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Review Paper

Formulation and Evaluation of Herbal Moisturizing Cream

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ABSTRACT

Moisturizing creams are semi-solid products aimed at preventing skin issues and reducing wrinkles. This research focuses on creating these creams with herbs like beal leaves, amla, neem, and turmeric, and evaluating their effectiveness. The creams underwent tests for irritancy, washability, pH, viscosity, phase separation, spread ability, and compatibility. All formulations yielded satisfactory results

INTRODUCTION

The use of herbs in cosmetic products has grown significantly in the personal care industry in recent years, leading to a high demand for herbal cosmetics. These products, which can also be referred to as botanical cosmetics, are made from medicinal plants. Cosmetics are substances applied to the body to enhance cleanliness, beauty, and appearance while ensuring they do not harm the body's structure or functions. Herbal cosmetics can be classified into several main categories.

1. Enhance the look of facial skin and support hair growth and maintenance.
2. Focus on skincare, particularly for teenagers dealing with acne and blemishes.
3. Includes shampoos, soaps, powders, perfumes, and more.
4. A range of different products.

Skincare will lead to cosmetic demand in the coming years, particularly for professional facial products. Both men and women use creams, gels, and colognes daily. Creams cleanse the face and moisturizers help maintain skin integrity and health for a vibrant appearance.

Moisturizer:

Moisturizers are cosmetic products that help protect, hydrate, and soften the skin, particularly beneficial for those with naturally dry skin. They work by increasing the skin's water content and minimizing evaporation. Humidifiers are devices designed to add or restore moisture in the air. There are several types of humidifiers available for purchase. Most commercial moisturizers contain synthetic ingredients like adhesives, emulsifiers, fragrances, colorants, surfactants, and thickeners; this has led to a growing demand for natural

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alternatives to replace these potentially harmful synthetic substances with herbal options.

Mechanism of action:

Water regularly evaporates from the deep layers of human skin, a known process called transepidermal water loss. Skin maintains a protective, dry surface that prevents damage and controls moisture to avoid brittleness. Corneocytes retain moisture due to the lipid bilayer between them. Humidifiers reduce evaporation, by using occlusive or moisturizing agents.

- Occlusions create a skin barrier that retains moisture, with lotions being the least occlusive and creams the most. Skin usually loses 4 to 8 grams of water per square meter per hour, but using petroleum jelly can reduce this loss by 50 to 75%. Additionally, the body naturally produces oils to keep the skin moisturized.
- Humectants draw moisture from the air when humidity is high, but often pull water from the skin's dermis, leading to dryness. Water is a key ingredient in moisturizers, helping with absorption and evaporation. Both men and women use creams, gels, and colognes daily. Lubricants serve as facial cleansers for various issues, and anti-aging creams can help maintain a youthful look. Effective cleansing products include cream, soap, and water, while cosmetic creams nourish dry, cracked skin, softening and cleansing it. Common degreasers are petroleum jelly and lanolin, and dry creams are utilized in soap and gel production.

Types of Moisturizers:

- petrolatum
- liquid paraffin
- lotions, creams, ointments
- lanolin
- stearic acid
- castor oil

Side effects of moisturizers:

- Most emollients are safe with few side effects, but some may experience burning, redness, or irritation. If symptoms continue, see a doctor or pharmacist.
- If prescribed, your doctor believes the benefits outweigh the risks; many users have no serious side effects.
- Inform your doctor immediately if you notice any severe side effects, such as unusual skin changes or signs of infection.
- Seek immediate help for severe allergic reactions, like rash or swelling, even though they are rare.

Use of moisturizer:

- They help treat skin conditions such as psoriasis, ichthyosis, xerosis, and itching associated with atopic dermatitis. They often serve as a base for topical treatments like Whitfield's Ointment, which may include ingredients such as salicylic acid and urea.
- They are key ingredients in products like sunscreens, antiperspirants, cleansers, and hair tonics.
- Moreover, they are included in disposable wipes to alleviate skin dryness and prevent dermatitis from wiping.

