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Effects of formulation variables on Nifedipine microspheres prepared by solvent evaporation technique

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Abstract:

Preparation and characterization of nifedipine microspheres using ethylcellulose as matrix polymer is described. Nifedipine microspheres were prepared by solvent evaporation technique. The influence of different parameters such as the effect of the concentration of internal and external phases, the amount of drug and the rate of stirring of the medium on the size distribution of microspheres were studied. The effect of drug/polymer ratio and mean particle size on the drug release pattern were also evaluated. Drug release from nifedipine microspheres was studied in a medium, which simulated the change in pH of the pathway of the microspheres from stomach to intestine. It was found that with increase in the concentration of the internal phase, the size of microspheres became larger. Increasing the amount of polyvinyl alcohol in the external phase reduced the size of microspheres. Dissolution was found to be inversely related to the pH, in a way that drug release decreased at higher pH: Drug release from microspheres with small mean particle size was faster than those with large mesh particle size and followed Higuchi model of kinetics.

Keywords:

Microspheres ، Solvent evaporation

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