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FORMULATION AND EVALUATION OF HERBAL COLD CREAM

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ABSTRACT

Products designed to improve and beautify human features are known as herbal cosmetics. Using the water in oil approach, the current study aimed to create and assess herbal cold creams that included plant extracts, liquid paraffin as a lubricant, beeswax as a stabilizer, and methyl paraben as an antibacterial agent in order to nourish and moisturize the skin. Cinnamon oil and almond oil are used to make the cold cream. Following preparation, the cream was assessed for a number of factors, including viscosity, stability, color, spreadability, PH, appearance, and microbial growth. According to the evaluation study, the formulation of the herbal face pack using readily available ingredients like neem and almond is a really good attempt.

KEY WORDS: *Cold Cream, Almond Oil, Rheological Studies.*

INTRODUCTION

Cosmetics Are used to beautify the skin and are used to purify the skin. The term cosmetics comes from the Greek word 'kosmesticos' which means to adorn. Cold cream is an emulsion of water in oil. Compared to other semisolid Dosage form or formulation, Cold cream provides prolonged contact time in the site of application. They give elegancy to the skin and is not that much greasy. Cold cream gives emollience to the skin due to the oil phase. It also restores moisture, enables the elimination of waste materials from the pores, and cools the body. It is not difficult to remove and rinse clean. They do not cause irritation when applied on the skin.[1]

The water phase gives extra conservation to the skin. Its consistency changes at body temperature. Penetration occurs through the epidermis and natural pores. More recently, Antiaging creams have been manufactured which can retain younger skin for many years. The best cleansing agents are cleansing creams, soap and water.

Creams are classified as mortal emulsions which are on the one hand of the "oil in water" type or "water in oil" type. These creams are intended to be used outside the body. Creams can also be classified as Oil in water/Water in oil emulsion – Cream is applied coating oil over a skin.

THE ANATOMY OF SKIN

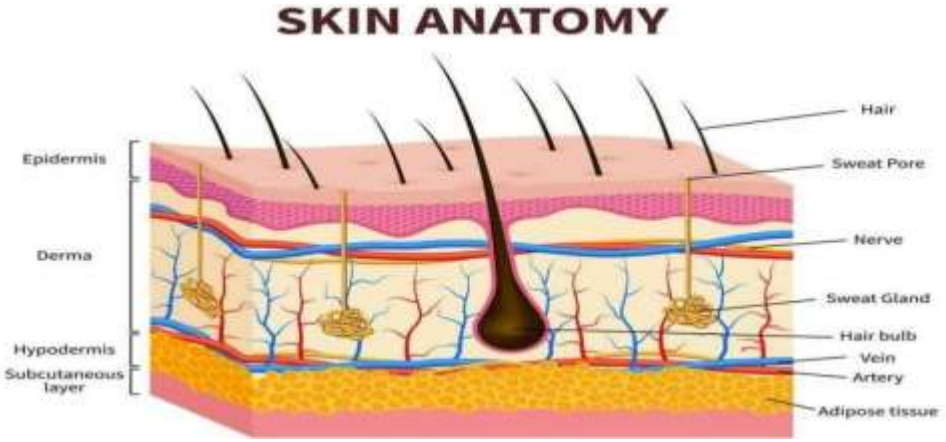


Fig.1 Structure of skin

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Skin Structure and Function

The skin is the largest organ, covering approximately 16,000 cm² and accounting for 8% of body weight. It protects the body from external factors, regulates temperature, and produces vitamin
D. [5,6]

The skin consists of multiple layers, including:

A] Epidermis

The outermost layer, comprising keratinocytes, melanocytes, and Langerhans cells, with five sublayers: stratum corneum, stratum lucidum, stratum granulosum, stratum spinosum, and stratum basale.[4,7]

The outer most layer is classified into five sublayers:

1.Stratum Corneum
2.Stratum Lucidium
3.Stratum Granulosum
4.Stratum Spinosum
5.Stratum Basale

1.Stratum Corneum

The exterior sublayer of the epidermis is called as stratum corneum. It is also referred as the hornycell layer having thickness of about 8-15µm. The layer is of hexagonal shaped and is helpful for preventionof skin from the large amount of dehydration. It contains main component "ceramide", which having important role in water retention.

2.Stratumlucidum

Stratum lucid mis composed as thin clear layer of dead skin cells. It is found only in areas of thick skin on the palms of the hands and soles of the feet.

3.Stratum Granulosum

The layer is also called as granular cell layer having thickness of 3µm. It contains 2-4 layers of granular cell. The shape of the cells is flatter because the keratin fibers are increasingly filled up into the cells.

4.Stratum Spinosum

It is also called prickle cell layer having thickness ranges from 50- 150µm. It consists of number of cells, which may differ in shape and structure.

