MILLENNIUM APPLICATION BRIEF

TOPIC: PAH Analysis Using PDA
-Using a Narrow Bore PAH Column (2.1 X 250mm)-

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Date: 9/2/94

Introduction:

Analysis of 16 PAH's was done using a Supelcosil-PAH™ column (2.1 X 250mm). Run times of less than 40 minutes was possible using a gradient of water and acetonitrile at a flow rate of 0.4 mL/min. The system used was a 600 pump, 717+, and a 996 PDA. To reduce the delay volume the blue line on the 717+ was replaced with a red line (0.009"). A Sigma-Aldrich PAH std (PN 39,867-5) was used for the analysis. This concentrated standard was diluted 1-10 with acetonitrile and 3 uL injected. Figure 1 is a chromatogram (254nm) and gradient report showing the separation and gradient used. Figure 2 is a chromatogram at 254nm with the peaks identified as well as a custom filed called comments printed above the chromatogram showing the column information. Figures 3 and 4 are spectrum index plots of the 16 PAH standards.

EXPERIMENTAL:

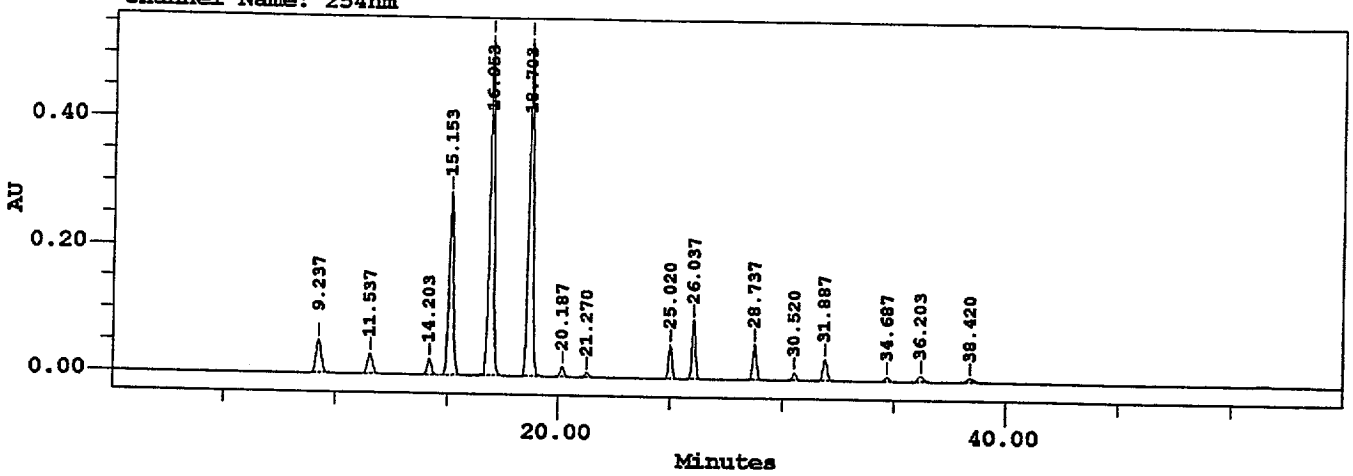
System:	600 Pump, 717+ autosampler, 996 PDA
Mobile phase:	A: Water; B: Acetonitrile
Gradient:	See figure 1
Flow Rate:	0.4 mL/min
Column:	Supelcosil-PAH™ (2.1 X 250 mm)
Injection:	3 uL
Detection:	200-350
Data:	Millennium 2010 Chromatography Manager, Ver. 2.01

FIGURES:

Figure 1: Chromatogram and gradient report
Figure 2: Chromatogram of PAH standard at 254 nm
Figure 3: Spectrum Index plot of PAH Std
Figure 4: Spectrum Index plot of PAH Std-all on one page

Supelcosil is a tradmark of Supelco, Inc.

