

Chitosan was modified chemically with N-(5-(4-methoxy-phenyl)-furan-2-ylmethylene)-N'-phenyl-hydrazine (NMPF). The nanofibers of chitosan were obtained by in situ electrospinning and quartz crystal microbalance (QCM) methods. The structure of the modified chitosan was characterized by Fourier transform infrared spectroscopy (FTIR), X-ray photoelectron spectroscopy (XPS), and photoluminescence spectroscopy (PL) analysis. The morphology and diameter of the fibers were investigated using scanning electron microscopy (SEM). Adhesion of *Pseudomonas aeruginosa* (*P. aeruginosa*) on a nanofiber-coated electrode surface was examined as a function of time using flow-through QCM. QCM results indicate that pchito-NMPF fiber significantly decreases biofilm formation, with possibly greater contributions of NMPF. Adhesion, growth, and detachment of *P. aeruginosa* were substantially different on pchito-NMPF coatings as compared with those on uncoated quartz crystal electrode. Inhibition of cells on the surface coated with pchito-NMPF fiber was calculated to be approximately similar to 91%.