

Fatty acid composition analysis of glycerides in edible oils

Introduction

Recently, a lot of attention has been given to the health benefits of edible oils. Since edible oils are characterized by fatty acids constituting glycerides, analytical methods that can easily analyze fatty acids constituting glyceride are very important. In this report, we introduce the fatty acid composition analysis results of glyceride in edible oil using ionRocket Direct Analysis in Real Time Quadrupole Time of Flight Mass Spectrometry (DART-QTOFMS).

Samples

- Rapeseed oil
- Edible oil containing medium-chain fatty acids

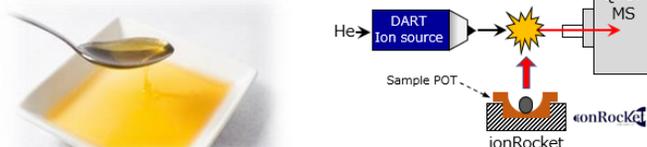
Method

The ionRocket combined with QTOF-MS equipped with DART ion was used as the analytical system for this application (Fig. 1). The sample (3 μ L) was placed into the ionRocket sample POT. A temperature gradient of 100 $^{\circ}$ C/min. from room temperature to 600 $^{\circ}$ C was applied (total run time: 7 min.).

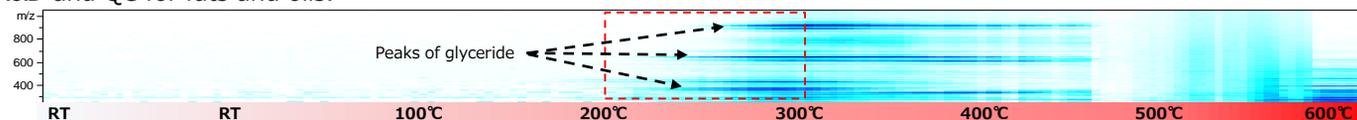
Results

As shown Fig.2, in rapeseed oil, a peak group considered to be glyceride was detected between 200-300 $^{\circ}$ C. From analysis of the resulting mass spectra between 200-300 $^{\circ}$ C of both samples, it was found that many glycerides were detected (Fig.3).

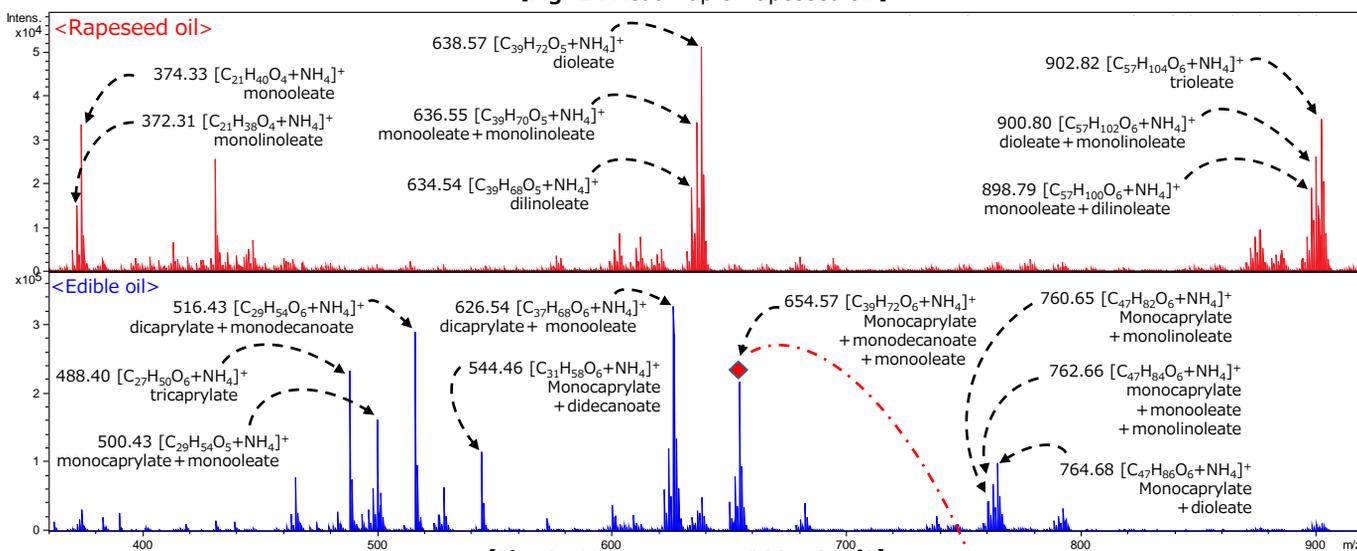
Moreover, as analyzing the accurate mass and the MS/MS spectra, fatty acid types constituting their glyceride were easily confirmed (Fig.4). In summary, the ionRocket combined with DART-MS enables rapid analysis of fatty acid types constituting their glyceride without any sample pre-treatment. Therefore, this analytical method is useful for R&D and QC for fats and oils.



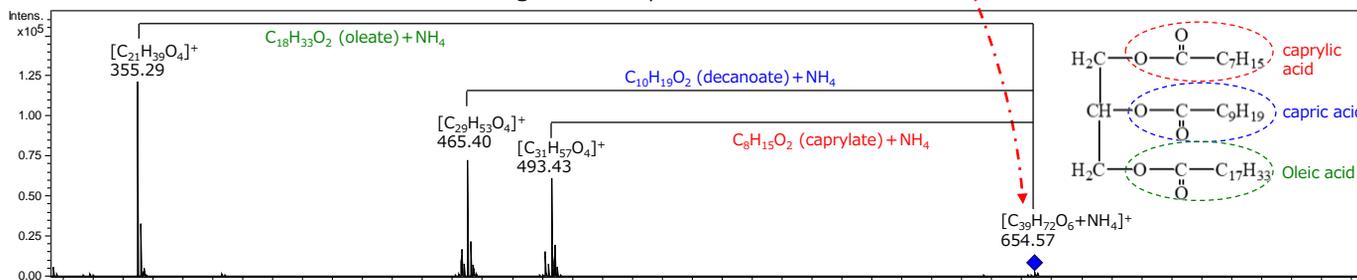
[Fig. 1 : ionRocket DART-QTOFMS system]



[Fig. 2 : Heat map of rapeseed oil]



[Fig. 3 : Mass spectra at 200 - 300°C]



[Fig. 4 : MS/MS spectrum of m/z 654.57]