Article

Anthraquinone-Polyaniline-Integrated Textile Platforms for In Situ Electrochemical Production of Hydrogen Peroxide for Microbial Deactivation

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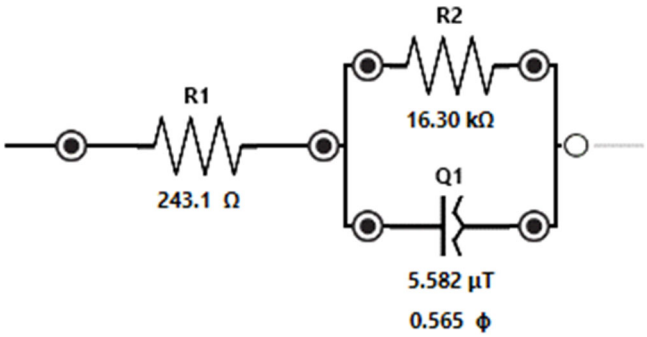
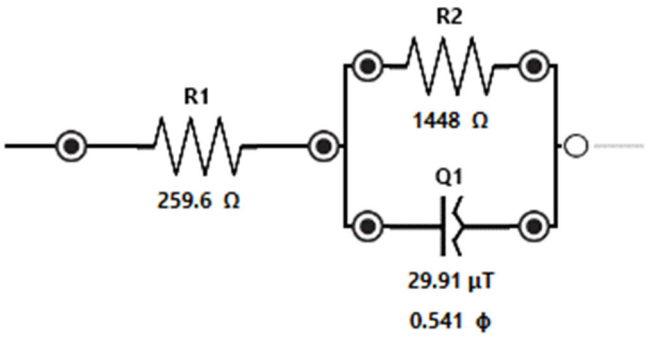
Supporting Information

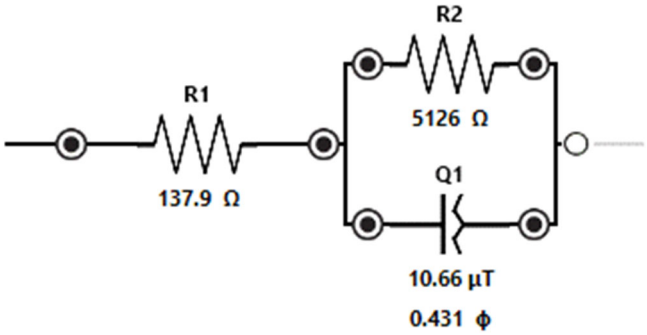
a) CNT/CNC@textile patch



b) PANI@CNT/CNC@textile patch

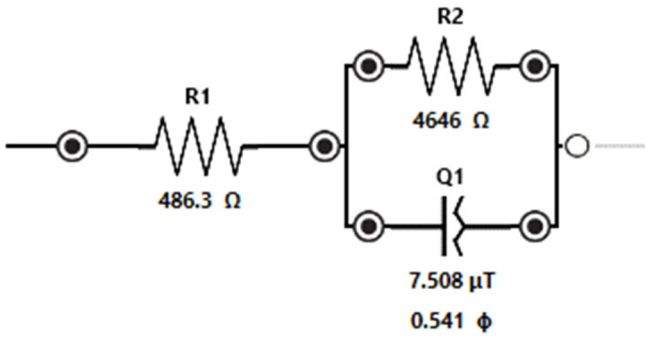


c) AQ@CNT/CNC@textile patch



d) AQ@PANI@CNT/CNC@textile antibacterial patch

Figure S1. EIS circuit fitting for different variations of the fabricated patches.