SampleName: PAH Std-3 uL-Mth bb Comments: 2.1 X 250 mm PAH Column-0.4 mL/min
Channel Name: 254nm



Instrument Method: PAH_MB01bb

Millennium v2.00

Date Printed: 10:44:01 am, September 2, 1994

Method Name: PAH_MB01bb
Date Created: 16-AUG-94 10:13.23

Instrument Information

Instrument Type W717
Instrument Type W600

W600 Gradient Table

#	Time	Flow	%A	%B	%C	%D	Curve
1	0.00	0.40	50.0	0.0	50.0	0.0	0
2	15.00	0.40	0.0	0.0	100.0	0.0	6
3	40.00	0.40	0.0	0.0	100.0	0.0	6
4	41.00	0.40	50.0	0.0	50.0	0.0	6
5	69.00	0.40	50.0	0.0	50.0	0.0	6
6	70.00	0.40	0.0	0.0	100.0	0.0	6
7	90.00	0.00	0.0	0.0	100.0	0.0	11

Instrument Type PDA

Figure 1

Millennium Results Report: Chrom_PAH01 Proc Chan: 254nm

For Sample: PAH Std-3 uL-Mt Vial: 2 Inj: 1 Chan: 996 Date Processed 09/02/94 10:26 AM

Channel Descr: PDA 254.0 nm

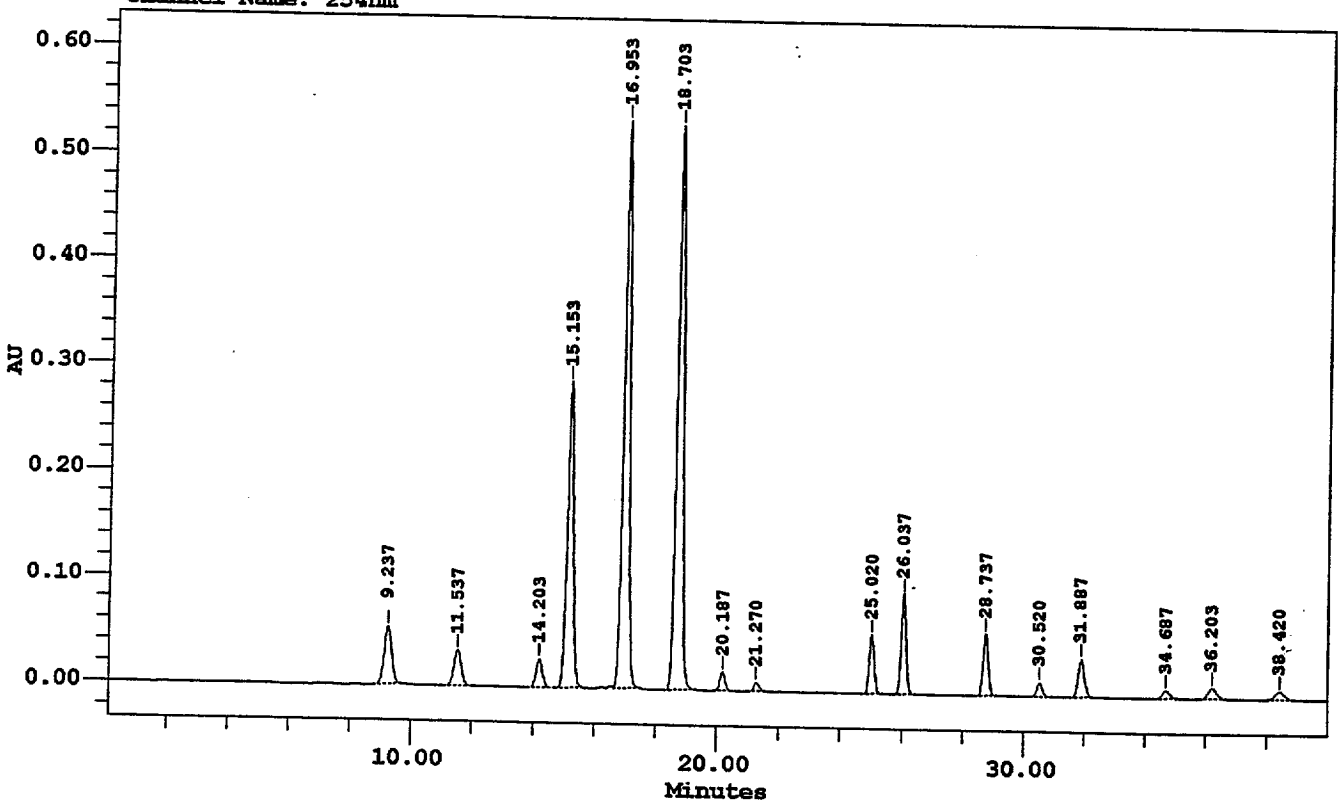
Northern Kentucky Laboratory

Sample Information

Project Name:	Enviro_01		
SampleName:	PAH Std-3 uL-Mth bb		
Vial:	2	Sample Type:	Unknown
Injection:	1	Volume:	3.00
Channel:	996	Run Time:	55.0 min
Date Acquired:	08/16/94 12:30 PM	Date Processed:	09/02/94 10:26 AM
Scale Factor:	1.00	Dilution:	1.00000
Acq Meth Set:	PAH_MB01bb		
