Institute of Freshwater Ecology

Intercalibration of pesticides in two batches of lyophilized water

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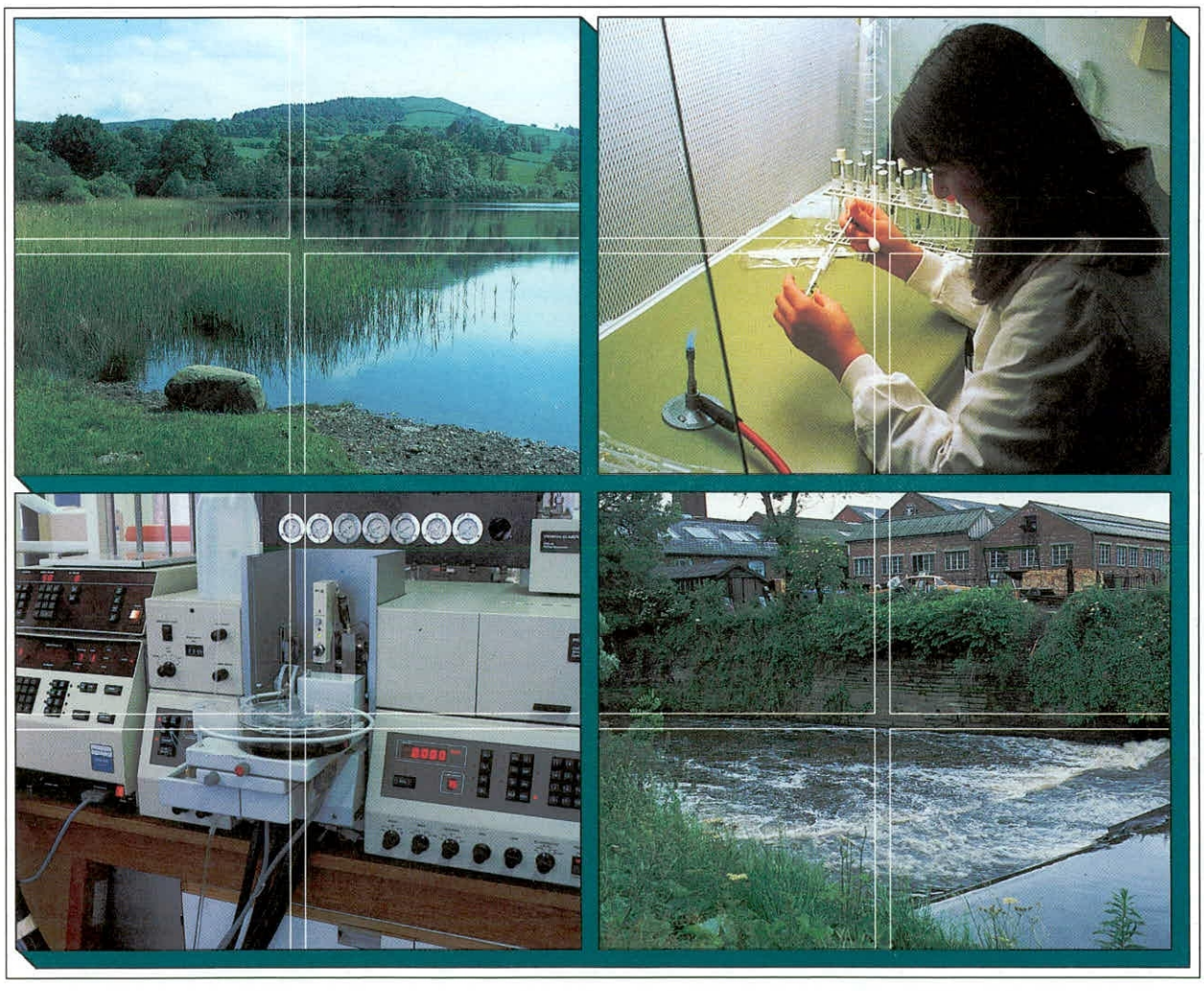
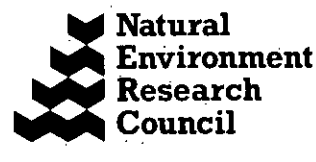
D.R. Orr



Natural Environment Research Council


Natural
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INTERCALIBRATION OF PESTICIDES IN TWO BATCHES OF LYOPHILIZED WATER

by

W.A. House & D.R. Orr

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Report date:	1 October 1992
Report to:	Commission of the European Communities Community Bureau of Reference Rue de la Loi 200 B-1049 Brussels
IFE Report Ref:	RL/T04053O1/5
TFS Project No:	T04053O1

The Institute of Freshwater Ecology is part of the Terrestrial and Freshwater Sciences Directorate of the Natural Environment Research Council.

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SUMMARY

Five samples from both batch A and batch B together with two blanks were reconstituted, extracted using C18 disks, concentrated, dried and analysed by capillary glc with PTV or split-splitless injection and detection by NPD, ECD or mass spectrometry (GC/MS). The following pesticides were determined: atrazine, simazine, fenitrothion, parathion and permethrin. The *cis* and *trans* isomers of permethrin were detected by GC/MS operated in SIM mode and quantified using the 183 amu target ion. The results of the pH and conductivity measurements of the water immediately after reconstitution are given together with the concentration of the pesticides in the water samples.

Information on reconstitution of the samples

BCR#	mass /g	volume water /ml	conductivity @ 25°C/ µS cm^{-1}	pH
5,blk	1.999	959.75	59.83	4.63
A158	2.400	960.23	60.07	4.63
A159	2.401	960.20	61.13	4.85
A160	2.400	960.47	67.43	4.64
A161	2.401	960.04	65.11	4.84
A162	2.400	960.23	61.44	4.79
Mean	**2.400**	**960.15**	**62.50**	**4.73**
4, blk	2.001	960.04	58.67	4.64
B160	2.401	960.34	50.27	5.17
B161	2.401	959.97	64.47	4.72
B162	2.401	960.17	62.64	4.76
B174	2.401	959.60	67.04	4.67
B189	2.401	960.29	59.7	4.87
Mean	**2.401**	**960.07**	**60.82**	**4.84**

The mean conductivity of samples from batch A based on 2.4 g of powder was 63.04 ± 3.11 µS cm^{-1} (CV = 4.9%). This compares with 65.24 ± 13.95 µS cm^{-1} obtained in the stability study with this sample.

The mean conductivity for batch B based on 2.6 g of powder was 65.89 ± 6.48 µS cm^{-1} (CV 9.8%). This compares with a mean of 63.51 ± 10.21 µS cm^{-1}.

CALIBRATION

Indicate below the concentration of the pesticides in the calibration standard(s) used and absolute quantities injected. If you use one calibration standard solution enter values in column 1. If you use upper and lower bracketing standards use columns 1 and 2. For calibration curves enter in columns 1,2,3, etc.

PAH	Standard 1		Standard 2		Standard 3		Standard 4	
Pesticides	µg/g	ng	µg/g	ng	µg/g	ng	µg/g	ng
Carbaryl	-	-	-	-	-	-	-	-
Atrazine	0.050	0.075	0.50	0.75	1.0	1.5		
Simazine	0.050	0.075	0.50	0.75	1.0	1.5		
Fenitrothion	0.032	0.048	0.32	0.48	0.64	0.96		
Parathion ethyl	0.048	0.072	0.48	0.72	0.96	1.44		
Fenamiphos	-	-	-	-	-	-	-	-
Propanil	-	-	-	-	-	-	-	-
Linuron	-	-	-	-	-	-	-	-
Permethrin c t	0.050 0.051	0.075 0.077	0.50 0.51	0.75 0.77	1.14 1.02	1.71 1.53		

Description of the method to evaluate the efficiency of the extraction and the possible losses during the clean up :

ESTIMATE OF RECOVERY (%)

compound	Test1	Test2	Test3	Mean	SD
Carbaryl	-	-	-	-	-
Atrazine	65.4	84.6	83.6	77.9	10.8
Simazine	64.6	84.2	83.5	77.4	11.1
Fenitrothion	47.0	78.0	80.4	68.5	18.6
Parathion-ethyl	66.7	82.9	83.3	77.6	9.5
Fenamiphos	-	-	-	-	-
Propanil	-	-	-	-	-
Linuron	-	-	-	-	-
Permethrin cis trans	41.7 50.1	51.6 64.6	74.6 87.2	66.8 67.3	17.0 18.7

Description of the method to evaluate the efficiency of the extraction and the possible losses during the clean up:

1. 1 litre pyrex bottle spiked with 2 ml of multistandard of: atrazine 0.50 µg/ml, simazine 0.50 µg/l, fenitrothion 0.32 µg/l, parathion 0.48 µg/ml as in 5% acetone/hexane. An aliquot of 2 ml of 0.5 µg/ml of *cis* and *trans* permethrin was added.

2. The solvent was evaporated using a stream of oxygen-free dry-nitrogen gas. This took approximately 15 mins.

3. 1 litre of HPLC grade water was added to each bottle and mixed on an orbital shaker in the dark at 20°C for 1 hour.

4. 5 ml of HPLC grade methanol added and then immediately extracted using C18 disks.

5. Extraction procedure as attached.

Average amount of pesticides (ng) in sample aliquot injected for quantification.

	Batch A	Batch B
Carbaryl	-	-
Atrazine	0.23	0.73
Simazine	0.72	0.40
Fenitrothion	0.034	0.031
Parathion ethyl	0.31	0.91
Fenamiphos		
Propanil		
Linuron		
cis-permethrin	0.009	0.009
trans-permethrin	0.057	0.014

REPORTING SHEET

Batch A

RESULTS: RAW DATA

Mass concentration ng/g

Replicate	1	2	3	4	5	Mean	SD
Carbaryl	-	-	-	-	-	-	-
Atrazine	0.306	0.336	0.298	0.489	0.441	0.374	0.086
Simazine	0.989	1.081	0.963	1.348	1.412	1.158	0.208
Fenitrothion	0.055	0.063	0.057	0.037	0.065	0.056	0.011
Parathion.et	0.397	0.465	0.415	0.600	0.616	0.499	0.103
Fenamiphos							
Propanil							
Linuron							
cis-perm	0.009	0.008	0.007	0.017	0.025	0.013	0.007
trans-perm	0.151	0.126	0.118	0.037	0.039	0.094	0.053

REPORTING SHEET

Batch B

RESULTS: RAW DATA

Mass concentration ng/g

Replicate	1	2	3	4	5	Mean	SD
Carbaryl	-	-	-	-	-	-	-
Atrazine	1.30	1.20	1.40	1.06	1.02	1.19	0.16
Simazine	0.753	0.635	0.738	0.560	0.555	0.648	0.095
Fenitrothion	0.115	0.045	0.028	0.049	0.010	0.049	0.041
Parathion.et	1.98	1.58	1.64	1.05	1.15	1.48	0.38
Fenamiphos							
Propanil							
Linuron							
cis-perm	0.014	0.011	0.013	0.018	0.018	0.015	0.003
trans-perm	0.021	0.017	0.022	0.029	0.028	0.023	0.005

REPORTING SHEET

Batch A

RESULTS: DATA CORRECTED FOR BLANK AND RECOVERY AND TO :
2.461g FOR BATCH A
2.663g FOR BATCH B

Mass concentration ng/g

Replicate	1	2	3	4	5	Mean	SD
Carbaryl	-	-	-	-	-	-	-
Atrazine	0.221	0.239	0.229	0.326	0.313	0.266	0.050
Simazine	0.930	0.983	0.957	1.075	1.213	1.032	0.115
Fenitrothion	0.039	0.045	0.045	0.016	0.0432	0.038	0.012
Parathion.et	0.393	0.444	0.433	0.500	0.551	0.464	0.062
Fenamiphos							
Propanil							
Linuron							
cis-perm	<0	<0	<0	0.001	0.009	<0	0.007
trans-perm	0.130	0.101	0.103	0.015	0.017	0.073	0.053

The results given for parathion have not been corrected for the blank. For sample this is 0.797 ug/g.

