

**Dual sensing strategy for early diagnosis of urinary tract infection using
aromatic amino acid capped Au and Ag nanoparticles for the detection of
biofilm cellulose**

Supporting Information

Kavi Bharathi Ramaiah,^{1,3,4} Indhu Suresh^{1,2}, Srinandan C. S.^{1,3,4}, Sai Subramanian N

^{1,3,4,*},

and John Bosco Balaguru Rayappan^{1,2,*}

*¹Centre for Nanotechnology & Advanced Biomaterials (CeNTAB), SASTRA Deemed
University, Thanjavur, 613401, Tamil Nadu, India*

*²School of Electrical and Electronics Engineering, SASTRA Deemed University, Thanjavur,
613401, Tamil Nadu, India*

*³School of Chemical and Biotechnology, SASTRA Deemed University, Thanjavur 613 401,
Tamil Nadu, India*

*⁴Biofilm Biology Lab & Antimicrobial Resistance Lab, Centre for Research in Infectious
Diseases, SASTRA Deemed University, Thanjavur 613 401, Tamil Nadu, India*

Fig. S1 AFM micrographs of the synthesized nanoparticles (a, d) 5, (b, e) 1, (c, f) 3 mM Tyr-capped Ag NPs, (g, j) AuNPs, (h, k) chitosan AuNPs (i, l) 3 mM Tyr-capped Au NPs, (a, b, c, g, h, i) 2D images, (d, e, f, j, k, l) 3D images.

Fig. S2 Optimization of the loading volume of Tyr-capped Ag NPs (Inset: CV response for different loading masses at 50 mV s^{-1}).

Fig. S3 (a) Linear plot of log current vs log scan rate over the scan rate range of $10 - 90 \text{ mV s}^{-1}$ (Inset: CV recorded for $65 \text{ }\mu\text{g/mL}$ of cellulose for varying scan rates from 10 to 90 mV s^{-1}), and (b) pH effect on the current characteristics for $65 \text{ }\mu\text{g/mL}$ cellulose.

Fig. S4 (a) Repeatability study of the sensor in the presence of $65 \text{ }\mu\text{g/mL}$ of cellulose, (b) Reproducibility of the sensor in the presence of $65 \text{ }\mu\text{g/mL}$ of cellulose.

Fig. S1.

