

SUPPLEMENTARY INFORMATION (SI)

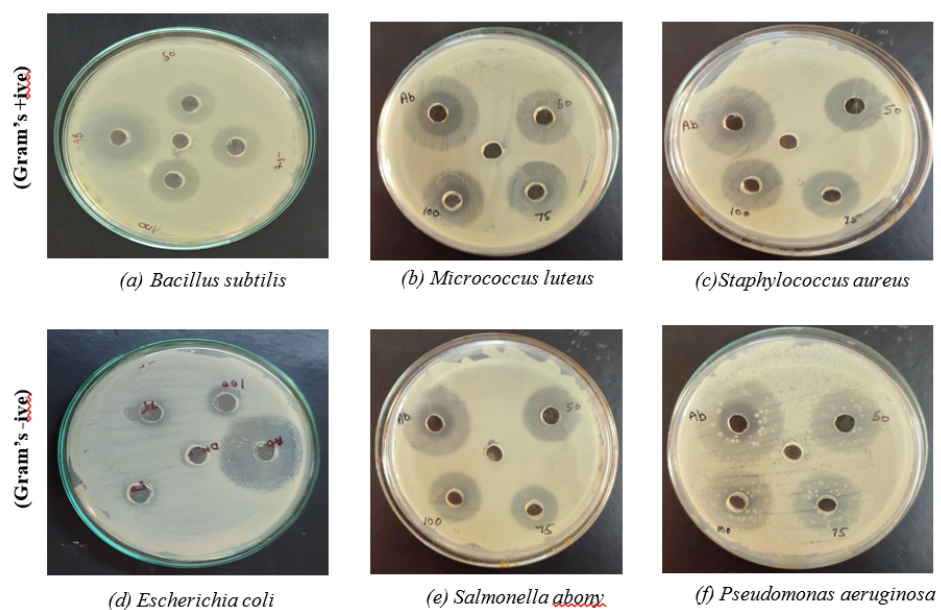


Fig. S1 (a-f) Agar plates showing antibacterial activity of ZnO NPs against (a) *B. subtilis*, (b) *M. luteus*, (c) *S. aureus*, (d) *E. coli*, (e) *S. abony* and, (f) *P. aeruginosa*

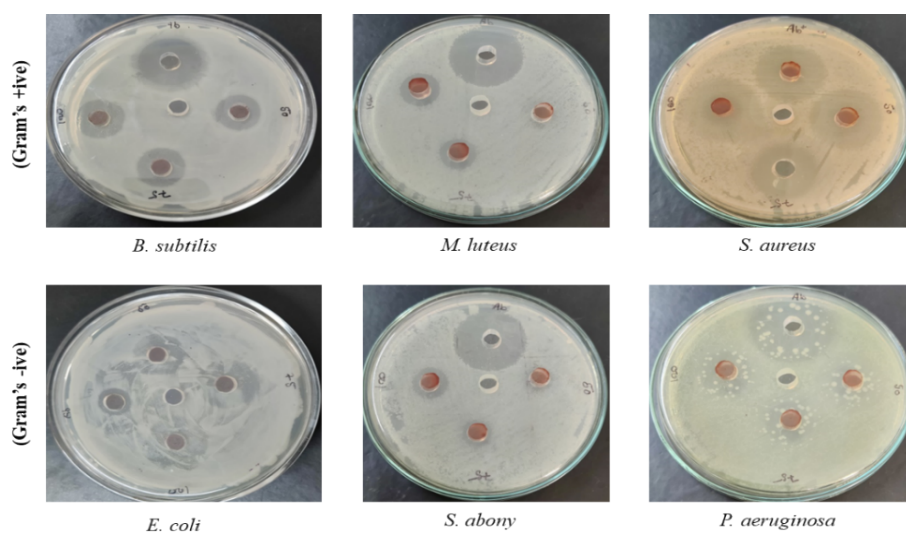


Fig. S2 (a-f) Agar plates showing antibacterial activity of α -Fe₂O₃ NPs against (a) *B. subtilis*, (b) *M. luteus*, (c) *S. aureus*, (d) *E. coli*, (e) *S. abony* and, (f) *P. aeruginosa*

