Table S1. Total phenolic contents and antioxidant activity of the green tea extract in different solvents.

Solvents	Total Phenolics (µg of gallic acid equivalent mL^{-1} extract)	ABTS (µg of ascorbic acid equivalent mL^{-1} extract)	DPPH Activity (µg of ascorbic acid equivalent mL^{-1} extract)
Water	1346	2684	1869
Ethanol	104.6	342.6	173.8

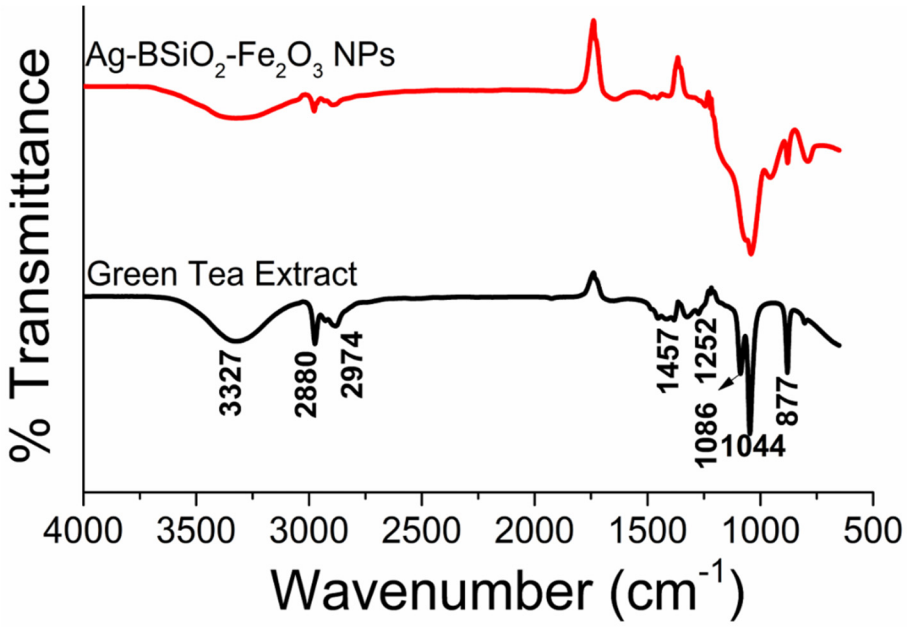


Figure S1. FT-IR spectroscopy analysis of green tea extract and Ag-$BSiO_2$ NPs-Fe_2O_3 NPs.

