Technical Report

HITACHI
Inspire the Next

AS/MSD-015 Liquid Chromatograph

Analysis of Preservatives (1): Paraoxybenzoic Acid Esters

Preservatives are added to maintain the freshness of food products by suppressing bacterial growth in food products and prevent rotting[1] In this study, paraoxybenzoic acid esters (known as parabens) were separated by using a phenyl-hexyl column and detected by an UV detector and Chromaster 5610 MS Detector, and the results are presented here. Isomers have the same m/z, but the retention times are different due to the differences in their structures. The confirmation using both the chromatogram and mass spectrum increases the reliability for the component identification.

[1] Bunseki, Masakazyu Horie p.124 (2009)

5610 MS Detector

Analysis of Paraoxybenzoic Acid Ester by LC-MS

■ Analytical Conditions

Table 1 MS Detector Settings

Ionization method	ESI
Ionization mode	Negative
Ionization voltage	2000 V
Measurement mode	Scan (*m/z* 100-200)

Table 2 Conditions for HPLC Analysis

Column	Xselect ® CSH Phenyl-Hexyl (5 µm) 2.1 mm I.D. x 150 mm (Waters)
Mobile phase	CH_3CN / 10 mmol/L Acetic acid buffer (pH4.0) = 1.8 / 1
Flow rate	0.2 mL/min (split ratio = 1:50)
Injection vol.	5 µL (100 mg/L each)
Detection wavelength	230 nm

■ LC-MS Analysis

Highly reliable analysis is possible by confirming the retention time and mass spectrum of the target component.

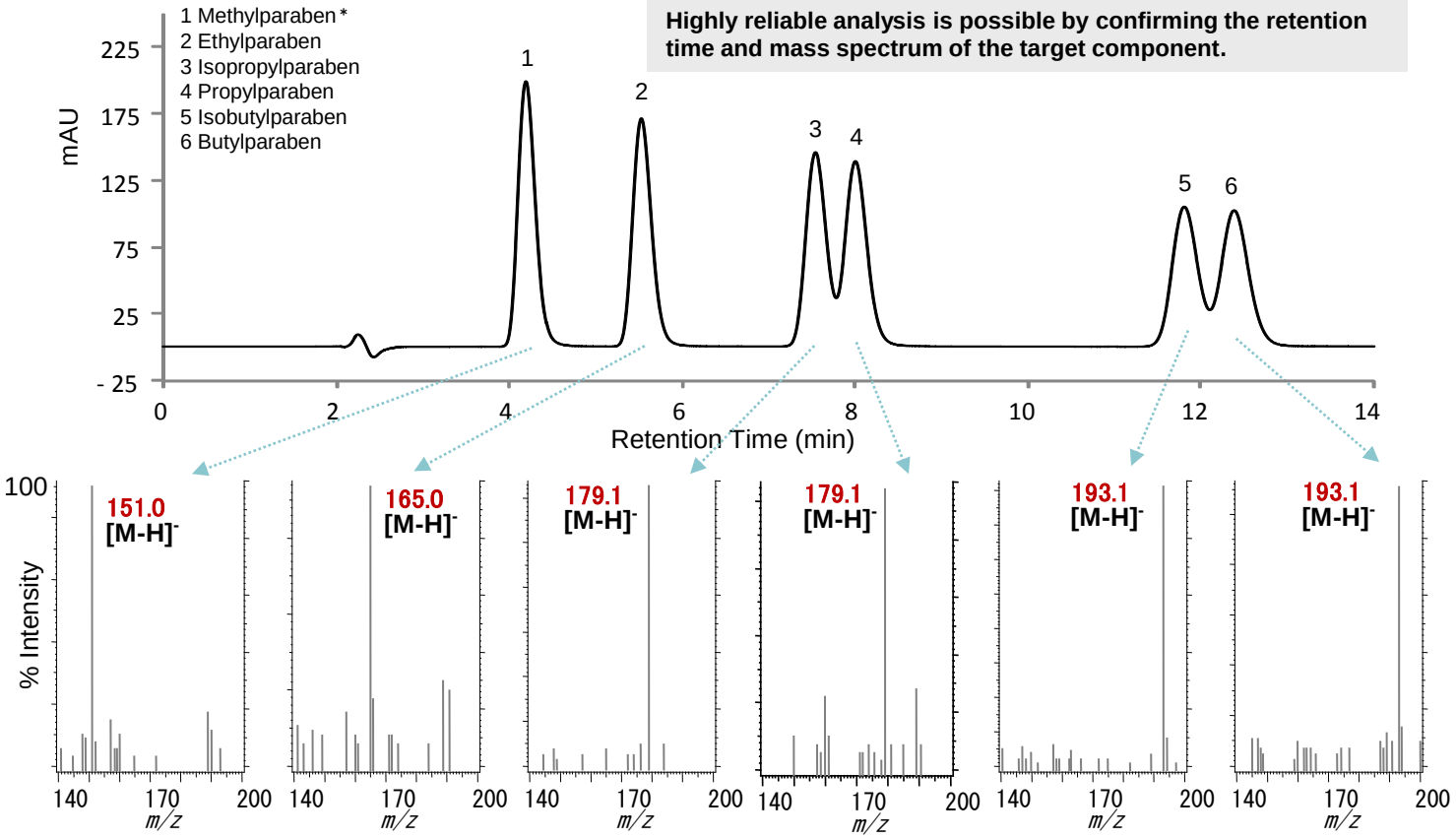

Figure 1 UV Chromatogram (Top) and Mass Spectra (Bottom) of 6 Paraoxybenzoic Acid Esters

* Methylparaben is not approved as a food additive in Japan.

The data introduced here were provided by Kita-ku Public Health Center, Tokyo.

<Main system configuration> Chromaster 5110 Pump, 5210 Autosampler, 5310 Column Oven, 5410 UV Detector, 5610 MS Detector

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

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