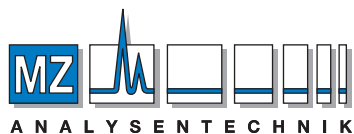




HPLC TECHNICAL INFORMATION

Environmental and Agricultural Chemicals



AUTHORIZED DISTRIBUTOR

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Tel +49 6131 880 96-0, Fax +49 6131 880 96-20
e-mail: info@mz-at.de, www.mz-at.de

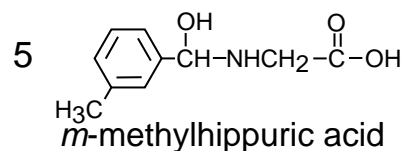
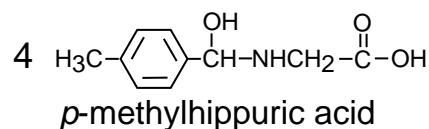
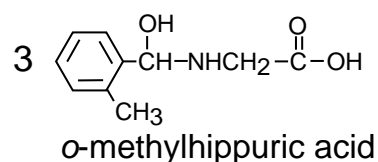
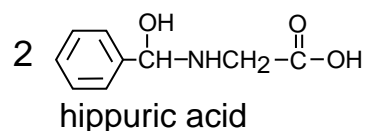
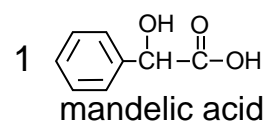
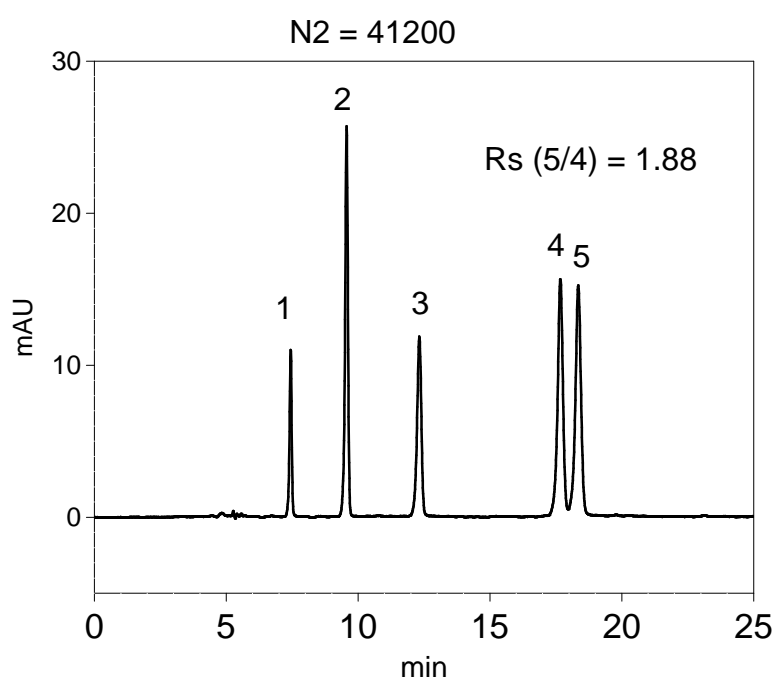
USA, Canada, and Mexico : [Silvertone Sciences \(USA\)](http://silvertonesciences.com) - info@silvertonesciences.com
Other Countries : [Imtakt Corp.\(JAPAN\)](http://imtakt.com) - info@imtakt.com

Cadenza CD-C18

250 x 4.6 mm

Application

Metabolites of organic solvents



Cadenza CD-C18, 250 x 4.6 mm
methanol / 20 mM KH₂PO₄ = 30 / 70
0.5 mL/min, 30 °C
UV at 225 nm
16.2 MPa

Cadenza CD-C18

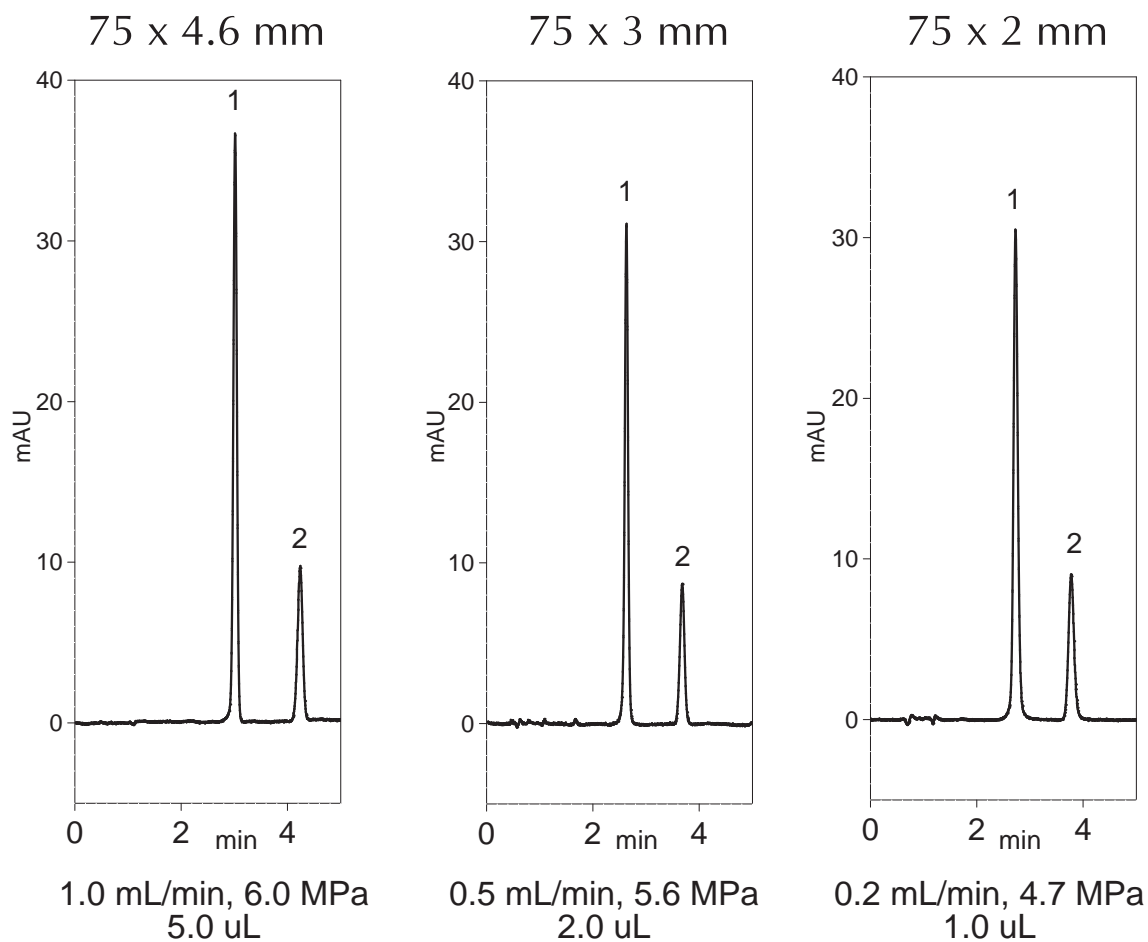
Application

75 x 4.6 mm

75 x 3 mm

75 x 2 mm

Formaldehyde and Acetaldehyde



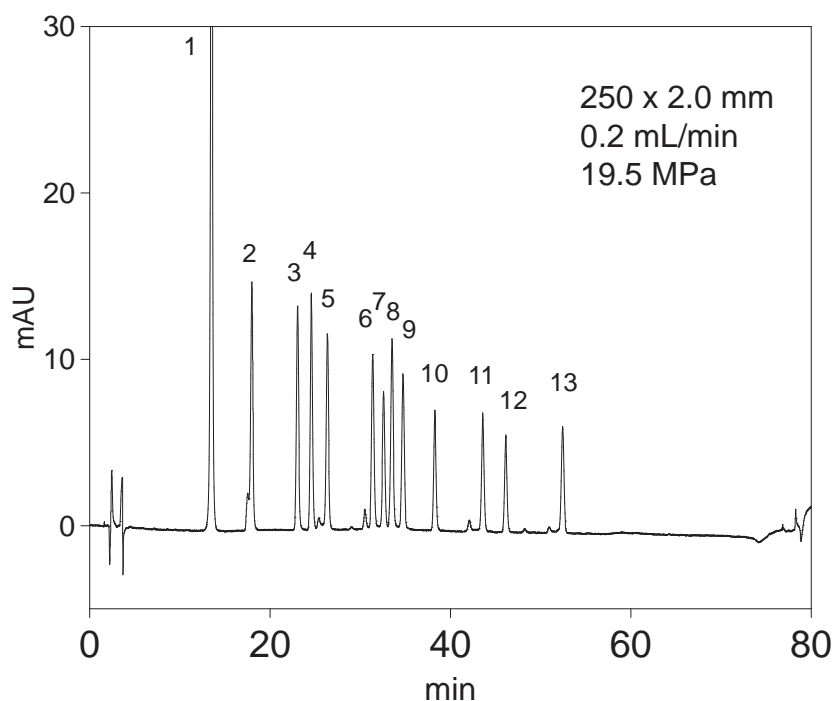
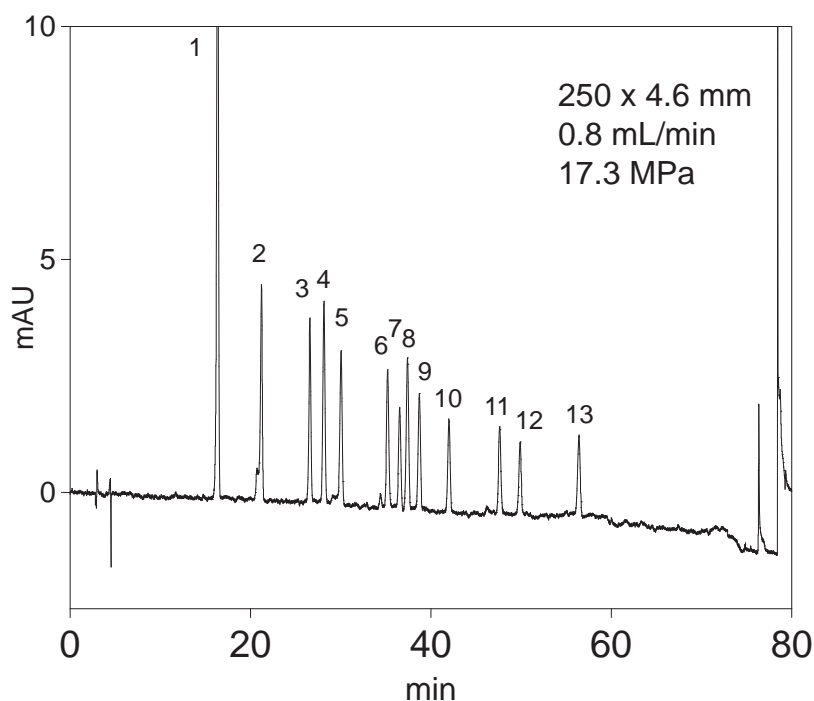
Cadenza CD-C18
acetonitrile / water = 50 / 50
UV at 360 nm, 37 °C
1. formaldehyde-DNPH (2ug/mL)
2. acetaldehyde-DNPH (1ug/mL)

Cadenza CD-C18

Application

250 x 4.6 mm 250 x 2 mm

DNPH - aldehydes and ketones



1. formaldehyde-DNPH
2. acetaldehyde-DNPH
3. acetone-DNPH
4. acrolein-DNPH
5. propionaldehyde-DNPH
6. crotonaldehyde-DNPH
7. methacrolein-DNPH
8. 2-butanone-DNPH
9. n-butylaldehyde-DNPH
10. benzaldehyde-DNPH
11. Valeraldehyde-DNPH
12. p-tolualdehyde-DNPH
13. hexaldehyde-DNPH

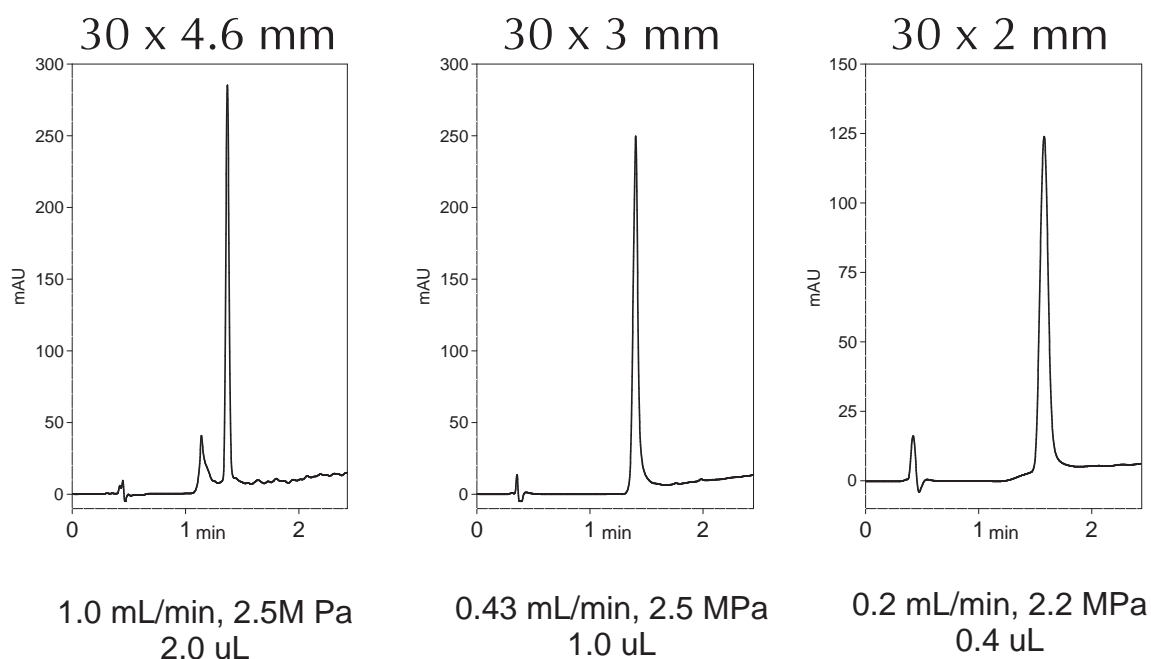
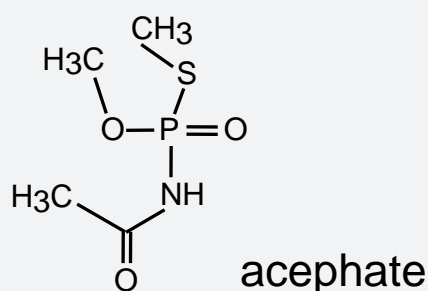
Cadenza CD-C18
 A : water
 B : acetonitrile /
 tetrahydrofuran = 3 / 1
 40-70%B (0-70min)
 100%B (70-75min)
 37 °C , UV at 360 nm
 5.0 uL inj.
 (No.1 : 2 ug/mL , No.2-13 : 1 ug/mL)

Cadenza CD-C18

Application

30 x 4.6 mm 30 x 3 mm 30 x 2 mm

Agricultural Chemicals (1)



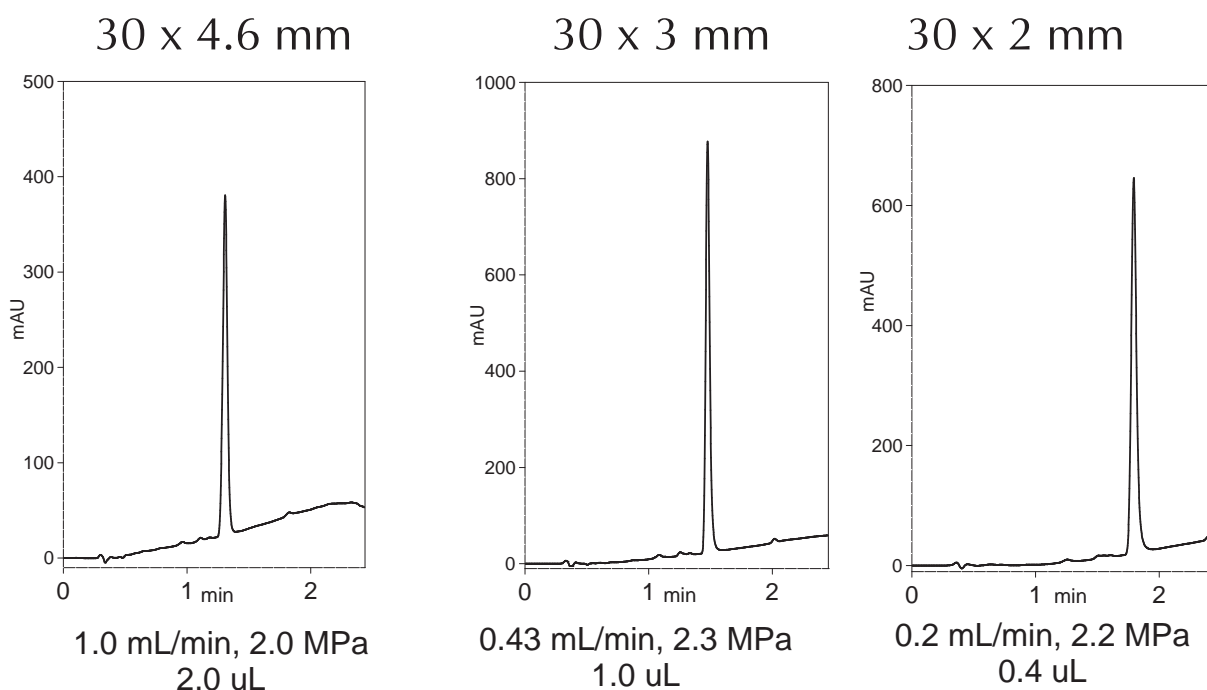
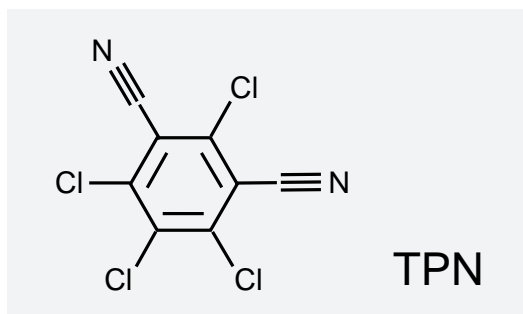
Cadenza CD-C18
 A: water / TFA = 100 / 0.1
 B: acetonitrile / TFA = 100 / 0.1
 0 - 20 %B (0-2 min)
 UV at 220 nm, 37 °C

Cadenza CD-C18

Application

30 x 4.6 mm 30 x 3 mm 30 x 2 mm

Agricultural Chemicals (2)



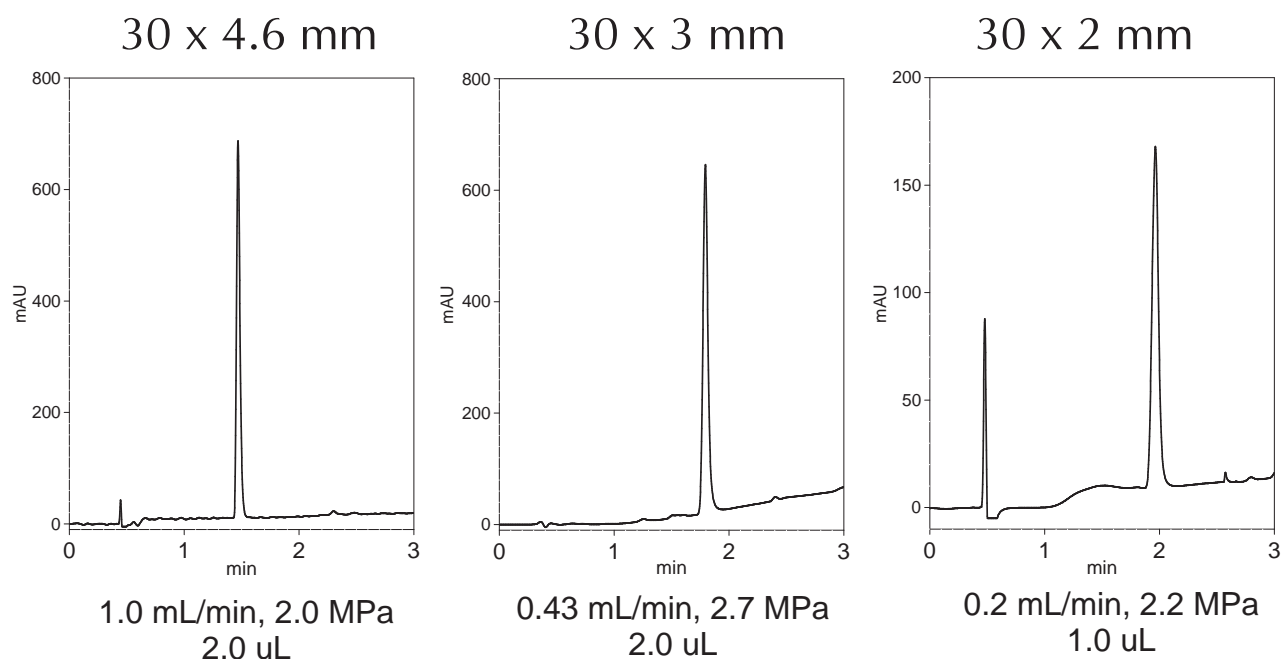
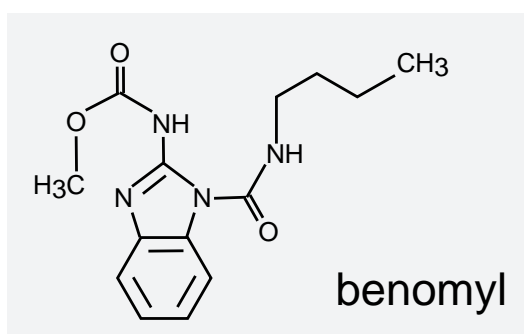
Cadenza CD-C18
 A: water / TFA = 100 / 0.1
 B: acetonitrile / TFA = 100 / 0.1
 50 - 100 %B (0-2 min)
 UV at 220 nm, 37 °C

Cadenza CD-C18

Application

30 x 4.6 mm 30 x 3 mm 30 x 2 mm

Agricultural Chemicals (3)



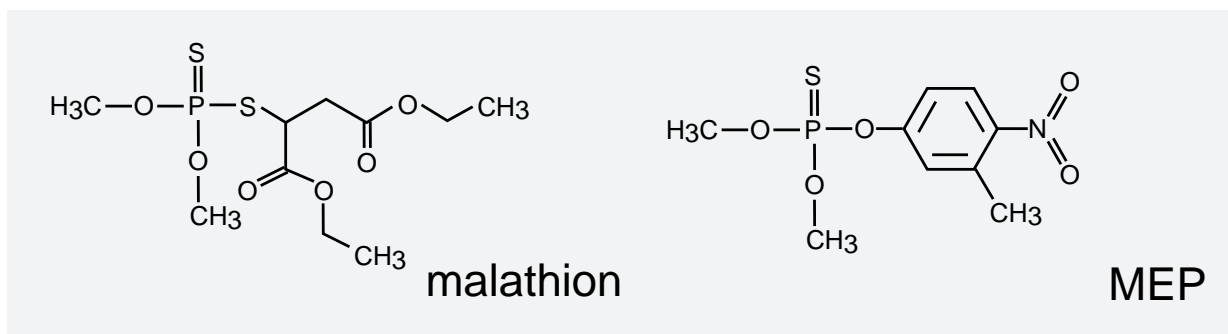
Cadenza CD-C18
 A: water / TFA = 100 / 0.1
 B: acetonitrile / TFA = 100 / 0.1
 5 - 50 %B (0-3 min)
 UV at 220 nm, 37 °C

Cadenza CD-C18

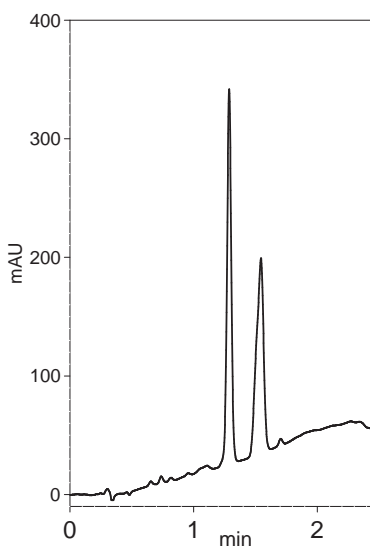
Application

30 x 4.6 mm 30 x 3 mm 30 x 2 mm

Agricultural Chemicals (4)

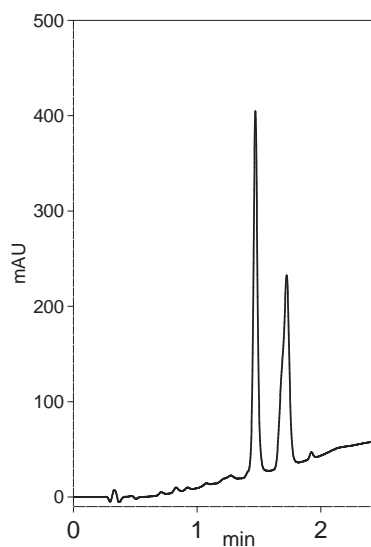


30 x 4.6 mm



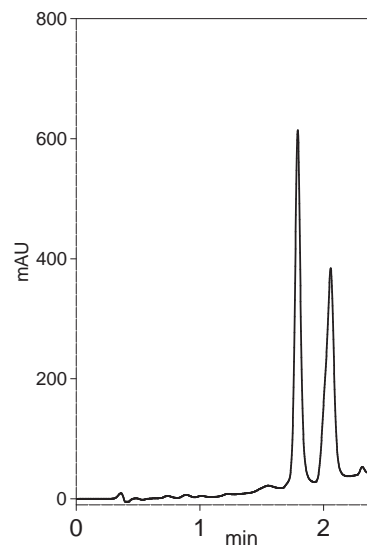
1.0 mL/min, 2.0 MPa
2.0 uL

30 x 3 mm



0.43 mL/min, 2.3 MPa
1.0 uL

30 x 2 mm



0.2 mL/min, 2.2 MPa
1.0 uL

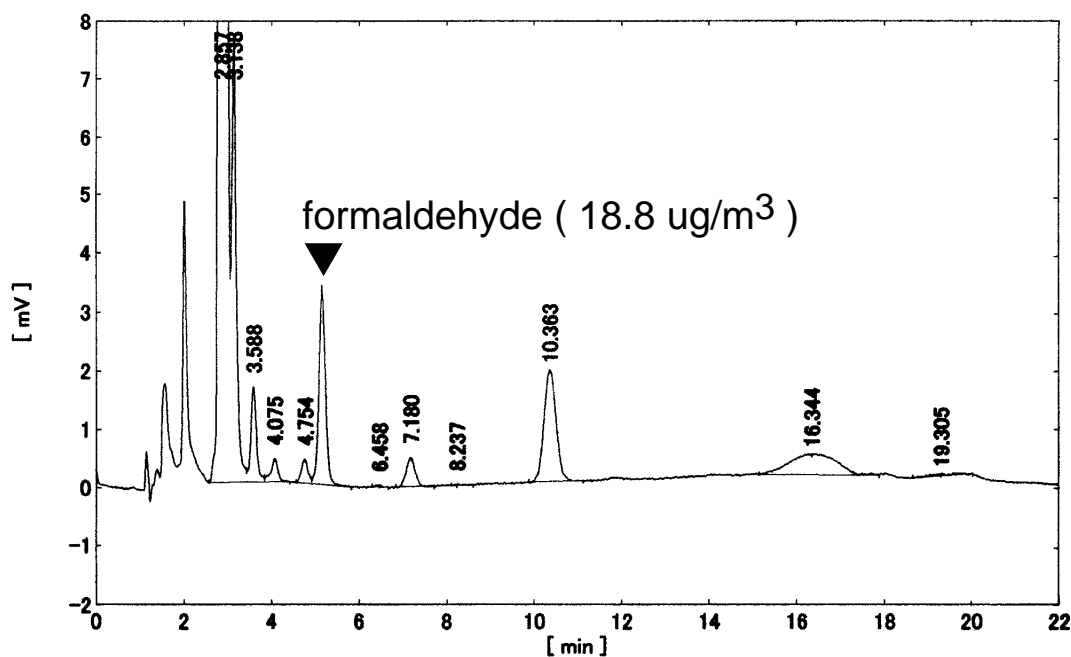
Cadenza CD-C18
A: water / TFA = 100 / 0.1
B: acetonitrile / TFA = 100 / 0.1
50 - 100 %B (0-2min)
UV at 220 nm, 37 °C

Cadenza CD-C18

75 x 2 mm

Application

Formaldehyde as Indoor Air Pollutant



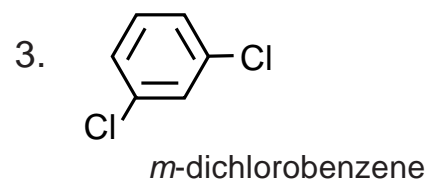
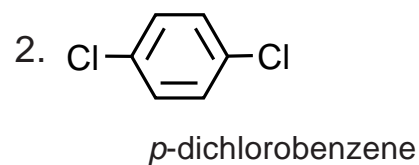
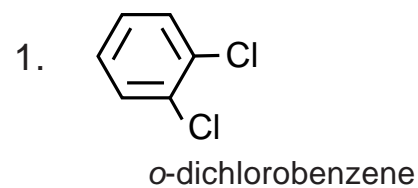
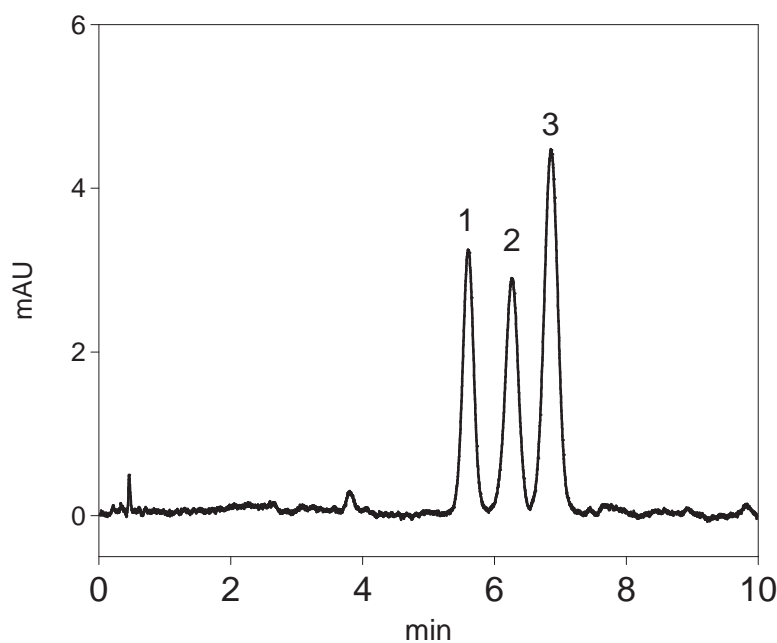
Cadenza CD-C18, 75 x 2 mm
 50% acetonitrile
 0.1 mL/min, 3.5 MPa
 UV at 360 nm
 2 uL injection
 DNPH derivatives of room air

Cadenza CD-C18

50 x 4.6 mm

Application

Dichlorobenzene isomers



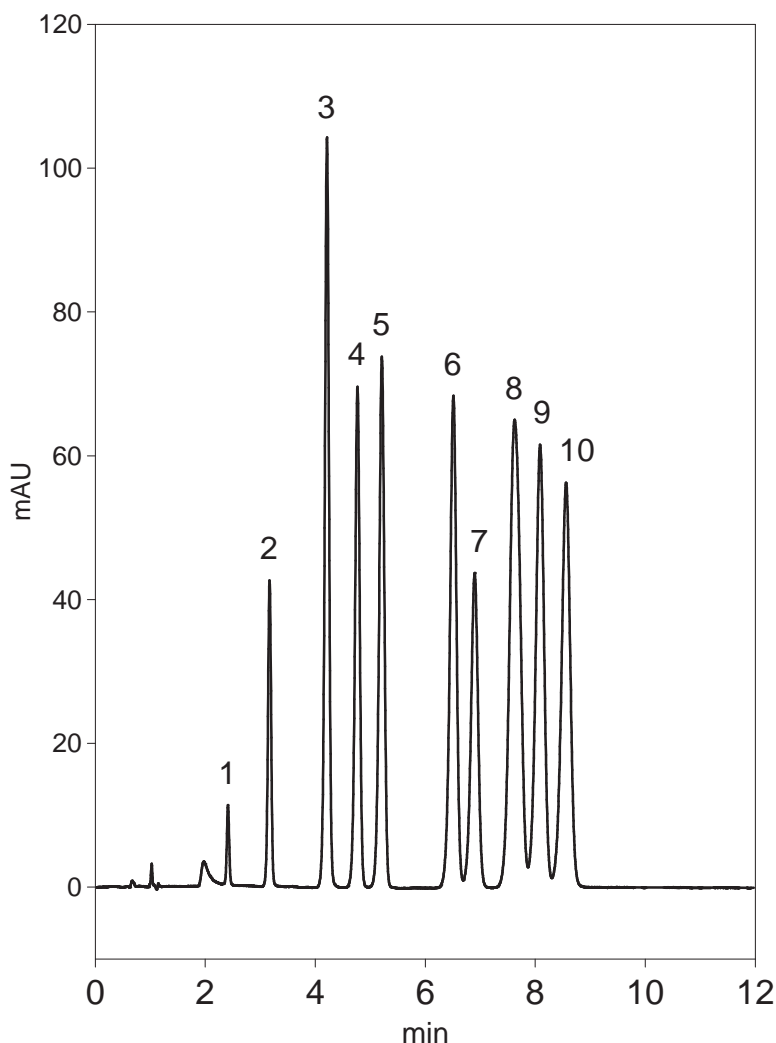
Cadenza CD-C18, 50 x 4.6 mm
acetonitrile / water = 50 / 50
1.0 mL/min, 4.4 MPa, 37 °C, UV at 260 nm
1uL injection,
0.1% solution

Cadenza CD-C18

100 x 4.6 mm

Application

Indoor air pollutants

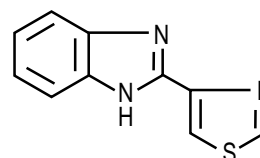
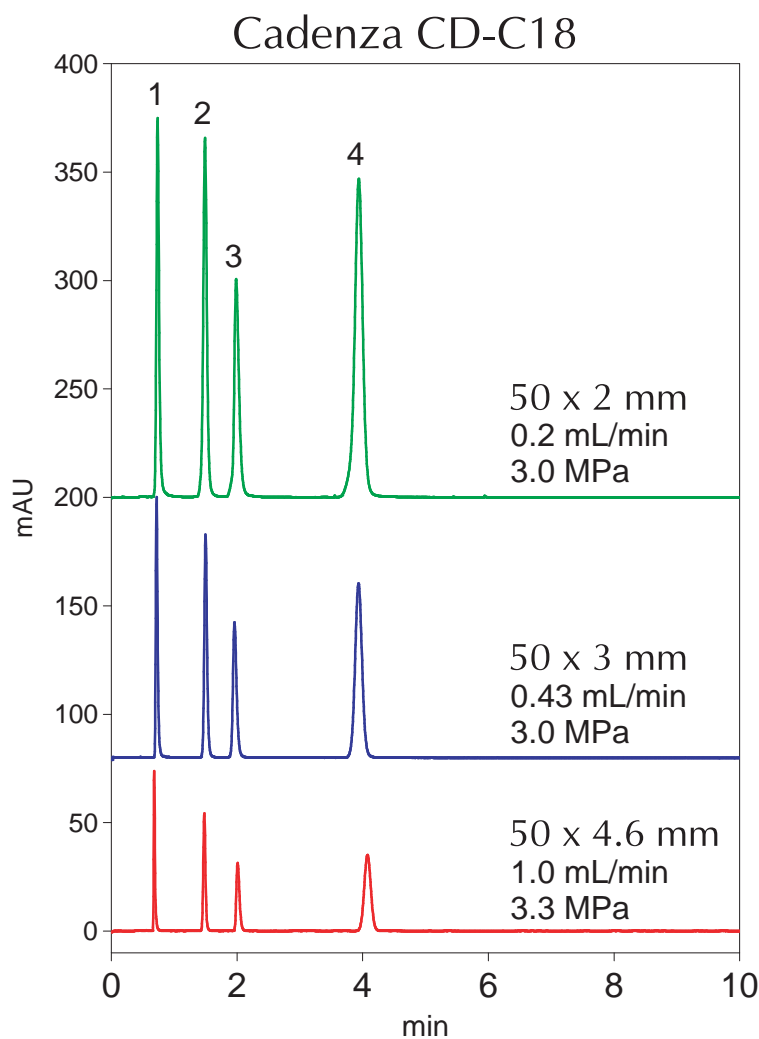


Cadenza CD-C18, 100 x 4.6 mm
 water / methanol = 30 / 70
 1.0 mL/min, 13.2 MPa
 37 °C, UV at 210 nm

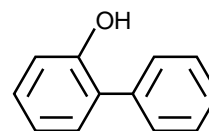
- | | | |
|------------------------------|----|---------------------------|
| <chem>ClC(Cl)Cl</chem> | 1 | chloroform |
| <chem>c1ccccc1</chem> | 2 | benzene |
| <chem>ClC(Cl)=C</chem> | 3 | trichlorethylene |
| <chem>Cc1ccccc1</chem> | 4 | toluene |
| <chem>C=Cc1ccccc1</chem> | 5 | styrene |
| <chem>Clc1ccccc1Cl</chem> | 6 | <i>o</i> -dichlorobenzene |
| <chem>CCc1ccccc1</chem> | 7 | ethylbenzene |
| <chem>Cc1ccc(C)cc1</chem> | 8 | <i>p</i> -xylene |
| <chem>Clc1cccc(Cl)c1</chem> | 9 | <i>m</i> -dichlorobenzene |
| <chem>ClC(Cl)=C(Cl)Cl</chem> | 10 | tetrachlorethylene |

Cadenza CD-C18 50 x 2 mm 50 x 3 mm 50 x 4.6 mm Application

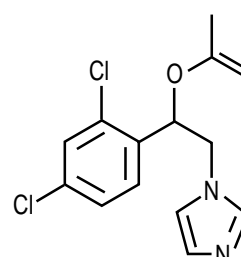
Fungicides for Citrus Fruits



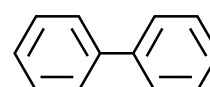
1
thiabendazole



2
o-phenylphenol



3
imazalil



4
diphenyl

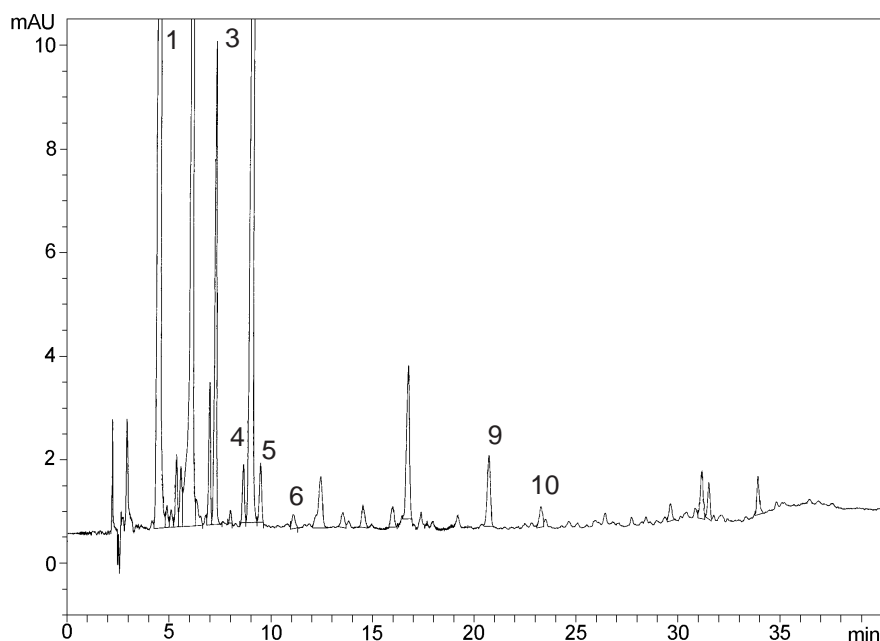
Cadenza CD-C18
5 mM CH₃COONH₄ / ACN = 40 / 60
37 °C, UV at 260 nm, 2.0 uL inj.

Cadenza CD-C18

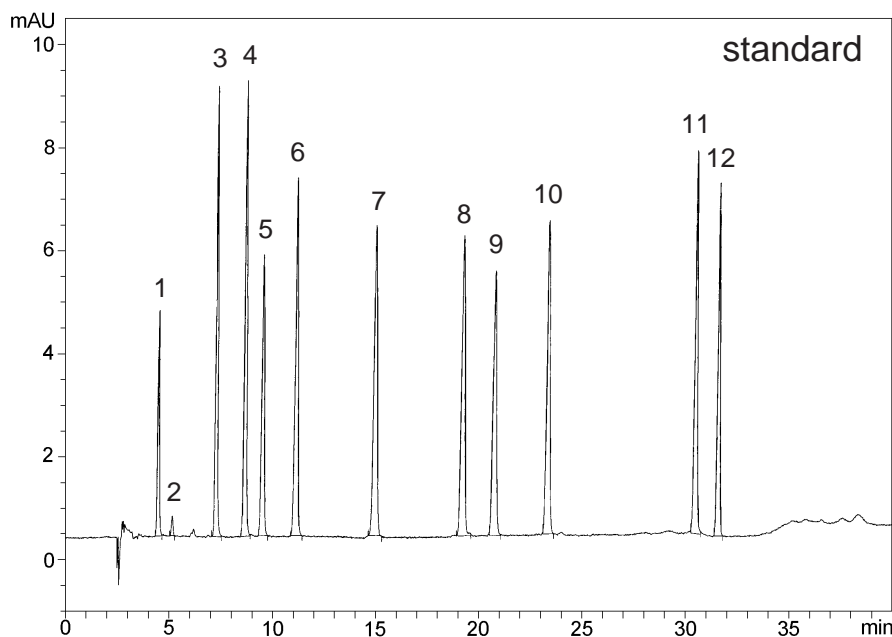
250 x 4.6 mm

Application

Detection of Aldehydes in The Liver Homogenate of 9 Months-Old Mouse



1. DNPH
2. malondialdehyde-DNP
3. acetaldehyde-DNP
4. Propionaldehyde-DNP
5. acrolein-DNP
6. crotonaldehyde-DNP
7. pentenal-DNP
8. hexanal-DNP
9. hexenal-DNP
10. heptenal-DNP
11. nonanal-DNP
12. nonenal-DNP



Cadenza CD-C18
 250 x 4.6 mm
 A : water B : ACN
 70%B(0-10min)
 70-88%B(10-25min)
 88-97%B(25-30min)
 97-88%B(30-40min)
 0.8 mL/min, 30 °C
 UV at 368 nm
 50pmol, 10 uL inj.

