

## Accepted Manuscript

Title: Controllable synthesis of copper sulfide for nonenzymatic hydrazine sensing

Authors: Ziyin Yang, Sai Zhang, Xiaohui Zheng, Yanyi Fu, Jianbin Zheng



PII: S0925-4005(17)31741-0  
DOI: <http://dx.doi.org/10.1016/j.snb.2017.09.075>  
Reference: SNB 23166

To appear in: *Sensors and Actuators B*

Received date: 26-6-2017  
Revised date: 1-9-2017  
Accepted date: 12-9-2017

Please cite this article as: Ziyin Yang, Sai Zhang, Xiaohui Zheng, Yanyi Fu, Jianbin Zheng, Controllable synthesis of copper sulfide for nonenzymatic hydrazine sensing, *Sensors and Actuators B: Chemical* <http://dx.doi.org/10.1016/j.snb.2017.09.075>

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.

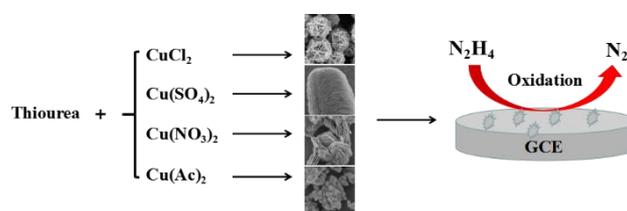
# Controllable synthesis of copper sulfide for nonenzymatic hydrazine sensing

Ziyin Yang, Sai Zhang, Xiaohui Zheng, Yanyi Fu and Jianbin Zheng \*

Institute of Analytical Science, Shaanxi Provincial Key Laboratory of Electroanalytical  
Chemistry, Northwest University, Xi'an, Shaanxi 710069, China. E-mail address:

zhengjb@nwu.edu.cn

Graphical Abstract



CuS with different morphologies were synthesized for electrochemical sensing of  $N_2H_4$ .

## Highlights

- Morphology controlled synthesis of CuS was achieved by a facile hydrothermal method without using template, structure-directing agent or complicated steps.
- CuS with flower-like, nanoparticle-like, rod-like and multilayered-like structures were obtained by just changing the type of metal precursor.
- For the first time, the electrocatalytic activities of CuS with different morphologies toward  $N_2H_4$  oxidation were explored.
- The sensor based on flower-like CuS exhibited remarkable catalytic performance for  $N_2H_4$  detection in neutral medium.

## Abstract

Constructing a novel enzyme-free electrode for sensitive and selective detection of hydrazine ( $N_2H_4$ ) in neutral medium is important. In this paper, Copper sulfide (CuS) with different morphologies were synthesized for electrochemical sensing of  $N_2H_4$ . A facile hydrothermal approach is developed for the shape-controlled synthesis of CuS architectures. The effects of reaction temperature, time, solvent and anion type on the morphologies of CuS were studied and it was found that CuS with flower-like, nanoparticle-like, rod-like and multilayered-like morphologies could be selectively

Download English Version:

<https://daneshyari.com/en/article/7141755>

Download Persian Version:

<https://daneshyari.com/article/7141755>

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