

SUPPORTING MATERIALS

Voltammetric Study for the Determination of Diclofenac in Aqueous Solutions Using Electro-Activated Carbon Electrodes

Silvia Berto ^{1,*}, Enrico Cagno ¹, Enrico Prenesti ¹, Giulia Aragona ¹, Stefano Bertinetti ¹, Agnese Giacomino ², Paolo Inaudi ², Mery Malandrino ¹, Emanuele Terranova ¹ and Ornella Abollino ²

¹ Department of Chemistry, University of Turin, via P. Giuria 7, 10125 Turin, Italy

² Department of Drug Science and Technology, University of Turin, Via P. Giuria 9, 10125 Turin, Italy

* Correspondence: silvia.berto@unito.it

1. Cyclic Voltammetry

The CV signals were collected on solution of DCF 20 $\mu\text{g L}^{-1}$ at different pH and medium: pH 2, with hydrochloric acid $1 \times 10^{-2} \text{ mol L}^{-1}$; pH 2, with phosphoric acid $2.5 \times 10^{-2} \text{ mol L}^{-1}$; pH 4.7, with acetic buffer $2.5 \times 10^{-2} \text{ mol L}^{-1}$; pH 7, with phosphate buffer $2.5 \times 10^{-2} \text{ mol L}^{-1}$. The signals obtained are reported Figure S1.

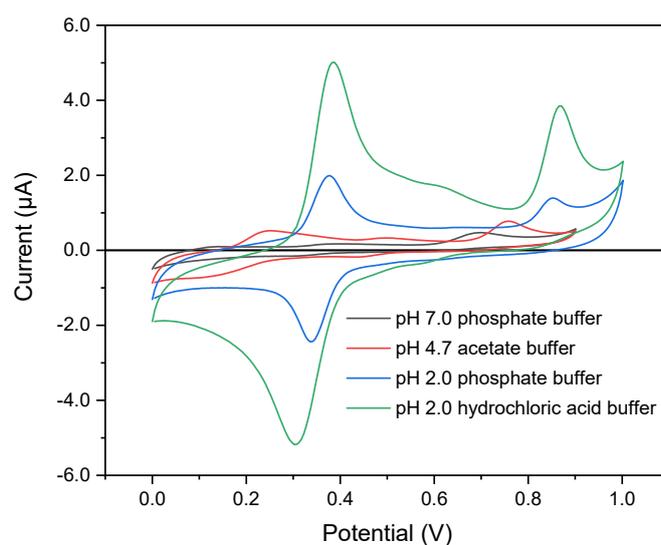


Figure S1. CV scans (scan rate 0.05 V/s, 7th scan) of DCF 20 $\mu\text{g L}^{-1}$ as a function of pH and buffer type.

2. Design of Experiments outcome

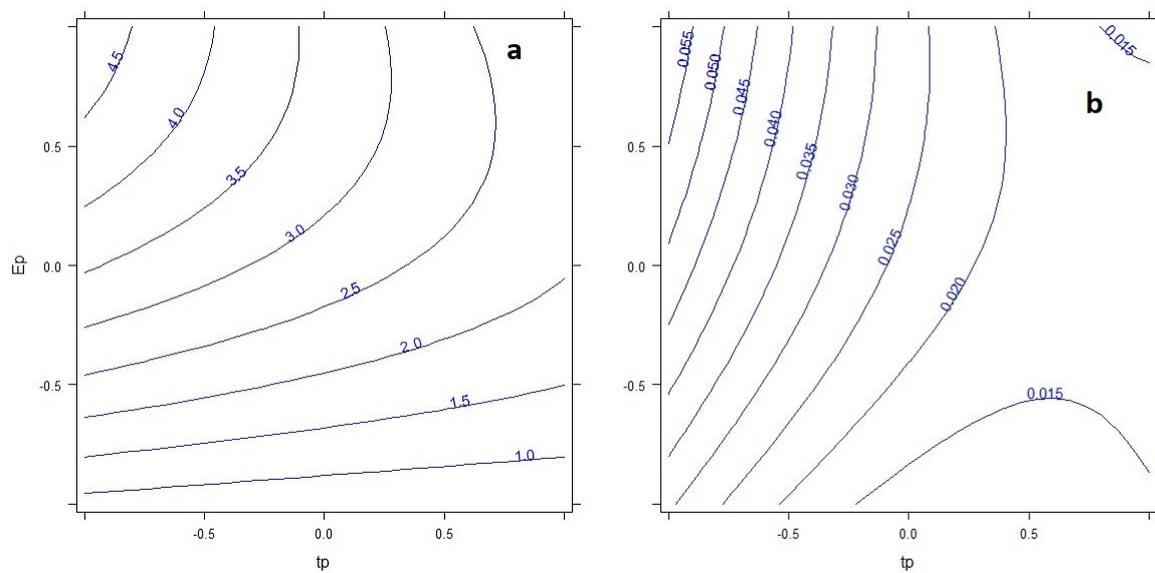


Figure S2. Contour plots obtained by the Design of experiments applied to the measurements with aGCE (a) and with aSPCE (b) (SC 25mV s⁻¹). $E_p = E_{\text{pulse}}$; $t_p = t_{\text{pulse}}$.