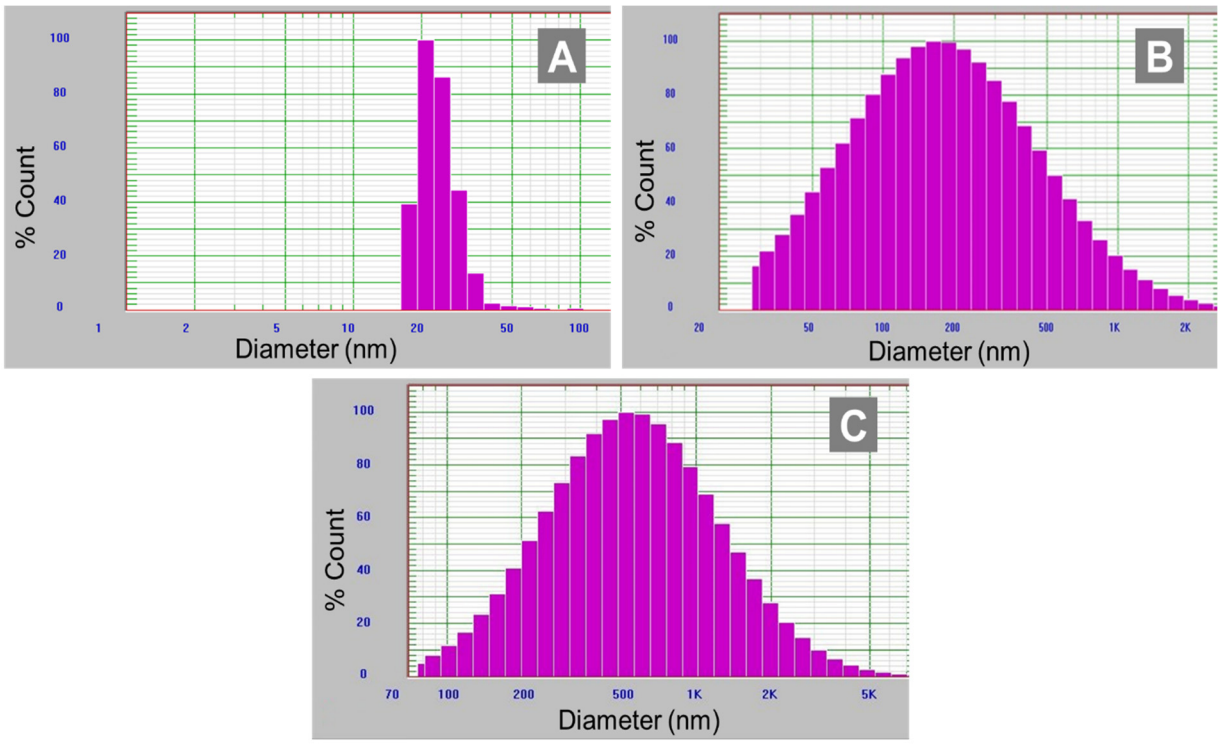
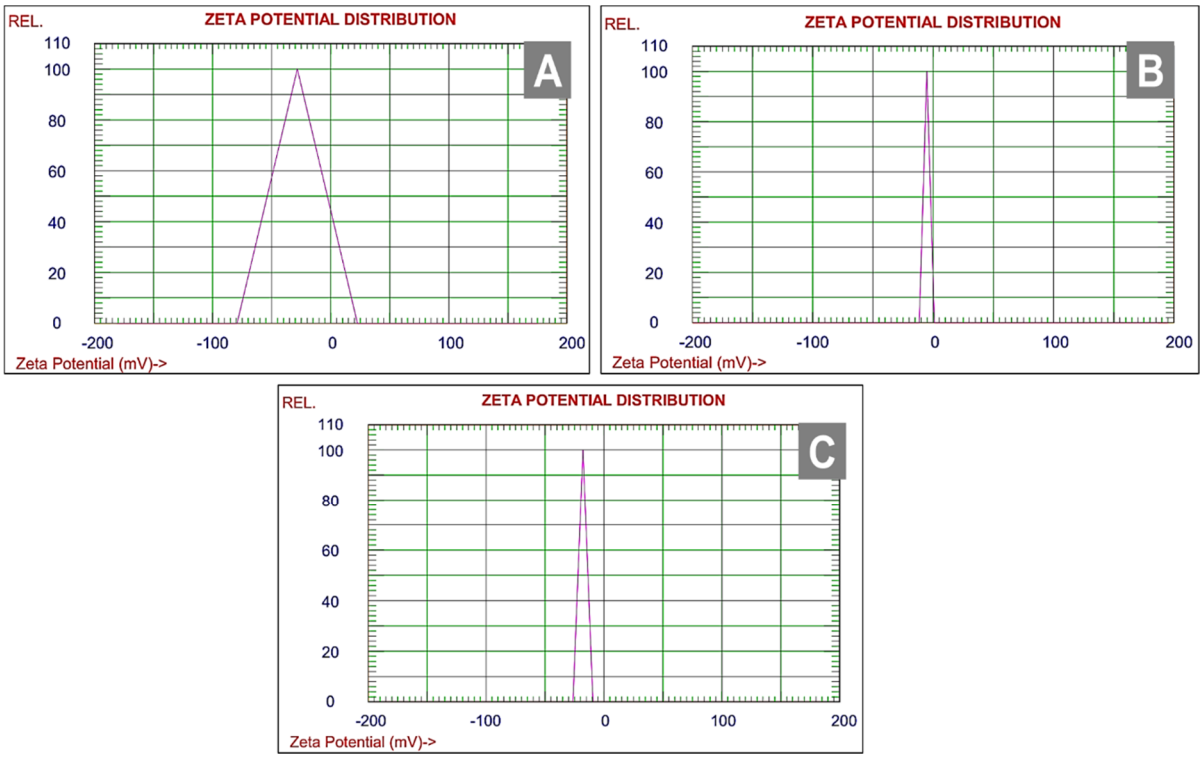


Figure S2. The Dynamic light scattering (DLS) analysis of colloids suspension of (**A**) Ag NPs, (**B**) Fe_2O_3 NPs, and (**C**) Ag-$BSiO_2$- Fe_2O_3 NPs.



