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Smart Nanocarriers in Dermatology: Ethosomes for Targeted Skin Treatment

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ABSTRACT: Cosmeceuticals made with biologically active chemicals that offer therapeutic benefits for a variety of skin conditions are known as cosmetics. However, ethosomes, nanoparticles, skin liposomes, solid lipid vesicles, and other forms of nanotechnology have improved the effectiveness of cosmeceutical delivery, leading to effective treatment for issues with skin penetration. Ethosomes are the most recent development in the field of cosmetic medication delivery systems to address problems like acne, skin disorders, hair loss, and skin whitening, among others. Ethosomes are a new class of nanocarriers made from phospholipids and a significant proportion of ethanol (20–45%), which gives them unique properties like flexibility, elasticity, and chemical stability. These characteristics allow ethosomes to more efficiently carry the active compounds to the skin, improving the skin's absorption of these substances. Ethosomes are a possible smart drug delivery technology for more efficient and focused skin therapy as the addition of ethanol also improves the drug carrying capacity and the site specificity of treatment administration. Several studies have shown that, in comparison to conventional medicines, the ethosomal system is the most suitable way to administer medications and cosmetics. The purpose of this study is to discuss the ethosomal system and evaluate its effectiveness as a nanocarrier for the topical administration of active ingredients. The goal has been to investigate how it might be used to treat various ailments, with a particular focus on skin issues including dermatitis, acne, psoriasis, hair loss, and anti-aging. As a whole, ethosomal systems are far more effective than hydroalcoholic solutions or traditional liposomes at delivering chemicals to the skin in both quantity and depth. In this brief study, the unique idea of ethosomes is introduced, along with several methods and techniques for using ethosomes to stimulate topical and transdermal drugs.

Keywords: Drug Delivery, Ethosomes, Cosmeceuticals, Stratum Corneum, Skin, Ethanol

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