



Determination of Pesticides in Strawberries by QuEChERS Extraction, Quick QuEChERS Clean-up, and GC/MS Detection

UCT Part Numbers:

ECQUEU750CT-MP: (4000 mg magnesium sulfate, 1000 mg sodium chloride, 500 mg sodium citrate dibasic sesquihydrate, 1000 mg sodium citrate tribasic dihydrate)

ECPURMPSMC: (Quick QuEChERS push thru cartridge contains: 110 mg MgSO_4 , 180 mg PSA)

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Procedure

1. Extraction

- a) Add homogenized and hydrated strawberry sample (10 g) to a 50 mL centrifuge tube
- b) Add 10 mL acetonitrile, vortex 30 sec
- c) Add the contents of pouch (**ECQUEU750CT-MP**)
- d) Shake vigorously for 1 min
- e) Centrifuge at >1500 rcf for 1 min at 20°C
- f) Supernatant is ready for clean-up

2. Quick QuEChERS Clean-up

- a) Load 1 mL of supernatant into a disposable syringe
- b) Pass the supernatant slowly through Quick QuEChERS cartridge (**ECPURMPSMC**)
- c) Collect 0.5 mL cleaned extract into a GC vial
- d) Add triphenyl phosphate as internal standard (200 ng/mL)
- e) Samples are ready for GC/MS analysis

Clean-up of Strawberry Extract with Quick QuEChERS



3. GC/MS Detection

Thermo TRACE GC Ultra gas chromatograph coupled with a Thermo ISQ single quadrupole mass spectrometer and TriPlus autosampler

GC/MS Conditions (Using a matrix matched calibration)

Column	Rtx-5MS, 30 m x 0.25 mm x 0.25 μ m
Carrier Gas	Helium
Flow Rate	1.2 mL/min
Ramp	55°C for 1 min, 20°C/min to 300°C, hold for 4 min
Injector Temperature	220°C
Injection Volume	1 μ L in splitless mode
Ion Source Temperature	200°C
Transfer Line Temperature	250°C
MS Operation	SIM and Full Scan

Accuracy and Precision Data

Compound	Fortified at 10 ng/mL		Fortified at 50 ng/mL		Fortified at 100 ng/mL	
	Recovery%	RSD% (n=4)	Recovery%	RSD% (n=4)	Recovery%	RSD% (n=4)
Methamidophos	93.7	3.4	81.6	5.8	84.2	3.5
Carbendazim	105.7	10.8	100.1	10.6	90.5	7.6
Thiabendazole	91.2	4.9	87.9	6.8	85.0	4.0
Pyrimethanil	112.2	2.7	107.0	3.2	102.8	4.9
Cyprodinil	104.3	3.2	99.9	6.1	100.2	4.9
Diazinon	104.9	5.6	102.0	6.6	99.2	6.8
Pyrazophos	99.9	4.0	96.6	5.6	91.3	4.1
Chlorpyrifos	91.7	4.6	99.5	5.2	97.2	3.8