GT084

GL Sciences Inc.

GC/MS Metabolome analyses(Miso, Sake, Syoyu)

Fermented foods like Miso, Sake, Syoyu made from cereals contain amino acids, organic acids, sugar and so on. In this study, they were extracted, derivatized, and analysed with gas chromatography/mass spectrometry. The silylated compounds in Miso, Sake and Syoyu extracts were identified using InertCap 5MS/NP metabolites Library (No.81).

Procedure of sample preparation

Sample 10 mg

Miso : Weigh out ten grams in a microtube.
* 50 µL
Shoyu : Weigh out twenty microliter of ten fold dilution Syoyu in a microtube.
Sake : Measure twenty microliter in a microtube.
Add Internal Standard.
Follow the procedure from the "Dry in a vacuum-centrifuge dryer and freeze dryer.

← Ribitol (I.S.)

← 1000 µL of Methanol/H_2O/Chloroform (2.5/1/1/,v/v/v)
Vortex 20 s Incubate (30 min)
Centrifuge (16000 *g*, 3 min)

800 µL aliquot of supernatant

← 400 µL of distilled water
Vortex 20 s
Centrifuge(16000 *g*, 3 min)

800 µL aliquot of supernatant*

Dry in a vacuum-centrifuge dryer and freeze dryer

← 100 µL of Methoxyamine hydrochloride (20 mg/mL pyridine solution)
Incubate(30 °C, 90 min)

← 50 µL of MSTFA (Cat.No. 1022-11061)
Incubate(37 °C, 30 min)

