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Development and pharmacological evaluation of floating microspheres for the treatment of peptic ulcer

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The aim of the present study was to prepare and evaluate floating microspheres consisting of (1) calcium silicate (CS) as porous carrier; (2) famotidine and (3) hydroxypropyl methylcellulose (HPMC) and ethylcellulose (EC) as polymers. The floating microspheres were evaluated for particle size, micromeritic properties, percent drug content, *in vitro* floating behavior and *in vitro* drug release. The percentage yield of formulations (FM1 to FM9) was found to be in the range of 79.51±3.71 to 93.48±0.94%. Percentage drug content of floating microspheres formulations (FM1 to FM9) was found in the range of 77.25±0.36 to 86.14±2.04%. *In vitro* Buoyancy percentage of the microspheres was found to be 97.5±1.53%. At pH 1.2, the best formulation FM4 showed maximum drug release (99.2±1.14%) at the end of 12 hr. The SEM photographs of formulation FM4 showed that the fabricated microspheres were spherical with a smooth surface and exhibited a range of sizes within each batch. The *in vivo* evaluation for the determination of pharmacokinetic parameters was performed in albino rats. Higher plasma concentration was maintained throughout the study period from the floating microspheres of famotidine. The enhanced bioavailability and elimination half-life observed in the present study may be due to the floating nature of the dosage form. The results suggested that Calcium Silicate is a useful carrier for the development of floating and sustained release preparations.

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