Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Information

to

Photoluminescence Dynamics of Copper Nanoclusters Synthesized by Cellulase: Role of Random-Coil Structure

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Figure S1. Reaction schemes for the synthesis of Cu NCs in Cellulase solution

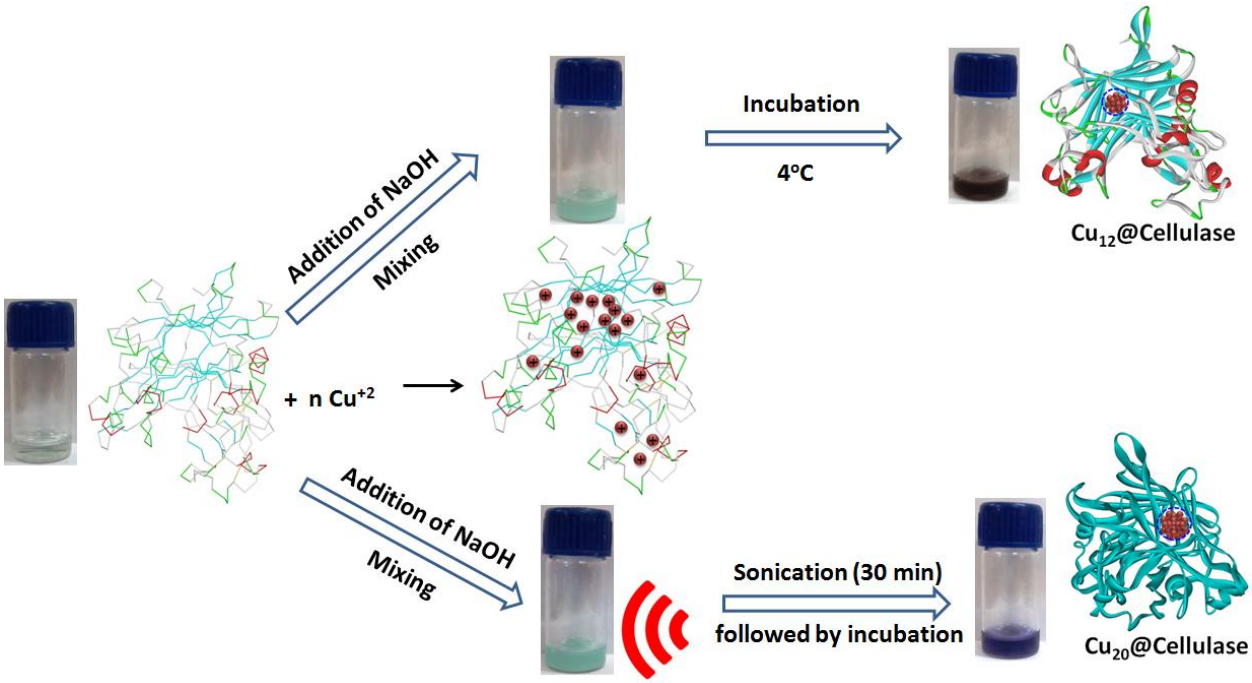

Figure S2. [A] Photoluminescence spectra of the Cu_{12} NC-Cellulase at different time period. [B] Photostability Cu_{12} NC-Cellulase: PL Intensity at λ_{em} = 320 nm as a function of time when irradiated at λ_{ex} = 320 nm.

