

# Preparation, characterization, and activation of natural glassy carbon paste electrodes as new sensors for determining the total antioxidant capacity of plant extracts

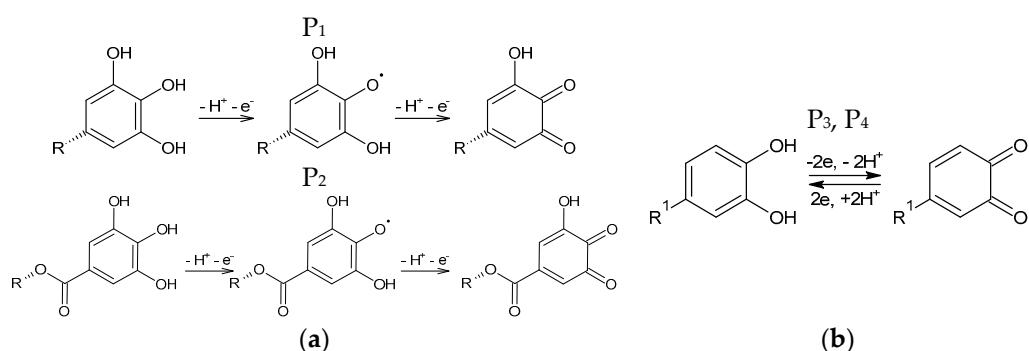
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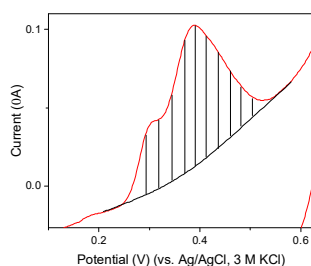
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**Table S1.** The heterogeneous electron transfer rate constant,  $k^0$ , obtained for unmodified and modified natural glassy carbon paste electrodes employing the Lavagnini method [1].

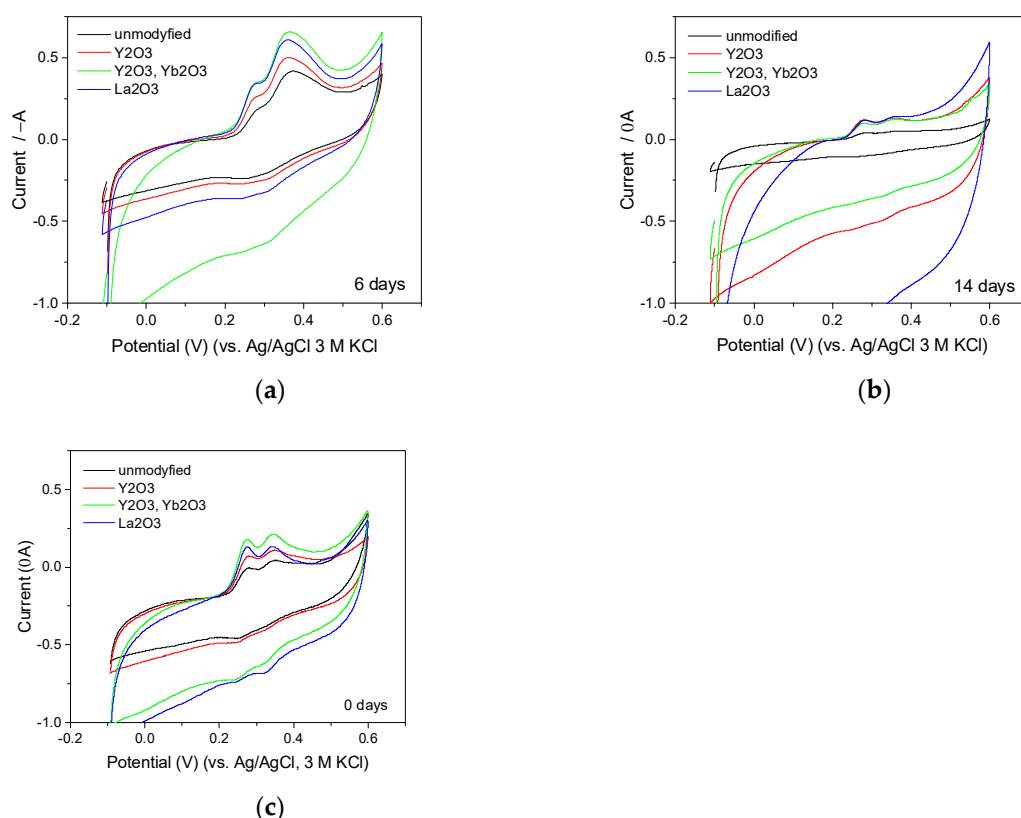
Electrode	$k^0$ ( $10^{-5}$ cm/s)
GC <sub>n</sub> /PDMS	0.053±0.001
GC <sub>n</sub> /PDMS/Y <sub>2</sub> O <sub>3</sub>	0.050±0.001
GC <sub>n</sub> /PDMS/Yb <sub>2</sub> O <sub>3</sub>	0.11±0.01
GC <sub>n</sub> /PDMS/Y <sub>2</sub> O <sub>3</sub> ,Yb <sub>2</sub> O <sub>3</sub>	0.09±0.01
GC <sub>n</sub> /PDMS/La <sub>2</sub> O <sub>3</sub>	0.042±0.001



**Figure S1.** Electrode processes assigned to irreversible electrooxidation of (a) epigallocatechin gallate (peaks P<sub>1</sub> and P<sub>2</sub>), as well as (b) reversible electrooxidation of catechin (peaks P<sub>3</sub> and P<sub>4</sub>).



**Figure S2.** Illustration of how the peak area (the hatched portion of the graph),  $A_{P1, P2}$ , was measured for epigallocatechin solutions and in the studies of herbals extracts to determine the antioxidant capacity of the test solutions.



**Figure S3.** Cyclic voltammograms recorded by unmodified and modified GC<sub>n</sub>/PDMS electrodes in (a) and (b) 20 or (c) 200 times diluted GT1 extracts, stored in in the dark in closed vessels for (a) 6, (b) 14 or (c) 0 days. Supporting electrolyte: 0.1 M acetate buffer (pH = 4.5). Scan rate: 100 mV/s.

1. Lavagnini, I., R. Antiochia, and F. Magno, *An extended method for the practical evaluation of the standard rate constant from cyclic voltammetric data*. *Electroanalysis*, 2004. **16**(6): p. 505-506.