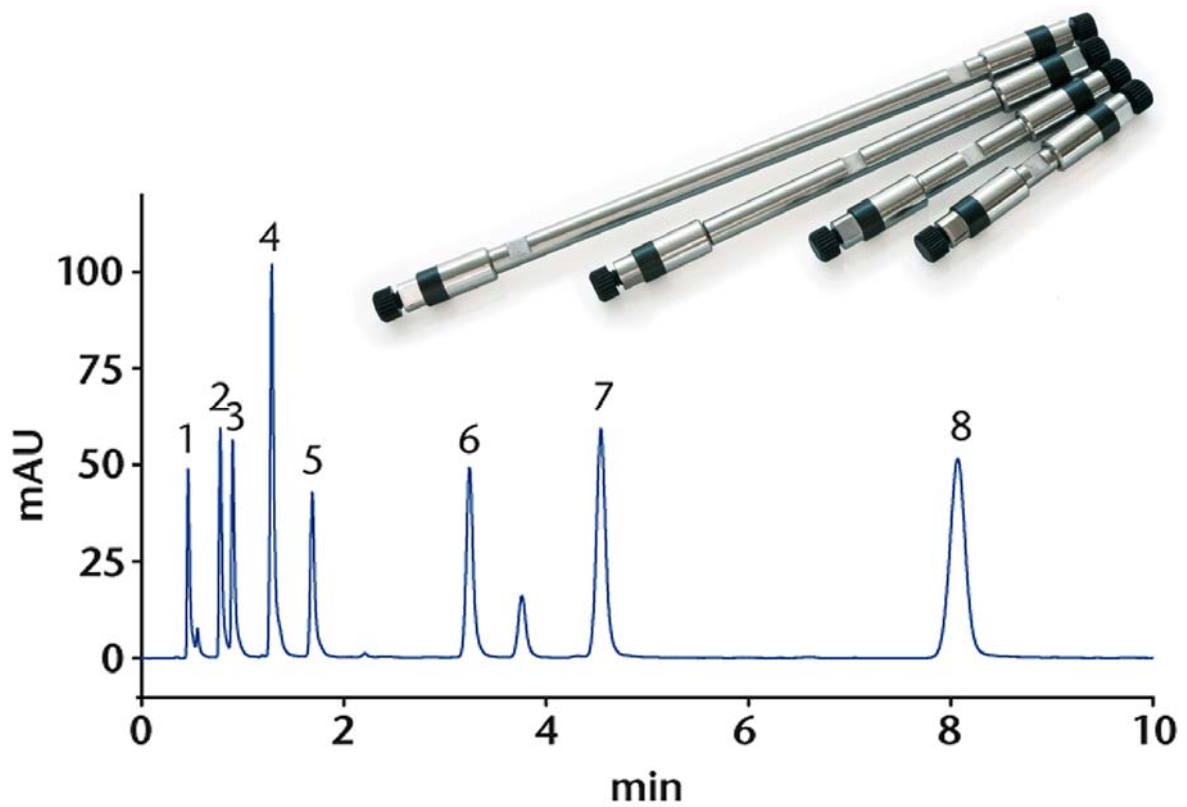


Applications Journal

V01/2011



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This **Applications Journal** was designed to provide you with detailed information on the chromatographic conditions used with a variety of HPLC applications. With our extensive line of HPLC products and expert technical service we are positioned to fulfill all of your separation needs.

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info@knauer.net
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Environmental Applications

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1 Determination of multiple Additives in cosmetics

Method

HPLC **RP Mode**
Sample cosmetics

Column: Eurospher 100-5 C18, 250 x 4.0 mm ID

Order No. 25DE181ESJ

Phase: Eurospher 100-5 C18

Conditions: Eluent: Methanol / Water (35:65), adjusted to pH 2.5 with Phosphoric acid
 Gradient: 26 min linear gradient to Methanol / Phosphoric acid (1000:1)
 12 min final elution
 Flow rate: 1.0 ml/min
 Temperature: ambient
 Volume: 20 µl (50 µg/ml of each component)

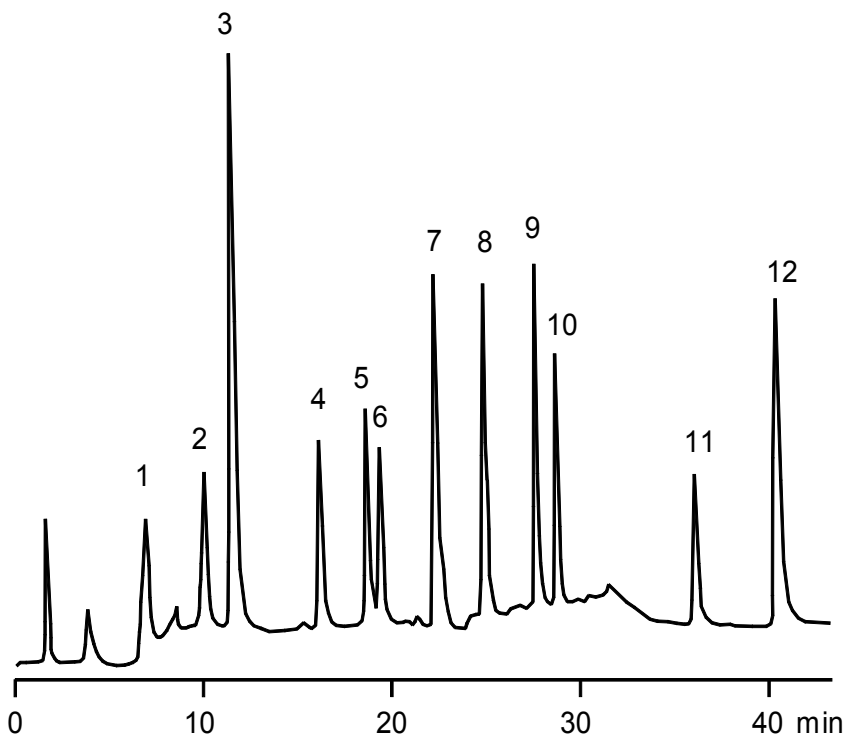
Detection: UV at variable wavelengths (205 nm, 230 nm, 255 nm, 285 nm)

Substances: Benzyl nicotinate, Butyl p-hydroxybenzoate, 2,6-Di-tert.-butyl-4-methylphenol, 4-Isopropyl-3-methylphenol, Methyl p-hydroxybenzoate, Monoammonium glycyrrhizinate, Pantothenylethylether, Pyridoxine dioctanoate, Salicylic acid, Stearyl glycyrrhetinate, Trichlorocarbanilide, Tocopheryl acetate

Keywords: Additives, , cosmetics

Chromatogram:

1. Pantothenyl ethyl
2. Methyl p-hydroxybenzoate
3. Salicylic acid
4. Benzyl nicotinate
5. 4-Isopropyl-3-methylphenol
6. Butyl p-hydroxybenzoate
7. Monoammonium glycyrrhizinate
8. Trichlorocarbanilide
9. 2,6-Di-tert.-butyl-4-methylphenol
10. Pyridoxine dioctanoate
11. Tocopheryl acetate
12. Stearyl glycyrrhetinate



2 Determination of Aldehydes and Ketones as DNPH derivatives

Method

HPLC **RP Mode**
Sample Collection on a DNPH coated solid phase cartridge, elution with methanol

Column: Eurospher 100-5 C18, 250 x 4.0 mm ID **Order No. 25DE181ESJ**

Phase: Eurospher 100-5 C18

Conditions: Eluent: Methanol / Water (84:16)
 Gradient: isocratic
 Flow rate: 0.7 ml/min
 Temperature: 30 °C
 Volume: 10 µl

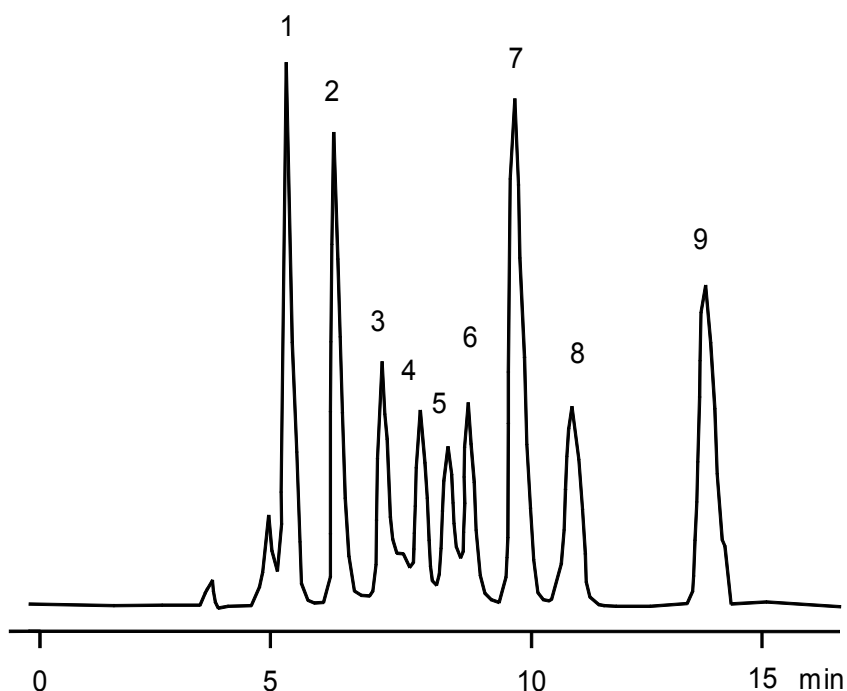
Detection: UV at 365 nm

Substances: DNPH derivatives of Formaldehyde, Acetaldehyde, Acrolein, Propionaldehyde, Acetone, Butyraldehyde, Methacrolein, Methyl ethyl ketone, Pentanone, Cyclohexanone

Keywords: Aldehydes, Carbonyl compounds, Ketones, DNPH-Derivatives

Chromatogram:

1. DNPH
2. Formaldehyde
3. Acetaldehyde
4. Acrolein
5. Propionaldehyde
6. Acetone
7. n-Butyraldehyde and Methacrolein
8. Methyl ethyl ketone
9. 2-Pentanone and Cyclohexanone



3 Separation of Alkyl Acetates

New!

Method

HPLC RP Mode

Column: Eurospher II 100-3 C18, 150 x 3.0 mm ID

Order No. 10CE181E2G

Phase: Eurospher II 100-3 C18

Conditions: Eluent: Methanol / Water 60:40 (v/v)
 Gradient: isocratic
 Flow rate: 0.35 ml/min
 Temperature: 25 °C
 Volume: 5 µl

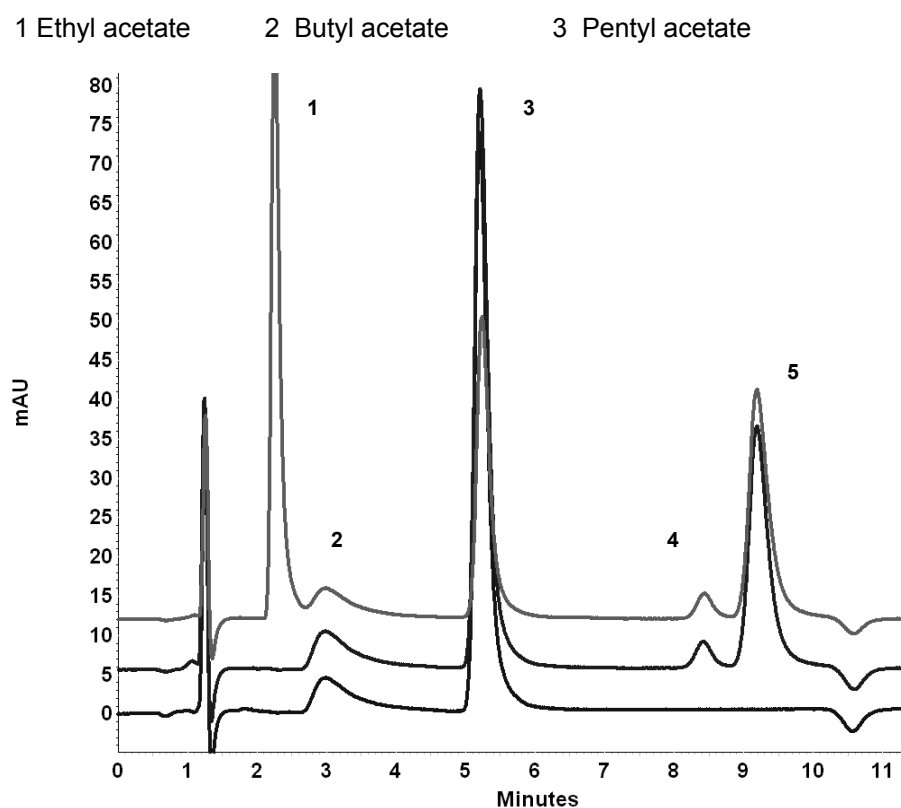
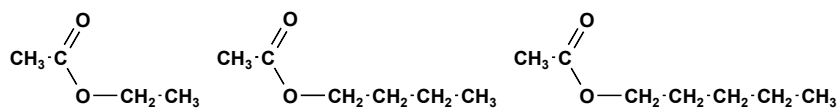
Detection: UV at 210 nm

Substances: Ethyl acetate, Butyl acetate, Pentyl acetate

Keywords: Alkyl acetates,

Chromatogram:

- 1 Ethyl acetate
- 2 Impurity A
- 3 Butyl acetate
- 4 Impurity B
- 5 Pentyl acetate



6 Anion determination according to U.S. EPA Method 300.0 / 317.0 and 326.0 with suppressed conductivity

Method

HPLC Ion exchange

Column: Novosep A-2 Anion 5 µm, 250 x 4.0 mm ID

Order No. B92

Phase: Novosep A-2 Anion

Conditions: Eluent: 3.6 mM Sodium Carbonate (Na₂CO₃)
Gradient: isocratic
Flow rate: 0.8 ml/min
Temperature: 45 °C
Volume: 50 µl (Chromatogram for a mixture of anions with concentration of 0.25 ppm)

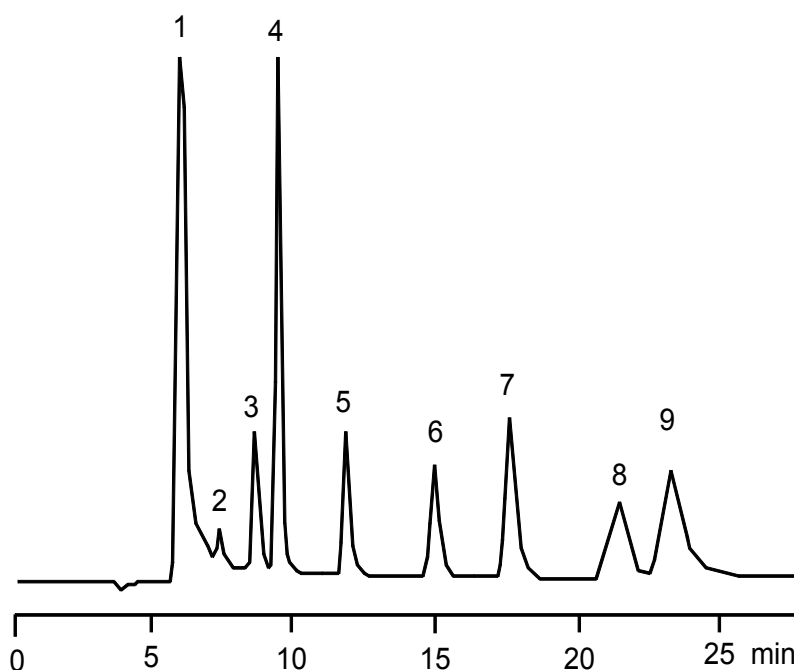
Detection: suppressed Conductivity, Range 0.5 µS

Substances: Fluoride, Bromate, Chloride, Nitrite, Bromide, Nitrate, Phosphate, Sulfate

Keywords: Anions , Ion chromatography

Chromatogram:

1. Fluoride
2. n.n.
3. Bromate
4. Chloride
5. Nitrite
6. Bromide
7. Nitrate
8. Phosphate
9. Sulfate



9 Determination of monovalent Cations

Method

HPLC Ion exchange

Column: PRP-X 200, 150 x 4.1 mm ID
with precolumn

Order No. B89

Phase: PRP-X 200, cation exchange resin

Conditions: Eluent: 4 mM Nitric acid in 30% MeOH
Gradient: isocratic
Flow rate: 1.7 ml/min
Temperature: 35 °C
Volume: 20 µl

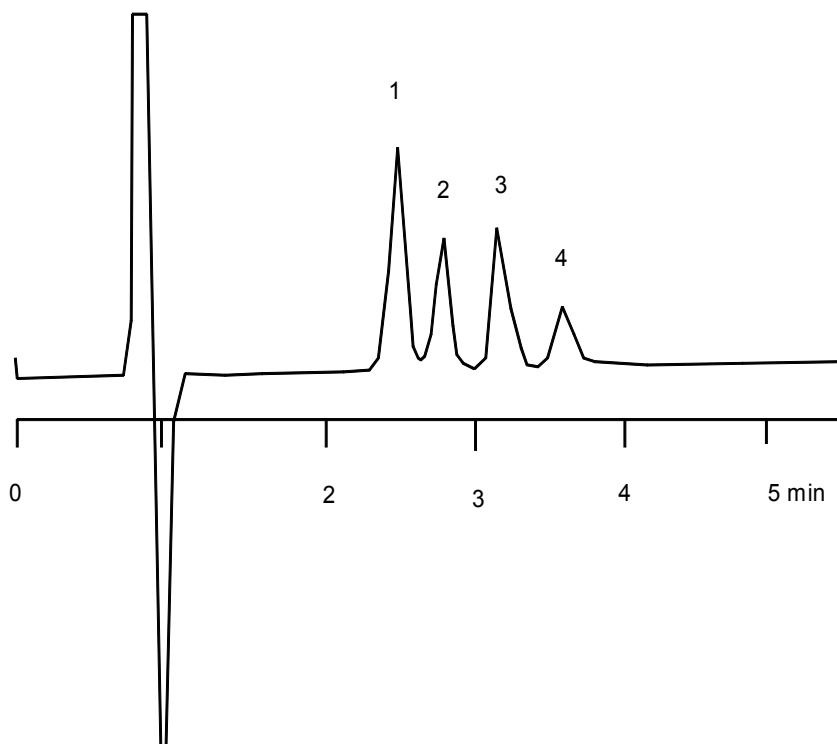
Detection: Conductivity (negative Polarity)

Substances: Ammonia, Lithium, Potassium, Sodium

Keywords: Cations , monovalent, Ion chromatography

Chromatogram:

1. Lithium (5.0 ppm)
2. Sodium (10.0 ppm)
3. Ammonium (10.0 ppm)
4. Potassium (10.0 ppm)



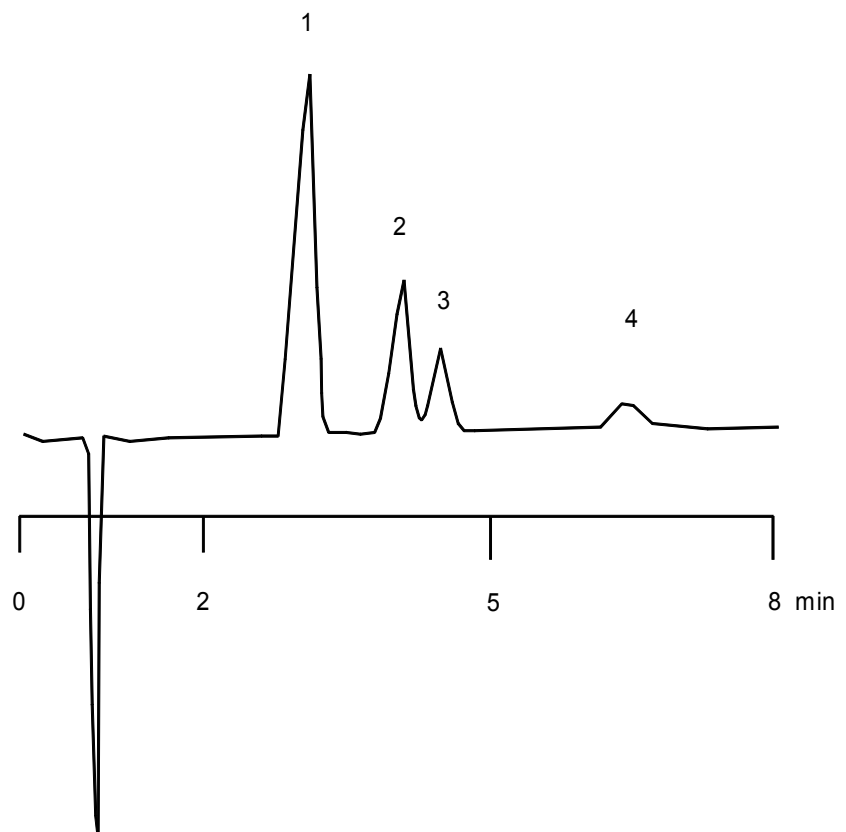
10 Determination of bivalent Cations

Method

HPLC Ion exchange

Column: PRP-X 200, 150 x 4.1 mm ID
with precolumn**Order No. B89****Phase:** PRP-X 200, cation exchange resin**Conditions:** Eluent: 1.5 mM Ethylene Diammonium Dichloride
Gradient: isocratic
Flow rate: 2.0 ml/min
Temperature: 35 °C
Volume: 10 µl**Detection:** Conductivity (negative Polarity)**Substances:** Barium, Calcium, Magnesium, Strontium**Keywords:** Cations, bivalent, Ion chromatography, Ion chromatography**Chromatogram:**

1. Magnesium (20.0 ppm)
2. Calcium (20.0 ppm)
3. Strontium (20.0 ppm)
4. Barium (20.0 ppm)



11 Fast Separation of DMSO and NHS

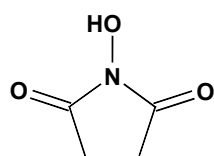
New!

Method HPLC

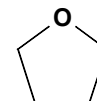
Column: Eurokat H, 10 µm, 30 x 8 mm**Order No.** 03GX340EKN**Phase:** Eurokat H, 10 µm**Conditions:** Eluent: A: 0.01 N Sulfuric acid
Flow rate: 1.5 ml/min
Temperature: 75 °C
Volume: 10 µl**Detection:** RI**Substances:** Dimethylsulfoxide, N-Hydroxysuccinimide**Keywords:** Organic solvents , Eurokat H

Chromatogram:

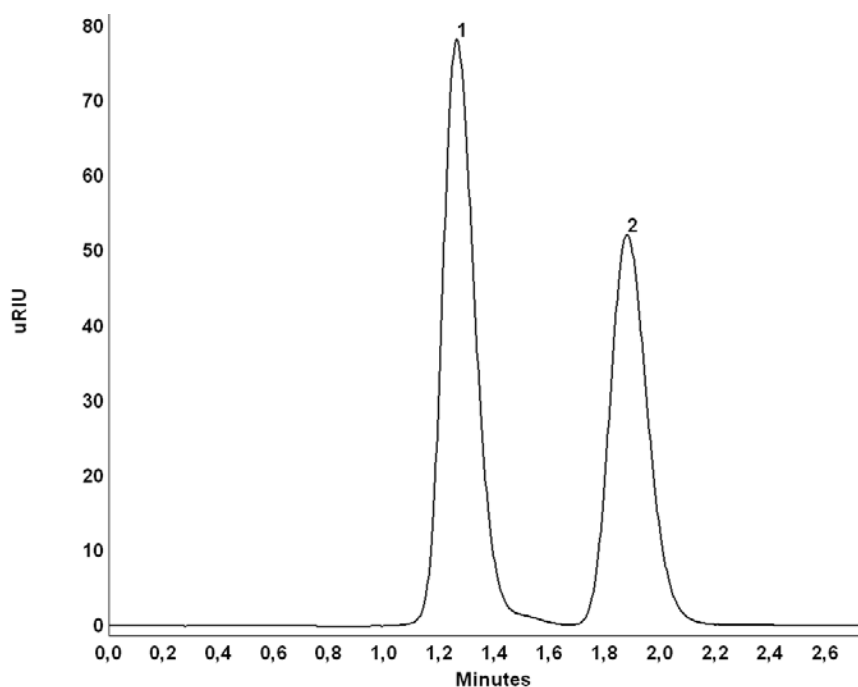
- 1 N-Hydroxysuccinimide
- 2 Dimethylsulfoxide



N-Hydroxysuccinimide



Dimethylsulfoxide



12 Separation of DNPH Aldehydes

New!

Method

HPLC RP Mode

Column: Eurospher II 100-3 C18A, 100 x 3 mm ID

Order No. 10CE184E2G

Phase: Eurospher II 100-3 C18A

Conditions: Eluent: A: Water B: Acetonitrile
 Gradient: 0 – 4.5 min 40 % - 55 % B
 4.5 – 10.1 min 55 % B - 100 % B
 10.1 – 11.3 min 100 % B
 Flow rate: 0.8 ml/min
 Temperature: 40 °C
 Volume: 1 µl (20 ng /µl)

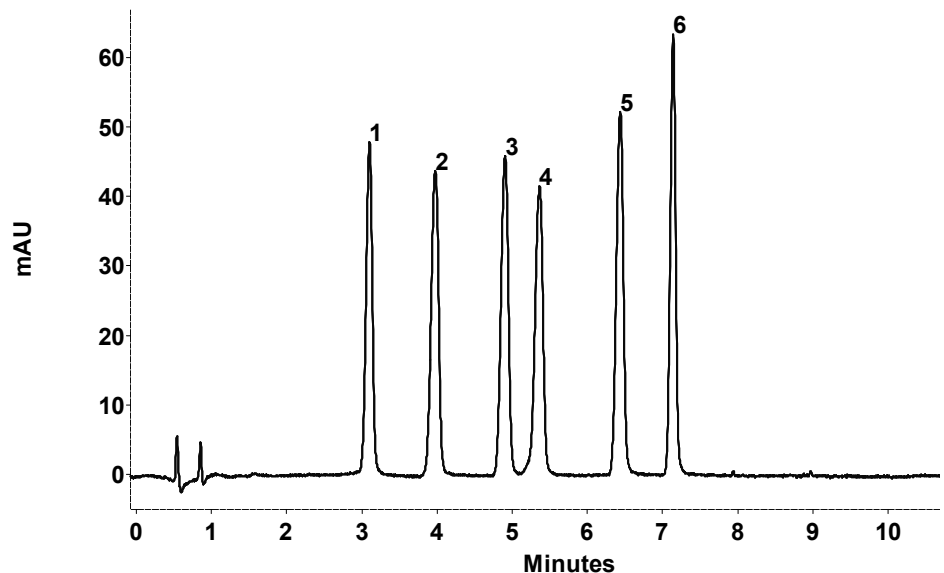
Detection: UV, 370 nm (10 mm cell, 5 Hz, 0.2 sec.)

Substances: Acetaldehyde, Acetone, Acrolein, Crotonaldehyde, Formaldehyde, Propionaldehyde

Keywords: DNPH, Aldehydes, VOC's , Air pollutants

Chromatogram:

- 1 Formaldehyde
- 2 Acetaldehyde
- 3 Acetone
- 4 Acroleine
- 5 Propionaldehyde
- 6 Crotonaldehyde



13 Separation of Engelhardt Mixture

Method
HPLC

RP Mode

Column: Eurospher II 100-5 C18, 150 x 2.0 mm ID

Order No. 15BE181E2J

Phase: Eurospher II 100-5 C18

Conditions: Eluent: A: Water
B: ACN
Gradient: 30% B – 90% B 0 - 20 min (2 min hold)
Flow rate: 0.2 ml/min
Temperature: 40 °C
Volume: 1 µl

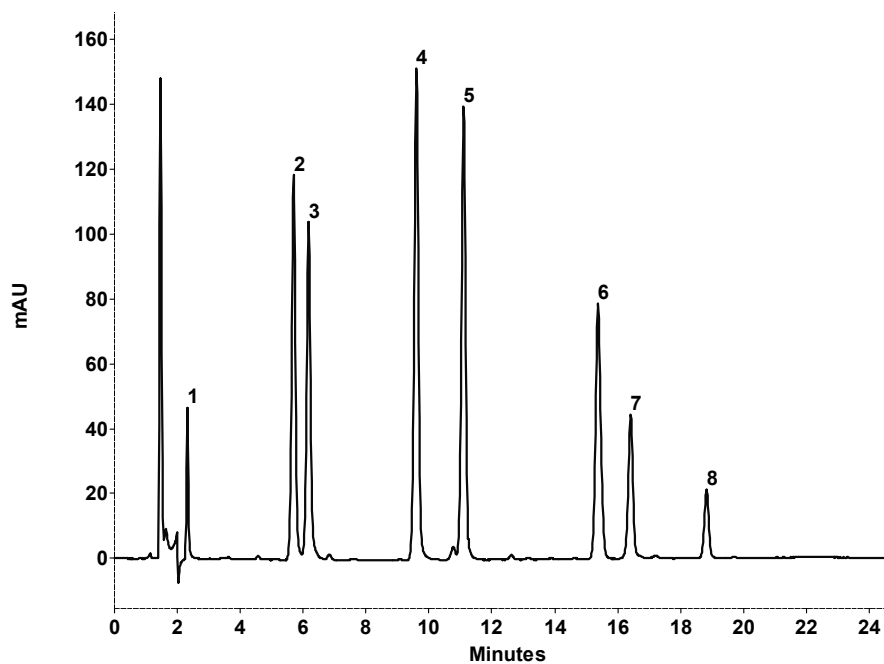
Detection: UV, 254 nm

Substances: Aniline, Benzoic acid ethylester, Ethylbenzene, p-Ethylaniline, N,N-Dimethylaniline, Phenol, Toluene, Uracil

Keywords: Engelhardt Mixture, Column Selectivity ,

Chromatogram:

- 1 Uracil
- 2 Aniline
- 3 Phenol
- 4 p-Ethylaniline
- 5 N,N-Dimethylaniline
- 6 Benzoic acid ethylester
- 7 Toluene
- 8 Ethylbenzene



14 Separation of Explosives

Method HPLC

RP Mode

Column: Ultra Sep ES EX, 250 x 3.0 mm ID

Order No. I0034

Phase: Ultra Sep ES EX

Conditions:

Eluent:	A: Methanol B: Water
Gradient:	0 – 40 min 25% - 60% A 5 min hold, equilibrate column 5 min with 25% A for next injection
Flow rate:	0.8 ml/min
Temperature:	40 °C
Volume:	10 µl

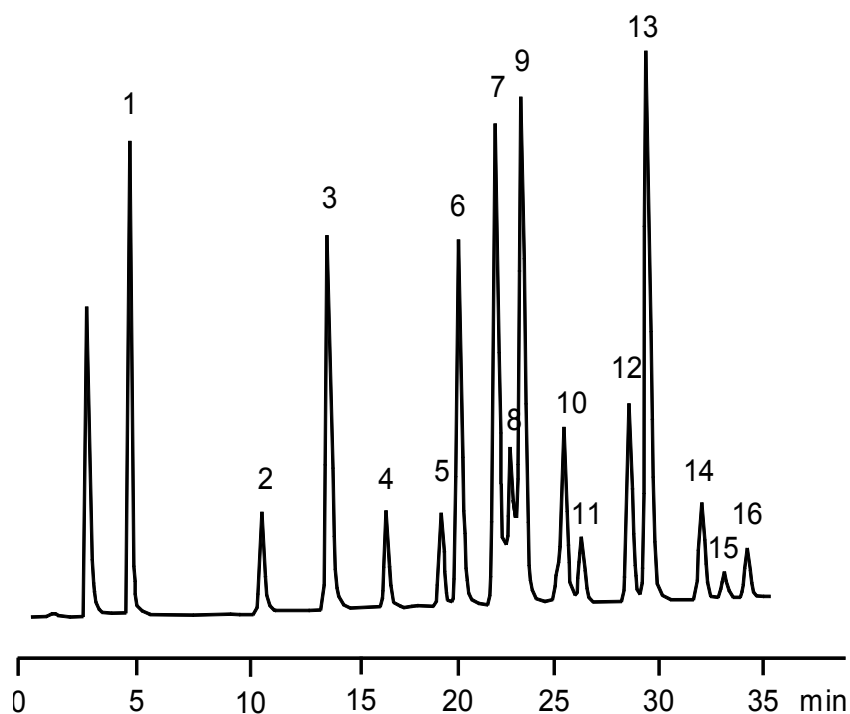
Detection: UV at 235 nm

Substances: 2-Amino-4,6-dinitrotoluene, 4-Amino-2,6-dinitrotoluene, 2-Amino-4-nitrotoluene, 2-Amino-6-nitrotoluene, 1,3-Dinitrobenzene, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, Hexogen, Nitrobenzene, 2-Nitrotoluene, 4-Nitrotoluene, 3-Nitrotoluene, Octogen, Tetryl

Keywords: Explosives, Environmental , EPA 8330

Chromatogram:

1. Octogen
2. Hexogen
3. 1,3,5-Trinitrobenzene
4. 2-Amino-6-nitrotoluene
5. 2-Amino-4-nitrotoluene
6. 1,3-Dinitrobenzene
7. Tetryl
8. Nitrobenzene
9. 2,4,6-Trinitrotoluene
10. 4-Amino-2,6-dinitrotoluene
11. 2-Amino-4,6-dinitrotoluene
12. 2,6-Dinitrotoluene
13. 2,4-Dinitrotoluene
14. 2-Nitrotoluene
15. 4-Nitrotoluene
16. 3-Nitrotoluene



15 Biomonitoring of Hydroxypyrene

Method

HPLC

RP Mode

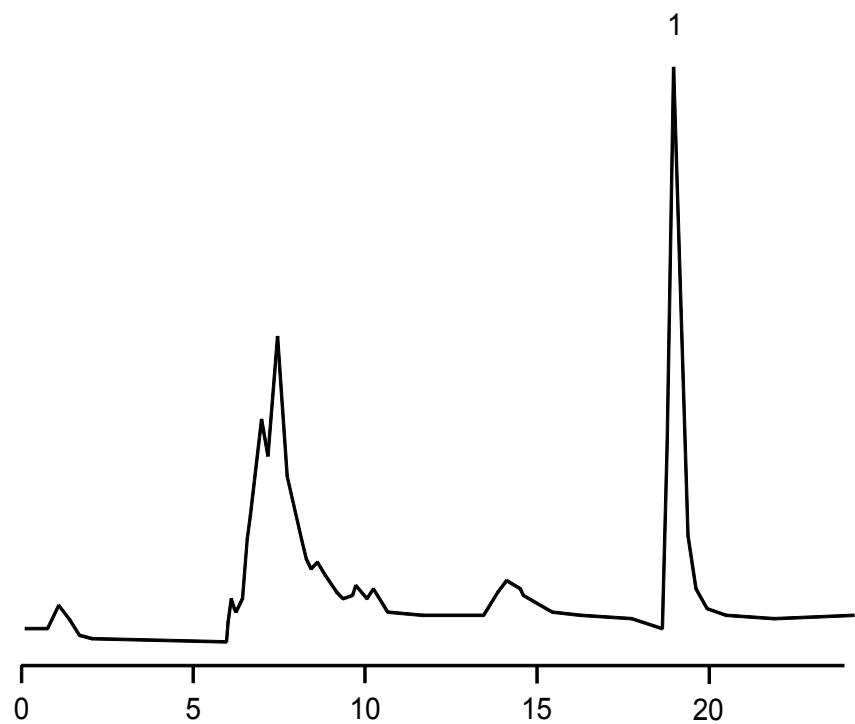
Column: Eurospher 100-5 C18, 250 x 4.0 mm ID**Order No.** 25DE181ESJ**Phase:** Eurospher 100-5 C18

Conditions: Eluent: A: Acetonitrile
B: Water
Gradient: 0 – 28 min 60% - 100% A
5 min hold, equilibrate column 10 min with 60% A for next injection
Flow rate: 1.0 ml/min
Temperature: 30 °C
Volume: 10 µl

Detection: Fluorescence: excitation 242 nm, emission 388 nm**Substances:** Hydroxypyrene (Biomarker of PAH contamination)**Keywords:** Hydroxypyrene , Biomarker , PAH Contamination

Chromatogram:

1. Hydroxypyrene



16 Determination of Ketones as DNPH Derivates

Method HPLC

RP Mode

Column: ProntoSIL 120-3 C18 AQ, 250 x 3.0 mm ID

Order No. 15DF080PSJ

Phase: ProntoSIL 120-3 C18 AQ

Conditions:

Eluent:	A: Water
	B: Acetonitrile
Gradient:	0 – 18 min 10 – 100% B
Flow rate:	0.35 ml/min
Temperature:	30 °C
Volume:	2 µl

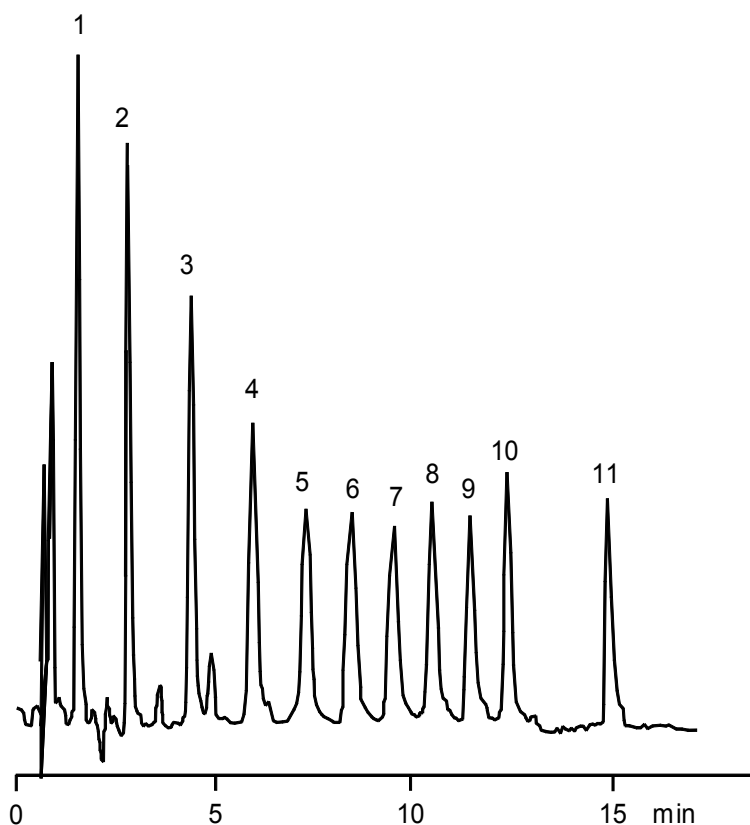
Detection: UV at 270 nm

Substances: DNPH derivates of Formaldehyde, Acetaldehyde, Acrolein, Propionaldehyde, Acetone, Butyraldehyde, Methacrolein, Methyl ethyl ketone, Pentanone, Cyclohexanone

Keywords: Aldehydes, Ketones , Carbonyl compounds, VOC's , Air pollutants

Chromatogram:

1. Tetramethylketone
2. 2-Pentanone
3. 2-Hexanone
4. 2-Heptanone
5. 2-Octanone
6. 2-Nonanone
7. 2-Decanone
8. 2-Undecanone
9. 2-Dodecanone
10. 2-Tridecanone
11. 2-Hexadecanone



17 Determination of aromatic Hydrocarbon types in middle distillates acc. to prEN 12916:2006

Method

HPLC **NP Mode**
Sample Dilution with n-heptane
Preparation:

Column: Ultrasep ES AP 5 µm, 250 x 4.0 mm ID **Order No.** **25DE450USJ**

Phase: Ultrasep ES AP 5 µm

Conditions: Eluent: n-Heptane (dried with molecular sieve)
 Gradient: isocratic
 Flow rate: 0.5 ml/min
 Temperature: 25 °C
 Volume: 10 µl

Detection: Refractive Index (RI)

Substances: MAH: phenyldodecane; 1,2 dimethylbenzene; hexamethylbenzene
 DAH: naphthalene, fluorene
 T-AH: dibenzothiophene; phenanthrene, 9-methylantracene

Keywords: MAH (Mono-aromatic compounds); DAH (Di-aromatic compounds);
 T+AH (Tri+-aromatic compounds), middle distillates

Chromatogram:

Retention time standard

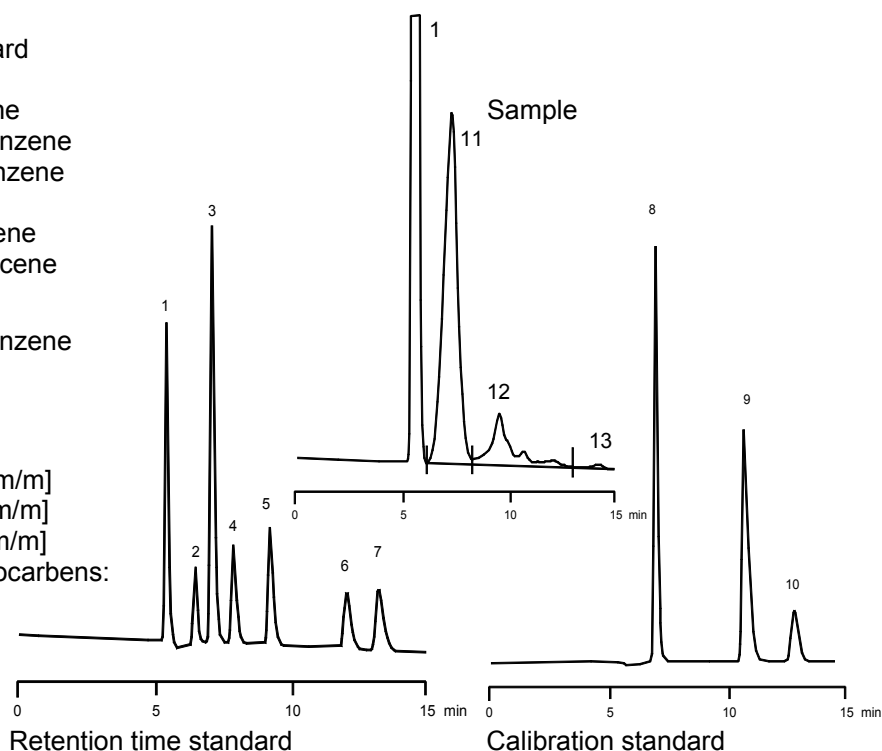
1. Cyclohexane
2. Phenyldodecane
3. 1,2 Dimethylbenzene
4. Hexamethylbenzene
5. Naphthalene
6. Dibenzothiophene
7. 9-Methylantracene

Calibration standard

8. 1,2 Dimethylbenzene
9. Fluorene
10. Phenanthrene

Sample

11. MAH 20.14% [m/m]
 12. DAH 2.33% [m/m]
 13. T+AH 0.11% [m/m]
- Total aromatic hydrocarbens:
22.59 % [m/m]



18 Analysis of Nitro Polycyclic Aromatic Hydrocarbons

Method HPLC

RP Mode

Column: ProntoSIL 120-3 Phenyl, 125 x 4.0 mm ID

Order No. 12DF050PSG

Phase: ProntoSIL 120-3 Phenyl

Conditions:

Eluent:	A: Methanol / Water (60:40)
	B: Methanol
Gradient:	0 – 13 min 100% A
	13 – 42 min 100 – 0% A
Flow rate:	0.8 ml/min
Temperature:	25 °C
Volume:	2 µl

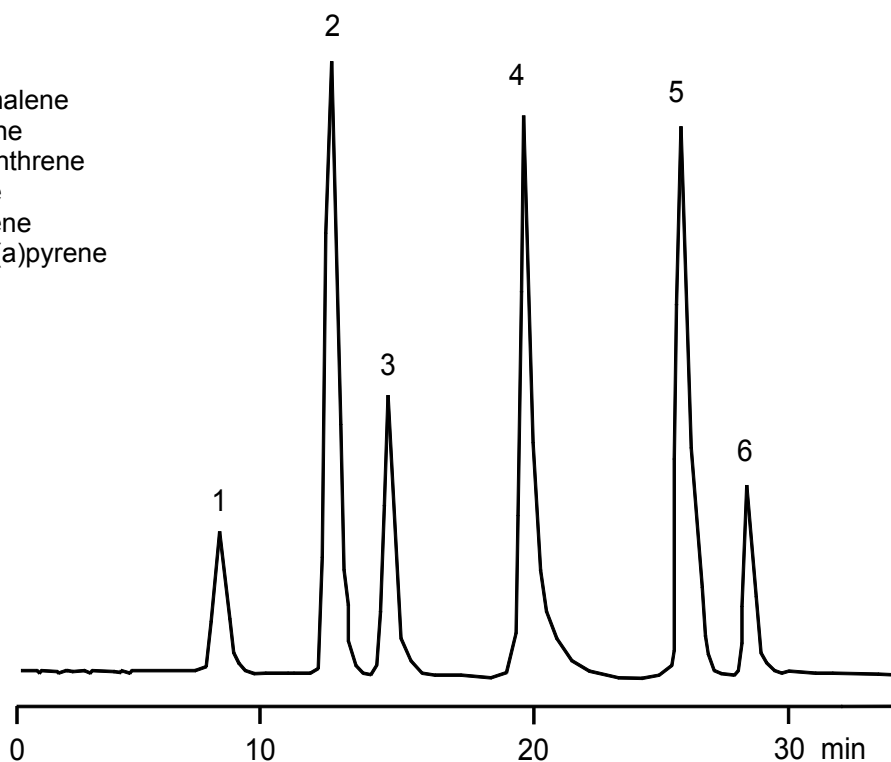
Detection: Fluorescence (wavelength program)

Substances: 2-Nitro-Naphthalene, 2-Nitro-Fluorene, 9-Nitro-Phenanthrene, 1-Nitro-Pyrene, 6-Nitro-Chrysene, 6-Nitro-Benzo(a)pyrene

Keywords: Nitro-PAH, Air pollutants, , , Aromatic compounds

Chromatogram:

1. Nitro-Naphthalene
2. Nitro-Fluorene
3. Nitro-Phenanthrene
4. Nitro-Pyrene
5. Nitro-Chrysene
6. Nitro-Benzo(a)pyrene



19 Separation of ortho-, nitro- para Nitroaniline

Method HPLC

NP Mode

Column: Eurospher 100-5 Si, 120 x 4.0 mm ID

Order No. 11DE000ESJ

Phase: Eurospher 100-5 Si

Conditions: Eluent: A: Heptan
B: Ethanol
Gradient: isocratic (85 % A / 15 % B)
Flow rate: 1.0 ml/min
Temperature: 30 °C
Volume: 10 µl

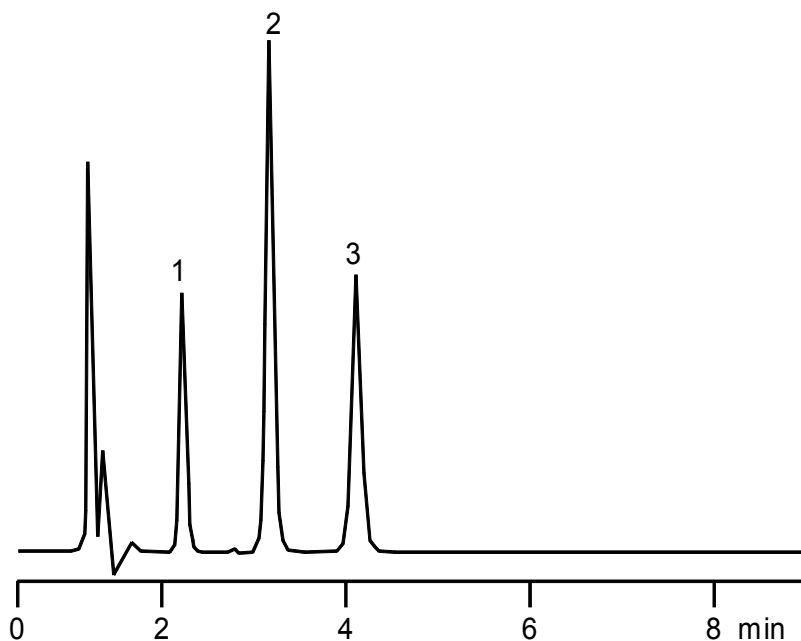
Detection: UV at 225 nm

Substances: 2-Nitroaniline, 3-Nitroaniline, 4-Nitroaniline

Keywords: Nitroaniline, Aromatic compounds

Chromatogram:

1. 2-Nitroaniline
2. 3-Nitroaniline
3. 4-Nitroaniline



20 Fast Separation of organic solvents

Method

HPLC ionic

Column: Eurokat H, 10 µm, 120 x 8 mm

Order No. 11GX340EKN

Phase: Eurokat H, 10 µm

Conditions: Eluent: A: 0.01 N Sulfuric acid
 Flow rate: 1.5 ml/min
 Temperature: 75 °C
 Volume: 10 µl

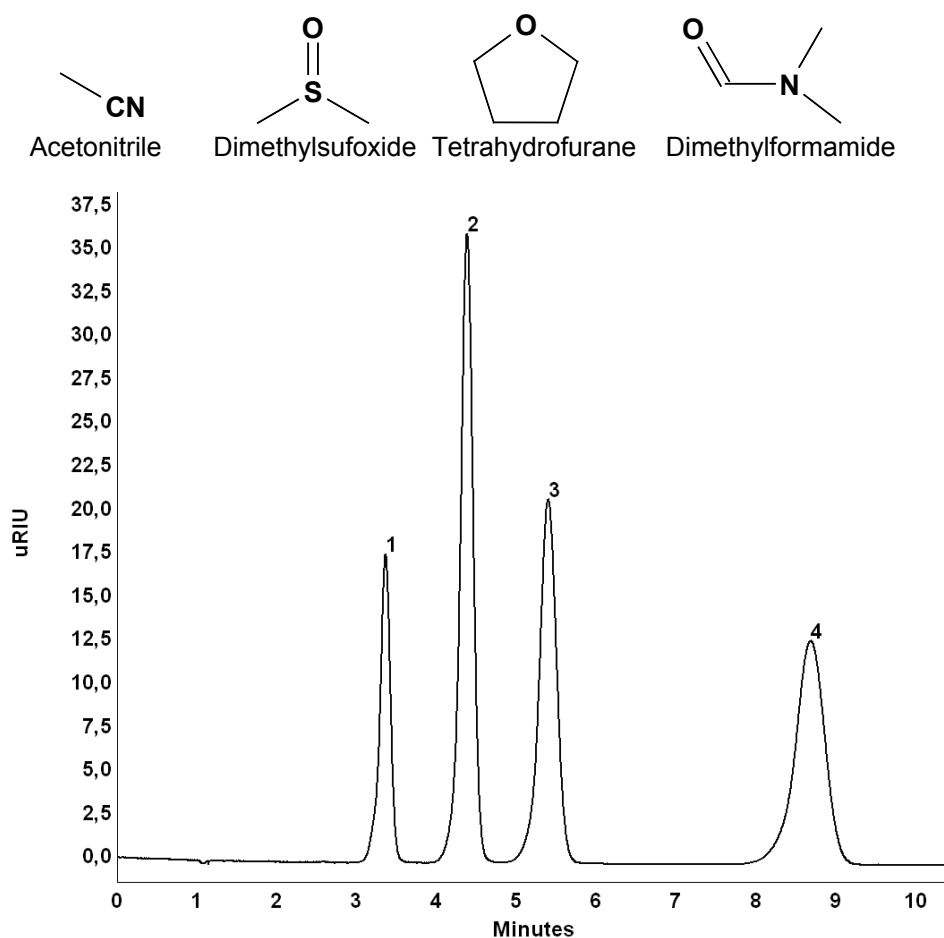
Detection: RI

Substances: Acetonitrile, Dimethylsulfoxide, Tetrahydrofurane, Dimethylformamide

Keywords: Organic solvents, Eurokat H

Chromatogram:

- 1 Acetonitrile
- 2 Dimethylsulfoxide
- 3 Tetrahydrofurane
- 4 Dimethylformamide



21 Determination of PAH

Method

HPLC

RP Mode

Column: UltraSep ES PAH QC, 60 x 2.0 mm ID

Order No. I0019

Phase: UltraSep ES PAH QC

Conditions:

Eluent:	A: Water B: Acetonitrile
Gradient:	0 – 5 min 55% B 5 – 12 min 55% – 100% B 8 min hold
Flow rate:	0.7 ml/min
Temperature:	30 °C

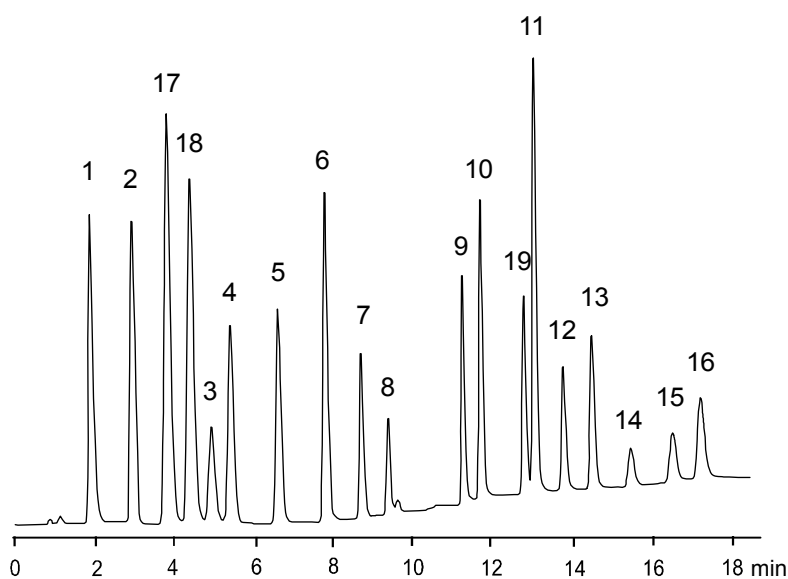
Detection: UV at 254 nm and/or Fluorescence (wavelength program)

Substances: Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyren, 1-Methylnaphthalene, 2-Methylnaphthalene, Benzo(e)pyrene

Keywords: Polycyclic aromatic hydrocarbons , Aromatic compounds

Chromatogram:

1. Naphthalene
2. Acenaphthylene
3. Acenaphthene
4. Fluorene
5. Phenanthrene
6. Anthracene
7. Fluoranthene
8. Pyrene
9. Benzo(a)anthracene
10. Chrysene
11. Benzo(b)fluoranthene
12. Benzo(k)fluoranthene
13. Benzo(a)pyrene
14. Dibenzo(a,h)anthracene
15. Benzo(g,h,i)perylene
16. Indeno(1,2,3-cd)pyrene
17. 1-Methylnaphthalene
18. 2-Methylnaphthalene
19. Benzo(e)pyrene



22 Separation of PAHs on a 2 mm ID column

Method

HPLC

RP Mode

Column:

Eurospher 100-3 C18, 250 x 2.0 mm ID

Order No. 25BE181ESG

Phase:

Eurospher 100-3 C18

Conditions:

Eluent: A: MeOH / Water (80:20)
 B: Acetonitrile / THF (93:7)

Gradient: 0 – 15 min 0 – 100% B
 15 – 20 min 100% B
 equilibrate column 10 min with 100 % A for next injection

Flow rate: 0.2 ml/min
 Temperature: 30 °C
 Volume: 5 µl

Detection:

Fluorescence, wavelength program (excitation / emission):
 1. 275/350 nm, 2. 260/390 nm, 3. 260/420 nm, 4. 290/430 nm, 5. 300/500 nm
 UV at 254 nm

Substances:

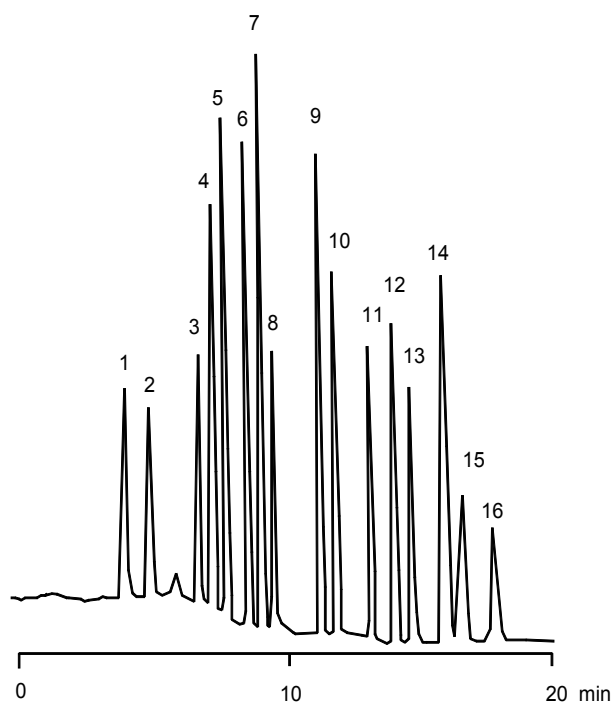
Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene

Keywords:

16 PAH's according to EPA (550.1 / 610 / 8310), Aromatic compounds

Chromatogram:

1. Naphthalene
2. Acenaphthylene
3. Acenaphthene
4. Fluorene
5. Phenanthrene
6. Anthracene
7. Fluoranthene
8. Pyrene
9. Benzo(a)anthracene
10. Chrysene
11. Benzo(b)fluoranthene
12. Benzo(k)fluoranthene
13. Benzo(a)pyrene
14. Dibenzo(a,h)anthracene
15. Benzo(g,h,i)perylene
16. Indeno(1,2,3-cd)pyrene



23 Separation of Parabens

Method
HPLC

RP Mode

Column: ProntoSIL 120-3 Phenyl, 125 x 4.0 mm ID

Order No. 12DF050PSG

Phase: ProntoSIL 120-3 Phenyl

Conditions: Eluent: 20 mM Potassium Hydrogen Phosphate (KHPO₄) / Acetonitrile (50:50)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 40 °C
Volume: 10 µl

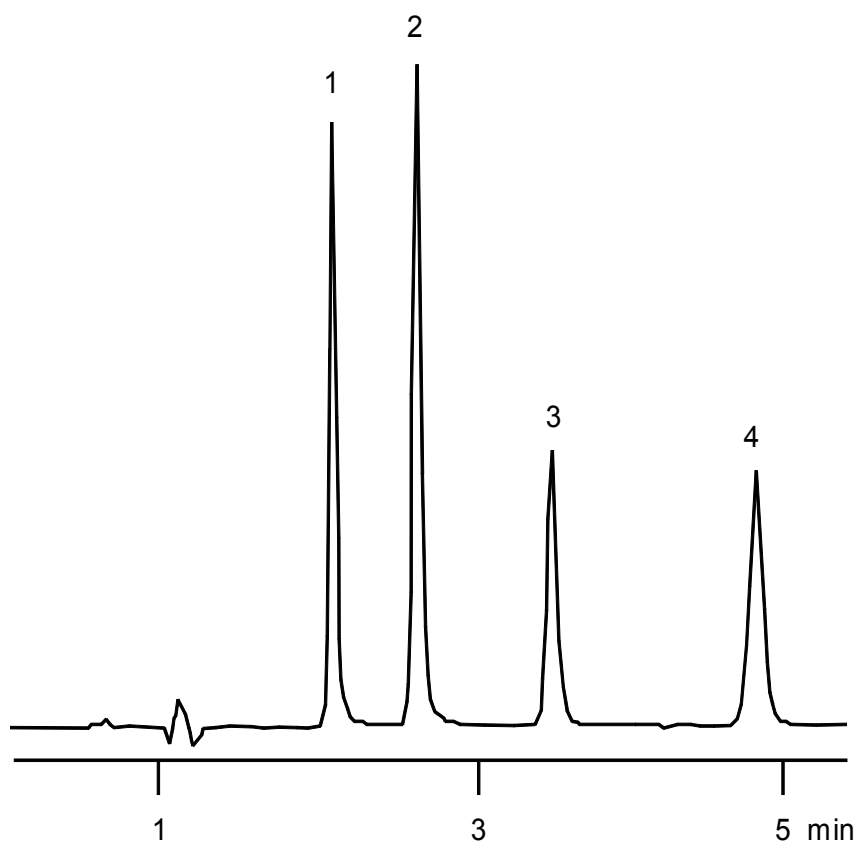
Detection: UV at 254 nm

Substances: Methylparabene, Ethylparabene, Propylparabene, Butylparabene

Keywords: Parabenes, Aromatic compounds

Chromatogram:

1. Methylparabene
2. Ethylparabene
3. Propylparabene
4. Butylparabene



24 Chromatographic determination of Pesticides

Method

HPLC

RP Mode

Column: UltraSep ES PEST, 250 x 3.0 mm ID

Order No. 10025

Phase: UltraSep ES PEST

Conditions:

Eluent:	A: ACN B: Water
Gradient:	0 – 5 min 20% - 26% A 5 – 24 min 26% - 30% A 24 – 36 min 30% - 60% A
Flow rate:	0.9 ml/min
Temperature:	30 °C
Volume:	10 µl

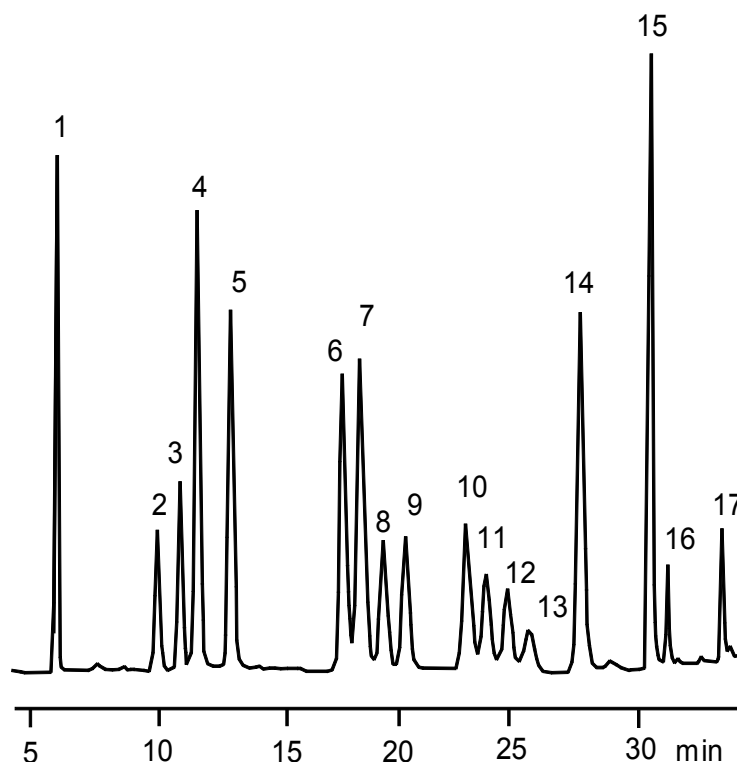
Detection: UV at 215 nm and 230 nm

Substances: Atrazine, Chlortoluron, Cyanazin, Desethylatrazin, Diuron, Hexazinon, Isoproturon, Linuron, Metoxuron, Methabenzthiazuron, Metolachlor, Metobromuron, Metazachlor, Monolinuron, Sebuthylazin, Simazin, Terbutylazine

Keywords: Pesticides

Chromatogram:

1. Desethylatrazin
2. Hexazinon
3. Metoxuron
4. Simazin
5. Cyanazin
6. Methabenzthiazuron
7. Atrazine
8. Chlortoluron
9. Monolinuron
10. Isoproturon
11. Metobromuron
12. Diuron
13. Metazachlor
14. Sebuthylazin
15. Terbutylazine
16. Linuron
17. Metolachlor



26 Dermination of Phenol in Phenolsulfonic acid

New!

