Latin American Journal of Pharmacy
(formerly *Acta Farmacéutica Bonaerense)*
Lat. Am. J. Pharm. **30** (8): 1461-7 (2011)

Regular Article
Received: March 6, 2011
Revised version: March 24, 2011
Accepted: March 25, 2011

Evaluation of Physico-Mechanical Properties of Carvedilol-Cyclodextrin Agglomerates Obtained by Emulsion Solvent Diffusion Method

Amit R. TAPAS *[1], Pravin S. KAWTIKWAR [2] & Dinesh M. SAKARKAR [1]

[1] *Sudhakarrao Naik Institute of Pharmacy, Nagpur road, Pusad, Dist. Yavatmal, Maharashtra, India*
[2] *Shri Sureshdada Jain Institute of Pharmaceutical Education and Research, Jamner-424206, Dist: Jalgaon, Maharashtra, India*

SUMMARY. **Spherical crystallization (SC) is a promising alternative for improiving micromeritic properties and dissolution rate of active pharmaceutical ingredients. In the present work spherical agglomerates of carvedilol (CAR) were prepared by emulsion solvent diffusion (ESD) method using acetone, water and dichloromethane as good solvent, poor solvent and bridging liquid, respectively. Agglomerates were prepared by using β-cyclodextrin and hydroxy propyl-β-cyclodextrin as a hydrophilic polymers. The agglomerates were characterized by fourier transform infrared spectroscopy (FTIR), differential scanning calorimetry (DSC), powder X-ray diffraction (PXRD) and scanning electron microscopy (SEM) and were evaluated for flowability, solubility and drug release. CAR agglomerates exhibited significantly improved micromeritic properties, solubility as well as dissolution behaviors in comparison with pure CAR crystals. Differential scanning calorimetric and powder X-ray diffraction studies confirm that formulation process altered the crystalline nature of carvedilol.**

KEY WORDS: Carvedilol, Cyclodextrins, Spherical crystallization, Emulsion solvent diffusion method.

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