

ABSTRACT

Argon atmospheric pressure DC microplasma was employed for the synthesis of silver nanoparticles in liquid containing silver nitrate and fructose. Metal cations Ag^+ were reduced via energetic species and electrons from microplasma to form silver nanoparticles. Fructose was used to prevent the agglomeration and control size and dispersion of silver nanoparticles. The synthesized nanoparticles were characterized using Optical Emission Spectroscopy (OES), Scanning Electron Microscope (SEM), UV-Visible Spectroscopy, X-Ray Diffraction (XRD), Fourier Transform Infrared Spectroscopy (FTIR) and Well Diffusion Method. The effect of fructose concentration was observed on the size and dispersion of silver nanoparticles. The antibacterial as well as antifungal activity of silver nanoparticles was also determined. The outcomes indicated that the variation of fructose concentration resulted in signification change in size and dispersion of silver nanoparticles. Antibacterial and antifungal action demonstrated that silver nanoparticles with small sizes and larger surface areas acted considerably against bacteria and fungus.