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Formulaion and evaluation of antimicrobial herbal soap for skin

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ABSTRACT :-

This project focuses on the formulation of an innovative herbal soap utilizing the extract derived from the Palash flower (Butea monosperma), a plant renowned for its extensive medicinal properties. The formulation process emphasizes the integration of Ayurvedic principles, which advocate for the use of natural ingredients in cosmetics, thereby minimizing the risk of adverse effects commonly associated with synthetic products. The Palash flower extract is particularly noted for its potent antimicrobial activity, which encompasses anti-acne, anti-fungal, antibacterial, and anti-microbial properties. The increasing awareness and demand for natural skincare solutions have led to a resurgence in the popularity of herbal cosmetics, which are perceived as safer and more effective alternatives to conventional products. The use of herbal soaps not only provides essential benefits for skin health—such as soothing irritation, promoting healing, and imparting a pleasant fragrance—but also contributes to overall wellbeing by reducing stress and anxiety through the therapeutic properties of the herbs. [1]

This project not only aims to highlight the benefits of using Palash flower extract in skincare formulations but also seeks to contribute to the growing body of research on herbal cosmetics.

Keywords:- Herbal soap, skin health, Palash, Butea monosperma, Skin enhancing, natural colour, Ayurvedic cosmetics, natural ingredients, sustainability.

INTRODUCTION :-

The skin of humans is not only the largest organ in the body, but it also tissues, but it also serves as the body's main line of defence, which is extremely important. It acts as a barrier to keep out hazardous microorganisms, extremes in temperature, and physical trauma away from internal organs, muscles, and bones. Apart from its barrier role, the skin harbours a multitude of specialised cells and structures that play a vital role in controlling body temperature, generating vitamin D, and detecting touch, pressure, pain, and pleasure. Because of its intricacy and adaptability, the human skin is a unique organ that requires our consideration and care. Taking good care of our skin is essential to preserving its health and averting numerous skin conditions. Our skin has a specific purpose. Our body's overall wellbeing, so it deserves our attention and care. Skin conditions can affect people of all ages, from newborns to the elderly, and they can manifest in different ways. Some common causes of skin issues include infections, allergies, overexposure to the sun, wounds, and more environmental variables.

These elements may result in a variety of skin issues, including rashes, psoriasis, dermatitis, acne, eczema, and more. There are various steps we may take to maintain healthy skin free from these problems. First and foremost, maintaining proper hygiene is crucial. This includes moisturising and cleaning on a daily basis. It's critical to utilise skincare products that are suitable for our skin type and mild. Furthermore, it's critical to shield our skin from damaging UV radiation by using sunscreen and wearing protective clothes when we're outside in the sun. [1,2]

Extended periods of sun exposure and sunburns can cause skin damage, which can have long-term consequences like early ageing and a higher chance of developing skin cancer Steer clear of factors that could result in irritations or allergic responses, like Overall skin health can be enhanced by leading a healthy lifestyle that includes a balanced diet, consistent exercise, and enough sleep. It is best to consult a dermatologist for medical guidance if you have any persistent medical problems or skin conditions. They are able to offer a precise diagnosis, appropriate care, and direction on how to properly take care of our skin. Recall that caring for our skin is about protecting the health and welfare of our largest organ, not just how it looks. Thus, let's give skin health top priority and work hard to maintain it healthy, radiant, and free of disease.

ADVENTAGES :-[3,4]

Advantages of Herbal Soaps:-

- Natural Ingredients: Herbal soaps are made with plant-based ingredients, free from harsh chemicals, synthetic fragrances, and artificial colors often found in conventional soaps. This makes them appealing for individuals with sensitive skin or those seeking to minimize exposure to potentially irritating substances.
- Potential Health Benefits: Many herbs possess medicinal properties that can benefit the skin. For example, tea tree oil is known for its antimicrobial properties, while aloe vera is soothing and moisturizing.

- Gentle Cleansing: Herbal soaps often have a gentler pH balance than traditional soaps, which can be less harsh on sensitive skin and help maintain the skin's natural protective barrier.
- Pleasant Scents: Herbal soaps frequently utilize essential oils to create naturally derived fragrances, often considered more appealing and less overpowering than synthetic fragrances.
- Sustainability: Herbal soaps often utilize sustainably sourced ingredients and eco-friendly production methods, promoting environmental consciousness.