Processing Method:	PAH_02		

SampleName: PAH Std-3 uL-Mth bb Comments: 2.1 X 250 mm PAH Column-0.4 mL/min

Channel Name: 254nm



Peak Data

#	Retention Time (min)	Name	Height (uV)	Area (uV*sec)
1	9.237	Napthalene	53726	930499
2	11.537	Acenapthene	33593	568776
3	14.203	Acenapthylene	26696	390904
4	15.153	Fluorene	292015	4051145
5	16.953	Phenathrene	534989	7215253
6	18.703	Anthracene	531537	7349946
7	20.187	Fluoranthene	17260	215156

fig. 2

Millennium Results Report: Chrom_PAH01 Proc Chan: 254nm

For Sample: PAH Std-3 uL-Mt Vial: 2 Inj: 1 Chan: 996 Date Processed 09/02/94 10:26 AM

Channel Descr: PDA 254.0 nm

Peak Data

#	Retention Time (min)	Name	Height (uV)	Area (uV*sec)
8	21.270	Pyrene	8428	117282
9	25.020	Benzo(a)anthracene	55245	606256
10	26.037	Chrysene	95119	1053087
11	28.737	Benzo(b)fluoranthene	57999	683522
12	30.520	Benzo(k)fluoranthene	12926	171109
13	31.887	Benzo(a)pyrene	35032	512777
14	34.687	Dibenzo(a,h)anthracene	7748	140222
15	36.203	Benzo(g,h,i)perylene	10257	212049
16	38.420	Indeno(1,2,3-cd)pyrene	7468	175777

Millennium Results Report: Spectrum_Index Proc Chan: 254nm Page 1 of 2

For Sample: PAH Std-3 uL-Mt Vial: 2 Inj: 1 Chan: 996 Date Processed 09/02/94 10:26 AM