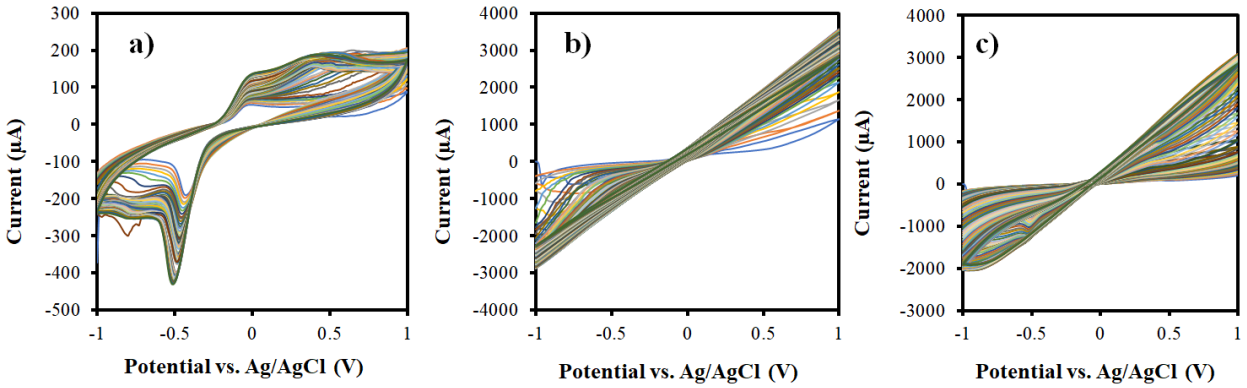


Figure S2. Overlaid CVs taken using **a)** CNT/CNC@textile; **b)** PANI@CNT/CNC@textile; and **c)** AQ@PANI@CNT/CNC@textile patches to stimulate the electrochemical production of H_2O_2.

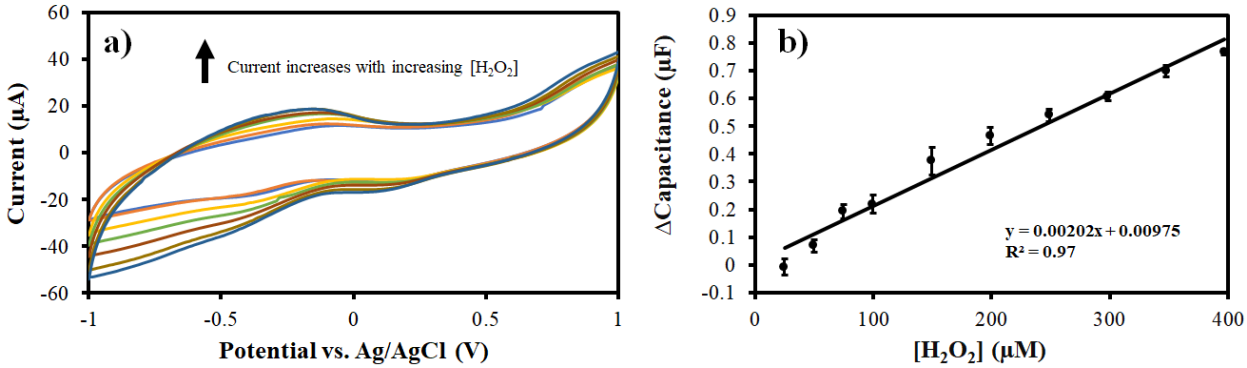


Figure S3. a) Overlaid CVs taken using the CNT/CNC sensor electrode in response to increasing H_2O_2 concentrations and **b)** resulting Δcapacitance vs. H_2O_2 concentration calibration curve.

