**Abstract**

 Improvement of green route for the synthesis of silver nanoparticles with plant extracts plays a very important role in nanotechnology without any harmful chemicals. The present investigation demonstrates the synthesis of silver nanoparticles by treating silver nitrate with Graviola leaf extract at room temperature.The effect of the extract on the formation of silver nanoparticles was characterized by UV-Vis spectrum, Fourier transform infrared spectroscopy (FT-IR), X-ray diffraction (XRD) and Scanning electron microscopic (SEM) analysis. The UV-Vis spectra results show a strong resonance centered on the surface of silver nanoparticles (AgNPs) at 400-450 nm. The Fourier transformation infrared spectroscopy spectral study demonstrates Graviola leaf aqueous extract acted as the reducing and stabilizing agent during the synthesis of silver nanoparticles. XRD and SEM studies revealed that the synthesized silver nanoparticles shows spherical in shape with average particles size around 30-70 nm.