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Review on Cream

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Abstract

Creams are important in both cosmetics and medicine. Cosmetic creams help clean and beautify the skin, while medicinal creams do things like moisturize, protect the skin, and help wounds heal faster. These creams are easy to use and generally safe. Our skin can heal itself, but it takes time and can get infected, especially at the start. Medicated creams can speed up healing and prevent infections when we apply them to wounds

Keywords: Creams, Skin, Topical drug delivery system, Wound healing, Antifungal gels.

Introduction

Creams are types of topical treatments that can be spread onto the skin's surface. They are characterized as "thick liquid or semi-solid emulsions, comprising either oil-in-water or water-in-oil compositions." Their texture can vary depending on the proportion of oil and water components they contain.[1]

Creams are like beauty products that we put on our skin. They can make our skin cleaner, look better, and protect it. Some creams also have medicine in them to help with skin problems. They work by delivering the medicine right where it's needed on the skin.[2]

Creams are a type of medicine that is made using methods developed by the pharmaceutical industry. They can be used with or without medicine in them and are very popular for treating different skin problems or conditions. Creams can be made from natural ingredients like Ayurvedic or herbal substances, or they can be made using conventional medicine (allopathic). People choose creams based on what they need for their skin. They contain one or more active drug ingredients mixed into a suitable base. Creams are divided into two main types based on their composition: oil-in-water or water-in-oil emulsions. Traditionally, creams have been either water-based (like cold cream) or oil-based (like vanishing cream).[3]

Types Of Creams

They are divided into two types

1.Oil-in-Water (O/W) creams When oil is broken down into tiny droplets and dispersed within a continuous water-based solution, it forms what is called an oil-in-water (O/W) emulsion. it's like little droplets of oil floating around in a watery mixture.

2. Water-in-Oil (W/O) creams When small droplets of water are scattered throughout a continuous oily phase, it forms a water-in-oil (W/O) emulsion. it means that there are tiny water droplets surrounded by a larger oily medium.[4-6]

CLASSIFICATION OF CREAMS

All the skin creams can be classified on different basis:

1. According to function, e.g. cleansing, foundation, massage, etc.
2. According to characteristics properties, e.g. cold creams, vanishing creams, etc.
3. According to the nature or type of emulsion.

Types of creams according to function, characteristic properties and type of emulsion:

1. Make-up cream (o/w emulsion): a) Vanishing creams. b) Foundation creams.
2. Cleansing cream, Cleansing milk, Cleansing lotion (w/o emulsion)
3. Winter cream (w/o emulsion) : a) Cold cream or moisturizing creams.
4. All-purpose cream and general creams.
5. Night cream and massage creams.
6. Skin protective cream. 7. Hand and body creams.

Make-up cream:
Makeup cream is mostly made of a water-based mixture with a bit of oil. It's like a creamy lotion that makes your skin feel smooth and moisturized, giving you a choice between a matte or shiny look. It helps keep your skin healthy, even when you sweat, and gives you a fresh, dewy glow

a) Vanishing creams:
They're called vanishing creams because they disappear when you rub them on your skin. They're made with stearic acid. After you put them on, they leave your skin feeling dry and sticky, which helps to dry up sweat. That's why people use them a lot in hot places where they sweat a lot.

b) Foundation creams: These creams work as a base for makeup. They help makeup powder stick to your skin. They make your skin feel soft and protect it from the environment without making it too oily or dry. Makeup foundation is like colored cream that you put on your face to make your skin look even and cover any imperfections. It also helps change your skin tone if you want.

2. Cleansing creams: These creams are for cleaning your body and are important for personal hygiene and looking nice with cosmetics. Cleansing creams or lotions are used to take off makeup, dirt, and oil, especially from your face and neck.

3. Winter creams: These creams have more oil than water in them and are best for very dry or chapped skin. Cold cream, also called moisturizer, is an example. It's supposed to make your skin feel smooth and cool when you use it, and the oily layer it leaves on your skin shouldn't clog your pores.

