

Antibacterial activity of silver nanoparticles prepared by the chemical reduction method

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The silver nanoparticles were obtained by chemical reduction of silver nitrate in water with sodium borohydride (NaBH₄) in the presence of SDS (sodium dodecyl sulfate) as a stabilizer. The synthesized silver nanoparticles were characterized by UV-vis spectroscopy (UV-vis) and transmission electron microscopy (TEM). The formation of silver nanoparticles was confirmed from the appearance of surface plasmon absorption maxima at 400 nm by UV-vis. TEM showed the spherical nanoparticles with size in 10–20 nm. The antibacterial activity of silver nanoparticles was tested using Gram-positive *Staphylococcus aureus* (*S. aureus*) and Gram-negative *Escherichia coli* (*E. coli*). The silver nanoparticles, whose bacterial activity was dependent on the aggregation degree between particles, exhibited bacterial activity against *S. aureus* and *E. coli*.