Supplementary Information for:

Synthetic Bacteriochlorins with Integral Spiro-piperidine Motifs

Kanumuri Ramesh Reddy, Elisa Lubian, M. Phani Pavan,
Han-Je Kim, Eunkyung Yang, Dewey Holten, and Jonathan S. Lindsey

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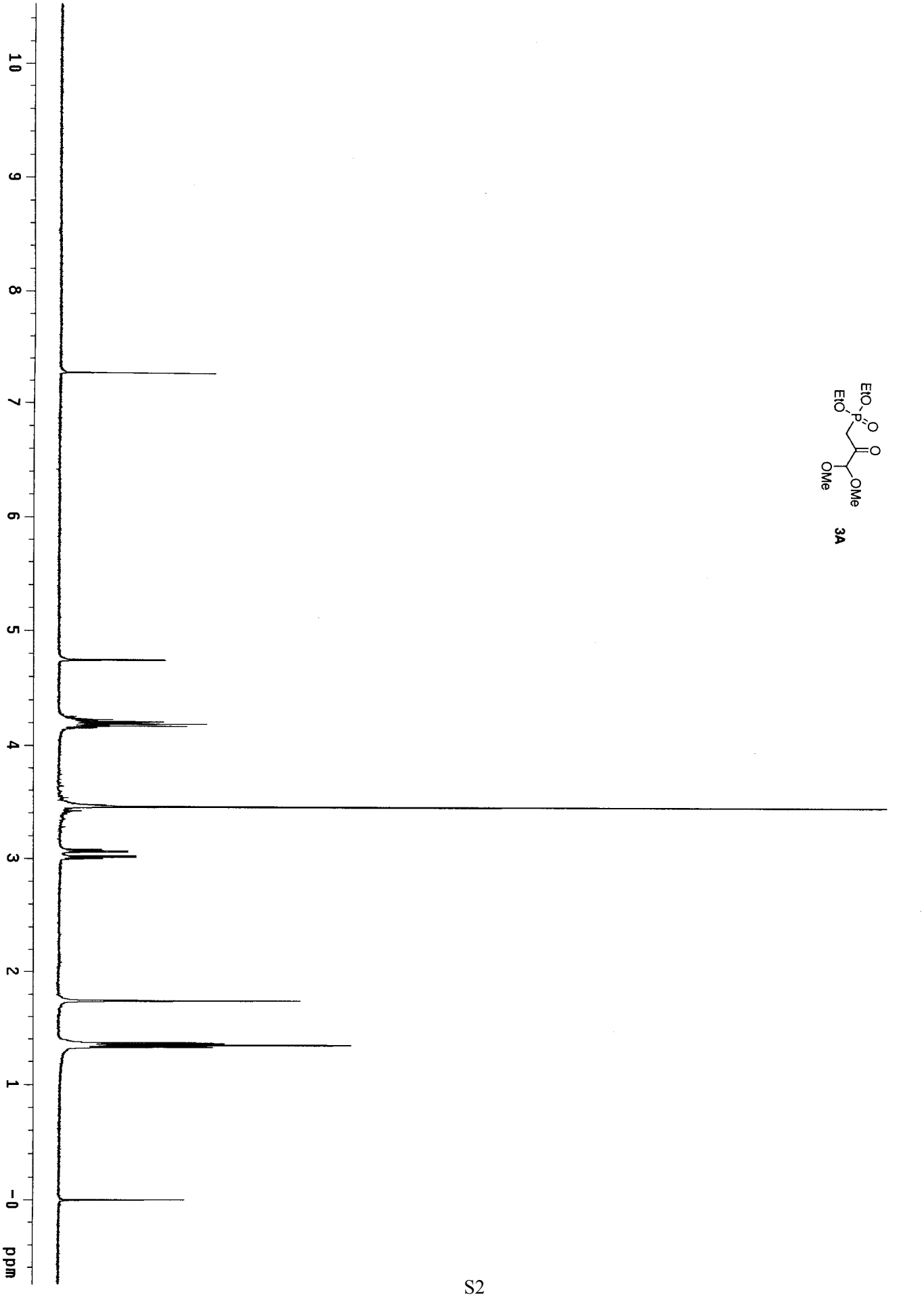

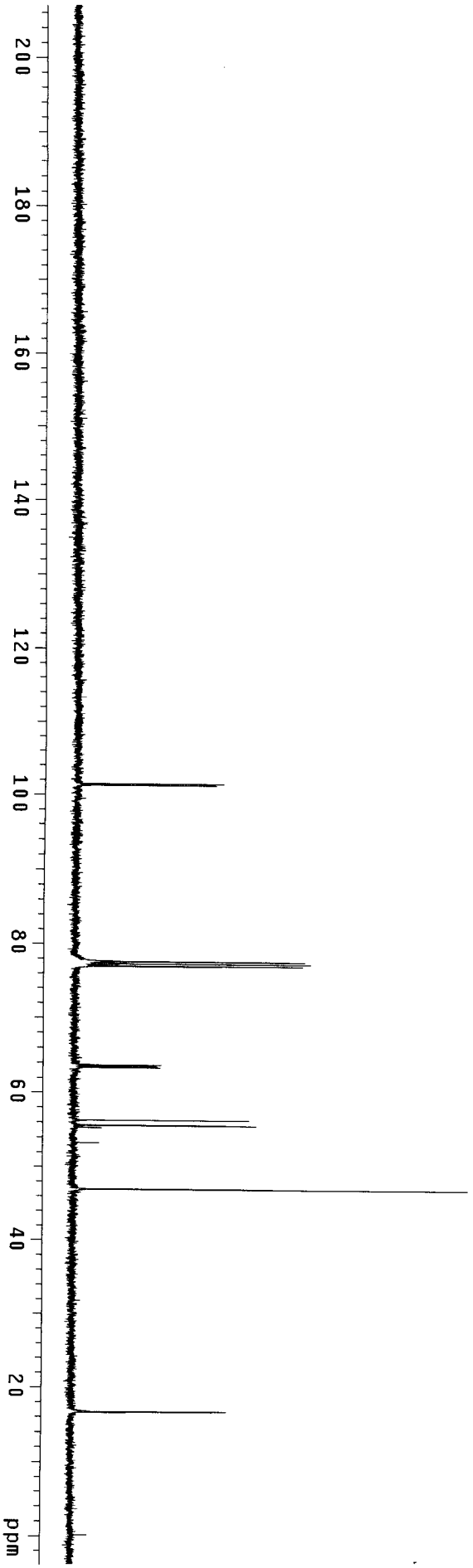

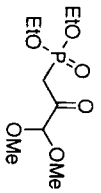

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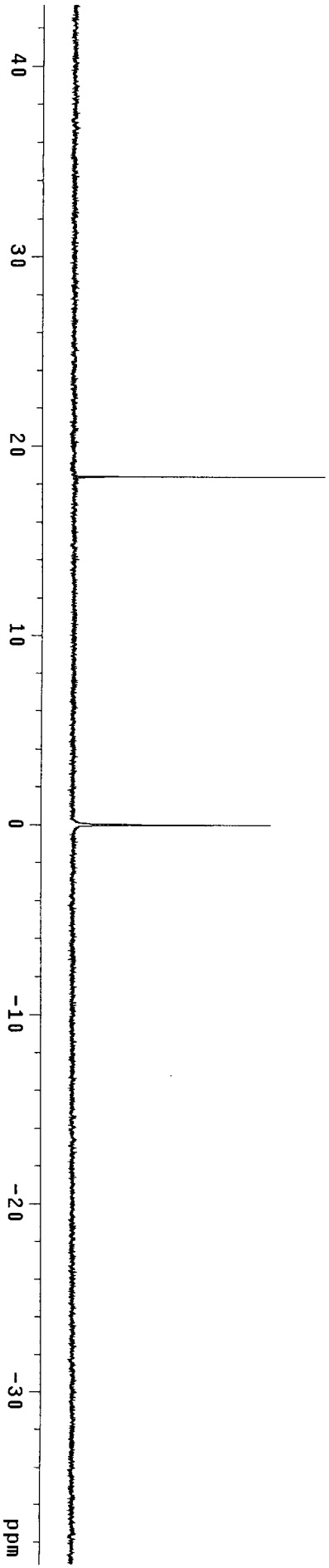

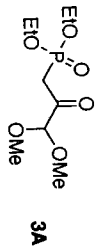

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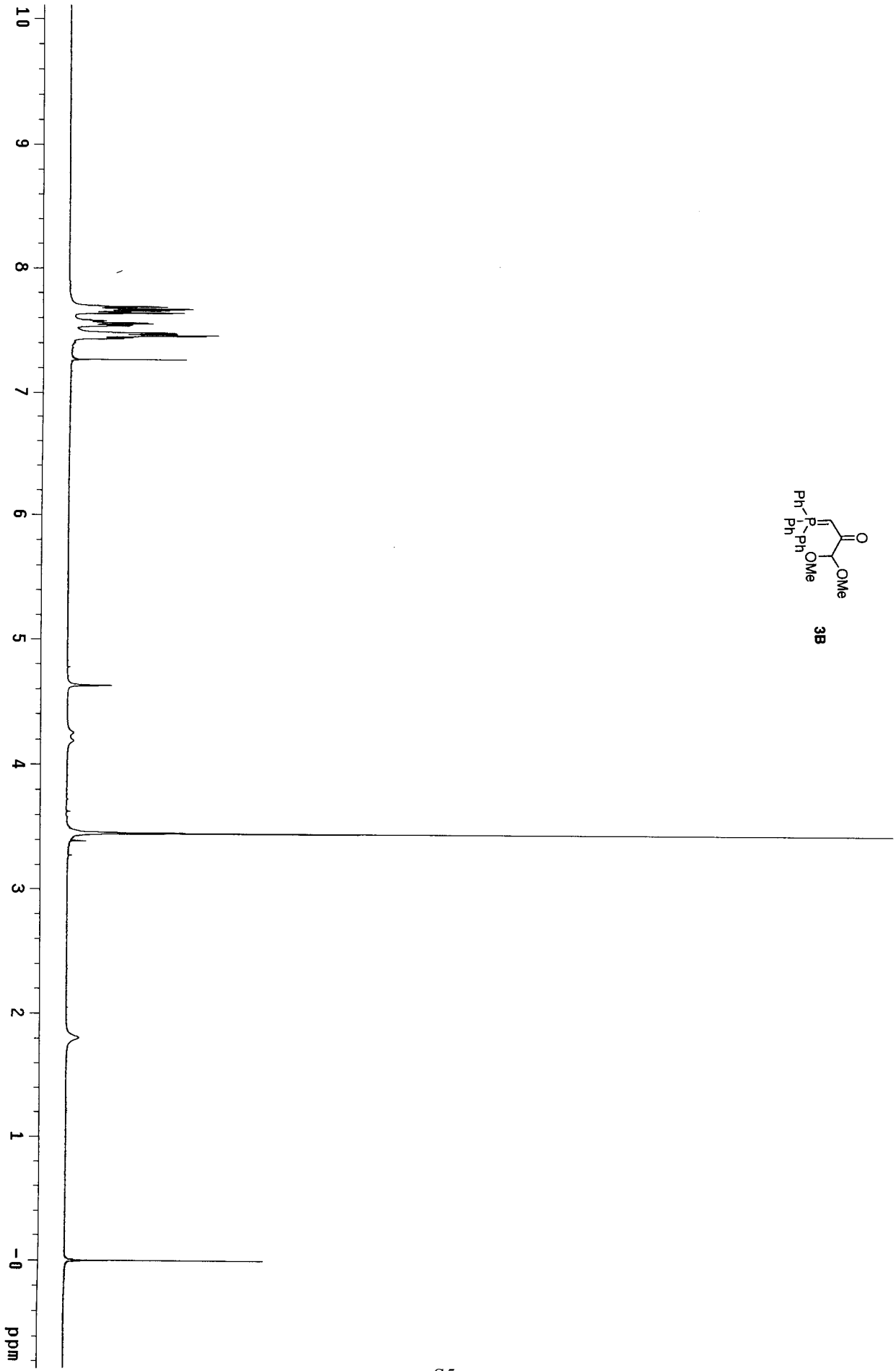

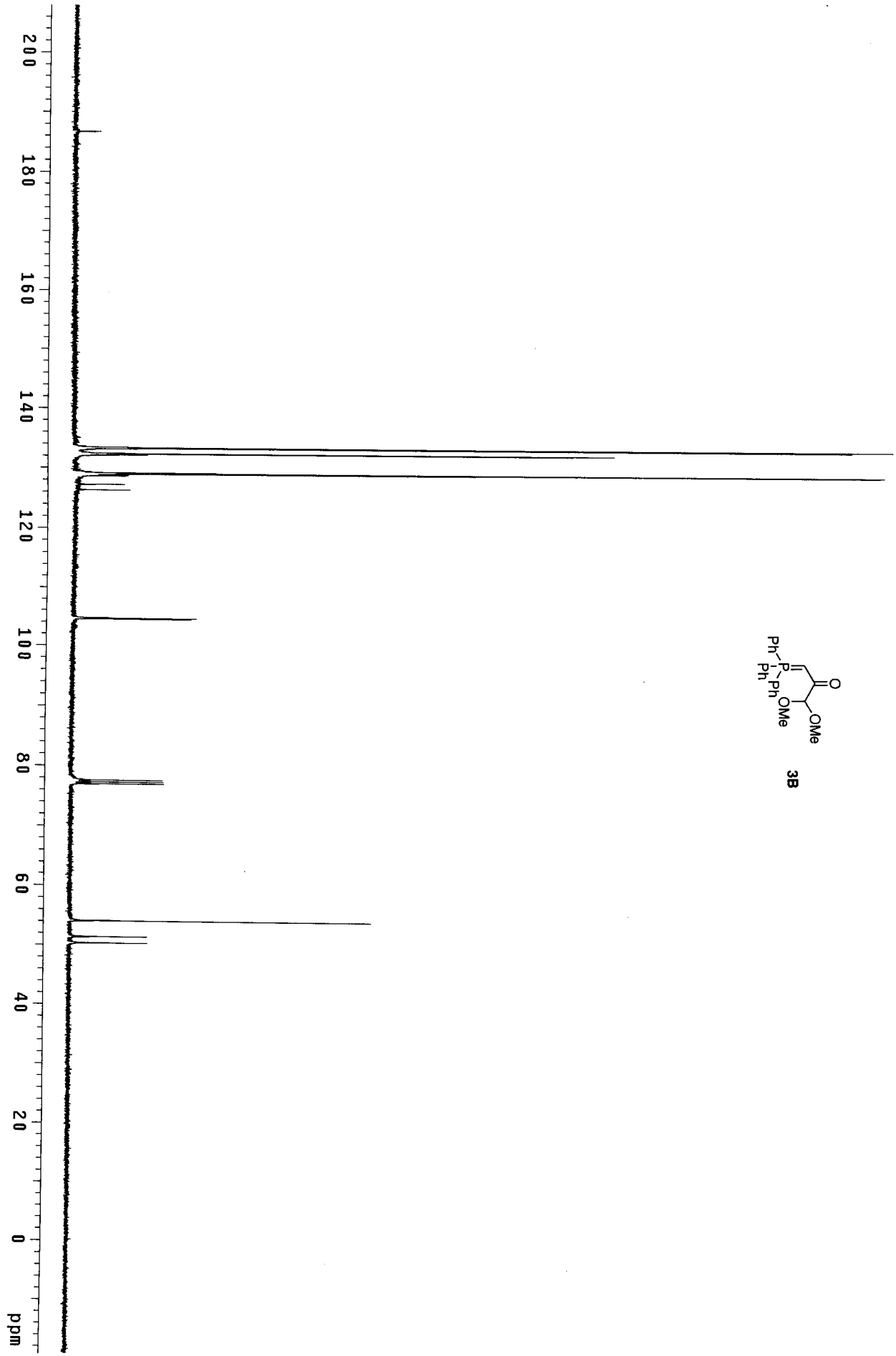

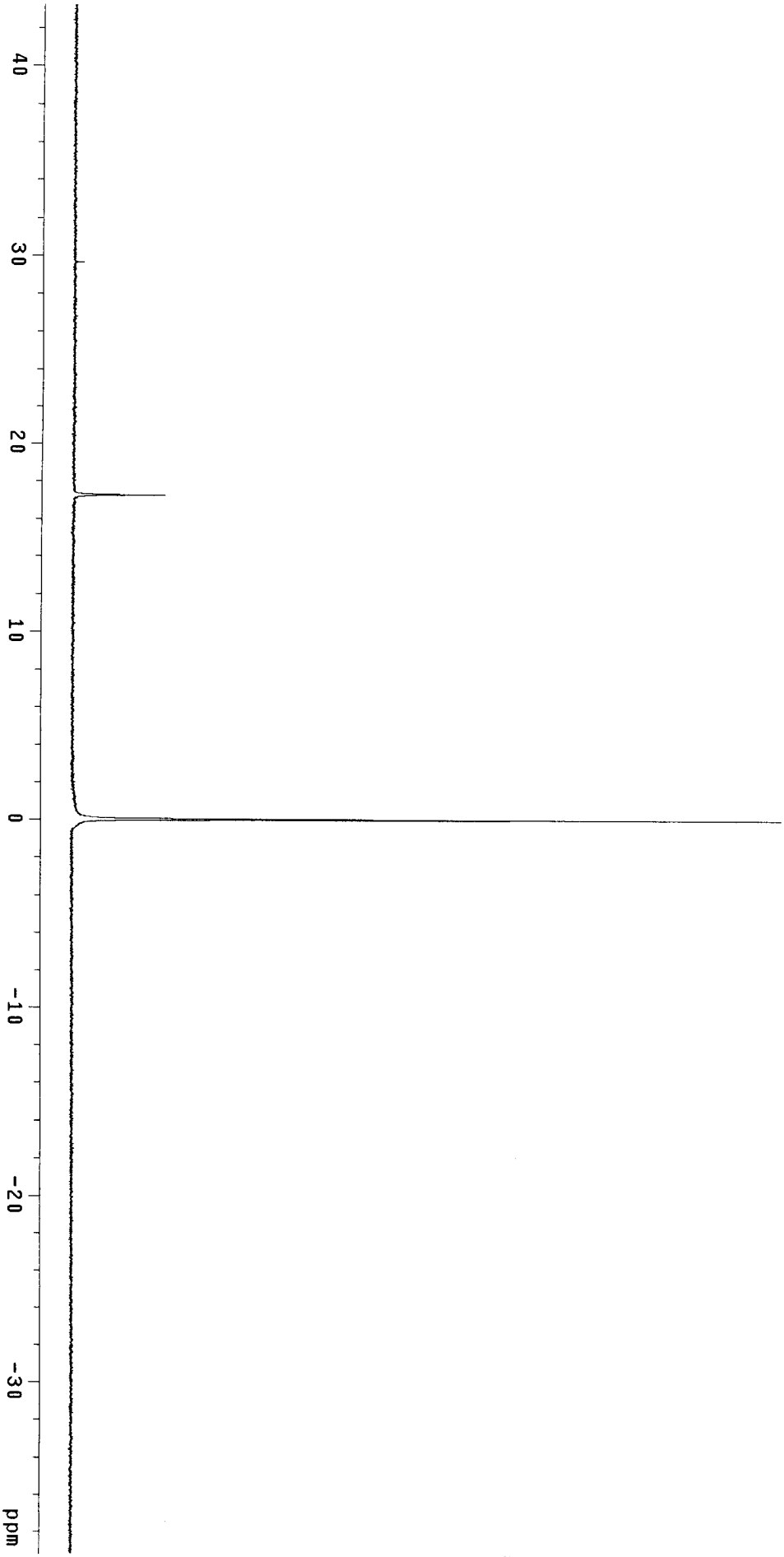

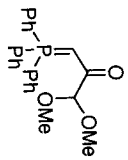

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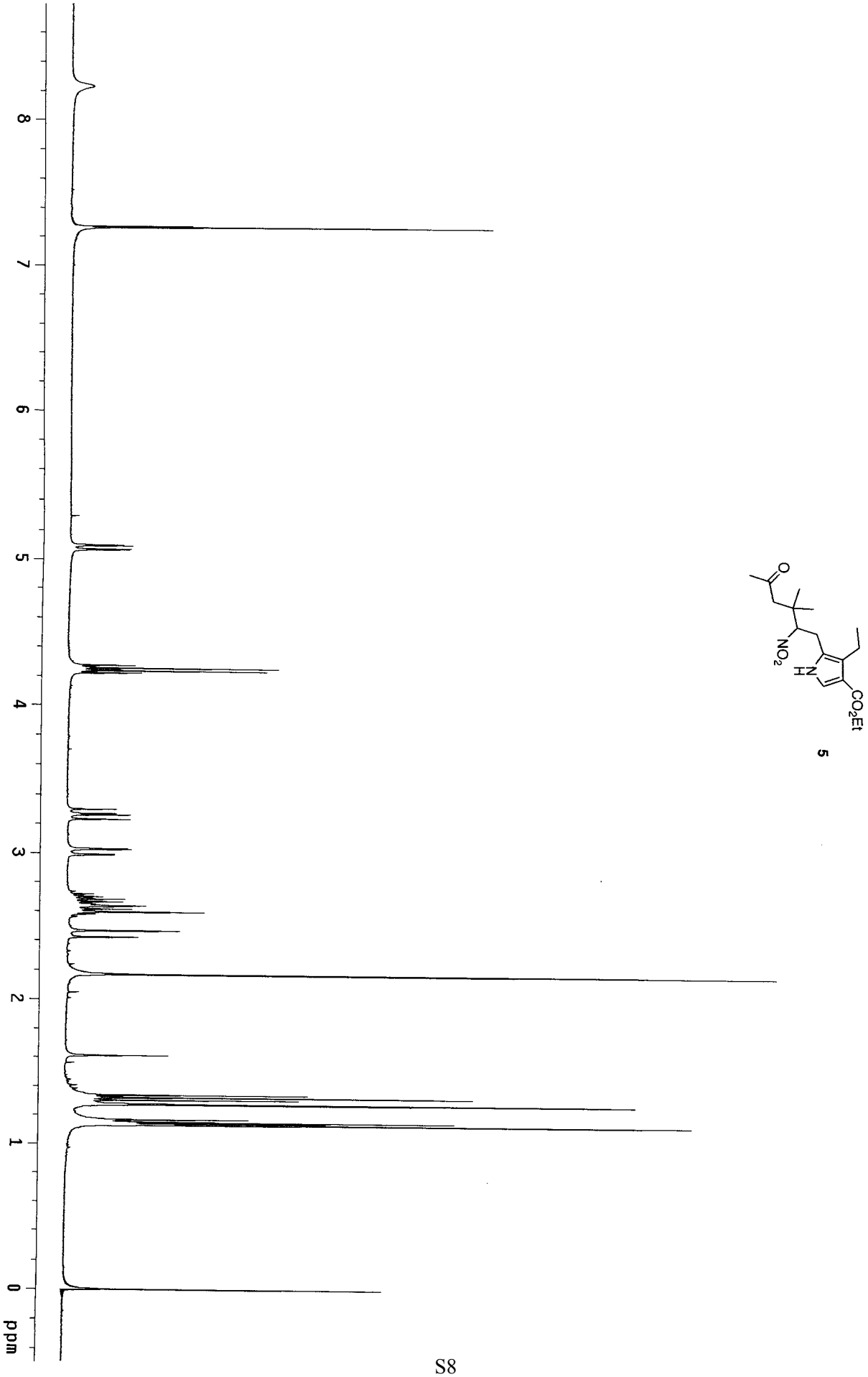

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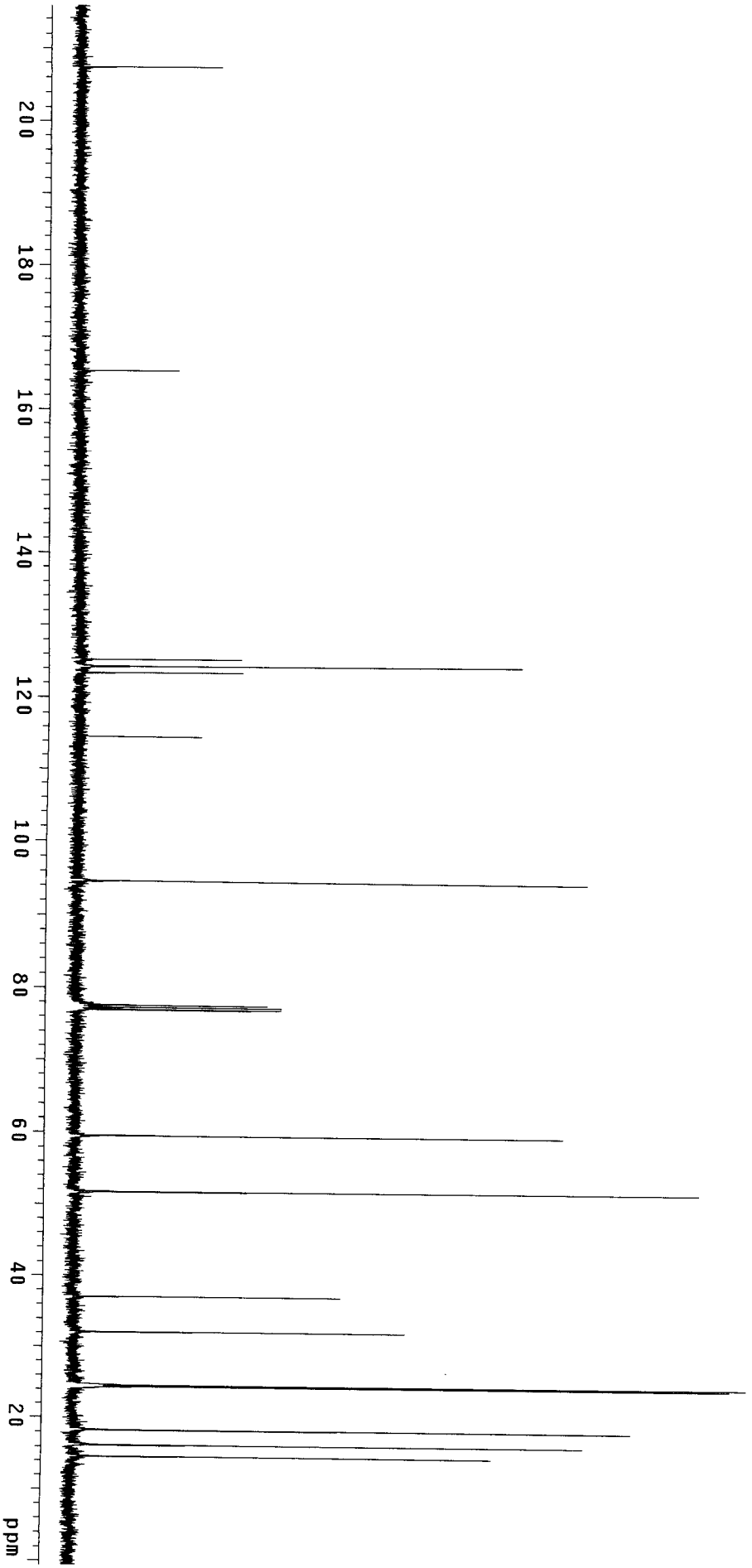

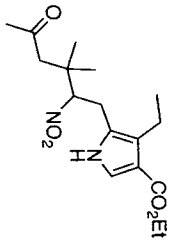

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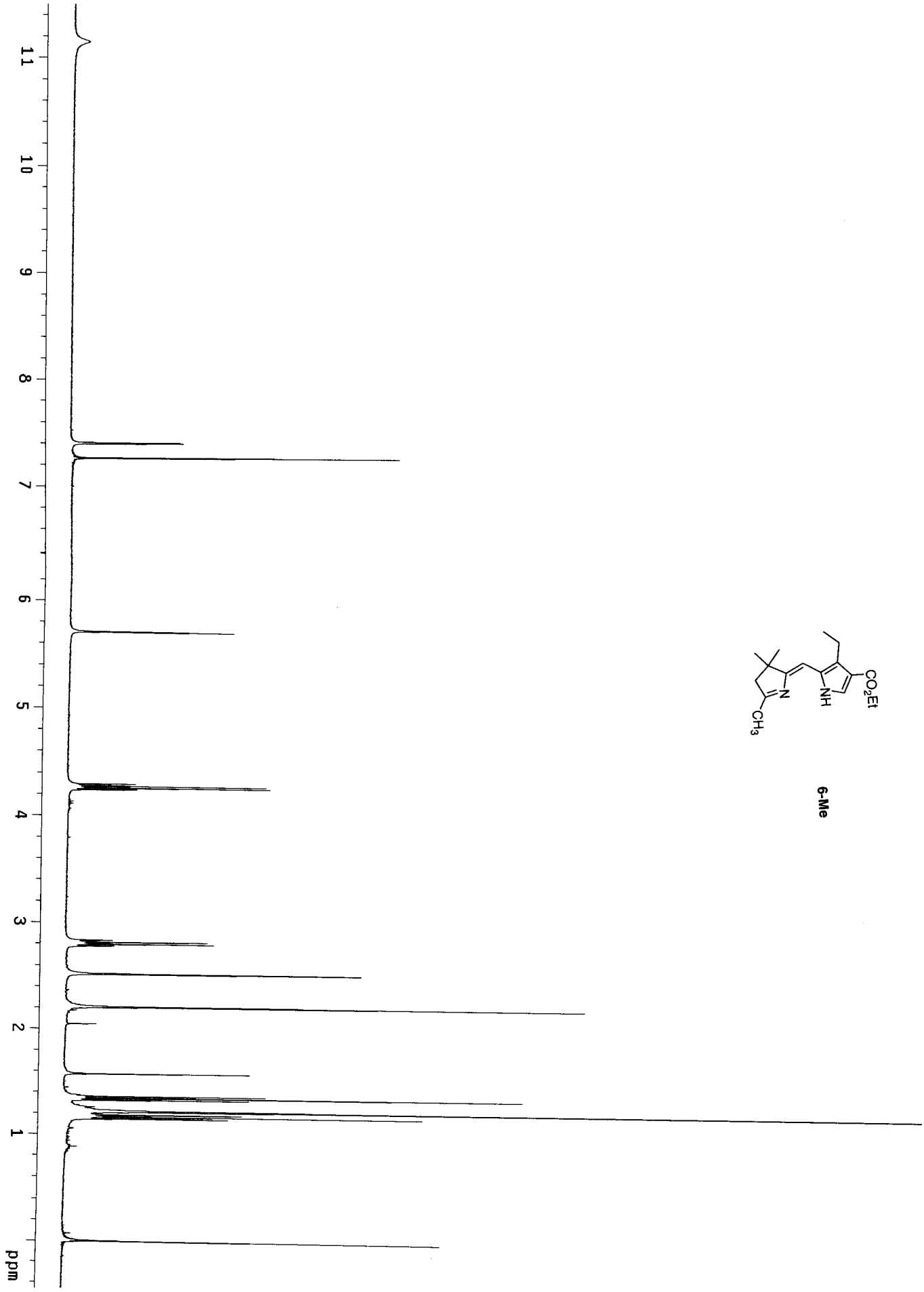
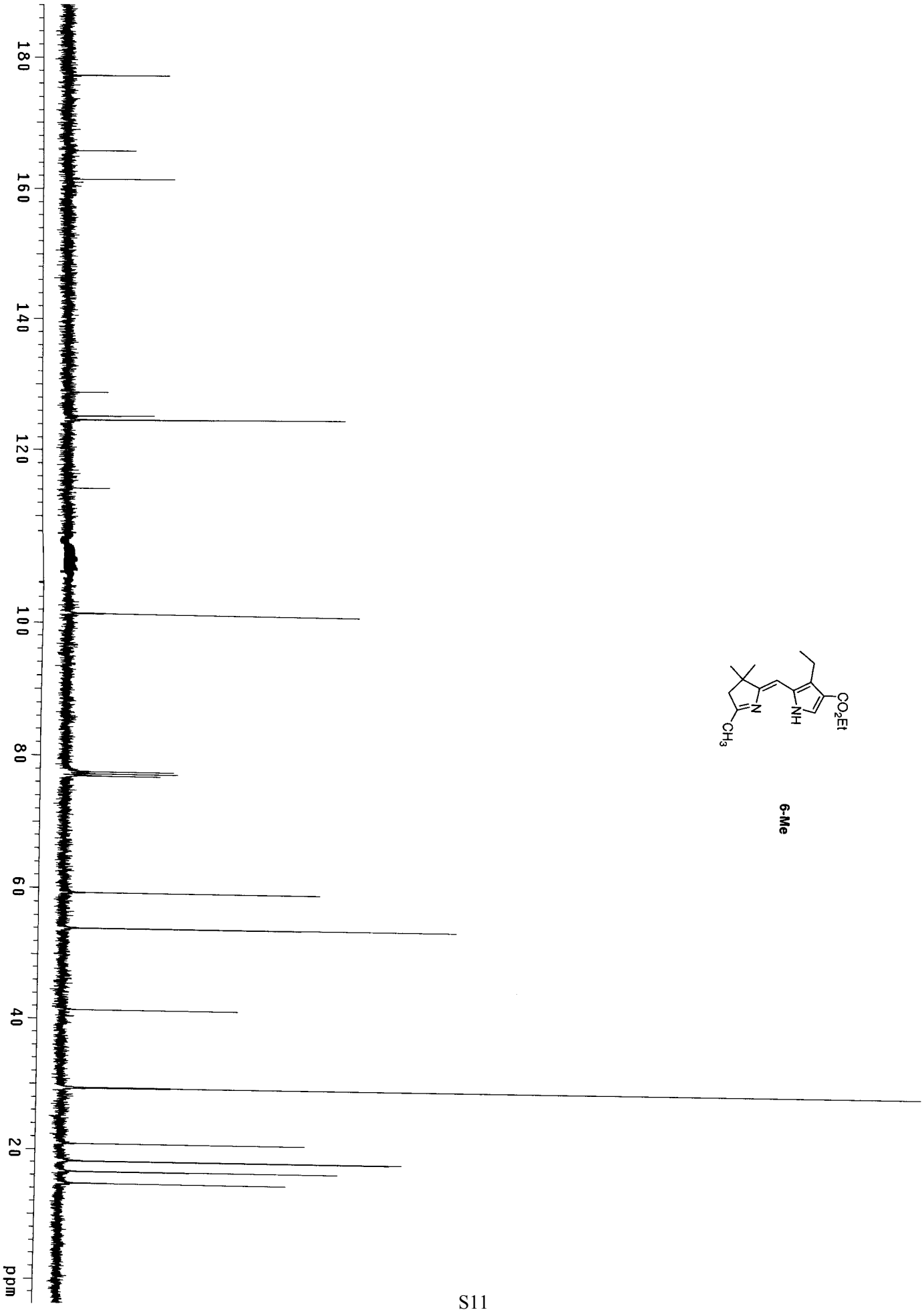


