

## One Step Green Synthesis of Silver Nanoparticles and Their Biological Activity

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**Abstract :** In situ and green synthesis of cubic and spherical silver nanoparticles were developed using sun light as reducing agent in the presence of newly prepared cationic surfactant which acting as capping agents. The morphology of prepared silver nanoparticle was estimated by transmission electron microscope (TEM) and the size distribution determined by dynamic light scattering (DLS). The hydrophobic chain length of the prepared surfactant effect on the stability of the prepared silver nanoparticles as clear from zeta-potential values. Also by increasing chain length of the used capping agent the amount of formed nanoparticle increase as indicated by increasing the absorbance. Both prepared surfactants and surfactants capping silver nanoparticles showed high antimicrobial activity against gram positive and gram-negative bacteria.

**Keywords :** photosynthesis, hexaonal shapes, zetapotential, biological activity

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