Analysis of Maltobionic Acid in Yogurt Drink using Shodex NH2P-50 4E Column

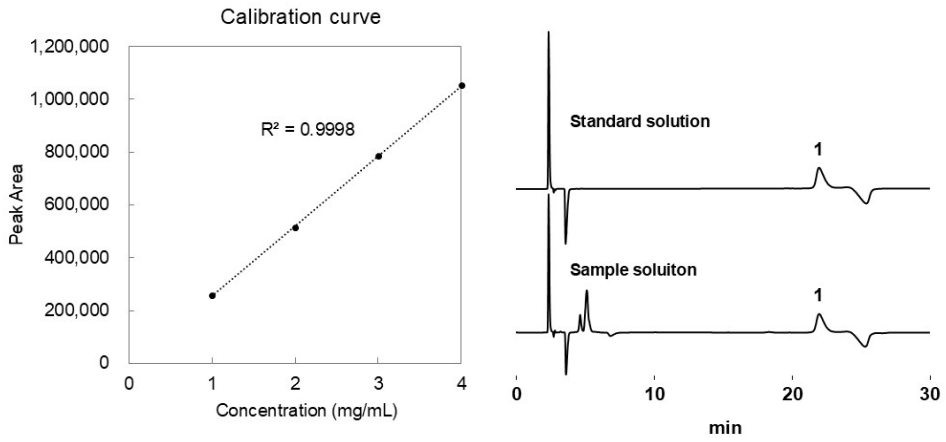
Maltobionic acid is an acidic oligosaccharide consisting of one molecule of gluconic acid linked to glucose. It has been recognized for its ability to enhance mineral absorption, making it a valuable ingredient in functional food formulations.
This study demonstrates the analysis of maltobionic acid in a yogurt drink using the Shodex NH2P-50 4E amino column. The method enables reliable separation and quantification of maltobionic acid, ensuring accurate quality evaluation in dairy-based products.

Sample preparation:

1. Accurately pipette 1 mL of a yogurt drink and dilute to 10 mL with water.
2. Take 160 µL of the solution from step 1, add 640 µL of water and mix.
3. Add 200 µL of 1 M NaOH aqueous solution to neutralize.
4. Add 1000 µL of acetonitrile.
5. Filter through a 0.45-µm membrane filter and use it as a sample.

Chromatographic Conditions:

Column：Shodex Asahipak NH2P-50G 4A (4.6 mm I.D. x 10 mm) + NH2P-50 4E (4.6 mm I.D. x 250 mm)
Eluent: (21 mM Citric acid + 21 mM Na2HPO4 aq.)/CH3CN=40/60
Flow rate: 1.0 mL/min
Detector: RI
Column temp.: 40 °C



Sample: 10 µL
(Standard solution) Calcium maltobionate 2 mg/mL in CH3CN/H2O=50/50
(Sample solution) Pretreated yogurt drink
1.Maltobionic acid

The Shodex NH2P-50 4E column provides high-resolution separation for saccharide analysis.
The optimized analytical conditions enable precise detection of maltobionic acid in complex dairy matrices.
Maltobionic acid can improve mineral bioavailability and overall nutritional value in yogurt beverages.