REPORTING SHEET

Batch B

RESULTS: DATA CORRECTED FOR BLANK AND RECOVERY AND TO :
2.461g FOR BATCH A
2.663g FOR BATCH B

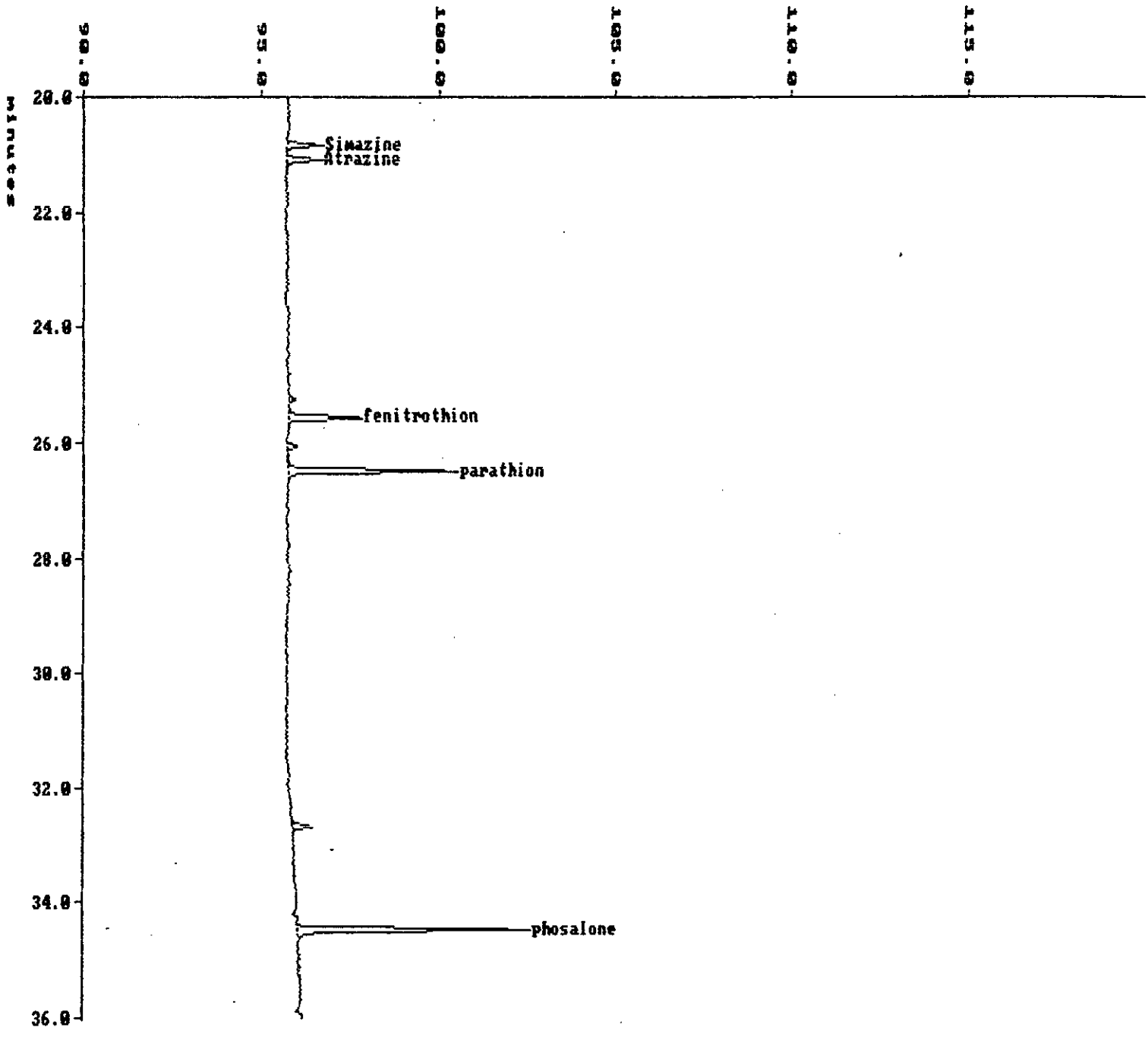
Mass concentration ng/g

Replicate	1	2	3	4	5	Mean	SD
Carbaryl	-	-	-	-	-	-	-
Atrazine	1.23	1.25	1.28	1.16	1.14	1.21	0.06
Simazine	0.710	0.654	0.665	0.607	0.614	0.650	0.042
Fenitrothion	0.103	0.035	0.013	0.044	-0.002	0.039	0.040
Parathion.et	2.04	1.79	1.61	1.26	1.40	1.62	0.31
Fenamiphos							
Propanil							
Linuron							
cis-perm	0.014	0.012	0.013	0.022	0.022	0.017	0.005
trans-perm	0.022	0.019	0.021	0.035	0.034	0.026	0.008

The results given for parathion have not been corrected for the blank. For sample B this is 0.770 ug/g.

File : RUNB__03.DQ1 0.05 std D. Ove
Run : 01 Queue : DOUG Set Number : 1 Type : Sample
Collection : 16:03:23 Sep 10 1992 Method : BCROPT [14:22:55 Sep 10 1992]

(RUNB__03.DQ1) mV



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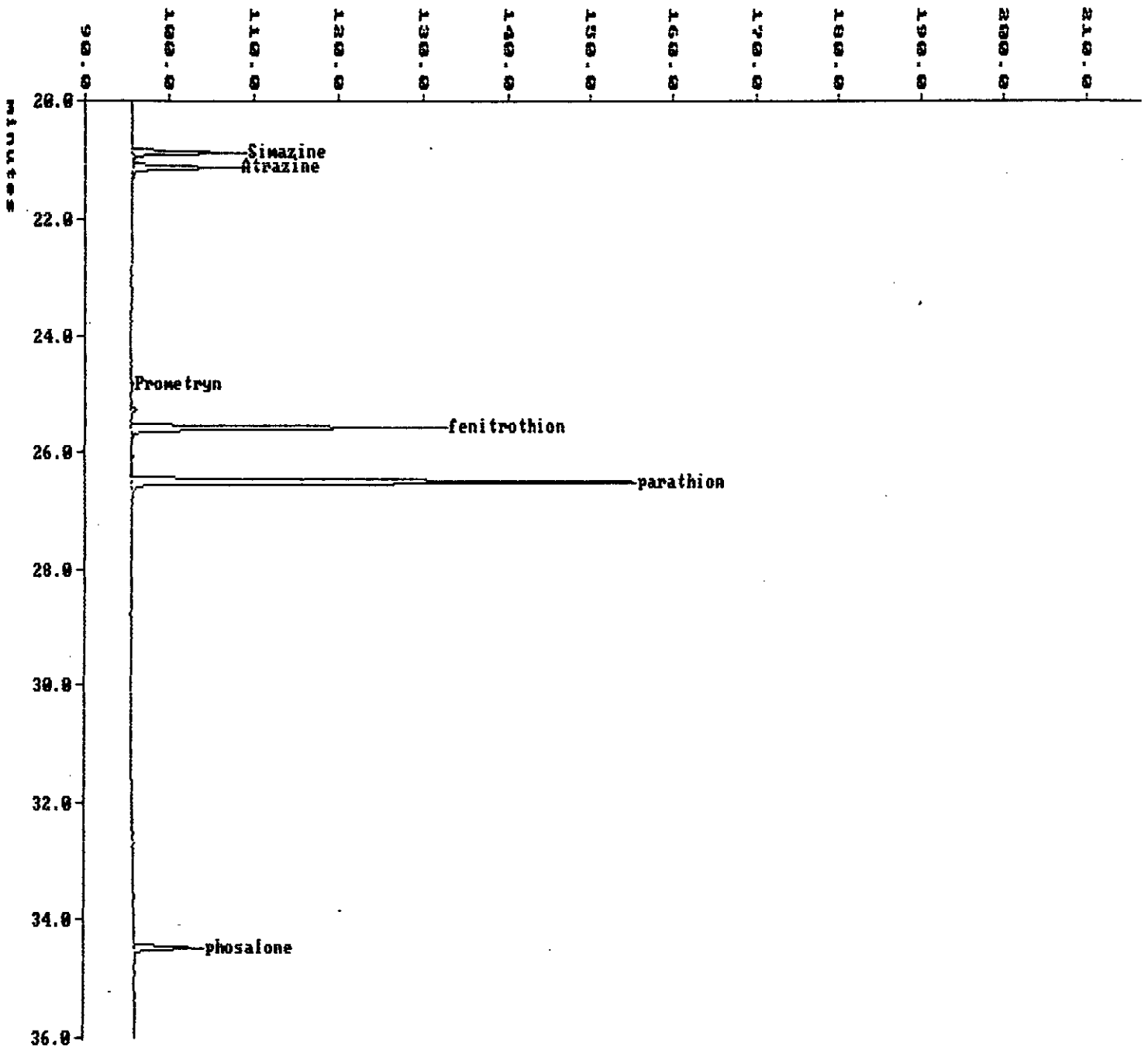
Run : 01 Queue : DOUG Set Number : 1 Type : Sample
Collection : 16:58:51 Sep 10 1992 Method : BCROPT [14:22:55 Sep 10 1992]

TT

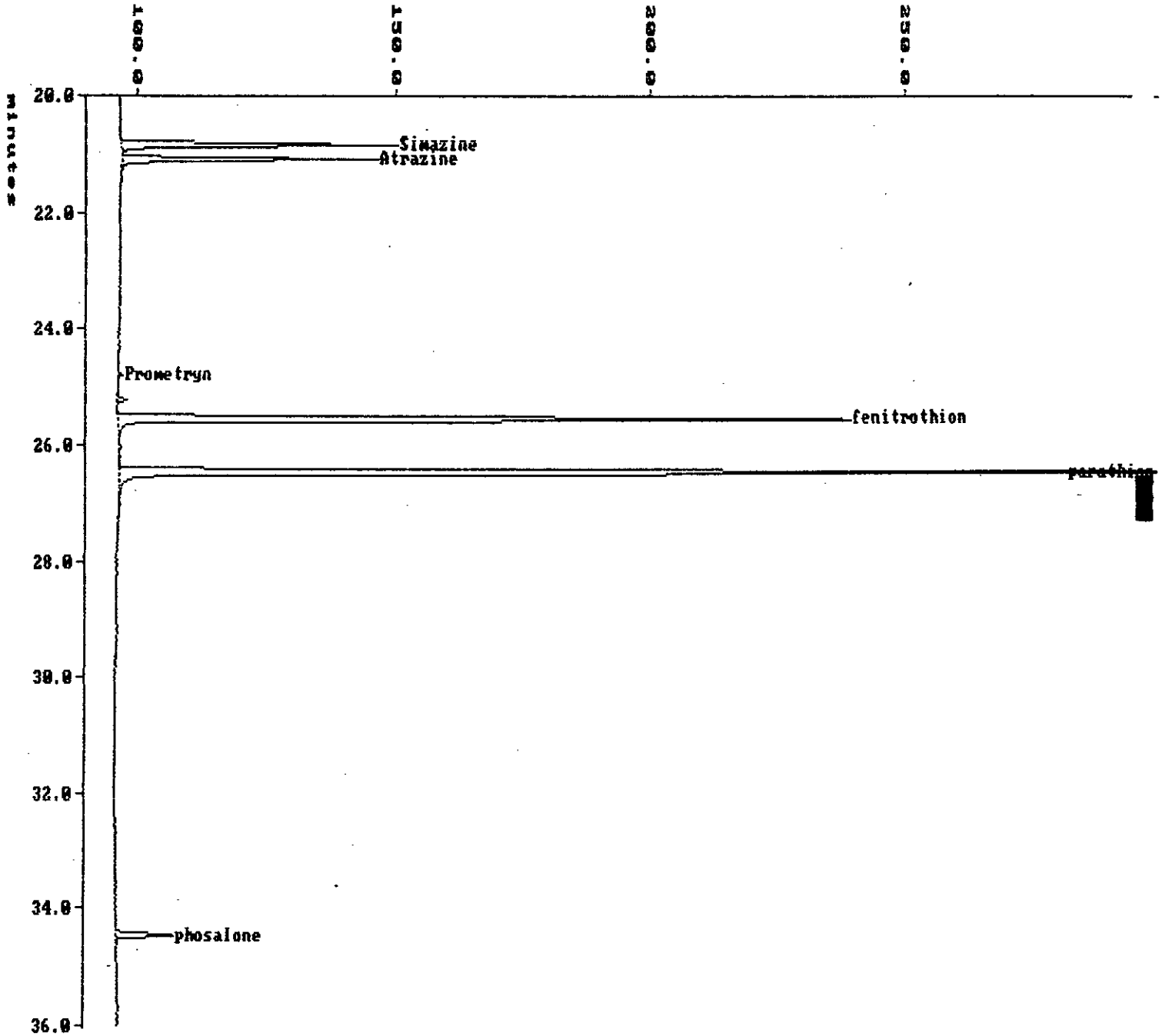
(RUNB__04.D01) mV



File : RUNB__05.D01 1.0 std D. Ow
Run : 01 Queue : DOUG Set Number : 1 Type : Sample
Collection : 17:46:43 Sep 10 1992 Method : RCROPT [14:22:55 Sep 10 1992]