5.Stratum Basale

Stratum Basale is composed as single layer and is the deepest and sublayer of epidermis. In stratum basale, keratinocytes are produced and shows their movement upward to the outer surface. The process of movement of keratinocytes is known as turnover. For one cycle of this process takes days and keratinocytes also changes their functions and structure. This is also called as basal cell layer and holds 8% of water in epidermis

B]. Dermis

This layer contains blood vessels, lymphatic vessels, sweat glands, hair follicles, and sebaceous glands, providing nourishment, waste removal, and temperature regulation. [8,9]

C]. Sub Cutaneous Layer

The deepest layer, composed of fat, connects bones to muscles and organs, acting as a thermostat, filter, and energy source.[9]

Ideal Properties of Herbal Cold Cream: [12,13]

1. Optimal pH (4.6-6.0): Suitable for skin compatibility.
2. Consistency: Easy to dispense and apply.
3. Cooling Effect: Provides a refreshing sensation on skin application.
4. Protective Layer: Forms a thin, waxy barrier to prevent water loss.
5. Emollient Effect: Softens dry skin quickly.
6. Spreadability: Easy to apply, less greasy than ointments.
7. Stability: Physically and chemically stable throughout shelf life.
8. Compatibility: Excipients work well together.
9. Sterility: Free from contaminants.

These properties ensure the herbal cold cream is effective, safe, and pleasant to use. [4,10,11]

Advantages of Herbal Cold Cream [4,10,11]

1. Prevents Aging and Dehydration: Keeps skin hydrated and youthful.
2. Protects from Environmental Stressors: Shields skin from harsh conditions.
3. Moisturizes and Soothes: Maintains skin's moisture balance.
4. Removes Makeup: Smoothes and cleanses the skin.
5. Medicated Benefits: Treats skin conditions with topical applications.
6. Emollient Effect: Provides a protective layer, softening skin.
7. Chemical Barrier: Offers protection, such as sunblock.
8. Drug Delivery: Acts as a carrier for active ingredients.

These benefits highlight the versatility and effectiveness of herbal cold creams for skin care and protection.

Applications of Herbal Cold Cream [14,15]

1. Makeup Remover: Gently dissolves makeup and dirt without harsh rubbing.
2. Primer for Foundation: Smooths skin for even makeup application.
3. Camping/Road Trips: Effective without water.
4. Lip Balm: Locks in moisture for hydrated lips.
5. Body Lotion: Provides intense hydration for arms, legs, back, and hands.
6. Shaving Cream: Potential alternative use.

These versatile uses showcase the cream's moisturizing and protective benefits beyond facial care.

Cold Cream Benefits [11,15]

1. Hydrates skin: Boosts moisture levels.

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2. Soothes sensitive skin: Relieves dryness and itchiness.
3. Improves skin texture: Enhances complexion appearance.
4. Restores skin barrier: Helps skin function naturally.

These benefits make cold cream ideal for dry, sensitive, or irritated skin.

Ingredients of Formulations [16,17]

All the natural materials used in the present study i.e., Almond oil, cinnamon oil from local market, in a form of dried powder. The details of the plant material used for the formulation of cold cream are mentioned below

1. **Almond oil**
2. **Cinnamon**
3. **Borax**
4. **Beeswax**
5. **Rosewater**

1. Almond Oil



Fig.2 Almond Oil

Benefit

1.Moisturizing: Hydrates and nourishes skin.
2. Soothing: Calms irritated skin.
3. Emollient: Softens and smoothens skin.
4. Almond oil can enhance the herbal cold cream's moisturizing and soothing properties.

Considerations

1. Concentration: Determine optimal almond oil concentration.
2. Compatibility: Ensure almond oil works well with other ingredients.
3. Stability: Test for stability and shelf-life.

Evaluation

1. Efficacy: Assess moisturizing and soothing effects.
2. Safety: Monitor for skin irritation or allergic reactions.
3. Stability: Test for stability and shelf-life.

2.Cinnamon oil



Fig.3 Cinnamon oil

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Benefits

1. Antimicrobial properties : Helps combat acne and skin infections.
2. Anti-inflammatory effects : Reduces redness and swelling.
3. Antioxidant properties : Protects skin from damage.

Formulation Considerations

1. Concentration: Typically, 0.1-1% to avoid irritation.
2. Skin compatibility: Perform patch tests to ensure tolerance.

Evaluation

1. Efficacy: Assess antimicrobial and anti-inflammatory effects.
2. Safety: Monitor for skin irritation or allergic reactions.
3. Stability: Test for stability and shelf-life.

Cinnamon oil can enhance the herbal cold cream's benefits, but careful formulation and evaluation are crucial.[30]

3.Borax



Fig. 4 Borax

Benefits

1. Antimicrobial properties: Helps preserve and protect skin.
2. pH balancing: Can help maintain skin's natural pH.

Formulation Considerations

1. Concentration: Use in small, safe amounts.
2. Skin compatibility: Perform patch tests.

Evaluation

1. Efficacy: Assess antimicrobial effects.
2. Safety: Monitor for skin irritation.
3. Stability: Test for stability and shelf-life.

