Cotton residue biomass-based electrochemical sensors: the relation of composition and performance

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***Supplementary material***

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**Figure S1.** Cyclic voltammograms of (A) non-modified CPE, and (B) CPE modified with cotton biomass pyrolyzed at 300 ºC for 240 minutes pristine and (C) after HCl purification, and (D) 400 ºC for 60 minutes in 1 mmol L-1 [Fe(CN)6]4- and 0.1 mol L-1 NaCl aqueous solution using scan rates from 5 to 100 mV s-1.

The electroactive surface area (ECSA) was calculated using the following equation:

*= (2.69 × 105) n3/2 A DR1/2 CR*

Where is the slope of the curve of anodic peak current (A) vs. *v1/2* ((*V s-1*)1/2), *n* is the number of transferred electrons (1 for this reaction), *A* the ECSA (cm2), *DR* is the diffusion coefficient of the reduced ions, and *CR* the concentration of the reduced ions (mol cm-3). *DR* was assumed equal to 6.67 × 10-6 cm2 s-1[1].

1. Lima F, Fortunato GV, Maia G. A remarkably simple characterization of glassy carbon-supported films of graphite, graphene oxide, and chemically converted graphene using Fe(CN)3−6/Fe(CN)4−6 and O2 as redox probes. RSC Adv. 2013;3(24):9550-60.