

Supplementary Information

Uncured Polydimethylsiloxane as Binder Agent for Carbon Paste Electrodes: Application to the Quantification of Propranolol

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Table S1. Values obtained for the components of the equivalent circuit model used to fit the Nyquist plots from Figure 3a. Percentual error values are given in parentheses

Electrode	R_s / Ω	$R_{ct} / k\Omega$	$Q / \mu F$	n	$Z_w / (m\Omega s^{1/2})$	χ^2
PDMS-CPE	11 (3.1%)	0.768 (1.8%)	1.91 (8.0%)	0.9009 (0.9%)	1.29 (4.8%)	0.251
Nujol [®] -CPE	14 (2.2%)	0.986 (1.2%)	1.02 (6.1%)	0.9381 (0.7%)	1.28 (4.2%)	0.145

R_s : solution resistance; R_{ct} : charge transfer resistance; Q: constant phase element; n: the exponent of Q, n = 1 for a pure capacitor; Z_w : Warburg impedance; PDMS: polydimethylsiloxane; CPE: carbon paste electrode.

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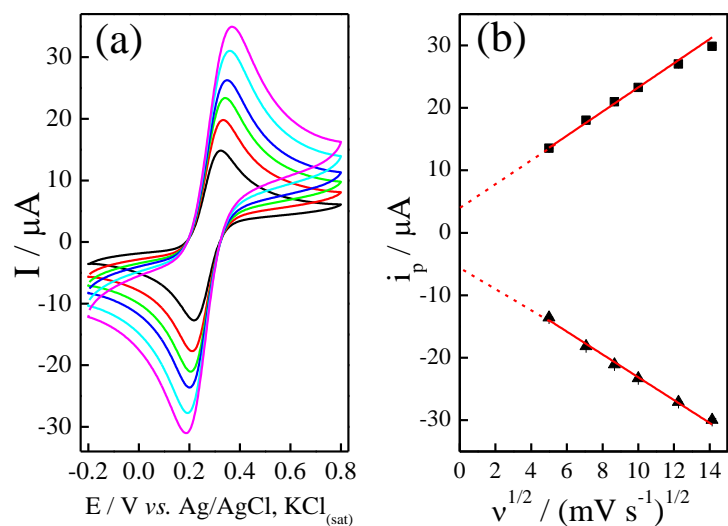


Figure S1. (a) Cyclic voltammograms recorded with PDMS-CPE in 1.0 mol L^{-1} KCl in the presence of 1.0 mmol L^{-1} $[\text{Fe}(\text{CN})_6]^{4-}$ at different scan rates: (—) 25, (—) 50, (—) 75, (—) 100, (—) 150, (—) 200 mV s^{-1} ; (b) plots of anodic (■) and cathodic (▲) peak currents vs. the square root of the scan rate ($v^{1/2}$).

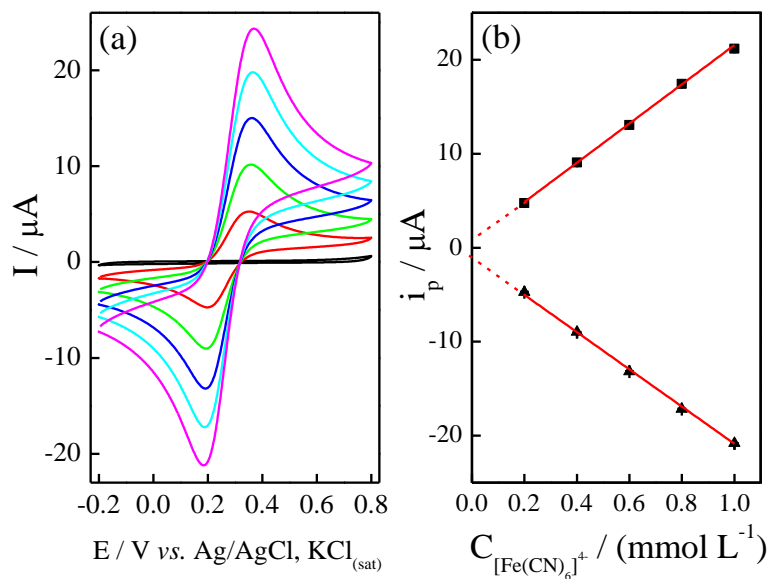


Figure S2. (a) Cyclic voltammograms recorded with PDMS-CPE in 1.0 mol L^{-1} KCl in different concentrations of $[\text{Fe}(\text{CN})_6]^{4-}$, $v = 100 \text{ mV s}^{-1}$: (—) 0, (—) 0.2, (—) 0.4, (—) 0.6, (—) 0.8, (—) 1.0 mmol L^{-1} ; (b) plots of anodic (■) and cathodic (▲) peak currents vs. $[\text{Fe}(\text{CN})_6]^{4-}$ concentration.