6-Me



Spectrum/Peak Report Date 12/16/2012 Time 13:16:03 Page 1 of 1

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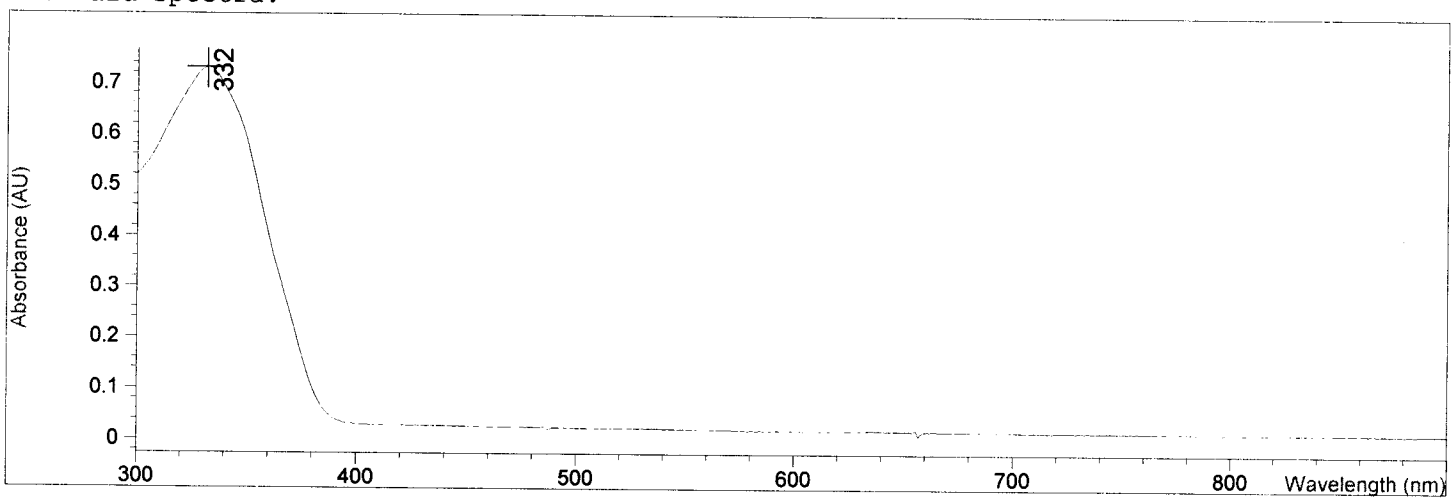

#	Name	Peaks(nm)	Abs(AU)
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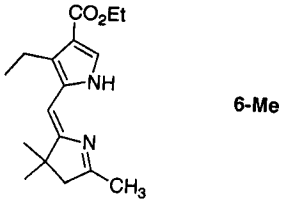
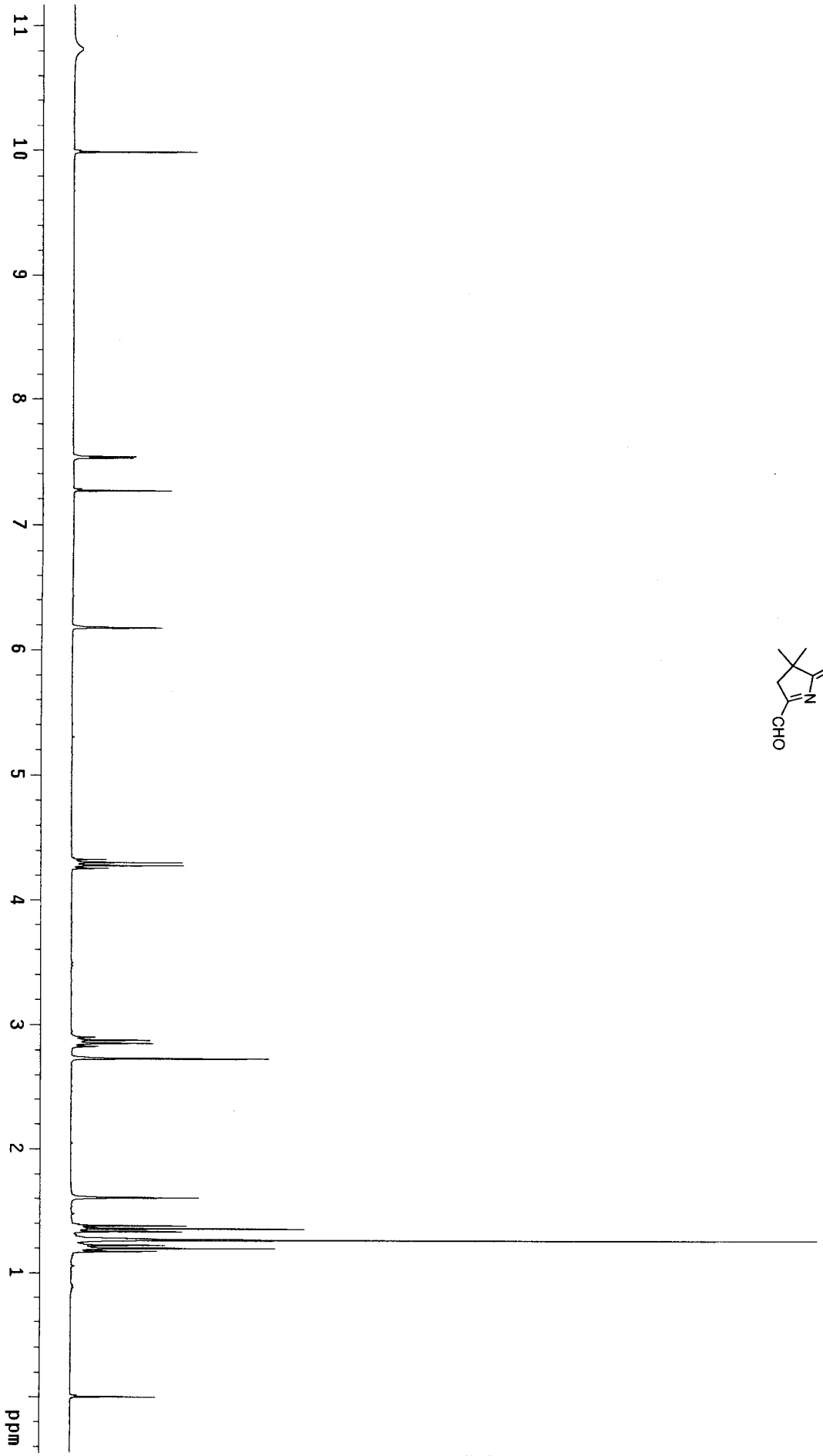
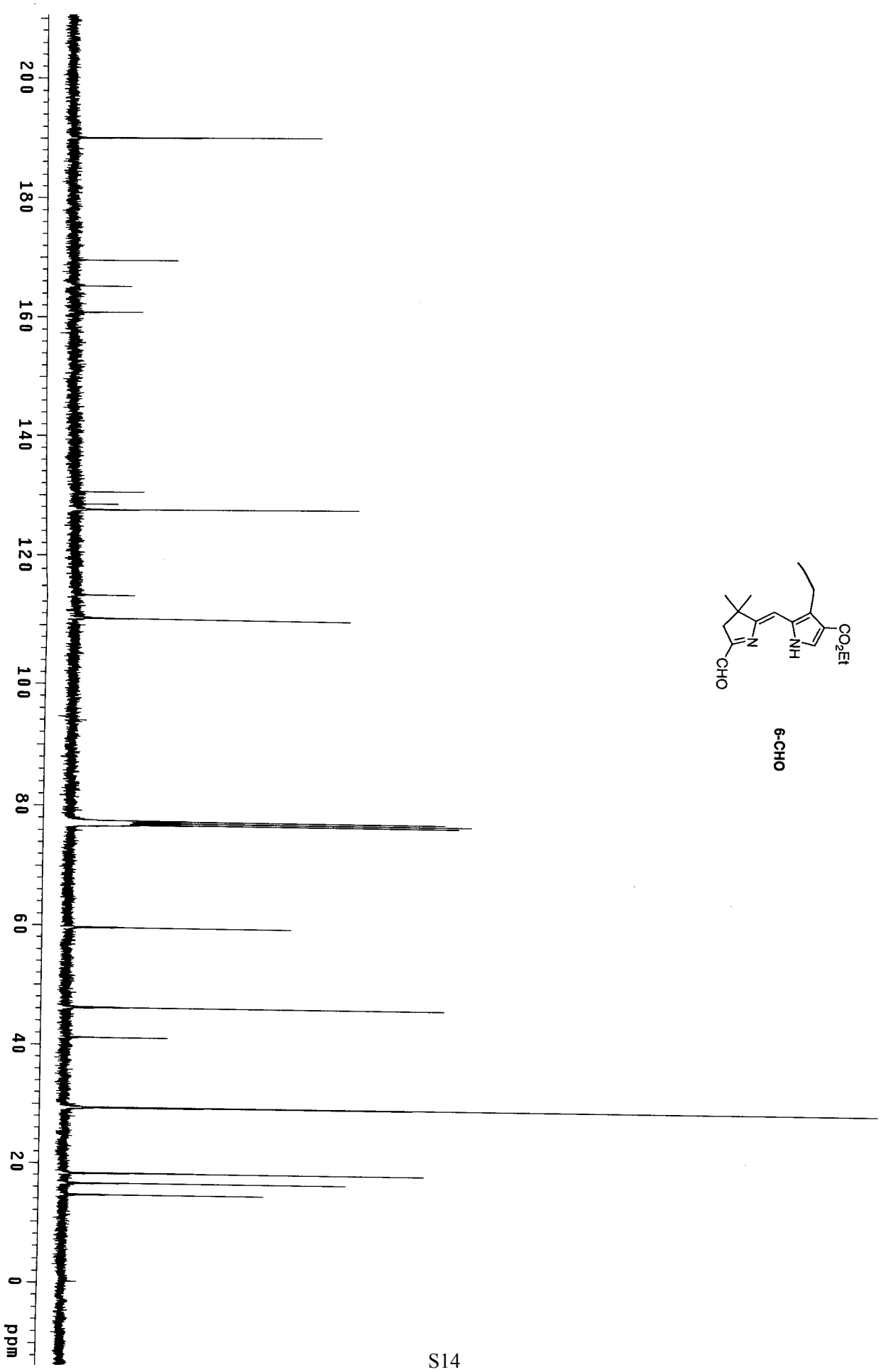


6-Me

Solvent : Toluene



6-CHO



6-CHO

Spectrum/Peak Report Date 12/16/2012 Time 13:17:37 Page 1 of 1

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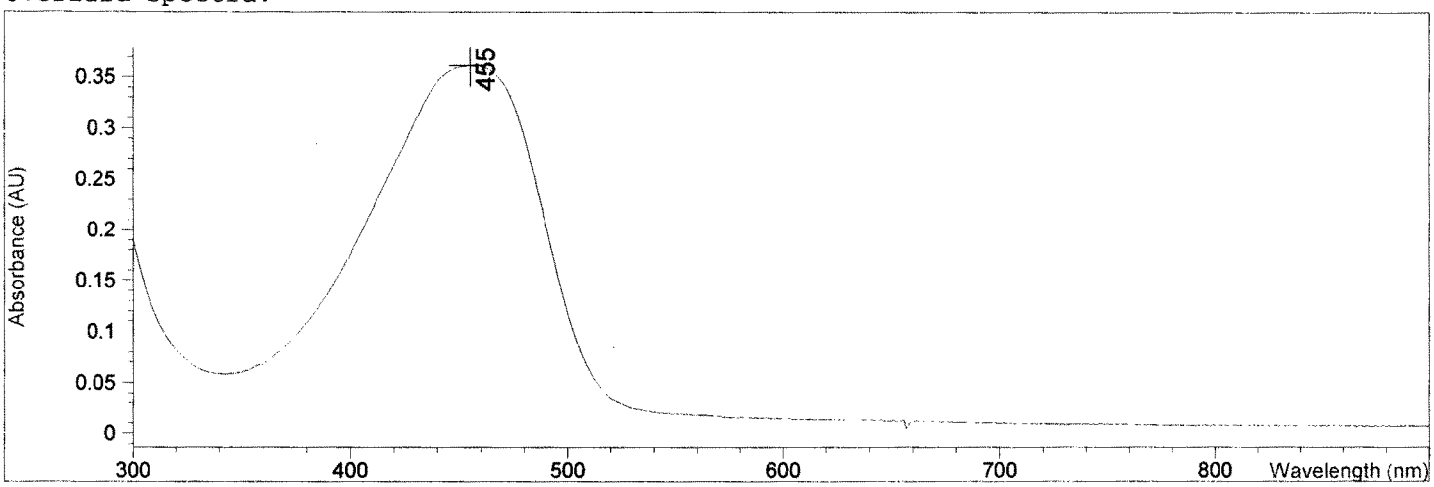

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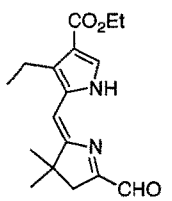
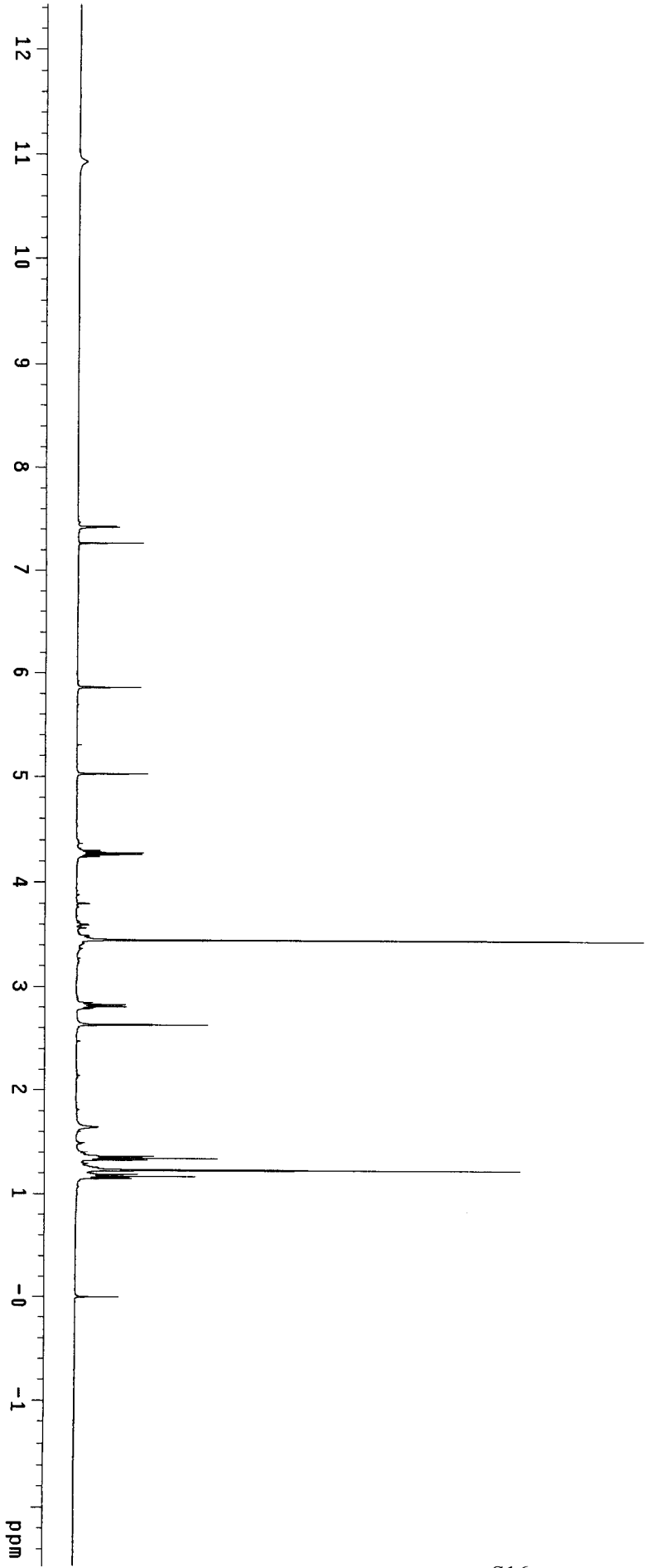
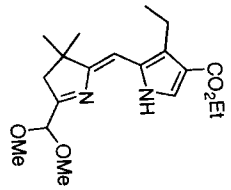


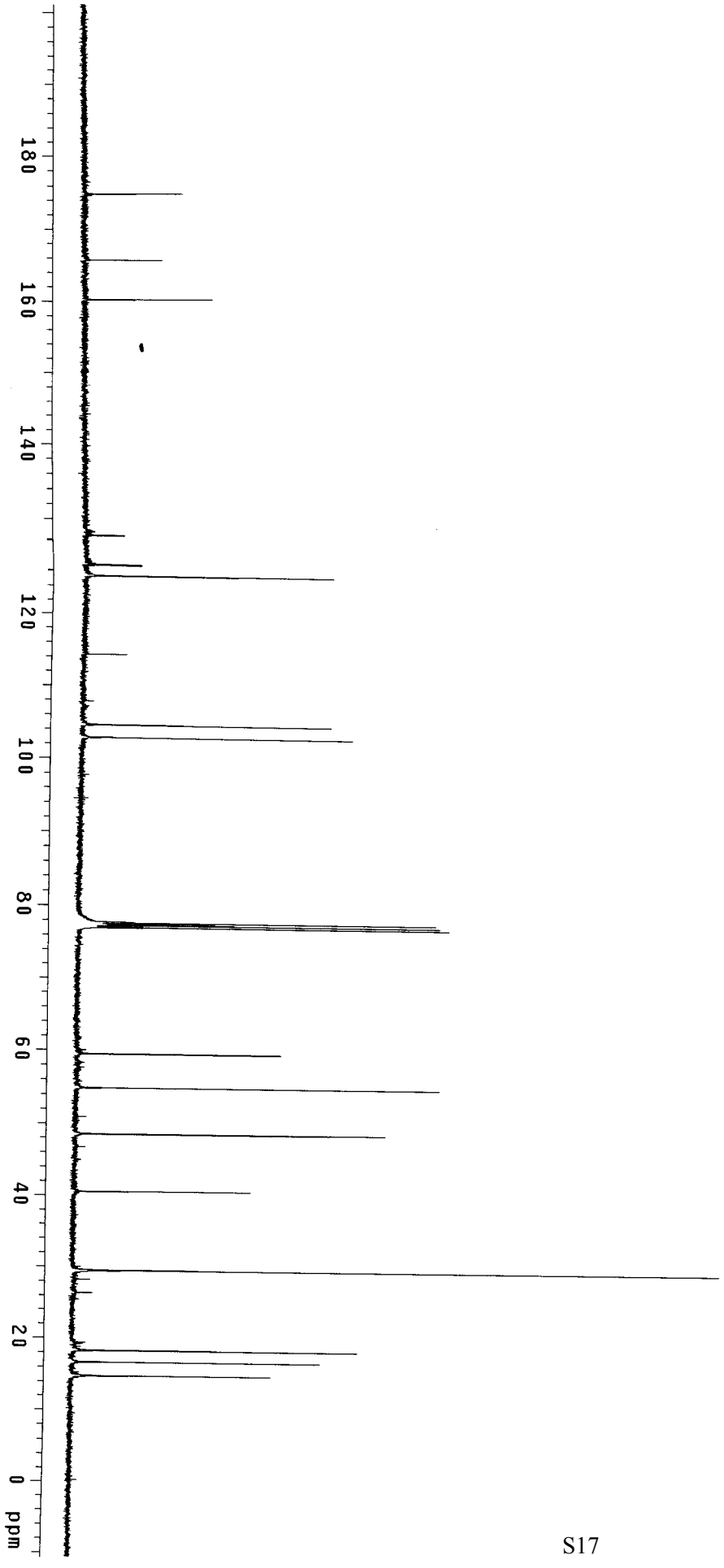
6-CHO

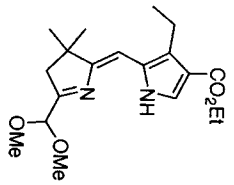
Solvent : Toluene





6-CH(OMe)$_2$





6-CH(OMe)$_2$

Spectrum/Peak Report Date 12/16/2012 Time 13:00:00 Page 1 of 1

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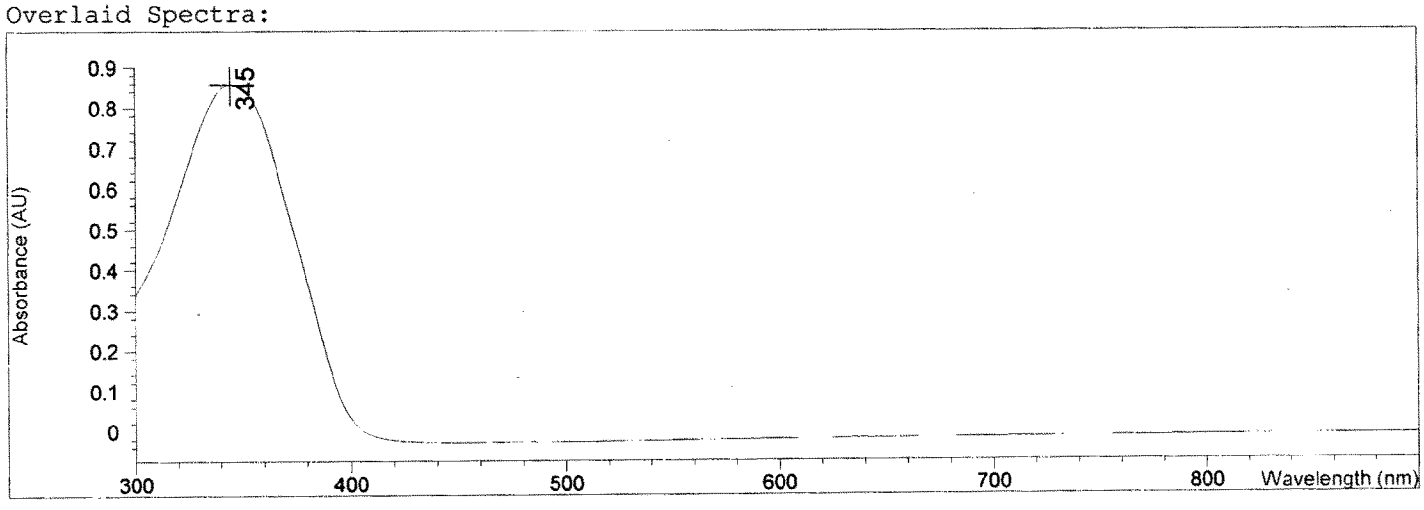

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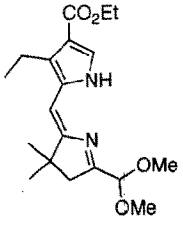
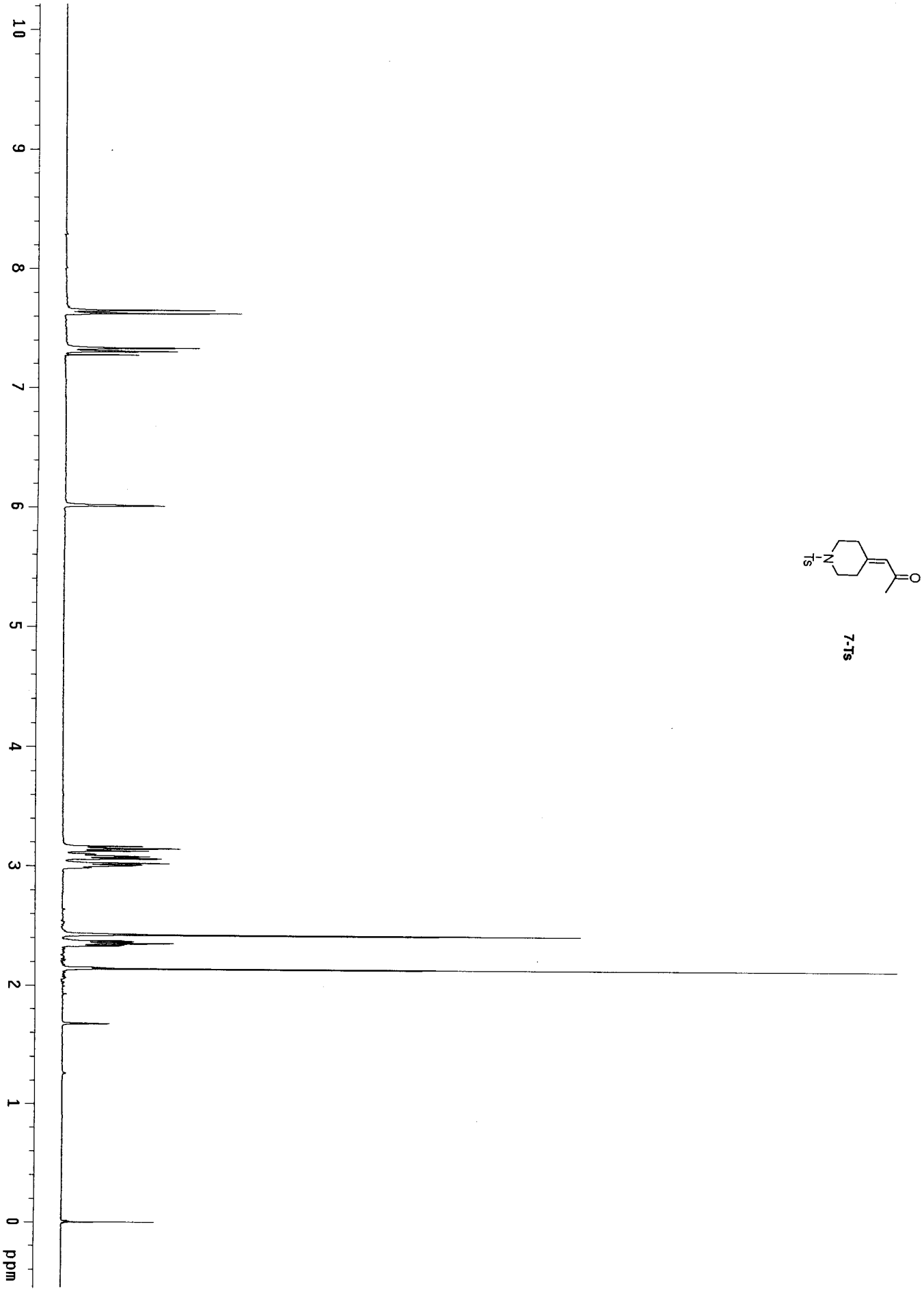
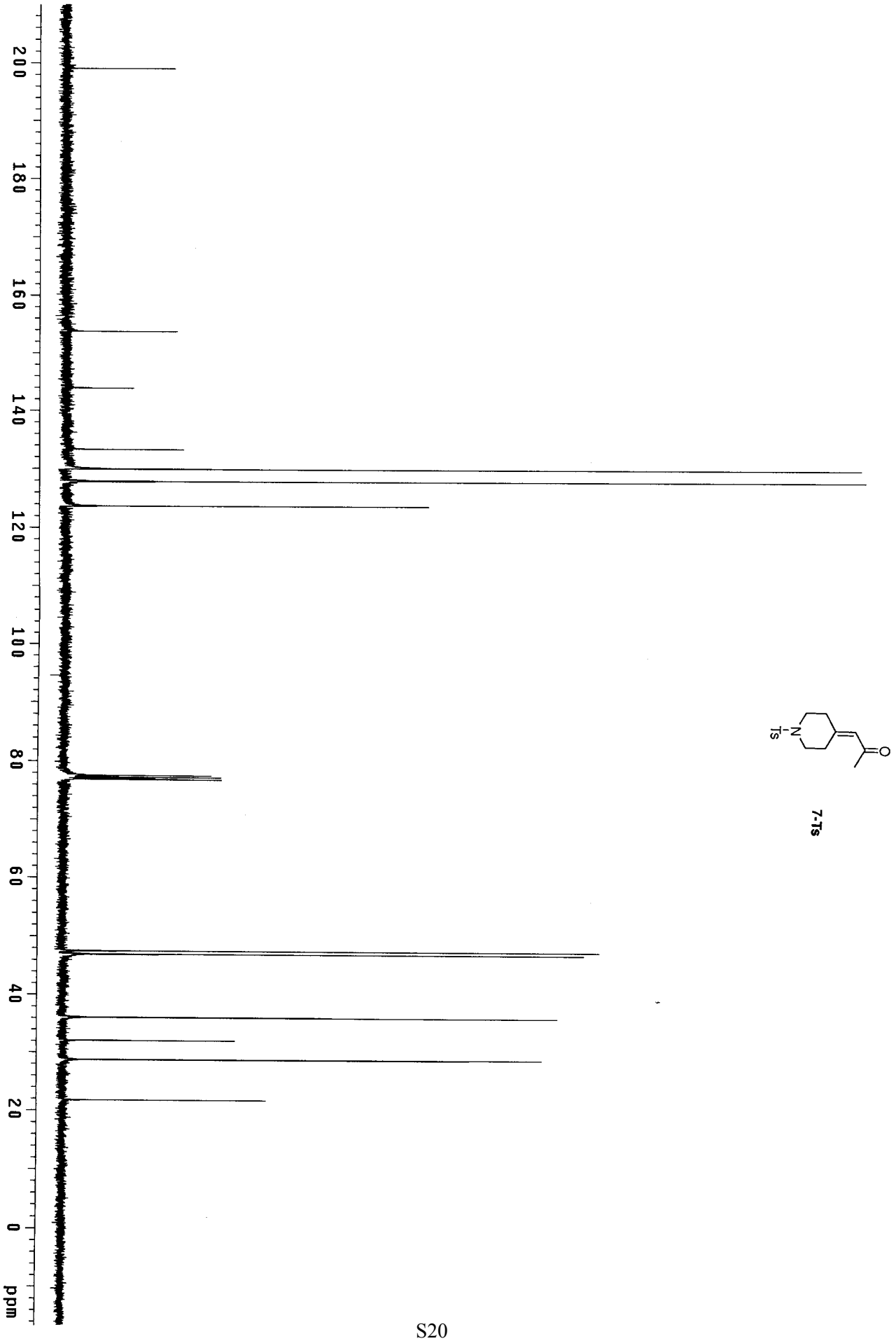
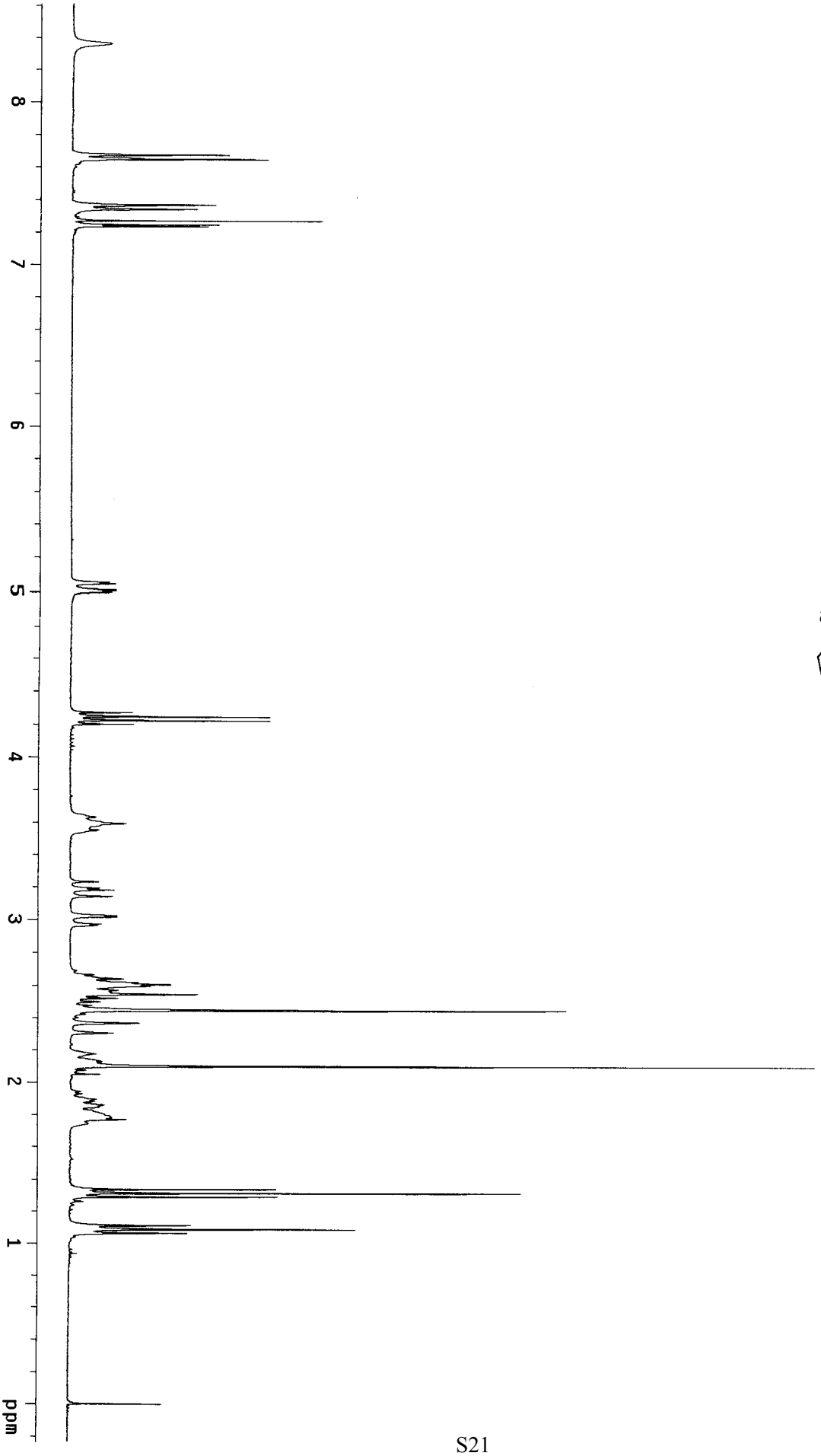


