SHIMADZU

Application Data Sheet

No.6

GCMS

Gas Chromatograph Mass Spectrometer

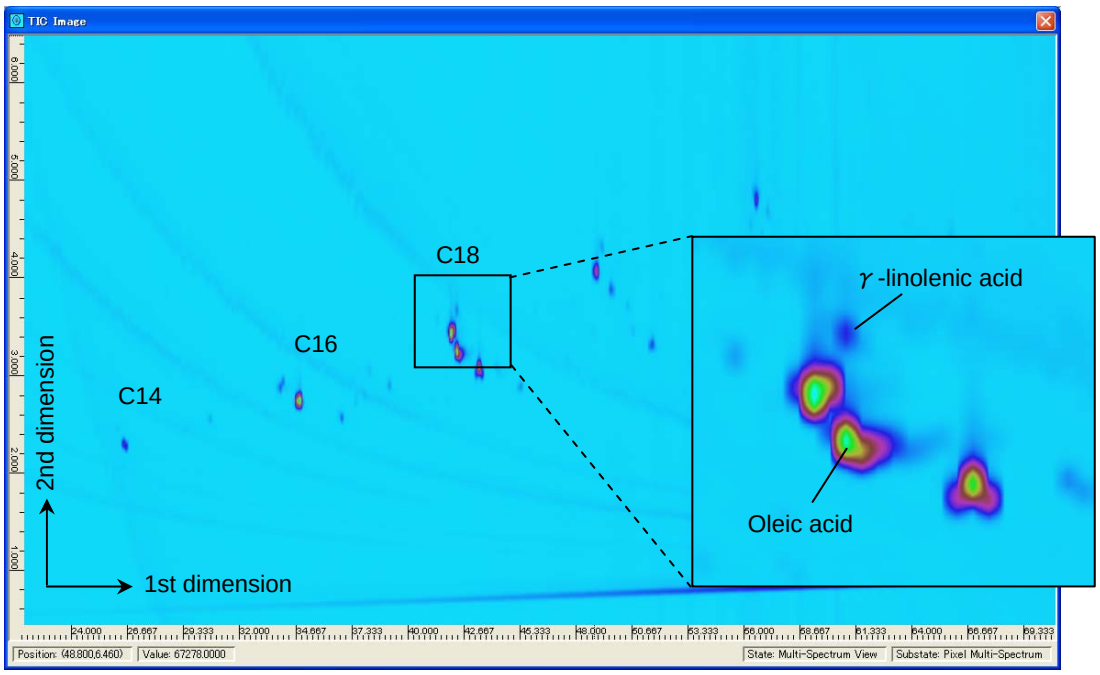
Analysis of Adipose Fatty Acids in Blood Utilizing a GC × GC-MS System

When fatty acids are analyzed with a GC-MS, an enormous number of components are detected due to differences in the number of double bonds and isomers of each component. It is impossible to completely separate these using conventional GC/MS analysis.
A GCMS-QP2010 Ultra, equipped with a GC × GC modulator, is capable of separating and detecting components that cannot be separated with a conventional GC-MS.
This application datasheet investigates the separation of the C18 fatty acids: oleic acid and gamma-linolenic acid. These substances could not be separated using only a 1-dimensional column, but could be separated 2-dimensionally using a GC × GC-MS system.

Analysis Conditions

GC × GC modulator : ZX1-GC × GC modulator
GC-MS : GCMS-QP2010 Ultra
[GC×GC]
Column : 1st DB-5ms (30 mL. × 0.25 mmI.D., 0.25 µm)
2nd BPX50 (2.5 mL. × 0.1 mm I.D., 0.1 µm)
Injection quantity : 1.0µL
Injection mode : Split (split ratio 100)
Vaporization chamber temperature : 250℃
Column oven temperature : 40 ℃ (2 min) -> (30 ℃/min) -> 160 ℃ (2 ℃/min)
-> 300 ℃ (5 min)
Control mode : Constant pressure (150 kPa)
Modulation time : 8 sec
Hot pulse time : 0.5 sec (325℃)

[MS]
Interface temperature : 240℃
Ion source temperature : 200℃
Solvent elution time : 15.5 min
Data sampling time : 16 to 80 min
Measurement mode : Scan
Mass range : *m/z* 45-330
Scan speed : 20,000 *u*/sec



SHIMADZU
SHIMADZU CORPORATION. International Marketing Division
3, Kanda-Nishikicho 1-chome, Chiyoda-ku, Tokyo 101-8448, Japan
Phone: 81(3)3219-5641 Fax. 81(3)3219-5710
URL http://www.shimadzu.com

First Edition: September 2011