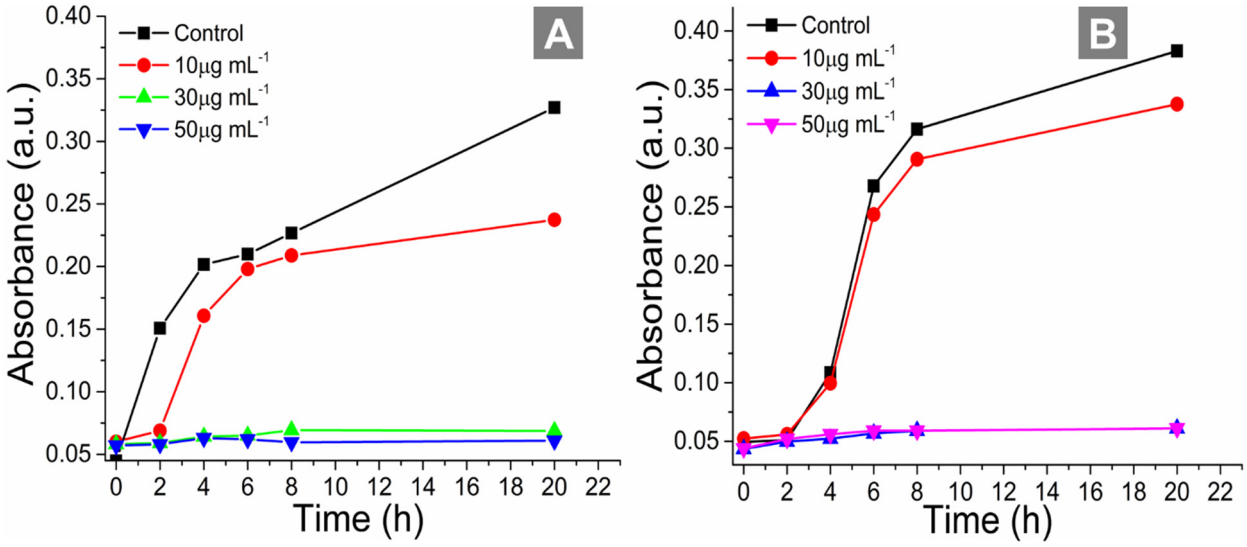


Figure S4. Growth curves of (**A**) *S. aureus* and (**B**) *E. coli* with various concentrations of the streptomycin antibiotics.

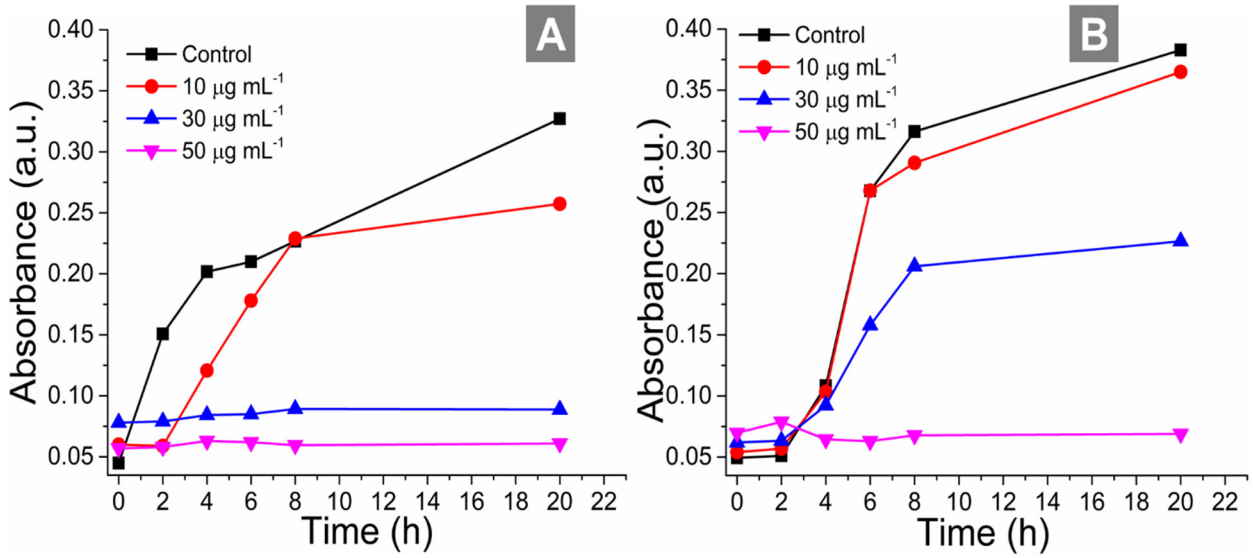


Figure S5. Growth curves of (**A**) *S. aureus* and (**B**) *E. coli* with various concentrations of the AgNPs.

