



In vitro cytotoxic effect of *Aspergillus clavatus* generated silver nanoparticles on RAW 264.7 cells

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Abstract

Aspergillus clavatus (A. clavatus) was utilized for the synthesis of silver nanoparticles (AgNPs) isolated from the soil. . About one (1) mM silver nitrate (AgNO_3) was gradually added to the aqueous extract of A. clavatus, the colour of the extract becomes dark brown indicates the AgNPs formation. The UV -Vis spectrophotometry showed the lambda max ($-\lambda_{\text{max}}$) at 430 nm. Fourier-transform infrared spectroscopy (FTIR) results revealed the peaks at 3221.40 cm N-H symmetric amide, 1645.78 NH bend amine, 1557.02 N-H bend amide groups are associated with AgNPs. The powder form of AgNPs was recorded for X-ray diffraction (XRD) confirms the crystalline nature of AgNPs. Energy dispersive X-rays (EDX) showed the presence of silver, while zeta potential (ζ -potential) -65mV value confirms AgNPs are stable. Transmission electron microscopy (TEM) revealed AgNPs size ranges from 23.65 to 36.99 nm and is spherical in shape, showing no agglomeration. For cytotoxic effect AgNPs showed IC50 value at 125 $\mu\text{g}/\text{ml}$ against RAW cells through MTT assay.

Keywords

Aspergillus clavatus, X-ray diffraction, Transmission electron microscopy, Cytotoxic effect

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