

## **Supplementary Material**

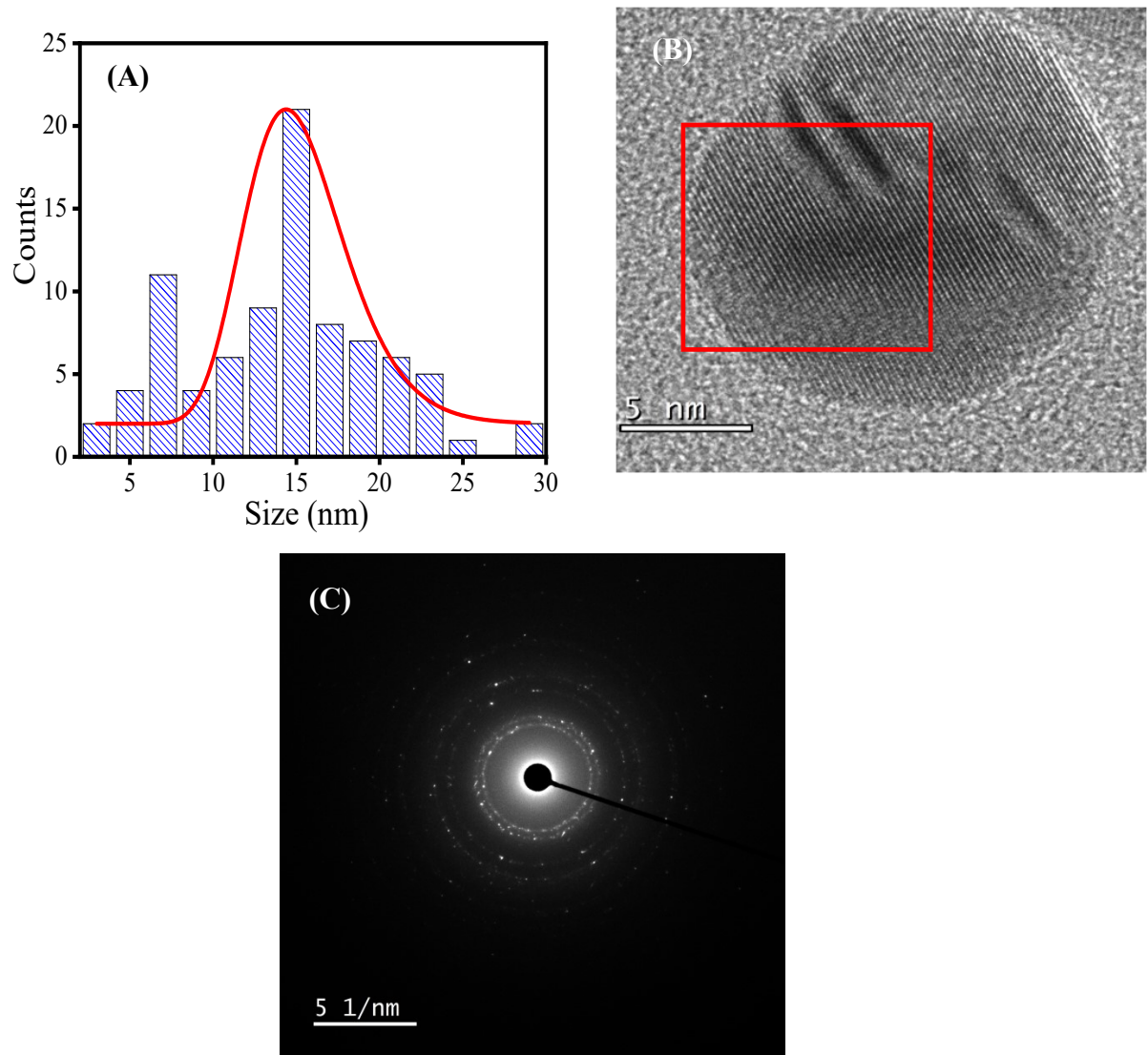
### **Selective Colorimetric Sensing of Fe<sup>3+</sup> by Hesperetin-Conjugated Silver Nanoparticles: Further Investigation of Interaction Properties with Bovine Serum Albumin**

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**Fig. S1:** (A) Particle size-distribution histogram; (B) HRTEM micrograph and (C) SAED pattern of HSP-AgNPs.

#### ***Determination of molar concentration of HSP-AgNPs***

Assuming spherical shape of the nanoparticles and complete reduction of silver (I) to silver atoms, the molar concentration of HSP-AgNPs was calculated following the method described by Lewis *et al.* [22].