12

(RUNB__05.D01) mV



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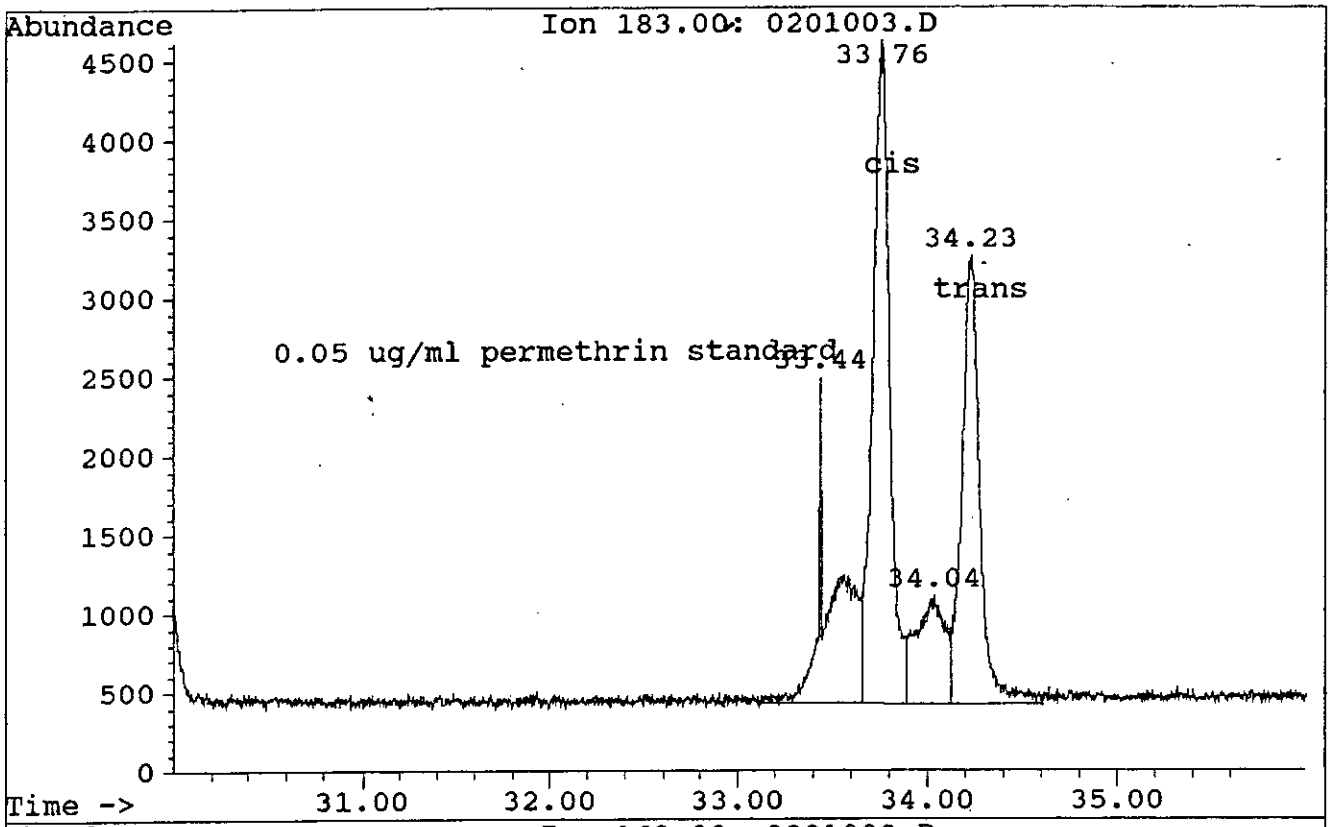
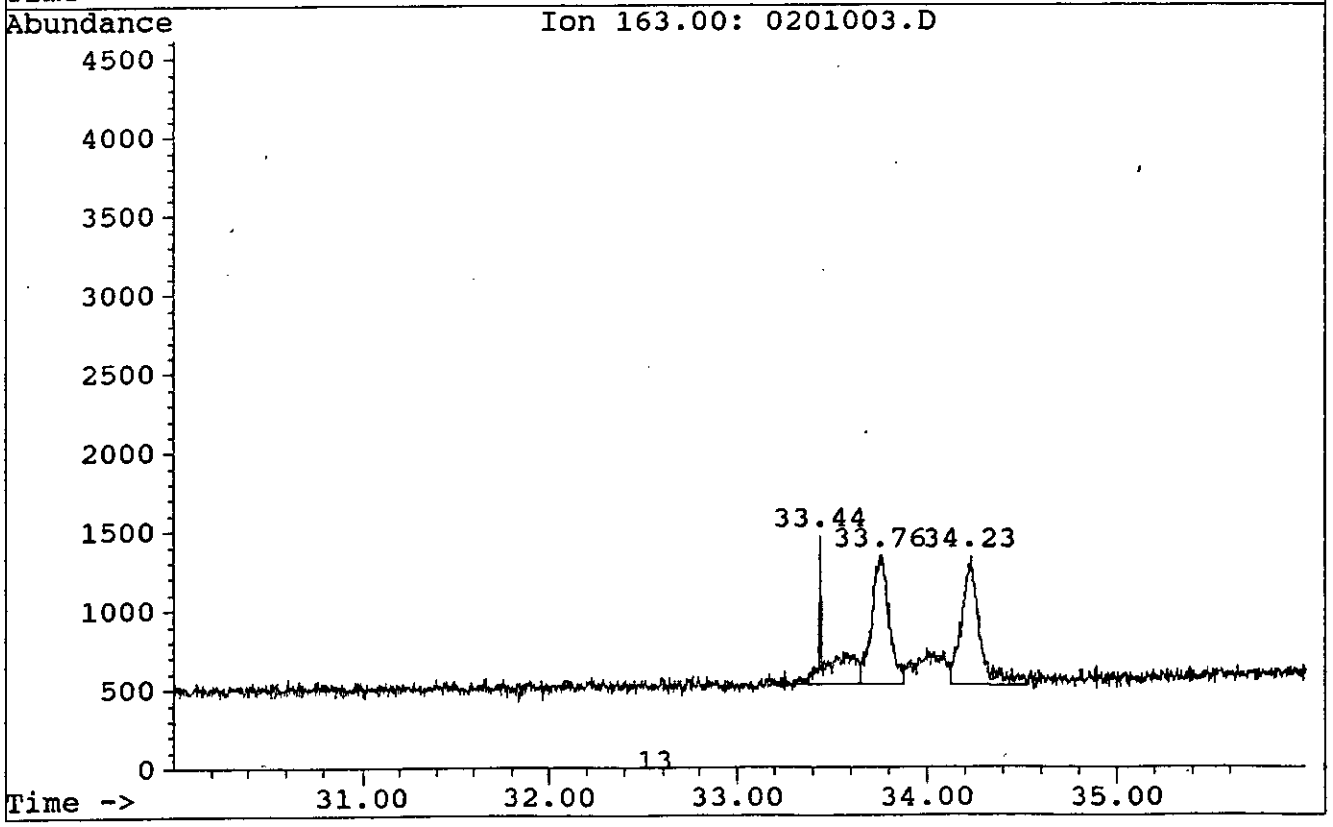
Operator: wah
Date Acquired: 18 Sep 92 11:28 am
Method File: permalan.M
Sample Name: 0.05 std
Misc Info:
ALS vial: 2





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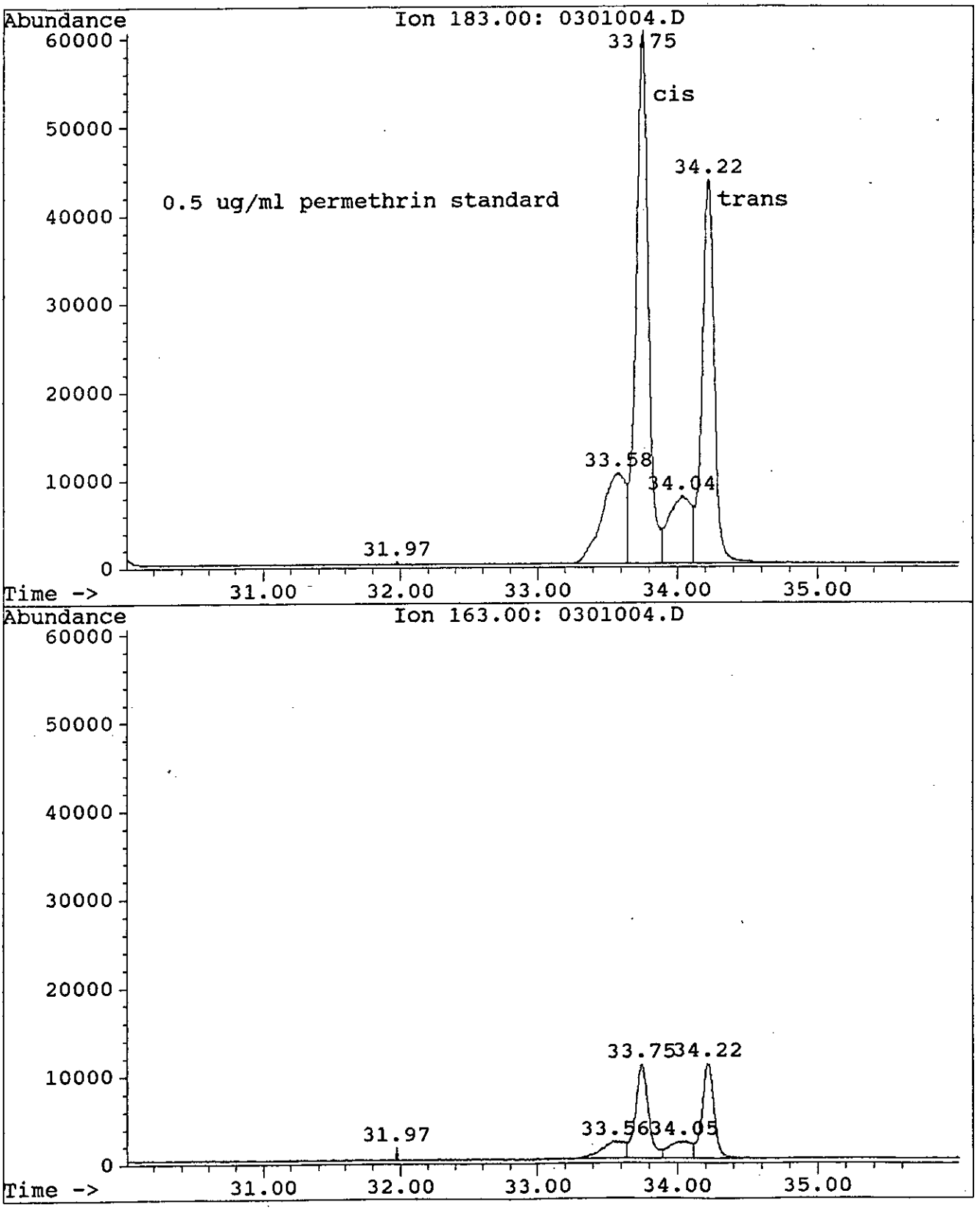
Date Acquired: 18 Sep 92 12:26 pm
Method File: permalan.M
Sample Name: 0.5 std
Misc Info:
ALS vial: 3



