

Green Synthesis of N,S-Doped Carbon Dots for Tartrazine Detection and Antibacterial Activity

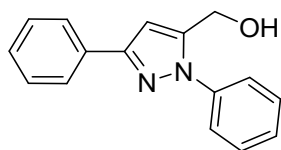
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Synthesis of Pyrazole derivative



Following our previously reported procedure, we have synthesized the pyrazole derivative for selectivity experiments.¹

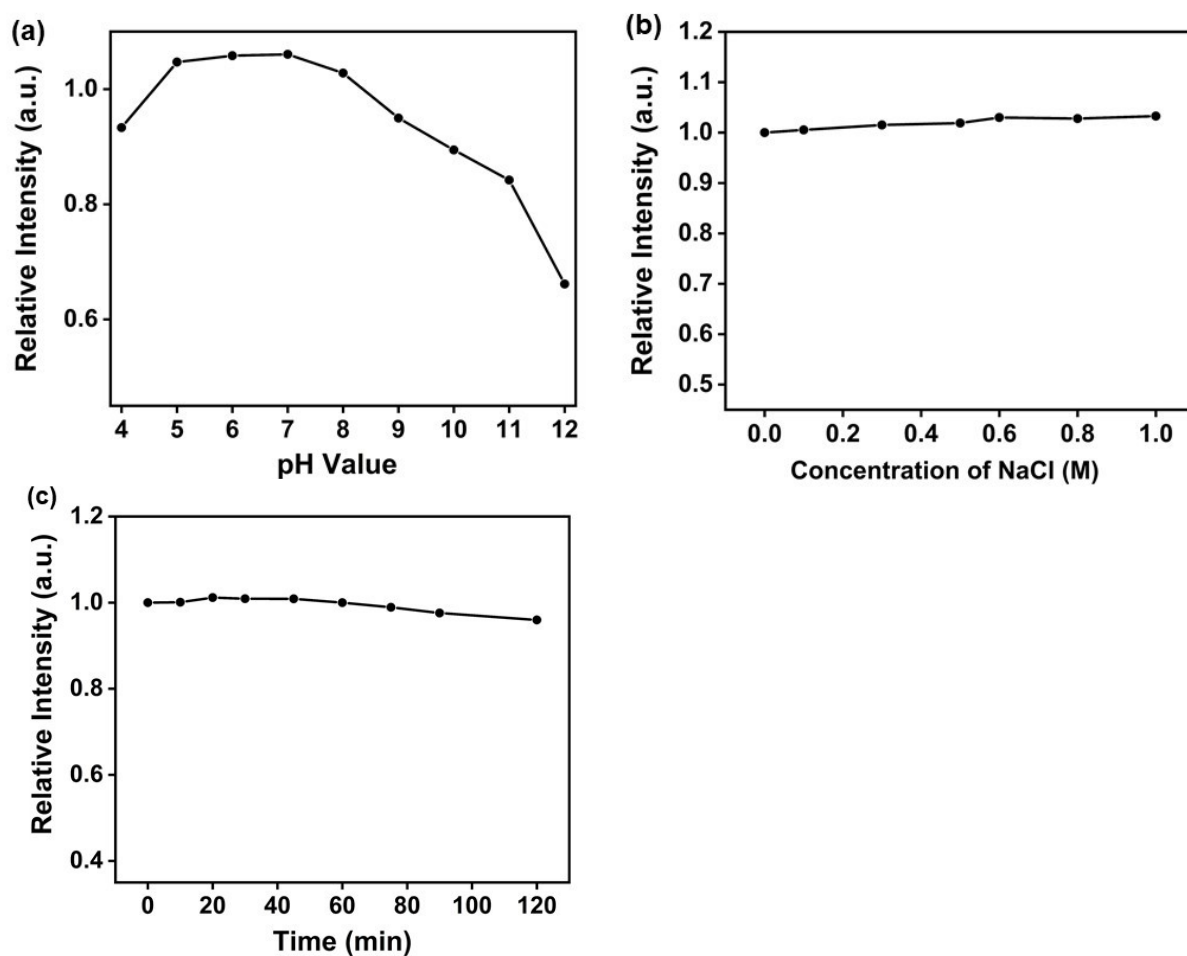


Fig. S1(a) The pH effect on FL intensity of the N,S-CDs. (b) Effect of ionic strength of N,S-CDs at different concentrations of NaCl. (c) Effect of UV light irradiation on N,S-CDs

