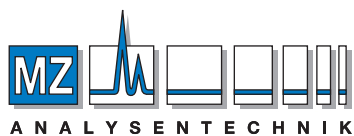




HPLC TECHNICAL INFORMATION

Polyphenols



AUTHORIZED DISTRIBUTOR

MZ-Analysentechnik GmbH, Barcelona-Allee 17• D-55129 Mainz

Tel +49 6131 880 96-0, Fax +49 6131 880 96-20

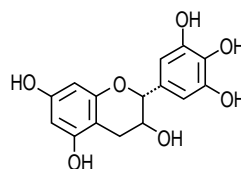
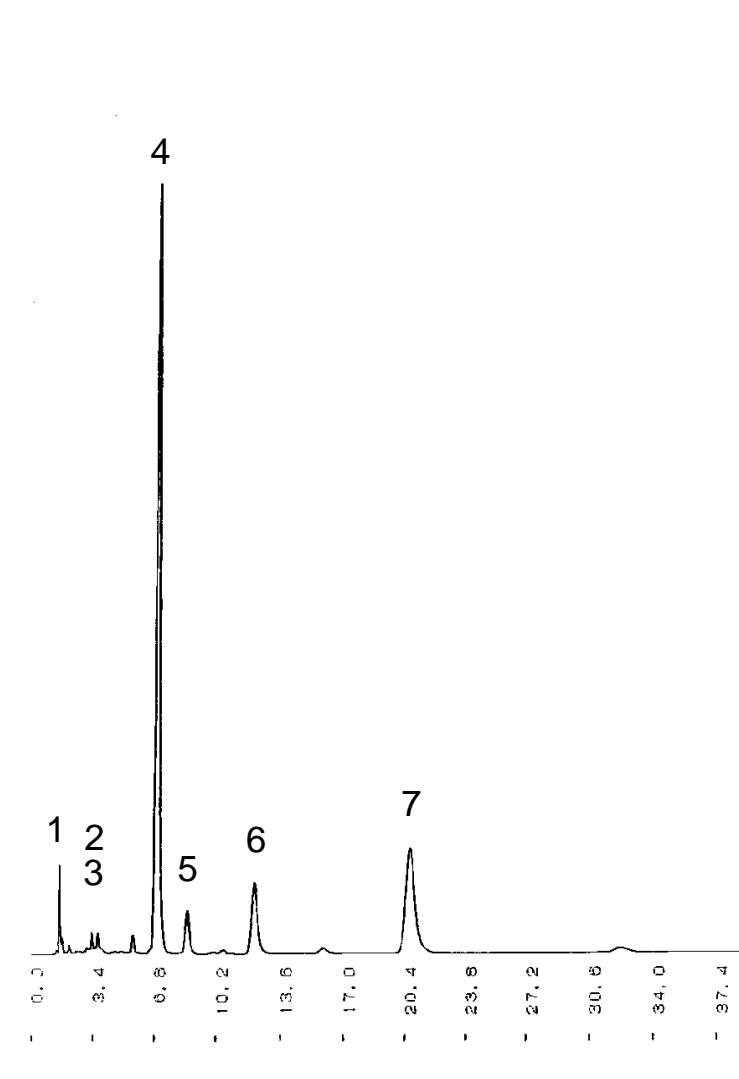
e-mail: info@mz-at.de, www.mz-at.de

Cadenza CD-C18

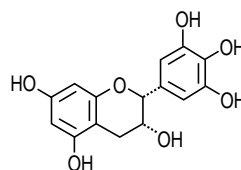
75 x 4.6 mm

Application

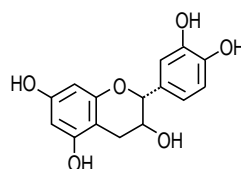
Catechins



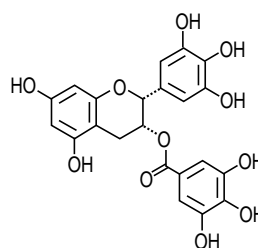
1
galocatechin
GC(+)



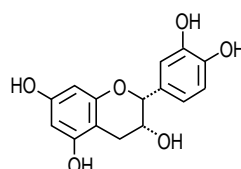
2
epigallocatechin
EGC(-)



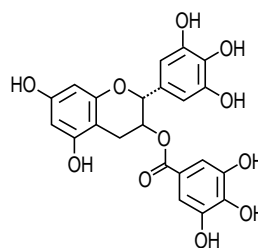
3
catechin
C(+)



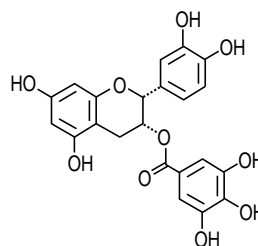
4
epigallocatechin gallate
EGCg(-)



5
epicatechin
EC(-)



6
galocatechin gallate
GCg(-)



7
epicatechin gallate
ECg(-)

Cadenza CD-C18, 75 x 4.6 mm
0.05 % H₃PO₄ / methanol = 80 / 20
1.0 mL/min, 30 °C
UV at 280 nm
5 uL (0.1%)

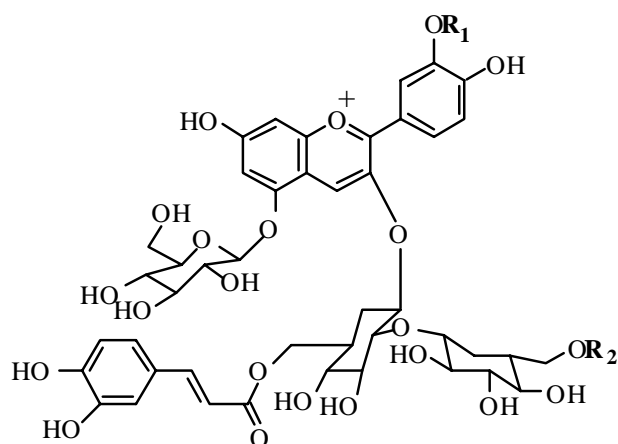
Courtesy of Pharma Foods International Co., Ltd.

Cadenza CD-C18

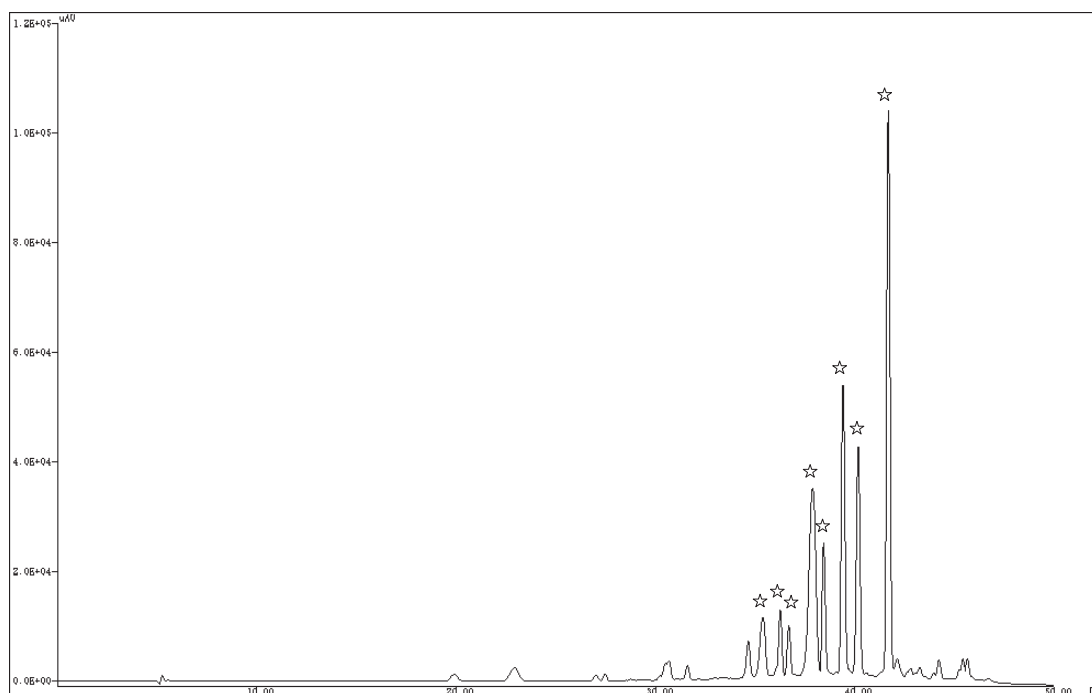
250 x 4.6 mm

Application

Anthocyanins in Purple-Fleshed Sweet Potato



	R ₁	R ₂
YGM-1a	H	caffeic acid
YGM-1b	H	<i>p</i> -hydroxy benzoic acid
YGM-2	H	H
YGM-3	H	ferulic acid
YGM-4b	CH ₃	caffeic acid
YGM-5a	CH ₃	<i>p</i> -hydroxy benzoic acid
YGM-5b	CH ₃	H
YGM-6	CH ₃	ferulic acid



Cadenza CD-C18, 250 x 4.6 mm
 5 - 25% acetonitrile / 0.1% TFA
 0.75 mL/min, 35 °C
 530 nm

Courtesy of Dr. T. Oki and Dr. I. Suda, KONARC / NARO

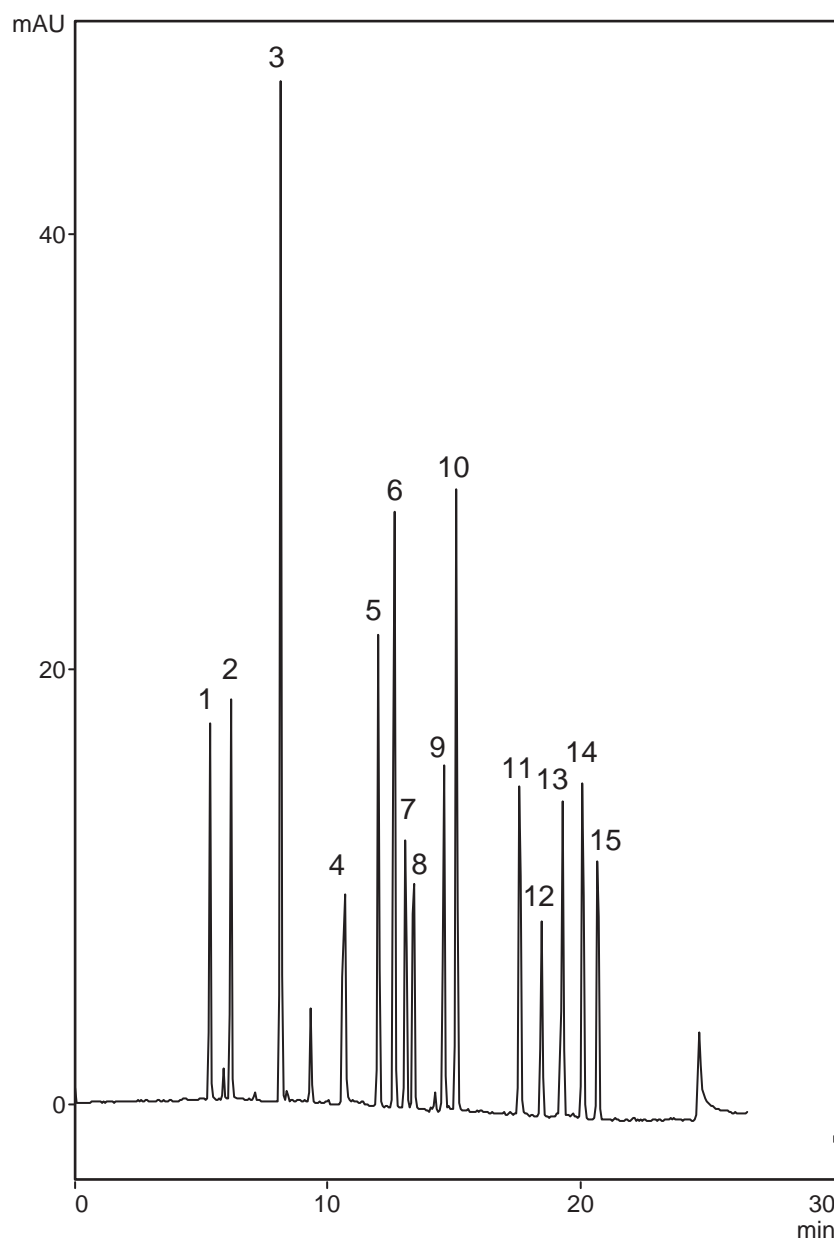
Unison UK-C18

250 x 4.6 mm

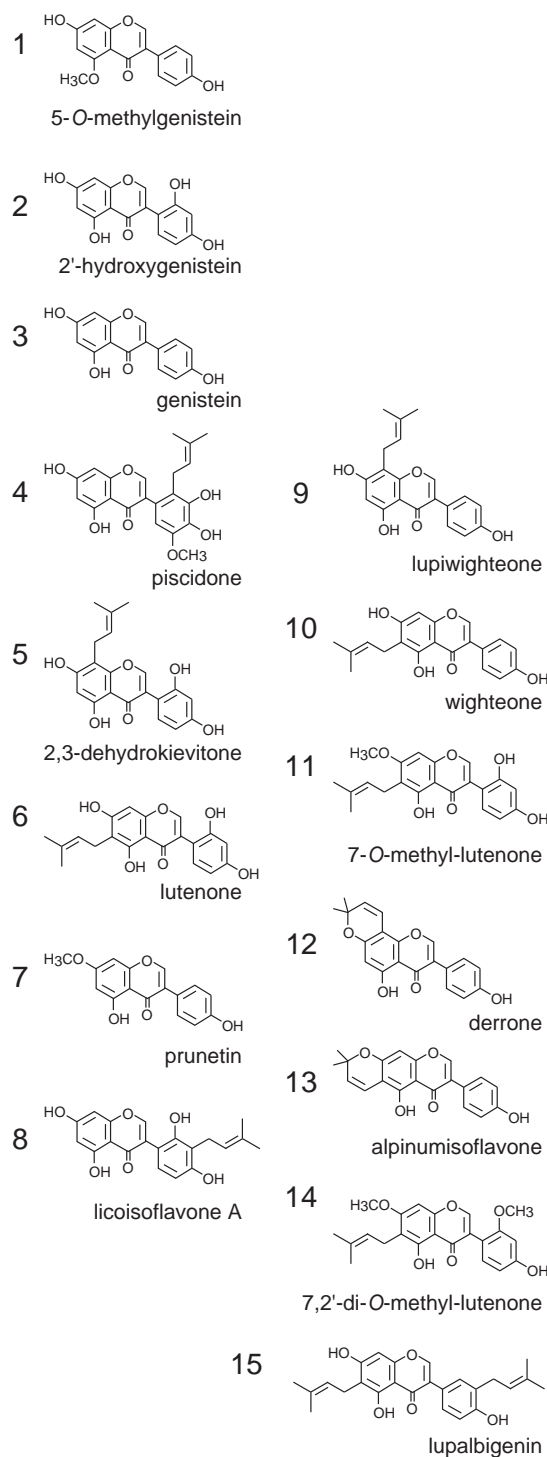
Application

Isoflavones 1

イソフラボン類 1



Unison UK-C18, 250 x 4.6 mm
 A: 20mM ammonium acetate
 B: acetonitrile
 40 - 100 %B (0 - 25 min)
 0.8 mL/min, 37 °C, 260 nm



Courtesy of Prof. S. Tahara, Hokkaido Univ.

