

Antibacterial Activity of Nickel Oxide Composite Films with Chitosan/Polyvinyl Chloride/Polyethylene Glycol

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Abstract : Due to the rapidly increasing biological applications and antibacterial properties of versatile chitosan composites, the effects of chitosan/polyvinyl chloride composites film were investigated. Chitosan/polyvinyl chloride films were prepared by a casting method. Polyethylene glycol (PEG) was used as a plasticizer in the blending stage of film preparation. Characterizations of films were done by Scanning Electron microscopy (SEM), Fourier transforms infrared spectroscopy (FTIR), and thermogravimetric analyzer (TGA). Chitosan composites incorporation enhanced the antibacterial activity of chitosan films against Escherichia coli and Staphylococcus aureus. The composite film produced is proposed as packaging or coating material because of its flexibility, antibacterial efficacy, and good mechanical strength.

Keywords : chitosan, polymeric nanocomposites, antibacterial activity, polymer blend

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