

Analysis of 2AB-labeled Isomalto-oligosaccharides by LC/MS

Elucidation of the structure and function of sugar chains is one of the central topics of post-genome research and marked advances have recently been made in this area. After derivatization, sugar chain structures are analyzed with reversed phase HPLC or normal phase HPLC (HILIC) or using two-dimensional reversed phase/normal phase LC. Recently, with advances in MS, analysis using LC/MS (MS) and MALD-TOF-MS has come into wide use.

Introduced here is an example of HILIC/MS analysis of a sugar chain derivatized with 2-aminobenzoic acid. By optimizing conditions using the TSKgel Amide-80, 3µm as the separating column, good separation/identification was achieved as the sugar chain was separated from 3 to 26 structural components.

**These data were generously provided by Dr. Mitsuhiro Kinoshita from the School of Pharmaceutical Sciences at Kinki University.*

Figure 1. Analysis of 2AA-labeled isomalto-oligosaccharide by LC/MS using TSKgel Amide-80, 3µm column

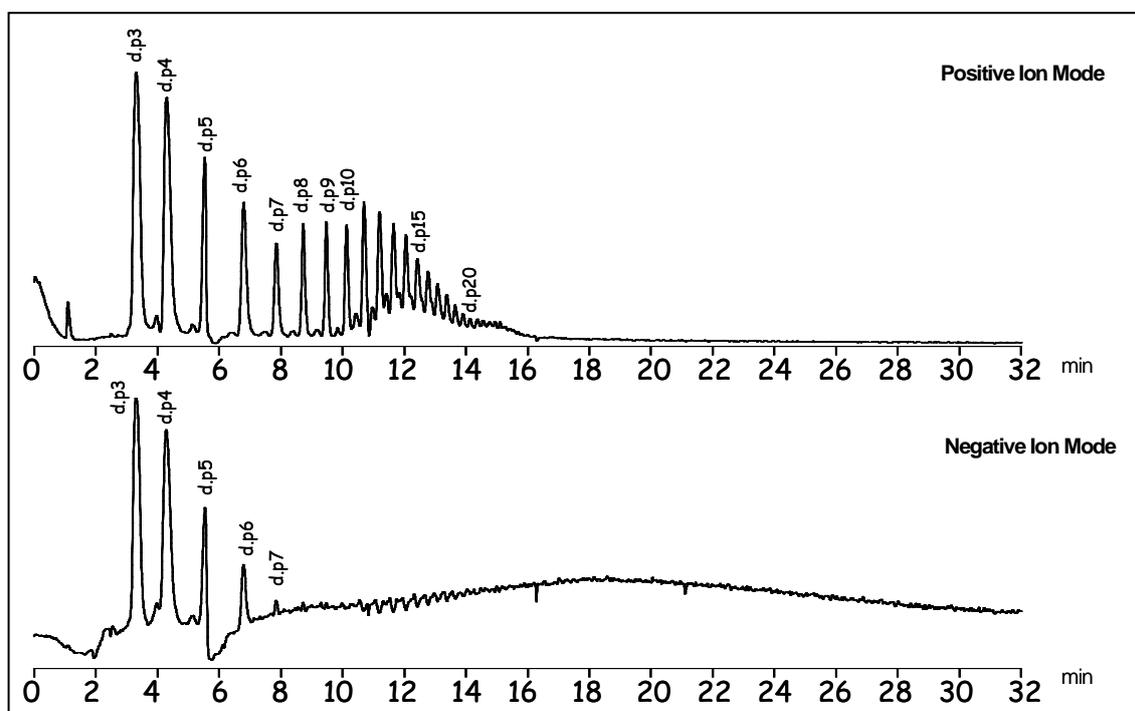


Table 1. Conditions

Column:	TSKgel Amide-80, 3µm, 2.0mm ID x 15cm
Mobile phase:	A: 15 mmol/L CH ₃ COONH ₄ /CH ₃ CN=10/90B: acetonitrile B: 15 mmol/L CH ₃ COONH ₄ /CH ₃ CN=195/5
Gradient:	0 min (30%B) → 2 min (30%B) → 32 min (90%B)
Flow rate:	0.25mL/min
Temperature:	40
Injection vol.:	2µL
Instrument:	QTRAP® (Applied Biosystems)
Ion Source:	ESI
CDL temp.:	190°C
Detector voltage:	17.1kV
Neuburising gas:	1.5mL/min