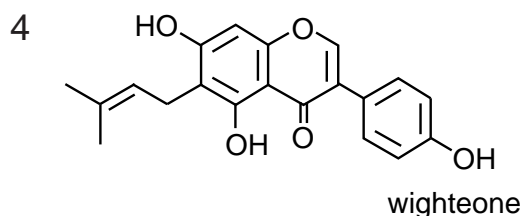
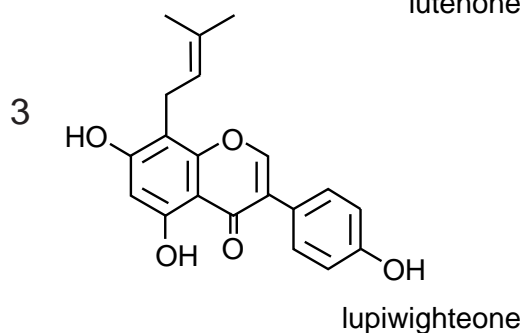
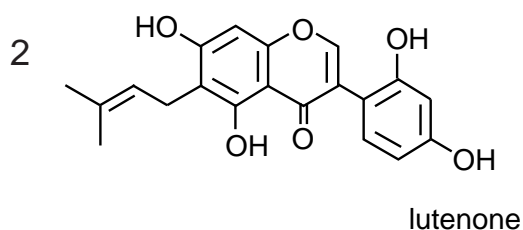
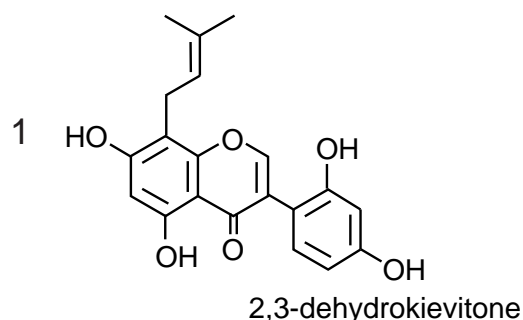
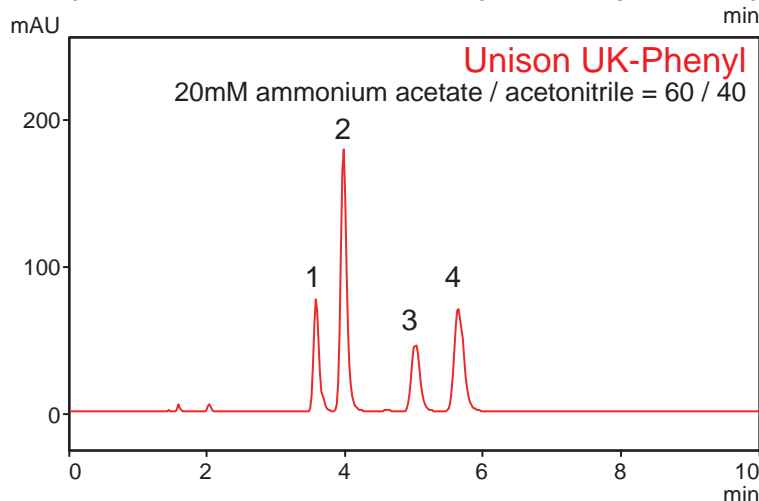
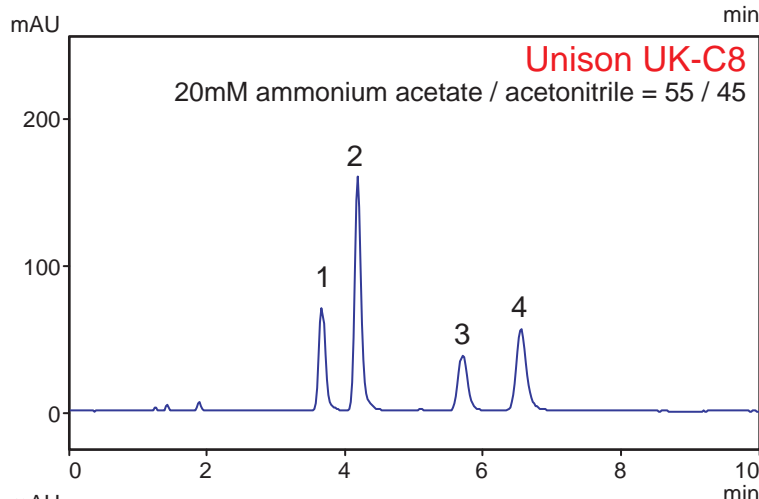
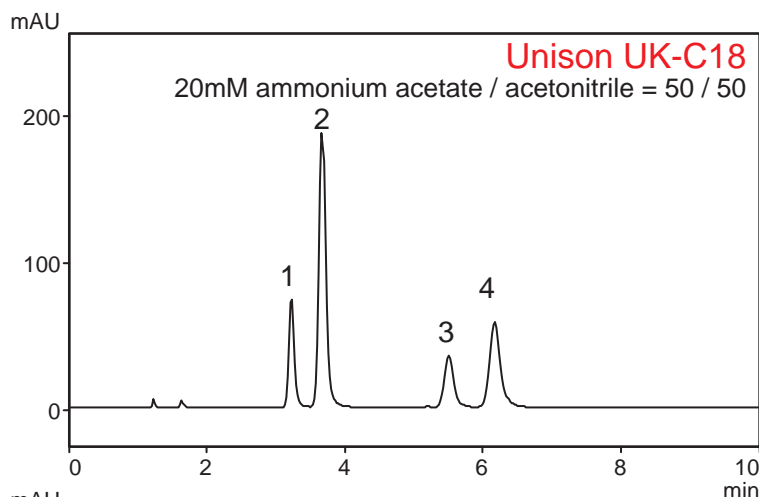
Unison UK-C18
 Unison UK-C8
 Unison UK-Phenyl

75 x 4.6 mm

Application

Isoflavones 2

イソフラボン類 2



Unison, 75 x 4.6 mm
 1.0 mL/min, 37 °C, 260 nm

Courtesy of Prof. S. Tahara, Hokkaido Univ.

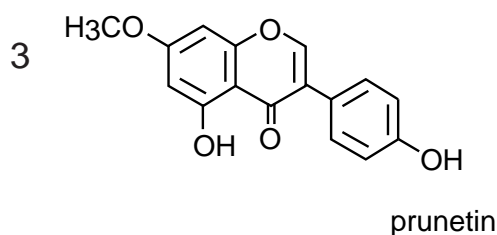
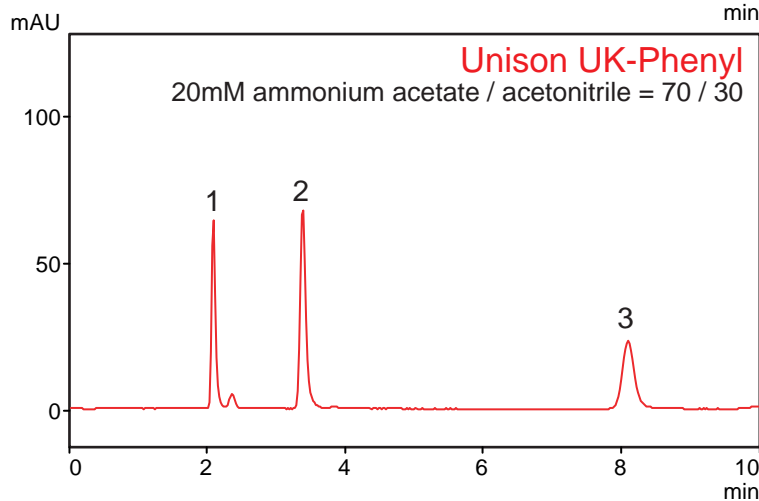
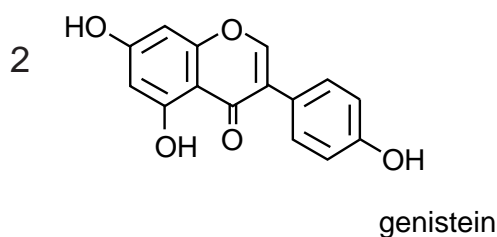
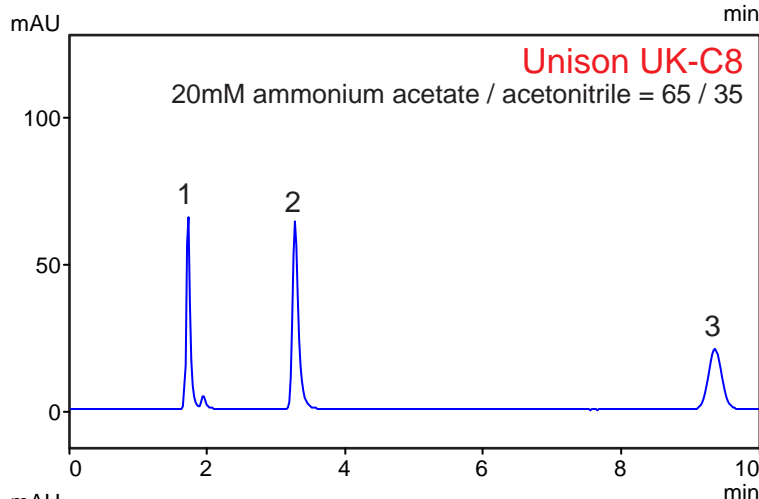
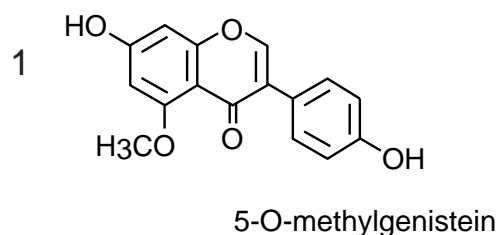
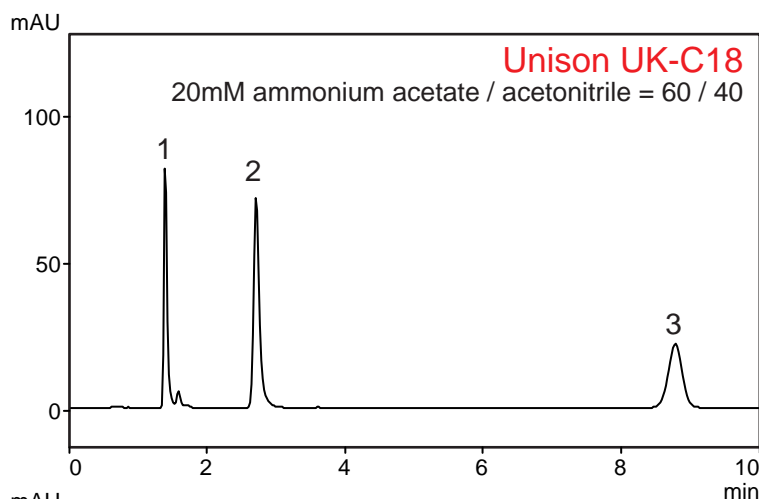
Unison UK-C18
 Unison UK-C8
 Unison UK-Phenyl

75 x 4.6 mm

Application

Isoflavones 3

イソフラボン類 3



Unison, 75 x 4.6 mm
 1.0 mL/min, 37 °C, 260 nm

Courtesy of Prof. S. Tahara, Hokkaido Univ.

