

ABSTRACT

In this paper we report on synthesis and electrocatalytic behavior of cobalt (II)-tris(benzyl-mercapto)-monoaminophthalocyanine–single walled carbon nanotube nanorods towards the oxidation of amitrole. SWCNTs that were terminally functionalized with carboxylic acid groups were chemically linked to cobalt (II)-tris(benzyl-mercapto) monoaminophthalocyanine (CoMAPc) via an amide bond to form nanorods. UV–vis, FTIR, TEM, Raman and XRD spectroscopies were used in characterization of the nanorods (CoMAPc–SWCNT-linked), while cyclic voltammetry and chronoamperometry were used during the characterization of amitrole on the modified glassy carbon electrode. The linear dynamic range for the amitrole was from 1.0×10^{-6} M to 1.2×10^{-4} M, with a sensitivity of $6.76 \text{ A mol}^{-1} \text{ L cm}^{-2}$. The estimated limit of detection for amitrole was $0.10 \text{ }\mu\text{M}$, using the 3δ criterion. The catalytic rate constant was found to be $1.09 \times 10^5 \text{ M}^{-1} \text{ s}^{-1}$.