

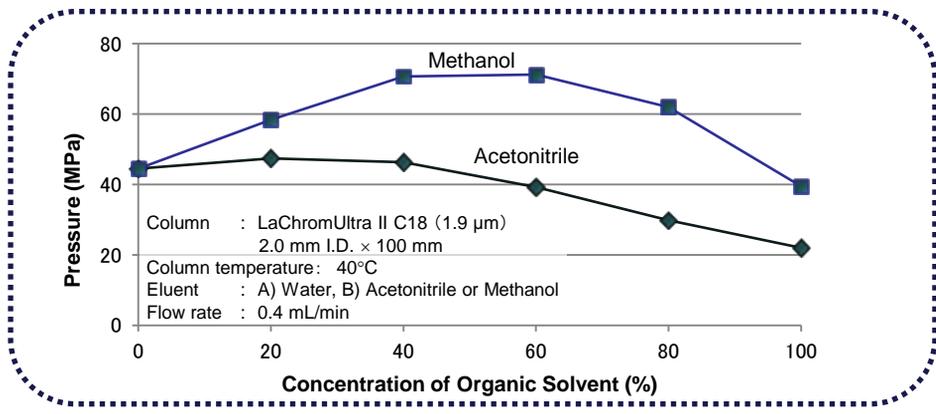
High Resolution Analysis of Capsaicins by UHPLC (Comparison of Organic Solvents) AS/LC-036



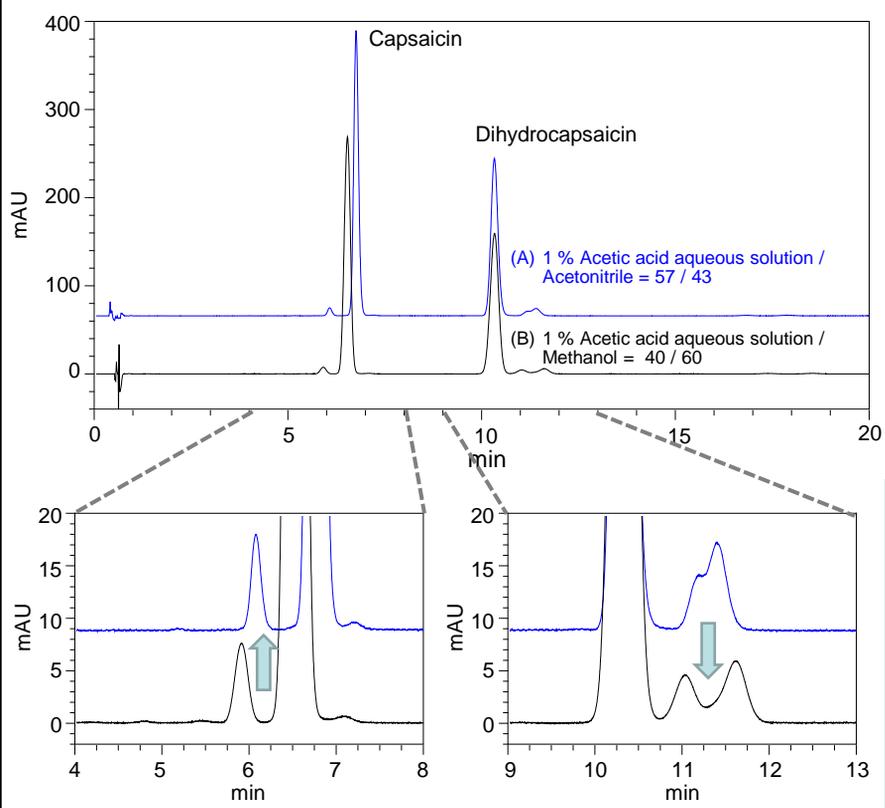
(Includes optional parts and those prepared by a customer)  
ChromasterUltraRs

When using a reversed phase column, acetonitrile and methanol are generally used as the organic solvents for the elution. The viscosity of acetonitrile is lower compared to methanol and thus, the pressure to the column can be kept low. When the eluents prepared by adding those two to an aqueous solvent at the same ratio are compared, acetonitrile generally elutes faster and the elution of methanol elutes later. Therefore, to obtain the chromatogram with a similar elution time, it is necessary to make the methanol ratio higher. As the separation characteristics are also different, the use of methanol sometimes enables the separation of the components that cannot be separated with acetonitrile. This time, capsaicins, the hot components contained in chili peppers were analyzed. By using 1% acetic acid aqueous solution, acetonitrile, and methanol as the eluents, the comparison was made focusing on the separations of the related substances. Hitachi Ultra High Performance Chromatograph, ChromasterUltra Rs and LaChromUltra II C18 (1.9 μm) were used.

◆ Comparison of System Pressure ◆



■ Analysis Example of Capsaicins (1 mg/mL each)



<Analytical Conditions>  
 Column : LaChromUltra II C18 (1.9 μm)  
 2.0 mm I.D. × 100 mm  
 Eluents : A) 1 % Acetic acid aqueous solution / Acetonitrile = 57 / 43 (v/v)  
 B) 1 % Acetic acid aqueous solution / methanol = 40 / 60 (v/v)  
 Flow rate : 0.4 mL/min  
 Column temperature : 40 °C  
 Detection wavelength : UV 280 nm (DAD)  
 Injection vol. : 2 μL

<Sample Preparation Method>  
 After preparing to make a concentration of 1 mg/mL with ethanol, filter through a 0.2 μm filter.

Among the related substances detected in the analysis of capsaicins, good separations were obtained for the components eluting at 6-7 minutes under the condition with acetonitrile while the components eluting at 11-12 minutes were well separated under the condition with methanol. As shown by this example, the use of Hitachi Ultra High Performance Chromatograph, ChromasterUltra Rs and LaChromUltra II C18 (1.9 μm), provides new extended possibilities to study the separation with organic solvents such as methanol which were considered impossible to be used due to the pressure limit.

Main system configuration: ChromasterUltra Rs DAD system  
 (6170 Binary Pump, 6270 Autosampler, 6310 Column Oven, 6430 Diode Array Detector, Organizer)

NOTE: These data are an example of measurement; the individual values cannot be guaranteed.