ABSTRACT

In the present study leaves of *Centella asiatica* were used for the synthesis of silver Nanoparticles. Four different extracts were obtained from the plant using different solvents. The biosynthesis of Nanoparticles was optimized by using 1g and 5g powder of leaves treated with 0.5mMol solution of silver nitrate. The characterization of synthesized silver Nanoparticles was done by using UV- visible spectroscopy, XRD, FTIR and SEM. The synthesized Nanoparticles were also impregnated in soap prepared by cold method. The green synthesized Nanoparticles and solvent extract were also subjected for antibacterial activities against a skin pathogenic bacteria strains i.e. *Bacillus subtilis*, *Klebsiella pneumonia*, *Escherichia coli* and *Staphylococcus aureus* by using agar well diffusion method.

UV-visible spectroscopy displayed maximum peak value of AgNPs and reaction mixture at 280nm. X-ray Diffraction showed in crystalline nature. FTIR analysis confirms the presence of biocomopnent in the leaves of *Centella asiatica* which are responsible for the Nanoparticles synthesis. The synthesized Nanoparticles displayed as spherical structure, cubic in shape and size ranging showed 1µm to 500nm of both samples by SEM. The maximum ZOI showed by 1g AgNPs against by *Klebsiella pneumonia* at concentration of 500µg/ml was 1.675±0.170 while ZOI showed by *Escherichia coli* at concentration of 1500µg/ml was 1.5±0.081.

The present study reveals the efficacy of *Centella asiatica* derived green synthesized AgNPs and its applications an antibacterial agent in industry like medicines and cleaning agents. The potential biological uses of silver Nanoparticles are increased by this environment friendly technique.