

Antimicrobial Activity of Biosynthesized Silver Nanoparticles with Handroanthus Chrysanthus Flower Extract

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Abstract : The synthesis and application of metallic nanoparticles have increased in recent years. Biological methods go beyond the chemical and physical synthesis that is expensive and not friendly to the environment. Therefore, in this study, silver nanoparticles were synthesized biologically in an environmentally friendly way by Handroanthus chrysanthus flower aqueous extract (AgNPs) that contains phytochemicals capable of reducing silver nitrate. AgNPs were characterized visually by UV-visible spectroscopy and TEM. The antimicrobial activity of the AgNPs was tested by determining the minimum inhibitory concentration (MIC), and minimal bactericidal concentration (MBC) in Escherichia coli and Staphylococcus aureus strains. AgNPs showed potent antimicrobial activity against gram-negative and gram-positive bacteria. MIC and MBC values were as low as 41.6, and 83.2 ug/mL using AgNPs biosynthesized by H. chrysanthus flower extract. This nanoparticle could be the basis for the formulation of disinfectants for use in the food and pharmaceutical industry.

Keywords : antimicrobial, silver nanoparticles, flower extract, Handroanthus

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