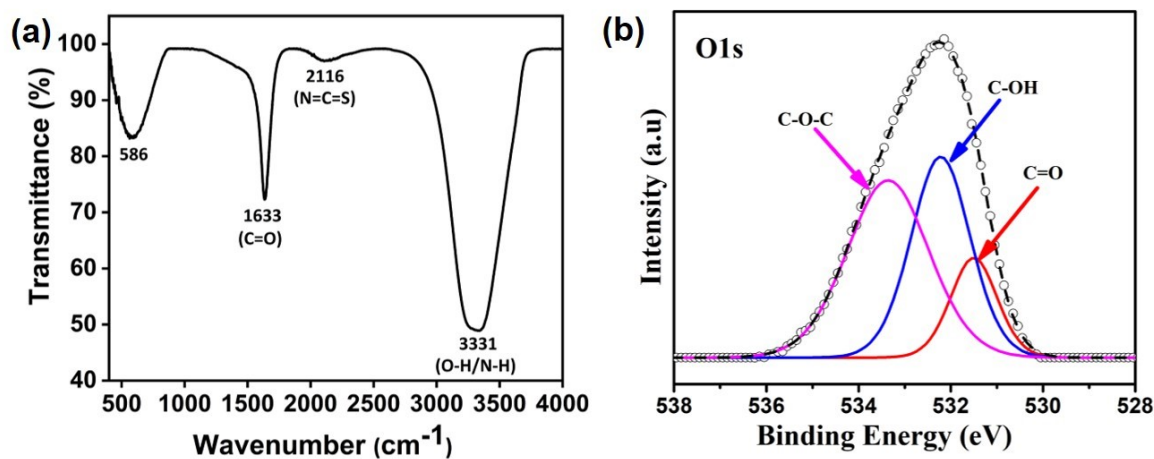


Fig. S2 (a) FTIR Spectrum, and (b) high resolution scan of O1s region of N,S-CDs

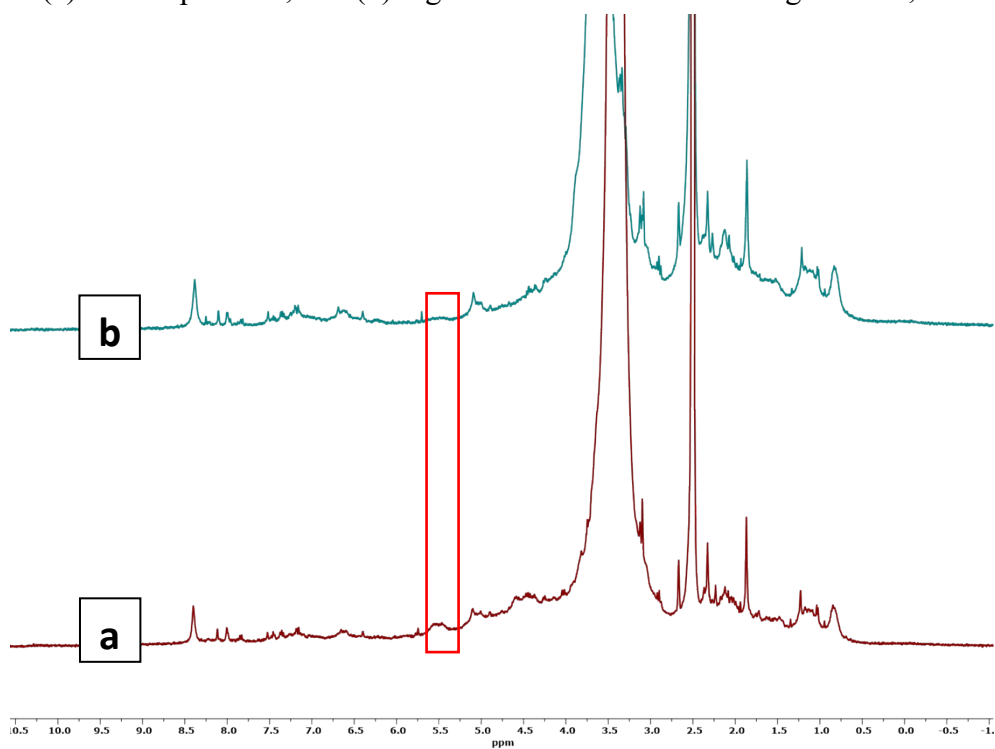


Fig. S3 ¹H NMR spectra of N,S-CDs (a) without and (b) with D₂O addition

Functional Groups	¹ H NMR Peaks (PPM)	¹ H NMR Peaks with D ₂ O addition (PPM)
C-H	1-3	1-3
N-H	5.5	--
C=C and other sp ² carbon	6-8	6-8
C=O	8-8.5	8-8.5