Method

HPLC RP Mode

Column: Eurospher II 100-3 C18, 100 x 3 mm ID

Order No. 10CE181E2G

Phase: Eurospher II 100-3 C18

Conditions: Eluent: Methanol/Water 38:62 (v/v)
 Gradient: isocratic
 Flow rate: 0.5 ml/min
 Temperature: 25 °C
 Volume: 10 µl

Detection: UV, 254 nm (10 mm cell, 5 Hz, 0.2 sec.)

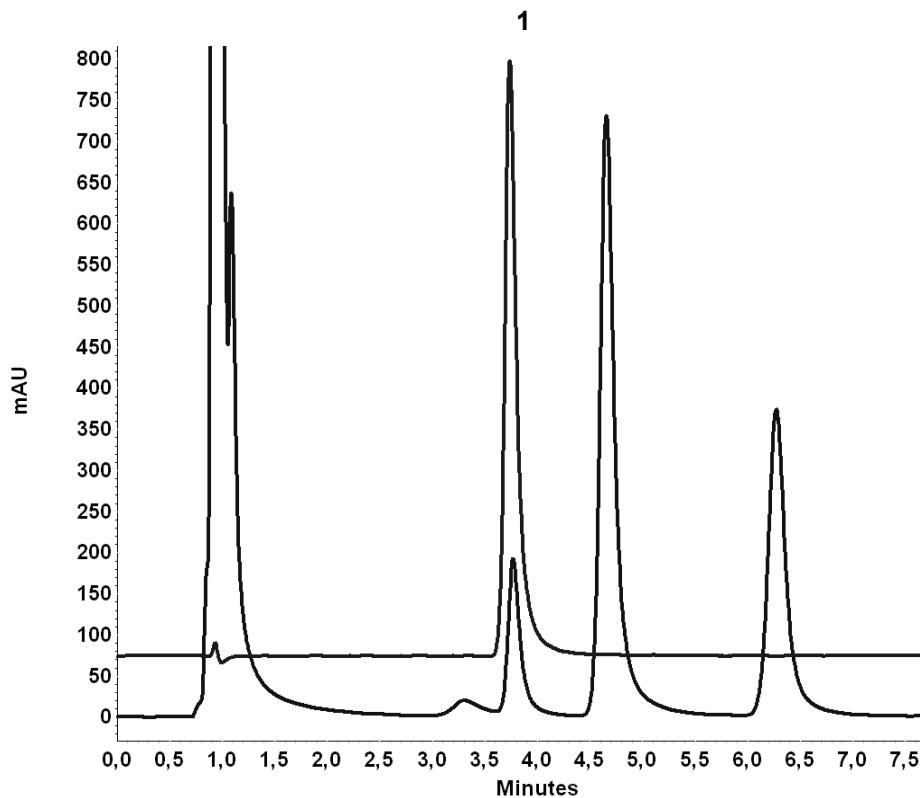
Substances: Phenol , Phenolsulfonic acid

Keywords: Phenol, Phenolsulfonic acid

Chromatogram:

Chromatogram of Phenolsulfonic acid product solution and Phenol standard solution

1. Phenol



27 Determination of Phenoxy acid herbicides

Method

HPLC

RP Mode

Column: UltraSep ES PHENOXYCARB, 250 x 2.0 mm ID

Order No. I0202

Phase: UltraSep ES PHENOXYCARB

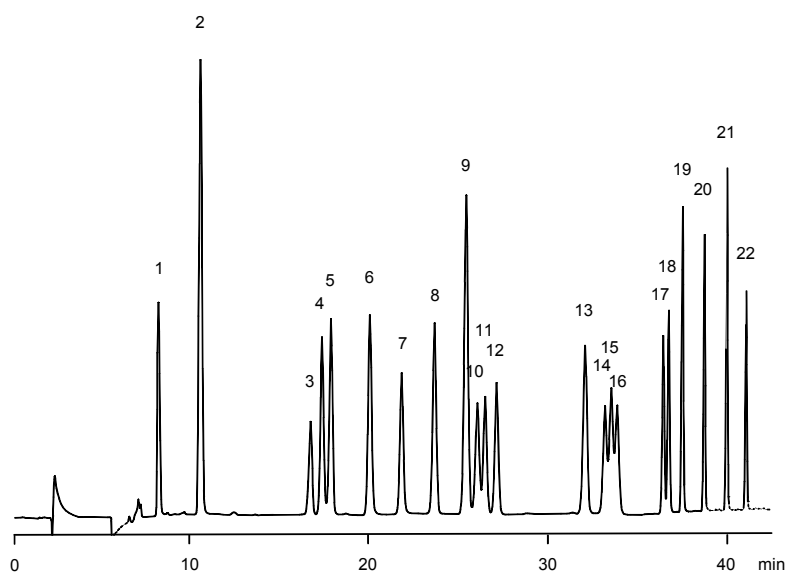
Conditions: Eluent: A: Water (TFA adj. pH 2.5)
B: Acetonitrile
Gradient: 0 – 2 min 0 - 20% B
2 – 30 min 20% - 35% B
30 – 45 min 35% -100% B; 5 min hold
Flow rate: 0.3 ml/min
Temperature: 60 °C

Detection: UV at 224 nm

Substances: Clopyralid; Quinmerac ; Nicosulfurone ; Dicamba; Fluroxypyr; Mesotrione; Sulcotrione; Bentazone; Bromoxynil; DNOC (4,6-Dinitro-o-cresol); 2,4-D (2,4-Dichlorophenoxy acetic acid); MCPA (4-Chloro-o-tolyloxy acetic acid); Ioxynil ; Dichlorprop; Mecoprop; 2,4,5-T (2,4,5-Trichlorophenoxy acetic acid); 2,4-DB (4-(2,4-Dichlorophenoxy)butyric acid); MCPB (4-(4-Chloro-o-tolyloxy)butyric acid); Fluazifop-p; Fenoxyprop-p; Haloxyfop; Dinoterb

Keywords: Phenoxy acid herbicides , Herbicides

1. Clopyralid
2. Quinmerac
3. Nicosulfurone
4. Dicamba
5. Fluroxypyr
6. Mesotrione
7. Sulcotrione
8. Bentazone
9. Bromoxynil
10. DNOC (4,6-Dinitro-o-cresol)
11. 2,4-D (2,4 -Dichlorophenoxy acetic acid)
12. MCPA (4-Chlor-o-tolyloxy acetic acid)
13. Ioxynil
14. Dichlorprop
15. Mecoprop
16. 2,4,5-T (2,4,5-Trichlorophenoxy acetic acid)
17. 2,4-DB (4-(2,4-Dichlorophenoxy)butyric acid)
18. MCPB (4-(4-Chlor-o-tolyloxy) butyric acid)
19. Fluazifop-p
20. Fenoxyprop-p
21. Haloxyfop
22. Dinoterb



28 Determination of Phthalates

New!
Method

HPLC

PR Mode

Column: Eurospher II 100-3 C18 H, 250 x 3.0 mm ID

Order No. 25CE185E2G

Phase: Eurospher II 100-3 C18 H

Conditions: Eluent: A: H₂O/Acetonitrile 15:85 (v/v) B: Acetonitrile
 Gradient: 0 – 3.0 min 0 % B
 3.0 – 6.5 min 0 % B – 100 % B
 6.5 – 19.5 min 100 % B
 Flow rate: 0.6 ml/min
 Temperature: 30 °C
 Volume: 2 µl

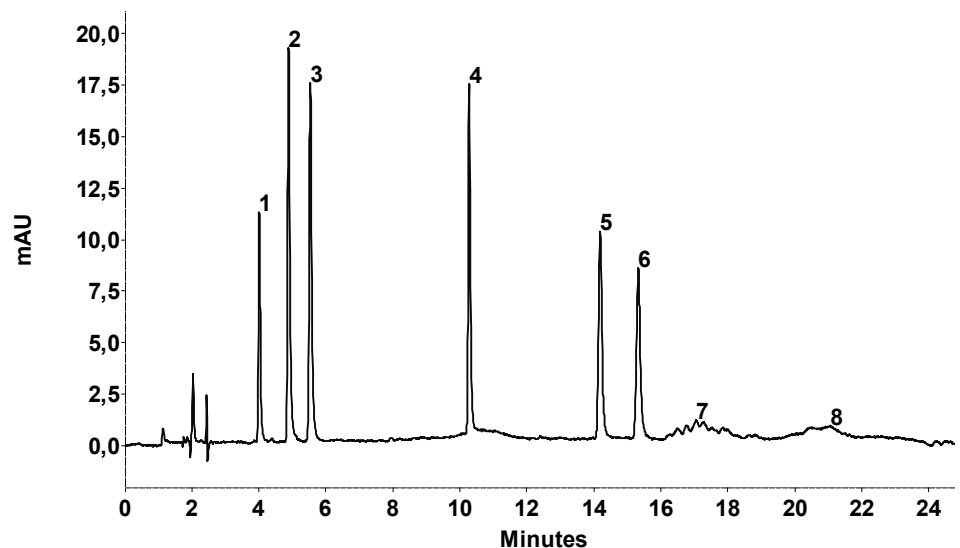
Detection: UV, 225 nm (10 mm cell, 5 Hz, 0.2 s)

Substances: BBP, Benzylbenzoate, DBP, DEHP, DHP, DIDP, DINP, DNOP

Keywords: Phthalates, Diluents, Plasticizers

Chromatogram:

- 1 Benzylbenzoate
- 2 BBP
- 3 DBP
- 4 DHP
- 5 DEHP
- 6 DNOP
- 7 DINP
- 8 DIDP



29 Determination of Priority Pollutant Phenols

Method HPLC

RP Mode

Column: Eurospher 100-5 C18, 125 x 4.0 mm ID

Order No. 12DE181ESJ

Phase: Eurospher 100-5 C18

Conditions: Eluent: A: MeOH + 1% Acetic acid
B: Water + 1% Acetic acid
Gradient: 0 – 9 min 30% - 40% A
9 – 16 min 40% - 100% A
6 min hold
Flow rate: 1.0 ml/min
Temperature: 40 °C
Volume: 5 µl

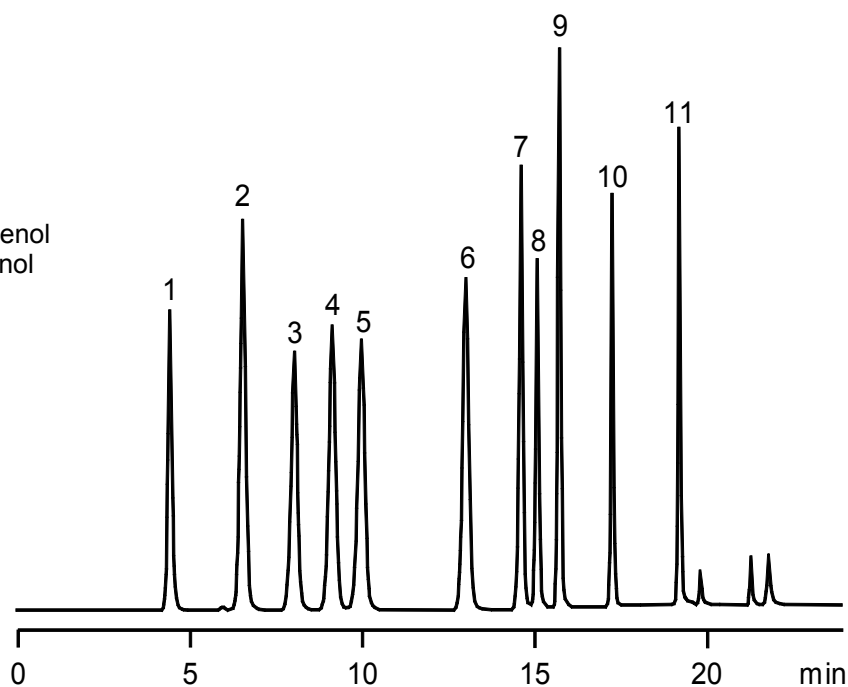
Detection: UV at 280 nm

Substances: 2-Chlorophenol, 4-Chloro-3-methylphenol, 2,4-Dichlorophenol, 2,3-Dimethylphenol, 2,4-Dinitrophenol, 2-Methyl-4,6-dinitrophenol, 2-Nitrophenol, 4-Nitrophenol, Pentachlorophenol, Phenol, 2,4,6-Trichlorophenol

Keywords: Phenols, Pollutants

Chromatogram:

1. Phenol
2. 4-Nitrophenol
3. 2,4-Dinitrophenol
4. 2-Chlorophenol
5. 2-Nitrophenol
6. 2,3-Dimethylphenol
7. 2-Methyl-4,6-dinitrophenol
8. 4-Chloro-3-methylphenol
9. 2,4-Dichlorophenol
10. 2,4,6-Trichlorophenol
11. Pentachlorophenol



30 Determination of non-ionic Surfactants using HPLC

Method
HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.0 mm ID

Order No. 25DE181ESJ

Phase: Eurospher 100-5 C18

Conditions: Eluent: MeOH / Water (90:10)
Gradient: isocratic
Flow rate: 1.5 ml/min
Temperature: 25 °C
Volume: 20 µl

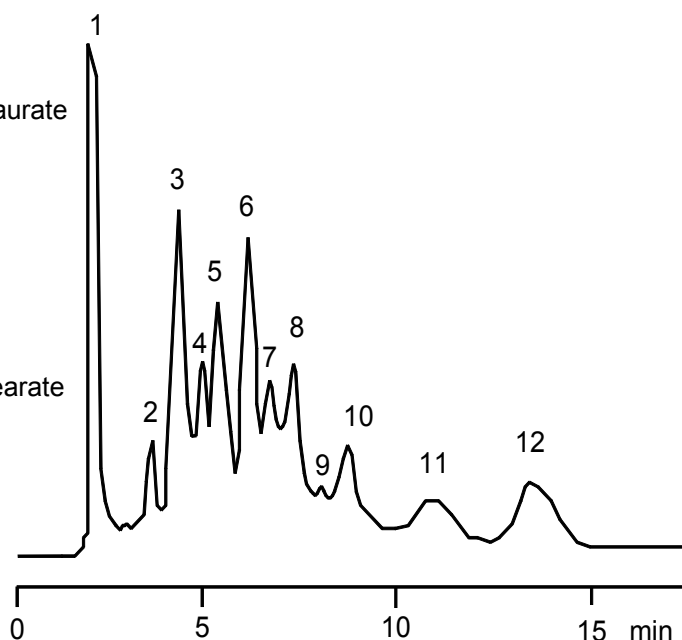
Detection: Refractive Index (RI)

Substances: Polyethylene glycol, Polyoxyethylene sorbitane monolaurate, Nonylphenol polyglycol ether, Lauryl alcohol, Lauryl alcohol polyglycol ether, Oleic acid diethanolamide, Oleic amide polyglycol ether, Myristyl alcohol, Myristyl alcohol polyglycol ether, Palmitic acid polyglycol ester, Polyoxyethylene glycerol monostearate, Stearic acid polyglycol ester

Keywords: Surfactants

Chromatogram:

1. Polyethylene glycols
2. Polyoxyethylene sorbitane monolaurate
3. Nonylphenol polyglycol ether
4. Lauryl alcohol
5. Lauryl alcohol polyglycol ether
6. Oleic acid diethanolamide
7. Oleic amide polyglycol ether
8. Myristyl alcohol
9. Myristyl alcohol polyglycol ether
10. Palmitic acid polyglycol ester
11. Polyoxyethylene glycerol monostearate
12. Stearic acid polyglycol ester.



31 Analysis of Surfactants in toothpastes by HPLC

Method HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.0 mm ID

Order No. 25DE181ESJ

Phase: Eurospher 100-5 C18

Conditions: Eluent: MeOH / Water (90:10) + 0.25 M NaClO₄
 Gradient: isocratic
 Flow rate: 1.5 ml/min
 Temperature: 25 °C
 Volume: 20 µl

Detection: Refractive Index (RI)

Substances: Sodium soap (C8 - C18),
 Sulpho fatty acid- α -methyl esters (C10 - C18)

Keywords: Surfactants

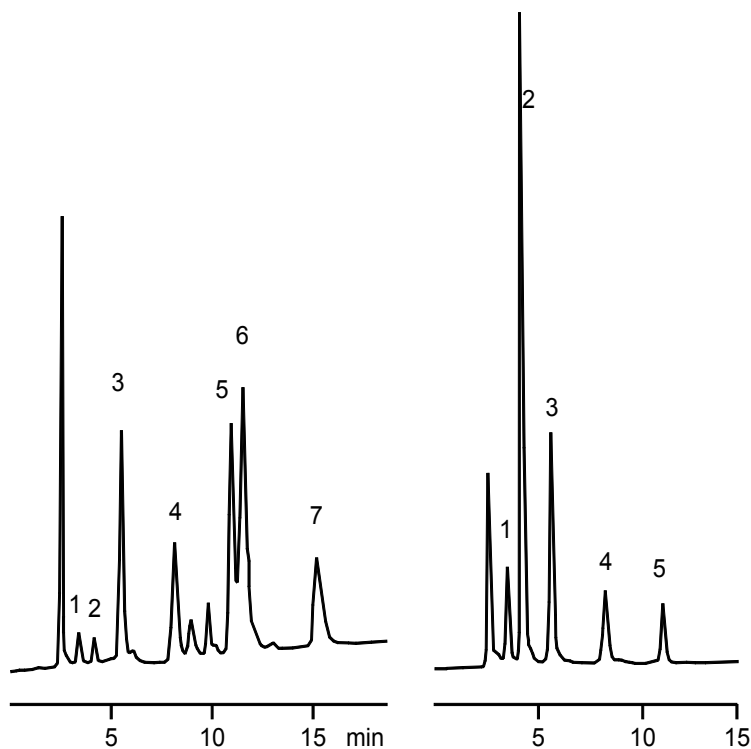
Chromatogram:

Sodium soaps:

1. (C8)
2. (C10)
3. (C12)
4. (C14)
5. (C16)
6. (C18 =)
7. (C18)

α -sulpho fatty acid methyl esters:

1. (C10)
2. (C12)
3. (C14)
4. (C16)
5. (C18)





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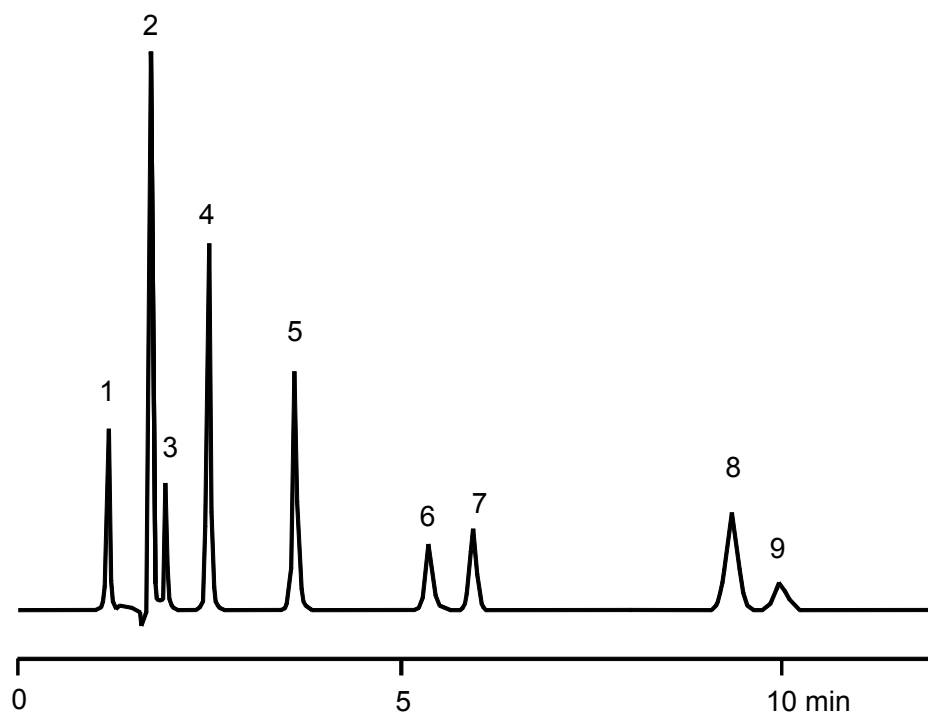
1 Separation of Additives in Softdrinks I

Method
HPLC

RP Mode

Column: ProntoSIL 120-5 C8 SH, 150 x 4.0 mm ID**Order No.** 15DF080PSJ**Phase:** ProntoSIL 120-5 C8 SH**Conditions:**
Eluent: 20 mM KH₂PO₄ (pH 3) / Acetonitrile (5:1)
Gradient: isocratic
Flow rate: 1.2 ml/min
Temperature: 30 °C
Volume: 10 µl**Detection:** UV at 220 nm**Substances:** Acesulfam K, Ascorbic acid, Aspartame, Benzoic acid, Caffeine, Saccharin, Sorbic acid, Quinine, Vaniline**Keywords:** Sweeteners, Additives, Softdrinks**Chromatogram:**

1. Ascorbic acid
2. Acesulfam K
3. Saccharin
4. Caffeine
5. Aspartame
6. Quinine
7. Vanilin
8. Sorbic acid
9. Benzoic acid



2 Separation of Additives in Softdrinks II

Method

HPLC RP Mode

Column: Eurospher II 100-3 C18P, 100 x 3.0 mm ID

Order No. 10CE182E2G

Phase: Eurospher II 100-3 C18P

Conditions: Eluent: A: 20 mM KH₂PO₄; pH 3
B: Methanol
Gradient: 0 – 6 min 10% - 25% B
6 – 8 min 25% B
8 – 12 min 25% - 40% B
12 – 16 min 40% B
16 – 18 min 40% - 10% B
Flow rate: 0.6 ml/min
Temperature: 45 °C
Volume: 2 µl

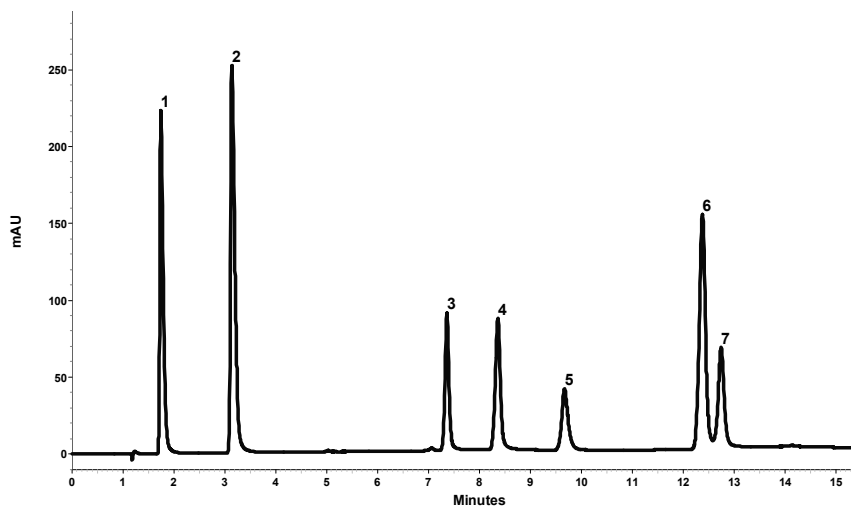
Detection: UV at 220 nm

Substances: Acesulfam, Saccharin, Vanilline, Caffeine, Aspartame, Benzoic acid, Sorbic acid

Keywords: Additives , Sweeteners , Softdrinks

Chromatogram:

1. Acesulfam
2. Saccharin
3. Vanilline
4. Caffeine
5. Aspartam
6. Benzoic acid
7. Sorbic acid



3 Softdrink analyses of Additives III

Method
HPLC

RP Mode

Column: ProntoSil 120-3 C18 ace-EPS, 100 x 2.0 mm ID

Order No. 10BF18APSG

Phase: ProntoSil 120-3 C18 ace-EPS

Conditions: Eluent: A: Phosphate-Buffer pH 3
B: Acetonitrile
Gradient: 0 min 100% A
1,5 min 100% A
5 min 65% A
15 min 65% A
Flow rate: 0.4 ml/min
Temperature: 40 °C
Volume: 5 µl

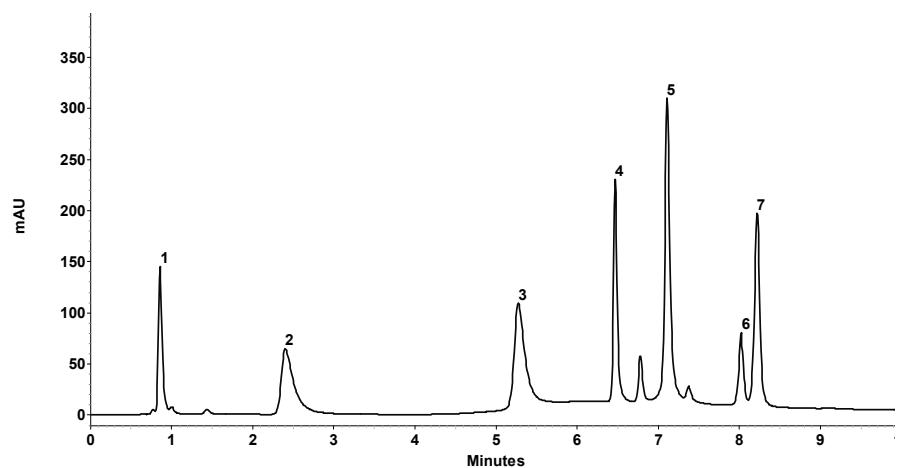
Detection: UV at 220 nm

Substances: Ascorbic acid, Acesulfam K, Saccharin, Caffeine, Aspartame, Benzoic acid, Sorbic acid

Keywords: Additives , Sweeteners , Softdrinks

Chromatogram:

Ascorbic Acid
Acesulfam K
Saccharin
Caffeine
Aspartam
Benzoic acid
Sorbic acid



4 Softdrink analyses of Additives IV

Method

HPLC RP Mode

Column: ProntoSil 120-3 C18 ace-EPS, 100 x 2.0 mm ID

Order No. 10BF18APSG

Phase: ProntoSil 120-3 C18 ace-EPS

Conditions: Eluent: Acetonitrile / Phosphate-Buffer pH 3 15:85 (v/v)
 Gradient: isocratic
 Flow rate: 0.2 ml/min
 Temperature: 40 °C
 Volume: 1 µl

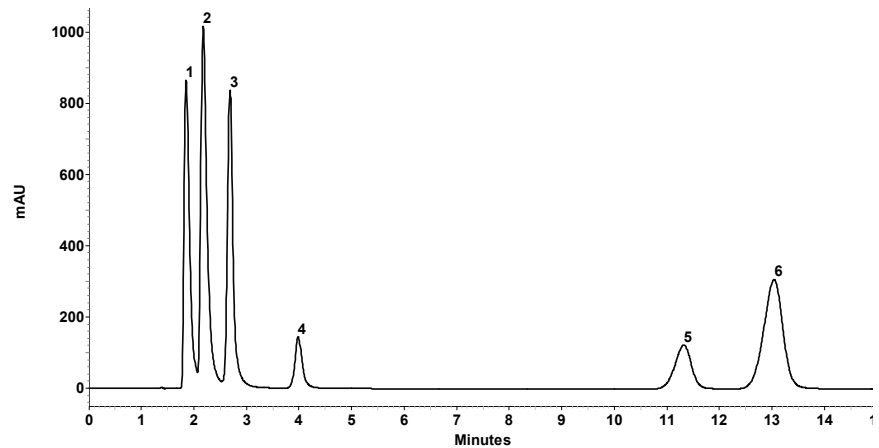
Detection: UV at 220 nm

Substances: Acesulfam K, Saccharin, Caffeine, Aspartame, Benzoic acid, Sorbic acid

Keywords: Additives , Sweeteners , Softdrinks

Chromatogram:

1. Acesulfam K
2. Saccharin
3. Caffeine
4. Aspartam
5. Benzoic acid
6. Sorbic acid



5 Determination of Aflatoxins by HPLC with post column derivatization

Method
HPLC

RP Mode

Column: UltraSep ES TOX 1 / UltraSep ES TOX 2, 125 x 3.0 mm ID **Order No. I0200 / I0201**

Phase: UltraSep ES TOX 1 / UltraSep ES TOX 2

Conditions: Eluent: Methanol / Water (60 / 40) / (35 / 65)
Gradient: isocratic
Flow rate: 0.7 ml/min
Temperature: ambient
Volume: 20 µl / 3 µl

Detection: postcolumn derivatization with 1.3 mM bromine solution at a flow rate of 0.18 ml/min, fluorescence: excitation 375 nm, emission 455 nm to get a detection limit of 0.5 ppm

Substances: Aflatoxin B1, Aflatoxin B2, Aflatoxin G1, Aflatoxin G2

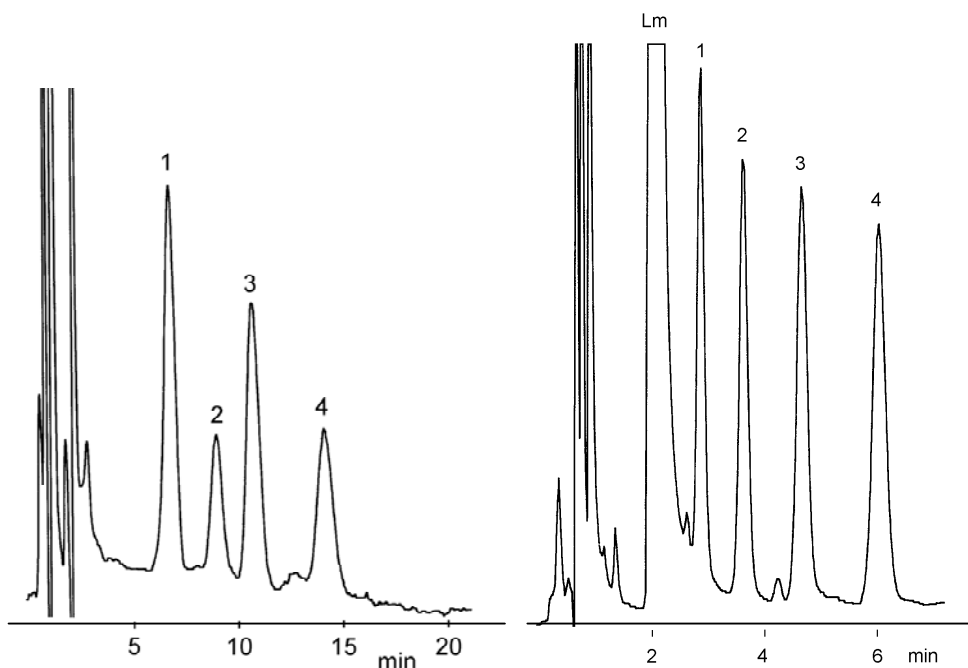
Keywords: Aflatoxins

Chromatogram:

UltraSep ES TOX 1

UltraSep ES TOX 2

1. Aflatoxin G2
2. Aflatoxin G1
3. Aflatoxin B2
4. Aflatoxin B1



6 Separation of Alcohols

Method HPLC

Column: Eurokat H, 300 x 8 mm ID

Order No. 30GX340EKN

Phase: Eurokat H, 10 µm (polymer phase)

Conditions: Eluent: 0.01 N H₂SO₄
 Gradient: isocratic
 Flow rate: 1.0 ml/min
 Temperature: 75 °C
 Volume: 20 µl

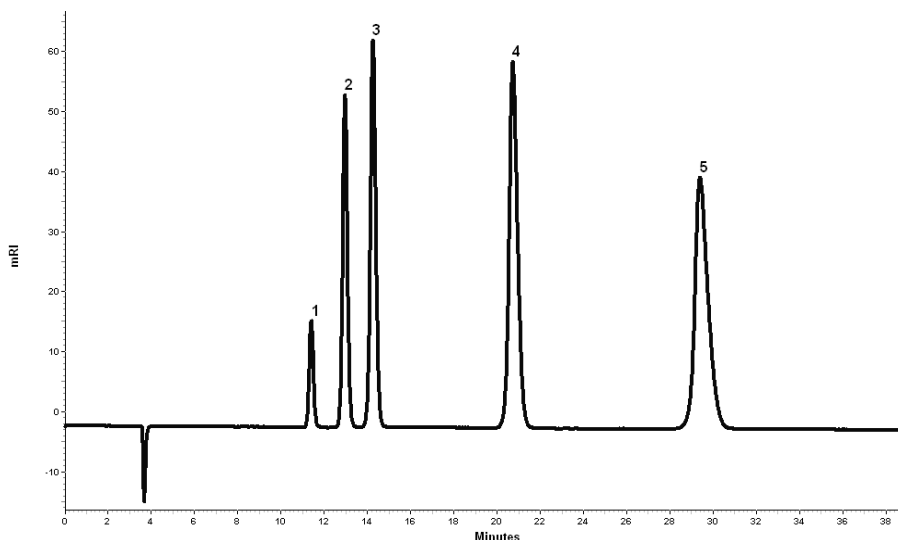
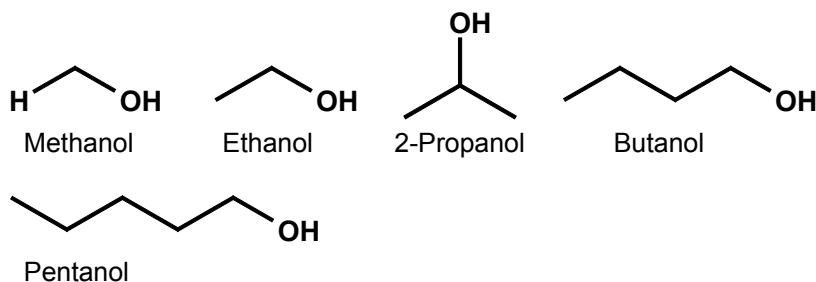
Detection: Refractive Index (RI)

Substances: Methanol, Ethanol, 2-Propanol, Butanol, Pentanol

Keywords: Alcohols, Eurokat H

Chromatogram:

1. Methanol
2. Ethanol
3. 2-Propanol
4. Butanol
5. Pentanol



7 Fast Separation of Alcohols

New!

Method HPLC

Column: Eurokat H, 10 µm, 120 x 8 mm

Order No. 11GX340EKN

Phase: Eurokat H, 10 µm

Conditions: Eluent: A: 0.01 N Sulfuric acid
 Flow rate: 1.0 ml/min
 Temperature: 75 °C
 Volume: 10 µl

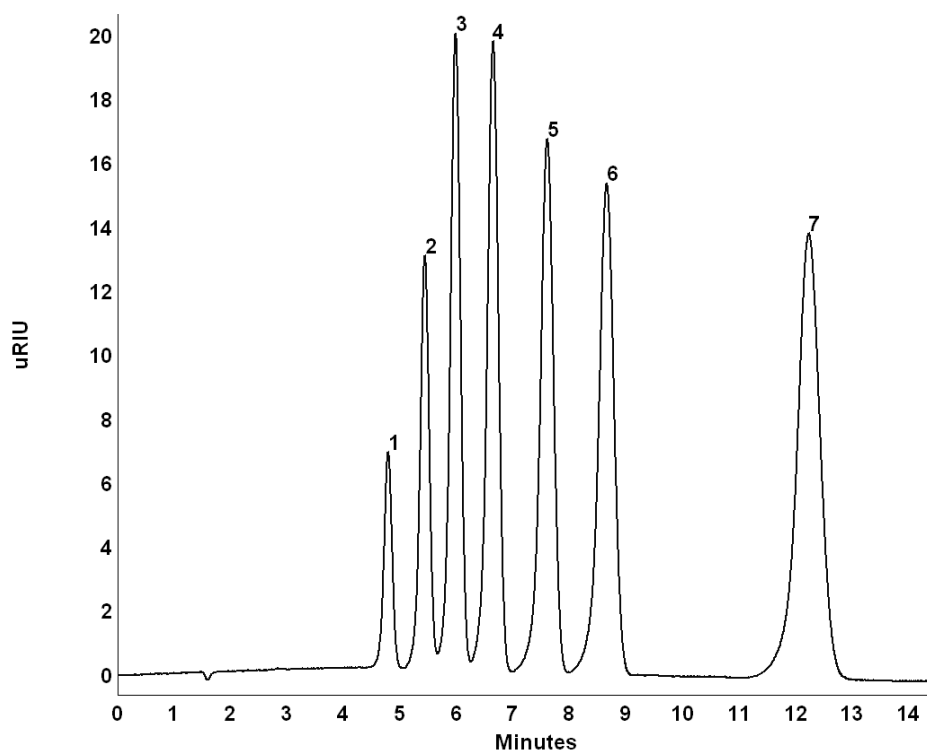
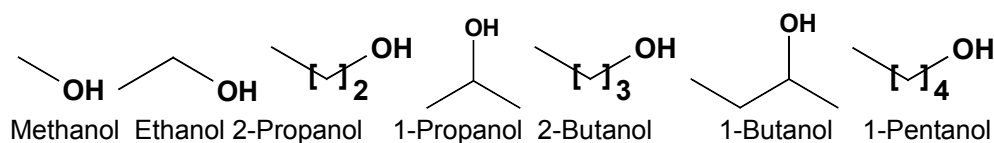
Detection: RI

Substances: Methanol, Ethanol, 1-Propanol, 2-Propanol, 1-Butanol, 2-Butanol, 1- Pentanol

Keywords: Alcohols, Eurokat H

Chromatogram:

- 1 Methanol
- 2 Ethanol
- 3 2-Propanol
- 4 1-Propanol
- 5 2-Butanol
- 6 1-Butanol
- 7 1-Pentanol



8 Separation of Alcohols, Carbohydrates and Organic acids I

Method HPLC

Column: Eurokat H, 300 x 8 mm ID

Order No. 30GX340EKN

Phase: Eurokat H, 10 µm (polymer phase)

Conditions: Eluent: 0.01 N H₂SO₄
Gradient: isocratic
Flow rate: 0.5 ml/min
Temperature: 75 °C
Volume: 20 µl

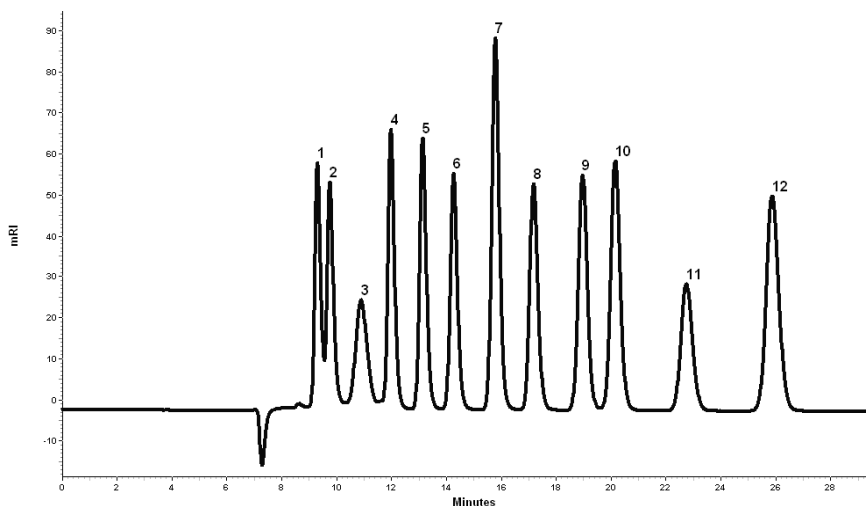
Detection: Refractive Index (RI)

Substances: Isomalt, Lactite, Gluconic acid, Mannite, Xylite, Threitol, Glycerine, Acetic acid, Ethylene glycol, 1,2- Propandiol, Methanol, Ethanol

Keywords: Carbohydrates, Alcohols, Organic acids, Eurokat H

Chromatogram:

1. Isomalt
2. Lactite
3. Gluconic acid
4. Mannite
5. Xylite
6. Threitol
7. Glycerine
8. Acetic acid
9. Ethylene glycol
10. 1,2- Propandiol
11. Methanol
12. Ethanol



9 Simultaneous determination of Alcohols, Carbohydrates and Organic acids II

Method HPLC

Column: Eurokat H 10 µm, 300 x 8 mm ID

Order No. 30GX340EKN

Phase: Eurokat H, 10 µm (polymer phase)

Conditions: Eluent: 0.01 M Sulfuric acid
Gradient: isocratic
Flow rate: 0.4 ml/min
Temperature: 80 °C
Volume: 10 µl

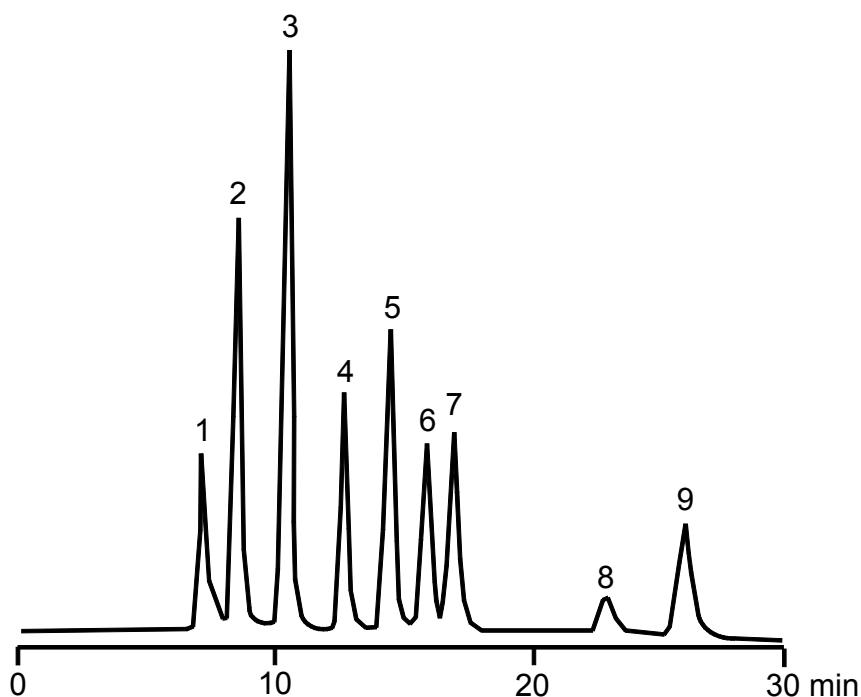
Detection: Refractive Index (RI)

Substances: Maltose, Glucose, Succinic acid, Lactic acid, Formic acid, Acetic acid, Methanol, Ethanol

Keywords: Carbohydrates, Organic acids, Alcohols

Chromatogram:

1. Higher carbohydrates
2. Maltose
3. Glucose
4. Succinic acid
5. Lactic acid
6. Formic acid
7. Acetic acid
8. Methanol
9. Ethanol



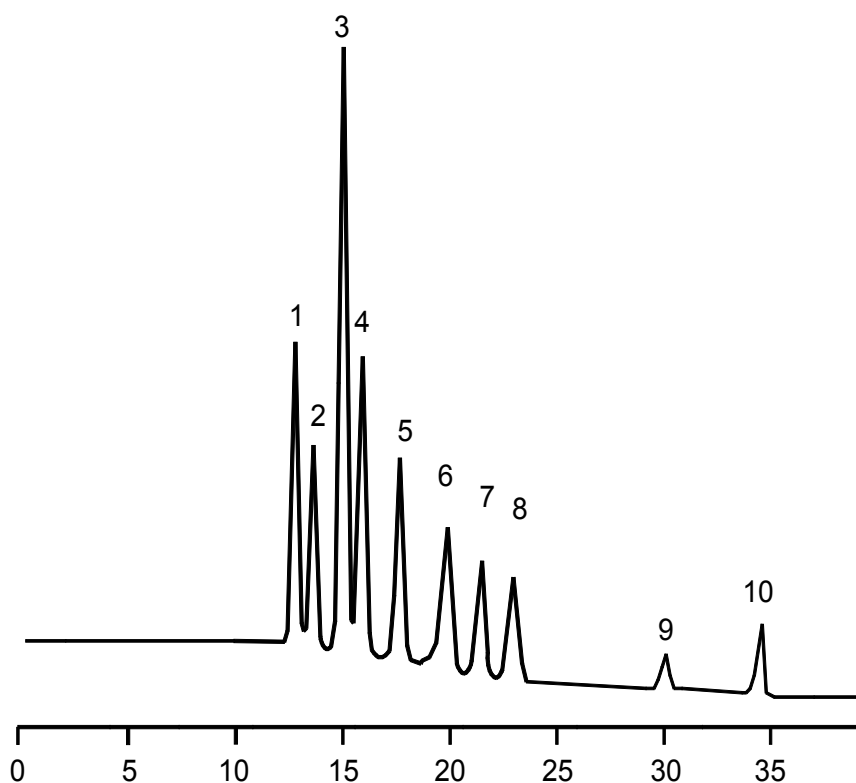
10 Determination of Alcohols, Carbohydrates and Organic acids III

Method HPLC

Column:	Eurokat H 10 µm, 300 x 8 mm ID	Order No.	30GX340EKN
Phase:	Eurokat H, 10 µm (polymer phase)		
Conditions:	Eluent: 0.00125 N Sulfuric acid (pH 2) Gradient: isocratic Flow rate: 0.4 ml/min Temperature: 90 °C Volume: 10 µl		
Detection:	Refractive Index (RI)		
Substances:	Acetic acid, Butandiol, Citric acid, Ethanol, Fructose, Glucose, Lactic acid, Malic acid, Succinic acid, Tartaric acid		
Keywords:	Organic acids		

Chromatogram:

1. Citric acid
2. Tartaric acid
3. Glucose
4. Malic acid
5. Fructose
6. Succinic acid
7. Lactic acid
8. Acetic acid
9. Butandiol
10. Ethanol



11 Separation of Amines in wine with precolumn derivatization (DANSYL)

Method

HPLC RP Mode

Column: Eurospher 100-5 C18, 250 x 4.6 mm ID

Order No. 25EE181ESJ

Phase: Eurospher 100-5 C18

Conditions: Eluent: Acetonitrile / Water (30:70)
 Gradient: over 40 min to 60% Acetonitrile and 15% Ethanol in water, 10 min hold
 Flow rate: 1.0 ml/min
 Temperature: ambient
 Volume: 20 µl

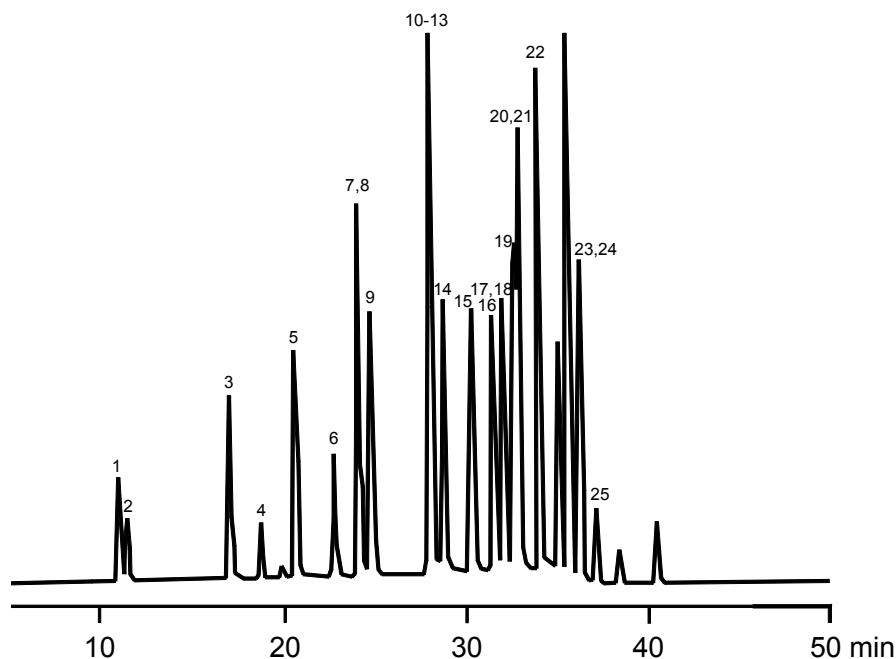
Detection: Fluorescence: excitation 338 nm, emission 455 nm

Substances: Ethanolamine, Ammonia, Methylamine, Serotonin, Ethylamine, Morpholine, Isopropylamine, Dimethylamine, Propylamine, Pyrrolidine, Pyrrolidone, Octopamine, Indole, Butylamine, Diethylamine, Phenethylamine, Methylbutylamine, Isopentylamine, Pentylamine, Piperidine, Diaminopropane, Diaminobutane, Hexylamine, Diaminopentane, Histamine

Keywords: Amines, Precolumn derivatization , DANSYL

Chromatogram:

1. Ethanolamine,
2. Ammonia,
3. Methylamine,
4. Serotonin,
5. Ethylamine,
6. Morpholine,
7. Isopropylamine,
8. Dimethylamine,
9. Propylamine
10. Pyrrolidine,
11. 2-Pyrrolidone,
12. Octopamine,
13. Indole
14. Butylamine,
15. Diethylamine,
16. Phenethylamine,
17. 2-Methylbutylamine,
18. Isopentylamine,
19. Pentylamine,
20. Piperidine,
21. 1,3-Diaminopropane,
22. 1,4-Diaminobutane,
23. Hexylamine,
24. 1,5-Diaminopentane,
25. Histamine



12 HPLC determination of Amines in wine with precolumn derivatization (OPA)

Method HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.6 mm ID

Order No. 25EE181ESJ

Phase: Eurospher 100-5 C18

Conditions: Eluent: 0.08 M Acetic acid / Acetonitrile (70:30) 3 min
 Gradient: in 6.5 min to 65% Acetonitrile, in 11 min to 72% Acetonitrile, in 1 min to 80% Acetonitrile, 3 min hold
 Flow rate: 1.0 ml/min
 Temperature: ambient
 Volume: 20 µl

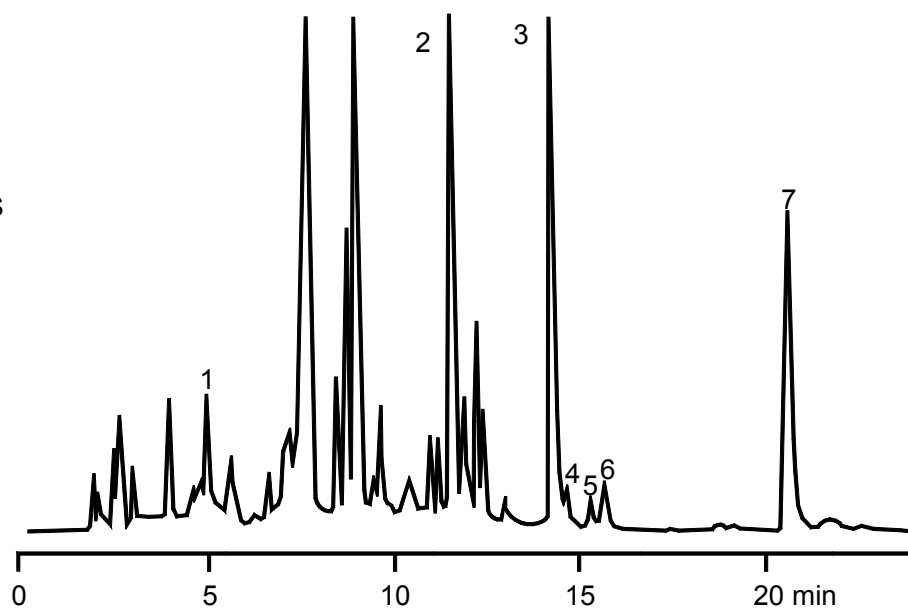
Detection: Fluorescence: excitation 230 nm, emission 440 nm

Substances: Cadaverine, Heptylamine, Histamine, Isoamylamine, Pentyl-i-amine, Phenethylamine, Putrescine

Keywords: Amines, Precolumn derivatization , OPA

Chromatogram:

1. Histamine
2. Tyramine
3. Putrescine
4. Phenethylamine
5. Cadaverine
6. Isoamylamine
7. internal Standard IS





13 Separation of AQC Derivatized Amino Acids with UV Detection

Method Matrix
HPLC

Column: Eurospher II 100-3 C18, 150 x 3 mm ID

Order No. 15CE181E2G

Phase: Eurospher II 100-3 C18

Conditions: Eluent: A: 50 mM Na-Acetate pH 5.75 B: 50 mM Na-Acetate pH 6/Acetonitrile 30:70
 Gradient: 0 – 10.13 min 5 % - 10 % B
 10.13 – 16.0 min 10 % B - 25 % B
 16.0 – 21.9 min 25 - 32 % B
 Flow rate: 0.8 ml/min
 Temperature: 45 °C
 Volume: 10 µl (11.76 pmol/µl, Cys 5.88 pmol/µl))

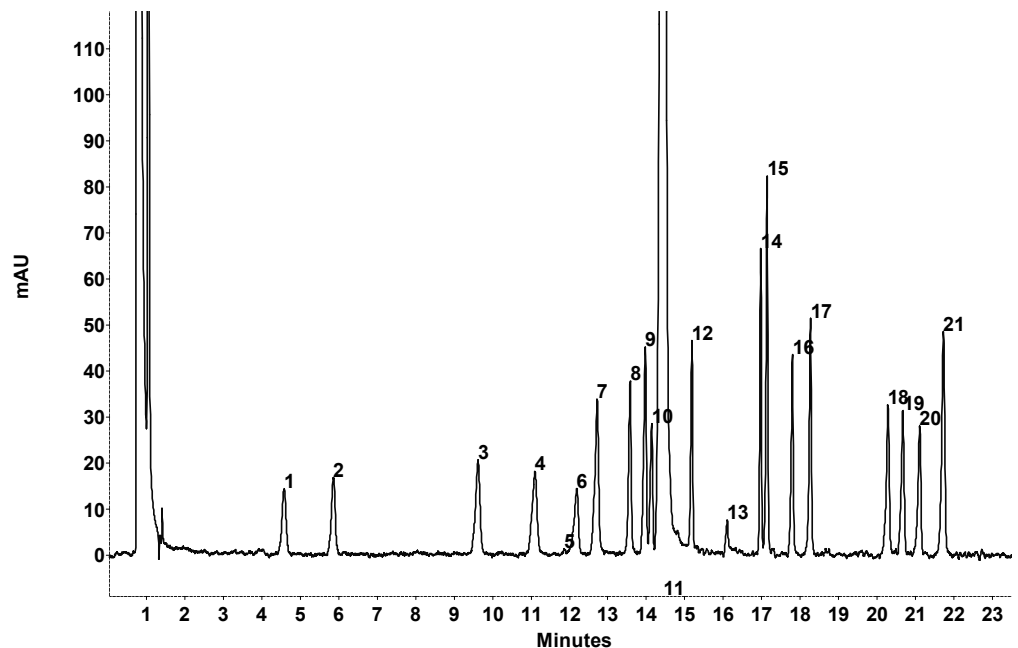
Detection: UV, 254 nm (10 mm cell, 5 Hz, 0.2 sec.)

