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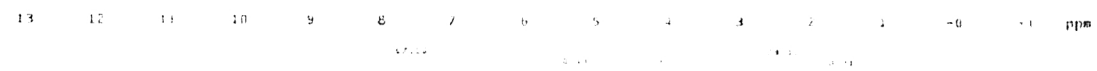
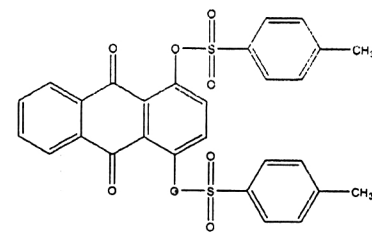
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## APPENDICES

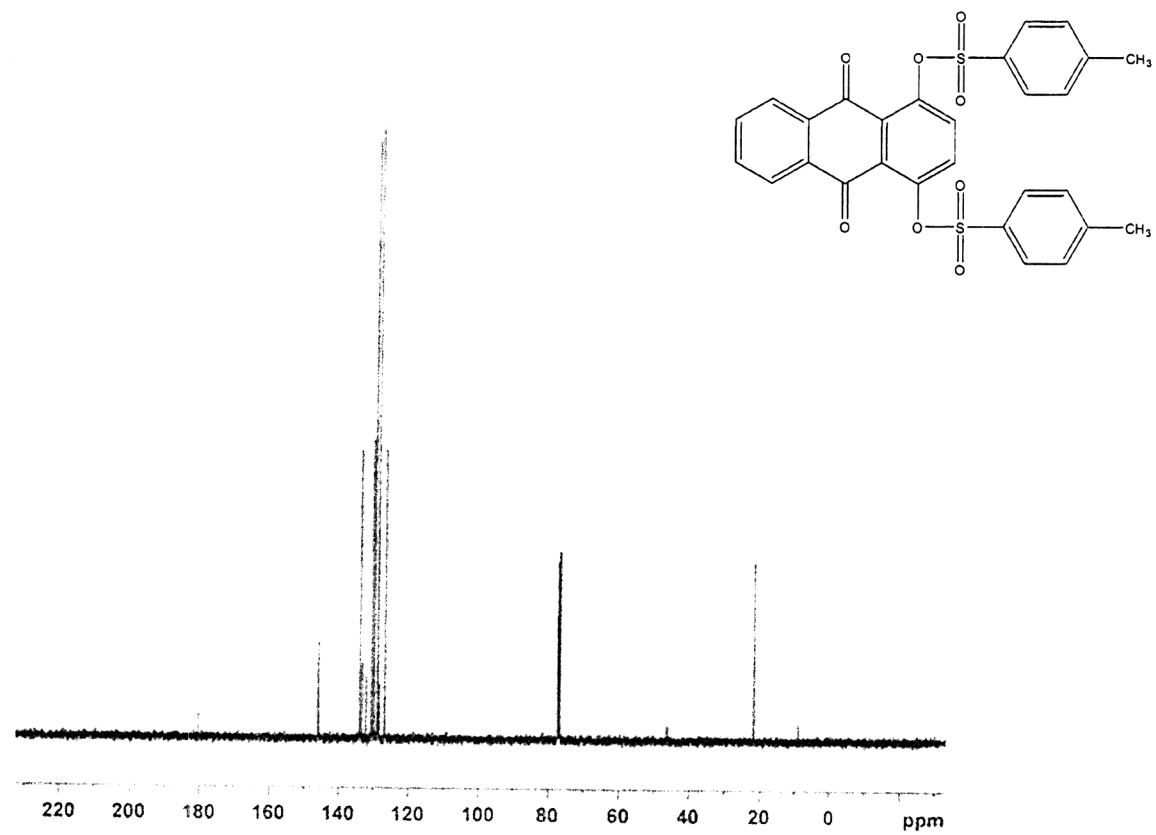






**<sup>1</sup>H-Spectrum of compound 2**

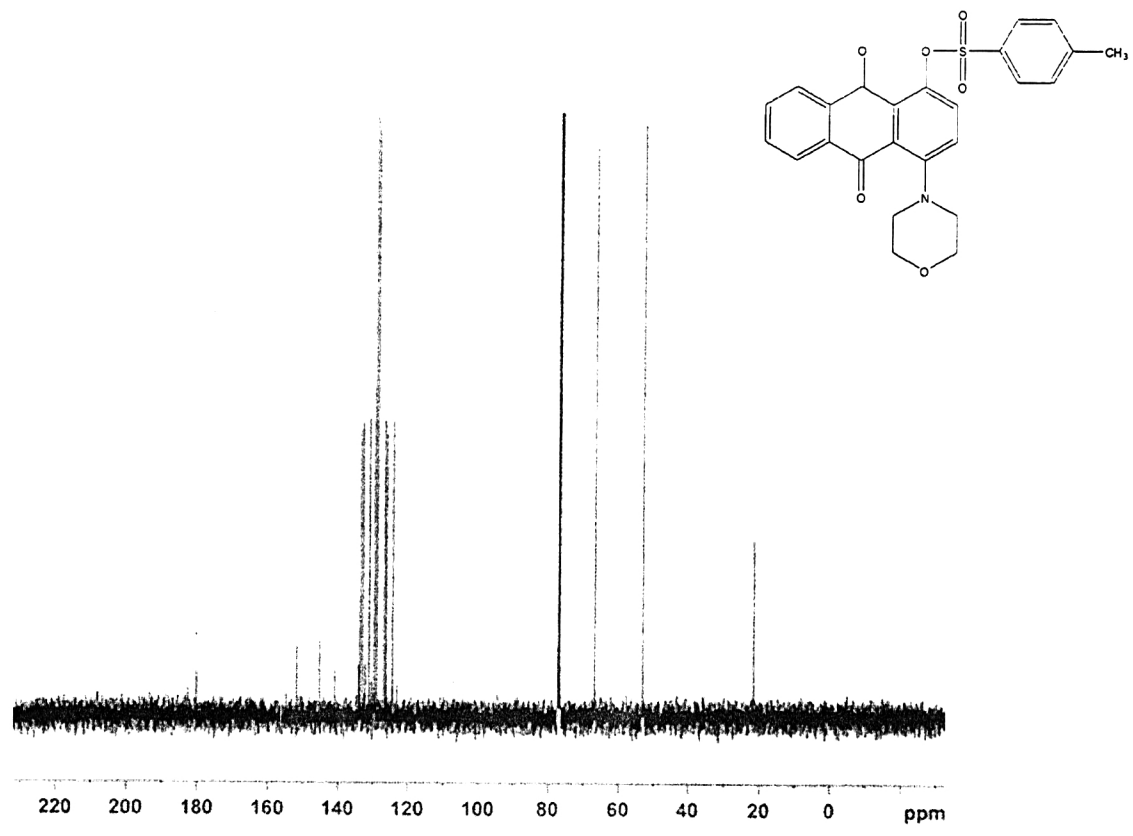
Appendix B1



<sup>13</sup>C-Spectrum of compound 2

Appendix B2





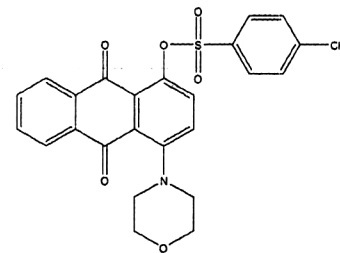
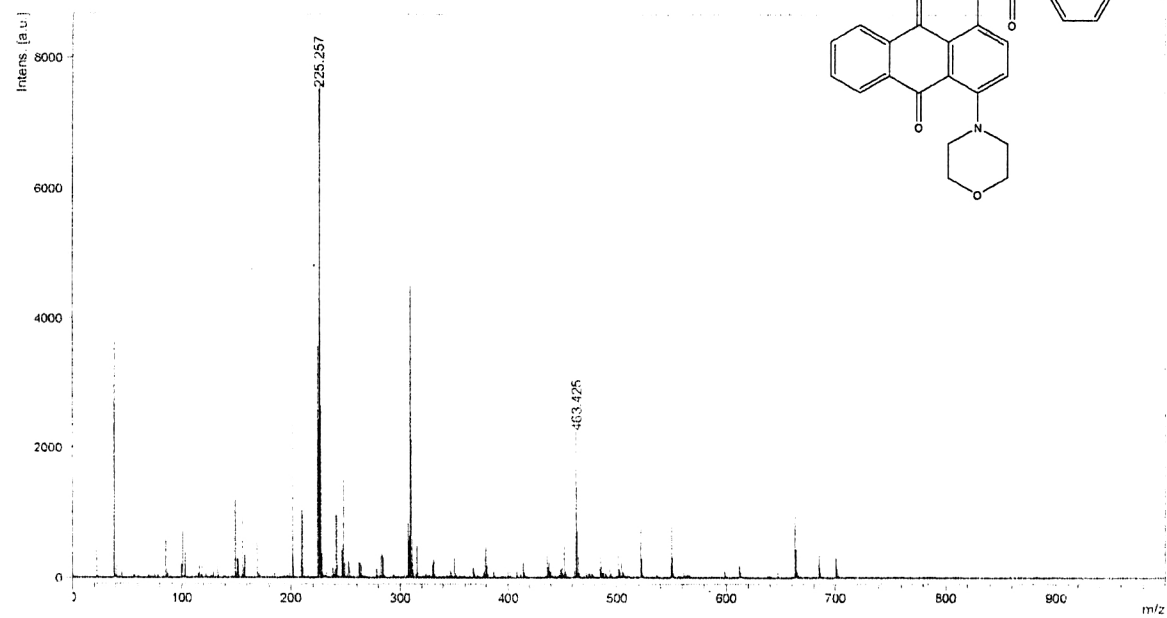
<sup>13</sup>C-Spectrum of compound 3

