

研究论文

固相萃取-超高压液相色谱-串联质谱同时分析环境水样中四环素类和喹诺酮类抗生素

孙广大, 苏仲毅, 陈猛*, 袁东星

厦门大学环境科学研究中心, 福建 厦门 361005

收稿日期 2008-7-2 修回日期 2008-9-16 网络版发布日期 2009-2-2 接受日期 2008-9-20

摘要 应用固相萃取及超高压液相色谱-质谱联用技术, 建立了环境水样中4种四环素类和6种喹诺酮类抗生素的同时分析方法。样品经HLB固相萃取柱富集、净化后用甲醇洗脱, 以超高压液相色谱-串联质谱仪多反应监测(MRM)离子模式定性、定量分析。以河水和海水为基质, 卡巴氧为替代物进行回收率评价, 4种四环素类抗生素在加标质量浓度分别为20.0 ng/L和100.0 ng/L时的回收率为94.0%~117.0%, 相对标准偏差为2.0%~9.7% (n=4), 方法的检出限均为20.0 ng/L; 6种喹诺酮类抗生素在加标质量浓度分别为5.0 ng/L和20.0 ng/L时的回收率为63.6%~93.9%, 相对标准偏差为1.6%~8.1% (n=4), 方法的检出限为0.4 ng/L。结果表明, 所建立的方法可成功地应用于近岸海域表层环境水样中目标抗生素残留的分析。

关键词 [固相萃取](#) [超高压液相色谱-质谱](#) [四环素](#) [喹诺酮](#) [环境水样](#)

Simultaneous determination of tetracycline and quinolone antibiotics in environmental water samples using solid phase extraction-ultra pressure liquid chromatography coupled with tandem mass spectrometry

SUN Guangda, SU Zhongyi, CHEN Meng*, YUAN Dongxing

Environmental Science Research Center, Xiamen University, Xiamen 361005, China

Abstract

Using HLB cartridge for extraction and cleanup, a method for simultaneous determination of 4 tetracycline and 6 quinolone antibiotics in environmental water samples was developed by ultra pressure liquid chromatography coupled with tandem mass spectrometry. Using river water and sea water as matrices and carbadox as surrogate, the recoveries and relative standard deviations (RSD, n=4) were 94.0%-117.0% and 2.0%-9.7% for 4 tetracyclines at 20.0 ng/L and 100.0 ng/L spiking levels and 63.6%-93.9% and 1.6%-8.1% for 6 quinolones at 5.0 ng/L and 20.0 ng/L spiking levels, respectively. The detection limits were 20.0 ng/L for 4 tetracyclines and 0.4 ng/L for 6 quinolones. The method has been successfully applied to the survey of 10 target antibiotic residues in Jiulong River estuary, Fujian.

Key words [solid phase extraction \(SPE\)](#) [ultra pressure liquid chromatography-mass spectrometry \(UPLC-MS\)](#) [tetracycline](#) [quinolone](#) [environment water samples](#)

DOI:

通讯作者 陈猛 mengchen@xmu.edu.cn

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(2593KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [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](#)

相关信息

- ▶ [本刊中 包含“固相萃取”的相关文章](#)
- ▶ 本文作者相关文章

- [孙广大](#)
- [苏仲毅](#)
- [陈猛](#)
- [袁东星](#)