Electronic Supplementary Information

Preparation of photoluminescent carbon nitride dots from CCl_4 and 1,2-ethylenediamine: A heat-treatment-basedstrategy

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Characterizations

UV-vis spectra were obtained on a UV5800 Spectrophotometer. X-ray photoelectron spectroscopy (XPS) analysis was measured on an ESCALAB MK II X-ray photoelectron spectrometer using Mg as the exciting source. FT-IR spectrum was performed on an IFS 66V/S (Bruker) IR spectrometer in the range of 400-4000cm^{-1}. Transmission electron microscopy (TEM) measurements were made on a HITACHI H-8100 electron microscopy (Hitachi, Tokyo, Japan) with an accelerating voltage of 200 kV. The sample for TEM characterization was prepared by placing a drop of colloidal solution on carbon-coated copper grid and dried at room temperature. Fluorescent emission spectra were recorded on a RF-5301PC spectrofluorometer (Shimadzu, Japan). Zeta potential measurements were performed

on a Nano-ZS Zetzsozer ZEN3600 (Malvern Instruments Ltd., U.K.).

Quantum Yield Measurements

Quantum yield was measured according to established procedure (Lakowicz, J. R. *rinciples of Fluorescence Spectroscopy*, 2nd Ed., **1999**, Kluwer Academic/Plenum Publishers, New York). The optical densities were measured on UV-vis spectra were obtained on a UV5800 Spectrophotometer. Quinine sulfate in 0.1 M H_2SO_4 (literature quantum yield 0.54 at 360 nm) was chose as a standard. Absolute values are calculated using the standard reference sample that has a fixed and known fluorescence quantum yield value, according to the following equation:

$$\varphi_x = \varphi_{std} \frac{I_x}{A_x} \frac{A_{std}}{I_{std}} \frac{\eta^2{}_x}{\eta^2{}_{std}}$$

Where φ is the quantum yield, I is the measured integrated emission intensity, and A is the optical density, and η is the refractive index. The subscript "std" refers to the reference fluorophore of known quantum yield. In order to minimize re-absorption effects absorbencies in the 10 mm fluorescence cuvette were kept under 0.1 at the excitation wavelength (360 nm).

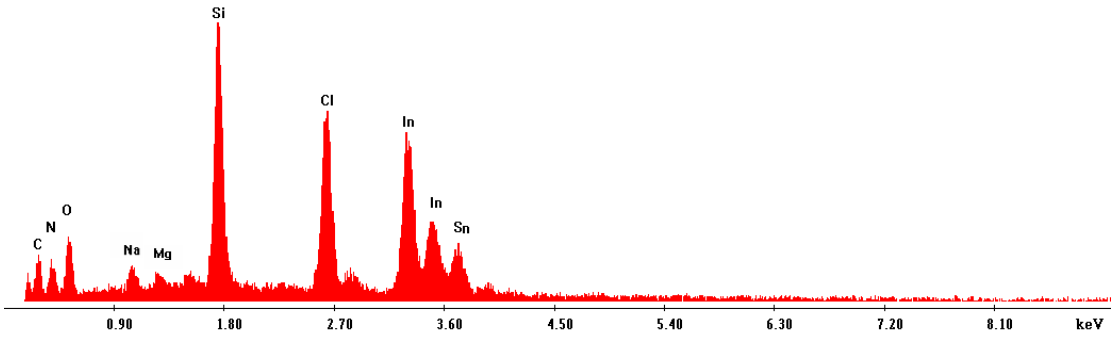

Fig. S1 The EDS spectrum of products thus formed.

