

Multiwalled carbon nanotubes modified electrodes with encapsulated 1,4-dihydro-pyridine-4-nitrobenzene substituted compounds

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© 2014, Sociedad Chilena de Quimica. All rights reserved. We report a voltammetric study of several nitroaromatic compounds such as the drugs: Nifedipine, Nitrendipine, Furnidipine and Nisoldipine in multiwalled carbon nanotubes (MWCNT) modified electrodes. All the compounds are strongly encapsulated in the three dimensional structure of the MWCNT and then reduced to the corresponding hydroxylamine derivatives. In the case of the modified electrode with MWCNT the answer in current are remarkably increased (approximately 40 times). This current multiplier effect is due to the nitro compounds are not only superficially adsorbed but this really encapsulated in the nanotube network covering the GCE. The nitro reduction peak was linearly dependent with the concentration of the nitroaromatic compound with detection limit (LOD) of $1.2 \cdot 10^{-8} \text{ mol} \cdot \text{L}^{-1}$ and a quantification limits (LOQ) of $3.9 \cdot 10^{-8} \text{ mol} \cdot \text{L}^{-1}$ for the case of Nitrendipine. All the studied nitrocompounds followed equivalent behaviours. Obv