



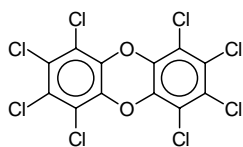
ЭКОНОВА
ECONOVA

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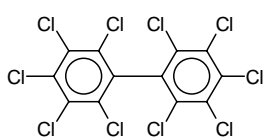
Chromatographs "MiLiChrom" Application Sheets

Novosibirsk, Irkutsk - 1996

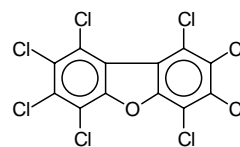
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[AMINO ACIDS IN HUMAN SALIVA](#)
[BALL-PEN INKS \(criminology\)](#)
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PERCHLORINATED DIBENZODIOXIN, BIPHENYL AND DIBENZOFURAN

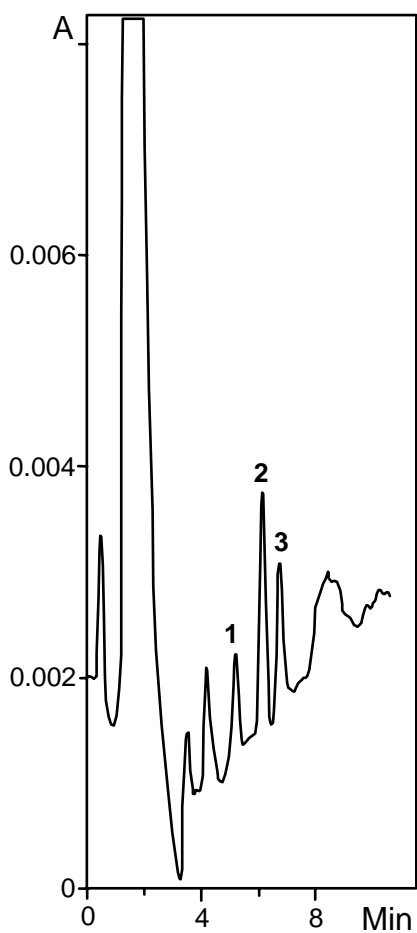
1. Perchlorodibenzodioxin



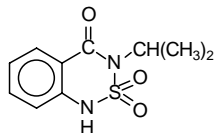
2. Perchlorobiphenyl



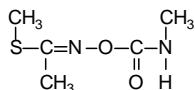
3. Perchlorodibenzofuran

**COLUMN:** Ø2x64 mm; Eurosphere 80-5 C18**ELUENT:** CH₃CN**FLOW RATE:** 0.1 ml/min**PRESSURE:** 1 MPa**TEMPERATURE:** 45°C**DETECTOR:** 230 nm**SAMPLE:** 2 µl of methanolic solution (4 ng each of compound)

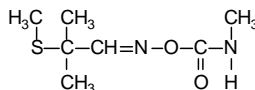
CARBAMATE AND UREA PESTICIDES



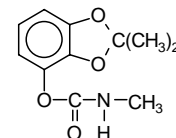
1. Bentazon (20 ng)



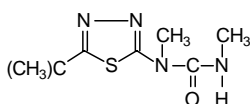
2. Methomyl (20 ng)



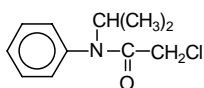
3. Aldicarb (200 ng)



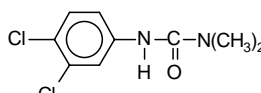
4. Bendiocarb (200 ng)



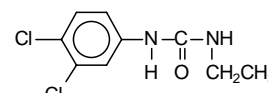
5. Tebuthiuron (40 ng)



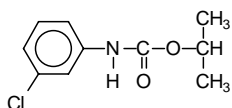
6. Propachlor (200 ng)



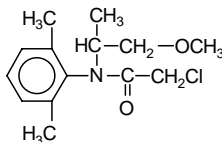
7. Diuron (20 ng)



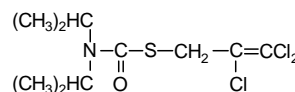
8. Propanil (20 ng)



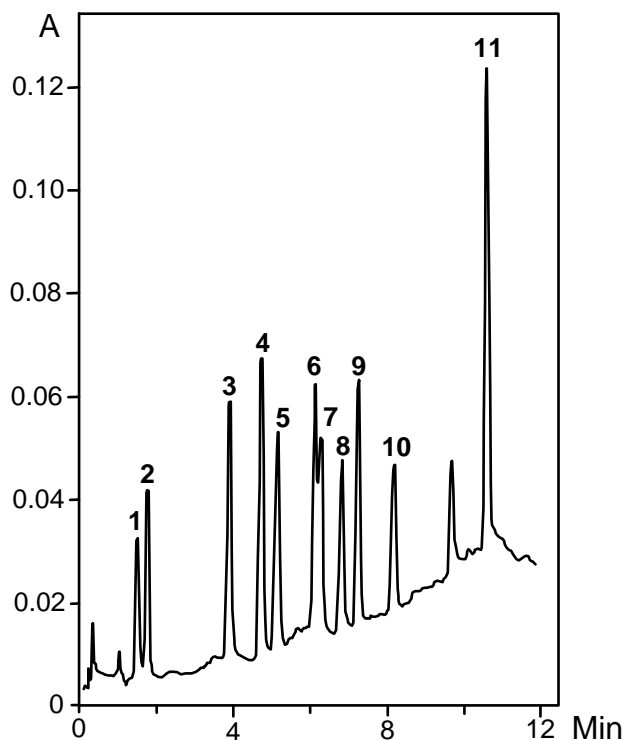
9. Chlorpropham (20 ng)



10. Metolachlor (200 ng)



11. Triallat (200 ng)



COLUMN: Ø2x64 mm; Eurosphere 80-5 C18

ELUENTS: A- [CH₃OH]:[H₂O]:[1.0 M CH₃COONa, pH 5.0]=35:64:1

B- [CH₃OH]:[H₂O]:[1.0 M CH₃COONa, pH 5.0]=85:14:1

GRADIENT: 0-100% B in 10 min; 100% B for 3 min

FLOW RATE: 0.2 ml/min

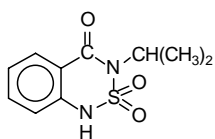
PRESSURE: 4 MPa

TEMPERATURE: 45°C

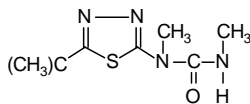
DETECTOR: 240 nm

SAMPLE: 2 µl of solution in [CH₃OH]:[H₂O]:[1.0 M CH₃COONa, pH 5.5]=50:40:10

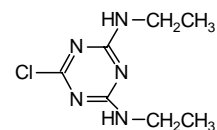
TRIAZINE AND SIMILAR PESTICIDES



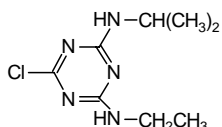
1. Bentazon (100 ng)



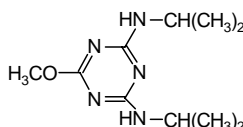
2. Tebuthiuron (200 ng)



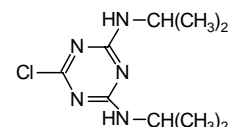
3. Simazine (100 ng)



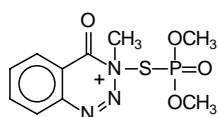
4. Atrazine (100 ng)



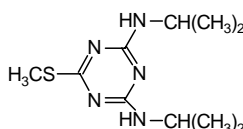
5. Prometon (100 ng)



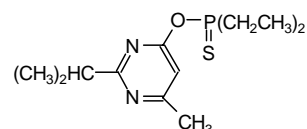
6. Propazine (100 ng)



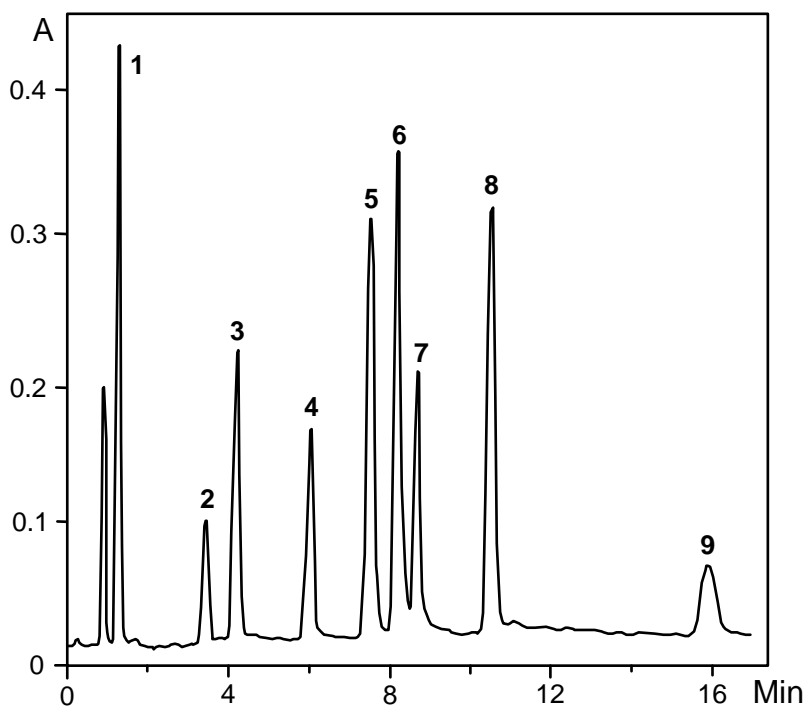
7. Guthion (100 ng)



8. Prometryn (100 ng)

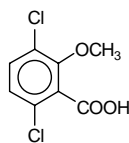


9. Diazinon (400 ng)

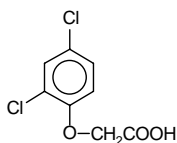


COLUMN: Ø2x64 mm; Eurosphere 80-5 C18
ELUENTS: A- [CH₃CN]:[H₂O]:[1.0 M CH₃COONa, pH 5.75]=30:69:1
 B- [CH₃CN]:[H₂O]:[1.0 M CH₃COONa, pH 5.75]=50:49:1
GRADIENT: 0-100% B in 10 min; 100% B for 8 min
FLOW RATE: 0.2 ml/min **PRESSURE:** 3 MPa **TEMPERATURE:** 45°C
DETECTOR: 220 nm
SAMPLE: 2 µl of solution in [CH₃OH]:[1.0 M CH₃COONa, pH 5.75]=99:1

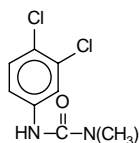
PESTICIDES: CHLORINATED AROMATIC ACIDS AND ESTERS



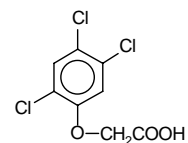
1. Banvel-D (620 ng)



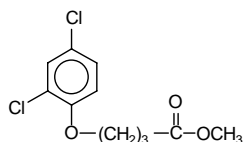
2. 2,4-D (320 ng)



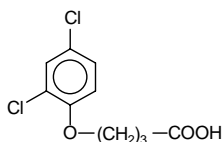
3. Diuron (320 ng)



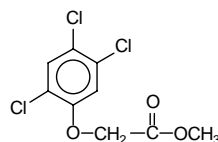
4. 2,4,5-T (320 ng)



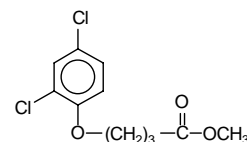
5. 2,4-D Methyl ester (320 ng)



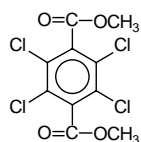
6. 2,4-DB (320 ng)



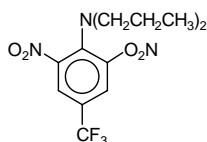
7. 2,4,5-T Methyl ester (320 ng)



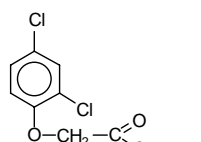
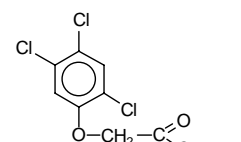
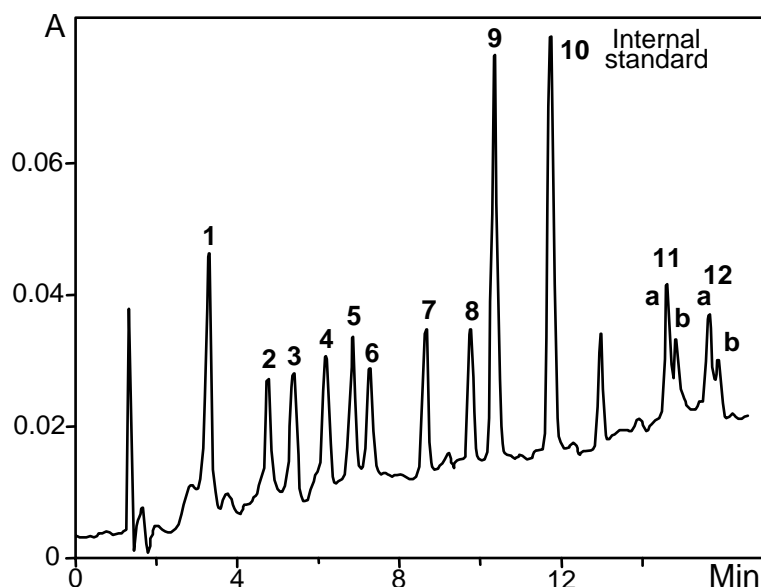
8. 2,4-DB Methyl ester (320 ng)



9. Dacthal (320 ng)

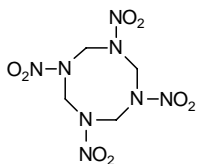


10. Trifluralin (80 ng)

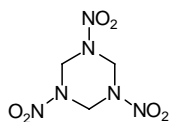
11a,b. 2,4-D *i*-Octyl ester (620 ng)12a,b. 2,4,5-T *i*-Octyl ester (620 ng)

COLUMN: Ø2x64 mm; Eurosphere 80-5 C18
ELUENTS: A- [CH₃OH]:[H₂O]:[CH₃COOH]=100:100:1; B- [CH₃OH]:[H₂O]:[CH₃COOH]=180:20:1
GRADIENT: 0-20% B in 1 min; 20-100% B in 12 min; 100% B for 3 min
FLOW RATE: 0.15 ml/min **PRESSURE:** 3 MPa **TEMPERATURE:** 45°C
DETECTOR: 220 nm
SAMPLE: 2 µl of solution in [CH₃OH]:[CH₃COOH]=98:2

