

研究论文

气相色谱-质谱法测定植物源性食品中残留的联苯菊酯

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摘要 建立了气相色谱-质谱检测8种植物源性食品中联苯菊酯残留量的方法。粮谷类样品采用乙腈提取、凝胶渗透色谱(GPC)结合Florisil固相萃取柱净化;蔬菜类样品采用乙酸乙酯提取、Florisil固相萃取柱净化,然后采用气相色谱-质谱测定,选择离子监测模式检测。方法的检出限为5 μg/kg (S/N=10);在0.005~0.5 mg/L范围内呈现良好的线性关系,相关系数为0.9999;在0.005, 0.04和0.1 mg/kg 3个添加水平下,联苯菊酯的添加回收率在74%~99%之间,相对标准偏差(RSD)小于13%。该方法灵敏度高,净化效果良好,能有效地消除复杂基质带来的干扰,可以作为日常样品中联苯菊酯残留量的检测和确证方法。

关键词 [凝胶渗透色谱](#); [固相萃取](#) [气相色谱-质谱法](#) [联苯菊酯](#) [植物源性食品](#)

Determination of bifenthrin residue in plant-based foods using gas chromatography-mass spectrometry

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Abstract

A method was established for the determination of bifenthrin residue in 8 plant-based foods using gas chromatography-mass spectrometry (GC-MS). The grain was extracted by acetonitrile and cleaned up with gel permeation chromatography (GPC) combined with a Florisil solid-phase extraction (SPE) cartridge, while the vegetables and fruits were extracted by ethyl acetate and cleaned up only with a Florisil SPE cartridge. Most of the lipids in the extract for the grain were eliminated by GPC, prior to SPE cleanup. The cleaned extract was analyzed by GC-MS with electron impact (EI) source in selective ion monitoring (SIM) mode. The detection limit was 5 μg/kg (S/N=10). There was a good linearity within the range of 0.005-0.5 mg/L with the correlation coefficient of 0.9999. The recoveries were between 74%-99% with the relative standard derivations of less than 13% at the spiking levels of 0.005, 0.04 and 0.1 mg/kg

Key words [gel permeation chromatography \(GPC\)](#) [solid-phase extraction \(SPE\)](#) [gas chromatography-mass spectrometry \(GC-MS\)](#) [bifenthrin](#) [plant-based foods](#)

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