

Maize tassel-multiwalled carbon nanotube (MT-MWCNT) composite has been used as a matrix for physical adsorption of horseradish peroxidase (HRP) onto the surface of a glassy carbon electrode through electrostatic interactions. The HRP/MT-MWCNT biosensor was applied for the detection of Zn²⁺ in aqueous solution. The biosensor designed was able to determine Zn²⁺ in the range of 0.35 - 12 mg/L with a detection limit of 7.5 pg/L. The inhibition was found to be reversible and uncompetitive when data were modeled using the Dixon and Cornish-Bowden plots. The biosensor was found to have good repeatability, reproducibility and high selectivity. The developed biosensor can be used to detect other HRP inhibiting trace metal ions.