



Preparation, Evaluation and Stability profile of Alginate based Floating Multiparticulates of Simvastatin

T.A. PREMCHANDANI & B.B. BARIK

University Department of Pharmaceutical Sciences,
Utkal University, Bhubhneswar, Orissa, India

SUMMARY. The present study involves preparation and characterization of floating multiparticulate microcapsules with Simvastatin as model drug for prolongation of gastric residence time. The main objective is to improve solubility of simvastatin β -CD complex (1:2) by co-precipitation method and then to deliver the same in sustained release dosage form. Sustained-release simvastatin microcapsules were prepared by the ionic gelation technique, using carbopol-941 as self-swelling polymer. A 3^3 Full factorial design was used to study the effect of polymer concentration, Drug complex and sodium alginate. The formed microcapsules were subjected to various evaluation tests such as drug encapsulation efficiency, *in vitro* drug release and surface morphology was studied using SEM, powdered X-Ray diffractometer and FTIR to investigate the complexation of simvastatin in the microcapsules. As carbopol 941 is self swellable polymer, immediate floating was observed. The *in vitro* release studies and floating behavior were performed in HCl buffer pH 1.2. The best fit release kinetics was achieved with first order release. The microcapsules were subjected to long term stability studies. It was concluded that porous carbopol 941 microcapsules are promising sustained release as well as stomach specific carriers for delivery of simvastatin.

KEY WORDS: Floating microcapsules, *In vitro* release, Long term stability studies, Simvastatin, Sustained drug release.

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