



Silver Nanoparticles for Pest Control: A Bio-Nanopesticide Approach

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ABSTRACT: Nanotechnology is an interdisciplinary science deals with the synthesis and application of nanoparticles. The synthesis of metal nanoparticles came in to light due to wide range of applications in different fields. Biosynthesis of silver nanoparticles by plant extracts is a cost effective, eco-friendly and less time consuming process where the secondary metabolites present in the plant extracts acts as reducing and stabilizing agents of silver nanoparticles. In this study, the silver nanoparticles (AgNPs) have been synthesized using the aqueous leaf extract of Castor plant. The results were obtained using a UV-Visible spectrophotometer, and the images were recorded with a transmission electron microscope (TEM). The synthesized AgNPs were spherical in shape and varied sizes. The synthesized AgNPs have been tested as pesticides against the agriculture pest *Helicoverpa armigera*. The efficacy tests were performed at different concentrations of AgNPs against the larval stages of *H. armigera*. The mortality was recorded after different time intervals (1-6 days). The 1st and 2nd instar larva has shown the 50-80%, 3rd instar 50-70%, 4th instar 40-60%, 5th instar 50-70% and 6th instar 70-90% mortality. This study focussed on the cost effective and eco-friendly bio-nanoapproach towards the pest control. In future, the AgNPs will be tested for field trials. © 2016 iGlobal Research and Publishing Foundation. All rights reserved.

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