

UFRRJ

**INSTITUTO DE CIÊNCIAS EXATAS
PROGRAMA DE PÓS-GRADUAÇÃO EM QUÍMICA**

TESE

Síntese de novos naftoimidazóis derivados de β -lapachona e compostos relacionados, empregando irradiação na região de microondas e reagentes suportados, e outras sínteses.

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SEROPÉDICA – 2008

Caderno de espectros

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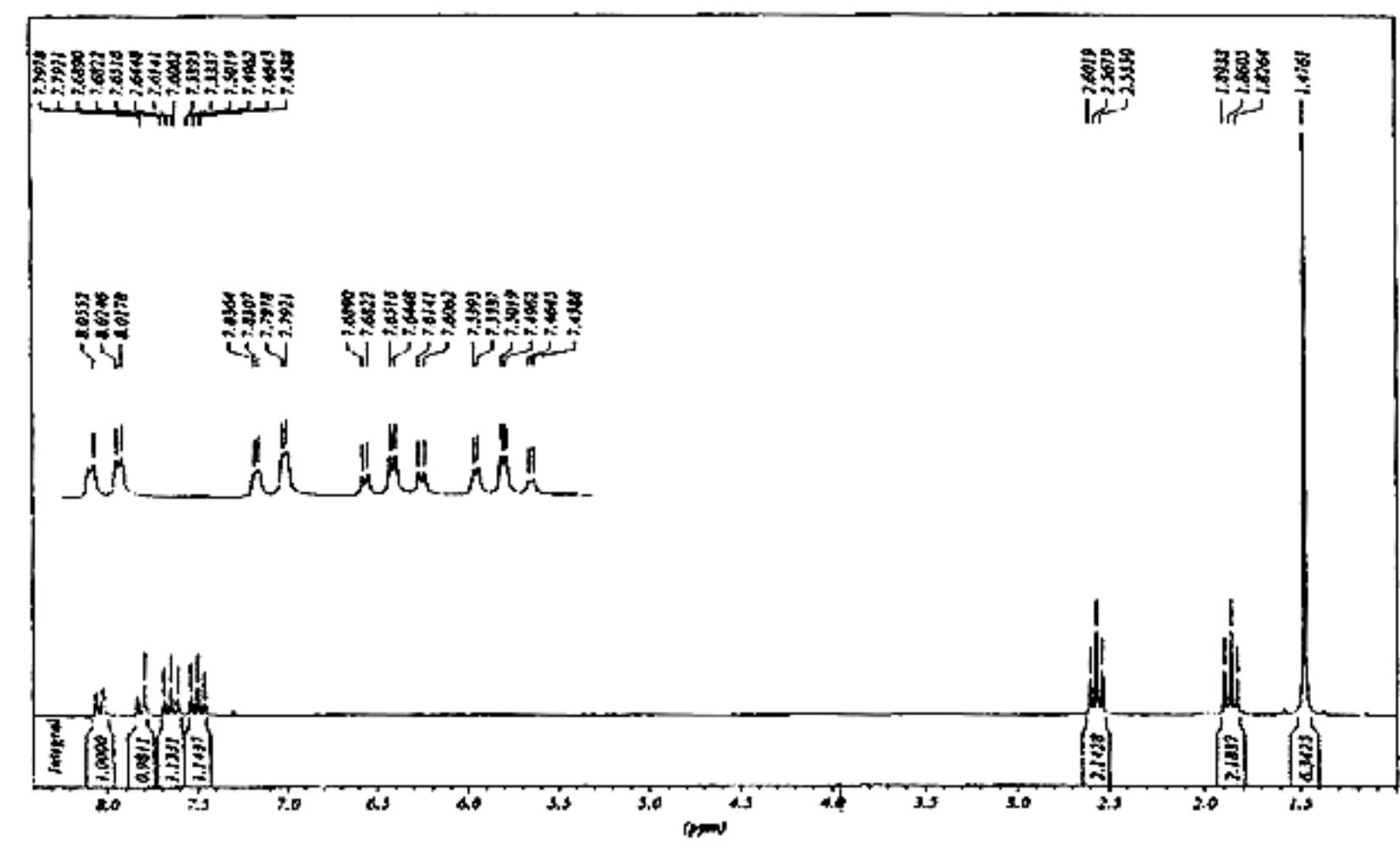
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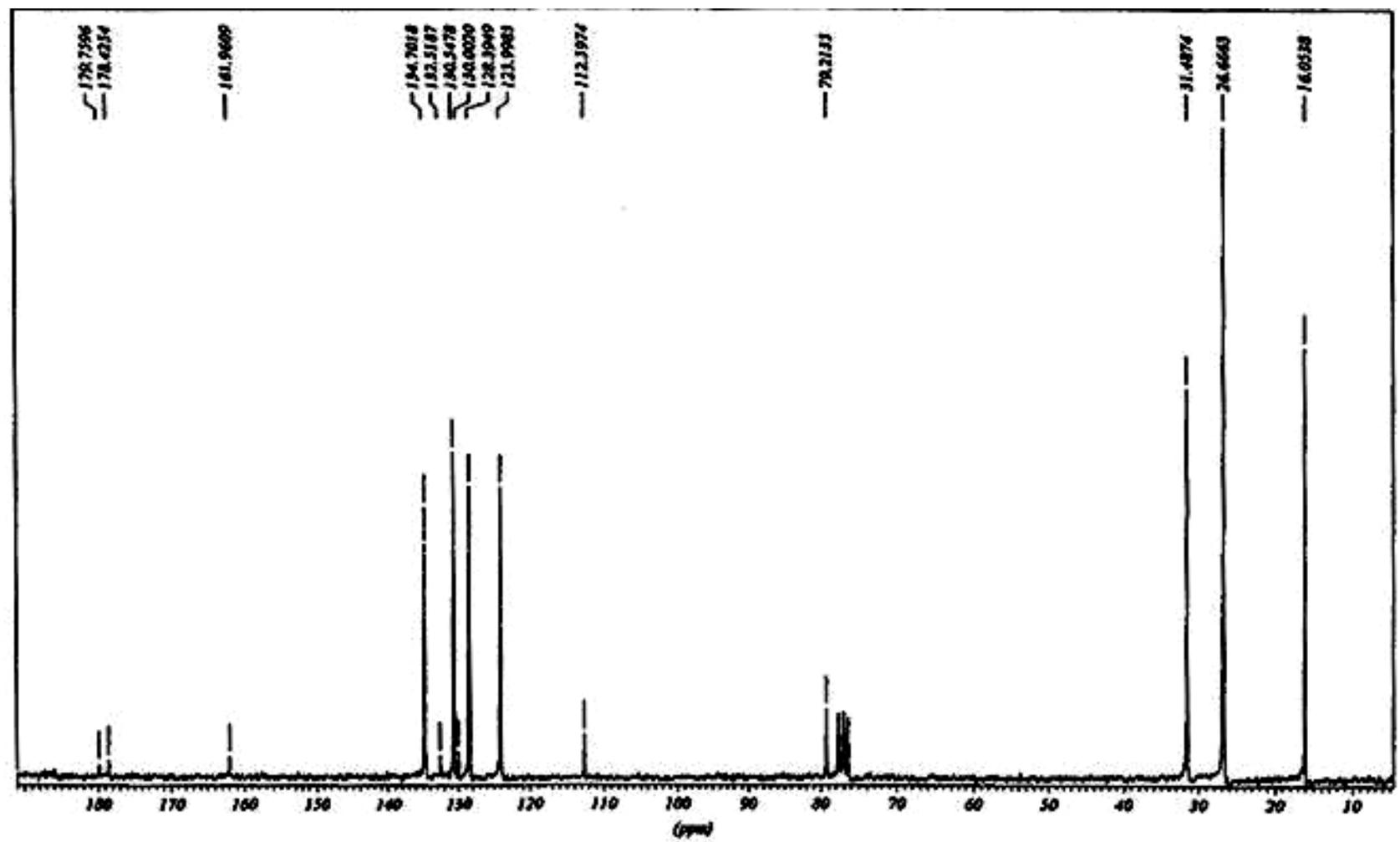
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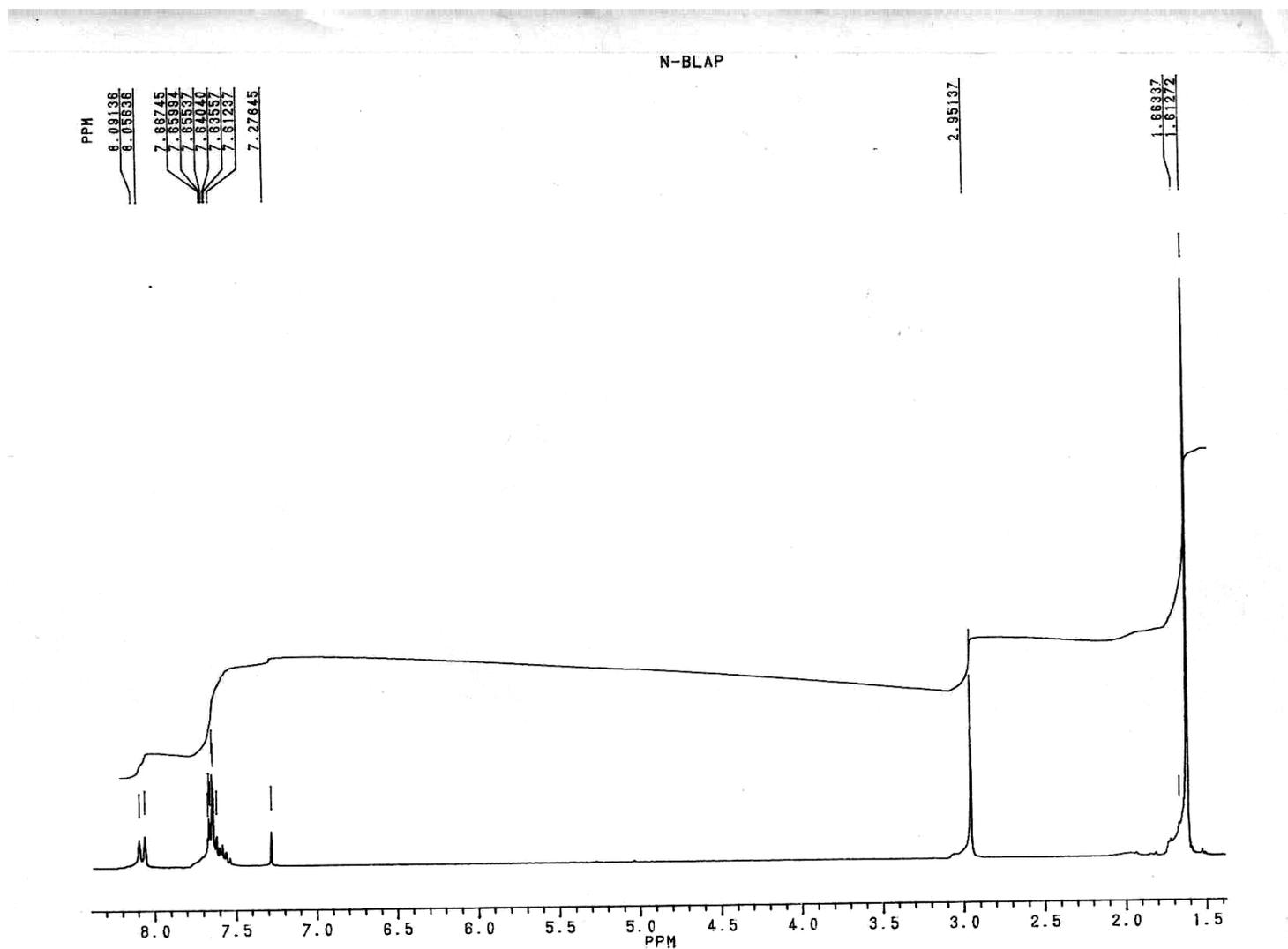
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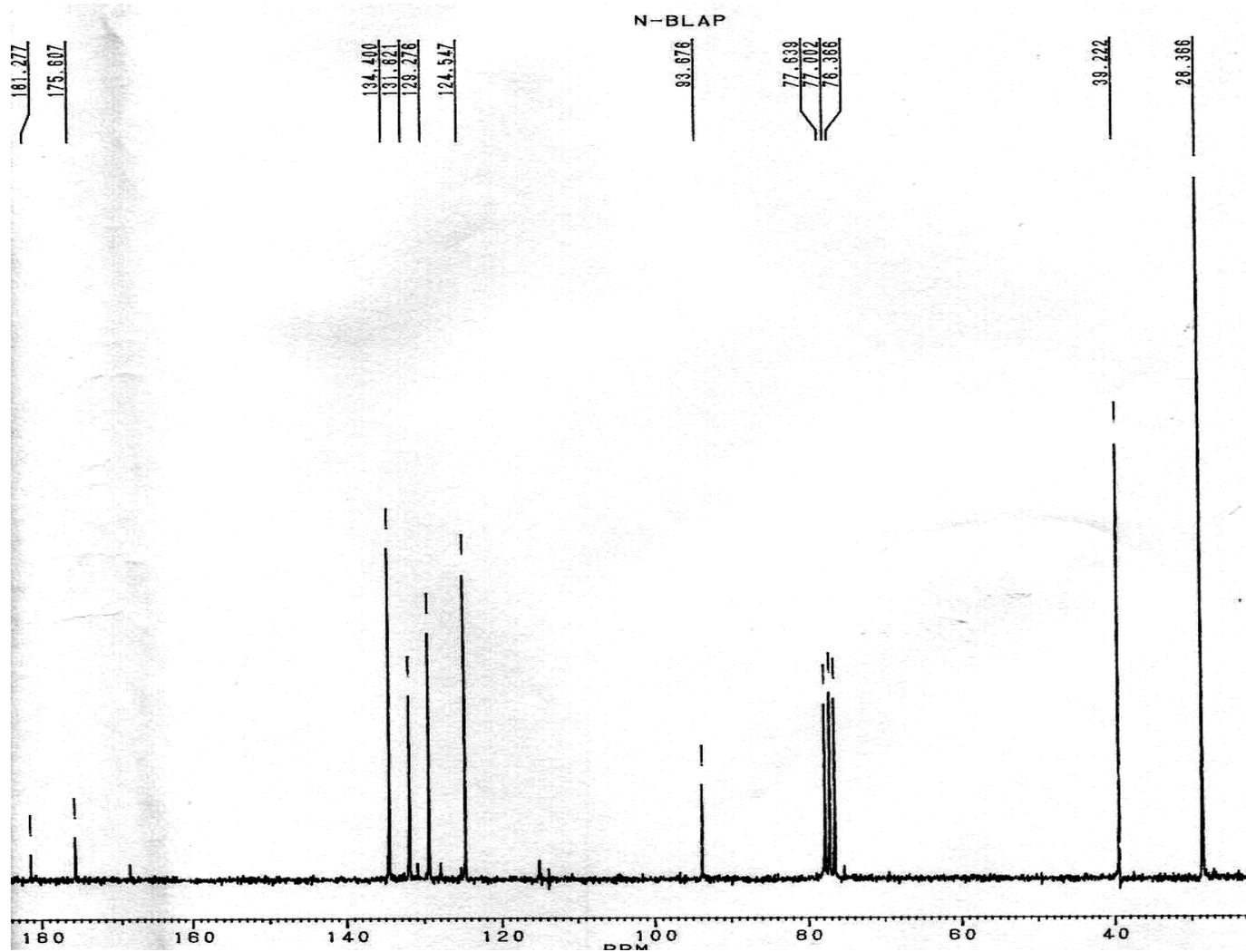
Espectro 1. RMN ¹H (200 MHz, CDCl₃) de β-lapachona.



Espectro 2. RMN ^{13}C (50 MHz, CDCl_3) da β -lapachona.

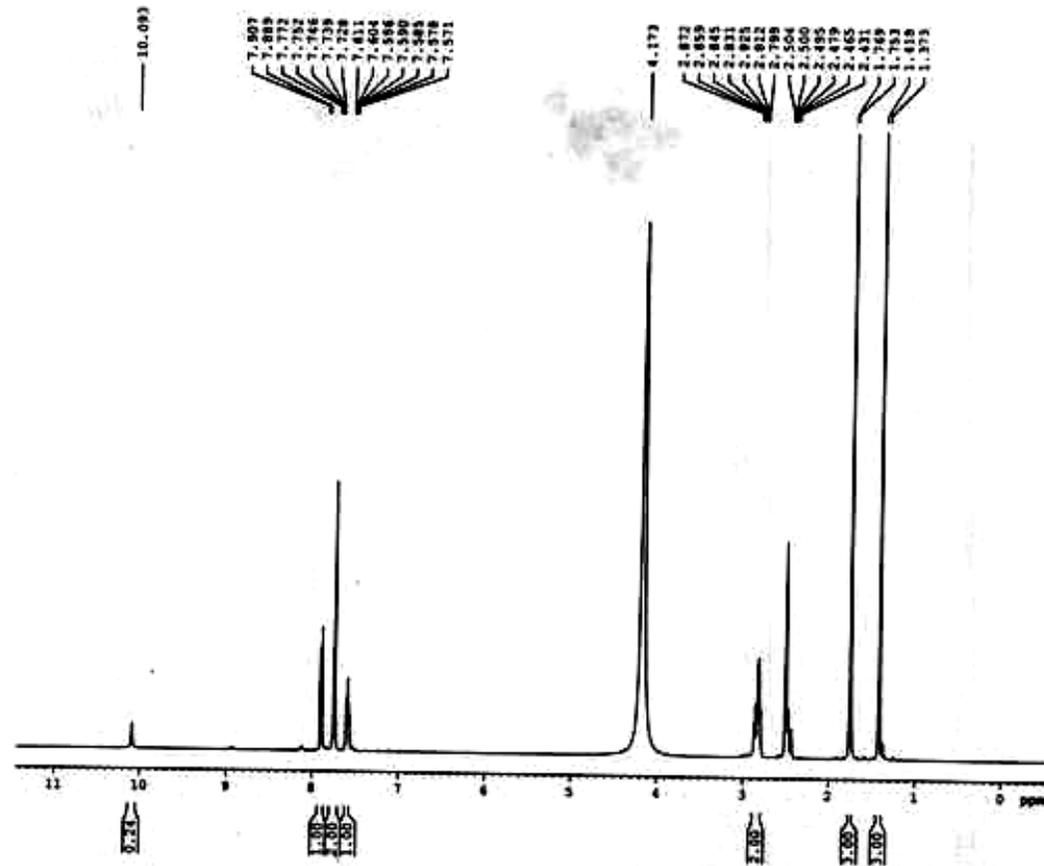


Espectro 3. RMN ^1H (200 MHz, CDCl_3) da *nor*- β -lapachona.



Espectro 4. RMN ^{13}C (50 MHz, CDCl_3) da *nor*- β -lapachona.

Aurelio BETA - SULF



```

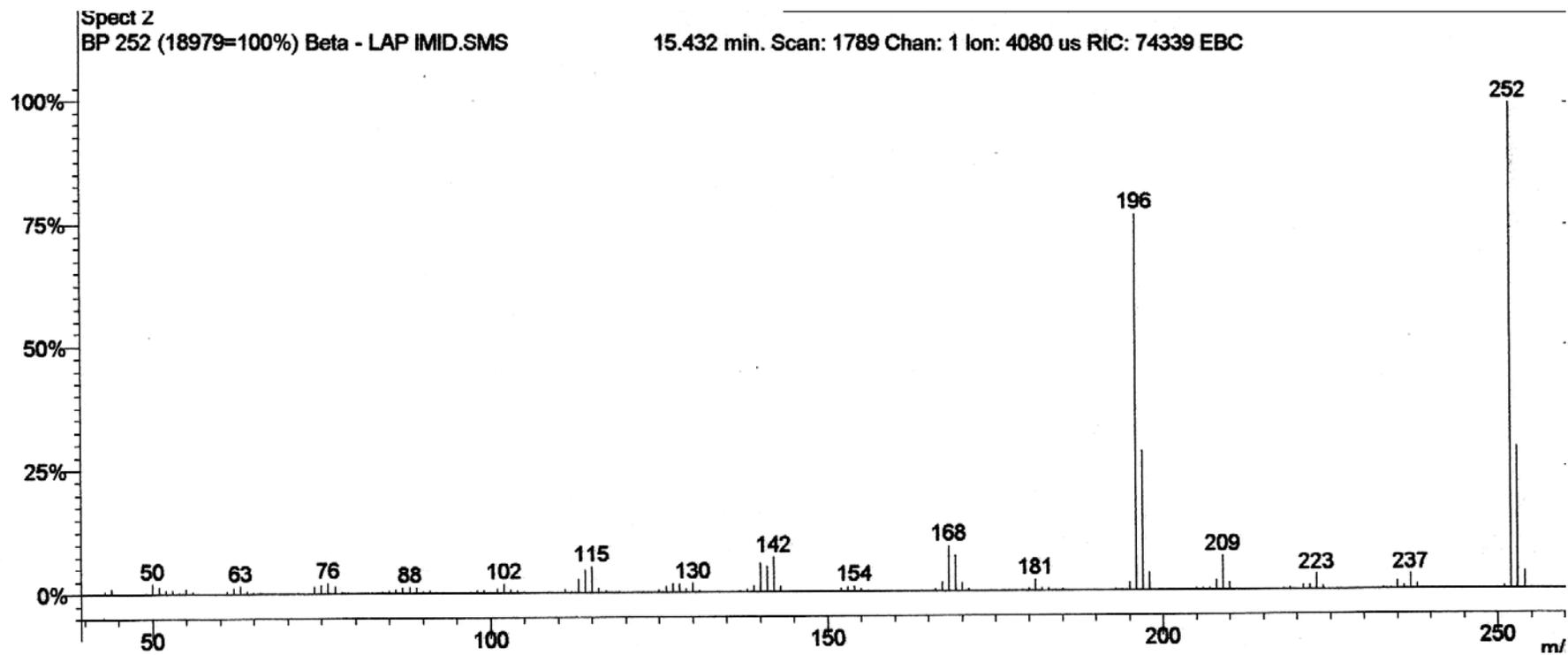
Current Data Parameters
NAME      afrc0470226
EXPNO     10
PROCNO    1

F2 - Acquisition Parameters
Date_     20070410
Time      11.13
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zg30
TD         65536
SOLVENT   DMSO
NS         8
DS         2
SWH        8718.144 Hz
FIDRES     0.116324 Hz
AQ         3.9588243 sec
RG         396
SR         60.400 usec
SE         8.00 usec
TE         30.0 K
SI         1.00000000 sec
SFOFF      0.00000000 sec
NOREF     0.01500000 sec

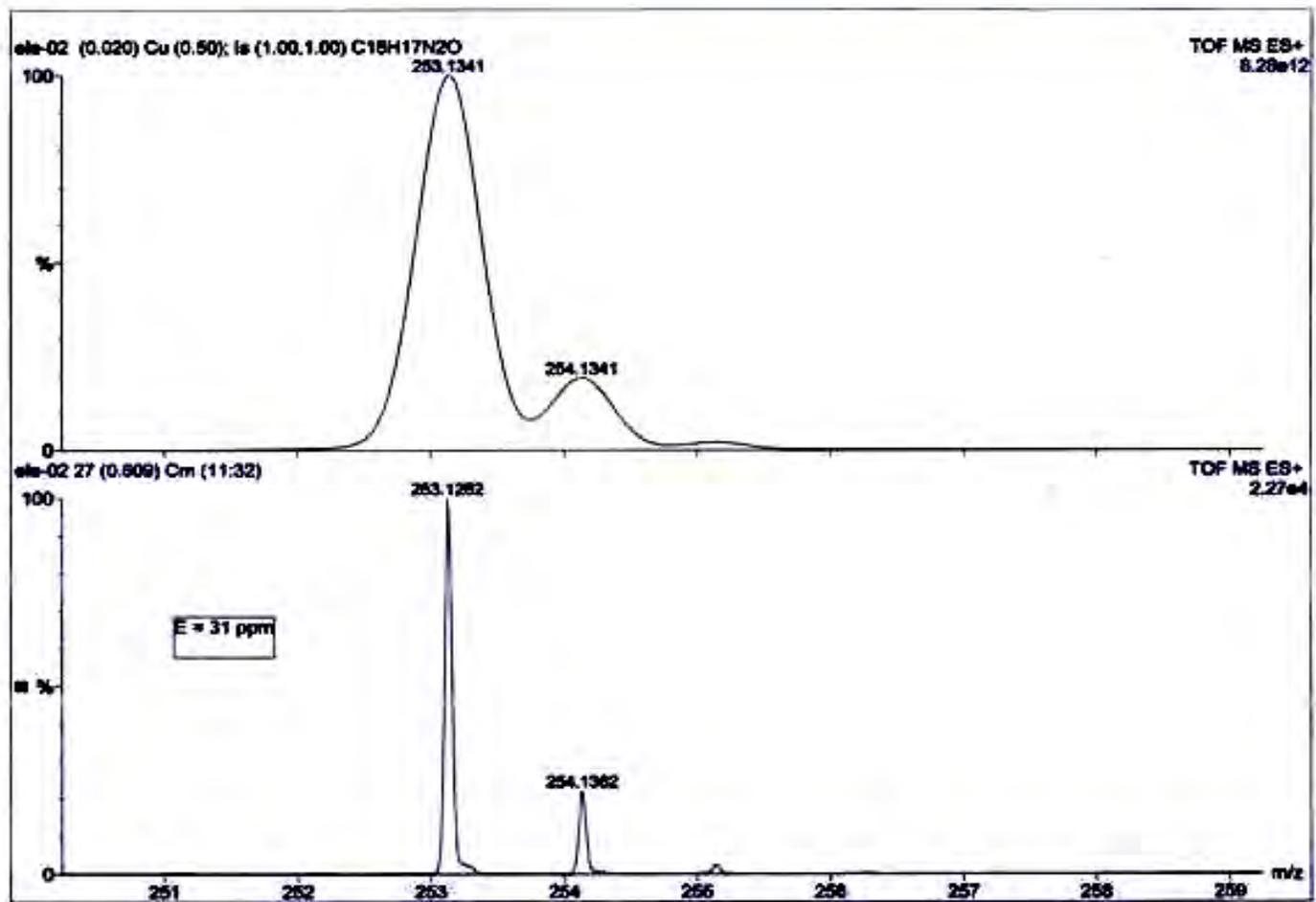
----- CHANNEL f1 -----
NUC1       1H
P1         8.00 usec
PL1        -3.00 dB
SFO1       400.1524711 MHz

F2 - Processing parameters
SI         32768
SF         400.1500022 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
    
```

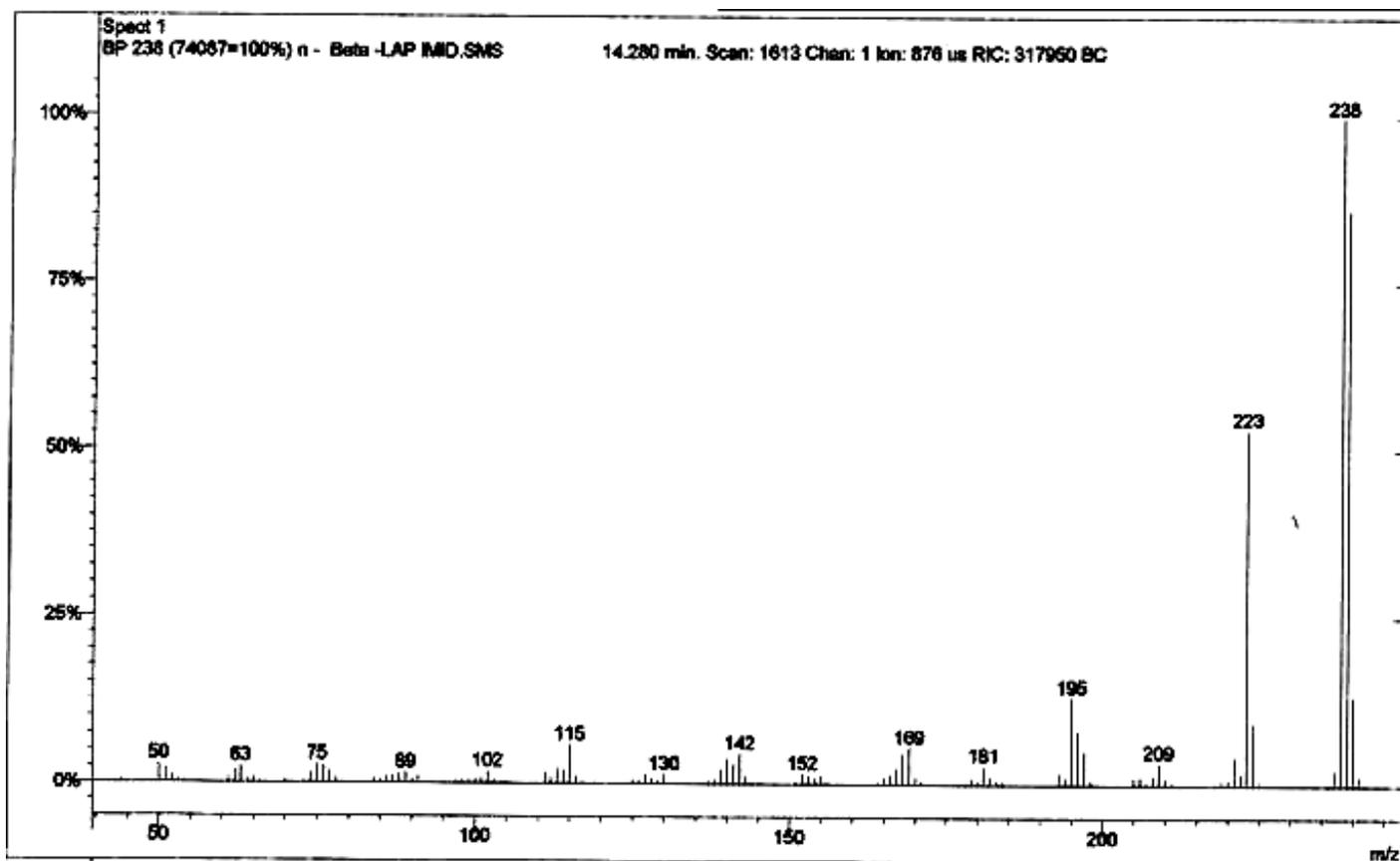
Espectro 5. RMN ¹H (400 MHz, DMSO-*d*₆) do ác.-β-lapachona-3-sulfônico.



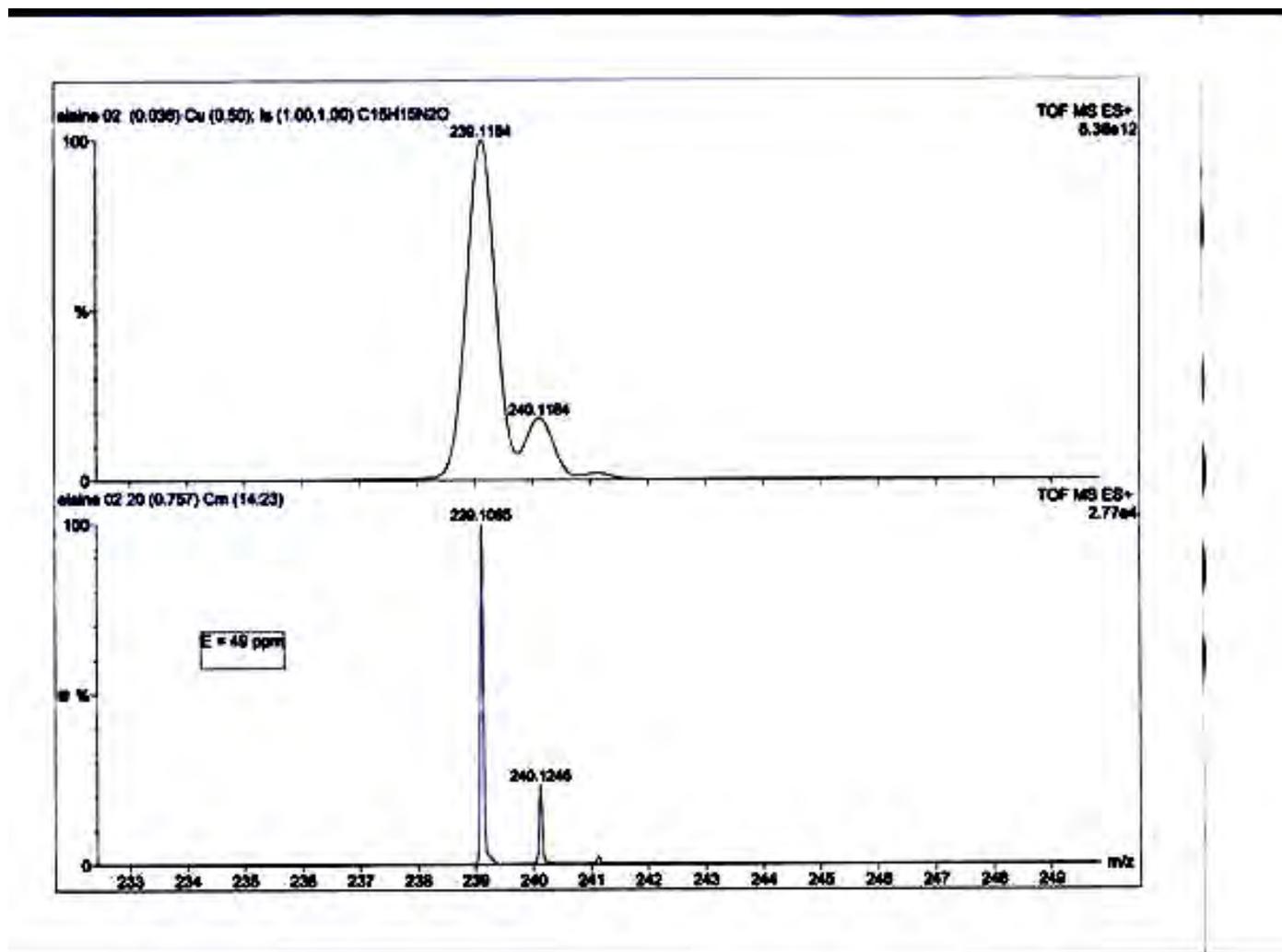
Espectro 6. EM do composto (60), ionização por impacto de elétrons.



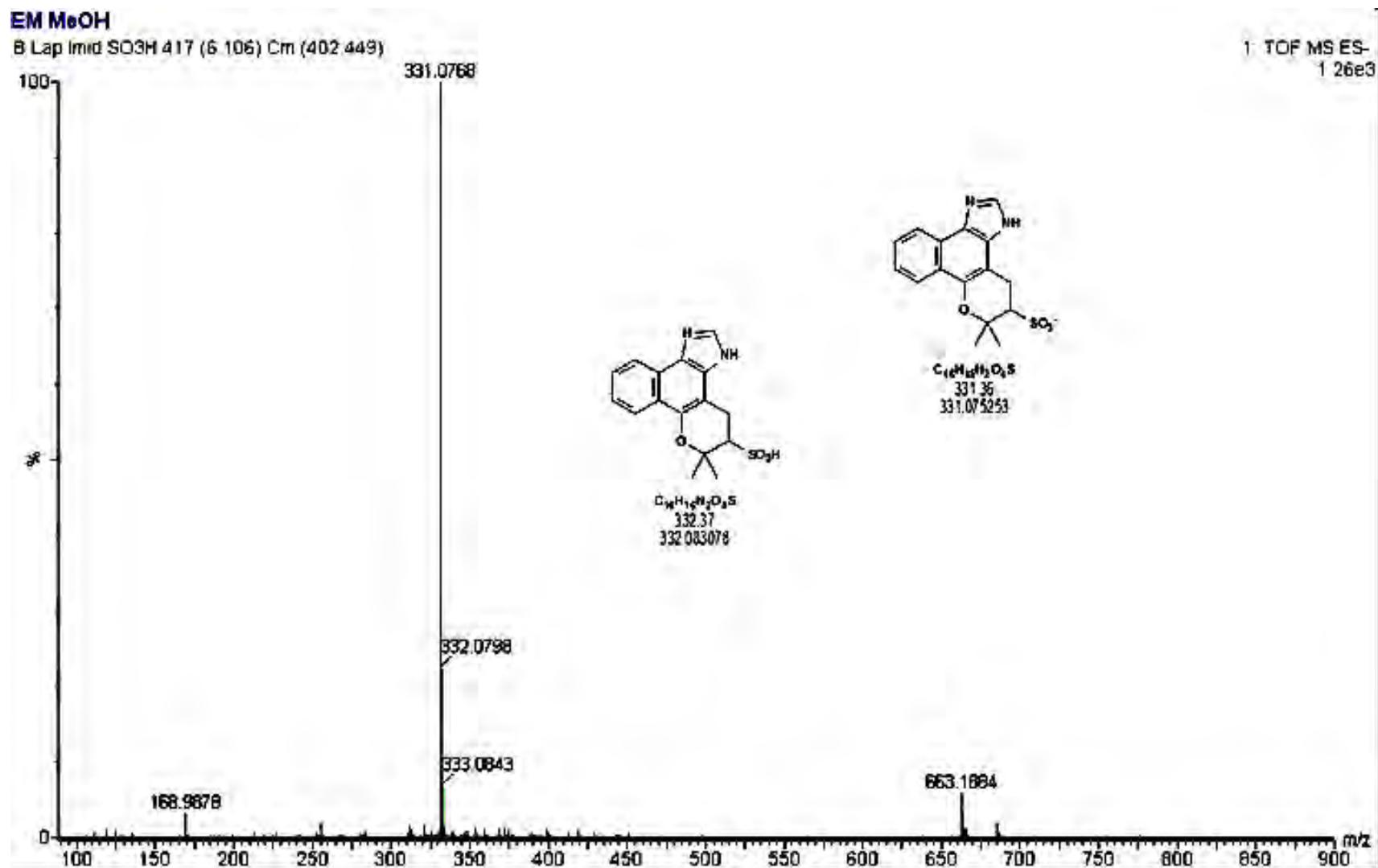
Espectro 7. EM de alta resolução do composto (60), ionização por 'electron spray'.



Espectro 8. EM do composto (61), ionização por impacto de elétrons (70 eV).

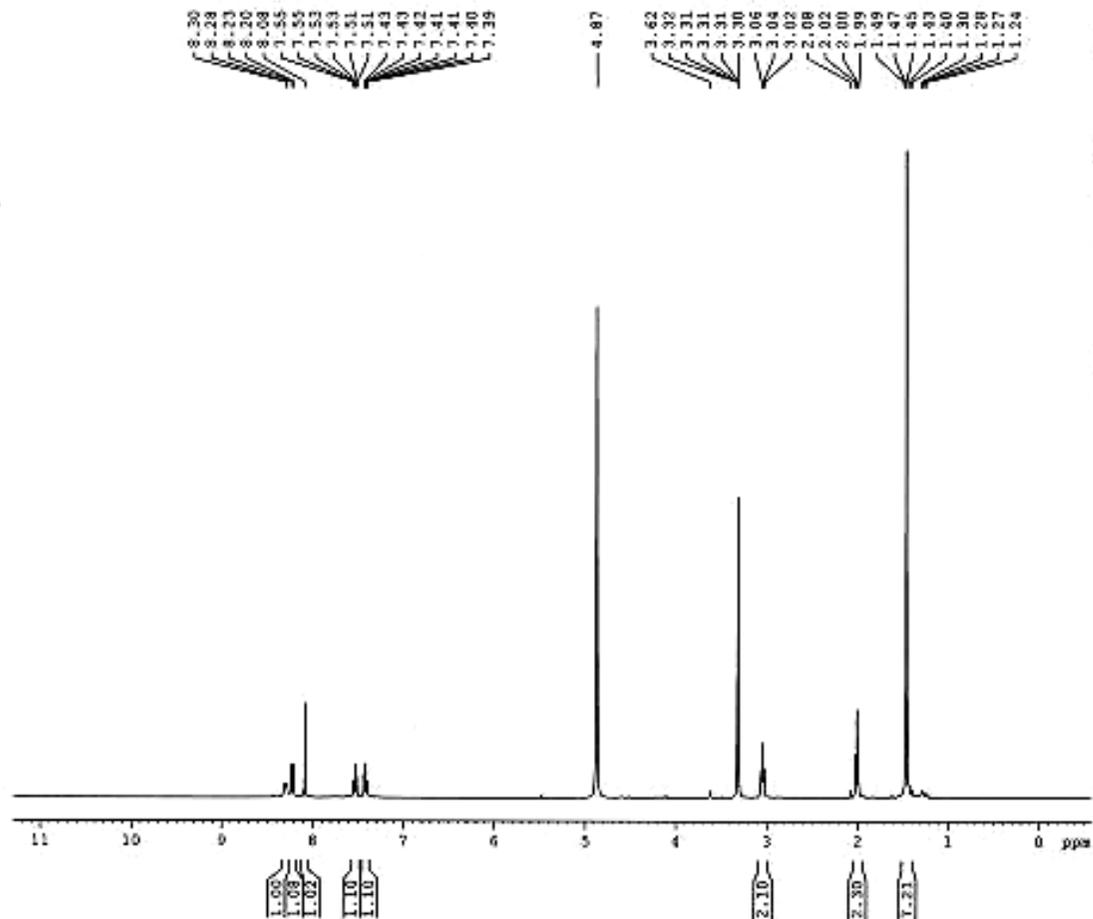


Espectro 9. EM de alta resolução do composto (**61**), ionização por 'electron spray'.



Espectro 10. EM de alta resolução do composto (62), ionização por 'electron spray'.

Aurelio B -LAP-IMID



```

Current Data Parameters
NAME: aurelioB2436
EXPNO: 10
PROCNO: 1

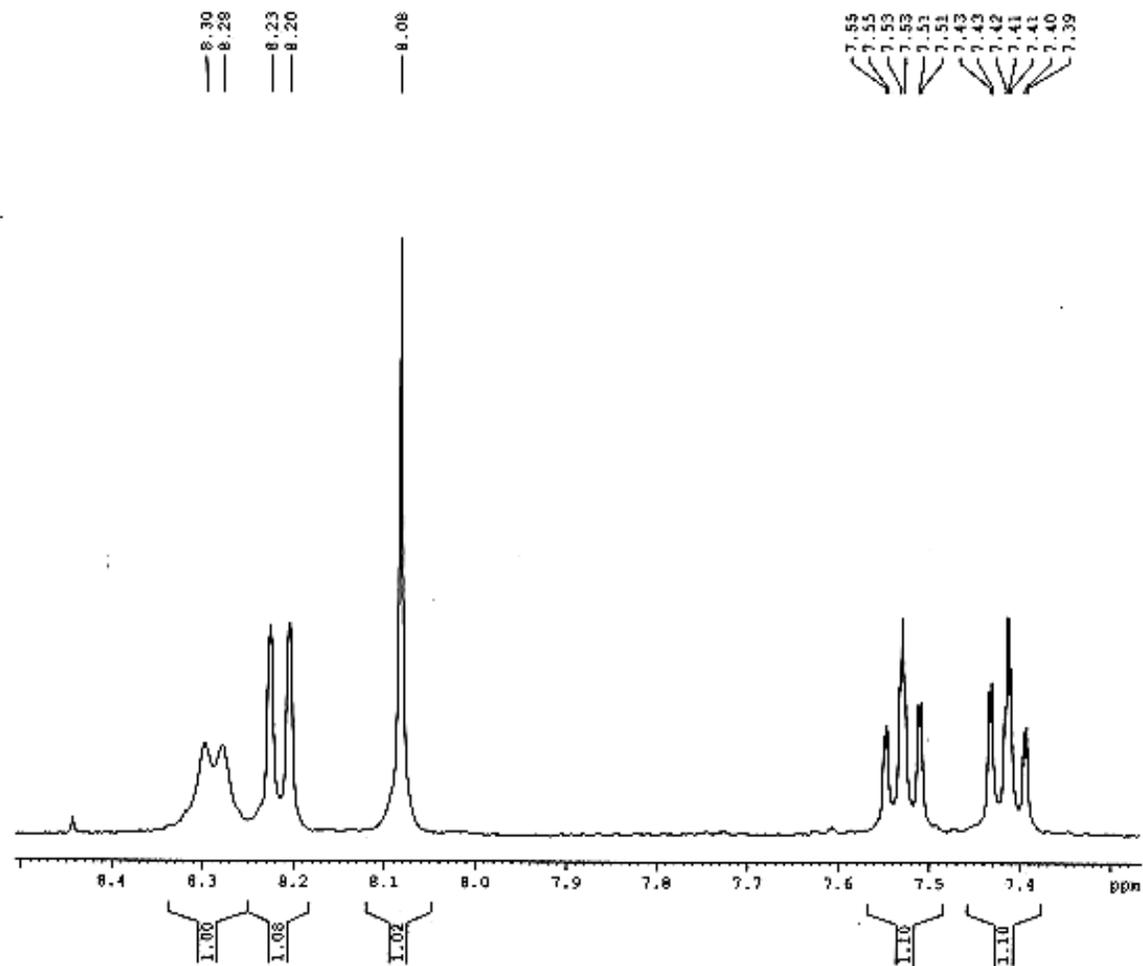
F2 - Acquisition Parameters
Date_: 20060820
Time: 16.32
INSTRUM: spect
PROBHD: 5 mm QNP 1H/13
PULPROG: zgpg30
TD: 65536
SOLVENT: MeOD
NS: 8
DS: 4
SWH: 7142.476 Hz
FIDRES: 0.132533 Hz
AQ: 6.404698 sec
RG: 400
OR: 67.280 usec
DE: 6.30 usec
TE: 300 K
D1: 1.0000000 sec
dPRG2: 8.0000000 sec
dPRG3: 8.0100000 sec

===== CHANNEL f1 =====
NUC1: 13C
P1: 8.30 usec
PL1: -2.30 dB
SFO1: 100.6261895 MHz

F2 - Processing parameters
SI: 32768
SF: 400.1506189 MHz
WDW: EM
SSB: 0
GB: 0
PC: 2.00
  
```

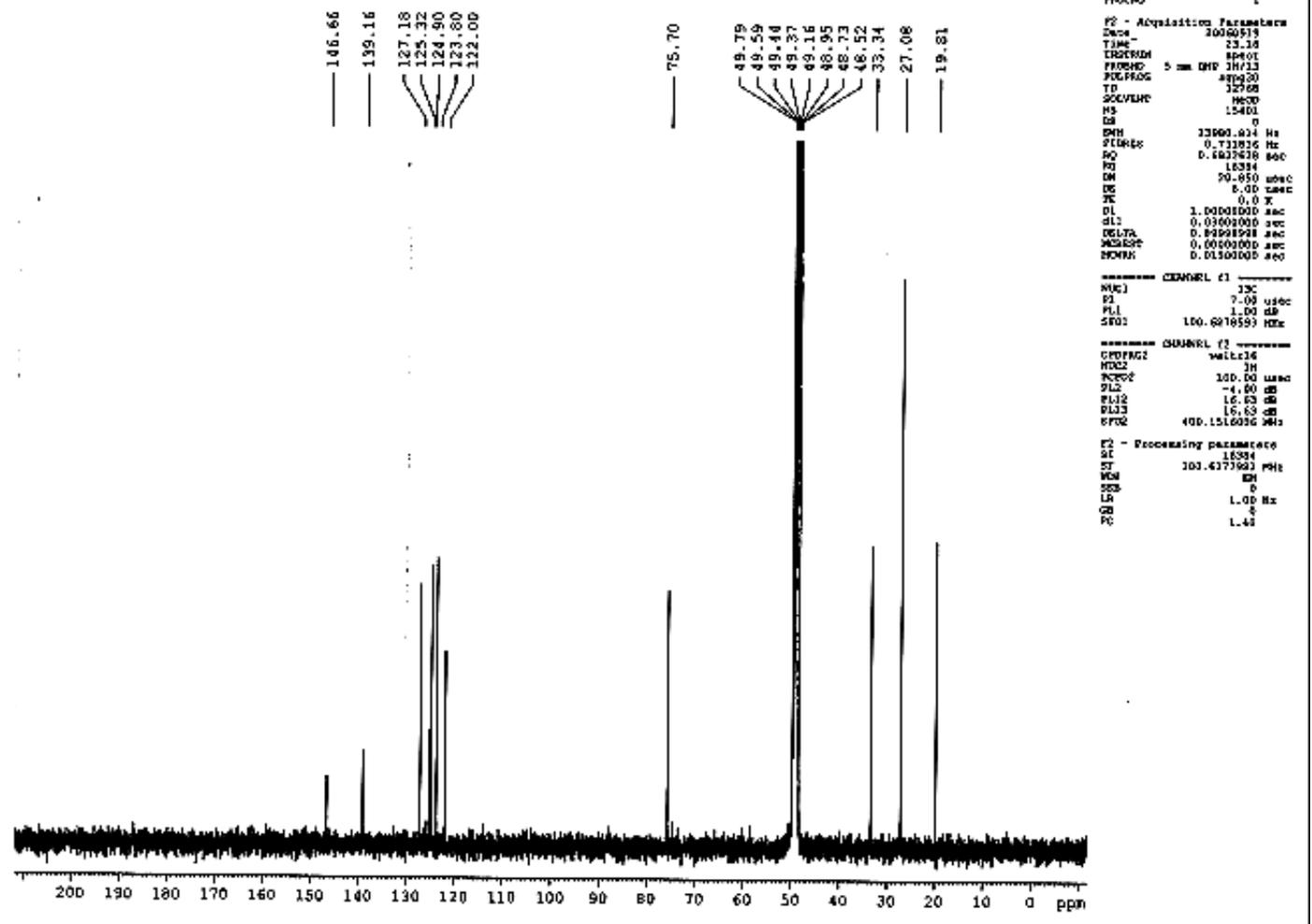
Espectro 11. RMN ¹H (400 MHz, MeOD-*d*₄) do composto (60).

Aurelio B -LAP-IMID

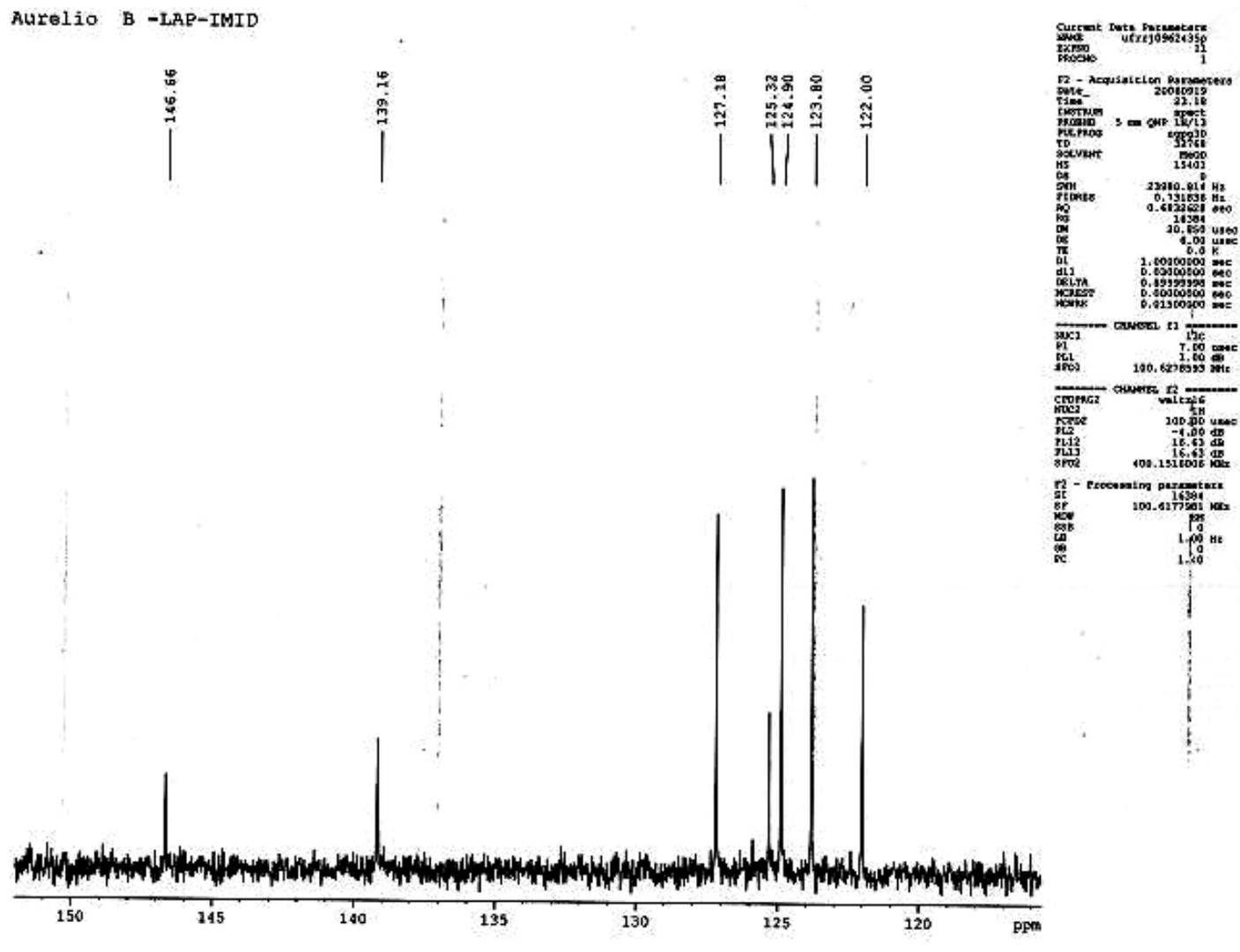


Espectro 12. Ampliação da região de hidrogênios aromáticos do espectro de RMN ^1H (400 MHz, MeOD- d_4) do composto (60).

Aurelio B -LAP-IMID

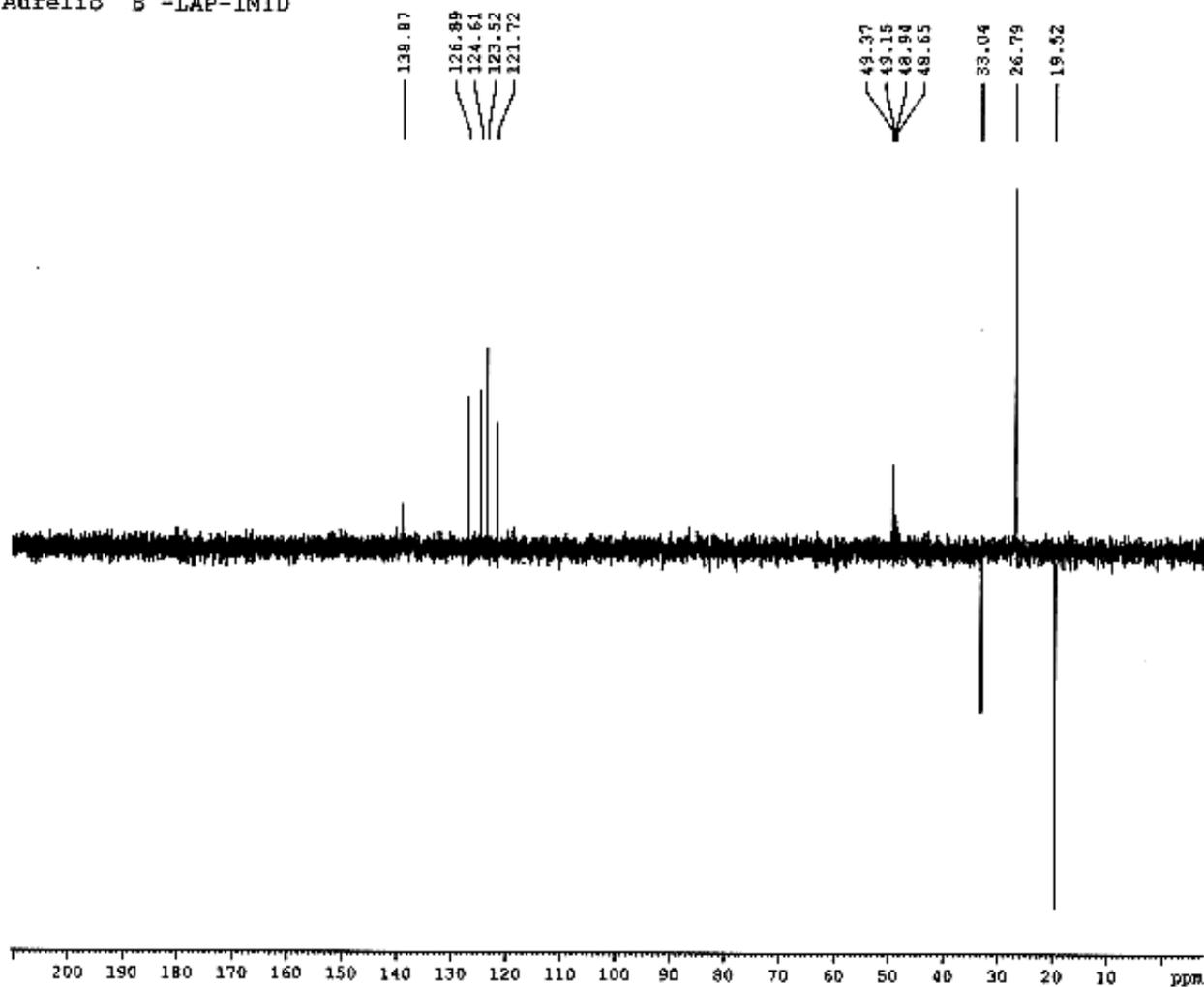


Espectro 13. RMN ¹³C (100 MHz, MeOD-*d*₄) do composto (60).



Espectro 14. Ampliação de região de carbonos aromáticos do espectro de RMN ^{13}C (100 MHz, MeOD- d_4) do composto (60)

Aurelio B -LAP-IMID



```
Current Data Parameters
NAME      ucrj09624350
EXPNO     12
PROCNO    1

F2 - Acquisition Parameters
Date_     20060820
Time      6.46
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD         32768
SOLVENT   MeOD
NS         3356
DS         4
SWH        23980.814 Hz
FIDRES     0.731826 Hz
AQ         0.6832628 sec
RG         16384
DS         20.850 usec
DE         6.00 usec
TE         0.0 K
CQRT3     145.000000 sec
D1         7.50000000 sec
d2         0.0034828 sec
d12        0.0000000 sec
DELTA     0.0000000 sec
INCR      0.0000000 sec
SFO1      100.6278593 MHz

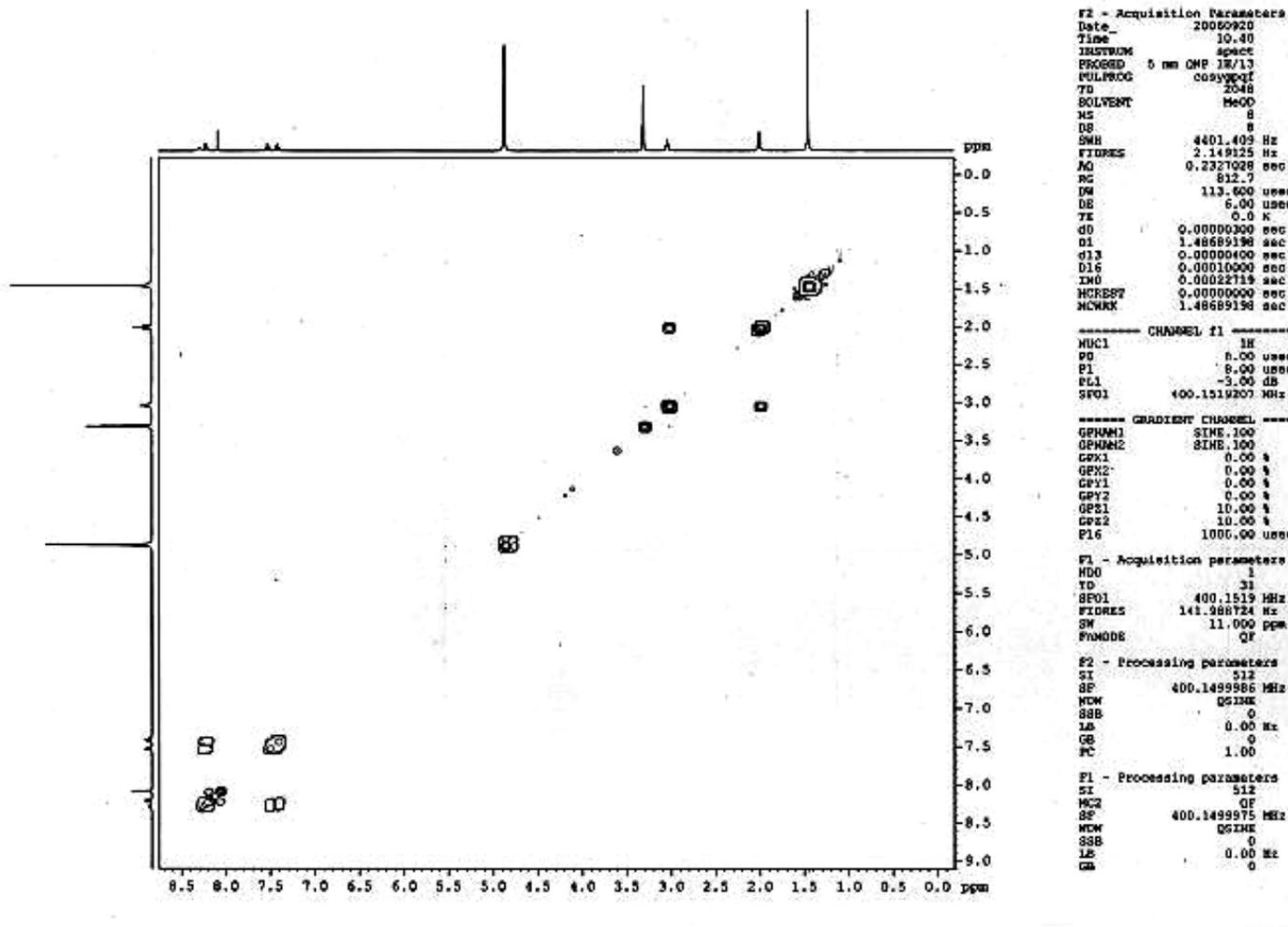
===== CHANNEL f1 =====
NUC1       13C
P1         7.00 usec
PC         14.00 usec
PL1        1.00 dB
SFO1      100.6278593 MHz

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2       1H
P2         3.10 usec
PC         18.60 usec
PL2        100.00 usec
PL12       -4.00 dB
PL12       14.63 dB
SFO2      400.1514006 MHz

F2 - Processing parameters
SI         65536
SF         100.6176816 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
```

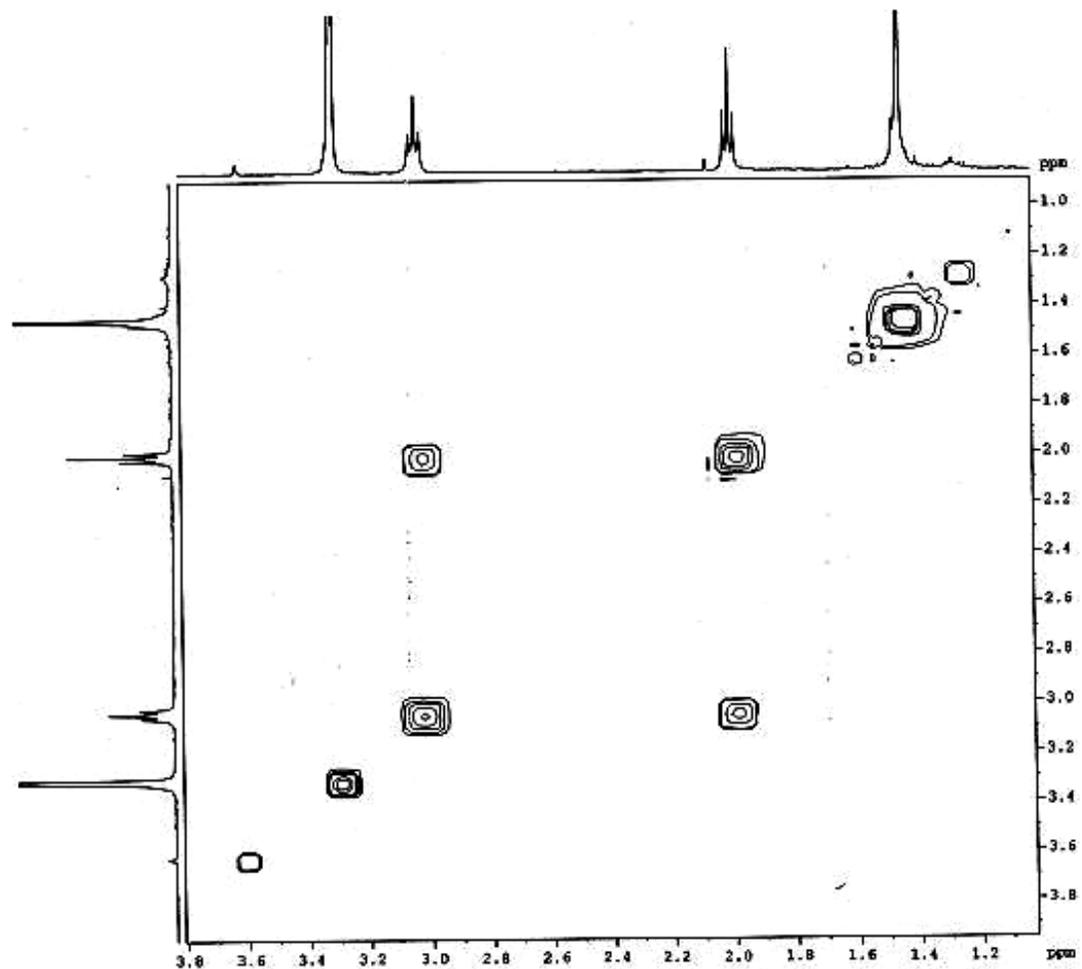
Espectro 15. RMN $^{13}\text{C}_{(\text{DEPT})}$ (100 MHz, MeOD- d_4) do composto (60)

Aurelio B -LAP-IMID



Espectro 16. Correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, MeOD- d_4) do composto (60).

Aurelio B -LAP-IMID



```
Current Data Parameters
NAME      g2rcj0962435p
EXPNO    13
PROCNO   1

F2 - Acquisition Parameters
Date_    20060920
Time     10.40
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  zgpg30
TD        2048
SOLVENT  MeOD
NS        8
DS        8
SWH       4401.409 Hz
FIDRES   2.145125 Hz
AQ        0.2327028 sec
RG        812.7
DW        113.600 usec
DE        6.00 usec
TE        0.0 K
d0        0.00000300 sec
D1        1.48689198 sec
d13       0.00000400 sec
d15       0.00010000 sec
IRD0      0.00022719 sec
MCKRES1  0.00000000 sec
MCKRES2  1.48689198 sec

----- CHANNEL f1 -----
NUC1      1H
P0        8.00 usec
P1        8.00 usec
PL1       -3.00 dB
SFO1      400.1519207 MHz

----- GRADIENT CHANNEL -----
GPMW1     SINE.100
GPMW2     SINE.100
GPK1      0.00 %
GPK2      0.00 %
GPK3      0.00 %
GPK4      0.00 %
GPK5      10.00 %
GPK6      10.00 %
E15       1000.00 usec

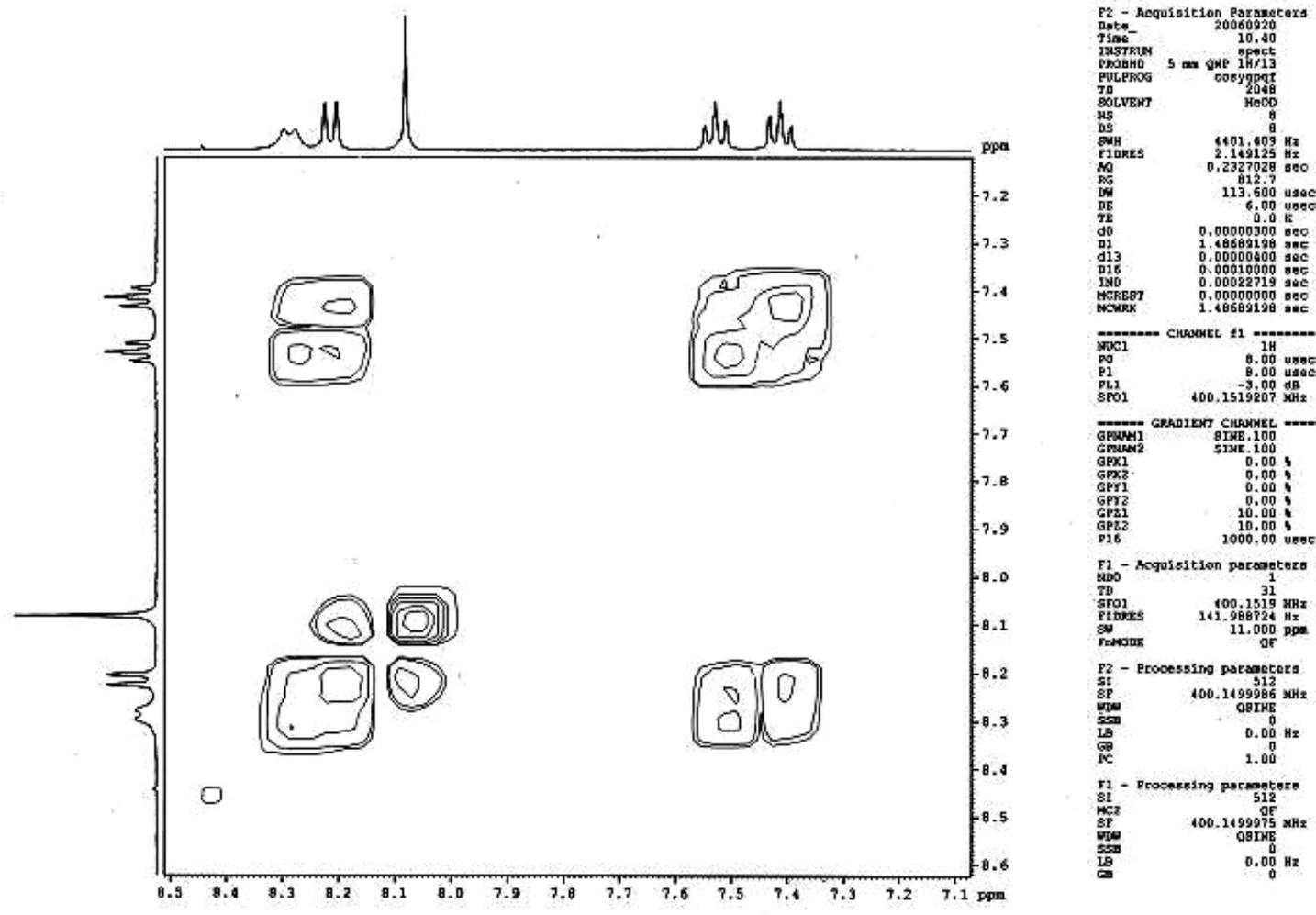
F1 - Acquisition parameters
ND0       1
TD        512
SFO1      400.1519 MHz
FIDRES    141.900724 Hz
SN        11.000 ppm
F0MCKE    OF

F2 - Processing parameters
SI        512
SF        400.1499586 MHz
WDW       QSINE
SBB       0
LB        0.00 Hz
GB        0
PC        1.00

F1 - Processing parameters
SI        512
SF        400.1499975 MHz
WDW       QSINE
SBB       0
LB        0.00 Hz
GB        0
```

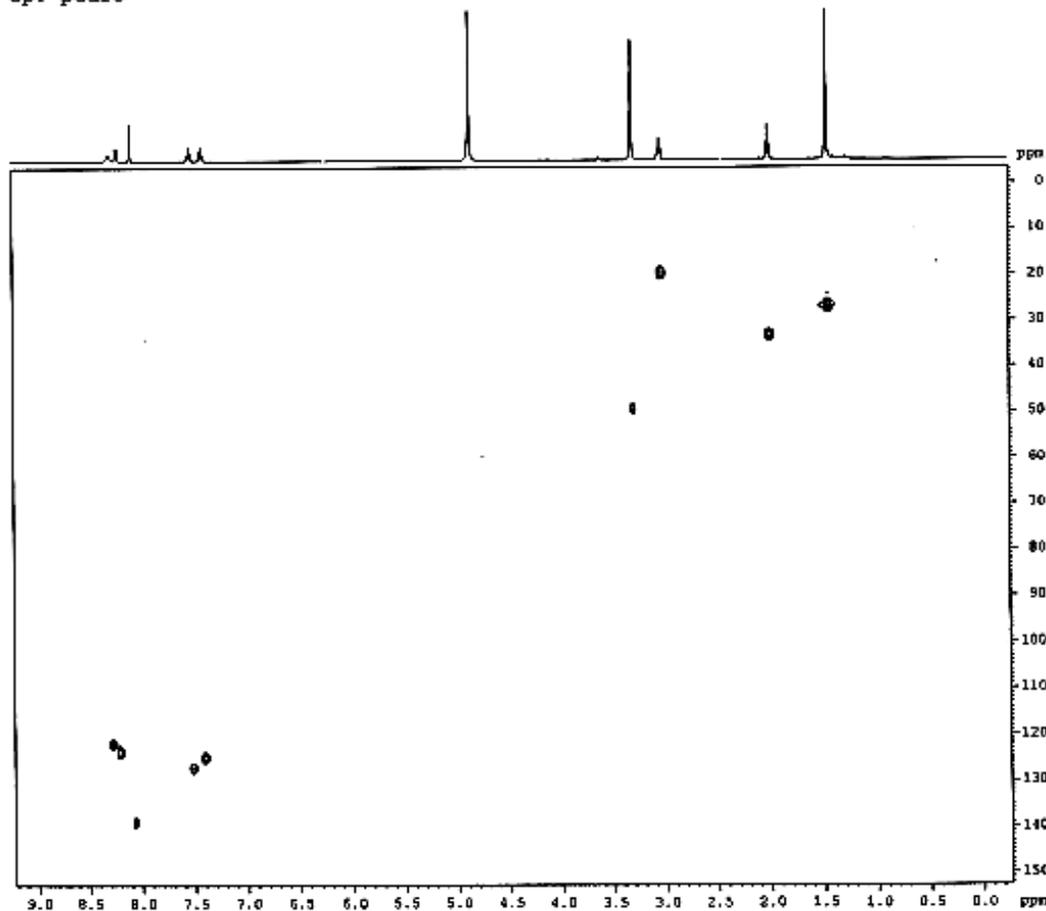
Espectro 17. Ampliação da região de hidrogênios alifáticos do espectro de correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, MeOD- d_4) do composto (60).

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Espectro 18. Ampliação da região de hidrogênios aromáticos de espectro de correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, MeOD- d_4) do composto (60).

Aurelio B -LAP-IMID
op. pedro



```

Current Data Parameters
NAME      ufrj0902435p
EXPNO     14
PROCNO    1

F2 - Acquisition Parameters
Date_     20060920
Time      11.01
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD         3274
SOLVENT   MeOD
NS         16
DS         16
SWH        4761.905 Hz
FIDRES     4.650288 Hz
AQ         0.1075700 sec
RG         4096
DM         103.000 usec
DE         6.00 usec
TE         0.0 K
CNSF2     145.0000000
d0         0.0000000 sec
d1         1.5000000 sec
d2         0.0017214 sec
d11        0.0300000 sec
d13        0.0000400 sec
d14        0.0001000 sec
DELTA     0.0012200 sec
DELTA1    0.00071614 sec
RG2        0.0000320 sec
WDELT     0.0000000 sec
MORPH     0.3000001 sec
STOCHT    128

----- CHANNEL f1 -----
NUC1       1H
P1         8.00 usec
P2         16.00 usec
P3         2000.00 usec
PC1        -3.00 dB
SFO1       400.1518601 MHz

----- CHANNEL f2 -----
CDEPRG2   zgpg30
NUC2       13C
P1         7.00 usec
P2         14.00 usec
P3         70.00 usec
PC2        1.00 dB
PC12       21.00 dB
SFO2       100.6253021 MHz

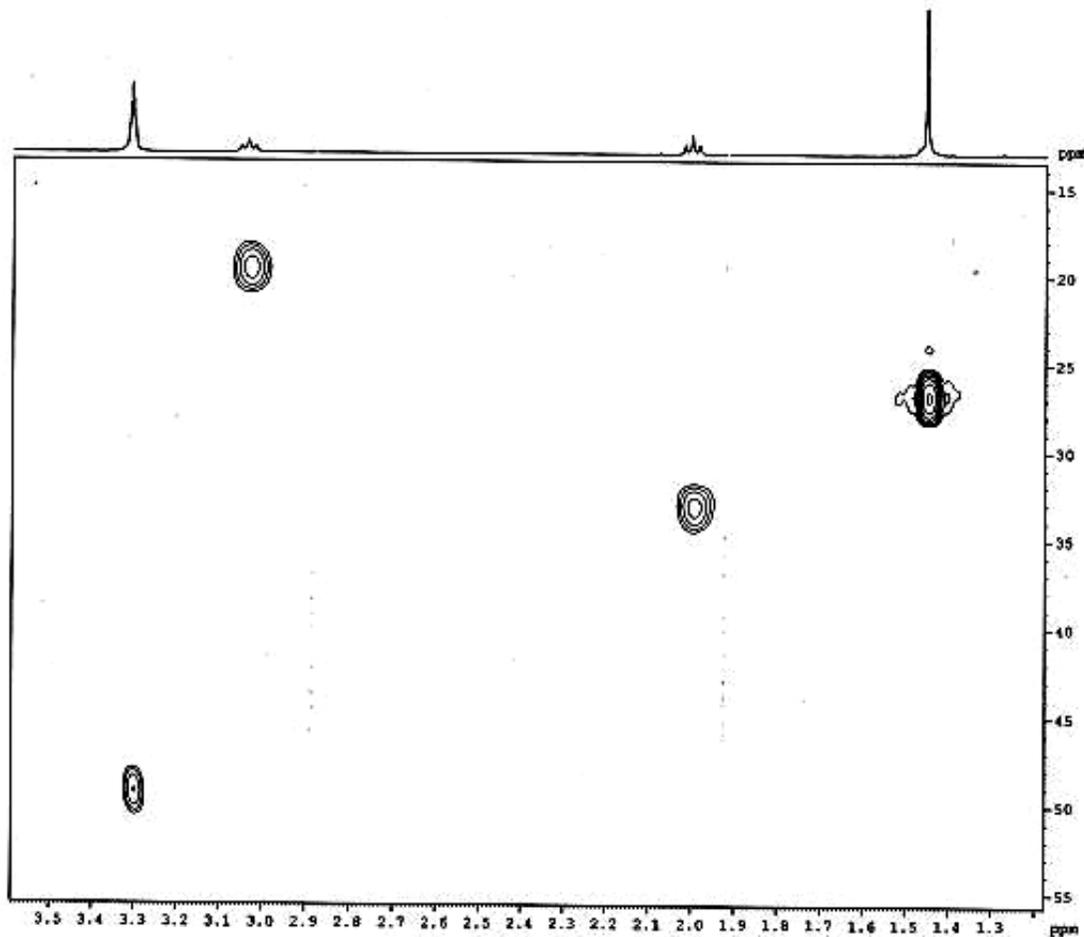
----- GRADIENT CHANNEL -----
GGRAM1    SINE 100
GGRAM2    SINE 100
GX1        0.00 %
GX2        0.00 %
GY1        0.00 %
GY2        0.00 %
GZ1        30.00 %
GZ2        30.12 %
P15        1000.00 usec

F1 - Acquisition parameters
HD0        3
TD         109
SFO1       100.6253 MHz
FIDRES     157.094376 Hz
SW         170.169 ppm
FNUC1      Echo-AntiEcho

F2 - Processing parameters
SI         2048
SF         400.1500000 MHz
WDW        QSIKRC
  
```

Espectro 19. Correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, MeOD- d_4) do composto (60).

Aurelio B -LAP-IMID
op. pedro



```

Current Data Parameters
NAME      ufrcj02d2435p
EXPNO    14
PROCNO   1

F2 - Acquisition Parameters
Date_    20060920
Time     11.01
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  zgpg30
TD        1024
SOLVENT  MeOD
NS        16
DS        16
SWH       4761.905 Hz
FIDRES   4.458228 Hz
AQ        0.1075700 sec
RG        4096
DM        105.000 usec
DE        6.00 usec
TE        300.2 K
CST2     145.0000000
d0        0.0000000 sec
d1        1.5000000 sec
d4        0.0017244 sec
d11       0.0300000 sec
d12       0.0000040 sec
d16       0.0001000 sec
DELTA    0.0011220 sec
DELTA1   0.0007164 sec
IMD       0.0000292 sec
MERCURY  0.0000000 sec
MFWRK    0.30000001 sec
STICENT  128

----- CHANNEL F1 -----
NUC1      13C
P1        8.00 usec
P2        16.00 usec
P22       2000.00 usec
PL1       -3.00 dB
SFO1      400.1519607 MHz

----- CHANNEL F2 -----
CDEPRG2  gprp
NUC2      1H
P3        1.00 usec
P4        14.00 usec
PCPD2    70.00 usec
PL2       1.00 dB
PL12      21.00 dB
SFO2      100.6253021 MHz

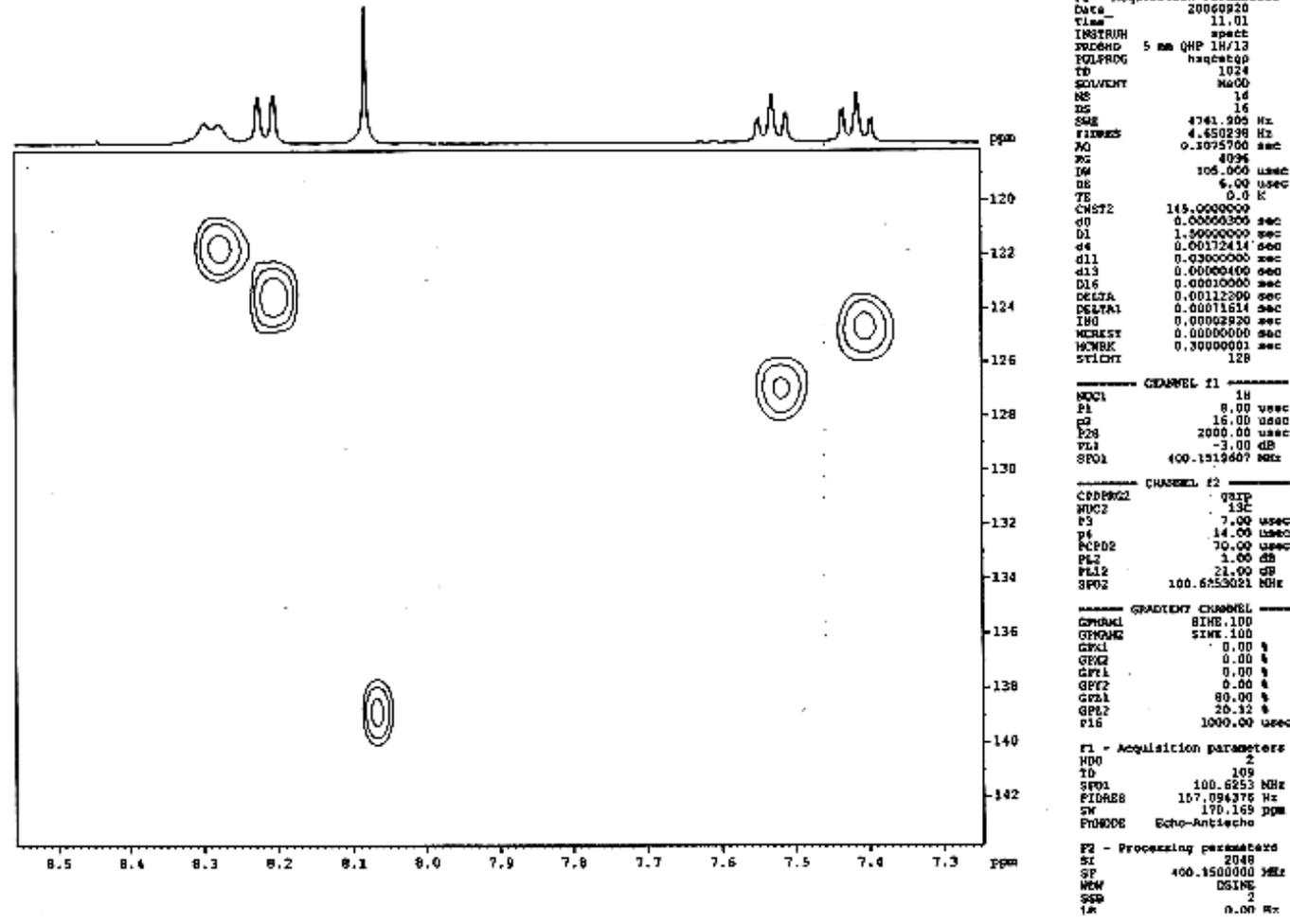
----- GRADIENT CHANNEL -----
GMSH1    SINE.100
GMSH2    SINE.100
GPM1     0.00 t
GPM2     0.00 t
GPT1     0.00 t
GPT2     0.00 t
GPS1     80.00 t
GPS2     20.12 t
r16      1000.00 usec

F1 - Acquisition parameters
NUC      13C
TD        1024
SFO1     100.6253 MHz
FIDRES   157.094376 Hz
SN        170.169 ppm
PRNMODE  Echo-Antiecho

F2 - Processing parameters
SI        2048
SF        400.1500000 MHz
WDW       GEM
  
```

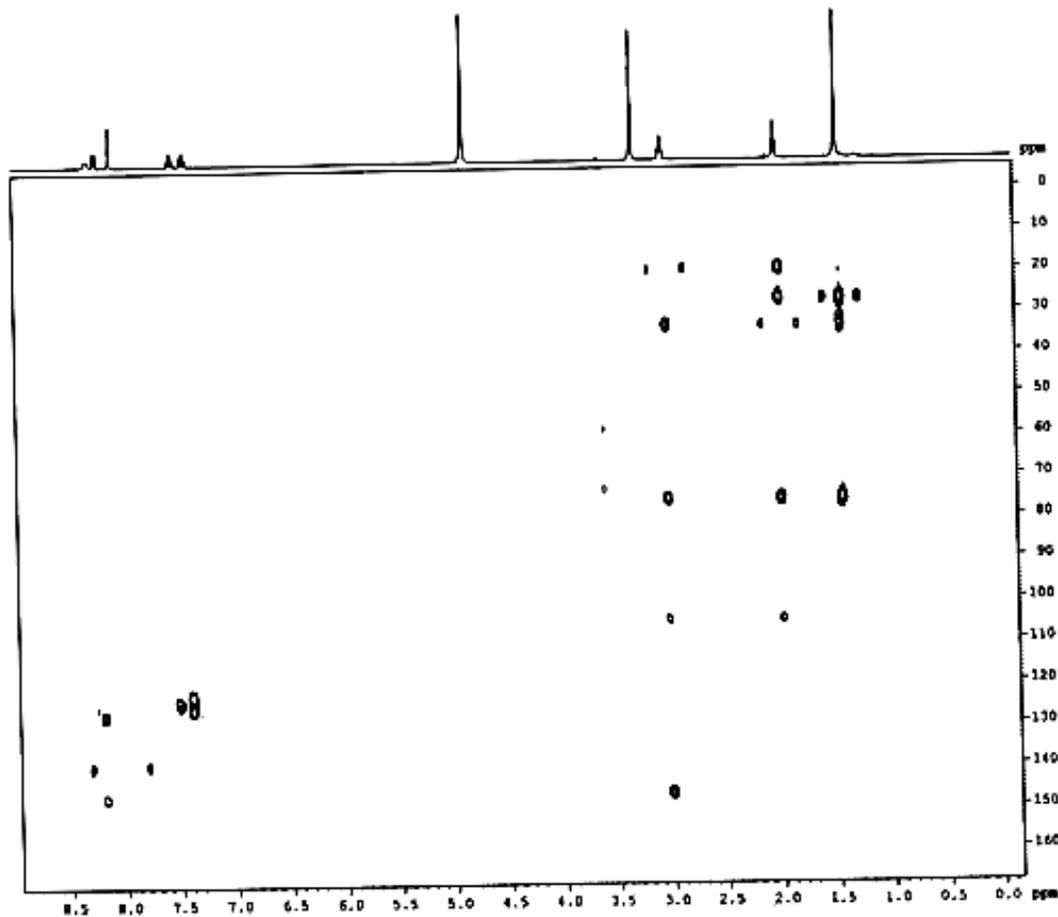
Espectro 20. Ampliação da região de hidrogênios alifáticos de espectro de correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, MeOD- d_4) do composto (60)

Aurelio B -LAP-IMIO
op. pedro



Espectro 21. Ampliação da região de hidrogênios aromáticos de espectro de correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (100 MHz, MeOD- d_4) do composto (60).

