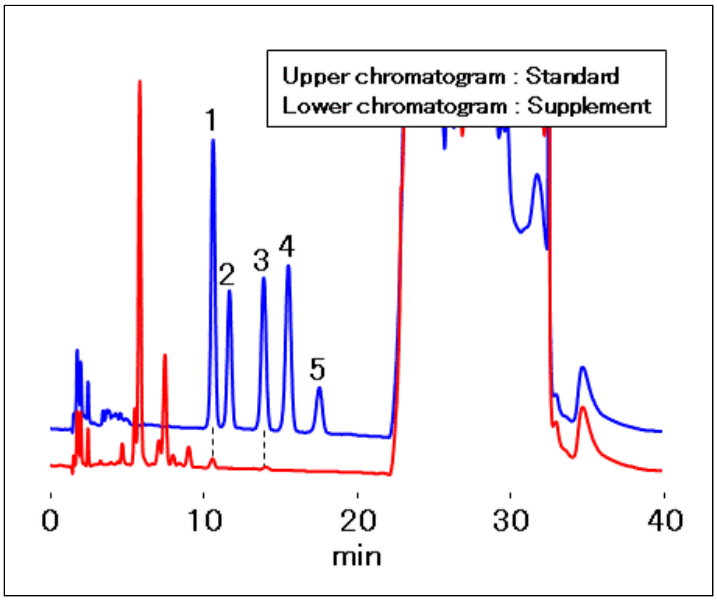
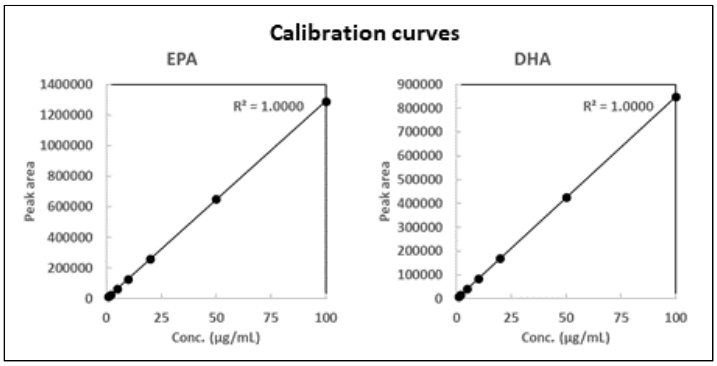
Analysis of Unsaturated Fatty Acids in Supplements (ODP-50 4D)

Unsaturated fatty acids are expected to have various effects such as arteriosclerosis and thrombus prevention, improvement of visual function, and improvement of allergic symptoms. Using Asahipak ODP-50 4D, a polymer-based reversed phase column, five typical unsaturated fatty acids were separated. A calibration curve with high linearity is obtained in the range of 1 to 100 µg/mL is shown. In the analysis of commercial supplements containing ω-3 fatty acids (EPA and DHA), both showed a high recovery rate of over 90% and were confirmed to be suitable for quantification. It is possible to wash other hydrophobic components derived from supplements away from the column by increasing the ratio of acetonitrile after the elution of unsaturated fatty acids.

(Method for preparing sample solution of commercial available supplement)
(1) Remove the contents of the supplement (soft capsule)
(2) Add 2 mL of ethanol to 10 mg of sample and dissolve.
(3) Filter with 0.45 µm filter



Sample : 5 µL
Standard 20 µg/mL each
(in Ethanol)
1. EPA (Eicosapentaenoic acid)
2. α-Linolenic acid
3. DHA (Docosahexaenoic acid)
4. Arachidonic acid
5. Linoleic acid



Column : Shodex Asahipak ODP-50 4D (4.6 mm I.D. x 150 mm)
Eluent : (A); 0.1 % H_3PO_4 in (H_2O/CH_3CN=35/65)/(B); CH_3CN
Step gradient ;
(B %) 0 % (0 to 20 min), 0 % to 100 % (20 to 20.01 min),
100 % (20.01 to 30 min). 100 % to 0 % (30 to 30.01 min),
0 % (30.01 to 40 min)
Flow rate : 1.0 mL/min
Detector : UV (215 nm)
Column temp. : 40 °C