

研究论文

高效液相色谱-串联质谱法测定烟草中有机磷农药的残留量

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摘要 建立了一种基于液相色谱-串联质谱法(LC-MS/MS)定量分析微量有机磷农药残留的方法,并应用于烟草中农药残留物的定量检测。采用乙腈超声提取烟草中的有机磷农药残留,以甲醇-水(含0.1%乙酸铵)(体积比为95:5)为流动相,经高效液相色谱分离,以串联质谱在多反应监测(MRM)模式下测定,在2.5 min内完成了甲胺磷、乙酰甲胺磷、乐果、敌百虫、毒死蜱5种常用有机磷农药的定量分析。5种农药在1~200 μg/L内的线性关系良好($r > 0.998$),平均回收率为77%~104%,检出限为1.0~5.0 μg/kg。

关键词 [液相色谱-串联质谱](#) [多反应监测](#) [有机磷农药残留](#) [烟草](#)

分类号

Determination of Organophosphorus Pesticide Residues in Tobacco by High Performance Liquid Chromatography-

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Abstract

A novel and rapid method based on high performance liquid chromatography-tandem mass spectrometry (LC-MS/MS) was developed for determination of organophosphorus pesticide residues (OPs) in tobacco. The OPs were extracted from tobacco samples by acetonitrile under ultrasonication. The extractive was determined by high performance liquid chromatography using methanol-water (containing 0.1% ammonium acetate) (95: 5, v/v) as mobile phase. The OPs were detected using a tandem mass spectrometer with electrospray ionization in multiple reaction monitoring (MRM) mode. The OPs, such as dimethoate, trichlorfon, chlorpyrifos, methamidophos and acephate could be detected quantitatively within 2.5 min. The linear calibration curves were obtained in the entire range (1-200 μg/L) for all the above pesticides ($r > 0.998$). The average recoveries in tobacco obtained were ranged from 77% to 104%. The limits of detection were between 1.0 μg/kg and 5.0 μg/kg.

Key words [liquid chromatography-tandem mass spectrometry \(LC-MS/MS\)](#) [multiple reaction monitoring](#) [organophosphorus pesticide residues \(OPs\)](#) [tobacco](#)

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