Appendix C2

D:\DATA\Up\p'took\AQ series II\25-04-56 10\0\_G211

Comment 1 25-04-56 10

Comment 2

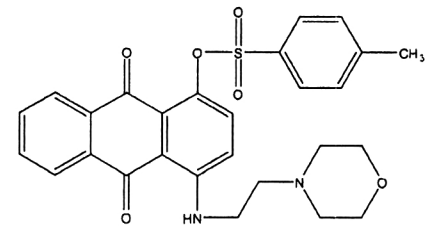


printed: 04/25/2013 03:56:23

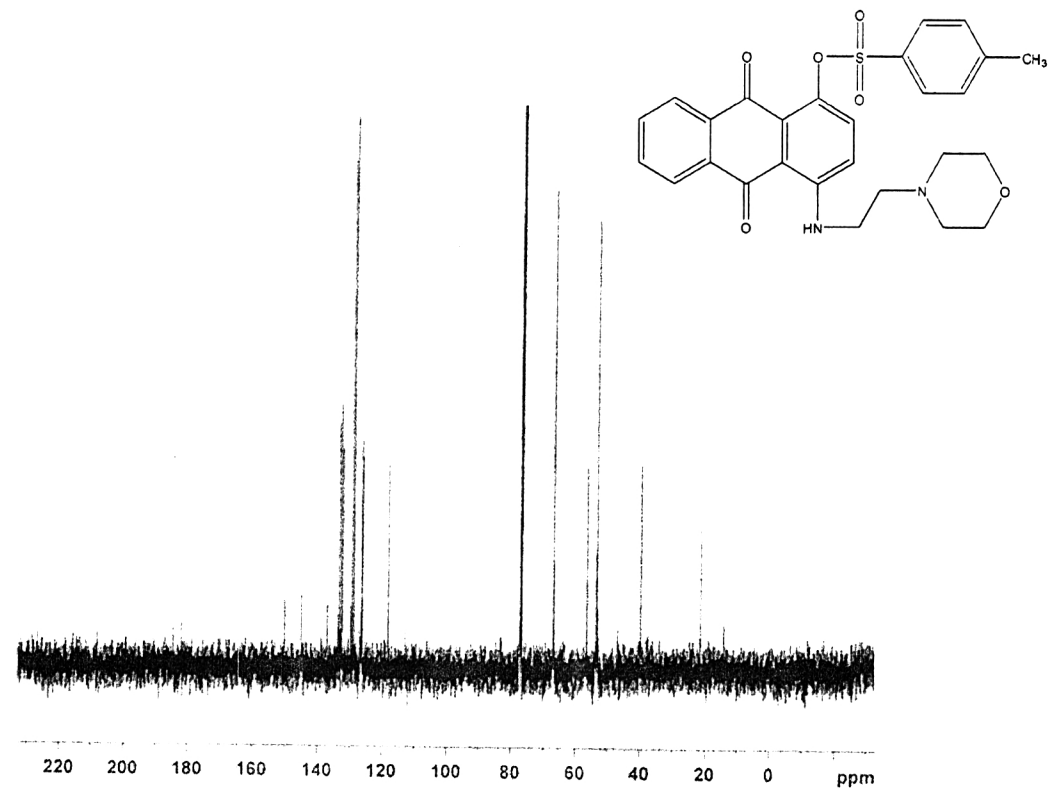
MS-Spectrum of compound 3

Appendix C3

1H NMR (400 MHz, DMSO-d6)  $\delta$  10.10 (s, 1H), 8.10 (s, 1H), 7.80 (s, 1H), 7.70 (s, 1H), 7.60 (s, 1H), 7.50 (s, 1H), 7.40 (s, 1H), 7.30 (s, 1H), 7.20 (s, 1H), 7.10 (s, 1H), 7.00 (s, 1H), 6.90 (s, 1H), 6.80 (s, 1H), 6.70 (s, 1H), 6.60 (s, 1H), 6.50 (s, 1H), 6.40 (s, 1H), 6.30 (s, 1H), 6.20 (s, 1H), 6.10 (s, 1H), 6.00 (s, 1H), 5.90 (s, 1H), 5.80 (s, 1H), 5.70 (s, 1H), 5.60 (s, 1H), 5.50 (s, 1H), 5.40 (s, 1H), 5.30 (s, 1H), 5.20 (s, 1H), 5.10 (s, 1H), 5.00 (s, 1H), 4.90 (s, 1H), 4.80 (s, 1H), 4.70 (s, 1H), 4.60 (s, 1H), 4.50 (s, 1H), 4.40 (s, 1H), 4.30 (s, 1H), 4.20 (s, 1H), 4.10 (s, 1H), 4.00 (s, 1H), 3.90 (s, 1H), 3.80 (s, 1H), 3.70 (s, 1H), 3.60 (s, 1H), 3.50 (s, 1H), 3.40 (s, 1H), 3.30 (s, 1H), 3.20 (s, 1H), 3.10 (s, 1H), 3.00 (s, 1H), 2.90 (s, 1H), 2.80 (s, 1H), 2.70 (s, 1H), 2.60 (s, 1H), 2.50 (s, 1H), 2.40 (s, 1H), 2.30 (s, 1H), 2.20 (s, 1H), 2.10 (s, 1H), 2.00 (s, 1H), 1.90 (s, 1H), 1.80 (s, 1H), 1.70 (s, 1H), 1.60 (s, 1H), 1.50 (s, 1H), 1.40 (s, 1H), 1.30 (s, 1H), 1.20 (s, 1H), 1.10 (s, 1H), 1.00 (s, 1H), 0.90 (s, 1H), 0.80 (s, 1H), 0.70 (s, 1H), 0.60 (s, 1H), 0.50 (s, 1H), 0.40 (s, 1H), 0.30 (s, 1H), 0.20 (s, 1H), 0.10 (s, 1H), 0.00 (s, 1H).



**<sup>1</sup>H-Spectrum of compound 4**  
Appendix D1



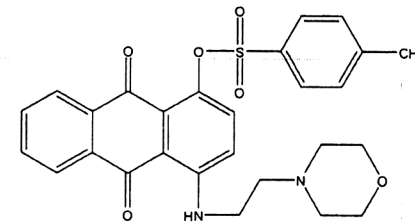
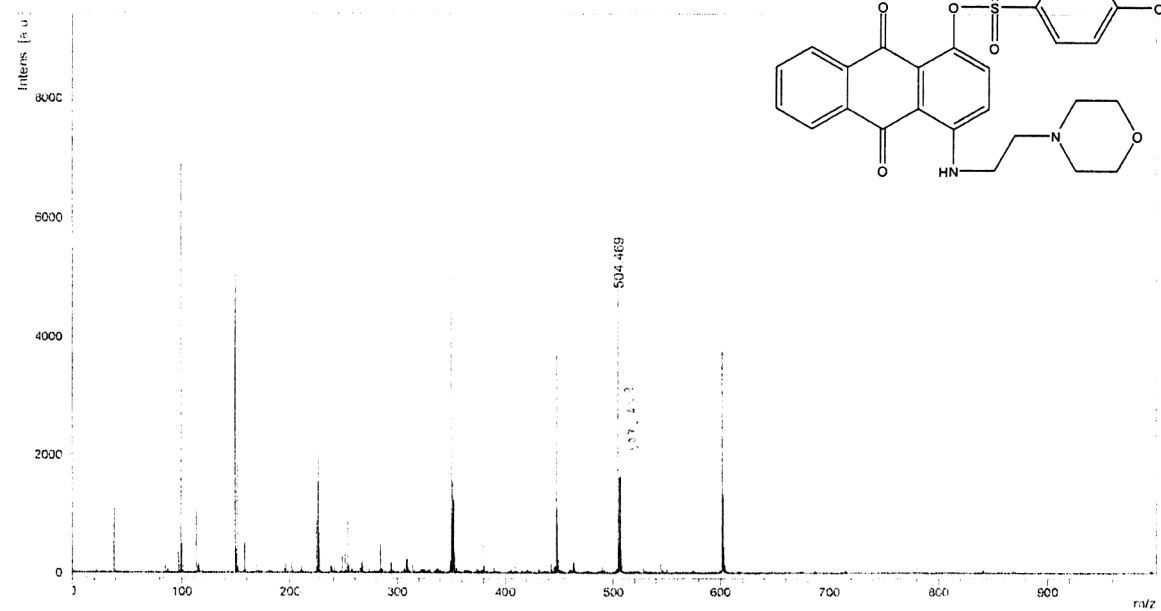
<sup>13</sup>C-Spectrum of compound 4