Borax can be beneficial, but careful formulation and evaluation are necessary to ensure safety and efficacy.

4.Beeswax



Fig.5 Beeswax

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Benefits
1. Emollient: Soothes and softens skin.
2. Moisturizing: Helps lock in moisture.
3. Protective barrier: Creates a protective layer on skin's surface.

Formulation Considerations
1. Concentration: Determine optimal amount for desired consistency.
2. Blending: Ensure proper melting and blending with other ingredients.

Evaluation
1. Efficacy: Assess moisturizing and protective effects.
2. Texture: Evaluate consistency and spreadability.
3. Stability: Test for stability and shelf-life.

Beeswax can enhance the herbal cold cream's moisturizing and protective properties. [27,28]

5. Rosewater



Fig.6 Rosewater

Benefit
1. Hydrating: Moisturizes and soothes skin.
2. Anti-inflammatory: Reduces redness and irritation.
3. Antibacterial: Helps combat acne and skin infections.
4. Aromatic: Provides a calming, pleasant scent.

Formulation Considerations
1. Concentration: Determine optimal amount for desired benefits.
2. Blending: Ensure proper mixing with other ingredients.

Evaluation
1. Efficacy: Assess hydrating, anti-inflammatory, and antibacterial effects.
2. Skin compatibility: Monitor for skin irritation or allergic reactions.
3. Stability: Test for stability and shelf-life.

Rosewater can enhance the herbal cold cream's moisturizing, soothing, and aromatic properties

Preparation Method of Herbal Cold Cream [19,20,15]
1. Melt Beeswax and Liquid Paraffin in a porcelain dish using a water bath.
2. Remove from heat.
3. Prepare Borax solution in distilled water (heated to 75°C).
4. Add Borax solution dropwise to the Beeswax mixture with continuous stirring.
5. Add Methylparaben and dissolve.
6. Add Cinnamon oil and Almond oil.
7. Add perfume for fragrance.
8. Stir well to obtain Herbal Cold Cream.

This method ensures proper blending and formulation of the cream.

TABLE 1: Composition of Herbal cold cream

Sr. No.	Name of Ingredients	Scientific name	Quality (for100gm)	Uses
1	MethylParaben	Methyl-hydroxybenzoic acid	0.0010gm	Antibacterial Properties. And Preservation
2	Borax	Sodium tetraborate decahydrate	0.25gm	Stability
3	Beeswax	Apiccerana, ApisMel, Apismellifera, ApisMellif	15gm	Emulsifying Agent,Stabilizer
4	Liquidparaffin	Petrolatum	50gm	Prevent Skin Itching and Lubricat in Gage
5	Cinnamon oil	Cinnamomum zeylanicum	23gm	Prevent Or Even Kill Fungus
6	Almond Oil	Prunusdulcisvar. dulcis.	25gm	Protective Layer Skin

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EVALUATION OF HERBAL COLD CREAM [21,22]

Evaluation Parameters for Herbal Cold Cream

Physical Properties

1. Color: Observed visually.
2. Odor: Evaluated for fragrance.
3. Appearance: Assessed for texture and uniformity.

Physicochemical Properties

1. Washability: Tested under running water.
2. pH: Measured using a digital pH meter.
3. Viscosity: Determined using a Brookfield viscometer.
4. Spreadability: Tested using a glass slide method.

Safety and Efficacy Tests

1. Irritancy Test: Checked for skin irritation, erythema, and edema. [25,26]
2. Microbial Growth Test: Evaluated for microbial contamination.
3. Dye Test: Determined cream type (o/w or w/o).

Quality Control

1. Homogeneity: Tested for uniformity and visual appearance.

These evaluations ensure the herbal cold cream's quality, safety, and efficacy.

Results

Morphological Evaluation

1. Color: White
2. Odor: Pleasant.
3. Texture: Smooth.

Physicochemical Evaluation

1. pH: 5.6-6.8, suitable for skin pH.
2. Washability: Easily washed off with tap water.
3. Viscosity: Adequate viscosity.
4. Microbial Growth: No signs of microbial growth.
5. Spreadability: Good spreadable property.
6. Dye Test: w/o type cream.
7. Homogeneity: Good visual appearance and touch.

Conclusion

Natural remedies are more acceptable in the belief that they are safer with fewer side effects than the synthetic ones. Herbal formulations have growing demand in the world market.

1. Physico-chemically stable.
2. Microbiologically stable.
3. Possesses characteristics of a standard cosmeceutical formulation.

The natural ingredients used, such as cinnamon and almond, make it a promising product for skincare.

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