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Biogenic synthesis of silver nanoparticles by *Bacillus thuringiensis* against dengue vector larvae

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The metallic nanoparticles synthesis includes top-down and bottom-up method by means of chemical, physical and biological approach. The biosynthesis of silver nanoparticles is classified under bottom-up approach. Silver nanoparticles have the distinctive characteristics of anticancer, antimicrobial, catalytic and larvicidal activities. The *Bacillus thuringiensis israelensis* (Bti) have larvicidal activities against mosquitoes. So, the bacterial spore mixture is used for biosynthesis of silver nanoparticles. Nano particles were characterized using UV-Vis absorption spectroscopy for the confirmation of nano particles. XRD and SEM were used for the analysis of size and structure. The particle sizes were measured through SEM imaging ranging from 40 to 144.9 nm. The Bt-Ag NPs have mixed cubic and hexagonal structures. Interestingly, the mortality induced by Bt-AgNPs was comparatively high than that of the control against third instar larvae of *A. aegypti* (LC_{50} 0.01 ppm and LC_{90} 0.5 ppm) in all the tested concentrations, viz. 0.01, 0.05, 0.1, 0.5, and 1 ppm. Hence, the Bti-AgNPs nanoparticles would be significantly used as larvicidal against dengue vector mosquitoes *Aedes aegypti*.

Biography

Romana Shahzadi is currently pursuing her PhD from University of Punjab, Lahore. She worked as Research Associate (2014-2016) at Centre for Environmental Protection Studies, Pakistan Council of Scientific and Industrial Research Labs, Lahore. She has completed her MPhil in Plant Genomics and Biotechnology from Agriculture University of Peshawar.

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