

**Boosting photodegradation of Rhodamine B with CuWO₄/g-C₃N₄
heterojunction by introducing biomass derived N-CQD as electron
mediator: Mechanism and DFT Calculation**

Synthesis of N-CQD/CN

N-CQD/CN have been synthesized through a solvothermal technique. 100 mg of CN was dispersed in methanol/H₂O medium to obtain a dispersed solution. To the above solution certain amount of N-CQD was added to obtain ratio and stirred for 20 min. The mixture was heated at 140 °C for 6h in a 100 ml Teflon-lined autoclave. The obtained product was filtered and oven dried at 60 °C to obtain N-CQD/CN with mass ratios 0.2, 0.3 and 0.4.

Synthesis of CWO/CN

100 mg of CN was dispersed in methanol/H₂O medium to obtain a dispersed solution. To the above solution certain amount of CWO was added and sonicated for approximately 5 hours. After sonication, the resultant mixture was then stirred for approximately 24 hours. The obtained product was filtered and rinsed multiple times with distilled water/ethanol medium. Lastly, the product was vacuum-dried at 60 °C to obtain 0.2-CWO/CN.

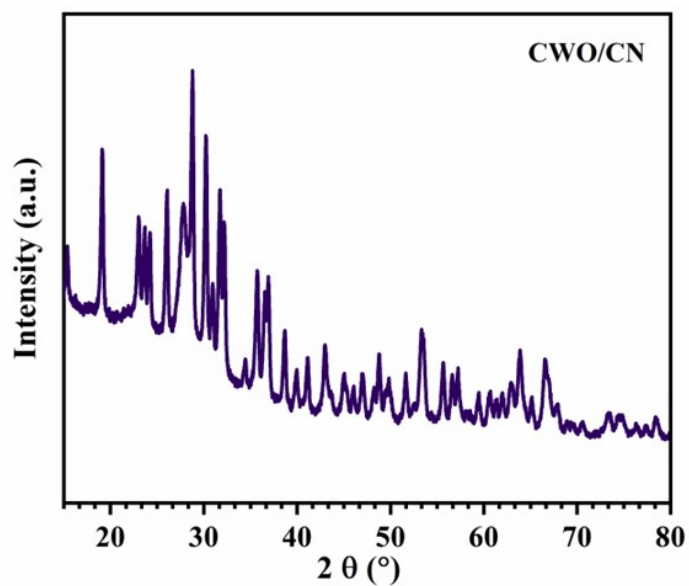


Fig. S1: XRD pattern of CWO/CN.