Appendix D2

D:\DATA\Up\p\took\AQ series II\25-04-56 110\_G311

Comment 1 25-04-56 11

Comment 2



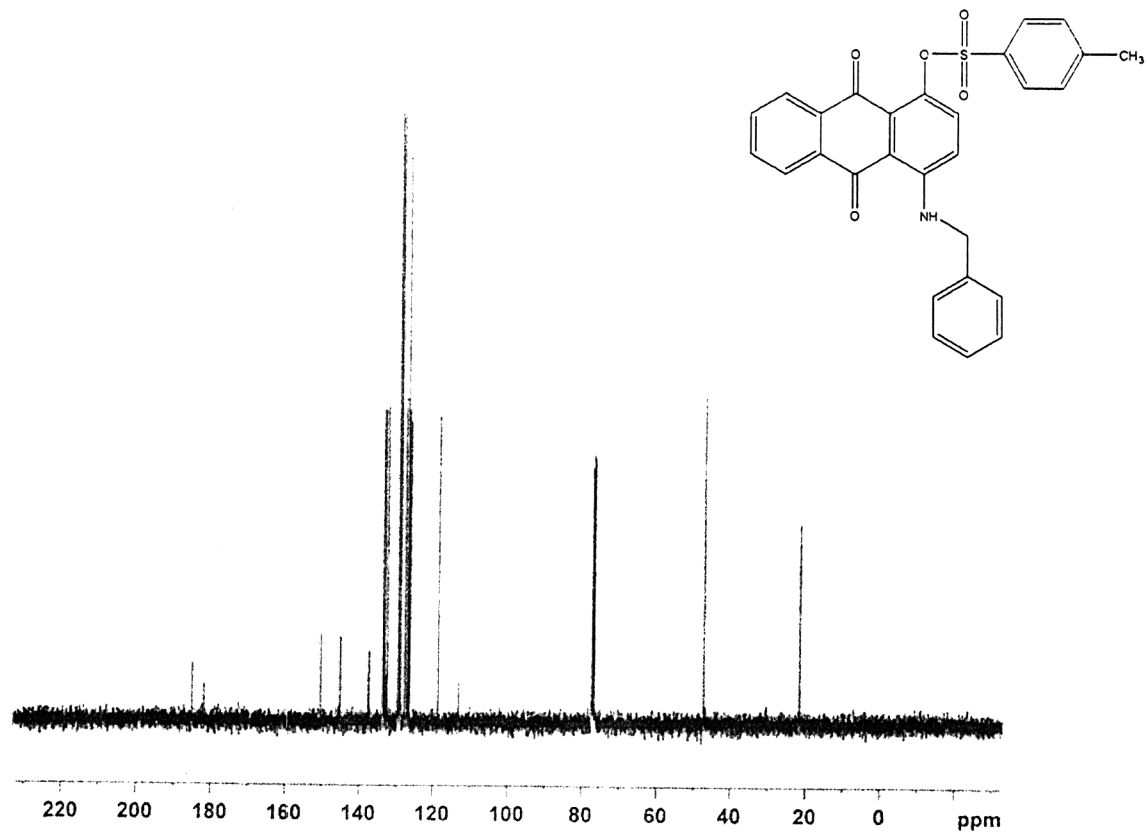
printed: 04/25/2013 03:57:00

MS-Spectrum of compound 4

Appendix D3







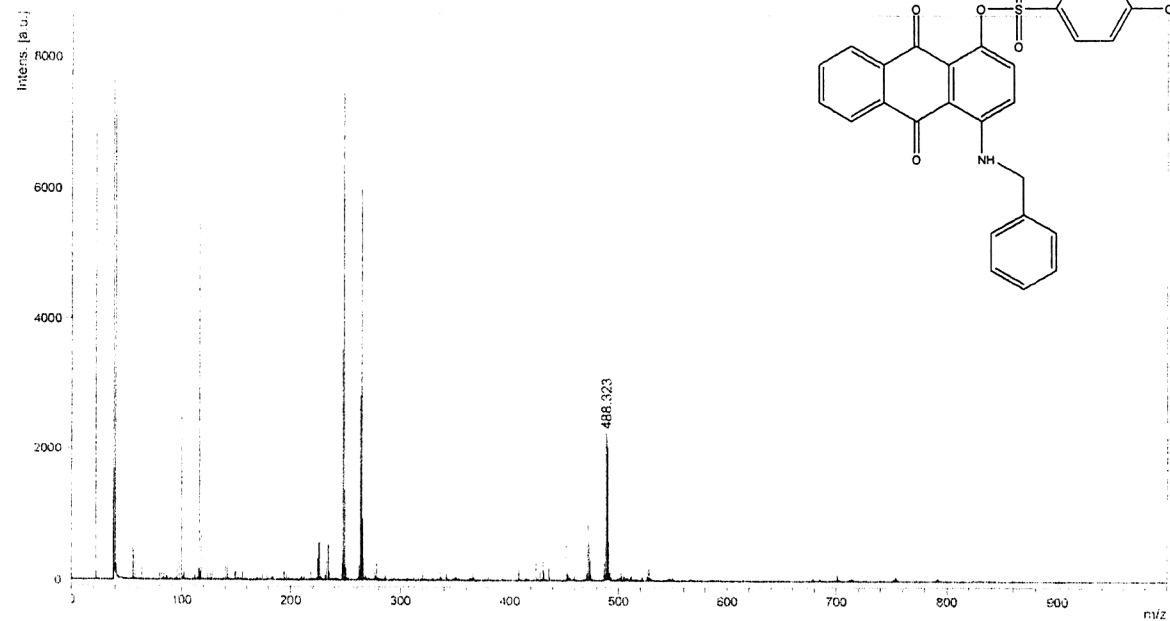
<sup>13</sup>C-Spectrum of compound 5

Appendix E2

D:\DATA\pp\took\AQ series II\25-04-56 12-Z10\_G411

Comment 1 25-04-56 12-Z

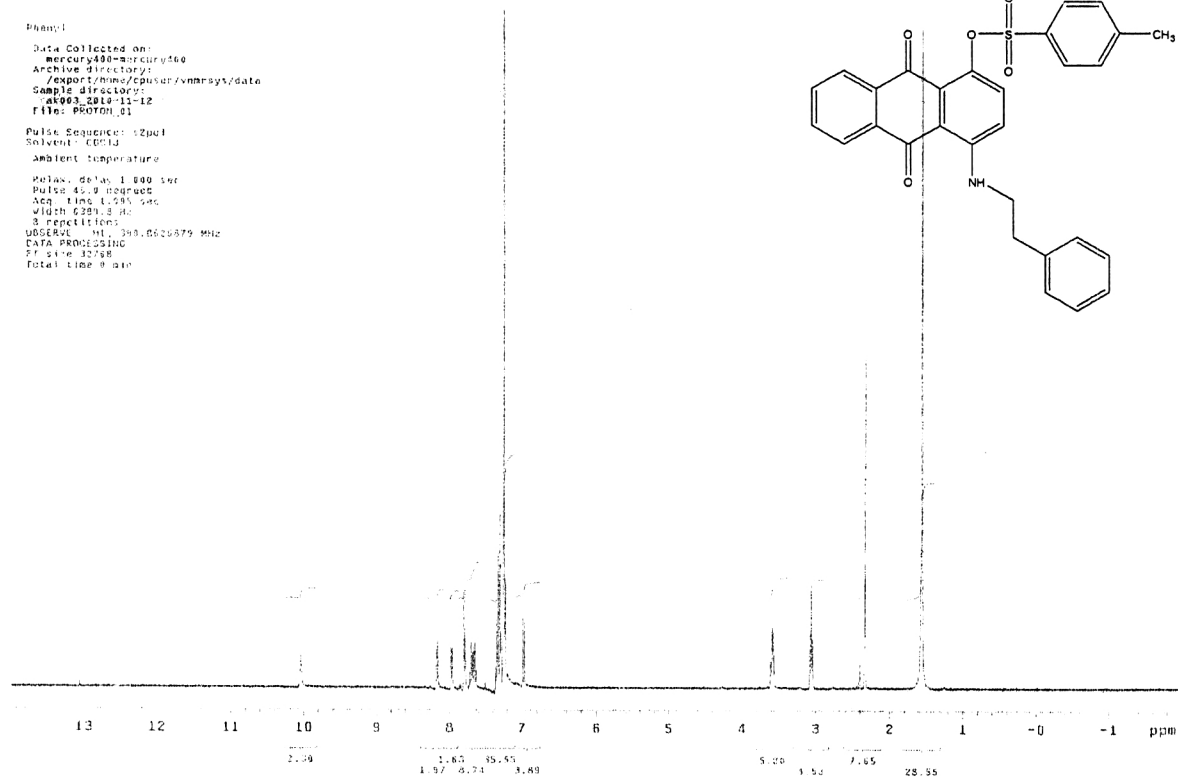
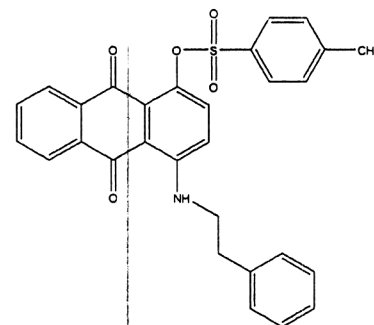
Comment 2



MS-Spectrum of compound 5

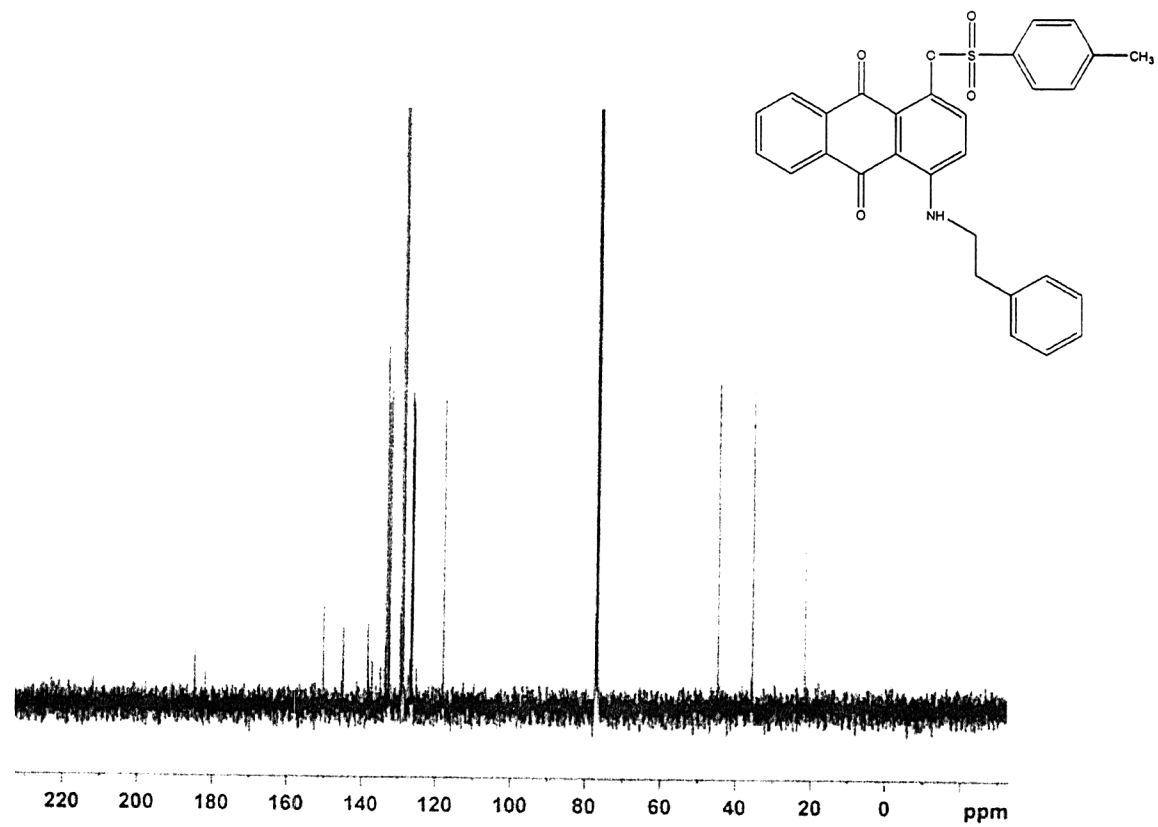
Appendix E3

Phant1  
Data Collected on:  
mercury400-mercury560  
Archive directory:  
/export/home/cpusur/vnmrnsys/data  
Sample directory:  
sak003\_2010-11-12  
File: PROTON\_01  
Pulse Sequence: zgpg30  
Solvent: CDCl3  
Ambient temperature  
Pulprg: delay 1.000 sec  
Pulse 45.000000000000000  
Acq. time 1.0000000000000000  
Width 6289.8 Hz  
3 repetitions  
USERSRV: ml, 300.0000000000000000 MHz  
DATA PROCESSING  
F1 date 12/15/10  
Total time 0.0000000000000000



<sup>1</sup>H-Spectrum of compound 6

Appendix F1



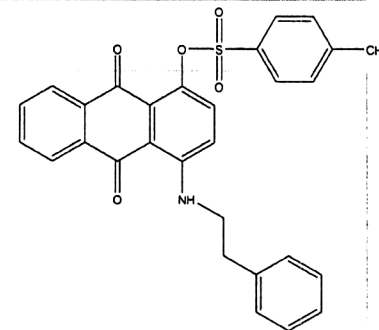
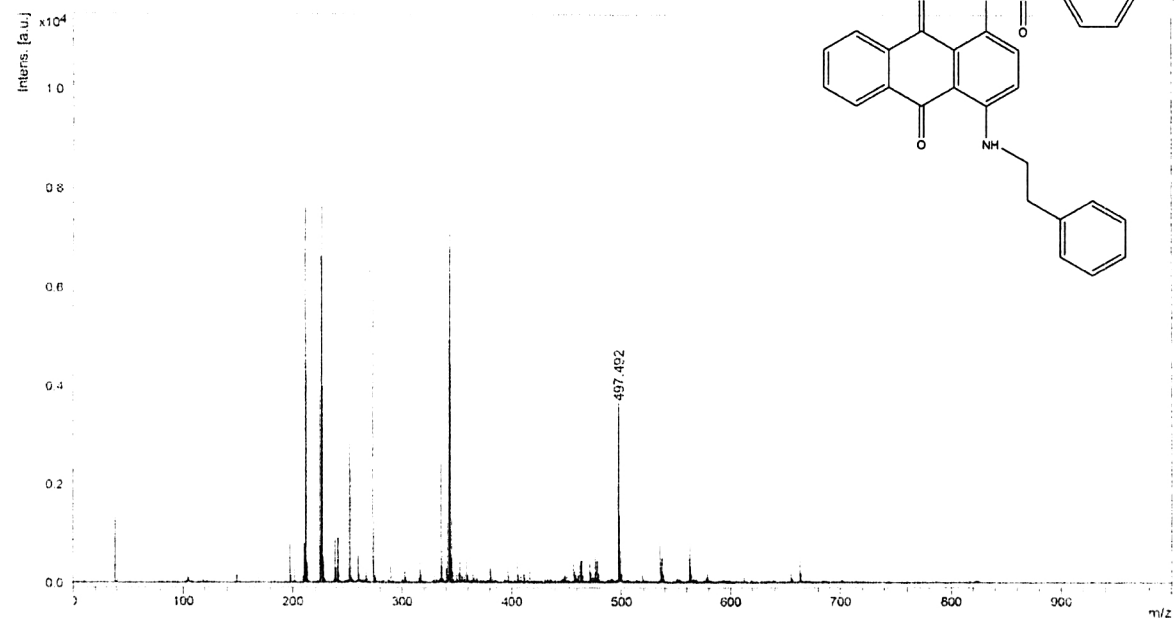
<sup>13</sup>C-Spectrum of compound 6

Appendix F2

D:\DATA\Up\p'took\AQ series III\25-04-56 13-210\_G511

Comment 1 25-04-56 13-2

Comment 2

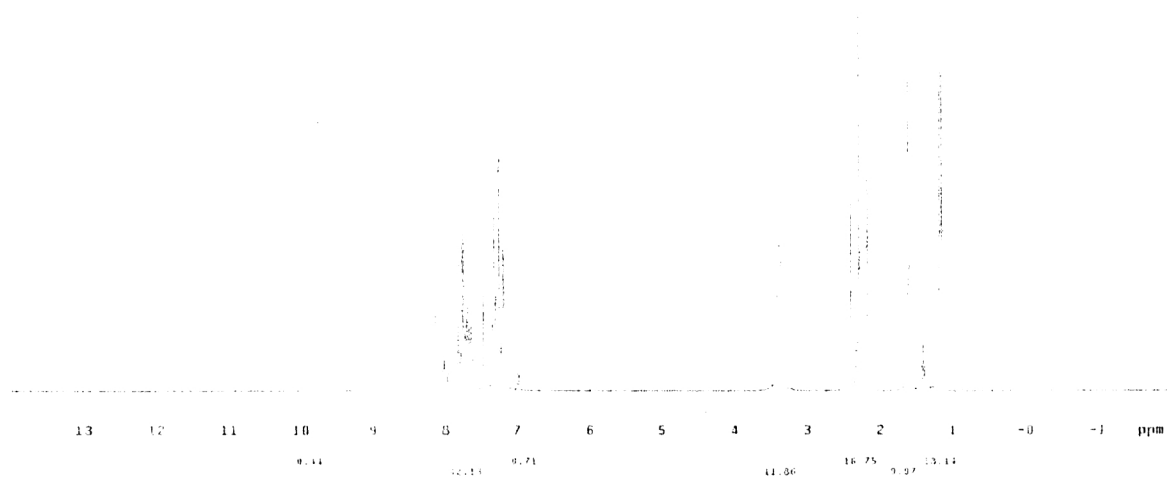
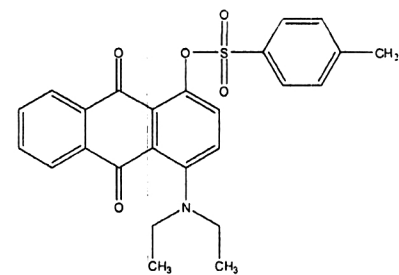