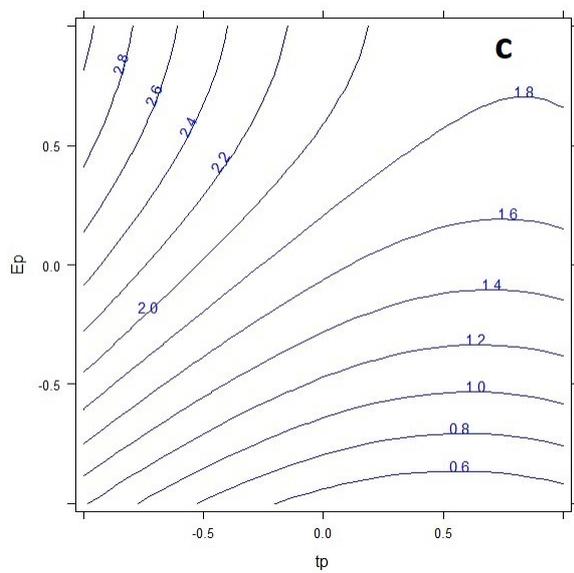
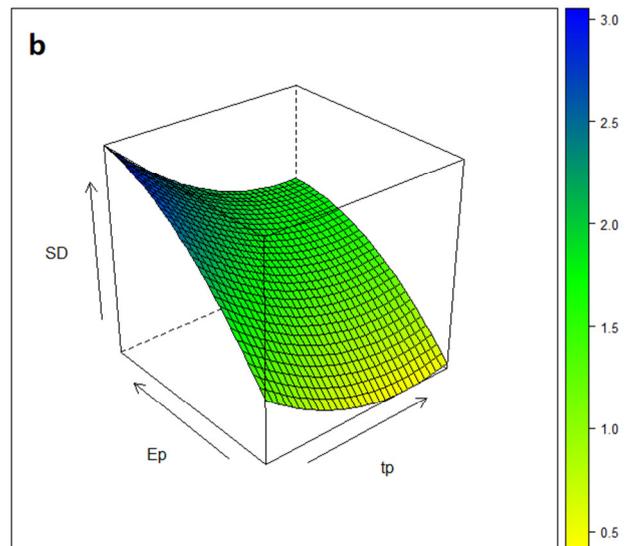
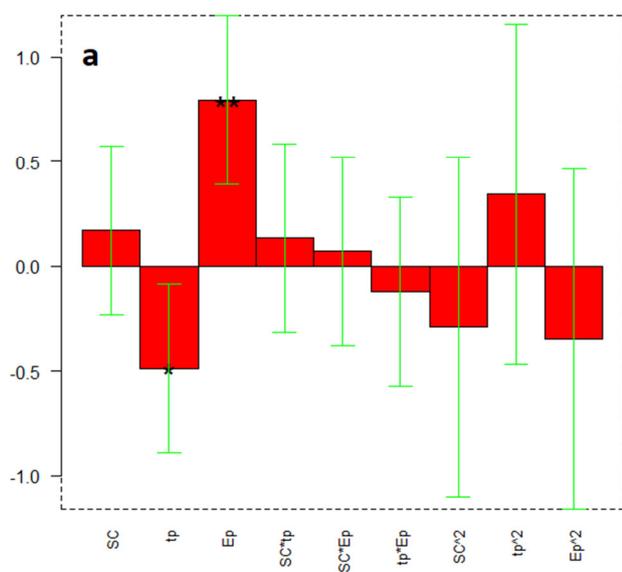


Figure S3. Results of the Design of experiments conducted using as response the standard deviation values obtained for the different experiments performed with the aGCE: **(a)** coefficients of the model; **(b)** response surfaces (SC 25mV s⁻¹); **(c)** contour plot (SC 25mV s⁻¹). $E_p = E_{pulse}$; $t_p = t_{pulse}$.

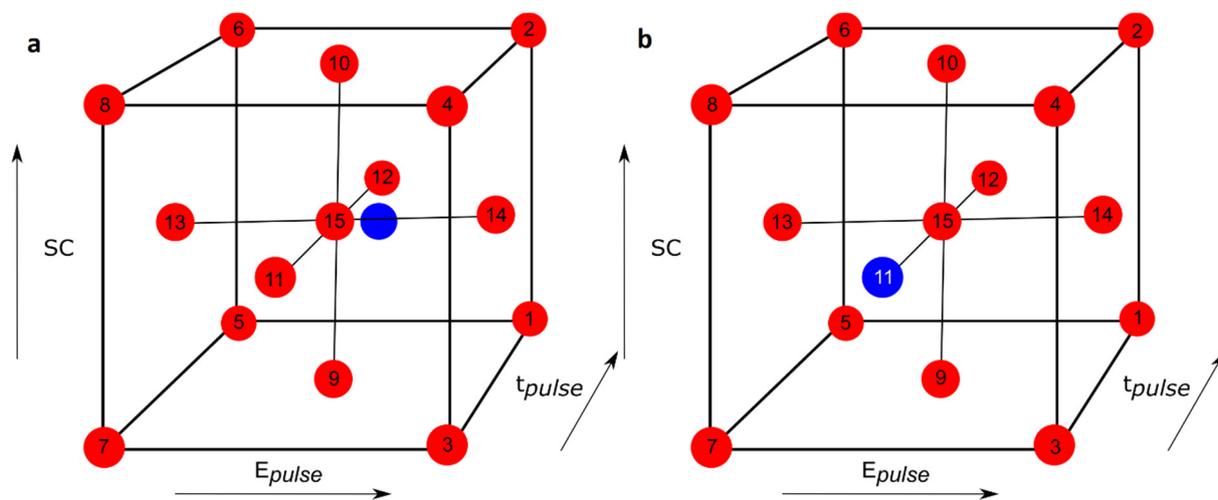


Figure S4. Position of the optimized measurement conditions (blue dot) in the experiment space defined by the central composite faced design ((a) aGCE; (b) aSPCE).