传感技术学报
中国微米纳米技术学会
全国高校传感技术研究会 主办

聚4-氨基丁酸修饰碳纳米管掺杂碳糊电极的制备

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基金项目：国家自然科学基金；福建省教育厅A类科技项目

摘　要：

以4-氨基丁酸(4-ABA)为修饰剂，制备了4-ABA修饰碳纳米管掺杂碳糊电极(P-4-ABA /CNTPE)，研究了多巴胺(DA)在此修饰电极上的电化学行为，并用于DA的检测。在pH 2.0的BR缓冲溶液中，DA在P-4-ABA/CNTPE电极上产生一对灵敏的氧化还原峰。其氧化峰电流与DA的浓度在8.0×10-5～5.3×10-7mol L-1范围内呈良好的线性关系，检测限为2.0×10-7mol L-1。所修饰电极具有较好的重现性、稳定性，应用于针剂中多巴胺含量的测定，结果令人满意。

关键词：4-氨基丁酸，碳纳米管，碳糊电极，多巴胺

Preparation of poly-4-aminobutyric acid modified carbon nanotube-doped carbon paste electrode and the detection of dopamine

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Abstract:

Poly 4-Aminobutyric Acid modified carbon nanotube-doped carbon paste electrode (P-4-ABA /CNTPE) was constructed by electropolymerizing 4-ABA. Voltammetric behavior of dopamine at the modified electrode was investigated. In Britton-Robinson (BR) buffer solution (pH 2.0), DA has a pair of sensitive redox peak at the modified electrode, and the oxidation peak current was linearly increased with the concentration of DA in the range of 8.0×10-5～5.3×10-7 mol L-1, with a detection limit of 2.0×10-7 mol L-1. The modified electrode exhibited good repeatability and stability. This method was used for the determination of DA in a DA hydrochloride injection sample with satisfactory results.

Keywords: 4-aminobutyric acid, Carbon nanotubes, Carbon paste electrode, Dopamine

投稿时间：**2012-09-26**

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