DETERMINATION OF CHLORPYRIFOS IN EDIBLE OIL (LIQUID-LIQUID EXTRACTION METHOD)

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This method describes the requirements for the determination of chlorpyrifos residue in edible oil.

DEFINITION

Chlorpyrifos is the common name for *O-O*-diethyl 3, 5, 6 – trichloro-2-pyridyl phosphorothiote. It is available in a variety of formulations under the trade name Dursban and Lorsban.

Chlorpyrifos is a colourless crystalline solid with a mild mercaptan odour. It has a broad range of insecticidal activity and is effective by contact, ingestion and vapour action, but it is not systemic.

PRINCIPLE

The method involves the extraction of chlorpyrifos with hexane acetonitrile. Chlorpyrifos is preferentially partitioned into the polar acetonitrile layer while the bulk of the lipids remains solubilized in the non-polar hexane. The acetonitrile extract are subjected to clean-up procedure through a silicic acid column. The chlorpyrifos is analysed by gas chromatography equipped with an electron capture detector (GC-µECD) (*Figures 1* and *2*).

RECOVERY

Recoveries of chlorpyrifos from oil matrix at the range of 0.02-0.1 µg g^{-1} were 97%-105%.

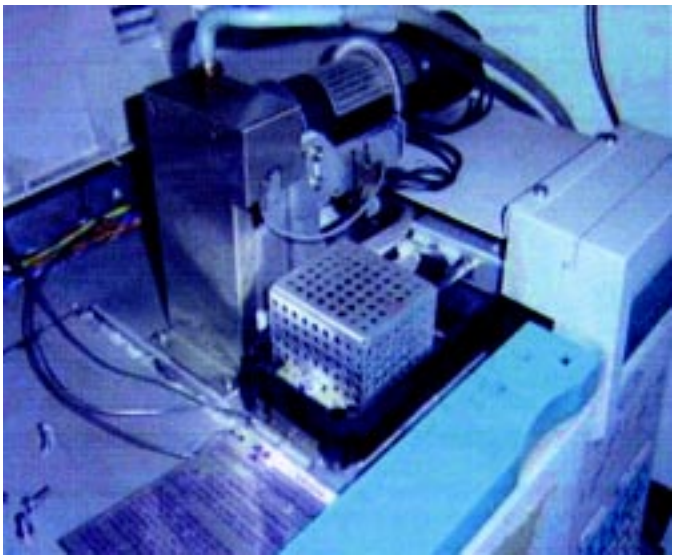

Figure 1. GC µECD.

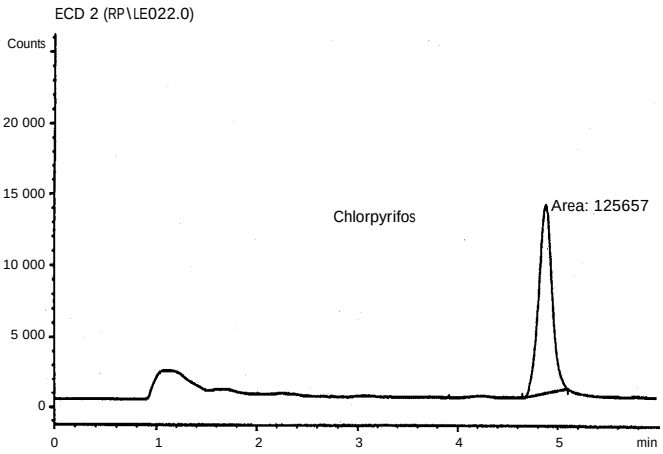

Figure 2. Chromatogram of standard chlorpyrifos.

Coefficient of variation was <5% for the whole range of concentrations.

Estimated limit of detection was 0.005 µg g^{-1}.

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