

论文

LC/MSⁿ法同时检测人尿液中艾司唑仑、阿普唑仑和三唑仑

顾景凯;夏荣;钟大放;孙璐

吉林大学 1. 生命科学学院药物代谢实验室, 2. 第一医院, 吉林 长春 130023; 3. 沈阳药科大学药物代谢与药物动力学实验室, 辽宁 沈阳 110015

摘要:

目的研究三氮唑苯并二氮 类药物的质谱断裂规律,建立可同时检测人尿液中艾司唑仑、阿普唑仑和三唑仑的液相色谱-质谱(LC/MSⁿ)联用法。方法用LC/MSⁿ技术,同时对3种三氮唑苯并二氮 类药物进行色谱分离及质谱鉴定,并用质谱解析软件探讨该类化合物的裂解规律。结果3种药物的 [M+H]⁺准分子离子均可生成脱去1分子N₂和1个Cl原子的特征碎片离子,其最低检测限小于0.5 ng·mL⁻¹。结论该方法快速、灵敏、准确,完全适用于法医学和临床用药过量案例或病例的定性分析。

关键词: 液相色谱/电喷雾离子阱质谱法 艾司唑仑 阿普唑仑 三唑仑

IDENTIFICATION OF ESTAZOLAM, ALPRAZOLAM AND TRIAZOLAM IN HUMAN URINE BY LC/MSⁿ

GU Jing-kai; XIA Rong; ZHONG Da-fang; SUN Lu

Abstract:

AIMTo investigate the fragmentation behavior of triazolobenzodiazepines and to develop a specific, sensitive and rapid LC/MSⁿ assay for simultaneous determination of estazolam, alprazolam and triazolam in human urine. METHODSAfter oral administration of a single 4 mg dose of the drugs to each of three healthy volunteers, urine samples were purified by solid-phase extraction, and then injected into an ODS column (150 mm×4.6 mm) with a mobile phase of methanol-water (8:2) for LC/MSⁿ analysis. The structures of estazolam, alprazolam and triazolam in human urine were identified by direct comparison of the observed mass spectra and the chromatographic retention time with those of the reference substance. The mass spectrometer (Finnigan LCQ) was operated in positive mode and in two scan modes including SIM and full scan MS/MS mode. The obtained mass spectra was analyzed assisted with the software Mass Frontier 1.0 for their fragmentation pathways. RESULTSThe full scan MS/MS spectra of each compound gave characteristic fragment ions of [M+H-N₂]⁺ and [M+H-Cl]⁺. The detection limit was below 0.5 ng·mL⁻¹ for estazolam, alprazolam and triazolam in human urine. CONCLUSIONThe method is useful in forensic and clinical toxicology in which unequivocal identification of eatazolam, alprazolam and triazolam is desired.

Keywords: estazolam alprazolam triazolam LC/MSⁿ

收稿日期 2001-05-08 修回日期 网络版发布日期

DOI:

基金项目:

通讯作者:

作者简介:

参考文献:

本刊中的类似文章

文章评论 (请注意:本站实行文责自负, 请不要发表与学术无关的内容!评论内容不代表本站观点.)

扩展功能

本文信息

- ▶ Supporting info
- ▶ PDF(130KB)
- ▶ [HTML全文]
- ▶ 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
- ▶ 引用本文
- ▶ Email Alert
- ▶ 文章反馈
- ▶ 浏览反馈信息

本文关键词相关文章

- ▶ 液相色谱/电喷雾离子阱质谱法
- ▶ 艾司唑仑
- ▶ 阿普唑仑
- ▶ 三唑仑

本文作者相关文章

- ▶ 顾景凯
- ▶ 夏荣
- ▶ 钟大放
- ▶ 孙璐

PubMed

- ▶ Article by
- ▶ Article by
- ▶ Article by
- ▶ Article by

反馈人	<input type="text"/>	邮箱地址	<input type="text"/>
反馈标题	<input type="text"/>	验证码	<input type="text" value="5263"/>