Nonenzymatic Electrochemical Sensor Based on PdAu Nanoflowers for the Detection of Hydrogen Peroxide

Xia Hu, Guangyu Shen*

Hunan Province Cooperative Innovation Center for The Construction & Development of Dongting Lake Ecological Economic Zone, College of Chemistry and Material Engineering, Hunan University of Arts and Science, Changde, 415000, PR China

*E-mail: sgyrab@163.com

doi: 10.20964/2019.05.26

Received: 4 January 2019 / Accepted: 19 February 2019 / Published: 10 April 2019

In this work, PdAu nanoflowers was synthesized and used to fabricate hydrogen peroxide sensor. The sensor was fabricated by simple dropping of the mixed solution of chitosan and PdAu nanoflowers on a glassy carbon electrode. Using electrochemical impedance spectroscopy and cyclic voltammetry, we characterized the modified electrode. The proposed sensor exhibited a good performance due to the excellent electrocatalytic activity of PdAu nanoflowers toward H_2O_2 in a wide linear range from 0.05 to 12 mM with a low detection limit of 1.5 μM ($\text{S/N}=3$). Moreover, the proposed sensor exhibited satisfying reproducibility and stability. The practical application of the nonenzymatic sensor was investigated via determination of H_2O_2 in real disinfected fetal bovine serum samples.

Keywords: PdAu nanoflowers; Electrocatalytical reduction; Hydrogen peroxide; Nonenzymatic sensor

[FULL TEXT](#)

© 2019 The Authors. Published by ESG (www.electrochemsci.org). This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).