

Formulation and evaluation of herbal lotion

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Abstract

Extensive disquisition conducted by scientists and herbal medicine practitioners has led to the identification of new medicinal shops and the development of innovative herbal phrasings. These advancements have significantly contributed to the expression of herbal plasters, which are recognized for their safety and lack of adverse goods when compared to synthetic druthers. The skin, being the body's largest organ and primary protective barricade, requires continuous care and nourishment. Herbal body plasters formulated from plant- predicated ingredients help to maintain skin hydration, meliorate texture, and support the skin's natural healing processes. These plasters are especially valued for their soothing and moisturizing parcels. The lotion was prepared using standard emulsification methods, ensuring a smooth and stable consistency. It underwent thorough physicochemical evaluation, including pH balance, viscosity, spreadability, and overall texture. Safety and quality were further assessed through microbial testing and accelerated stability studies. The results showed that the herbal lotion maintained its integrity over time and was well-tolerated on the skin, with no signs of irritation or instability. This research supports the idea that traditional herbal knowledge can be effectively combined with modern formulation techniques to create safe, functional skincare products. The findings highlight the potential of herbal lotions as sustainable alternatives in the personal care industry.

Keywords: Herbal body lotion, aloe-vera, honey, skin, glycerin, pharmaceutical assessment etc

Introduction

Herbal formulations are composed of bioactive compounds derived from natural plant sources, many of which have been extensively utilized in traditional medicine systems for their therapeutic and cosmetic benefits [1]. Botanical ingredients such as Aloe vera are well-documented for their anti-inflammatory, antimicrobial, and skin-rejuvenating properties. The origin of these practices can be traced back to Ayurveda, the ancient Indian system of medicine, developed by Rishis (sages), which emphasizes holistic health and the use of medicinal plants for disease prevention and wellness. Herbal remedies not only provide essential micronutrients and bioactive compounds but also serve as safe alternatives to synthetic chemical-based formulations. Among various dosage forms, lotions represent semi-liquid emulsions that are directly applied to the skin to deliver active constituents effectively [2]. A notable example is Aloe vera, a succulent plant known by various synonyms including Aloe barbadensis, Aloe indica, and Aloe Barbados. In Ayurvedic literature, it is referred to as Kumari, symbolizing youthfulness and vitality, particularly in relation to female health. Traditionally, Aloe vera has been employed as a uterine tonic, contributing to hormonal balance and reproductive well-being in women [3]. Its gel contains polysaccharides, vitamins, and antioxidants that support skin hydration, healing, and overall dermatological health.

The increasing demand for natural and skin-friendly cosmetic products has led to a renewed focus on herbal formulations. Unlike synthetic skin care products, which may cause irritation or long-term side effects, herbal lotions are generally well-tolerated and offer therapeutic benefits derived from plant-based ingredients. These formulations

utilize bioactive compounds from medicinal plants that have been traditionally used for their anti-inflammatory, antimicrobial, antioxidant, and moisturizing properties [4].

This study aims to develop and evaluate a herbal skin lotion using selected plant extracts such as Aloe vera, *Azadirachta indica* (neem), and *Curcuma longa* (turmeric). These herbs have a long-standing history in traditional medicine and are increasingly recognized in modern dermatology for their skin-soothing and protective effects [5].

The formulation process is designed to create a lotion that is gentle on the skin while offering multiple functional benefits such as hydration, protection against environmental stressors, and support for minor skin concerns like dryness, acne, and irritation. The evaluation phase involves analyzing the product's physical and chemical characteristics, including pH, viscosity, spreadability, stability, and microbial safety [6].

Material and method

Table 1: List and uses of ingredients used in the formulation of herbal body lotion

Sr. No	Ingredients	Uses
1	Aloe-vera gel	Moisturizer
2	Honey	Preservative
3	Coconut Oil	Improve skin texture
4	Rose Water	Perfume
5	Glycerin	Humectant
6	Lemon Oil	Perfume
7	Distilled Water	Diluent
8	Steric Acid	Emulsifier
9	Triethanolamine	Emulsifier

Uses of ingredients in lotion

1. Aloe-vera

Aloe vera is a well-known medicinal plant valued for its broad spectrum of therapeutic properties, including antioxidant, antibacterial, and anti-inflammatory effects. Its natural compounds contribute to a range of health benefits such as reducing dental plaque, accelerating wound healing, improving skin elasticity, and potentially assisting in the regulation of blood glucose levels.

The gel extracted from the inner leaf of *Aloe vera* is particularly rich in vitamins C and E, along with beta-carotene, all of which are powerful antioxidants. These nutrients play a key role in combating oxidative stress, slowing signs of skin aging, and supporting skin regeneration. As a result, *Aloe vera* is frequently used in skincare to minimize fine lines, diminish blemishes, and improve overall skin tone and texture.

