

ABSTRACT

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Title of Diploma thesis: Dissolution of a drug from thin films based on plasticized PLGA derivatives
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The aim of the presented work was to formulate liquid systems for the formulation of *in situ* thin films (FFS) based on copolymers D,L-lactic and glycolic acid (PLGA) and to study the effect of a combination of salicylic acid and methyl salicylate in film and the effect of their various concentrations on dissolution profiles. The theoretical section summarizes the general knowledge about the characteristics, substances used to formulate FFS and methods for their testing. In the experimental section, liquid systems forming *in situ* films by solvent evaporation were prepared, based on a linear or branched PLGA polymer containing salicylic acid as a poor water soluble drug, and methyl-salicylate as a multifunctional plasticizer, at different concentrations. The solubility test of salicylic acid, methyl salicylate and their mixtures, and dissolution tests of drug and plasticizer in phosphate buffer buffer pH 5.5 at 37 °C were performed. Salicylate analysis was performed by HPLC. Based on the results, it can be stated that faster dissolution of salicylic acid and methyl salicylate was found using branched PLGA. In 24 hours, 53% of salicylic acid was released and the total release time was 5 days. The salicylic acid was released from the linear PLGA with a burst of 33% in 24 hours and the total dissolution lasted 8 days.

Key words: film forming system, PLGA, plasticizers, drug release