An Enzyme-Free Glucose Electrochemical Sensor for Detection of the Glucose in Serum Based on Nickel Nanoparticle/Carbon Quantum Dots

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A sensitive enzyme-free glucose electrochemical sensor was developed by continuous cyclic voltammetry. In this system, the carbon quantum dots are a kind of green environmental protection materials and the nickel nanoparticle is excellent electrocatalysts. The proposed sensor based on the above two kinds of materials was successfully applied to determine glucose in serum. The developed sensor exhibition wider response range (0.005~8.0mM) and possessed lower detection limit (0.98μM). Moreover, as-prepared biosensor exhibited prominent selectivity, stability and reproducibility and it was used for the determination of glucose in serum with satisfactory results.

Glucose sensor; Nickel nanoparticles; Carbon quantum dots; Enzyme-free

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