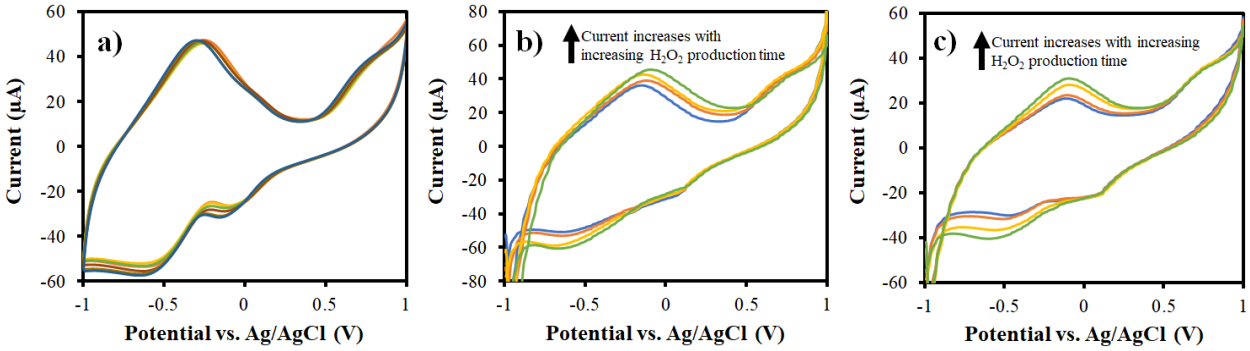


Figure S4. CVs taken using the CNT/CNC sensor electrode for the electrochemical detection of H_2O_2 produced from **a)** CNT/CNC@textile; **b)** PANI@CNT/CNC@textile; and **c)** AQ@PANI@CNT/CNC@textile patches.

