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Supplementary Materials

Electrophoretic Protein Deposition as a Tool for In Situ Co-Crosslinking Enzyme Immobilization: An Electrochemical/Quartz Crystal Microbalance Study

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2. Materials and Methods

2.1. Materials

All the other chemicals were of analytical reagent grade. Stock solutions were prepared in water or buffer and stored in the dark at 4 °C. More dilute solutions were prepared just before use. The water used here for washing procedures and for preparing solutions was freshly deionized and then bi-distilled before its use.

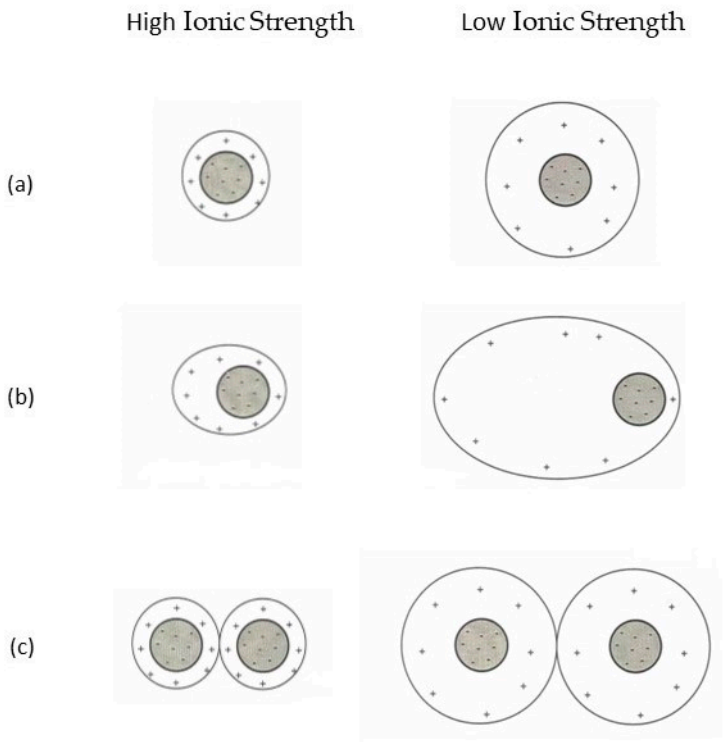
2.2. Apparatus

Before each experiment, the platinum disk working electrode was cleaned using a few drops of a hot nitric acid solution, followed by extensive washing with water, an alumina (0.05 μm particles) polishing procedure, and extensive washing and sonication in water. After that, the electrode was immersed in a 0.5 M sulphuric acid solution, and its potential was cycled typically between -0.255 and +1.225 V vs. Ag/AgCl/KCl sat. at 200 mV s^{-1} until a steady-state cyclic voltammogram was obtained; the cleaning scans ended with the electrode in the reduced state. This electrochemical pre-treatment was followed by copious rinsing with water.

Citation: Guerrieri, A.; Ciriello, R.; Acquavia, M.A.; Bianco, G.; Di Capua, A. Electrophoretic Protein Deposition as a Tool for In Situ Co-Crosslinking Enzyme Immobilization: An Electrochemical/Quartz Crystal Microbalance Study. *Appl. Sci.* **2024**, *14*, 212. https://doi.org/10.3390/app14010212

Academic Editor: Domenico Osella

Received: 30 November 2023
Revised: 13 December 2023
Accepted: 21 December 2023
Published: 26 December 2023



Scheme S1. The influence of ionic strength on (a) the double layer size of the proteins, (b) their electrophoretic retardation, and (c) their interaction for successful crosslinking.

