

纳米级微带金电极上葡萄糖氧化酶的固定.性质及应用

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摘要 实现了葡萄糖氧化酶以及葡萄糖氧化酶和电子传递媒体 $\text{Fe}(\text{CN})_6^{3-}$ 同时在纳米级微带电极上的固定,用红外光谱和循环伏安对GOD/PPy微电极进行了表征,

研究了微带金电极上聚吡咯恒电位形成过程的动力学及葡萄糖氧化酶对其动力学过程的影响,

探讨了微酶电极GOD/ $\text{Fe}(\text{CN})_6^{3-}$ /PPy对葡萄糖氧化的催化作用,

考察了PPy膜厚度和溶液中氧的存在对GOD/ $\text{Fe}(\text{CN})_6^{3-}$ /PPy微电极测定葡萄糖的影响.

关键词 [铁氰化物](#) [红外分光光度法](#) [微电极](#) [循环伏安法](#) [聚吡咯](#) [固定化酶](#) [生物传感器](#) [葡萄糖氧化酶](#)

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Electrochemical behavior,application and immobilization of glucose oxidase at nanometer-sized ultramicroband gold electrode

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Abstract The immobilization of glucose oxidase, as well as simultaneous immobilization of glucose oxidase and $\text{Fe}(\text{CN})_6^{3-}$ as an electron mediator in polypyrrole film was successfully accomplished at a nanometer-sized ultramicroband gold electrode to provide a simple biosensor for detecting glucose without mediator in solution. The GOD/PPy electrode was characterized by IR spectrum and cyclic voltammetry. The electropolymerization process of pyrrole and the effects of glucose oxidase on the electropolymerization of pyrrole were also studied with chronoamperometry. The effects of polypyrrole thickness and oxygen in solution on the determination of glucose at GOD/ $\text{Fe}(\text{CN})_6^{3-}$ /PPy microelectrode were discussed.

Key words [FERRICYANIDE](#) [INFRARED SPECTROPHOTOMETRY](#) [MICROELECTRODE](#) [CYCLOVOLTAMMGRAPH](#) [POLYPYRROLE](#) [FIXED ENZYME](#) [BIOSENSORS](#) [GLUCOSE OXIDASE](#)

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