Barium Bismuthate Nanoribbons with Good Electrochemical Detection Performance for Pb(II)

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A facile hydrothermal process was used for the synthesis of barium bismuthate nanoribbons. The nanoribbons were applied as the sensing materials for sensitive detection of Pb(II). The micromorphology and structure of the prepared products were analyzed by scanning electron microscopy (SEM) and X-ray diffraction (XRD), respectively. The suspension with barium bismuthate nanoribbons was cast on the surface of a glassy carbon electrode (GCE). The barium bismuthate nanoribbons modified GCE was used for the detection of Pb(II) using square wave anodic stripping voltammetry (SWASV) technique. The results show that the fabricated GCE exhibited a linear range of 0.001-2 mM with the limit of detection (LOD) of 0.13 μ M. The barium bismuthate nanoribbons modified GCE has a promising potential in practical application for the detection of real samples with water and soil.

Keywords: Barium bismuthate nanoribbons, Glassy carbon electrode, Scanning electron microscopy, Electrochemical detection, Pb(II).

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