Abstract

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Title of thesis: Contribution to a study of thin layers degradation made from aliphatic polyesters

Theoretical part of the thesis is concentrated primarily on biodegradable polymer matrices. Main focus deals with linear copolymer of lactic and glycolic acid (PLGA), block copolymers with polyethylene glycols (PEG) and their usage at formulation of systems for controlled release of active substances. Another part deals with degradation of compounds of above mentioned types, their toxicity and methods of drug carrier production, preparation of particles and implants, including potential systems for wound healing and skin regeneration. The experimental study was concentrated on two degradation parameters – swelling and erosion. Three different polyesters with various molecular weight and its constitution were studied. The goal was to study the influence of actual acidity and ionic force on both parameters during 21 days period. It was proven that erosion is a parameter very little sensitive to changes of molecular weight and branching degree of copolymers. The swelling process in time had a pulsing character, number of pulses and their intensity were influenced by internal parameters of polymer matrices and also by composition of external aqueous environment.