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Influence of β - cyclodextrin complexation on lovastatin release from osmotic pump tablets (OPT)

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Abstract:

An extended-release osmotic dosage form was designed and the effect of β-cyclodextrin (BCD) inclusion complexation on the solubility of lovastatin in aqueous media was investigated. The lovastatin BCD solid systems were prepared by kneading method. The elementary osmotic pumps (EOPs) were prepared with lovastatin BCD complex with cellulose acetate (CA) and polyethylene glycol as plasticizer. The effect of the BCD molar ratio on enhancement of lovastatin dissolution rate and the influences of various parameters (e.g. drug –BCD ratio, molecular weight and amount of PVP, coating weight gain) on drug release profiles were investigated. The solubility and dissolution rates of lovastatin were significantly increased by using inclusion complexation. It was found that PVP K90 was a suitable hydrophilic polymer with thickening effect and had profoundly positive effect on drug release. The present results confirmed that dissolution rate of lovastatin BCD were greatly enhanced and this system has suitable solubility behavior in EOP tablet formulations.

Keywords:

β-Cyclodextrin ، Inclusion complex ، Elementary osmotic pump (EOP)

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