



Supporting Information

for

Reduced graphene oxide supported C₃N₄ nanoflakes and quantum dots as metal-free catalysts for visible light assisted CO₂ reduction

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Beilstein J. Nanotechnol. **2019**, *10*, 448–458. doi:10.3762/bjnano.10.44

Additional figures

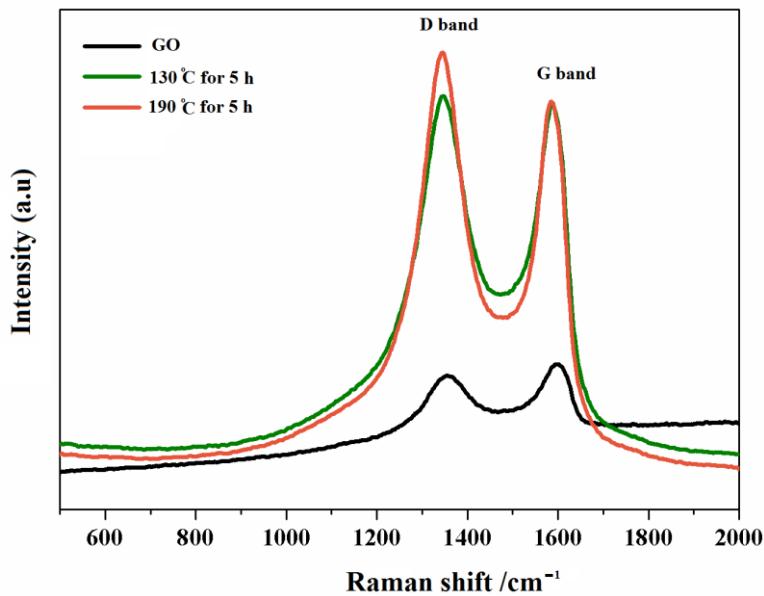


Figure S1: Raman spectra of GO samples at different heating temperatures.

The characteristic D band (1356 cm^{-1}), and G band (1597 cm^{-1}) of GO were blue shifted to 1345 cm^{-1} and 1586 cm^{-1} , respectively, after the hydrothermal treatment. The intensity ratio of the D and G bands, I_D/I_G , increases from 0.96 to 1.12 due to the increase in the number of isolated sp^2 domains. All these information indicates partial reduction of GO to RGO.

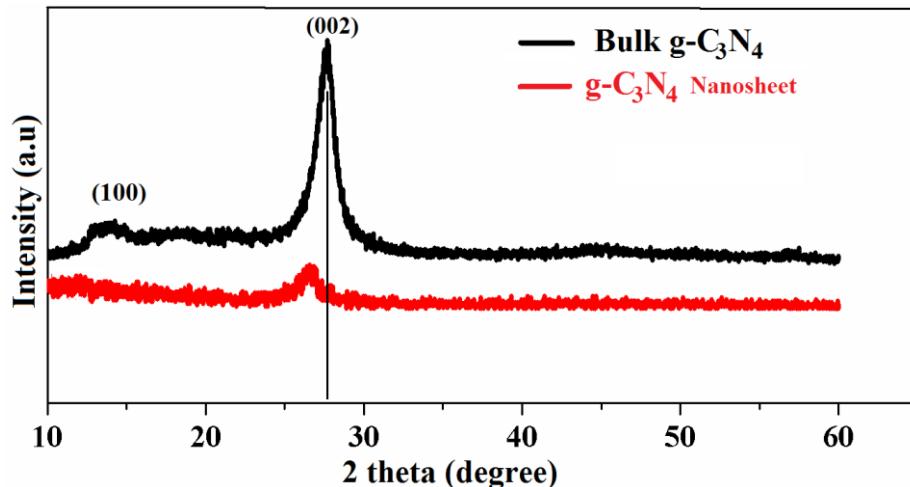


Figure S2: PXRD pattern of $g\text{--C}_3\text{N}_4$ bulk and nanosheet.

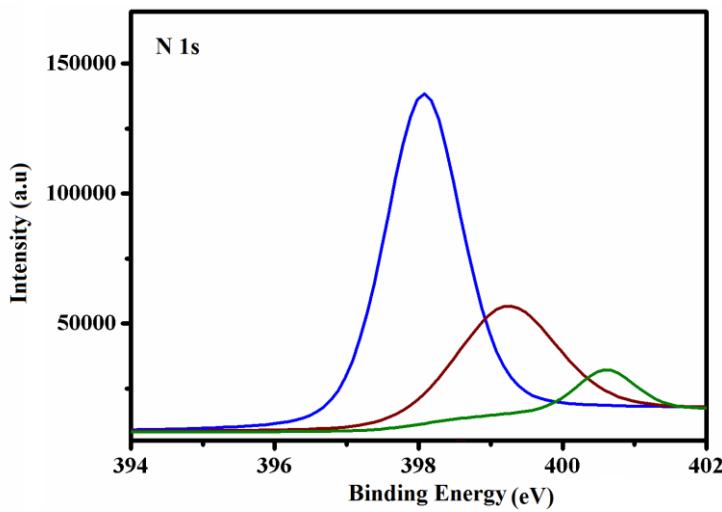


Figure S3: XPS fitting of N 1s of the pure g-C₃N₄.

