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Evaluation of chitosan-coated polysaccharide beads for stomach specific drug release of furosemide-β-cylcodextrin inclusion complex

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Research Article

Evaluation of chitosan-coated polysaccharide beads for stomach specific drug release of furosemide-β-cylcodextrin inclusion complex

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Abstract

The objective of this work was to develop a multiparticulate gastroretentive system of furosemide. Furosemide solubility was enhanced by inclusion complexation with beta cyclodextrin. Floating polysaccharide beads with sodium alginate as primary polymer and blended with hydroxypropyl methylcellulose or methylcellulose was carried out by ionic gelation method. Phase solubility studies revealed an A_L-type curve. Spherical and discrete beads in size range of 653.08±0.76 to 943.26±3.59 were observed under scanning electron microscope. The beads formulated using 20% w/w calcium carbonate demonstrated instantaneous floating up to 24 hours. The drug release sustained the release for over 8 hours and followed the first order kinetics with Fickian mechanism.

Keywords: Furosemide, Gastroretentive, Ionic gelation, Sodium alginate, Phase solubility.

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