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应用于检测体液中葡萄糖含量的微生物传感器研究

朱龙,李元宗,慈云祥,M

北京大学化学与分子工程学院.北京(100871);邓家祺,分析化学前沿(1991)

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摘要 利用某些微生物代谢过程中产生酶的特点，筛选出能够大量生成葡萄糖氧化酶 的地衣芽孢杆菌，并将其固定在Sephadex 100或海藻酸纳-氧化钙（载体）上，首次研制成微生物酶传感器。它不仅具有酶传感器的所有优点，同时也克服了酶传感 器的缺点，使用寿命长，性质稳定，成本低，易于保存等。通过优化微生物和其代谢所产生的葡萄糖氧化酶的固定化方法和利用葡萄糖氧化酶氧化葡萄糖产生过氧化 氢的反应机理，建立了模拟酶（hemin）催化荧光底物N，N’-二腈甲基邻苯二氧（ DCM-OPA）检测体液中葡萄糖含量的荧光传感器。

关键词 传感器 葡萄糖氧化酶 芽孢杆菌属 反应机理 荧光分析

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Microbial Based Sensor for the Measurement of Glucose in Serum and Urine

Zhu Long,Li Yuanzong,Ci Yunxiang

College of Chemistry and Molecular Engineering, Peking University. Beijing(100871)

Abstract A microbial based biosensor for the measurement of glucose in serum and urine has been developed. Bscillus licheniformis, a microbial, was used in the cytosensor as the producer of glucose oxidase that are required in the biosensor. The influence of the types of microbes, enzyme immobilizing techniques and the carrier for the enzyme or microbial were studied. The new sensor has the advantages of high stability, low cost and easier preservation. It is the first time to develop a cytosensor with a mimic enzyme catalyzed fluorescence reaction for the measurement of glucose in serum and urine.

Key words SENSORS GLUCOSE OXIDASE BACILLUS REACTION MECHANISM FLUORIMETRIC ANALYSIS

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通讯作者