ABSTRACT

CHARLES UNIVERSITY IN PRAGUE
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Name of the student: **Klára Bílková**
Title of diploma thesis: **Influence of plastification on rheological properties of oligoester of lactic acid and glycolic acid branched with dipentaerythritole**
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The aim of this diploma thesis was the study of rheological properties of the oligoester of DL-lactic and glycolic acids branched with 1% of dipenthaerythritol (1D) and plasticized with 6 various plasticizers in increasing concentrations.

Theoretical part was devoted to fundamentals of rheology and measurements of viscosity using rotational viscometers. It describes basic types and constructions of rotational rheometers and summarizes basic facts about bioadhesion and use of rheological method for assessment of bioadhesion.

There were prepared matrices from oligoester 1D and plasticizers in concentrations of 20 %, 30 % and 40 % in the experimental part. These plasticizers were tested: ethyl pyruvate, ethyl salicylate, methyl salicylate, triacetin, tributyrin and triethyl citrate. Rheological properties were examinated at 37 °C using spindle viscometer and at 37 °C and 50 °C using rotational rheometer. Rheograms were used to characterize flow properties of tested matrices.

All plasticizers within tributyrin were miscible with the oligoester. Flow properties of plasticized oligoester were influenced by type and concentration of plasticizer. Increasing plasticizer concentrations resulted in a decrease of viscosity Ethyl pyruvate was the most effective plasticizer.