

## Analysis of Triglycerides by High Performance Liquid Chromatography with Evaporative Light Scattering Detection

### Introduction

Triglycerides is one of neutral fat, functioning as energy source, and it is recognized that too much intake may cause arteriosclerosis. Since most of components in Triglycerides have almost no UV absorption, UV detector with short wavelength range or differential refractive index detector is used for Triglycerides analysis. With this method, however, it takes longer time to stabilize the baseline and foreign substances often affect the result. ELSD is known as an effective detection method to solve the problems on fatty analysis including Triglycerides, taking the advantages of its high sensitivity and stable baseline.

This report shows the result of Triglycerides analysis using ELSD.

**Keyword:** Triglycerides, C18 column, ELSD

### Experimental

#### Equipment

Pump: PU-2089  
 Autosampler: AS-2057  
 Column oven: CO-2060  
 Detector: ELS-2040

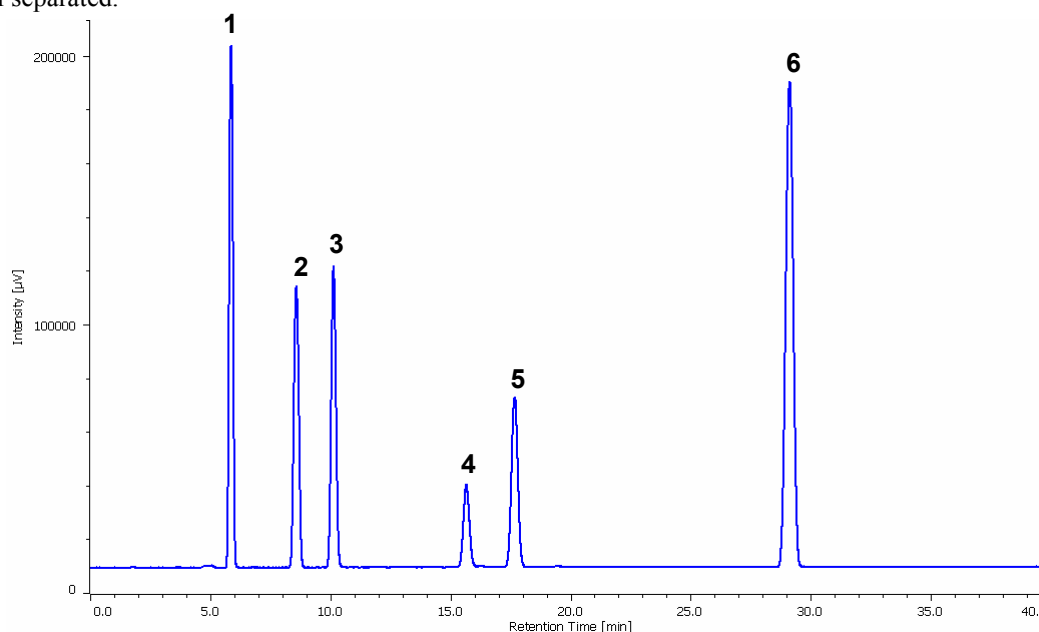
#### Conditions

Column: CrestPak C18S (4.6 mmID x 150 mmL, 5  $\mu$ m)  
 Eluent: A; Acetonitrile, B; THF\*  
 Gradient condition: (A/B), 0 min (75/25)  $\rightarrow$  40 min (67/33)  $\rightarrow$  40.05 min (50/50)  $\rightarrow$  45 min (50/50)  $\rightarrow$  45.05 min (75/25) 1 cycle: 60 min  
 Flow rate: 1.0 mL/min  
 Column temp.: 40°C  
 ELSD condition: Nebulizer temp.: 30°C  
 Evaporator temp.: 50°C  
 Gas flow rate: 1.6 SLM  
 Injection volume: 10  $\mu$ L  
 Standard sample: Trilaurin, Trilinorein, Trimylistin, Triolein, Tripalmitin 1.0 mg/mL each  
 Tristearin 0.5 mg/mL

\*) THF solvent does not include any additives.