Channel Descr: PDA 254.0 nm

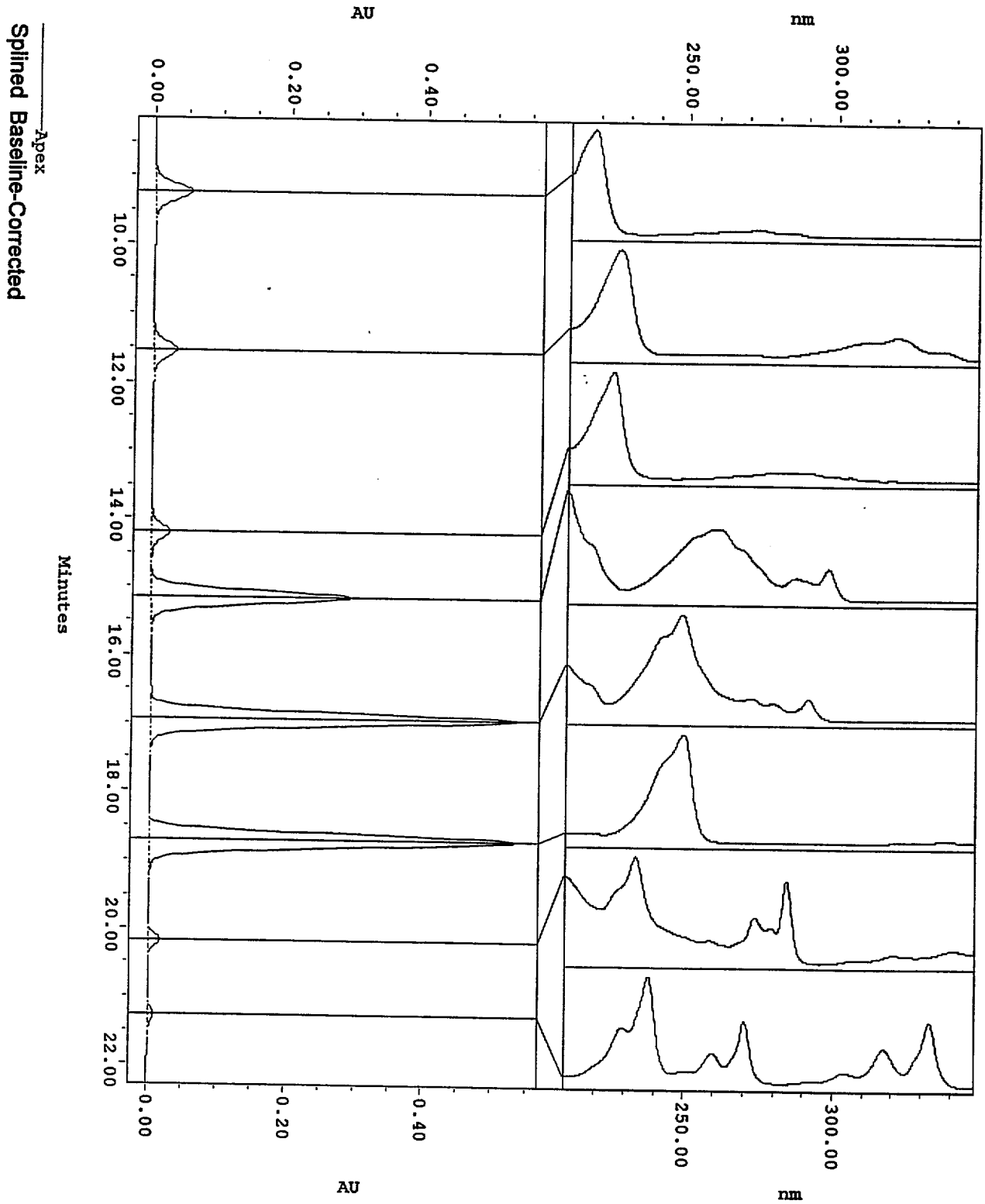
