

Confirmation of Synthetic Compounds by Flow Injection Analysis

Chromaster 5610 MS Detector allows the infusion analysis in which the sample is directly introduced to the detector with a syringe pump. However, when multiple samples are to be analyzed, the washing of the syringe can be time consuming. The flow injection analysis employs a technique in which by using the HPLC Pump and Autosampler, the injected sample can be directly detected without the separation step through a column. This allows the sequential measurements, and thus, it is effective for the confirmation of the mass information on synthetic compounds and the simple monitoring during the study of synthesis conditions. This time, the mass information was continuously confirmed by the flow injection analysis, and the results are introduced here.



5610 MS Detector

Confirmation of Mass Information by Flow Injection Analysis

Analytical Conditions

Table 1 Conditions for MS Detector Setting

Ionization method	ESI
Ionization mode	Positive
Ionization voltage	2300 V
Measurement mode	Scan (m/z 200-600)

Table 2 Analytical Conditions for HPLC

Mobile phase	CH ₃ OH
Flow rate	0.3 mL/min (Split ratio = 1:50)
Injection vol.	20 μ L
Sample	4 Types of synthetic compounds*1

Flow Injection Analysis

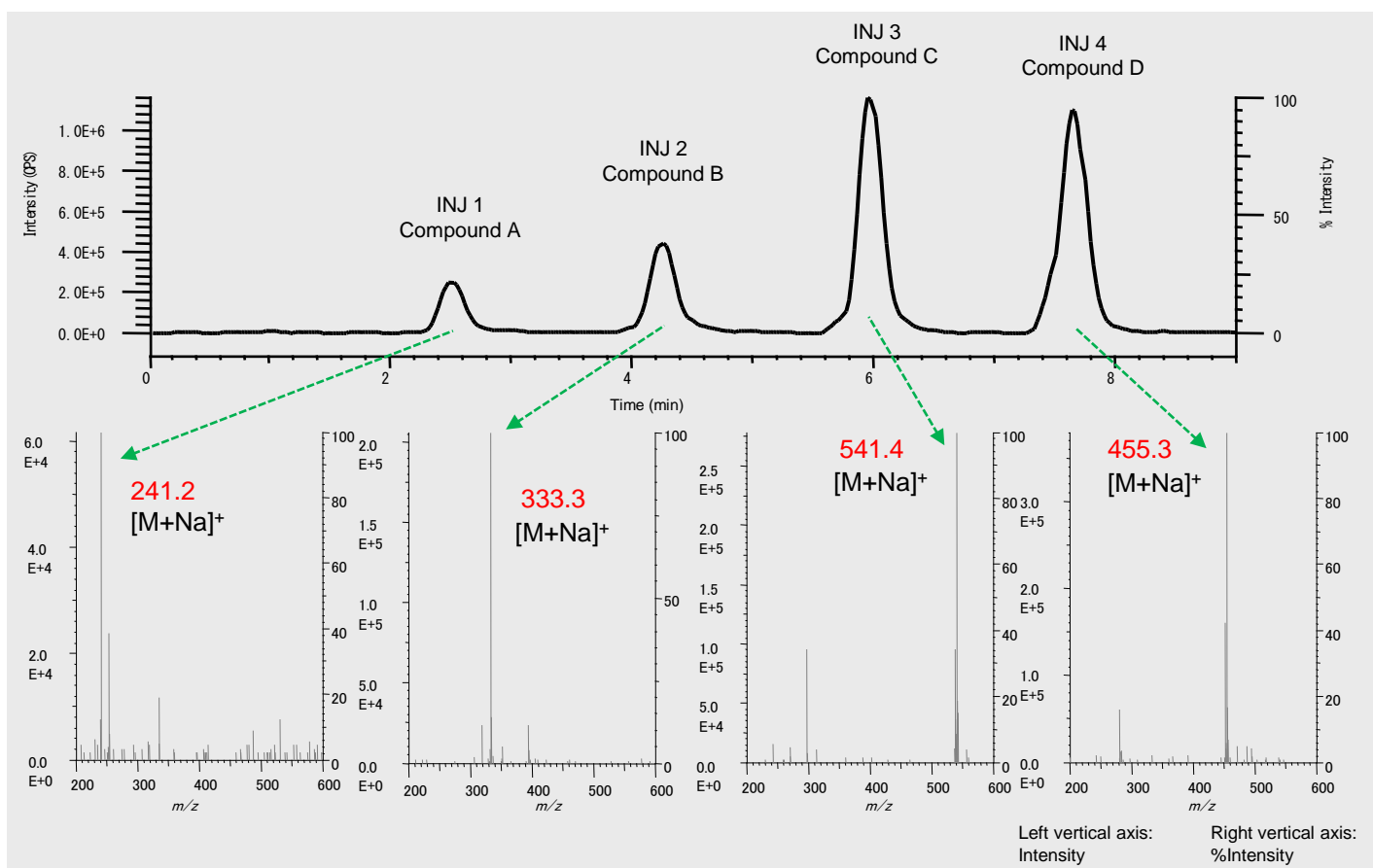


Figure 1 Total Ion Chromatogram (Top) and Mass Spectra (Bottom) of 4 Synthetic Compounds

Each synthetic compound was diluted to 100 ppm with methanol, and 20 μ L of the each solution was injected and analyzed by the MS Detector. As a result, it was possible to confirm the mass information of four components in a short period of time.

