Electrocatalytic oxidation of paracetamol mediated by lithium doped microparticles Bi2O3/MWCNT modified electrode.

ABSTRACT

Use of a lithium doped bismuth oxide and multi-walled carbon nanotubes modified glassy carbon electrode (Bi2O3/Li+ /CNT/GC) enhancethe oxidation current of paracetamol during cyclic voltammetry compared to bare glassy carbon electrode and (Bi2O3 /Li+ /CNT) modifiedelectrode. Peak potential was observed to shift slightly to less positive value by about 220 mV and current was significantly enhanced byabout 3.2 folds. The sensitivity under conditions of cyclic voltammetry is significantly dependent on pH, temperature and scanrate.Calibrationplot reveals linearity from the range 5.0 × 10-7-2 × 10-3M with a correlation coefficient of 0.998. The detection limit was estimated to be7.4 × 10 -7M. Practically; Bi2O3 /CNT modified electrode could be used for the determination of parecetamol in tablet samples.

Keyword: Electrocataysis; Bi2O3 /MWCNT composite; Modified GCE; paracetamol; Cyclic Voltammetry.