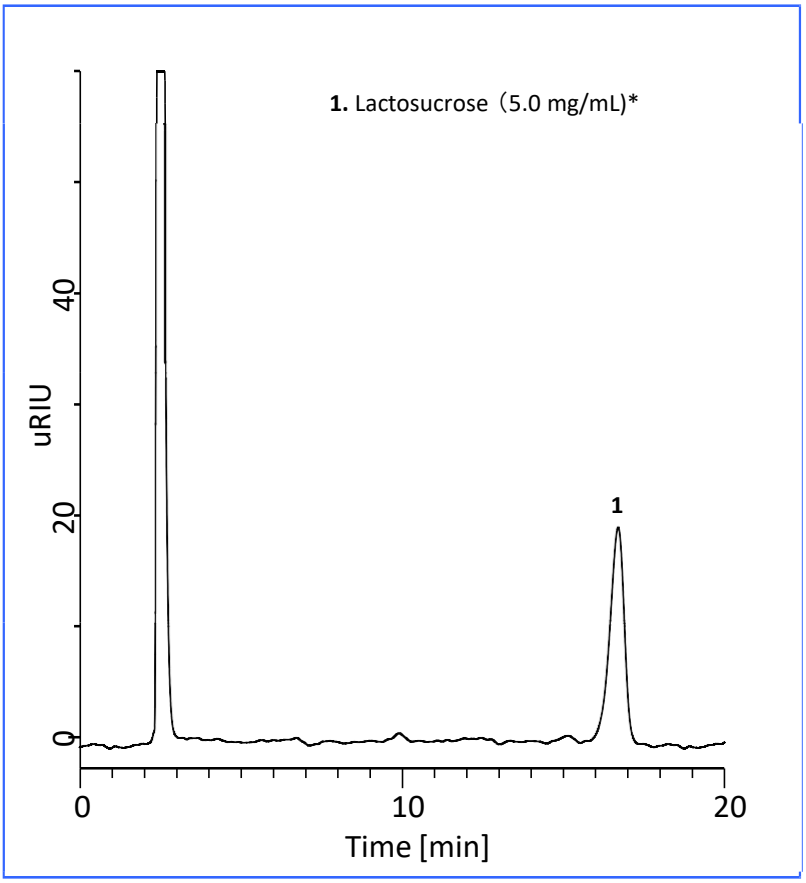
Analysis of Lactosucrose in Food by HPLC

Lactosucrose has a sweet taste similar to sugar and regulates the functions of the intestines. In Japan, food products that contain appropriate amount of lactosucrose can be approved and labeled as foods for specified health uses (FOSHU). In the standard regulation system of FOSHU, HPLC method using silica gel chemically bonded with carbamoyl groups is described as the determination method for lactosucrose.

In this note, Inertsil Amide was used as a separation column for the analysis. Concentration of lactosucrose in commercially available bevarage was successfully determined.

(K. Kanno)

A Chromatogram Obtained from Standard Solution



HPLC conditions

Column : Inertsl Amide (5µm, 250 x 4.6 mm I.D.)

Eluent : A) CH_3CN
B) H_2O
A/B = 71/29, v/v

Flow rate : 1.2 mL/min

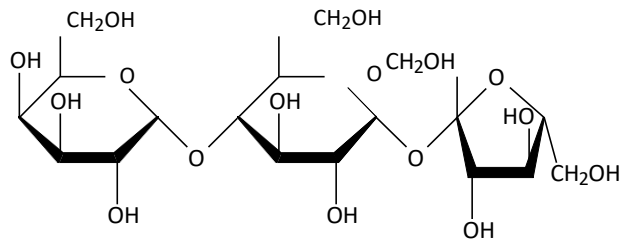
Col. Temp. : 35 ℃

Detection : RI

Inj. Vol. : 20 µL

＊ Aqueous solution of lactosucrose (10 mg/mL) was 2-fold diluted with acetonitrile.

Chemical Structure



1. Lactosucrose

Structures are created using Chemistry 4-D Draw which is provided by ChemInnovation Software, Inc.