AS/MSD-012 Liquid Chromatograph

Overview of Mass Information by Contour Plot

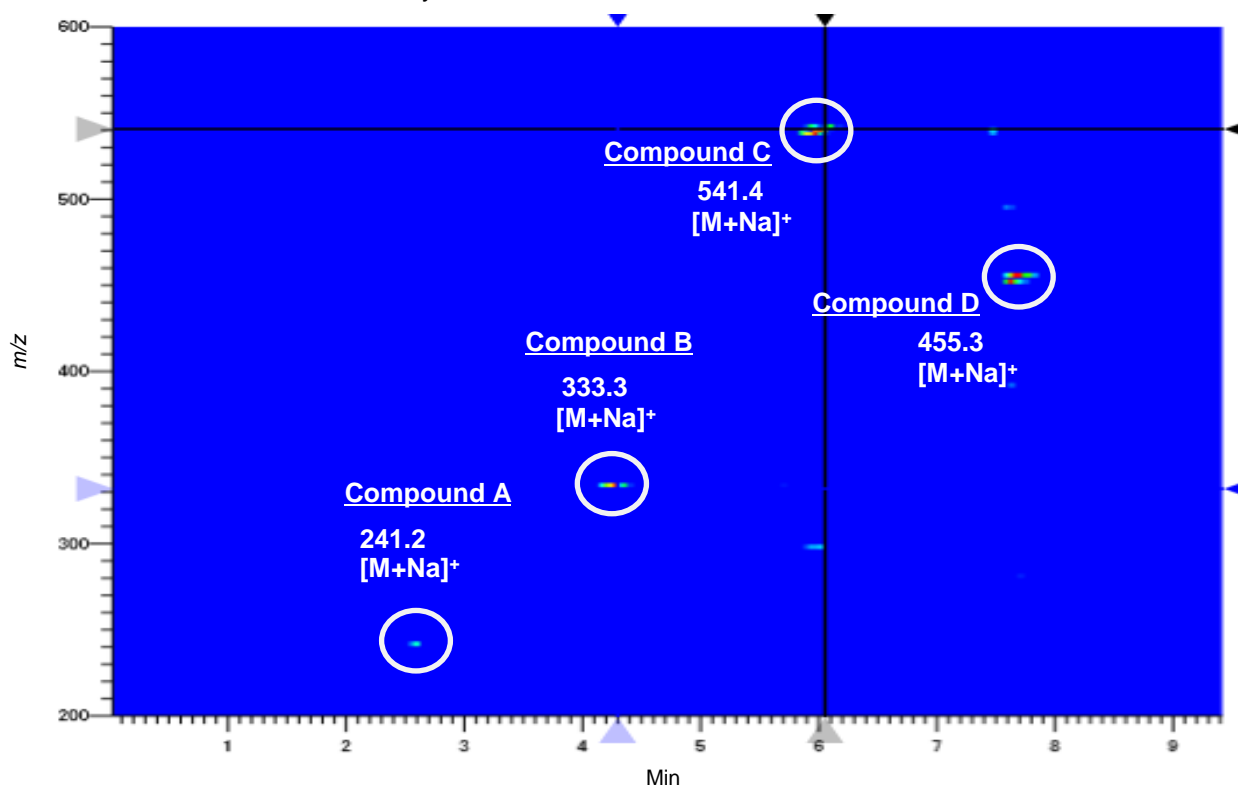


Figure 2 Contour Plot of Retention Times, m/z , and Intensities

CM5610 MS Detector Control and Analysis Software allows the 3D analysis of the retention time, m/z , and intensity.

It was possible to confirm the overall mass information of each compound.

Features of Flow Injection Analysis

Table 3 summarizes the differences in those analysis methods. It is effective to select either the infusion analysis or flow injection analysis depending on the purposes. CM5610 MS Detector can be combined with either of the two configurations.

Table 3 Differences Between Infusion Analysis and Flow Injection Analysis

Item	Infusion analysis	Flow injection analysis
Change to MS setting conditions	Real-time change	Change for each injection
Sensitivity	++	+ (Due to split injection)
Multi-sample analysis	+ Need to wash syringe for each measurement	++ Sequential analysis is possible
Comparison of multiple samples on the same chromatogram	-	++

*1 The sample used for this analysis was provided by Laboratory for Molecular Design of Pharmaceuticals, Faculty of Pharmaceutical Sciences, Meiji Pharmaceutical University (same as in AS/MSD-003).

*2 To have all the information displayed on the same chromatogram as shown in this analysis, the UI Pad or GUI Controller is required to separately control the HPLC Module.

<Main system configuration>

Chromaster 5110 Pump, Chromaster 5210 Autosampler, 5610 MS Detector, GUI Controller^{*2}

NOTE: These data are an example of measurement; the individual values cannot be guaranteed.