

PREPARATION AND CONTROLLED RELEASE OF IBUPROFEN FROM COLLOIDAL MICROGELS

VANESSA CASTRO LOPEZ, S. L. Raghavan & M. J. Snowden
Anson Building(Room 222A), Medway Sciences, Central Avenue, Chatham Maritime,
Chatham, Kent, ME4 4TB, U.K.

Abstract

Thermally responsive hydrogels of poly(N-isopropylacrylamide) (polyNIPAM) have been reported to act as intelligent materials in controlled drug release, immobilization of enzymes and cells, and in separation of aqueous proteins. This paper presents the synthesis of temperature-sensitive aqueous microgels based on poly(NIPAM) in the presence and in absence of ibuprofen by surfactant-free emulsion polymerization (SFEP) in water. Butyl acrylate was used as a comonomer, N',N'-methylenebisacrylamide as a cross-linker and potassium persulphate as an initiator. Physico-chemical properties of the microgels were determined using dynamic light scattering, Transmission Electron Microscopy (TEM) and Scanning Electron Microscopy (SEM). Some preliminary results relating to the absorption of ibuprofen into the gels and their subsequent diffusion out of the gel matrix and across a model silicone membrane are reported.

Keywords: microgels, controlled release, ibuprofen.