

Electrochemical properties of a two-component DNA-polyaniline film at the surface of glassy carbon electrode

Abdullin T., Nikitina I., Evtugin G., Budnikov G., Manapova L.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Aniline electropolymerization on a DNA-modified glassy carbon electrode gives rise to a stable composite DNA-polyaniline film possessing redox activity over a wide range of pH values. The heights and potentials of the redox peaks linearly depend on pH in the pH 3.0-8.0 range. It was established that the inclusion of DNA into the polyaniline composition enhances considerably the film conductivity and capacitance in the weakly acid and weakly alkaline pH regions; this effect is most pronounced for the reduced polymer form. The properties of the prepared DNA-polyaniline film point to its promise for the use in electrochemical biosensors. © 2007 Pleiades Publishing, Ltd.

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Keywords

DNA, Electrochemical biosensors, Polyaniline