

# ABSTRACT

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Title of Thesis: Preparation of pharmaceutical nanoparticles: optimization process

Pharmaceutical, polymer nanoparticles besides others work as well as a drug carriers. Their uniqueness is not only because of their subcellular size, but as well because of the biodegradability and biocompatibility they hold. The benefit of these nanoparticles is the possibility of creation of selective nanoparticles which are able to control long-term release. The formulation of polymer nanoparticles can be reached within methods using preformed polymer or with polymerization of monomers. The main goal of my thesis was to optimize the production process of polymer nanoparticles and the observation of the solvent influences. The methods used for this research were evaporation method and nanoprecipitation. Granulometric and electrical characteristics of particles were measured with Zetasizer ZS 90. Measurements have proved, that it is preferable to use the nanoparticle method for the preparation of the small nanoparticles with low polydispersity and sufficient stability. From the results of the granulometric analysis of nanoparticles made by the evaporation method is clear that the smaller particles provide mainly branched polymers. As the best solvent has shown the mixture of acetone with ethanol in ratio 7:3.