Substances: Alanine, Arginine, Aspartic acid, Cysteine, Glutamic acid, Glycine, Histidine, Isoleucine, Leucine, Lysine, Methionine, Phenylalanine, Proline, Serine, Threonine, Tyrosine, Valine

Keywords: Amino acids, AQC,

Chromatogram:

- 1 Asp
- 2 Glu
- 3 Ser
- 4 Gly
- 5 ? (Derivatization)
- 6 Cys
- 7 His
- 8 Thr
- 9 Arg
- 10 Ala
- 11 AMQ (Derivatization)
- 12 Pro
- 13 NH₃
- 14 Lys
- 15 Tyr
- 16 Val
- 17 Met
- 18 Ile
- 19 Leu
- 20 Cys Peak 2
- 21 Phe



New!

14 Separation of AQC Derivatized Amino Acids with Fluorescence Detection

Method HPLC
Matrix

Column: Eurospher II 100-3 C18, 150 x 3 mm ID

Order No. 15CE181E2G

Phase: Eurospher II 100-3 C18

Conditions: Eluent: A: 50 mM Na-Acetat pH 5.75 B: 50 mM Na-Acetat pH 6/Acetonitrile 30:70
 Gradient: 0 – 10.13 min 5 % - 10 % B
 10.13 – 16.0 min 10 % B - 25 % B
 16.0 – 21.9 min 25 - 32 % B
 Flow rate: 0.8 ml/min
 Temperature: 45 °C
 Volume: 1 µl (1.176 pmol/µl, Cys 0.588 pmol/µl)

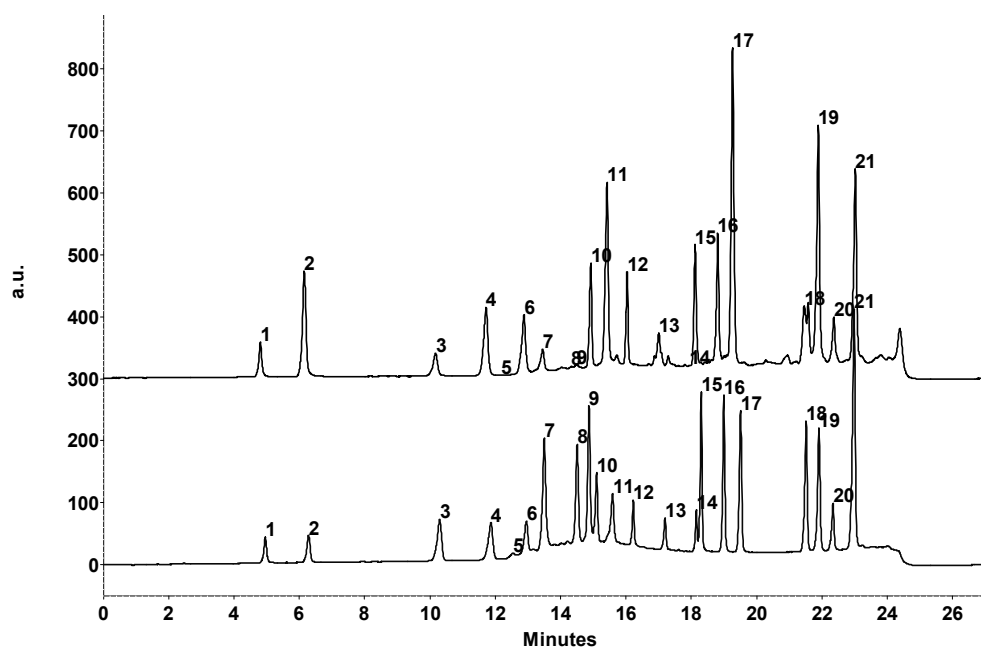
Detection: Fluorescence (Ex 250 nm, Em 395 nm)

Substances: Alanine, Arginine, Aspartic acid, Cysteine, Glutamic acid, Glycine, Histidine, Isoleucine, Leucine, Lysine, Methionine, Phenylalanine, Proline, Serine, Threonine, Tyrosine, Valine

Keywords: Amino acids, AQC

Chromatogram: Overlay of the AQC-AAA standard and a derivatized sample

- 1 Asp
- 2 Glu
- 3 Ser
- 4 Gly
- 5 ? (Derivatization)
- 6 Cys
- 7 His
- 8 Thr
- 9 Arg
- 10 Ala
- 11 AMQ (Derivatization)
- 12 Pro
- 13 NH₃
- 14 Lys
- 15 Tyr
- 16 Val
- 17 Met
- 18 Ile
- 19 Leu
- 20 Cys Peak 2
- 21 Phe



15 Determination of Amino acids in beer with precolumn derivatization (OPA)

Method HPLC

RP Mode

Column: OPA column B801, 300 x 4.0 mm ID

Order No. B801

Phase: OPA Column

Conditions: Eluent: A: 0.05 M Acetate / Methanol (81:19) pH 7.2
B: 0.05 M Acetate / Methanol (25:75)
Gradient: 0 – 28 min 100% A; 28 – 35 min 100% - 70% A;
35 – 50 min 70% - 0% A; (5 min hold), in 5 min 100% A
Flow rate: 1.0 ml/min
Temperature: 40 °C
Volume: 10 µl

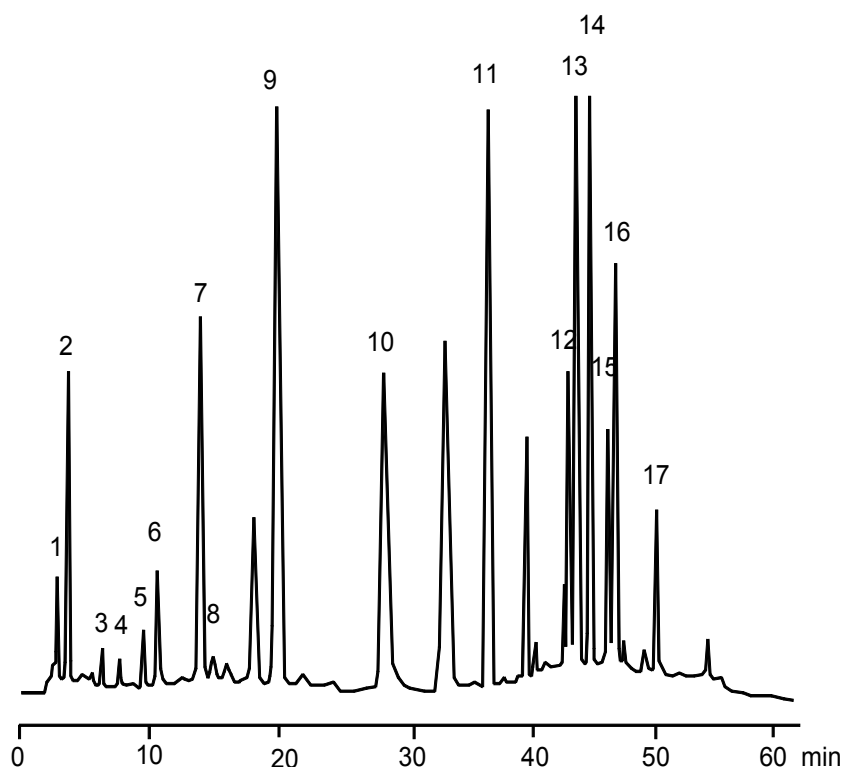
Detection: Fluorescence: excitation 330 nm, emission 450 nm

Substances: Aspartic acid, Glutamic acid, Asparagine, Serine, Glutamine, Histidine, Glycine, Threonine, Arginine, Alanine, Tyrosine, Methionine, Valine, Phenylalanine, Isoleucine, Leucine, Lysine

Keywords: Amines Precolumn derivatization , OPA

Chromatogram:

1. ASP
2. GLU
3. ASN
4. SER
5. GLN
6. HIS
7. GLY
8. THR
9. ARG
10. ALA
11. TYR
12. MET
13. VAL
14. PHE
15. ILE
16. LEU
17. LYS



16 Anthocyanins in red and rose wine

Method
HPLC
RP Mode
Column: ProntoSIL 120-3 C18 SH, 250 x 4.0 mm ID

Order No. 25DF180PSG

Phase: ProntoSIL 120-3 C18 SH

Conditions:

Eluent: A: Water / Formic acid / Acetonitrile (87:10:3)
 B: Water / Formic acid / Acetonitrile (pH 1.3)

Gradient: 0 – 15 min 6% - 30% B
 15 – 30 min 30% - 50% B
 30 – 35 min 50% - 60% B
 35 – 41 min 60% - 6% B

Flow rate: 0.8 ml/min
 Temperature: 40 °C
 Volume: 20 µl

Detection: UV at 518 nm

Substances: Group 1: nonacylated anthocyanidin-3-glycosides
 Group 2: acylated anthocyanidin-3-glycosides
 Group 3: coumarylated anthocyanidin-3-glycosides

Keywords: Anthocyanins

Chromatogram:
Group 1

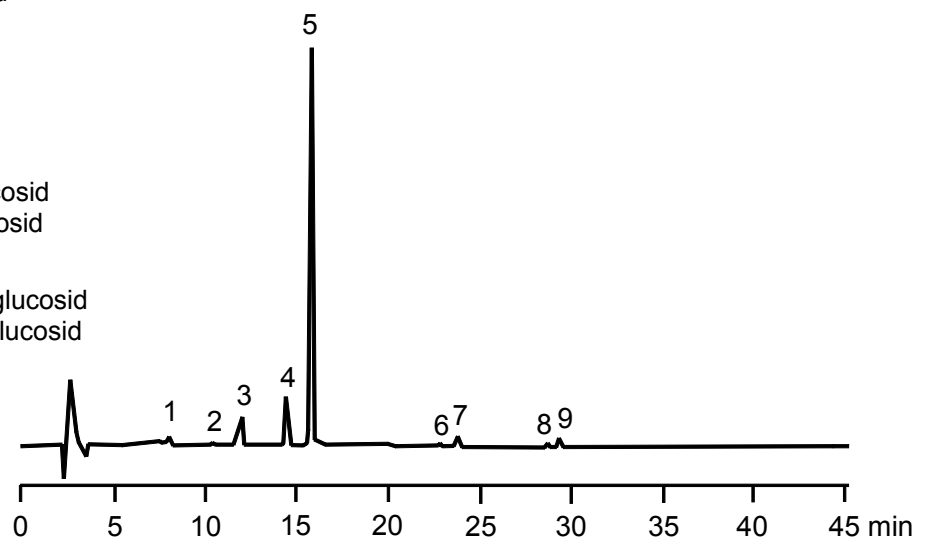
1. Delphinidol-3-glucosid
2. Cyanidol-3-glucosid
3. Petunidol-3-glucosid
4. Peonidol-3-glucosid
5. Malvidol-3-glucosid

Group 2

6. Peonidol-3-acetylglucosid
7. Malvidol-3-acetylglucosid

Group 3

8. Peonidol-3-coumarylglucosid
9. Malvidol-3-coumarylglucosid



17 Dermination of Ascorbic acid

New!**Method**

HPLC RP Mode

Column: Eurospher II 100-3 NH₂, 250 x 3 mm ID

Order No. 25CE190E2G

Phase: Eurospher II 100-3 NH₂

Conditions: Eluent: ACN/10 mmol NaH₂PO₄ buffer pH 2.5, 80:20 (v/v)
 Gradient: isocratic
 Flow rate: 0.5 ml/min
 Temperature: 25 °C
 Volume: 10 µl

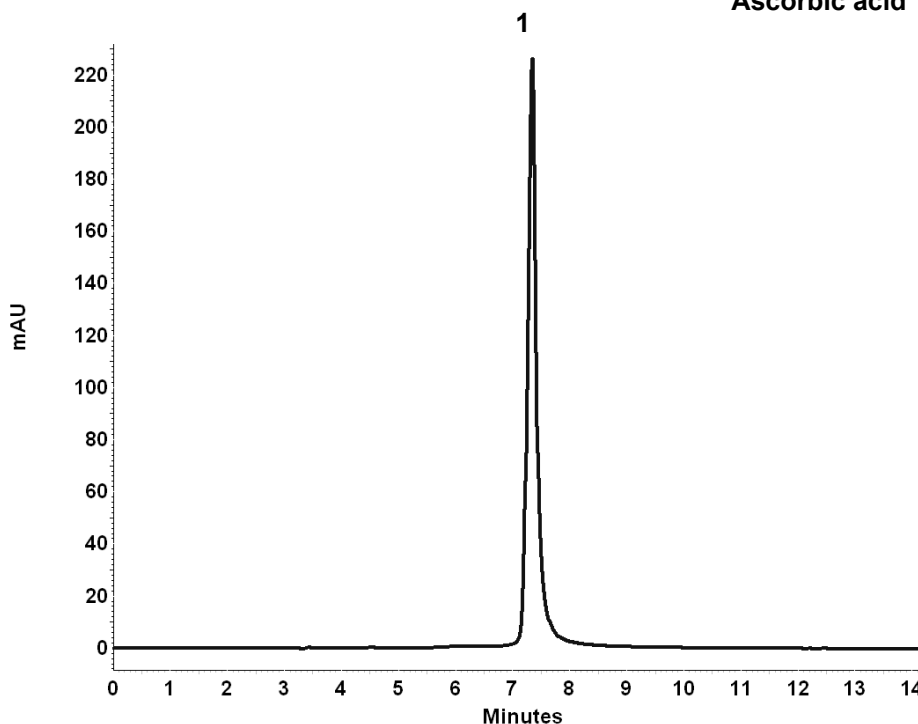
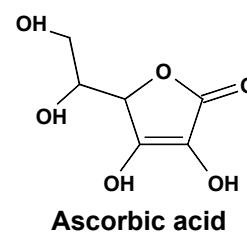
Detection: UV, 254 nm (10 mm cell, 5 Hz, 0.2 sec.)

Substances: Ascorbic acid

Keywords: Ascorbic acid, Vitamin C

Chromatogram:Chromatogram of
Ascorbic acid
standard solution

1. Ascorbic acid



18 Separation of Ascorbic acid and dehydro Ascorbic acid

Method HPLC

Column: Eurokat H, 300 x 8 mm ID

Order No. 30GX340EKN

Phase: Eurokat H, 10 µm (polymer phase)

Conditions: Eluent: 0.01 N H₂SO₄
 Gradient: isocratic
 Flow rate: 0.5 ml/min
 Temperature: 32 °C
 Volume: 20 µl

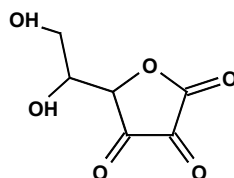
Detection: Refractive Index (RI)

Substances: Ascorbic acid, dehydro Ascorbic acid

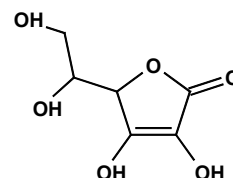
Keywords: Organic acids, Eurokat H, Vitamin C

Chromatogram:

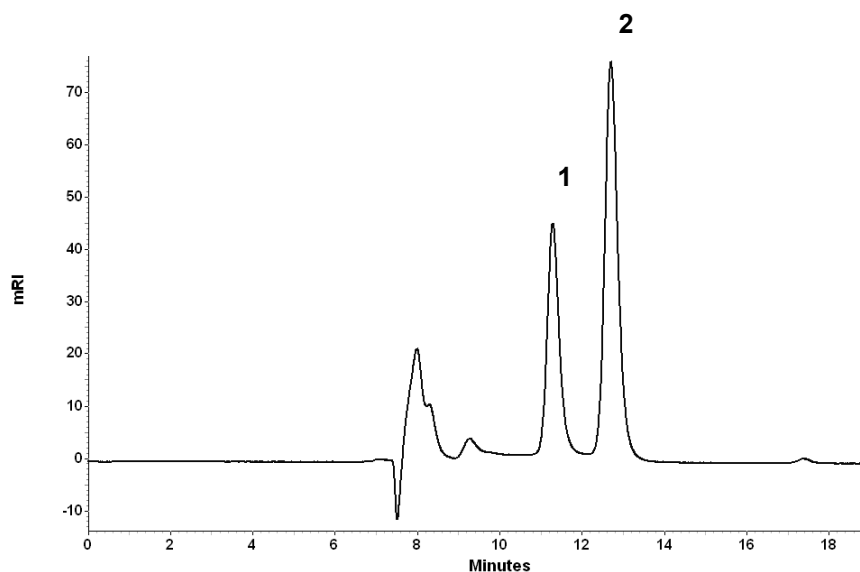
1. dehydro Ascorbic acid
2. Ascorbic acid



dehydro Ascorbic acid



Ascorbic acid



19 Separation of Carbohydrates by Eurokat Ca I

Method HPLC

Column: Eurokat Ca, 300 x 8 mm ID

Order No. 30GX360EKN

Phase: Eurokat Ca, 10 µm (polymer phase)

Conditions: Eluent: Water
Gradient: isocratic
Flow rate: 0.5 ml/min
Temperature: 75 °C
Volume: 20 µl

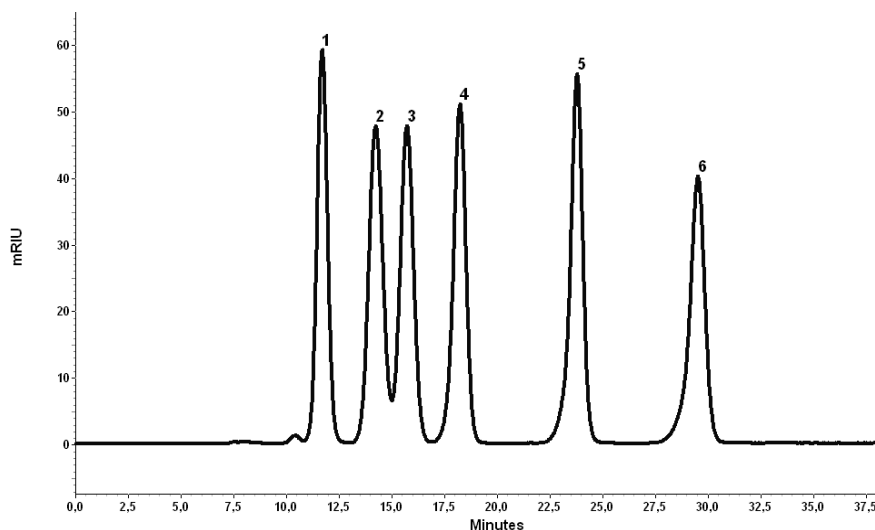
Detection: Refractive Index (RI)

Substances: Maltose, Glucose, Xylose, Fructose, Mannite, Sorbite

Keywords: Carbohydrates, Eurokat Ca

Chromatogram:

1. Maltose
2. Glucose
3. Xylose
4. Fructose
5. Mannite
6. Sorbite



20 Separation of Carbohydrates by Eurokat Ca II

Method HPLC

Column: Eurokat Ca, 300 x 8 mm ID

Order No. 30GX360EKN

Phase: Eurokat Ca, 10 µm (polymer phase)

Conditions: Eluent: Water
Gradient: isocratic
Flow rate: 0.5 ml/min
Temperature: 75 °C
Volume: 20 µl

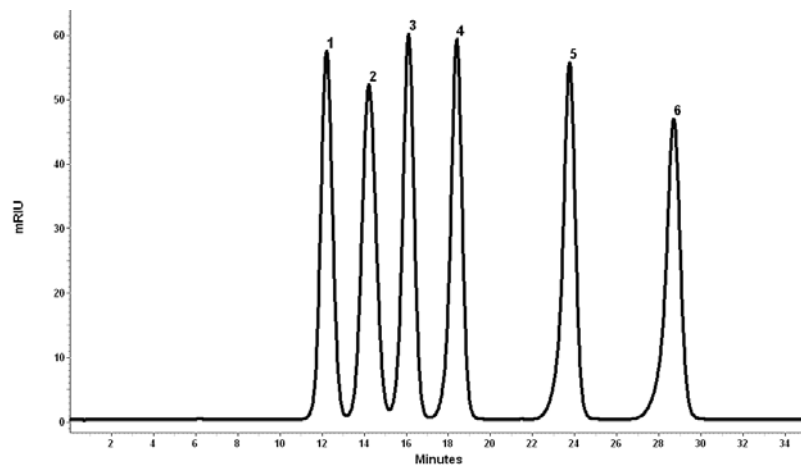
Detection: Refractive Index (RI)

Substances: Lactose, Glucose, Galactose, Arabinose, Mannite, Xylite

Keywords: Carbohydrates, , Eurokat Ca

Chromatogram:

1. Lactose
2. Glucose
3. Galactose
4. Arabinose
5. Mannite
6. Xylite



21 Separation of Carbohydrates by Eurokat Ca III

Method HPLC

Column: Eurokat Ca, 300 x 8 mm ID **Order No.** 30GX360EKN

Phase: Eurokat Ca, 10 µm (polymer phase)

Conditions: Eluent: Water
 Gradient: isocratic
 Flow rate: 0.4 ml/min
 Temperature: 75 °C
 Volume: 20 µl

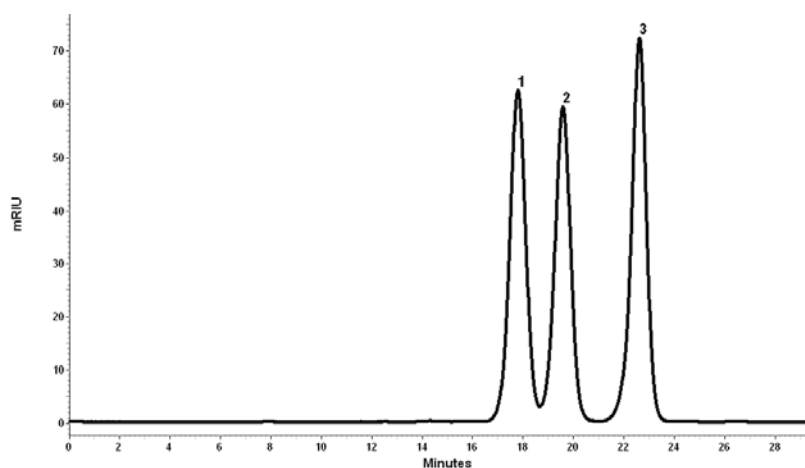
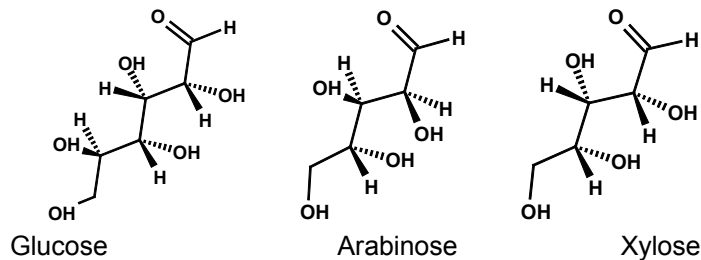
Detection: Refractive Index (RI)

Substances: Glucose, Arabinose, Xylose

Keywords: Carbohydrates, , Eurokat Ca

Chromatogram:

1. Glucose
2. Arabinose
3. Xylose



22 Separation of Carbohydrates by Eurokat Pb I

Method HPLC

Column: Eurokat Pb, 300 x 8 mm ID

Order No. 30GX350EKN

Phase: Eurokat Pb, 10 µm (polymer phase)

Conditions: Eluent: Water
Gradient: isocratic
Flow rate: 0.5 ml/min
Temperature: 75 °C
Volume: 20 µl

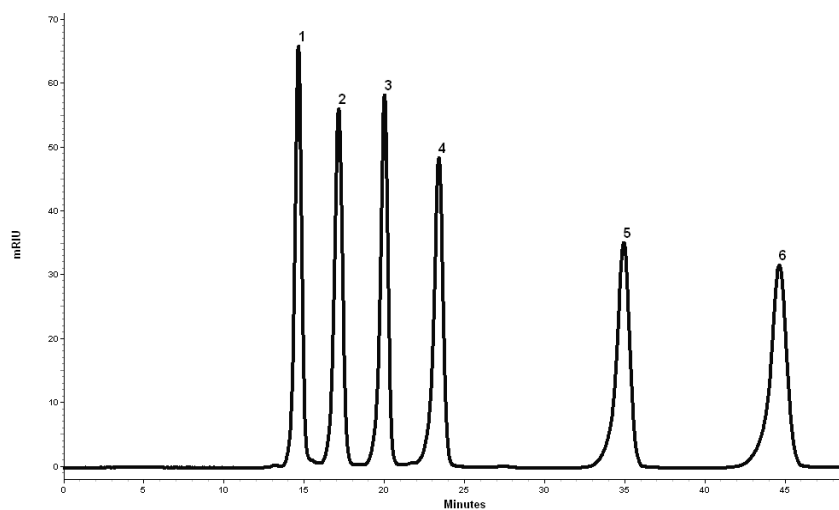
Detection: Refractive Index (RI)

Substances
: 1. Saccharose, Glucose, Galactose, Fructose, Mannite, Xylite

Keywords: Carbohydrates,, Eurokat Pb

Chromatogram:

2. Saccharose
3. Glucose
4. Galactose
5. Fructose
6. Mannite
7. Xylite



23 Separation of Carbohydrates by Eurokat Pb II

Method HPLC

Column: Eurokat Pb, 300 x 8 mm ID

Order No. 30GX350EKN

Phase: Eurokat Pb, 10 µm (polymer phase)

Conditions: Eluent: Water
Gradient: isocratic
Flow rate: 0.5 ml/min
Temperature: 75 °C
Volume: 20 µl

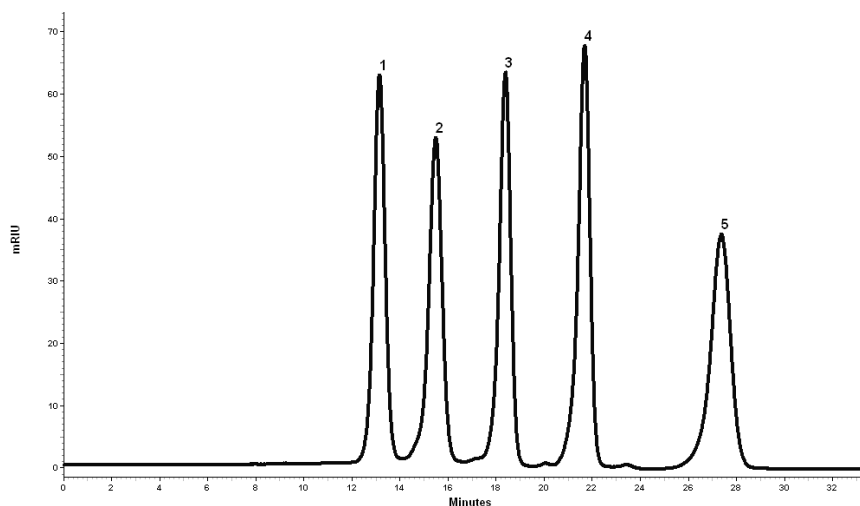
Detection: Refractive Index (RI)

Substances: Melezitose, Maltose, Xylose, Arabinose, Maltite

Keywords: Carbohydrates,, Eurokat Pb

Chromatogram:

1. Melezitose
2. Maltose
3. Xylose
4. Arabinose
5. Maltite



24 Separation of Carbohydrates by Eurokat Pb III

Method HPLC

Column: Eurokat Pb, 300 x 8 mm ID

Order No. 30GX350EKN

Phase: Eurokat Pb, 10 µm (polymer phase)

Conditions: Eluent: Water
Gradient: isocratic
Flow rate: 0.5 ml/min
Temperature: 75 °C
Volume: 20 µl

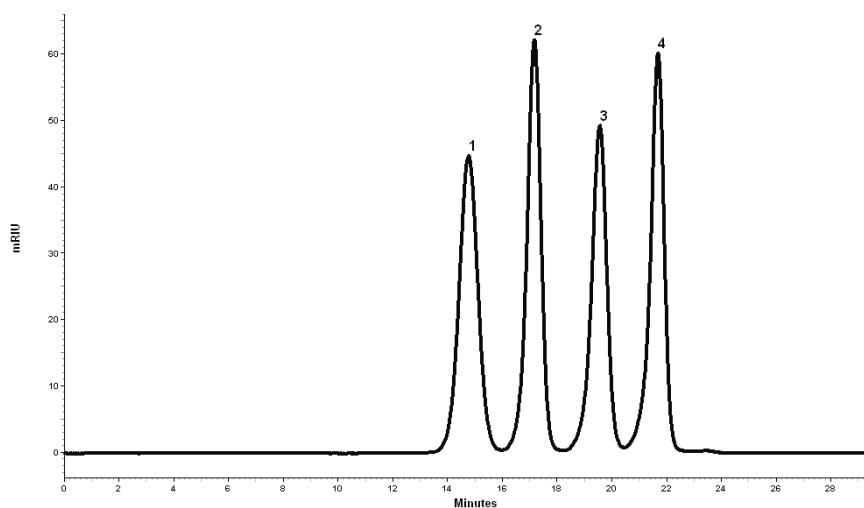
Detection: Refractive Index (RI)

Substances: Maltotriose, Glucose, Rhamnose, Arabinose

Keywords: Carbohydrates,, Eurokat Pb

Chromatogram:

1. Maltotriose
2. Glucose
3. Rhamnose
4. Arabinose



25 Separation of Carbohydrates by Eurokat Pb IV

Method HPLC

Column: Eurokat Pb, 300 x 8 mm ID

Order No. 30GX350EKN

Phase: Eurokat Pb, 10 µm (polymer phase)

Conditions: Eluent: Water
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 75 °C
Volume: 20 µl

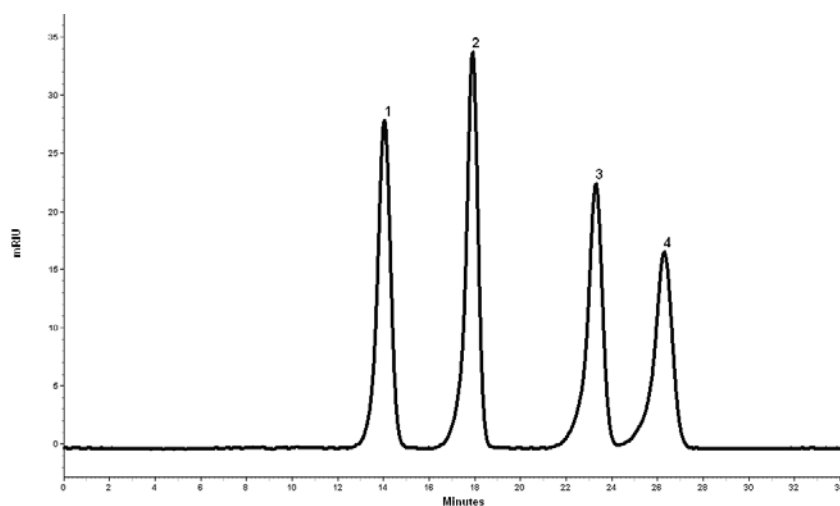
Detection: Refractive Index (RI)

Substances: Maltite, Mannite, Xylite, Sorbite

Keywords: Carbohydrates,, Eurokat Pb

Chromatogram:

1. Maltite
2. Mannite
3. Xylite
4. 4 Sorbite



26 Separation of Carbohydrates by Eurokat Pb V

Method HPLC

Column: Eurokat Pb, 300 x 8 mm ID

Order No. 30GX350EKN

Phase: Eurokat Pb, 10 µm (polymer phase)

Conditions: Eluent: bidest. Water
Gradient: isocratic
Flow rate: 0.5 ml/min 0 - 18 min
0.5 - 1.0 ml/min 18 - 30 min
Temperature: 75 °C
Volume: 20 µl

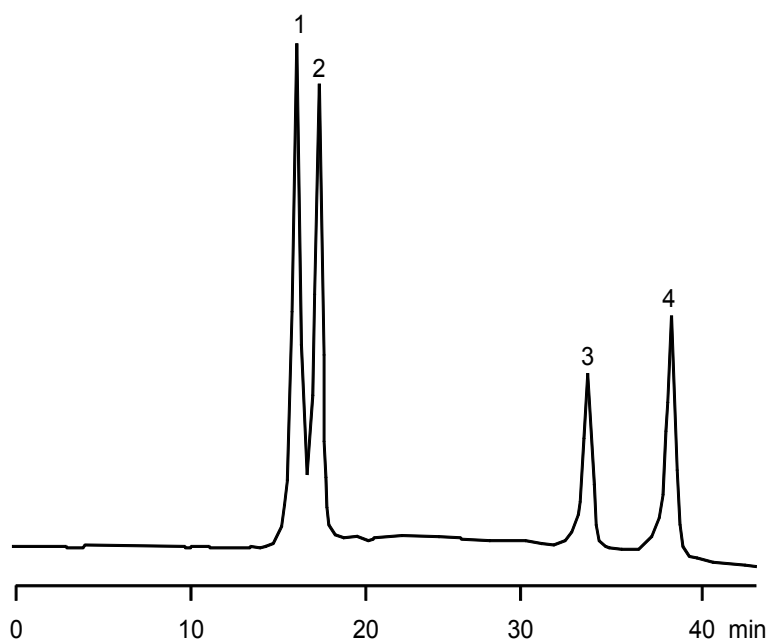
Detection: Refractive Index (RI)

Substances: Glucose, Ribose, Xylose, Furfural

Keywords: Carbohydrates,, Eurokat Pb

Chromatogram:

- 7. Glucose (3 mg/ml)
- 8. Xylose (3 mg/ml)
- 9. Ribose (3 mg/ml)
- 10. Furfural (3 mg/ml)



New!

27 Fast Determination of Carbonic acids (Additives in Softdrinks)

Method HPLC

Column: Eurokat H, 10 µm, 120 x 8 mm

Order No. 11GX340EKN

Phase: Eurokat H, 10 µm

Conditions: Eluent: A: 0.01N Sulfuric acid + 10% ACN
Flow rate: 0.4 ml/min
Temperature: 75 °C
Volume: 20 µl

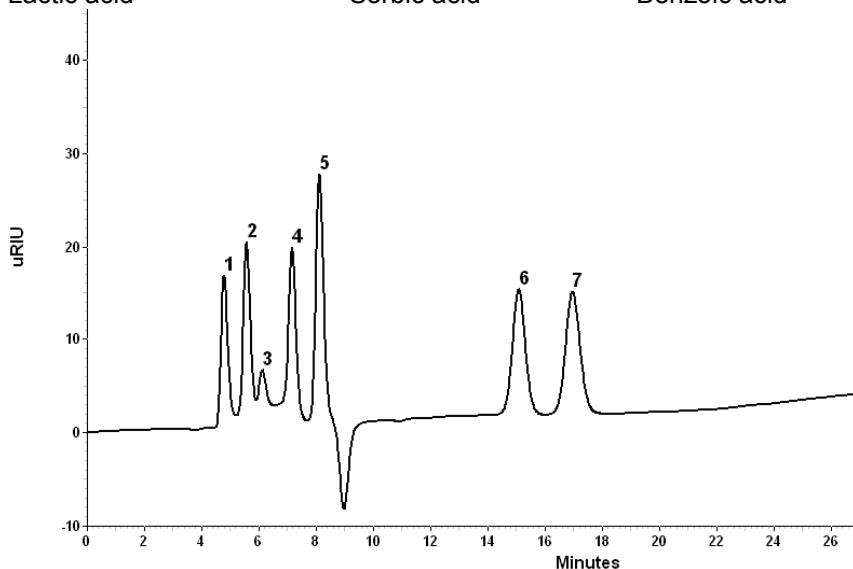
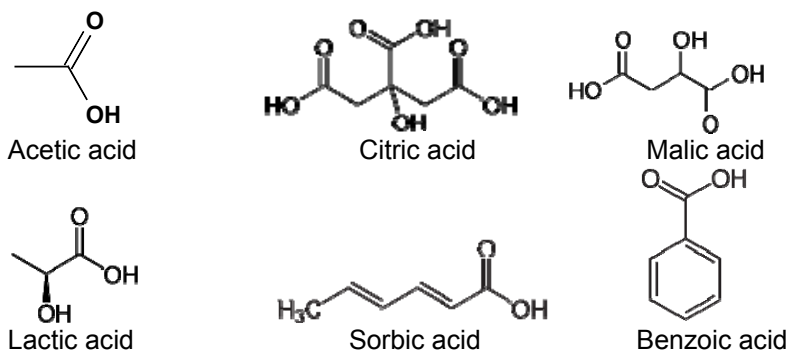
Detection: RI

Substances: Citric acid, Malic acid, Lactic acid, Acetic acid, Sorbic acid, Benzoic acid

Keywords: Organic acids, Softdrink Additives, Eurokat H

Chromatogram:

- 1 Citric acid
- 2 Malic acid
- 3 Imp.
- 4 Lactic acid
- 5 Acetic acid
- 6 Sorbic acid
- 7 Benzoic acid



28 Fast Separation of Carbonic acids II

New!

Method HPLC

Column: Eurokat H, 10 µm, 300 x 8 mm

Order No. 30GX340EKN

Phase: Eurokat H, 10 µm

Conditions: Eluent: A: 0.01 N Sulfuric acid

Flow rate: 1.0 ml/min

Temperature: 75 °C

Volume: 10 µl

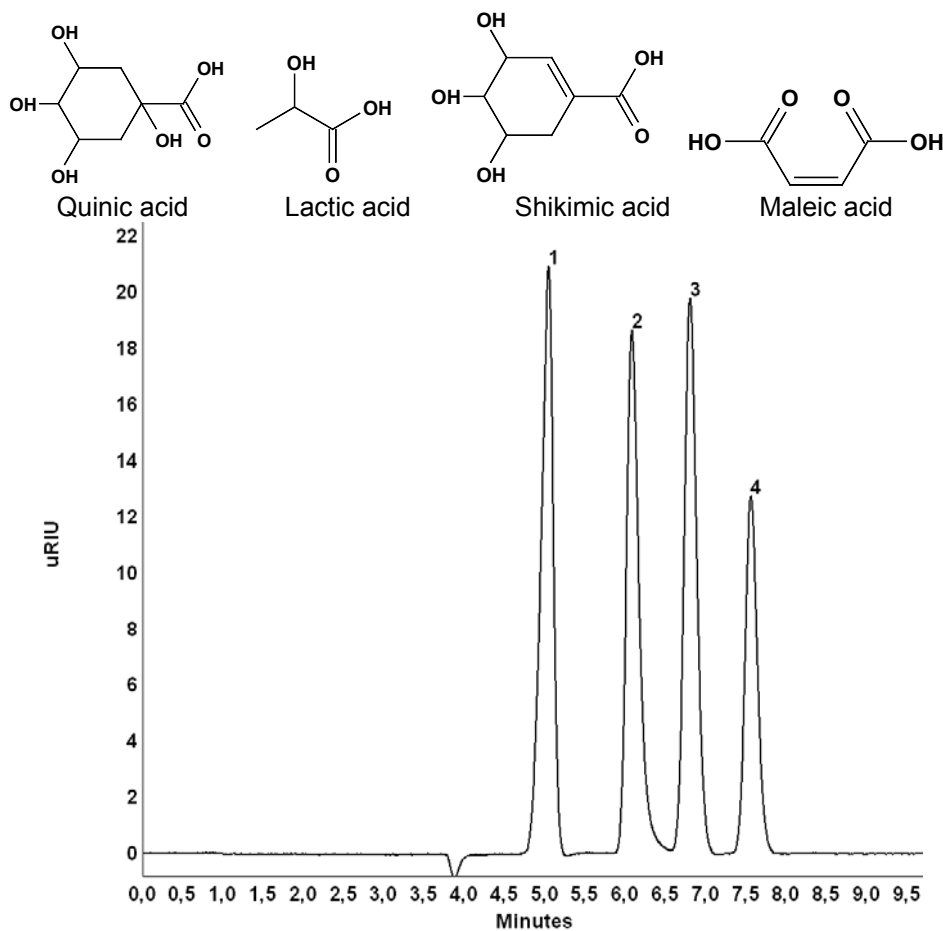
Detection: RI

Substances: Quinic acid, Lactic acid, Shikimic acid, Maleic acid

Keywords: Carboxylic organic acids, Eurokat H

Chromatogram:

- 1 Quinic acid
- 2 Lactic acid
- 3 Shikimic acid
- 4 Maleic acid



29 Fast Separation of Carbonic acids III



Method HPLC

Column: Eurokat H, 10 µm, 300 x 8 mm

Order No. 30GX340EKN

Phase: Eurokat H, 10 µm

Conditions: Eluent: A: 0.01 N Sulfuric acid

Flow rate: 1.0 ml/min

Temperature: 75 °C

Volume: 10 µl

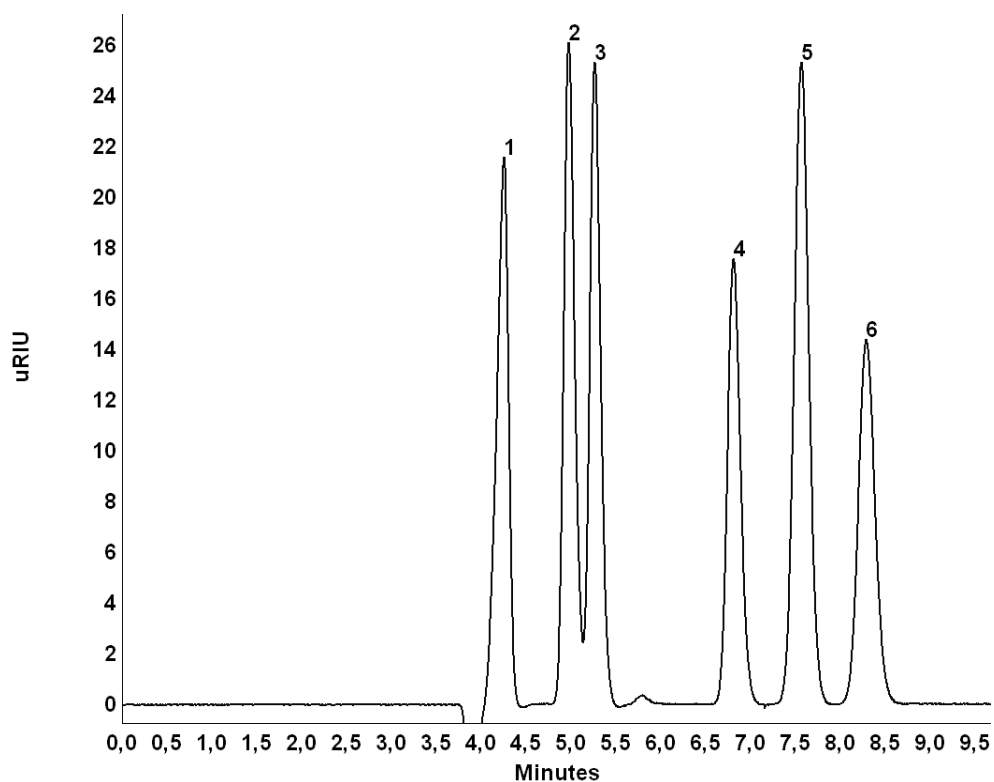
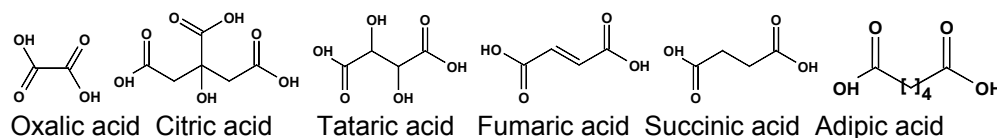
Detection: RI

Substances: Oxalic acid, Citric acid, Tartaric acid, Fumaric acid, Succinic acid, Adipic acid

Keywords: Carboxylic organic acids, Eurokat H

Chromatogram:

- 1 Oxalic acid
- 2 Citric acid
- 3 Tartaric acid
- 4 Fumaric acid
- 5 Succinic acid
- 6 Adipic acid



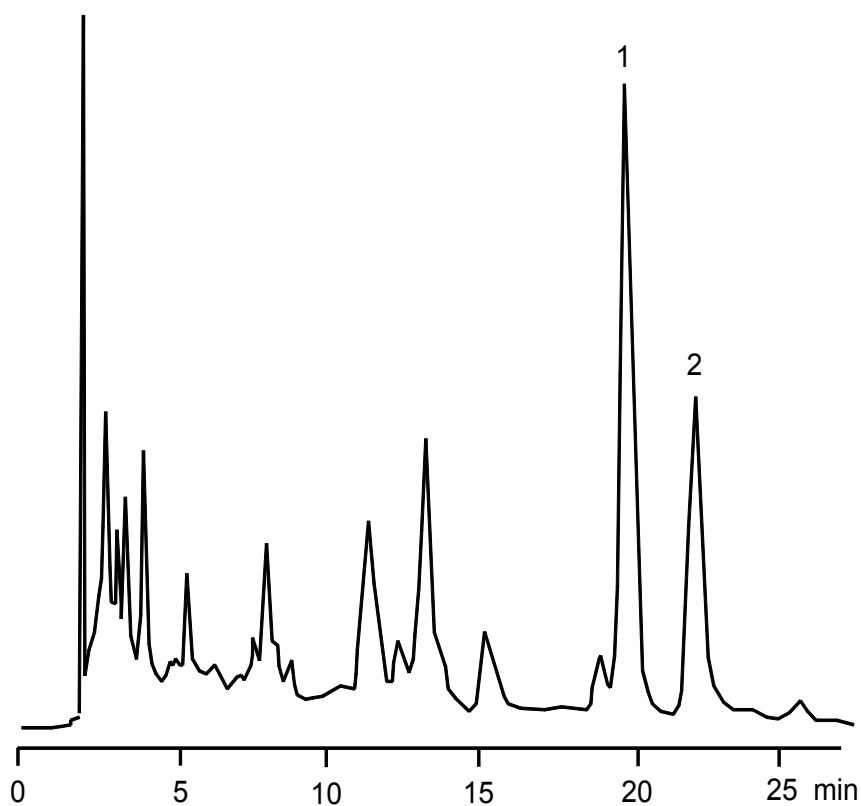
30 Separation of β -Carotene isomers

Method
HPLC

RP Mode

Column: ProntoSIL 200-3 C30, 250 x 4.6 mm ID**Order No.** 25EH300PSG**Phase:** ProntoSIL 200-3 C30**Conditions:**
Eluent: MeOH / TBME (80:20)
Gradient: isocratic
Flow rate: 1.4 ml/min
Temperature: 25 °C
Volume: 5 μ l**Detection:** UV at 450 nm**Substances:** β -Carotene**Keywords:** Vitamins, fat soluble**Chromatogram:**

1. all-trans β -Carotene
2. 9-cis β -Carotene



31 Fast Separation of Dicarboxylic acids

New!

