FORMULATION AND CHARACTERIZATION OF pH-INDUCED IONIC GELATION CIMETIDINE ORAL *IN SITU* GEL FOR TARGETED GASTRIC DELIVERY

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ABSTRACT

Cimetidine is an orally administered anti-ulcer medication. This study aims to develop a gastro-retentive *in situ* gel containing the drug to enhance its oral bioavailability and provide prolonged release. The gel was prepared by incorporating an emulsion into a polymeric solution, resulting in a floating *in situ* gel. The prepared solution was evaluated for pH, viscosity, drug content and *in vitro* drug release. The *in vitro* drug release studies demonstrated good drug release, ranging from 61.64% to 84.4% over 10 h. The best formulation, identified as F4, exhibited an *in vitro* drug release, of 68.64%. The correlation coefficient values from kinetic equations indicated that drug release from the formulations followed a Higuchi first-order release mechanism. The approved formulations met all the criteria for developing a gastro-retentive *in situ* gel system that gelled quickly and floated within the stomach's pH range.