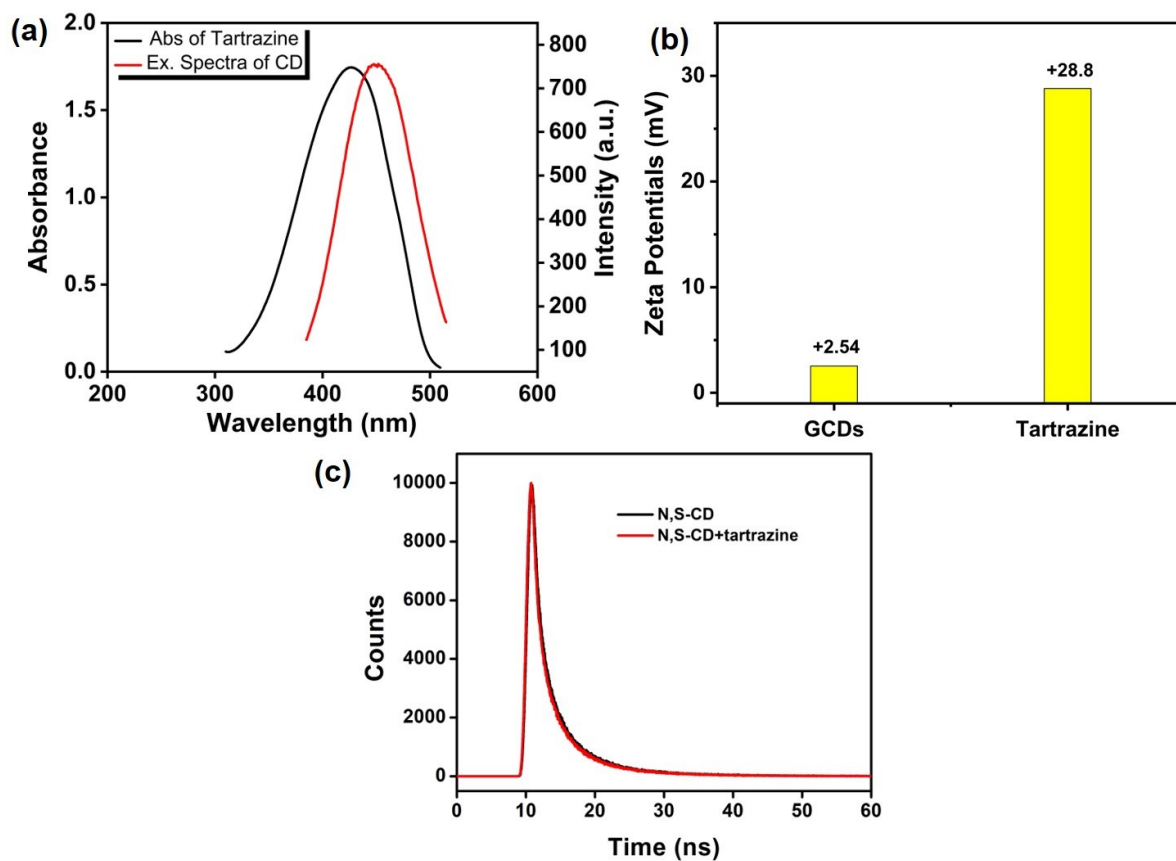


Fig. S4 (a) Absorption spectra of Tartrazine (black line) and Excitation spectra of N,S-CDs (red line), (b) Zeta potentials of N,S-CDs and Tartrazine, (c) Time Resolved Decay of N,S-CD without and with addition of Tartrazine.

