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Green synthesized silver nanoparticles (AgNP) of nano dimensions (1.5nm-15nm) eliminate bacterial and fungal contamination in tissue culture of Capparis decidua (FORSK.) Edgew

Jyoti Ahlawat and Anita R Sehrawat
Maharishi Dayanand University Rohtak, India

Silver nanoparticles were synthesized using fruit extract of *Capparis decidua* as a reducing agent (cost effective and eco friendly approach) and Characterized by UV-Vis spectroscopy (462 nm absorbance) and Transmission Electron microscopy (size 1.5 – 15nm). The explants of *Capparis decidua* were treated with the AgNP solution (1.5-15nm) by soaking directly in three different concentrations of nanoparticle solution or by exposing to the nanoparticles in the medium and decontamination as well as the survival rate was determined. Soaking experiment has 3 different concentrations viz., 100mg/L, 300mg/L and 500mg/L and controlled by 0.1% mercuric chloride treatment. Whereas for media supplementation experiment four different concentrations viz., 50mg/L, 100mg/L, 300mg/L and 500mg/L were used and controlled by 70% ethanol treatment. The results of the soaking experiment were very encouraging as far decontamination was concerned; however the survival was compromised except when soaked in 100mg/L for 20 or 30 minutes.The results of the media suplementation experiment revealed that at 150mg/L of AgNPs the decontamination was 90.2% for bacteria and 94.4% for fungal contamination with 80.5% survival. Further increase in the concentrations led to 100% decontamination of bacteria and 98.6% of fungus. However, the survival rate decreased to 68.5. The high rate of decontamination may be attributed to the minute size of nanoparticles that may diffuse easily into the tissues. The findings recommend that the lower concentrations of AgNP, being innocous to plant growth factors may be considered as a successful replacement to antibiotics and toxic substances as a decontaminating agent in tissue culture process.

Biography

Jyoti Ahlawat is Research Scholar at Department of Botany, Maharishi Dayanand University, Rohtak, Haryana, INDIA. She is pursuing Ph.D. registered in Oct'13 in Plant Biotechnology and in process of Thesis finalisation & submission. she has published three papers as first author and one book chapter as secondary author in reputed journals. Three papers are under communication. She has presented 11 posters overall ,7 posters in National and 4 in International conferences related to research work.

anitarsehrawat@gmail.com