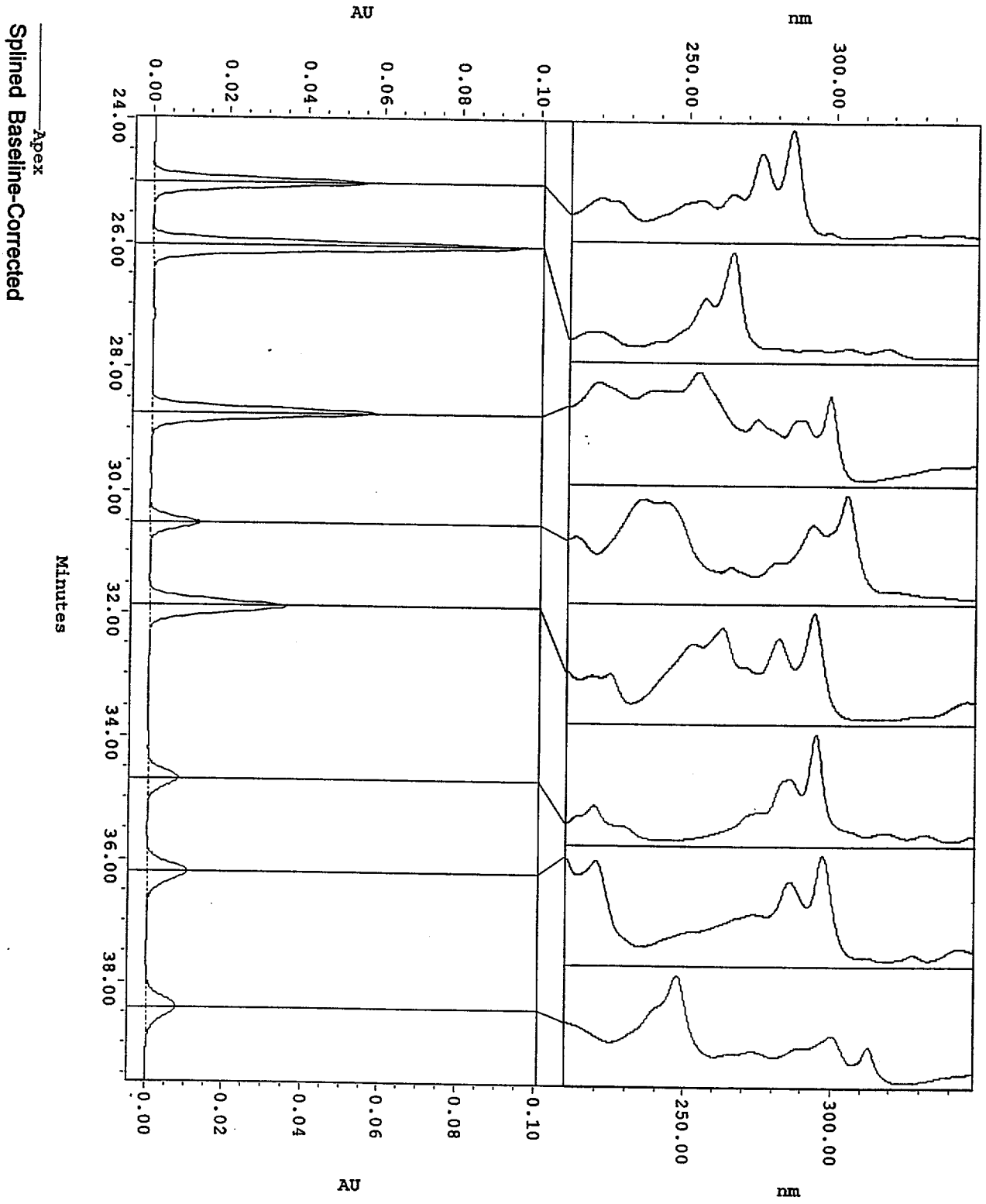


