Abstract

Charles University, Faculty of Pharmacy in Hradec Králové

Department:	Pharmaceutical Technology
Student:	Jana Lamošová
Consultant:	doc. PharmDr. Jitka Mužíková, Ph.D.
Title of the Diploma Thesis:	Influence of mixing conditions of microcrystalline celluloses with lubricants on mechanical properties of tablets

The subject of the diploma thesis is to evaluate the influence of mixing conditions of three types of microcrystalline celluloses with lubricants on the mechanical properties of tablets, friability and disintegration time. The tested microcrystalline celluloses are silicified microcrystalline cellulose Prosolv® SMCC 90, microcrystalline celluloses Microcel® MC 102 and Microcel® MC 200. Lubricants magnesium stearate and sodium stearyl fumarate are used at the concentration of 1 %. Mixtures are prepared by mixing in a mixing cube or Turbula mixer at two mixing times. Tablets are prepared on Zwick/Roell material testing machine. The friability of tablets is evaluated by the pharmacopoeial method, the disintegration time by the pharmacopoeial method and the focused beam reflectance measurement method (FBRM). The highest friability values showed formulations with MCC 200, the lowest formulations with P90. The shortest disintegration times were measured for MCC 200 based on both methods, the longest for formulations with P90. The mixing cube showed a more negative effect on the mechanical properties of tablets compared to the Turbula. Magnesium stearate and mixing time of 4 minutes had more negative effect on friability and disintegration of tablets.