

研究简报

高效液相色谱电生Mn(III)化学发光法检测人体血清和尿样中的卡托普利

张琰图^{1,2}, 章竹君¹, 孙永华¹, 魏月¹

1. 陕西师范大学化学与材料科学学院, 西安 710062;
2. 延安大学化学与化工学院, 延安 716000

收稿日期 2006-7-6 修回日期 网络版发布日期 2007-4-20 接受日期

摘要 设计了一个HPLC在线电生Mn(III)化学发光检测器, 实现在线电化学反应, 从而产生反应活性很高的初生态氧化剂Mn(III), 并与色谱柱后CP混合产生化学发光. 同时还能够根据需要调节电极反应和发光反应两者的介质, 满足柱后发光反应的最佳环境. 在优化流动相和化学发光检测条件的基础上, 将该检测器应用于人体血清和尿液中CP的测定.

关键词 [高效液相色谱](#) [化学发光检测器](#) [在线电生Mn\(III\)](#) [卡托普利](#) [人体血清](#) [尿样](#)

分类号 [0653](#)

Determination of Captopril in Human Serum and Urine Samples by HPLC with On-line Electrogenerated Mn(III) Chemiluminescence Detection

ZHANG Yan-Tu^{1,2}, ZHANG Zhu-Jun^{1*}, SUN Yong-Hua¹, WEI Yue¹

1. School of Chemistry and Materials Science, Shaanxi Normal University, Xi'an 710062, China;
2. School of Chemistry and Chemical Engineering, Yan'an University, Yan'an 716000, China

Abstract The separation and determination of captopril in human serum and urine samples by means of high performance liquid chromatography(HPLC) with on-line electrogenerated Mn(III) chemiluminescence detection was carried out. The method was based on the direct chemiluminescence reaction between captopril and Mn(III), which was on-line electrogenerated by constant current electrolysis. The chromatographic separation was performed on a nucleosil RP-C₁₈ (250 mm×4.6mm i.d., 5 μm) column with an isocratic mobile phase consisting of acetonitrile-1% aqueous acetic acid(volume ratio 6 : 4) at a flow-rate of 1.2 mL/min. The temperature was 25 °C. The effects of several parameters on the HPLC resolution and CL emission were studied systematically. Under the optimal conditions, the linear range and detection limit for captopril are 5—800 ng/mL and 0.9 ng/mL, respectively. The relative standard derivation for 10.0 ng/mL captopril is 2.2%(n=11). The average recoveries for captopril in human serum and urine samples ranged from 94.8% to 103.2%, and the relative standard deviations of the quantitative results are below 3.4%. The proposed method had been applied to the determination of captopril in human serum and urine samples.

Key words [High performance liquid chromatography](#) [Chemiluminescence detector](#) [On-line electrogenerated Mn\(III\)](#) [Human serum](#) [Urine sample](#)

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(254KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中 包含“高效液相色谱”的 相关文章](#)
- ▶ 本文作者相关文章

· [张琰图](#)

· [章竹君](#)

· [孙永华](#)

· [魏月](#)

