

ELECTRONIC SUPPORTING INFORMATION

Exploring the Electrochemical Behavior of Screen Printed Graphite Electrodes in a Room Temperature Ionic Liquid

Alicia Gomis Berenguer^a, Maria Gómez-Mingot^a, Vicente Montiel^a, Antonio Canals^b, Thies Thiemann^c, Rashid O. Kadara^d, Craig E. Banks*^d and Jesús Iniesta*^a

^a *Physical Chemistry Department and Institute of Electrochemistry, University of Alicante, 03690, San Vicente del Raspeig, Alicante, Spain*

^b *Analytical Chemistry, Nutrition and Bromatology Department, University of Alicante, 03690, San Vicente del Raspeig, Alicante, Spain*

^c *Department of Chemistry, Faculty of Science, United Arab Emirates University, PO Box 17551, Al Ain, United Arab Emirates*

^d *Faculty of Science and Engineering, School of Science and the Environment, Division of Chemistry and Environmental Science, Manchester Metropolitan University, Chester Street, Manchester M1 5GD, Lancs, United Kingdom*

Submitted to: RSC Advances

*Corresponding authors:

Jesús Iniesta : E-mail: jesus.iniesta@ua.es; Tel: +34 965903536; Fax: +34 965903537

Craig Banks : E-mail: c.banks@mmu.ac.uk; Tel: +44 (0) 1612471196; Fax: +44 (0) 1612476831

Figure ESI1. SEM images of edge (A) and basal (B) SPGEs.

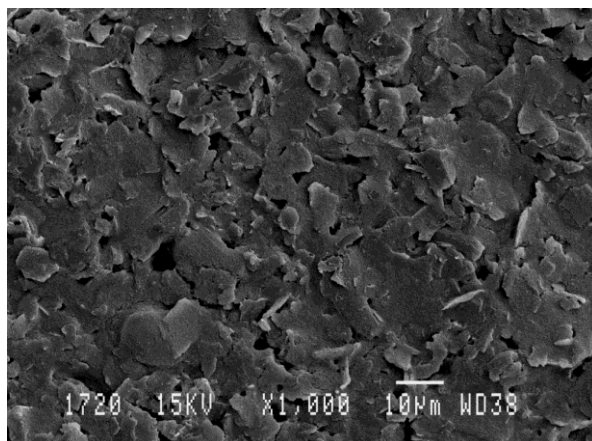


Figure ESI1A

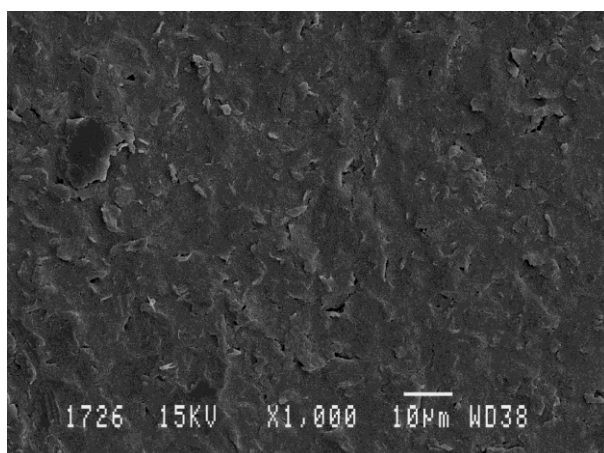


Figure ESI1B

Figure ESI2. Raman spectra of basal SPGEs (dashed trace), and edge SPGEs (solid trace).

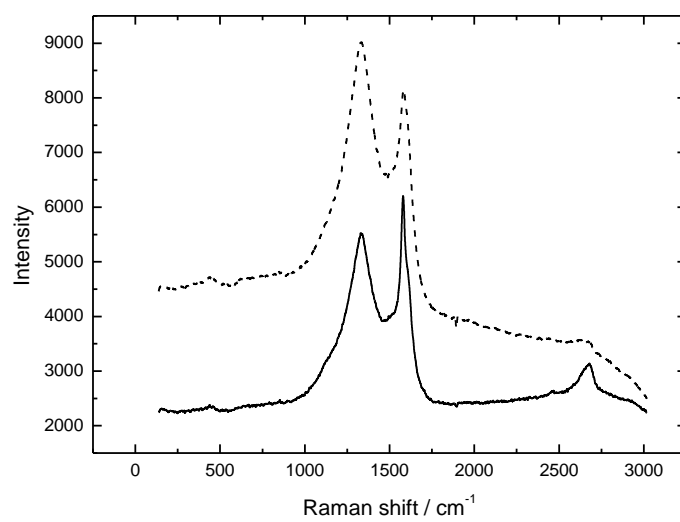


Figure ESI3. De-convoluted XPS spectrum of commercially available basal SPGE.