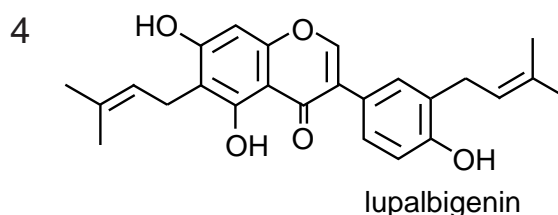
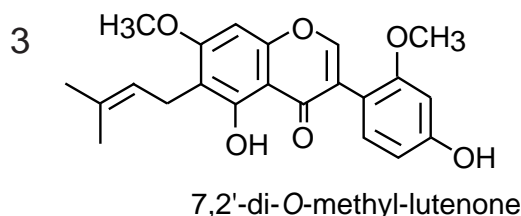
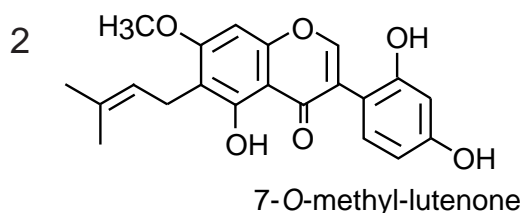
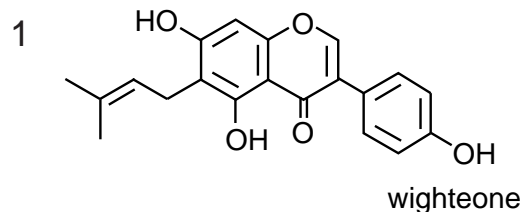
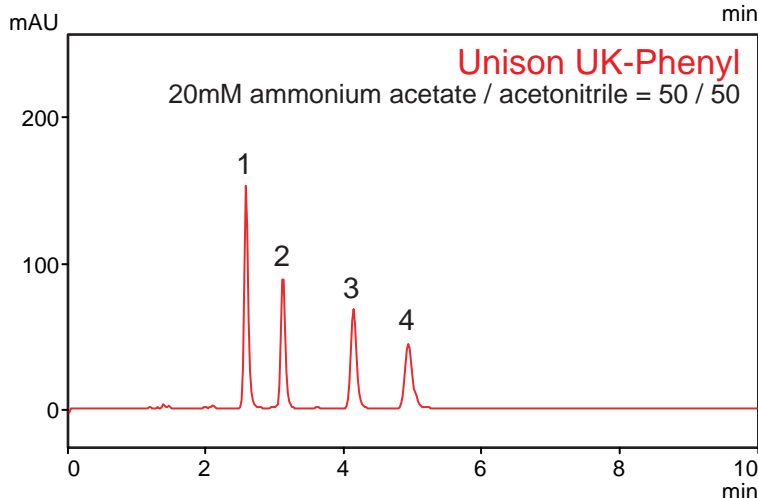
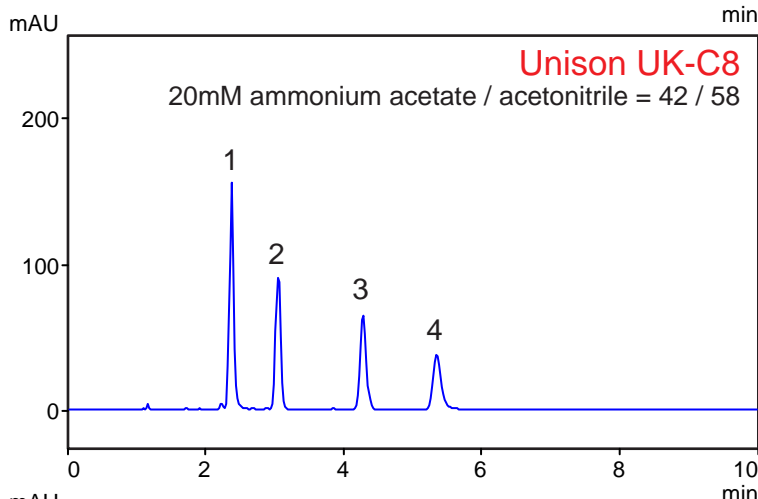
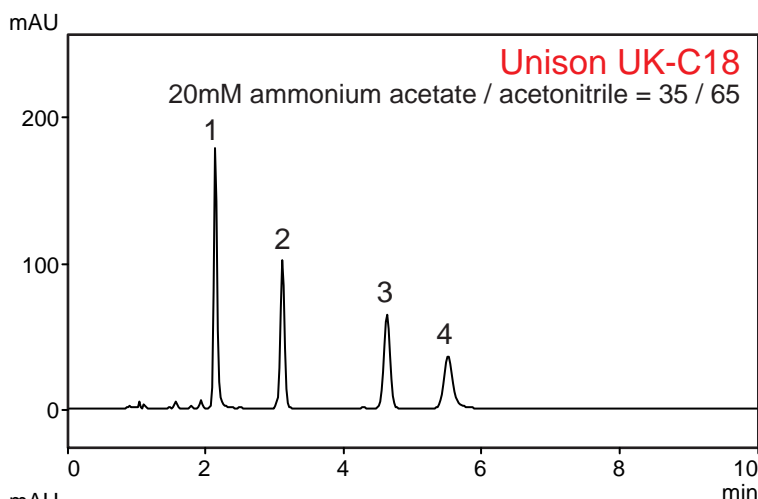
Unison UK-C18
 Unison UK-C8
 Unison UK-Phenyl

75 x 4.6 mm

Application

Isoflavones 4

イソフラボン類 4



Unison, 75 x 4.6 mm
 1.0 mL/min, 37 °C, 260 nm

Courtesy of Prof. S. Tahara, Hokkaido Univ.

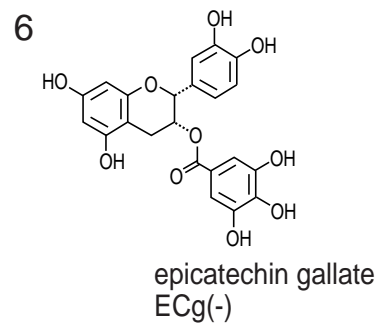
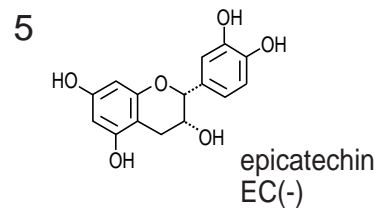
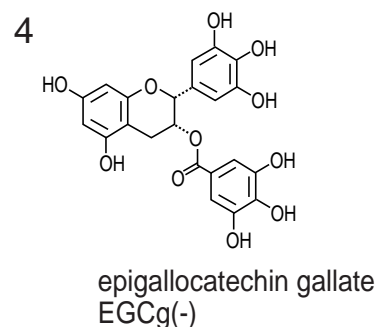
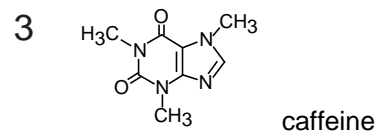
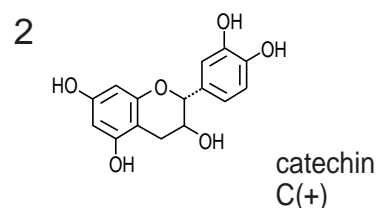
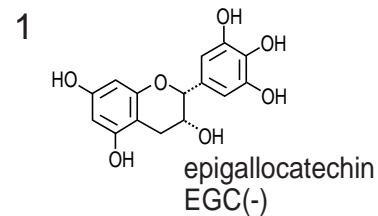
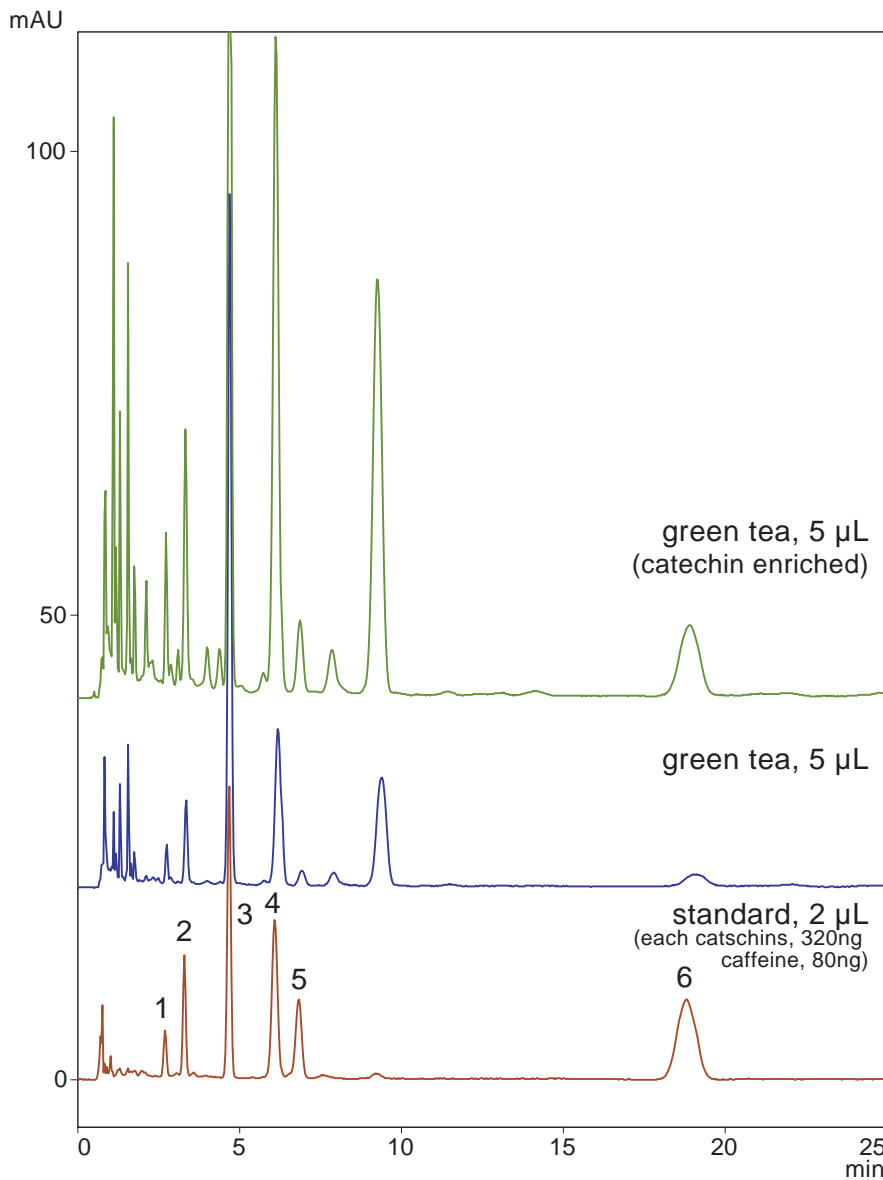
Cadenza CD-C18

75 x 4.6 mm

Application

Catechins in Green Tea

緑茶中のカテキン



Cadenza CD-C18, 75 x 4.6 mm
1% acetic acid / methanol / acetonitrile = 85 / 10 / 5
1 mL/min, 37 °C, 280 nm, 10 MPa

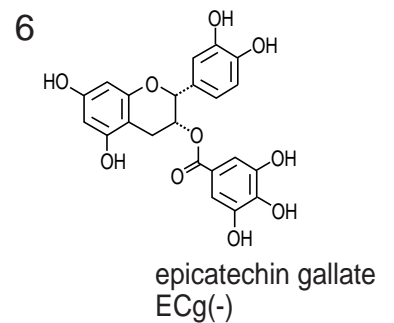
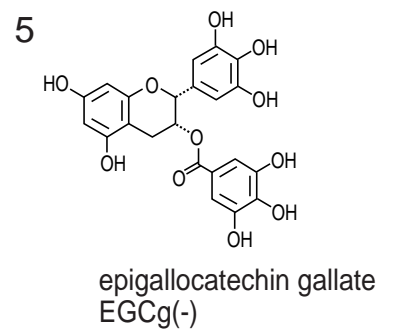
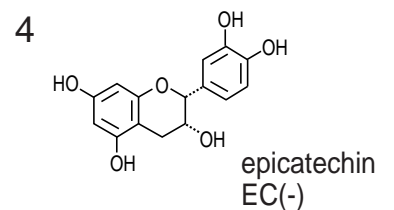
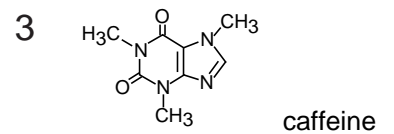
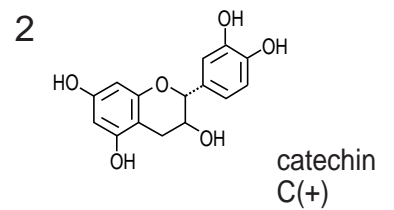
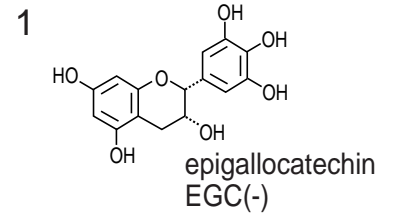
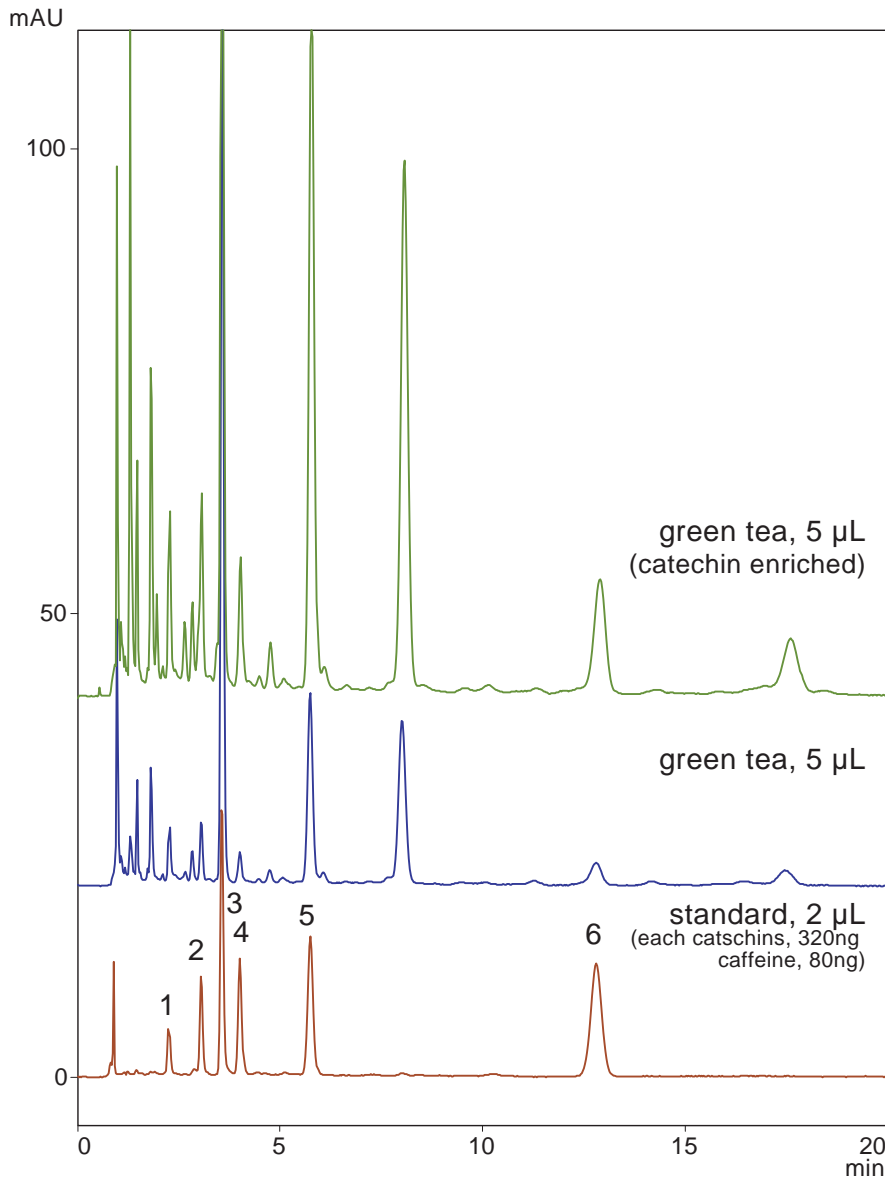
Unison UK-C8

