H₂O₂ Electrochemical Sensor Based on *Scutellaria Barbata* Extract Biosynthesized of Gold Nanoparticles

Yaohua Dong^{1*} and Hao Hu¹

¹ College of Marine Science and Engineering, Shanghai Maritime University, No.1550 Haigang Ave, Shanghai, 201306, P.R. China

*E-mail: yhdong@shmtu.edu.cn

doi: 10.20964/2016.12.80

Received: 14 September 2016 / Accepted: 18 October 2016 / Published: 10 November 2016

Nobel metal nanoparticles are receiving increasing attention in many fields such as material chemistry, environmental science and pharmaceutical science. In this study, a facial synthesis of a gold nanoparticles (Au NPs) was carried out from *Scutellaria barbata* extract. The synthesized Au NPs was characterized by using UV-vis spectroscopy and X-ray photoelectron spectroscopy. The preparation process was highly rapid since the formation of Au nanoparticles was totally complete within 3 h. We further investigated the electrochemical properties of the biosynthesized Au NPs. A nonenzymatic H₂O₂ electrochemical sensor was shown to be successfully fabricated by using biosynthesized Au NPs. Moreover, the fabricated electrochemical sensor also showed good selectivity.

Keywords: Biosynthesis; *Scutellaria barbata*; Electrocatalysis; Electrochemical sensor; Hydrogen peroxide; Au NPs

[FULL TEXT](#)

© 2016 The Authors. Published by ESG (www.electrochemsci.org). This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).