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FORMULATION AND EVALUATION OF HEEL FISSURE CREAM USING COCONUT OIL

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ABSTRACT

Heel fissures are a prevalent dermatological concern that can lead to significant discomfort and potential complications if untreated. This study aimed to formulate an effective heel fissure cream using coconut oil, known for its moisturizing and skin-repairing properties. Compatible excipients were selected and optimized to enhance the cream's overall efficacy. The cream formulation, containing coconut oil alongside emollients, humectants, and stabilizers, was subjected to physicochemical evaluations, including pH, viscosity, spreadability, and stability assessments. In vitro studies using simulated skin models further validated the cream's moisturizing potential. Among all formulations, F2 demonstrated superior properties, highlighting its potential as an ideal cracked heel treatment.

KEYWORDS: Spreadability, Moisturizing Potential, Cream Efficacy.

MATERIALS AND METHODS

Paraffin Wax, Coconut Oil, Camphor, Glycerin, Rose Water, Ethyl Paraben.

INTRODUCTION

The growth of India's cosmetic cream industry reflects shifting consumer preferences driven by increased media exposure, celebrity endorsements, and evolving beauty standards. Over recent decades, the fast-moving consumer goods (FMCG) sector has witnessed considerable expansion, with skincare products becoming integral to daily self-care routines. Among the many skincare issues faced, cracked heels have emerged as a widespread concern affecting individuals across various demographics. Factors such as occupational strain, prolonged standing, environmental exposure, and lifestyle habits contribute significantly to this

condition. For many, particularly women engaged in physically demanding household activities, cracked heels are not only physically painful but also impact psychological well-being.

The increased focus on self-care and foot health has prompted manufacturers to innovate and develop targeted skincare products. Formulations enriched with hydrating agents, exfoliants, and skin-repairing ingredients are gaining traction as consumers seek effective, preventive, and holistic solutions. Addressing heel fissures has thus become a priority within India's dynamic skincare market.

RESULTS AND DISCUSSION

Physical Properties

Sr. No.	Parameter	F1	F2	F3
1	Color	White	White	White
2	Odor	Pleasant	Pleasant	Pleasant
3	Texture	Smooth	Smooth	Smooth

Washability: All formulations demonstrated ease of removal when washed with tap water.

pH Measurement

Formulation	pH Value
F1	**7.0**
F2	**6.8**
F3	**7.5**

Homogeneity: Visual and tactile assessment indicated that F2 had superior homogeneity compared to F1 and F3.

Appearance Stability

Formulation	Observations after 7-12 Days
F1	Jelly-like consistency
F2	No significant change
F3	No significant change

After Feel: All samples imparted fair emolliency and left minimal residue after application.

Type of Smear: The cream formed a non-greasy but oily-appearing smear upon application.

Spreadability Test

Formulation	Spreadability (g·cm/s)
F1	5.20
F2	5.60
F3	6.30

Irritancy Test: No irritation was observed when the formulations were applied to cracked heel areas.

Stability Test

Temperature Condition	Stability Observations
4°C	Hardened formulations
25°C	Stable with no change
40°C	Unstable after 60 days

Summary of Evaluation Parameters

Sr. No.	Parameter	F1	F2	F3
1	Physical Properties	Satisfactory	Satisfactory	Satisfactory
2	Washability	Washable	Washable	Washable
3	pH	7.0	6.8	7.5
4	Dye Test	W/O type	W/O type	W/O type
5	Homogeneity	Good	Better	Better
6	Appearance	Jelly-like	No Change	No Change
7	After Feel	Fair	Good	Good
8	Smear Type	Greasy	Greasy	Greasy
9	Spreadability	Good	Good	Good
10	Irritancy	None	None	None
11	Stability	Unstable	Stable	Unstable

CONCLUSION

This study successfully developed a herbal heel fissure cream incorporating coconut oil, designed to address the challenges posed by cracked heels. The cream exhibited desirable anti-inflammatory, analgesic, antifungal, antimicrobial, and antibacterial properties, supporting skin healing while preventing secondary infections.

Extensive evaluations indicated that F2 was the most effective formulation, offering superior stability, optimal spreadability, a non-irritating profile, and excellent homogeneity. Given the increasing consumer inclination towards natural and herbal skincare solutions, the formulated cream presents a promising, safe, and efficacious alternative to synthetic products.

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