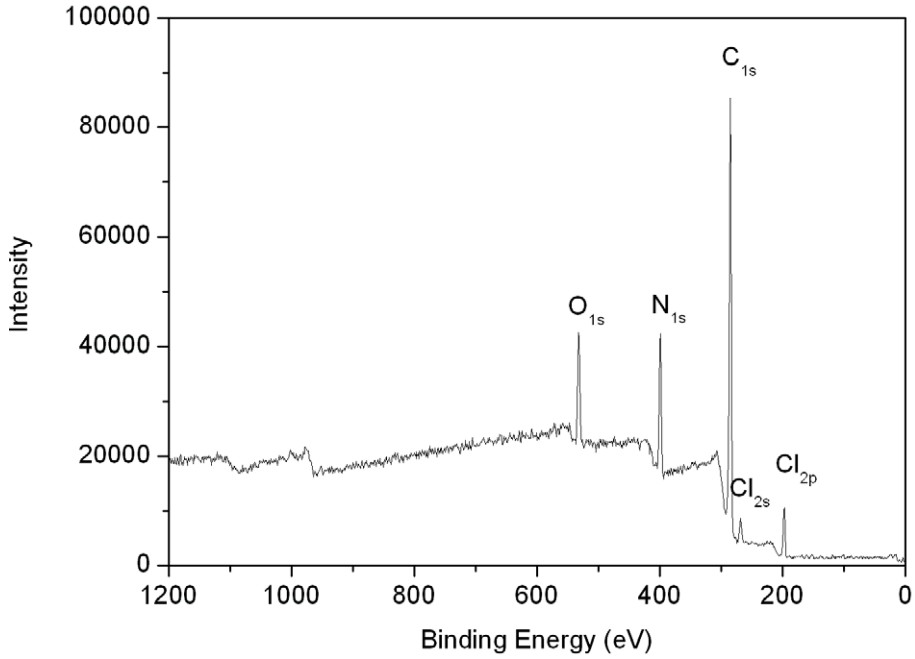

Fig. S2 XPS spectrum of CNDs-R thus formed.

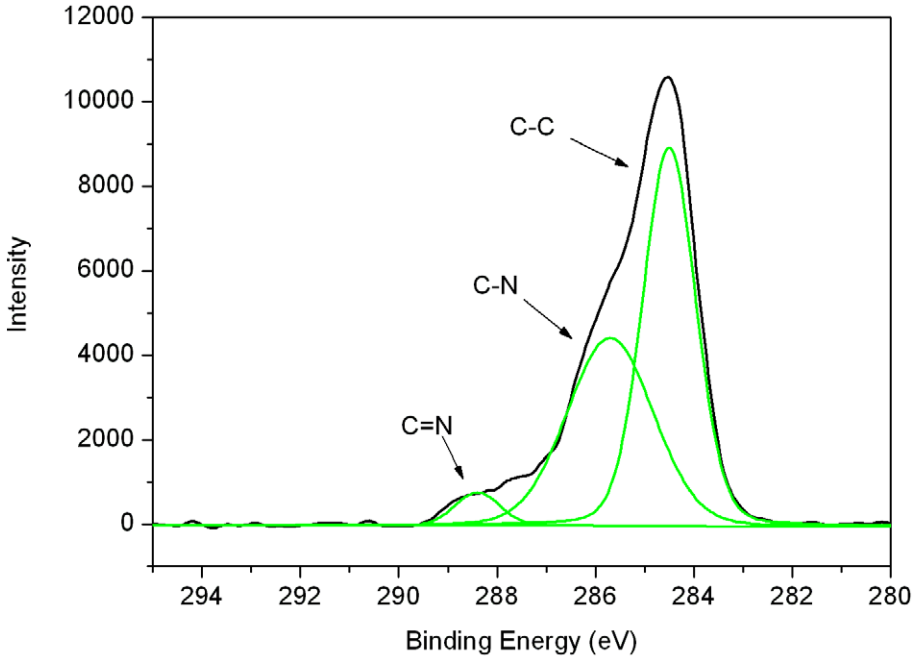

Fig. S3 C_{1s} spectrum of CNDs-R thus formed.

