Short Communication

Capacitance of MnO₂ Micro-Flowers Decorated CNFs in Alkaline Electrolyte and Its Bi-Functional Electrocatalytic Activity toward Hydrazine Oxidation

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doi: 10.20964/2017.03.73

Received: 9 December 2016 / Accepted: 28 January 2017 / Published: 12 February 2017

Well-dispersed MnO₂ micro-flowers were grown directly on carbon nanofibers via a simple hydrothermal technique without any template. Structure and morphology were characterized by X-ray diffraction (XRD) and field-emission scanning electron microscopy (FESEM) equipped with rapid energy dispersive analysis X-ray (EDX). The appealed characterization techniques specified that the obtained material is carbon nanofibers decorated by MnO₂ micro-flowers. Super capacitive performance of the MnO₂ micro-flowers decorated CNFs as active electrode material was evaluated by cyclic voltammetry (CV) in alkaline medium and yield a reasonable specific capacitance of 120 Fg⁻¹ at 5 mV s⁻¹. As an electrocatalyst for hydrazine oxidation, the MnO₂ micro-flowers decorated CNFs showed high current density. The impressive bi-functional electrochemical activity of MnO₂ micro-flowers decorated CNFs is mainly attributed to its unique architectural structure.

Keywords: Supercapacitors; Bi-functional; Carbon nanofibers; MnO₂, Hydrazine; Direct liquid fuel cells.

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