Aurelio B -LAP-IMID



```

Current Data Parameters
NAME      urej0462435p
EXPRNO   15
PROCNO    1

F2 - Acquisition Parameters
Date_     20060920
Time      11.54
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   nabcp1pdqf
TD         4096
SOLVENT   CDCl3
DS         32
SS         16
SFR        599.204 MHz
FIDRES     1.463673 Hz
AQ         0.3416564 sec
RG         4096
OR         83.400 usec
DE         6.00 usec
TE         300.2 K
CQF12      145.0000000
CQF13      0.0000000
AQ         0.5000000 sec
DI         1.5000000 sec
DE         0.00344878 sec
DS         0.06250000 sec
DL16      0.00010000 sec
LMO       0.00002240 sec
MORPHET   0.00000000 sec
MORPHK    1.30000000 sec

----- CHANNEL f1 -----
NUC1       13C
P1         12.00 usec
PC         16.00 usec
PL1        -3.00 dB
SFO1      100.628111 MHz

----- CHANNEL f2 -----
NUC2       1H
P2         1.00 usec
PL2         1.00 dB
SFO2      400.6278433 MHz

----- GRADIENT CHANNEL -----
GPRG1     SINE.100
GPRG2     SINE.100
GPRG3     SINE.100
GPK1      0.00 %
GPK2      0.00 %
GPK3      0.00 %
GPF1      0.00 %
GPF2      0.00 %
GPF3      0.00 %
GPI1      50.00 %
GPI2      30.00 %
GPI3      40.10 %
PLB       1000.00 usec

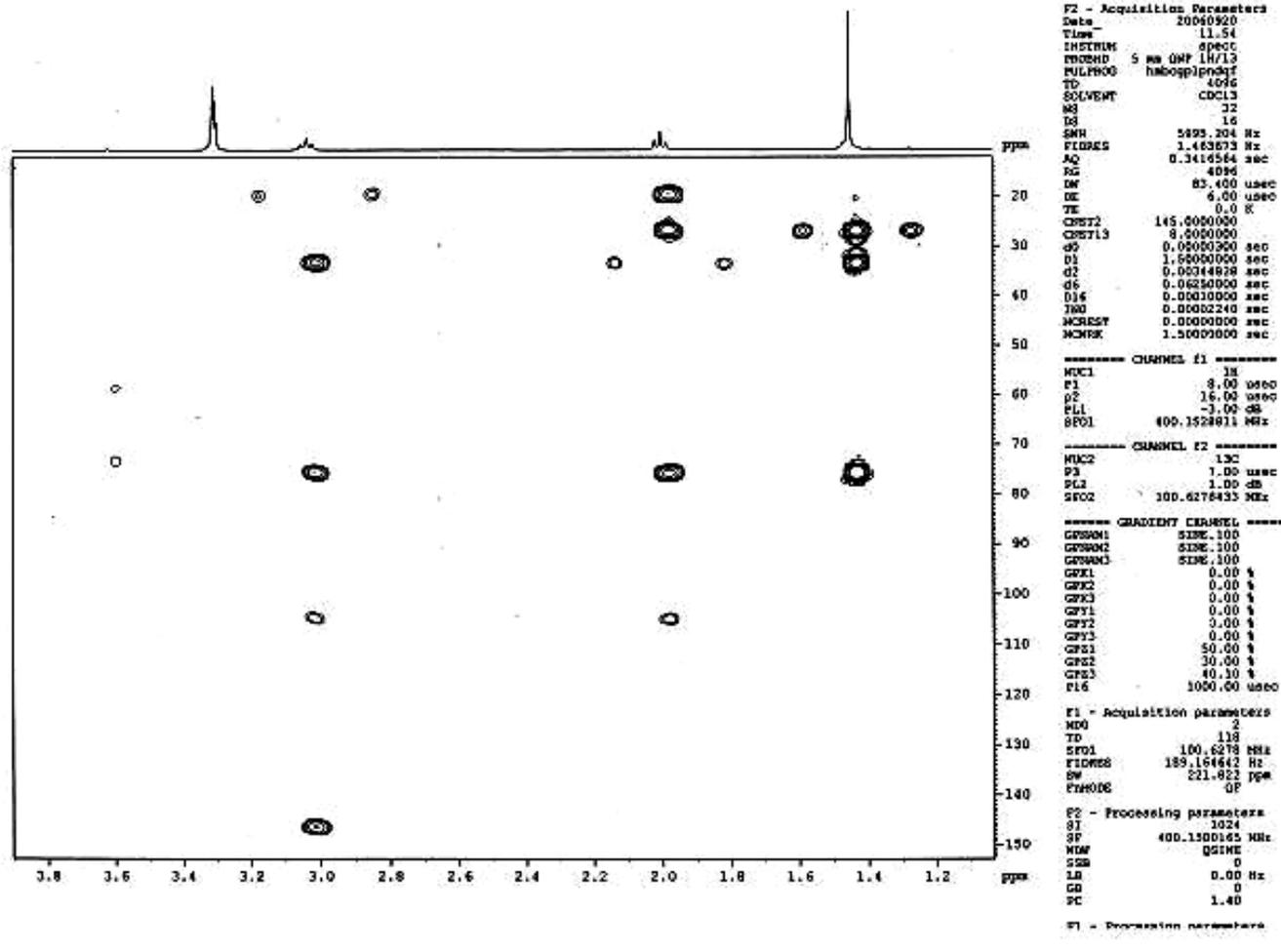
F1 - Acquisition parameters
MD0        2
TD         138
SFO1      100.6278 MHz
FIDRES     189.164647 Hz
SM         321.822 ppm
PULPROG    QF

F1 - Processing parameters
SI         1024
SF         400.1500165 MHz
WDW        QDRMB
SS         0
SFR        0
LB         0.00 MHz
GB         0
PC         1.40

F1 - Processing parameters
  
```

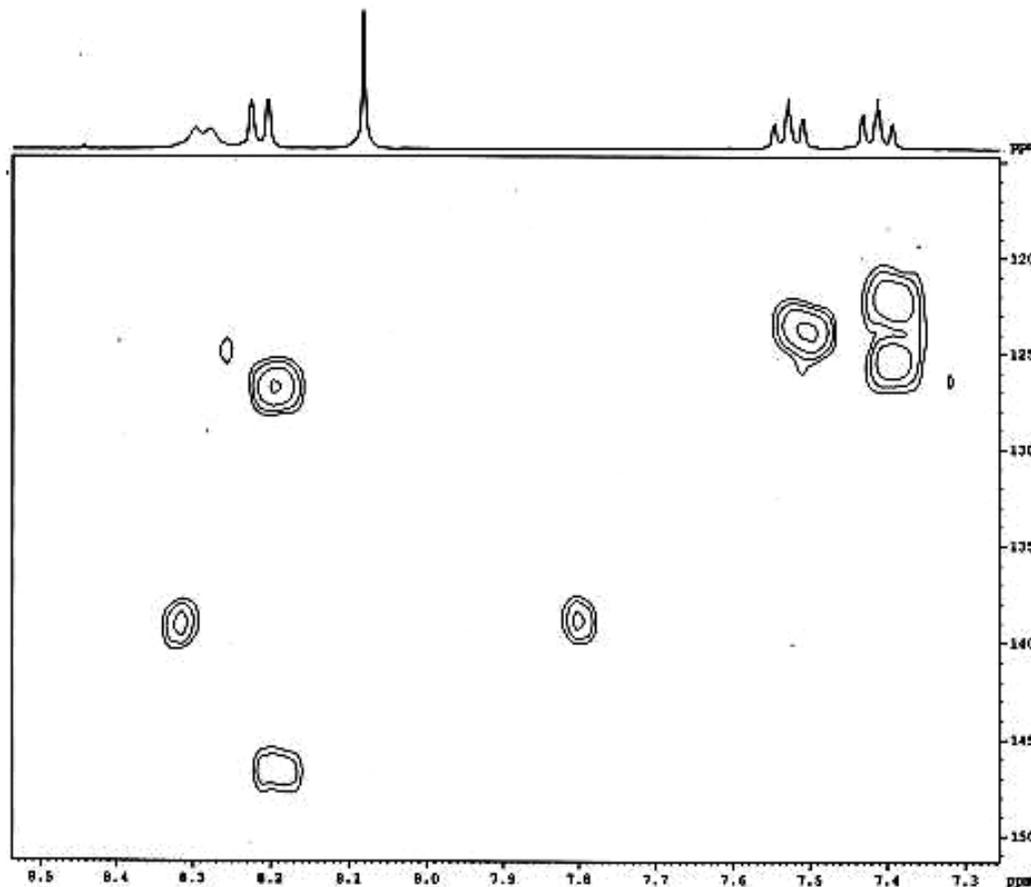
Espectro 22. Correlações $^1\text{H} \times ^{13}\text{C}$ ($^2,3\text{J}$) (400 MHz, MeOD- d_4) do composto (60).

Aurelio B -LAP-IMID



Espectro 23. Ampliação da região de hidrogênios alifáticos de espectro de correlações $^1\text{H} \times ^{13}\text{C}$ ($^2,3\text{J}$) do composto (60).

Aurelio B -LAP-IMID



```

Current Data Parameters
NAME      urej062135p
EXPTNO   13
PROCNO    1

F2 - Acquisition Parameters
Date_     20080220
Time      11.54
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   mbzgpg09g
TD         4096
SOLVENT   CDCl3
NS         27
DS         16
SWH        5995.204 Hz
FIDRES    1.463673 Hz
AQ         0.3410264 sec
RG         4096
SM         81.400 usec
DE         6.00 usec
TE         0.0 K
DMSF2     145.0000000
CHST13    8.0000000
D0         0.0000000 sec
D1         1.5000000 sec
d2         0.00344828 sec
d3         0.04250000 sec
D16        0.00010000 sec
JMOD       0.00002240 sec
MCHSET    0.0000000 sec
MCHWK     1.5000000 sec

----- CHANNEL f1 -----
NUC1       1H
P1         8.00 usec
PC         15.00 usec
PL1        -2.00 dB
SFO1       400.1528011 MHz

----- CHANNEL f2 -----
NUC2       13C
P2         1.00 usec
PC         1.50 dB
SFO2       100.6278433 MHz

----- GRADIENT CHANNEL -----
GPRM1     SINE.100
GPRM2     SINE.150
GPRM3     SINE.100
GPI1      0.00 %
GPI2      0.00 %
GPI3      0.00 %
GPT1      0.00 %
GPT2      0.00 %
GPT3      0.00 %
GPI4      50.00 %
GPI5      30.00 %
GPI6      40.10 %
PL6        1000.00 usec

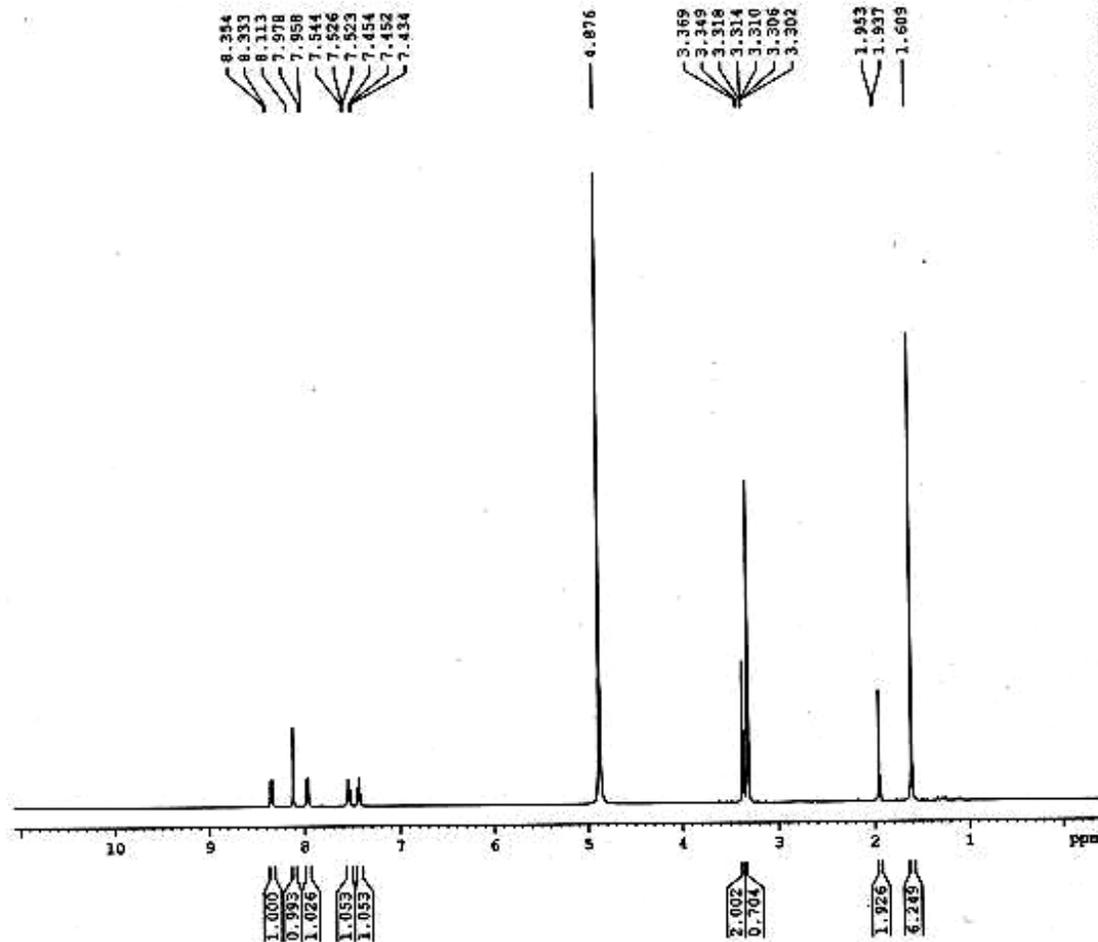
F1 - Acquisition parameters
HD0        2
TD         138
SFO1       100.6278 MHz
FIDRES    189.164642 Hz
SM         221.622 ppm
P2MODE     GP

F2 - Processing parameters
SI         1024
SF         400.1500163 MHz
MSB        08196
DSB         0
LS         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
  
```

Espectro 24. Ampliação da região de hidrogênios aromáticos de espectro de correlações $^1\text{H} \times ^{13}\text{C}$ ($^2,3\text{J}$) (400 MHz, MeOD- d_4) do composto (60).

Aurelio n-b-LAP-IMID UFRRJ



Current Data Parameters
NAME utcrj0962436p
EXPNO 10
PROCNO 1

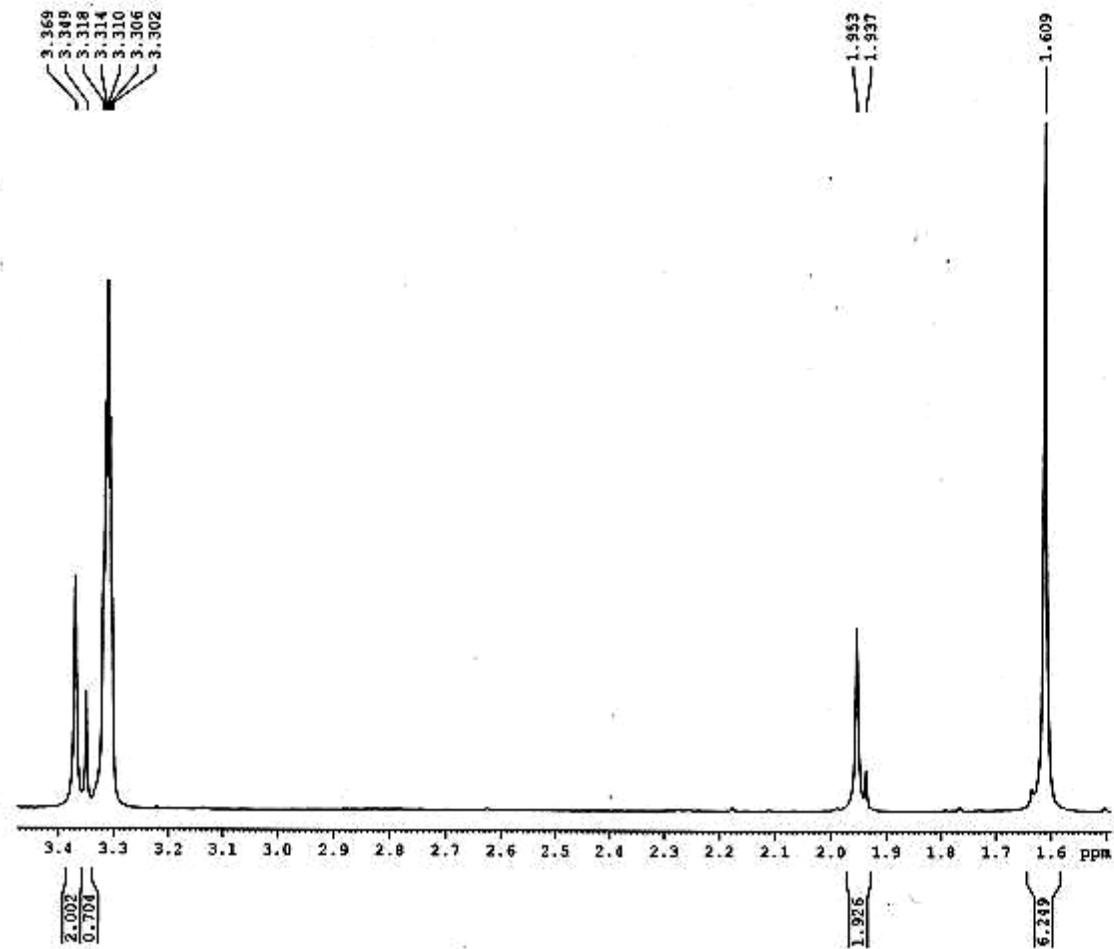
F2 - Acquisition Parameters
Date_ 20040531
Time 15.34
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 7440.476 Hz
FIDRES 0.111513 Hz
AQ 4.494664 sec
RG 382
DM 89.200 usec
DE 6.00 usec
TE 300 K
D1 1.00000000 sec
MCHESF 0.00000000 sec
MCWEX 0.01500000 sec

CHANNEL f1
NUC1 1H
P1 4.00 usec
PL1 -1.00 dB
SFO1 400.1507985 MHz

F2 - Processing parameters
SI 32768
SF 400.1500008 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Espectro 25. RMN ¹H (400 MHz, MeOD-d₄) do composto (61).

Aurelio n-b-LAP-IMID UFRRJ



Current Data Parameters
 NAME ufrj0962436
 EXPNO 10
 PROCNO 1

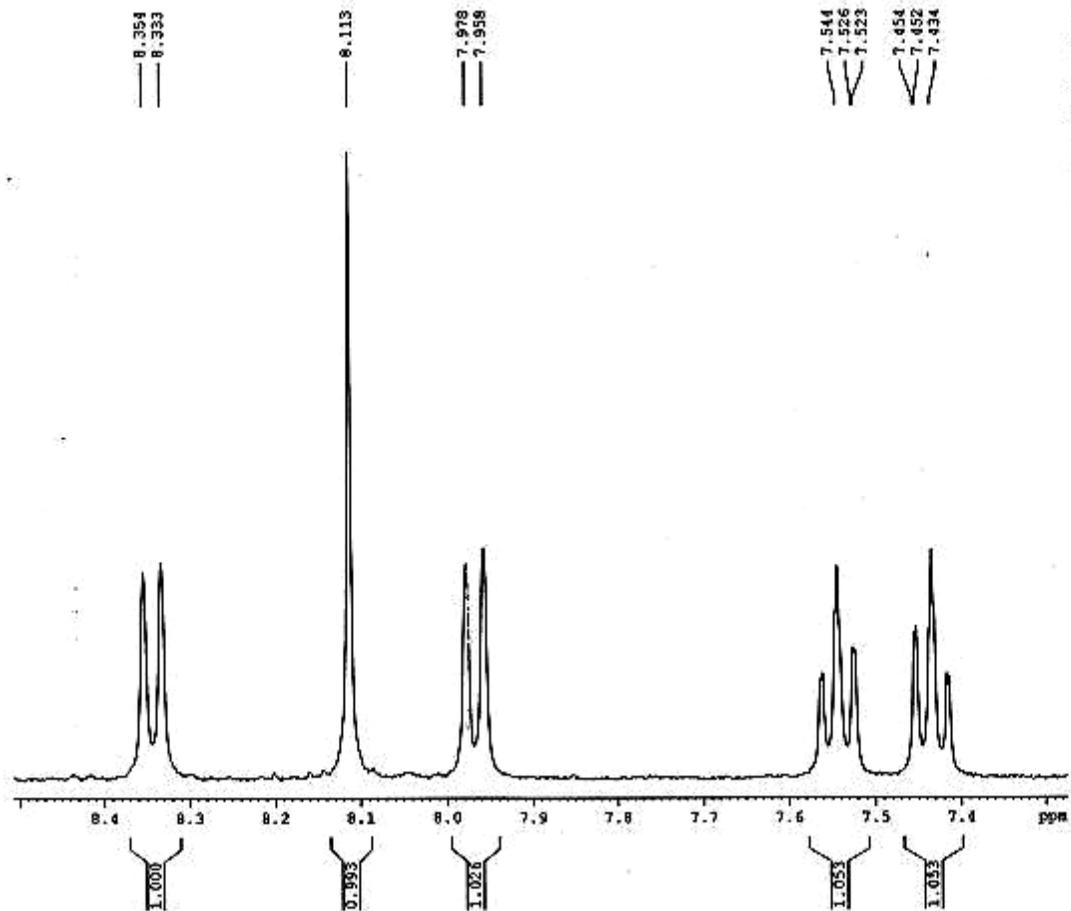
F2 - Acquisition Parameters
 Date_ 20060921
 Time 12.14
 INSTRUM spect
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 8
 DS 0
 SWH 7440.476 Hz
 FIDRES 0.113523 Hz
 AQ 4.4046684 sec
 RG 382
 DW 47.200 usec
 DE 6.00 usec
 TE 0.0 K
 D1 1.0000000 sec
 MGRST 0.0000000 sec
 MONK 0.0150000 sec

===== CHANNEL f1 =====
 NUCL1 1H
 P1 3.00 usec
 PL1 -3.00 dB
 SFOL 400.1527855 MHz

F2 - Processing parameters
 SI 32768
 SF 400.1500000 MHz
 NDW 0 Hz
 SFC 0
 LB 0.30 Hz
 GB 0
 PC 1.00

Espectro 26. Ampliação da região de hidrogênios alifáticos do espectro de RMN ¹H (400 MHz, MeOD-*d*₄) do composto (61).

Aurelio n-b-LAP-IMID UERRJ



```
Current Data Parameters
NAME      urej0962456
EXPNO     10
PROCNO    1

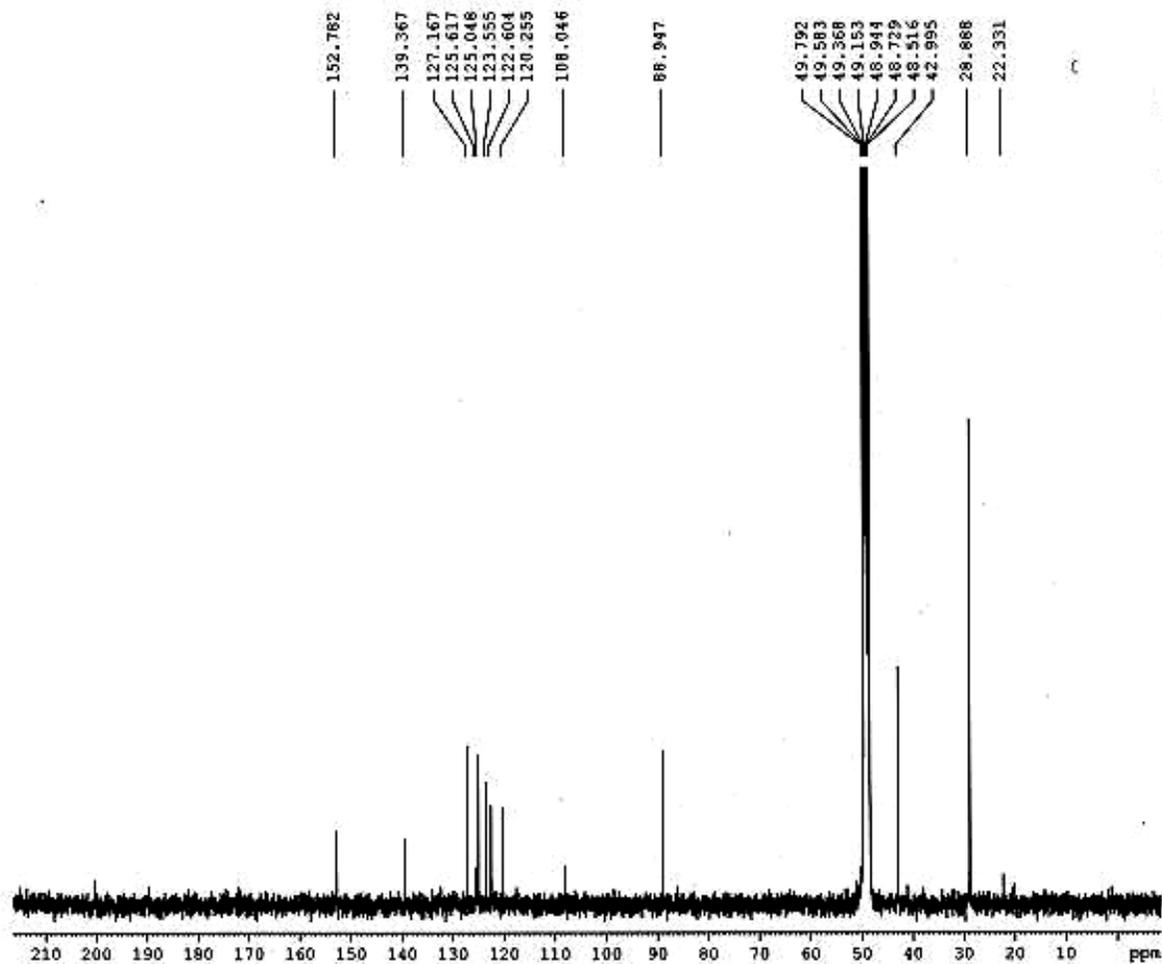
F2 - Acquisition Parameters
Date_     20040921
Time      13.34
INSTRUM   spect
PROBHD    3 mm QNP 1H/13
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         0
DS         0
SFO       7448.476 Hz
FIDRES    0.118523 Hz
AQ        4.404894 sec
RG         382
DS         61.308 usec
DE         6.00 usec
TE         300.2 K
D1         1.00000000 sec
MRESST    0.00000000 sec
MRESLX    0.01300000 sec

===== CHANNEL f1 =====
NUC1       13C
P1         9.00 usec
PL1        -3.00 dB
SFO1       400.1527895 MHz

F2 - Processing parameters
SI         32768
SF         400.1503048 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
```

Espectro 27. Ampliação da região de hidrogênios aromáticos do espectro de RMN ^1H (400 MHz, $\text{MeOD-}d_4$) do composto (61).

Aurelio n-b-LAP-IMID UFRRJ



```
Current Data Parameters
NAME      ufrrj0562434p
EXPNO     11
PROCNO    1

F2 - Acquisition Parameters
Date_     20060928
Time      18.40
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD         32768
SOLVENT   MeOD
NS         29526
DS         0
SWH        23960.814 Hz
FIDRES     0.711836 Hz
AQ         0.6832628 sec
RG         10384
DM         20.850 usec
DE         6.09 usec
TE         0.0 K
CQ1        1.0000000 sec
d11        0.0300000 sec
DELTA      0.8999998 sec
HEXHEST    0.0000000 sec
HEXHEX     0.0150000 sec

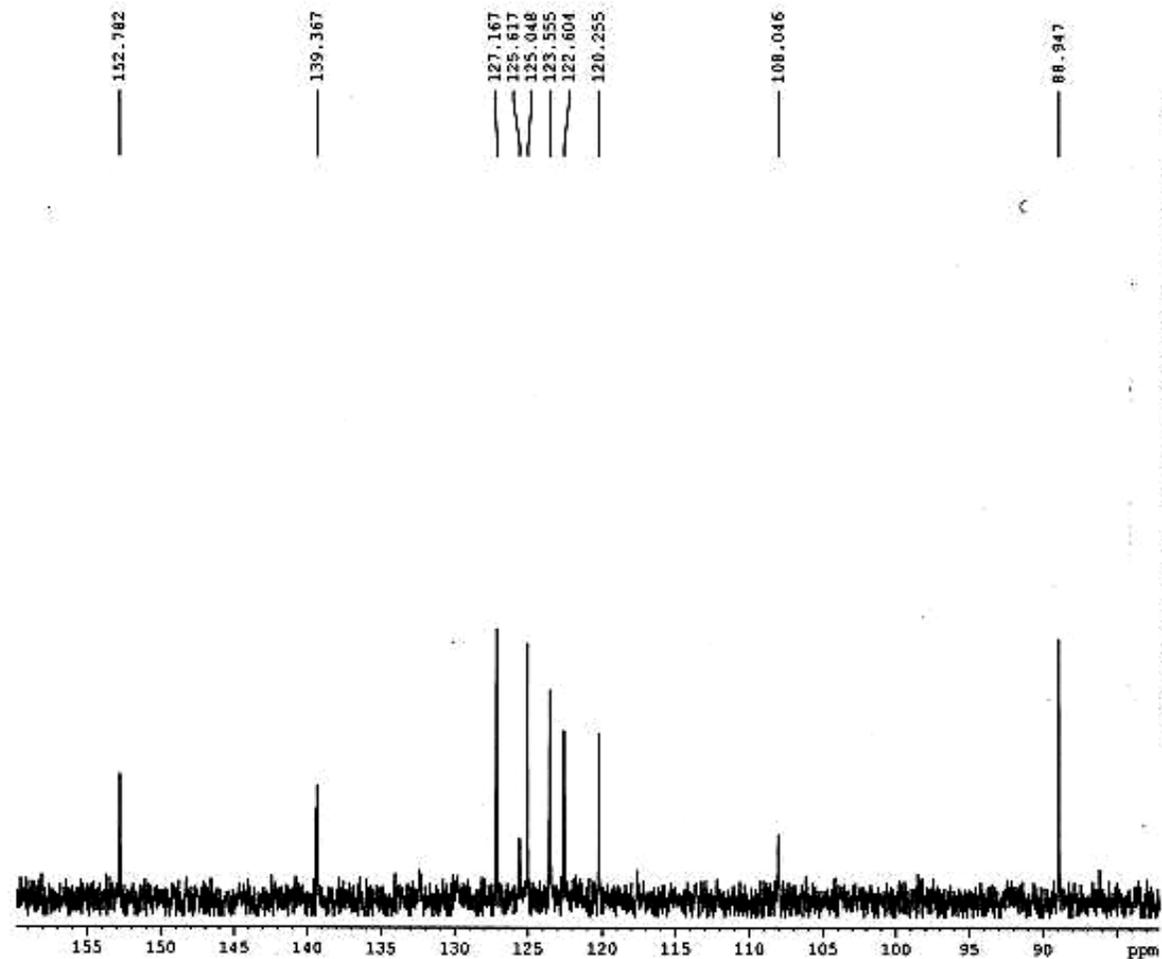
===== CHANNEL f1 =====
NUC1       13C
P1         7.00 usec
PL1        1.00 dB
SFO1       100.6178553 MHz

===== CHANNEL f2 =====
CDEPRG02   waltz16
NUC2        1H
PCPD2      100.00 usec
PL2         -4.00 dB
PL12        16.63 dB
PL13        16.63 dB
SFO2        400.1516006 MHz

F2 - Processing parameters
SI         16384
SF         100.6180370 MHz
WDW        EM
SSB        0
LB         2.00 Hz
GB         0
PC         1.40
```

Espectro 28. RMN ^{13}C (100 MHz, MeOD- d_4) do composto (61)..

Aurelio n-b-LAP-IMID UFRRJ



```
Current Data Parameters
NAME      ufrrj096249g
EXPNO     11
PROCNO    1

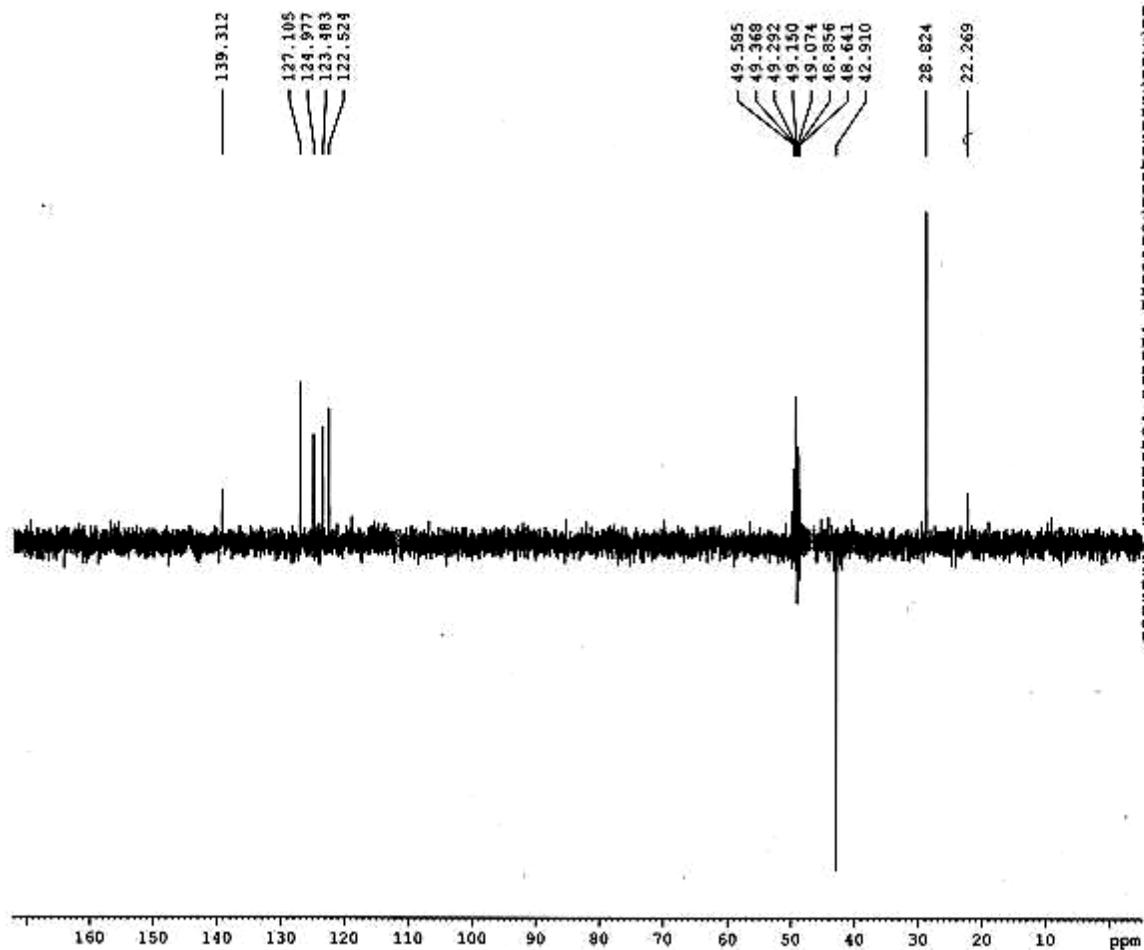
F2 - Acquisition Parameters
Date_     20080228
Time      18.40
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD         32768
SOLVENT   MeOD
NS         29524
DS         0
SWH        23980.814 Hz
FIDRES     0.711836 Hz
AQ         0.6832629 sec
RG         16384
DM         20.850 usec
DE         6.00 usec
TE         300.2 K
SI         1.00000000 sec
SFO1       100.6278590 MHz
SF02
===== CHANNEL f1 =====
NUC1       13C
P1         7.00 usec
PL1        1.00 dB
SFO1       100.6278590 MHz

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2       1H
PCPD2     100.00 usec
PC2        -4.00 dB
PL12       16.63 dB
PL13       16.63 dB
SFO2       400.1516004 MHz

F2 - Processing parameters
SI         16384
SF         100.6180370 MHz
WDW        EM
SSB        0
LB         2.00 Hz
GB         0
PC         1.40
```

Espectro 29. Ampliação de região de carbonos aromáticos do espectro de RMN ¹³C (100 MHz, MeOD-d₄) do composto (61).

Aurelio n-b-LAP-IMID UFRRJ



```

Current Data Parameters
NAME      ufrrj0962436p
EXPNO     12
PROCNO    1

F2 - Acquisition Parameters
Date_     20060923
Time      8.32
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD         52768
SOLVENT   MeOD
NS         5841
DS         4
SWH        23980.834 Hz
FIDRES     0.731836 Hz
AQ         0.6832628 sec
RG         16384
DM         20.850 usec
DE         6.50 usec
TE         300.2 K
CMST2     145.0000000
d1         2.0000000 sec
d2         0.00346828 sec
d12        0.00000000 sec
DELTA      0.00000891 sec
MCREST     0.00000000 sec
HOREX      0.01500000 sec

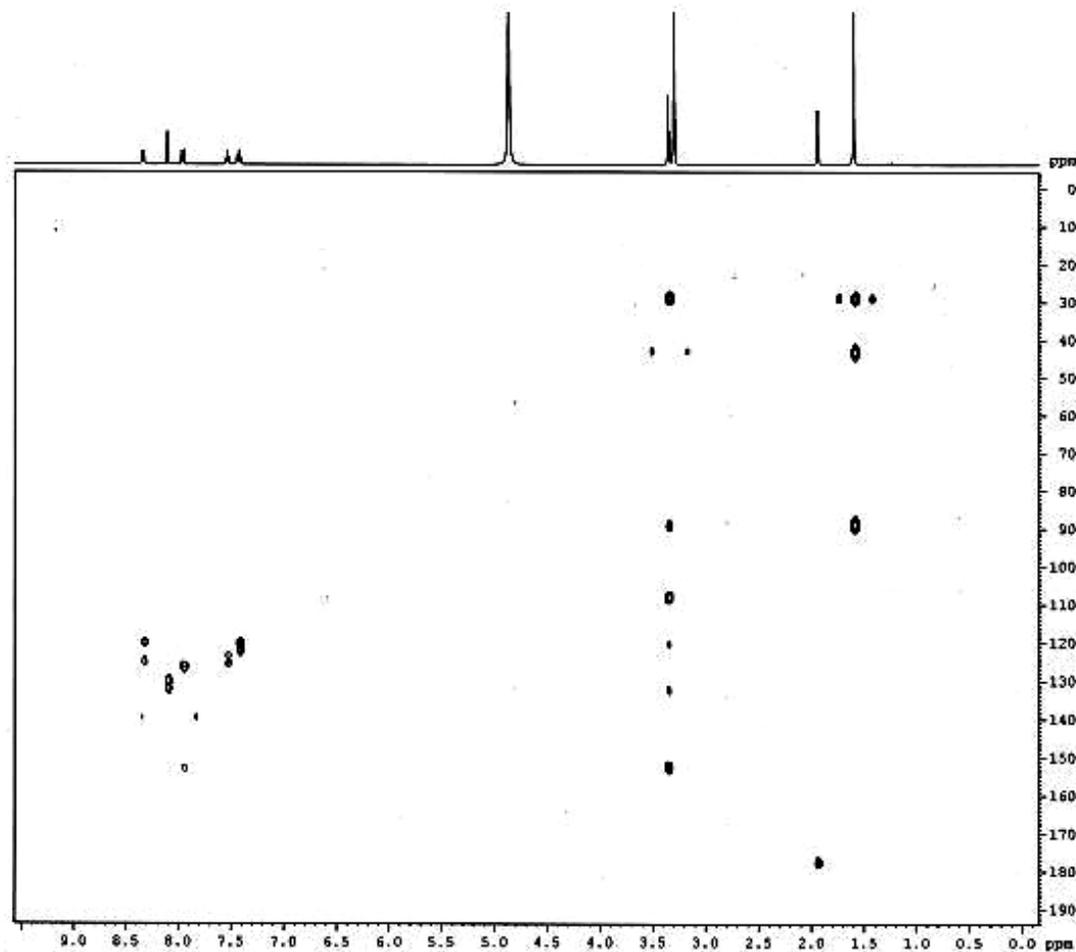
----- CHANNEL f1 -----
NUC1       13C
P1         7.00 usec
P2         14.00 usec
PL1        1.00 dB
PL2        100.6278553 MHz

----- CHANNEL f2 -----
CPDPRG2    walca16
NUC2       1H
P3         9.30 usec
P4         18.60 usec
PCPD2      100.00 usec
PL2        -4.00 dB
PL12       15.63 dB
SFO2       400.1516006 MHz

F2 - Processing parameters
SI         16384
SF         100.6180443 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
    
```

Espectro 30. RMN $^{13}\text{C}_{(\text{DEPT})}$ (100 MHz, MeOD- d_4) do composto (61).

Aurelio n-b-LAP-IMID UFRRJ



```

Current Data Parameters
NAME      vfrj096244p
EXPNO    15
PROCNO    1

F2 - Acquisition Parameters
Date_     20050929
Time     17.20
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD        4096
SOLVENT   DMSO
NS        32
DS        14
SWH       5995.204 Hz
FIDRES    1.463673 Hz
AQ        0.3416584 sec
RG        4096
DM        83.400 usec
DE        6.00 usec
TE        0.0 K
CQZT2     145.0000000
CQZT3     0.0000000
AQ        0.0000300 sec
D1        1.5000000 sec
d2        0.00344828 sec
d6        0.06250000 sec
d16       0.00010000 sec
TMS       0.0000240 sec
MCNST     0.0000000 sec
MCRMK     1.5000000 sec

----- CHANNEL f1 -----
NUC1       13C
P1         8.00 usec
PC         15.00 usec
PL1        -3.00 dB
SFO1       400.1528811 MHz

----- CHANNEL f2 -----
NUC2       1H
P2         7.00 usec
PL2         1.00 dB
SFO2       100.6278433 MHz

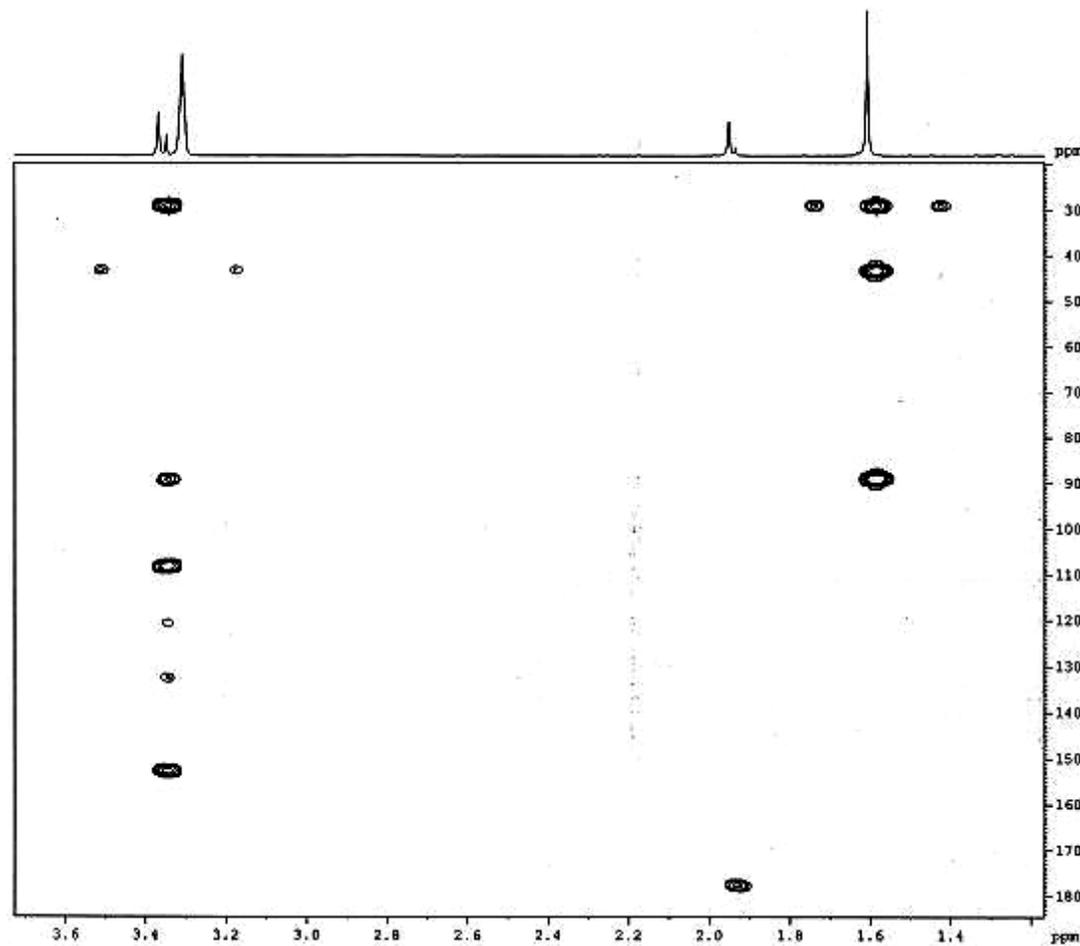
----- GRADIENT CHANNEL -----
GPRM1     SINE.100
GPRM2     SINE.100
GPRM3     SINE.100
GPR1      0.00 %
GPR2      0.00 %
GPR3      0.00 %
GPR4      0.00 %
GPR5      0.00 %
GPR6      0.00 %
GPR7      0.00 %
GPR8      0.00 %
GPR9      50.00 %
GPR10     30.00 %
GPR11     40.10 %
GPR12     1000.00 usec
P16

F1 - Acquisition parameters
ND0       2
TD        128
SFO1     100.6278 MHz
FIDRES    174.386154 Hz
SW        221.822 ppm
F2MODE    QP

F2 - Processing parameters
SI        1024
SF        400.150163 MHz
WDW       GBINE
SSB       0
LB        0.00 Hz
GB        0
PC        1.40
    
```

Espectro 31. Correlações $^1\text{H} \times ^{13}\text{C}$ ($^{2,3}\text{J}$) (400 MHz, MeOD- d_4) do composto (61).

Aurelio n-b-LAP-IMID UFRRJ



```

Current Data Parameters
NAME      ufrj0962436
EXPNO    15
PROCNO   1

F2 - Acquisition Parameters
Date_    20060828
Time     17.20
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  zgpg30
TD       4096
SOLVENT  DMSO
NS       32
DS       15
SWH      5995.204 Hz
FIDRES   1.463673 Hz
AQ       0.3416564 sec
RG       4096
CW       83.400 usec
DE       6.00 usec
TE       0.0 K
CST2     145.0000000
CST13    8.0000000
d0       0.0000000 sec
d1       1.5000000 sec
d2       0.00344828 sec
d6       0.06250000 sec
DL6      0.00010000 sec
IM0      0.00002240 sec
ICREST   0.00000000 sec
MCW6     1.50000000 sec

----- CHANNEL f1 -----
NUC1     1H
P1       8.00 usec
PC1      15.00 usec
PL1      -3.00 dB
SFO1     400.1528811 MHz

----- CHANNEL f2 -----
NUC2     13C
P2       7.00 usec
PC2      1.00 dB
PL2      1.00 dB
SFO2     100.6278433 MHz

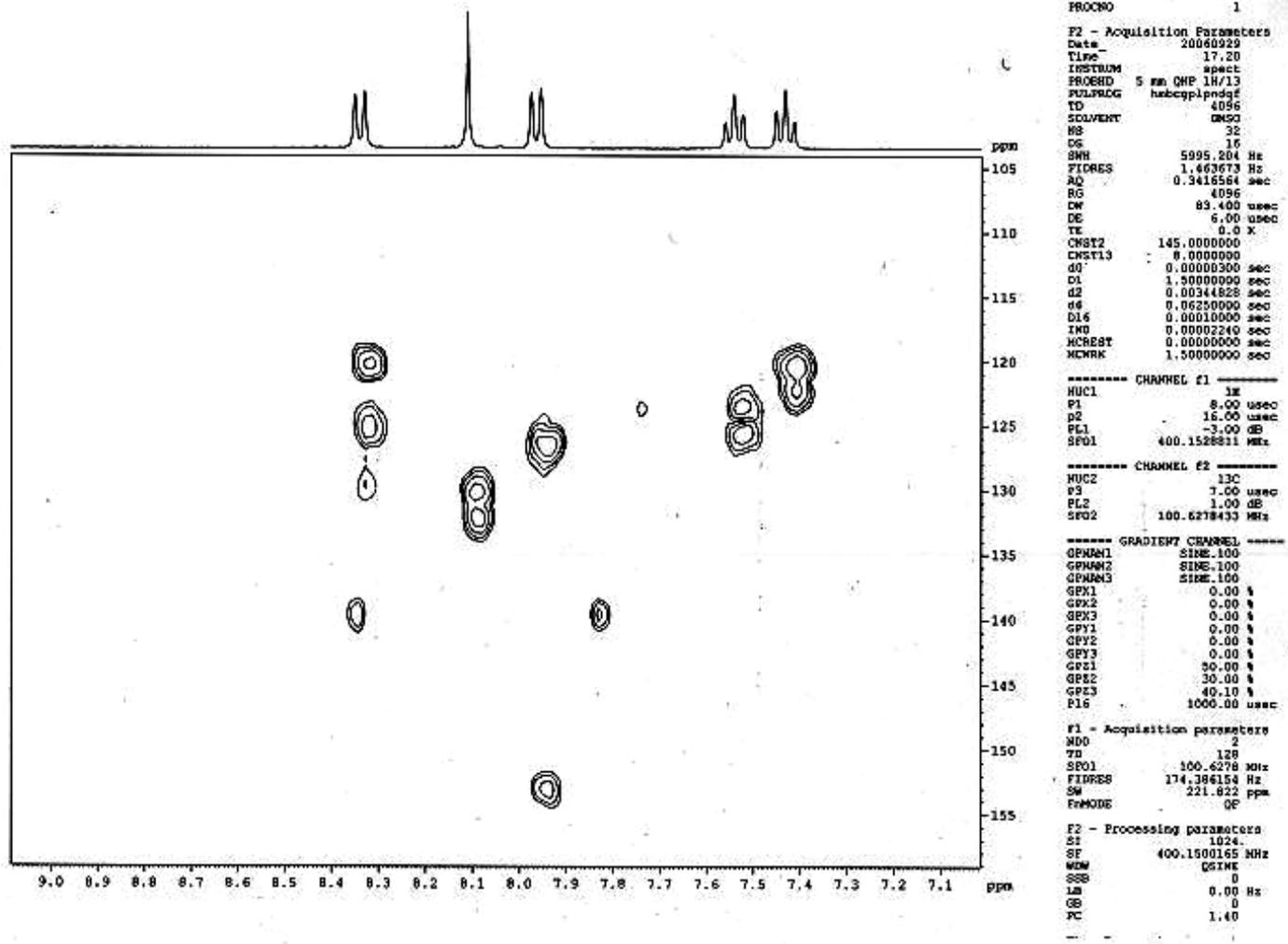
----- GRADIENT CHANNEL -----
GPRM1    SINE.100
GPRM2    SINE.100
GPRM3    SINE.100
GPM1     0.00 %
GPM2     0.00 %
GPM3     0.00 %
GPT1     0.00 %
GPT2     0.00 %
GPT3     0.00 %
GPM1     50.00 %
GPM2     30.00 %
GPM3     40.10 %
P16      1000.00 usec

F1 - Acquisition parameters
ND0      2
TD       128
SFO1     100.6278 MHz
FIDRES   174.386154 Hz
SN       221.822 ppm
INMODE   QF

F2 - Processing parameters
SI       1024
SF       400.1500165 MHz
WDW      QSINE
SSB      0
LB       0.00 Hz
GB       0
PC       1.40
    
```

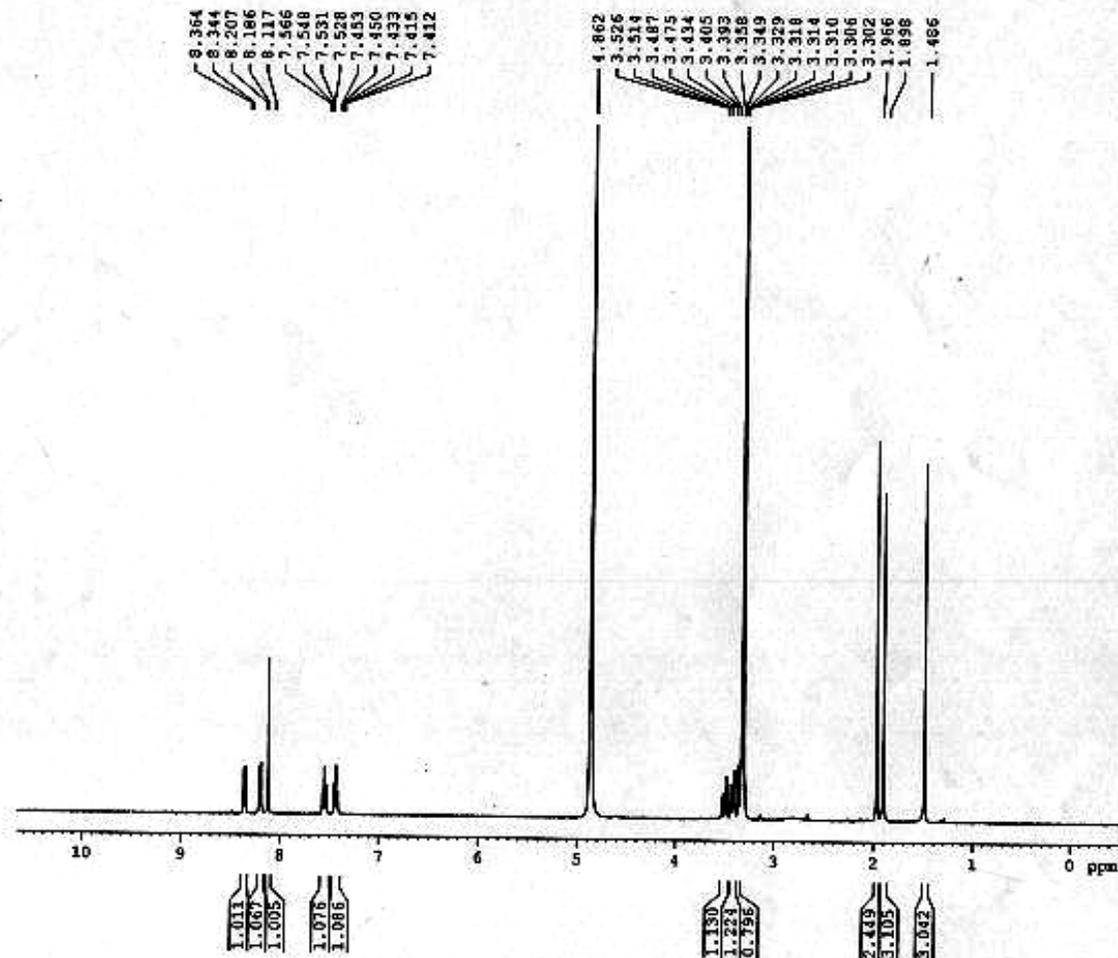
Espectro 32. Ampliação da região de hidrogênios alifáticos de espectro de correlações $^1\text{H} \times ^{13}\text{C}$ ($^{2,3}\text{J}$) (400 MHz, MeOD- d_4) do composto (61).

Aurelio n-b-LAP-IMID UFRRJ



Espectro 33. Ampliação da região de hidrogênios aromáticos de espectro de correlações $^1\text{H} \times ^{13}\text{C}$ ($^{2,3}\text{J}$) (400 MHz, MeOD- d_4) do composto (61).

Aurelio b-LAPSO3H-IMID UFRRJ



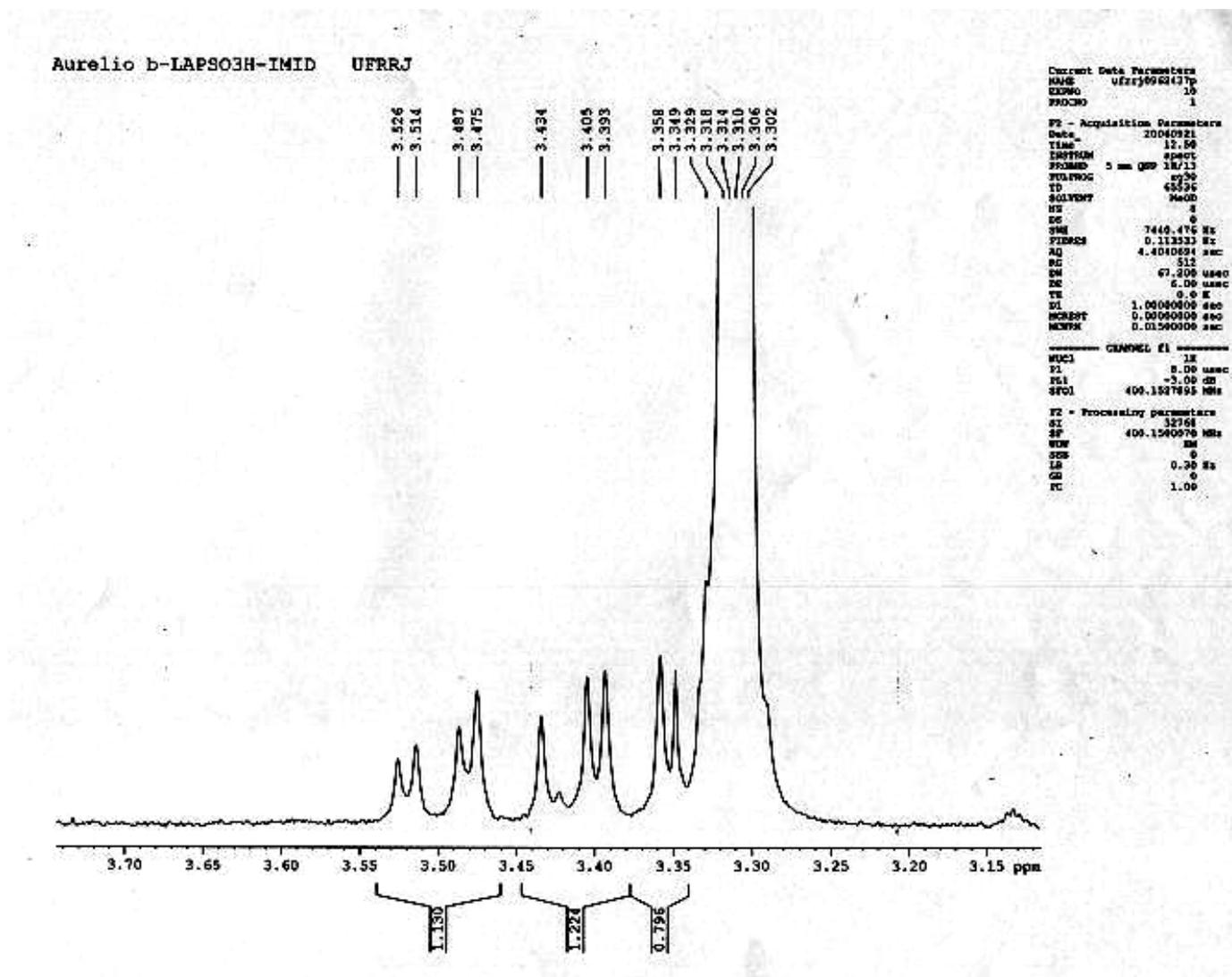
Current Data Parameters
NAME: urej0943477p
EXPNO: 10
PROCNO: 1

F2 - Acquisition Parameters
Date_ : 20060821
Time : 12.59
INSTRUM : spect
PROBHD : 5 mm GPC 1H/13
PULPROG : zg30
TD : 65536
SOLVENT : MeOD
NS : 0
DS : 0
SWH : 7440.476 Hz
FIDRES : 0.123533 Hz
AQ : 4.404084 sec
RG : 512
DF : 67.200 MHz
DE : 6.00 MHz
TE : 300.2 K
D1 : 1.00000000 sec
DECAY : 0.00000000 sec
MCHRG : 0.01500000 sec

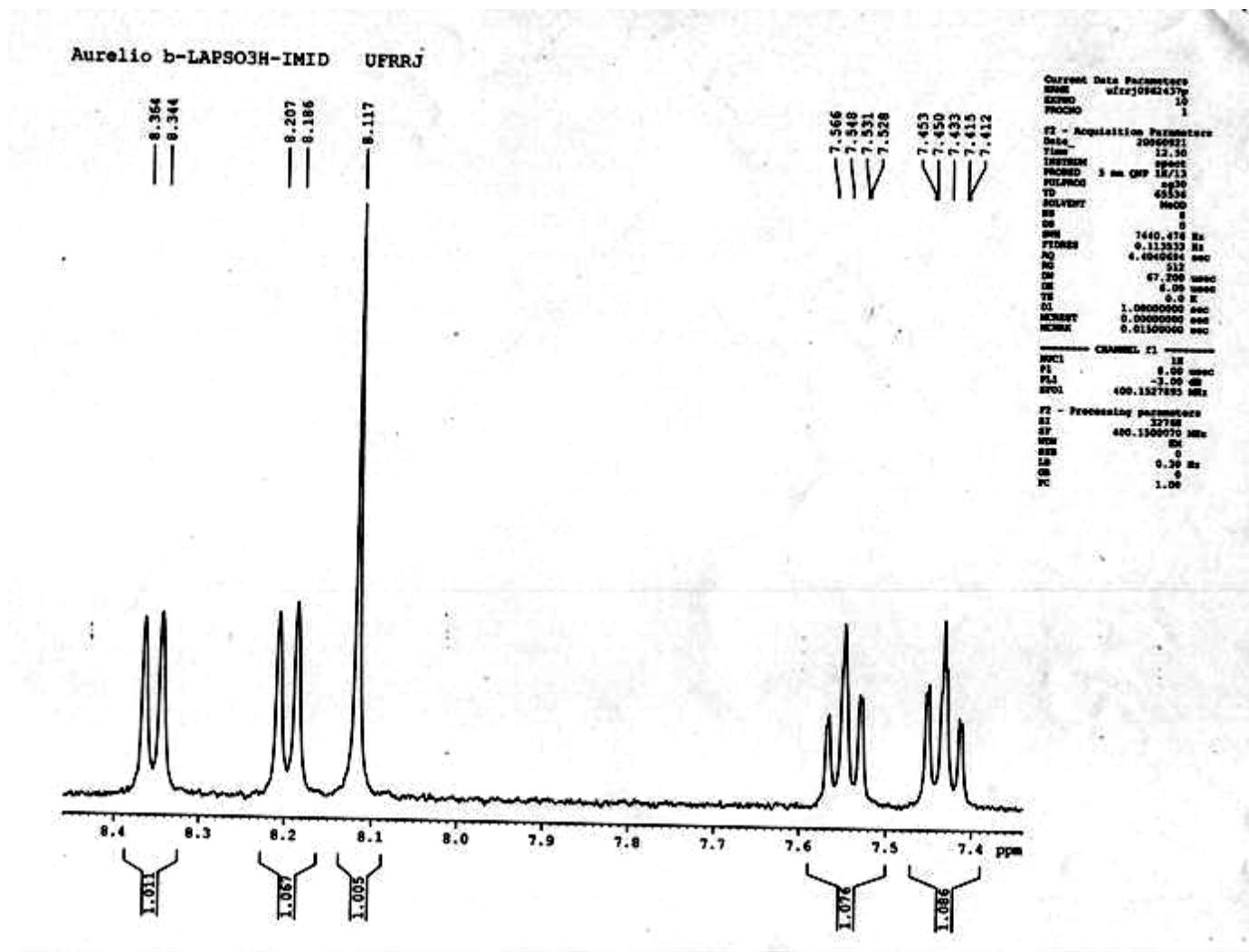
===== CHANNEL f1 =====
NUC1 : 1H
P1 : 1.00 MHz
PL1 : -1.90 dB
SFO1 : 400.1427095 MHz

F2 - Processing parameters
SI : 32768
SF : 400.1500070 MHz
WDW : EM
SSB : 0
LB : 0.30 Hz
GB : 0
PC : 1.00

Espectro 34. RMN ¹H (400 MHz, MeOD-*d*₄) do composto (62).

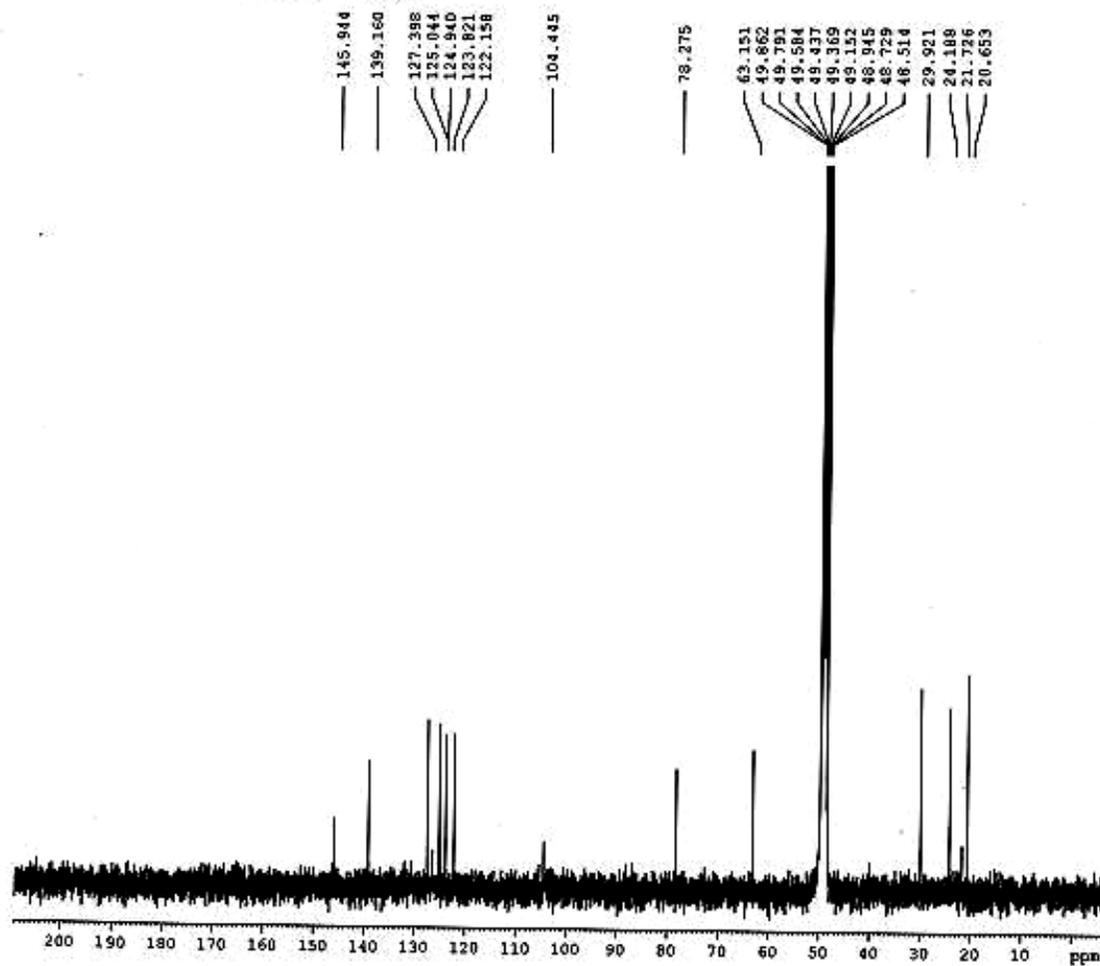


Espectro 35. Ampliação da região de hidrogênios alifáticos do espectro de RMN ^1H (400 MHz, MeOD- d_4) do composto (62).



Espectro 36. Ampliação da região de hidrogênios aromáticos do espectro de RMN ^1H (400 MHz, MeOD- d_4) do composto (62).

Aurelio b-LAPSO3H-IMID UFRRJ



```

Current Data Parameters
NAME      ufcrj0962431p
EXPNO    11
PROCNO   1

F2 - Acquisition Parameters
Date_    20080911
Time     15.35
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  zgpg30
TD        32768
SOLVENT  MeOD
NS        65536
DS        4
SWH       22880.818 Hz
FIDRES   0.731836 Hz
AQ        0.4832628 sec
RG        14288
EM        20.850 usec
DE        6.00 usec
TE        300.2 K
D1        1.60000000 sec
d11       0.83000000 sec
DELTAT   0.89999998 sec
MCHRG1   0.00000000 sec
MCHRG2   0.01500000 sec

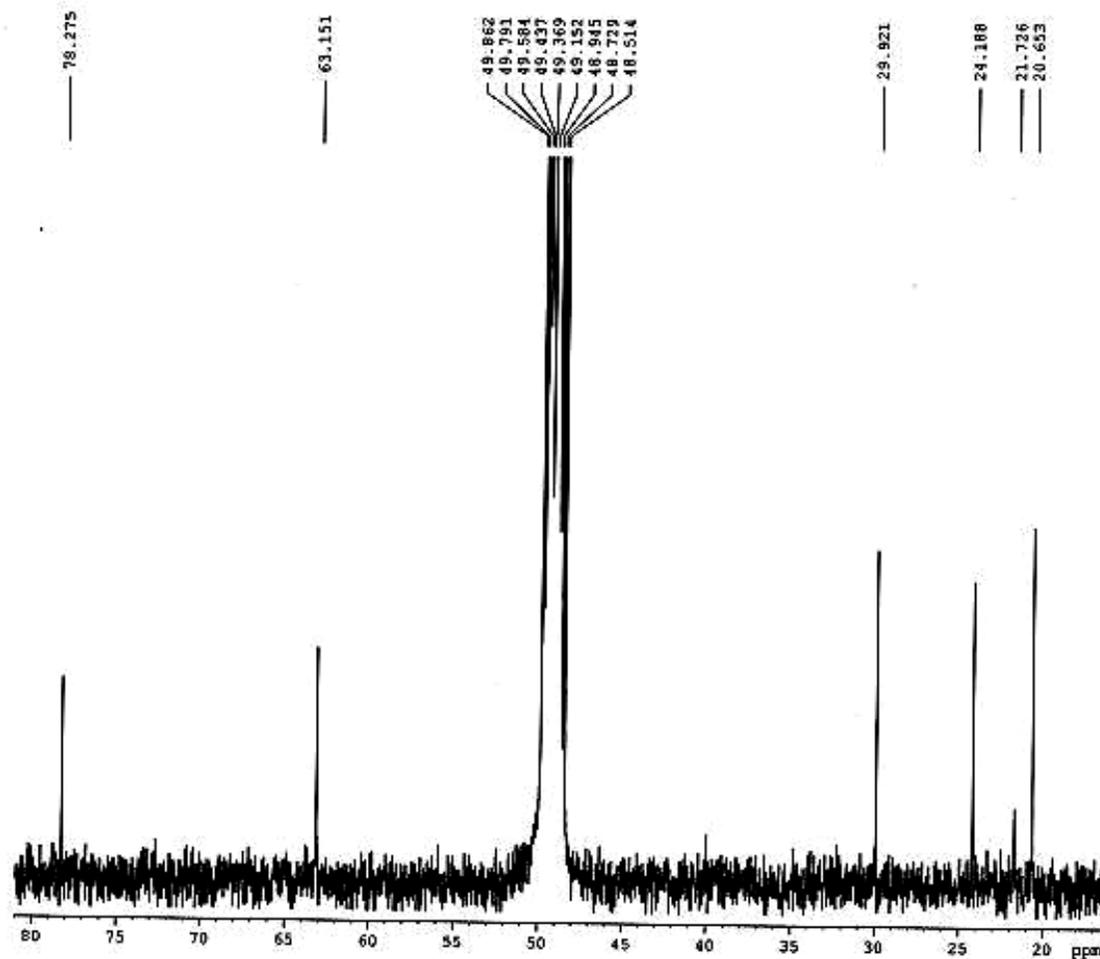
===== CHANNEL F1 =====
NUC1      13C
P1        1.08 usec
PL1       1.00 dB
SFO1      100.6278593 MHz

===== CHANNEL F2 =====
C13PRG2  waltz16
NUC2      1H
PCPD2    100.00 usec
PL2       -1.00 dB
PL12     16.83 dB
PL13     16.83 dB
SFO2      400.1315056 MHz

F2 - Processing parameters
SI        15384
SF        100.6176494 MHz
WDW       EM
SSB       0
LB        1.00 Hz
GB        0
PC        1.40
  
```

Espectro 37. RMN ¹³C (100 MHz, MeOD-*d*₄) do composto (62).

Aurelio b-LAPSO3H-IMID UFRRJ



```

Current Data Parameters
NAME: ufuzj0362437p
EXPER: 11
PROCNO: 1

F2 - Acquisition Parameters
Date_: 20060921
Time: 13.31
INSTRUM: spect
PROBHD: 5 mm QNP 1H/13
PULPROG: zgpg30
TD: 32768
SOLVENT: MeOD
NS: 6536
DS: 0
SHE: 23900.814 Hz
FIDRES: 0.733816 Hz
AQ: 0.6832628 sec
RG: 10284
SW: 20.830 usec
DE: 6.00 usec
TE: 0.0 K
D1: 1.0000000 sec
d11: 0.0300000 sec
DETA: 0.8999999 sec
ACQST: 0.0000000 sec
PCPCT: 0.0100000 sec

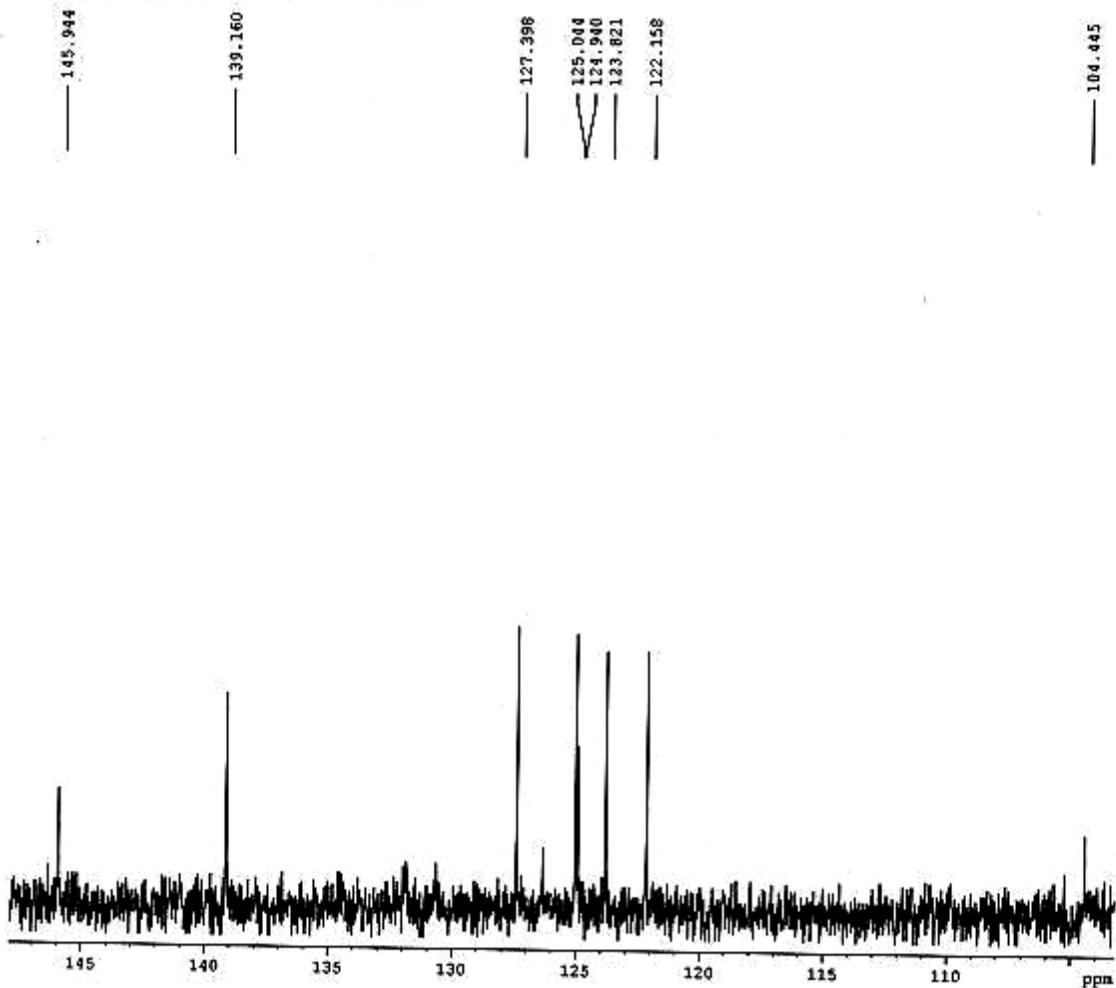
===== CHANNEL f1 =====
NUC1: 13C
P1: 1.00 usec
PL1: 1.00 dB
SFO1: 100.628353 MHz

===== CHANNEL f2 =====
CPOPRG2: waltz16
NUC2: 1H
PCPD2: 100.00 usec
PL2: -4.00 dB
PL12: 18.63 dB
PL13: 18.63 dB
SFO2: 400.146400 MHz

F2 - Processing parameters
SI: 16384
SF: 100.617604 MHz
WDW: EM
SSB: 0
LB: 1.60 Hz
GB: 0
PC: 1.40
    
```

Espectro 28: Ampliação de região de carbonos alifáticos do espectro de RMN ^{13}C (100 MHz, MeOD- d_4) do composto (62).

Aurelio b-LAPSO3H-IMID UFRRJ



```

Current Data Parameters
NAME      ufrcj0962437p
EXPNO    1
PROCNO    1

F2 - Acquisition Parameters
Date_     20060921
Time      13.33
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD        32768
SOLVENT   MeOD
NS        8536
DS        0
SWH        23960.814 Hz
FIDRES    0.711436 Hz
AQ        0.6832624 sec
RG        16364
DM        20.850 usec
DE        6.00 usec
TE        300.2 K
D1        1.0000000 sec
d11       0.0300000 sec
DELTA    0.8999999 sec
INCRST    0.0000000 sec
MCNEX     0.0150000 sec

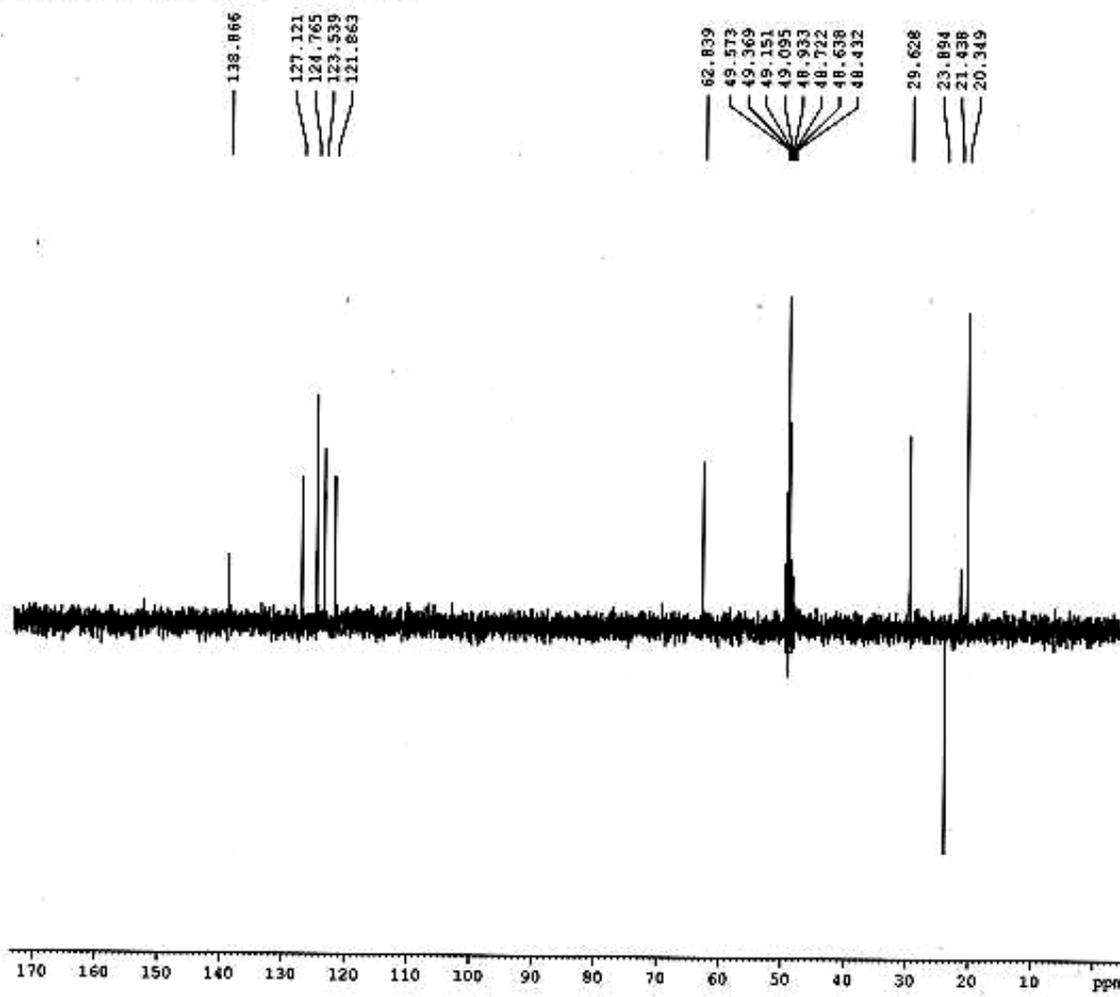
===== CHANNEL f1 =====
NUC1       13C
P1         7.00 usec
PL1        1.00 dB
SFO1       100.6278192 MHz

===== CHANNEL f2 =====
CPO0002   mltz14
NUC2       1H
PCPD2     100.00 usec
PL2        -4.00 dB
PL12       16.63 dB
PL13       16.63 dB
SFO2       400.1516006 MHz

F2 - Processing parameters
SI         16384
SF         100.6176404 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
  
```

Espectro 39. Ampliação de região de carbonos aromáticos do espectro de RMN ^{13}C (100 MHz, MeOD-*d*₄) do composto (62).

