

## ABSTRACT

In this work we report on the synthesis, characterization and the electrochemical behavior of amide linked nickel (II) tetraamino-phthalocyanine (NiTAPc)-single walled carbon nanotube (SWCNT) nanomaterials (NiTAPc-SWCNT (linked)). UV-vis, XRD, IR and Raman spectroscopies were used in characterization whilst cyclic voltammetry was used to study the electrochemical behavior of NiTAPc-SWCNT (linked)-GCE. Relative to the bare glassy carbon electrode (bare-GCE), SWCNT-GCE, NiTAPc-GCE, and NiTAPc/SWCNT (mixed)-GCE, the NiTAPc-SWCNT (linked)-GCE gave the best current responses for the oxidation of 2-mercaptoethanol (2-ME). The catalytic rate constant is of the magnitude of  $10^3 \text{ M}^{-1} \text{ s}^{-1}$  while the detection limit (LOD) is  $0.15 \mu\text{M}$  using the  $3\delta$  notation, with a sensitivity of  $2.53 \mu\text{A} \mu\text{M}^{-1} \text{ cm}^{-2}$ .