

Supporting Information

Thin Layer-Based Spectral and Electrophoretic Study of Electro-Oxidation of Solid Ellagic Acid

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The data obtained for ellagic acid (EA) dissolved in free solutions are provided below (Figures S1–S4), for comparison with the results obtained for the solid EA dispersed in graphite paste electrode. The supporting electrolytes were Britton-Robinson buffer solutions plus 0.5 M KCl prepared in an aqueous-alcoholic solvent (72/28, v/v). Ethanol was added for increasing the solubility of EA in the buffers. The cyclic voltammetry data (Figures S1) were recorded at an EA-free graphite paste electrode in a common volume electrolytic cell, whereas the spectroelectrochemical data (Figures S2, S3 and S4) were measured at a graphite sheet electrode in the thin-layer spectroelectrochemical cell.

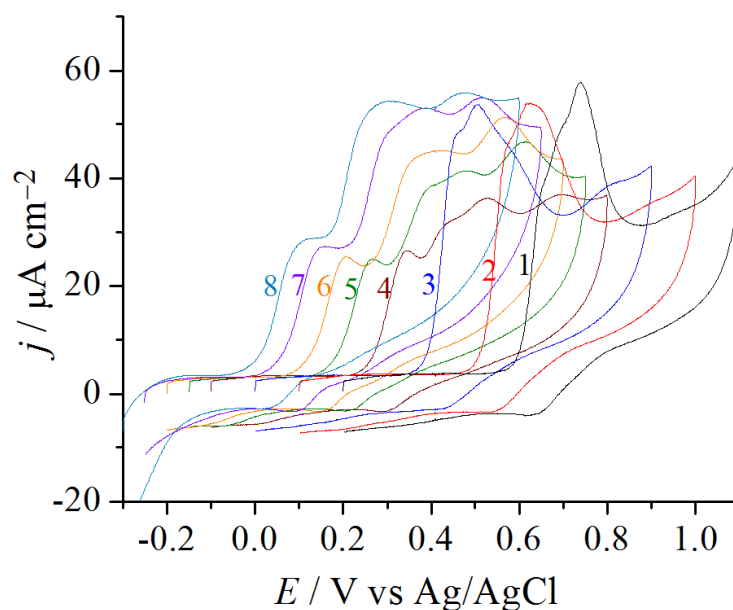


Figure S1. CVs of 50 μM EA. Buffer pH (1 \rightarrow 8): 1.8, 3.3, 5.0, 7.4, 8.4, 9.4, 10.4 and 11.5, scan rate 50 mV s^{-1} .

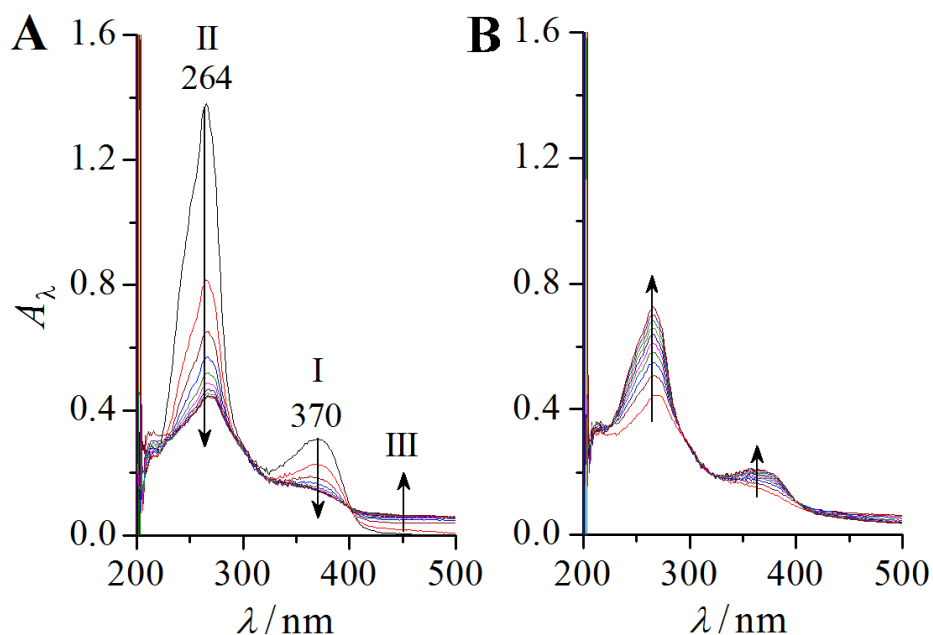


Figure S2. *In situ* thin layer UV-vis spectra for 30 μ M EA subjected to oxidation at 0.40 V (A) followed by reduction at -0.06 V (B). Buffer pH 7.4, time interval 63 s. The first line in panel A was recorded before the oxidation potential was applied.

