

SILVER NANOPARTICLES SYNTHESIZED USING *LANTANA CAMARA* FLOWER EXTRACT BY REFLUX, MICROWAVE AND ULTRASOUND METHODS

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Abstract. Green synthesis of silver nanoparticles (AgNPs) using *Lantana camara* yellow flower extract via microwave irradiation and ultrasound methods was accomplished. The research was aimed at evaluating the effect of the synthesis method and of the treatment time during synthesis on the particle size and antioxidant and antibacterial activities of the AgNPs. Analysis of the nanoparticles was performed using UV-Vis spectroscopy, transmission electron microscope (TEM), particle size analyzer, and Fourier transform infrared spectroscopy (FTIR). The antioxidant activity of the nanoparticles was determined using the radical scavenging (DPPH) assay, while the antibacterial activity was evaluated against *Escherichia coli* and *Staphylococcus aureus*. The nanoparticles enhanced antioxidant and antibacterial properties compared to the plant extract. The present results support the advantages of the green method for the production of nanoparticles for further potential applications.

Keywords: silver nanoparticle, green synthesis, *Lantana camara*, microwave, ultrasound.

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