Electronic Supplementary Material (ESI) for RSC Advances.

Supporting information

One-pot Development of Water Soluble Copper Nanoclusters with Red Emission and Aggregation Induced Fluorescence Enhancement

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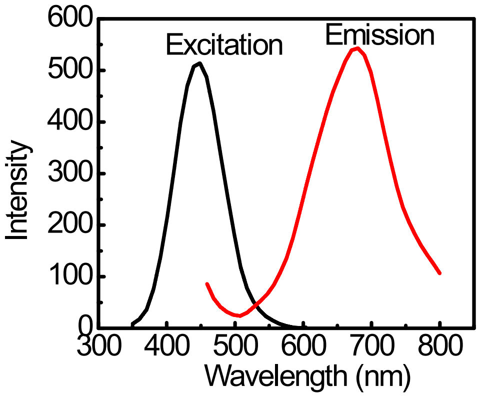


Fig. S1 Fluorescence excitation, emission spectra of CuNCs prepared using $NaBH_4$ as a reducing reagent.

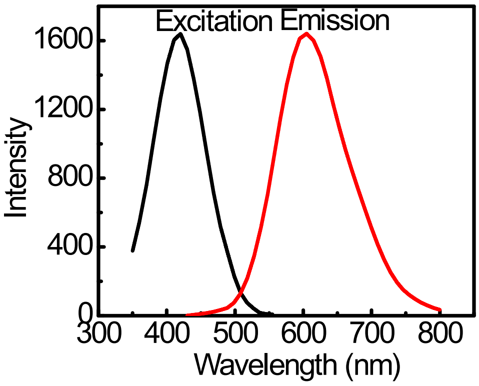


Fig. S2 Fluorescence excitation, emission spectra of CuNCs prepared using N_2H_4 as a reducing reagent.

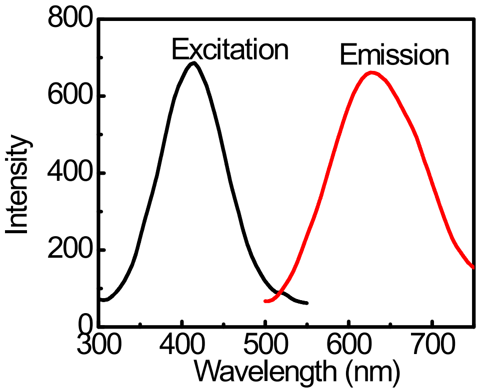


Fig. S3 Fluorescence excitation, emission spectra of CuNCs prepared using THPC as a reducing reagent.

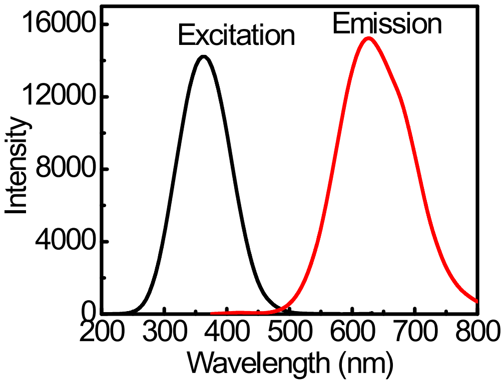


Fig. S4 Fluorescence excitation, emission spectra of CuNCs prepared using THPC as a reducing reagent in the presence of NaCl.

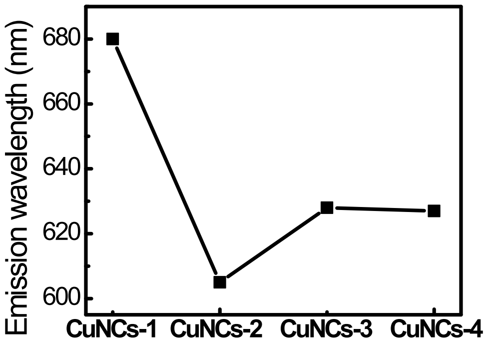


Fig. S5 Emission wavelength as a function of CuNCs-1, CuNCs-2, CuNCs-3 and CuNCs-4.

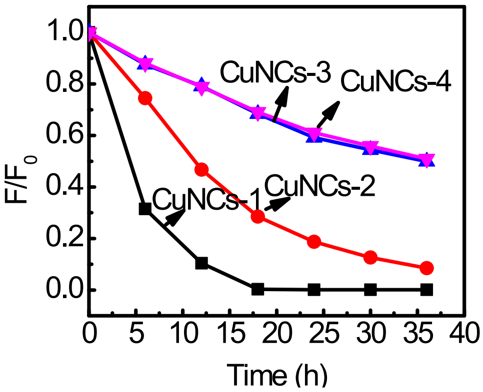


Fig. S6 Decrease of the fluorescence intensity ratio for CuNCs-1, CuNCs-2, CuNCs-3 and CuNCs-4 as a function of time.

