Supporting Information Materials

Harnessing Graphene-Modified Electrode Sensitivity for Enhanced Ciprofloxacin Detection

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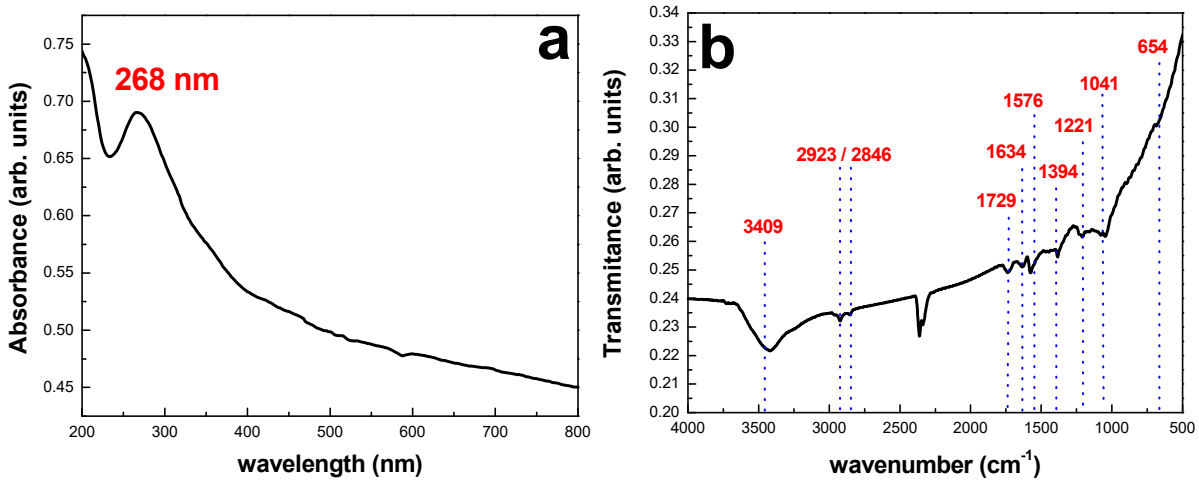


Figure S1. UV-Vis (a) and FTIR (b) spectra of exfoliated graphene sample.

Table S1. Assignments of each deconvoluted XPS peak based on their binding energies (BE) and atomic concentrations [AC, %], and full width at half maximum (FWHM) for each component.

	Binding energy (eV) [AC, %]	FWHM (eV)	Assignments
C1s	284.34 eV; 34.99%	1.53	sp^2 C=C /CH_n
	285.61 eV; 22.53%	1.19	sp3 C-C / CHn
	286.31 eV; 13.7%	1.21	C-O
	287.12 eV; 17.64%	1.67	C=O
	288.33eV; 6.18%	1.59	OH-C=O / COOH
	289.61 eV; 4.95%	1.72	$\pi \rightarrow \pi^*$ shake up satellite
O 1s	531.25 eV; 23.07%	2.48	C-O
	532.98 eV; 70.32%	2.59	OH-C=O / COOH
	536.05 eV; 6.61%	2.29	adsorbed H_2O

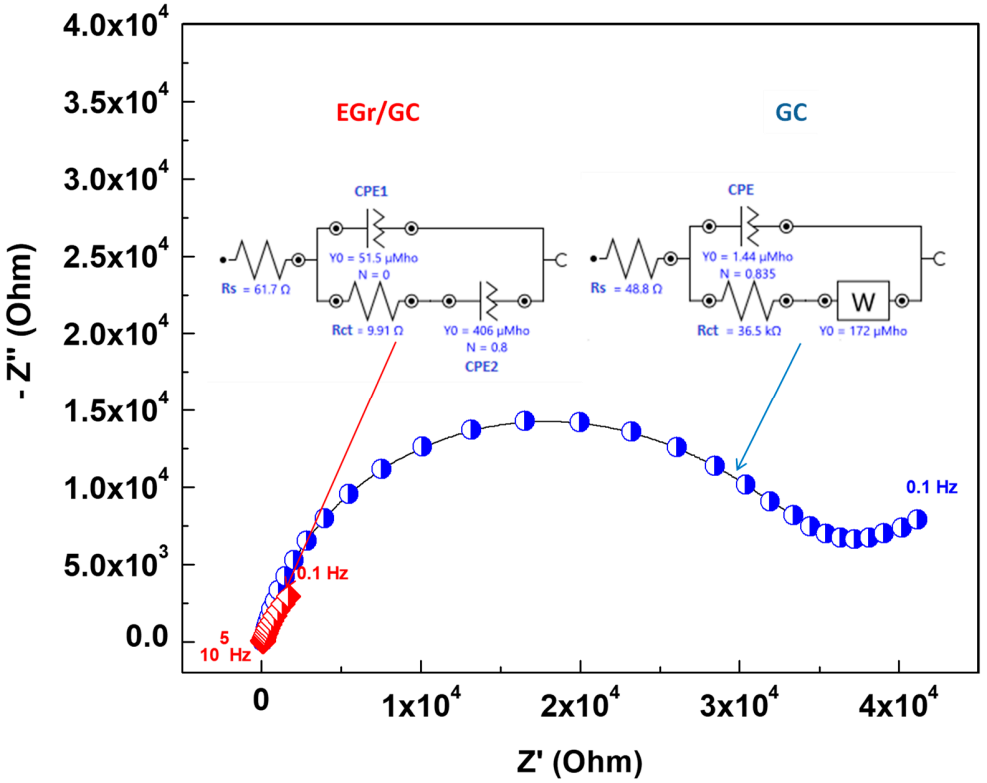


Figure S2. Nyquist plots recorded in 1mM potassium ferrocyanide (0.2 M KCl) for bare GC (blue) and graphene-modified electrode, EGr/GC (red); *inset:* the equivalent electrical circuits employed to fit the Nyquist plots of bare and graphene-modified electrode.

