

Application Data Sheet

No.20

GCMS

Gas Chromatograph Mass Spectrometer

Analysis of Japanese Sake Utilizing the Solid Phase Micro Extraction GC-MS Method

Solid phase micro extraction (SPME) is a method for easily extracting and concentrating measurement components. It is applied to the extraction and concentration of gaseous phase fragrant components. This article introduces a sample analysis of the fragrant components of Japanese sake using the SPME method.

Experiment

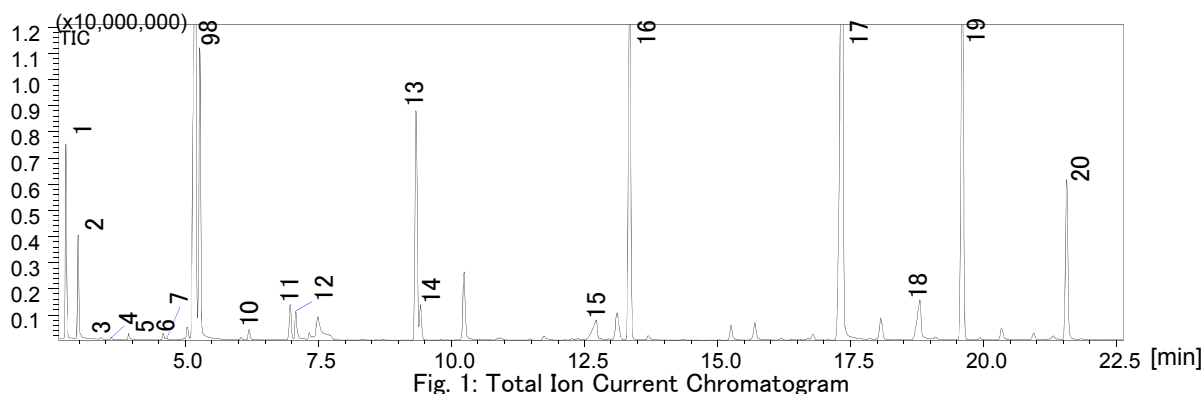
Commercially-available Japanese sake was measured under the analysis conditions in Table 1.

Table 1: Analysis Conditions

SPME	: AOC-5000	GC-MS	: GCMS-QP2010 Ultra
[SPME]		[GC]	
Fiber	: PDMS/DVB 65 μ m	Vaporization chamber temperature	: 250°C
Sample amount:	: 10mL + NaCl 2g (HS extraction)	Column	: Rtx®-5MS (30 mL x 0.32 mm I.D., 1.0 μ m)
		Column oven temperature:	50°C (2 min) → (10°C/ min) → 250°C (5 min)
Pre Inc Time	: 3 min	Carrier gas	: Helium
Incubat Temp	: 50°C	Carrier gas control	: Constant linear velocity (57.6 cm/sec)
Extract Time	: 30 min	Injection mode	: Splitless (sampling time: 2 min)
Desorb Time	: 2 min		
		[MS]	
		Interface temperature	: 250°C Ion source temperature : 200°C
		Measurement mode	: Scan Mass range: <i>m/z</i> 25-400
		Event time	: 0.3 sec Emission current: 60 μ A (normal)
		Detector voltage	: -0.1 kV (relative value)

Results

The total ion current chromatogram obtained and the identification results of the detected peaks are shown in Fig. 1.



- 1: Ethyl Acetate 2: Isobutyl alcohol 3: Butanal, 3-methyl- 4: 1-Butanol 5: Acetic acid 6: Propanoic acid, ethyl ester
7: n-Propyl acetate 8: Isopentyl alcohol 9: sec-Butylcarbinol 10: Acetic acid, 2-methylpropyl ester
11: Butanoic acid, ethyl ester 12: 2,3-Butanediol 13: 1-Butanol, 3-methyl-, acetate 14: 1-Butanol, 2-methyl-, acetate
15: Hexanoic acid 16: Hexanoic acid, ethyl ester 17: Phenylethyl Alcohol 18: Octanoic Acid
19: Octanoic acid, ethyl ester 20: Acetic acid, 2-phenylethyl ester