Supplementary Information

Extracellular Synthesis of Silver Nanoparticles by *Thiosphaera pantotropha* and Evaluation of Their Antibacterial and Cytotoxic Effects

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This supplementary information consists of 4 pages, which contains 5 figures.

S1: Preparation of GK Media:

The constituents (g/L) of GK media were as follows: Na_2HPO_4 (7.9), KH_2PO_4 (1.5), KNO_3 (2.2), KNO_2 (0.84), NH_4Cl (0.3), CH_3COONa (1.64), $MgSO_4.7H_2O$ (0.3). In GK media, trace metals were added from a stock solution (2 ml/L). The trace metal stock solution was prepared using the following constituents (g/L): ethylenediaminetetraacetic acid (EDTA, 50), $ZnSO_4$ (2.2), $CaCl_2$ (5.5), $MnCl_2.4H_2O$ (5.06), $FeSO_4.7H_2O$ (5.0), $(NH_4)_6Mo_7O_{24}.4H_2O$ (1.1), $CuSO_4.5H_2O$ (1.57) and $CoCl_2.6H_2O$ (1.61).

The media components of GK media (except $MgSO_4$ and trace metal solution) were added to deionized water in the required amount and the media was autoclaved. $MgSO_4$ and trace metal solution were filter sterilized and added to the pre-sterilized GK media.

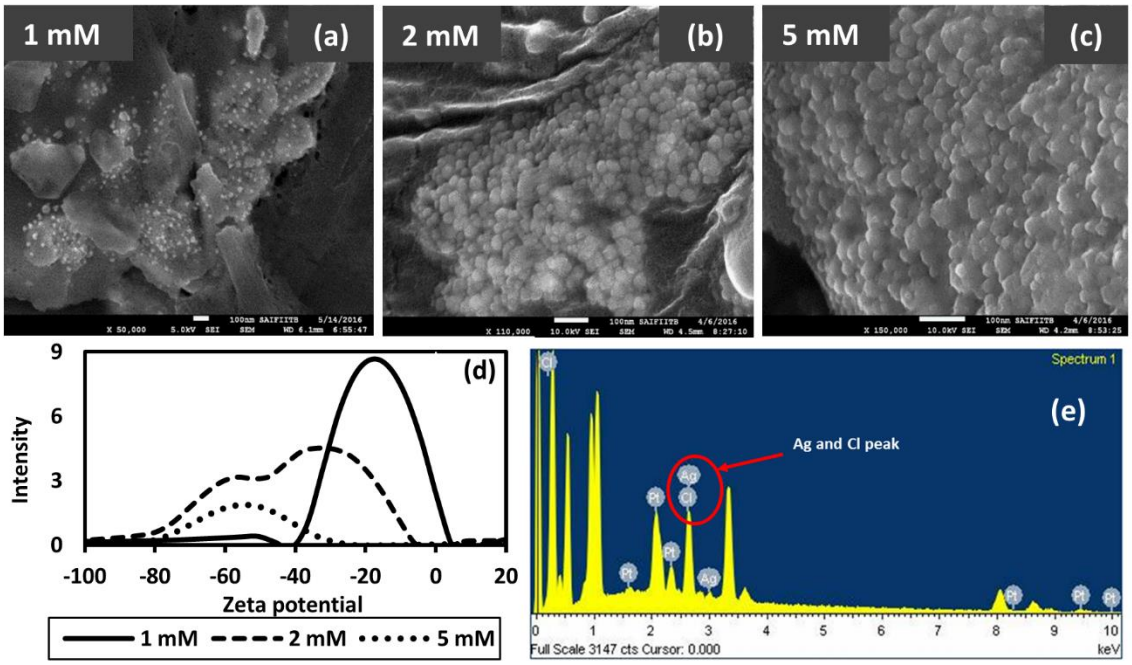

Fig. S1 (a, b, c) FEG-SEM images, (d) zeta potential of Ag/AgCl NPs synthesized using 1, 2 and 5 mM $AgNO_3$ at neutral pH and 37ºC temperature, respectively and (e) EDS spectra of AgNPs synthesized using 2 mM $AgNO_3$ at neutral pH and 37ºC temperature.

