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Research Article

An Anti- Aging Herbal Soap of Centella Asiatica in Combination with Portulaca Oleracea Used Against Various Skin Infections

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ABSTRACT

Traditional medicine has long been based on the use of plants with therapeutic qualities. A variety of medicinal plant's leaves, stems, and roots have been extracted, and this extract has been used as a natural medicine to treat a wide range of illnesses. In recent years, people have been so conscious about their looks. So they used various chemical compounds for the beautification product. The increase in use of different cosmetic chemical product may lead to various skin problems such as irritation, itchy skin, pimples, acne, etc. Hence the aim of present study is to formulate the herbal soap of Centella Asiatica in combination with Portulaca Oleraceae against various skin infections such irritation, acne, pimples, etc. and also has the property of being anti-aging. The formulated Formulation was evaluated for various physiochemical parameters such as color, odor, appearance, shape, foam height, pH, and foam retention. The main ingredient Centella Asiatica commonly known as Gotu Kola has various effective properties against skin infections including acne, pimples, itching. The Portulaca Oleraceae which used in combination with Centella A. to enhance the effectiveness of formulation having anti- aging property which is also used for skin whitening and wrinkles improvements. Hence, this study is concluded that the formulated herbal soap can be used for treating various skin infections and also used as anti- aging product with less or no side effects.


INTRODUCTION

Plants have been an abundant source of medicinal compounds from nature for thousands of years. These days, an amazing number of drugs have

been found in these natural sources. Plants with organically active components that are used to treat illness or ease pain are known as medicinal plants. A "medicinal plant" is any plant whose organs contain chemicals that can be used

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therapeutically or that are precursors to the production of effective pharmaceuticals, according to the World Health Organisation (WHO, 1977)¹. Some of herbal remedies may be particularly helpful in treating and relieving symptoms of skin diseases, due to the presence of various compounds responsible for their activity, and some medicinal plants used for beautification purpose.² One of the plants used in dermatology is *Centella Asiatica* (L.) also known by the common name Gotu kola². *C. Asiatica* has been used for in dermatological conditions, to improve small wounds, scratches, burns, hypertrophic wounds healing, and as an anti-inflammatory agent, particularly in eczema.³ *P. Oleracea* extract is well-known as an only anti-inflammatory additive, which calms from the side-effect of chemical as a cosmetic material, it is to develop an active molecule for discovering new pathway such as anti-aging, whitening, and wrinkle improvement. materials or outside irritations.⁴ Burns and skin eruptions like boils and carbuncles can be treated with an effective concoction of the

leaves.⁵ Herbal soaps are natural products that purify and beautify the skin, offering nutrients and minerals without harmful side effects. The purity of herbal cosmetics makes them beneficial for maintaining skin health. Factors like health, lifestyle, and environment affect the beauty of skin and hair, while summer heat exposure can lead to dehydration, wrinkles, and sunburns.⁶ Many commercial soaps contain chemicals like plastics, aluminum, and bisphenol, which are absorbed through the skin and may cause negative health effects. Although these soaps clean dirt and bacteria, their harmful ingredients pose risks. Herbal medicine use has significantly grown, with 80% of the global population relying on plant extracts for treatment. This increase in herbal product usage has driven advancements in "Herbal Medicinal Products" research.⁶

Various skin infections treated by *Centella Asiatica*:

1. Acne:



Fig 1.1: Acne

Acne is a multifactorial disease that affects the sebum unit of the skin. Blockage of the sebum unit can lead to the development of acne lesions. The medical term for common acne is *Acne Vulgaris*.⁷ In some people, this problem is so severe that they have pus-filled inflammatory rashes that are very painful. Sometimes acne leaves black spots and

