



TO FORMULATE AND EVALUATE HERBAL COLD CREAM USING MIMOSA PUDICA PLANT EXTRACT

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ABSTRACT

This research work was carried out to develop and evaluate an herbal cold cream prepared with Mimosa pudica extract. Natural cosmetic products are gaining attention because they are considered safer for the skin and produce fewer adverse effects compared to synthetic preparations. Mimosa pudica is a medicinal plant known for its antioxidant, antimicrobial, anti-inflammatory, and skin-soothing properties, which make it useful in topical formulations for skin care. The herbal cold cream was formulated by incorporating the plant extract into a cream base containing ingredients such as beeswax, liquid paraffin, borax, glycerin, stearic acid, and purified water. The prepared formulation was assessed for various evaluation parameters including color, odor, texture, pH, homogeneity, spreadability, washability, viscosity, and stability. The results indicated that the cream possessed a smooth appearance, good

consistency, suitable pH, and satisfactory spreadability without producing any visible skin irritation. The presence of bioactive constituents in Mimosa pudica may contribute to moisturizing and protective effects on the skin. The study suggests that the formulated herbal cold cream can be used as a natural and cost-effective skin care product. The formulation also

highlights the growing importance of herbal ingredients in cosmetic preparations and their potential application in the herbal cosmetic industry.

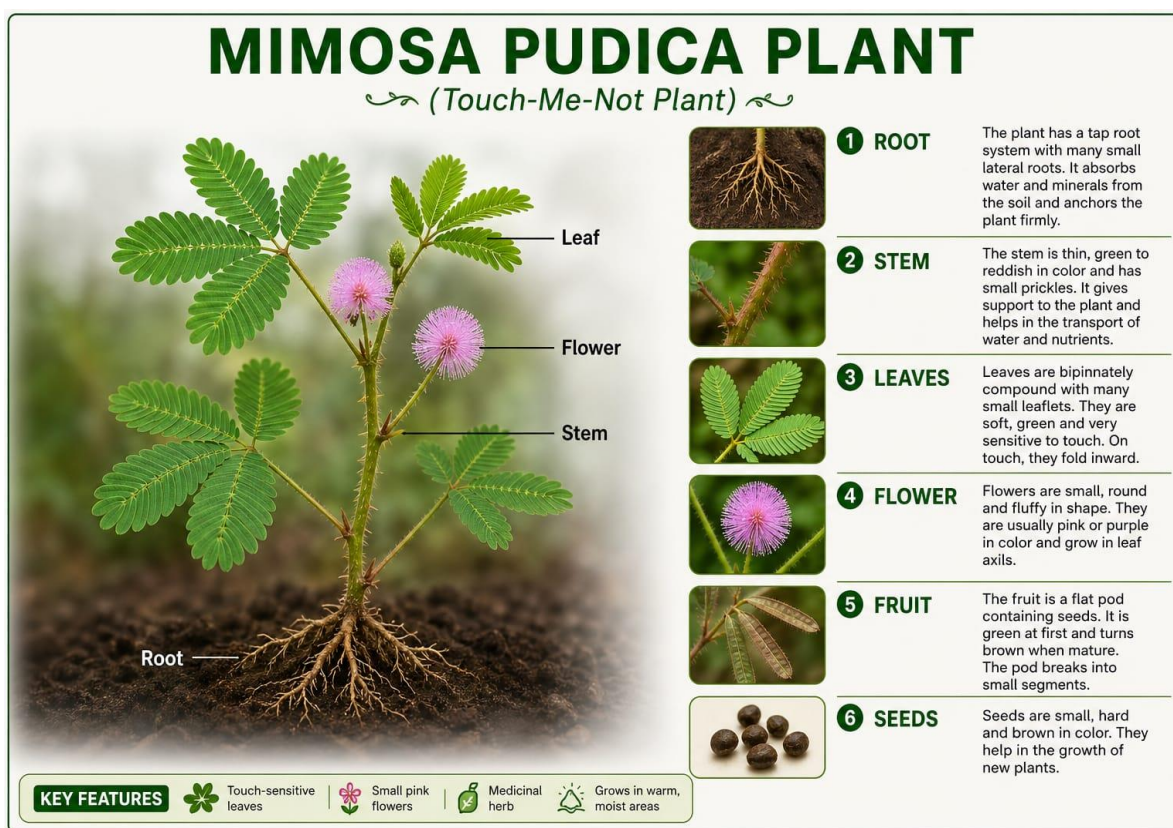
KEYWORDS: mimosa pudica, herbal cold cream, formulation, evaluation, herbal cosmetic.

