

## Accepted Manuscript

Title: 3D Graphene/Copper Oxide Nano-flowers Based Acetylcholinesterase Biosensor for Sensitive Detection of Organophosphate Pesticides

Authors: Jing Bao, Ting Huang, Zhaonan Wang, Han Yang, Xintong Geng, Guoli Xu, Mickey Samalo, Mina Sakinati, Danqun Huo, Changjun Hou



PII: S0925-4005(18)31753-2  
DOI: <https://doi.org/10.1016/j.snb.2018.09.118>  
Reference: SNB 25424

To appear in: *Sensors and Actuators B*

Received date: 10-5-2018  
Revised date: 13-9-2018  
Accepted date: 27-9-2018

Please cite this article as: Bao J, Huang T, Wang Z, Yang H, Geng X, Xu G, Samalo M, Sakinati M, Huo D, Hou C, 3D Graphene/Copper Oxide Nano-flowers Based Acetylcholinesterase Biosensor for Sensitive Detection of Organophosphate Pesticides, *Sensors and amp; Actuators: B. Chemical* (2018), <https://doi.org/10.1016/j.snb.2018.09.118>

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.

# 3D Graphene/Copper Oxide Nano-flowers Based Acetylcholinesterase Biosensor for Sensitive Detection of Organophosphate Pesticides

Jing Bao <sup>a,1</sup>, Ting Huang <sup>a,1</sup>, Zhaonan Wang <sup>a</sup>, Han Yang <sup>a</sup>, Xintong Geng <sup>a</sup>, Guoli Xu <sup>a</sup>, Mickey Samalo<sup>a</sup>, MinaSakinati<sup>a</sup>, Danqun Huo <sup>b,\*</sup>, Changjun Hou <sup>a,\*</sup>

<sup>a</sup> Key Laboratory for Biorheological Science and Technology of Ministry of Education, State and Local Joint Engineering Laboratory for Vascular Implants, Bioengineering College of Chongqing University, Chongqing 400044, PR China

<sup>b</sup> Liquor Making Biology Technology and Application of Key Laboratory of Sichuan Province, College of Bioengineering, Sichuan University of Science and Engineering, Zigong, 643000, PR China

<sup>1</sup> Those authors contribute equally to this work.

\* Corresponding author. Tel.: +86 23 6511 2673; fax: +86 23 6510 2507.

E-mail addresses: [houcj@cqu.edu.cn](mailto:houcj@cqu.edu.cn) (C. Hou)

[huodq23@163.com](mailto:huodq23@163.com) (D. Huo)

## Highlights

- 1. AChE-CS/3DG-CuO NFs could greatly amplify the electrochemical signal, and its good biological activity and high specific surface all provided favorable conditions for the detection of organophosphate pesticides (OPs).
- 2. The modified electrochemical biosensor exhibited a wide linear relationship to malathion ranging from 1 ppt to 15.555 ppb (3 pM-46.665 nM) and a low detection limit of 0.31 ppt (0.92 pM).
- 3. The recovery rates of water samples were in the range from 94% to 106%, which indicated that the developed biosensor had great potential application for pesticides detection.

Download English Version:

<https://daneshyari.com/en/article/11016349>

Download Persian Version:

<https://daneshyari.com/article/11016349>

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