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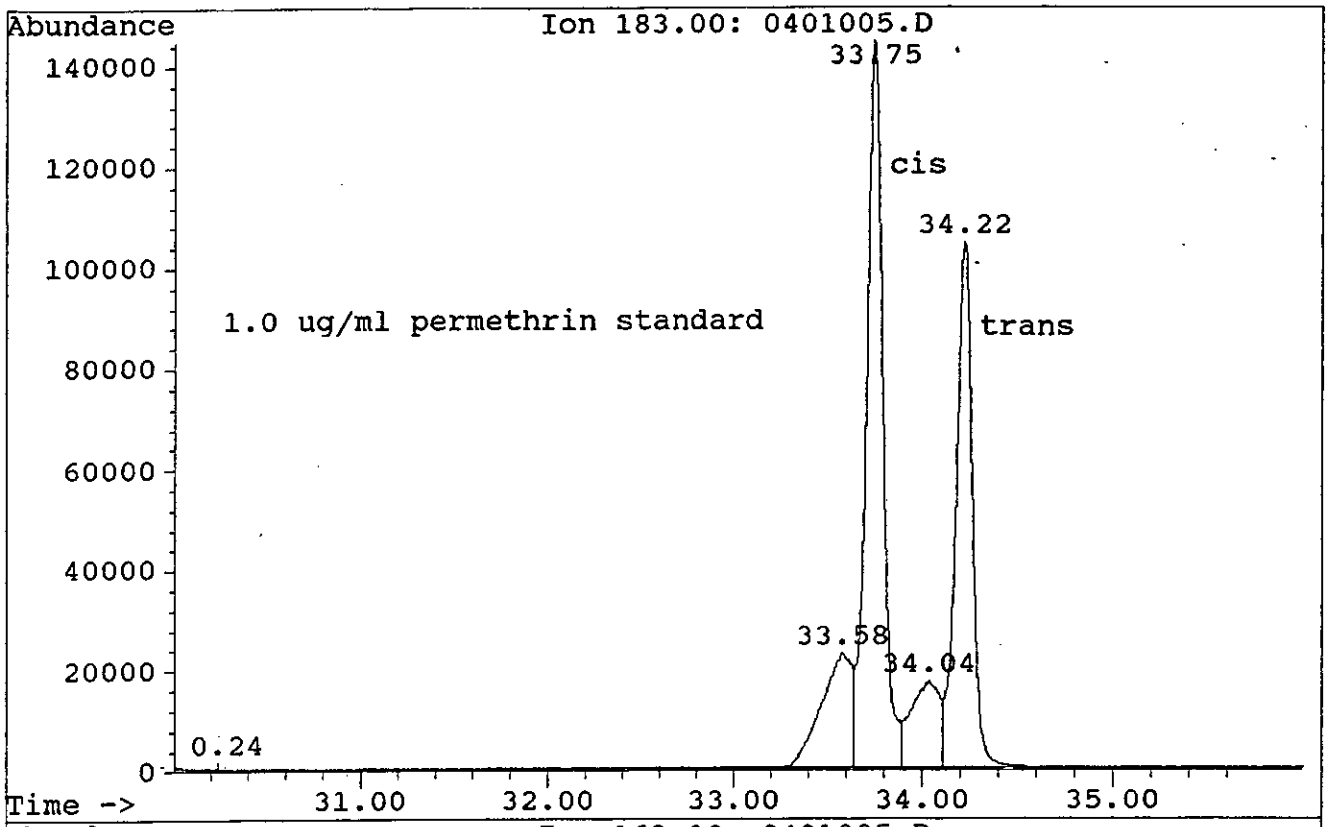
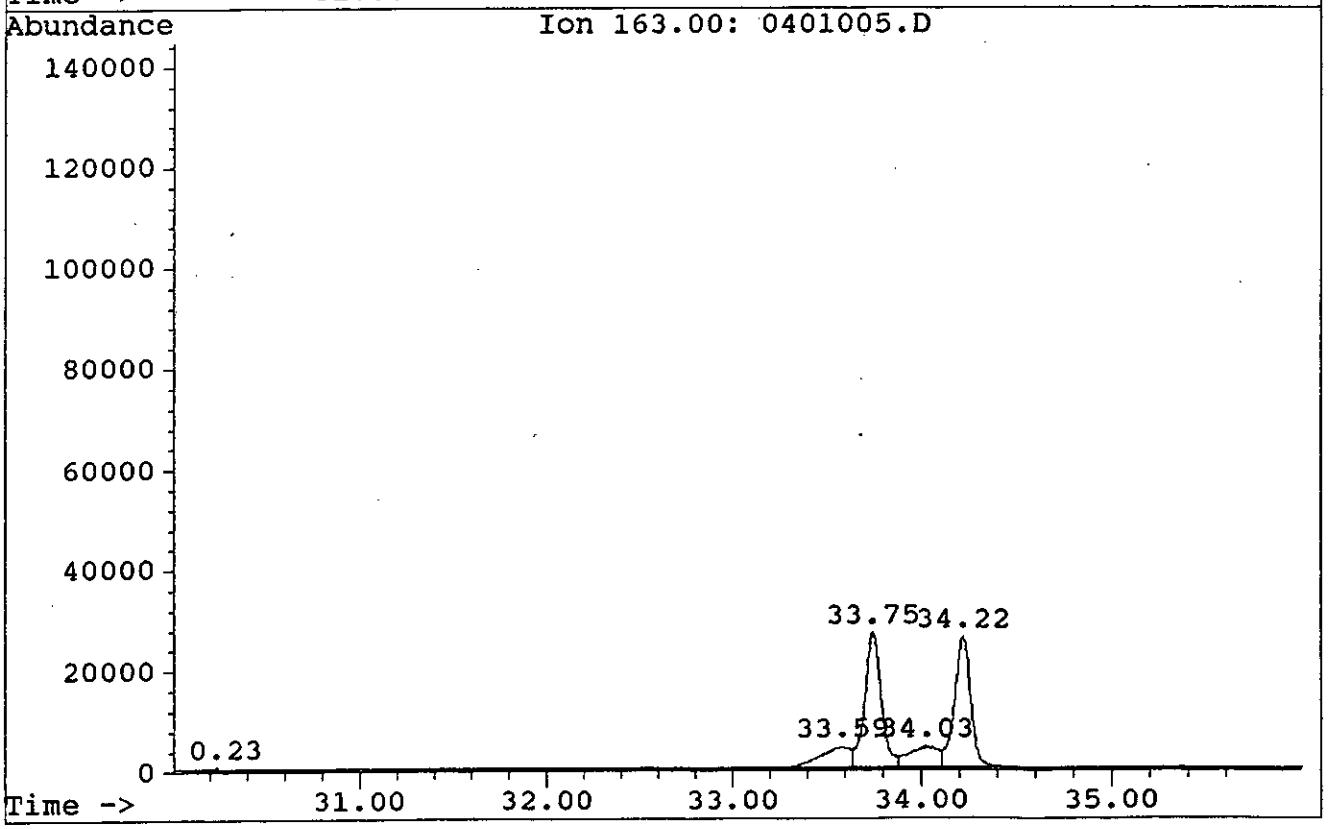
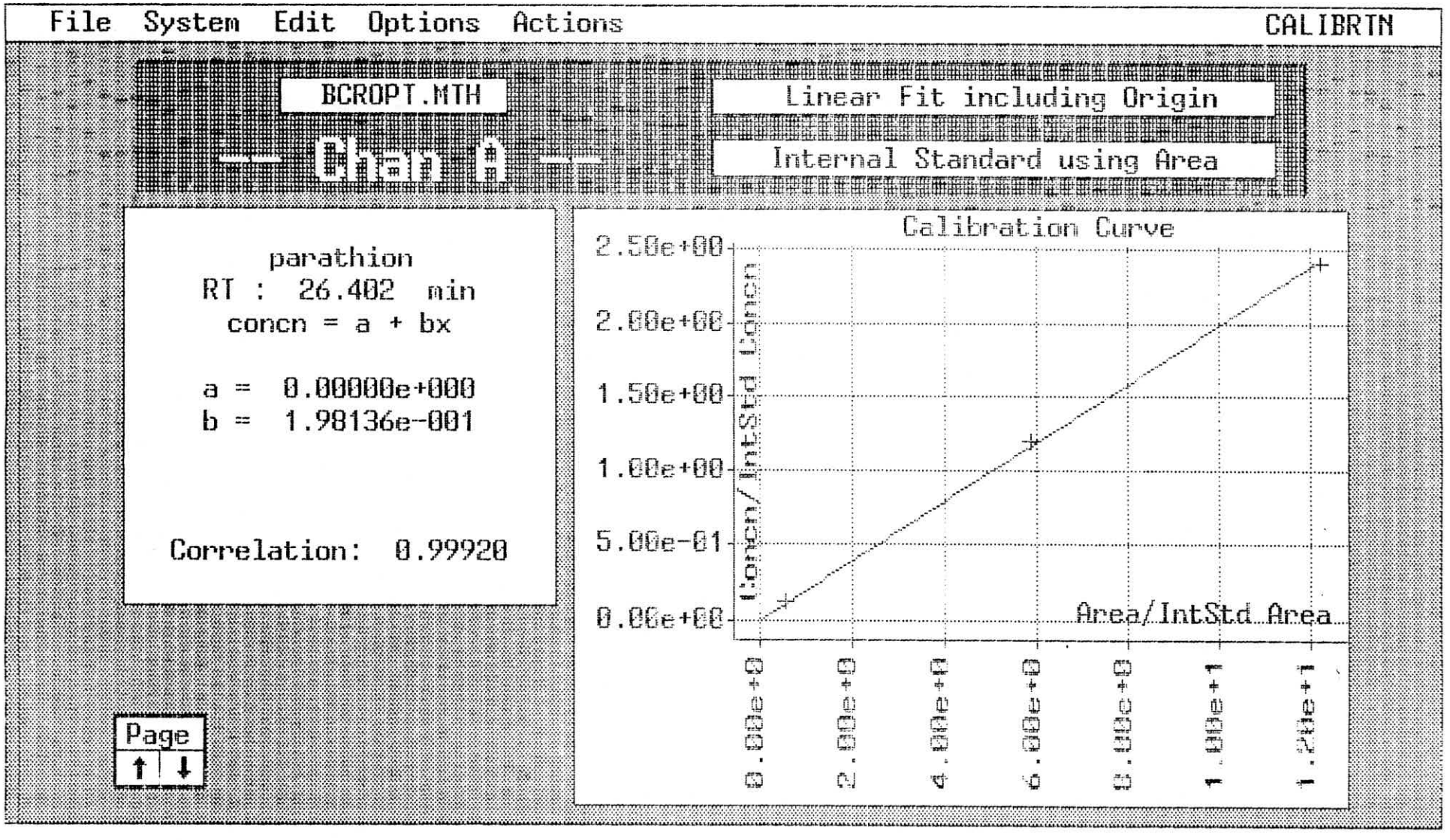
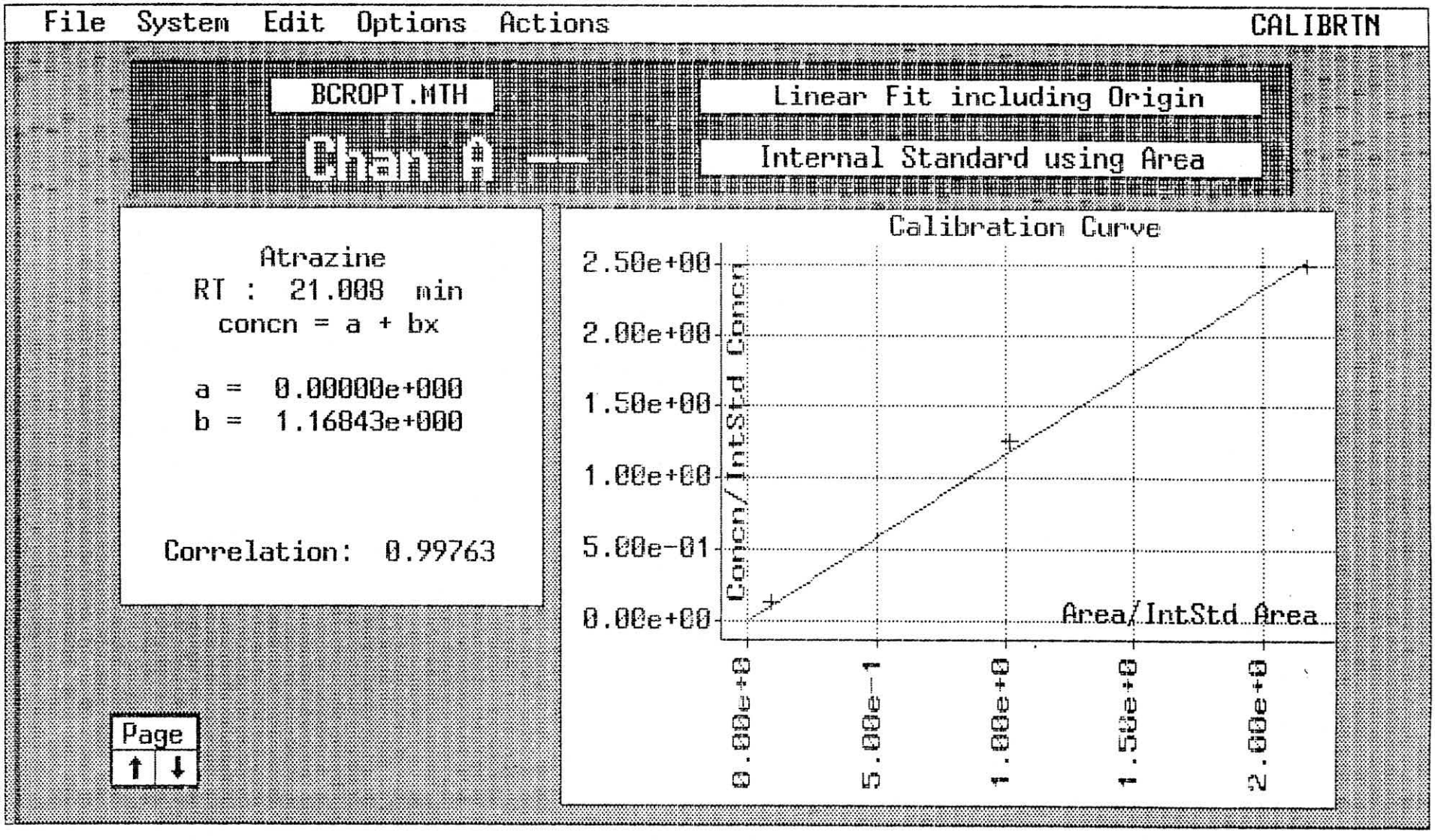
Operator: wah
Date Acquired: 18 Sep 92 1:23 pm
Method File: permalan.M
Sample Name: 1.0
Misc Info:
ALS vial: 4






File System Edit Options Actions
CALIBRTN
BCROPT.MTH
Area
Linear Fit including Origin
Internal Standard using Area
parathion
RT : 26.402 min
concn = a + bx
a = 0.00000e+000
b = 1.98136e-001
Correlation: 0.99920
Page
Calibration Curve
2.50e+00
2.00e+00
1.50e+00
1.00e+00
5.00e-01
0.00e+00
Concn/ IntStd Concn
Area/IntStd Area
0.00e+0
2.00e+0
4.00e+0
6.00e+0
8.00e+0
1.00e+1
1.20e+1


