Supplementary information

Graphene amplified femtosensitive aptasensing of estradiol an endocrine disruptor

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Synthesis of graphene oxide (GO)

In detail, graphite (1.0 g), $NaNO_3$ (1.0 g) and 46 mL of H_2SO_4 (98%) were added into a flask under stirring in an ice bath. After the addition of $KMnO_4$ (6 g), the vessel was transferred into a water bath at about 35 °C and stirred for another 1 h to complete the deep oxidation. Next 70 mL of deionized water was slowly added and temperature was adjusted to 95°C and further stirred for another 2 h, when the diluted suspension turned brown, indicating the hydrolysis and absolute exfoliation of intercalated graphite oxide. Finally, this brown suspension was further treated with 30 mL of H_2O_2 (30%) to reduce the residual oxidants and intermediates to soluble sulfate. Then this suspension was centrifuged at 10000 rpm for 20 min to remove the residual graphite, and washed with 1 $molL^{-1}$ HCl and deionized water repeatedly, and drying the product under vacuum to producing the graphene oxide (GO). The aqueous solution of graphene oxide (0.1 mg mL^{-1}) was prepared by ultra-sonication for 30 min.

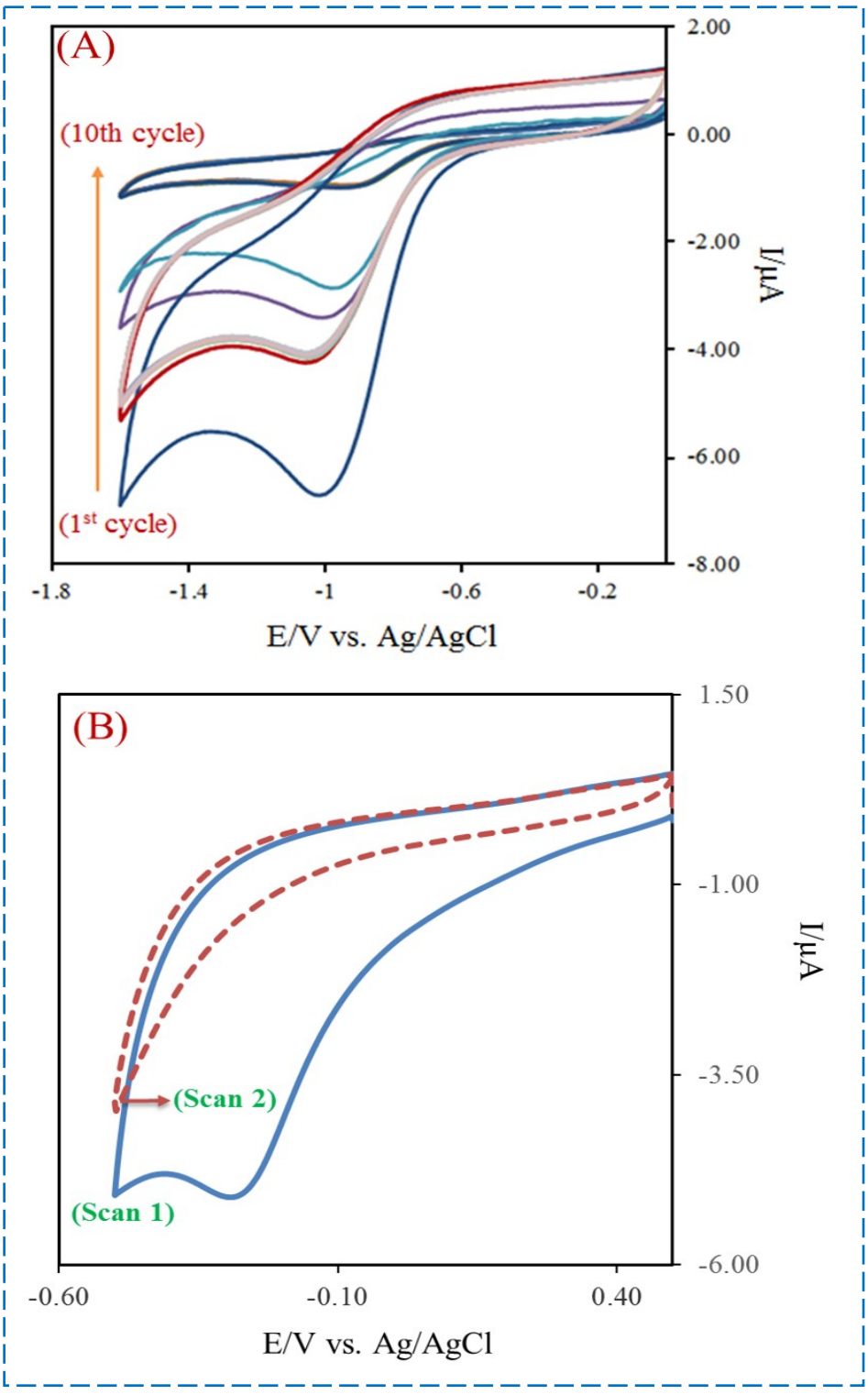

Figure S1: (A) Electrochemical deposition of GO at GCE to form modified electrode ERGO/GCE. (B) Electrochemical reduction of *p*-phenyl carboxyl diazonium salt ($Cl^-N_2^+$–Ph–COOH) at ERGO/GCE (scan rate 100 mVs^{-1}).