



FORMULATION AND EVALUATION OF HERBAL MOISTURIZING CREAM

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ABSTRACT :

The present study was conducted to formulate and evaluate a herbal moisturizing cream that contained extracts of aloe vera, cucumber and tea tree. Herbal ingredients are increasingly preferred in cosmetic preparations due to their natural moisturizing, soothing, antioxidant and skin-protective properties. Aloe vera is known for its hydrating, soothing and skin-conditioning effects, while cucumber has cooling, moisturizing and antioxidant properties. Tea tree is traditionally used for its antimicrobial and skin-purifying activity and may help maintain healthy skin. Selected herbal ingredients were incorporated into a suitable cream base using a suitable formulation method. The formulated herbal moisturizing creams were evaluated for various physicochemical and cosmetic parameters, which included appearance, color, odor, uniformity, pH, spreadability, viscosity, washability, stability, phase separation and skin irritation. The stability of the formulation was also assessed under appropriate storage conditions. It was expected that the formulated cream would provide adequate moisture while maintaining the desired cosmetic properties and skin compatibility. The combination of aloe vera, cucumber and tea tree may provide a promising natural alternative to traditional moisturizing creams. Therefore the objective of the study is to develop a safe, effective, stable and user-friendly herbal moisturizing cream to maintain healthy, soft and hydrated skin.

Keywords: Aloe Vera, Cucumber, Tea Tree, Herbal Cream, Moisturizer, Skin Hydration, Cosmetic Formulation.

INTRODUCTION :

The formulation of herbal moisturizing creams requires careful consideration of the proportion of ingredients, type of base, method of preparation and compatibility of ingredients. Different formulations can be prepared by varying the concentration of selected herbal ingredients or excipients. These formulations can then be evaluated using appropriate parameters such as appearance, color, odor, uniformity, pH, dispersibility, viscosity, washability, phase separation, skin irritation and stability. Such evaluation helps identify optimized formulations with acceptable physical properties and better overall performance.

Herbal moisturizing creams may contain plant-based ingredients such as aloe vera, coconut oil, shea butter, rose water, and vitamin E. Aloe vera is widely used in skin care preparations due to its soothing and moisturizing properties. Coconut oil acts as an emollient and contributes to skin softness, while shea butter provides a rich emollient effect and helps improve the protective properties of the formulation. Rose water may contribute to the sensory characteristics of the preparation, while vitamin E is commonly included in cosmetic formulations due to its antioxidant properties. Combinations of such ingredients can be investigated for the development of moisturizing creams with desirable cosmetic and physicochemical characteristics.

PLANT PROFILE :

Aloe vera is a succulent medicinal plant belonging to the Asphodelaceae family. The fleshy leaves contain a clear, mucilaginous gel that is widely used in pharmaceutical, cosmetic and personal care preparations. The gel contains water, polysaccharides, amino acids, vitamins, minerals, enzymes and other naturally occurring components that contribute to its various biological and cosmetic properties.

Cucumber: Cucumber is the fruit of *Cucumis sativus* Linn., which belongs to the Cucurbitaceae family. It is a widely grown vegetable and is also used in traditional and cosmetic preparations. Cucumbers contain high amounts of vitamins, minerals, antioxidants and other phytoconstituents as well as water. Due to its hydrating and soothing properties, cucumber is often included in cosmetic preparations made for skin care.

Green Tea: Green tea is obtained from the young leaves and leaf buds of *Camellia sinensis* (L.) Kuntze, belonging to the Theaceae family. Green tea is prepared by processing freshly harvested leaves with minimal oxidation, which helps retain many of the naturally occurring polyphenolic components. It is widely used as a beverage and has also gained importance in pharmaceutical and cosmetic preparations due to its antioxidant and skin-protective properties..

MATERIALS AND METHODS

The ingredients selected for the preparation of herbal moisturizing cream included herbal ingredients, emollients, emulsifying agents, humectants, preservatives and other suitable excipients. Aloe vera, cucumber and green tea were chosen as the key herbal ingredients due to their moisturizing, soothing, hydrating, antioxidant and skin-conditioning properties.

Herbal Ingredients: Aloe Vera Gel, Cucumber Extract, Green Tea Extract

Other Ingredients: Liquid Paraffin, Stearic Acid, Cetyl Alcohol, Beeswax, Glycerine, Triphenolamine, Methyl Paraben, Propyl Paraben, Purified Water, Suitable Fragrance

Proposed Composition of Herbal Moisturizing Cream

Ingredients	F1 (% w/w)	F2 (% w/w)	F3 (% w/w)	F4 (% w/w)
Aloe vera gel	5	7.5	10	12.5
Cucumber extract	2	3	4	5
Green tea extract	1	1.5	2	2.5
Liquid paraffin	8	8	8	8
Stearic acid	10	10	10	10
Cetyl alcohol	3	3	3	3
Beeswax	2	2	2	2
Glycerin	5	5	5	5
Triethanolamine	1	1	1	1
Methyl paraben	0.15	0.15	0.15	0.15
Propyl paraben	0.05	0.05	0.05	0.05
Fragrance	q.s.	q.s.	q.s.	q.s.
Purified water	q.s. to 100	q.s. to 100	q.s. to 100	q.s. to 100

Formulation:

The herbal moisturizing cream was prepared by an emulsion method involving separate preparation of oil and aqueous phases and their subsequent combination.

