

Thematic course: DNA sensor based on glassy carbon electrode modified with poly (neutral red).
Part 2.

Determination of daunorubicin and damaging action of Fenton's reagent

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Abstract

DNA-based sensors have been developed using electropolymerized phenazine dye of neutral red and electrostatically adsorbed DNA to detect reactive oxygen species and intercalators. The action of these compounds determines the characteristics of the charge distribution and stabilization of the oxidized form of the dye, which reduces the peak current recovery of phenazine in voltammetric measurements and changes the parameters of electrochemical impedance sensor for impedimetric sensor. The possibility of impact sharing between intercalators and DNA oxidation in the direction of the resistance change and capacitance of charge transfer layer has been shown. Changes in the composition of the surface layer of the biosensor in the accumulation of DNA from oxidising agents and daunorubicin were confirmed by quartz crystal microbalance. The developed DNA sensors can be used in ecological and analytical control and biomedical research for detecting of DNA-damaging factors and the qualitative and semiquantitative determination of pharmaceuticals – DNA intercalators.