

Modulating the phytotoxic effects of Ag NPs using BSA

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The widespread use of silver nanoparticles in consumer products has resulted in the release of these particles into aquatic, terrestrial, and atmospheric environments where their fate and behavior are largely unknown. In present study the environmental toxicity of procured Ag NPs and its equivalent Ag ion concentrations were tested on three plant systems – *Lycopersicum esculentum*, *Cucumis sativus* and *Zea mays*. *L. esculentum* was found to be more sensitive to the treatments than other plant systems. Our results showed that Ag NPs (20 mg L^{-1}) exhibited more toxicity than its equivalent ion concentration by inhibiting root length and germination in a concentration dependent manner. Interestingly, the interaction of these particles with a model protein BSA was able to reduce the toxic effects induced by the particles. Thus these findings suggest that interactions with biogenic/biomolecules/natural organic matter in environment may decrease the phytotoxicity effects of Ag NPs. Hence the environmental toxicity of NPs cannot be predicted from tests with bare NPs, but the various environmental interactions that can modulate the toxicity of the particles should also be taken into account.

Biography

Aswathy. Ravindran has completed her Ph.D from VIT University in 2011, and is currently working as Assistant Professor Research at SASTRA University, Thanjavur, India. She has published 6 papers in reputed International journals.

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