



# A SHORT REVIEW ARTICLE ON COSMETICS, FOR CREAM

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## ABSTRACT

Because they are simple to apply and remove, pharmaceutical creams have long been an essential component of cosmetic goods. Cleaning, beautifying, changing look, hydrating, and preventing bacterial and fungal infections are just a few of their many uses. Additionally, they are used to treat wounds, burns, and cuts. The public and society can safely employ these semi-solid preparations. Although human skin is prone to damage, it has the ability to mend itself. However, there is a chance of infection, particularly in the early stages of damage, and the natural healing process may take some time. In these situations, medicinal creams can be administered to the wound site to promote healing and prevent infection. This study centers on the application of prescription creams for wound healing, going over the many kinds of creams, components, assessment criteria, preparation techniques, function categorization, benefits and drawbacks, and features.

Keywords:- The use of creams for wound healing, topical medication administration, and skin care is covered in this literature.

## INTRODUCTION

Cosmetics have been used for ages to enhance and promote attractiveness; the phrase comes from the Greek word "kosmesticos," which means to embellish. The earliest known users of cosmetics were the Egyptians, who applied basic body or eye coloring. With the wide variety of lotions, lipsticks, fragrances, eye shadows, nail polishes, and hair sprays available, cosmetics has become a major part of both men's and women's lives. Women of all ages wear lipsticks, but face powder provides skin a sheen after applying foundation cream. Both sexes use colognes, gels, and creams on a regular basis. Creams serve as a face cleanser, and anti-aging creams are designed to keep skin appearing younger. In the beauty sector, the hair care market is expanding quickly try hair gels, oils, and lotions, which were developed to prevent dandruff and hair loss. Many celebrities and artists use cosmetics to avoid harsh lighting and camera flashes, and some occupations, such as the entertainment sector, place a strong emphasis on looks. According to recent studies, cosmetics can improve one's overall look and help people preserve their young appearance. In our daily lives, cosmetics are essential since they protect us from the sun's damaging rays and improve our look. With more cosmetics than ever before, people need them to shield their skin and themselves from damaging UV radiation. Since cosmetics help us live

healthier and more self-assured lives, their significance in

our everyday lives is clear. Once regarded as a luxury good, cream is now commonly utilized for many other things, such as making table butter and ghee. Cakes, soups, ice cream, and custard bases are among the savory and sweet foods that employ it. A dense emulsion of milk lipid globules in skim milk that has been separated from milk by centrifugal force or gravity is called cream.

## **TOPICAL DRUG DELIVERY**

Oral, sublingual, oral, rectal, parental, topical, and inhalation techniques have all been employed to treat ailments throughout the last few decades. Topical delivery is the process of directly treating cutaneous conditions or general illness symptoms by applying a drug-containing formulation to the skin. Although foams, sprays, medicated powders, solutions, and adhesive systems are all utilized, semisolid formulations predominate in this system. All things considered, several techniques have been created to successfully cure a range of ailments. In order to treat skin conditions like eczema, topical drug delivery (TDD) is a technique that applies medications to the skin, enabling them to be distributed throughout the skin and producing a localized impact. Corticosteroids, antibiotics, antiseptics, and antifungals are the different categories of topical medications. Drug diffusion and metabolism in the skin are part of the delivery process. Around 3000 BCE, the first topical medication delivery was employed in Babylonia and ancient Egypt. However, the distribution method necessitates pharmacokinetics and passage across several skin layers, which might reduce topical medication bioavailability because of things like cutaneous disorders. Developments in TDD have improved the use of chemical and physical agents to transport topical drugs to the skin. Elements like drug molecule, lipophilicity, and pH

## **ADVANTAGES OF TOPICAL DRUG DELIVERY SYSTEM**

The medication has disadvantages related to intravenous therapy, absorption conditions, enzyme presence, and stomach emptying time, but it is also convenient, uncomplicated to administer, and does not carry the danger of first pass metabolism. By preventing changing medication levels, continuous drug input provides effectiveness with lower daily dosages. However, the medication or excipients may cause dermatitis or skin irritation. The majority of medications are difficult to absorb via the skin or mucous membranes because of their large molecular weight and low lipid solubility. They are only appropriate for medications that need a low plasma concentration to work because of their extremely sluggish absorption. Additionally, there is a chance of allergic responses and larger-particle medications that are difficult for the skin to absorb.

