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植物保护—研究报告

烟叶中敌草胺残留的分子印迹SPE-HPLC检测

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摘要:

为了对烟草中敌草胺残留进行高效的富集纯化和测定，建立了敌草胺分子印迹固相萃取-高效液相色谱法进行检测。首先，以敌草胺为模板分子，甲基丙烯酸为功能单体，乙二醇二甲基丙烯酸酯为交联剂，偶氮二异丁腈为引发剂，在液相色谱柱管中70℃聚合24 h，制备对敌草胺具有亲和识别功能的分子印迹原位整体柱，并对其亲和能力进行了表征。然后，用该整体柱萃取富集烟草样品的乙腈提取液，再用反相高效液相色谱测定，结果表明，敌草胺的回收率在(92.3±2.1)%，相对标准偏差在2.76%，检出限1.0 ng/g。可以看出，敌草胺分子印迹原位整体柱是一种有高专属亲和力的固相萃取材料，适合对复杂样品中微量敌草胺的富集纯化，所建立的敌草胺分子印迹SPE-HPLC方法适用于烟叶中敌草胺残留的分析。

关键词: 高效液相色谱

Determination of Napropamide Residue in Tobacco Leaves by MolecularImprinted Solid Phase Extraction-HPLC

Abstract:

For better enrichment and purity of napropamide in tobacco leaves, the molecular imprinted polymers as a solid phase extraction column coupling to HPLC was studied. The molecular imprinted polymers (MIPs) was synthesized by polymerization for 24 hours using napropamide as template, methacrylic acid (MAA) as monomer, ethyleneglycol dimethacrylate (EDMA) as crosslinker and azodiisobutyronitrile (AIBN) as initiator at 70℃ in column. This monolithic column could specially recognize napropamide by affinity. The column was used as a solid phase extraction (SPE) pillar for affinity extraction and enrichment of napropamide residue in acetonitrile extract of tobacco leaves in HPLC system. Then, the sample was analyzed by reversed phase-HPLC. The SPE-HPLC method showed good recovery [(92.3±2.1)%], good reproducibility (RSD 2.76%), excellent linear correlation (R2>0.9996) and low detection limit (1.0 ng/g). In conclusion, the napropamide molecular imprinted polymers monolithic column was a good solid phase extraction affinity column for enrichment and purity , and the MIPs-SPE-HPLC method established was suitable for the analysis of napropamide residue in tobacco leaves.

Keywords: high performance liquid chromatography

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