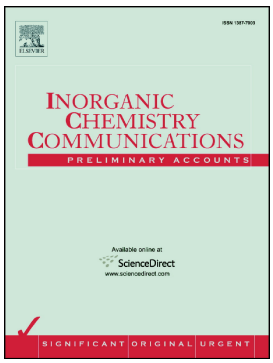

Synthesis of flake-like bismuth tungstate (Bi2WO6) for photocatalytic degradation of coomassie brilliant blue (CBB)

Naveed A. Shad, Mehvish Zahoor, Khizra Bano, Sadia Z. Bajwa, Nasir Amin, Ayesha Ihsan, Razium Ali Soomro, Adnan Ali, M. Imran Arshad, Aiguo Wu, M. Zubair Iqbal, Waheed S. Khan

PII: S1387-7003(17)30604-4
DOI: doi:10.1016/j.inoche.2017.10.022
Reference: INOCHE 6810

To appear in: *Inorganic Chemistry Communications*

Received date: 25 July 2017
Revised date: 17 October 2017
Accepted date: 21 October 2017

Please cite this article as: Naveed A. Shad, Mehvish Zahoor, Khizra Bano, Sadia Z. Bajwa, Nasir Amin, Ayesha Ihsan, Razium Ali Soomro, Adnan Ali, M. Imran Arshad, Aiguo Wu, M. Zubair Iqbal, Waheed S. Khan , Synthesis of flake-like bismuth tungstate (Bi2WO6) for photocatalytic degradation of coomassie brilliant blue (CBB). The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Inoche(2017), doi:10.1016/j.inoche.2017.10.022

Synthesis of Flake-like Bismuth Tungstate (Bi_2WO_6) for Photocatalytic Degradation of Coomassie Brilliant Blue (CBB)

Naveed A. Shad[a,b], Mehvish Zahoor[a], Khizra Bano[a] , Sadia Z. Bajwa[a], Nasir Amin[b], Ayesha Ihsan[a], Razium Ali Soomro[a], Adnan Ali[b], M. Imran Arshad[b], Aiguo Wu[c], M, Zubair Iqbal[c], Waheed S. Khan[a, c*]

[a]National Institute for Biotechnology and Genetic Engineering (NIBGE), P.O. Box. 577, Jhang Road, Faisalabad, Pakistan.

[b]Department of Physics, Government College University Faisalabad, Pakistan.

[c]Functional Materials and Nanodevices Division, Ningbo Institute of Materials Technology and Engineering (NIMTE), Chinese Academy of Sciences (CAS), Ningbo City, Zhejiang 315201, P. R. CHINA.

*Corresponding author waheedskhan@yahoo.com (Waheed S. Khan)

Tel: +92 41 9201404 Fax: +92-41-9201322

ABSTRACT

Bismuth tungstate (Bi_2WO_6) flake-like nanostructures with zigzag periphery and 30-40 nm thickness in high yield were produced by facile and efficient modified hydrothermal technique. The as-synthesized nanostructures were characterized by X-ray diffraction (XRD), energy dispersive x-ray spectroscopy (EDX), scanning electron microscopy (SEM) and Fourier transform infrared spectroscopy (FTIR). Bi_2WO_6 nanostructures were investigated as visible light photocatalyst to degrade model dye coomassie brilliant blue (CBB). The role of hydrogen peroxide (H_2O_2) used as initiator was also studied by varying concentrations during photocatalysis. It was observed that photocatalytic activity significantly enhanced for lower initiator concentrations. The growth mechanism for nanostructures was also discussed briefly.

Keywords: *Bismuth tungstate; Nanoflakes; Photocatalysis; Coomassie Brilliant Blue*

Introduction

Metal tungstates are considered to have immense potential for applications in different