fig. 3

Millennium Results Report: Spectrum_Index Proc Chan: 254nm

For Sample: PAH Std-3 uL-Mt Vial: 2 Inj: 1 Chan: 996 Date Processed 09/02/94 10:26 AM

Channel Descr: PDA 254.0 nm



Millennium Results Report: Spectrum_Index01 Proc Chan: 254nm Page 1 of 1

For Sample: PAH Std-3 uL-Mt Vial: 2 Inj: 1 Chan: 996 Date Processed 09/02/94 10:26 AM

Channel Descr: PDA 254.0 nm

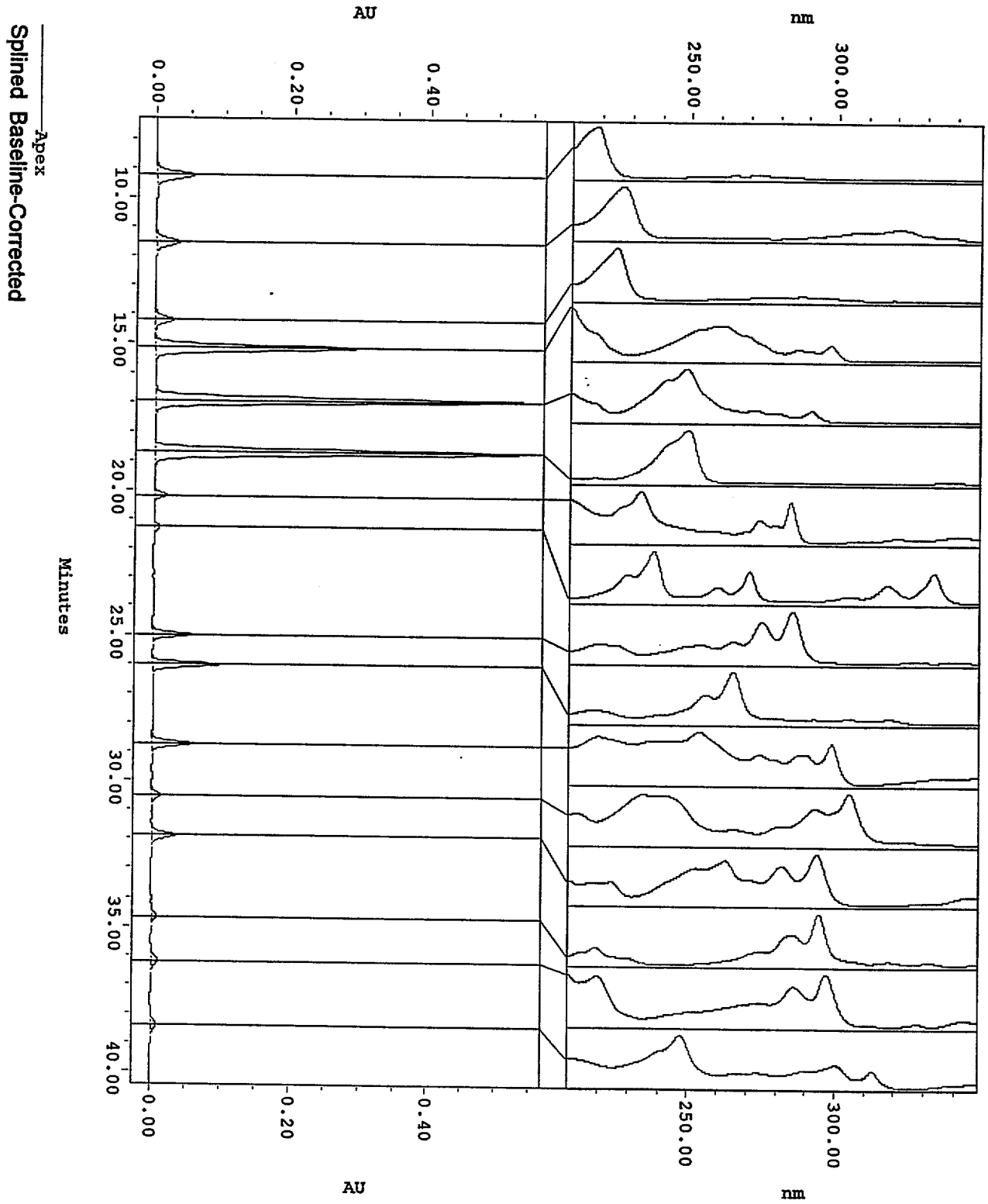


fig. 4