Green synthesis of silver nanoparticles using Thermophilic Fungi and its characterisation.

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Abstract

In the developing world nanotechnology became an efficient method in the therapeutics, antimicrobials, diagnostics, catalysis, micro-electronics and high sensitivity biomolecular detection. As the chemical methods of synthesizing nanoparticles are environmentally risky, costly and toxic, in the present study we focused on production, characterisation and catalytic activity of silver nanoparticles [AgNPs] by eco friendly, extra cellular biosynthetic method using thermophillic fungi. Thermophillic fungi were isolated from different substrates by employing dilution plate technique. Nanoparticles were synthesised from $AgNO_3$ by using reducing agents from extracellularly secreted compounds by thermophillic fungi. Synthesis of colloidal AgNPs was monitored by UV-Visible spectroscopy. The UV-Visible spectrum showed a peak near 419 nm corresponding to the Plasmon absorbance of the AgNPs. The characterization of the AgNPs such as their size and shape was performed by Scanning Electron Microscopy (SEM) technique which indicated a size range of below 100 nm.

Keywords: Nanoparticles, thermotolerant, Eco Friendly.