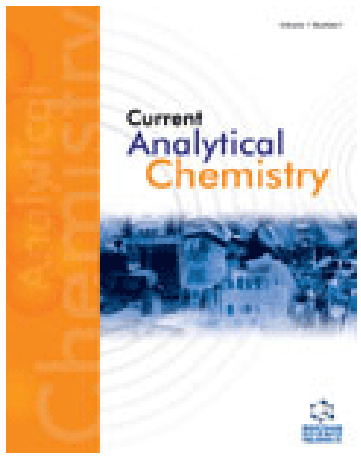

Homogenization of Self-assembled Optical Transducer Using Spiropyran Polymer

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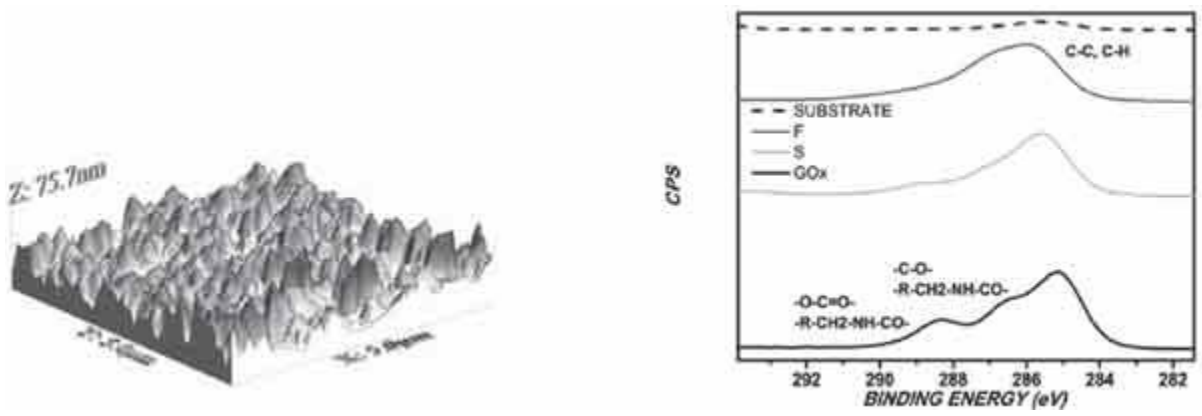
Graphical Abstract:



Abstract:

In recent years, material characterization with functional properties has been a focus of interest to be used in devices like biosensors; in this work a photochromic material was used as an (essential) main component of an optical transducer. The goal of this article was to develop an experimental protocol for building an optical transducer based on a spiropyran, in recognition of properties (features) they manifest for binding molecules to different charges, to prove this binding the enzyme glucose oxidase was immobilized to the modified matrix. A functionalized glass slide that acts as this matrix was activated using carbodimide as a coupling agent. Each stage including the cleaning, the silanization, the coupling product from the matrix with spiropyran and the enzyme immobilization was analyzed by applying UV/Vis and Infrared spectroscopy, together with X-ray Photoelectron Spectroscopy and Atomic Force Microscopy.

Keywords: Self-assembled monolayer, spiropyran, optical transducer.

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