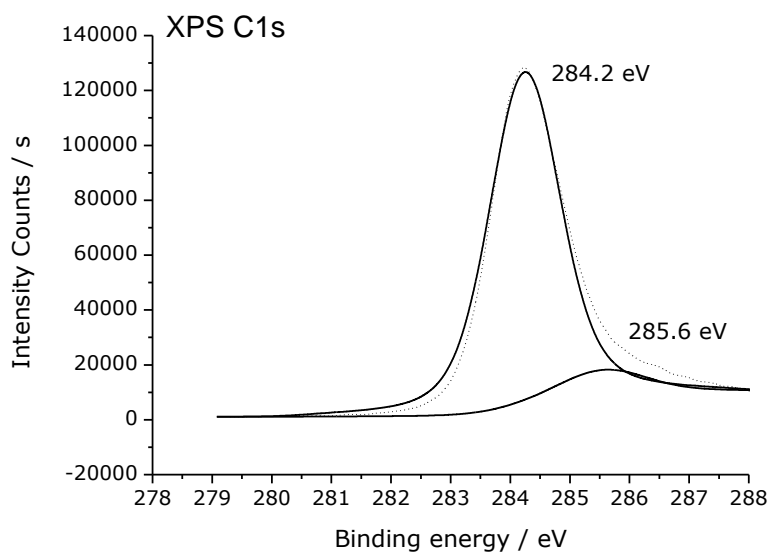


Figure ESI4. De-convoluted XPS spectrum of commercially available edge SPGE.

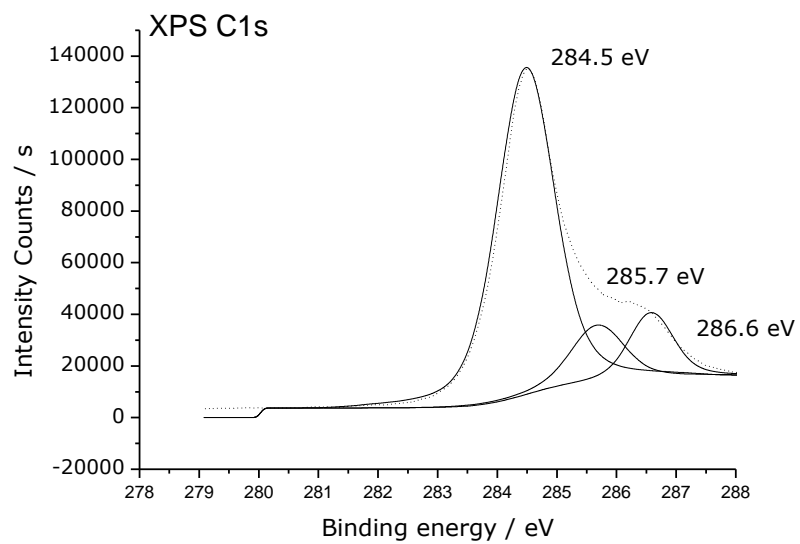


Figure ESI5 Cyclic voltammograms of $[\text{C}_6\text{MIM}][\text{PF}_6]$ at (A) GC electrode, (B) BDD electrode. Scan rate 50 mV s^{-1} . First scan recorded.

