FORMULATION OPTIMIZATION AND EVALUATION OF EFFERVESCENT FLOATING MATRIX TABLETS OF FAMOTIDINE USING 2^3 FACTORIAL DESIGN

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ABSTRACT

This study focuses on the formulation and optimization of effervescent floating matrix tablets of famotidine, aimed at treating gastric and duodenal ulcers. Due to poor solubility at higher pH, famotidine's bioavailability is low, necessitating a floating drug delivery system to prolong gastric retention. Effervescent floating tablets were developed using 2^3 factorial design, incorporating locust bean gum, sodium bicarbonate, sodium starch glycolate and other excipients. Independent factors included the concentrations of polymer, sodium bicarbonate and sodium starch glycolate, while % drug release at 8 h and 12 h and floating lag time were the responses. Both pre- and post-compression parameters met USP standards. The tablets demonstrated excellent swelling properties, with a buoyancy lag time of < 5 minutes and total floating time exceeding 24 h. Fourier transform infrared spectra confirmed no drug-polymer interaction. The optimized formulation achieved 98.5 % drug release at 12h, establishing floating delivery serves as a better alternative for treating ulcers.