Disadvantages of Herbal Soaps:-

- Short Shelf Life: Herbal soaps, due to their natural ingredients, may have a shorter shelf life compared to conventional soaps. This is because natural ingredients can degrade or oxidize over time, impacting the soap's efficacy and stability.
- Potential Allergic Reactions: Certain herbs can cause allergic reactions in sensitive individuals. It's crucial to patch test any new herbal soap before using it on a larger area of skin.
- Variations in Quality: The quality of herbal soaps can vary depending on the sourcing of the ingredients, the extraction methods used, and the manufacturing process. It's essential to choose reputable soap makers with transparent practices.
- Higher Cost :Herbal soaps may be more expensive than conventional soaps due to the higher cost of sourcing and processing natural ingredients.
- Potential for Mold and Bacteria: Herbal soaps, especially those with high water content, may be more susceptible to mold and bacterial growth, especially if not properly stored.

Herbal cosmetics:-

Herbal cosmetics are formulated, using different cosmetic ingredients to form the base in which one or more herbal ingredients are used to cure various skin ailments.

Herbal soap :Soap is used to clean our bodies gel rid of dirt and bad smells. Herbal soap made plant like seeds fruits peels have natural properties that can kill bacteria, slow down aging, protect against damage, and keep things clean, these soaps don't have artificial colours, flavours, or other extra stuff like regular soaps do. Herbs are often used in medicine and skin care because they effective, affordable easy to find, and safe to use.

Why should we prefer herbal soap?

Herbal soaps effectively cleanse the skin, removing dirt, oil, and impurities without stripping away the skin's natural oils.

They can help maintain the skin's natural pH balance and prevent excessive drying.

Uses of herbal soap

1. Antibacterial
2. Maintain skin health
3. Enhance skin fairness
4. No harmful chemicals
5. Improved skin texture
6. Reduced appearances of wrinkles
7. Protected skin barriers

HIGHLIGHT OF HERBAL SOAP:-

- Herbal soap is the cosmetic product that cleanse and enhances the skin health.
- It is basically a hygine and cosmetic care product in solid form, its hard and smooth in texture.
- Herbal soap is not just meant for cleaning, they are also for treating multiple skin diseases, soothing, cooling, moisturising, and enhancing the glow of skin.

Benefits of Herbal Soap :-[5,6]

- **Cleansing:** Herbal soaps effectively cleanse the skin, removing dirt, oil, and impurities without stripping away the skin's natural oils. They can help maintain the skin's natural pH balance and prevent excessive drying.
- **Moisturizing:** Many herbal soaps contain natural oils, such as olive oil, coconut oil, shea butter, or cocoa butter, which help moisturize and hydrate the skin. These oils help in forming a protective barrier preventing dryness. It makes the skin soft, supple, and smooth.
- **Soothing and calming:** Herbal soaps frequently include herbs and botanical extracts renowned for their soothing and calm-Ing attributes. Ingredients like chamomile, lavender, calendula, and aloe vera can help alleviate skin irritation, redness, and inflammation, providing relief for conditions like eczema, or sunburn.
- **Anti-aging effects:** Numerous herbal soaps incorporate anti-oxidant-rich ingredients like green tea, rosemary, or turmeric, which effectively combat free radicals and diminish the signs of aging. These antioxidants shield the skin from oxidative stress, contributing to a youthful and glowing complexion.

- **Cleansing and detoxifying:** Herbal soaps cleanse the skin with great efficacy by eliminating impurities, excess oil, and dirt, all while preserving its natural oils Some herbs, like neem or tea tree, possess antibacterial and antifungal properties, which help purify the skin, prevent acne breakouts, and pro-mote a healthier complexion.
- **Aromatherapy benefits:** Herbal soaps often contain essential oils that provide aromatherapy benefits during shower or bathing. The natural fragrances from essential oils, such as lavender, peppermint, or citrus, can uplift the mood, relax the mind, and create a spa-like experience.
- **Environmentally friendly:** Herbal soaps are usually bide-gradable and environmentally friendly. Herbal soaps are commonly manufactured using sustainable practices, ensuring they do not contribute to water pollution or harm aquatic life, a concern associated with certain commercial soap.

SUITABLE TYPES OF SOAP FOR DIFFERENT SKIN TYPE AND CONDITION :

By selecting the right type of soap based on specific skin conditions, individuals can better manage their skin health and address particular concerns effectively

1.Dry Skin:
- **Recommended Soap**: Creamy or moisturizing soaps.
- **Ingredients to Look For**: Glycerin, shea butter, coconut oil, or olive oil.
- **Benefits**: These ingredients help to hydrate and lock in moisture, preventing further dryness and irritation.