Courtesy of Prof. Dr. Seiichi Matsugo and Fumihiko Yasui, Yamanashi University

Cadenza CD-C18

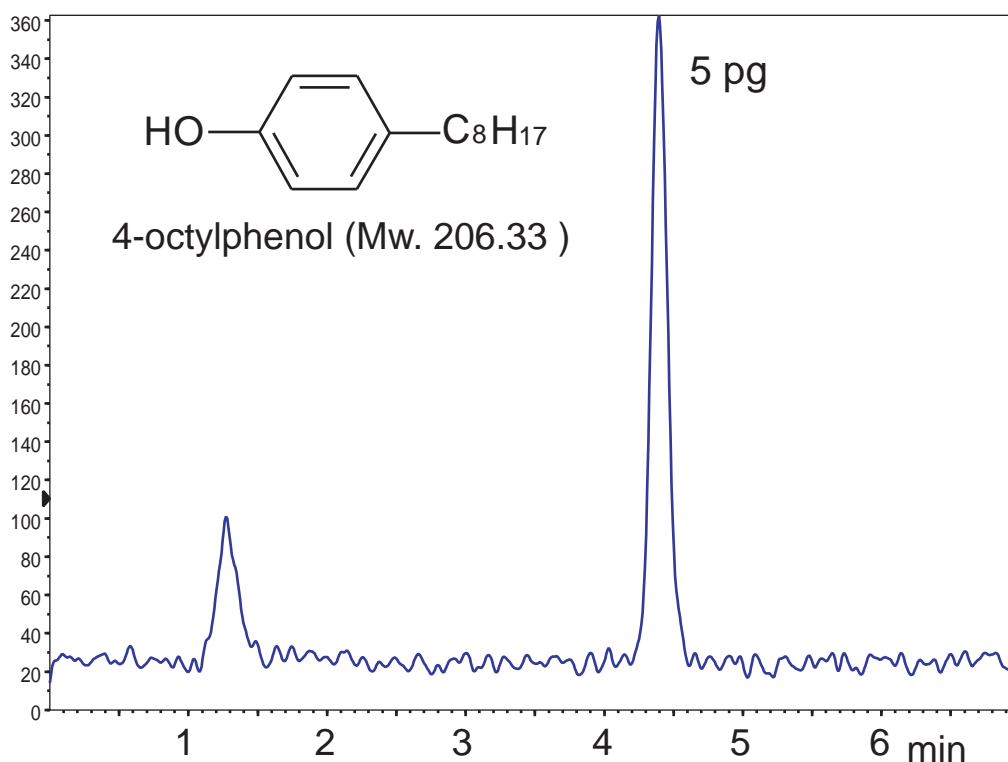
100 x 2 mm

Application

LC-MS Application for Endocrine Disruptor

LC-MSアプリケーション (環境ホルモン, オクチルフェノール)

API4000 (TAKARA BIO INC.)



Cadenza CD-C18, 100 x 2 mm
 80% methanol, 0.2 mL/min, 40 °C, 5µL(1pg/µL)
 API4000: ESI, MRM Negative, Q1/Q3 : 205 / 106

Courtesy of J.Watanabe, TAKARA BIO INC.

Cadenza CD-C18

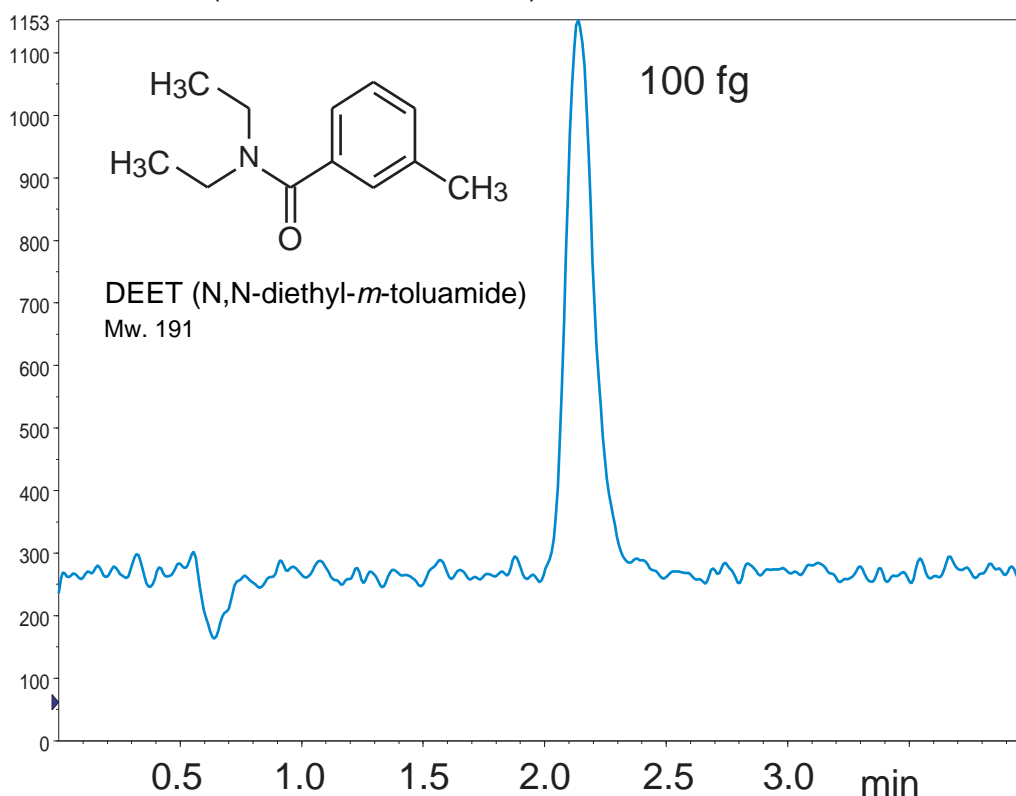
50 x 2 mm

Application

LC-MS Application for Bug Repellent Active Ingredient

LC-MSアプリケーション（虫除けスプレーの有効成分）

API3000 (TAKARA BIO INC.)



Cadenza CD-C18, 50 x 2 mm

0.1% formic acid / 60% methanol, 0.2 mL/min, 40 °C, 5µL (20fg/µL)

API3000: ESI, MRM Positive

Q1/Q3: 192/119

Courtesy of J.Watanabe, TAKARA BIO INC.

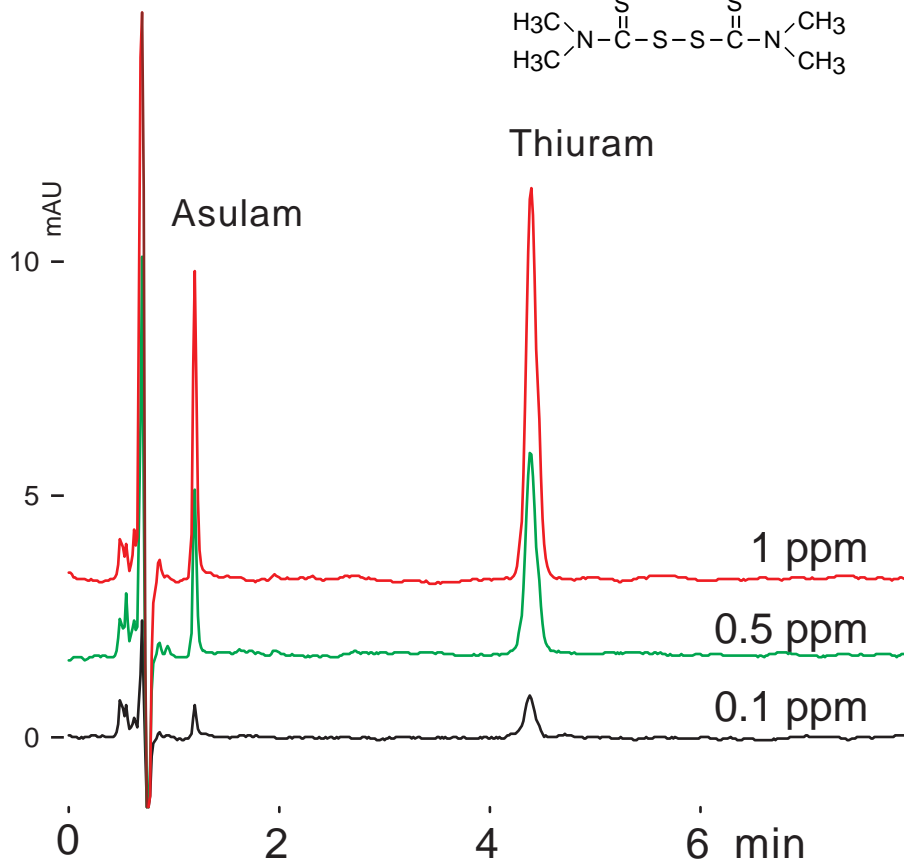
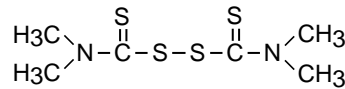
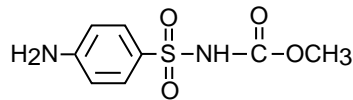
Unison UK-Phenyl

50 x 4.6 mm

Application

Environmental Pesticides (Asulam and Thiuram)

ゴルフ場農薬 (アシュラム, チウラム)



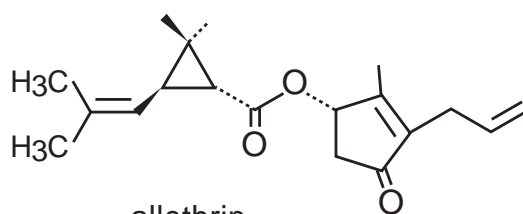
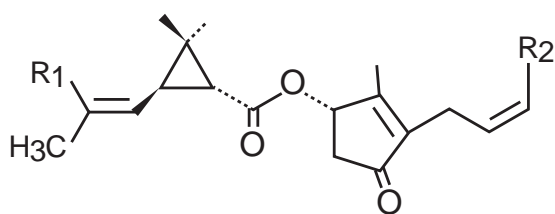
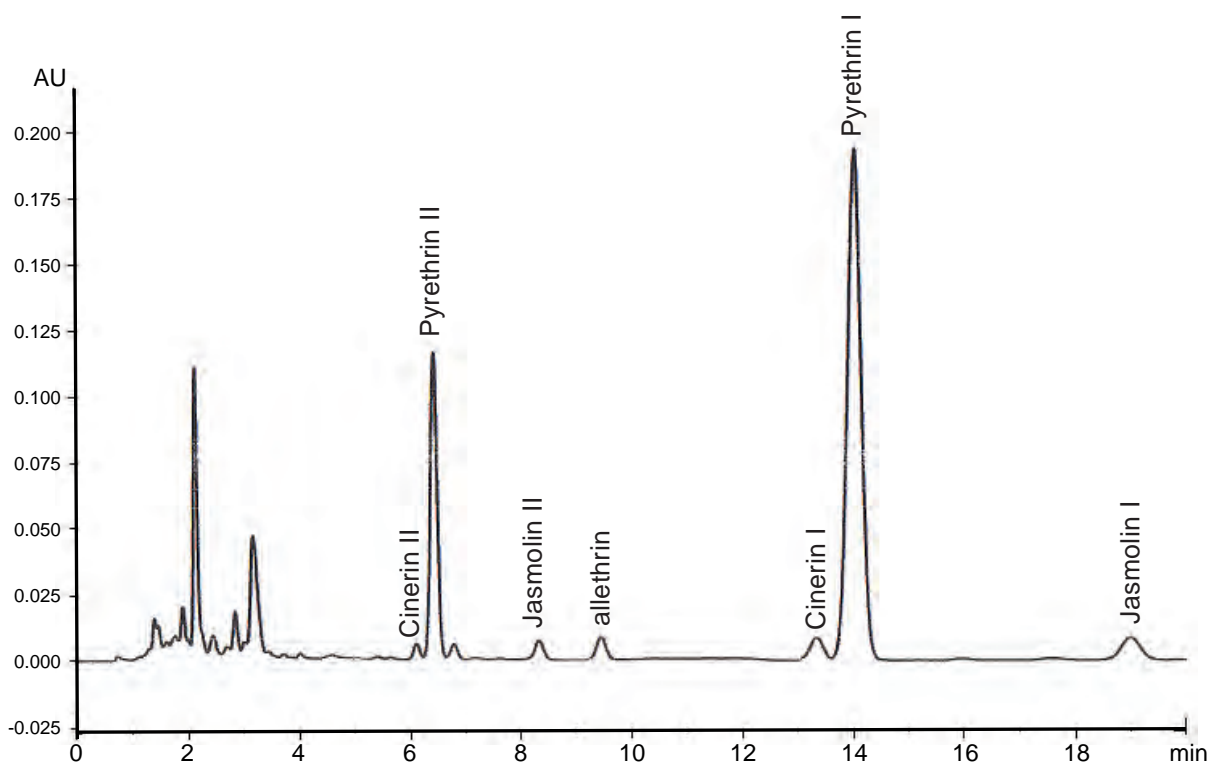
Unison UK-Phenyl, 50 x 4.6 mm
 water / acetonitrile / formic acid = 70 / 30 / 0.1
 1 mL/min, 37 °C, 220 nm, 20 uL

Unison UK-C18

100 x 4.6 mm

Application

Pyrethrins
天然ピレトリン類



allethrin
(as internal standard)

	R1	R2
Pyrethrin I	CH ₃	CH=CH ₂
Pyrethrin II	COOCH ₃	CH=CH ₂
Cinerin I	CH ₃	CH ₃
Cinerin II	COOCH ₃	CH ₃
Jasmolin I	CH ₃	CH ₂ CH ₃
Jasmolin II	COOCH ₃	CH ₂ CH ₃

Unison UK-C18, 100 x 4.6 mm
water / acetonitrile = 35 / 65
1.0 mL/min, 40 °C
UV at 220 nm, 1 μL

Courtesy of Makoto IHARA and Prof. Koichiro KOMAI
Graduate School of Agriculture, Kinki University

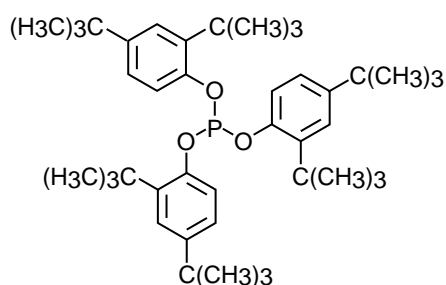
Cadenza CL-C18
 Unison UK-C18
 Cadenza CD-C18
 Unison UK-Silica

75 x 4.6 mm
 250 x 4.6 mm

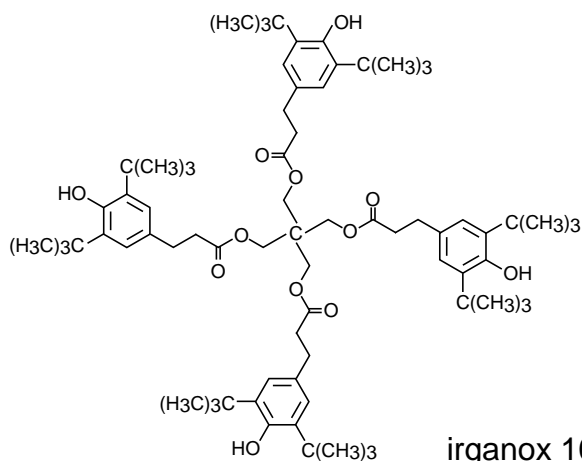
Application

Antioxidants

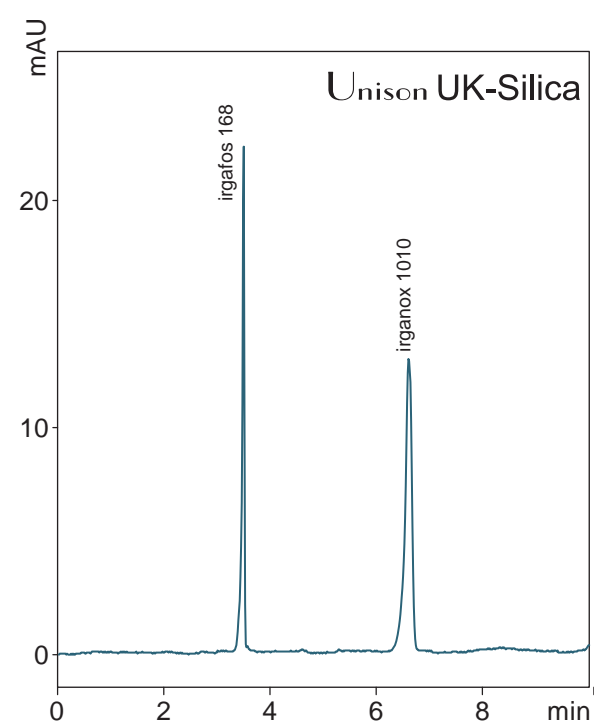
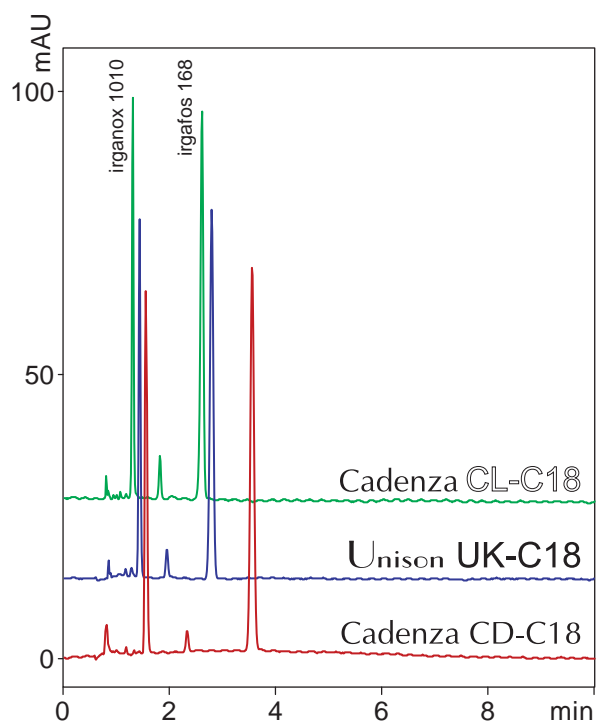
酸化防止剤



irgafos 168



irganox 1010



75 x 4.6 mm
 acetonitrile / tetrahydrofuran
 = 80 / 20
 1 mL/min, 37 deg.C, 230nm

Unison UK-Silica
 250 x 4.6 mm
 hexane / ethyl acetate = 90 / 10
 1 mL/min, 37 deg.C, 270nm

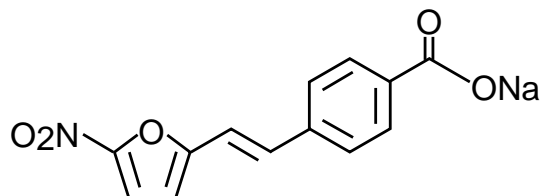
Unison UK-Phenyl
 Unison UK-C8
 Cadenza CD-C18
 Cadenza CL-C18
 Unison UK-C18

75 x 3 mm

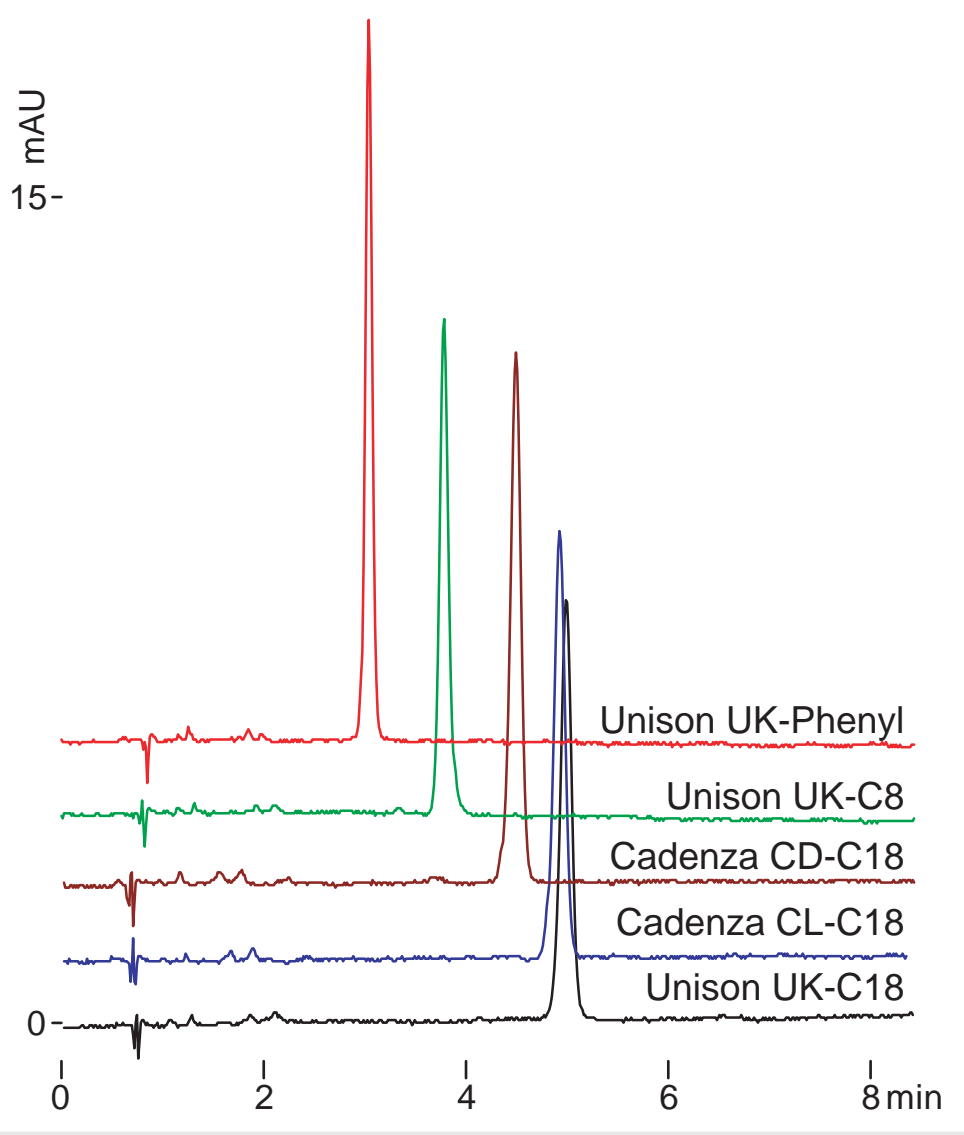
Application

Veterinary Medicine (Synthetic Antimicrobial)

動物用医薬品(合成抗菌剤)



nifurstyreneate monosodium salt



75 x 3 mm, water / acetonitrile / HCOOH = 60 / 40 / 0.1
 0.5 mL/min (5-6MPa), 37 deg.C, 260 nm, 10ppm (5uL)

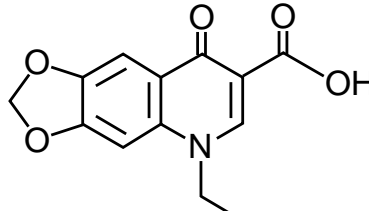
Unison UK-Phenyl
 Unison UK-C8
 Cadenza CD-C18
 Cadenza CL-C18
 Unison UK-C18

75 x 3 mm

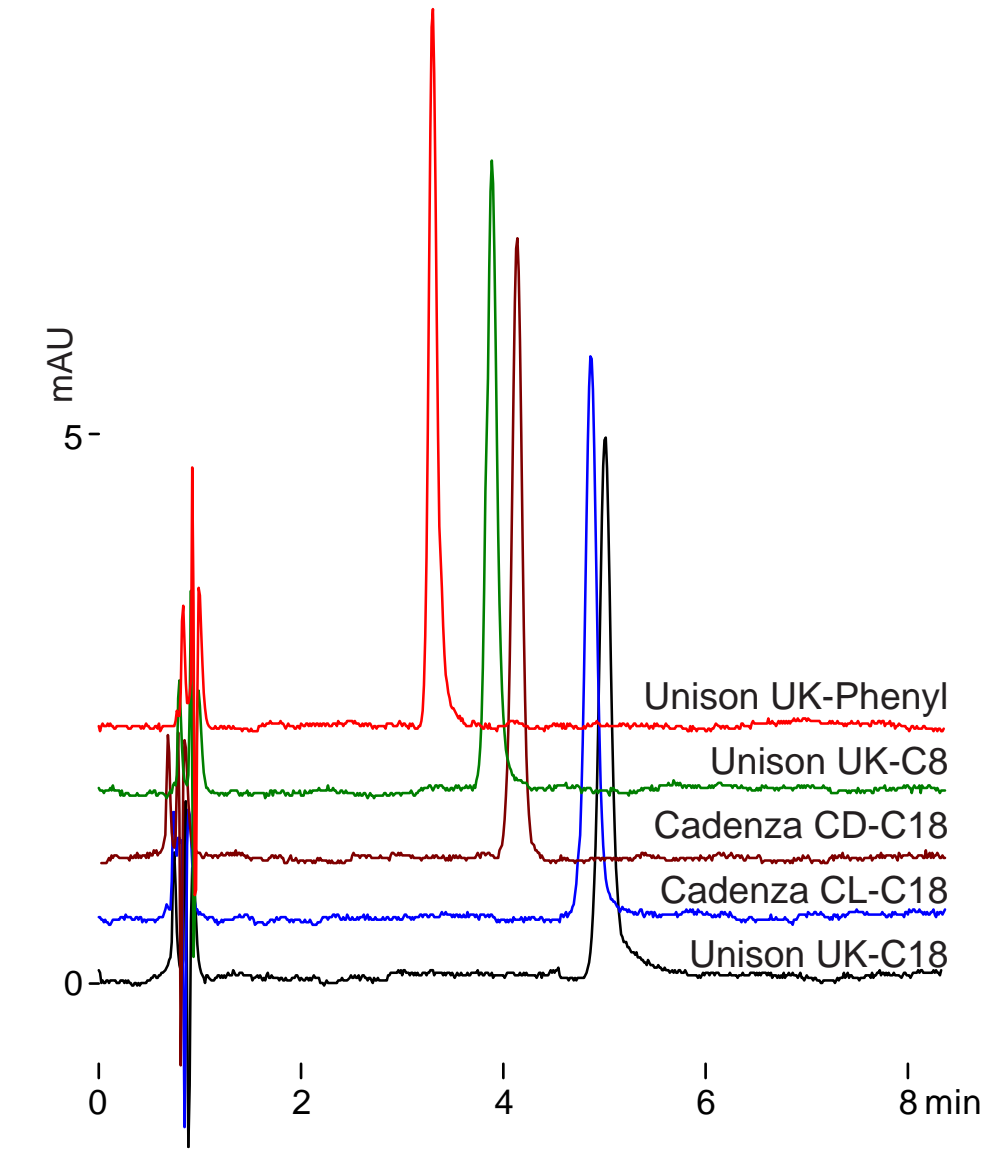
Application

Veterinary Medicine (Synthetic Antimicrobial)

動物用医薬品(合成抗菌剤)



oxolinic acid



75 x 3 mm, water / acetonitrile / TFA = 77 / 23 / 0.1
 0.5 mL/min (6-7MPa), 37 deg.C, 260 nm, 1ppm (5uL)

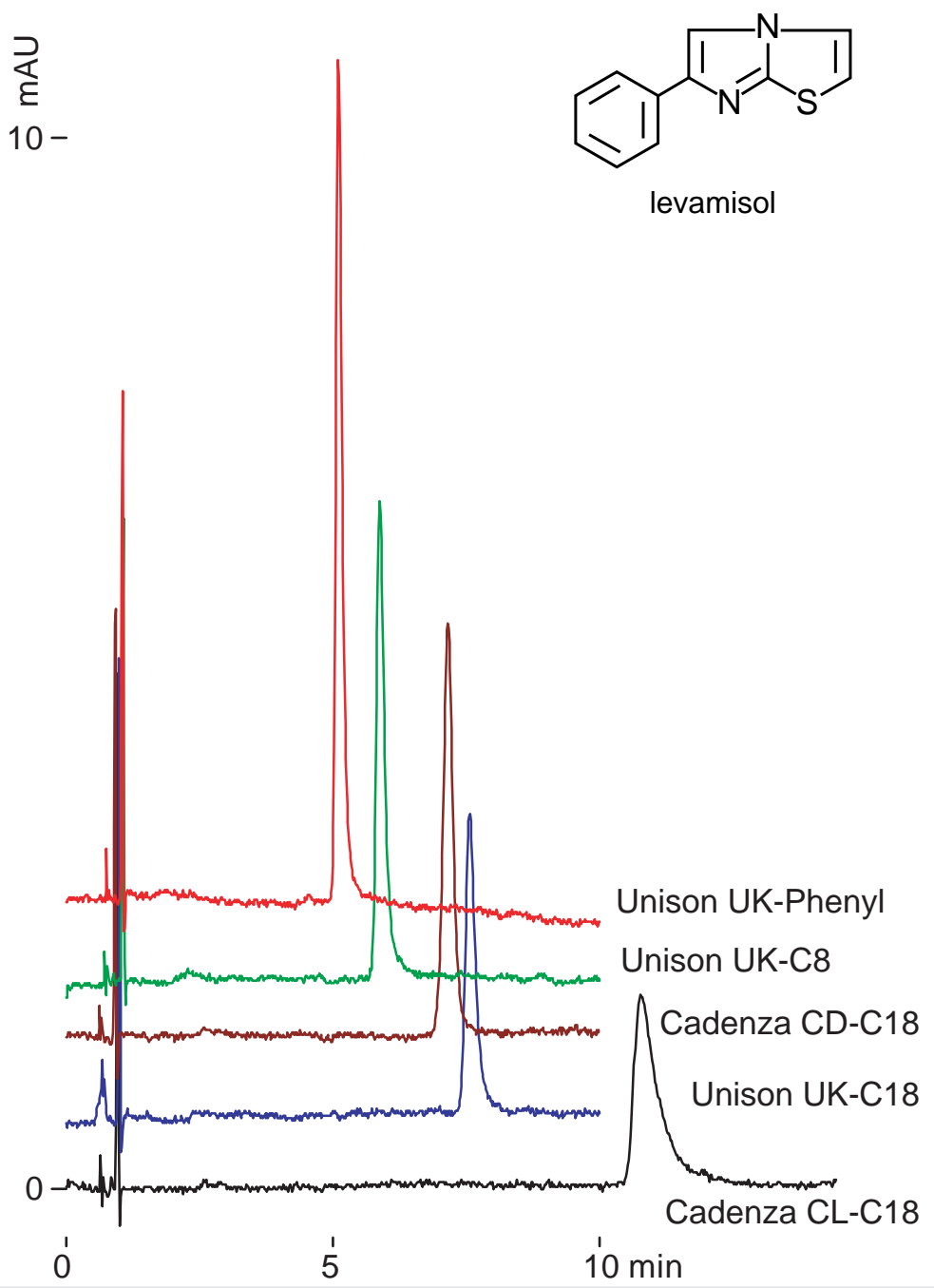
Unison UK-Phenyl
 Unison UK-C8
 Cadenza CD-C18
 Unison UK-C18
 Cadenza CL-C18

75 x 3 mm

Application

Veterinary Medicine (Synthetic Antimicrobial)

動物用医薬品(合成抗菌剤)



75 x 3 mm, 20mM HCOONH₄ / acetonitrile = 89 / 11
 0.5 mL/min (6-7MPa), 37 deg.C, 215 nm, 1ppm (5uL)

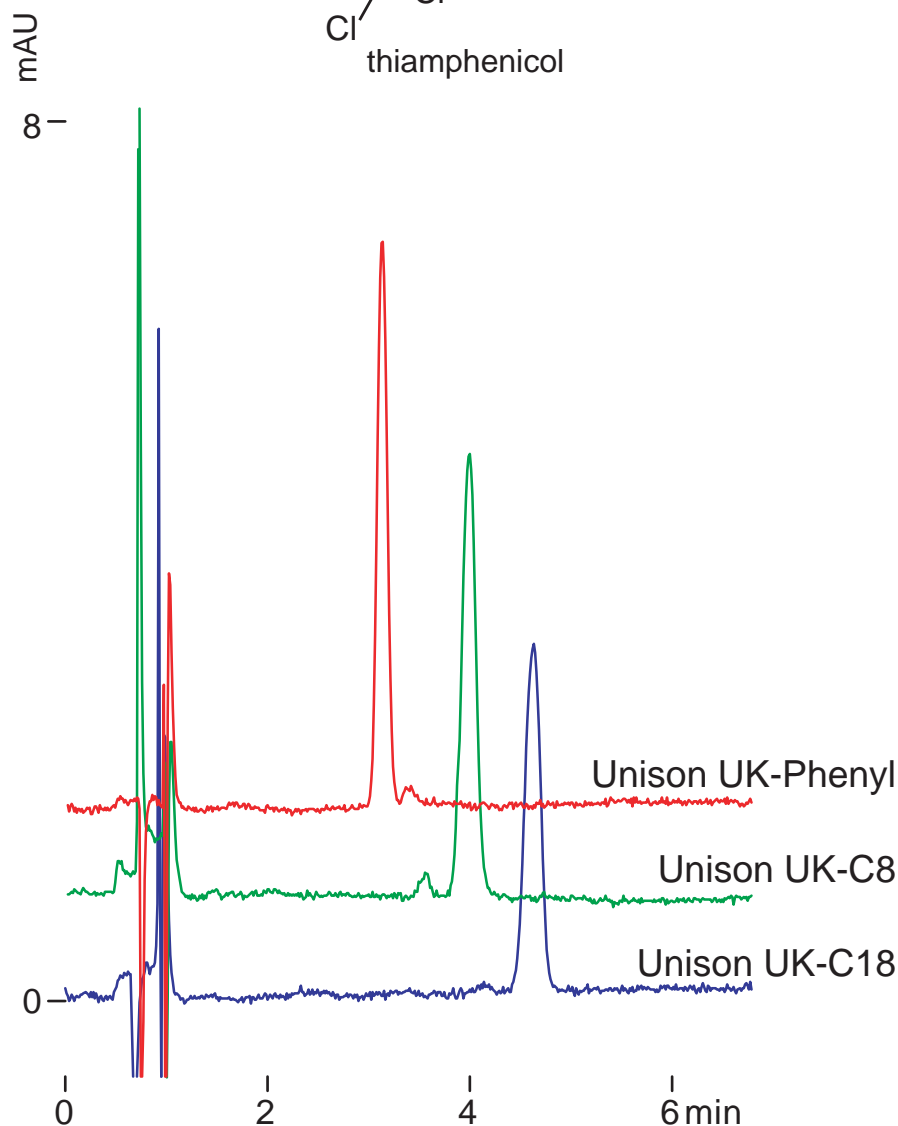
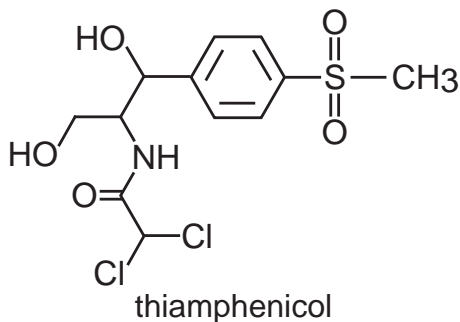
Unison UK-Phenyl
 Unison UK-C8
 Unison UK-C18

75 x 3 mm

Application

Veterinary Medicine (Synthetic Antimicrobial)

動物用医薬品(合成抗菌剤)



75 x 3 mm, 20mM HCOONH₄ / acetonitrile = 88 / 12
 0.5 mL/min (7MPa), 37 deg.C, 224 nm, 1ppm (5uL)

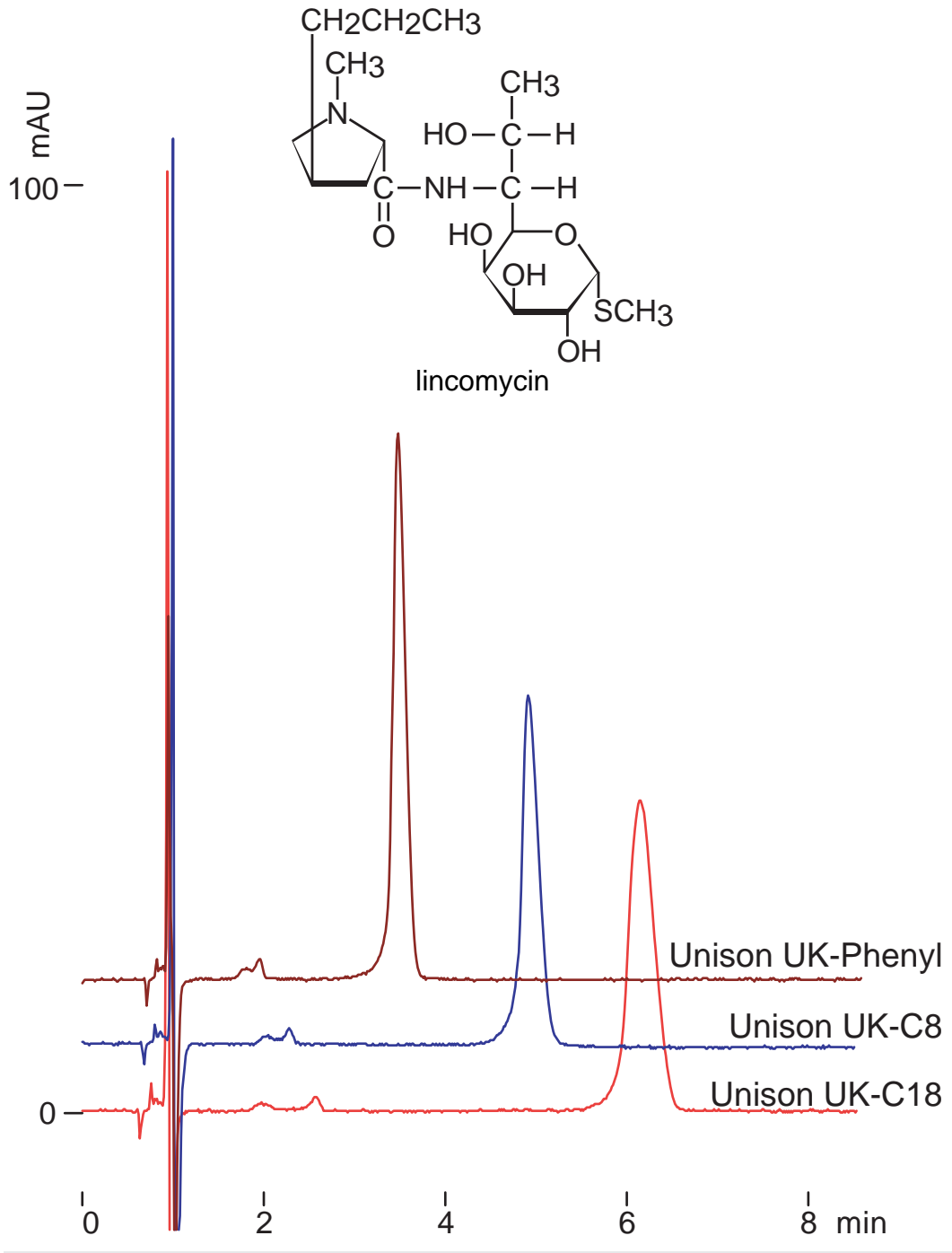
Unison UK-Phenyl
Unison UK-C8
Unison UK-C18

75 x 3 mm

Application

Veterinary Medicine (Antibiotic)

動物用医薬品(抗生物質)



75 x 3 mm, water / acetonitrile / trifluoroacetic acid = 90 / 10 / 0.1
0.5 mL/min (7MPa), 37 deg.C, 210 nm, 500ng / uL (5uL)

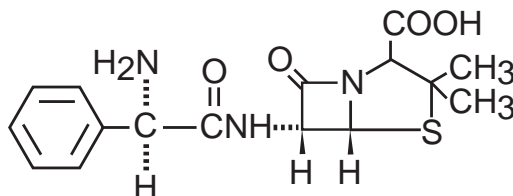
Unison UK-Phenyl
 Unison UK-C8
 Cadenza CD-C18
 Unison UK-C18
 Cadenza CL-C18

75 x 3 mm

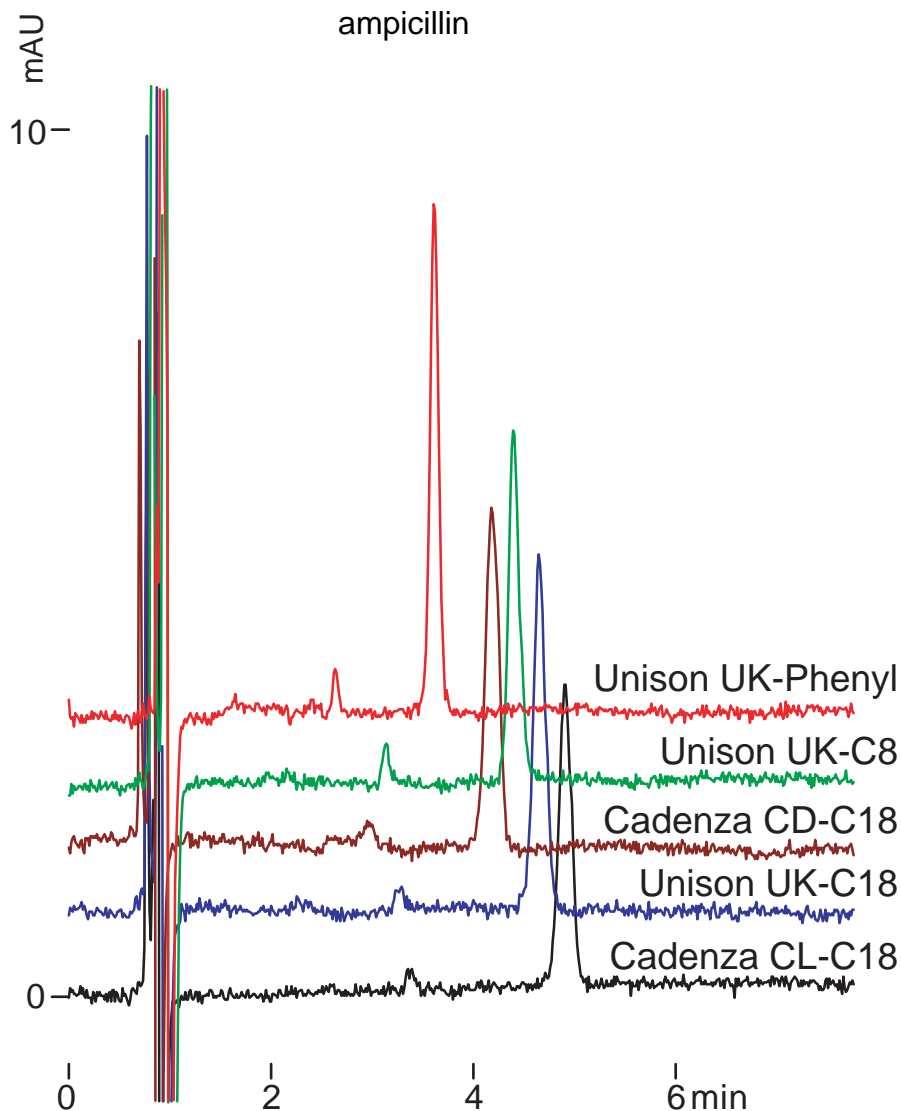
Application

Veterinary Medicine (Antibiotic)

動物用医薬品(抗生物質)



ampicillin



75 x 3 mm,
 water / acetonitrile / trifluoroacetic acid = 85 / 15 / 0.1
 0.5 mL/min (7MPa), 37 deg.C, 210 nm, 10 ppm (2uL)

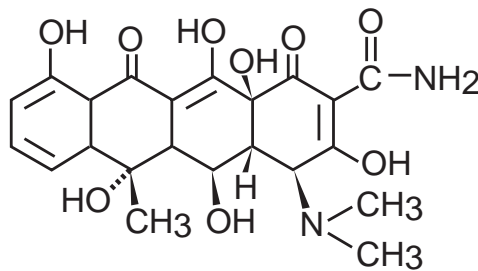
Unison UK-Phenyl
 Unison UK-C8
 Cadenza CD-C18
 Cadenza CL-C18
 Unison UK-C18