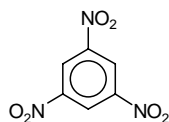
POLYNITRO EXPLOSIVES



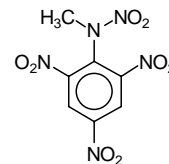
1. HMX (150 ng)



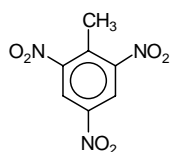
2. RDX (150 ng)



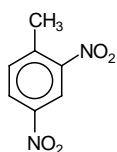
3. TNB (75 ng)



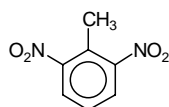
4. Tetryl (150 ng)



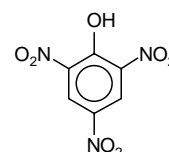
5. TNT (75 ng)



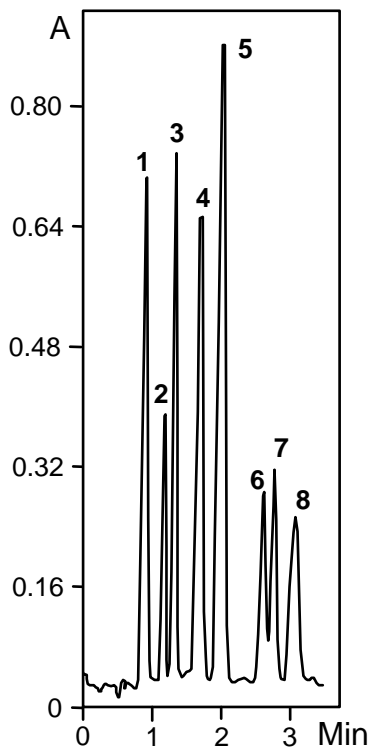
6. 2,4-DNT (150 ng)



7. 2,6-DNT (150 ng)

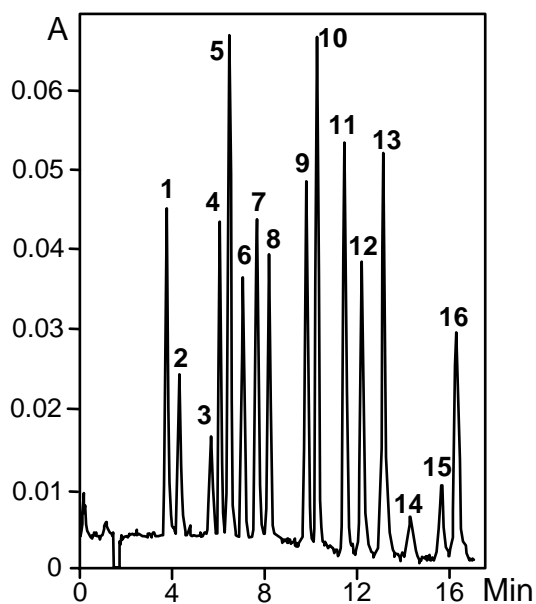
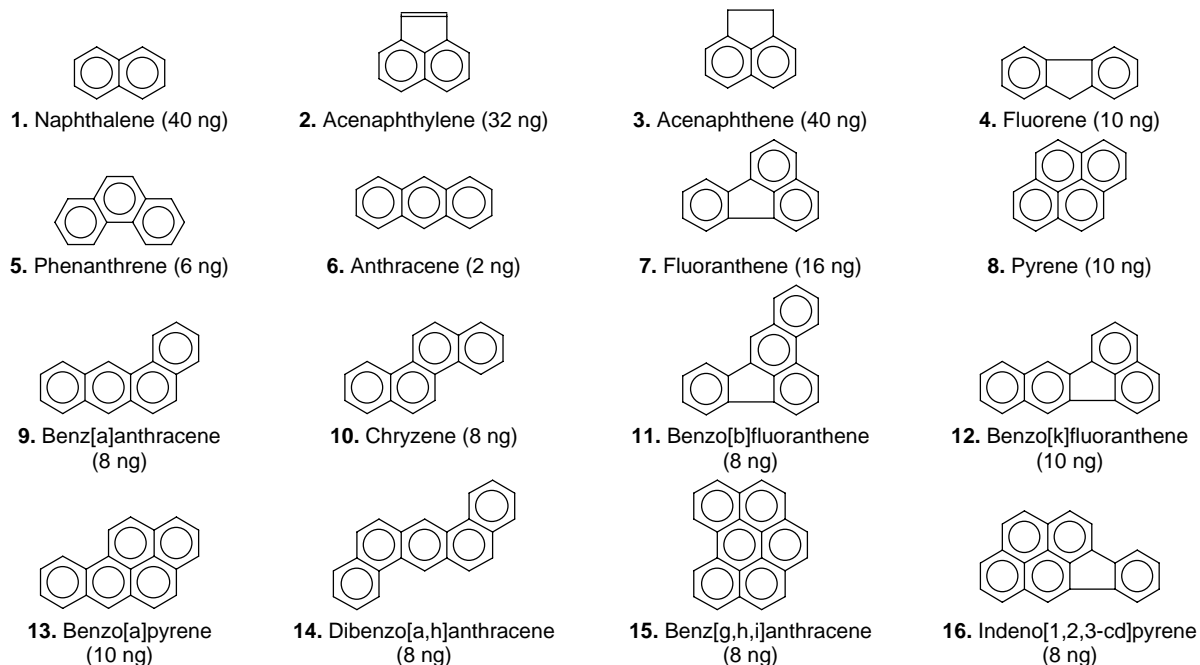


8. Picric acid (150 ng)



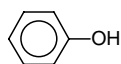
COLUMN: Ø2x64 mm; Eurosphere 80-5 C18
ELUENT: {CH₃OH}:[H₂O]:[0.1 M (*n*-C₄H₉)₄NH₂PO₄, pH 6.8]=50:40:10
FLOW RATE: 0.28 ml/min **PRESSURE:** 5 MPa **TEMPERATURE:** 45°C
DETECTOR: 230 nm
SAMPLE: 3 µl of solution in [CH₃CN]:[H₂O]:[0.1 M (*n*-C₄H₉)₄NH₂PO₄, pH 6.8]=50:40:10

POLYNUCLEAR AROMATIC HYDROCARBONS

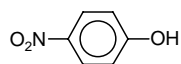


COLUMN: Ø2x80 mm; Nucleosil 5-C18 PAH
ELUENTS: A- [CH₃OH]:[H₂O]=80:20; B- CH₃CN
GRADIENT: 0-100% B in 9 min; 100% B for 8 min
FLOW RATE: 0.12 ml/min **PRESSURE:** 2 MPa **TEMPERATURE:** 22°C
DETECTOR: 254 nm
SAMPLE: 2 µl of methanolic solution

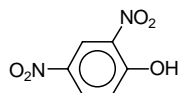
PHENOLS



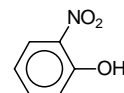
1. Phenol



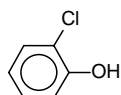
2. 4-Nitrophenol



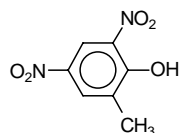
3. 2,4-Dinitrophenol



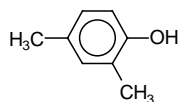
4. 2-Nitrophenol



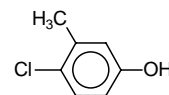
5. 2-Chlorophenol



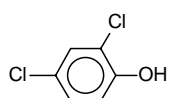
6. 2-Methyl-4,6-dinitrophenol



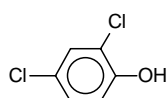
7. 2,4-Dimethylphenol



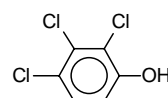
8. 4-Chloro-3-methylphenol



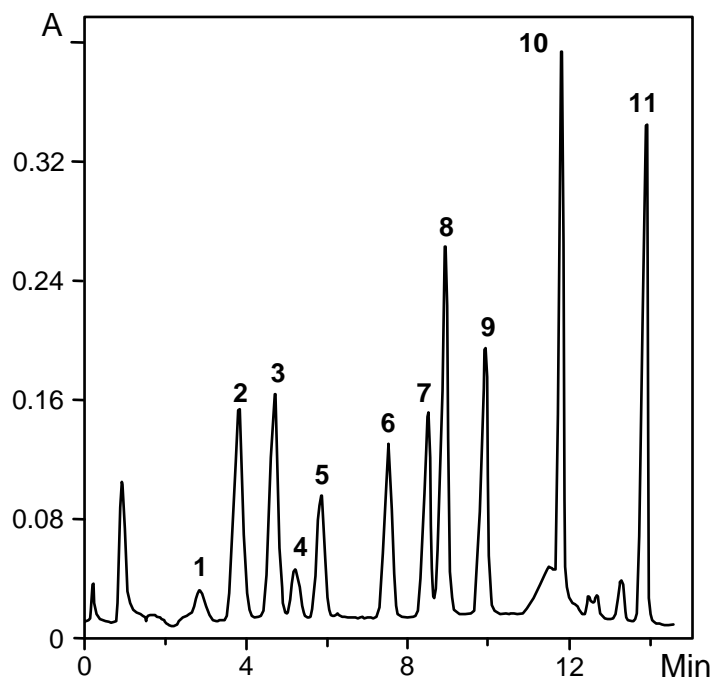
9. 2,4-Dichlorophenol



10. 2,4,6-Trichloro-phenol

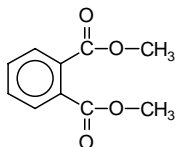


11. Pentachlorophenol

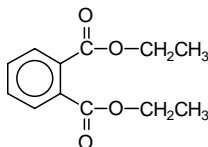


COLUMN: Ø2x64 mm; Eurosphere 80-5 C18
ELUENTS: A- [CH₃OH]:[H₂O]:[CF₃COOH]=36:63.9:0.1; B- CH₃OH
GRADIENT: 0-68% B in 11 min; 68-100% B in 1 min; 100% B for 5 min
FLOW RATE: 0.2 ml/min **PRESSURE:** 4 MPa **TEMPERATURE:** 45°C
DETECTOR: 240 nm
SAMPLE: 2 µl of solution in [CH₃OH]:[CF₃COOH]=100:0.1 (225 ng of each)

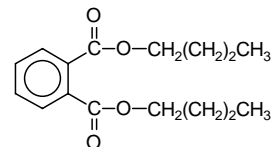
PHTHALATE ESTERS



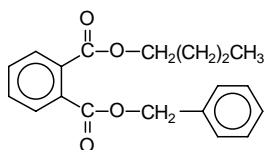
1. Dimethyl phthalate



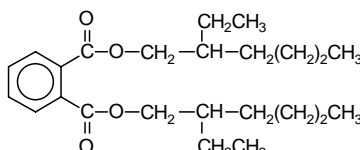
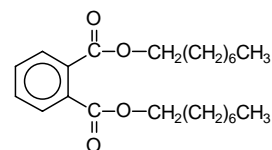
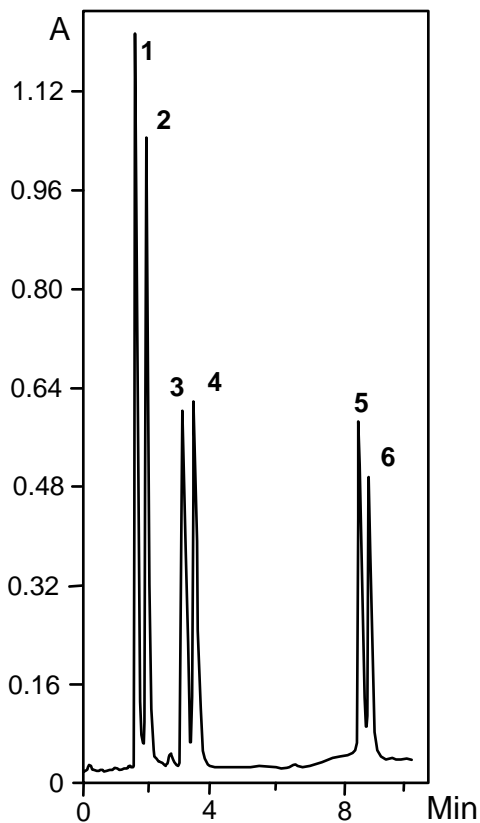
2. Diethyl phthalate



3. Dibutyl phthalate

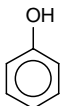


4. Butylbenzyl phthalate

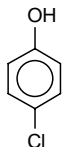
5. *bis*(2-Ethylhexyl) phthalate6. Di-*n*-octyl phthalate

COLUMN: Ø2x64 mm; Eurosphere 80-5 C18
ELUENTS: A- [CH₃CN]:[H₂O]=80:20; B- CH₃CN
GRADIENT: 100% A for 3 min; 0-100% B in 1 min; 100% B for 4 min
FLOW RATE: 0.1 ml/min **PRESSURE:** 2 MPa **TEMPERATURE:** 50°C
DETECTOR: 230 nm
SAMPLE: 2 µl of methanolic solution (400 ng of each)

