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The effect of solvents on the size of copper oxide particles fabricated using photolysis method

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Abstract : Copper oxide nanoparticles with different size were successfully fabricated by the photolysis method through the irradiation of copper oxalate complex with different solvents. The effect of the type of solvent on the size of nanoparticles was investigated. The structure and size of nanoparticles were determined using XRD and TEM while, the spectra properties of it investigated using FTIR and UV-Vis. XRD diffraction studies obtained pure monoclinic structure of copper oxide without secondary phase and the size of particles (8.4 to 11.4nm) depends strongly on the dielectric constant of solvents and the smallest particles of copper oxide were showed when using the ethanol as solvent.A blue shift in the essential gap energy (from 4.21 to 4.58eV) due to the quantum confinement effect, is obtained in the spectra analysis when the particles size decreases.

Key words : CuO, nanoparticles, photolysis, irradiation, quantum confinement.

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