

Construction of g-C₃N₄/Bi(OH)₃ heterojunction for the enhancement of visible light photocatalytic antibacterial activity

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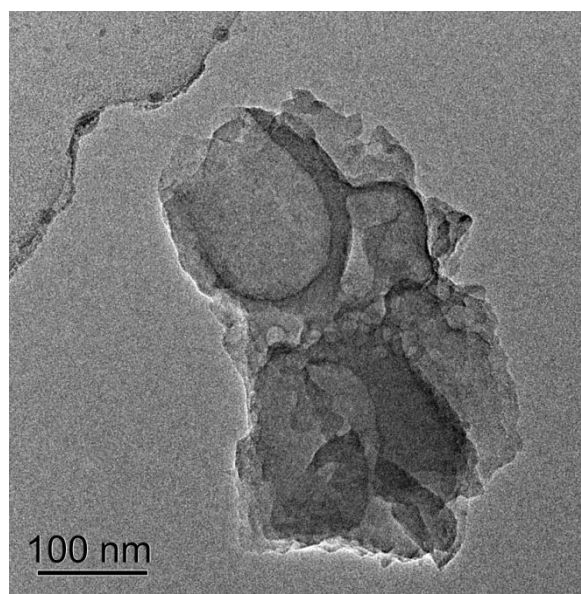


