

Effect of Various Capping Agents on Photocatalytic, Antibacterial and Antibiofilm of ZnO Nanoparticles

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Abstract : Zinc oxide nanoparticles (ZnO NPs) are extensively used in a wide variety of commercial products including sunscreen, textile and paints. The present study evaluated the effect of surface capping agents including polyethylene glycol (EG), gelatin, polyvinyl alcohol(PVA) and poly vinyl pyrrolidone(PVP) on photocatalytic activity of ZnO NPs. The particles were also tested for its antibacterial and antibiofilm activity against Staphylococcus aureus (MTCC 3160) and Pseudomonas aeruginosa (MTCC 1688). Preliminary characterization was done by UV-Visible spectroscopy. Electron microscopic analysis showed that the particles were hexagonal in shape. The hydrodynamic size distribution was analyzed by using dynamic light scattering method and crystalline nature was determined by X-Ray diffraction method.

Keywords : antibacterial, antibiofilm, capping agents, photodegradation, surface coating, zinc oxide nanoparticles

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