Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supporting Information

One-pot synthesis of highly fluorescent Fe^{2+}-doped carbon dots for dual-emissive nanohybrid to detection of zinc ions and histidine

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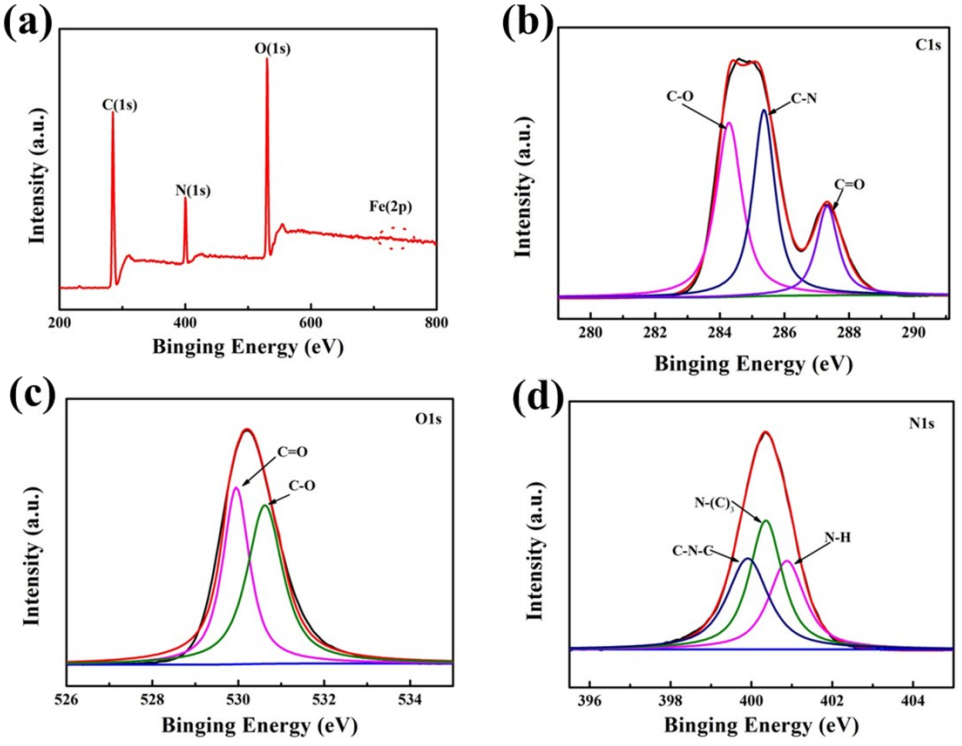

Figure. S1 XPS spectra of as-synthesized Fe^{2+}-doped CDs: (a) full scan spectrum, (b) C 1s, (c) O 1s and (d) N 1s.