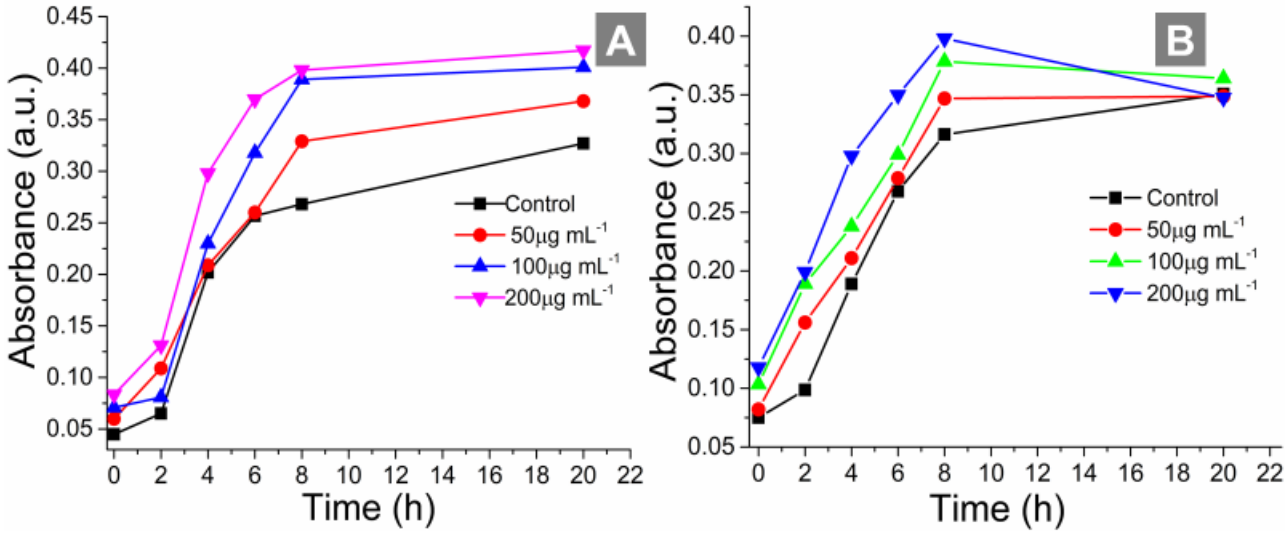


Figure S6. Growth curves of (**A**) *S. aureus* and (**B**) *E. coli* with various concentrations of the Fe_2O_3 NPs.

