

## Supplementary Materials

# Antibacterial Properties of Three-Dimensional Flower Cluster ZIF-L Modified by N-Doped Carbon Dots

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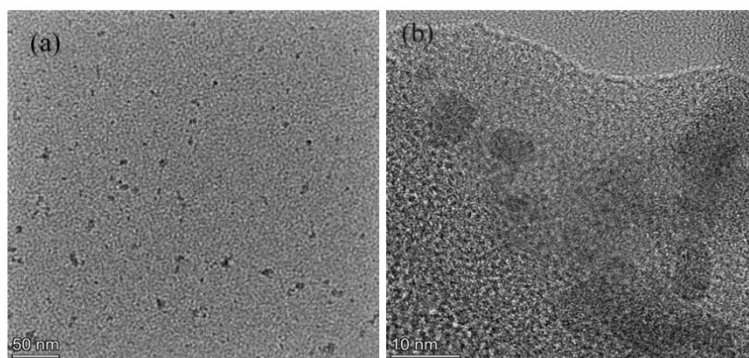


Figure S1. TEM (a) and HR-TEM (b) image of NCDs.

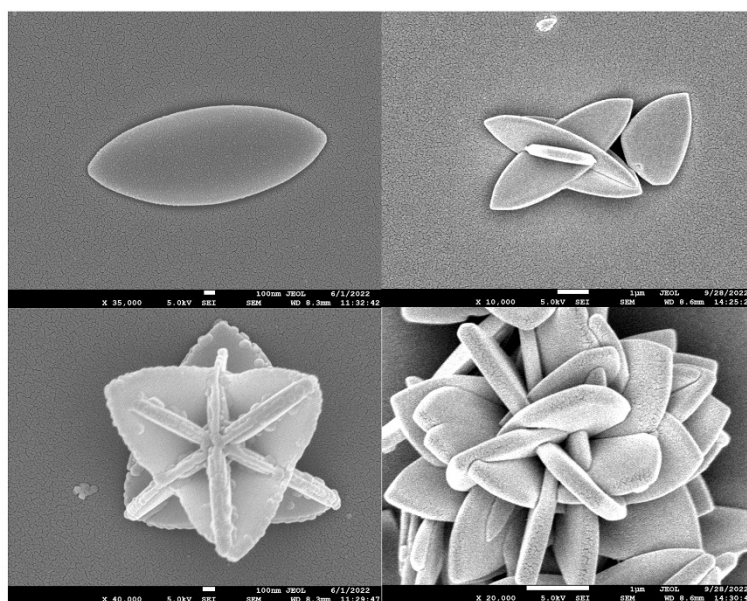
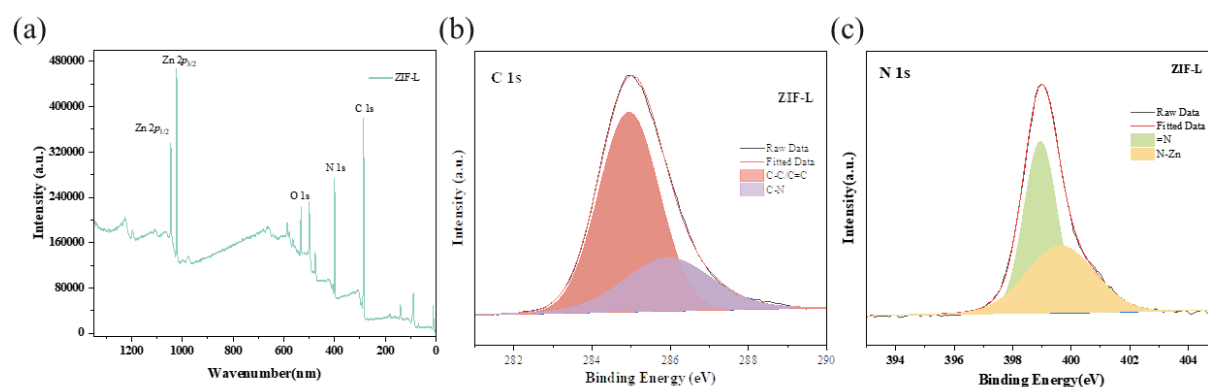
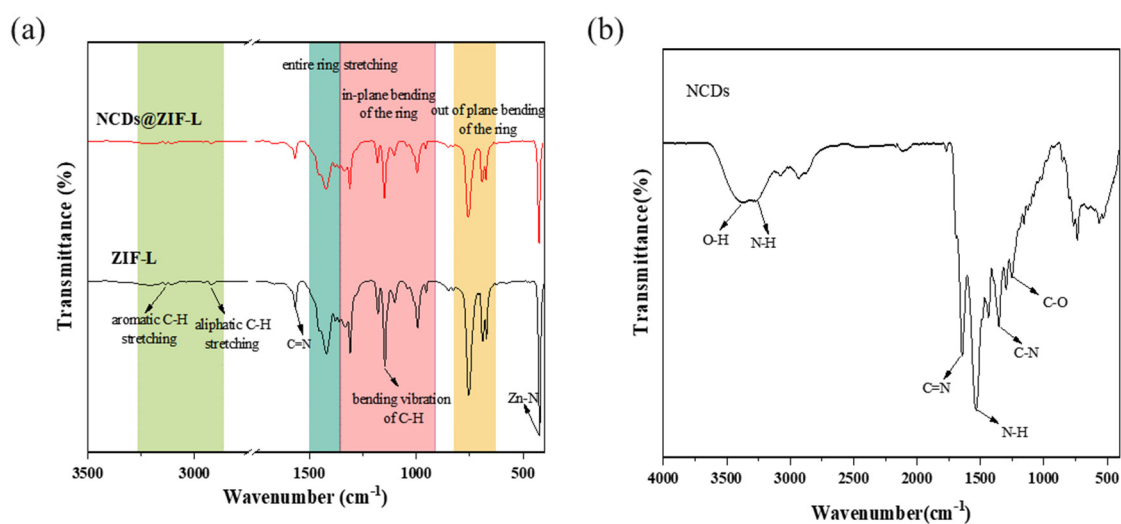


