

Easy Concentration & Analysis of Fresh and Spoiled Cabbage by MonoTrap - Thermal Desorption

Using MonoTrap RGC18TD containing graphite carbon, the volatile compounds of fresh and spoiled cabbage are determined by screening analysis.

Protocol

Cabbage

Put 25 g of chopped cabbage into a 100 mL vial

Spoiling Stage

Leave it at 60 °C
for 3 – 7 days

Passive Sampling
MonoTrap RGC18TD × 2 pcs

Room temperature
For 3 hours

TD-GC/MS-O



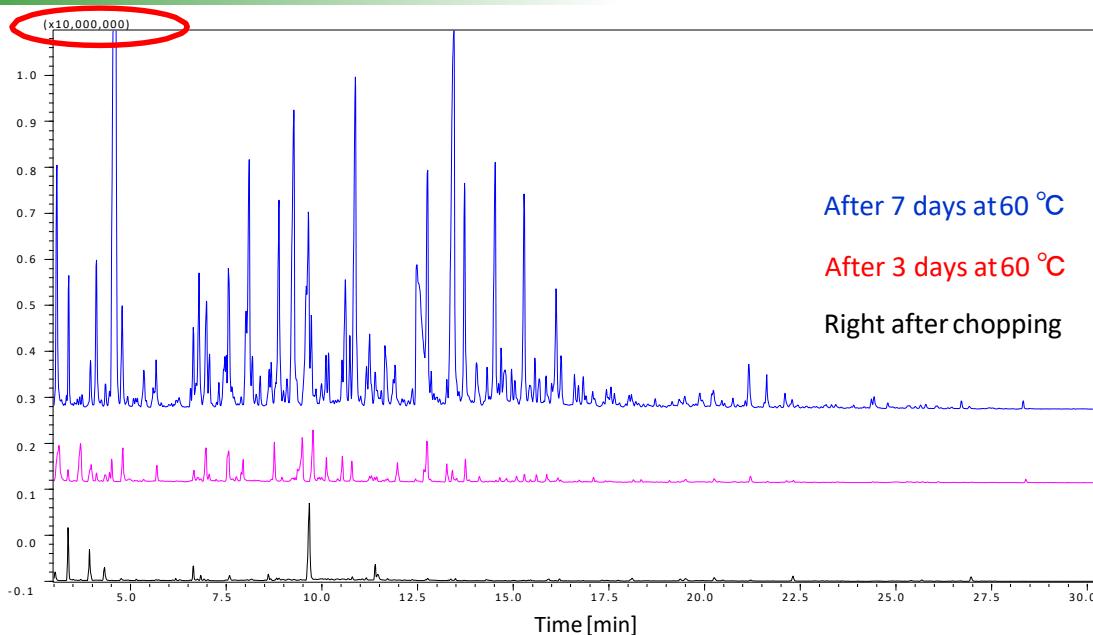
<Left>
Freshly
chopped

<Right>
After 3 days at
60 °C



GCO Sniffing Port (OP275)

Spoiling Stage & Volatile Compounds

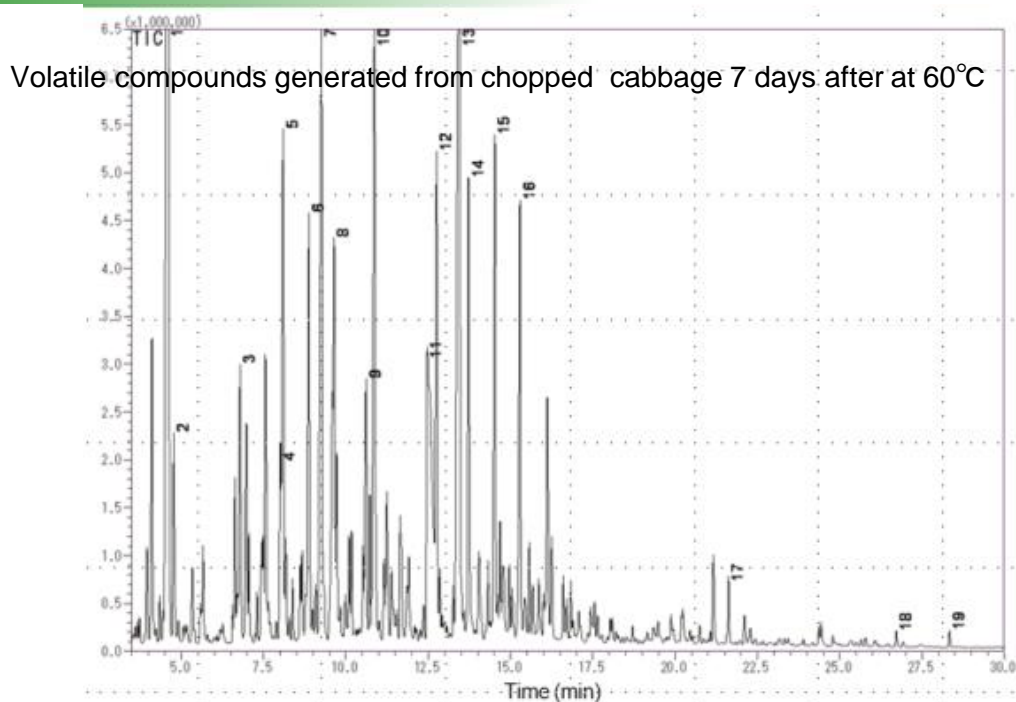


GC Conditions

| | |
|------------------------|--|
| System | : GC/MS-Thermal Desorption (T-Dex II) |
| Column | : InertCap Pure-WAX 0.25 mm I.D. × 60 m, df = 0.25 μm |
| Col.Temp. | : 40 °C (5 min) – 6 °C/min - 250 °C |
| Carrier Gas | : He, 1mL/min (constant flow) |
| Desorb Temp. | : 200 °C |
| Time | : 5 min |
| Flow | : 5mL/min |
| Split | : Splitless |
| Cryo Trapping | : -150 °C |
| Injection Temp. | : 250 °C |
| Detection | : MS Scan (<i>m/z</i> 28.5 - 600) |

Split the capillary column outlet and simultaneous measurement by GC/MS and GC/O. The sensitivity of MS is 1/10 of ordinal detectors. Due to the graphite carbon effect, SN compounds can be effectively detected.

Organoleptic Data of Volatile Compounds from Spoiled Cabbage



| Compound | Smell | Compound | Smell |
|---------------------------|-------------|---|-------------|
| 1. Dimethyl disulfide | Spoiled egg | 11. Acetic acid | Sour |
| 2. Hexanal | Fresh | 12. 1-Octen-3-ol e alcohol | |
| 3. 2-Heptanone | | 13. Hexane, 1-nitro- | Metal |
| 4. 1-Butanol, 2-methyl- | Raw garbage | 14. Benzaldehyde | |
| 5. 1-Butanol, 3-methyl- | Bitter | 15. 4-Hexen-1-ol, | |
| 6. 1-Pentanol | Fresh | 16. Benzonitrile | Bitter |
| 7. Hexanenitrile | Spoiled | 17. S-Methyl methanethiosulphonate | Spoiled |
| 8. 2-Butanone, 3-hydroxy- | | 18. (2,6,6-Trimethyl-2-hydroxycyclohexylidene)- lactone | acetic acid |
| 9. Dimethyl trisulfide | Spoiled | 19. Indole | Foul |
| 10. 1-Hexanol | Irritating | | |

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