ability	2.5	2	2.2

CONCLUSION:

Research on herbal soap for psoriasis presents promising possibilities for managing this persistent skin condition. The incorporation of various herbal extracts and oils with anti- inflammatory, antimicrobial, and skin-soothing properties suggests that these soaps may help reduce psoriasis symptoms while promoting overall skin health.

Studies have highlighted the benefits of Neem, Turmeric, Aloe Vera, Liquorice, and Nutmeg, along with ingredients like Vitamin E, which have demonstrated effectiveness in reducing inflammation, controlling excessive skin cell growth, and soothing itching and irritation associated with psoriasis.

Additionally, herbal soaps provide a gentle alternative to conventional products that often contain harsh chemicals, making them ideal for sensitive skin affected by psoriasis. Their natural composition supports skin hydration, preventing excessive dryness—a common concern among individuals with the condition.

While existing findings are encouraging, further clinical trials are essential to confirm the efficacy and safety of specific herbal soap formulations for psoriasis. Standardized research approaches and larger sample sizes will offer more definitive evidence, potentially paving the way for their integration into comprehensive psoriasis treatment strategies.

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