Aurelio b-LAPSO3H-IMID UFRRJ



```

Current Data Parameters
NAME      ucrcj0862437p
EXPNO    12
PROCNO   1

F2 - Acquisition Parameters
Date_    20060923
Time     21.32
INSTRUM  spect
PROBHD   5 mm QNP 1H/1
PULPROG  zgpg30
TD        32768
SOLVENT  MeOD
NS        32768
DS        4
SWH       23990.814 Hz
FIDRES    0.751156 Hz
AQ        0.6822528 sec
RG         1024
DM        20.950 usec
DE         6.10 usec
TE         0.0 K
DMSF2     145.000000
D1         2.0000000 sec
d2         0.00344818 sec
d12        0.0000000 sec
DELTA     0.0000001 sec
ACQRES    0.0000000 sec
MORPH     0.01500000 sec

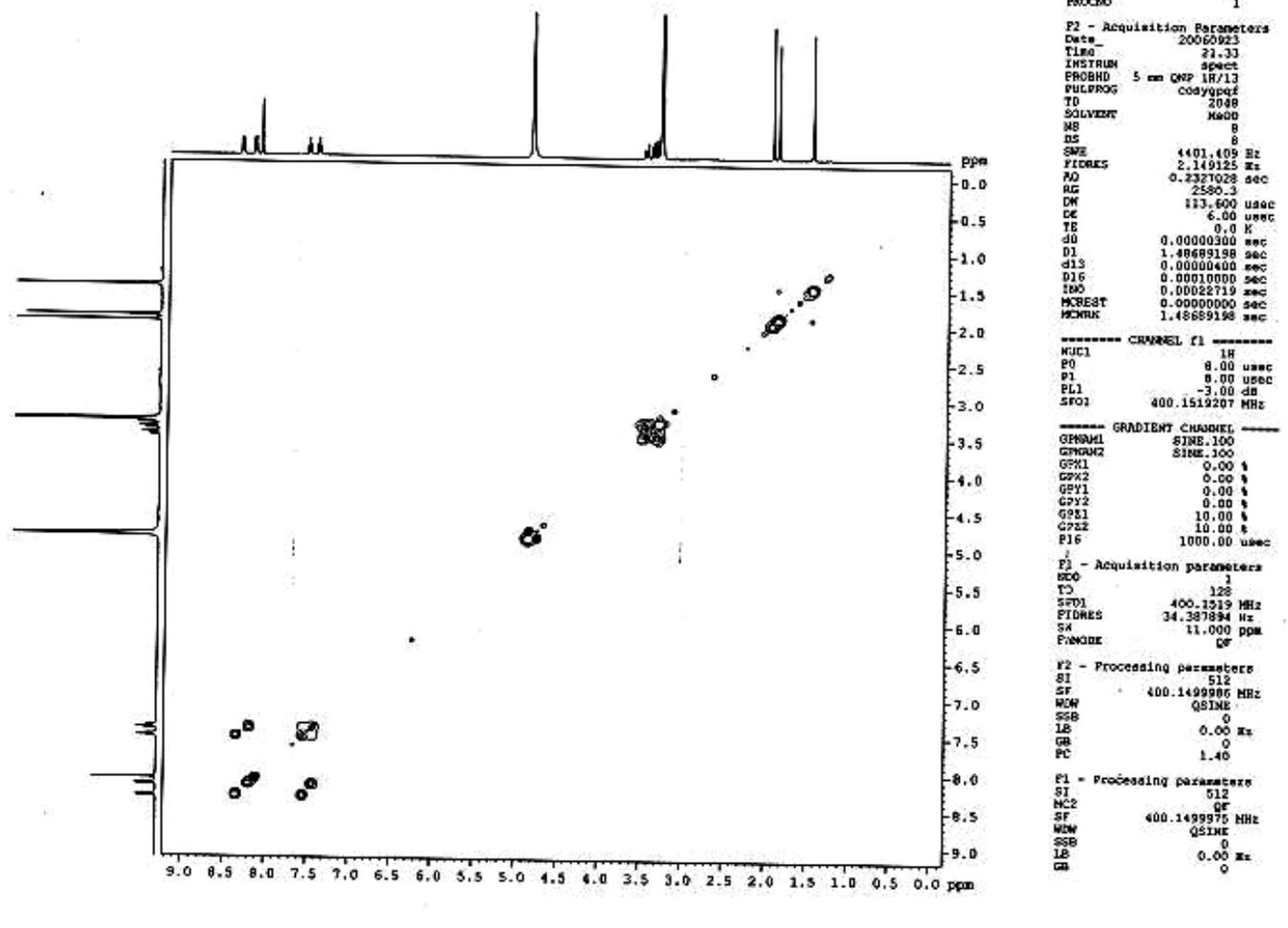
===== CHANNEL f1 =====
NUC1      13C
P1        7.00 usec
P2        14.00 usec
PL1       1.00 dB
SFO1      100.6179551 MHz

===== CHANNEL f2 =====
CPOPRG2  zgpg30
NUC2      1H
P3        9.30 usec
P4        16.00 usec
PCPD2     100.00 usec
PL3       -4.00 dB
PL12      16.63 dB
SFO2      400.1316005 MHz

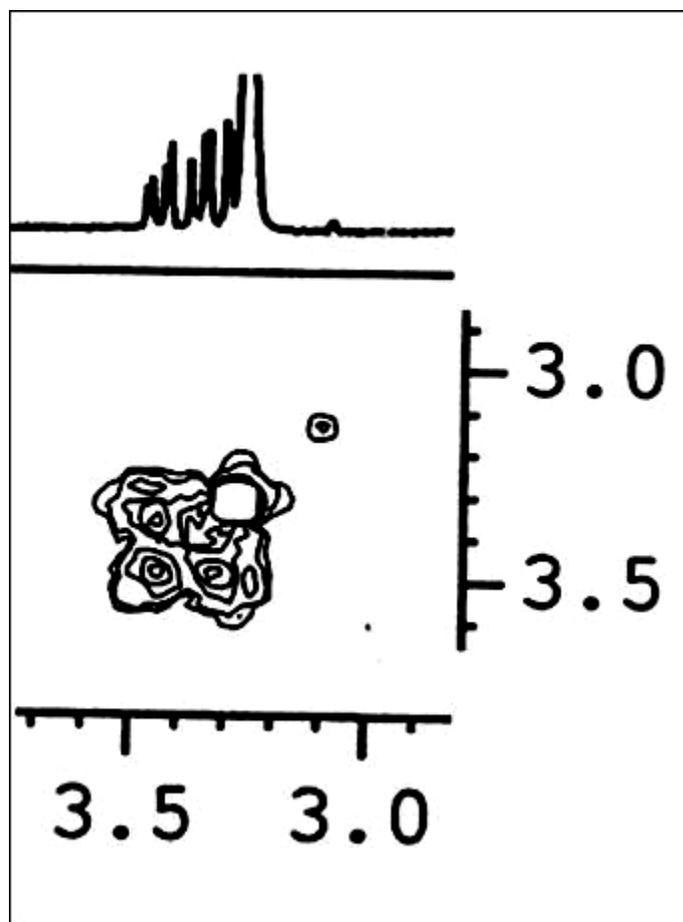
F2 - Processing parameters
SI        16384
SF        100.6179551 MHz
WDW       EM
SSB       0
LB        1.00 Hz
GB        0
PC        1.40
  
```

Espectro 40. RMN ¹³C_(DEPT) (100 MHz, MeOD-*d*₄) do composto (62).

Aurelio b-LAPSO3H-IMID UFRRJ .

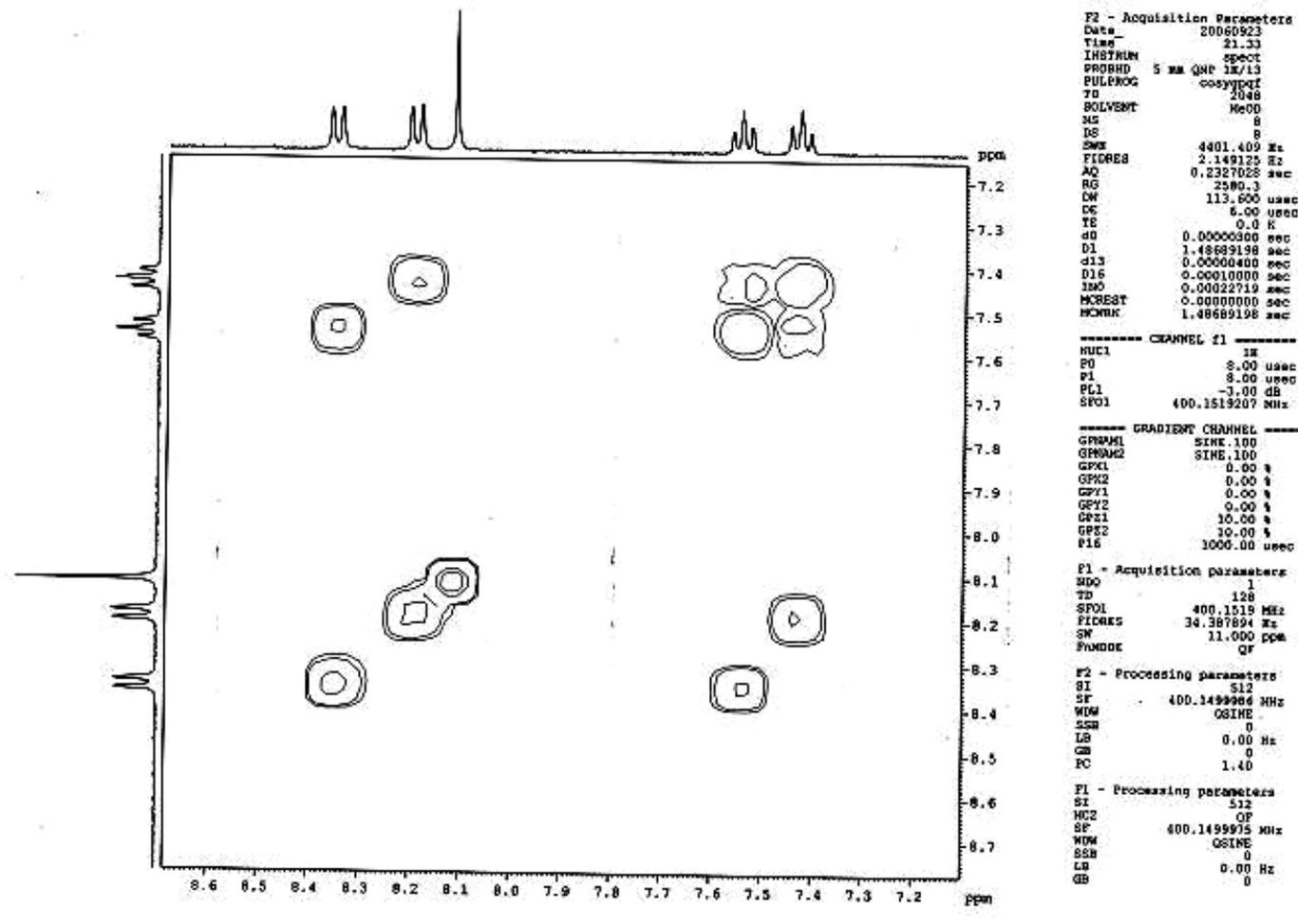


Espectro 41. Correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, MeOD- d_4) do composto (62).



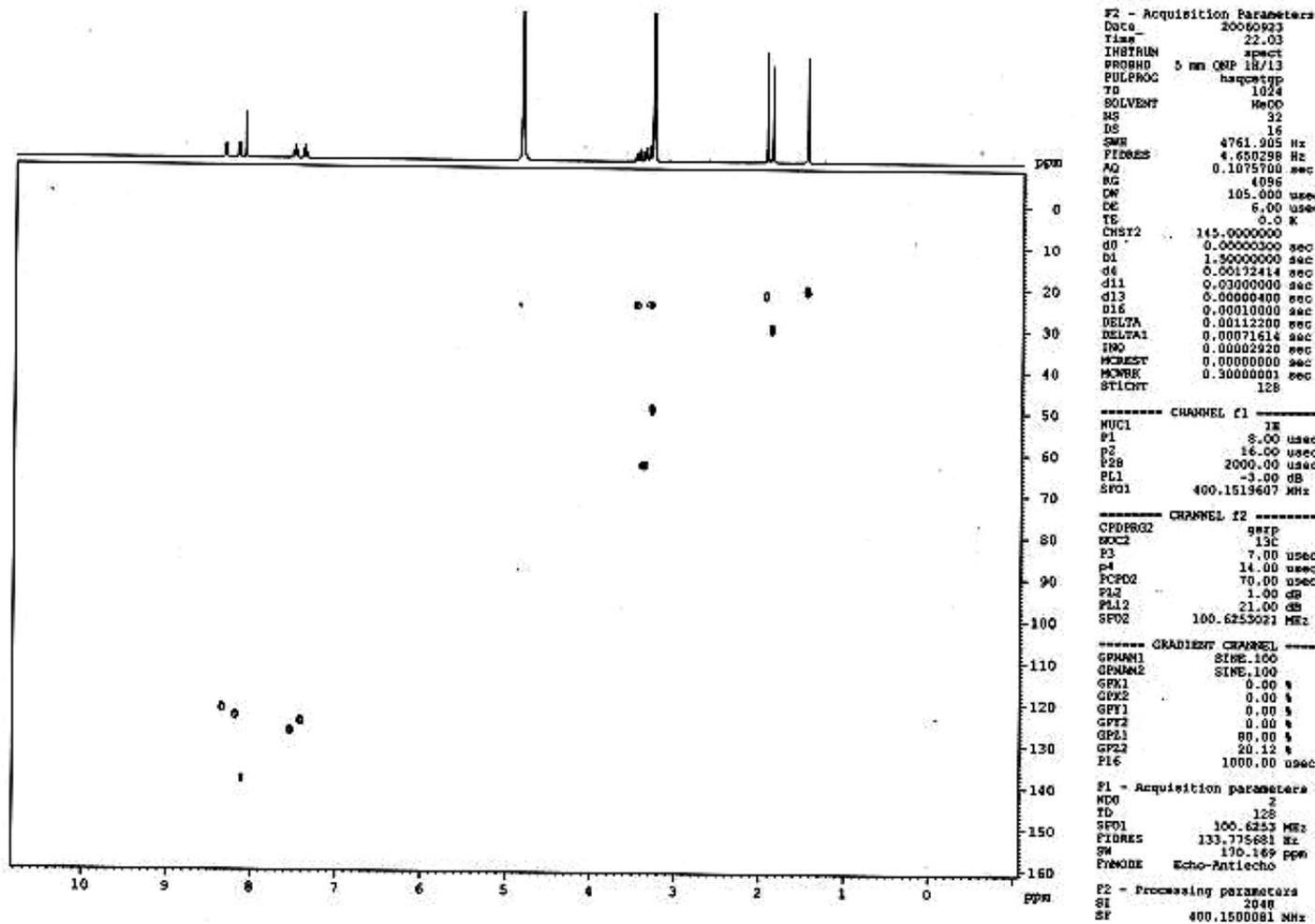
Espectro 42 Ampliação da região de hidrogênios alifáticos de espectro de correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, $\text{MeOD-}d_4$) do composto (**62**).

Aurelio b-LAPSO3H-IMID UFRRJ



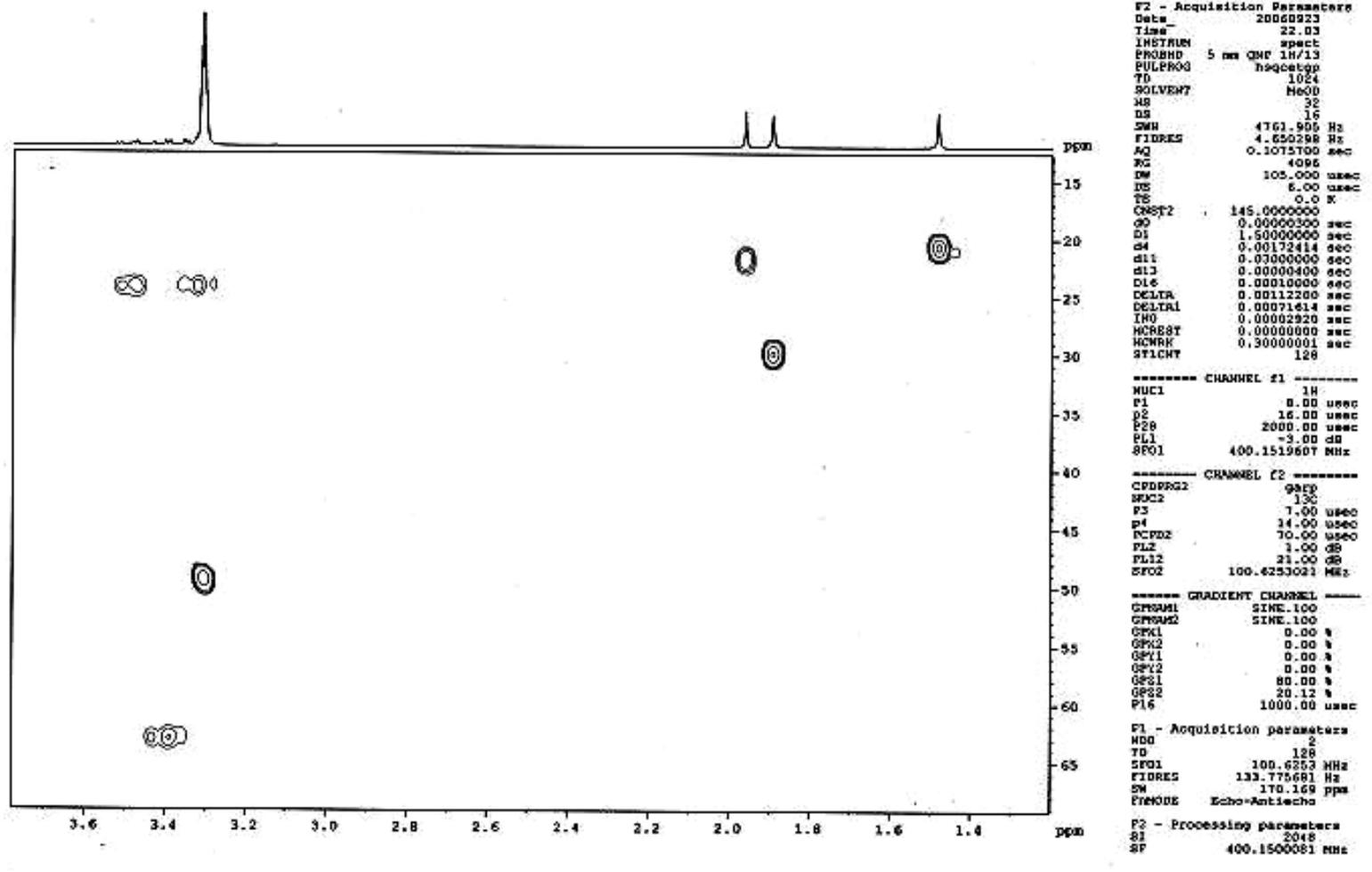
Espectro 43. Ampliação da região de hidrogênios aromáticos de espectro de correlações ¹H x ¹H (400 MHz, MeOD-*d*₄) do composto (62).

Aurelio b-LAPSO3H-IMID UFRRJ



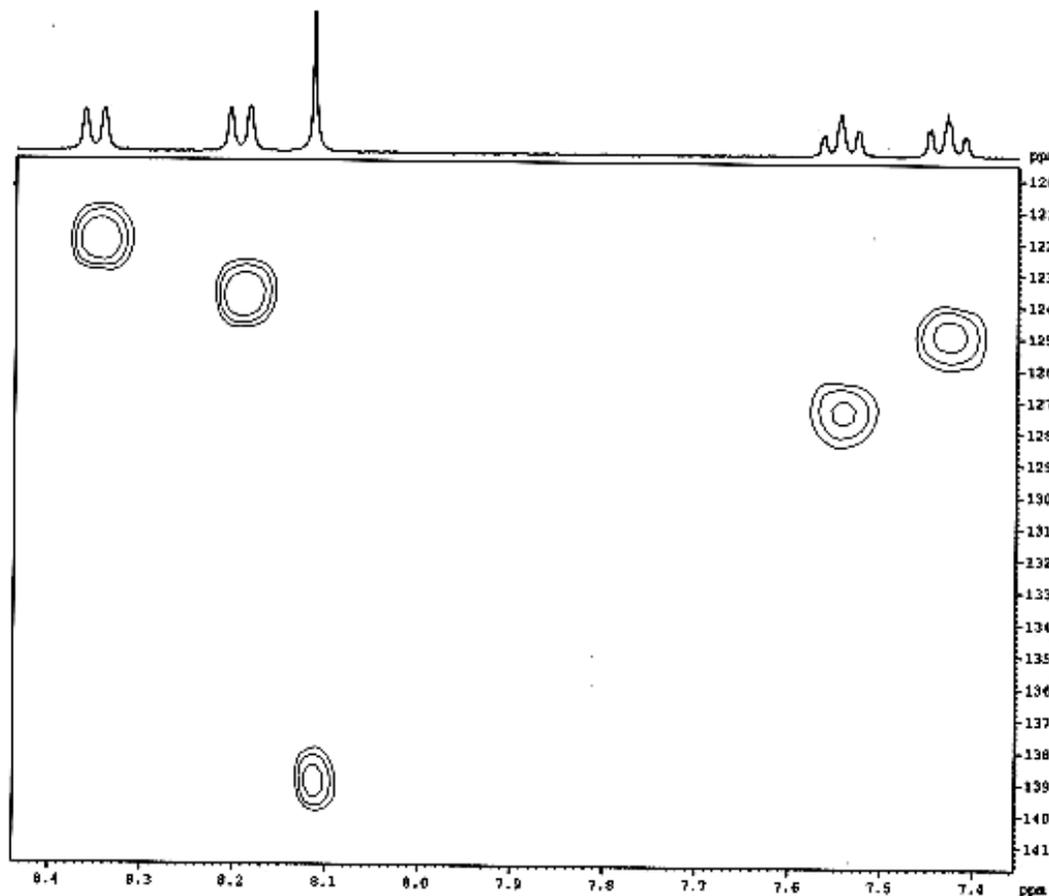
Espectro 44. Correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, MeOD- d_4) do composto (62).

Aurelio b-LAPSO3H-IMID UFRRJ



Espectro 45. Ampliação da região de hidrogênios alifáticos de espectro de correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, MeOD- d_4) do composto (62).

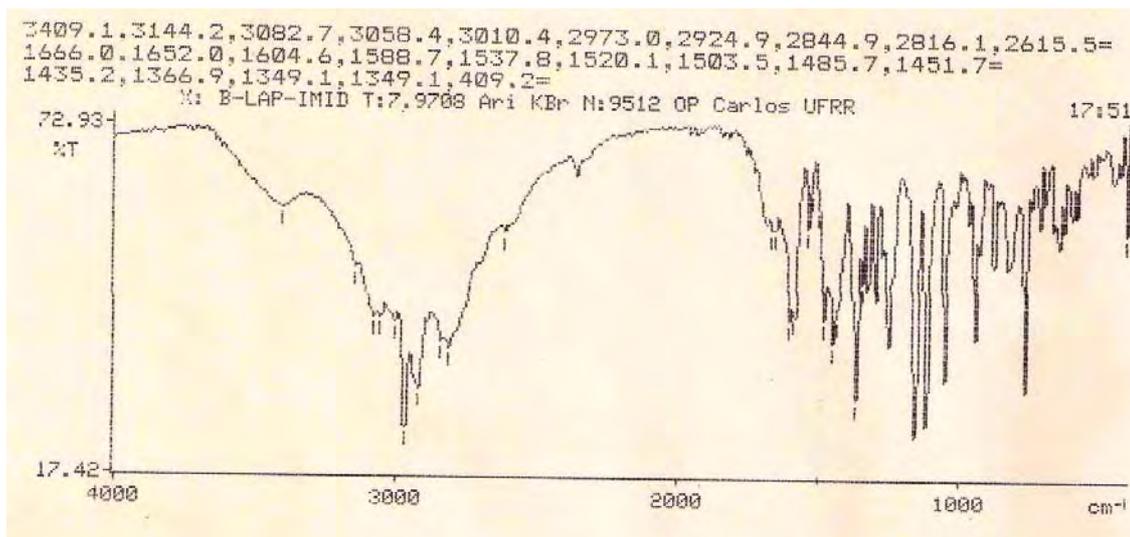
Aurelio b-LAPSO3H-IMID UFRRJ



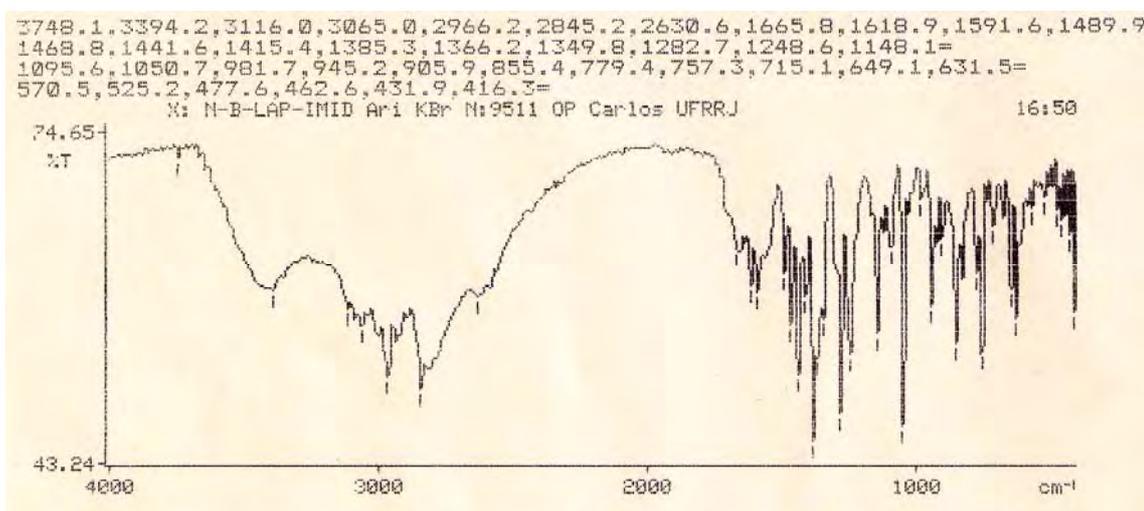
```

Current Data Parameters
NAME      urec10962437p
EXPNO    14
PROCNO    1
-----
F2 - Acquisition Parameters
Date_    20040923
Time     22.03
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  zgpg30pp
TD        1024
SOLVENT  MeCO
NS        32
DS        16
SWE       4761.905 Hz
FIDRES    4.650228 Hz
AQ        0.1075700 sec
RG         4086
DN         105.000 usec
DE         6.00 usec
TE         0.0 K
CNSF2     145.000000 sec
d0         0.0000000 sec
d1         1.5000000 sec
d4         0.00172414 sec
d11        0.0000000 sec
d13        0.00000400 sec
d16        0.00010000 sec
DELTA     0.0011200 sec
DELTA1    0.00071614 sec
ZHG       0.00002620 sec
HSCFST    0.0000000 sec
HSCFJK    0.30000001 sec
ST1CHT    128
-----
CHANNEL f1 -----
NUC1       1H
P1         8.00 usec
P2         14.00 usec
P28        2000.00 usec
PL1        -3.00 dB
SFO1       400.1519607 MHz
-----
CHANNEL f2 -----
CPDPRG2   garrp
NUC2       13C
P3         7.00 usec
P4         14.00 usec
PCPD2     70.00 usec
PL2        1.00 dB
PL12       21.00 dB
SFO2       100.6253021 MHz
-----
GRADIENT CHANNEL -----
GPMAN1    81MS.100
GPMAN2    81MS.100
GFX1      0.00 %
GFX2      0.00 %
GFY1      0.00 %
GFY2      0.00 %
GPI1      80.00 %
GPI2      20.12 %
PL6        1000.00 usec
-----
F1 - Acquisition parameters
NUC1       1H
TD         128
SFO1       400.6253 MHz
FIDRES     131.775681 Hz
SF         170.169 ppm
FNAME     Echo-Antiecho
-----
F2 - Processing parameters
SI         2048
SF         400.1500081 MHz
  
```

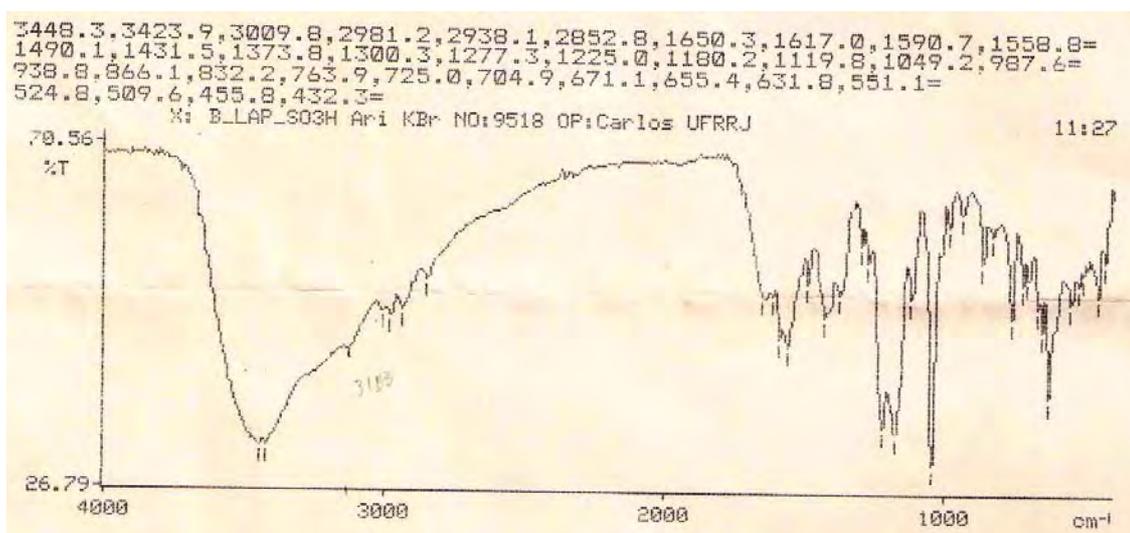
Espectro 46. Ampliação da região de hidrogênios aromáticos de espectro de correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, MeOD- d_4) do composto (62).



Espectro 47. Espectro de infravermelho do composto (60), pastilha de KBr.

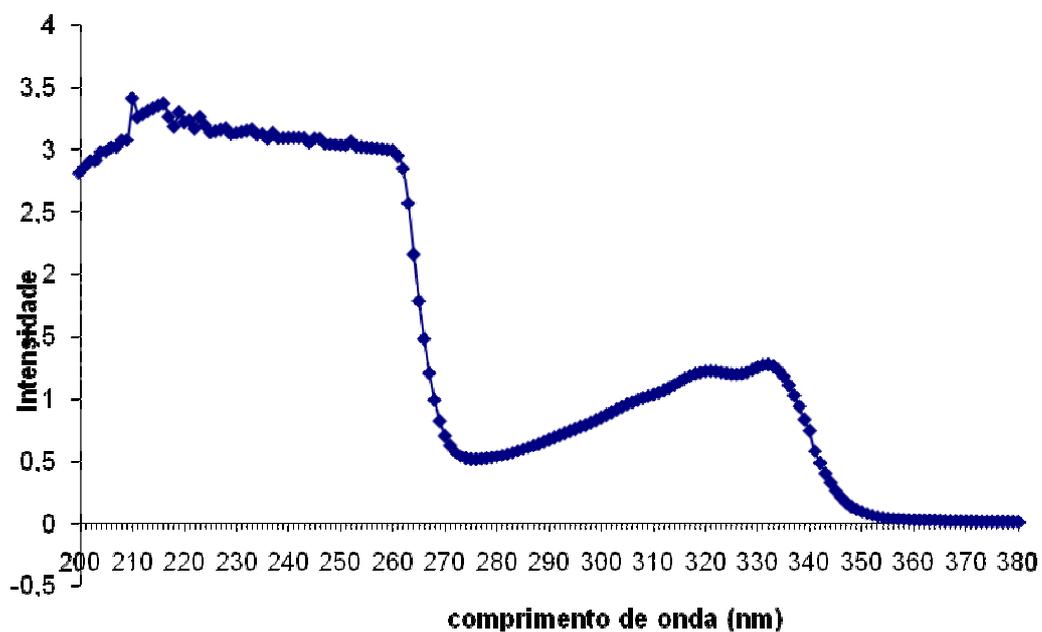


Espectro 48. Espectro de infravermelho do composto (61), pastilha de KBr.



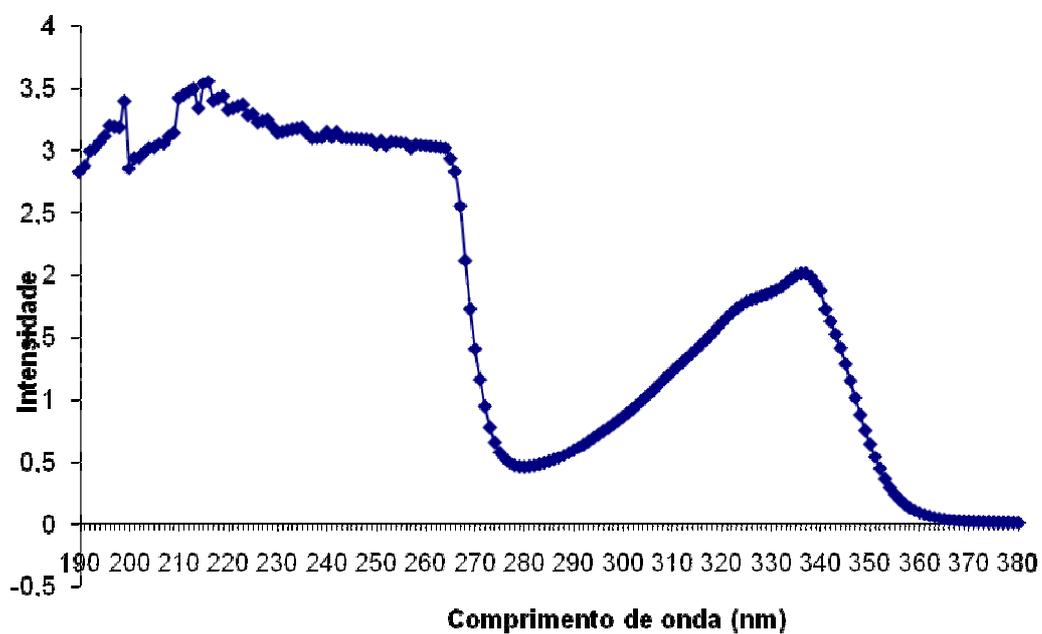
Espectro 49. Espectro de infravermelho do composto (62), pastilha de KBr.

Espectro de ultravioleta do b-lap-lmid



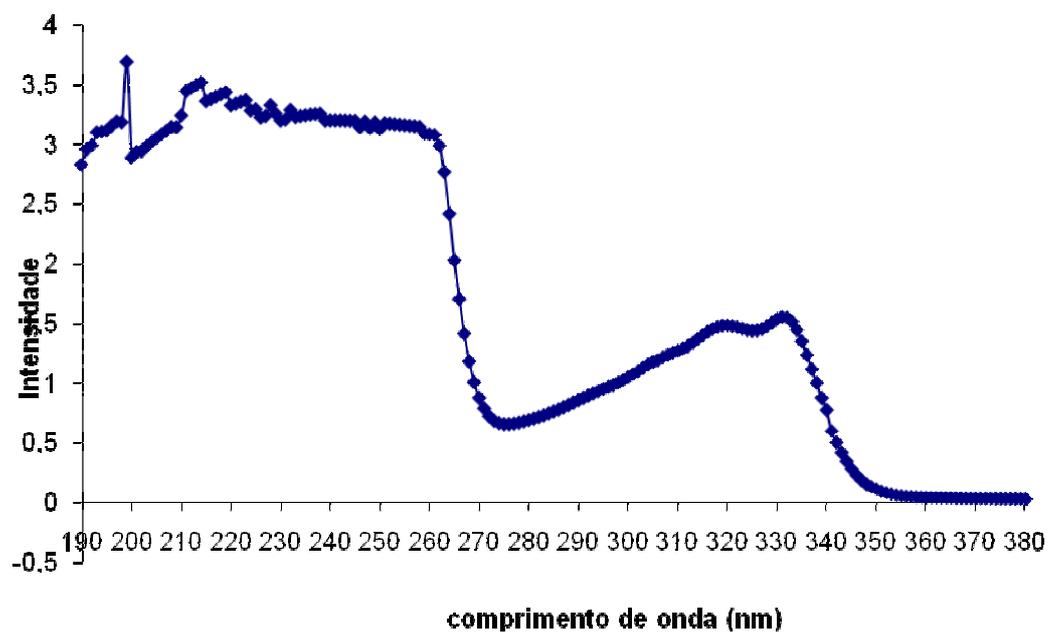
Espectro 50. Espectro de ultravioleta do composto (60) em CH₃CN.

Espectro de ultravioleta do n-b-lap-lmid

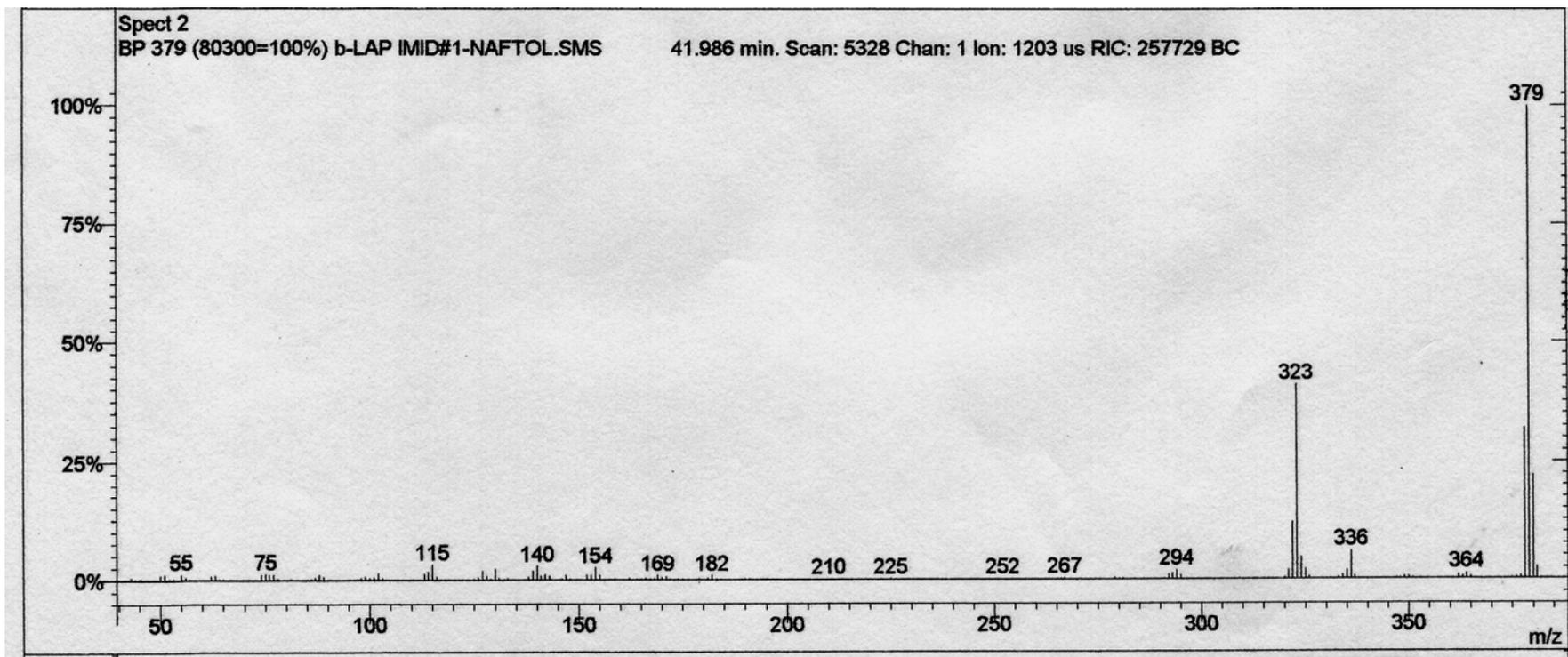


Espectro 51. Espectro de ultravioleta do composto (61) em CH₃CN.

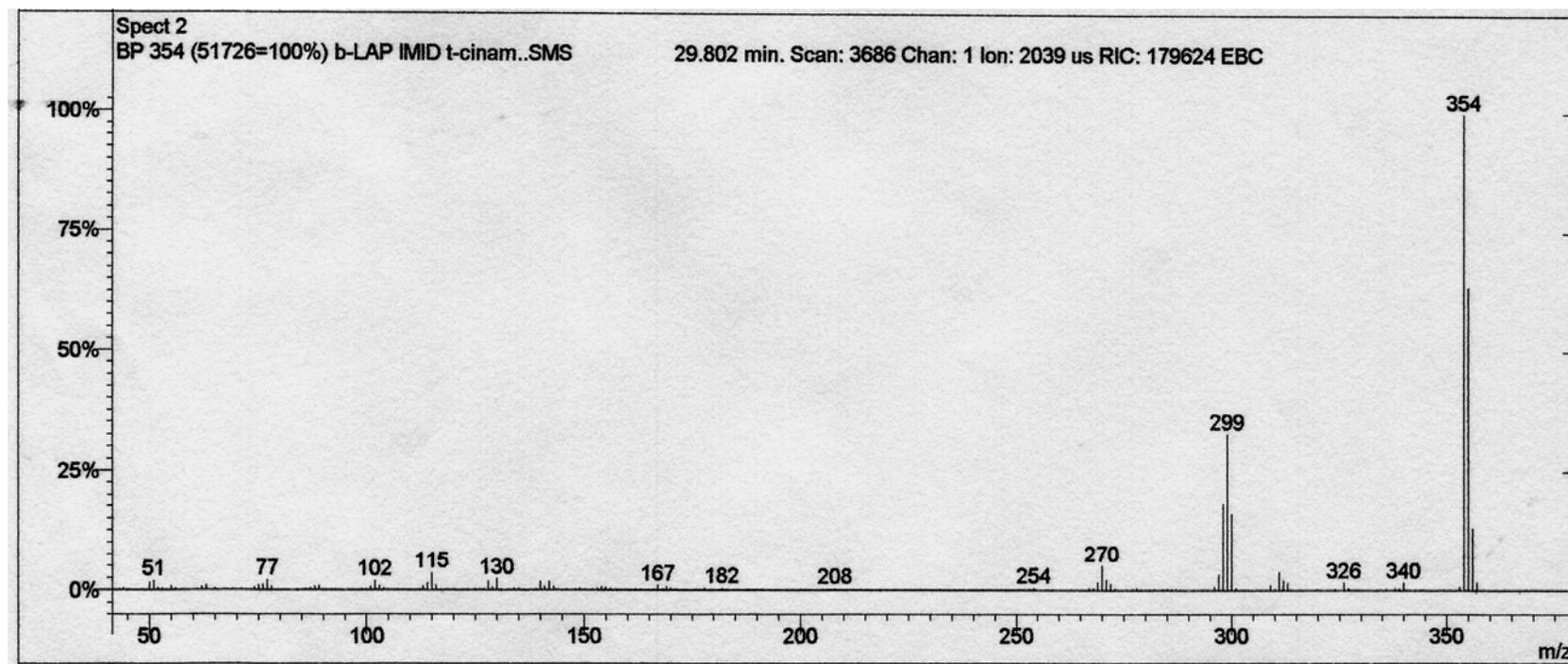
Espectro de ultravioleta do b-lap-SO₃H-Imid



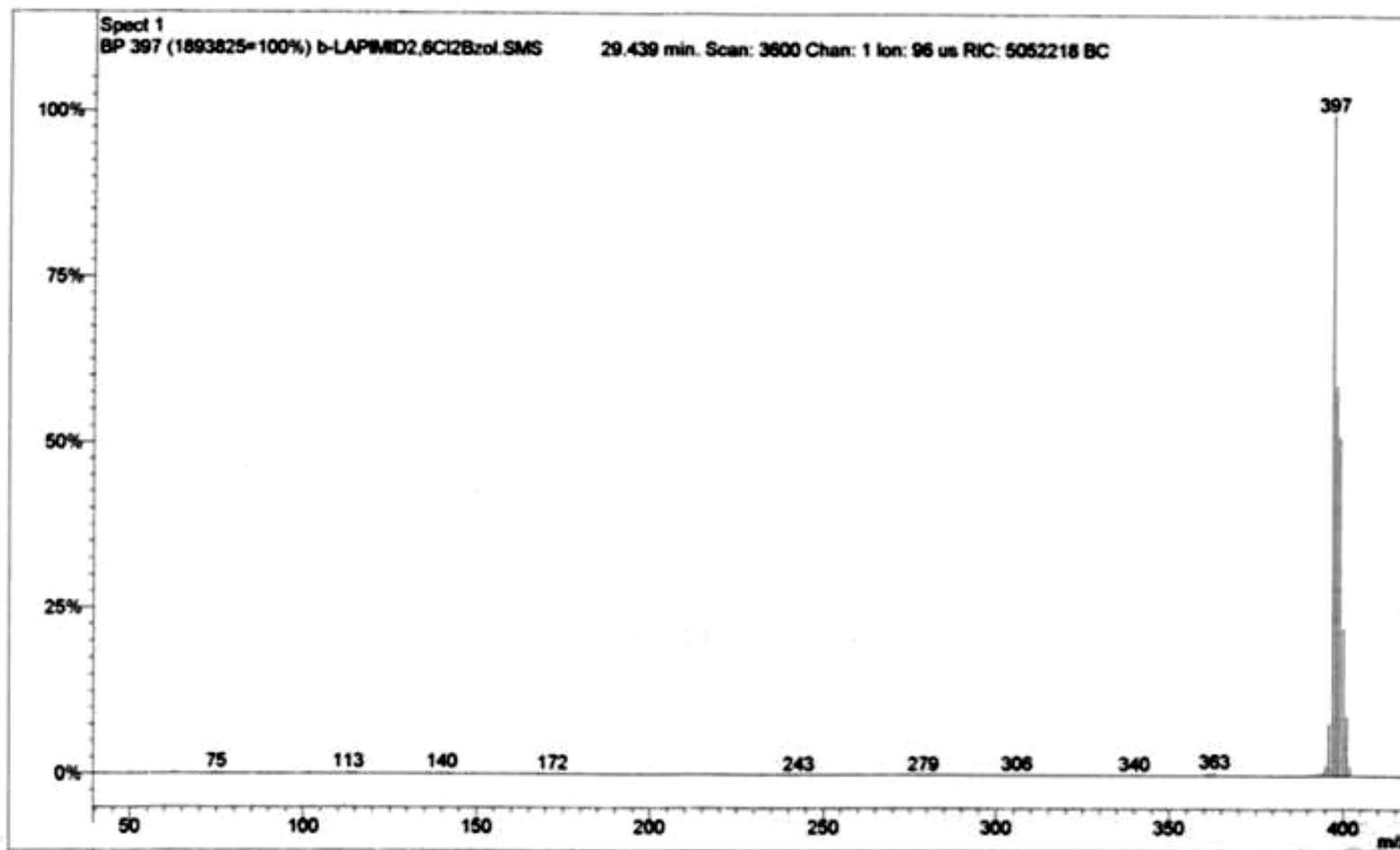
Espectro 52. Espectro de ultravioleta do composto (62) em CH₃CN.



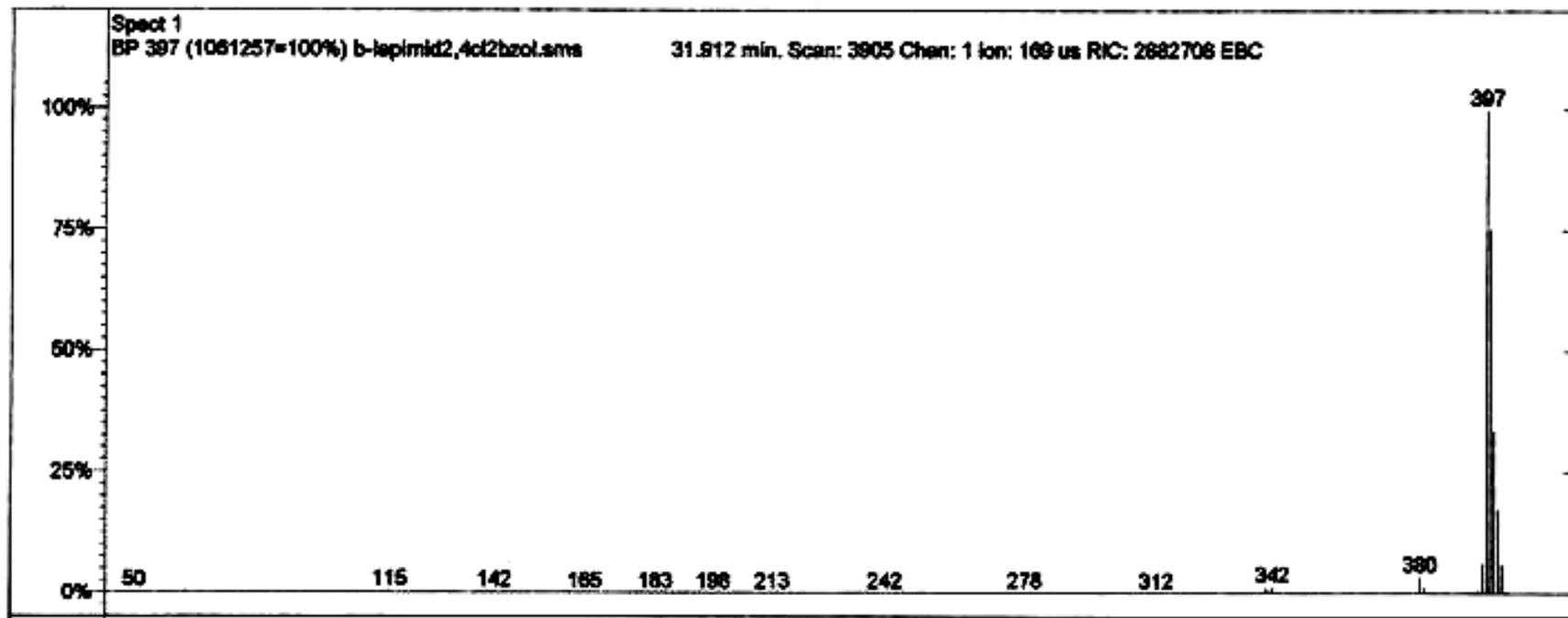
Espectro 53. EM do composto (63), ionização por impacto de elétrons.



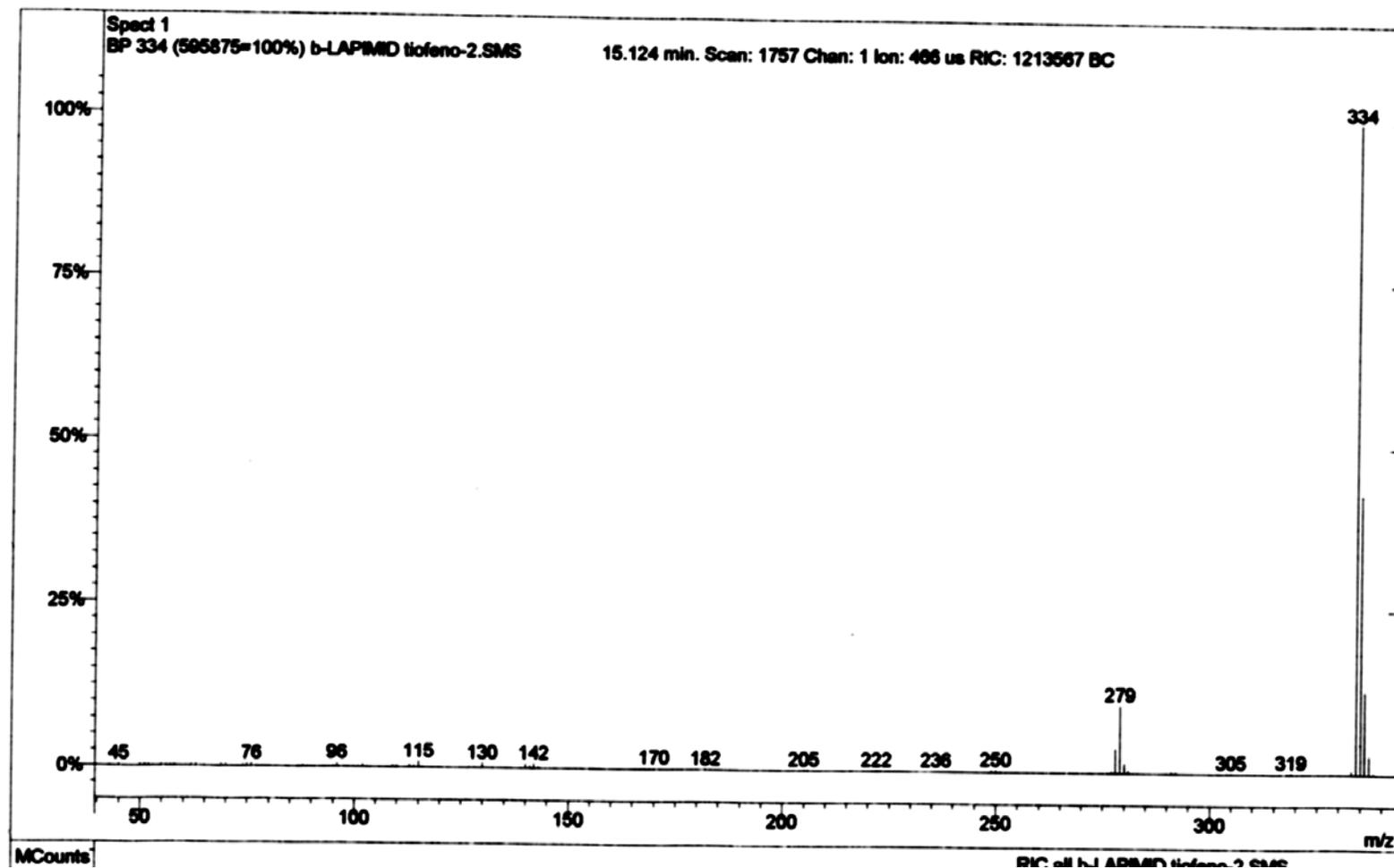
Espectro 54. EM do composto (65), ionização por impacto de elétrons.



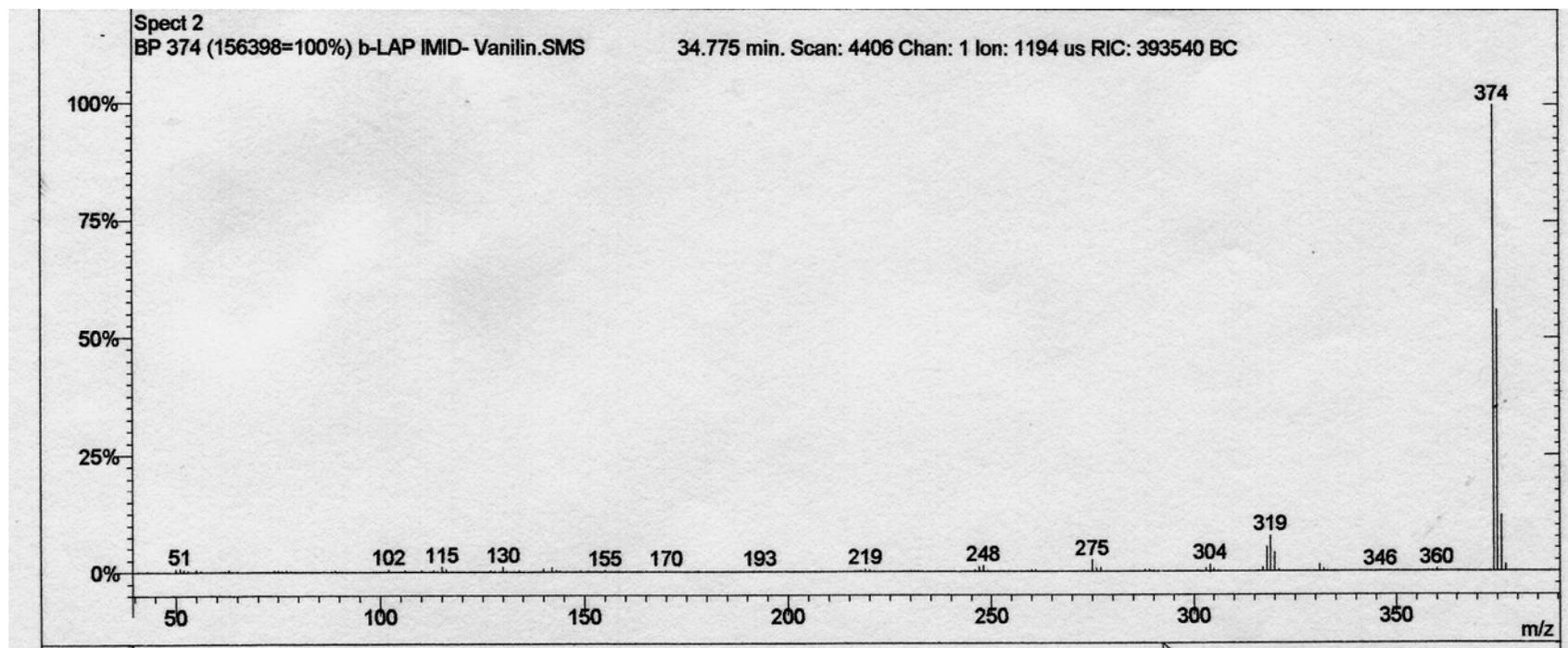
Espectro 55. EM do composto (**66**), ionização por impacto de elétrons.



Espectro 56. EM do composto (67), ionização por impacto de elétrons.

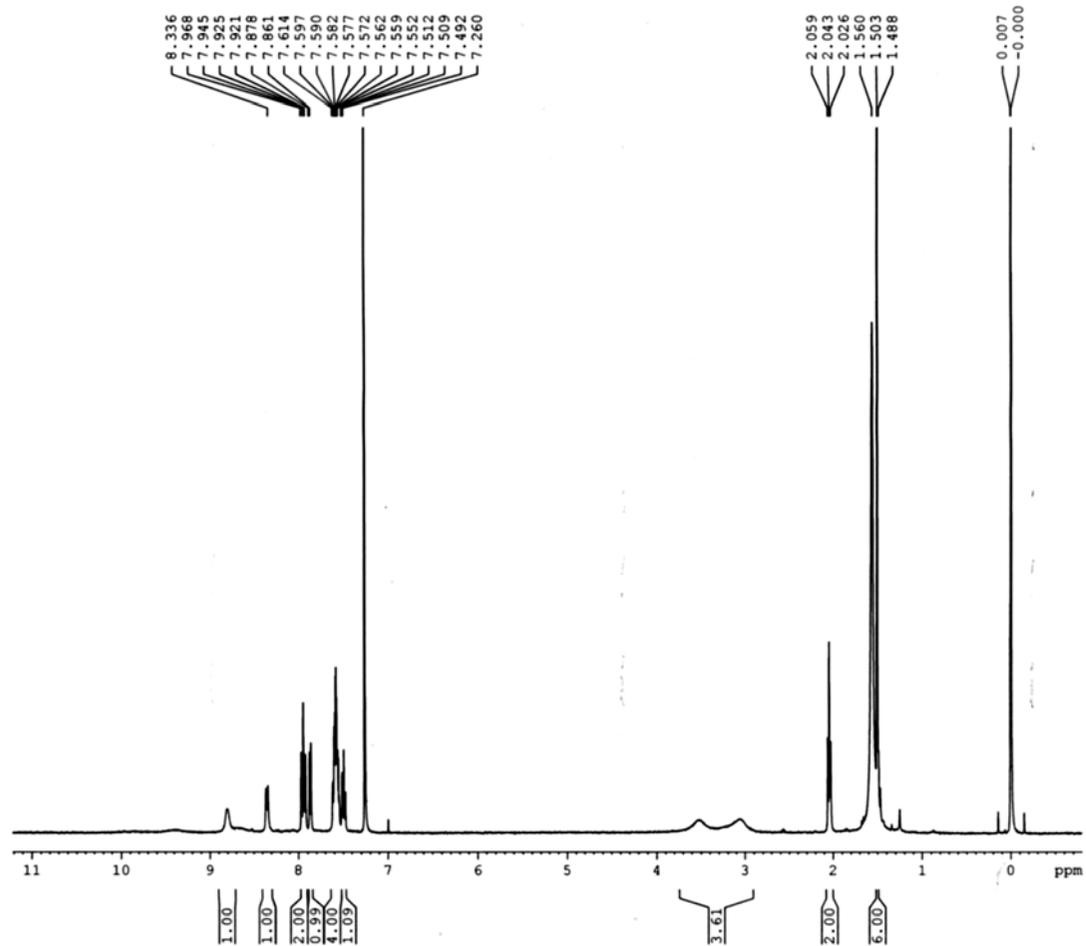


Espectro 57. EM do composto (68), ionização por impacto de elétrons.



Espectro 58. EM do composto (**69**), ionização por impacto de elétrons.

b-lap-imid-1 naftal - Ari
Op. Eliane



Current Data Parameters
NAME ufrj0570419
EXPNO 10
PROCNO 1

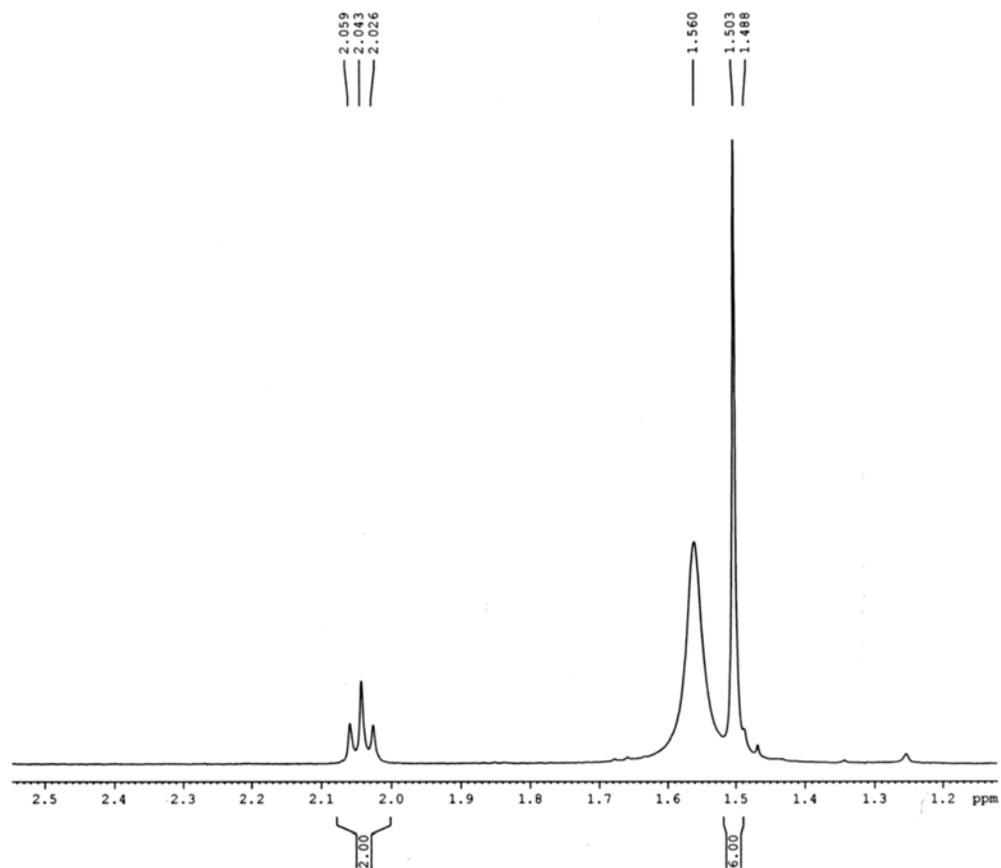
F2 - Acquisition Parameters
Date_ 20070604
Time 13.07
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 128
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 1935.3
DW 60.400 usec
DE 6.00 usec
TE 0.0 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 8.00 usec
PL1 -3.00 dB
SFO1 400.1524711 MHz

F2 - Processing parameters
SI 32768
SF 400.1500087 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Espectro 59. RMN ^1H (400 MHz, CDCl_3) do composto (63).

b-lap-imid-1 naftal - Ari
Op. Eliane



```
Current Data Parameters
NAME      ufrj0570419
EXPNO     10
PROCNO    1

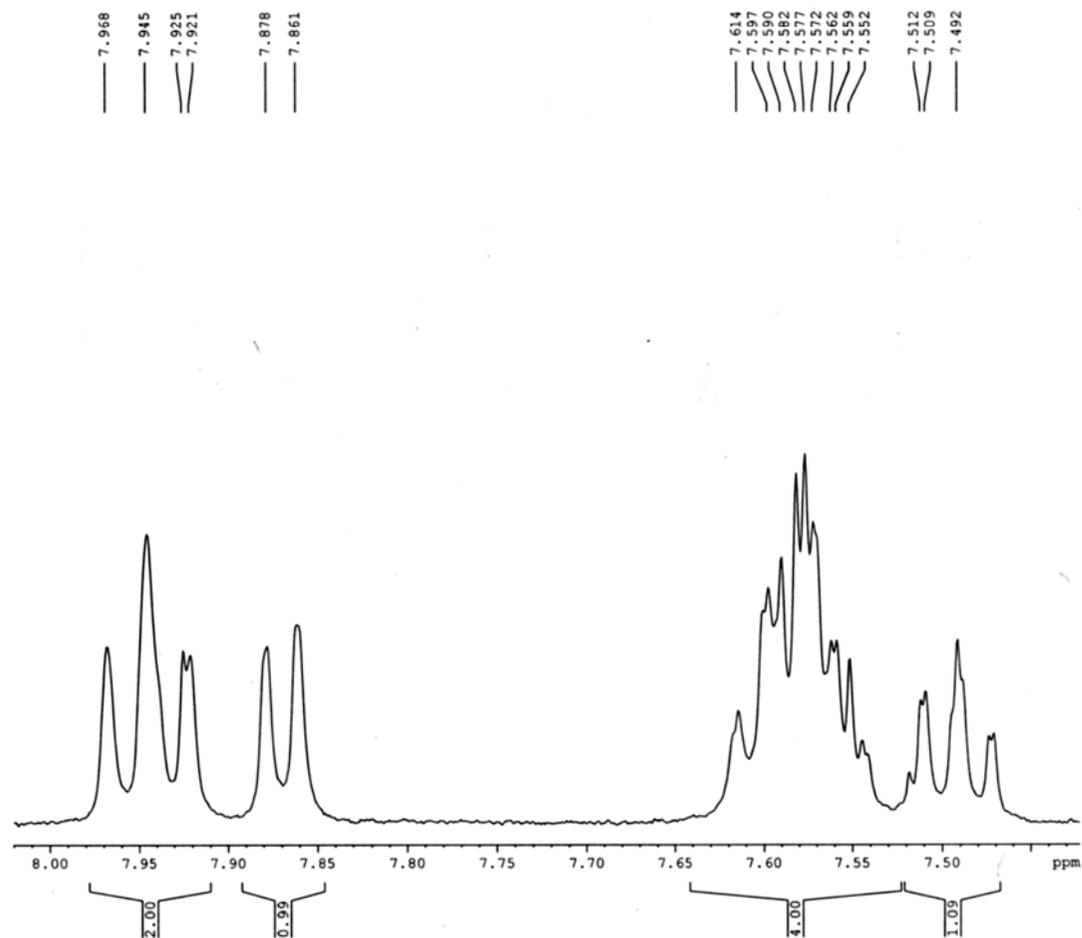
F2 - Acquisition Parameters
Date_     20070604
Time      13.07
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         128
DS         2
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         1935.3
DW         60.400 usec
DE         6.00 usec
TE         0.0 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1      1H
P1         8.00 usec
PL1       -3.00 dB
SFO1      400.1524711 MHz

F2 - Processing parameters
SI         32768
SF         400.1500087 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
```

Espectro 60. Ampliação da região de hidrogênios alifáticos do espectro de RMN ^1H (400 MHz, CDCl_3) do composto (**63**).

b-lap-imid-1 naftal - Ari
Op. Eliane



```
Current Data Parameters
NAME      ufr:0570419
EXPNO    10
PROCNO    1

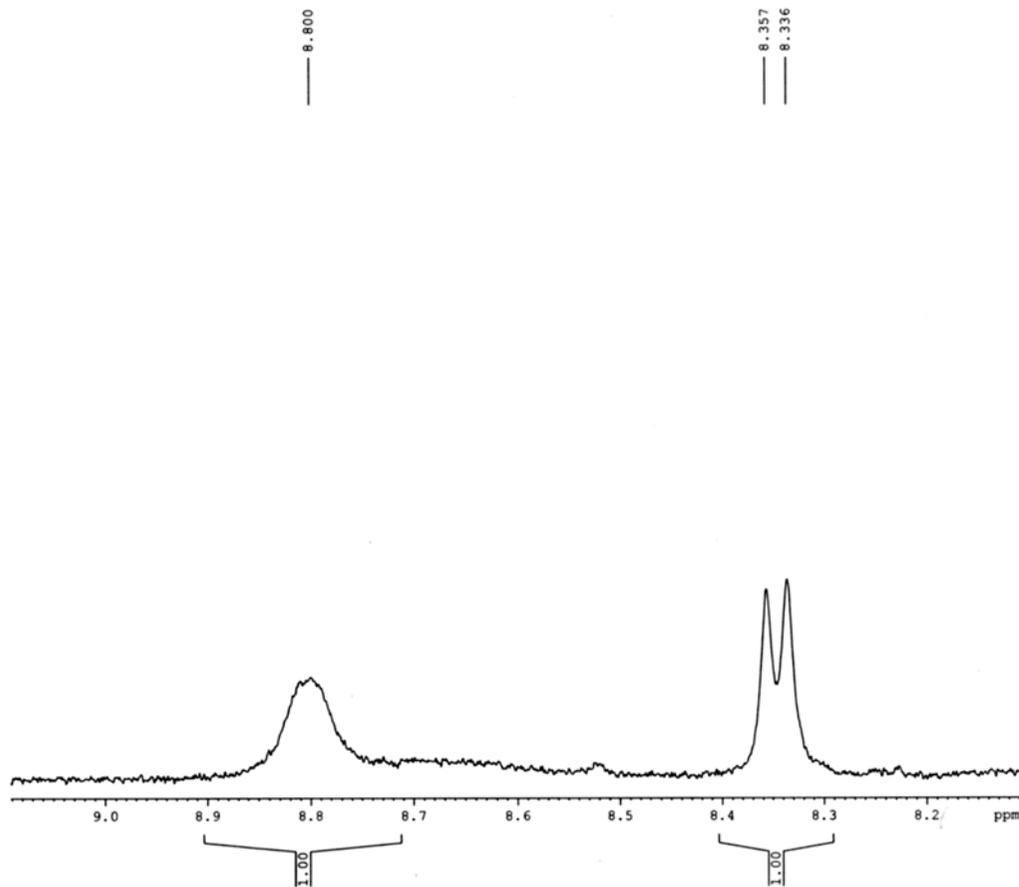
F2 - Acquisition Parameters
Date_     20070604
Time      13.07
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         128
DS         2
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         1935.3
DW         60.400 usec
DE         6.00 usec
TE         0.0 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1      1H
P1        8.00 usec
PL1       -3.00 dB
SF01      400.1524711 MHz

F2 - Processing parameters
SI        32768
SF        400.1500087 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
FC        1.00
```

Espectro 61. Ampliação da região de hidrogênios aromáticos do espectro de RMN ^1H (400 MHz, CDCl_3) do composto (**63**).

b-lap-imid-1 naftal - Ari
Op. Eliane



```
Current Data Parameters
NAME      ufrj0570419
EXPNO     10
PROCNO    1

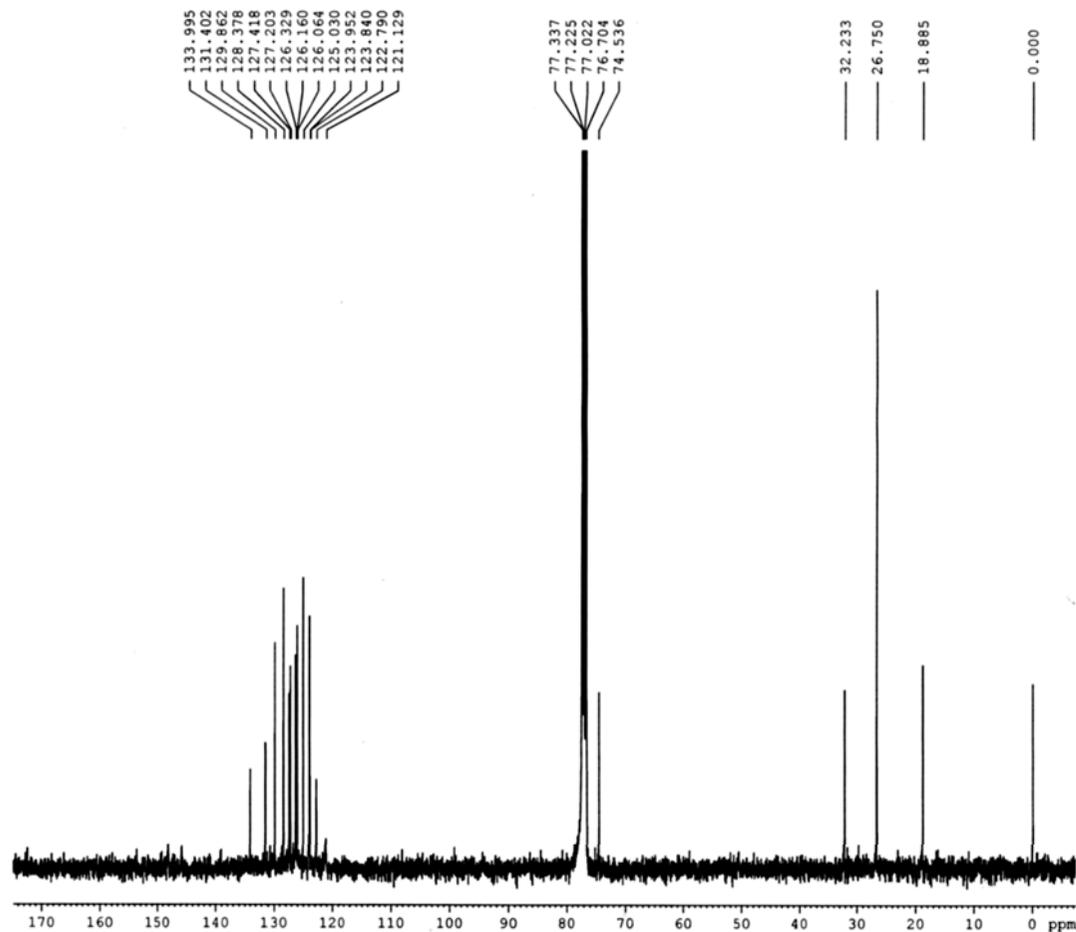
F2 - Acquisition Parameters
Date_     20070604
Time      13.07
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         128
DS         2
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         1935.3
DW         60.400 usec
DE         6.00 usec
TE         0.0 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1      1H
P1        8.00 usec
PL1       -3.00 dB
SFO1      400.1524711 MHz

F2 - Processing parameters
SI        32768
SF        400.1500087 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00
```

Espectro 62. Ampliação da região de hidrogênios aromáticos do espectro de RMN ^1H (400 MHz, CDCl_3) do composto (**63**).

b-lap-imid-1 naftal - Ari
Op. Eliane



Current Data Parameters
NAME ufrj0570419
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20070519
Time 14.32
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 65536
DS 0
SWH 23980.814 Hz
FIDRES 0.731836 Hz
AQ 0.6832628 sec
RG 16384
DW 20.850 usec
DE 6.00 usec
TE 0.0 K
D1 0.50000000 sec
d11 0.03000000 sec
DELTA 0.40000001 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

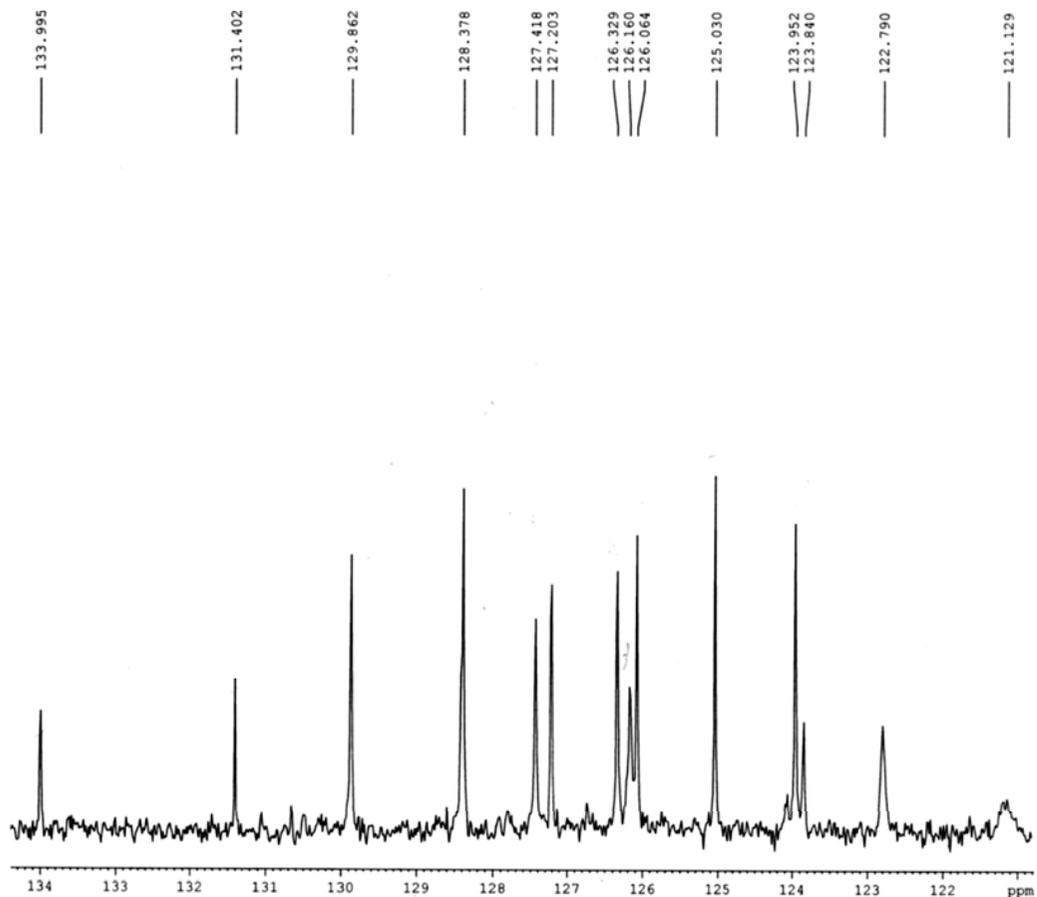
----- CHANNEL f1 -----
NUC1 13C
P1 7.00 usec
PL1 1.00 dB
SFO1 100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -4.00 dB
PL12 16.63 dB
PL13 16.63 dB
SFO2 400.1516006 MHz

F2 - Processing parameters
SI 16384
SF 100.6177966 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Espectro 63. RMN ^{13}C (100 MHz, CDCl_3) do composto (63).

b-lap-imid-1 naftal - Ari
Op. Eliane



```
Current Data Parameters
NAME      ufrj0570419
EXPNO     11
PROCNO    1

F2 - Acquisition Parameters
Date_     20070519
Time      14.32
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD         32768
SOLVENT   CDCl3
NS         65536
DS         0
SWH        23980.814 Hz
FIDRES     0.731836 Hz
AQ         0.6832628 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         0.0 K
D1         0.50000000 sec
d11        0.03000000 sec
DELTA      0.40000001 sec
MCREST     0.00000000 sec
MCWRK     0.01500000 sec

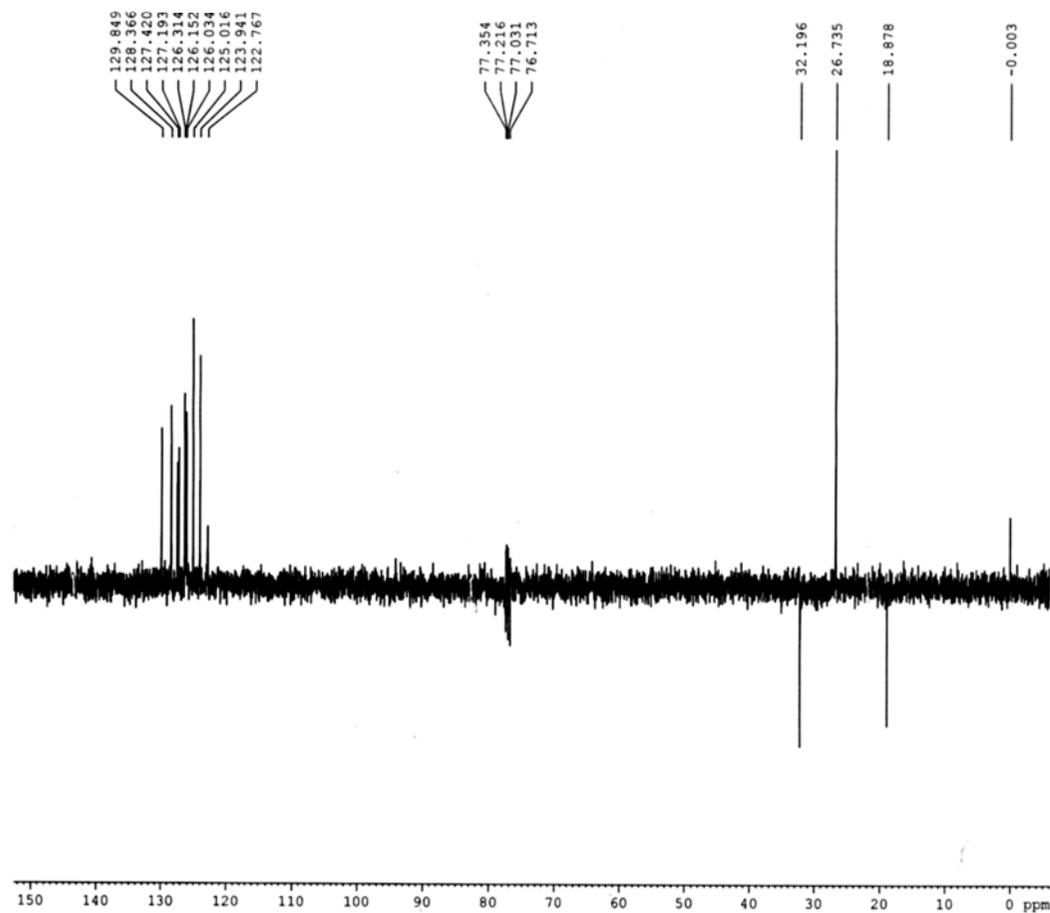
----- CHANNEL f1 -----
NUC1       13C
P1         7.00 usec
PL1        1.00 dB
SFO1       100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2    waltz16
NUC2       1H
PCPD2      100.00 usec
PL2        -4.00 dB
PL12       16.63 dB
PL13       16.63 dB
SFO2       400.1516006 MHz

F2 - Processing parameters
SI         16384
SF         100.6177966 MHz
WVW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
```

Espectro 64. Ampliação da região de hidrogênios aromáticos do espectro de RMN ^{13}C (100 MHz, CDCl_3) do composto (**63**).

b-lap-imid-1 naftal - Ari
Op. Eliane



Current Data Parameters
NAME ufrj0570419
EXPNO 12
PROCNO 1

F2 - Acquisition Parameters
Date_ 20070519
Time_ 20.45
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG dept135
TD 32768
SOLVENT CDC13
NS 8192
DS 4
SWH 23980.814 Hz
FIDRES 0.731836 Hz
AQ 0.6832628 sec
RG 16384
DW 20.850 usec
DE 6.00 usec
TE 0.0 K
CNST2 145.0000000
D1 2.00000000 sec
d2 0.00344828 sec
d12 0.00002000 sec
DELTA 0.00000891 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

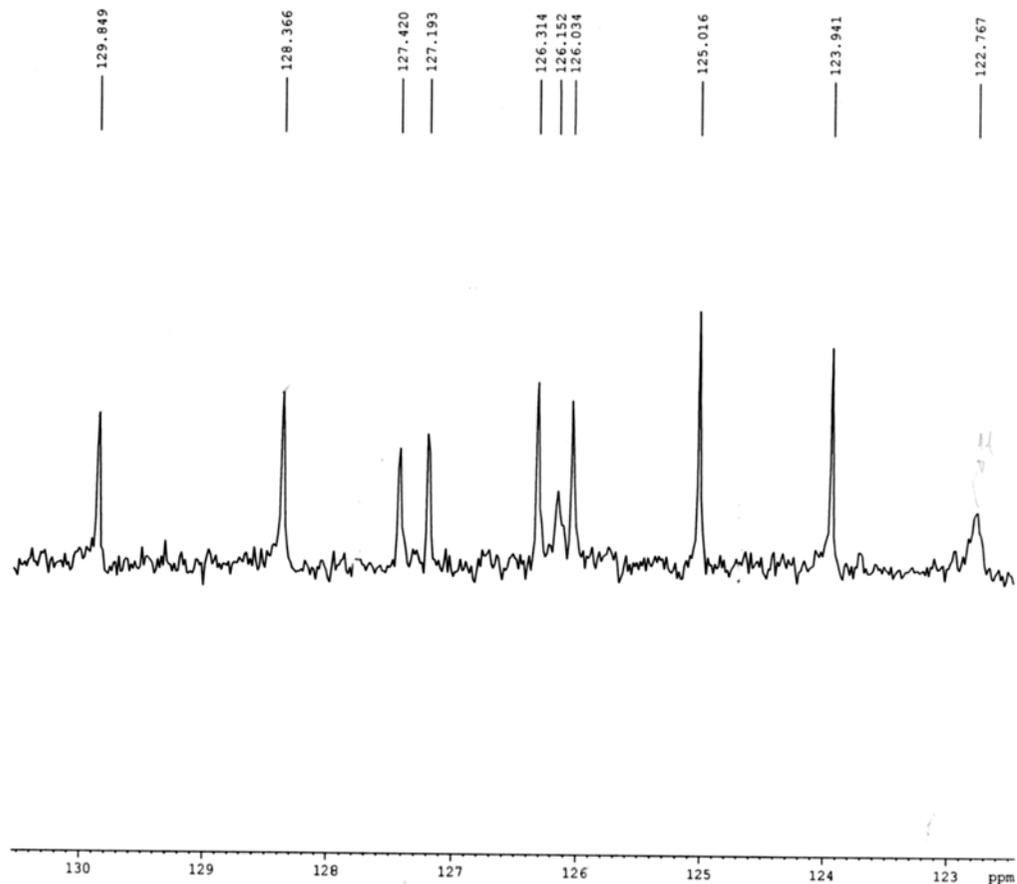
----- CHANNEL f1 -----
NUC1 13C
P1 7.00 usec
P2 14.00 usec
PL1 1.00 dB
SFO1 100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
P3 9.30 usec
P4 18.60 usec
PCPD2 100.00 usec
PL2 -4.00 dB
PL12 16.63 dB
SFO2 400.1516006 MHz

