

Supplementary data

Fast synthesis of copper nanoclusters through the use of hydrogen peroxide additive and the application for fluorescent detection of Hg^{2+} in water samples

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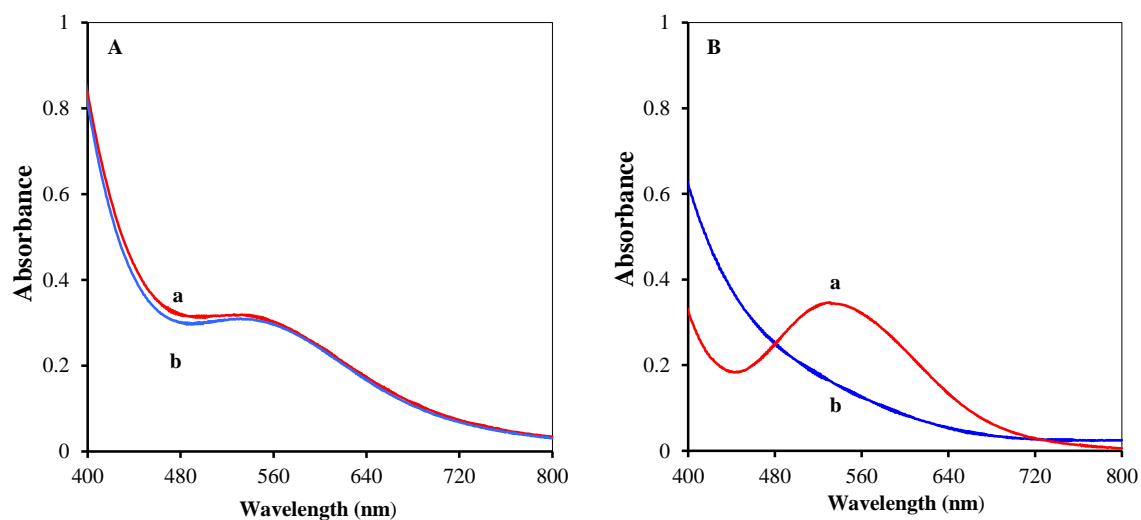


Fig.s1 The absorption spectra of the CuNCs prepared by the proposed method (A) and the conventional method (B) before (a) and after (b) 0.5 ml of the Na_2S solution (0.1 M)



Fig.s2 Optical photographs of the mixture of the CuNCs prepared by the proposed method, 2 mM of free Cu^{2+} and 20 mM of H_2O_2 before (a) and after (b) added 0.5 ml of the Na_2S solution (0.1M).

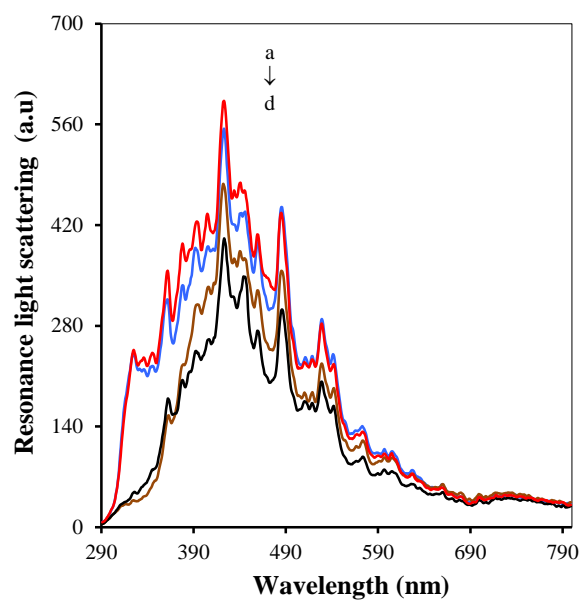


Fig.s3 Resonance light scattering spectra of BSA- H_2O_2 (a), BSA (b), BSA-Cu (c) and BSA-Cu- H_2O_2 (d).

