



A Water-Insoluble β -Cyclodextrin Derivative for Hydroquinone Sensor Applications

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ABSTRACT

A water-insoluble β -cyclodextrin derivative (β -CDMeAl) was synthesized and characterized. An impedimetric water-stable sensor based on β -CDMeAl-modified gold electrode was described for detection of hydroquinone. The wettability of the sensitive membrane was evaluated using contact angle measurements and the electrochemical impedance spectroscopy was used to study its response to hydroquinone in aqueous medium. The diverse processes taking place at the different interfaces were studied according to an equivalent circuit fitting of the experimental data. The results reveal an enhancement of the membrane resistance by increasing the hydroquinone concentration, indicating the good sensitivity of the β -CDMeAl membrane to this toxic molecule.

Keywords: Cyclodextrin, Bio-based materials, Hydroquinone, Sensor, Impedance spectroscopy.
