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Authors: Yuan Chen, Xiaoying Liu, Si Zhang, Liuqing Yang, Meiling Liu, Youyu Zhang, Shouzhuo Yao

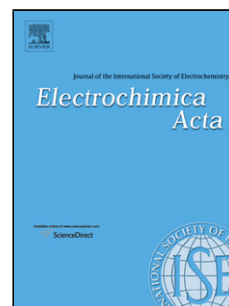
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**Ultrasensitive and simultaneous detection of hydroquinone, catechol and resorcinol  
based on the electrochemical co-reduction prepared Au-Pd nanoflower/reduced  
graphene oxide nanocomposite**

Yuan Chen,<sup>a</sup> Xiaoying Liu,<sup>b</sup> Si Zhang,<sup>a</sup> Liuqing Yang,<sup>a</sup> Meiling Liu<sup>\*a</sup>, Youyu Zhang<sup>a</sup>,  
Shouzhuo Yao<sup>a</sup>

<sup>a</sup>Key Laboratory of Chemical Biology & Traditional Chinese Medicine Research (Ministry of  
Education, China), College of Chemistry and Chemical Engineering, Hunan Normal  
University, Changsha 410081, P. R. China

<sup>b</sup>College of Science, Science and technological innovation platform, Hunan Agricultural  
University, Hunan, Changsha 410128, P. R. China

**Abstract:** A simple and efficient electrochemical sensing platform for simultaneous detection of hydroquinone (HQ), catechol (CC) and resorcinol (RC) based on the Au-Pd bimetallic and graphene is described in this paper. The Au-Pd reduced graphene oxide (Au-Pd NF/rGO) was prepared by the electrochemical co-reduction deposition via cyclic voltammetry method (CV). The Au-Pd NF/rGO nanocomposite was examined by scanning electron microscopy (SEM), energy dispersive X-ray spectroscopy (EDS) and electrochemical methods. CV and differential pulse voltammetry (DPV) study showed that the three dihydroxybenzene isomers can be catalytically oxidized and discriminated simultaneously on the Au-Pd NF/rGO/GCE. The presence of Pd makes the performance of the sensor superior to that of in the absence of it. Owing to the integrated superior conductivity and excellent catalytic property of Au-Pd NF/rGO, the sensitive and simultaneous detection of HQ, CC and RC was realized in the individual or triple-components solution based on the as proposed Au-Pd NF/rGO/GCE, which shows wide linear range and low detection limit. The detection of them in tap water, river water and lake water were also successfully performed and good recovery was obtained.

**Keywords:** Au-Pd NF/rGO composite, bimetallic, simultaneous detection, dihydroxybenzene isomers, electrochemical sensor

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\* Corresponding author: Tel: +86-731-88872046; fax: +86-731-88872046;

E-mail address: liuml@hunnu.edu.cn, liumeilingww@126.com

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