

Abstract

Tyrosinase Immobilization in Multi Walled Carbon Nanotube and Gold Nanowires Matrice for Catechol Detection [†]

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Catechol biosensing with a low limit of detection is an essential topic for researches due to catechol's easily oxidizable and easy to follow amperometrically properties. Screen-printed electrodes are disposable devices that find widespread use in the field, including analytical chemistry, drug control, clinical and environmental analysis [1,2]. In this work, a novel catechol biosensing platform is suggested with the synergetic effect between multi walled carbon nanotube, gold nanowires and tyrosinase enzyme. Tyrosinase is a multifunctional copper-containing enzyme that catalyzes two distinct reactions of melanin synthesis using catechol, which is a well-known substrate of Tyrosinase. All the parameters affecting the biosensing response are optimized and the method is further validated. Using the synergetic effects between multi walled carbon nanotube and gold nanowires, sensitive catechol determination was found with LOD and values 0.027 and 0.080 μM , respectively.

References

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