File System Edit Options Actions
CALIBRTN
BCROPT.MTH
Linear Fit including Origin
Internal Standard using Area
Atrazine
RT : 21.008 min
concn = a + bx
a = 0.00000e+000
b = 1.16843e+000
Correlation: 0.99763
Page
Calibration Curve
Concn/IntStd Concn
Area/IntStd Area
2.50e+00
2.00e+00
1.50e+00
1.00e+00
5.00e-01
0.00e+00
0.00e+0
5.00e-1
1.00e+0
1.50e+0
2.00e+0

File System Edit Options Actions CALIBRTN

BCROPT.MTH

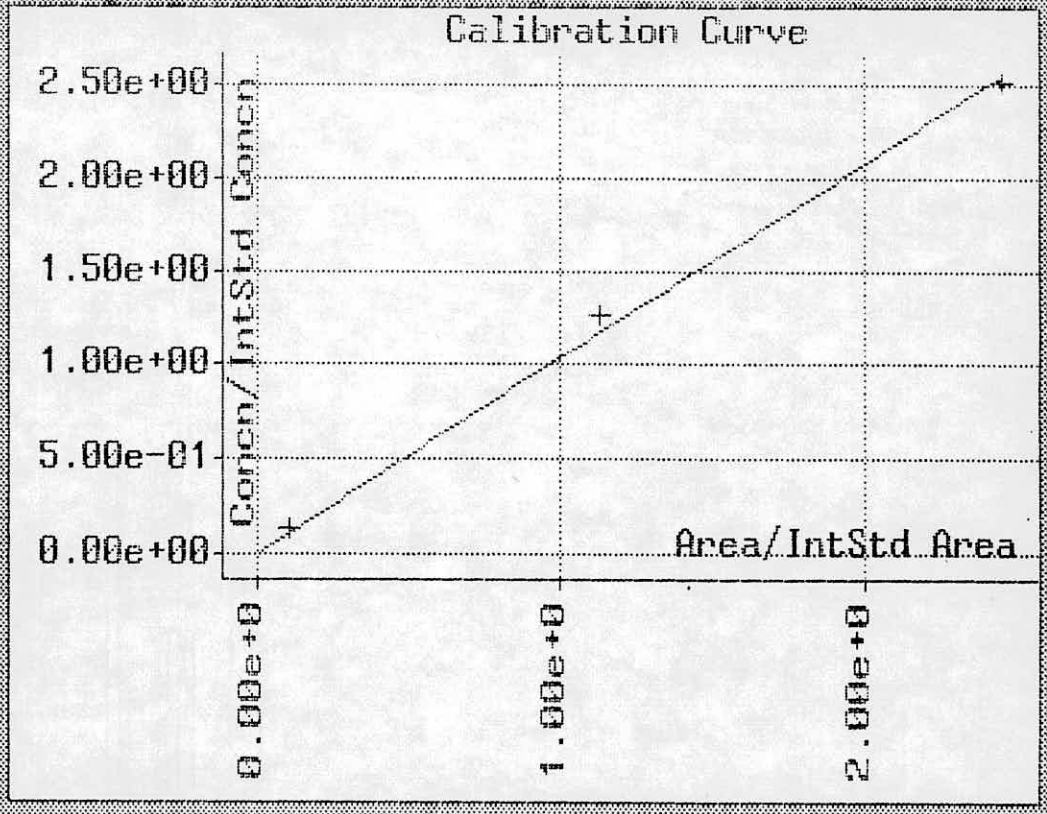
Linear Fit including Origin

Internal Standard using Area

Simazine
RT : 20.755 min
concn = a + bx

a = 0.00000e+000
b = 1.03756e+000

Correlation: 0.99651



Page

File System Edit Options Actions CALIBRTN

BCROPT.MTH

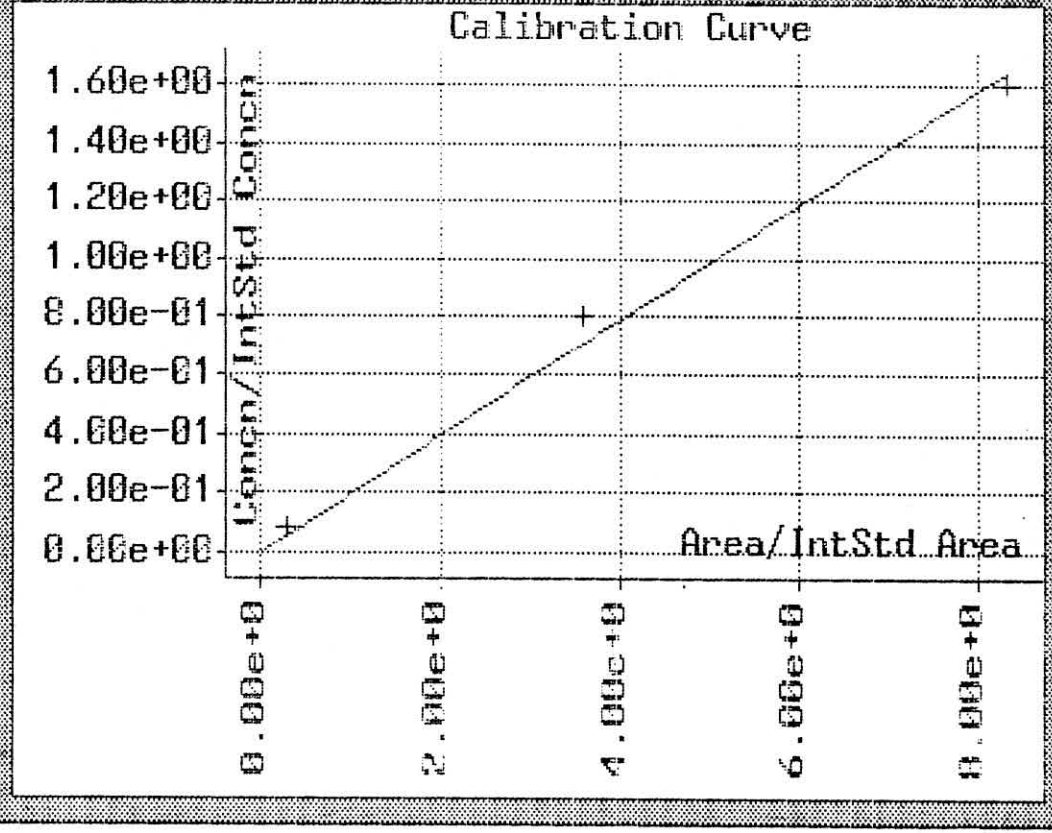
Linear Fit including Origin

Internal Standard using Area

Fenitrothion
RT : 25.454 min
concn = a + bx

a = 0.00000e+000
b = 1.97520e-001

Correlation: 0.98989



Page

File System Edit Options Actions CALIBRTN

BCROPT.MTH

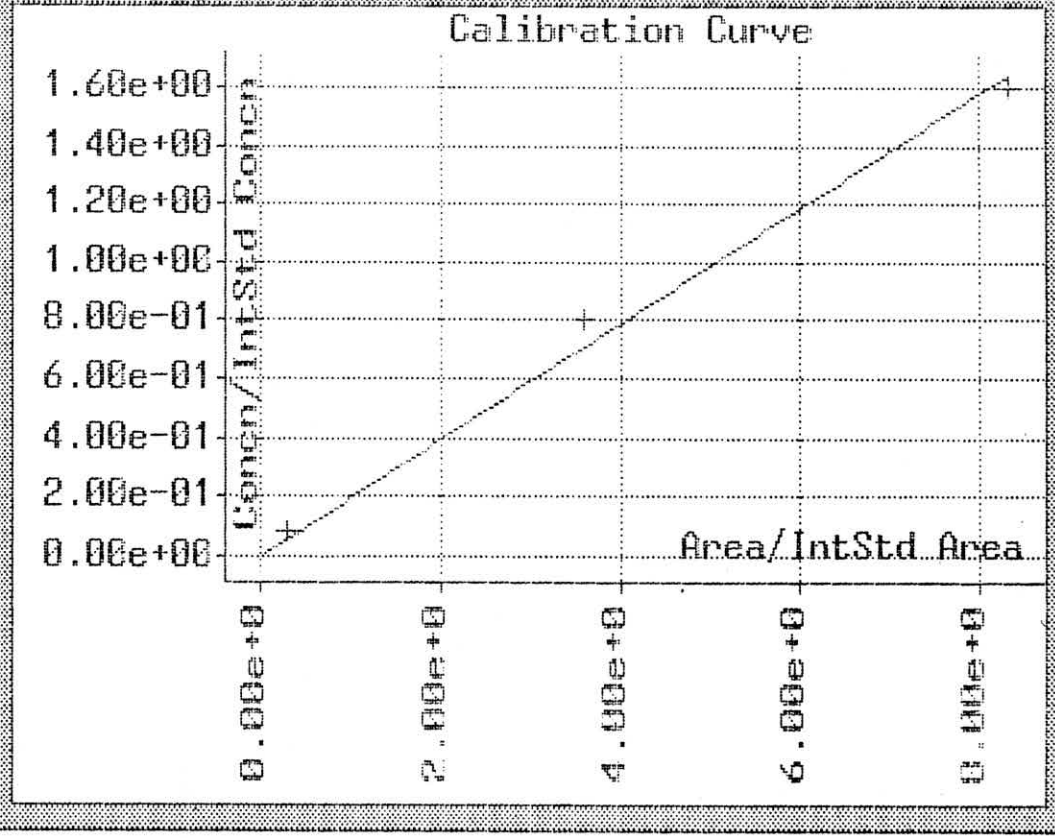
Linear Fit including Origin

Internal Standard using Area

Fenitrothion
RT : 25.454 min
concn = a + bx

a = 0.00000e+000
b = 1.97520e-001

Correlation: 0.98989



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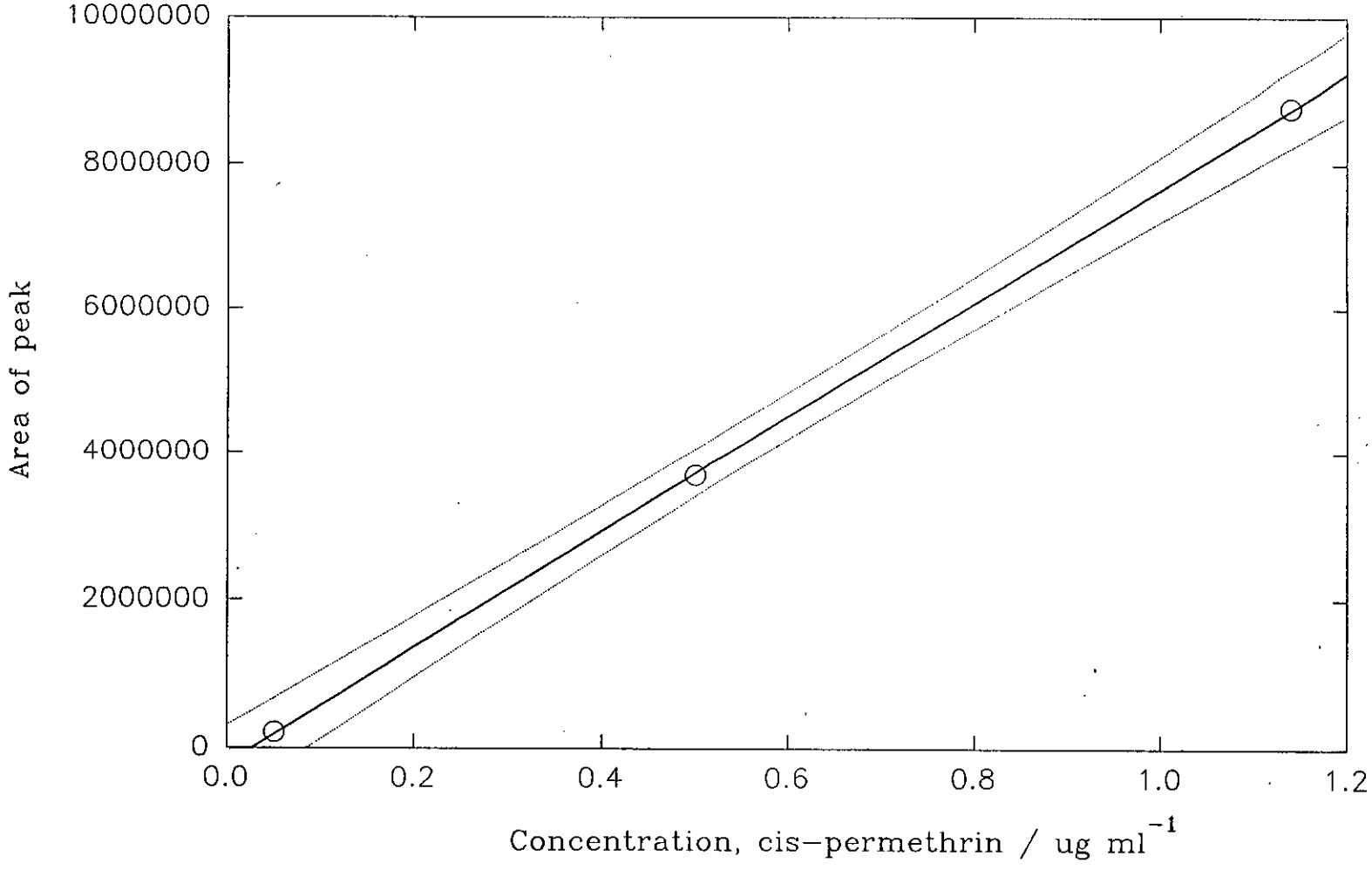
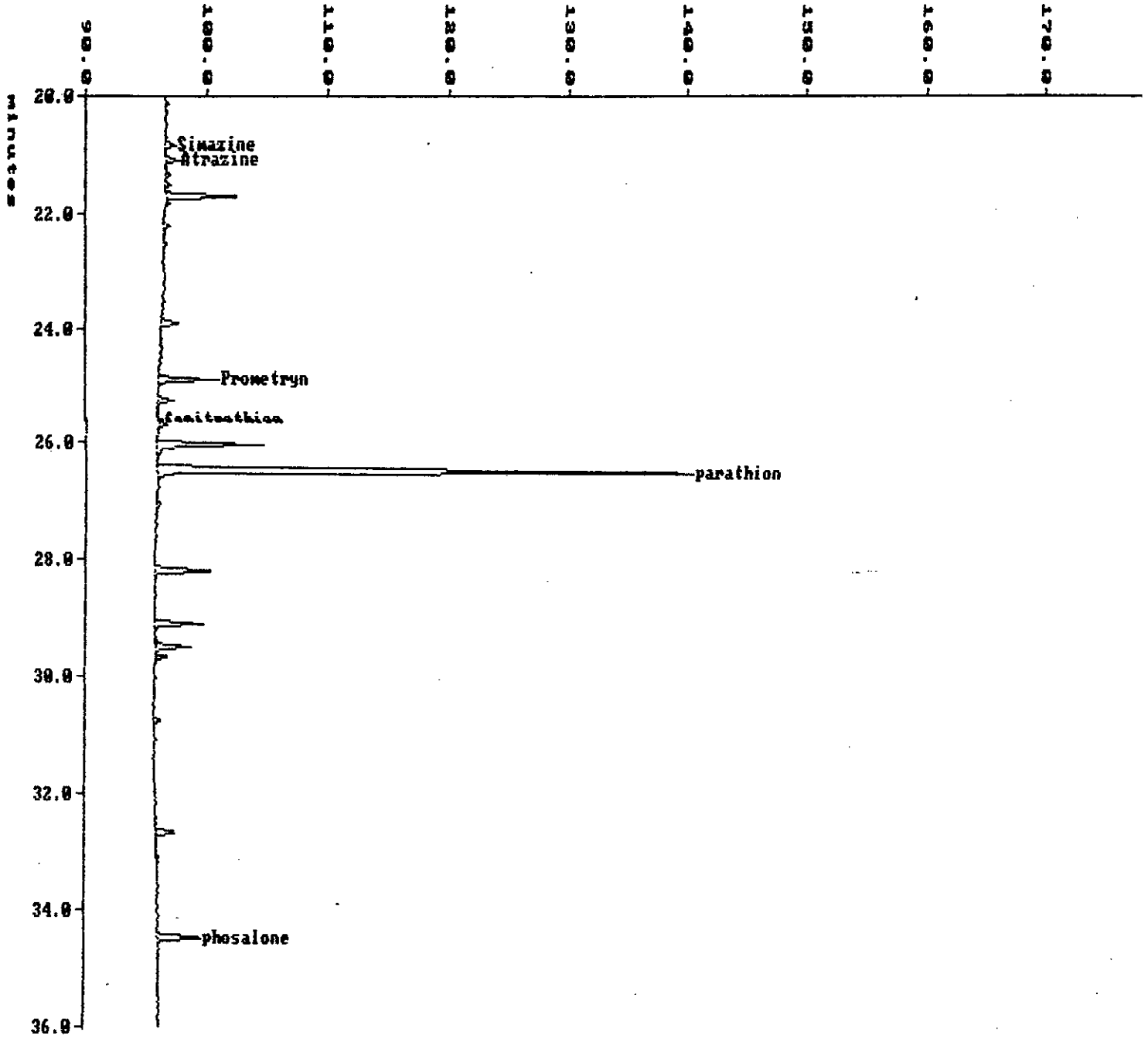


Calibration line showing regression line and 95% confidence limits

File : RUNR_06.D01
ethyl acetate cp
