Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Information

Production of Nitrogen Doped Carbon Quantum Dots with Controllable Emission Wavelength, Excellent Sensing of Fe^{3+} in Aqueous Solution and Potential Application for Stealth QR Coding at Visible Regime

*Yu-Hsun Su, Hsuan-Hao Huang, Chao-Chi Tseng, Hsin-Jung Tsai, Wen-Kuang Hsu**

Department of Materials Science and Engineering & High Entropy Materials Center,

National Tsing-Hua University, Hsinchu 300044, Taiwan

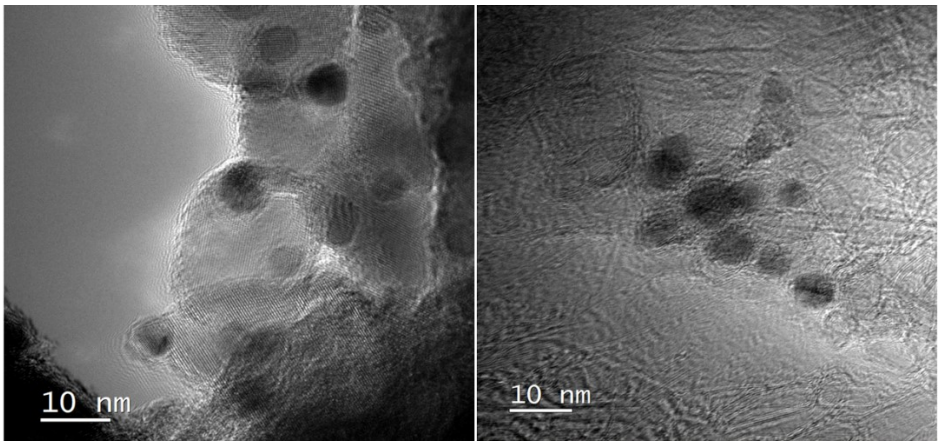

Figure S1. TEM images of ST3 made CQDs.

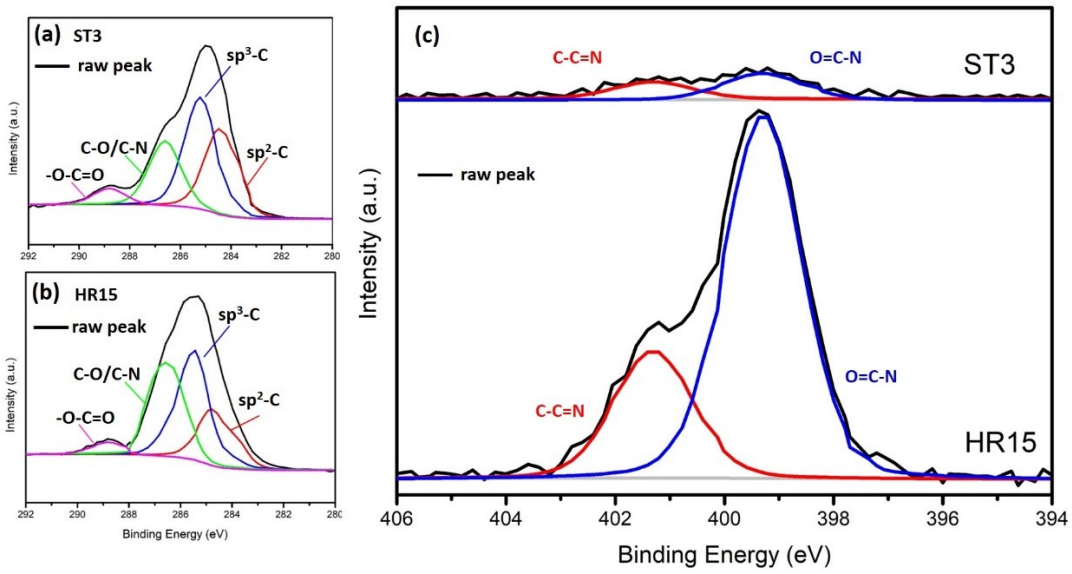

Figure S2. The surface functional groups of the N-CQDs were investigated using XPS spectra. The C1s high-resolution XPS spectrum of (a) ST3 and (b) HR15 shows three peaks assigned to carbon atoms in C=C (284.40 eV), C-C(285.2 eV), C-O (286.2 eV), and -O-C=O (288.8 eV). (c)The high-resolution N1s XPS spectrum (Figure 4C) exhibits two peaks located at 399.29 and 401.32 eV, which can be attributed to C=C–N and O=C–N, respectively.

