On-Surface Formation of Polyarginine/Reduced Graphene Oxide Film and Its Application in Measuring Puerarin in Healthcare Products

Yufei Li^{1,2}, Xiaotong Feng¹, Lei Zhao¹, Qiaosheng Pu^{1*}

¹Department of Chemistry, Lanzhou University, Lanzhou, Gansu 730000, China

²Gansu Food Inspection and Research Institute, Lanzhou, Gansu 730000, China

*E-mail: puqs@lzu.edu.cn

doi: 10.20964/2018.04.63

Received: 20 November 2017 / Accepted: 14 February 2018 / Published: 6 March 2018

Graphene was an ideal material for various applications including electrochemical sensing. To improve the selectivity of graphene-based sensors, preparation of composites of graphene is an effective way. In this work, films of polyarginine/reduced graphene oxide were in-situ formed on the surface of the electrode and used as an electrochemical sensor of puerarin. The films were systematically characterized and the established sensor gave a linear response range from 2.3×10^{-7} to 5.5×10^{-6} mol·L⁻¹ and a limit of detection of 4.0×10^{-8} mol·L⁻¹. The sensor was successfully applied for measuring puerarin in dietary supplements with a relative standard deviation of 2.4% and a standard recovery of 96.5%.

Keywords: graphene oxide, arginine, on-surface polymerization, modified electrode, puerarin

[FULL TEXT](#)

© 2018 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/>).