ABSTRACT

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Title of Thesis: Dissolution testing of tablets containing theophylline and mixtures of two types of calcium hydrogen phosphates and microcrystalline cellulose

The aim of this thesis was the dissolution testing of tablets containing theophylline, the mixture of two dicalcium phosphate types and microcrystalline cellulose. The influence of tablet composition on the dissolution profiles was evaluated. The tablets were prepared from the mixtures containing microcrystalline cellulose, dicalcium phosphate anhydrous and dihydrate. These substances were used as fillers. Prepared mixtures contained theophylline as a model active ingredient and magnesium stearate as lubricant. Afterwards, the dissolution tests were done. For these tests, the basket method was utilized. As a dissolution medium the 0,1M hydrochloric acid solution was used.

From the results of this experiment we concluded that we can influence the total amount of released theophylline and the speed of its release by the different ratio of microcrystalline cellulose and one of dicalcium phosphate types. The fastest theophylline dissolution was in tablets with high microcrystalline cellulose content. With the decreasing concentration of microcrystalline cellulose and the increasing concentration of both dicalcium phosphate types the release speed decreased. Furthermore, the total amount of released theophylline decreased. It was also found that the type of dicalcium phosphate does not influence the total released theophylline amount but it can influence its release speed.