Electronic Supplementary Information (ESI)

Exploring the Electrochemical Performance of Graphitic Paste Electrodes: Graphene *vs*. Graphite

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Figure S1

Cyclic voltammetric profiles recorded in a pH 7 phosphate buffer (with 0.1 M KCl electrolyte) solution using the fabricated graphene (dashed line) and graphite (solid line) paste electrodes. Note that within both the anodic and cathodic potential regions of interest there are no evident voltammetric peaks prior to the addition of the electrochemical redox probes/analytes. Scan rate: 100 mV s^{-1} (*vs*. SCE).

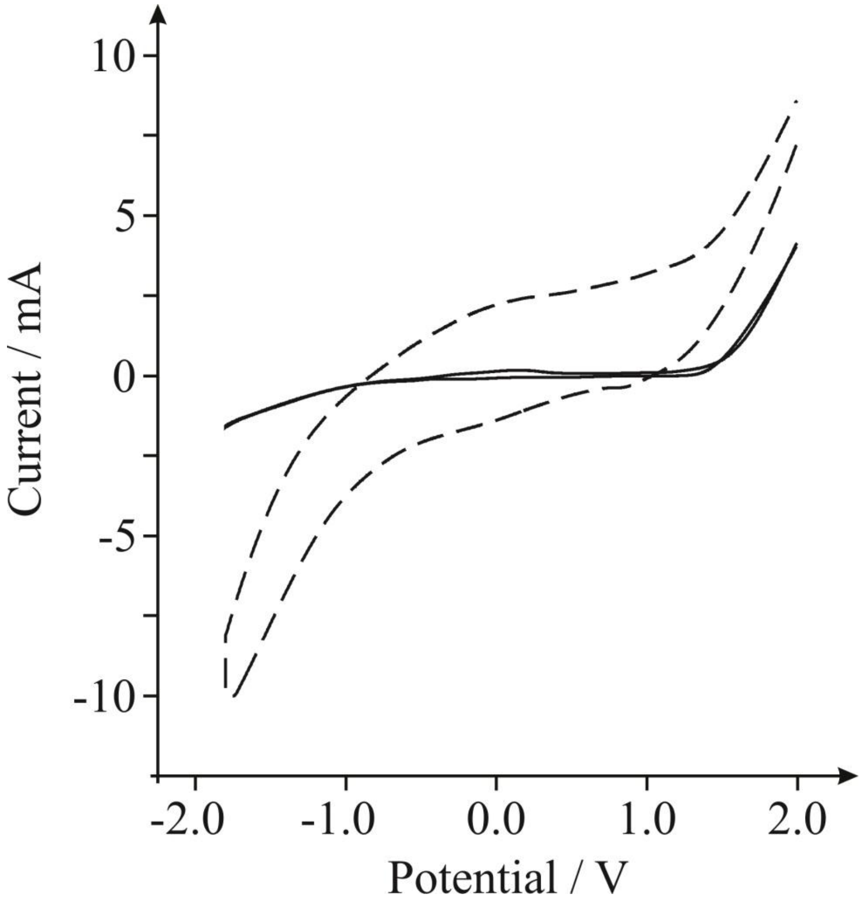

Figure S2

Raman spectrum of the graphene (**A**) and graphite (**B**) powders utilised to fabricate the graphitic paste electrodes.

