

Application Note No. 074

The Flavour Analysis of Yoghurt by Solid Sorptive Extraction and Direct Thermal Desorption-GC-MS

Diane Nicholas,

- *No sample preparation necessary*
- *Analyses semi-volatile compounds as well as the volatiles*

Instrumentation

- ATAS GL Optic 2-200 programmable injector
- Agilent 5890 GC with 5971 MSD

Sample analysed

Peach melba yoghurt

Principles

- Dilute 5 mL yoghurt with 5 mL distilled water in a 10 mL headspace vial
- Insert a conditioned length of PDMS tubing, submerge and cap the vial
- Agitate for 1 hr at maximum speed
- Remove the tubing with tweezers, rinse with distilled water and blot dry
- Place in a conditioned fritted liner and thermally desorb at 200 °C for 5 minutes
- Analytes desorbed directly onto GC column and analysed by GC-MS

Chromatogram

Abundance

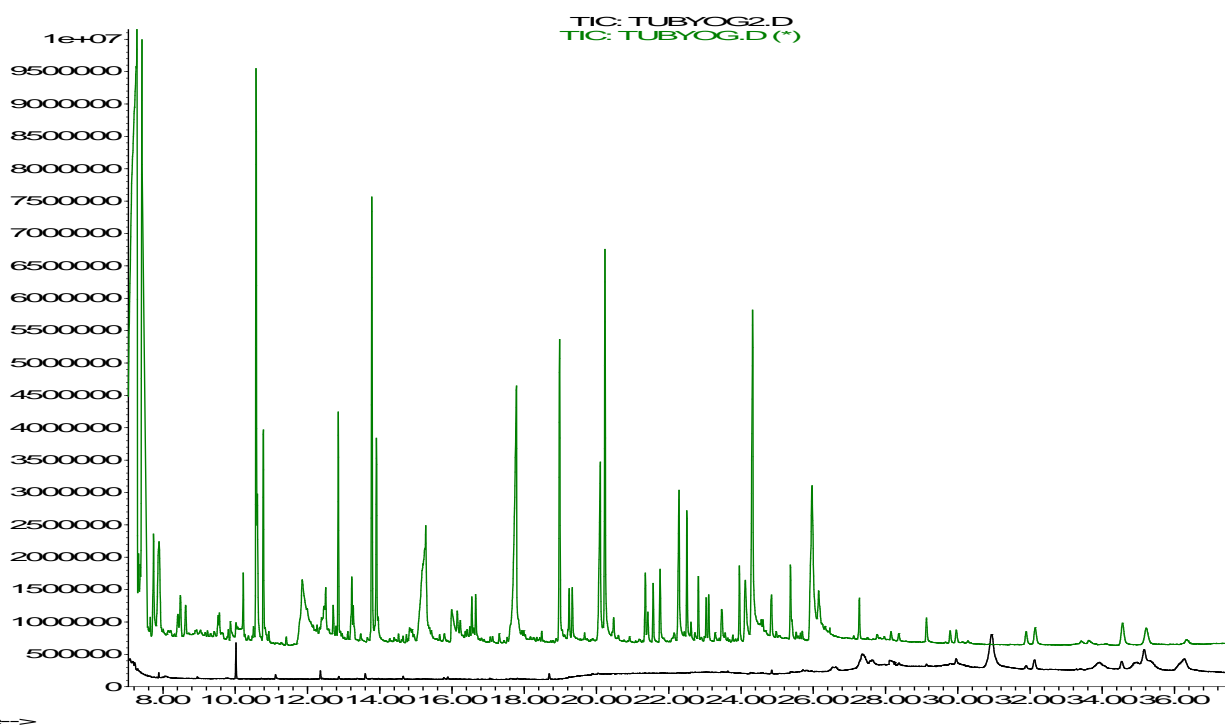


Figure 1: Upper trace: first thermal desorption of yoghurt sample on PDMS tubing; Lower trace: second thermal desorption of tubing

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Appendix

Optic Parameters:

- Liner: Fritted
- Tubing: Specialised tubing,
14 mm long, half width
- Mode: Expert
- Gas Flows: Vent: 75 ml/min
Split: 20 ml/min
- Initial temperature: 35 °C
- Sweep pressure: 8 psi
- Sweep time: 0.5 mins
- Sweep valve state: Vent
- Split open time: 0.5 mins
- Desorption pressure: 0 psi
- Desorption time: 5 mins
- Ramp rate: 16 °C/s
- Final temperature: 200 °C
- Transfer pressure: 7.4 psi
- Transfer time: 0.5 mins
- Initial pressure: 7.4psi
- Final pressure: 22 psi

GC Parameters:

- Column: HP5-MS 30m x 0.25mm i.d. x 0.25 µm film
- Initial temperature: 45 °C
- Initial time: 7 mins
- Ramp rate: 10 °C/min
- Final temperature: 250 °C
- Final time: 10 mins

MSD Parameters:

- Transfer line: 280 °C
- Mode: Full scan
- Low mass: 25 m/z
- High mass: 250 m/z
- Solvent delay: 7 mins