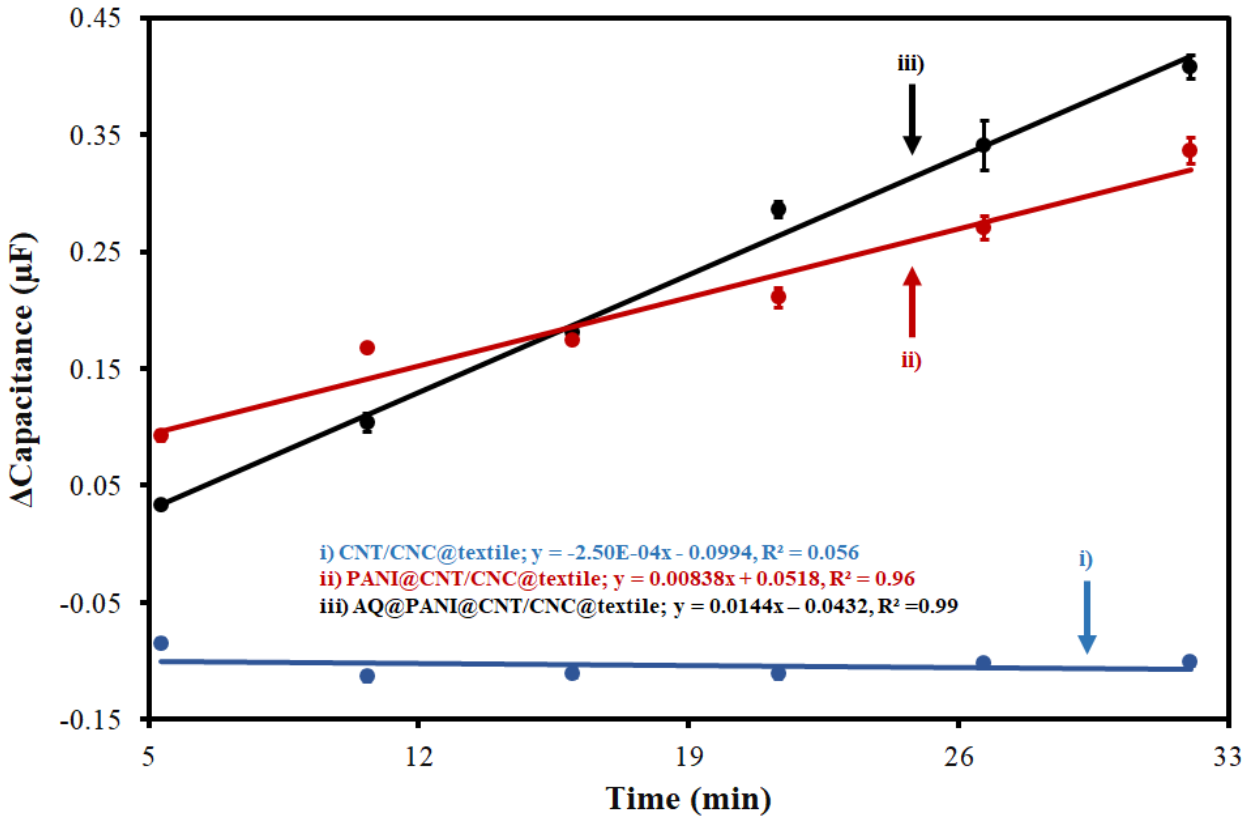


Figure S5. ΔCapacitance vs. H_2O_2 generation time plot, and resulting linear equations for **i)** CNT/CNC@textile; **ii)** PANI@CNT/CNC@textile; and **iii)** AQ@PANI@CNT/CNC@textile patches.

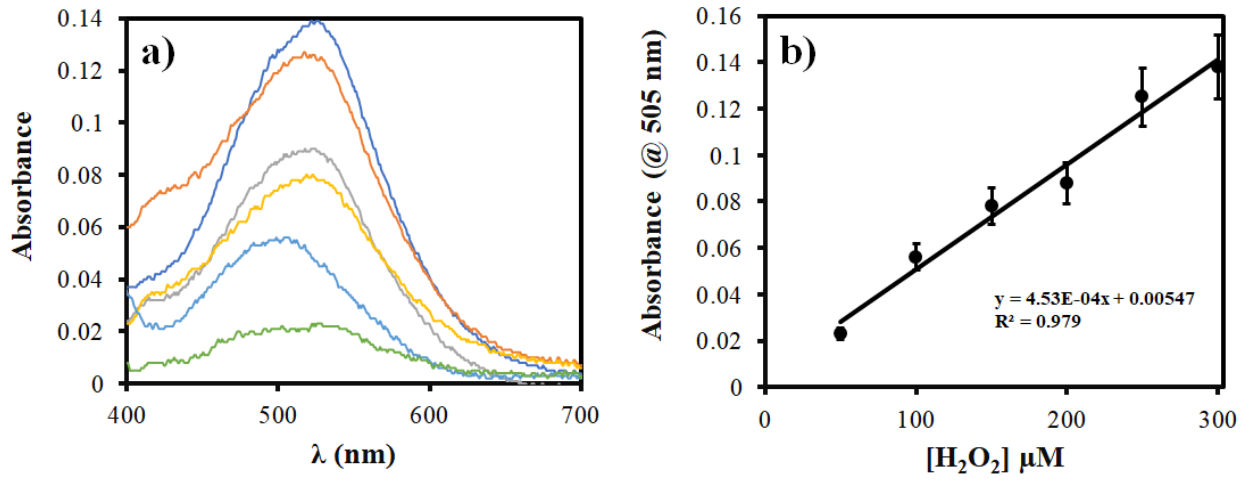


Figure S6. a) Absorption spectra for the colorimetric detection of H_2O_2 in response to increasing H_2O_2 concentrations and **b)** resulting absorbance (@ 505 nm) vs. H_2O_2 concentration calibration curve.

