

ABSTRACT

The aim of present study was to assess the microbicidal potential of glucuronoxylan mediated silver nanoparticles. Silver ions penetrate inside the cell walls of microbial species and inhibit vital extracellular as well as the intracellular activities, therefore, they present a broad range of antimicrobial activity.

The reaction involves the sonochemical reduction of silver nitrate in the presence of natural polysaccharide i.e., glucuronoxylan, extracted from seeds of *Cydonia oblonga* which tend to reduce the silver nitrate into silver ions.

By using green sonochemical method, GX-AgNPs were synthesized which was depicted by reddish brown colour of the solution over a certain period of time. The as fabricated GX-AgNPs were characterized by UV/Visible spectroscopy, Fourier Transform Infrared Spectroscopy (FTIR) and X-ray Diffraction (XRD).

The GX-AgNPs were then evaluated for their antibacterial efficacy against *Escherichia coli* and *Bacillus licheniformes* by agar well diffusion method. Zone of inhibition for *E. coli* were 4.1, 5.2 and 4.6 mm and for *B. licheniformes* were 2.3, 2.0 and 2.7 mm, respectively.

It is concluded that GX-AgNPs can be used as ecofriendly and economical antibacterial agents.