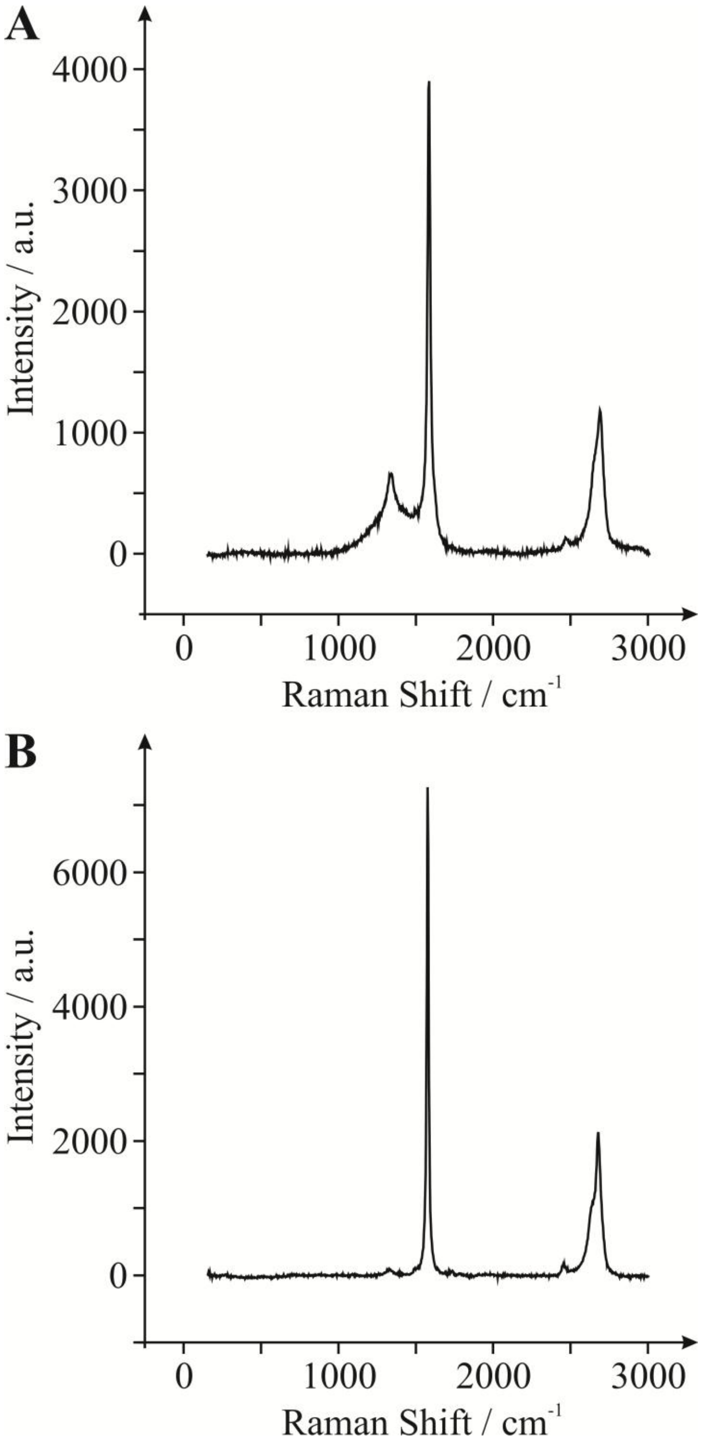

Figure S3

De-convoluted XPS spectra (regions; C1s, **A** and O1s, **B**) of the graphene powder utilised to fabricate the graphene paste electrode.