4. All purpose creams and general creams
These creams are more popular now than before. They're a bit oily but not greasy and can be spread easily on the skin. They can be used as night creams, to nourish and protect your skin, and even to help with sunburns or rough patches.

5. Night cream or massage creams:
These creams are mainly used for the nourishing the skin or as a treatment to dry skin. Creams which are generally applied on skin and left for few or several hours over night are mainly known as night creams. Creams which acts as an emollient by rubbing the cream on the skin with massage is known as massage cream

6. Skin protective creams:
These creams are thick and smooth, designed to create a protective layer on the skin that you can't see. This layer helps keep out things that might irritate the skin, like chemicals or other substances. It also helps to keep the skin healthy and balanced, especially for people with normal to combination skin.

7. Hand and body creams:
Our hands often show signs of aging early because we wash them a lot, which removes moisture. Using hand cream helps keep the skin soft and protected, making our hands look younger. Since the skin on our hands needs oil to stay soft and avoid cracking, it's a good idea to use hand creams that have lots of oil in them. We use hand cream more on our hands than on other parts of our body. [7-10]

GENERAL INGREDIENTS USED IN SKIN CREAMS
The raw materials which are used in a manufacturing of skin creams include

1.Water: Water is the most important ingredient in cream making. It's cheap and easy to find. In creams, water acts as a solvent, dissolving other ingredients. We use clean, toxin-free water to make creams. Depending on how much water we use, creams can form different types of emulsions. If there's more water, it's called oil-in-

water, and if there's more oil, it's called water-in-oil.[11]

2.Oil, fates and waxes: Creams contain oils, fats, waxes, and their derivatives, which are crucial ingredients. Waxes help mix oil and water together (emulsify), fats make the cream thicker, and oils give fragrance and act as preservatives. Oils can be mineral or glyceride-based, each serving different purposes. 3.**Mineral oil**: Mineral oil usually doesn't cause allergies and won't clog pores because it doesn't solidify. It's lightweight, cheap, and helps prevent water loss from the skin, keeping it moisturized. Many creams use mineral oil as an ingredient. Examples: • Light liquid paraffin • Heavy liquid paraffin • Liquid petroleum

4.Glyceride oil: Glyceride oils are mostly made from vegetables. Some examples are almond oil, arachis oil (peanut oil), castor oil, coconut oil, and olive oil.

5.Vegetable oil: Vegetable oils create a barrier on the skin, which slows down water loss and keeps the skin plump. They can also make creams or personal care produ[12]

6.Waxes: Creams often contain waxes like beeswax, carnauba wax, ceresin, and spermaceti. These waxes prevent the separation of oil and liquid in the cream, making it stable. They also make the cream thicker and help it stick to the skin's surface.

7.Fats: Creams use various types of fats obtained from animals, plants, or minerals. Glyceride oils and fats can be from animal or vegetable sources, made of fatty acids and glycerin. When processed, they can form soap or separate into fatty acids and glycerin. Common fatty acids include lauric, margaric, palmitic, and stearic acids, which are saturated. Oleic acid is a popular unsaturated fatty acid and remains liquid. Commonly used oils in cosmetics include olive oil, almond oil, sesame oil, peanut oil, cocoa butter, mutton tallow, lard, and beef stearine.[13]

8.Colours: Before modern technology, colors were mostly derived from natural substances like turmeric, saffron, and indigo. However, in the 19th century, colors began to be synthesized in laboratories. These synthetic colors were found to be more stable and had stronger coloring properties. Additionally, they could be produced without relying on wild-harvested plants, making them more sustainable.[14]

9.Emollients: Emollients, often called moisturizers, are products that soften and treat dry skin. They're usually oily or greasy, like mineral oil, squalene, and lanolin. Emollients work by helping the skin retain moisture, forming a protective layer to prevent water loss, and lubricating the skin.[15]

