

Glassy carbon electrodes modified with CNT dispersed in chitosan: Analytical applications for sensing DNA-methylene blue interaction

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In this work we report the optimization of a chitosan (CHI) and carbon nanotubes (CNT) modified electrode, CNT-CHI, to study the dsDNA interaction with methylene blue (MB), a well-known DNA intercalator. The analytical signal was the reduction current of the MB associated with the dsDNA confined at CNT-CHI modified glassy carbon electrode. The selected CNT-CHI film stabilizing treatment was immersion for 2 s in a 0.20% GTA solution. The effect of ionic strength was also analyzed, concluding that high concentration of NaCl (90 mM) benefits the intercalative process. Below these conditions, a linear response between intensity current and MB concentration was obtained. In conclusion, modifying the initial conditions of the assembling GCE/CHI-CNT/dsDNA electrode the intercalative process was favored opening a fast and cheap possibility to evaluate the toxicity of new synthesized molecules. © 2009 Elsevier B.V. All rights reserved.