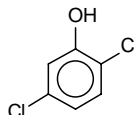
CHLORINATED PHENOLS



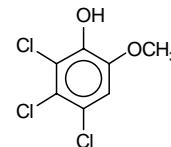
1. Phenol



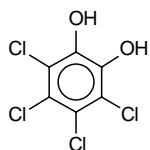
2. 4-Chlorophenol



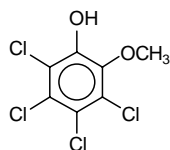
3. 2,5-Dichlorophenol



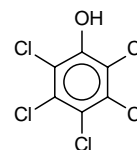
4. 4,5,6-Trichloroguaiacol



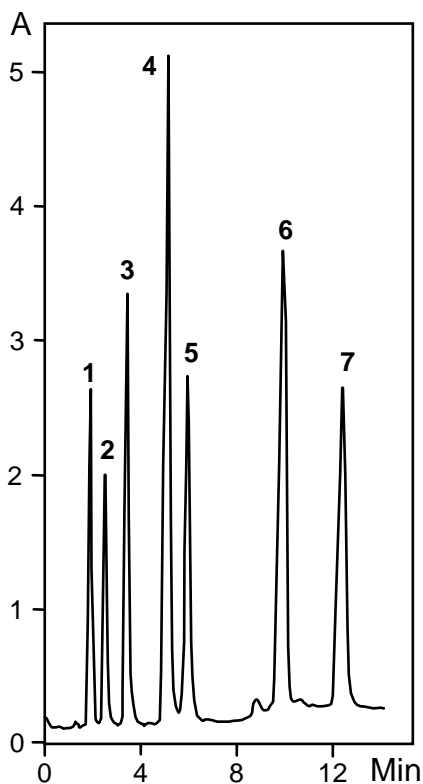
5. Tetrachlorocatechol



6. Tetrachloroguaiacol

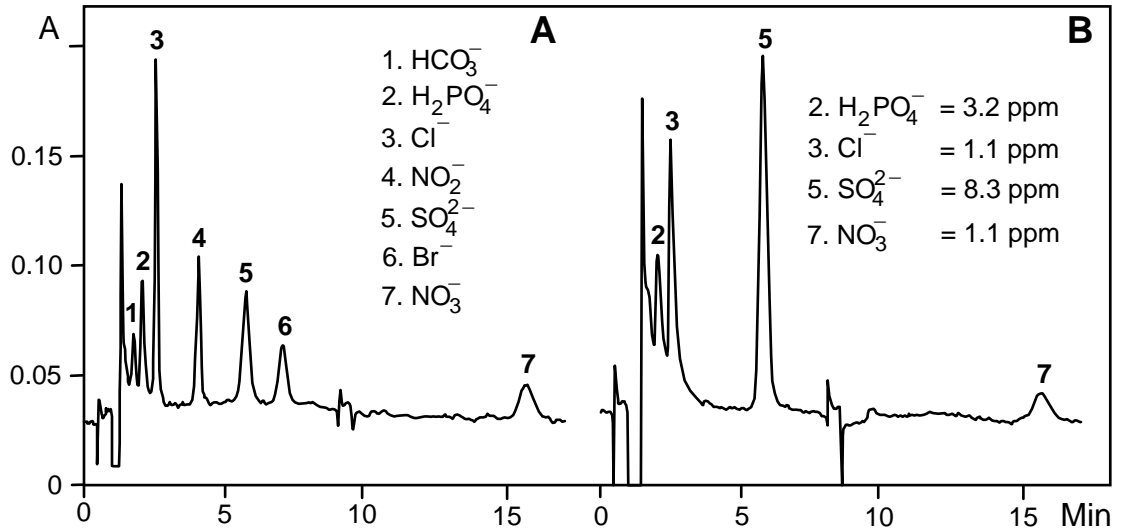


7. Pentachlorophenol



COLUMN: Ø2x64 mm; Silasorb 5-C18
ELUENTS: A- [CH₃OH]:[H₂O]:[CF₃COOH]=70:30:0.1; B- [CH₃OH]:[H₂O]:[CF₃COOH]=80:20:0.1
GRADIENT: 100% A for 7 min; 100% B for 8 min
FLOW RATE: 0.1 ml/min **PRESSURE:** 3 MPa **TEMPERATURE:** 22°C
DETECTOR: 210 nm
SAMPLE: 4 µl of methanolic solution (4 µg of each)

**INORGANIC ANIONS
(UNDIRECT UV-DETECTION)**



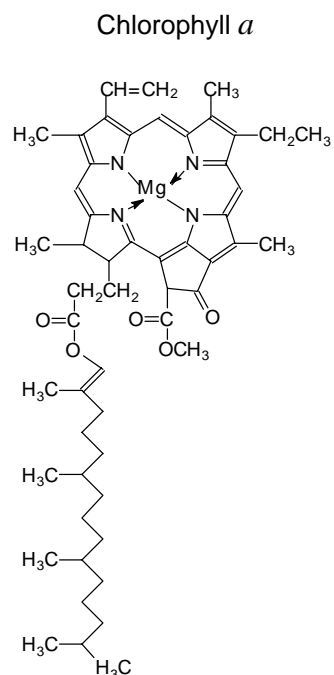
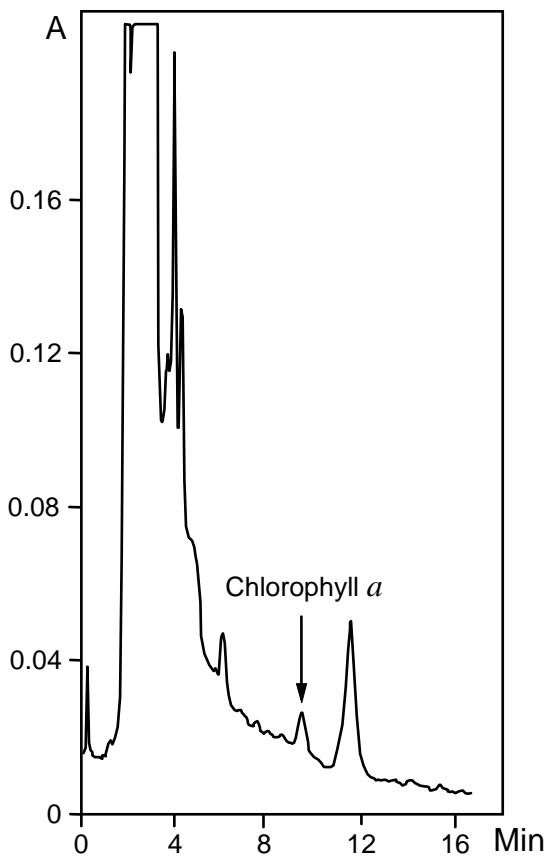
COLUMN: Ø2x64 mm; Nucleosil 5-C18
The column was dynamically modified with tridecylbenzylammonium

ELUENT: $[\text{CN}_3\text{OH}]:[\text{H}_2\text{O}]:[16 \text{ mM potassium biphthalate, pH 6.0}] = 10:80:10$

FLOW RATE: 0.2 ml/min **PRESSURE:** 3.5 MPa **TEMPERATURE:** 25°C

DETECTOR: 240 nm

SAMPLES: **A:** 12 µl of a standard aqueous solution (10 ppm each of component)
B: 40 µl of city snow water

CHLOROPHYLL *a*

COLUMN: Ø2x64 mm; Nucleosil 5-C18

ELUENT: CH₃OH

FLOW RATE: 0.1 ml/min

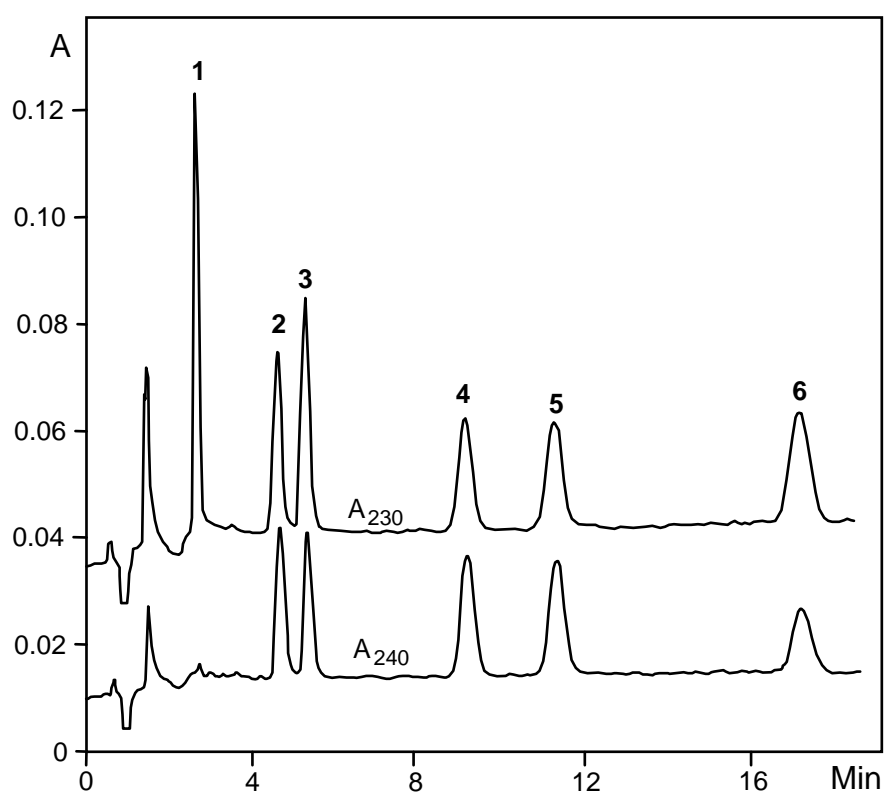
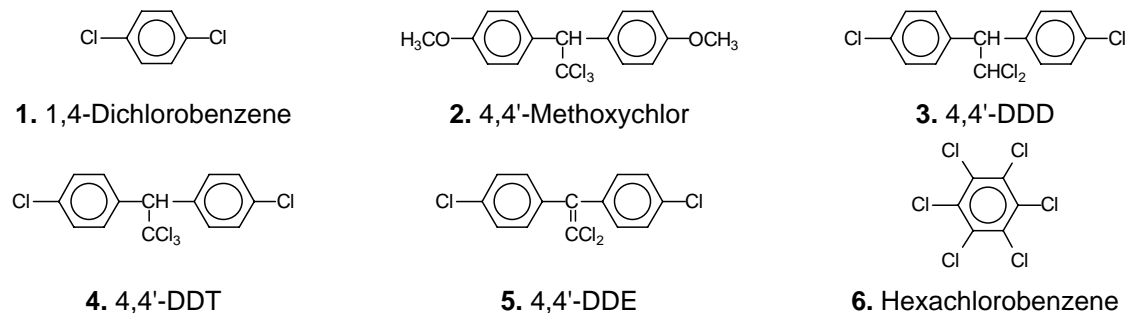
PRESSURE: 2.5 MPa

TEMPERATURE: 22°C

DETECTOR: 210 nm

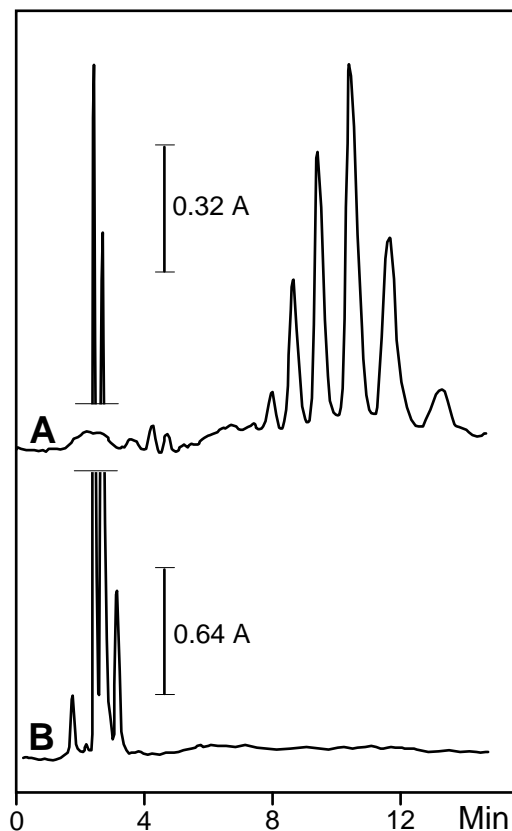
SAMPLE: 10 µl of methanolic solution of a dried extract. Chlorophyll *a* was extracted with acetone from phytoplankton collected on a 0.45 µ filter from 10 ml lake water. Content of chlorophyll *a* in the phytoplankton dispersed in lake water was 1 µg/l.

CHLOROAROMATIC PESTICIDES



COLUMN: Ø2x64 mm; Eurosphere 80-5 C18
ELUENT: [CH₃OH]:[H₂O]=80:20
FLOW RATE: 0.2 ml/min **PRESSURE:** 3 MPa **TEMPERATURE:** 45°C
DETECTOR: 230 and 240 nm
SAMPLE: 5 µl of methanolic solution (25 ng of each).
 Presample: water (5 µl)

TRIGLYCERIDES AND METHYL ESTERS OF FATTY ACIDS



COLUMN: Ø2x64 mm; Silasorb 5-C18

ELUENTS: A- CH₃OH;

B- [CH₃OH]:[CH₃CHOHCH₃]=70:30

GRADIENT: 100% A for 4 min; 100% B for 12 min

FLOW RATE: 0.1 ml/min

PRESSURE: 3 MPa

TEMPERATURE: 22°C

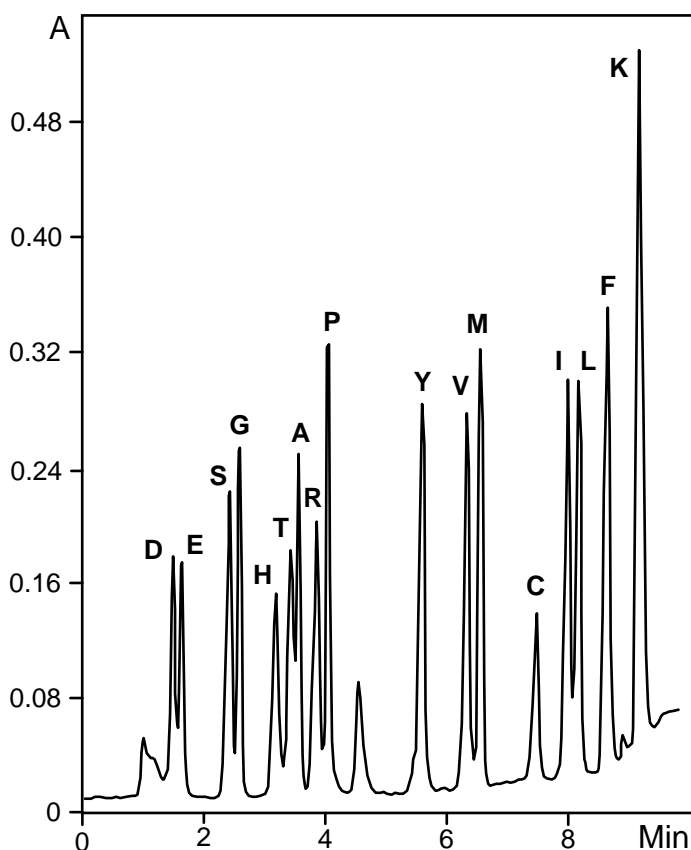
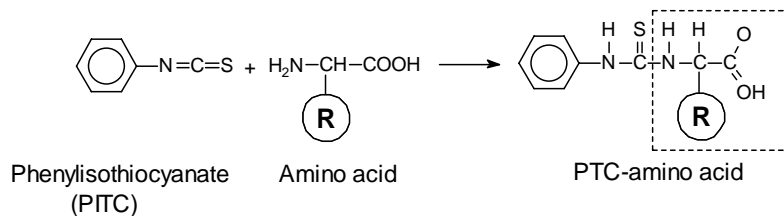
DETECTOR: 210 nm

SAMPLES: 4 µl of solution in 2-propanol (5 mg/ml)

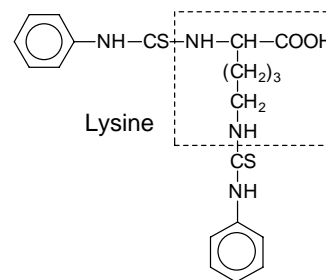
A: a rape oil (triglycerides).