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MS-Spectrum of compound 6

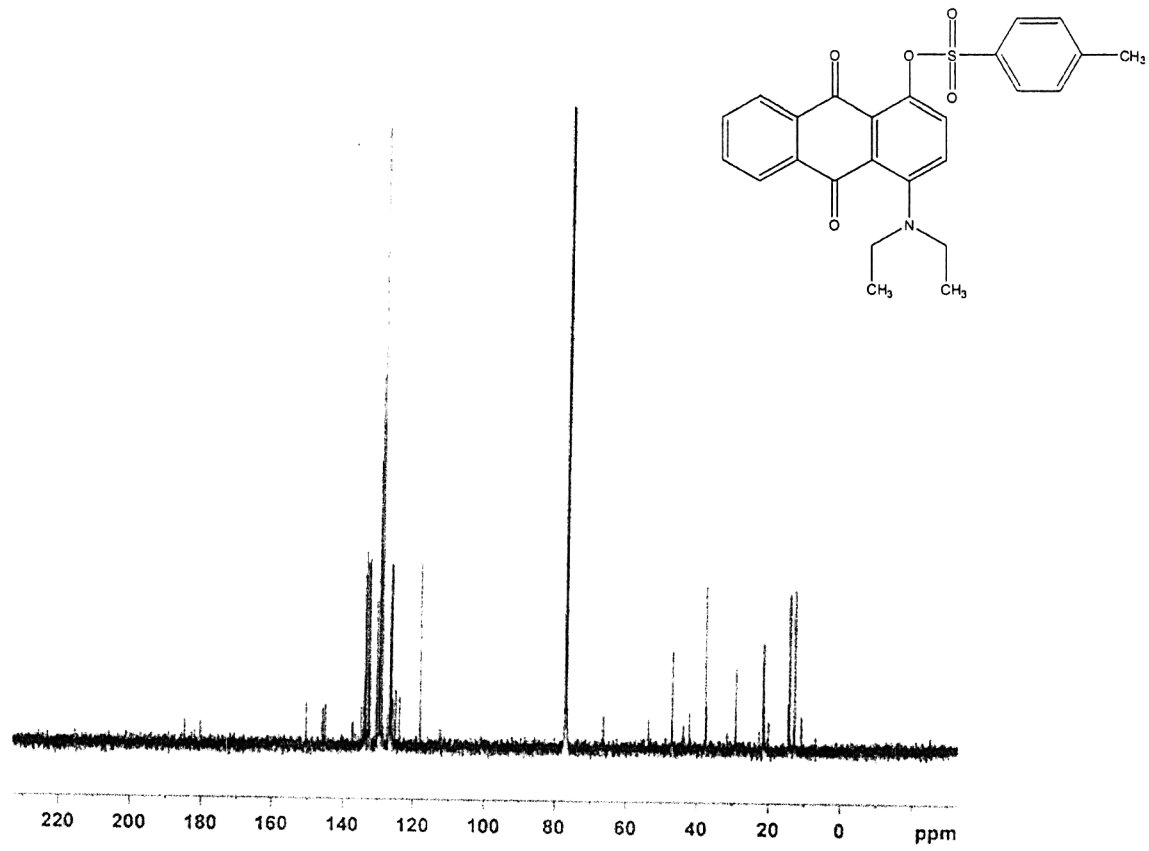
Appendix F3

Diethyl-77  
 Data collected on:  
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 Machine: Bruker Avance 400  
 Sample directory:  
 187001\_2018-08-24-164225  
 File: j102F01.f2  
 Pulse sequence: zgpg30  
 Solvent: CDCl3  
 Ambient temperature  
 Relax delay: 1.000 sec  
 Pulse: 15.0 degrees  
 Gain: 1.00000000  
 Acquisition time: 0.040  
 \* Repetitions:  
 0000000000  
 Data: 0000000000  
 F1 size: 12.000  
 Total time: 0.040



