

## **Preparation of silvernanop articles using Pulsed Laser Ablation Method**

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### **Abstract**

*In this study, silver nanoparticles were prepared by two different techniques namely liquid phase pulsed laser ablation using IR or UV laser types were used to ablate silver rods in distilled water.*

*For the different methods, the different shape and size of silver nanoparticles were carried out for samples prepared by IR Nd: YAG laser (Coherent 206) of  $\lambda = 1064$  nm, pulse duration = 6 ns and 110 mJ laser energy. The UV Nitrogen laser has wave length of  $\lambda = 337$  nm, pulse duration = 15ns and 375 mJ energy per pulse. The measured average size, shape and crystallinity were determined using High Resolution Transmission Electron Microscope HRTEM (JEOL, JEM-2100) and electron diffraction ED microscopy. Samples prepared by UV laser showed different properties. The results confirmed that the silver nanoparticles prepared by IR laser have average size of 9.9 nm and those prepared by UV laser showed average size of 13.9nm. Crystalline structure was noticed for the two cases. These silver nanoparticles will be applied to cotton fabrics to study the dying behavior of the treated fabrics, such as color fastness and antibacterial strength.*

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Date of Submission: 10-01-2022

Date of acceptance: 24-01-2022

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