B. Ope
Run : 01
Queue : DOUC
Set Number : 1
Type : Sample
Collection : 18:34:50 Sep 10 1992
Method : DCROFT
[14:22:55 Sep 10 1992]
(RUNR_06.D01) uV
170.0
160.0
150.0
140.0
130.0
120.0
110.0
100.0
90.0
20.0
22.0
24.0
26.0
28.0
30.0
32.0
34.0
36.0
minutes
phosalone

File : RUNB__07.DQ1 sp. blank D. Ovr
Run : 01 Queue : DOUG Set Number : 1 Type : Sample
Collection : 19:22:55 Sep 10 1992 Method : BCROPT [14:22:55 Sep 10 1992]

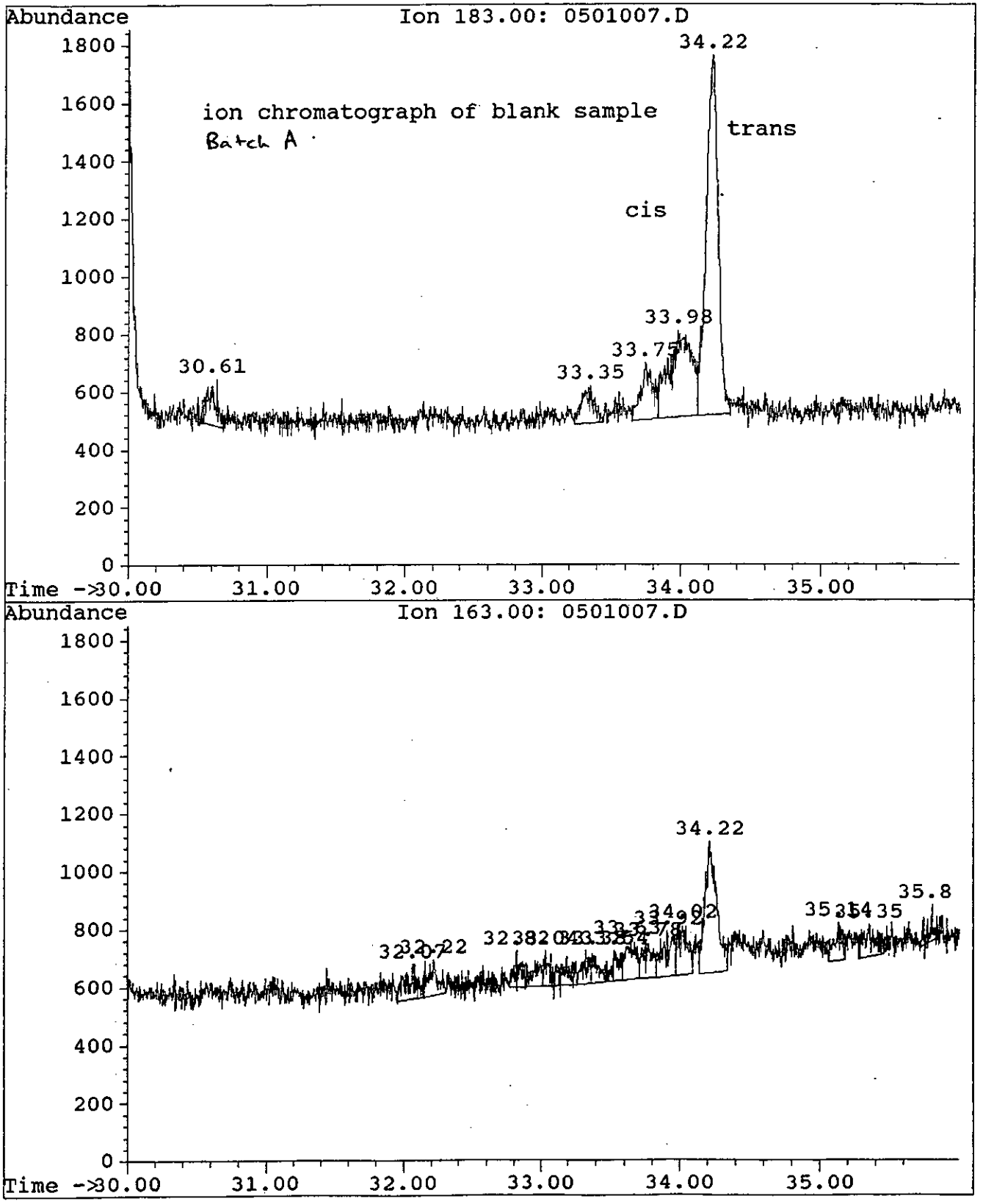
(RUNB__07.DQ1) mV



File : MAIN_88.D01
Run : 01
Collection : 22:46:39 Sep 08 1992
Sq: RCR 158
Queue : DOUG
Set Number : 1
Method : OPTRIA
[10:18:12 Sep 03 1992]
a DOUG:
Type : Sample
(MAIN_88.D01) mV
210.0
200.0
190.0
180.0
170.0
160.0
150.0
140.0
130.0
120.0
110.0
100.0
90.0
20.0
22.0
24.0
26.0
28.0
30.0
32.0
34.0
36.0
minutes
Simazine
Atrazine
Prometryn
Fenitrothion
Parathion
Phosalone

File : RUNB__88.D01
Exp. BCR 168
D. Dpp
Run : 01
Queue : DOUG
Set Number : 1
Type : Sample
Collection : 28:18:54 Sep 18 1992
Method : BCROPT
[14:22:55 Sep 18 1992]
(RUNB__88.D01) pA
Simazine
Atrazine
Prometryn
Fenitrothion
Parathi
Phosalone
minutes
26.0
22.0
24.0
26.0
28.0
30.0
32.0
34.0
36.0
90.0
100.0
110.0
120.0
130.0
140.0
150.0
160.0
170.0
180.0
190.0
200.0
210.0

File: C:\CHEMPC\DATA\BCR3\0501007.D
Operator: wah
Date Acquired: 18 Sep 92 3:18 pm
Method File: permalan.M
Sample Name: blank
Misc Info:
ALS vial: 5



