Abstract

This thesis evaluates and compares compressibility of directly compressible tableting materials for the preparation of matrix tablets containing ascorbic acid. Avicel® PH 102 was used as the dry binder. The hydrophilic matrix tablets contained carbomers (Carbopol® 71G NF) or hypromellose (Methocel™ K15M) in concentration of 20 % or both in concentration of 10 % , the lipophilic matrix tablets contained glycerol dibehenate (Compritol® 888 ATO). The dual matrix tablets contained both types of retarding materials in concentration of 10 %. Sodium stearyl fumarate was used as the lubricant in concentration of 1 %. The compressibility was evaluated by means of the energy profile of the compression process and determination of tensile strength of the tablets.

The total energy of compression increased with the increase of compression force, the tableting material with 20 % of Methocel™ K15M showed the highest values. Plasticity decreased with compression force, the tableting material with 20 % of Carbopol® G and the tableting material with Methocel™ K15M showed the highest values. The tensile strength of tablets increased with compression force, the strongest tablets were the ones containing 20 % of Compritol® 888 ATO, with the exception of compression force of 8 kN. In this case the strongest tables were the tablets containing Carbopol® G. The tablets containing combination of Compritol® 888 ATO and Carbopol® G were the strongest among the tablets containing two retarders. Highest values of tensile strength were recorded while using the compression force of 6 kN and 8 kN. Using the compression force of 7 kN did not show a significant statistical difference compared to the tablets containing combination of Carbopol® G and Methocel™ K15M.