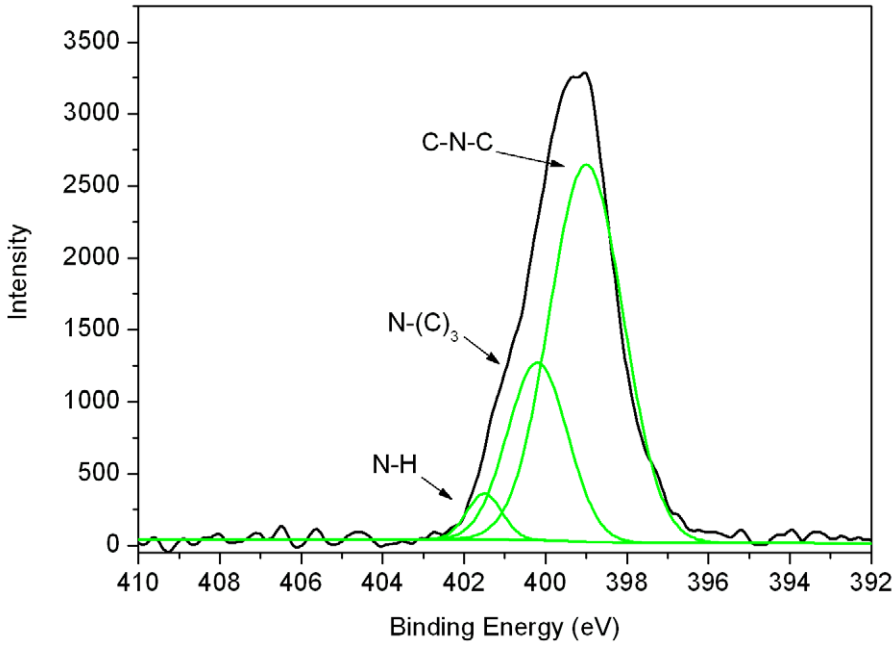

Fig. S4 N_{1s} spectrum of CNDs-R thus formed.

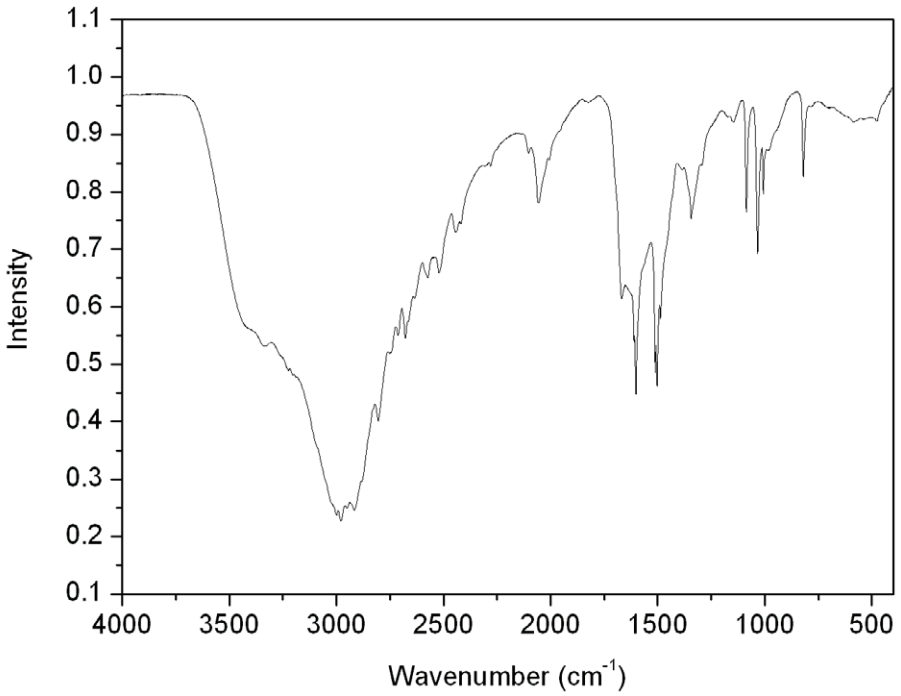

Fig. S5 The FT-IR spectrum of CNDs-R thus formed.