F2 - Processing parameters
SI 16384
SF 100.6177981 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Espectro 65. RMN $^{13}\text{C}_{(\text{DEPT})}$ (100 MHz, CDCl_3) do composto (63).

b-lap-imid-1 naftal - Ari
Op. Eliane



```

Current Data Parameters
NAME      ufrj0570419
EXPNO     12
PROCNO    1

F2 - Acquisition Parameters
Date_     20070519
Time      20.45
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   dept135
TD         32768
SOLVENT   CDCl3
NS         8192
DS         4
SWH       23980.814 Hz
FIDRES    0.731836 Hz
AQ         0.6832628 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         0.0 K
CNST2     145.0000000
D1         2.000000000 sec
d2         0.00344828 sec
d12        0.00002000 sec
DELTA     0.00000891 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1      13C
P1        7.00 usec
p2        14.00 usec
PL1       1.00 dB
SFO1     100.6278593 MHz

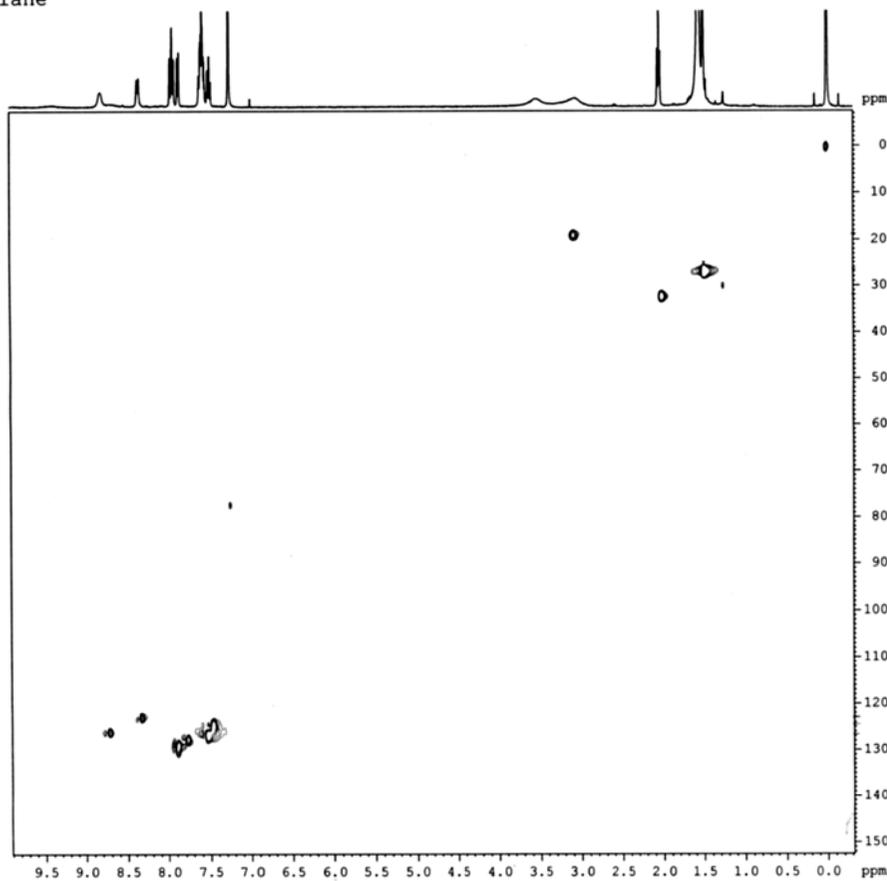
----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2      1H
F3        9.30 usec
p4        18.60 usec
PCPD2     100.00 usec
PL2       -4.00 dB
PL12      16.63 dB
SFO2     400.1516006 MHz

F2 - Processing parameters
SI        16384
SF        100.6177981 MHz
WDM       EM
SSB       0
LB        1.00 Hz
GB        0
PC        1.40

```

Espectro 66. Ampliação da região de hidrogênios aromáticos do espectro de RMN $^{13}\text{C}_{(\text{DEPT})}$ (100 MHz, CDCl_3) do composto (**63**).

b-lap-imid-1 naftol - Ari
Op. Eliane



```

Current Data Parameters
NAME      ufrj0570419
EXPRNO   14
PROCNO    1

F2 - Acquisition Parameters
Date_    20070519
Time_    21.46
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  hsqcetgp
TD       1024
SOLVENT  CDCl3
NS       16
DS       16
SWH      5995.204 Hz
FIDRES   5.854691 Hz
AQ       0.0854516 sec
RG       4096
EW       83.400 usec
DE       6.00 usec
TE       0.0 K
CNST2    145.0000000
d0        0.0000300 sec
d1        1.50000000 sec
d4        0.00172414 sec
d11       0.03000000 sec
d13       0.00000400 sec
D14       0.00010000 sec
DELTA     0.00112200 sec
DELTA1    0.00071614 sec
INO       0.00002485 sec
MCHREST   0.00000000 sec
MCHRES    0.30000001 sec
STICHT    128

----- CHANNEL f1 -----
NUC1      1H
P1        8.00 usec
P2        16.00 usec
P28       2000.00 usec
PL1       -3.00 dB
SFO1      400.1527210 MHz

----- CHANNEL f2 -----
CPDPRG2   gqip
NUC2      13C
P3         7.00 usec
P4         14.00 usec
PCPD2     70.00 usec
PL2        1.00 dB
PL12       21.00 dB
SFO2      100.6268536 MHz

----- GRADIENT CHANNEL -----
GPNAM1    SINE.100
GPNAM2    SINE.100
GFX1      0.00 %
GFX2      0.00 %
GFY1      0.00 %
GFY2      0.00 %
GPE1      80.00 %
GPE2      20.12 %
P16       1000.00 usec

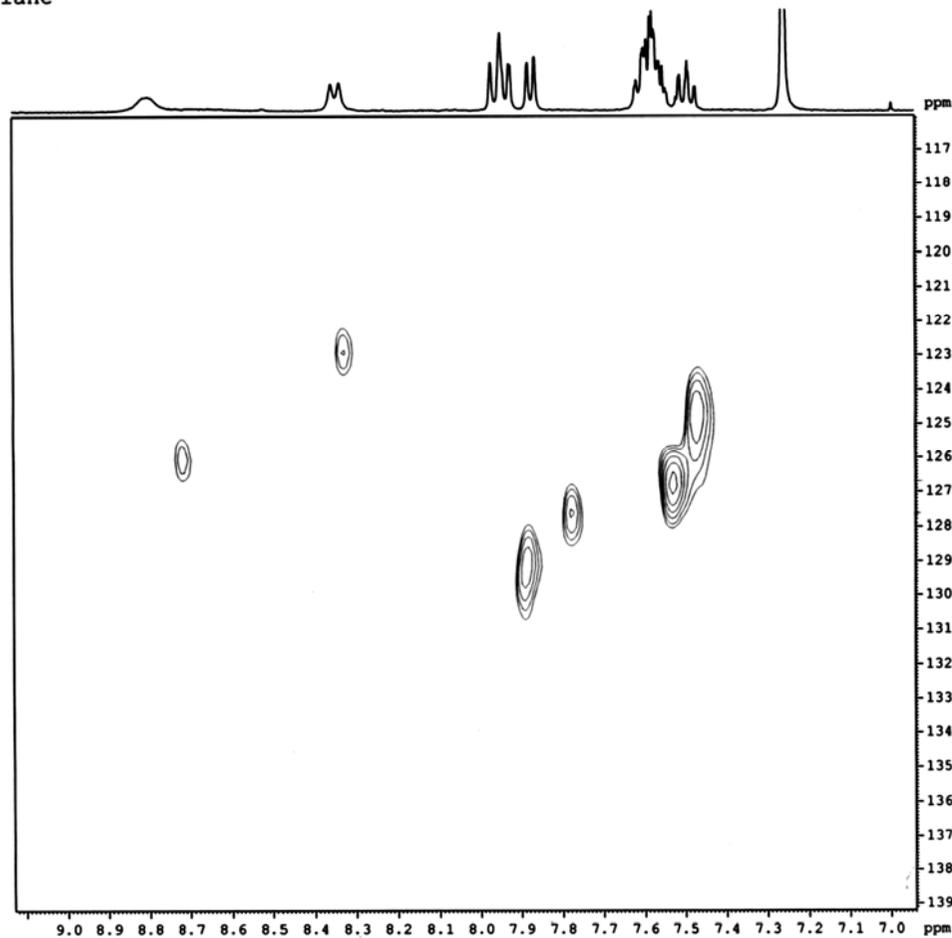
F1 - Acquisition parameters
ND0        2
TD         128
SFO1      100.62689 MHz
FIDRES     157.193161 Hz
SW         199.954 ppm
F2MODE     Echo-Antiecho

F2 - Processing parameters
SI         2048
SF         400.1500079 MHz
WDW        QSINE
SSB        2
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
SI         512
MC2        echo-antiecho
SF         100.6178532 MHz
WDW        QSINE
SSB        2
LB         0.00 Hz
GB         0
  
```

Espectro 67. Correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, CDCl_3) do composto (63).

b-lap-imid-1 naftol - Ari
Op. Eliane



```

Current Data Parameters
NAME      uffrj0570419
EXPNO    14
PROCNO    1

F2 - Acquisition Parameters
Date_     20070519
Time      21.46
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   hsqcetgp
TD        1024
SOLVENT   CDCl3
NS         16
DS         16
SWH        5995.204 Hz
FIDRES    5.854691 Hz
AQ         0.0854516 sec
RG         4096
DW         83.400 usec
DE         6.00 usec
TE         0.0 K
CHST2     145.0000000
d0         0.00000300 sec
D1         1.50000000 sec
d4         0.00172414 sec
d11        0.03000000 sec
d13        0.00000400 sec
D16        0.00010000 sec
DELTA     0.00112200 sec
DELTA1    0.00071614 sec
INO       0.00002485 sec
MCREST    0.00000000 sec
MCRMSE    0.30000001 sec
STICHT    128

----- CHANNEL f1 -----
NUC1       1H
P1         9.00 usec
P2         14.00 usec
P28        2000.00 usec
PL1        -3.00 dB
SFO1       400.1527210 MHz

----- CHANNEL f2 -----
CPDPRG2   garrp
NUC2       13C
P3         7.00 usec
P4         14.00 usec
PCPD2     70.00 usec
PL2        1.00 dB
PL12       21.00 dB
SFO2       100.6268536 MHz

----- GRADIENT CHANNEL -----
GPRAM1    SINE.100
GPRAM2    SINE.100
GPI1      0.00 %
GPI2      0.00 %
GPI3      0.00 %
GPI4      0.00 %
GPI5      0.00 %
GPI6      0.00 %
GPI7      0.00 %
GPI8      0.00 %
GPI9      0.00 %
GPI10     0.00 %
GPI11     0.00 %
GPI12     0.00 %
GPI13     0.00 %
GPI14     0.00 %
GPI15     0.00 %
GPI16     0.00 %
GPI17     0.00 %
GPI18     0.00 %
GPI19     0.00 %
GPI20     0.00 %
GPI21     0.00 %
GPI22     0.00 %
GPI23     0.00 %
GPI24     0.00 %
GPI25     0.00 %
GPI26     0.00 %
GPI27     0.00 %
GPI28     0.00 %
GPI29     0.00 %
GPI30     0.00 %
GPI31     0.00 %
GPI32     0.00 %
GPI33     0.00 %
GPI34     0.00 %
GPI35     0.00 %
GPI36     0.00 %
GPI37     0.00 %
GPI38     0.00 %
GPI39     0.00 %
GPI40     0.00 %
GPI41     0.00 %
GPI42     0.00 %
GPI43     0.00 %
GPI44     0.00 %
GPI45     0.00 %
GPI46     0.00 %
GPI47     0.00 %
GPI48     0.00 %
GPI49     0.00 %
GPI50     0.00 %

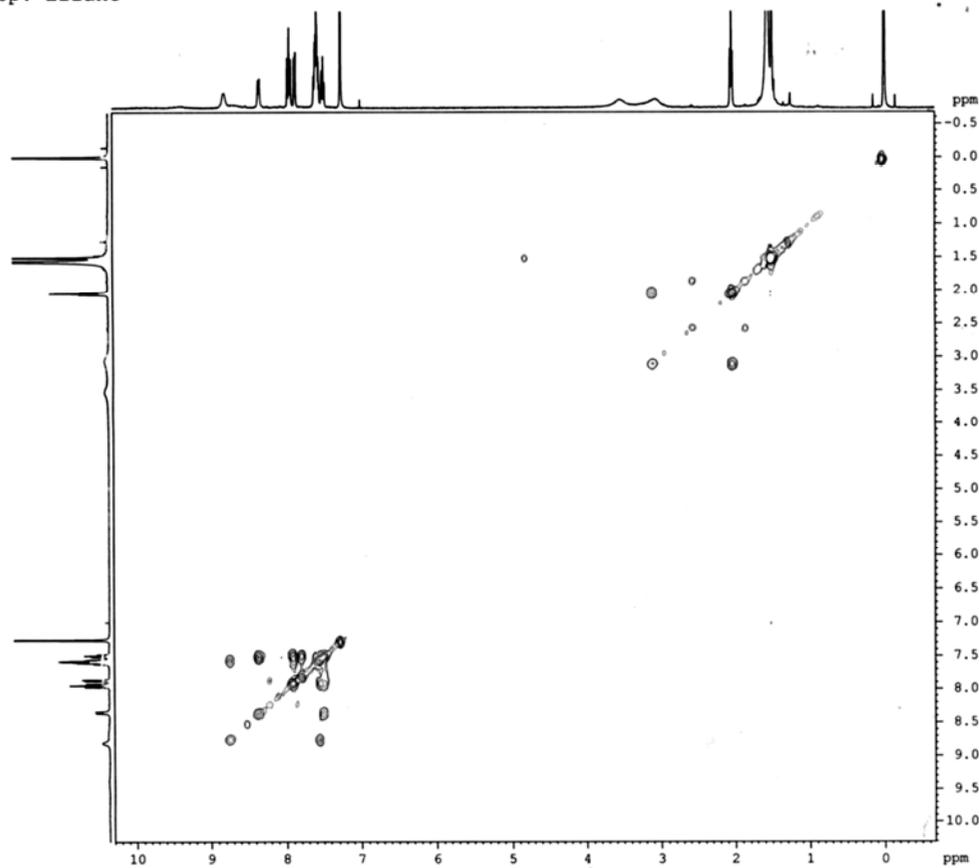
F1 - Acquisition parameters
NUC1       1H
TD         2
SFO1       400.1527210 MHz
FIDRES    157.193141 Hz
SW         199.954 ppm
FMODE     Echo-Antiecho

F2 - Processing parameters
SI         2048
SF         400.1500079 MHz
WDW        QSINE
SSB        2
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
SI         512
NUC2       13C
SF         100.6178532 MHz
WDW        QSINE
SSB        2
LB         0.00 Hz
GB         0
  
```

Espectro 68. Ampliação da região de hidrogênios aromáticos do espectro de correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, CDCl_3) do composto (63).

b-lap-imid-1 naftol - Ari
Op. Eliane



```

Current Data Parameters
NAME      ufrj0570419
EXPNO     13
PROCNO    1

F2 - Acquisition Parameters
Date_     20070519
Time      20.46
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   cosygpgqf
TD         2048
SOLVENT   CDCl3
NS         16
DS         8
SWH        4401.409 Hz
FIDRES     2.149125 Hz
AQ         0.2327028 sec
RG         1290.2
DW         113.600 usec
DE         6.00 usec
TE         0.0 K
d0         0.00000300 sec
D1         1.48689198 sec
d13        0.00000400 sec
D16        0.00010000 sec
IN0        0.00022719 sec
MCREST     0.00000000 sec
MCWRK     1.48689198 sec

----- CHANNEL f1 -----
NUC1       1H
FO         8.00 usec
P1         8.00 usec
PL1        -3.00 dB
SFO1       400.1519207 MHz

----- GRADIENT CHANNEL -----
GPNAM1     SINE.100
GPNAM2     SINE.100
GFX1       0.00 %
GFX2       0.00 %
GPY1       0.00 %
GPY2       0.00 %
GPZ1       10.00 %
GPZ2       10.00 %
P16        1000.00 usec

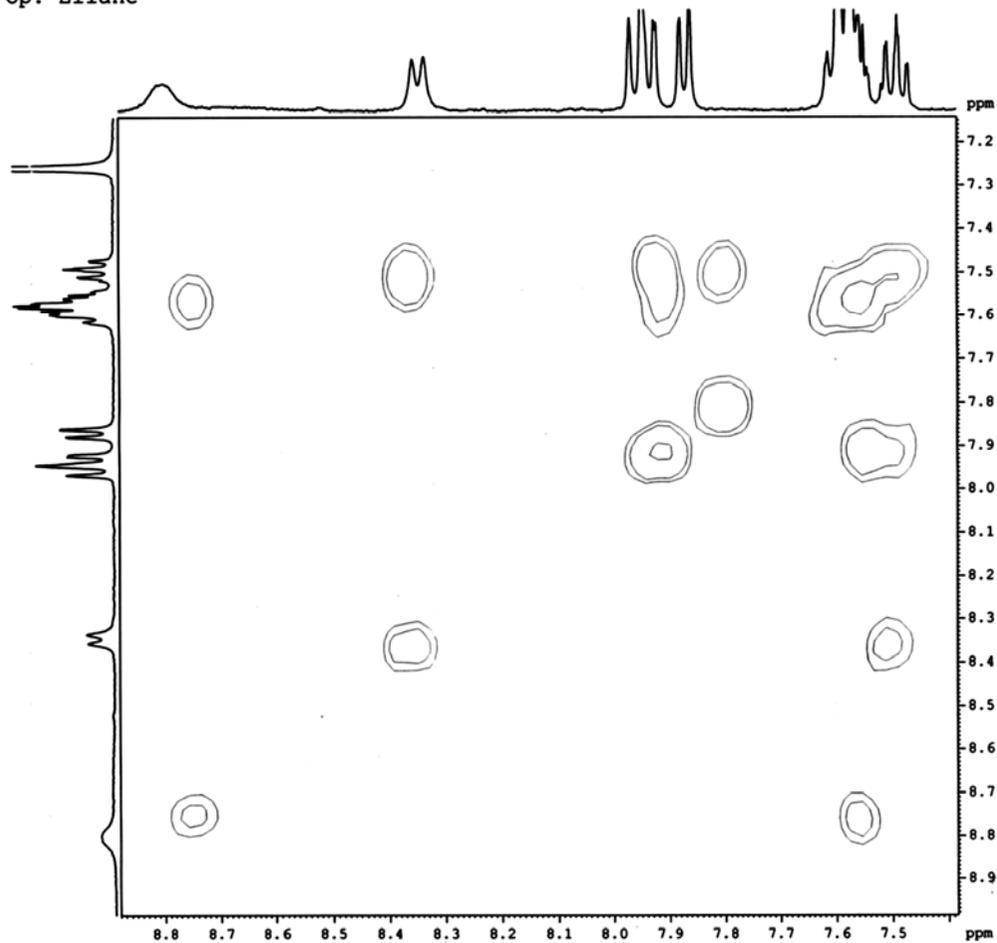
F1 - Acquisition parameters
NDO        1
TD         128
SFO1       400.1519 MHz
FIDRES     34.387894 Hz
SW         11.000 ppm
FhMODE     QF

F2 - Processing parameters
SI         512
SF         400.1499986 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
SI         512
MC2        QF
SF         400.1499975 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
  
```

Espectro 69. Correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, CDCl_3) do composto (**63**).

b-lap-imid-1 naftol - Ari
Op. Eliane



```

Current Data Parameters
NAME      ufrj0570419
EXPNO     13
PROCNO    1

F2 - Acquisition Parameters
Date_     20070519
Time      20.46
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   cosyppqf
TD         2048
SOLVENT   CDCl3
NS         16
DS         8
SWH        4401.409 Hz
FIDRES     2.149125 Hz
AQ         0.2327028 sec
RG         1290.2
DM         113.600 usec
DE         6.00 usec
TE         0.0 K
d0         0.00300300 sec
d1         1.48689198 sec
d13        0.00000400 sec
d16        0.00010000 sec
INO        0.00022719 sec
MCREST     0.00000000 sec
MCWRK     1.48689198 sec

----- CHANNEL f1 -----
NUC1       1H
P0         8.00 usec
P1         8.00 usec
PL1        -3.00 dB
SFO1       400.1519207 MHz

----- GRADIENT CHANNEL -----
GPNAM1     SINE.100
GPNAM2     SINE.100
GPX1       0.00 %
GPX2       0.00 %
GPY1       0.00 %
GPY2       0.00 %
GPZ1       10.00 %
GPZ2       10.00 %
P16        1000.00 usec

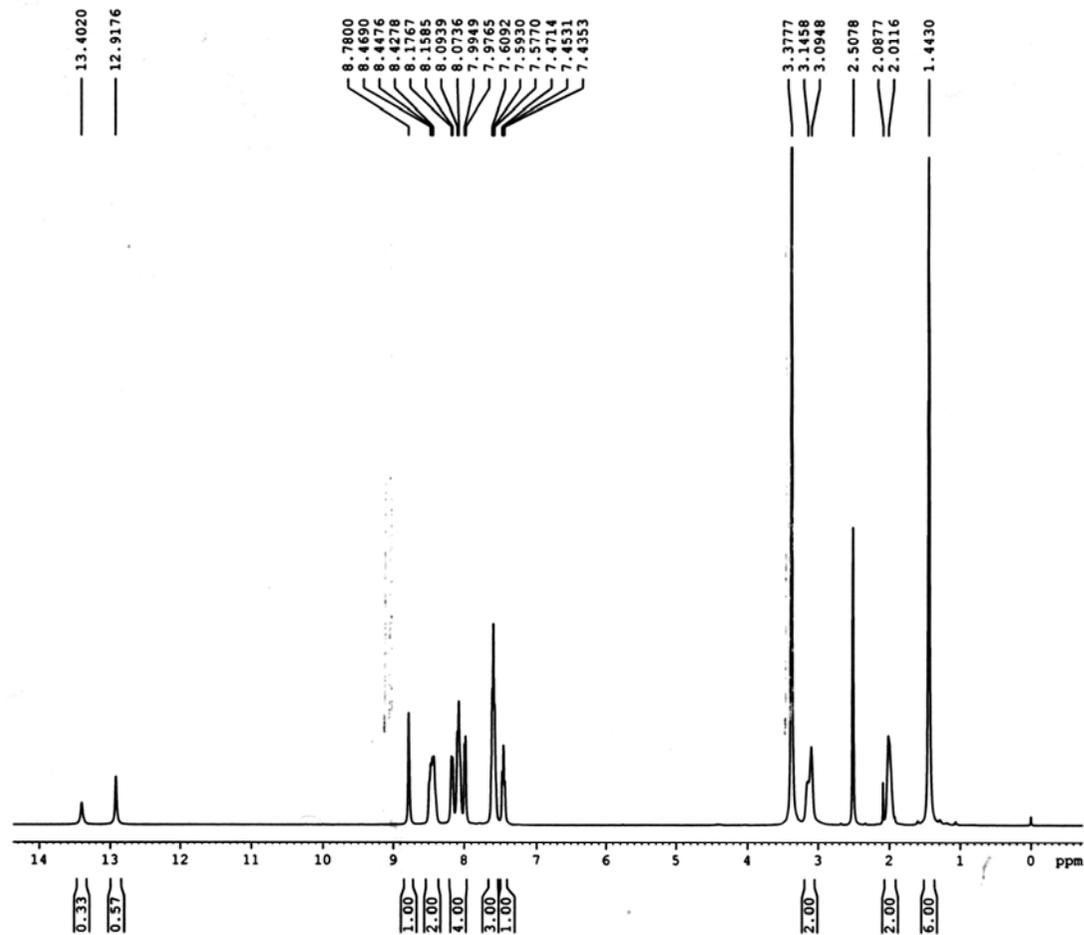
F1 - Acquisition parameters
NDO        1
TD         128
SFO1       400.1519 MHz
FIDRES     34.387894 Hz
SW         11.000 ppm
FnMODE     QF

F2 - Processing parameters
SI         512
SF         400.1499986 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
SI         512
MC2        QF
SF         400.1499975 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
  
```

Espectro 70. Ampliação da região de hidrogênios aromáticos do espectro de correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, CDCl_3) do composto (63).

BLi / 2-naftal - Aurelio
Op. Eliane



Current Data Parameters
NAME ufrj0580485
EXPNO 10
PROCNO 1

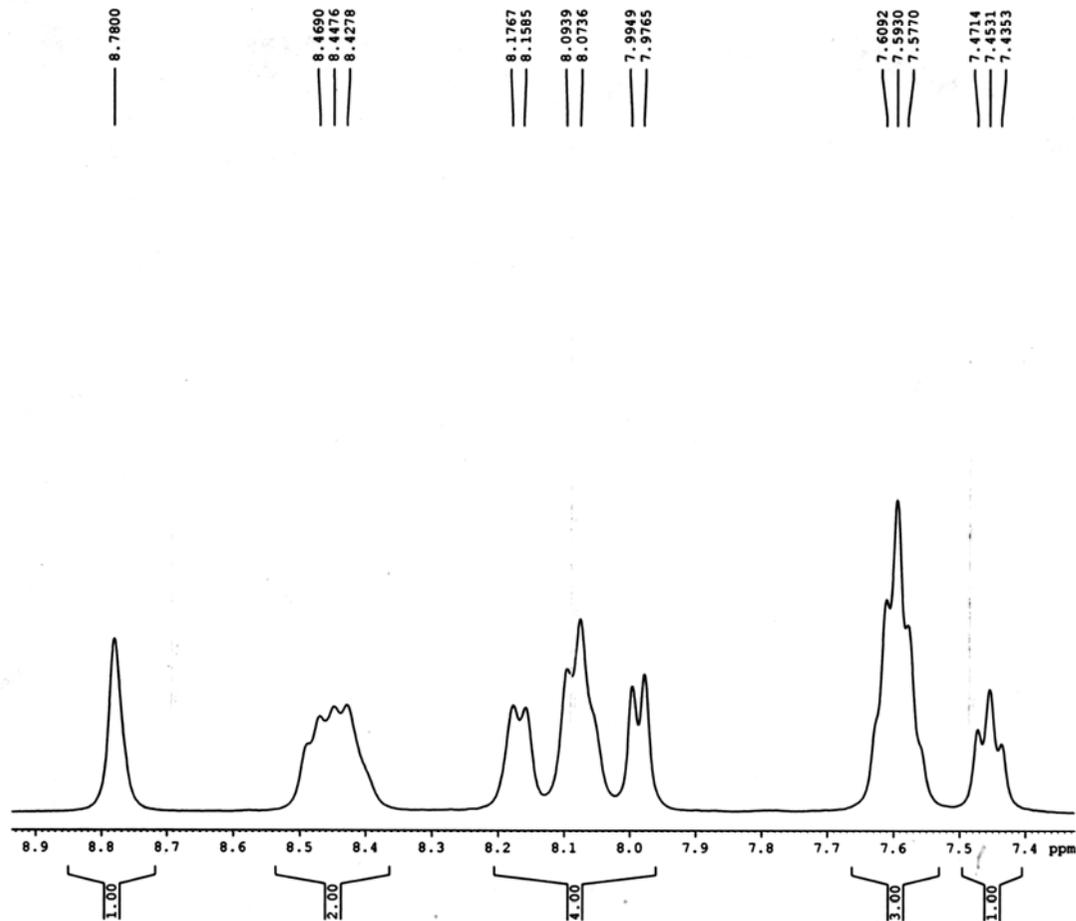
F2 - Acquisition Parameters
Date_ 20080523
Time 8.02
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT DMSO
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 128
DW 60.400 usec
DE 6.00 usec
TE 0.0 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 12.25 usec
PL1 -3.00 dB
SFO1 400.1524711 MHz

F2 - Processing parameters
SI 32768
SF 400.1499989 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Espectro 71. RMN ¹H (400 MHz, DMSO-*d*₆) do composto (64).

BLi / 2-naftal - Aurelio
Op. Eliane



```
Current Data Parameters
NAME      ufrj0580485
EXPNO     10
PROCNO    1

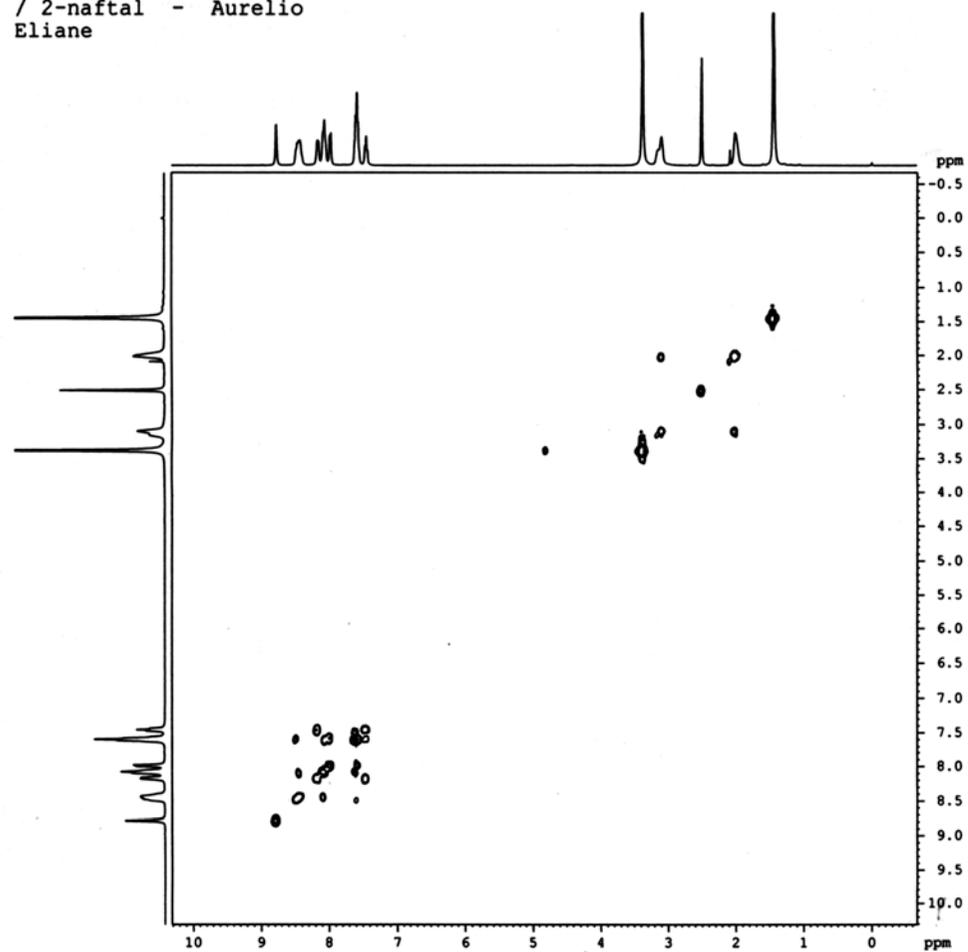
F2 - Acquisition Parameters
Date_     20080523
Time      8.02
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zg30
TD         65536
SOLVENT   DMSO
NS         16
DS         2
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         128
DW         60.400 usec
DE         6.00 usec
TE         0.0 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1      1H
P1        12.25 usec
PL1       -3.00 dB
SFO1      400.1524711 MHz

F2 - Processing parameters
SI        32768
SF        400.1499989 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00
```

Espectro 72. Ampliação da região de hidrogênios aromáticos do espectro de RMN ^1H (400 MHz, DMSO- d_6) do composto (64).

BLi / 2-naftal - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      ufrj0580485
EXPNO     12
PROCNO    1

F2 - Acquisition Parameters
Date_     20080523
Time      1.59
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   coasyzgpgf
TD         2048
SOLVENT   DMSO
NS         16
DS         8
SWH        4401.409 Hz
FIDRES     2.149125 Hz
AQ         0.2327028 sec
RG         256
DM         113.600 usec
DE         6.00 usec
TE         0.0 K
d0         0.00000300 sec
d1         1.48689198 sec
d13        0.00000400 sec
d16        0.00010000 sec
IN0        0.00022719 sec
MCREST     0.00000000 sec
MCMRK      1.48689198 sec

----- CHANNEL f1 -----
NUC1       1H
FO         12.25 usec
F1         12.25 usec
FL1        -3.00 dB
SFO1       400.1519207 MHz

----- GRADIENT CHANNEL -----
GPMAM1     SINE.100
GPMAM2     SINE.100
GFX1       0.00 %
GFX2       0.00 %
GPY1       0.00 %
GPY2       0.00 %
GPF1       10.00 %
GPF2       10.00 %
PI6        1000.00 usec

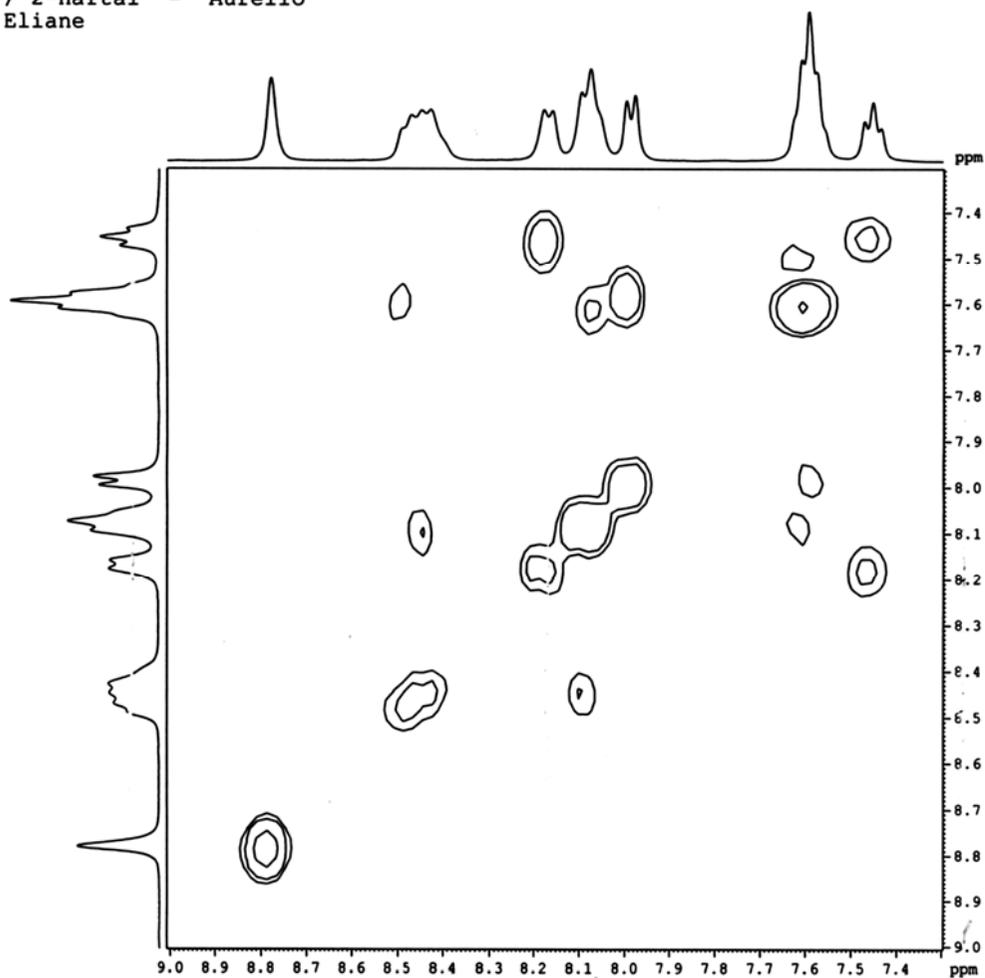
F1 - Acquisition parameters
ND0        1
TD         128
SFO1       400.1519 MHz
FIDRES     34.387894 Hz
SW         11.000 ppm
F2MODE     QF

F2 - Processing parameters
SI         512
SF         400.1499948 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
SI         512
MC2        QF
SF         400.1499959 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
  
```

Espectro 73. Correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, DMSO- d_6) do composto (64).

BLi / 2-naftal - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      ufrj0580485
EXPRO    12
PROCNO   1

F2 - Acquisition Parameters
Date_    20080523
Time     1.59
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  cosyprgf
TD       2048
SOLVENT  DMSO
NS       16
DS       8
SWH      4401.409 Hz
FIDRES   2.149125 Hz
AQ       0.2327028 sec
RG       256
DM       113.600 usec
DE       6.00 usec
TE       0.0 K
d0       0.00000000 sec
D1       1.48689198 sec
d11      0.00000400 sec
D16      0.00010000 sec
INO      0.00022719 sec
MCREST   0.00000000 sec
MCRNK    1.48689198 sec

----- CHANNEL f1 -----
NUC1      1H
P0        12.25 usec
P1        12.25 usec
PL1       -3.00 dB
SFO1      400.1519207 MHz

----- GRADIENT CHANNEL -----
GPNAM1    SINE.100
GPNAM2    SINE.100
GPR1      0.00 %
GPR2      0.00 %
GPV1      0.00 %
GPV2      0.00 %
GPE1      10.00 %
GPE2      10.00 %
P16       1000.00 usec

F1 - Acquisition parameters
ND0       1
TD        128
SFO1      400.1519 MHz
FIDRES    34.387894 Hz
SW        11.000 ppm
P0MODE    QF

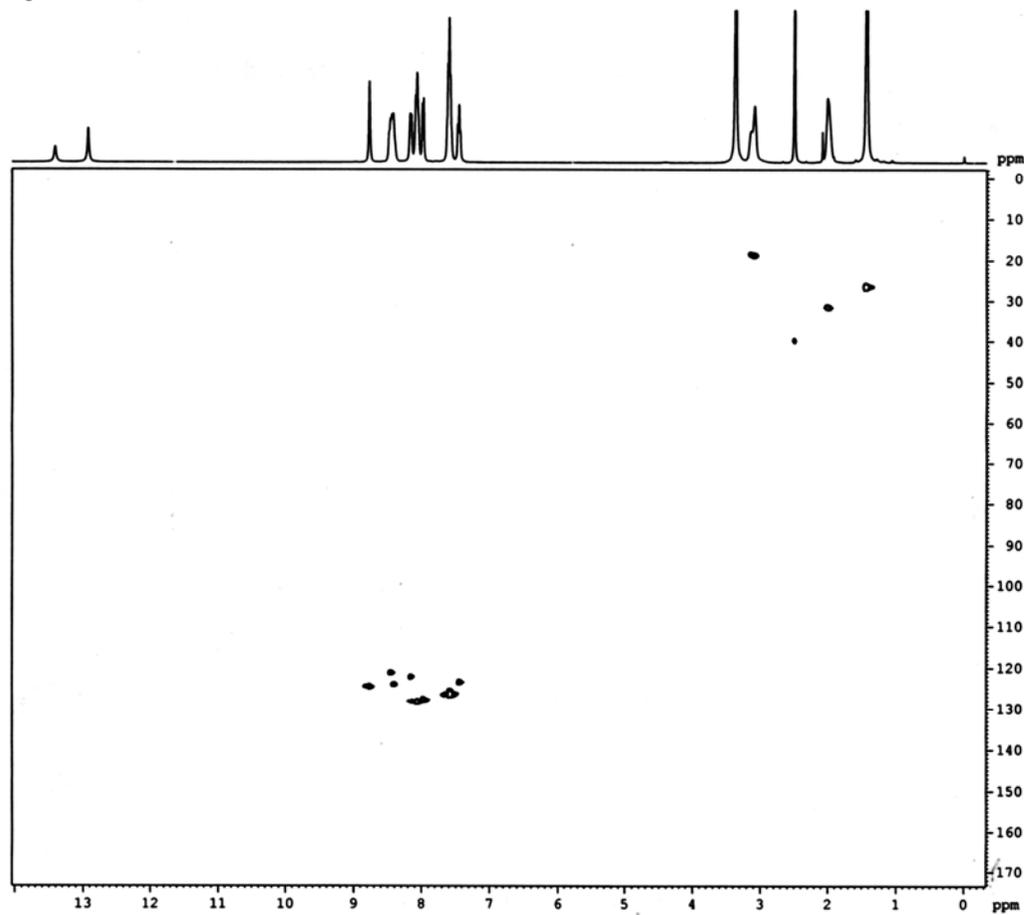
F2 - Processing parameters
SI        512
SF        400.1499948 MHz
WDW       QSINE
SSB       0
LB        0.00 Hz
GB        0
PC        1.40

F1 - Processing parameters
SI        512
MC2       QF
SF        400.1499959 MHz
WDW       QSINE
SSB       0
LB        0.00 Hz
GB        0

```

Espectro 74. Ampliação da região de hidrogênios aromáticos do espectro de correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, DMSO- d_6) do composto (64).

BLi / 2-naftal - Aurelio
Op. Eliane



```

Current Data Parameters
NAME          ufr:0580485
EXPNO         13
PROCNO        1

F2 - Acquisition Parameters
Date_         20080523
Time          2.59
INSTRUM       spect
PROBHD        5 mm QNP 1H/13
PULPROG       zgpg30
TD            1024
SOLVENT       DMSO
NS            16
DS            16
SWH           5995.204 Hz
FIDRES        5.854691 Hz
AQ            0.0954516 sec
RG            4096
SW           83.400 usec
DE           6.00 usec
TE            0.0 K
CHST2         165.000000
AQ            0.0000000 sec
D1            1.5000000 sec
d4            0.00172414 sec
d11           0.03000000 sec
d13           0.00004000 sec
D16           0.00010000 sec
DELTA         0.00113950 sec
DELTA1        0.00071614 sec
IN0           0.00002485 sec
INCREM        0.00000000 sec
NUC1          13C
NUC2          1H
===== CHANNEL f1 =====
NUC1          13C
P1            12.25 usec
p2            24.50 usec
P2B           2000.00 usec
PL1           -3.00 dB
SFO1          400.1527210 MHz

===== CHANNEL f2 =====
CPDPRG2       zgpg
NUC2          13C
P3            7.50 usec
p4            15.00 usec
PCPD2         70.00 usec
PL2           -4.00 dB
PL12          15.40 dB
SFO2          100.6268536 MHz

===== GRADIENT CHANNEL =====
GPMAN1        SINE.100
GPMAN2        SINE.100
GPF1          0.00 h
GPF2          0.00 h
GPF1          0.00 h
GPF2          0.00 h
GPF1          80.00 h
GPF2          20.12 h
PL6           1000.00 usec

F1 - Acquisition parameters
HD0           2
TD            256
SFO1          100.6269 MHz
FIDRES        78.596581 Hz
SN            199.954 ppm
PQMODE        Echo-Antiecho

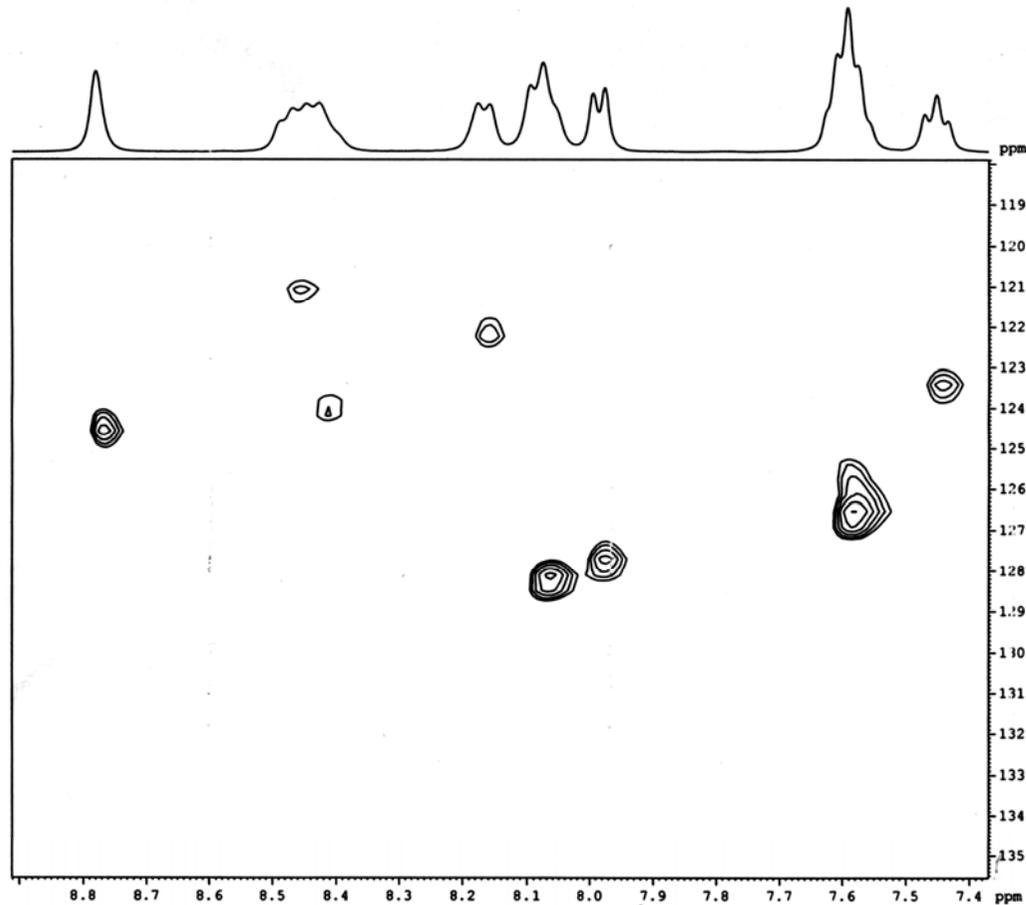
F2 - Processing parameters
SI            2048
SF            400.1499889 MHz
WDW           QSINE
SSB           2
LB            0.00 Hz
GB            0
PC            1.40

F1 - Processing parameters
SI            512
PC2           echo-antiecho
SF            100.6178534 MHz
WDW           QSINE
SSB           2
LB            0.00 Hz
GB            0

```

Espectro 75. Correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, DMSO- d_6) do composto (64).

BLi / 2-naftal - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      uffrj0580485
EXPNO    13
PROCNO   1

F2 - Acquisition Parameters
Date_    20080523
Time     2.59
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  zgpg30
TD       1024
SOLVENT  DMSO
NS       16
DS       16
SWH      5995.204 Hz
FIDRES   5.854491 Hz
AQ       0.084516 sec
RG       4096
DM       81.400 usec
DE       4.00 usec
TE       0.0 K
CHYST2   145.000000 sec
d0       0.000000 sec
D1       1.50000000 sec
d4       0.00172414 sec
d11      0.03000000 sec
d13      0.00000400 sec
d16      0.00010000 sec
DELTA    0.00113050 sec
DELTA1   0.00071814 sec
IM0      0.00002485 sec
MCREST   0.00000000 sec
MCRMN    0.30000001 sec
STICHT   128

***** CHANNEL f1 *****
NUC1      1H
P1        12.25 usec
P2        24.50 usec
P3        2000.00 usec
PL1       -3.00 dB
PL2       -3.00 dB
SFO1      400.1527210 MHz

***** CHANNEL f2 *****
CPROG2    gmp
NUC2      13C
P3        7.50 usec
P4        15.00 usec
PCPD2     70.00 usec
PL2       -4.00 dB
PL12      13.40 dB
SFO2      100.6269536 MHz

***** GRADIENT CHANNEL *****
GPRMG1    SINE.100
GPRMG2    SINE.100
GPR1      0.00 %
GPR2      0.00 %
GPR3      0.00 %
GPR4      0.00 %
GPR5      80.00 %
GPR6      20.12 %
P16       1000.00 usec

F1 - Acquisition parameters
ND0       2
TD        256
SFO1      100.6269 MHz
FIDRES    78.596581 Hz
SW        199.854 ppm
FUNCODE   Echo-AntiEcho

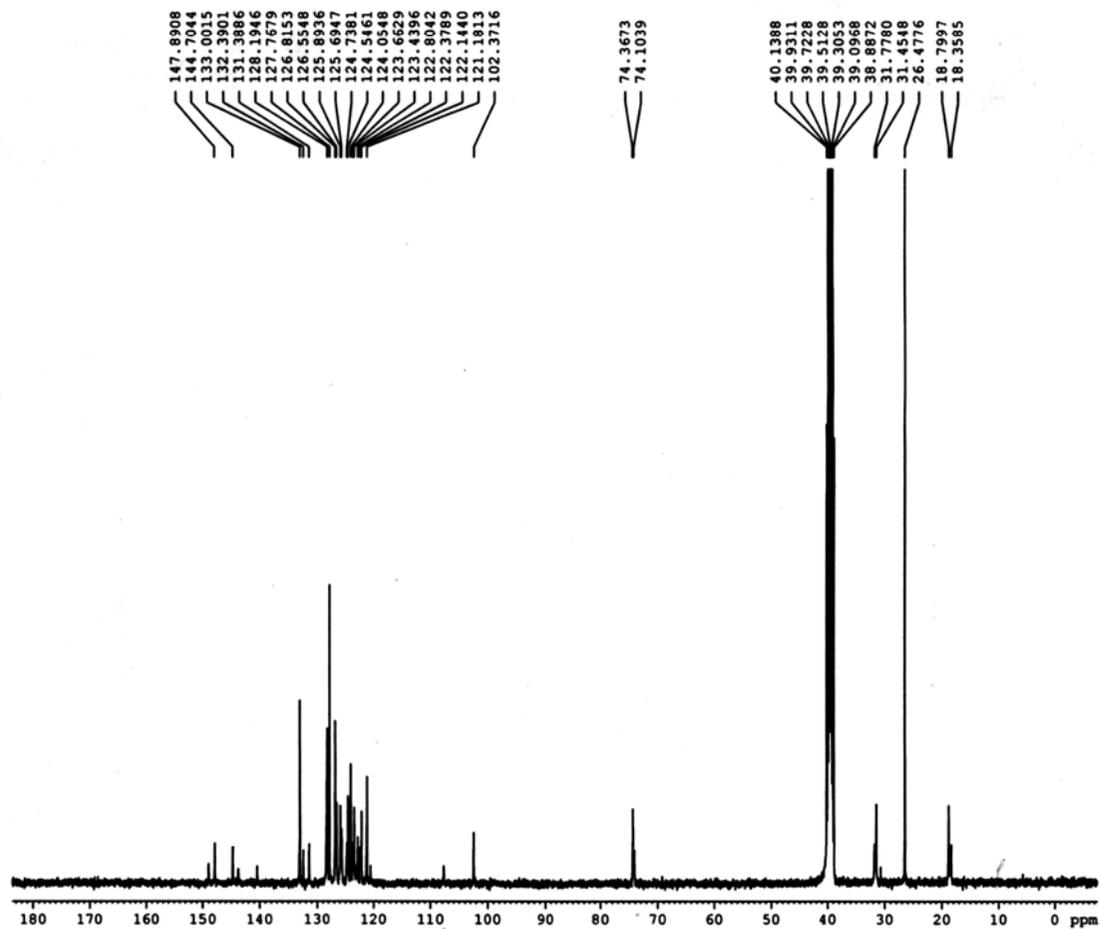
F2 - Processing parameters
SI        2048
SF        400.1499989 MHz
WDW       GEMME
SSB       2
LA        0.00 Hz
GB        0
PC        1.40

F1 - Processing parameters
SI        512
NUC2      echo-antiEcho
SF        100.6178558 MHz
WDW       GEMME
SSB       2
LA        0.00 Hz
GB        0

```

Espectro 76. Ampliação da região de hidrogênios aromáticos do espectro de correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, DMSO- d_6) do composto (64).

BLi / 2-naftal - Aurelio
Op. Eliane



```
Current Data Parameters
NAME      ufrj0580485
EXPNO    11
PROCNO   1

F2 - Acquisition Parameters
Date_    20080521
Time     15.31
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  zgpg30
TD        32768
SOLVENT  DMSO
NS        131072
DS        0
SWH       23980.814 Hz
FIDRES    0.731836 Hz
AQ        0.6832628 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         0.0 K
D1         0.20000000 sec
d11        0.03000000 sec
DELTA     0.10000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

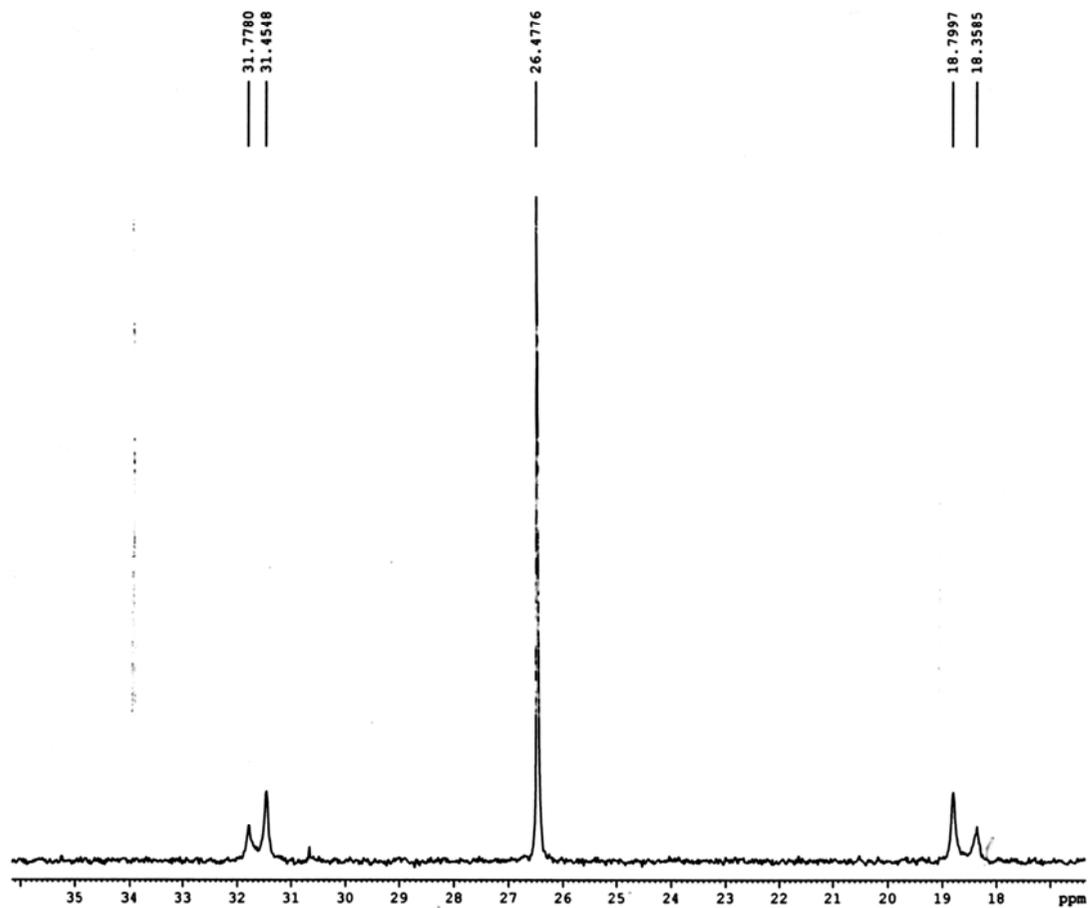
----- CHANNEL f1 -----
NUC1      13C
P1        7.50 usec
PL1       -4.00 dB
SFO1      100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2       1H
PCPD2     100.00 usec
PL2        -3.00 dB
PL12       15.24 dB
PL13       15.24 dB
SFO2      400.1516006 MHz

F2 - Processing parameters
SI         16384
SF         100.6178463 MHz
WDW        EM
SSB         0
LB          1.00 Hz
GB          0
PC          1.40
```

Espectro 77. RMN ^{13}C (100 MHz, DMSO- d_6) do composto (64).

BLi / 2-naftal - Aurelio
Op. Eliane



```
Current Data Parameters
NAME      ufrj0580485
EXPNO     11
PROCNO    1

F2 - Acquisition Parameters
Date_     20080521
Time      15.31
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD         32768
SOLVENT   DMSO
NS         131072
DS         0
SWH        23980.814 Hz
FIDRES     0.731836 Hz
AQ         0.6832628 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         0.0 K
D1         0.20000000 sec
d11        0.03000000 sec
DELTA     0.10000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

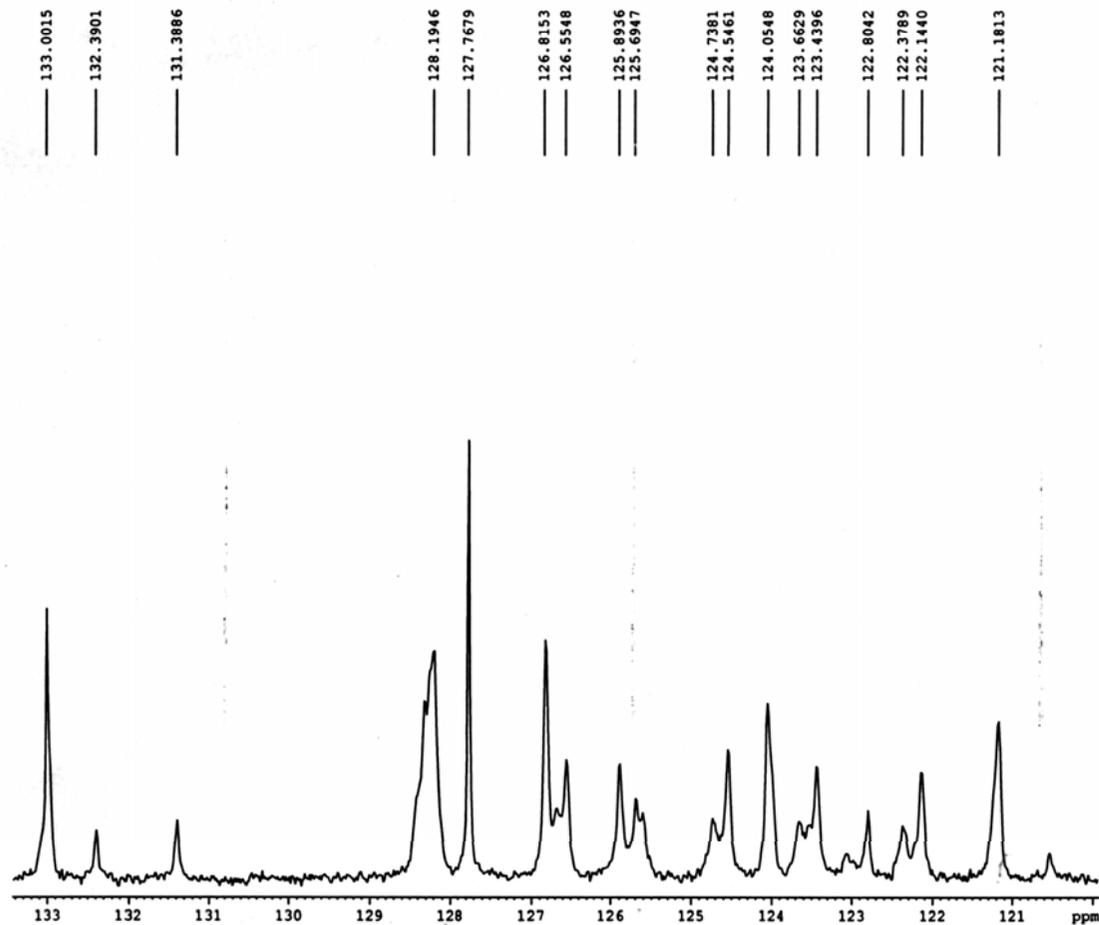
----- CHANNEL f1 -----
NUC1       13C
P1         7.50 usec
PL1        -4.00 dB
SFO1       100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2    waltz16
NUC2       1H
PCPD2      100.00 usec
PL2        -3.00 dB
PL12       15.24 dB
PL13       15.24 dB
SFO2       400.1516006 MHz

F2 - Processing parameters
SI         16384
SF         100.6178463 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
```

Espectro 78. Ampliação da região de carbonos alifáticos do espectro de RMN ^{13}C (100 MHz, DMSO- d_6) do composto (64).

BLi / 2-naftal - Aurelio
Op. Eliane



```
Current Data Parameters
NAME      ufrrj0580485
EXPNO     11
PROCNO    1

F2 - Acquisition Parameters
Date_     20080521
Time      15.31
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD         32768
SOLVENT   DMSO
NS         131072
DS         0
SWH        23980.814 Hz
FIDRES     0.731836 Hz
AQ         0.6832628 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         0.0 K
D1         0.20000000 sec
d11        0.03000000 sec
DELTA      0.10000000 sec
MCREST     0.00000000 sec
MCWRK     0.01500000 sec

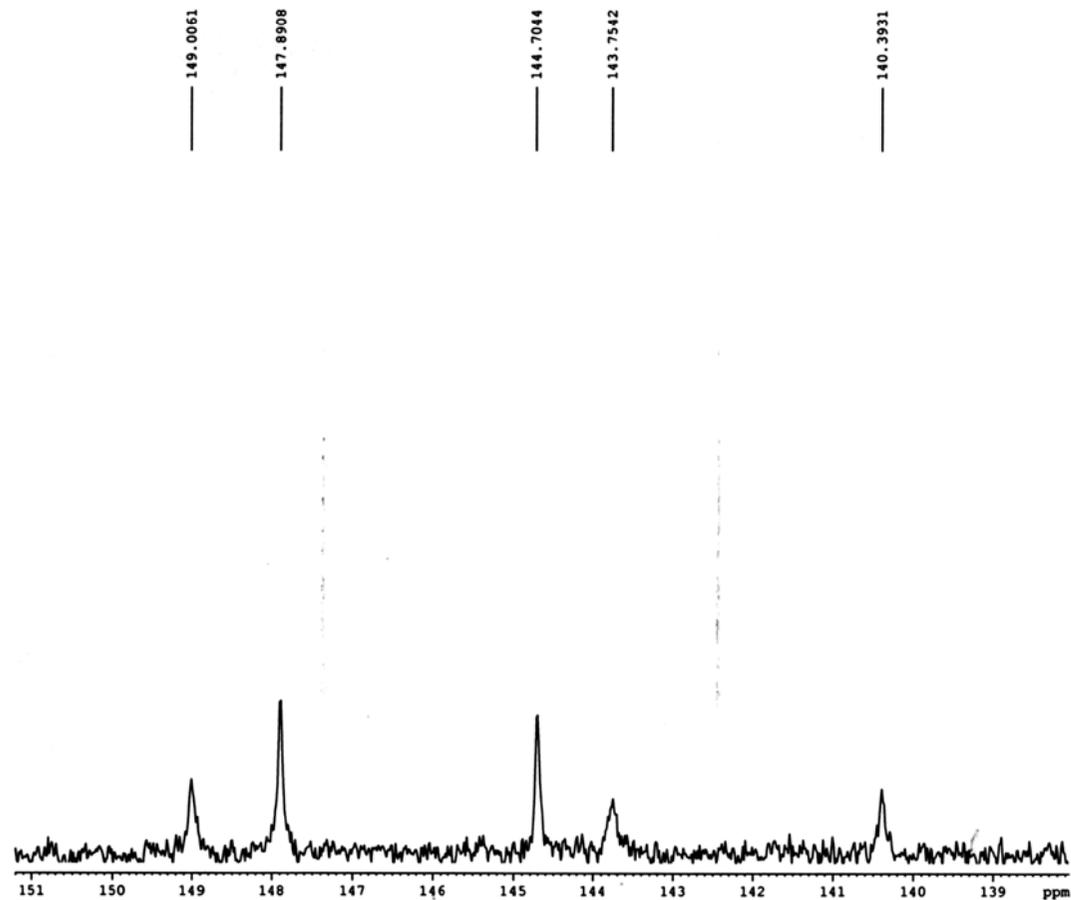
----- CHANNEL f1 -----
NUC1       13C
P1         7.50 usec
PL1        -4.00 dB
SF01       100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2    waltz16
NUC2       1H
PCPD2      100.00 usec
PL2        -3.00 dB
PL12       15.24 dB
PL13       15.24 dB
SFO2       400.1516006 MHz

F2 - Processing parameters
SI         16384
SF         100.6178463 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
```

Espectro 79. Ampliação da região de carbonos aromáticos do espectro de RMN ^{13}C (100 MHz, DMSO- d_6) do composto (64).

BLi / 2-naftal - Aurelio
Op. Eliane



```
Current Data Parameters
NAME      ufrj0580485
EXPNO     11
PROCNO    1

F2 - Acquisition Parameters
Date_     20080521
Time      15.31
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
FULPROG   zgpg30
TD        32768
SOLVENT   DMSO
NS        131072
DS        0
SWH       23980.814 Hz
FIDRES    0.731836 Hz
AQ        0.6832628 sec
RG        16384
DW        20.850 usec
DE        6.00 usec
TE        0.0 K
D1        0.20000000 sec
d11       0.03000000 sec
DELTA     0.10000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

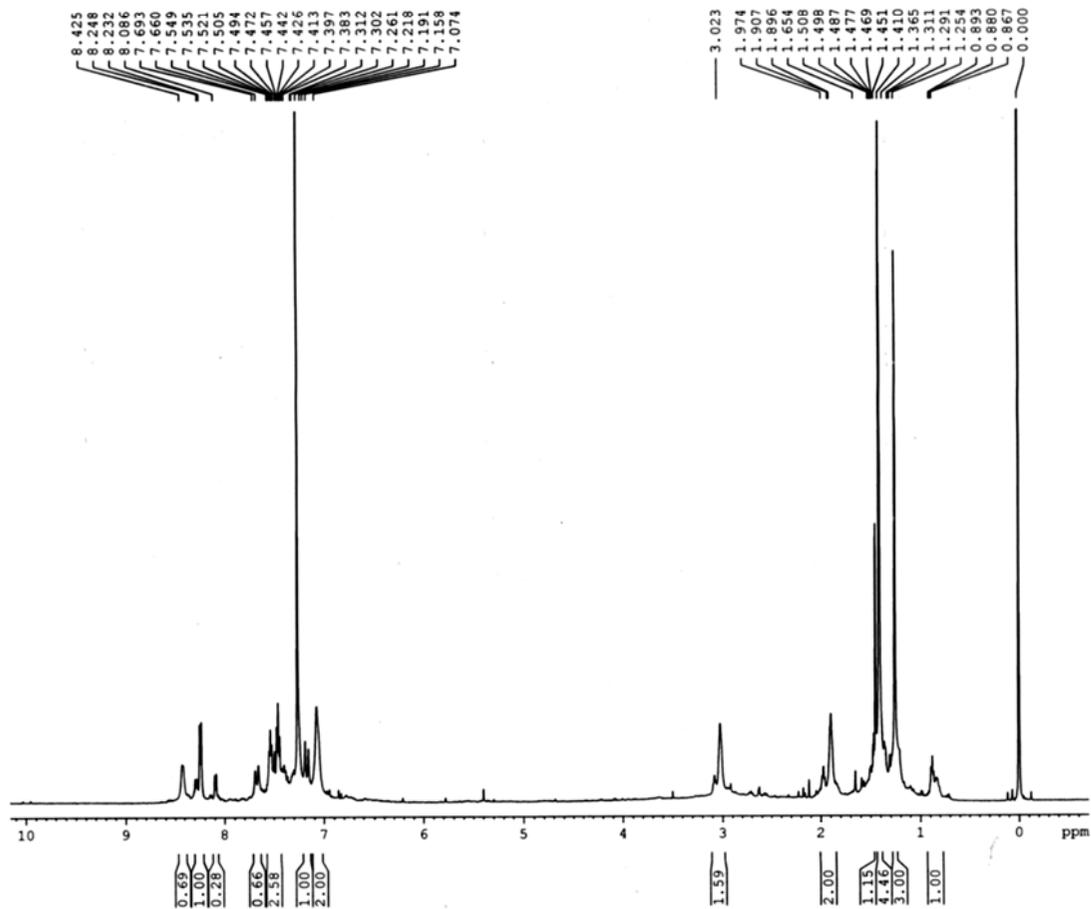
----- CHANNEL f1 -----
NUC1      13C
P1        7.50 usec
PL1       -4.00 dB
SFO1     100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2      1H
PCPD2     100.00 usec
PL2       -3.00 dB
PL12      15.24 dB
PL13      15.24 dB
SFO2     400.1516006 MHz

F2 - Processing parameters
SI        16384
SF        100.6178463 MHz
WDW       EM
SSB       0
LB        1.00 Hz
GB        0
PC        1.40
```

Espectro 80. Ampliação da região de carbonos aromáticos do espectro de RMN ^{13}C (100 MHz, DMSO- d_6) do composto (64).

b-lap-imid-t-cinamal - Ari
Op. Eliane



```

Current Data Parameters
NAME      uffrj0670557
EXPNO    10
PROCNO   1

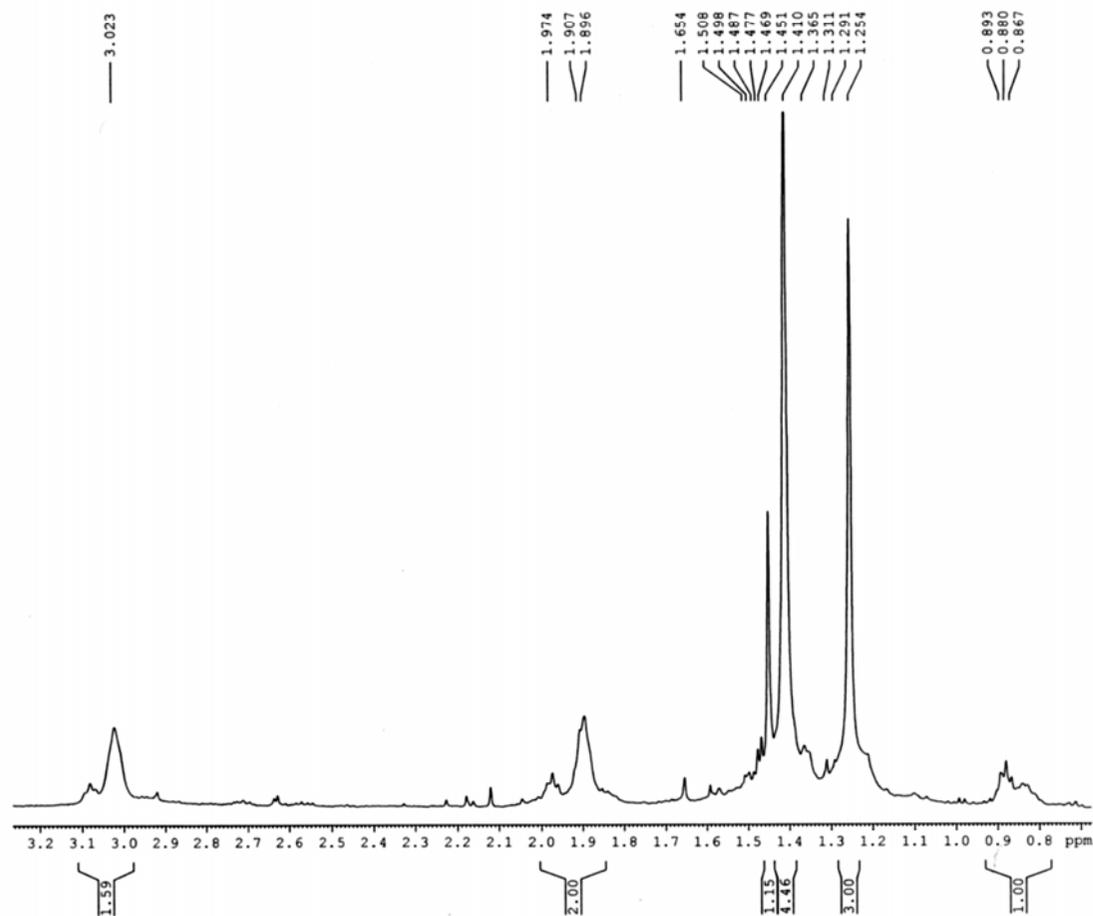
F2 - Acquisition Parameters
Date_    20070612
Time     14.52
INSTRUM  spect
PROBHD   5 mm BBO BB-1H
PULPROG  zg30
TD       65536
SOLVENT  CDCl3
NS       128
DS       2
SWH      10330.578 Hz
FIDRES   0.157622 Hz
AQ       3.1720407 sec
RG       1219.2
DW       48.400 usec
DE       6.00 usec
TE       295.8 K
D1       1.00000000 sec
MCREST   0.00000000 sec
MCWRK    0.01500000 sec

----- CHANNEL f1 -----
NUC1     1H
P1       13.75 usec
PL1      0.00 dB
SFO1     500.1330885 MHz

F2 - Processing parameters
SI       32768
SF       500.1300134 MHz
WDW      EM
SSB      0
LB       0.30 Hz
GB       0
PC       1.00
  
```

Espectro 81. RMN ^1H (500 MHz, CDCl_3) do composto (65).

b-lap-imid-t-cinamal - Ari
Op. Eliane



```

Current Data Parameters
NAME      ufrj0670557
EXPNO    10
PROCNO   1

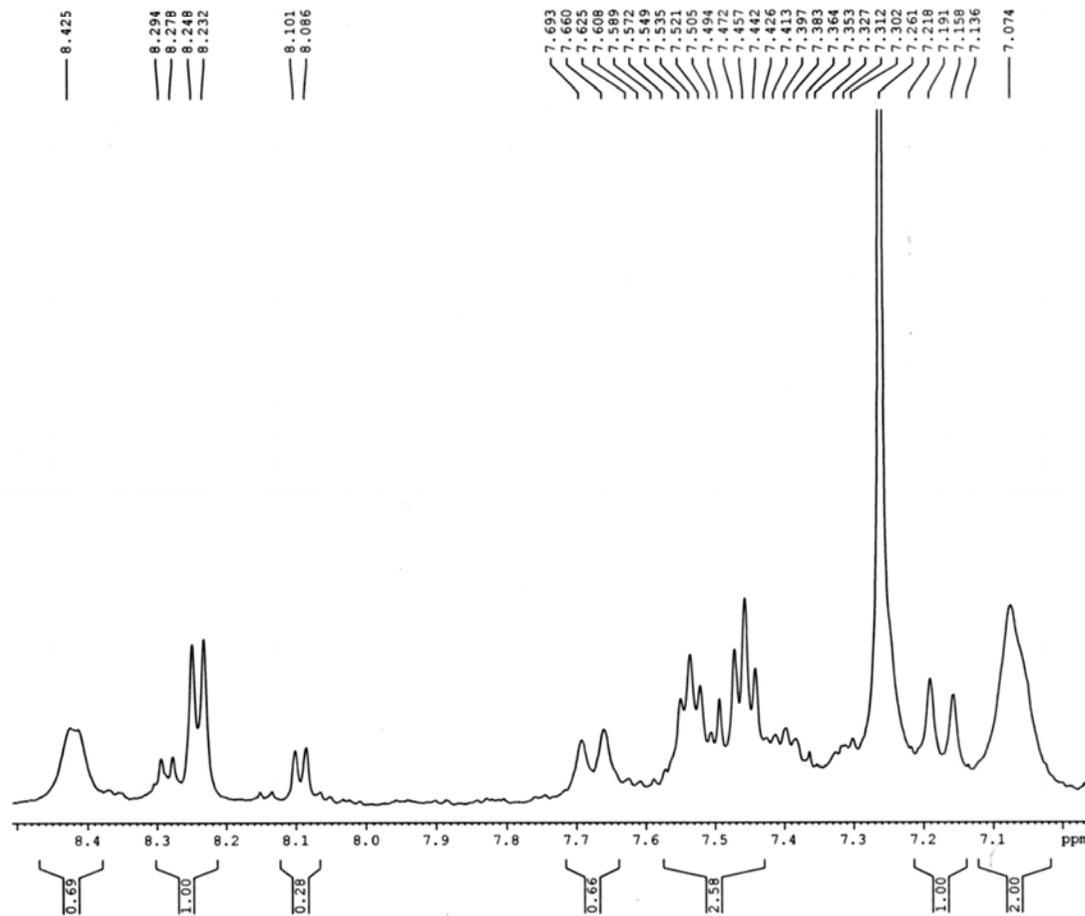
F2 - Acquisition Parameters
Date_    20070612
Time     14.52
INSTRUM  spect
PROBHD   5 mm BBO BB-1H
PULPROG  zg30
TD       65536
SOLVENT  CDCl3
NS       128
DS       2
SWH      10330.578 Hz
FIDRES   0.157632 Hz
AQ       3.1720407 sec
RG       1219.2
DW       48.400 usec
DE       6.00 usec
TE       295.8 K
D1       1.00000000 sec
MCREST   0.00000000 sec
MCWRK    0.01500000 sec

----- CHANNEL f1 -----
NUC1     1H
P1       13.75 usec
PL1      0.00 dB
SFO1     500.1330885 MHz

F2 - Processing parameters
SI       32768
SF       500.1300134 MHz
WDW      EM
SSB      0
LB       0.30 Hz
GB       0
PC       1.00
  
```

Espectro 82. Ampliação da região de hidrogênios alifáticos do espectro de RMN ^1H (500 MHz, CDCl_3) do composto (65).

b-lap-imid-t-cinamal - Ari
Op. Eliane



Current Data Parameters
NAME ufrj0670557
EXPNO 10
PROCNO 1

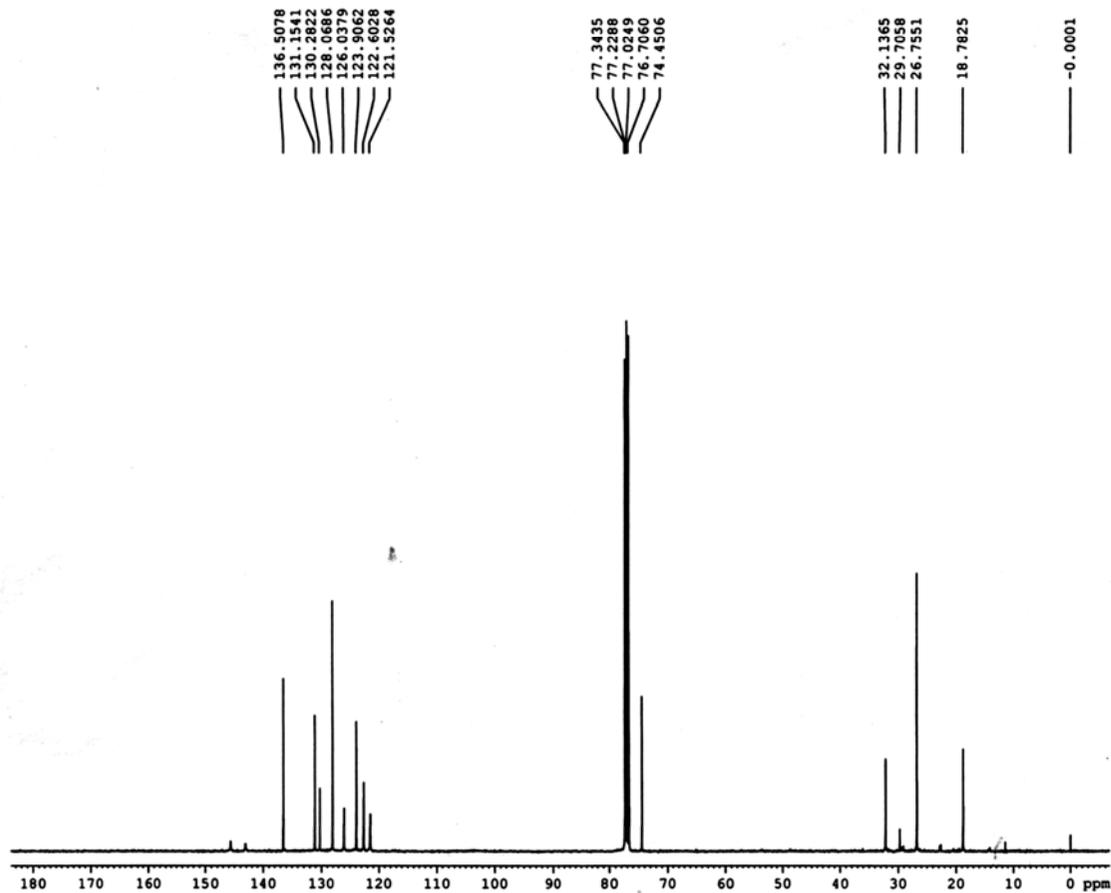
F2 - Acquisition Parameters
Date_ 20070612
Time 14.52
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 128
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1720407 sec
RG 1219.2
DM 48.400 usec
DE 6.00 usec
TE 295.8 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRR 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 13.75 usec
PL1 0.00 dB
SFO1 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300134 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Espectro 83. Ampliação da região de hidrogênios aromáticos do espectro de RMN ¹H (500 MHz, CDCl₃) do composto (65).

BLI / 2,6 Cl2Bz II - Aurelio
Op. Eliane



Current Data Parameters
NAME ufrrj0580469
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20080523
Time 15.30
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 32768
SOLVENT CDC13
NS 65536
DS 0
SWH 23980.814 Hz
FIDRES 0.731836 Hz
AQ 0.6832628 sec
RG 16384
DW 20.850 usec
DE 6.00 usec
TE 0.0 K
D1 0.5000000 sec
d11 0.0300000 sec
DELTA 0.4000001 sec
MCREST 0.0000000 sec
MCWRK 0.0150000 sec

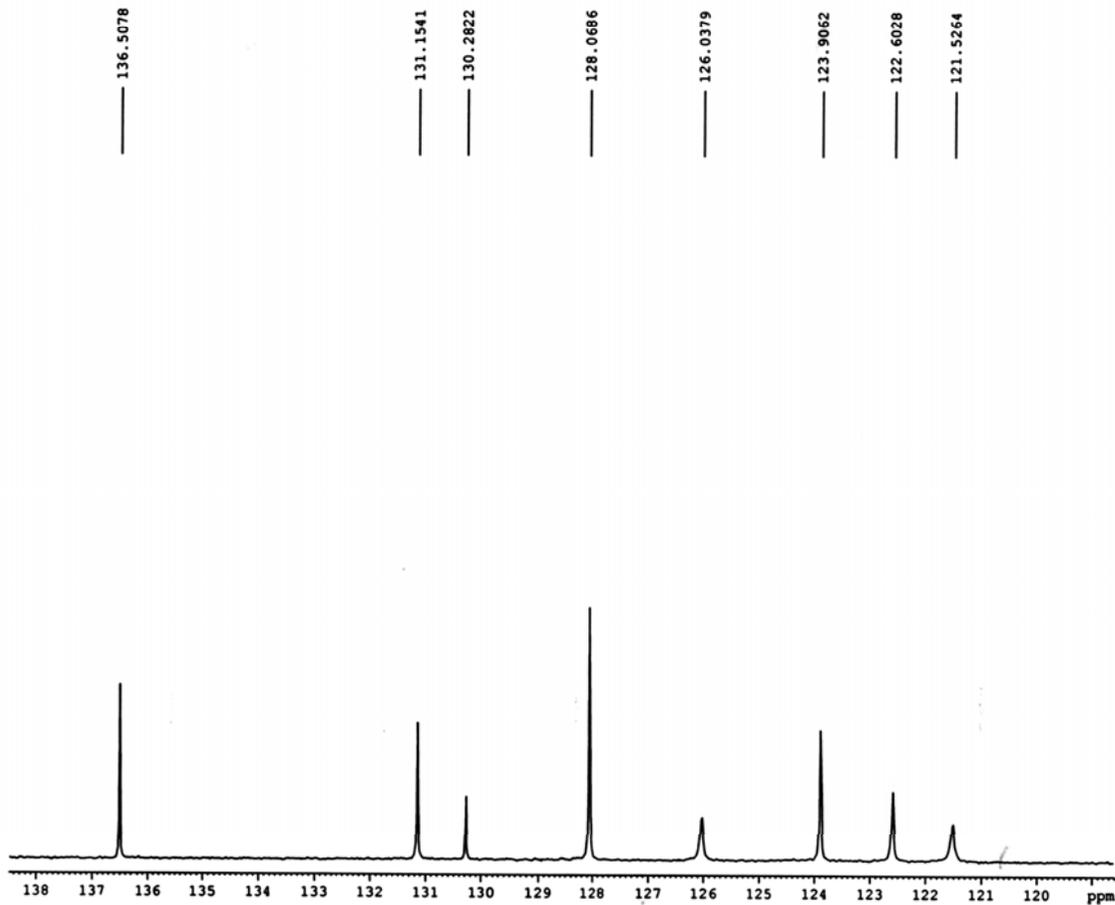
----- CHANNEL f1 -----
NUC1 13C
P1 7.50 usec
PL1 -4.00 dB
SF01 100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -3.00 dB
PL12 15.24 dB
PL13 15.24 dB
SF02 400.1516006 MHz

F2 - Processing parameters
SI 16384
SF 100.6177995 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Espectro 84. RMN ¹³C (100 MHz, CDCl₃) do composto (66).

BLI / 2,6 Cl2Bz II - Aurelio
Op. Eliane



```
Current Data Parameters
NAME      ufrj0580469
EXPNO     11
PROCNO    1

F2 - Acquisition Parameters
Date_     20080523
Time      15.30
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD         32768
SOLVENT   CDCl3
NS         65536
DS         0
SWH        23980.814 Hz
FIDRES     0.731836 Hz
AQ         0.6832628 sec
RG         16384
DM         20.850 usec
DE         6.00 usec
TE         0.0 K
D1         0.50000000 sec
d11        0.03000000 sec
DELTA      0.40000001 sec
MCREST     0.00000000 sec
MCMRK      0.01500000 sec

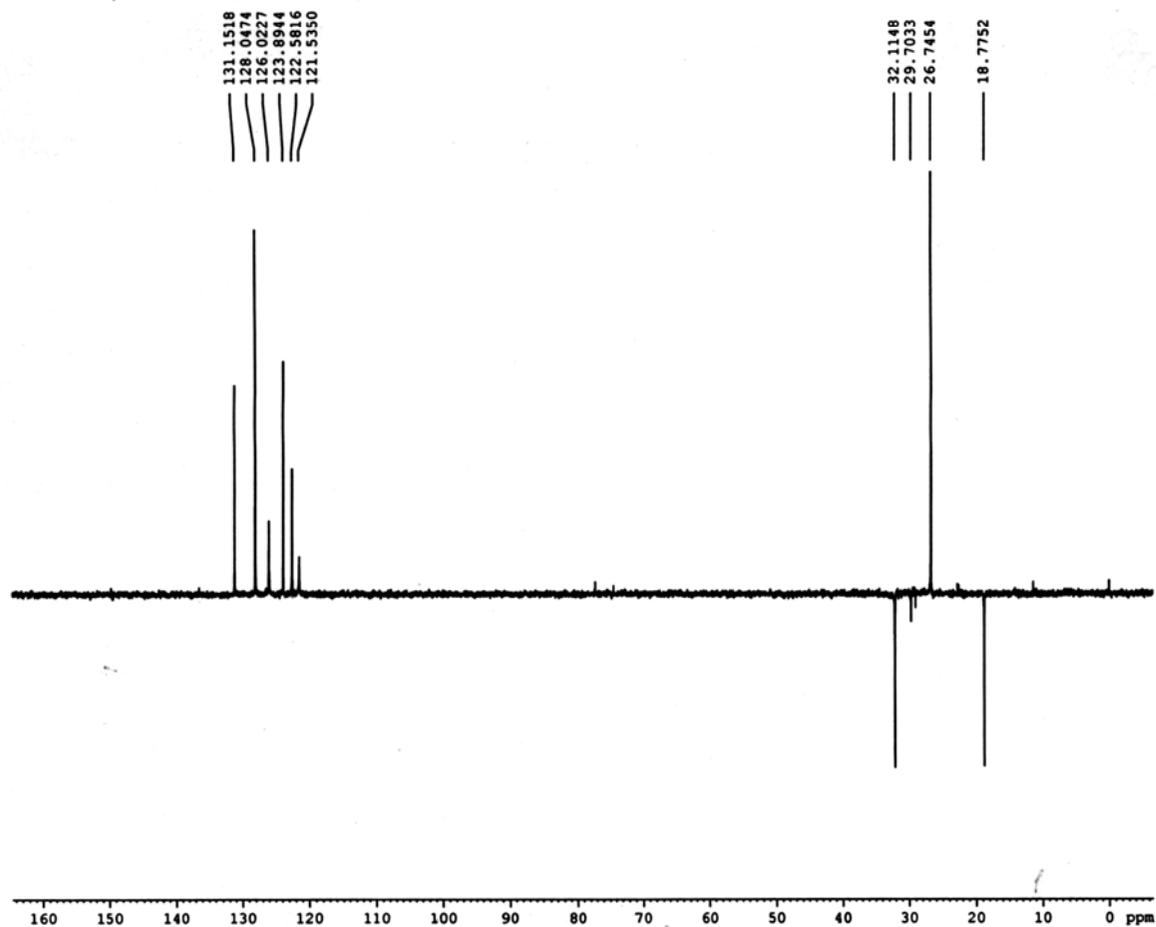
----- CHANNEL f1 -----
NUC1       13C
P1         7.50 usec
PL1        -4.00 dB
SFO1       100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2       1H
PCPD2     100.00 usec
PL2        -3.00 dB
PL12       15.24 dB
PL13       15.24 dB
SFO2       400.1516006 MHz

F2 - Processing parameters
SI         16384
SF         100.6177995 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
```

Espectro 85. Ampliação da região de carbonos aromáticos do espectro de RMN ^{13}C (100 MHz, CDCl_3) do composto (66).

BLI / 2,6 Cl2Bz II - Aurelio
Op. Eliane



Current Data Parameters
NAME ufrj0580469
EXPNO 12
PROCNO 1

F2 - Acquisition Parameters
Date_ 20080524
Time 20.23
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG dept135
TD 32768
SOLVENT CDC13
NS 8192
DS 4
SWH 23980.814 Hz
FIDRES 0.731836 Hz
AQ 0.6832628 sec
RG 16384
DW 20.850 usec
DE 6.00 usec
TE 0.0 K
CNST2 145.000000
D1 2.0000000 sec
d2 0.00344828 sec
d12 0.00002000 sec
DELTA 0.00000955 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

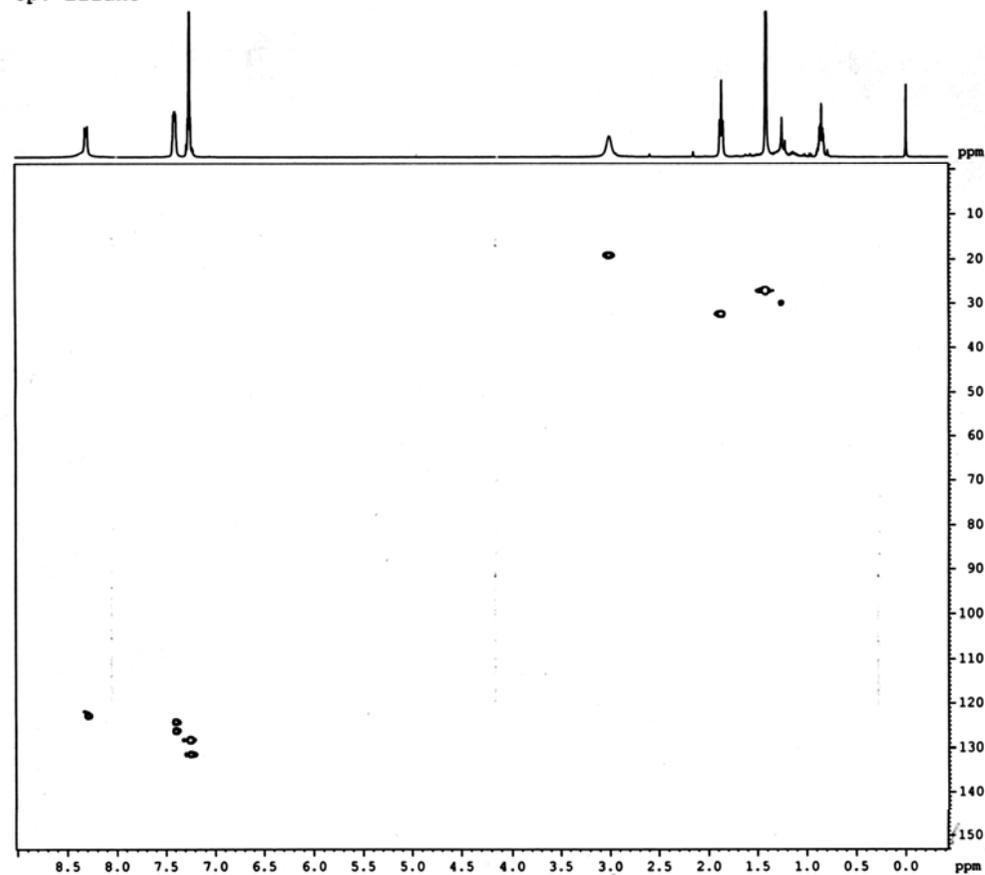
----- CHANNEL f1 -----
NUC1 13C
P1 7.50 usec
p2 15.00 usec
PL1 -4.00 dB
SFO1 100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
P3 12.25 usec
p4 24.50 usec
PCPD2 100.00 usec
PL2 -3.00 dB
PL12 15.24 dB
SFO2 400.1516004 MHz

F2 - Processing parameters
SI 16384
SF 100.6178011 MHz
WDW Ex
SSB ()
LB 1.00 Hz
GB ()
PC 1.40

Espectro 86. RMN ¹³C_(DEPT) (100 MHz, CDCl₃) do composto (66).

BLI / 2,6 Cl2Bz II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      wfrj050469
EXPRNO   1
PROCNO   1

F2 - Acquisition Parameters
Date_    20080524
Time     22.24
INSTRUM  spect
PROBHD   5 mm QNP 1H/1
PULPROG  zgpg30
TD        65536
SOLVENT  CDCl3
NS        16
DS        4
SWH       5995.204 Hz
FIDRES   0.0845316 sec
AQ        0.00172414 sec
RG        696
RW        83.400 usec
DE        6.00 usec
TE        300.2 K
CHFT2    145.0000000
d0        0.0000000 sec
d1        1.5000000 sec
d4        0.00172414 sec
d11       0.0300000 sec
d13       0.0000400 sec
d16       0.00010000 sec
DELTA    0.00113050 sec
DELTA1   0.00071614 sec
IND       0.00002485 sec
MCHST    0.0000000 sec
MCHSX    0.3000001 sec
STICHT   128

===== CHANNEL f1 =====
NUC1      1H
P1        12.25 usec
P2        28.50 usec
P3        2000.00 usec
PL1       -3.00 dB
PL2       -1.00 dB
SFO1      400.131716 MHz

===== CHANNEL f2 =====
CPDPRG2   gsp
NUC2      13C
P3        7.50 usec
P4        15.00 usec
PCPD2     70.00 usec
PL2       -4.00 dB
PL12      15.40 dB
SFO2      100.6268534 MHz

===== GRADIENT CHANNEL =====
GPMW1     SINE.100
GPMW2     SINE.100
GPR1      0.00 %
GPR2      0.00 %
GPR3      0.00 %
GPR4      0.00 %
GPR5      0.00 %
GPR6      80.00 %
GPR7      20.12 %
PL6       1000.00 usec

F1 - Acquisition parameters
TD        256
SFO1      100.6268 MHz
FIDRES   78.594581 Hz
SW        199.954 ppm
P1MODE    Echo-Antiecho

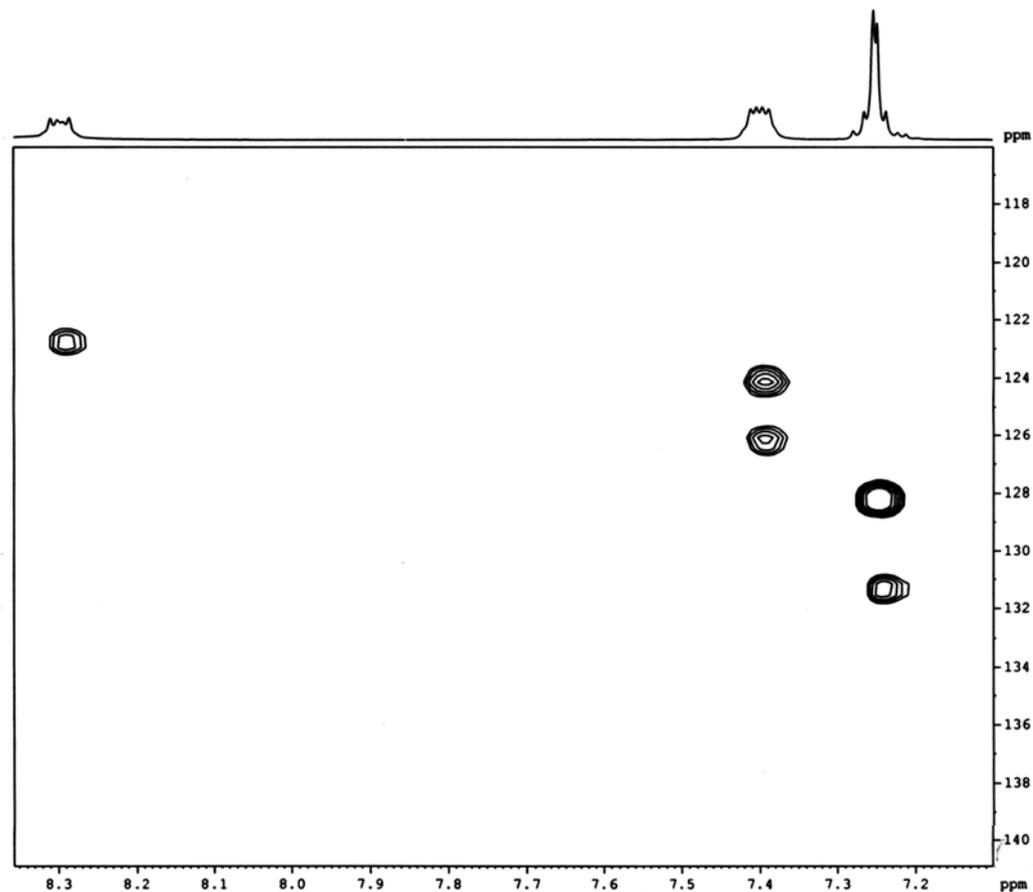
F2 - Processing parameters
SI        2048
SF        400.1500128 MHz
WDW       Q9INE
SSB       0
GB        0.00 Hz
PC        1.40

F1 - Processing parameters
SI        512
MC2       echo-antiecho
SF        100.6177862 MHz
WDW       Q9INE
SSB       0
GB        0.00 Hz

```

Espectro 87. Correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, CDCl_3) do composto (66).

