

DETECTION OF 2,4-DICHLOROPHENOXYACETIC ACID IN WATER THROUGH AMPEROMETRY METHOD

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An electrode was developed by mixing a synthesized $[Zr(C_3H_6N_6)]$ coordination polymer with graphite. The electrode was then used in amperometry to investigate the effect of pH on the detection of 2,4-Dichlorophenoxyacetic acid (2,4-D) in water. It was determined that the optimum pH for the detection of 2,4-D using this electrode was pH 2. Additionally, several other parameters were evaluated for the $Zr[C_3H_6N_6]$ coordination polymer electrode. The limits of detection (LOD) and quantification (LOQ) were determined to be 0.36 and 1, respectively. The linear range for the detection of 2,4-D using this electrode was found to be 0.45 - 4.5. The coefficient of determination (R^2) for the linear regression analysis was calculated to be 0.9865, indicating a strong correlation between the concentration of 2,4-D and the current response obtained from the electrode. This suggests that the $Zr[C_3H_6N_6]$ coordination polymer electrode has the potential to be a promising sensor for future applications involving the detection of 2,4-D. This study demonstrates the successful development and characterization of an electrode based on a synthesized $[Zr(C_3H_6N_6)]$ coordination polymer mixed with graphite.

Keywords: Coordination polymer, Melamine, Amperometry, Voltammetry and Graphite

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