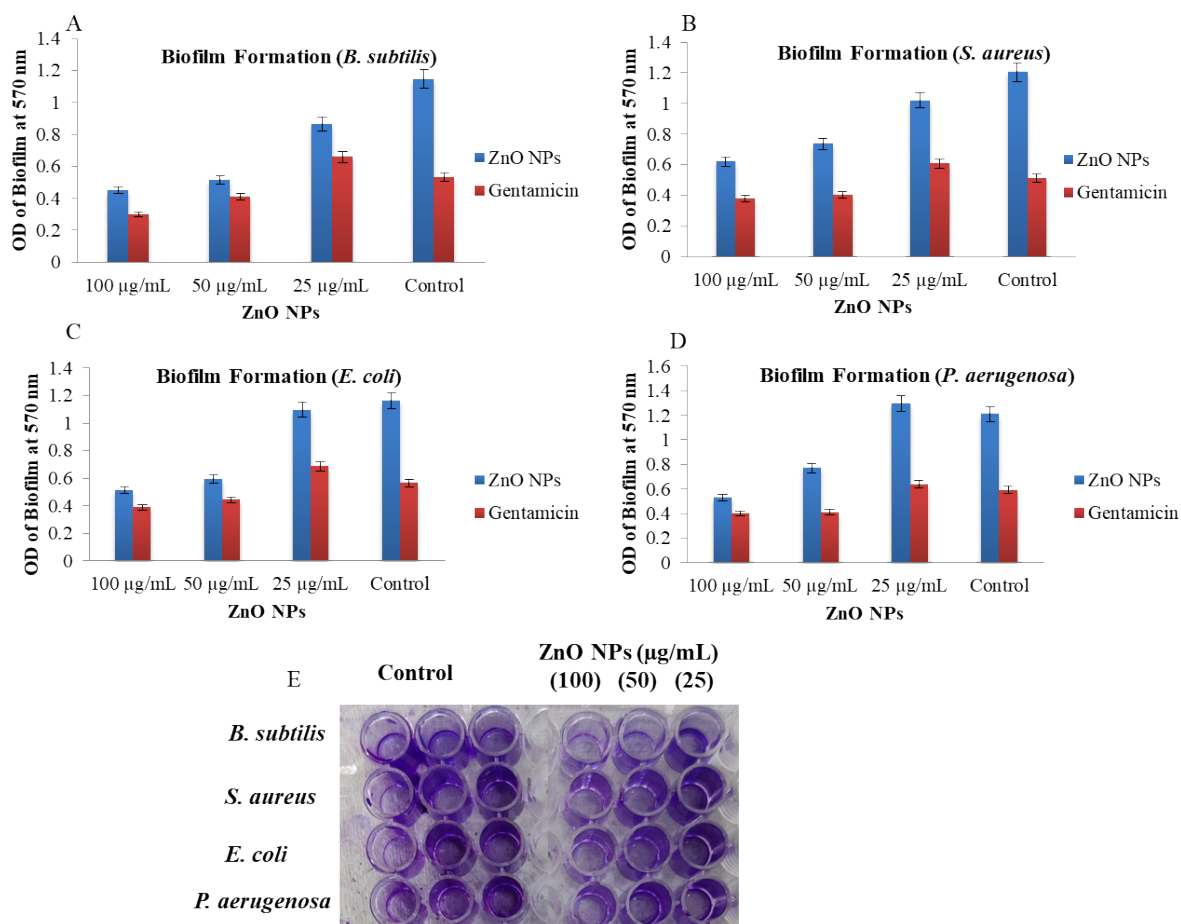


Fig. S3 Biofilm inhibition activity of the ZnO NPs at various concentrations (100 µg/mL, 50 µg/mL and 25 µg/mL) against *B. subtilis* (A), *S. aureus* (B), *E. coli* (C), *P. aeruginosa* (D) and antibiofilm formation in microtiter plate (E). Vertical bars show the standard error of the mean $\pm$ SD.

