

Supplementary Material

Quercetin-Functionalized Silver Nanoparticles as Selective Colorimetric Sensor of Hg²⁺ in Water and Studies on Interactions between the Nanoparticles and Bovine Serum Albumin

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Determination of molar concentration of AgNps

Assuming spherical shape of the nanoparticles and complete reduction of silver (I) to silver atoms, the molar concentration of AgNps was calculated following the method described by Lewis et al. [24]:

$$C = \frac{N_{NP}}{N_A} \quad (1)$$

Where C is the molar concentration of AgNPs, N_{NP} is the number of nanoparticles formed per 1.5×10^{-3} mol of AgNO_3 , N_A is the Avogadro's number. The number of nanoparticles formed per 1.5×10^{-3} mol of AgNO_3 can be calculated using equation (2)

$$N_{NP} = \frac{N_{atom}}{N} \quad (2)$$

Where N_{atom} is the number of silver atoms and N is the number of silver atoms per nanoparticle.

The average number of silver atoms per nanoparticle (N) was calculated using (3)

$$N = \frac{\pi \rho D^3}{6 M} \quad (3)$$

Where ρ is the density of silver (10.49 g/cm^3), M stands for atomic weight of silver (108 g/mol), D is the average diameter of silver nanoparticles (in nm), which was obtained from TEM.

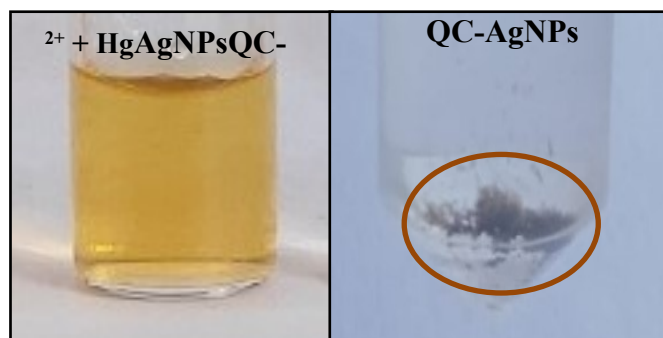


Fig. S1: QC-AgNPs before after addition of Hg^{2+} .

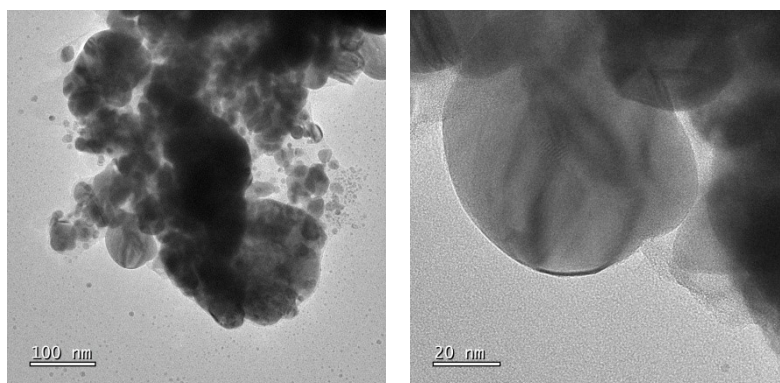


Fig. S2: TEM image (at different resolutions) of aggregated QC-AgNPs formed after addition of Hg^{2+} to QC-AgNPs.

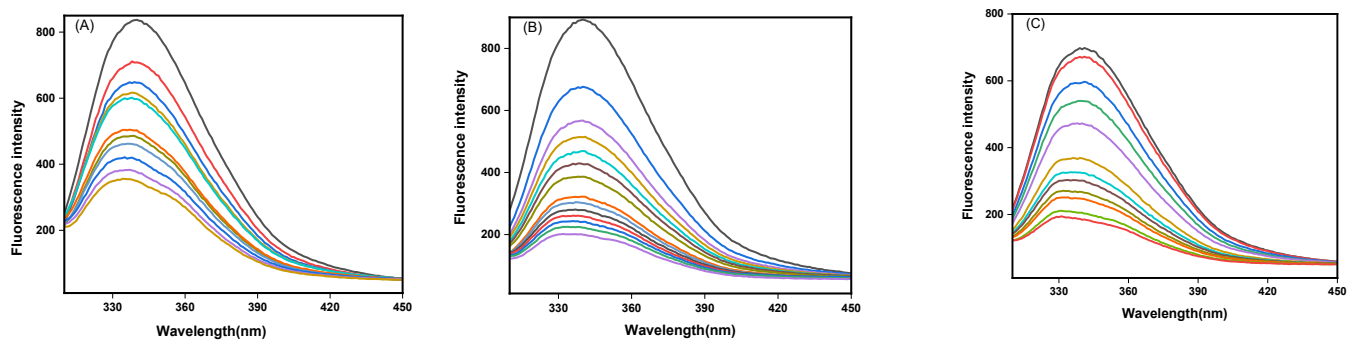


Fig. S3: Tryptophan fluorescence spectra of BSA ($4 \mu\text{M}$) in absence and the presence of QC-AgNPs (0.24 to 4.05 nM) at (A) 281K; (B) 297K and (C) 305K, λ_{ex} : 295 nm.