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高效液相色谱法同时测定辅助改善记忆类保健食品中非法添加的17种化学药物

Simultaneous determination of 17 illegally added drugs in auxiliary memory improving health food by HPLC

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中文摘要:

建立辅助改善记忆类保健食品不同剂型中(口服液、丸剂、软胶囊)17种非法添加化学药物的高效液相色谱测定方法。方法 3种不同剂型的保健食品样品以50%甲醇水为提取溶剂进行超声提取,提取后采用C₁₈-SPE柱净化,通过Thermo Acclaim™ Mixed-Mode WCX-1色谱柱(150 mm×2.1 mm, 3 μm)分离,以100 mmol/L磷酸二氢钠水溶液和乙腈为流动相梯度洗脱,采用二极管阵列检测器定性、外标法定量。结果 在相应浓度范围内,17种化学药物线性关系良好, r > 0.99, 加标回收率为85%~120%, 检出限为10~40 μg/ml, 相对标准偏差(RSD)为0.8%~4.8%。结论 该方法操作简便、准确、快速, 能实现3种剂型中17种非法添加化学物的同时分析, 可用于辅助改善记忆类保健食品中非法添加化学药物的定性筛查和定量检测。

Abstract:

To establish a method for determination of 17 illegally added drugs in memory improving health food with the formulas of oral liquid, pills, soft capsule by high performance liquid chromatography. Methods Samples in different dosage formulas were extracted with 50% methanol by ultrasonic and cleaned up with C₁₈ SPE cartridges, then separated on an Acclaim™ Mixed-Mode WCX-1 HPLC column with a mobile phase of 100 mmol/L sodium dihydrogen phosphate solution-acetonitrile for gradient elution, and quantified with external standard with photodiode array detector method. Results The calibration curves of the 17 chemical drugs with in appropriate concentration ranges showed a good linearity with high correlation coefficients. The average recoveries were from 85% to 120% with RSDs of 0.8%-4.8%. The detection limits of the 17 chemical drugs ranged from 10 to 40 μg/ml. Conclusion This method is simple, accurate and rapid. It could be used for simultaneous determination of 17 illegally added drugs in health food in the formulas of oral liquid, pills, soft capsule, and is suitable for confirming 17 illegally added drugs in memory improving health food.

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