INTRODUCTION

Herbal cosmetics have become increasingly popular in recent years because of their natural origin, safety, and beneficial effects on the skin. Unlike synthetic cosmetic products, herbal formulations are generally associated with fewer side effects and better compatibility with different skin types. The growing awareness regarding the harmful effects of chemical-based cosmetics has encouraged the use of plant-derived ingredients in skin care preparations. Among various herbal cosmetic products, cold creams are commonly used to moisturize, soften, and protect the skin from dryness and environmental damage.

A cold cream is a semisolid emulsion preparation mainly applied to the skin for cleansing, moisturizing, and providing a soothing effect. It forms a protective layer on the skin surface and helps in maintaining skin hydration. Herbal cold creams prepared with medicinal plant extracts not only provide cosmetic benefits but also offer therapeutic properties such as antimicrobial, antioxidant, anti-inflammatory, and healing activities.

Mimosa pudica, commonly known as the sensitive plant or touch-me-not plant, belongs to the family Fabaceae. It is widely distributed in tropical and subtropical regions and is recognized for its unique leaf-folding response to touch. Traditionally, the plant has been used in Ayurvedic and folk medicine for the treatment of wounds, inflammation, infections, skin disorders, and other health conditions. Different parts of the plant contain important phytoconstituents such as flavonoids, alkaloids, tannins, glycosides, and phenolic compounds, which contribute to its medicinal value.



The antioxidant and antimicrobial properties of *Mimosa pudica* make it a suitable natural ingredient for topical cosmetic formulations. Incorporating the plant extract into a cold cream may help in improving skin hydration, protecting the skin from microbial contamination, and reducing irritation caused by environmental factors. In addition, herbal formulations prepared from plant extracts are considered economical, eco-friendly, and acceptable to consumers seeking natural skin care products.

The present research work aims to formulate and evaluate a herbal cold cream containing *Mimosa pudica* extract. The prepared formulation is evaluated for various physicochemical parameters such as appearance, pH, spreadability, homogeneity, viscosity, washability, stability, and skin irritation. The study is intended to explore the potential of *Mimosa pudica* as an effective herbal ingredient in cosmetic and skin care applications.

IDEAL CHARACTERISTICS OF HERBAL COLD CREAM

An ideal herbal cold cream should possess good quality, stability, safety, and effectiveness for skin application. The formulation must provide moisturizing and protective effects without causing irritation or damage to the skin. The important characteristics of an ideal herbal cold cream are described below:

1. Smooth Appearance

The cream should have a uniform and smooth texture without lumps, coarse particles, or phase separation.

2. Good Consistency

The formulation should possess suitable thickness so that it can be easily applied and retained on the skin surface.

3. Pleasant Odor and Appearance

The cream should have an acceptable color and mild fragrance to improve consumer acceptance.

4. Easy Spreadability

The preparation should spread uniformly on the skin with minimum effort and provide a thin protective layer.

5. Non-Irritating Nature

An ideal herbal cold cream should not produce redness, itching, burning sensation, or allergic reactions after application.

6. Suitable pH

The pH of the cream should be close to the normal skin pH to avoid skin dryness or irritation.

7. Good Moisturizing Effect

The cream should help maintain skin hydration and prevent dryness by reducing moisture loss from the skin.

8. Homogeneity

All ingredients should be evenly distributed throughout the formulation to ensure uniform application and effectiveness.

9. Washability

The cream should be easily removable from the skin surface using water or mild cleansing agents.

10. Stability

The formulation should remain stable during storage without changes in color, odor, texture, pH, or phase separation.

11. Non-Greasy Nature

The cream should not leave excessive oily residue on the skin after application.

12. Protection from Environmental Damage

The herbal cream should protect the skin from dryness, dust, cold weather, and microbial contamination.

13. Use of Natural Ingredients

The formulation should contain safe herbal ingredients with minimal toxic or harmful effects on the skin.

14. Good Therapeutic Activity

The herbal cold cream should provide beneficial actions such as antimicrobial, antioxidant, soothing, and skin-protective effects due to the presence of medicinal plant extracts.

USES OF HERBAL COLD CREAM**1. Moisturizes the Skin**

Herbal cold cream helps maintain skin hydration and prevents dryness by forming a protective layer on the skin surface.

2. Protects Against Dry Weather

It protects the skin from harsh environmental conditions such as cold air, wind, and low humidity that may cause roughness and cracking.

3. Softens and Smoothens Skin

Regular application improves skin texture and makes the skin soft, smooth, and healthy in appearance.

4. Prevents Skin Roughness

The cream reduces dryness and helps prevent scaling, flakiness, and rough skin.

5. Provides Nourishment

Herbal ingredients present in the cream supply natural nutrients and support healthy skin maintenance.

