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研究论文

毛细管电泳法同时测定血清中的左旋多巴和甲基多巴

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摘要 建立了毛细管电泳-紫外检测同时测定血清中左旋多巴和甲基多巴的方法。以40 mmol/L硼砂（pH 9.5）为分离缓冲溶液,在3.45 kPa（0 5 psi）压力下进样7 s、分离电压22 kV、检测波长200 nm、温度25 ℃的条件下进行测定,两种物质获得了较好的分离。甲基多巴和左旋多巴分 别为1.0~64.0 mg/L和1.0~71.0 mg/L时与峰面积呈良好的线性关系,线性相关系数分别为0 9998和0 9994,检出限分别为0 6和0 8 mg/L(以 信噪比为3计)。将该法用于血清中甲基多巴和左旋多巴的测定,回收率为82 8%~88 8%,相对标准偏差为2 10%~2 63%。

关键词 毛细管电泳法；左旋多巴 甲基多巴 血清

分类号

Simultaneous Determination of Levodopa and Methyldopa in Human Serum by Capillary Electrophoresis

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Abstract

A simple capillary electrophoresis method was developed for the determination of levodopa and methyldopa in human serum. The effects of pH and concentration of buffer, voltage and injection time on separation were investigated. As a result, an optimized separation was obtained with a fused-silica capillary of 60 2 cm (50 cm effective length)×75 μm i d in a running buffer of 40 mmol/L sodium tetraborate (pH 9 5) with an applied voltage of 22 kV at 25 ℃. Sample introduction was performed at 3.45 kPa （0 5 psi） for 7 s and on-column detection was made with a diode array detector at 200 nm. The linear responses covered the ranges from 1.0 to 64.0 mg/L (r=0 9998) for methyldopa and from 1.0 to 71.0 mg/L (r=0 9994) for levodopa. The detection limits (S/N=3) of methyldopa and levodopa were shown to be 0 6 mg/L and 0 8 mg/L, respectively. The recoveries for levodopa and methyldopa in human serum were between 82.8% and 88.8% with relative standard deviations between 2 10% and 2 63%.

Key words capillary electrophoresis levodopa methyldopa serum

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