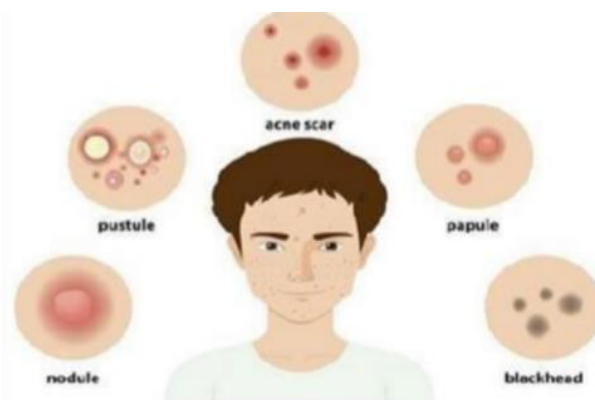


Fig 1.2: Acne vulgaris

scars on the face. The sebaceous glands secrete an oil that turns into a solid white substance called sebum. Sebum migrates to the opening of a hair follicle and bursts into the surface of the skin. This process may be due to infection of these glands or excessive levels of male hormones called androgens.⁸ Its pathophysiology involves three factors, hypersecretion sebum, abnormal follicular

keratinization, and proliferation of propionibacterium acnes in the sebaceous unit., the skin's lesions pathophysiology of acne.⁹ Acne is a skin condition that suppresses a person's self-esteem about physical appearance and has a clinical onset during puberty and adolescence.¹⁰ The pathogenesis of acne is regulated by excess sebum in deformed follicles leading to microcomedones, and follicular hyperproliferation of microcomedones causes inflammation¹² and comedones¹³ in both open and closed types (Black and White comedones) in papules, pustules, nodules, and cysts.¹⁴ The resulting sebum-enriched skin condition is susceptible to anaerobic

growth of Propionibacterium acnes, the main acne microorganism. In addition, Staphylococcus epidermidis and Pitryosporum ovale are present in acne lesions.¹⁵ The multiplication of these microorganisms, mainly P. acnes, produces inflammatory lesions and severe acne. Acne is the most common skin problem, three of which are the main forms, pruritus Vulgaris, scabs, and acne. Steroid rosacea acne is rosacea chronic acne, such as the rash in the face of adult, adults middle-aged and higher associated with Facial Rinse.¹¹

Pimples:

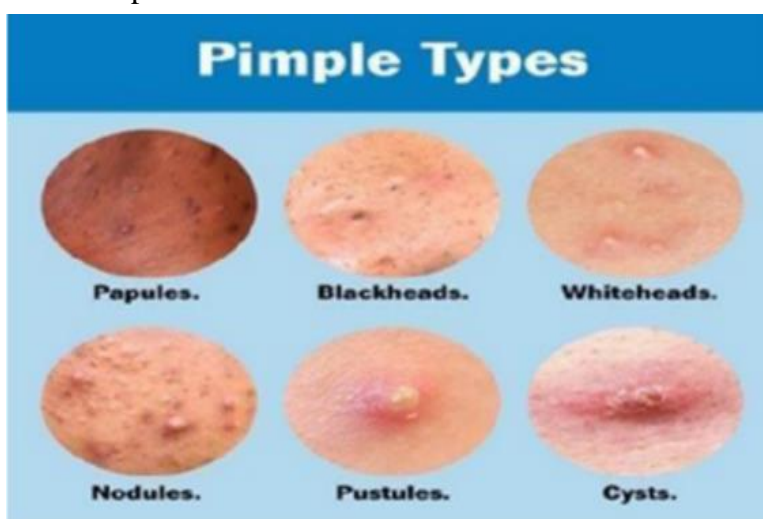


Fig 1.3: Different Types of Pimples

Acne vulgaris or simply known as acne is a human skin disease characterized by skin with scaly red skin (seborrhea), blackheads and whiteheads (comedones), pinheads (papules), large papules (nodules), pimples and scarring.¹⁶ An infected pimple is a painful, swollen, and red bump that occurs when bacteria enter the skin. Infected pimples can be larger and more painful than regular pimples, and they may take longer to heal. Other symptoms include: Being filled with pus, Feeling warm to the touch, and Having more redness than a regular pimple. Bacteria that naturally live on your skin get inside the opening,

causing an infection. The area around the pimple may be very sore, red or inflame.