Method HPLC

Column: Eurokat H, 10 µm, 300 x 8 mm

Order No. 30GX340EKN

Phase: Eurokat H, 10 µm

Conditions: Eluent: A: 0.01 N Sulfuric acid
Flow rate: 1.0 ml/min
Temperature: 75 °C
Volume: 10 µl

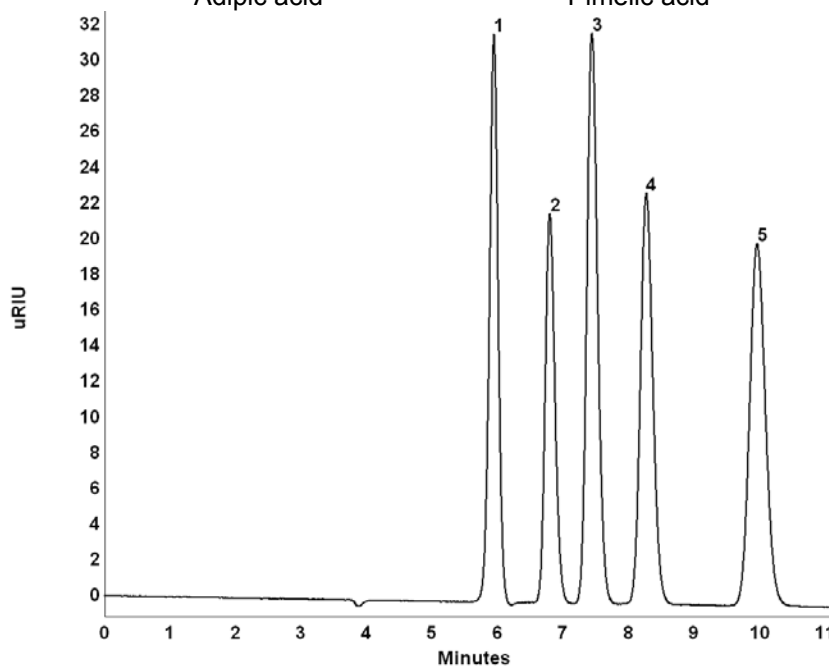
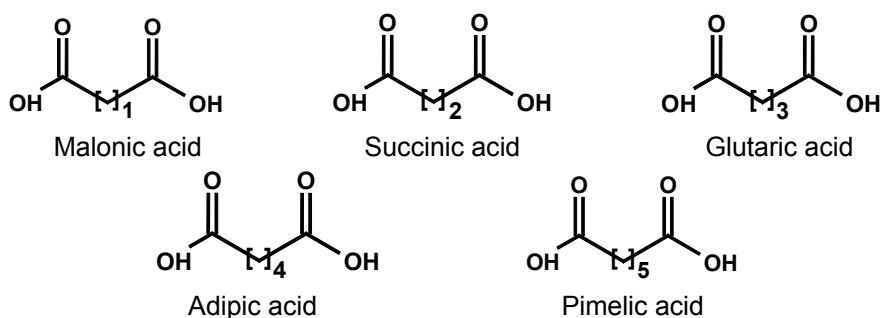
Detection: RI

Substances: Malonic acid, Succinic acid, Glutaric acid, Adipic acid, Pimelic acid

Keywords: Dicarboxylic organic acids, Eurokat H

Chromatogram:

- 1 Malonic acid
- 2 Succinic acid
- 3 Glutaric acid
- 4 Adipic acid
- 5 Pimelic acid



32 Separation of Dicarboxylic acids

Method HPLC

Column: Eurokat H, 300 x 8 mm ID

Order No. 30GX340EKN

Phase: Eurokat H, 10 µm (polymer phase)

Conditions: Eluent: 0.01 N H₂SO₄
 Gradient: isocratic
 Flow rate: 0.7 ml/min
 Temperature: 75 °C
 Volume: 20 µl

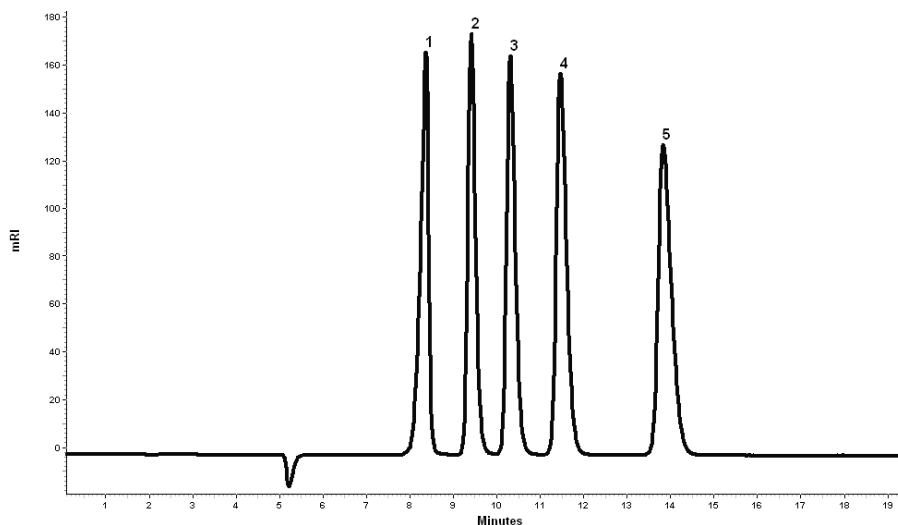
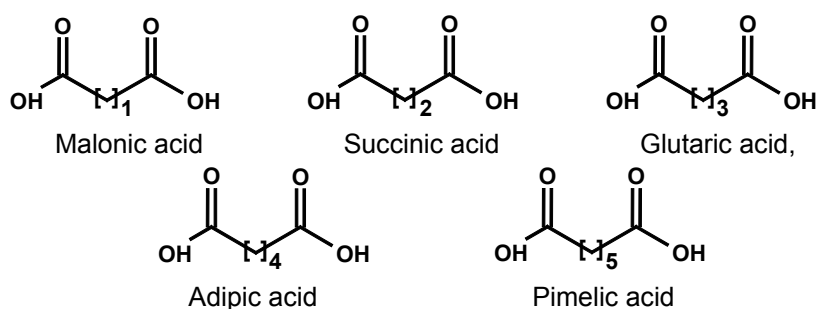
Detection: Refractive Index (RI)

Substances: Malonic acid, Succinic acid, Glutaric acid, Adipic acid, Pimelic acid

Keywords: Dicarboxylic organic acids, Eurokat H

Chromatogram:

1. Malonic acid
2. Succinic acid
3. Glutaric acid
4. Apipic acid
5. Pimelic acid



33 Determination of Diketopiperazine in Softdrinks

Method

HPLC

Column: Eurospher 100-5 C18, 250 x 4.6 mm ID

Order No. 25EE181ESJ

Phase: Eurospher 100-5 C18

Conditions: Eluent: 10 mM KH_2PO_4 / ACN (85:15), adjusted to pH 4.0
Gradient: isocratic
Flow rate: 0.7 ml/min
Temperature: 30 °C
Volume: 10 μl

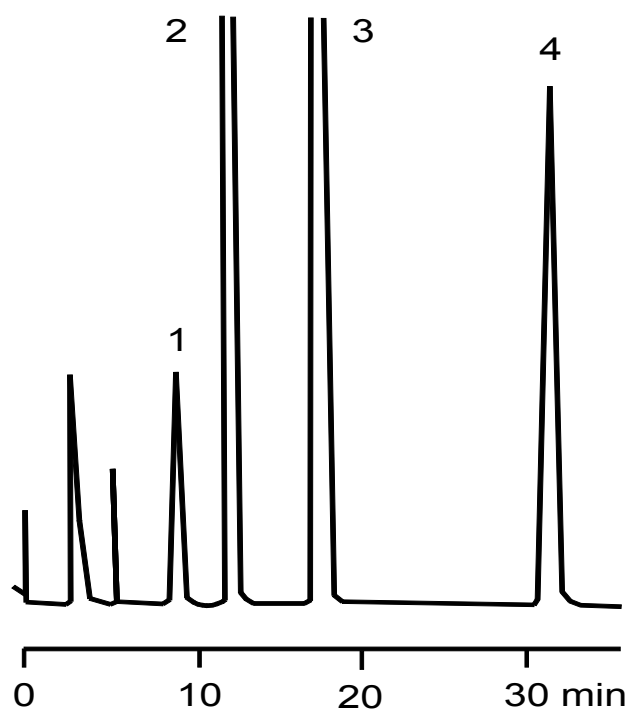
Detection: UV at 210 nm

Substances: Diketopiperazine, Caffeine, Aspartame

Keywords: Additives, Sweeteners

Chromatogram:

1. DKP = diketopiperazine
2. Caf = caffeine
3. APM = aspartame
4. BA = Na benzoate



34 Determination of Fatty acids

Method HPLC

Column: UltraSep ES FS, 250 x 3.0 mm ID

Order No. I0046

Phase: UltraSep ES FS

Conditions: Eluent: A: 10 mM Phosphoric acid pH 2.9 (NaOH)
B: Acetonitrile
Gradient: 0 - 30 min 70% - 98% B
Flow rate: 0.55 ml/min
Temperature: 30 °C

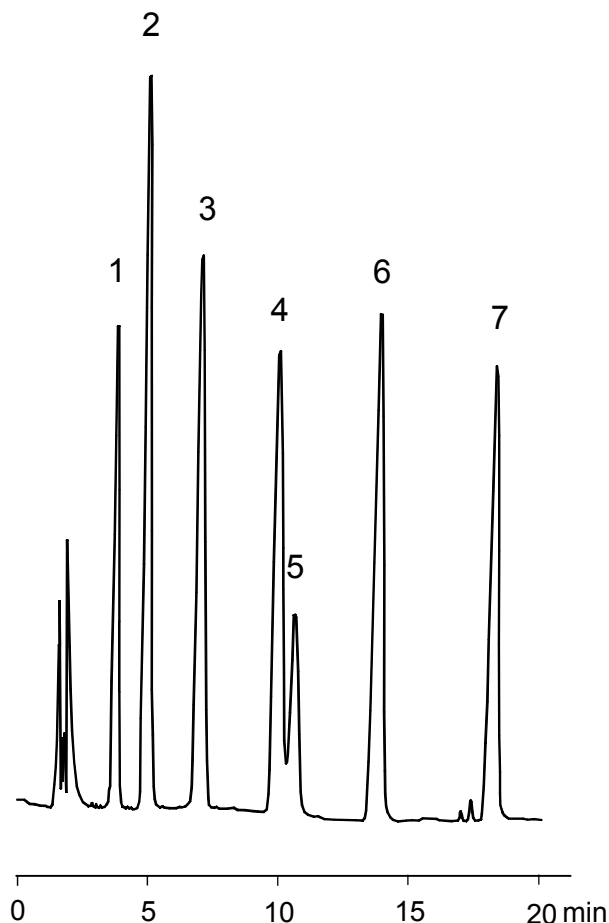
Detection: UV at 210 nm

Substances: Capric acid; Lauric acid; Myristic acid; Palmitinic acid; Elaidinic acid; Stearic acid; Arachidonic acid

Keywords: Fatty acids

Chromatogram:

1. Capric acid
2. Lauric acid
3. Myristic acid
4. Palmitinic acid
5. Elaidinic acid
6. Stearic acid
7. Arachidonic acid



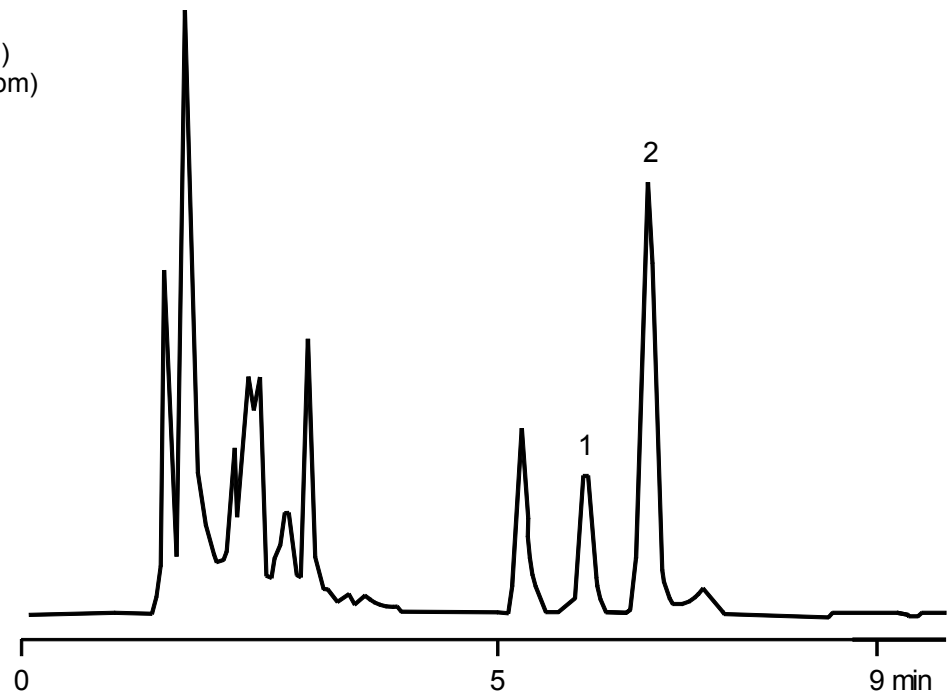
35 Analysis of Flavonoids in fruit juice

Method
HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.0 mm ID**Order No.** 25DE181ESJ**Phase:** Eurospher 100-5 C18**Conditions:**
Eluent: 5 mM Ammonium acetate / Acetonitrile (75:25)
(pH 4,45; adjusted with conc. Acetic acid)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 40 °C
Volume: 5 µl**Detection:** UV at 285 nm**Substances:** Naringin, Hesperidin**Keywords:** Flavonoids, Beverage (orange juice sample)**Chromatogram:**

1. Naringin (28.03 ppm)
2. Hesperidin (79.25 ppm)



36 Stilbene and Flavonoids in red wine samples

Method HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.0 mm ID

Order No. 25DE181ESJ

Phase: Eurospher 100-5 C18

Conditions:

Eluent: A: MeOH / Water (50:50) (pH 3 with TFA)
 B: MeOH / Water (80:20) (pH 3 with TFA)
 C: MeOH / Water (20:80) (pH 3 with TFA)

Gradient: 0 – 5 min 90% A 10% C → 100% A
 5 – 8 min 100% A → 70% A 30% B
 8 - 12 min 70% A 30% B → 20% A 80% B
 12 - 14 min 20% A 80% B → 100% B
 14 - 16 min 100% B isocratic

Temperature: 40 °C
 Flow rate: 1.0 ml/min
 Volume: 20 µl

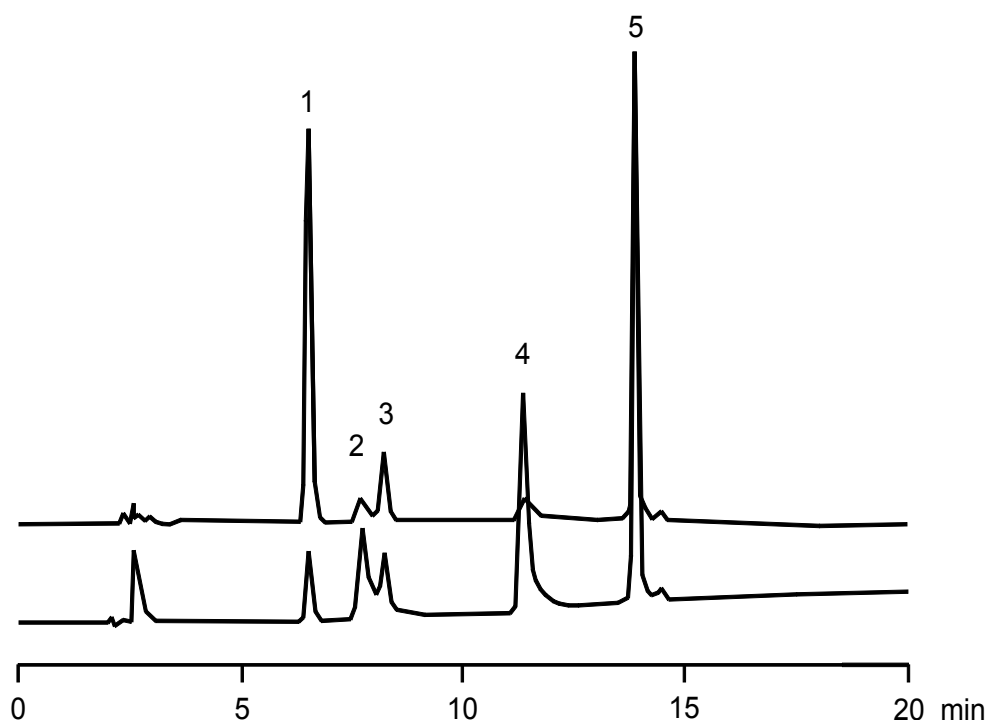
Detection: UV at different wavelength
 (Resveratrol: 305 nm, Myrcetine: 254/365nm, Quercetine: 365 nm, Caempferol: 265/365 nm)

Substances: trans-Resveratrol, cis-Resveratrol, Myrcetine, Quercetine, Caempferol

Keywords: Stilbene, Flavonoids

Chromatogram:

1. trans Resveratrol
2. Myrcetine
3. cis Resveratrol
4. Quercetine
5. Caempferol



37 Analysis of Flavonoid Glycosides

Method HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.6 mm ID

Order No. 25EE181ESJ

Phase: Eurospher 100-5 C18

Conditions: Eluent: A: Water
B: Acetonitrile / H₂O, adjusted to pH 2.5; with Phosphate buffer
Gradient: 0 – 35 min 17% - 23% ACN
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 µl

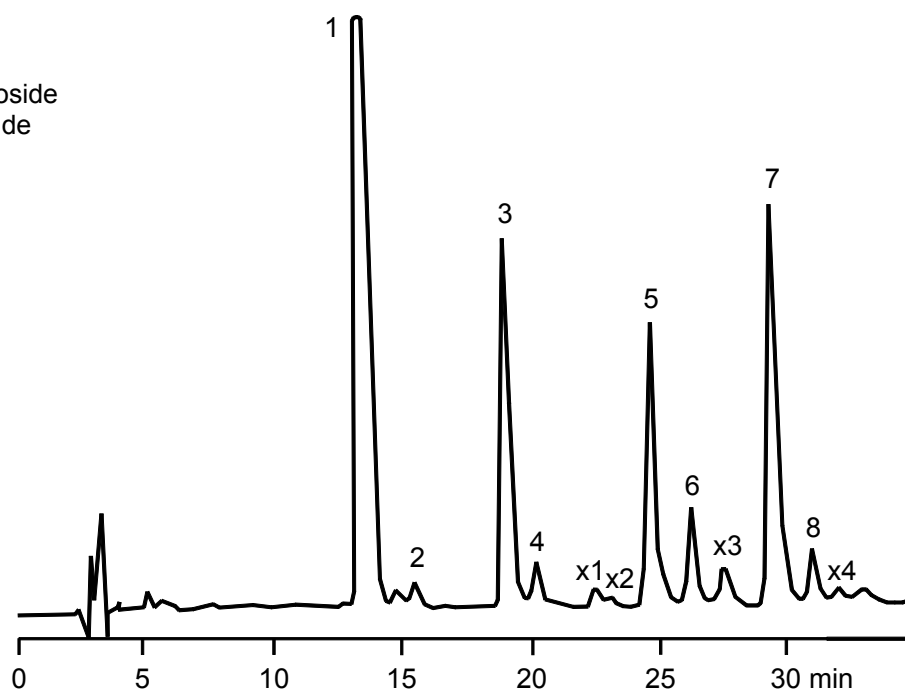
Detection: UV at 280 nm

Substances: Eriocitrin, Eriodictyol 7-O-glucoside, Luteolin 7-O-rutinoside, Narirutin, Hesperidin, Isorhoifolin, Rosmarinic acid, Diosmin

Keywords: Flavonoid Glycosides

Chromatogram:

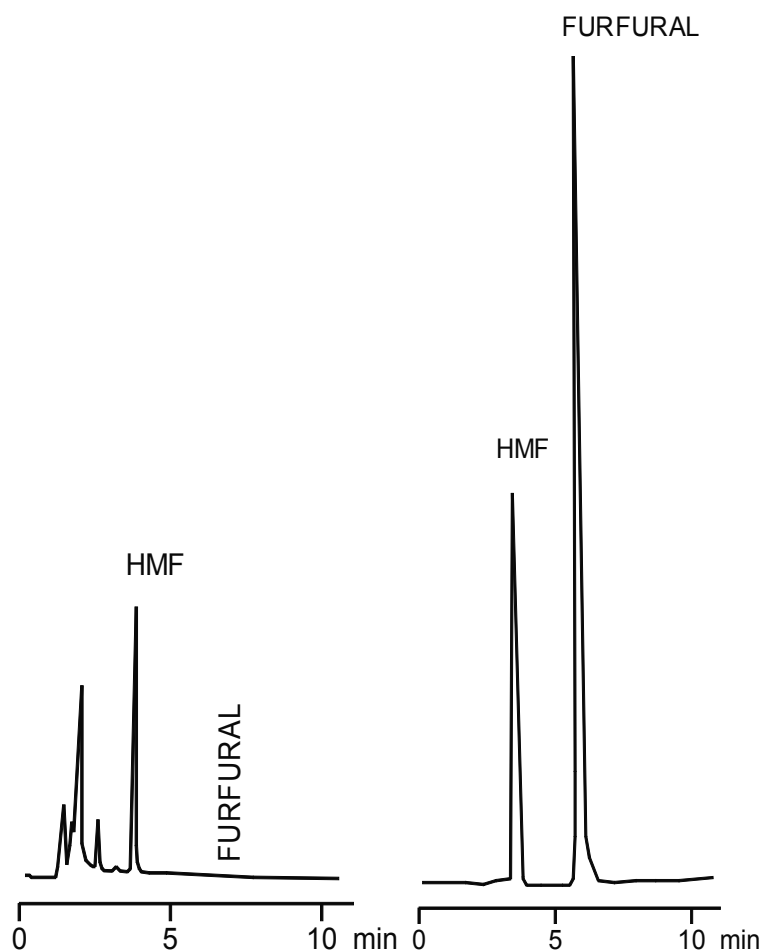
1. Eriocitrin
2. Eriodictyol 7-O-glucoside
3. Luteolin 7-O-rutinoside
4. Narirutin
5. Hesperidin
6. Isorhoifolin
7. Rosmarinic acid
8. Diosmin
- X1-4 unknown



38 Separation of Methylfurfural and Hydroxymethylfurfural in beer

Method
HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.0 mm ID**Order No.** 25DE181ESJ**Phase:** Eurospher 100-5 C18**Conditions:**
Eluent: Water / Acetonitrile (90:10)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 30 °C
Volume: 20 µl**Detection:** UV at 277 nm**Substances:** Furfural, Hydroxymethylfurfural (HMF)**Keywords:** HMF, Beer**Chromatogram:**

39 Determination of Mono- and Disaccharides

Method

HPLC HILIC Mode

Column: Eurospher II 100-3 NH₂, 100 x 3.0 mm ID

Order No. 10CE190E2G

Phase: Eurospher II 100-3 NH₂

Conditions: Eluent: ACN / Water 75 / 25 v/v
 Gradient: isocratic
 Flow rate: 1.0 ml/min
 Temperature: 25 °C
 Volume: 5 µl

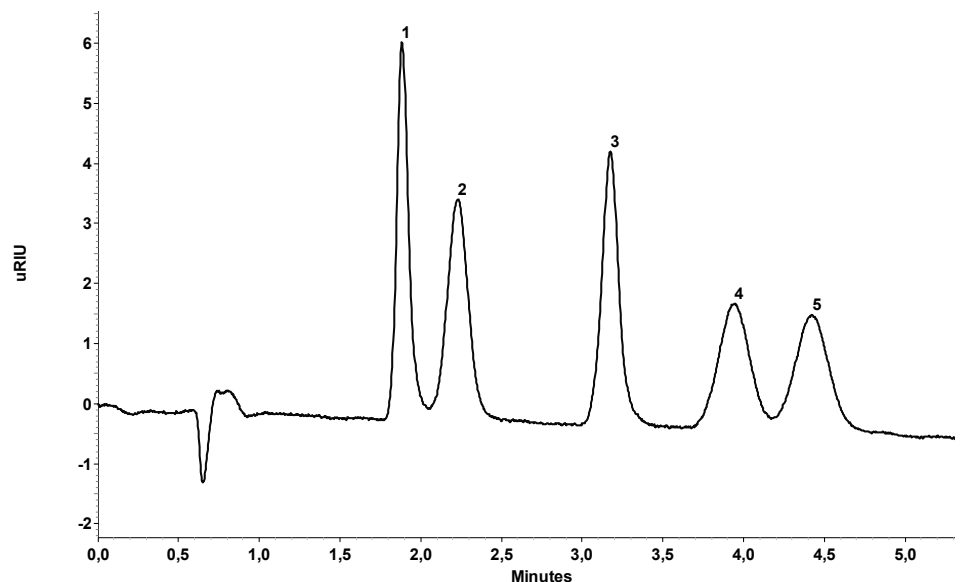
Detection: Refractive Index (RI)

Substances: Fructose, Glucose, Lactose, Maltose, Saccharose

Keywords: Amino Phase, Saccharides

Chromatogram:

- 1 Fructose
- 2 Glucose
- 3 Saccharose
- 4 Maltose
- 5 Lactose



40 Determination of Deoxynivalenol (DON)

Method
HPLC

RP Mode

Column: Eurospher 100-5 C18, 150 x 4.0 mm ID

Order No. 15EE181ESJ

Phase: Eurospher 100-5 C18

Conditions: Eluent: Water / Acetonitrile (90:10)
 Gradient: isocratic
 Flow rate: 0.6 ml/min
 Temperature: 30 °C
 Volume: 20 µl

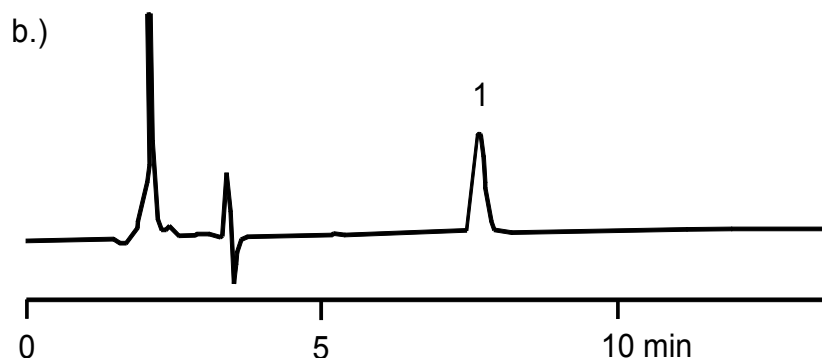
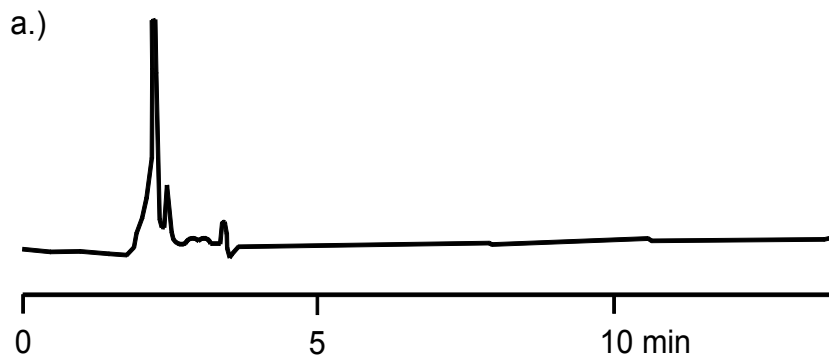
Detection: UV at 218 nm

Substances: Deoxynivalenol (DON)

Keywords: Mycotoxins, Deoxynivalenon

Chromatogram:

- a) blank wheat sample
- b) spiked wheat sample



41 Determination of Nivalenol (NIV) and Deoxynivalenol (DON) with postcolumn derivatisation

Method

HPLC fungus

Column: ProntoSIL 120-5 C18 AQ, 250 x 3.0 mm ID

Order No. 25CF184PSJ

Phase: ProntoSIL 120-5 C18 AQ

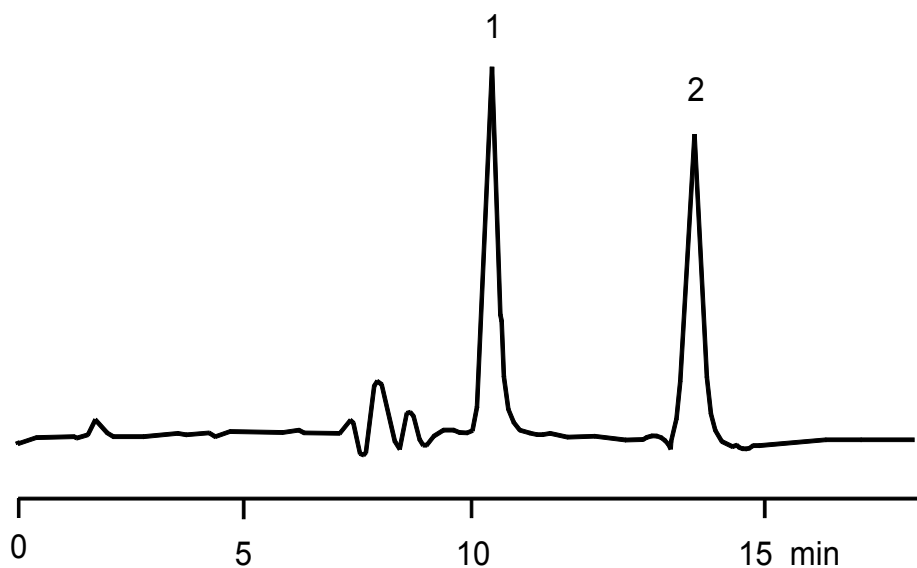
Conditions: Eluent: A: Acetonitrile
B: 0.01 M Acetic acid
Gradient: 0 – 16 min 10% A
16 – 22 min 10% - 90% A
22 – 40 min 90% - 10% A
Flow rate: 0.4 ml/min
Temperature: 25 °C
Volume: up to 200 µl
2 channel postcolumn derivatization, flow rate of 0.25 ml/min, temperature of 115 °C
Reactor Coil 1 : 1.2 ml, 0.15 M sodium hydroxide
Reactor Coil 2 : 1.6 ml, 0.03 M methyl acetoacetate and 2 M ammonium acetate
Detection: Fluorescence: excitation at 360 nm, emission at 470 nm

Substances: Deoxynivalenol (DON), Nivalenol (NIV)

Keywords: Mycotoxins, Deoxynivalenol (DON), Nivalenol (NIV)

Chromatogram:

1. Nivalenol (NIV)
2. Deoxynivalenol (DON)



42 Analysis of Fusarium Mycotoxines

Method HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.0 mm ID

Order No. 25DE181ESJ

Phase: Eurospher 100-5 C18

Conditions:

Eluent:	A: Acetonitrile B: Water / Acetonitrile (90:10)
Gradient:	0 – 28 min 8% A 28 – 32 min 8% - 20% A 32 – 36 min 20% - 100% A 36 – 40 min 100% A 40 – 45 min 100% - 8% A
Flow rate:	0 – 7 min 0.65 ml/min 7 – 40 min 0.75 ml/min 40 – 45 min 0.65 ml/min
Temperature:	25 °C
Volume:	10 µl

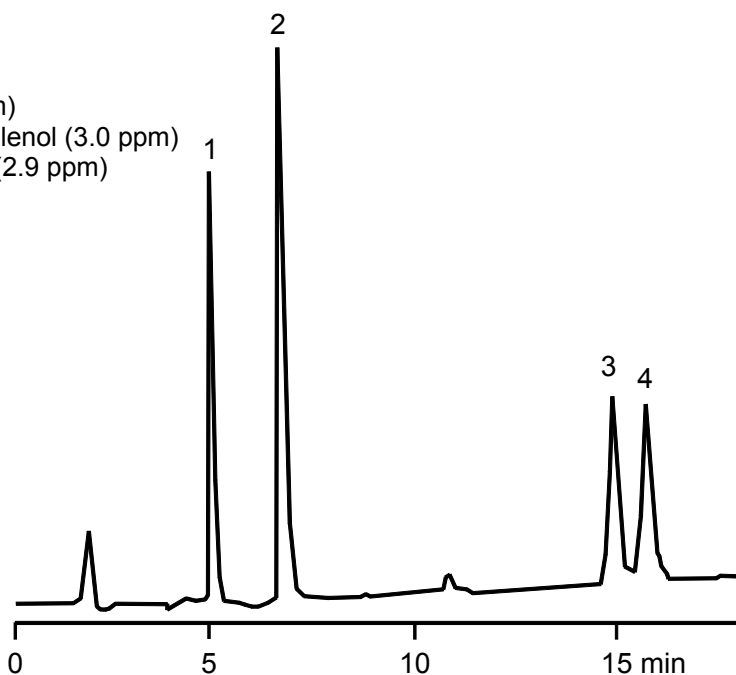
Detection: DAD at 220 and 230 nm

Substances: Nivalenol, Deoxynivalenol (DON), 15-o-Acetyl-4-deoxynivalenol, 3-Acetyldeoxynivalenol

Keywords: Fusarium Mycotoxines

Chromatogram:

1. Nivalenol (2.8 ppm)
2. Deoxynivalenol (2.9 ppm)
3. 15-o-Acetyl-4-deoxynivalenol (3.0 ppm)
4. 3-Acetyldeoxynivalenol (2.9 ppm)



43 Ion chromatography for determination of NO₂⁻ and NO₃⁻ in beverages

Method
HPLC Ion Chromatography

Column: Novosep A-2 Anion, 250 x 4.0 mm ID

Order No. B92

Phase: Novosep A-2 Anion

Conditions: Eluent: 3.6 mM Sodium carbonate (Na₂CO₃)
 Gradient: isocratic
 Flow rate: 0.4 ml/min
 Temperature: 45 °C
 Volume: 5 µl, Chromatogram for a mixture of anions with concentration of 1 ppm

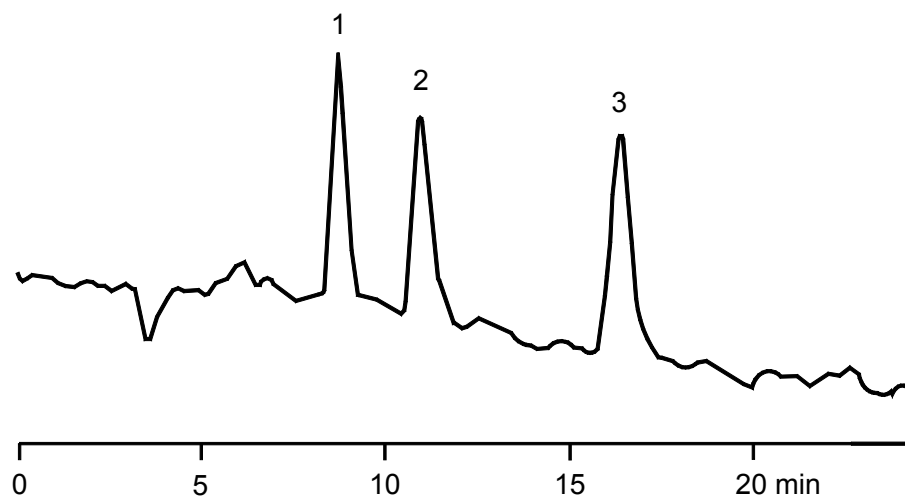
Detection: suppressed Conductivity, Range 1 µS

Substances: Chloride (Cl⁻), Nitrite (NO₂⁻), Nitrate (NO₃⁻)

Keywords: Anions

Chromatogram:

1. Chloride 1 ppm
2. Nitrite 1 ppm
3. Nitrate 1 ppm



44 Determination of Organic acids I

Method HPLC

Column: ProntoSIL 120-3 C18 AQ, 300 x 3.0 mm ID

Order No. 30CF184PSG

Phase: ProntoSIL 120-3 C18 AQ

Conditions: Eluent: 5 mM Li₂SO₄ / H₂SO₄ (pH 2.81)
Gradient: isocratic
Flow rate: 0.56 ml/min
Temperature: 20 °C
Volume: 10 µl

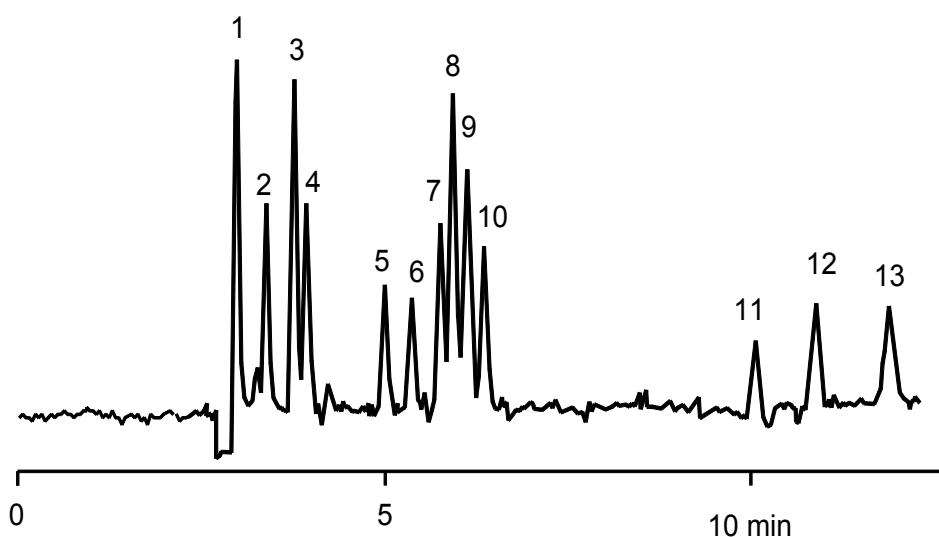
Detection: Refractive Index (RI)

Substances: Acetic acid, Ascorbic acid, Citric acid, Fumaric acid, Lactic acid, Malic acid, Malonic acid, Oxalic acid, Quinic acid, Shikimic acid, Succinic acid, Tartaric acid

Keywords: Organic acids

Chromatogram:

1. Oxalic acid
2. not identified
3. Tartaric acid
4. Quinic acid
5. Malic acid
6. Malonic acid
7. Shikimic acid
8. Lactic acid
9. Ascorbic acid
10. Acetic acid
11. Citric acid
12. Fumaric acid
13. Succinic acid



45 Determination of Organic acids II

Method HPLC

Column: Eurokat H, 300 x 8 mm ID

Order No. 30GX340EKN

Phase: Eurokat H, 10 µm (polymer phase)

Conditions: Eluent: 0.01 N Sulfuric acid
Gradient: isocratic
Flow rate: 0.4 ml/min
Temperature: 75 °C
Volume: 20 µl

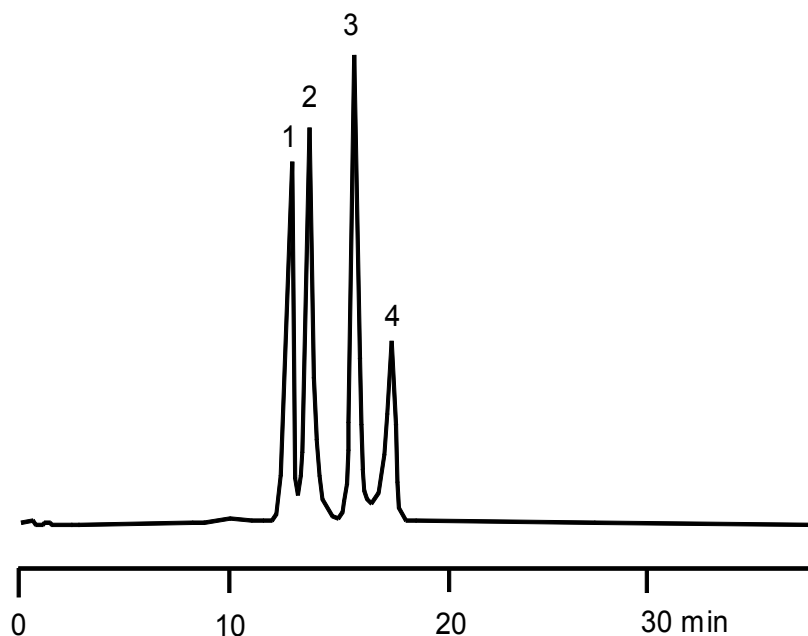
Detection: Refractive Index (RI)

Substances: Malic acid, Lactic acid, Quinic acid, Shikimic acid

Keywords: Organic acids, Eurokat H

Chromatogram:

1. Malic acid
2. Quinic acid
3. Shikimic acid
4. Lactic acid



46 Separation of Organic acids III

Method HPLC

Column: Eurokat H, 300 x 8 mm ID

Order No. 30GX340EKN

Phase: Eurokat H, 10 µm (polymer phase)

Conditions: Eluent: 0.01 N H₂SO₄
Gradient: isocratic
Flow rate: 0.8 ml/min
Temperature: 75 °C
Volume: 20 µl

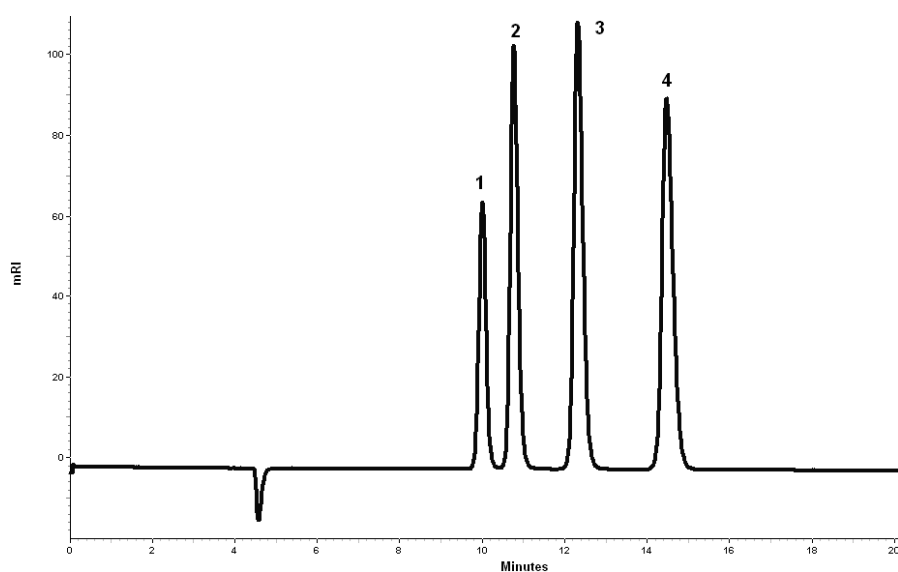
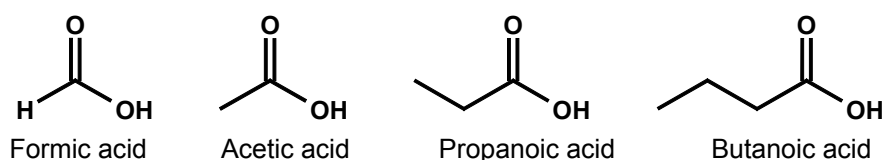
Detection: Refractive Index (RI)

Substances: Formic acid, Acetic acid, Propanoic acid, Butanoic acid

Keywords: Organic acids, Eurokat H

Chromatogram:

1. Formic acid
2. Acetic acid
3. Propanoic acid
4. Butanoic acid



47 Separation of Organic acids and Alcohols IV

Method HPLC

Column: Eurokat H, 300 x 8 mm ID

Order No. 30GX340EKN

Phase: Eurokat H, 10 µm (polymer phase)

Conditions: Eluent: 0.01 N H₂SO₄
Gradient: isocratic
Flow: 0.5 ml/min
Temp.: 60 °C
Volume: 20 µl

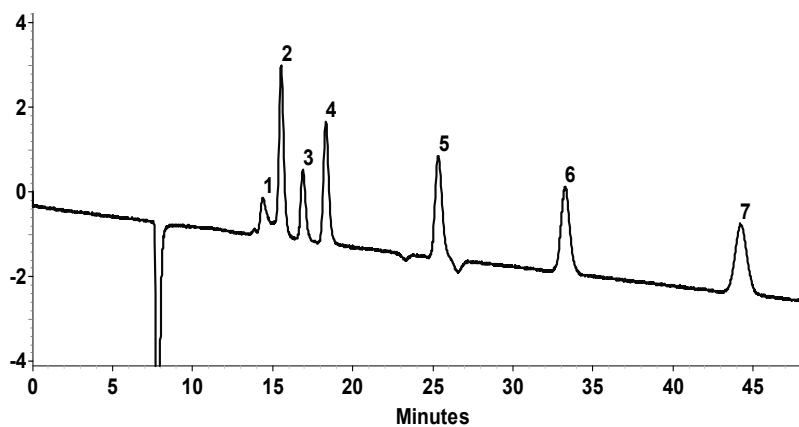
Detection: Refractive Index (RI)

Substances: Lactic acid, Formic acid, Acetic acid, Butanoic acid, 1-Propanol, 1-Butanol

Keywords: Organic acids , Alcohols, Eurokat H

Chromatogram:

1. Imp.1
2. Lactic acid 500 ppm
3. Formic acid 280 ppm
4. Acetic acid 400 ppm
5. Butanoic acid 330 ppm
6. 1-Propanol 380 ppm
7. 1-Butanol 350 ppm



48 Determination of Organic acids in wine with conductivity detection V

Method HPLC

Column: Eurokat H, 300 x 8 mm ID

Order No. 30GX340EKN

Phase: Eurokat H, 10 µm (polymer phase)

Conditions: Eluent: 850 ml Water, 100 ml Acetone, 50 ml 10mM Sulfuric acid
Gradient: isocratic
Flow rate: 0.5 ml/min
Temperature: 50 °C
Volume: 10 µl

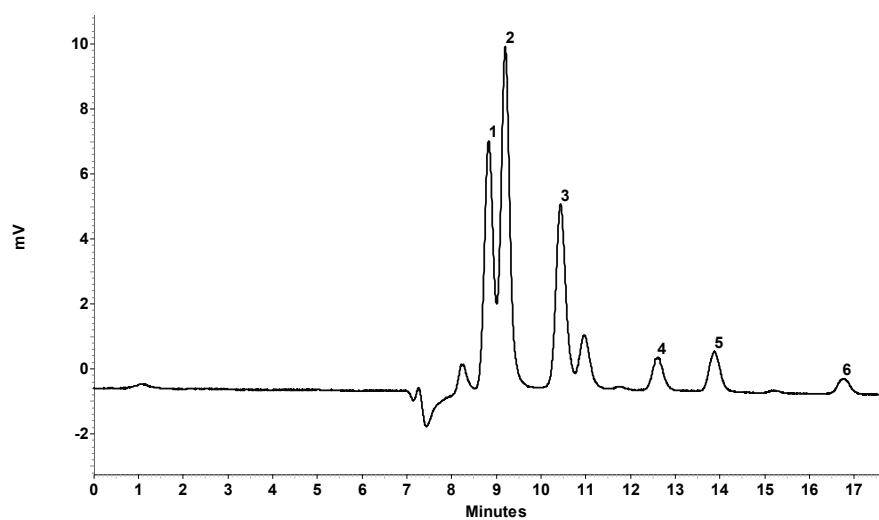
Detection: Conductivity Detector without suppressor, cell temp. 40°C

Substances: Tartaric acid, Citric acid, Malic acid, Lactic acid, Acetic acid, Succinic acid,

Keywords: Organic acids , Eurokat H

Chromatogram:

- 1 Citric acid
- 2 Tartaric acid
- 3 Malic acid
- 4 Succinic acid
- 5 Lactic acid
- 6 Acetic acid



49 Determination of Patulin in apple juice

Method

HPLC

Sample

Preparation:

RP Mode

extraction of apple juice with ethyl acetate (3x), extraction of the combined phases with Na₂CO₃ solution, extraction of the separated aqueous phase with ethyl acetate, addition of glacial acetic acid, reduction of ethyl acetate, redissolution of the dry residue in mobile phase

Column: Eurospher 100-5 C8, 250 x 4.0 mm ID

Order No. 25DE081ESJ

Phase: Eurospher 100-5 C8

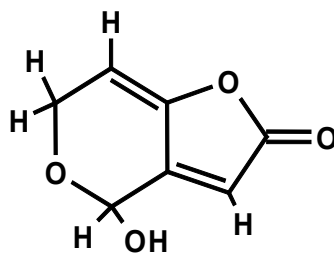
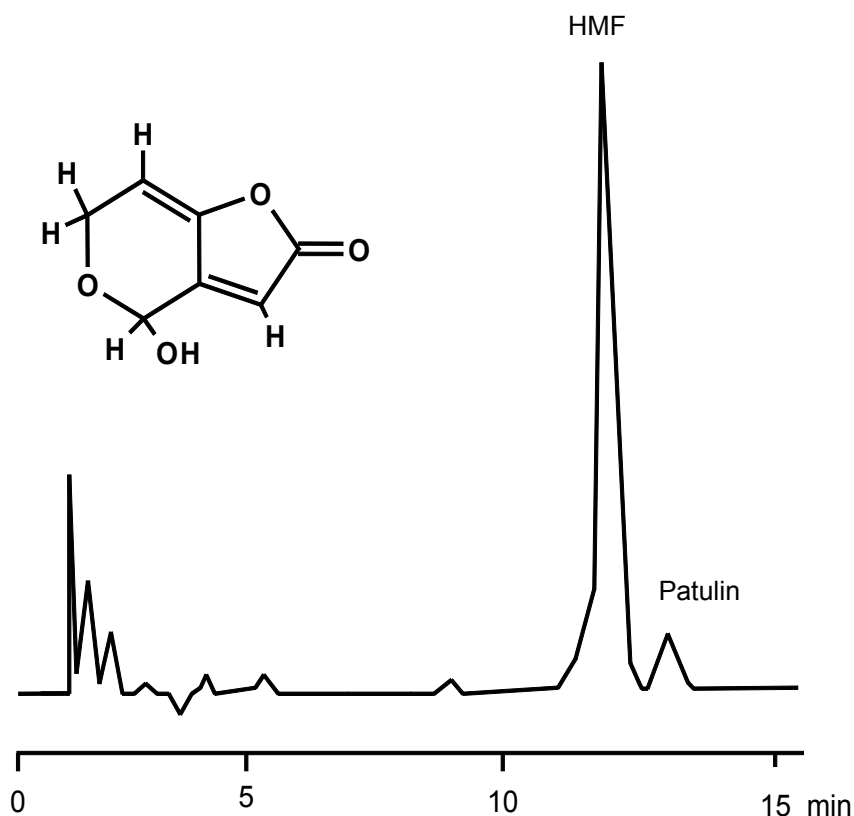
Conditions: Eluent: Acetonitrile / Water (3:97)
 Gradient: isocratic
 Flow rate: 1.0 ml/min
 Temperature: 25 °C
 Volume: 10 µl

Detection: UV (DAD) at 275 nm

Substances: Patulin

Keywords: Mycotoxins

Chromatogram:



51 Separation of Preservatives

Method HPLC

RP Mode

Column: Eurospher 100-5 C8, 125 x 4.0 mm ID

Order No. 12DE081ESJ

Phase: Eurospher 100-5 C8

Conditions: Eluent: A: Buffer / Methanol (50:20)
B: Buffer / Methanol (50:70)
Buffer: 0.4 ml Formic acid, 0.8 ml NH₃ (25%) filled with Water to 1l
Gradient: 0 – 15 min 0% - 100% B
15 – 20 min 100% B
Flow rate: 1.0 ml/min
Temperature: 30 °C
Volume: 20 µl

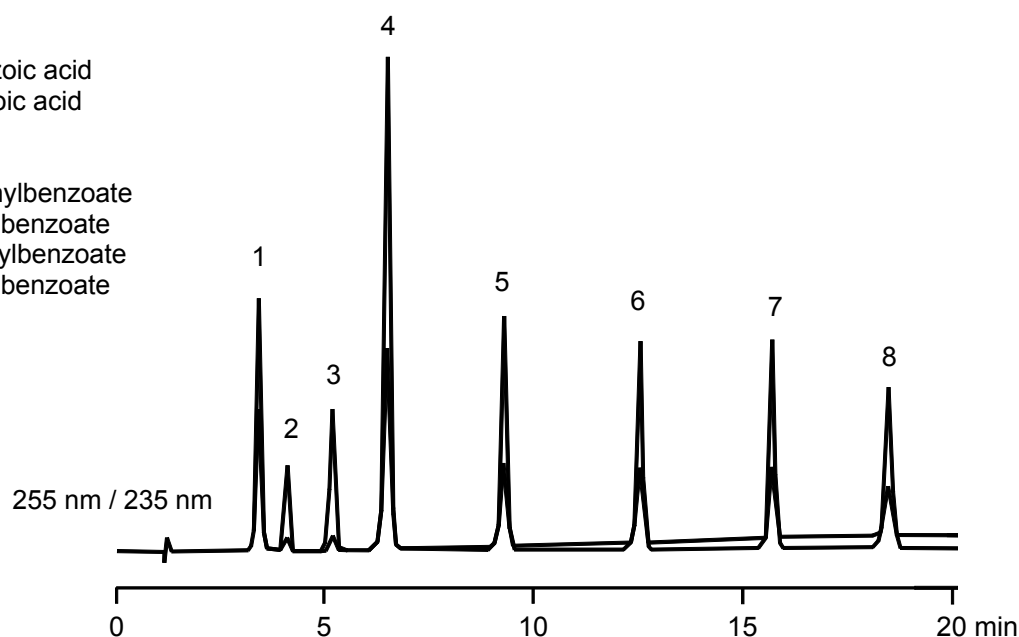
Detection: UV at 235 nm and 255 nm

Substances: Benzoic acid, 4-Hydroxy-benzoic acid, p-Hydroxy methylbenzoate, p-Hydroxy ethylbenzoate, p-Hydroxy propylbenzoate, p-Hydroxy butylbenzoate, 2-Methoxy benzoic acid, Sorbic acid

Keywords: Preservatives

Chromatogram:

1. 4-Hydroxy benzoic acid
2. 2-Methoxy benoic acid
3. Benzoic acid
4. Sorbic acid
5. p-Hydroxy methylbenzoate
6. p-Hydroxy ethylbenzoate
7. p-Hydroxy propylbenzoate
8. p-Hydroxy butylbenzoate



52 Very fast determination of Sorbite in Peppermint pastilles

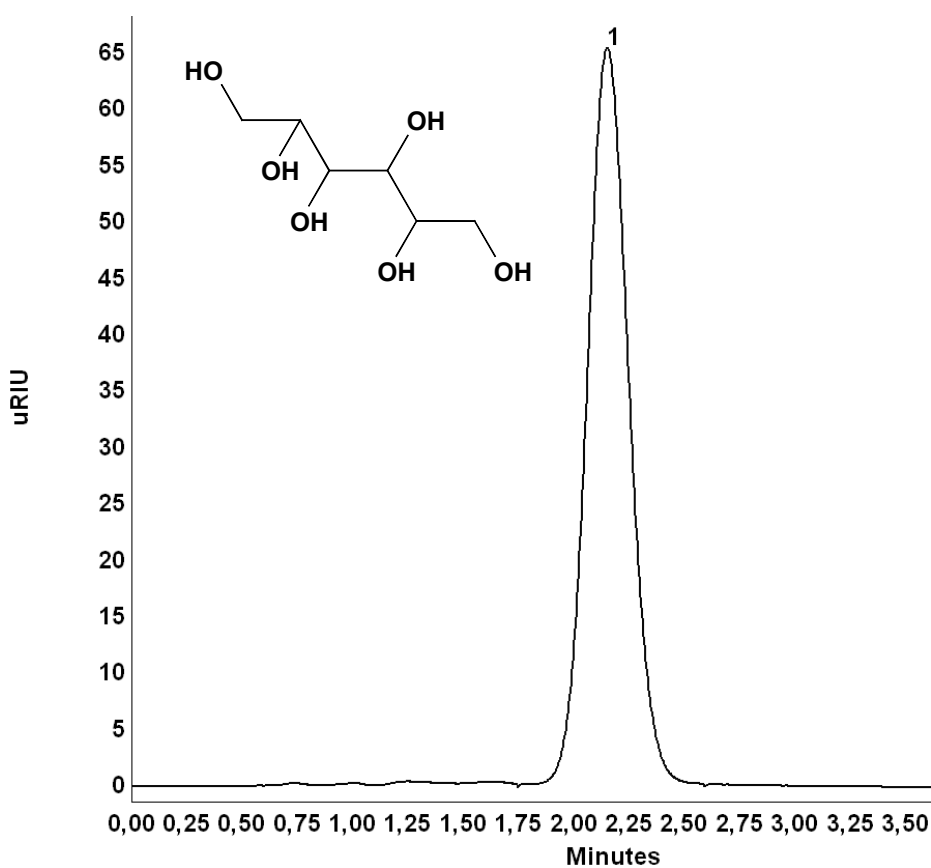
New!

