

ABSTRACT

Charles University, Faculty of Pharmacy in Hradec Králové

Department of:	Department of Pharmaceutical Technology
Supervisor:	PharmDr. Petra Svačinová, Ph.D.
Consultant:	PharmDr. Tereza Vařilová
Student:	Alžběta Maueroová
Title of Thesis:	Effect of croscarmellose sodium on the properties of tablets prepared from spray-dried materiál

In this thesis, the effect of the addition of croscarmellose sodium (CMC) on the properties of the prepared tablets was investigated. CMC was added to the individual mixtures in concentrations of 1, 2, 3 and 4% (w/w). The mixtures were prepared by spray drying and contained different amount of meloxicam (MX). Tablets were compressed from these mixtures. Subsequently the disintegration time, crushing force, pycnometric density, DSC characteristics and dissolution tests were performed. The porosity and tensile strength of the tablets was further calculated from the obtained values. The results of the individual tests were compared with standard tablets without the disintegrant. According to the results obtained, the disintegration time was shortened after the addition of CMC for most of the mixtures. Furthermore, it was shown that the addition of CMC resulted in a decrease in porosity in the investigated samples. Due to the plastic deformation of CMC, the tensile strength of some samples increased after addition of CMC. However, in some samples it decreased after its addition. The dissolution testing was carried out using a USP-4 apparatus and an open system for the flow of the dissolution medium. For the dissolutions, the relative amount of released drug m_{rel} (%) and the relative dissolution rate r_{rel} (min^{-1}) were evaluated. According to the results of the measurement, it can be concluded that the presence of CMC mostly increased the release of MX from the tablets. On the contrary, it cannot be said that the amount of drug released increases with increasing concentration of CMC. Chitosan (CHIT), which was used as a carrier, also significantly affects the release of MX.