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一种基于双工作电极-双通道的毛细管电泳电化学检测系统

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摘要 报道了一种双工作电极-双通道毛细管电泳电化学检测系统，实现电导和安培同时检测或者安培与安培检测联用，使两种方法相互补充，发挥各自的优势。其中，工作电极与检测池的制作工艺简单，操作简便，通过不锈钢针管和毛细管作为套 管，无需三维微调装置即可简单实现双工作电极的准确放置及分离毛细管与工作电 极的准确对接，并根据分析体系的需要采用不同类型的工作电极和检测器；同时采用复式滤波电路解决了不同检测器之间的电场叠加对输出信号的干扰问题。采用该装置可以同时检测复杂体系中的电活性和惰性物质，或同时测定只能氧化或只能还 原的物质，还可以对具有氧化还原性质的物质进行纯度的确证。将该装置应用于实 际样品的测定，节约了分析时间，提高了分析速度，扩大了检测范围，结果令人满 意。

关键词 毛细管电泳 电极 电化学检测器

分类号 0646

A New Dual-electrode and Dual-channel Electrochemical Detection System for Capillary Electrophoresis

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Abstract A new dual-electrode and dual-channel electrochemical detection technology for capillary electrophoresis is described, in which two detectors the amperometric detector and the conductometric detector or two conductometric detectors are connected to the same capillary electrophoresis system. The system possesses the advantages of two electrochemical detectors including sparing time, improving the analytical speed and expanding the sample range. The fabrication of the detection cell and the working electrode are convenient. It is easy to assemble and disassemble the working electrode and the separation capillary. With the stainless steel syringe needles and capillary as the guide tubes, the alignment of the working electrodes to the outlet of the separation capillary can be easily done without the aid of three-dimensional adjuster. Different kinds of working electrode and detector can be chosen according to the different analytical aims. By using a laboratory-built filter circuit the signals disturbance generated from different detectors can eliminate effectively. With this system the electroactive (oxidative or reductive) and inert components in a complicated sample can be detected simultaneously. It can also be used to verify analytes. The system is applied to detect real sample with satisfactory results.

Key words capillary electrophoresis ELECTRODE electrochemical detector

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