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Design and Development of Solid Dispersions of Lovastatin for Solubility Enhancement

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Abstract

Solid dispersions significantly increase the rate of dissolution and bioavailability of drugs. In order to decrease the frequency of dosing, solubility and dissolving characteristics, solid dispersions of lovastatin have been developed. Solvent evaporation was utilized to generate solid dispersions of lovastatin. The prepared solid dispersion were evaluated using Fourier transform infrared (FT-IR) spectroscopy, drug content, solubility and dissolution study. The solubility of prepared formulation were increase significantly. No drug interaction between drug and excipients which were observed in FTIR and DSC spectra of solid dispersion of lovastatin. All prepared physical mixture, solid dispersion show higher solubility in *In-vitro* dissolution characterisation. Accelerated stability study suggest that no significance changes observed in the formulation during stability period. From this study, it was concluded that solid dispersion using solvent evaporation method is an effective way of enhancement of solubility, dissolution and bioavailability of poorly water soluble drugs.

Keywords: Coronary Heart Disease; Lovastatin; Solubility; Solid dispersion; Solvent evaporation; Bioavailability; Dissolution rate

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