ABSTRACT

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Title of thesis: Testing of PLGA films for local delivery of cannabidiol
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The aim of the presented work was to study film forming systems for the formation of *in situ* films (FFS). FFS based on PLGA linear or branched architecture were formulated. The polymers were plasticized with methyl salicylate (MS) or ethyl pyruvate (EP) and incorporated with cannabidiol (CBD). Ethyl acetate, acetone and isopropanol were tested as solvents. In the theoretical section, the general characteristics of the excipients used for the FFS formulation were summarized. In the experimental section, the course of evaporation of the organic solvent from FFS and the effect of the used plasticizer were monitored. The physicochemical properties of the *in situ* films were characterized using DSC, the SEM method and a tensile test on a rheometer. It was concluded that the solvent evaporation time from FFS is influenced by the used plasticizer, whereas faster solvent evaporation occurred with EP plasticization. DSC showed that the incorporated cannabidiol is dissolved in the *in situ* film and significantly plasticizes the film. The homogeneous structure of the *in situ* films was confirmed by the SEM. Excellent *in situ* adhesiveness of the films influenced by the characteristics of the film-forming PLGA used was found. The triphasic release profile of CBD from unplasticized linear PLGA was modified by using branched PLGA and plasticizing with methyl salicylate or ethyl pyruvate.

Key words: *in situ* film, cannabidiol, PLGA, SEM, adhesion testing, dissolution.