BLI / 2,6 Cl2Bz II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      wfcj358460
EXPNO    14
PROCNO   1

F2 - Acquisition Parameters
Date_    2008024
Time     22.24
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  zgpg30
TD       1321
SOLVENT  CDCl3
NS       16
DS       16
SFO      5995.104 Hz
FIDRES   5.854691 Hz
AQ       0.0854516 sec
RG       4096
SWH      83.400 usec
DE       6.0 usec
TE       300 K
CQF2     145.0000000
d0       0.0000000 sec
d1       1.5000000 sec
d4       0.0017214 sec
d11      0.0300000 sec
d13      0.0000400 sec
d16      0.0001000 sec
DELTA    0.00113050 sec
DELTA1   0.00071814 sec
LRO      0.00002485 sec
PCREST   0.00000000 sec
PCREST   0.30000001 sec
SFCYCLE  128

***** CHANNEL F1 *****
NUC1      1H
P1       12.25 usec
P2       24.50 usec
P2B      2000.00 usec
PL1      -3.00 dB
SFO1     400.1527210 MHz

***** CHANNEL F2 *****
CQF2F2    94pp
NUC2      13C
P3       7.50 usec
P4       15.00 usec
PCPD2    70.00 usec
PL2      -4.00 dB
PL12     15.40 dB
SFO2     100.6264536 MHz

***** GRADIENT CHANNEL *****
GPMW1     RINE.100
GPMW2     RINE.100
GPF1      0.00 %
GPF2      0.00 %
GPT1      0.00 %
GPT2      0.00 %
GPF1      80.00 %
GPT2      20.12 %
P16       1000.00 usec

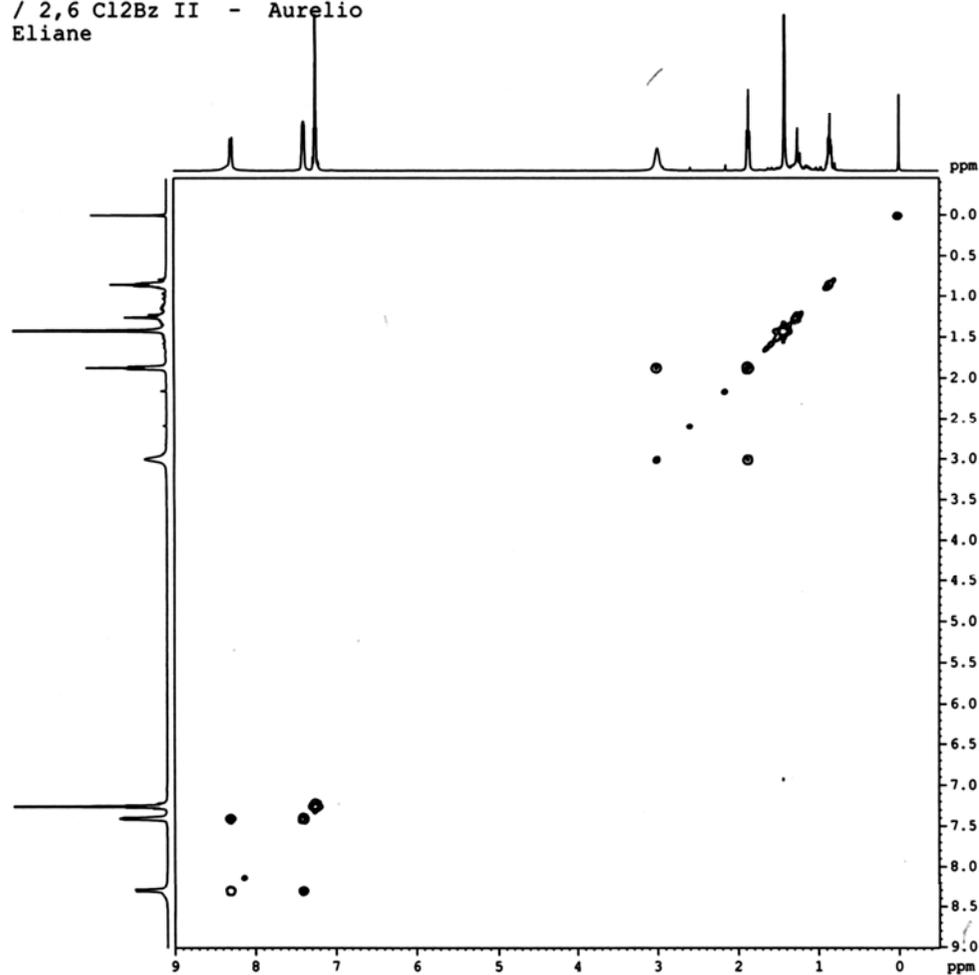
F1 - Acquisition parameters
ND0       2
TD        256
SFO1     100.6269 MHz
FIDRES    78.596581 Hz
SWH      159.354 ppm
PRMODE    Echo-Antiecho

F2 - Processing parameters
SI        2048
SF        400.1500128 MHz
WDW       QSHINE
SSB       2
LB        0.00 Hz
GB        0
PC        1.40

F1 - Processing parameters
SI        512
MC2       echo-antiecho
SF        100.6177842 MHz
WDW       QSHINE
SSB       2
LB        0.00 Hz
GB        0
  
```

Espectro 88. Ampliação da região de hidrogênios aromáticos do espectro de correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, CDCl_3) do composto (66).

BLI / 2,6 Cl2Bz II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      uffrj0580469
EXPNO     13
PROCNO    1

F2 - Acquisition Parameters
Date_     20080524
Time      20.24
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   cosyppqf
TD         2048
SOLVENT   CDCl3
NS         16
DS         8
SWH        4401.409 Hz
FIDRES     2.149125 Hz
AQ         0.2327028 sec
RG         256
DM         113.600 usec
DE         6.00 usec
TE         0.0 K
d0         0.00000300 sec
d1         1.48689198 sec
d13        0.00000400 sec
d16        0.00010000 sec
IR0        0.00022719 sec
NCREST     0.00000000 sec
NCRMK      1.48689198 sec

----- CHANNEL f1 -----
NUC1       1H
FO         12.25 usec
F1         12.25 usec
P1         -3.00 dB
SFO1       400.1519207 MHz

----- GRADIENT CHANNEL -----
GPRAM1     SINE.100
GPRAM2     SINE.100
GPK1       0.00 %
GPK2       0.00 %
GPY1       0.00 %
GPY2       0.00 %
GPT1       10.00 %
GPT2       10.00 %
P16        1000.00 usec

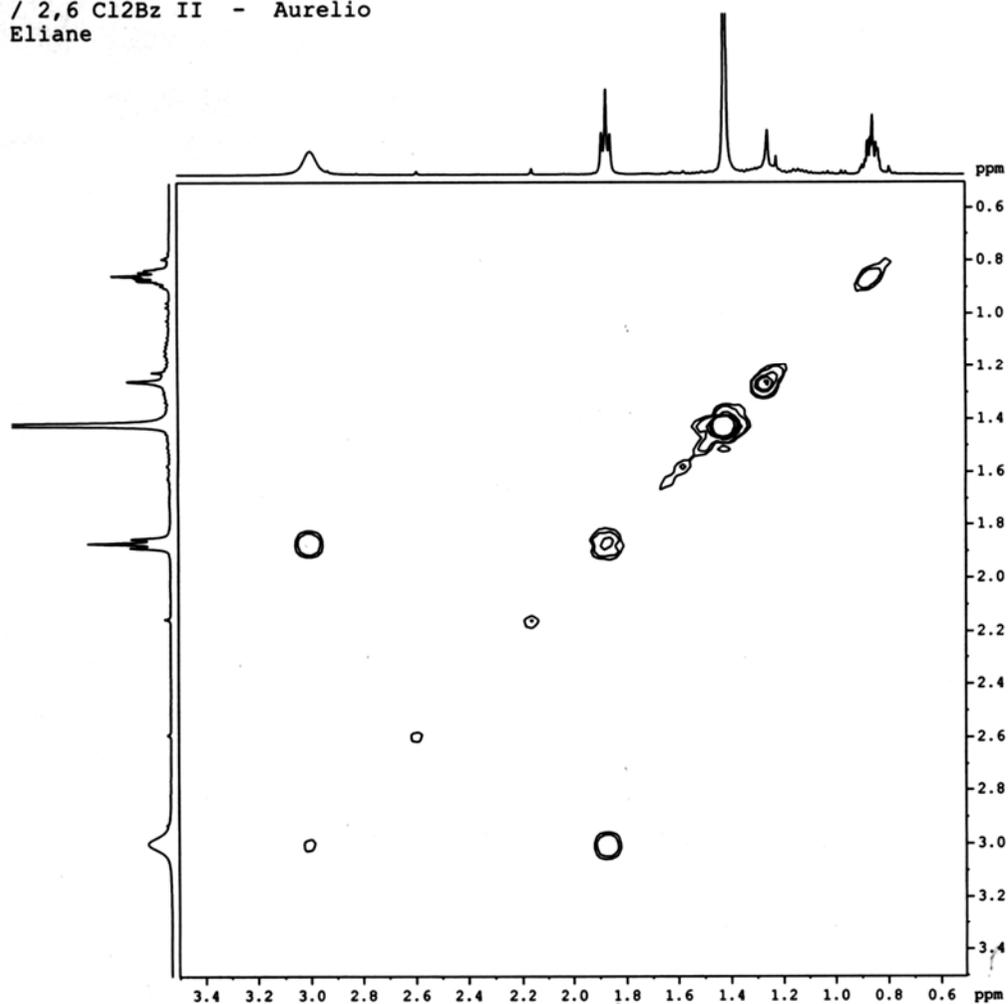
F1 - Acquisition parameters
ND0        1
TD         256
SFO1       400.1519 MHz
FIDRES     17.193947 Hz
SW         11.000 ppm
F2MODE     QF

F2 - Processing parameters
SI         512
SF         400.1500081 MHz
WDW        Q5INE
SSB        0
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
SI         512
MC2        QF
SF         400.1500081 MHz
WDW        Q5INE
SSB        0
LB         0.00 Hz
GB         0
  
```

Espectro 89. Correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, CDCl_3) do composto (66).

BLI / 2,6 Cl2Bz II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      ufrj0580469
EXPNO     13
PROCNO    1

F2 - Acquisition Parameters
Date_     20080524
Time      20.24
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   cosyppgf
TD         2048
SOLVENT   CDCl3
NS         16
DS         8
SWH        4401.409 Hz
FIDRES     2.149125 Hz
AQ         0.2327028 sec
RG         256
DM         113.600 usec
DE         6.00 usec
TE         0.0 K
d0         0.0000300 sec
d1         1.48689198 sec
d11        0.00000400 sec
d16        0.00010000 sec
INO        0.00022719 sec
MCREST     0.00000000 sec
MCWRRK     1.48689198 sec

----- CHANNEL f1 -----
NUC1       1H
P0         12.25 usec
F1         12.25 usec
PL1        -3.00 dB
SFO1       400.1519207 MHz

----- GRADIENT CHANNEL -----
GPNAM1     SINE.100
GPNAM2     SINE.100
GFX1       0.00 %
GFX2       0.00 %
GPY1       0.00 %
GPT2       0.00 %
GPE1       10.00 %
GPE2       10.00 %
P16        1000.00 usec

F1 - Acquisition parameters
ND0         1
TD          256
SFO1        400.1519 MHz
FIDRES      17.193947 Hz
SW          11.000 ppm
FhMODE      QF

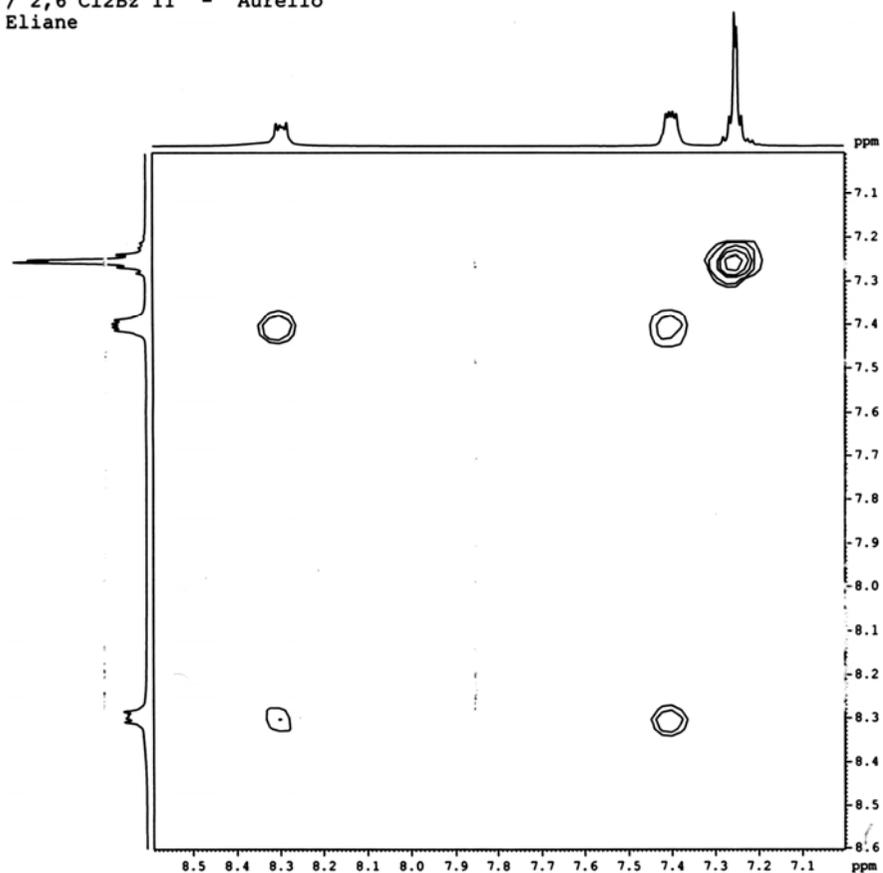
F2 - Processing parameters
SI          512
SF          400.1500081 MHz
WDW         QSINE
SSB         0
LB          0.00 Hz
GB          0
PC          1.40

F1 - Processing parameters
SI          512
MC2         QF
SF          400.1500081 MHz
WDW         QSINE
SSB         0
LB          0.00 Hz
GB          0

```

Espectro 90. Ampliação da região de hidrogênios alifáticos do espectro de correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, CDCl_3) do composto (66).

BLI / 2,6 Cl2Bz II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      uffrj058049
EXPRO    13
PROCNO    1

F2 - Acquisition Parameters
Date_     20080524
Time      20.24
INSTRUM   spect
PROBHD    5 mm QNP 1H/1
PULPROG   cosygpo2
TD         2048
SOLVENT   CDCl3
NS         16
DS         8
SWH        4401.409 Hz
FIDRES     2.149125 Hz
AQ         0.2327028 sec
RG         256
DM         113.600 usec
DE         6.00 usec
TE         0.0 K
d0         0.00000300 sec
d1         1.48689198 sec
d13        0.00000400 sec
d16        0.00010000 sec
IN0        0.00022719 sec
MCREST     0.00000000 sec
MCRPX      1.48689198 sec

----- CHANNEL f1 -----
NUC1       1H
PD         12.25 usec
PI         12.25 usec
PL1        -3.00 dB
SFO1       400.1519207 MHz

----- GRADIENT CHANNEL -----
GPM1      SINE.100
GPM2      SINE.100
GPK1      0.00 %
GPK2      0.00 %
GPF1      0.00 %
GPF2      0.00 %
GPE1      10.00 %
GPE2      10.00 %
P16       1000.00 usec

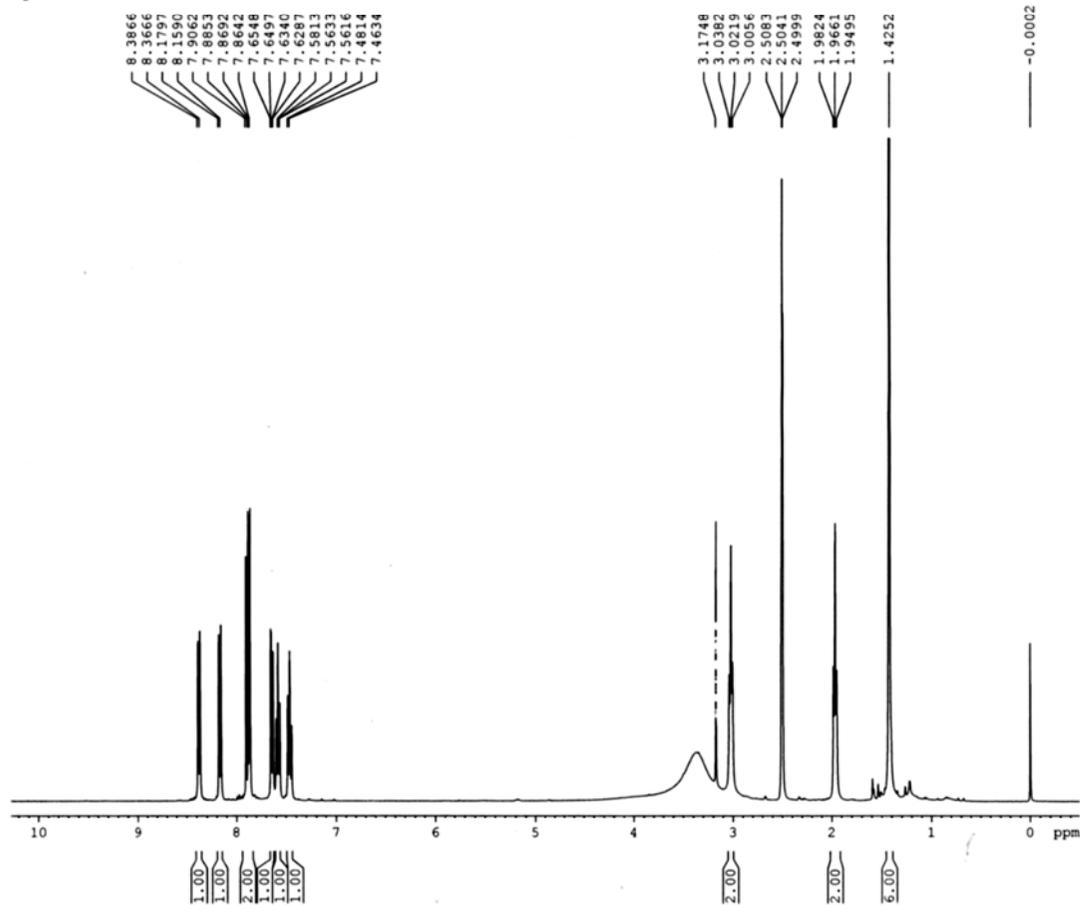
F1 - Acquisition parameters
MD0        1
TD         256
SFO1       400.1519 MHz
FIDRES     17.193947 Hz
SW         11.000 ppm
F0MODE     QF

F2 - Processing parameters
SI         512
SF         400.1500081 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
SI         512
NUC2       QF
SF         400.1500081 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
  
```

Espectro 91. Ampliação da região de hidrogênios aromáticos do espectro de correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, CDCl_3) do composto (66).

BLI / 2,4 Cl2Bz II - Aurelio
Op. Eliane



Current Data Parameters
NAME ufrj0880815
EXPNO 10
PROCNO 1

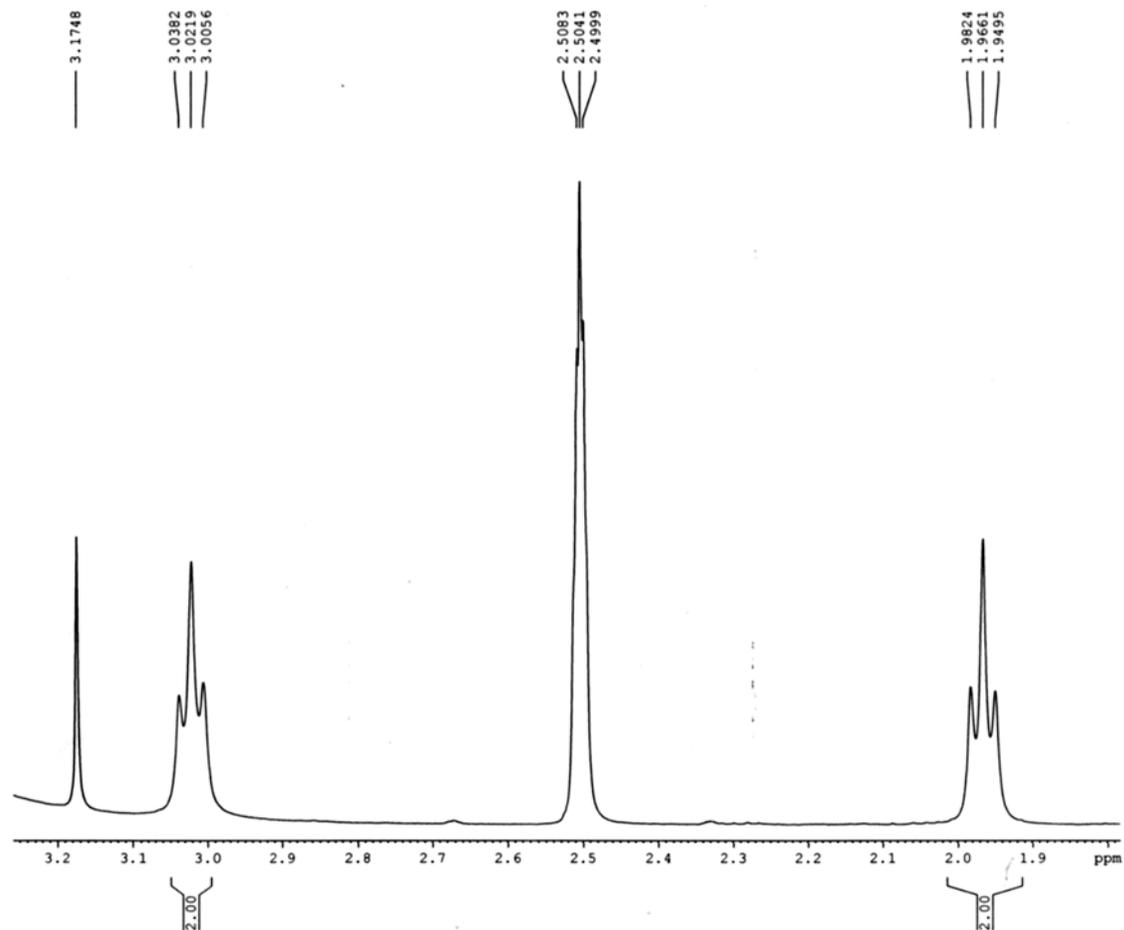
F2 - Acquisition Parameters
Date_ 20080813
Time_ 12.42
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT DMSO
NS 32
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 256
DW 60.400 usec
DE 6.00 usec
TE 0.0 K
D1 1.00000000 sec
MCFEST 0.00000000 sec
MCWRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 12.25 usec
PL1 -3.00 dB
SFO1 400.1524711 MHz

F2 - Processing parameters
SI 32768
SF 400.1500004 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Espectro 92. RMN ¹H (400 MHz, DMSO-*d*₆) do composto (67).

BLI / 2,4 Cl2Bz II - Aurelio
Op. Eliane



Current Data Parameters
NAME ufrj0880815
EXFNO 10
PROCNO 1

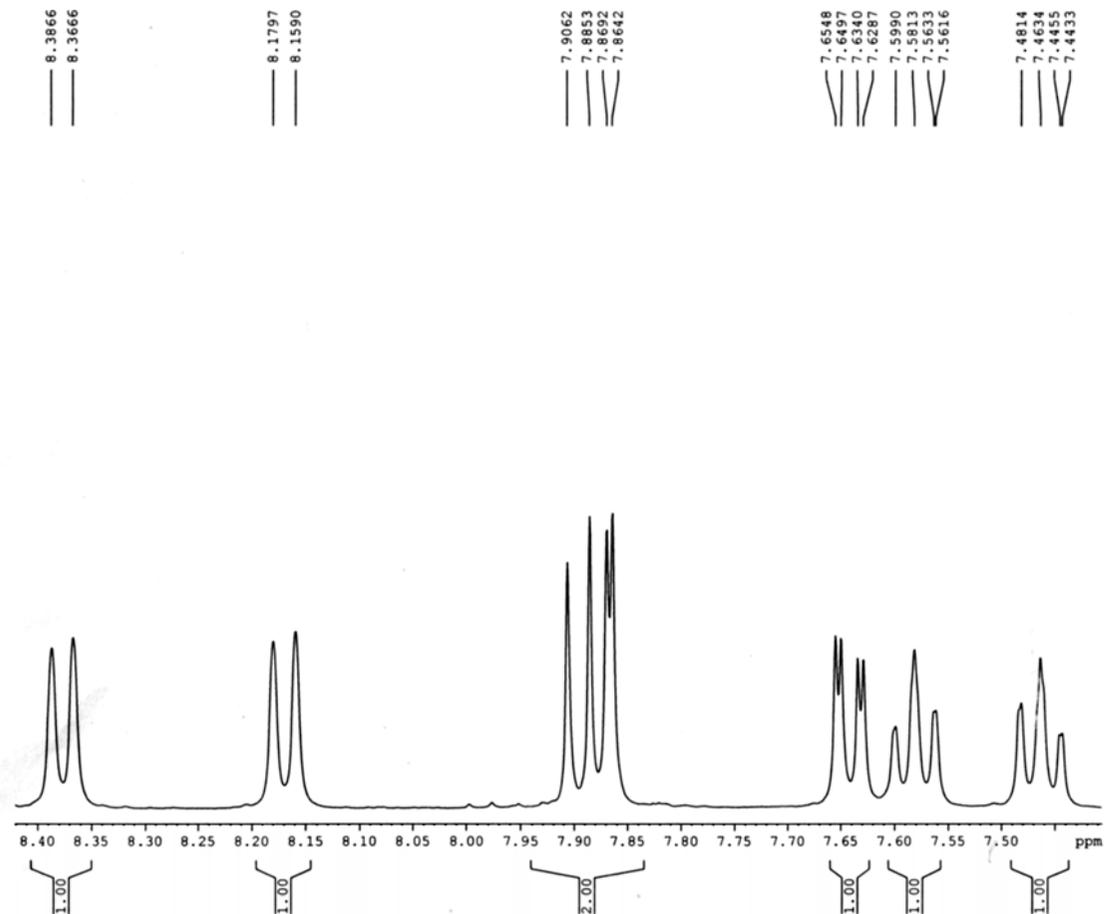
F2 - Acquisition Parameters
Date_ 20080813
Time 12.42
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT DMSO
NS 32
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 256
DW 60.400 usec
DE 6.00 usec
TE 0.0 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 12.25 usec
PL1 -3.00 dB
SFO1 400.1524711 MHz

F2 - Processing parameters
SI 32768
SF 400.1500004 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Espectro 93. Ampliação da região de hidrogênios alifáticos do espectro de RMN ^1H (400 MHz, DMSO- d_6) do composto (67).

BLI / 2,4 Cl2Bz II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      ufrj0880815
EXPNO    10
PROCNO   1

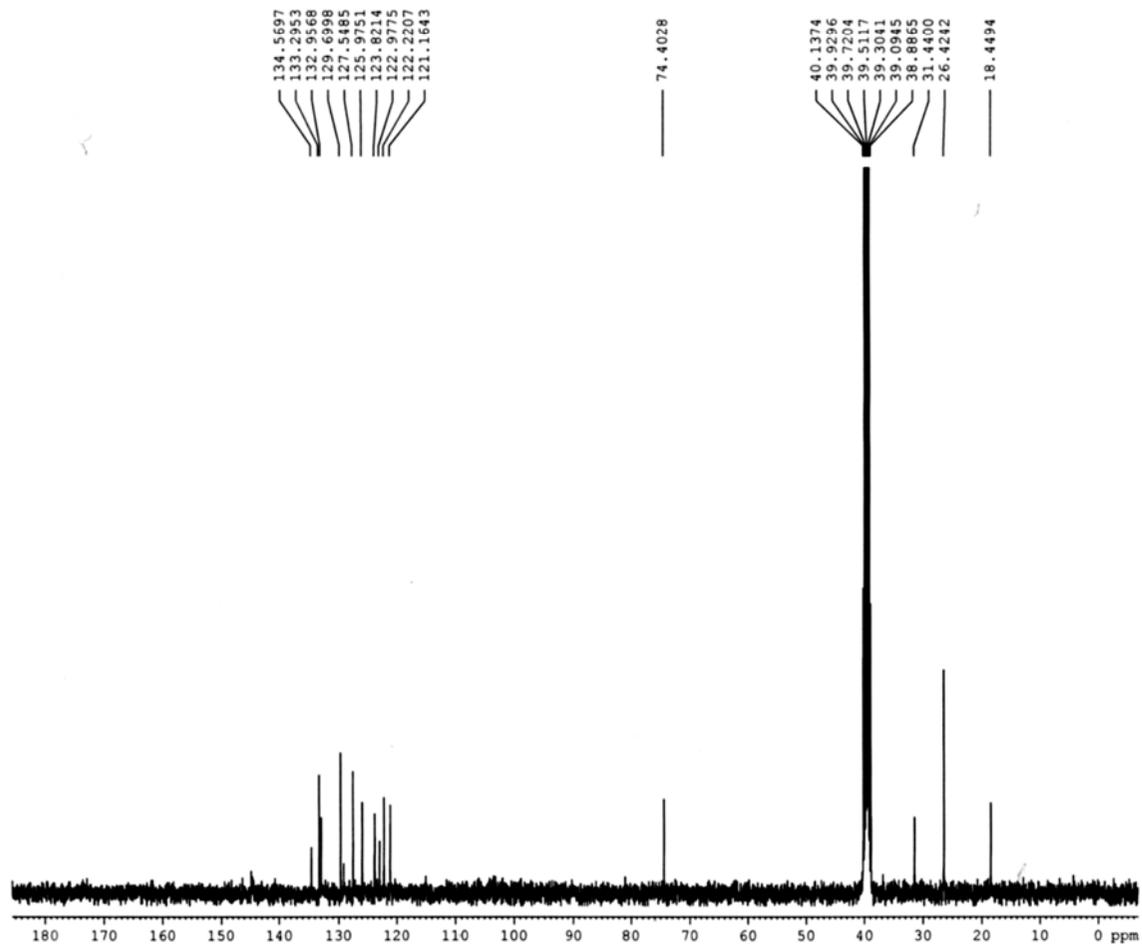
F2 - Acquisition Parameters
Date_    20080813
Time     12.42
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  zg30
TD       65536
SOLVENT  DMSO
NS       32
DS       2
SWH      8278.146 Hz
FIDRES   0.126314 Hz
AQ       3.9584243 sec
RG       256
DM       60.400 usec
DE       6.00 usec
TE       0.0 K
D1       1.00000000 sec
MCREST   0.00000000 sec
MCWRK    0.01500000 sec

----- CHANNEL f1 -----
NUC1     1H
P1       12.25 usec
PL1      -3.00 dB
SFO1     400.1524711 MHz

F2 - Processing parameters
SI       32768
SF       400.1500004 MHz
WDW      EM
SSB      0
LB       0.30 Hz
GB       0
PC       1.00
  
```

Espectro 94. Ampliação da região de hidrogênios aromáticos do espectro de RMN ^1H (400 MHz, DMSO- d_6) do composto (67).

BLI / 2,4 Cl2Bz II - Aurelio
Op. Eliane



```
Current Data Parameters
NAME      uffrj0880815
EXPNO     11
PROCNO    1

F2 - Acquisition Parameters
Date_     20080812
Time      15.35
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD         32768
SOLVENT   DMSO
NS         32768
DS         0
SWH        23980.814 Hz
FIDRES     0.731836 Hz
AQ         0.6832628 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         0.0 K
D1         0.20000000 sec
d11        0.03000000 sec
DELTA      0.10000000 sec
MCREST     0.00000000 sec
MCWRK     0.01500000 sec

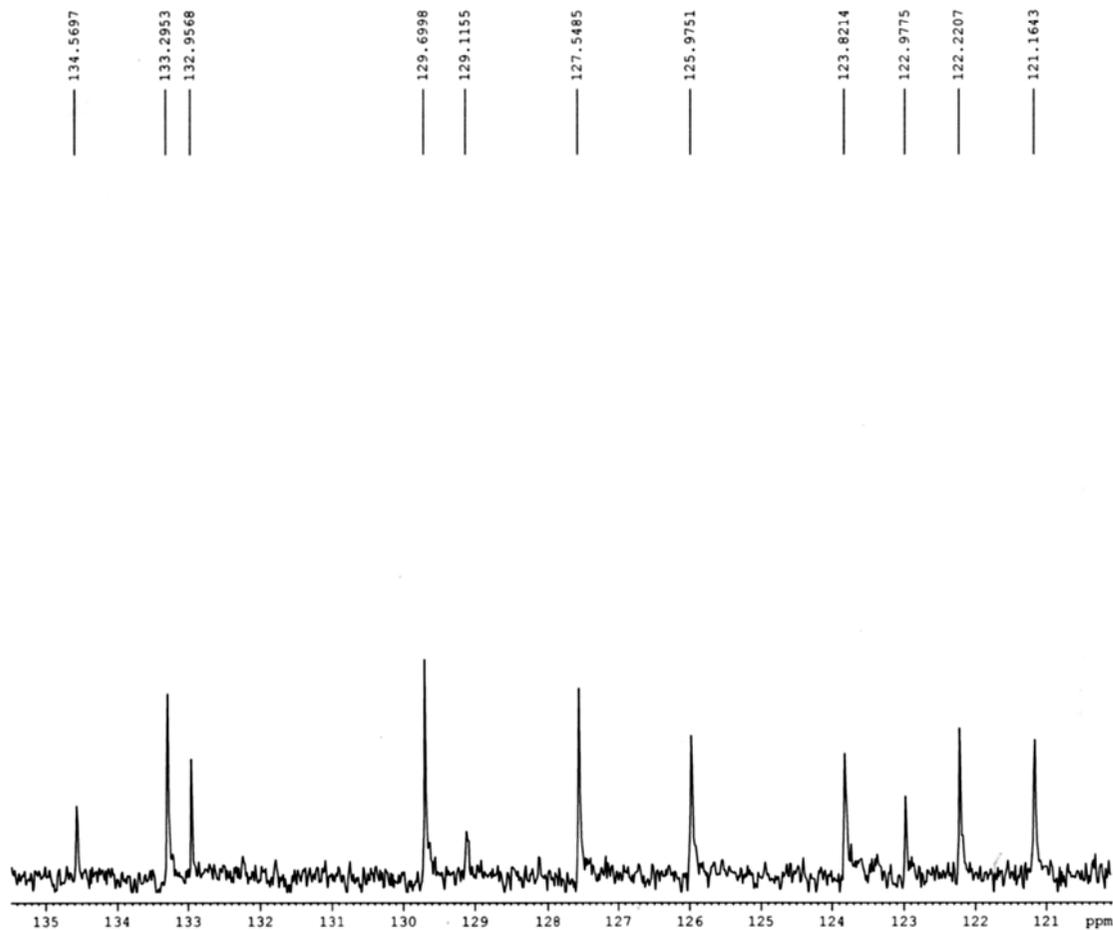
----- CHANNEL f1 -----
NUC1       13C
P1         7.50 usec
PL1        -4.00 dB
SFO1       100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2       13C
PCPD2     100.00 usec
PL2        -3.00 dB
PL12       15.24 dB
PL13       15.24 dB
SFO2       400.1516006 MHz

F2 - Processing parameters
SI         16384
SF         100.6178477 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
```

Espectro 95. RMN ^{13}C (100 MHz, DMSO- d_6) do composto (67).

BLI / 2,4 Cl2Bz II - Aurelio
Op. Eliane



Current Data Parameters
NAME ufrrj0880815
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20080812
Time 15.35
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 32768
SOLVENT DMSO
NS 32768
DS 0
SWH 23980.814 Hz
FIDRES 0.731836 Hz
AQ 0.6832628 sec
RG 16384
DW 20.850 usec
DE 6.00 usec
TE 0.0 K
D1 0.20000000 sec
d11 0.03000000 sec
DELTA 0.10000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

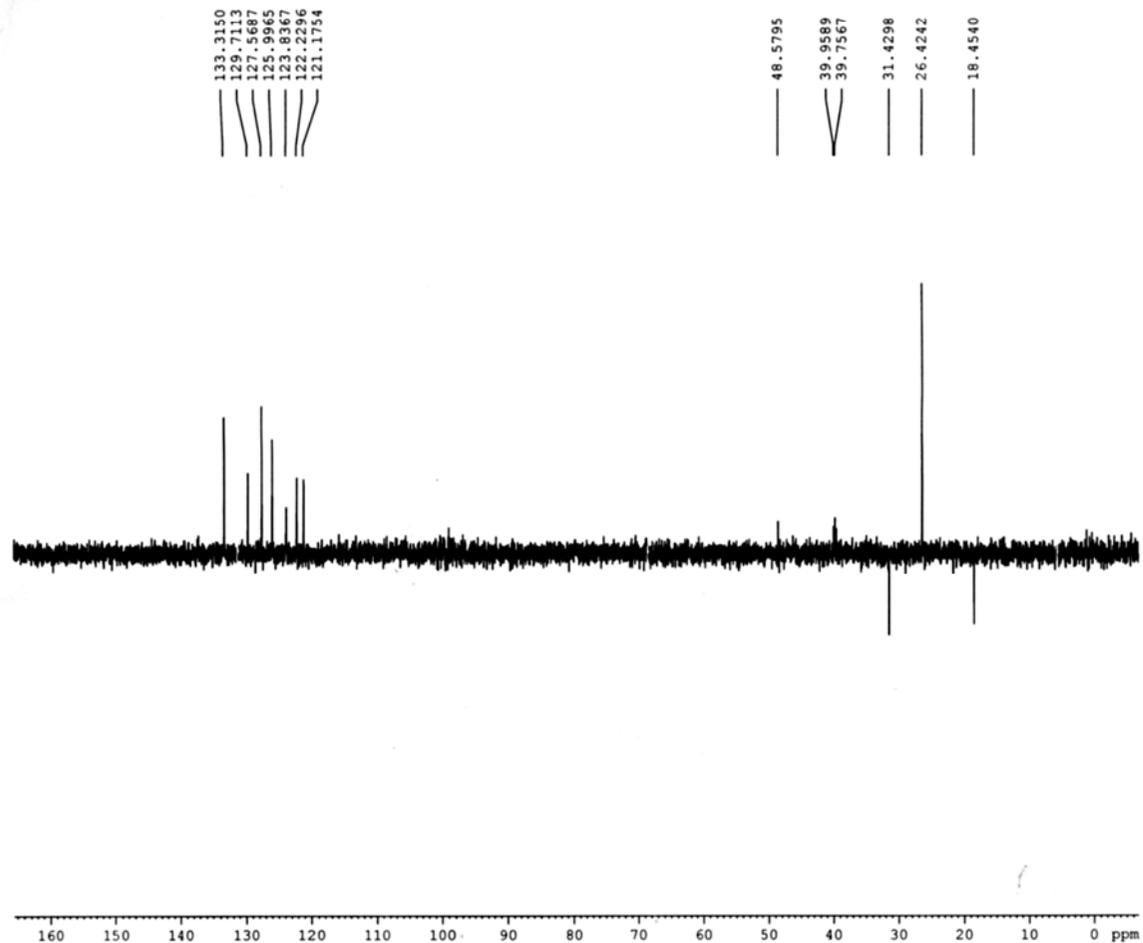
----- CHANNEL f1 -----
NUC1 13C
P1 7.50 usec
PL1 -4.00 dB
SFO1 100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -3.00 dB
PL12 15.24 dB
PL13 15.24 dB
SFO2 400.1516006 MHz

F2 - Processing parameters
SI 16384
SF 100.6178477 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Espectro 96. Ampliação da região de carbonos aromáticos do espectro de RMN ^{13}C (100 MHz, DMSO- d_6) do composto (67).

BLI / 2,4 Cl2Bz II - Aurelio
Op. Eliane



Current Data Parameters
NAME ufrj0880815
EXPNO 12
PROCNO 1

F2 - Acquisition Parameters
Date_ 20080813
Time 6.22
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG dept135
TD 32768
SOLVENT DMSO
NS 8192
DS 4
SWH 23980.814 Hz
FIDRES 0.731836 Hz
AQ 0.6832628 sec
RG 16384
DW 20.850 usec
DE 6.00 usec
TE 0.0 K
CNST2 145.000000
D1 2.00000000 sec
d2 0.00344828 sec
d12 0.00002000 sec
DELTA 0.00000955 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

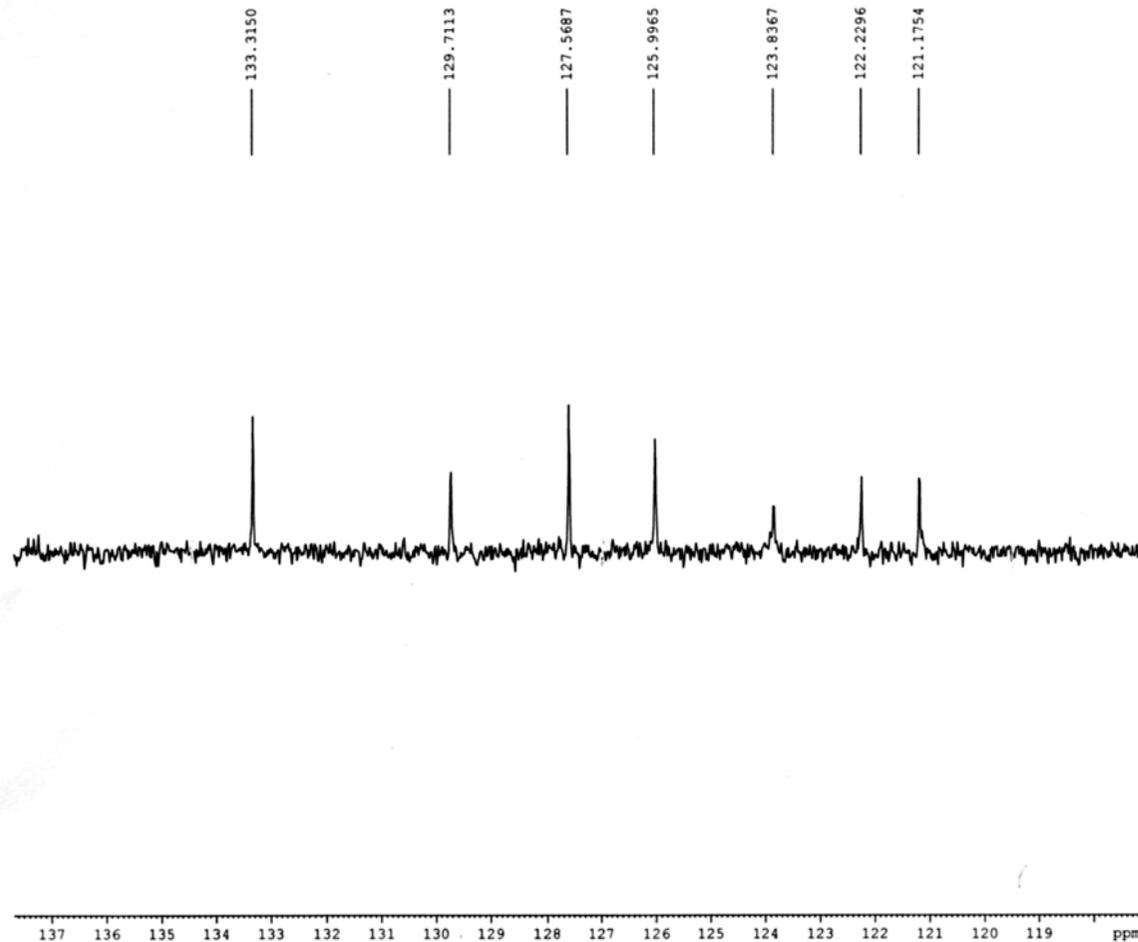
----- CHANNEL f1 -----
NUC1 13C
P1 7.50 usec
P2 15.00 usec
PL1 -4.00 dB
SFO1 100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
P3 12.25 usec
P4 24.50 usec
PCPD2 100.00 usec
PL2 -3.00 dB
PL12 15.24 dB
SFO2 400.1516006 MHz

F2 - Processing parameters
SI 16384
SF 100.6178471 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Espectro 97. RMN $^{13}\text{C}_{(\text{DEPT})}$ (100 MHz, DMSO- d_6) do composto (67).

BLI / 2,4 Cl2Bz II - Aurelio
Op. Eliane



```
Current Data Parameters
NAME      ufrj0880815
EXPNO     12
PROCNO    1

F2 - Acquisition Parameters
Date_     20080813
Time      6.22
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   dept135
TD         32768
SOLVENT   DMSO
NS         8192
DS         4
SWH        23980.814 Hz
FIDRES     0.731836 Hz
AQ         0.6832628 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         0.0 K
CNST2     145.0000000
D1         2.0000000 sec
d2         0.00344828 sec
d12        0.00002000 sec
DELTA     0.00000955 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

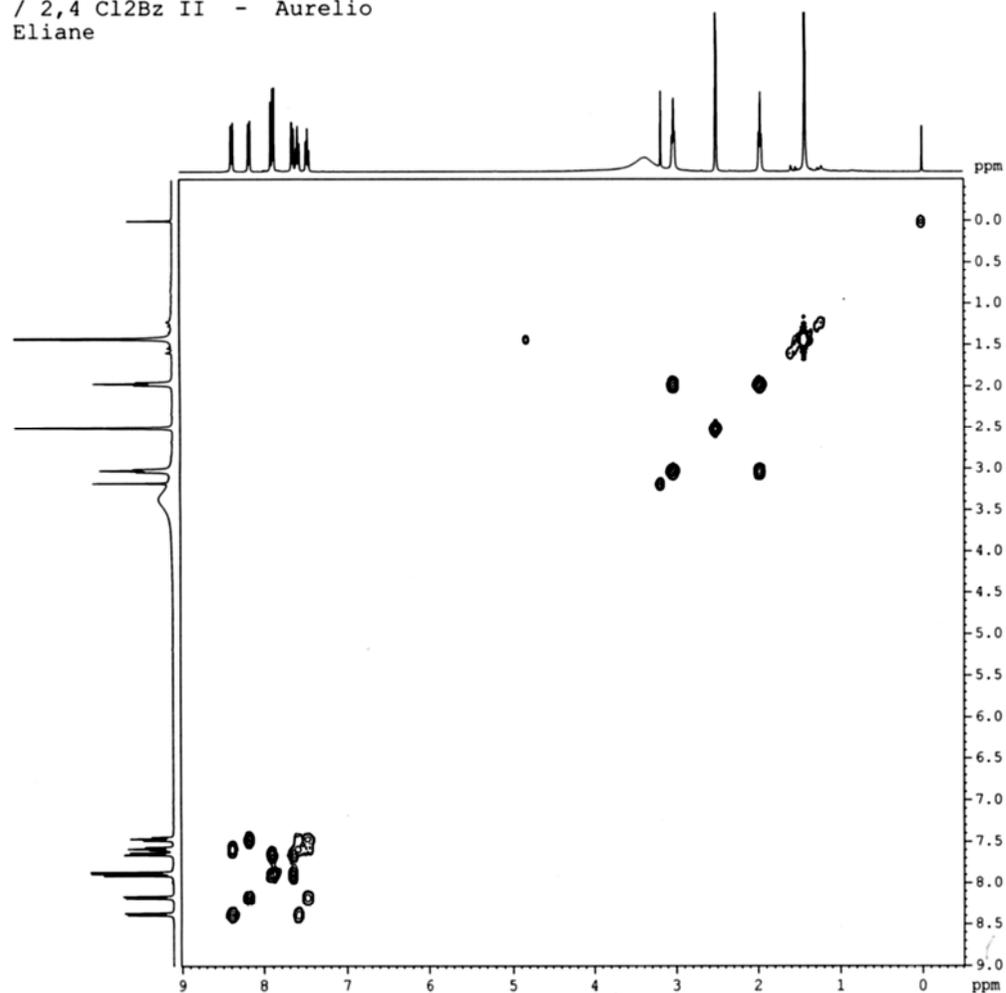
===== CHANNEL f1 =====
NUC1       13C
P1         7.50 usec
p2         15.00 usec
PL1        -4.00 dB
SFO1       100.6278593 MHz

===== CHANNEL f2 =====
CPDPRG2    waltz16
NUC2       1H
P3         12.25 usec
P4         24.50 usec
PCPD2      100.00 usec
PL2        -3.00 dB
PL12       15.24 dB
SFO2       400.1516006 MHz

F2 - Processing parameters
SI         16384
SF         100.6178471 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
```

Espectro 98. Ampliação da região de carbonos aromáticos do espectro de RMN $^{13}\text{C}_{(\text{DEPT})}$ (100 MHz, DMSO- d_6) do composto (67).

BLI / 2,4 Cl2Bz II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      uffrj0880815
EXPNO     13
PROCNO    1

F2 - Acquisition Parameters
Date_     20080813
Time      6.23
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   cosyypqf
TD         2048
SOLVENT   DMSO
NS         16
DS         8
SWH        4401.409 Hz
FIDRES    2.149125 Hz
AQ         0.2327028 sec
RG         406.4
DW         113.600 usec
DE         6.00 usec
TE         0.0 K
d0         0.00000300 sec
d1         1.48689198 sec
d13        0.00000400 sec
d14        0.00010000 sec
IN0        0.00022719 sec
MCREST    0.00000000 sec
MCWRK     1.48689198 sec

----- CHANNEL f1 -----
NUC1      1H
PQ        12.25 usec
P1         12.25 usec
PL1       -3.00 dB
SFO1      400.1519207 MHz

----- GRADIENT CHANNEL -----
GPNAM1    SINE.100
GPNAM2    SINE.100
GFX1      0.00 %
GFX2      0.00 %
GPF1      0.00 %
GPF2      0.00 %
GPZ1      10.00 %
GPZ2      10.00 %
F14       1000.00 usec

F1 - Acquisition parameters
NDO        1
TD         128
SFO1       400.1519 MHz
FIDRES     34.387894 Hz
SW         11.000 ppm
FhMODE     QF

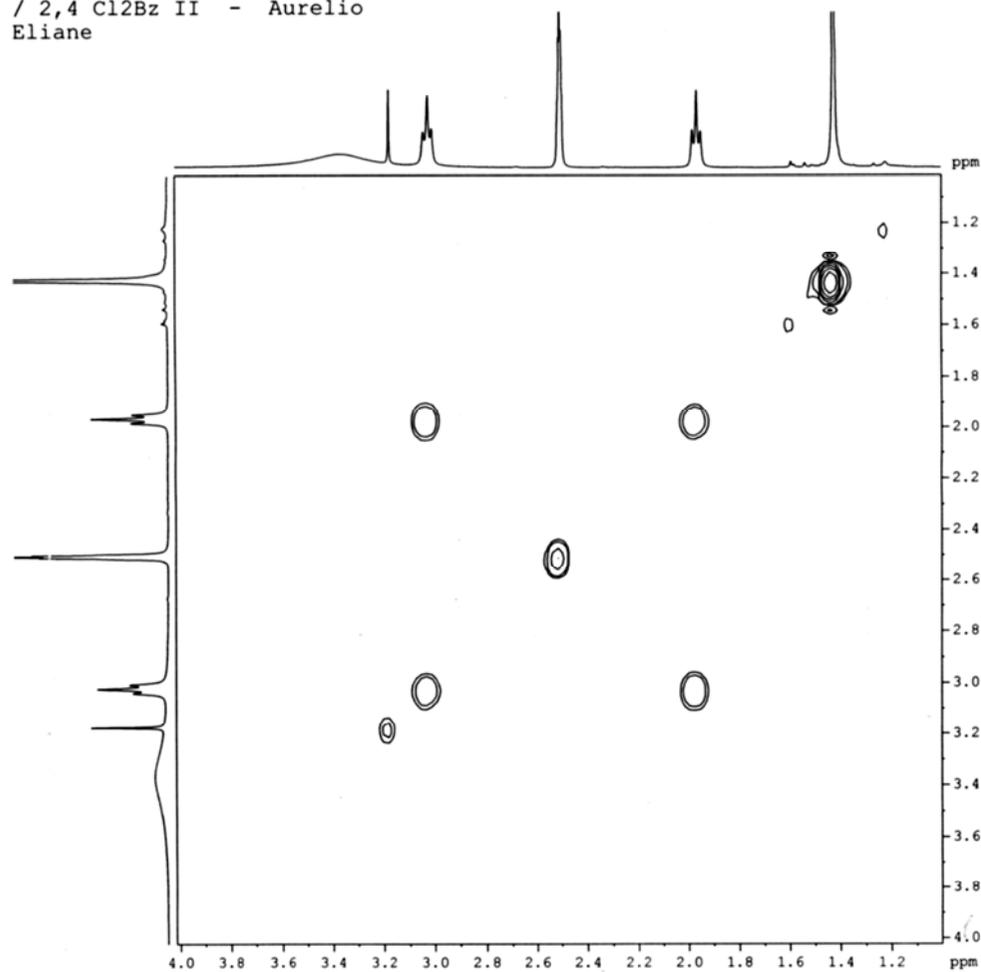
F2 - Processing parameters
SI         512
SF         400.1499954 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
SI         512
MC2        QF
SF         400.1499957 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0

```

Espectro 99. Correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, DMSO- d_6) do composto (67).

BLI / 2,4 Cl2Bz II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      ufrj080815
EXPNO    13
PROCNO    1

F2 - Acquisition Parameters
Date_     20080813
Time      6.23
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   cosyqqqf
TD        2048
SOLVENT   DMSO
NS        16
DS        8
SWH       4401.409 Hz
FIDRES    2.149125 Hz
AQ        0.2327028 sec
RG        406.4
DM        113.600 usec
DE        6.00 usec
TE        0.0 K
d0        0.0000300 sec
d1        1.48689198 sec
d13       0.00000400 sec
d16       0.00010000 sec
INDO      0.0002719 sec
MCREST    0.00000000 sec
MCWRK     1.48689198 sec

----- CHANNEL f1 -----
NUC1      1H
P0        12.25 usec
P1        12.25 usec
PL1       -3.00 dB
SFO1      400.1519207 MHz

----- GRADIENT CHANNEL -----
GPNAM1    SINE.100
GPNAM2    SINE.100
GFX1      0.00 %
GFX2      0.00 %
GFX3      0.00 %
GFX4      0.00 %
GFX5      0.00 %
GFX6      10.00 %
GFX7      10.00 %
P16       1000.00 usec

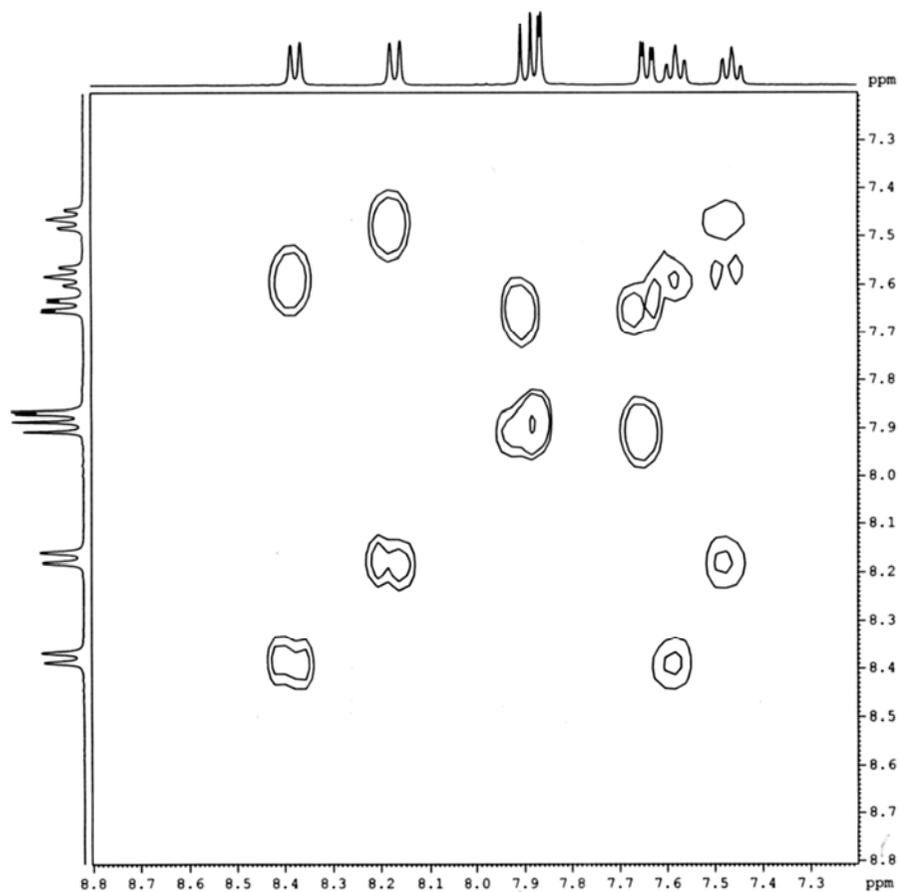
F1 - Acquisition parameters
ND0       1
TD        128
SFO1      400.1519 MHz
FIDRES    34.387894 Hz
SW        11.000 ppm
F0MODE    QF

F2 - Processing parameters
SI        512
SF        400.1499954 MHz
WDW       QSINE
SSB       0
LB        0.00 Hz
GB        0
PC        1.40

F1 - Processing parameter:
SI        512
MC2       QF
SF        400.1499957 MHz
WDW       QSINE
SSB       0
LB        0.00 Hz
GB        0
  
```

Espectro 100. Ampliação da região de hidrogênios alifáticos do espectro de correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, DMSO- d_6) do composto (67).

BLI / 2,4 Cl2Bz II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      uffrj080813
EXPNO    13
PROCNO    1

F2 - Acquisition Parameters
Date_     20080813
Time      6.23
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   coesyppqf
TD         2048
SOLVENT   DMSO
NS         16
DS         8
SWH        4401.409 Hz
FIDRES     2.149125 Hz
AQ         0.2327028 sec
RG         406.4
AQ         113.600 usec
DE         6.00 usec
TE         0.0 K
d0         0.00000300 sec
d1         1.48689198 sec
d13        0.00000400 sec
d16        0.00010000 sec
lmo        0.00022719 sec
MCREST    0.00000003 sec
MCWRRX    1.48689198 sec

----- CHANNEL f1 -----
NUC1      1H
P0        12.25 usec
P1        12.25 usec
PL1       -3.00 dB
SFO1      400.1519207 MHz

----- GRADIENT CHANNEL -----
GPNAM1    SINE.100
GPNAM2    SINE.100
GFX1      0.00 %
GFX2      0.00 %
GPY1      0.00 %
GPY2      0.00 %
GPI1      10.00 %
GPI2      10.00 %
P16       1000.00 usec

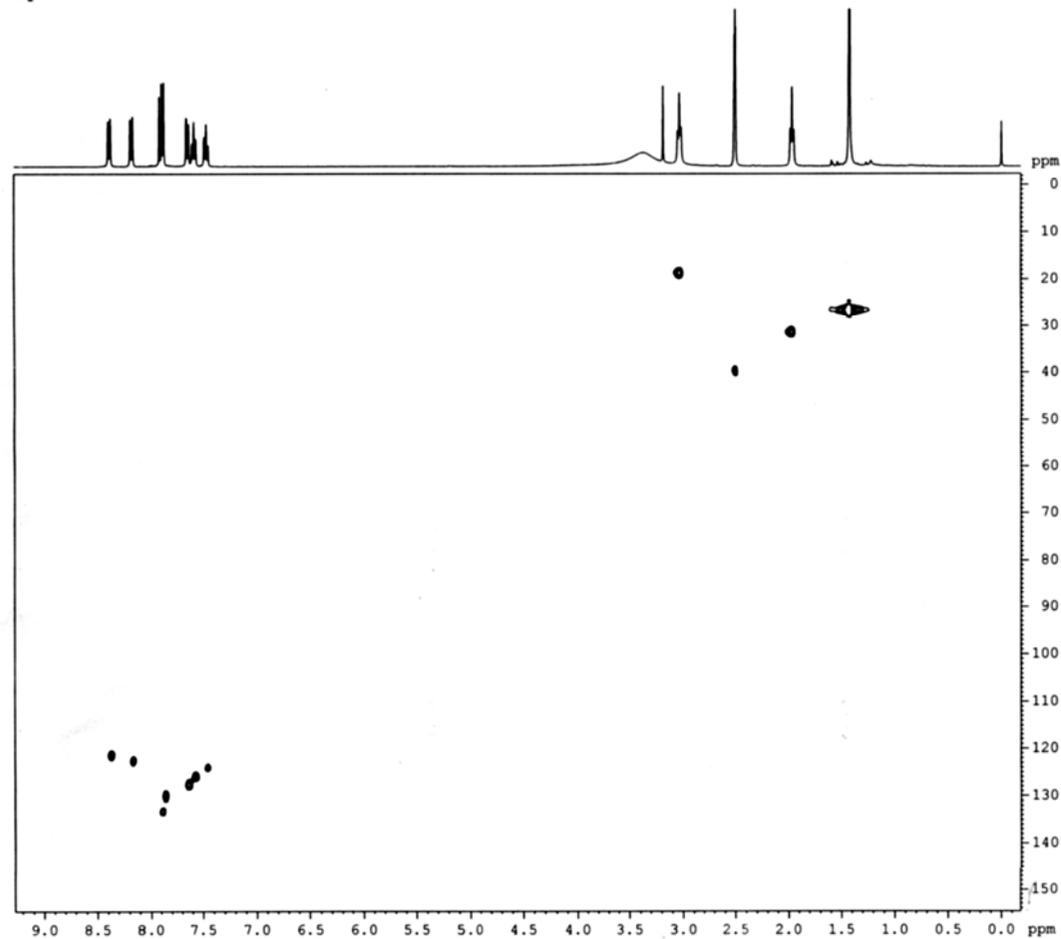
F1 - Acquisition parameters
NDO       1
TD        128
SFO1      400.1519 MHz
FIDRES     34.387894 Hz
SW         11.00 ppm
F0MODE     QF

F2 - Processing parameters
SI         512
SF         400.1499954 MHz
WDW        QSINE
SSB        J
LB         0.00 Hz
GB         )
PC         1.40

F1 - Processing parameters
SI         512
MC2        QF
SF         400.1499927 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
  
```

Espectro 101. Ampliação da região de hidrogênios aromáticos do espectro de correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, DMSO- d_6) do composto (67).

BLI / 2,4 Cl₂Bz II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      ufrj088815
EXPNO    14
PROCNO   1

F2 - Acquisition Parameters
Date_    20080813
Time     7.23
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  zgpg30
TD        1024
SOLVENT  DMSO
NS        16
DS        16
SWH       5995.204 Hz
FIDRES   5.854691 Hz
AQ        0.0854516 sec
RG        4096
DW        83.400 usec
DE        6.00 usec
TE        300.2
CMST2    145.0000000
d0        0.0000300 sec
d1        1.5000000 sec
d4        0.00172414 sec
d11       0.03000000 sec
d13       0.00000400 sec
d16       0.00010000 sec
DELTA     0.0013050 sec
DELTA1    0.00071614 sec
IN0       0.00002485 sec
MCKREST   0.0000000 sec
MCWRR     0.30000001 sec
ST1CNT    128

===== CHANNEL f1 =====
NUC1      1H
P1        12.25 usec
P2        24.50 usec
P2R       2096.00 usec
PL1       -3.00 dB
SFO1      400.1527210 MHz

===== CHANNEL f2 =====
CFPRMG2   4arp
NUC2      13C
P3         7.50 usec
P4        15.00 usec
PCPD2     70.00 usec
PL2       -4.00 dB
PL12      15.40 dB
SFO2      100.6268536 MHz

===== GRADIENT CHANNEL =====
GPM1M1    SINE.100
GPM1M2    SINE.100
GPX1      0.00 t
GPX2      0.00 t
GPY1      0.00 t
GPY2      0.00 t
GPE1      80.00 t
GPE2      20.12 t
P16       1000.00 usec

F1 - Acquisition parameters
NUC1      1H
TD        128
SFO1      400.1527210 MHz
FIDRES    157.193161 Hz
SW        199.954 ppm
F1MODE    F1ho-Antiecho

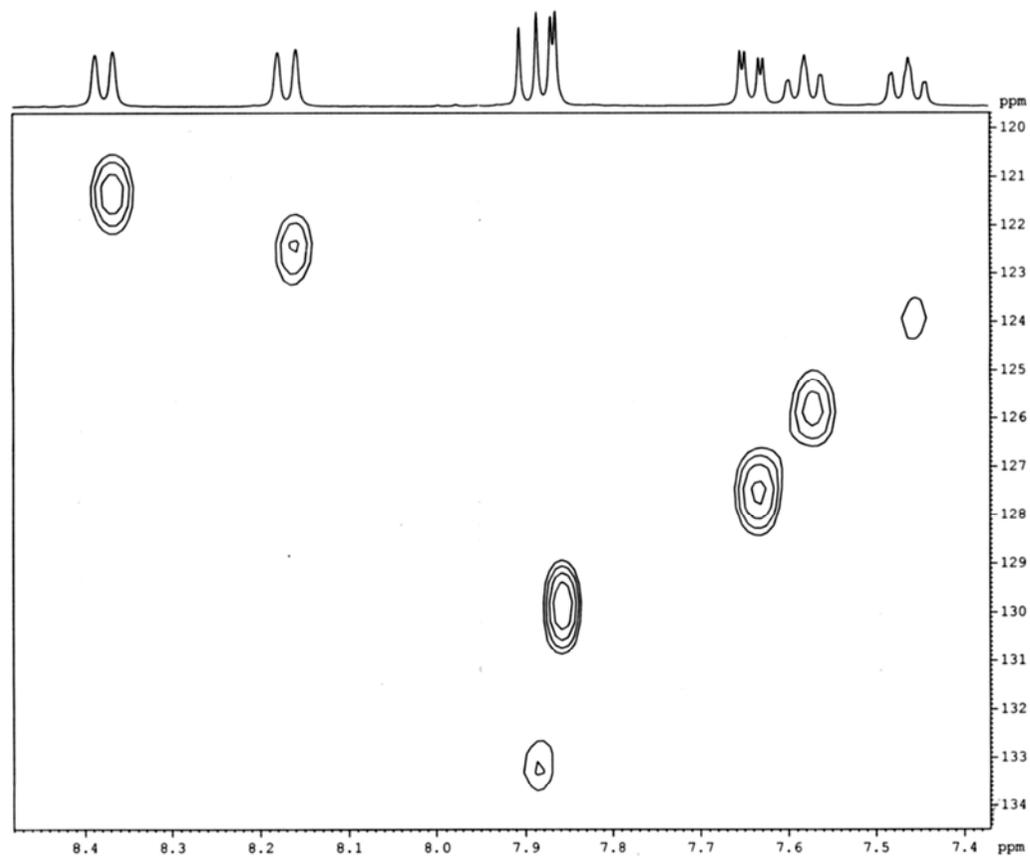
F2 - Processing parameters
SI        2048
SF        400.1499849 MHz
WDW       QSI
SSB       2
LB        0.00 Hz
GB        0
PC        1.40

F1 - Processing parameters
SI        512
MC2       echo-antiecho
SF        100.6178399 MHz
WDW       QSI
SSB       2
LB        0.00 Hz
GB        0

```

Espectro 102. Correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, DMSO- d_6) do composto (67).

BLI / 2,4 Cl2Bz II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      ufrj080915
EXPNO    14
PROCNO   1

F2 - Acquisition Parameters
Date_    2008013
Time     7.23
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  zgpg30
TD        1024
SOLVENT  DMSO
NS        14
DS        16
SWH       5995.204 Hz
FIDRES    5.854891 Hz
AQ        0.0854516 sec
RG         4096
DW        83.400 usec
DE         6.00 usec
TE         0.0 K
CNS2     145.000000
d0        0.0000300 sec
d1        1.5000000 sec
d4        0.00172414 sec
d11       0.03000000 sec
d13       0.00000400 sec
d16       0.00010000 sec
DELTA     0.00110010 sec
DELTA1    0.00071614 sec
JHS       0.00002413 sec
MCREST    0.00000000 sec
MCWRR     0.30000001 sec
STICK     1.0

----- CHANNEL f1 -----
NUC1       1H
P1         12.25 usec
PC        24.50 usec
PZ8        2000.00 usec
PL1        -3.00 dB
SFO1       400.1527210 MHz

----- CHANNEL f2 -----
CPDPRG2   gqfp
NUC2       13C
P3         7.50 usec
P4         15.00 usec
PCPD2     70.00 usec
PL2        -4.00 dB
PL12       15.40 dB
SFO2       100.6248516 MHz

----- GRADIENT CHANNEL -----
GPRAM1    SINE.10
GPRAM2    SINE.100
GPI1      0.10 s
GPI2      0.10 s
GPI3      0.10 s
GPI4      0.10 s
GPI5      0.10 s
GPI6      0.10 s
GPI7      0.10 s
GPI8      0.10 s
GPI9      0.10 s
GPI10     0.10 s
GPI11     0.10 s
GPI12     0.10 s
GPI13     0.10 s
GPI14     0.10 s
GPI15     0.10 s
GPI16     0.10 s
P16       1000.10 usec

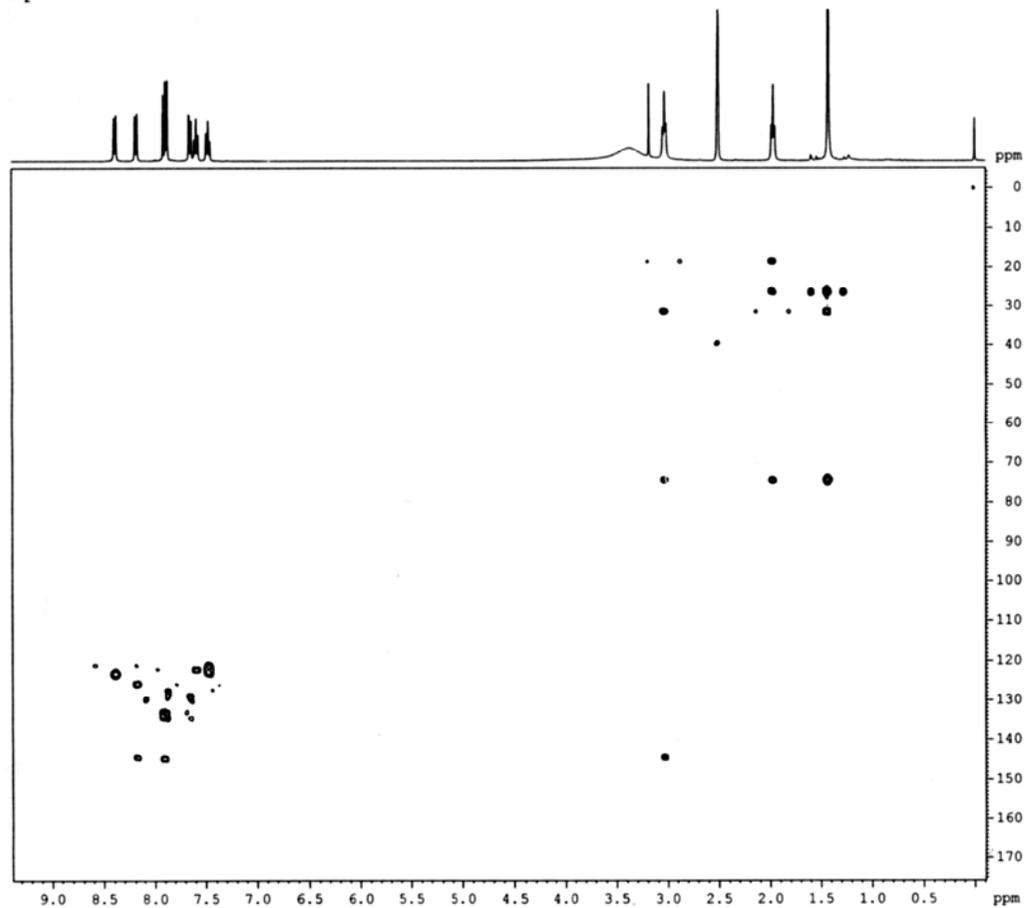
F1 - Acquisition parameters
ND0        2
TD         118
SFO1       100.6219 MHz
FIDRES     157.193111 Hz
SW         199.914 ppm
PRMODE     Echo-Antlecho

F2 - Processing parameters
SI         2018
SF         400.1499619 MHz
WDW        QM1E
SSB        2
LB         0.10 Hz
GB         0
PC         1.10

F1 - Processing parameters
SI         512
MC2        echo-antlecho
SF         100.6178399 MHz
WDW        QM1E
SSB        2
LB         0.00 Hz
GB         0
  
```

Espectro 103. Ampliação da região de hidrogênios aromáticos do espectro de correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, DMSO- d_6) do composto (67).