B: methyl esters of fatty acids obtained from rape oil by GET Co., Germany, a diesel fuel BIODIESEL®.

PHENYLTHIOCARBAMYL (PTC)-AMINO ACIDS



D- Aspartic Acid
E- Glutamic Acid
S- Serine
G- Glycine
H- Histidine
T- Threonine
A- Alanine
R- Arginine
P- Proline
Y- Tyrosine
V- Valine
M- Methionine
C- Cysteine
I- Isoleucine
L- Leucine
F- Phenylalanine
K- Lysine



COLUMN: Ø1.7x75 mm; Nucleosil 5-C18

ELUENTS: A- [H₂O]:[0.5 M CH₃COONH₄, pH 6.8]:[1.0 M LiClO₄]=80:10:10

B- [CH₃CN]:[H₂O]:[0.5 M CH₃COONH₄, pH 6.8]:[1.0 M LiClO₄]=50:20:10:20

GRADIENT: 0-40% B in 6 min; 40-100% B in 8 min

FLOW RATE: 0.2 ml/min

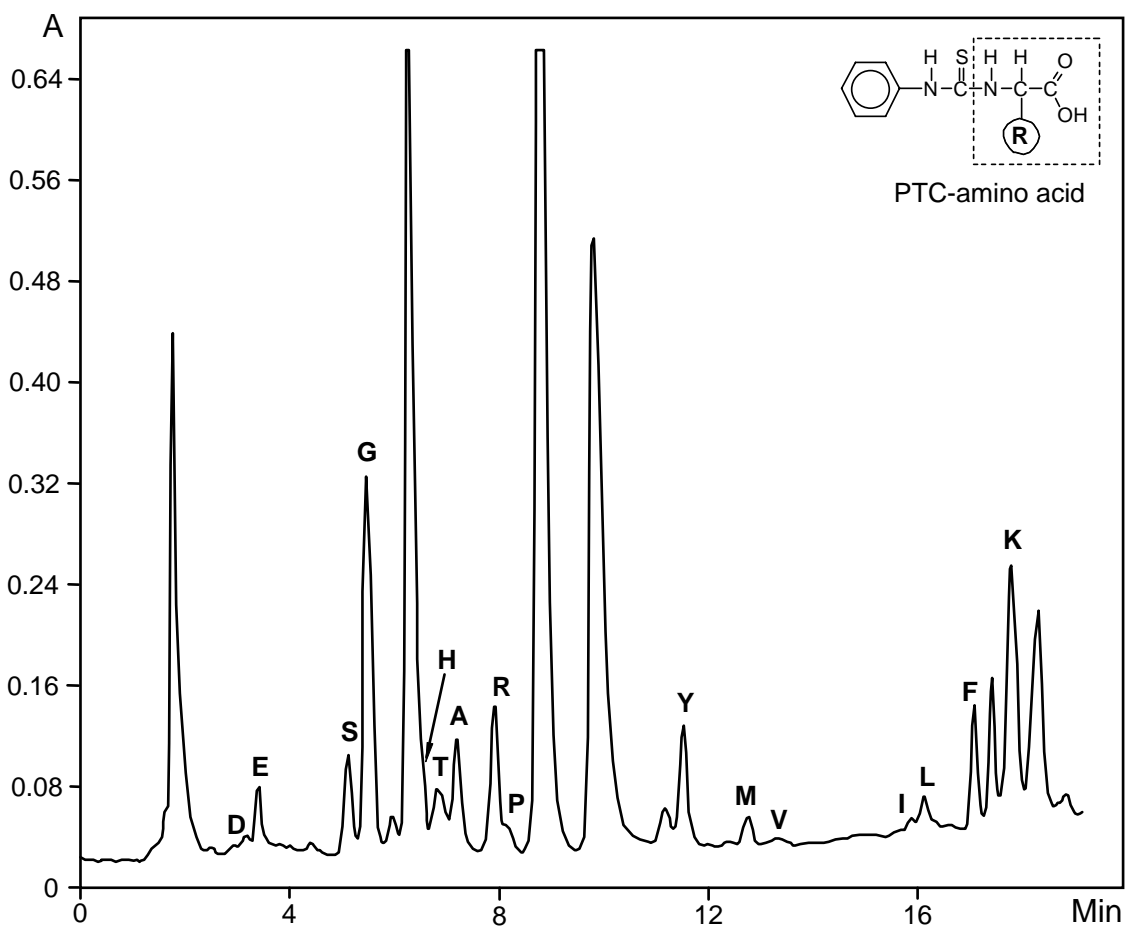
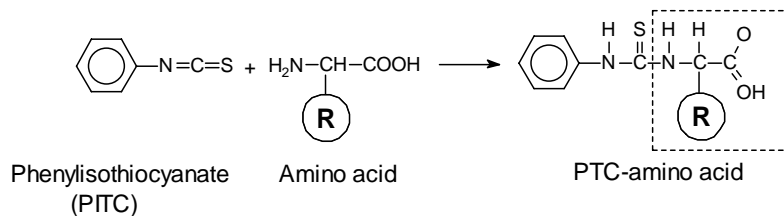
PRESSURE: 2 MPa

TEMPERATURE: 60°C

DETECTOR: 250 nm

SAMPLE: 3 µl of a solution of PTC-amino acids in Eluent B (300 pmol of each)

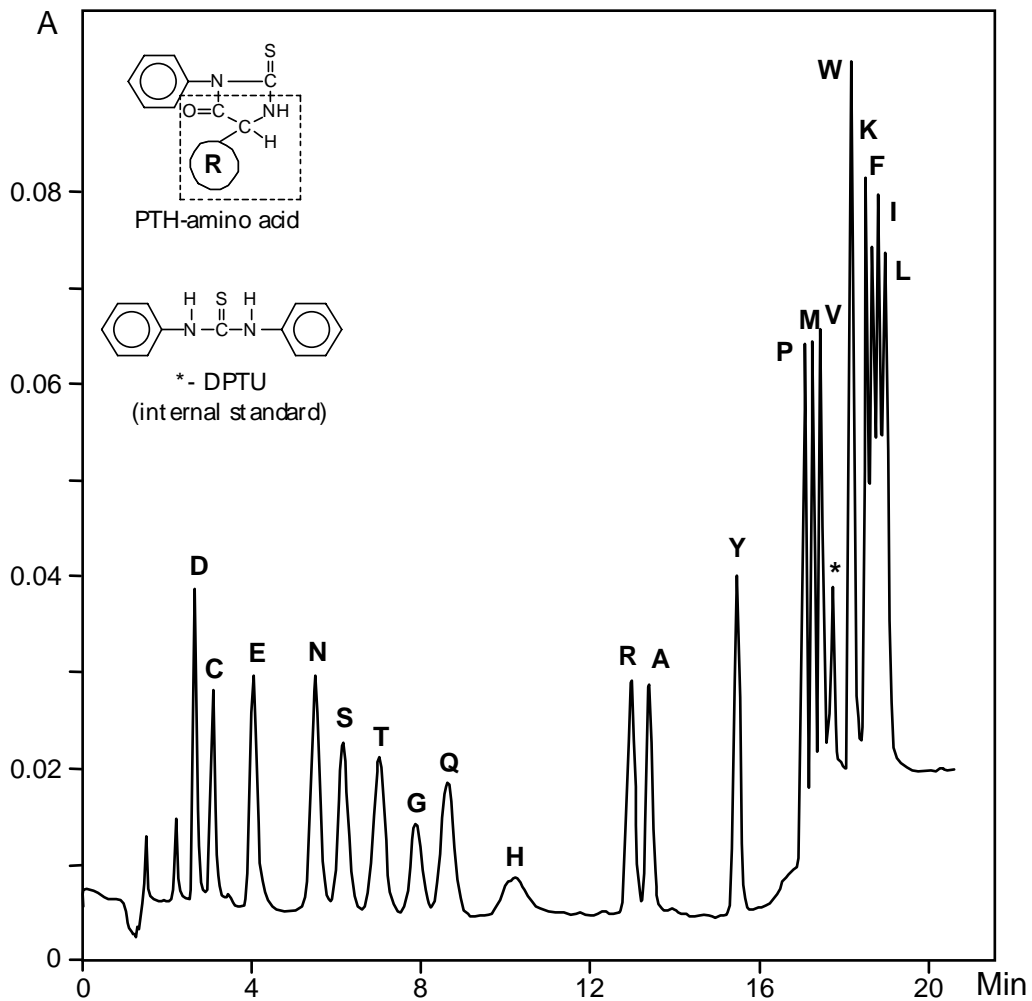
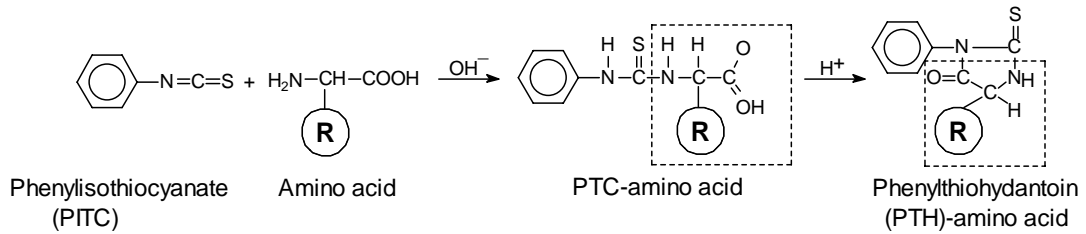
AMINO ACIDS IN HUMAN SALIVA



See application sheet No. 0014.

COLUMN: Ø2x64 mm; Nucleosil 5-C18
ELUENTS: A- [H₂O]:[0.5 M CH₃COONH₄, pH 6.5]:[1.0 M LiClO₄]=80:10:10
 B- [CH₃CN]:[H₂O]:[0.5 M CH₃COONH₄, pH 6.5]:[1.0 M LiClO₄]=50:20:10:20
GRADIENT: 0-40% B in 16 min; 40-100% B in 8 min
FLOW RATE: 0.1 ml/min **PRESSURE:** 2 MPa **TEMPERATURE:** 50°C
DETECTOR: 250 nm
SAMPLE: 10 µl of solution of PTC amino acids (correspond to 5 µl of human saliva)

PTH-AMINO ACIDS



D- Aspartic acid	N- Asparagine	G- Glycine	R- Arginine	P- Proline	*- DPTU	F- Phenylalanine
C- Cysteic acid	S- Serine	Q- Glutamine	A- Alanine	M- Methionine	W- Tryptophan	I- Isoleucine
E- Glutamic acid	T- Threonine	H- Histidine	Y- Tyrosine	V- Valine	K- Lysine	L- Leucine

COLUMN: \varnothing 2x64 mm; Nucleosil 5-C18

ELUENTS: A- $[CH_3CN]:[H_2O]:[1.0\ M\ CH_3COONa,\ pH\ 5.5]:[2.0\ M\ LiClO_4]=10:75:5:10$

B- $[CH_3CH_2OH]:[H_2O]:[1.0\ M\ CH_3COONa,\ pH\ 5.5]:[2.0\ M\ LiClO_4]=40:45:5:10$

GRADIENT: 0% B for 6.7 min; 0-50% B in 6.7 min; 50-100% B in 2 min; 100% B for 5 min

FLOW RATE: 0.15 ml/min

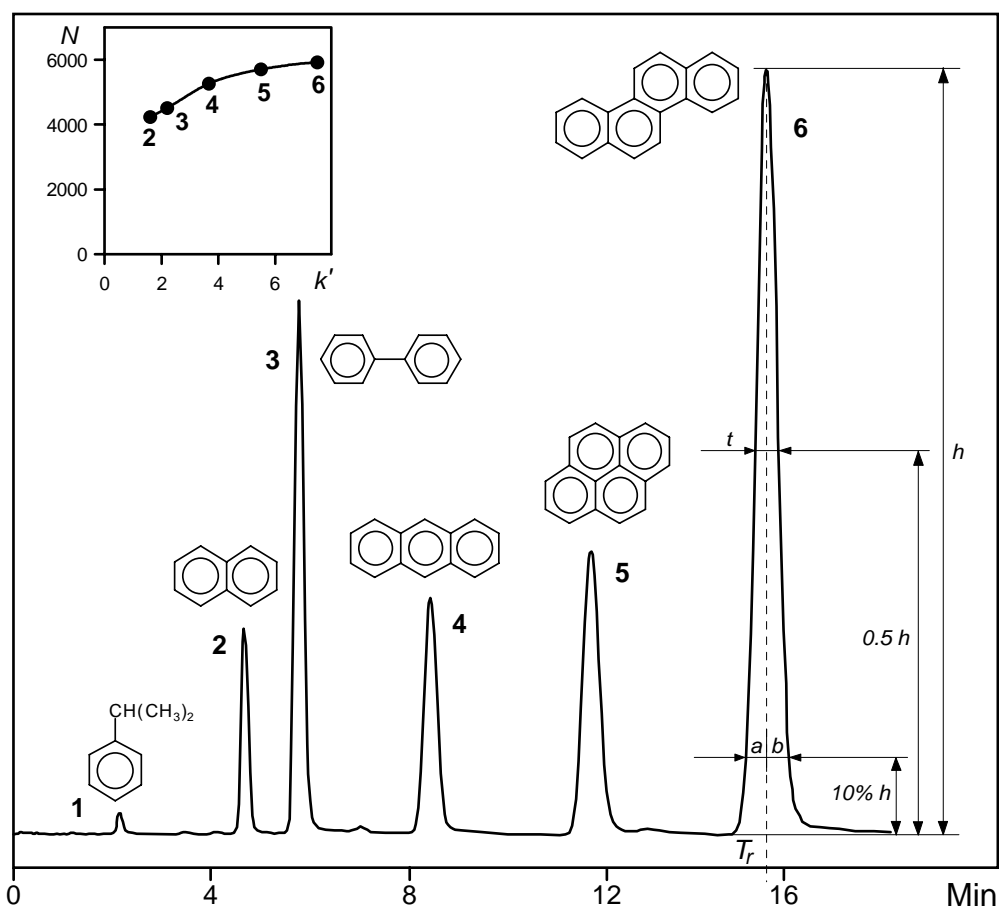
PRESSURE: 2 MPa

TEMPERATURE: 40°C

DETECTOR: 270 nm

SAMPLE: 20 μ l of a solution of PTC amino acids in 0.01 M CH_3COONa (pH 5.5); 50 pmole each. DPTU (*) - 20 pmole.