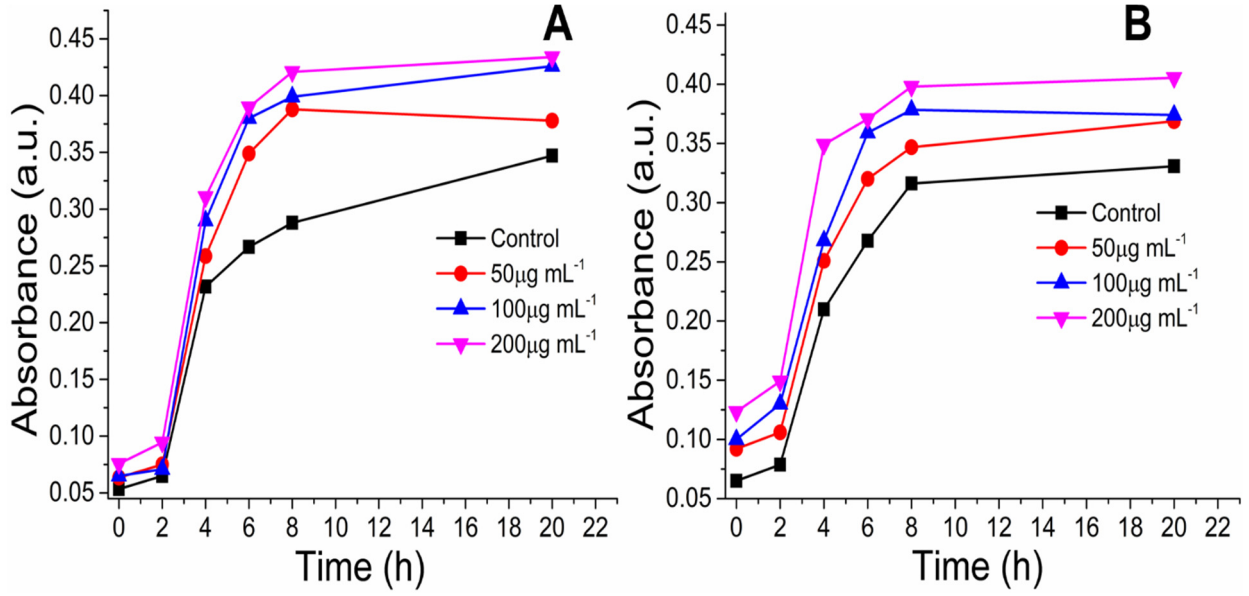


Figure S7. Growth curves of (**A**) *S. aureus* and (**B**) *E. coli* with various concentrations of the $BSiO_2$-Fe_2O_3 NPs.

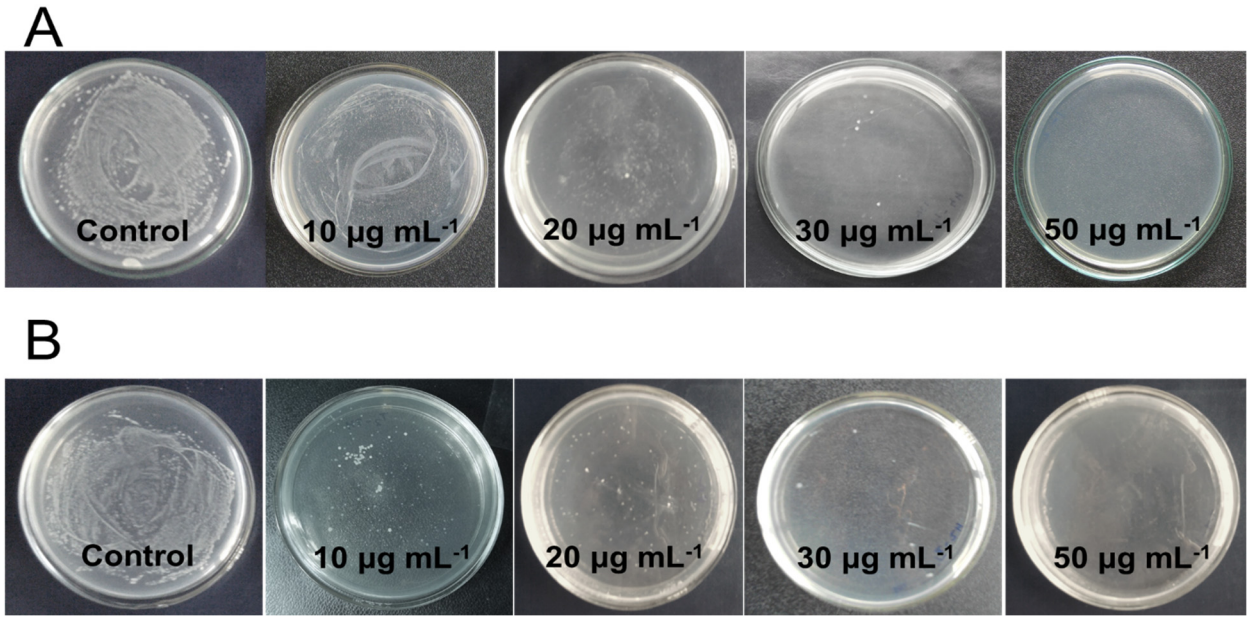


Figure S8. Growth plate photographs of (**A**) *S. aureus* and (**B**) *E. coli* with various concentrations of streptomycine antibiotics.

