



Preparation, Characterization and *In-Vitro* Evaluation of Sunflower oil-Tween 80-Glycerol-based Microemulsion Formulation of a BCS Class-II Drug

Madan M. KAMILA*, Nita MONDAL, Bijan K. GUPTA & Lakshmi K. GHOSH

*Division of Pharmaceutics, Department of Pharmaceutical Technology,
Jadavpur University, Kolkata - 700 032, INDIA*

SUMMARY. The aim of the present study was to prepare, characterize and *in-vitro* evaluation of a Win-sor-IV type microemulsion based drug delivery system incorporating celecoxib as BCS class-II model drug. Attempts were made to prepare cost effective O/W microemulsion using Tween 80, Glycerol, sunflower oil and water. The existence of microemulsion zone was investigated using phase diagrams. The systems were characterized by polarized light microscopy, viscosity, refractive index, droplet size of dispersed phase by dynamic light scattering technique, thermal and centrifugal stability and the drug release profile. The obtained microemulsion was found optically isotropic with non-Newtonian behavior. The average droplet size was 100-300 nm. Microemulsions showed reversibility of transparency at ambient temperature after storage at 5 °C. The solubility enhancement of formulated products was apparent from higher release rate from microemulsion as compared to commercial product. The drug release profile was demonstrated to be promising for oral delivery of celecoxib.

KEY WORDS: Celecoxib, Dynamic light scattering, Microemulsion, Phase behavior, Tween 80.

* Author to whom correspondence should be addressed. *E-mail:* mmkamila@research.jdvu.ac.in, or mmkamila@gmail.com