

技术交流

快速溶剂萃取-凝胶色谱净化-GC/MS结合测定血中的滥用药物

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摘要 建立了血中10种滥用药物的快速溶剂萃取与气相色谱-质谱联用的分析方法。取一定量的三氧化二铝放入萃取池中作为吸附剂, 通过快速溶剂萃取仪萃取血中的10种滥用药物, 经在线初步净化后, 运用自动凝胶渗透色谱净化仪进一步净化, 样品用气相色谱-质谱联用仪进行全扫描和选择离子模式分析。结果表明: 3, 4-亚甲基二氧基甲基苯丙胺、非那西汀、氯胺酮、曲马多、可卡因、蒂巴因、罂粟碱、那可汀在1.2~7.2 mg•L⁻¹范围内线性关系良好, 杜冷丁在2.4~7.2 mg•L⁻¹范围内线性关系良好, 海洛因在1.2~6 mg•L⁻¹范围内线性关系良好。10种滥用药物的回收率在91%~97%之间, 相对标准偏差均小于10%。

关键词 [滥用药物](#) [快速溶剂萃取](#) [凝胶色谱](#) [气相色谱-质谱 \(GC/MS\)](#)

分类号

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Abstract A method for the determination of 10 mixed drugs of abuse in blood was developed by gas chromatography-mass spectrometry (GC/MS) coupled with accelerated solvent extraction (ASE). The target analytes were extracted with V (ethyl acetate): V (cyclohexane)=1:1 by accelerated solvent extraction, and cleaned by auto gel permeation chromatography (GPC). The qualitative and quantitative analysis were carried out by GC/MS. The total ion chromatogram and selected ion chromatogram were obtained. The calibration of mdma, phenacetinum, ketamine, ramadol, cocaine, thebaine, papaverine, narcotine have a good linear relationship in the range of 1.2—7.2 mg•L⁻¹, meperidine has a good linear relationship in the range of 2.4—7.2 mg•L⁻¹, and heroin has a good linear relationship in the range of 1.2—6 mg•L⁻¹. The linearity correlation coefficient of 10 mixed drugs of abuse are between 0.993 and 0.997. The average recoveries are 91%—97% with relative standard deviations of 2%—9.5%.

Key words [drug abuse](#) [accelerated solvent extraction \(ASE\)](#) [gel permeation chromatographic \(GPC\)](#) [gas chromatography-mass spectrometry \(GC/MS\)](#)

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