History of Moisturizer:

Cosmetics have been used since ancient Egypt, around 6,000 years ago. Egyptians commonly used aloe, myrrh, and frankincense, believing these substances had anti-aging benefits. Jain et al. noted that as early as 10,000 BC, both men and women used scented oils and salves for skin care and to mask body odour. Cosmetics were vital for hygiene and protection against harsh weather. Greeks and Romans adopted these practices. Women enhanced their skin with crocodile excrement, white lead, and chalk, and made face masks from starch and eggs to improve skin appearance and combat wrinkles.

Topical Drug Delivery:

In recent decades, various drug delivery methods have emerged, including oral, sublingual, rectal, parenteral, topical, and inhalation. Topical administration involves applying drug formulations to the skin to address conditions like psoriasis, affecting the skin's surface or its deeper layers. While semi-solid preparations are most common, forms like foams, sprays, medicinal powders, solutions, and medicated toothpaste are also utilized.

Advantages of topical Drug Delivery:

- Convenient and easy to use.
- Inhibit first-pass metabolism.
- An alternative to oral administration.
- Lower risk of gastrointestinal problems.
- Less risk of abuse

The basic structure of human skin:

The skin is the largest organ of the body, making up 16% of its total weight and covering around 1.8

square meters. It consists of three main layers: the outer layer called the epidermis, the middle layer known as the dermis, and the innermost layer called subcutaneous tissue. Hair, nails, and glands are also part of the skin's structures.

Epidermis:

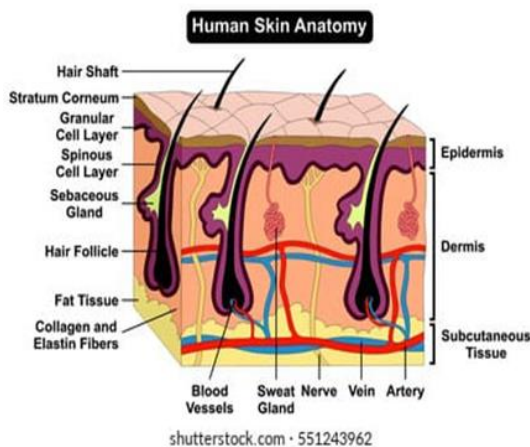
The epidermis serves as the outermost layer of the skin, primarily made up of flat cells that are rich in keratin. This protective layer is notably thick on the palms of the hands and the soles of the feet, where it provides additional strength and durability.

There are three layers of the epidermis:

- a. Basal layer (basal cell layer)
- b. Spinal layer (spiny cell layer)
- c. Corneal layer (corneal layer)

Subcutaneous Gland:

They are hair follicle epithelial cells that secrete sebum, an oil present everywhere except palms and soles.



Human Skin Anatomy

Skin Diseases:

a) Vitiligo:

Vitiligo is a skin condition where patches lose their normal colour, turning white. It is prevalent, affecting around 1% of the global population. The colour of the skin comes from melanin, which is produced by cells called melanocytes.

b) Scabies:

Scabies are a common and highly itchy skin condition caused by tiny parasites known as

human scabies mites. It can impact individuals of all ages, although it is more frequently seen in young children and the elderly. These mites are tiny, even smaller than the tip of a pin.

c) Rosacea:

Rosacea is a common skin condition characterized by a rash that typically affects the central area of the face, primarily in middle-aged adults. It often begins with blushing, leading to lasting redness on the face. While the exact cause of rosacea is not

completely known, it is widely believed to be related to the facial blood vessels, which may dilate more easily than normal. Skin

Cream Types:

They are divided into two types:

- **Oil in water (O/W):** Creams are mixtures that contain tiny oil droplets spread throughout a liquid base. When oil is dispersed as droplets within water, this type of mixture is referred to as an oil-in-water (O/W) emulsion.

- **Water in Oil (W/O):** Creams consisting of small water droplets dispersed in a continuous oil step. If the dispersed phase is water and the dispersion medium is oil, the emulsion is water-in-oil (W/O) type.