Figure 2-1. ESI-MS spectra of 2AA-labeled isomalto-oligosaccharide (positive mode)

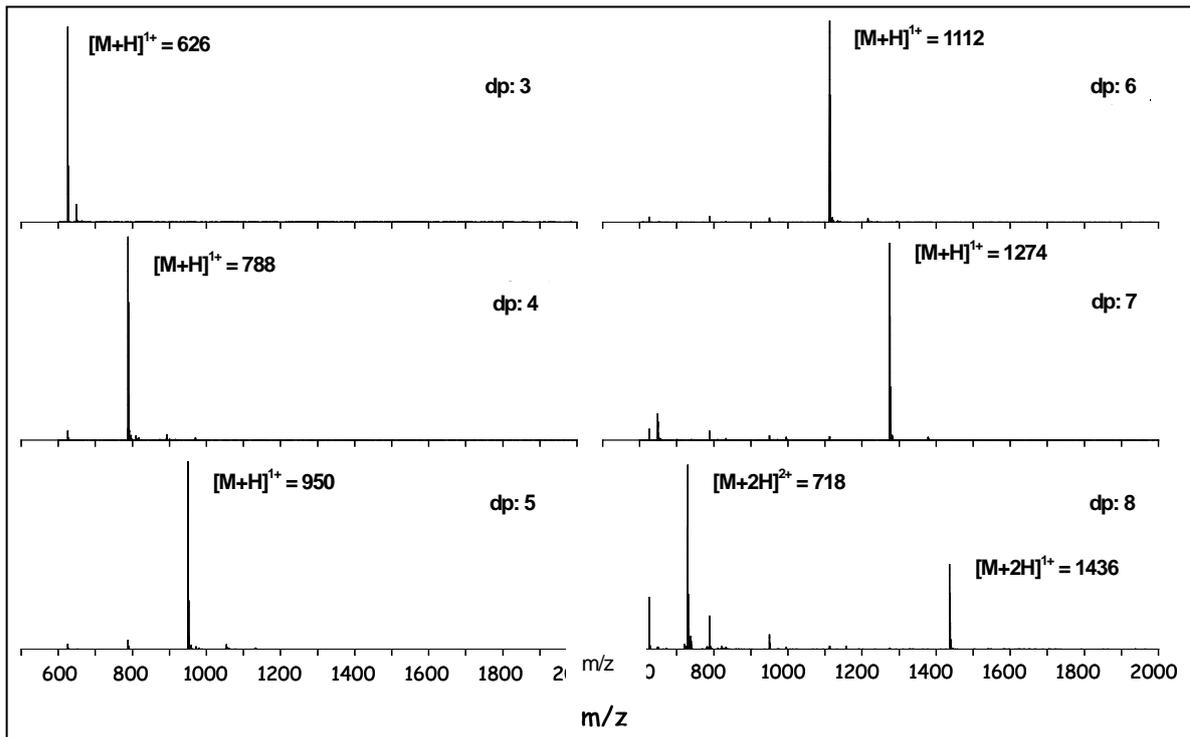


Figure 2-2. ESI-MS spectra of 2AA-labeled isomalto-oligosaccharide (positive mode)

