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研究论文

一种基于二喹啉甲酸- Cu+显色反应的毛细管电泳检测蛋白质的新方法

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A novel capillary electrophoretic method for protein determin acid-Cu+colorimetric reaction

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摘要 参考文献 相关文章

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摘要 采用毛细管电泳法和蛋白质显色反应-二喹啉甲酸(BCA)法,结合微波辅助反应,在60 mmol/L硼酸盐缓冲液(pH 9.5)中,实现了速毛细管电泳分析检测。同时以β-环糊精为包合添加剂,实现了BCA-Cu+复合物和游离BCA的分离,从而在波长200 nm处以测定特 BCA-Cu+复合物来间接检测蛋白质,其峰强度比直接检测蛋白质自身吸收的峰强度提高了2个数量级。对于转铁蛋白、蓖麻毒素,其线 为2～200 mg/L和2～100 mg/L,检出限分别为0.33和0.37 mg/L。将该方法成功地应用于第一届蓖麻毒素国际实验室间比对测试 含量测定结果满意。

关键词： 毛细管电泳 二喹啉甲酸 亚铜离子 显色反应 β-环糊精 蛋白质

Abstract： A new rapid, sensitive method for protein determination using capillary electrophoresis and specifi colorimetric reaction of bicinchoninic acid (BCA) was established, assisted by microwave incubation. With 60 m acid buffer (pH 9.5) and inclusion additive of β-cyclodextrin, the complex of BCA-Cu+ and free BCA molecules w efficiently separated. The peak intensity of BCA-Cu+was higher than those of native proteins about two order magnitude at a low wavelength of 200 nm. The linear ranges of this method were from 2 to 200 mg/L for tran 2 to 100 mg/L for ricin. The limits of detection for transferrin and ricin were 0.33 and 0.37 mg/L, respectively. T was also successfully applied in the determination of some ricin samples in the First International Proficiency T quantification of ricin.

Keywords： capillary electrophoresis (CE) bicinchoninic acid (BCA) Cu+ colorimetric reaction β-cyclodextri

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