Conference abstract PMS19

An Investigation into the Use of Polyox® as the Binding and Coating Agent in Fluidized-Bed Apparatus

A. STOJKOVIC, I. MASIC, J. PAROJCIC, Z. DJURIC

Department of Pharmaceutical Technology, Faculty of Pharmacy, University of Belgrade, Serbia

E-mail: sandric26@gmail.com (A. Stojkovic)

Sci Pharm. 2010; 78: 646 doi:10.3797/scipharm.cespt.8.PMS19

Purpose: The aim of this study was to investigate the possibility of using Polyox® as the binding and/or coating agent for paracetamol sustained release formulation development.

Methods: Paracetamol granules were prepared in fluidized-bed apparatus, using different ratios of Polyox® as binding agent. Granules were coated with Polyox® solution by applying the bottom spray fluidized-bed technique. Tablets were prepared by compressing coated granulates with an excenter tablet press. For comparison purposes, sample tablets were also prepared by direct compression of the homogeneous mixture of paracetamol, Polyox® and microcrystalline cellulose. In vitro release studies were performed in the paddle dissolution apparatus, using USP phosphate buffer pH 5.8.

Results: The rate of drug release from Polyox® based formulations was determined by swelling and diffusion through the gel layer formed. Dissolution study results of coated granules show that an increased Polyox® level in the formulation resulted in a markedly decreased drug release rate. Similarly, tablets made from coated granules exhibited slower and additionally decreased drug release compared to uncompressed granules [1, 2]. The in vitro dissolution rate of all the investigated granules and tablets was slower than drug release from the corresponding physical mixtures of the drug and polymer. Also, the results of dissolution studies show certain difference among the tablets made from coated and/or uncoated granulates.

Conclusion: The results obtained indicate the potential use of Polyox® polymer as the binding and coating agent in the sustained release tablet formulation.

Acknowledgement: *This work was supported by the Ministry of Science and Technological Development, Republic of Serbia project TR23015.*

[1] Maggi L, Bruni R, Conte U. High molecular weight polyethylene oxides (PEOs) as an alternative to HPMC in controlled release dosage forms. Int J Pharm. 2000; 195: 229–238. doi:10.1016/S0378-5173(99)00402-0

[2] Sentry®Polyox®-Products Regulatory Data Sheet, The Dow Chemical Company, US