6-CH(OMe)$_2$

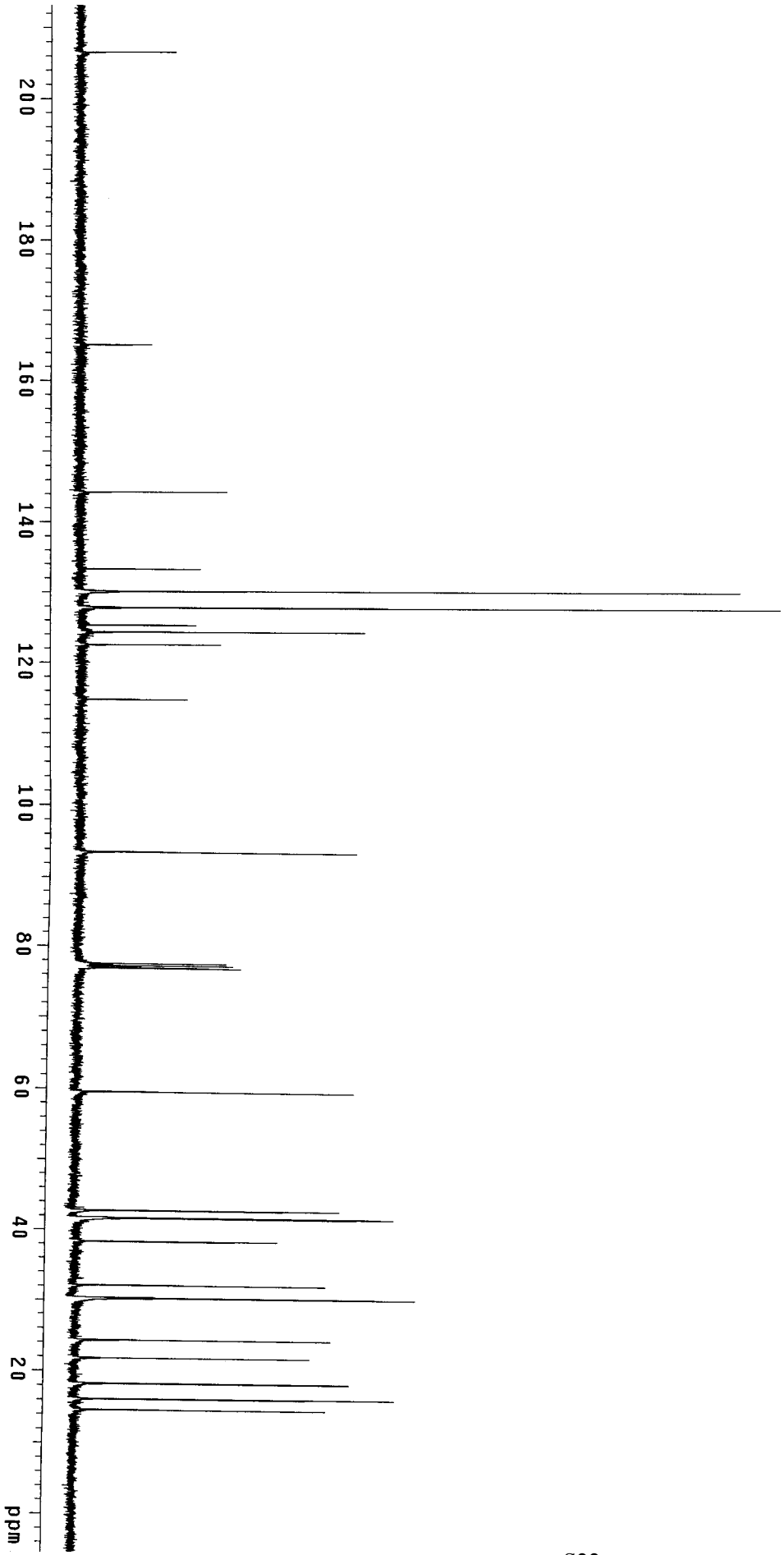
Solvent : Toluene

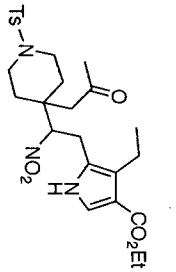




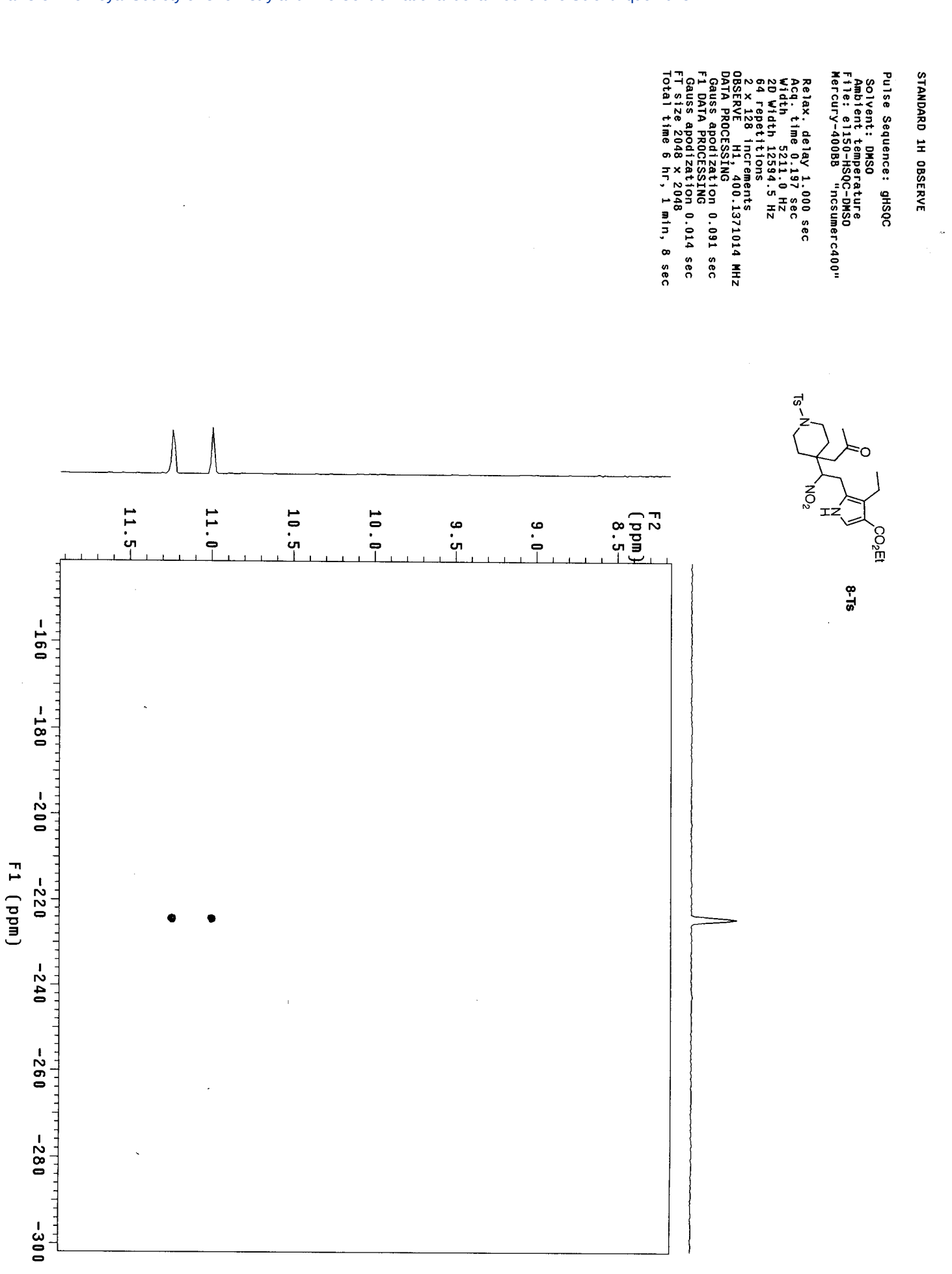


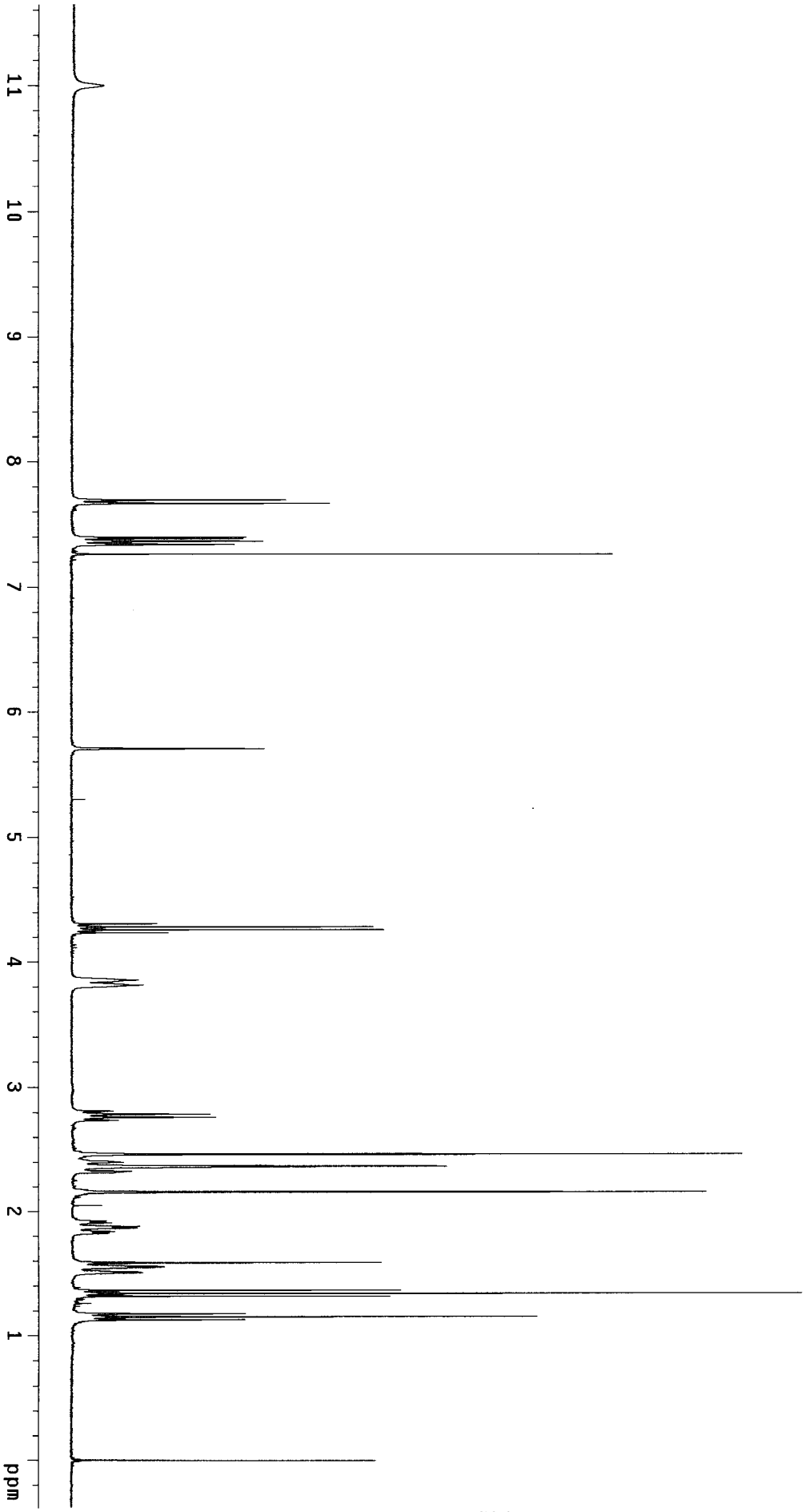
8-Ts

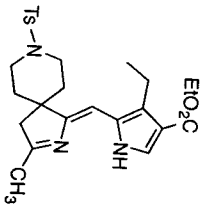




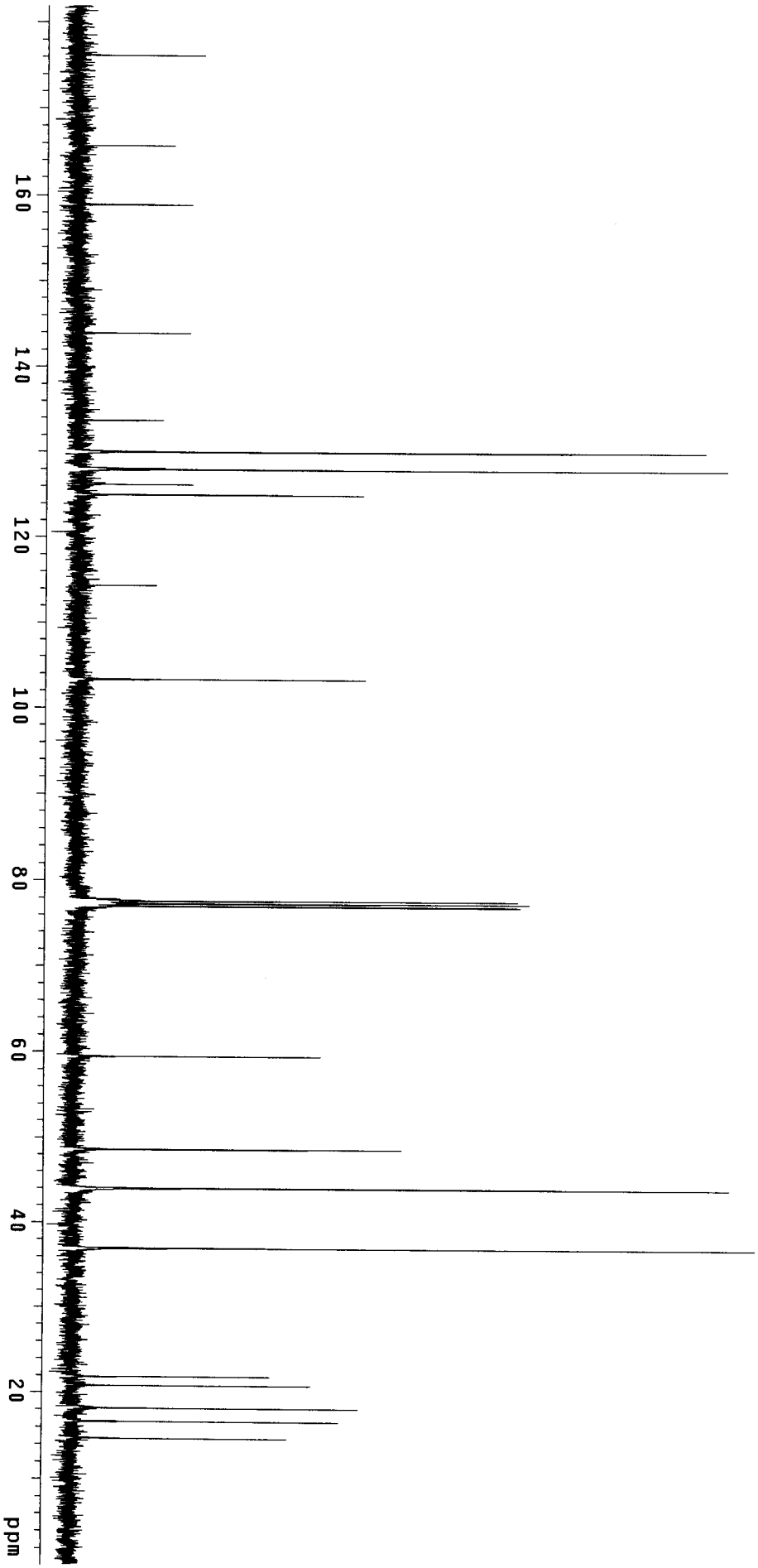
8-Ts

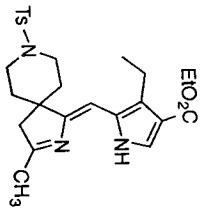






9-Ts-Me





9-Ts-Me

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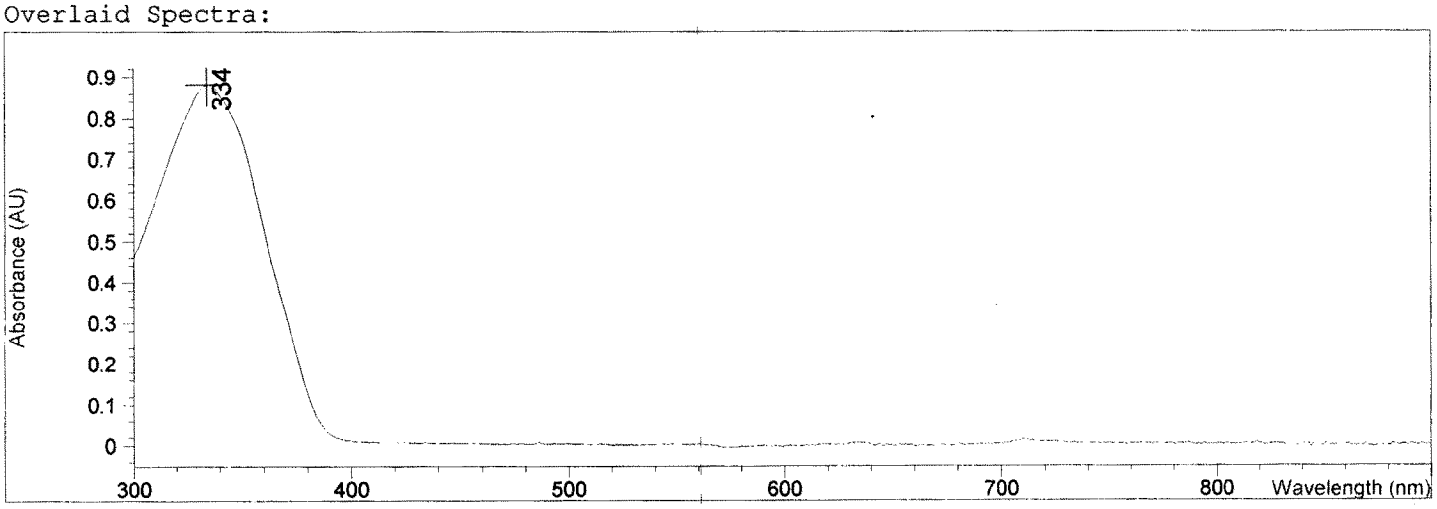

#	Name	Peaks(nm)	Abs(AU)
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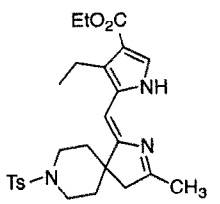
Report generated by : Lindsey Lab Signature: .....

*** End Spectrum/Peak Report ***



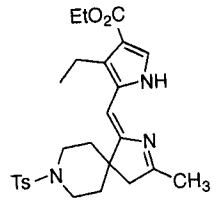
9-Ts-Me

Solvent : Toluene

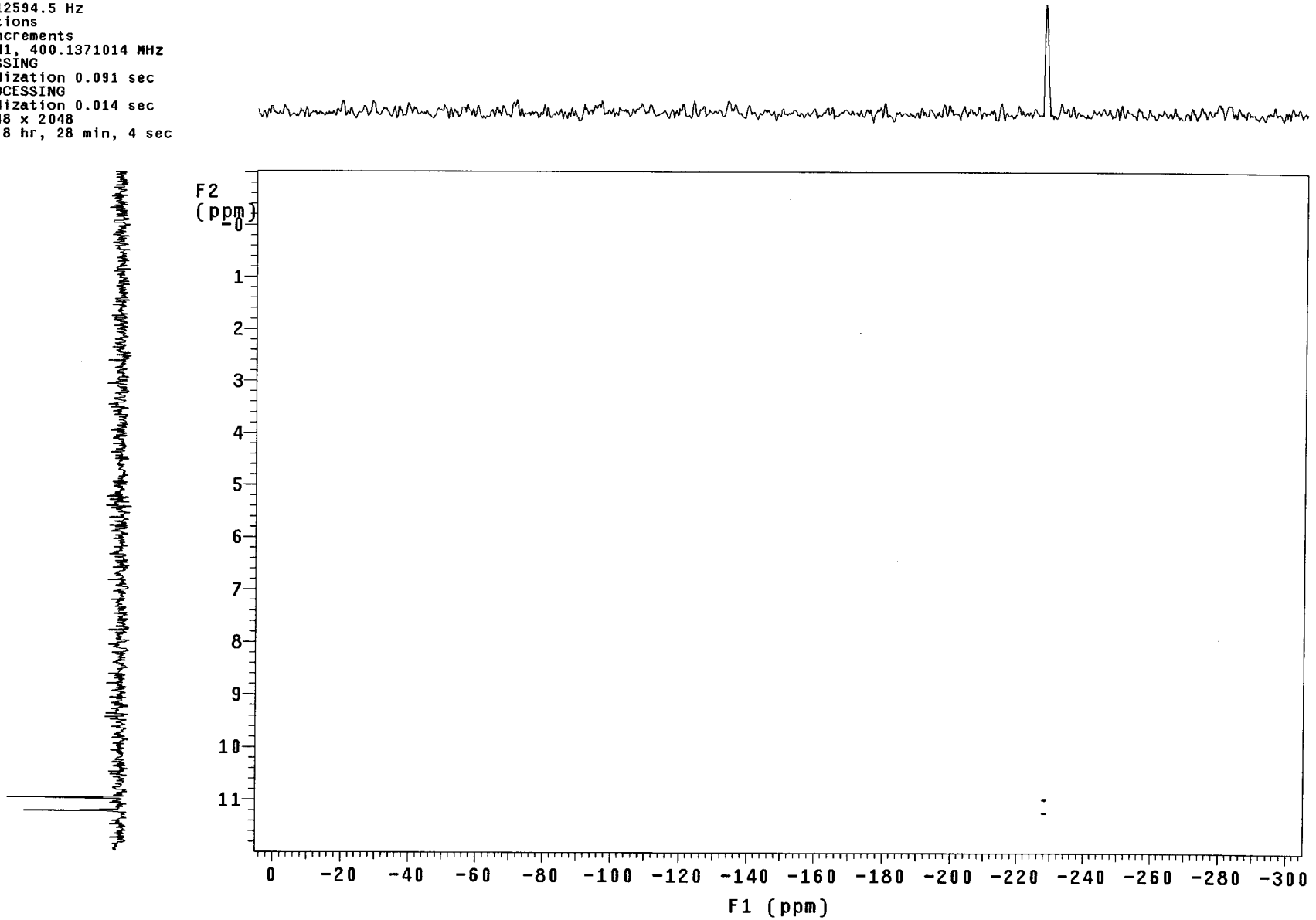
STANDARD 1H OBSERVE

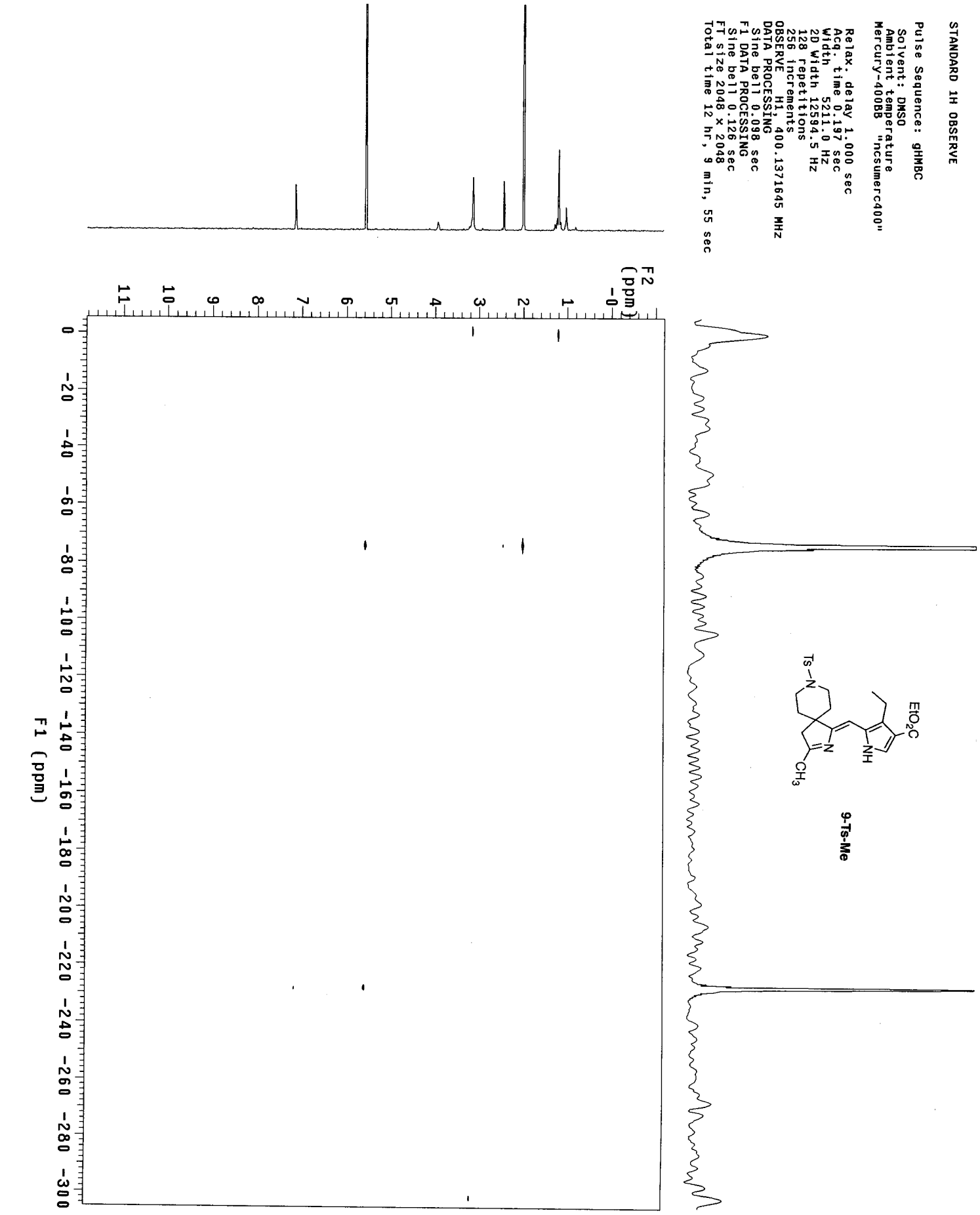
Pulse Sequence: gHSQC
Solvent: DMSO
Ambient temperature
File: el151-HSQC-DMSO
Mercury-400BB "ncsumerc400"

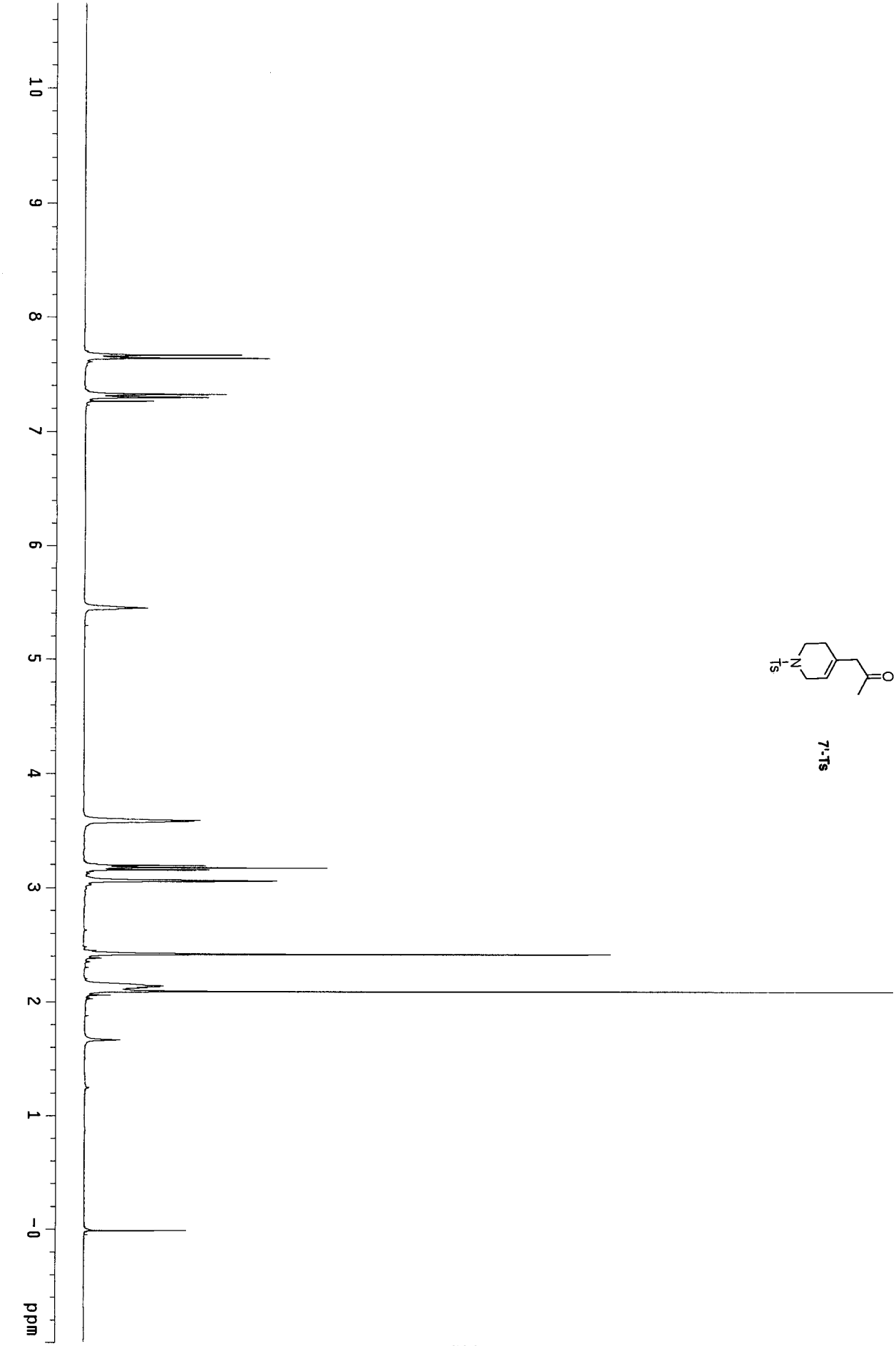
Relax. delay 1.000 sec
Acq. time 0.197 sec
Width 5211.0 Hz
2D Width 12594.5 Hz
90 repetitions
2 x 128 increments
OBSERVE H1, 400.1371014 MHz
DATA PROCESSING
Gauss apodization 0.091 sec
F1 DATA PROCESSING
Gauss apodization 0.014 sec
FT size 2048 x 2048
Total time 8 hr, 28 min, 4 sec



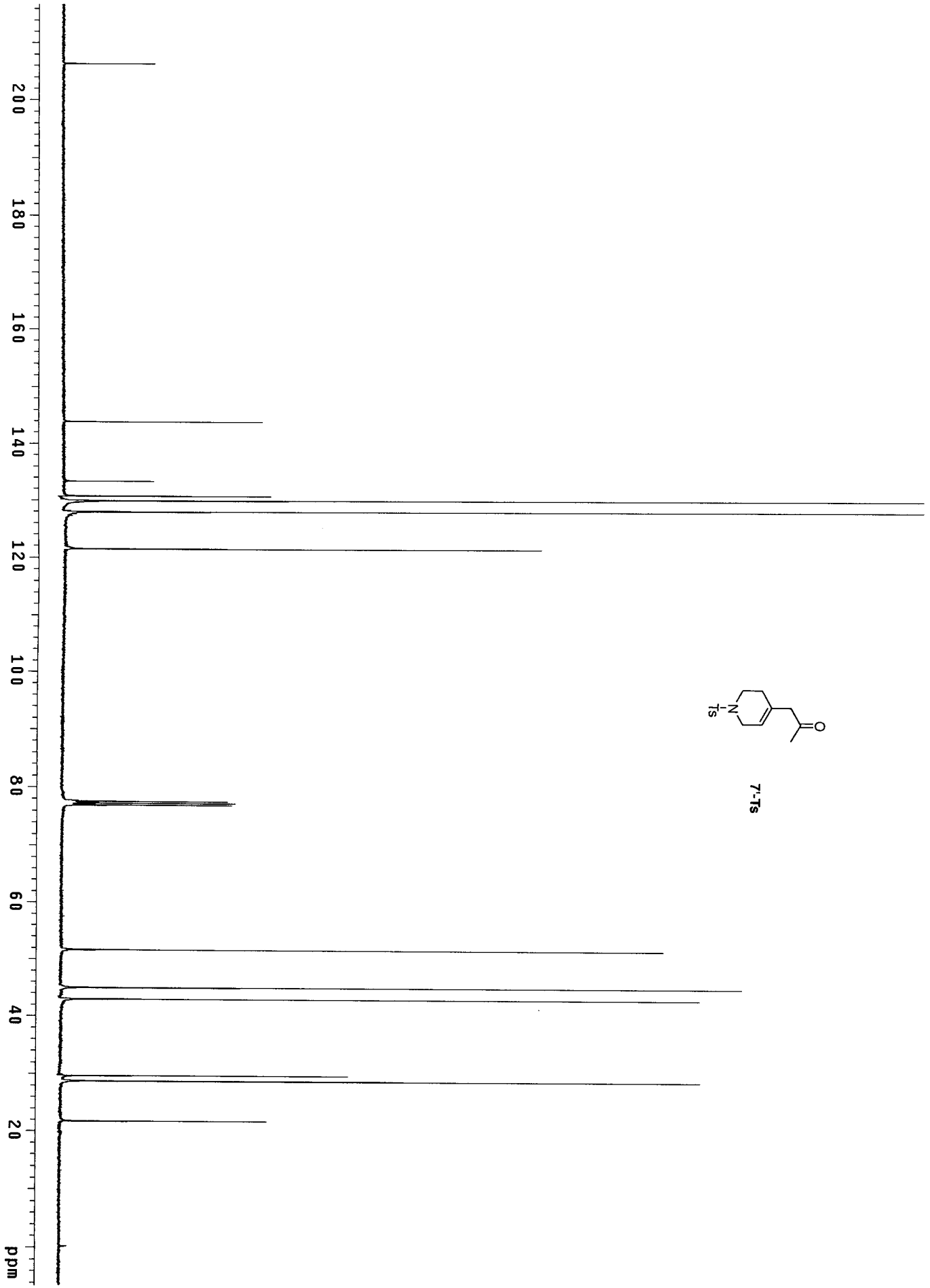
9-Ts-Me







7'-Ts



7i-Ts

Spectrum/Peak Report Date 5/30/2012 Time 13:59:40 Page 1 of 1

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Information : Default Method
Data File : <data not saved>

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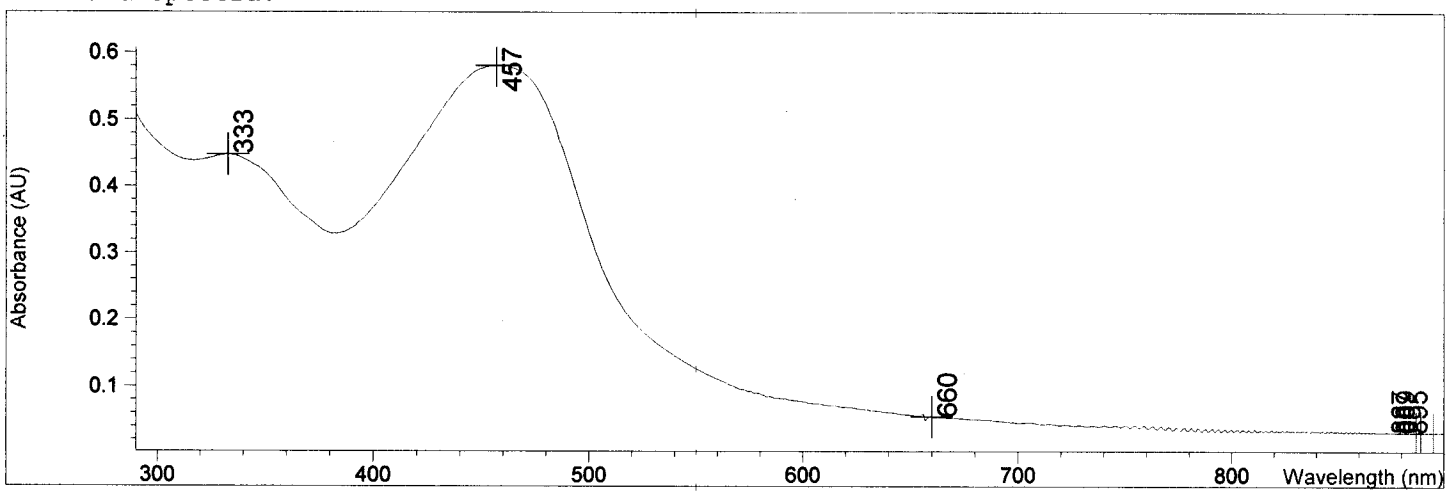
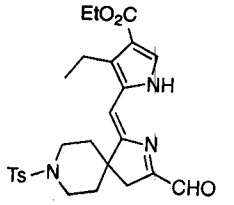


#	Name	Peaks(nm)	Abs(AU)	Valleys(nm)	Abs(AU)
1		457.0	0.58061	895.0	2.9790E-2
1		333.0	0.44775	889.0	2.9799E-2
1		660.0	5.4249E-2	887.0	2.9889E-2

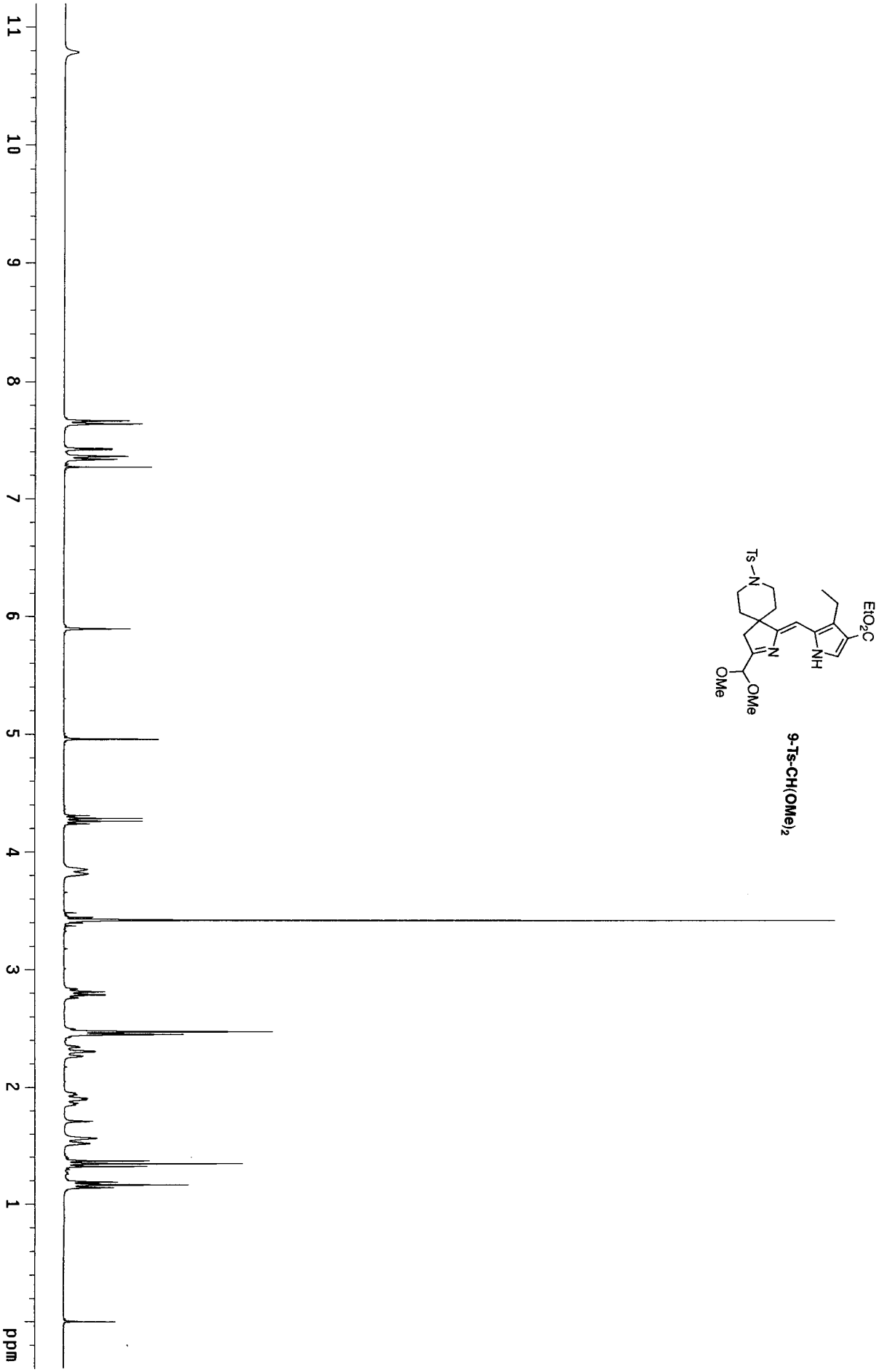
Report generated by : jon Signature: .....