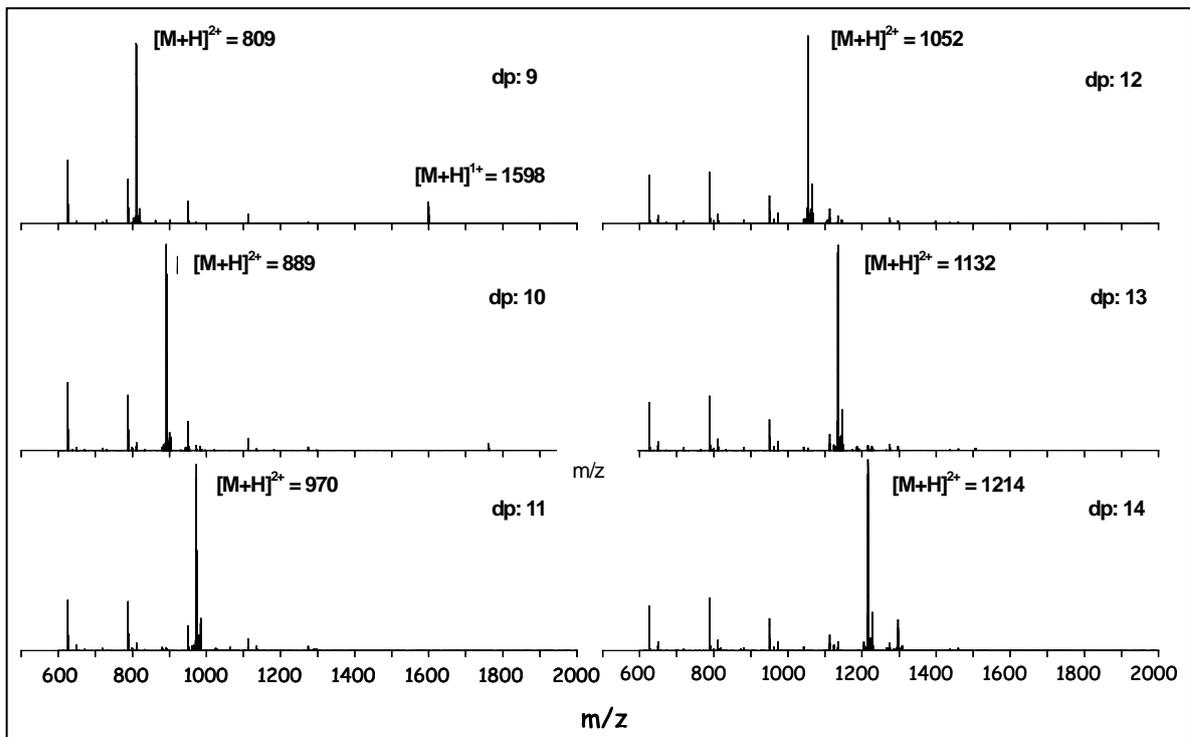


Figure 2-3. ESI-MS spectra of 2AA-labeled isomalto-oligosaccharide (positive mode)