Method HPLC

Column: Eurokat Pb, 10 µm, 30 x 8 mm**Order No.** 03GX350EKN**Phase:** Eurokat Pb, 10 µm**Conditions:** Eluent: A: Water
Flow rate: 1.0 ml/min
Temperature: 75 °C
Volume: 10 µl**Detection:** RI**Substances:** Sorbite**Keywords:** Sorbite , Peppermint pastilles, Eurokat Pb

Chromatogram:

1 Sorbite



53 Separation of Sugar Substitutes

Method

HPLC HILIC Mode

Column: Eurospher II 100-3 NH₂, 100 x 3.0 mm ID

Order No. 10CE190E2G

Phase: Eurospher II 100-3 NH₂

Conditions: Eluent: Acetonitrile / Water 80 / 20 (v/v)
Gradient: isocratic
Flow rate: 0.8 ml/min
Temperature: 25 °C
Volume: 5 µl

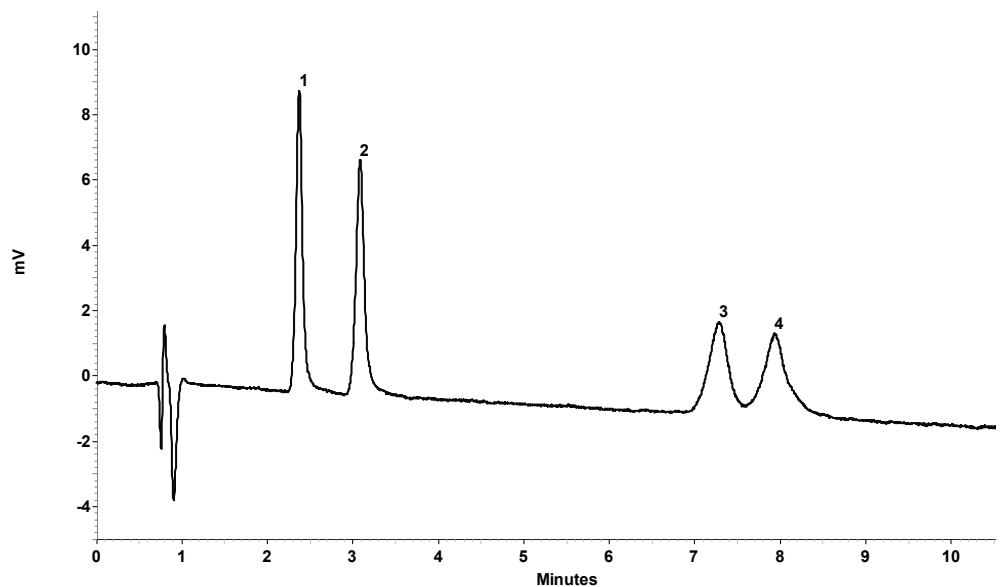
Detection: Refractive Index (RI)

Substances: Isomalt, Lactitol, Sorbitol, Xylitol

Keywords: Amino Phase, Sugar Substitutes

Chromatogram:

- 1 Xylitol
- 2 Sorbitol
- 3 Isomalt
- 4 Lactitol



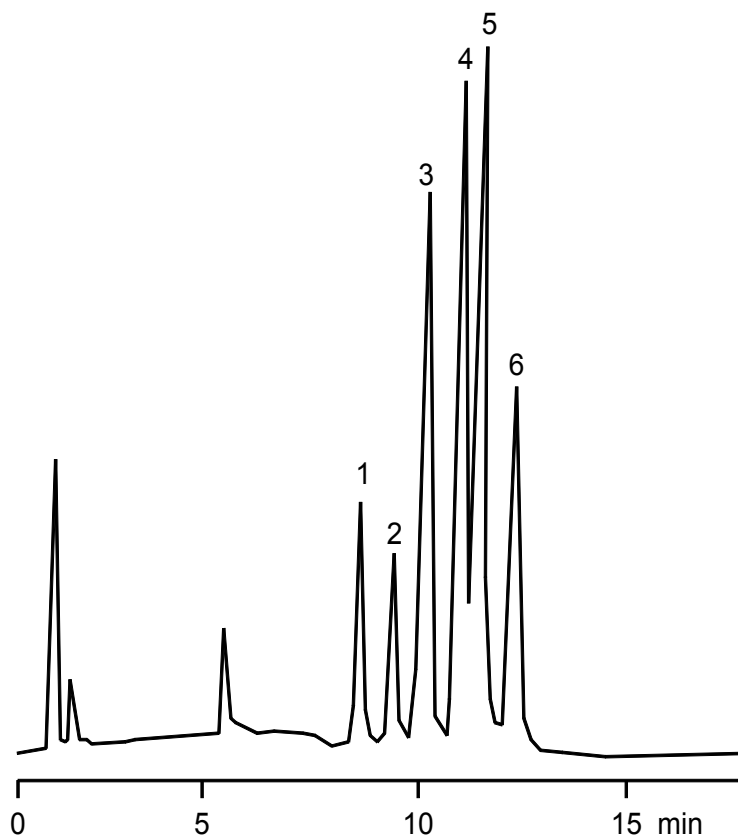
54 Determination of various Sterols

Method
HPLC

RP Mode

Column: Eurospher 100-5 C8, 250 x 4.0 mm ID**Order No.** 25DE081ESJ**Phase:** Eurospher 100-5 C8**Conditions:**
Eluent: A: Water
B: Acetonitrile / Methanol (99:1)
Gradient: isocratic 10% A and 90% B
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 2 µl**Detection:** UV at 205 nm**Substances:** Ergosterol, Lanosterol, Cholesterol, Campesterol, Stigmasterol, Sitosterol**Keywords:** Steroids, Steroles**Chromatogram:**

1. Ergosterol
2. Lanosterol
3. Cholesterol
4. Campesterol
5. Stigmasterol
6. Sitosterol



55 Separation of Stevioglycosides

Method
HPLC

HILIC Mode

Column: Eurospher 100-5 NH₂, 150 x 3.0 mm ID
with precolumn

Order No. 15XE190ESJ

Phase: Eurospher 100-5 NH₂

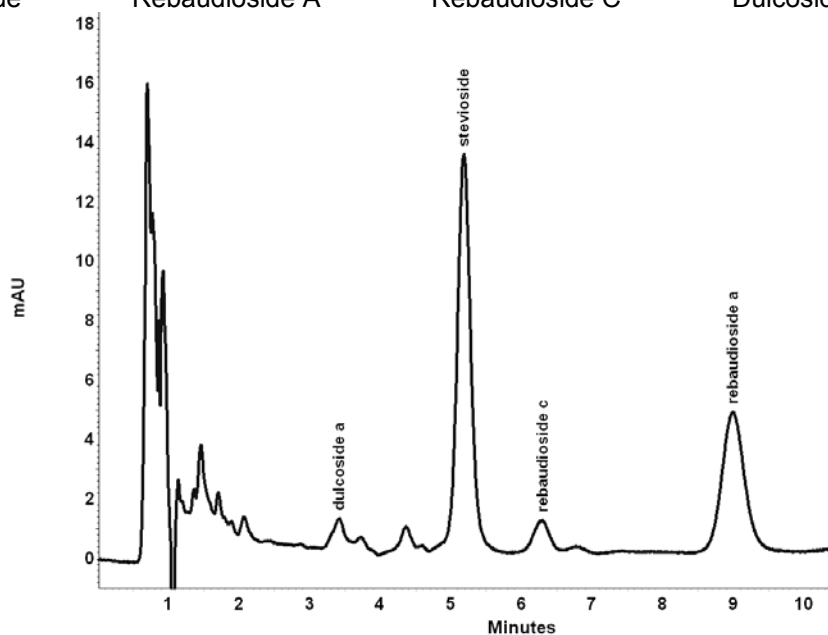
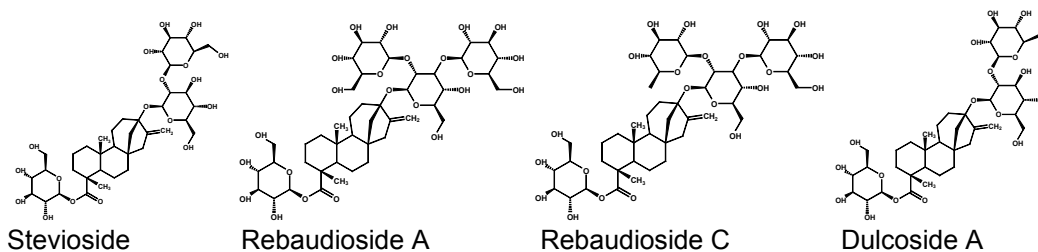
Conditions: Eluent: Acetonitrile / Water 80:20 (v / v)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 35 °C
Volume: 10 µl

Detection: UV at 210 nm

Substances: Stevioside, Rebaudioside A, Rebaudioside C, Dulcoside A

Keywords: Sweeteners, Stevioside, Sugar Substitutes Stevioglycosides

Chromatogram:



56 Separation of water soluble Vitamins

Method HPLC

RP Mode

Column: ProntoSIL 120-3 C18 AQ, 250 x 3.0 mm ID

Order No. 25CF184PSG

Phase: ProntoSIL 120-3 C18 AQ

Conditions:

Eluent:	A: 50 mM H ₃ PO ₄ in Water B: Acetonitrile
Gradient:	0 – 3 min 100% A 3 – 6.66 min 100% – 70% A 6.66 – 10 min 70% A
Flow rate:	0.7 ml/min
Temperature:	25 °C
Volume:	5 µl

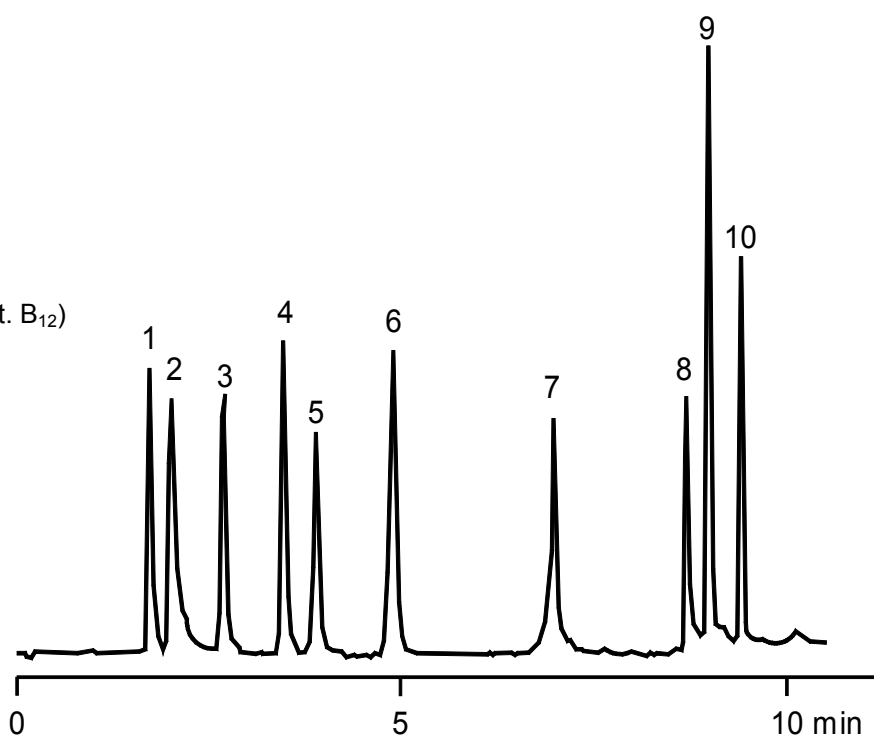
Detection: UV at 230 nm

Substances: Pyridoxamine, Thiamine (Vit. B₁), Ascorbic acid (Vit. C), Nicotinic acid (Niacin), Nicotinamide (Vit. B₃), Pyridoxale, Pyridoxine (Vit. B₆), Folic acid, Cyanocobalamine (Vit. B₁₂), Riboflavine (Vit. B₂)

Keywords: Vitamins, water soluble Vitamins

Chromatogram:

1. Pyridoxamine
2. Thiamine (Vit. B₁)
3. Ascorbic acid (Vit. C)
4. Nicotinic acid
5. Nicotinamide (Vit. B₃)
6. Pyridoxale
7. Pyridoxine (Vit. B₆)
8. Folic acid,
9. Cyanocobalamine (Vit. B₁₂)
10. Riboflavine (Vit. B₂)



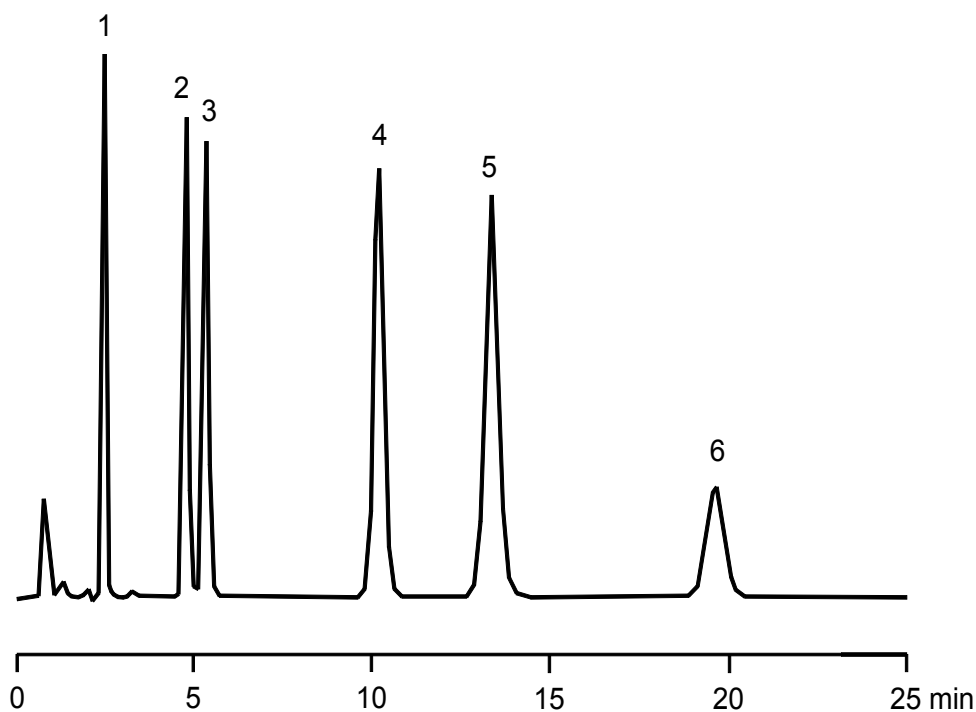
57 Separation of Tocopherole and Vitamin D2

Method
HPLC

NP Mode

Column: Eurospher 100-5 Si, 150 x 4.0 mm ID**Order No.** 15DE000ESJ**Phase:** Eurospher 100-5 Si**Conditions:**
Eluent: Hexan / 2-Butanol (1000:4)
Gradient: isocratic
Flow rate: 2.0 ml/min
Temperature: 25 °C
Volume: 20 µl**Detection:** UV at 280 nm**Substances:** Tocopherole (alpha, beta, gamma, delta), Vitamin D2**Keywords:** Vitamins, fat soluble**Chromatogram:**

1. alpha-Tocopherol
2. beta-Tocopherol
3. gamma-tocopherol
4. delta-Tocopherol
5. Vitamin D2
6. trans-Retinol



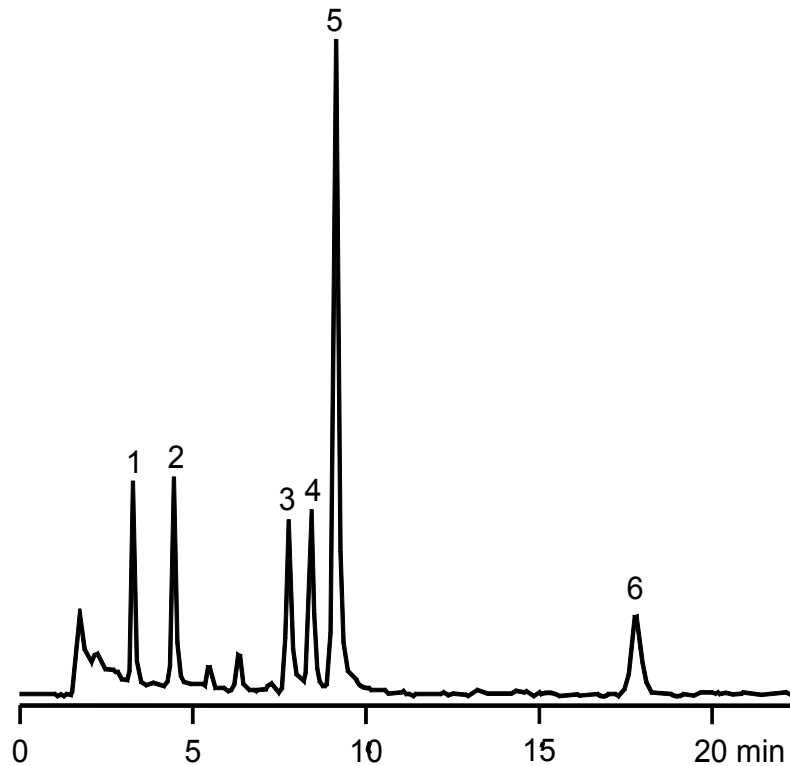
58 Separation of fat soluble Vitamins

Method
HPLC

RP Mode

Column: ProntoSIL 120-3 C18 SH, 250 x 3.0 mm ID**Order No.** 25CF180PSG**Phase:** ProntoSIL 120-3 C18 SH**Conditions:**
Eluent: Methanol
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: ambient
Volume: 5 µl (50 – 300 ppm each substance)**Detection:** Evaporated Light Scattering Detector (T: 33 °C) / UV at 280 nm**Substances:** Vitamin A acetate, Vitamin D3, Vitamin K1, Vitamin A alcohol, Vitamin D2, Vitamin E**Keywords:** Vitamins, fat soluble**Chromatogram:**

1. Vitamin A acetate
2. Vitamin D3
3. Vitamin K1
4. Vitamin A alcohol
5. Vitamin D2
6. Vitamin E



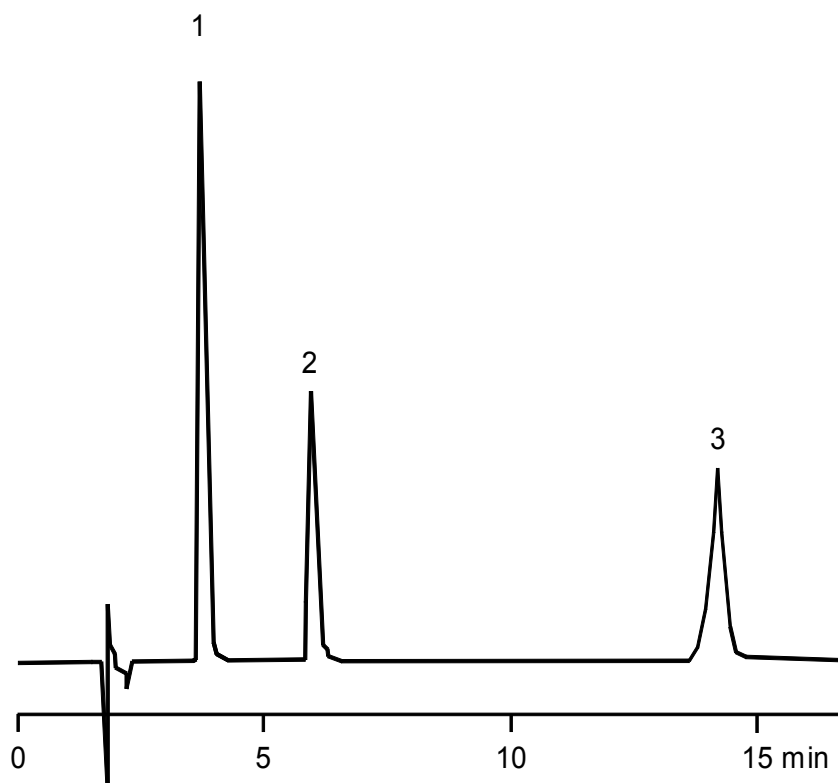
59 Fat soluble Vitamins by HPLC with electrochemical detection

Method
HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.6 mm ID**Order No.** 25EE181ESJ**Sample Preparation:** Vitamins in carrot juice, extracted with Methanol**Phase:** Eurospher 100-5 C18**Conditions:**
Eluent: Methanol with 2 g/l LiClO₄ and 1 g/l Acetic acid
Gradient: isocratic
Flow rate: 1.5 ml/min
Temperature: 25 °C
Volume: 10 µl (20 ng of each standard)**Detection:** electrochemical, glassy carbon working electrode,
left +1000 mV, right +800 mV**Substances:** Vitamin A Acetate, α-Tocopherol, β-Carotene**Keywords:** Vitamins**Chromatogram:**

1. Vitamin A Acetate
2. α-Tocopherol
3. β-Carotene





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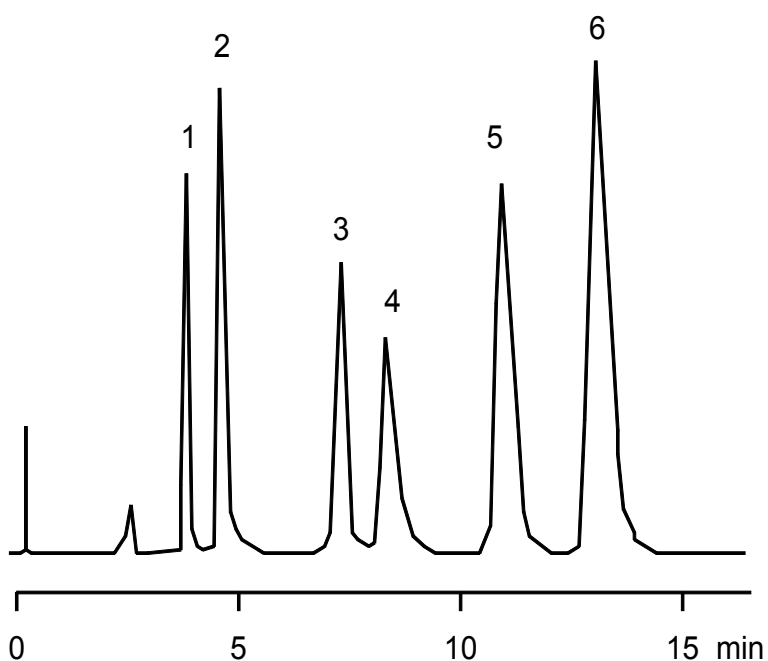
2 Separation and determination of Opium Alkaloids

Method
HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.0 mm ID**Order No.** 25DE181ESJ**Phase:** Eurospher 100-5 C18**Conditions:**
Eluent: 1% Ammonium acetate pH 5.8 / Acetonitrile (65:35)
Gradient: isocratic
Flow rate: 1.5 ml/min
Temperature: 25 °C
Volume: 20 µl**Detection:** UV at 254 nm**Substances:** Morphine, Codeine, Cryptopine, Thebaine, Papaverine, Narcotine**Keywords:** Alkaloids**Chromatogram:**

1. Morphine
2. Codeine
3. Cryptopine
4. Thebaine
5. Papaverine
6. Narcotine



3 HPLC method for the determination of Amineptine and its main Metabolite in human plasma

Method

HPLC RP Mode (Ion pair)

Column: Eurospher 100-5 C18, 150 x 4.6 mm ID

Order No. 15EE181ESJ

Phase: Eurospher 100-5 C18

Conditions: Eluent: Aqueous phase containing 1.2 g/l heptane sulphonate adjusted to pH 3.0 with H₃PO₄ / Acetonitrile (62:38)
 Gradient: isocratic
 Flow rate: 1.0 ml/min
 Temperature: 30 °C
 Volume: 20 µl

Detection: UV at 220 nm

Substances: Amineptine

Keywords: Drugs, Antidepressant drugs

Chromatogram:

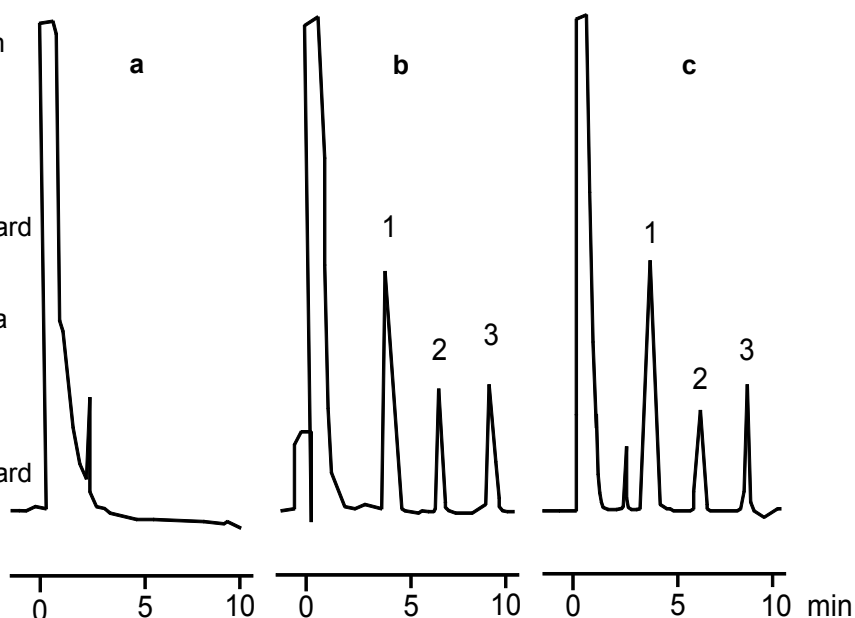
Chromatograms of extracts from
 a) blank plasma

b) plasma spiked with:

1. 250 ng/ml metabolite
2. 250 ng/ml amineptine
3. 500 ng/ml internal standard

c) a patient plasma sample obtained 45 min after taking a 100 mg oral dose of amineptine, spiked with

1. 230 ng/ml metabolite
2. 180 ng/ml amineptine
3. 500 ng/ml internal standard



4 Determination of Amino acids with OPA

Method HPLC

RP Mode

Column: ProntoSIL 120-3-C18 H, 250 x 3.0 mm ID

Order No. 25CF185PSG

Phase: ProntoSIL 120-3-C18 H

Sample Preparation: Amino Acid standard with OPA precolumn derivatization

Conditions:

Eluent: A: 20 mM CH₃COONa in Water / ACN, (97:3)
B: 20 mM CH₃COONa in Water / ACN, (50:50)

Gradient: 5 – 28 % B, 0 – 144 s
28 – 45 % B, 145 – 560 s
45 – 82 % B, 561 – 896 s
82 – 90 % B, 897 – 1215 s

Flow rate: 0.6 ml/min
Temperature: 30 °C
Volume: 1 µl

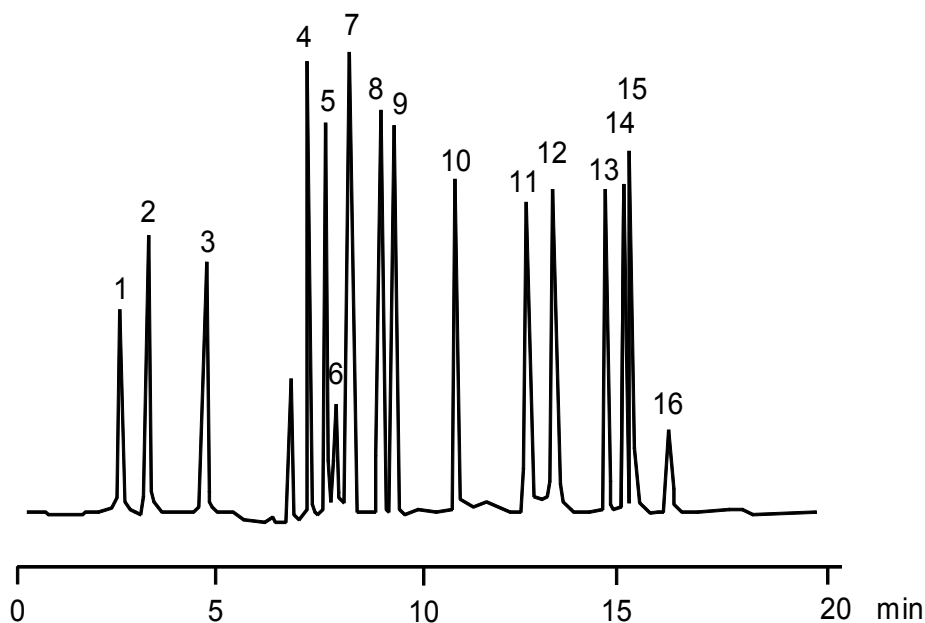
Detection: Fluorescence: excitation 330 nm emission 450 nm
UV at 330 nm

Substances: Aspartic acid, Glutamic acid, Serine, Glutamine, Histidine, Glycine, Threonine, Arginine, Alanine, Tyrosine, Methionine, Valine, Phenylalanine, Isoleucine, Leucine, Lysine

Keywords: Amino acids, Precolumn derivatization , OPA

Chromatogram:

1. Asp
2. Glu
3. Ser
4. Gly
5. Thr
6. His
7. Ala
8. Arg
9. Tyr
10. Val
11. Cys
12. Met
13. Ile
14. Phe
15. Leu
16. Lys



5 Separation of Aniline derivatives with electrochemical detection

Method HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.6 mm ID

Order No. 25EE181ESJ

Phase: Eurospher 100-5 C18

Conditions: Eluent: Methanol / Water (1:1) with 2 g/l KNO₃ and 0.05 g/l H₂SO₄
Gradient: isocratic
Flow rate: 0.7 ml/min
Temperature: ambient
Volume: 20 µl

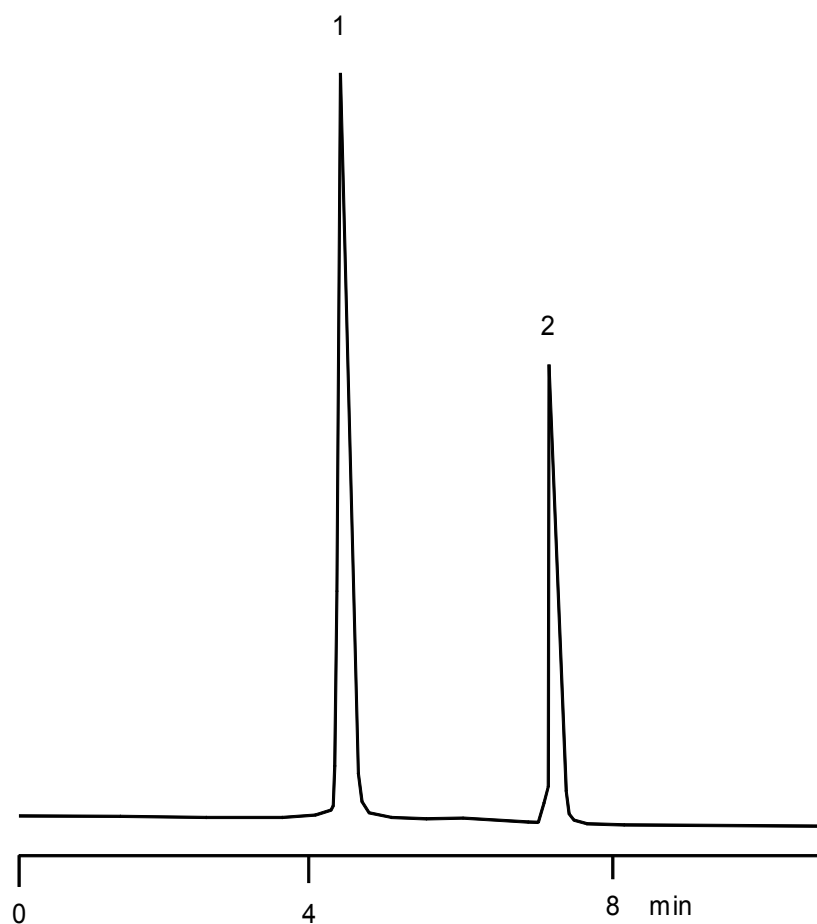
Detection: Amperometric detection, glassy carbon 1000 mV / 800 mV, 100 nA

Substances: Phenylene diamine, Chloroaniline

Keywords: Amines

Chromatogram:

1. p-Phenylene diamine (20 ng)
2. 3-Chloroaniline (25 ng)



6 Separation of Anilines and Sulfonamides by HPLC with electrochemical detection

Method HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.0 mm ID

Order No. 25DE181ESJ

Phase: Eurospher 100-5 C18

Conditions: Eluent: Methanol / Water (1:1) with 2 g/l KNO₃ and 0.05 g/l Sulfuric acid
 Gradient: isocratic
 Flow rate: 0.7 ml/min
 Temperature: 25 °C
 Volume: 10 µl

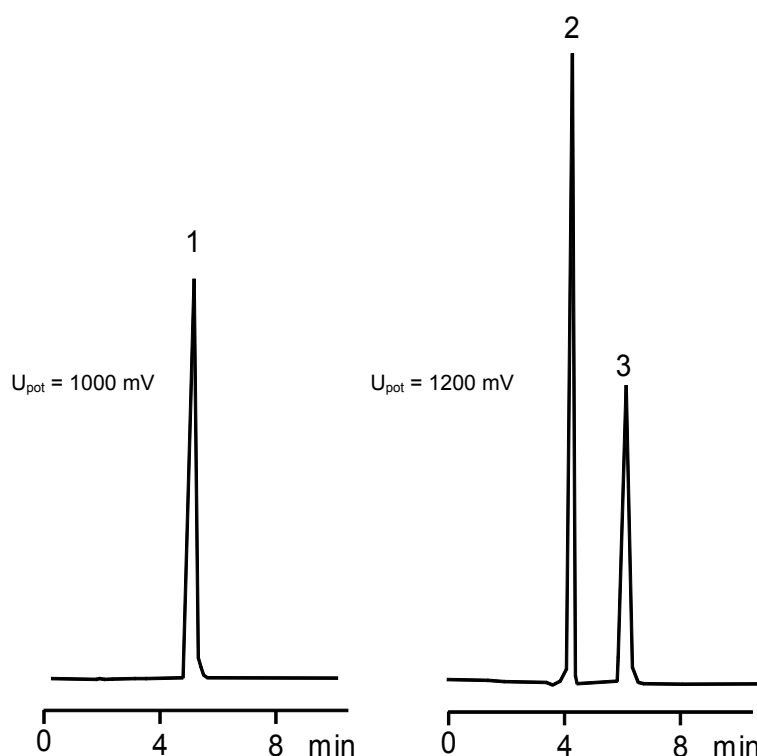
Detection: Amperometric detection, glassy carbon electrode, range 100 nA
 +1000 mV for o-Toluidine / 1200 mV for sulfonamides,

Substances: Toluidine-o, Sulfanilamide, Sulfamethoxydiazine

Keywords: Drugs, Antibiotics

Chromatogram:

1. o-Toluidine
2. Sulfanilamide
3. Sulfmethoxydiazone



7 Determination of Anticonvulsant drugs and Methyl Xanthine derivatives in serum

Method

HPLC

RP Mode

Sample

precolumn loading and washing with Eluent A

Preparation:

Column: Eurospher 100-5 C18, 150 x 4.6 mm ID

Order No. 15EE181ESJ

Phase: Eurospher 100-5 C18

Conditions:

Eluent: A: 14 mM NaH₂PO₄ - 6mM Na₂HPO₄
B: Eluent A / Acetonitrile / Methanol (6.5:1.5:2)
Gradient: isocratic
Flow rate: 0.8 ml/min
Temperature: 25 °C
Volume: 20 µl

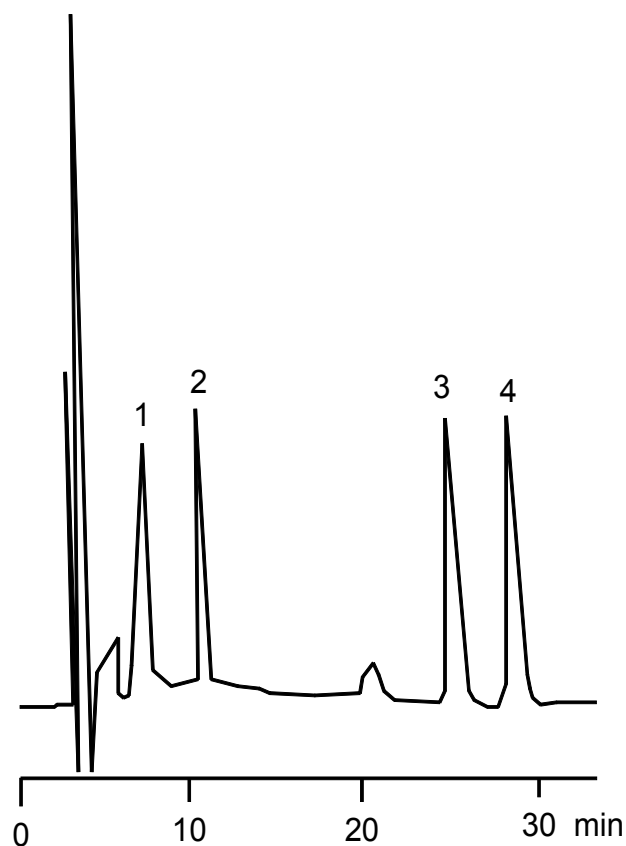
Detection: UV at 230 nm

Substances: Primidone, Phenobarbital, Phenytoin, Carbamazepine

Keywords: Drugs, Anticonvulsant drugs

Chromatogram:

1. Primidone (10 µg/ml)
2. Phenobarbital (10 µg/ml)
3. Phenytoin (20 µg/ml)
4. Carbamazepine (5 µg/ml)



8 Separation of Antiepileptics in serum

Method

HPLC RP Mode

Column: Eurospher 100-5-C18, 100 x 4.0 mm ID

Order No. 10DE181ESJ

Phase: Eurospher 100-5-C18

Conditions: Eluent: Recipe eluent: Antiepileptics in serum (Order no. 15010)
 Gradient: isocratic
 Flow rate: 1.0 ml/min
 Temperature: 55 °C
 Volume: 10 µl

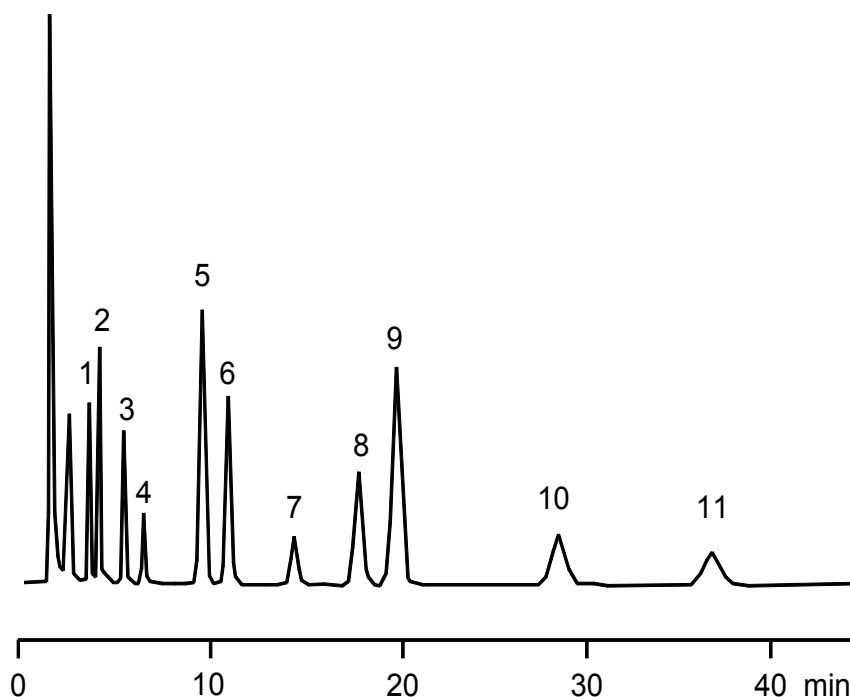
Detection: UV at 205 nm

Substances: PEMA, Ethosuximide, Primidone, Carbamazepine-diol, 10-OH-Carbamazepine, Phenobarbital, Carbamazepine-epoxide, Oxcarbazepine, DPH, Carbamazepine

Keywords: Antiepileptics, Drugs

Chromatogram:

1. PEMA
2. Ethosuximide
3. Primidone
4. Carbamazepine-diol
5. 10-OH-Carbamazepine
6. Phenobarbital
7. Carbamazepine-epoxide
8. Oxcarbazepine
9. Internal Standard (IS)
10. DPH
11. Carbamazepine



9 Separation of Antirheumatic drugs

Method HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.0 mm ID

Order No. 25DE181ESJ

Phase: Eurospher 100-5 C18

Conditions: Eluent: Methanol / Water (70:30), 0.1 % Acetic acid with
6 g/l Ammonium acetate and 1.5 g/l Sulfuric acid
Gradient: isocratic
Flow rate: 0.9 ml/min
Temperature: 20 °C
Volume: 20 µl

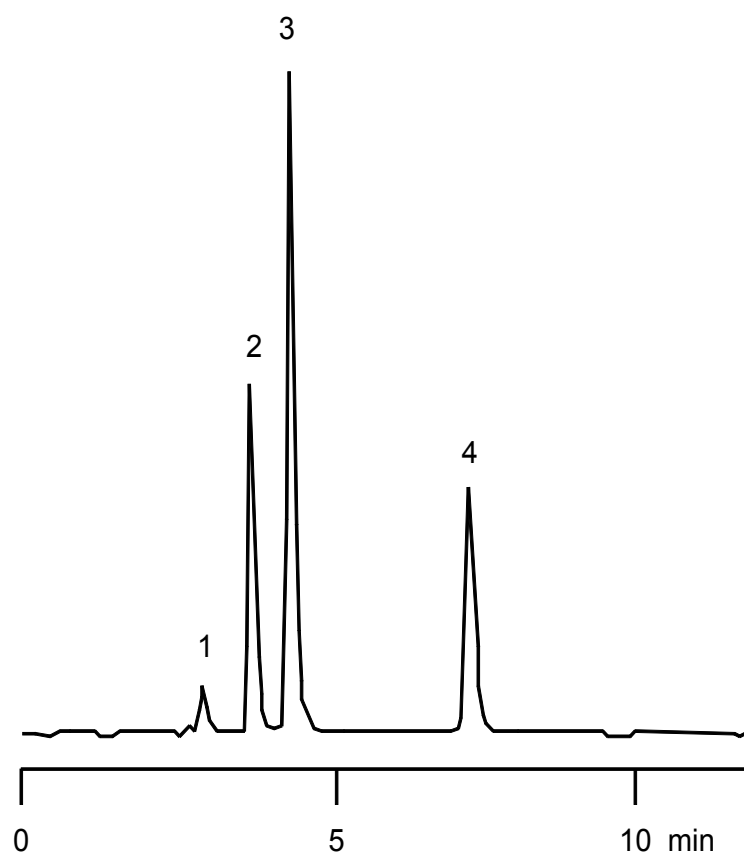
Detection: UV at 254 nm

Substances: Camphor, Ethylenglycolmonosalicylate, Nicotinic acid methyl ester, Nicotinic acid benzyl ester

Keywords: Antirheumatic drugs

Chromatogram:

1. Camphor
2. Nicotinic acid methyl ester
3. Nicotinic acid benzyl ester
4. Ethylenglycolmonosalicylate



10 Separation of Catecholamines I

Method HPLC

RP Mode

Column: UltraSep ES CAQC, 125 x 3.0 mm ID

Order No.I0203

Phase: UltraSep ES CAQC

Conditions: Eluent: prepared standard eluents: CA
 Gradient: isocratic
 Flow rate: 1 ml/min
 Temperature: 25 °C
 Volume: 5 µl

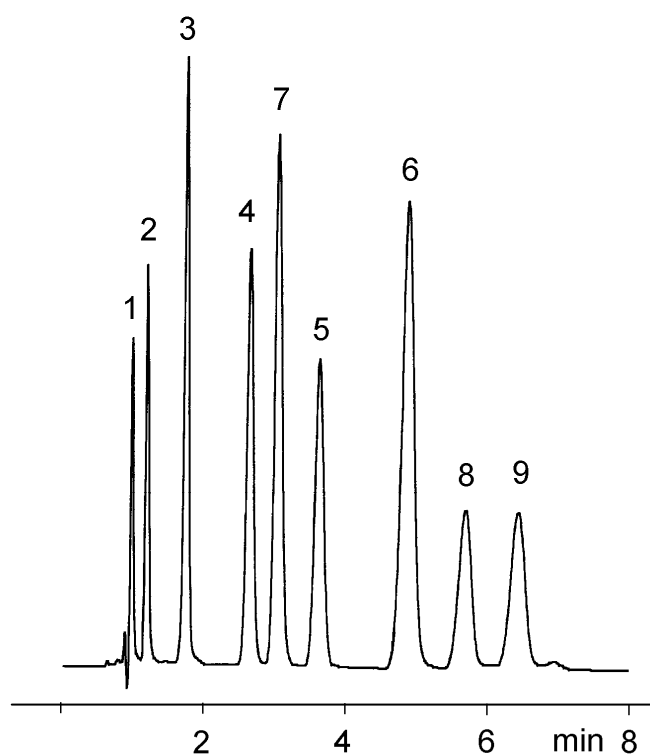
Detection: UV at 280 nm

Substances: Vanillyl mandelic acid (VMA); Iso-VMA; 3,4-Dihydroxyphenylacetic acid (DOPAC); 5-Hydroxyindolyl acetic acid (5-HIAA); Homovanillic acid (HVA); 5-HICA; Dopamine; 3-Methoxytyramine (3-MT); 5-Hydroxytryptamine (Serotonin)

Keywords: Catecholamines

Chromatogram:

1. Vanillyl mandelic acid (VMA)
2. Iso-VMA
3. 3,4-Dihydroxyphenylacetic acid (DOPAC)
4. 5-Hydroxyindolyl acetic acid (5-HIAA)
5. Homovanillic acid (HVA)
6. 5-Hydroxyindol-2-carboxylic acid (5-HICA)
7. 3-Hydroxytyramine (Dopamine)
8. 3-Methoxytyramine (3-MT)
9. 5-Hydroxytryptamine (Serotonin)



11 Determination of Catecholamines II

Method

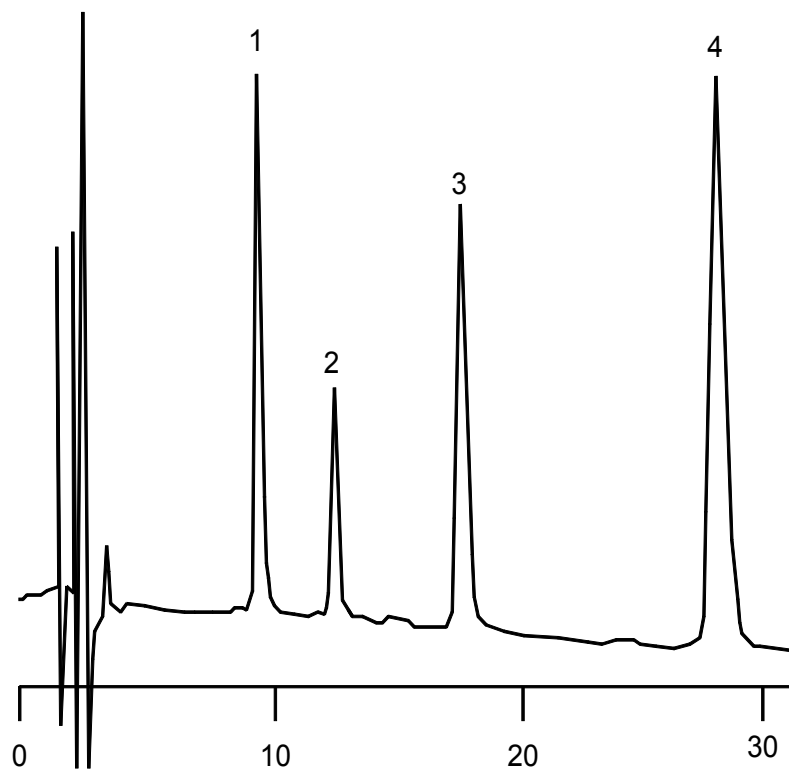
HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.0 mm ID**Order No.** 25DE181ESJ**Phase:** Eurospher 100-5 C18**Conditions:** Eluent: prepared standard eluent "Urinary catecholamines"
Gradient: isocratic
Flow rate: 0.3 ml/min
Temperature: 60 °C**Detection:** Amperometric, Cell potential 0.55 V, 10 nA/V, glassy carbon electrode**Substances:** Adrenaline, Noradrenaline, Dihydroxybenzylamine (IS); Dopamine**Keywords:** Catecholamines

Chromatogram:

1. Noradrenaline
2. Adrenalina
3. Dihydroxybenzylamine (IS)
4. Dopamine



12 Clinical analysis of Chloramphenicol

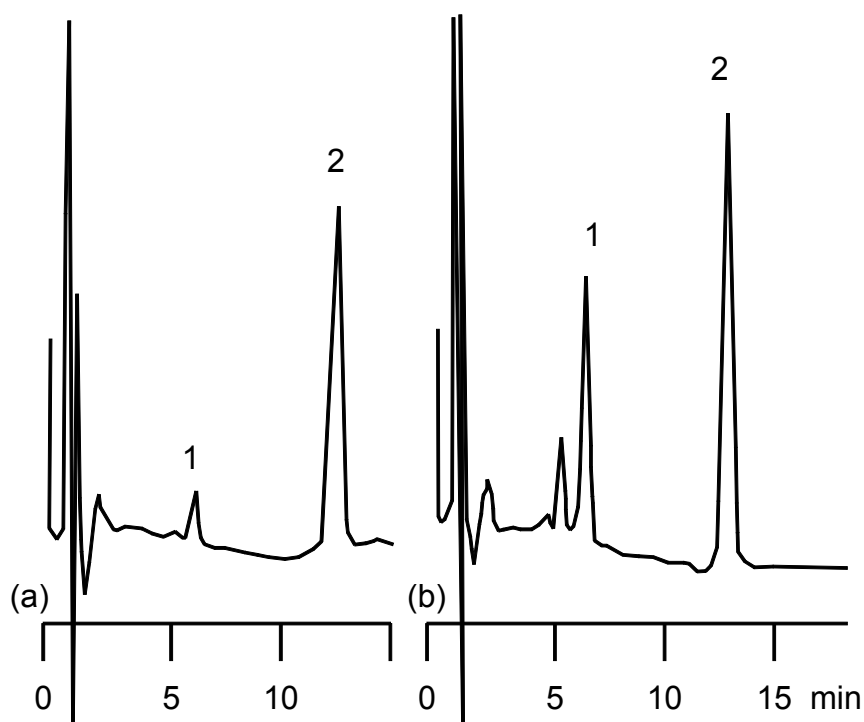
Method
HPLC

RP Mode

Column: Eurospher 100-5 C18, 100 x 2.0 mm ID**Order No.** 10BE181ESJ**Phase:** Eurospher 100-5 C18**Conditions:**
Eluent: 0.1 N Acetate buffer (pH 6.0) / Acetonitrile (8:2)
Gradient: isocratic
Flow rate: 0.2 ml/min
Temperature: ambient
Volume: 0.5 µl**Detection:** UV at 254 nm**Substances:** Chloramphenicol**Keywords:** Drugs, Antibacterial drugs**Chromatogram:**

(a) 10 mg/l Chloramphenicol

(b) 25mg/l Chloramphenicol

1. Chloramphenicol
2. Internal Standard

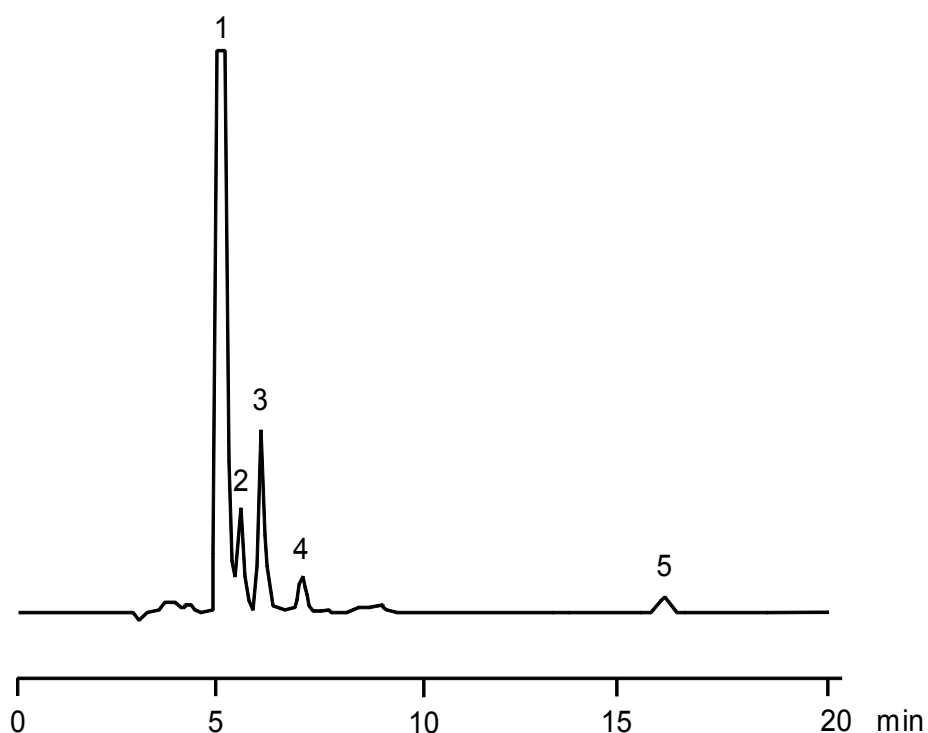
13 Determination of Citrate and Oxalate in human urine

Method
HPLC

Ion chromatography

Column: Novosep A-2 Anion 5 µm, 250 x 4.0 mm ID**Order No. B92****Phase:** Novosep A-2 Anion, 5 µm**Conditions:**
Eluent: 15 mM Sodium carbonate (Na₂CO₃)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 50 °C
Volume: 5 µl, urine sample 1:20**Detection:** suppressed Conductivity, Range 5 µS**Substances:** Citrate, Oxalate**Keywords:** Organic anions**Chromatogram:**

1. Chloride
2. Phosphate
3. Sulfate
4. Oxalate
5. Citrate



14 Isocratic separation of the Digoxin and Digitoxin series of Glycosides

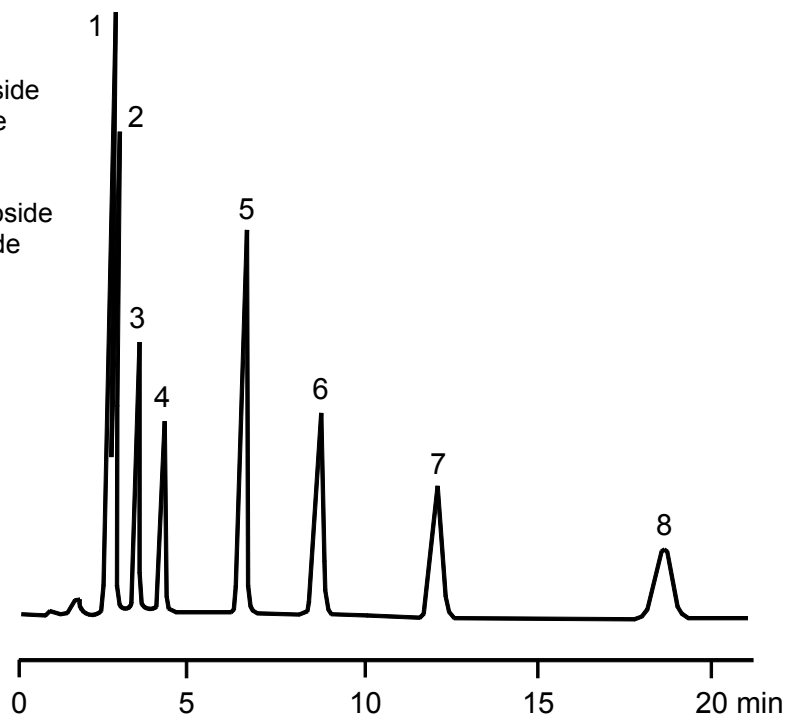
Method

HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.0 mm ID**Order No.** 25DE181ESJ**Phase:** Eurospher 100-5 C18**Conditions:** Eluent: Acetonitrile / Methanol / Water (30:30:40)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 30 °C
Volume: 10 µl**Detection:** UV at 220 nm**Substances:** Digoxigenin, Digoxigenin monodigitoxoside, Digoxigenin bisdigitoxoside, Digoxin, Digitoxigenin, Digitoxigenin monodigitoxoside, Digitoxigenin bisdigitoxoside, Digitoxin**Keywords:** Drugs, Glycosides, Digitalis Glycosides**Chromatogram:**

1. Digoxigenin
2. Digoxigenin monodigitoxoside
3. Digoxigenin bisdigitoxoside
4. Digoxin
5. Digitoxigenin
6. Digitoxigenin monodigitoxoside
7. Digitoxigenin bisdigitoxoside
8. Digitoxin



15 Separation of Dimethylsulfoxide and N-Hydroxysuccinimide

Method

HPLC RP Mode

Column: Eurospher 100-5 C18, 150 x 4.6 mm ID

Order No. 15EE181ESJ

Phase: Eurospher 100-5 C18

Conditions: Eluent: Acetonitrile / Phosphate-Buffer pH 4.0 1:99 (v/v)
 Gradient: isocratic
 Flow rate: 1.0 ml/min
 Temperature: 25 °C
 Volume: 10 µl

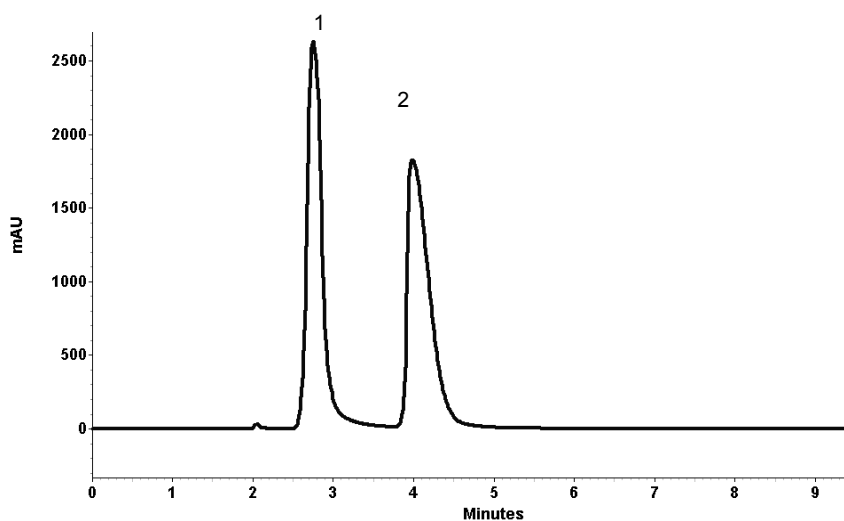
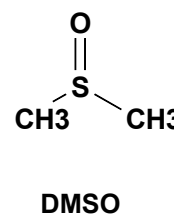
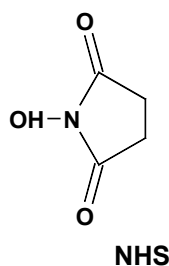
Detection: UV at 207 nm

Substances: Dimethylsulfoxide (DMSO) , N-Hydroxysuccinimide (NHS)

Keywords: DMSO , NHS

Chromatogram:

11. NHS
12. DMSO



16 Determination of Guaifenesin, Codein and Pseudoefedrin in cough syrup

Method
HPLC

RP Mode

Column: ProntoSIL 120-3 C18 SH, 250 x 4.0 mm ID

Order No. 25EK185PSJ

Phase: ProntoSIL 120-3 C18 SH

Conditions: Eluent: Water / Methanol (70:30) with 0.1% TFA (pH 1.87)
Gradient: isocratic
Flow rate: 0.8 ml/min
Temperature: 40 °C
Volume: 5 µl

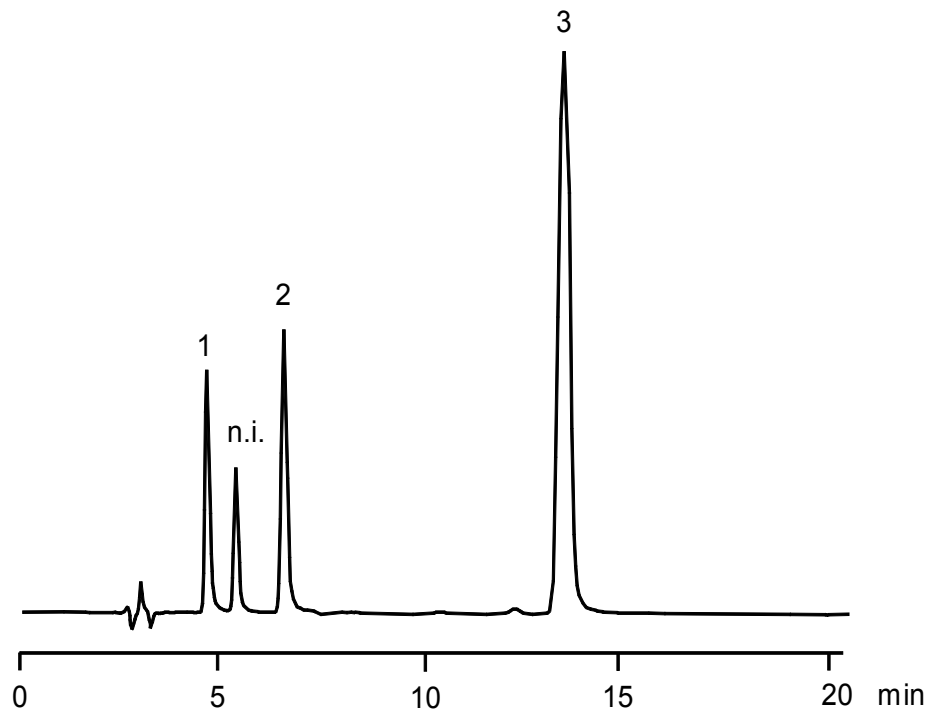
Detection: UV at 210 nm

Substances: Codeine, Guaifenesin, Pseudoefedrin

Keywords: Codein , Guaifenesin , Pseudoefedrin

Chromatogram:

1. Codein
2. Pseudoefedrin
3. Guaifenesin



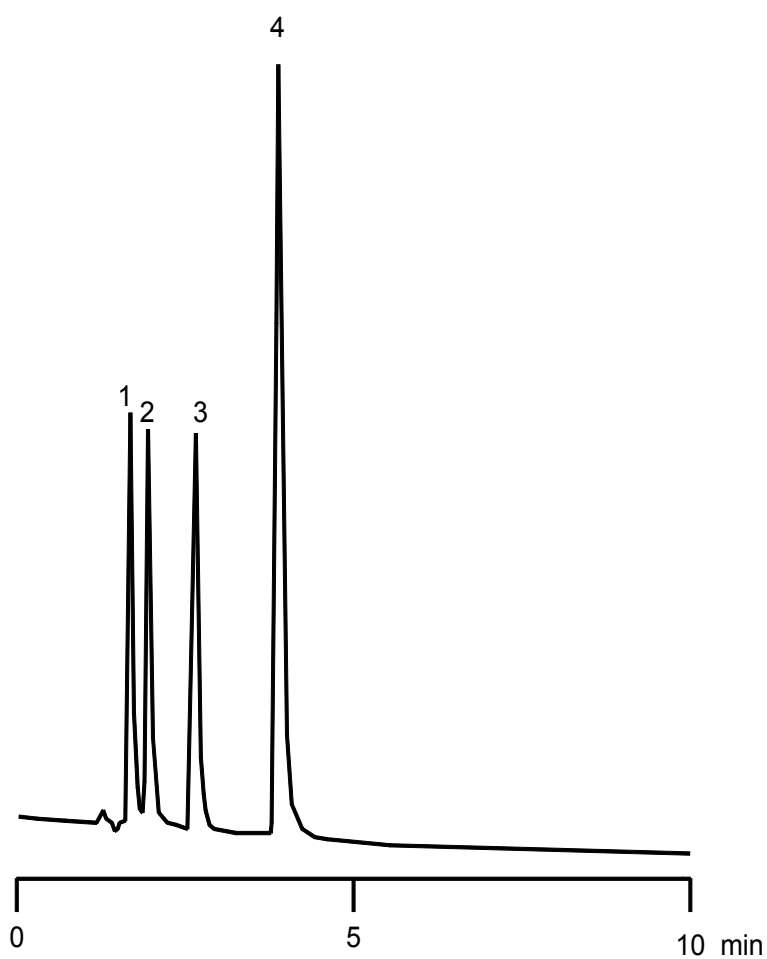
17 Separation of Narcotics

Method
HPLC

RP Mode

Column: Eurospher 100-3 C18, 150 x 4.0 mm ID**Order No.** 15DE181ESG**Phase:** Eurospher 100-3 C18**Conditions:**
Eluent: Water / ACN (45:55)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 40 °C
Volume: 2 µl**Detection:** UV at 230 nm**Substances:** Luminal, Prominal, Revonal, Barbital**Keywords:** Drugs, Narcotics**Chromatogram:**

1. Barbital
2. Luminal
3. Prominal
4. Revinal



18 Determination of Neomycin sulphate

Method

HPLC RP Mode

Column: ProntoSil 120-5 C18 AQ, 250 x 4.0 mm ID

Order No. 25WF184PSJ

Phase: ProntoSil 120-5 C18 AQ

Conditions: Eluent: 170 mM TFA in H₂O
 Gradient: isocratic
 Flow rate: 0.7 ml/min
 Temperature: 30 °C
 Volume: 50 µl

