



Research Article

Novel Sustainable Nanocarrier Systems for Improving Drug Efficacy

Sally A. Abou Taleb¹, Hussien O. Ammar*¹, Alia A. Badawi², Dina M. Mostafa¹

¹Department of Pharmaceutical Technology, National Research Center, Dokki, Cairo, Egypt.

²Department of Pharmaceutics, Faculty of Pharmacy, University of Cairo, Cairo, Egypt.

Abstract

The privilege of delivering the drug parenterally in an implantable nanocarrier (IN) system was compared with a previously studied transdermal nanoemulsion (NE) drug delivery system in order to enhance the drug efficacy in terms of dose, frequency and patient compliance over its oral dosage form. These nanocarrier systems were evaluated by studying their drug loading and entrapment efficiency, in vitro release and characterization including particle size and morphology, pH range and viscosity measurements. Both of these systems possessed optimum droplet size, polydispersity and viscosity with a promising release and permeation properties and characterized by their patient friendly nonirritant property due to their compatible pH values with human tissue. Such results shed a beam of light on the opportunity of the parenteral implant polymeric nanocarrier system in providing a more sustainable controlled delivery of the drug for longer periods, over two weeks, in contrast to the transdermal nanoemulsion system that can last just for certain days, noteworthy both systems helped in limiting the inconvenient drawbacks accompanied with the oral dosage form.

Key words: Parenteral route, polymers implant nanoparticles, transdermal nanoemulsion, characterization, sustained prolonged effect.

***Corresponding Author: Hussien O. Ammar**, Department of Pharmaceutical Technology, National Research Center, Dokki, Cairo, Egypt.