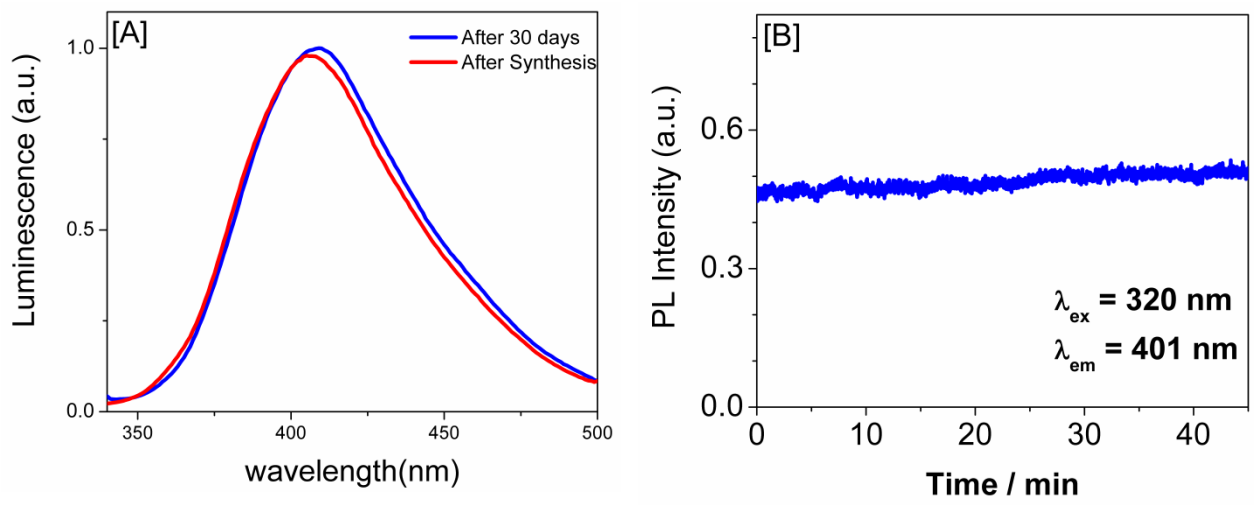

Figure S3. [A] Photoluminescence spectra of the Cu_{20} NC-Cellulase at different time period. [B] Photostability Cu_{20} NC-Cellulase: PL Intensity at λ_{em} = 485 nm as a function of time when irradiated at λ_{ex} = 440 nm.

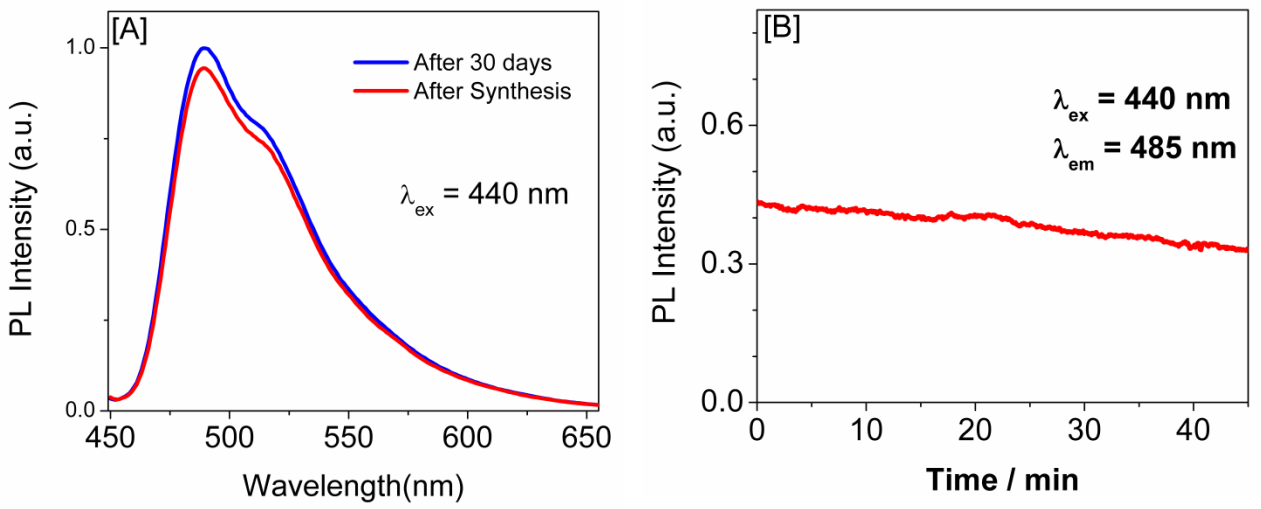

Figure S4. [A] Excitation-dependent emission spectra of the Cu_{12} NC-Cellulase in aqueous solution. **[B]** Photoluminescence spectra of the Cu_{12} NC-Cellulase and Cellulase (at pH ~ 11)