75 x 4.6 mm

Application

Catechins in Green Tea

緑茶中のカテキン



Unison UK-C8, 75 x 4.6 mm
 1% acetic acid / acetonitrile = 90 / 10
 1 mL/min, 37 °C, 280 nm, 8 MPa

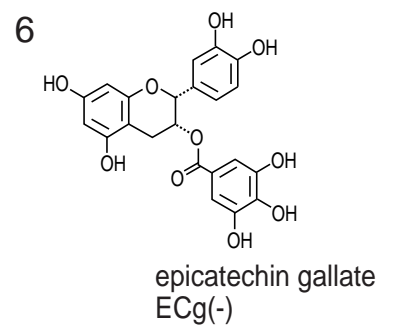
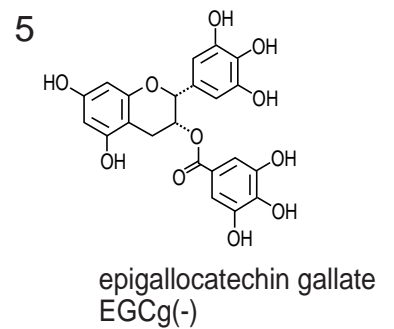
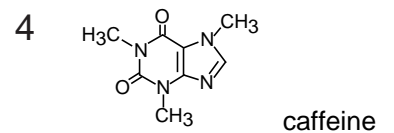
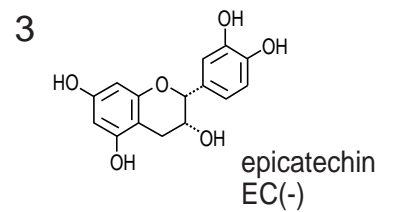
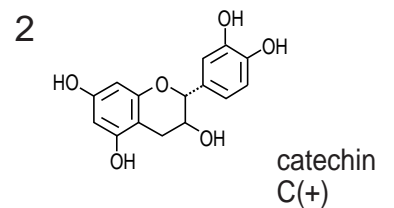
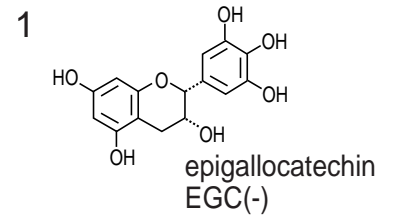
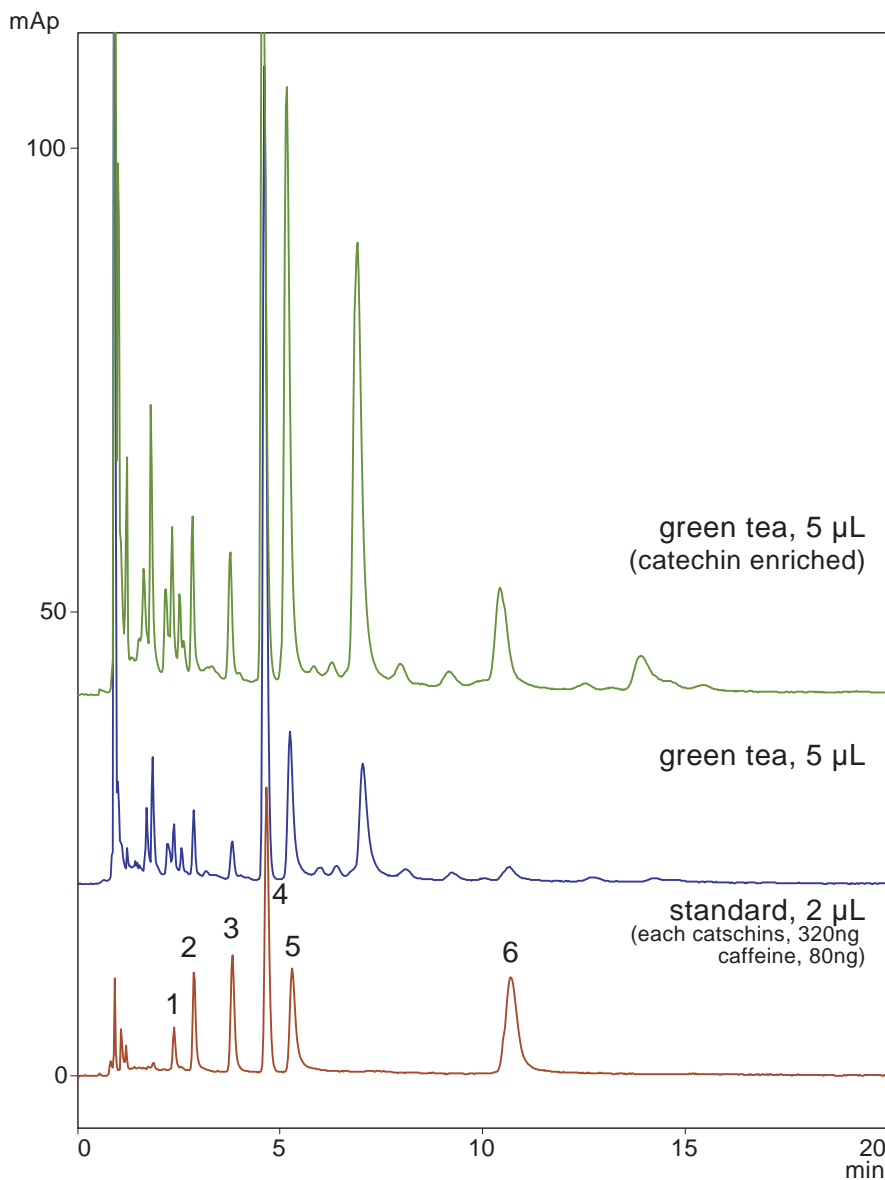
Unison UK-Phenyl

75 x 4.6 mm

Application

Catechins in Green Tea

緑茶中のカテキン



Unison UK-Phenyl, 75 x 4.6 mm
 100mM ammonium formate / acetonitrile = 92 / 8
 1 mL/min, 37 °C, 280 nm, 8 MPa

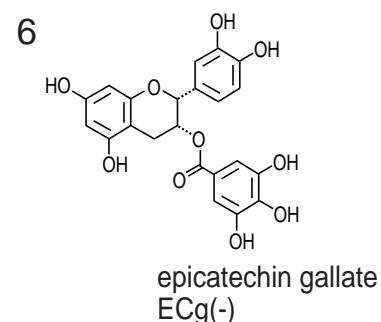
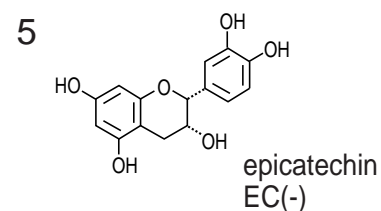
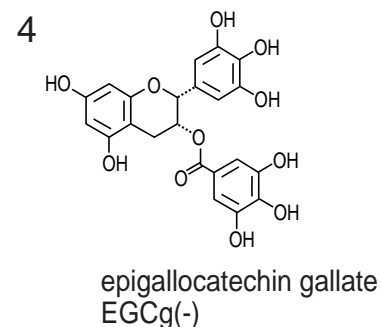
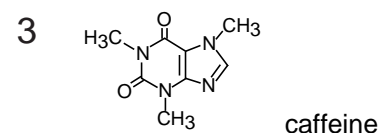
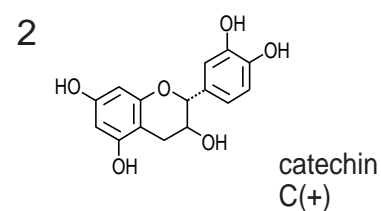
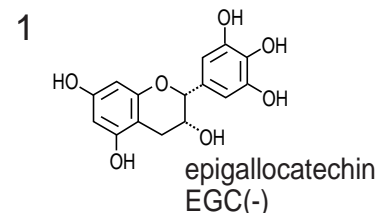
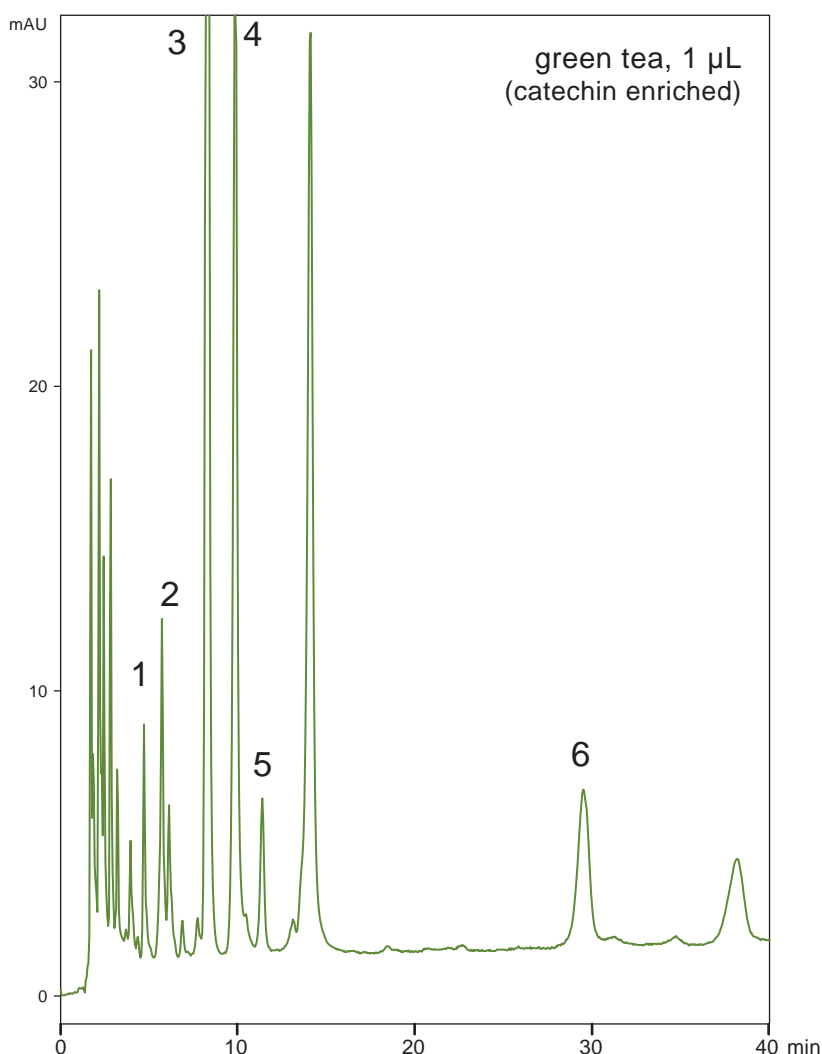
Cadenza CD-C18

150 x 2 mm

Application

Catechins in Green Tea

緑茶中のカテキン



Cadenza CD-C18, 150 x 2 mm
1% acetic acid / methanol / acetonitrile = 85 / 10 / 5
0.2 mL/min, 37 °C, 280 nm

