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Synthesis of Gelatin Nanoparticles via Simple Coacervation

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Abstract — Dynamic light scattering (DLS), Transmission electron microscopy (TEM) and Small Angle Neutron Scattering (SANS) experiments are performed on biodegradable gelatin nanoparticles for size measurements and stability analysis. Though gelatin nanoparticles were previously prepared by the desolvation method [1], the simple coacervation [2] process is being proposed as a new and simple method to prepare very small and stable nanoparticles. Gelatin nanoparticles were found to have spherical conformation by transmission electron microscopy having a typical diameter 45 ± 5 nm, which was supported by dynamic light scattering data. This is very small compared to the same reported earlier for this polypeptide (~ 200 nm). Electrophoresis measurement showed that the nanoparticles present in the supernatant are negatively charged.