ENHANCING THE FOULING RESISTANCE OF GRAPHITE SHEETS FOR ELECTROCHEMICAL SENSING OF BISPHENOL-A

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SUPPLEMENTARY MATERIAL



Figure S1. (A) Cyclic voltammograms recorded in 0.1 mol L⁻¹ acetate buffer in the presence of 10 μ mol L⁻¹ BPA using GS at different scan rates. **(B)** Linear correlation between I_p *vs v*; (C) Linear correlation between I_p *vs v*^{1/2}. **(D)** The linear relationship between log I_p and log v.



Figure S2. Schematic redox reaction of BPA at the GS electrode.



Figure S3. A) Cyclic voltammetric measurements carried out in different buffers at pH 5: 0.10 mol L⁻¹ Acetate buffer (black line), 0.12 mol L⁻¹ BR buffer (red line), 7.0 (blue line), 9.0 (magenta line) in the presence of 10 μ mol L⁻¹ of BPA. **B**) Influence of pH on E_p (blue column) and i_p (gray column). Instrumental conditions: scan rate = 50 mV s⁻¹ and step potential = 5 mV s⁻¹.



Figure S4. Successive differential pulse voltammograms recorded in 0.1 mol L⁻¹ acetate buffer in the presence of 2.0 μ mol L⁻¹ BPA using the GS electrode. Voltammetric conditions: pulse amplitude: 80 mV; pulse width: 80 ms, $\nu = 10$ mV s⁻¹.



Figure S5. Contact angle determination by dropping 10 μ L of water on the graphite sheet A) before and B) after electrochemically treating at +1.5 V for 30 s.



Figure S6. Influence of the period the electrode was held at the cleaning potential on the voltammetric response of BPA. Voltammetric measurements were performed in 0.1 mol L⁻¹ acetate buffer with 2.0 μ mol L⁻¹ BPA. Cleaning potential: +1.5 V. Voltammetric conditions: pulse amplitude: 80 mV; pulse width: 80 ms, $\nu = 10$ mV s⁻¹. Error bars represent the standard deviation of I_p, averaged over three scans.



Figure S7. Cyclic voltammetric measurements were carried out at different scan rates ranging 10 to 30 mV s⁻¹ in 0.5 M KCl. Capacitance data: plots of Δj (peak currents were measured at +0.15 V (*vs.* Ag|AgCl|KCl_(sat.)) normalized with geometric area to determine the Cdl value **A**) Graphite sheet electrodes and **B**) Glassy carbon electrode.



Figure S8. A) Differential pulse voltammograms recorded in 0.1 mol L⁻¹ acetate buffer in the presence of 10 µmol L⁻¹ BPA using different electrodes: (red line) Graphite sheets (0.180 cm²) and (blue line) Glassy carbon (0.070 cm²). Voltammetric conditions: pulse amplitude: 80 mV; pulse width: 80 ms, v = 10 mV s⁻¹. Current densities were calculated by dividing the measured currents by the electrochemically active area of each electrode. **B)** BPA normalized peak current as a function of the successive scans recorded with different electrodes: (red line) GS; (blue line) GCE in

0.1 mol L⁻¹ acetate buffer in the presence of 2.0 μ mol L⁻¹ BPA (n=2). Cleaning procedure: E_{applied}: +1.5 V t: 30s. Differential pulse voltammetric conditions: 80 mV; pulse width: 80 ms, v = 10 mV s⁻¹.



Figure S9. SEM images of A) Graphite sheet electrode and B) Glassy carbon electrode.



Figure S10. Effect of reducing possible interfering species on the voltammetric signal of BPA, presence of 2.0 μ mol L⁻¹ BPA at BPA: interfering ratio (1:1): catechol,

hydroquinone, dopamine, nitrite, sulphite, and phenol. Voltammetric conditions: pulse amplitude: 80 mV; pulse width: 80 ms, $v = 10 \text{ mV s}^{-1}$.