Accepted Manuscript

Palladium nanoparticles immobilized on polymer-functionalized magnetic nanoparticles for the determination of hydrogen peroxide

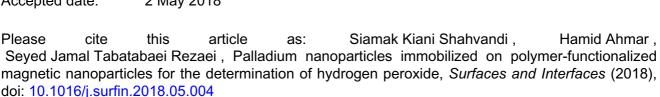
Siamak Kiani Shahvandi , Hamid Ahmar , Seyed Jamal Tabatabaei Rezaei

PII: S2468-0230(18)30079-8 DOI: 10.1016/j.surfin.2018.05.004

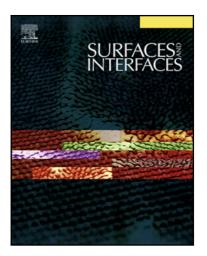
Reference: SURFIN 204

To appear in: Surfaces and Interfaces

Received date: 10 February 2018
Revised date: 23 April 2018
Accepted date: 2 May 2018



This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



ACCEPTED MANUSCRIPT

Palladium nanoparticles immobilized on polymer-functionalized magnetic nanoparticles for the determination of hydrogen peroxide

Siamak Kiani Shahvandi^a, Hamid Ahmar^{*,a}, Seyed Jamal Tabatabaei Rezaei^b

^a Department of Chemistry, Faculty of Science, University of Zabol, P.O. Box 98615-538, Zabol, Iran

^bDepartment of Chemistry, Faculty of Science, University of Zanjan, PO Box 45195-313, Zanjan,Iran

*Corresponding author Tel:+985431232186; fax:+985431232180; e-mail:<u>h.ahmar@yahoo.com</u>, h.ahmar@uoz.ac.ir

Abstract

In this paper, the application of palladium nanoparticles supported on hyperbranched poly (ethylene glycol)-block-poly(citric acid)-functionalized Fe_3O_4 magnetic nanoparticles (Pd@PCA-b-PEG-Fe₃O₄) were evaluated as a new electrocatalyst in electrochemical sensing. The Pd@PCA-b-PEG-Fe₃O₄ was immobilized on the surface of a glassy carbon electrode (GCE) for the electrochemical reduction ofhydrogen peroxide (H_2O_2). This electrode material was characterized by scanning electron microscopy (SEM), the transmission electron microscopy (TEM), cyclic voltammetry (CV), and differential pulse voltammetry (DPV). The Pd@PCA-b-PEG-Fe₃O₄ showed good electrocatalytic activity toward the reduction of H_2O_2 in the neutral phosphate buffer solution (pH 7.0). Moreover, the potential utility of the sensor was

Download English Version:

https://daneshyari.com/en/article/7001117

Download Persian Version:

https://daneshyari.com/article/7001117

<u>Daneshyari.com</u>