PERFORMANCE OF SHORT MICROBORE COLUMN



$$k' = \frac{T_r}{T_0} - 1$$

$$N = 5.54 \left(\frac{T_r}{t} \right)^2$$

$$A_{10\%} = \frac{b}{a}$$

No. of peak	1	2	3	4	5	6
T_r , min	0.550	1.203	1.481	2.161	3.009	3.925
k'	0.19	1.60	2.20	3.67	5.50	7.48
N , theor.plates	-	4230	4510	5250	5710	5910
$A_{10\%}$	-	1.50	1.11	1.21	1.08	1.06

COLUMN: Ø2x75 mm; Eurosphere 80-5 C18

ELUENT: [CH₃OH]:[H₂O]=80:20

FLOW RATE: 0.1 ml/min

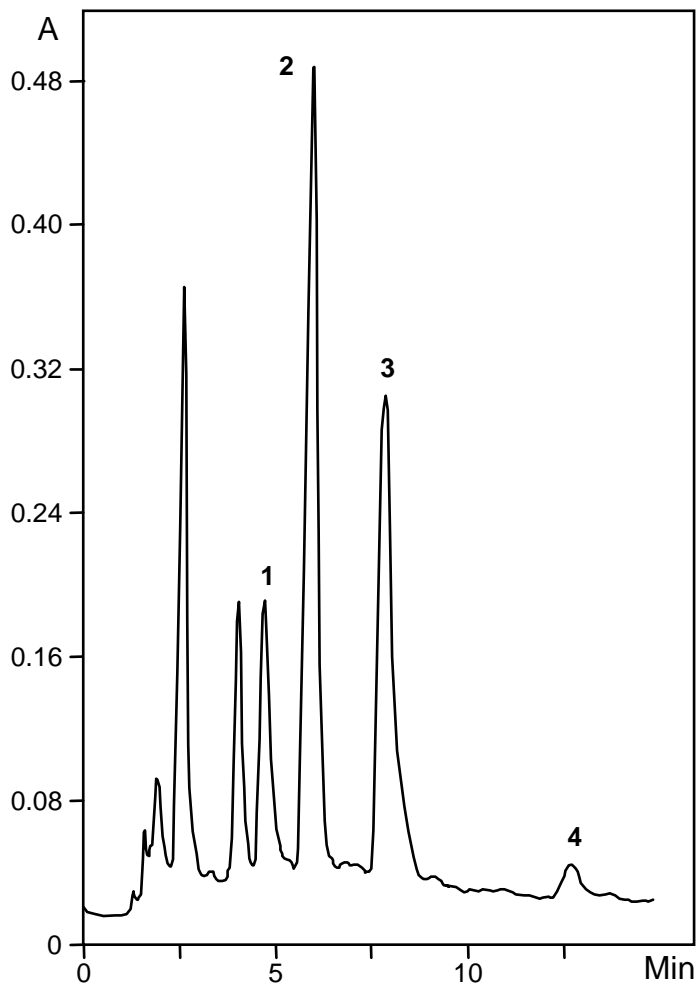
PRESSURE: 2 MPa

TEMPERATURE: 22°C

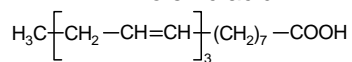
DETECTOR: 260 nm

SAMPLE: 2 µl of acetonitrilic solution (2-Propylbenzene - 2 µg; Naphthalene, Biphenyl, Anthracene, Pyrene and Chrysene - 1 µg of each)

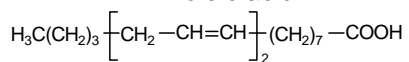
FATTY ACIDS



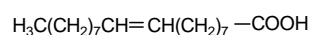
1. Linolenic acid



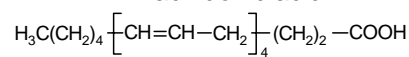
2. Linoleic acid



3. Oleic acid



4. Arachidonic acid



COLUMN: Ø2x64 mm; Silasorb SPH 5-C18

ELUENT: [CH₃OH]:[H₂O]:[CH₃COOH]=90:9:1

FLOW RATE: 0.1 ml/min

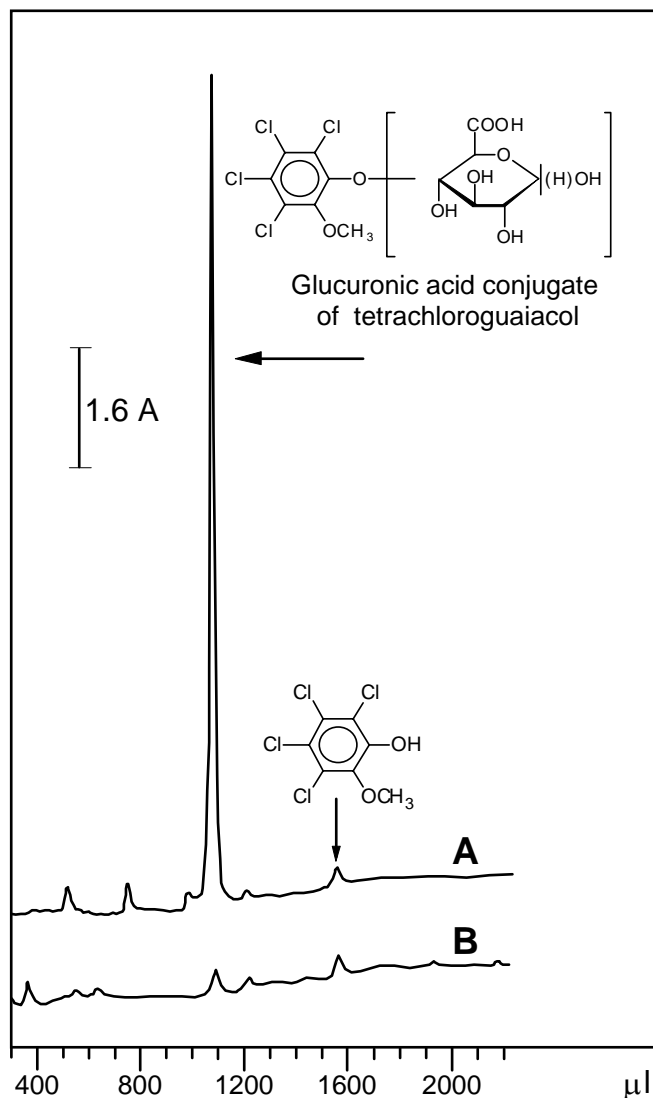
PRESSURE: 2 MPa

TEMPERATURE: 22°C

DETECTOR: 200 nm

SAMPLE: 4 µl of methanolic solution of technical oleic acid

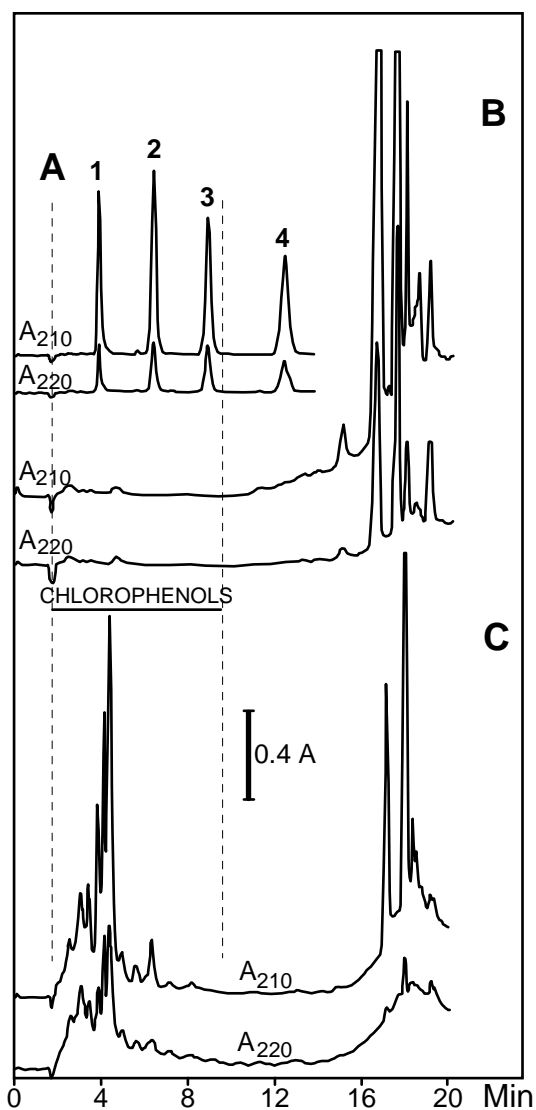
ACCUMULATION OF TETRACHLOROGUAIACOL IN FISH BILE



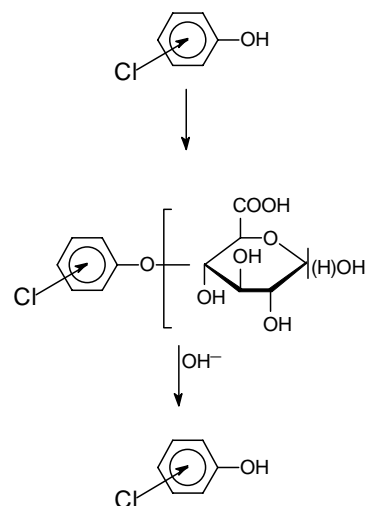
- A. Fish (*L. leuciscus baikalensis*) was kept in 20-litre glass aquarium under semistatic conditions to tetrachloroguaiacol at an average concentration of 80 μg/l for 48 h at 6°C.
 B. Control fish.

COLUMN: Ø2x64 mm; Nucleosil 5-C18
ELUENTS: A- [CH₃OH]:[H₂O]:[CF₃COOH]=50:50:0.1; B- [CH₃OH]:[H₂O]:[CF₃COOH]=90:10:0.1
GRADIENT: 0-100% B in 23 min
FLOW RATE: 0.1 ml/min **PRESSURE:** 3 MPa **TEMPERATURE:** 22°C
DETECTOR: 210 nm
SAMPLES: 2 μl of an aqueous solution of fish bile (50 mg/ml)

TOTAL QUANTITY OF CHLOROPHENOLS IN FISH BILE AS WATER POLLUTION TEST

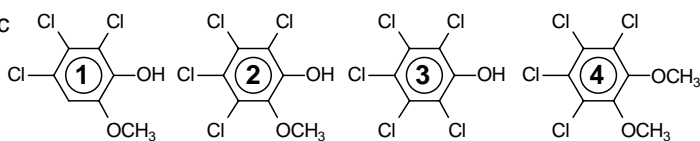


Average of bioaccumulation of chlorophenols in fish bile is up to 500.000 at their concentration in water body 0.1-1 $\mu\text{g/l}$. Total quantity of chlorophenols was determined after alkaline hydrolysis of fish bile contained glucuronic acid conjugates of chlorophenols:



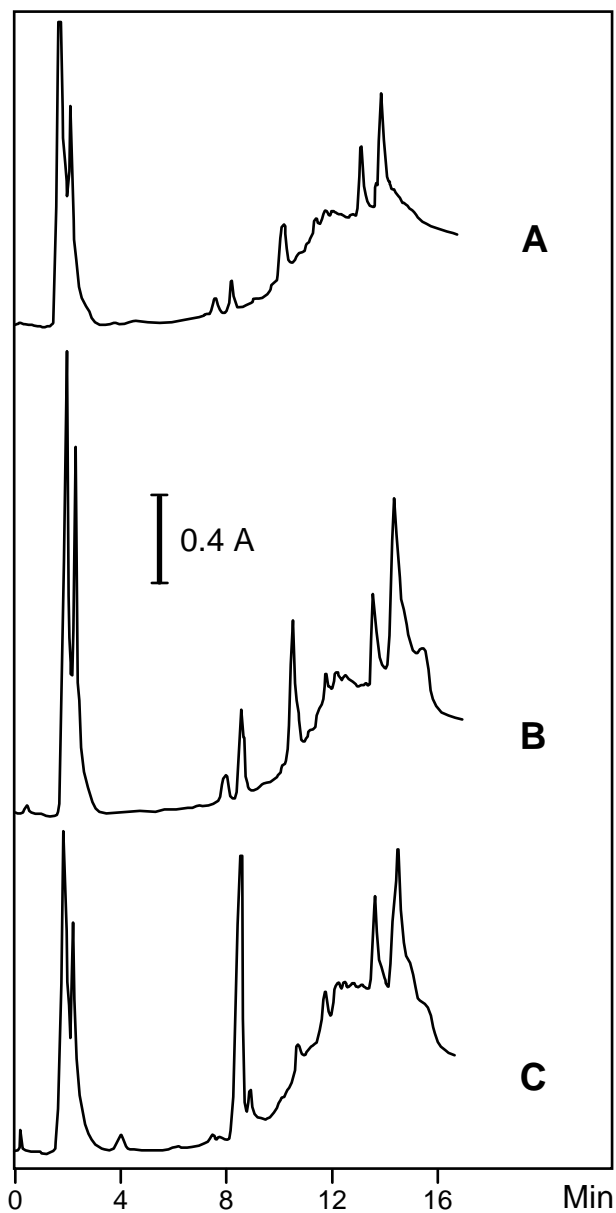
COLUMN: $\varnothing 2 \times 64$ mm; Nucleosil 5-C18
ELUENTS: A- $[\text{CH}_3\text{OH}]:[\text{H}_2\text{O}]:[\text{CF}_3\text{COOH}] = 80:20:0.1$; B- $[\text{CH}_3\text{OH}]:[\text{CF}_3\text{COOH}] = 100:0.1$
GRADIENT: 0-100% B in 22 min
FLOW RATE: 0.1 ml/min **PRESSURE:** 3 MPa **TEMPERATURE:** 22°C
DETECTOR: 210 and 220 nm
SAMPLES: 4 μl of methanolic solutions:

A: The most hydrophobic chlorophenols from cellulose industry waste water:



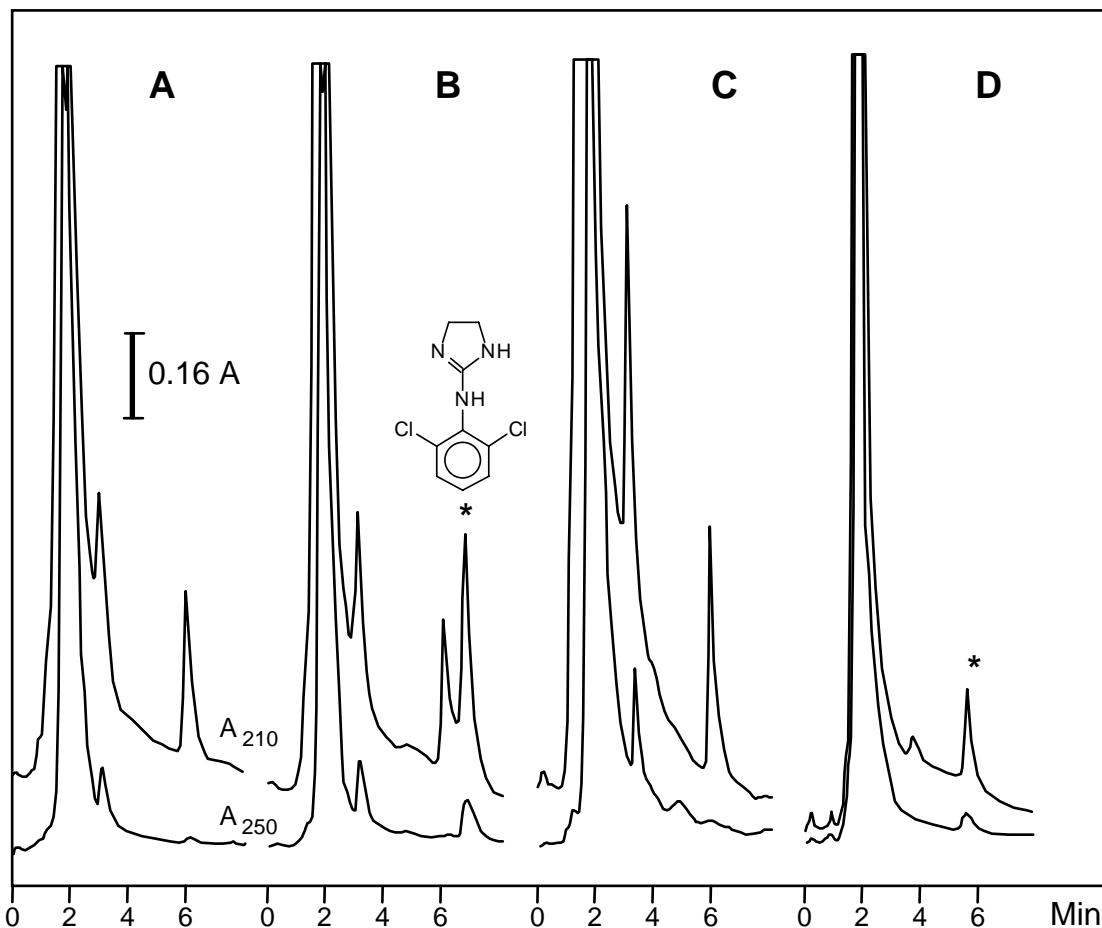
B: Hydrolysate of bile of control fish.

C: Hydrolysate of bile of fish from Ust-Ilimskoe artificial sea (East Siberia, Russia).

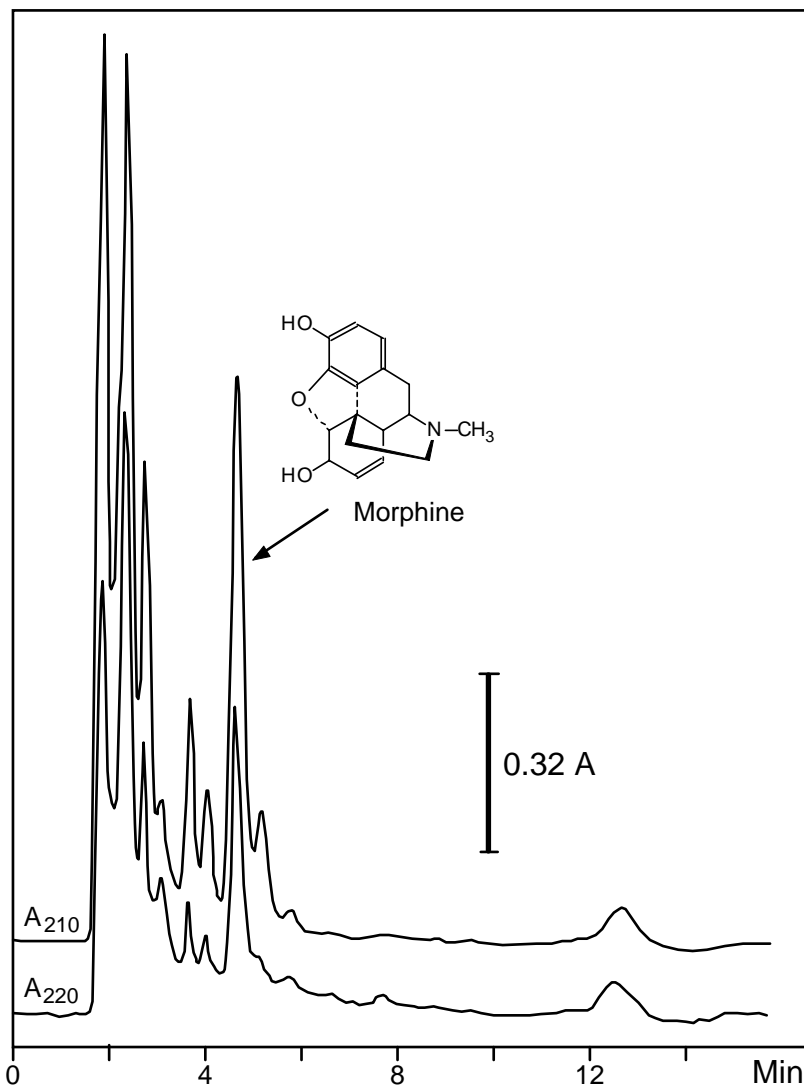
**BALL-PEN INKS
(CRIMINOLOGY)**

COLUMN: Ø2x64 mm; Eurosphere 80-5 C18
ELUENTS: A- [CH₃OH]:[H₂O]=10:90; B- [CH₃OH]:[H₂O]=90:10
GRADIENT: 0-100% B in 15 min; 100% B for 7 min
FLOW RATE: 0.1 ml/min **PRESSURE:** 3 MPa **TEMPERATURE:** 22°C
DETECTOR: 210 nm
SAMPLES: 10 µl of ethanolic extracts of three ball-pen inks (A, B, C) from one letter (3x3 mm) hand-written on a document

CLOPHELIN IN DRINKS (CRIMINOLOGY)

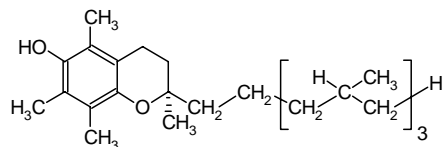


COLUMN: Ø2x64 mm; Nucleosil 5-C18
ELUENT: [CH₃OH]:[H₂O]:[(CH₃CH₂)₃N]=40:60:1
FLOW RATE: 0.1 ml/min **PRESSURE:** 3 MPa **TEMPERATURE:** 22°C
DETECTOR: 210 and 250 nm
SAMPLES: 20 µl each of drink (pH 10)
A: Beer No.1;
B: Beer No.1 + clophelin (15 mg/l);
C: Beer No.2;
D: Lemonade + clophelin (7 mg/l).

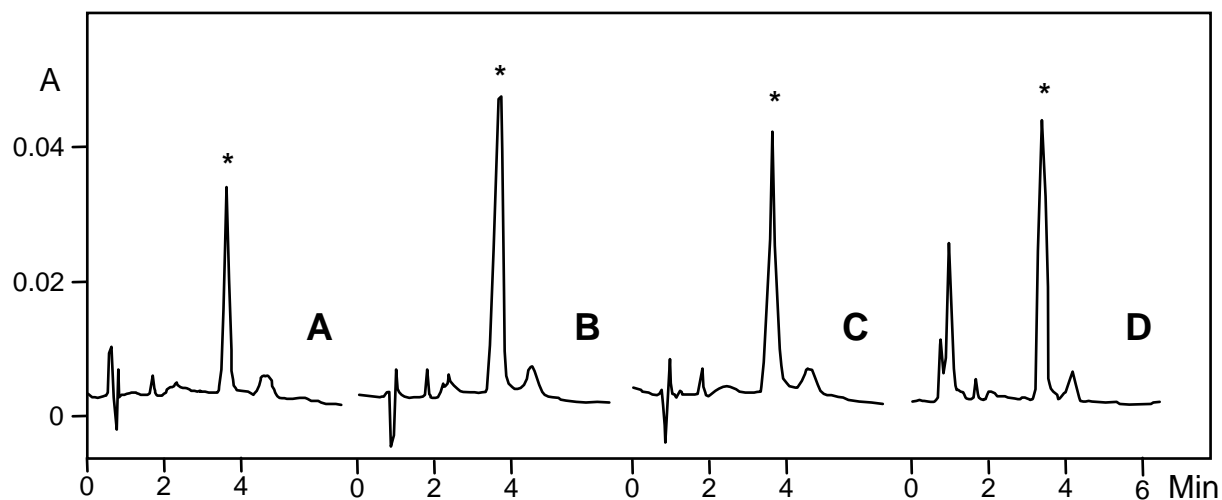
**MORPHINE IN POPPY CRUDE EXTRACT
(CRIMINOLOGY)**

COLUMN: Ø2x64 mm; Nucleosil 5-C18
ELUENT: [CH₃OH]:[0.2 M KH₂PO₄, pH 3.0]=10:90
FLOW RATE: 0.1 ml/min **PRESSURE:** 2.5 MPa **TEMPERATURE:** 22°C
DETECTOR: 210 and 220 nm
SAMPLE: 2 µl of an aqueous extract from crude poppy diluted with 0.2 M KH₂PO₄ (pH 3.0) 1:1

VITAMIN E IN SUNFLOWER-SEED OIL

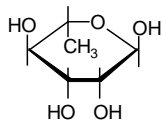


Vitamin E

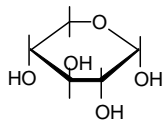


COLUMN: Ø2x64 mm; Silasorb 600-5 (silica)
ELUENT: [*n*-hexane]:[methylene chloride]=80:20
FLOW RATE: 0.2 ml/min **PRESSURE:** 2 MPa **TEMPERATURE:** 22°C
DETECTOR: 300 nm
SAMPLES: 10 µl of oil diluted with *n*-hexane; [oil]:[*n*-hexane]=5:95 (v/v).
Contents of vitamin E in batches of oil from 4 different producers was:
A: 400 mg/l;
B: 520 mg/l;
C: 420 mg/l;
D: 510 mg/l.