Fig. S1 TEM image of pristine CN

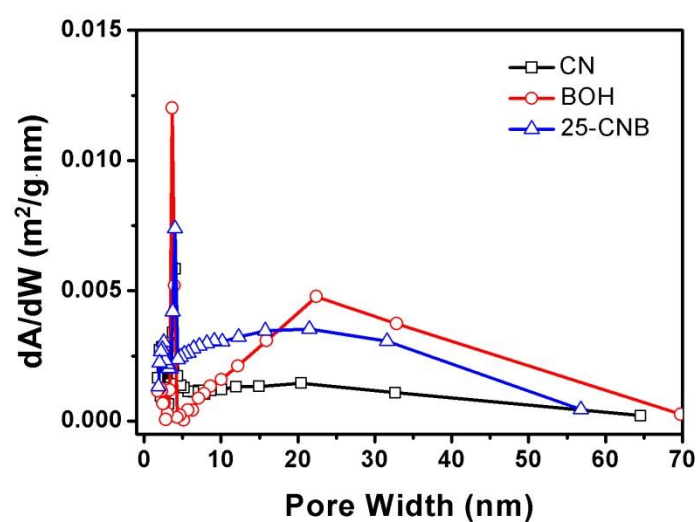


Fig. S2 The BJH pore size distribution plots of CN, BOH and 25-CNB

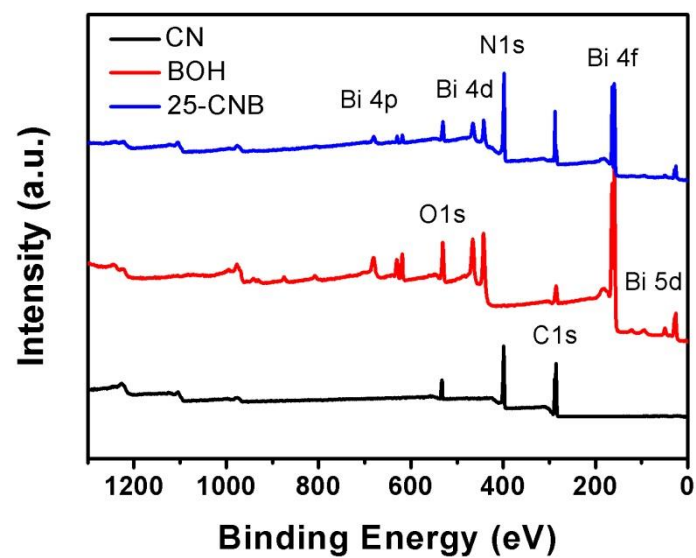


Fig. S3 XPS survey spectra of CN, BOH and 25-CNB

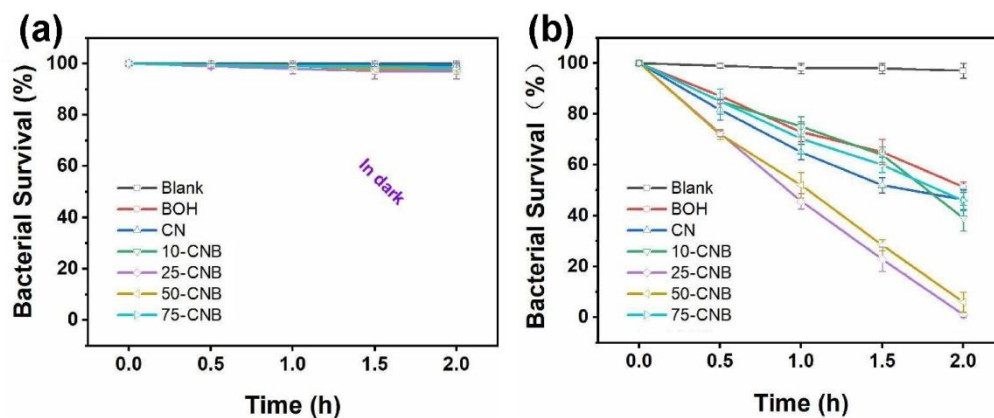


Fig. S4 The photocatalytic antibacterial efficiency of CN, BOH and CNB heterojunctions a) in dark and b) under visible light irradiation

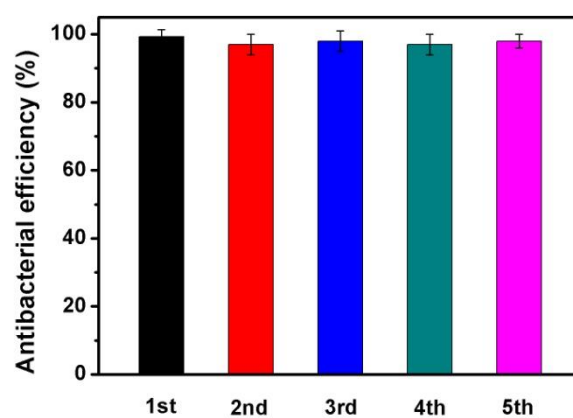


Fig. S5 The recycling photocatalytic antibacterial experiments against *E. coli* with 25-CNB

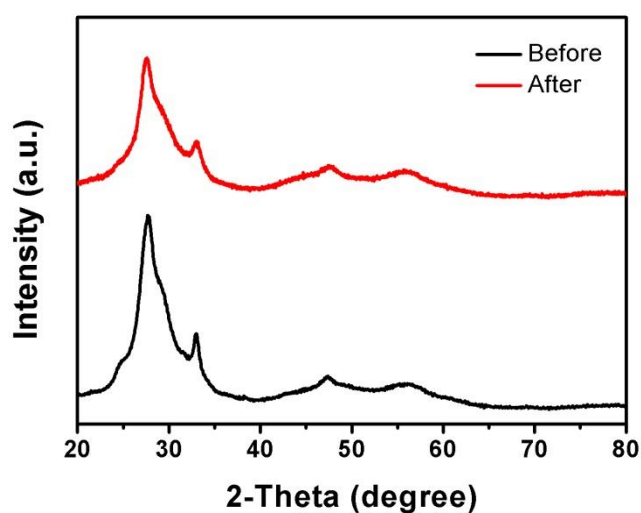


Fig. S6 XRD patterns of 25-CNB before and after recycling experiments

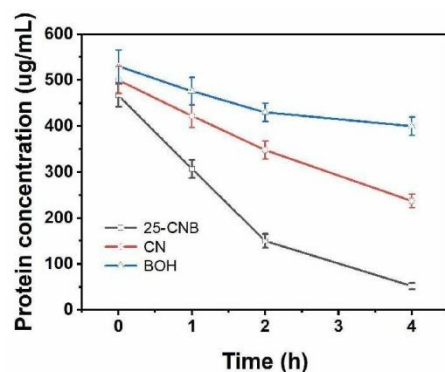


Fig. S7 The protein concentration treated by CN, BOH and 25-CNB within different light irradiation time