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

Where  $C$  is the molar concentration of HSP-AgNPs,  $N_{NP}$  is the number of nanoparticles formed per  $1 \times 10^{-3}$  mol of  $\text{AgNO}_3$ ,  $N_A$  is the Avogadro's number. The number of nanoparticles formed per  $1 \times 10^{-3}$  mol of  $\text{AgNO}_3$  can be calculated using equation (2)

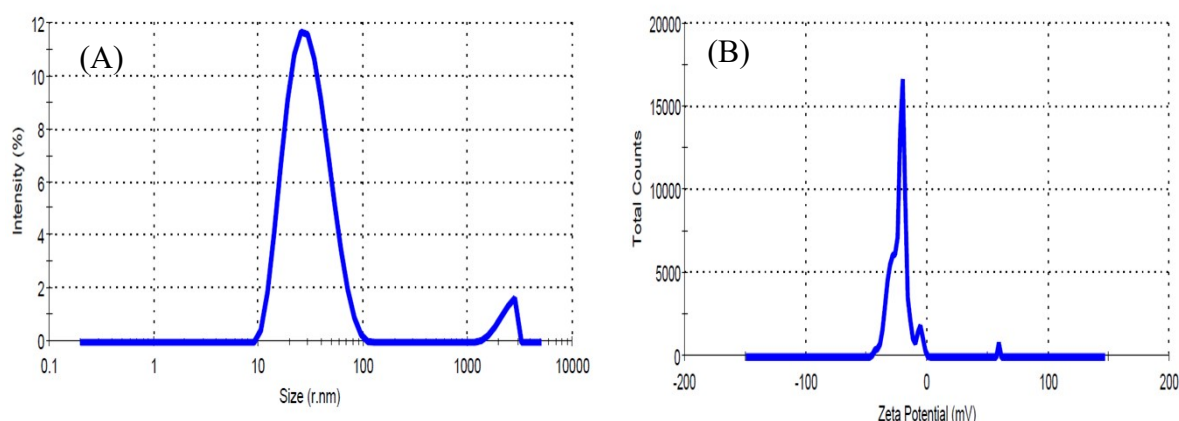
$$N_{NP} = \frac{N_{atom}}{N} \quad (2)$$

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

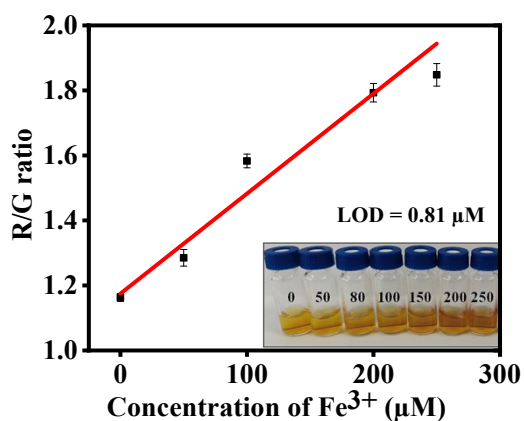
The average number of silver atoms per nanoparticle ( $N$ ) was calculated using (3)

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

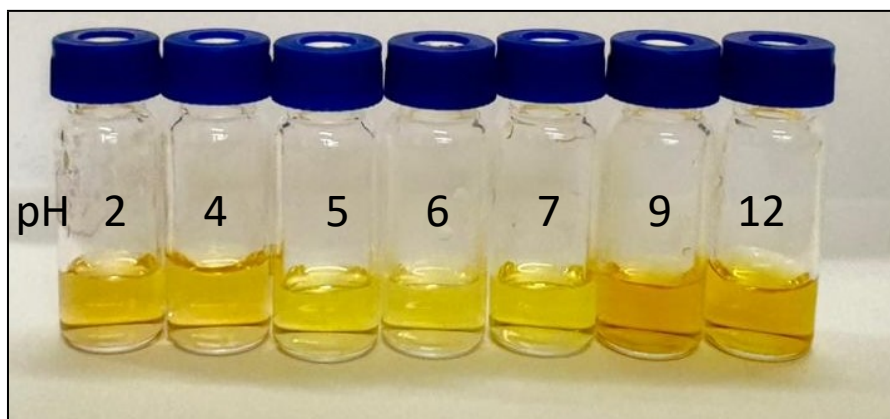
Where  $\rho$  is the density of silver ( $10.49 \text{ g/cm}^3$ ),  $M$  stands for atomic weight of silver ( $108 \text{ g/mol}$ ),  $D$  is the average diameter of silver nanoparticles (in nm).



**Fig. S2:** (A) Particle size distribution (obtained from dynamic light scattering) and (B) Zeta potential of HSP-AgNPs.



**Fig. S3:** Calibration curves for colorimetric sensing of  $\text{Fe}^{3+}$  by using HSP-AgNPs.



**Fig. S4:** The color of HSP-AgNPs at different pH.

