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Formulation and Evaluation of Anti acne Face Cream

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Abstract: *Acne vulgaris is a prevalent dermatological condition that affects individuals across various age groups, often leading to both physical discomfort and psychological distress. Conventional therapies, though effective, are frequently associated with adverse effects such as skin irritation, dryness, and the development of antibiotic resistance. In response to these limitations, there is a growing preference for herbal and naturally derived formulations in acne treatment. The present study focuses on the formulation and evaluation of an anti-acne face cream incorporating natural ingredients such as Aloe vera, Manjishtha oil (Rubia cordifolia), Almond oil (Prunus amygdalus), and Rose water, selected for their antimicrobial, anti-inflammatory, and skin-soothing properties. The cream was prepared using standard emulsification techniques and subjected to comprehensive evaluation for parameters including pH, viscosity, spreadability, homogeneity, washability, and irritancy. The results confirmed that the formulation was physically stable, non-irritating, and possessed suitable characteristics for topical application. The synergistic effect of the herbal components offers promising potential for managing acne symptoms while minimizing the risk of side effects. This study supports the development of safe, effective, and consumer-friendly herbal formulations as alternatives to conventional anti-acne therapies.*

Keywords: Anti-acne cream, Acne vulgaris, Herbal formulation, Aloe vera, Manjishtha oil, Topical preparation, Natural ingredients, Antimicrobial, Anti-inflammatory, Skin care

I. INTRODUCTION

Acne is a widespread skin condition that affects both men and women, with two primary types: Acne Rosacea and Acne Vulgaris. Acne Rosacea mainly affects the central face and can cause redness, small pimples, and even eye issues. Acne Vulgaris, the more common form, occurs due to clogged pores, inflammation, and bacterial growth, leading to blackheads, whiteheads, and sometimes cysts.

While traditional treatments like antibiotics, benzoyl peroxide, and retinoids are widely used, they come with side effects like irritation, antibiotic resistance, and limited long-term effectiveness. This has spurred interest in herbal and natural ingredients for acne care, as they offer anti-inflammatory, antimicrobial, and sebum-regulating benefits with minimal side effects.

The goal of this study is to create an anti-acne face cream using natural extracts that target the root causes of acne, such as excess sebum, clogged pores, and bacterial growth, while maintaining skin health and comfort. By carefully selecting active ingredients and evaluating the cream's effectiveness and safety, the aim is to develop a reliable, safe, and effective alternative to traditional acne treatments, ultimately improving both the skin condition and overall well-being of individuals struggling with acne.

OBJECTIVE

The objectives of formulating and evaluating an anti-acne face cream include:

- Ingredient selection: Identify and incorporate active ingredientsknown for their efficacy in treating acne, such as salicylic acid, benzoyl peroxide, or tea tree oil, while considering their safety and compatibility with other ingredients.

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- Formulation development: Create a stable cream formulation that delivers the active ingredients to the skin effectively, balances their potency with soothing and moisturizing components, and ensures optimal texture and sensory experience.
- Efficacy testing: Conduct clinical trials or in vitro studies to assess the cream's ability to reduce acne lesions, minimize inflammation, and improve overall skin condition compared to control formulations or placebo.
- Safety assessment: Evaluate the cream for potential skin irritation, allergic reactions, or other adverse effects through patch testing or dermatological evaluations.

Benefits

1. Targeted Acne Treatment
2. Improved Skin Appearance
3. Non-Intensive Skincare Routine
4. Hydration and Skin Barrier Support
5. Gentle on Sensitive Skin
6. Long-Term Skin Health Benefits
7. Boost in Self-Confidence
8. Scientifically Proven Efficacy
9.Reduced Inflammation and Redness
10.Prevention of New Acne Breakouts

Herbal Ingredients Use In Formulation

• Methyl Paraben

Methylparaben is a 4-hydroxybenzoate ester resulting from the formal condensation of the carboxy group of 4-hydroxybenzoic acid with methanol. It is the most frequently used antimicrobial preservative in cosmetics. It occurs naturally in several fruits, particularly in blueberries.

• Borax:

Borax is a powdery white substance, also known as sodium borate, sodium tetraborate, or disodium tetraborate. It's widely used as a household cleaner and a booster for laundry detergent. It's a combination of boron, sodium, and oxygen.

• Beeswax:

Beeswax is a product made from the honeycomb of the honeybee and othe rbees. The mixing of pollen oils into honeycomb wax turns the white wax into a yellow or brown color. Beeswax is used for high cholesterol, pain, fungal skin infections, and other conditions.

