

Assessing the Antimicrobial Activity of Chitosan Nanoparticles by Fluorescence-Labeling

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Abstract : Chitosan is a natural polysaccharide prepared by the N-deacetylation of chitin. In this study, the physicochemical and antibacterial properties of chitosan nanoparticles, produced by ultrasound irradiation, were evaluated. The physicochemical properties of the nanoparticles were determined by dynamic light scattering and zeta potential analysis. Chitosan nanoparticles inhibited the growth of *E. coli*. The minimum inhibitory concentration (MIC) values were lower than 0.5 mg/mL, and the minimum bactericidal concentration (MBC) values were similar or higher than MIC values. Confocal laser scanning micrographs (CLSM) were used to observe the interaction between *E. coli* suspensions mixed with FITC-labeled chitosan polymers and nanoparticles.

Keywords : chitosan nanoparticles, dynamic light scattering, zeta potential, confocal microscopy, antibacterial activity

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