A Sensitive Hydrazine Electrochemical Sensor Based on Ag-Ni Alloy/Reduced Graphene Oxide Composite

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A sensitive hydrazine sensor based on Ag-Ni/reduced graphene oxide (rGO) has been prepared via an electrodepositing method. The Ag-Ni/rGO composite was characterized by scanning electron microscopy (SEM), energy-dispersive X-ray spectroscopy analysis (EDS) and X-ray diffraction (XRD). The Ag-Ni/rGO composite had good electrocatalytic activity for hydrazine oxidation. The electrochemical behaviour of Ag-Ni/rGO for hydrazine oxidation was also explored. When the concentration of hydrazine changed from 1.0μM to 1.05 mM, the oxidation peak currents linearly increased. The detection limit was 0.3μM (S/N=3). The sensor based on Ag-Ni/rGO was also used to determine the hydrazine concentration in waste water and the results were satisfactory. The sensor based on Ag-Ni/rGO was easily fabricated and had a high stability, wide linear range, low cost and potential applications for real sample analysis.

Keywords: reduced graphene oxide, Ag-Ni alloy, hydrazine, electrodeposition, sensor

FULL TEXT

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