<sup>1</sup>H-Spectrum of compound 7

Appendix G1



$^{13}\text{C}$ -Spectrum of compound 7

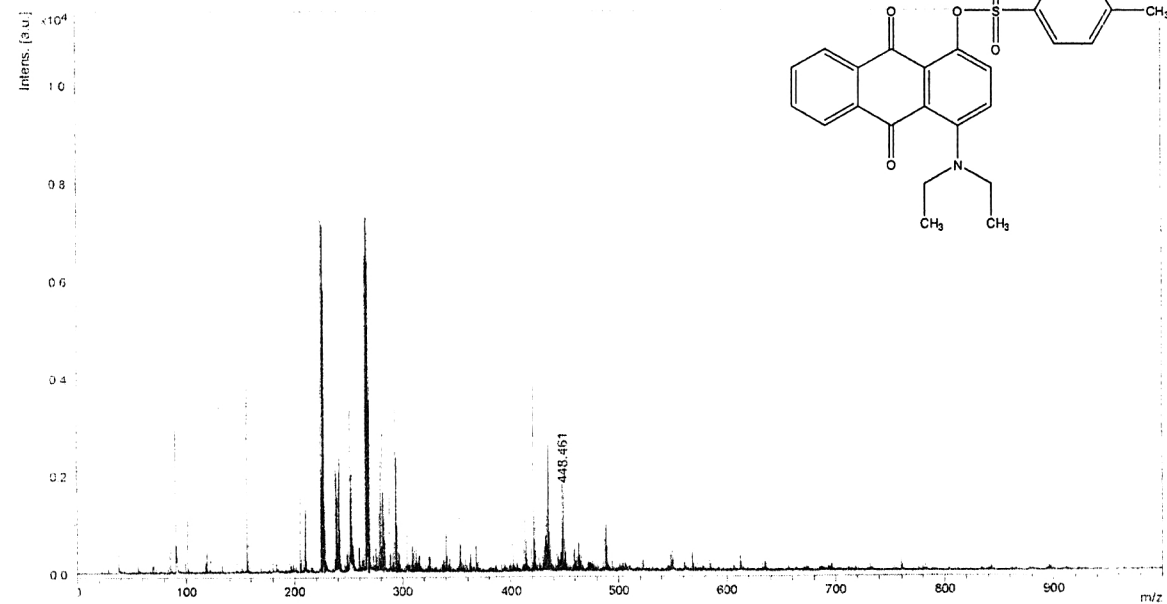
Appendix G2



D:\DATA\Up\p'took\AQ series II\25-04-56 14-210\_G6\1

Comment 1 25-04-56 14-2

Comment 2

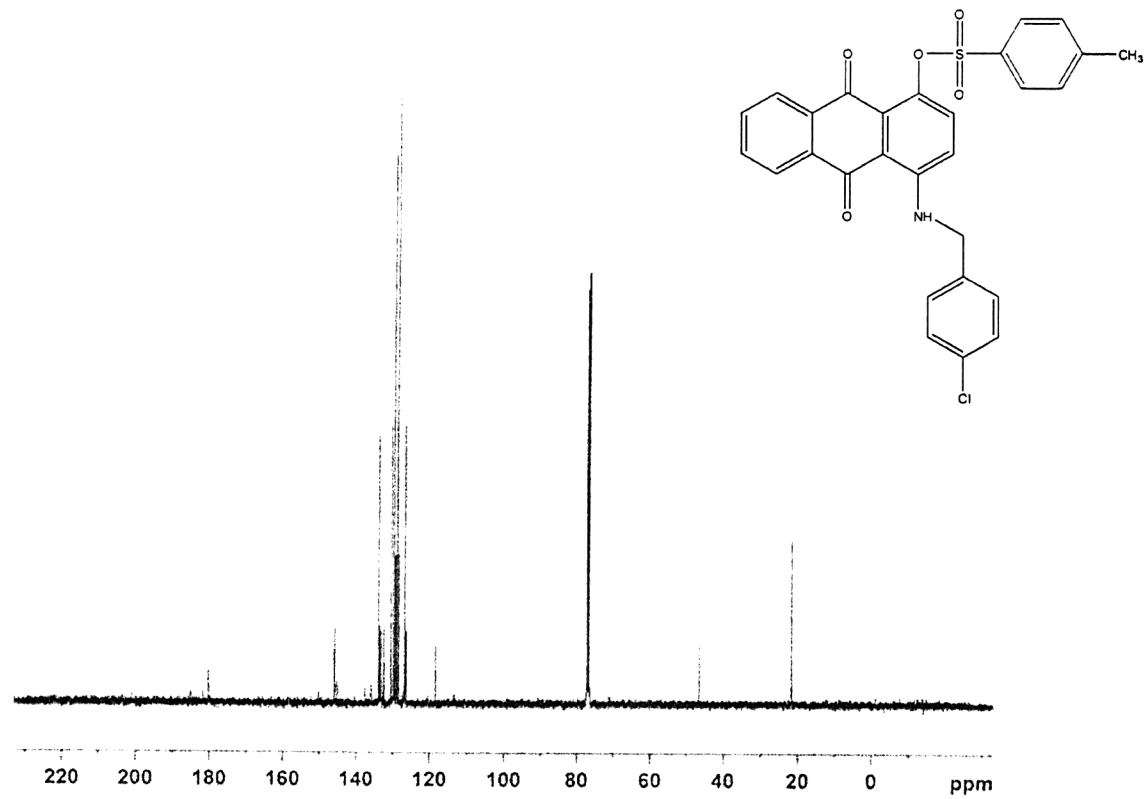


printed: 04/25/2013 04:03:26

MS-Spectrum of compound 7

Appendix G3





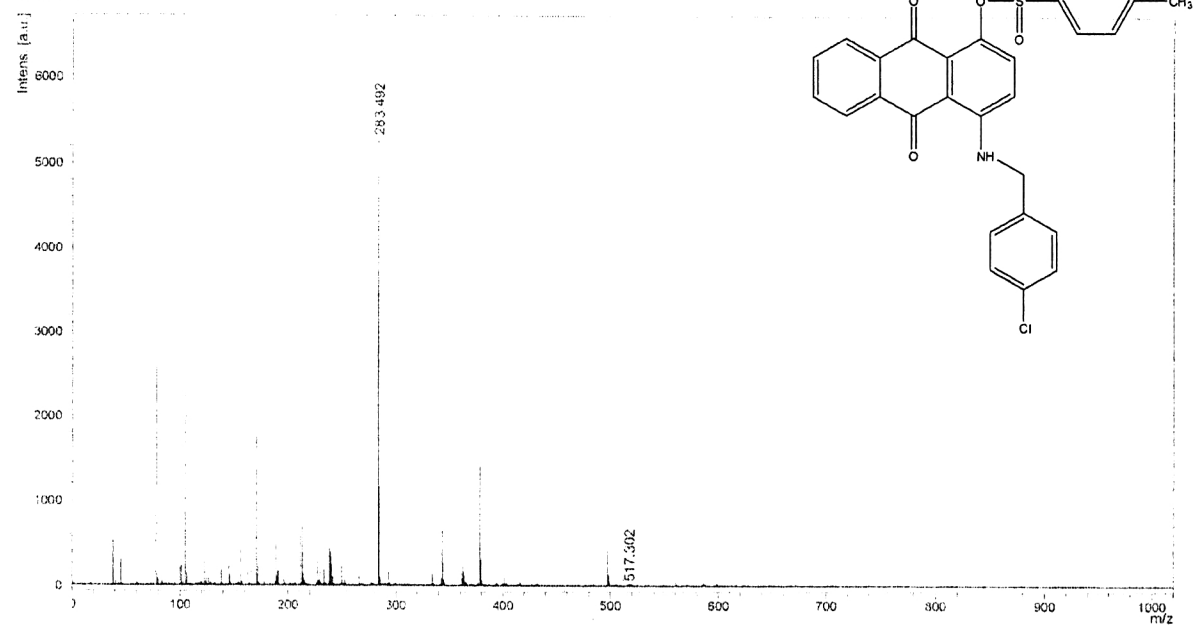
<sup>13</sup>C-Spectrum of compound 8

Appendix H2

D:\DATA\Uplp'took\IC10\_G411

Comment 1 C

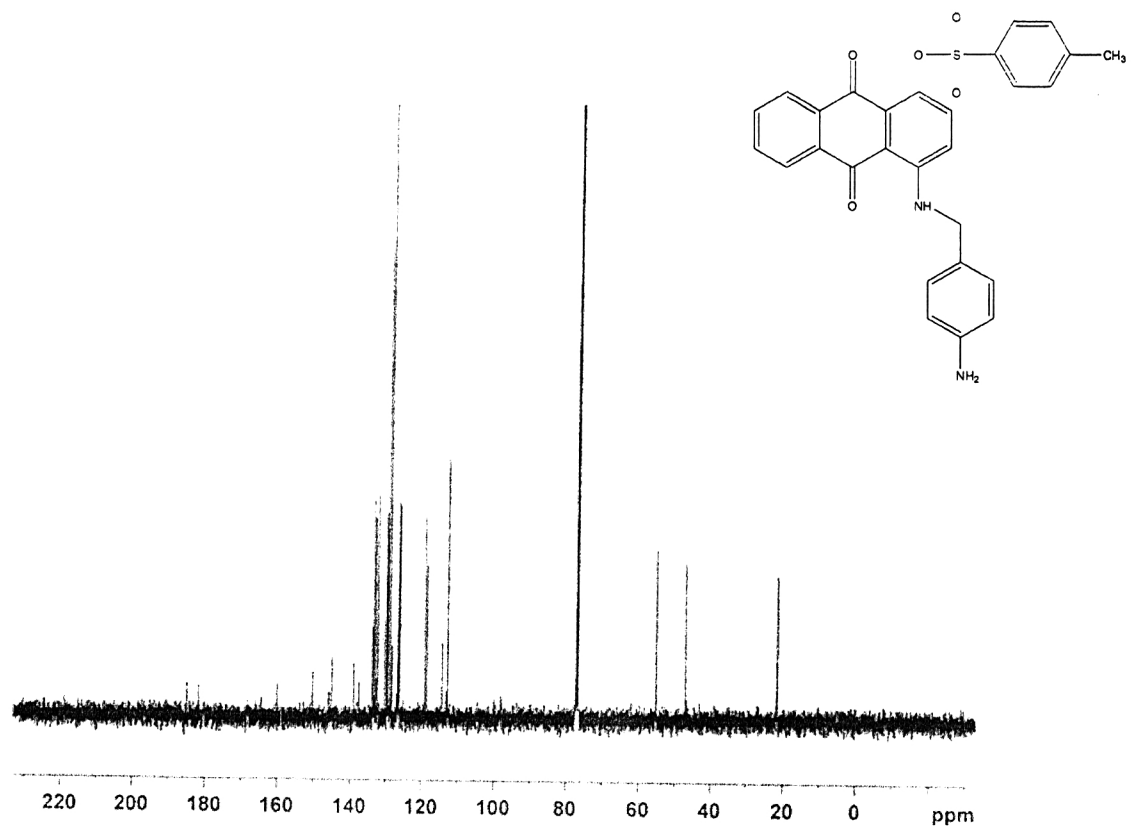
Comment 2



MS-Spectrum of compound 8

Appendix H3





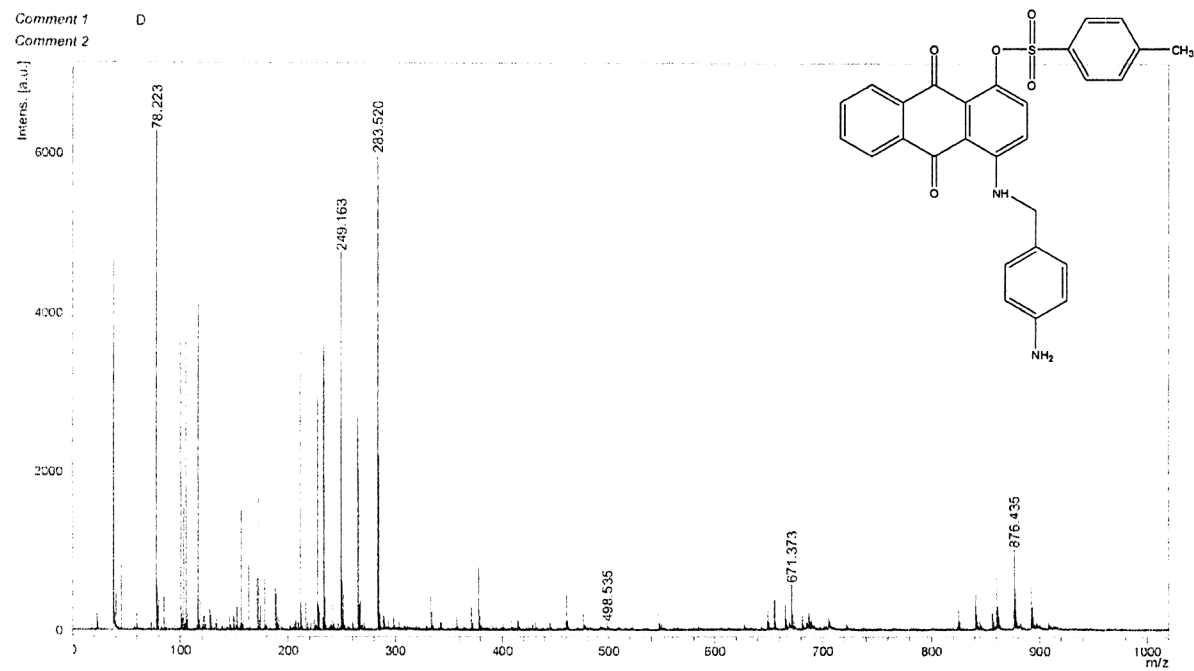
$^{13}\text{C}$ -Spectrum of compound 9

Appendix I2

D:\DATA\Up\p'tookID\0\_G511

Comment 1 D

Comment 2

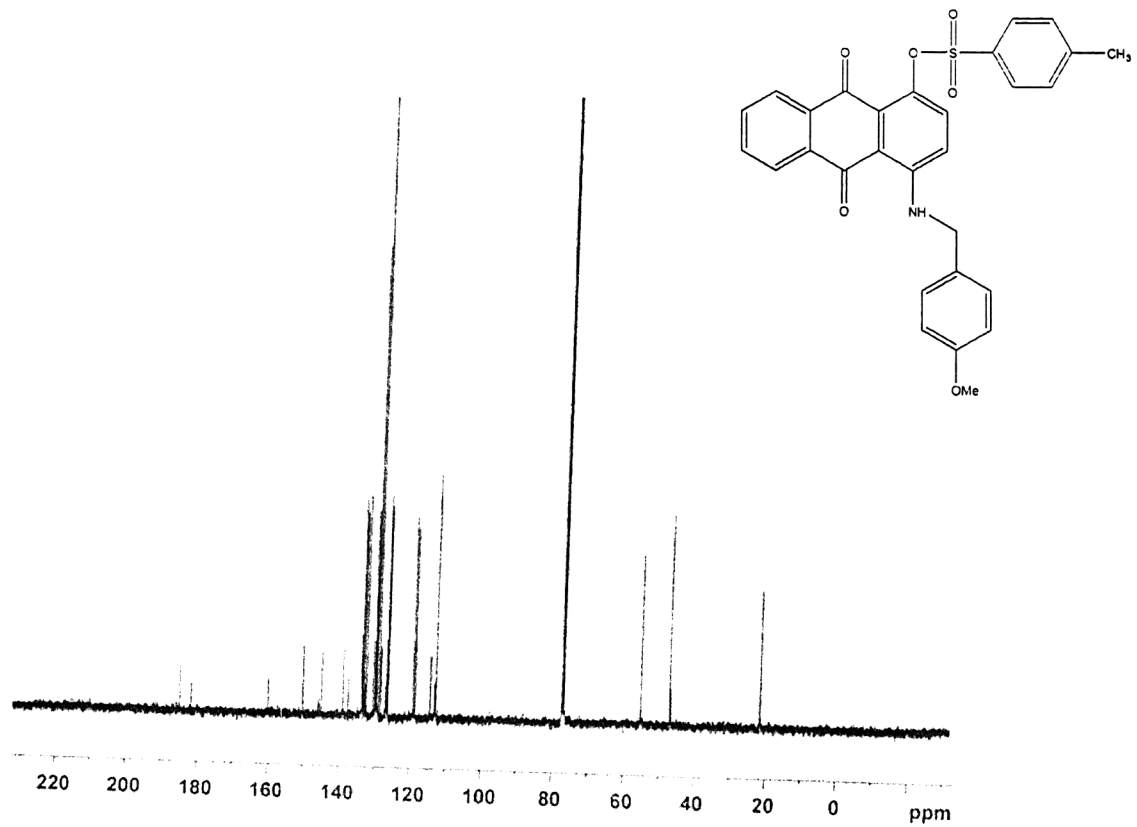


MS-Spectrum of compound 9

Appendix I3





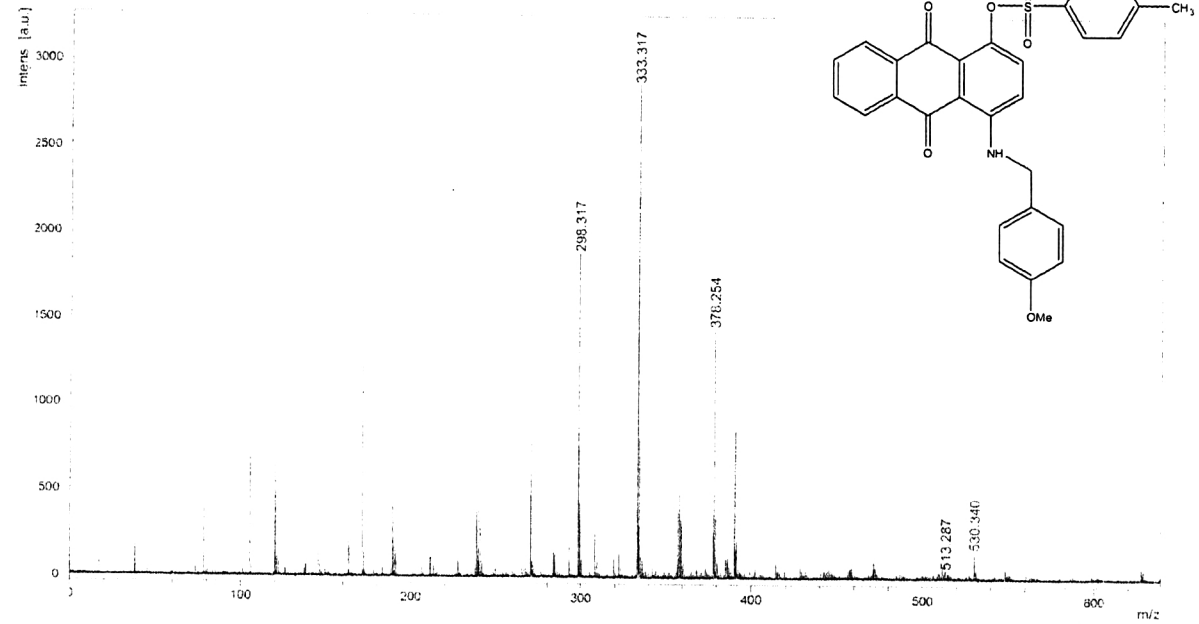


<sup>13</sup>C-Spectrum of compound 10

Appendix J2

D:\DATA\Uplp'tlookIE0\_G611

Comment 1 E  
Comment 2



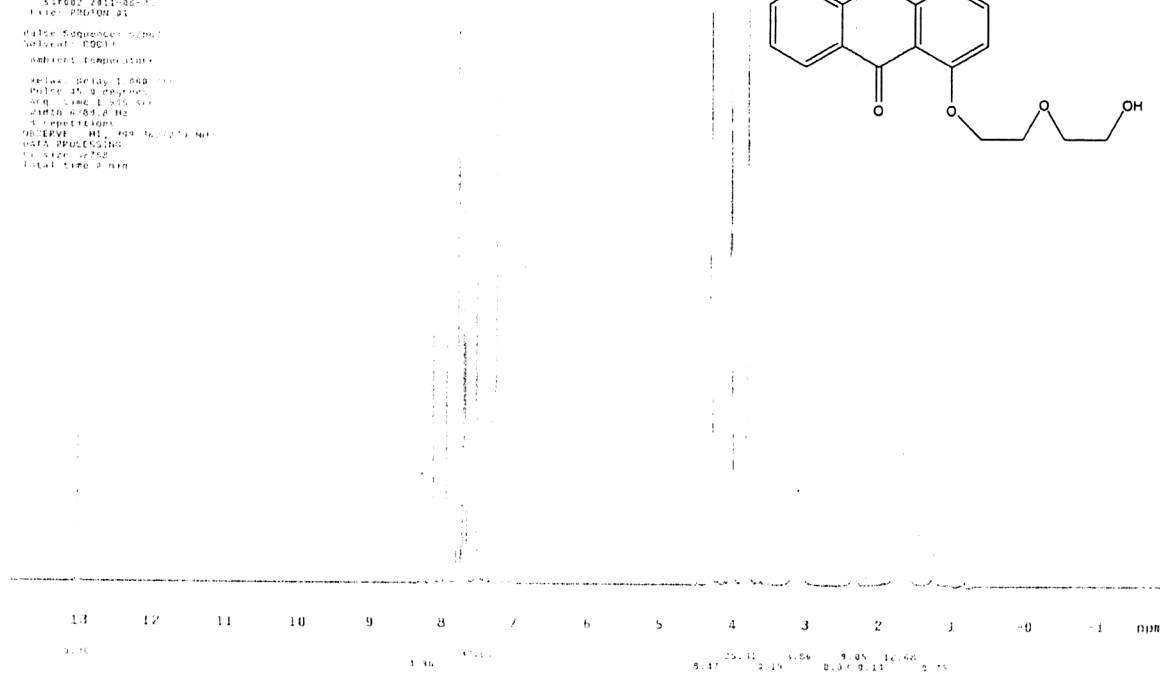
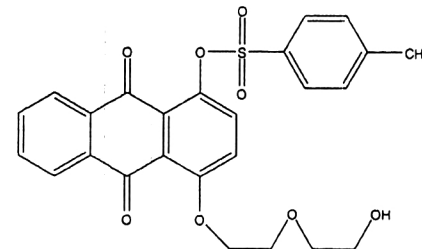
printed: 03/30/2013 01:34:10

