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

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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