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(57) Abstract :

The present invention relates to the development and formulation of extended-release glipizide capsules designed to provide controlled drug release over a 24-hour period. The formulation utilizes a combination of hydrophilic polymer (HPMC K100M) and hydrophobic polymer (Ethyl Cellulose) to modulate the release rate of glipizide, ensuring sustained plasma drug levels and improved glycemic control. Wet granulation was employed to prepare uniform granules with enhanced flow and compressibility properties, ensuring consistent capsule filling. In-vitro dissolution studies demonstrated a controlled release profile, with 95% of the drug released over 24 hours. Stability studies confirmed the formulation's physical and chemical stability under accelerated conditions. The extended-release capsules offer reduced dosing frequency, minimize the risk of hypoglycemia, and enhance patient compliance, making them a promising therapeutic option for type 2 diabetes management.

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