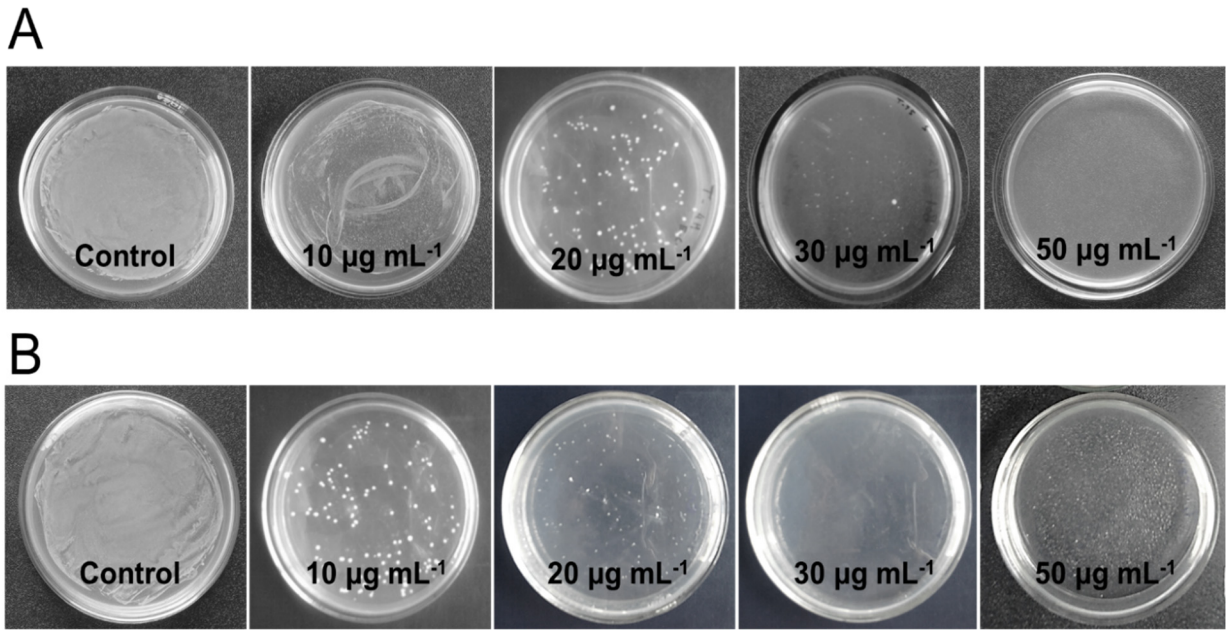


Figure S9. Growth plate photographs of (**A**) *S. aureus* and (**B**) *E. coli* with various concentrations of Ag NPs.

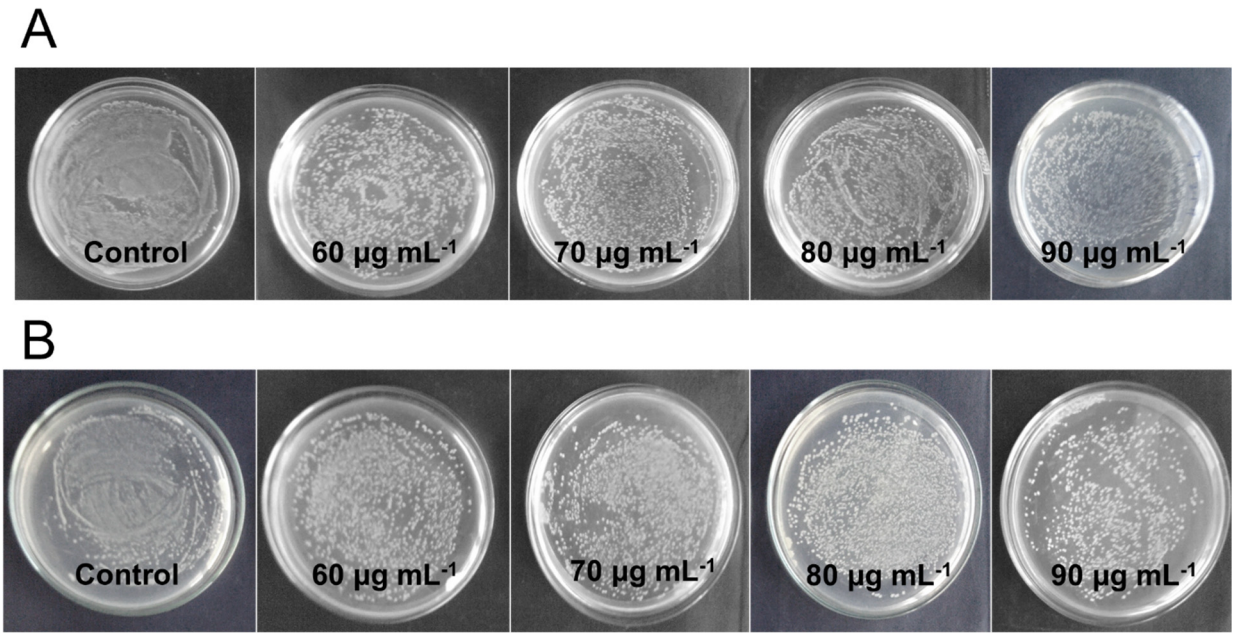


Figure S10. Growth plate photographs of (A) *S. aureus* and (B) *E. coli* with various concentrations of Fe_2O_3 NPs.