75 x 3 mm

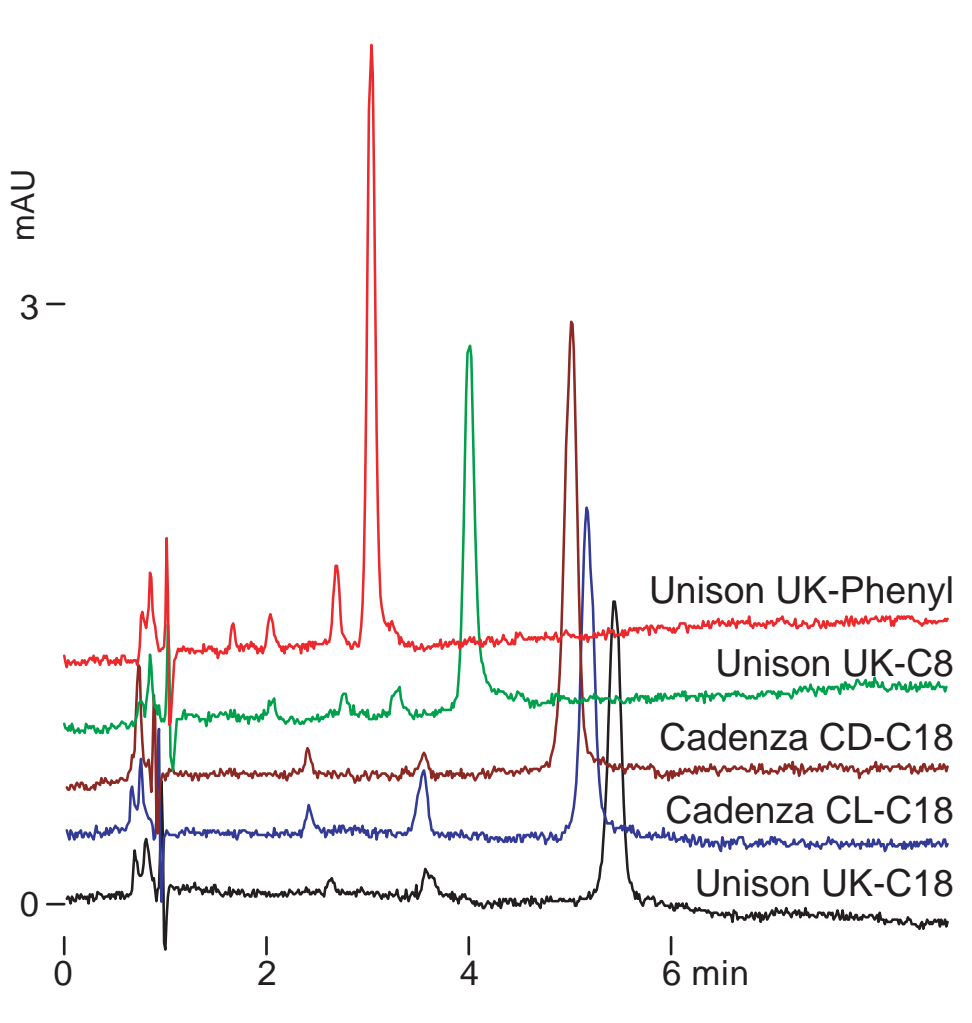
Application

Veterinary Medicine (Antibiotic)

動物用医薬品(抗生物質)



oxytetracycline



75 x 3 mm,
 water / acetonitrile / trifluoroacetic acid = 85 / 15 / 0.1
 0.5 mL/min (7MPa), 37 deg.C, 270 nm, 1 ppm (10uL)

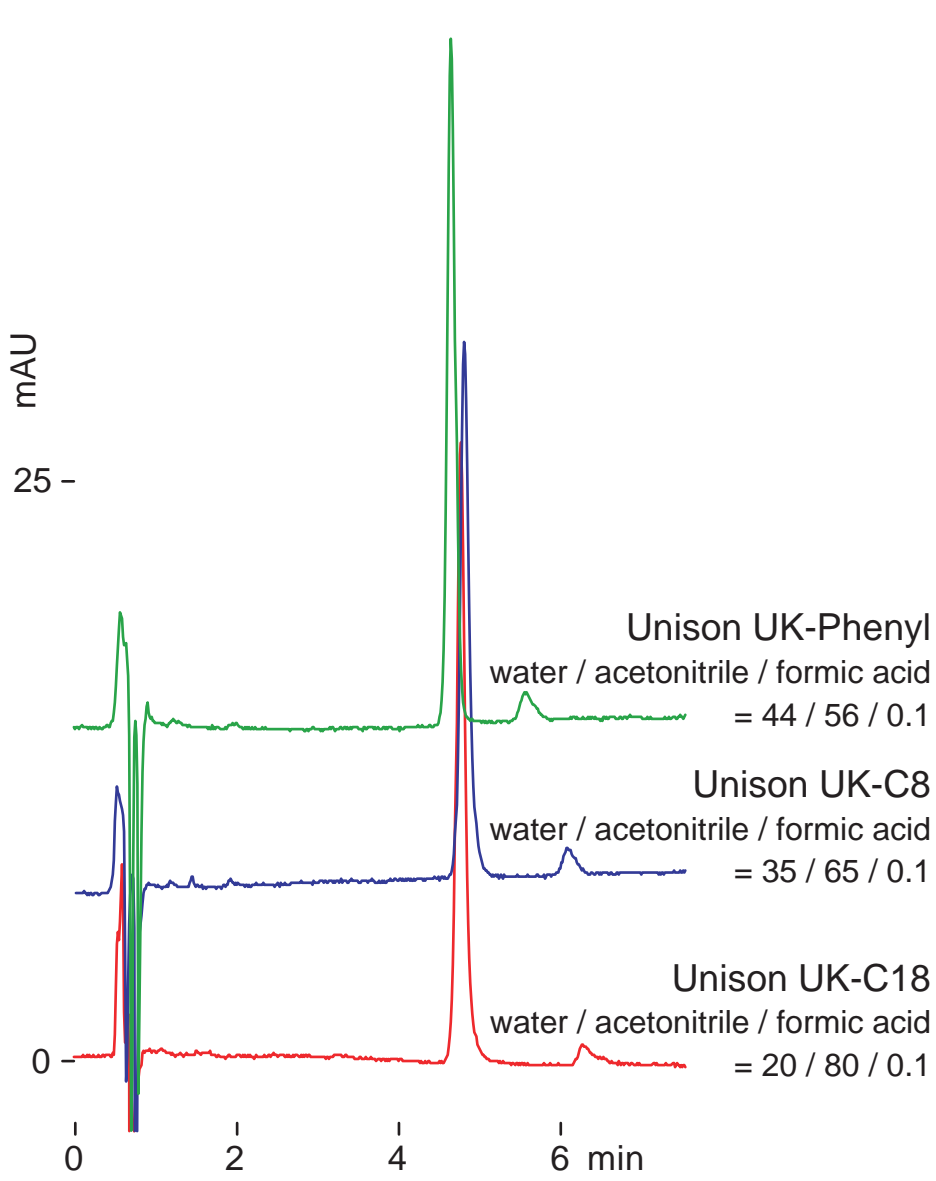
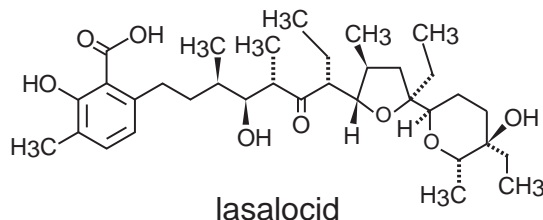
Unison UK-Phenyl
 Unison UK-C8
 Unison UK-C18

75 x 3 mm

Application

Veterinary Medicine (Antibiotic)

動物用医薬品(抗生物質)



75 x 3 mm, 0.5 mL/min (3-5MPa),
 37 deg.C, 220 nm, 1 ug / uL (2uL)

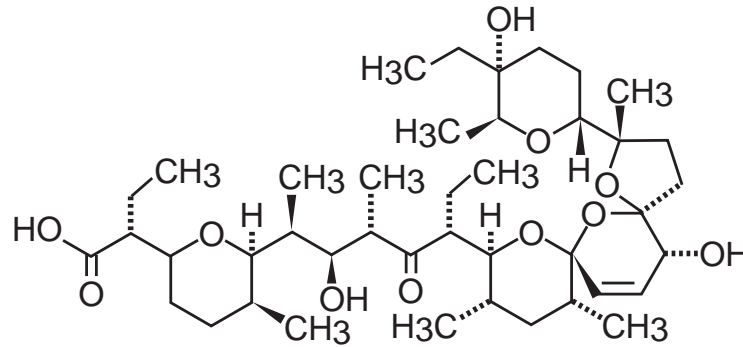
Unison UK-Phenyl
Unison UK-C18

75 x 3 mm

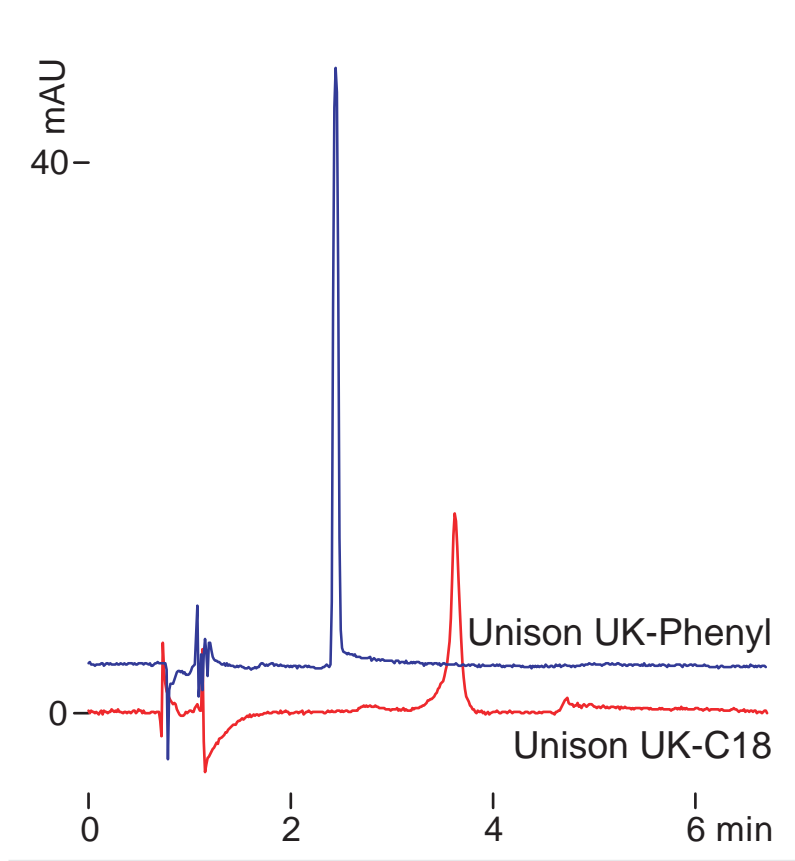
Application

Veterinary Medicine (Antibiotic)

動物用医薬品(抗生物質)



salinomycin



75 x 3 mm, 20mM HCOONH₄
0.5 mL/min (6-7MPa), 37 deg.C,
210 nm, 0.5 ug / uL (5uL)

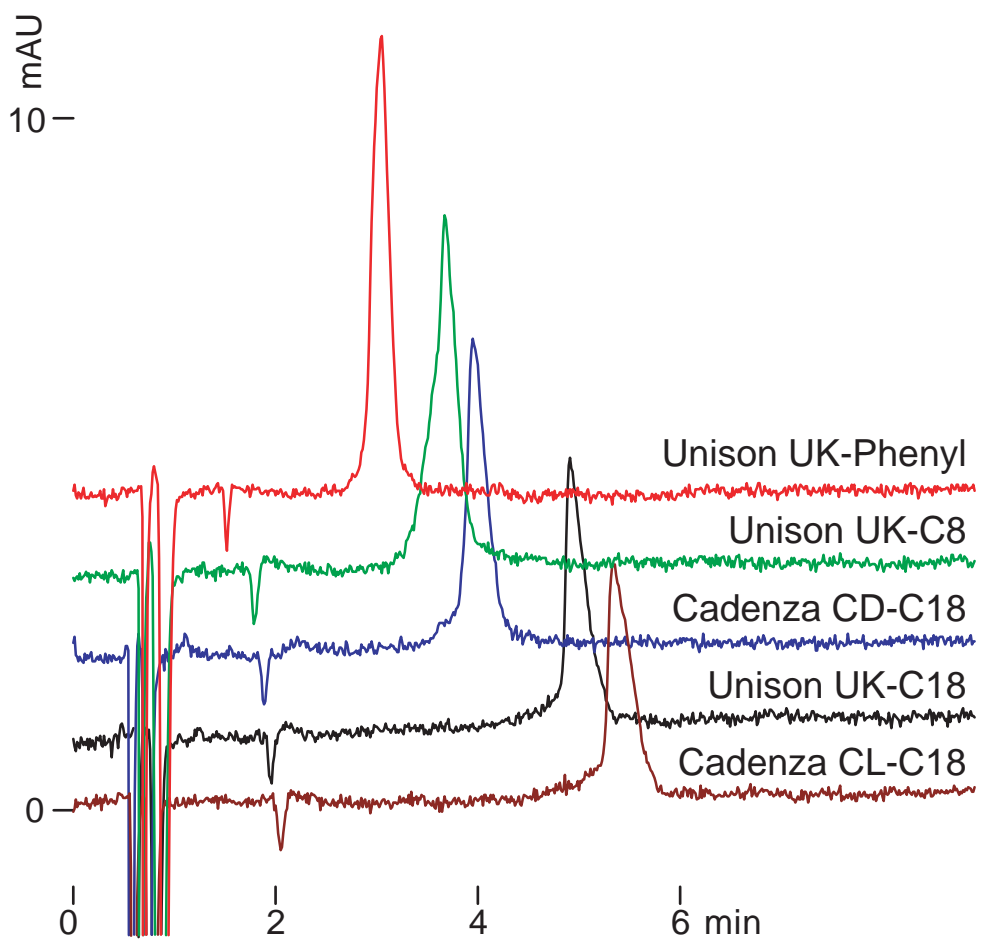
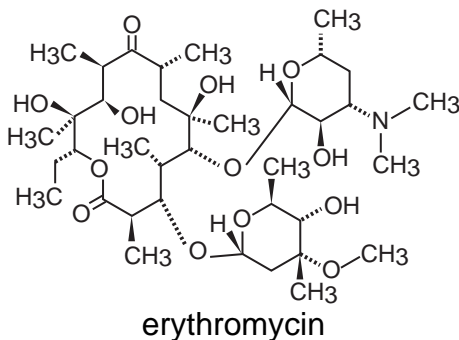
Unison UK-Phenyl
 Unison UK-C8
 Cadenza CD-C18
 Unison UK-C18
 Cadenza CL-C18

75 x 3 mm

Application

Veterinary Medicine (Antibiotic)

動物用医薬品(抗生物質)



75 x 3 mm, 20mM HCOONH₄ / acetonitrile = 70 / 30
 0.5 mL/min (7-8MPa), 37 deg.C, 210 nm, 1 ug/uL (5uL)

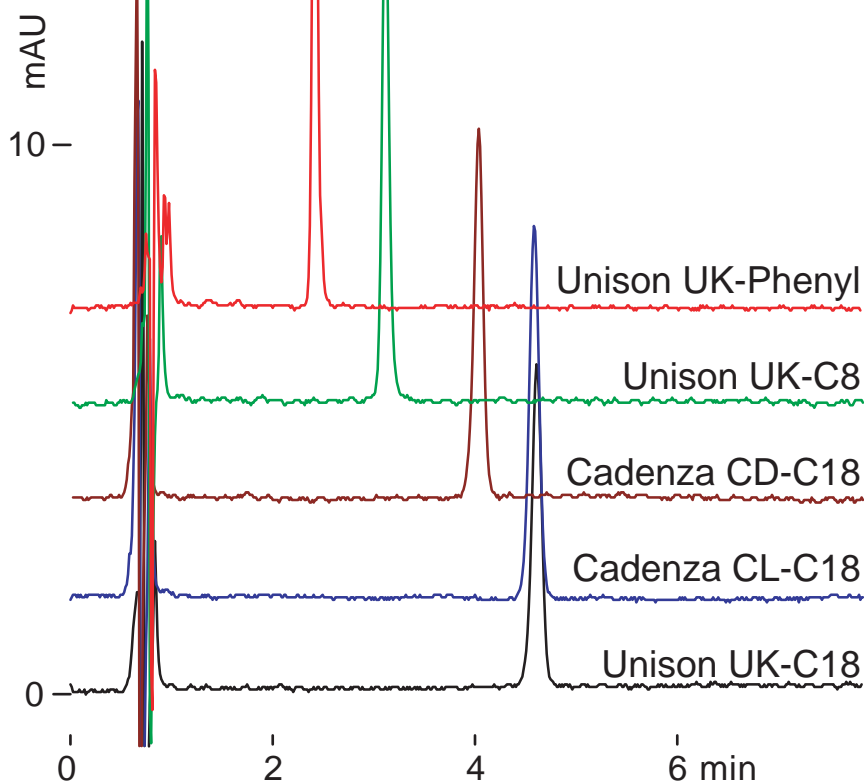
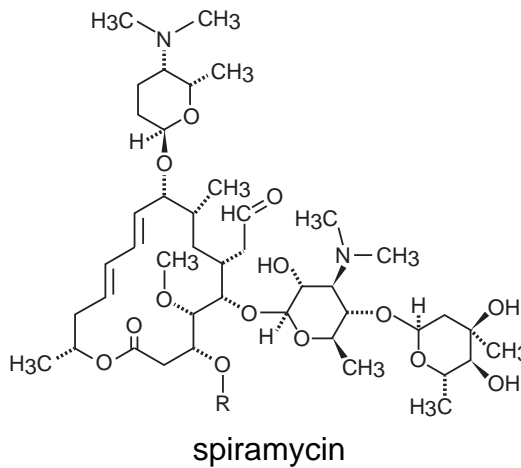
Unison UK-Phenyl
 Unison UK-C8
 Cadenza CD-C18
 Cadenza CL-C18
 Unison UK-C18

75 x 3 mm

Application

Veterinary Medicine (Antibiotic)

動物用医薬品(抗生物質)



75 x 3 mm,
 water / acetonitrile / trifluoroacetic acid = 50 / 50 / 0.1
 0.5 mL/min (6MPa), 37 deg.C, 230 nm, 1 ppm (5uL)

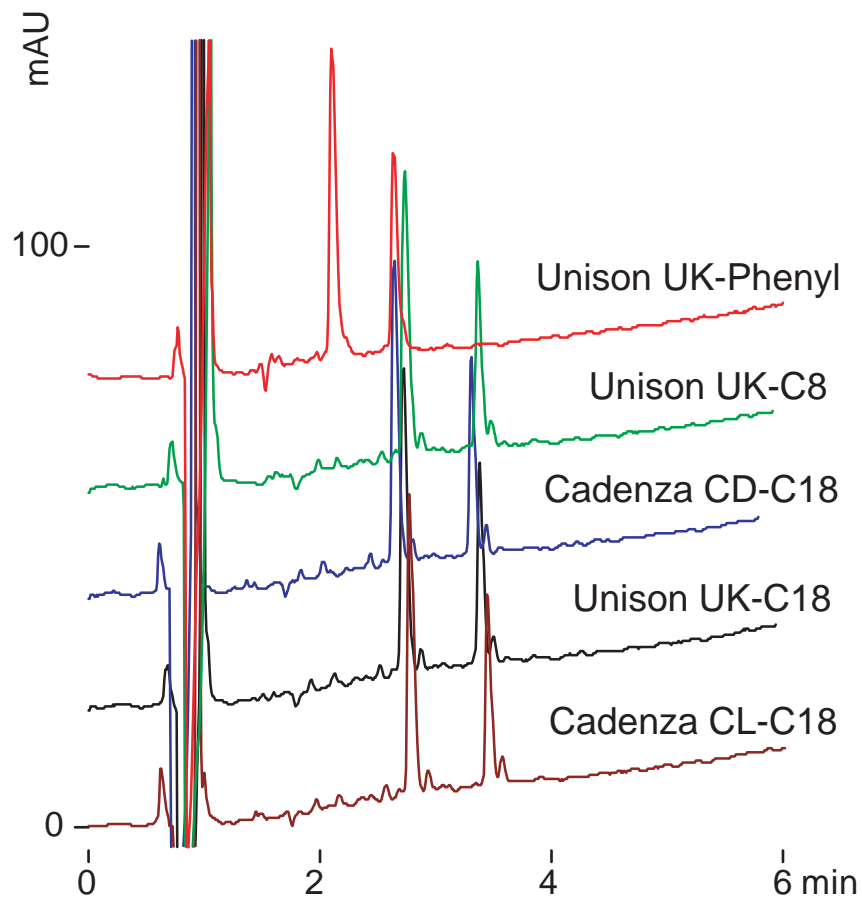
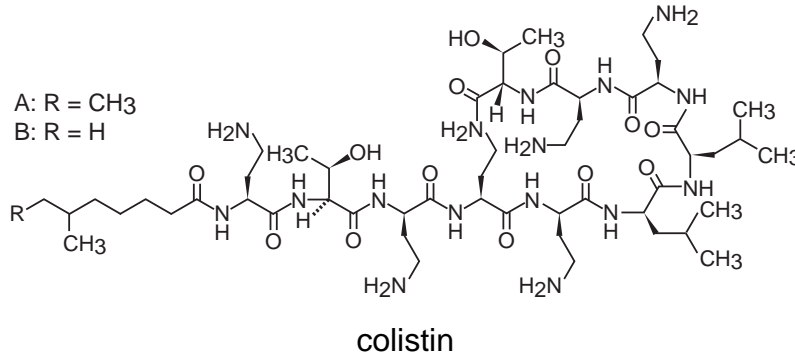
Unison UK-Phenyl
 Unison UK-C8
 Cadenza CD-C18
 Unison UK-C18
 Cadenza CL-C18

75 x 3 mm

Application

Veterinary Medicine (Antibiotic)

動物用医薬品(抗生物質)



75 x 3 mm,

A: water / trifluoroacetic acid = 100 / 0.1

B: acetonitrile / trifluoroacetic acid = 100 / 0.1

25-40 %B (0-5 min), 0.5 mL/min,

37 deg.C, 220 nm, 1 ug/uL (20uL)

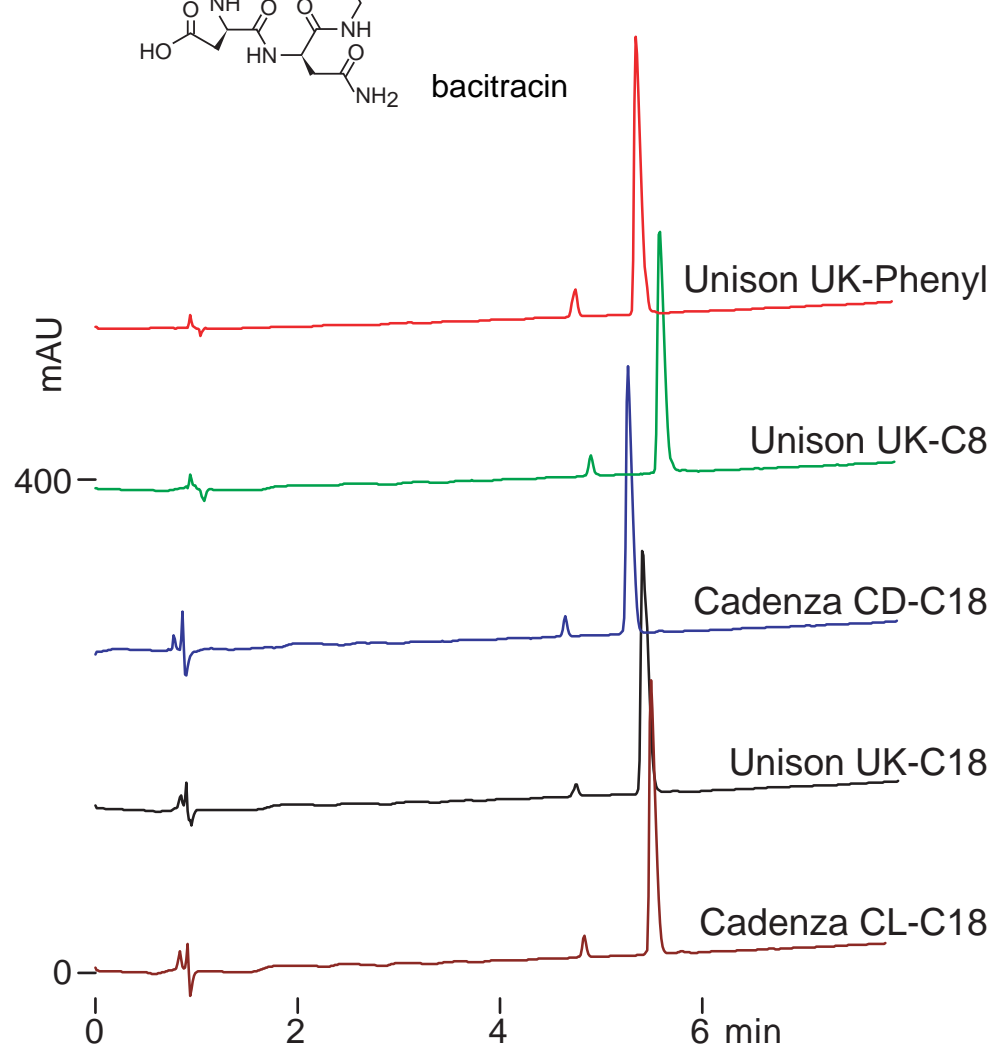
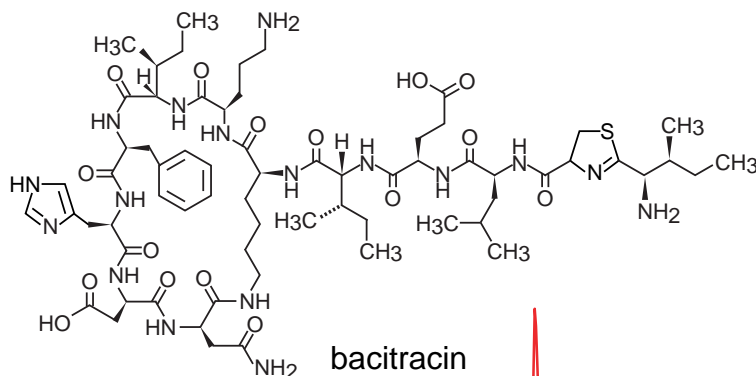
Unison UK-Phenyl
 Unison UK-C8
 Cadenza CD-C18
 Unison UK-C18
 Cadenza CL-C18

75 x 3 mm

Application

Veterinary Medicine (Antibiotic)

動物用医薬品(抗生物質)



75 x 3 mm,
 A: water / trifluoroacetic acid = 100 / 0.1
 B: acetonitrile / trifluoroacetic acid = 100 / 0.1
 10-40 %B (0-7 min), 0.5 mL/min,
 37 deg.C, 220 nm, 1 ug/uL (2uL)

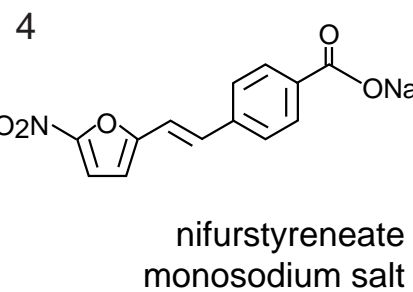
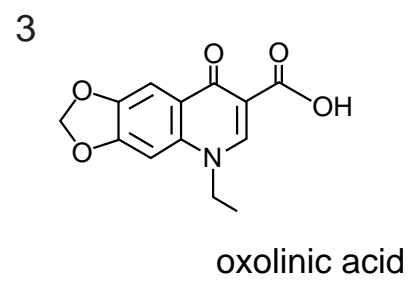
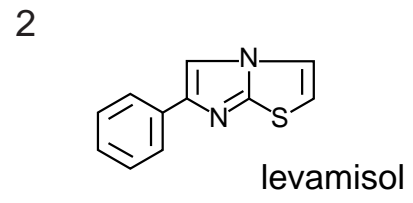
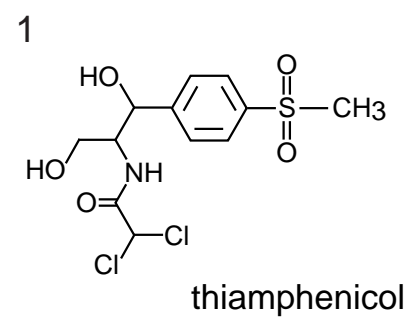
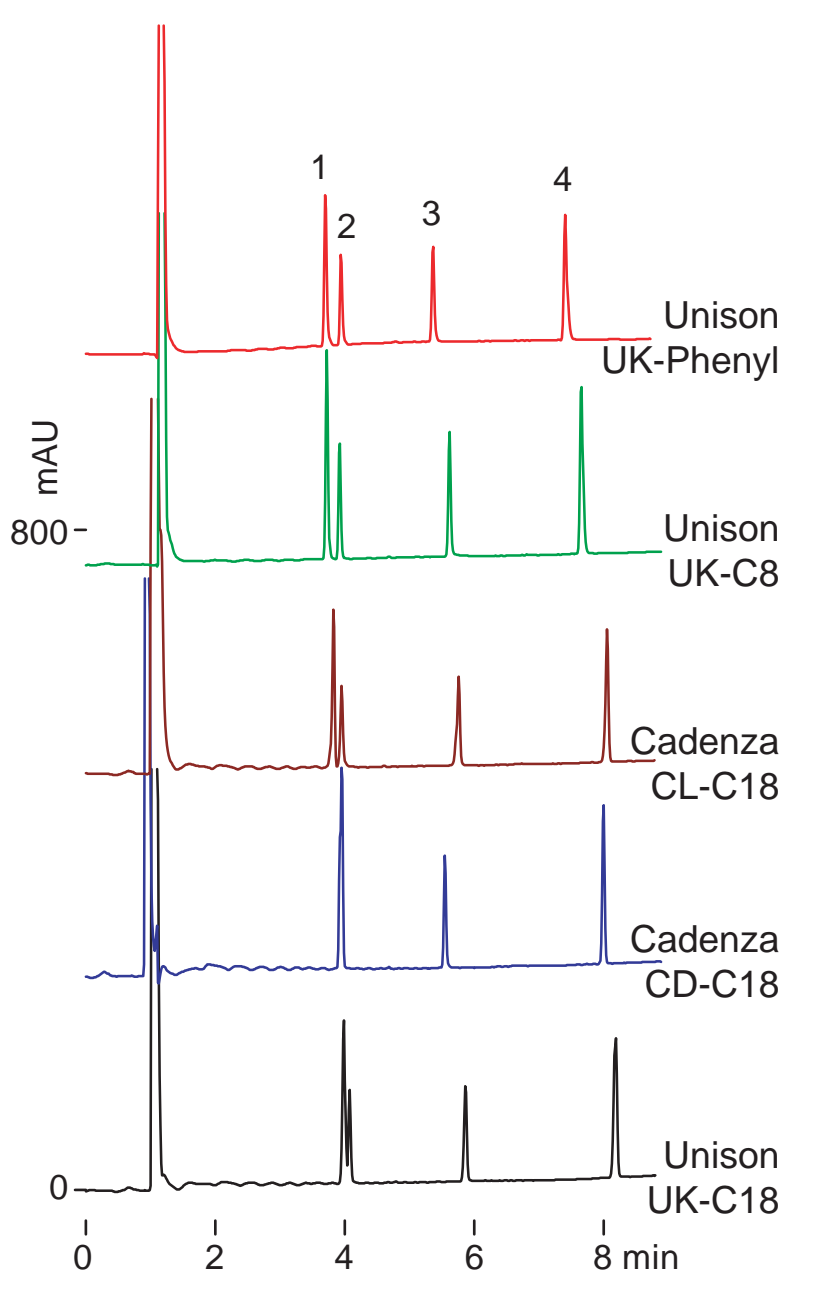
Unison UK-Phenyl
 Unison UK-C8
 Cadenza CL-C18
 Cadenza CD-C18
 Unison UK-C18

75 x 4.6 mm

Application

Veterinary Medicine (Synthetic Antimicrobial)

動物用医薬品(合成抗菌剤)



75 x 4.6 mm,
 A: water / trifluoroacetic acid = 100 / 0.1
 B: acetonitrile / trifluoroacetic acid = 100 / 0.1
 5-60 %B (0-8 min), 1 mL/min (7-8 MPa),
 37 deg.C, 220 nm, 2 uL (0.2-0.6 ug)

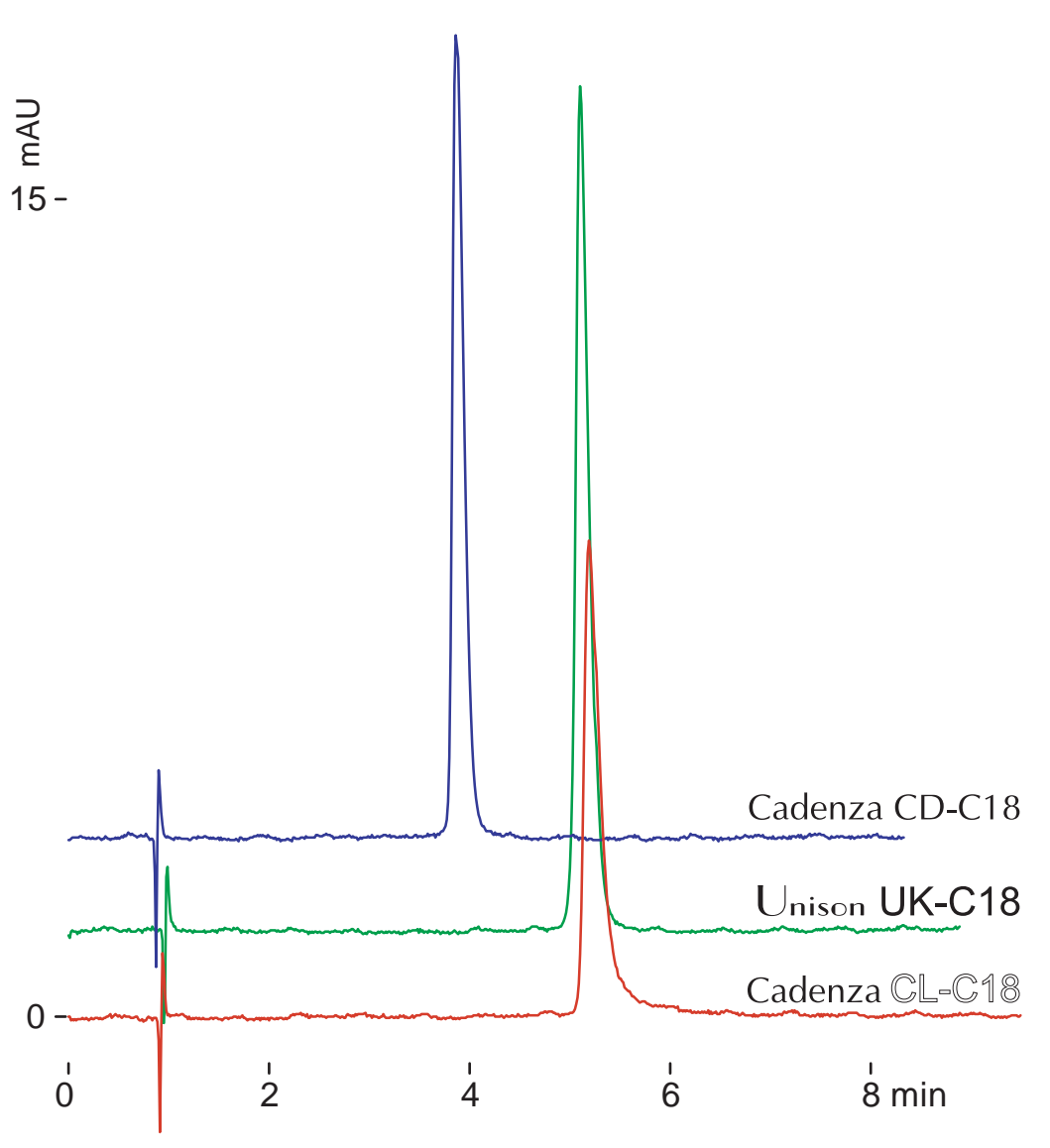
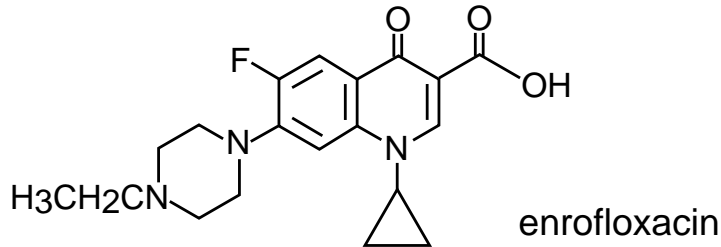
Cadenza CD-C18
Unison UK-C18
Cadenza CL-C18

75 x 3 mm

Application

Synthetic Antimicrobial (Enrofloxacin)

合成抗菌剤 (エンロフロキサシン)



75 x 3 mm
water / ACN / HCOOH = 85 / 15 / 0.1
1mL/min, 37degC, 260nm, 1uL (0.1ug)

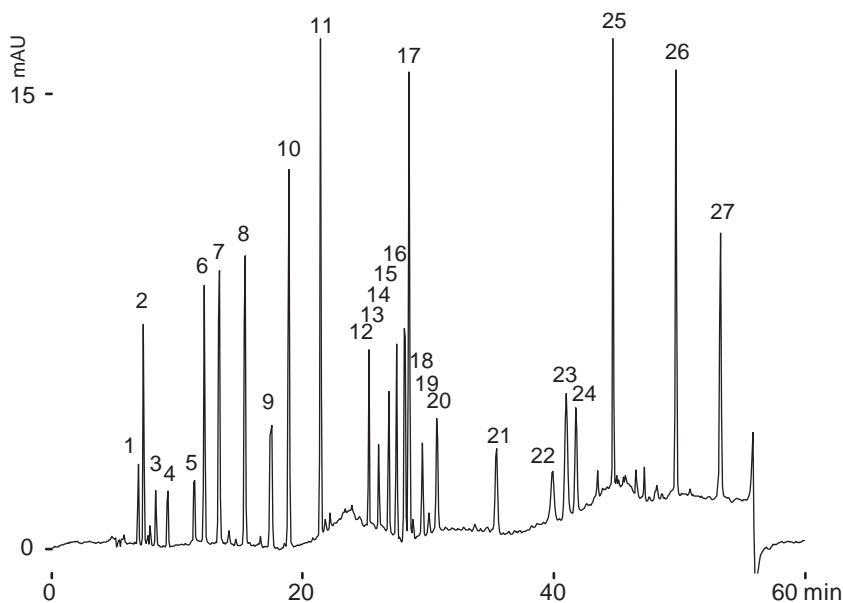
Cadenza CD-C18

250 x 4.6 mm

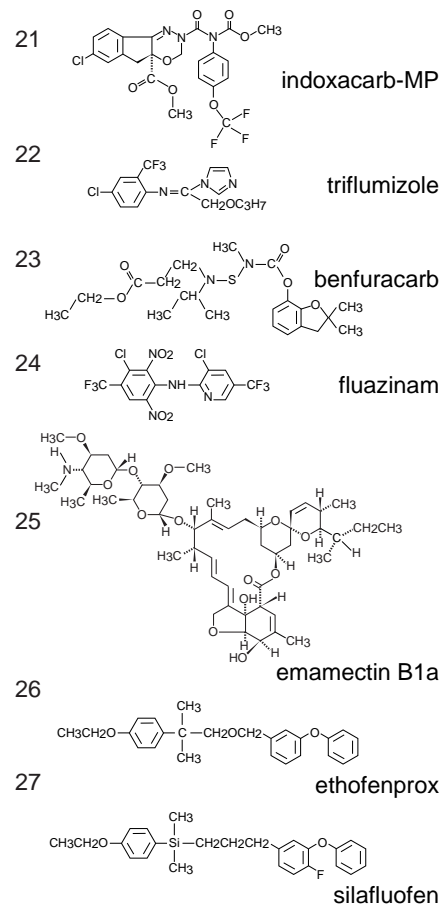
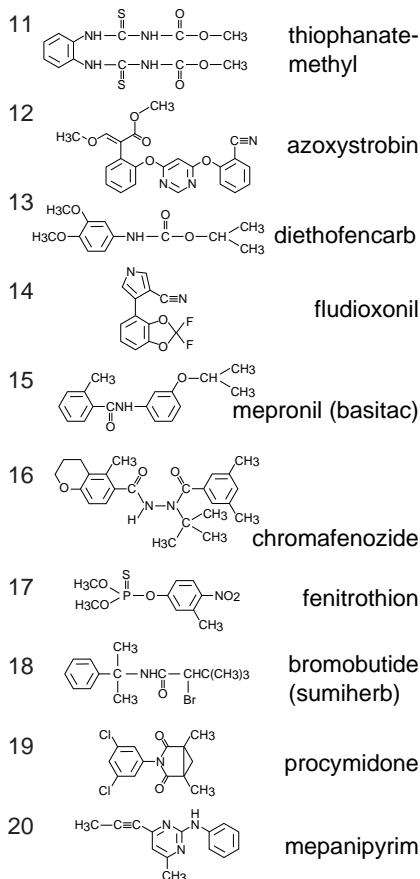
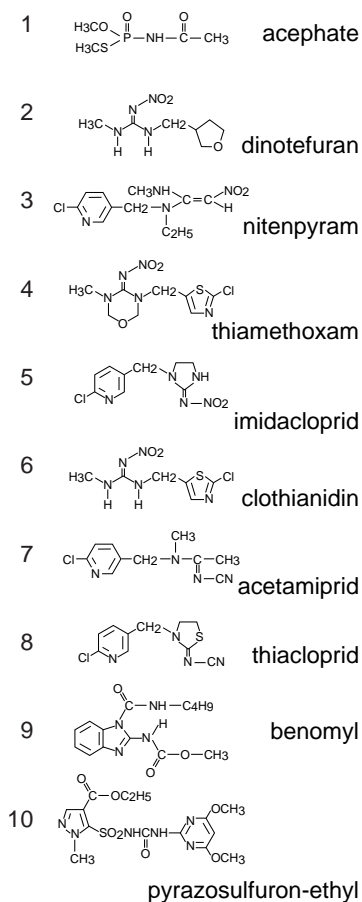
Application

Agricultural Chemicals (5)

農薬 (5)



Cadenza CD-C18
 250 x 4.6 mm,
 A: 50mM ammonium formate
 B: methanol
 40-60%B (0-15min)
 60-80%B (15-18min)
 80%B (18-35min)
 80-98%B (35-40min)
 98%B (40-50min)
 0.5 mL/min, 37 deg.C
 254 nm, 20 uL