10. Humectants: Humectants are vital ingredients in many skincare products. They are organic compounds that attract and retain moisture, offering numerous benefits such as moisturization and exfoliation. Examples of humectants include glycerin, hydroxyethyl urea, betaine, sodium PCA, and sodium lactate. [16]

11.Perfumes: Natural perfumes used in creams can include various essential oils extracted from plants, flowers, fruits, and herbs. Some examples are:

• Lavender oil
• Rose oil
• Chamomile oil
• Vanilla extract
• Jasmine oil
• Sandalwood oil
• Ylang-ylang oil
• Neroli oil
• Bergamot oil
• Patchouli oil [17]

11.Vitamins: Vitamins play a crucial role in maintaining the overall health of the body and the skin. Various vitamins such as Vitamin A, B, C, and E are commonly used in the formulation of creams. 12.Preservatives: Preservatives in cosmetics are crucial to stop germs and contamination during making, shipping, storage, and when people use them. Antioxidants can also help protect against changes caused by oxygen exposure. Synthetic preservatives, even in small amounts, do a good job of keeping products safe for use.[18]

WOUND AND WOUND HEALING PROCESS: Wounds are injuries that cause a break or damage to the skin's tissues. They can happen due to various reasons like physical impact, chemicals, heat, viruses, bacteria, violence, or immune system reactions.[19-23] Wounds don't just hurt physically and emotionally, they can also be expensive to treat and leave scars that last a lifetime. Wounds are basically injuries that break the skin. They can be classified based on how they happened and what caused them.[24-25]

1) Closed wound: contusion, closed fracture, etc.

2) Open wound

1. Sharp cut.
2. Laceration.
3. Abrasion.
4. Avulsion.
5. Crush wound.
6. Punctured wound.
7. Bite wound..

Wound healing is how the body repairs itself after injury. It involves cells contracting and moving to close the wound. This process includes platelets forming clots, inflammation, building new tissue, creating blood vessels, and regrowing skin to cover the wound.[26-29] The healing process isn't finished until collagen tightly knits together the damaged areas, ultimately resulting in scar formation.[28-29] The healing of wounds can be slowed down by free radicals, which can harm the nearby skin tissues. Many factors affect the wound healing process, including infections, nutrition, medications, hormones, the type and location of the wound, and certain health conditions.[30] For centuries, people in India have relied on natural products from plants and animals for treating wounds. This knowledge has been passed down through generations and is a fundamental part of Ayurveda, a popular form of Indian medicine.[31] Natural products have been utilized for centuries across the globe. Nowadays, they're gaining importance akin to alternative medicine due to their fewer side effects. Consequently, scientists are investigating traditional medicines scientifically to improve human health. These natural remedies are often used in their raw or crude form to treat chronic diseases.[32-34]

AYURVEDIC MEDICINES FOR WOUND HEALING

1. Aloe Vera (A. barbadensis): This herb is vital in Ayurveda and has many uses for skin conditions like burns, psoriasis, and cold sores. It's also helpful for fever, itching, and inflammation[35-36]

2.Peppermint (Mentha piperita): Peppermint is a well-known herb used in various ways. Applying peppermint oil on the skin gives a cooling sensation. It's used in aromatherapy, bath products, mouthwashes, toothpaste, and topical treatments. Peppermint helps soothe itching, relieve irritation and inflammation, and promote wound healing.[37-38]

3. Turmeric (Curcuma longa): In India, turmeric is utilized both as a spice and as a coloring agent. It possesses numerous medicinal properties, including anticancer, antidiabetic, antioxidant, anti-inflammatory, antibacterial, antiviral, and wound-healing properties.[39-40]

4. Honey: Honey has been utilized since ancient times as a traditional medicine. It possesses antioxidant, antitumor, anti-inflammatory, anti-microbial, and cardiovascular enhancing properties. Additionally, it is employed as a wound dressing and promotes wound healing. Honey has been employed in treating postoperative infections in both adults and neonates, as well as burns, necrotizing fasciitis, infected and non-healing wounds and ulcers, boils, pilonidal sinus, venous ulcers, and diabetic foot ulcers.[41-42]