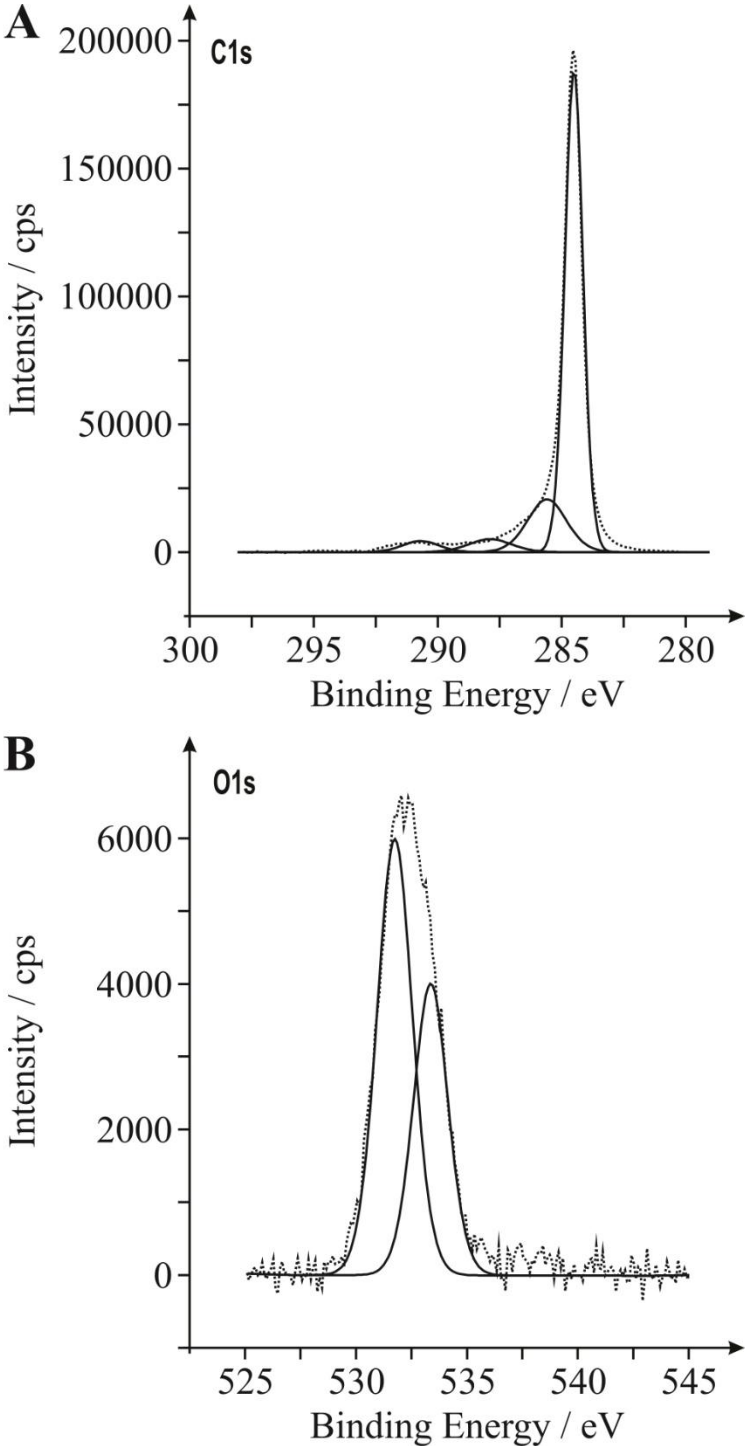

Figure S4

De-convoluted XPS spectra (regions; C1s, **A** and O1s, **B**) of the graphite powder utilised to fabricate the graphite paste electrode.

