

Abstract

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Title of Thesis: Measurement of stress relaxation of mixtures of microcrystalline cellulose and calcium hydrogen phosphate intended for the preparation of tablets with theophylline

The powder mixtures with theophylline were studied from the aspect of viscoelastic properties of used materials and tablets tensile strength. In the theoretical part the thesis concerned with description of materials which were used in the mixtures. They are: Microcrystalline cellulose Comprecel 102, calcium hydrogen phosphate anhydrate Di-Cafos A150, calcium hydrogen phosphate dihydrate Di-Cafos D160 and lactose SpheroLac 100. The thesis also deals with the stress relaxation test. The stress relaxation test, its evaluation by several methods and its use in the pharmacy and in different fields are described.

The experimental part deals with viscoelastic characteristics of the mixtures. These characteristics were evaluated by stress relaxation test with maximal compression force 10 kN and dwell time 180 s. Also the tensile strength was evaluated. The highest values of parameters of elasticity A_{1-3} and plasticity P_{1-3} were measured in mixtures C, which contains Comprecel 102 and SpheroLac 100 and the lowest values were measured in mixtures A, which contains Comprecel 102 and Di-Cafos D160. Mixtures A have the highest values of tensile strength.