## SUPPLEMENTARY MATERIAL

## Glucose Biosensor Based on Disposable Activated Carbon Electrodes Modified with Platinum Nanoparticles Electrodeposited on Poly(Azure A)

Francisco Jiménez-Fiérrez <sup>1</sup>, María Isabel González-Sánchez <sup>1</sup>, Rebeca Jiménez-Pérez <sup>1</sup>, Jesús Iniesta <sup>2</sup> and Edelmira Valero <sup>1,\*</sup>

- <sup>1</sup> Department of Physical Chemistry, Higher Technical School of Industrial Engineering, University of Castilla-La Mancha, Campus Universitario s/n, Albacete 02071, Spain; Francisco.JFierrez@uclm.es (F.J.-F.); MIsabel.Gonzalez@uclm.es (M.I.G.-S.); Rebeca.Jimenez@uclm.es (R.J.-P.)
- <sup>2</sup> Department of Physical Chemistry and Institute of Electrochemistry, University of Alicante, 03690, San Vicente del Raspeig, Alicante, Spain; Jesus.Iniesta@ua.es
- \* Correspondence: Edelmira.Valero@uclm.es



**Figure S1.** (A) Influence of GOx concentration for the preparation of the electrochemical glucose biosensor (10, 20, 30 and 40 mg·ml<sup>-1</sup>) on the sensitivity of the electrochemical glucose biosensor GOx-PtNPs-PAA-aSPCE. The enzyme solution was dropped cast during 2 h. (B) Influence of the immobilization time on the sensitivity of the electrochemical glucose biosensor GOx-PtNPs-PAA-aSPCE (0.5, 1, 2, and 4 h). The GOx concentration was 30 mg·ml<sup>-1</sup>. The electrochemical response to glucose was measured by chronoamperometry at 0.2 V in 100 mM PB solution pH 7 under stirring conditions. The sensitivity was calculated from three different calibration plots performed in a concentration range between 10 and 120  $\mu$ M of glucose.



**Figure S2.** Anodic LSV responses of the different electrode modification steps in the absence (dashed lines) and the presence of 50 mM glucose (solid lines). The measurements were performed in 0.1 M PB.



**Figure S3.** XPS O1s and N1s spectra for the PAA-SPCE and PAA-aSPCE and the deconvolution of their binding peaks linked to functional groups.



**Figure S4**. XPS C1s and N1s spectra for the PAA-aSPCE and the PtNPs-PAA-aSPCE and deconvolution of their binding peaks linked to functional groups.



Figure 5. Relative sensitivity  $(S/S_0)$  obtained by the measurement of glucose using the electrochemical glucose biosensor GOx-PtNPs-PAA-aSPCE after different storage times (0, 1, 2, 3, 7, 9 and 15 days), being S<sub>0</sub> the sensitivity obtained at t = 0. Sensitivities were calculated performing the calibration plots in a concentration range between 10 and 120 mM of glucose.