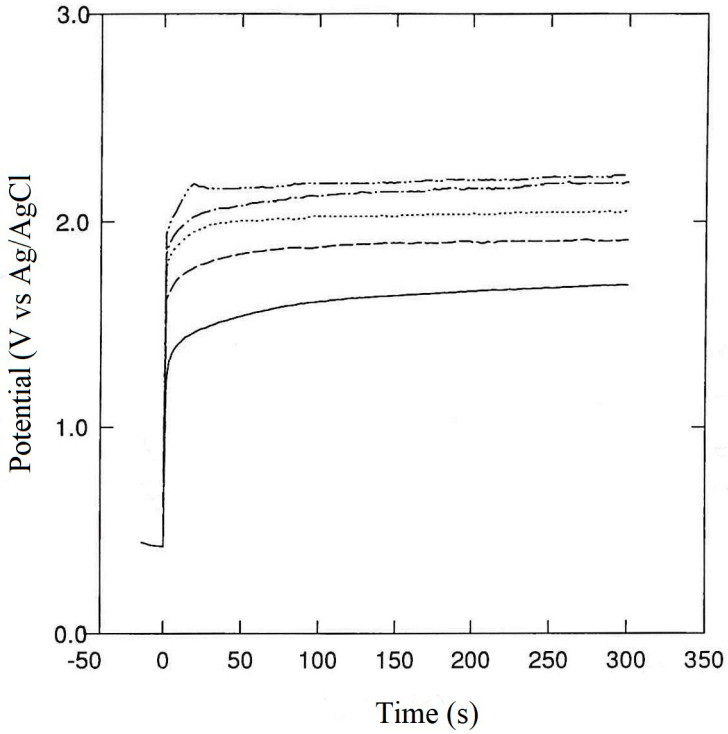


Figure S1. Chronopotentiometric curves observed under EPD galvanostatic deposition of GOD (0.5 % w/v) and BSA (1 % w/v) at GLU level of 2.5% v/v in phosphate buffer (pH 7, *I* 0.1 M). Curves (bottom to top) refer to 1, 3, 5, 7, and 9 mA/cm^2 current densities, respectively.

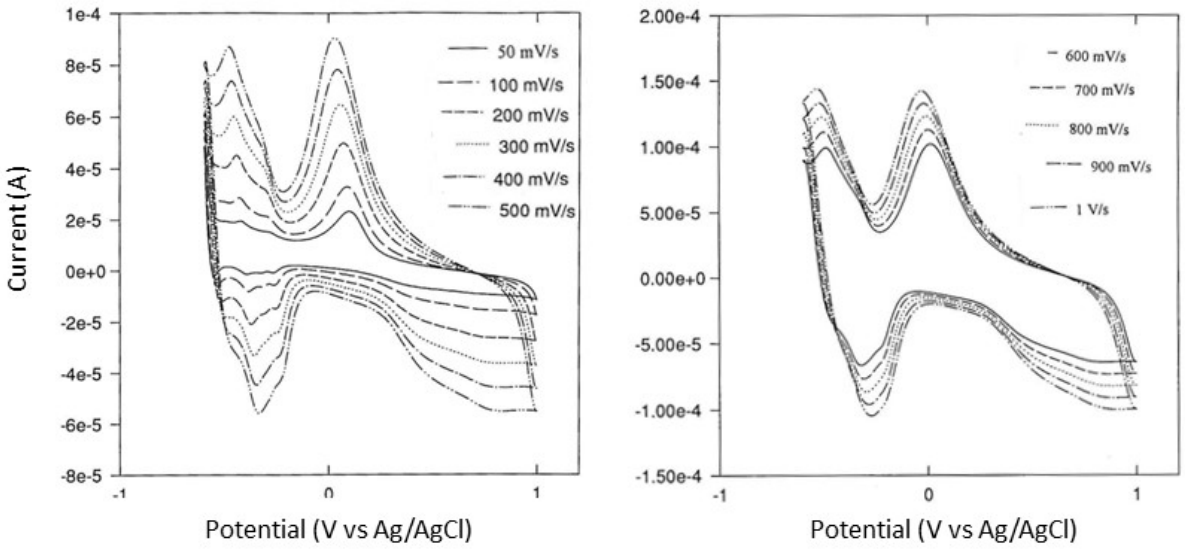


Figure S2. Cyclic voltammograms at the Pt deposition electrode in phosphate buffer (pH 7, *I* 0.1 M) at low (left panel) and high (right panel) scan rates; in both panels, inner curves refer to the lower scan rate values.