2.Oily and Acne-Prone Skin:
- **Recommended Soap**: Charcoal soap, tea tree oil soap, or salicylic acid soap.
- **Ingredients to Look For**: Activated charcoal, tea tree oil, or witch hazel.
- **Benefits**: These ingredients help to absorb excess oil, unclog pores, and reduce acnecausing bacteria.

3.Sensitive Skin:
- **Recommended Soap**: Hypoallergenic or fragrance-free soap.
- **Ingredients to Look For**: Aloe vera, chamomile, or calendula.
- **Benefits**: Gentle and soothing, these ingredients minimize irritation and are less likely to cause allergic reactions.

4.Eczema:
- **Recommended Soap**: Gentle, moisturizing soap.
- **Ingredients to Look For**: Oatmeal, shea butter, or ceramides.
- **Benefits**: These ingredients help to soothe inflammation, hydrate the skin, and restore the skin barrier.

5.Psoriasis:
- **Recommended Soap**: Tar soap or medicated soap.
- **Ingredients to Look For**: Coal tar or salicylic acid.
- **Benefits**: These ingredients can help reduce scaling, itching, and inflammation associated with psoriasis.

6.Normal Skin:
- **Recommended Soap**: Mild, balanced soap.
- **Ingredients to Look For**: Natural oils like olive oil or almond oil.
- **Benefits**: These soaps maintain the skin's natural moisture balance without stripping essential oils.

7.Aging Skin:
- **Recommended Soap**: Anti-aging or rejuvenating soap.
- **Ingredients to Look For**: Antioxidants, vitamin E, or hyaluronic acid.
- **Benefits**: These ingredients help to combat signs of aging, improve skin elasticity, and provide hydration .

LITERATURE OF SURVEY

1} Fathima Sherin et;al., {2023}: The development of an herbal Palash Flower soap incorporating Palash Flower extract, sodium lauryl sulphate, beeswax, Rose oil, showcases promising results in terms of its antibacterial, moisturizing, cleansing, healing, and aromatic properties. With further refinement of the formulation, concentration optimization, and thorough testing, the herbal Palash Flower soap has the potential to become a highly beneficial and widely accepted natural skincare product.

2}K. Sudheer Kumar et;al., {2022}: To summarize, the formulation and evaluation of the Herbal soap involved carefully selecting ingredients, including two for fragrance and three for skin care purposes. The soap was formulated using naturally obtained herbs, and the extraction of oils was done without the use of any chemicals. Our tests, which included evaluation parameters and phytochemical analysis, revealed positive results indicating that the soap is suitable for use.

3} Dr.A.Seetha Devi, et;al., {2021}: The herbal soaps exhibited a pleasing appearance with a pink color and emitted a pleasant aromatic smell. Moreover,

they displayed effective antibacterial properties. This study concludes that herbal products can be successfully formulated into medicated herbal soaps using the melt and pour technique to achieve excellent antibacterial effects.

4}Sharma,et;al.,{2022}: Formulation and Evaluation of Herbal Soap Taking Different Bioactive Plants by Cold Saponification Method
This study developed herbal soaps using extracts from plants like Solanum lycopersicum, Sapindus rossi, and Aloe barbadensis. It evaluated physicochemical properties such as pH, foamability, and antioxidant activity, highlighting the potential of herbal soaps in the cosmetic industry.

5} Das, et;al., {2024} : The research focused on creating herbal soaps using ingredients like lemon, Aloe vera, Tulsi, Neem, and Ritha. It assessed parameters such as pH, total fatty matter, foam height, and moisture content, emphasizing the benefits of natural ingredients in skin care.

6} Rajput et;al., {2023} : This review discussed the preparation and benefits of herbal soaps, including antimicrobial properties and skin-friendly attributes. It also covered the use of various plant-based ingredients and the cold process method in soap making.

7} Harshal Deshmukh et;al.,{2024} The study formulated a polyherbal soap using ingredients like curcumin, neem, lemon juice, aloe vera, and almond oil. It evaluated antibacterial properties and physicochemical characteristics, suggesting the economic viability of polyherbal soaps in the market.

