Abstract

The theoretical part of this diploma work is focused on the polymeric nanoparticles, their properties and advantages connected with them. There are introduced also particular types of organic and inorganic nanoparticles and methods of their preparation. The great attention was directed on biodegradable polymers in particular to poly lactic-*co*-glycolic acid, which was used in experimental part as carrier for base of terbinafine branched to tripentaerythritol. PLGA is the most suitable copolymer for practice because of good explored its physical, chemical and biological properties, methods of preparation and factors affecting degradation.

The aim of this work was to find suitable emulsifier with suitable concentration for preparation of nanoparticles containing the base of terbinafine, suitable solvent for terpolymer and optimal concentration of emulsion to reach the highest yield of terbinafine without any exceptional loss. How it was mentioned, as carrier was used terpolymer of poly lactic-*co*-glycolic acid with tripentaerythritol. As technique of preparation of nanoparticles was used emulsification by evaporating of organic solvent (solvent evaporation method).

During the experimental work we found out some of conclusions, it goes to reduce of polydispersity with increasing concentration of emulsion. When we add electrolyte to outer phase of emulsion, it goes to inactivation of emulsifier and non-appropriate agglomeration of particles. The more suitable solvent for carrier of nanoparticles is dichlormethane than ethylmethylketone. After analysis of some samples we found out, that with increasing concentration of base of terbinafine, it leads to raising of its yield but only for particles prepared from solutions with ethylmethylketone. If we use dichlormethane, yields are very low because of weak bonding between base of terbinafine and carrier.