



Construction of an amperometric cholesterol biosensor based on DTP(aryl)aniline conducting polymer bound cholesterol oxidase

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Abstract:

In this study, an amperometric cholesterol biosensor was constructed based on cholesterol oxidase immobilized on a conducting 4-(4H-dithienol[3,2-b:2',3'd]pyrrole-4)aniline polymer, (DTP(aryl)aniline). Glassy carbon electrodes were covered with P(DTP(aryl)aniline) which is used for the wiring of enzyme to the electrode surface by using electro-polymerization. The electron transfer was successfully made by the bio-catalytic activity and possession of the unique morphology of the polymer allowed efficient immobilization of the cholesterol oxidase

enzyme. Analytical performances; linear range, detection limit, limit of quantification and the Michaelis-Menten constant (K_m) of biosensor electrodes were obtained 2.0 mM–23.7 mM, 0.27 mM, 0.82 mM, 17,81 mM respectively. Biosensor optimization parameters: optimum pH, optimum temperature, stability test and response time were evaluated. The real sample and recovery studies were also performed in order to show applicability of the biosensing electrodes [1].

Biography:

Dr. Huseyin Bekir YILDIZ is affiliated to Department of Metallurgical and Materials Engineering, KTO Karatay University, where Dr. Huseyin Bekir YILDIZ is currently working as Professor. Dr. Huseyin Bekir YILDIZ has authored and co-authored several national and international publications and also working as a reviewer for reputed professional journals. Dr. Huseyin Bekir YILDIZ is having an active association with different societies and academies around the world. Dr. YILDIZ made his mark in the scientific community with the contributions and widely recognition from honourable subject experts around the world. Dr. YILDIZ has received several awards for the contributions to the scientific community. Dr. YILDIZ major research interest involves Synthesis, Characterization and Applications of Nanoparticles, Enzyme Immobilization, Enzyme Inhibition, Solar Cell and Solar Energy, Biological Photovolta-



ics, Construction of Novel Biosensors, Photoelectrochemistry, Novel DNA Systems, Electrochemistry, Electropolymerization and Characterization of Conducting Polymers and Electrochromic Devices.

Recent Publications:

1. Huseyin Bekir Yildiz et al; Enzyme immobilization in a photosensitive conducting polymer bearing azobenzene in the main chain, 2014.
2. Huseyin Bekir Yildiz et al; A comparative study: Immobilization of yeast cells and invertase in poly(ethyleneoxide) electrodes, 2013.
3. Huseyin Bekir Yildiz et al; Immobilization of glucose oxidase in conducting graft copolymers and determination of glucose amount in orange juices with enzyme electrodes, 2006.
4. Huseyin Bekir Yildiz et al; Immobilization of invertase in conducting polypyrrole/PMMA-co-PMTM graft copolymers, 2005.
5. Huseyin Bekir Yildiz et al; Modification of photoelectrode with thiol-functionalized Calix[4]arenes as interface energy barrier for high efficiency in dye-sensitized solar cells, 2016

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