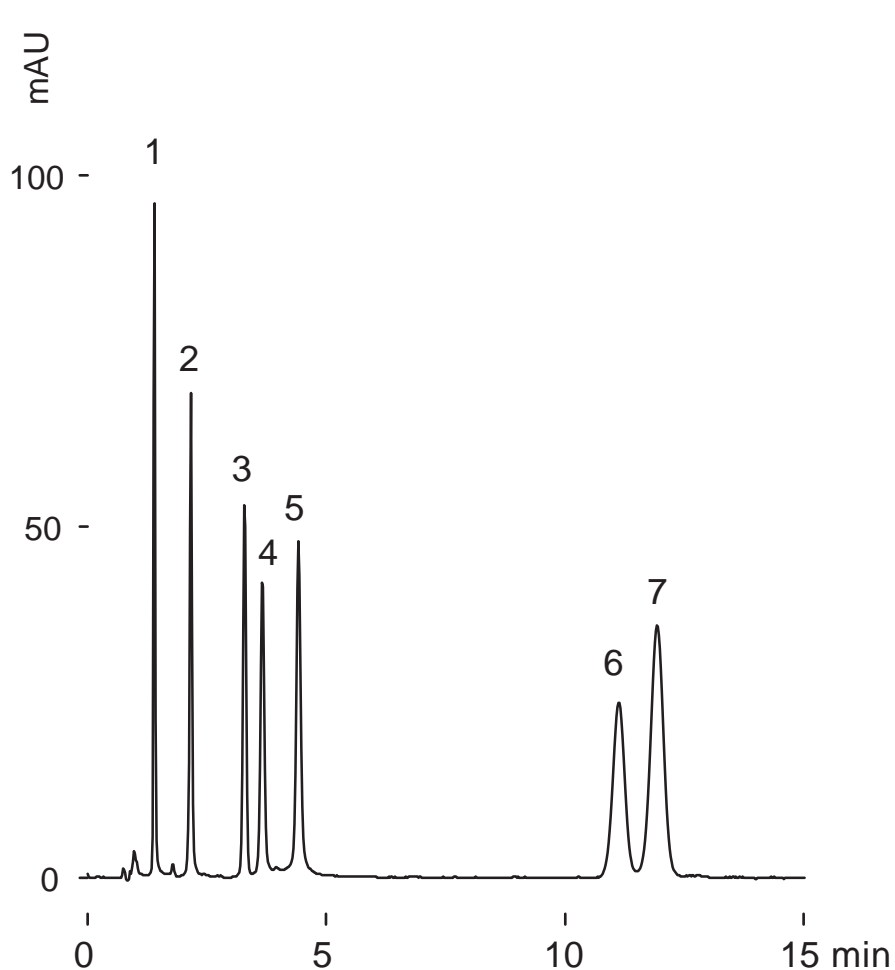
Cadenza CD-C18

75 x 4.6 mm

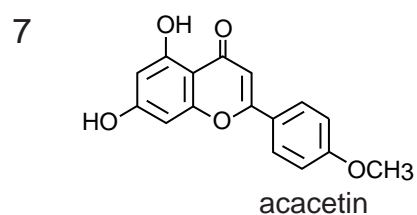
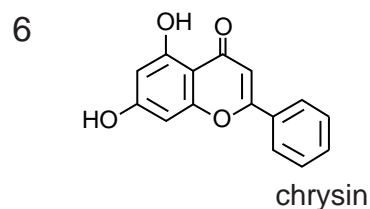
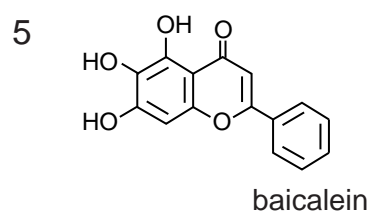
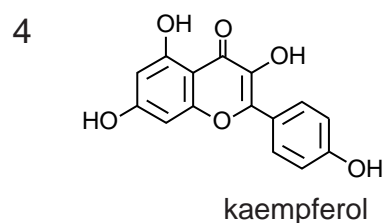
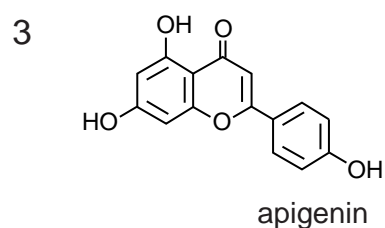
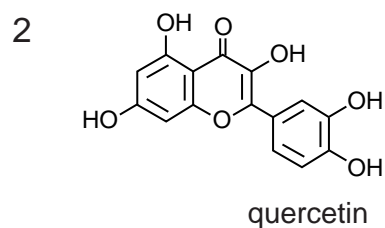
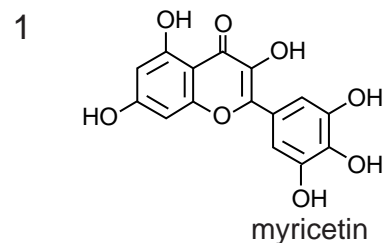
Application

Flavonoids

フラボノイド



Cadenza CD-C18, 75 x 4.6 mm
 water / acetonitrile / acetic acid
 = 65 / 35 / 0.1
 1 mL/min (5MPa), 37 deg.C, 260 nm



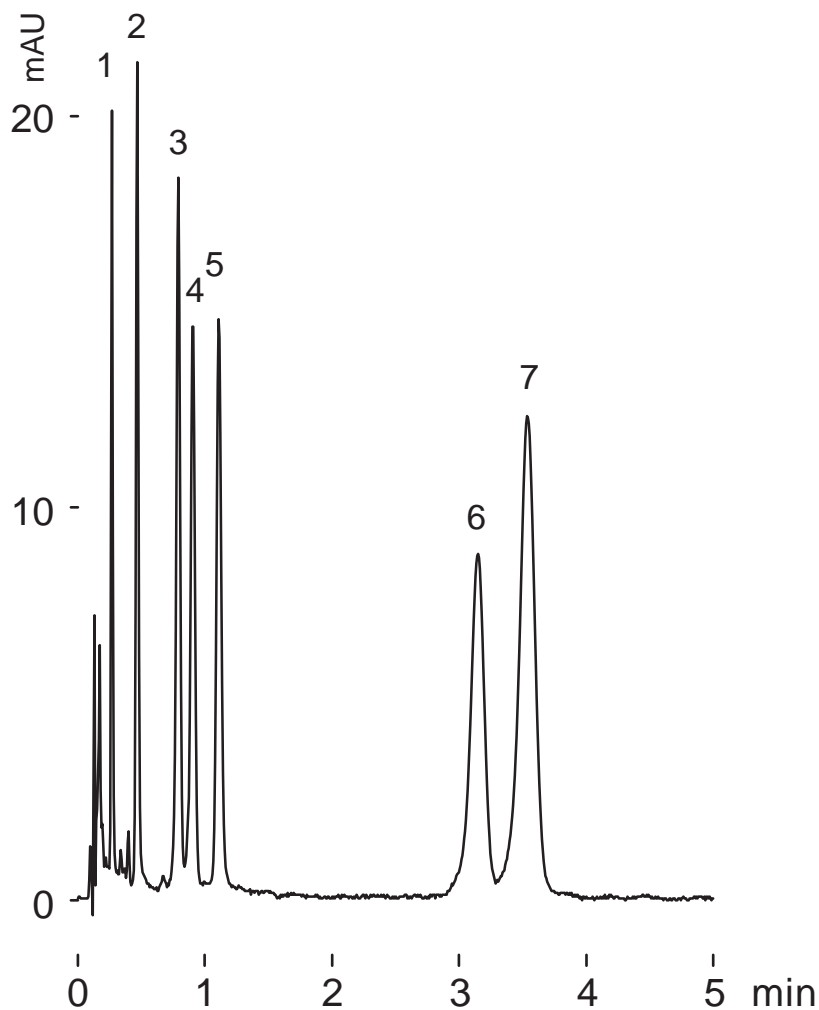
Cadenza CD-C18

50 x 2 mm

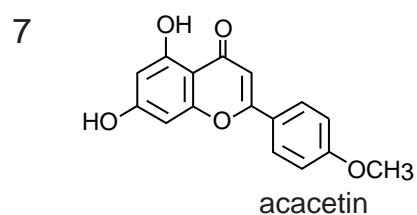
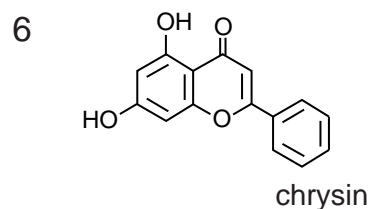
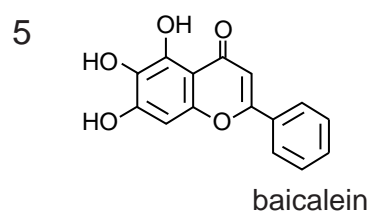
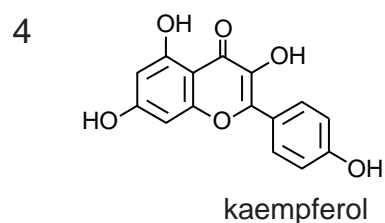
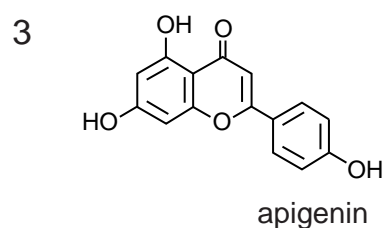
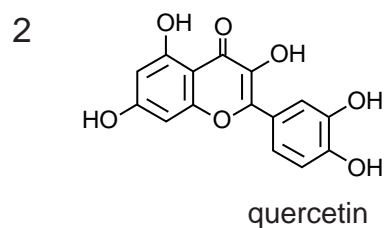
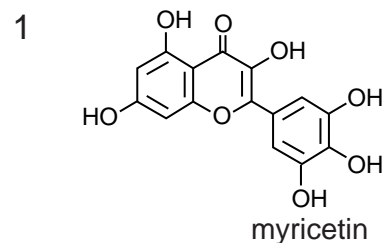
Application

Flavonoids

フラボノイド



Cadenza CD-C18, 50 x 2 mm
 water / acetonitrile / acetic acid
 = 70 / 30 / 0.1
 1 mL/min (17MPa), 37 deg.C, 260 nm

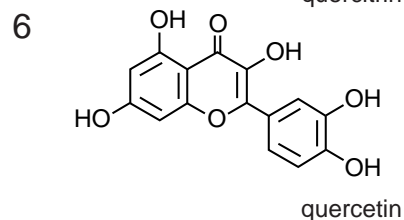
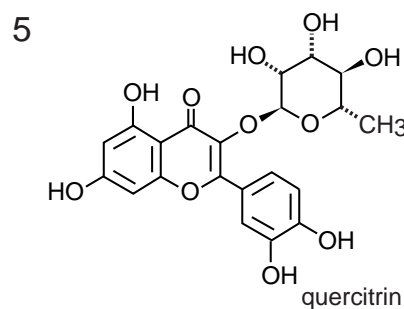
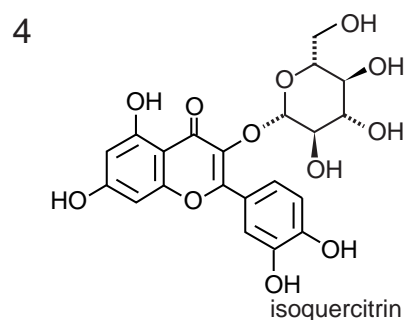
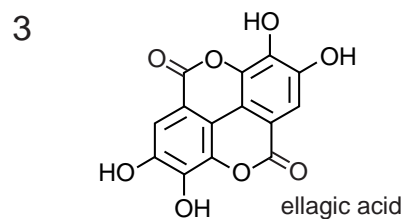
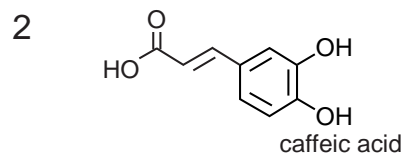
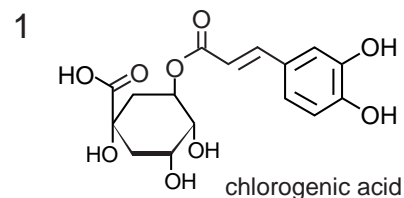
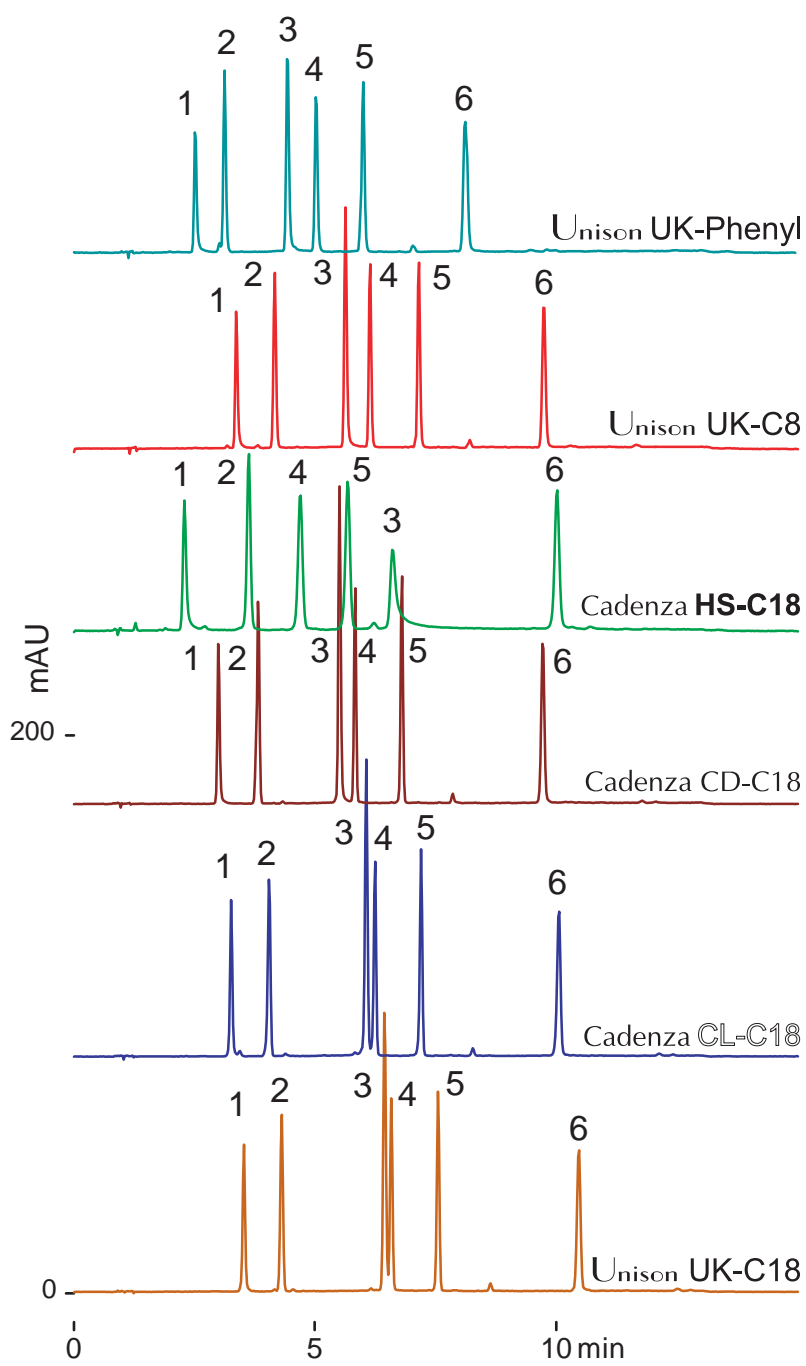


