

ABSTRACT

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Title of diploma thesis: *In situ PLGA films for topical delivery of salicylates*

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The aim of this work was to formulate and characterize film-forming systems (FFS) based on branched PLGA for topical application of salicylates. Thin films were prepared by dissolving PLGA, salicylic acid (SA) and methyl salicylate (MS) in acetone. After its evaporation, the films were formed *in situ*. MS has the function of plasticizer and precursor of therapeutically active SA. The thermal properties of the films were evaluated by DSC, showing that SA is molecularly dispersed in the polymer. SEM showed a relatively smooth surface of the films without cracks. The flow and adhesive properties of the *in situ* films were evaluated at 32°C by a tensile test on a rotational rheometer. The films exhibited Newtonian behavior and excellent adhesiveness influenced by the plasticizer concentration. The release of SA from the films was tested at 32 °C in phosphate buffer pH 7.4. The initial burst release was approximately 20% at 24 hours, followed by a prolonged release over 6 days influenced by SA and MS concentration.

Key words: *in situ* film, PLGA, salicylic acid, methylsalicylate, bioadhesion