8} Yahaya et;al., {2012} : This research explored the use of agricultural by-products such as cocoa pod husk and plantain peel as alternative sources of potash for soap production. It highlighted the economic benefits of utilizing waste materials in soap manufacturing.

9} Kumar et;al., {2022} : found that consumers are increasingly seeking natural and organic skincare products, including herbal soaps, due to concerns about synthetic chemicals and their potential side effects.

NEED OF STUDY:-

1. **Consumer Demand :**

Increasing awareness of the harmful effects of synthetic chemicals drives demand for natural and organic products like herbal soaps.[10]

2. **Health Benefits**:

Herbal ingredients offer potential health benefits, such as antioxidants and antiinflammatory properties, which need validation through research.

3. **Environmental Sustainability:**

Herbal soaps often have eco-friendly attributes, promoting sustainable practices in production and packaging.[14]

4. **Cultural Knowledge:**

Studying herbal soaps helps preserve traditional medicinal knowledge and integrate it into modern skincare.

5. **Market Opportunities:**

Understanding market trends and consumer preferences can identify gaps for innovation and new product development.[3]

6. **Safety and Quality:**

Research ensures product safety, establishes quality standards, and identifies potential allergens in herbal formulations.

7. **Holistic Wellness:**

Herbal soaps can enhance overall well-being, and studying their psychological benefits can inform consumer behavior. [13]

8. **Consumer Education:**

Educating consumers about the benefits of herbal soaps empowers informed choices and promotes appreciation for natural products.

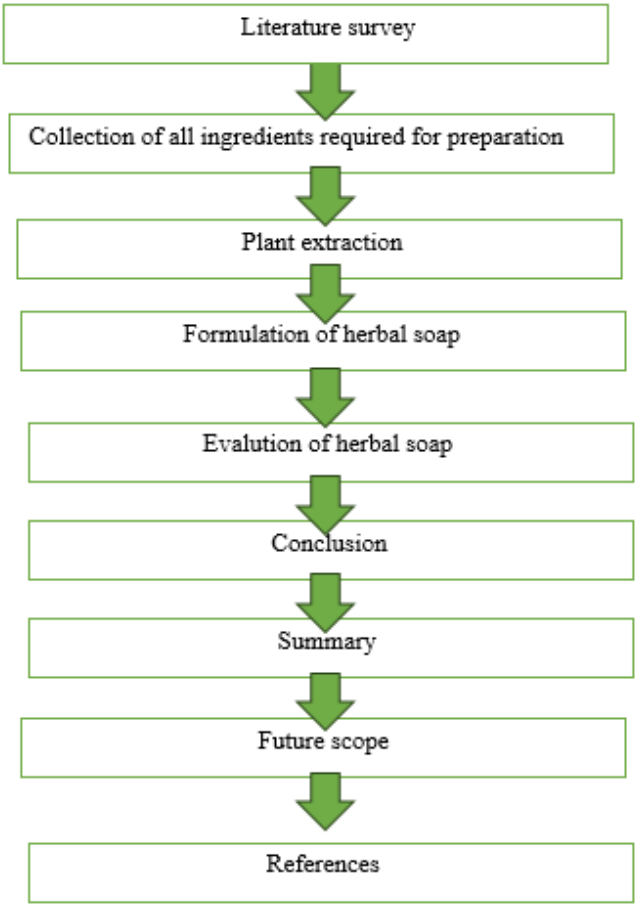
❖ **AIM:**-

"FORMULATION AND EVALUATION OF ANTIMICROBIAL HERBAL SOAP FOR SKIN"

❖ **OBJECTIVES:-**

1. To develop a stable and effective herbal soap formulation incorporating Butea monosperma extract along with complementary ingredients. [6]
2. To enhance the smoothness, handling and shield against heat damage.
3. To enhance the quality and feel of skin.
4. To assess the environmental impact of sourcing and using Butea monosperma in the formulation, promoting sustainable practices.
5. Utilize the properties of to draw out impurities, toxins, and excess oils from the skin, promoting a clearer complexion.
6. To explore the potential therapeutic benefits of the soap for skin health, leveraging the properties of Butea monosperma.[7]
7. To assess the cleansing properties of the soap, including foam retention and overall effectiveness in removing dirt and impurities.
8. To evaluate the physical and chemical properties of the soap, including color, fragrance, texture, and pH level. [10]

❖ **PLAN OF WORK:-**



MATERIAL AND METHOD:-

METHODS ;-

1] Cold process for soap making : It's a common and easy method for making natural soap.

