

# Molecular insights to alkaline based bio-fabrication of silver nanoparticles for inverse cytotoxicity and enhanced antibacterial activity

Verma, Suresh K.

Jha, Ealisha

Panda, Pritam Kumar

Thirumurugan, Arun

Patro, Shubhransu

Parashar, S. K.S.

Suar, Mrutyunjay

© 2018 Elsevier B.V. High demand for silver nanoparticles due to their extensive applications in different field has raised need of eco-friendly green synthesis with determined biomedical effects. This study proposes a novel rapid controlled alkaline based green synthesis of antibacterial silver nanoparticles from *Calotropis gigantea* for reduced cytotoxic effects. Silver nanoparticles termed as FAg, FAg1N, and FAg5N were synthesized with the help of floral extract of *Calotropis gigantea* as reducing and capping agent in presence of UV light and NaOH for catalysis and were characterized for their physiochemical properties by FESEM, DLS, UV-Visible spectrophotometry and FTIR. Facile synthesized Silver nanoparticles FAg1N and FAg5N showed enhanced antibacterial effects than FAg with increased NaOH concentration. Cytotoxic effect was found to be reduced at optimized alkaline conditioned FAg1N than FAg and FAg5N. Molecular dynamics study depicted the significant role of configurational chang