Biosynthesis of Pd Nanoparticle Using Onion Extract for Electrochemical Determination of Carbendazim

Dan Liu, Fengzhi Wu^{*}

Department of Horticulture, Northeast Agricultural University, Harbin 150030, China

^{*}E-mail: fzwu2006@aliyun.com

doi: 10.20964/2017.03.70

Received: 19 December 2016 / *Accepted:* 28 January 2017 / *Published:* 12 February 2017

Recently, nanomaterials through biosynthesis have attracted extensive attention, owing to their non-toxic approaches. Herein, an environmental-friendly chemical approach was proposed to photo-synthesize palladium nanoparticles (Pd NPs) with the extract of onion. UV-Vis spectroscopy, FTIR, SEM and XRD were employed to analyze the bio-synthesized Pd NPs. According to SEM as well as dynamic light scattering instrument, the mean size of the bio-synthesized Pd NPs was measured to be 18.9 nm. Furthermore, the bio-synthesized Pd NPs was used to modify the surface of the screen-printed electrode, which exhibited an outstanding electro-catalytic activity for the determination of carbendazim in soil.

Keywords: Pd NPs; Biosynthesis; Onion; Electrochemistry; Sensing; Carbendazim

[FULL TEXT](#)

© 2017 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/>).