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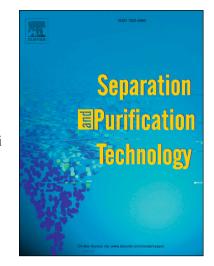
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## ACCEPTED MANUSCRIPT

Efficient degradation of azo dye pollutants on ZnBi<sub>38</sub>O<sub>58</sub> nanostructures under visible-

light irradiation

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**Abstract** 

A novel and facile approach of preparing ZnBi<sub>38</sub>O<sub>58</sub> nanostructures was developed utilizing the amino acid-

assisted sol-gel combustion route. In this study, the mixtures of various gelling agents and amino acids as fuel

and different molar ratios of amino acid to total metals have been employed to prepare the nanostructured

ZnBi<sub>38</sub>O<sub>58</sub> with sphere-like, plate-like, cubic-like and polyhedral-like morphologies. The formation of as-

synthesized nanocrystalline ZnBi<sub>38</sub>O<sub>58</sub> and its elemental composition, shape, structure and optical

characteristics are analyzed utilizing UV-Vis, FESEM, FT-IR, XRD and EDS. In addition, the photocatalytic

performance of as-produced ZnBi<sub>38</sub>O<sub>58</sub> nanostructures with different morphologies was studied by degradation

of acid blue 92 dye as water contaminant under visible light irradiation.

*Keywords*: ZnBi<sub>38</sub>O<sub>58</sub>; Nanostructures; Sol-gel combustion; Polyhedral-like; Photocatalytic performance.

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