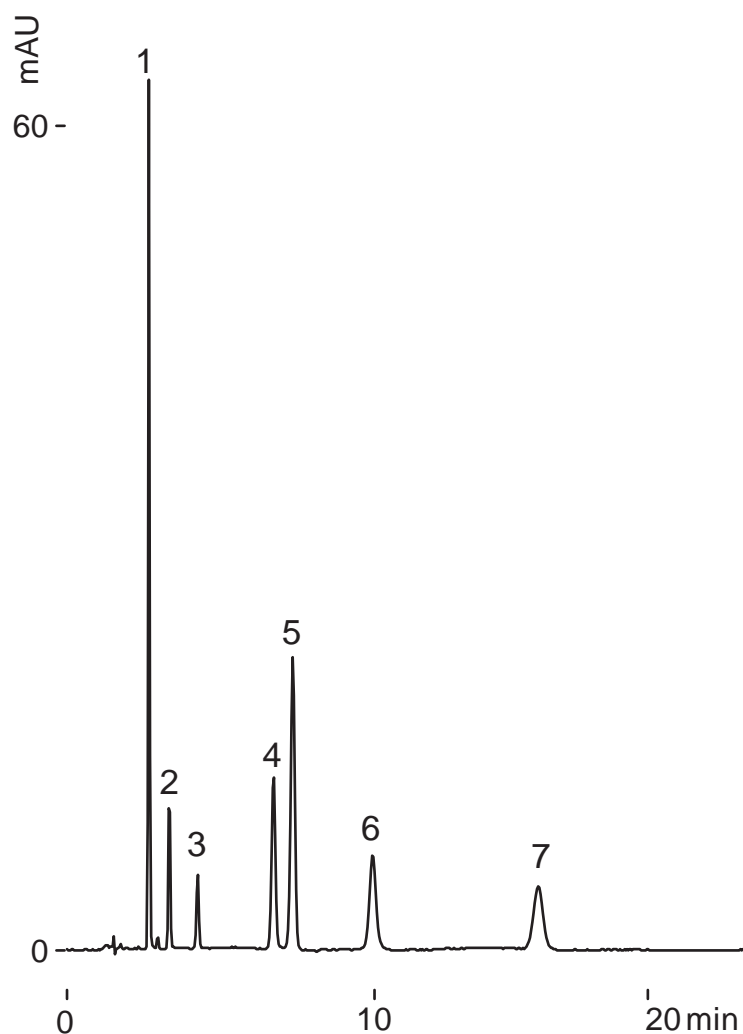
Cadenza CD-C18

100 x 4.6 mm

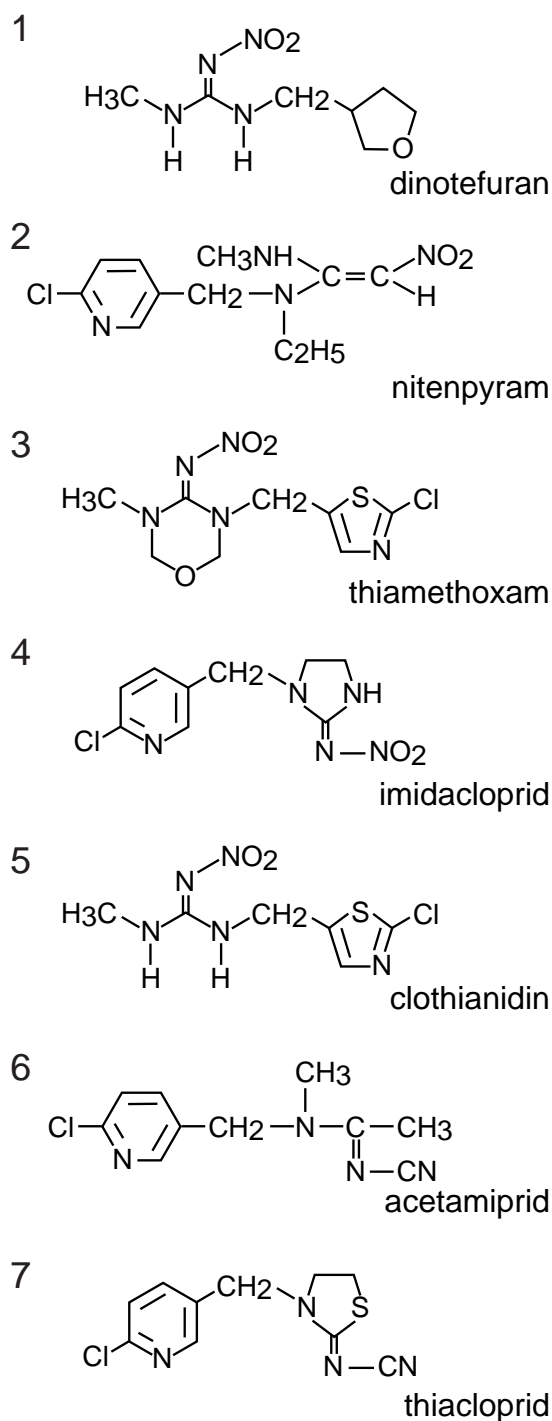
Application

Agricultural Chemicals (6)

農薬 (6)



Cadenza CD-C18, 100 x 4.6 mm,
50mM ammonium formate / methanol = 70 / 30
0.7 mL/min, 37 deg.C, 270 nm, 5 uL (0.5ug)



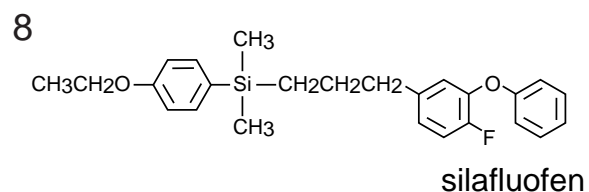
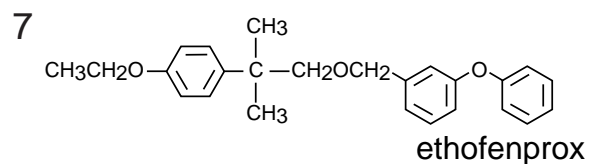
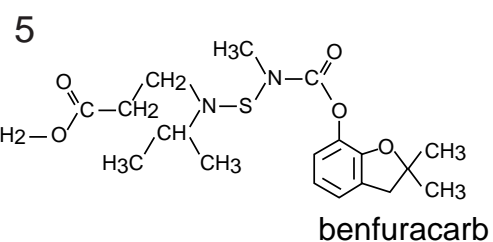
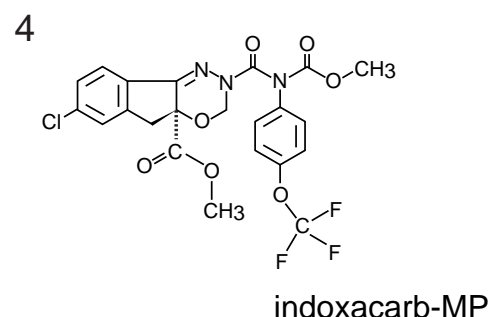
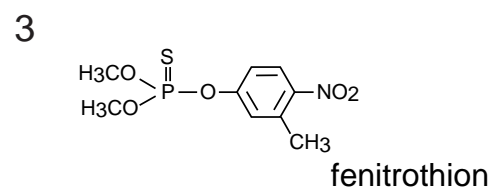
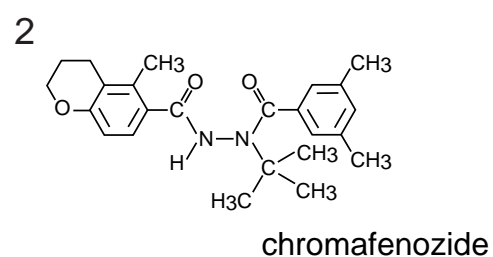
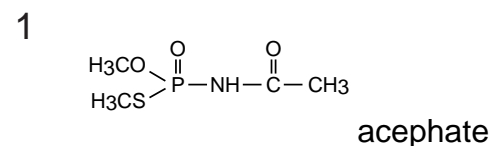
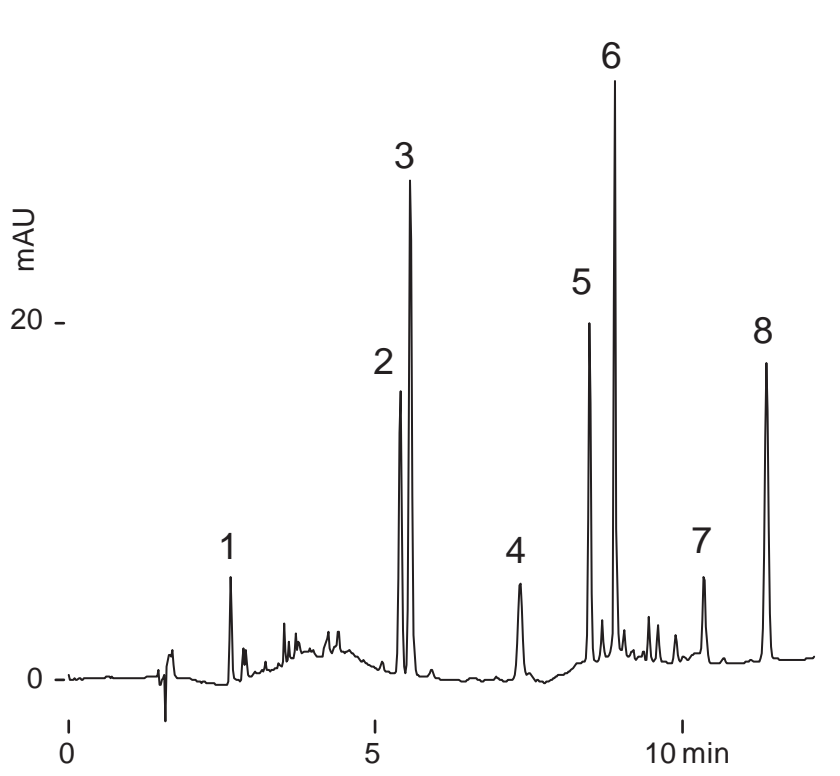
Cadenza CD-C18

100 x 4.6 mm

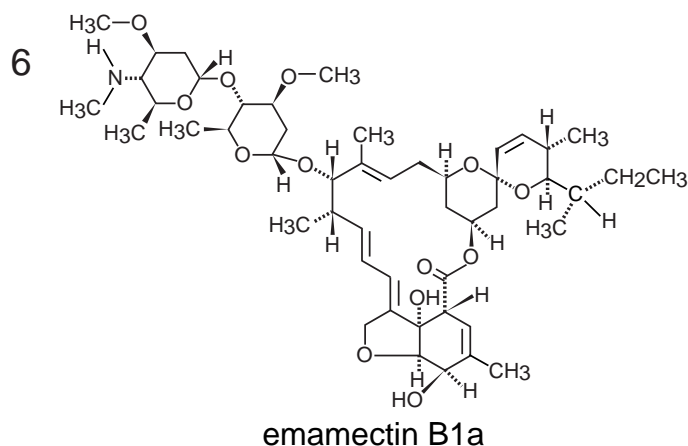
Application

Agricultural Chemicals (7)

農薬 (7)



Cadenza CD-C18, 100 x 4.6 mm,
 A: 50mM ammonium formate, B: methanol
 20-80%B (0-2min), 80%B (2-6min)
 80-98%B (6-7min), 98%B (7-10min)
 0.7 mL/min, 37 deg.C, 254 nm, 20 uL (0.4-20ug)



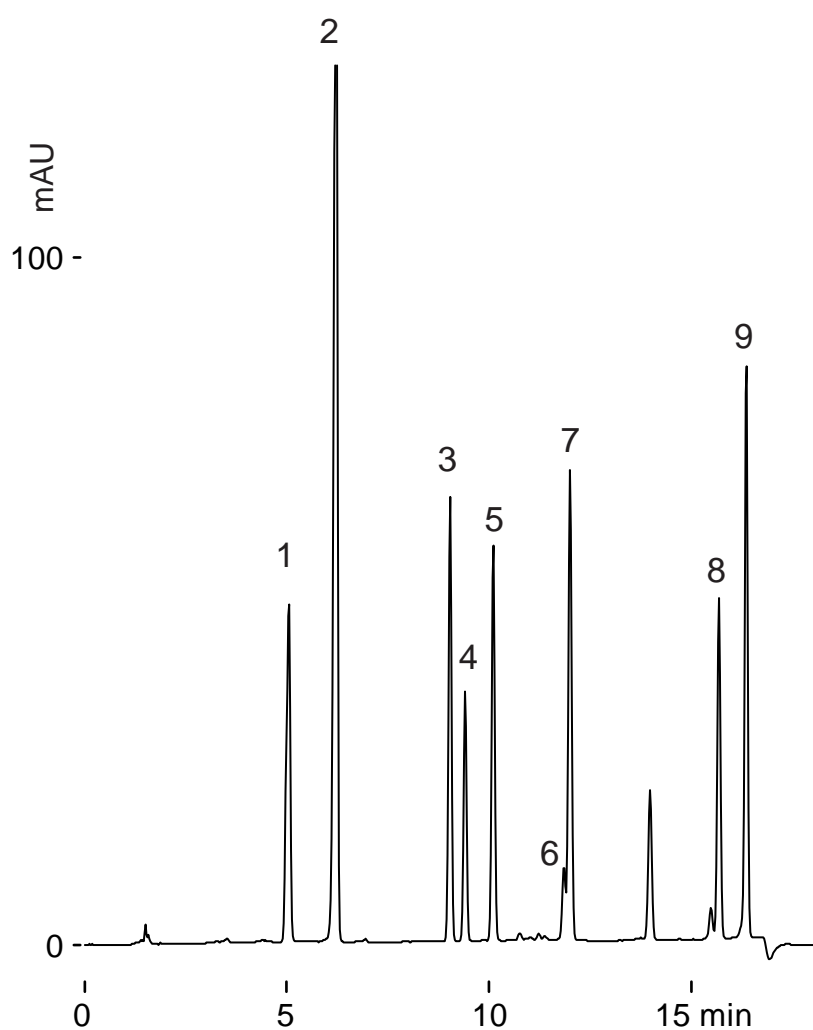
Cadenza CD-C18

100 x 4.6 mm

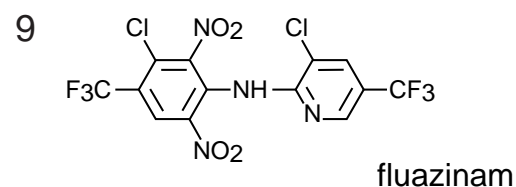
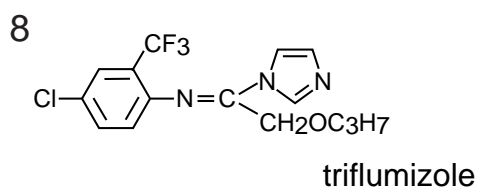
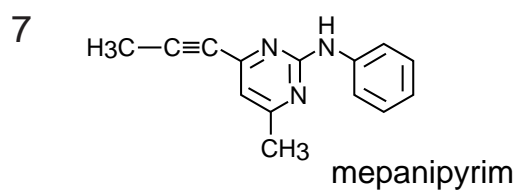
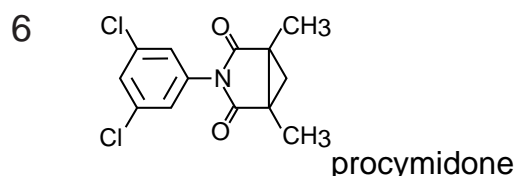
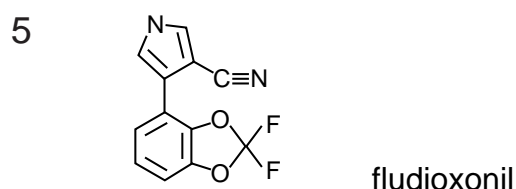
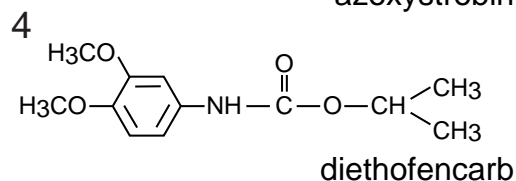
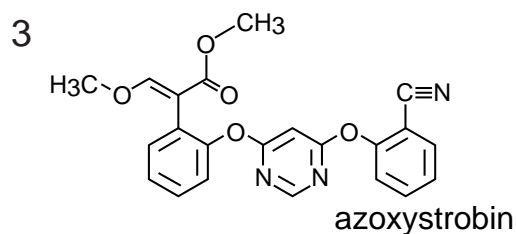
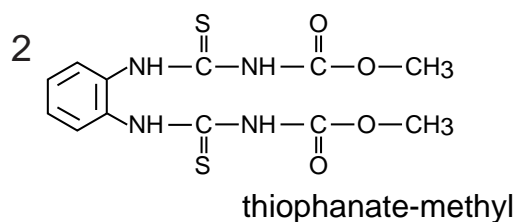
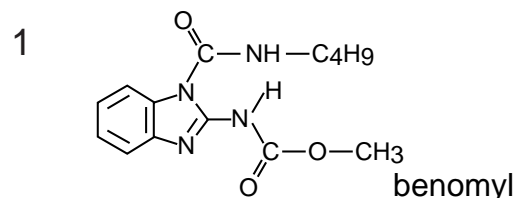
Application

Agricultural Chemicals (8)

農薬 (8)



Cadenza CD-C18, 100 x 4.6 mm,
 A: 50mM ammonium formate, B: methanol
 40-65%B (0-5min), 65-85%B (5-15min)
 0.7 mL/min, 37 deg.C, 254 nm, 10 uL (0.25-1ug)



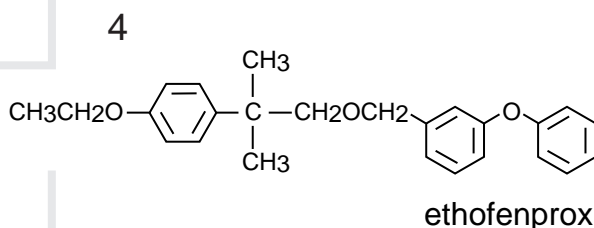
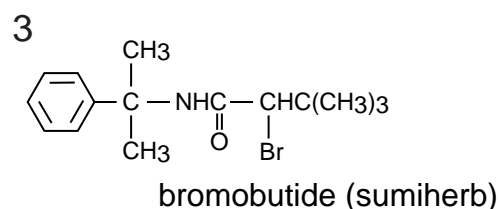
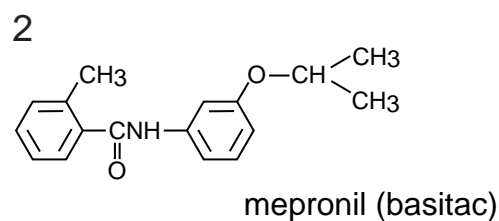
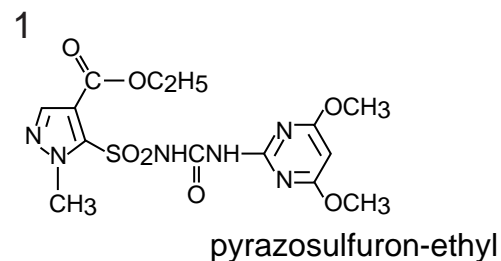
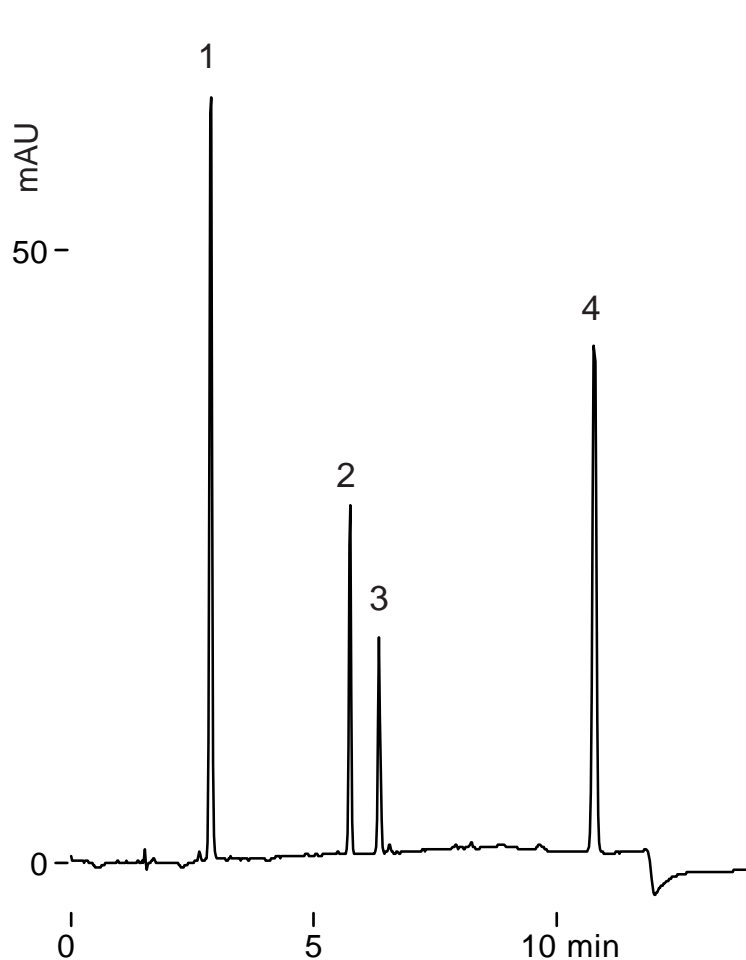
Cadenza CD-C18

100 x 4.6 mm

Application

Agricultural Chemicals (9)

農薬 (9)



Cadenza CD-C18, 100 x 4.6 mm,
 A: 50mM ammonium formate, B: methanol
 60-95%B (0-7min), 95%B (7-10min)
 0.7 mL/min, 37 deg.C, 254 nm, 5 uL (0.1-2ug)

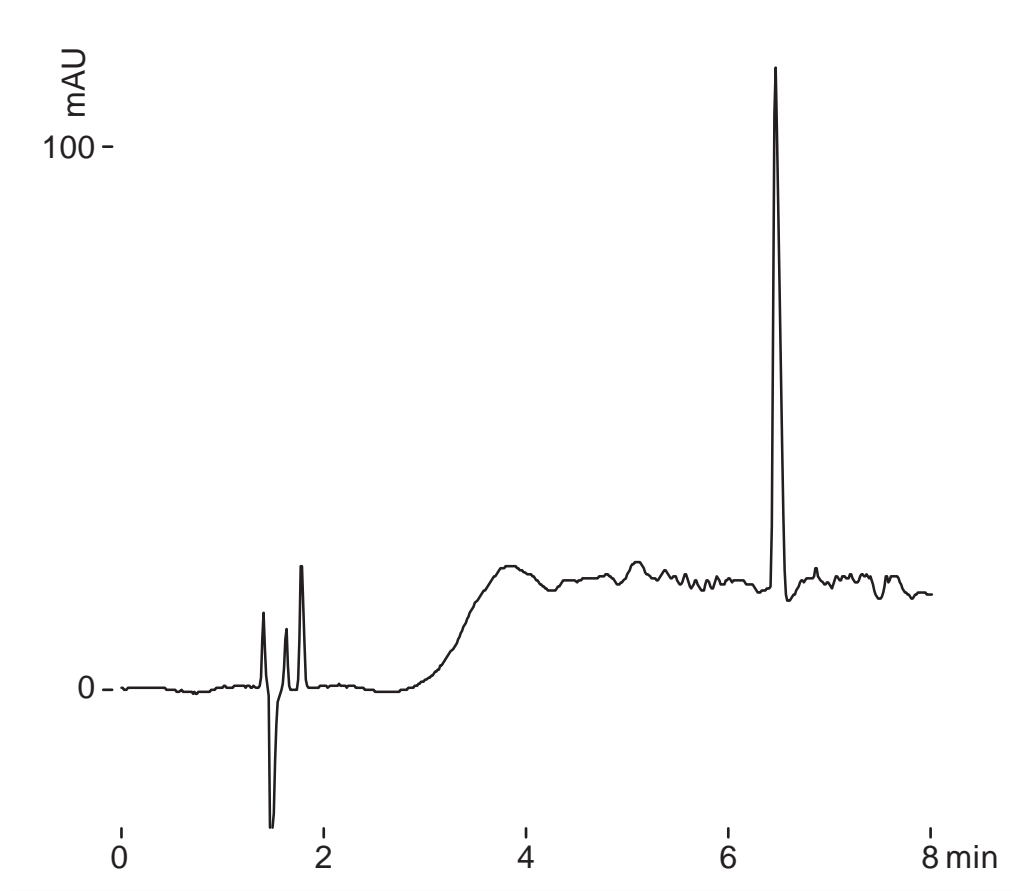
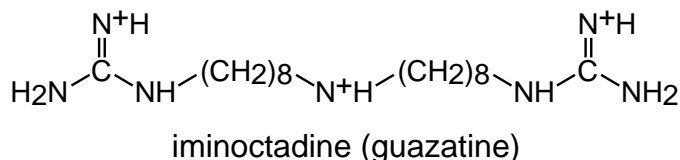
Unison UK-C18

100 x 4.6 mm

Application

Agricultural Chemicals (10)

農薬 (10)



Unison UK-C18, 100 x 4.6 mm,
 A: water / trifluoroacetic acid = 100 / 0.1
 B: acetonitrile / trifluoroacetic acid = 100 / 0.1
 5-50%B (0-8min)
 1 mL/min, 37 deg.C, 210 nm, 5 uL (15ug)

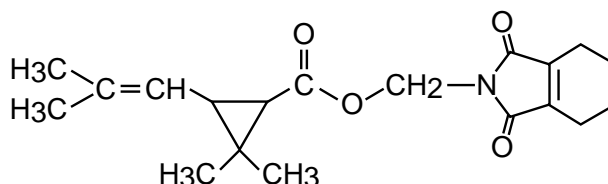
Cadenza CD-C18

100 x 4.6 mm

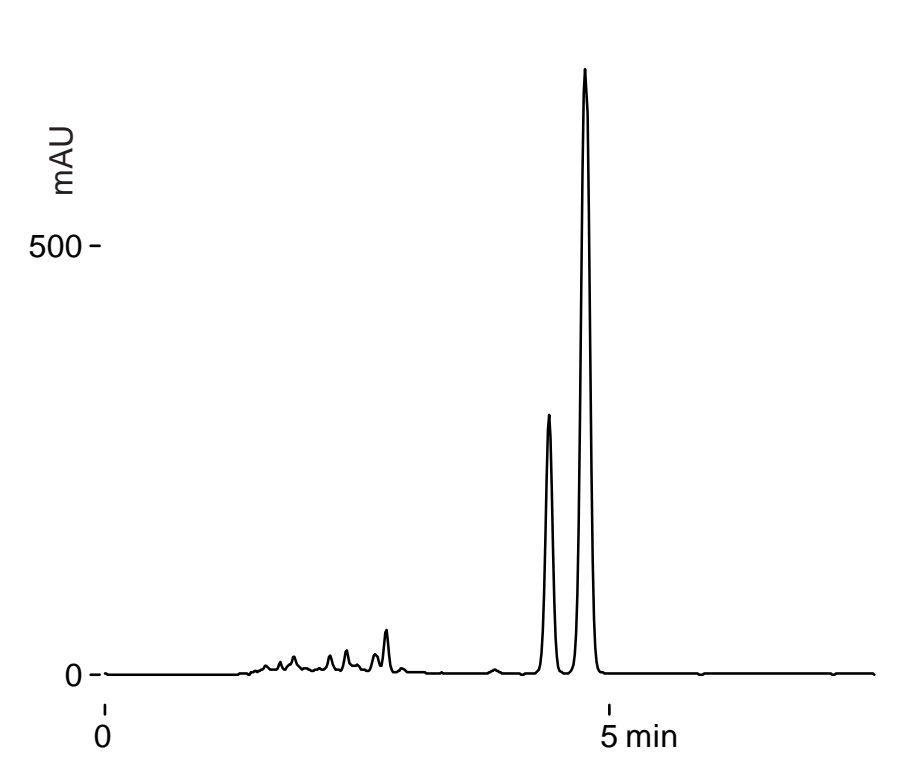
Application

Agricultural Chemicals (11)

農薬 (11)



phthalthrin (tetramethrin)



Cadenza CD-C18, 100 x 4.6 mm,
50mM ammonium formate / methanol = 15 / 85
0.7 mL/min, 37 deg.C, 220 nm, 1 uL (4ug)

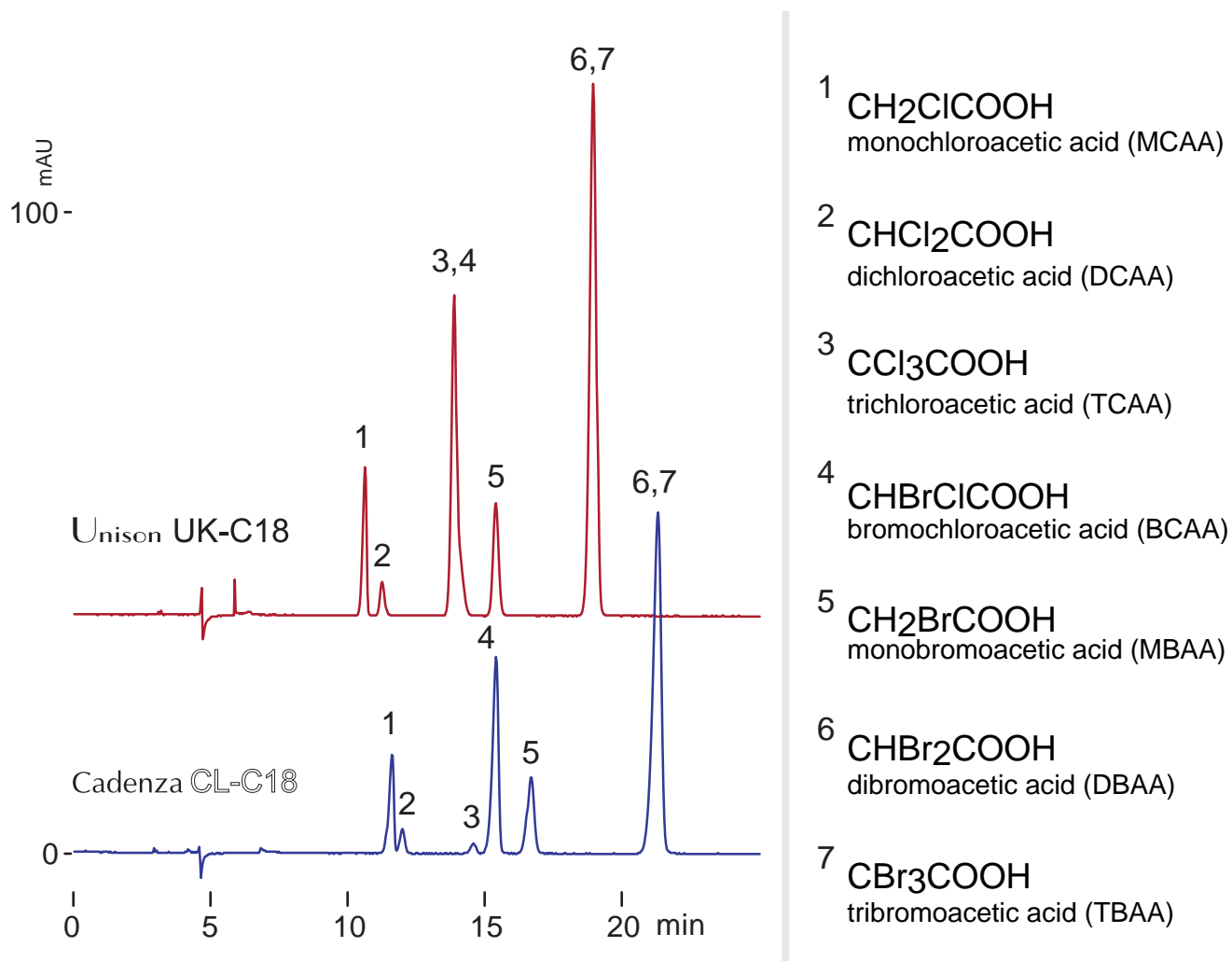
Unison UK-C18
Cadenza CL-C18

250 x 4.6 mm

Application

Halo Acetic Acids

ハロ酢酸



250 x 4.6 mm
water / trifluoroacetic acid = 100/0.1
0.8 mL/min, 37 deg.C, 220 nm, 5 uL (5mg)

Unison UK-C18

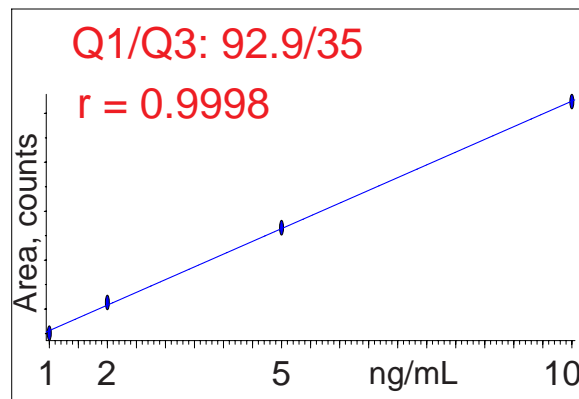
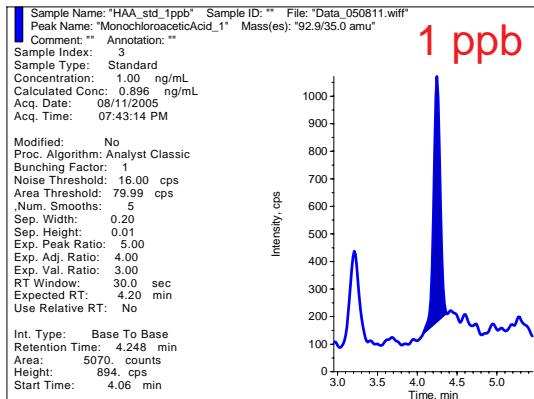
75 x 3 mm

Application

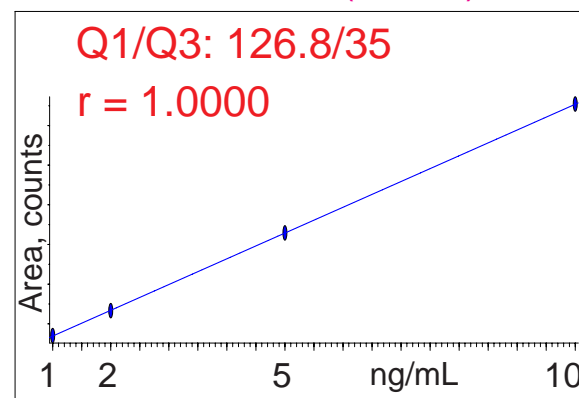
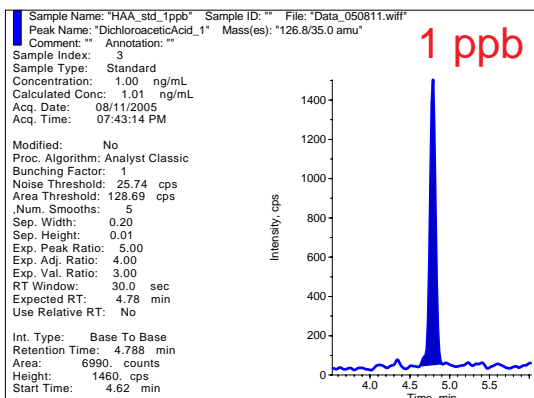
LC-MS/MS Application - Halo Acetic Acids

ハロ酢酸の LC-MS/MS アプリケーション

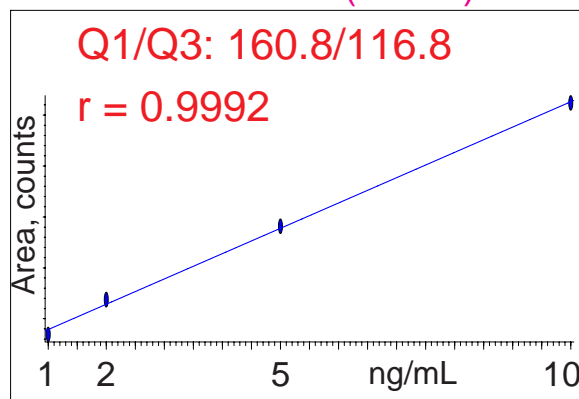
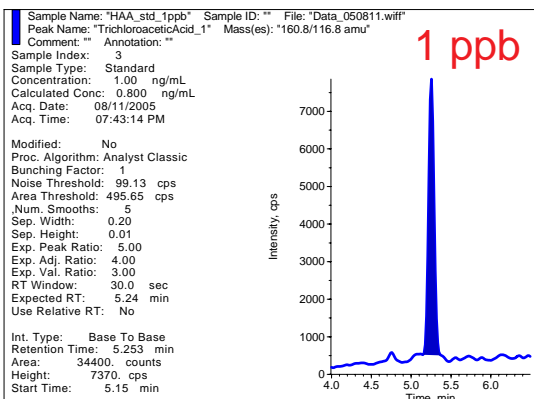
CH₂ClCOOH monochloroacetic acid (MCAA)



CHCl₂COOH dichloroacetic acid (DCAA)



CCl₃COOH trichloroacetic acid (TCAA)



Unison UK-C18, 75 x 3 mm

A) 0.1% AcOH+2.5mM dibutylammonium acetate, B) acetonitrile
 5%B(0-1min), 5-95%B(1-6min), 95%B(6-8min), 5%B(8-13min)
 0.3 mL/min, 30 deg.C, 20uL, API4000 (ESI, MRM Negative)

Courtesy of T.Nishimae, Wakayama Pharmaceutical Association

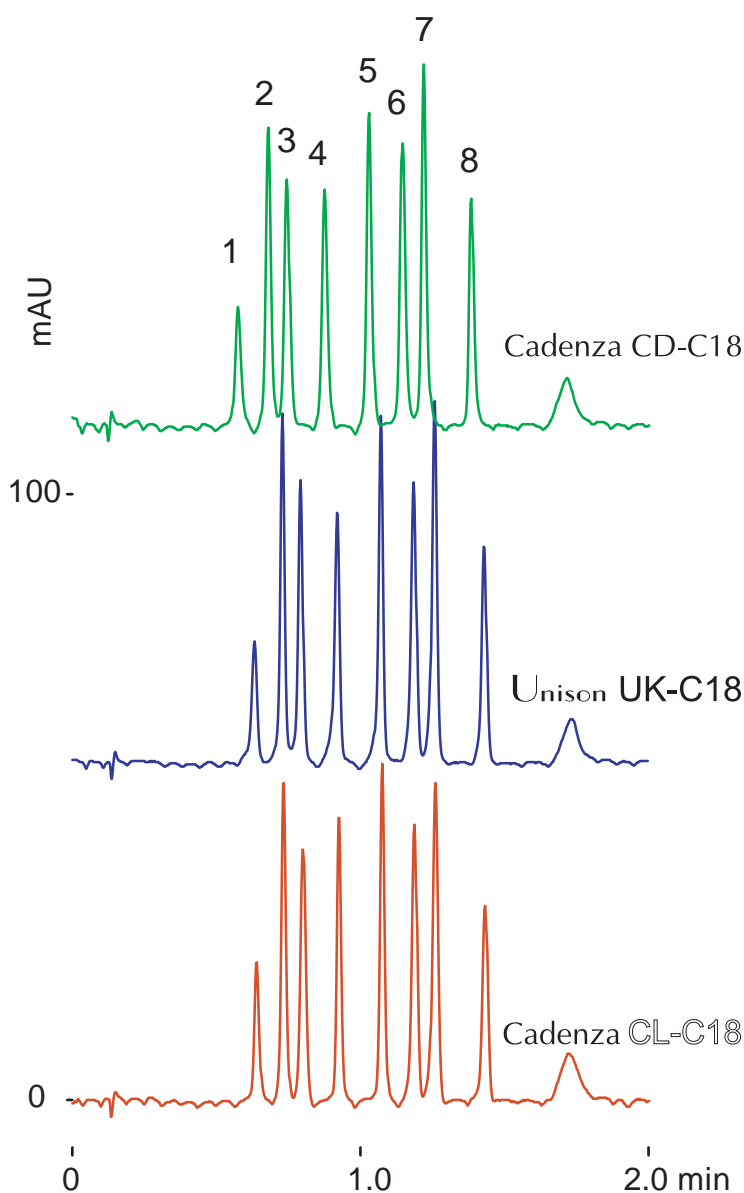
Cadenza CD-C18
Unison UK-C18
Cadenza CL-C18

30 x 2 mm

Application

Sulfonamides

サルファ剤



- 1 NC1=CC=C(S(=O)(=O)NC2=CN=CN=C2)C=C1
sulfadiazine
- 2 NC1=CC=C(S(=O)(=O)NC2=CN=CSC2)C=C1
sulfathiazole
- 3 CC1=CN=CN=C1NS(=O)(=O)NC2=CC=C(N)C=C2
sulfamerazine
- 4 CC1=C(C)N=CN=C1NS(=O)(=O)NC2=CC=C(N)C=C2
sulfamethazine (sulfadimidin)
- 5 COC1=CC=NC=C1NS(=O)(=O)NC2=CC=C(N)C=C2
sulfamonomethoxine
- 6 CC1=CC=C(N1)NS(=O)(=O)NC2=CC=C(N)C=C2
sulfamethoxazole
- 7 CC1=C(C)ON=C1NS(=O)(=O)NC2=CC=C(N)C=C2
sulfisoxazole
- 8 NC1=CC=C(S(=O)(=O)NC2=CN3C=CC=CC=C3N2)C=C1
sulfaminoxaline

30 x 2 mm

A: water / acetic acid = 100 / 0.1

B: acetonitrile / acetic acid = 100 / 0.1

8%B (0-0.05min), 8-40%B (0.05-1.5min)

0.8 mL/min, 37 deg.C, 280 nm, 1uL (20-50ng)

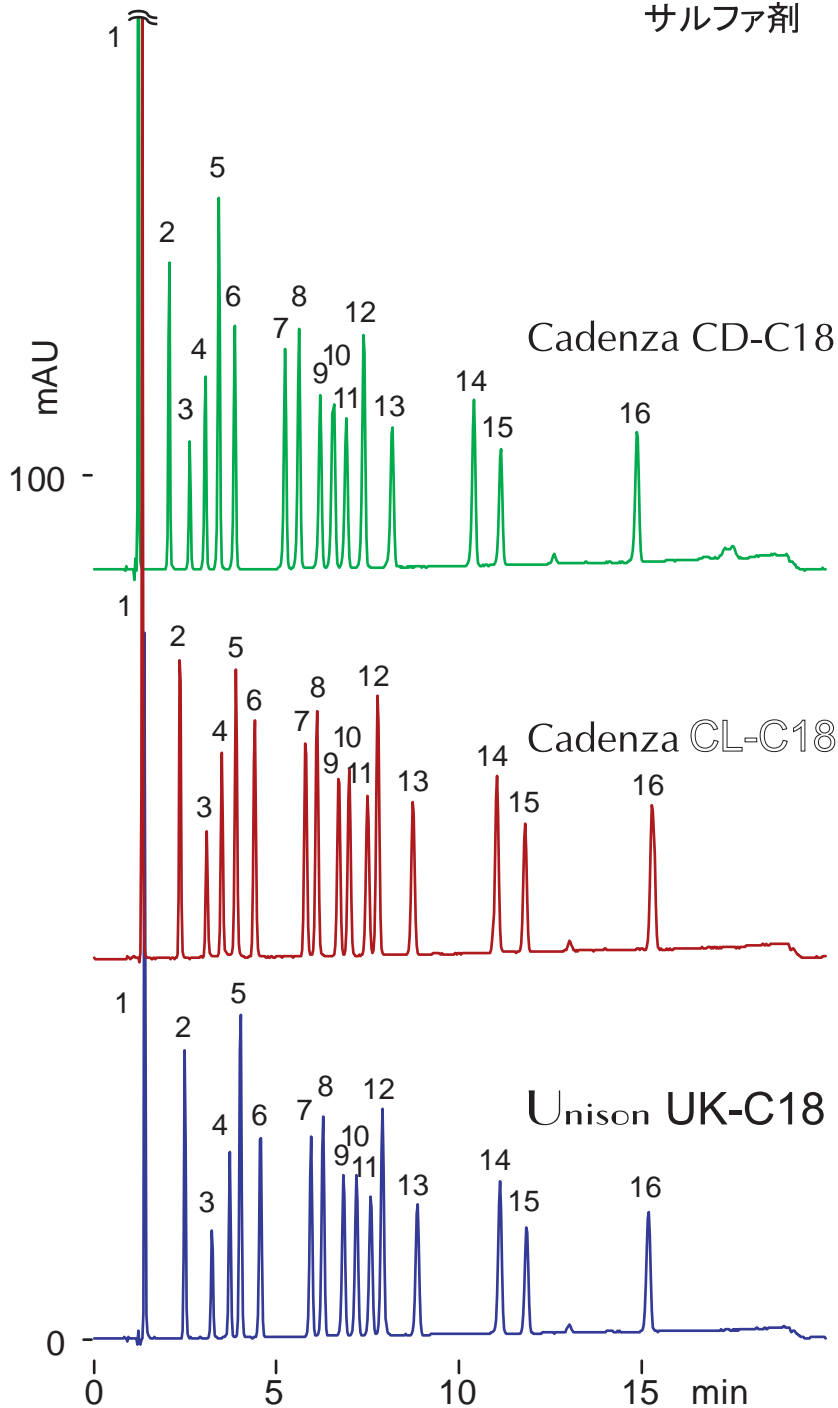
Cadenza CD-C18
Cadenza CL-C18
Unison UK-C18

