

Non-covalent modification of voltammetric SPE sensors

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Screen printed electrodes (SPE) are highly attractive as transducers of chemical sensors for the screening of a number of important analytes. The surface modification of these electrodes is easily carried out in order to achieve higher sensitivity. Carbon nanostructures have been extensively used for this purpose, as the number of active sites can be greatly increased. On the other hand, the immobilization of adequate functional groups is usually carried out to increase sensors selectivity through specific interactions between the immobilised chemical moieties and the analyte of interest.

Among the techniques used to functionalize electrodes surface, non-covalent modification offer advantages related to the simplicity of the process and the reproducibility of the sensor operation. Recently a dopamine sensor based a perylene tetracarboxylic acid functionalized graphene sheets was developed [1].

In this work, voltammetric response of SPEs modified with CNTs functionalized by non-covalent bond using perylene modified using amino acids such as L-Tryptophan, L-Tyrosine and L-Cysteine is presented. The effect of the concentration ratio of CNT and perylene modified is studied analysing the response of model compounds, such as ascorbic acid and hydroquinone. The performance of these sensors is characterized regarding their catalytic activity.

[1]- Xiuli Niu, Wu Yang n , Hao Guo, Jie Ren, Jinzhang Gao, *Biosensors and Bioelectronics* 2013, **41**, 225–231