Cadenza CD-C18 Unison UK-Phenyl
 Cadenza CL-C18 Unison UK-C8
 Unison UK-C18 Cadenza HS-C18

75 x 4.6 mm

Application

Polyphenol, Berry
 ベリー類のポリフェノール



75 x 4.6 mm

A: water /trifluoroacetic acid = 100 /0.1

B: acetonitrile /trifluoroacetic acid = 100 /0.1

10-40%B (0-12min), 1 mL/min

37 deg.C, 260 nm, 2uL (0.1-0.8ug)

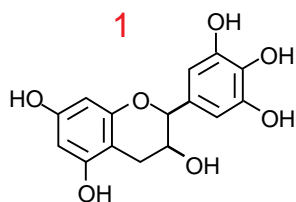
Unison UK-C18

250 x 4.6 mm

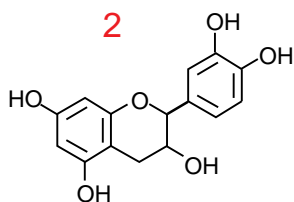
Application

Catechins and Flavonoids in Black Catechu and Chinese Scullcap

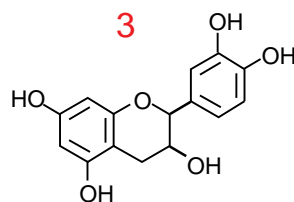
アセンヤクおよびコガネバナ中のカテキンとフラボノイド



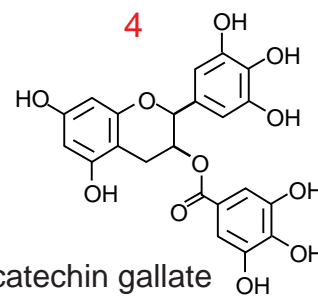
epigallocatechin
EGC



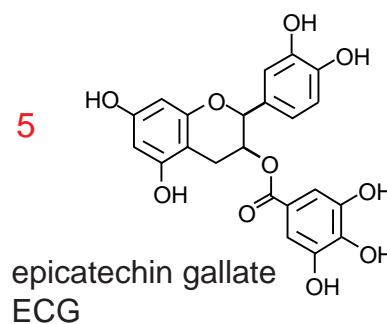
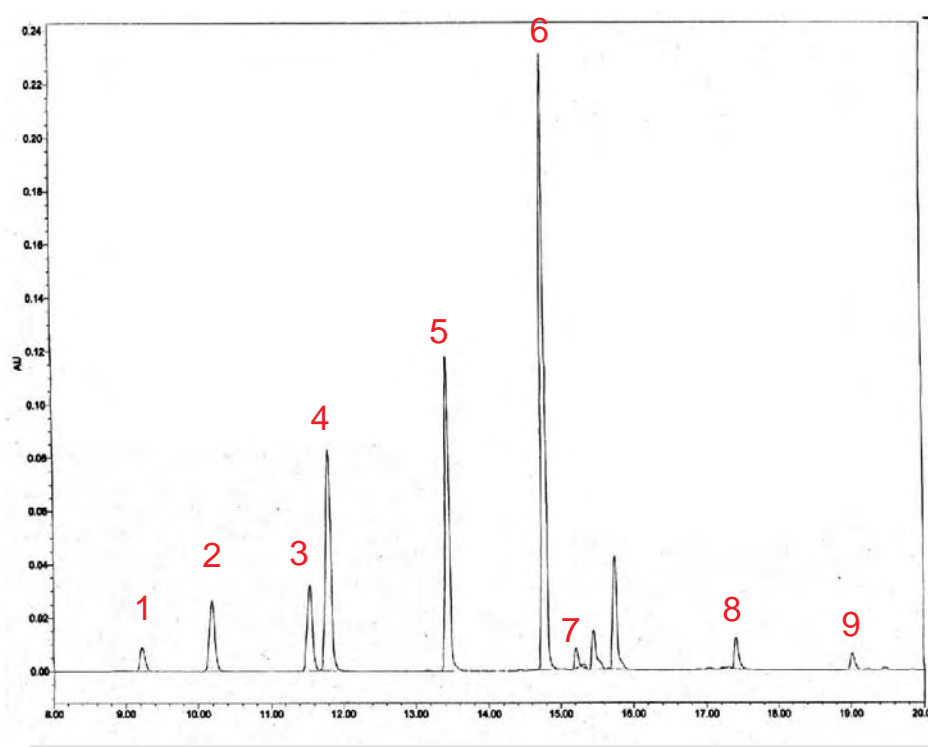
catechin
C



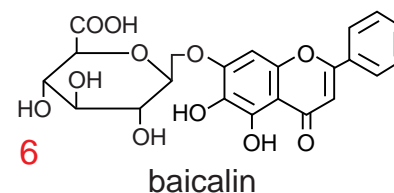
epicatechin
EC



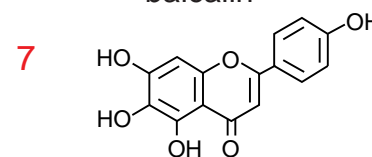
epigallocatechin gallate
EGCG



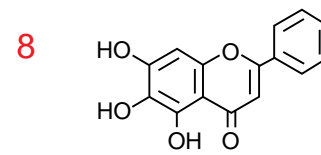
epicatechin gallate
ECG



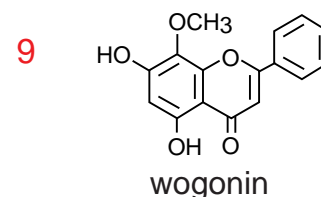
baicalin



scutellarein



baicalein



wogonin

Unison UK-C18, 250 x 4.6mm

A: 0.125% TFA in water

B: acetonitrile

5-20%B (0-8min), 20-95%B (8-20min)

1.0 mL/min, 45 deg.C

5 uL inj., 2mg/40mL, UV at 280 nm

Courtesy of Perrigo Co., USA

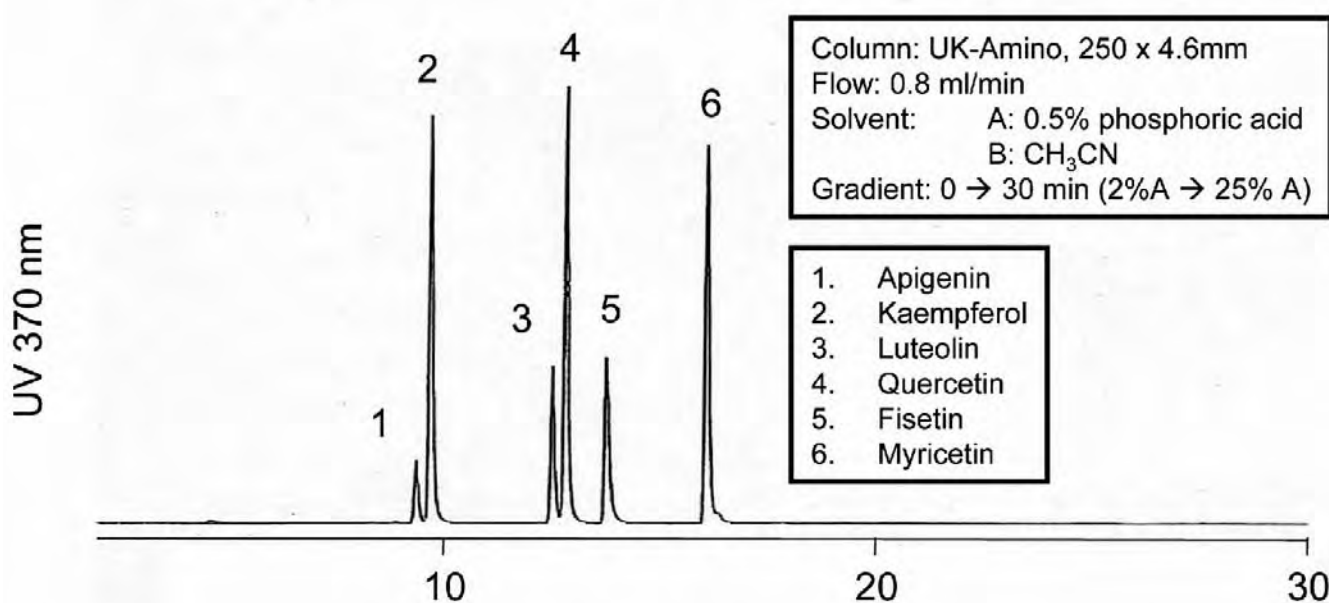
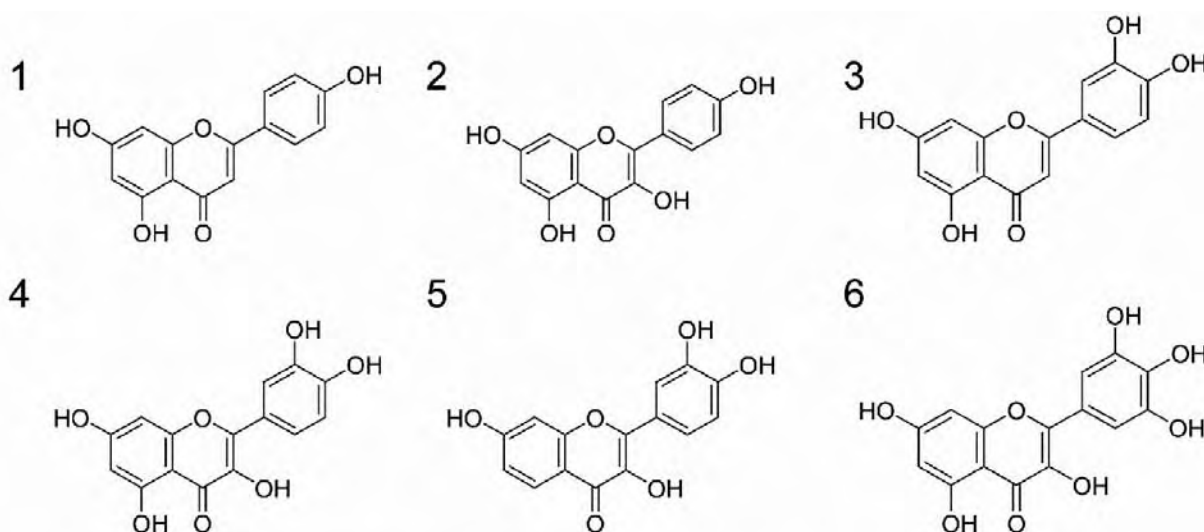
Unison UK-Amino

250 x 4.6 mm

Application

Simultaneous analysis of flavonoids with an aminopropyl column

アミノプロピルカラムによるフラボノイドの一斉分析



Courtesy of Dr. Y.KAWAI, The University of Tokushima, JAPAN

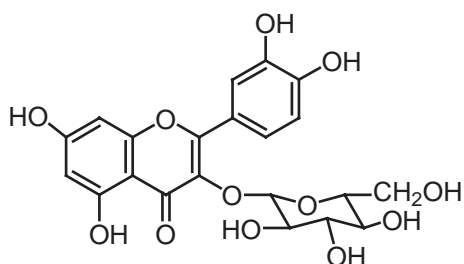
Unison UK-Amino

250 x 4.6 mm

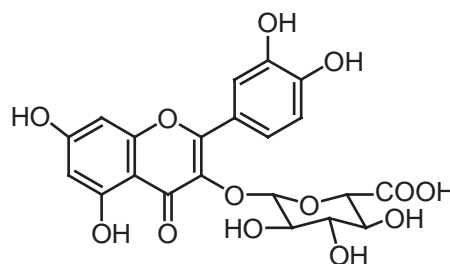
Application

Quercetin glycoside separation with an aminopropyl column

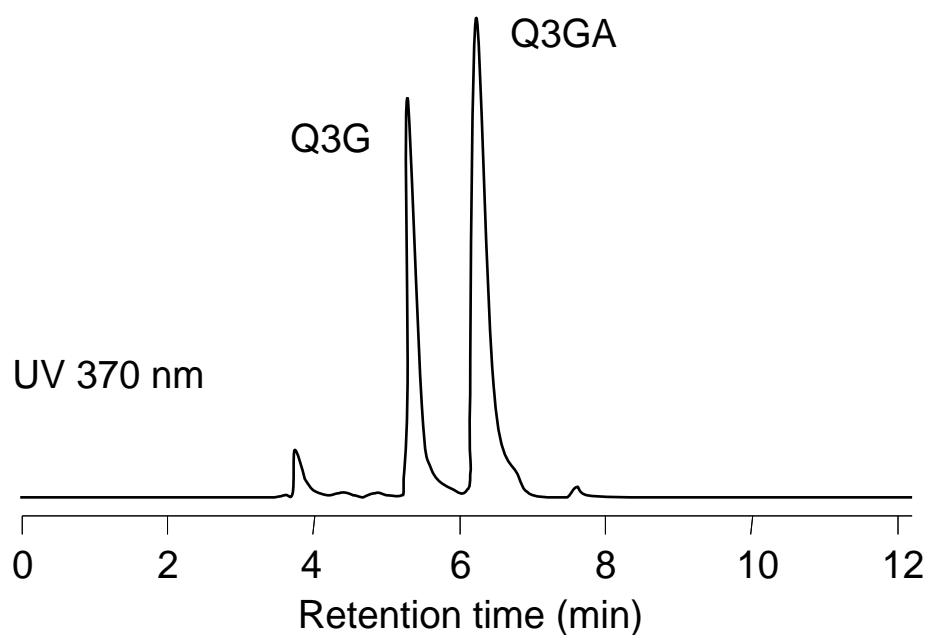
アミノプロピルカラムによるケルセチン配糖体の分離



Quercetin-3-glucoside (Q3G)