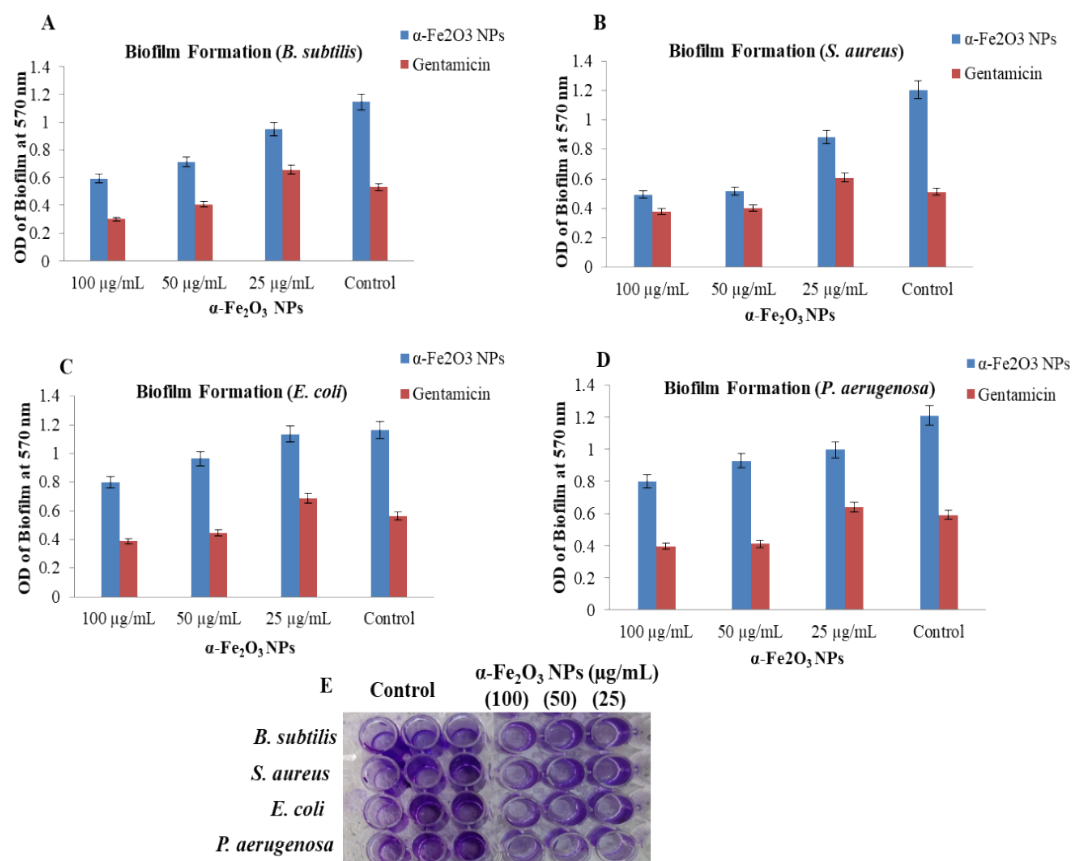


Fig. S4 Biofilm inhibition activity of the $\alpha\text{-Fe}_2\text{O}_3$ -NPs at various concentrations (100 $\mu\text{g/mL}$, 50 $\mu\text{g/mL}$ and 25 $\mu\text{g/mL}$) against *B. subtilis* (A), *S. aureus* (B), *E. coli* (C), *P. aeruginosa* (D) and antibiofilm formation in a microtiter plate (E). Vertical bars show the standard error of the mean $\pm$ SD.

