Facile one-step synthesis of zinc oxide nanoparticles by sonochemical method

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Abstract: *A sonochemistry-based facile one-step method was used to produce zinc oxide nanoparticles (ZNs) with 30 nm average crystallite diameter. The materials were then characterized by TEM, SEM, Raman, and XRD analyses to explore their structural and photo-catalytic properties. The size and shape of the ZNs can be tuned by adjusting the ultra-sonication time and concentration of $ZnSO_4.7H_2O$ precursor. Photocatalytic degradation of MB dye by ZNs was employed to evaluate the photo-catalytic performance of the prepared materials. These experiments were conducted under the dark (without light) and under the UVA irradiation using an available commercial UVA light. A fast decomposition of the MB dye (50 mg/L, 50 mL) was observed with a degradation rate of 98% within 60 min.*

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