Simulation of Graphene Field-Effect Transistor Biosensors for Bacterial Detection

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Contents

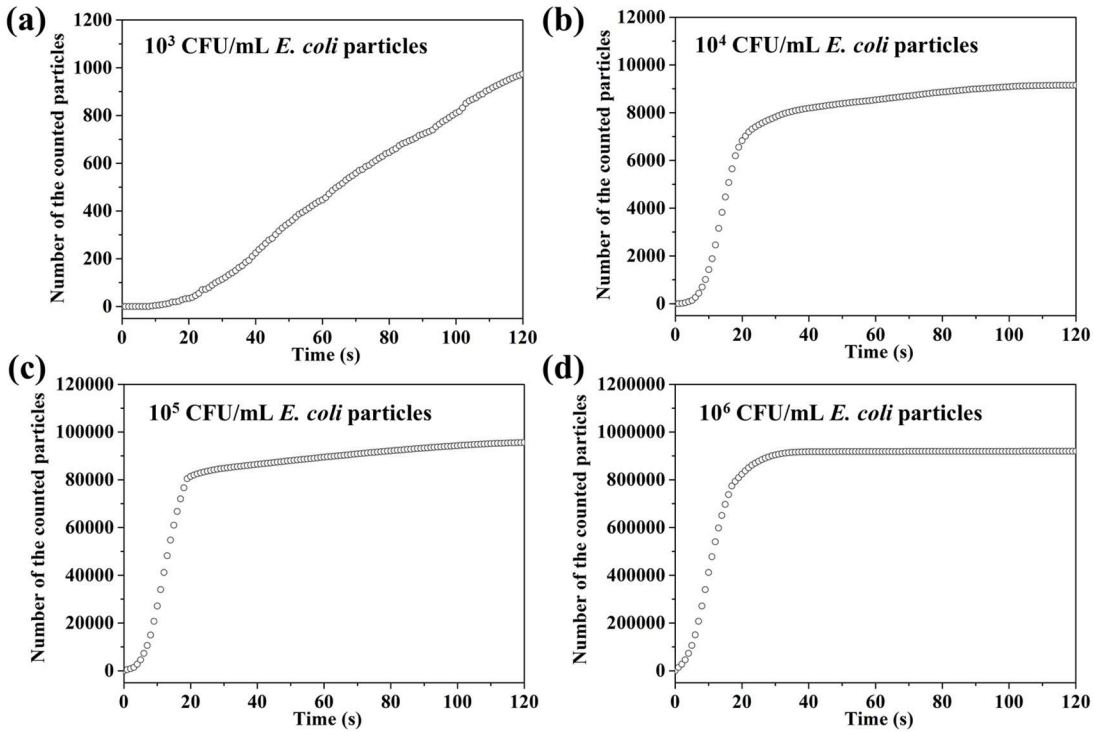

Figure S1. (a) The bacterial distribution from 0 to 120 s when 10^3 CFU/mL *E. coli* was simulated. (b) The bacterial distribution from 0 to 120 s when 10^4 CFU/mL *E. coli* was simulated. (c) The bacterial distribution from 0 to 120 s when 10^5 CFU/mL *E. coli* was simulated. (d) The bacterial distribution from 0 to 120 s when 10^6 CFU/mL *E. coli* was simulated.

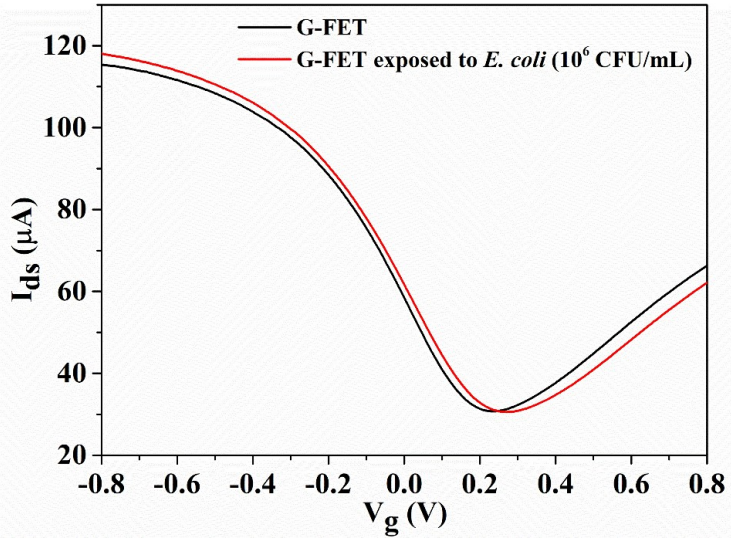

Figure S2. The transfer characteristics of the G-FET (black) and 10^6 CFU/mL of *E. coli* treated G-FET (red).

Table S1. The slope from the simulation and experiment during the rise period.

Slope (μA/s) for the concentration of 100 CFU/mL	**Simulation**	**Experiment**
For the first rise period (0 - 30s)	$3.17*10^{-4}$	$4.6*10^{-3}$
For the second rise period (31s - 120s)	$1.36*10^{-3}$	$7.33*10^{-4}$
Slope (μA/s) for the concentration of 11950 CFU/mL	**Simulation**	**Experiment**
For the first rise period (0 - 30s)	$8.67*10^{-2}$	$5.10*10^{-2}$
For the second rise period (31s - 90s)	$2.74*10^{-3}$	$6.24*10^{-3}$
For the saturation period (91s - 120s)	$7.3*10^{-4}$	$7.77*10^{-4}$