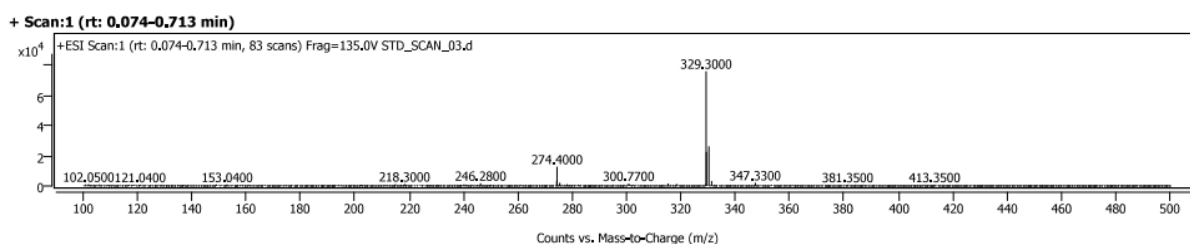


Fig. S5 LC-MS chromatogram of standard malachite green dye

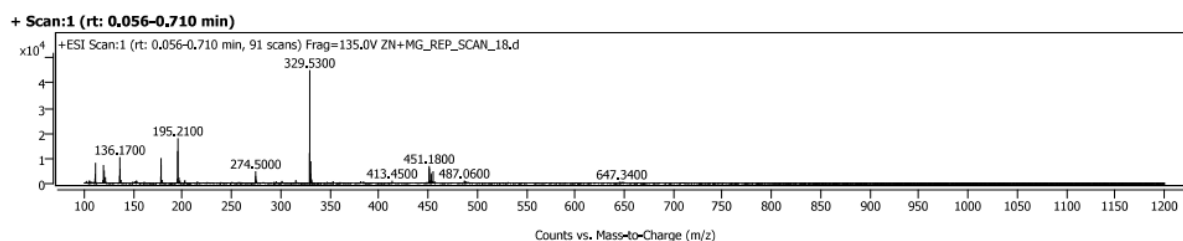


Fig. S6 LC-MS chromatogram of ZnO NPs treated with malachite green dye

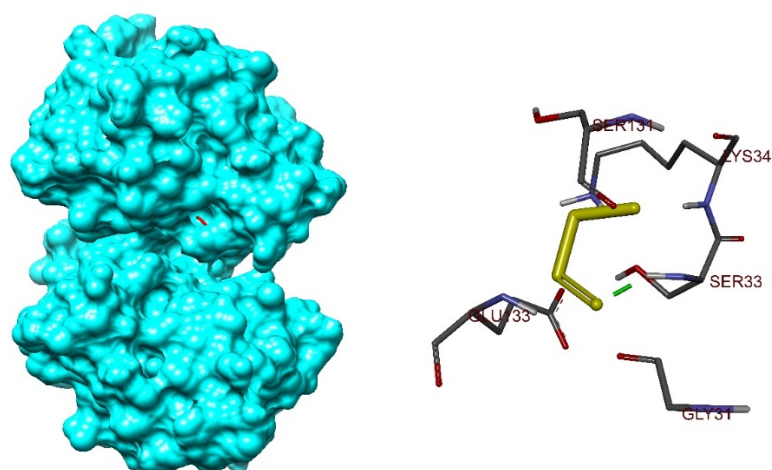


Fig. S7 2D and 3D interaction between ZnO NPs and 4NG2

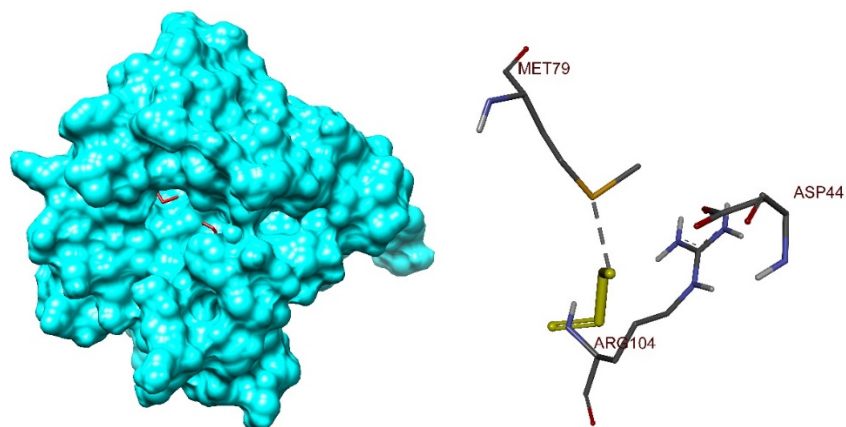


Fig. S8 2D and 3D interaction between ZnO NPs and 1RO5