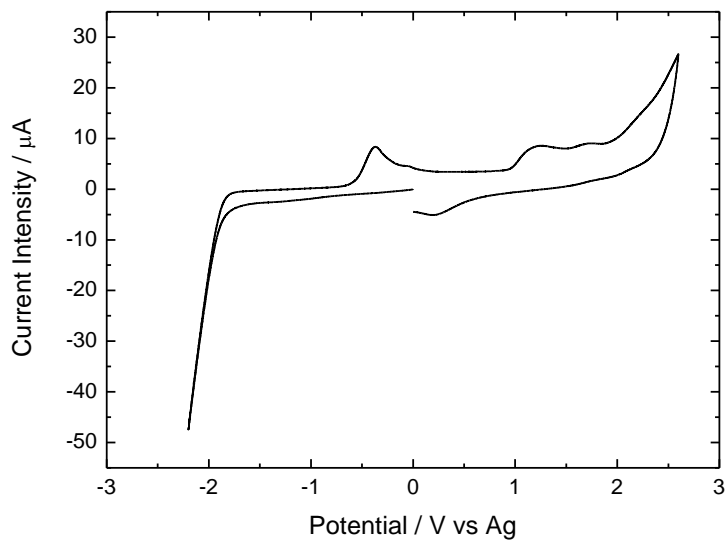


Figure ESI5A

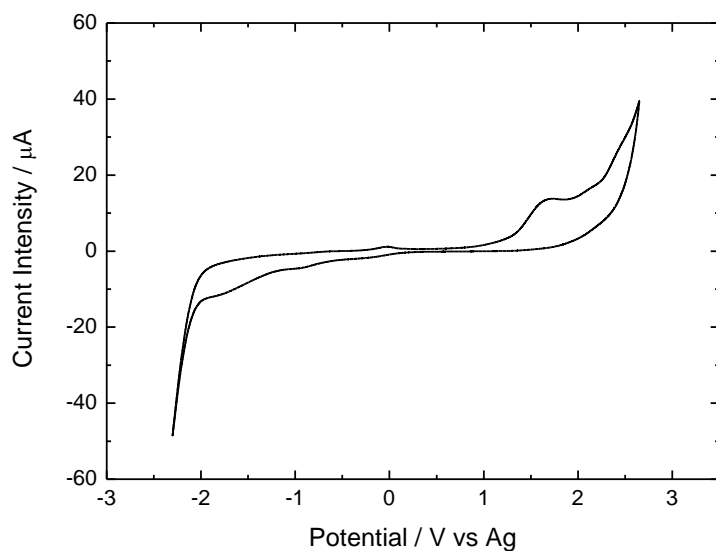


Figure ESI5B

Figure ESI6 5.2 mM BQ in $[C_6MIM][PF_6]$ at basal SPGE. A) CVs at 20, 50, 100, 150, 200, 300 and 400 $mV s^{-1}$. B) Plot of \log_{10} of the cathodic current peak vs. \log_{10} of scan rate for the first redox couple.

