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Design, Optimization and Evaluation of Repaglinide Self-Nanoemulsifying Drug Delivery for Enhanced Solubility

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ABSTRACT

The aim of study was to develop self-nanoemulsifying systems of poorly water-soluble drug repaglinide, which is an antidiabetic drug in the class of medications known as meglitinides. Solubility of repaglinide in oily phases and surfactants was determined to identify components of self-nanoemulsifying drug delivery system (SNEDDS). Surfactants and oil was selected based on solubility studies were further screened for their efficiency in formulation. Acrysol K 150, Kolliphor EL and Capmul MCM were selected as oil, surfactant and co-surfactant respectively. Formulation F8 was found to be optimized formulation on the basis of in vitro dissolution studies, particle size and zeta potential. The optimized formulation was then subjected to stability studies and was found to be stable after 6 months. Thus, SNEDDS were found to be influential in improving the release performance of repaglinide, indicating their potential to improve the solubility and oral bioavailability of repaglinide.

KEYWORDS: Repaglinide; SNEDDS; Zeta potential; Kolliphor-EL; Diabetes mellitus.