6. Acts as a Skin Protective Agent

It forms a barrier over the skin and protects it from dust, pollutants, and minor environmental damage.

7. Soothes Irritated Skin

Herbal cold creams containing medicinal plant extracts may help calm itching, redness, and mild skin irritation.

8. Supports Skin Healing

Some herbal constituents possess wound healing and anti-inflammatory properties that may assist in recovery of damaged skin.

9. Helps Maintain Skin Elasticity

Continuous use may help improve skin flexibility and reduce excessive dryness-related tightness.

10. Useful for Sensitive Skin

Herbal formulations are generally considered milder and more suitable for sensitive skin compared to products containing harsh chemicals.

11. Provides Antimicrobial Protection

Herbal extracts with antimicrobial properties may help reduce the growth of certain microorganisms on the skin surface.

12. Used as a Cleansing Cream

Cold cream can also help remove dirt, impurities, and light makeup from the skin.

13. Reduces Moisture Loss

The oily phase of the cream helps retain natural skin moisture and prevents dehydration of the skin.

14. Improves Overall Skin Condition

Regular use of herbal cold cream may help maintain healthy, glowing, and well-protected skin.

ADVANTAGES

1. Herbal cold cream is used to moisturize and protect the skin from dryness.
2. It helps keep the skin soft, smooth, and healthy.
3. The cream protects the skin from cold weather and environmental damage.
4. It reduces roughness, flakiness, and skin irritation.
5. Herbal cold cream helps maintain natural skin hydration.
6. It can be used to soothe sensitive and irritated skin.
7. The cream forms a protective barrier against dust and pollutants.
8. It may provide antimicrobial and antioxidant benefits to the skin.
9. Herbal cold cream can also be used as a cleansing cream.
10. Regular use improves overall skin texture and appearance.

MEDICINAL USES OF MIMOSA PUDICA

1. Mimosa pudica is used for wound healing because of its antimicrobial and healing properties.
2. It helps reduce inflammation and pain in various skin conditions.
3. The plant is traditionally used in the treatment of diarrhea and dysentery.
4. It is used as an antimicrobial agent against certain bacteria and fungi.
5. Mimosa pudica possesses antioxidant activity that helps protect body cells from damage.
6. The plant is used in the management of piles and hemorrhoids.
7. It is traditionally used to control bleeding due to its astringent property.
8. The extract is used for treating minor skin infections and irritation.
9. It may help in reducing fever and body discomfort.
10. Mimosa pudica is also used in traditional medicine for urinary disorders and ulcers.

MATERIAL AND METHODES

- Fresh leaves of Mimosa pudica were collected, authenticated, washed and shade-dried.
- Dried leaves were coarsely powdered.
- Powder was subjected to Soxhlet extraction using ethanol (or hydroalcoholic solvent).

- Extraction was carried out for 6–8 hours. The extract was filtered and concentrated using a water bath.
- The dried extract was stored in an airtight container.

FORMULATION TABLE (100GM)

INGREDIENTS	QUANTITY	ROLE
Bees wax	12 gm	Emulsifying agent, stiffening agent
Liquid paraffin	50 ml	Emollient , provide smoothness
borax	1 gm	Emulsifying agent
Rose water	30 ml	Aqueous phase , soothing agent
Mimosa pudica extract	3 gm	Active ingredient (antimicrobial , healing)
glycerin	3 ml	Humectant , retains moisture
Methyl paraben	0.1gm	preservatives
Distilled water	q.s	Solvent/vehicle

INGREDIENTS USED IN FORMULATION

BEES WAX

Beeswax acts as a stiffening and thickening agent in the cold cream formulation. It helps provide the desired consistency and stability to the cream. Beeswax forms a protective layer on the skin surface, which helps reduce moisture loss and keeps the skin hydrated for a longer time. It also improves the texture and smoothness of the formulation, making the cream easier to apply. In addition, beeswax contributes to the stability of the emulsion by helping combine the oil and water phases effectively.



LIQUID PARAFFIN

Liquid paraffin is used as an emollient and moisturizing agent in herbal cold cream. It softens and smoothens the skin by forming a thin oily layer that prevents excessive water loss from the skin surface. It protects the skin from dryness, roughness, and cracking, especially during cold weather conditions. Liquid paraffin also improves the spreadability of the cream and gives a smooth feel during application.



BORAX

Borax is mainly used as an emulsifying agent in the formulation. It helps in the formation and stabilization of the water-in-oil emulsion by reacting with beeswax. Borax improves the texture and consistency of the cream and helps maintain uniform distribution of ingredients throughout the preparation. It also contributes to the smooth appearance of the formulation.



