FORMULATION AND CHARECTERIZATION OF FLOATING MICROSPHERS OF GABAPENTIN

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Abstract

In the present study, a gastroretentive microparticulate system of Gabapentin capable of floating on simulated gastric fluid for more than 12 hours was formulated by solvent evaporation technique. Ethyl cellulose and Cellulose acetate a biocompatible polymer was used to form microspheres of gabapentin by response surface methodology. The formulated microspheres were characterized for their micromeritic properties, surface morphology by SEM, drug-polymer compatibility studies by FTIR, in-vitro buoyancy studies, percentage drug entrapment efficiency and in-vitro drug release studies. Optimization studies were carried out by taking drug: polymer ratio and polymer: polymer in combination as independent variables and percentage yield, percentage drug entrapment efficiency and percentage buoyancy as responses using 3-level factorial design. The formulated microspheres were free flowing indicated that the microspheres were porous and almost spherical in shape. The prepared microspheres formulation had percentage drug entrapment of 93% and buoyancy of 80% with floating time up to 12 hours. In-vitro drug release studies of gabapentin microspheres showed a controlled release of 12 hours with ethyl cellulose and cellulose acetate. The data obtained in this study thus suggested that a microparticulate floating dosage form of gabapentin can be successfully designed to give controlled drug delivery and improved oral bioavailability.

Keywords: Gabapentin, floating microspheres, controlled release, gastro retentive drug delivery system.