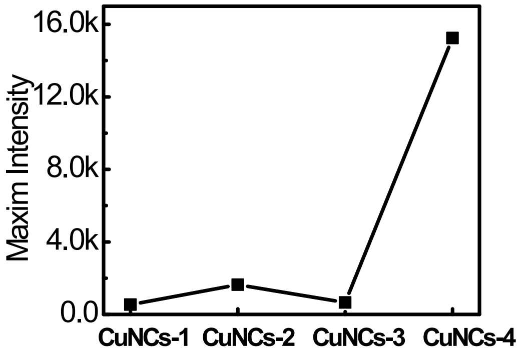


Fig.S7 Maxim emission intensity as a function of CuNCs-1, CuNCs-2, CuNCs-3 and CuNCs-4.

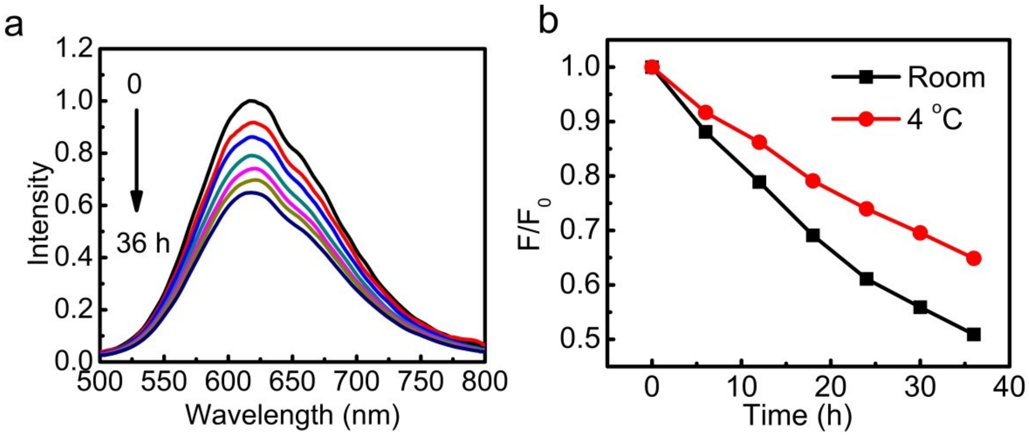


Fig. S8 Fluorescence spectra of CuNCs-4 as a function of time at 4 ℃ (a) and the comparison for relative intensity change at 4 ℃ and room temperature (b).

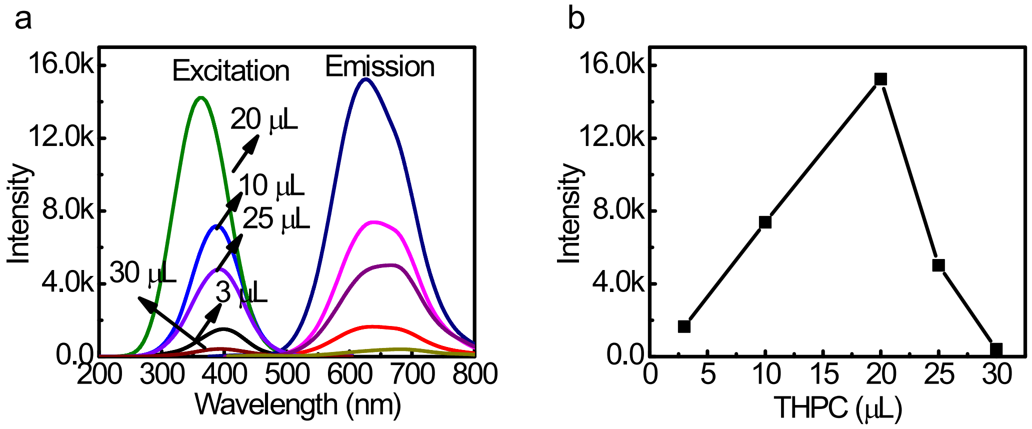


Fig. S9 Fluorescence excitation, emission spectra (a) and the maxim emission intensity (b) of the as obtained CuNCs by using various amounts of THPC.