BLI / 2,4 Cl2Bz II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      ufrj080815
EXPRNO   15
PROCNO    1

F2 - Acquisition Parameters
Date      20080813
Time      8.19
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   hbccgplp09gf
TD         4096
SOLVENT   DMSO
NS         32
DS         16
SWH        5995.204 Hz
FIDRES     1.463673 Hz
AQ         0.3416564 sec
RG         4096
DSW        83.400 usec
DE         6.00 usec
TE         0.0 K
CMT2      145.0000000
CMT3      8.0000000
d0        0.0000000 sec
D1         1.5000000 sec
d2        0.00344828 sec
d6        0.06250000 sec
D16       0.00010000 sec
IMD       0.00002070 sec
MCWREST   0.0000000 sec
MCWREK    1.5000000 sec

----- CHANNEL f1 -----
NUC1      1H
P1        12.25 usec
p2        24.50 usec
PL1       -3.00 dB
SFO1     400.152811 MHz

----- CHANNEL f2 -----
NUC2      13C
P1         7.50 usec
PL2       -4.00 dB
SFO2     100.628460 MHz

----- GRADIENT CHANNEL -----
GPRAM1    SINE.100
GPRAM2    SINE.100
GPRAM3    SINE.100
GFX1      0.00 %
GFX2      0.00 %
GFX3      0.00 %
GPF1      0.00 %
GPF2      0.00 %
GPF3      0.00 %
GPE1      50.00 %
GPE2      30.00 %
GPE3      40.10 %
P16       1000.00 usec

F1 - Acquisition parameters
ND0        2
TD         256
SFO1     100.6289 MHz
SF         94.35367 Hz
SR        240.036 ppm
F0MODE     QF

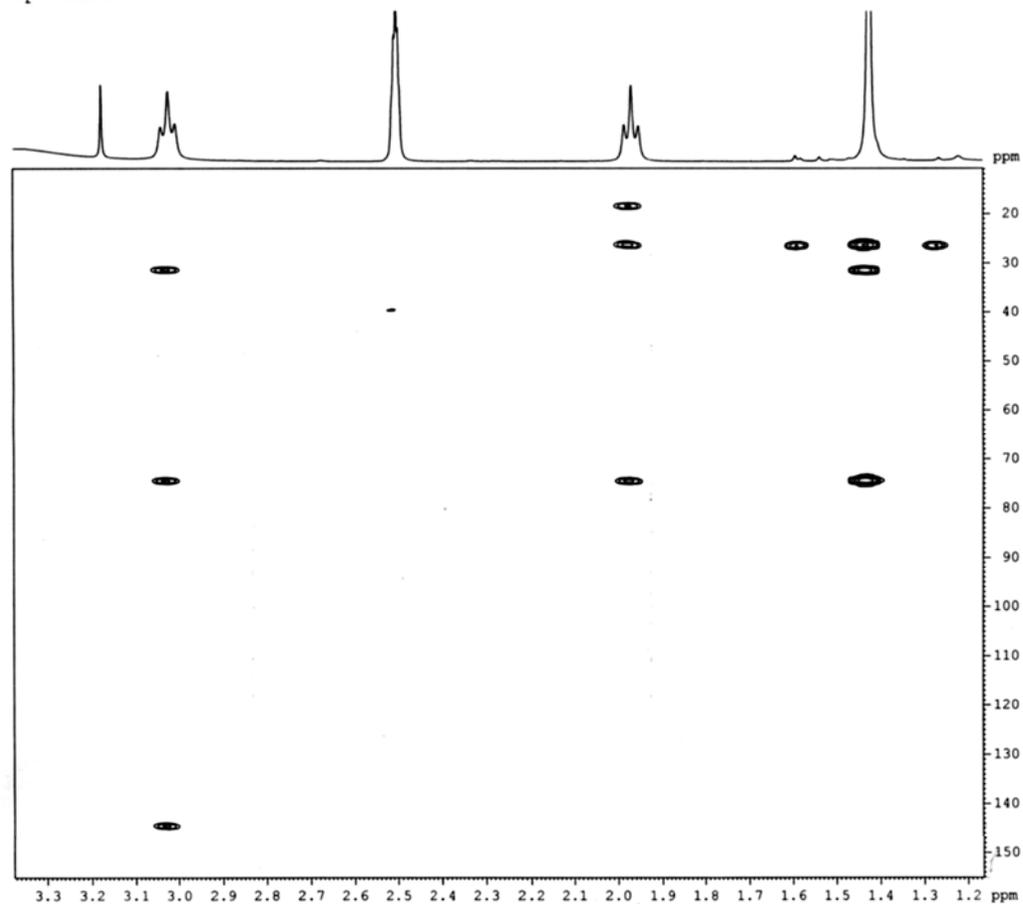
F2 - Processing parameters
SI         1024
SF        400.149971 MHz
WDW        QDINE
SSB         0
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
SI         2048
MC2        QF
SF        100.6178554 MHz
WDW        QDINE
SSB         0
LB         0.00 Hz
GB         0

```

Espectro 104. Correlações $^1\text{H} \times ^{13}\text{C}$ ($^{2,3}\text{J}$) (400 MHz, DMSO- d_6) do composto (67).

BLI / 2,4 Cl2Bz II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      uffrj080815
EXPNO    15
PROCNO   1

F2 - Acquisition Parameters
Date_    20080813
Time     8.19
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  hmcgppndygf
TD       4096
SOLVENT  DMSO
NS       32
DS       16
SWH      5990.204 Hz
FIDRES   1.463473 Hz
AQ       0.3416564 sec
RG       4096
DM       83.400 usec
DE       6.00 usec
TE       300.2 K
CMT2     145.0000000
CMT13    8.0000000
SE       0.00000300 sec
D1       1.50000000 sec
d2       0.00344818 sec
d4       0.06250000 sec
d16      0.00010000 sec
IRI      0.00002070 sec
MCREST   0.00000000 sec
MCWRR    1.50000000 sec

===== CHANNEL f1 =====
NUC1      1H
P1       12.25 usec
P2       24.50 usec
PL1      -3.00 dB
SFO1     400.1528811 MHz

===== CHANNEL f2 =====
NUC2      13C
P3       7.50 usec
PL2      -4.00 dB
SFO2     100.6288660 MHz

===== GRADIENT CHANNEL =====
GPRAM1    SINE.100
GPRAM2    SINE.100
GPRAM3    SINE.100
GFX1      0.00 %
GFX2      0.00 %
GFX3      0.00 %
GFY1      0.00 %
GFY2      0.00 %
GFY3      0.00 %
GZF1      50.00 %
GZF2      30.00 %
GZF3      40.10 %
P16       1000.00 usec

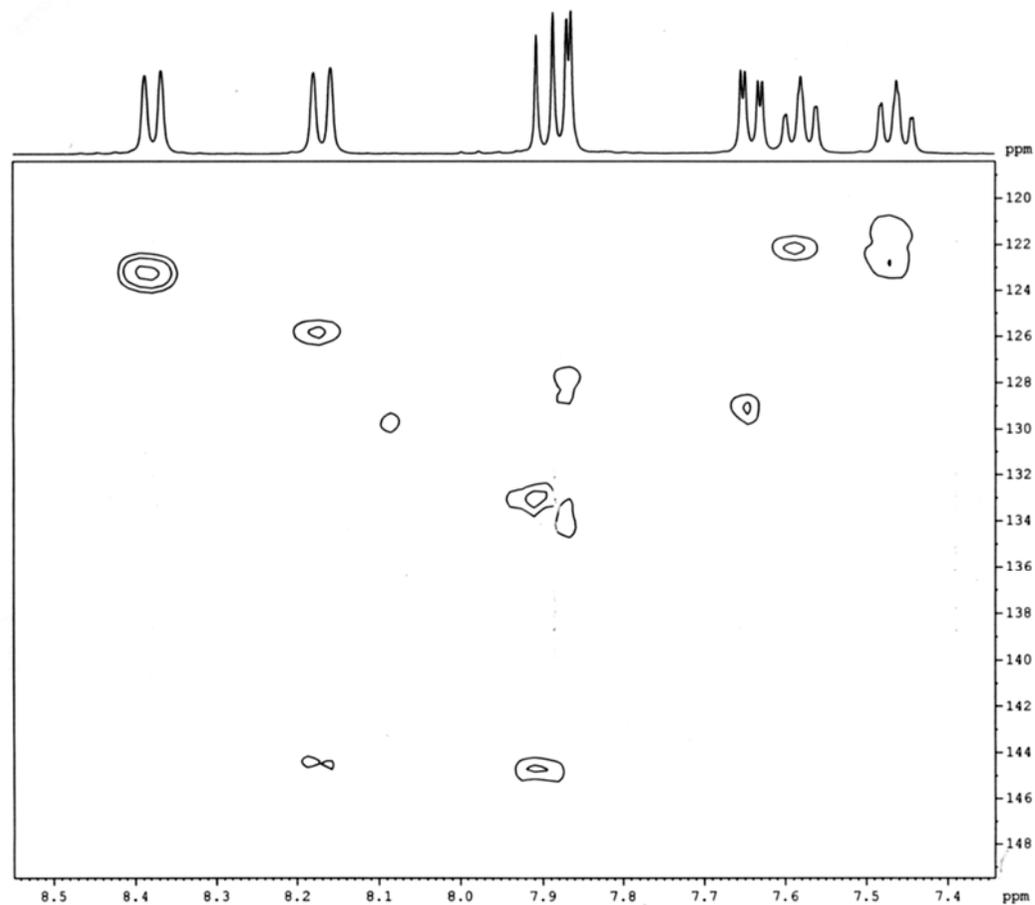
F1 - Acquisition parameters
ND0       2
TD        256
SFO1     100.6289 MHz
FIDRES    94.353867 Hz
SW        240.036 ppm
FAMODE    QF

F2 - Processing parameters
SI        1024
SF        400.1499971 MHz
WDW       QSSINE
SSB       0
IR        0.00 Hz
GB        0
PC        1.40

F1 - Processing parameters
SI        2048
MC2       QF
SF        100.6178514 MHz
WDW       QSSINE
SSB       0
IR        0.00 Hz
GB        0
  
```

Espectro 105. Ampliação da região de hidrogênios alifáticos do espectro de correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, DMSO- d_6) do composto (67).

BLI / 2,4 Cl2Bz II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      ufrj0880815
EXPRO     15
PROCNO    1

F2 - Acquisition Parameters
Date      20080813
Time      8.19
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   hmzgpg1pmodf
TD         4096
SOLVENT   DMSO
NS         32
DS         16
SWH        5995.204 Hz
FIDRES     1.461673 Hz
AQ         0.3416544 sec
RG         4096
DM         83.400 usec
DE         6.00 usec
TE         300.2 K
CNST2     145.0000000
CNST13    8.0000000
d0         0.0000000 sec
D1         1.5000000 sec
D2         0.00344828 sec
d6         0.0620000 sec
D16        0.00010000 sec
TMS0       0.00002070 sec
MORST      0.0000000 sec
MORWK      1.5000000 sec

***** CHANNEL f1 *****
NOC1       1H
P1         12.25 usec
p2         24.50 usec
PL1        -2.00 dB
SFO1       400.1528811 MHz

***** CHANNEL f2 *****
NOC2       13C
P3         7.50 usec
PL2        -4.00 dB
SFO2       100.6288660 MHz

***** GRADIENT CHANNEL *****
GPRAM1     SINE.100
GPRAM2     SINE.100
GPRAM3     SINE.100
GPI1       0.00 %
GPI2       0.00 %
GPI3       0.00 %
GPI4       0.00 %
GPI5       0.00 %
GPI6       0.00 %
GPI7       0.00 %
GPI8       0.00 %
GPI9       0.00 %
GPI10      0.00 %
GPI11      0.00 %
GPI12      0.00 %
GPI13      0.00 %
GPI14      0.00 %
GPI15      0.00 %
GPI16      0.00 %
GPI17      0.00 %
GPI18      0.00 %
GPI19      0.00 %
GPI20      0.00 %
GPI21      0.00 %
GPI22      0.00 %
GPI23      0.00 %
GPI24      0.00 %
GPI25      0.00 %
GPI26      0.00 %
GPI27      0.00 %
GPI28      0.00 %
GPI29      0.00 %
GPI30      0.00 %
GPI31      0.00 %
GPI32      0.00 %
GPI33      0.00 %
GPI34      0.00 %
GPI35      0.00 %
GPI36      0.00 %
GPI37      0.00 %
GPI38      0.00 %
GPI39      0.00 %
GPI40      0.00 %
GPI41      0.00 %
GPI42      0.00 %
GPI43      0.00 %
GPI44      0.00 %
GPI45      0.00 %
GPI46      0.00 %
GPI47      0.00 %
GPI48      0.00 %
GPI49      0.00 %
GPI50      0.00 %
GPI51      0.00 %
GPI52      0.00 %
GPI53      0.00 %
GPI54      0.00 %
GPI55      0.00 %
GPI56      0.00 %
GPI57      0.00 %
GPI58      0.00 %
GPI59      0.00 %
GPI60      0.00 %
GPI61      0.00 %
GPI62      0.00 %
GPI63      0.00 %
GPI64      0.00 %
GPI65      0.00 %
GPI66      0.00 %
GPI67      0.00 %
GPI68      0.00 %
GPI69      0.00 %
GPI70      0.00 %
GPI71      0.00 %
GPI72      0.00 %
GPI73      0.00 %
GPI74      0.00 %
GPI75      0.00 %
GPI76      0.00 %
GPI77      0.00 %
GPI78      0.00 %
GPI79      0.00 %
GPI80      0.00 %
GPI81      0.00 %
GPI82      0.00 %
GPI83      0.00 %
GPI84      0.00 %
GPI85      0.00 %
GPI86      0.00 %
GPI87      0.00 %
GPI88      0.00 %
GPI89      0.00 %
GPI90      0.00 %
GPI91      0.00 %
GPI92      0.00 %
GPI93      0.00 %
GPI94      0.00 %
GPI95      0.00 %
GPI96      0.00 %
GPI97      0.00 %
GPI98      0.00 %
GPI99      0.00 %
GPI100     0.00 %

F1 - Acquisition parameters
ND0        2
TD         256
SFO1       100.62889 MHz
FIDRES     94.353867 Hz
DM         240.016 ppm
P0MODE     QF

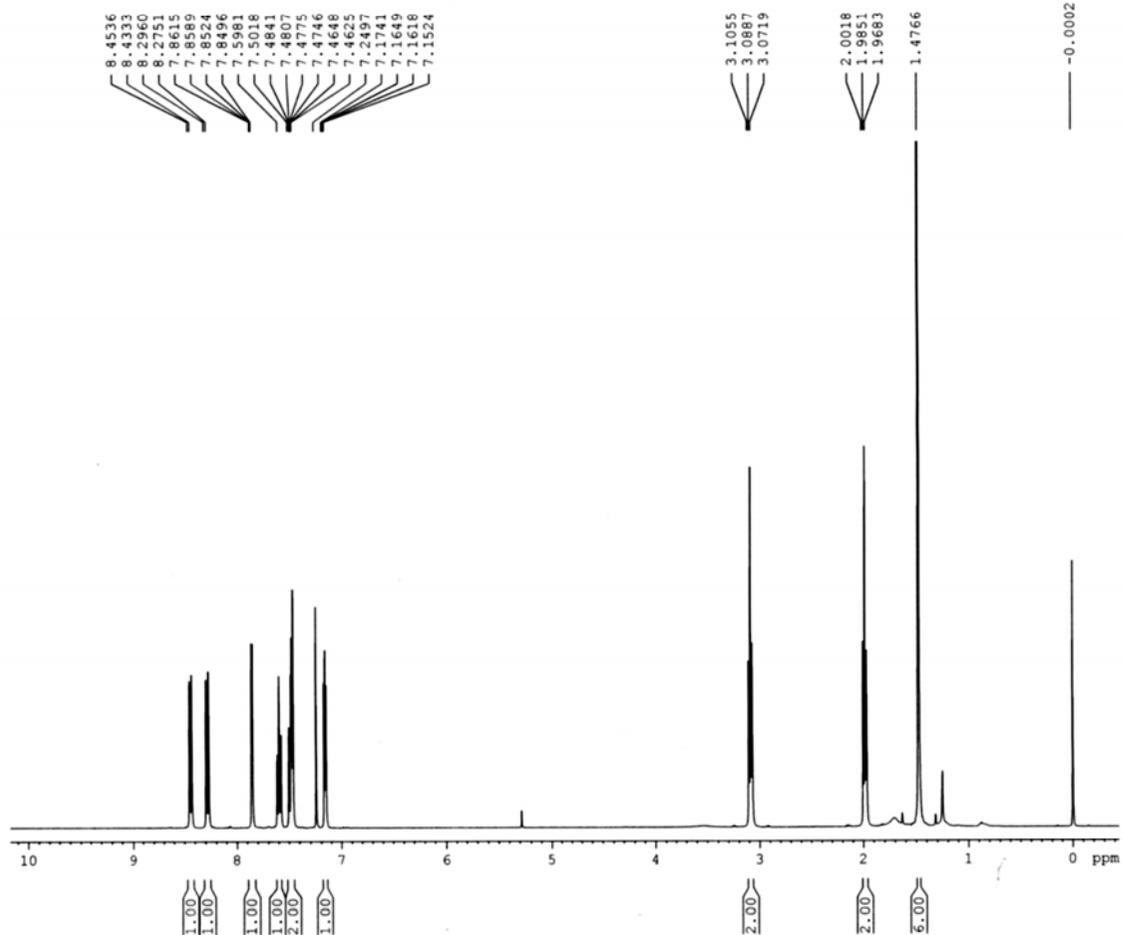
F2 - Processing parameters
SI         1024
SF         400.1499971 MHz
NWDW       QSINE
SSB        0
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
SI         2048
MC2        QF
SF         100.6178554 MHz
NWDW       QSINE
SSB        0
LB         0.00 Hz
GB         0

```

Espectro 106. Ampliação da região de hidrogênios aromáticos do espectro de correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, DMSO- d_6) do composto (67).

BLI / TIO-2-Al II - Aurelio
Op. Eliane



Current Data Parameters
NAME ufrj0580470
EXPNO 10
PROCNO 1

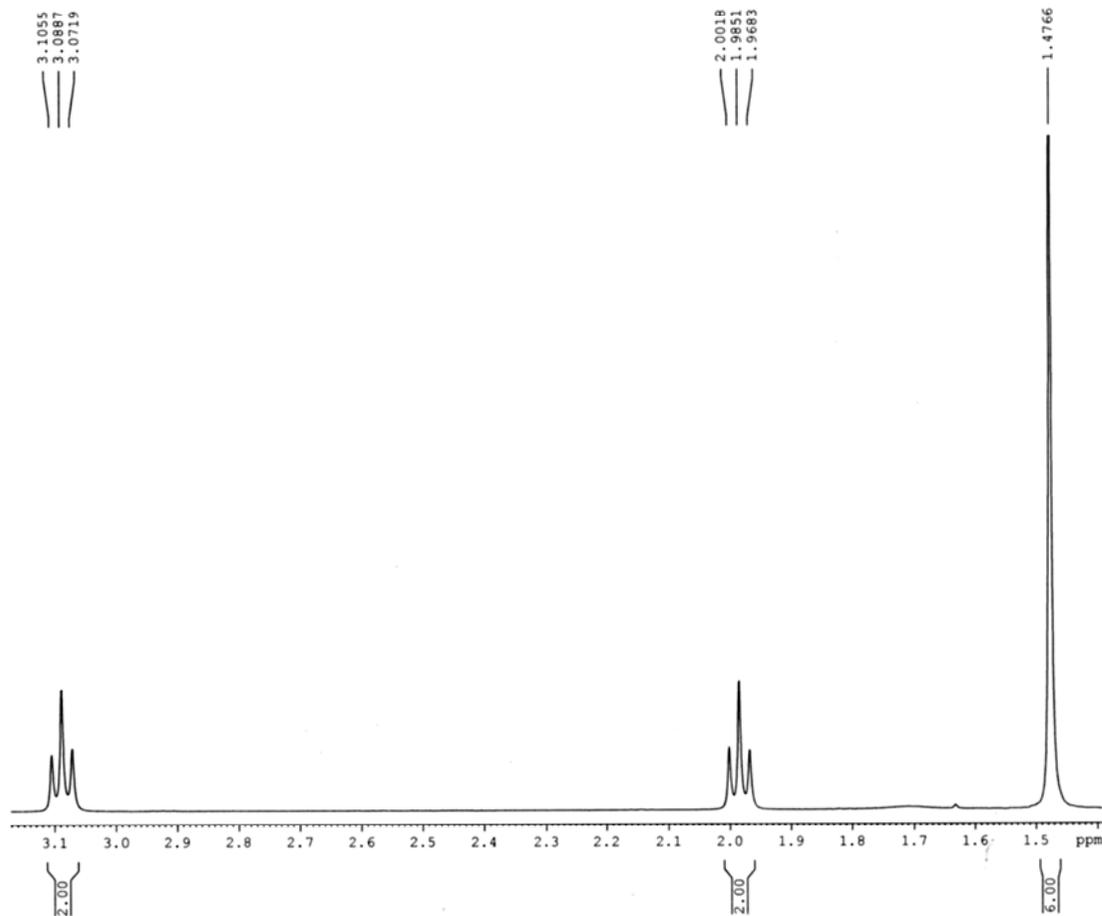
F2 - Acquisition Parameters
Date_ 20080514
Time 14.12
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 143.7
DW 60.400 usec
DE 6.00 usec
TE 0.0 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 12.25 usec
PL1 -3.00 dB
SFO1 400.1524711 MHz

F2 - Processing parameters
SI 32768
SF 400.1500125 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Espectro 107. RMN ^1H (400 MHz, CDCl_3) do composto (**68**).

BLI / TIO-2-Al II - Aurelio
Op. Eliane



Current Data Parameters
NAME ufrj0580470
EXPNO 10
PROCNO 1

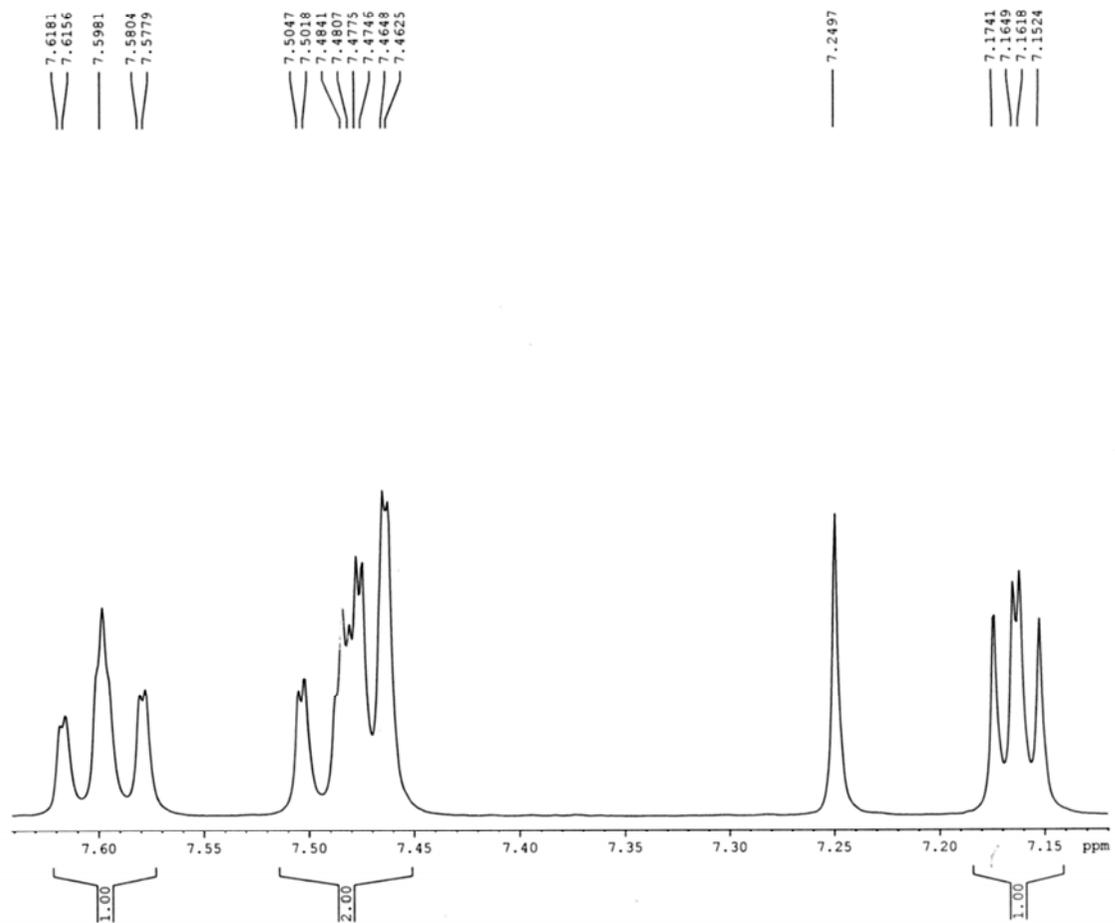
F2 - Acquisition Parameters
Date_ 20080514
Time_ 14.12
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 143.7
DW 60.400 usec
DE 6.00 usec
TE 0.0 K
D1 1.0000000 sec
MCREST 0.0000000 sec
MCWRK 0.0150000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 12.25 usec
PL1 -3.00 dB
SFO1 400.1524711 MHz

F2 - Processing parameters
SI 32768
SF 400.1500125 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Espectro 108. Ampliação da região de hidrogênios alifáticos do espectro de RMN ^1H (400 MHz, CDCl_3) do composto (68).

BLI / TIO-2-Al II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      ufrrj0580470
EXPNO     10
PROCNO    1

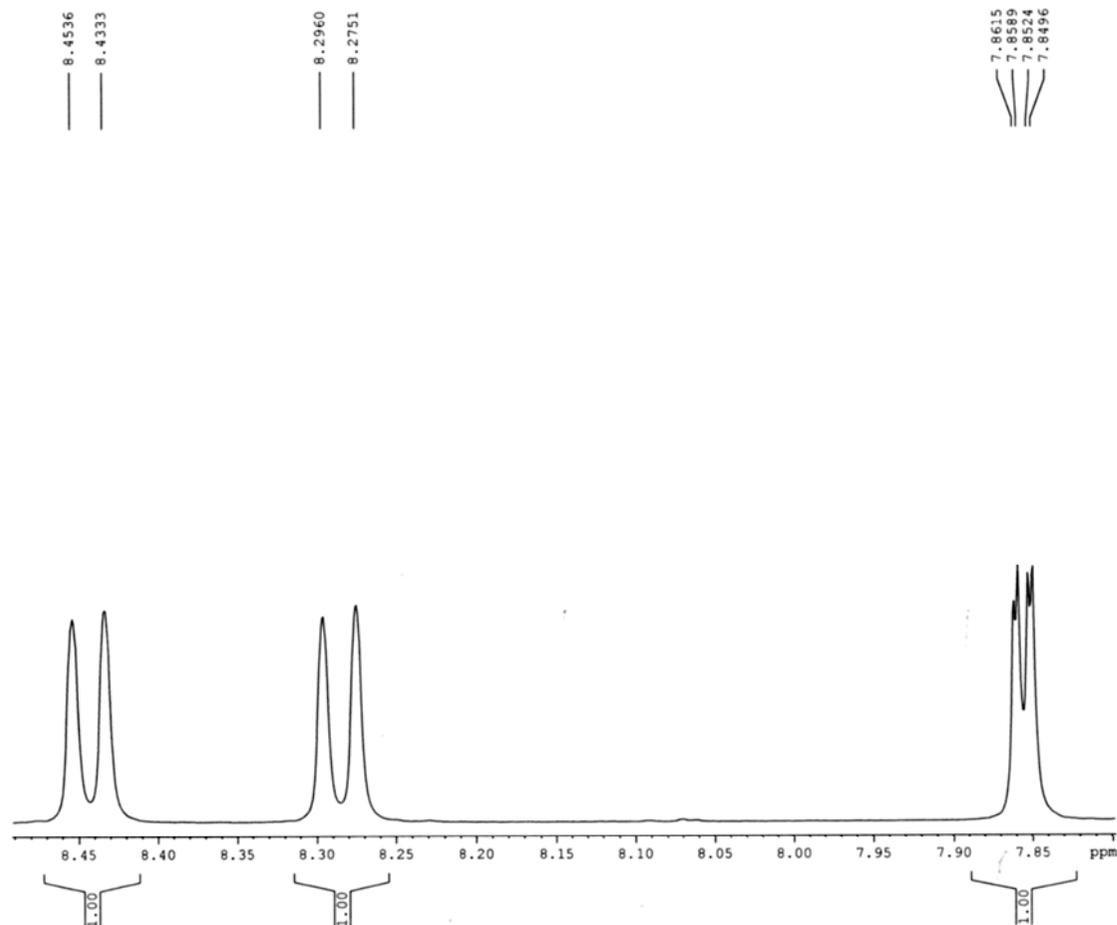
F2 - Acquisition Parameters
Date_     20080514
Time      14.12
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zg30
TD        65536
SOLVENT   CDCl3
NS        16
DS        2
SWH       8278.146 Hz
FIDRES    0.126314 Hz
AQ        3.9584243 sec
RG        143.7
DW        60.400 usec
DE        6.00 usec
TE        0.0 K
D1        1.00000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1      1H
P1        12.25 usec
PL1       -3.00 dB
SFO1     400.1524711 MHz

F2 - Processing parameters
SI        32768
SF        400.1500125 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00
  
```

Espectro 109. Ampliação 1 da região de hidrogênios aromáticos do espectro de RMN ^1H (400 MHz, CDCl_3) do composto (68).

BLI / TIO-2-Al II - Aurelio
Op. Eliane



Current Data Parameters
NAME ufrj0580470
EXPNO 10
PROCNO 1

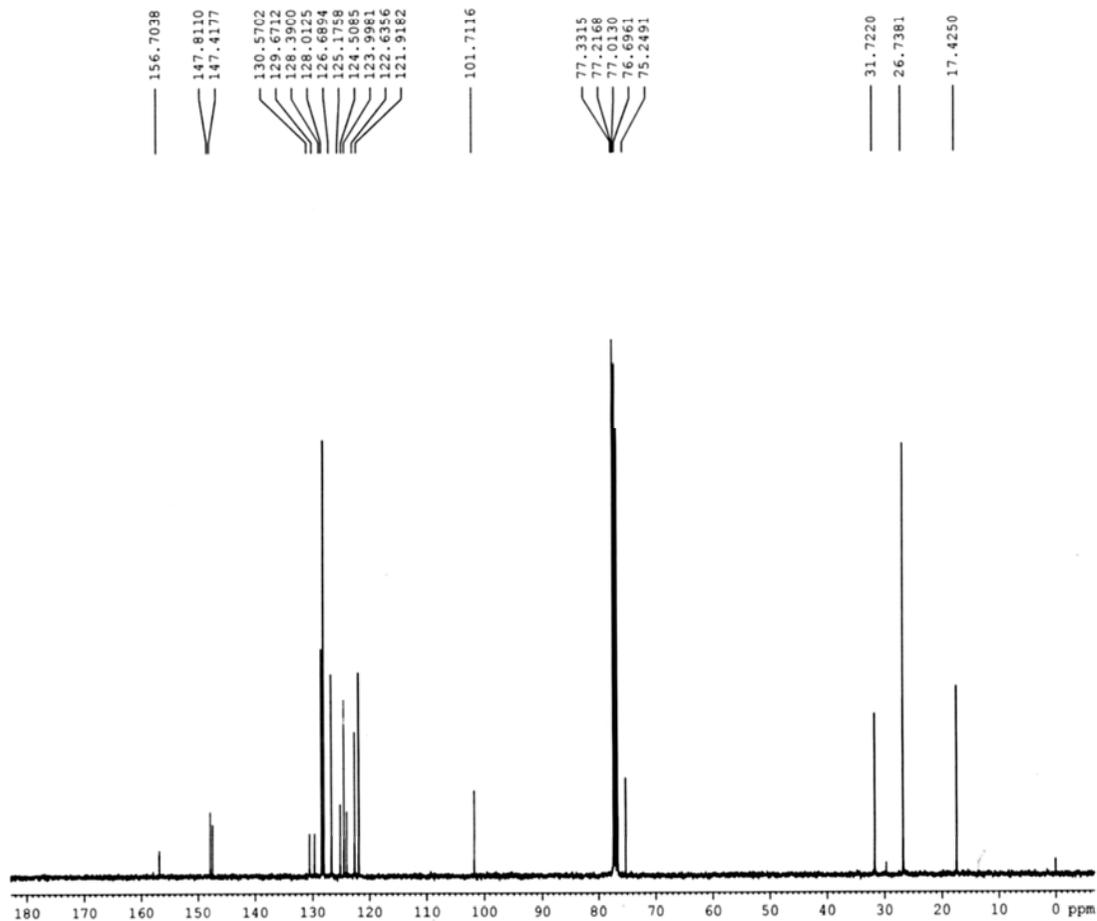
F2 - Acquisition Parameters
Date_ 20080514
Time_ 14.12
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 143.7
DW 60.400 usec
DE 6.00 usec
TE 0.0 K
D1 1.0000000 sec
MCREST 0.0000000 sec
MCWRK 0.0150000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 12.25 usec
PL1 -3.00 dB
SFO1 400.1524711 MHz

F2 - Processing parameters
SI 32768
SF 400.1500125 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Espectro 110. Ampliação 2 da região de hidrogênios aromáticos do espectro de RMN ^1H (400 MHz, CDCl_3) do composto (**68**).

BLI / TIO-2-Al II - Aurelio
Op. Eliane



Current Data Parameters
NAME ufrrj0580470
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20080513
Time 17.04
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 32768
DS 0
SWH 23980.814 Hz
FIDRES 0.731836 Hz
AQ 0.6832628 sec
RG 16384
EW 20.850 usec
DE 6.00 usec
TE 0.0 K
D1 0.20000000 sec
d11 0.03000000 sec
DELTA 0.10000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

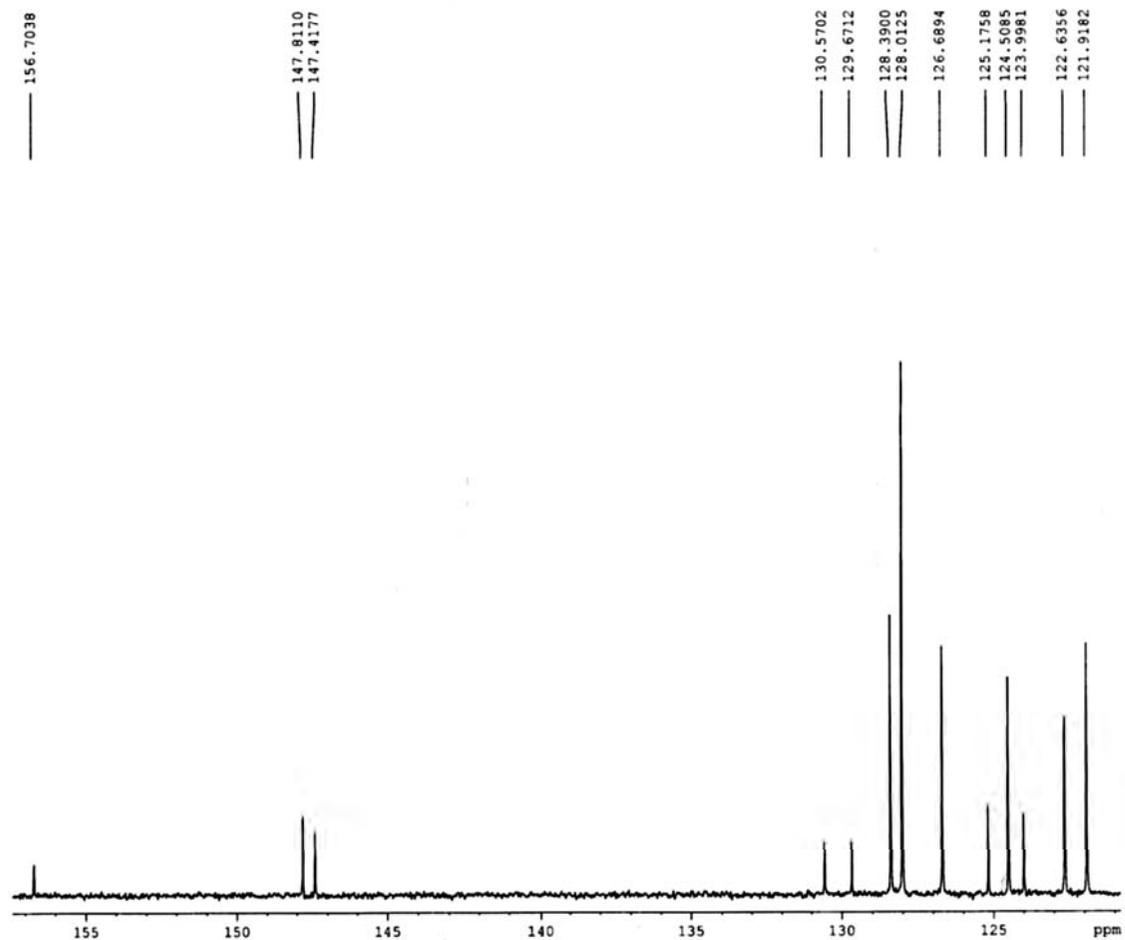
----- CHANNEL f1 -----
NUC1 13C
P1 7.50 usec
PL1 -4.00 dB
SFO1 100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -3.00 dB
PL12 15.24 dB
PL13 15.24 dB
SFO2 400.1516006 MHz

F2 - Processing parameters
SI 16384
SF 100.6177995 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Espectro 111. RMN ^{13}C (100 MHz, CDCl_3) do composto (68).

BLI / TIO-2-Al II - Aurelio
Op. Eliane



Current Data Parameters
NAME ufrj0580470
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20080513
Time 17.04
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 32768
DS 0
SWH 23980.814 Hz
FIDRES 0.731836 Hz
AQ 0.6832628 sec
RG 16384
DW 20.850 usec
DE 6.00 usec
TE 0.0 K
D1 0.20000000 sec
d11 0.03000000 sec
DELTA 0.10000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

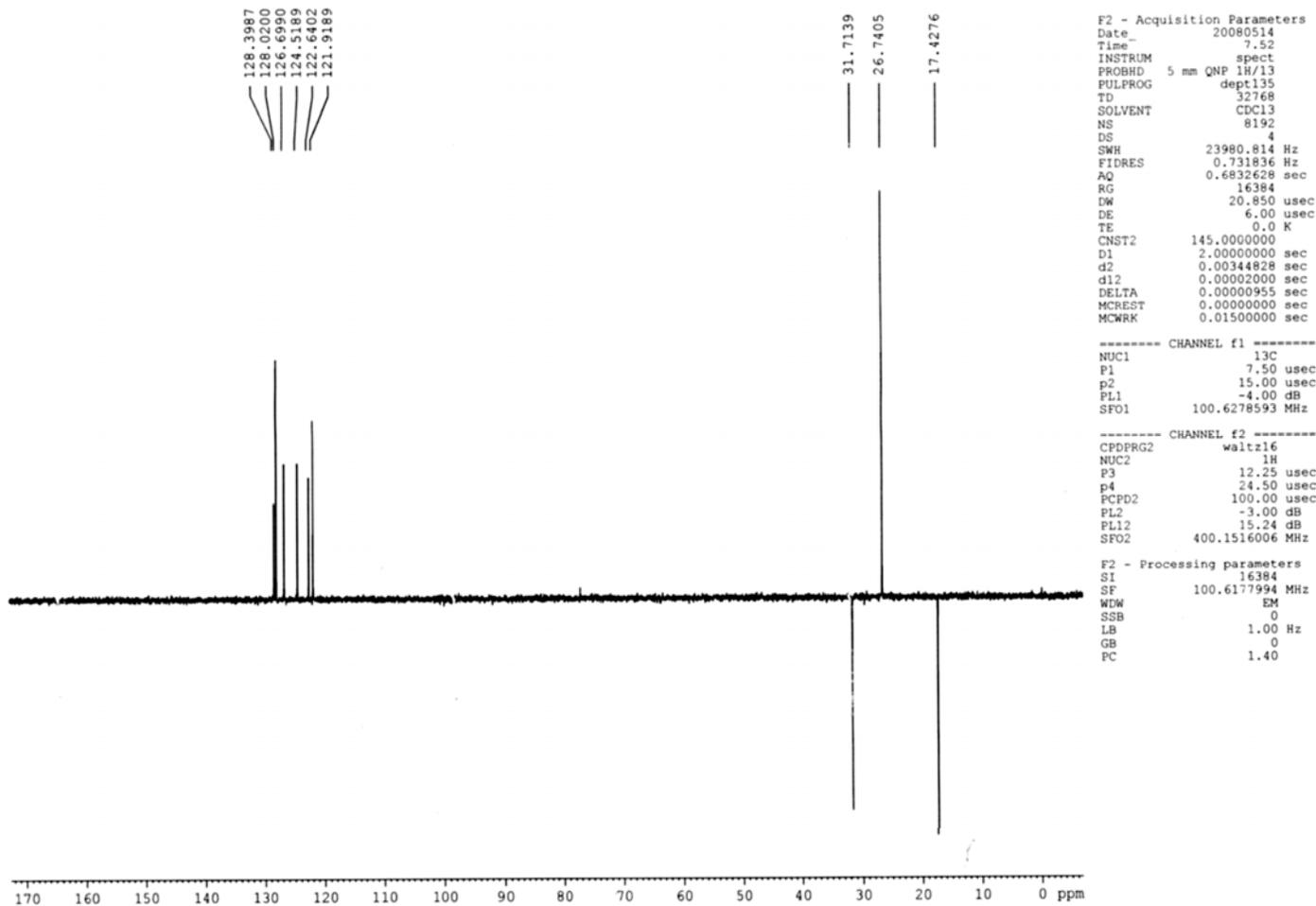
----- CHANNEL f1 -----
NUC1 13C
P1 7.50 usec
PL1 -4.00 dB
SFO1 100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -3.00 dB
PL12 15.24 dB
PL13 15.24 dB
SFO2 400.156006 MHz

F2 - Processing parameters
SI 6384
SF 100.6177995 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

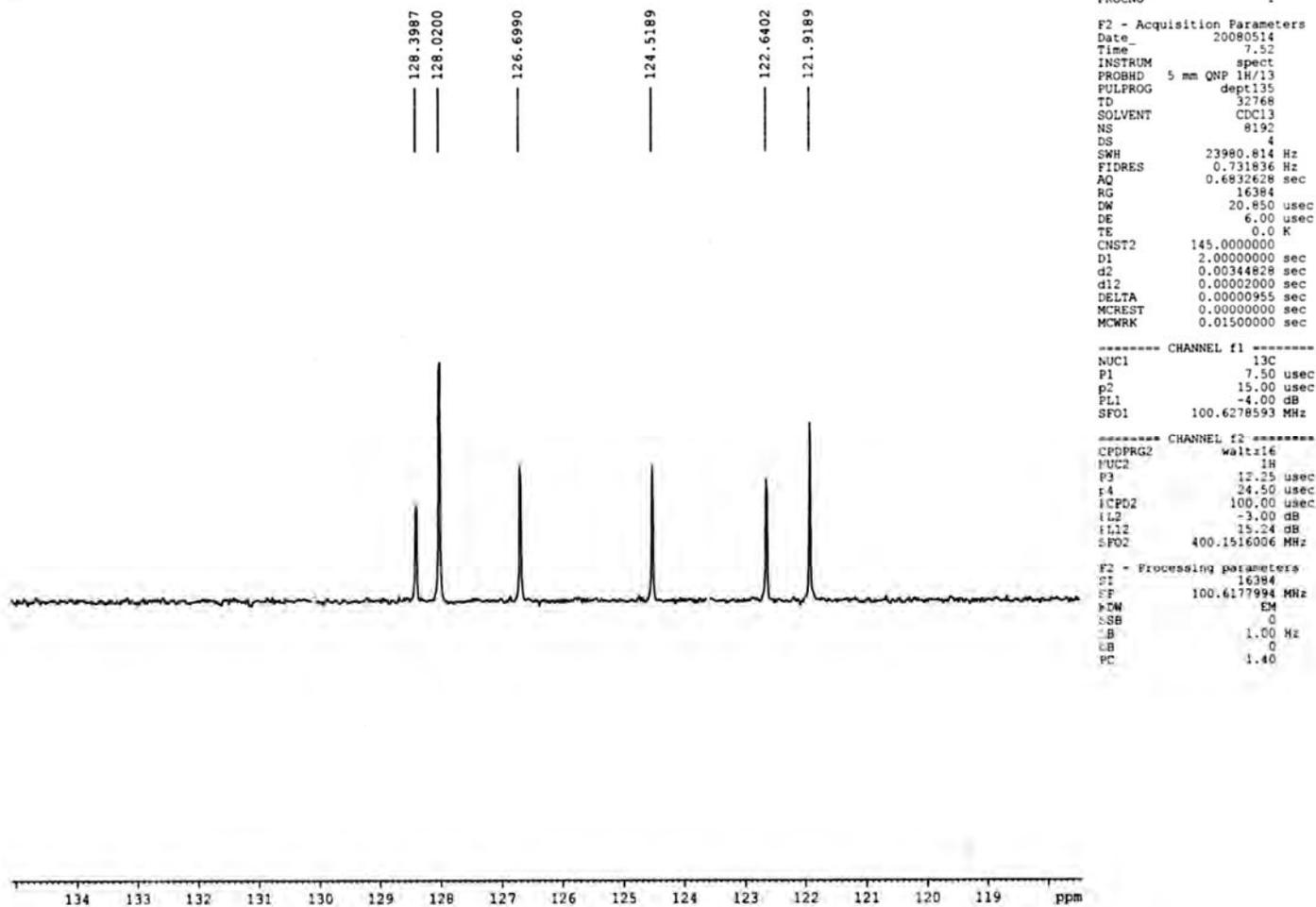
Espectro 112. Ampliação da região de carbonos aromáticos do espectro de RMN ¹³C (100 MHz, CDCl₃) do composto (68).

BLI / TIO-2-Al II - Aurelio
Op. Eliane



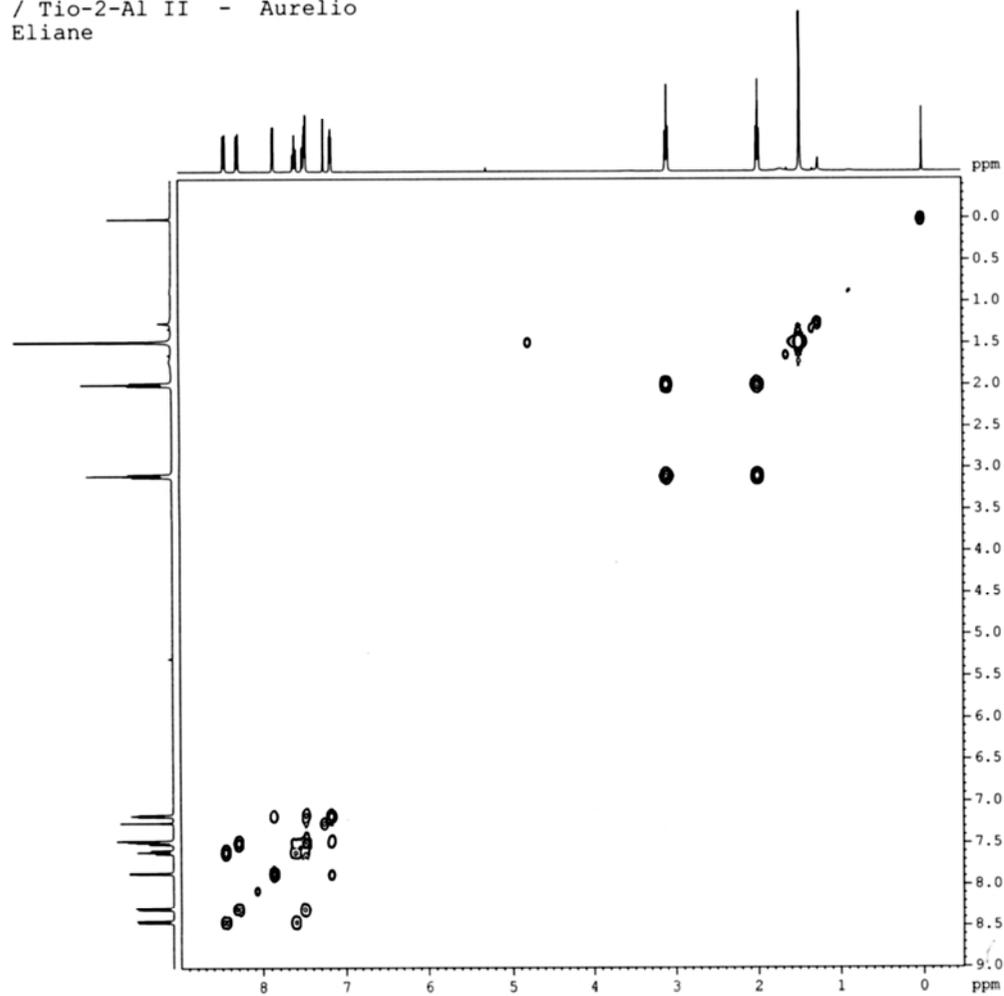
Espectro 113. RMN $^{13}\text{C}_{(\text{DEPT})}$ (100 MHz, CDCl_3) do composto (68).

BLI / TIO-2-Al II - Aurelio
Op. Eliane



Espectro 114. Ampliação da região de carbonos aromáticos do espectro de RMN $^{13}\text{C}_{(\text{DEPT})}$ (100 MHz, CDCl_3) do composto (68).

BLI / Tio-2-Al II - Aurelio
Op. Eliane



```
Current Data Parameters
NAME      ufrj0580470
EXPNO     13
PROCNO    1

F2 - Acquisition Parameters
Date_     20080514
Time      7.53
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   cosyppqf
TD         2048
SOLVENT   CDCl3
NS         16
DS         8
SWH        4401.409 Hz
FIDRES     2.149125 Hz
AQ         0.2327028 sec
RG         256
DW         113.400 usec
DE         6.00 usec
TE         0.0 K
d0         0.0000300 sec
D1         1.48689198 sec
d13        0.00000400 sec
D16        0.00010000 sec
IN0        0.00022719 sec
MCKREST    0.00000000 sec
MCKRKK     1.48689198 sec

----- CHANNEL f1 -----
NUC1      1H
FO        12.25 usec
F1        12.25 usec
P11       -3.00 dB
SF01      400.1519207 MHz

----- GRADIENT CHANNEL -----
GPNAM1    SINE.100
GPNAM2    SINE.100
GFX1      0.00 %
GFX2      0.00 %
GFY1      0.00 %
GFY2      0.00 %
GPZ1      10.00 %
GPZ2      10.00 %
P16       1000.00 usec

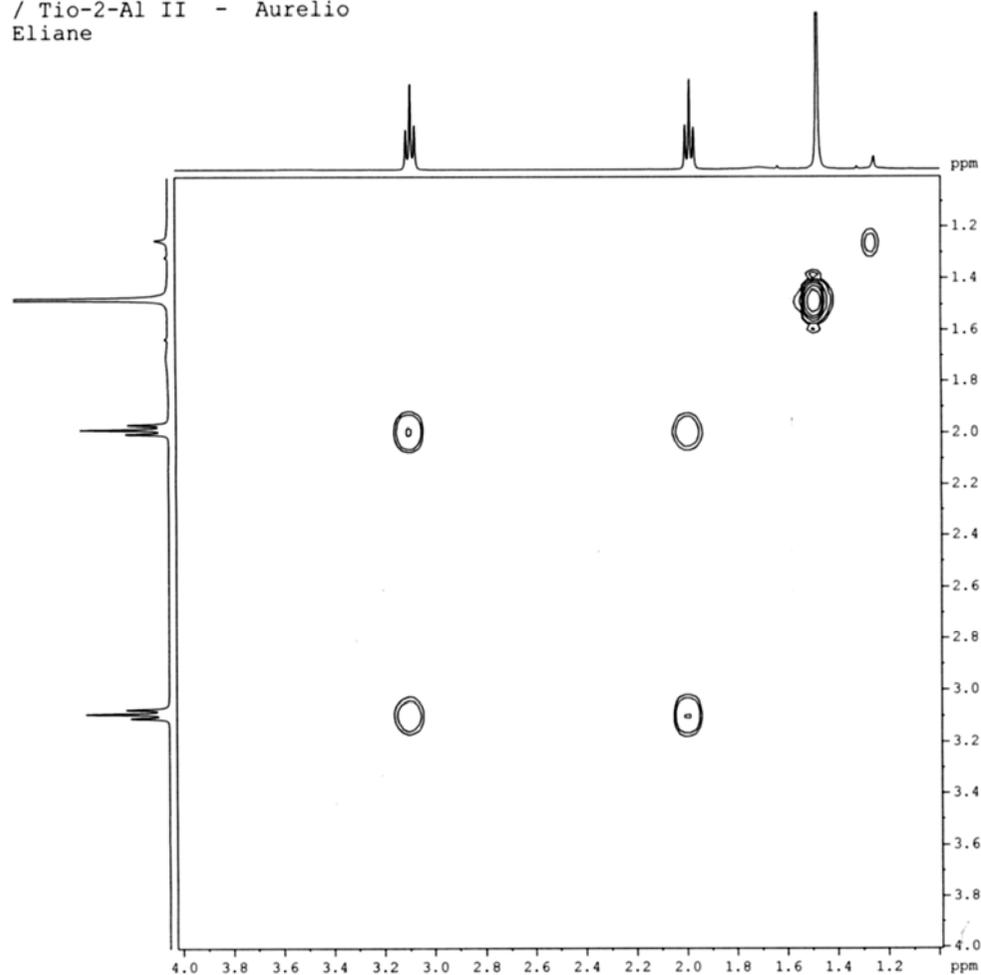
F1 - Acquisition parameters
RG0        1
TD         128
SF01       400.1519 MHz
FIDRES     34.387894 Hz
SW         11.000 ppm
FhMODE     QF

F2 - Processing parameters
SI         512
SF         400.1500085 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
SI         512
MC2        QF
SF         400.1500089 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
```

Espectro 115. Correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, CDCl_3) do composto (68).

BLI / Tio-2-Al II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      ufrj0580470
EXPNO     13
PROCNO    1

F2 - Acquisition Parameters
Date_     20080514
Time      7.53
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   cosygpgqf
TD         2048
SOLVENT   CDCl3
NS         16
DS         8
SWH        4401.409 Hz
FIDRES     2.149125 Hz
AQ         0.2327028 sec
RG         256
TW         113.400 usec
DE         6.00 usec
TE         0.0 K
dS         0.0000300 sec
D1         1.48689198 sec
d13        0.0000400 sec
D16        0.0001000 sec
lno        0.0002719 sec
MCREST     0.0000000 sec
MCWRK     1.48689198 sec

----- CHANNEL f1 -----
NUC1       1H
P0         12.25 usec
F1         12.25 usec
PL1        -3.00 dB
SFO1       400.1519207 MHz

----- GRADIENT CHANNEL -----
GPNAM1     SINE.100
GPNAM2     SINE.100
GFX1       0.00 %
GFX2       0.00 %
GFX1       0.00 %
GFX2       0.00 %
GFX1       10.00 %
GFX2       10.00 %
P16        1000.00 usec

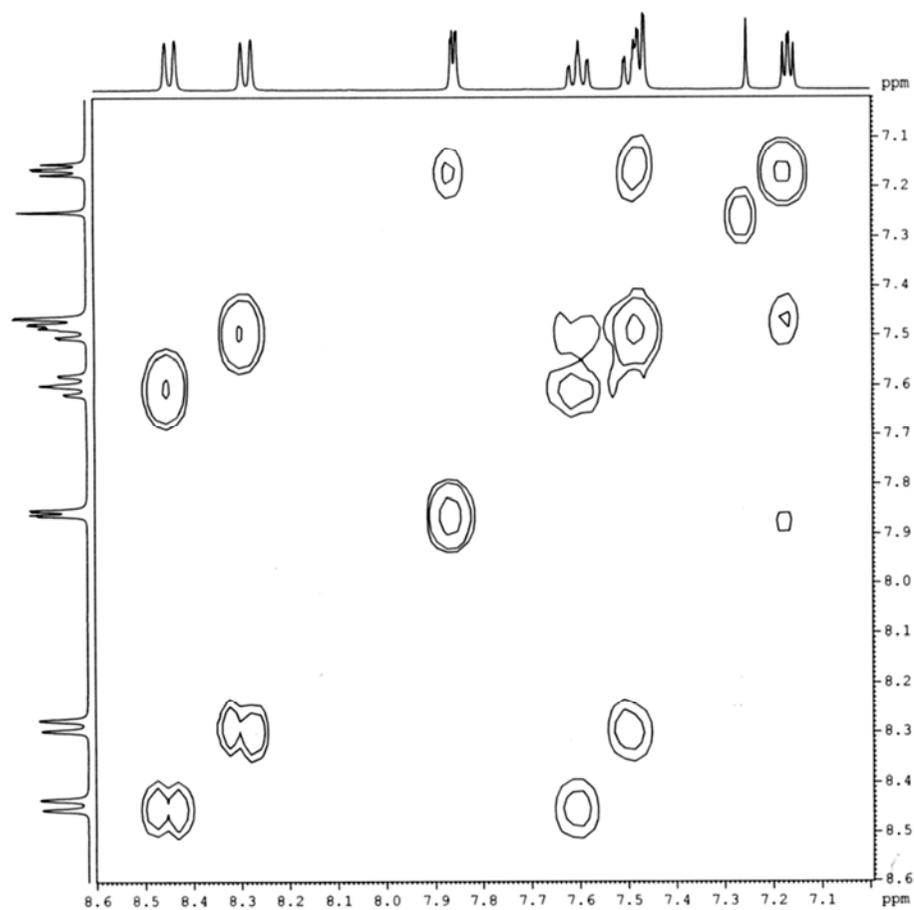
F1 - Acquisition parameters
NDO        1
TD         128
SFO1       400.1519 MHz
FIDRES     4.387894 Hz
SW         11.000 ppm
F2MODE     QF

F2 - Processing parameters
SI         512
SF         400.1500089 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
SI         512
MC2        QF
SF         400.1500089 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
  
```

Espectro 116. Ampliação da região de hidrogênios alifáticos do espectro de correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, CDCl_3) do composto (68).

BLI / Tio-2-Al II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      wfrj0580470
EXPNO     13
PROCNO    1

F2 - Acquisition Parameters
Date_     20080514
Time      7.53
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   cosyppqf
TD         2048
SOLVENT   CDCl3
NS         16
DS         8
SWH        4401.409 Hz
FIDRES     2.149125 Hz
AQ         0.2327028 sec
RG         256
DW         113.600 usec
DE         4.00 usec
TE         0.0 K
d0         0.0000300 sec
D1         1.48689198 sec
d13        0.00000400 sec
D16        0.00010000 sec
INO        0.00022719 sec
MCREST     0.00000000 sec
MCWRRK     1.48689198 sec

----- CHANNEL f1 -----
NUC1       1H
FO         12.25 usec
F1         12.25 usec
PL1        -3.00 dB
SFO1       400.1519207 MHz

----- GRADIENT CHANNEL -----
GPNAM1     SINE.100
GPNAM2     SINE.100
GFX1       0.00 %
GFX2       0.00 %
GFX3       0.00 %
GFX4       0.00 %
GFX5       0.00 %
GFX6       0.00 %
GFX7       10.00 %
GFX8       10.00 %
GFX9       10.00 %
GFX10      10.00 %
GFX11      10.00 %
GFX12      10.00 %
GFX13      10.00 %
GFX14      10.00 %
GFX15      10.00 %
GFX16      10.00 %
GFX17      10.00 %
GFX18      10.00 %
GFX19      10.00 %
GFX20      10.00 %

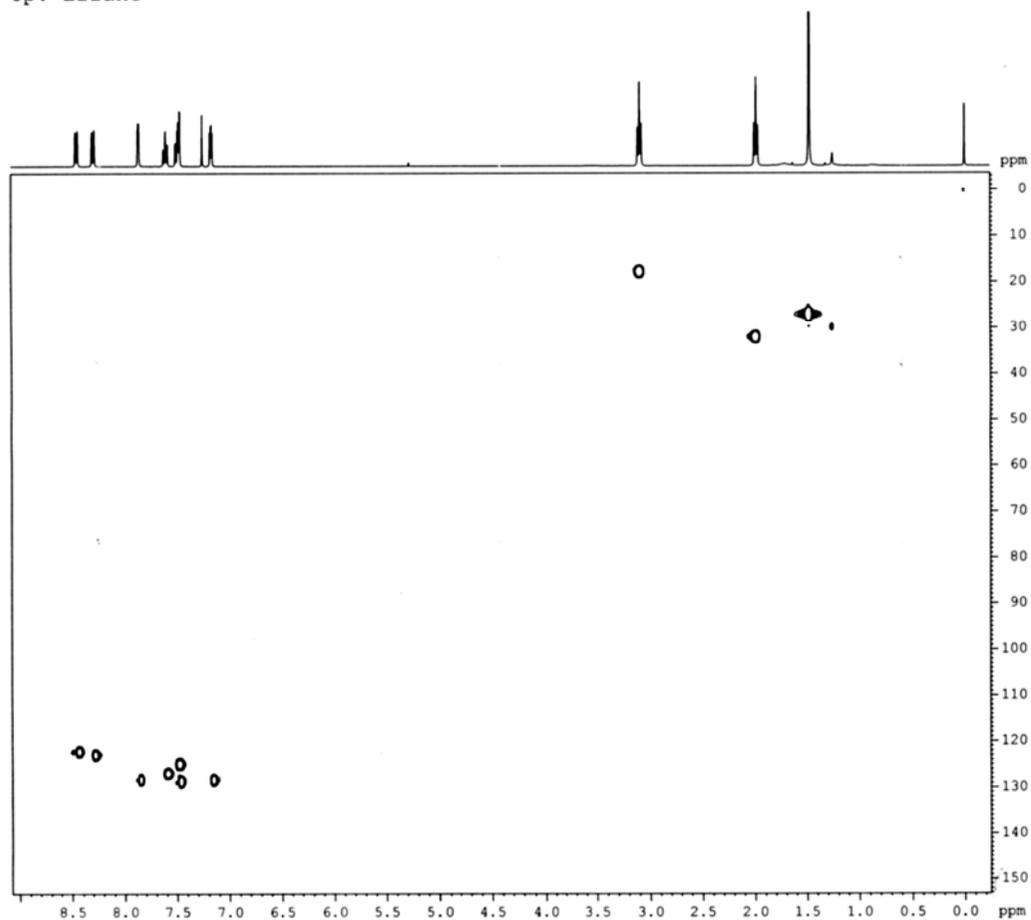
F1 - Acquisition parameters
ND0        1
TD         128
SFO1       400.1519 MHz
FIDRES     34.387894 Hz
SW         11.000 ppm
F2MODE     QF

F2 - Processing parameters
SI         512
SF         400.1500085 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
SI         512
MC2        QF
SF         400.1500089 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
  
```

Espectro 117. Ampliação da região de hidrogênios aromáticos do espectro de correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, CDCl_3) do composto (68).

BLI / Tio-2-Al II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      ufrj050470
EXPNO    14
PROCNO    1

F2 - Acquisition Parameters
Date_     20080514
Time      8.53
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD         1024
SOLVENT   CDCl3
NS         16
DS         16
SWH        5995.204 Hz
FIDRES    5.854691 Hz
AQ         0.0854516 sec
RG         4096
EW         83.400 usec
DE         6.00 usec
TE         0.0 K
CNST2     145.000000
d0         0.0000300 sec
d1         1.5000000 sec
d4         0.0017244 sec
d11        0.0300000 sec
d13        0.0000400 sec
d16        0.0001000 sec
DELTA     0.0011000 sec
DELTA1    0.00071614 sec
IN0        0.0000489 sec
MCREST    0.0000000 sec
MCRMN     0.3000001 sec
STICKT    128

===== CHANNEL f1 =====
NUC1       1H
P1         12.25 usec
P2         24.50 usec
P28        2000.00 usec
PL1        -3.00 dB
SFO1       400.1527210 MHz

===== CHANNEL f2 =====
CPDPRG2   gpgp
NUC2       13C
P3         7.50 usec
p4         15.00 usec
PCPD2     70.00 usec
PL2        -4.00 dB
PL12       15.40 dB
SFO2       100.6268536 MHz

===== GRADIENT CHANNEL =====
GPRAM1    SINE.100
GPRAM2    SINE.100
GFX1      0.00 V
GFX2      0.00 V
GFY1      0.00 V
GFY2      0.00 V
GZ1       80.00 V
GZ2       20.12 V
P16       1000.00 usec

F1 - Acquisition parameters
NS0        2
TD         128
SFO1       100.6269 MHz
FIDRES    137.191161 Hz
SW         199.954 ppn
F0MODE     Echo-Antiecho

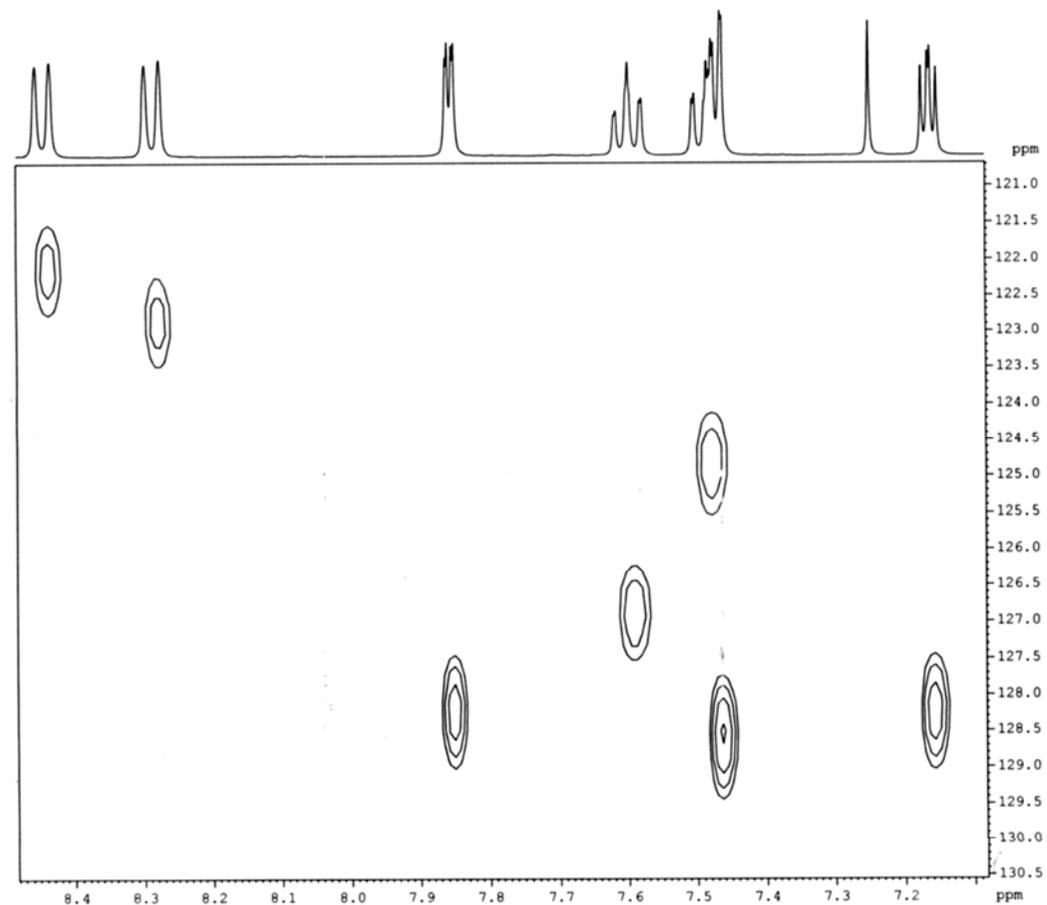
F2 - Processing parameters
SI         2048
SF         400.1500131 MHz
WDW        QSINE
SSB        2
LB         0.00 Hz
GB         0
FC         1.40

F1 - Processing parameters
SI         512
MC2        echo-antiecho
SF         100.6177757 MHz
WDW        QSINE
SSB        2
LB         0.00 Hz
GB         0

```

Espectro 118. Correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, CDCl_3) do composto (68).

BLI / Tio-2-Al II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      uffrj050470
EXPNO    14
PROCNO    1

F2 - Acquisition Parameters
Date_     20080514
Time      8.53
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD         1024
SOLVENT   CDCl3
NS         16
DS         16
SWH        5995.204 Hz
FIDRES    5.854691 Hz
AQ         0.0854516 sec
RG         4096
DM         83.400 usec
DE         6.00 usec
TE         0.0 K
CMT2      145.000000
GB         0.0000000 sec
D1         1.5000000 sec
d4         0.00172414 sec
d11        0.03000000 sec
d13        0.00000400 sec
D16        0.00010000 sec
DELTA     0.00113050 sec
DELTA1    0.00071614 sec
IN0        0.00002485 sec
MCHRG1    0.00000000 sec
MCHRG2    0.30000001 sec
STICHT    128

===== CHANNEL f1 =====
NUC1       13C
P1         12.25 usec
p2         24.50 usec
P2B        3000.00 usec
PL1        -3.00 dB
SFO1       400.1527210 MHz

===== CHANNEL f2 =====
CFOPROG2   zgpg30
NUC2       13C
P3         7.50 usec
p4         15.00 usec
PCPD2      70.00 usec
PL2        -4.00 dB
PL12       15.40 dB
SFO2       100.6269336 MHz

===== GRADIENT CHANNEL =====
GFRAM1     SINE.100
GFRAM2     SINE.100
GFX1       0.00 %
GFX2       0.00 %
GFI1       0.00 %
GFI2       0.00 %
GFI3       80.00 %
GFI4       20.12 %
P16        1000.00 usec

F1 - Acquisition parameters
TD         2
SF         100.6269 MHz
SFO1       100.6269 MHz
SFO2       157.193141 Hz
SW         199.954 ppm
F2MODE     Echo-Antiecho

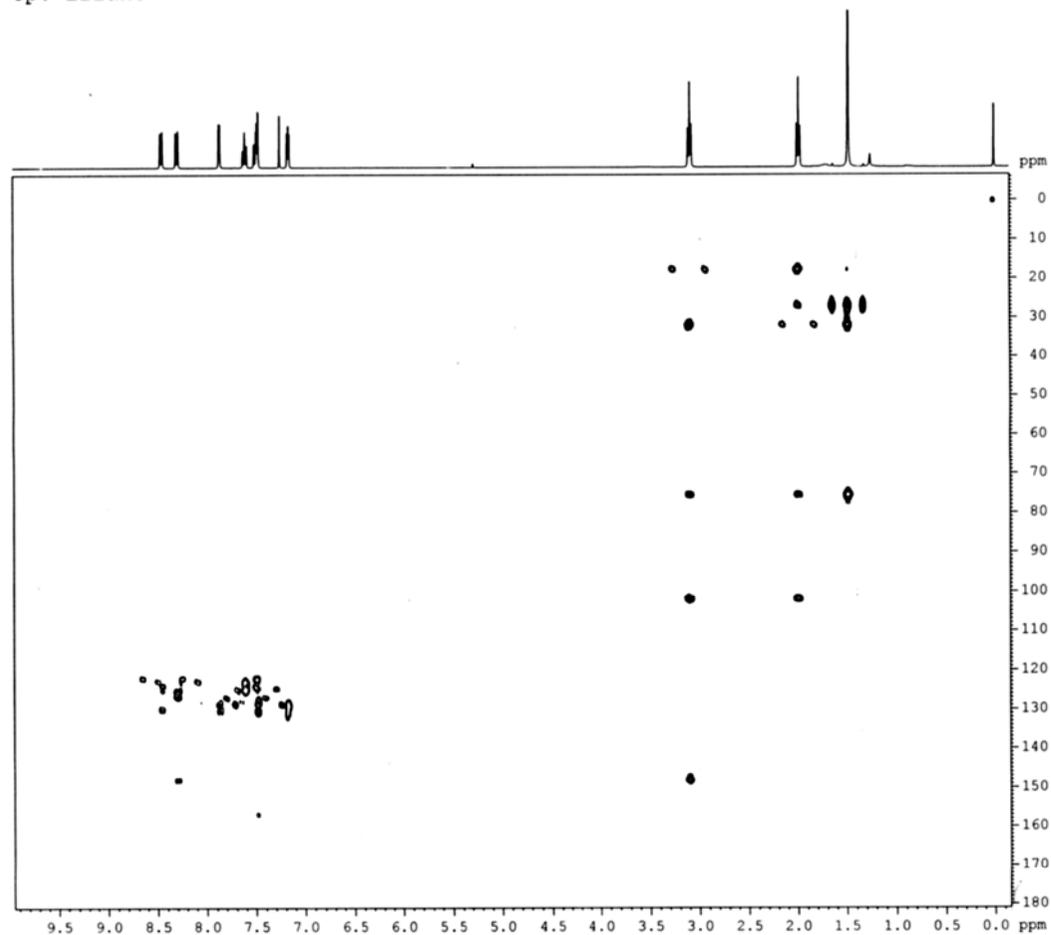
F2 - Processing parameters
SI         2048
SF         400.1500131 MHz
WDW        QSINE
SSB        2
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
SI         512
SF         echo-antiecho
SF         100.6177757 MHz
WDW        QSINE
SSB        2
LB         0.00 Hz
GB         0

```

Espectro 119. Ampliação da região de hidrogênios aromáticos do espectro de correlações ¹H x ¹³C (¹J) (400 MHz, CDCl₃) do composto (68).

BLI / TIO-2-Al II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      uffrj0580470
EXPRNO    15
PROCNO    1

F2 - Acquisition Parameters
Date_     20080514
Time      9.49
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   hmcgplimdadf
TD         4096
SOLVENT   CDCl3
NS         32
DS         16
SWH       5995.254 Hz
FIDRES    1.463673 Hz
AQ         0.3416564 sec
RG         4096
DW         83.400 usec
DE         6.00 usec
TE         0.0 K
CNS1      145.0000000
CNS2      8.0000000
CNS3      0.0000000
CNS4      0.0000000
CNS5      1.5000000
CNS6      0.00344828 sec
CNS7      0.06250000 sec
CNS8      0.00010000 sec
CNS9      0.00002070 sec
CNS10     0.00000000 sec
CNS11     1.00000000 sec

===== CHANNEL f1 =====
NUC1      1H
P1         8.00 usec
P2         16.00 usec
PL1        -3.00 dB
SFO1      400.1528811 MHz

===== CHANNEL f2 =====
NUC2      13C
P3         7.00 usec
PL2         1.00 dB
SFO2      100.6288660 MHz

===== GRADIENT CHANNEL =====
GPRAM1    SINE.100
GPRAM2    SINE.100
GPRAM3    SINE.100
GFX1      0.00 %
GFX2      0.00 %
GFX3      0.00 %
GFY1      0.00 %
GFY2      0.00 %
GFY3      0.00 %
GPI1      50.00 %
GPI2      30.00 %
GPI3      40.10 %
PI4       1000.00 usec

F1 - Acquisition parameters
ND0       2
TD         256
SFO1      100.62889 MHz
FIDRES    94.353867 Hz
SW         240.036 ppm
FQM0DE    OF

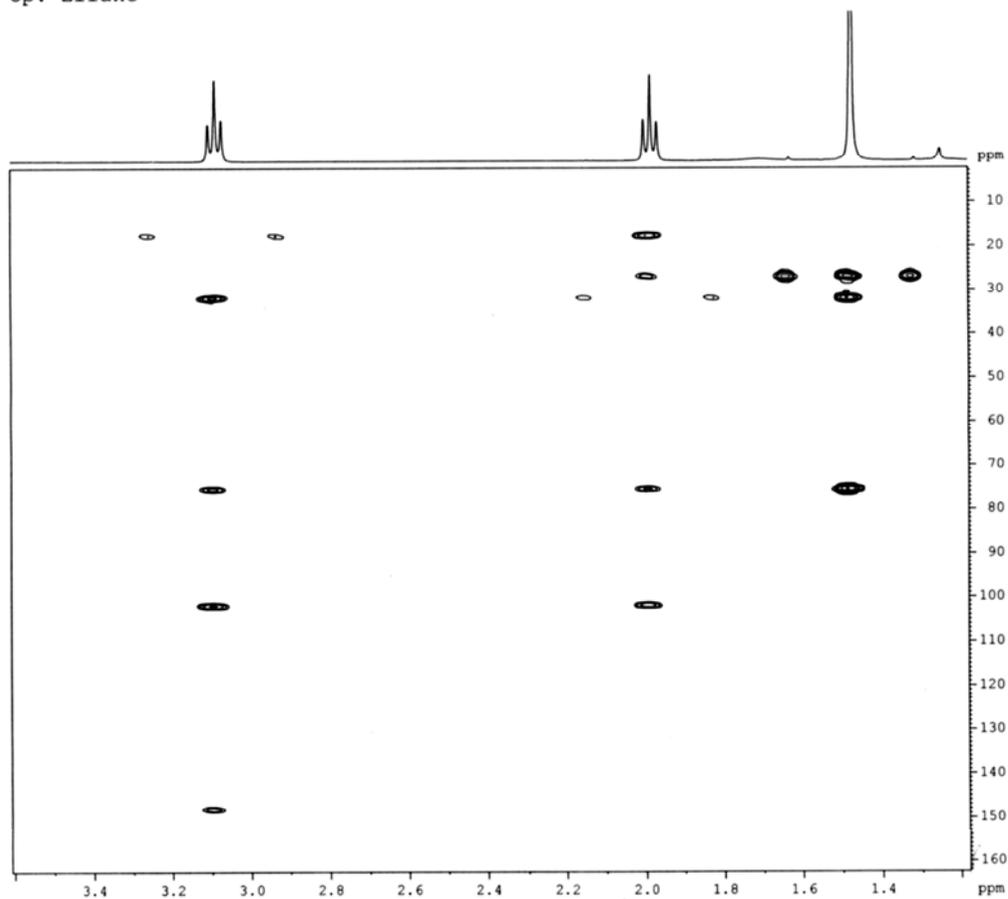
F2 - Processing parameters
SI         1024
SF         400.1500092 MHz
WDW        Q8INE
SSB         0
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
SI         2048
MC2        OF
SF         100.6177907 MHz
WDW        Q8INE
SSB         0
LB         0.00 Hz
GB         0

```

Espectro 120. Correlações $^1\text{H} \times ^{13}\text{C}$ ($^{2,3}\text{J}$) (400 MHz, CDCl_3) do composto (68).

BLI / TIO-2-Al II - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      ufrj058470
EXPNO     15
PROCNO    1

F2 - Acquisition Parameters
Date_     20080514
Time      9.49
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   hmcoplpdugf
TD         4096
SOLVENT   CDCl3
NS         32
DS         16
SWH        5995.204 Hz
FIDRES    1.463673 Hz
AQ         0.341564 sec
RG         4096
SW         83.400 usec
DE         6.00 usec
TE         0.0 K
CNU1      145.000000
CNU13     8.000000
D1         0.0000300 sec
D11        1.5000000 sec
G2         0.0034828 sec
S6         0.0625000 sec
D16        0.0001000 sec
IN6        0.00002070 sec
MCWREST   0.0000300 sec
MCWRR     1.5000000 sec

===== CHANNEL f1 =====
NUC1       1H
P1         8.00 usec
P2         16.00 usec
PL1        -3.00 dB
SFO1       400.1528911 MHz

===== CHANNEL f2 =====
NUC2       13C
P3         7.00 usec
PL2         1.00 dB
SFO2       100.6286660 MHz

===== GRADIENT CHANNEL =====
GPRAM1     SINE.100
GPRAM2     SINE.100
GPRAM3     SINE.100
GPF1       0.00 %
GPF2       0.00 %
GPF3       0.00 %
GPT1       0.00 %
GPT2       0.00 %
GPT3       0.00 %
GPD1       50.00 %
GPD2       30.00 %
GPD3       40.10 %
P16        1000.00 usec

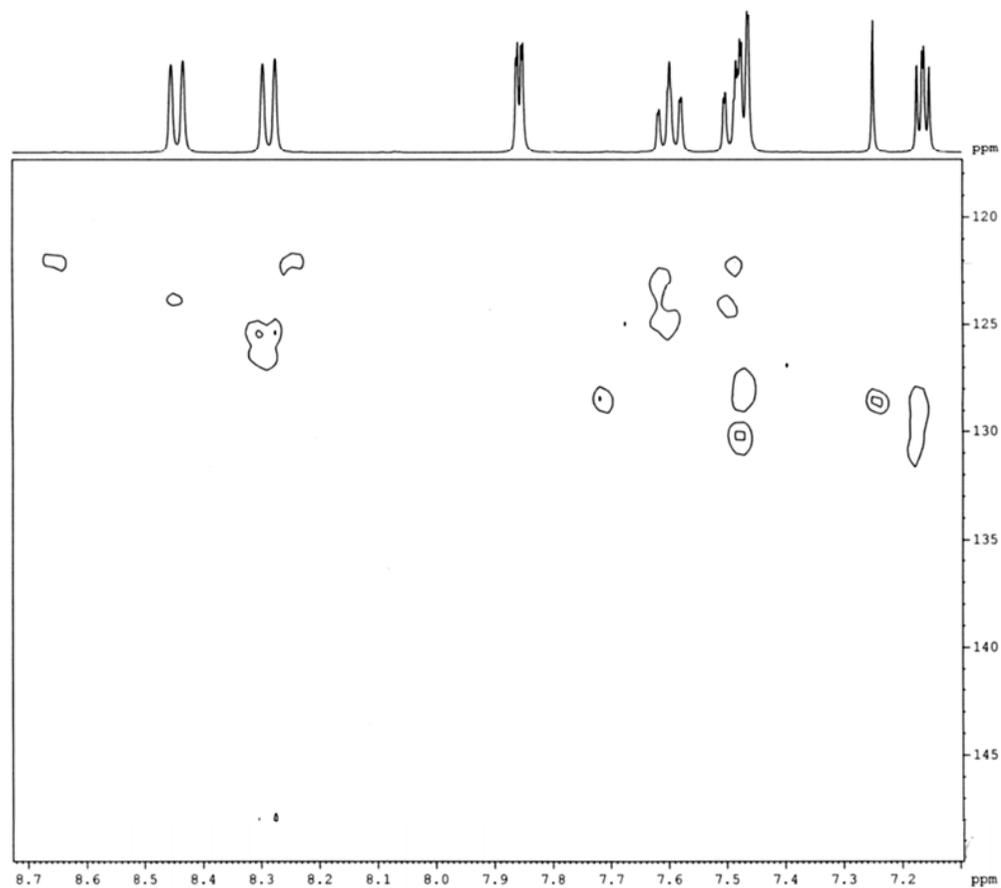
F1 - Acquisition parameters
ND0         2
TD          256
SFO1       100.62869 MHz
FIDRES     94.353867 Hz
SW         240.036 ppm
FRMODE     QF

F2 - Processing parameters
SI         1024
SF         400.1500092 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
SI         2048
MC2        QF
SF         100.6177907 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
  
```

Espectro 121. Ampliação da região de hidrogênios alifáticos do espectro de correlações $^1\text{H} \times ^{13}\text{C}$ ($^{2,3}\text{J}$), (400 MHz, CDCl_3) do composto (68).

