Short Communication

Electrochemical Biosensors Based on Carbon Nanocages for the Detection of NADH and Ethanol

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Carbon nanocages (CNCs) were used to prepare modified electrodes and showed excellent electrocatalytic activities in electrochemical catalysis for reduced nicotinamide adenine dinucleotide (NADH). The CNCs-modified glassy carbon electrode (CNCs/GCE) has a high sensitivity to the measurement of NADH ($15.78 \mu\text{A} \cdot \mu\text{M}^{-1} \cdot \text{cm}^{-2}$) and gave a low detection limit of $0.34 \mu\text{M}$. An amperometric ethanol biosensor was prepared by combining alcohol dehydrogenase (ADH) with CNCs/GCE. The ethanol biosensor exhibited a wide linear range up to 5 mM with a relatively low detection limit of 0.30 mM as well as a high sensitivity of 10.85 nA/mM without suffering any interference from some common electroactive compounds.

Keywords: Alcohol dehydrogenase, Biosensors, Ethanol, Carbon Nanocages

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