



Extraction of Pyrethrin and Pyrethroid Pesticides from Fish Using the QuEChERS Approach

UCT Product Number:

EC4MSSA50CT-MP (4000 mg MgSO₄ and 1000 mg sodium acetate)

CUMPSC18CT (150 mg MgSO₄, 50 mg PSA and 50 mg endcapped C18)

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The QuEChERS approach is used for the determination of trace levels of natural pyrethrins and synthetic pyrethroids (cypermethrin & deltamethrin) in fish.

1. Extraction

- a) Weigh 10 grams of homogenized fish into a 50 mL centrifuge tube
- b) Add 500 ng *cis*-permethrin (phenoxy-¹³C₆) surrogate standard
- c) Add 10 mL 1% acetic acid in acetonitrile
- d) Add the contents of pouch **EC4MSSA50CT-MP**
- e) Shake vigorously for 1 minute then centrifuge

2. Clean-up, Dispersive Solid-phase (dSPE)

- a) Transfer 1 mL of supernatant to a 2 mL micro-centrifuge tube
CUMPSC18CT
- b) Shake for 1 minute then centrifuge
- c) Transfer 0.5 mL of extract to a graduated tube then evaporate to near dryness
- d) Add 50 ng *trans*-permethrin (phenoxy-¹³C₆) and bring to exactly 0.5 mL with trimethyl phosphate (TMP)
- e) Add MgSO₄ to the 0.2 mL mark then vortex
- f) Transfer supernatant to injection vial for analysis

3. Analysis

- a) Use GC/MS in CI mode
- b) Column: HP-5, 30m X 0.32 mm with 0.25 µm film (or equivalent)
- c) Splitless mode @ 240°

GC Oven program:

- Initial 80°C, hold 1 minute
- 50°C/min to 200°C
- 5°C/min to 285°C
- 50°C/min to 325°C, hold 5 minutes
- Transfer line 250°C

MS Conditions:

- Source 150°C
- Methane reagent gas
- Selected Ion Monitoring Mode

Calibration using matrix matching may be required

***Adapted from** Roscoe, Veronica, Judge, Judy, Rawn, Dorothea F.K., "Application of the QuEChERS Extraction Method for the Analysis of Pyrethrin and Pyrethroid Pesticides in Fin and non-Fin Fish", Health Products and Food Program, Winnipeg, Manitoba and Bureau of Chemical Safety, Food Research Division, Ottawa, Ontario, Canada, Florida Pesticide Residue Workshop, July 2009