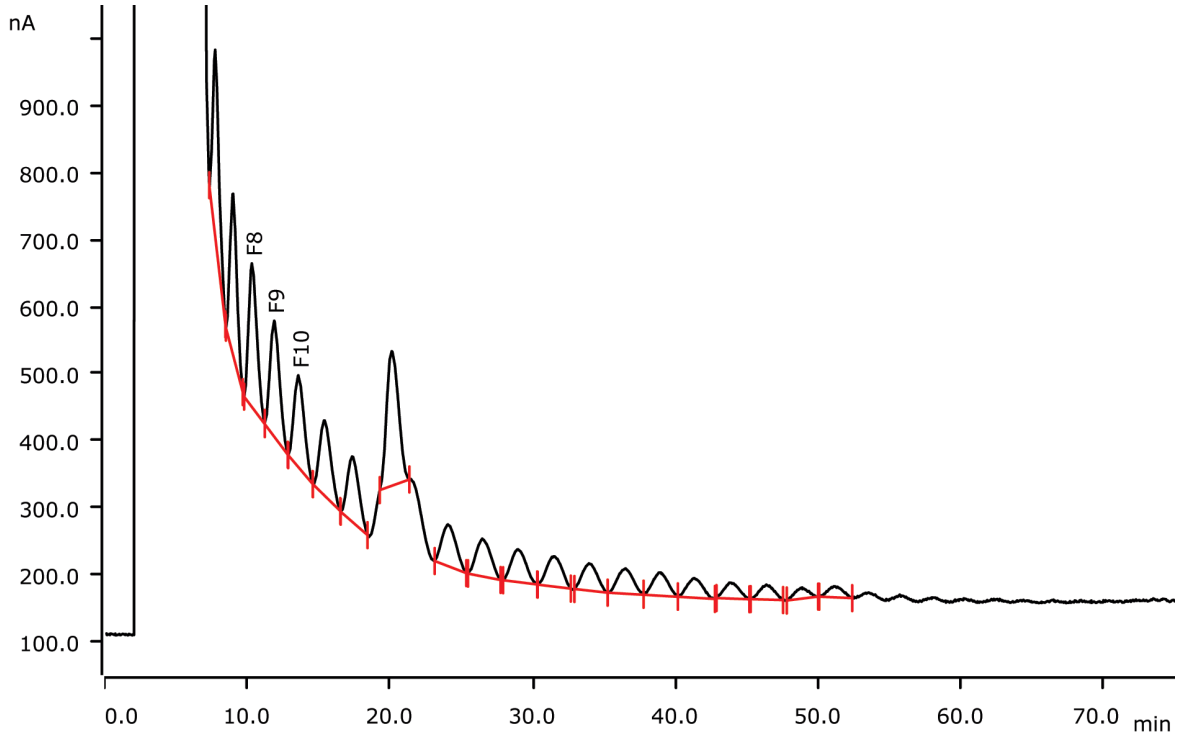
IC Application Note P–49

Determination of inulin in cakes using pulsed amperometric detection after gradient elution



Inulin is made up of a chain of many fructose molecules. Recently, it is increasingly used in the food production. This Application Note describes the determination of the inulin content in cakes. For correct analysis, it is essential to know which kind of inulin is present, since number of fructose units varies. In this case, the F8 (eight fructose units) peak was exemplarily quantified.

Results

	Concentration (injected) [mg/kg]	Concentration (in cake) [%]
Inulin	653	1.30

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Sample

Cake containing inulin

Sample preparation

Fat-free cake crumbs were extracted with acetate buffer. After filtration, this extract is subsequently injected.

Columns

Metrosep A Supp 16 - 250/4.0	6.1031.430
Metrosep A Supp 16 Guard/4.0	6.1031.500

Solutions

Eluent A	60 mmol/L sodium hydroxide 10 mmol/L sodium acetate
Eluent B	100 mmol/L sodium hydroxide 100 mmol/L sodium acetate
Extraction solution	100 mmol/L sodium acetate pH = 4.5 (acetic acid)

Parameters

Flow rate	1.0 mL/min
Injection volume	20 µL
P_{max}	20 MPa
Recording time	75 min
Column temperature	45 °C

PAD Parameters

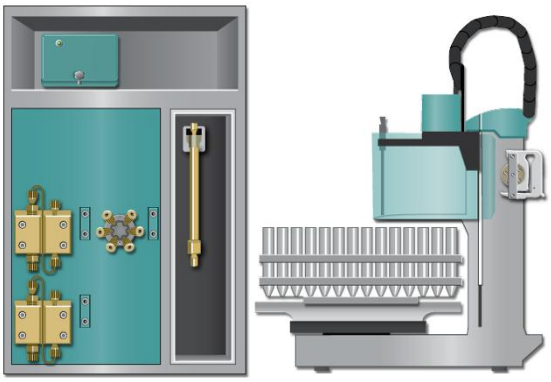
Cell	Wall-Jet cell
Working electrode	Gold (3 mm)
Reference electrode	Palladium
Spacer	50 µm
Meas. range	200 µA
Meas. duration	100 ms
Cycle duration	550 ms
Temperature	35 °C
Mode	PAD
Meas. potential	50 mV

Analysis

Pulsed amperometric detection

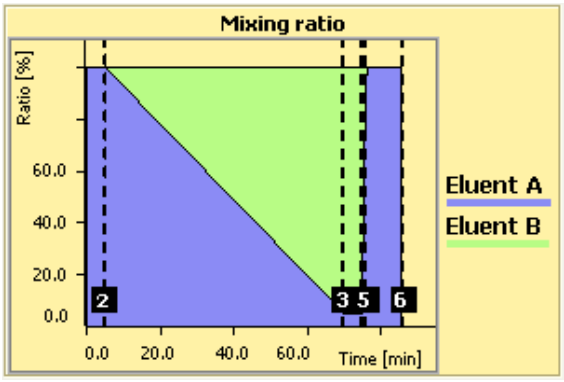
Instrumentation

940 Profesional IC Vario ONE/HPG	2.940.1140
IC Amperometric Detector	2.850.9110
858 Professional Sample Processor	2.858.0020
IC equipment for Wall-Jet cell (Au, Pd)	6.5337.010



Gadient profile

Time	Ratio A [%]	Ratio B [%]	Curve
Start	100	0	
5.0	100	0	Linear
70.0	5	95	Linear
75.0	5	95	Linear
76.0	100	0	Linear
86.0	100	0	Linear



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