Transformation of ZnO nanorods to micro-flowers by the addition of hydroxylamine hydrochloride as a capping molecule

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In this paper we are presenting a method of transformation ZnO nanorods structures to micro-flowers by the hydroxylamine hydrochloride. The synthesis of ZnO nanorods was performed via solution process using zinc acetate dihydrate and sodium hydroxide at 90°C in 24 hours. The diameters and lengths of the synthesized nanorods lies between 250-300 nm and 3-4 μm respectively as observed by electron microscopy. At the same reaction conditions, the addition of hydroxylamine hydrochloride results in flower-shaped structures indicating that it acts as a shape-inducing capping molecule and plays an important role in the structure transformation. The size of a flower-shaped structure lies between 3-4 μm.The synthesized products were characterized for structural and optical properties. The detailed structural observation, for both the morphologies, confirmed that the synthesized structures are single crystalline ZnO with the wurtzite hexagonal phase.