

毛细管电泳-安培检测法测定3种拟肾上腺素药物

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Determination of three adrenergic drugs using capillary electrophoresis with amperometric detection

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摘要 建立了毛细管电泳-安培检测法测定盐酸去氧肾上腺素(phenylephrine hydrochloride, PHE)、重酒石酸间羟胺(metaraminol bitartrate, MR)和盐酸异丙肾上腺素(isoprenaline hydrochloride, IP)3种拟肾上腺素药物的方法。检测电位为0.950 V(Ag/AgCl为参比电极),硼酸盐浓度为50 mmol/L(pH 10.00),分离电压为18 kV,进样时间为10 s。在最佳实验条件下,3种物质在18 min内达到基线分离,在2~100 μmol/L浓度范围内峰面积与浓度呈良好的线性关系,线性相关系数不小于0.9991。盐酸去氧肾上腺素、重酒石酸间羟胺和盐酸异丙肾上腺素的检出限分别为0.8、0.8和1.0 μmol/L。将所建立的方法应用于针剂样品的分析,结果令人满意。

关键词: 毛细管电泳法 安培检测 拟肾上腺素药物

Abstract: A method for the determination of three adrenergic drugs, including phenylephrine hydrochloride (PHE), metaraminol bitartrate (MR) and isoprenaline hydrochloride (IP), was developed using capillary electrophoresis with amperometric detection. The detection potential of working electrode was 0.950 V versus the reference electrode of Ag/AgCl. At the applied voltage of 18 kV, the three analytes were completely separated within 18 min in 50 mmol/L borate buffer (pH 10.00) with the injection time of 10 s. Good linear relationships were obtained for all the three analytes in the range of 2~100 μmol/L. The detection limits for PHE, MR and IP were 0.8, 0.8 and 1.0 μmol/L, respectively. The proposed method was applied to the analysis of some injection drugs, and the results were satisfactory.

Keywords: capillary electrophoresis (CE) amperometric detection adrenergic drugs

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