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论文

阿霉素在Co/GC离子注入修饰超微电极上的电化学行为及其应用

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摘要：

目的：研究阿霉素在Co/GC离子注入修饰超微电极上的电化学行为。方法：阿霉素在0.1 mol.L^{-1} HAc-NaAc (pH 4.73)缓冲溶液中，用Co/GC离子注入修饰超微电极进行伏安测定。结果：得到一良好的还原峰，峰电位Ep=-0.520 V(vs.SCE)。峰电流与阿霉素的浓度在1.0×10-7～2.0×10^{-6} mol.L^{-1}和2.0×10^{-6}～1.0×10^{-5} mol.L^{-1}范围内成线性关系。检出限为3.0×10^{-8} mol.L^{-1}。用于病人尿样测定，得到满意的结果,回收率为96.3%～106.1%。用线性扫描和循环伏安法研究了体系的电化学行为及电极反应机理。结论：实验表明，体系属两电子还原的准可逆吸附过程。

关键词： 阿霉素；电化学行为；离子注入；修饰超微电极

ELECTROCHEMICAL BEHAVIOR OF ADRIAMYCIN AND ITS APPLICATION AT Co/GC ION IMPLANTATION MODIFIED ULTRAMICROELECTRODE

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Abstract:

AIM: To study the electrochemical behavior of adriamycin at Co/GC ion implantation modified ultramicroelectrode. METHODS: With Co/GC ion implantation modified ultramicroelectrode as working electrode, the behavior of adriamycin was studied by voltammetry in 0.1 mol.L^{-1} HAc-NaAc (pH 4.73) solution. RESULTS: A sensitive reductive wave of adriamycin was obtained by linear sweep voltammetry. The peak potential was -0.520 V (vs.SCE). The peak current was proportional to the concentration of adriamycin over the range of 1.0×10^{-7}～2.0×10^{-6} mol.L^{-1} and 2.0×10^{-6}～1.0×10^{-5} mol.L^{-1} with the detection limit of 3.0×10^{-8} mol.L^{-1}. The behavior of the reduction wave was studied and applied to the determination of adriamycin in human urine. CONCLUSION: The reduction process was quasi-reversible. The catalysis behavior and mechanism at Co/GC modified electrode were also studied.

Keywords: electrochemical behavior ion implantation modified microelectrode adriamycin

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