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Biosynthesis, characterization and nonlinear optical properties of copper oxide nanoparticles

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The present research introduces an environment friendly and rapid method for synthesis of CuO nanoparticles [1-3] for potential NLO applications. Copper oxide nanoparticles were synthesized from copper sulphate in the presence of natural saffron dye extracts at room temperature. TEM, SEM and EDX were initially used to characterize the biosynthesized nanoparticles. Spherical nanoparticles with an average diameter <7 nm were also identified. Cu and O which are the main constituents of CuO-NPs were found to be dominant. The NLO properties study in the femtosecond regime showed two-photon absorption behaviour.

Keywords: Biosynthesis, copper oxide nanoparticles, femtosecond regime, NLO, two-photon absorption

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