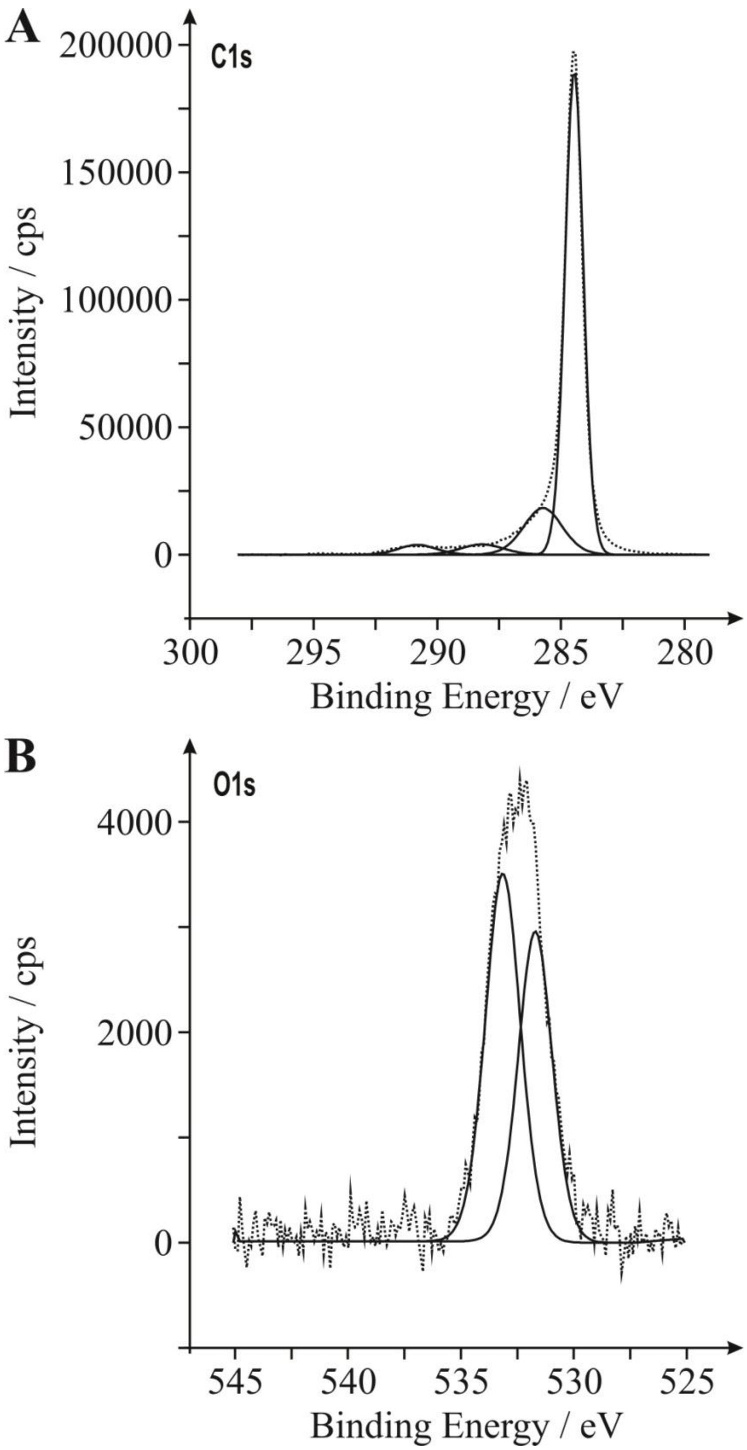

Figure S5

Raman spectrums of the graphene (**grey-line**) and graphite (**black-line**) paste mediums as utilised within the graphitic paste electrodes. Note that variation in the D band (1335 cm^{-1}) simply reflects the presence of distinct oxygenated species (defect sites) as identified within the characterisation section of the manuscript.

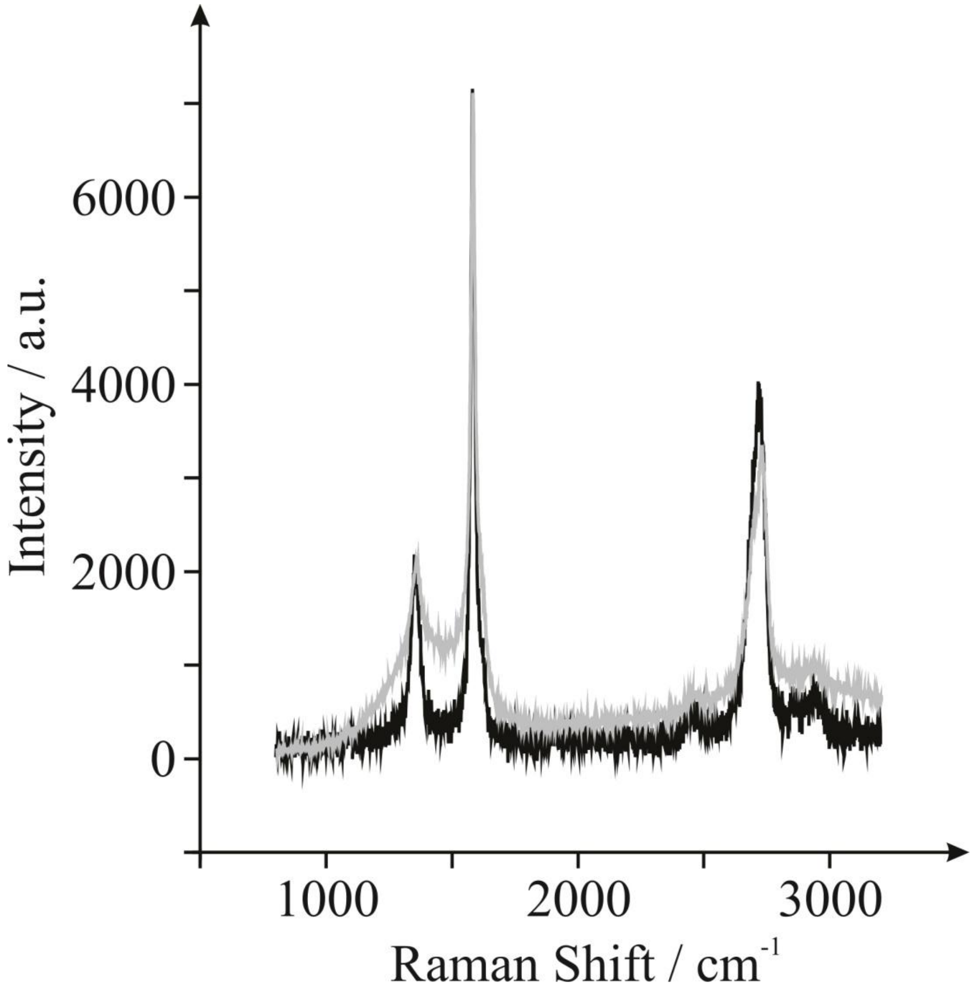

Figure S6

A: An additional SEM image of the graphene powder utilised within this study. **B**: An additional TEM image of the graphite powder utilised within this study.