

*Supporting Information For*

**Electroanalysis of nicotine at an electroreduced  
carboxylated graphene modified glassy carbon electrode**

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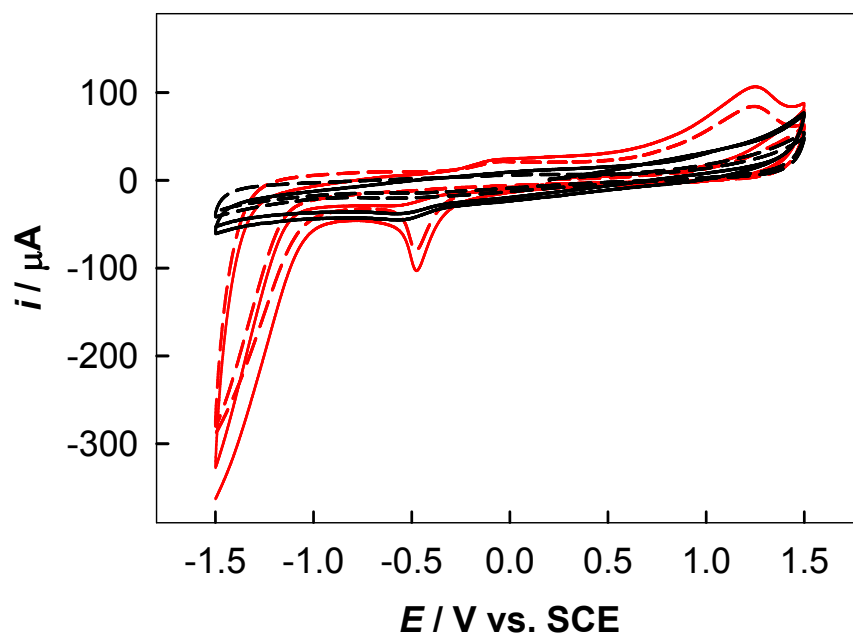


Fig. S1. Cyclic voltammograms of a bare GCE (black solid curve) and an ERCG/GCE (red solid curve) in air-saturated 0.1 M  $\text{KH}_2\text{PO}_4$ - $\text{Na}_2\text{HPO}_4$  as well as a bare GCE (black dashed curve) and an ERCG/GCE (red dashed curve) in  $\text{N}_2$ -saturated 0.1 M  $\text{KH}_2\text{PO}_4$ - $\text{Na}_2\text{HPO}_4$ .  $\text{N}_2$  was bubbled into the solution for 30 min before the experiments. Scan rate: 0.2 V/s.

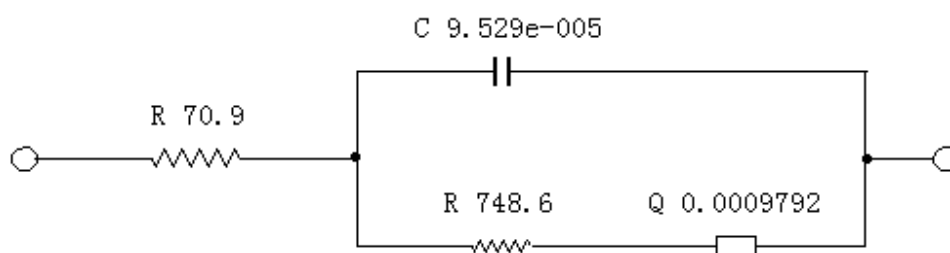


Fig. S2. Equivalent circuit diagram of CG/GCE. This equivalent circuit is also used for nonlinear fitting of the EIS data obtained on GCE and ERCG/GCE (curves a and c in Fig. 2), yielding equivalent circuit parameters different from those on CG/GCE.

