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Formulation and Evaluation Studies of Glimepiride Loaded Niosomes

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Abstract

The management of infectious diseases and immunization has experienced a transformative change in recent years. The advent in biotechnology and genetic engineering has created a number of disease-specific biological. However the focus on successfully delivering thesebiological is a challenge. Niosomes are vesicles made of non-ionic surfactants that are biodegradable, non-toxic, more durable, and less costly. In the present work, Glimepiride-entrapped niosomes were produced utilizing an ether injection method with various cholesterol (CHOL) and Span-60 ratios (1:1, 1:2, and 1:3). In this analysis, the ether injection approach to insert Glimepiride into niosomes was investigated. In the case of ether injection process, the prepared niosomesranges from 0.662 to 1.713 μm in size. In-vitro release tests on Glimepiride niosomes displayed 98.3% release for formulations prepared with CHOL: Span-60 (1:1) and a release duration of 0 to 24 hours. It has been observed that with the increase in concentration of Span-60, the order of encapsulation quality had improved. The impact of varying non-ionic surfactant and cholesterol composition on properties such as zeta potential, drug quality, vesicle scale, and drug release were tested in an assessment analysis. Based on the findings of this study, it is possible to infer that the developed noisome formulation of Glimepiride has considerable potential in the treatment of diabetes due to its prolonged releaseprofile.

Keywords: Glimepiride, SEM, dissolution, Cholesterol, Span-60, Niosomes, In-vitro drug release.

1. Introduction

In recent years, medication distribution with a regulated rate and guided delivery has been the topic of prime research in pharmaceutical industry. The application of nanotechnology to medicine has resulted in the creation of multifunctional nano-particles that can be filled with various drugs and serve as drug carriers. Nano-carriers provide a promising path to drug distribution, with features such as drug safety from deterioration and cleavage, controlled release