Quercetin-3-glucuronide (Q3GA)



Column: UK-Amino, 250 x 4.6 mm
 Flow: 0.8 ml/min
 Solvent: 0.5% phosphoric acid/CH₃CN (15/85)

Courtesy of Dr. Y.KAWAI, The University of Tokushima, JAPAN

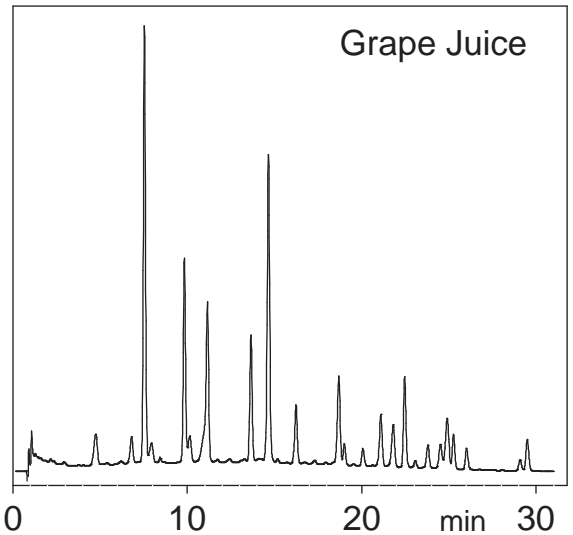
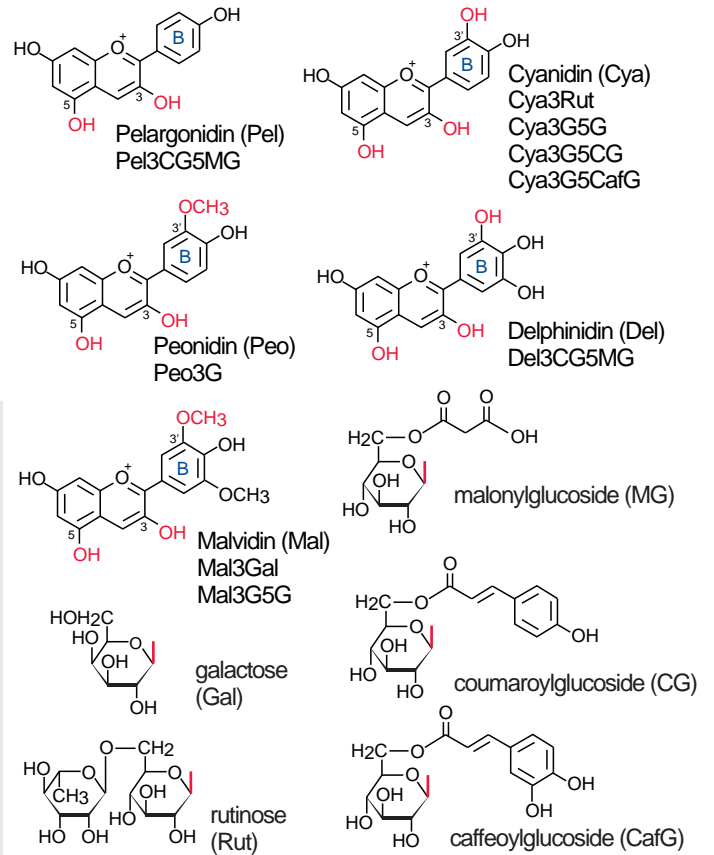
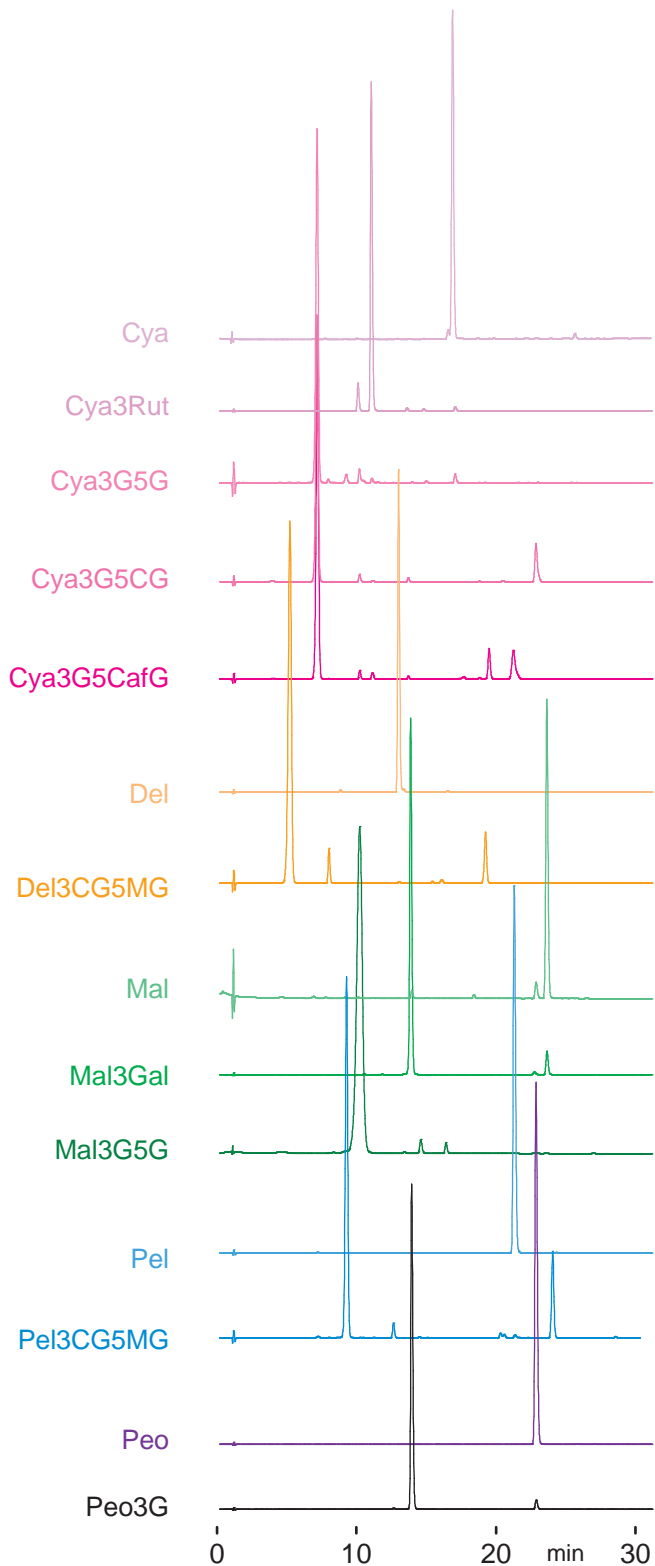
Cadenza CD-C18

75 x 4.6 mm

Application

Anthocyanins

アントシアニン



Grape Juice

Cadenza CD-C18, 75 x 4.6 mm
 A: 0.5% TFA
 B: 0.5% TFA in
 (water /AcOH /acetonitrile = 55 /25 /20)
 20 - 70 %B (0 - 30 min)
 1 mL/min, 30 deg.C, 525 nm

Courtesy of Prof. Dr. K. Hosokawa, Hyogo Univ., Japan

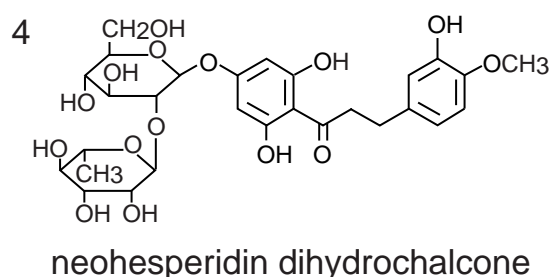
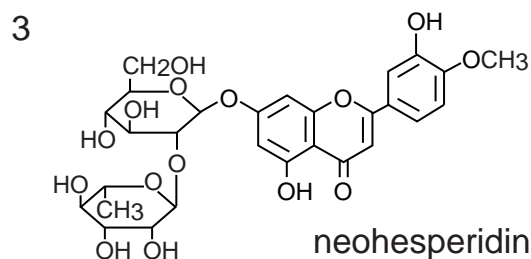
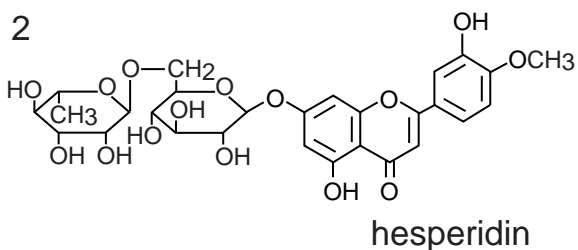
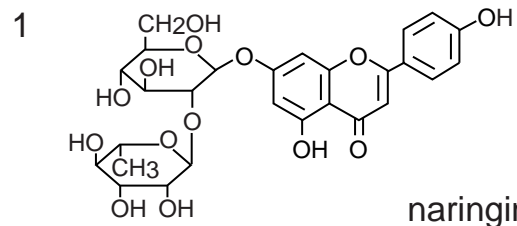
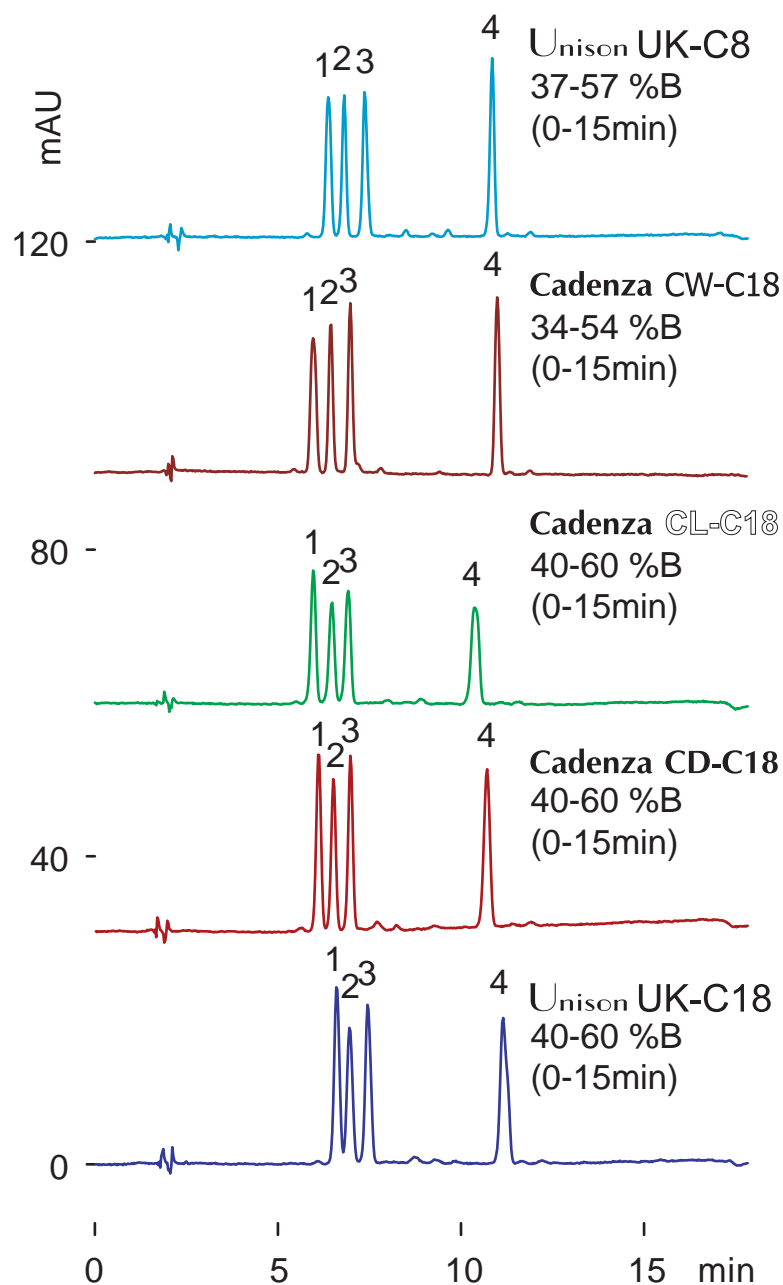
Unison UK-C8
Cadenza CW-C18
Cadenza CL-C18
Cadenza CD-C18
Unison UK-C18

150 x 3 mm

Application

Flavanone glycosides

フラバノン配糖体



150 x 3 mm

A: water / formic acid = 100 / 0.1

B: methanol / formic acid = 100 / 0.1

0.43 mL/min (13-17MPa), 37 deg.C

260 nm, 2 uL (0.2ug)