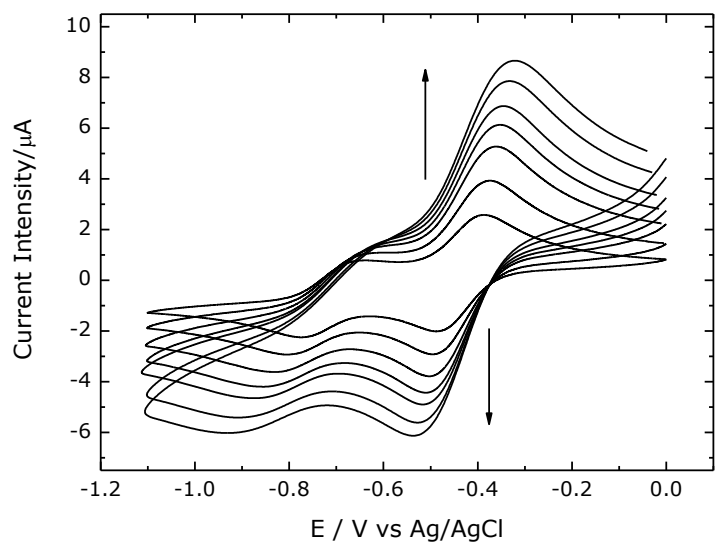


Figure ESI6A

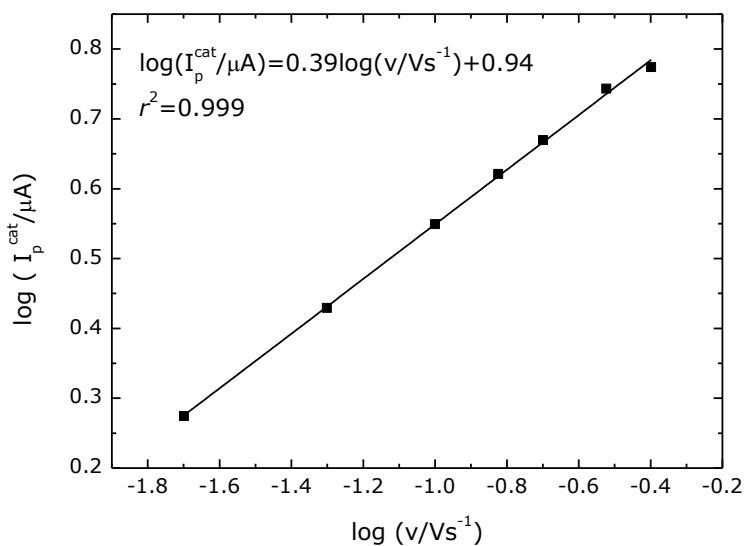


Figure ESI6B

Figure ESI7. Plot of \log_{10} of the cathodic current peak vs. \log_{10} of scan rate for the first redox couple related to the electrochemical reduction of 5.5 mM AQ in $[\text{C}_6\text{MIM}][\text{PF}_6]$ at a basal SPGE.

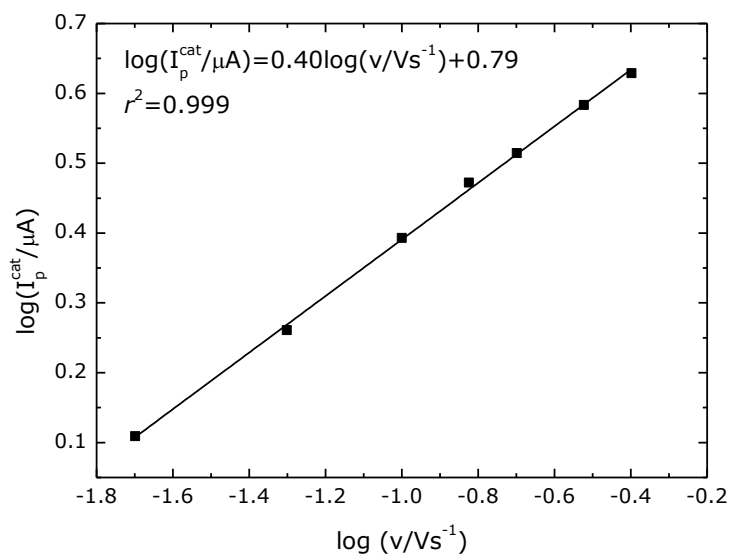


Figure ESI8 CV of 5.5 mM AQ in [C₆MIM][PF₆] at basal SPGEs under saturated air conditions. Solid line (first scan), dashed line (third scan). Scan rate 50 mV s⁻¹.

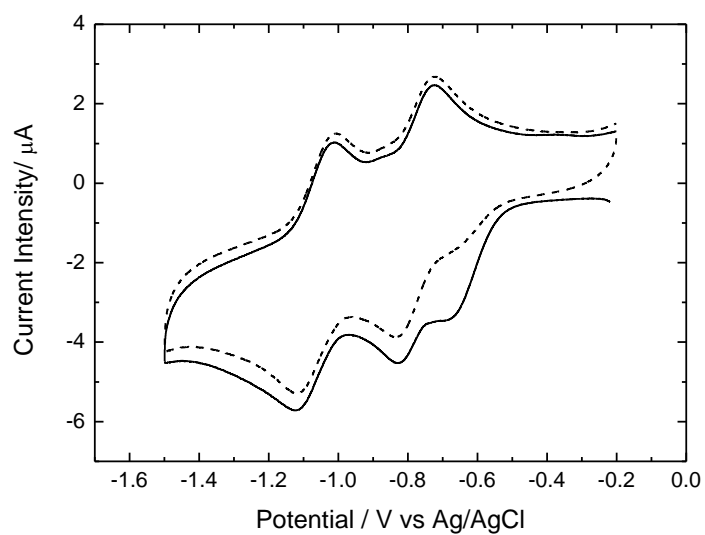


Figure ESI9. Plot of \log_{10} of the cathodic current peak vs. \log_{10} of scan rate for the first redox couple related to the electrochemical reduction of 2.7 mM TC in $[\text{C}_6\text{MIM}][\text{PF}_6]$ at a basal SPGE.

