Short Communication

Preparation of Nitrogen Doped Carbon Nanofibers for Electrochemical Determination of Cd(II) and Pb(II) Ions

*Shupeng Liu and Xiaowei Zhang**

HeBei GEO University (School of Gemology and Material), Shijiazhuang, 050031, Hebei, China

*E-mail: zhangxiaowei@hgu.edu.cn

doi: 10.20964/2020.10.75

Received: 7 June 2020 / Accepted: 11 August 2020 / Published: 31 August 2020

It is very important to detect heavy metal ions in coal mine wastewater. In this work, we developed a simple electrospinning and carbonization method to prepare nitrogen-doped carbon nanofibres based on ZIF-8 metal-organic nanoparticles. ZIF-8/polyacrylonitrile was prepared by electrospinning and then heat-treated in a nitrogen atmosphere. Then, the obtained material was treated with hydrochloric acid to remove residual zinc impurities. Carbon nanofibres were prepared and applied to modify the surface of an electrode for the electrochemical detection of Cd(II) and Pb(II). According to the experimental results, glassy carbon electrodes modified with nitrogen-doped carbon nanofibres showed good linear correlation, and the detection limits were 1.11 µg/L and 0.72 µg/L for Cd(II) and Pb(II) ions, respectively.

Keywords: Heavy metal; Electrochemistry; Nitrogen-doped porous carbon nanofibers; Sensor; Electrode modification

[FULL TEXT](#)

© 2020 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/>).