ABSTRACT

Diploma thesis deals with optimization of directly compressible tableting material, containing the biggest possible amount of beta-glucan and 30 mg of ascorbic acid. Five directly compressible dry binders were tested: sorbitol, microcrystalline cellulose, dibasic calcium phosphate, mixture of sorbitol and microcrystalline cellulose in the ratio 3:1 and mixture of dibasic calcium phosphate and microcrystalline cellulose in the ratio 3:1. Tested beta-glucan content was 30, 40 and 50 %. Powder flowability, bulk and tapped density of directly compressible tableting materials were tested. The evaluated parameters were tensile strength of tablets, disintegration time and friability of the compressed tablets.

Fraction of beta-glucan particles ranging from 180 to 300 μm was selected for the preparation of directly compressible tableting materials. Sorbitol (Merisorb® 200) was selected as the most optimal dry binder, magnesium stearate in concentration of 1% was used as a lubricant. Compression forces have to grow with increasing concentrations of beta-glucan, directly compressible tableting material containing 30 % of beta-glucan has optimal compression force 9 kN, tableting material containing 40 % of beta-glucan has 11 kN and tableting material containing 50 % of beta-glucan has 14 kN. Tablets made from those tableting materials, compressed with those compression forces, passed the pharmacopoeial tests for disintegration time and friability of the compressed tablets.