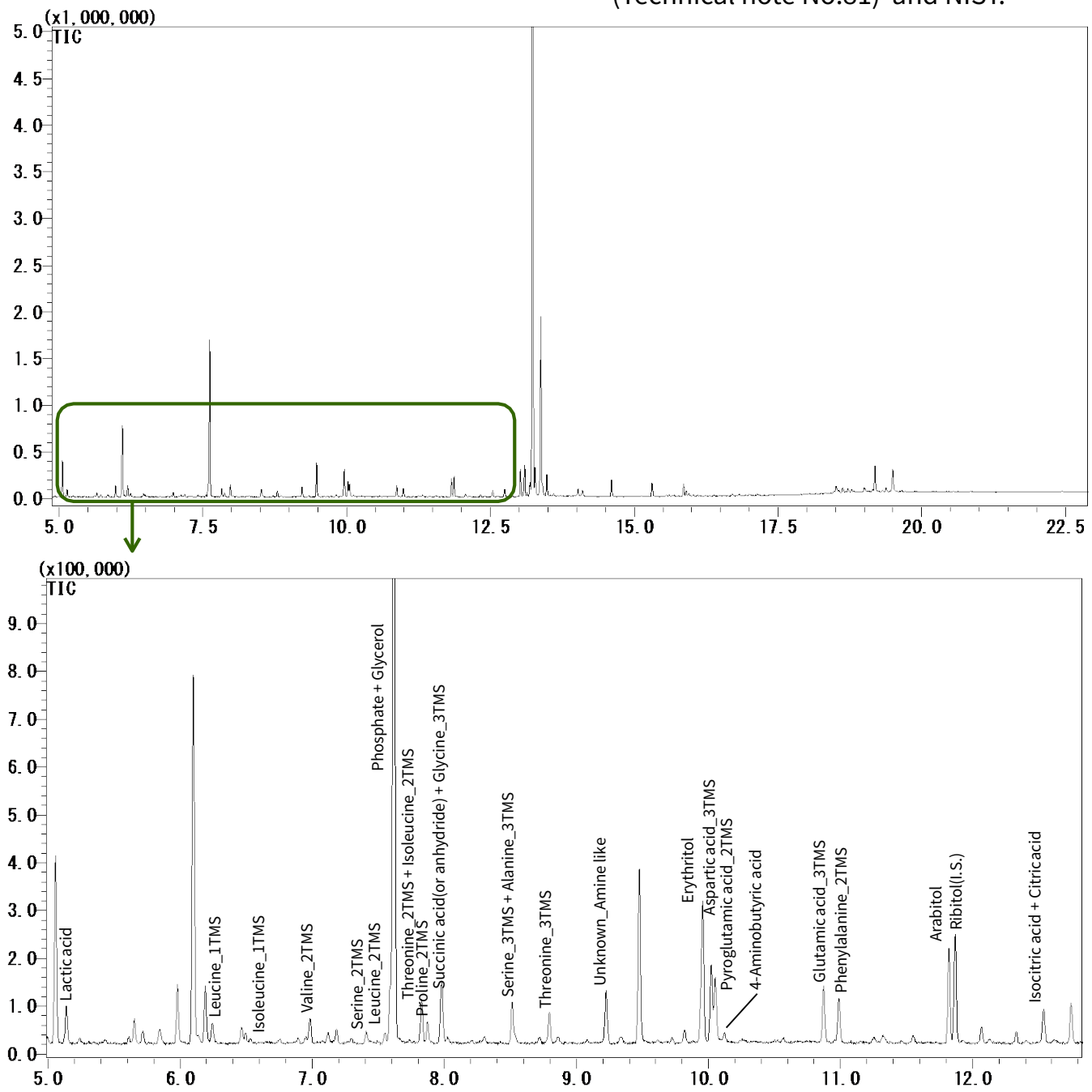
GC/MS

Analysis of Miso

GC/MS Conditions

System	: GC-MS
Column	: InertCap 5MS/NP 0.25 mm I.D. × 30 m df = 0.25 µm (Cat.No. 1010-18642)
Injection	: Split Constant Pressure 75 kPa
Injection Temp.	: 230 °C
Oven Temp.	: 80 °C (2 min) - 15 °C /min - 330 °C (13 min)
Carrier gas	: Helium
Septum purge flow	: 5 mL/min
Split ratio	: 25:1
Interface Temp.	: 250 °C
Ion source Temp.	: 200 °C
Ionization Vortage	: 70 eV
Scan range	: *m/z* 85 - 500
Inj. Vol.	: 1 µL

The silylated compounds in Miso extract were identified based on retention index and mass spectrum using InertCap metabolites library (Technical note No.81) and NIST.

