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Journal

ISSN

16753402

DOI

10.21315/JPS2023.34.1.3

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Photodegradation of Oxytetracycline Using Fluorescent Light Driven ZnO Quantum Dots Synthesised Via Microwave Method

Jasni, Normawati^a; Iqbal, Anwar^a ; Bakar, Noor Hana Hanif Abu^a; Kamil, W. Maryam Wan Ahmad^b; Dania, Wan Hazman^c; Ismail M.W.^c; Rajappan, Kalaivizhi^d [Save all to author list](#)^a School of Chemical Sciences, Universiti Sains Malaysia, Penang, Gelugor, 11800, Malaysia^b School of Physics, Universiti Sains Malaysia, Penang, Gelugor, 11800, Malaysia^c Department of Chemistry, Kulliyah of Science, International Islamic University Malaysia, Pahang, Kuantan, 25200, Malaysia^d Department of Chemistry, SRM Institute of Science and Technology, Chengalpattu, Kattankulathur, 603203, India[Full text options](#) [Export](#) **Abstract**[Author keywords](#)[Reaxys Chemistry database information](#)[Indexed keywords](#)[Sustainable Development Goals 2023](#)[SciVal Topics](#)[Metrics](#)[Funding details](#)**Abstract**

In this study, Li⁺ ions capped zinc oxide quantum dots (ZnO QDs) was synthesised using the microwave method. The X-ray diffraction (XRD), transmission electron microscopy (TEM), high-transmission electron microscopy (HR-TEM), scanning electron microscopy (SEIM), UV-Visible diffuse reflectance spectroscopy (UV-DRS), and photoluminescence (PL) techniques were used to characterise the structural, morphological, optical properties of the ZnO QDs. The XRD analysis reveals that ZnO QDs have a hexagonal wurtzite structure with an average crystallite size of 9.9 nm. The morphology of ZnO

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Jasni, N. , Iqbal, A. , Bakar, N.H.H.A.

(2022) Malaysian Journal of Chemistry

Quantum-Sized Chitosan Modified ZnO for the Photocatalytic Oxidation of Oxytetracycline Under Fluorescent Light Irradiation

Jasni, N. , Iqbal, A. , Abu Bakar, N.H.H.

(2023) Journal of Cluster Science

Ultrasound-Assisted Synthesis of a ZnO/BiVO₄ S-Scheme Heterojunction Photocatalyst for Degradation of the Reactive Red 141 Dye and Oxytetracycline Antibiotic

Wannakan, K. , Khansamrit, K. ,

Senasu, T.

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QDs was observed to be quasi-spherically shaped with an average particle size of 10 nm. The PL analysis detected the presence of various defects. All these factors enhanced the photodegradation of oxytetracycline (OTC) under fluorescent light irradiation. Within 40 min, 88.3% of OTC was removed, which was higher compared to the bulk ZnO reported in the literature. This technology is aimed at small animal husbandries due to the photocatalyst synthesis method's simplicity and the photocatalysis process's requirements. © Penerbit Universiti Sains Malaysia, 2022. This work is licensed under the terms of the Creative Commons Attribution (CC BY) (<http://creativecommons.org/licenses/by/4.0/>).

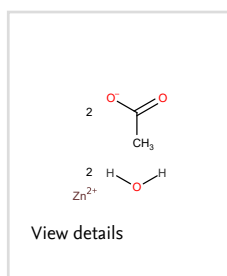
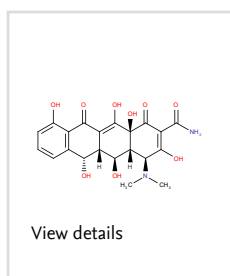
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