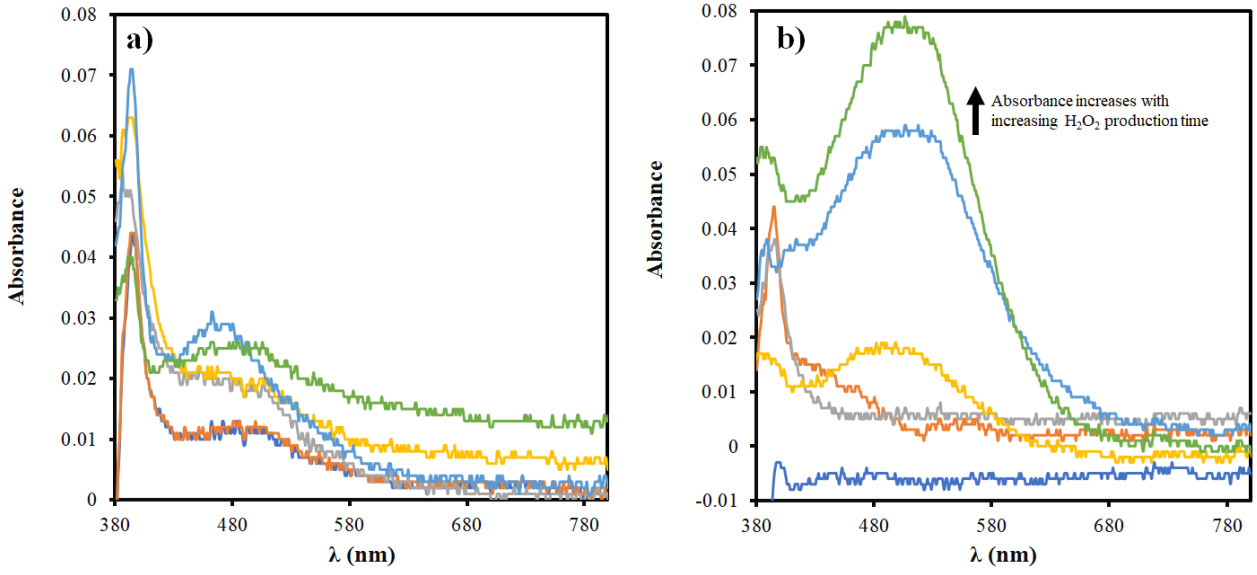


Figure S7. Absorption spectra for the colorimetric detection of H_2O_2 produced from **a)** PANI@CNT/CNC@textile; and **b)** AQ@PANI@CNT/CNC@textile patches.