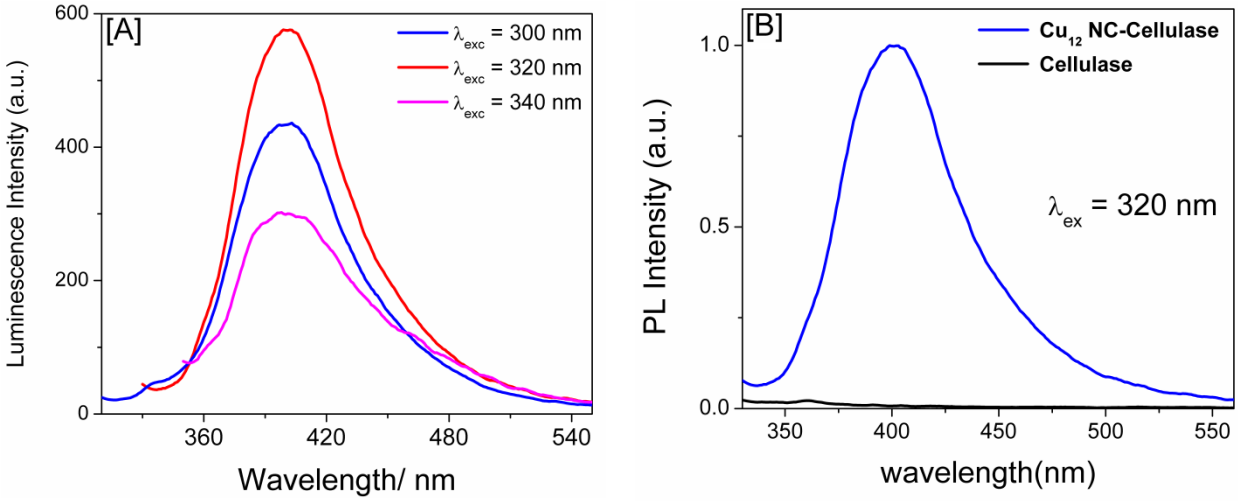

Figure S5. Excitation-dependent emission spectra of the Cu NCs-Cellulase in aqueous solution. Inset contains the ratio of intensities ($I_{484\ nm}$ / $I_{515\ nm}$) vs. excitation wavelength of the same mentioned above.