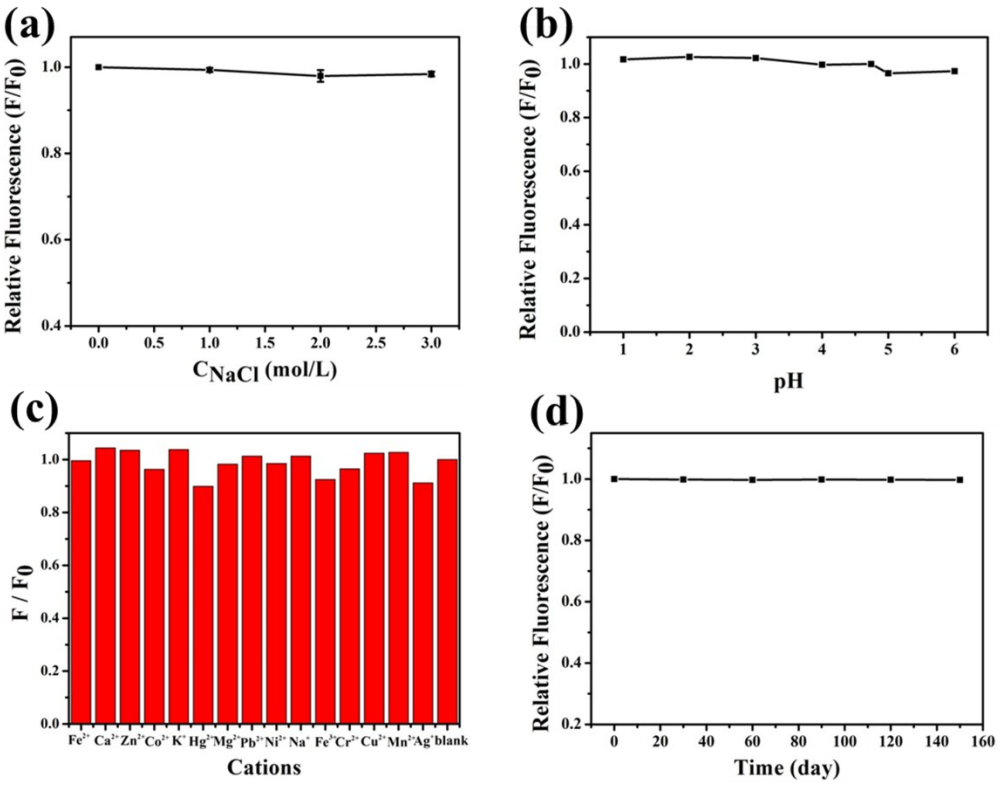

Figure. S2 Effects of (a) NaCl solutions with different ionic strengths, (b) pH, (c) various common metal ions (1 mM), (d) storage time on the fluorescence stability of Fe^{2+}-doped CDs.

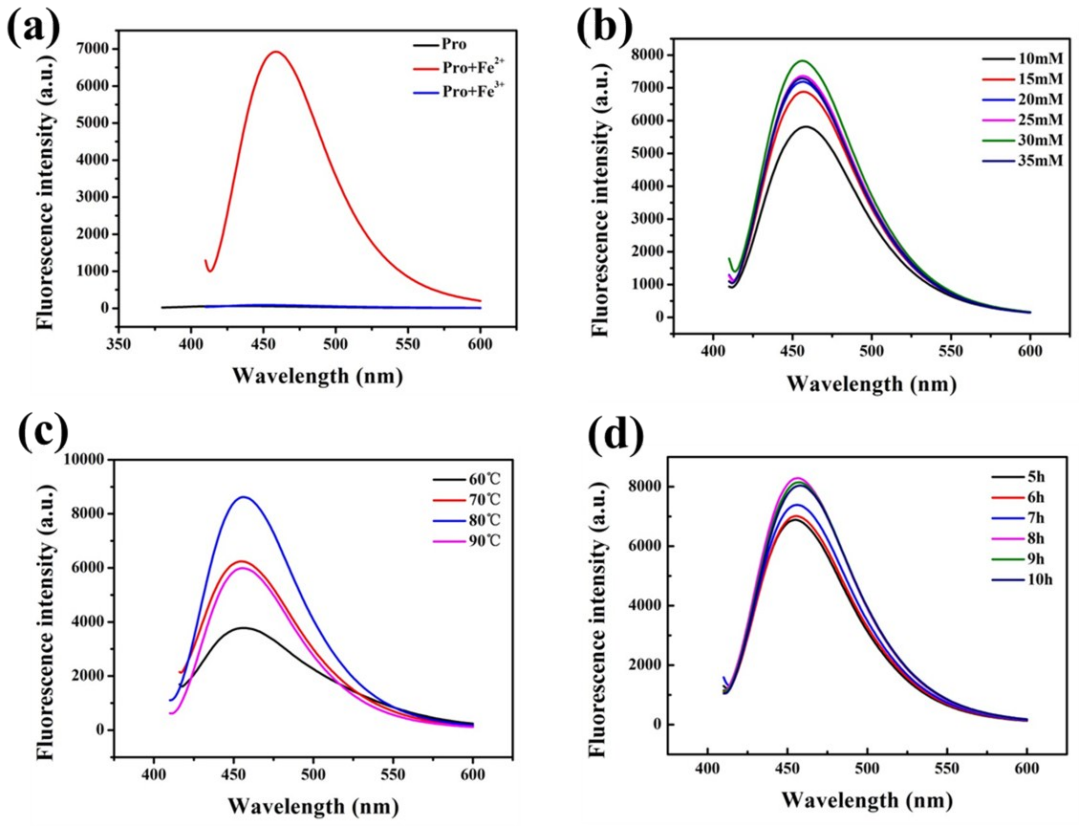

Figure. S3 (a) The influence of Fe^{2+} , Fe^{3+} and the absence of iron ions on the formation of CDs. (b) Fluorescence spectra of Fe^{2+}-doped CDs in the presence of Fe^{2+} ions with different concentrations. Fluorescence spectra of Fe^{2+}-doped CDs at different incubation (c) temperature and (d) time.