By cold-process soap, we mean that the heat generated relies solely on the chemical reaction between the fatty acid (plant oils) and the base, rather than by an external heat source like many commercial mass-produced bars.[2,3]

2] Hot Process Method : is a soap-making technique in which oils and lye (sodium hydroxide solution) are mixed and then cooked using heat (typically in a slow cooker or double boiler) to speed up the saponification reaction—the chemical process that turns oils and lye into soap and glycerin.

3] Melt and Pour method : is a soap-making technique that involves melting a pre-made soap base and then adding colors, fragrances, and other additives before pouring it into molds to harden. [2]

Equipment:-

1.MORTAR AND PESTLE: A mortar and pestle is a kitchen or laboratory tool used to grind, crush, and mix substances.

Fig no.1 Mortal and Pestle

2.HEATING MENTLE:- A melting pot is a container or device used to melt and mix substances, typically at high temperatures. It is commonly used in various industries.

Fig no 2. Heating Mantle

3.MICROWAVE :-an electric oven that uses waves of energy to cook or heat food quickly

Fig no. 03: microwave

PLANT PROFILE AND BOTANICAL DESCRIPTION:-

1.Butea monosperma:-
Plant - Butea monosperma
Plant - Palash flower
Synonyms - Parna, palash,
Geographical source - Bangladesh, India, Nepal, Pakistan, Thailand, srilanka, Myanmar, western Indonesia
Taxonomical classification –
Kingdom – Plantae
Family – *Fabaceae*
Genus –Butea
Species –Butea monosperma
Chemical constituents - glucosides, butrin, isobutrin, and glucosides, quercetin and kaempferol.

Fig no.4 Palash Flower (Butea Monosperma)

Therapeutic category –
This traditional medicinal plant has been used for thousands of years in Ayurvedic medicine for various therapeutic purposes.
Pharmacological Properties:
Anti-inflammatory: Palash exhibits anti-inflammatory effects.
Antioxidant: It possesses antioxidant properties.
Antimicrobial: The plant has antimicrobial activity.
Analgesic: Palash can provide pain relief.
Traditional Uses:
Skin Disorders: Palash is used to treat skin-related issues.
Pain Management: It helps alleviate pain.
2.Orange Peel Powder :- [12]

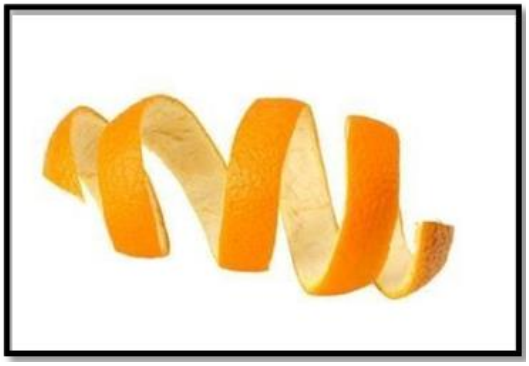


Fig. no. 05 :- Orange peel

Common Name: Orange Peel
Scientific Name: Citrus sinensis (Sweet Orang)

Pharmacology :-
Active Constituents: Orange peel contains various bioactive compounds, including:
Citrus Essential Oils: Rich in limonene, linalool, and other terpenes, which possess antioxidant and antimicrobial properties.
Flavonoids: Such as hesperidin and naringin, known for their antioxidant and anti-inflammatory effects.
Vitamin C: A potent antioxidant that helps brighten the skin and protect against oxidative damage.
Pharmacological Actions:
Antioxidant: Orange peel is rich in antioxidants that help neutralize free radicals and protect the skin from oxidative stress, thereby reducing signs of aging.
Antimicrobial: The essential oils in orange peel have antimicrobial properties that can help inhibit the growth of acne-causing bacteria and fungi on the skin.
Skin Brightening: Vitamin C and flavonoids in orange peel contribute to skin brightening by reducing hyperpigmentation and promoting a more even skin tone.
Anti-inflammatory: Compounds like flavonoids may help reduce inflammation and soothe irritated skin.
Physiology :-
Exfoliation: Orange peel contains natural acids, such as citric acid, which can gently exfoliate the skin, removing dead skin cells and promoting cell turnover.
Oil Control: The astringent properties of orange peel help regulate sebum production, making it beneficial for oily and acne-prone skin.
Skin Brightening: Vitamin C in orange peel inhibits melanin production, reducing the appearance of dark spots and promoting a brighter complexion.
Antioxidant Protection: Antioxidants in orange peel help protect the skin from damage caused by free radicals, UV radiation, and environmental pollutants.
Soothing: Orange peel contains anti-inflammatory compounds that can soothe irritated skin and reduce redness and inflammation.