MS-Spectrum of compound 10

Appendix J3

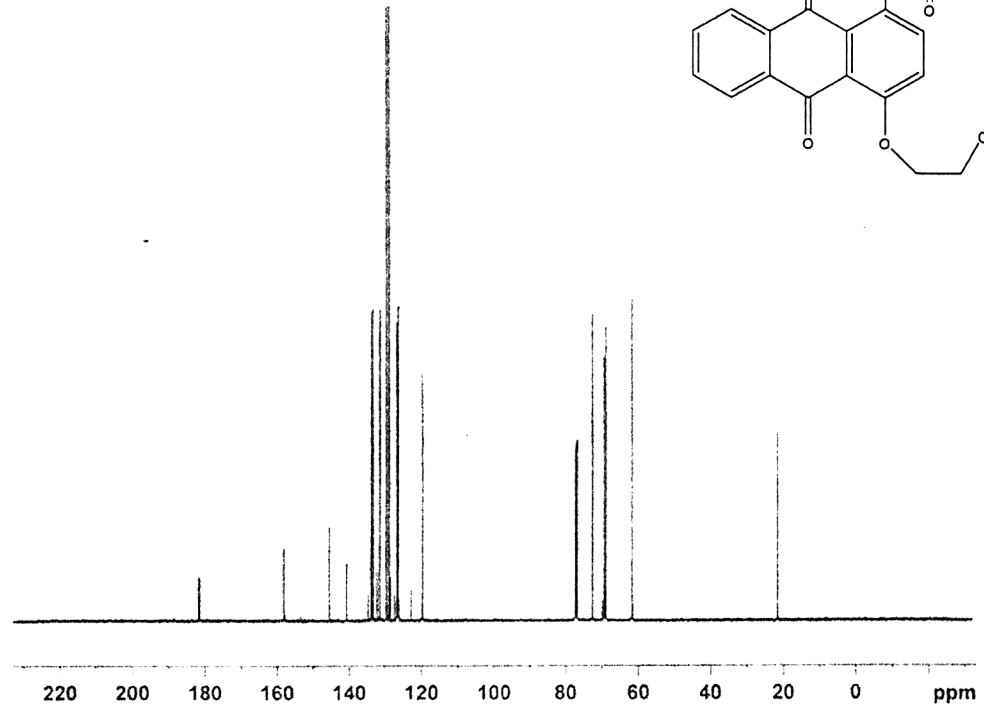
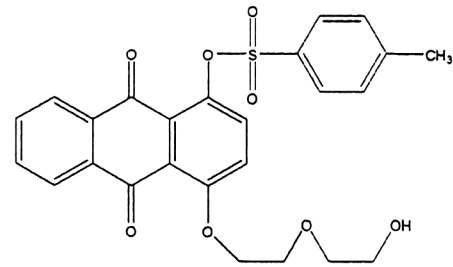
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Hex, 10m
Data Collected on
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  Acquire directory:
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  Subfile directory:
  S:\F007\7811-02-01
  File: PROTON.d1
Date Acquired: 02/01/01
Solvent: DMSO
Sample Temperature:
Pulse: 90deg
Pulse 2: 90deg
Acq. Time: 1.005 sec
Sweep: 4096 Hz
F1: 400 MHz
PROBHD: H1, 5mm BBO-1H-1
DATA PROCESSING:
  F2: 400 MHz
  Total time: 0.100 min
  
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<sup>1</sup>H-Spectrum of compound 11

Appendix K1

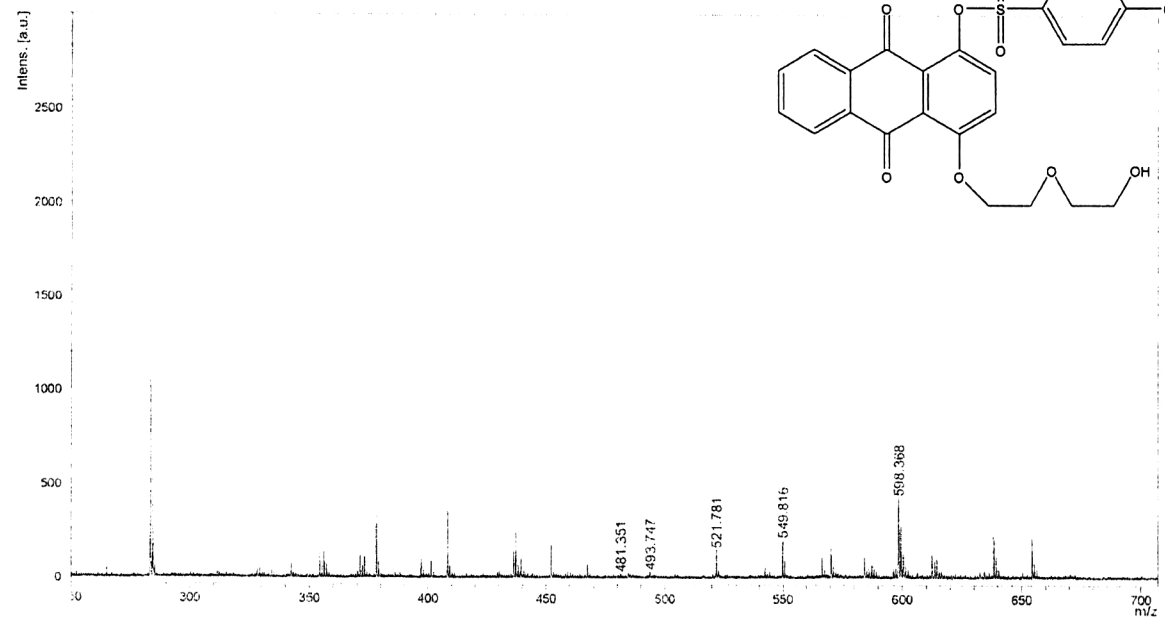


<sup>13</sup>C-Spectrum of compound 11

Appendix K2

D:\DATA\Uplp'took\F10\_G7\1

Comment 1 F  
Comment 2

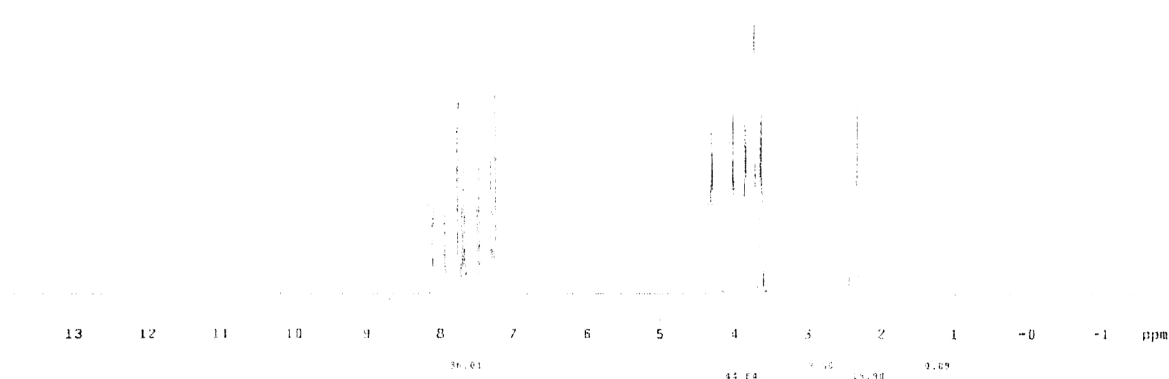
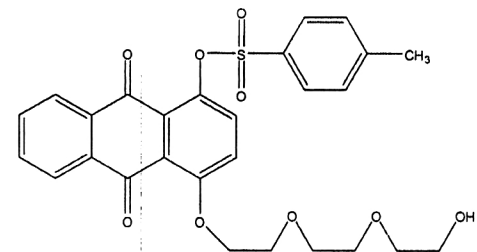


printed: 03/30/2013 01:35:59

MS-Spectrum of compound 11

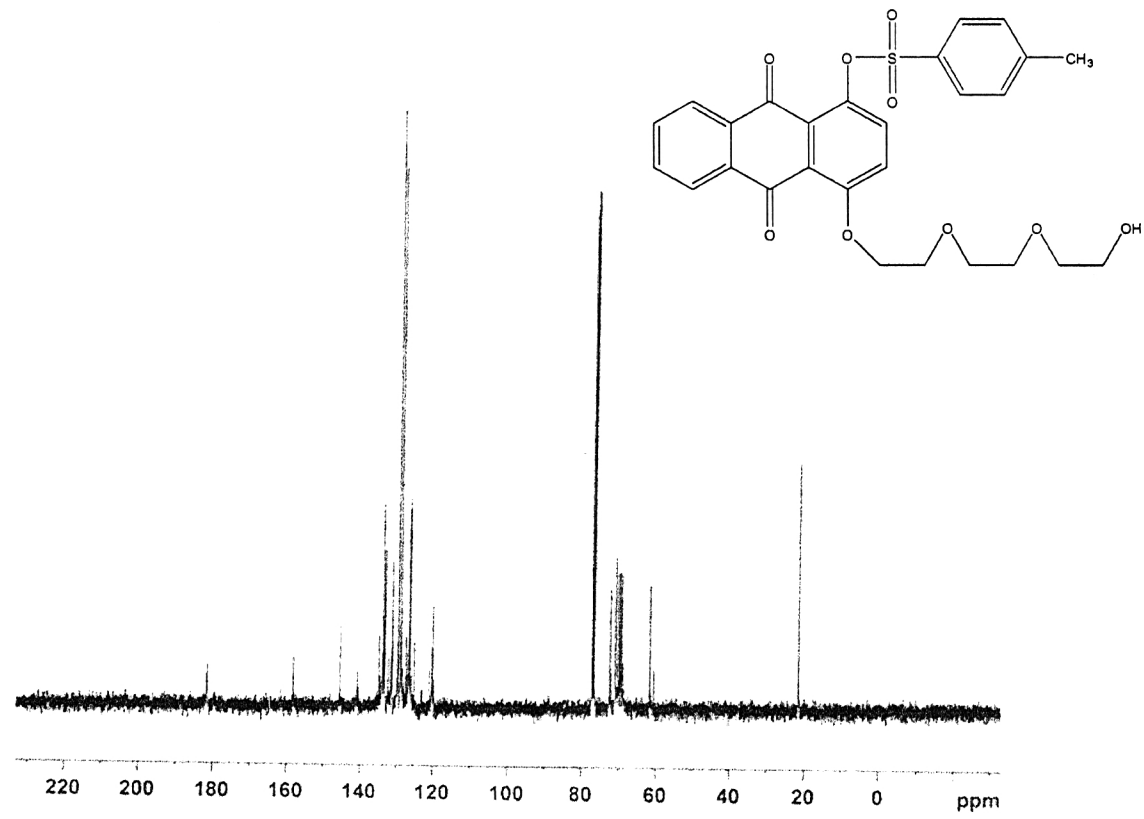
Appendix K3

Fr10H-6  
Data Collected on:  
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551001\_2011-05-25  
File: PR07CH\_01  
Pulse Sequence: zgpg30  
Solvent: CDCl3  
Ambient temperature  
Relax. delay: 1.000 sec  
Pulse: 15.0 degrees  
Acq. time: 1.395 sec  
width: 6388.0 Hz  
6 repetitions  
OBSERVE: H1, 299.3MHz  
Data Processing  
F1 size: 32768  
Total time: 0 min



