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One-step electrodeposition of a nickel cobalt sulfide nanosheet film as a highly sensitive nonenzymatic glucose sensor

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Abstract

In this communication, we demonstrate that a nickel cobalt sulfide nanosheet film electrodeposited on a titanium mesh (Ni-Co-S/TM) exhibits high catalytic activity toward electrooxidation of glucose. As a nonenzymatic glucose sensor, this Ni-Co-S/TM catalyst electrode shows a wide linear response range of 0.001-3 mM, a low limit of detection of 0.12 μ M with a signal-to-noise ratio of 3, a sensitivity of 3291.5 μ A mM⁻¹ cm⁻², and a fast response time of less than 5 s. Moreover, it also demonstrates high selectivity, good reproducibility and long-term stability for glucose detection.

Keywords

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