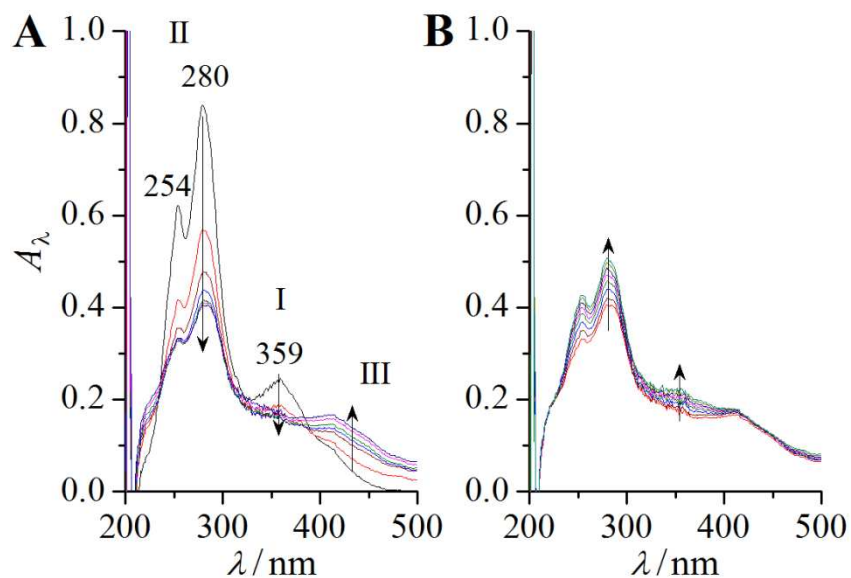


Figure S3. *In situ* thin layer UV-vis spectra for 30 μ M EA subjected to oxidation at 0.15 V (A) followed by reduction at -0.10 V (B). Buffer pH 11.5, time interval 63 s. The first line in panel A was recorded before the oxidation potential was applied. The band II is divided into two bands at 254 and 280 nm, due to the ionization of the phenolic hydroxyl group ($pK_{a,2} = 11.2$).

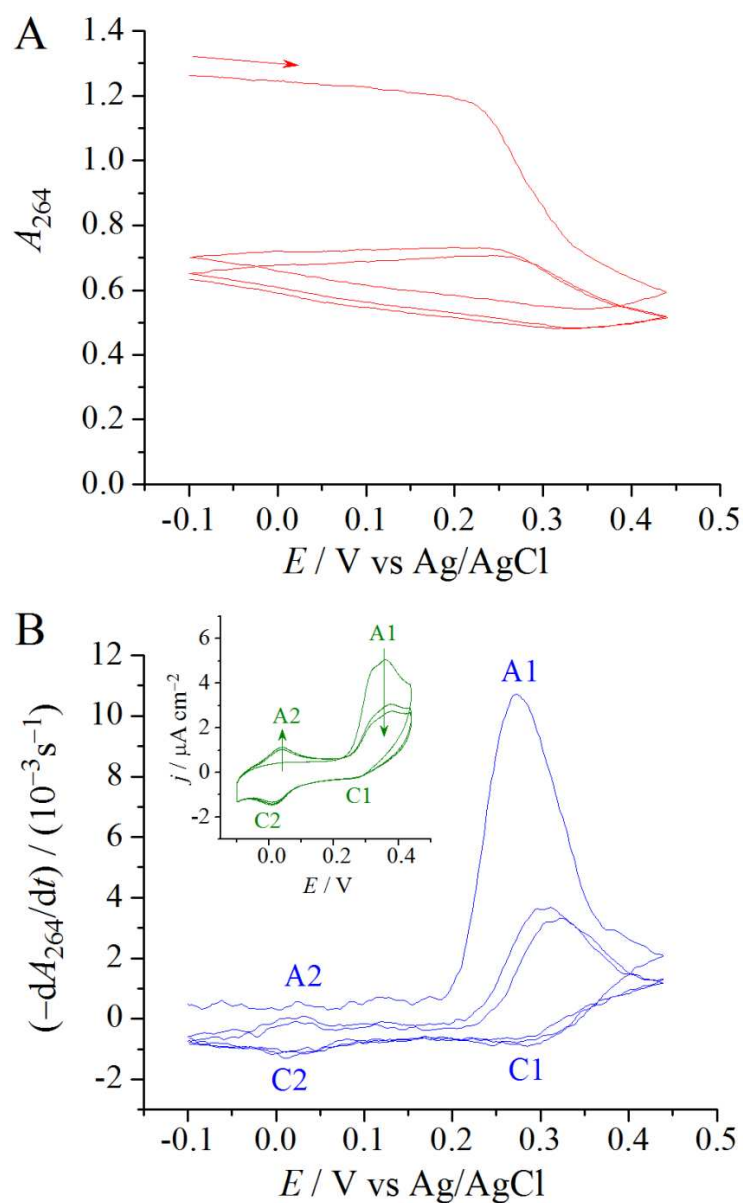


Figure S4. Multi-cycle thin-layer CVA (A) and DCVA (B) curves of 3.0×10^{-5} M EA. Buffer pH 7.4, scan rate 2.0 mV s^{-1} , cycle number 3, wavelength 264 nm. Inset in panel (B): the corresponding thin-layer CV curve. The anodic current peak A1 split to two peaks with a very small separation, suggesting that two successive electron transfers occurred at the overlapping main peak.