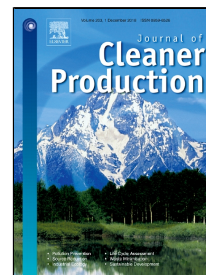


Accepted Manuscript

Mesoporous-Mixed-Phase of Hierarchical Bismuth Oxychlorides
Nanophotocatalyst with Enhanced Photocatalytic Application in Treatment of
Antibiotic Effluents



Maryam Shabani, Mohammad Haghghi, Davood Kahforoushan, Amir Haghghi

PII: S0959-6526(18)33056-7
DOI: 10.1016/j.jclepro.2018.10.042
Reference: JCLP 14444
To appear in: *Journal of Cleaner Production*
Received Date: 29 July 2018
Accepted Date: 05 October 2018

Please cite this article as: Maryam Shabani, Mohammad Haghghi, Davood Kahforoushan, Amir Haghghi, Mesoporous-Mixed-Phase of Hierarchical Bismuth Oxychlorides Nanophotocatalyst with Enhanced Photocatalytic Application in Treatment of Antibiotic Effluents, *Journal of Cleaner Production* (2018), doi: 10.1016/j.jclepro.2018.10.042

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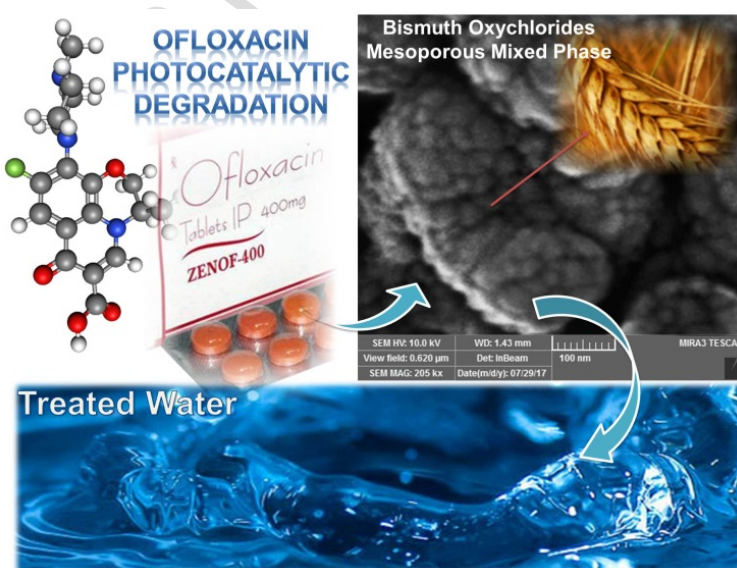
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Graphical Abstract

A mesoporous-mixed-phase of hierarchical bismuth rich-bismuth oxychlorides (BOC) was successfully synthesized via a facile one-pot sorbitol-nitrate solution auto-combustion synthesis with the various amounts of the sorbitol to oxidizer ratio (FR). The properties of the as-prepared samples were characterized by XRD, FESEM, PSD, EDS-Dot. mapping, TGA, BET-BJH, UV-Vis DRS and PL techniques. The results exhibited that the BOC (FR=1; stoichiometric), as the grain-like mixed-phase with an intra-heterojunction between 59% BiOCl and 41% Bi₂₄O₃₁Cl₁₀ indicated the higher activity and degradation rate as well as substantial stability after five cycles with high total open pore volume of 0.189 cm³/g, specific surface area of 93 m²/g, average pore width of 11 nm, meso-structure of pores, the formation of fine particles and defects, the suitable band gap, absorption of much light and the reduction of recombination related to the charge carriers.



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