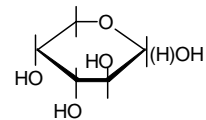
SUGARS



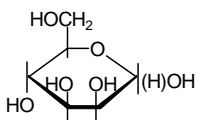
1. Rhamnose



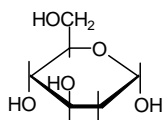
2. Xylose



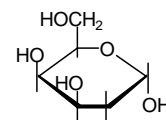
3. Arabinose



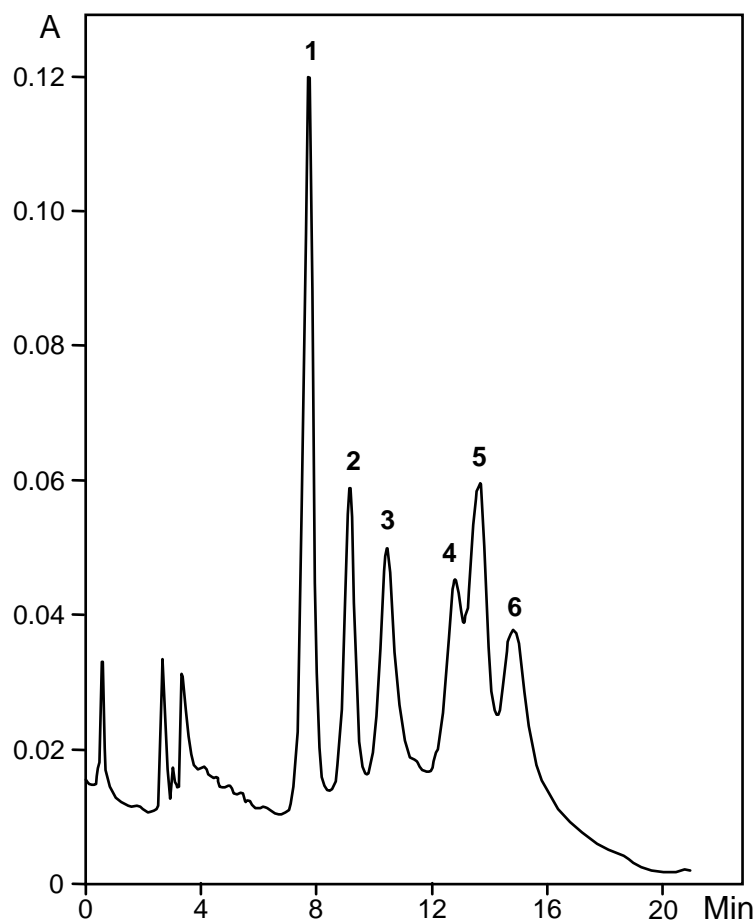
4. Mannose



5. Glucose



6. Galactose



COLUMN: Ø2x80 mm; Separon 5-NH₂

ELUENT: [CH₃CN]:[H₂O]=75:25

FLOW RATE: 0.1 ml/min

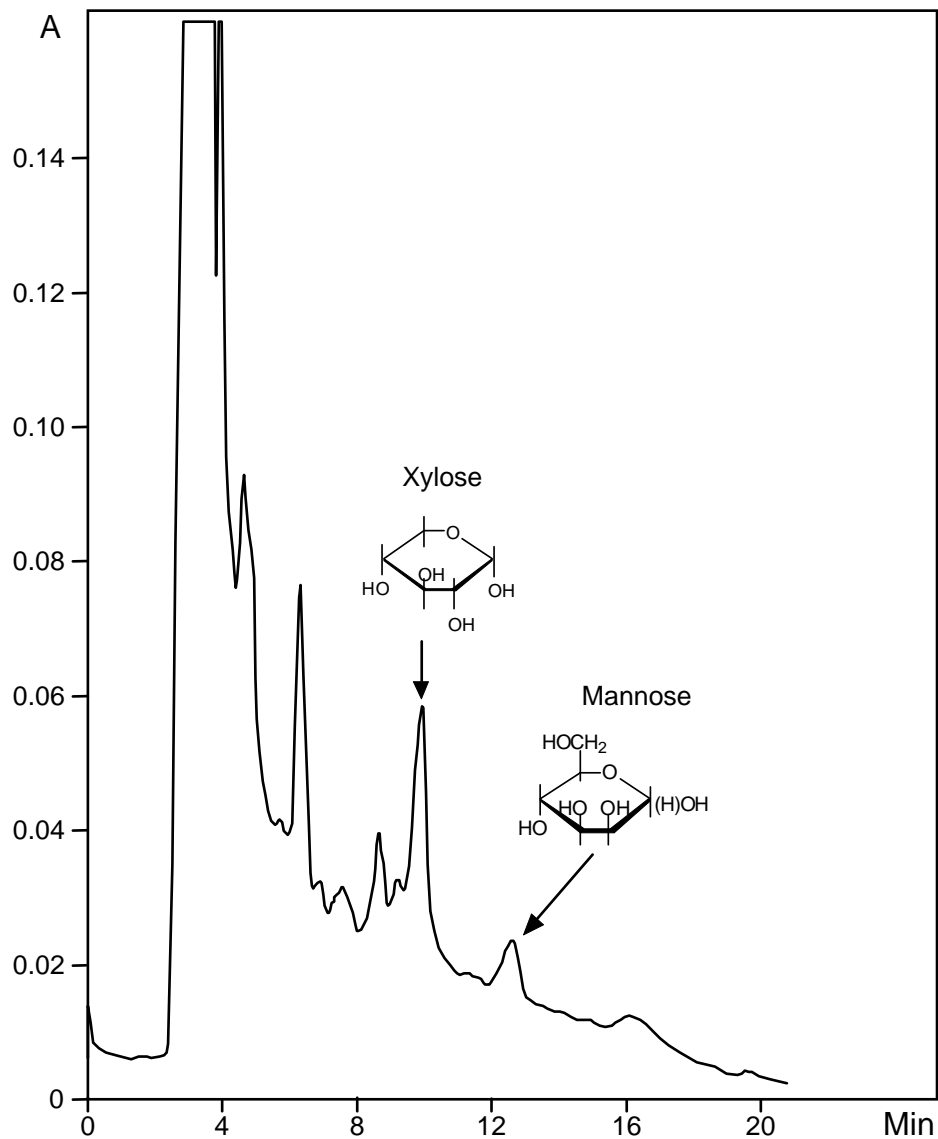
PRESSURE: 1.5 MPa

TEMPERATURE: 22°C

DETECTOR: 190 nm

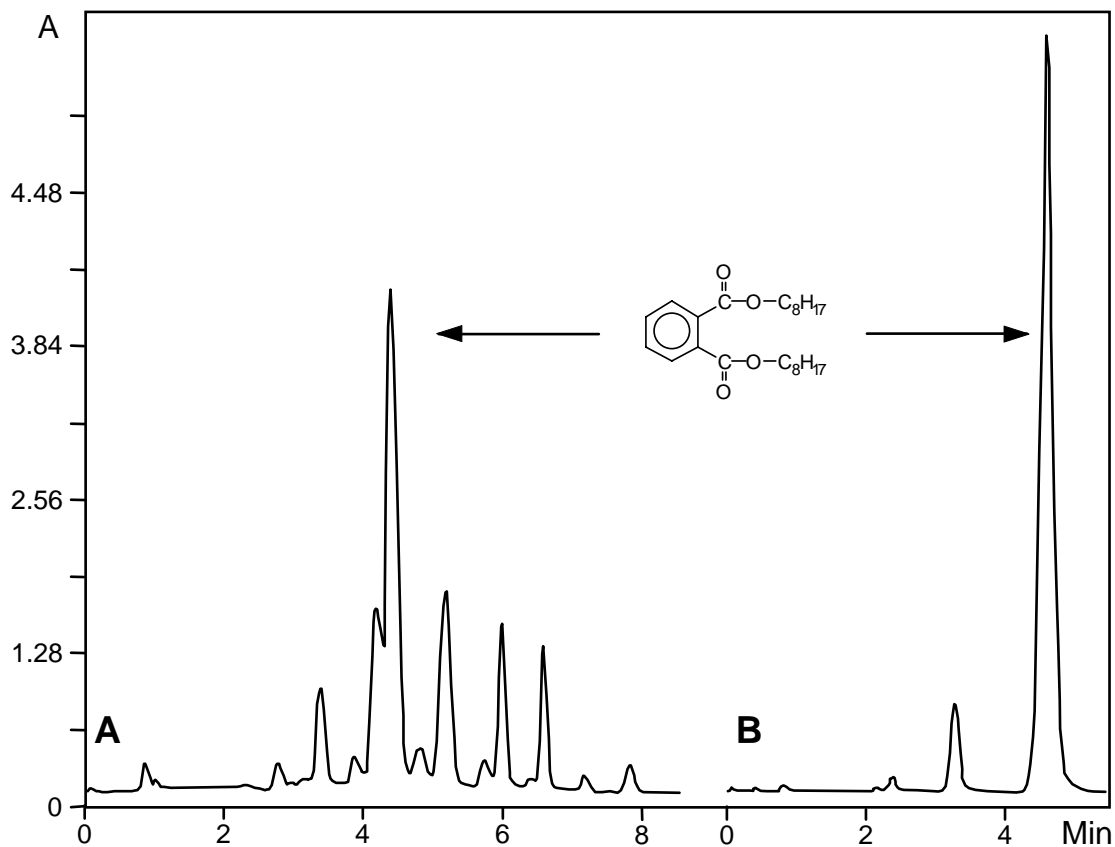
SAMPLE: 4 µl of aqueous solution (40 µg of each)

SUGARS IN A HYDROLYSATE OF WOOD



COLUMN: Ø2x80 mm; Separon 5-NH₂
ELUENT: [CH₃CN]:[H₂O]=75:25
FLOW RATE: 0.1 ml/min **PRESSURE:** 1.5 MPa **TEMPERATURE:** 30°C
DETECTOR: 190 nm
SAMPLE: 4 µl of an acidic hydrolysate (pH 5-7) of wood (*Larix sibirica*) adjusted to pH 6

DIOCTYLPHTHALATE IN POLYVINYLCHLORIDE



COLUMN: Ø2x64 mm; Nucleosil 5-C18

ELUENTS: A- [CH₃CN]:[H₂O]=90:10
B- CH₃CN

GRADIENT: 0-100% B in 10 min

FLOW RATE: 0.2 ml/min

PRESSURE: 2 MPa

TEMPERATURE: 22°C

DETECTOR: 210 nm

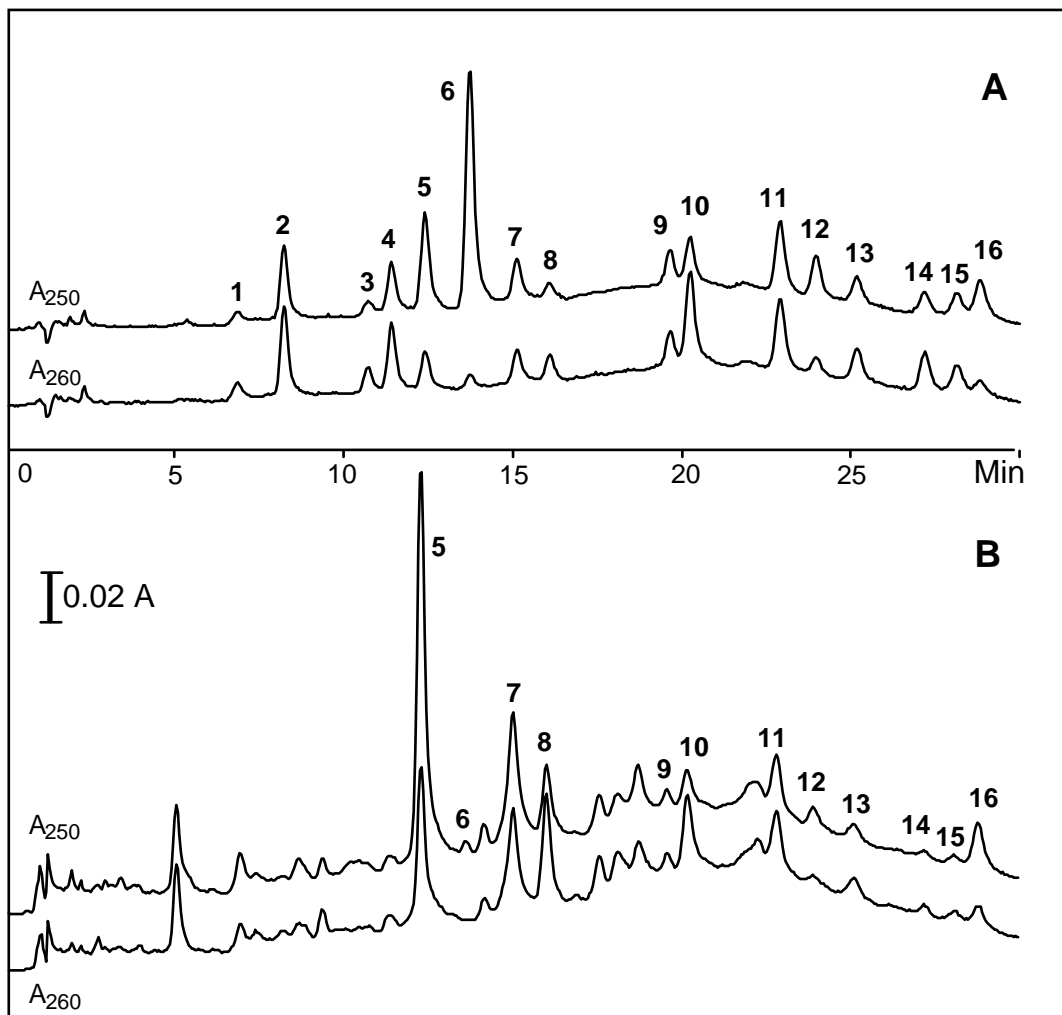
SAMPLES: 2 µl of ethanolic extract two PVC-plastics, **A** and **B**.

Content of di-*n*-octylphthalate:

A: 3.25% (w/w);

B: 5.05% (w/w).

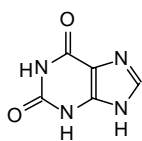
POLYNUCLEAR AROMATIC HYDROCARBONS IN SNOW



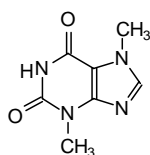
COLUMN: Ø2x75 mm; Nucleosil 5-C18 PAH
ELUENTS: A- [CH₃OH]:[H₂O]=65:35; B- [CH₃CN]:[H₂O]=85:15
GRADIENT: 100% A for 3 min; 0-100% B in 30 min; 100% B for 3 min
FLOW RATE: 0.12 ml/min **PRESSURE:** 1.5 MPa **TEMPERATURE:** 40^o C
DETECTOR: 250 and 260 nm
SAMPLES: A: 5 µl of a standard methanolic solution.
 B: 2 µl of a methanolic solution of a dried hexane extract of city snow melt.

No.	Substance	A, ng	B, ppb	No.	Substance	A, ng	B, ppb
1	Naphthalene	21		9	Benzo[a]anthracene	7	0.1
2	Acenaphthylene	9		10	Chrysene	7	0.2
3	Acenaphthene	43		11	Benzo-[b]fluoranthene	9	0.3
4	Fluorene	8		12	Benzo[k]fluoranthene	5	0.2
5	Phenanthrene	4	1.9	13	Benzo[a]pyrene	5	0.2
6	Anthracene	2	0.1	14	Dibenzo[a,h]anthracene	15	2.1
7	Fluoranthene	10	1.1	15	Benzo[g,h,i]perylene	15	2.0
8	Pyrene	4	1.0	16	Indeno[1,2,3-cd]pyrene	11	0.4

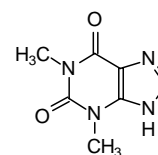
XANTHINES



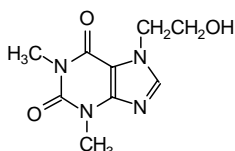
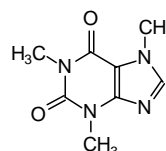
1. Xanthine