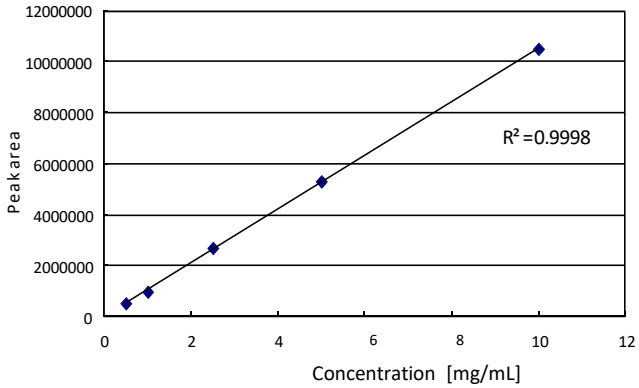


Figure 1. Calibration curve for lactosucrose

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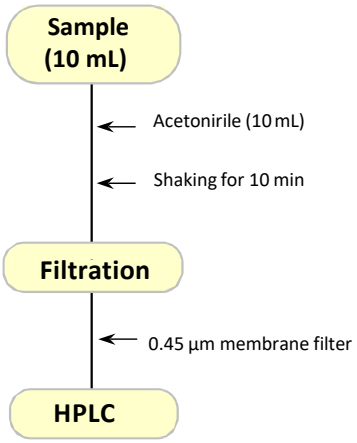
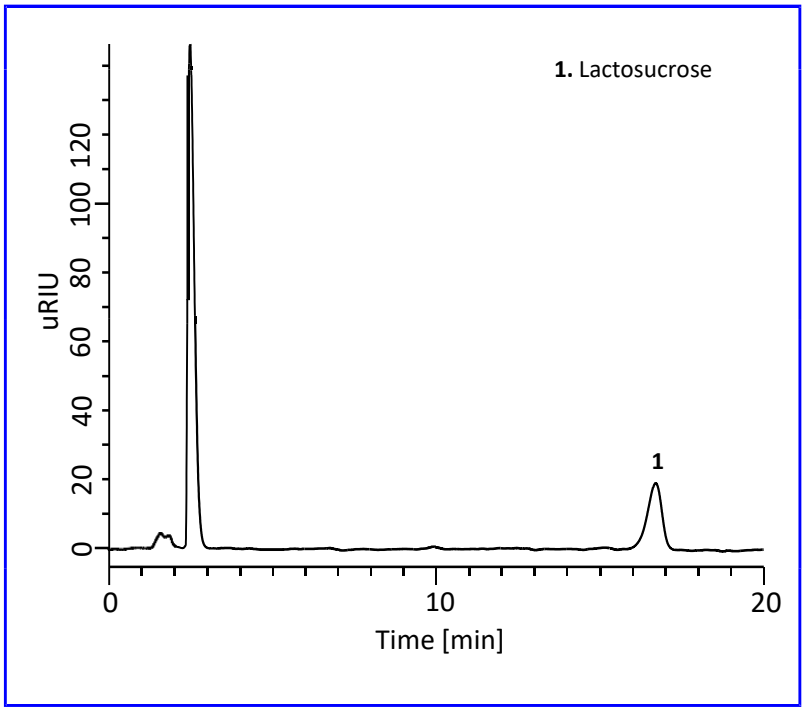
An Example of Pretreatment (for liquid sample)



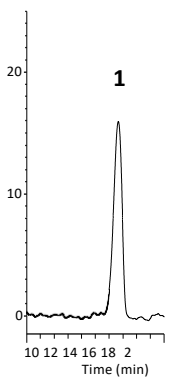
A Chromatogram Obtained from a Beverage Containing Lactosucrose

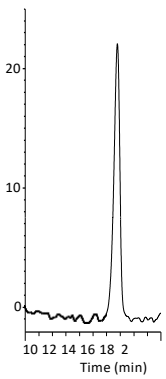


A know-how for using amide column ③

(A) water 100 % (B) water/acetonitrile = 50/50

When using amide column, it is preferable that sample is dissolved in acetonitrile. In general, peak shape is improved as acetonitrile concentration of sample solvent is increased. Chromatograms shown right are obtained from lactosucrose solution dissloved in water 100% (A) or water/acetonitrile = 50/50 (B).





1

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Col. Temp.	: 35 ℃
Detection	: RI
Inj, Vol.	: 20 µL

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