Detection: ELSD, 50 °C, 4 bar nitrogen

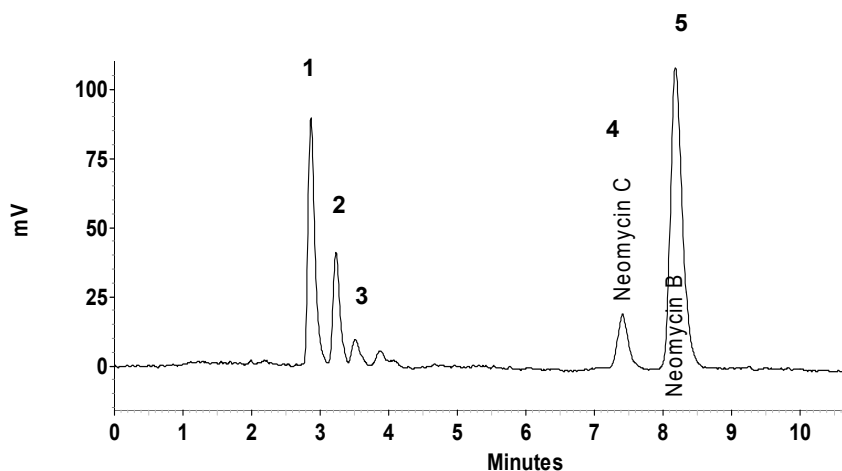
Substances: Neomycin sulphate B, Neomycin sulphate C

Keywords: Neomycin sulphate, aminoglycoside antibiotics, ELSD

Chromatogram:

acidic sample solution
(ointment)

- 1 Imp. 1
- 2 Imp. 2
- 3 Imp. 3
- 4 Neomycin sulphate C
- 5 Neomycin sulphate B



19 Analysis of β -Lactam Antibiotic (Moxalactam)

Method
HPLC

RP Mode

Column: Eurospher 100-5 C18, 300 x 4.0 mm ID

Order No. 30DE181ESJ

Phase: Eurospher 100-5 C18

Conditions: Eluent: Methanol / 0.05 M Kalium phosphate (5:95) adjusted to pH 6.5
Gradient: isocratic
Flow rate: 2.0 ml/min
Temperature: 20 °C
Volume: 10 μ l

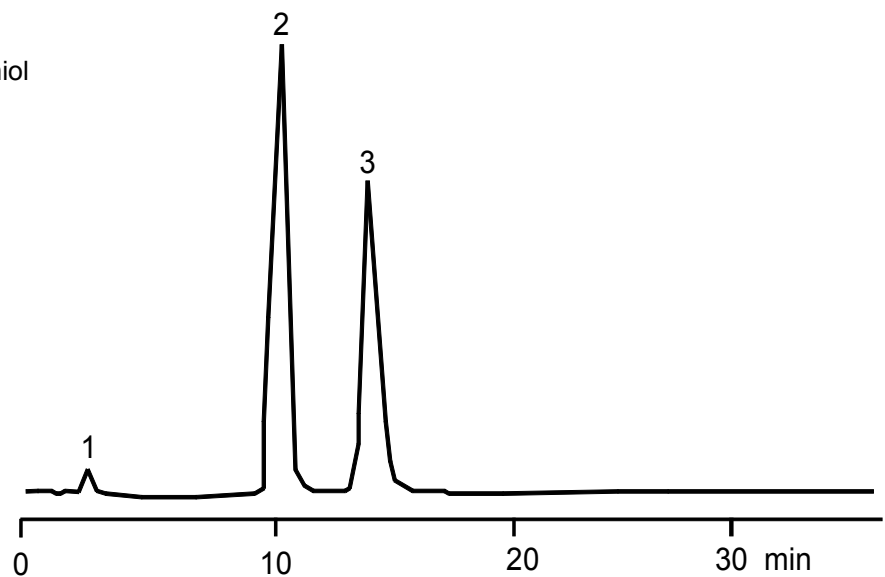
Detection: UV at 254 nm

Substances: Moxalactam, Methyl-1H-tetrazole-5-thiol

Keywords: Drugs, Antibiotics

Chromatogram:

1. 1-Methyl-1H-tetrazole-5-thiol
2. R-Moxalactam
3. S-Moxalactam



20 Analysis of Bisphosphonate Pamidronate Disodium by precolumn derivatization and fluorescence detection

Method HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.0 mm ID

Order No. 25DE181ESJ

Phase: Eurospher 100-5 C18

Conditions: Eluent: A: 1 mM aqueous Na₂EDTA, adjusted to pH 6.5 with 1 M NaOH
B: Methanol
Gradient: isocratic A:B 97:3
Flow rate: 1.0 ml/min
Temperature: ambient
Volume: 20 µl

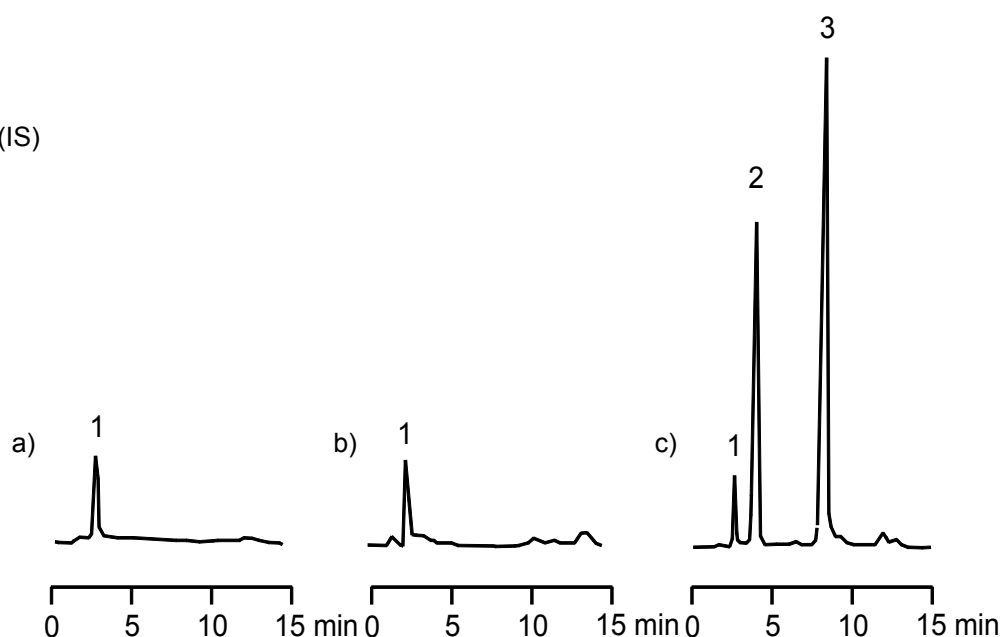
Detection: Fluorescence: excitation 395 nm, emission 480 nm
a. drug-free human urine b. drug-free dog urine
c. urine from a dog receiving a single intravenous injection of 5 mg of pamidronate disodium in 0.15 M saline

Substances: Pamidronate disodium,
Disodium 3-amino-1-hydroxypropylidenebisphosphonate pentahydrate (IS)

Keywords: Drugs

Chromatogram:

1. Injection Peak
2. Pamidronate
3. Internal Standard (IS)



21 Determination of Paracetamol and by-products

Method HPLC

RP Mode

Column: ProntoSIL 120-5 C8 ace-EPS, 250 x 3.0 mm ID

Order No. 25CF08APSJ

Phase: ProntoSIL 120-5 C8 ace-EPS

Conditions: Eluent: A: Acetonitrile B: Water (pH 2.75 with H₃PO₄)
 Gradient: 0 – 0.65 min 10% A
 0.65 – 6.4 min 10% - 60% A
 6.4 – 10.4 min 60% A
 10.4 - 12 min 60% - 10% A
 Flow rate: 1.3 ml/min
 Temperature: 50 °C
 Volume: 5 µl

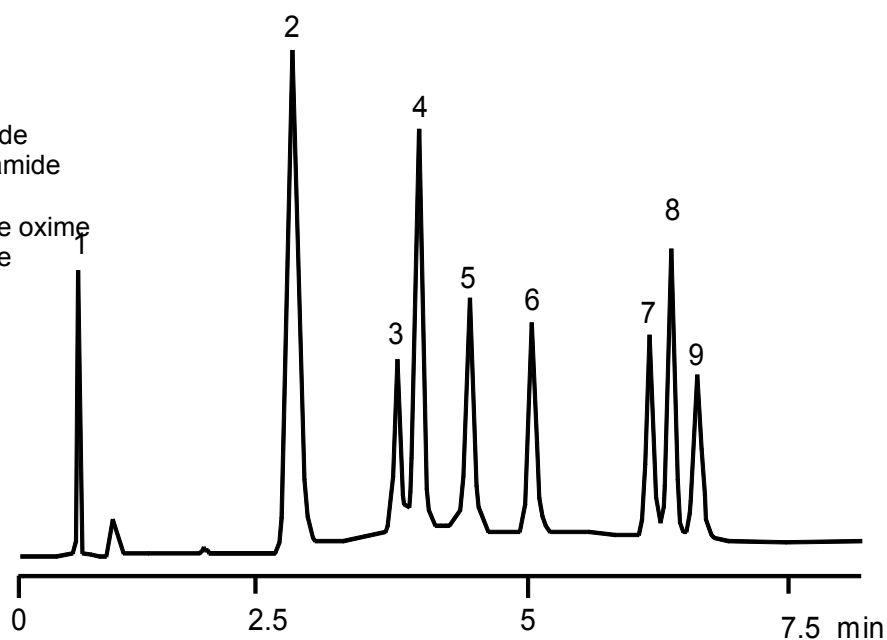
Detection: UV at 245 nm

Substances: Paracetamol, N-(2-hydroxyphenyl)acetamide, N-(4-hydroxyphenyl)propanamide, N-phenylacetamide, Chloracetanilide, 1-(4-hydroxyphenyl)ethanone oxime, 1-(2-hydroxyphenyl)ethanone, 4-Aminophenol, 4-Nitrophenol

Keywords: Paracetamol , Drugs

Chromatogram:

1. 4-Aminophenol
2. Paracetamol
3. N-(2-hydroxyphenyl)acetamide
4. N-(4-hydroxyphenyl)propanamide
5. N-phenylacetamide
6. 1-(4-hydroxyphenyl)ethanone oxime
7. 1-(2-hydroxyphenyl)ethanone
8. Chloracetanilide
9. 4-Nitrophenol



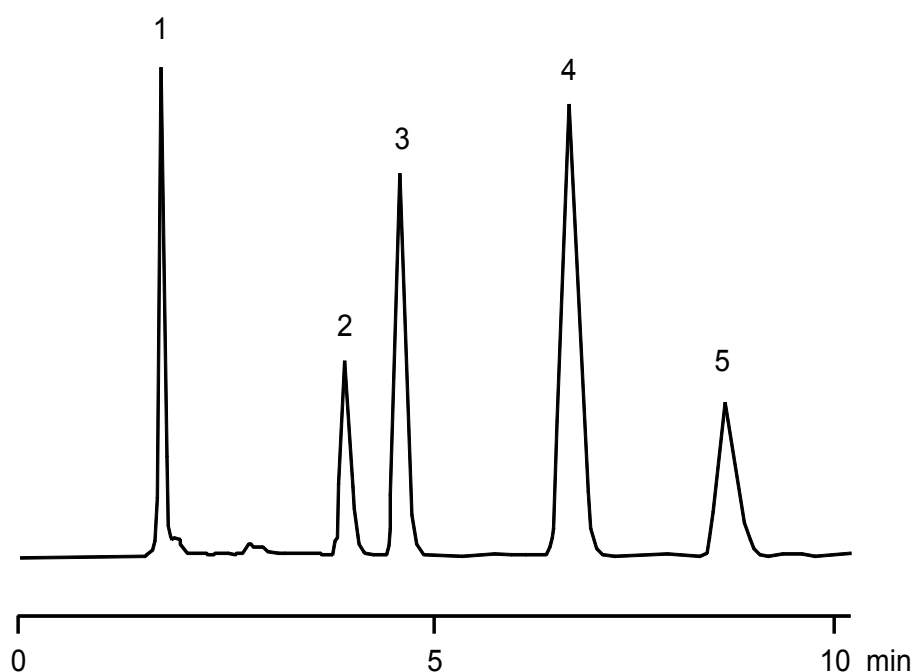
22 Separation of Penicillin Antibiotics

Method
HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.0 mm ID**Order No.** 25DE181ESJ**Phase:** Eurospher 100-5 C18**Conditions:**
Eluent: Acetonitrile / Water (0.1% TFA) (50:50)
Gradient: isocratic
Flow rate: 1.8 ml/min
Temperature: 25 °C
Volume: 1 µl**Detection:** UV at 254 nm**Substances:** Ampicillin, Penicillin G, Penicillin V, Nafcillin, Dicloxacillin**Keywords:** Drugs, Antibiotics, Penicillines**Chromatogram:**

1. Ampicillin
2. Penicillin G
3. Penicillin V
4. Nafcillin
5. Dicloxacillin



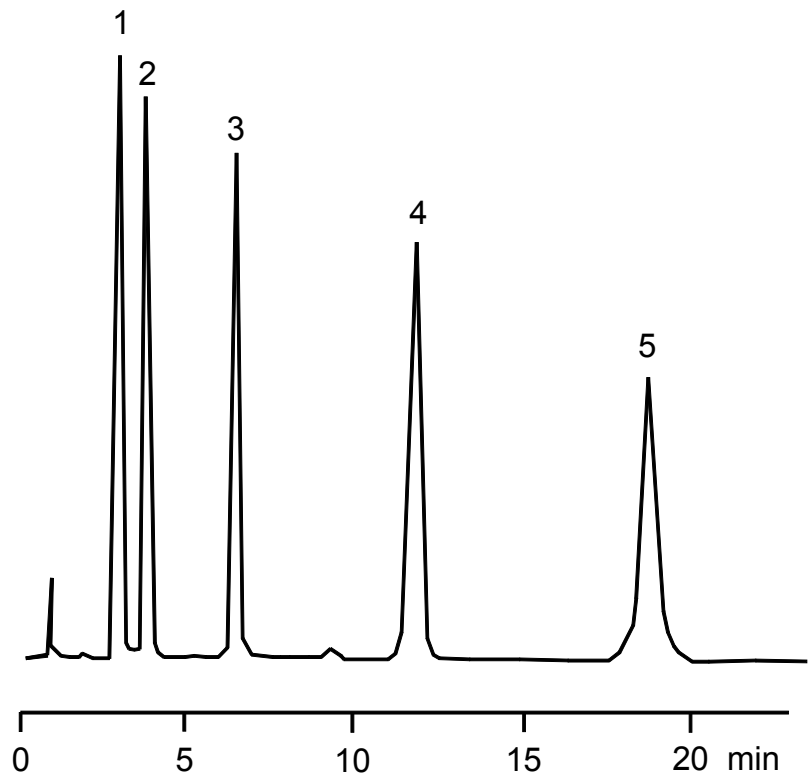
23 Separation of Sedative I

Method
HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.6 mm**Order No.** 25EE181ESJ**Phase:** Eurospher 100-5 C18**Conditions:**
Eluent: A: Methanol
B: Water (60:40)
Gradient: isocratic
Flow rate: 0.5 ml/min
Temperature: ambient
Volume: 10 µl**Detection:** UV at 220 nm**Substances:** Barbital, Luminal, Prominal, Revonal, Thiogenal**Keywords:** Sedative**Chromatogram:**

1. Barbital
2. Luminal
3. Prominal
4. Revonal
5. Thiogenal



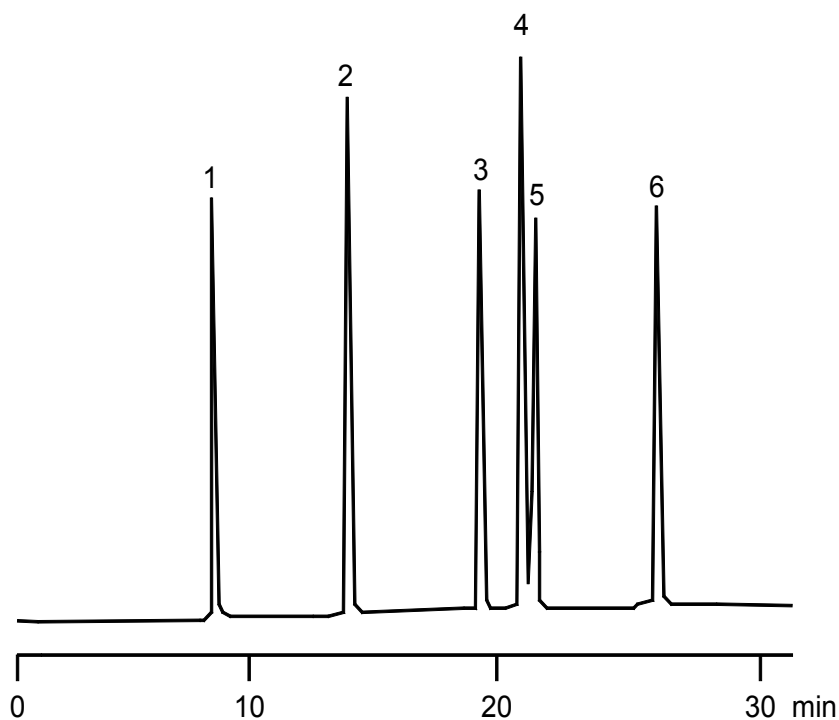
25 Separation of Steroids I

Method
HPLC

RP Mode

Column: Eurospher 100-5 C18, 250 x 4.0 mm ID**Order No.** 25DE181ESJ**Phase:** Eurospher 100-5 C18**Conditions:**
Eluent: A: Methanol
B: Water
Gradient: 0 – 35 min 50% - 95% A
35 – 45 min 95% - 50% A
Flow rate: 1.0 ml/min
Temperature: 30 °C
Volume: 10 µl**Detection:** UV at 240 nm**Substances:** Cortisone, Corticosterone, Desoxycorticosterone, Testosterone, Norgestrel, Progesterone,**Keywords:** Steroids**Chromatogram:**

1. Cortisone
2. Corticosterone
3. Desoxycorticosterone
4. Testosterone
5. Norgestrel
6. Progesterone



27 Separation of Steroids III

Method HPLC

RP Mode

Column: ProntoSIL 120A-5 C8 SH, 125 x 4.0 mm ID

Order No. 12DF08PSJ

Phase: ProntoSIL 120A-5 C8 SH

Conditions:

Eluent:	A: Water B: MeOH
Gradient:	0 – 1 min 80% A 1 – 11 min 80% - 65% A 11 – 14 min 65% A 14 – 20 min 65% - 40% A 20 – 24 min 40% A
Flow rate:	1.0 ml/min
Temperature:	30 °C
Volume:	10 µl

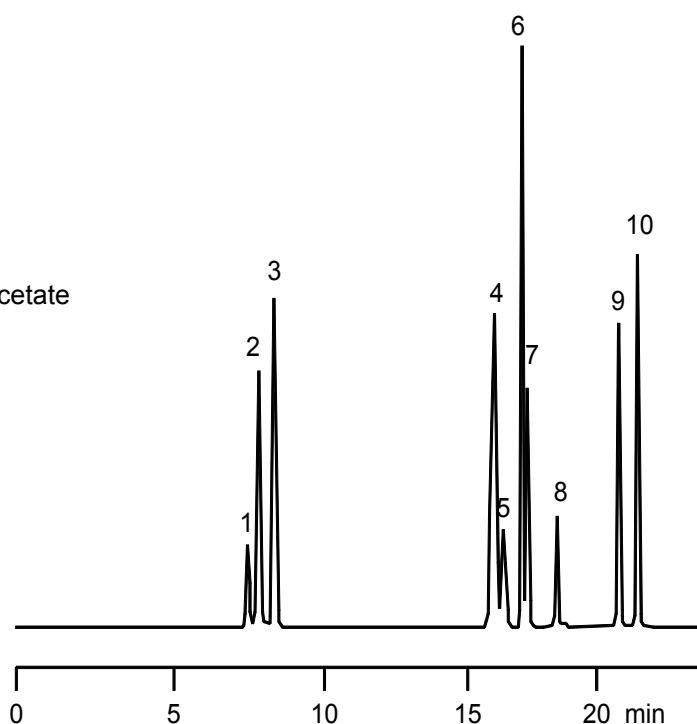
Detection: UV at 230 nm

Substances: Esteriol, Prednisolone, Cortisone, Testosterone, Methyl-6 α -hydroxy-11 β -progesterone, Methyl-6 α -hydroxy-17 α -progesterone, Methyl-6 α -hydroxy-17 α -progesterone acetate, Estradiol, Estrone, Progesterone

Keywords: Steroids

Chromatogram:

1. Esteriol
2. Prednisolone
3. Cortisone
4. Testosterone
5. Methyl-6 α -hydroxy-11 β -progesterone
6. Estradiol
7. Methyl-6 α -hydroxy-17 α -progesterone
8. Methyl-6 α -hydroxy-17 α -progesterone acetate
9. Estrone
10. Progesterone



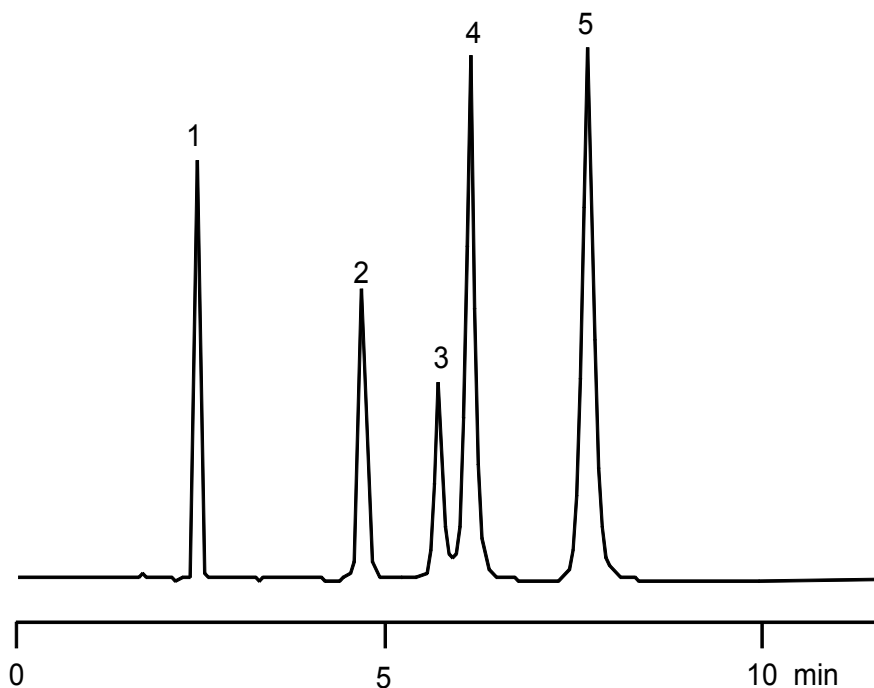
29 Separation of Sulfa drugs I

Method
HPLC

RP Mode

Column: ProntoSIL 120-5 C18 ace-EPS, 150 x 4.6 mm ID**Order No.** 15CE181ESG**Phase:** ProntoSIL 120-5 C18 ace-EPS**Conditions:**
Eluent: Methanol / Water / Acetic acid (20:79:1) with
6 g/l Ammonium acetate and 1.5 g/l Sulfuric acid
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 3 µl**Detection:** UV at 254 nm**Substances:** Sulfanilamide, Sulfadiazine, Sulfathiazole, Sulfamerazine, Sulfamethazine**Keywords:** Sulfa drugs**Chromatogram:**

1. Sulfanilamide
2. Sulfadiazine
3. Sulfathiazole
4. Sulfamerazine
5. Sulfamethazine



30 Separation of Sulfa drugs II

Method HPLC

RP Mode

Column: Eurospher 100-3 C18, 150 x 3.0 mm ID

Order No. 15CE181ESG

Phase: Eurospher 100-3 C18

Conditions:

Eluent: A: Acetonitrile
B: 0.2 g NaH₂PO₄ in 1000 ml Water (pH 4 with H₃PO₄)

Gradient: 0 – 3.5 min 22 % A
3.5 – 4.5 min 22% - 30% A
4.5 – 6 min 30% - 90% A
6 – 8 min 90% A

Flow rate: 0 - 3.5 min 0.2 ml/min
3.5 - 10 min 0.4 ml/min

Temperature: 40 °C

Volume: 10 µl

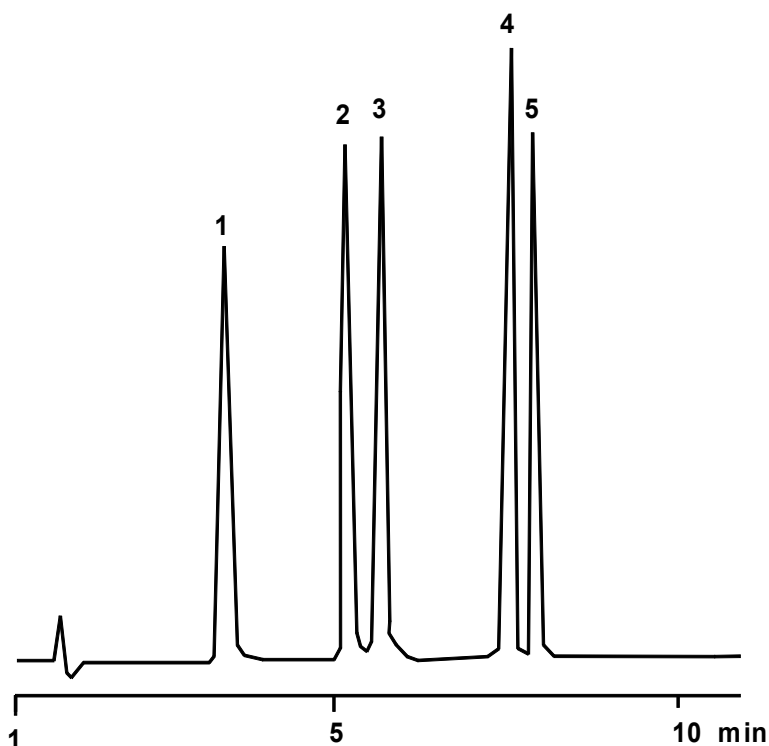
Detection: UV at 265 nm

Substances: Sulfadiazine, Sulfamethiazole, Sulfamethoxypyridazine, Sulfamethoxazole, Sulfadimethoxine

Keywords: Sulfa drugs, antibiotics

Chromatogram:

1. Sulfadiazine
2. Sulfamethiazole
3. Sulfamethoxypyridazine
4. Sulfamethoxazole
5. Sulfadimethoxine



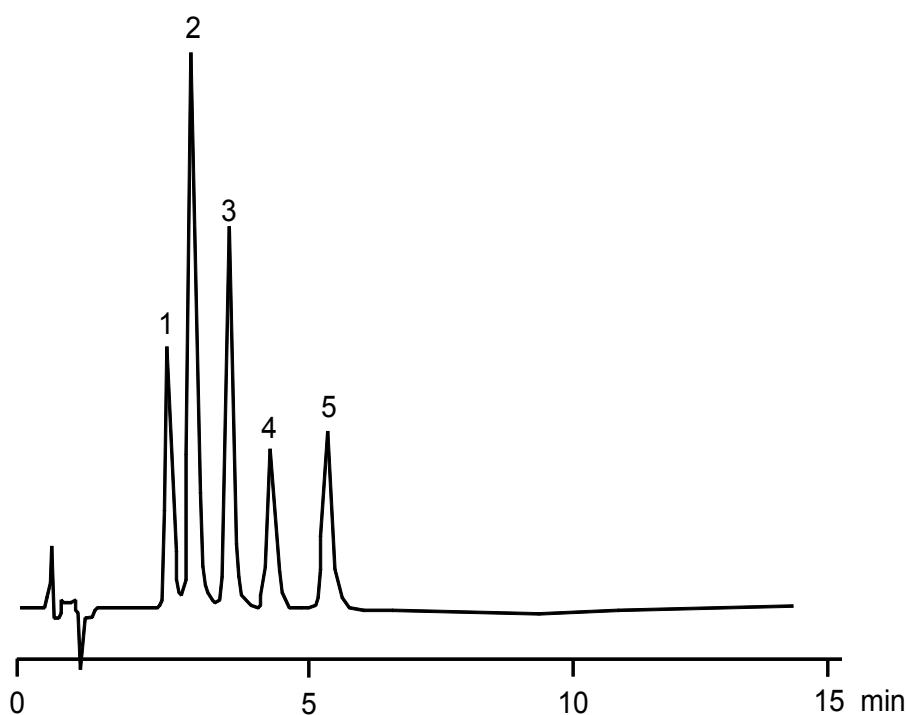
32 Separation of Tricyclic Antidepressant drugs

Method
HPLC

RP Mode

Column: ProntoSIL 120-3 C18 AQ, 60 x 4.0 mm ID**Order No.** 06DF184PSG**Phase:** ProntoSIL 120-3 C18 AQ**Conditions:**
Eluent: Acetonitrile / MeOH / 10 mM Phosphate buffer (62:13:25)
Gradient: isocratic
Flow rate: 0.7 ml/min
Temperature: 20 °C
Volume: 5 µl**Detection:** UV at 254 nm**Substances:** Amitriptyline, Doxepin, Imipramine, Nortriptyline, Trimipramine**Keywords:** Antidepressant, Drugs**Chromatogram:**

1. Doxepin
2. Imipramin
3. Nortriptyline
4. Amitriptyline
5. Trimipramine



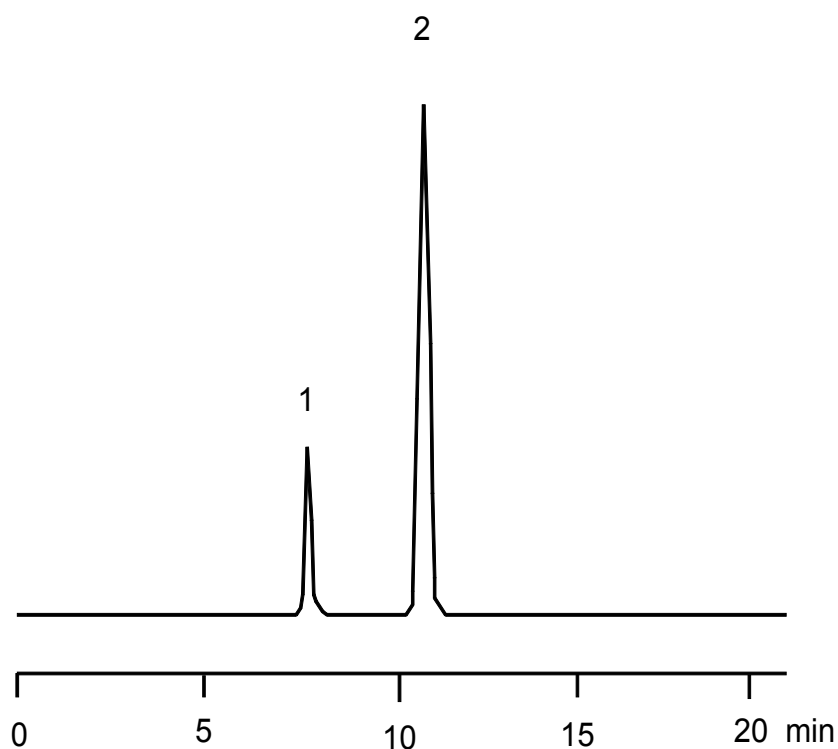
33 Separation of Trimethoprim and Sulfamethoxazol

Method
HPLC

RP Mode

Column: ProntoSIL 120-5 C18 SH, 250 x 4.0 mm ID**Order No.** 25DF180PSJ**Phase:** ProntoSIL 120-5 C18 SH**Conditions:**
Eluent: Methanol / Water with 1% Formic acid (15:85)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 30 °C
Volume: 10 µl**Detection:** UV at 220 nm**Substances:** Trimethoprim, Sulfamethoxazole**Keywords:** Drugs, Antibiotic**Chromatogram:**

1. Trimethoprim
2. Sulfamethoxazol





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1 Separation of alpha-Lactalbumine and beta-Lactoglobuline

Method

HPLC RP Mode

Column: Eurosil Bioselect 300-3 C18A, 150 x 2.0 mm ID

Order No. 15BK184EBG

Phase: Eurosil Bioselect 300-3 C18A

Conditions: Eluent: A: Water (+ 0.1% TFA) B: 60% Acetonitrile (+ 0.1% TFA)
 Gradient: 0% B – 100% B in 15 min (1 min hold)
 Flow rate: 0.4 ml/min
 Temperature: 40 °C
 Volume: 2 µl

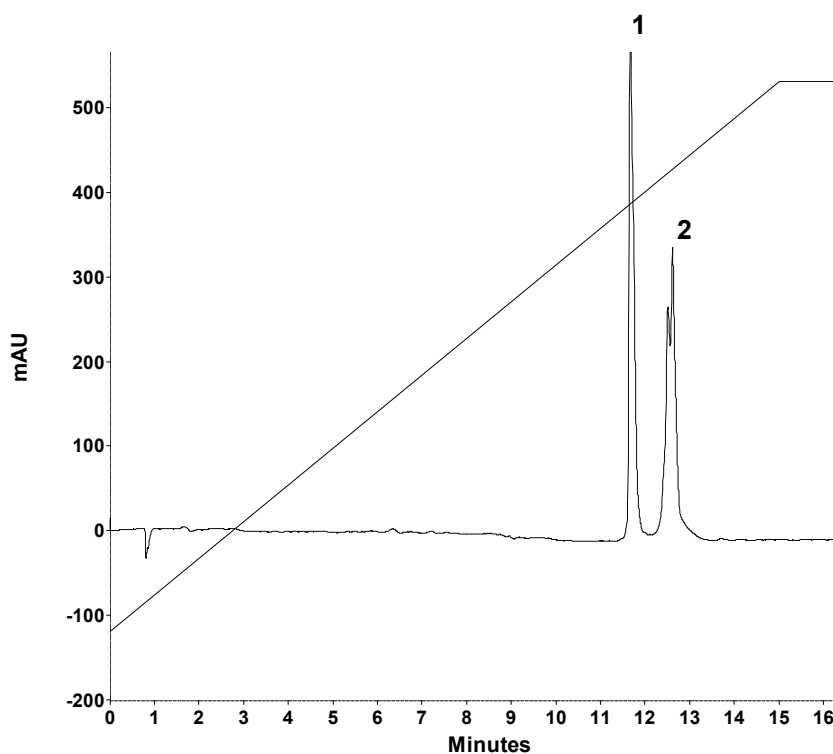
Detection: UV at 215 nm

Substances: alpha-Lactalbumine; beta- Lactoglobuline

Keywords: Whey proteins, alpha-Lactoglobuline; beta- Lactoglobuline

Chromatogram:

1 α-Lactalbumine
2 β-Lactoglobuline



4 Separation of Proteins II

Method

HPLC RP Mode

Column: Eurosil Bioselect 300-5 C18A, 120 x 4.0 mm ID

Order No. 11DK184EBJ

Phase: Eurosil Bioselect 300-5 C18A

Conditions: Eluent: A: Water (+ 0.1% TFA) B: Acetonitrile (+ 0.1% TFA)
 Gradient: 0% B – 20% B 0 - 5 min; 20 – 80% B 5 – 60 min (5 min hold)
 Flow rate: 0.8 ml/min
 Temperature: 40 °C
 Volume: 20 µl

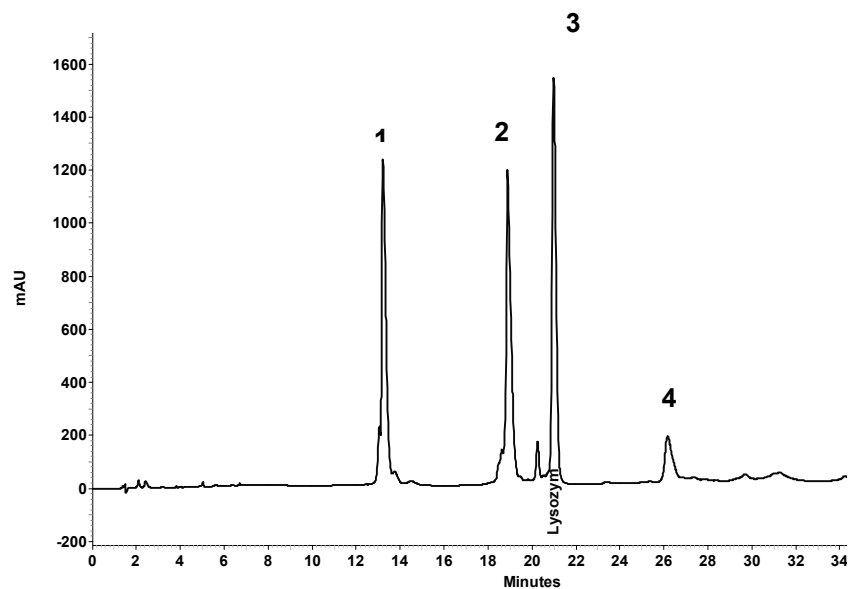
Detection: UV at 230 nm

Substances: Catalase, Cytochrome C, Lysozyme, Ribonuclease

Keywords: Proteins, Enzymes, Catalase, Cytochrome C, Lysozyme, Ribonuclease

Chromatogram:

- 1 Ribonuclease
- 2 Cytochrome
- 3 Lysozyme
- 4 Catalase





Chiral HPLC Applications

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1 Chiral separation of Abscisic Acid (4-Oxo-2-Cyclohexen-1-yl)-3-Methyl-2,4-Pentadienoic Acid)

Method HPLC

Chiral HPLC

Column: Eurocel 01 5 µm, 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 µm

Conditions: Eluent: Methanol / Water (50:50) + 0.1% TFA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 5 µl

Detection: UV at 230 nm

Substances: Abscisic acid (4-Oxo-2-Cyclohexen-1-yl)-3-Methyl-2,4-Pentadienoic acid)

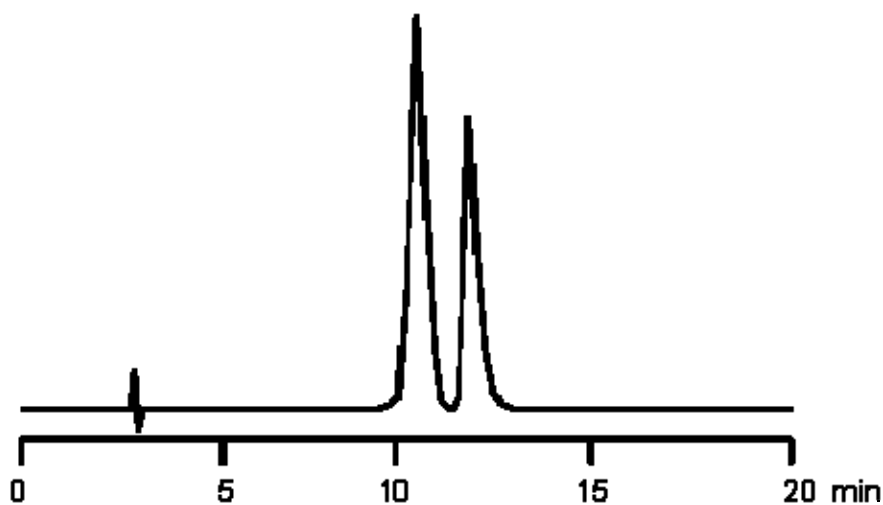
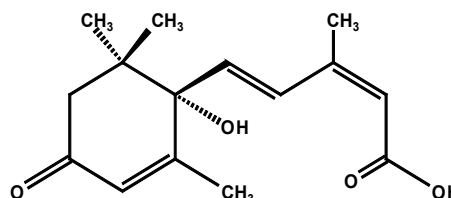
Keywords: plant hormone, chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 2.67$

$k'2 = 3.19$

$\alpha = 1.19$



2 Chiral separation of Alprenolol

Method HPLC

Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID
with precolumn

Order No. 25VM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: Hexane / 2-Propanole 80:20 (v / v) + 0.1% DEA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 220 nm

Substances: Alprenolol: 1-(1-Methylethylamino)-3-(2-prop-2-enylphenoxy)-propan-2-ol

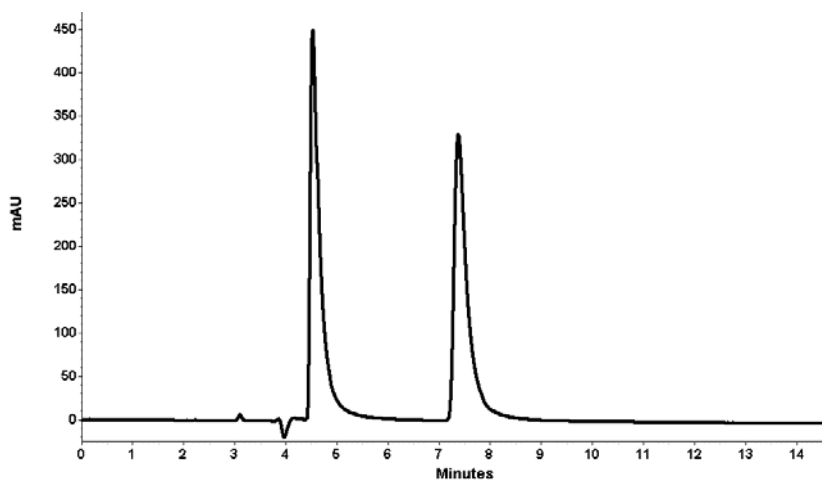
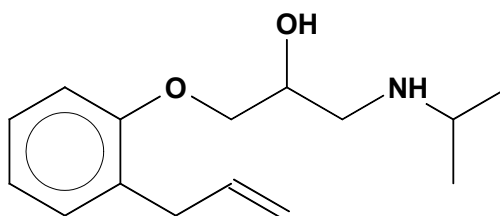
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 0.46$

$k'2 = 1.38$

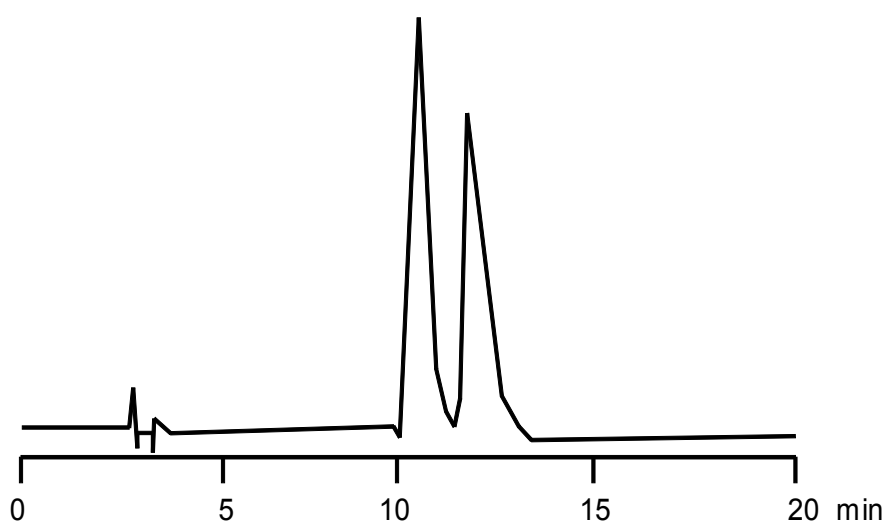
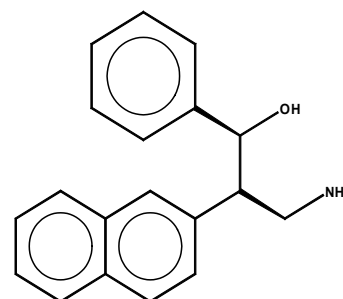
$\alpha = 2.99$



3 Chiral separation of 3-Amino-2(2-Naphtyl)-1-Phenyl-Propanol

Method
HPLC

Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID**Order No.** 25EM370ECJ**Phase:** Eurocel 01, 5 μm **Conditions:**
Eluent: Heptane / 2-Propanol (90:10) + 0.1% TFA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl **Detection:** UV at 230 nm**Substances:** 3-Amino-2(2-Naphtyl)-1-Phenyl-Propanol**Keywords:** chiral separation, Eurocel 01, cellulose based chiral selector**Chromatogram:** $k'1 = 2.46$ $k'2 = 3.13$ $\alpha = 1.27$ 

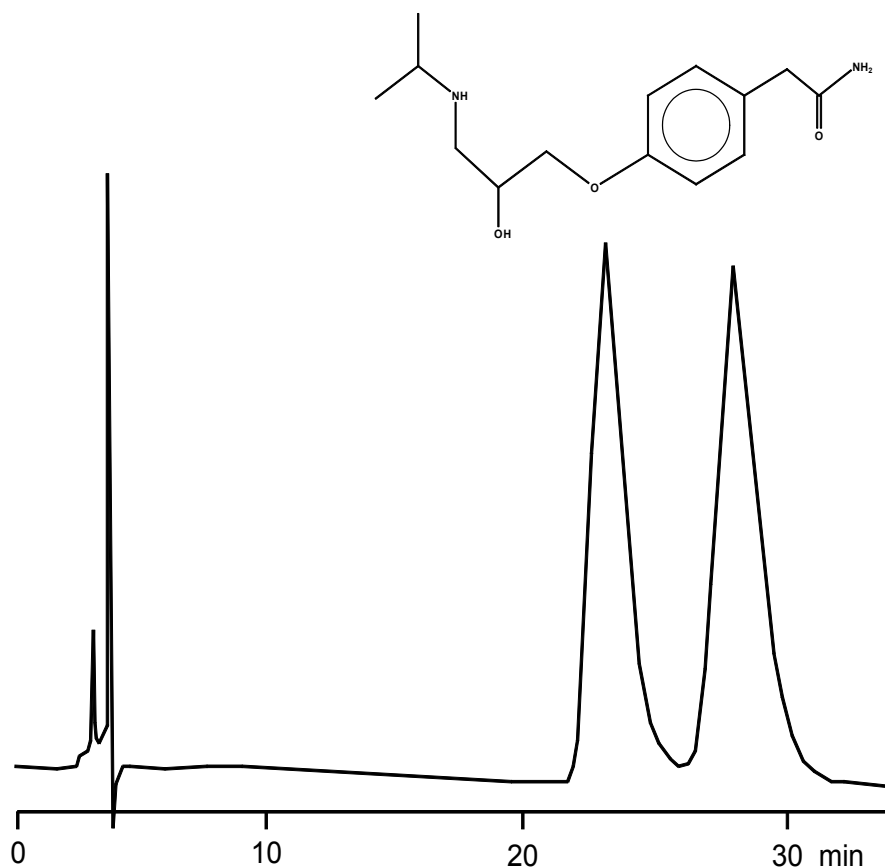
4 Chiral separation of Atenolol (2-[4-[2-Hydroxy-3-(1-Methylethylamino)Propoxy]Phenyl]Ethanamid)

Method HPLC

Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID**Order No.** 25EM370ECJ**Phase:** Eurocel 01, 5 μm **Conditions:**
Eluent: n-Heptane / 2-Propanol (80:20) + 0.1% EtOA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl **Detection:** UV at 230 nm**Substances:** Atenolol (2-[4-[2-Hydroxy-3-(1-Methylethylamino)Propoxy]Phenyl]Ethanamid)**Keywords:** chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

 $k'1 = 6.53$ $k'2 = 8.17$ $\alpha = 1.25$ 

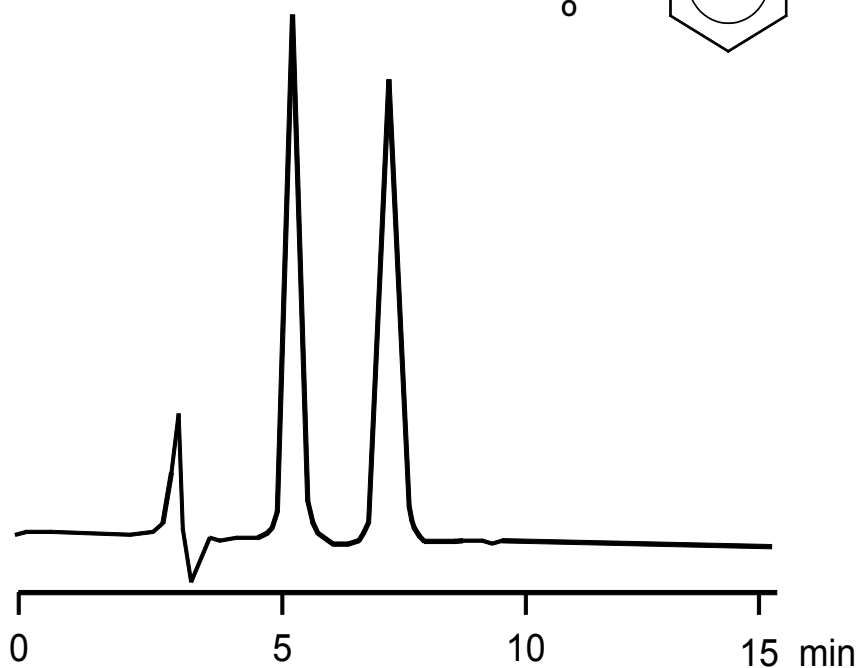
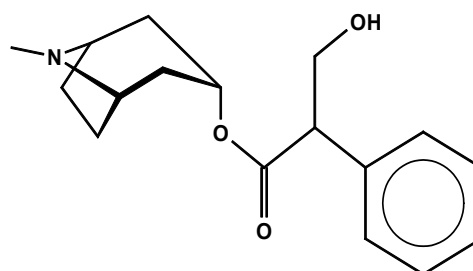
5 Chiral separation of Atropine (rac-Hyoscyamin)

Method HPLC

Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID**Order No.** 25EM370ECJ**Phase:** Eurocel 01, 5 μm **Conditions:**
Eluent: n-Hexane / 2-Propanol (80:20)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl **Detection:** UV at 218 nm**Substances:** Atropine**Keywords:** chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

 $k'1 = 0.54$ $k'2 = 0.89$ $\alpha = 1.65$ 

6 Chiral separation of 1-Aza[6]Helicene

Method
HPLC

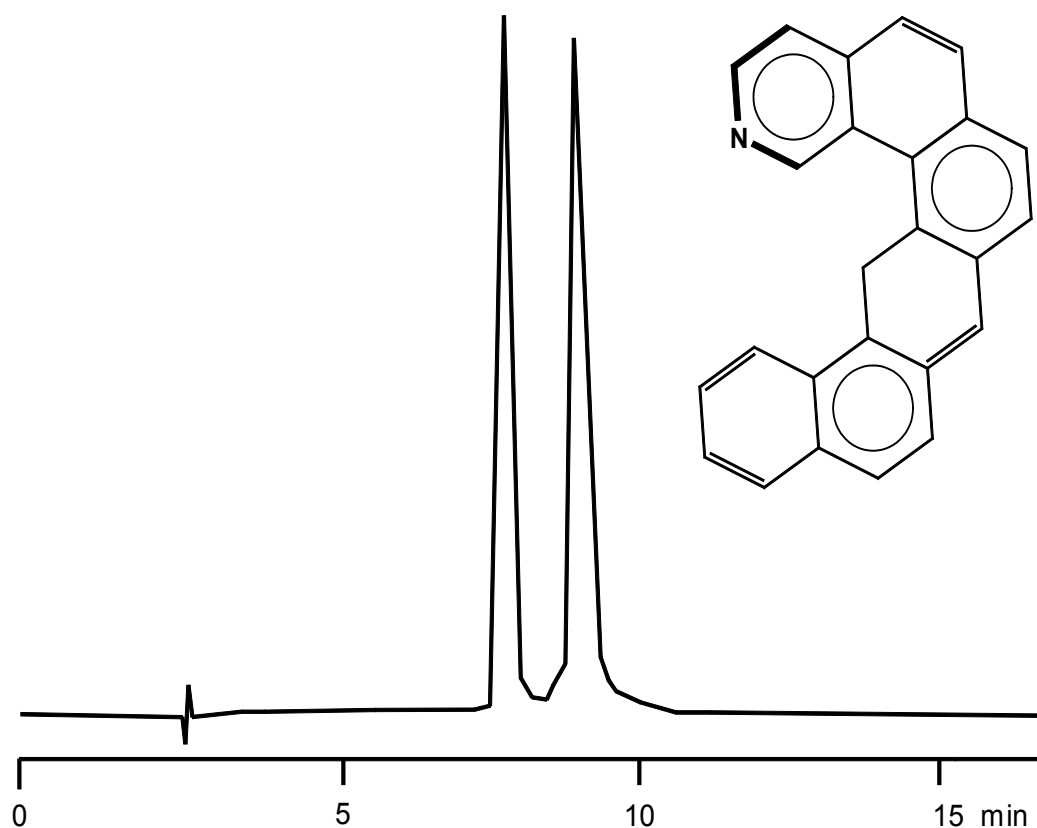
Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID**Order No.** 25EM370ECJ**Phase:** Eurocel 01, 5 μm **Conditions:**
Eluent: Heptane / 2-Propanol (75:25)
Gradient: isocratic
Flow rate: 0.8 ml/min
Temperature: ambient
Volume: 20 μl **Detection:** UV at 254 nm**Substances:** 1-Aza[6]Helicene**Keywords:** chiral separation, Eurocel 01, cellulose based chiral selector**Chromatogram:**

$$k'1 = 1.28$$

$$k'2 = 1.59$$

$$\alpha = 1.24$$



7 Chiral separation of 1-Benzene-2-Naphthene-3-Amino Propan(1)ol

Method HPLC

Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

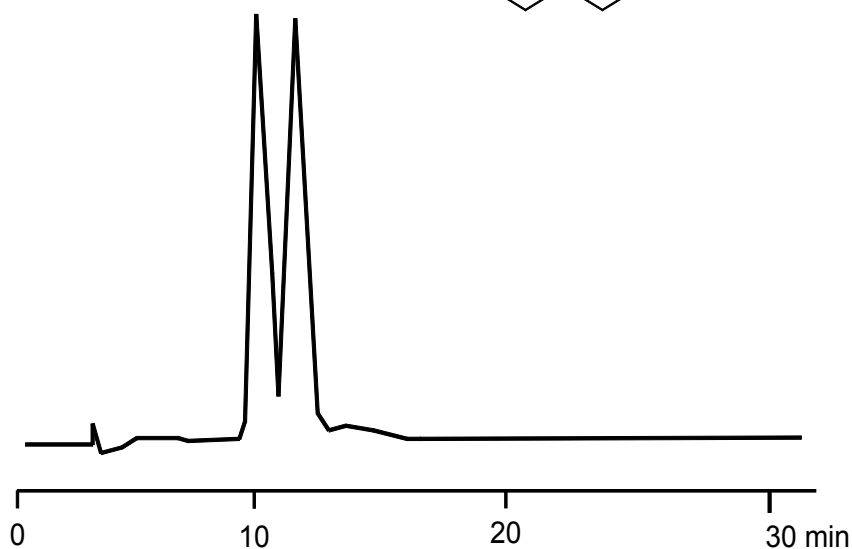
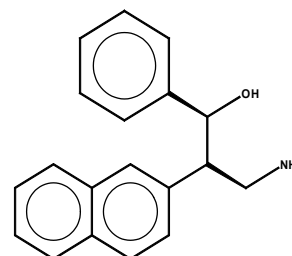
Conditions: Eluent: Heptane / 2-Propanol (90:10) + 0.1% TFA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: ambient
Volume: 10 μl

Detection: UV at 230 nm

Substances: 1-Benzene-2-Naphthene-3-Amino Propan(1)ol

Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

 $k'1 = 2.46$ $k'2 = 3.13$ $\alpha = 1.27$ 

8 Chiral separation of Benzoin (α -Hydroxy- α -Phenylacetophenon)

Method

HPLC Chiral HPLC

Column: Eurocel 01 5 μ m, 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μ m

Conditions: Eluent: n-Hexane / 2-Propanol (90:10)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: ambient
Volume: 10 μ l

Detection: UV at 254 nm

Substances: Benzoin, (α -Hydroxy- α -Phenylacetophenon)

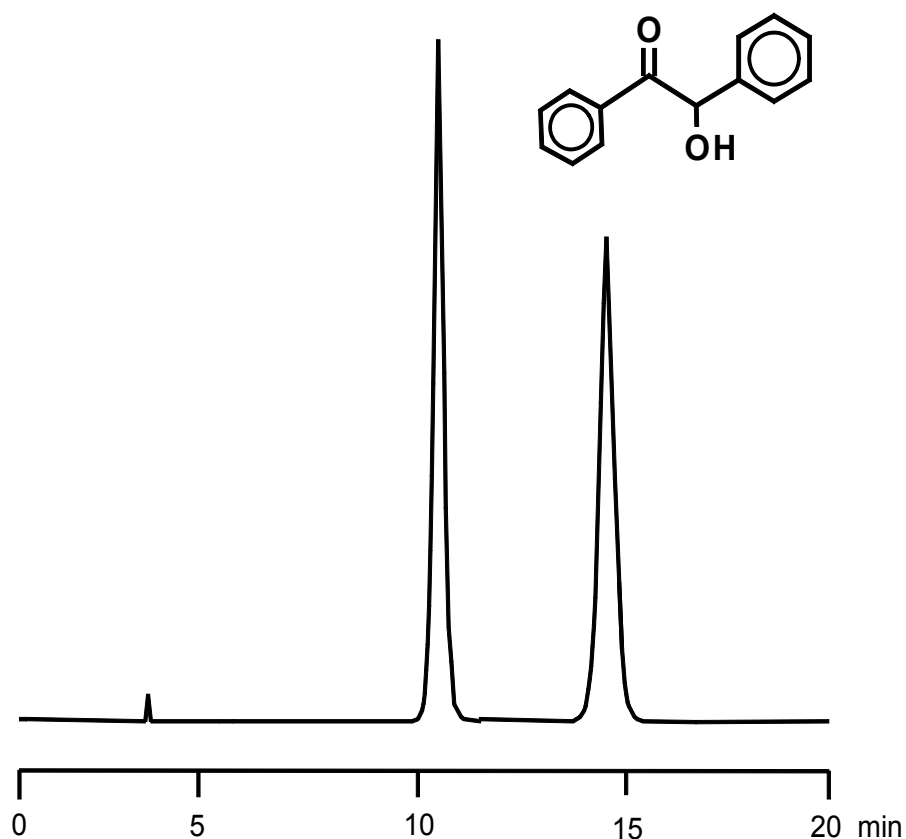
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 7.18$