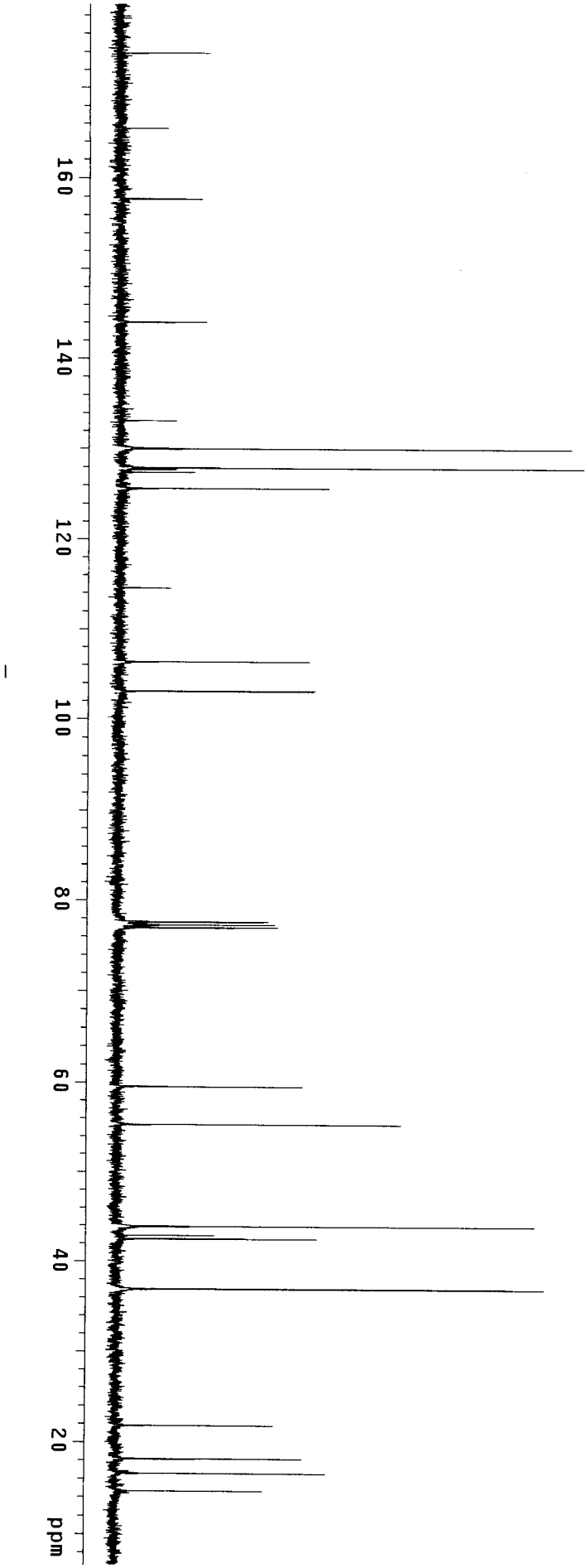
*** End Spectrum/Peak Report ***

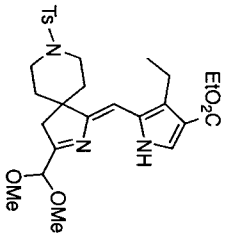


9-Ts-CHO

Solvent : Toluene







9-Ts-CH(OMe)$_2$

Spectrum/Peak Report Date 12/16/2012 Time 12:34:10 Page 1 of 1

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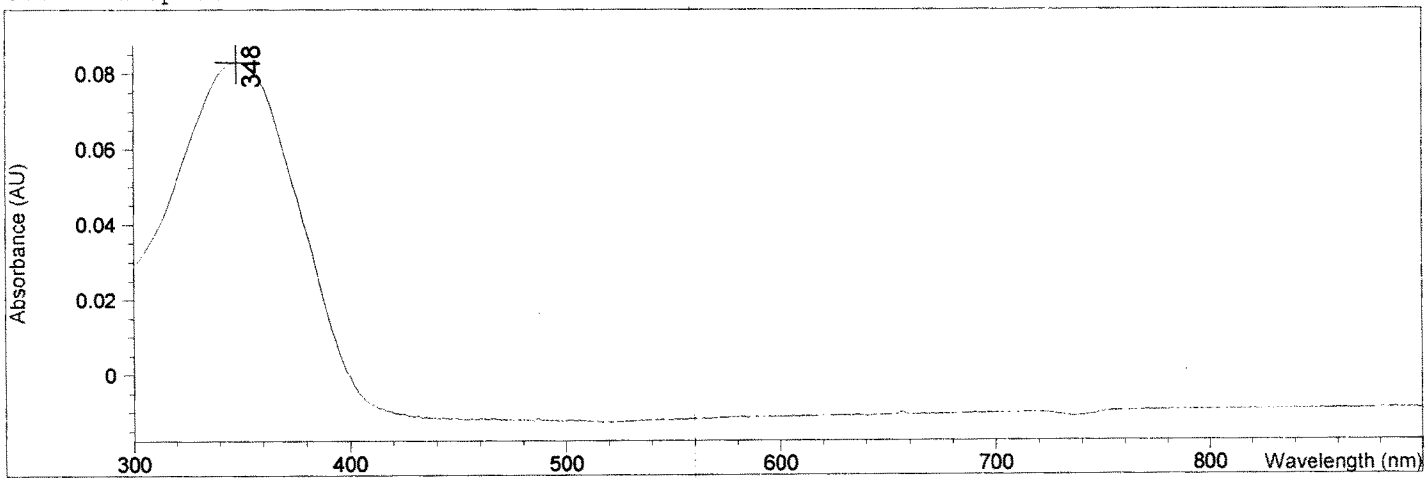

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Report generated by : Lindsey Lab Signature: .....

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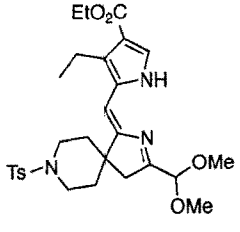


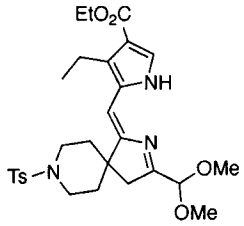
9-Ts-CH(OMe)$_2$

Solvent : Toluene

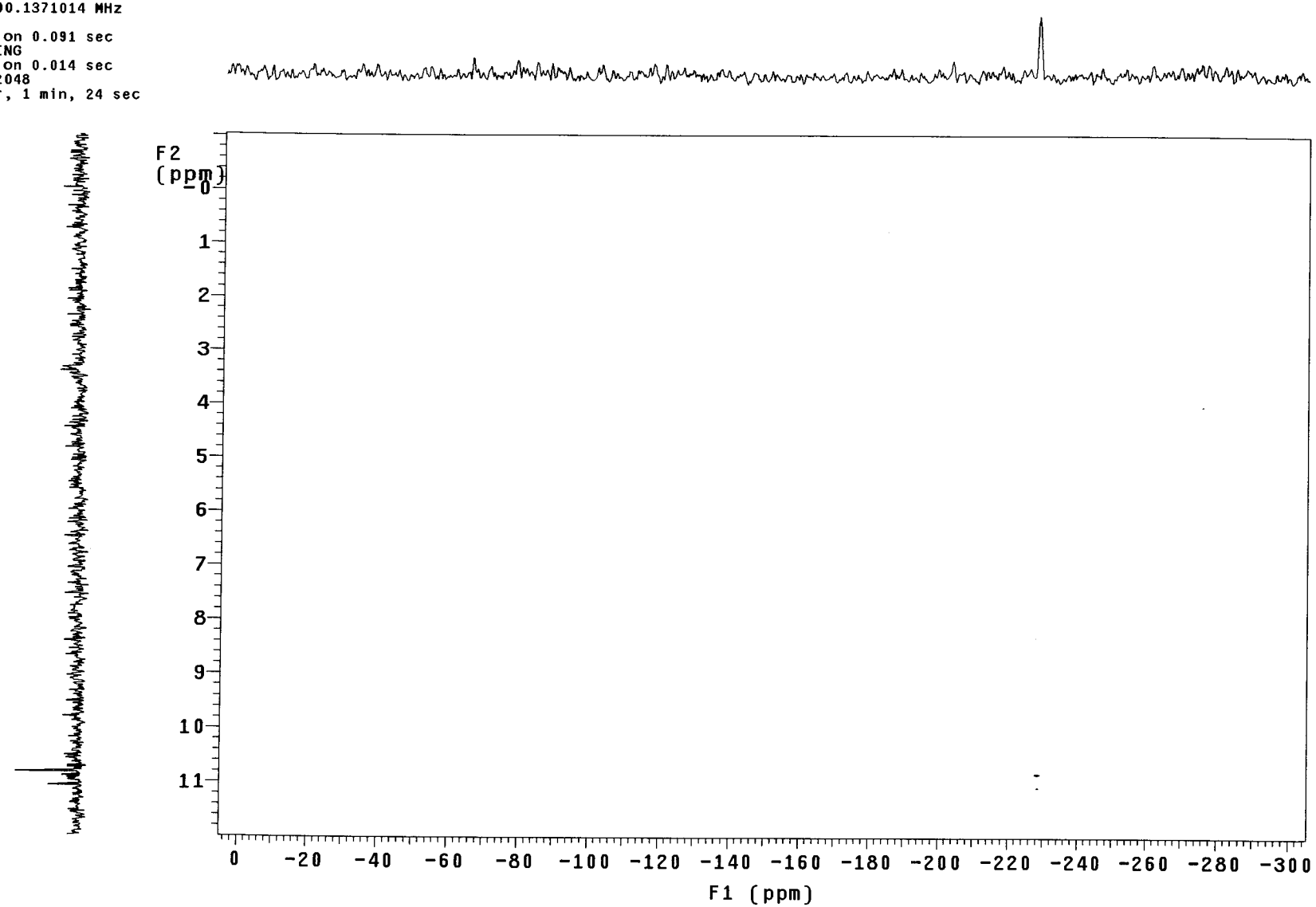
STANDARD 1H OBSERVE

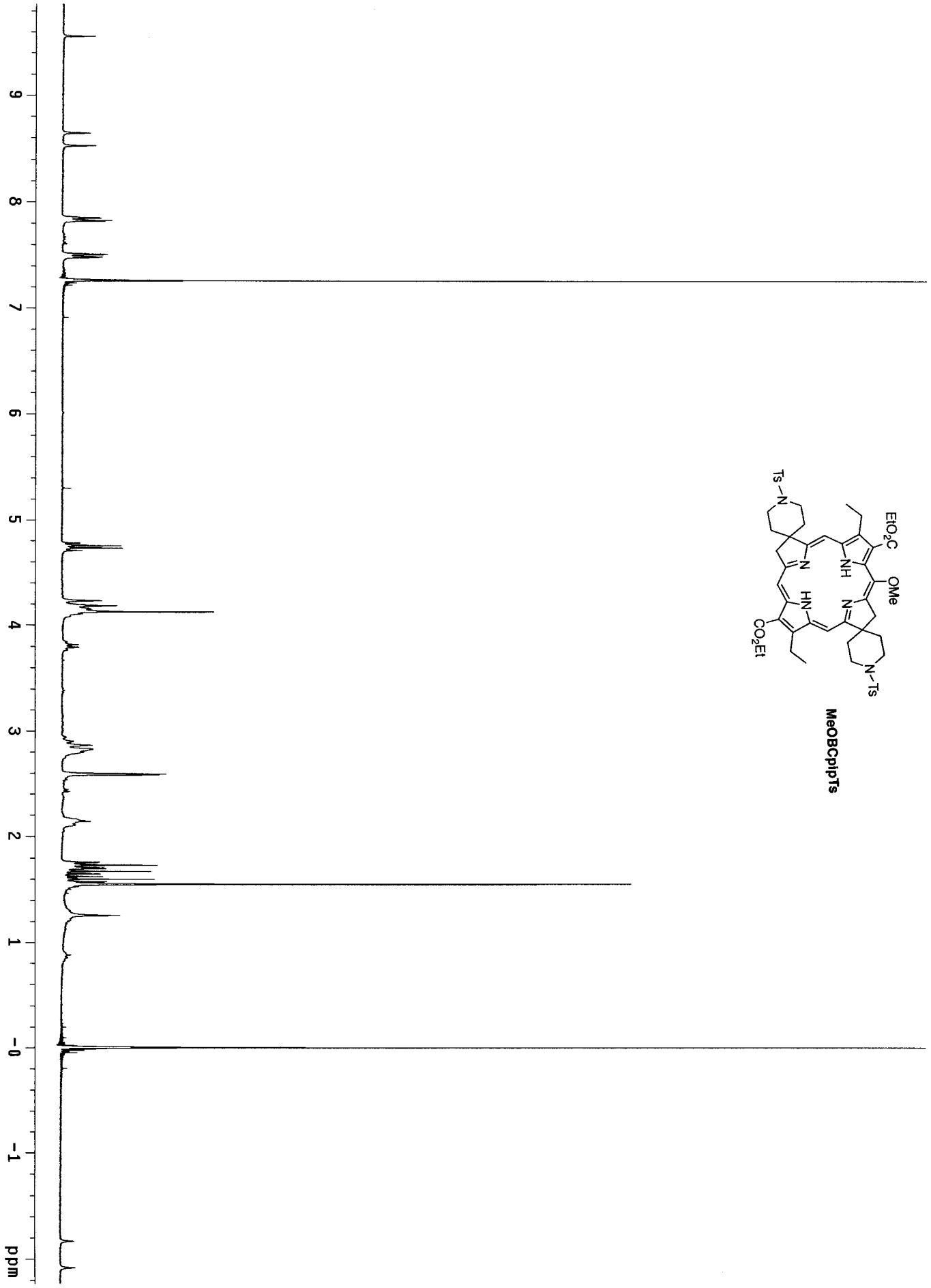
Pulse Sequence: gHSQC
Solvent: DMSO
Ambient temperature
File: el152-HSQC-DMSO
Mercury-400BB "ncsumerc400"

Relax. delay 1.000 sec
Acq. time 0.197 sec
Width 5211.0 Hz
2D Width 12594.5 Hz
128 repetitions
2 x 128 increments
OBSERVE H1, 400.1371014 MHz
DATA PROCESSING
Gauss apodization 0.091 sec
F1 DATA PROCESSING
Gauss apodization 0.014 sec
FT size 2048 x 2048
Total time 12 hr, 1 min, 24 sec



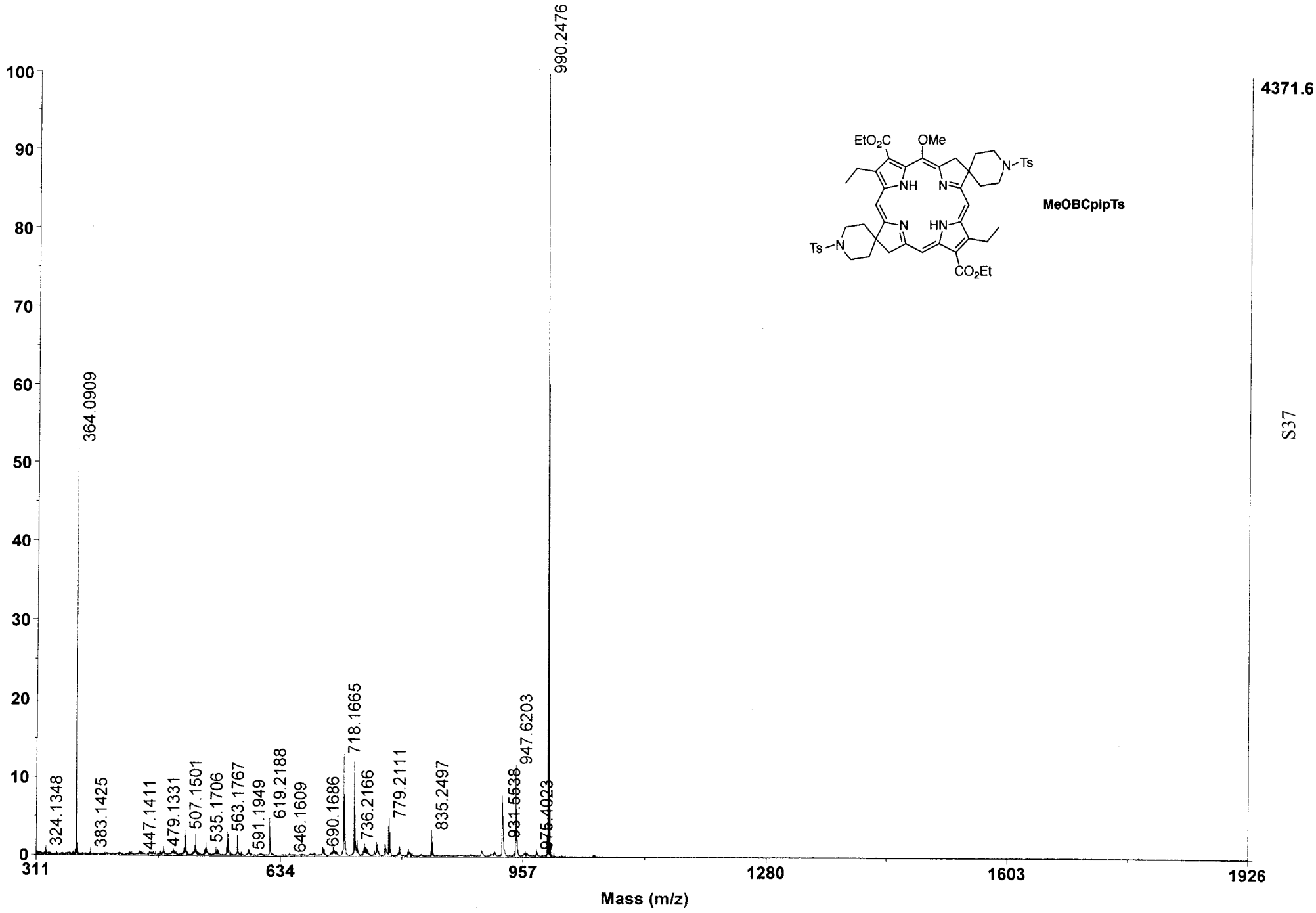
9-Ts-CH(OMe)$_2$





MeOBCpipTs

TOF/TOF™ Reflector Spec #1 MC[BP = 990.2, 4372]



MeOBCpipTs

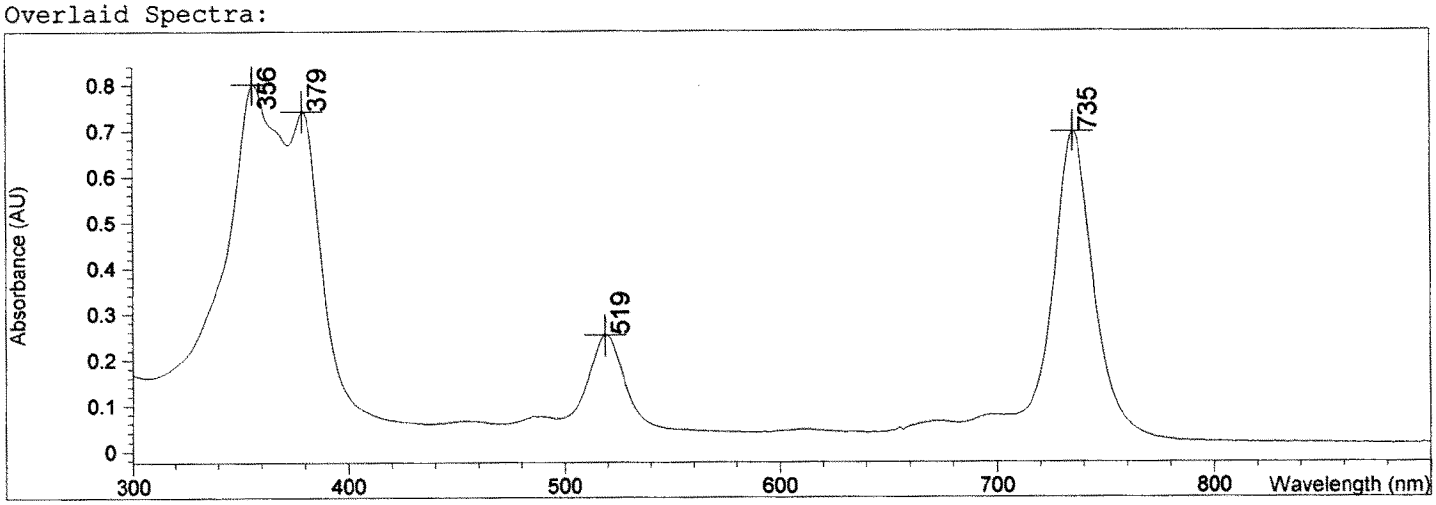
C:\AB SCIEX\TOFTOF Data\ExportT2D\User Project 1\Lindsey\Ramesh\KRR-211\E6_MS.t2d

Printed: 14:34, December 11, 2012

Spectrum/Peak Report Date 3/10/2012 Time 10:55:17 Page 1 of 1

Method file : LINDSEY.M (modified) Last update: Date 3/10/2012 Time 10:52:45 AM
Information : Default Method
Data File : <untitled>

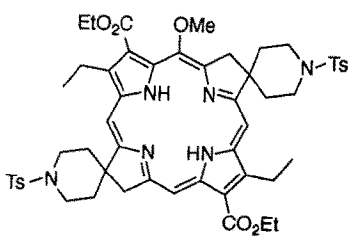
Overlaid Spectra:



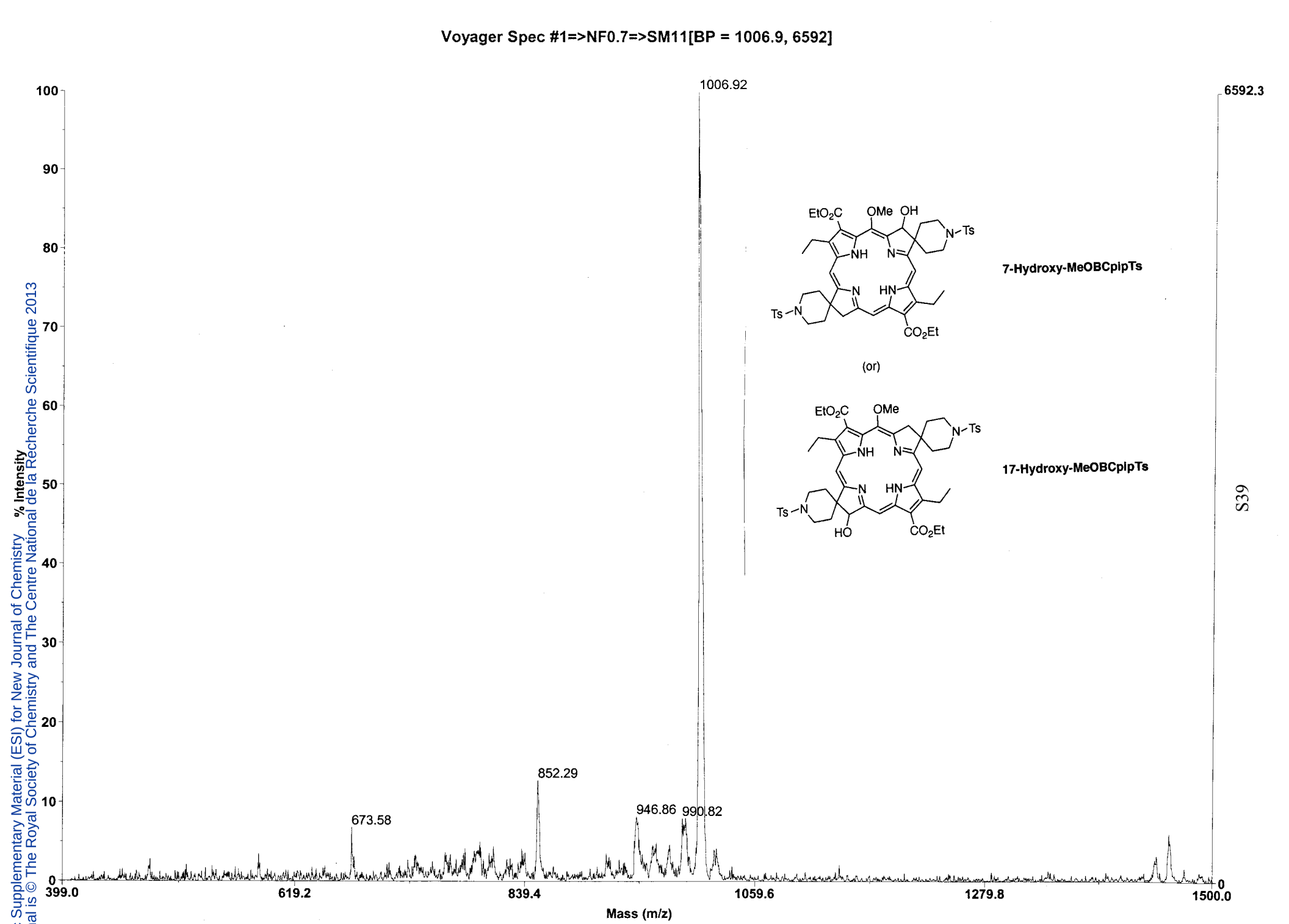
#	Name	Peaks(nm)	Abs(AU)
1		356.0	0.80170
1		379.0	0.74194
1		735.0	0.69536
1		519.0	0.25287

Report generated by : Lindsey Lab Signature: .....

*** End Spectrum/Peak Report ***



MeOBCpipTs



Spectrum/Peak Report Date 3/12/2012 Time 11:13:08 Page 1 of 1

Method file : LINDSEY.M (modified) Last update: Date 3/12/2012 Time 11:10:32 AM
Information : Default Method
Data File : <untitled>

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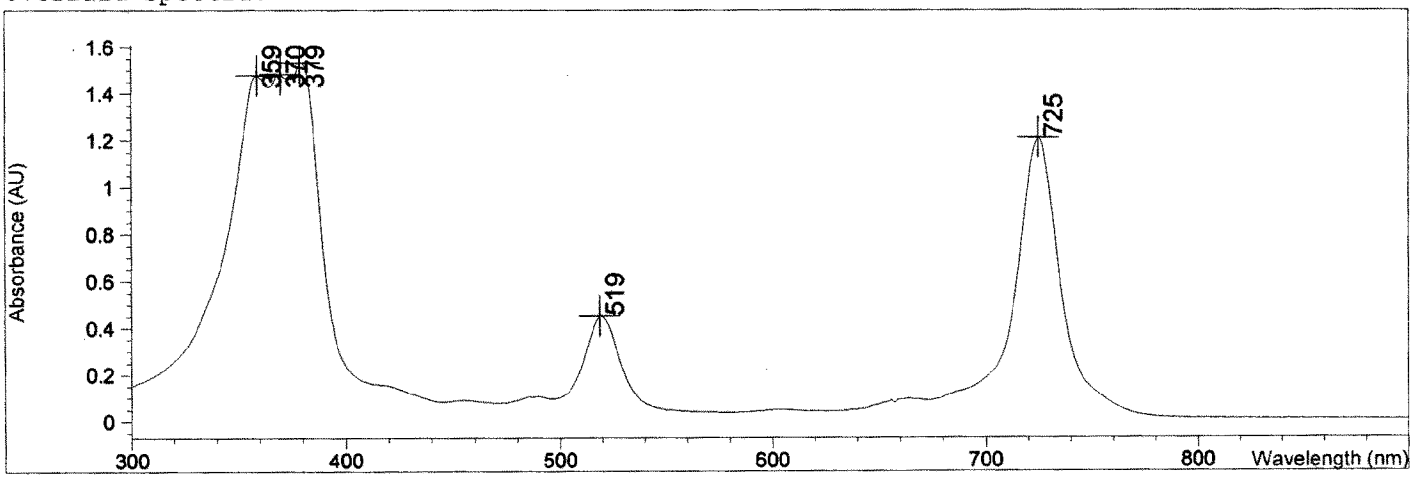
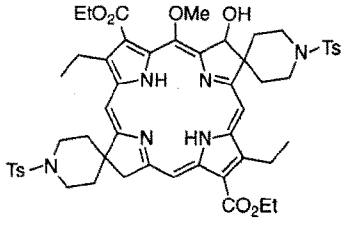


#	Name	Peaks(nm)	Abs(AU)
1		379.0	1.53440
1		370.0	1.48380
1		359.0	1.47870
1		725.0	1.21240
1		519.0	0.45254

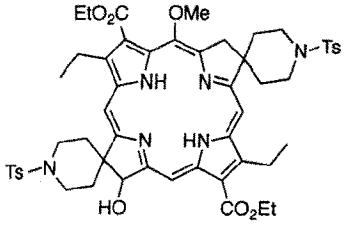
Report generated by : Lindsey Lab Signature: .....

