

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)

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

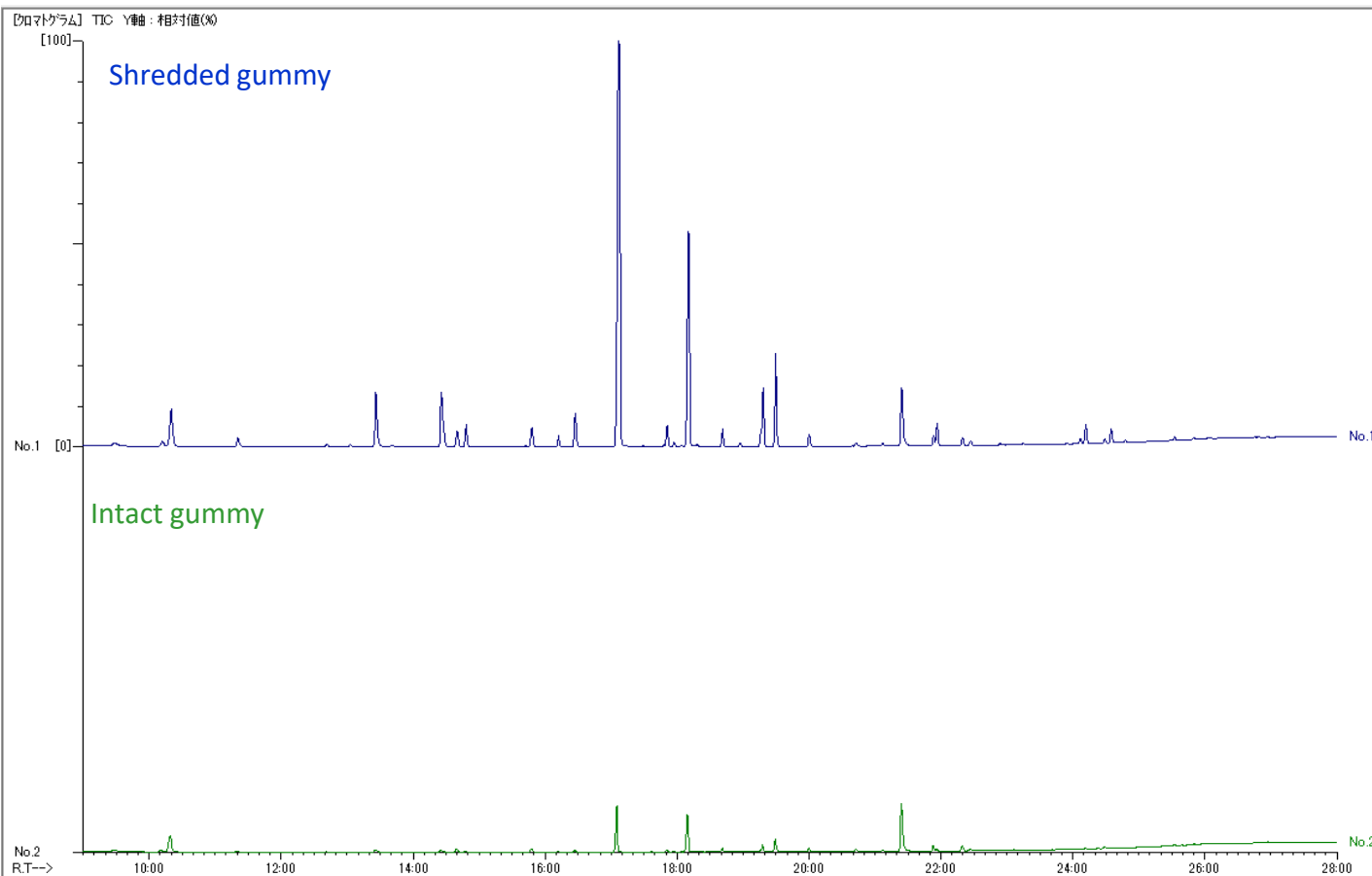
System	: GC - MS - Thermal Desorption (HandyTD TD265)
Column	: InertCap Pure-WAX 0.25 mm I.D. x 60 m, df = 0.5 μm
Col. Cat. No.	: 1010-68164
Col.Temp.	: 40 °C (5 min) - 10 °C/min - 250 °C
Carrier Gas	: He, 1 mL/min (constant flow)
GC Inlet	: 250 °C Split 10:1
Detection	: MS Scan (<i>m/z</i> 30-350)

