

Formulation and *in vitro* evaluation of ketoprofen gastric floating tablet

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Background and Aims: The objective of the present investigation was to develop a floating tablet of ketoprofen to reduce its irritant effect on the stomach by avoiding direct contact with the mucosa and prolong its duration of action.

Methods: The tablets were prepared by wet granulation technique, using Ethyl cellulose (EC), sodium carboxymethyl cellulose (SCMC) and hydroxypropyl methylcellulose (HPMC K4M), as release rate modifiers either alone or in combination. Sodium bicarbonate was incorporated as a gas-generating agent. The tablets were evaluated for their floating behavior, swelling studies, in-vitro drug release in 0.1 N HCl containing Tween 20 over 12 hrs and kinetic analysis of the release data.

Results: Tablet containing HPMC K4M released approximately 99% of drug in 12 h and showed good buoyancy with very short lag time (20 s) and long floatation time of more than 24 h. HPMC demonstrated a faster rate of water uptake and greater swelling property. A rapid release was observed in the formulation prepared with EC and SCMC matrices as compared to EC and HPMC. It was found that combination of either SCMC or EC with HPMC increases release retardant effect of HPMC. Combination of EC and HPMC showed the lowest dissolution rate. Formulation containing EC showed good drug retaining abilities but floating abilities were found to be poor. The drug release from gastro retentive ketoprofen tablet is best explained by Higuchi diffusion mechanism with regression coefficient values of 0.9969.

Conclusions: It was concluded that HPMC K4M can be successfully used in the formulation of Ketoprofen sustained release floating drug delivery system.

Keywords: Ketoprofen; Gastroretentive; Floating drug delivery; Sustained release