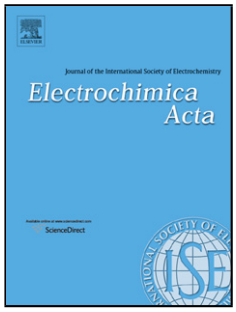

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DNA adsorption on Pt studied by Modulation of the Interfacial Capacitance

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Abstract

An adsorption dynamics study of calf-thymus DNA molecules in Tris-HCl/ EDTA buffer on platinum electrodes is presented in this work. It was carried out by using the electrochemical technique Modulation of the Interfacial Capacitance (MIC). This allowed identifying the basic steps of DNA adsorption/desorption process as a function of DNA concentration in the range $0.03 \leq c_{DNA} \leq 6.0$ mg/mL. The experimental results give information of the reorganization dynamics through the time-constants obtained from the frequency of the maximum of the loops in the complex plane. The MIC response reveals, for the first time, the adsorption dynamics of DNA molecules from solutions in the dilute regime, the semi-dilute regime without entanglements and the semi-dilute regime with entanglements.

Keywords: DNA, adsorption dynamics, capacitance modulation, time constants.