3. Itching:



Fig 1.4: Itching infection

Itching reflects a distinct quality of cutaneous nociception elicited by chemical mediators and other stimuli to neuronal Itching reflects a distinct quality of cutaneous nociception elicited by chemical mediators and other stimuli to neuronal receptors. Several studies could demonstrate that itch in individuals with AD (Atopic Dermatitis) follows different pathways as compared to non-atopic individuals. For example, while normal volunteers experience intense pruritus after injection of histamine or substance P, patients with AD notice only weak itch sensations. On the other hand, application of acetylcholine results in pruritus rather than pain in AD patients. receptors. Several studies could demonstrate that itch in individuals with AD follows different pathways as compared to non-atopic individuals.¹⁷

Aging:



Fig 1.5: Aging Process

Skin aging is a part of a natural human “Aging Mosaic” which becomes evident and follows different trajectories in different organs, tissues and cells with time. While the aging signs of internal organs are masked from the ambient “eyes,” the skin provides first obvious marks of the passing time.¹⁸ Skin aging is a complex biological process influenced by combination of endogenous or intrinsic (genetics, cellular metabolism, hormone and metabolic processes) and exogenous or extrinsic (chronic light exposure, pollution, ionizing radiation, chemicals, toxins) factors.¹⁹

These factors lead together to cumulative structural and physiological alterations and progressive changes in each skin layer as well as changes in skin appearance, especially, on the sun-exposed skin areas.²⁰

Review Of Literature:

1. **Rajat Das et al. 2024** studied the Formulation and Evaluation of herbal soap. The purpose of this research to formulate and evaluate a herbal soap by using medicinal plant such as neem, tulsi, ritha, aloe, lemon, etc. A herbal soaps, also known as natural soaps, are made from plant-based ingredients and botanical extracts. They provide skin benefits such as natural aroma, antioxidant properties, and moisturizing effects, while being environmentally friendly. The study involves preparing herbal soap based on herbal formulations and evaluating various organoleptic and physicochemical parameters.
2. **G. Sai Manoj et al. 2023** studied the Formulation and Evaluation of Poly Herbal Soap. The purpose of this investigation to evaluate the formulated polyherbal soap. Plants with medicinal properties are being used as traditional medicine from times immemorial. The extract obtained from the leaves, stem and roots of various medicinal plants have been employed as a natural remedy in curing various ailments and diseases.
3. **Boris Namzer et al.2020** studied the Phytochemical composition and nutritional value of different plant parts in two cultivated and wild Purslane (*Portulaca Oleracea* L.) genotypes. This review discusses the nutritional values and composition of *Portulaca Oleracea*. Purslane (*Portulaca Oleracea*), found in driveways and fields, is edible in many regions. This study compared cultivated and wild types, finding similar omega-3 levels (around 189 mg/100 g dry

weight) with low omega-6/mega-3 ratios (1:1–1:3).

4. **Ogunka Nnoka CU et al.2020** studied Nutrient and Phytochemical Composition of Centella Asiatica Leaves. Centella Asiatica, commonly known as Gotu Kola, is an herbaceous plant used traditionally for various health treatments. This study evaluated its leaves for nutrient and phytochemical composition. Key findings include a proximate composition with Moisture (13.10%), Protein (8.35%), Fiber (17.00%), and Carbohydrate (43.81%). High Palmitic acid (55.7%) and Linoleic acid (17.5%) were observed among fatty acids.
5. **Suzita Ramli, et al.2020** studied A Review of Antibacterial activities, antioxidant properties and toxicity profile of Centella Asiatica. Centella Asiatica (C. Asiatica) has long been used in traditional medicine for its ability to treat various diseases. Known for its antimicrobial properties from compounds like Madecassic acid and Asiaticoside, it also serves as an antioxidant with minimal toxicity to humans. C. Asiatica extract effectively inhibits foodborne pathogens and spoilage microorganisms.
6. **Amita Pandey et al. 2014.** studied the Concept of standardization, extraction and pre phytochemical screening strategies for herbal drug. The pharmacopoeial standards in Ayurvedic Pharmacopoeia of India are not adequate enough to ensure the quality of plant materials since the materials received in the manufacturing premises are not in a condition that effective microscopic examination can be done.
7. **Manoj A. Suva et al.2014** studied Brief Review on Acne Vulgaris: Pathogenesis, Diagnosis and Treatment. Acne vulgaris is a common skin disorder, especially in adolescence, marked by red, scaly skin, blackheads, whiteheads, papules, nodules, and potential scarring. It primarily affects areas with dense sebaceous follicles, such as the face, chest, and back. While not life-threatening, severe acne can impact psychological well-being and social life.
8. **Cherukuri Vidyullatha Chowdhary et al.2013** Portulaca Oleracea, a member of the Portulacaceae family, is widely recognized in traditional medicine for its numerous medicinal and pharmacological properties. It exhibits diverse pharmacological activities, including antimicrobial, antioxidant, antidiabetic, neuronal, antinociceptive, and anti-inflammatory effects. These properties make it a valuable source for discovering new bioactive compounds.
9. **Wiesława Bylka et al.2013** studied Centella Asiatica in cosmetology. Centella Asiatica, also known as Gotu Kola, is a medicinal plant used for centuries in both folk and scientific medicine. Its active compounds, including Asiaticoside, Madecassoside, and Asiatic acid, are effective in treating small wounds, burns, psoriasis, scleroderma, and hypertrophic scars. The plant promotes fibroblast proliferation, collagen synthesis, and enhances the tensile strength of new skin. It also helps inhibit inflammation in hypertrophic scars and keloids.
10. **Vasantharuba seevaratnam et al.2012** studied Functional Properties of Centella Asiatica(L.). Centella Asiatica (L.) is a valuable, faintly aromatic medicinal herb found across tropical and subtropical regions. Its use in food and beverages has risen due to its beneficial properties, including antioxidant, antimicrobial, cytotoxic, and neuroprotective effects.