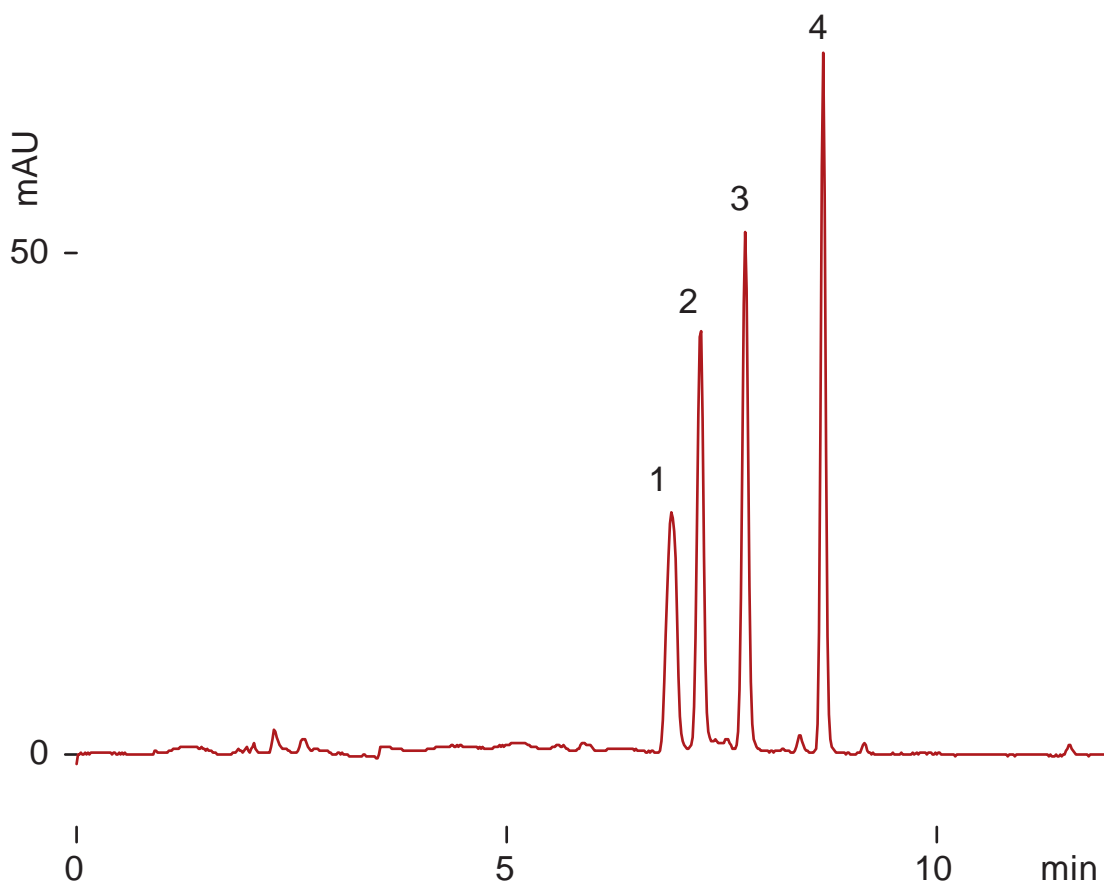
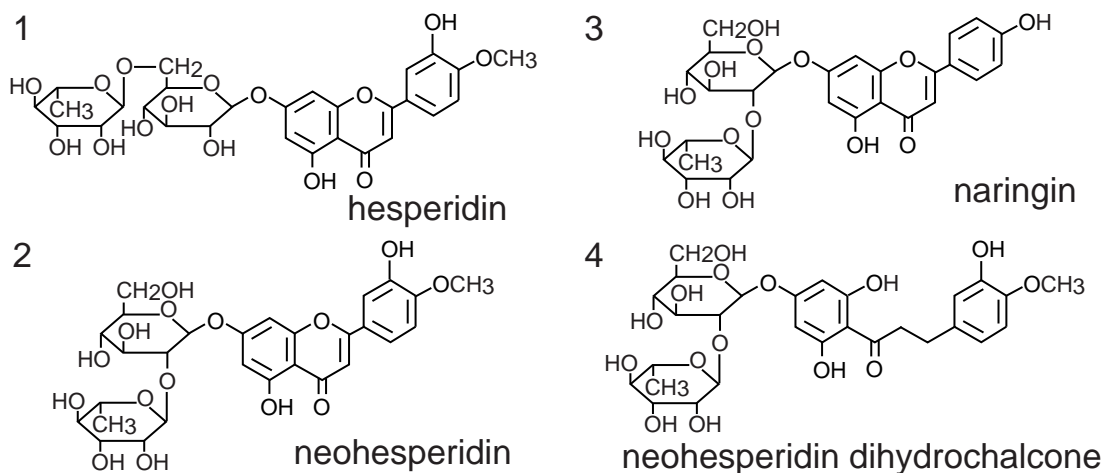
Unison UK-Amino

150 x 3 mm

Application

Flavanone glycosides

フラバノン配糖体



Unison UK-Amino, 150 x 3 mm

A: acetonitrile / formic acid = 100 / 0.1, B: water / formic acid = 100 / 0.1

5-20 %B (0-10min), 0.43 mL/min (3MPa), 37 deg.C, 260 nm, 2 uL (0.2ug)

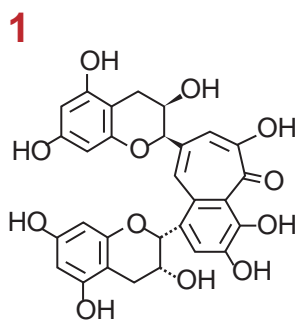
Cadenza CL-C18

100 x 4.6 mm

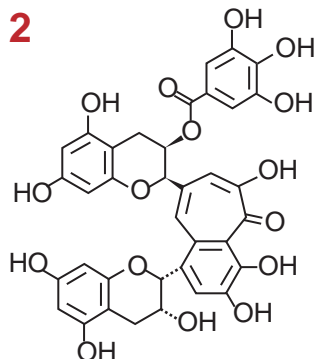
Application

Theaflavins

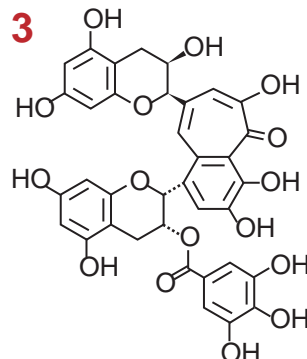
テアフラビン類



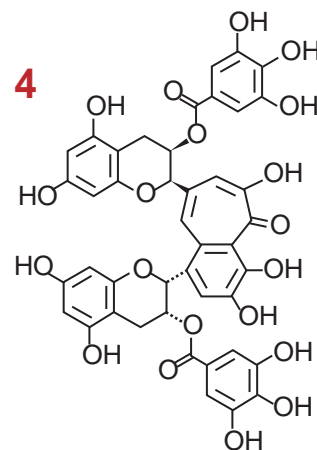
theaflavin



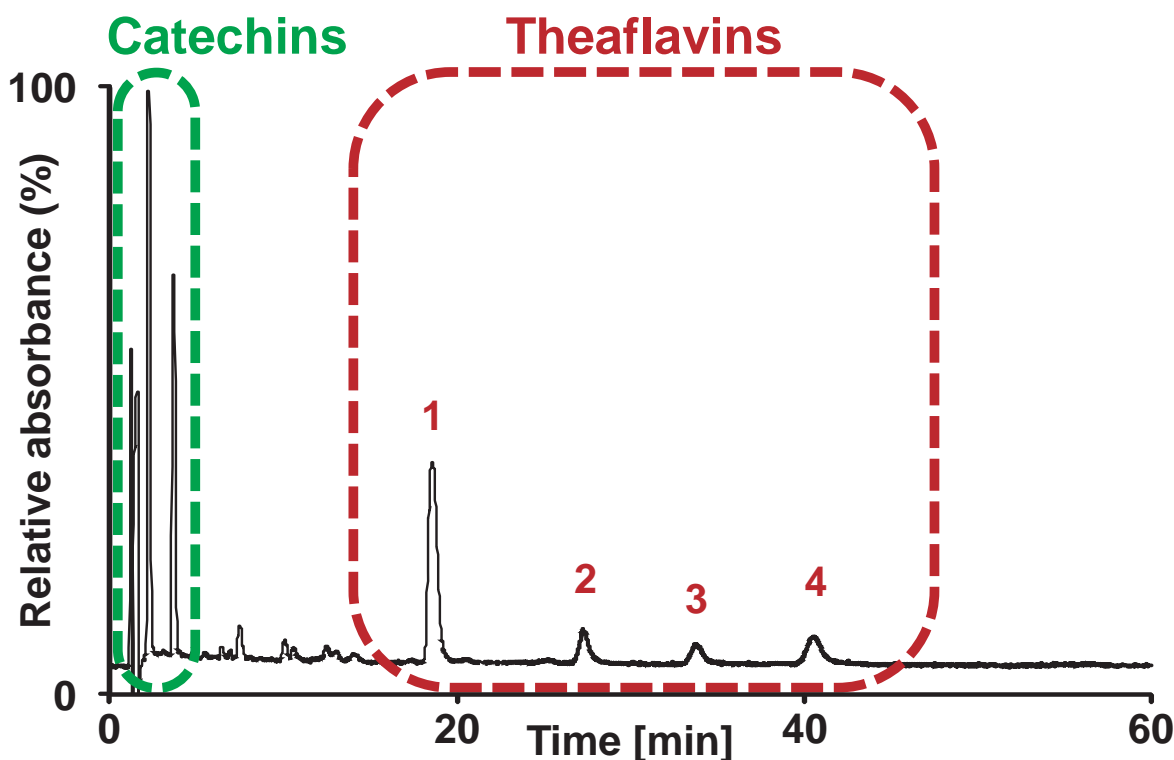
theaflavin-3-O-gallate



theaflavin-3'-O-gallate



theaflavin-3,3'-di-O-gallate



Cadenza CL-C18, 100 x 4.6 mm
 water / acetonitrile / formic acid = 80 / 20 / 0.1
 1 mL/min (5MPa), 40 deg.C, 280 nm, 375 nm
 10 uL (100uM / 50%MeOH, 1mM Ascorbic acid)

Courtesy of Hiromi UEZONO and Prof. Tsutomu NAKAYAMA,
 Department of Food and Nutritional Sciences, University of Shizuoka, JAPAN

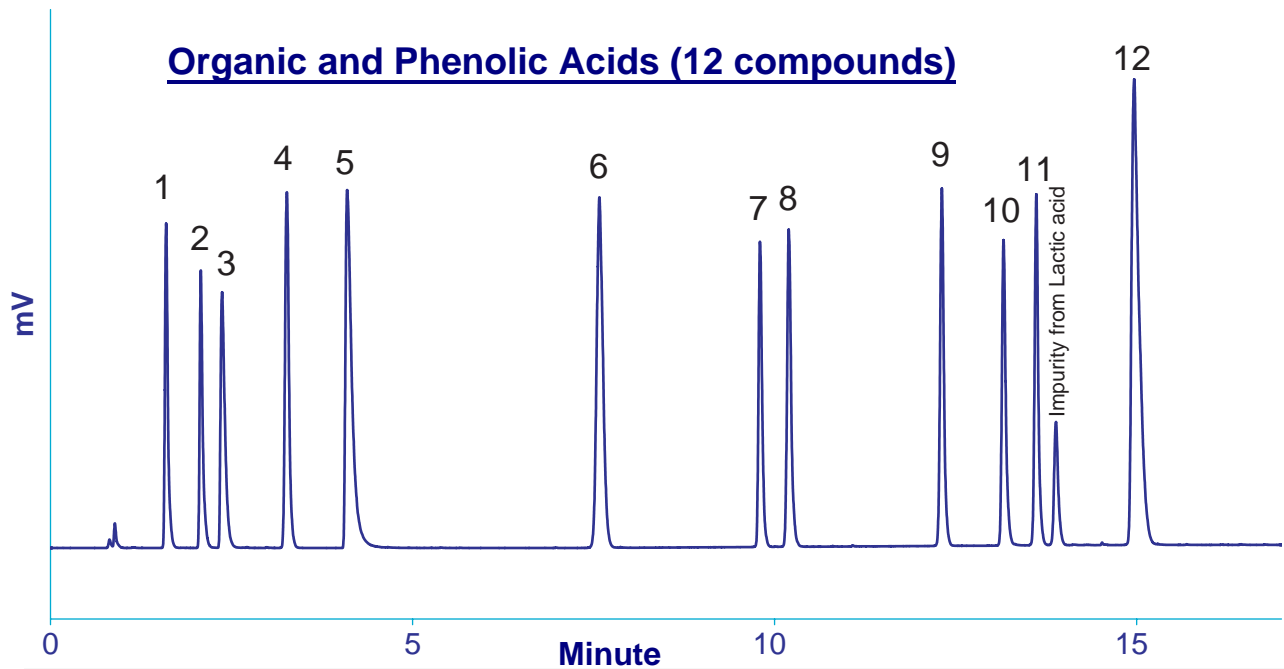
Scherzo SM-C18

150 x 2 mm

Application

Simultaneous HPLC/LT-ELSD Analysis of Organic and Phenolic Acids

LT-ELSDによる有機酸およびフェノール酸の一斉分析

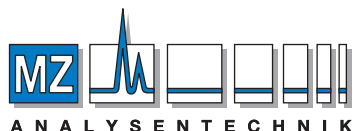


	RT	%RSD (n=8)		LOD (S/N=3)
	Minutes	RT	Response	ng (o.c.)
1- Quinic acid	1.60	0.09	2.1	4.5
2- Malic acid	2.08	0.09	1.9	7.7
3- Tartaric acid	2.37	0.11	2.7	20.9
4- Succinic acid	3.27	0.20	2.2	9.0
5- Citric acid	4.11	0.25	1.3	25.3
6- Gallic acid	7.60	0.31	1.9	8.0
7- Lactic acid	9.81	0.18	2.4	55.9*
8- Protocatechuic acid	10.21	0.14	2.4	3.7
9- 4-HPAC	12.32	0.09	1.7	3.4
10- Chlorogenic acid	13.16	0.07	2.2	4.0
11- Syringic acid	13.62	0.07	3.0	2.3
12- Gentisic acid	14.97	0.06	1.9	6.2

* Semi-volatile compound

4-Hydroxyphenylacetic acid

Scherzo SM-C18, 150 x 2 mm
 A: H₂O + 0.3% HCOOH,
 B: acetonitrile + 1% HCOOH
 0%B (0-2 min), 0 - 20%B (2-10 min), 20%B (10-15 min)
 0.3 mL/min, 30°C, 2µL
 ELSD (SEDERE, France), SEDEX 90LT, 30°C, 3.5Bar



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Data provided by Dr. Eric VERETTE, SEDERE S.A.S., France