CADUSAFOS (174)

EXPLANATION

Cadusafos was first evaluated in 1991, an ADI was estimated and MRLs were recommended for bananas and potatoes. The 1991 JMPR listed as desirable a published method of residue analysis suitable for regulatory purposes. Ideally residues of cadusafos could be monitored in a multi-residue method.

Information was made available to the Meeting on cadusafos residue analysis in a multi-residue method.

METHODS OF RESIDUE ANALYSIS

Crop samples can be analysed for cadusafos residues using Method 232.4 of the US Food and Drug Administration Pesticide Analytical Manual (Mayer 1992).

Method 232.4 is a multi-residue GLC method for non-fatty samples (Luke et al. 1975, Luke et al. 1981). Samples are extracted with acetone. The extract is partitioned into an organic phase, which is evaporated to leave a residue to be dissolved in a suitable solvent for GLC analysis. The method applies to a range of non-ionic compounds which can be determined by GLC.

Cadusafos was found to be suitable for GLC determination on the three columns tested (PE-1, DB-17 and DB-225, equivalent to OV-101, OV-17 and OV-225 respectively). Cadusafos retention times relative to those of chlorpyrifos were 0.33-0.43. The cadusafos sensitivity of the NPD and FPD detectors was of the same order as their chlorpyrifos sensitivity, but the sensitivity of the ECD to casusafos was an order of magnitude lower than to chlorpyrifos.

With bananas as the non-fatty test matrix for PAM Method 232.4 cadusafos was recovered at 109% and 100% from 0.05 mg/kg fortifications and at 99% and 112% from 0.25 mg/kg.

APPRAISAL

Cadusafos was evaluated in 1991 when the JMPR suggested that a residue analytical method should be published or, ideally, monitoring of cadusafos in a multi-residue method should be demonstrated.

Information was made available to the Meeting that cadusafos residues in crops can be monitored by Pesticide Analytical Manual (US FDA) Method 232.4. Cadusafos was recovered quantitatively from bananas at spiking levels of 0.05 and 0.25 mg/kg.

REFERENCES

1. Luke, M.A. Froberg, J.E., and Masumoto, H.T. 1975. Extraction and cleanup of organochlorine, organophosphate, organonitrogen, and hydrocarbon pesticides in produce for determination by gas-liquid chromatography. J. Assoc. Offic. Analyt. Chem. 58, 1020-1026.

2. Luke, M.A., Froberg, J.E., Doose, G.M. and Masumoto, H.T. 1981. Improved multiresidue gas chromatographic determination of organophosphorus, organonitrogen. and organohalogen pesticides in produce, using flame photometric and electrolytic conductivity detectors. J. Assoc. Offic. Analyt. Chem. 64 1187-1195.

3. Mayer, J.L. 1992. Multiresidue methodology testing for cadusafos. EPL Bio-Analytical Services Inc for FMC Corp. EPL-BAS study no 141-001. FMC study no 075MUL91Rl. Unpublished