2. Honey

Honey is a highly effective natural preservative, known for its long shelf life and ability to maintain stability when combined with other ingredients, such as *Aloe vera*. It is primarily composed of sugars, but also contains a variety of beneficial compounds, including amino acids, vitamins, minerals (such as iron and zinc), and antioxidants. These elements contribute to honey's well-established health benefits, including its anti-inflammatory, antioxidant, and antibacterial properties.

In skincare, honey is particularly valuable for its ability to retain moisture within the deeper layers of the skin, which helps to maintain a hydrated and youthful appearance. By locking in moisture, honey supports the skin's natural barrier function, promoting a healthy, smooth complexion. Its combined moisturizing and healing effects make honey a sought-after ingredient in many skin-care formulations designed to soothe, protect, and nourish the skin [7, 8].

3. Coconut Oil

Coconut oil is highly valued for its ability to deeply hydrate the skin and strengthen its natural barrier, helping to retain moisture, which makes it especially effective for dry skin.

- replenish and lock in moisture, providing relief for dry and dehydrated skin.
- It promotes the healing of wounds by reducing inflammation and supporting the regeneration of skin tissue.
- The oil also contains natural antibacterial and antifungal compounds, which can help prevent skin infections.

4. Rose Water

Rose water is considerably celebrated for its comforting, soothing, and stimulating parcels, which are salutary for various skin enterprises. It's particularly effective in reducing vexation, easing greenness, and acting as a natural color. Likewise, rose water contains antioxidant and antimicrobial mixes that help cover and nurture the skin.

- Rose water is an excellent source of anti-seditious mixes, which aid in reducing skin inflammation and soothing vexation.
- It offers a cooling effect, making it effective for easing itchiness and greenness, especially in sensitive skin.
- The gentle parcels of rose water help to calm and smoothen skin vexations, promoting a more indeed complexion.

- As a natural hydrator, rose water deeply moisturizes the skin, helping to keep it nourished and refreshed.

5. Glycerin

Glycerin is considerably valued for its exceptional moisturizing and hydrating parcels, making it a popular element in skincare phrasings. As a humectant, glycerin helps to save the skin's natural moisture barricade, icing that the skin remains soft, smooth, and properly doused.

- Glycerin functions as an effective moisturizer, attracting and retaining moisture within the skin to combat emptiness.
- It has a soothing effect on dry and irritated skin, helping to restore comfort and hydration.
- Glycerin plays a part in treating acne and minimizing the appearance of scars by maintaining skin hydration and promoting skin healing.
- It contributes to reducing the appearance of fine lines and wrinkles, as it enhances skin elasticity and moisture retention.

6. Lemon Oil

Lemon oil painting, uprooted from the peel of citrus fruits, is a precious addition to herbal skincare phrasings due to its wide range of dermatological benefits.

- Rich in bioactive composites similar as limonene and citral, it exhibits potent antimicrobial and anti-comedogenic parcels. These ingredients help regulate sebum product, minimize the appearance of pores, and inhibit the growth of acne-causing bacteria similar as *Cutibacterium acnes*.
- As a result, bomb oil painting supports clearer, healthier skin and can be particularly salutary for individualities with unctuous or acne-prone complexions [9].

7. Steric Acid

Stearic acid is extensively used in ornamental phrasings as an emulsifier, which helps to cake and stabilize poultices and creams, icing thickness and effectiveness.

- As an emollient, stearic acid aids in moisturizing the skin, leaving it feeling softer and smoother by enhancing its hydration.
- Due to its occlusive parcels, stearic acid forms a defensive hedge on the skin's face, precluding Trans-Epidermal Water Loss (TEWL) and helping to lock in humidity.
- It also helps maintain the skin's pH balance, supporting the skin's natural defensive functions and overall health [10].

Composition of aqueous phase

Table 2: Composition of aqueous phase

Sr. No.	Name of Ingredient	Quantity (ml)
		F1
1	Aloe Vera Gel	15ml
2	Honey	2ml
3	Rose Water	Q. S
4	Lemon oil	2ml
5	Glycerin	1ml
6	Vitamin E	1 ml
7	Triethanolamine	1ml
8	Distilled Water	Q. S

Composition of oil phase

Table 3: Composition of Oil Phase

Sr. no.	Ingredient	Quantity
1	Steric Acid	7gm
2	Cocunut Oil	3ml

Preparation of alovera gel

- Collect raw paraphernalia Begin by harvesting fresh Aloe vera leaves.
- Clean the leaves completely wash the leaves to remove any dirt and debris, also cut off the base and tips of the leaves.
- Member the leaves Slice the leaves into lower sections to grease the birth of the inner gel.
- prize the slush Precisely prize the mucilaginous gel from the inner apkins of the leaves and transfer it into a clean mixing jar.
- toast the admixture Apply gentle heat to the pulled gel and add agar- agar cream, which acts as a gelatinizing agent to enhance the viscosity of the gel.
- Homogenize the gel Use grinding or homogenization ways to insure the unpasteurized Aloe vera juice is well- compound and smooth.
- Add Vitamin E Integrate Vitamin E into the gel admixture for its antioxidant parcels, which help save the gel and give fresh skin benefits.



