

SUMMARY

The thesis was directed to the detailed study of the influence of preparation process on parameters of size and surface charge of nanoparticles fabricated from aliphatic polyesters. Linear poly(DL-lactic-co-glycolic acid) and terpolymer of tripenterthritol with DL-lactic acid and glycolic acid with branched molecule were used as model drug carriers. Nanoparticles were prepared by emulsion-solvent distribution and evaporation method. Ethylmethylketon and ethylacetate were effective as polyester solvents, while nanoparticles prepared from dichloromethane and ethylformate were the worst in the view of evaluated parameters. Nanoparticles prepared from methylformate and methylacetate solutions were polydisperse, because of the dual mechanism of their formation by dispersion by shear stirring and simultaneously by spontaneous turbulent efflux of solvent into the external aqueous phase. Extremely low concentrations of emulsifiers in the range from 0,025 % to 0,20 % were used. As emulsifying agents were more efficient sodiumlaurethsulfate and laurylhydroxysultain as sodiumlaurylsulfate. Changes of pH towards acid and alkaline side had not influence the characteristics of samples. Nanoparticles were consolidated very rapidly, they were stabilized in the short time interval from twenty to sixty seconds in the aspect of size and surface charge. These characteristics were evaluated during 72 hours after their preparation. The changes of the size parameters of nanoparticles were established as indications of processes of their solidification, swelling, erosion or flocculation.