

## Accepted Manuscript

Preparation of magnetic Fe<sub>3</sub>O<sub>4</sub>/PPy@ZIF-8 nanocomposite for glucose oxidase immobilization and used as glucose electrochemical biosensor

Chen Hou, Dongyan Zhao, Yang Wang, Sufeng Zhang, Shuangyang Li



PII: S1572-6657(18)30327-8  
DOI: doi:[10.1016/j.jelechem.2018.04.067](https://doi.org/10.1016/j.jelechem.2018.04.067)  
Reference: JEAC 4054

To appear in: *Journal of Electroanalytical Chemistry*

Received date: 16 November 2017  
Revised date: 27 April 2018  
Accepted date: 30 April 2018

Please cite this article as: Chen Hou, Dongyan Zhao, Yang Wang, Sufeng Zhang, Shuangyang Li, Preparation of magnetic Fe<sub>3</sub>O<sub>4</sub>/PPy@ZIF-8 nanocomposite for glucose oxidase immobilization and used as glucose electrochemical biosensor. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. *Jeac*(2018), doi:[10.1016/j.jelechem.2018.04.067](https://doi.org/10.1016/j.jelechem.2018.04.067)

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.

# Preparation of magnetic Fe<sub>3</sub>O<sub>4</sub>/PPy@ZIF-8 nanocomposite for glucose oxidase immobilization and used as glucose electrochemical biosensor

Chen Hou\*, Dongyan Zhao, Yang Wang\*, Sufeng Zhang, Shuangyang Li

*Shaanxi Provincial Key Laboratory of Papermaking Technology and Specialty Paper*

*Development, College of bioresources chemical and materials engineering,*

*Shaanxi University of Science and Technology, Shaanxi Province 710021, China.*

## Abstract

The MOFs (ZIF-8) coated Fe<sub>3</sub>O<sub>4</sub>/PPy magnetic nanocomposite (Fe<sub>3</sub>O<sub>4</sub>/PPy@ZIF-8) with large surface area and high conductivity was successfully prepared by polymerizing the pyrrole on Fe<sub>3</sub>O<sub>4</sub> nanoparticle and self-assembling the ZIF-8 on the composite. Due to the outstanding specific area and pore volume of MOFs on the resulted nanocomposite, the glucose oxidase (GOx) could be effectively immobilized on the Fe<sub>3</sub>O<sub>4</sub>/PPy@ZIF-8 to fabricate a novel amperometric glucose biosensor. The as-prepared GOx/Fe<sub>3</sub>O<sub>4</sub>/PPy@ZIF-8/GCE biosensor exhibited extraordinary electro-detection performance for glucose with wide linear range from 1 μM to 2 mM and the limit of detection was 0.333 μM (S/N=3). Furthermore, the prepared biosensor also showed good selectivity for glucose detection and satisfactory result in real samples detection.

**Keywords:** ZIF-8; PPy; glucose detection; electrochemical biosensor

## 1.Introduction

---

\*Corresponding author. Fax: 029-86168576; *E-mail address:* houchen@sust.edu.cn (C. Hou)

\*Corresponding author. Fax: 029-86168576; *E-mail address:* wangyang@sust.edu.cn (C. Hou)

Download English Version:

<https://daneshyari.com/en/article/6661581>

Download Persian Version:

<https://daneshyari.com/article/6661581>

[Daneshyari.com](https://daneshyari.com)