

Electronic Supplementary Information (ESI)

For

ZrO₂-incorporated Bi₆O₆(OH)₃(NO₃)₃•1.5H₂O with superior photocatalytic activity for degradation of malachite green

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Electrochemistry Analysis:

The working electrode was prepared on indium tin oxide (ITO) conductor glass, which was cleaned by sonication in acetone and ethanol for 30 min, respectively. The glass was then rinsed with Millipore water and kept in isopropanol for 24 h. 50 mg powder was mixed with 8 mL dimethylformamide under sonication for 30 min to get slurry. The slurry was spreading onto ITO glass substrate, whose side part was previously protected with Scotch tape. After that the electrode was dry at 120 °C for 1 h to improve adhesion. A copper wire was connected to the electrode with a conductive tape. Uncoated parts of the electrode were isolated using epoxy resin, and the exposed area of the electrode was 0.25 cm². Electrochemical measurements were performed in a conventional three electrode cell, using a Pt plate as counter electrode and Ag/AgCl electrode (3M KCl) as reference electrode. The electrolyte was a 0.2 M Na₂SO₄ aqueous solution without additive. The working electrode was immersed in the electrolyte for 60 s before any measurement was taken. The photocurrent measurements were conducted with a BAS Epsilon workstation. The 254 nm light was irradiated on electrode and chopped manually in order to keep the same time interval.

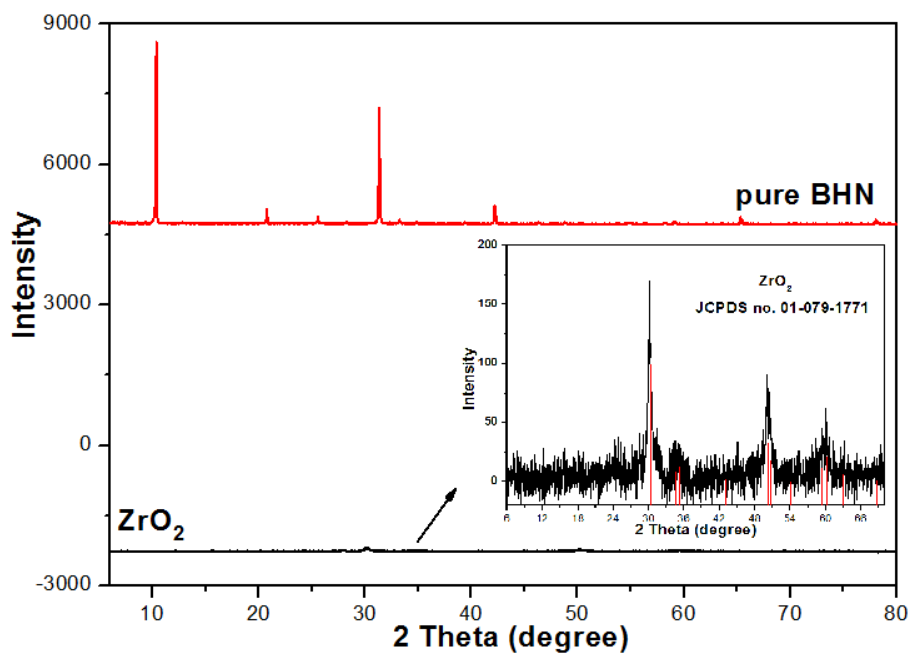


Fig. S1. The comparison of XRD patterns for ZrO₂ and BHN

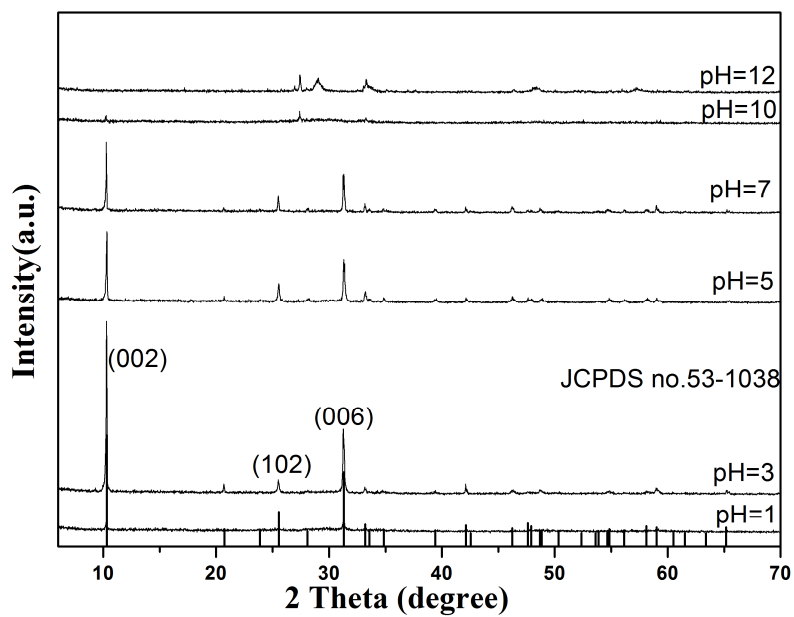


Fig. S2. XRD patterns of the BHN samples prepared at 180 °C for 24 h under different pH values

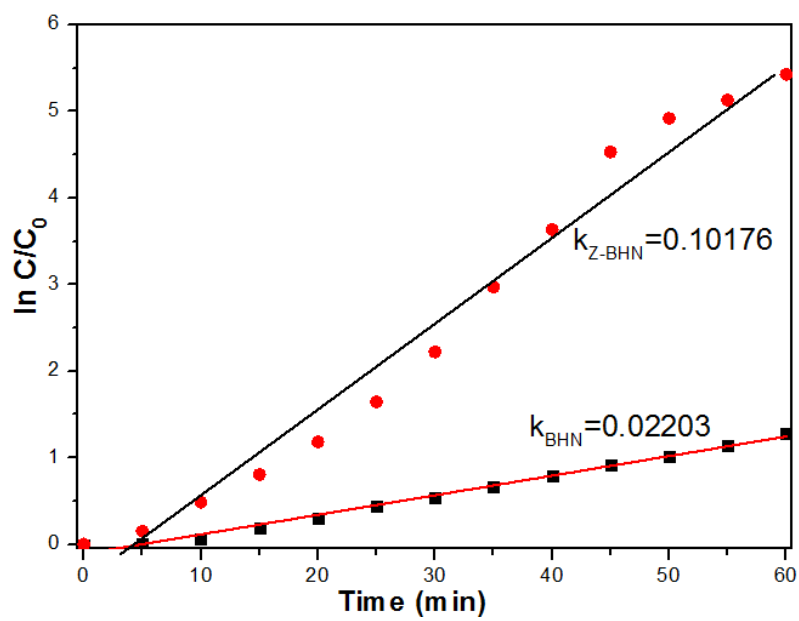


Fig. S3. The reaction rate constants of Z-BHN and BHN