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

MonoTrap RGC18 TD and HandyTD TD265 were used to screen and analyze volatile compounds from gummies. When collecting volatile constituents, the differences in the effectiveness of collection dependant on the sample condition were compared.
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 intact gummy samples, was compared with a method of chopping samples prior to collection. The sensitivity of volatile components was greatly improved when samples were chopped rather than sampled intact. The finer sample may have increased the surface area and increased the efficiency of volatilization.

Pretreatment procedure

Gummy (approx.. 3.4 g per piece of gummy)

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

HandyTD/GC/MS

Place a pellet of apple-flavored gum in 20 mL vials

37 ˚C 1 hour collection


Sample 1 (whole)


Sample 2 (shredded)

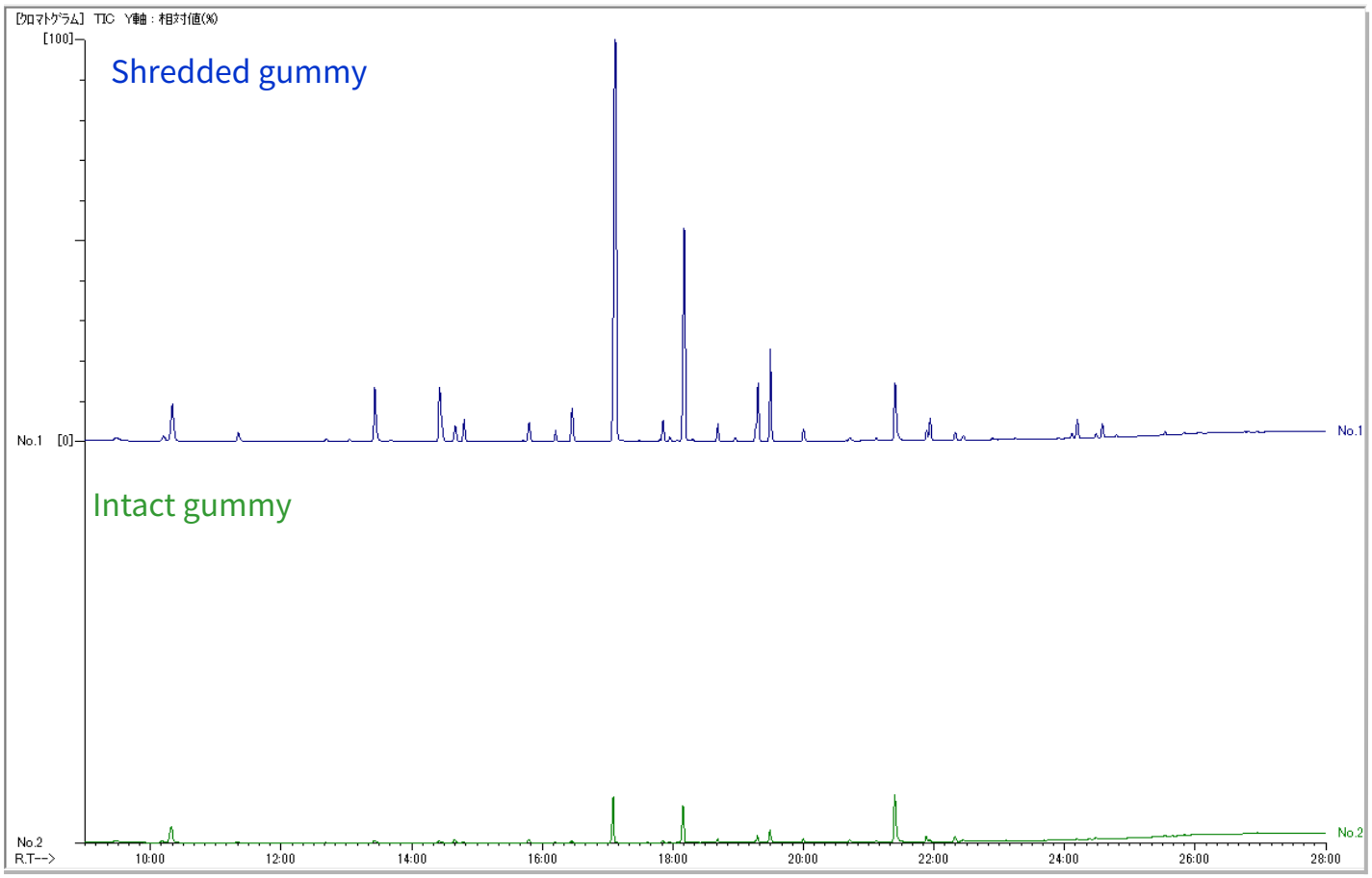

(Cat.No. : 2709-80000)