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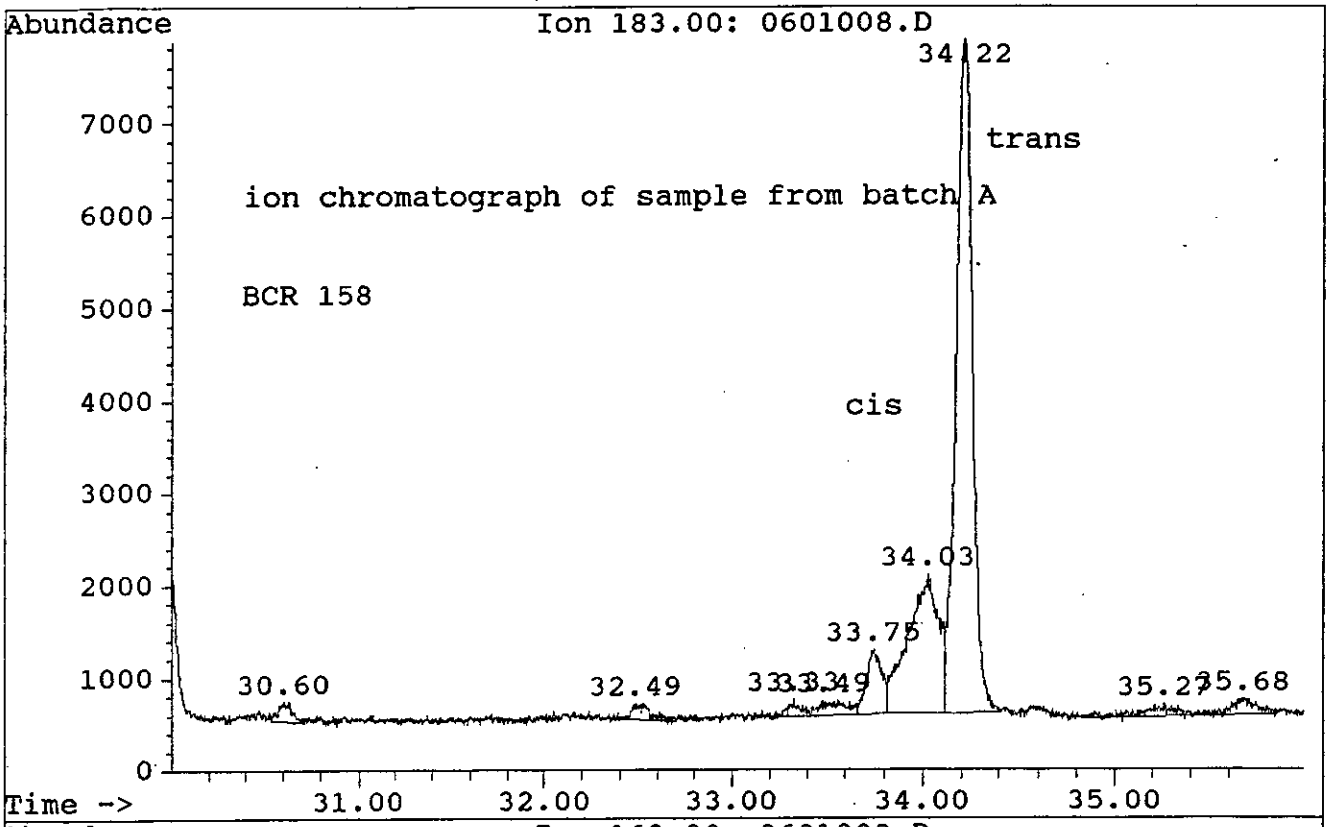
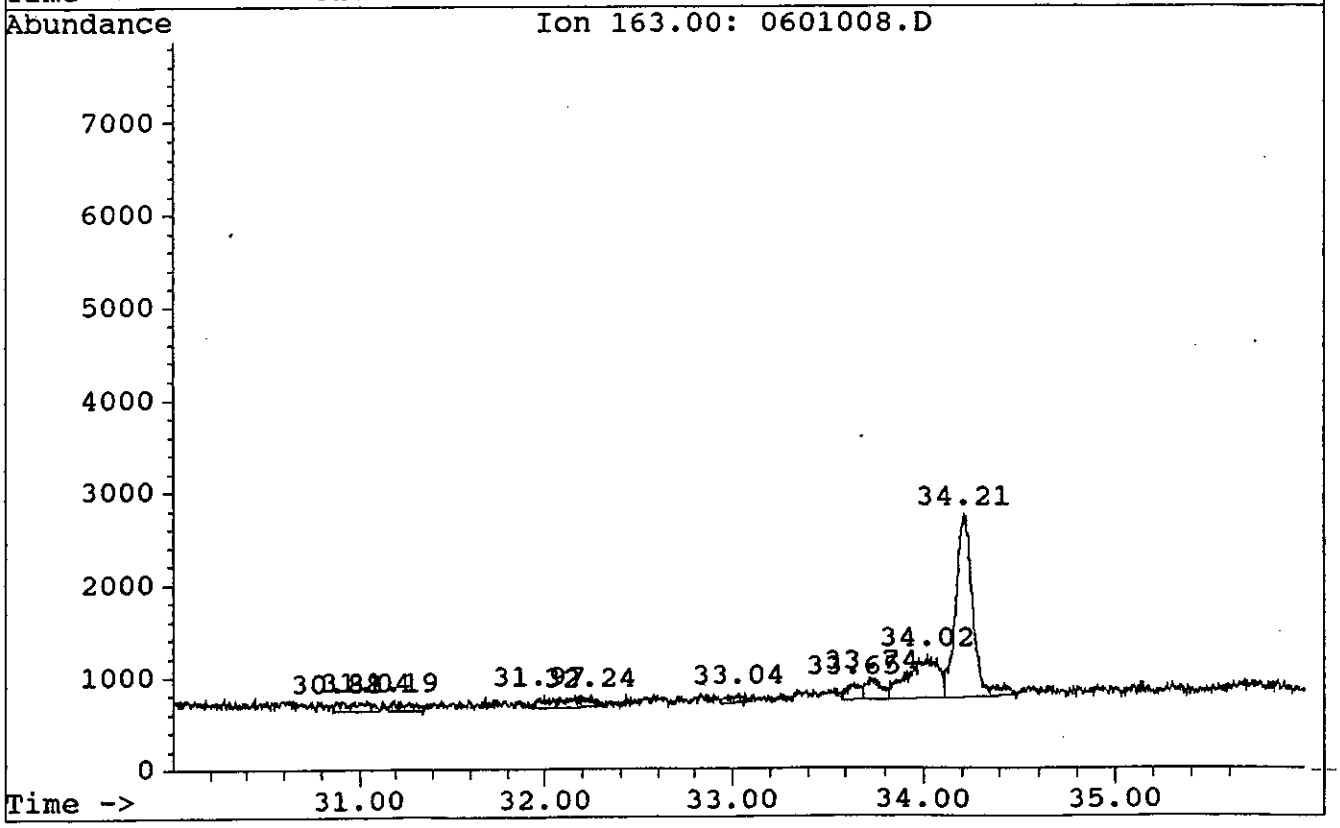
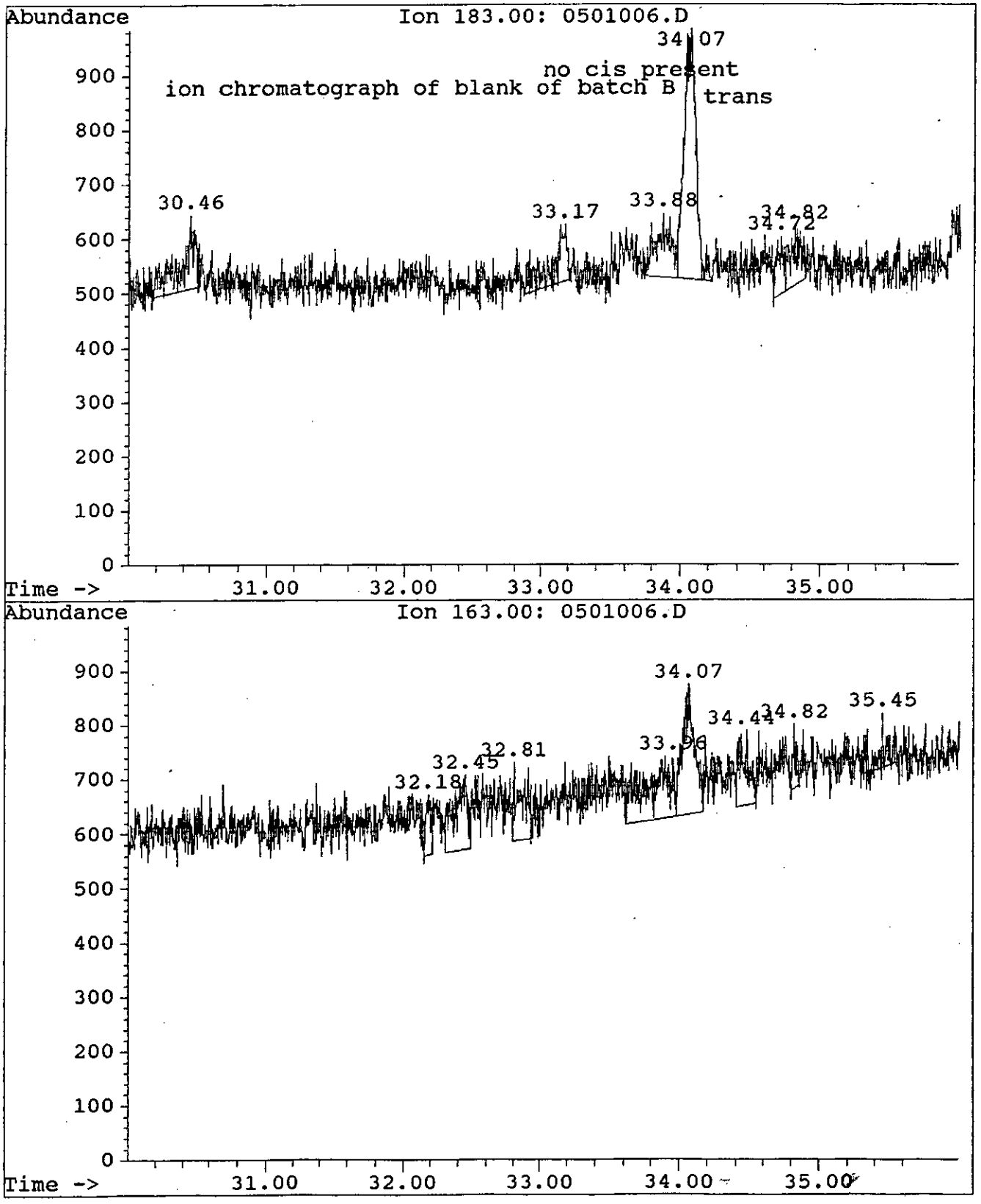
Operator: wah
Date Acquired: 18 Sep 92 4:16 pm
Method File: permalan.M
Sample Name: 158
Misc Info:
ALS vial: 6

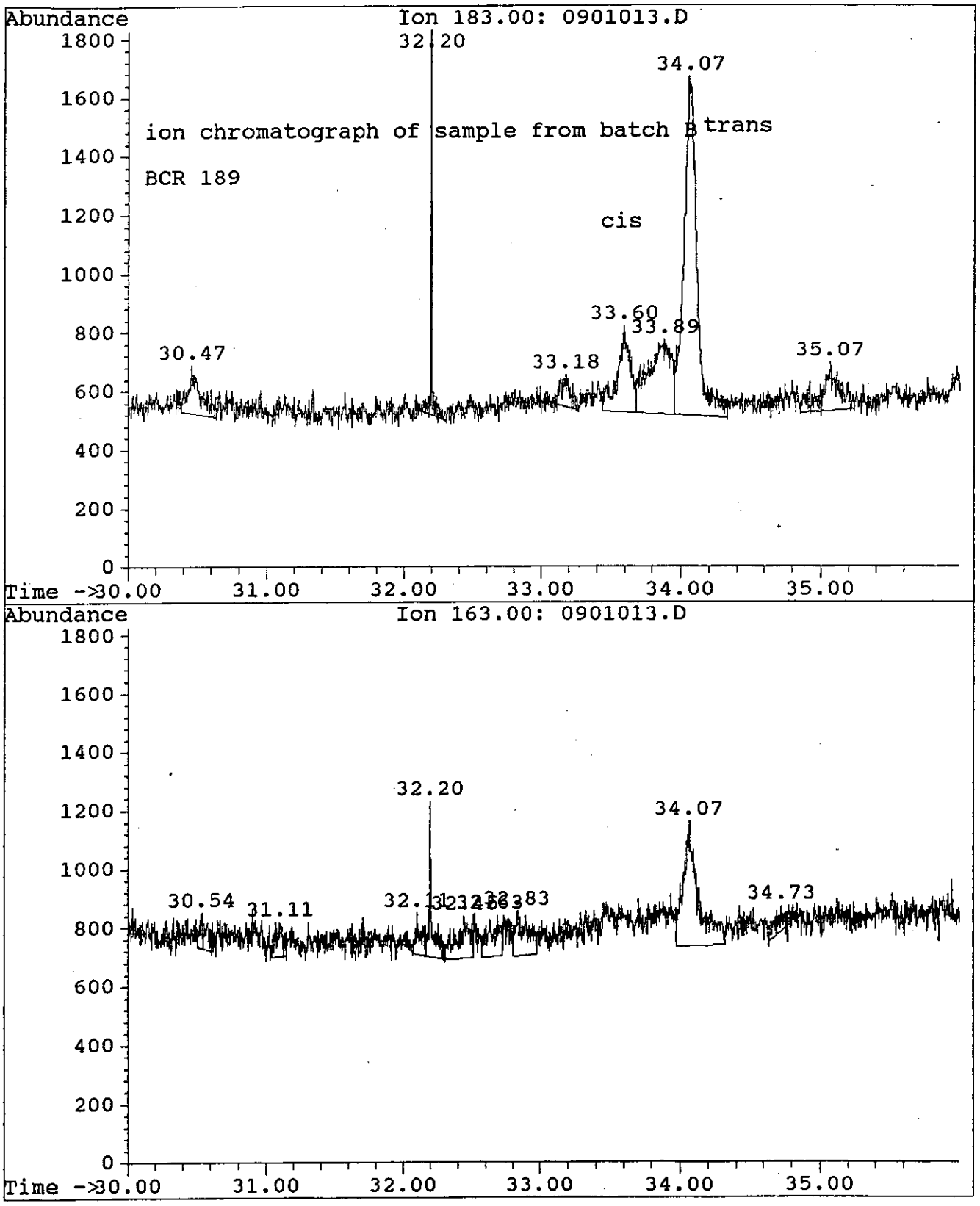




File: C:\CHEMPC\DATA\BCR4\0501006.D
Operator: wah
Date Acquired: 19 Sep 92 7:25 pm
Method File: permalan.M
Sample Name: blank
Misc Info:
ALS vial: 5



File: C:\CHEMPC\DATA\BCR4\0901013.D
Operator: wah
Date Acquired: 20 Sep 92 2:10 am
Method File: permalan.M
Sample Name: 189
Misc Info:
ALS vial: 9



BCR INTERCALIBRATION OF PESTICIDES IN TWO BATCHES OF LYOPHILISED WATER (A and B)

Protocol for reporting the results

1.General

1.1. Five independent analyses should be done. One from each of the five bottles for each batch (Batch A and B) by adequate chromatographic technique (GC or LC) with an appropriate detector.

