ABSTRACT

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Title of Thesis: Adhesivity of *in situ* PLGA films for the local drug delivery

The goal of this work was the formulation and study of the film forming systems FFS formed by poly(lactic-*co*-glycolic) acid of linear or branched structure, plasticized with methyl-salicylate, ethyl-pyruvate or ectoine, with incorporated cannabidiol. Acetone and ethyl acetate were tested as solvents. The theoretical part is focused on the characterization of FFS, their composition and testing. *In situ* films were characterized by DSC and SEM. The course of evaporation of the organic solvent from the FFS was monitored. A methodology for testing adhesion of in situ films using a tensile test on a rheometer was developed. It was found that the evaporation time of the organic solvent from FFS is influenced by both the type of solvent used and the type of plasticizer. In non-plasticized polymers, organic solvent evaporates faster than in plasticized ones. Evaporation of more than 90 % of the solvent occurs within 5 minutes. Compared to the commercial preparation Lamisil Once, the tested PLGA *in situ* films show higher adhesiveness. Significant factors affecting adhesive properties include FFS dilution and plasticizer type. SEM of the *in situ* films showed a homogeneous structure and a smooth surface without pores and structural defects. DSC confirmed that the incorporated cannabidiol is dissolved in the PLGA film.

Key words: film forming system, *in situ* film, PLGA, bioadhesion, cannabidiol, local drug application