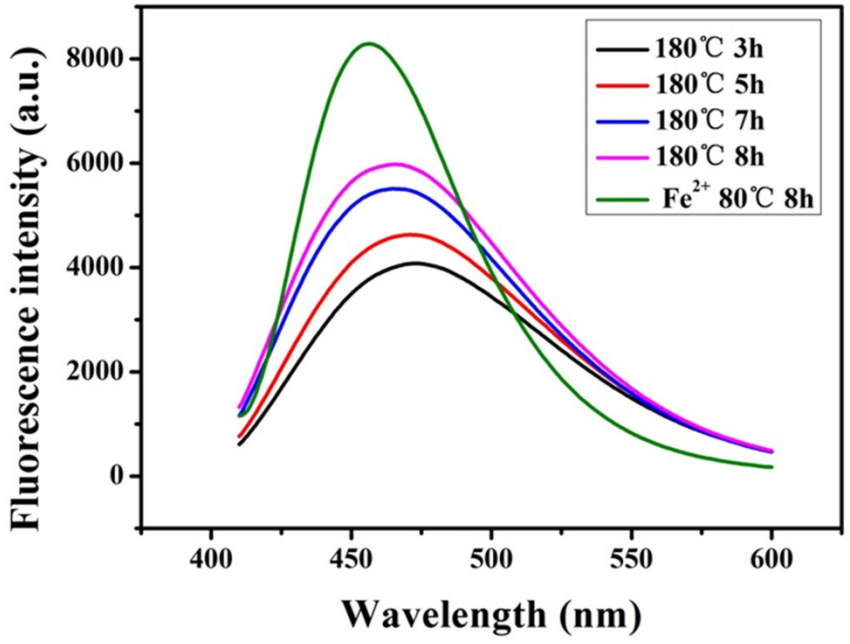

Figure. S4 Fluorescence spectra of Fe^{2+}-doped CDs synthesized at 80 °C and different hydrothermal time at 180 °C.