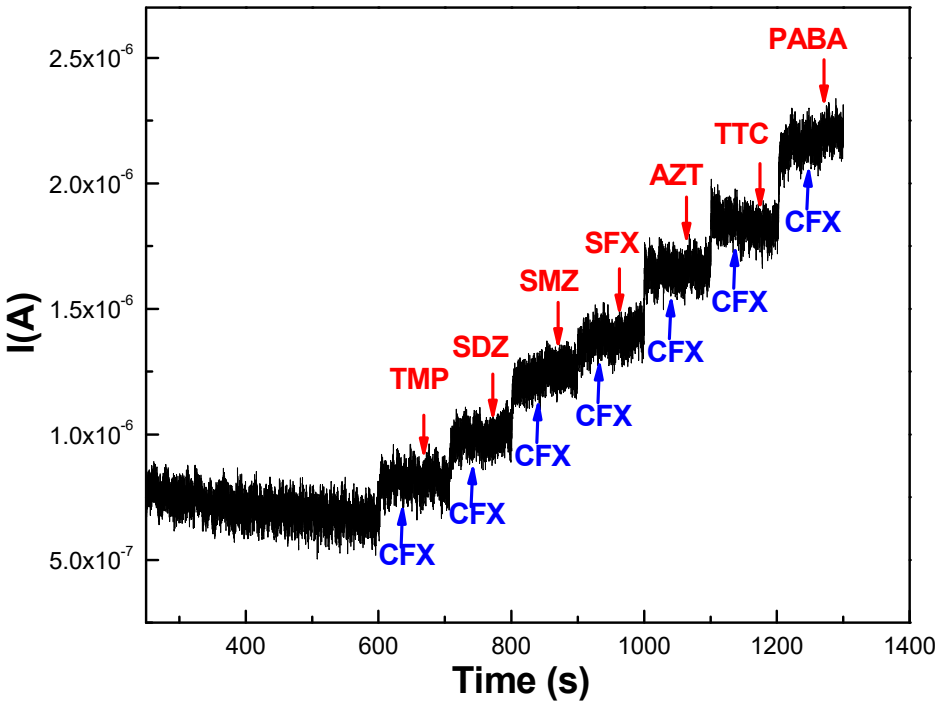


Figure S3. The amperogram recorded with EGr/GC electrode at +1.1V vs Ag/AgCl, during the successive addition of CFX and different antibiotics (TMP–Trimethoprim; SDZ–Sulfadiazine; SMZ–Sulfamethazine; SFX–Sulfamethoxazole; AZT–Azithromycin; TTC–Tetracycline; PABA - 4-Aminobenzoic acid); stirring: 300 rpm.

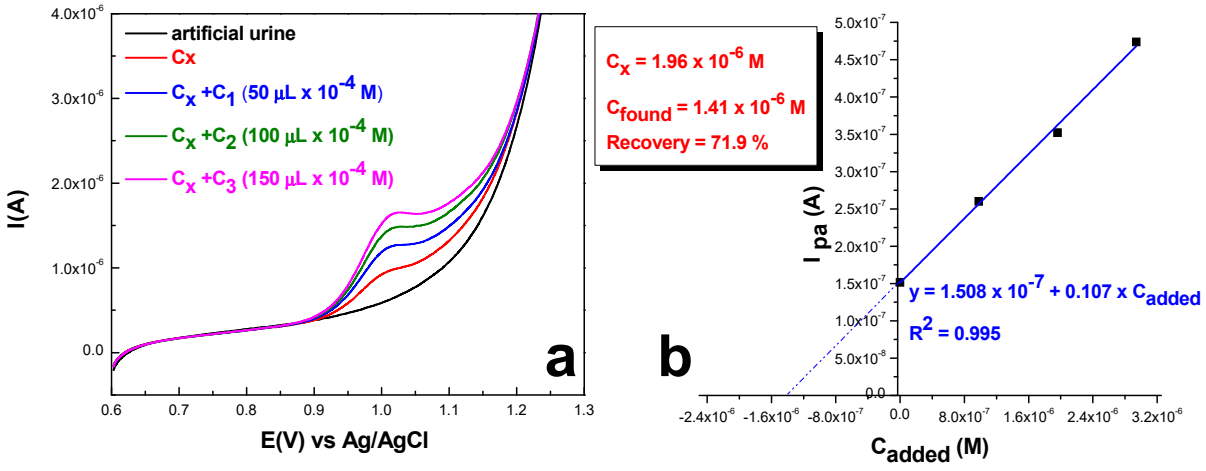


Figure S4. The LSV signal at the surface of EGr/GC electrode in artificial urine solution spiked with different amounts of CFX from the stock solution (1 × 10^{-4} M); scan rate 10 mV/s (a); The standard addition curve obtained by plotting Ipa (A) versus the spiked CFX from the stock solution - Cadded (M) (b).