



## Medicinal Plant Mediated Synthesis of Silver Nanoparticles and their Antibacterial Efficacy

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Received : November 2014  
Accepted : March 2015  
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**Abstract :** An environmental friendly approach is employed to synthesize silver nanoparticles. The biomolecules found in plants induce the reduction of Ag<sup>+</sup> ions from silver nitrate to silver nanoparticles (AgNPs). In the present study, the extract of dried leaf powder of medicinal plant *Phyllanthus niruri* is used to synthesize silver nanoparticles. UV-visible spectrum of the aqueous medium containing silver ions demonstrated a peak at 423nm corresponding to the plasmon absorbance of silver nanoparticles. Scanning electron microscope analysis

showed different sizes of agglomerated AgNPs. In the colloidal matrix the AgNPs are spherical in shape. AgNPs produced showed good antimicrobial activity against *Escherichia coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa* and *Staphylococcus aureus*.

**Key words:** *Phyllanthus niruri*, silver nanoparticles, UV-Vis spectroscopy, Scanning electron microscope.

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### Introduction :

Nanotechnology is emerging as a rapidly growing field with its applications in science and technology for the purpose of manufacturing new materials at the nanoscale. (Albrecht *et al.*, 2006) It involves the study of structure at 1 to 100 nanometers (nm) which possess novel properties and functions attributable to their small size. These nanomaterials may provide solution to technological and environmental challenges in the areas of solar energy conversion, catalysis, medicine and water treatment (Sharma *et al.*, 2009). Different types of nanomaterials like copper, zinc, titanium, magnesium, gold and silver have