• Liquid Paraffin:

Liquid paraffin, also known as paraffinum liquidum, paraffin oil, liquid paraffin oil or Russian mineral oil, is a very highly refined mineral oil used in cosmetics and medicine.

• Rose Water:

Rose water is a flavored water made by steeping rose petals in water.Itisthe hydrosol portion of the distillate of rose petals, of the production of rose oil for use in perfume. Rose water is also used to flavor food, as a component in some cosmetic and medical preparations, and for religious purposes throughout Eurasia

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Fig.No.1:Rosewater

Vitamin E

Vitamin E supports the repair of damaged skin, which is especially useful when treating acne-prone or irritated skin. It can reduce redness and inflammation associated with acne.

Fig.No2. Vitamin E

Olivo Oil:

Olive oil has some skin-nourishing and anti-inflammatory properties, but it's not ideal for acne-prone skin in most cases.

Fig.No.3: OlivoOil

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AloeVera:

Aloe vera is a succulent plant species of the genus Aloe. It is widely distributed, and is considered an invasive species in many world regions. An ever green perennial, it originates from the Arabian Peninsula, but also grows wild in tropical, semi-tropical, and arid climates around the world

Fig.No.4:AloeVera

Sr. No	Ingredients	Quantity for 20 gm
1	Methyl Paraben	0.02g
2	Borax	0.16g
3	Beeswax	3.2g
4	Liquid paraffin	10 ml
5	Rose Water	q. s
6	Vitamin E	1
7	Olivo Oil	2ml
8	Aloe Vera	2g
9	Distilled Water	q. s

Methods of Preparation

• Use two borosilicate beakers. Add liquid paraffin and beeswax, in one beaker, and heat the mixture to 75 degrees Celsius (oil phase).
• Then after add Olivo oil and vitamin E capsule in oil phase beaker.
• Take borax and rose water are dissolved in distilled water and heated to a temperature of 75 degrees Celsius in another beaker (aqueous phase).
• After that, measure the aloe vera gel and add it in aqueous phase.
• Slowly add the aqueous phase and the oil phase.
• Stir it vigorously until it forms a smooth cream.
• Add methyl paraben as a preservative.
• Then pour the cream into the container.

Evaluation Parameters

• PHYSICAL EVALUATION: - The physical parameters of cream like color, odor, consistency, and state of formulation was used to further evaluate the formulation.[17]
• WASHABILITY: - On the hand, a little amount of cream was applied and washing it with tap water.
• IRRITANCY: - These tests are used to determine the quality of the material and the chemicals, as well as whether or not they are damaging to the skin. The cream is initially applied to the hand and left on for a while so that we can check for irritation.

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• PHASE SEPARATION: - Generally, this test is checked every 24 to 30 hours. Put the cream into the container at room temperature and protect the formulation from light for these.
• HOMOGENEITY: - The visual appearance and test were used to evaluate uniformity.
• GREASINESS: - This test is mostly used to determine whether cream is greasy or oily.
• pH OF CREAM: - The pH of the cream should be in range of 5.6-5.8, to avoid irritancy to the skin.
• VISCOSITY: - Viscosity of cream is measured by the Brookfield viscometer at room temperature.

II. CONCLUSION

In conclusion, creating an effective anti-acne face cream requires careful selection and combination of active ingredients and soothing agents. Evaluating its efficacy, safety, and stability through rigorous testing processes is crucial for ensuring its effectiveness and safety for consumers. With thorough formulation and evaluation, a high-quality anti-acne face cream can be developed to address the needs of individuals struggling with acne-prone skin.
Developing an anti-acne face cream involves a multifaceted approach, blending potent acne-fighting ingredients with gentle components to ensure efficacy without causing irritation. Thorough evaluation, including clinical trials and stability testing, guarantees the product's safety and effectiveness. By prioritizing formulation precision and rigorous evaluation, skincare companies can offer consumers a reliable solution to combat acne while promoting skin health and well-being.

Summary:

The formulation of an anti-acne face cream involves selecting acne- fighting ingredients like benzoyl peroxide or salicylic acid and combining them with soothing agents to prevent irritation. Evaluation includes efficacy testing for acne reduction, assessing skin irritation potential, and ensuring stability. Patch tests and clinical trials are essential for validating safety and effectiveness before market launch.

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