

Antibacterial Activity of Silver Nanoparticles of Extract of Leaf of *Nauclea latifolia* (Sm.) against Some Selected Clinical Isolates

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Abstract : *Nauclea latifolia* is one of the medicinal plants used in traditional Nigerian medicine in the treatment of various diseases such as fever, toothaches, malaria, diarrhea among several other conditions. *Nauclea latifolia* leaf extract acts as a capping and reducing agent in the formation of silver nanoparticles. Silver nanoparticles (AgNPs) were synthesized using a combination of aqueous extract of *Nauclea latifolia* and 1mM of silver nitrate (AgNO₃) solution to obtain concentrations of 100mg/ml-400mg/ml. Characterization of the particles was done by UV-Vis spectroscopy and Fourier transform infrared (FTIR). In this study, aqueous as well as ethanolic extract of leaf of *Nauclea latifolia* were investigated for antibacterial activity using the standard agar well diffusion technique against three clinical isolates (*Escherichia coli*, *Staphylococcus aureus*, and *Pseudomonas aeruginosa*). The Minimum Inhibitory Concentration (MIC) was achieved by microbroth dilution method and Minimum Bactericidal Concentration (MBC) was also determined by plate assay. Characterization by UV-visible spectrometry revealed peak absorbance of 0.463 at 450.0nm, while FTIR showed the presence of two functional groups. At 400mg/ml, the highest inhibitory activities were observed with *S.aureus* and *E.coli* with zones of inhibition measuring 20mm and 18mm respectively. The MIC was obtained at 400mg/ml while MBC was at a higher concentration. The data from this study indicate the potential of silver nanoparticle of *Nauclea latifolia* as a suitable alternative antibacterial agent for incorporation into orthodox medicine in health care delivery in Nigeria.

Keywords : agar well diffusion, antimicrobial activity, *Nauclea latifolia*, silver nanoparticles

Conference Title : ICNST 2017 : International Conference on Nanopharmaceutical Sciences and Technologies

Conference Location : New York, United States

Conference Dates : October 05-06, 2017