### **1. TARGETED TREATMENT**

Because topical medication administration is given directly to the site of action, it can provide tailored treatment, minimize exposure to healthy tissues, reduce potential adverse effects, and improve therapeutic results. This makes it a considerable benefit.

### **2. LOCALIZED EFFECTS**

Topical medication distribution is advantageous in situations where systemic absorption may result in undesirable side effects since it provides localized effects, addressing skin diseases directly without influencing other body systems.

### **3. REDUCE SYSTEMIC SIDE EFFECT**

By avoiding the digestive tract and avoiding hepatic metabolism, topical medications help patients who are susceptible to negative drug side effects by lowering systemic side effects.

## **PHYSIOLOGY OF HUMAN SKIN**

### **EPIDERMIS**

The stratified keratinized squamous epithelium that makes up the epidermis is the skin's outermost layer. Its thickness varies, with the hands and feet having the thickest. Although it is devoid of blood arteries and nerve endings, it is packed with interstitial fluid, which supplies nutrition and oxygen while emptying as lymph.

### **DERMIS**

Tough and elastic, the dermis is composed of collagen fibers and connective tissue. Collagen fibers, which have the ability to bind water, are the source of its tensile strength. Obesity and pregnancy can result in striae, or stretch marks, which are caused by overstretched skin. Fibroblasts, macrophages, and mast cells are found in the dermis, which has areolar tissue and variable quantities of adipose tissue under its deepest layer.

### **SUBCUTANEOUS GLAND**

All body parts, with the exception of the palms and feet, have sebaceous glands, which are secretory epithelial cells that release sebum into hair follicles. The scalp, face, axillae, and groins are where they are most prevalent. Sebaceous glands that are not dependent on hair follicles release sebum directly onto the surface of transitional areas such as the lips, eyelids, nipple, labia minora, and glans penis.

### **FUNCTIONS OF SKIN**

#### **1. PROTECTION**

As an anatomical barrier against infections and harm to the internal and external environment, the skin's Langerhans cells function as an adaptive immune system.

#### **2. SENSATION**

Complex systems with several nerve endings, the somatosensory system and haptics react to a range of stimuli, such as pressure, vibration, heat, cold, touch, and tissue damage.

#### **3. HEAT REGULATION**

Because of the skin's vast blood supply, radiation, convection, and conduction may all be precisely controlled to reduce energy loss. While constricted blood arteries decrease blood flow and retain heat, dilated blood vessels enhance perfusion and heat dissipation.

### **DISEASES OF SKIN**

#### **1. ITILIGO**

Approximately 1% of people worldwide suffer with vitiligo, a common illness in which patches of skin lose their natural pigmentation and turn white. Skin gets its typical color from a pigment called melanin, which is produced by melanocytes.

#### **2. SCABIES**

Human scabies mites are the source of scabies, a widespread, irritating skin disorder that affects people of all ages, but is most frequent in the young and old. Scratches and red, scaly patches make up the rash, which

can later get infected and turn into tiny pus spots.

### **3.ROSACEA**

Usually affecting people in their middle years, rosacea is a common facial rash that is characterized by quick flushing and persistent redness on the nose, forehead, chin, and cheeks. Although the exact origin is unknown, the skin of the face is thought to have readily dilatable blood vessels.

### **STANDARDIZATION OF CREAM**

Higher fat content cream must be produced since traditional cream separators cannot precisely provide a certain fat content. The fat percentage is calculated and lowered through standardization once this cream is gathered and combined in cream tanks. Separation and direct in-line standardization are frequently used in conjunction with machinery that automatically measures and regulates the fat level of cream. The amount of fat in the prepared cream is determined by the percentage of cream that is added. Since too high a fat level might cost the processor money, and too low a fat content can cause cream products to not comply with regulations, the fat content should be as close to the specified figure as feasible. Standardization needs to happen quickly to avoid cream being held back at high temperatures for unneeded lengths of time, as well as the cooling and pasteurization processes that follow.

