

FORMULATION AND EVALUATION OF METFORMIN HYDROCHLORIDE LOADED FLOATING MICROSPHERES

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**ABSTRACT**

**Objective:** The main objective of this study was to develop and evaluate the eudragit and HPMC coated metformin hydrochloride floating microspheres, in which HPMC helps in floating and eudragit as a coating material for a site-specific drug release in a controlled manner and the active moiety metformin used as anti-hyperglycemic agent.

**Methods:** The floating microsphere was prepared by the solvent evaporation method incorporating metformin as a model drug. The prepared floating microsphere were characterized for particle size, %yield, drug loading and entrapment efficiency, compatibility study, %buoyancy, surface morphology and *In vitro* drug release and release kinetics.

**Results:** The result metformin loaded floating microsphere was successfully prepared and the particle size range from 397±23.22 to 595±15.82 µm, the entrapment efficiency range from 83.49±1.33 to 60.02±1.65% and drug loading capacity range from 14.3±0.54 to 13.31±0.47% and %buoyancy range from 85.67±0.58 to 80.67±1.15%. The FT-IR and X-RD analysis confirmed that no any interaction between drug and excipient, and surface morphology confirmed those particles are sphere. The floating microsphere show maximum 96% drug release in pH 0.1N HCL and follow the Korsmeyer peppas model of the super case-2 transport mechanism.

**Conclusion:** These results suggest that metformin loaded floating microspheres could be retain in stomach for long time and give site specific drug release in controlled manner.

**Keywords:** Floating capability, Therapeutic Response, Eudragit and Metformin