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OBTAINING NANO CALCIUM PHOSPHATE/POLY(DL-LACTIDE-CO-GLYCOLIDE) COMPOSITE BIOMATERIAL BY SONOCHEMICAL DEAGGLOMERATION

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Nanoparticles have several advantages over the microparticles in interactions of the biomaterial with the organism. The response of the organism depends on the interaction of the biomaterial with the surrounding tissue and its adhesion to cells. Besides composition and morphology, the size and size distribution of the composite particles plays a key role in these phenomena.

This paper shows possibilities of synthesizing composite biomaterials calcium phosphate/poly-(dl-lactide-co-glycolide) (CP/DLPLG) formed as nanoparticles (NPs) powders. Each CP nanoparticle was coated with amorphous DLPLG polymer. In dispersion, particles can be deagglomerated by ultrasound treatment.

The size distribution of calcium phosphate coated with poly-(dl-lactide-co-glycolide) (CP/DLPLG) was obtained by dynamic light scattering (DLS). Agglomerate of CP/DLPLG was investigated by atomic force microscopy (AFM) before and after ultrasound treatment.

Results obtained at different time of ultrasound treatment showed a significant influence of ultrasound treatment on deagglomeration of powder CP/DLPLG. Fine particle fractions were found to increase time of ultrasound treatment from 30 to 120 minutes.