ABSTRACT

Nanotechnology has emerged as an advanced field of study having potential applications in almost every field of life including gene delivery, biomedical, tissue engineering and food industry. The present study was designed to produce gold nanoparticles (AuNPs) using biological agents i.e. *Bacillus subtilis.* Gold nanoparticles formed on the bacterial surface were observed to be spherical in shape. UV-Vis spectroscopy, Fourier Transform InfraRed (FTIR), X-Ray Diffraction (XRD) and Scanning Electron Microscopy (SEM) were used to characterize nanoparticles produced. UV-Vis Analysis suggested the presence of AuNPs in media by giving a peak at 534 nm. Peaks at 1115.70 cm^{-1}, 1403.03 cm^{-1} and 1640.38 cm^{-1} in FTIR spectrum were recorded to be of AuNPs. SEM and XRD analyses suggested the nanoparticles' size to be of an average of 31.5 nm which were in cluster form.