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Preparation of bismuth-based microrods and their application in electroanalysis

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Abstract

Bismuth-based microrods (BiMRs) were synthesized through a single reductant-controlled chemical reduction method. With the various quantity of reductant, different morphologies of Bi based materials were obtained. Characters of BiMRs were investigated by using scanning electron microscope (SEM), X-ray diffraction (XRD) and X-ray photoelectron spectroscopy (XPS). The results showed that the product was uniform rods with a smooth surface and neat edges. Furthermore, BiMRs was consisted of bismuth and bismuth oxide which made the material possess both advantages of metal and metal oxide. BiMRs had shown excellent electrochemical performance and was successfully used for the determination of total dissolved iron in real water samples. Considering their environmentally friendly and excellent electrochemical performance, BiMRs might be used as a promising electrode material in electroanalysis field.

Keywords

Bismuth; Microstructure; XPS; Electroanalysis; Iron

1. Introduction

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