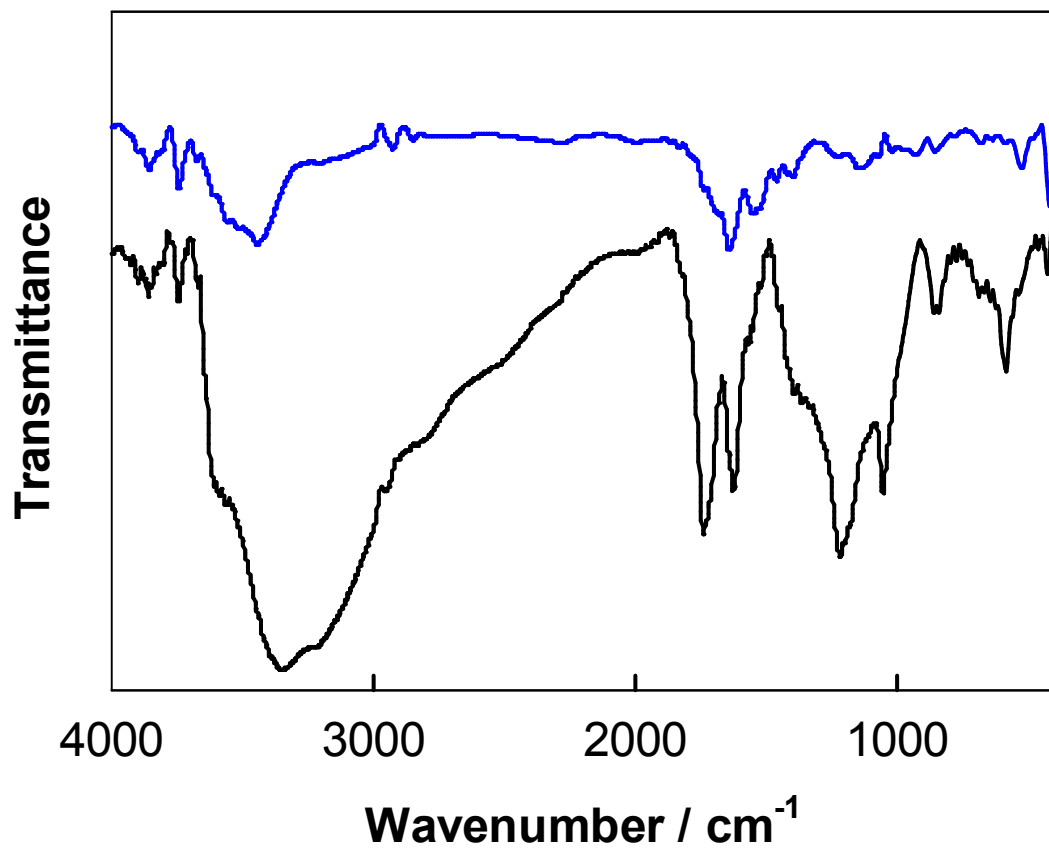


Fig. S3. FT-IR spectra of CG (black curve) and ERCG (blue curve).