### **PASTEURIZATION OF CREAM**

In order to prolong its shelf life and give consumers a safe product, cream is pasteurized to inactivate enzymes and germs. The severity of the therapy determines how intense it is. UHT sterilization or high-temperature short-time (HTST) pasteurization are often used. Cream requires a more intense heat treatment than milk pasteurization because of its high fat content, which shields microorganisms during heating. According to the International Dairy Federation, cream with less than 20 g of fat per 100 g should be heated for 15 seconds at 75°C, while cream with more than 20 g of fat per 100 g should be heated for 15 seconds at 80°C. Because UHT treatment increases the product's shelf life, it is essential for the raw material's quality. However, because certain germs might survive, UHT treatment does not always result in a sterile product. Lipolysis is caused by indicated milk enzymes.

### **NEUTRALIZATION OF CREAM**

In order to avoid excessive fat loss in buttermilk from pasteurized cream, sour cream is neutralized, which lowers its acidity. This is done in order to stop casein from curdling, which might result in fat globules and unwanted off tastes. Additionally, neutralization improves the product's storage quality. It is recommended that the neutralizer be diluted to a 10% solution, dissolved in clean water, and then spread between 29 and 32°C. After that, the acidity of the cream is examined to make sure it has been properly neutralized.

### **HOMOGENIZATION OF CREAM**

By choosing the right homogenizing parameters, homogenization can change the properties of cream products or produce new structures in addition to preventing or minimizing creaming. It can be added to double cream, although it might impair the functionality of the cream. It is necessary for all varieties of single and half cream.

## CLASSIFICATION OF CREAMS

### 1. MAKE-UP CREAM

Primarily o/w, the cream-based emulsion gives the skin a dewy shine, nourishes it, and makes it sweat-resistant to give it a smooth, moisturized finish.

- **VANISHING CREAM**

When applied to the skin, stearic acid-based disappearing lotions seem to vanish, leaving behind a sticky yet dry residue. Because they help dry the skin, these lotions are especially helpful in hot regions where sweating is widespread.

- **FOUNDATION CREAM**

As an adherent basis for powders, these creams function as a cosmetics foundation. In order to prevent the skin from becoming too oily or dry, they offer emollient action and protection. These are multicolored cosmetics used to alter skin tones, conceal imperfections, and provide a consistent, even hue.

### 2. CLEANSING CREAM

Because they remove makeup, surface dirt, and oil, especially from the face and neck, cleansing creams and lotions are crucial for personal hygiene and beauty, especially in the cosmetics industry.

### 3. WINTER CREAM

Often referred to as a moisturizer or moisturizing cream, cold cream is a type of cream that contains more oil than water and is mostly used to treat dry and chapped skin.

### 4. SKIN CARE CREAM

These thick, silky lotions are intended to prevent contact and occupational dermatitis by forming a consistent, imperceptible protective layer for the skin. They preserve the equilibrium of normal to mixed skin and bolster the skin's inherent qualities.

### 5. HAND & BODY CREAM

Because regular washing eliminates moisture, hands frequently exhibit indications of aging. Cream preserves and softens skin, preserving its young appearance. Oil keeps the skin on the palms and fingers soft and keeps it from drying out and breaking. Since the hands are used more often than other body parts, hand lotions with a high oil content are advised.

## GENERAL INGREDIENTS USED IN SKIN CREAMS

### 1. WATER

A common element in cream formulations, water serves as a solvent to dissolve other substances in skin care products. It is devoid of microorganisms, contaminants, and poisons. Depending on the amount of water used in the formulation, water can also create emulsions, also referred to as water-in-oil or oil-in-water emulsions. This is because water is inexpensive and readily available.

### 2. MINERAL OILS

Petroleum oil is the source of mineral oil, a purified, odorless, and transparent oil used in cosmetics. In addition to being affordable and lightweight, it seldom triggers adverse responses. Mineral oil preserves

bodily moisture and helps stop water loss. It is frequently utilized in cream formulas. It is unable to solidify or block pores in the skin.

### **3. VEGETABLE OIL**

Almond, germ, avocado, and sunflower oils are examples of vegetable oils that are used to create a barrier on the skin's surface, preventing water loss and preserving plumpness. In cosmetics, waxes such as beeswax, carnauba wax, ceresin, and spermaceti are used to thicken the lipid part and make it stick to the skin's surface by preventing the separation of oil and liquid components. These components support the preservation of skin's texture and plumpness.

