

FORMULATION AND EVALUATION OF HERBAL FACE CREAM

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ABSTRACT

The present study focuses on the formulation and evaluation of a herbal face cream using selected plant-based ingredients with the aim of developing a safe, effective, and eco-friendly cosmetic product. Herbal cosmetics have gained significant attention due to their minimal side effects and beneficial effects on skin health. In this study, herbal extracts were prepared using suitable extraction methods and incorporated into a cream base through emulsification technique involving oil and aqueous phases. The formulated cream was evaluated for various physicochemical parameters such as physical appearance, pH, viscosity, spreadability, homogeneity, stability, washability, and skin irritation. The results indicated that the cream possessed acceptable characteristics, including a smooth texture, suitable pH compatible with skin, good spreadability, and stability under different storage conditions. The formulation did not show any signs of irritation, confirming its safety for topical application. The presence of herbal constituents provides antioxidant, anti-inflammatory, and skin-nourishing properties, enhancing the therapeutic and cosmetic value of the formulation. Overall, the developed herbal face cream demonstrated promising performance and can serve as a potential natural alternative to conventional synthetic cosmetic products. Further studies are recommended to evaluate its long-term stability and clinical efficacy.

KEYWORDS: Herbal Face Cream, skin care, emulsion, phytoconstituents, antioxidant, cosmetic evaluation.

INTRODUCTION

Skin is the largest organ of the human body and acts as the first line of defense against environmental aggressors such as ultraviolet (UV) radiation, pollution, pathogens, and chemical irritants.^[1] It plays a crucial role in maintaining homeostasis, regulating body temperature, and preventing excessive transepidermal water loss.^[2] However, continuous exposure to external stressors along with intrinsic factors such as aging, hormonal imbalance, and nutritional deficiencies can lead to various dermatological issues including dryness, acne, pigmentation, and premature aging.^[3]

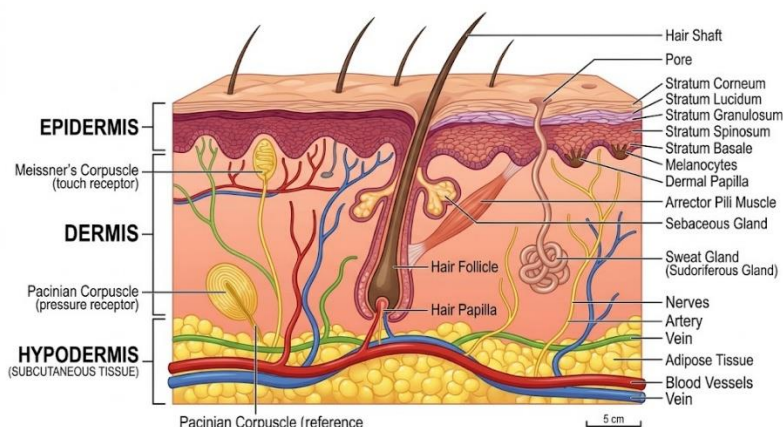


Figure No. 1: Labelled diagram of skin.

Face creams are one of the most commonly used cosmetic preparations designed to protect, moisturize, and improve the overall appearance of the skin.^[4] These semisolid emulsions (oil-in-water or water-in-oil) are formulated to deliver active ingredients effectively into the skin.^[5] Conventional cosmetic formulations often contain synthetic chemicals, preservatives, and artificial additives, which may cause adverse effects such as irritation, allergic reactions, and long-term toxicity.^[6,7] Growing awareness regarding these concerns has shifted consumer preference toward herbal and natural cosmetic products that are considered safer and more compatible with skin physiology.^[8]

Herbal cosmetics are formulations that incorporate plant-derived ingredients possessing therapeutic and cosmetic benefits.^[9] These natural ingredients are rich in bioactive compounds such as flavonoids, phenolic acids, tannins, vitamins, and essential oils, which exhibit antioxidant, anti-inflammatory, antimicrobial, and skin-rejuvenating properties.^[10,11] Medicinal plants such as *Aloe vera*, *Curcuma longa* (turmeric), *Azadirachta indica* (neem), *Santalum album* (sandalwood), and *Rosa indica* (rose) have been widely used in traditional systems of medicine for their beneficial effects on skin health.^[12,13,14] These ingredients help in improving skin hydration, reducing inflammation, promoting healing, and enhancing skin complexion.^[15,16]

The formulation of herbal face cream involves the selection of suitable natural ingredients along with appropriate excipients such as emulsifiers, humectants, and stabilizers to ensure product stability, spreadability, and efficacy.^[17]

The evaluation of the prepared formulation is essential to determine its quality, safety, and performance. Various parameters such as pH, viscosity, spreadability, homogeneity, stability, and skin irritation tests are carried out to assess the suitability of the cream for topical application.^[18]

In recent years, there has been an increasing demand for eco-friendly, biodegradable, and sustainable cosmetic products.^[19] Herbal face creams fulfill these requirements while providing multifunctional benefits, making them a promising alternative to synthetic formulations.^[20] Therefore, the development of herbal face creams represents an important advancement in modern cosmetology, combining traditional knowledge with scientific validation.^[17,21]

METHODOLOGY

The formulation of herbal face cream was carried out following a systematic procedure as illustrated in the flow chart.

