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) enhances the oxidation current of paracetamol during cyclic voltammetry compared to bare glassy carbon electrode and (Bi2O3 /Li+ /CNT) modified electrode. Peak potential was observed to shift slightly to less positive value by about 220 mV and current was significantly enhanced by about 3.2 folds. The sensitivity under conditions of cyclic voltammetry is significantly dependent on pH, temperature and scan rate. Calibration plot reveals linearity from the range $5.0 \times 10^{-7}$ to $2 \times 10^{-3}$M with a correlation coefficient of 0.998. The detection limit was estimated to be $7.4 \times 10^{-7}$M. Practically; Bi2O3 /CNT modified electrode could be used for the determination of paracetamol in tablet samples.

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