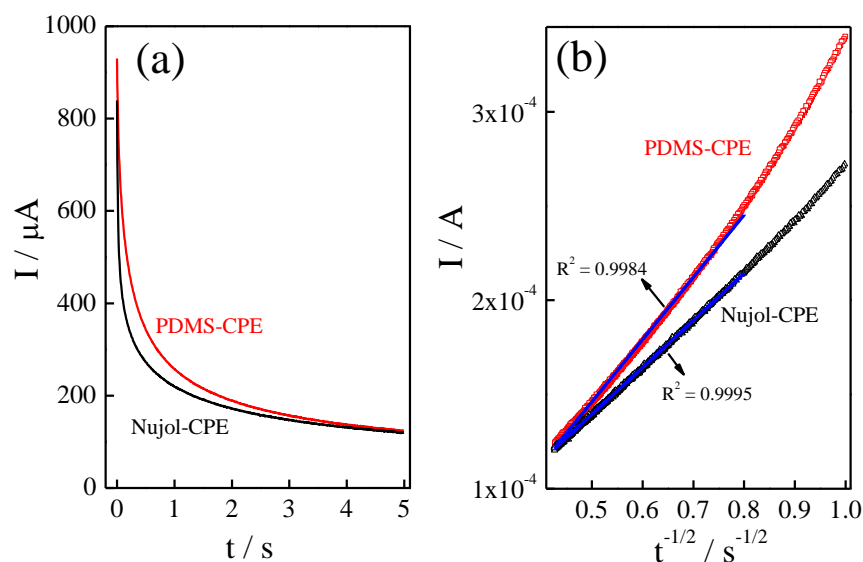


Figure S3. (a) Chronoamperometric curves recorded in the presence of $1.0 \times 10^{-2} \text{ mol L}^{-1} [\text{Fe}(\text{CN})_6]^{4-}$ and 1.0 mol L^{-1} KCl for PDMS-CPE and Nujol[®]-CPE. $E = 0.4 \text{ V vs. Ag/AgCl, KCl}_{(\text{sat})}$; sampling time: 5 ms; (b) respective I vs. $t^{-1/2}$ plots.

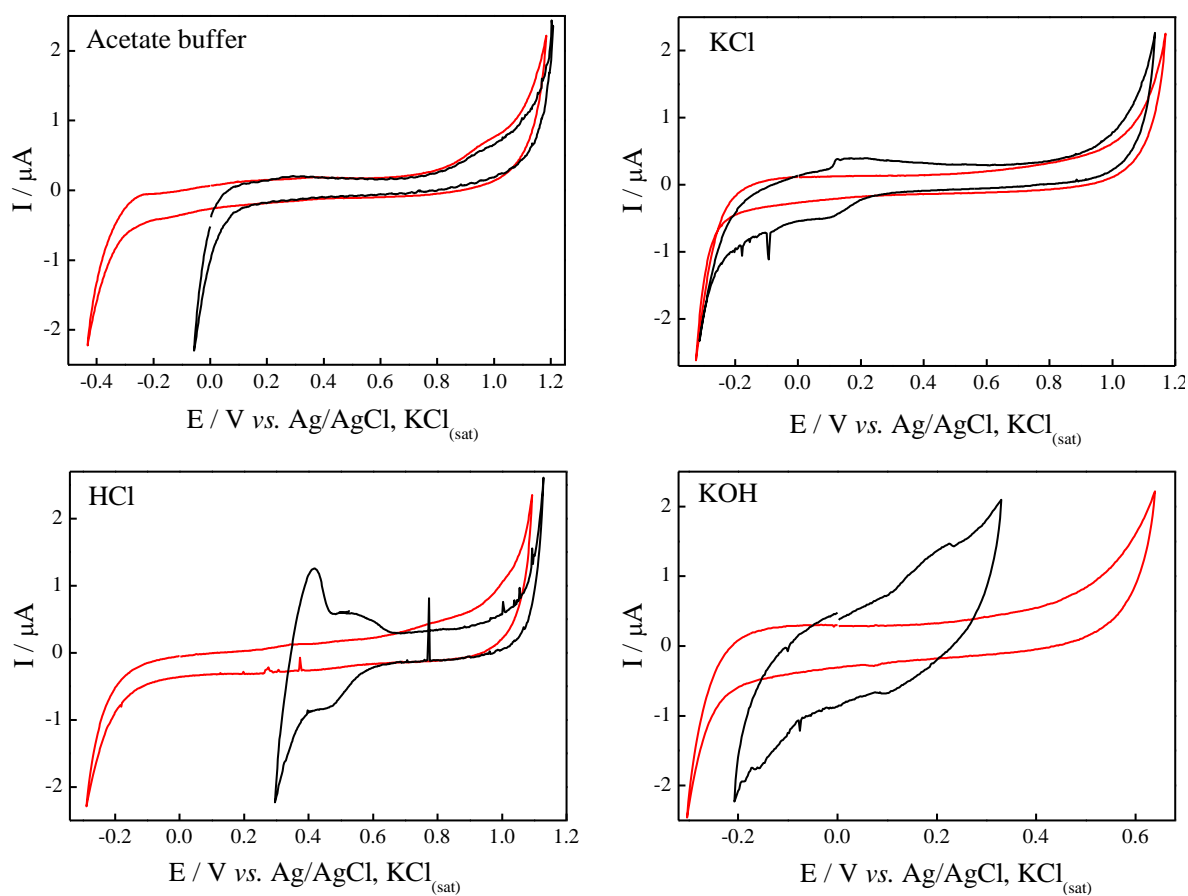


Figure S4. Cyclic voltammograms recorded with (—) PDMS-CPE and (—) Nujol[®]-CPE in 0.1 mol L^{-1} of different supporting electrolytes, $v = 50 \text{ mV s}^{-1}$.