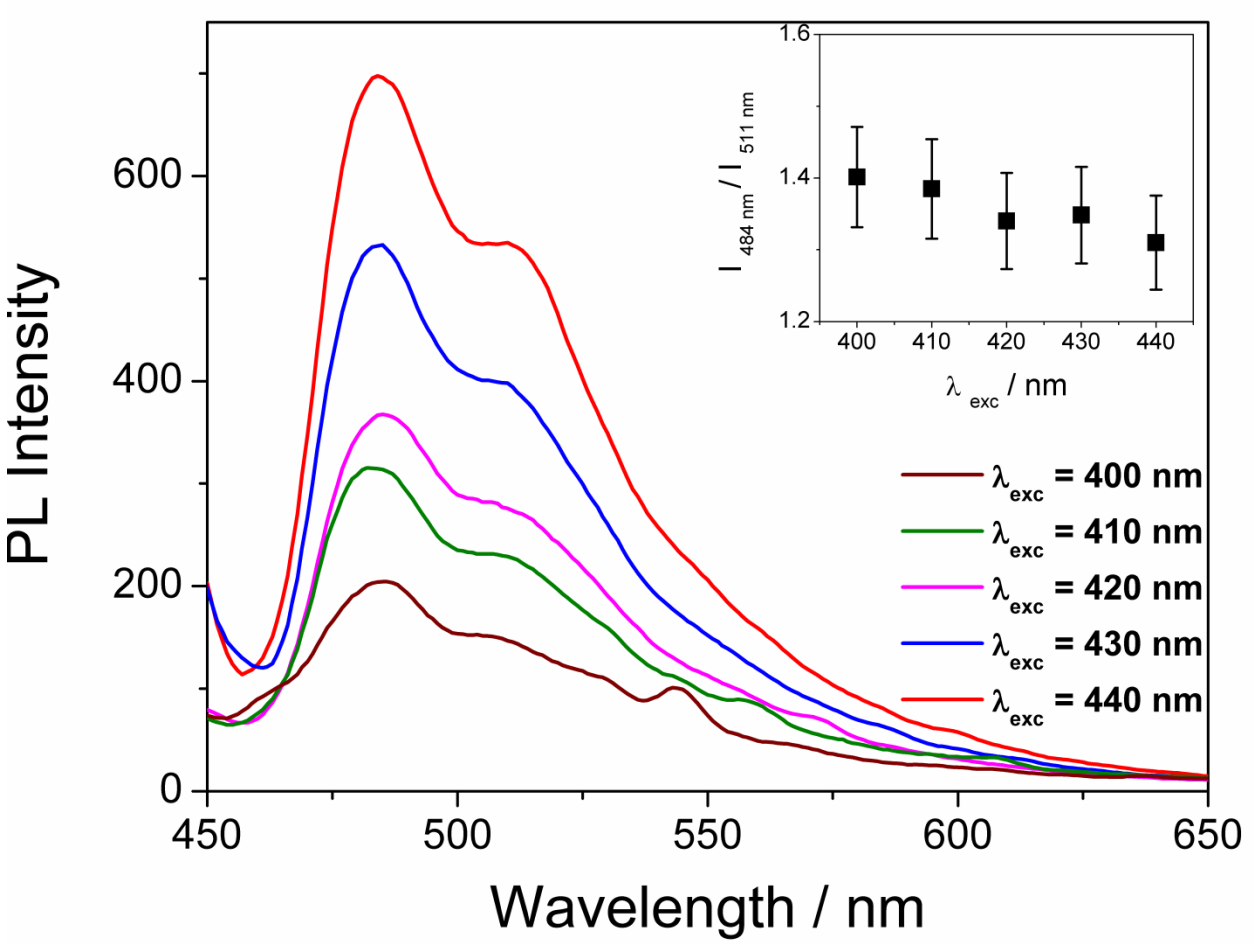

Figure S6. (A, B) TEM images of CuNCs synthesized by cellulase in aqueous media.

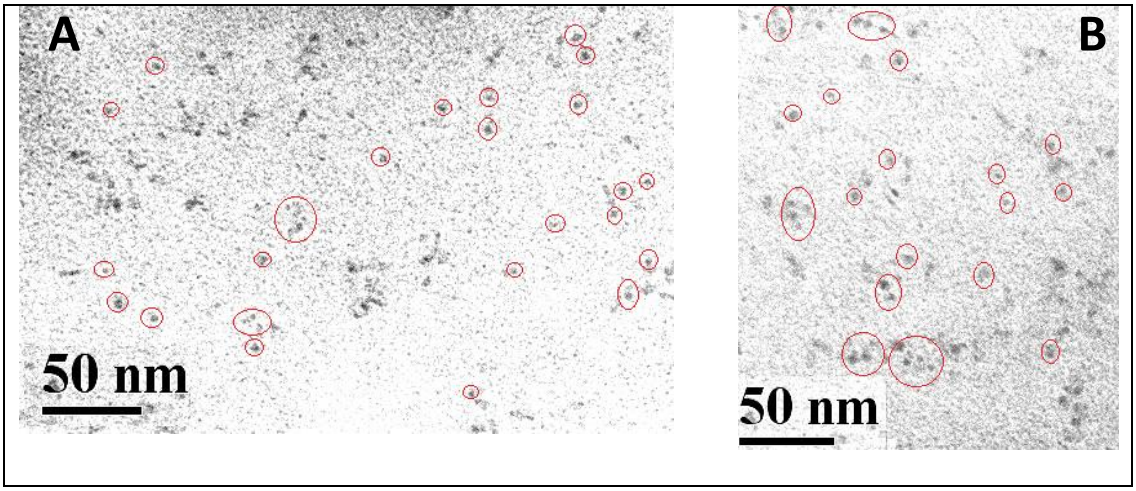

Figure S7. PL lifetime decay profile of the Cu_{12} NCs-Cellulase in aqueous solution.