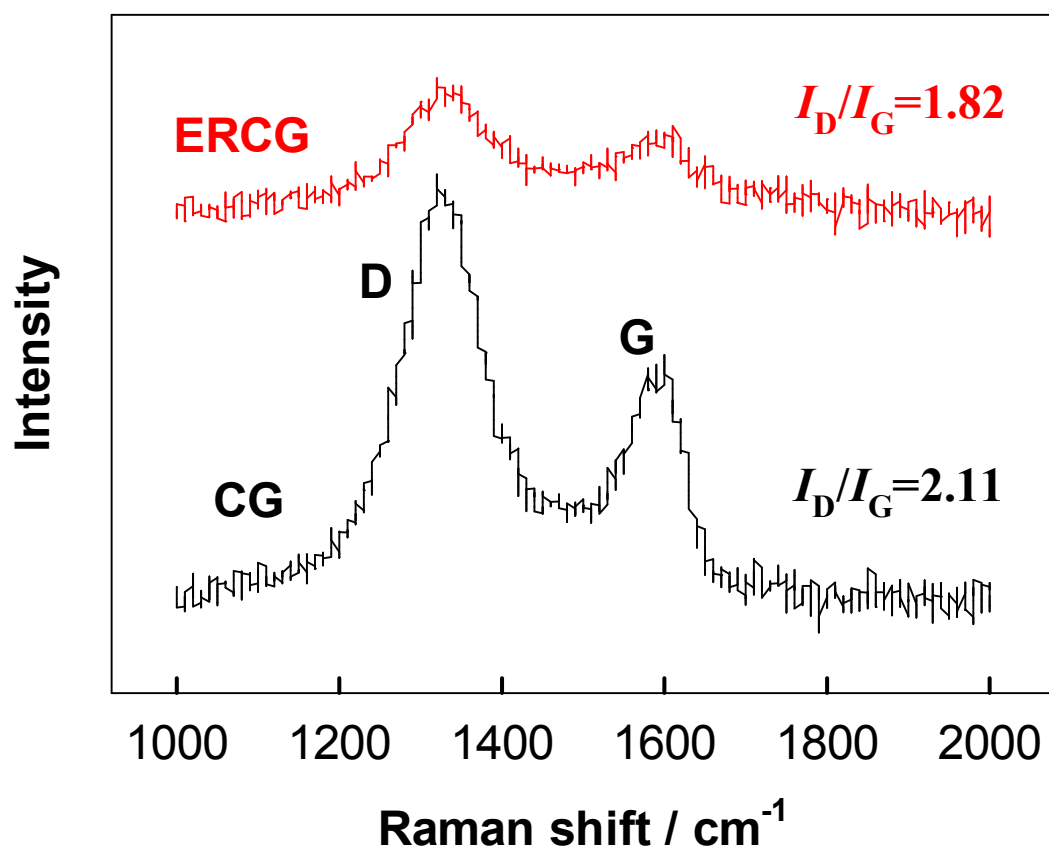


Fig. S4. Raman spectra of CG (black curve) and ERCG (red curve)

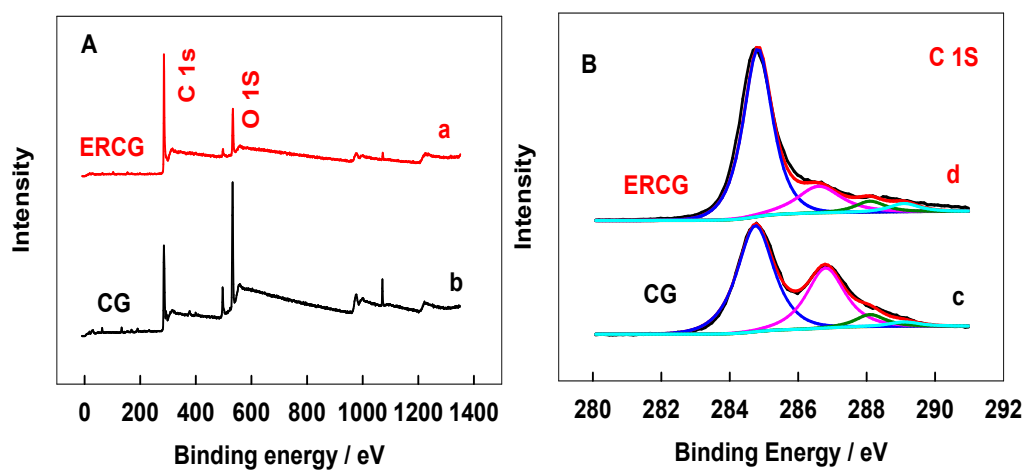


Fig. S5. XPS spectra of CG (black curve) and ERCG (red curve).