Step 1: Preparation of the oil phase: Stearic acid, cetyl alcohol, wax and liquid paraffin were accurately weighed and transferred into a suitable beaker. The ingredients were heated in a water bath with constant stirring until they melted and a homogeneous oil phase was formed.

Step 2: Preparation of aqueous phase: Required amount of pure water was taken in another beaker. Glycerine and required amounts of methyl paraben and propyl paraben were added and mixed properly. Triethanolamine was then incorporated into the aqueous phase.

Step 3: Preparation of herbal step: The required amount of aloe vera gel, cucumber extract and green tea extract were measured accurately. The herbal ingredients were carefully mixed to obtain a uniform herbal phase.

Step 4: Formation of emulsion: The aqueous phase was slowly added to the melted oil phase with constant stirring. The mixture was stirred evenly until a smooth and homogeneous cream base was obtained.

Step 5: Incorporation of Herbal Ingredients: After partially cooling the cream base, the prepared herbal phase was slowly incorporated with continuous gentle stirring. Excessive heating was avoided during this step to reduce potential degradation of heat-sensitive herbal components.

Step 6: Adding Fragrance: Appropriate amount of fragrance was added during the cooling stage and mixed evenly.

Step 7: Final homogenization: The prepared cream was stirred continuously until a smooth, homogeneous and uniform preparation was obtained.

Step 8: Filling and Storing: Prepared Herbal Moisturizing Cream Tray

EVALUATION OF HERBAL MOISTURIZING CREAM

The prepared formulations were evaluated for various physico-chemical and cosmetic parameters

Appearance: The prepared formulations were visually examined for their general appearance, texture and physical uniformity. The color and overall appearance of each formulation was recorded.

Colour: A small amount of each formulation was placed in a clean glass container and observed under suitable lighting. The color of each formulation was recorded.

Odor: The odor of each formulation was evaluated by gently smelling a small amount of the cream. The odor was recorded as distinctive, pleasant or unpleasant.

Homogeneity: A small amount of the cream was examined visually and by spreading it between fingers to determine the presence of lumps, coarse particles or phase separation. The formulation was considered homogeneous when no significant particles or lumps were observed.

Determination of pH: The pH of the cream was determined using a calibrated digital pH meter. An appropriate amount of the formulation was dispersed in distilled water and allowed to equilibrate. The pH electrode was then dipped into the prepared dispersion and the readings were recorded.

Spreadability: Spreadability indicates the ease with which the cream can be spread evenly on the skin. An appropriate amount of cream was placed between two clean glass slides. A specified load was applied to the upper slide and the time required for the slide to pass a predetermined distance was recorded.

Washable: A small amount of cream is applied to the skin and rubbed in gently. The area was then washed with water and the ease with which the cream was removed was observed and recorded.

Viscosity: The viscosity of the prepared cream was determined using a suitable Brookfield viscometer. Adequate amount of formulation was placed in the sample container and the spindle was dipped properly. The viscosity was measured at the appropriate spindle speed and the value recorded.

Phase Separation: The prepared cream was examined for any visible separation of oil and aqueous phases. The formulations were stored under suitable conditions and periodically inspected for changes in physical appearance or phase separation.

Skin Irritation Test: A small amount of the formulation was applied to a suitable small area of the skin under appropriate conditions. The area was observed for any visible signs of redness, itching, swelling or irritation. The formulation was considered acceptable when no significant irritation was observed during the observation period.

Stability Study: The optimized formulation was subjected to short-term stability study under suitable storage conditions. The formulation was checked periodically for changes in appearance, color, odor, uniformity, pH, viscosity and phase separation.

RESULTS AND CONCLUSION:

In the present formulation, aloe vera, cucumber and green tea were selected as the major herbal ingredients. Aloe vera was chosen for its moisturizing and soothing properties, cucumber for its hydrating and skin-conditioning properties, and green tea for its antioxidant capacity. Appropriate pharmaceutical and cosmetic excipients were incorporated to obtain a stable and cosmetically acceptable cream formulation.

Four different formulations, designated as F1, F2, F3 and F4, were prepared by varying the concentrations of selected herbal ingredients. The formulations were prepared using a suitable emulsion method involving separate preparation of the oil and aqueous phases, followed by their combination and subsequent incorporation of the herbal ingredients.

The prepared formulations were evaluated for various physicochemical and cosmetic parameters including appearance, color, odor, uniformity, pH, spreadability, viscosity, washability, phase separation, skin compatibility and stability.

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