3.Coconut Oil :-

Fig no. 6 :- Coconut oil

Common Name: Coconut Oil
Scientific Name: Cocos nucifera
Pharmacology :-
Composition: Coconut oil is rich in medium-chain fatty acids, particularly lauric acid, which possesses antimicrobial properties. It also contains other fatty acids such as caprylic acid and capric acid, as well as vitamin E, which contributes to its antioxidant properties.

Pharmacological Actions:
Moisturizing: Coconut oil is an excellent emollient, meaning it helps to soften and hydrate the skin by forming a protective barrier that reduces moisture loss.
Antimicrobial: Lauric acid in coconut oil exhibits antimicrobial activity against bacteria, viruses, and fungi, making it beneficial for maintaining skin health and preventing infections.
Anti-inflammatory: coconut oil contains compounds like polyphenols and vitamin e, which possess anti-inflammatory properties that can help soothe irritated or inflamed skin.
Antioxidant: Vitamin E in coconut oil acts as an antioxidant, protecting the skin.
Physiology :- Skin Hydration: Coconut oil's emollient properties help to lock in moisture, keeping the skin hydrated and preventing dryness and flakiness.
Barrier Function: When applied topically, coconut oil forms a thin layer on the skin's surface, which acts as a protective barrier against environmental

aggressors and pollutants.

Wound Healing: The antimicrobial and anti-inflammatory properties of coconut oil may aid in wound healing by preventing infection and reducing inflammation.

Skin Softening: Regular use of coconut oil can help soften rough or dry patches of skin, leaving it feeling smooth and supple.

Soothing: Coconut oil has a soothing effect on the skin, which can help relieve itching, redness, and irritation.

4.PAPERMINT OIL :

Common Name: Peppermint

Scientific Name: Mentha piperita

Fig no 7:- papermint oil

Physiological Effects:

Cooling Sensation: Menthol activates cold-sensitive receptors in the skin, providing a cooling effect that can soothe irritation and inflammation.

Antimicrobial Activity: The oil exhibits antibacterial and antifungal properties, helping to inhibit the growth of various pathogens.

Digestive Aid: Peppermint is known to relax the muscles of the gastrointestinal tract, aiding digestion and alleviating symptoms of indigestion and bloating.

Analgesic Properties: Menthol can provide pain relief by acting as a local anesthetic and counterirritant, often used in topical applications for muscle and joint pain.

Fragerance properties: pepermint oil has fragerance properties use as perfume in soap.

PREFORMULATION:-

Key Points of Preformulation Studies for Herbal Soap

- **Physicochemical Properties:**

Assess organoleptic characteristics such as color, odor, and texture.
Conduct solubility analysis to understand ingredient interactions.
Perform stability analysis under various conditions (temperature, light).

- **Compatibility Studies:**

Investigate interactions between herbal extracts and excipients.

- **Formulation Design:**

Use findings from studies to create effective and stable formulations.
Consider factors like particle size, flow properties, and moisture content.

Importance:

Enhances efficacy and stability of the final product.
Aids in meeting regulatory compliance for herbal products

Fig no8: dried flower of palash

Fig no 9:- size reduction of flower

Composition of herbal soap:-

Herbal soaps are made using a combination of natural ingredients that offer various benefits to the skin. while the specific composition can very depend on the brand and the desired properties, here are some common ingredients found in herbal soaps.

Base oils:

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

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 add-ed 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 cool-rants derived from plants or minerals, such as turmeric pow-der for a yellow color, spirulina powder for green, or activated charcoal for black.

PREPARATION OF HERBAL SOAP :–

Collection of the necessary ingredients: A high-quality soap base, such as goatmilk or shea butter is needed. The herbal ingredients, such as essential oils, dried herbs, and botanical powders are collected.

Melt the soap base: Cut the soap base into small pieces and melt it in a double boiler or microwave. Stir the soap base until it has melted to a smooth consistency.

Addition of the herbs: After melting the soap base, take it off the heat and incorporate the herbal ingredients by stirring them in. Dried herbs, essential oils, or powders are used. Add the herbs slowly and stir continuously to ensure they are evenly distributed throughout the soap.