75 x 4.6 mm

Application

Sulfonamides

サルファ剤



75 x 4.6 mm
A: water / acetic acid = 100 / 0.1
B: methanol / acetic acid = 100 / 0.1
15-60 %B (0-18min), 1 mL/min (9MPa)
37 deg.C, 260 nm, 2uL (40-120ng)

- 1 NC(=O)Nc1ccc(N)cc1 sulfanilamide
- 2 CC(=O)Nc1ccc(N)cc1 sulfacetamide
- 3 C1=NC=NC=C1Nc2ccc(N)cc2 sulfadiazine
- 4 C1=NC=NC=C1Nc2ccc(N)cc2 sulfathiazole
- 5 C1=CC=NC=C1Nc2ccc(N)cc2 sulfapyridine
- 6 C1=CC=NC=C1Nc2ccc(N)cc2 sulfamerazine
- 7 Cc1c(C)c(C)nc1Nc2ccc(N)cc2 sulfamethazine (sulfadimidin)
- 8 COC1=CC=NC=C1Nc2ccc(N)cc2 sulfamethoxypyridazine
- 9 Clc1ccnnc1Nc2ccc(N)cc2 sulfachloropyridazine
- 10 Cc1ccoc1Nc2ccc(N)cc2 sulfamethoxazole
- 11 COC1=CC=NC=C1Nc2ccc(N)cc2 sulfamonomethoxine
- 12 Cc1c(C)oc1Nc2ccc(N)cc2 sulfisoxazole
- 13 O=C(Nc1ccc(N)cc1)c2ccccc2 sulfabenzamide
- 14 COC1=CC=NC=C1Nc2ccc(N)cc2 sulfadimethoxine
- 15 C1=CC=C2C=CC=NC2=C1Nc3ccc(N)cc3 sulfaquinolaxine
- 16 CC(=O)Nc1ccc(S(=O)(=O)Nc2ccc([N+](=O)[O-])cc2)cc1 sulfanitran

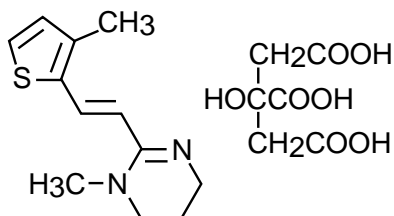
Cadenza **HS-C18**
 Cadenza CD-C18
 Unison **UK-C18**

150 x 4.6 mm

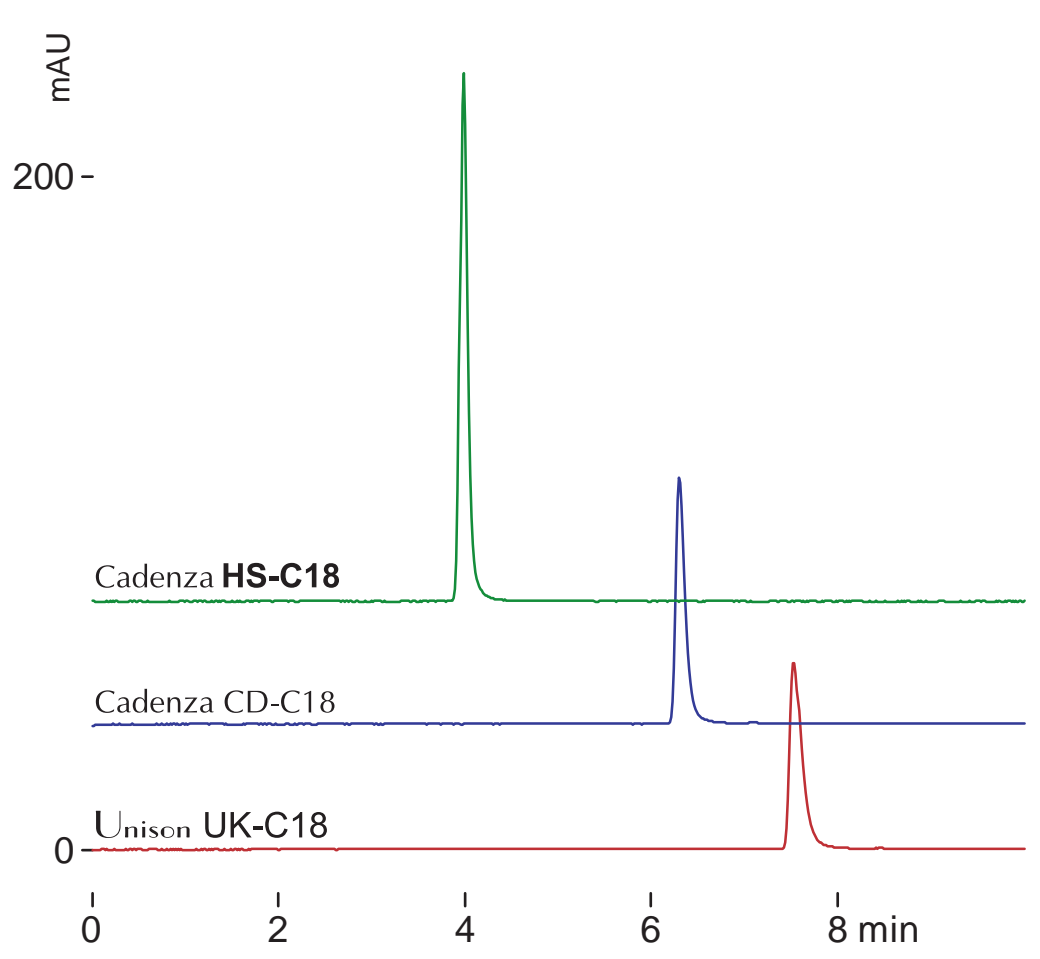
Application

Morantel Citrate

くえん酸モランテル



morantel citrate



150 x 4.6 mm
 100mM ammonium acetate / acetonitrile
 = 75 / 25
 0.8 mL/min, 37deg.C, 320 nm

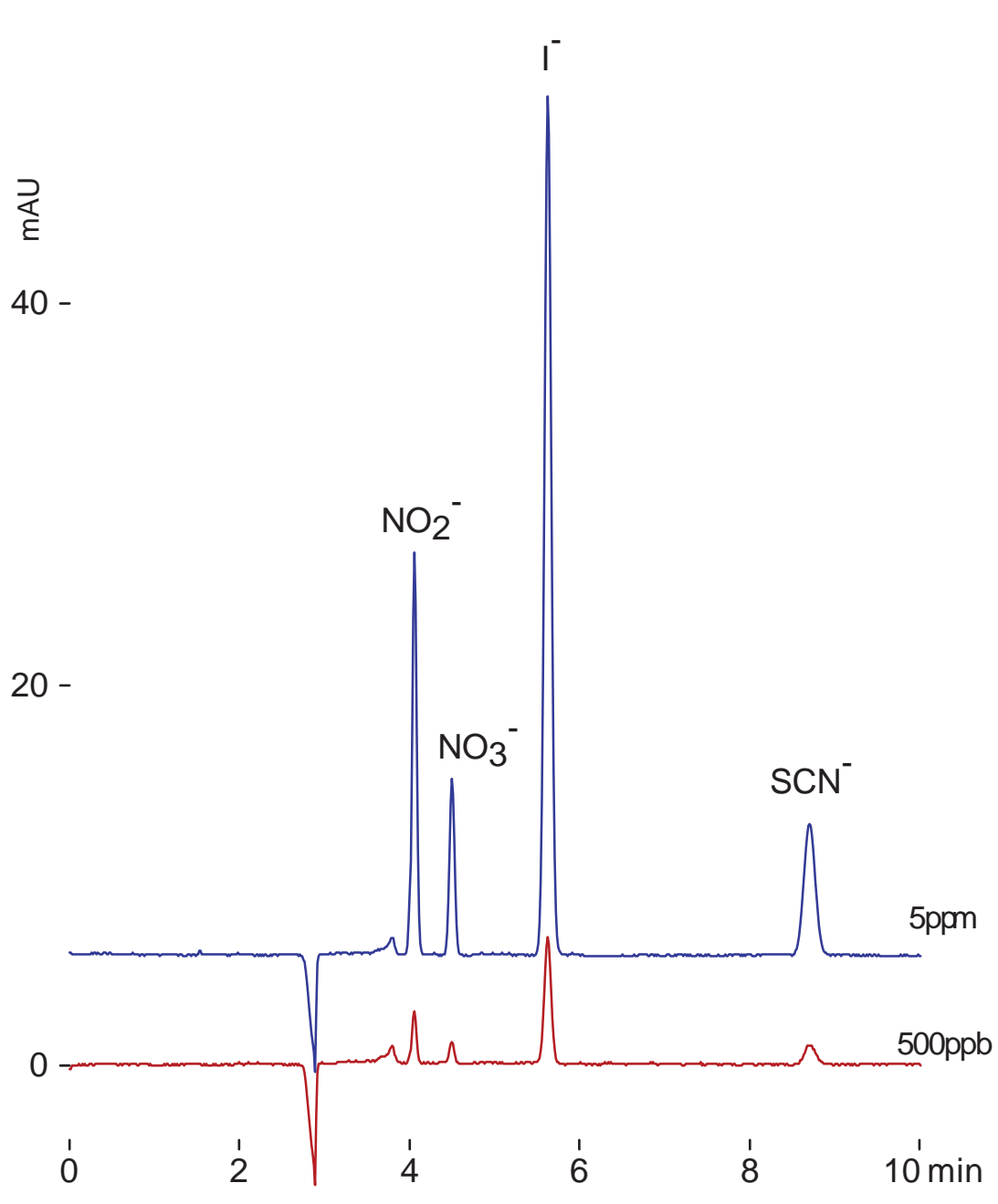
Unison UK-C18

150 x 4.6 mm

Application

Anions

陰イオンの分析



Unison UK-C18, 150 x 4.6 mm
10mM dibutylammonium acetate /acetonitrile = 90 /10
0.8 mL/min, 37 deg.C, 230 nm, 20uL

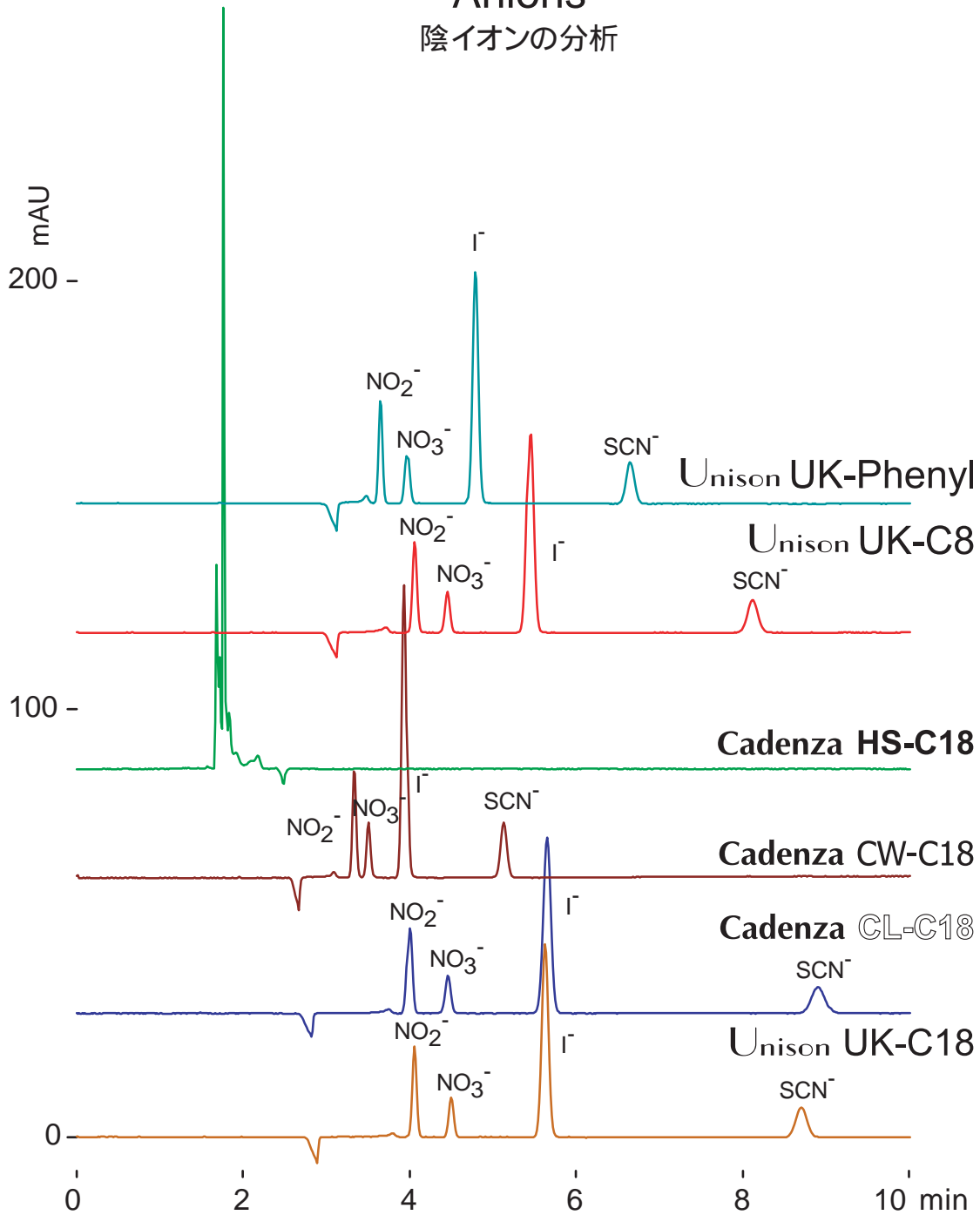
Unison UK-Phenyl Cadenza CW-C18
 Unison UK-C8 Cadenza CL-C18
 Cadenza HS-C18 Unison UK-C18

150 x 4.6 mm

Application

Anions

陰イオンの分析



150 x 4.6 mm
 10mM dibutylammonium acetate /acetonitrile = 90 /10
 0.8 mL/min, 37 deg.C, 230 nm, 5ppm, 20uL

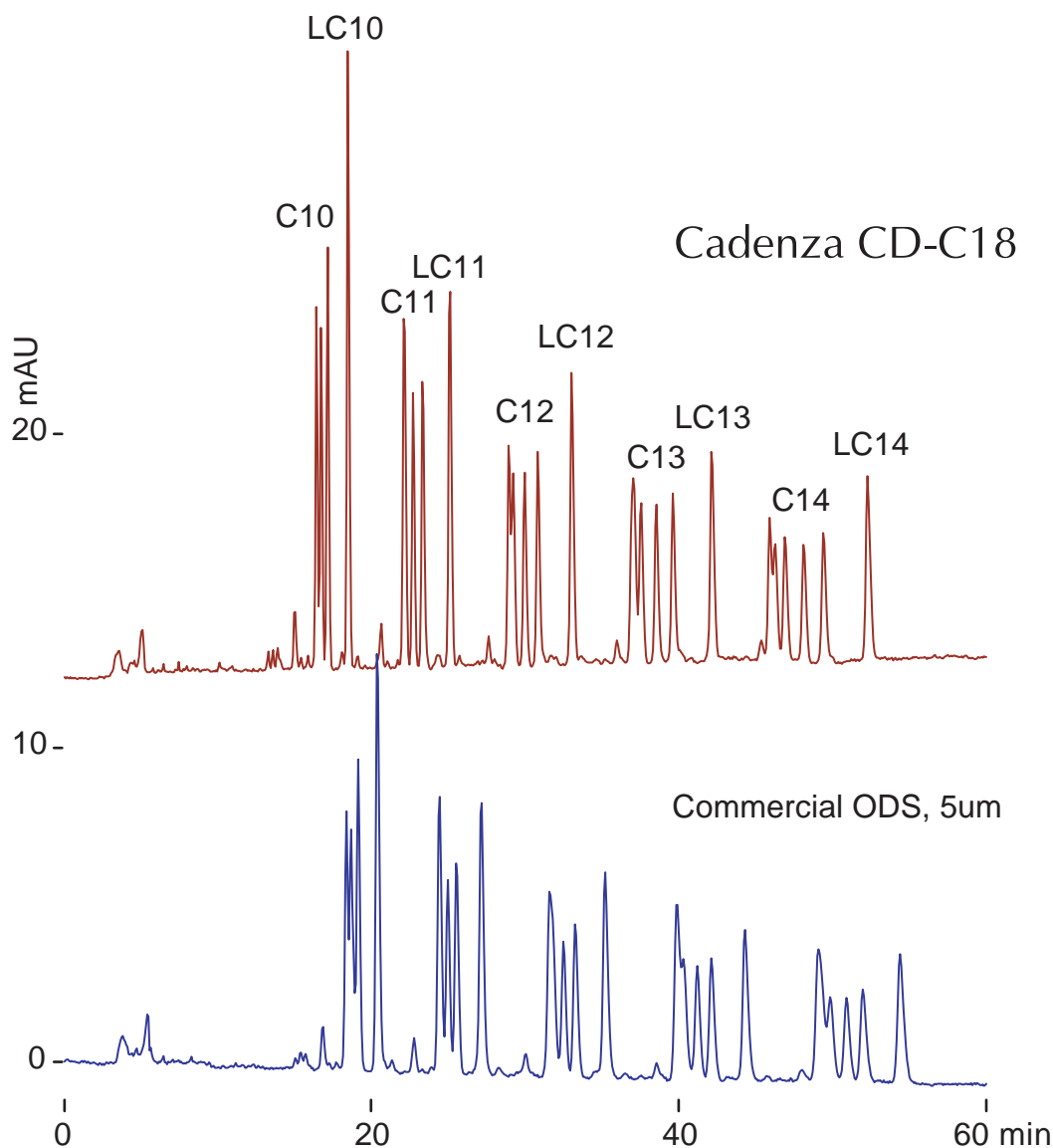
Cadenza CD-C18

250 x 4.6 mm

Application

Anionic Surfactants (Alkylbenzenesulfonates)

陰イオン界面活性剤 (アルキルベンゼンスルホン酸ナトリウム)



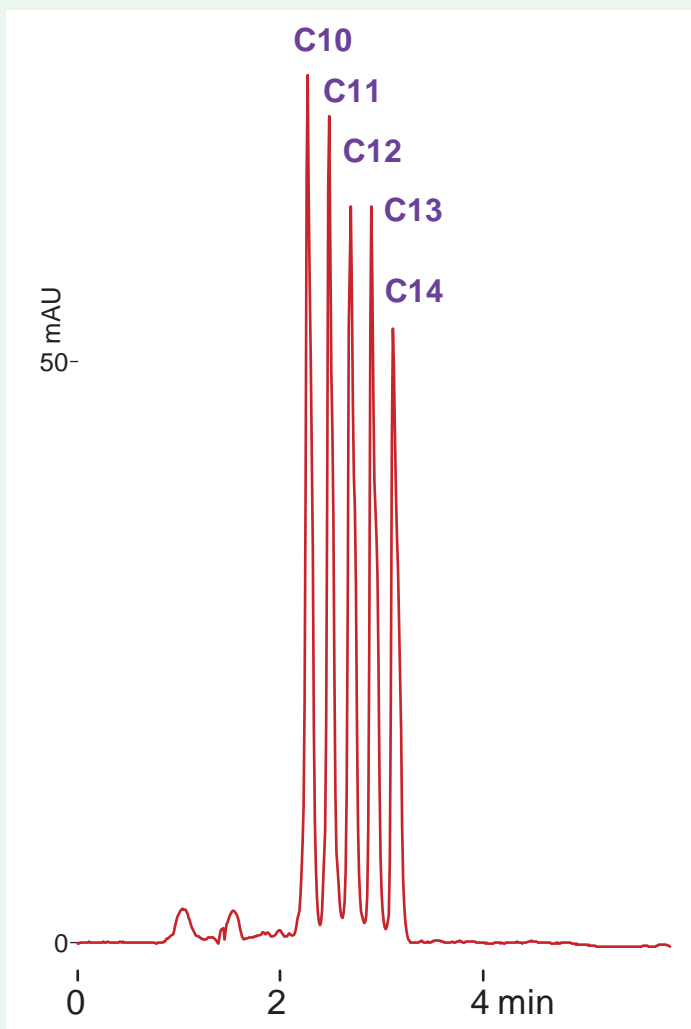
250 x 4.6 mm
 A: 100mM NaClO₄, B: acetonitrile
 45-70 %B (0-60min), 0.6 mL/min
 room temp, 260 nm, 10uL

Unison UK-Phenyl

100 x 4.6 mm

Technical

Separation of anion surfactants that do not recognize linear chain or multi-branch



Linear and branched
alkylbenzenesulfonates
(C10 - C14)

Unison UK-Phenyl
100 x 4.6 mm
A: 100mM NaClO₄
B: acetonitrile
45-90%B (0-5min)
1 mL/min, 37 deg.C
260 nm, 10uL

There are both linear chains (LAS) and multi-branch chains in alkyl benzene sulfonates, commonly used to synthesize surfactants. Take the case of separating alkyl benzene sulfonates using reversed-phase HPLC. With a conventional ODS column, separation of isobaric linear and multi-branch chains is possible due to a slight difference in polarity between the compounds (<http://www.imtakt.com/TecInfo/TI300E.pdf>).

However, it may also be necessary to make separations based solely on the number of carbon atoms (i.e. not resolve the structural isomers). This can be difficult to do with ODS phase

Per the above chromatogram, using a phenyl stationary phase (Unison UK-Phenyl) makes it possible to separate compounds based solely on the number of carbon atoms because it does not recognize structural isomers (e.g. linear and multi-branch chains). Moreover, it can quickly recognize the difference in alkyl chain lengths with a short column by using a 3µm particle diameter high-resolution column.

This is one example of the low molecular recognition of alkyl structural isomers by the Phenyl's stationary phase.

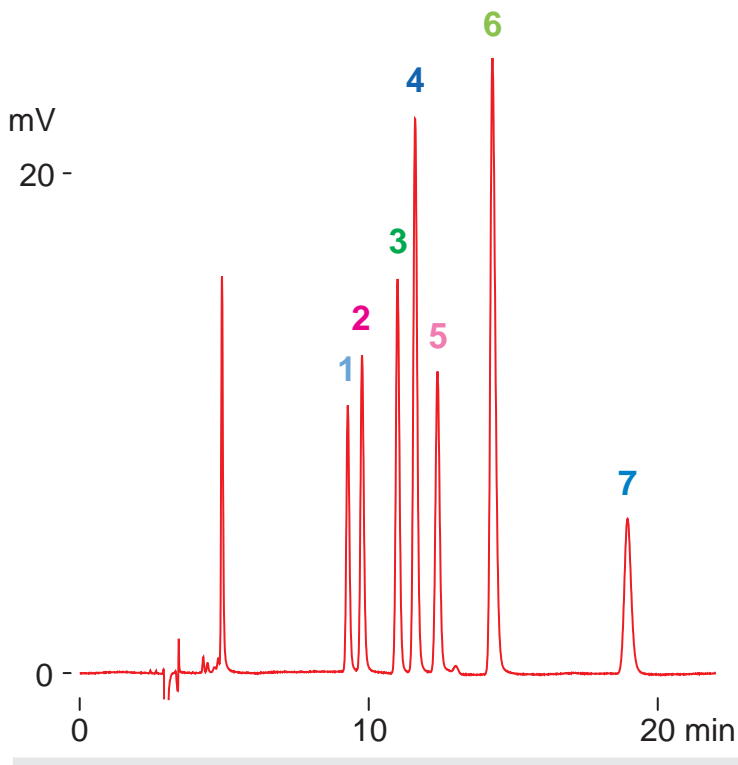
Unison UK-Amino
Cadenza CW-C18

250 x 3 mm

Application

Halo Acetic Acids

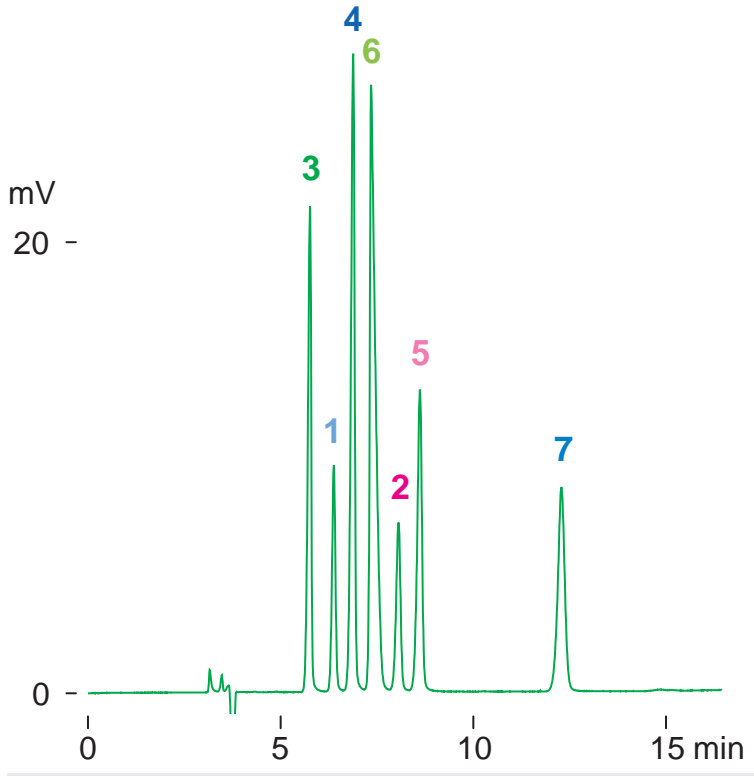
ハロ酢酸



- 1 CH_2ClCOOH
monochloroacetic acid (MCAA)
- 2 CH_2BrCOOH
monobromoacetic acid (MBAA)
- 3 CHCl_2COOH
dichloroacetic acid (DCAA)
- 4 CHBrClCOOH
bromochloroacetic acid (BCAA)
- 5 CHBr_2COOH
dibromoacetic acid (DBAA)
- 6 CCl_3COOH
trichloroacetic acid (TCAA)
- 7 CBr_3COOH
tribromoacetic acid (TBAA)

normal phase

Unison UK-Amino, 250 x 3 mm
acetonitrile /50mM TFA-ammonium
= 20 /80
0.4 mL/min (13 MPa), 37 deg.C
220 nm, 5 uL (40-400 ug)



reversed phase

Cadenza CW-C18, 250 x 3 mm
water /TFA = 100 /0.07
0.4 mL/min (14 MPa), 37 deg.C
220 nm, 5 uL (40-400 ug)

Unison UK-C18

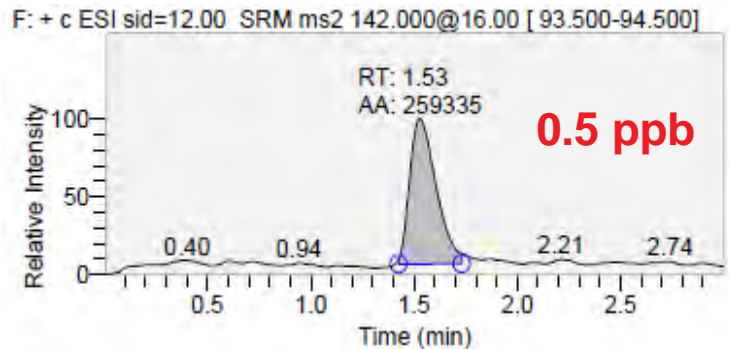
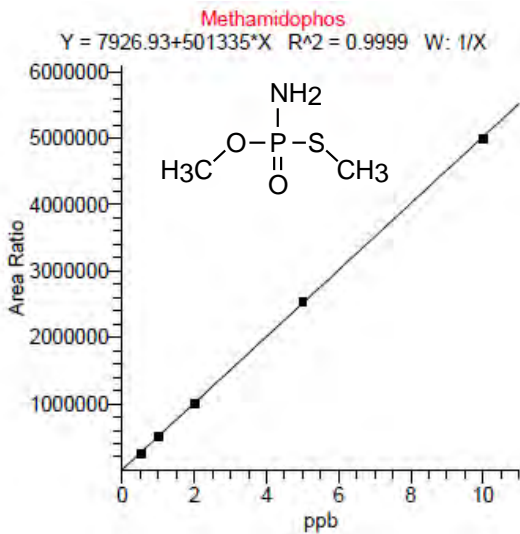
50 x 2 mm

Application

LC-MS/MS Application - Organophosphorous Pesticides

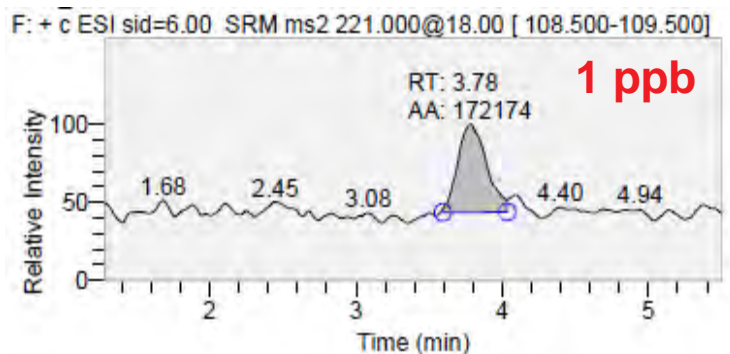
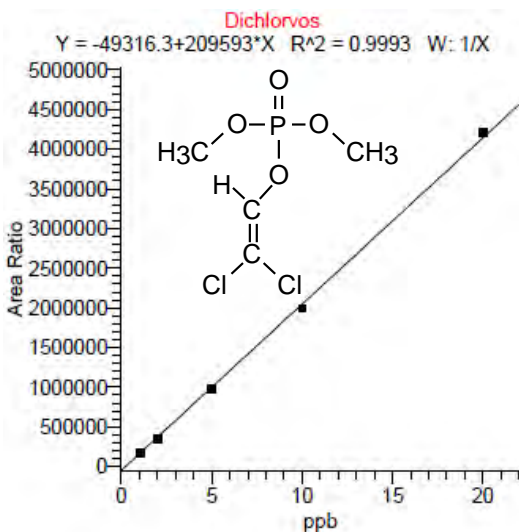
残留農薬(メタミドホス, ジクロルボス)のLC-MS/MS分析

methamidophos



Unison UK-C18, 50 x 2 mm
 Mobile phase: 0.1% HCOOH in 5% MeOH
 flow rate: 0.25 mL/min
 Column temp.: 40 deg.C
 Ionization: ESI positive
 SRM transition: m/z 142 -> m/z 94, CID 16V

dichlorvos



Unison UK-C18, 50 x 2 mm
 Mobile phase: 0.1% HCOOH in 40% MeOH
 flow rate: 0.25 mL/min
 Column temp.: 40 deg.C
 Ionization: ESI positive
 SRM transition: m/z 221 -> m/z 109, CID 18V

Courtesy of Dr. T. Hayama, Environmental Science Center, Foundation for Kyushu Environmental and Occupational Health, Japan

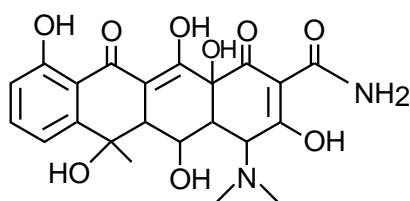
Cadenza CW-C18

150 x 4.6 mm

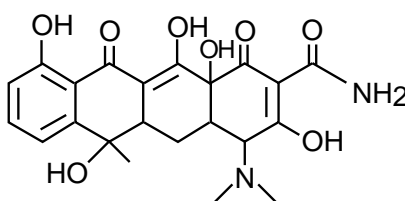
Application

Tetracycline antibiotics

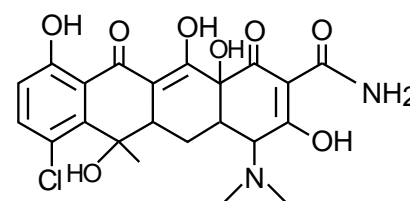
テトラサイクリン系抗生物質



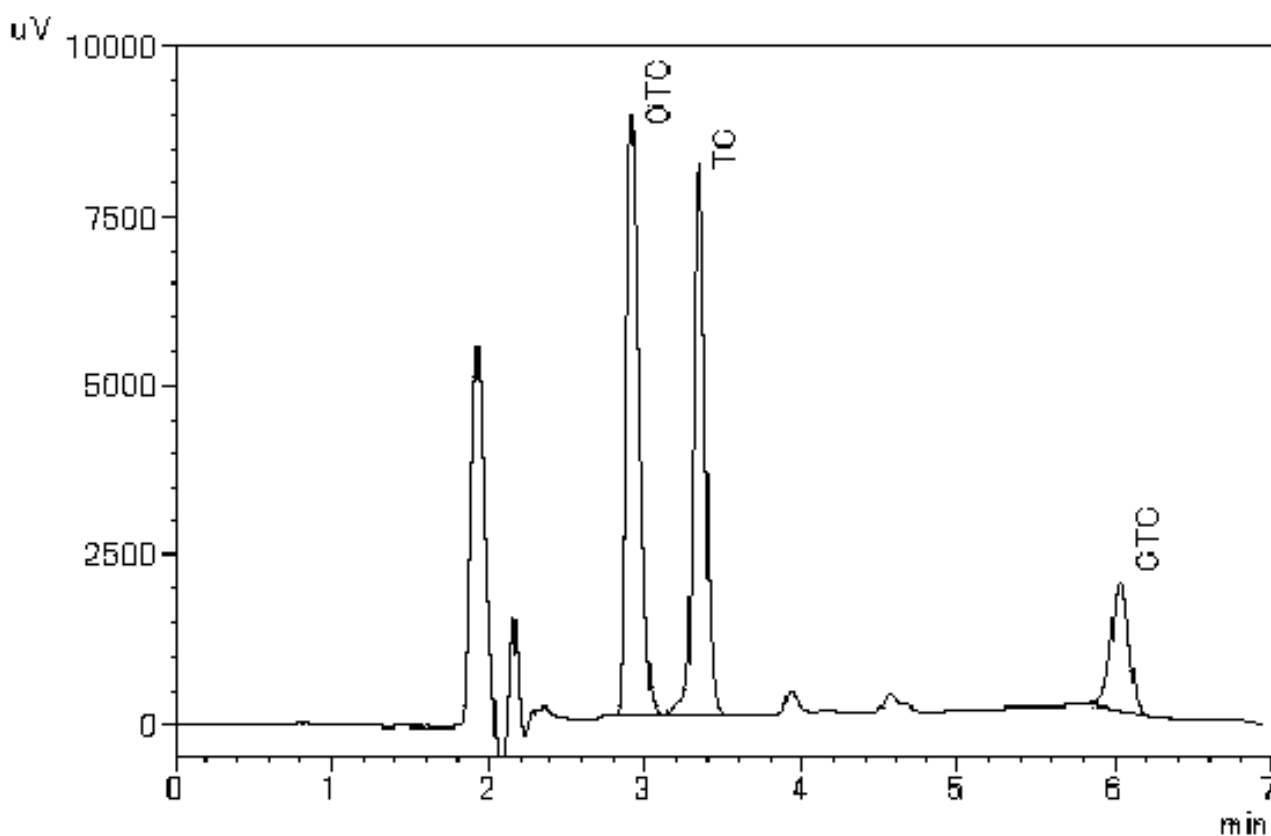
oxytetracycline (OTC)



tetracycline (TC)



chlortetracycline (CTC)



Cadenza CW-C18, 150 x 4.6 mm
 water /acetonitrile /HCOOH = 80 /20 /0.1
 1 mL/min, 40 deg.C, 260 nm, 20 uL (1ppm)

Courtesy of Mr. N. MAEDA, ASSOCIATION OF MEAT SCIENCE & TECHNOLOGY INSTITUTE

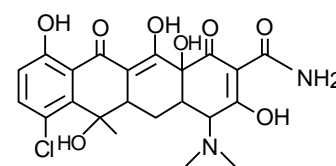
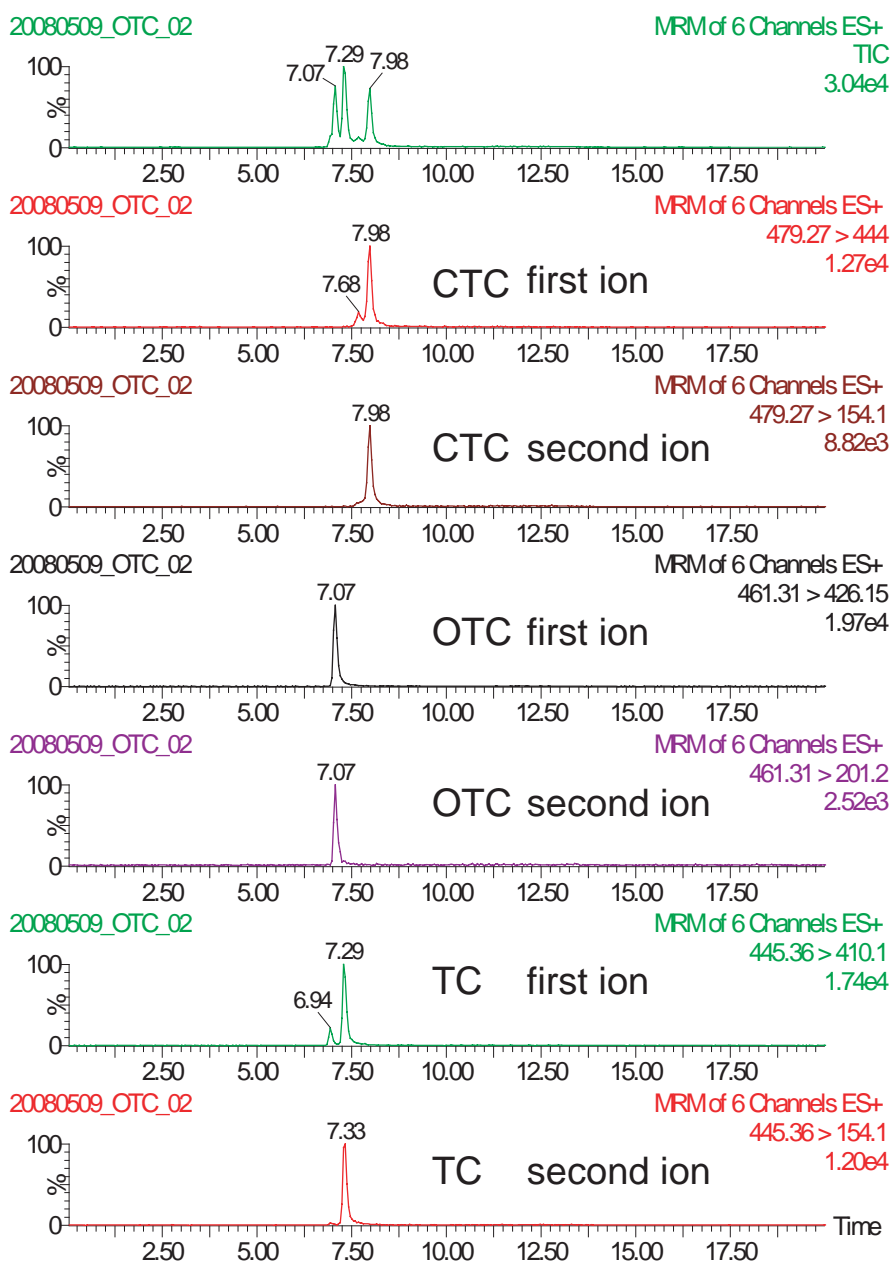
Cadenza CW-C18

100 x 2 mm

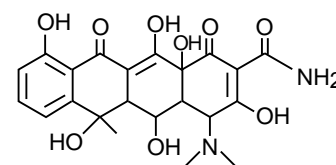
Application

LC-MS/MS Application -Tetracycline Antibiotics

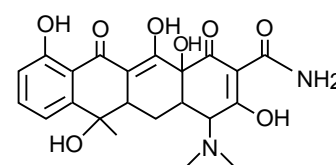
テトラサイクリン系抗生物質のLC-MS/MS分析



chlortetracycline (CTC)



oxytetracycline (OTC)



tetracycline (TC)

Cadenza CW-C18, 100 x 2 mm + Guard column
 A: 0.1% HCOOH aq., B: 0.1% HCOOH in ACN
 5 - 95%B (0 - 7 min), 95 - 5%B (7 - 8 min), 5%B (8 - 17 min)
 0.2 mL/min, 40 deg.C, 10 uL (20 ppb), ESI, positive

Courtesy of Mr. N. MAEDA, ASSOCIATION OF MEAT SCIENCE & TECHNOLOGY INSTITUTE, JAPAN

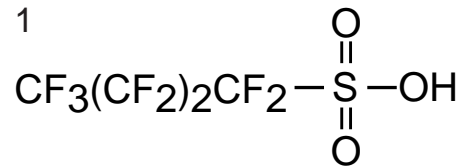
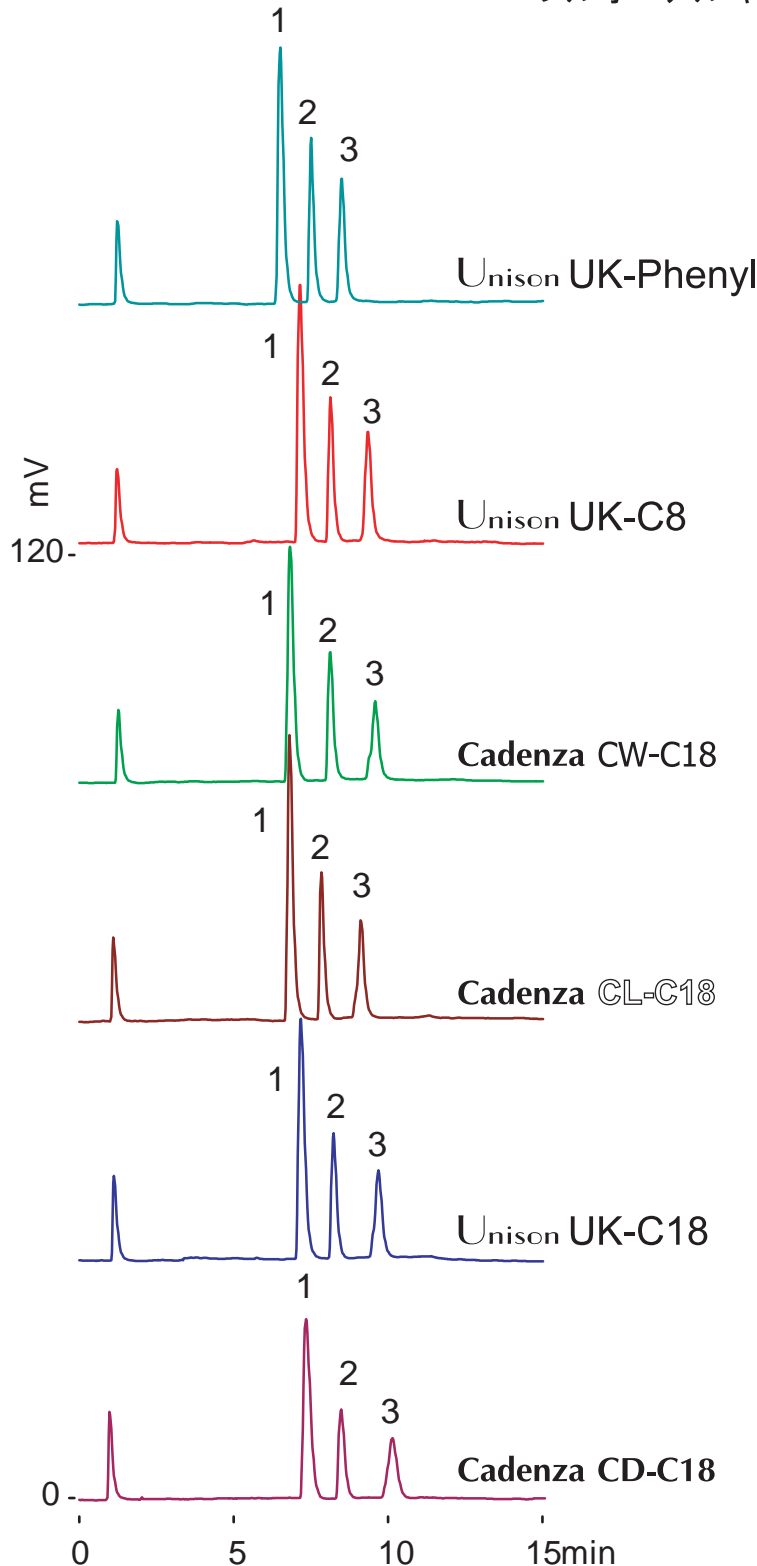
Unison UK-Phenyl
 Unison UK-C8
 Cadenza CW-C18
 Cadenza CL-C18
 Unison UK-C18
 Cadenza CD-C18