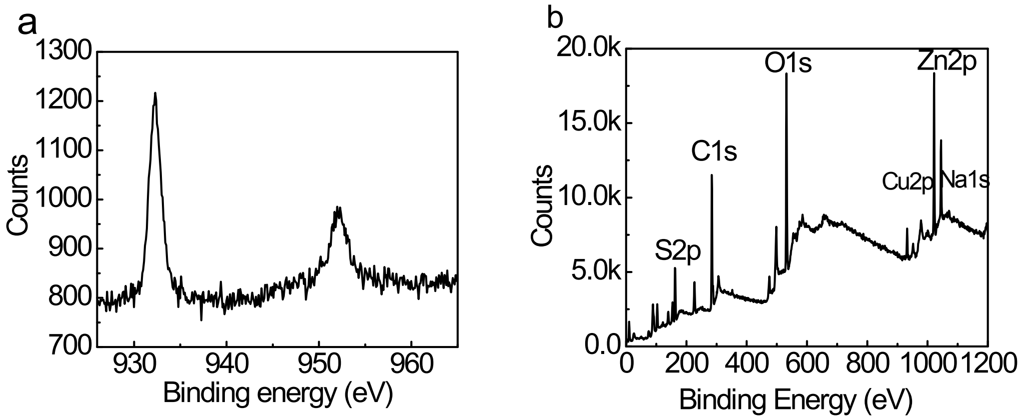


Fig. S10 XPS spectrum of Cu 2p (a) and XPS survey (b) for CuNCs in the presence of Zn^{2+}.

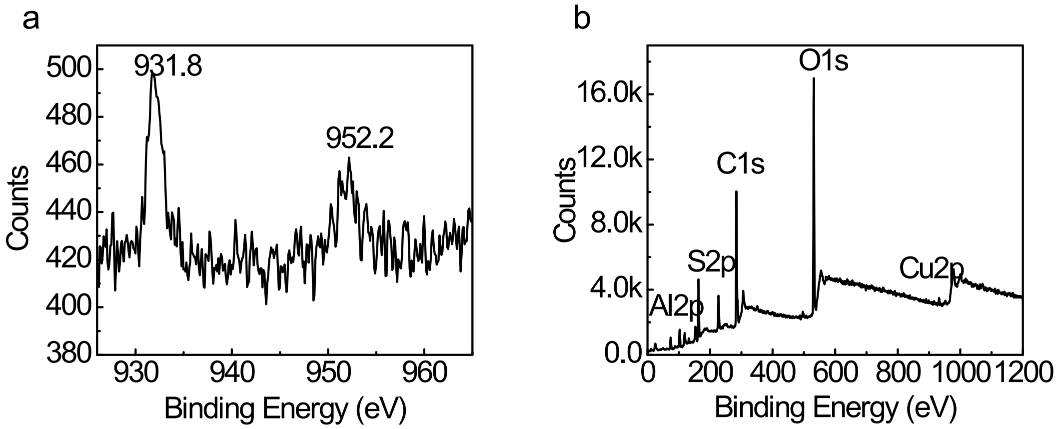


Fig. S11 XPS spectrum of Cu 2p (a) and XPS survey (b) for CuNCs in the presence of Al^{3+}.