11. A. A. Hamid et al. 2002 studied Characterisation of antioxidative activities of various extracts of *Centella asiatica* (L) Urban. The antioxidative activity of extracts from various parts of *Centella asiatica* (leaves, petioles, and roots) was evaluated using ethanol, water, and light petroleum as solvents. The ethanol extract demonstrated significantly higher antioxidative activity than the water extract, while the light petroleum ether showed minimal activity. As the concentration of the extracts increased (1000–3000 ppm), antioxidative activity also increased.
12. B. Brinkhaus et al. 2000 studied *Centella Asiatica*, a medicinal plant used since prehistoric times, contains active compounds like Madecassosides and Asiaticosides. It has been studied extensively, particularly for treating venous insufficiency, striae gravidarum, and wound healing disturbances. Clinical evidence is still limited for its sedative, analgesic, antidepressant, antimicrobial, and antiviral effects. However, its therapeutic potential suggests further research is warranted. The plant's versatility makes it valuable in traditional and modern medicine.

Rationale Of the Study:

Traditional medicine has long been based on the use of plants with therapeutic qualities. A variety of medicinal plants leaves, stems, and roots have been extracted, and this extract has been used as a natural medicine to treat a wide range of illnesses. The main ingredient, *Centella Asiatica* L. commonly known as Gotu Kola, has number of therapeutic qualities. *Centella Asiatica* is used against various skin infections and also used in treatment of neurodegenerative disorders. The objective of this study is to formulate herbal soap of *Centella Asiatica* in combination with *Portulaca*

Oleracea against various skin infection with anti-aging properties. Hence, this study states that the formulated herbal soap can be used for the various skin infection such as wounds, acne, pimples, itching, etc and beautification purpose as *Portulaca Oleracea* has anti-aging properties.

AIM: The present investigation is "formulation and evaluation of herbal soap by using natural ingredient"

Objectives:

1. To study the uses of *Centella Asiatica* against various skin infections.
2. To study the anti-aging property of *Portulaca Oleracea* as an antioxidant.

Need Of Study:

Here are some prospectives to formulate herbal soap from *Centella Asiatica* and *Portulaca Oleracea*:

- 1) *Centella Asiatica* is useful against various skin infections including acne, pimples, itching infection, wounds, etc.
- 2) *Centella Asiatica* has anti-infectious and anti-inflammatory properties.
- 3) Gotu Kola also used in treatment of neurodegenerative disorders.
- 4) *Portulaca Oleracea* is well known anti-oxidant used in various herbal cosmetic products as it has number of advantages for beautification purpose without any side effects.
- 5) Purslane is used as anti-aging drug and it helps in skin whitening, provide hydration, and used in wrinkle improvement.

