Pesticide Analysis Autotrace SOP

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1 Works for me This protocol is published without a DOI.

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ABSTRACT

To test for neonics in turf runoff.

PROTOCOL CITATION

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DISCLAIMER:

This is just to learn how to use the system.

Prepare Autotrace for T120 Runoff Extractions (Neonics)

1 Safety Equipment:
- Gloves, googles, lab coat

Lab Equipment:
- Autotrace
- Nitrogen, industrial grade
- Methanol, ACS grade
- Milli-Q water
- Methylene chloride (dichloromethane), HPLC grade
- 2% formic acid in Milli-Q water
- Cleaning Cartridges (labeled Cleaning Cartridge)

2 Turn on the system (doesn't need to be turned off unless idle for >14 days)

- Open the nitrogen valve on the tank (to the right of the -40C freezer).
- Make sure the pressure on the regulator is no more than 100 psi.

3 Using the regulator knob on the left side of the Autotrace (in the panel with a glass window), adjust the system's output gas pressure to 10 psi.

- Pull knob out slightly and turn. This tends to come off so have patience with it.
- When adjusted, push back in and close the glass door.

4 Top off solvents and check that lines are correctly in place.

- Take care that all solvent lines are amply submerged in the solvent and secure the lines in place with tape if necessary.
- Solvent line configuration is as follows:
  i. Line #1 = methanol
  ii. Line #2 = Milli-Q
  iii. Line #3 = methylene chloride (DCM)
  iv. Line #4 = 2% formic acid in water
- If you need more 2% formic acid in water, add approximately 400mL of Milli-Q water to a 500 mL volumetric flask. Pipette exactly 10 mL of concentrated formic acid into the flask. Bring to volume with Milli-Q water. Cap and invert to mix.

5 Check that the waste containers are not full or will not fill during extraction. There is also one waste container in the solvent rack. IF they are full:

5.1 a. Solvent waste – prepare for hazardous waste pick up (CHLORINATED)

5.2 b. Water waste – adjust pH to 6-8 with sodium bicarbonate and then dump down the sink, flushing with plenty of water.

6 Rinse the Cleaning Cartridges with Milli-Q water in a squirt bottle

6.1 a. This prevents leakage around the cartridge holder O-ring due to the presence of packing debris on the inside walls of the cartridge.

7 Place the Cleaning Cartridges in each of the Autotrace holders by sliding the cartridge upward onto the bottom of the cartridge holder's plunger.

8 Push down on the lever until the assembly clicks into place and the holder's LED comes on. (2nd one is dimly lit)

9 Purge air from the solvent lines by running the Prime Solvents method (method 29).

9.1 a. Press LOAD to display the LOADING METHOD screen.

9.2 b. Press LOAD to increment the displayed method to 29.

9.3 c. Press CONT once to select method 29.

9.4 d. Press CONT to run method 29.

9.5 e. Watch the Liquid Handling Syringe on the left side of the instrument while this happens. On the 1st run, it likely won't pull the full 7 mL of liquid per solvent.

10 10. Repeat step 9

10.1 a. On the 2nd run, ensure that the Liquid Handling Syringe pulls at least 6 mL of liquid per solvent. If not, run the Prime Solvents method a 3rd time.

11 11. Place all of the sample lines in a container with MeOH.

11.1 a. Make sure there is enough solvent for the method and make sure that all of the sample lines are fully submerged.

12 12. Clean the sample lines by running the Clean Sample Lines method (method 2).

12.1 a. Press LOAD to display the LOADING METHOD screen.

12.2 b. Press LOAD to increment the displayed method to 2.

12.3 c. Press CONT once to select method 2.

12.4 d. Press CONT to run method 2.

12.5 e. It will ask you to put all of the sample lines in a beaker with MeOH. You did this in step 10, so press CONT.

12.6 f. It will stop after running the MeOH. Then, place all of the sample lines in a beaker with Milli-Q Water. Press Cont.