

论文

流动注射化学发光法测定人尿液中纳克水平乙酰螺旋霉素

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摘要:

目的建立流动注射抑制化学发光测定乙酰螺旋霉素的新方法。方法在碱性介质中乙酰螺旋霉素能强烈抑制luminol-K₃Fe(CN)₆化学发光反应。本文以乙酰螺旋霉素在一定浓度范围内与luminol-K₃Fe(CN)₆化学发光强度降低值的呈线性关系为基础,结合流动注射技术,快速测定乙酰螺旋霉素。结果测定的线性范围为0.1~100 μg·L⁻¹,检测限为40 ng·L⁻¹(3σ),RSD小于3.0%(n=8)。结论该法简便快速、灵敏度高、选择性好,可用于药物、人血清中的乙酰螺旋霉素含量的测定,监测口服乙酰螺旋霉素后人尿液中乙酰螺旋霉素的排泄状况。

关键词: 乙酰螺旋霉素 流动注射 化学发光 血清 尿

Monitoring sub-nanogram amount of ASPM in human urine using FI analysis with chemiluminescence detection
Monitoring sub-nanogram amount of acetylspiramycin in human urine using flow injection analysis with chemiluminescence detection

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Abstract:

AimTo establish a new and simple flow injection method for the rapid determination of acetylspiramycin (ASPM). MethodsASPM was determined by chemiluminescence (CL) method combined with flow injection (FI) technology, which was based on the inhibitive effect of ASPM on the chemiluminescence reaction of the luminol-K₃Fe(CN)₆ system. ResultsThe decrease of chemiluminescence intensity was proportional to the logarithm of ASPM concentration (0.1-100) μg·L⁻¹, the detection limit was 40 ng·L⁻¹ (3σ). The whole process, including sampling and washing, could be completed in 0.5 min with a RSD less than 3.0% (n=5). ConclusionThe FI-CL method is of both high sensitivity and good selectivity giving a throughput of 120 h⁻¹. The proposed method was applied successfully to the determination of ASPM in pharmaceutical preparations and human urine without any pre-treatment. It was found that the ASPM concentration reached its maximum after being orally administrated for two hours.

Keywords: flow injection chemiluminescence serum urine acetylspiramycin

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