Market value:

As nowadays peoples started being more beauty conscious, the herbal cosmetic products are on high demand as it shows minimum side effects



compare to chemical products. So the herbal soap containing Centella Asiatica and Portulaca Oleracea helps to minimize various skin infections and also helps in skin whitening, hydration and wrinkle improvements.

Development:

In recent years, new innovative ideas and experiments have become important for development and research. The formulation of Centella Asiatica with Portulaca Oleracea as a herbal soap is a new and innovative experiment with numerous advantages.

2. Plan Of Work:

I. Selection of Crude drugs:

A) Collection of Crude drugs:

a) Crude drugs:

1. Centella Asiatica
2. Portulaca Oleracea

b) Excipients:

1. Soap base



Fig 5.1: Centella Asiatica plant

Synonym: Hydrocotyle Asiatica, Mandukparni.

2. Glycerin
3. Neem oil
4. Rose oil

B) Preparation of Materials:

- 1) Preparation of Portulaca Oleracea powder
- 2) Extraction of Rose oil
- 3) Preparation of Soap base

C) Authentication Tests of Drugs:

Centella Asiatica Powder

Selection of effective method of preparation.

Experimental Design:

Formulation of herbal soap.

Result & Discussion

Conclusion

Reference

Drug Profile:

Centella Asiatica L



Fig 5.2: Centella Asiatica powder

Common name: Gotu Kola, Tiger Grass, Jalbrahmi

Family: Umbeliferae (Apiaceae).

Biological source: It is an herb of Centella Asiatica.

Geographical source: Centella Asiatica is indigenous to the Indian subcontinent (including Sri-Lanka), Southeast Asia, parts of Australia, and wetland regions of the Southeastern US.

Macroscopic Characters:

1.Colour: Greyish green

2.Odour: Characteristic

3.Taste: Bittersweet

Chemical constituents: It mainly contains Saponins(triterpenoids) called as Asiaticoside and Madecassoside (1%). It also contains Asiatic acid, Madecassic acid, Asiaticoside A, Asiaticoside B.

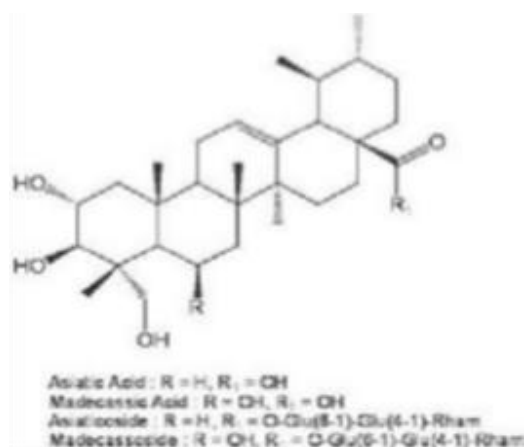


Fig 5.3: Chemical structure of Centella Asiatica

Molecular Formula: C₄₈H₇₈O₂₀

Chemical name: Morpholine-4-carbonyl chloride

Properties: Anti-infectious, anti-inflammatory, anticellulite.

1.Portulaca Oleracea:



Fig 5.4: Portulaca Oleracea plant



Fig 5.5: Portulaca Oleracea powder

Synonym: Little Hogweed, Red Root, Pigweed.

Common name: Purslane, Pursley.

Family: Portulacaceae.

Biological source: It is an herbaceous succulent annual plant of Purslane.

Geographical source: It is native to the Middle East, North Africa, and the Indian subcontinent.

Macroscopic Characters:

4.Colour: Greenish

5.Odour: Aromatic

6.Taste: Little salty

Chemical Constituents: It mainly contains Alpha- Linolenic Acid (main source of Omega-3-Fatty Acid). Purslane has 0.01 mg/g of Eicosapentaenoic acid (EPA). It also contains Vitamins (mainly Vitamin A, Vitamin C and some Vitamin B and Carotenoids) as well as dietary minerals such as Magnesium, Calcium, Potassium, and Iron. It also contains two types of Betalain Alkaloid pigments, the Reddish Betacyanins (visible in the coloration of the stems) and the Yellow Betaxanthins (noticeable in the flowers and in the slight yellowish cast of the leaves).