Pour into Molds: Once the herbs are added, pour the soap mixture into molds. Silicone melds or plastic containers coated with cooking spray are used. Let it cool and harden for hours or overnight.

Cut and store the soap: Once the soap is fully cooled and hard-ened, remove it from the melds and cut it into desired shapes and sizes. Store the soap in a cool, dry place until ready to use.

FORMULATION OF HERBAL SOAP :-

Sr.No.	**Ingredients**	Qty. **F1**	Qty. **F2**	**USE**
1	Soap base	25gm	25 gm	Base
2	Palash Flower Powder extract	5ml	3ml	Antibacterial & Exfoliater.
3	Coconut oil	5ml	5ml	Moisturizer
4	Orange Peel Powder	2ml	4ml	Antiseptic
5	Rose Oil	10ml	10ml	Soothing and cooling
6	Papermint oil	3ml	3ml	perfume

Table no: 1 formulation of soap composition of palash soap

MELT AND POUR METHOD OF SOAP PREPARATION:-

1. To take fresh or distilled water and dried Palash Flower, make sure they are thoroughly washed. Palash Flower is a great exfoliator as they help to cleanse the skin. The Palash Flower can help to easily get rid of dead skin cells & filter my orange peel extract with filter paper.
2. Cut the soap base into small pieces and melt it in a double boiler or microwave. Stir the soap base until it has melted to a smooth consistency.
3. Add the herbs extract(butea monosperma flower powder &orange peel powder) slowly and stir continuously to ensure they are evenly distributed throughout the soap.
4. Add sufficient quantity of coconut oil, Rose oil Adjust the amount according to your preference, but be careful not to make the scent overpowering. slowly and stir continuously to ensure they are evenly distributed throughout the soap.
5. Once the ingredients are added, Pour the semi-solid soap mixture into soap molds or any desired container.
6. Silicone molds or plastic containers coated with cooking spray are used. Let it cool and harden for hours or overnight.
7. Once the soap has hardened, gently press on the back of the molds or slightly twist them to release the soap bars from the molds.
8. Place the finished Palash Flower soap bars on a drying rack or any well-ventilated area to cure and harden further. This helps to improve the longevity and quality of the soap.

EVALUATION OF HERBAL SOAP:-

Organoleptic evaluation:

Organoleptic evaluation means the study of drugs using organs of senses. It refers to the methods of analysis like colour, odour, taste, size, shape and special features, such as touch, texture, etc. The prepared herbal soap was visually examined to assess its physical appearance, colour, and texture.

1.Colour

2.Texture

3.Appearence

4.Shape

5.Odour

Physical evaluation: [5,11]

pH- is a measure of how acidic or basic (alkaline) a substance is. It stands for "potential of Hydrogen" and represents the concentration of hydrogen ions (H^+) in a solution. mild or Ph balanced soaps (close to 5.5–7) are generally better for regular skin care. [27]

Foam retention –the ability of a soap to maintain its foam (lather) over time after it has been generated. It indicates how long the foam lasts before breaking down or disappearing. Ideal foam retention time is typically 3 to 5 minutes.

Foam Height – the vertical height of foam (lather) produced when a soap or detergent solution is agitated (usually by shaking or stirring). It is a measure of the foam-forming ability of the soap.

Antimicrobial Test – An antimicrobial test for soap is a laboratory procedure used to evaluate the soap's ability to kill or inhibit the growth of microorganisms, such as bacteria, fungi, and viruses. [16]

RESULT :

SR NO.	PARAMETER	F1	F2
1.	Physical appearance		
	o Colour	Brown	Brown
	o Odour	Aromatic	Aromatic
	o Texture	Solid	Solid
2	pH	6.5	6
3.	Foam Retention	5 min	4 min
4.	Foam height	2.5cm	2.8cm
5.	Antimicrobial test	High efficancy	High efficancy
6.	Stability test	No changes	No change

CONCLUSION

In conclusion, the herbal Palash Flower soap, made with Palash Flower extract, coconut oil, orange peel powder, rose oil, peppermint oil and glycerin soap base, demonstrates strong potential as a natural skincare product. It offers antibacterial, moisturizing, cleansing, healing, and aromatic benefits. With further refinement and testing, this soap could become a popular and effective choice for those seeking a natural skincare solution. The Palash Flower herbal soap demonstrated promising quantitative results in terms of its suitability for skincare applications. The soap was found to have a neutral pH , indicating compatibility with the skin's natural barrier. Foam retention was observed to last for 4-5 minutes, and foam height remained consistent, suggesting effective cleansing and surfactant properties. Antimicrobial tests confirmed its efficacy against microbes, consistent with the known properties of Butea monosperma and orange peel powder. Stability tests over 7 days showed no significant changes in its physical or functional properties. These findings confirm that the herbal soap, with its antimicrobial, moisturizing, and exfoliating properties, is a viable and effective natural skincare product. Future optimization of formulation and shelf life, along with the addition of other herbal ingredients, could enhance its therapeutic potential.

