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Highly synergistic antimicrobial activity of spherical and flower-like hierarchical titanium dioxide/silver composites

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ABSTRACT:

A spherical titanium dioxide/silver (TiO₂/Ag) composite and a flower-like hierarchical TiO₂/Ag composite were prepared *via* a template-induced method and a solvothermal method based on the Ag/Carbon spheres templates followed by calcination treatment, respectively. The morphologies of the composites were controlled by changing the concentration of reactants and calcination temperature. The antibacterial efficiency of the composites was evaluated with both Gram-negative *Escherichia coli* and Gram-positive *Staphylococcus aureus*, respectively. The minimal inhibitory concentration, morphological evolution of bacteria and fluorescent-based cell wall/membrane integrity were assayed. The synergistic effects of reactive oxygen

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