

Fabrication of Cholesterol Oxidase bioelectrode using Carbon nanotube and Polyethyleneimine with Carbon nanotube based direct electron transfer for Biosensor application

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An enzyme electrode for biosensor application based on layer by layer technique using cholesterol oxidase(COx) as a enzyme catalyst presented here. The technique is based on direct electron transfer between active site of enzyme and carbon nanotube(CNT) modified electron surface. Carbon nanotube mixed with nafion and Polyethyleneimine(PEI) solution is deposited directly on carbon fiber(CF). The cholesterol oxidase is deposited on CF/CNT matrix by entrapment of enzyme with PEI film. The PEI is positively charged acts as a binder between the negatively CF/CNT surface and COx enzyme. Then a layer of nafion is deposited on both side of the CF/CNT/PEI/COx surface which is the bioelectrode. The bioelectrode is attached to

gold electrode and characterized using scanning electron microscopy(SEM), Cyclic voltametry(CV) and electrochemical Impedance Spectroscopy(EIS).

References

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