

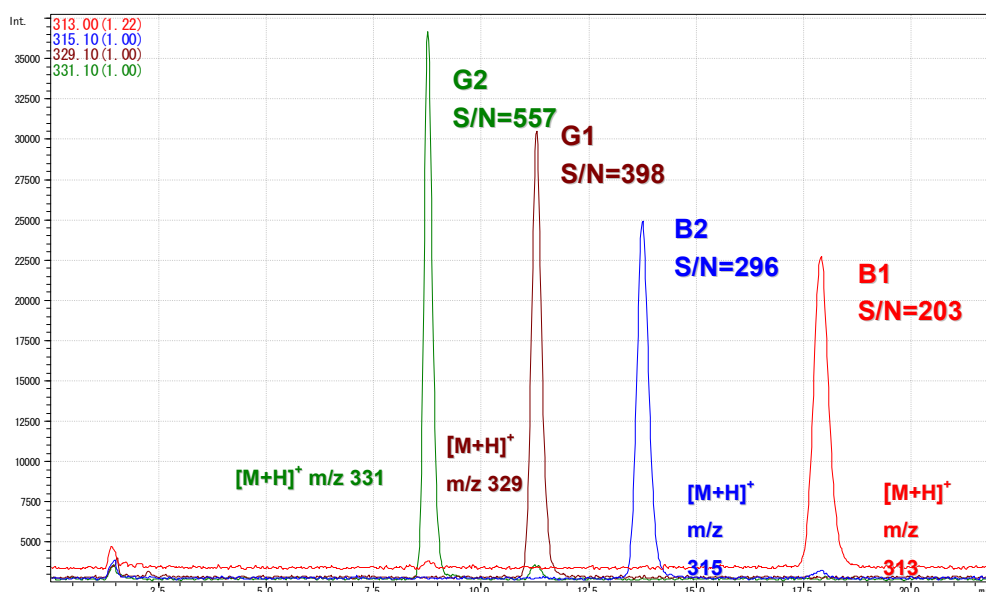
### Analysis of aflatoxins using LCMS-2010A

Aflatoxins are naturally occurring toxic substances with strong carcinogenicity produced by mold (aspergillus) growing on peanuts, corn and other grains. Japanese Ministry of Health, Labor and Welfare announced aflatoxin testing methods in the 1971. The Food Sanitation Law in Japan controls food products from which aflatoxins exceeding 10ppb is detected. This method of aflatoxin testing was revised on March 26, 2002 into methods that do not use harmful reagent. As a result HPLC with

fluorescence detection and LC-MS were adopted as aflatoxin analysis methods.

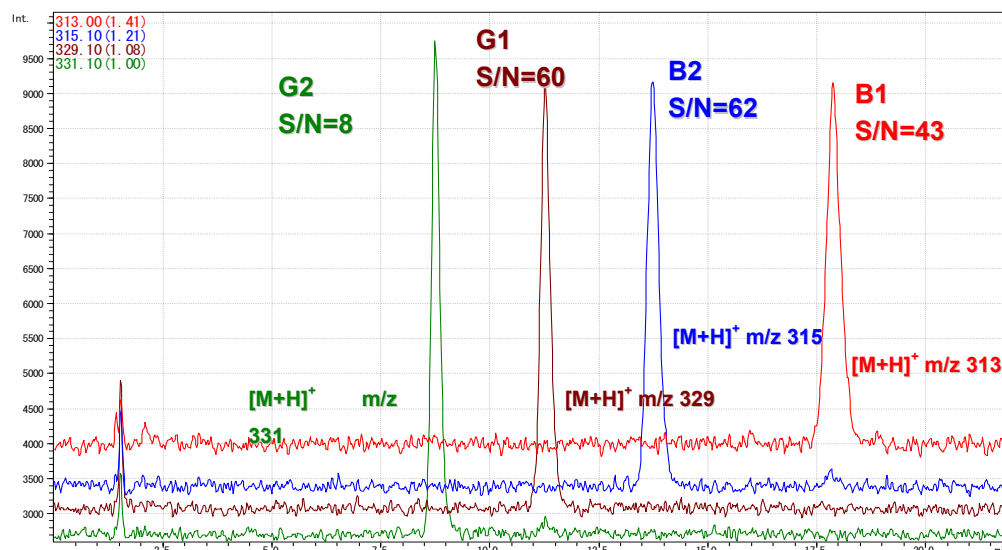
This data sheet introduces an example of aflatoxin analysis using LC-MS in accordance with the official methods. Figs. 1 and 2 show SIM chromatograms of four aflatoxin components G2, G1, B2 and B1 (2.5ppb and 0.5ppb respectively). Good results were obtained for each component (S/N= 203 to 557 at 2.5ppb and S/N= 43 to 84 at 0.5ppb). Fig. 3 shows the mass spectra and calibration curves (0.5ppb to 100ppb, n=5) for each component. Good linearity at  $r^2= 0.9999$  or higher was obtained for each component.

