

Molecular surface fencing of the voltammetric biosensor

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Abstract Detecting separated single molecules is so exciting topic nowadays. In this effort, we tried to immobilize and detect the Cysteine using Swim bladder bioreceptor in presence of Fe³, Fe² redox couple. This couple can oxidize at the electrode surface, efficiently. By coverage the metal electrode surface with bioreceptor, an appropriate increase in anodic peak current has observed. In the next step, we immobilize the Cys as a molecular barricade, which can block the oxidation sites of biosensor and subsequently the oxidation peak current will decrease. This effect works properly to obtain good calibration curve for Cys determination in hand-made samples. Various instrumental methods were employed to gather sufficient evidences regarding this barricade-like blocking effect of Cys including; Differential pulse voltammetry (DPV), Electrochemical impedance spectroscopy (EIS), FT-IR, GC-MS and AFM.

Keywords : Keywords; Biosensor, barricade-like blocking effect, Swim bladder, Cysteine

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