

**Green synthesis of silver nanoparticles and its activity against drug resistant bacterial isolates.**

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**ABSTRACT**

Plant mediated synthesis of silver nanoparticles is an increasing commercial demand in medicine due to its inhibitory activity on microbes. The emergence of multidrug resistant organisms raises the problem of untreated bacterial infections. To overcome the problem of antibiotic resistance use of silver nanoparticles synthesized from plants could be an alternate for therapeutic purpose. To determine the antibacterial potential of silver nanoparticles (AgNPs), synthesized from leaf extract against various drug resistant clinical isolates and to compare the antibacterial activity of AgNPs with that of crude methanolic leaf extract of *L.tetraphylla*. Silver nanoparticles were synthesized by a simple procedure using leaf extract as the reducing agent. The nature of AgNPs were analysed by UV-Vis spectroscopy. X-ray diffraction and Scanning Electron Microscopy (SEM). Bacteriological tests were performed in Muller Hinton Agar medium by well diffusion method to compare the antibacterial potential of synthesized AgNPs with that of crude methanolic leaf extract. The synthesized silver nanoparticles (AgNPs) from aqueous leaf extract with an average size of 30nm was spherical in nature and polydispersed. The AgNPs synthesized at 30-50µg significantly inhibited bacterial growth against Methicillin resistant *Staphylococcus aureus* (MRSA), Extended spectrum beta lactamase producing *Escherichia coli*, Metallo beta lactamase producing *Pseudomonas aeruginosa* and *Acinetobacter* species. The crude methanolic leaf extract inhibited the growth of only ESBL *E.coli* at 1mg. The silver nanoparticles (AgNPs) synthesized by aqueous leaf extract may be a good alternative to antibiotics in controlling infections caused by drug resistant isolates.