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### Synthesis and characterization of green nanoparticles and their effect on seed germination

Sudipta Panja, Kalyani Khanra, Indranil Choudhuri and Nandan Bhattacharyya  
Panskura Banamali College, India

Green synthesized nanoparticles have biomedical application such as targeted drug delivery, cancer therapy, biosensor, cell imaging, larvicidal activity and antimicrobial activity. The biologically synthesized nanoparticle is less toxic than chemical synthesized due to the toxic chemical may be absorbed on the surface of chemically synthesized nanoparticle. We synthesized silver nanoparticles by hydrothermal process from the leaf extract of *Cryptolepis buchanani*, *Ehretia laevis* Roxb, *Rauvolfia serpentina* Benth and from stem of *Cryptolepis buchanani*. The biophysical characterization of the nanoparticle was done by using UV-Visible spectroscopy, SEM, TEM, XRD and FTIR analysis. The larvicidal activity was performed against *Aedes aegypti* larvae. The cytotoxicity of the nanoparticles was studied by MTT assay using MCF7 and HeLa cell lines and five different concentrations of nanoparticles. The effect of the nanoparticle on seed germination was also studied by using *Lens culinaris*. The nanoparticles synthesised from *Rauvolfia serpentina* shows most effectiveness in larvicidal activity. In MTT assay the nanoparticle synthesized from leaves of *Cryptolepis buchanani* and *Ehretia laevis* shows biphasic curve in MCF7 and HeLa cell line respectively. All the nanoparticles show positive effect in germination and rooting and shooting of the seedling. The cytotoxicity study on selective cancer cells may lead to therapeutic use as anticancer agent. It may also effect on breaking of seed dormancy. Further studies are needed to confirm and to determine the mechanisms.

#### Biography

Sudipta Panja is a Junior Research Fellow in a DBT GOI sponsored project. He has also registered for PhD degree under Vidyasagar University.

[sudipta80@yahoo.co.in](mailto:sudipta80@yahoo.co.in)

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