

عنوان مقاله:

Preparation of ZnO-Polystyrene Composite Films and Investigation of Antibacterial Properties of ZnO-Polystyrene Composite Films

محل انتشار:

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خلاصه مقاله:

Background & Objectives: Nanotechnology is one of great important part of technology. Nanoparticles can be used in different applications for industrial, medical, military and personal use. The objectives of this study were preparation of Polystyrene/ZnO nanocomposite films via a simple method and investigation of antibacterial activity of them. **Materials and Methods:** Polystyrene/ZnO nanoparticle (PS/nano-ZnO) composite films were prepared via simple method with 0, 0.1, 1 and 2.5% wt concentration of ZnO and characterized by scanning electron microscopy (SEM). The antibacterial properties of the product were investigated against *Listeria monocytogenes*, *Escherichia coli*, *Staphylococcus aureus* and *Bacillus cereus*. **Results:** The survival ratio of *L. monocytogenes*, *E. coli*, *S. aureus* and *B. cereus* decreased with increase of ZnO content on PS/nano-ZnO composite films and the best antibacterial activity was obtained with 2.5% wt ZnO-PS composite films for all bacteria. Results show the larger sensitivity of the *S. aureus* compared to other bacteria. **Conclusion:** The treated fabric with ZnO NP indicates significant improve for antibacterial properties for polystyrene fabric

کلمات کلیدی:

Anti-Bacterial Agents, Nanoparticle, Polystyrenes

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