### **4. FATS**

Different fats from plants, animals, or minerals are used to make creams. Higher fatty acids and glycerin make up glyceride oils and fats that come from crops or animals. They produce soap or fatty acid and glycerin when saponified. Lauric, margaric, palmitic, stearic, and saturated groups are examples of common fatty acids. The most common unsaturated fatty acid is oleic acid. Olive oil, almond oil, peanut oil, sesame oil, coco butter fat, mutton tallow, lard, and beef stearine are other oils that are frequently used in cosmetics.

### **5. COLOURS**

Turmeric, saffron, and indigo were the main natural colors used prior to modern technology. The 19th century saw the development of more powerful and permanent artificial colors that could be created without the need to gather wild plants.

## **WOUND AND WOUND HEALING PROCESS**

The cellular and anatomical continuity of deep skin tissue or living tissues is lost or broken as a result of wounds. They can be brought on by harm to the skin's surface that is physical, chemical, thermal, viral, microbial, violent, or immunological. In addition to being physically and emotionally taxing, wounds can leave lifelong scars. They are categorized according to the causative agent and mechanism of infliction. Following a skin injury or trauma, the process of wound healing involves cell contraction, movement, and re-adhesion. Platelet aggregation, blood coagulation, fibrin production, inflammation, ground material modification, angiogenesis, and re-epithelialization are all involved. Until the damaged surface is repaired by collagen and scars appear, the healing process is not complete. Infections, diet, medications, hormones, wound kind and location, and specific medical conditions are some of the factors that affect wound healing. According to Ayurveda, a well-known branch of Indian medicine, natural remedies derived from plants and animals have been used to cure wounds for millennia. Since natural goods have fewer negative effects and are being studied scientifically to promote human health, they are becoming just as significant as alternative medicine. These goods are taken directly as medications for addressing long-term illnesses.

## **AYURVEDIC MEDICINES FOR WOUND HEALING**

### **1. ALOE VERA**

This vital herb from Ayurveda is used to cure a variety of skin ailments, including burns, psoriasis, cold sores, fever, inflammation, and itching.

## **2. PEPPERMINTS**

A common plant, peppermint oil is used in mouthwashes, toothpaste, aromatherapy, bath preparation, and topical treatments to help soothe pruritus, reduce inflammation and irritation, promote wound healing, and give a cooling effect.

## **3. TURMERIC**

In addition to being used as a spice and coloring in India, turmeric possesses anti-inflammatory, antiviral, anti-cancer, antidiabetic, antioxidant, and wound-healing effects.

## **4. HONEY**

Since ancient times, honey has been used as a traditional medicine to treat wounds and promote healing. It possesses anti-inflammatory, anti-tumor, anti-microbial, and cardiovascular-stimulating qualities. Burns, necrotizing fasciitis, wounds, ulcers, boils, pilonidal sinus, venous ulcers, diabetic foot ulcers, and other infections have all been treated with it.

## **5. GHEE**

Butter made from cow milk has several therapeutic benefits, such as boosting longevity, memory, and intelligence, chilling energy, and improving appearance. In addition, it possesses hepatoprotective, antioxidant, immunostimulating, and antibacterial qualities. Because it may take part in the metabolic processes involved in wound healing, cow ghee, which contains saturated and unsaturated fatty acids, heals wounds more quickly than antibiotics.

## **6. MARIGOLD**

Calendula is a herbaceous perennial plant with a brief lifespan that is utilized for medicinal, cosmetic, and decorative uses. With anti-inflammatory qualities as well as antibacterial and antiviral components, it is a potent antioxidant and antiviral plant. Oral use helps ease muscular spasms, cure wounds, hemorrhoids, ulcers, menstruation, and oral health.

## **7. JATROPACURCAS**

This material is well known for its antimicrobial, anti-cancer, anti-HIV, antibacterial, and wound-healing qualities, among other medical benefits.