75 x 2 mm

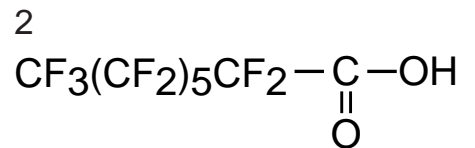
Application

PFAAs

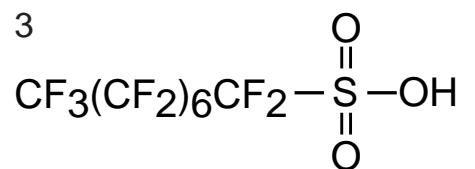
パーフルオロアルキル酸



PFBS
 perfluorobutanesulfonic acid



PFOA
 perfluorooctanoic acid



PFOS
 perfluorooctanesulfonic acid

75 x 2 mm,
 A: 10mM ammonium acetate
 B: acetonitrile
 0-70 %B (0-10min)
 0.2 mL/min, 37 deg.C
 ELSD, 3 uL (1.5-1.8ug)

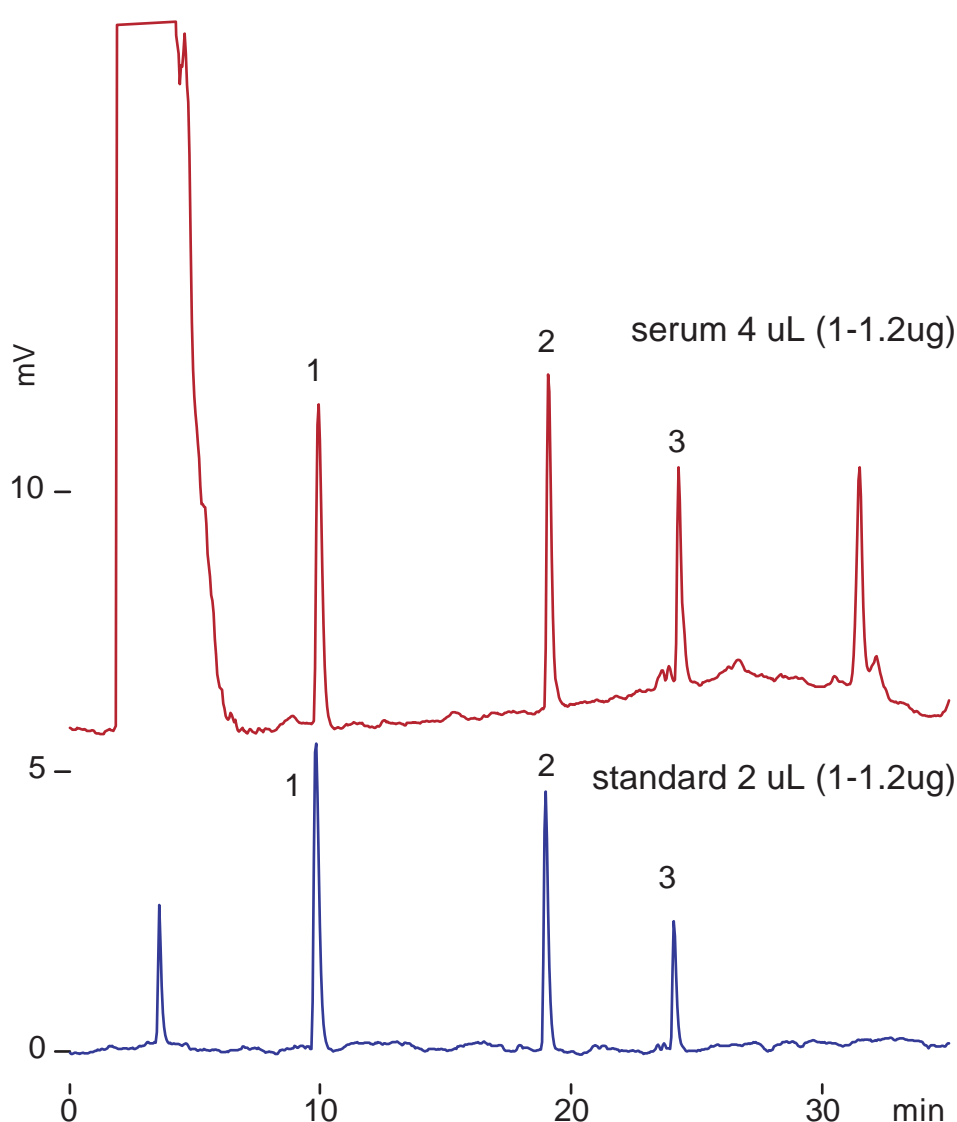
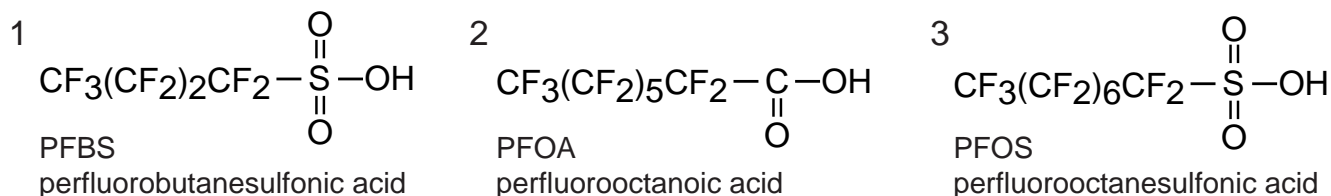
Cadenza HS-C18

250 x 3 mm

Application

PFAAs in Bovine Serum

ウシ血清中のパーフルオロアルキル酸



Cadenza HS-C18, 250 x 3 mm

A: 50mM ammonium acetate, B: acetonitrile

0-40 %B (0-30min), 0.4 mL/min (16MPa), 37 deg.C, ELSD

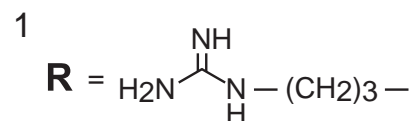
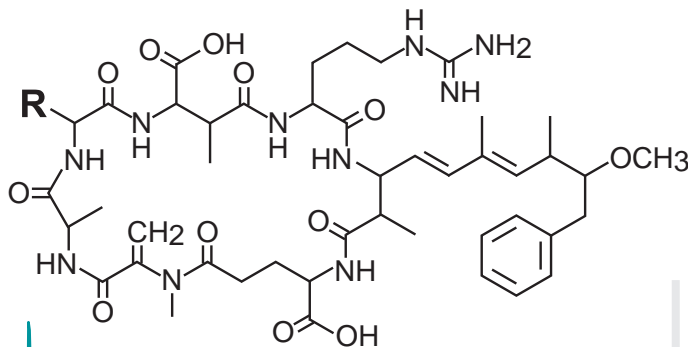
Cadenza CW-C18
 Unison UK-Phenyl
 Unison UK-C8
 Cadenza CL-C18
 Cadenza CD-C18
 Unison UK-C18

150 x 3 mm

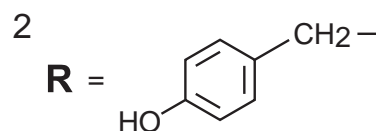
Application

Microcystins

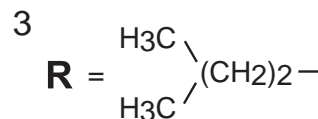
マイクロシスチン類



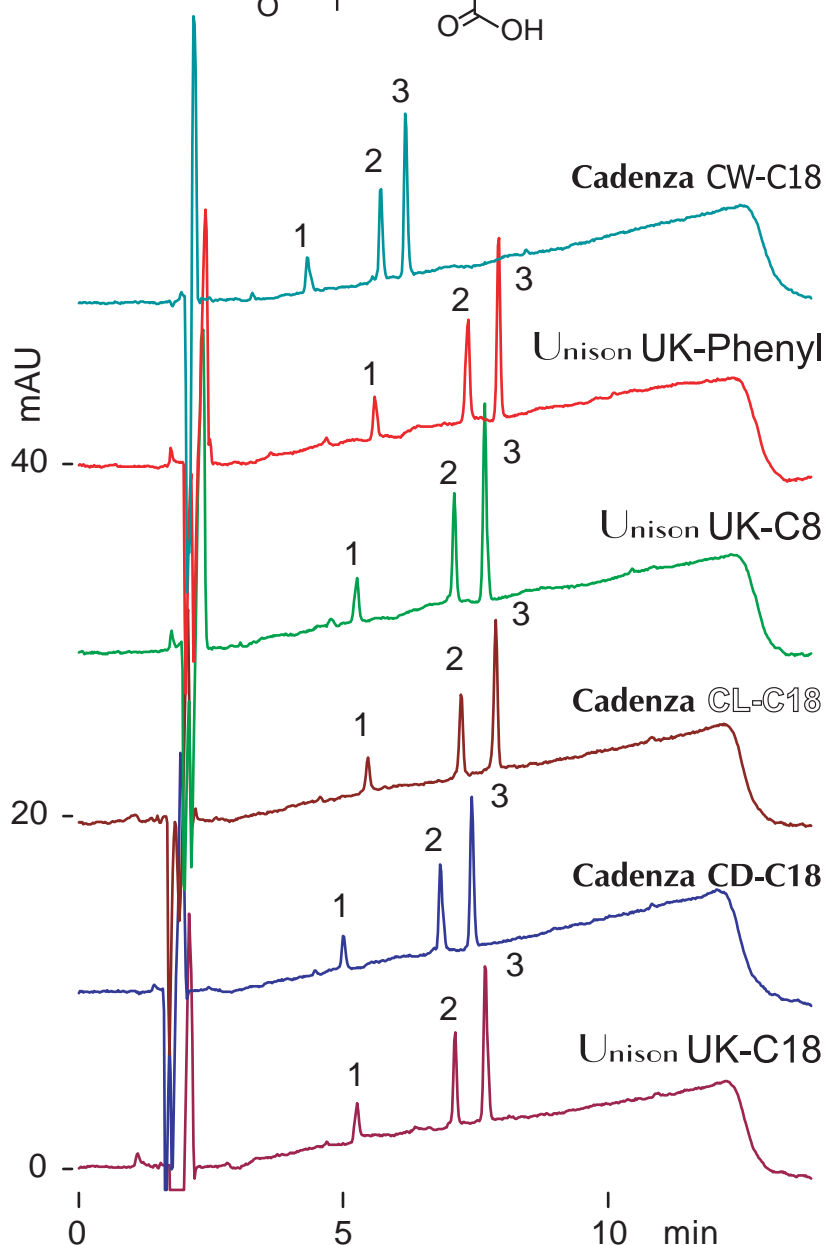
microcystin RR



microcystin YR



microcystin LR



150 x 3 mm,
 A: water / TFA = 100 / 0.05
 B: acetonitrile / TFA = 100 / 0.05
 35-60 %B (0-10min)
 0.4 mL/min, 37 deg.C
 220 nm, 5 uL (5 ppm)

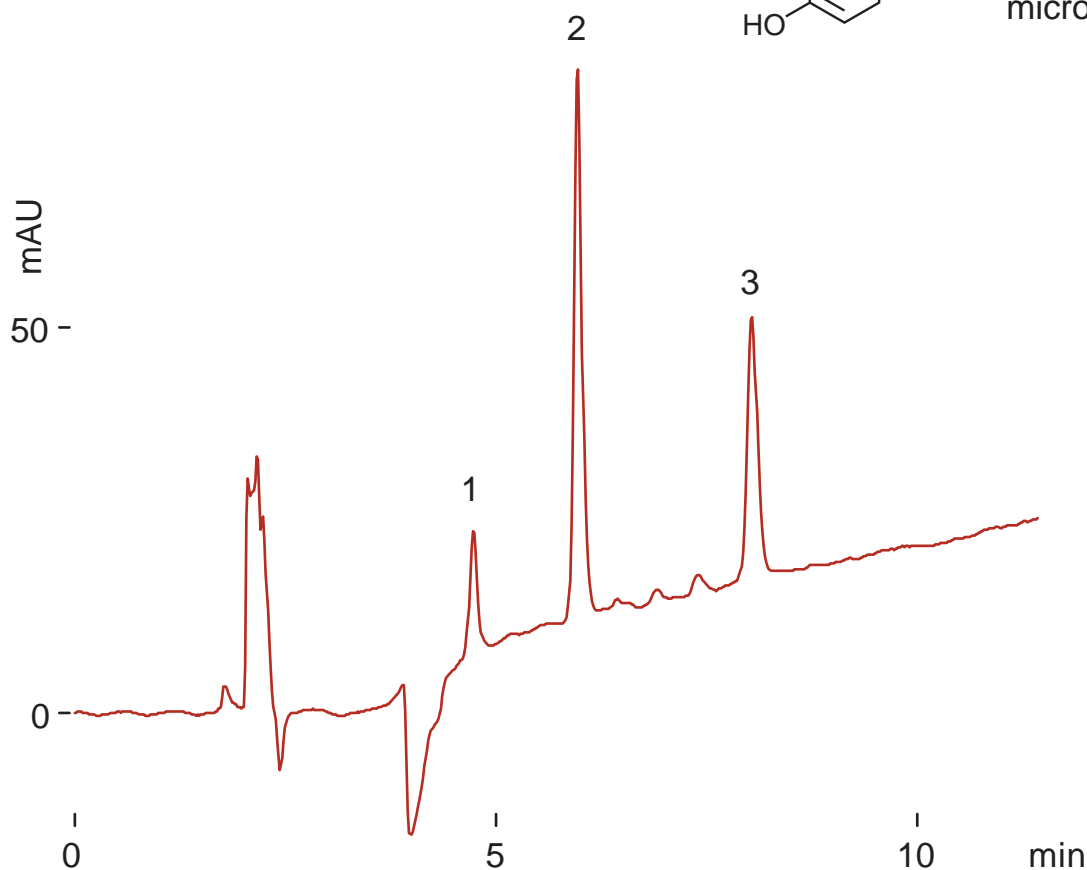
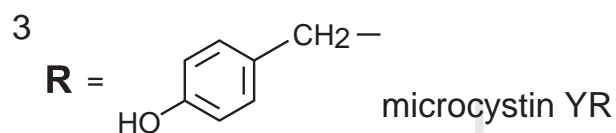
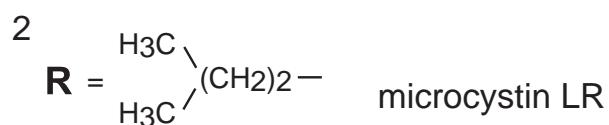
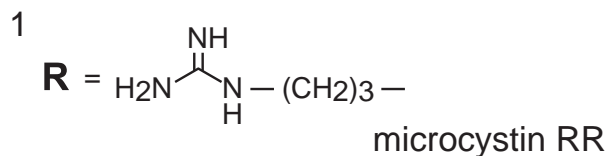
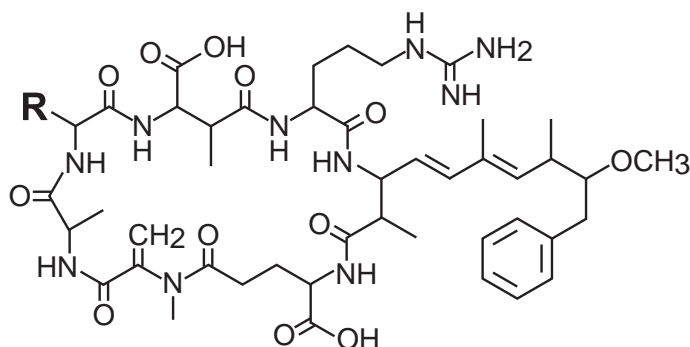
Unison UK-Amino

150 x 3 mm

Application

Microcystins

マイクロシスチン類



Unison UK-Amino, 150 x 3 mm

A: acetonitrile, B: 50mM ammonium acetate, 20-30 %B (0-10min)
 0.4 mL/min (4MPa), 37 deg.C, 220 nm, 5 uL (50 ppm)

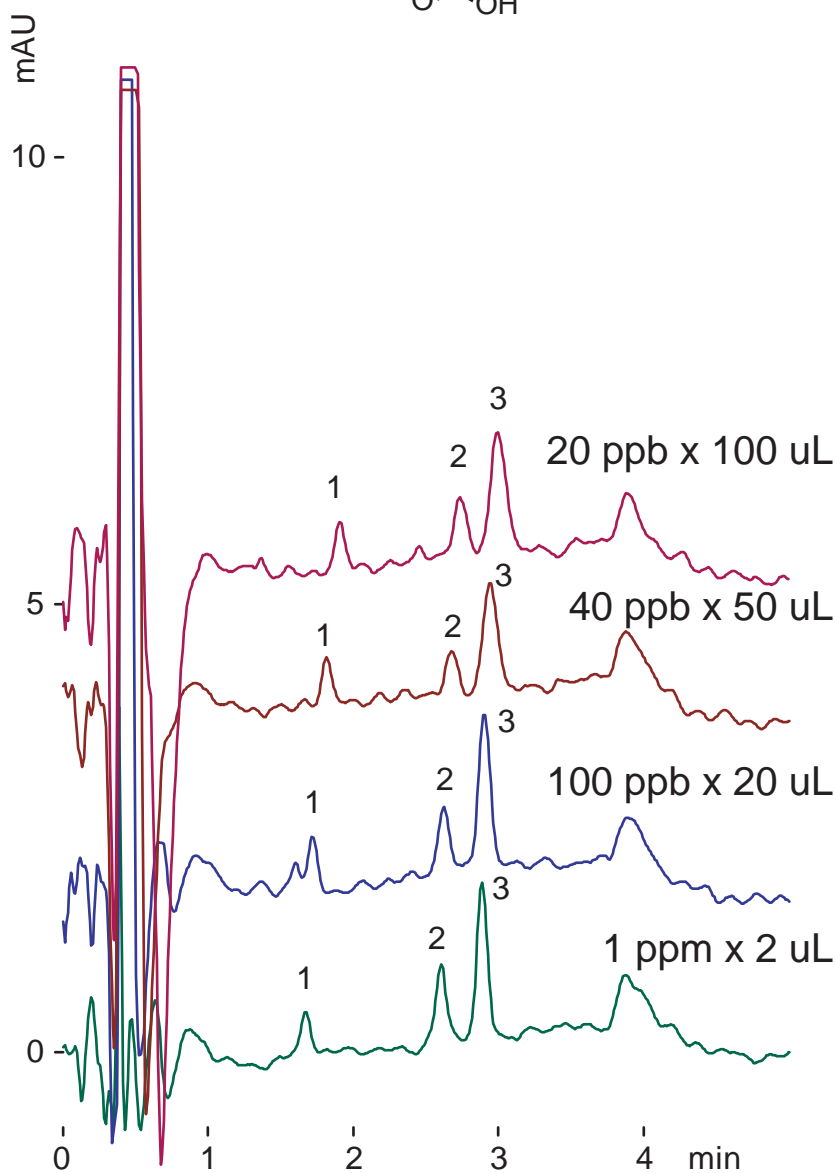
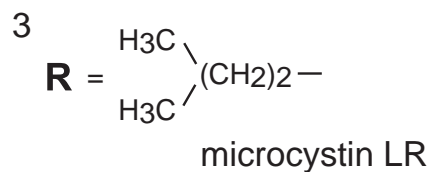
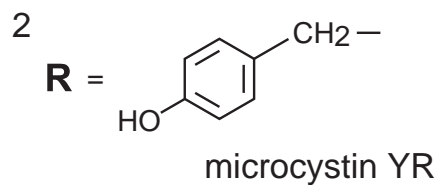
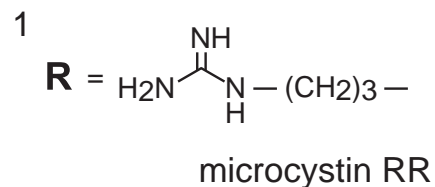
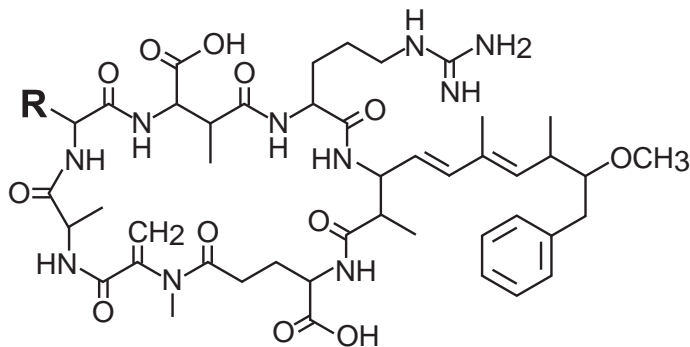
Unison US-C18

50 x 2 mm

Application

Microcystins

マイクロシスチン類



Unison US-C18, 50 x 2 mm
 A: water / TFA = 100 / 0.05
 B: ACN / TFA = 100 / 0.05
 30-40 %B (0-13min)
 0.4 mL/min
 37 deg.C, 240 nm

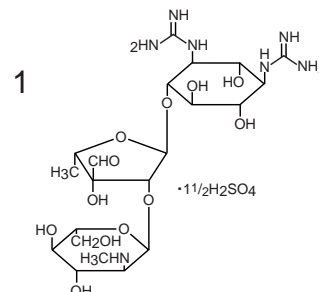
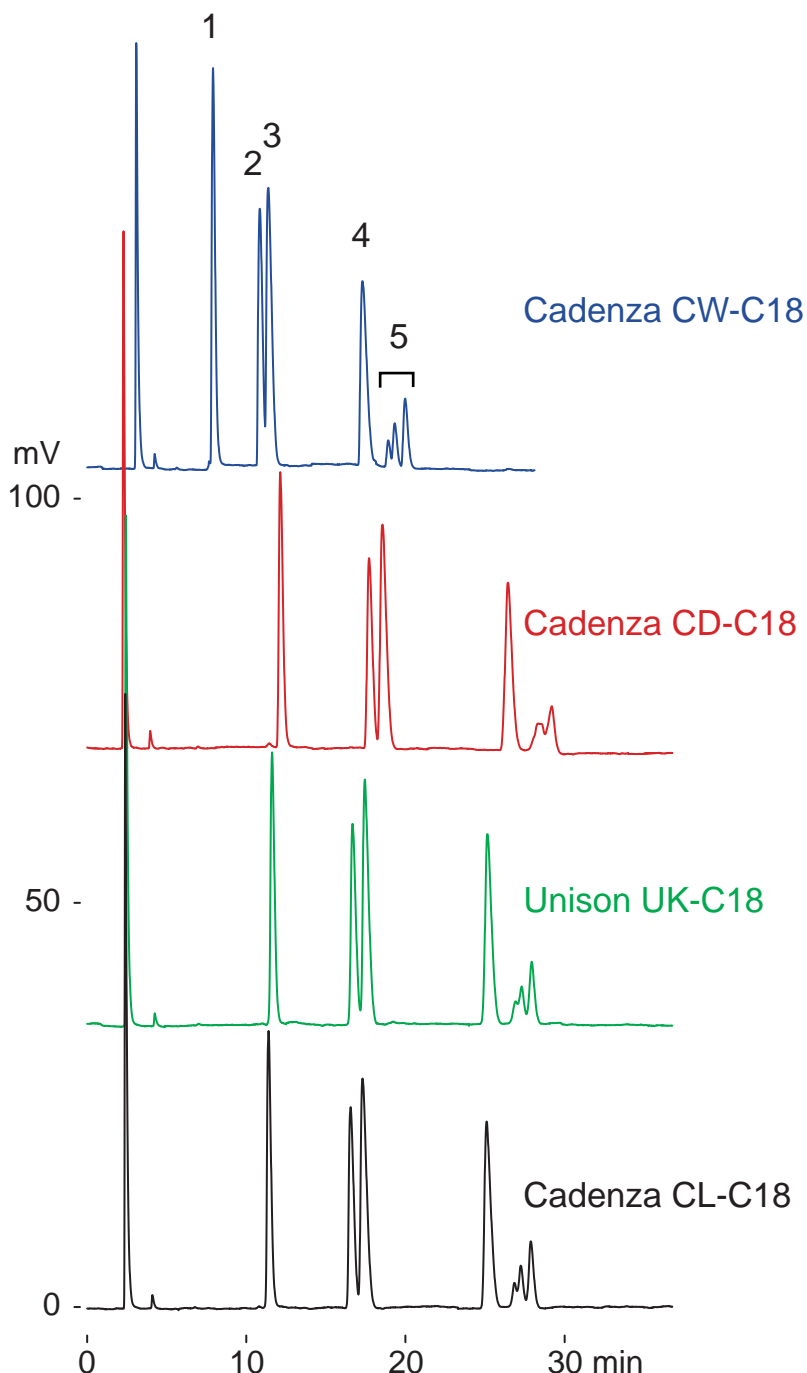
Cadenza CW-C18
 Cadenza CD-C18
 Unison UK-C18
 Cadenza CL-C18

250 x 3 mm

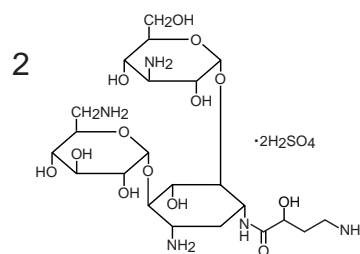
Application

Aminoglycoside Antibiotics

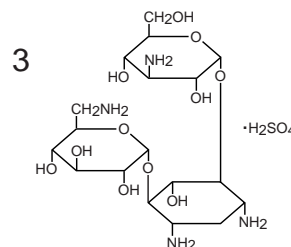
アミノグリコシド系抗生物質



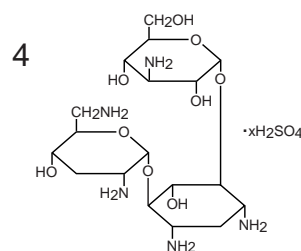
streptomycin sulfate



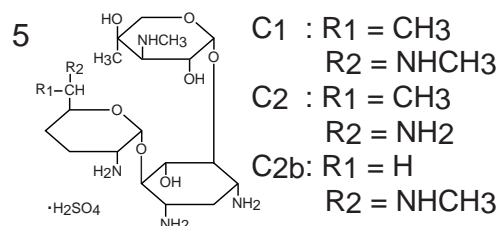
amikacin disulfate



kanamycin sulfate



tobramycin sulfate



gentamicin sulfate

250 x 3 mm

A: water /heptafluorobutyric acid = 100 /0.1

B: acetonitrile /heptafluorobutyric acid = 100 /0.1

20-34%B(0-35min)

0.4 mL/min(13-16MPa) , 37 deg.C, ELSD, 2 uL(4ug)

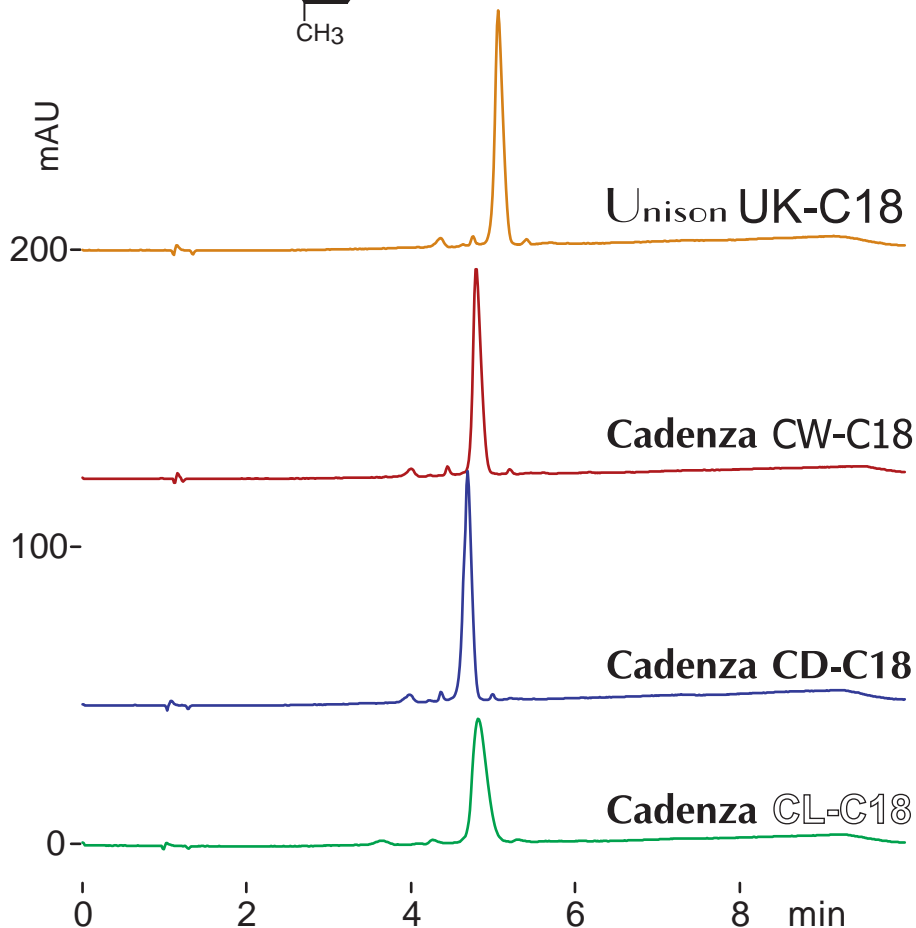
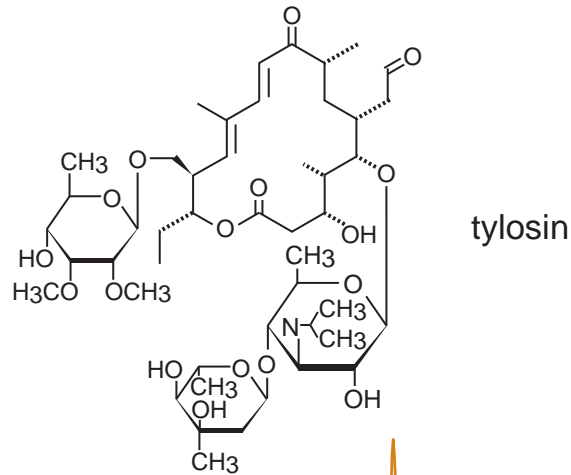
Unison UK-C18
 Cadenza CW-C18
 Cadenza CD-C18
 Cadenza CL-C18

75 x 3 mm

Application

Antibiotic (Tylosin)

抗生物質(タイロシン)



75 x 3 mm

A: water / formic acid = 100 / 0.1

B: acetonitrile / formic acid = 100 / 0.1

25-70 %B (0-8min), 0.4 mL/min

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

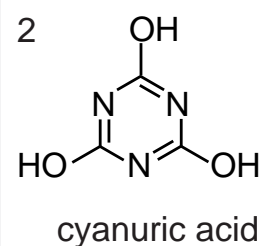
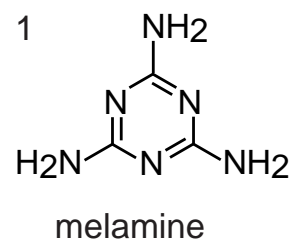
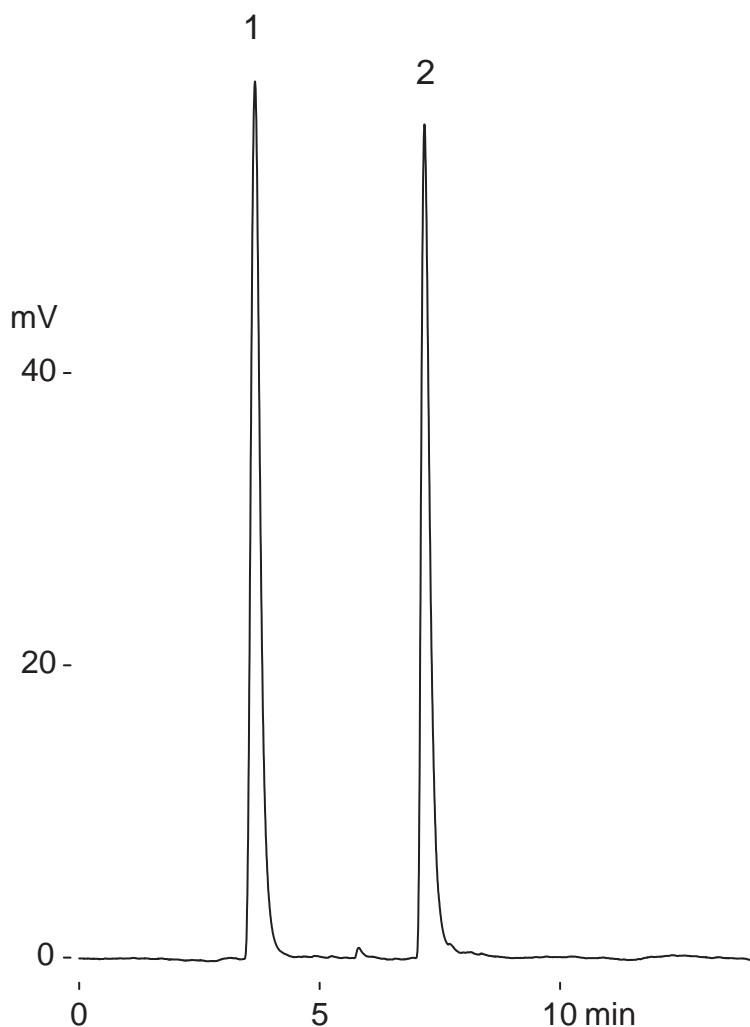
Unison UK-Amino

150 x 2 mm

Application

Melamine and Cyanuric acid

メラミン, シアヌル酸



Unison UK-Amino, 150 x 2 mm

A: acetonitrile

B: 10mM ammonium formate

10-35%B(0-10min), 0.2 mL/min (4MPa), 37 deg.C

ELSD, 2 uL(1ug, 2.5%NH₄OH)

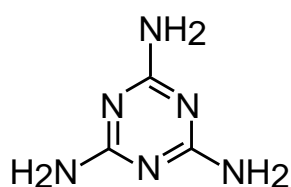
Unison UK-Amino

150 x 3 mm

Application

LC-MS/MS: Melamine and Related Compounds

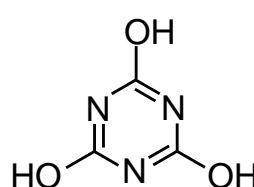
LC-MS/MS (メラミンと関連化合物)



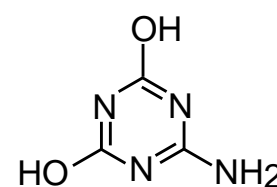
1. melamine



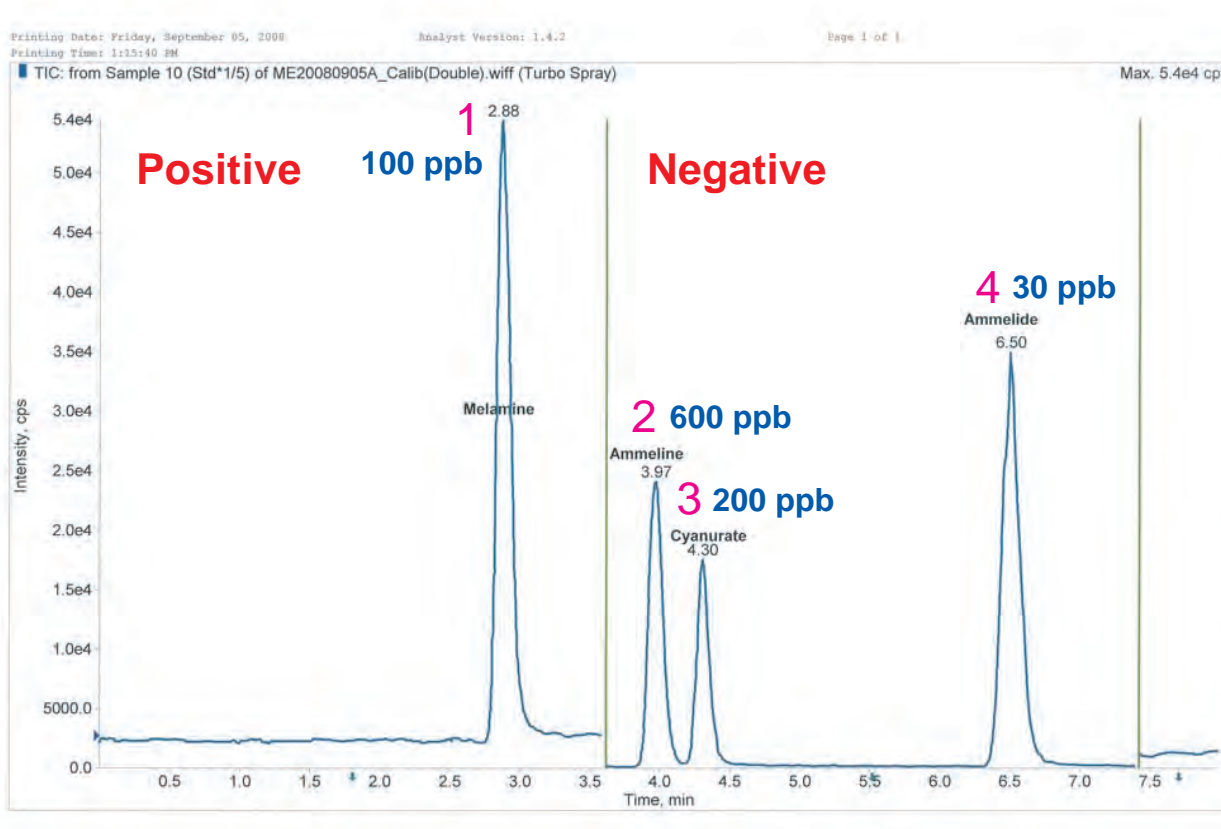
2. ammeline



3. cyanuric acid



4. ammelide



Unison UK-Amino, 150 x 3 mm

A: acetonitrile, B: 10mM ammonium acetate + 0.1% acetic acid
 25%B (Isocratic)

0.4 mL/min (5.9MPa), 40 deg.C, 5uL

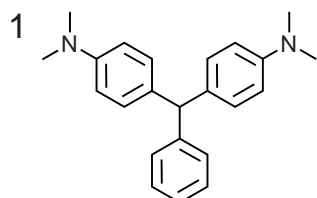
Unison UK-Phenyl
 Unison UK-C8
 Unison UK-C18
 Cadenza CD-C18
 Cadenza CW-C18

75 x 3 mm

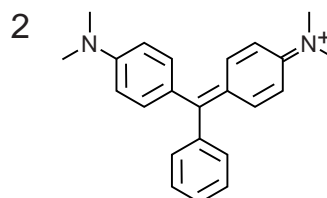
Application

Malachite Green and Metabolite

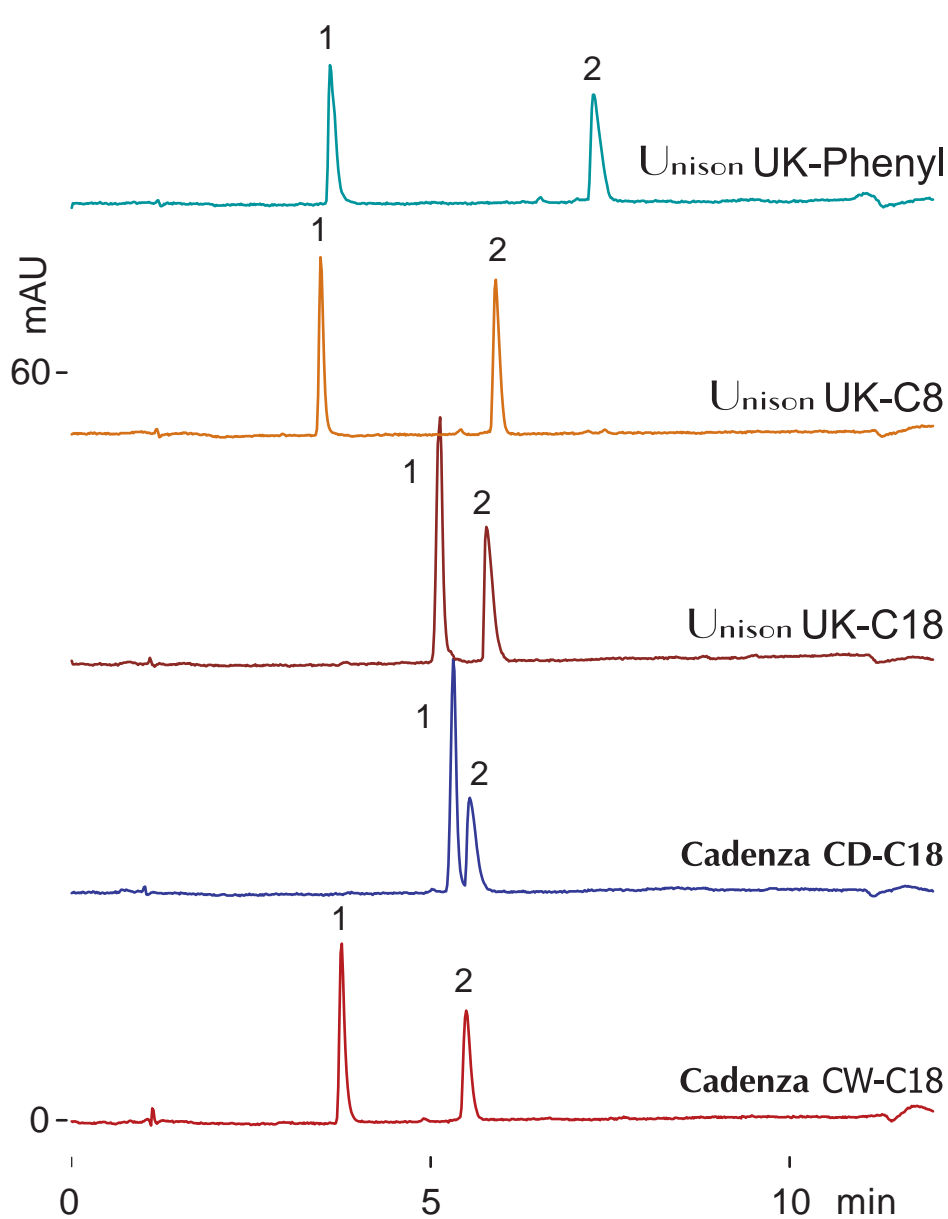
マラカイトグリーンと代謝物



leucomalachite green



malachite green



75 x 3 mm
 A: water /formic acid
 = 100 /0.1
 B: acetonitrile /formic acid
 = 100 /0.1
 30 - 70 %B (0-10 min)
 0.4 mL/min (5 MPa)
 37 deg.C, 260 nm
 1 uL (100 ng)