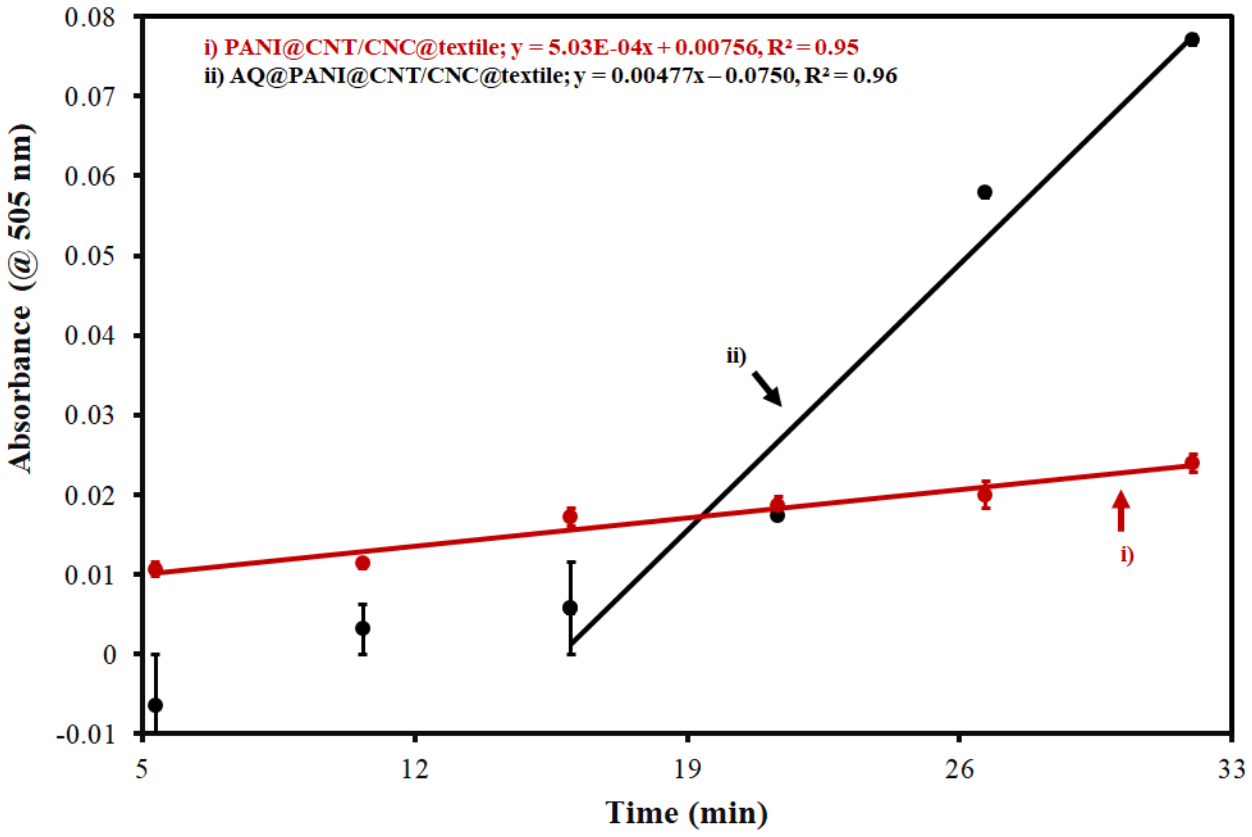
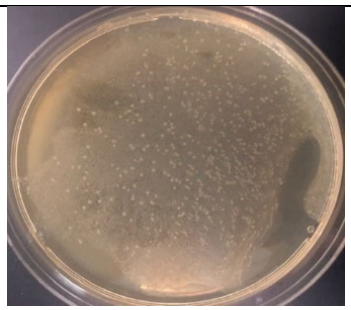
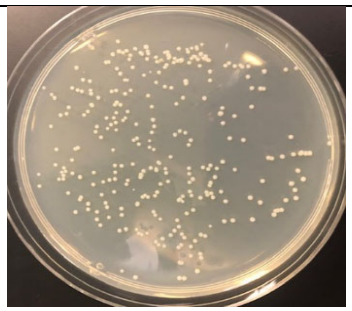
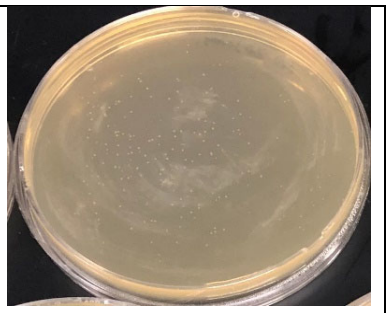
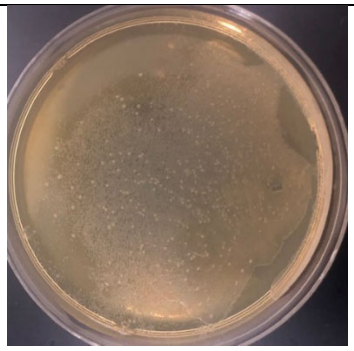
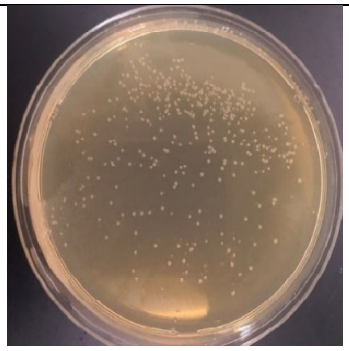
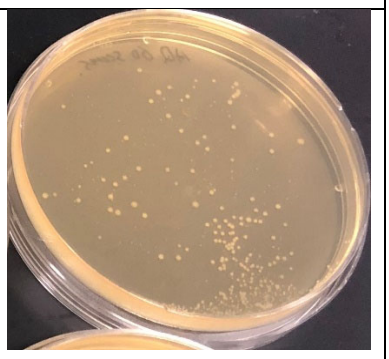
