



Hydrothermal synthesis of the cauliflower-like CdS microspheres to enhance solar photocatalytic degradation of Oxytetracycline hydrochloride

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ABSTRACT

The Cadmium sulfide (CdS) microsphere photocatalysts with the cauliflower-like morphology have been synthesized by hydrothermal method. The as-prepared photocatalysts have been characterized by powder X-ray diffraction, scanning electron microscopy, energy-dispersive X-ray analysis, UV–vis absorption (UV–vis), and the thermo-gravimetric analysis. The UV–vis measurements show that the CdS microsphere prepared with 2 h have a band gap about 2.13 eV, which is smaller than the reported 2.42 eV, thus the as-prepared photocatalysts can be easily photoexcited and exhibit better photocatalytic performance. The photo-degradation experiments have been performed with CdS photocatalysts prepared with various synthesis conditions. Particularly, the CdS microsphere photocatalysts show the highest degradation ratio (72.78%) of Oxytetracycline hydrochloride under the visible light irradiation.

Keywords: Photocatalytic; CdS; Cauliflower-like; Oxytetracycline hydrochloride

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