

Background

The ionRocket is a thermal desorption device for DART®-MS (Direct Analysis in Real Time - Mass Spectrometry). The sample was heated by ionRocket from room temperature up to 600°C. In ionRocket-DART®-MS analysis, thermal extracts from the sample were observed in low temperature region and pyrolysates of sample were observed in high temperature region in analysis.

Samples Caster sugar, soft brown sugar and wasanbon. Wasanbon is a refined Japanese sugar

Methods

ionRocket was mounted on DART®-MS. The sample, a fleck of sugar, was placed into the POT. The temperature was raised by the ionRocket from room temperature to 600°C by 100°C /min. The total run time was about 7 min.

Results

The result was shown in heat map in Figure 1 (A), Figure 2 (A) and Figure 3 (A).

The mass spectra at 4 min were shown in Figure 1 (B), Figure 2 (B) and Figure 3 (B). In every sample, m/z 180.08 and m/z 342.13 was observed. These ions would be monosaccharide and disaccharide, respectively. Soft brown sugar was made from caster sugar and Wasanbon is the most purified sugar in these sugars. The production process was reflected in its heat map and mass spectrum.

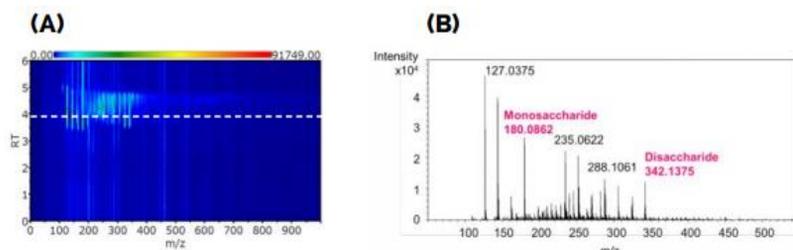


Figure 1. Caster Sugar

(A) Heat map
(B) Mass spectrum at 4 min

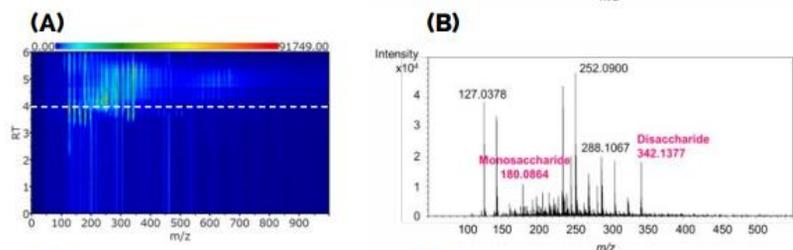


Figure 2. Soft Brown Sugar

(A) Heat map
(B) Mass spectrum at 4 min

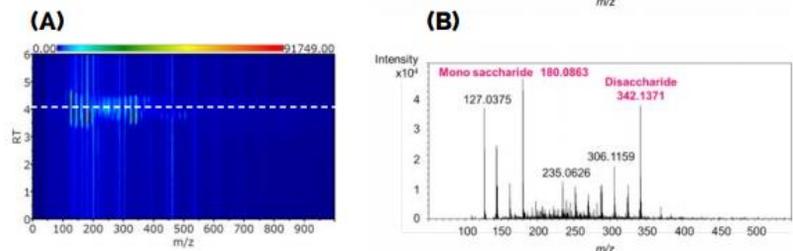


Figure 3. Wasanbon

(A) Heat map
(B) Mass spectrum at 4 min

Target Food/Quality Control (QC)/Research and Development (R&D)

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