IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 5, December 2025
Impact Factor: 7.67

Formulation and Evaluation of Poly Herbal Topical Wound Healing Cream

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Abstract: *Creams have been used as topical pharmaceutical dosage forms since ancient times due to their ease of application and good patient acceptability. Pharmaceutical creams serve a wide range of purposes, from cosmetic applications such as cleansing, beautifying, moisturizing, and enhancing appearance, to therapeutic uses including protection against bacterial and fungal infections, as well as the treatment of cuts, burns, wounds, and skin injuries. Human skin is highly susceptible to injury but possesses an inherent ability to heal itself. However, the natural wound-healing process is often time-consuming and carries a significant risk of infection, particularly during the early stages of healing. In such cases, topical creams are applied to the affected area to accelerate the healing process and protect the wound from microbial invasion.*

This review focuses on the use of pharmaceutical creams in wound healing, providing a detailed discussion of the wound-healing process, appropriate methods of cream application, and classification of creams based on their function, characteristics, and type of emulsion. The review also covers various types of creams, commonly used ingredients in cream formulations, and evaluation parameters used to assess their quality and effectiveness. Creams are defined as thick liquid or semi-solid preparations consisting of either oil-in-water (O/W) or water-in-oil (W/O) emulsions, with viscosity dependent on the relative proportions of oil and water. They are widely used for cosmetic, protective, and therapeutic purposes.

Topical creams are designed to deliver drugs locally to the underlying layers of the skin or mucous membranes, ensuring targeted treatment of skin disorders. These formulations are developed using pharmaceutical techniques and may be medicated or non-medicated. Ayurvedic, polyherbal, and allopathic creams are commonly used depending on individual therapeutic needs. Creams contain one or more active pharmaceutical ingredients dissolved or dispersed in a suitable base and are classified as O/W or W/O emulsions based on their phase composition.

Wound healing is a complex, multistage biological process that requires an optimal wound environment. Several factors, including infection and underlying pathological conditions, can delay healing. In severe cases, impaired wound healing may lead to serious complications such as amputation. Traditional dry dressings may dehydrate the wound bed, whereas moist wound environments promote angiogenesis and tissue regeneration. Topical creams help maintain skin hydration, thereby enhancing the healing process more effectively than conventional dressings.

This review discusses recent advances, advantages, and limitations of topical creams in wound management and provides recommendations for improving cream formulations to enhance the effective delivery of therapeutic agents. Topical creams play a vital role in personalized wound care and regenerative medicine. The development of advanced wound-healing strategies is essential to reduce healing time and alleviate the financial burden on healthcare systems..

Keywords*:* Wound healing, antibacterial, curcumin, neem, tulsi, Ginkgo biloba

DOI: 10.48175/IJARSCT-30652