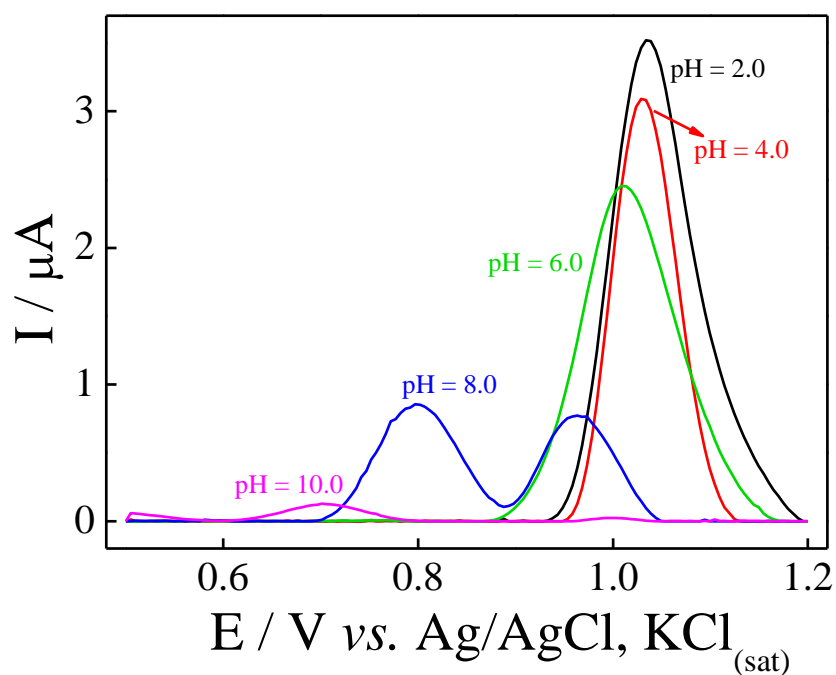


Figure S5. Baseline corrected DP voltammograms recorded in 0.04 mol L⁻¹ BR buffer solution at different pH values in the presence of 50 μmol L⁻¹ PROP. Voltammetric conditions: pulse amplitude = 50 mV, pulse width = 25 ms, step potential = 2 mV and $\nu = 10 \text{ mV s}^{-1}$.

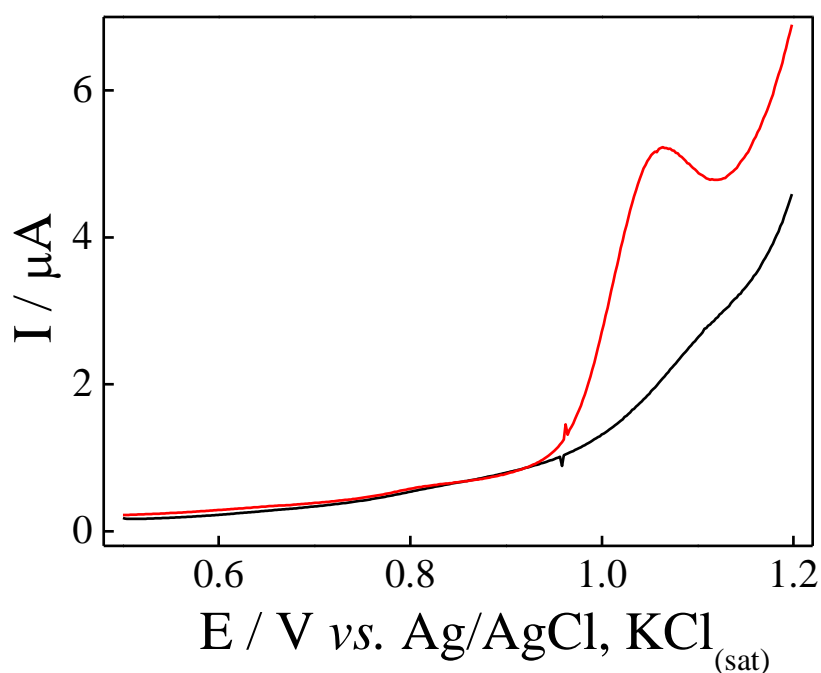


Figure S6. DP voltammograms recorded with PDMS-CPE in 0.04 mol L⁻¹ BR buffer (pH = 2.0) in absence (—) and presence (—) of 50 μmol L⁻¹ PROP. Voltammetric conditions: pulse amplitude = 50 mV, pulse width = 25 ms, step potential = 2 mV and $\nu = 10 \text{ mV s}^{-1}$. Peak potential for PROP = 1.08 V.