Conditions: pH 12, BSA: 5 mg mL^{-1} , H_2O_2 : 0.04 M, Cu^{2+} : 0.2 mM, and $\lambda_{\text{ex}} = \lambda_{\text{em}}$ (290-800nm)

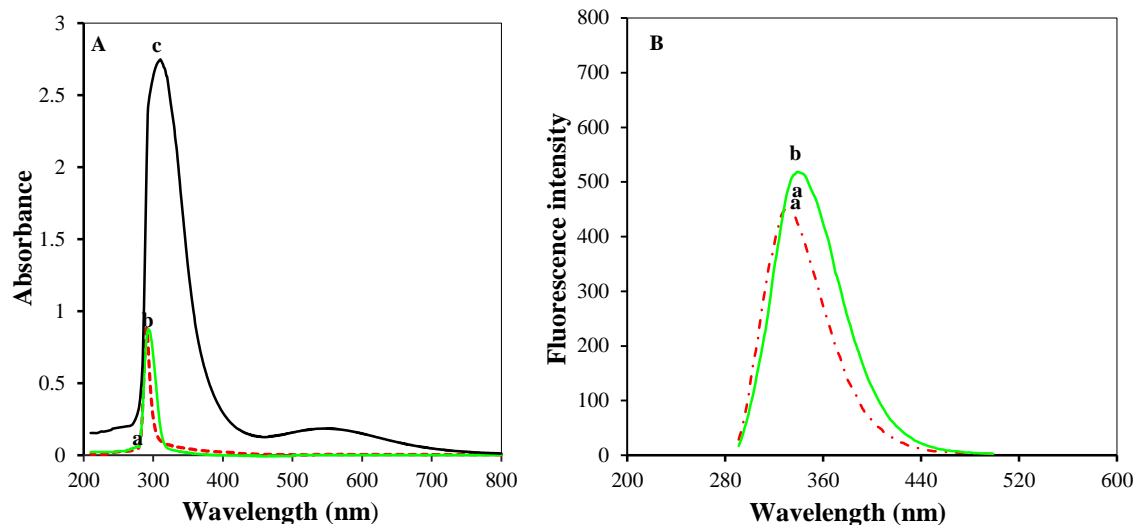


Fig.s4 The ultraviolet-visible absorption spectra (A) and fluorescence spectra (B) of BSA before (a) and after (b) H_2O_2 and the CuNCs solution

