

UPLC-MS Analysis of Food Sugars/Saccharides in Beer Using ACQUITY UPLC BEH Amide Columns

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This is an Application Brief and does not contain a detailed
Experimental section.

Abstract

This application brief describes UPLC-MS analysis of food sugars/saccharides in beer.

Introduction

Compounds analysed in beer are:

1. Fructose
2. Glucose
3. Sucrose
4. Maltose
5. Maltotriose

STRUCTURES

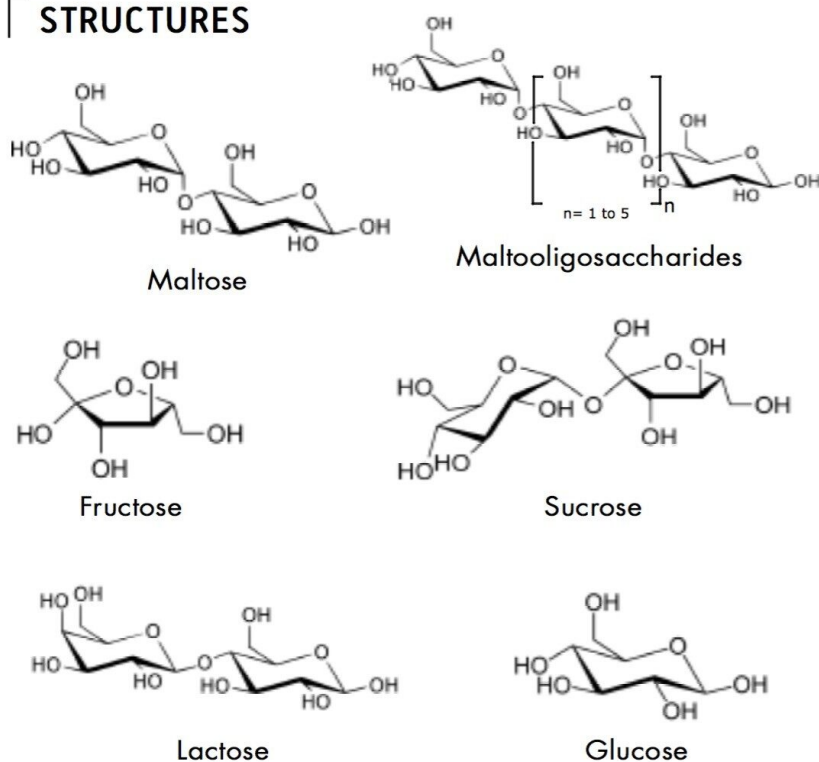


Figure 1: Structure of the compounds analysed.

Experimental

Chromatographic Conditions

Column:	ACQUITY UPLC BEH Amide 2.1 x 100 mm, 1.7 μ m
Part Number:	186004801
Mobile Phase A:	80/20 MeCN/H ₂ O with 0.1% ammonium hydroxide [NH ₄ OH]
Mobile Phase B:	30/70 MeCN/H ₂ O with 0.1% ammonium hydroxide [NH ₄ OH]

Flow Rate:	0.13 mL/min
Gradient:	10 minute gradient, 75%-45% MeCN (w/0.1% NH ₄ OH) with 25 minute re-equilibration
Injection Volume:	2.0 µL (PLNO)
Sample Concentration:	Standards at 10 µg/mL, Beer at 50% dilution
Sample Diluent:	50/50 MeCN/H ₂ O
Column Temperature:	35 °C
Strong Needle Wash:	20/80 MeCN/H ₂ O (800 µL)
Weak Needle Wash:	75/2MeCN/H ₂ O 5 (500 µL)
Seal Wash:	50/50 MeCN/H ₂ O
Instrument:	Waters ACQUITY UPLC with SQ

Gradient

Time(min)	Profile
	%A
0.00	90.00
10.00	30.00
10.01	90.00
35.00	90.00

Mass Spectrometer Conditions

Ionization Mode:	ES-
Capillary:	2.8 kV
Cone Voltage:	25 V (fructose, glucose, maltotriose); 40V (sucrose and maltose)
Source Temp:	120 °C
Desolvation Temp:	350 °C
Desolvation Gas Flow:	500 L/Hr
Cone:	50 L/Hr
SIR (m/z):	179.0 (fructose, glucose); 341.1 (sucrose, maltose); 503.2 (maltotriose)
Dwell Time:	0.04 s

Results and Discussion

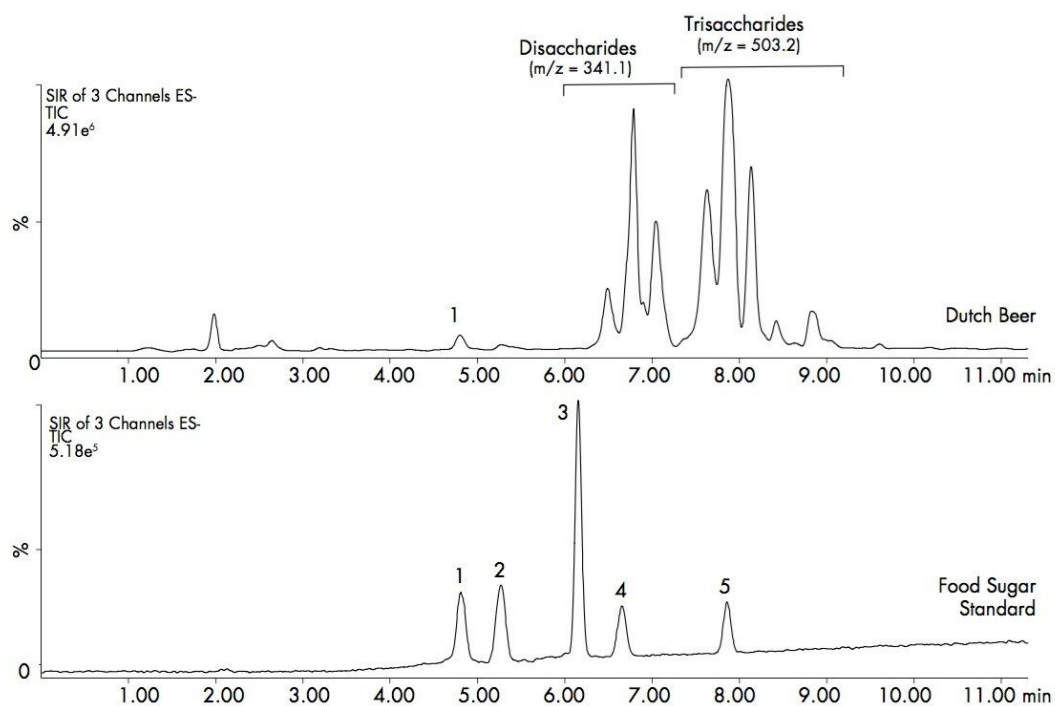


Figure 2: Chromatogram of 1. Fructose 2. Glucose 3. Sucrose 4. Maltose 5. Maltotriose

Featured Products

ACQUITY UPLC System <<https://www.waters.com/514207>>

SQ Detector 2 <<https://www.waters.com/134631584>>

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