BIOSYNTHESIS OF SILVER NANOPARTICLES USING VITIS VINIFERA EXTRACT AND EVALUATION OF THEIR ANTIMICROBIAL ACTIVITY

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ABSTRACT

In the present investigation, synthesis of silver nanoparticles from *Vitis vinifera* extract and their bactericidal potential against four pathogenic bacteria was investigated. In this study, we have developed an environment friendly technique for the green synthesis of silver nanoparticles from $AgNO_3$ solution using *Vitis vinifera* extract. Silver Nanoparticles were characterized using UV–Visible spectroscopy whose absorbance measured at 440nm followed by Dynamic light scattering particle size analyser, X-ray Diffraction and Scanning Electron Microscopy showed the formation of nanoparticles in the range of 10-80nm. The biologically synthesized nanoparticles at concentration of 0, 20, 40, 60, 80 µg/ml were screened against two gram-positive (*Bacillus subtilis* ATCC-6633 and *Streptococcus pneumonia* ATCC 49619) and two gram-negative (*Escherichia coli* ATCC-25922 and *Pseudomonas aeruginosa* ATCC-27853) bacterial pathogens in both solid and liquid growth medium. The results confirmed that silver nanoparticles to be an effective bactericide at the concentration 60 µg/ml against pathogenic bacteria.

KEYWORDS: Nanoparticles, Silver; Green synthesis, Bacteria, Bactericide