

Abstract

A Highly Sensitive Non-Enzymatic Glucose Biosensor Based on Regulatory Effect of Glucose on Electrochemical Behaviors of Colloidal Silver Nanoparticles on MoS₂ †

Xiang Ma

Department of Chemistry, Idaho State University, Pocatello, ID 83201, USA; max@umail.iu.edu

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Abstract: A novel and highly sensitive non-enzymatic glucose biosensor was developed by nucleating colloidal silver nanoparticles (Ag NPs) on MoS₂. The facile fabrication method, high reproducibility (97.5%) and stability indicates a promising capability for large-scale manufacturing. Additionally, the excellent sensitivity (9044.6 $\mu\text{A}\cdot\text{mM}^{-1}\cdot\text{cm}^{-2}$), low detection limit (0.03 μM), appropriate linear range of 0.1–1000 μM , and high selectivity, suggests that this biosensor has a great potential to be applied for noninvasive glucose detection in human body fluids, such as sweat and saliva.

Keywords: non-enzymatic; glucose; biosensor; colloidal silver nanoparticle; MoS₂



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