

110th AOCS Annual Meeting & Expo 発表

題名 ; Practical Analyzing Method of Triacylglycerol Isomers by using Supercritical Fluid Chromatography

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Triacylglycerol (TAG) isomers have been reported to function differently in terms of physical and nutritional properties. Therefore, analysis of TAG isomers is important for controlling the physical properties and understanding digestion and absorption in detail. However, methods to analyze TAG isomers in vegetable oils and biological samples are still under development. Recently, methods using recycle HPLC and silver ion column-HPLC were reported, but recycle HPLC method required significant amount of time for analysis. Moreover, each method has inability to analyze regioisomers and enantiomers at the same time. Thus, we aimed to develop a practical analyzing method capable of simultaneously quantitatively analyzing TAG regioisomers and enantiomers.

We used supercritical fluid chromatograph – tandem mass spectrometer (SFC-MS/MS) with chiral columns. Acetonitrile and methanol was used as modifiers. Peak separation of sn-OPO and rac-POO standards was confirmed within 40 min. In addition, linear calibration curves with standards were confirmed and could be used to quantify sn-OPO, sn-POO and sn-OOP in extra virgin olive oil and palm oil, etc.

We succeeded in the peak separation of TAG regioisomers and enantiomers, and then we also succeeded to quantify of TAG regioisomers and enantiomers in vegetable oil by SFC-MS/MS. As a result, we developed a practical analyzing method for TAG isomers using SFC-MS/MS.