Fig 1: Before Adding Oil Phase



Fig 2: After Adding Oil Phase



Fig 3: Herbal Lotion

- Package and store Once the gel is completely mixed, package it in devitalized holders and store it in a cool, dry place to maintain its stability and effectiveness.

Method of preparation herbal lotion

- Prepare the thirsty phase launch by adding a measured quantum of Aloe vera gel to a mixing coliseum. also, introduce the other thirsty constituents similar atriethanolamine, glycerin, distilled water, and rose water. Mix completely to produce the thirsty phase.
- Prepare the oil painting oil oil painting oil painting oil oil painting oil oil painting phase Weigh out 7 grams of stearic acid and transfer it into a porcelain dish. Add 3 ml of coconut oil painting oil oil painting oil painting oil oil painting oil oil painting to the china while stirring continuously to form the oil painting oil oil painting oil painting oil oil painting oil oil painting phase.
- Combine the phases Once the thirsty and oil painting oil oil painting oil painting oil oil painting oil oil painting phases are set independently, precisely combine them while stirring roundly. This will affect in the conformation of the herbal body ointment.
- Final product After thorough mixing, allow the ointment to cool and stabilize, and the herbal body ointment is ready for use [14, 15, 16].

Evaluation test

- Organoleptic Properties:** The organoleptic parcels of the herbal embrocation were assessed using visual examination. crucial characteristics similar as color, odor, texture, and thickness were estimated to insure the product's overall quality.
- Immersion Test:** To test the embrocation's immersion, it was applied to the skin and gently overpraised until completely absorbed. This test helps to determine how well the embrocation penetrates and hydrates the skin.
- Skin Irritancy Test:** A skin vexation test was performed by applying the embrocation to the reverse of the hand for 15 twinkles. The skin was also checked for any signs of vexation, similar as greenishness, swelling, or itching, to assess its safety for use [13].
- Unity Test:** The unity of the embrocation was estimated visually and by touch to insure the product is

invariant in texture, with no separation or inconsistencies in its expression.

- pH Test:** The pH position of the herbal embrocation was measured using a digital pH cadence to insure it falls within the skin-friendly range, generally between 4.5 and 7, to help an implicit skin vexation.
- Appearance:** The overall appearance of the embrocation was visually examined to insure the product is clear, smooth, and free from any patches or blights.
- Colour:** The colour of the embrocation was estimated through visual examination to insure thickness and that it aligns with the intended aesthetic of the product.
- Odour:** The odour of the embrocation was tested by smelling the product to determine if it has a affable scent and doesn't have any strong, prickly odours.

- **Spreadability:** The spreadability of the embrocation was assessed by placing a sample between two glass slides and applying a defined weight for a set period of time. This test measures how fluently the embrocation spreads on the skin.
- **Junking Test:** To estimate how fluently the embrocation can be removed, the applied embrocation was washed off with water, and the ease of junking was observed to insure it doesn't leave a slithery or sticky residue.
- **Stability Test:** A stability test was performed to assess microbial impurity. The embrocation was placed in the centre of a petri dish, incubated at 37 °C for 72 hours, and checked for any microbial growth to insure the product remains safe for use over time ^[11, 12].

Result and discussion

The herbal body embrocation was developed using a mix of natural constituents, including Aloe-vera gel, glycerin, coconut oil painting, rose water, and honey. Aloe-vera is honoured for its antimicrobial and moisturizing parcels, which help cover the skin from microbial damage and keep it doused. Glycerin known for its anti-aging goods, plays a crucial part in enhancing skin humidity retention and promoting a smoother, more immature appearance ^[15].

Table no. 4 Evaluation tests

Sr. No.	Test	Observation
1.	Absorption Test	Very well Absorbed
2.	Irritancy Test	Non-irritable & non-allergic on the skin
3.	Homogenicity	Good
4.	pH	7
5.	Appearance	White
6.	Colour	Slightly White
7.	Odour	Earthy and garlicky
8.	Texture	Smooth
9.	Spreadability	Easily spreadable.
10.	Removal Test	Easily removed from the skin by using water
11.	Stability Test	No microbial growth is observed 4 months
12.	Smoothness	Good
13.	Washability	Good (Easily Washable)

Conclusion

This study concentrated on the development and evaluation of a herbal body embrocation, examining its organoleptic parcels similar as appearance, color, and odor, as well as crucial physiological parameters including PH, spreadability, ease of junking, and skin irritancy. The primary end was to produce an expression that supports skin health by furnishing essential nutrients. A variety of natural sauces, each with specific salutary parcels, were included, particularly for their antioxidant goods.

The results indicate that the herbal embrocation is safe for use, without causing any adverse responses, and effectively prevents common skin issues. As the partSicular care assiduity shifts towards further natural products, incorporating bioactive composites from sauces can significantly enhance the natural exertion of the skin, offering aliment and protection. This study underscores that

herbal poultices can be a precious tool in maintaining healthy skin and precluding skin- related problems.

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