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(57) Abstract :
ABSTRACT "Innovative Gastro-Retentive Microspheres for Enhanced Nateglinide Delivery in Diabetes Management" The present invention discloses novel gastro-retentive hollow microspheres designed for the controlled release of Nateglinide, a widely used antidiabetic drug, to enhance its therapeutic efficacy in managing diabetes mellitus in patients. The microspheres are formulated using biocompatible polymers and fabricated through an emulsion solvent evaporation technique, resulting in hollow structures that exhibit buoyant properties, ensuring prolonged gastric retention. The optimized formulation demonstrates excellent encapsulation efficiency, allowing for a sustained and controlled release of Nateglinide over an extended period. In vitro dissolution studies reveal a significant improvement in the drug release profile, with a steady release of Nateglinide observed for more than 8 hours, which is crucial for maintaining stable blood glucose levels. The developed gastro-retentive hollow microspheres provide a promising strategy for improving the bioavailability of Nateglinide and enhancing patient compliance by reducing the frequency of administration, thereby offering a more effective approach to diabetes management in patients. Dated this 9th day of March, 2024 Signature: Applicant(s) Dr. Kondapuram Parameshwaret. al.

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