

研究论文

西他沙星差向异构体的毛细管电泳分离

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摘要 以 γ -环糊精和D-苯丙氨酸为手性选择剂, 采用毛细管区带电泳成功地分离了新型抗菌素西他沙星差向异构体。考察了添加剂的种类、浓度和缓冲溶液的pH对毛细管电泳分离西他沙星的影响。分离电压为15 kV, 选用60 cm (有效长度52.5 cm) \times 50 μ m i. d. 的石英毛细管, 缓冲溶液组成为10 mmol/L KH₂PO₄-K₂HPO₄ (pH 4.5), 10 mmol/L CuSO₄, 20 mmol/L γ -环糊精和 10 mmol/L D-苯丙氨酸。实验结果表明, 添加剂的种类和浓度是影响西他沙星手性分离的重要因素, 只有当 D-苯丙氨酸、铜离子和 γ -环糊精同时存在并达到一定浓度时, 西他沙星差向异构体在毛细管电泳中才具有良好的分离效果。该方法可用于西他沙星差向异构体的定量分析。

关键词 [毛细管电泳](#) [西他沙星](#) [差向异构体](#)

分类号

Separation of Sitafloxacin Epimers by Capillary Electrophoresis

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Abstract

Sitafloxacin epimers were separated by capillary zone electrophoresis using γ -cyclodextrin(γ -CD) and D-phenylalanine (D-Phe) as chiral selector. The effects of the concentrations of γ -CD, D-Phe, Cu²⁺ and pH of buffer were investigated. An uncoated fused-silica capillary of 50 μ m i.d. and 60 cm (effective length 52.5 cm) was used. The capillary temperature was maintained at 25 $^{\circ}$ C. Samples were injected under a pressure of 7 kPa for 5 s and separated at 15 kV. A baseline separation of sitafloxacin epimers was achieved with a background electrolyte of 10 mmol/L KH₂PO₄-K₂HPO₄ (pH 4.5), 10 mmol/L CuSO₄, 20 mmol/L γ -CD and 10 mmol/L D-Phe. The linear range for sitafloxacin was 32-400 mg/L (0.996). The relative standard deviations (RSDs) of migration time and peak area were less than 1.9% and 3.8% respectively. This method can be applied in qualitative and quantitative analysis for sitafloxacin epimers.

Key words [capillary electrophoresis \(CE\)](#) [sitafloxacin](#) [epimers](#)

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