

## ***Supplementary Information***

### **One-pot synthesis of monodispersed ZnS nanospheres with high antibacterial activity**

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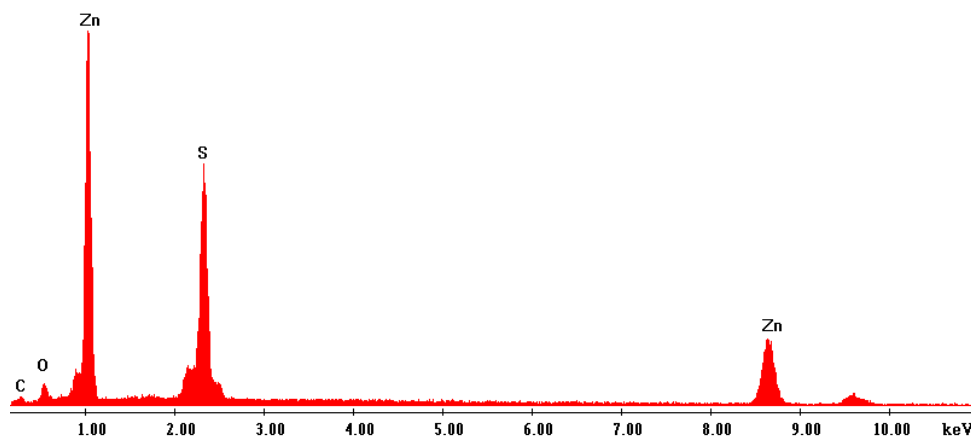
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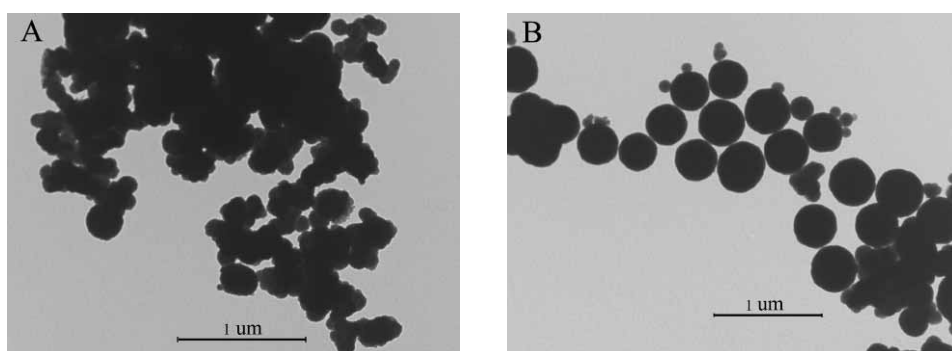
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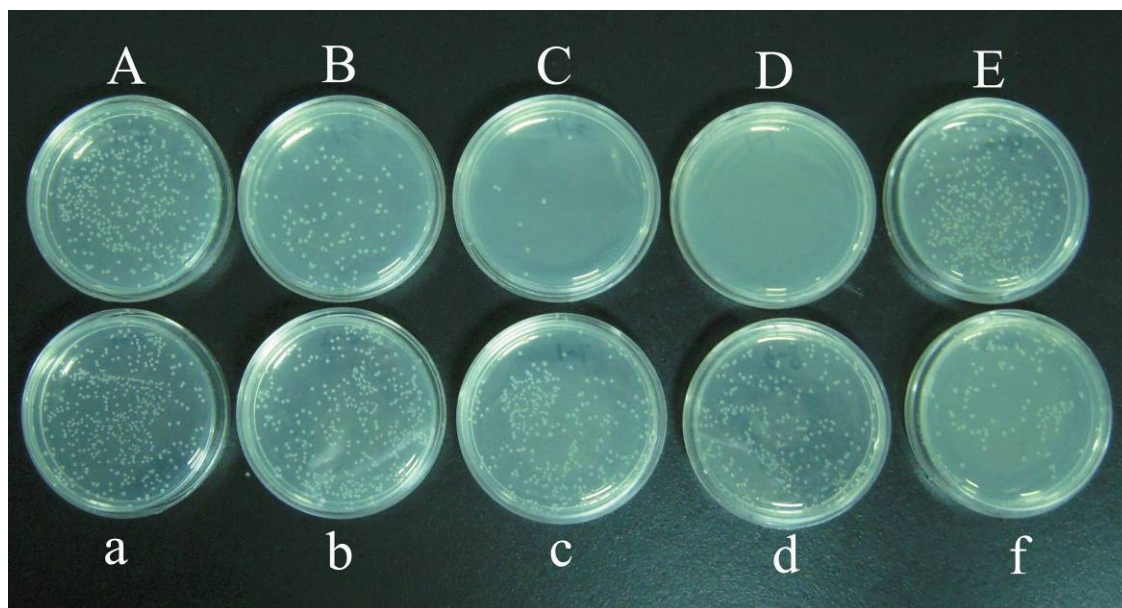
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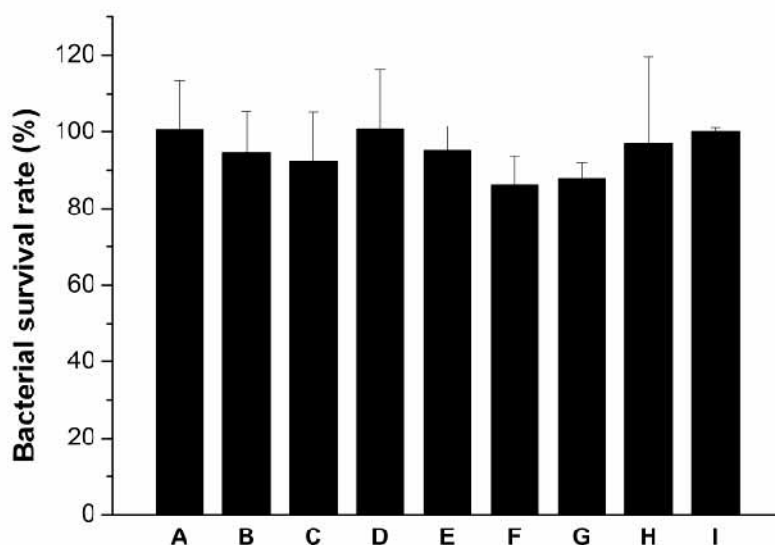
**Fig. S1** The Energy dispersive spectrometry (EDS) spectrum of ZnS NSs.



**Fig. S2:** The TEM images of ZnS synthesized without FC-DDAB (A) and with DDAB (B).



**Fig. S3:** Photographs of colonies of *E. coli* on agar plates incubated with different concentrations of ZnS NSs (A: 0.03; B: 0.06; C: 0.12; D: 0.25; E: 0 mg/mL) and different concentrations of ZnO NPs (a: 0.03; b: 0.06; c: 0.12; d: 0.25; f: 1.00 mg/mL).



**Fig. S4:** The survival rate of *E. coli* incubated with different concentrations of ZnS synthesised without Fc-DDAB (A: 0.03; B: 0.06; C: 0.12; D: 0.25 mg/mL) and ZnS with only DDAB (E: 0.03; F: 0.06; G: 0.12; H: 0.25; I: 0 mg/mL). Sample I without ZnS was set as control group with bacterial survival rate 100%. Data were means of triplicate experiments  $\pm$  SD.