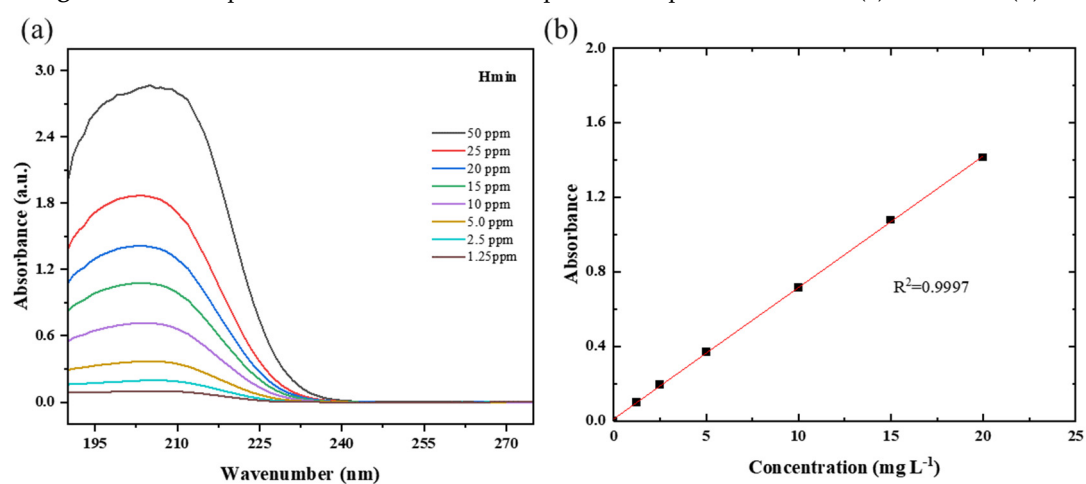
Figure S2. Different morphologies of ZIF-L crystals in SEM tests.