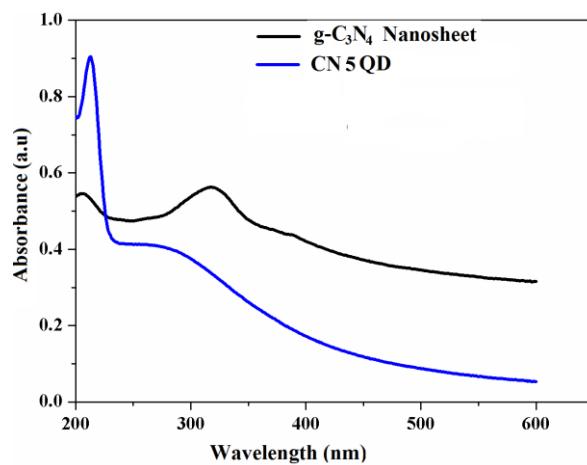


Figure S4: UV-visible spectra of the g-C₃N₄ nanosheet and CN-5 QD in water.

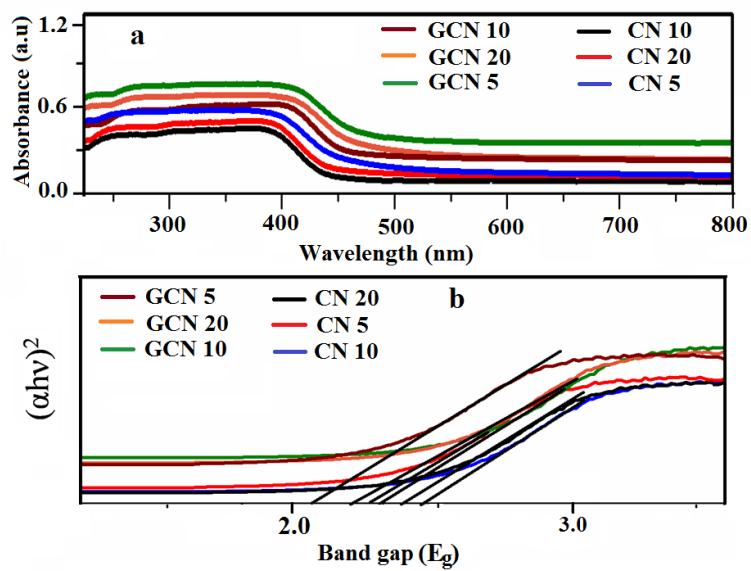


Figure S5: a) UV-visible spectra and b) Tauc plot of the CN and GCN NFs/QDs for determination of band gap.

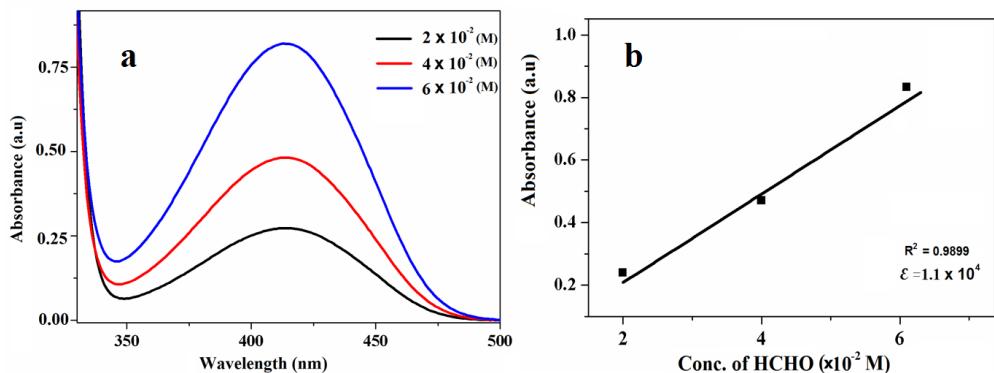


Figure S6: Standard calibration curve for determination of concentration of HCHO.

