Abstract

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Title of the Diploma Thesis	A study of directly compressible tableting materials and tablets with chitosan.

This thesis deals with the study of compressibility of directly compressible tableting materials with chitosan, their lubricant sensitivity and tensile strength of tablets. Other components of tableting materials are sodium alginate in a concentrations of 30, 40 and 50 %, or the combinations of sodium alginate and hypromellose 15M in the ratio of 1: 1 in the same concentrations. Magnesium stearate in a concentration of 1 % is used as a lubricant. Indomethacin in a concentration of 20 % is used as a model drug. Tablets without lubricant and without drug are compressed by compression forces 4, 4,5 and 5 kN, tablets with lubricant and with drug by compression force 4 kN using the material testing equipment T1-FRO 50 Zwick/Roell. The compressibility is evaluated by the energy profile of the compression process, sensitivity to lubricants by values lubricant sensitivity ratio.

The total energy of compression increases with the compression force. It is the highest for chitosan alone. The addition of retardants decreases its values. The value of plasticity decreases with the compression force and its values are balanced. The tensile strength of the tablets is highest for chitosan alone and for its mixtures with a combination of sodium alginate and hypromellose 15M. Magnesium stearate reduces the tensile strength of the tablets, most for chitosan alone, which has the highest sensitivity to lubricant addition. The lowest lubricant sensitivity show tableting materials containing chitosan with 30 % and 40 % of a 1: 1 mixture of sodium alginate and hypromellose 15M.