

Development and Evaluation of Floating Gastroretentive Microspheres for Modified Release of Risperidone

Azza Ahmed Mohamed Mahmoud ,Ammar, H. O., Ghorab, M. M., Mahmoud, A. A. and Noshi, S.H.

Associate Professor of Pharmaceutical Technology

Abstract

The present work was carried out to prepare and evaluate floating microspheres of the model antipsychotic drug, risperidone, using various viscosity grades of polymers such as polyvinylpyrrolidone (PVP) and hydroxypropyl methyl cellulose (HPMC). Floating microspheres were prepared by emulsion solvent diffusion technique using Eudragit S100, compritol 888 ATO and hydroxypropyl methyl cellulose (HPMC E15 and E50) or polyvinylpyrrolidone (PVP K25, K30 and K90). The prepared formulations were examined by scanning electron microscope and were also characterized for their yield value, drug loading, floating behavior as well as in-vitro drug release pattern. Floating microspheres were found to be hollow spherical with smooth surfaces. Using high viscosity grade of HPMC in formulating floating microspheres demonstrated more pronounced increase in the microsphere yield and drug loading values and resulted in more sustained drug release as well as high buoyancy percentage value at the end of 12 hr. The formula containing 5% risperidone, 50% eudragit S100, 30% compritol 888 ATO and 15% HPMC E50 showed good balance between buoyancy and prolonged drug release over 12 hours.

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