

Carbon nanotube-modified electrodes for electrochemical DNA-sensors

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Abstract

Glassy-carbon electrodes (GCEs) are modified with preoxidized multiwalled carbon nanotubes (CNTs). According to the data of atomic force microscopy, the layers of CNTs on GCEs possess a homogeneous nanostructured surface. The voltammetric properties of a GCE/CNT depend on the modifier load. Guanine and deoxyguanosine monophosphate are strongly adsorbed on GCE/CNT and oxidized at +690 and +930 mV (pH 7.0), respectively. The oxidation current of guanine DNA nucleotides adsorbed on a GCE/CNT is significantly higher for the thermally denaturated biopolymer than for the native one. Our results are of interest for the development of sensors based on the electrochemical properties of nucleic acids. © Nauka/Interperiodica 2007.

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