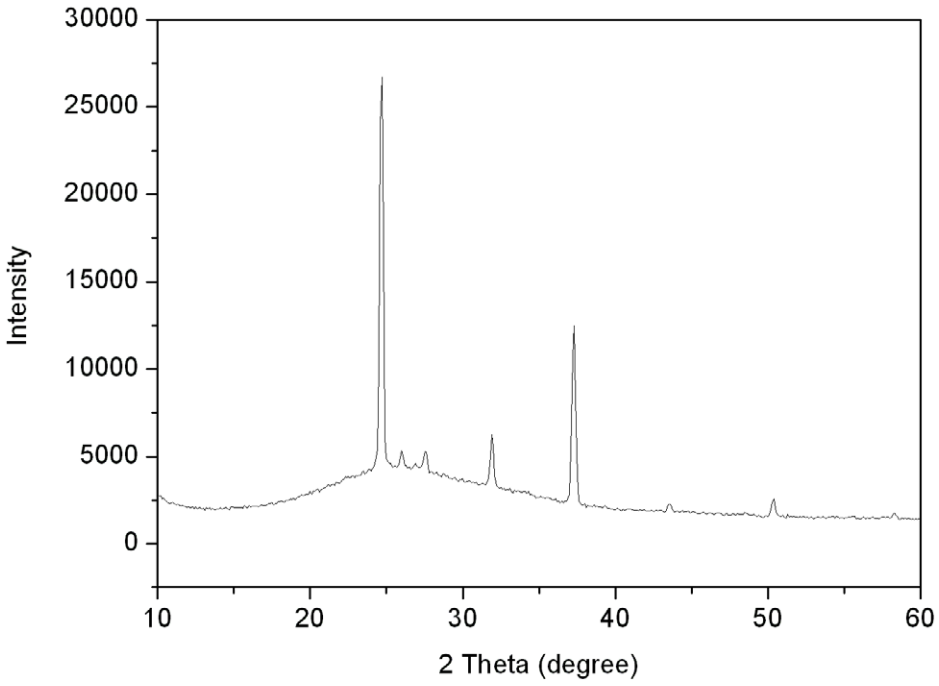

Fig. S6 The XRD pattern of CNDs-R thus formed.

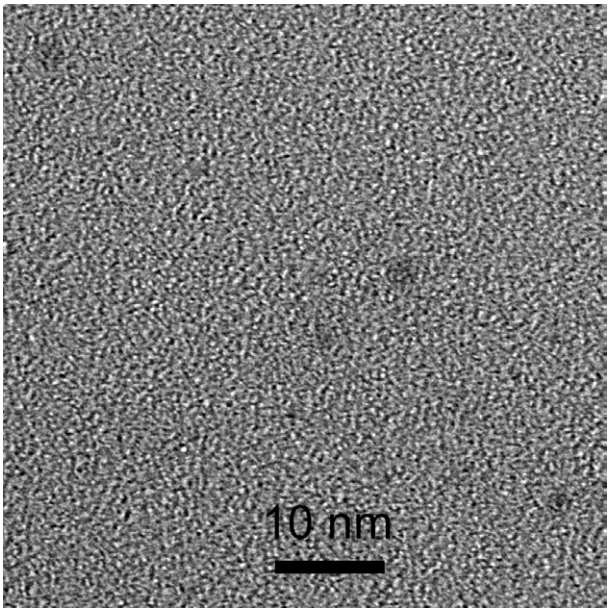

Fig. S7 The high magnification image of CNDs-R thus formed.

