

专论与综述

气相色谱分析农药残留的基质效应及其解决方法

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收稿日期 2007-7-18 修回日期 2007-10-17 网络版发布日期 2008-1-30 接受日期 2007-11-8

摘要 对于相同浓度的农药, 其在基质溶液中的色谱响应会比其在纯溶剂中的响应高。通过减少热不稳定农药的分解, 以及屏蔽进样口的活性位点而减少极性农药在活性位点的吸附或分解, 基质效应可增加从进样口传输到色谱柱中的农药残留量。各种进样方式和基质净化方法都可以减少但不能完全消除基质效应; 基质匹配校准法和分析保护剂法是避免基质效应最有效的方法; 在实际检测中, 所采用的消除或补偿基质效应的方法应考虑减少仪器系统的维护。本文概述了农药残留分析检测中的基质效应及其解决方法。

关键词 [气相色谱](#) [农药残留](#) [基质效应](#) [解决方法](#)

Solutions to matrix-induced response enhancement in pesticide residue analysis by gas chromatography

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Abstract

The sample matrix can cause an enhancement in the observed chromatographic response for pesticide residues in a matrix extract compared with the same concentration in a matrix-free solution. The matrix increases the transfer of pesticides from the hot vaporizing injectors by reducing the thermal stress for labile compounds and by masking the active sites in the injector responsible for the adsorption or decomposition of polar pesticides. The use of different injector types and matrix simplification procedures can reduce matrix-induced enhancement but do not eliminate it. The most effective strategy is to use matrix-matched calibration standards or analyte protectants which equalize the response enhancement for calibration standards and sample extracts. From a practical point of view, it is important that the method used to correct for matrix-induced enhancement is compatible with low system maintenance. The different approaches for correcting matrix-induced enhancement for calibration in pesticide residue analysis are discussed and compared in this review.

Key words [gas chromatography \(GC\)](#) [pesticide residue](#) [matrix-induced response enhancement solutions](#)

DOI:

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