Herb	Main Constituents	Physical Forms and Administration Routes	Laboratorial and Clinical Evidence	Ref
Aloe Vera	Soluble sugars, nonstarch polysaccharides, lignin, polysaccharides, glycoproteins, and antiseptic agents	Forms: solutions, creams, mucilage, gels, and dressing Routes: topical and oral	Anti-inflammatory and antimicrobial activity; stimulate cell proliferation	[53-57]
Hippophaerhamnoides (sea buckthorn)	Flavonoids (e.g., quercetin, isorhamnetin), carotenoids (e.g., alpha, beta-carotene, lycopene), vitamins (C, E, K), tannins, organic acids, triterpenes, glycerides of palmitic, stearic, oleic acids and, amino acids	Forms: aqueous leaf extract, seed oil Routes: topical and oral	Antioxidant and anti-inflammatory activities; stimulate the healing process; improve wound contraction and epithelialization; increase the hydroxyproline and protein content in the wound	[58-59]
Angelica sinensis	Essential oils and water-soluble ingredients; ferulic acid is the main active constituent	Forms: ethanol extract, ferulic acid dissolved in DMSO Routes: n.a (in vitro tests)	Stimulate the proliferation of human skin fibroblasts, the secretion of collagen	[60]
Catharanthus roseus (Vinca rosea)	Contain two major classes of active compounds: alkaloids (e.g., vincamine) and tannins	Forms: leaf ethanol extract Routes: topical	Antimicrobial activity against <i>Pseudomonas aeruginosa</i> and <i>Staphylococcus aureus</i> ; increase wound strength, epithelialization, and wound contraction	[61-62]
Calendula officinalis (marigold)	Triterpenoids and flavonoids	Forms: gels, aqueous extracts, hexane, and ethanolic extracts dissolved in DMSO Routes: Topical	Anti-inflammatory and antibacterial activities; stimulate the proliferation and migration of fibroblasts <i>in vitro</i>	[63]

## RELEVANT METHODS OF PREPARATION OF CREAMS FOR WOUND-HEALING

### • PREPARATION OF O/W EMULSION CREAM

Preservatives and water-soluble ingredients are melted in a separate beaker, while oil-soluble ingredients and the emulsifier are melted in a water bath at 75°C. After that, the water phase and oil phase are combined and heated until a clicking sound is produced. As the temperature drops, preservatives and/or fragrances are added, creating a combination with a water content.

### • PREPARATION OF W/O EMULSION CREAM

In a beaker, melt the emulsifier and oil-soluble ingredients at 75°C. Meanwhile, melt the water and water-soluble ingredients at the same temperature. Fill the mortar and pestle with water, then gradually add the oil phase and stir until clicking noises are produced. Add the fragrance ingredient after the cream has cooled, decreasing the water phase and increasing the oil phase.

## EVALUATION PARAMETERS OF CREAMS

### 1. DETERMINE THE PH

A digital pH meter may be used to measure the cream's pH at room temperature by diluting the formulation in a beaker with an appropriate solvent.

### 2. ACID VALUE

After dissolving a material in 50 milliliters of alcohol and solvent ether, it is heated to complete dissolution and coupled to a reflux condenser. After that, 0.1N NaOH is used to titrate 1 ml of phenolphthalein until it becomes a light pink. The value of acid is computed.

### 3. DYE TEST

Combine cream with scarlet dye, then look under a microscope. An o/w type cream is one in which the scattered globule looks red and ground colorless; w/o type creams exhibit the opposite situation.

### 4. IRRITANCY

Mark a 1 square centimeter area on the left dorsal surface, apply cream, and record any changes after 24 hours of observation for erythema, edema, and irritation.

### CONCLUSION

Because of their accessibility and susceptibility to damage, creams are semisolid formulations that are frequently utilized for wound healing. Because of its advantages, pharmaceutical cream formulation research and development has increased in recent decades. Pharmaceutical creams will remain a fascinating and alluring study topic for many years to come due to developments in the pharmaceutical business and sector. In the upcoming years, cream formulation, assessment, and preparation will be done using cutting-edge technology and techniques. Creams made with natural ingredients are becoming more and more popular.

Cream has long been regarded as a luxury good despite its many uses outside of the dairy industry. However, its appeal can be impacted by consumer worries around excessive fat consumption. The creation of reduced-fat cream products with comparable qualities may be made possible by recent developments in our understanding of the components of milk and cream and how they interact with other ingredients.

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