Supplementary Information

2D Graphene sheets as a sensing material for the electroanalysis of zileuton

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Figures and Tables:

SI Figure S1: Nyquist plots for CPE and G/CPE in 0.01 mM ZLT

SI Figure S2: Influence of immersion time on the electrochemical behavior of ZLT

SI Figure S3: Impact of scan rate on the electrochemical behaviour of 0.01mM ZLT at t_{imm} of 0s in pH 6.0 (A) CV responses of 0.1 mM ZLT at different scan rates in pH 6.0 at G/CPE; Inset (a) Dependency and relationship of I_{pa} and I_{pc} with ν (B) Dependency and relationship of I_{pa} and I_{pc} with $\nu^{1/2}$; (C) Plot of log I_{pa} and log I_{pc} versus log *v*; (D) Plot of E_{pa} and E_{pc} versus log *v*

SI Figure S4: Study of influence and interference of (A) Excipients; (C) Metal ions; % signal change of ZLT under the influence of (B) Excipients; (D) Metal ions.

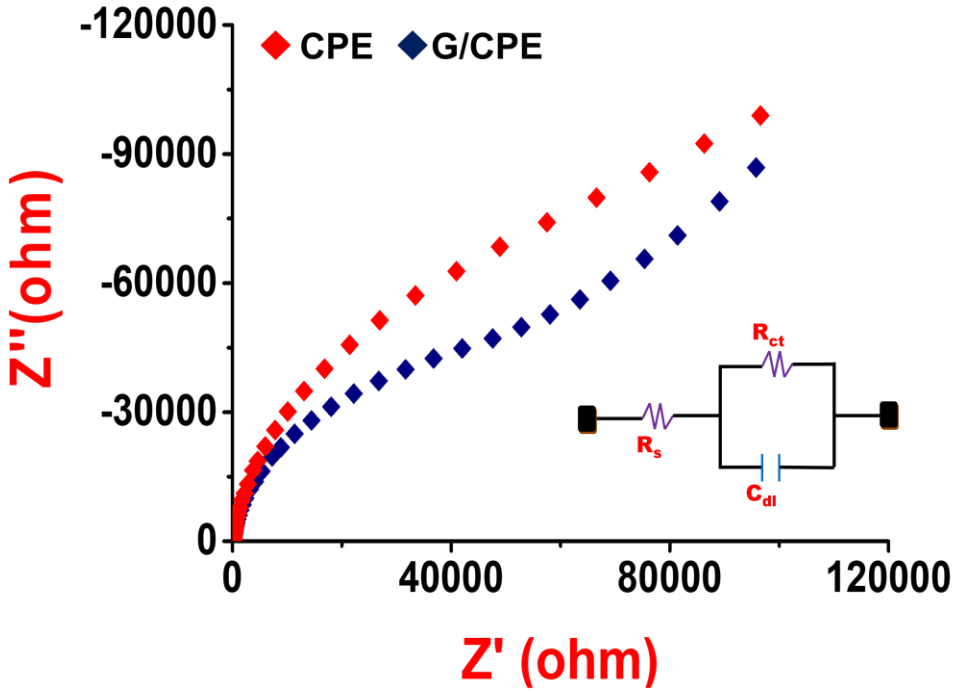
SI Table S1: AFM characteristics of CPE and G/CPE

AFM Parameters	CPE	G/CPE
Scan size	10 μm × 10 μm	10 μm × 10 μm
Total area of roughness	100.12 pm^2	100.89 pm^2
Roughness average value (Sa)	1.022 nm	3075.9 pm
Root mean value (Sq)	4.540 nm	12.759 nm
Peak value height (Sy)	238.51 nm	29.22 nm
Peak height (Sp)	103.75 nm	256.27 nm
Valley depth (Sv)	-134.76 nm	-32.955 nm
Mean value (Sm)	-5.707 fm	-4.777 fm
Delta Z value (ΔZ)	958.9 pm	2.776 nm

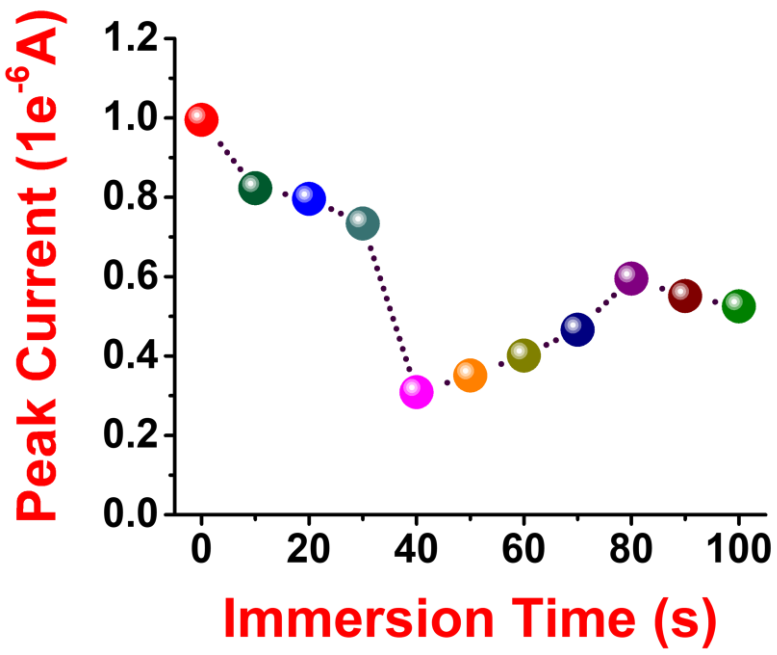
SI Table S2: Characteristics of the plot of peak current versus concentration