1. Selection of Herbal Materials

Suitable herbal materials were selected based on their therapeutic and cosmetic properties such as moisturizing, anti-inflammatory, antimicrobial, and antioxidant activities. The selected plant materials were collected and authenticated.

2. Washing, Drying, and Powdering

The collected plant materials were thoroughly washed with distilled water to remove dust and impurities. They were then shade-dried at room temperature to preserve active constituents. The dried materials were pulverized into coarse powder using a mechanical grinder.

3. Extraction by Maceration

The powdered plant material was subjected to maceration using ethanol as a solvent. The mixture was kept for 24–72 hours with occasional stirring to ensure maximum extraction of phytoconstituents. After maceration, the extract was filtered using muslin cloth or Whatman filter paper.

4. Concentration and Storage of Extracts

The filtrate obtained was concentrated by evaporating the solvent using a water bath or rotary evaporator. The concentrated extracts were stored in airtight containers under refrigerated conditions until further use.

5. Preparation of Oil Phase and Aqueous Phase

The formulation was divided into two phases:

- Oil phase: consisted of ingredients such as oils, waxes, and oil-soluble components.
- Aqueous phase: included water, herbal extracts, and water-soluble ingredients.

Both phases were prepared separately.

6. Heating on Water Bath

The oil phase and aqueous phase were heated separately on a water bath at a temperature of approximately 70–75°C to ensure proper melting and uniform mixing of components.

7. Emulsification with Continuous Stirring

The aqueous phase was gradually added to the oil phase with continuous stirring to form an emulsion. Stirring was continued until a uniform and stable emulsion was formed.

8. Formation of Homogeneous Herbal Face Cream

The emulsion was allowed to cool with continuous stirring, resulting in the formation of a smooth, homogeneous herbal face cream. Suitable preservatives, fragrances, or essential oils (if required) were added during the cooling stage.

9. Evaluation Tests

The prepared herbal face cream was evaluated for various parameters such as physical appearance, pH, viscosity, spreadability, homogeneity, stability, and skin irritation to ensure quality, safety, and effectiveness.

RESULT

The herbal face cream was successfully formulated using selected plant extracts and evaluated for its physicochemical and performance characteristics. The results obtained from various evaluation parameters are summarized below:

1. Physical Appearance

The prepared cream was found to be smooth, homogeneous, and free from grittiness. It exhibited a pleasant odor and acceptable color, indicating good aesthetic properties.

2. pH Determination

The pH of the formulated cream was found to be in the range of 5.5–6.5, which is suitable for skin application and does not cause irritation.

3. Viscosity

The cream showed optimum viscosity, ensuring good consistency and ease of application. It was neither too thick nor too fluid, indicating proper formulation balance.

4. Spreadability

The formulation exhibited good spreadability, allowing easy application over the skin surface without excessive dragging.

5. Homogeneity

The cream was uniform in composition with no phase separation, lumps, or aggregates, confirming proper emulsification.

6. Stability Study

The formulation remained stable under different storage conditions (room temperature, refrigerated, and elevated temperature) with no significant changes in color, odor, or phase separation.

7. Skin Irritation Test

No signs of irritation, redness, or itching were observed during the skin irritation test, indicating that the formulation is safe for topical use.

8. Washability

The cream was easily washable with water, indicating user-friendly application and removal.

CONCLUSION

The present study successfully focused on the formulation and evaluation of a herbal face cream using selected plant-based ingredients. The prepared formulation exhibited desirable physicochemical properties such as appropriate pH, good viscosity, excellent spreadability, and homogeneity, making it suitable for topical application. The incorporation of herbal extracts contributed to the therapeutic effectiveness of the cream by providing antioxidant, anti-inflammatory, and skin-nourishing properties. The formulation was found to be stable under different storage conditions and did not show any signs of phase separation or degradation. Additionally, the absence of skin irritation confirms the safety and compatibility of the formulation for regular use.

Overall, the developed herbal face cream can be considered a safe, effective, and eco-friendly alternative to conventional synthetic cosmetic products. The study supports the potential of herbal ingredients in cosmetic formulations, offering benefits such as improved skin health, reduced side effects, and enhanced consumer acceptance. Further studies, including clinical evaluation and long-term stability analysis, are recommended to establish its commercial applicability.

SUMMARY

The evaluation results confirmed that the formulated herbal face cream possesses desirable physicochemical properties, good stability, and is safe for skin application. The presence of herbal ingredients contributed to improved texture, spreadability, and potential therapeutic benefits, making it a promising natural cosmetic formulation.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this research work.

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