ROSE WATER

Rose water is commonly used in herbal cold cream as a natural fragrance and skin-soothing agent. It provides a refreshing effect and improves the overall acceptability of the formulation. Rose water possesses mild cooling, moisturizing, and anti-inflammatory properties that help calm irritated and sensitive skin. It also helps maintain skin freshness and

softness after application. In addition, rose water acts as a natural toner and contributes to the pleasant aroma of the herbal cold cream.



MIMOSA PUDICA EXTRACT

Mimosa pudica extract is the main herbal ingredient used in the formulation of the herbal cold cream. The plant contains bioactive compounds such as flavonoids, tannins, alkaloids, and phenolic compounds that contribute to various skin-beneficial activities. The extract possesses antimicrobial, antioxidant, anti-inflammatory, and wound healing properties, which help protect the skin from microbial contamination and environmental damage. It also helps soothe irritated skin and supports healthy skin maintenance. Due to its natural medicinal value, Mimosa pudica extract improves the therapeutic and cosmetic properties of the cream.



GLYCERIN

Glycerin is used as a humectant in the herbal cold cream formulation. It attracts moisture from the surrounding environment and helps retain water in the skin, thereby preventing dryness and dehydration. Glycerin keeps the skin soft, smooth, and moisturized for a longer period. It also improves the soothing and hydrating properties of the cream and enhances skin comfort after application.



METHYL PARABEN

Methyl paraben is used in herbal cold cream as a preservative to protect the formulation from microbial contamination. It helps prevent the growth of bacteria, fungi, and other microorganisms during storage, thereby increasing the shelf life and stability of the product. Methyl paraben maintains the quality, safety, and effectiveness of the cream for a longer period. It is commonly used in cosmetic and pharmaceutical preparations in small concentrations because of its good preservative action and compatibility with other ingredients.



PURIFIED WATER

Purified water acts as the aqueous phase and solvent in the formulation. It helps dissolve water-soluble ingredients and ensures proper mixing of components during cream preparation. Water also contributes to the smooth texture and spreadability of the cream. The use of purified water helps maintain the quality, safety, and stability of the formulation by reducing the risk of contamination.

EXTERIMENTAL WORK

- Oil phase (beeswax + liquid paraffin) was melted at $\sim 70^{\circ}\text{C}$.
- Aqueous phase (borax + rose water + glycerin) was heated to the same temperature.

- Aqueous phase was slowly added to oil phase with continuous stirring.
- Mimosa pudica extract was incorporated with constant mixing. Preservative and perfume were added.
- The mixture was stirred until cooled to obtain a smooth cream.
- The prepared cream was filled in suitable containers.



Fig. Final product look like this.

Evaluation Parameters and Results of Herbal Cold Cream

1. Physical observation

SR. NO.	Parameter	OBSERVATION
1.	Color	Light green
2.	Odor	Pleasant
3.	Texture	Smooth
4.	State	Semisolid
5.	Homogeneity	Uniform
6.	Consistency	Good

2. Washability test

SR. NO.	FORMULATION	OBSEVSTION
1.	Herbal cold cream	Easily washable

3. Skin irritation test

No redness, swelling, itching, or irritation was observed after application, indicating that the formulation was safe for topical use.

4. Spread ability test

The formulation showed good spreadability and was easily applied on the skin surface.

5. pH determination

The pH of the cream was found to be near skin Ph (6.8 - 7.0), indicating suitability for skin application without irritation.

6. Stability study

SR. NO.	PARAMETER OBSERVED	RESULT
1.	Color change	No change
2.	Odor change	No change
3.	Phase separation	Not observed
4.	Texture	Stable

RESULT

The prepared cream was easily removed with water and did not leave excessive oily residue on the skin.

CONCLUSION

In the present study, an herbal cold cream containing *Mimosa pudica* extract was prepared and evaluated for different quality parameters. The developed formulation demonstrated satisfactory characteristics including smooth appearance, uniform consistency, pleasant fragrance, suitable pH, good spreadability, and easy washability. The cream remained physically stable throughout the evaluation period without showing any sign of phase separation or major change in texture and appearance.

The skin sensitivity study indicated that the formulation was non-irritating and safe for external application. The medicinal properties of *Mimosa pudica*, such as antioxidant, antimicrobial, and soothing activities, may help improve the protective and moisturizing action of the cream. The herbal formulation also provided good skin feel and acceptable cosmetic properties.

From the overall evaluation results, it can be concluded that the prepared herbal cold cream is effective, stable, and suitable for skin care use. The study highlights the usefulness of natural plant extracts in cosmetic formulations and supports the development of herbal products as safer alternatives to synthetic skin care preparations.

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