Parameters	ZLT
Linearity range (M)	3.0×10^{-7} - 1.0×10^{-4}
The slope of the plot (μA M^{-1})	0.131
Intercept (μA)	0.0869
Correlation coefficient (R^2)	0.99
SD of intercept	0.0016
% of RSD of slope	0.017
% of RSD of intercept	0.019
Total data points considered	11
L_D (μM)	0.03
L_Q (μM)	0.12
% RSD for repeatability	0.78
% RSD for reproducibility	0.71

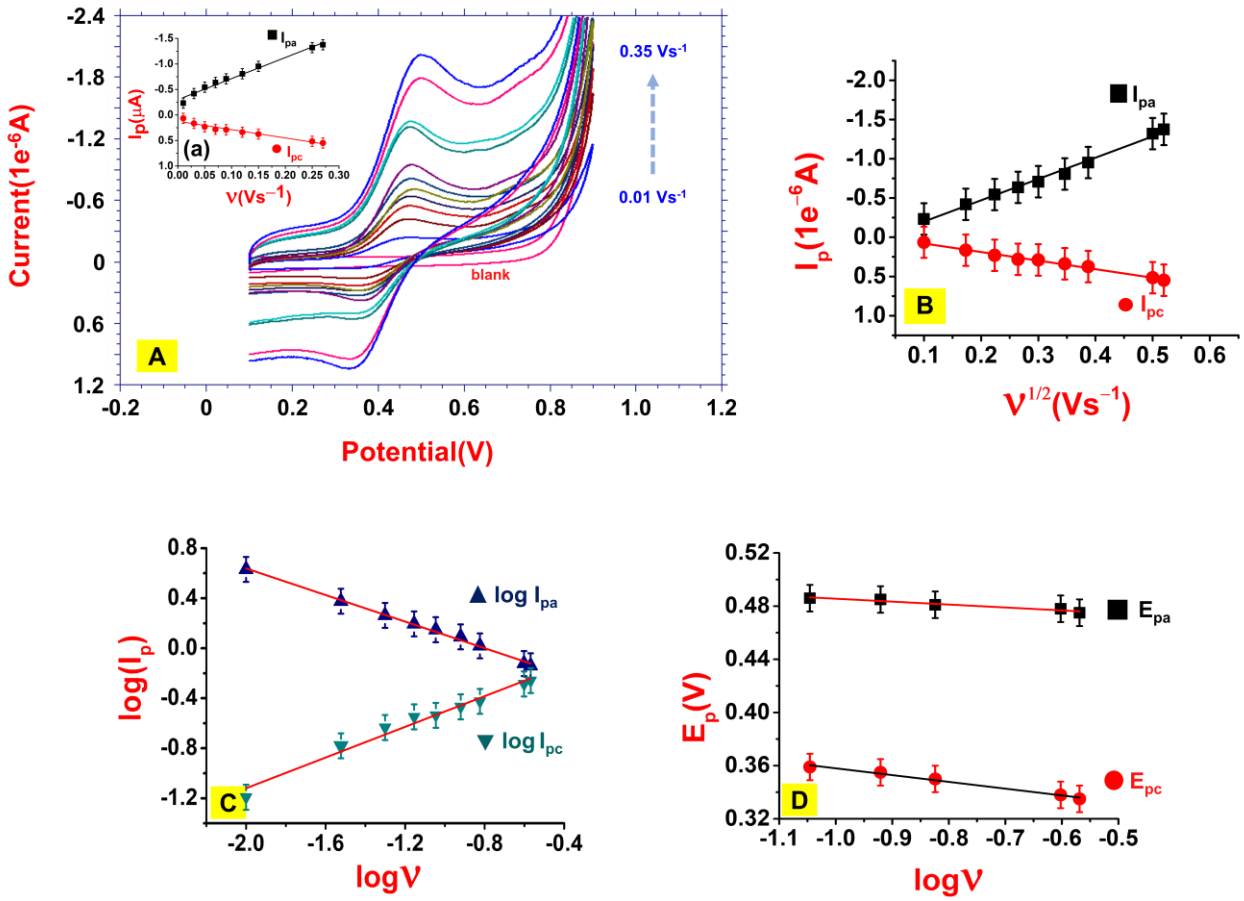
SI Figure S1:


CPE
G/CPE
-120000
-90000
-60000
-30000
0
Z''(ohm)
0
40000
80000
120000
Z' (ohm)
R_{ct}
R_s
C_{dl}

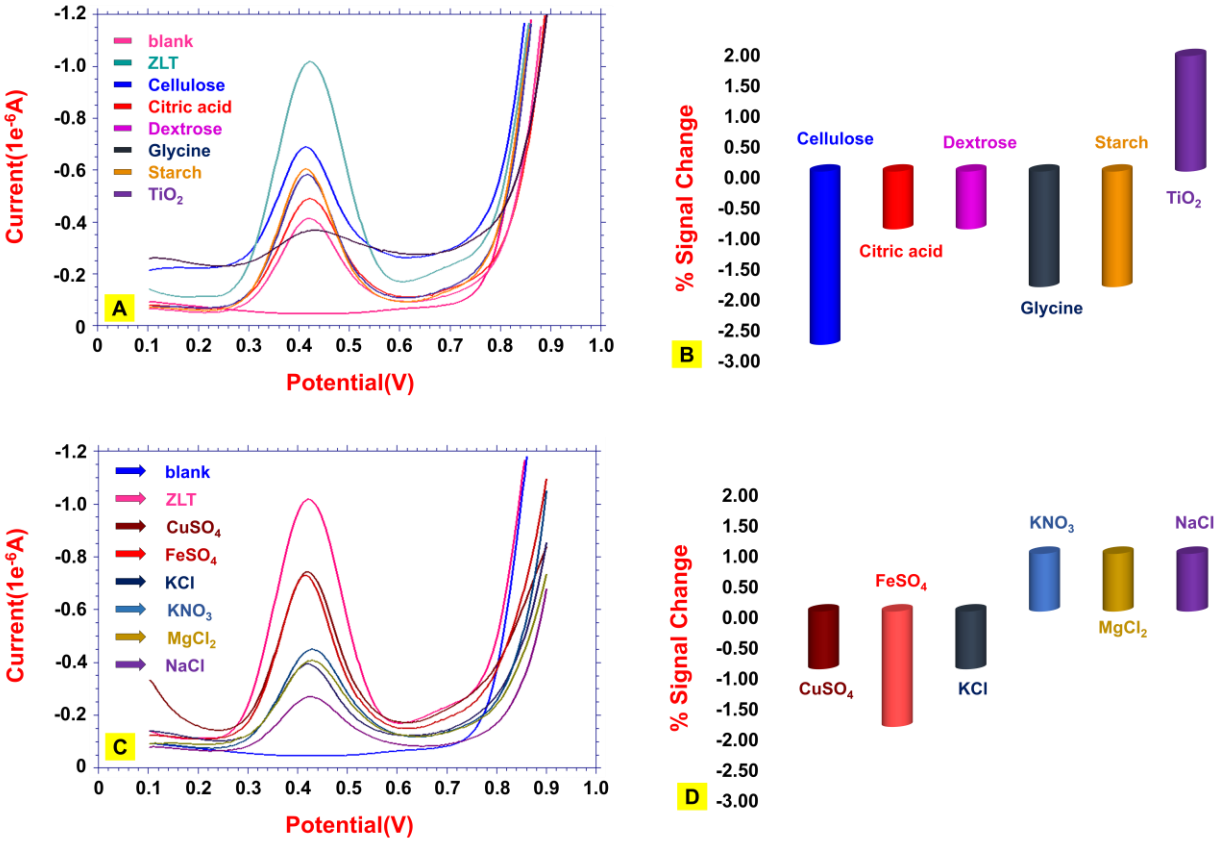
SI Figure S2:


Peak Current (1e-6 A)
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0
20
40
60
80
100
Immersion Time (s)

SI Figure S3:


A
Current(1e-6A)
Potential(V)
0.35 Vs-1
0.01 Vs-1
blank
(a)
Ip(μA)
ν(Vs−1)
Ipa
Ipc
B
Ip(1e−6A)
ν1/2(Vs−1)
C
log(Ip)
log ν
log Ipa
log Ipc
D
Ep(V)
Epa
Epc

SI Figure S4:


A
blank
ZLT
Cellulose
Citric acid
Dextrose
Glycine
Starch
TiO2
Current(1e-6A)
Potential(V)
B
% Signal Change
Cellulose
Citric acid
Dextrose
Glycine
Starch
TiO2
C
blank
ZLT
CuSO4
FeSO4
KCl
KNO3
MgCl2
NaCl
Current(1e-6A)
Potential(V)
D
% Signal Change
CuSO4
FeSO4
KCl
KNO3
MgCl2
NaCl