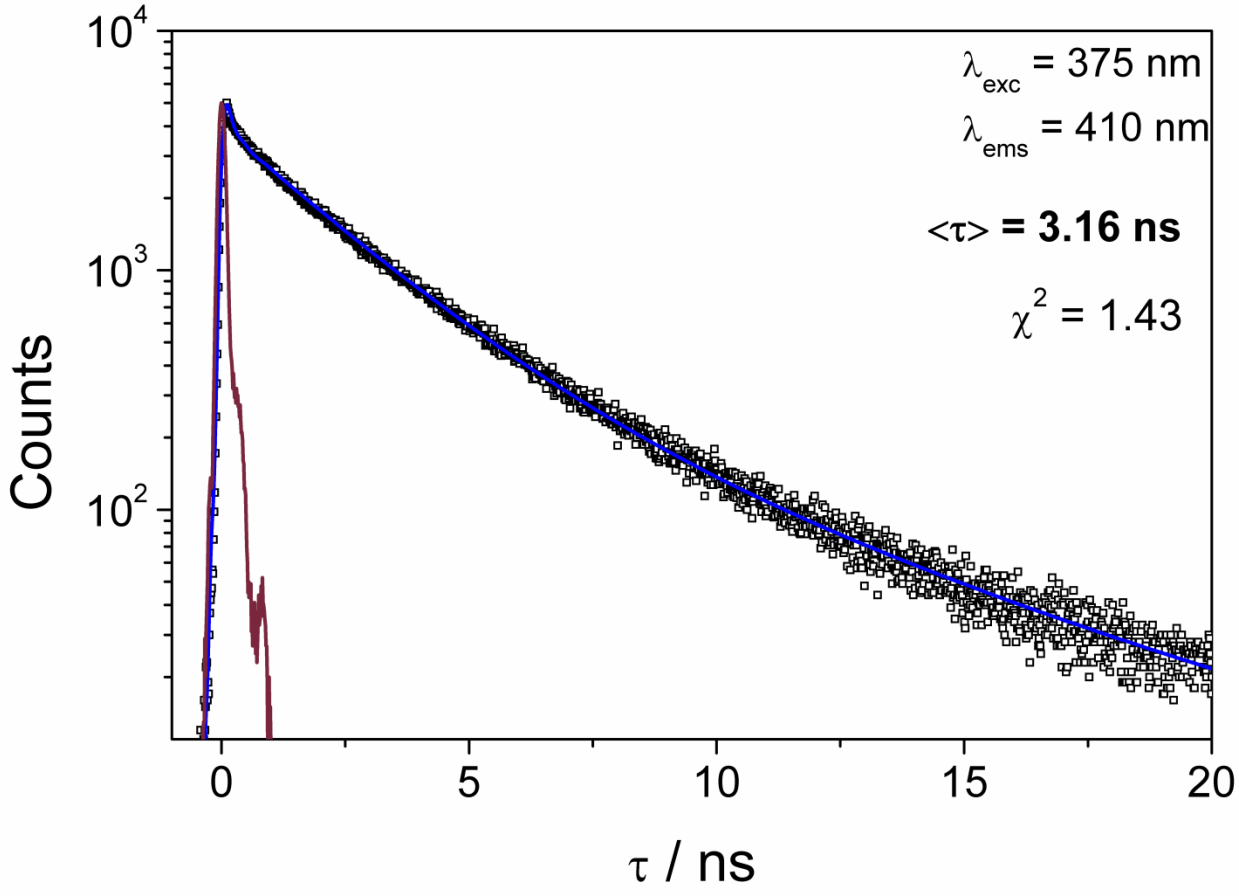

Figure S8. Emission spectra of Cu_{12} NCs-Cellulase in- [A] aqueous media, [B] methanloic medium as a function of temperature (λ_{exc} = 330 nm).