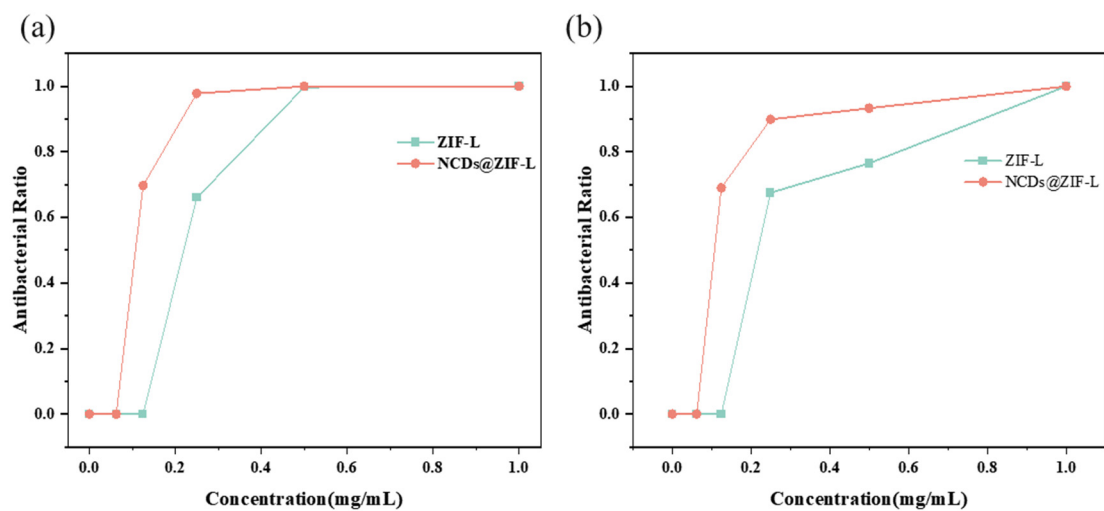
**Figure S3.** XPS spectra of ZIF-L: (a) full survey spectrum, (b) C 1s spectra and (c) N 1s spectra.



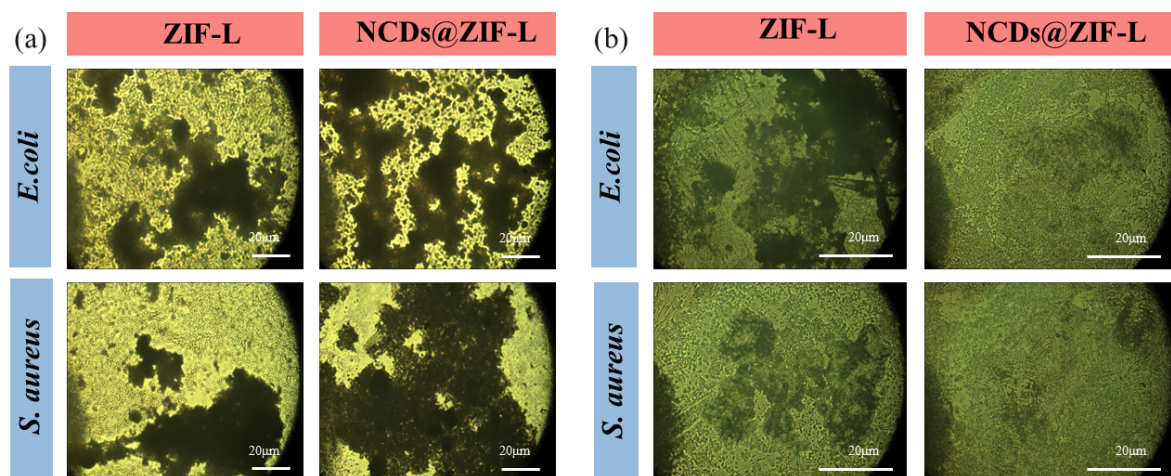
**Figure S4.** FT-IR spectrum of NCDs@ZIF-L composites compared with ZIF-L (a) and NCDs (b).



**Figure S5.** (a) UV-Vis spectra of dissolved 2-methylimidazole in DI water at different concentrations; (b) a calibrated standard curve for determining the concentration of ligands in water.



**Figure S6.** Results of antibacterial rates of ZIF-L and NCDs@ZIF-L composites against *E. coli* (a) and *S. aureus* (b).



**Figure S7.** Images of bacteria stained with 33342 dye (a) and PI staining (b) under visible light after materials treatment.