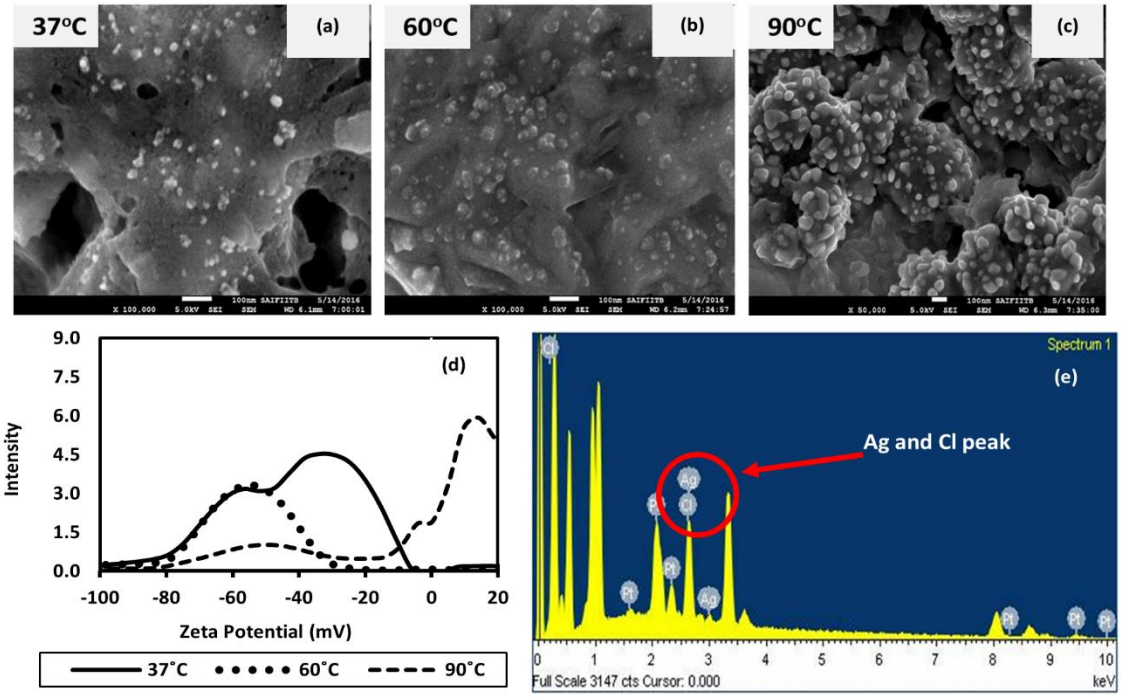

Fig. S2 (a, b, c) FEG-SEM images, (d) zeta potential of Ag/AgCl NPs synthesized using 2 mM $AgNO_3$ at neutral pH and 37ºC, 60ºC and 90ºC temperature, respectively and (e) EDS spectra AgNPs synthesized using 2 mM $AgNO_3$ at neutral pH and 37ºC temperature.

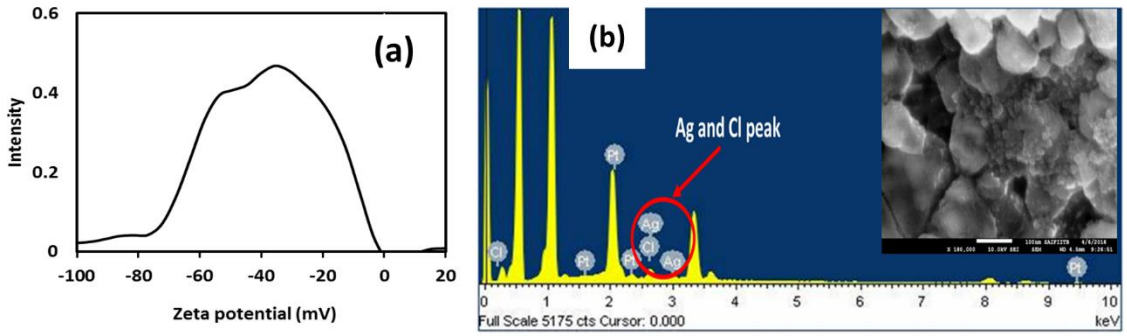

Fig. S3 (a) zeta potential and (b) EDS spectra (Inset: FEG-SEM images) of Ag/AgCl NPs synthesized using GK media culture supernatant with 2 mM $AgNO_3$ at neutral pH and 37^{o}C temperature.