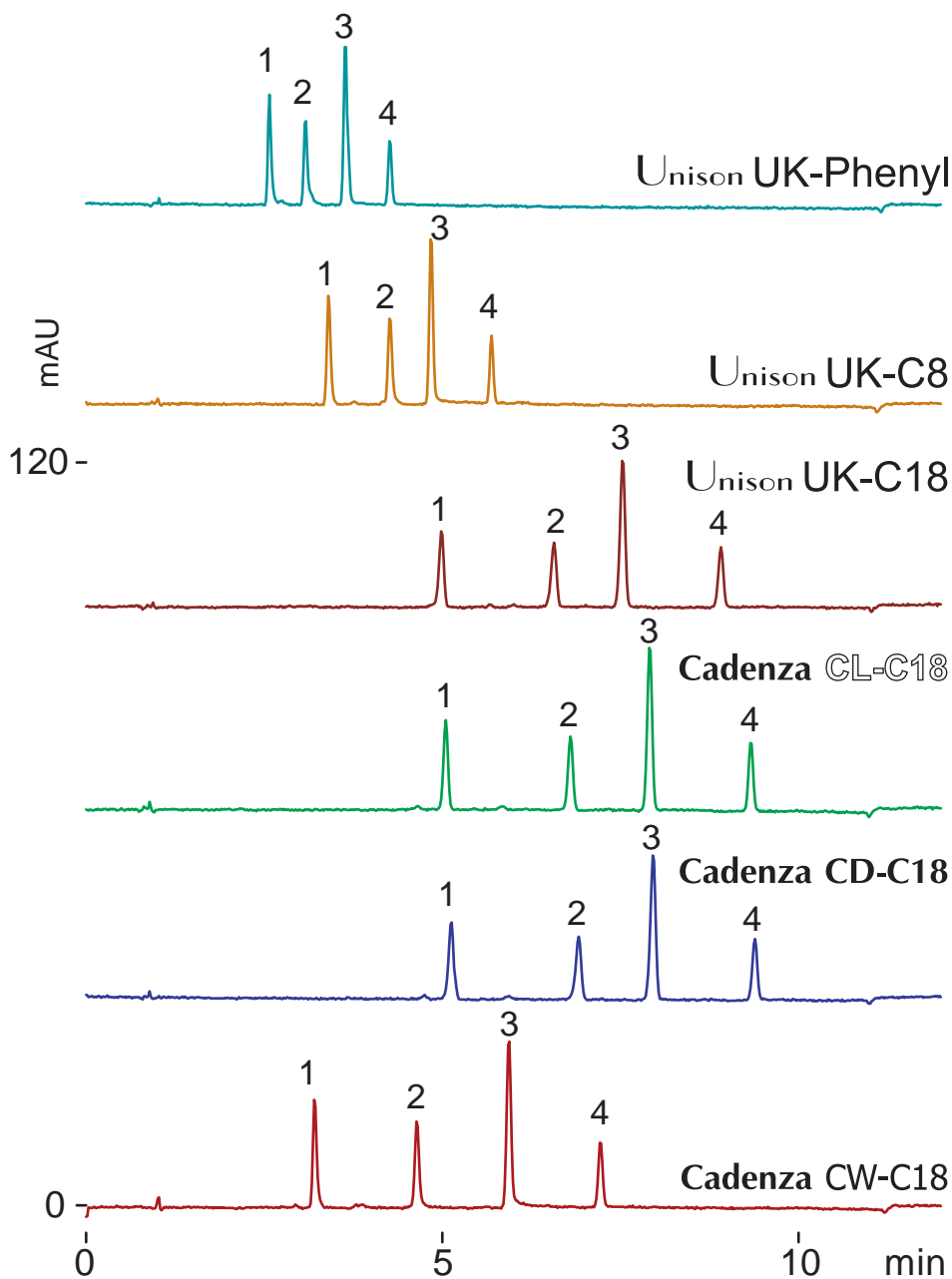
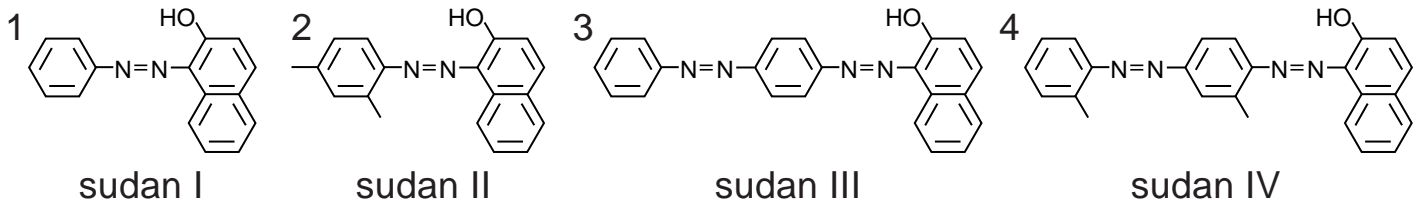
Unison UK-Phenyl
 Unison UK-C8
 Unison UK-C18
 Cadenza CL-C18
 Cadenza CD-C18
 Cadenza CW-C18

75 x 4.6 mm

Application

Sudan Dyes

スダン色素



75 x 4.6 mm
 A: water / formic acid
 = 100 / 0.1
 B: acetone / formic acid
 = 100 / 0.1
 60 - 90 %B (0-10 min)
 1 mL/min (7-8 MPa)
 37 deg.C, 500 nm
 2 uL (40 ng)

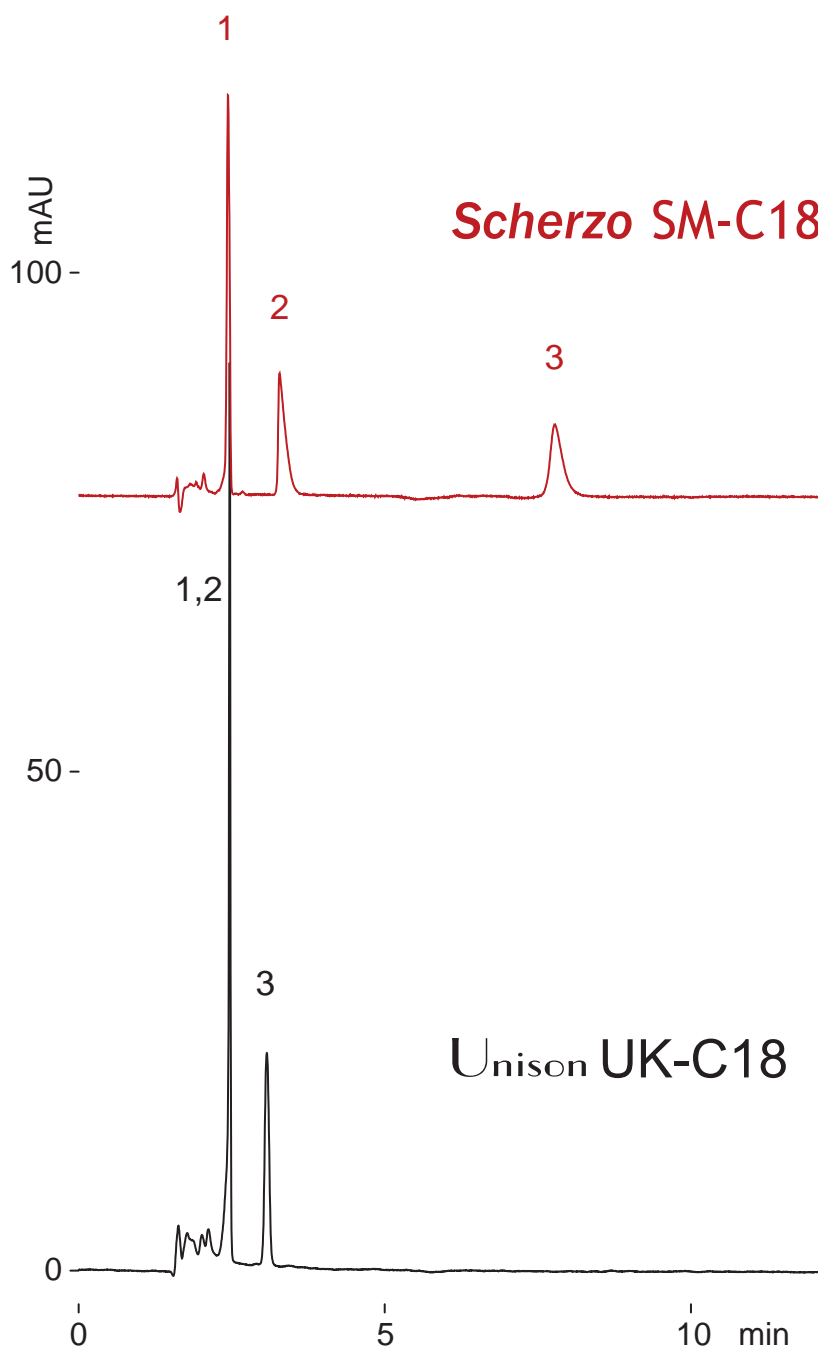
Scherzo SM-C18
Unison UK-C18

150 x 3 mm

Application

Acetic acid and trihaloacetic acids

酢酸, トリハロ酢酸



- 1 **CH₃COOH**
acetic acid (100ppm)
- 2 **CF₃COOH**
trifluoroacetic acid (100ppm)
- 3 **CCl₃COOH**
trichloroacetic acid (9ppm)

150 x 3 mm
100mM NH₄H₂PO₄ / acetonitrile = 80 / 20
0.4 mL/min (9-10MPa), 37 deg.C, 210 nm
20 uL

Scherzo SM-C18

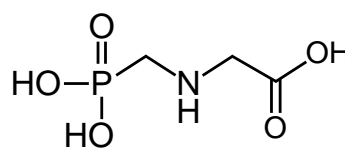
150 x 3 mm

Application

Glyphosate

グリホサート

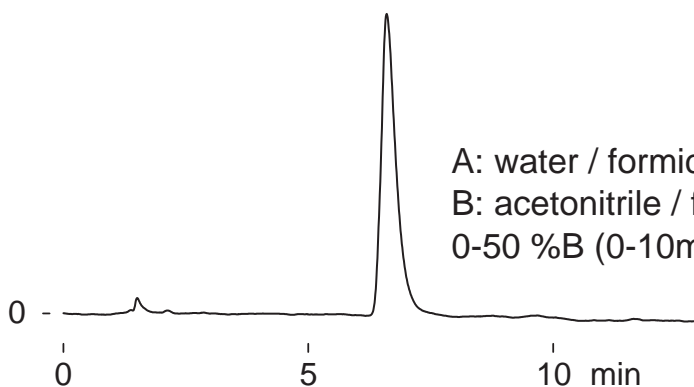
mV
100 -



glyphosate

50 -

20 mM ammonium formate / acetonitrile
= 90 / 10
9MPa



A: water / formic acid = 100 / 0.1
B: acetonitrile / formic acid = 100 / 0.1
0-50 %B (0-10min), 8MPa

Scherzo SM-C18, 150 x 3 mm

0.4 mL/min, 37 deg.C,ELSD (spray chamber 50 deg.C, drift tube 100 deg.C)

5 uL (5 ug)

Courtesy of Takeo Sakuma, Ph.D, MDS Analytical Technologies (SCIEX), Canada

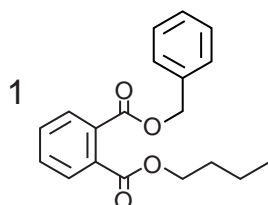
Cadenza CW-C18
Unison **UK-Phenyl**

75 x 3 mm

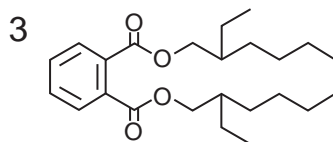
Application

Phthalate esters

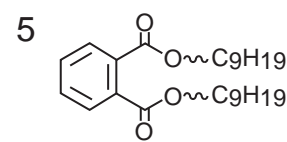
フタル酸エステル類



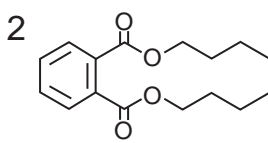
butylbenzyl phthalate
BBP



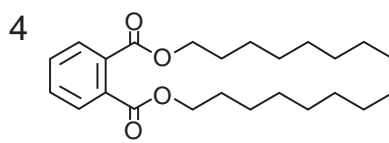
di-2-ethylhexyl phthalate
DEHP



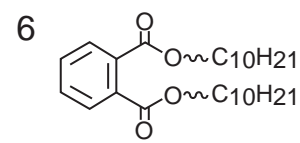
diisononyl phthalate
DINP



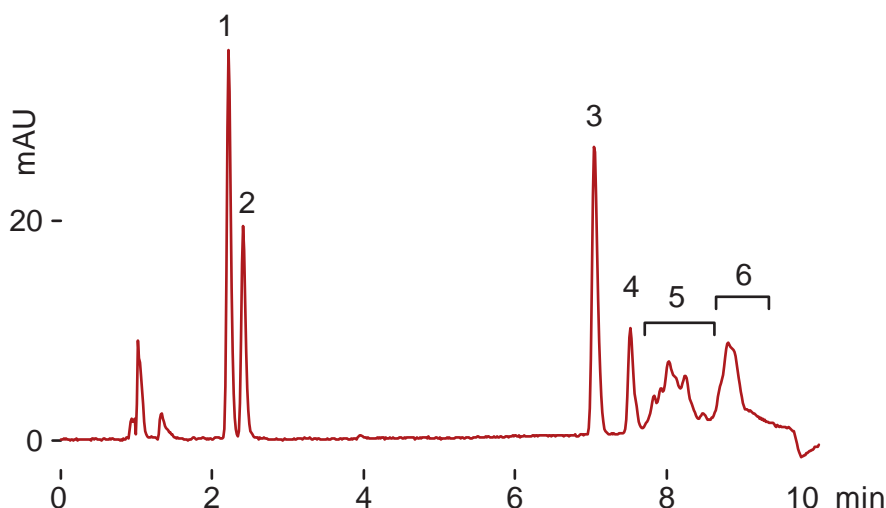
dibutyl phthalate
DBP



di-n-octyl phthalate
DNOP



diisodecyl phthalate
DIDP



Cadenza CW-C18

75 x 3 mm

A: water / acetic acid
= 100 / 0.1

B: acetonitrile / acetic acid
= 100 / 0.1

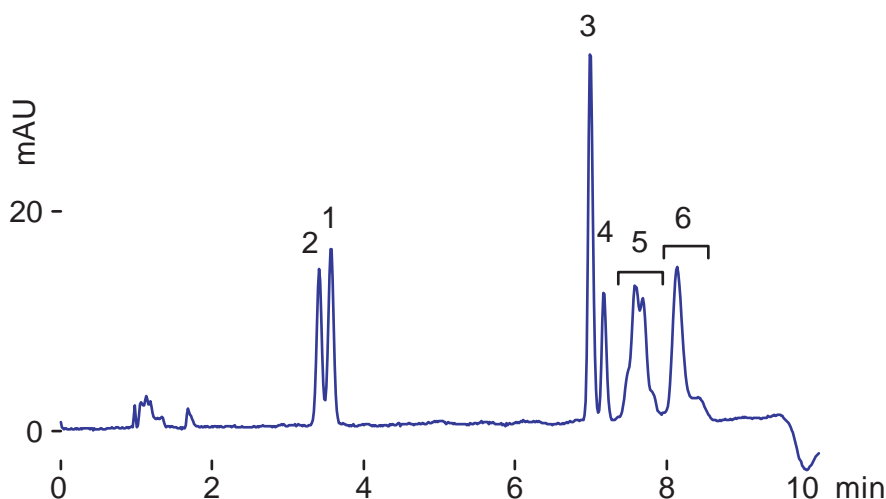
70-100 %B (0-8min)

70 %B (8-10min)

0.4 mL/min (4MPa)

37 deg.C, 275 nm

2 uL (0.1-0.5ug)



Unison UK-Phenyl

75 x 3 mm

A: water / acetic acid
= 100 / 0.1

B: methanol / acetic acid
= 100 / 0.1

70-90 %B (0-8min)

70 %B (8-10min)

0.4 mL/min (7MPa)

37 deg.C, 275 nm

2 uL (0.1-0.5ug)

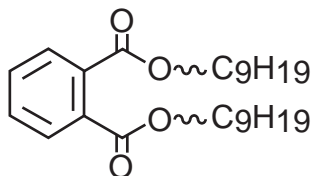
Presto FF-C18
Cadenza CD-C18

250 x 4.6 mm

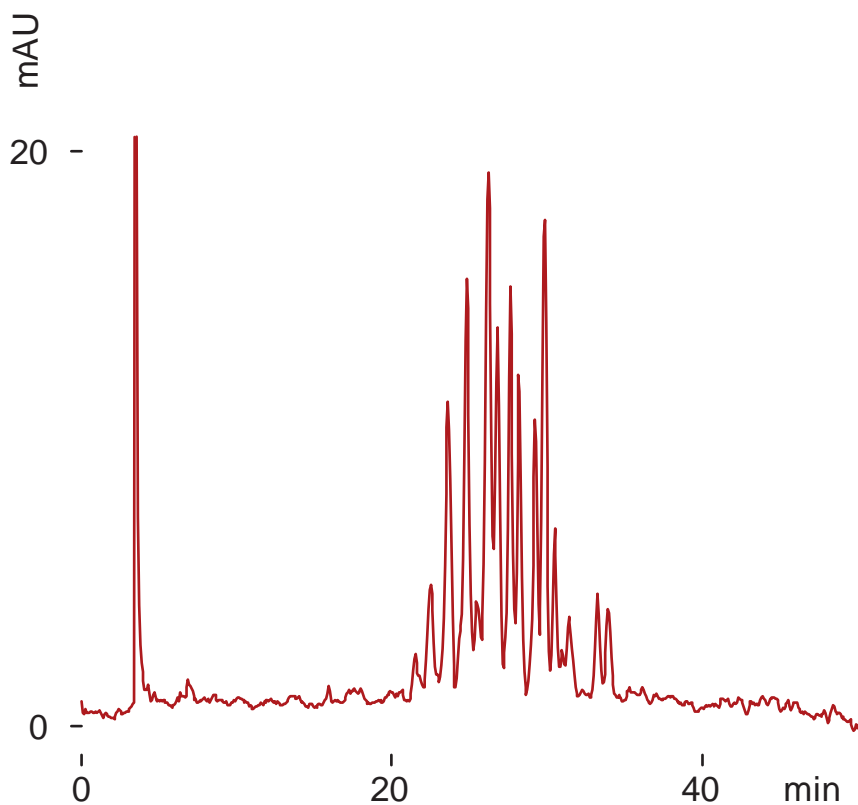
Application

Diisononyl phthalate

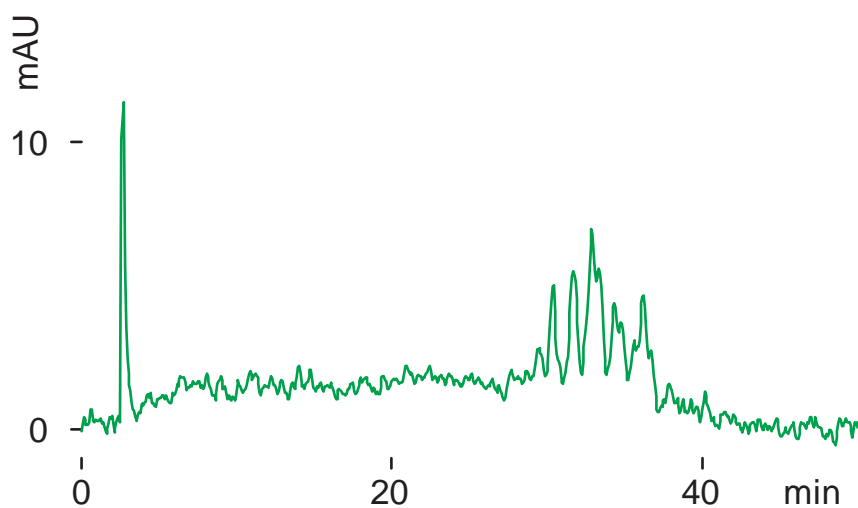
フタル酸ジイソノニル



diisononyl phthalate
DINP



Presto FF-C18
250 x 4.6 mm
water / acetonitrile = 40 / 60
0.45 mL/min (28MPa)
37 deg.C, 230 nm, 3 uL (3ug)



Cadenza CD-C18
250 x 4.6 mm
water / acetonitrile = 10 / 90
1 mL/min (9MPa)
37 deg.C, 230 nm, 3 uL (3ug)

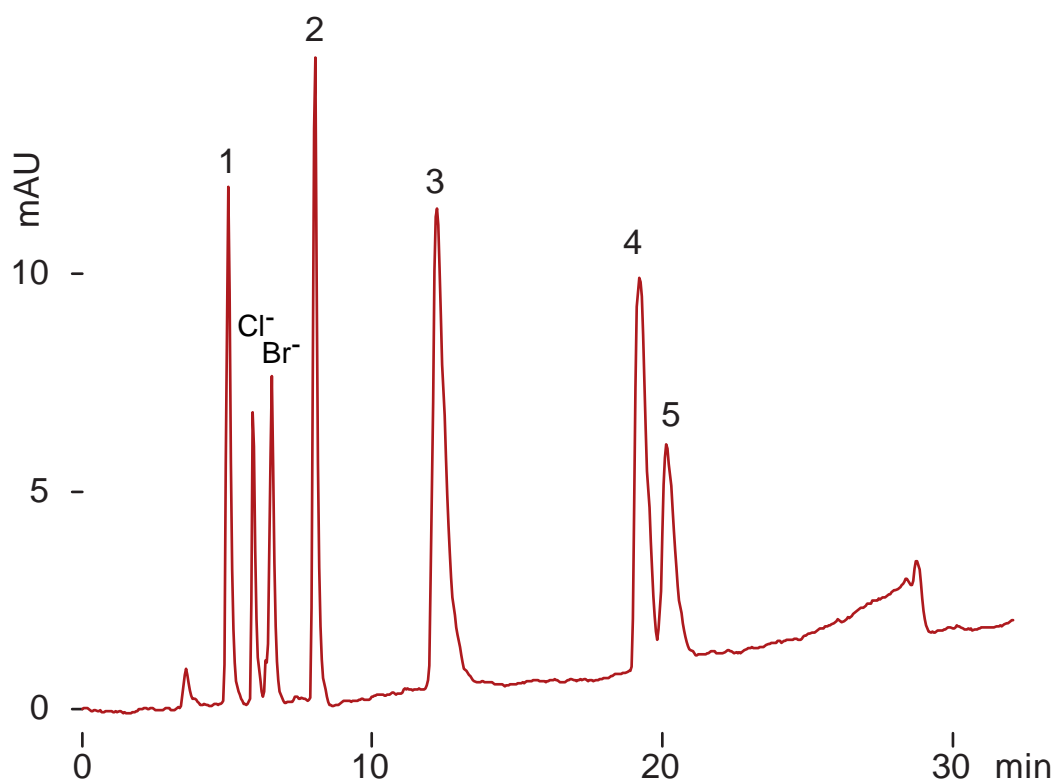
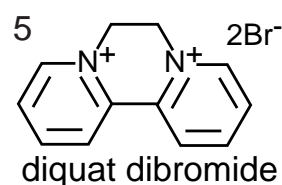
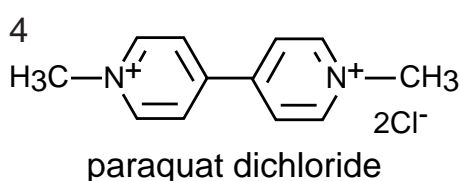
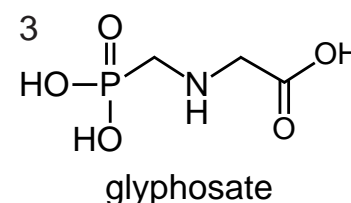
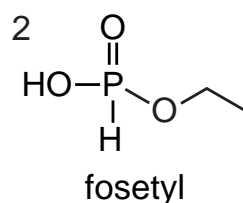
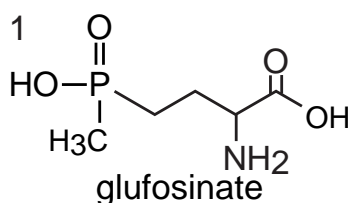
Scherzo SM-C18

250 x 3 mm

Application

Organophosphorous pesticides,
quaternary ammonium herbicides

有機リン系農薬, 四級アンモニウム系農薬



Scherzo SM-C18, 250 x 3 mm

A: 5 mM ammonium formate

B: 100 mM ammonium formate / acetonitrile = 25 / 75

0-100 %B (0-25min), 0.4 mL/min (12MPa)

37 deg.C, ELSD (spray chamber 10 deg.C, drift tube 50 deg.C)

5 uL (0.5-2ug)

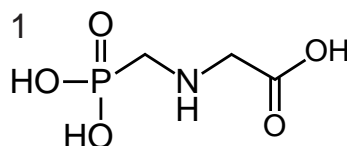
Scherzo SM-C18

250 x 3 mm

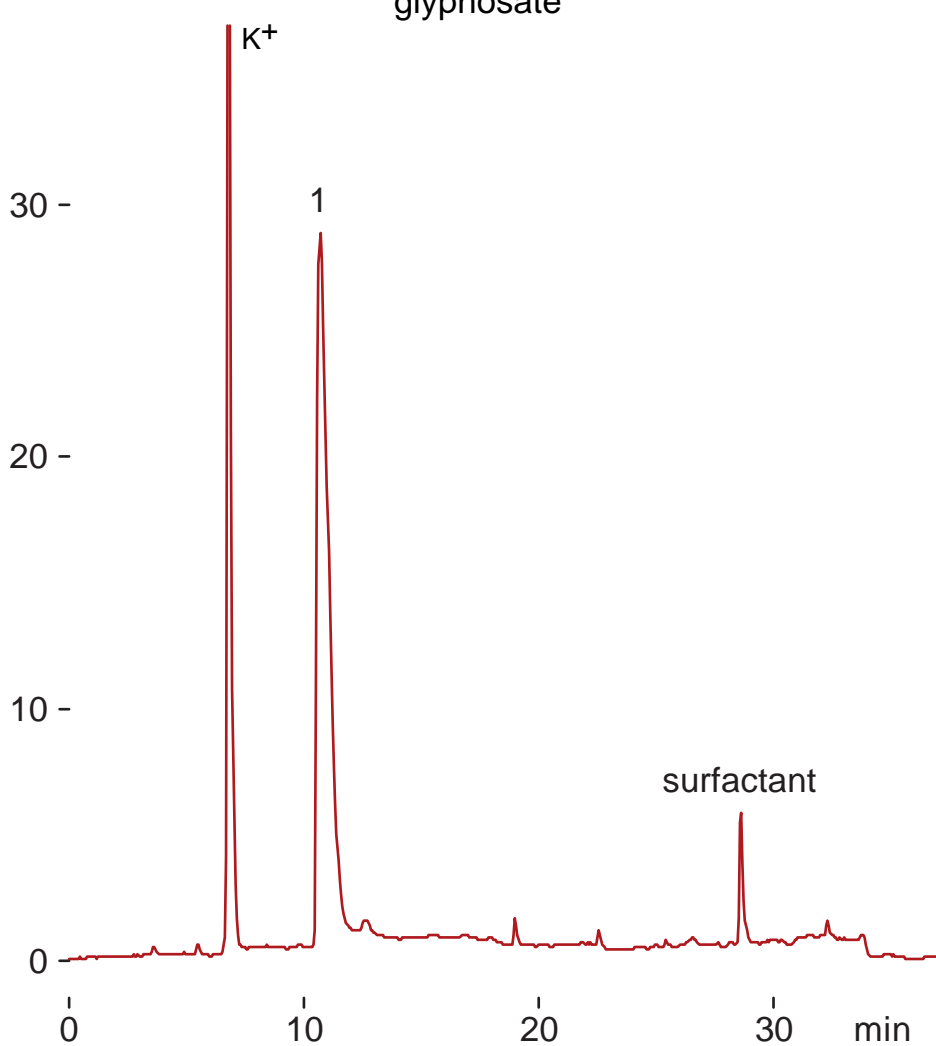
Application

Herbicide formulation (glyphosate)

除草剤製剤(グリホサート)



glyphosate



Scherzo SM-C18, 250 x 3 mm

A: 5 mM ammonium formate

B: 100 mM ammonium formate / acetonitrile = 25 / 75

0-100 %B (0-25min), 100 %B(25-30min)

0.4 mL/min (12MPa), 37 deg.C

ELSD (spray chamber 10 deg.C, drift tube 50 deg.C)

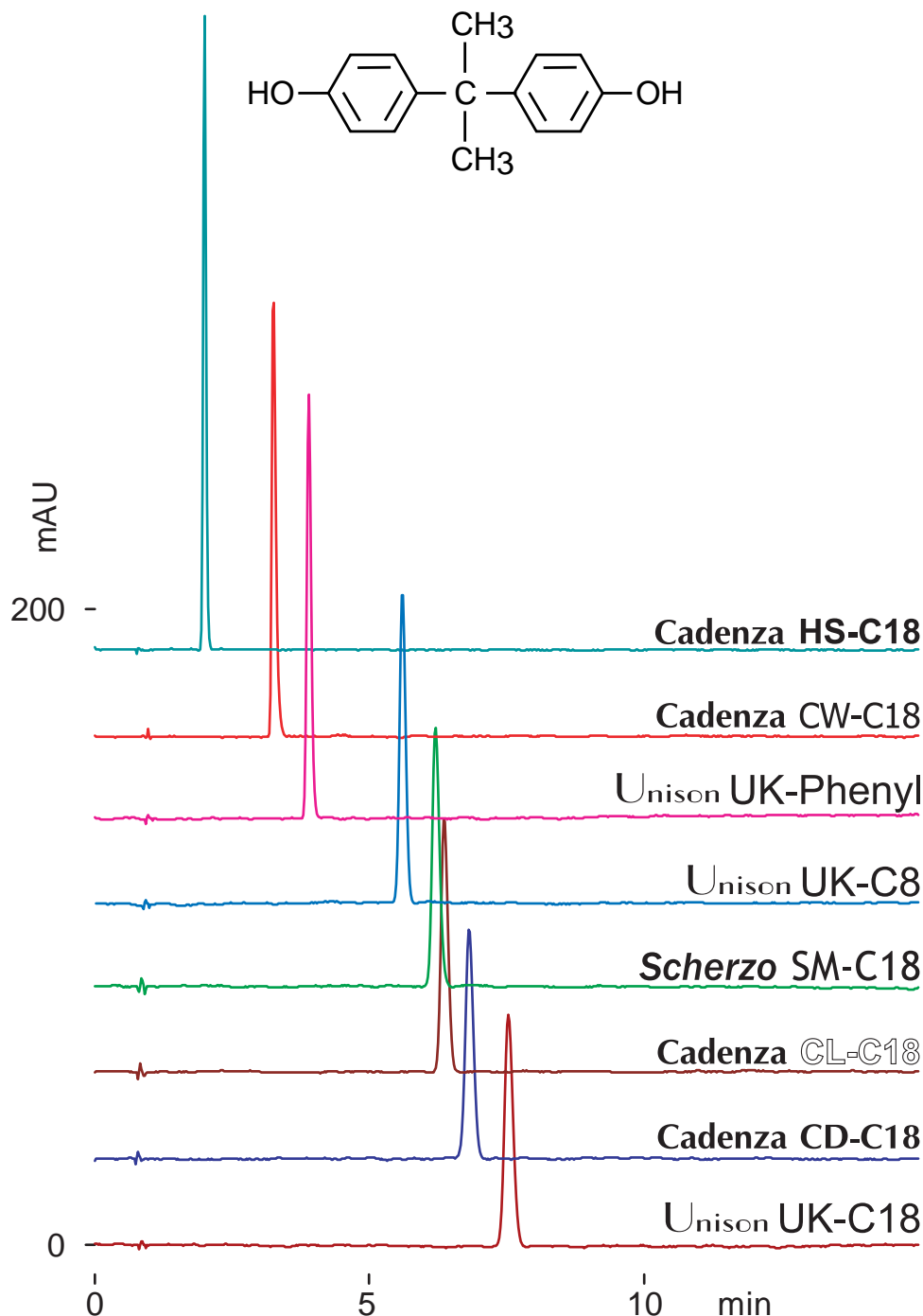
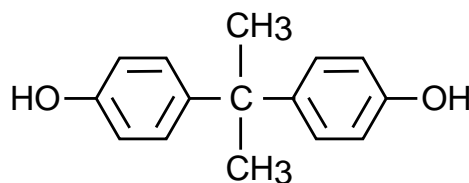
5 uL (0.1% with 10mM ammonium formate)

Cadenza HS-C18 Scherzo SM-C18
 Cadenza CW-C18 Cadenza CL-C18
 Unison UK-Phenyl Cadenza CD-C18
 Unison UK-C8 Unison UK-C18

75 x 4.6 mm

Application

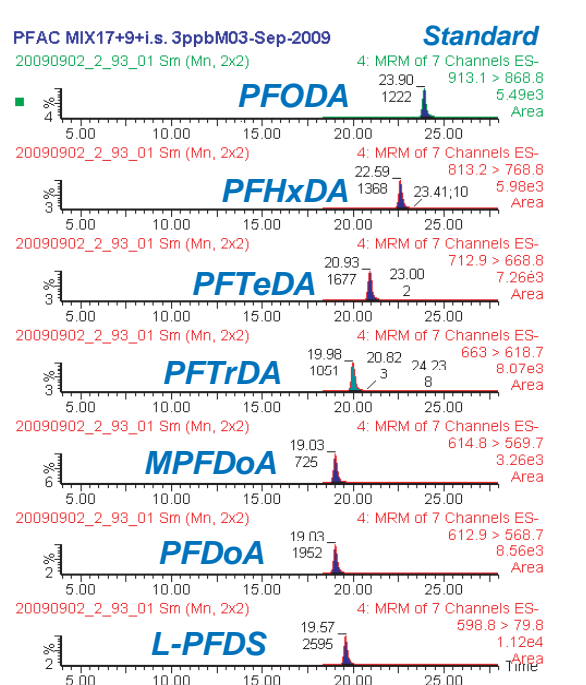
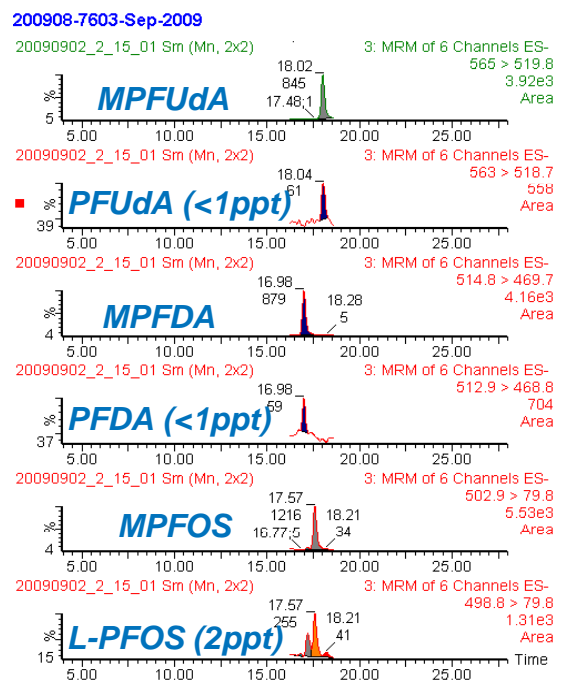
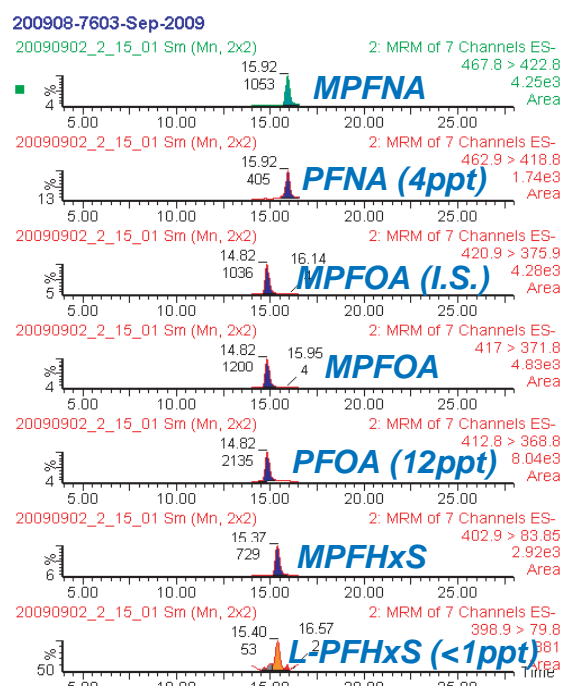
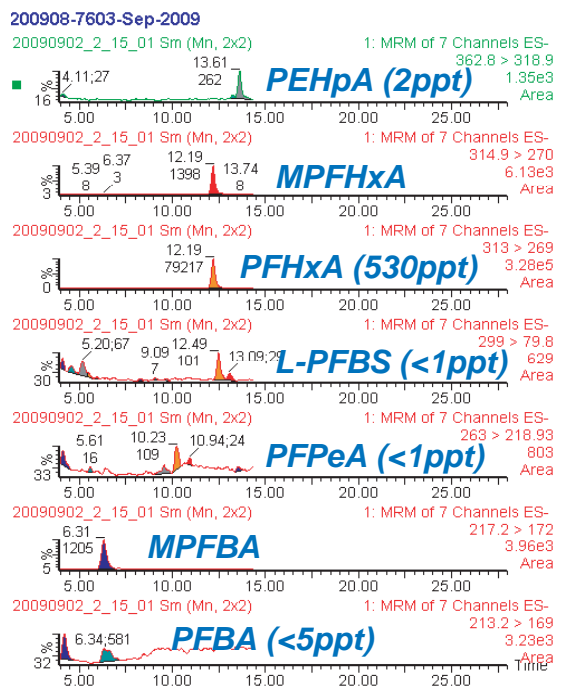
Bisphenol A
 ビスフェノールA



75 x 4.6 mm
 water / acetonitrile / acetic acid = 65 / 35 / 0.1
 1 mL/min (6-7MPa), 37 deg.C, 260 nm, 1 uL (5ug)

LC-MS/MS analysis of perfluorinated organic compounds (PFCs) in seawater

海水中有機フッ素化合物(PFCs)のLC-MS/MS分析



Unison UK-C18, 250 x 2 mm
 A: 10mM ammonium acetate, B: acetonitrile
 20-95%B (0-20min), 95%B (20-28min), 20%B (28-38min)
 0.2 mL/min (14.2MPa), 40°C
 10uL (<1 - 530ppt in seawater, 1ppb in surrogate or standard solution)
 ESI-MS/MS, negative

Courtesy of YAGI Masahiro, Kobe Institute of Health, JAPAN

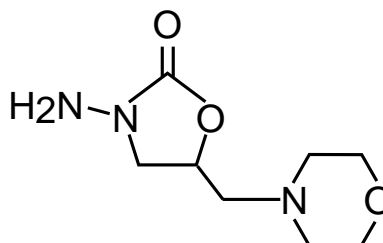
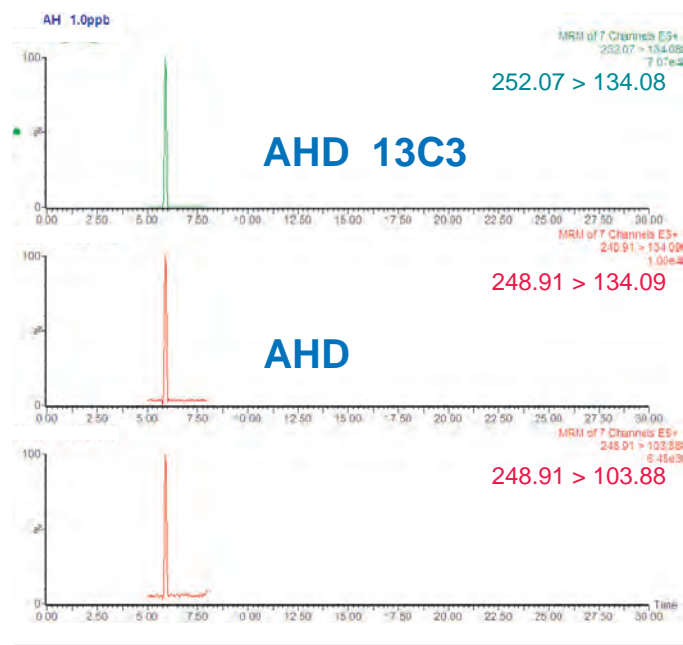
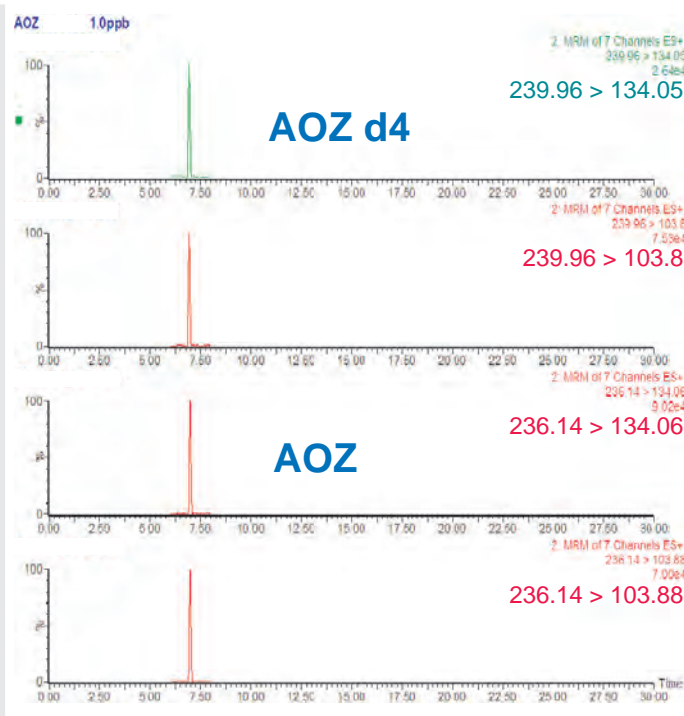
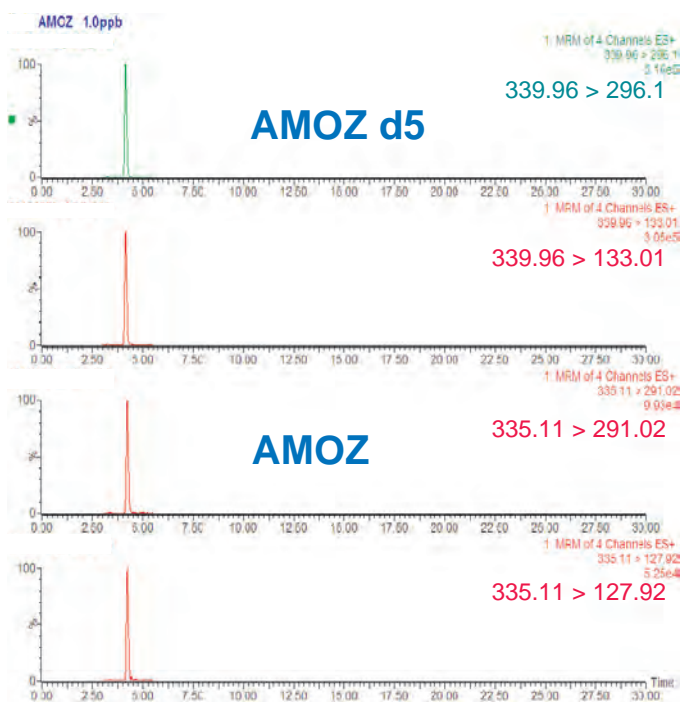
Cadenza CD-C18