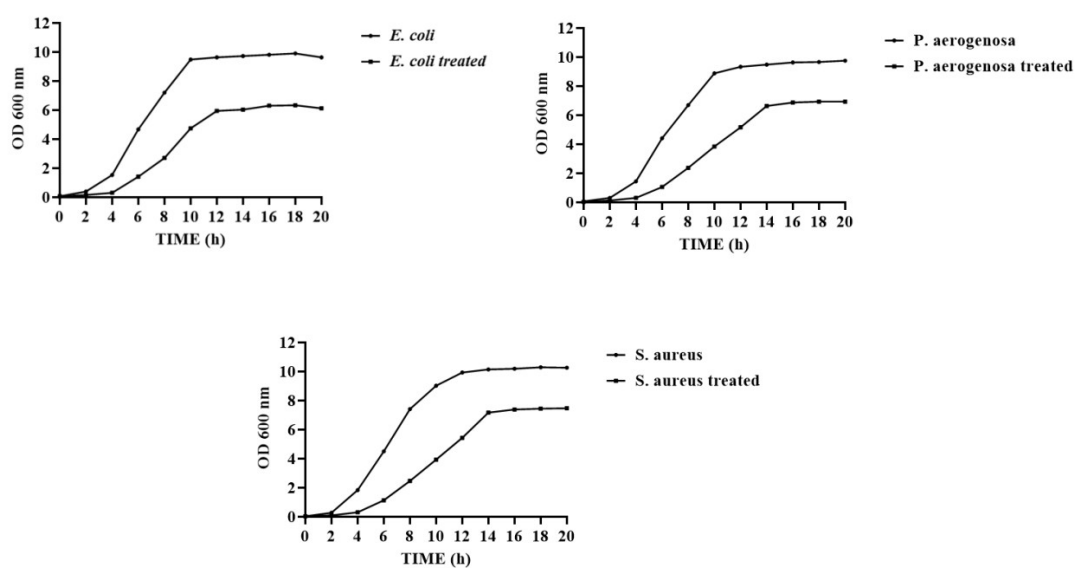


Fig. S5 Bacterial growth inhibitory effect of N,S-CDs

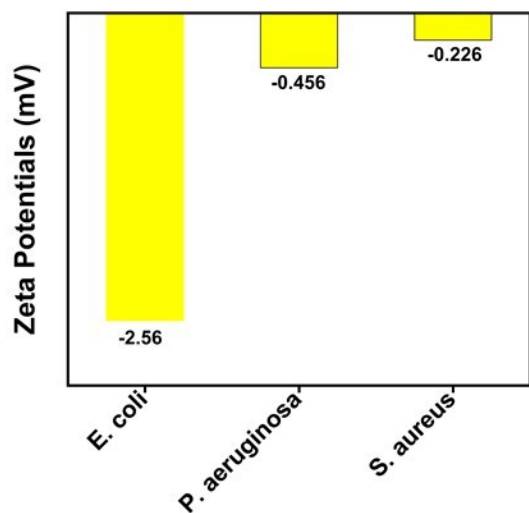


Fig. S6 Zeta potentials of E.coli, P. aeruginosa and S. Aureus

References

1. C. Pal and A. K. Jena, *Org. Biomol. Chem.*, 2023, **21**, 59-64.