

Abstract:

Swelling and erosion of polyesteramides with linear constitution of chain, polyesters with branched molecules and their blends were studied as two important aspects of degradation process. In theoretical part of the thesis is presented review of general aspects of biodegradation, biodegradable systems, mechanisms of drug release, biodegradable polyesters and polyesteramides usable in dosage forms formulation activities.

Experimental part of the thesis is directed to the monitoring of the volume and mass changes of pieces made from polymers and oligomers in purified water and in the aqueous buffer solutions of pH 6,0 and pH 7,0. It was concluded, that polyesteramides possessed low degree of swelling and very low rate of matrices erosion for the pharmaceutical purposes. The both properties is possible to modify by the blending of polyesteramides with polyesters with branched molecule constitution with caboxyl or hydroxyl end groups. The size of polymer sample pieces in the range of 50-1000 mg practically not influences kinetics of swelling and erosion, the liquid medium composition is more valuable factor. Buffer solutions influence swelling kinetics by the mechanism of ionisation and osmosis providing from end groups activity. Erosion course is controllable by the actual acidity changes via the mechanism of ester bonds hydrolysis.