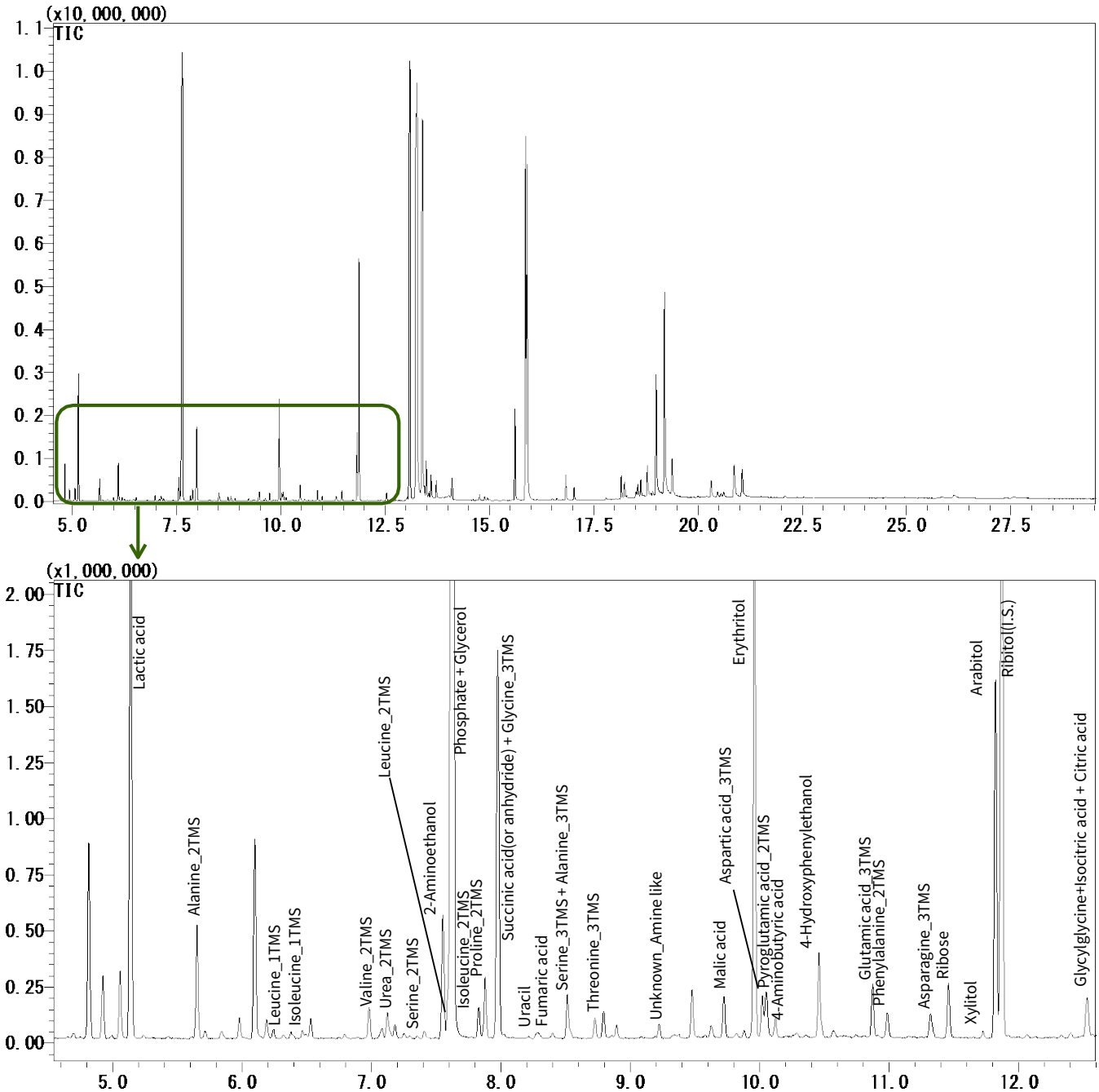


Analysis of Sake

GC/MS Conditions

System	: GC-MS
Column	: InertCap 5MS/NP 0.25 mm I.D. × 30 m df = 0.25 µm (Cat.No. 1010-18642)
Injection	: Split Constant Pressure 75 kPa
Inj. Temp.	: 230 °C
Oven Temp.	: 80 °C (2 min) - 15 °C /min - 330 °C (13 min)
Carrier gas	: Helium
Septum purge flow	: 5 mL/min
Split ratio	: 25:1
Interface Temp.	: 250 °C
Ion source Temp.	: 200 °C
Ionization Vortage	: 70 eV
Scan range	: *m/z* 85 - 500
Inj. Vol.	: 1 µL

The silylated compounds in Sake extract were identified based on retention index and mass spectrum using InertCap metabolites library (Technical note No.81) and NIST.

