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Targeted Delivery of Glyburide Loaded Enteric Coated Gelatin Microspheres for Effective Management of Diabetes Mellitus

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Objectives: Diabetes Mellitus is a metabolic disorder which occurs due to reduction in secretion and action of insulin within the body. Conventionally available drugdelivery system exhibits few limitations such as frequent dosing, short half-life, short bioavailability, quick enzymatic degradation in stomach, inactivation and digestion by proteolytic enzymes in the intestinal lumen. Therefore, to alleviate the drawbacks associated with conventional dosage forms, efforts have been made in the area of novel and controlled drug delivery system for oral hypoglycemic.

Methods: Glibenclamide loaded gelatin microspheres were prepared using emulsion cross-linking method. Glutaraldehyde used as a cross-linker. These microspheres were coated with EudragitL-100. The prepared microspheres evaluated for various parameters like shape and surface morphology, particle size, encapsulation efficacy, swelling index, in vitro release, and in vivo study.

Results: The in vitro release of glyburide showed a rapid initial burst release within 1 to 3 hrs, and then followed by a slow sustained drug release. In vivo study the oral administration of the glyburide loaded enteric coated gelatin microspheres show better reduction of blood glucose level was $210\pm 3.2\text{mg/dl}$, as compared with free drug was $256\pm 3.5\text{mg/dl}$.

Conclusions: Eudragit L-100 coated gelatin microspheres containing Glyburide will not only sustain the release of drug but also manage complicity of the diabetes in a better manner.