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电化学发光新体系及其在原位、在线、实时监测家兔血液铜代谢过程中的应用

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摘要 报道了在碱性条件下，荧光素类化合物在铂阳极表面有电化学发光，同时电化学发光也存在重原子效应。考察了电位、pH和加入表面活性剂等反应条件变化对这 一电化学发光体系的影响，提出了这类电化学发光的作用机理；同时发现在无机离 子中仅有铜（II）离子对电化学发光有较强的增敏作用，从而建立了高选择性的测 定铜的新方法，并结合微透析技术和在线原位电化学富集-溶出技术，用于原位、 在线、实时监测家兔血液中的铜代谢过程。

关键词 电化学 荧光素 铂 电极 铜 在线分析 富集

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In vivo Determination of Copper Metabolism in Rabbit Serum Based on a New Electrochemiluminescence

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Abstract Anodic electrochemiluminescence (ECL) of fluorescein, 2,7- dichlorofluorescein, tetrabromo-fluorescein and tetrachlorotetraiodofluorescein was found on the surface of platinum in the presence of sodium hydroxide. The effect of potential, pH and surfactants on the ECL properties were studied. It was found that there were also heavy atom effects in ECL. Fluorescence and ECL spectra of fluorescein were measured and the possible mechanism was proposed. Metal ions were examined and only copper (II) was found to enhance the ECL of fluorescein. Based upon it and combined with microdialysis sampling and anode stripping technique a new method to determine the metabolic process of copper in rabbit blood in vivo in high selectivity was established.

Key words ELECTROCHEMISTRY LUCIFERIN PLATINUM ELECTRODE COPPER ON-LINE ANALYSIS CONCENTRATION

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