150 x 2 mm

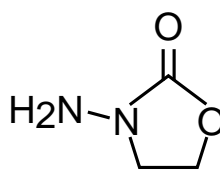
Application

LC-MS/MS analysis of nitrofurans metabolites (AOZ, AMOZ, AHD)

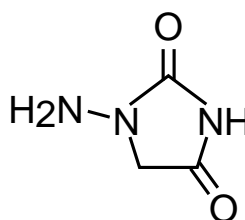
ニトロフラン類代謝物 (AOZ, AMOZ, AHD) のLC-MS/MS分析 (告示試験法)



AMOZ
3-amino-5-morpholinomethyl-2-oxazolidinone



AOZ
3-amino-2-oxazolidinone



AHD
1-aminohydantoin

Cadenza CD-C18, 150 x 2 mm
 A: 0.1% AcOH
 B: acetonitrile
 20-80%B (0-15min), Runtime 19min
 0.2 mL/min, 40°C
 5uL (AOZ, AMOZ, AHD 1.0 ppb, IS 5.0ppb)
 ESI, MRM, positive

Courtesy of MAEDA Naoyuki, ASSOCIATION OF MEAT SCIENCE & TECHNOLOGY INSTITUTE, JAPAN

Cadenza CD-C18

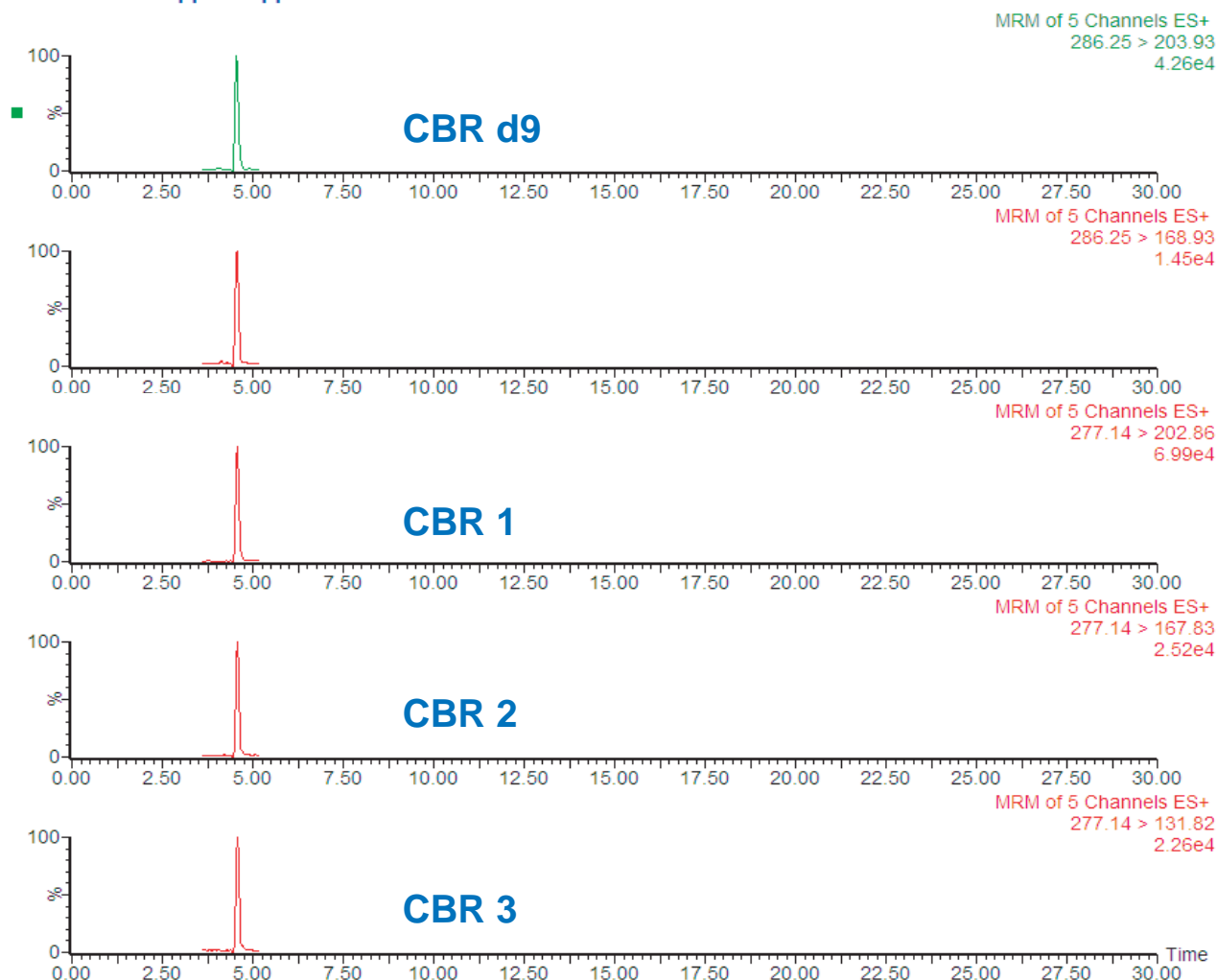
150 x 2 mm

Application

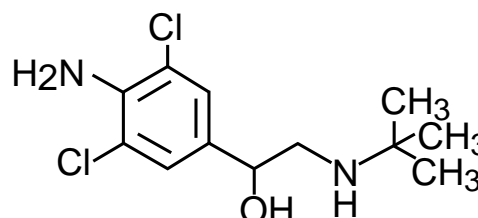
LC-MS/MS analysis of clenbuterol (CBR)

クレンブテロール (CBR) のLC-MS/MS分析(告示試験法)

CBR CBRd9 0.5ppb 0.5ppb STD imtakt



Cadenza CD-C18, 150 x 2 mm
 A: 0.1% formic acid in water
 B: 0.1% formic acid in acetonitrile
 5-95%B (0-7min), 95%B (7-10min)
 Runtime 15min
 0.2 mL/min, 40°C
 5uL (CBR 0.5ppb, IS 0.5ppb)
 ESI, MRM, positive



clenbuterol (CBR)

Courtesy of MAEDA Naoyuki, ASSOCIATION OF MEAT SCIENCE & TECHNOLOGY INSTITUTE, JAPAN

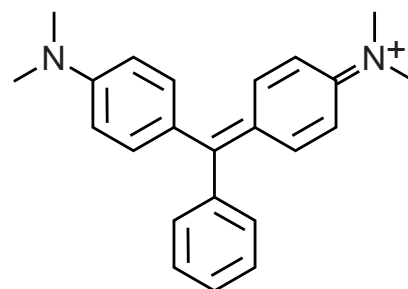
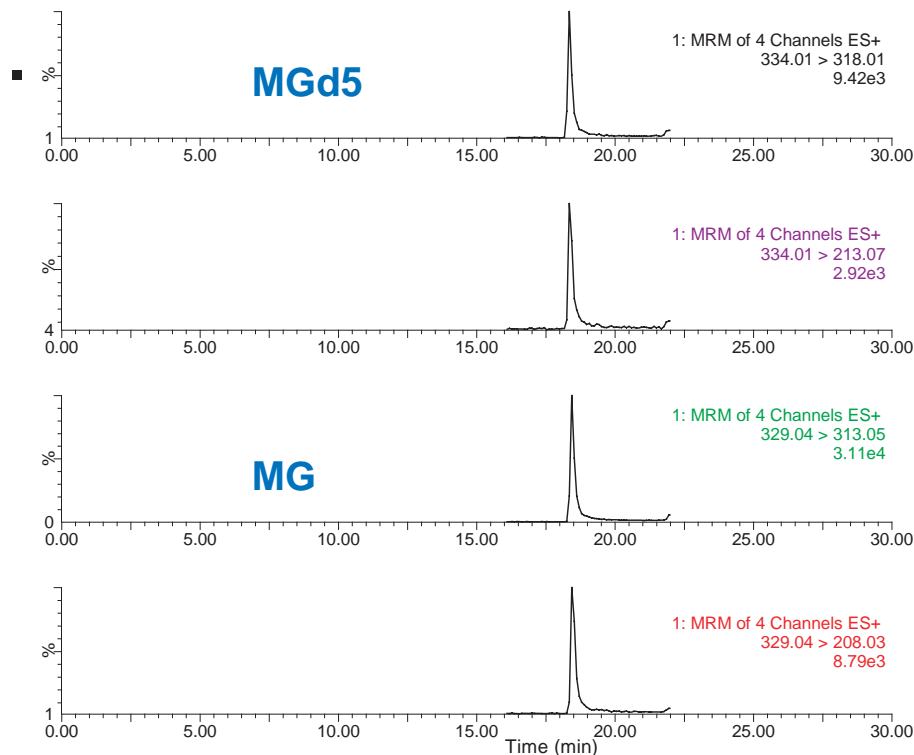
Cadenza CD-C18

150 x 2 mm

Application

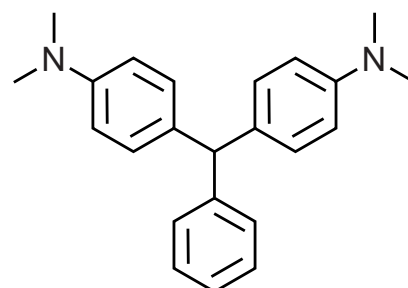
LC-MS/MS analysis of [leuco]malachite green (MG, LMG)

マラカイトグリーン (MG) ロイコマラカイトグリーン (LMG) のLC-MS/MS分析 (告示試験法)

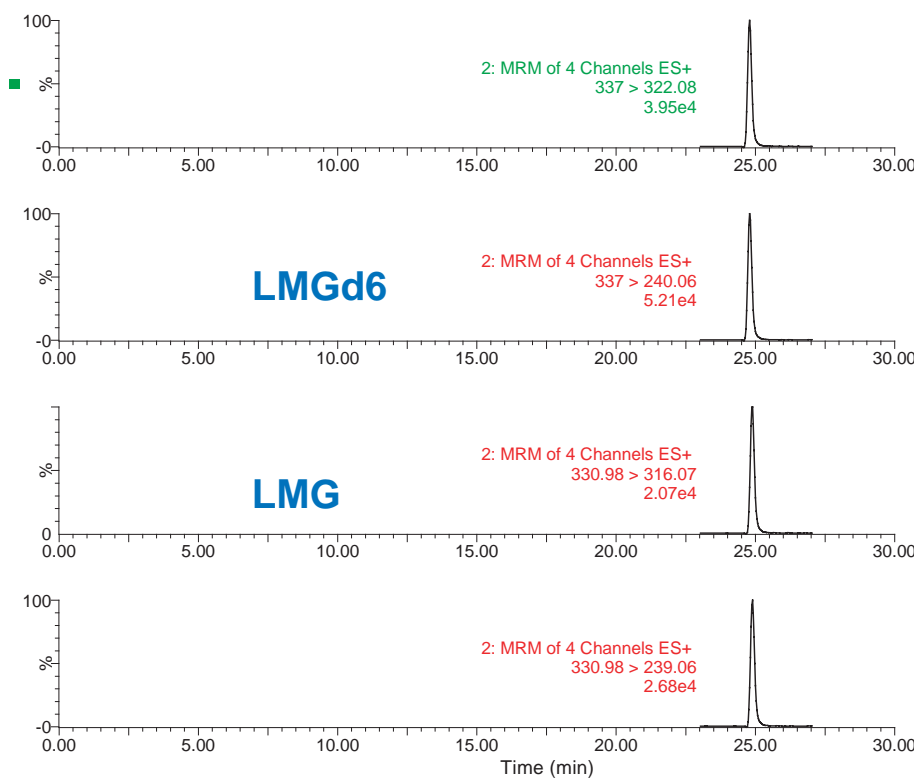


malachite green (MG)

Cadenza CD-C18
 150 x 2 mm
 A: 10mM HCOONH4 / ACN
 = 90 / 10
 B: acetonitrile
 0-100%B (0-20min)
 100%B (20-30min)
 Runtime 40min
 0.2 mL/min, 40°C
 5uL
 (MG, LMG 10ppb, IS 25ppb)
 ESI, MRM, positive



leucomalachite green (LMG)



Courtesy of MAEDA Naoyuki, ASSOCIATION OF MEAT SCIENCE & TECHNOLOGY INSTITUTE, JAPAN

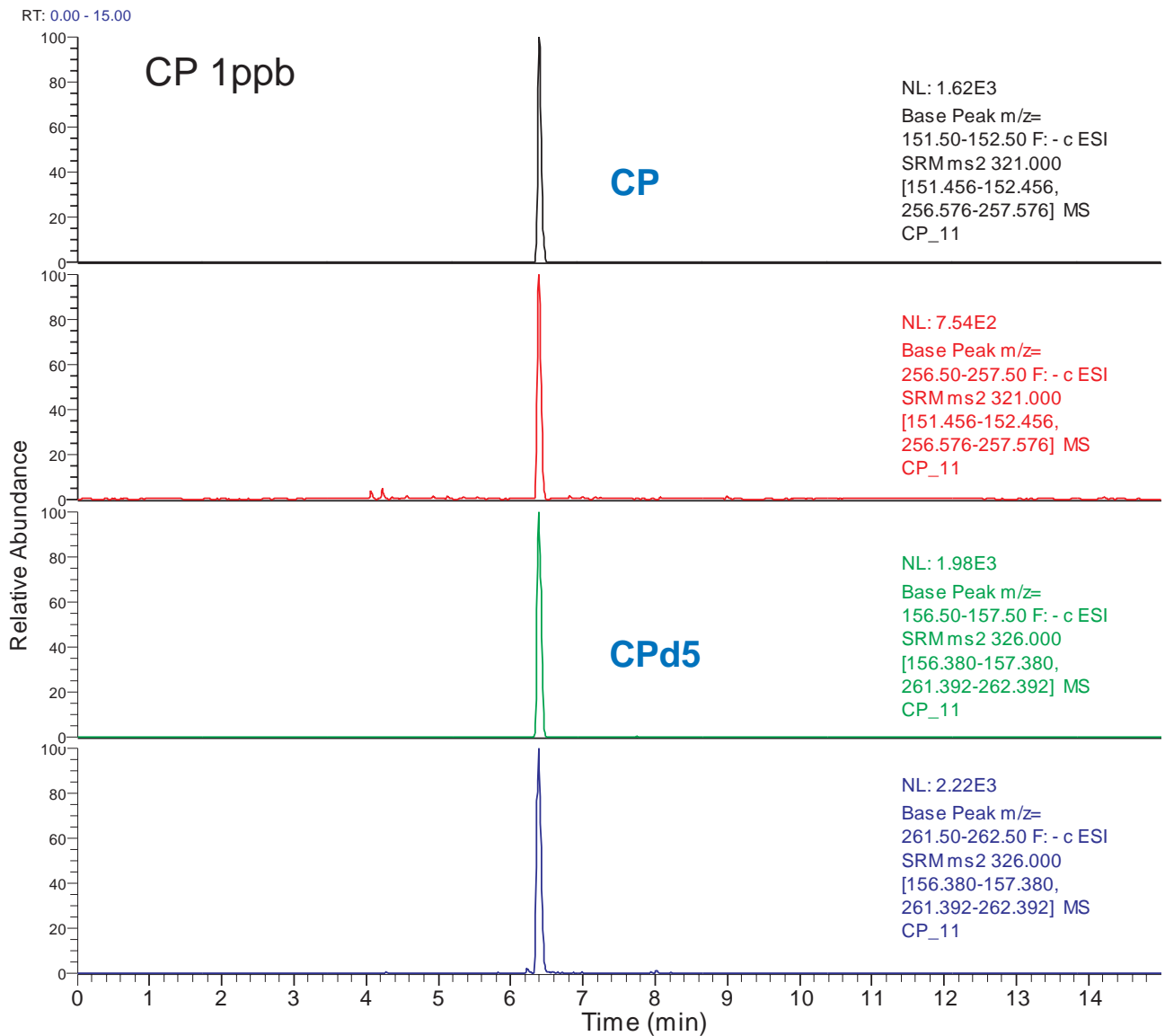
Cadenza CD-C18

150 x 2 mm

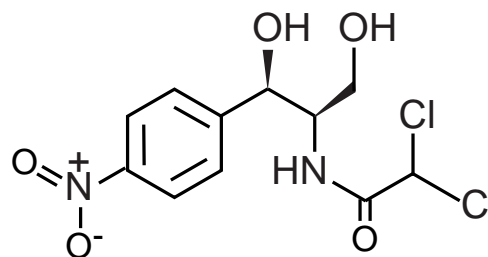
Application

LC-MS/MS analysis of chloramphenicol (CP)

クロラムフェニコール (CP) のLC-MS/MS分析(告示試験法)



Cadenza CD-C18, 150 x 2 mm
10mM HCOONH4 / ACN = 70 / 30
Runtime 15min
0.2 mL/min, 40°C
5uL (CP 1.0ppb, IS 5.0ppb)
ESI, SRM, negative



chloramphenicol (CP)

Courtesy of MAEDA Naoyuki, ASSOCIATION OF MEAT SCIENCE & TECHNOLOGY INSTITUTE, JAPAN

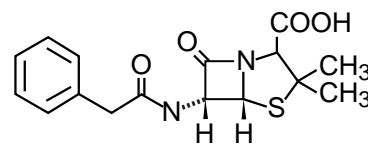
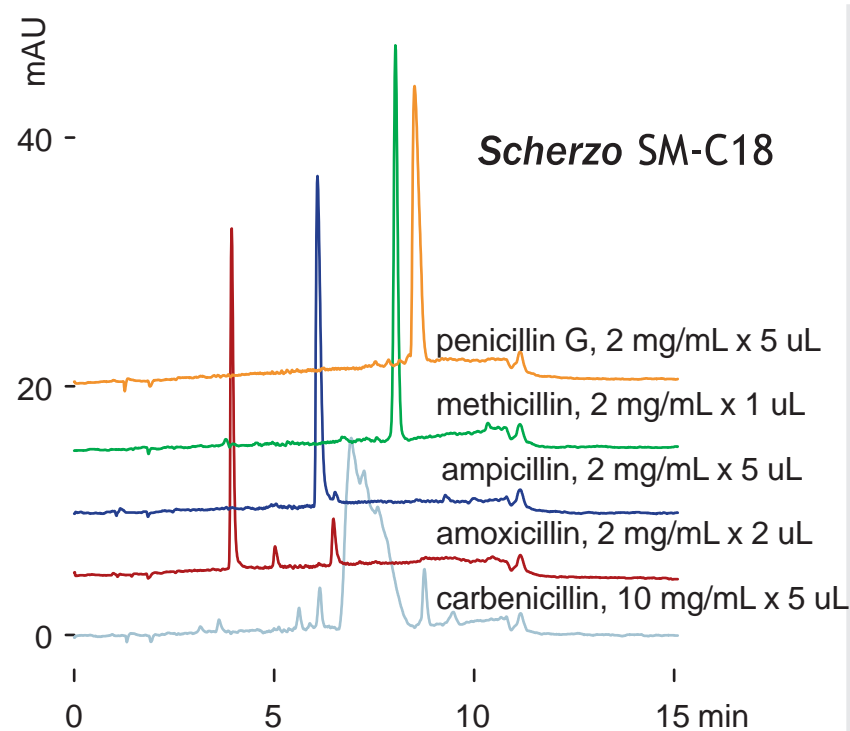
Scherzo SM-C18
Unison UK-C18

75 x 4.6 mm

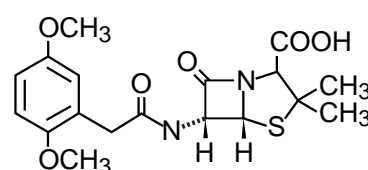
Application

Penicillin antibiotics

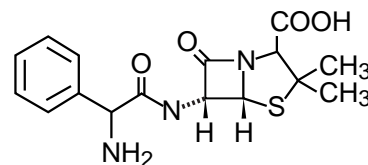
ペニシリン系抗生物質



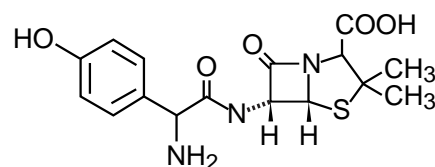
penicillin G



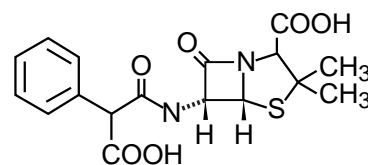
methicillin



ampicillin

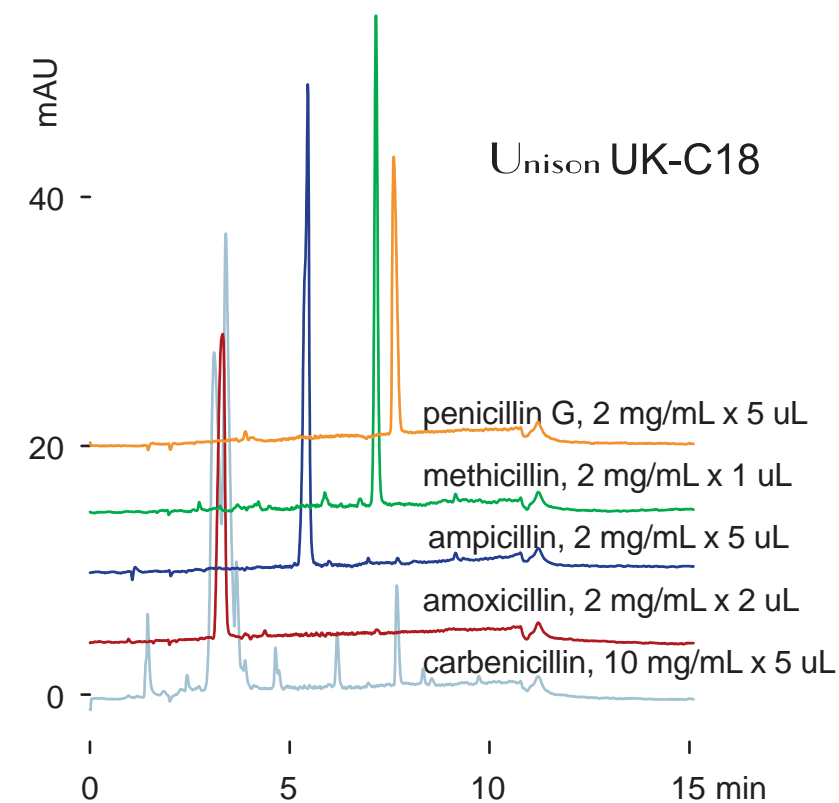


amoxicillin



carbenicillin

75 x 4.6mm
A: 5mM ammonium acetate
B: 100mM ammonium acetate / acetonitrile = 50 / 50
0-70 %B (0-10min)
1.0 mL/min(6-7MPa)
37 deg.C, 260 nm



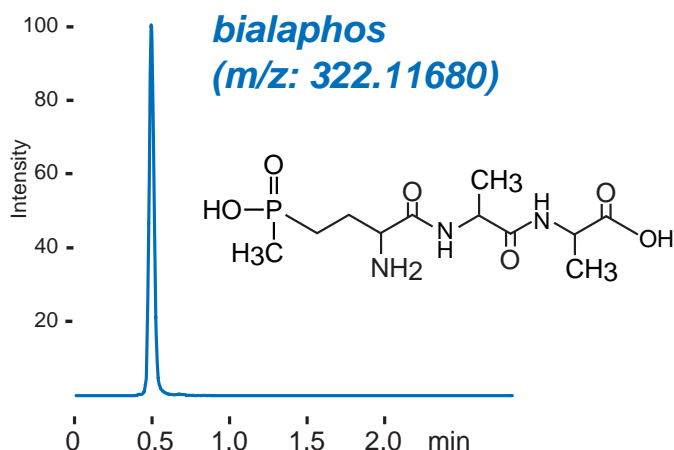
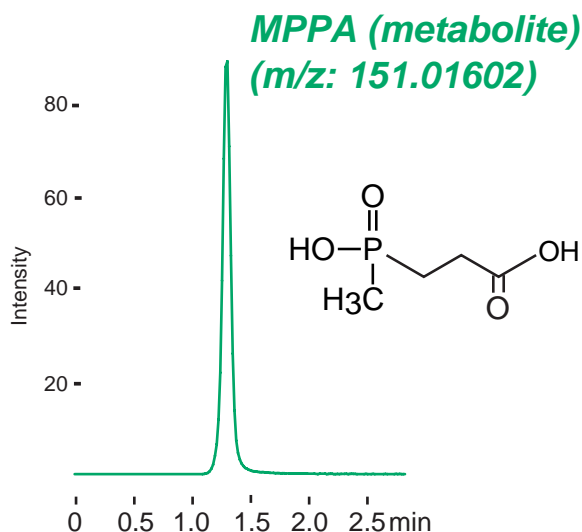
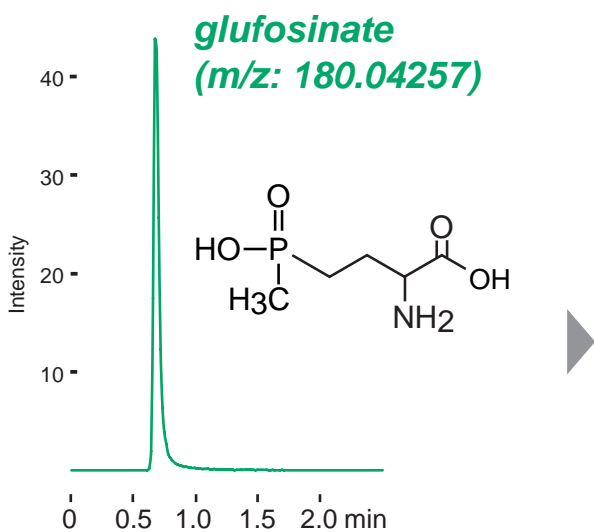
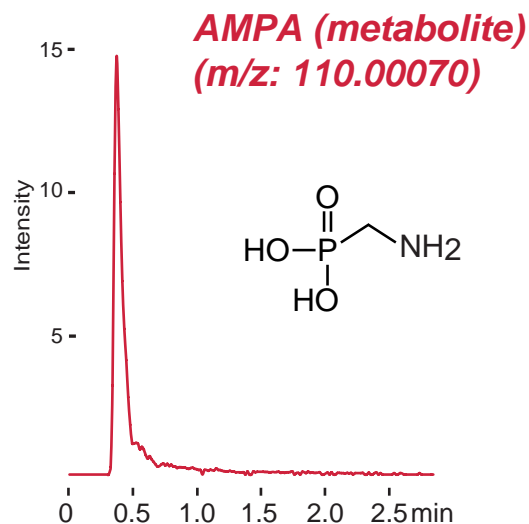
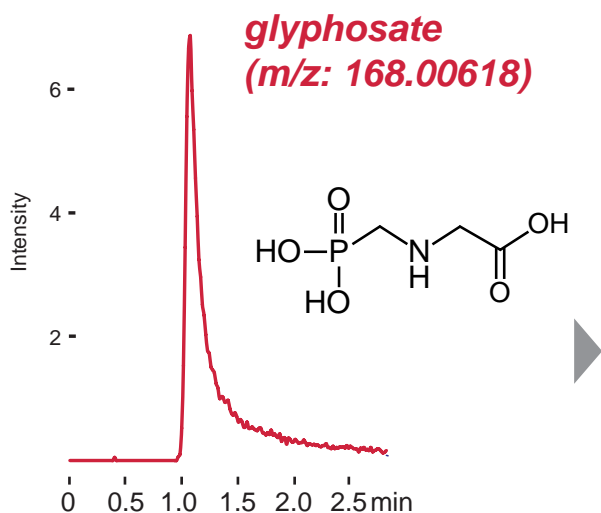
Scherzo SM-C18

30 x 3 mm

Application

LC-MS analysis of phosphorus-containing amino acid type herbicides and their metabolites

含リンアミノ酸系農薬のLC-MS分析



Scherzo SM-C18, 30 x 3 mm
 A: 0.1% HCOOH
 B: acetonitrile
 5 - 30%B (0 - 3 min)
 0.5 mL/min
 10uL (1ug/mL)

ESI (Jet Stream), Q-Tof,
 SIM, negative mode

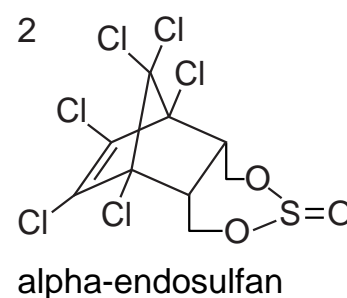
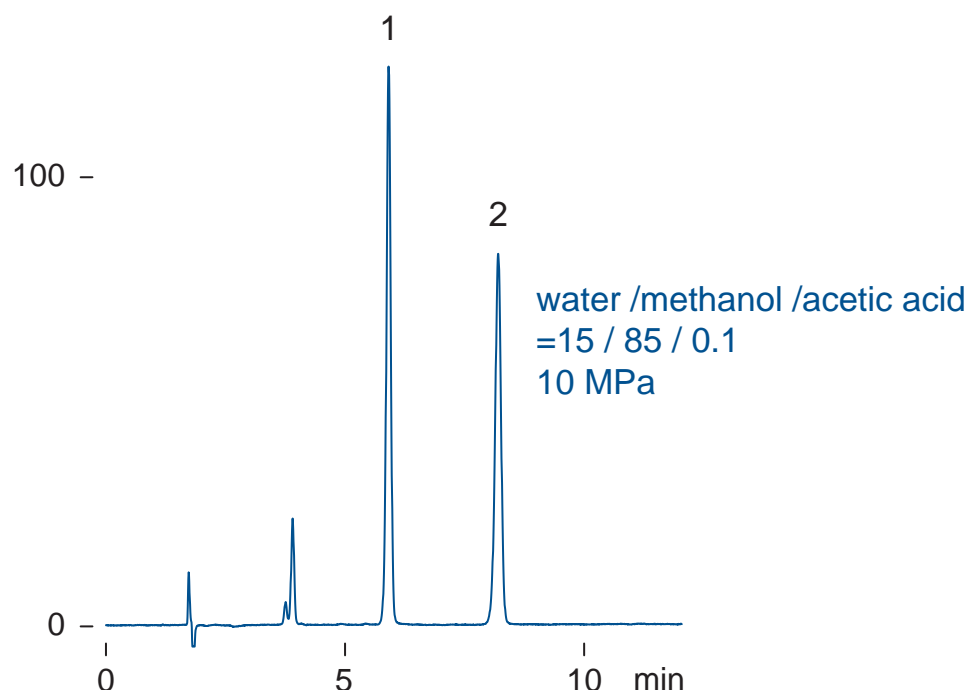
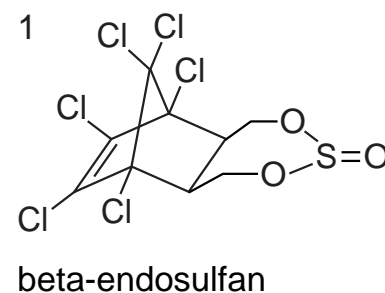
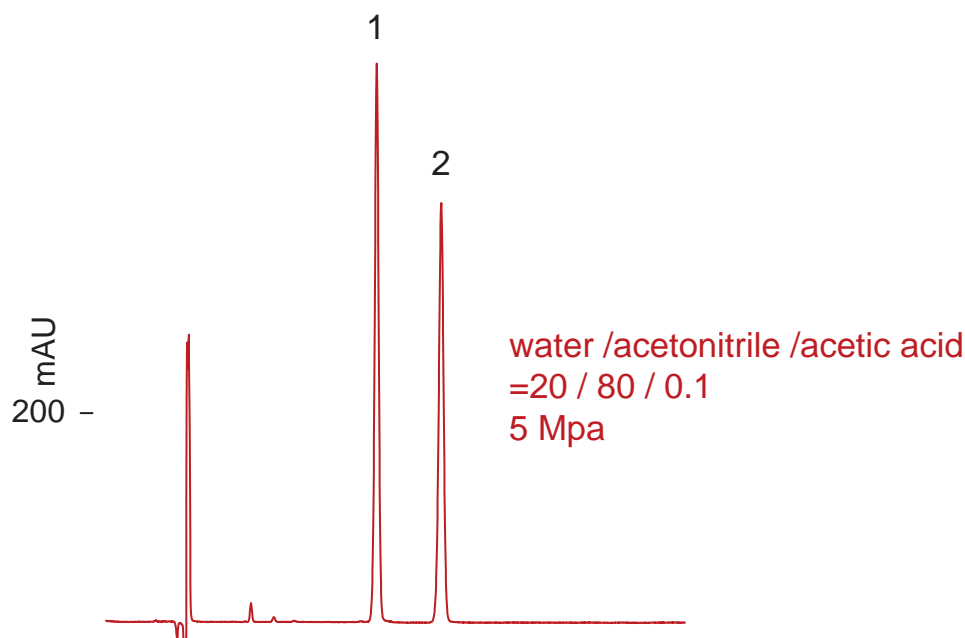
Cadenza CD-C18

150 x 3 mm

Application

Endosulfan isomers

エンドスルファン異性体



Cadenza CD-C18, 150 x 3 mm
0.4 mL/min, 37 deg.C, 220 nm, 1.5 uL (0.75 ug, methanol)

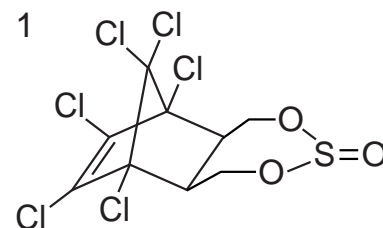
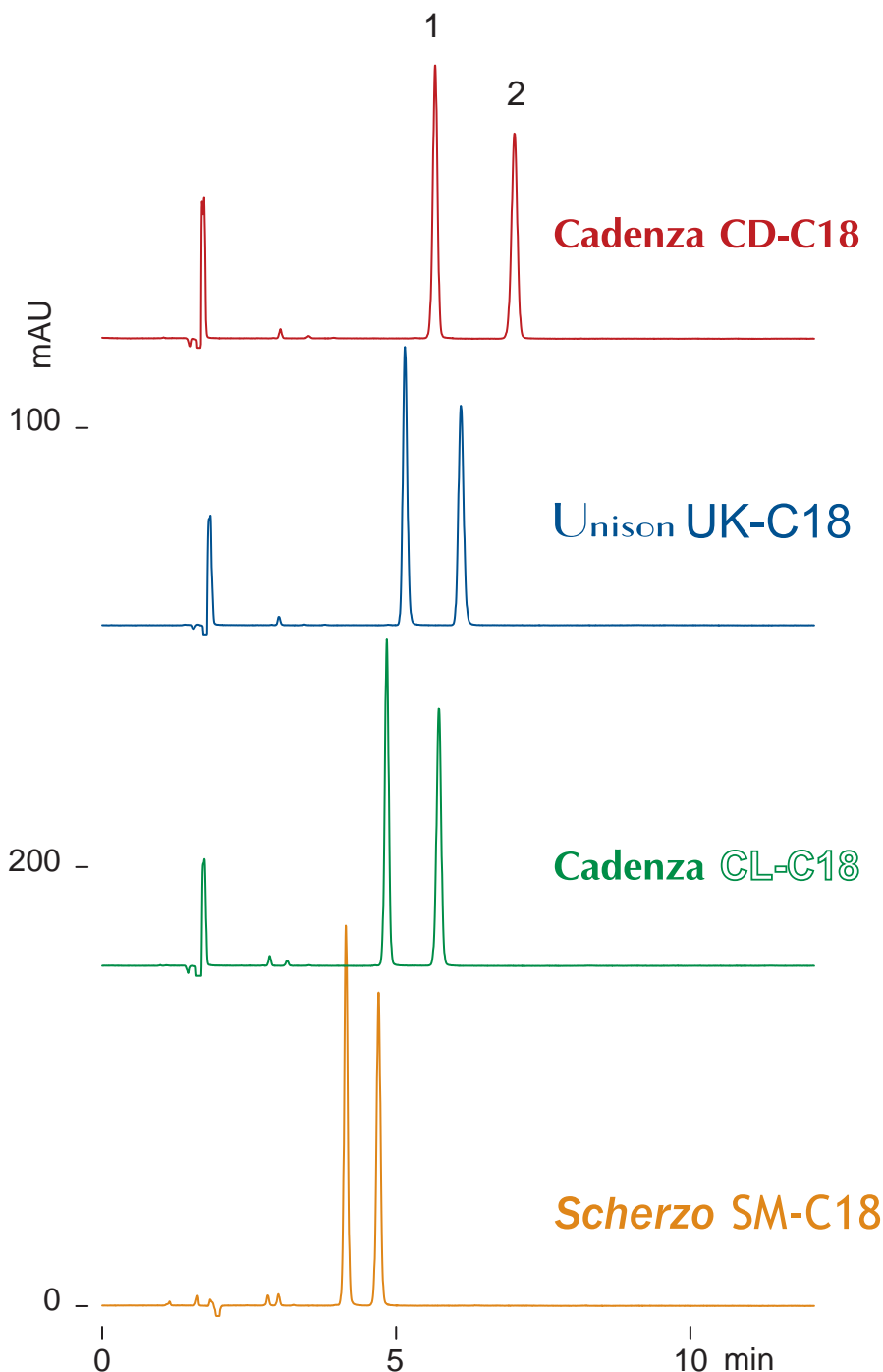
Cadenza CD-C18
 Unison UK-C18
 Cadenza CL-C18
 Scherzo SM-C18

150 x 3 mm

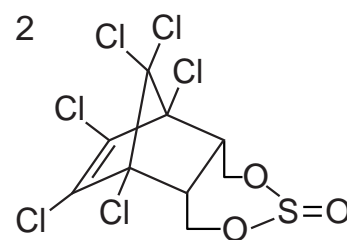
Application

Endosulfan isomers

エンドスルファン異性体



beta-endosulfan



alpha-endosulfan

150 x 3 mm

water / acetonitrile / acetic acid = 20 / 80 / 0.1

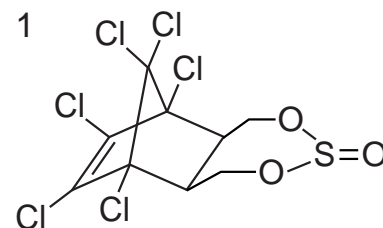
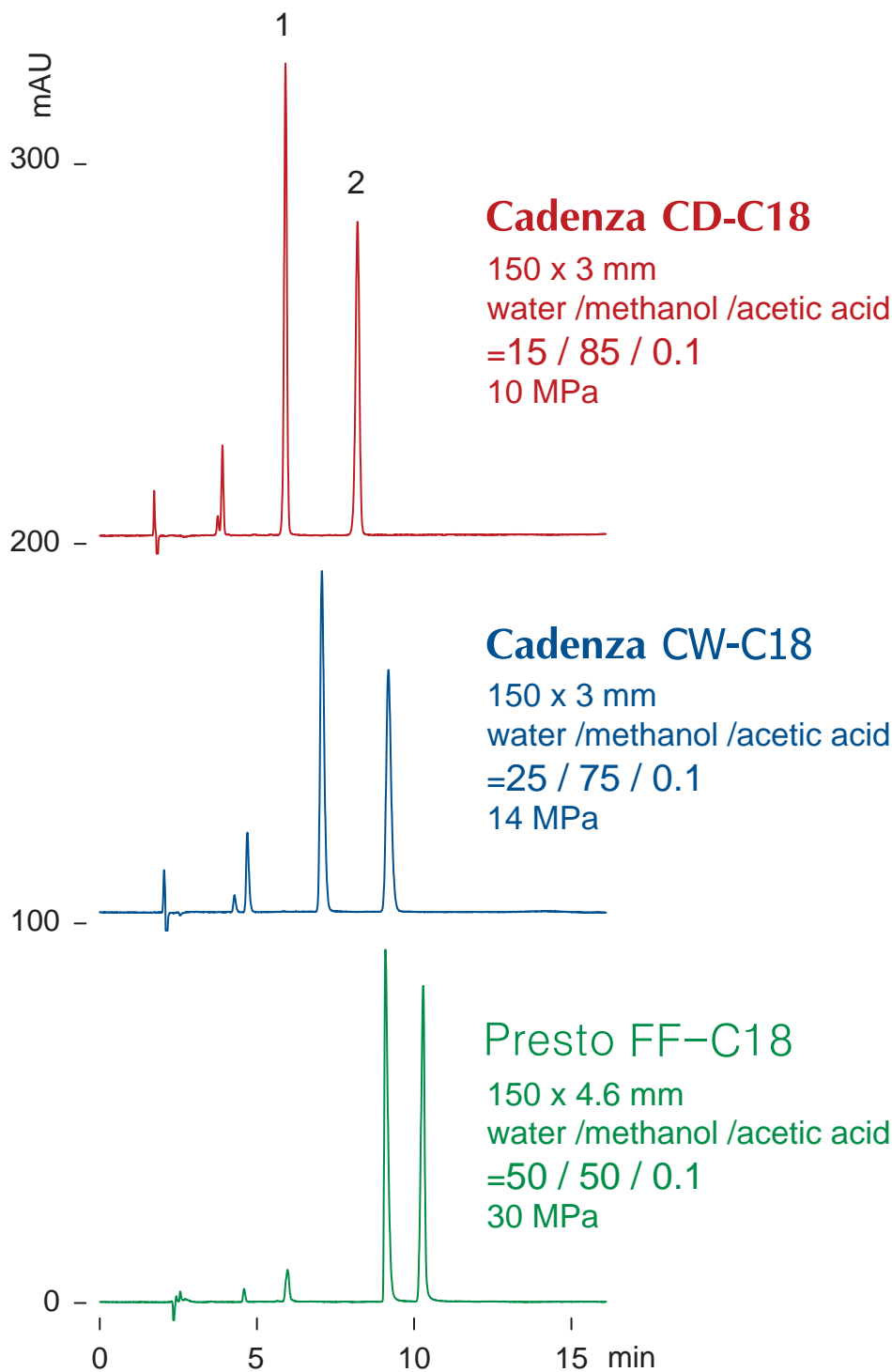
0.4 mL/min (5-6 MPa), 37 deg.C, 220 nm, 1.5 uL (0.75 ug, methanol)

Cadenza CD-C18
Cadenza CW-C18
Presto FF-C18

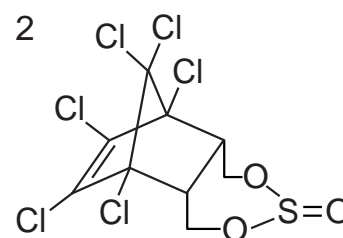
150 x 4.6 mm
 150 x 3 mm

Application

Endosulfan isomers
 エンドスルファン異性体

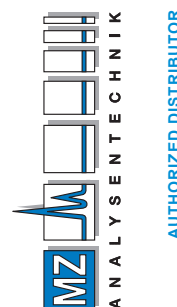


beta-endosulfan



alpha-endosulfan

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0.4 mL/min, 37 deg.C, 220 nm, 1.5 uL (0.75 ug, methanol)