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 $\lambda_{\text{em}} = 320$ nm as a function of time when irradiated at $\lambda_{\text{ex}} = 320$ 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 $\lambda_{em} = 485$ nm as a function of time when irradiated at $\lambda_{ex} = 440$ 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 ($I_{484\text{ nm}} / I_{515\text{ nm}}$) 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.

$\lambda_{\text{exc}} = 375$ nm
$\lambda_{\text{ems}} = 410$ nm

$\langle \tau \rangle = 3.16$ ns

$\chi^2 = 1.43$
Figure S8. Emission spectra of Cu$_{12}$ NCs-Cellulase in- [A] aqueous media, [B] methanloic medium as a function of temperature ($\lambda_{exc} = 330$ 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, Δλ = 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.