Article Type: Research Article *Received:* March 01, 2011

Dahiya S, Gupta ON. Formulation and *in vitro* evaluation of metoprolol tartrate microspheres. *Bull. Pharm. Res.* 2011;1(1):31-9.

Abstract: The aim of this study was to prepare and characterize microspheres of a highly water soluble drug metoprolol tartrate by W/O/O double emulsion solvent diffusion method using ethyl cellulose polymer. A mixed solvent system consisting of acetonitrile and dichloromethane in a 1:1 ratio, and light liquid paraffin as a primary and secondary oil phase along with span 80 as a secondary surfactant for establishing the external oil phase were employed. The microspheres obtained were found to be spherical and free flowing in nature. The prepared microspheres were characterized by particle size analysis, entrapment efficiency, scanning electron microscopy and in vitro drug release studies. It was found that mean particle size and entrapment efficiency of the microspheres were enhanced with increasing drug-polymer ratio but reduced with increasing stirring speed, processing medium and surfactant concentration. SEM studies confirmed that the formulated microspheres were spherical and uniform in shape, porous and non aggregating in nature. Among all formulations, F5 (Drug:EC::1:1) was found to be the best as it released 91.40% of the drug at the end of 8 hours following Higuchi matrix model (R^2 =0.987).

Key words: Metoptolol tartrate, Microspheres, W/O/O method, Controlled drug delivery.

References: 15 **Total Pages:** 09 **Cited by:** 07

*Author to whom correspondence should be addressed:
Mrs. Sunita Dahiya (*sunitadahiya73@rediffmail.com*)
Assistant Professor, Dept. of Pharmaceutics,
Bhopal Institute of Technology and Science - Pharmacy,
Bhojpur Road, Bhopal, Madhya Pradesh