### Result

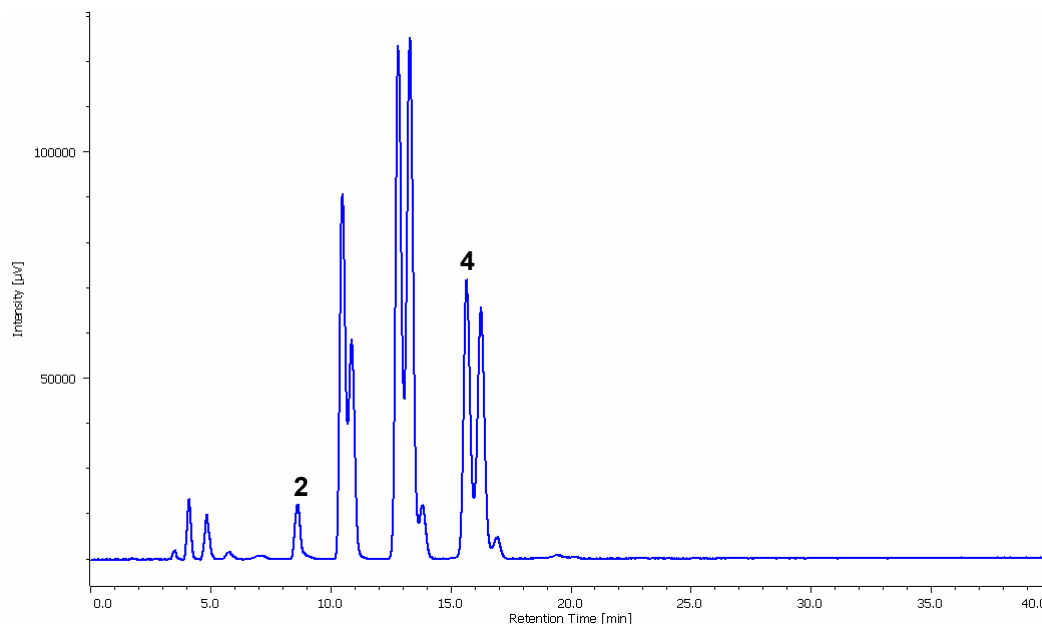
Fig. 1 shows the chromatogram of 6 components of Triglycerides standard mixture. 6 components of Triglycerides were well separated.



**Fig. 1.** Chromatogram of 6 components of Triglycerides standard mixture  
 1: Trilaurin, 2: Trilinorein, 3: Trimylistin, 4: Triolein, 5: Tripalmitin, 6: Tristearin

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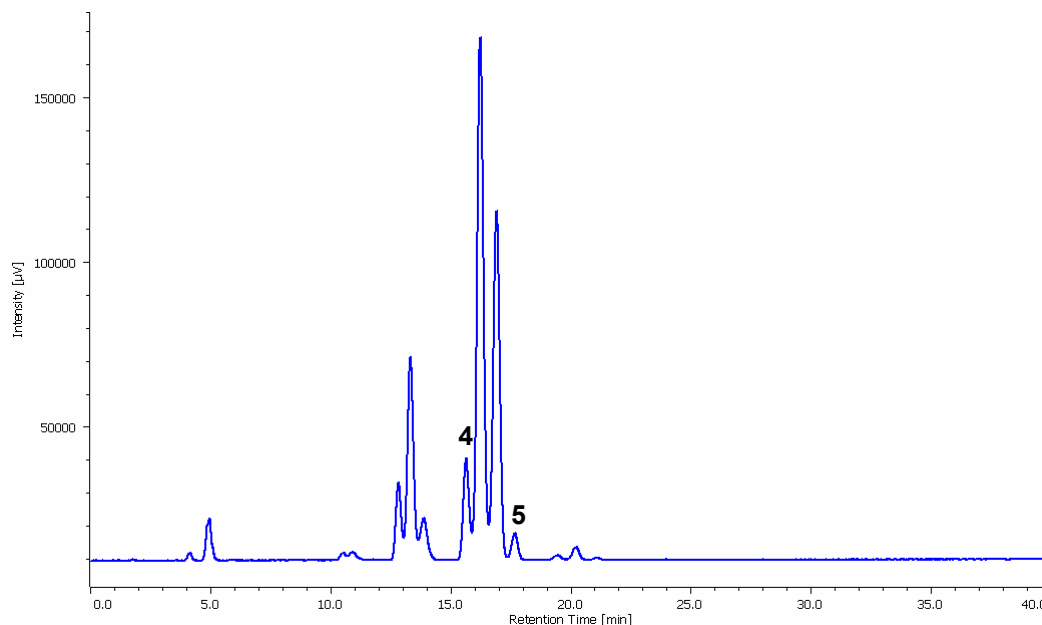
Fig. 2 and Fig. 3 show the chromatograms of rice bran oil and margarine.



**Fig. 2.** Chromatogram of rice bran oil

The peak numbers are the same as in Fig. 1.

Pretreatment: 1.0 g of rice bran oil dissolved in 10 mL acetone was filtrated by 0.45  $\mu\text{m}$  membrane filter.



**Fig. 3.** Chromatogram of margarine

The peak numbers are the same as in Fig. 1.

Pretreatment: 0.5 g of margarine dissolved in 10 mL acetone was filtrated by 0.45  $\mu\text{m}$  membrane filter.