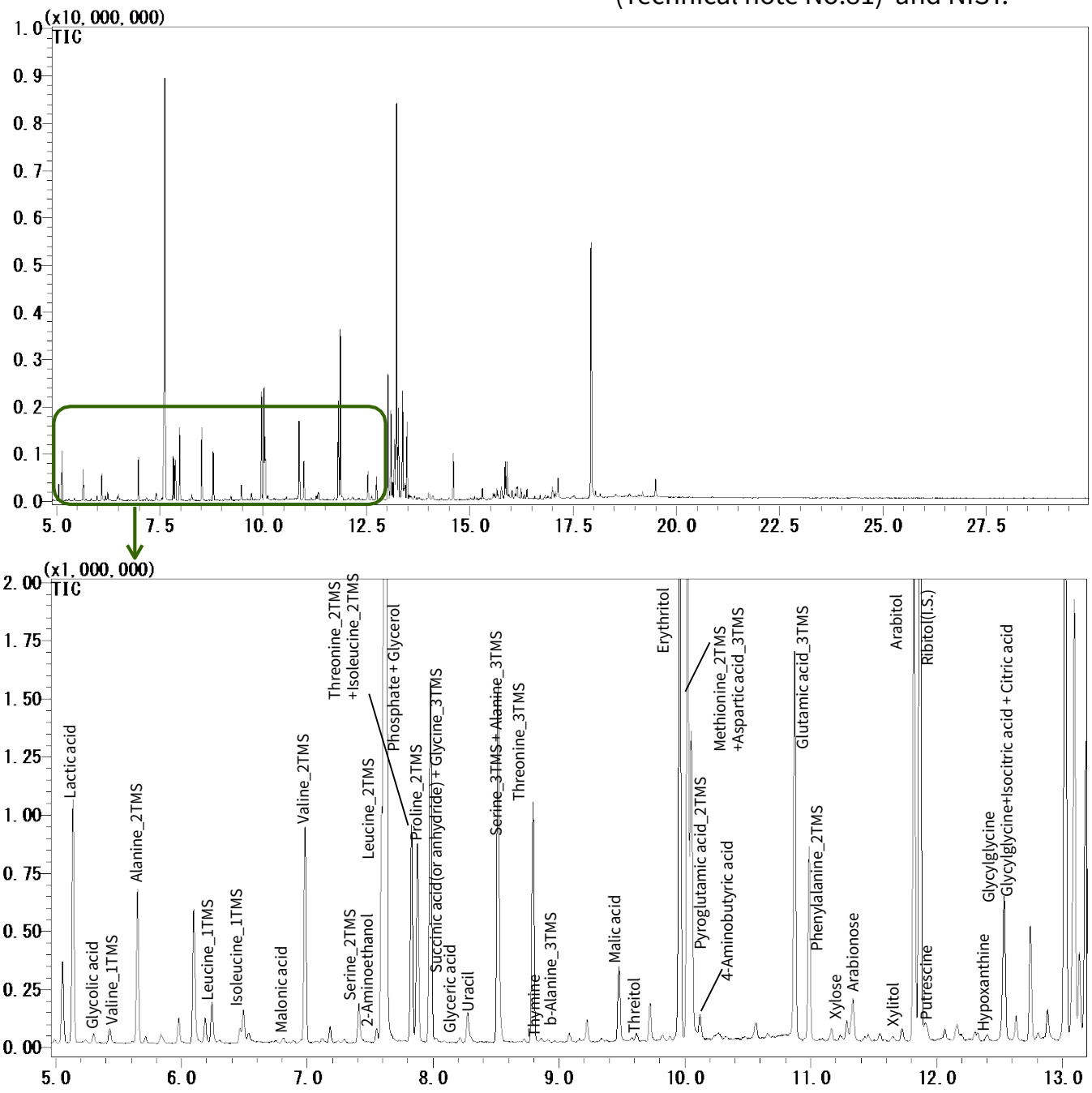


Analysis of Syoyu

GC/MS Conditions

System	: GC-MS
Column	: InertCap 5MS/NP 0.25 mm I.D. × 30 m df = 0.25 µm (Cat.No. 1010-18642)
Injection	: Split Constant Pressure 75 kPa
Inj. Temp.	: 230 °C
Oven Temp.	: 80 °C (2 min) - 15 °C /min - 330 °C (13 min)
Carrier gas	: Helium
Septum purge flow	: 5 mL/min
Split ratio	: 25:1
Interface Temp.	: 250 °C
Ion source Temp.	: 200 °C
Ionization Vortage	: 70 eV
Scan range	: *m/z* 85 - 500
Inj. Vol.	: 1 µL

The silylated compounds in Syoyu extract were identified based on retention index and mass spectrum using InertCap metabolites library (Technical note No.81) and NIST.



AIoutput is available for peak identification. In that case, it is convenient to use the *n*-alkane standard solution C9-C40 in *n*- Hexane.

What is AIoutput?

- Software for metabolome analyses based on Excel (upto 2007)
- Peak identification based on retention indices and mass spectrum
- Auto peak identification, PCA analysis, PLS analysis, t-test
- Free software!
- Everybody can download, now!

http://prime.psc.riken.jp/Metabolomics_Software/AIoutput/index.html

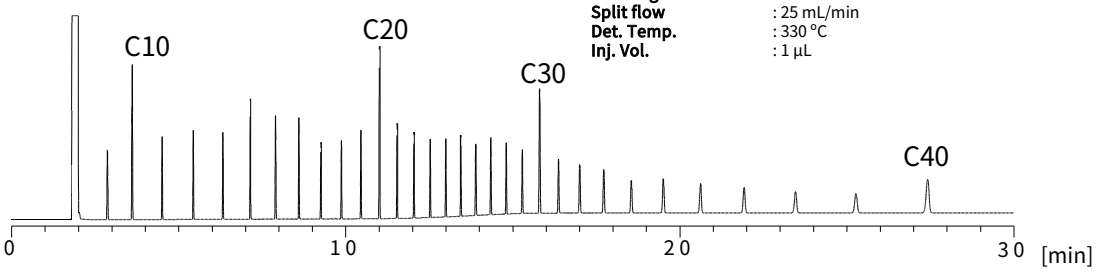
_n_-Alkane standard solution C9-C40 in _n_-Hexane

Concentration: 50 µg/mL each component of *n*-Hexane
※C10,C20,C30,C40 are 100 µg/mL

Volume: 1 mL
Packaging: amplue of 1 mL

Conditions

System	: GC-FID
Column	: InertCap 5MS/NP 0.25 mm I.D.×30 m, df = 0.25 µm
Injection	: Split 120 kPa
Inj. Temp.	: 230°C
Oven Temp.	: 100 °C (2 min) -20 °C/min - 330 °C (17 min hold)
Carrier gas	: Helium
Split flow	: 25 mL/min
Det. Temp.	: 330 °C
Inj. Vol.	: 1 µL



Description	Volume	Cat.No.
n-Alkane standard solution C9-C40 in C6 (cold strage)	1 mL	1021-58321
	1 mL ×5	1021-58325

This product contains hazardous material which requires special freight handling, and then additional charges apply. Please contact your local distributor.

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