

An electrochemical sensor for oxidation of triclosan at a nano-zinc oxide-multiwalled carbon nanotube (nZnO–MWCNT) composite modified glassy carbon (GC) electrode was examined by cyclic voltammetry (CV), differential pulse voltammetry (DPV), chronoamperometry and square wave voltammetry (SWV) in a pH 7.0 phosphate buffer. By combining the benefits of nZnO–MWCNT composite and GC electrode, the resulting modified electrode exhibited outstanding electrocatalytic behavior towards oxidation of triclosan by giving higher currents and lower oxidation peak potential compared to the bare GC electrode, nZnO and MWCNT modified electrodes. The effects of various parameters on the voltammetric response of triclosan were investigated. Under optimized conditions, the resulting sensor offered an excellent response for triclosan in the concentration range from $1.5 \mu\text{g L}^{-1}$ to 2.0mg L^{-1} with detection limit of $1.3 \mu\text{g L}^{-1}$ and a coefficient of determination (R^2) of 0.9931. The diffusion coefficient of triclosan was determined to be $1.65 \times 10^{-6} \text{cm}^2 \text{s}^{-1}$. The electrochemical sensor showed satisfactory stability, selectivity and reproducibility when stored under room conditions.