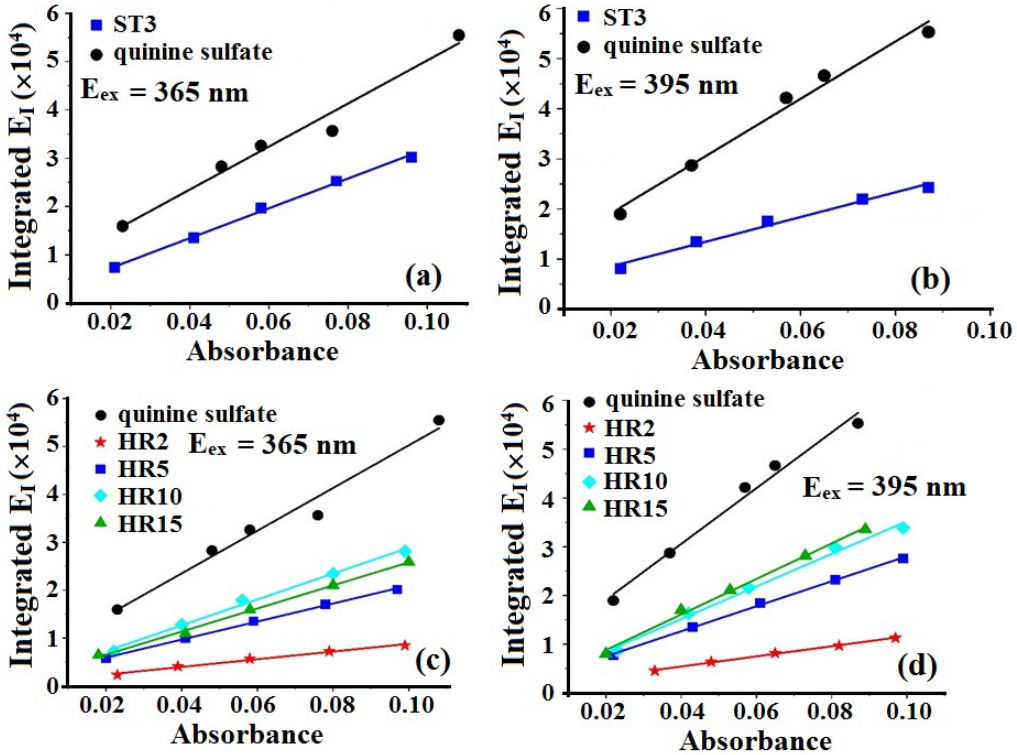

Figure S3. Integrated E_I - absorbance profiles of ST3 and quinine sulfate at E_{ex} = 365 nm (a) and 395 nm (b). Integrated E_I - absorbance profiles of HR and quinine sulfate at E_{ex} = 365 nm (c) and 395 nm (d).

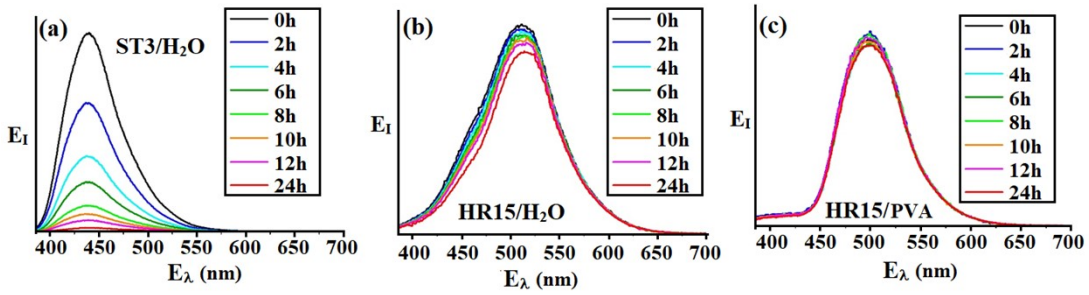

Figure S4. E_I-E_λ plots of ST3/H_2O (a), HR15/H_2O (b) and HR15/PVA at different irradiation times (c). E_{ex} = 395 nm.

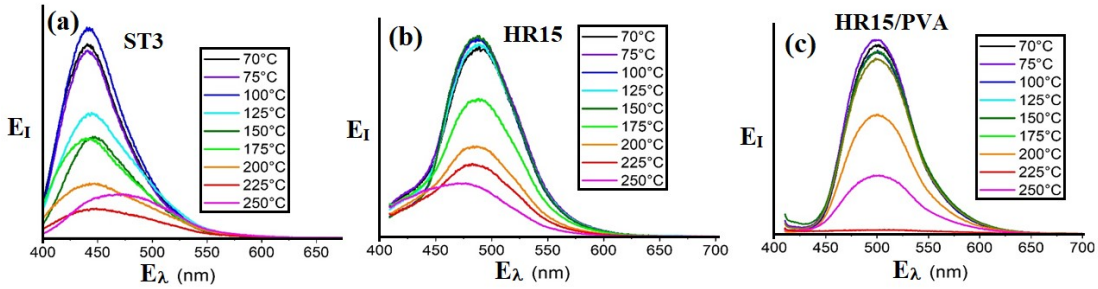

Figure S5. E_I-E_λ plots of ST3 (a), HR15 (b) and HR15/PVA (c) at different temperatures.