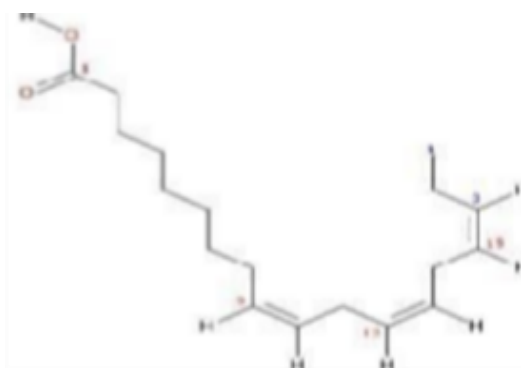


Fig 5.6: Alpha Linolenic Acid Molecular

Formula: C₁₅H₁₂O₅

Chemical name: Purslane/ Portulaca Oleracea

Properties: Anti-aging, Antioxidant, Anti-asthmatic

Storage: It may store in plastic bag and keep in cooler bag or refrigerator.

MATERIALS AND METHODS:

Collection of drugs:

I. Centella Asiatica powder:

The Centella Asiatica powder was collected from Biotic Nature Products.

Authentication Tests:

1. Physical Analysis:

The physical analysis of Centella Asiatica powder is done by visual examination based on its colour and taste.

Chromatographic Analysis (By TLC Method):

Glasswares: TLC Plate, Brush, Beaker, Measuring cylinder.

Chemicals: Centella Asiatic powder sample, Toluene, Ethyl Acetate, Formic Acid Spray reagent (Sulfuric Acid)

Equipment: UV cabinet



Fig 6.1: Centella Asiatica powder

Procedure:

- 1) Take a prepared TLC plate of Silica gel.
- 2) Prepare the solvent system by using Toluene, Ethyl Acetate, and Formic acid (20:5:0.5 v/v/v).
- 3) The sample mix with a suitable solvent (Water or Acetone) to make a 10-20mg/ml solution, and apply the sample on TLC plate, 1cm from the bottom.
- 4) Place the TLC plate in TLC tank, ensuring the solvent level is below the sample spot.

- 5) Develop the plate in solvent system for 20-30 minutes or until the solvent front reaches 8-10cm.
- 6) Remove the plate and dry and spray the Spraying agent (10% H₂SO₄) to detect the specific compound.
- 7) Visualize the plate under UV light (366nm) to detect the sample.

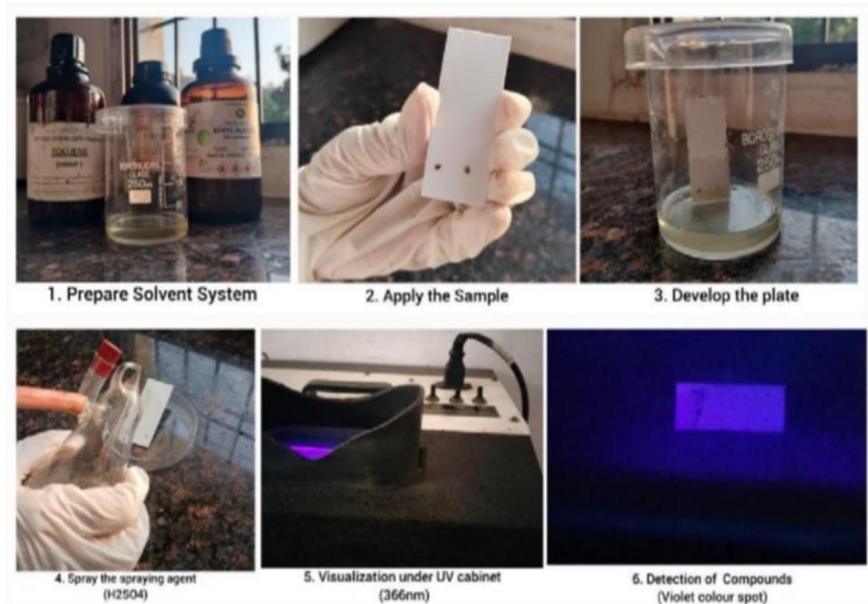


Fig 6.2: Authentication test by TLC

Preparation of materials:

1. Preparation of *Portulaca Oleracea* powder:

- 1) The fresh plant of *Portulaca Oleracea* were collected from herbal garden.
- 2) Wash the collected plant to remove impurities such as dirt and dust.
- 3) Dry them under sunlight for 2 days (or until their moisture removed)
- 4) When the plant fully dried make the powder of dried extract by using mechanical grinder.
- 5) Store the powder in an airtight container at room temperature.