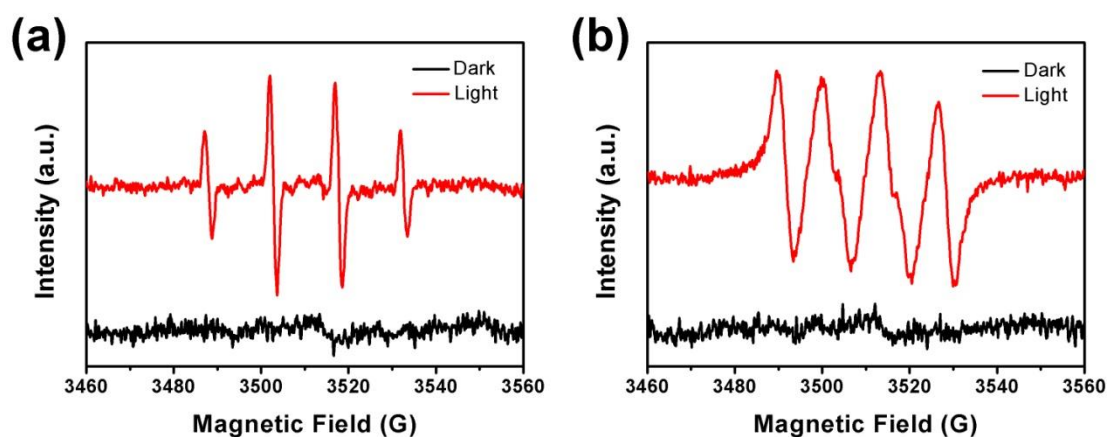


Fig. S8 The ESR spectra of a) DMPO-•OH and b) DMPO-•O₂⁻ in photocatalytic process over 25-CNB in dark and under 15 min of visible light irradiation

Table S1. The summarized results obtained from N₂ adsorption-desorption isotherms.

Sample	V _{pore} (cm ³ /g)	D _{pore} (nm)	S _{BET} (m ² /g)
CN	0.06	17.26	22.82
BOH	0.16	22.79	34.72
25-CNB	0.14	18.68	43.59

Table S2. The fitted parameters obtained from the decay curves of TRPL

Sample	τ ₁ (ns) (Rel. %)	τ ₂ (ns) (Rel. %)	τ _a (ns)
CN	3.64 (87.6)	22.0 (12.4)	5.92
BOH	1.73 (94.9)	13.0 (5.1)	2.31
25-CNB	4.23 (85.7)	24.9 (14.3)	7.19

Table S3 Comparison of photocatalytic antibacterial activity of 25-CNB with various photocatalysts

Photocatalysts	Light source	Antibacterial efficiency %	Reference
g-C ₃ N ₄ /Bi(OH) ₃	White LED (40 W)	99.3 (2 h, <i>E. coli</i>)	this work
BiSnSbO ₆ -TiO ₂	LED lamp (35 W)	71.33 (3 h, <i>E. coli</i>)	[1]
P,S-g-C ₃ N ₄	Xenon lamp (300 W)	97.0 (2.5 h, <i>E. coli</i>)	[2]
Fe ₃ O ₄ -TiO ₂	Solar light	87.2 (2 h, <i>E. coli</i>)	[3]
GaN:ZnO	Xenon lamp (300 W)	94 (2 h, <i>E. coli</i>)	[4]
Ag/Ag ₂ S/rGO	Xenon lamp (300 W)	97.76 (24 h, <i>E. coli</i>)	[5]
Bi/C ₃ N ₄	Xenon lamp (300 W)	96.4 (1 h, <i>E. coli</i>)	[6]
Ni(PO ₃) ₂ /C	Halide lamp (70 W)	71.9 (1 h, <i>E. coli</i>)	[7]
GQDs/NH ₂ -MIL-125	LED lamp (100 W)	92 (1 h, <i>E. coli</i>)	[8]

References

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