SUMMARY

This study centers on the creation and evaluation of a herbal soap enriched with *Butea monosperma* (commonly known as Palash flower), recognized for its healing, antibacterial, and exfoliating qualities. The soap is crafted using the melt and pour method, incorporating natural components such as coconut oil for hydration, orange peel powder for its cleansing and brightening properties, rose oil for its calming effect, and peppermint oil to provide a refreshing fragrance and cooling sensation.

Multiple research efforts have validated the benefits of herbal soaps in skincare, pointing to their antimicrobial action, antioxidant potential, and environmental friendliness. The soap formulation involved melting a natural base, blending in the herbal extracts and oils, and then pouring the mix into molds to solidify. The finished product was evaluated based on characteristics like appearance, scent, texture, pH, lather retention, and antimicrobial activity.

The research highlights a rising consumer preference for plant-based and chemical-free skincare options. It also promotes the use of traditional botanical knowledge in modern formulations while supporting eco-conscious practices. Looking ahead, the field offers opportunities for customization, eco-friendly packaging, market growth, and further scientific research into the therapeutic benefits of herbal ingredients.

FUTURE SCOPE OF HERBAL SOAP:-

The future scope of herbal soap encompasses various aspects, including innovation, market trends, and potential health benefits. Here are some key points outlining the future scope of herbal soap:

Innovative Formulations:

Development of new herbal soap formulations that incorporate emerging natural ingredients with proven benefits, such as adaptogens and superfoods.
Exploration of unique combinations of botanicals to target specific skin concerns, such as antiaging, acne, and hyperpigmentation.

Personalization:

Customizable herbal soap options that allow consumers to select ingredients based on their individual skin types and concerns.

Use of technology to create personalized skincare solutions, such as apps that recommend specific herbal soap formulations based on skin analysis.

Sustainability and Eco-Friendly Practices:

Increased focus on sustainable sourcing of ingredients and eco-friendly packaging to meet consumer demand for environmentally responsible products.
Development of biodegradable and compostable soap packaging to reduce environmental impact.

Research and Development:

Continued research into the efficacy and safety of herbal ingredients, leading to scientifically validated claims that enhance consumer trust.
Clinical studies to explore the therapeutic benefits of specific herbal ingredients in soap formulations.

Expansion into New Markets:

Growth opportunities in emerging markets where there is a rising demand for natural and organic skincare products.
Targeting niche markets, such as vegan, cruelty-free, and Ayurvedic skincare enthusiasts.

Integration of Technology:

Use of digital platforms for marketing and consumer education, including social media campaigns that highlight the benefits of herbal soaps.
Development of e-commerce platforms that facilitate easy access to a variety of herbal soap products.

Holistic Wellness Approach:

Positioning herbal soaps as part of a broader holistic wellness routine, integrating them with other natural skincare and wellness products.
Promotion of the mental and emotional benefits of using herbal soaps, such as stress relief and relaxation through aromatherapy.

Consumer Education and Awareness:

Ongoing efforts to educate consumers about the benefits of herbal ingredients and the importance of natural skincare.
Workshops, webinars, and community events to promote awareness of herbal soaps and their advantages over conventional products.

Collaboration with Traditional Medicine:

Collaboration with practitioners of traditional medicine systems, such as Ayurveda and Traditional Chinese Medicine, to develop formulations based on ancient knowledge.
Incorporation of traditional practices and wisdom into modern herbal soap production.

Regulatory Compliance and Quality Assurance:

Adherence to regulatory standards and quality assurance practices to ensure product safety and efficacy.
Development of certifications for herbal soaps that validate their natural and organic claims.
By focusing on these areas, the herbal soap industry can continue to grow and evolve, meeting the changing needs and preferences of consumers while promoting natural and sustainable skincare solutions.

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