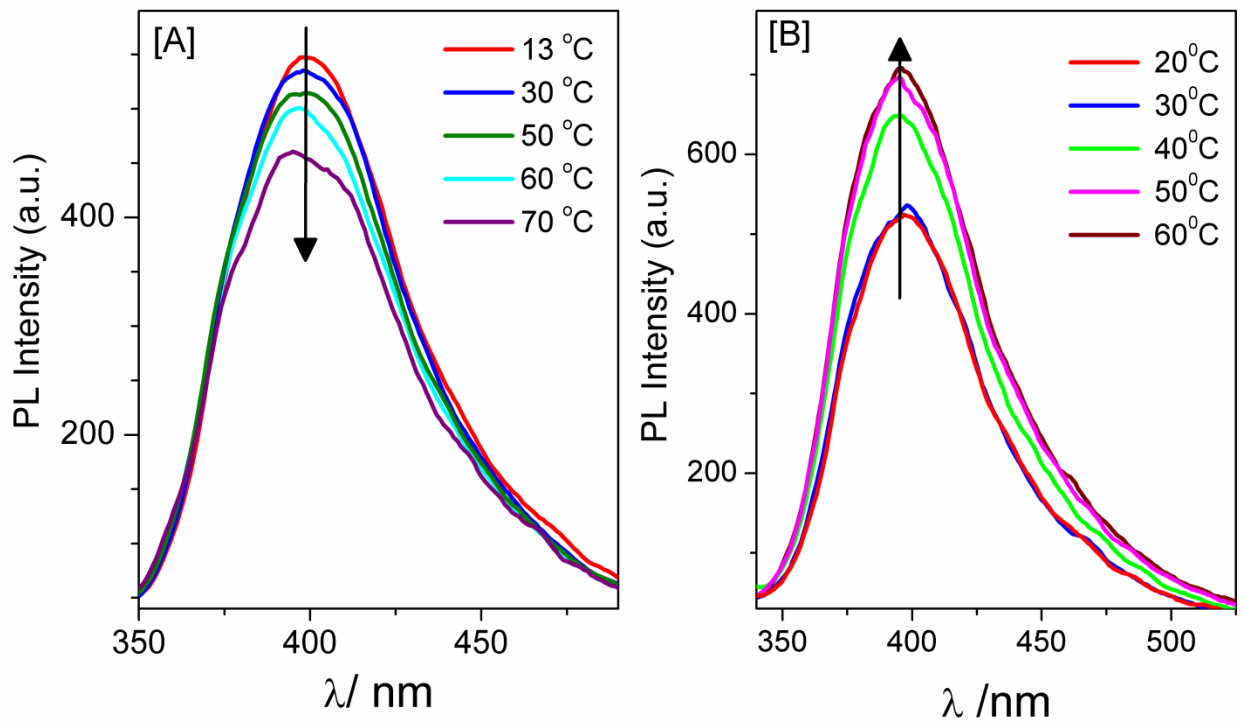

Figure S9. [A] Emission spectra of Cu NCs-Cellulase (method-II) in aqueous media as a function of temperature (λ_{exc} = 440 nm). Inset contains the plot of PL intensity at 485 nm vs. temperature of the medium. **[B]** Synchronous luminescence spectra of the same, $\Delta\lambda$= 20 nm.

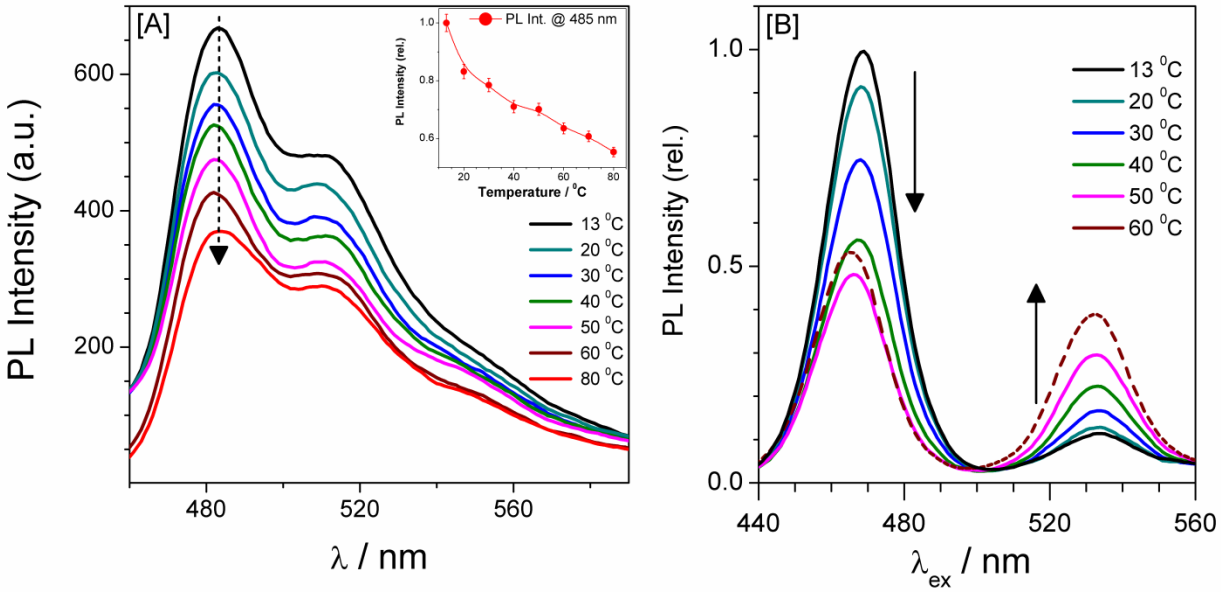

Figure S10. Emission spectra of CuNCs in the presence of increasing concentrations of metal ions- **[A]** Zn (II) ions, **[B]** Cd (II) ions, **[C]** Hg (II) ions.