BLI / TIO-2-Al II - Aurelio
Op. Eliane



```

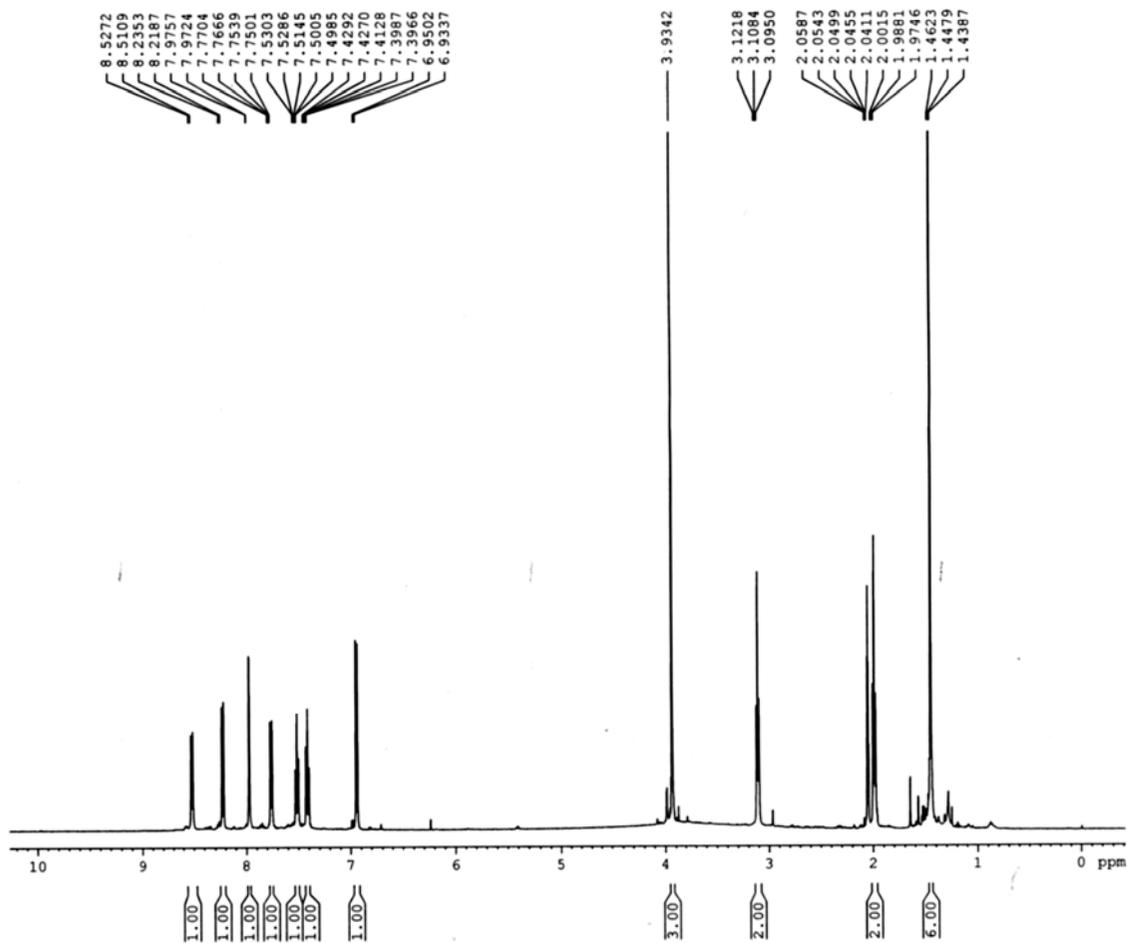
Current Data Parameters
NAME      uffrj0580470
EXPERNO   15
PROCNO    1

F2 - Acquisition Parameters
Date_     20080514
Time      9.49
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   hmcgppindaf
TD         4096
SOLVENT   CDCl3
NS        32
DS        16
SWH        5995.204 Hz
FIDRES     1.463673 Hz
AQ         0.341656 sec
RG         4096
SM        83.400 usec
DE         6.00 usec
TE         300.2 K
=====
CNST1     145.000000
CNST13    8.000000
d0         0.000000 sec
D1         1.5000000 sec
d2         0.00344828 sec
d6         0.0620000 sec
D16        0.00010000 sec
IN0        0.0002070 sec
MCREST     0.0000000 sec
MCWRRK     1.5000000 sec
=====
***** CHANNEL f1 *****
NUC1        1H
P1          8.00 usec
P2         16.00 usec
PL1         -3.00 dB
SFO1        400.1528811 MHz
=====
***** CHANNEL f2 *****
NUC2        13C
P3          7.00 usec
PL2         1.00 dB
SFO2        100.6288660 MHz
=====
***** GRADIENT CHANNEL *****
GPRAM1     SINE.100
GPRAM2     SINE.100
GPRAM3     SINE.100
GPF1       0.00 t
GPF2       0.00 t
GPF3       0.00 t
GPF1       0.00 t
GPF2       0.00 t
GPF3       0.00 t
GPE1       50.00 t
GPE2       30.00 t
GPE3       40.10 t
P14        1000.00 usec
=====
F1 - Acquisition parameters
NS          2
TD          256
SFO1        100.62889 MHz
FIDRES      94.353867 Hz
SM          240.036 ppm
FMODE       QF
=====
F2 - Processing parameters
SI          1024
SF          400.1500092 MHz
WDW         QSINE
SSB         0
LB          0.00 Hz
GB          0
PC          1.40
=====
F1 - Processing parameters
SI          2048
NUC1        13C
SF          100.6177907 MHz
WDW         QSINE
SSB         0
LB          0.00 Hz
GB          0

```

Espectro 122. Ampliação da região de hidrogênios aromáticos do espectro de correlações $^1\text{H} \times ^{13}\text{C}$ ($^2,3\text{J}$) (400 MHz, CDCl_3) do composto (68).

b-lap-imid-vanilina - Ari
Op. Eliane



Current Data Parameters
NAME ufrj0670563
EXPNO 10
PROCNO 1

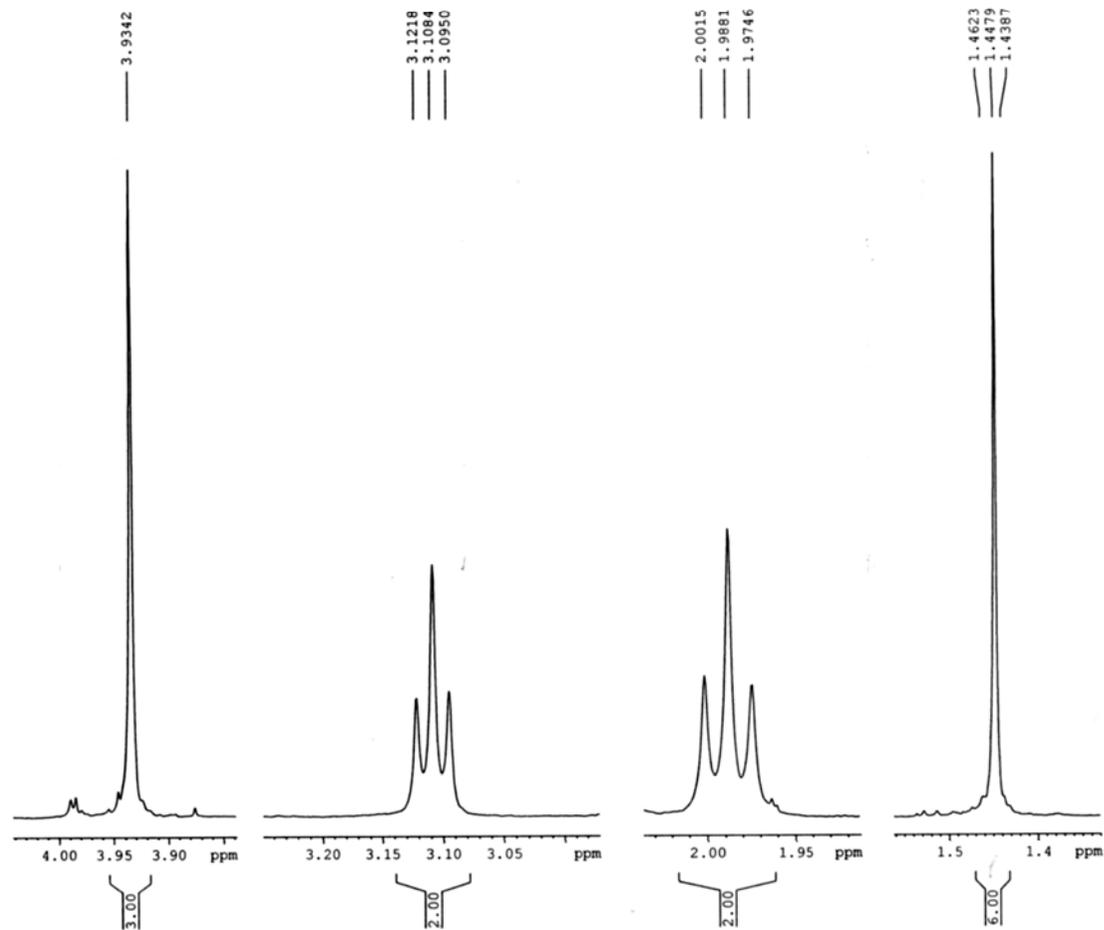
F2 - Acquisition Parameters
Date_ 20070613
Time 13.42
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zg30
TD 65536
SOLVENT Acetone
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1720407 sec
RG 768
DW 48.400 usec
DE 6.00 usec
TE 295.8 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 13.75 usec
PL1 0.00 dB
SFO1 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300102 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Espectro 123. RMN ^1H (500 MHz, Acetona- d_6) do composto (69).

b-lap-imid-vanilina - Ari
Op. Eliane



```
Current Data Parameters
NAME      ufrj0670563
EXPNO     10
PROCNO    1

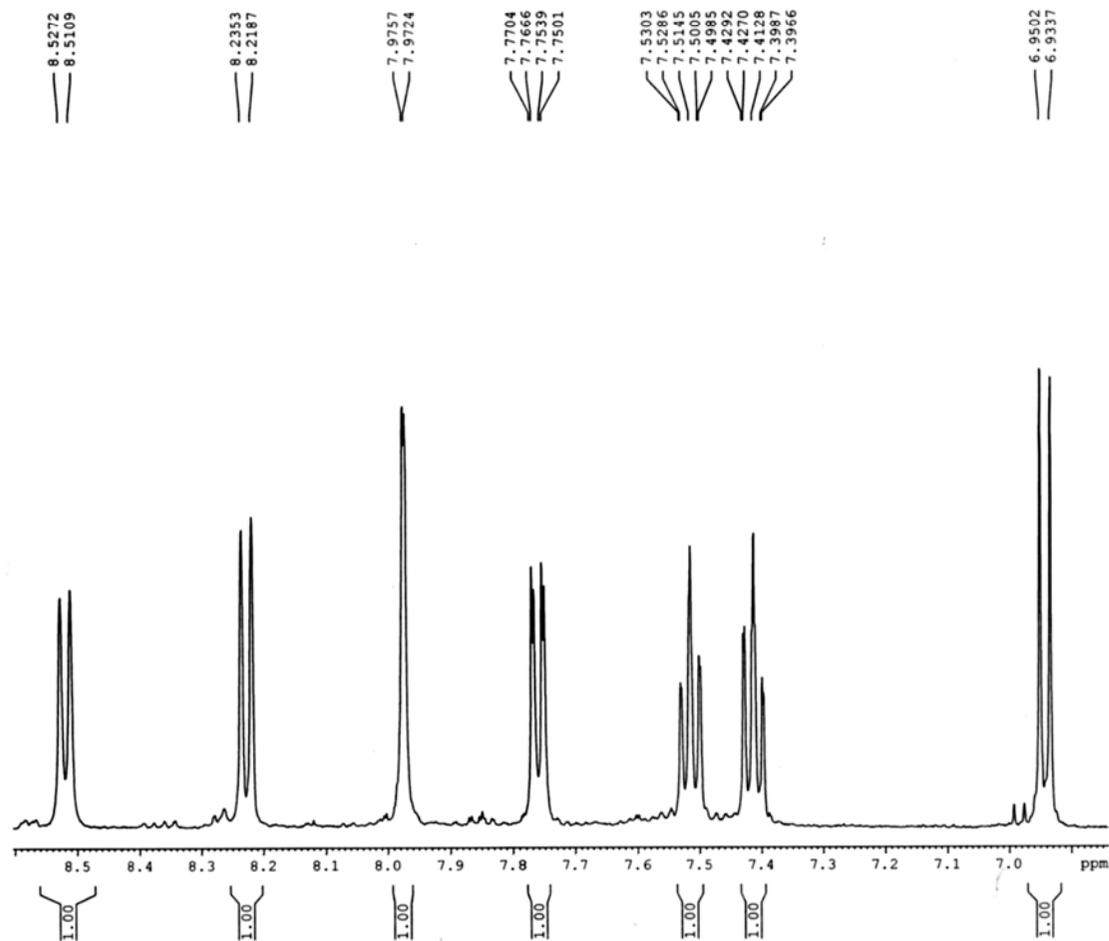
F2 - Acquisition Parameters
Date_     20070613
Time      13.42
INSTRUM   spect
PROBHD    5 mm BBO BB-1H
PULPROG   zg30
TD         65536
SOLVENT   Acetone
NS         16
DS         2
SWH        10330.578 Hz
FIDRES     0.157632 Hz
AQ         3.1720407 sec
RG         768
DM         48.400 usec
DE         6.00 usec
TE         295.8 K
D1         1.00000000 sec
MCREST     0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1       1H
P1         13.75 usec
PL1        0.00 dB
SFO1       500.1330885 MHz

F2 - Processing parameters
SI         32768
SF         500.1300102 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
```

Espectro 124. Ampliação da região de hidrogênios alifáticos do espectro de RMN ^1H (500 MHz, Acetona- d_6) do composto (69).

b-lap-imid-vanilina - Ari
Op. Eliane



Current Data Parameters
NAME ufrj0670563
EXPNO 10
PROCNO 1

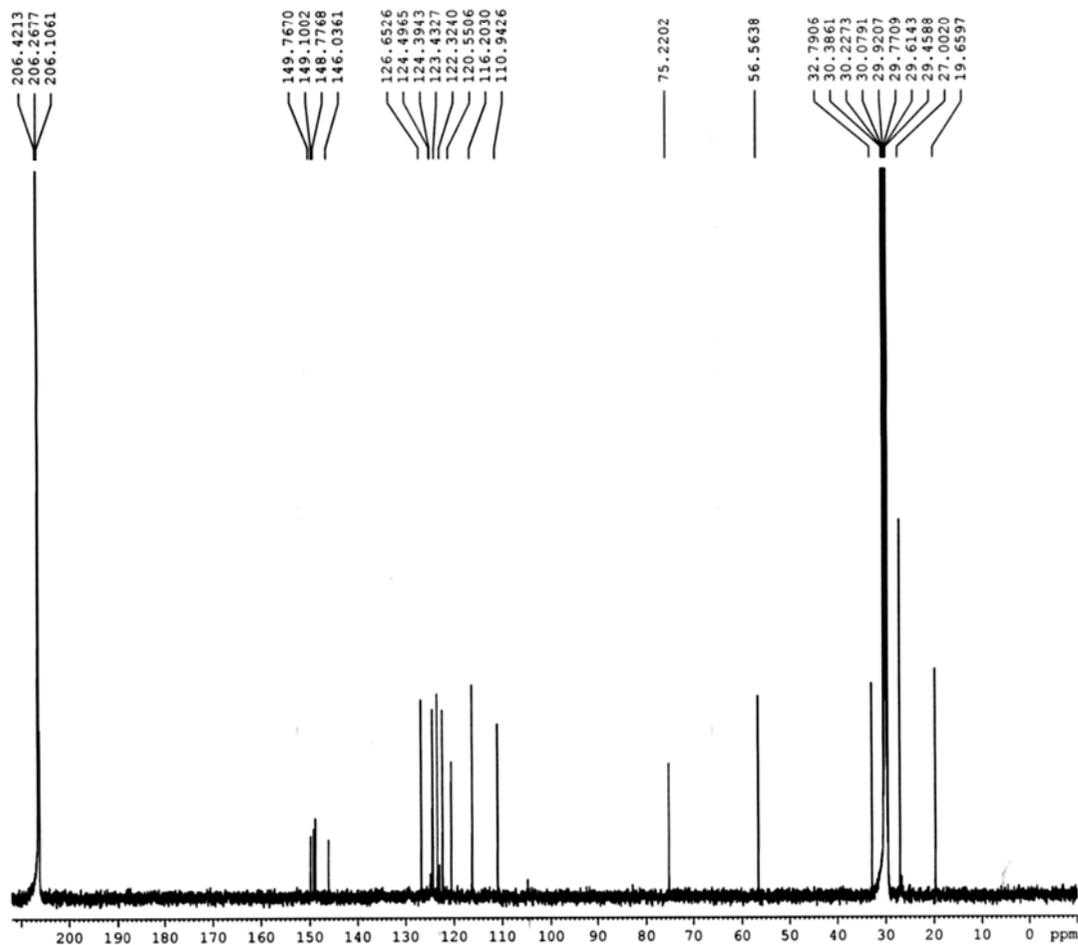
F2 - Acquisition Parameters
Date_ 20070613
Time 13.42
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zg30
TD 65536
SOLVENT Acetone
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1720407 sec
RG 768
DW 48.400 usec
DE 6.00 usec
TE 295.8 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 13.75 usec
PL1 0.00 dB
SF01 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300102 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Espectro 125. Ampliação da região de hidrogênios aromáticos do espectro de RMN ¹H (500 MHz, Acetona-*d*₆) do composto (69).

b-lap-imid-vanilina - Ari
Op. Eliane



```

Current Data Parameters
NAME      ufrj0670563
EXPNO    11
PROCNO   1

F2 - Acquisition Parameters
Date_    20070613
Time     10.32
INSTRUM  spect
PROBHD   5 mm BBO BB-1H
PULPROG  zgpg30
TD       32768
SOLVENT  DMSO
NS       12242
DS       0
SWH      30030.029 Hz
FIDRES   0.916444 Hz
AQ       0.5456539 sec
RG       16384
DW       16.650 usec
DE       6.00 usec
TE       296.5 K
d1       0.20000000 sec
d11      0.03000000 sec
DELTA    0.10000000 sec
MCREST   0.00000000 sec
MCWRK    0.01500000 sec

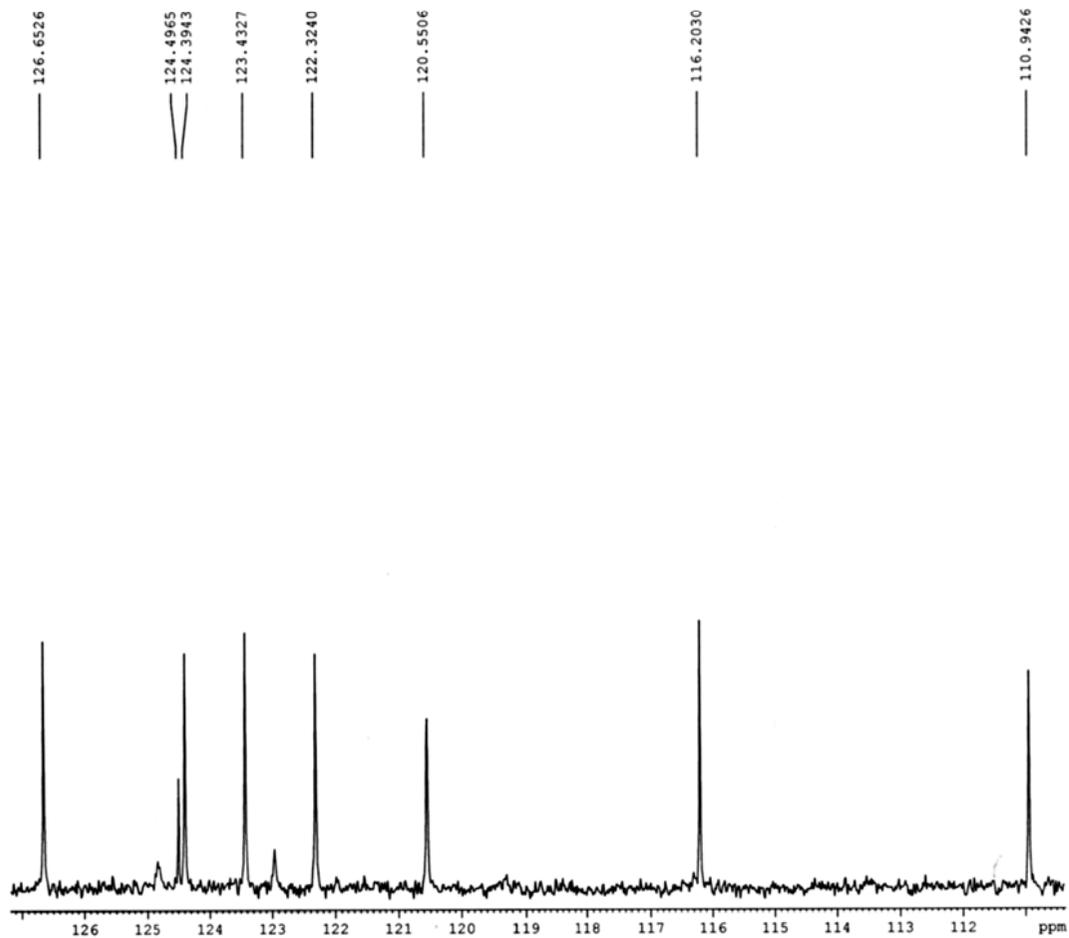
----- CHANNEL f1 -----
NUC1     13C
P1       7.00 usec
PL1      3.00 dB
SFO1     125.7703643 MHz

----- CHANNEL f2 -----
CPDPRG2  waltz16
NUC2     1H
PCPD2    100.00 usec
PL2      0.00 dB
PL12     17.23 dB
PL13     17.89 dB
SFO2     500.1320005 MHz

F2 - Processing parameters
SI       16384
SF       125.7576681 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
  
```

Espectro 126. RMN ^{13}C (125 MHz, Acetona- d_6) do composto (69).

b-lap-imid-vanilina - Ari
Op. Eliane



Current Data Parameters
NAME ufrj0670563
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20070613
Time 10.32
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zgpg30
TD 32768
SOLVENT DMSO
NS 12242
DS 0
SWH 30030.029 Hz
FIDRES 0.916444 Hz
AQ 0.5456539 sec
RG 16384
DW 16.650 usec
DE 6.00 usec
TE 296.5 K
D1 0.20000000 sec
d11 0.03000000 sec
DELTA 0.10000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

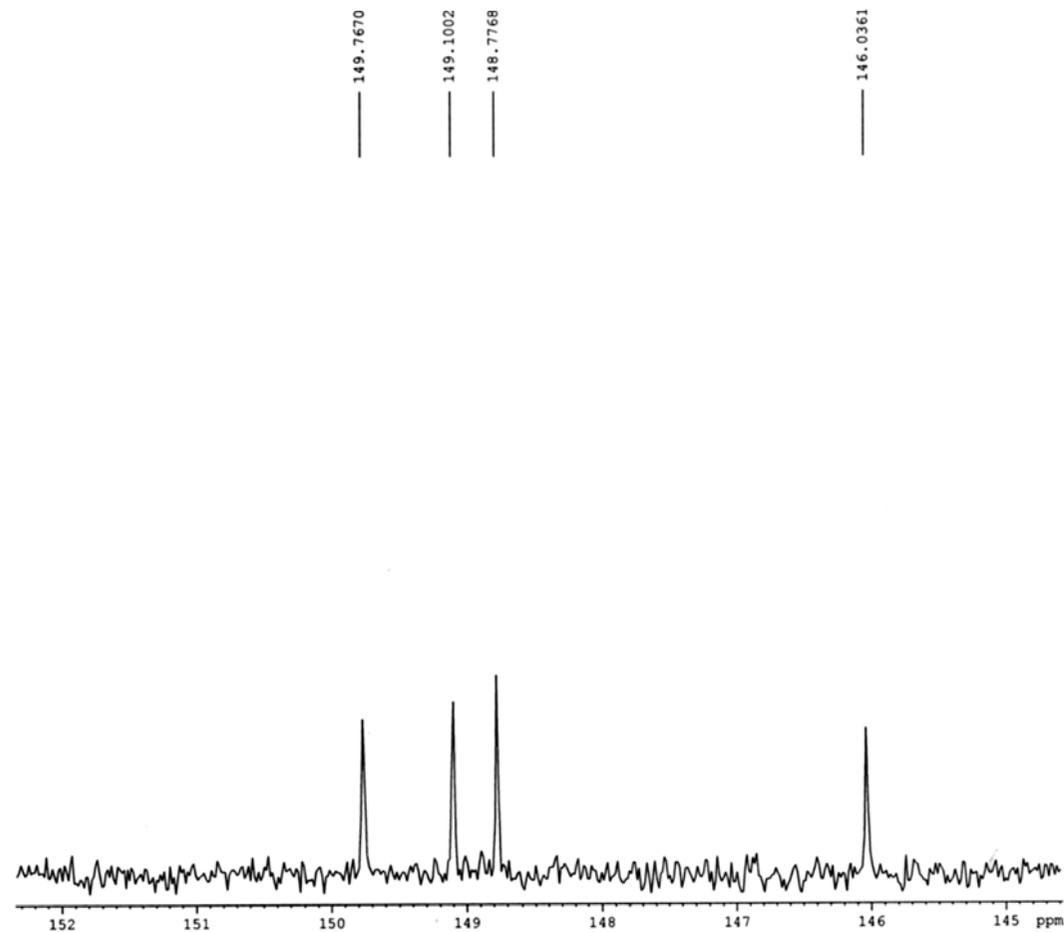
----- CHANNEL f1 -----
NUC1 13C
P1 7.00 usec
PL1 3.00 dB
SFO1 125.7703643 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 0.00 dB
PL12 17.23 dB
PL13 17.89 dB
SFO2 500.1320005 MHz

F2 - Processing parameters
SI 16384
SF 125.7576681 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Espectro 127. Ampliação 1 da região de carbonos aromáticos do espectro de RMN ^{13}C (125 MHz, Acetona- d_6) do composto (69).

b-lap-imid-vanilina - Ari
Op. Eliane



```
Current Data Parameters
NAME      ufrj0670563
EXPNO    11
PROCNO   1

F2 - Acquisition Parameters
Date_    20070613
Time     10.32
INSTRUM  spect
PROBHD   5 mm BBO BB-1H
PULPROG  zgpg30
TD        32768
SOLVENT  DMSO
NS        12242
DS        0
SWH       30030.029 Hz
FIDRES    0.916444 Hz
AQ        0.5456539 sec
RG        16384
DM        16.650 usec
DE        6.00 usec
TE        296.5 K
D1        0.2000000 sec
d11       0.0300000 sec
DELTA     0.1000000 sec
MCREST    0.0000000 sec
MCWRK     0.0150000 sec

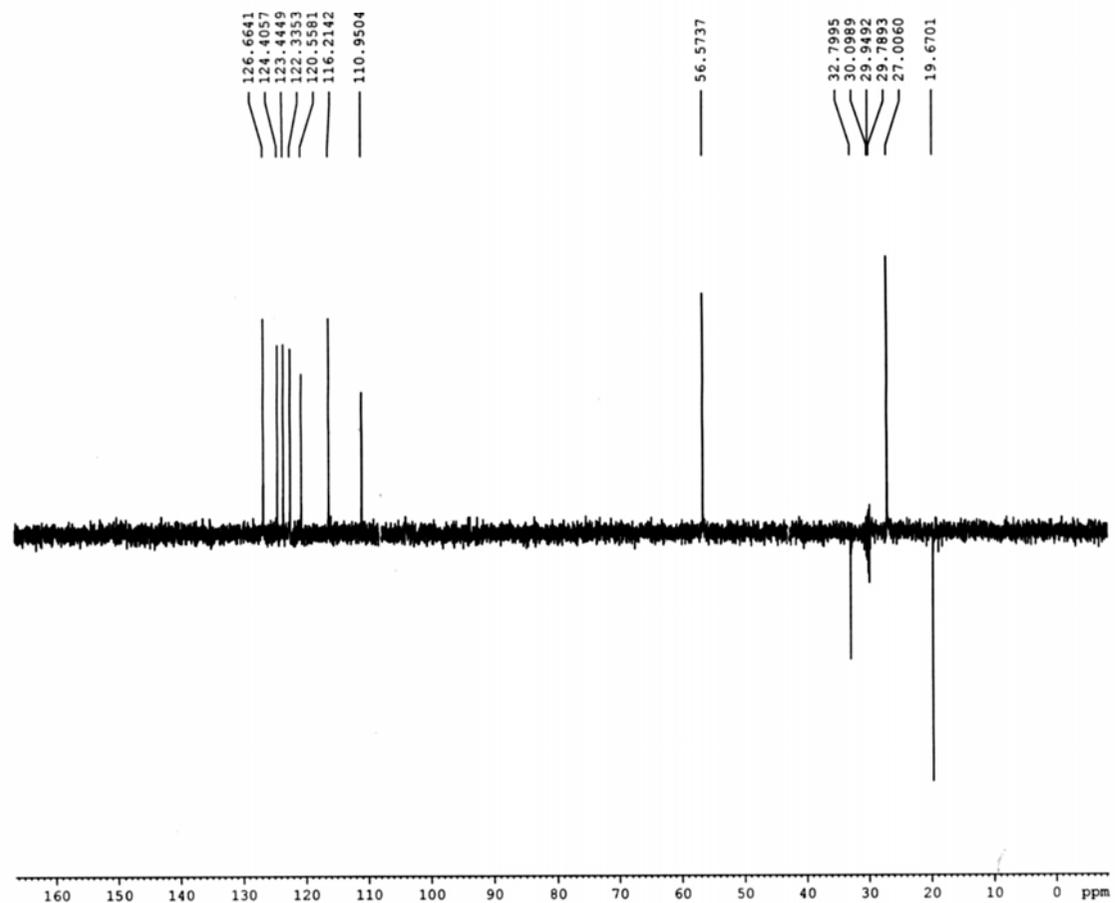
----- CHANNEL f1 -----
NUC1      13C
P1        7.00 usec
PL1       3.00 dB
SFO1      125.7703643 MHz

----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2       1H
PCPD2     100.00 usec
PL2        0.00 dB
PL12       17.23 dB
PL13       17.89 dB
SFO2       500.1320005 MHz

F2 - Processing parameters
SI         16384
SF         125.7576681 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
```

Espectro 128. Ampliação 2 da região de carbonos aromáticos do espectro de RMN ¹³C (125 MHz, Acetona-*d*₆) do composto (69).

b-lap-imid-vanilina - Ari
Op. Eliane



Current Data Parameters
NAME ufrj0670563
EXPNO 12
PROCNO 1

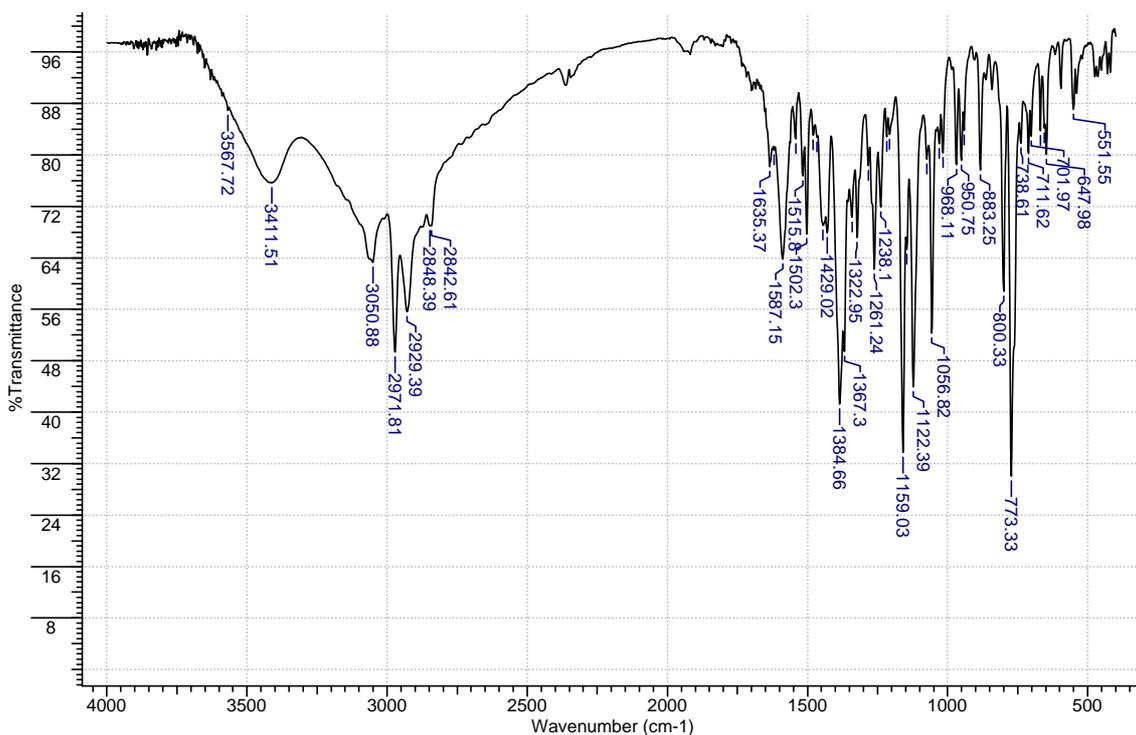
F2 - Acquisition Parameters
Date 20070613
Time 13.14
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG dept135
TD 32768
SOLVENT Acetone
NS 763
DS 4
SWH 30030.029 Hz
FIDRES 0.916444 Hz
AQ 0.5456539 sec
RG 16384
DW 16.650 usec
DE 6.00 usec
TE 296.0 K
CNST2 145.000000
D1 1.50000000 sec
d2 0.00344828 sec
d12 0.00002000 sec
DELTA 0.00000891 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 13C
P1 7.00 usec
p2 14.00 usec
PL1 3.00 dB
SFO1 125.7703643 MHz

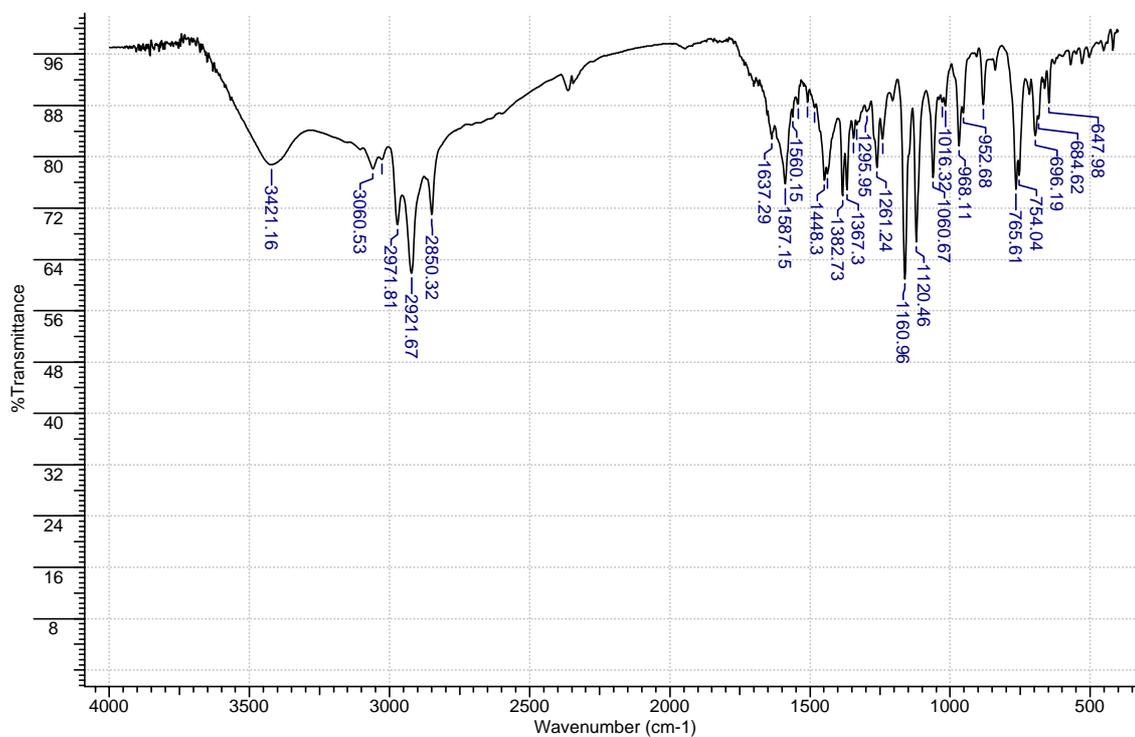
----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
P3 13.75 usec
p4 27.50 usec
PCPD2 100.00 usec
PL2 0.00 dB
PL12 17.23 dB
SFO2 500.1320005 MHz

F2 - Processing parameters
SI 16384
SF 125.7576587 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

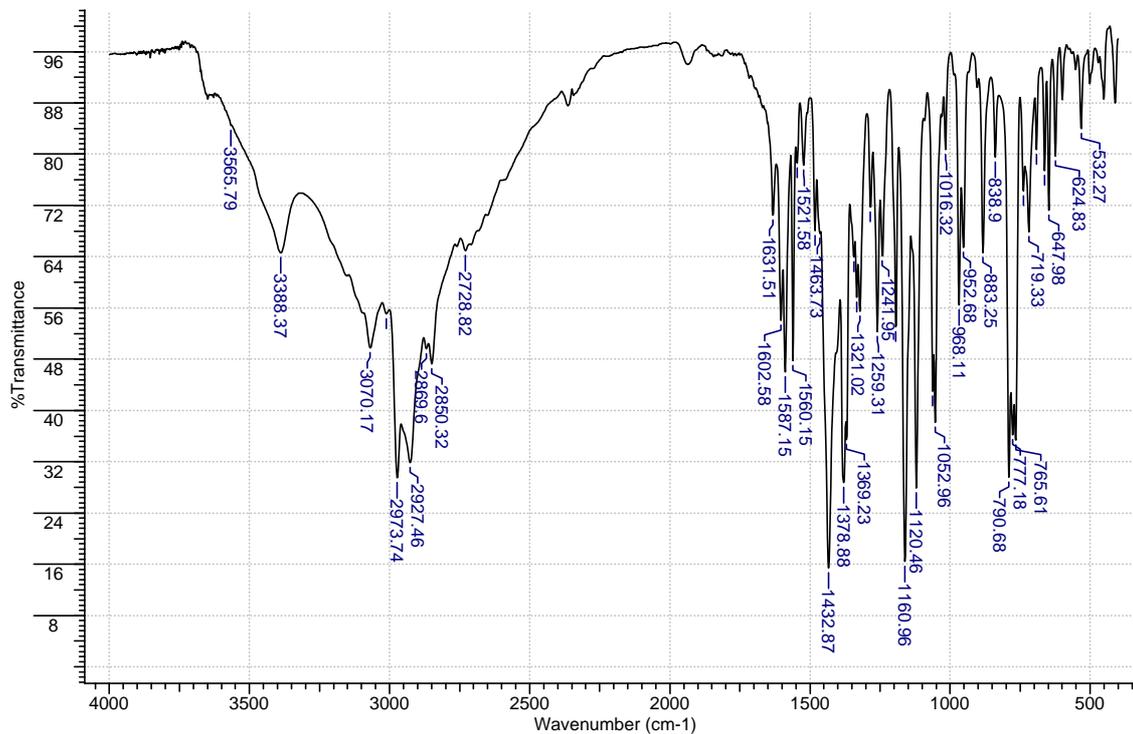
Espectro 129. RMN $^{13}\text{C}_{(\text{DEPT})}$ (500 MHz, Acetona- d_6) do composto (69).



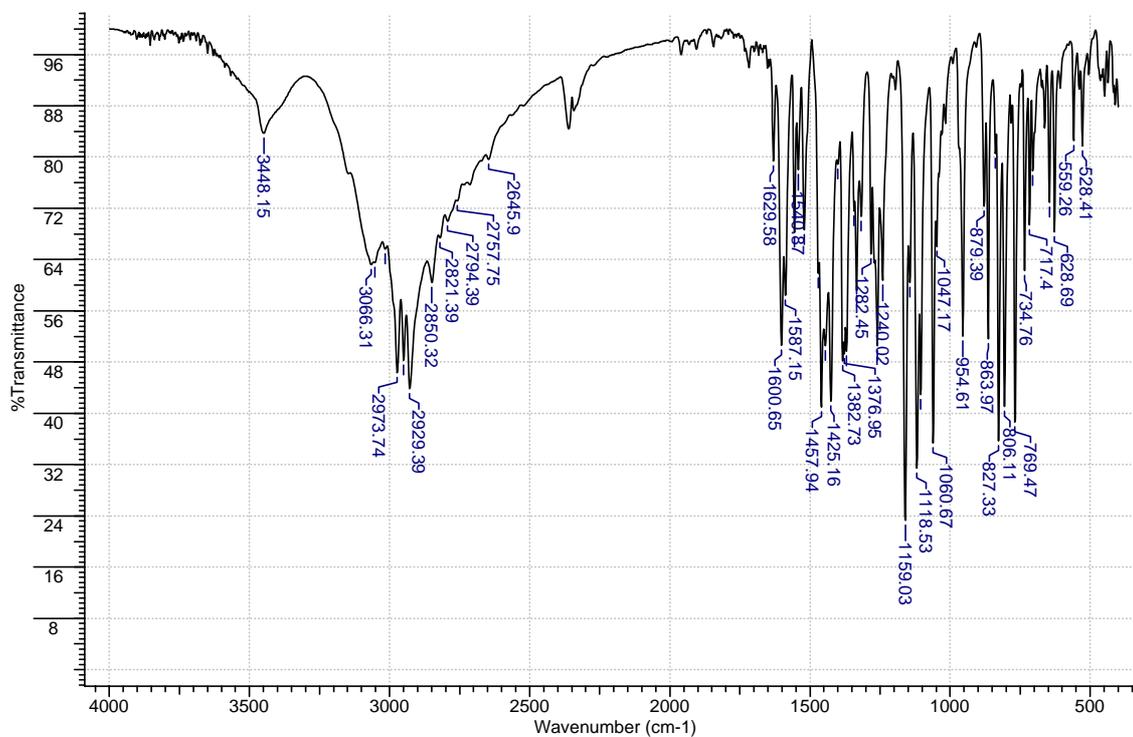
Espectro 130. Espectro de infravermelho do composto (63), pastilha de KBr.



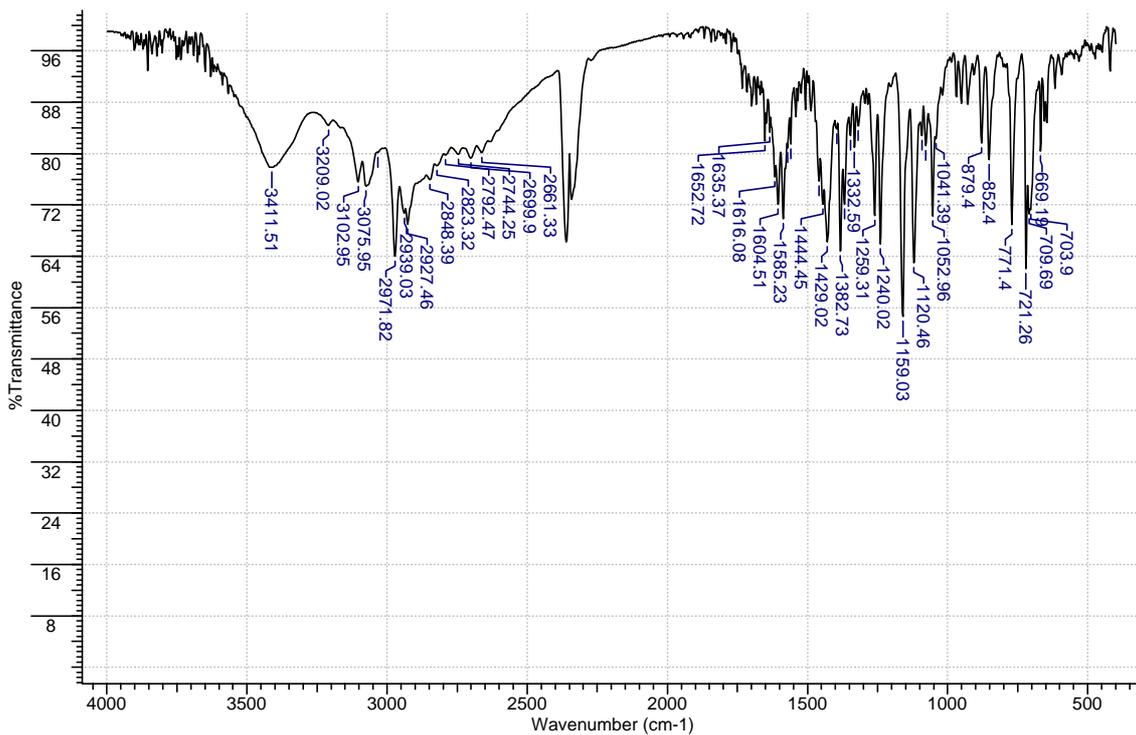
Espectro 131: Espectro de infravermelho do composto (65), pastilha de KBr.



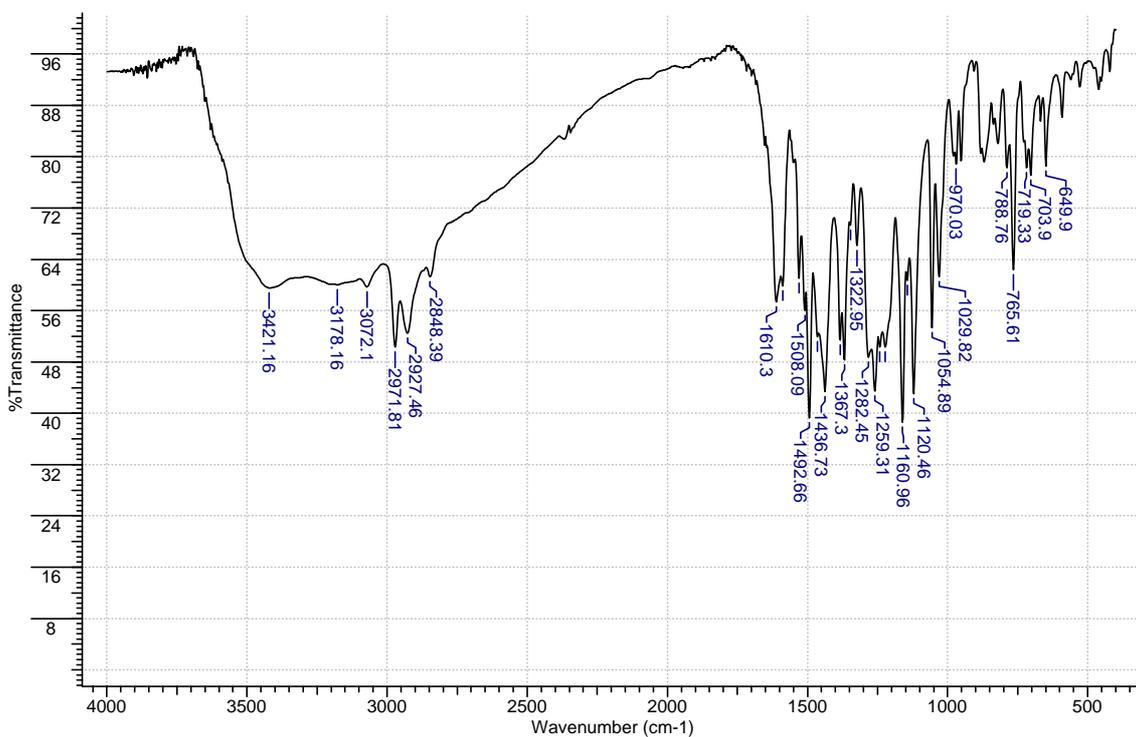
Espectro 132. Espectro de infravermelho do composto (66), pastilha de KBr.



Espectro 133. Espectro de infravermelho do composto (67), pastilha de KBr.

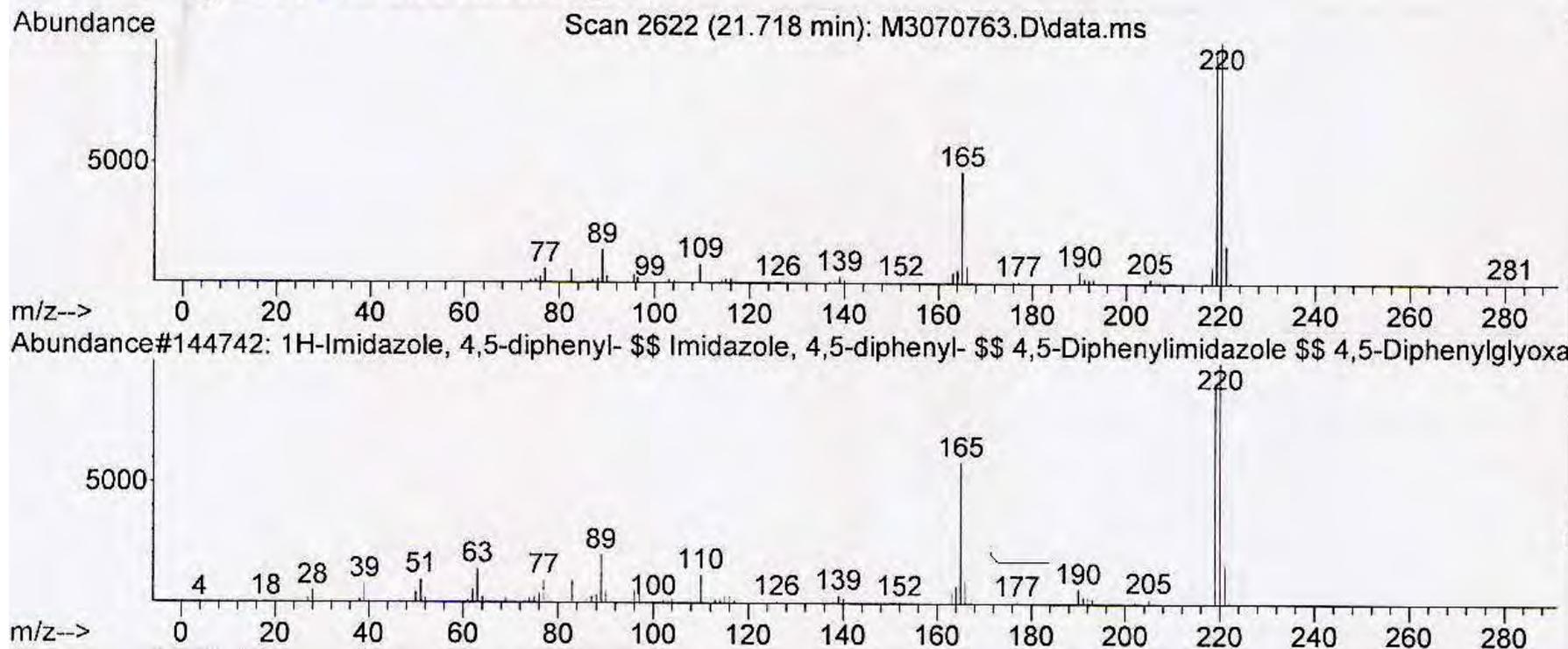


Espectro 134. Espectro de infravermelho do composto (68), pastilha de KBr.



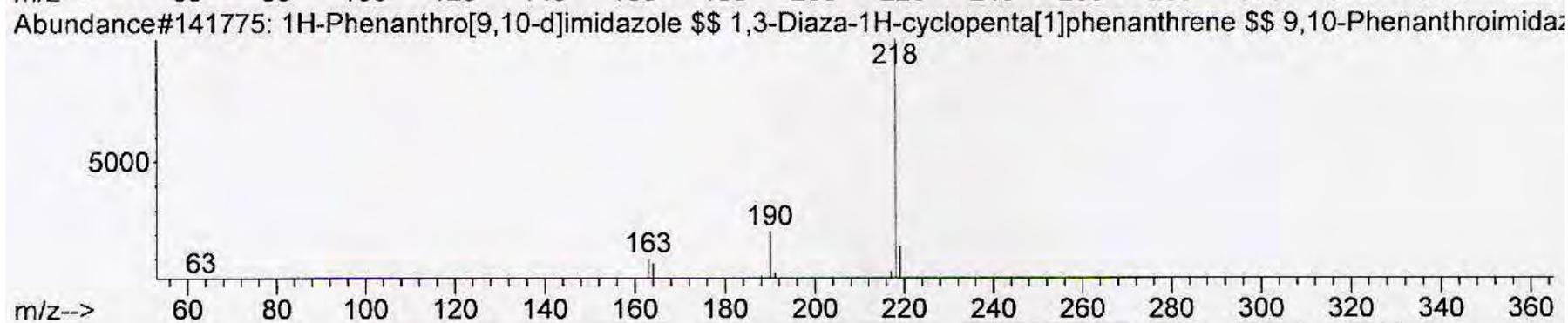
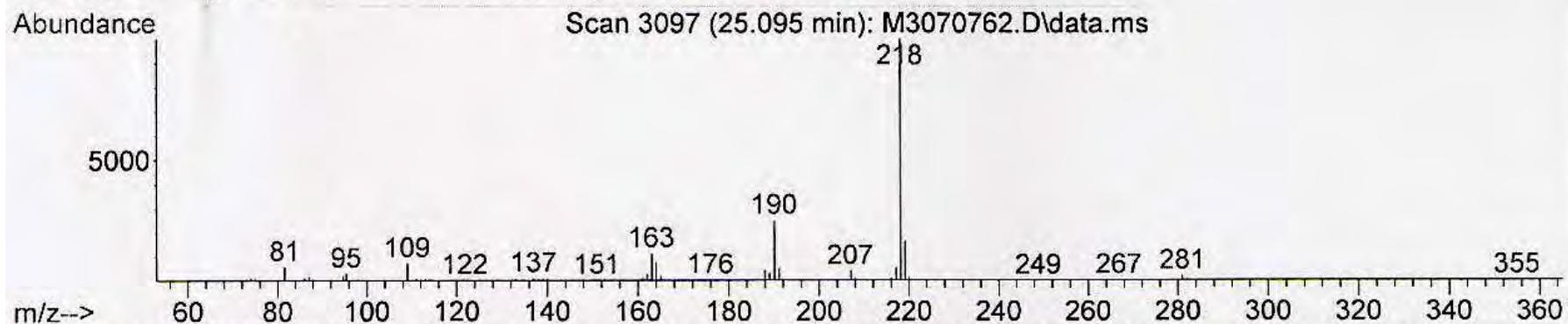
Espectro 135. Espectro de infravermelho do composto (69), pastilha de KBr.

Unknown Spectrum based on Apex

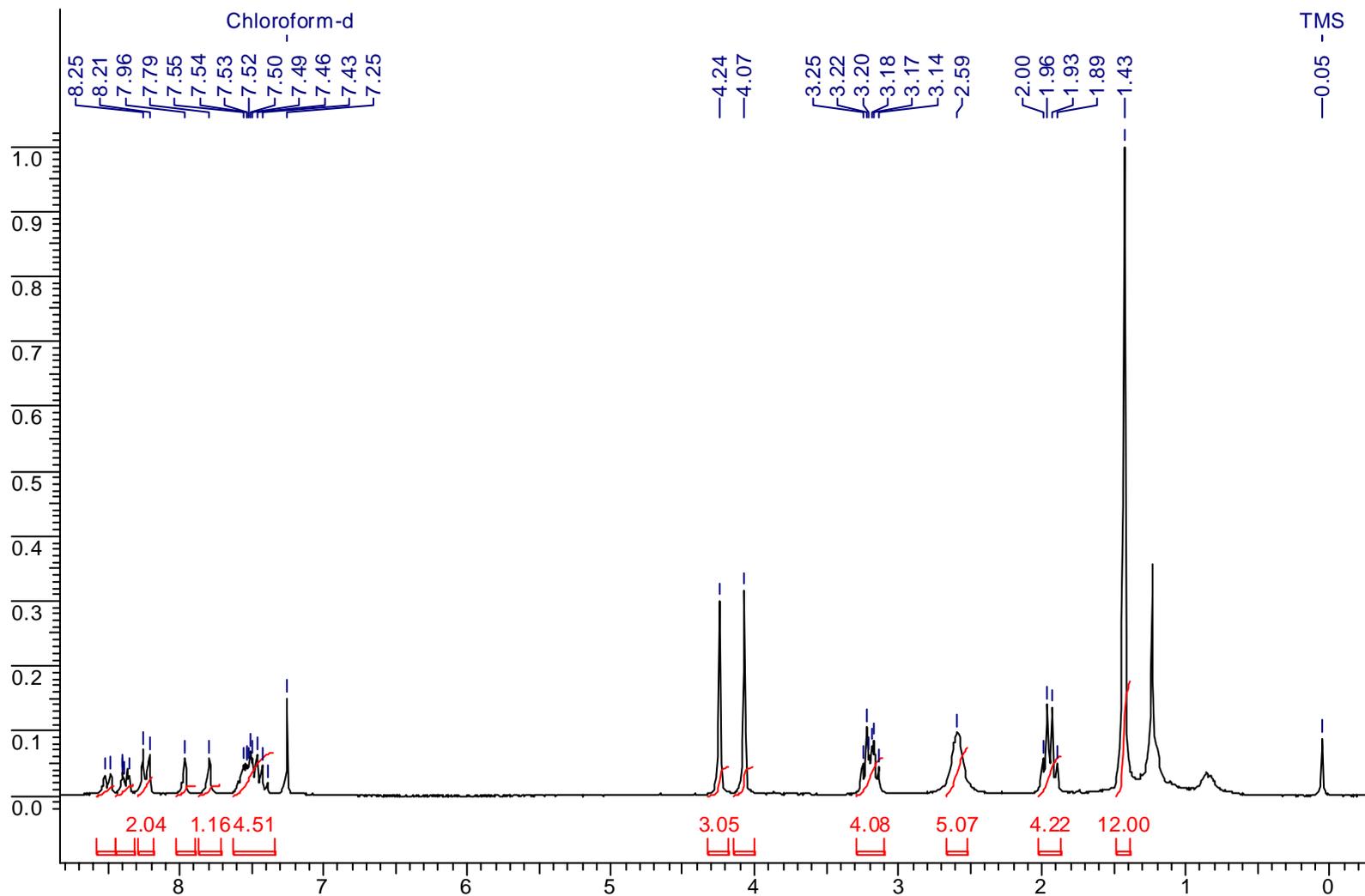


Espectro 136. EM do composto (74), ionização por impacto de elétrons.

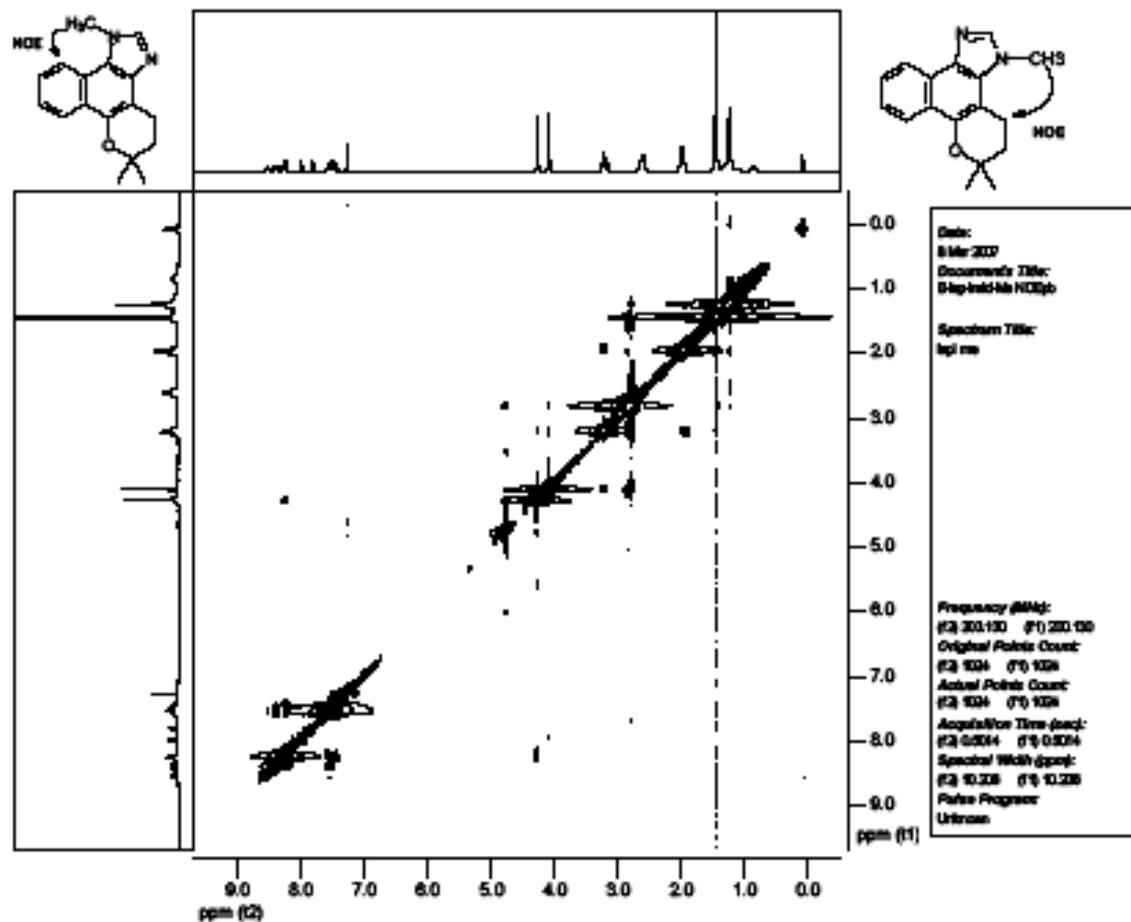
Unknown Spectrum based on Apex



Espectro 137. EM do composto (75), ionização por impacto de elétrons.

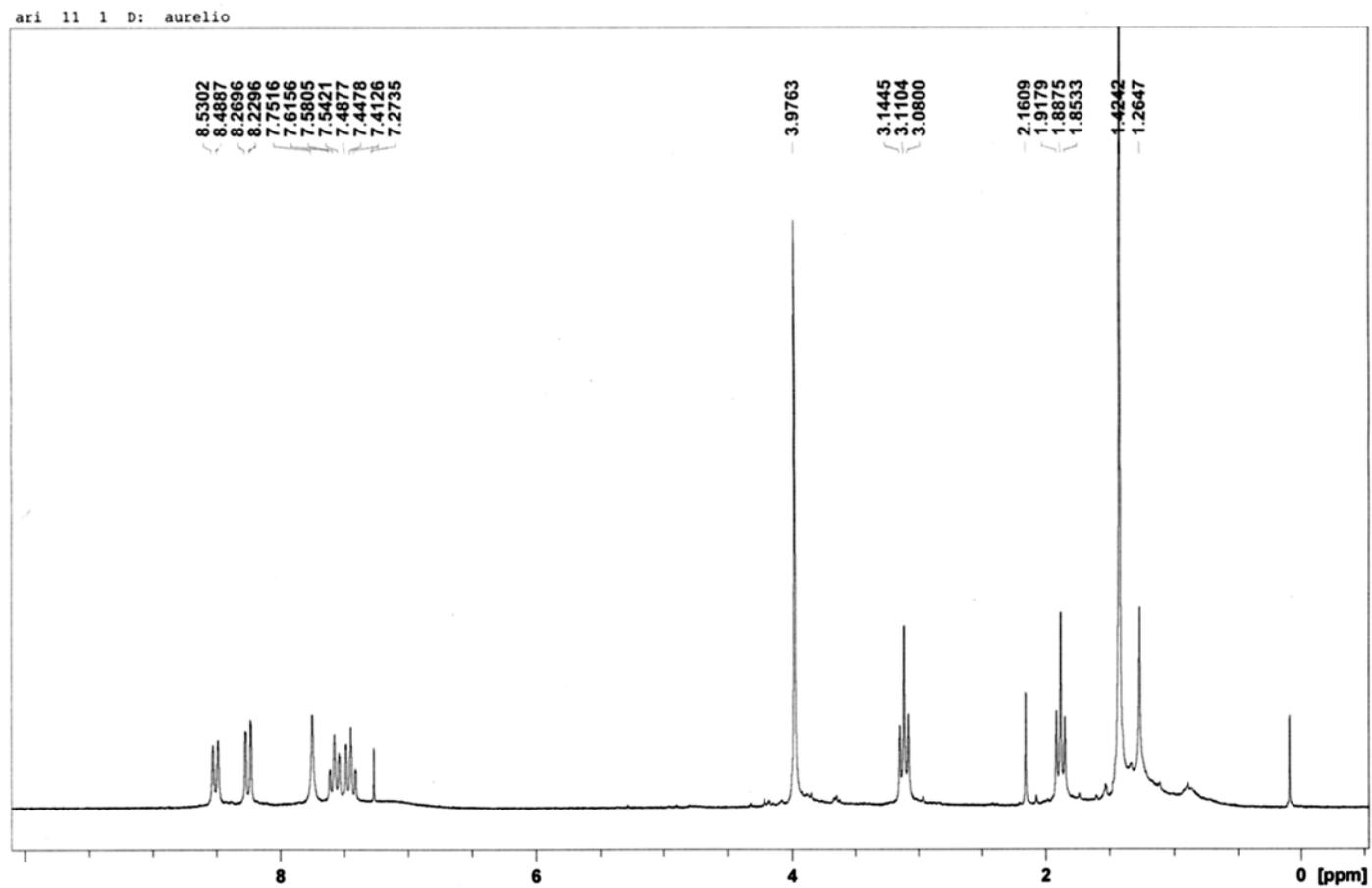


Espectro 138. RMN ^1H (200 MHz, CDCl_3) da mistura dos compostos (70) e (71).



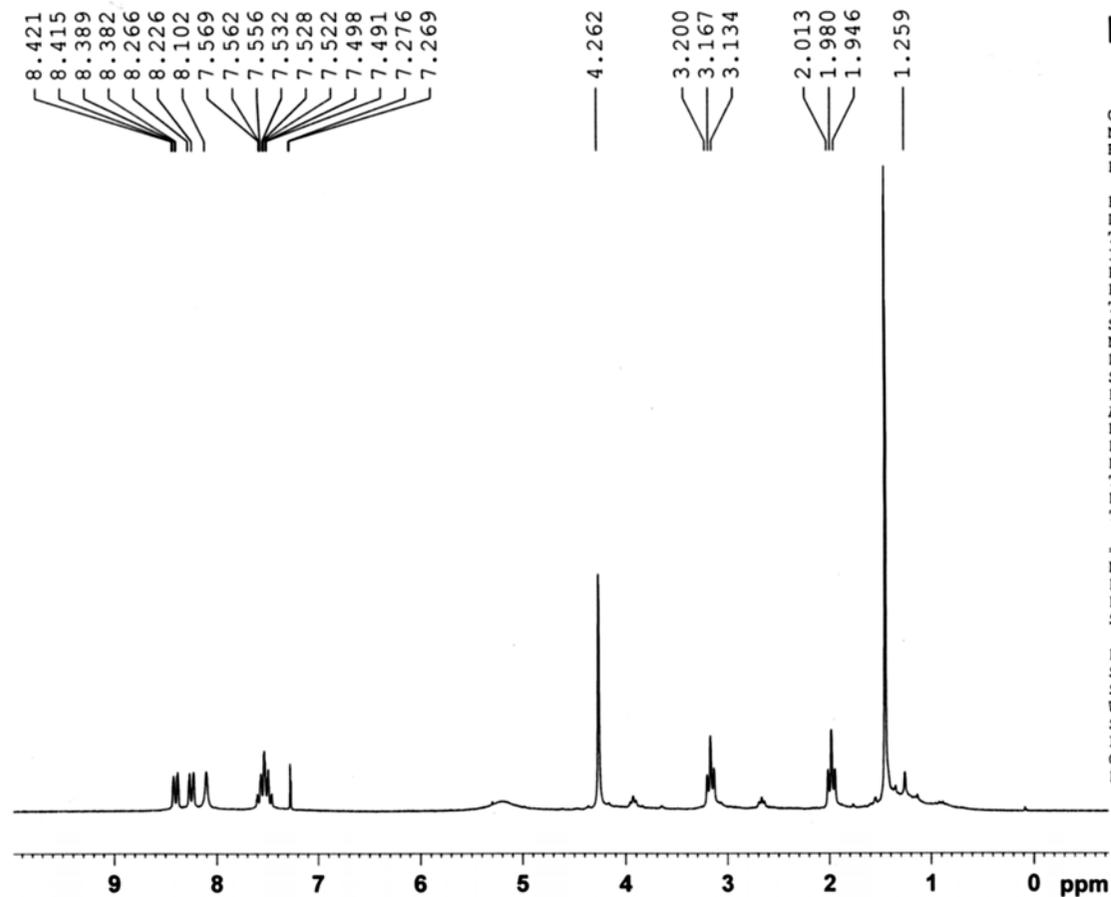
Espectro 139. 2D NOESY (200 MHz, CDCl₃) da mistura dos compostos (70) e (71).

E-LAP M₂



Espectro 140. RMN ^1H (200 MHz, CDCl_3) do composto (**70**).

B-LAP-Me1



Current Data Parameters
NAME ari
EXPNO 8
PROCNO 1

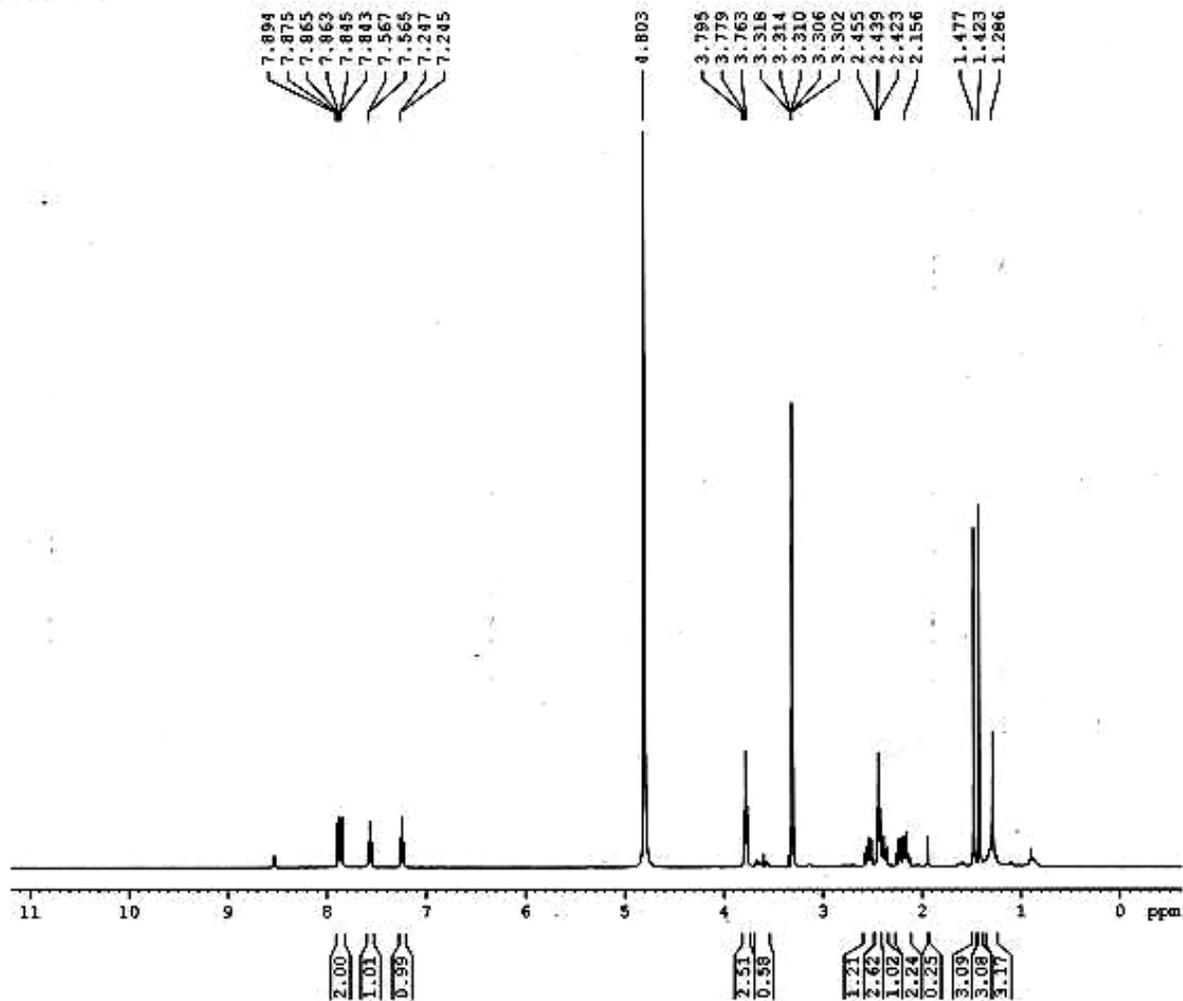
F2 - Acquisition Parameters
Date_ 20070906
Time_ 12.07
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 30
DS 2
SWH 4132.231 Hz
FIDRES 0.063053 Hz
AQ 7.9299059 sec
RG 512
DW 121.000 usec
DE 10.00 usec
TE 300.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 12.40 usec
PL1 0.00 dB
SFO1 200.1312359 MHz

F2 - Processing parameters
SI 32768
SF 200.1300000 MHz
WDW no
SSB 0
LB 0.00 Hz
GB 0
PC 1.00

Espectro 141. RMN ¹H (200 MHz, CDCl₃) do composto (71).

Aurelio (b-lap-imid-NO2)
op. pedro



```

Current Data Parameters
NAME      uixrj1263220p
EXPNO     10
PROCNO    1

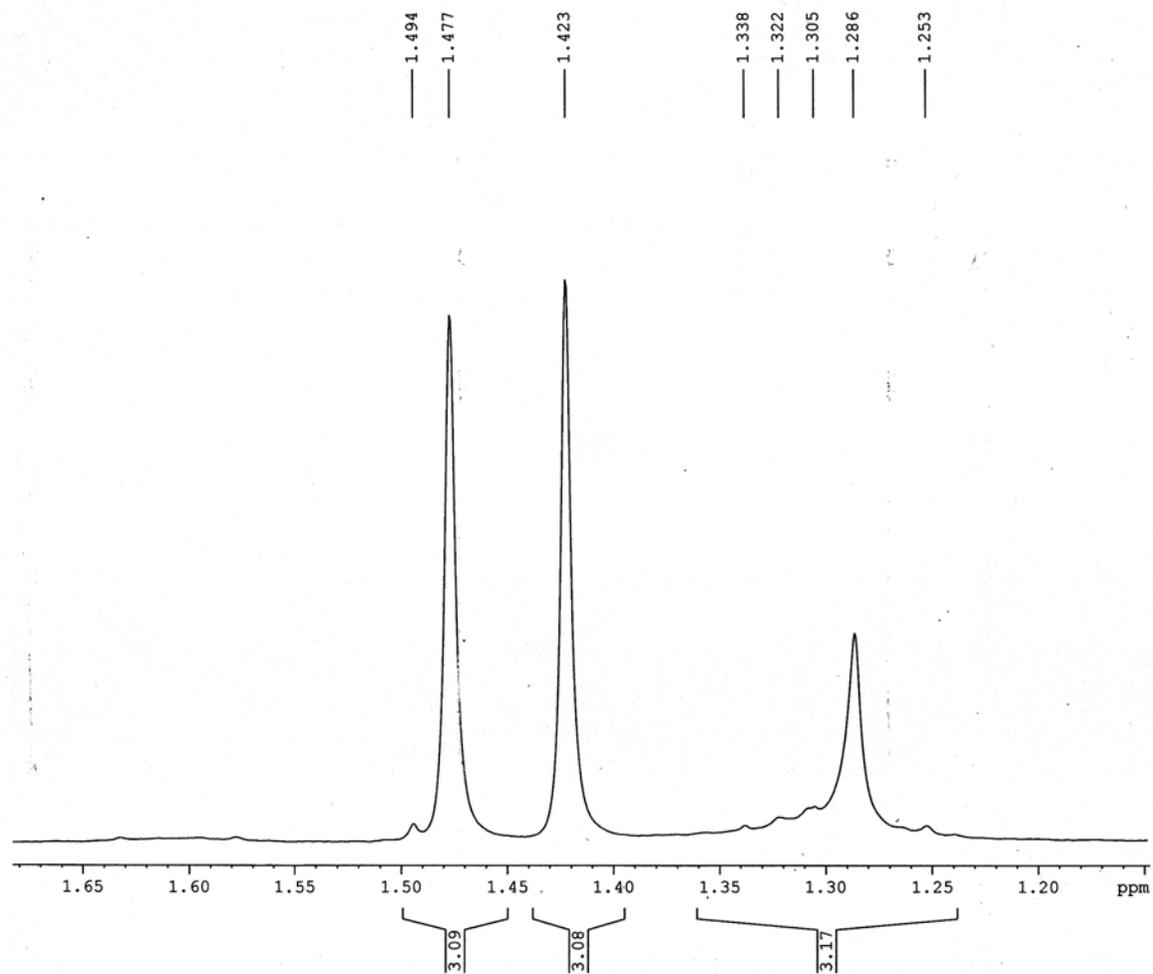
F2 - Acquisition Parameters
Date_     20061215
Time      14.21
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zg30
TD         65536
SOLVENT   MeOD
NS         16
DS         0
SWH        7440.476 Hz
FIDRES     0.113533 Hz
AQ         4.4040694 sec
RG         322.5
AQ         67.200 usec
DE         6.00 usec
TE         0.0 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCWRR     0.01500000 sec

----- CHANNEL f1 -----
NUC1       1H
P1         8.00 usec
PL1        -3.00 dB
SFO1       400.1527895 MHz

F2 - Processing parameters
SI         32768
SF         400.1500000 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
  
```

Espectro 142. RMN ¹H (400 MHz, MeOD-*d*₄) do composto (76).

Aurelio (b-lap-imid-NO2)
op. pedro



Current Data Parameters
NAME ufrj1263220p
EXPNO 10
PROCNO 1

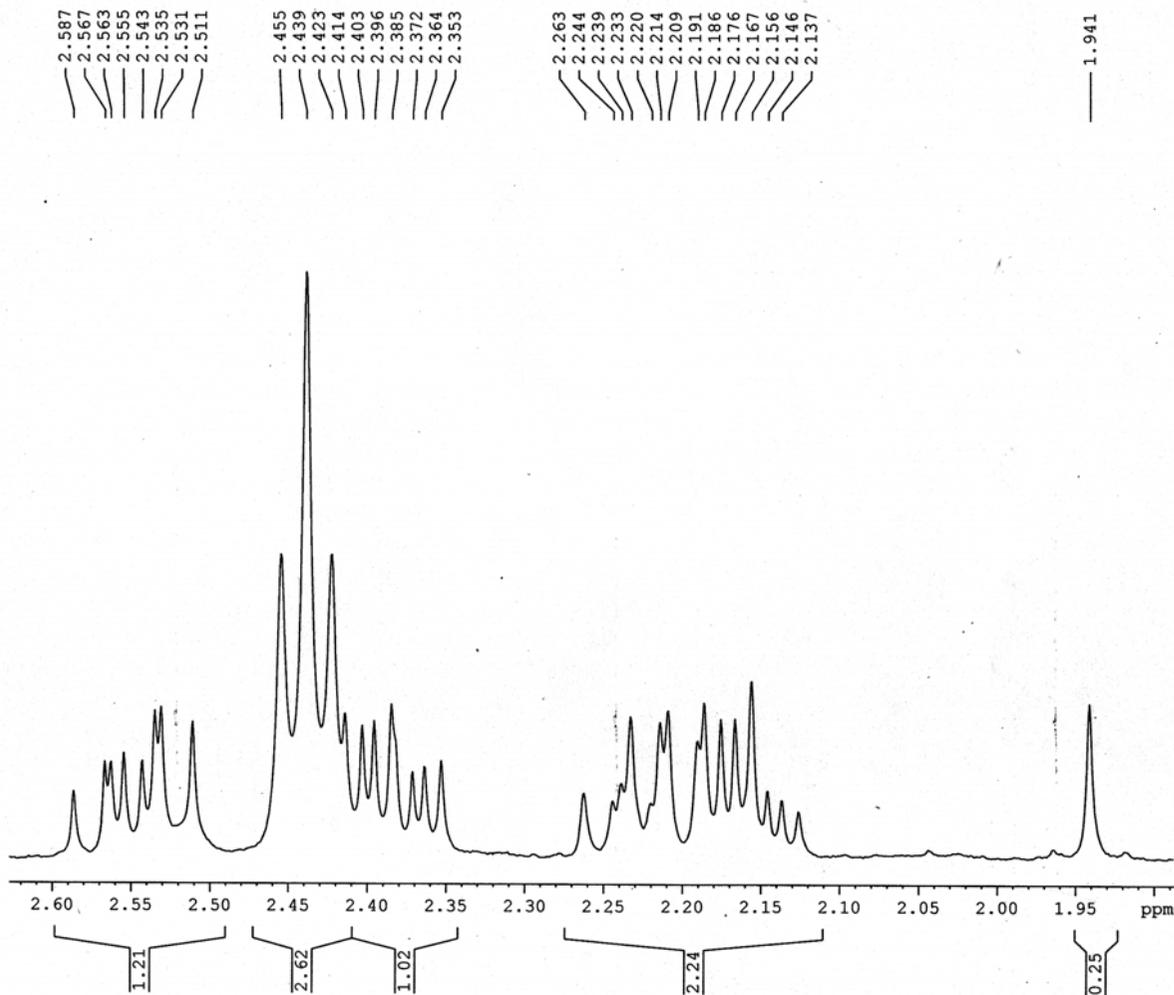
F2 - Acquisition Parameters
Date_ 20061215
Time 14.21
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT MeOD
NS 16
DS 0
SWH 7440.476 Hz
FIDRES 0.113533 Hz
AQ 4.4040694 sec
RG 322.5
DW 67.200 usec
DE 6.00 usec
TE 0.0 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 8.00 usec
PL1 -3.00 dB
SFO1 400.1527895 MHz

F2 - Processing parameters
SI 32768
SF 400.1500068 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Espectro 143. Ampliação 1 da região de hidrogênios alifáticos do espectro de RMN ^1H (400 MHz, MeOD- d_4) do composto (79).

Aurelio (b-lap-imid-NO2)
op. pedro



Current Data Parameters
NAME ufrrij263220p
EXPNO 10
PROCNO 1

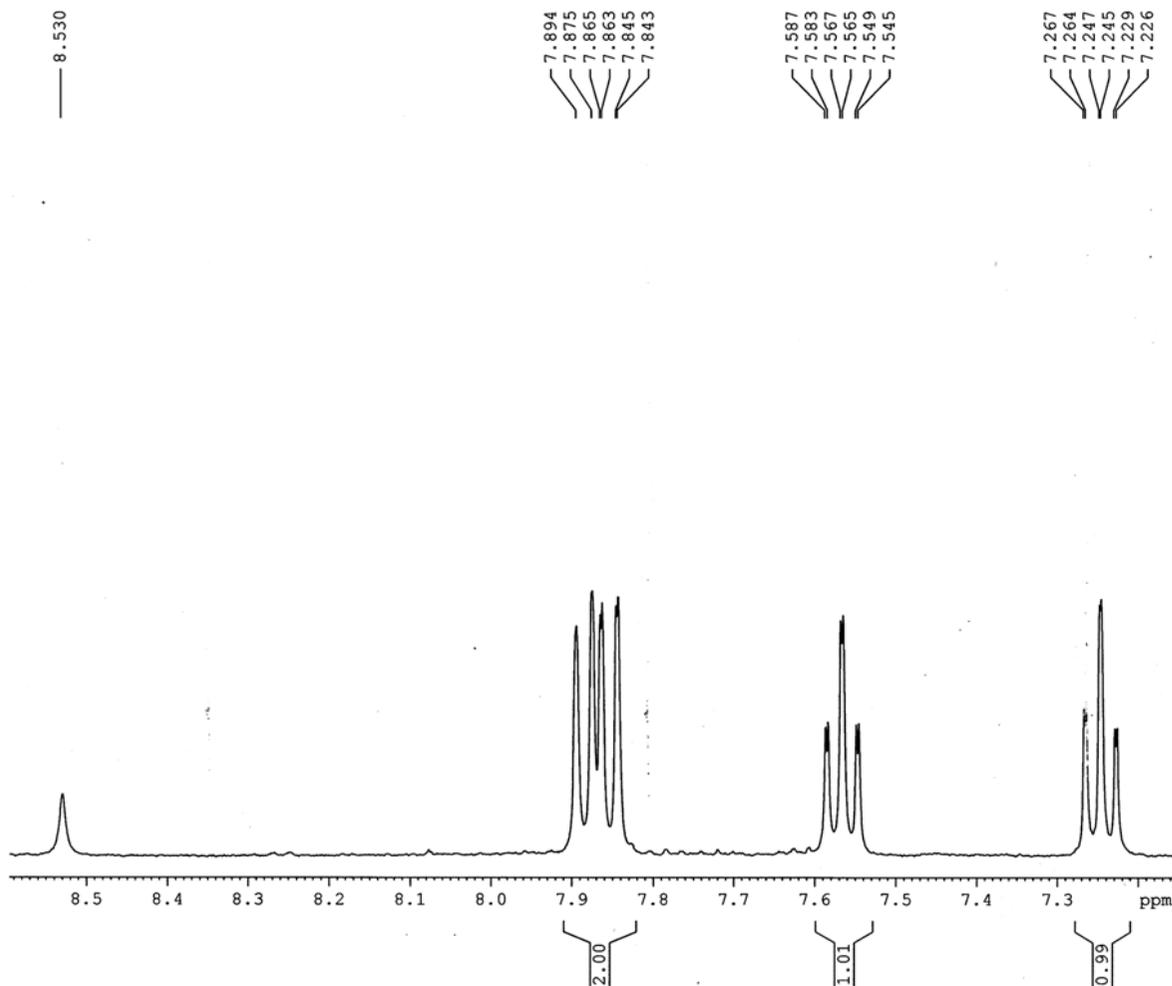
F2 - Acquisition Parameters
Date_ 20061215
Time 14.21
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT MeOD
NS 16
DS 0
SWH 7440.476 Hz
FIDRES 0.113533 Hz
AQ 4.4040694 sec
RG 322.5
DW 67.200 usec
DE 6.00 usec
TE 0.0 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 8.00 usec
PL1 -3.00 dB
SFO1 400.1527895 MHz

F2 - Processing parameters
SI 32768
SF 400.1500068 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Espectro 144. Ampliação 2 da região de hidrogênios alifáticos do espectro de RMN ¹H (400 MHz, MeOD-*d*₄) do composto (79).

Aurelio (b-lap-imid-NO2)
op. pedro



```
Current Data Parameters
NAME      ufrjrj263220p
EXPNO     10
PROCNO    1

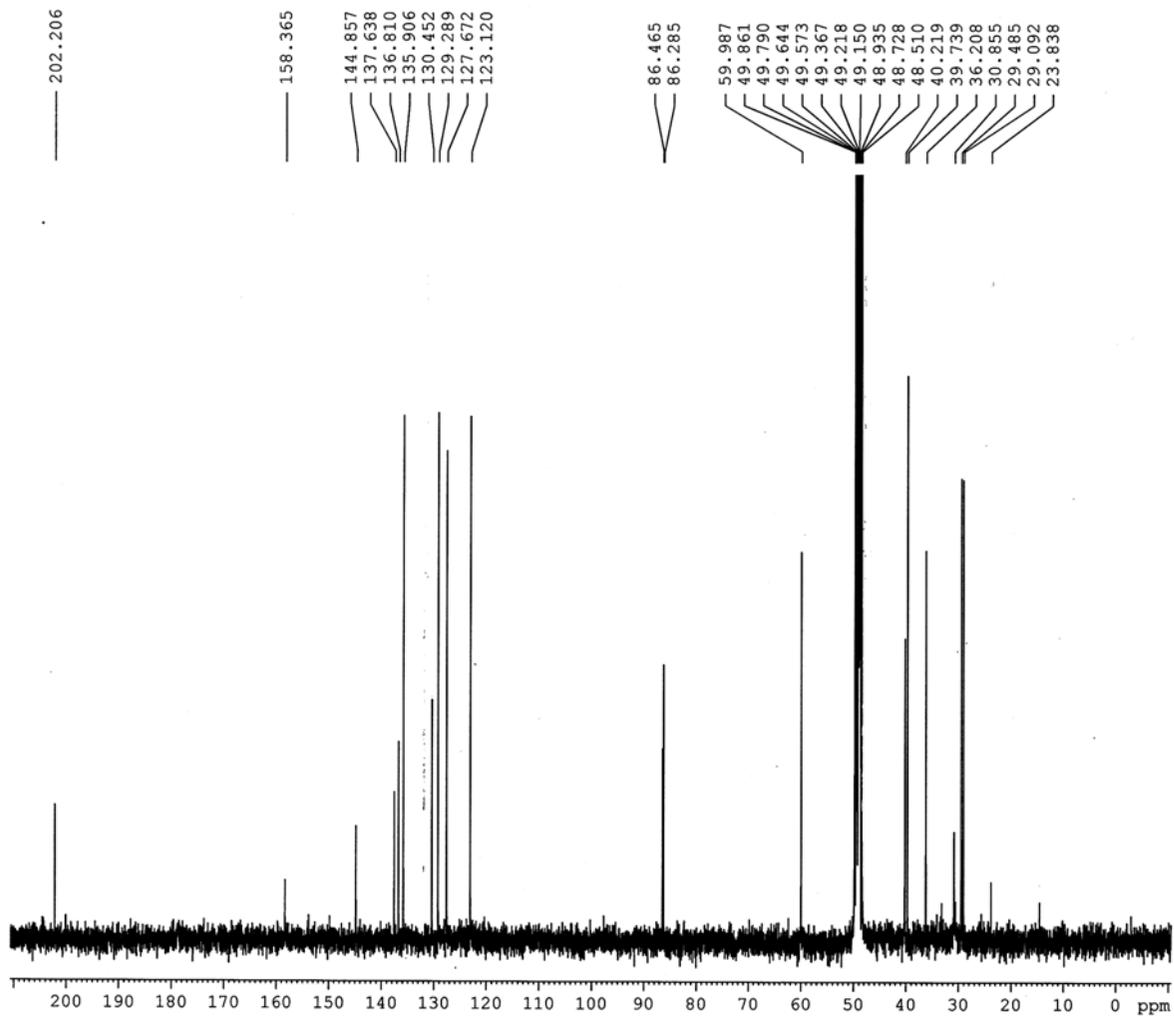
F2 - Acquisition Parameters
Date_     20061215
Time      14.21
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zg30
TD         65536
SOLVENT   MeOD
NS         16
DS         0
SWH        7440.476 Hz
FIDRES     0.113533 Hz
AQ         4.4040694 sec
RG         322.5
DW         67.200 usec
DE         6.00 usec
TE         0.0 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1      1H
P1        8.00 usec
PL1       -3.00 dB
SFO1      400.1527895 MHz

F2 - Processing parameters
SI        32768
SF        400.1500068 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00
```

Espectro 145. Ampliação da região de hidrogênios aromáticos do espectro de RMN ^1H (400 MHz, MeOD- d_4) do composto (79).

