

Antifungal Activity of Silver Colloidal Nanoparticles against Phytopathogenic Fungus (*Phomopsis* sp.) in Soybean Seeds

Authors : J. E. Mendes, L. Abrunhosa, J. A. Teixeira, E. R. de Camargo, C. P. de Souza, J. D. C. Pessoa

Abstract : Among the many promising nanomaterials with antifungal properties, metal nanoparticles (silver nanoparticles) stand out due to their high chemical activity. Therefore, the aim of this study was to evaluate the effect of silver nanoparticles (AgNPs) against *Phomopsis* sp. AgNPs were synthesized by silver nitrate reduction with sodium citrate and stabilized with ammonia. The synthesized AgNPs have further been characterized by UV/Visible spectroscopy, Biophysical techniques like Dynamic light scattering (DLS) and Scanning Electron Microscopy (SEM). The average diameter of the prepared silver colloidal nanoparticles was about 52 nm. Absolute inhibitions (100%) were observed on treated with a 270 and 540 $\mu\text{g ml}^{-1}$ concentration of AgNPs. The results from the study of the AgNPs antifungal effect are significant and suggest that the synthesized silver nanoparticles may have an advantage compared with conventional fungicides.

Keywords : antifungal activity, *Phomopsis* sp., seeds, silver nanoparticles, soybean

Conference Title : ICABBBE 2014 : International Conference on Agricultural, Biotechnology, Biological and Biosystems Engineering

Conference Location : Los Angeles, United States

Conference Dates : September 29-30, 2014