

# Synthesis and Characterization of Silver Nanoparticles and its Antibacterial Study

Dipak Koirala, Ramesh Sapkota and Surendra K. Gautam\*

*Department of Chemistry, Tri-Chandra Multiple Campus, Tribhuvan University,  
Kathmandu, Nepal*

\*E-mail: [sgautam2055@gmail.com](mailto:sgautam2055@gmail.com)

The synthesis of silver NPs was carried out by chemical reduction route using silver nitrate as precursor source, sodium borohydride as reducing agent and SDS as stabilizer. The synthesized NPs were structurally characterized by XRD and TEM. XRD showed face centered cubic structure. Furthermore, XRD result revealed the increase in average particle size with increase in concentration of the silver nitrate solution. The XRD results were in consistent with TEM images. Ag Nps showed good antibacterial activity against gram negative bacteria indicating it as an excellent antibacterial agent.

**Keywords:** *Silver NPs, Chemical Reduction, XRD, TEM, Antibacterial activity.*