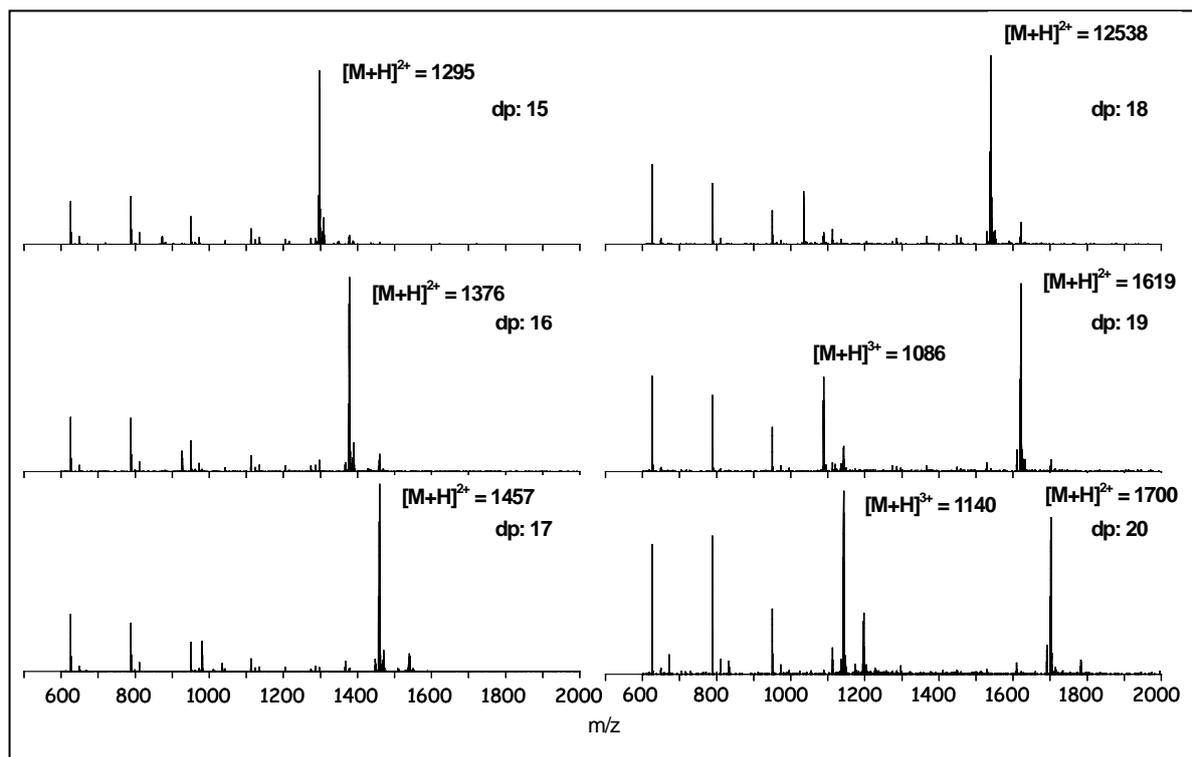
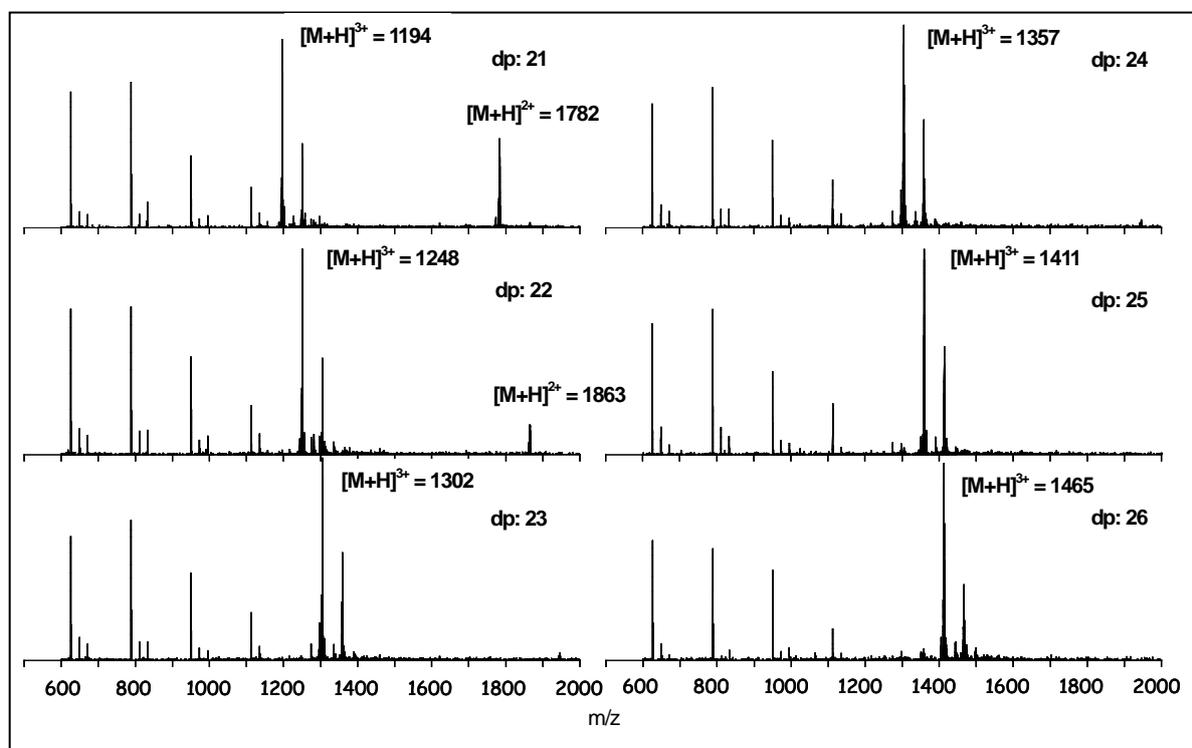


Figure 2-4. ESI-MS spectra of 2AA-labeled isomalto-oligosaccharide (positive mode)





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