

Thematic course: DNA sensor based on glassy carbon electrode modified with poly (neutral red).
Part 1.

The effect of DNA on voltammetric and impedimetric characteristics of the electrode

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Abstract

New DNA sensors based on glassy carbon electrode modified with polymeric form of phenazine dye, Neutral red, have been developed. The polymerization of the dye was performed by multiple cycling of the potential. The polymer deposition was independently controlled by quartz crystal microbalance. The influence of native and denatured DNA on voltammetric and impedimetric characteristics of the coating was established. The DNA presence affects the reversibility of the redox conversion of Neutral red in the film as well as the charge transfer resistance and layer capacity depending on the way of the implementation of native and thermally denatured DNA. Changes of the above parameters result from the electrostatic interactions and charge separation in the surface layer. The relationships established can be applied for the determination of biologically active compounds able to specific interactions with DNA.