Immobilization techniques and characterization of polypyrrole/tyrosinase films based on biosensor for catechol detection

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Biosensors are electrodes modified with biological material intimately bound to the surface of a matrix. When this material is an enzyme such sensors are called enzymatic biosensors, which among others, may make use of the enzymatic activity as the analytical signal to be monitored. A very important step in the construction of a biosensor is the immobilization of the enzyme, which must be connected properly to the matrix and facilitate the transfer of electrons. Therefore, is possible a viable biosensor with good sensitivity and operational stability. The main interest in efficiently immobilized enzyme in an array is to obtain a biocatalyst with an activity and stability are not affected during the analysis. Currently, electrosynthesised films of polypyrrole (PPY) point to the excellent support of biological materials, particularly enzymes, and is possible to obtain flexible films, with different areas at low cost. In this study, the PPY film was used as the matrix for different types of enzyme immobilization. The characterization of the PPY/tyrosinase films were performed by atomic force microscopy (AFM) and scanning electron microscopy (SEM) wich shows the presence of the enzyme in the polymer film, as well as the use of different types of immobilization, led to differences in surface films .

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