Latin American Journal of Pharmacy
(formerly *Acta Farmacéutica Bonaerense)*
Lat. Am. J. Pharm. **30** (3): 519-26 (2011)

Original Article
Received: August 2, 2010
Revised version: August 11, 2010
Accepted: August 18, 2010

Development and Evaluation of Modified Locust Bean Microparticles for Controlled Drug Delivery

D. Vishakante GOWDA *, N Vishal GUPTA, Mohammed S. KHAN & Mangla N. SINGH

Dept. of Pharmaceutics, JSS College of Pharmacy, JSS University, Sri Shivarathreeshwara Nagar, Mysore – 570015, Karnataka, India.

SUMMARY. **The objective of the present study was to minimize the unwanted toxic effects of antihypertensive drug diltiazem hydrochloride (DTZ) by kinetic control of drug release from microparticles using chemically modified locust bean gum (MLGB) as carrier by emulsification method. DTZ was entrapped into gastro resistant, biodegradable locust bean gum microparticles using emulsification method. Solid, discrete, reproducible free flowing microparticles were obtained. The yield of the microparticles was up to 95 %. More than 97 % of the isolated microparticles were of particle size range of 325 to 455 μm. The obtained angle of repose, % Carr index and tapped density values were well within the limits, indicating that prepared microparticles had smooth surface, free flowing and good packing properties. Scanning Electron Microscopy photographs and calculated sphericity factor confirms that the prepared formulations are spherical in nature. Prepared microparticles were stable and compatible, as confirmed by DSC and FT-IR studies. It was observed that there is no significant release of the drug at gastric pH. The drug release was controlled more than 12 h. Intestinal drug release from microparticles was studied and compared with the release behavior of commercially available oral formulation Cardizam® CD. The release kinetics followed different transport mechanisms.**

KEY WORDS: Microparticles, Diltiazem hydrochloride, Modified locust bean gum, Release kinetics.

* Author to whom correspondence should be addressed. *E-mail:* dvgowda4@gmail.com