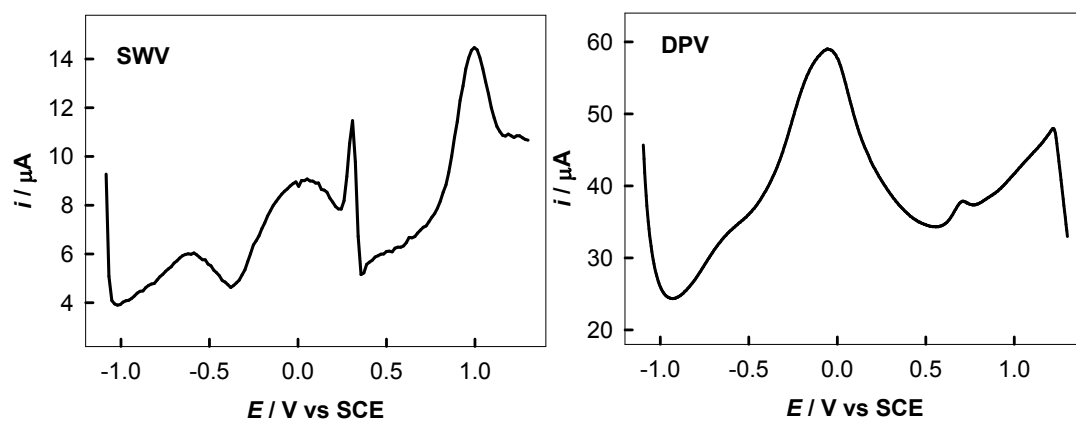


Fig. S6. SWV and DPV at ERCG/GCE in 0.1 M PBS (pH 7.0) containing 50  $\mu\text{M}$  nicotine.

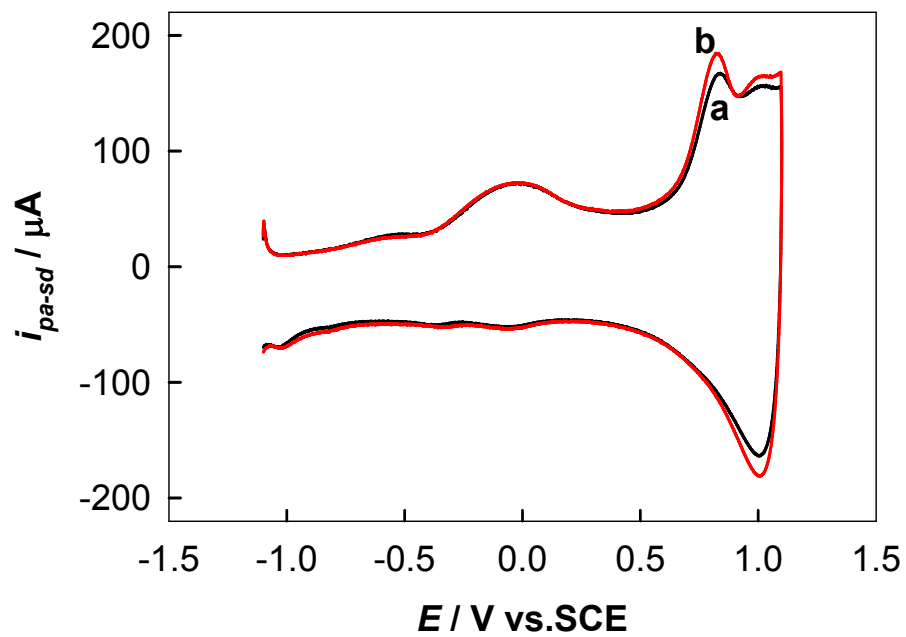


Fig. S7. Cyclic voltammograms of nicotine at ERCG/GCE in 0.1 M PBS (pH 7.0) (a, black curve, peak current=90.3  $\mu\text{A}$ ) and in 0.1 M PBS (pH 7.0) containing 2 mM SDS (b, red curve, peak current=94.4  $\mu\text{A}$ ).