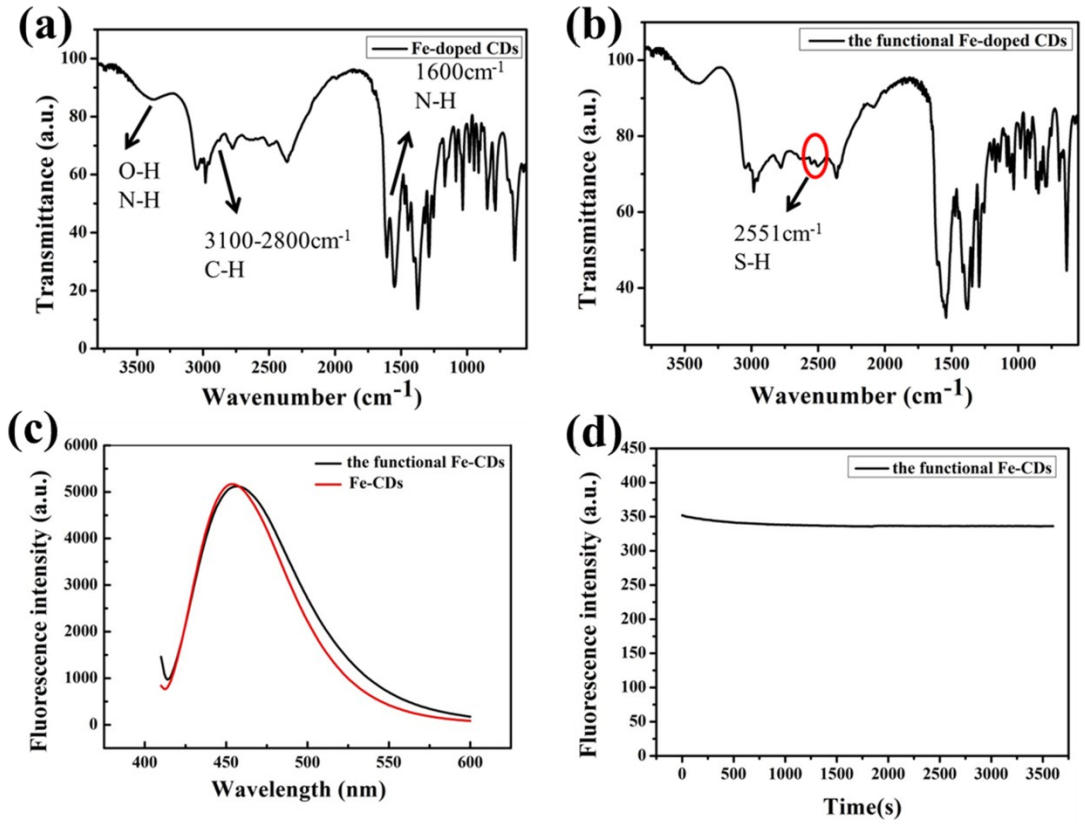

Figure. S5 The FT-IR spectrum of (a) Fe^{2+}-doped CDs and (b) the functional Fe^{2+}-doped CDs. (c) Fluorescence spectra of Fe^{2+}-doped CDs and the functional Fe^{2+}-doped CDs. (d) Fluorescence spectra of the functional Fe^{2+}-doped CDs recorded for 1 h under UV light at 365 nm.

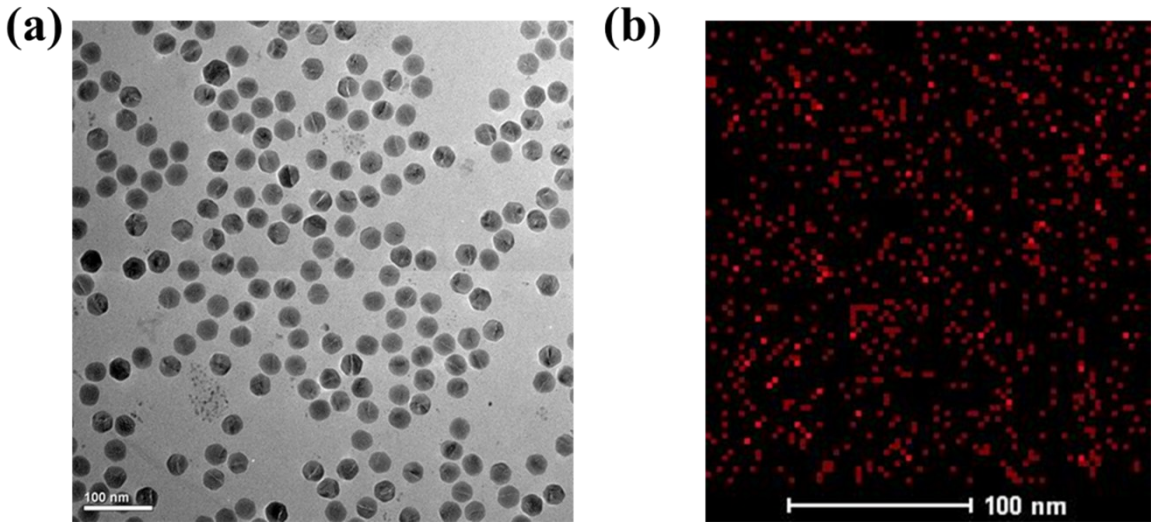

Figure. S6 (a) TEM images of the nanohybrid and (b) a TEM mapping of Au NCs in the nanohybrid.

