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Rui-mei Yuan, He-jun Li, Xue-min Yin, Jin-hua Lu, Lei-lei Zhang

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Coral-like Cu-Co-mixed oxide for stable electro-properties of glucose determination

Rui-mei Yuan, He-jun Li[1], Xue-min Yin, Jin-hua Lu, Lei-lei Zhang

State Key Laboratory of Solidification Processing, Carbon/Carbon Composites Research Center, Northwestern Polytechnical University, Xi'an 710072, China

Abstract

Nanowire-constructed coral-like spinel Cu-Co-mixed oxides were synthesized via hydrothermal reaction. Owing to the unique nanoarchitecture, the Cu-Co-O provide abundant electro-active sites and channels for ions transfer. And also because of the synergistic effect of copper and cobalt ions in the spinel crystal, the electrode modified with the Cu-Co-O material shows prominent electrocatalytic performance toward the oxidation of glucose. The rapid amperometric response to glucose was observed with a high sensitivity (8838.26 μA cm^{-2} mM^{-1}), low detection limit (0.5 μmol/L) and fast response (within 1 s). The mild synthesis method and outstanding electrocatalytic performance make it promising for the reliable and durable determination of glucose.

Key words: Spinel, Coral-like, $CuCo_2O_4$, Glucose, Sensor

1. Introduction

From biomedical application and ecological approaches, it is urgent to develop a reliable method to detect glucose rapidly and accurately [1-3]. Despite that the

[1] Corresponding author.
E-mail address: lihejun@nwpu.edu.cn (H. Li). Tel: +86 29 88495004