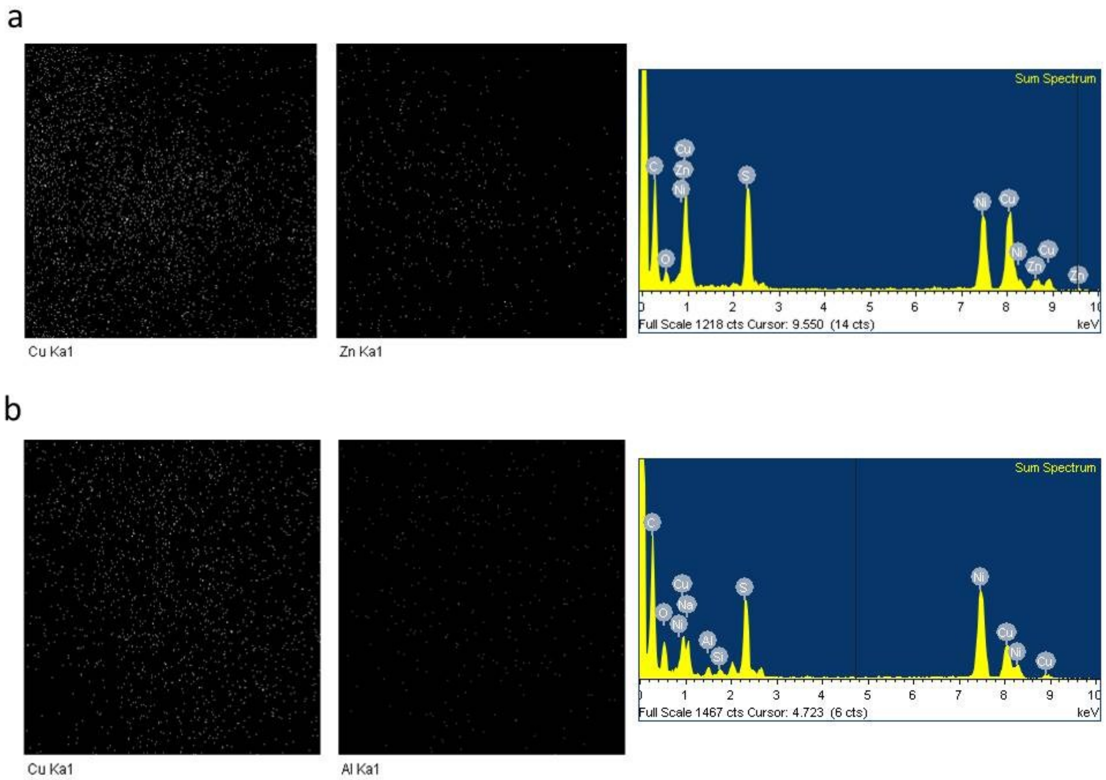
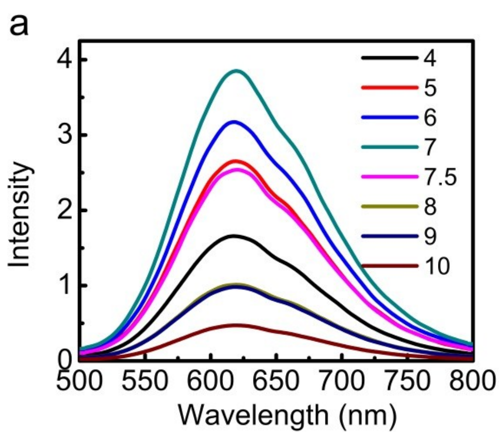


Fig. S12 EDS-Mapping and EDS for CuNCs product in the presence of Zn^{2+} (a) as well as Al^{3+} (b).



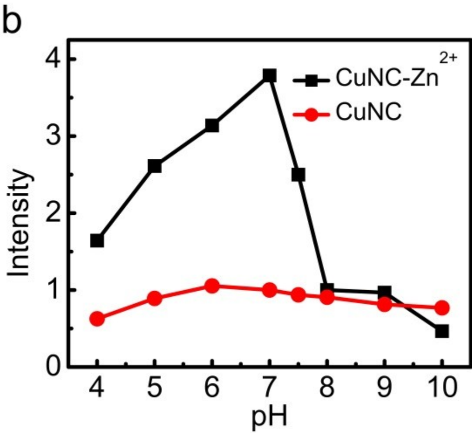
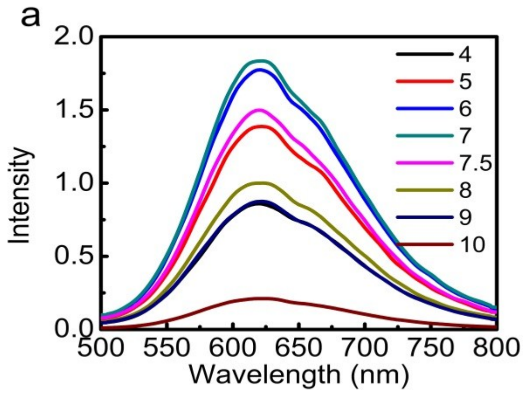


Fig. S13 Fluorescence spectra of CuNCs-4 in the presence of 400 μM of Zn^{2+} (a) and the comparison for relative fluorescence intensity of CuNCs-4 in the absence and presence of 400 μM of Zn^{2+} (b) at different pH values.



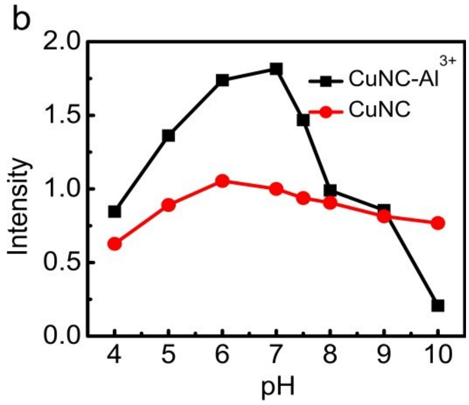


Fig. S14 Fluorescence spectra of CuNCs-4 in the presence of 400 μM of Al^{3+} (a) and the comparison for relative fluorescence intensity of CuNCs-4 in the absence and presence of 400 μM of Al^{3+} (b) at different pH values.