

研究论文

蛋白沉淀-高效液相色谱法筛查血浆中61种常见的中枢神经系统药物

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摘要 建立了利用蛋白沉淀提取血浆中61种常见的中枢神经系统药物并用高效液相色谱-二极管阵列检测器(HPLC-DAD)分析的方法。1 mL血浆样品中加入1.5 mL乙腈,旋涡混合后,离心,上清液过滤后直接采用HPLC测定。选用Agilent TC-C18色谱柱(250 mm×4.6 mm, 5 μm),以磷酸盐缓冲液和乙腈为流动相进行梯度洗脱,流速1.5 mL/min,柱温35 °C,检测波长210 nm。61种药物的回收率均大于80%,相对标准偏差为0.94%—11.23%。采用乙腈沉淀蛋白,方法简便、快速、回收率高且稳定,能够作为系统毒物分析的通用前处理方法。该蛋白沉淀方法与HPLC-DAD技术结合,可应用于61种药物的分析。

关键词 [蛋白沉淀](#) [高效液相色谱法](#) [系统毒物分析](#) [常见中枢神经系统药物](#) [药物筛查](#) [血浆](#)

Determination of 61 central nervous system drugs in plasma by protein precipitation-high performance liquid chromatography

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Abstract

A method was established for the determination of 61 central nervous system drugs in plasma by using protein precipitation combined with high performance liquid chromatography-diode array detection (HPLC-DAD). A volume of 1.5 mL acetonitrile was added into 1 mL plasma, after vortex, centrifugation and filtration, the supernatant was directly injected into HPLC. The separation was performed on an Agilent TC-C18 column (250 mm×4.6 mm, 5 μm) with acetonitrile and phosphate buffer solution as mobile phase by gradient elution at a flow rate of 1.5 mL/min. The detection wavelength was 210 nm; full spectra were recorded from 200~364 nm. The recoveries of 61 drugs were larger than 80% with the relative standard deviations (RSDs) ranged from 0.94% to 11.23%. The protein precipitation method is simple, rapid, low-cost with good recoveries, reproducibility and suitable for the general pretreatment of the systematic toxicological analysis (STA) of the 61 drugs.

Key words [protein precipitation](#) [high performance liquid chromatography \(HPLC\)](#) [systematic toxicological analysis \(STA\)](#) [common central nervous system drugs](#) [drug screening](#) [plasma](#)

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