GC Technical Note

GT110

GL Sciences Inc.

Concentration Analysis of Volatile Constituents of Candy - Comparative Effects of MonoTrap RGC18 TD Collection

MonoTrap RGC18 TD and HandyTD TD265 were used to screen for volatile components in candy. When collecting volatile compounds, the differences in the effects of collection methods were compared depending on the condition of the samples.
MonoTrap RGC18 TD uses a trapping agent to collect volatile compounds, the HandyTD TD265 is used to introduce those compounds into a GC by thermal desorption. In this application, the collection of volatile components from whole candy, was compared with a method of crushing samples prior to collection.
The sensitivity of volatile compounds was greatly improved when the sample was crushed rather than sampled from the whole sample. The finer sample may have increased the surface area and increased the efficiency of volatilization.

Pretreatment procedure

Candy (4.5 g per piece of candy)

Place a pellet of apple candy in 20 mL vials

Collection (HS)
MonoTrap RGC18 TD × 1
(Cat.No. :1050-74201)

37°C 1 hour collection

Sample 1 (untreated)

Sample 2 (crushed)

HandyTD/GC/MS

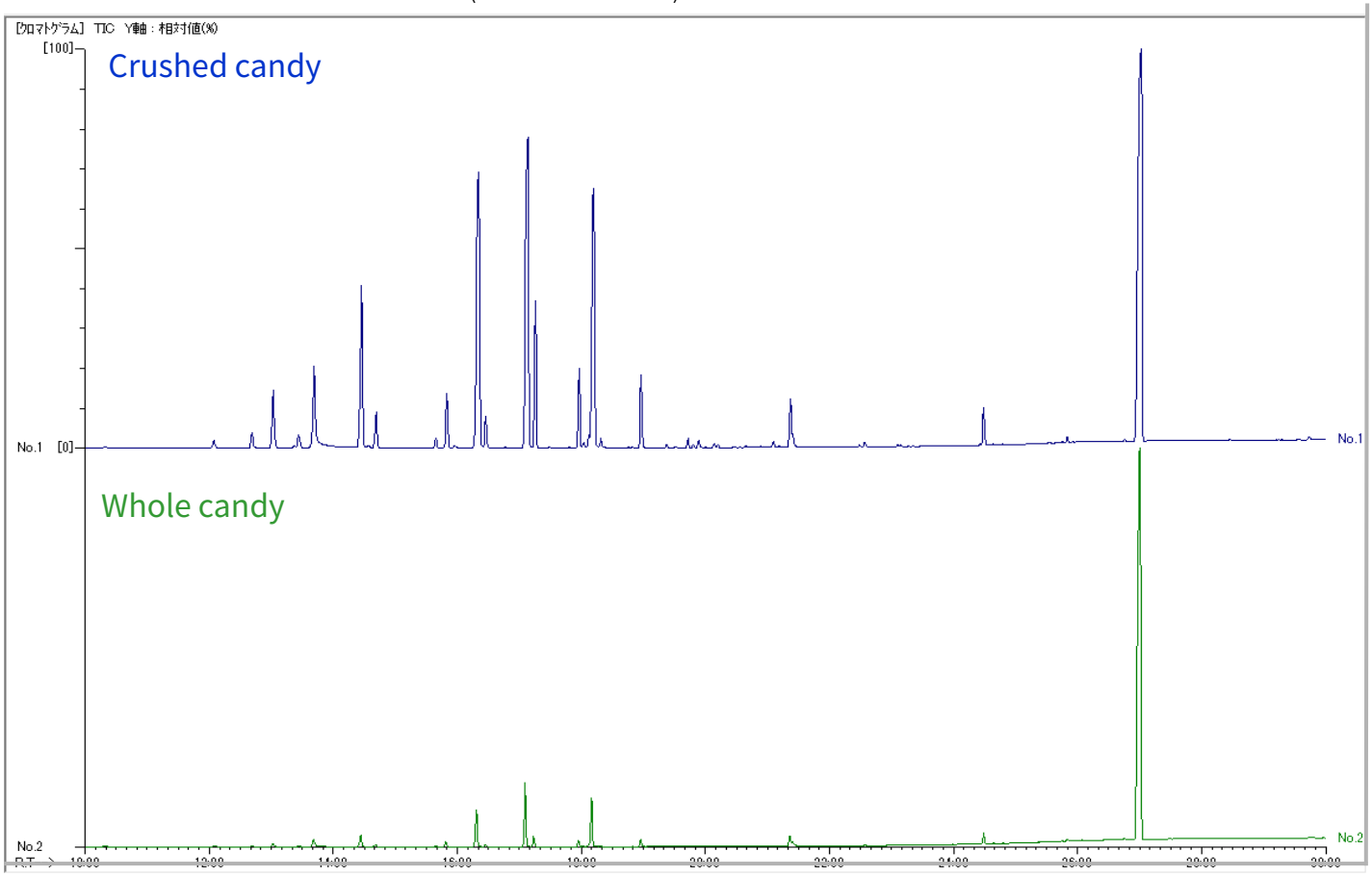
(Cat.No. : 2709-80000)