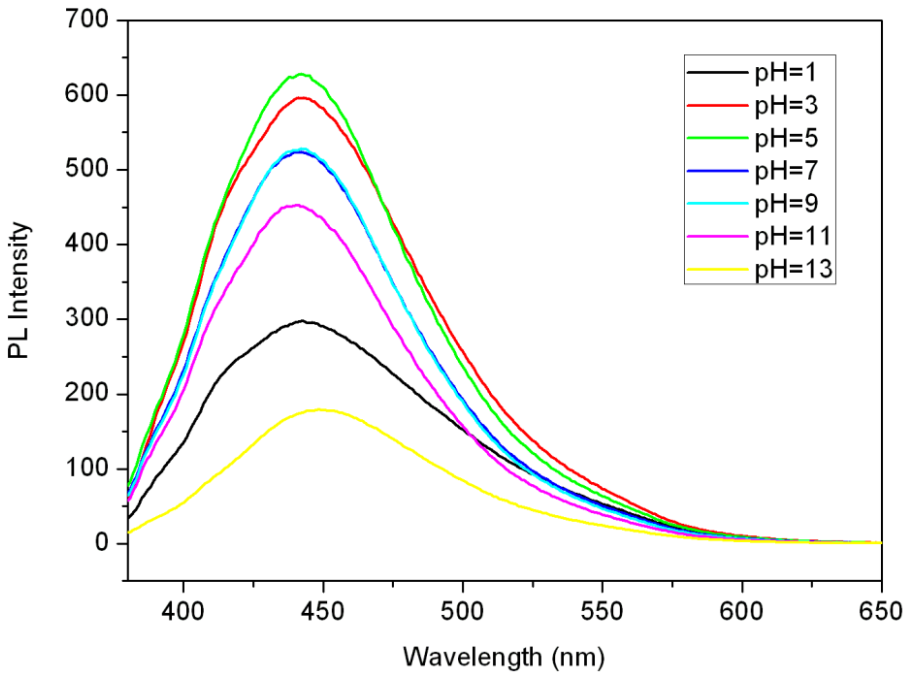

Fig. S8 The effect of the solution pH value on CNDs-R fluorescence.

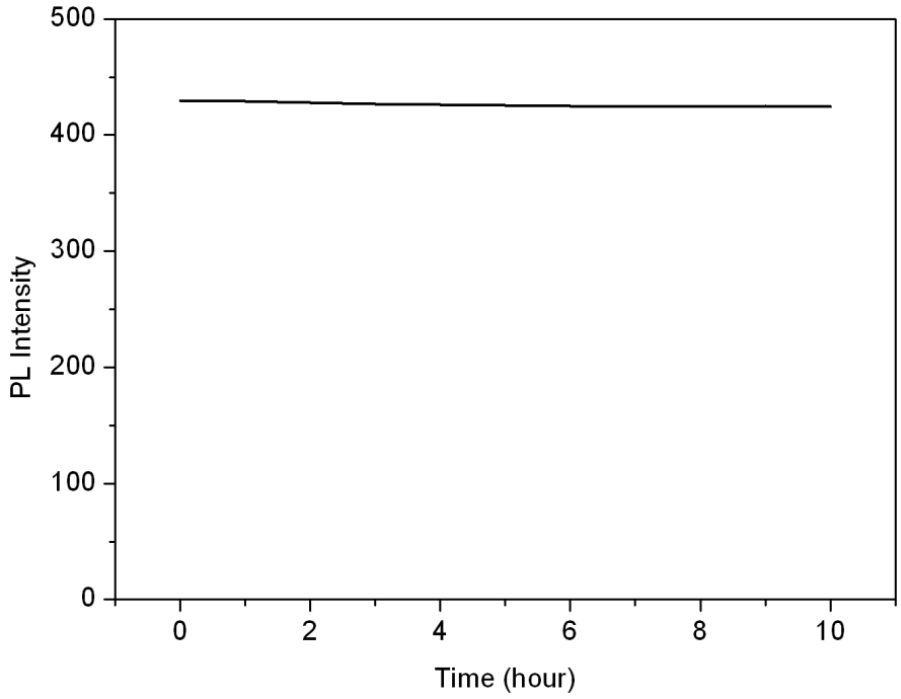

Fig. S9 Emission intensity of CNDs-R during continuous excitation at 365 nm.