

## ABSTRACT

Charles University, Faculty of Pharmacy in Hradec Kralove

Department of Pharmaceutical Chemistry and Pharmaceutical Analysis

Candidate: Hedviga Belcáková

Supervisor: Prof. Milan Nobilis, CSc., Veronika Fidelj (Heidelberg University, Institute of Pharmacy and Molecular Biotechnology)

Diploma thesis title: HPMC-based liposomal mucoadhesive films with model peptide as target API

This thesis describes the preformulation stage of mucoadhesive films intended for liposomal peptide delivery via buccal membrane. The evaluation consisted of thickness, maximum tensile strength, strain, moisture content, *in vitro* swelling and liposome integrity measurements. The chosen polymer (hypromellose, HPMC) was found to perform optimally in concentrations of 10 % with PEG 400 (5 %) acting as plasticizer and liposome concentration of 2 %. The developed preparation method showed good reproducibility with room for improvement in the homogenization area. The choice of medium (H<sub>2</sub>O vs. PBS) showed strong influence on formulation's mechanical properties resulting in significant loss of elasticity and mucoadhesive strength. The addition of liposomes in the third stage had been carried out successfully with only occasional effect on their integrity after dissolution.