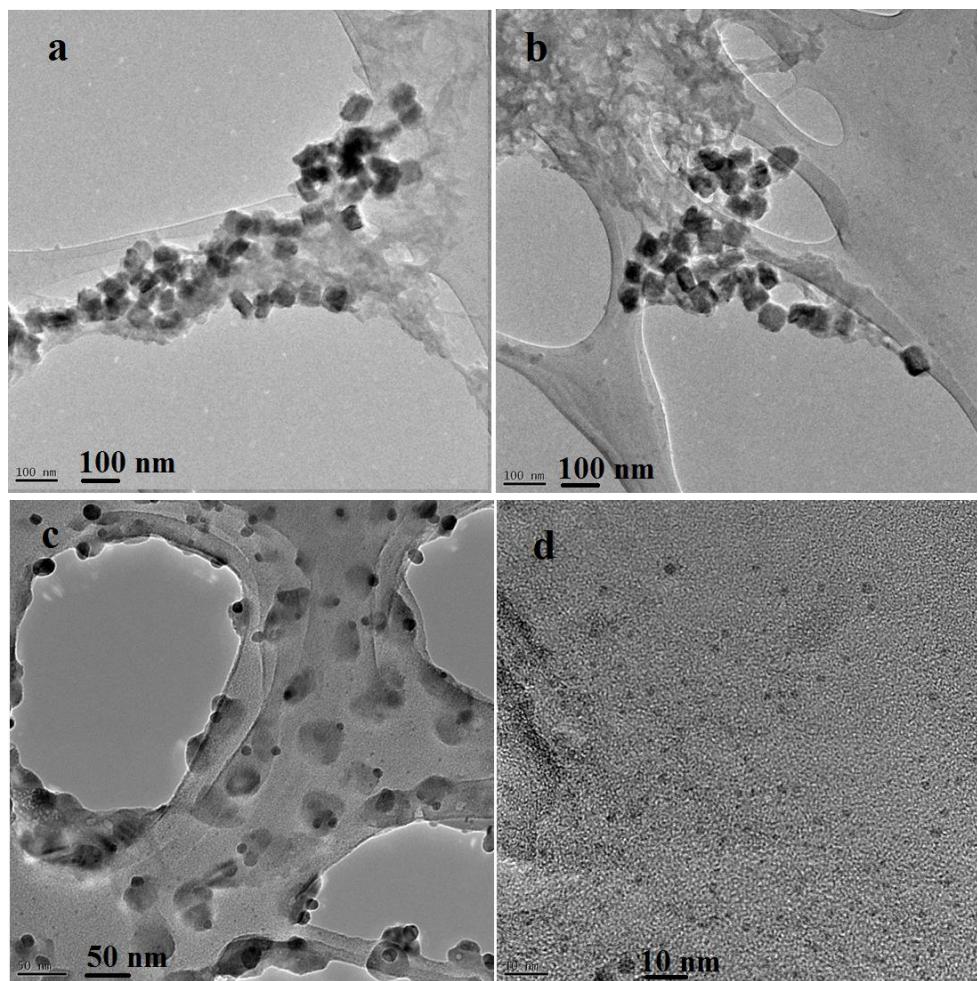


Figure S7: TEM image of the CN QDs at 130 °C for 5 h (a,b) and 190 °C for 10 h (c,d).

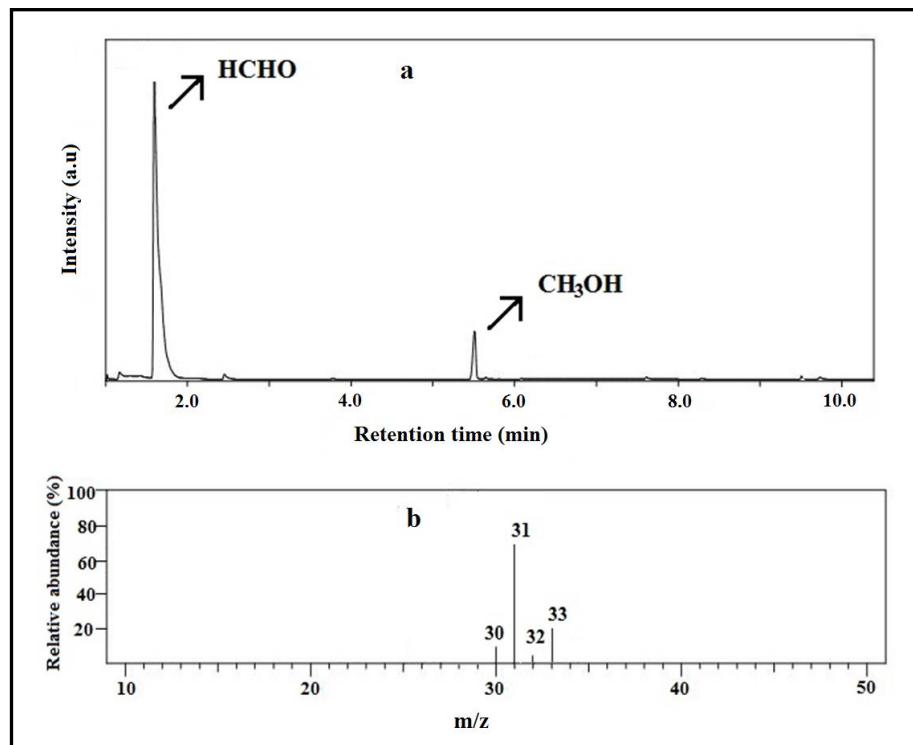


Figure S8: a) GC spectrum of the sample collected after 4 h of photoreaction in the presence of GCN-5, and b) GC-MS spectrum of photo-reacted sample treated with $^{13}\text{CO}_2$.