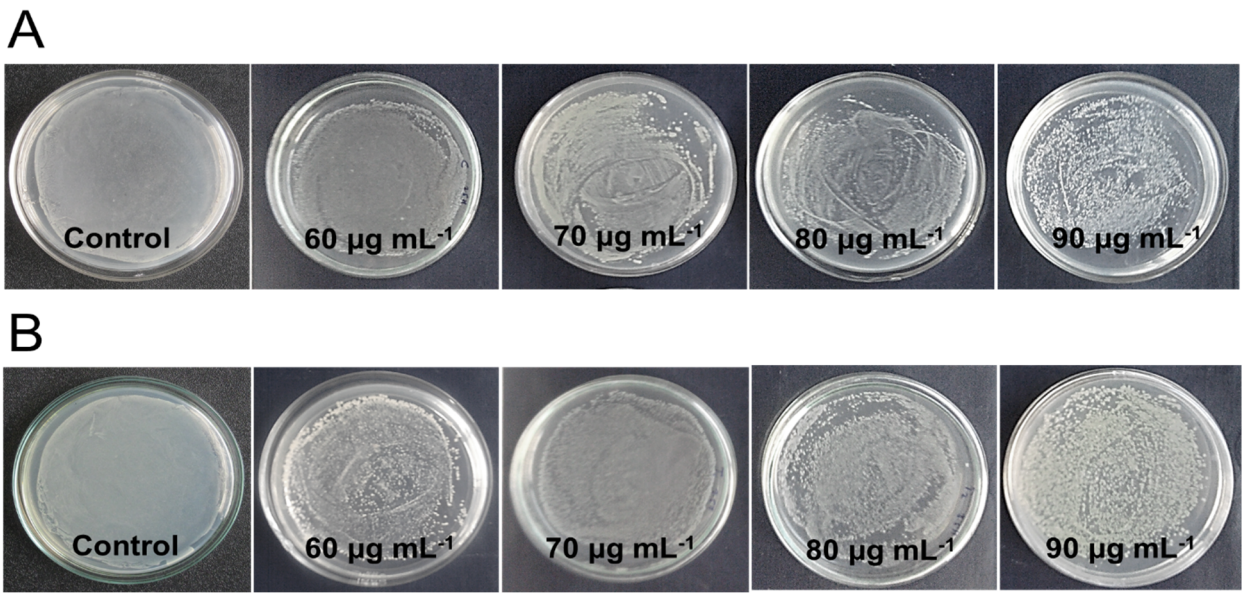


Figure S11. Growth plate photographs of (**A**) *S. aureus* and (**B**) *E. coli* with various concentrations of $BSiO_2$-Fe_2O_3 NPs.