GC/MS Conditions

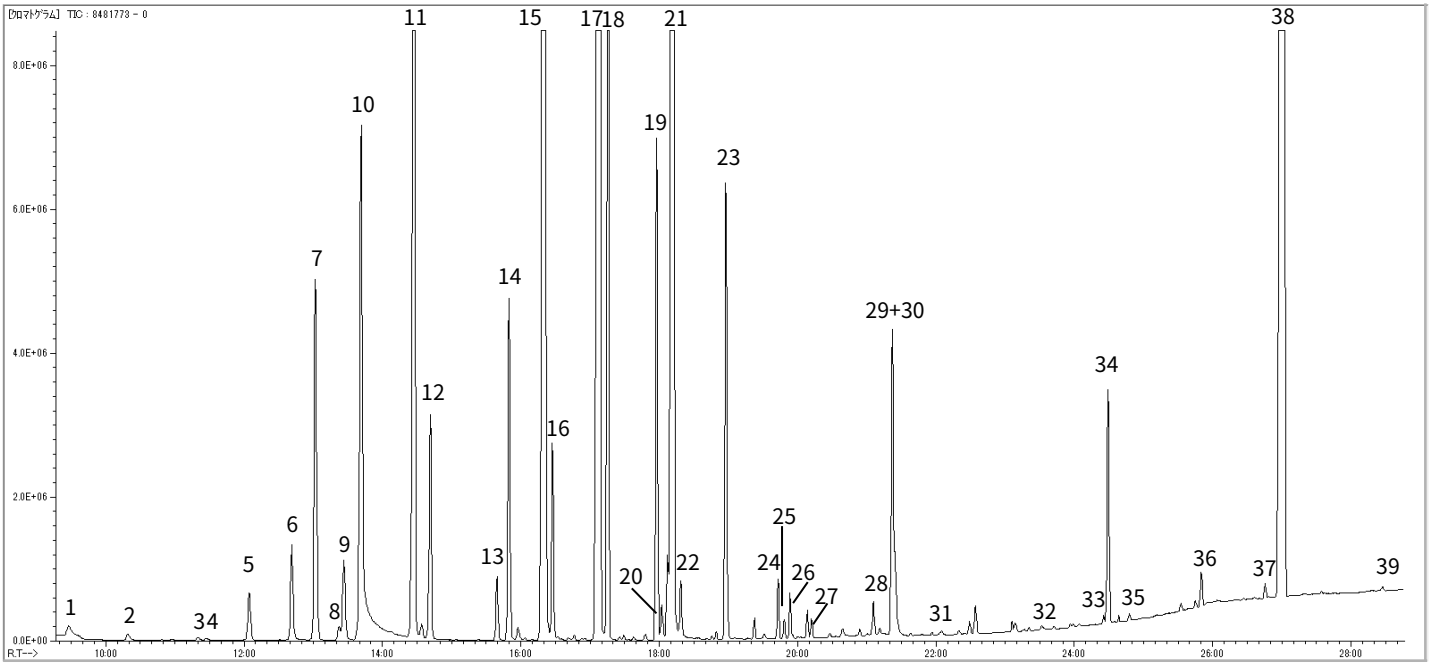
System	: Thermal Desorption-GC/MS (HandyTD TD265)
Column	: InertCap Pure-WAX 0.25 mm I.D. × 60 m, df = 0.5 µm
Col. Cat. No.	: 1010 - 68164
Col.Temp.	: 40 °C(5 min) - 10 °C/min - 250 °C
Carrier Gas	: He, 1 mL/min (constant flow)
GC Inlet	: 250 °C Split 10:1
Detection	: MS Scan (*m/z* 30-350)

HandyTD Conditions

Desorb Temp.	: Room temperature- 45 °C/s- 200 °C(5 min)
Pre Desorb Press.	: 140 kPa



Analytical results of candy (crushed)



* Standard samples are not used for qualitative analysis.
Results from a library search.

1. Methyl alcohol
2. Ethyl alcohol
3. Propyl acetate
4. Valeraldehyde
5. Isobutyl methyl ketone
6. Ethyl butyrate
7. Isopropyl 2-methyl butanoate
8. Ethyl isovalerate
9. Butyl acetate
10. Hexanal
11. Isoamyl acetate
12. Valeraldehyde diethyl acetal
13. Methyl caproate
14. Isoamyl alcohol
15. 2-Hexenal
16. Ethyl caproate
17. Hexyl acetate
18. Isoamyl 2-methyl butyrate
19. 2-Hexenyl acetate
20. Ethyl lactate
21. Hexanol
22. Hexanal propylene glycol acetal
23. 2-Hexen-1-ol
24. Hexenal propylene glycol acetal
25. Linalool oxide
26. Hexenal propylene glycol acetal
27. Linalool oxide
28. Benzaldehyde
29. Diethyl malonate
30. Propylene Glycol
31. Hexyl caproate
32. Citronellyl propionate
33. Geranyl propionate
34. Caproic acid
35. Damascenone
36. Phenylethyl alcohol
37. 2-Hexenoic acid
38. Triacetin
39. Decalactone

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