*** End Spectrum/Peak Report ***

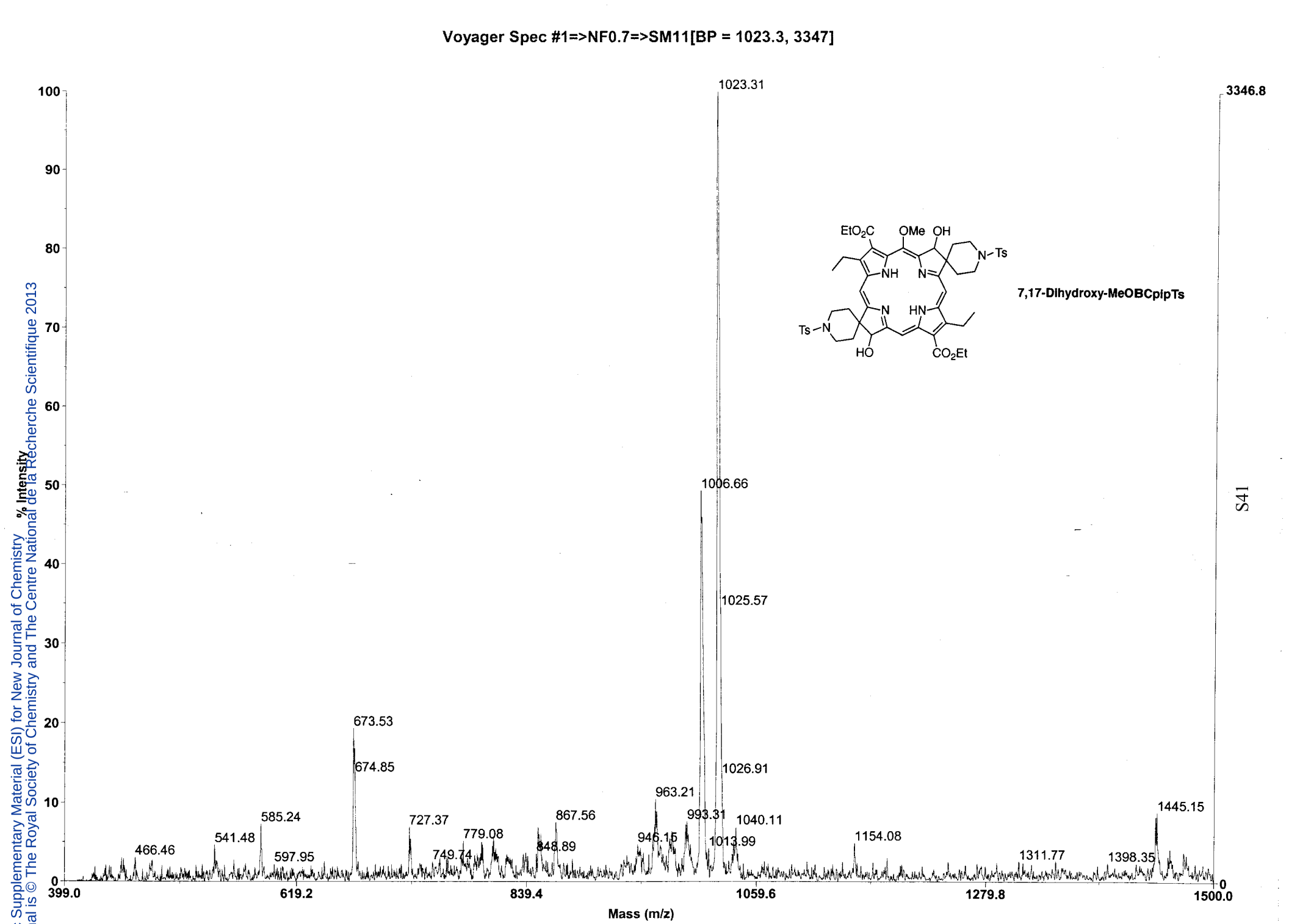


7-Hydroxy-MeOBCpipTs

(or)



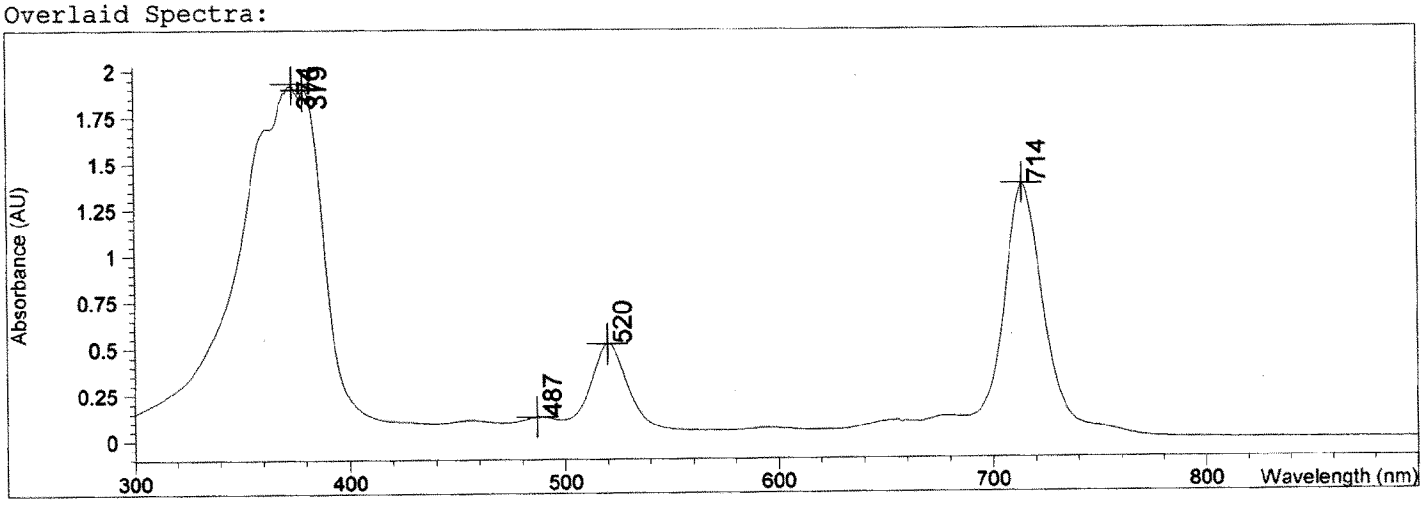
17-Hydroxy-MeOBCpipTs



Spectrum/Peak Report Date 3/12/2012 Time 11:12:41 Page 1 of 1

Method file : LINDSEY.M (modified) Last update: Date 3/12/2012 Time 11:10:32 AM
Information : Default Method
Data File : <untitled>

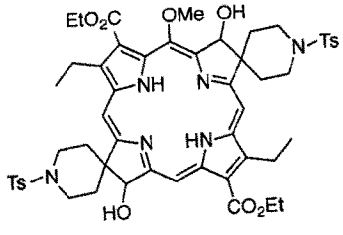
Overlaid Spectra:



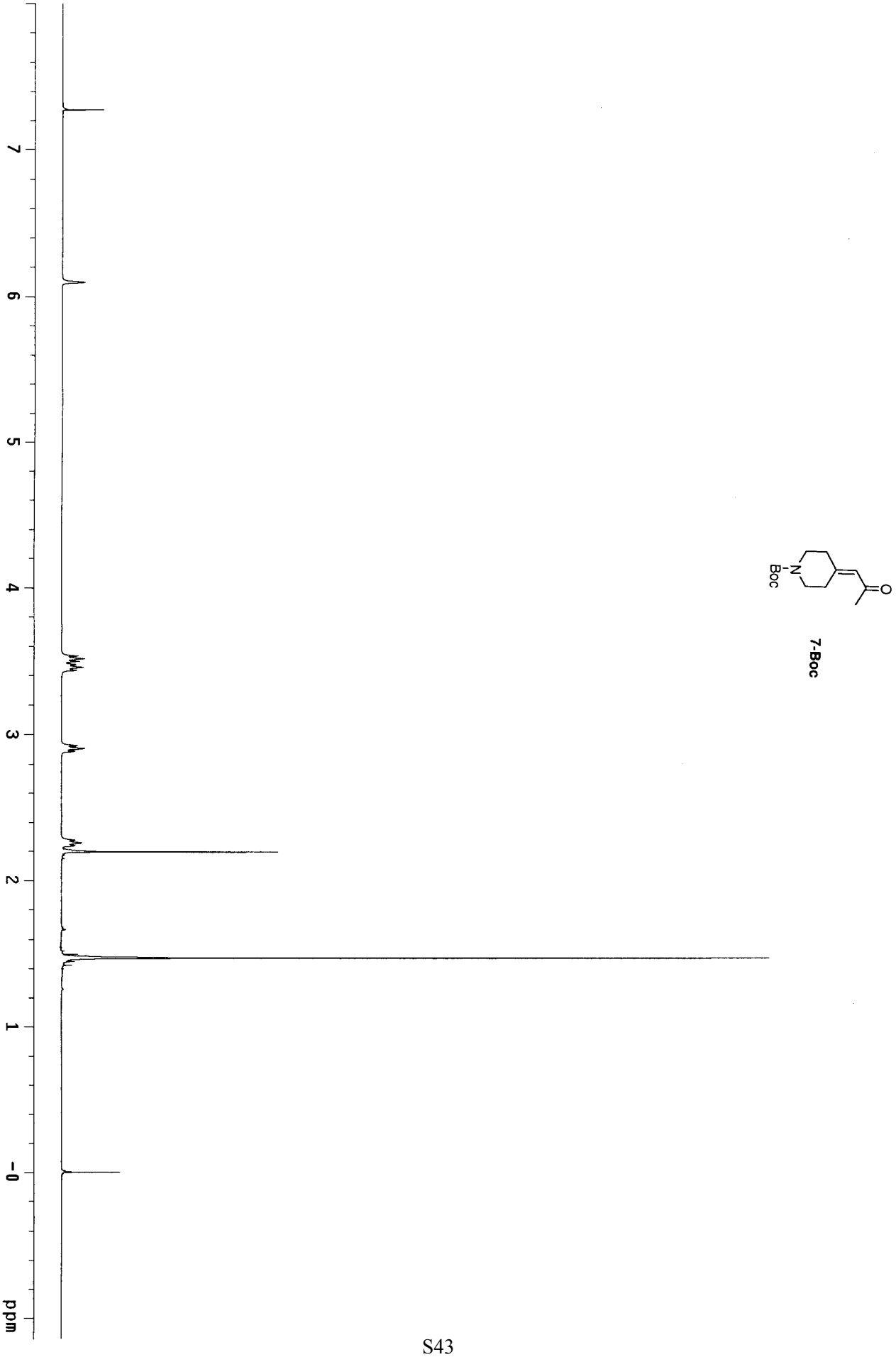
#	Name	Peaks(nm)	Abs(AU)
1		374.0	1.93260
1		379.0	1.89910
1		714.0	1.37900
1		520.0	0.51990
1		487.0	0.12792

Report generated by : Lindsey Lab Signature: .....

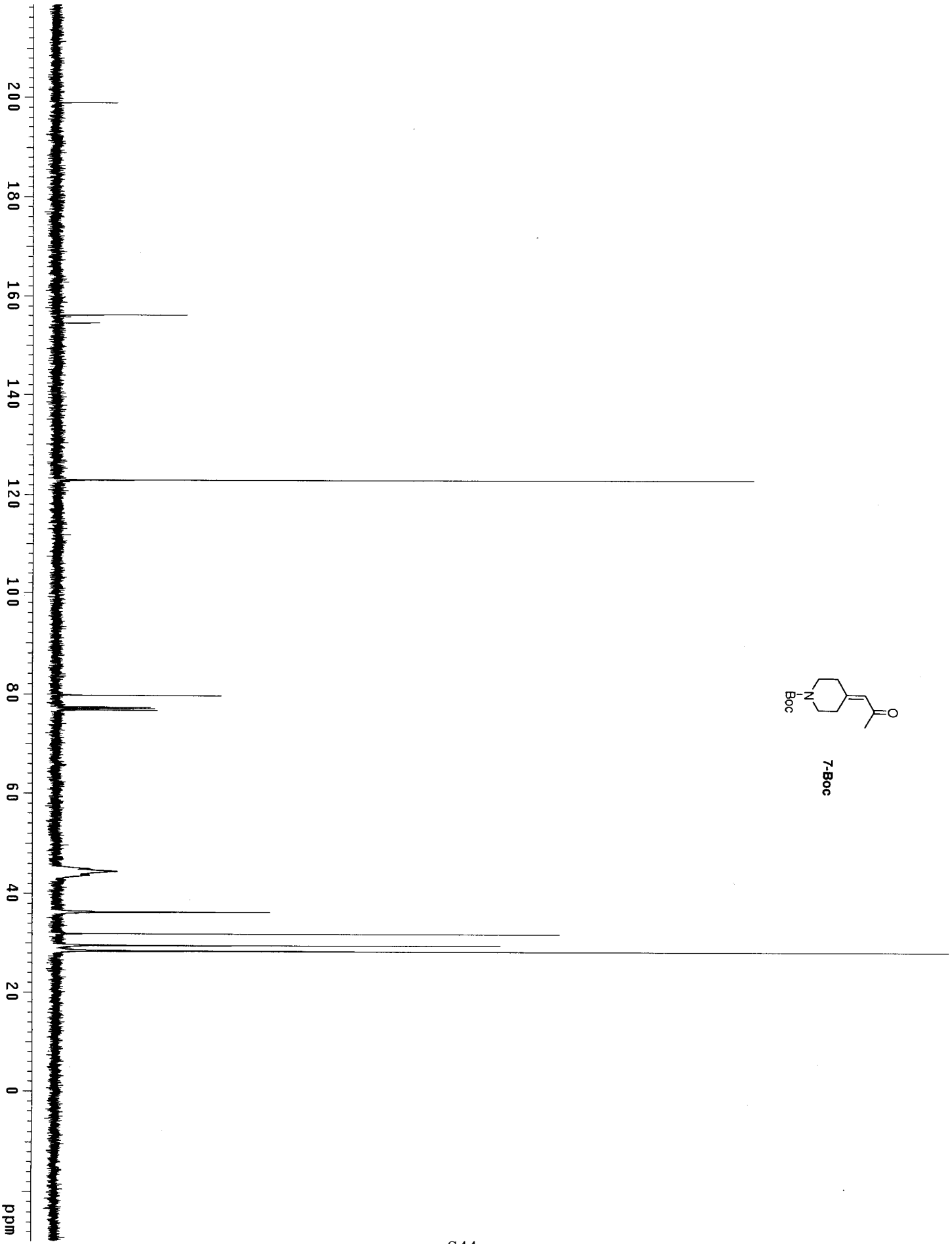
*** End Spectrum/Peak Report ***



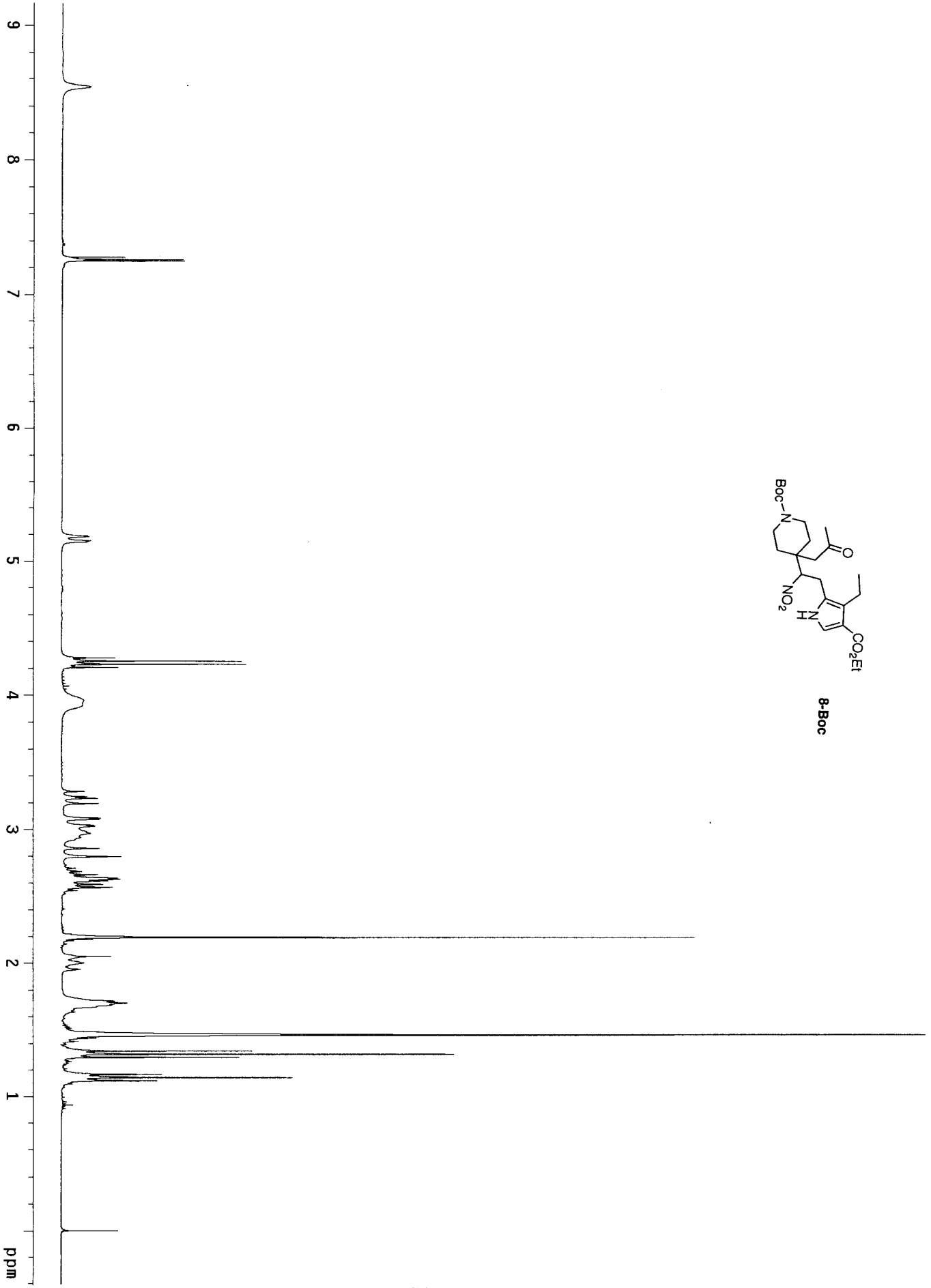
7,17-Dihydroxy-MeOBCpipTs



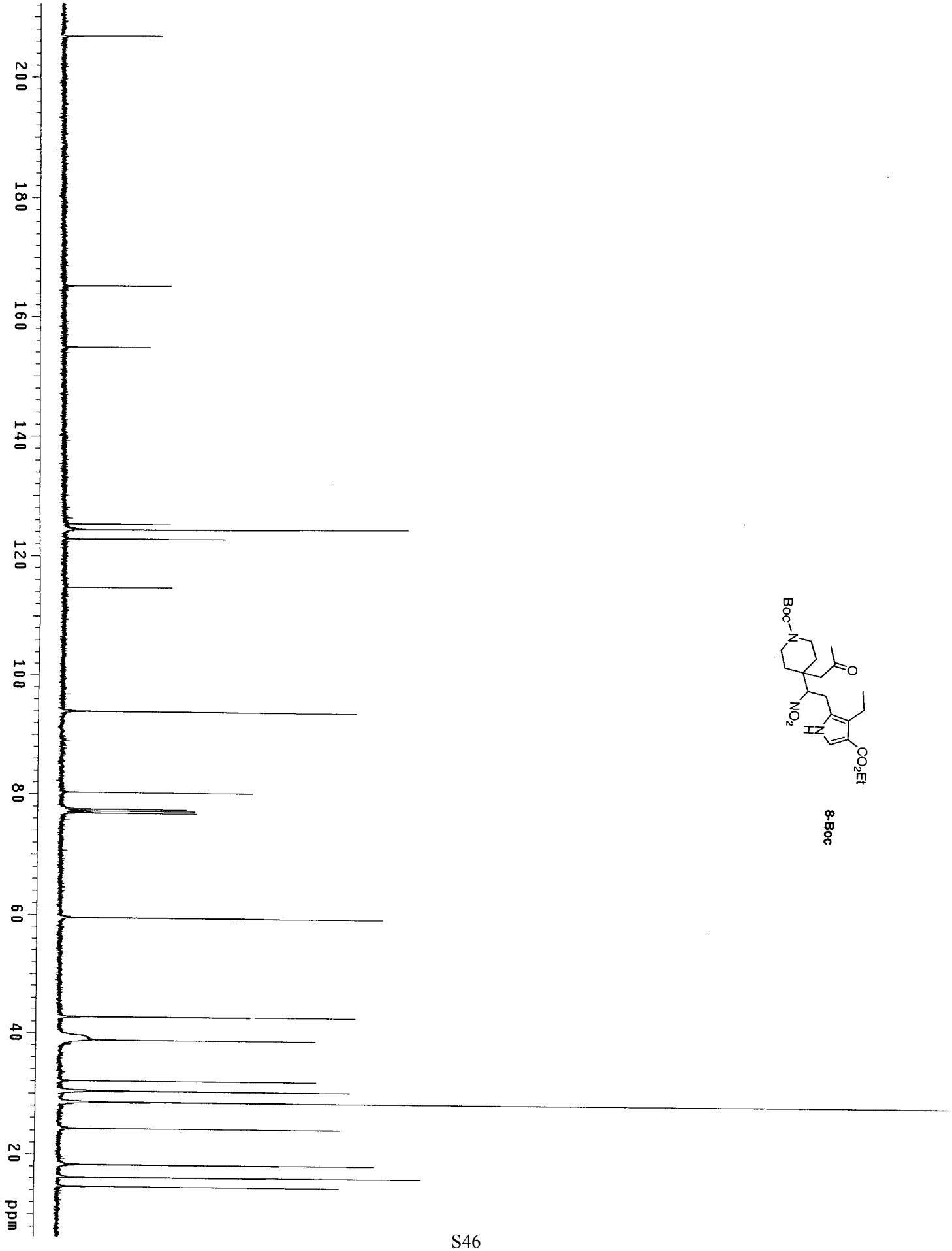
7-Boc



7-Boc



8-Boc

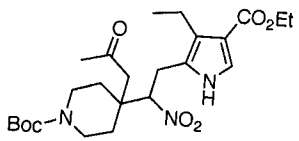


8-Boc

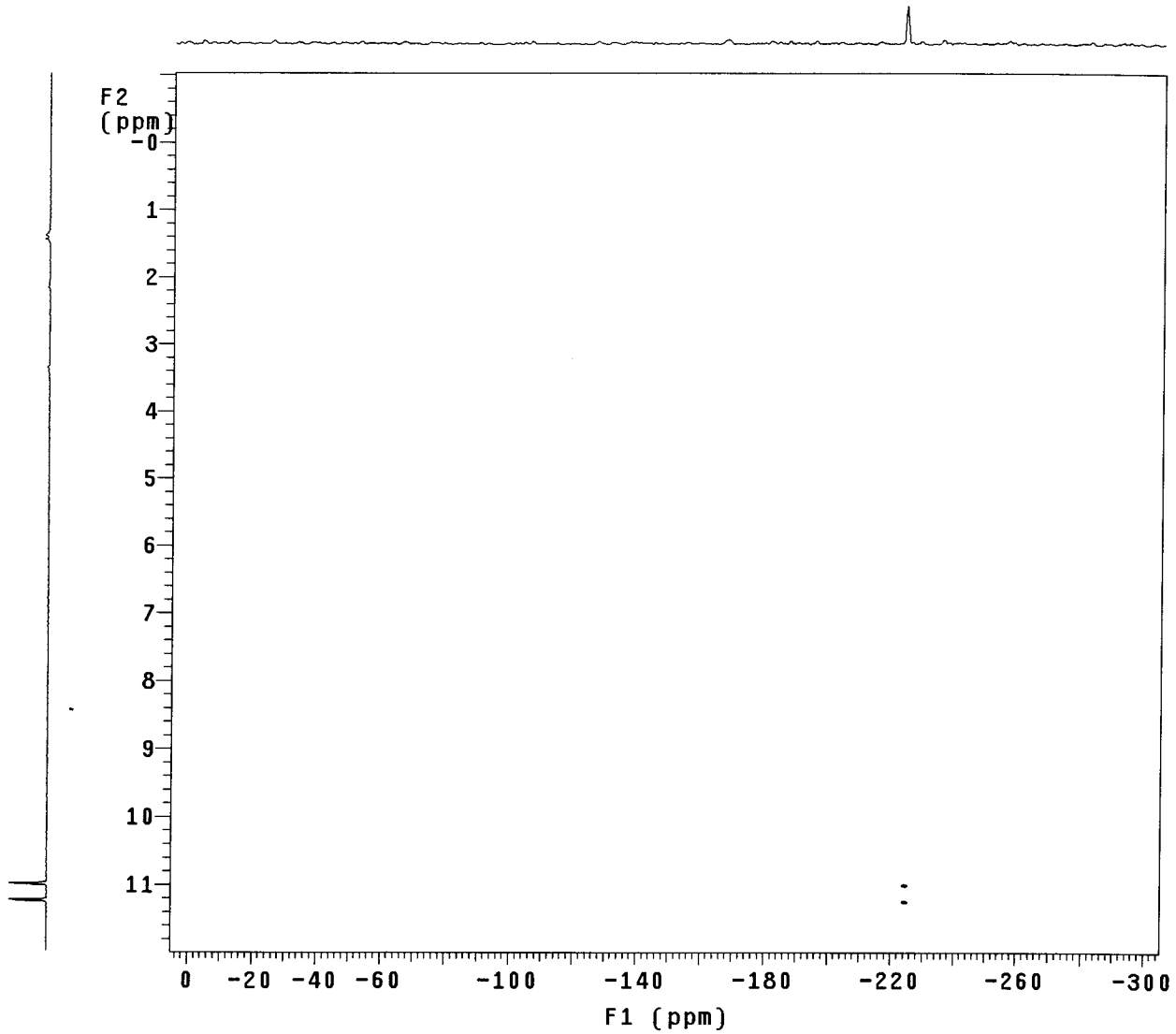
STANDARD 1H OBSERVE

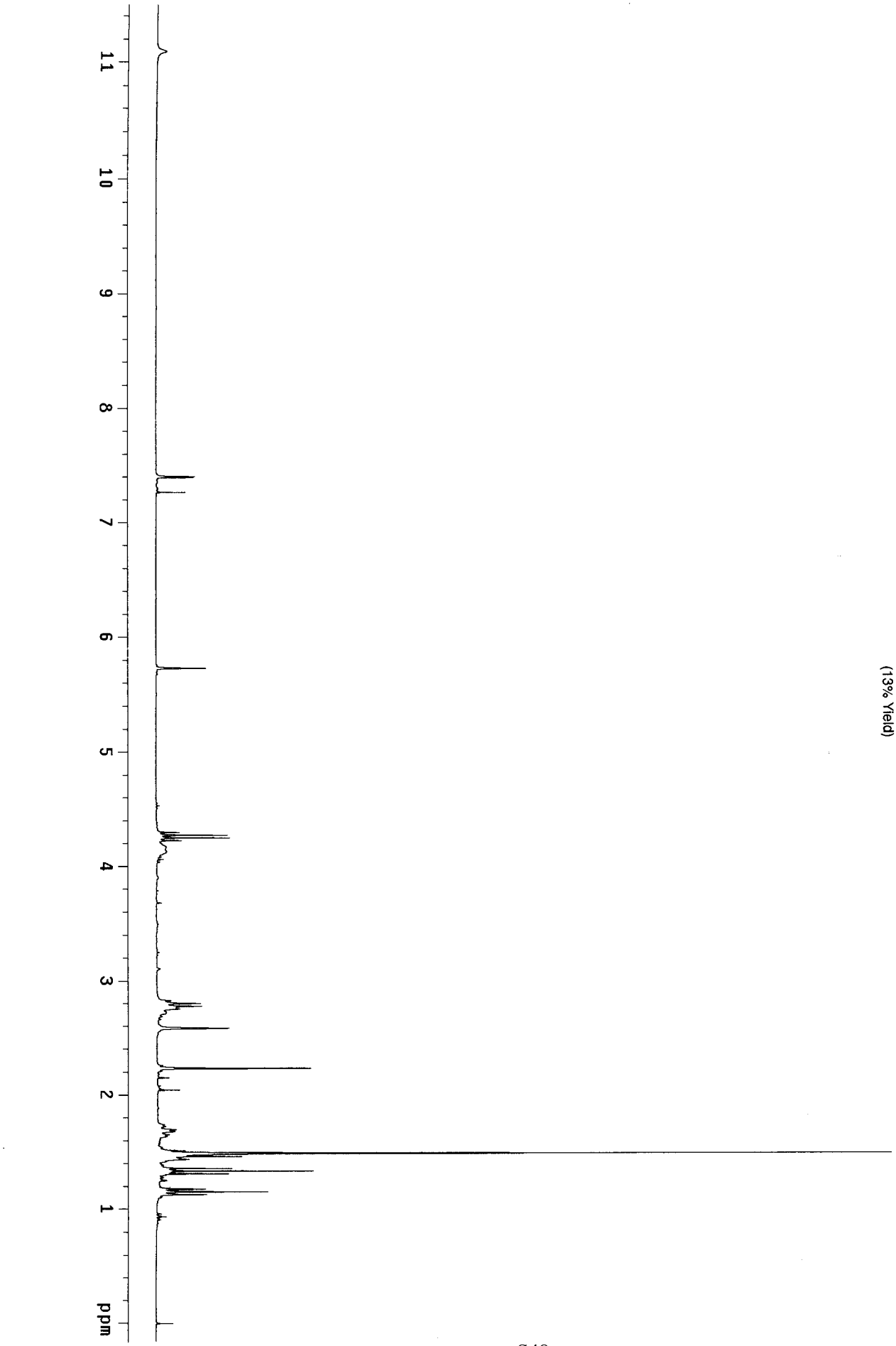
Pulse Sequence: gHSQC
Solvent: DMSO
Ambient temperature
File: krr218-DMSO-HSQC
Mercury-400BB "ncsumerc400"

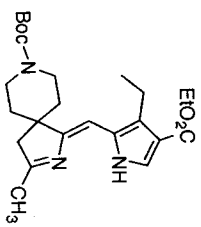
Relax. delay 1.000 sec
Acq. time 0.197 sec
Width 5211.0 Hz
2D Width 12594.5 Hz
32 repetitions
2 x 128 increments
OBSERVE H1, 400.1371014 MHz
DATA PROCESSING
Gauss apodization 0.091 sec
F1 DATA PROCESSING
Gauss apodization 0.014 sec
FT size 2048 x 2048
Total time 3 hr, 1 min, 0 sec



8-Boc

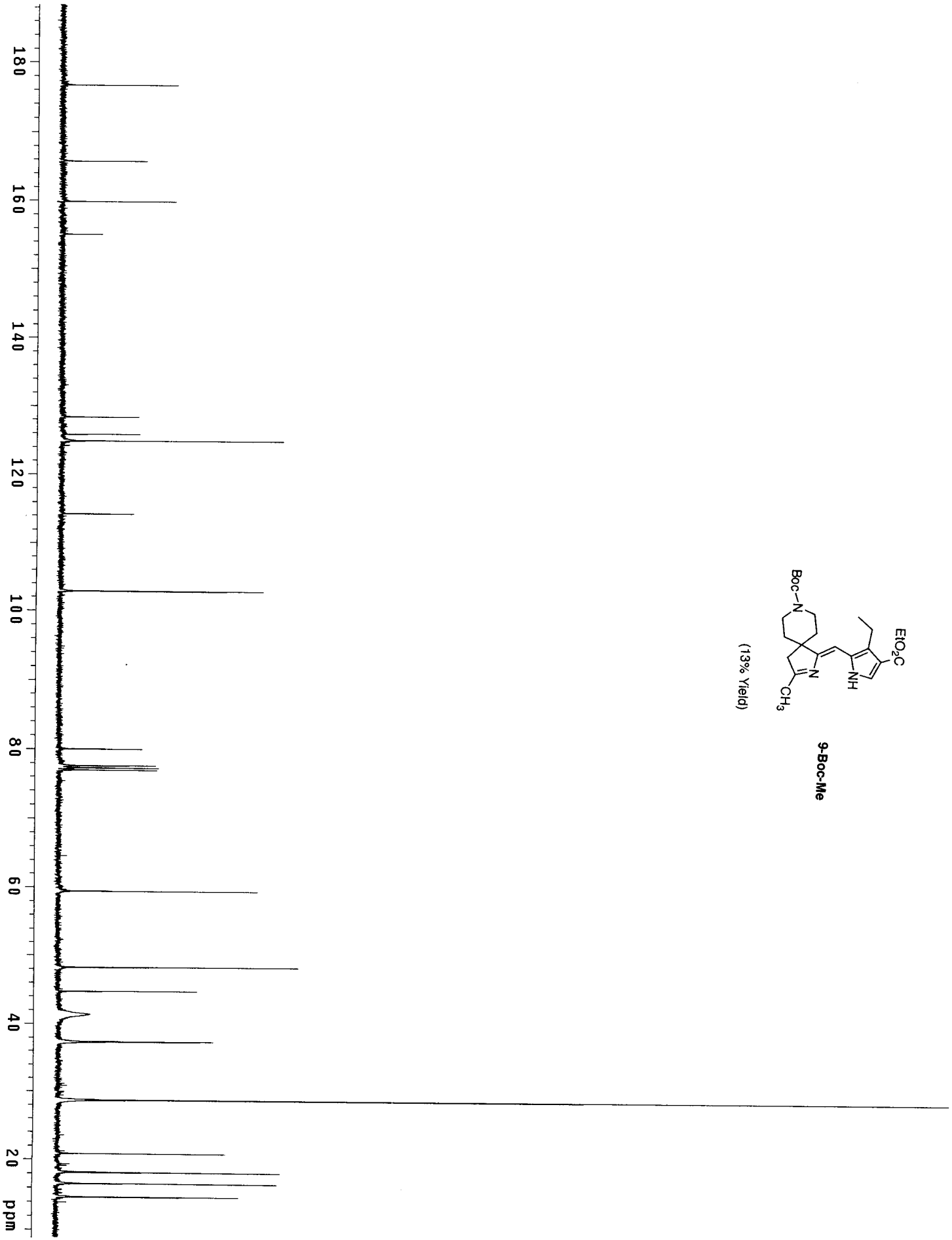






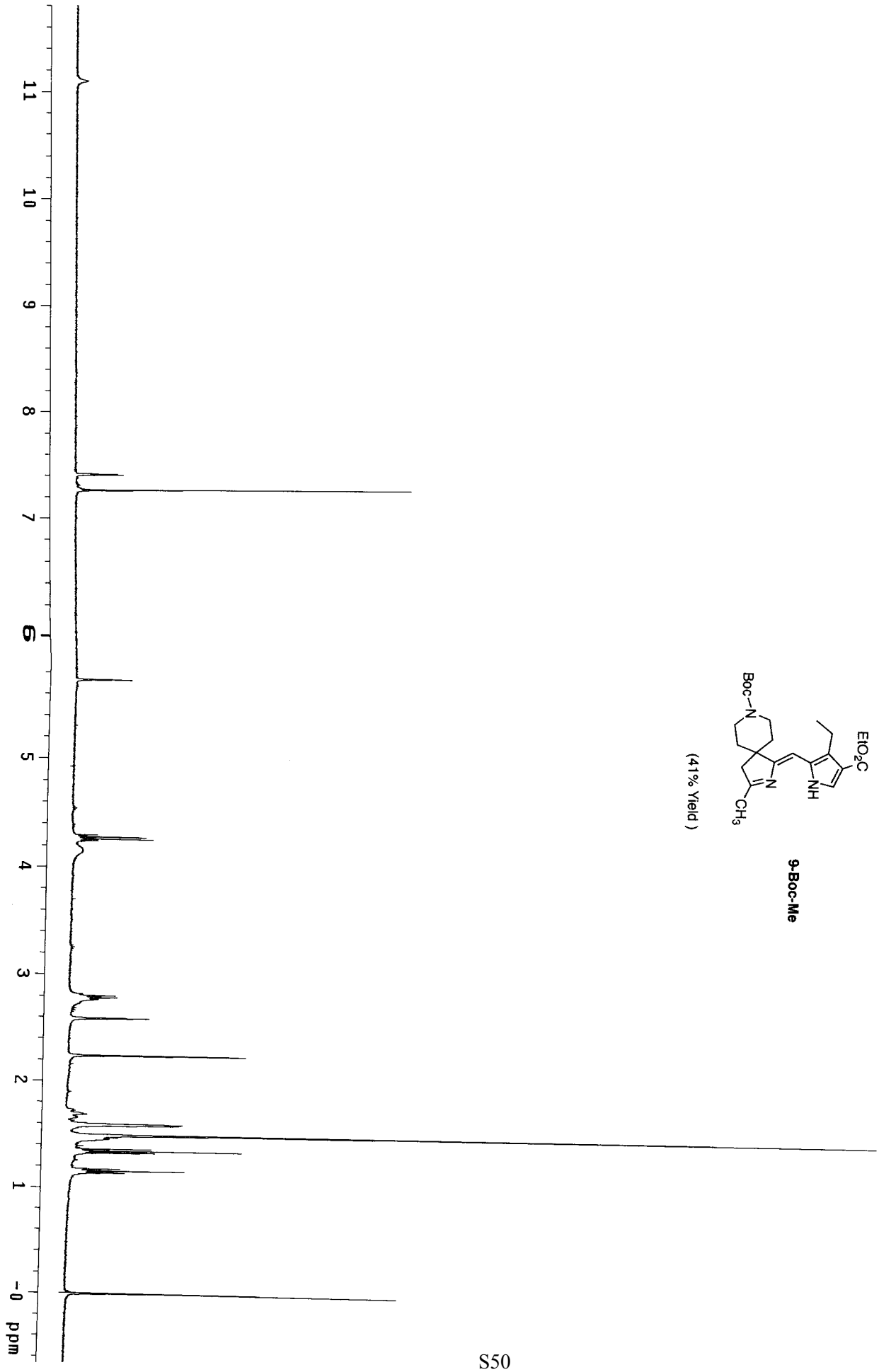
9-Boc-Me

(13% Yield)



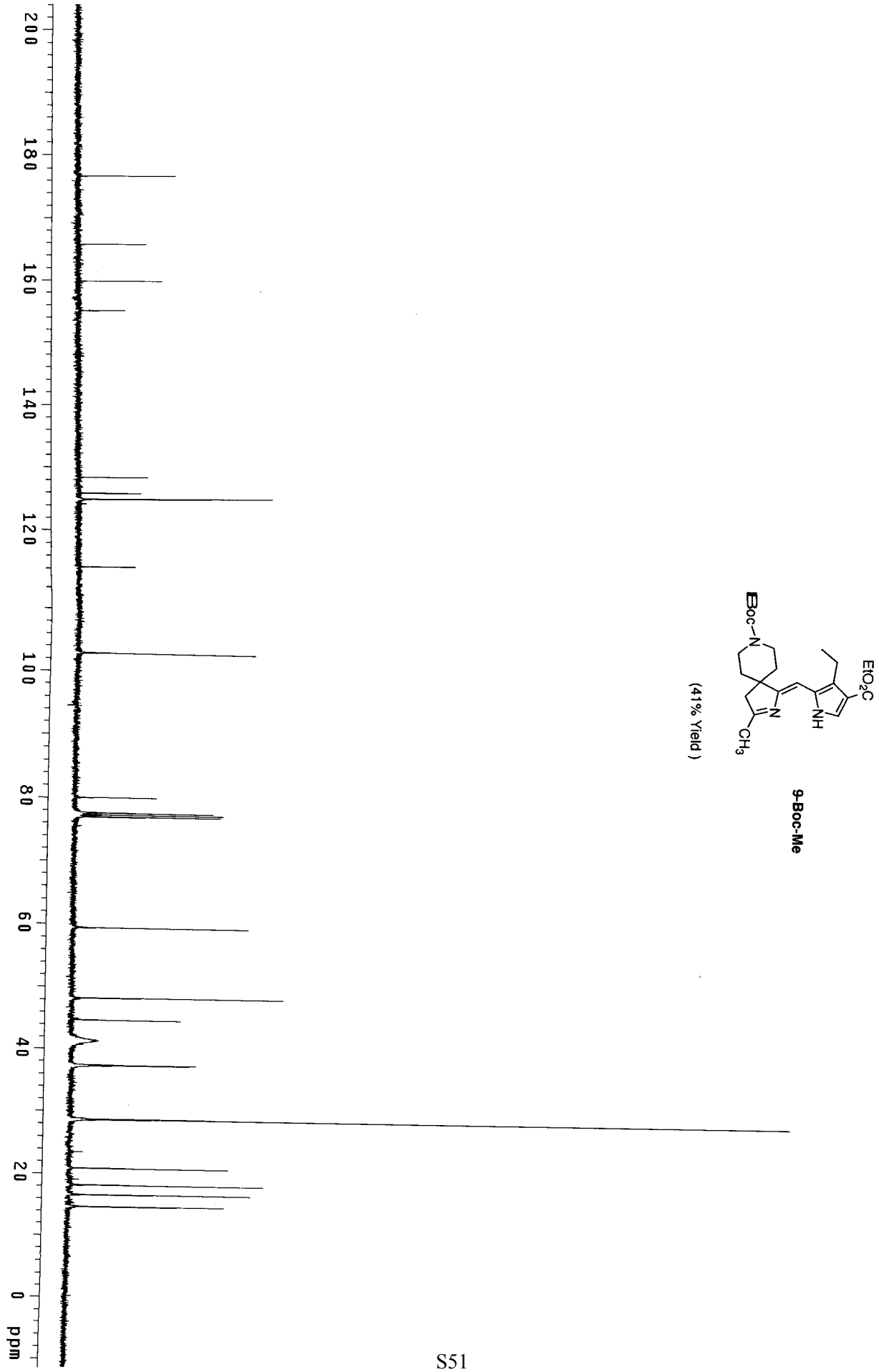
9-Boc-Me

(13% Yield)



9-Boc-Me

(41% Yield)



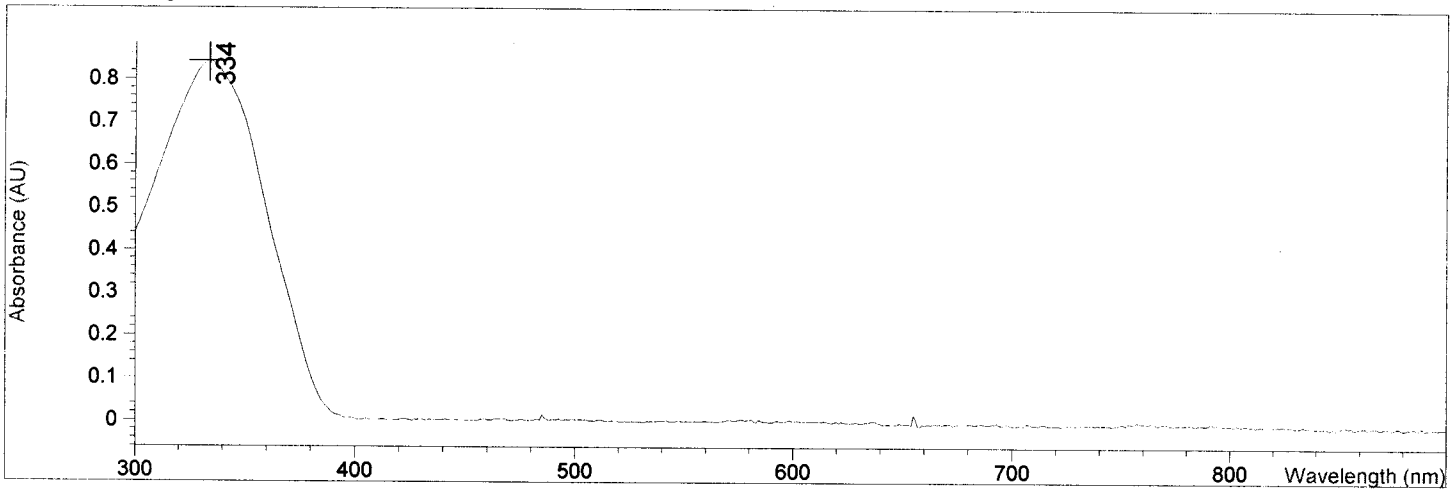
(41% Yield)

9-Boc-Me

Spectrum/Peak Report Date 12/16/2012 Time 11:41:21 Page 1 of 1

Method file : <untitled>
Information : Default Method
Data File : C:\Chem32\1\DATA\Ramesh\KRR219 METHYL CR.SD Created : 5/11/12 12:11:34

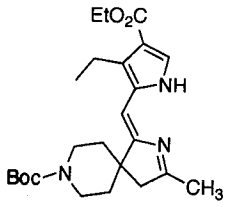
Overlaid Spectra:



#	Name	Peaks(nm)	Abs(AU)
1		334.0	0.84279

Report generated by : Lindsey Lab Signature: .....

