APPLICATION NOTES

HPLC

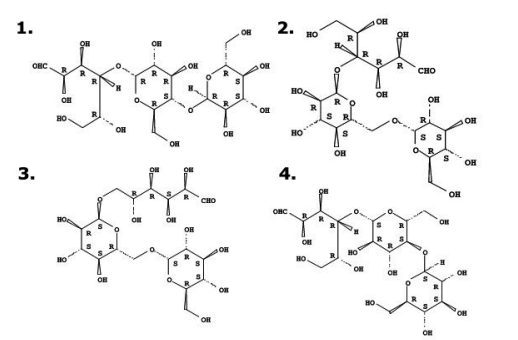
Cogent™ Bidentate C18

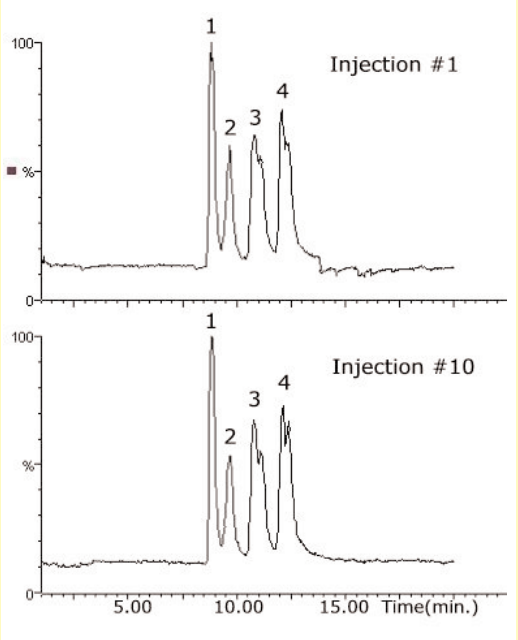
with TYPE-C Silica™

Carbohydrates

Positional Isomer Analysis by LCMS

Simultaneous analysis of α and β -linked gluco-oligosaccharides.





Note: :Compounds 1-4 were also analyzed using a leading brand of C18 columns (Type-B, high purity) but only 3 peaks were observed and the analysis was not reproducible.

Method Conditions

Column:	Cogent Bidentate C18, 4µm, 100Å.
Catalog No.:	40018-25P
Dimensions:	4.6 x 250 mm
Mobile phase:	100% DI water + 0.5% formic acid
Flow rate:	0.3 mL/min.
Injection Volume:	10 µL
Peaks/Samples:	1. Maltotriose α 1,4 m/z 144 2. Panose α 1,4 + α 1,6 m/z 127 3. Isomaltotriose α 1,6 m/z 127 4. Cellotriose β 1,4 m/z 144
Sample Concentration:	0.1 mg of each in DI water All compounds have MW = 504.
Detection:	$APCI^+$. Single Ion Monitoring

Discussion

The separation presented offers an easy and reproducible analytical method for the analysis of positional isomers of oligosaccharides. Two additional components (shoulders on the peaks 3 and 4) have yet to be identified. Despite using 100% water as the mobile phase, the analysis was very reproducible and no loss of retention over time was observed from run to run.

Some of the most important actions of oligosaccharides are: inhibition of the growth of pathogenic and harmful bacteria, stimulation of the immune functions, reduction of cholesterol level and reduction of the risk of cancer and the mprovement of digestion/absorption of food ingredients such as minerals and vitamins. The structures of oligosaccharides can be very complex, which allows very specific bio-interactions. On the other hand the complexity of the structure is a limitation to the possibility of developing efficient synthesis routes. To make possible the large scale applications of oligosaccharides in various fields (agrochemistry, cosmetics, food and feed, drug target, inflammatory phenomena, immuno-stimulation, etc.,) scientists will need synthesis methods and then confirmation of the purity of the products while in-process. Oligosaccharides are usually synthesized by enzymes which takes a long time and the determination of the purity of the products is difficult.

For more information visit www.MTC-USA.com

Cat. No.	Description
40018-25P	Cogent Bidentate C18™ HPLC Column, 100Å, 4µm, 4.6 x 250 mm.

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