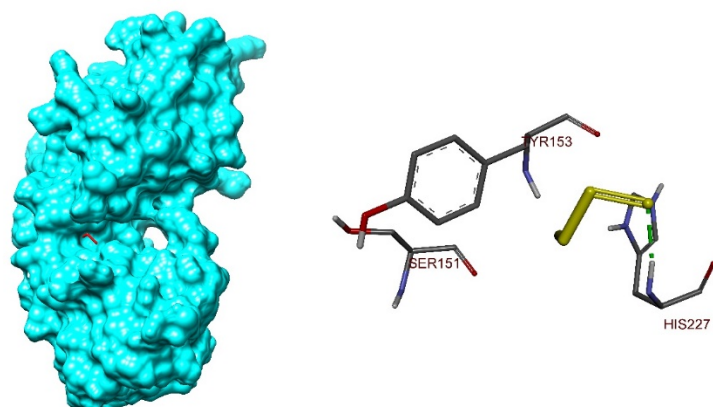


Fig. S9 2D and 3D interaction between ZnO NPs and 4G4K

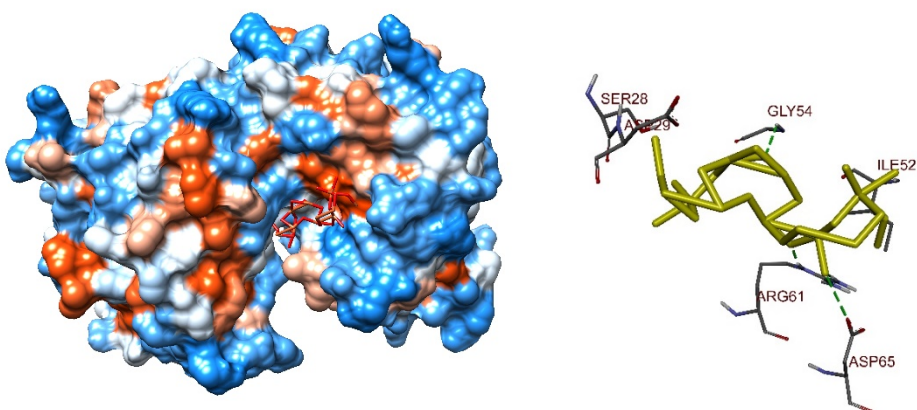


Fig. S10 Interaction of α -Fe₂O₃ NPs with 4NG2

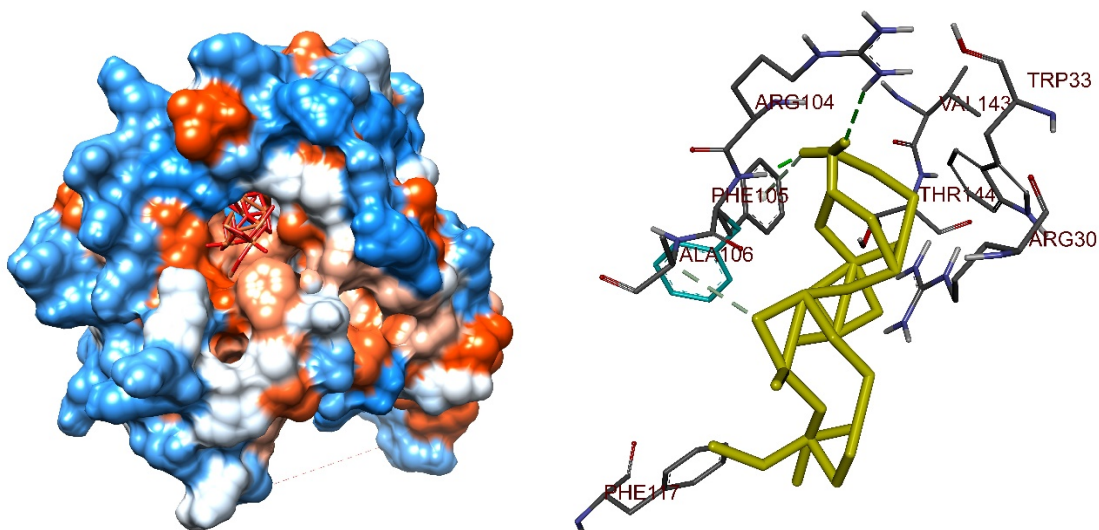


Fig. S11 Interaction of α -Fe₂O₃ NPs with 1RO5

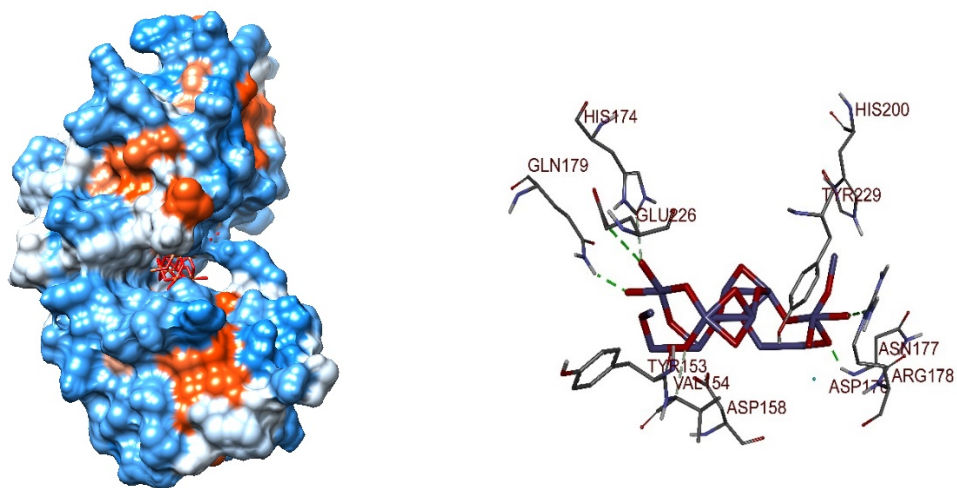


Fig. S12 Interaction of α -Fe₂O₃ NPs with 4G4K