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Improvement of ELISA analysis for soil residue analysis by reducing soil matrix effects

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Abstract:

Improvement of the commercially available fenitrothion-ELISA kit for soil residue analysis was examined. Recovery trials were conducted with 5 soils spiked at 0.5 µg/g soil. Interference of soil matrix was not adequately removed by the addition of synthetic zeolite in extraction, although it reduced Ca²⁺ concentration. Ultrafiltration at 9 kDa after dilution of the soil extracts gave enough results to compare with those obtained by gas chromatography. It was suggested that overestimation in ELISA was caused by high-molecular-weight humus-like compounds in soil extracts.

Keywords:

ELISA, fenitrothion, soil matrix, synthetic zeolite, ultrafiltration.

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