GC/MS Conditions

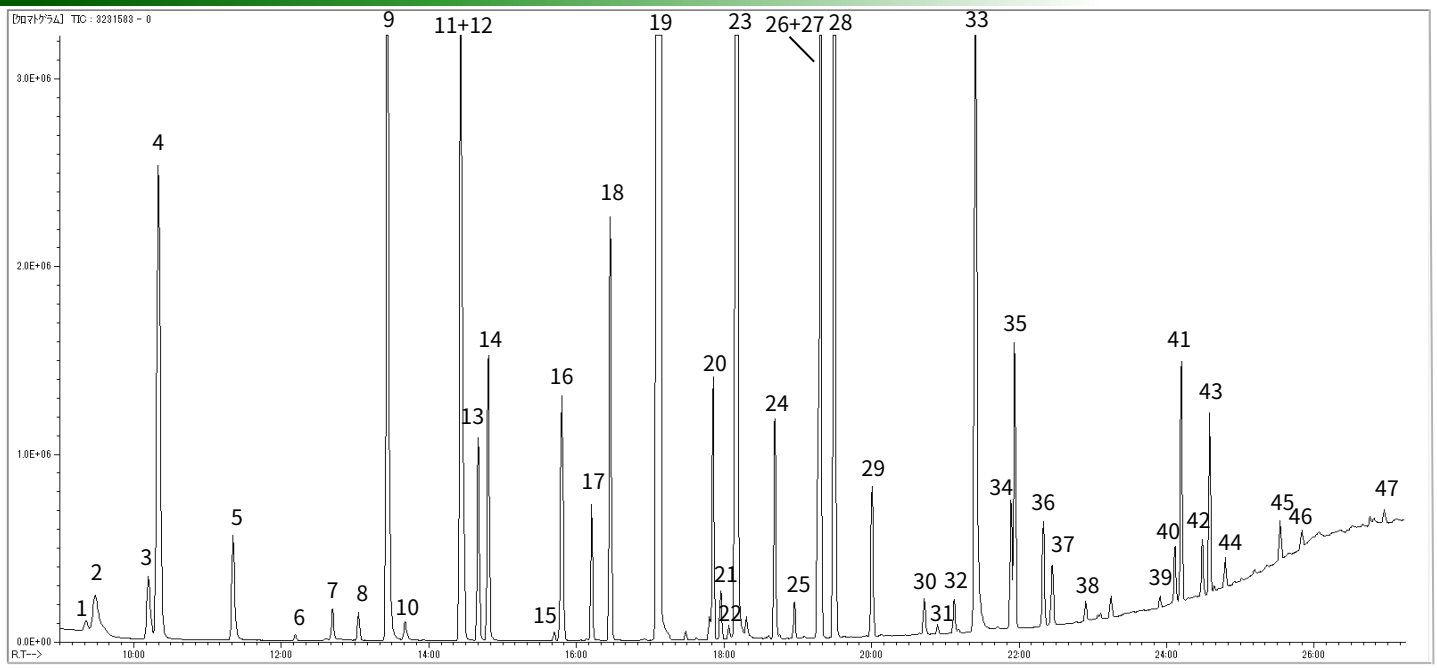
System	: GC - MS - Thermal Desorption (HandyTD TD265)
Column	: InertCap Pure-WAX 0.25 mm I.D. x 60 m, df = 0.5 µm
Col. Cat. No.	: 1010 - 68164
Col.Temp.	: 40 ˚C (5 min) - 10 ˚C/min - 250 ˚C
Carrier Gas	: He, 1 mL/min (constant flow)
GC Inlet	: 250 ˚C Split 10:1
Detection	: MS Scan (*m/z* 30-350)

HandyTD Conditions

Desorb Temp.	: Room temperature - 45 ˚C/sec – 200 ˚C (5 min)
Pre Desorb Press.	: 140 kPa



Analysis of gummy (chopped)



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

1. Ethyl acetate
2. Methyl alcohol
3. Isopropyl alcohol
4. Ethyl alcohol
5. Propyl acetate
6. Isobutyl acetate
7. Ethyl butyrate
8. Ethyl methyl butyrate
9. Butyl acetate
10. Hexanal
11. 2-Methyl butyl acetate
12. Propyl butyrate
13. 1-Butanol
14. Butyl propionate
15. Isoamyl propionate
16. 2-Methyl-1-butanol
17. Butyl butylate
18. Ethyl caproate
19. Hexyl acetate
20. Propyl caproate
21. Hexanal propylene glycol acetal
22. Ethyl heptoate
23. 1-Hexanol
24. 3-Hexen-1-ol
25. 2-Hexen-1-ol
26. Butyl caproate
27. Hexyl butyrate
28. Hexyl 2-methyl butyrate
29. Furfural
30. Propanoic acid
31. Linalool
32. Isobutyric acid
33. Propylene glycol
34. Butyric acid
35. Hexyl caproate
36. Furfuryl alcohol
37. 2-Methylbutanoic acid
38. Ethyl benzoate
39. Methyl phenyl acetate
40. Dimethyl benzyl carbinyl acetate
41. Ethyl phenylacetate
42. Caproic acid
43. Phenethyl acetate
44. Damascenone
45. Phenethyl alcohol
46. 2-Hexenoic acid
47. Triacetin

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