Based on  
Official Method

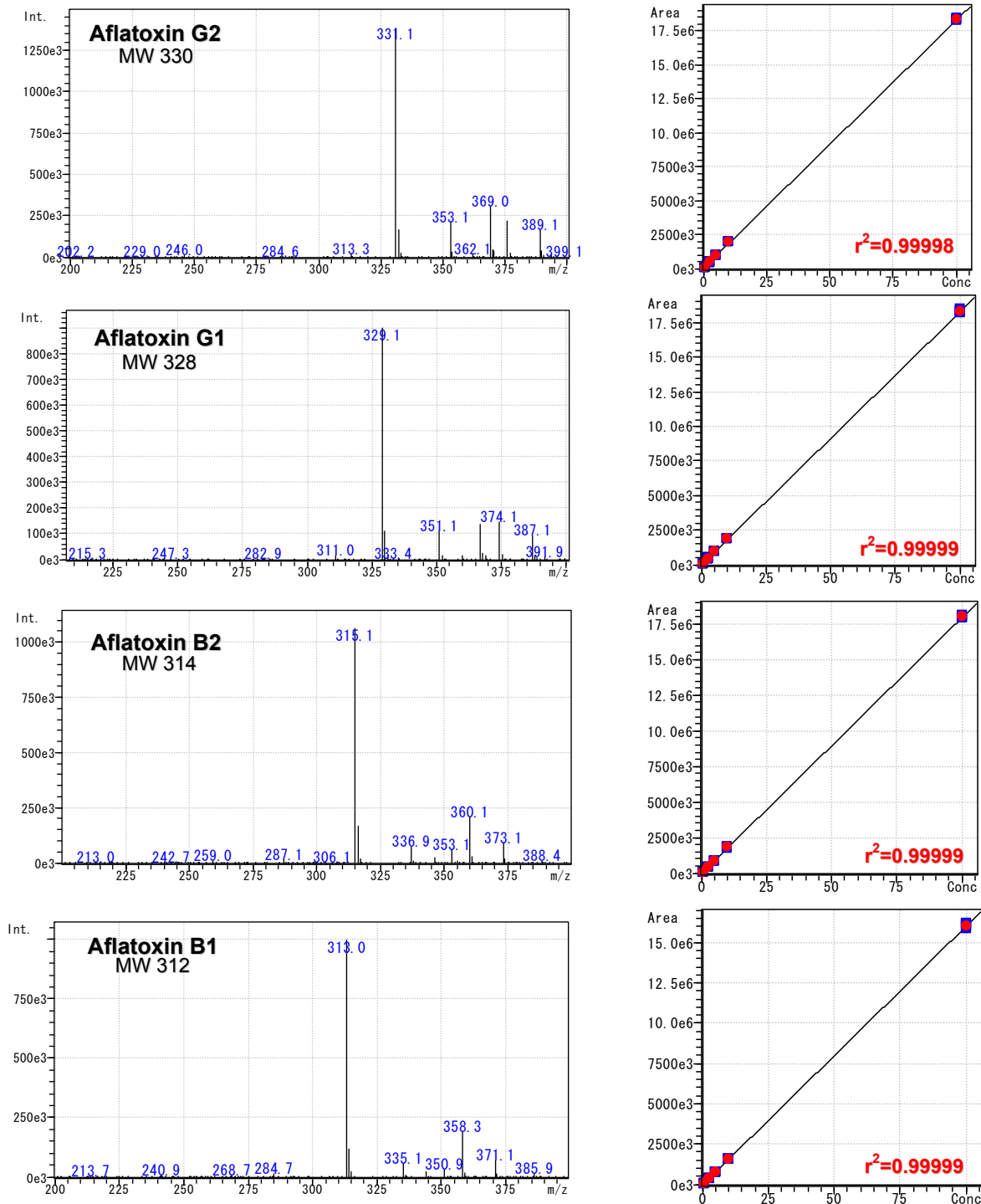


**Fig. 1 SIM chromatogram of aflatoxin mixture (each 2.5ppb)**

Based on  
Official Method



**Fig. 2 SIM chromatogram of aflatoxin mixture (each 0.5ppb)**



**Fig. 3** Mass spectra and calibration curves (0.5-100ppb, n=5) of aflatoxins G2,G1,B2 and B1

**Table 1** Analytical conditions of LC-MS

<b>Column</b>	: Imtakt Cadenza CD-C18 (2.0 mmI.D. x 150 mm)	<b>Column temperature</b>	: 40 °C
<b>Mobile phase A</b>	: acetonitrile / methanol /10mM ammonium acetate = 2 / 6 / 15	<b>BH temperature</b>	: 250 °C
<b>Flow rate</b>	: 0.2 mL/min	<b>Drying gas flow</b>	: 0.15MPa
<b>Injection volume</b>	: 6µL	<b>Q-array RF voltage</b>	: Scan-mode
<b>Probe voltage</b>	: 4.5kV (ESI-Positive mode)		
<b>CDL temperature</b>	: 300 °C		
<b>Nebulizing gas flow</b>	: 1.5 L/min		
<b>CDL voltage</b>	: 25 V		
<b>Q-array DC voltage</b>	: Scan-mode		
<b>Scan range</b>	: m/z 200-400 (1.0sec/scan)		
<b>SIM monitoring ions</b>	: m/z 331.1, 329.1, 315.1, 313.0 (0.25sec/ch)		

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