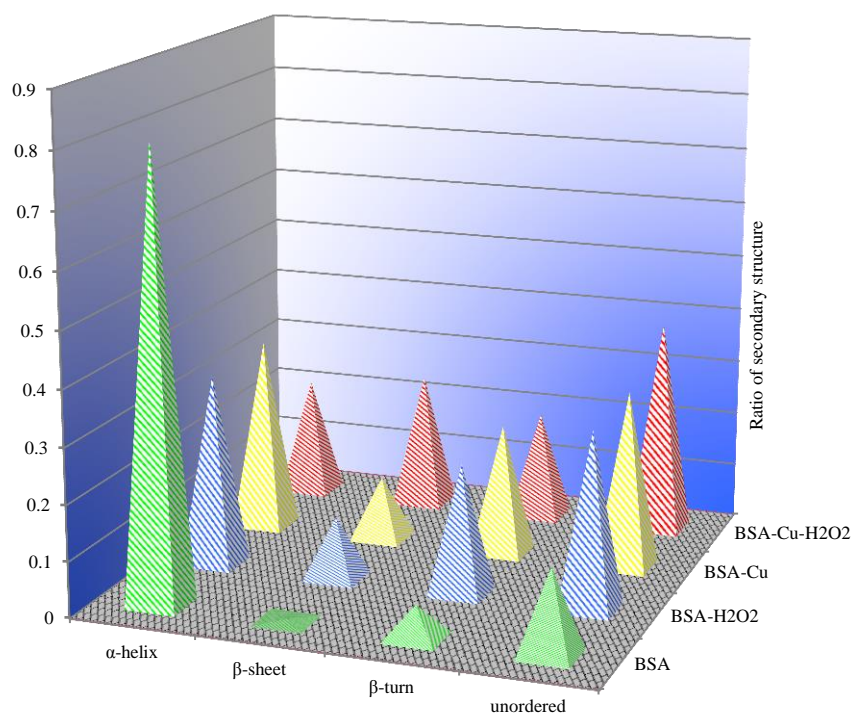


Fig.s5 The secondary structures of BSA, BSA- H_2O_2 , BSA-Cu and BSA-Cu- H_2O_2 . Conditions: pH 12, BSA: 5 $mg\ mL^{-1}$, H_2O_2 : 0.04 M, and Cu^{2+} : 0.2 mM

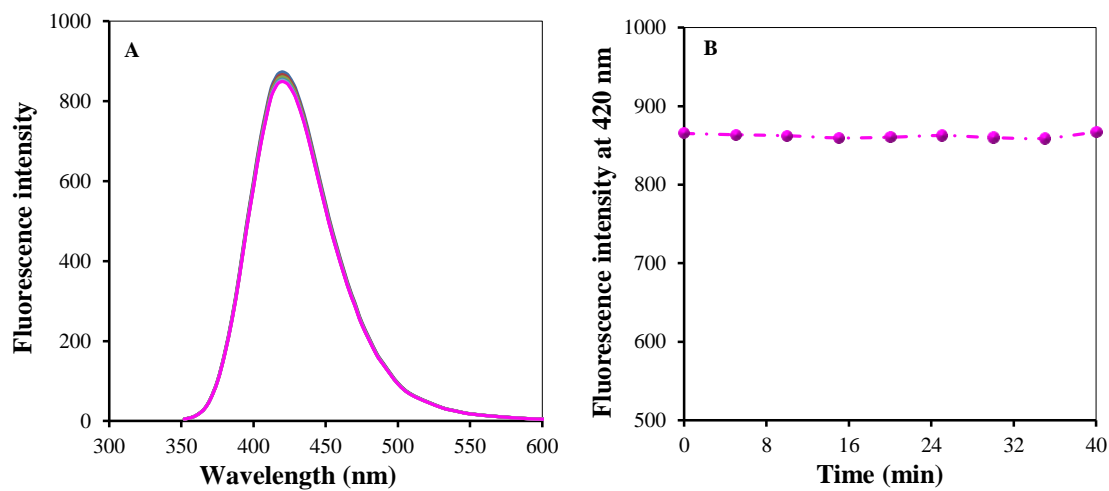


Fig.s6A: Fluorescence spectrum of the CuNCs prepared by the proposed method with different irradiating time using a 350 W of Xe lampe. B: Relationship of the fluorecence intensity at 420 nm with light irradiating time.

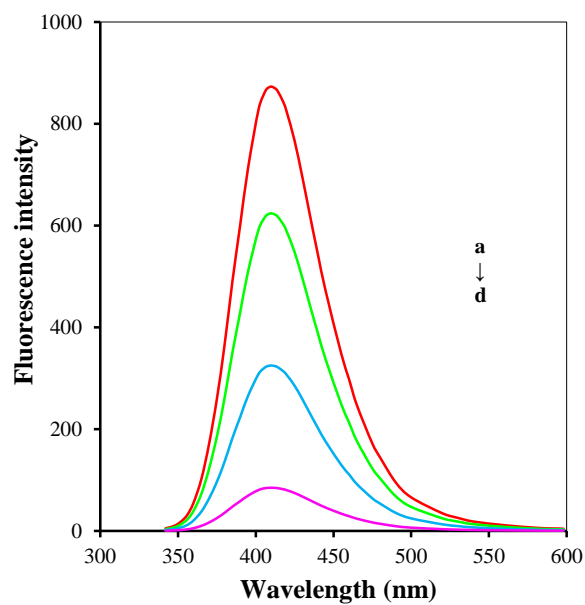


Fig.s7 The fluorescence spectra of the CuNCs solution prepared by the proposed method after added 0.0, 0.0001, 0.0025 and 0.005 M of Cu²⁺ (from a to d)