

Abstract

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Title of Thesis: Modification of parameters of nanoparticles prepared from aliphatic hydroxyacids polyesters

Polyesters of aliphatic α -hydroxyacids are mentioned in the theoretical part. A significant part of it is mostly devoted to the polyester PLGA. Physicochemical properties, the process of biodegradation and biodistribution are described there. Subsequently, some examples of PLGA utilization in pharmacy and medicine are mentioned. The theoretical part deals also with the method of diffusion used for nanoparticles preparation, which was used in the experimental part, and the principles of size and surface charge measurements of these nanoparticles. The crucial part of this master thesis is based upon an experiment. It is focused on various approaches to the formulation of nanoparticles out of aliphatic polyester carriers with variable molecular constitution. Polymer PLGA with linear molecule and polymers containing PLGA branched on tripentaerythritol and polyacrylic acid were used. Using the diffusion method, nanoparticles were prepared out of these carriers. The outer water-based phase was modified by use of cetrimide of different concentrations before and even after the polymer solutions dispersion. Cetrimide was alternatively incorporated into the nanoparticles which formed the inner dispersive part of the phase by creating composite structures. Samples obtained by this way were assessed from granulometric and surface charge points of view.