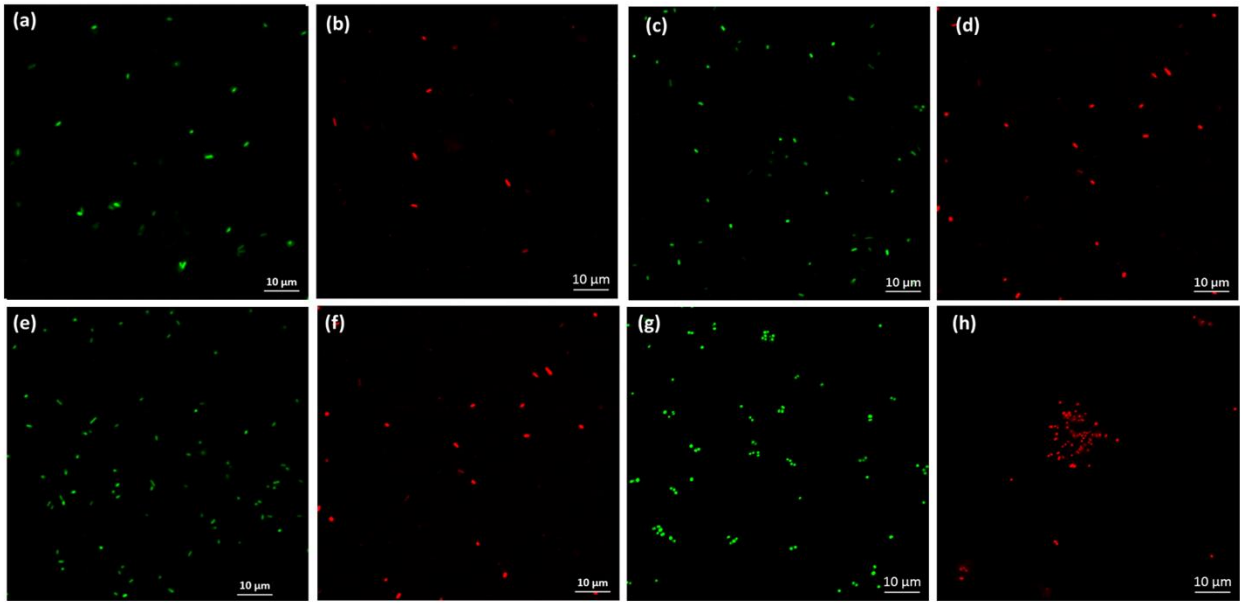

Fig. S4 CLSM images of bacterial strains (a, b) *E. coli* (c,d) *P. aeruginosa* (e, f) *B. subtilis* (g, h) *S. aureus* before and after treatment with Ag/AgCl NPs (at MBC concentration), respectively. Green and red fluorescence represents live and dead/damaged bacterial cells, respectively.

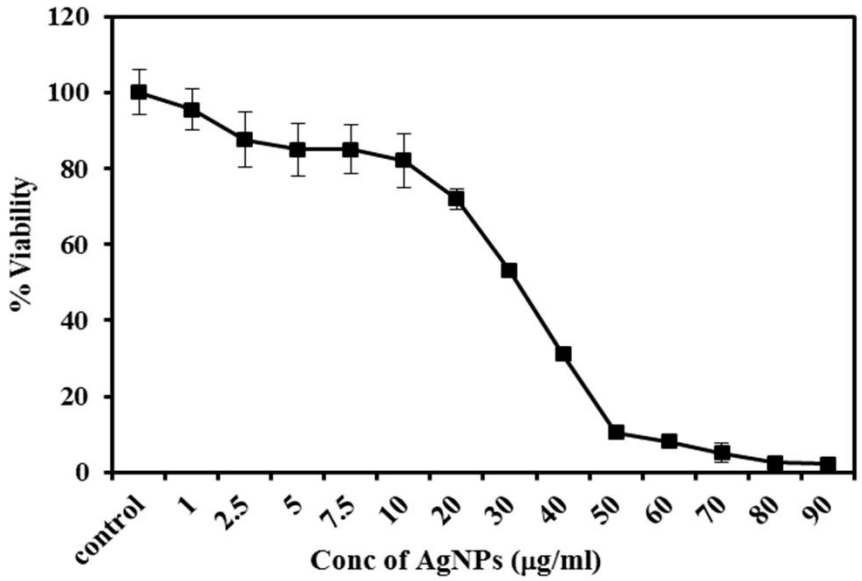

Fig. S5 Dose dependent cytotoxicity of AgNPs on MCF-7 cell line: Increased concentration of AgNPs (1–90 µg/ml) inhibited the growth of cell lines up to 100%.