$k'2 = 11.33$

$\alpha = 1.58$



9 Chiral separation of α - Benzoylbenzylbutyrate

Method
HPLC

Chiral HPLC

Column: Eurocel 01, 250 x 4.6 mm ID
with precolumn

Order No. 25VM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: n-Hexane / 2-Propanole 90:10 (v / v)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 244 nm

Substances: α - Benzoylbenzylbutyrate

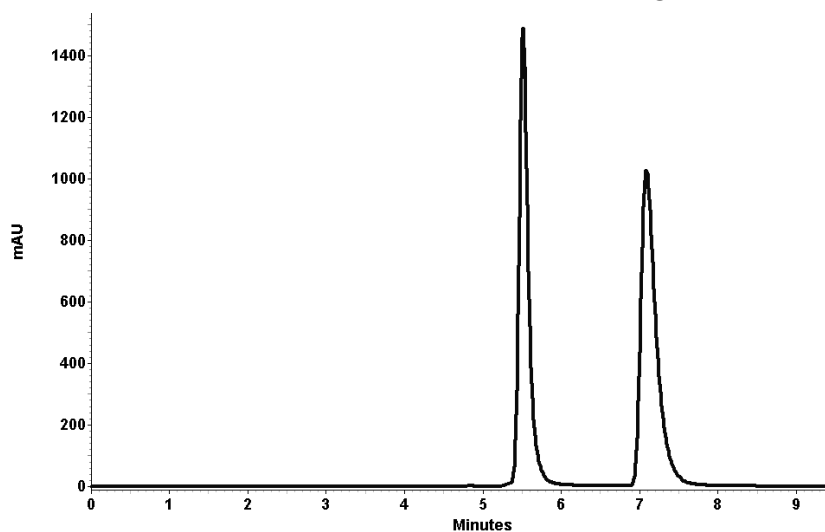
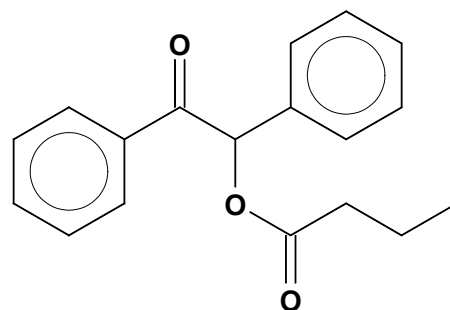
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 1.63$

$k'2 = 2.37$

$\alpha = 1.45$



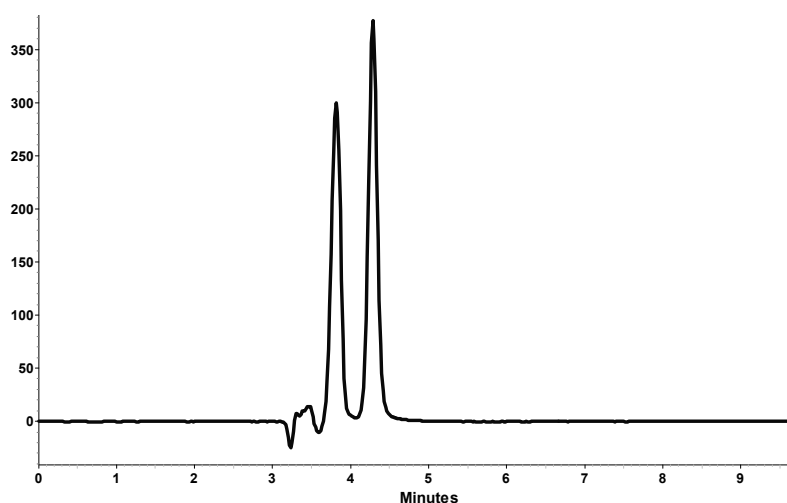
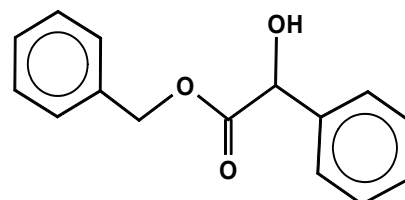
10 Chiral separation of Benzyl-Mandelate (Benzyl-2-Hydroxy-3-Phenylpropionate)

Method HPLC

Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID**Order No.** 25EM370ECJ**Phase:** Eurocel 01, 5 μm **Conditions:** Eluent: Methanol + 0.1% TFA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl **Detection:** UV at 210 nm**Substances:** Benzyl-Mandelate (Benzyl-2-Hydroxy-3-Phenylpropionate)**Keywords:** chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

 $k'1 = 0.31$ $k'2 = 0.40$ $\alpha = 1.29$ 

11 Chiral separation of Benzyl-Mandelate (Benzyl-2-Hydroxy-3-Phenylpropionate)

Method
HPLC

Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: Hexane / 2-Propanol (70:30)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 210 nm

Substances: Benzyl-Mandelate (Benzyl-2-Hydroxy-3-Phenylpropionate)

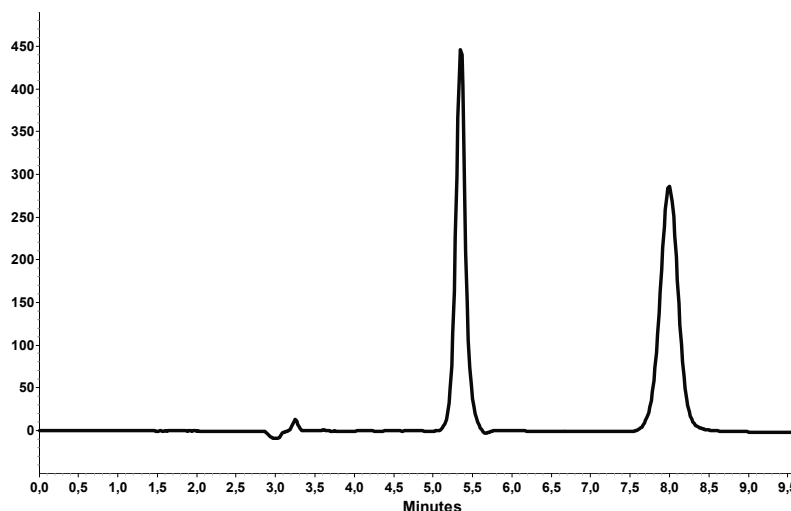
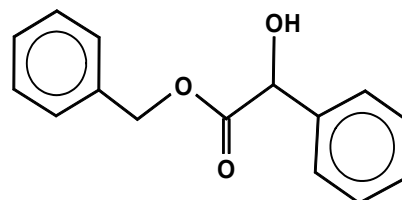
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 0.75$

$k'2 = 1.62$

$\alpha = 2.16$



12 Chiral separation of 2,2′Bis(Diphenylphosphinoxid)3,3′Bibenzo[b]Thiophene

Method
HPLC

Chiral HPLC

Column: Eurocel 01 5 µm, 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 µm

Conditions: Eluent: Hexan / 2-Propanol (85:15)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 µl

Detection: UV at 240 nm

Substances: 2,2′Bis(Diphenylphosphinoxid)3,3′Bibenzo[b]Thiophene

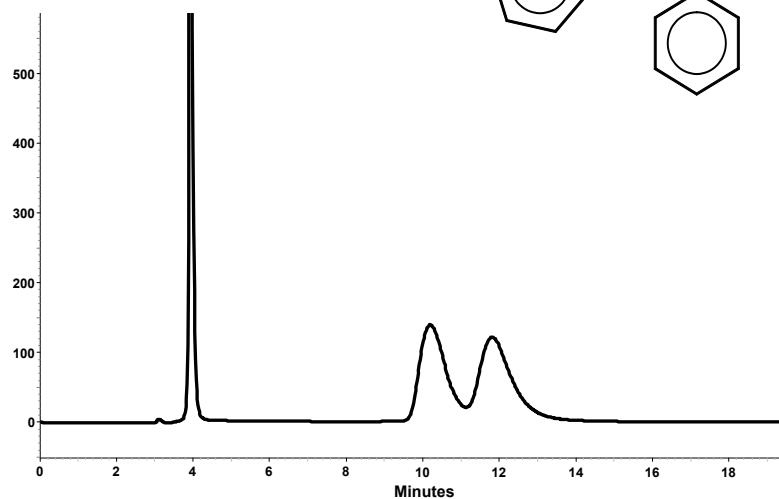
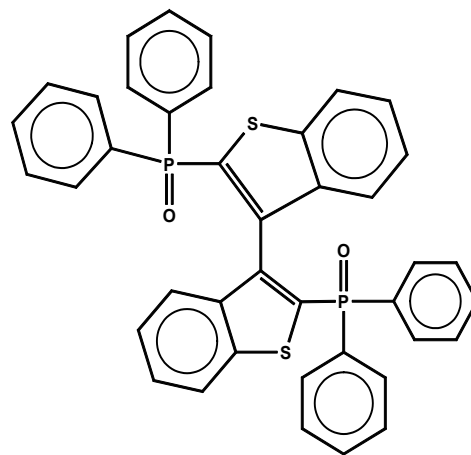
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 2.45$

$k'2 = 2.99$

$\alpha = 1.22$



13 Chiral separation of BITIANP 2,2′Bis(Diphenylphosphino)3,3′Bibenzo[b]Thiophene

Method

HPLC Chiral HPLC

Column: Eurocel 01 5 µm, 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 µm

Conditions: Eluent: Methanol
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 µl

Detection: UV at 240 nm

Substances: BITIANP (2,2′Bis(Diphenylphosphino)3,3′Bibenzo[b]Thiophene)

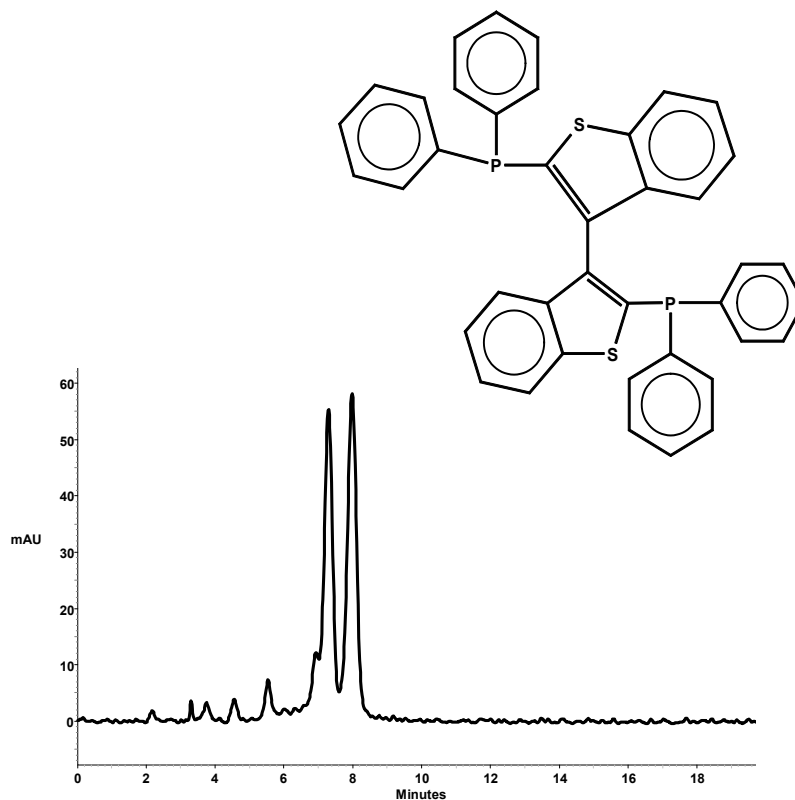
Keywords: BITIANP, chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 1.47$

$k'2 = 1.71$

$\alpha = 1.16$



14 Chiral separation of 4-Bromophenyl-Glycinamid (2-(4-Bromophenyl)-2-Amino Acetamid)

Method

HPLC Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: n-Heptane / 2-Propanol (90:10) + 0.1% DEA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: ambient
Volume: 10 μl

Detection: UV at 230 nm

Substances: 4-Bromophenyl-Glycinamid (2-(4-Bromophenyl)-2-Amino Acetamid)

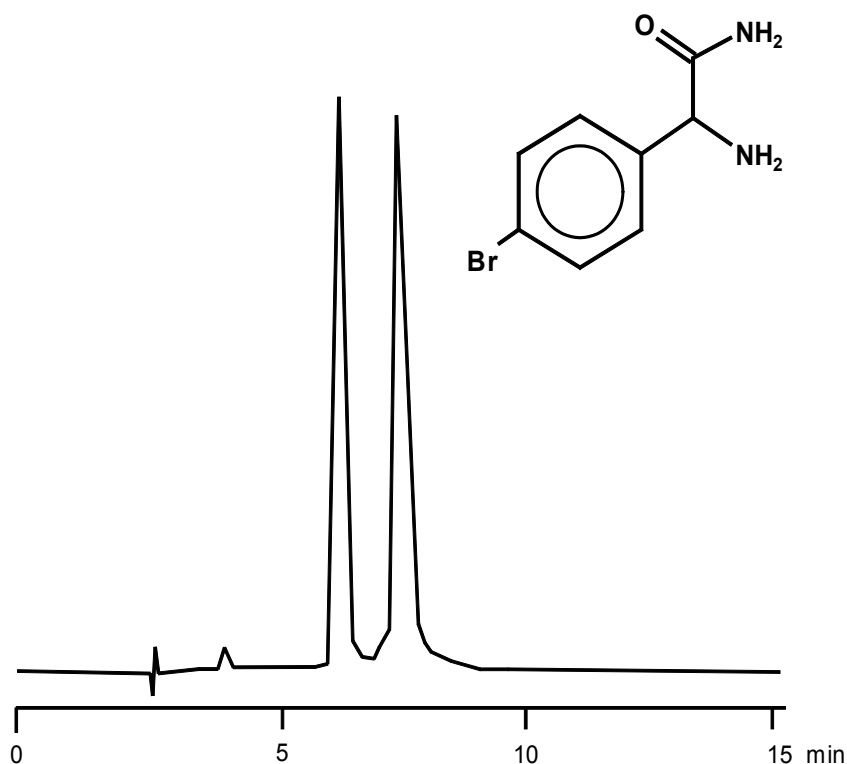
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 3.09$

$k'2 = 4.54$

$\alpha = 1.47$



15 Chiral separation of Carazolol I



Method

HPLC PO mode

Column: Eurocel 04, 250 x 4.6 mm ID
with precolumn

Order No. 25VM480ECJ

Phase: Eurocel 04, 5 μm

Conditions: Eluent: Methanol + 0.1% TFA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 20 °C
Volume: 10 μl

Detection: UV at 240 nm

Substances: Carazolol, 1-(9H-carbazol-4-yloxy)-3-(propan-2-ylamino)propan-2-ol

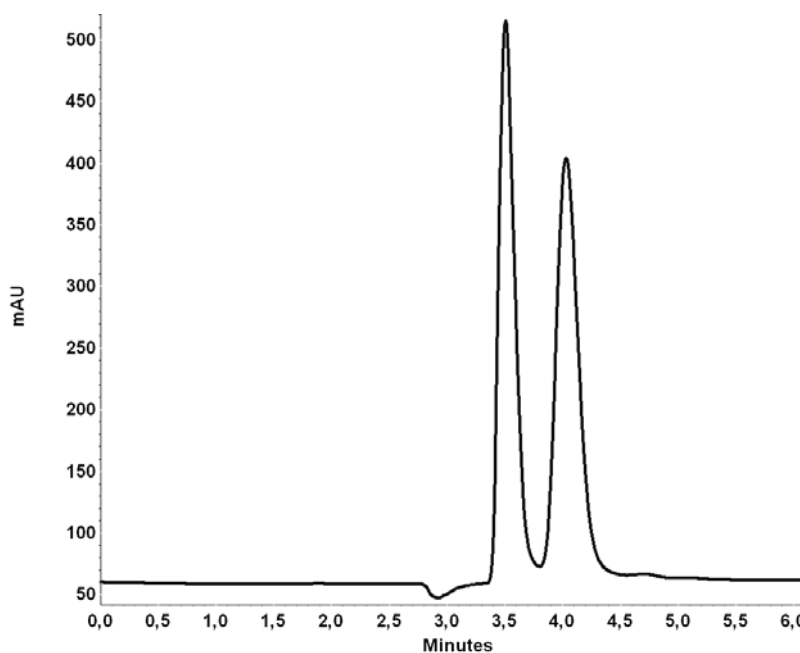
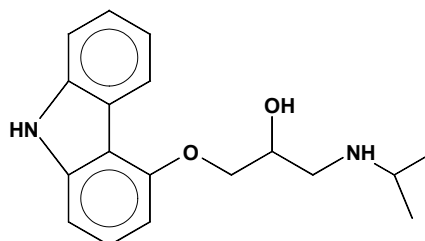
Keywords: chiral separation, Eurocel 04, cellulose based chiral selector, Carazolol

Chromatogram:

$k'1 = 0.20$

$k'2 = 0.38$

$\alpha = 1.9$



16 Chiral separation of Carazolol II



Method
HPLC

RP mode

Column: Eurocel 04, 250 x 4.6 mm ID
with precolumn

Order No.

25VM480ECJ

Phase: Eurocel 04, 5 μm

Conditions: Eluent: Methanol / Water 80:20 (v/v) + 0.1% TFA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 20 °C
Volume: 10 μl

Detection: UV at 240 nm

Substances: Carazolol,, 1-(9H-carbazol-4-yloxy)-3-(propan-2-ylamino)propan-2-ol,

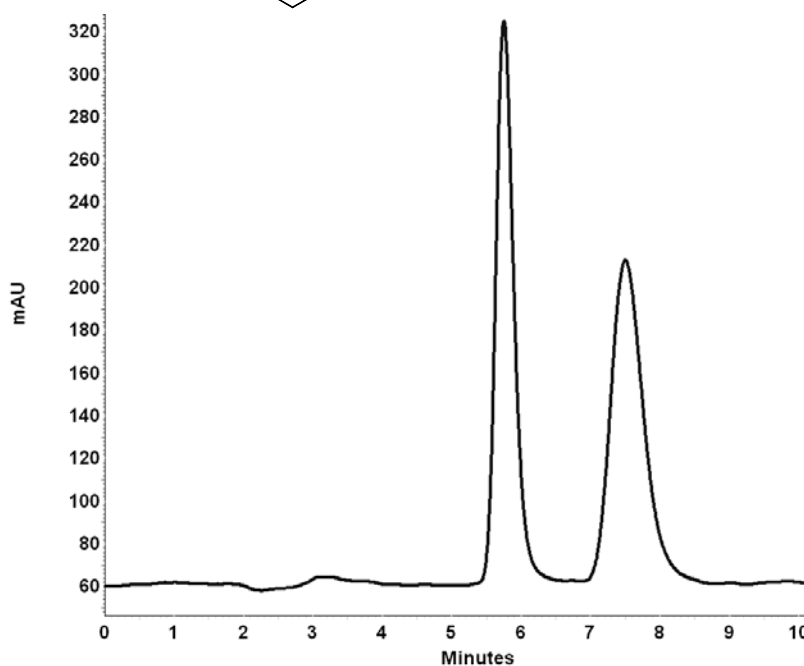
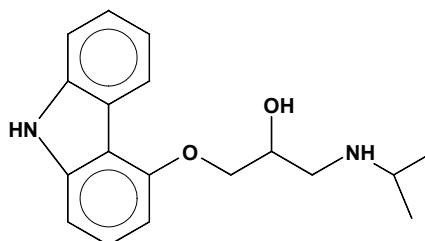
Keywords: chiral separation, Eurocel 04, cellulose based chiral selector, Carazolol

Chromatogram:

$k'1 = 0.97$

$k'2 = 1.56$

$\alpha = 1.6$



17 Chiral separation of Carbinoxamine (2-[(4-Chlorophenyl)-Pyridin-2-yl-Methoxy]-*N,N*-Dimethyl-Ethanamine)

Method
HPLC

Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: n-Heptane / 2-Propanol (90:10) + 0.1% DEA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 230 nm

Substances: Carbinoxamine (2-[(4-Chlorophenyl)-Pyridin-2-yl-Methoxy]-*N,N*-Dimethyl-Ethanamine)

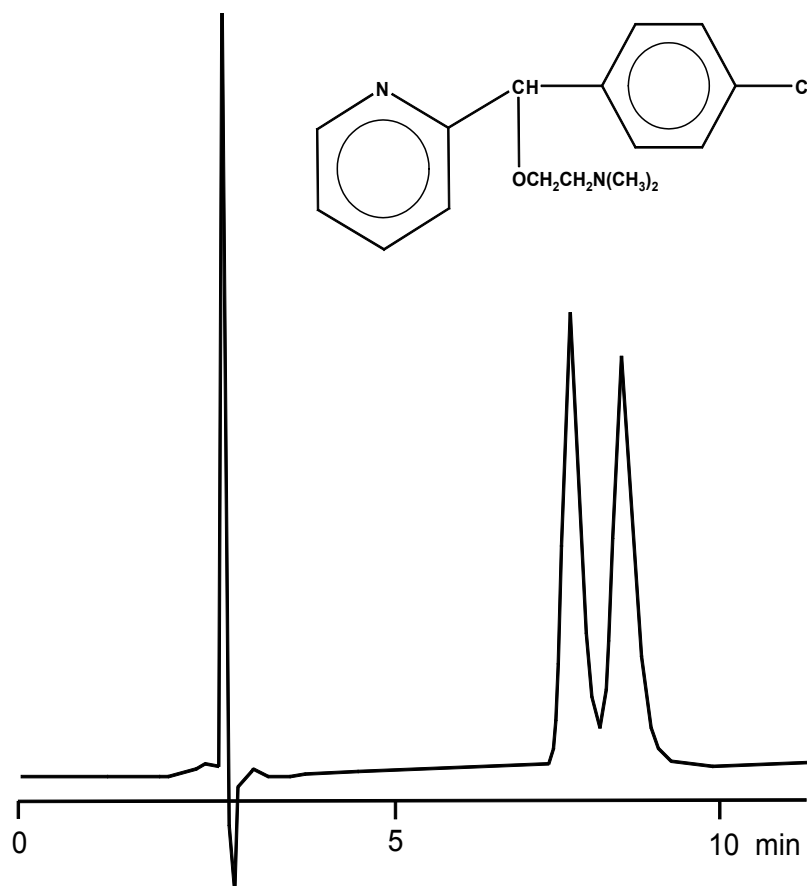
Keywords: antihistamine, chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 1.69$

$k'2 = 1.94$

$\alpha = 1.14$



18 Chiral separation of Citalopram (1-(3-Dimethylaminopropyl)-1-(4-Fluorophenyl)-3H-2-Benzofuran-5-Carbonitrile)

Method Chiral HPLC
HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: Heptane / 2-Propanol (96:4) + 0.1% DEA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 250 nm

Substances: Citalopram (1-(3-Dimethylaminopropyl)-1-(4-Fluorophenyl)-3H-2-Benzofuran-5-Carbonitrile)

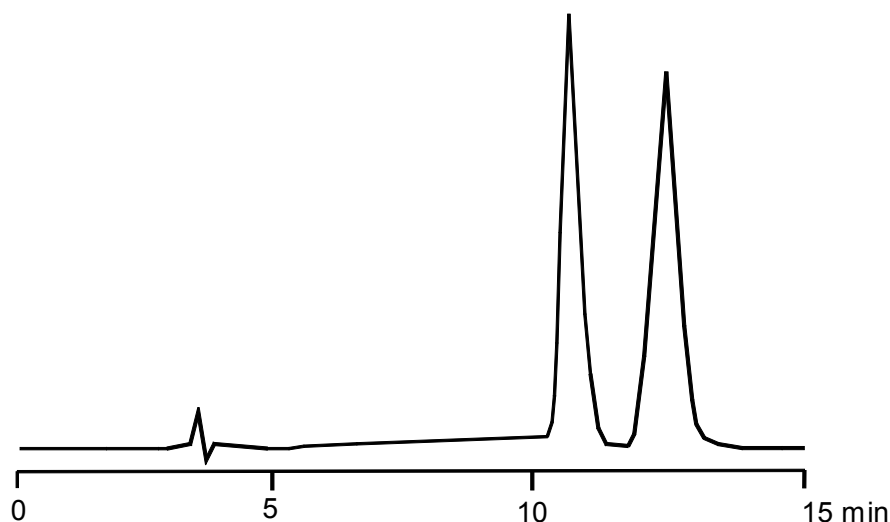
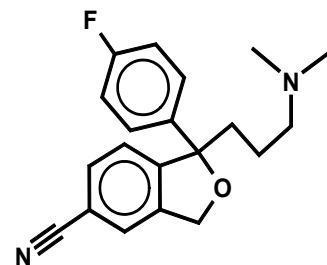
Keywords: therapeutical drug, chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 2.67$

$k'2 = 3.27$

$\alpha = 1.23$



19 Chiral separation of Clenbuterol

Method Chiral HPLC
HPLC

Column: Eurocel 04, 250 x 4.6 mm ID
with precolumn

Order No. 25VM480ECJ

Phase: Eurocel 04, 5 μ m

Conditions: Eluent: Acetonitrile / Water 25:75 (v / v) + 0.1% DEA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 20 °C
Volume: 10 μ l

Detection: UV at 215 nm

Substances: Clenbuterol,

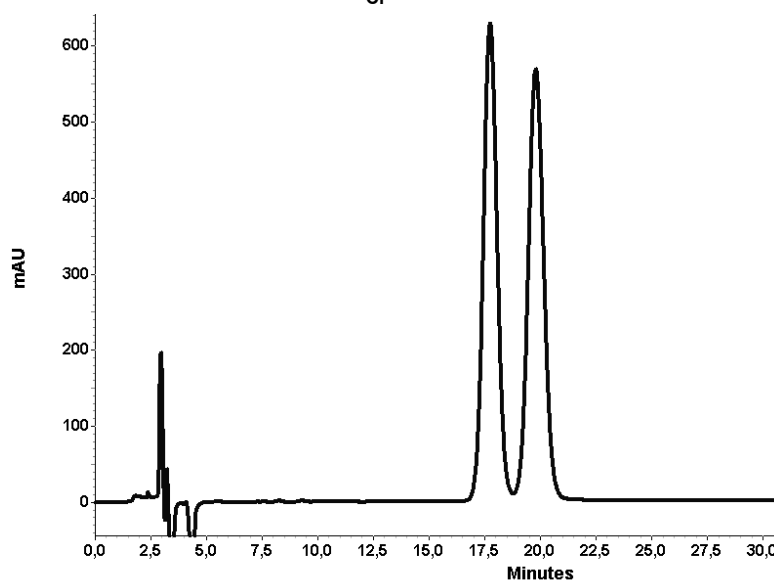
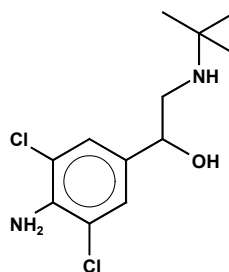
Keywords: chiral separation, Eurocel 04, cellulose based chiral selector

Chromatogram:

$k'1 = 4,95$

$k'2 = 5,64$

$\alpha = 1,14$



20 Chiral separation of Cyanofenphos

Method Chiral HPLC
HPLC

Column: Eurocel 03, 250 x 4.6 mm ID
with precolumn

Order No. 25VM400ECJ

Phase: Eurocel 03, 5 µm

Conditions: Eluent: Hexane / 2-Propanole 80:20 (v / v) + 0.1% TFA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 20 °C
Volume: 10 µl

Detection: UV at 234 nm

Substances: Cyanofenphos, O-4-cyanophenyl-O-ethylphenylphosphonothioate

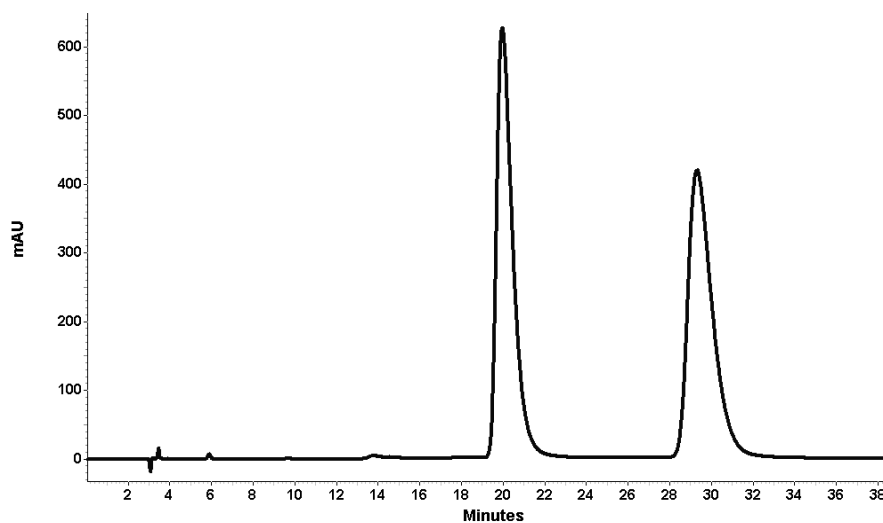
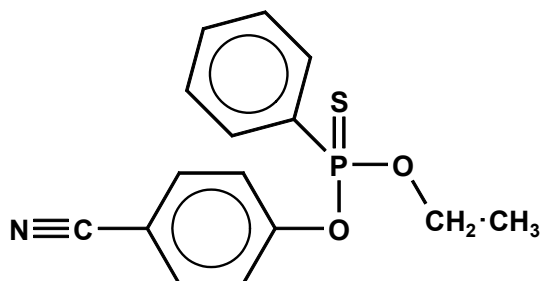
Keywords: chiral separation, Eurocel 03, cellulose based chiral selector, pesticides

Chromatogram:

$k'1 = 5.50$

$k'2 = 8.55$

$\alpha = 1.56$



21 Chiral separation of Diclofop – methyl

Method Chiral HPLC
HPLC

Column: Eurocel 01, 250 x 4.6 mm ID
with precolumn

Order No. 25VM370ECJ

Phase: Eurocel 01, 5 μ m

Conditions: Eluent: Hexane / 2-Propanole 80:20 (v / v) + 0.1% TFA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 20 °C
Volume: 10 μ l

Detection: UV at 210 nm

Substances: Diclofop – methyl, methyl 2-[4-(2,4-dichlorophenoxy)phenoxy]propanoate

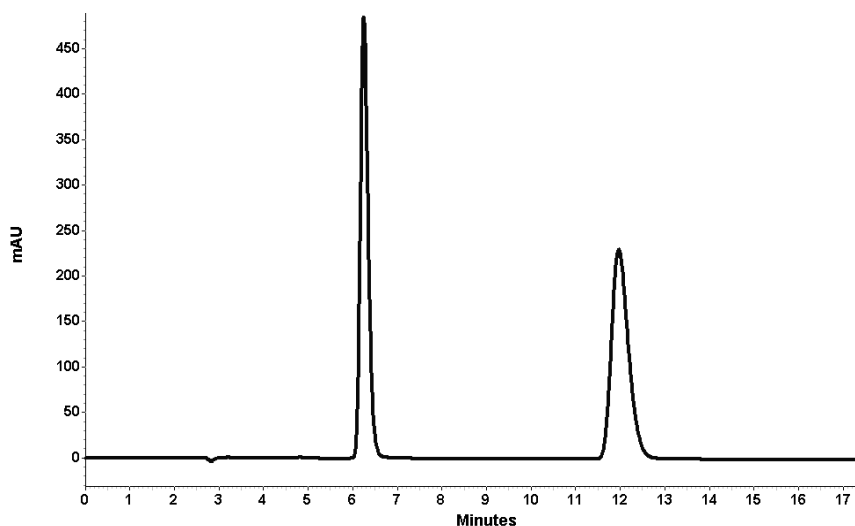
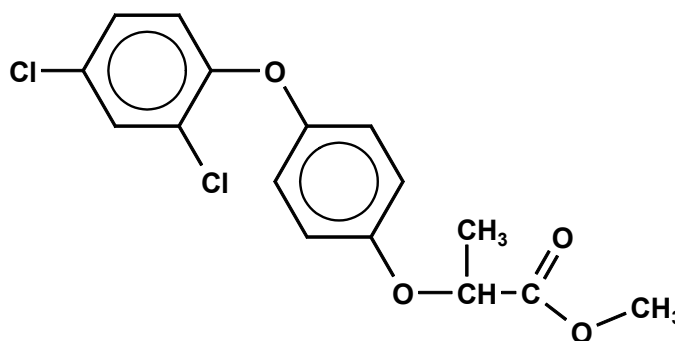
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector, pesticides

Chromatogram:

$k'1 = 1.21$

$k'2 = 3.23$

$\alpha = 2.67$



22 Chiral separation of Dihydrofuranone

Method Chiral HPLC
HPLC

Column: Eurocel 01, 250 x 4.6 mm ID
with precolumn

Order No. 25VM370ECJ

Phase: Eurocel 01, 5 μ m

Conditions: Eluent: Heptane / 1 - Butanol 99.9:0.1 (v/v)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 20 °C
Volume: 10 μ l

Detection: UV at 210 nm

Substances: Dihydrofuranone, 4-(s-tolyl)dihydrofuran-2(3M)-one

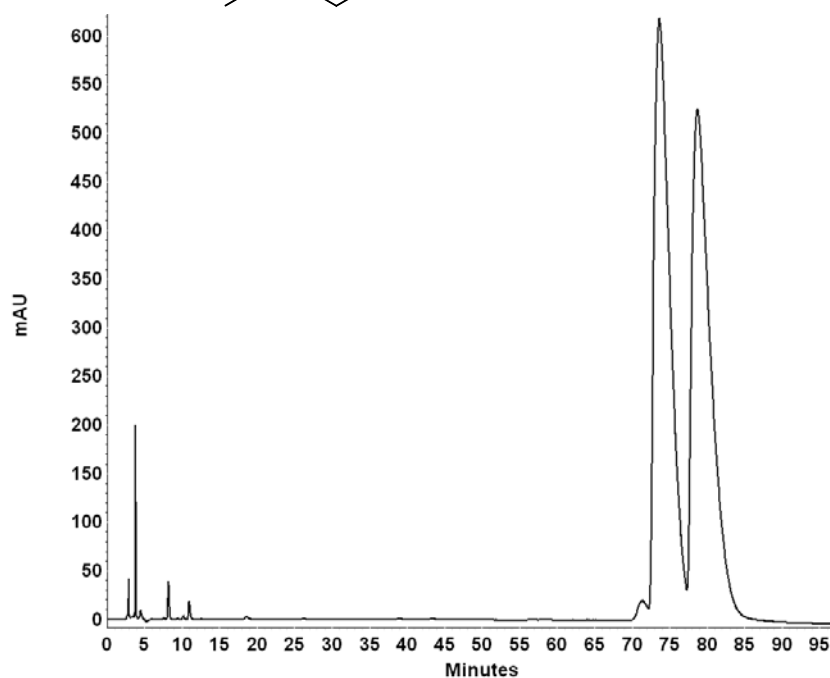
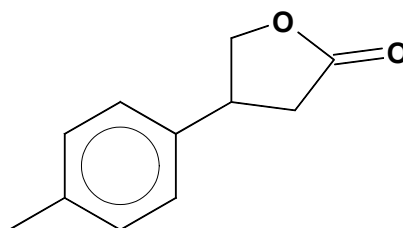
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector, pesticides

Chromatogram:

$k'1 = 23.7$

$k'2 = 26.3$

$\alpha = 1.1$



23 Chiral separation of Dilactid

Method
HPLC

Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions:
Eluent: n-Hexane / Ethanol (90:10)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 220 nm

Substances: Dilactid (D-, L-, meso)

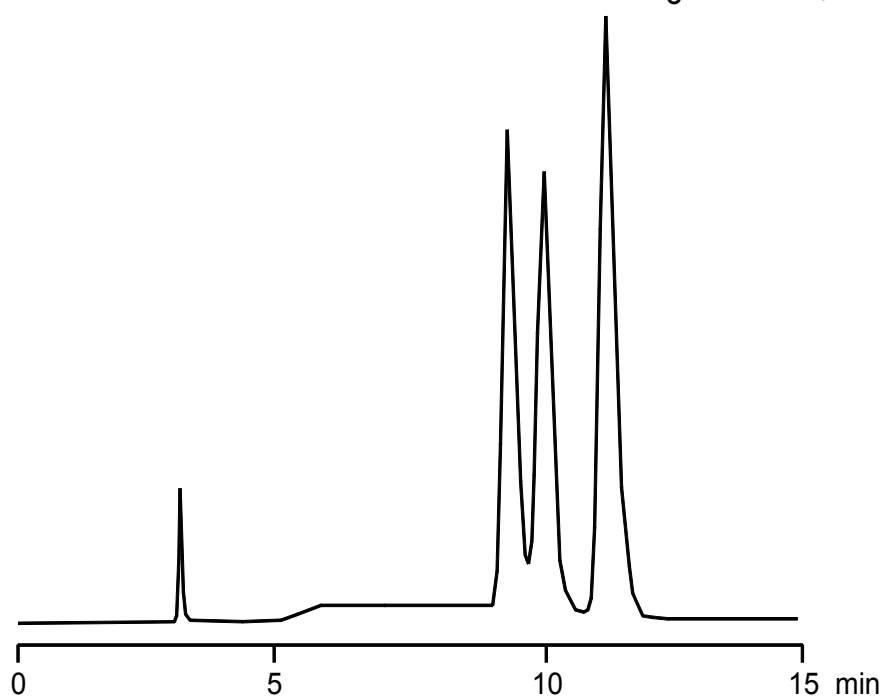
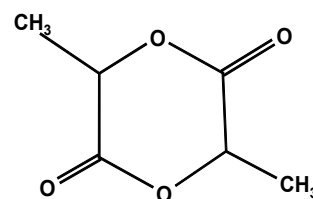
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 2.01$

$k'2 = 2.22$

$\alpha = 1.10$



24 Chiral separation of 1,2-Diphenyl-2-(Tosylamino)Ethanone

Method Chiral HPLC
HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: n-Hexane / 2-Propanol (90:10)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 254 nm

Substances: 1,2-Diphenyl-2-(Tosylamino)Ethanone

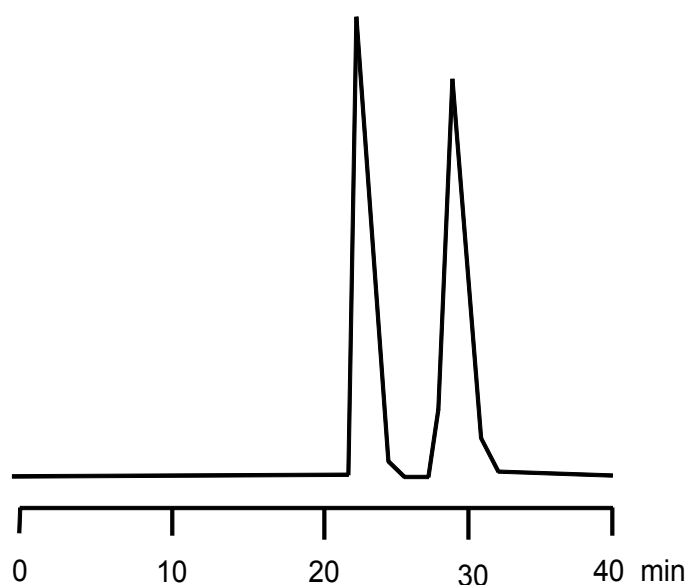
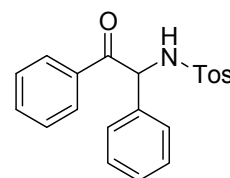
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 7.66$

$k'2 = 8.66$

$\alpha = 1.13$



25 Chiral separation of Ethyl-Mandelate

Method Chiral HPLC
HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: Hexane / 2-Propanol (90:10)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 220 nm

Substances: Ethyl-Mandelate

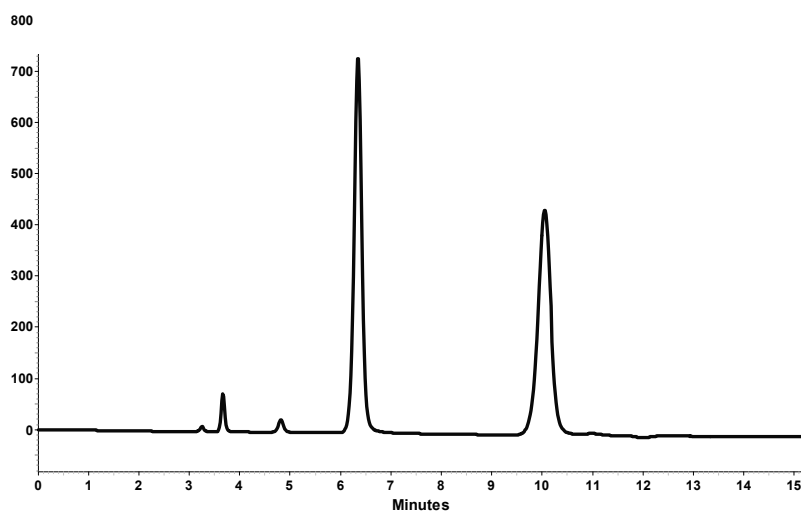
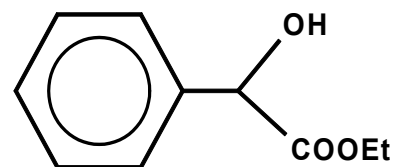
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 1.10$

$k'2 = 2.32$

$\alpha = 2.11$



26 Chiral separation of Etozolin (Ethyl(3-Methyl-4-Oxo-5-Piperidinothiazolidin-2-ylidene)Acetate)

Method
HPLC

Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions:
Eluent: Methanol
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 220 nm

Substances: Etozolin (Ethyl(3-Methyl-4-Oxo-5-Piperidinothiazolidin-2-ylidene)Acetate)

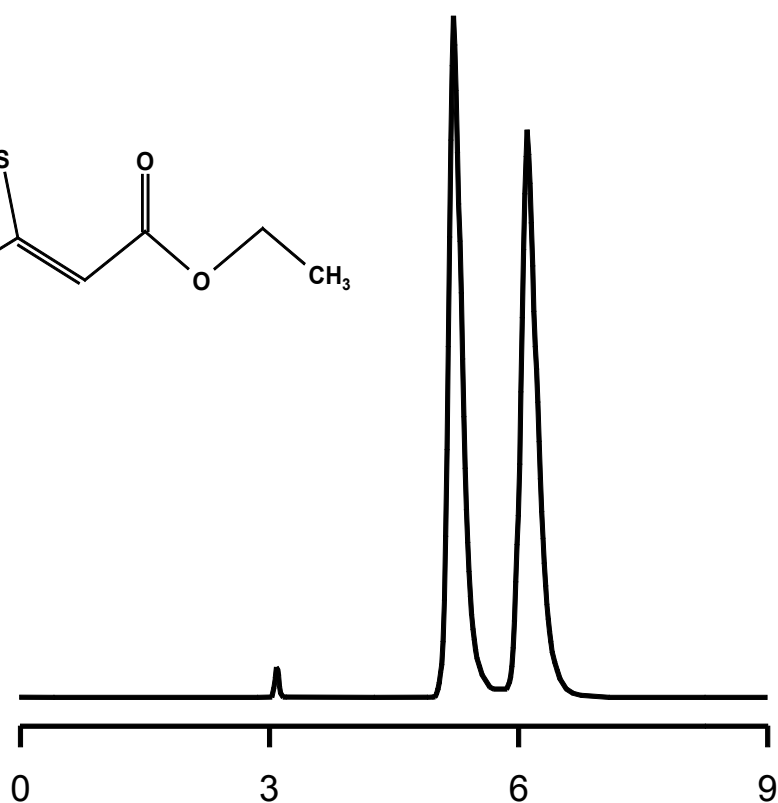
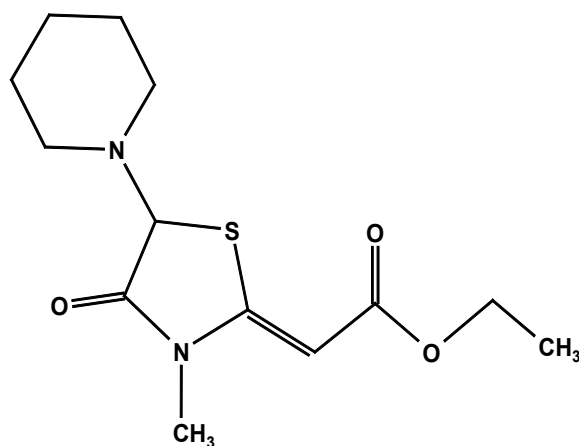
Keywords: diureticum, chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 0.68$

$k'2 = 1.05$

$\alpha = 1.54$



27 Chiral separation of Flavanone (2-Phenyl-1,4-Benzopyrone)

Method
HPLC

Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions:
Eluent: n-Heptane / 2-Propanol (90:10)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 254 nm

Substances: Flavanone (2-Phenyl-1,4-Benzopyrone)

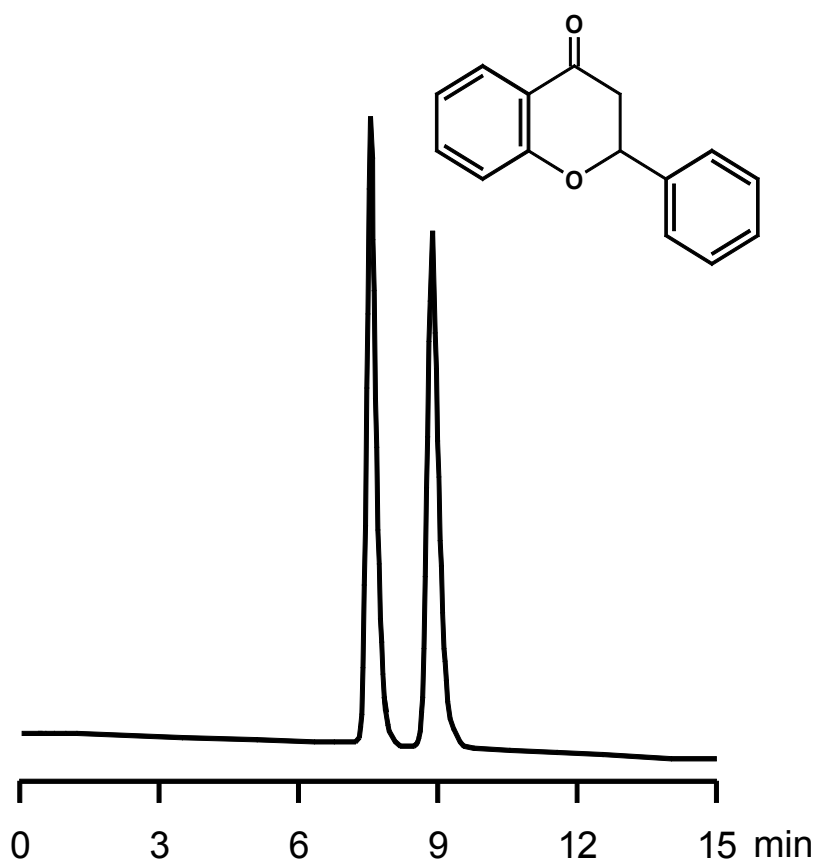
Keywords: antioxidants, chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 1.41$

$k'2 = 1.83$

$\alpha = 1.30$



28 Chiral separation of Hexahydro-6,6-Dimethyl-2-Tosylpyrrolo [1,2-e]imidazol-3-one

Method Chiral HPLC
HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: n-Hexan / 2-Propanol (75:25)
Gradient: isocratic
Flow rate: 0.5 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 220 nm

Substances: Hexahydro-6,6-Dimethyl-2-Tosylpyrrolo[1,2-e]imidazol-3-one

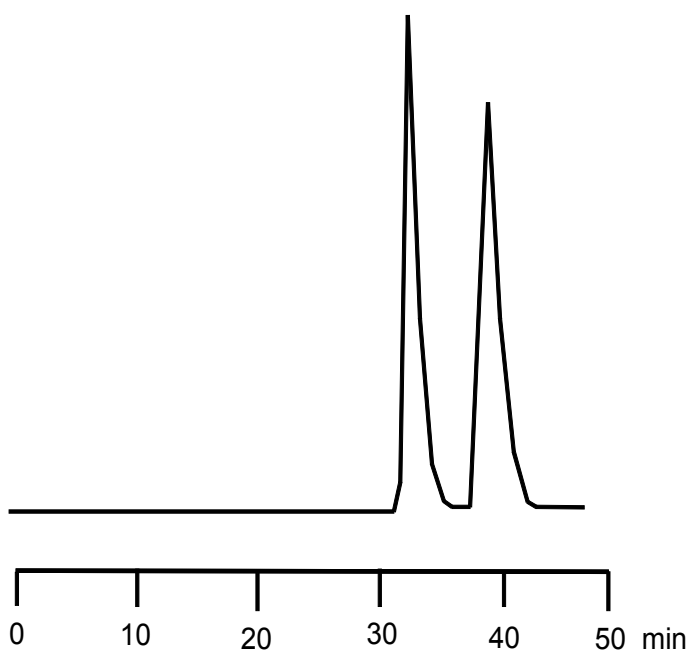
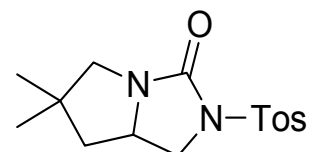
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 3.92$

$k'2 = 4.92$

$\alpha = 1.25$



29 Chiral separation of Hydroxyzine

Method
HPLC

Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions:
Eluent: n-Heptane / 2-Propanol (90:10) + 0.1% DEA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 230 nm

Substances: Hydroxyzine

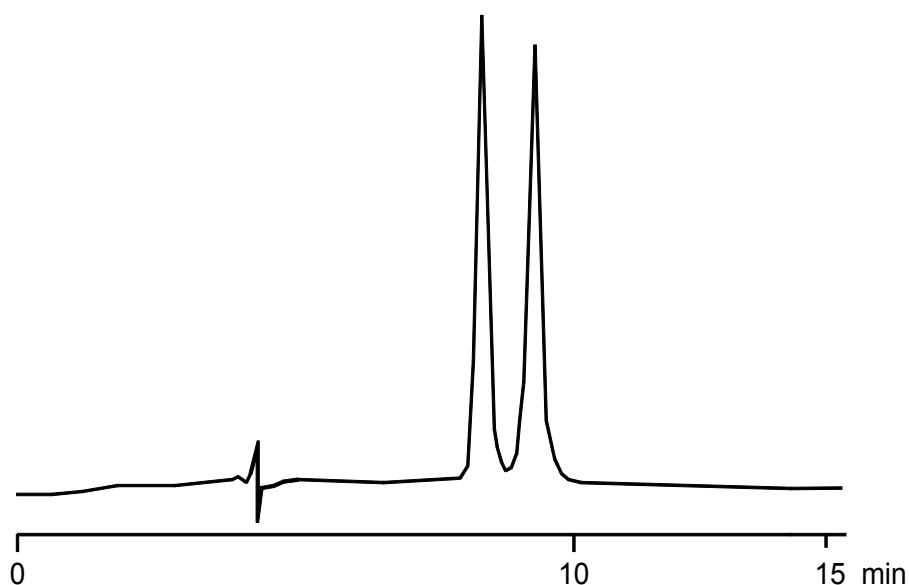
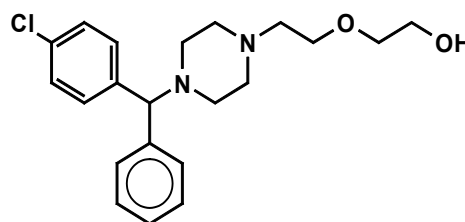
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 1.88$

$k'2 = 2.15$

$\alpha = 1.14$



30 Chiral separation of Lactic Acid

Method Chiral HPLC
HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: Heptane / 2-Butanole (95:5) + 0.1% TFA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 210 nm

Substances: Lactic acid

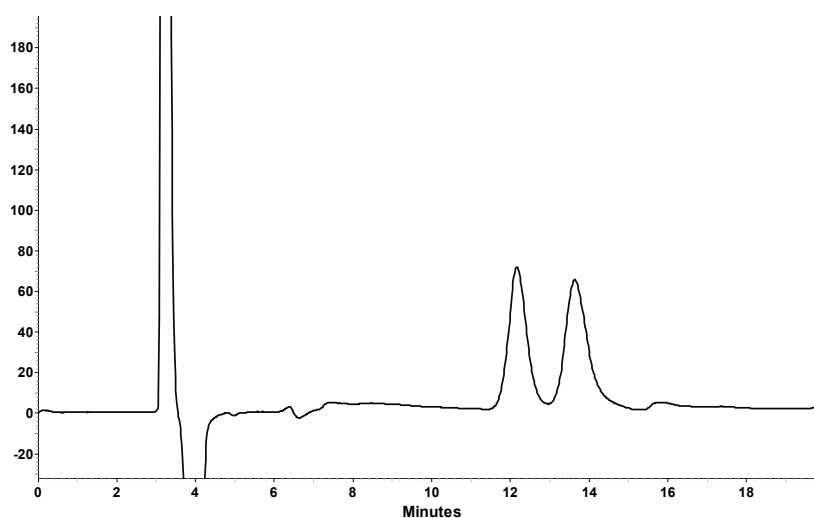
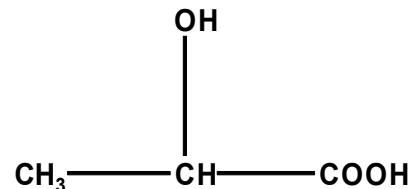
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 2.99$

$k'2 = 3.47$

$\alpha = 1.16$



31 Chiral separation of Mandelic acid

Method Chiral HPLC
HPLC

Column: Eurocel 01, 250 x 4.6 mm ID
with precolumn

Order No. 25VM370ECJ

Phase: Eurocel 01, 5 μ m

Conditions: Eluent: Hexane / 2-Propanole 80:20 (v/v) + 0.1% TFA
Gradient: isocratic
Flow rate: 0.5 ml/min
Temperature: 25 °C
Volume: 10 μ l

Detection: UV at 215 nm

Substances: Mandelic acid; α -Hydroxyphenylacetic acid

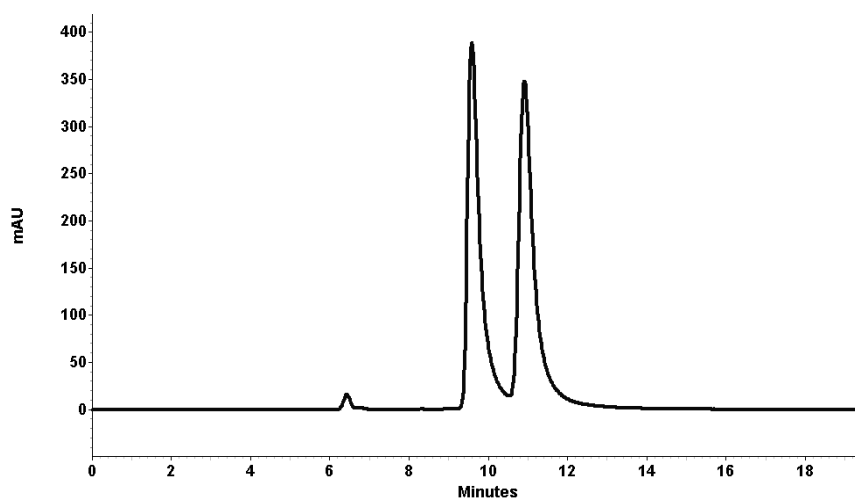
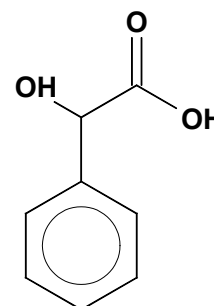
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 0.49$

$k'2 = 0.70$

$\alpha = 1.43$



32 Chiral separation of n-Methylephedrin (2-Dimethylamino-1-Phenyl-Propanol)

Method
HPLC

Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: n-Heptane / 2-Propanol (80:20) + 0.1% DEA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 210 nm

Substances: N-Methylephedrin (2-Dimethylamino-1-Phenyl-Propanol)

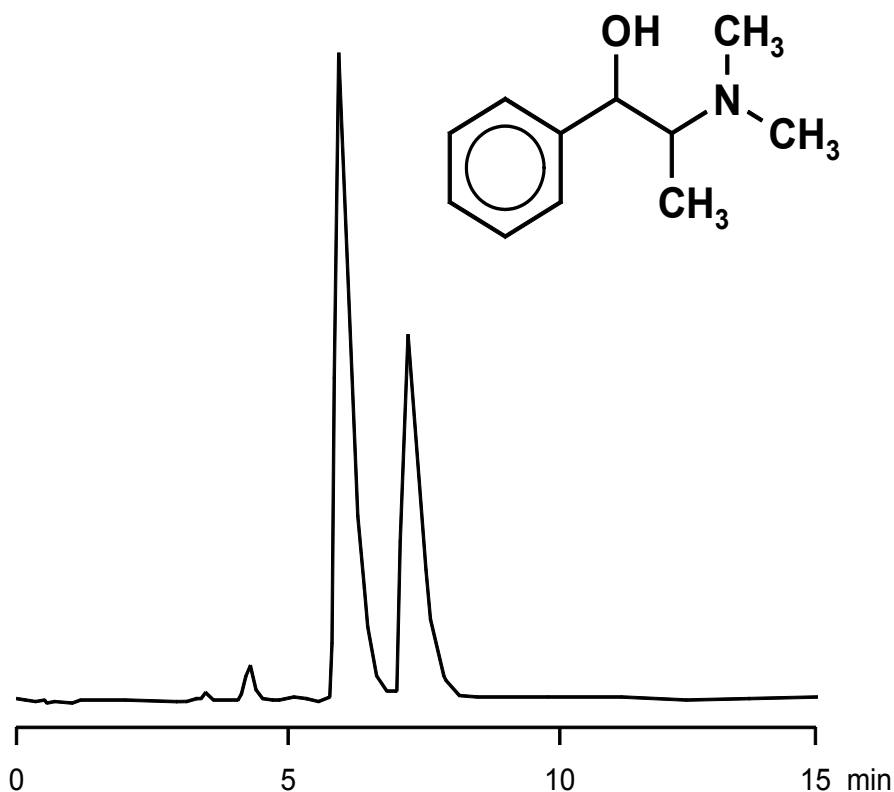
Keywords: amphetamine, chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 0.88$