<sup>1</sup>H-Spectrum of compound 12

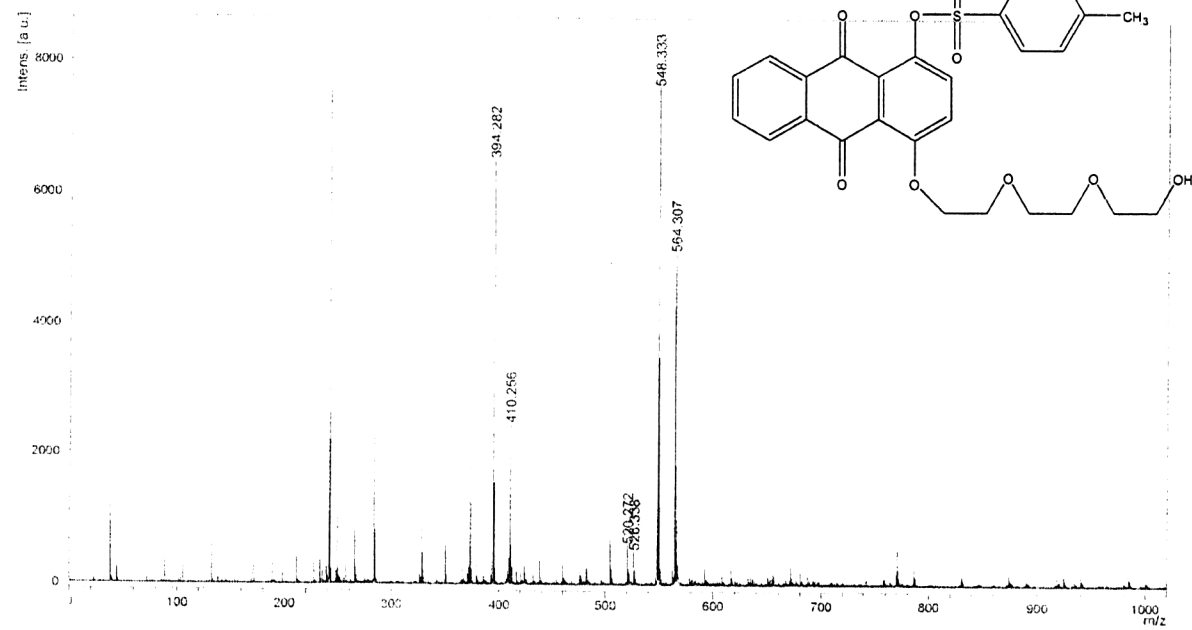
Appendix L1



$^{13}\text{C}$ -Spectrum of compound 12  
Appendix L2

D:\DATA\Up\p'tookIG\G811

Comment 1 G  
Comment 2



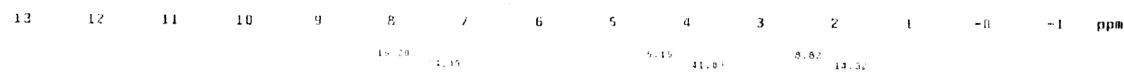
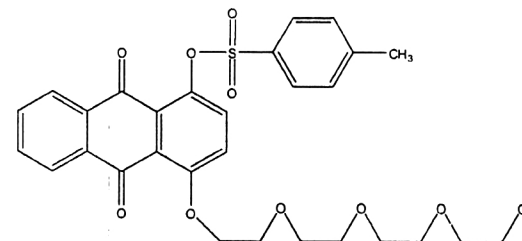
printed: 03/30/2013 01:37:02

MS-Spectrum of compound 12

Appendix L3

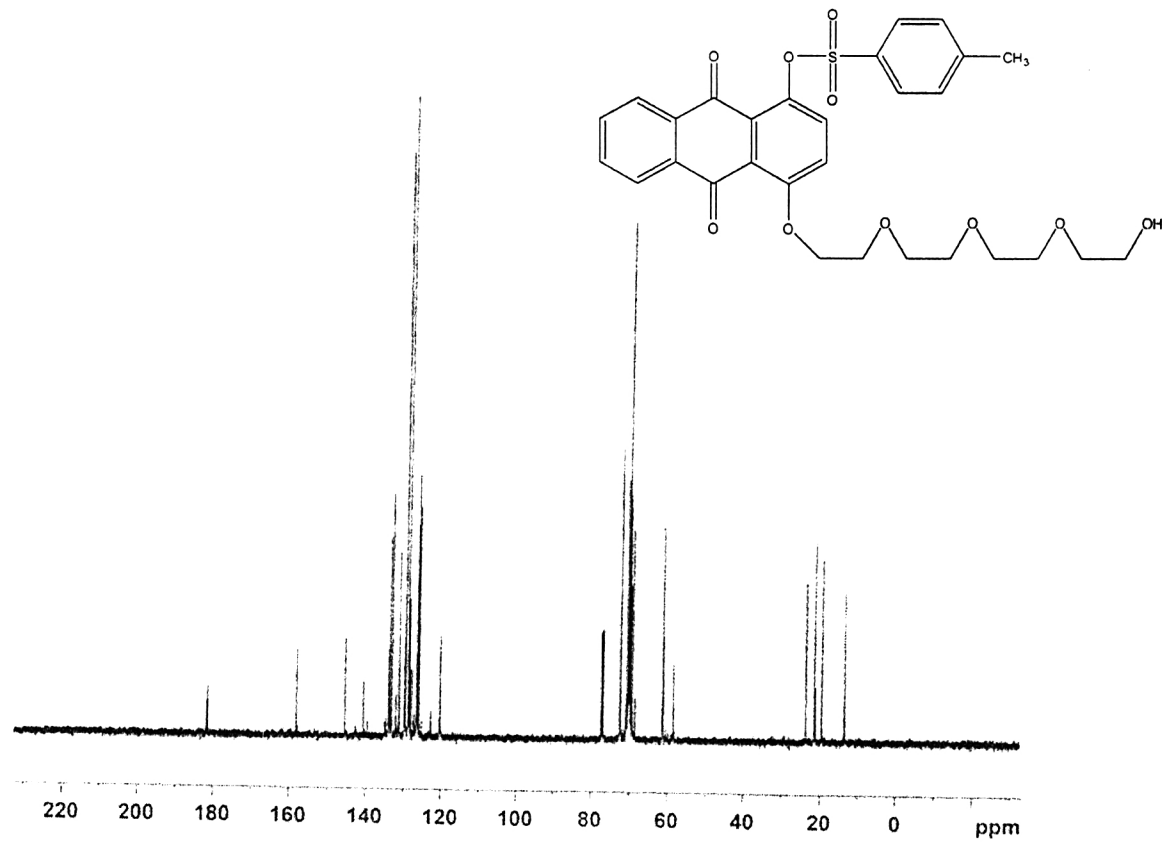


Tetraethylsilane  
 Data Collection on  
 edc01100-mercury109  
 Archive directory  
 c:\msd1\name\puser\chemsys\data  
 Sample directory  
 0510012011-04-23  
 File: 000001.d1  
 Pulse Sequence: zgpg30  
 Solvent: CDCl3  
 Ambient temperature  
 Probe: Hsuy 1 000 MHz  
 Pulse: 15 0 40005  
 Acq. time: 1.495 sec  
 Width: 6.000 MHz  
 0 repetitions  
 OBSERVE: H1 100 MHz/6579 MHz  
 DATA PROCESSING  
 01 00000000  
 Total time: 0 min



**<sup>1</sup>H-Spectrum of compound 13**

Appendix M1



$^{13}\text{C}$ -Spectrum of compound 13

Appendix M2

D:\DATA\Up\p'took\H310\_G911

Comment 1 H3  
Comment 2



printed: 03/30/2013 01:57:47

MS-Spectrum of compound 13

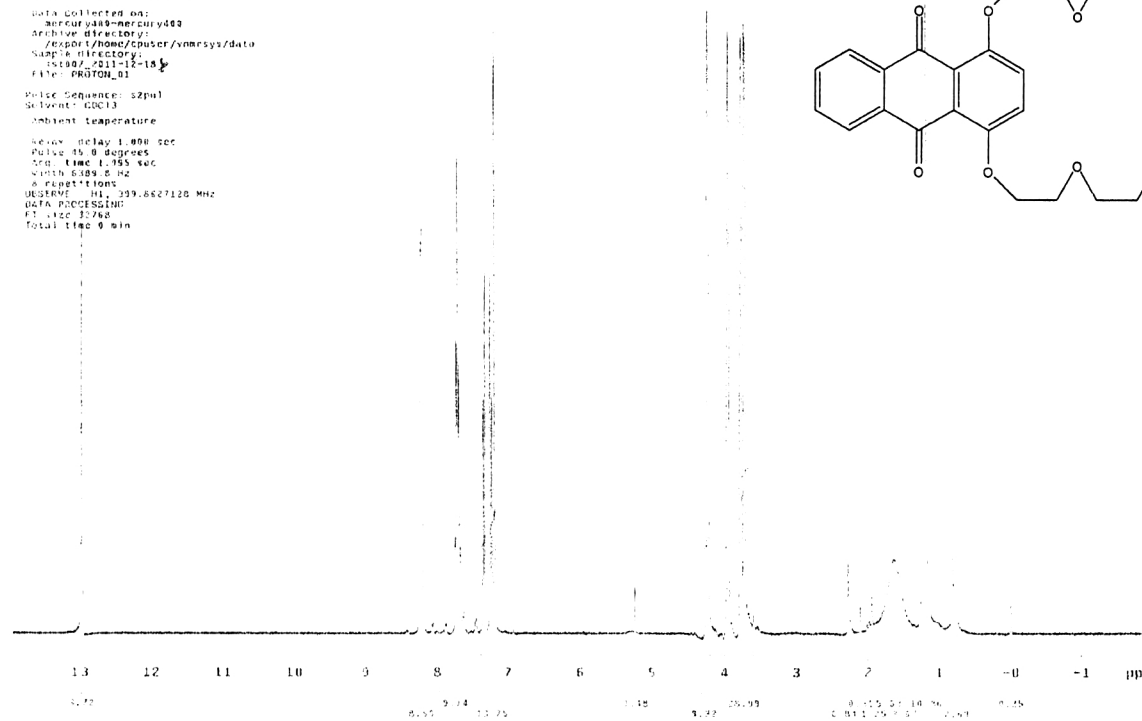
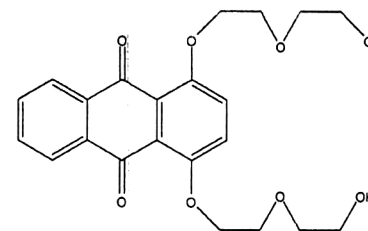
Appendix M3

diglycol-Diglycol-rectluand

Data Collected on:  
MFT000489-mercury400  
Archive directory:  
/export/home/cpuser/vnmrsys/data  
Sample directory:  
48007\_0011-12-18  
File: PROTON\_01

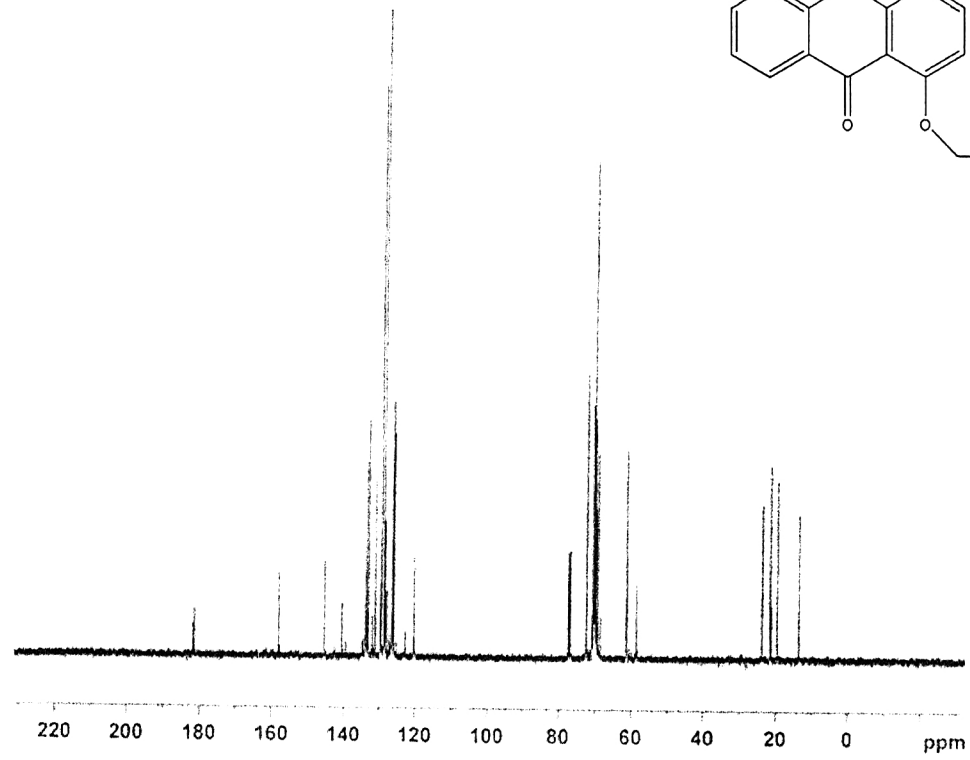
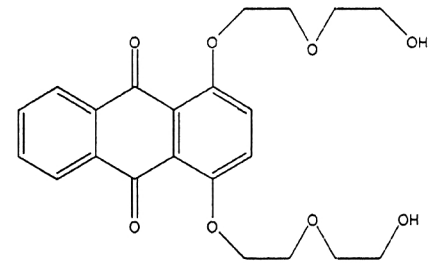
Pulse Sequence: s2pul  
Solvent: CDCl3  
Ambient Temperature

Acq. delay 1.000 sec  
Pulse 15.0 degrees  
Cyc. time 1.185 sec  
Width 6389.0 Hz  
# Swepts 1000  
DETERM: H1, 399.6627120 MHz  
DATA PROCESSING:  
F1 size 32768  
Total time 0 min