*** End Spectrum/Peak Report ***

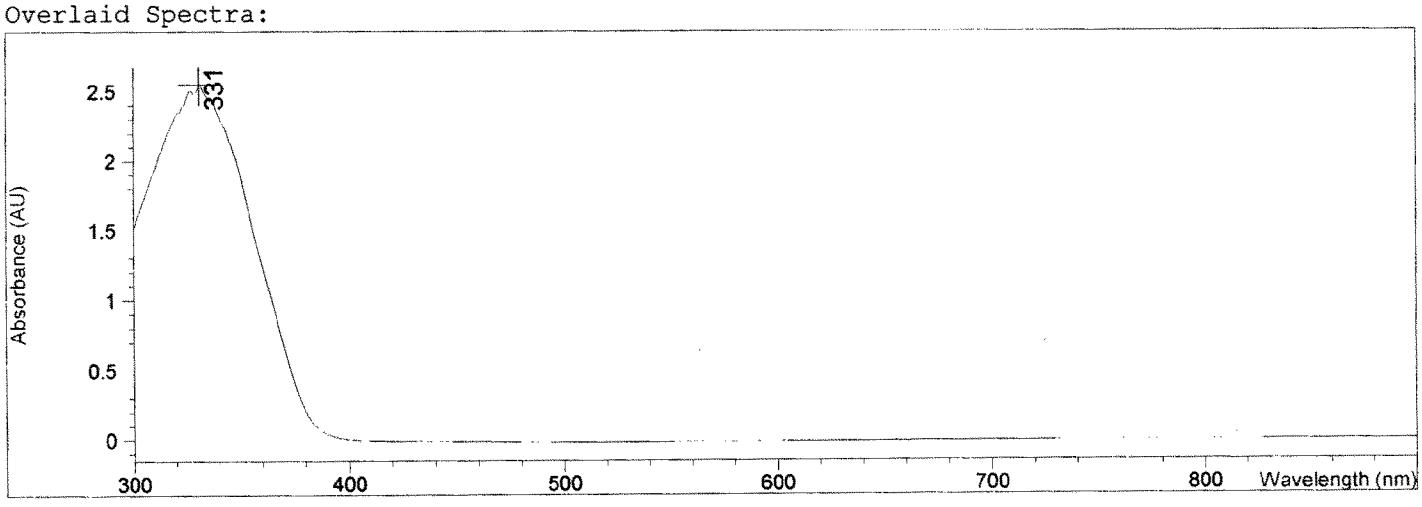


9-Boc-Me

Spectrum/Peak Report Date 12/16/2012 Time 13:11:02 Page 1 of 1

Method file : <untitled>
Information : Default Method
Data File : C:\CHEM32\1\DATA\RAMESH\N-BOC-ME(DIETHYL ETHER).SD Created : 12/16/12 13:08:18

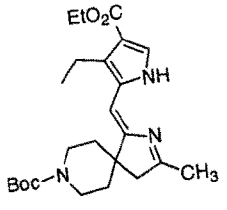
Overlaid Spectra:



#	Name	Peaks(nm)	Abs(AU)
1		331.0	2.54880

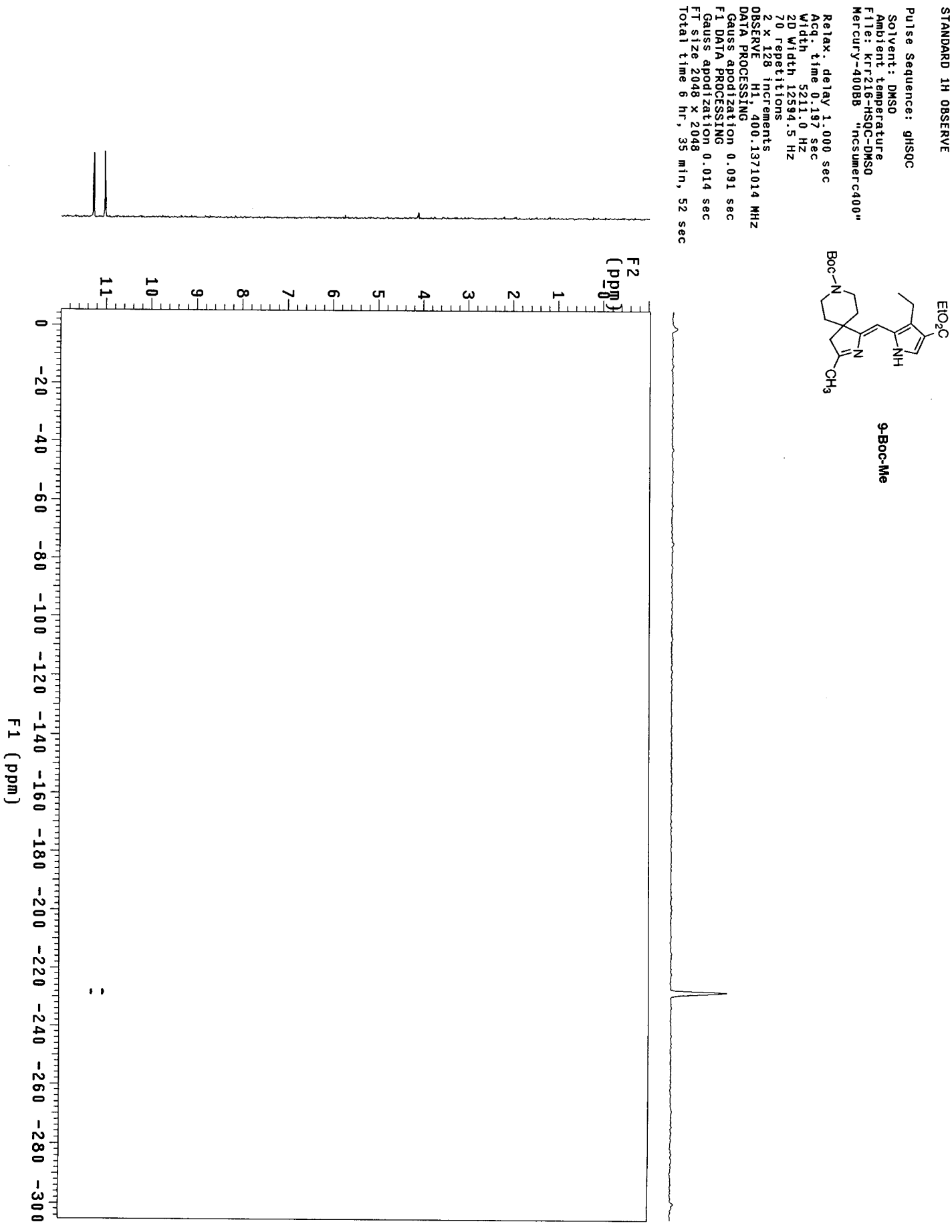
Report generated by : Lindsey Lab Signature: .....

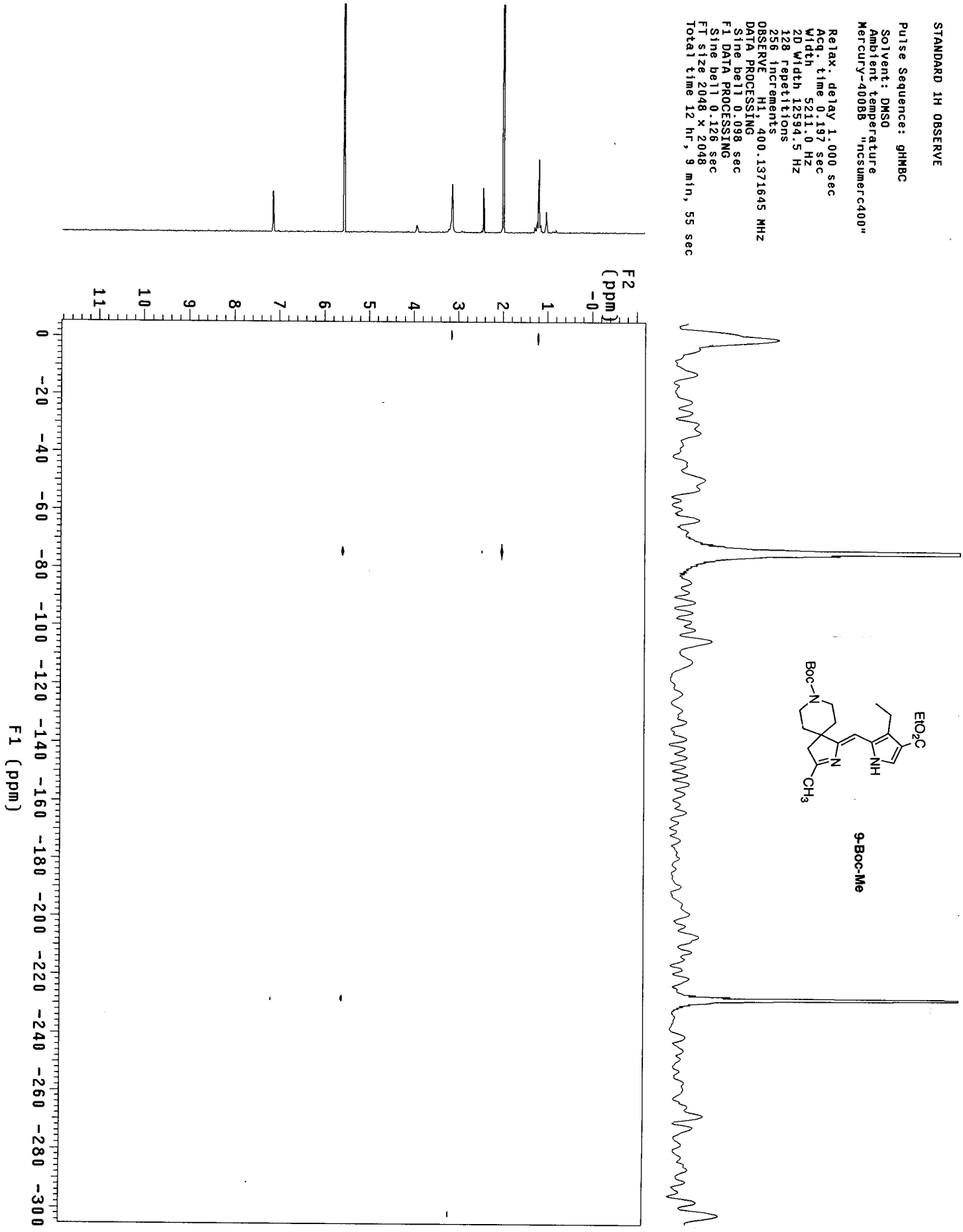
*** End Spectrum/Peak Report ***



9-Boc-Me

Solvent : Diethyl ether

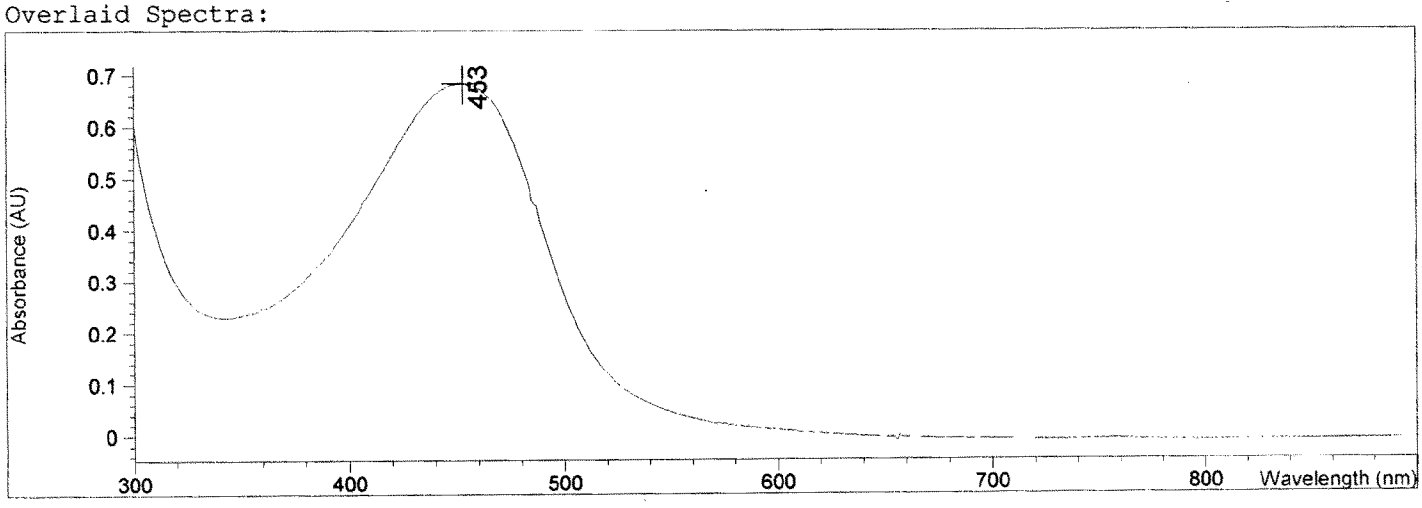




Spectrum/Peak Report Date 12/16/2012 Time 12:42:07 Page 1 of 1

Method file : <untitled>
Information : Default Method
Data File : C:\CHEM32\1\DATA\RAMESH\KRR-N-BOC-ALDEHYDE(11-BOC-CHO).SD
Created : 8/1/12 11:12:40

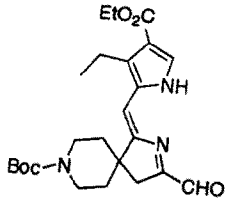
Overlaid Spectra:



#	Name	Peaks(nm)	Abs(AU)
1		453.0	0.68349

Report generated by : Lindsey Lab Signature: .....

*** End Spectrum/Peak Report ***

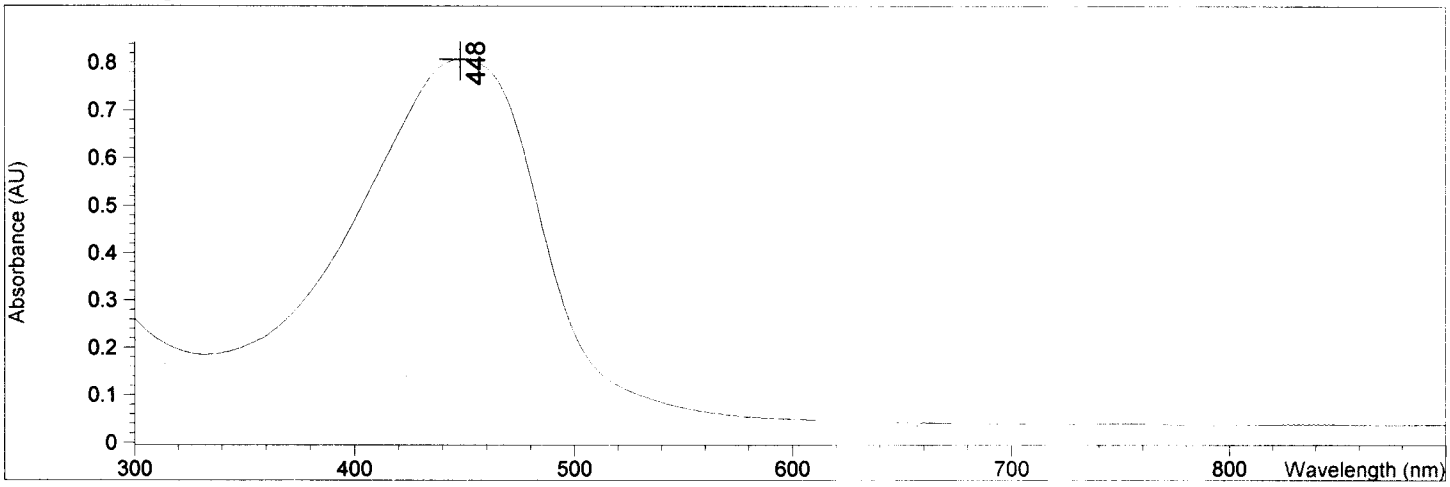


9-Boc-CHO

Spectrum/Peak Report Date 12/16/2012 Time 13:41:25 Page 1 of 1

Method file : <method not saved>
Information : Default Method
Data File : C:\Chem32\1\DATA\Elisa\data222\11-BOC-CHO_DIETHYL ETHER.SD
Created : 7/2/12 9:57:14

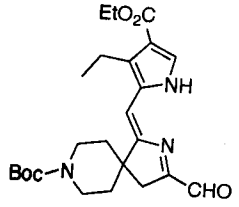
Overlaid Spectra:



#	Name	Peaks(nm)	Abs(AU)
1		448.0	0.80710

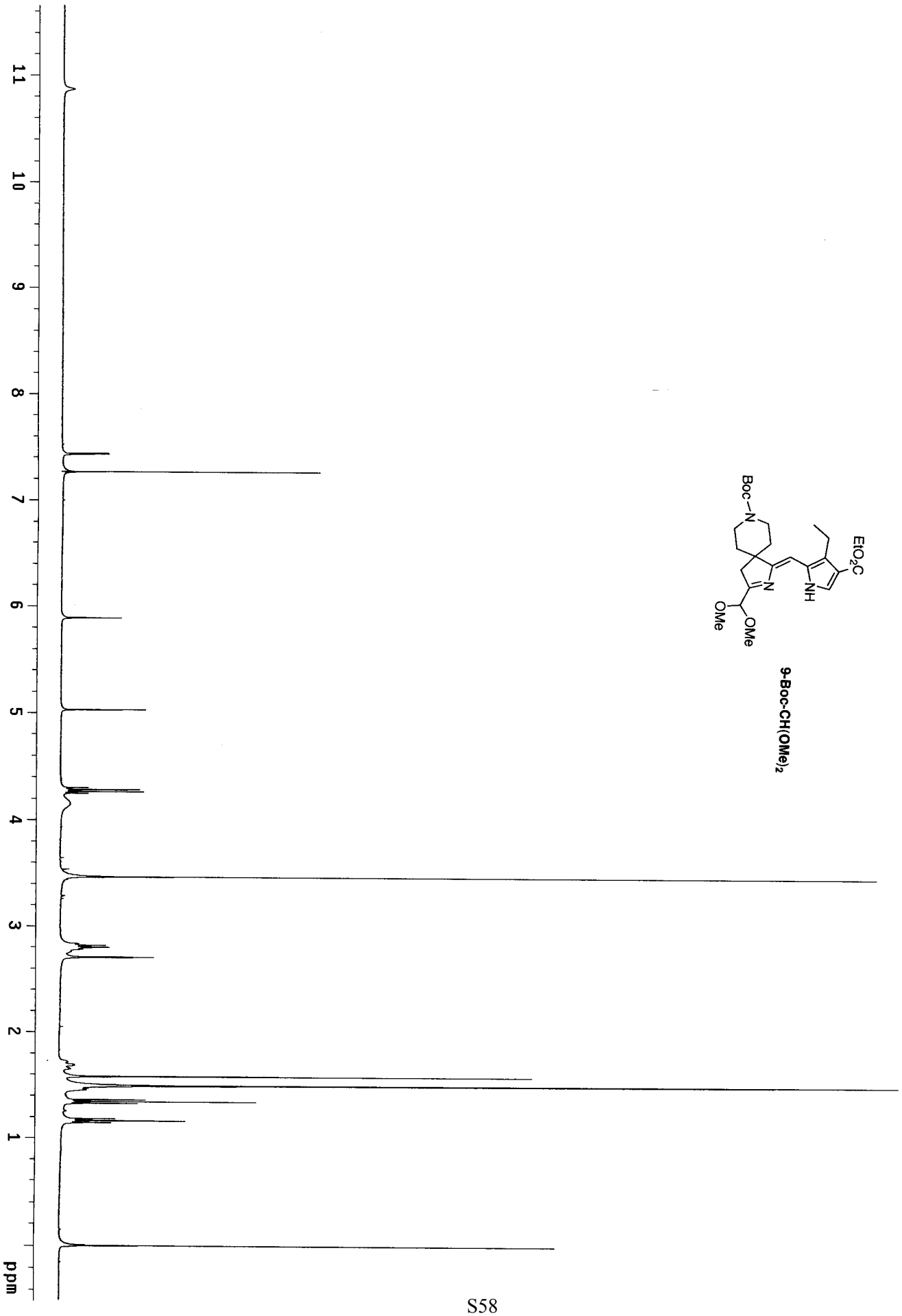
Report generated by : jon Signature: .....

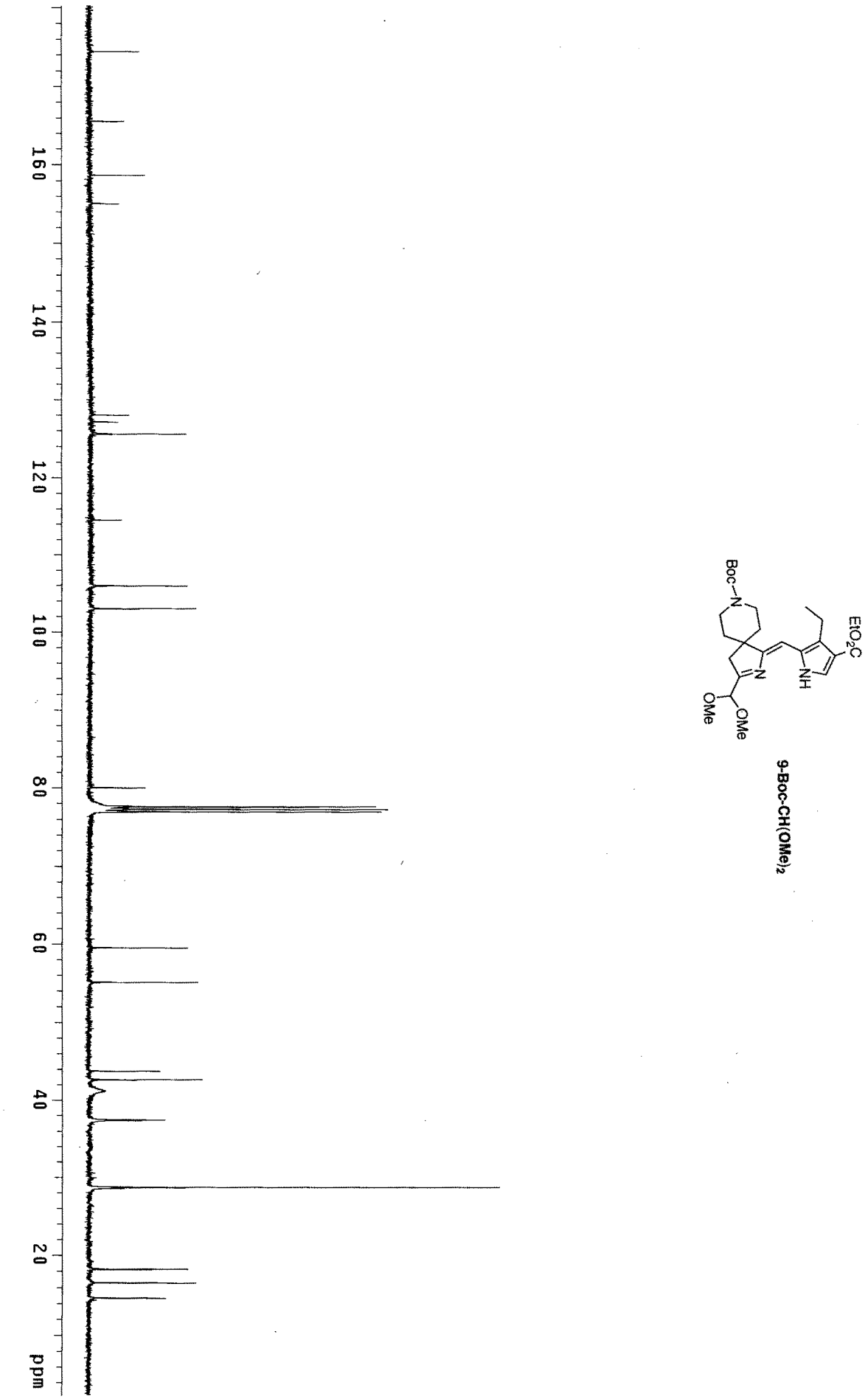
*** End Spectrum/Peak Report ***



9-Boc-CHO

Solvent : Diethyl ether



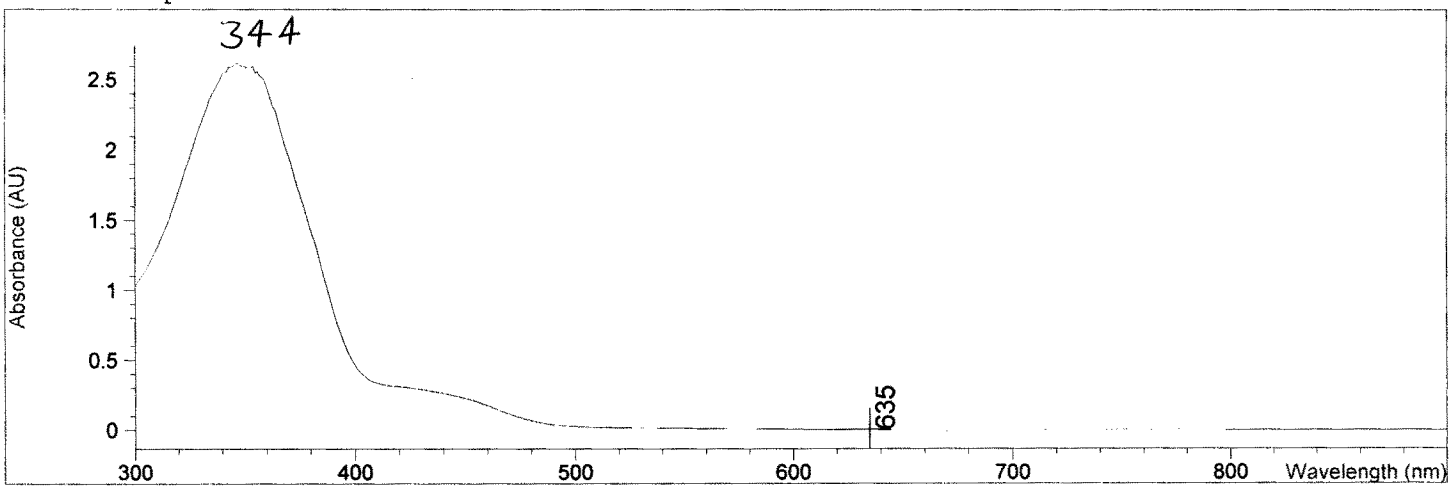


9-Boc-CH(OMe)$_2$

Spectrum/Peak Report Date 12/16/2012 Time 13:26:49 Page 1 of 1

Method file : <untitled>
Information : Default Method
Data File : C:\Chem32\1\DATA\Elisa\data\11-BOC-DIACETAL TOLUENE.SD Created : 7/18/12 14:21:13

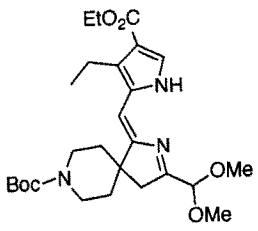
Overlaid Spectra:



#	Name	Peaks(nm)	Abs(AU)
1		635.0	3.6216E-3

Report generated by : Lindsey Lab Signature: .....