Fig 6.3: Preparation Of P. Oleracea Powder

1. Extraction of Rose oil:

- 1) Fresh rose petals are collected from herbal garden.
- 2) Wash the petals to remove dust and dirt (if needed).
- 3) Set a assembly of steam distillation and rose petals placed in a distillation apparatus.
- 4) Steam passes through the petals, causing the essential oil to vaporize.
- 5) The vapor is condensed back into liquid form and collected.
- 6) The oil separates from the water by using separating funnel and is skimmed off.
- 7) Extracted rose oil was stored in air tight container at room temperature



Fig 6.4: Extraction of Rose oil

Preparation of soap base:



Fig 6.5: Preparation of Soap base

- 1) Take 50 mL of distilled water in a container. Gradually add 15 grams of sodium hydroxide (NaOH) to the water while stirring continuously to form the lye solution.
- 2) Take 200 mL of distilled water in another container. Dissolve 15 grams of sodium chloride (NaCl) in the water to prepare the salt solution.
- 3) Measure 60 mL of coconut oil. Slowly pour the coconut oil into the lye solution while stirring continuously.
- 4) Heat the mixture gently while stirring to ensure thorough blending. Gradually add the prepared salt solution to the heated mixture while continuing to stir.
- 5) Allow the mixture to rest undisturbed for 20–30 minutes. Carefully pour the upper layer of the mixture into a mold.
- 6) Let the soap base rest in the mold for 24 hours to solidify.

6.3: Formulation of Soap:

The four batches (F1, F2, F3 & F4) of herbal soap of *Centella Asiatica* in combination with *Portulaca Oleracea* were formulated with an overall quantity of 30gm by using following procedure.

A) Crude drug:

1. *Centella asiatica*
2. *Portulaca oleracea*

B) Excipients:

1. Soap base
2. Glycerin
3. Neem oil
4. Rose oil

Table 6.1: List of materials

Particular	Quantity (F1)	Quantity (F2)	Quantity (F3)	Quantity (F4)	Roles
Soap base	20g	19.5g	18.6g	18.6g	Cleansing agent
<i>Centella Asiatica</i>	1.5g	1.2g	1.5g	1.5g	Anti-infectious agent
<i>Portulaca Oleracea</i>	0.5g	0.9g	0.9g	0.9g	Anti-aging agent
Glycerin	4.9ml	6.5ml	7.9ml	7.2ml	Moisturizing agent Humectant
Neem oil	2.7ml	1.5ml	0.7ml	1.2ml	Preservative
Rose oil	Q.S.	Q.S.	Q.S.	Q.S.	Perfuming agent

6.1.1. Drug and chemicals:

Soap base, Centella Asiatica powder, Portulacaceae Oleracea powder, Glycerin, Neem oil, Rose oil, etc.

Beaker, Measuring cylinder, China dish, Mortar and Pestle, Heating mental, Soap mold, pH meter, Funnel and Tripod stand, Glass rod, etc.

Procedure:

6.1.2. Glassware's and instruments:



Fig 6.6: Formulation of Soap

1. Cut the Soap base into small cubes and melt it using a heating mental in china dish. Heat for short time to avoid burning.
2. Once the soap base is melted, add Centella Asiatica powder and Portulaca Oleracea powder to the melted mixture. Mix thoroughly.
3. In another beaker, add glycerin and neem oil.
4. After mixing of extract and soap base thoroughly removed china dish from heating mental and add the solution prepared in another beaker.
5. Now add rose oil as quantity required for fragrance.
6. Stirred continuously the mixture and then poured in soap mould and apply pressure to remove air bubbles.
7. Allow the soap to cool and harden completely at room temperature.
8. Once hardened, remove the soap from mold and stored at cool and dry place.