HandyTD Conditions

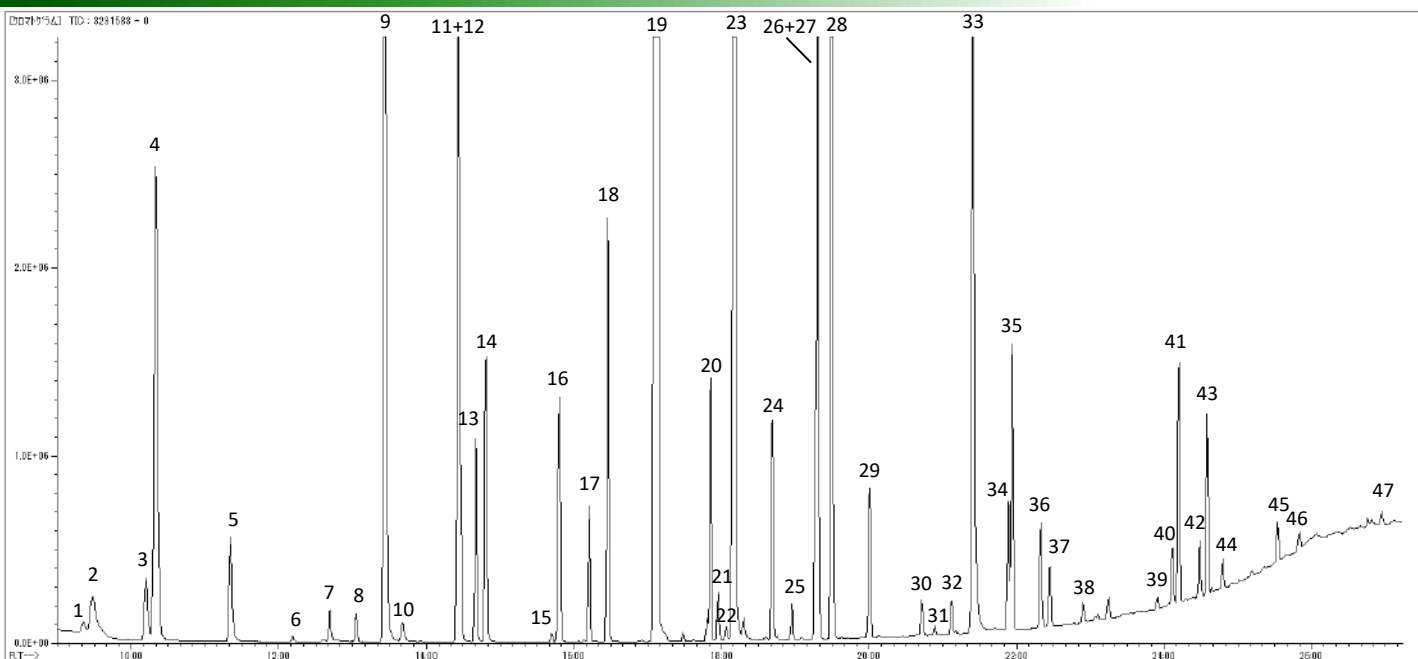
Desorb Temp.	: Room temperature - 45 °C/sec – 200 °C (5 min)
Pre Desorb Press.	: 140 kPa

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

HandyTD/GC/MS



Analysis of gummy (chopped)



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

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

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