Application Note No. 055

Analysis of Lambda-Cyhalothrin using the AT-Column Concentrating Technique

Diane Nicholas.

- ***Replaces existing LC-MS method***
- ***All of the concentrated analytes are directly transferred on to the head of the column under cool conditions***
- ***No or very little optimisation is required***

Instrumentation

- ATAS Optic 2-200 programmable injector
- ATAS AT-Column kit
- HP5890 with HP5971

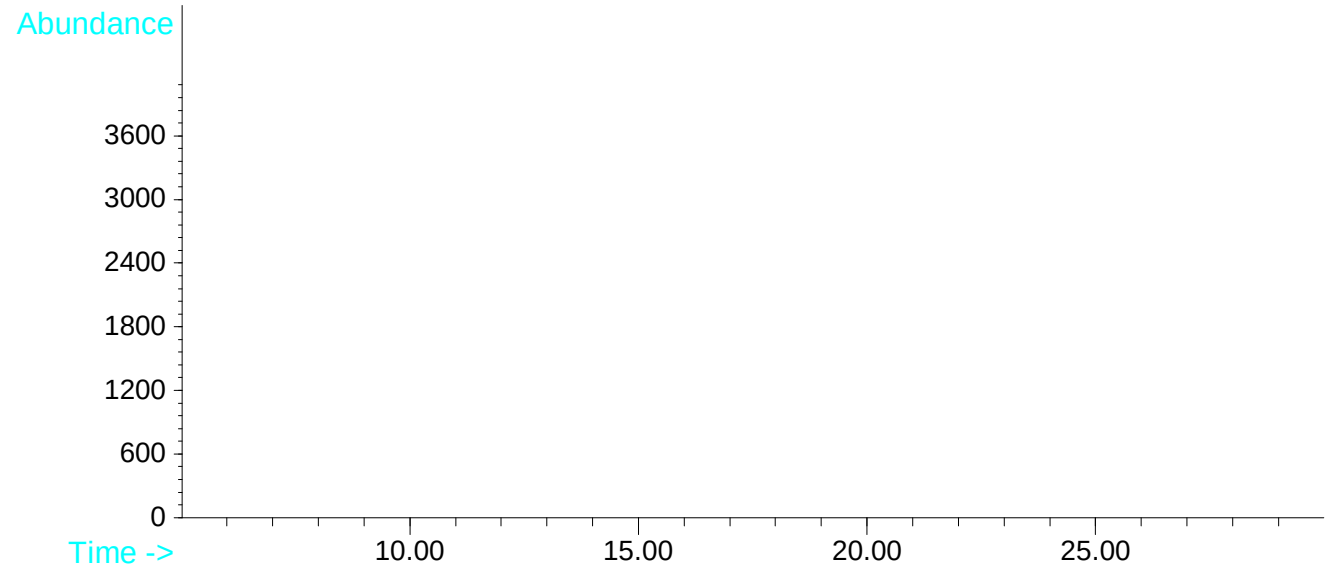
Sample analysed

Low level lambda-cyhalothrin residue from oily crops in hexane.

Principles

- Sample is injected under AT-Column conditions
- An equilibrium is formed between the solvent vapour pressure and carrier gas pressure keeping the solvent in the liner
- Solvent is vented, analytes are concentrated and transferred onto the head of the capillary column
- GC oven temperature program starts

Chromatogram



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Appendix

Optic Conditions:

- Liner: AT-Column
- Mode: Large Volume
- Injection volume: 30-100 µL
- Gas Flows: Split: 50 ml/min
  Vent: 75 ml/min
- Initial temperature: 73 °C
- Vent time: Auto
- Ramp rate: 1 °C/s
- Final temperature: 200 °C
- Splitopen time: 0:00 m:s
- Purge pressure: 3.63 psi
- Transfer pressure: 9.00 psi
- Transfer time: 1:00 m:s
- Initial pressure: 9.00 psi
- Final pressure: 23.10 psi
- Solvent threshold: 15

GC-MS conditions:

- Column: HP5-MS 30m x 0.25mm i.d. x 0.50 µm film
- Initial Temperature: 86 °C hold 2.3 mins
- Ramp 1: 20 °C/min to 300 °C hold 1min
- Ramp 2: 50 °C/min to 320 °C hold 15.60 mins
- MSD transfer line: 310 °C
- MSD tune: BFB (ions 130 & 219)
- SIM mode Ions 181 & 208

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