7. Evaluation Parameter:

1. Physical Analysis:

- A) Colour: Greenish Brown
- B) Odour: Characteristic
- C) Appearance: Smooth texture
- D) Shape: Square



Fig-Physico-Chemical Evaluation:

Final Product

- A. pH:** The skin structure and its pH differs according to where it is on our bodies. While most skin on the face and body has a pH of between 4.7 and 5.75. The pH for soap should be between 7 and 10 which means the soap is no longer caustic and safe to use. To measure the pH, 2 grams of finished soap were dissolved in 10 mL of distilled water while stirring, resulting in a dissolved sample. A pH meter was used to measure the pH.
- B. Foam retention:** Foam retention time refers to the amount of time the soap foam remains stable. The foam help to distribute the soap



Fig 7.2: Foam Retention

Skin Patch Test: Skin patch test is simple test used to check for potential allergic reactions or irritation to a soap before using it on a large area. The small amount of soap solule in water and apply on small , inconspicuous area of skin such as inside forearm or behind ear by using cotton swab pr fingertip and allow it to stay for 24 hrs .If required cover the area with any patch or bandage and do not wash it off unless irritation occurs. Check the test area if there is any sign of redness,swelling,ithching or burning after 24hrs. If no irritation occurs the soap is likely safe to use.

evenly over the body, making it effective at cleaning. After preparing 25 milliliters of a 1% soap solution and transferring it intoa 100-milliliter measuring cylinder, shake it ten times. The volume of foam was measured every minute for four to five minutes.²

- C. Foam height:** A 0.5-gram sample of soap was weighed and dissolved in 25 milliliters of distilled water. The solution was then transferred into a 100 mL measuring cylinder, and waterwas added to bring the total volume to 50 mL. After 25 strokes, the volume of the aqueous solution was measured to 50 mL, and the foam height above the aqueous volume wasrecorded²³



Fig 7.3: Foam Height

3.RESULT AND DISCUSSION:

Authentication Test Result:

The Centella Asiatica powder sample were identified based on the Colour spot and RF value of reference compound.

- 1.After spraying of H₂SO₄ reagent on the TLC Plate the Violet colour spot appears which refers the presence of Saponins (Triterpenoids) The RF value of the colour spot observed on the TLC plate were Spot 1: RF value=0.28 Spot 2: RF value=0.31

2. The RF of Asiaticoside was found to be 0.28 and generally it is 0.26 and the RF value of sample was found to be 0.31 which is closely related to Standard sample and hence it confirms the authenticity Centella Asiatica powder and it passes the tests. The Evaluation of Anti-aging Herbal Soaps of Centella Asiatica and Portulaca Oleracea were performed successfully and

mentioned in table 8.1. By the Evaluation test, F4 Formulation was found to be the best formulation than F1, F2 & F3 formulations due to its better quality of soap with neutral pH. It seems to be safe to use on skin without any irritation to skin and also it forms good lather and retains well on the skin.

Table 8.1: Evaluation result of Anti-Aging Herbal Soap Formulation

Parameter	Standard value	Formulation (F1)	Formulation (F2)	Formulation (F3)	Formulation (F4)
Color	-	Dark Brown	Greenish Brown	Greenish Brown	Greenish Brown
Odour	-	Pungent	Characteristic	Characteristic	Characteristic
Appearance	-	Rough (on one side)	Smooth	Smooth	Smooth
Shape	-	Square	Square	Square	Square
pH	8-10	9.1	8.3	7.9	7.3
Foam retention	Over 5min.	4min	4min	3min	3min
Foam height	1.3-22cm	14.3	10.7	7.2	11.4
Skin patch test	No irritation	No irritation	No irritation	No irritation	No irritation

CONCLUSION:

In this study, anti-aging herbal soaps were formulated with desirable shape, texture, and good foam retention. Herbal soaps containing *Centella Asiatica* and *Portulaca Oleracea* were prepared for their anti-infective properties, aimed at treating conditions such as pimples, acne, and itching, while also offering anti-aging benefits. Four formulations, F1, F2, F3 & F4 were developed and evaluated based on various parameters, including color, odor, appearance, shape, pH, foam height, and skin irritation test. The results were satisfactory, with the herbal soaps exhibiting a good appearance, characterized by a greenish brown color and a pleasant, distinctive fragrance. The study concludes that herbal soaps can be effectively formulated with excellent anti-infective and anti-aging properties.

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