$k'2 = 1.25$

$\alpha = 1.42$



33 Chiral separation of Methyl phenyl sulfoxide

Method Chiral HPLC
HPLC

Column: Eurocel 01 3 μm , 250 x 4.6 mm ID

Order No. 25EM370ECG

Phase: Eurocel 01, 3 μm

Conditions: Eluent: Hexane / Ethanol (90:10)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 220 nm

Substances: Methyl phenyl sulfoxide

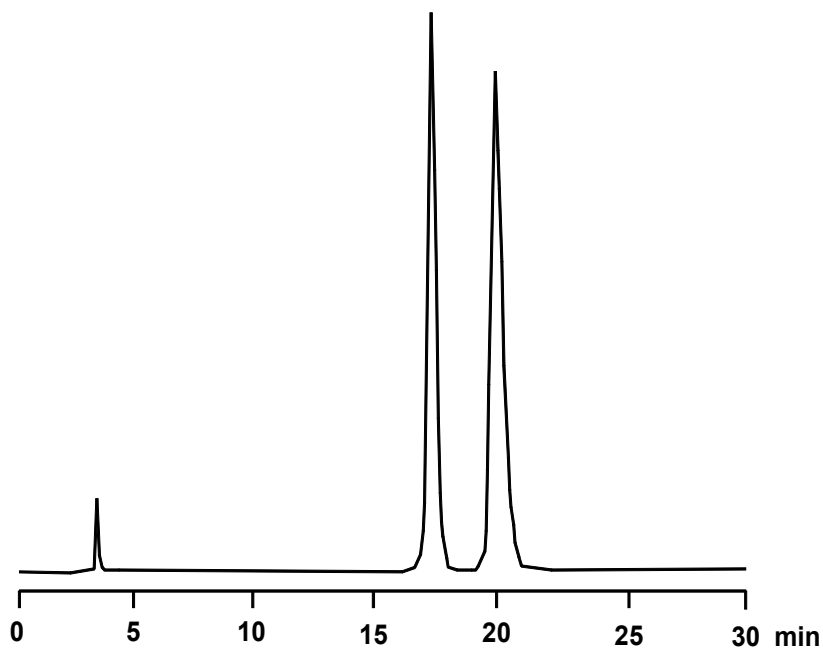
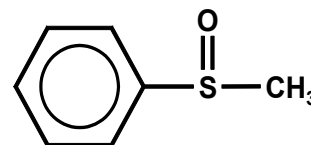
Keywords: Chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 4.65$

$k'2 = 5.52$

$\alpha = 1.18$



34 Chiral separation of Methyl phenyl sulfoxide II

Method Chiral HPLC
HPLC

Column: Eurocel 02 5 μm , 250 x 4.6 mm ID

Order No. 25EM390ECJ

Phase: Eurocel 02, 5 μm

Conditions: Eluent: Hexane / Ethanol (75:25)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 220 nm

Substances: Methyl phenyl sulfoxide

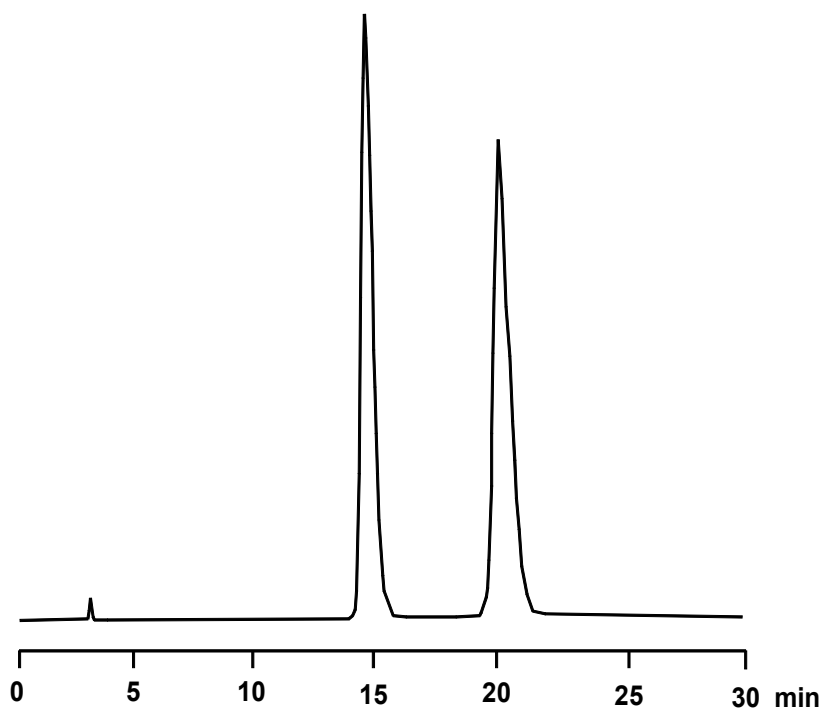
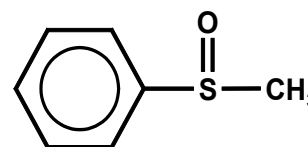
Keywords: Chiral separation, Eurocel 02, cellulose based chiral selector

Chromatogram:

$k'1 = 3.77$

$k'2 = 5.35$

$\alpha = 1.42$



35 Chiral separation of Metoprolol (1-(Isopropylamino)-3-[4-(2-Methoxyethyl)Phenoxy]Propan-2-ol)

**Method
HPLC**

Chiral HPLC

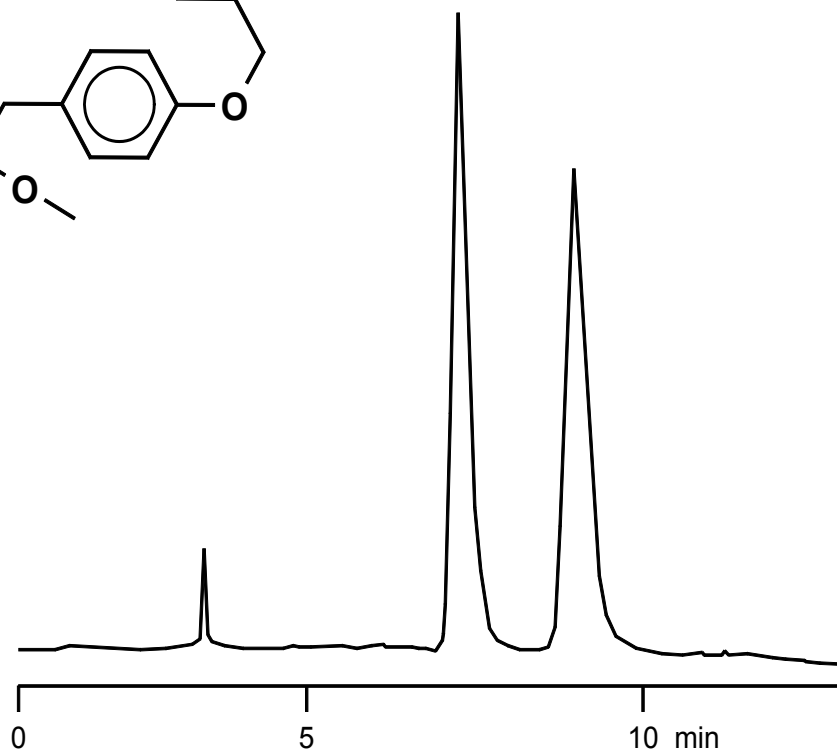
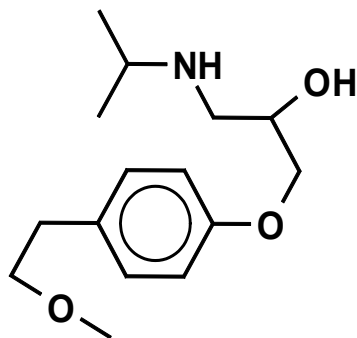
Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm
Conditions: Eluent: n-Heptane / Ethanol (90:10) + 0.1% DEA
 Gradient: isocratic
 Flow rate: 1.0 ml/min
 Temperature: 25 °C
 Volume: 10 μl
Detection: UV at 230 nm

Substances: Metoprolol (1-(Isopropylamino)-3-[4-(2-Methoxyethyl)Phenoxy]Propan-2-ol)

Keywords: beta blocker, chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:
 $k'1 = 1.34$
 $k'2 = 1.96$
 $\alpha = 1.46$


36 Chiral separation of 1-(Naphthalene-6-yl)Ethane-1,2-diol

Method
HPLC

Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions:
Eluent: n-Hexan / 2-Propanol (90:10)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 254 nm

Substances: 1-(Naphthalene-6-yl)Ethane-1,2-diol

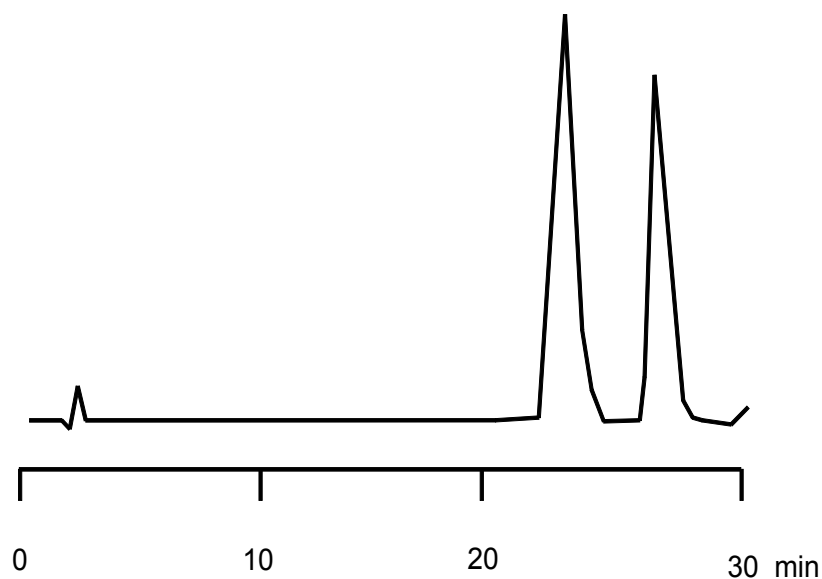
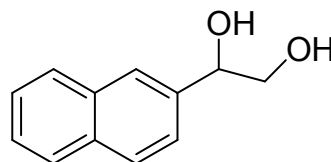
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 7.98$

$k'2 = 6.63$

$\alpha = 1.20$



37 Chiral separation of Naproxen (6-Methoxy- α -Methyl-2-Naphthylelessigsäure)

Method Chiral HPLC
HPLC

Column: Eurocel 01 5 μ m, 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μ m

Conditions: Eluent: Hexan / 2-Propanol (90:10) + 0.1% TFA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μ l

Detection: UV at 230 nm

Substances: Naproxen (6-Methoxy- α -Methyl-2-Naphthylelessigsäure)

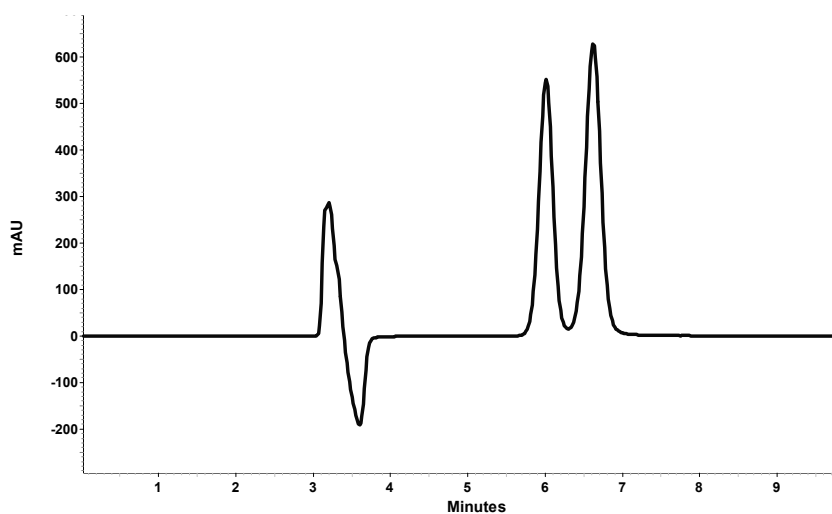
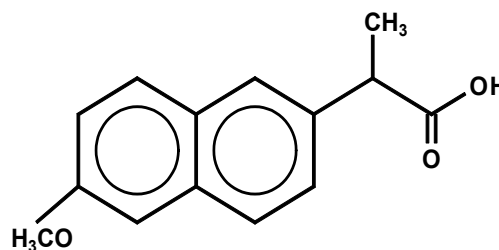
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 0.97$

$k'2 = 1.17$

$\alpha = 1.21$



38 Chiral separation of 1-Phenylethylglycol (1-Phenylethane-1,2-diol)

Method Chiral HPLC
HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: n-Hexan / 2-Propanol (75:25)
Gradient: isocratic
Flow rate: 0.5 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 254 nm

Substances: 1-Phenylethylglycol (Styrolglycol, 1-Phenylethane-1,2-diol)

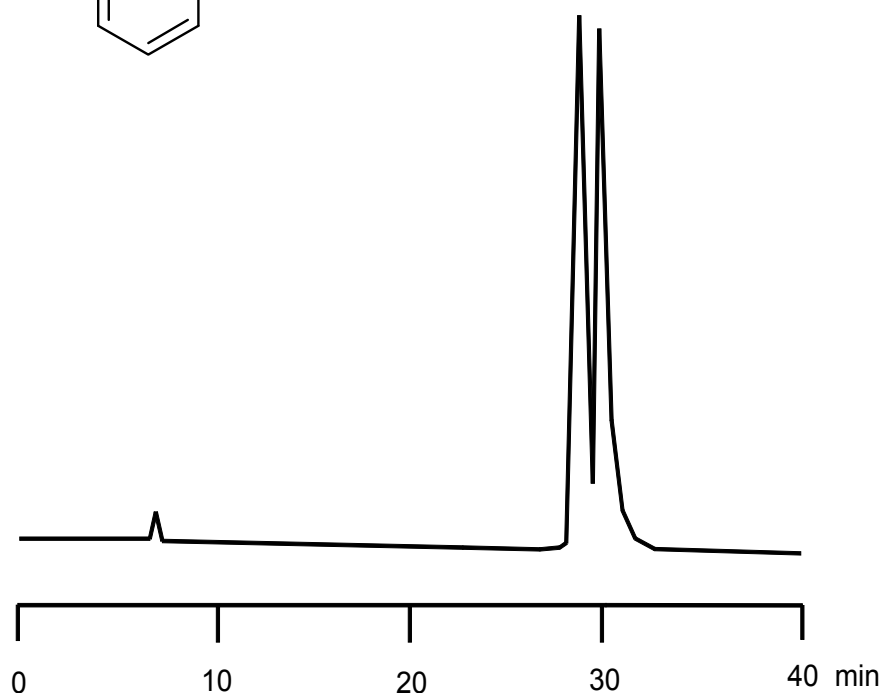
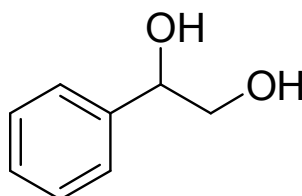
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 3.65$

$k'2 = 3.98$

$\alpha = 1.09$



39 Chiral separation of 1-Phenylpropane-1,2-diol

Method Chiral HPLC
HPLC

Column: Eurocel 01 5 µm, 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 µm

Conditions: Eluent: n-Hexan / 2-Propanol (90:10)
Gradient: isocratic
Flow rate: 0.5 ml/min
Temperature: 25 °C
Volume: 10 µl

Detection: UV at 254 nm

Substances: 1-Phenylpropane-1,2-diol

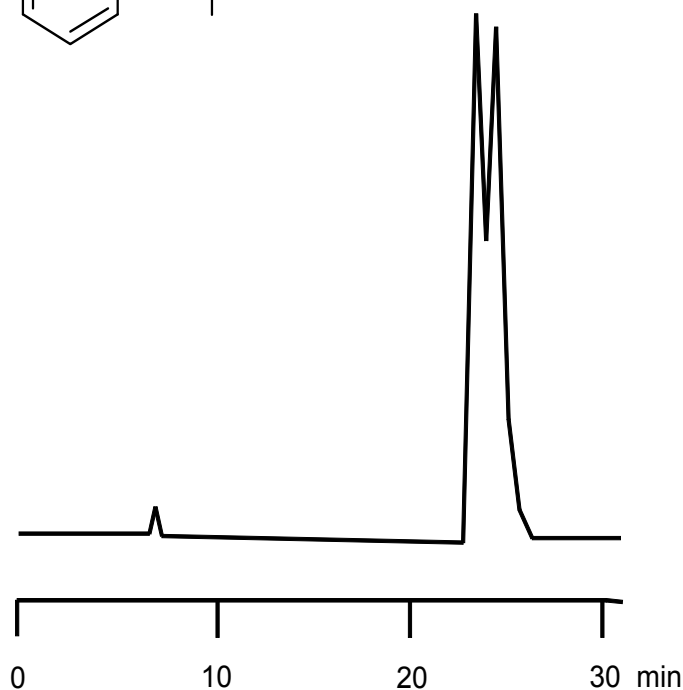
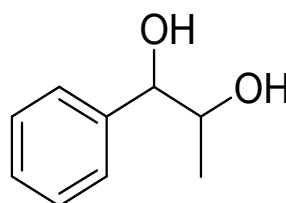
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 2.76$

$k'2 = 2.93$

$\alpha = 1.06$



40 Chiral separation of Pindolol (1-(1H-Indol-4-yloxy)-3-(1-Methylethylamino)Propan-2-ol)

Method
HPLC

Chiral HPLC

Column: Eurocel 01 5 µm, 125 x 4.0 mm ID

Order No. 12DM370ECJ

Phase: Eurocel 01, 5 µm

Conditions: Eluent: 20 mM Sodium borate buffer / Acetonitrile (60:40)
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 µl

Detection: UV at 263 nm

Substances: Pindolol (1-(1H-Indol-4-yloxy)-3-(1-Methylethylamino)Propan-2-ol)

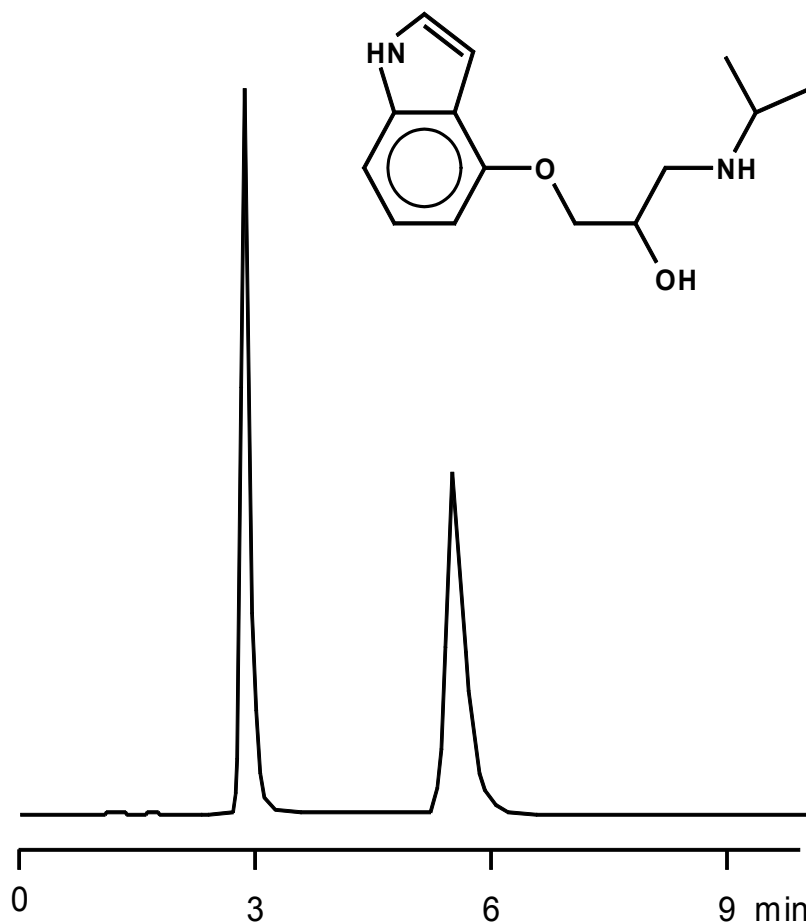
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 1.43$

$k'2 = 3.68$

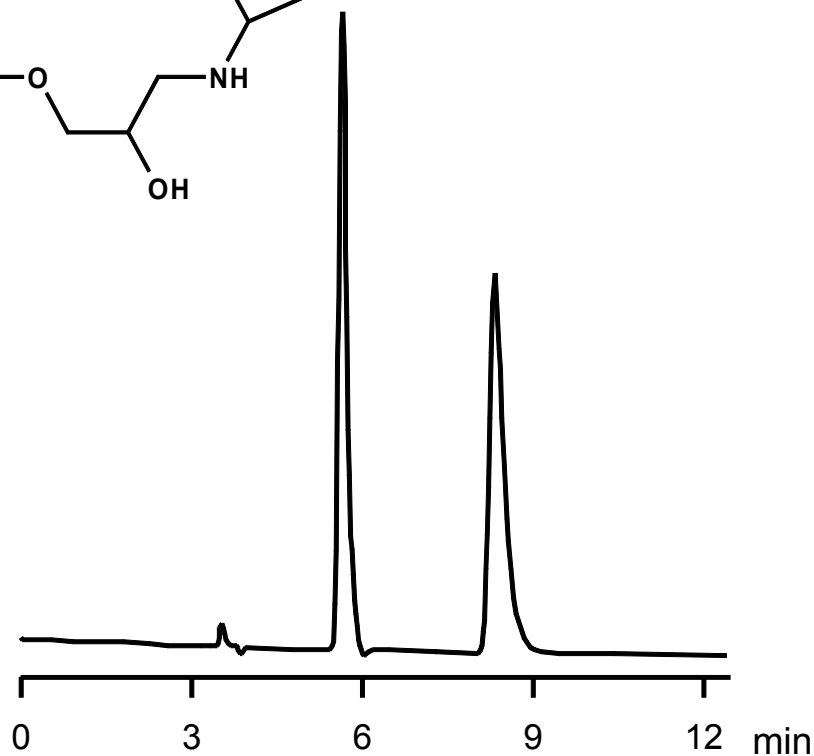
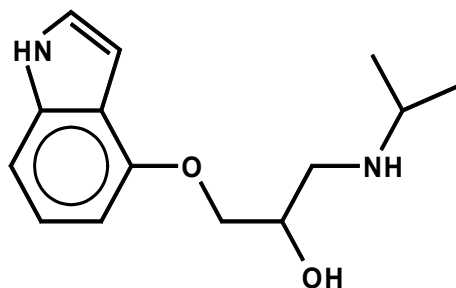
$\alpha = 2.57$



41 Chiral separation of Pindolol (1-(1H-Indol-4-yloxy)-3-(1-Methylethylamino)Propan-2-ol)

Method
HPLC

Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID**Order No.** 25EM370ECJ**Phase:** Eurocel 01, 5 μm **Conditions:**
Eluent: Acetonitrile + 0.1% EtOA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl **Detection:** UV at 263 nm**Substances:** Pindolol (1-(1H-Indol-4-yloxy)-3-(1-Methylethylamino)Propan-2-ol)**Keywords:** chiral separation, Eurocel 01, cellulose based chiral selector**Chromatogram:** $k'1 = 0.6$ $k'2 = 1.37$ $\alpha = 2.28$ 

42 Chiral separation of Praziquantel

Method Chiral HPLC
HPLC

Column: Eurocel 03, 250 x 4.6 mm ID
with precolumn

Order No. 25VM400ECJ

Phase: Eurocel 03

Conditions: Eluent: Methanol
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 µl

Detection: UV at 210 nm

Substances: Praziquantel: (2S)-2-(cyclohexylcarbonyl)-2,3,4,6,7,11b-hexahydro-1H-pyrazino
[2,1a]isochinolin-4-on

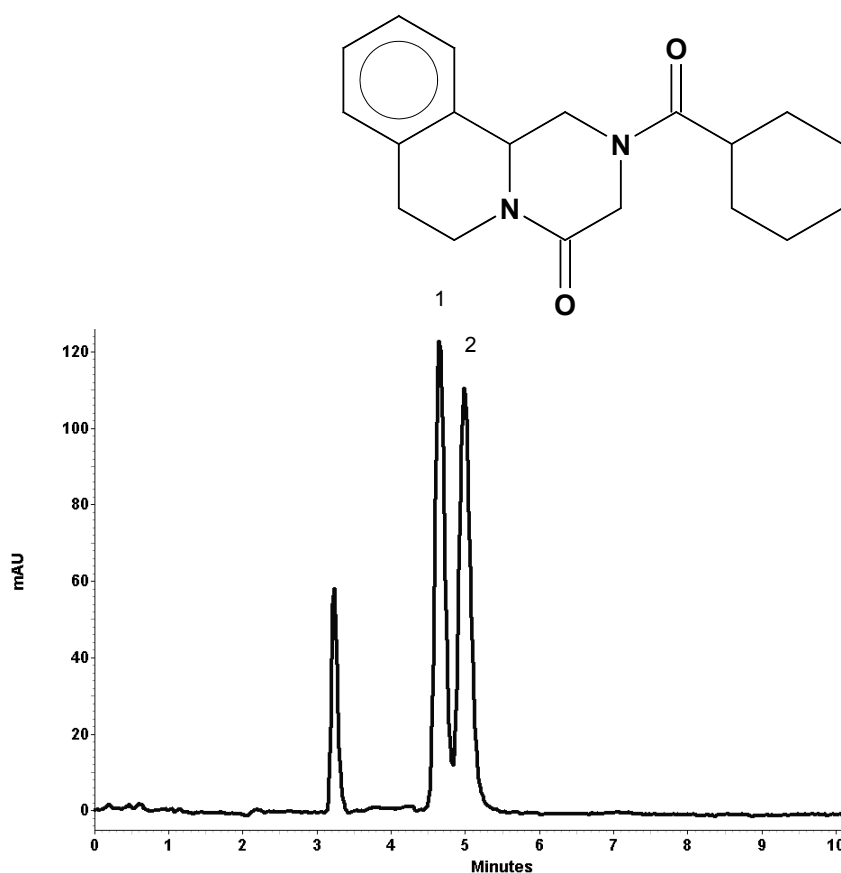
Keywords: chiral separation, Eurocel 03, cellulose based chiral selector, anthelmintic

Chromatogram:

$k'1 = 0.44$

$k'2 = 0.54$

$\alpha = 1.23$



43 Chiral separation of Propranolol (1-Isopropylamino-3-(1-Naphthoxy)-2-Propanol)

Method
HPLC

Chiral HPLC

Column: Eurocel 01 5 μm , 125 x 4.0 mm ID

Order No. 12DM370ECJ

Phase: Eurocel 01, 5 μm

Conditions:
 Eluent: Acetonitrile / Water (32:68) + 0.1% DEA
 Gradient: isocratic
 Flow rate: 1.0 ml/min
 Temperature: 25 °C
 Volume: 10 μl

Detection: UV at 230 nm

Substances: Propranolol (1-Isopropylamino-3-(1-Naphthoxy)-2-Propanol)

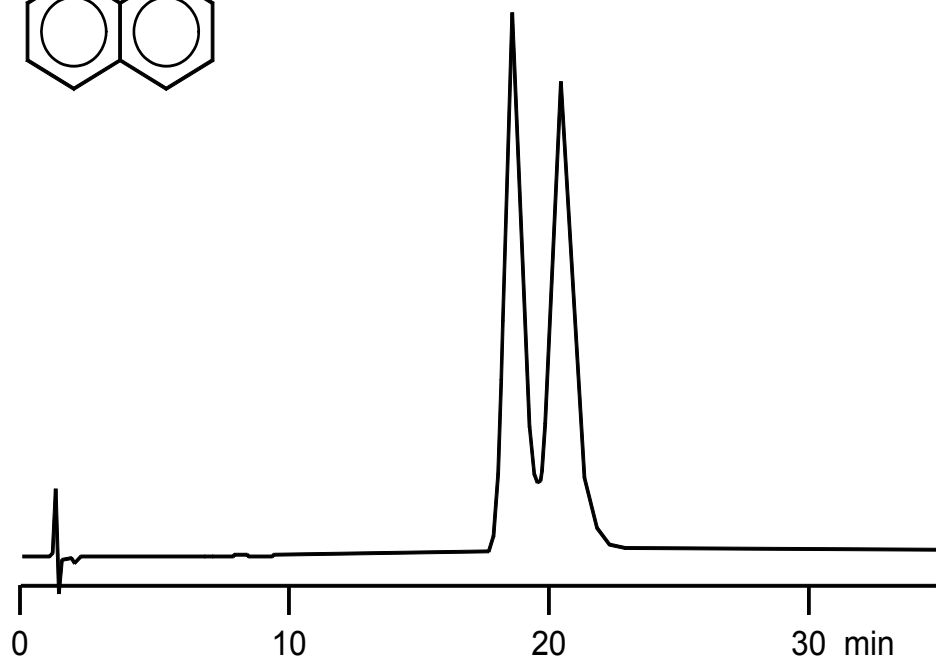
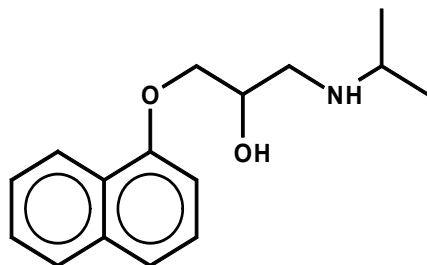
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 12.8$

$k'2 = 14.32$

$\alpha = 1.12$



44 Chiral separation of Propranolol (1-Isopropylamino-3-(1-Naphthyloxy)-2-Propanol)

Method
HPLC

Chiral HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: n-Heptane / 2-Propanole (80:20) + 0.1% Ethanolamine
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 230 nm

Substances: Propranolol (1-Isopropylamino-3-(1-Naphthyloxy)-2-Propanol)

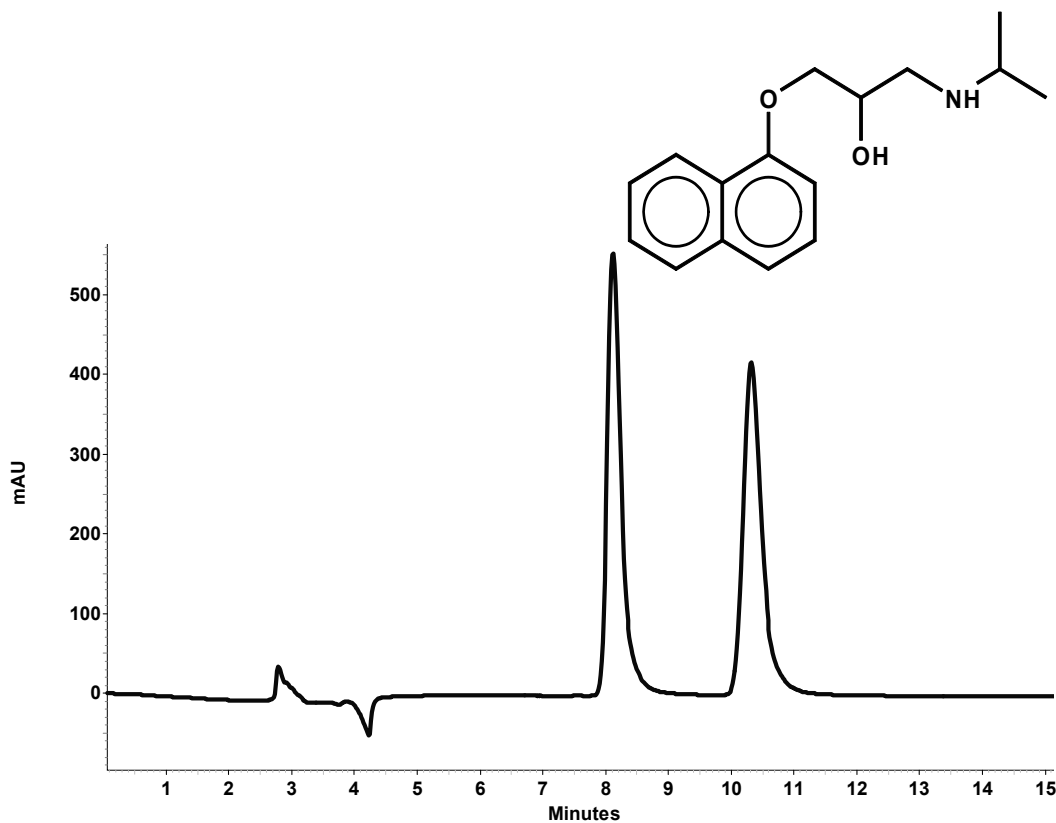
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 1.75$

$k'2 = 2.49$

$\alpha = 1.42$



45 Chiral separation of trans-Stilbene oxide

Method Chiral HPLC
HPLC

Column: Eurocel 01, 250 x 4.6 mm ID
with precolumn

Order No. 25VM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: Methanol
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 223 nm

Substances: trans-Stilbene oxide : trans-1,2-Diphenyle oxirane

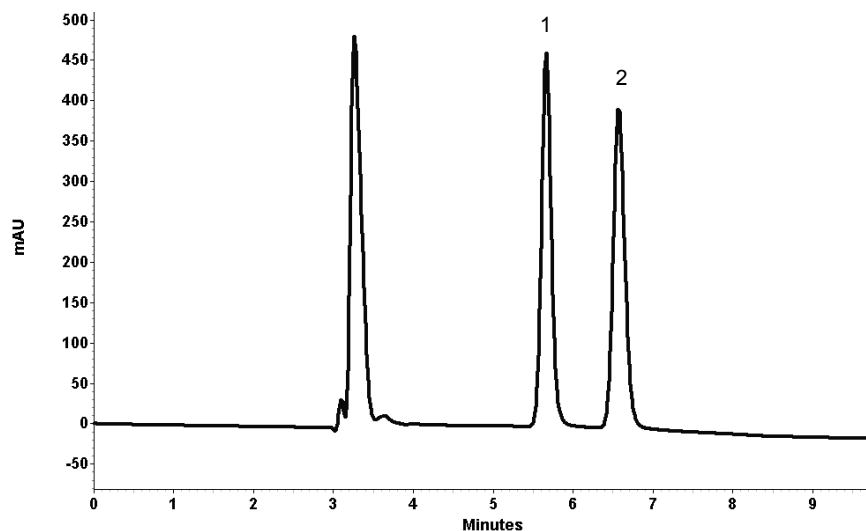
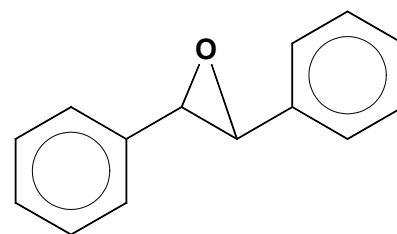
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 0.74$

$k'2 = 1.01$

$\alpha = 1.37$



46 Chiral separation of α - Tocopherole

Method Chiral HPLC
HPLC

Column: Eurocel 01, 250 x 4.6 mm ID
with precolumn

Order No. 25VM370ECJ

Phase: Eurocel 01, 5 μ m

Conditions: Eluent: Hexane / 2-Butanole 99:1 (v / v)
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 20 °C
Volume: 10 μ l

Detection: UV at 290 nm

Substances: α - Tocopherole, (2*R*)-2,5,7,8-Tetramethyl-2-[(4*R*,8*R*)-4,8,12-trimethyltridecyl]-3,4-dihydro-2*H*-chromen-6-ol

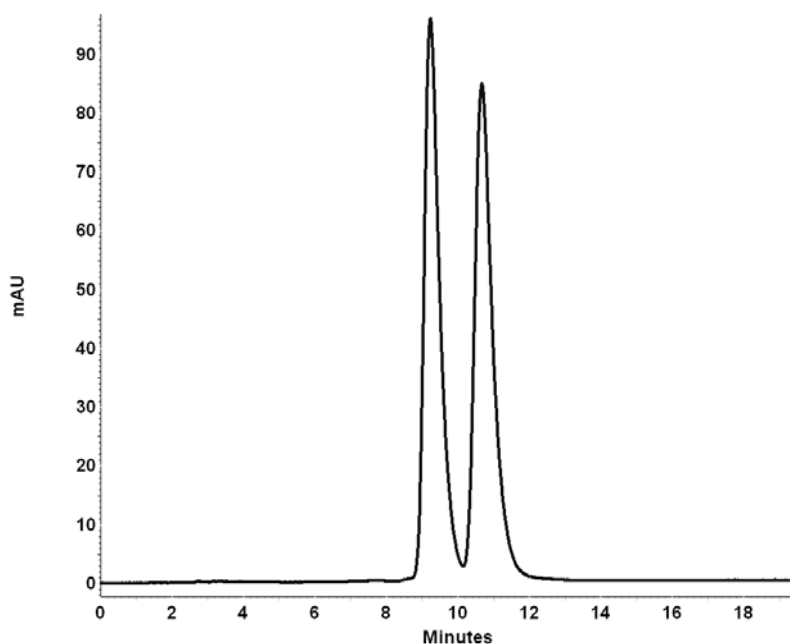
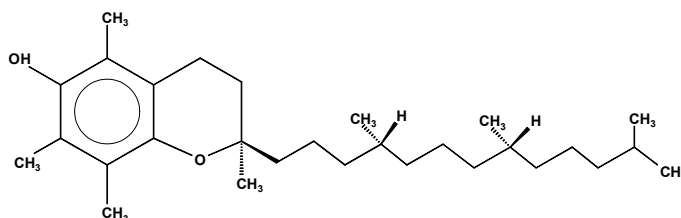
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector, Vitamin E

Chromatogram:

$k'1 = 2.40$

$k'2 = 2.93$

$\alpha = 1.22$



47 Chiral separation of Warfarin (4-Hydroxy-3-(3-Oxo-1-Phenyl-Butyl)-Cumarin)

Method Chiral HPLC
HPLC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: Acetonitrile / Water (50:50) + 0.1% TFA
Gradient: isocratic
Flow rate: 1.0 ml/min
Temperature: 25 °C
Volume: 10 μl

Detection: UV at 270 nm

Substances: Warfarin (4-Hydroxy-3-(3-Oxo-1-Phenyl-Butyl)-Cumarin)

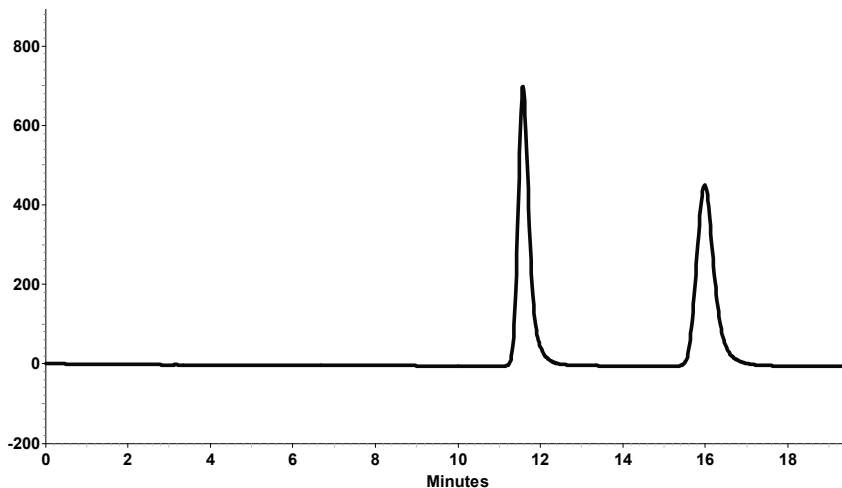
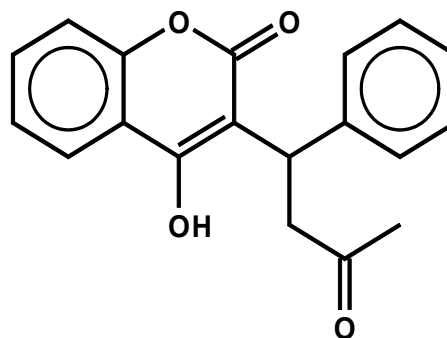
Keywords: chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

$k'1 = 2.88$

$k'2 = 4.39$

$\alpha = 1.53$



A banner with a light blue background and a central image of two hands, one yellow and one white, reaching towards each other. The text "Chiral SFC Applications" is overlaid in a white, outlined font.

Chiral SFC Applications

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1 Chiral separation of Benzyl-Mandelate (Benzyl-2-Hydroxy-3-Phenylpropionate)

Method Chiral SFC
SFC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: CO_2 + 20% Methanol
Gradient: isocratic
Flow rate: 2.4 ml/min CO_2 / 0.6 ml/min Modifier (Backpressure: 150 bar)
Temperature: 40 °C
Volume: 10 μl

Detection: UV at 220 nm

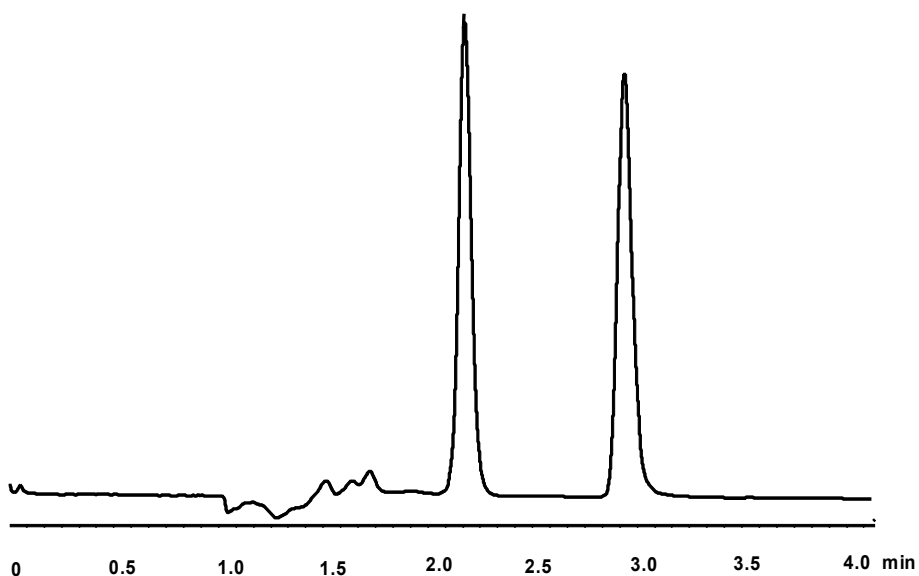
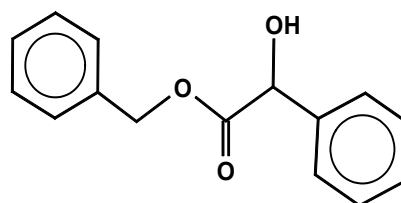
Substances: Benzyl-Mandelate (Benzyl-2-Hydroxy-3-Phenylpropionate)

Keywords: SFC, chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

t_{R1} = 2.23 min

t_{R2} = 2.96 min



2 Chiral separation of 1,1'-Bi-2-Naphthol (BINOL)

Method Chiral SFC
SFC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: CO_2 + 20% Methanol
Gradient: isocratic
Flow rate: 2.4 ml/min CO_2 / 0.6 ml/min Modifier (Backpressure: 149 bar)
Temperature: 40 $^\circ\text{C}$
Volume: 10 μl

Detection: UV at 220 nm

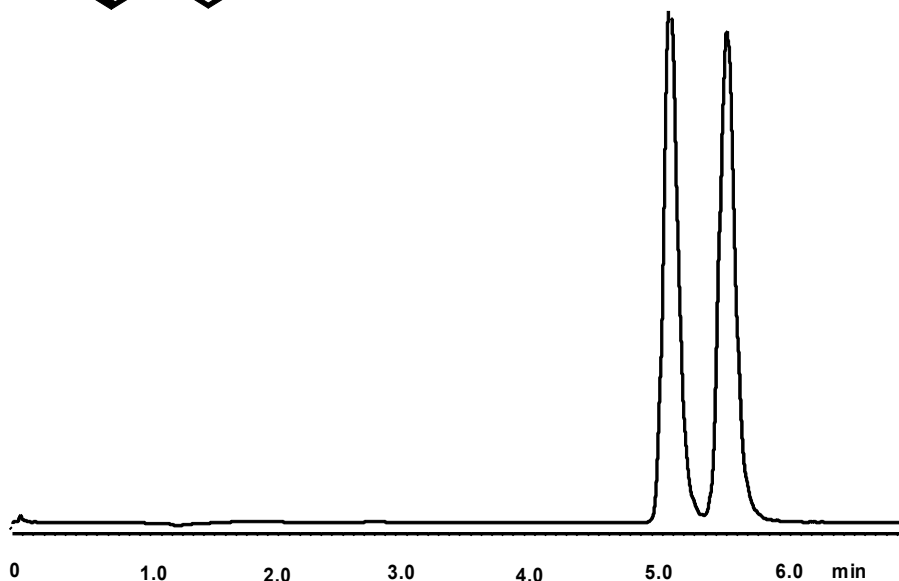
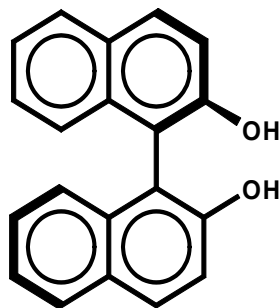
Substances: 1,1'-Bi-2-Naphthol (BINOL), 1,1'-Binaphthalene-2,2'-diol

Keywords: SFC, chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

t_{R1} = 5.19 min

t_{R2} = 5.71 min



3 Chiral separation of Ethyl-Mandelate

Method Chiral SFC
SFC

Column: Eurocel 01 5 μm , 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 μm

Conditions: Eluent: CO_2 + 10% Methanol
Gradient: isocratic
Flow rate: 2.7 ml/min CO_2 / 0.3 ml/min Modifier (Backpressure: 151 bar)
Temperature: 40 $^\circ\text{C}$
Volume: 10 μl

Detection: UV at 220 nm

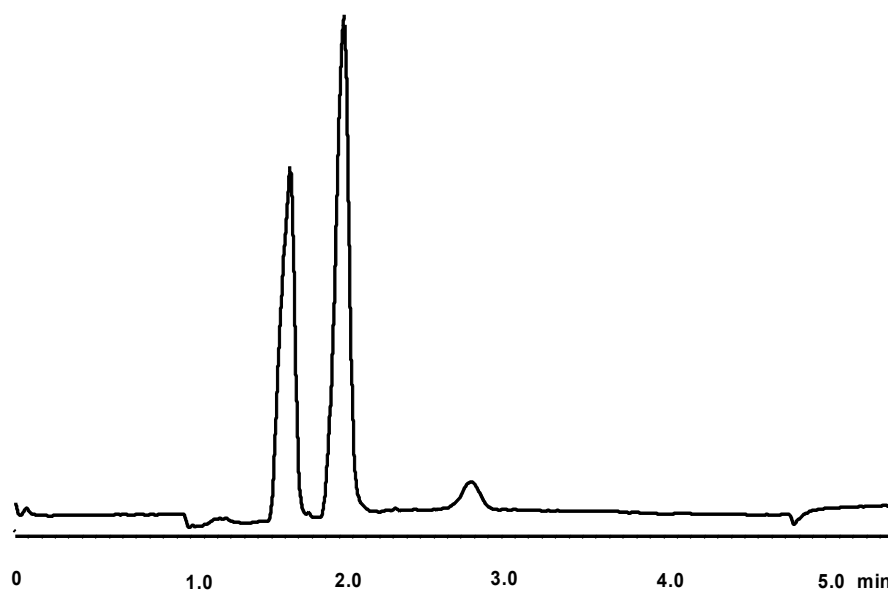
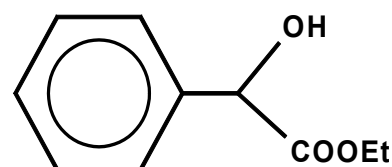
Substances: Ethyl-Mandelate

Keywords: SFC, chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

t_{R1} = 1.71 min

t_{R2} = 2.04 min



4 Chiral separation of Hydrobenzoin (1,2-Diphenylethane-1,2-diol)

Method Chiral SFC
SFC

Column: Eurocel 01 5 µm, 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 µm

Conditions: Eluent: CO₂ + 20% Methanol
Gradient: isocratic
Flow rate: 2.4 ml/min CO₂ / 0.6 ml/min Modifier (Backpressure: 149 bar)
Temperature: 40 °C
Volume: 10 µl

Detection: UV at 220 nm

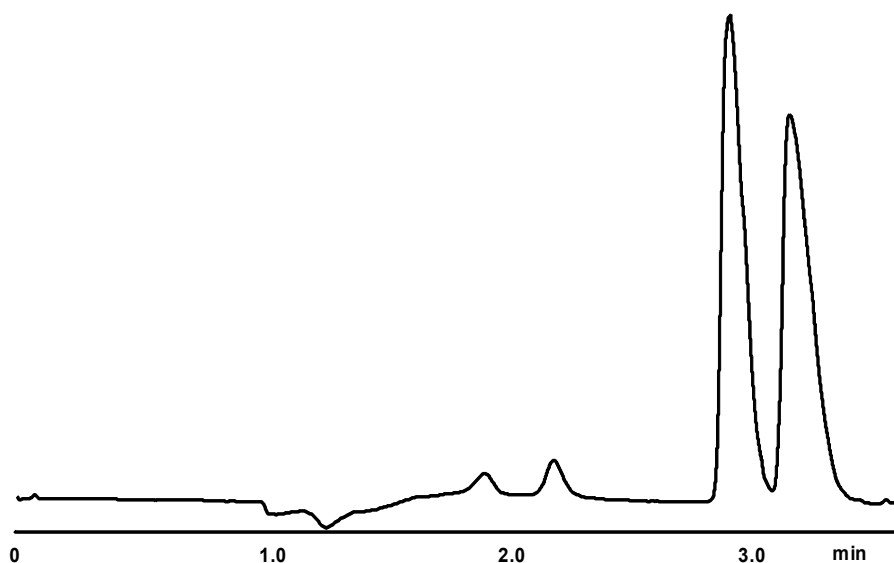
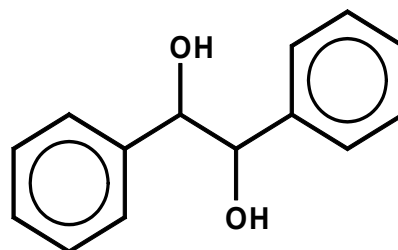
Substances: Hydrobenzoin (1,2-Diphenylethane-1,2-diol)

Keywords: SFC, chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

t_{R1} = 2.95 min

t_{R2} = 3.24 min



5 Chiral separation of trans Stilbene Oxide

Method Chiral SFC
SFC

Column: Eurocel 01 5 µm, 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 µm

Conditions: Eluent: CO₂ + 20% Methanol
Gradient: isocratic
Flow rate: 2.4 ml/min CO₂ / 0.6 ml/min Modifier (Backpressure: 148 bar)
Temperature: 40 °C
Volume: 10 µl

Detection: UV at 220 nm

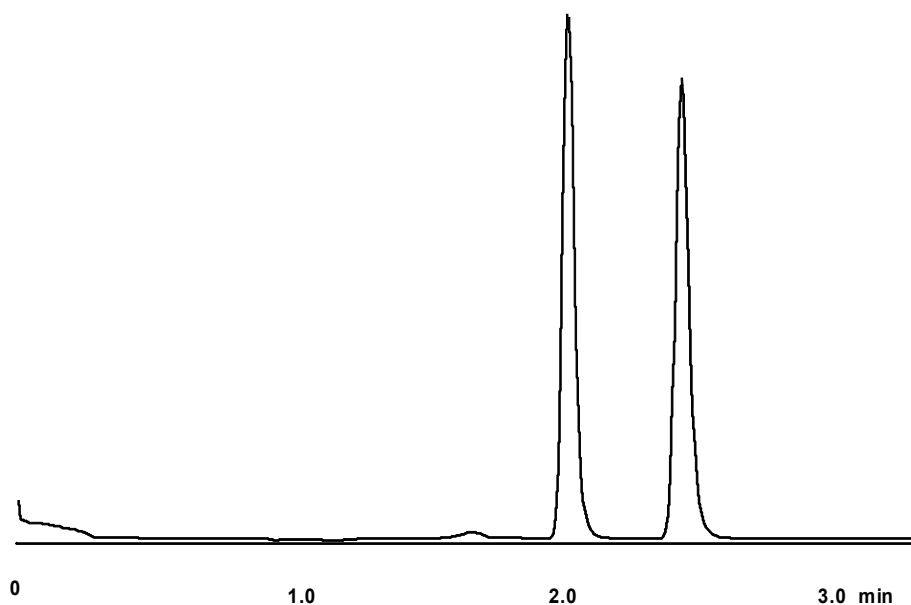
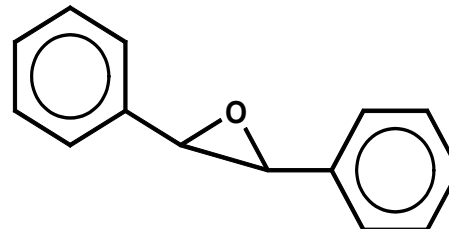
Substances: trans Stilbene Oxide

Keywords: SFC, chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

t_{R1} = 2.12 min

t_{R2} = 2.52 min



6 Chiral separation of Warfarin (4-Hydroxy-3-(3-Oxo-1-Phenyl-Butyl)-Cumarin)

Method Chiral SFC
SFC

Column: Eurocel 01 5 µm, 250 x 4.6 mm ID

Order No. 25EM370ECJ

Phase: Eurocel 01, 5 µm

Conditions: Eluent: CO₂ + 20% Methanol
Gradient: isocratic
Flow rate: 2.4 ml/min CO₂ / 0.6 ml/min Modifier (Backpressure: 149 bar)
Temperature: 40 °C
Volume: 10 µl

Detection: UV at 220 nm

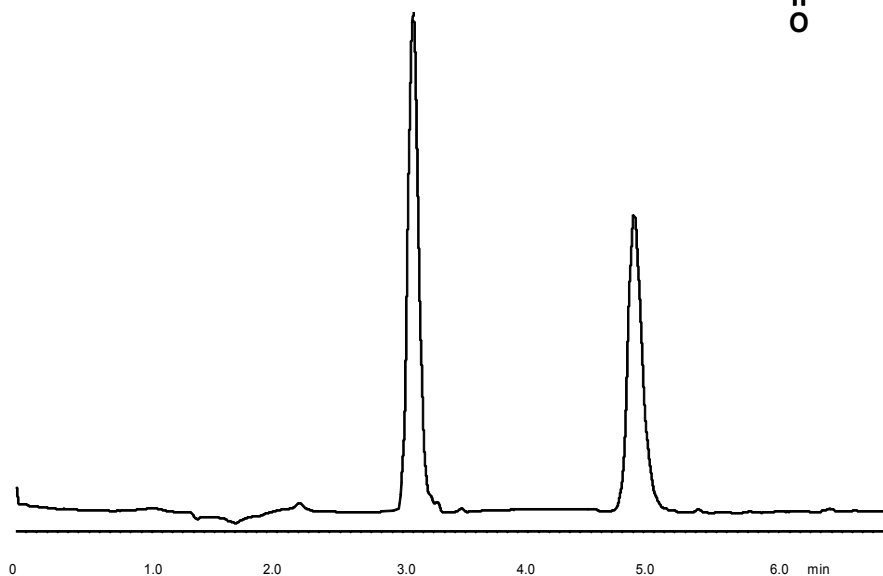
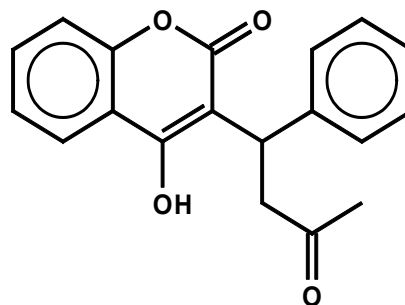
Substances: Warfarin (4-Hydroxy-3-(3-Oxo-1-Phenyl-Butyl)-Cumarin)

Keywords: SFC, chiral separation, Eurocel 01, cellulose based chiral selector

Chromatogram:

t_{R1} = 3.26 min

t_{R2} = 4.98 min



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(2 <i>R</i>)-2,5,7,8-Tetramethyl-2-[(4 <i>R</i> ,8 <i>R</i>)-4,8,12-trimethyltridecyl]-3,4-dihydro-2 <i>H</i> -chromen-6-ol	185	2,6-Di-tert.-butyl-4-methylphenol	5
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