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Analysis of catechins using an Accucore™ XL C8 4 µm HPLC column

Application #514

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General Information

Market: Food&Beverage
Matrix: Standard
Instrument type: HPLC

Description

Based on Core Enhanced Technology™ using 4 µm solid core particles, Accucore™ XL HPLC columns allow users of conventional HPLC methods to enjoy performance far beyond that of columns packed with 5 µm or even 3 µm fully porous particles. Very high separation efficiencies using standard HPLC instruments and conditions provide increased peak resolution and lower limits of detection. An ultra-stable packed bed results in exceptionally robust columns that demonstrate excellent retention and response reproducibility.

Catechins are found in many food products, particularly in wine and tea. They act as antioxidants, have anti-inflammatory, anti-carcinogenic and anti-mutagenic properties.1,2 Some catechins exhibit antimicrobial characteristics and prove beneficial in applications such as prevention and treatment of infections and the promotion of oral and digestive health.3,4

Since catechins are structurally similar, their analysis relies on high peak resolution. The method described in this application note demonstrates improved chromatographic performance in the separation of seven catechins on an Accucore XL column in relation to a fully porous traditional HPLC column under the same experimental conditions.

Method Details

Instrument parameters

Instrument Parameter	Value
Run Time Length	17.000 min
Mobile_Phase_A	water + 0.1% formic acid
Mobile_Phase_B	methanol + 0.1% formic acid
Flow_Rate	1 mL/min
Column_Temperature	25 °C
Detection	UV 280 nm
Injection_Volume	5 µL

Gradient Details

Ret. Time [min]	Flow [ml/min]	%B [%]	%C [%]	%D [%]
0.000	1.000	20.0	0.0	0.0
15.000	1.000	50.0	0.0	0.0
15.100	1.000	20.0	0.0	0.0
20.000	1.000	20.0	0.0	0.0

Column Details

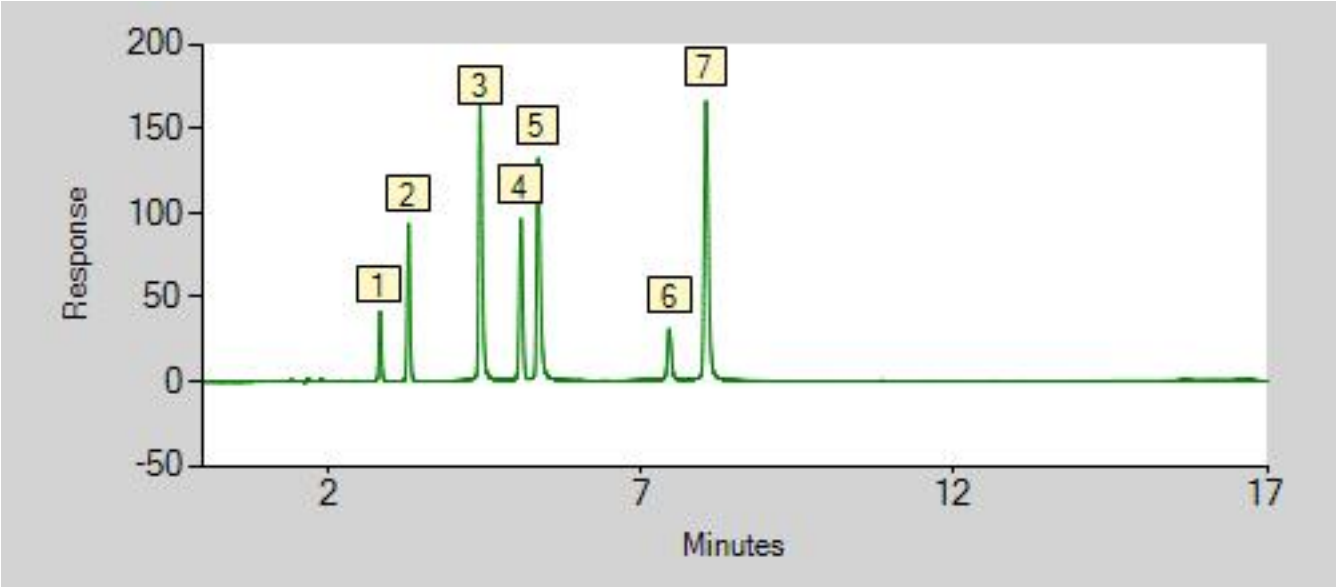
column_A	
Manufacturer	Thermo Fisher Scientific
Model	Accucore XL C8
Diameter	4.6
Length	150
Particle Size	4
Packing Material	C8

System information

Instrument Type	UHPLC
HPLC	Generic

Results

Channel Detector_1_280nm



No	Peak_Name	*Compound_Class	Retention_Time	Peak_Area	Peak_Area_pc	Peak_Height	Peak_Height_pc	Plates_(USP)	Resolution_(USP)	Tailing_Factor_(USP)
1	Epigallocatechin	Catechin	2.823	1.890	3.99	41.077	5.72	24716	6.05	1.09
2	Catechin	Catechin	3.280	4.687	9.91	93.176	12.97	27427	12.88	1.06
3	Epigallocatechin gallate	Catechin	4.423	10.821	22.88	163.805	22.80	32428	6.66	1.39
4	Epicatechin	Catechin	5.077	5.860	12.39	94.749	13.19	42923	2.69	1.03
5	Gallocatechin gallate	Catechin	5.348	9.046	19.12	130.701	18.19	42630	19.45	1.59
6	Epicatechin gallate	Catechin	7.447	2.167	4.58	29.876	4.16	70556	5.14	1.12
7	Catechin gallate	Catechin	8.035	12.836	27.13	165.086	22.98	75834	n.a.	1.28

Appendix

The application can be accessed at http://dlibrary.dionex.com/Public/View.aspx?ApplicationID=514

Available Downloads

Filename	Size(bytes)
590 xl Catechins .pdf	419511

Related Information

No related information available.