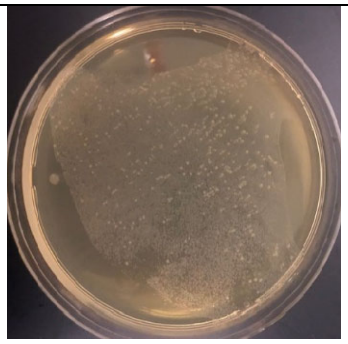
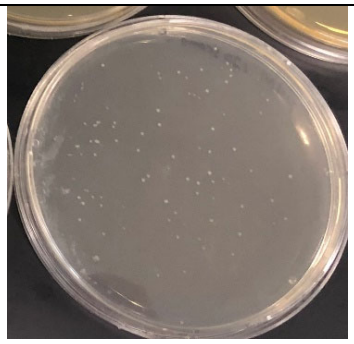
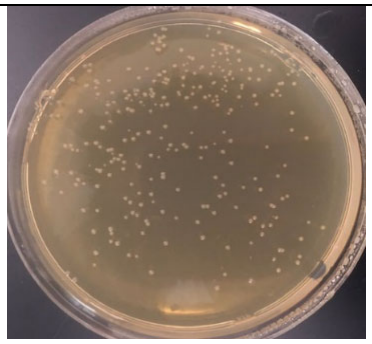
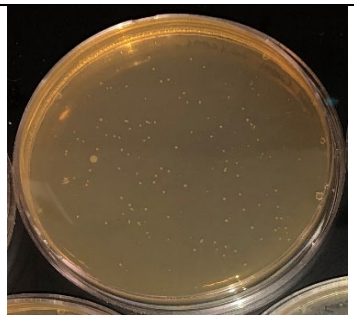
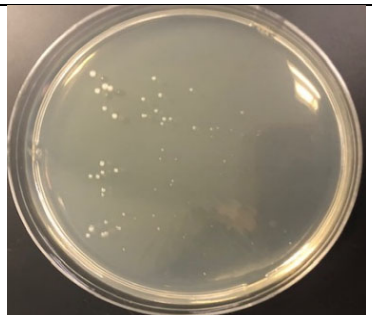
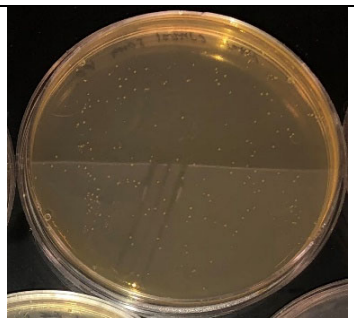
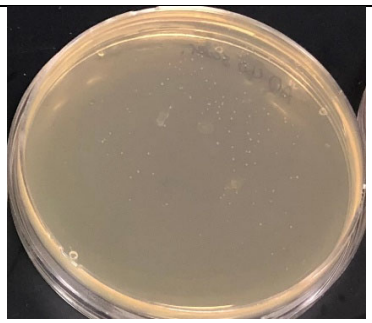