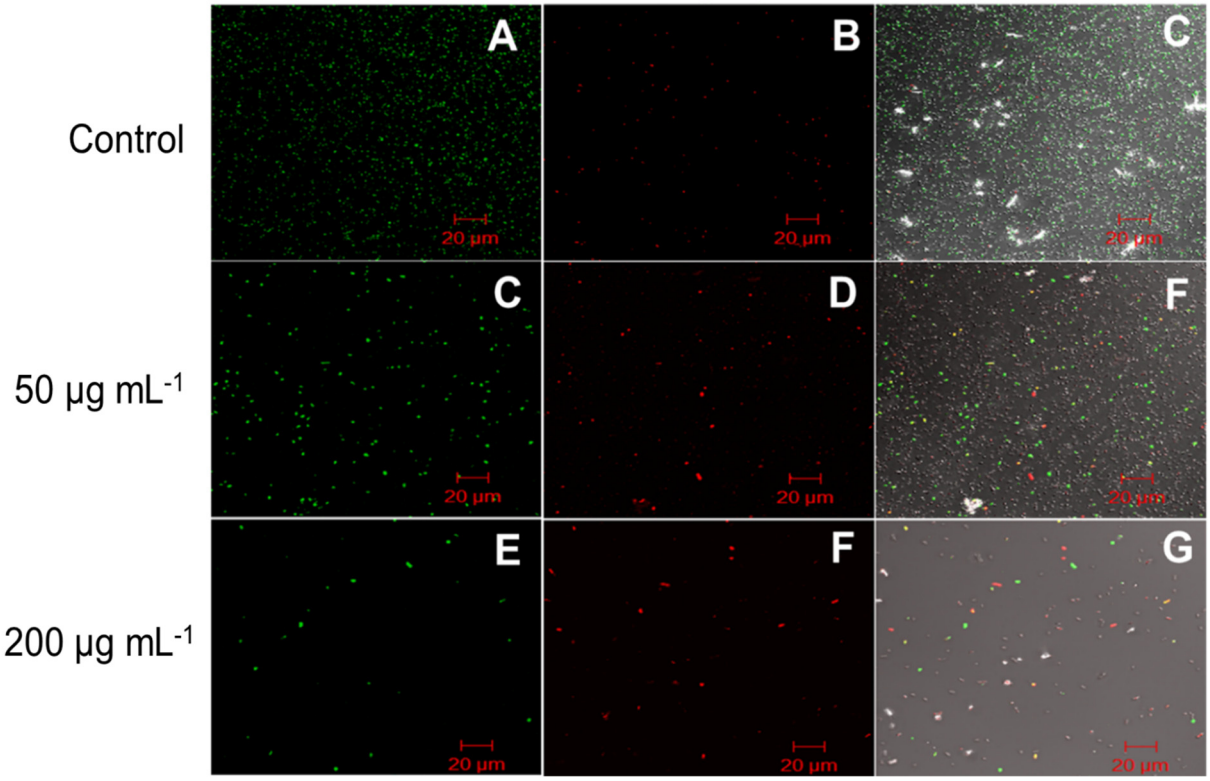


Figure S12. CLSM microscopy images of the antimicrobial activity of Ag-$BSiO_2$-Fe_3O_4 nanoparticles against *E. coli*.

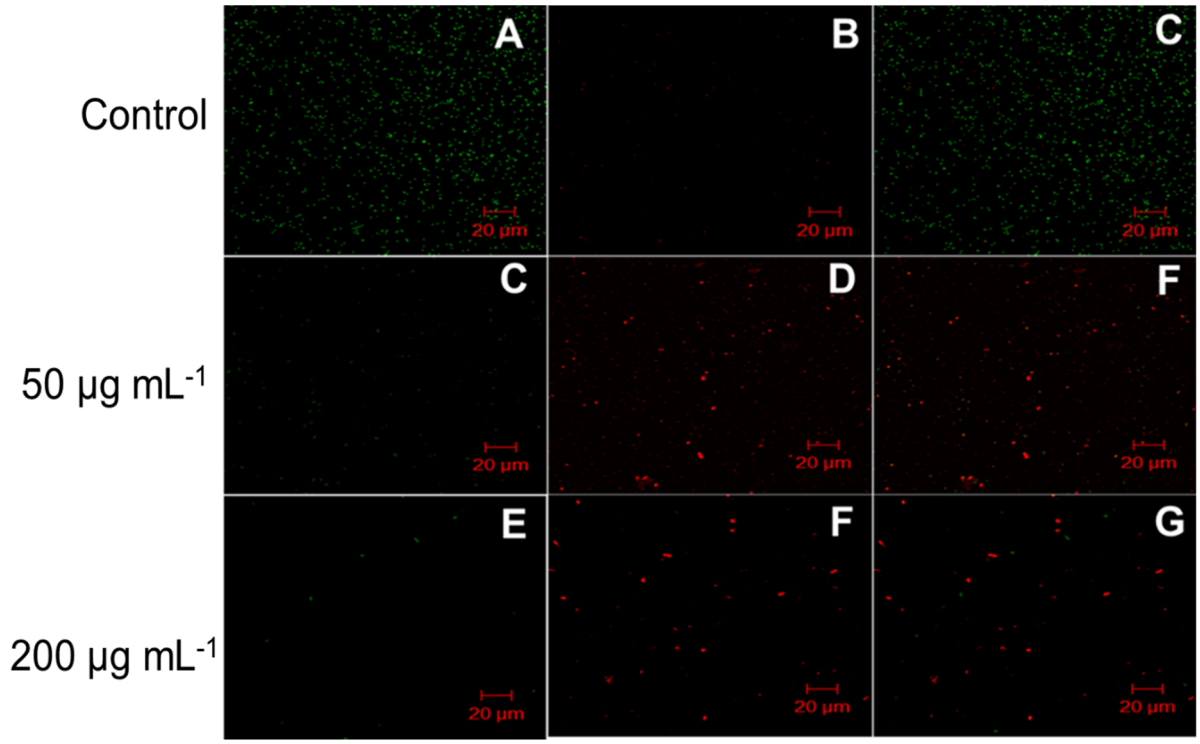


Figure S13. CLSM microscopy images of the antimicrobial activity of Ag-$BSiO_2$-Fe_3O_4 nanoparticles against *S. aureus.*