

环糊精聚合物与苯醌的分子包合作用及其在酶电极中的应用

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摘要 研究了水溶性环糊精预聚合物的存在对苯醌/氢醌体系在铂电极上氧化还原行为的影响,根据伏安曲线讨论了该预聚合物与苯醌的分子包合作用。环糊精预聚合物与戊二醛缩聚反应而形成的不溶性聚合物膜用于葡萄糖氧化酶的固定化,以制得新型的第二代葡萄糖电极。由于分子包合作用,作为电子受体的苯醌在含酶的环糊精聚合物膜中具有较高的浓度,从而加速了固定化酶的电子传递。测定了酶电极上BQ反应的动力学参数。

关键词 [反应动力学](#) [缩聚](#) [环糊精](#) [苯醌](#) [高聚物](#) [酶电极](#) [戊二醛](#) [氢醌](#)

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Inclusion complexation of cyclodextrin polymer with benzoquinone and its application to enzyme electrodes

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Abstract The effect of soluble α -cyclodextrin prepolymer (CD) on the redox behavior of benzoquinone/hydroquinone (BQ/HQ) system at a platinum electrode was studied and according to the voltammetric curves the inclusion complexation of the poly(α -cyclodextrin) host with benzoquinone guest was discussed. The insoluble polymer (PCD) membrane, prepared from polycondensation of CD with glutaric dialdehyde, was used for the immobilization of glucose oxidase (GOD) so that a new second-generation glucose electrode was obtained. Owing to the inclusion complexation, the benzoquinone as the electron acceptor of reduced GOD in the enzyme-containing polymer membrane has higher concentration, thereby facilitating the electron transfer of the immobilized enzyme. The kinetics of BQ reaction in the immobilized enzyme PCD/GOD matrix was determined.

Key words [REACTION KINETICS](#) [POLYCONDENSATION](#) [CYCLODEXTRIN](#) [BENZOQUINONE](#) [HIGHPOLYMER](#) [ENZYME ELECTRODES](#) [PENTANEDIAL](#) [HYDROQUINONE](#)

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