*** End Spectrum/Peak Report ***

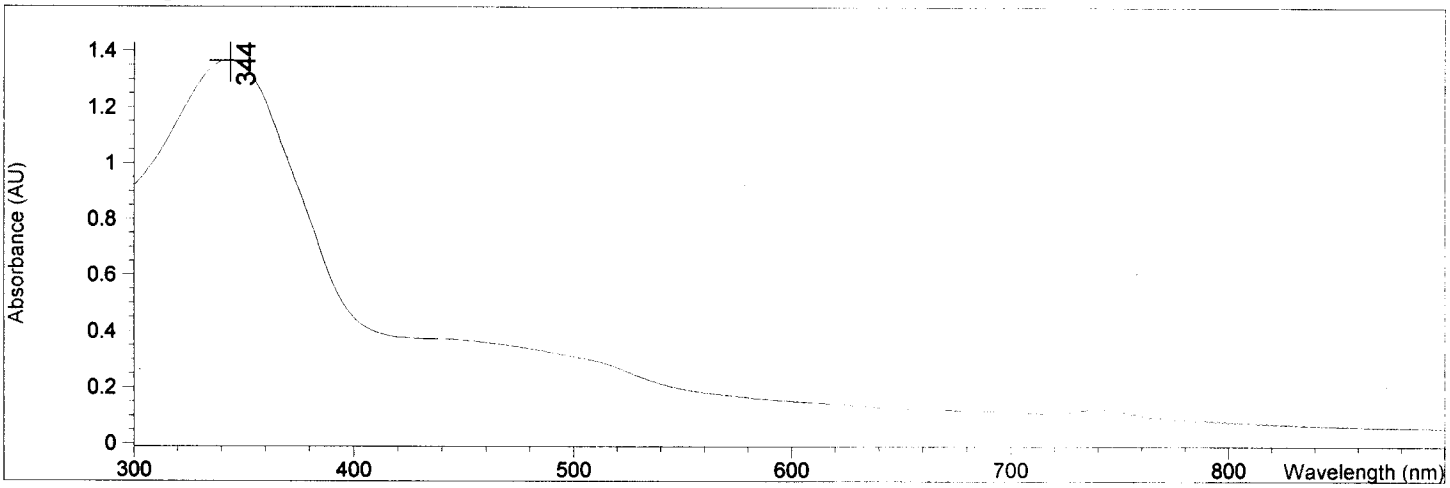


9-Boc-CH(OMe)$_2$

Solvent : Toluene

Method file : <method not saved>
Information : Default Method
Data File : C:\Chem32\1\DATA\Elisa\data222\11-BOC-CH(OME)2_DIETHYL ETHER.SD
Created : 7/2/12 13:21:10

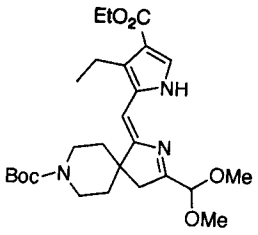
Overlaid Spectra:



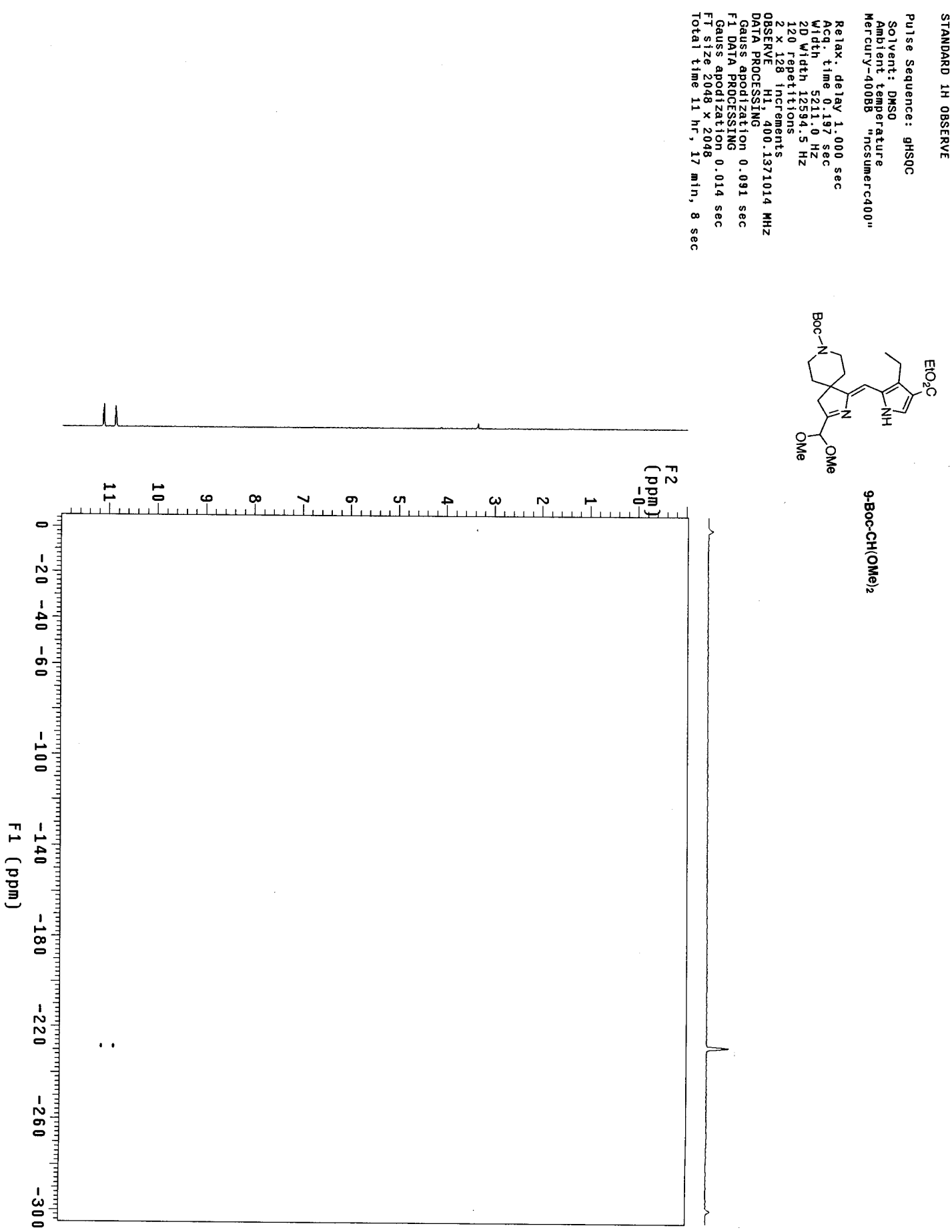
#	Name	Peaks(nm)	Abs(AU)
1		344.0	1.36480

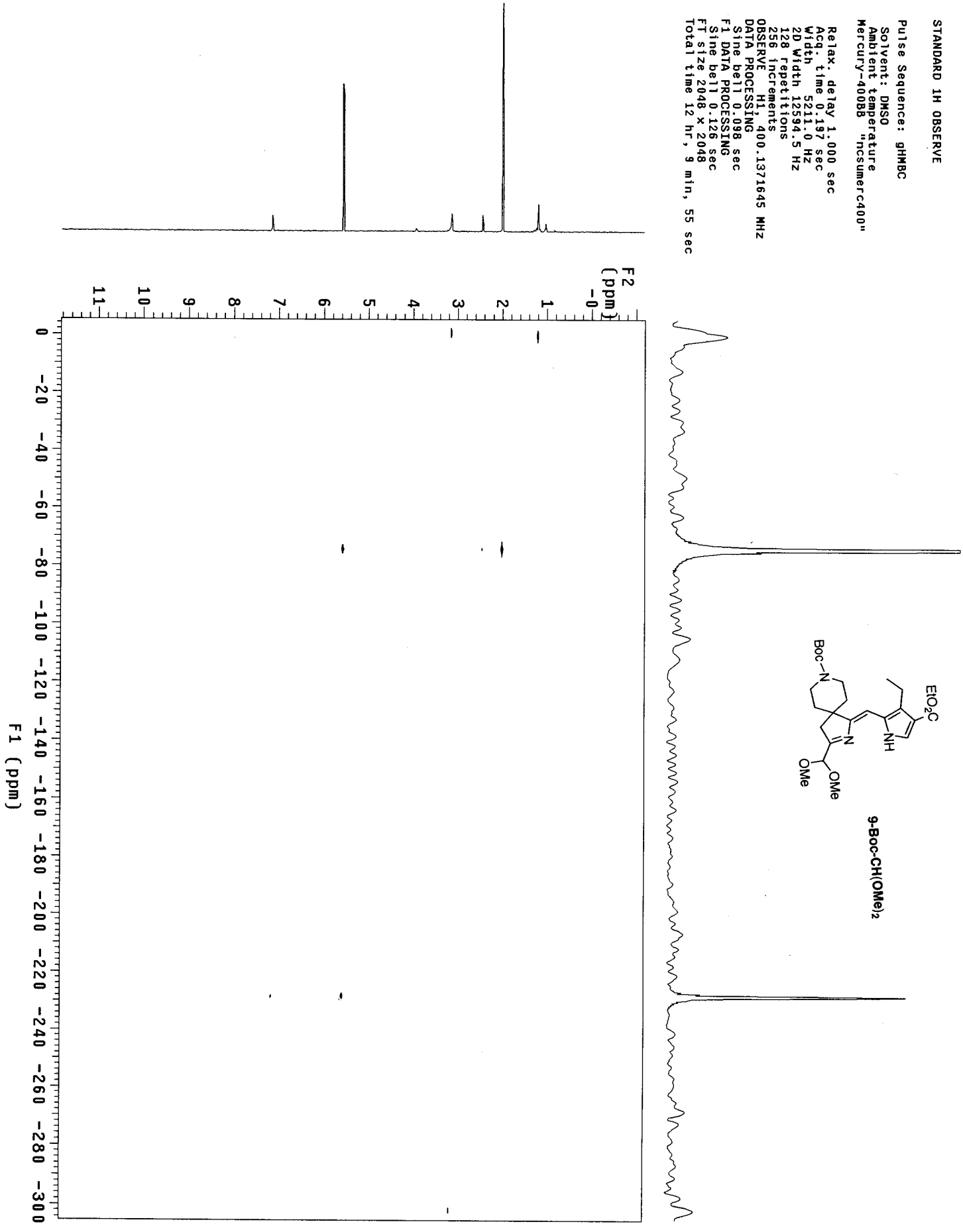
Report generated by : jon Signature: .....

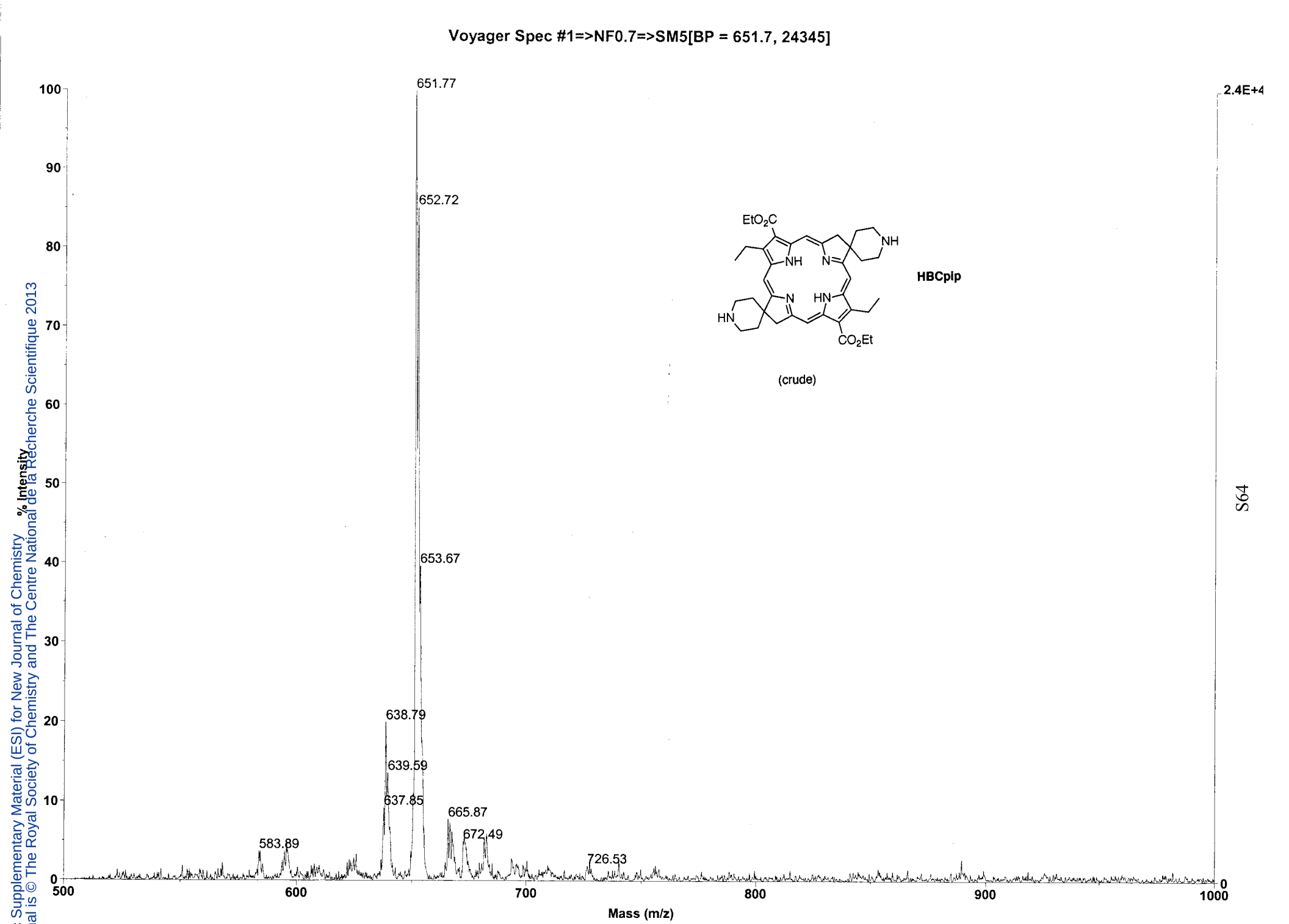
*** End Spectrum/Peak Report ***

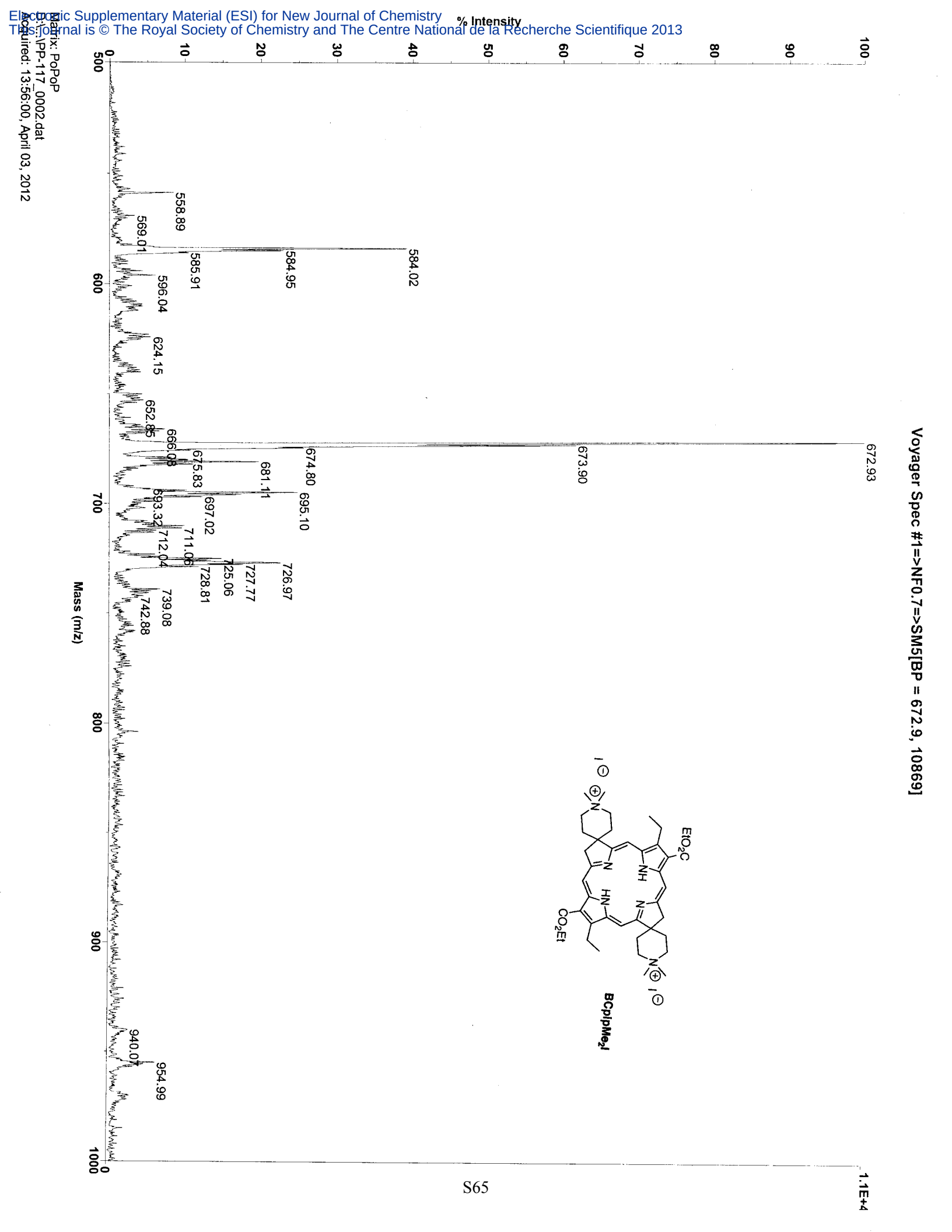


9-Boc-CH(OMe)$_2$





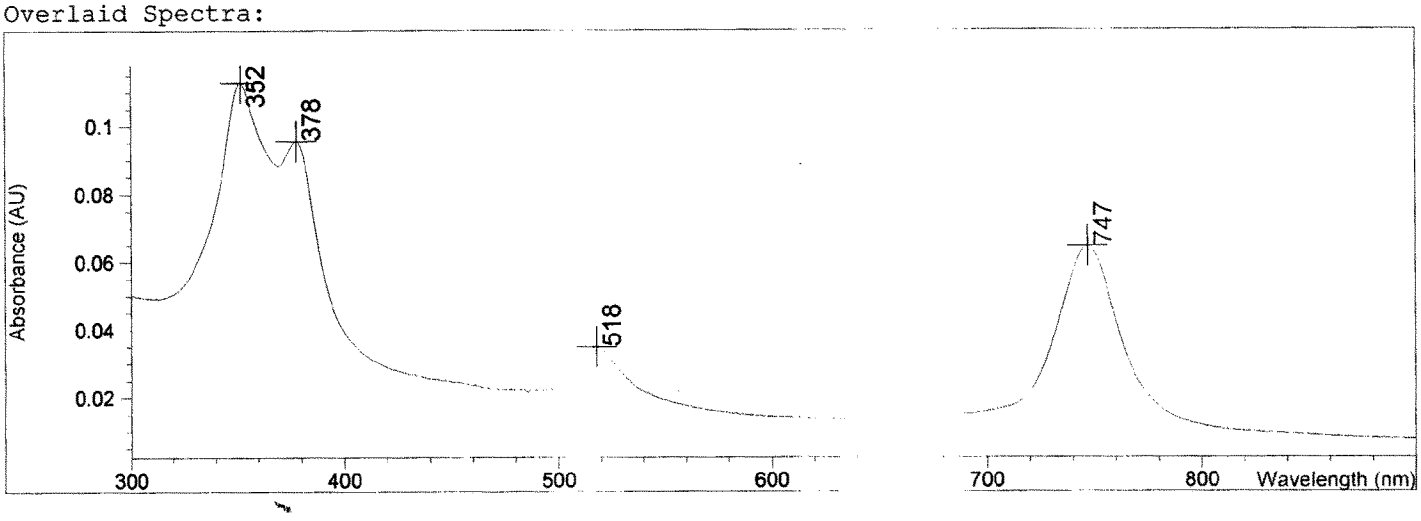




Spectrum/Peak Report Date 12/18/2012 Time 16:14:40 Page 1 of 1

Method file : <method not saved>
Information : Default Method
Data File : C:\Chem32\1\DATA\Elisa\data222\PP117WATER.SD Created : 4/26/12 11:21:39

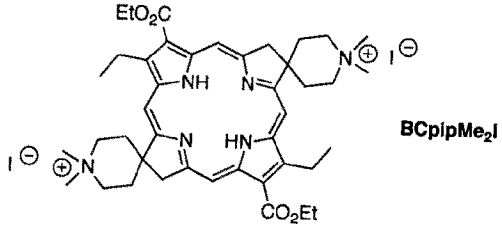
Overlaid Spectra:



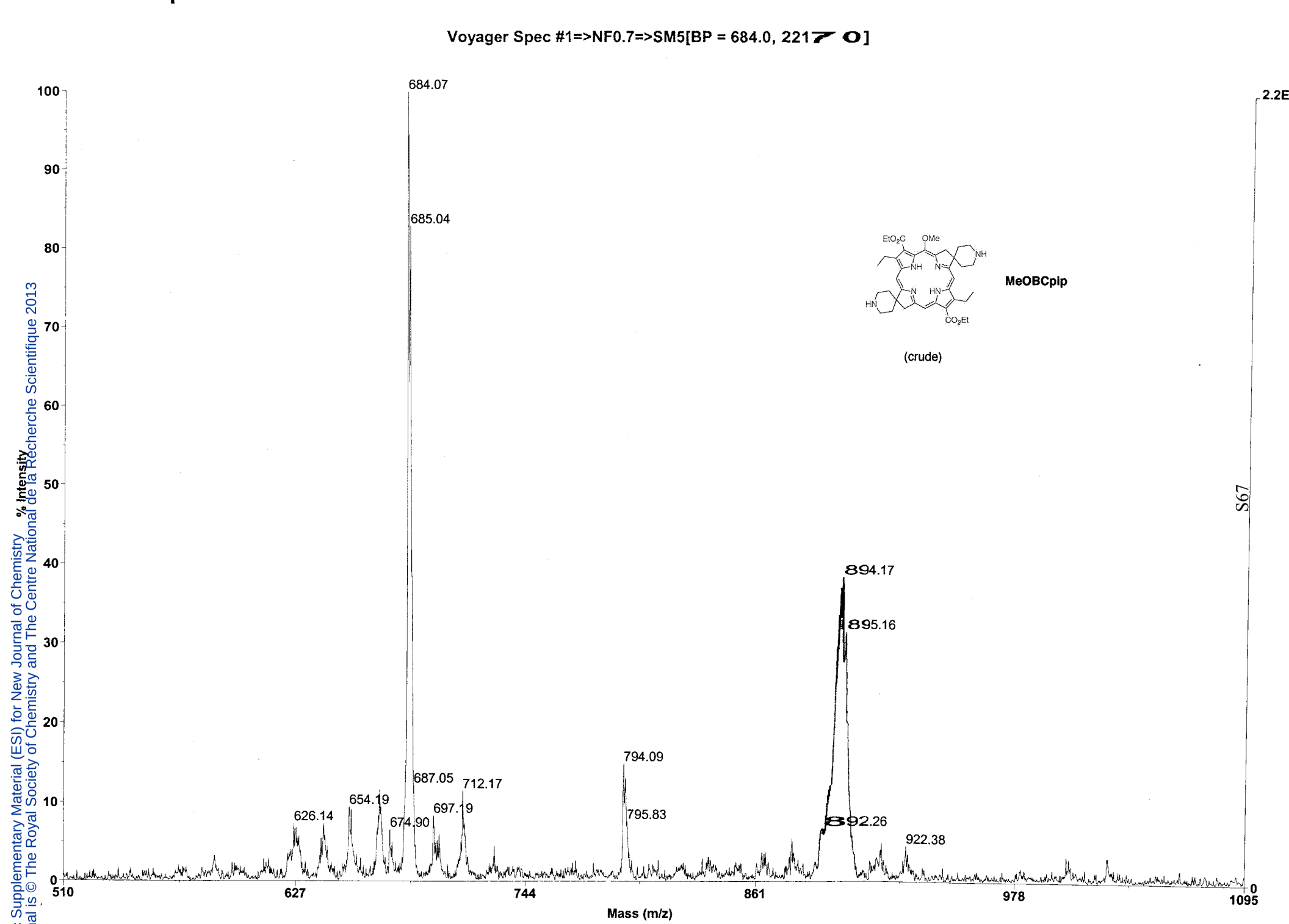
#	Name	Peaks(nm)	Abs(AU)
1		352.0	0.11295
1		378.0	9.5631E-2
1		747.0	6.4574E-2
1		518.0	3.4861E-2

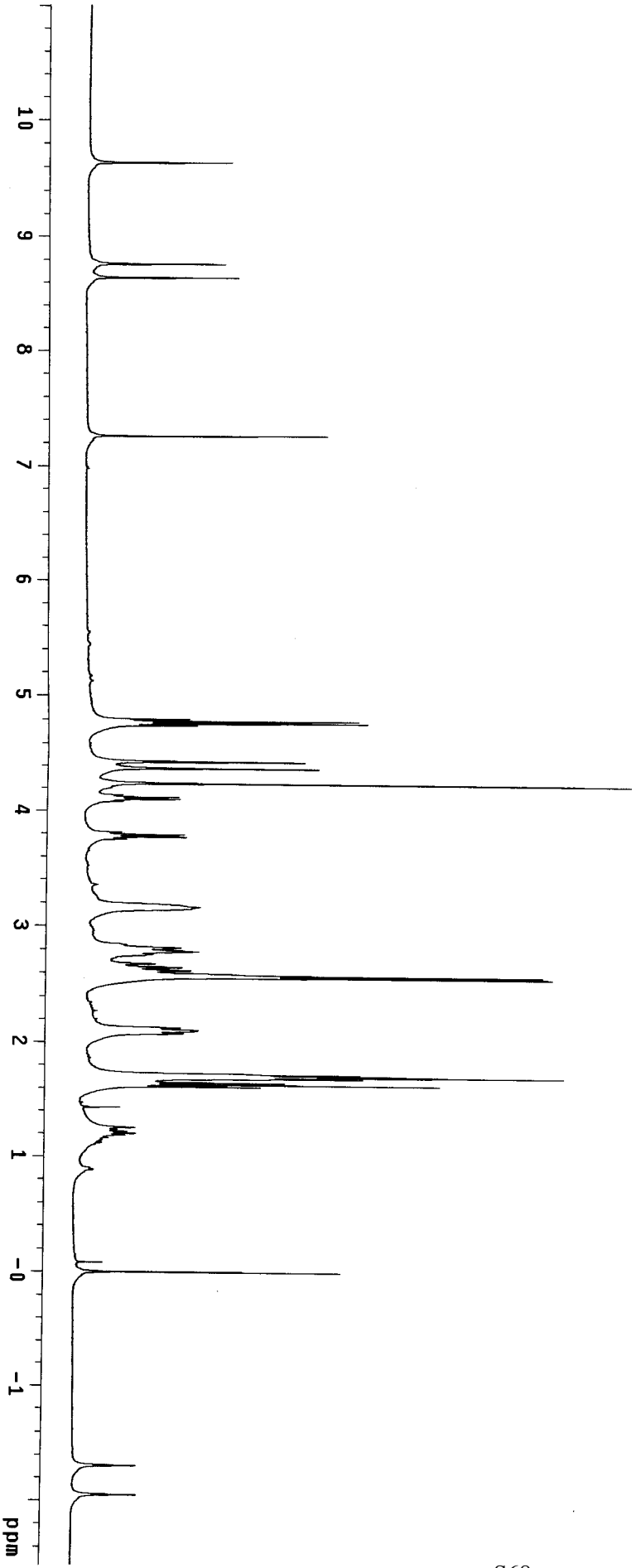
Report generated by : jon Signature: .....

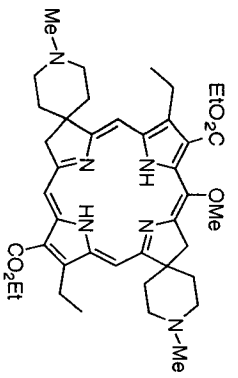
*** End Spectrum/Peak Report ***



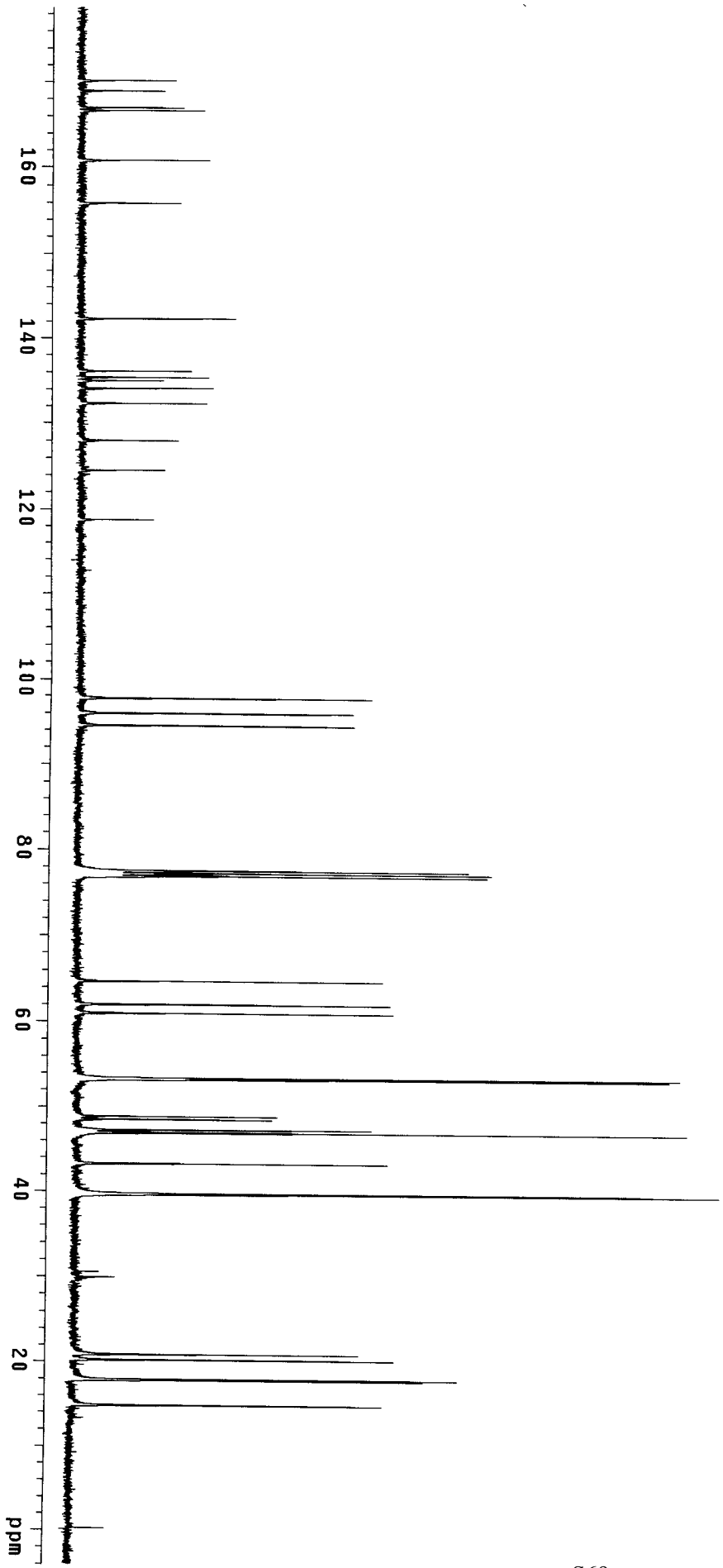
BCpipMe$_2$I

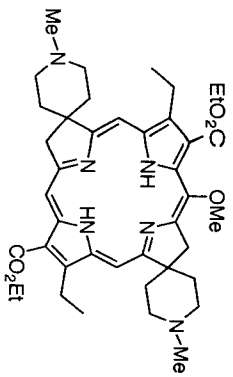






MeOBCpipMe





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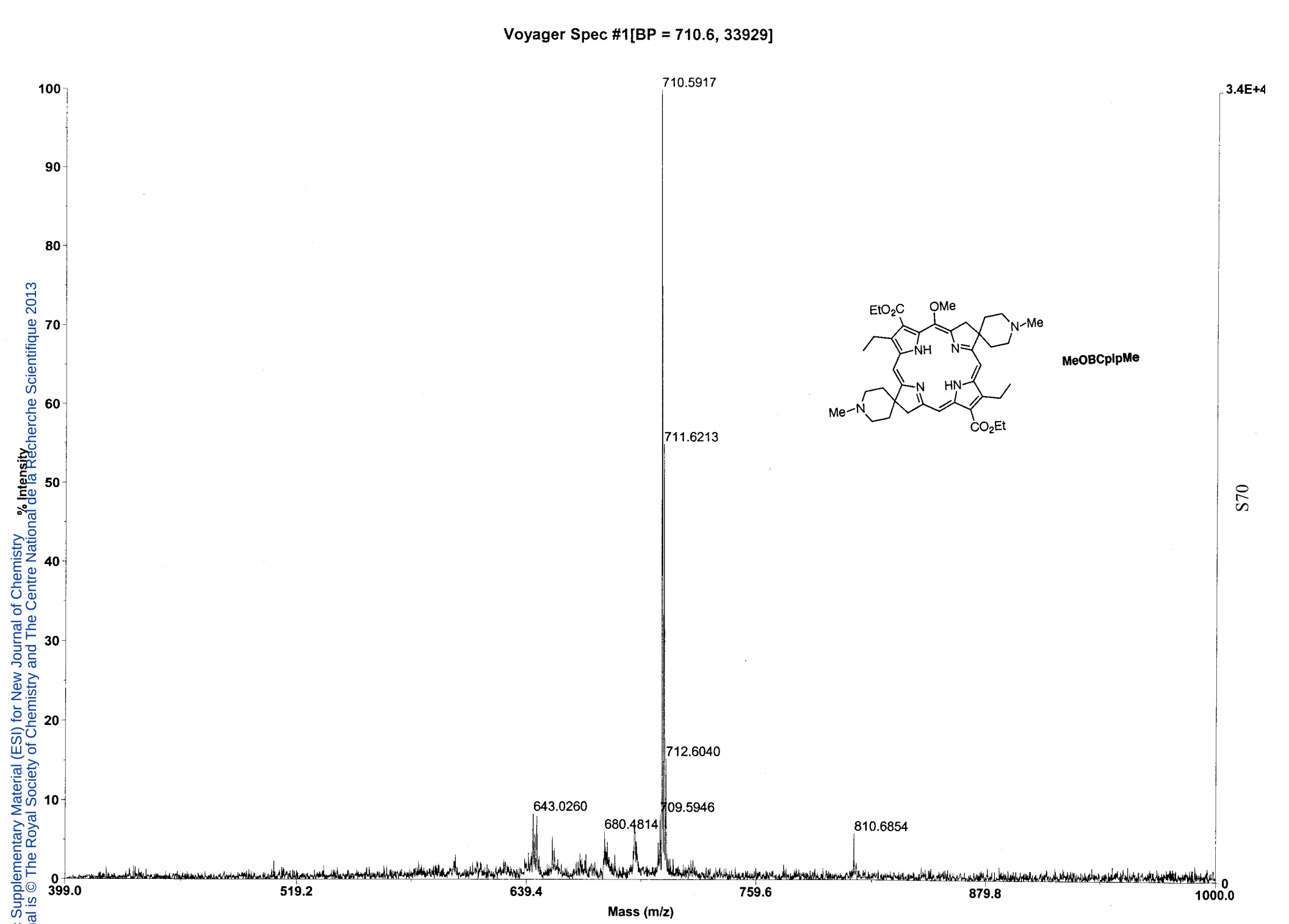

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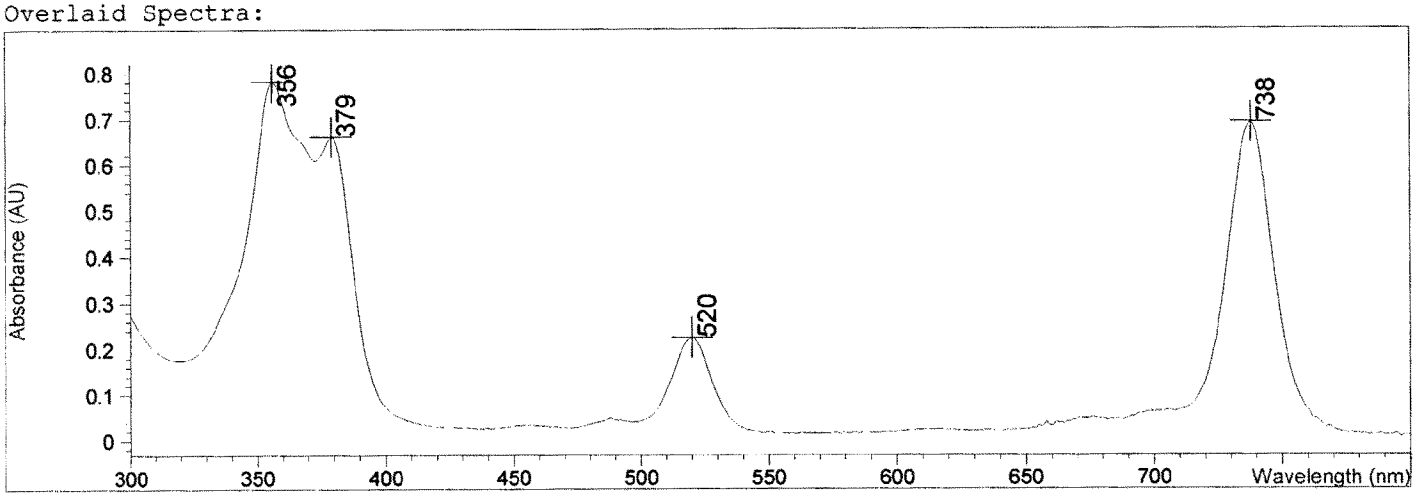
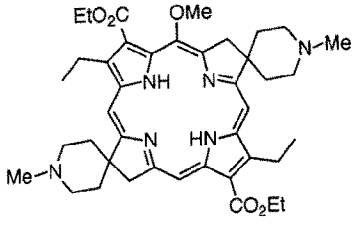


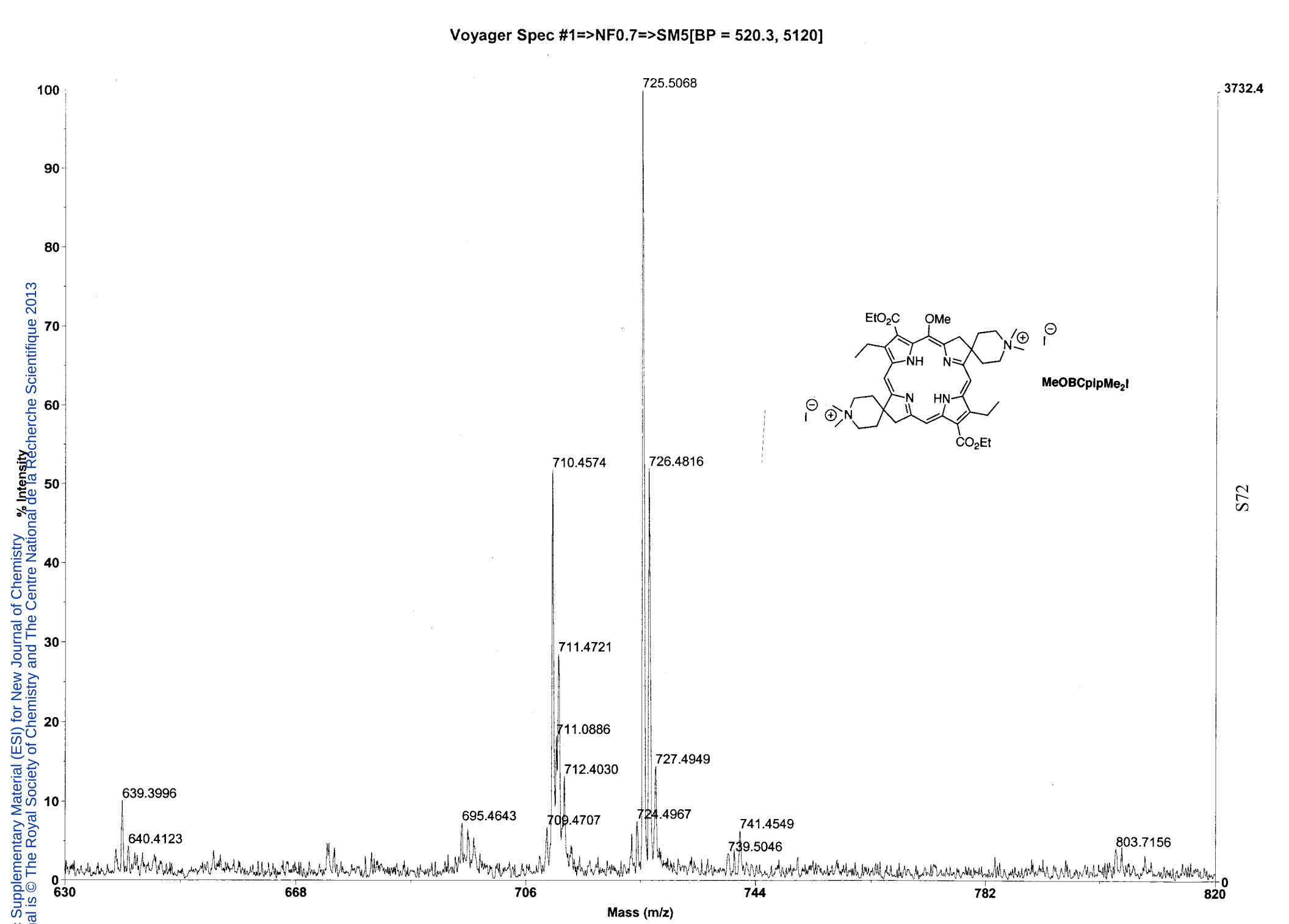
#	Name	Peaks(nm)	Abs(AU)
1		356.0	0.78230
1		738.0	0.69183
1		379.0	0.66213
1		520.0	0.22448

Report generated by : Lindsey Lab Signature: .....