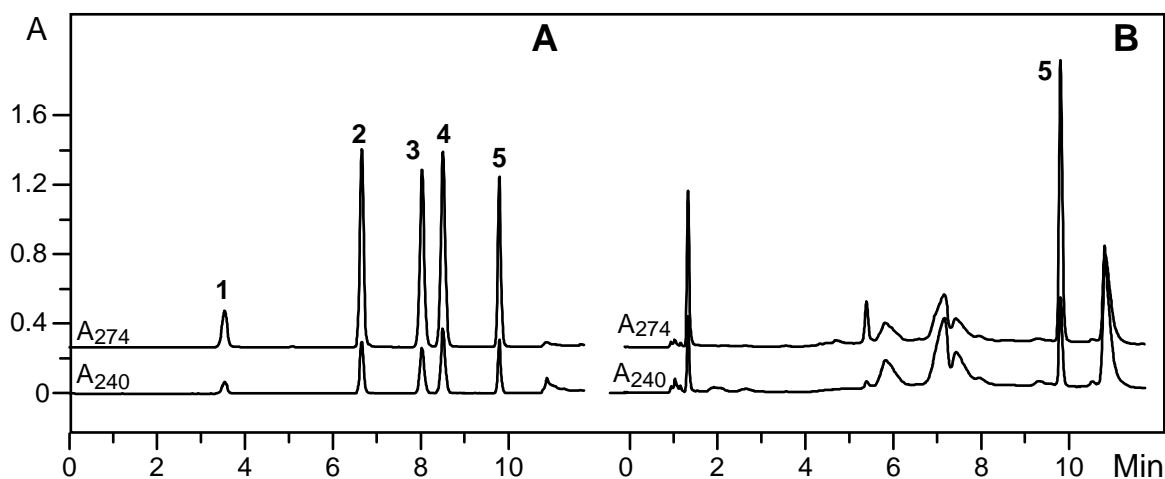
2. Theobromine



3. Theophyllin

4. β -Hydroxyethyltheophylline

5. Caffeine



COLUMN: \varnothing 2x75 mm; Nucleosil 5-C18

ELUENTS:
A- H₂O
B- CH₃OH

GRADIENT: 5-30% B in 9.3 min; 80% B for 4 min

FLOW RATE: 0.15 ml/min

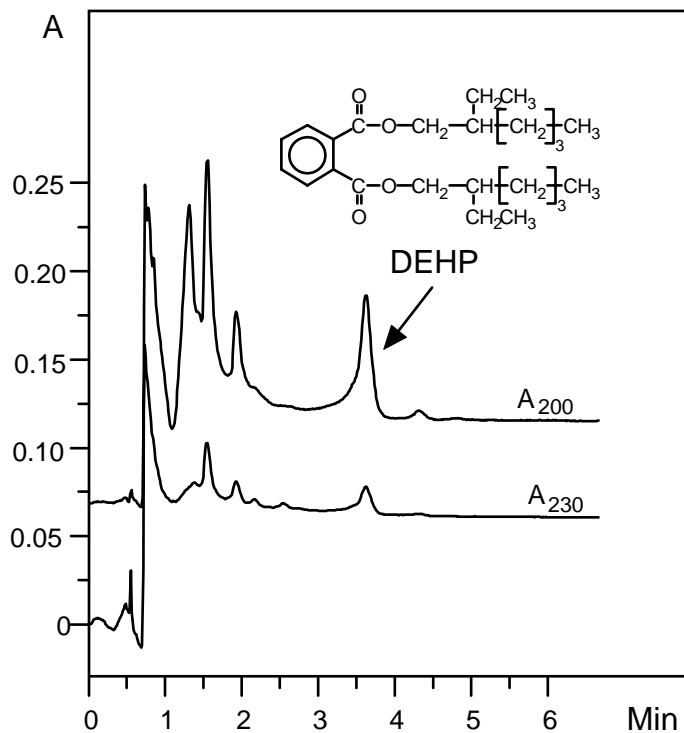
PRESSURE: 3.5 MPa

TEMPERATURE: 45°C

DETECTOR: 240 and 274 nm

SAMPLES: A: 2 μ l of an aqueous solution (\approx 0.4 ng each of component).

B: 2 μ l of filtered coffee.

BIS(2-ETHYLHEXYL) PHTHALATE IN WATER FROM LAKE BAIKAL

COLUMN: Ø2x75 mm; Nucleosil 5-C18

ELUENT: [CH₃OH]:[H₂O]=90:10

FLOW RATE: 0.3 ml/min

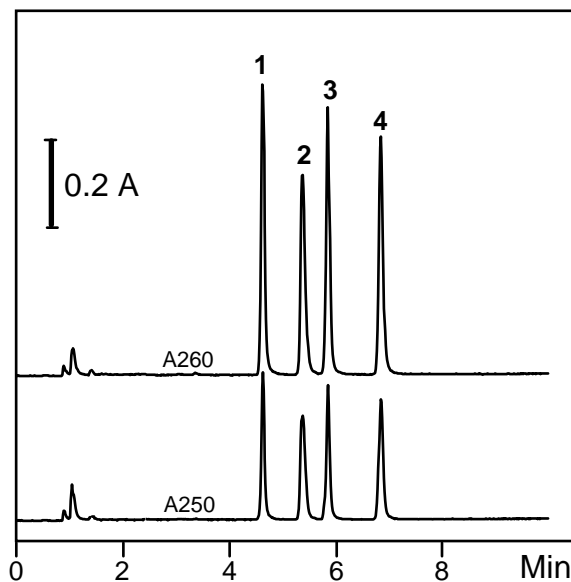
PRESSURE: 4 MPa

TEMPERATURE: 35°C

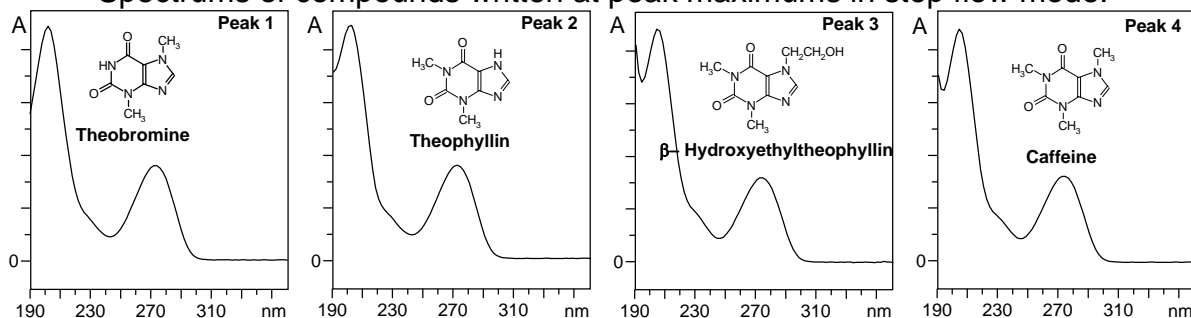
DETECTOR: 200 and 230 nm

SAMPLE: 6000 µl [sampled water]:[2-propanol]=95:5 pumped with pump A at 0.3 ml/min. The concentration of DEHP was found as 1.7 µg/l. Lake Baikal, depth 900 m, August 1995).

XANTHINES: UV-SPECTRA



Spectrums of compounds written at peak maximums in stop flow mode:



COLUMN: Ø2x75 mm; Nucleosil 5-C18

ELUENTS: A- H₂O
B- [CH₃CH₂OH]:[H₂O]=30:70

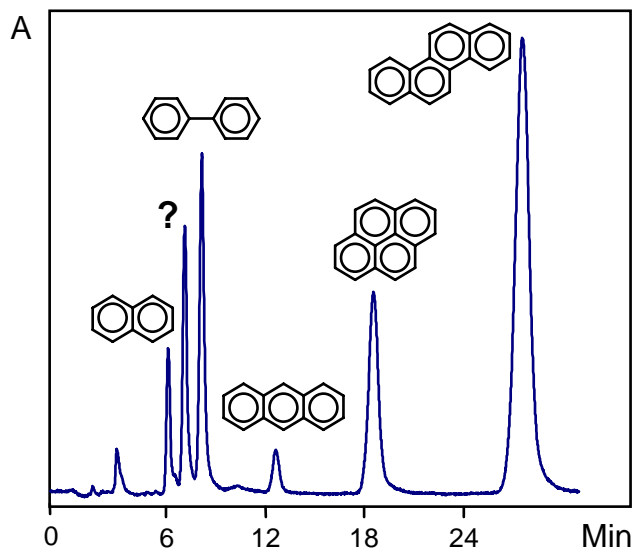
GRADIENT: 0-100% B in 10 min

FLOW RATE: 0.2 ml/min **PRESSURE:** 4.5 MPa **TEMPERATURE:** 45°C

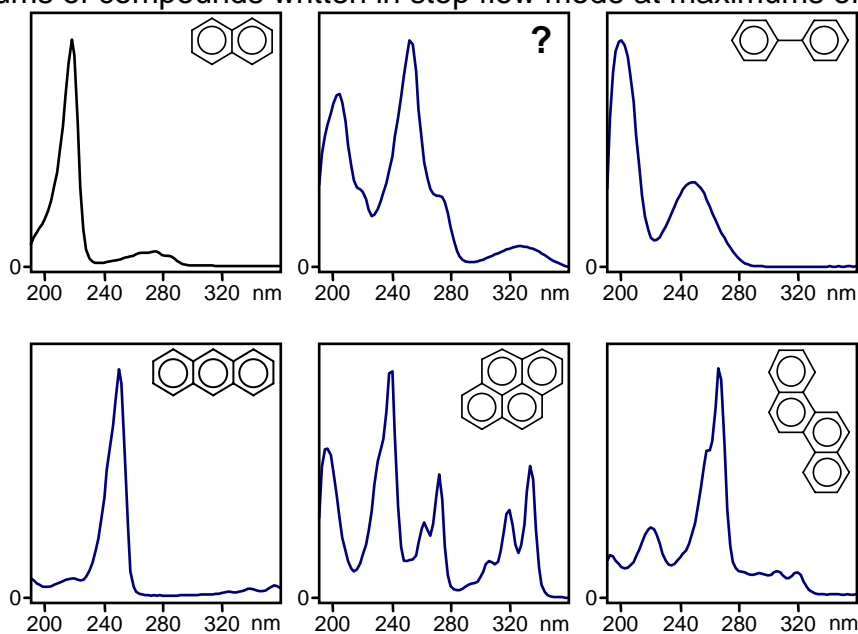
DETECTOR: 250 and 260 nm

SAMPLE: 2 µl of solution in [CH₃CH₂OH]:[0.1 M K₂HPO₄, pH 6.5]=30:70.
Presample: 10 µl of 0.1 M K₂HPO₄ (pH 6.5).

HPLC AND UV-SPECTROSCOPY

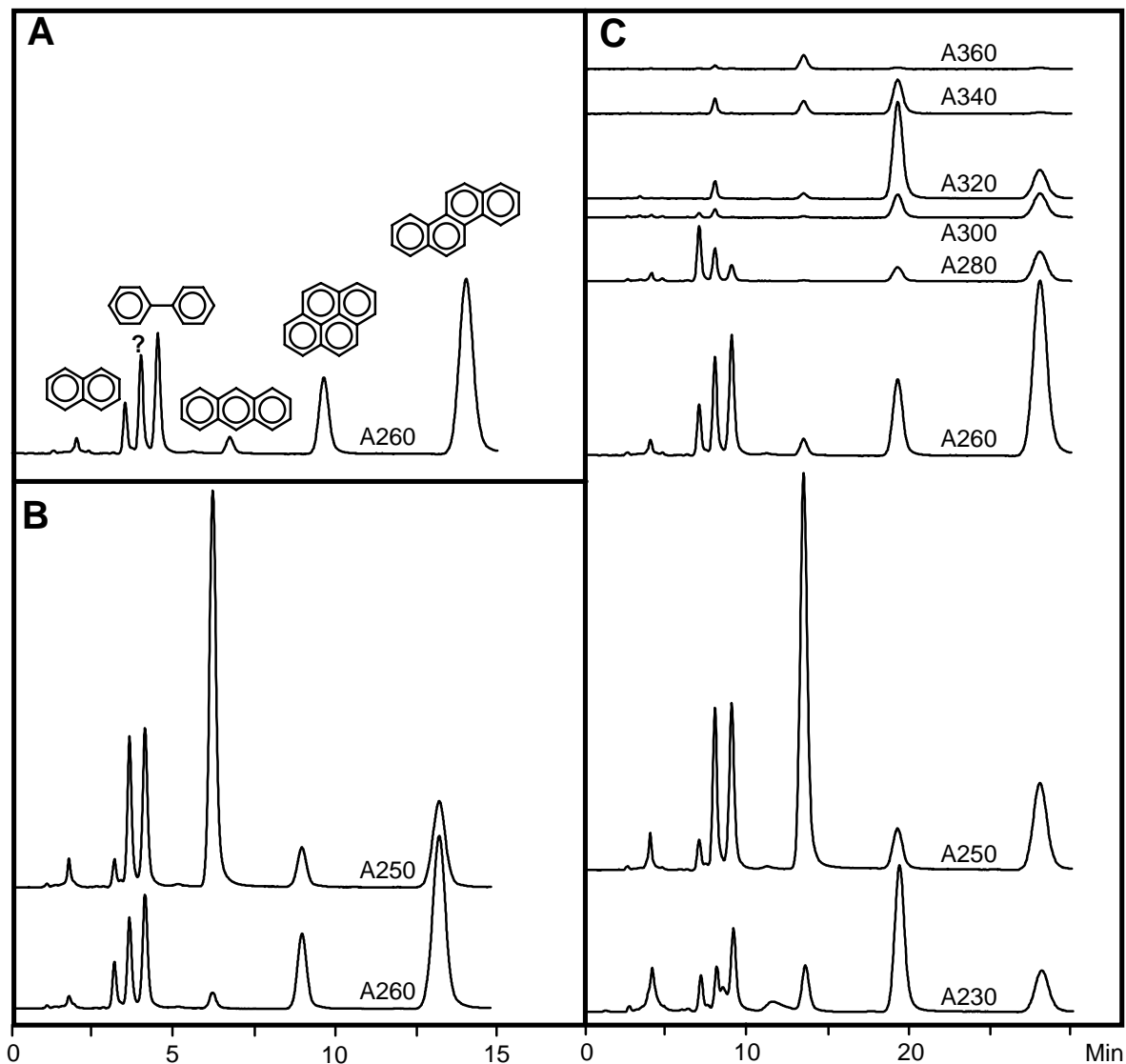


Spectrums of compounds written in stop flow mode at maximums of peaks:



COLUMN: Ø2x75 mm; Nucleosil 5-C18
ELUENT: CH₃OH]:[H₂O]=80:20
FLOW RATE: 0.1 ml/min **PRESSURE:** 2.4 MPa **TEMPERATURE:** 22°C
DETECTOR: 260 nm
SAMPLE: 2 µl of acetonitrilic solution (1 µg of each)

MULTIWAVELENGTH UV-DETECTION



COLUMN: \varnothing 2x75 mm; Nucleosil 5-C18
ELUENT: [CH₃OH]:[H₂O]=80:20
FLOW RATE: **A:** 0.2 ml/min **B:** 0.2 ml/min **C:** 0.1 ml/min
PRESSURE: **A:** 1 MPa **B:** 4.8 MPa **C:** 2.4 MPa
TEMPERATURE: 22°C
DETECTOR: **A:** 260 nm
B: 250 and 260 nm
C: 230, 250, 260, 280, 300, 320, 340 and 360 nm
SAMPLES: 2 μ l of acetonitrilic solution (1 μ g of each)