5. Ghee: Butter obtained from cow's milk is believed to possess numerous medicinal properties. It is said to have a cooling effect on the body's energy, rejuvenating properties, enhances luster and beauty, improves memory and stamina, boosts intellect, and promotes longevity. Cow ghee is also reported to exhibit antimicrobial, immune-stimulating, antioxidant,

and hepatoprotective activities. Furthermore, the process of wound healing is purported to be faster with cow ghee compared to antibiotics. This is attributed to the presence of several saturated and unsaturated fatty acids in cow ghee, which play a role in the metabolic processes involved in wound healing.[43-44]

Formulation Perspectives in Topical Antifungal Drug

Topical application refers to the administration of a drug directly onto a specific area of the body's surface. This method of administration encompasses various forms such as creams, foams, gels, lotions, and ointments. Typically, topical drugs are applied onto bodily surfaces like the skin or mucous membranes to address various ailments. Many medications are formulated for topical administration and are intended for application directly onto the skin.[45] Topical medications are designed to target specific layers of the skin, exerting their effects locally.[46] Topical medications typically consist of a two-component semi-solid system with a liquid-rich phase. One distinguishing feature of these formulations is the presence of a continuous structure that imparts solid-like characteristics.[47]

STRUCTURE OF GELS

When applied, the liquid evaporates, leaving behind the medication trapped within a thin film of the gel-forming matrix that adheres to the skin. The presence of a network formed by the interlocking of gelling agent particles imparts stiffness to the gel. The structure of the network and the properties of the gel are determined by the nature of the particles and the type of bonds responsible for linking them together.[48]

ADVANTAGES OF TOPICAL DRUG ADMINISTRATION[48]

Topical medication administration bypasses issues associated with gastrointestinal (GI) absorption, including variations in GI pH, enzymatic activity, and potential drug interactions with food, beverages, and other orally administered medications.

PREPARATION AVAILABLE IN MARKET[49]

1)Preparation for Topical antifungal gels

1. Topical creams are used to treat infections caused by dermatophytes, including tinea corporis, tinea cruris, tinea faciei, tinea manuum, and tinea pedis.
2. They can be an alternative to oral treatment for tinea barbae and tinea capitis.
3. Effective against yeast diseases such as pityriasis versicolor and candida intertrigo.
4. Useful for treating nail plate infections and fungal skin conditions like tinea graeca.
5. Apply the creams twice daily to the affected area for two to four weeks, leaving a margin of healthy skin.
6. Continue treatment for one or two weeks after the rash disappears, and repeat therapy if necessary.

Sr. No.	Brand Name	Example
1	Nizoral® cream and Daktagold® cream	Ketoconazole
2	Canesten® cream, powder and candid cream, solution	Clotrimazole
3	Lamisil® cream, gelsprey	Terbinafine
4	Daktarin® cream, dusting powder, lotion, thrush cream	Miconazole
5	Ecreme® cream, powder, foaming solution	Econazole
6	Nilstat® cream, ointment, paste	Nystatin
7	Batrafen® cream, powder, solution	Ciclopiroxolamine

2) Preparation for Scalp fungal infection Antifungal shampoos are primarily used to treat dandruff and seborrheic dermatitis, in addition to their effectiveness in treating tinea capitis and scalp psoriasis.

Sr. No.	Brand Name	Example
1	Daktagold shampoo, Ketopine®shampoo, Nizoral®shampoo, Sebizole® shampoo	Ketoconazole
2	HairScience® shampoo	Miconazole

3) Preparations for vaginal infections

Sr. No	Brand Name	Example
1	Nilstat® vaginal cream and pessaries	Econazole
2	Pevaryl® ovules	Nystatin

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