*** End Spectrum/Peak Report ***



MeOBCpipMe



Spectrum/Peak Report Date 12/18/2012 Time 16:13:21 Page 1 of 1

Method file : <method not saved>
Information : Default Method
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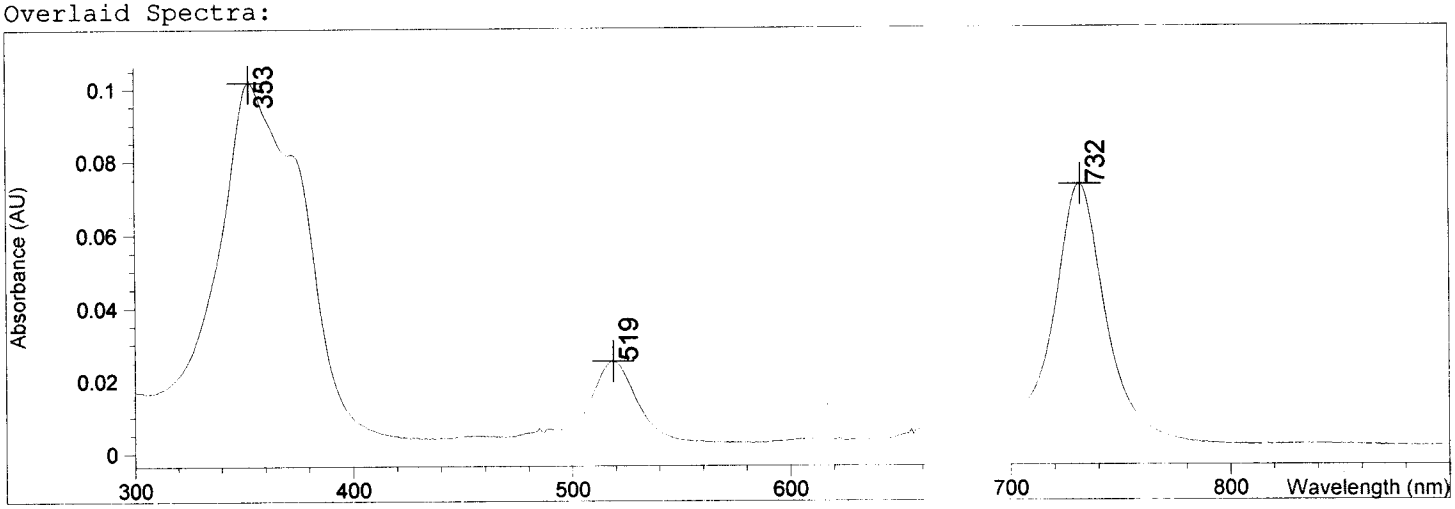
Overlaid Spectra:



#	Name	Peaks(nm)	Abs(AU)
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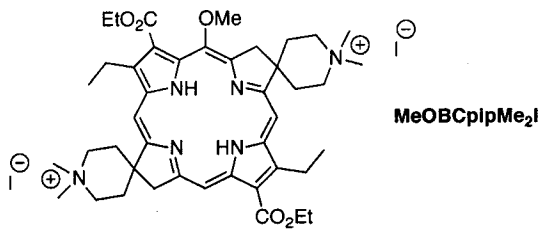
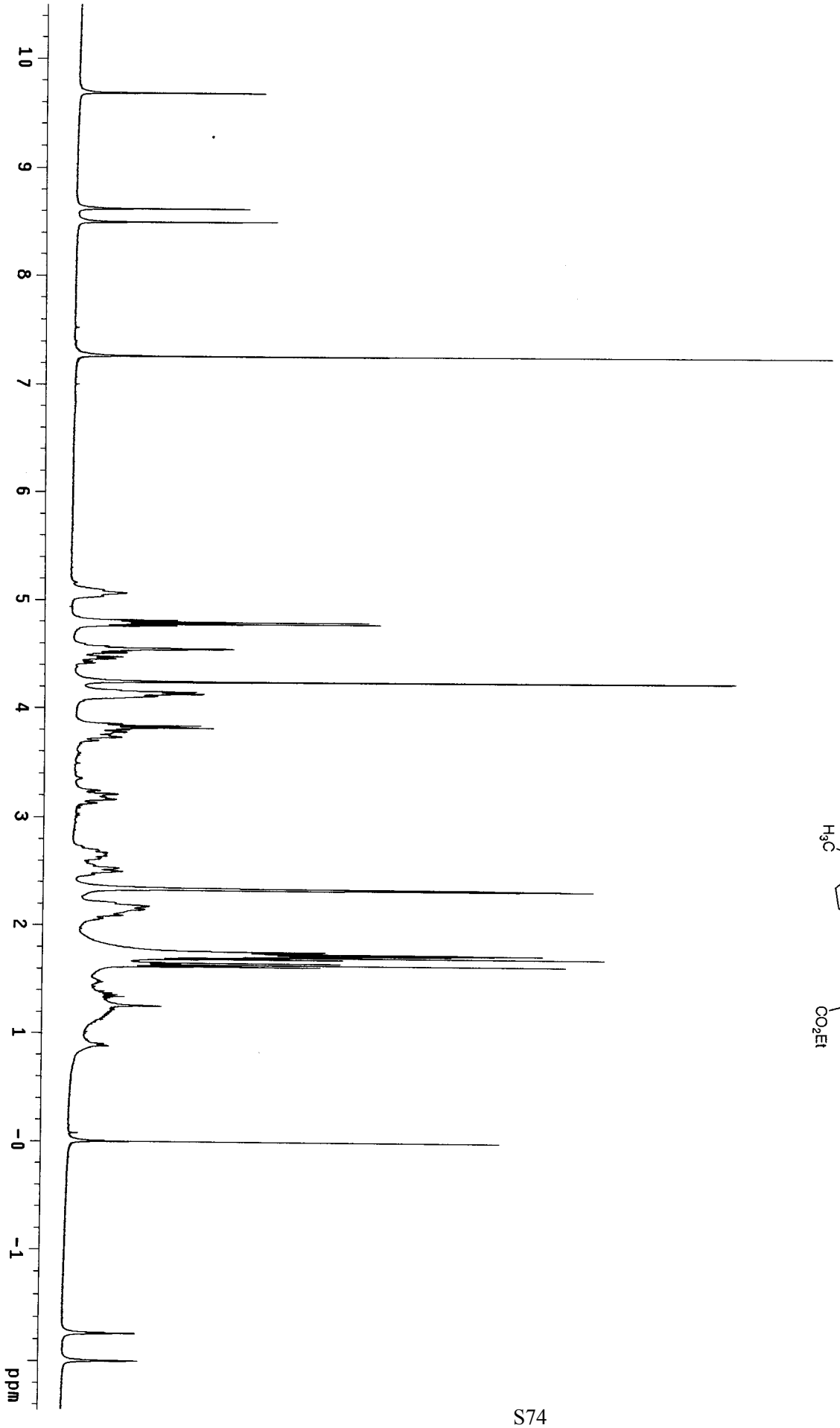
1		519.0	2.5257E-2

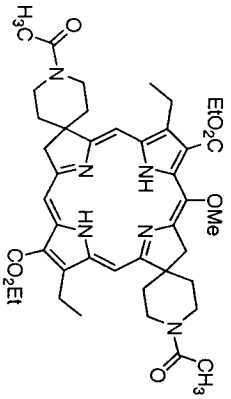
Report generated by : jon Signature: .....

*** End Spectrum/Peak Report ***

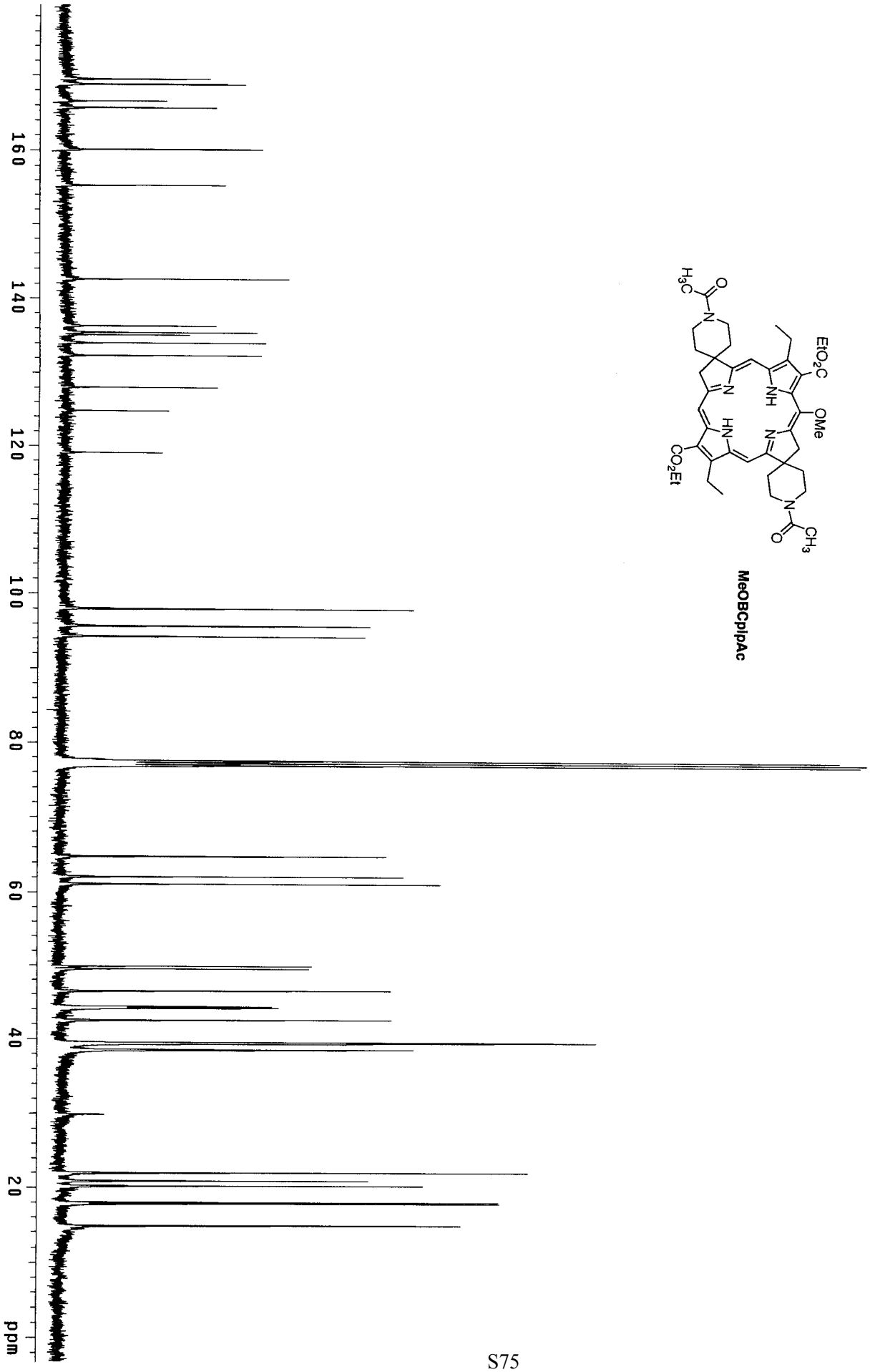


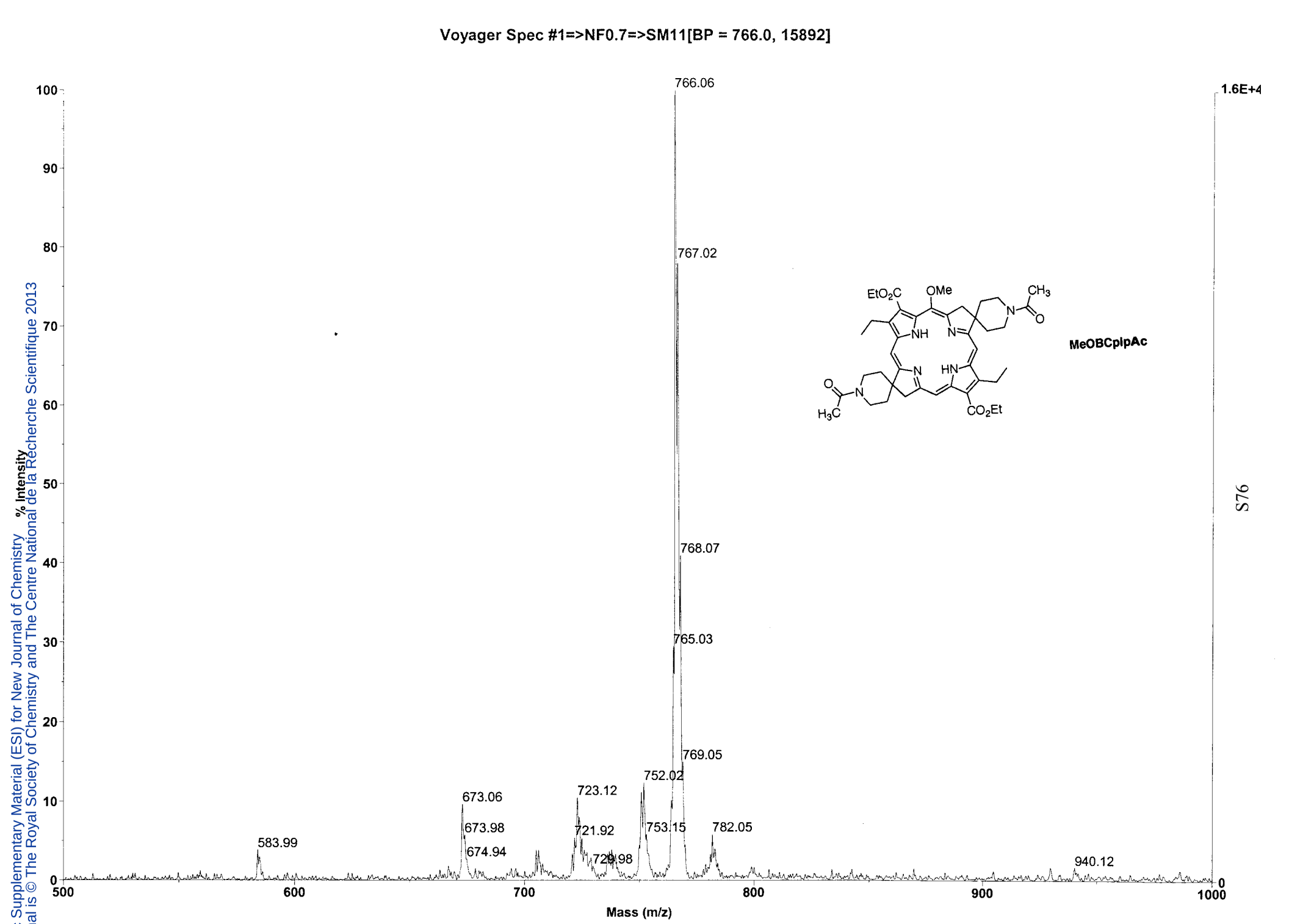
MeOBCpipMe$_2$I





MeOBCplpAc





Spectrum/Peak Report Date 12/18/2012 Time 15:44:45 Page 1 of 1

Method file : <untitled>
Information : Default Method
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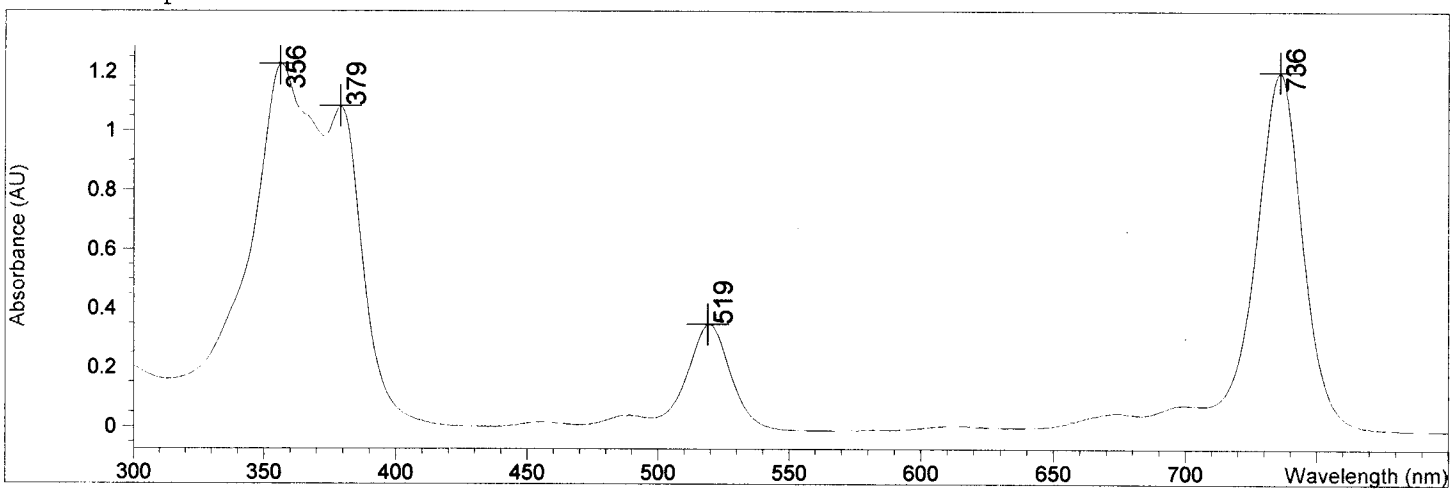
Overlaid Spectra:



#	Name	Peaks(nm)	Abs(AU)
1		356.0	1.22660
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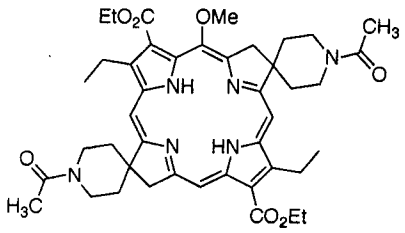
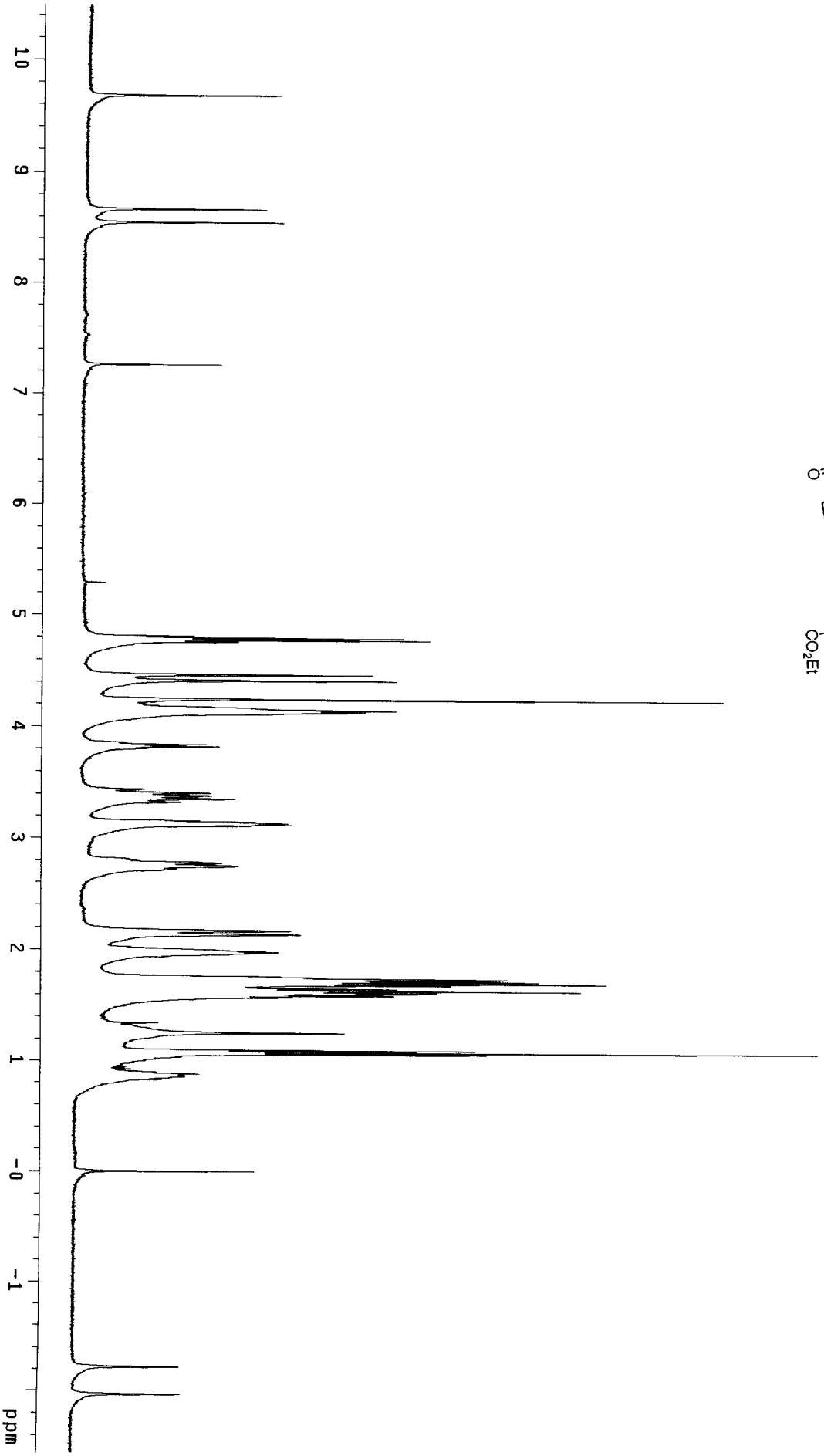
1		379.0	1.08310
1		519.0	0.34756

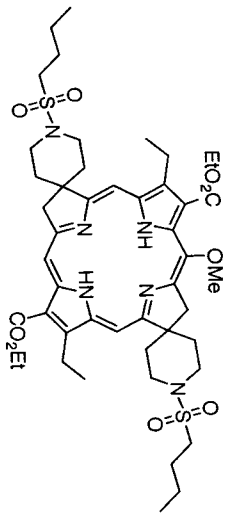
Report generated by : Lindsey Lab Signature: .....

*** End Spectrum/Peak Report ***

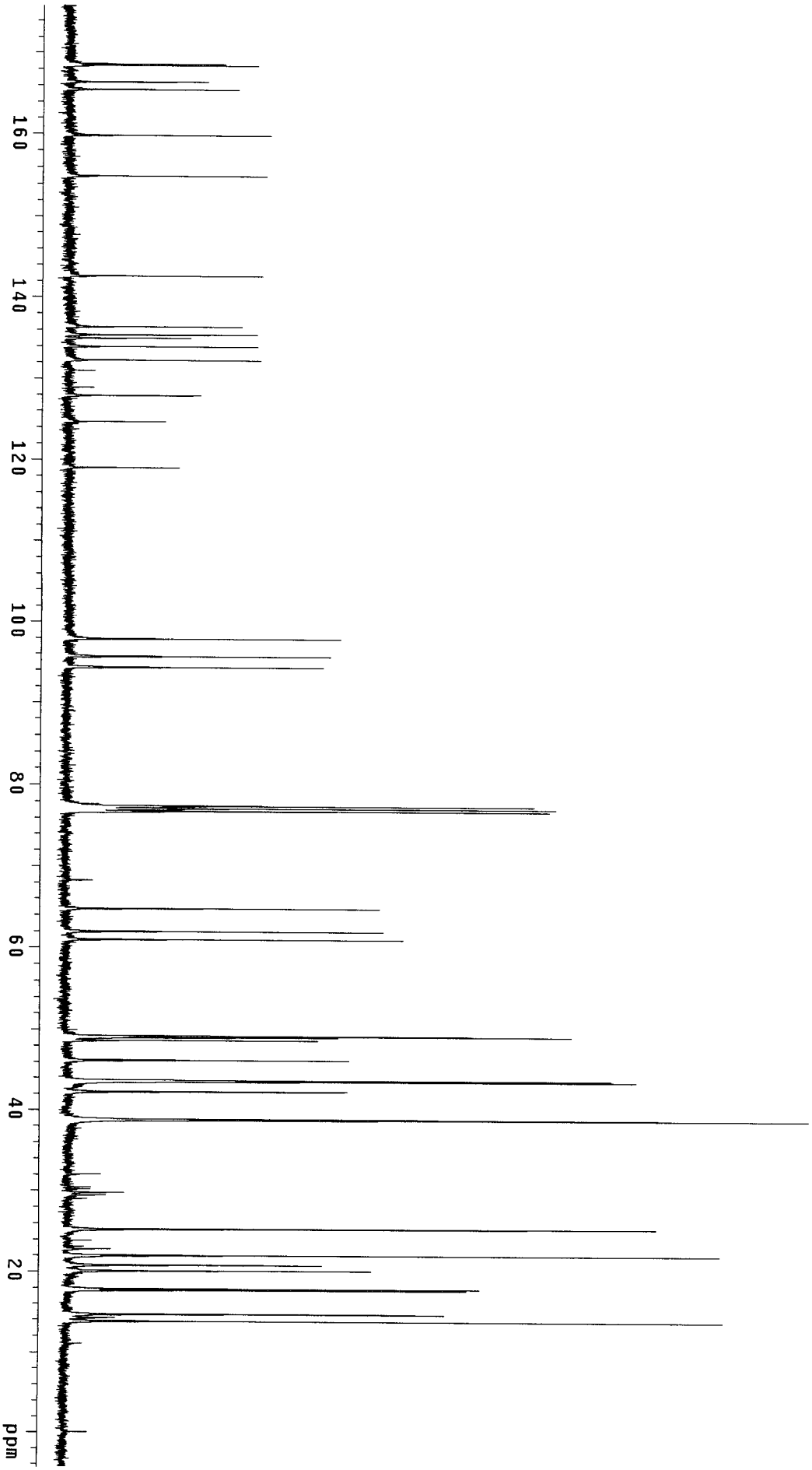


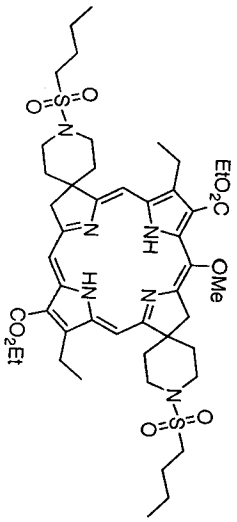
MeOBCpipAc





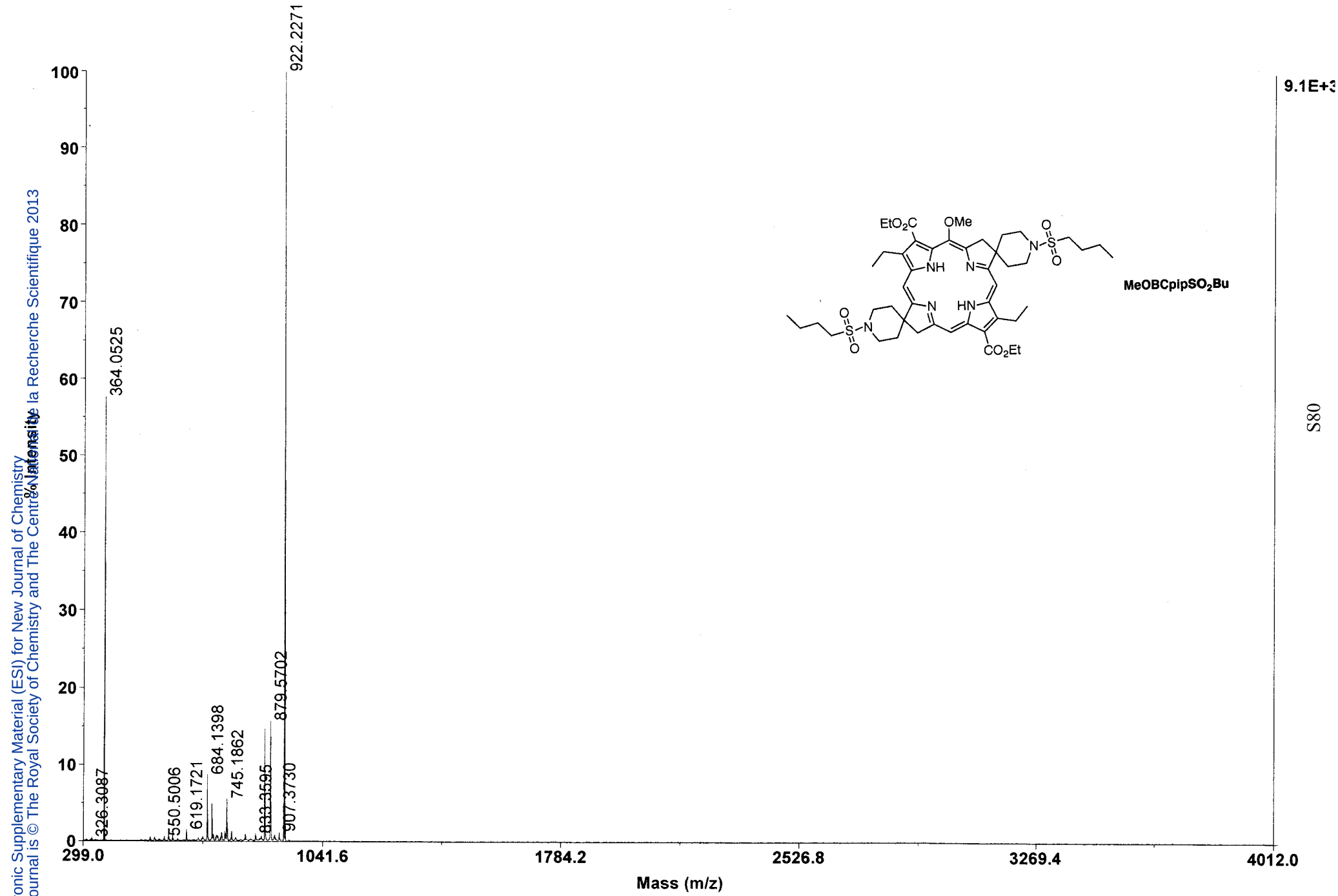
MeOBCpipSO$_2$Bu





MeOBCpipSO$_2$Bu

TOF/TOF™ Reflector Spec #1 MC[BP = 922.2, 9083]



C:\AB SCIEX\TOFTOF Data\ExportT2D\User Project 1\Lindsey\Ramesh\KRR-250\E3_MS.t2d

Printed: 18:56, December 10, 2012

Spectrum/Peak Report Date 12/18/2012 Time 15:41:22 Page 1 of 1

Method file : <untitled>
Information : Default Method
Data File : C:\Chem32\1\DATA\Ramesh\KRR250.SD Created : 7/25/12 13:33:52

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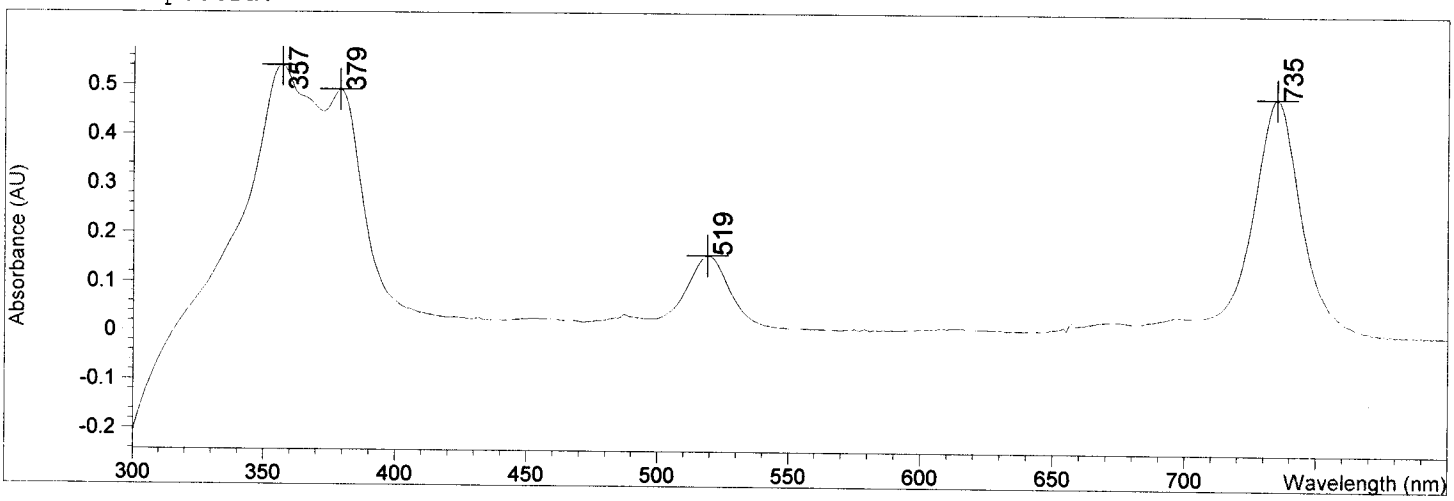

#	Name	Peaks(nm)	Abs(AU)
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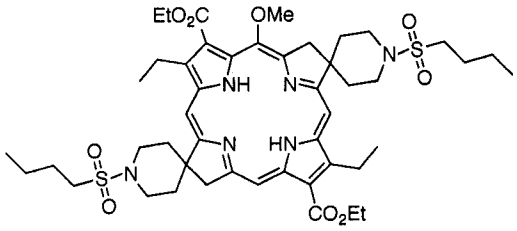
1		735.0	0.48123
1		519.0	0.15730

Report generated by : Lindsey Lab Signature: .....

*** End Spectrum/Peak Report ***



MeOBCpipSO$_2$Bu