<sup>1</sup>H-Spectrum of compound 14

Appendix N1

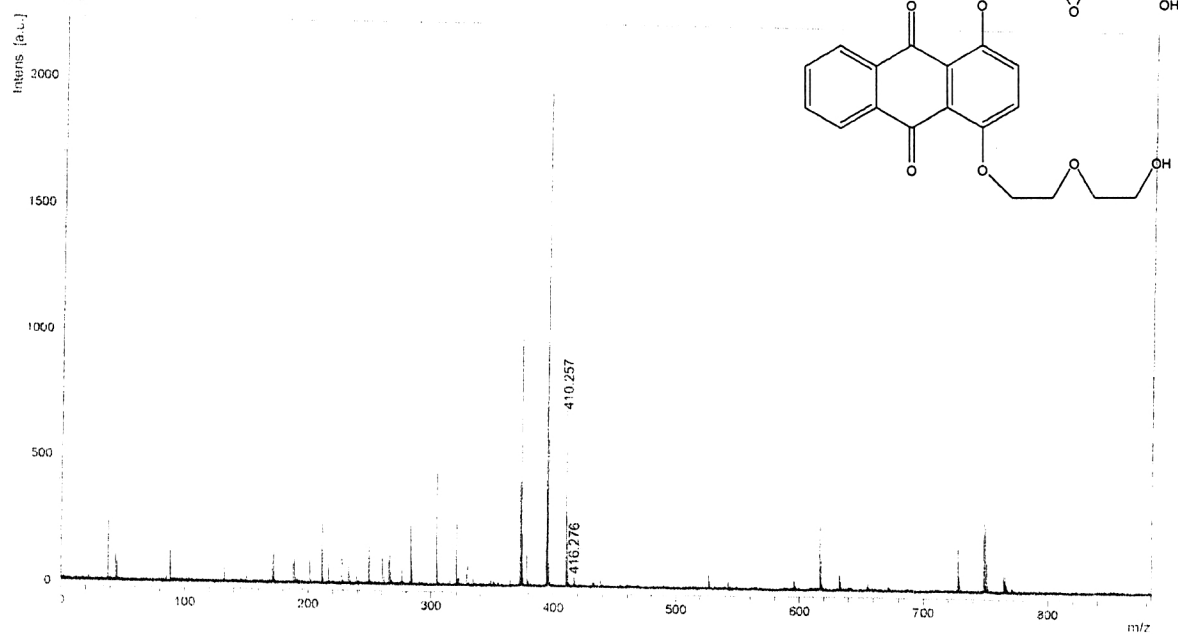


$^{13}\text{C}$ -Spectrum of compound 14

Appendix N2

D:\DATA\Up\p'took\10\_G1011

Comment 1 |  
Comment 2



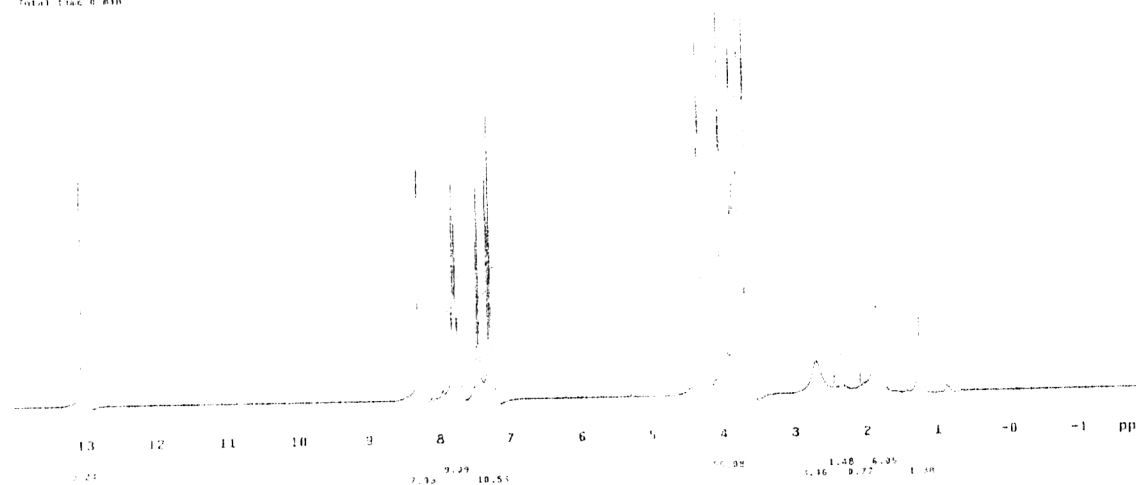
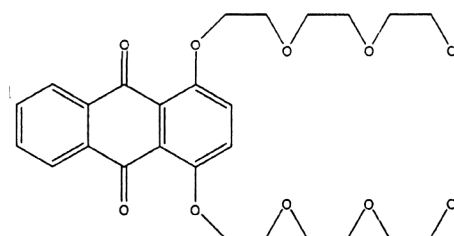
printed: 03/30/2013 01:58:33

MS-Spectrum of compound 14

Appendix N3

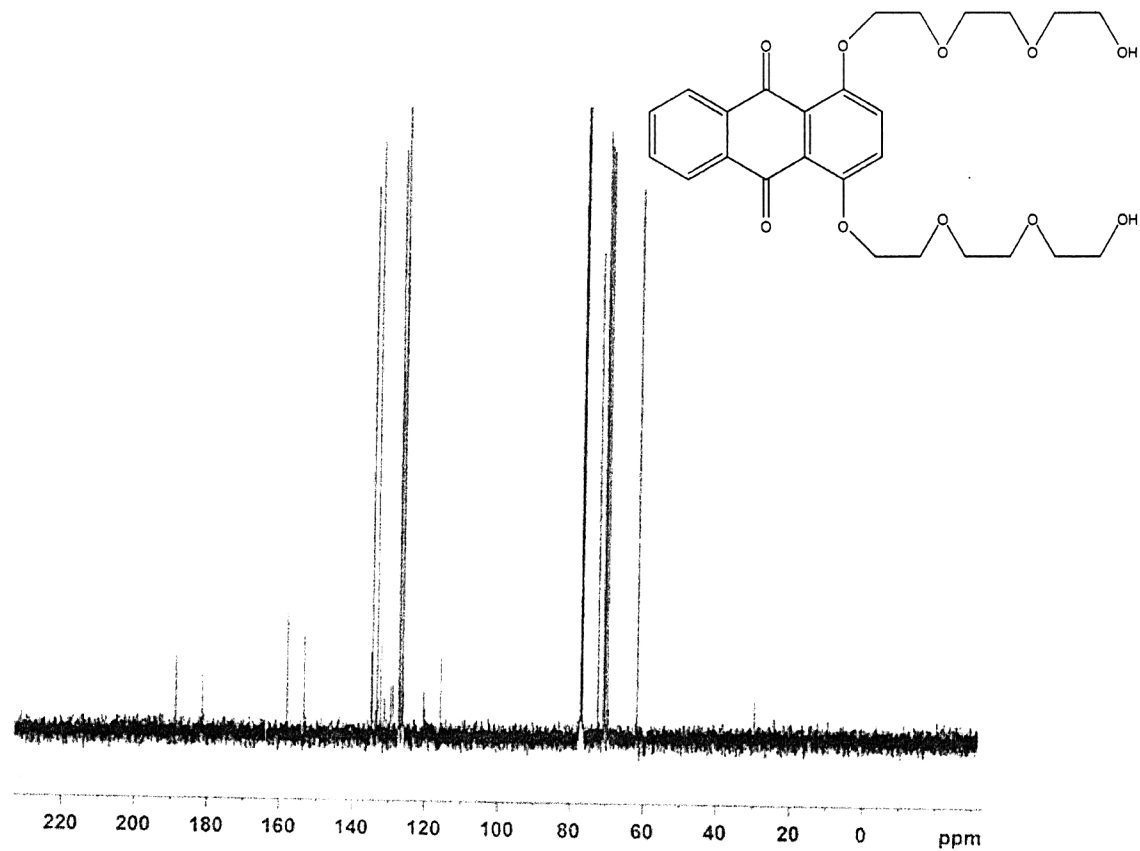
```

11/11/2011 22:04:05
Data Collected on:
  spectry100.mrcrury100
  Archive directory:
  /zoo/2/hoar/custer/vmrcys/data
Sample directory:
  05001_0612-02_1A
File: 050101.d1
Pulse Sequence: zgpg30
Solvent: CDCl3
Solvent temperature:
Polar. delay: 1.000 sec
Pulse 4N.0 degrees
Acq. time: 1.395 sec
Sweep width: 8.000
S repetitions:
OBSERVE: 401, 399.6624379 MHz
Puls: 050101.d1
F1 size: 32768
Total time: 8 min
  
```



<sup>1</sup>H-Spectrum of compound 15

Appendix O1



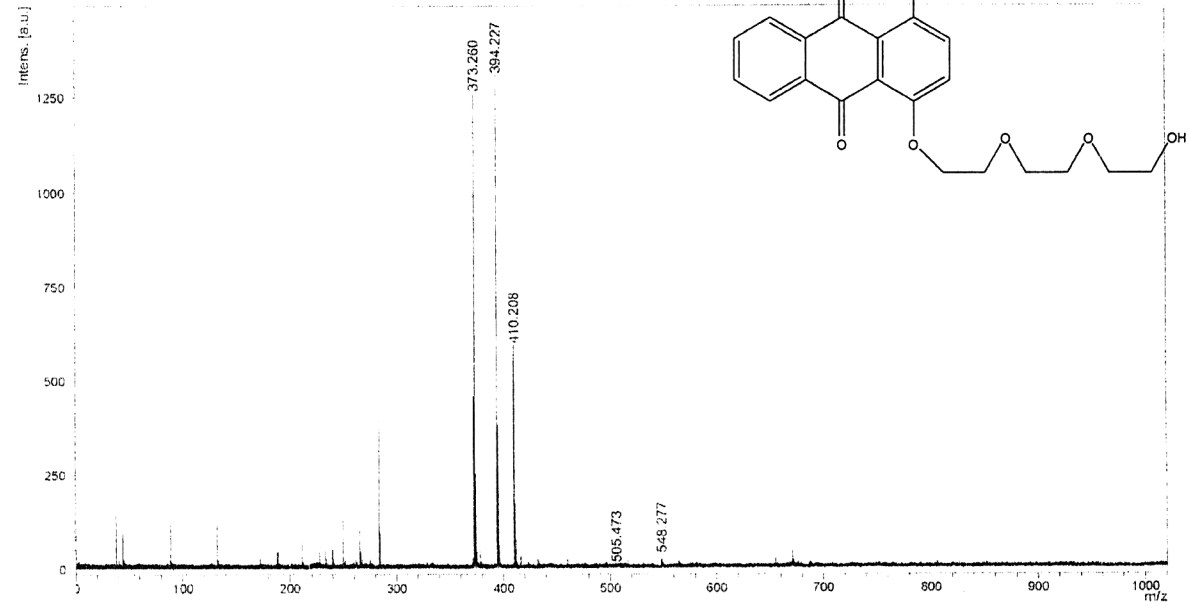
<sup>13</sup>C-Spectrum of compound 15

Appendix O2



D:\DATA\Up\p'took\10\_G1111

Comment 1 J  
Comment 2



MS-Spectrum of compound 15

Appendix O3

## **Postdoctoral fellowship recommendation for Supraanee Sangthong**

It is my pleasure to recommend Miss. Supraanee Sangthong for your postdoctoral position as I have gotten to know Miss. Sangthong over 6 years as one of my most active and effective participants in daily research.

Miss. Sangthong's talents have repeatedly impressed many of us as she was the student who raised the serious and challenging issues that pushed the dialogue to a more in depth level. I am confident she can be an exceptional performer since she is an outstanding researcher. She was also the strongest student and a review of her academic publications reveals her performance was repeated across her two years in master's degree and four years in doctorate. Intellectually, she is clearly a star and she's a very nice and genuine person as well. It has been our pleasure working with her.

I strongly recommend Miss. Sangthong to you and without reservation. She will be a wonderful addition to your chambers. If I can assist in your review of her application, please contact me.

Sincerely yours,

Assoc. Prof. Dr. Nattaya Ngamrochanavanich  
Department of Chemistry, Chulalongkorn University  
Phone: +66-2-2187635  
Fax: Phone: +66-2-2187635  
email: [nattaya.n@chula.ac.th](mailto:nattaya.n@chula.ac.th)

## VITA

Supranee Sangthong was born in Nakornsawan, Thailand on January 25, 1984. She received Bachelor Degree of Science in Microbiology from Khonkaen University in 2006 and graduated the Master Degree with of Science in Biotechnology from Chulalongkorn University in 2008. She has become a student in Doctor of Philosophy of Chulalongkorn University in Biotechnology, Faculty of Science.