Active Ingredients Used in Skin Creams:

1. **Water:** Water is essential in cream formulations, being cost-effective and easily accessible. It acts as a solvent for other ingredients and must be pure from toxins and microbes. Water also aids in creating emulsions, which can be oil-in-water or water-in-oil based on their proportions.
2. **Oils, fats, and waxes:** These components are vital in ointments. Waxes act as emulsifiers, fats as thickeners, and oils provide scents and preservatives. Oils are divided into mineral oils and glycerides.
2. **Mineral oil:** Derived from petroleum, mineral oil is a clear, odourless, and refined oil commonly found in cosmetics. It seldom causes allergies and does not clog pores, providing hydration while being lightweight and affordable. Types include light liquid paraffin and heavy liquid paraffin.
3. **Glyceride oil:** Primarily derived from plants, examples include almond, peanut, castor, coconut, and olive oils.
4. **Vegetable oil:** These oils form a protective skin barrier, reducing water evaporation and maintaining skin moisture. They also enhance the thickness of creams and personal care

products, such as almonds, germ, avocado, and sunflower oils.

5. **Waxes:** Common waxes such as beeswax, carnauba wax, resin, and spermaceti are used in cream formulations. Waxes help stabilize the mixture by preventing the oil and liquid components from separating. They also enhance the thickness of the lipid layer and adhere to the skin's surface.
6. **Fats:** Different types of fats are utilized in ointment preparation. These can be derived from animals, plants, or minerals. Glyceride oils and fats may come from either animal or vegetable sources and are made up of combinations of higher fatty acids and glycerine.
7. **Lanolin:** This substance comes from sheep wool fat and exists in two forms: an aqueous solution with 25-30% water and anhydrous lanolin, which has a slight odor and melts between 38°C and 42°C. It acts as a lubricant, softening the skin and creating emulsions that blend well in cosmetics.
8. **Colors:** Historically, colors were derived from natural sources like turmeric and indigo. The 19th century saw the advent of lab-made dyes, which are more vibrant and stable than plant-based options.
9. **Emollients:** Also known as moisturizers, emollients soften and treat dry skin. They typically contain oils or fats, including mineral oil, squalene, and lanolin.
10. **Humectants:** These essential skincare products absorb and retain moisture, offering benefits like hydration and exfoliation. Common humectants include glycerine, Hydroxyethyl urea, betaine, sodium PCA, and sodium L-lactate.
11. **Perfumes:** Perfumes provide pleasant odours, and lotions containing white flowers, pink dreams, and orange blossoms are natural examples.



Evaluation Parameters:

- a. **Physical evaluation:** It is mainly used for cream colour, smell, texture, and stability
- b. **Viscosity:** Basically, the purpose of this test is to determine how the cream ingredients work and behave in real life. Its main purpose is to estimate power.
- c. **Washability:** This method also tests the quality of the cream. Here is our first and foremost add a small amount of lotion that was used on the hands. Then we have to wash with tap water after that.
- d. **Irritancy:** the cream was applied to the surface of the back of the left hand for 1 square cm and observed at equal intervals up to 24 hours for irritation, redness, and swelling. No skin irritation or redness.
- e. **spreadability:** The lubricity test indicated that the cream we prepared has strong lubricating properties.
- f. **Greasiness:** This test is mostly used to determine whether a cream is greasy or oily. U.S. From the results it can be concluded that none of the formulations were greasy.
- g. **pH test:** We are talking about how acidic different compounds are. pH (cream) the range is often between 4 and 7. Either a digital pH meter or pH paper was used to measure the results of this test.
- h. **Phase Separation:** This test is usually checked every 24-30 hours. That's why cream should be heated to 30-80 °C in a covered container. Keep this mixture away from light.

CONCLUSION:

Herbs like Tulsi help boost immunity naturally, while neem supports wound healing and papaya reduces wrinkles and eliminates dead skin cells. Amla and turmeric are known for their anti-aging and antioxidant effects. Aloe vera and cucumber extract provide excellent moisture and improve skin hydration. The cream is affordable because it is made with simple ingredients and easy methods.

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