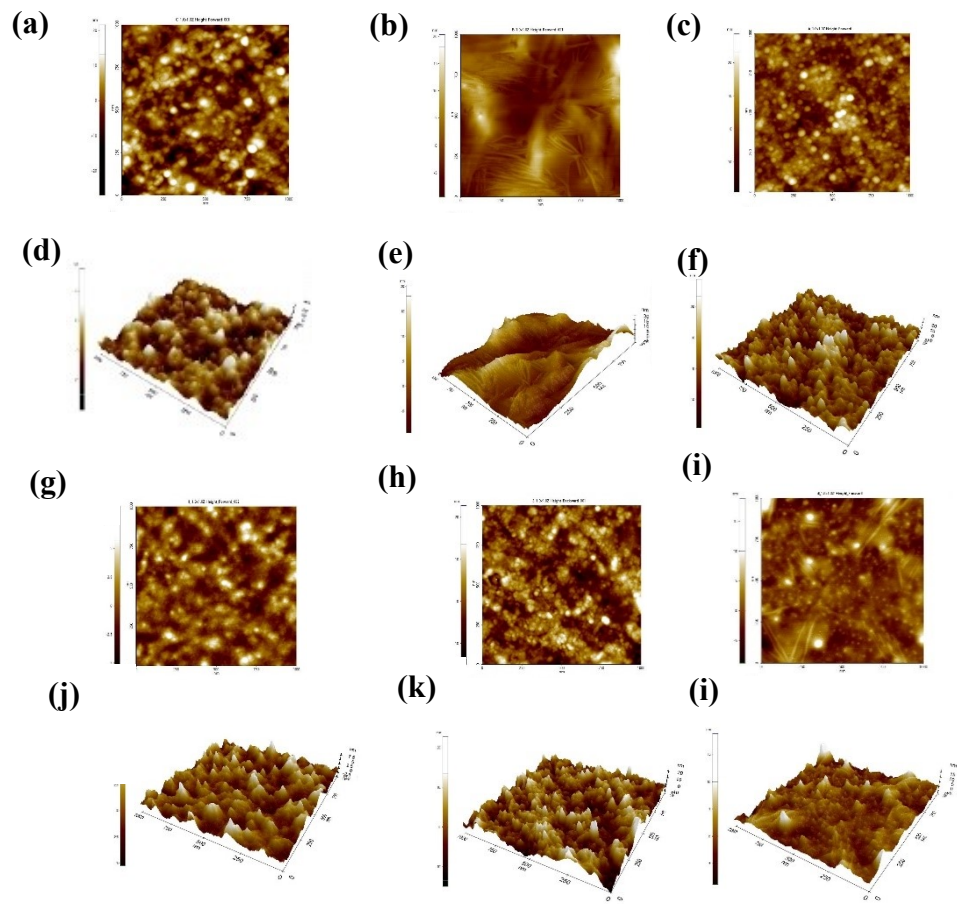


Fig. S2.

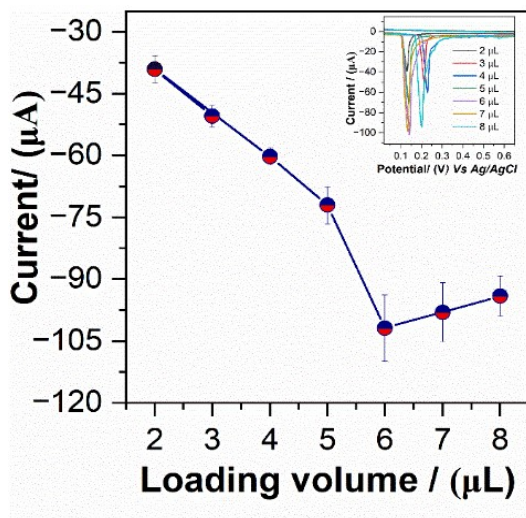


Fig. S3.

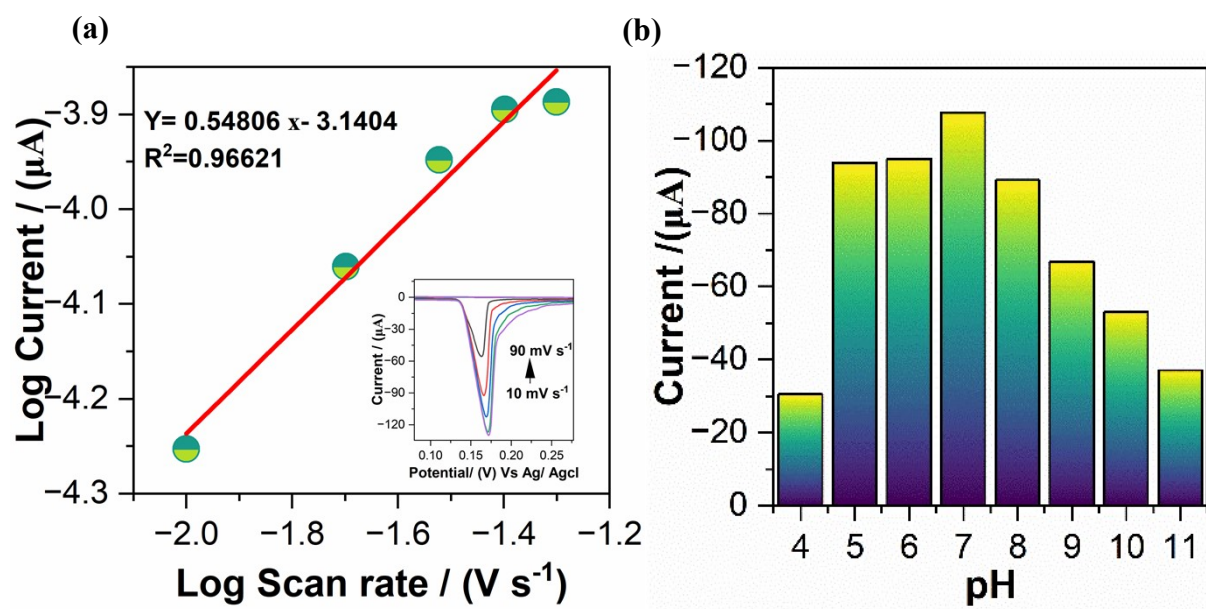


Fig. S4.