Figure S8. Absorbance (@ 505 nm) vs. electrochemical H_2O_2 generation time plot and resulting linear equations for **i)** PANI@CNT/CNC@textile; and **ii)** AQ@PANI@CNT/CNC@textile patches.

Time (min)	CNT/CNC@textile	PANI@CNT/CNC@ textile	AQ@PANI@CNT/CNC@ textile
0			

5			
11			
16			
21	**N/A**		
27			

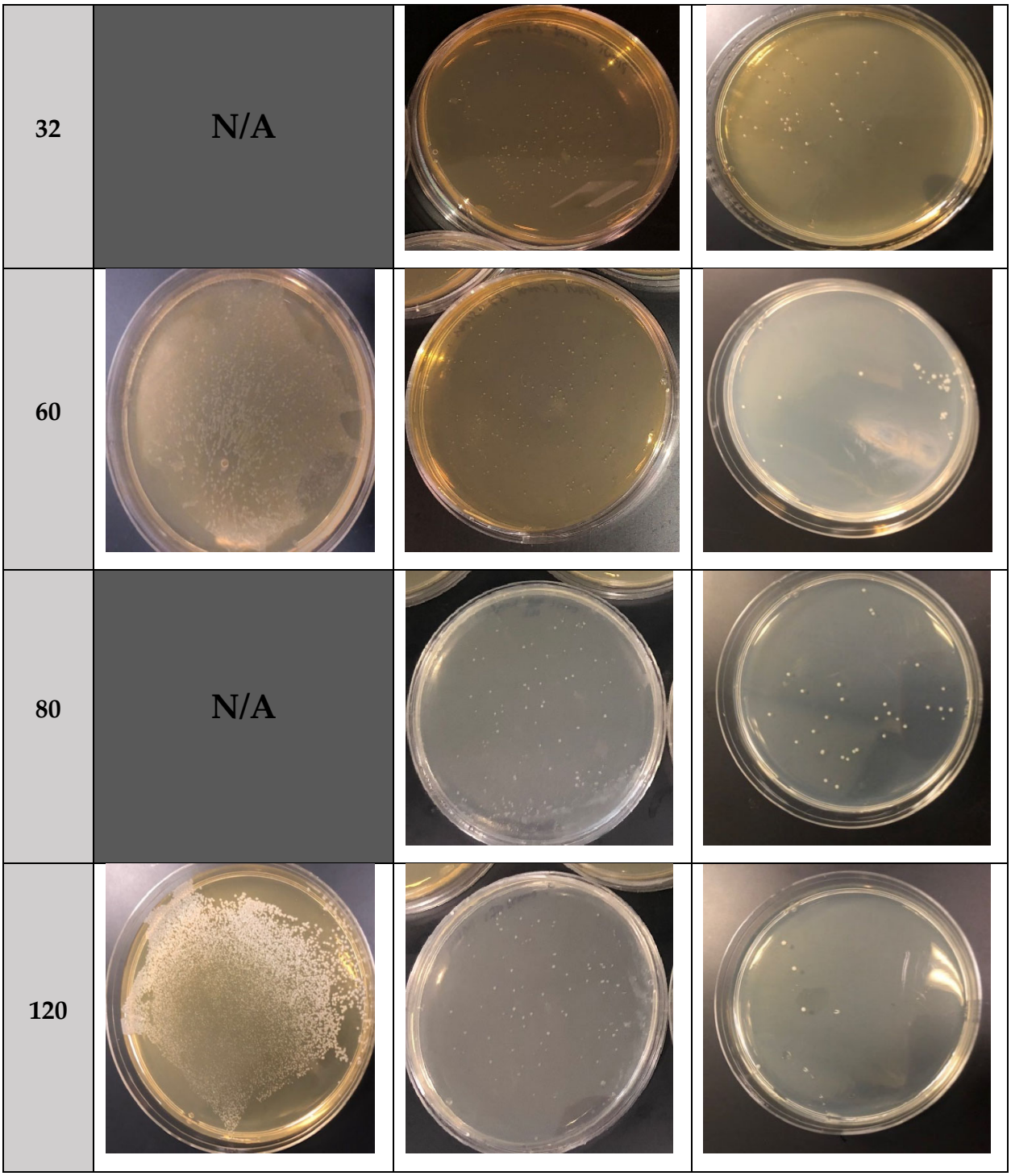


Figure S9. Camera images of *E. coli* colonies taken following various lengths of exposure to H_2O_2 production from CNT/CNC@textile, PANI@CNT/CNC@textile, and AQ@PANI@CNT/CNC@textile patches.