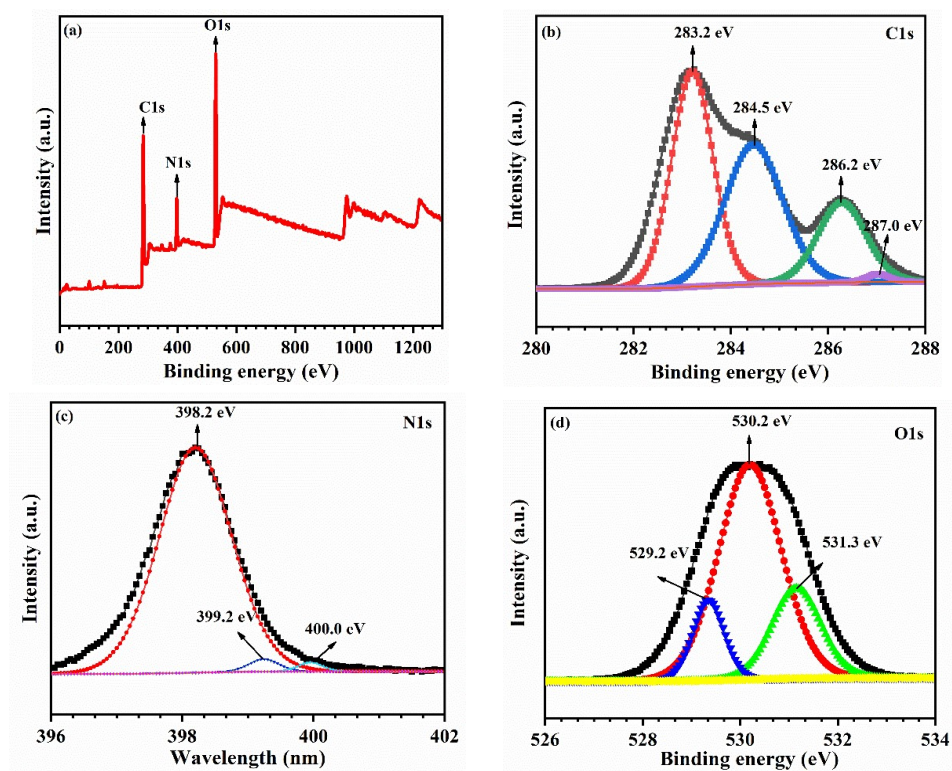


Fig. S2: XPS analysis of N-CQD

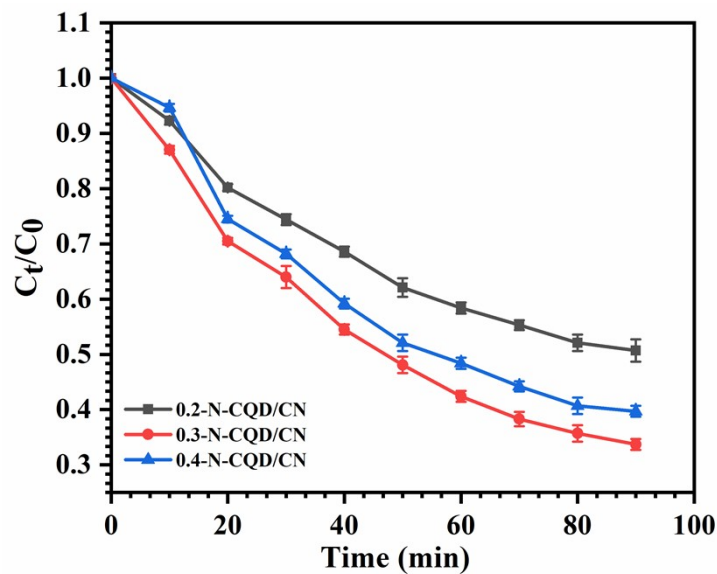


Fig. S3: Photocatalytic degradation efficiency of N-CQD/CN composites.

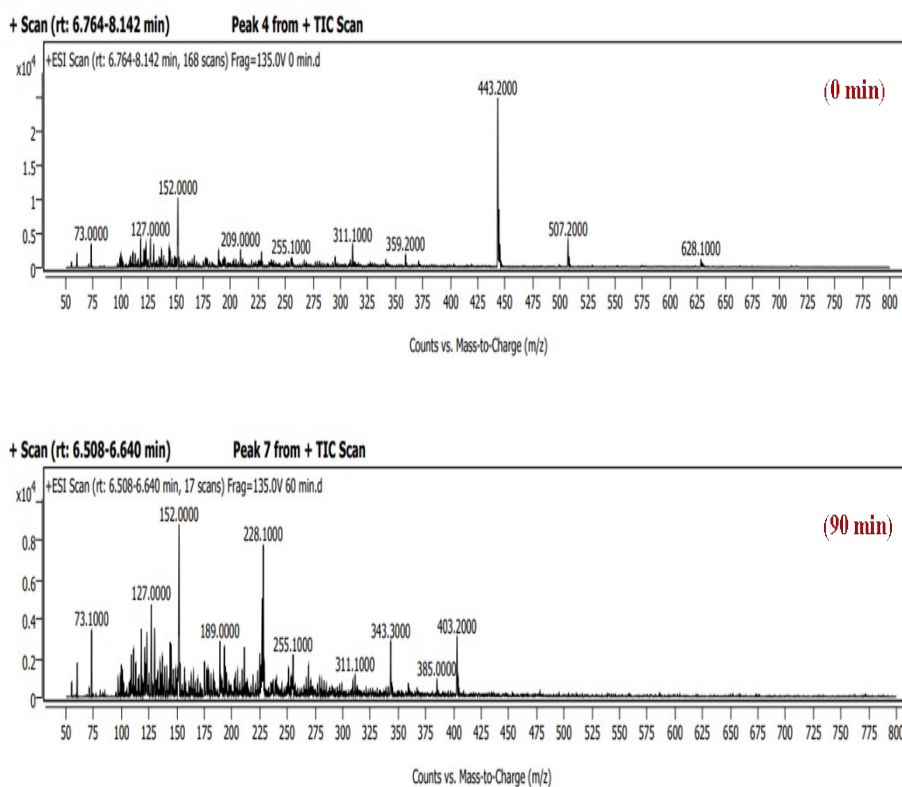


Fig. S4: LCMS spectra of Rh B dye solution at 0 mins, and 90 mins during degradation reaction catalysed by CWO/N-CQD/CN.