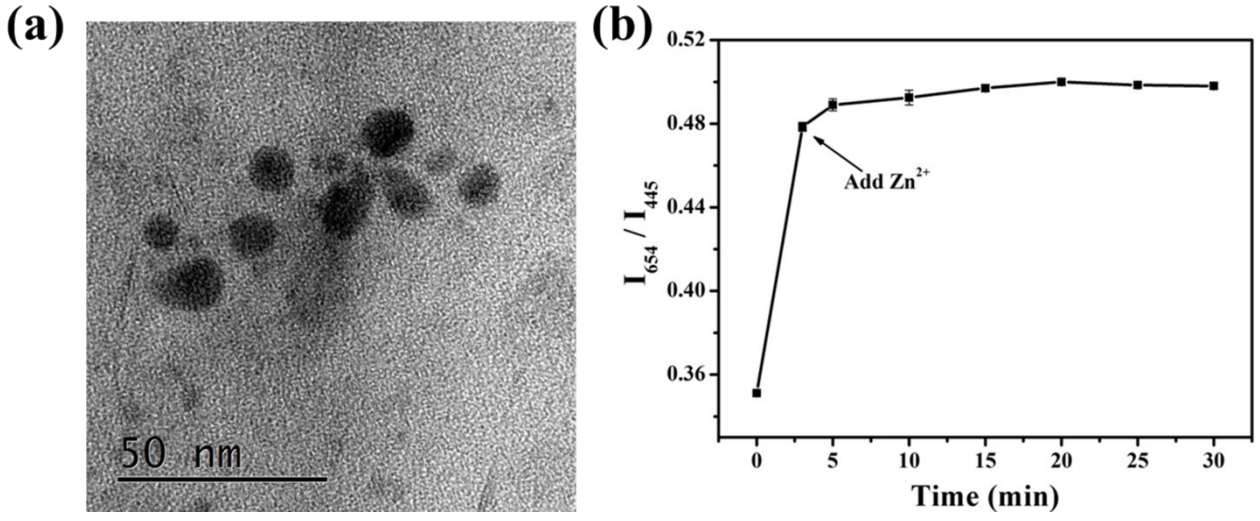

Figure. S7 (a) TEM image of Zn^{2+}-added Au NCs and (b) the time-dependent fluorescence of the nanohybrid after addition of Zn^{2+} (100 μM).

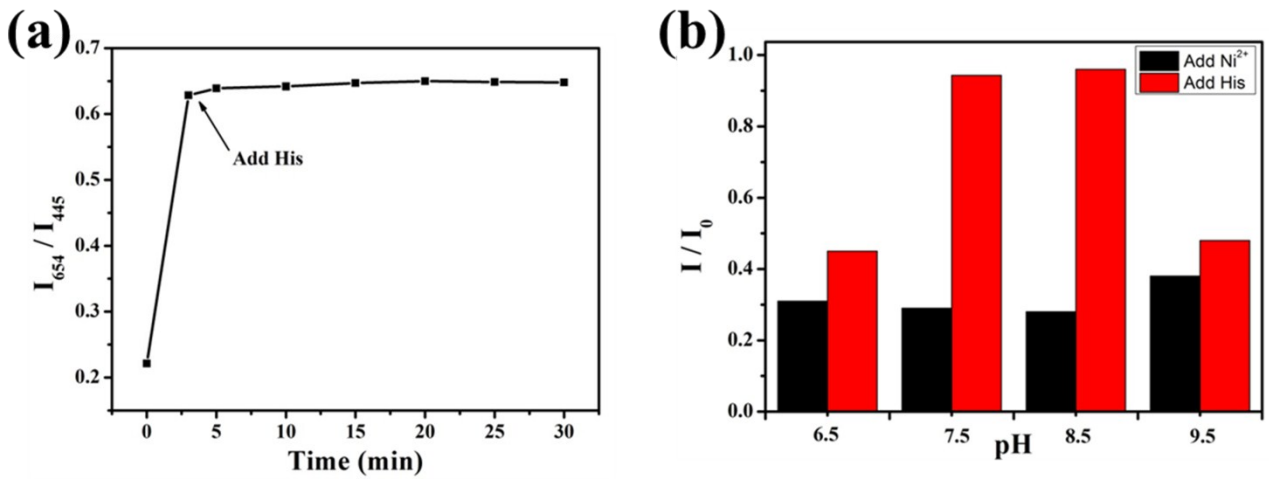

Figure. S8 (a) The time-dependent fluorescence of the Ni^{2+}-nanohybrid after addition of His (300 μM). (b) The influence in the presence of the same concentration of Ni^{2+} (100 μM) and His (300 μM) at the different pH on the PL of I/I_0, I and I_0 are the I_{650}/I_{445} (The ratio of fluorescence intensity) in the presence and absence of Ni^{2+}, respectively.