1.2 An estimation of the recovery of the pesticides from one liter of water will be made by a standard addition of a known amount of each pesticide or by reextraction. The final concentration of pesticides spiked in the water varies between 0.1-10 ppb. It is recommended that this recovery is estimated at least in triplicate.

1.3. The pesticides which will be determined are: Carbaryl, Atrazine, Simazine, Fenitrothion, Parathion-ethyl, Fenamiphos, Propanil, Linuron. Although the lyophilised water showed inhomogeneity for Permethrin, its concentration can be estimated.

1.4. Reconstitution of the freeze-dried water samples
The reconstitution process will be performed according to the reconstitution method given in annex 2 of the minutes of the meeting held in Brussels on the 19 February 1992. It should be considered that the amounts of freeze-dried water corresponding to one liter sample are:
for batch A..... 2.461 g
for batch B.....2.663 g
for blank.....2.268 g

1.5 The analyses will be performed by an extraction, clean-up and fractionation method chosen by the laboratory given in the proposal work.

1.6. The final determinations will be made by capillary GC or LC using an appropriate detector.

1.7. In gas chromatography at least two columns of different polarity or different detectors must be used to confirm the identity and purity of each pesticide. The choice of the columns and detectors is left to the participants. For HPLC the use of two columns is recommended.

1.8. For GC analysis at least one internal standard will be used for the final determination. For HPLC the use is recommended.

1.9. In addition to the attached forms being completed the participants will provide the following:
   a) a linearity plot of peak height/mass injected against mass injected for each pesticide
   b) a chromatogram of the own standard solution
   c) a chromatogram of the sample
   d) a chromatogram of the blank

1.10. All basic data should be provided on the forms supplied. The results should be given with at least three significant figures. Additional information is welcomed, but should be appended in an annex to the forms supplied.

1.11. All reports to be in Brussels before **1 October 1992**.

Annex 1

PROCEDURE

0 Tick with x if appropriate

1 SAMPLE INTAKE FOR RECONSTITUTION (POWDER AND WATER) 0

Blank sample: 2.000 g 1000 ml Hplc grade water

Batch A 2.400 ± 0.001 g 1000 ml Hplc grade water

Batch B 2.400 ± 0.001 g 100 ml Hplc grade water

2 EXTRACTION

2.1 - Sample size ..960 ml.....x

2.2 - Internal standard for extraction efficiency

. compound ..Prometryn.....

. quantity ..0.5 ug.....x

. final concentration in sample.....0.5 ng/g.....x

2.3 - Extractant(s) ..Octadecyl C18 extraction disks.....

2.4 - Volume of extractant(s)

1st step .....ml

2st step .....ml

3st step .....ml

2.5 - Solid phase extraction

. off line ✓

. on line

. material used

2.6 - Mixing during extraction(s)

. shaking by hand ✓ 0

. ultrasonic 0

. mechanical 0

. soxhlet 0

2.7 - Drying of the raw extract (specify) 0

. Sodium sulphate column dried at 160 °C
and eluted with ethyl acetate
.....

2.8 - Concentration of the raw extract (specify) 0

... Nitrogen - oxygen & water free vol...
... surface of solvent.....
.....

2.9 - Final volume of the raw extract.....2.3.....ml

Concentration sample in extractant.....mg/ml

2.10 - Remarks

.....

.....

.....

3 CLEAN UP OF THE RAW EXTRACT None

- GPC 0

  . type of column: .....

  . eluent: .....

  flow rate: .....ml/min

  . volume (main) fraction(s): 1st .....ml

  2st .....ml

  3st .....ml

- HPLC (specify) 0

  . adsorbent: .....

  . eluent: .....

  flow rate: .....ml/min

  . volume (main) fraction(s): 1st .....ml

  2st .....ml

  3st .....ml

- column chromatography (specify) 0

  . adsorbent

  Florisil (specify) 0

  .....

  Silicagel (specify) 0

  .....

  Alumina (specify) 0

  .....

  Other(s) (specify) 0

  .....

. eluent(s) (specify): 1st .....

2st .....

3st .....

. volume fraction(s): 1st .....ml

2st .....ml

3st .....ml

- Other(s) (specify) 0

.....

.....

- remarks .....

.....

.....

3.1 Amount of sample used for clean-up: .....mg

4 CONCENTRATION OF THE FRACTION(S):

. rotary evaporation 0

. open flask evaporation 0

temperature: .....ºC

. adsorption/elution (specify) 0

.....

.....

.....

4.1 Final volume fraction(s): 1st fraction.....ml

2st fraction .....ml

3st fraction .....ml

5 STORAGE OF THE EXTRACT BEFORE ANALYSIS

. glass X

. quarts 0

. polymers (specify) 0

5.1 Temperature .....6..ºC

Light conditions (specify) ..dark.....

.....

6 FINAL ANALYSIS (see for detailed reporting 7.)

. GC: X

: capillary columns X

. LC: 0

.....

.....

6.1 Use Internal Standard for GC analysis 0

. name: ..Phosalone.....

. concentration in final fraction ..0.4.....µg/ml

6.2 Eventual dilutions 0

1st fraction .....

2st fraction .....

3st fraction .....

GAS CHROMATOGRAPHY

GC Column No.: DB-5 122 5032	1	2	3
Quantitative Determ.	0	0	0
Column characteristics			
- Length (m)	30	30	
- Glass column	0	0	0
- Fused silica	X	X	0
- Int. diameter (mm)	0.252	0.252	
- Stationary phase	DB5	DB5	
- Chemical bonded	X	X	0
- Load (%)			
- Film thickness (um)	0.25	0.25	
- Support type			
- Particle size (mesh)			
Carrier gas type	He	He	
- Flow (ml/min)	50	50	
Make-up gas type	N_2	Ar	
- Flow (ml/min)	30	160	
Injector temp. (ºC)	300	100 → 250 (PTV)	
Detector temp. (ºC)	350	300	
Column temp. (ºC)	250	100	

Temperature Program	0	0	0
- Isoth. temp. (ºC)	50	100	.....
period (min)	2	1	.....
- Progr. rate (ºC/min)	20	5	.....
period (min)	0	.....	.....
- Isoth. temp. (ºC)	220	240	.....
period (min)	0	0	.....
- Progr. rate (ºC/min)	5	30	.....
period (min)	~~2~~	.....	.....
- Isoth. temp. (ºC)	285	290	.....
period (min)	17	10	.....
	30		
Injections			
- On-column injection	0	0	0
- Splitless injection	X	X PTV	0
- Split closing (min)	0.5	1	.....
- Split injection	0	0	0
- Split ratio	.....	.....	.....
- Injected volume (ul)	1.5	1.5	.....
GLC apparatus (type)	(1) P-E 8700 (2) HP 5871A MSD	P-E 8700	.....
Precolumn systems			
(specify)	.....	.....	.....
Detection			
- M.S. (type)	MS 5871A Mass - quadrupole	.....	.....
- Electron capture	X	0	0

- Nitrogen phosphorus	0	X	0
- Others (specify)	0	0	0
	.....	.....	.....

Quantitation

Peak height 0 Peak area X

Manually 0 Electronically X

Integration over whole chromatogram 0

Internal standard: 0.4 µg/ml... External standard 0.05, 0.5, 1 µg/ml

How many points (different concentrations for each compound in your standard Solutions) were used for the calibration curve?

1 (+ zero) 0 3 (+ zero) X

2 (+ zero) 0 more 0

Nr.....

ETHOD 3 OPTRIA DATE LAST WRITTEN 6/09/02

ECTION 1 GC CONTROL

	1	2	3
OVEN TEMP (DEG C)	100	240	290
ISO TIME (MIN)	1.0	0.0	10.0
RAMP RATE (DEG C/MIN)	5.0	30.0	

NPD 1 SENS	HIGH
NPD 1 BEAD	3
NPD 1 ZERO	ON
ECD 2 ZERO	ON
INJ 2 TEMP	290
DET 1 TEMP	300
DET 2 TEMP	350
CARRIER 1	15.0 PSIG
CARRIER 2	15.0 PSIG
EQUILIB TIME	0.0 MIN
TOTAL RUN TIME	40.6 MIN

ECTION 2 TIMED EVENTS

TIME	DET	EVENT	
- 3.00	1	NPD OPTIM	
- 2.00		RELAY 0	ON
0.01		PTV TEMP	100
1.00		RELAY 0	OFF
1.01		PTV TEMP	250
2.00		RELAY 0	ON
5.00		PTV TEMP	150

ECTION 3 DATA HANDLING

DATA ACQUISITION 1

ENABLED	YES
START TIME	0.00 MIN
END TIME	40.66 MIN
WIDTH	-4
SKIM SENS	0
BASELINE CORR	V-V
AREA SENS	350
BASELINE SENS	12

REPORT 1

REPORT TYPE	SEPARATE
CALC TYPE	%
CALIB FIT	ZERO
AREA/HT CALC	AREA
OUTPUT	
PRINT TOL	0.0000
SCREEN	YES
PRINTER	NO
NO PEAK ALARM	NO

PEAK IDENTIFICATION 1

UNRETD PEAK TIME	0.00 MIN
AREA/HT REJECT	0.0000
MULTIPLE REF PK	NO
REF PK: TIME	0.00 MIN
TIME TOL	0.10 MIN

QUANTITATION 1

SCALING FACTOR	1.0000

ECTION 3 DATA HANDLING

DATA ACQUISITION 2

ENABLED	NO
START TIME	0.00 MIN
END TIME	40.66 MIN
WIDTH	-4
SKIM SENS	0
BASELINE CORR	V-V
AREA SENS	350
BASELINE SENS	12

REPORT 2

CALC TYPE	%
CALIB FIT	ZERO
AREA/HT CALC	AREA
OUTPUT	
PRINT TOL	0.0000
SCREEN	YES
PRINTER	NO
NO PEAK ALARM	NO

PEAK IDENTIFICATION 2

UNRETD PEAK TIME	0.00 MIN
AREA/HT REJECT	0.0000
MULTIPLE REF PK	NO
REF PK: TIME	0.00 MIN
TIME TOL	0.10 MIN

QUANTITATION 2

SCALING FACTOR	1.0000

METHOD 2 PERMETHRIN DATE LAST WRITTEN 6/09/14

SECTION 1 GC CONTROL

	1	2	3	4
OVEN TEMP (DEG C)	50	220	285	300
ISO TIME (MIN)	2.0	0.0	17.0	10.0
RAMP RATE (DEG C/MIN)	20.0	5.0	30.0	

NPD 1 SENS	LOW
NPD 1 BEAD	OFF
NPD 1 ZERO	OFF
ECD 2 ZERO	ON
INJ 2 TEMP	300
DET 1 TEMP	OFF
DET 2 TEMP	350
CARRIER 1	15.0 PSIG
CARRIER 2	15.0 PSIG
EQUILIB TIME	0.0 MIN
TOTAL RUN TIME	51.0 MIN

SECTION 2 TIMED EVENTS

TIME	DET	EVENT	
- 1.00		RELAY 2	ON
- 0.50	2	ATTN	64
- 0.10		RELAY 2	OFF
0.50		RELAY 2	ON
10.00	2	INTEG	ON
11.00	2	BASE CODE	V-V

SECTION 3 DATA HANDLING

DATA ACQUISITION 1

ENABLED	NO
START TIME	0.00 MIN
END TIME	51.00 MIN
WIDTH	4
SKIM SENS	0
BASELINE CORR	B-B
AREA SENS	200
BASELINE SENS	4

REPORT 1

REPORT TYPE	SEPARATE
CALC TYPE	%
CALIB FIT	ZERO
AREA/HT CALC	AREA
OUTPUT	
PRINT TOL	0.0000
SCREEN	YES
PRINTER	NO
NO PEAK ALARM	NO

PEAK IDENTIFICATION 1

UNRETD PEAK TIME	0.00 MIN
AREA/HT REJECT	0.0000
MULTIPLE REF PK	NO

QUANTITATION 1

SCALING FACTOR	1.0000

REF PK:	TIME	0.00 MIN
	TIME TOL	0.10 MIN

SECTION 3 DATA HANDLING

DATA ACQUISITION 2

ENABLED	YES
START TIME	0.00 MIN
END TIME	51.00 MIN
WIDTH	-4
SKIM SENS	0
BASELINE CORR	V-V
AREA SENS	350
BASELINE SENS	12

REPORT 2

CALC TYPE	%
CALIB FIT	ZERO
AREA/HT CALC	AREA
OUTPUT	
PRINT TOL	0.0000
SCREEN	YES
PRINTER	NO
NO PEAK ALARM	NO

PEAK IDENTIFICATION 2

UNRETD PEAK TIME	0.00 MIN
AREA/HT REJECT	0.0000
MULTIPLE REF PK	NO
REF PK: TIME	0.00 MIN
TIME TOL	0.10 MIN

QUANTITATION 2

SCALING FACTOR	1.0000