Aurelio (b-lap-imid-NO2)



```
Current Data Parameters
NAME      uffrj1263220p
EXPNO     11
PROCNO    1

F2 - Acquisition Parameters
Date_     20061218
Time      6.16
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD         32768
SOLVENT   MeOD
NS         131072
DS         0
SWH        23980.814 Hz
FIDRES     0.731836 Hz
AQ         0.6832628 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         0.0 K
D1         1.00000000 sec
d11        0.03000000 sec
DELTA      0.89999998 sec
MCREST     0.00000000 sec
MCWRK     0.01500000 sec

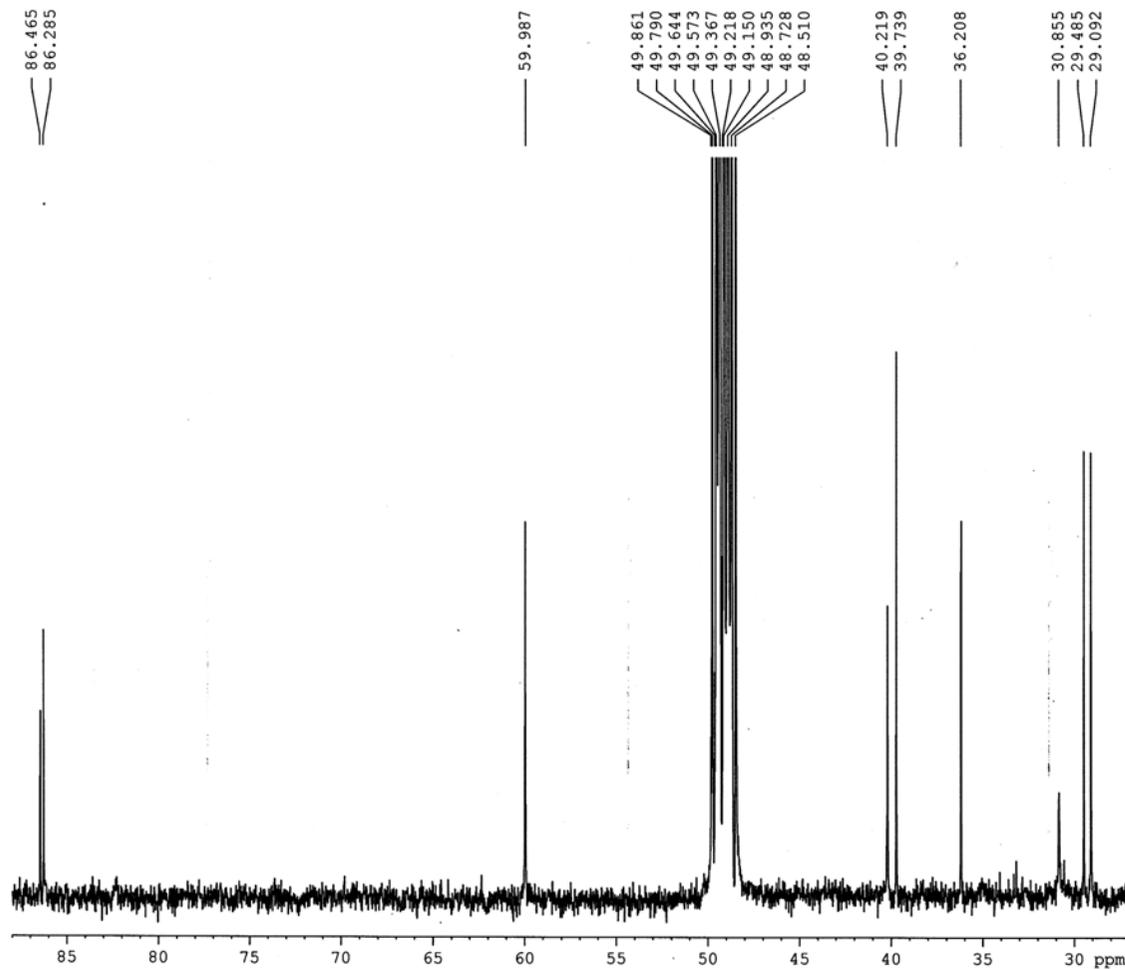
----- CHANNEL f1 -----
NUC1       13C
P1         7.00 usec
PL1        1.00 dB
SFO1       100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2    waltz16
NUC2        1H
PCPD2      100.00 usec
PL2         -4.00 dB
PL12        16.63 dB
PL13        16.63 dB
SFO2        400.1516006 MHz

F2 - Processing parameters
SI         16384
SF         100.6176418 MHz
WDW        EM
SSB         0
LB         1.00 Hz
GB         0
PC         1.40
```

Espectro 146. RMN ¹³C (100 MHz, MeOD-d₄) do composto (76).

Aurelio (b-lap-imid-NO2)



```
Current Data Parameters
NAME      ufrj1263220p
EXPNO    11
PROCNO   1

F2 - Acquisition Parameters
Date_    20061218
Time     6.16
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  zgpg30
TD       32768
SOLVENT  MeOD
NS       131072
DS       0
SWH      23980.814 Hz
FIDRES   0.731836 Hz
AQ       0.6832628 sec
RG       16384
DW       20.850 usec
DE       6.00 usec
TE       0.0 K
D1       1.0000000 sec
d11      0.0300000 sec
DELTA    0.89999998 sec
MCREST   0.0000000 sec
MCWRK    0.0150000 sec

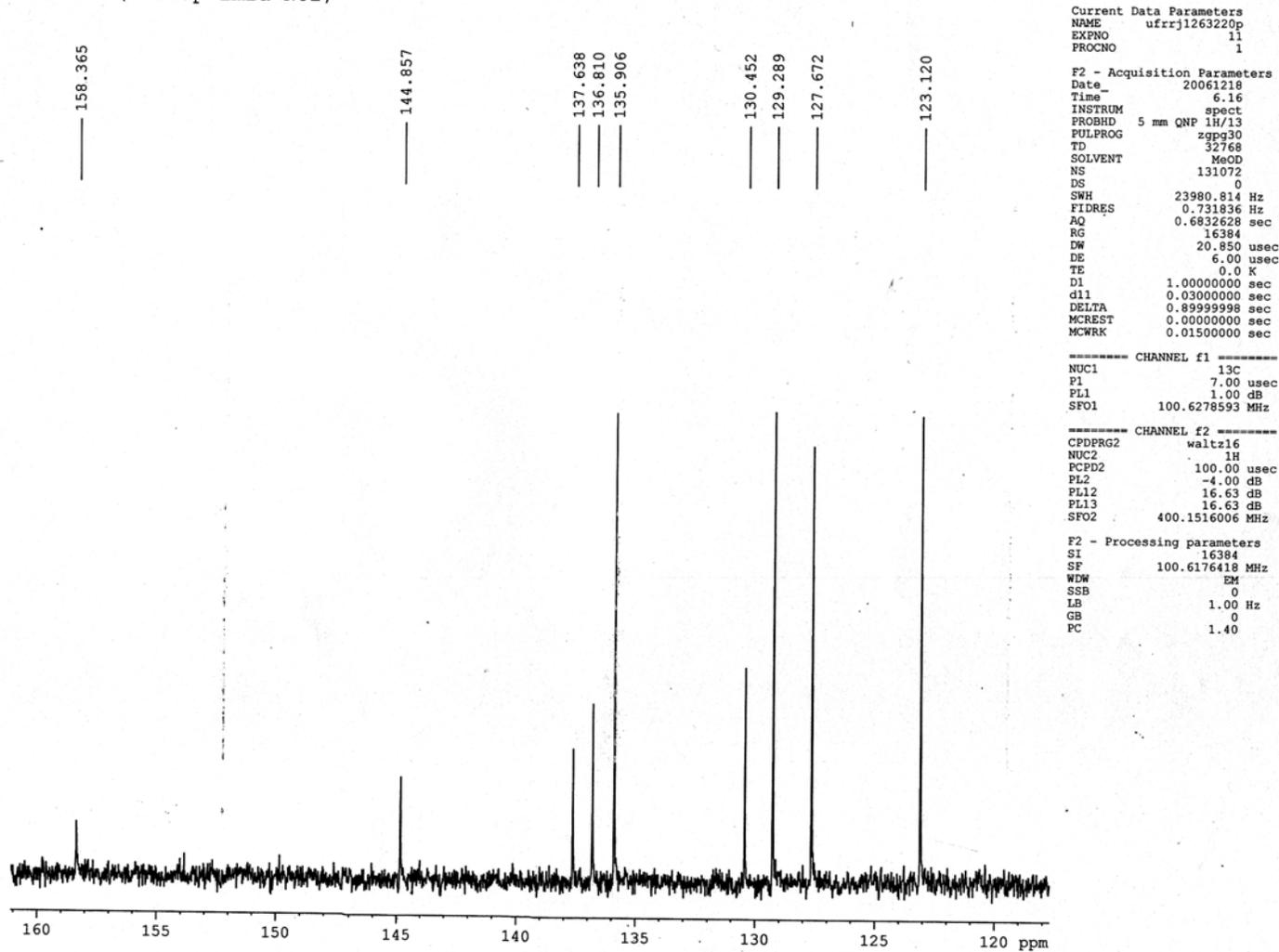
----- CHANNEL f1 -----
NUC1     13C
P1       7.00 usec
PL1      1.00 dB
SFO1     100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2  waltz16
NUC2     1H
PCPD2    100.00 usec
PL2      -4.00 dB
PL12     16.63 dB
PL13     16.63 dB
SFO2     400.1516006 MHz

F2 - Processing parameters
SI       16384
SF       100.6176418 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
```

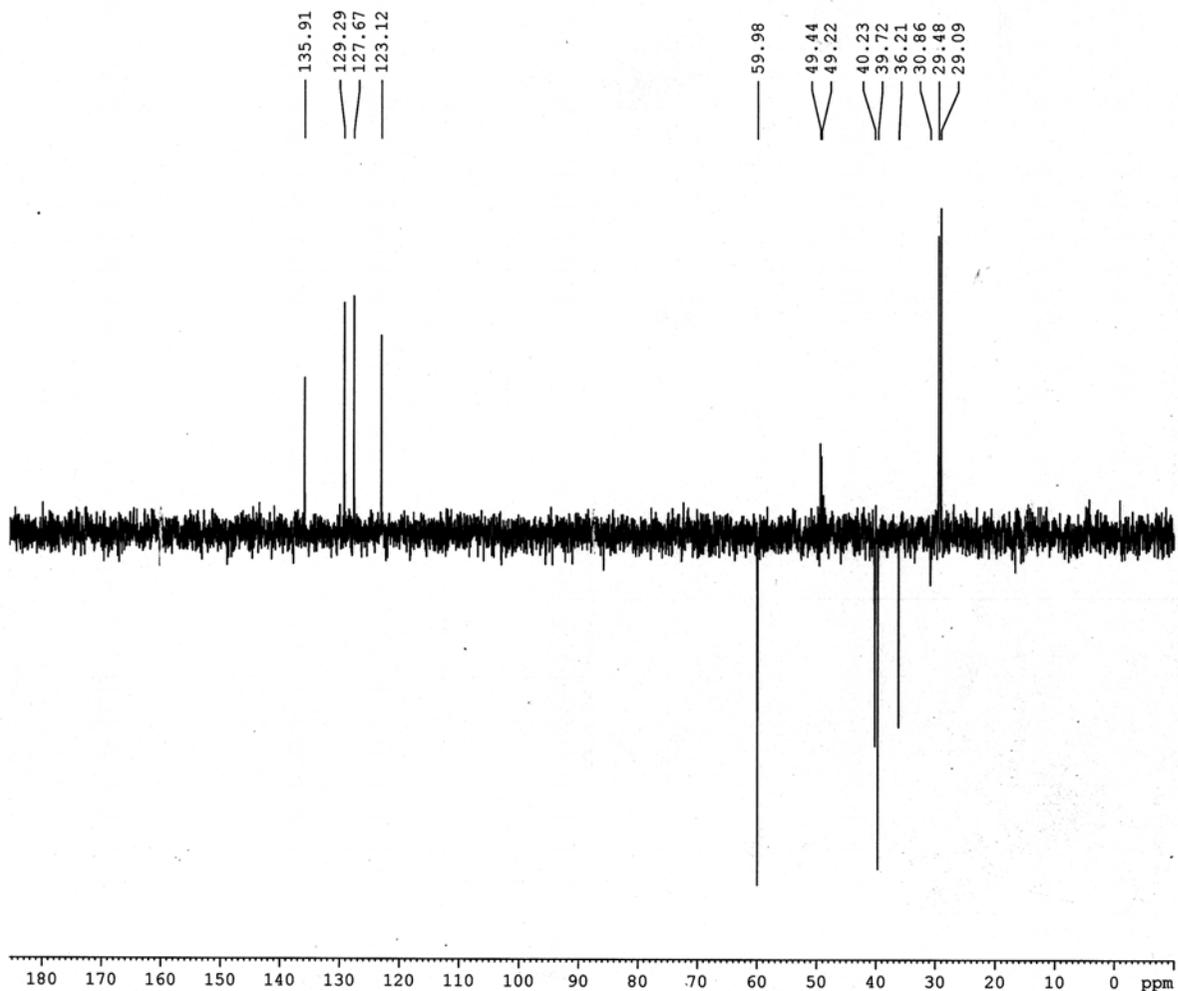
Espectro 147. Ampliação de região de carbonos alifáticos do espectro de RMN ^{13}C (100 MHz, MeOD- d_4) do composto (76).

Aurelio (b-lap-imid-NO2)



Espectro 148. Ampliação de região de carbonos aromáticos do espectro de RMN ^{13}C (100 MHz, MeOD- d_4) do composto (76).

Aurelio (b-lap-imid-NO2)



```
Current Data Parameters
NAME      ufrrij1263220p
EXPNO     12
PROCNO    1

F2 - Acquisition Parameters
Date_     20061218
Time      7.47
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   dept135
TD         32768
SOLVENT   MeOD
NS         6335
DS         4
SWH        23980.814 Hz
FIDRES     0.731836 Hz
AQ         0.6832628 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         0.0 K
CNST2     145.0000000 sec
D1         1.50000000 sec
d2         0.00344828 sec
d12        0.00002000 sec
DELTA     0.00000891 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

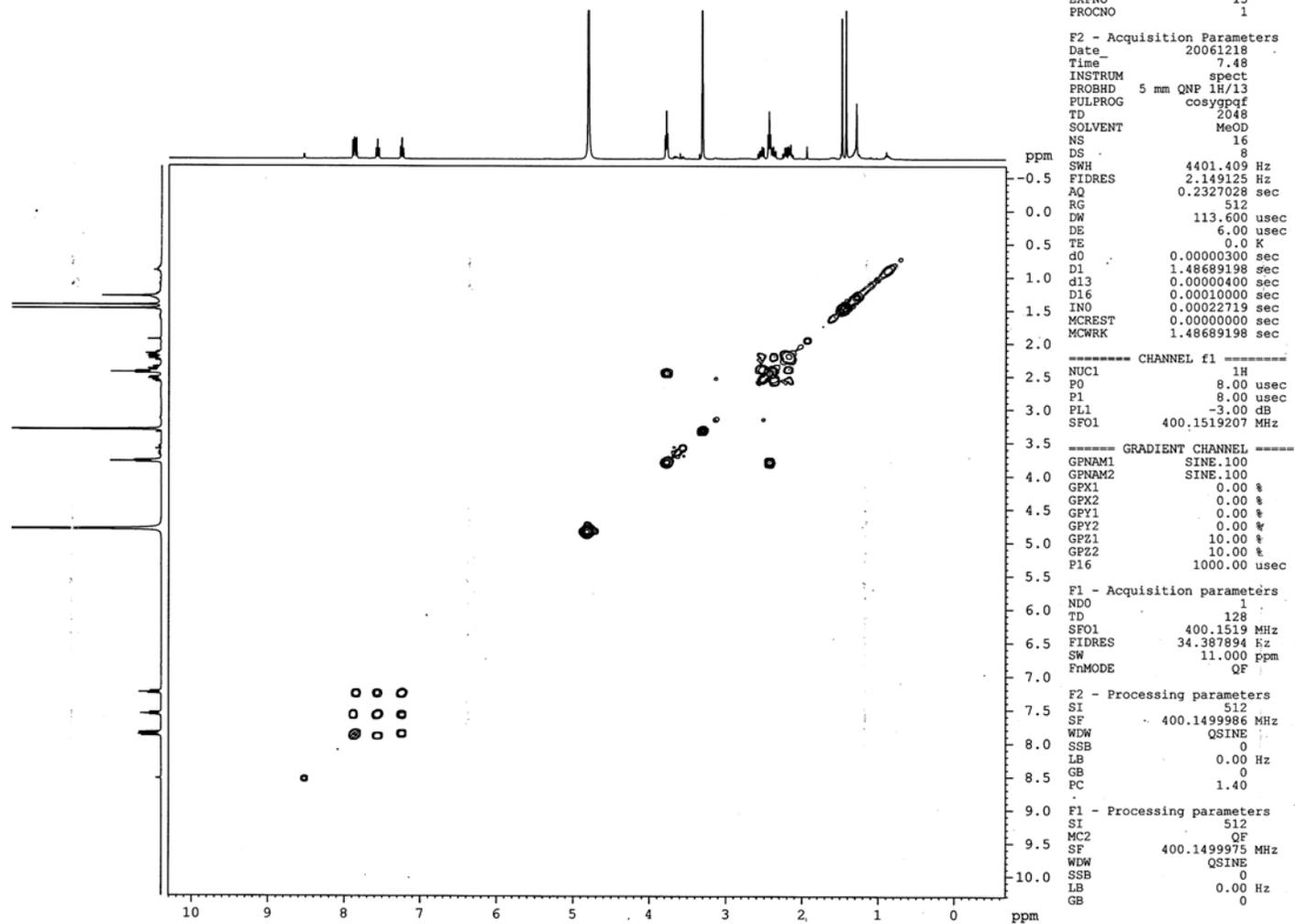
===== CHANNEL f1 =====
NUC1       13C
P1         7.00 usec
p2         14.00 usec
PL1        1.00 dB
SFO1       100.6278593 MHz

===== CHANNEL f2 =====
CPDPRG2    waltz16
NUC2       1H
P3         9.30 usec
p4         18.60 usec
PCPD2     100.00 usec
PL2        -4.00 dB
PL12       16.63 dB
SFO2       400.1516006 MHz

F2 - Processing parameters
SI         16384
SF         100.6177980 MHz
WDW        EM
SSB        0
LB         2.00 Hz
GB         0
PC         1.40
```

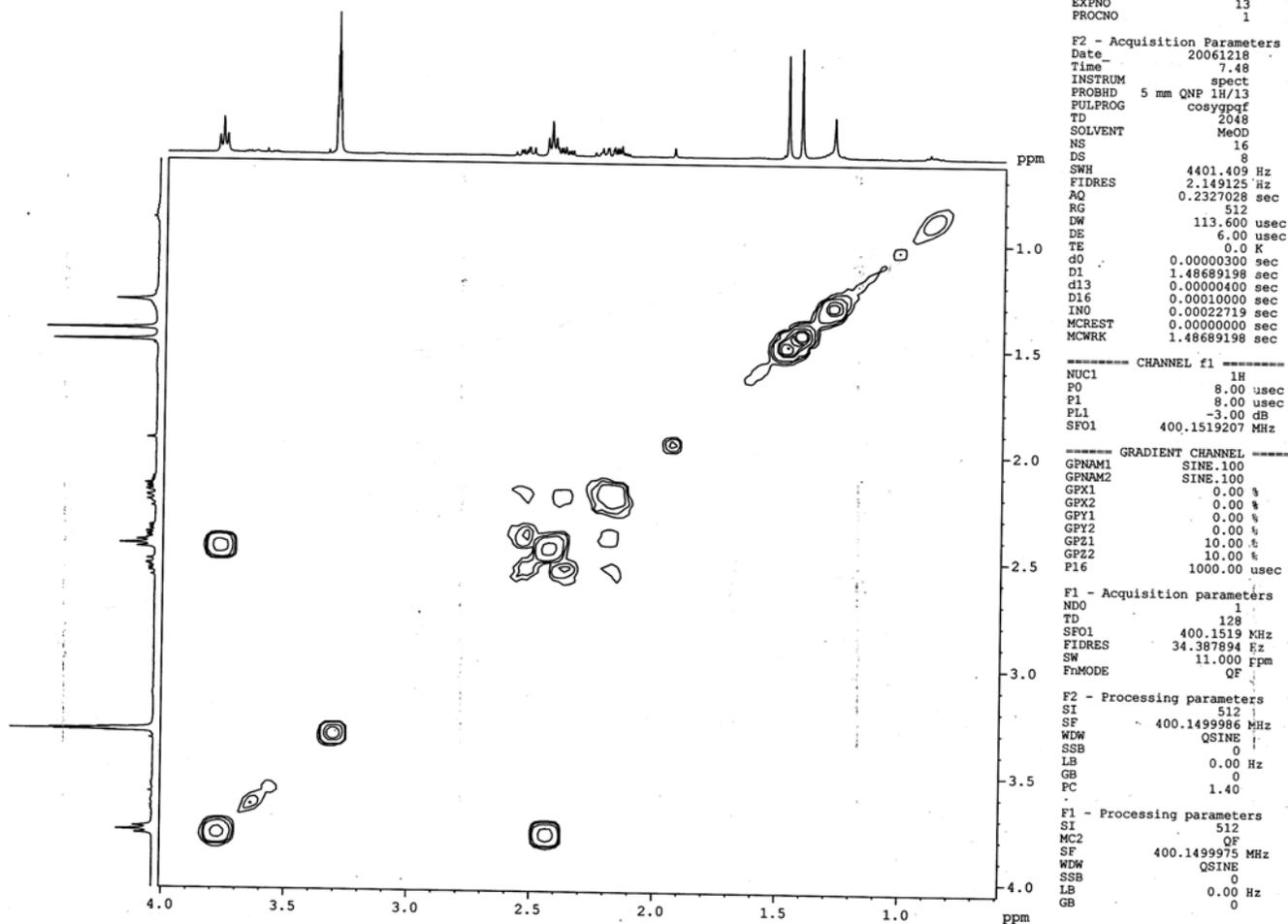
Espectro 149. RMN $^{13}\text{C}_{(\text{DEPT})}$ (100 MHz, MeOD- d_4) do composto (76).

Aurelio (b-lap-imid-NO2)
op. pedro



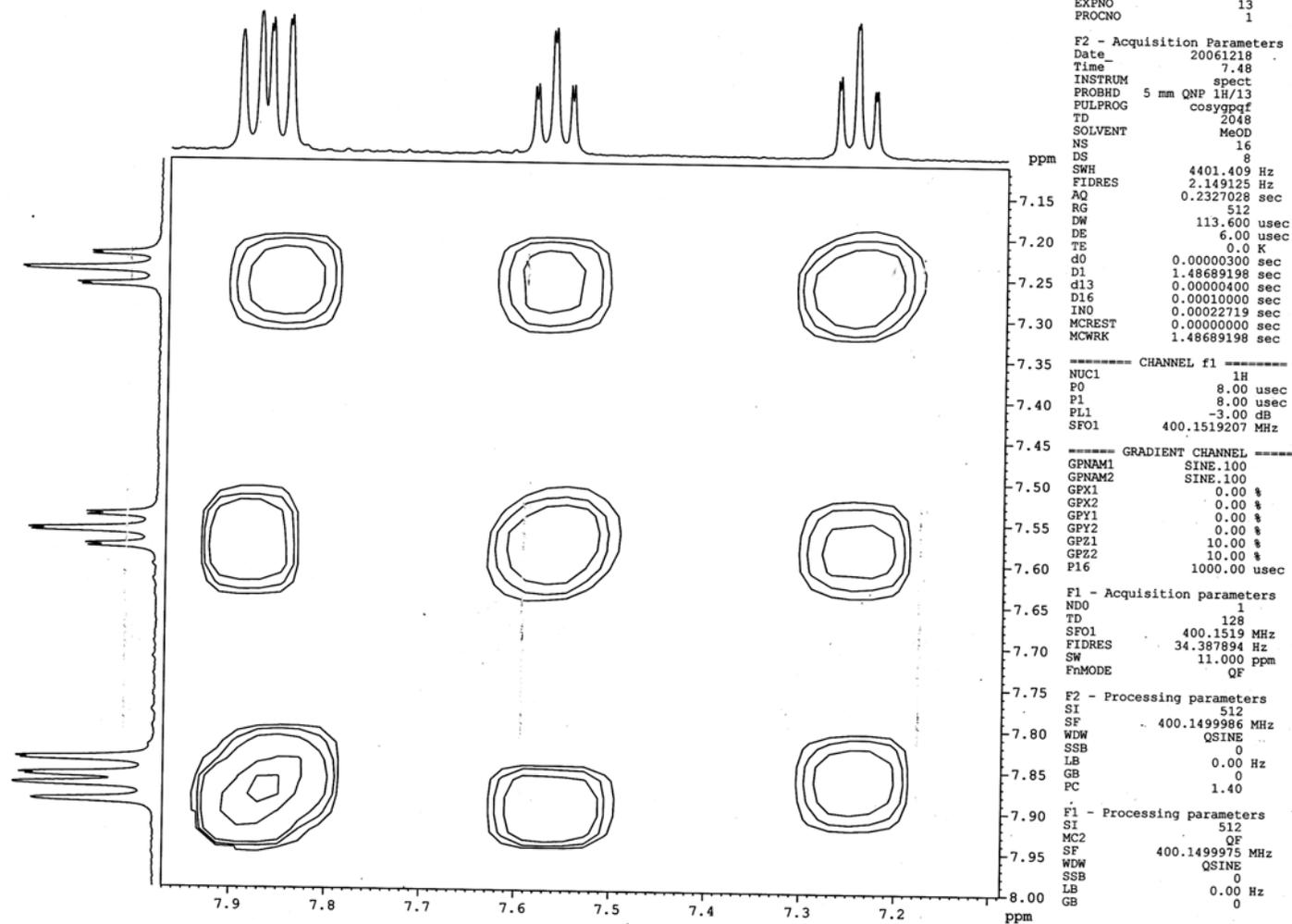
Espectro 150. Correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, MeOD- d_4) do composto (76).

Aurelio (b-lap-imid-NO2)
op. pedro



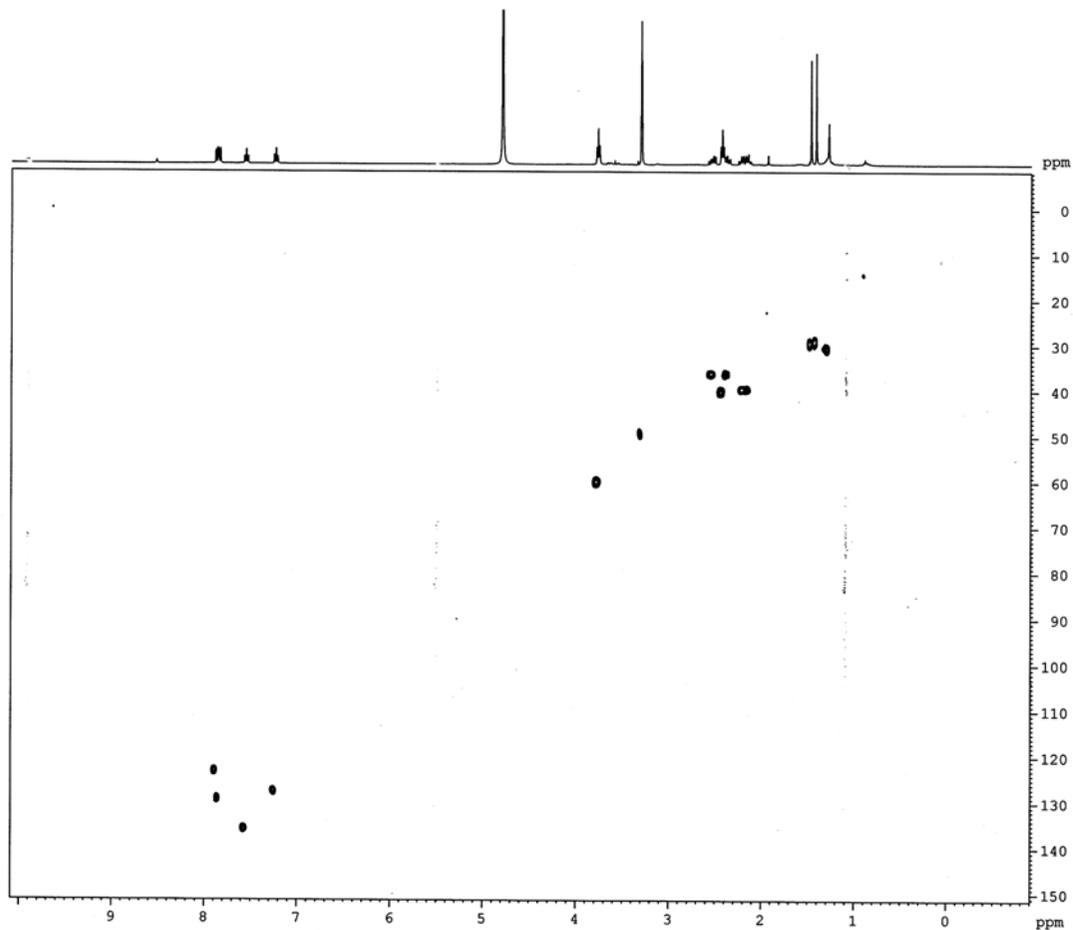
Espectro 151. Ampliação de região de hidrogênios alifáticos das correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, MeOD- d_4) do composto (76).

Aurelio (b-lap-imid-NO2)
op. pedro



Espectro 152. Ampliação de região de hidrogênios aromáticos das correlações $^1\text{H} \times ^1\text{H}$ (400 MHz, MeOD- d_4) do composto (76).

Aurelio (b-lap-imid-NO2)
op. pedro



```
Current Data Parameters
NAME      ufrjr1263220p
EXPNO     14
PROCNO    1

F2 - Acquisition Parameters
Date_     20061218
Time      8.48
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   hsqcetgp
TD         1024
SOLVENT   CDCl3
NS         32
DS         16
SWH        4401.409 Hz
FIDRES     4.298251 Hz
AQ         0.1163764 sec
RG         4096
DW         113.600 usec
DE         6.00 usec
TE         0.0 K
CNST2     145.0000000
d0         0.00000300 sec
D1         1.50000000 sec
d4         0.00172414 sec
d11        0.03000000 sec
d13        0.00000400 sec
D16        0.00010000 sec
DELTA      0.00112200 sec
DELTA1     0.00071614 sec
INO        0.00003105 sec
MCREST     0.00000000 sec
MCWRK     0130000001 sec
STLCNT     128

----- CHANNEL f1 -----
NUC1       1H
P1         8.00 usec
P2         16.00 usec
P2B        2000.00 usec
PL1        -3.00 dB
SFO1       400.1518407 MHz

----- CHANNEL f2 -----
CPDPRG2    garp
NUC2       13C
P3         7.00 usec
P4         14.00 usec
PCPD2      70.00 usec
PL2        1.00 dB
PL12       21.00 dB
SFO2       100.6248412 MHz

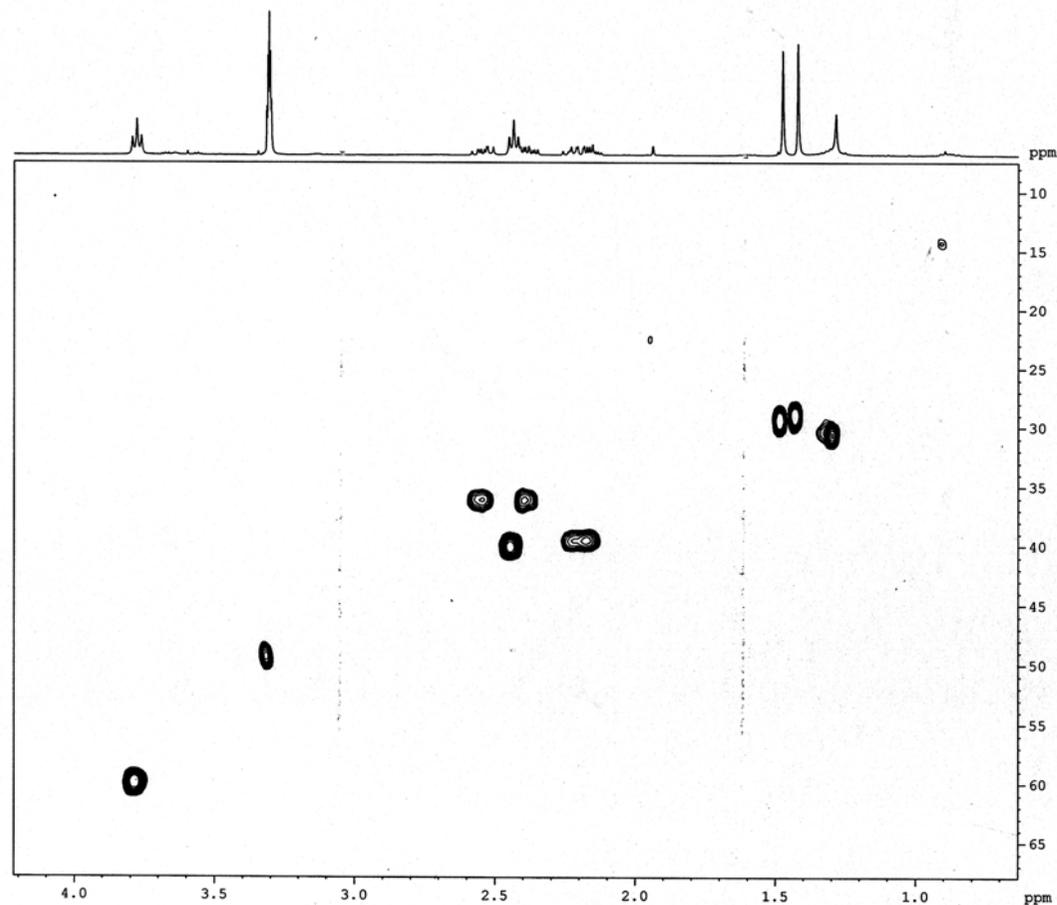
----- GRADIENT CHANNEL -----
GPNAM1     SINE.100
GPNAM2     SINE.100
GPX1       0.00 %
GPX2       0.00 %
GPY1       0.00 %
GPY2       0.00 %
GPZ1       80.00 %
GPZ2       20.12 %
P16        1000.00 usec

F1 - Acquisition parameters
NDO        2
TD         130
SFO1       100.6248 MHz
FIDRES     123.869690 Hz
SW         160.031 ppm
FnMODE     Echo-Antiecho

F2 - Processing parameters
SI         2048
SF         400.1500032 MHz
WDW        QSINE
SSB        2
LR         0.00 Hz
```

Espectro 153. Correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, MeOD- d_4) do composto (76).

Aurelio (b-lap-imid-NO2)
op. pedro



```

Current Data Parameters
NAME      ufrj1263220p
EXPNO    14
PROCNO   1

F2 - Acquisition Parameters
Date_    20061218
Time     8.48
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  hsqcetgp
TD       1024
SOLVENT  CDCl3
NS       32
DS       16
SWH      4401.409 Hz
FIDRES   4.298251 Hz
AQ       0.1163764 sec
RG       4096
DW       113.600 usec
DE       6.00 usec
TE       0.0 K
CNST2    145.0000000
d0       0.00000300 sec
d1       1.50000000 sec
d4       0.00172414 sec
d11      0.03000000 sec
d13      0.00000400 sec
d16      0.00010000 sec
DELTA    0.00112200 sec
DELTA1   0.00071614 sec
INO      0.00003105 sec
MCREST   0.00000000 sec
MCWRK    0.30000001 sec
STICNT   128

----- CHANNEL f1 -----
NUC1     1H
P1       8.00 usec
p2       16.00 usec
P28      2000.00 usec
PL1      -3.00 dB
SFO1     400.1518407 MHz

----- CHANNEL f2 -----
CPDPRG2  garp
NUC2     13C
F3       7.00 usec
p4       14.00 usec
PCPD2    70.00 usec
PL2      1.00 dB
PL12     21.00 dB
SFO2     100.6248412 MHz

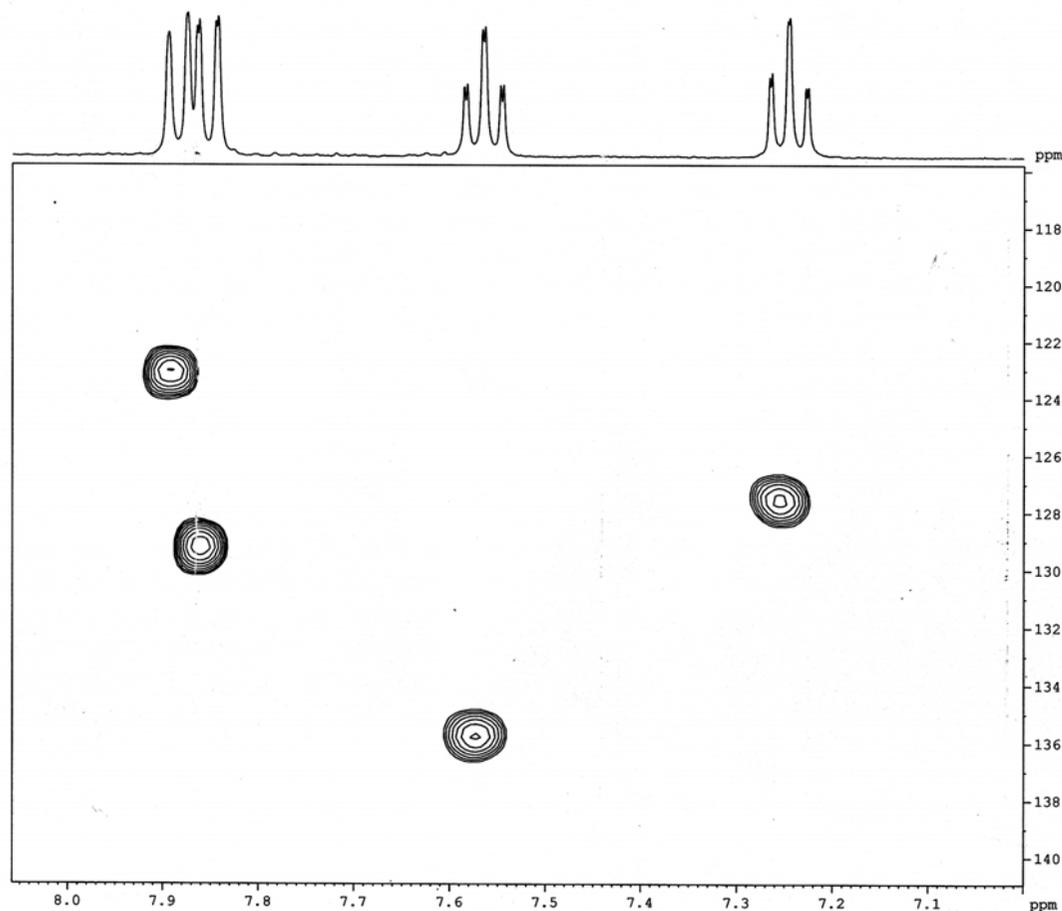
----- GRADIENT CHANNEL -----
GPNAM1   SINE.100
GPNAM2   SINE.100
GFX1     0.00 %
GFX2     0.00 %
GFY1     0.00 %
GFY2     0.00 %
GPZ1     80.00 %
GPZ2     20.12 %
P16      1000.00 usec

F1 - Acquisition parameters
NDO      2
TD       130
SFO1     100.6248 MHz
FIDRES   123.869690 Hz
SW       160.031 ppm
PnMODE   Echo-Antiecho

F2 - Processing parameters
SI       2048
SF       400.1500032 MHz
WDW      QSINE
SSB      2
LA       0.00 Hz
  
```

Espectro 154. Ampliação de região de hidrogênios alifáticos das correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, MeOD- d_4) do composto (76).

Aurelio (b-lap-imid-NO2)
op. pedro



```

Current Data Parameters
NAME      ufrj1263220p
EXPNO     14
PROCNO    1

F2 - Acquisition Parameters
Date_     20061218
Time      8.48
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
FULPROG   hsqcetgp
TD        1024
SOLVENT   CDCl3
NS        32
DS        16
SWH       4401.409 Hz
FIDRES    4.298251 Hz
AQ        0.1163764 sec
RG        4096
DW        113.600 usec
DE        6.00 usec
TE        0.0 K
CNST2     145.0000000
d0        0.00000300 sec
D1        1.50000000 sec
d4        0.00172414 sec
d11       0.03000000 sec
d13       0.00000400 sec
D16       0.00010000 sec
DELTA     0.00112200 sec
DELTA1    0.00071614 sec
INO       0.00003105 sec
MCREST    0.00000000 sec
MCWRK     0.30000001 sec
ST1CNT    128

----- CHANNEL f1 -----
NUC1      1H
P1        8.00 usec
P2        16.00 usec
P28       2000.00 usec
PL1       -3.00 dB
SFO1      400.1518407 MHz

----- CHANNEL f2 -----
CPDPRG2   garp
NUC2      13C
P3         7.00 usec
p4         14.00 usec
PCPD2     70.00 usec
PL2        1.00 dB
PL12       21.00 dB
SFO2      100.6248412 MHz

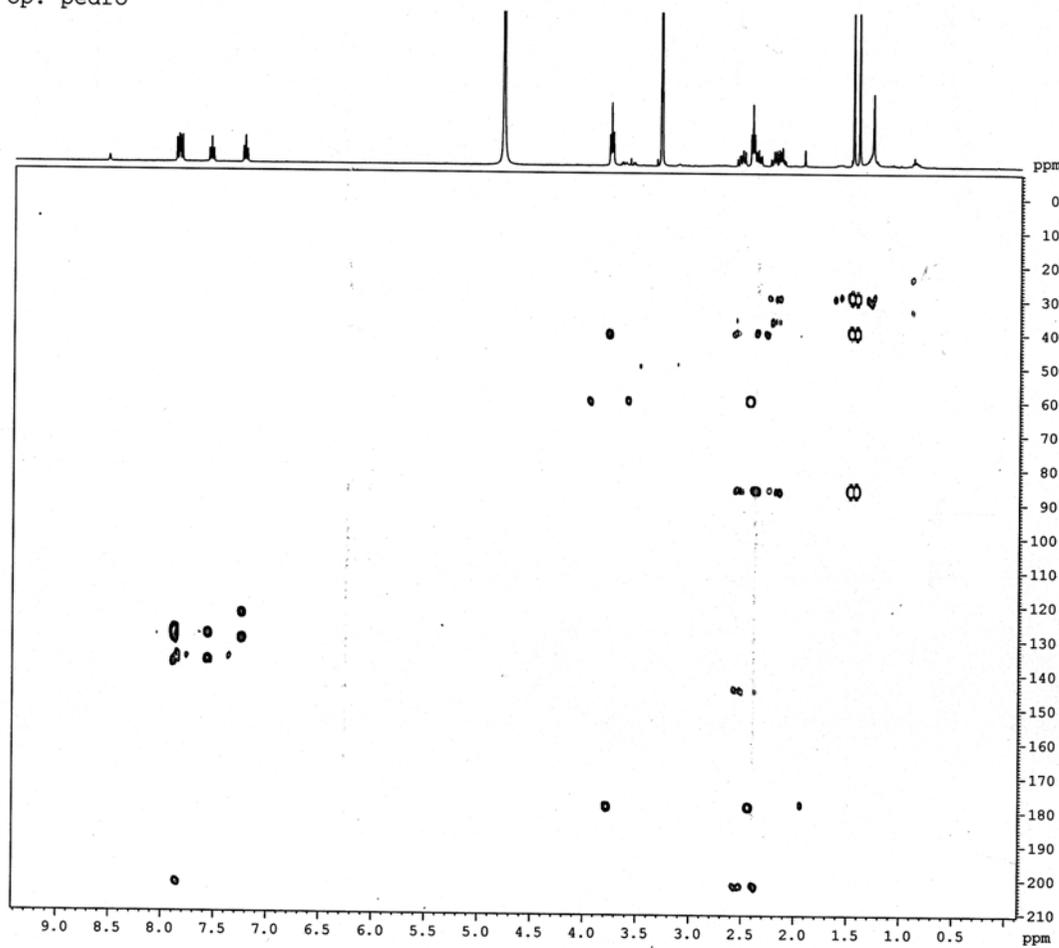
----- GRADIENT CHANNEL -----
GPNAM1    SINE.100
GPNAM2    SINE.100
GFX1      0.00 %
GFX2      0.00 %
GPY1      0.00 %
GPY2      0.00 %
GPZ1      80.00 %
GPZ2      20.12 %
P16       1000.00 usec

F1 - Acquisition parameters
ND0       2
TD        130
SFO1      100.6248 MHz
FIDRES    123.869690 Hz
SW        160.031 ppm
FnMODE    Echo-Antiecho

F2 - Processing parameters
SI        2048
SF        400.1500032 MHz
WDW       QSINE
SSB       2
LR        0.00 Hz
  
```

Espectro 155. Ampliação de região de hidrogênios aromáticos correlações $^1\text{H} \times ^{13}\text{C}$ (^1J) (400 MHz, MeOD- d_4) dos compostos (76).

Aurelio (b-lap-imid-NO2)
op. pedro



```

Current Data Parameters
NAME      uffrj1263220p
EXPNO     15
PROCNO    1

F2 - Acquisition Parameters
Date_     20061218
Time      10.43
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   hmbcgp1pndqf
TD         4096
SOLVENT   MeOD
NS         64
DS         16
SWH        5995.204 Hz
FIDRES     1.463673 Hz
AQ         0.3416564 sec
RG         4096
DW         83.400 usec
DE         6.00 usec
TE         0.0 K
CNST2     145.0000000
CNST13    8.0000000
d0         0.00000300 sec
D1         1.5000000 sec
d2         0.00344828 sec
d6         0.06250000 sec
D16        0.00010000 sec
IN0        0.00002240 sec
MCREST    0.00000000 sec
MCMRK     1.50000000 sec

----- CHANNEL f1 -----
NUC1       1H
P1         8.00 usec
p2         16.00 usec
PL1        -3.00 dB
SFO1       400.1528811 MHz

----- CHANNEL f2 -----
NUC2       13C
P3         7.00 usec
PL2         1.00 dB
SFO2       100.6278433 MHz

----- GRADIENT CHANNEL -----
GPNAM1     SINE.100
GPNAM2     SINE.100
GPNAM3     SINE.100
GPX1        0.00 %
GPX2        0.00 %
GPX3        0.00 %
GPY1        0.00 %
GPY2        0.00 %
GPY3        0.00 %
GPZ1        50.00 %
GPZ2        30.00 %
GPZ3        40.10 %
P16        1000.00 usec

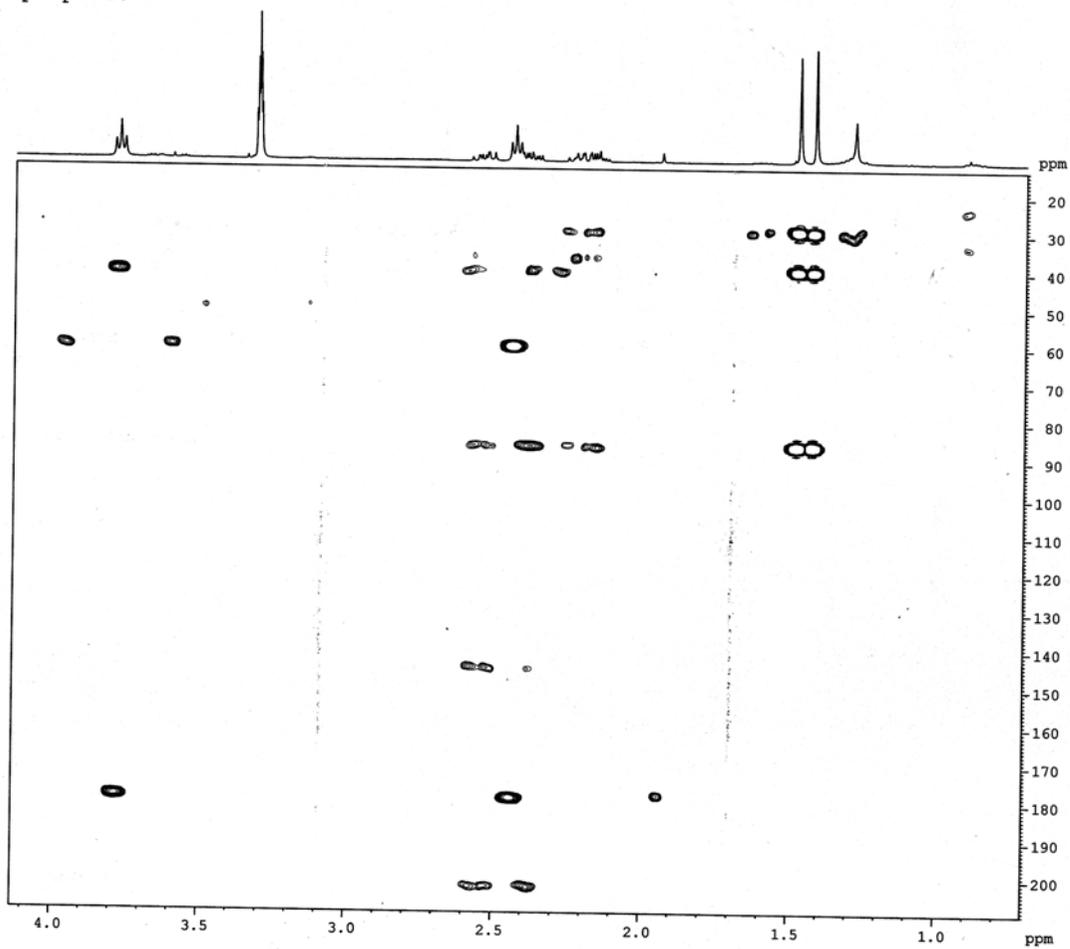
F1 - Acquisition parameters
ND0        2
TD         122
SFO1       100.6278 MHz
FIDRES     182.962524 Hz
SW         221.822 ppm
F1MODE     QF

F2 - Processing parameters
SI         1024
SF         400.1500165 MHz
WDW        QSINE
SSB        0
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
  
```

Espectro 156. Correlações $^1\text{H} \times ^{13}\text{C}$ (2J) (400 MHz, MeOD- d_4) dos compostos (76).

Aurelio (b-lap-imid-NO2)
op. pedro



```

Current Data Parameters
NAME          ufrj126320p
EXPNO        15
PROCNO       1

F2 - Acquisition Parameters
Date_        20061218
Time         10.43
INSTRUM      spect
PROBHD       5 mm QNP 1H/13
PULPROG      hmcgplpndqf
TD           4096
SOLVENT      MeOD
NS           64
DS           16
SWH          5995.204 Hz
FIDRES       1.463673 Hz
AQ           0.3416564 sec
RG           4096
DW           83.400 usec
DE           6.00 usec
TE           0.0 K
CNST2        145.0000000
CNST13       8.0000000
d0'          0.0000300 sec
d1           1.5000000 sec
d2           0.00344828 sec
d6           0.06250000 sec
d16          0.00010000 sec
IN0          0.0002240 sec
MCREST       0.0000000 sec
MCWRK        1.5000000 sec

----- CHANNEL f1 -----
NUC1          1H
P1            8.00 usec
p2           16.00 usec
PL1          -3.00 dB
SF01         400.1528811 MHz

----- CHANNEL f2 -----
NUC2          13C
F3            7.00 usec
PL2           1.00 dB
SF02         100.6278433 MHz

----- GRADIENT CHANNEL -----
GFNAM1        SINE.100
GFNAM2        SINE.100
GFNAM3        SINE.100
GPX1           0.00 %
GPX2           0.00 %
GPX3           0.00 %
GPY1           0.00 %
GPY2           0.00 %
GPY3           0.00 %
GPZ1           50.00 %
GPZ2           30.00 %
GPZ3           40.10 %
P16           1000.00 usec

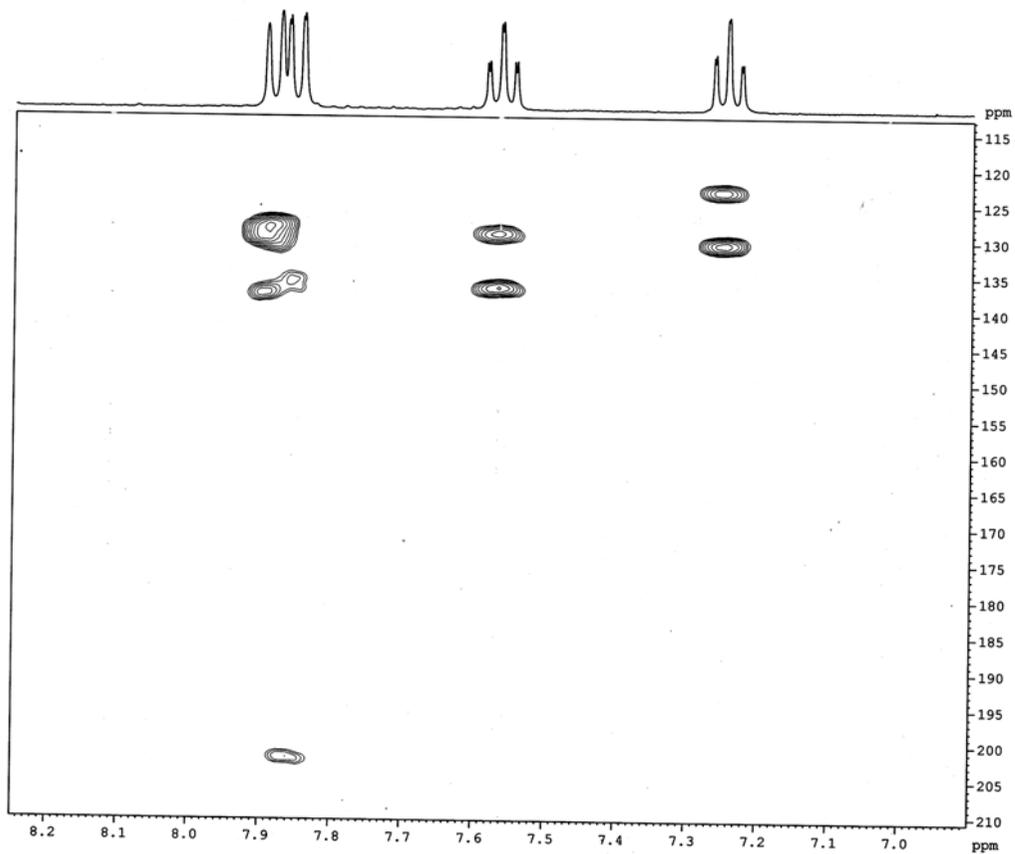
F1 - Acquisition parameters
NDO           2
TD           122
SF01          100.6278 MHz
FIDRES        182.962524 Hz
SW            221.822 ppm
FhMODE        QF

F2 - Processing parameters
SI            1024
SF            400.1500165 MHz
WDW           QSINE
SSB           0
LB            0.00 Hz
GB            0
PC            1.40

F1 - Processing parameters
  
```

Espectro 157. Ampliação de região de hidrogênios alifáticos correlações $^1\text{H} \times ^{13}\text{C}$ ($^{2,3}\text{J}$) (400 MHz, MeOD- d_4) dos compostos (76).

Aurelio (b-lap-imid-NO2)
op. pedro



```

Current Data Parameters
NAME      ufr:rj1263220p
EXPNO    15
PROCNO   1

F2 - Acquisition Parameters
Date_    20061218
Time     10.43
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  hmbcqp1pndqf
TD        4096
SOLVENT  MeOD
NS        64
DS        16
SWH       5995.204 Hz
FIDRES    1.463673 Hz
AQ        0.3416564 sec
RG        4096
DW        83.400 usec
DE        6.00 usec
TE        0.0 K
CNST2     145.0000000
CNST13    8.0000000
d0        0.00000300 sec
D1        1.50000000 sec
d2        0.00344828 sec
d6        0.06250000 sec
D16       0.00010000 sec
INO       0.00002240 sec
MCREST    0.0000000 sec
MCWRK     1.50000000 sec

----- CHANNEL f1 -----
NUC1      1H
P1        8.00 usec
p2        16.00 usec
PL1       -3.00 dB
SFO1      400.1528811 MHz

----- CHANNEL f2 -----
NUC2      13C
P3        7.00 usec
PL2       1.00 dB
SFO2      100.6278433 MHz

----- GRADIENT CHANNEL -----
GPNAM1    SINE.100
GPNAM2    SINE.100
GPNAM3    SINE.100
GFX1      0.00 %
GFX2      0.00 %
GFX3      0.00 %
GPY1      0.00 %
GPY2      0.00 %
GPY3      0.00 %
GPZ1      50.00 %
GPZ2      30.00 %
GPZ3      40.10 %
P16       1000.00 usec

F1 - Acquisition parameters
NDO       2
TD        122
SFO1      100.6278 MHz
FIDRES    182.962524 Hz
SW        221.822 ppm
FnMODE    QF

F2 - Processing parameters
SI        1024
SF        400.1500165 MHz
WDW       QSINE
SSB       0
LB        0.00 Hz
GB        0
PC        1.40

F1 - Processing parameters

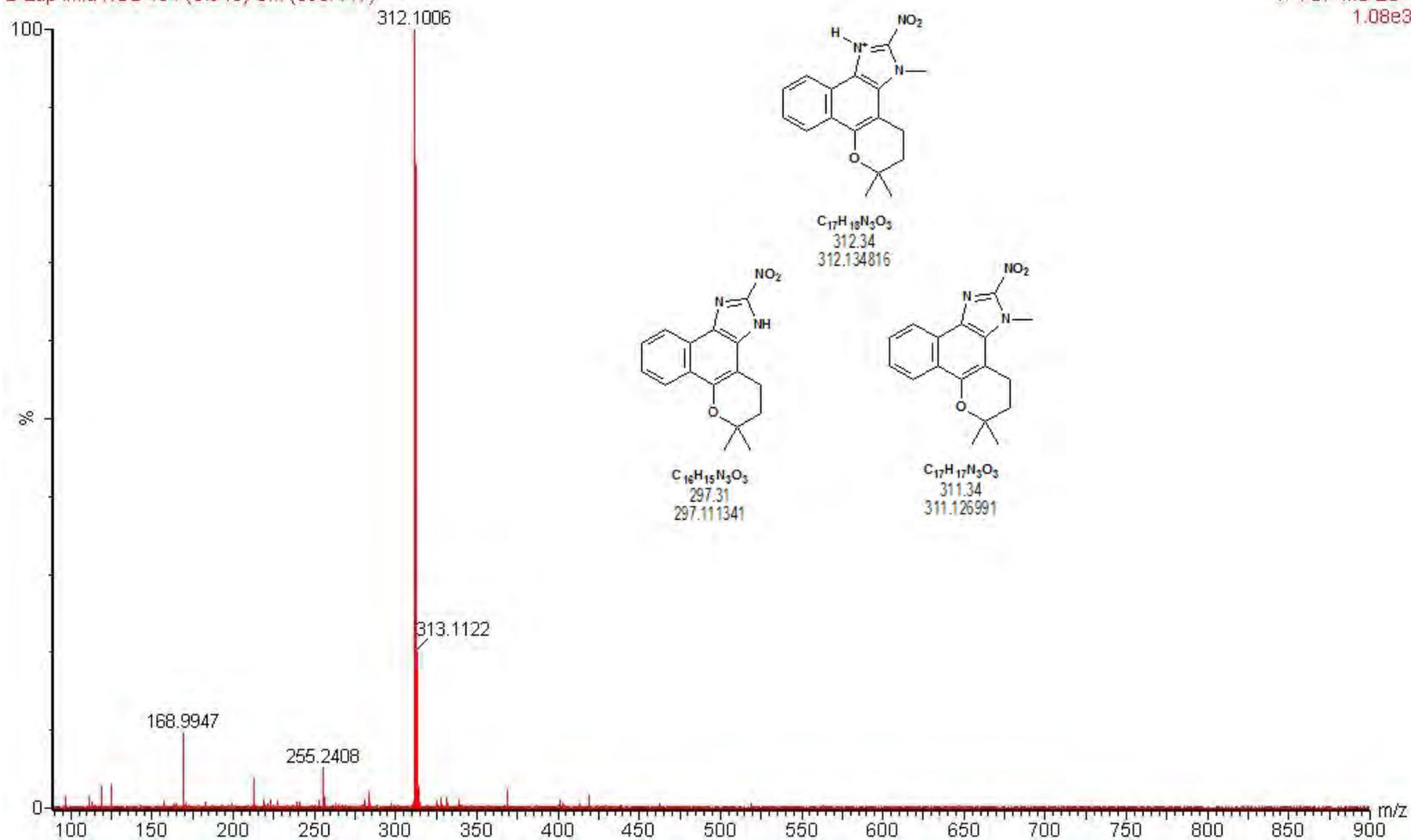
```

Espectro 158. Ampliação de região de hidrogênios aromáticos do espectro correlações $^1\text{H} \times ^{13}\text{C} (^{2,3}\text{J})$ (400 MHz, MeOD- d_4) dos compostos (76).

EM MeOH

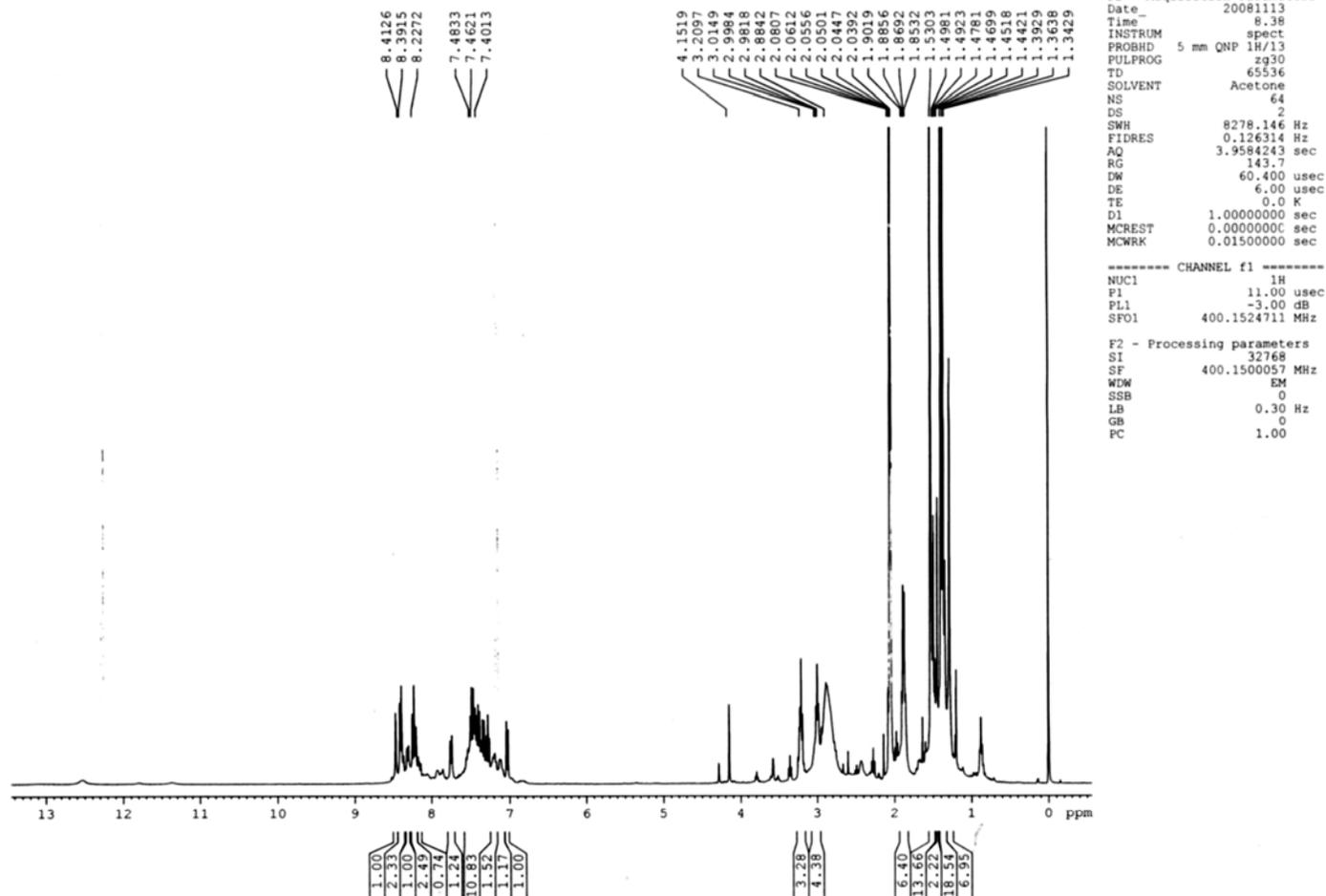
B Lap Imid NO2 404 (5.943) Cm (398:447)

1. TOF MS ES-
1.08e3



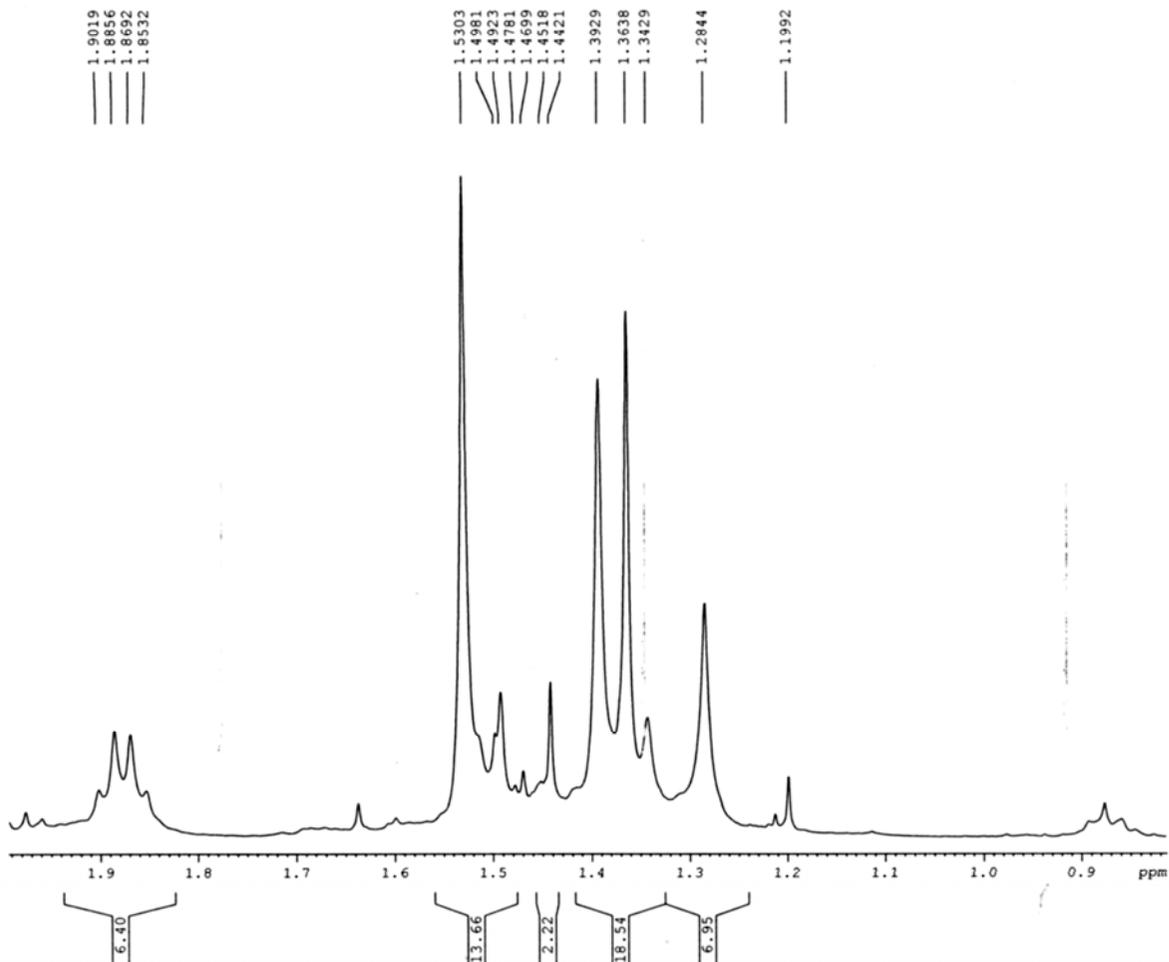
Espectro 159. EM do composto (76), ionização por `electron spray`

BLI / DIMER XIV - Aurelio
Op. Eliane



Espectro 160. RMN ^1H (400 MHz, Acetona $-d_6$) da fração 12 da reação de dimerização.

BLI / DIMER XIV - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      ufrj1181235
EXPNO     10
PROCNO    1

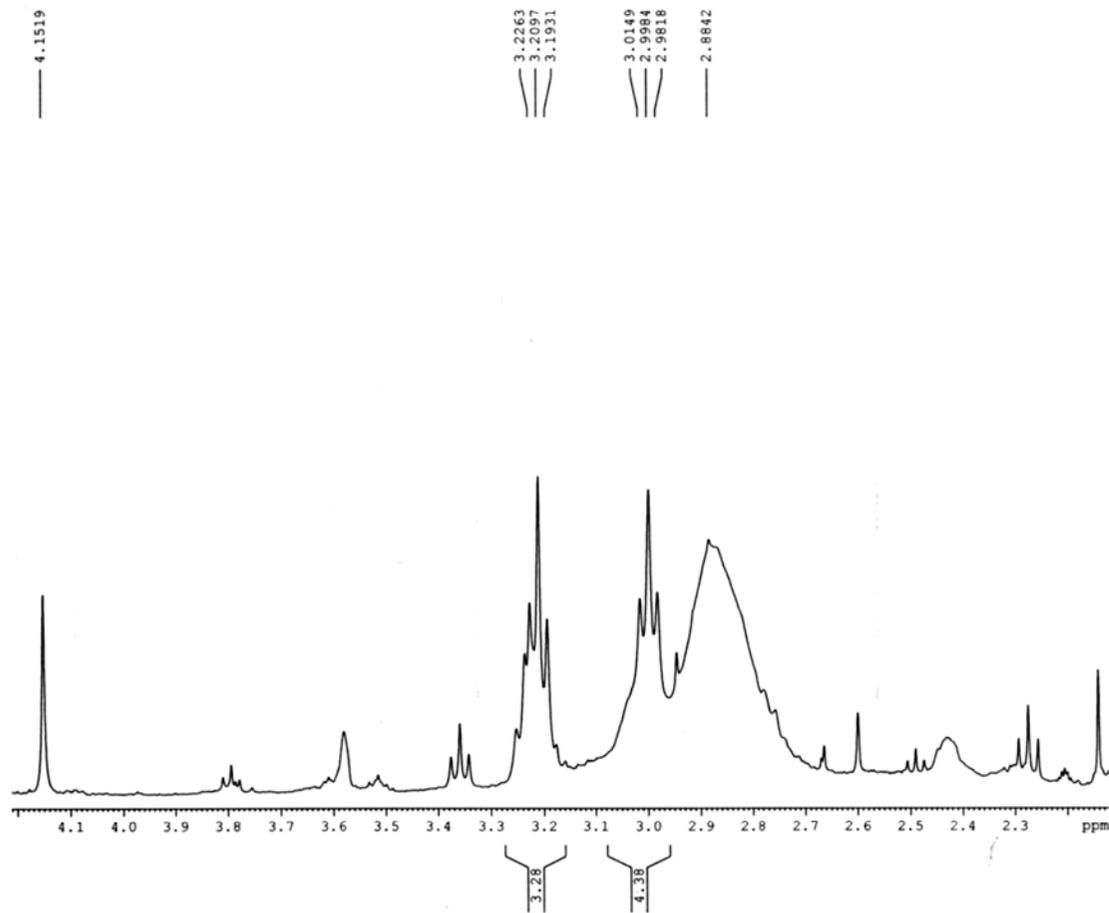
F2 - Acquisition Parameters
Date_     20081113
Time      8.38
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zg30
TD         65536
SOLVENT   Acetone
NS         64
DS         2
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         143.7
DW         60.400 usec
DE         6.00 usec
TE         0.0 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1       1H
P1         11.00 usec
PL1        -3.00 dB
SFO1       400.1524711 MHz

F2 - Processing parameters
SI         32768
SF         400.1500057 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
  
```

Espectro 161. Ampliação 1 de região de hidrogênios alifáticos do espectro de RMN ¹H da fração 12 da reação de dimerização.

BLI / DIMER XIV - Aurelio
Op. Eliane



Current Data Parameters
NAME ufrj1181235
EXPNO 10
PROCNO 1

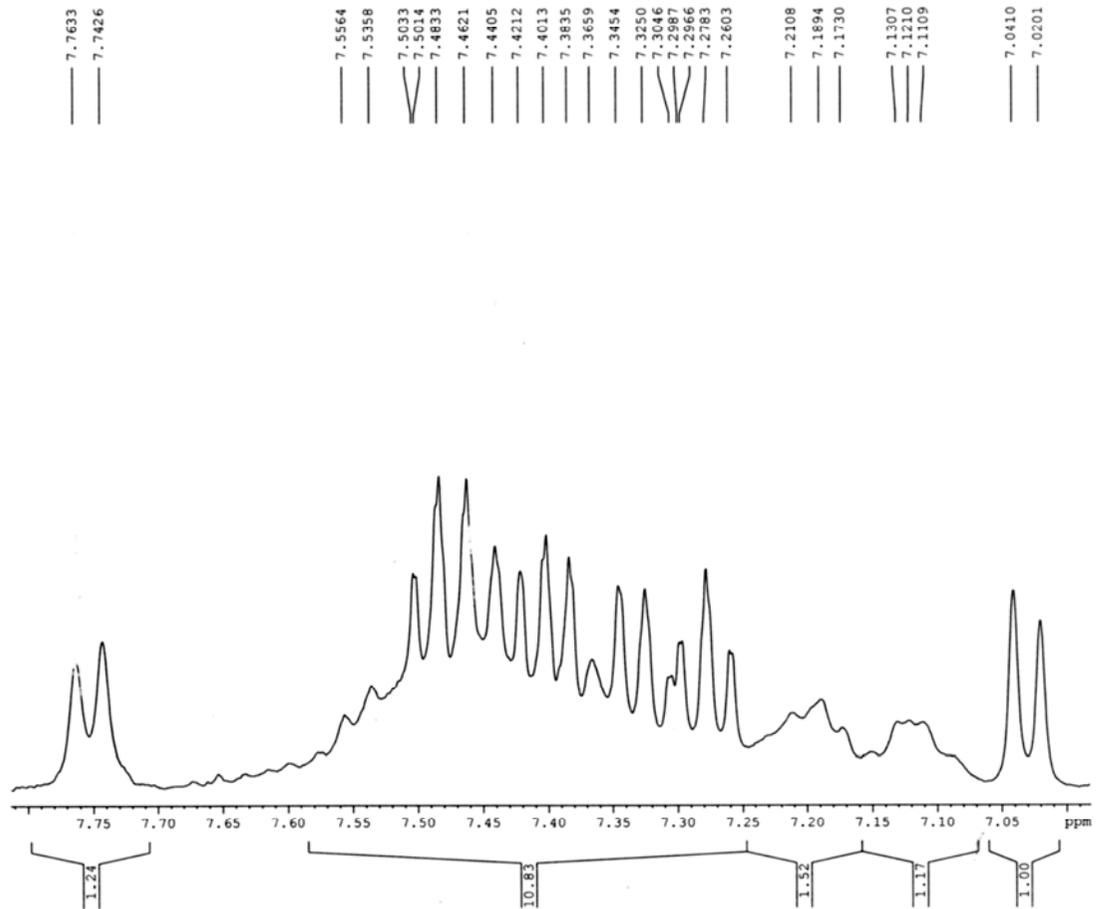
F2 - Acquisition Parameters
Date_ 20081113
Time 8.38
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT Acetone
NS 64
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 143.7
DW 60.400 usec
DE 6.00 usec
TE 0.0 K
D1 1.0000000 sec
MCREST 0.0000000 sec
MCWRK 0.0150000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 11.00 usec
PL1 -3.00 dB
SFO1 400.1524711 MHz

F2 - Processing parameters
SI 32768
SF 400.1500057 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Espectro 162. Ampliação 2 de região de hidrogênios alifáticos do espectro de RMN ^1H (400 MHz, Acetona $-d_6$) da fração 12 da reação de dimerização.

BLI / DIMER XIV - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      ufrj1181235
EXPNO    10
PROCNO   1

F2 - Acquisition Parameters
Date_    20081113
Time     8.38
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  zg30
TD       65536
SOLVENT  Acetone
NS       64
DS       2
SWH      8278.146 Hz
FIDRES   0.126314 Hz
AQ       3.9584243 sec
RG       143.7
DW       60.400 usec
DE       6.00 usec
TE       0.0 K
D1       1.00000000 sec
MCREST   0.00000000 sec
MCWRK    0.01500000 sec

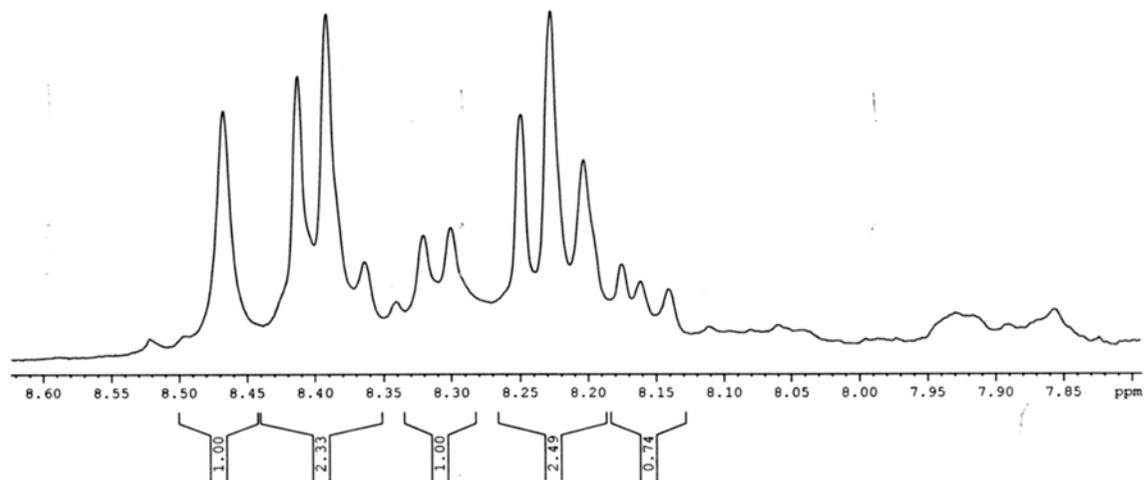
===== CHANNEL f1 =====
NUC1     1H
P1       11.00 usec
PL1      -3.00 dB
SFO1     400.1524711 MHz

F2 - Processing parameters
SI       32768
SF       400.1500057 MHz
WDW      EM
SSB      0
LB       0.30 Hz
GB       0
PC       1.00
  
```

Espectro 163. Ampliação 1 de região de hidrogênios aromáticos do espectro de RMN ¹H (400 MHz, Acetona -d₆) da fração 12 da reação de dimerização.

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Op. Eliane

8.4671
8.4126
8.3915
8.3639
8.3204
8.3002
8.2491
8.2272
8.2030
8.1752
8.1613
8.1410



```
Current Data Parameters
NAME      ufrj1181235
EXPNO     10
PROCNO    1

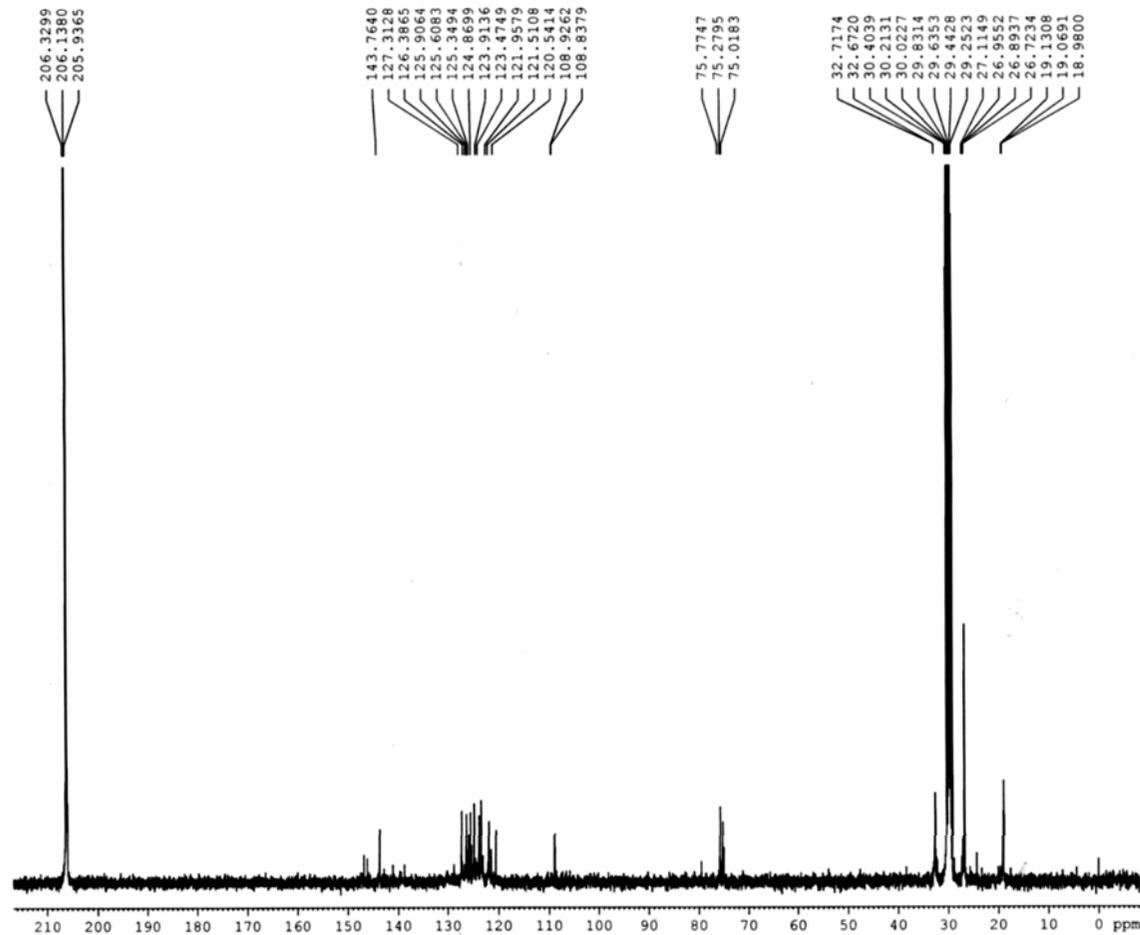
F2 - Acquisition Parameters
Date_     20081113
Time      8.38
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zg30
TD         65536
SOLVENT   Acetone
NS         64
DS         2
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         143.7
DW         60.400 usec
DE         6.00 usec
TE         0.0 K
D1         1.00000000 sec
MCREST     0.00000000 sec
MCWRK     0.01500000 sec

===== CHANNEL f1 =====
NUC1      1H
P1        11.00 usec
PL1       -3.00 dB
SFO1      400.1524711 MHz

F2 - Processing parameters
SI        32768
SF        400.1500057 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00
```

Espectro 164. Ampliação 2 de região de hidrogênios aromáticos do espectro de RMN ¹H (400 MHz, Acetona -d₆) da fração 12 da reação de dimerização.

BLI / DIMER XIV - Aurelio
Op. Eliane



```

Current Data Parameters
NAME      uffrj1181235
EXPNO    11
PROCNO    1

F2 - Acquisition Parameters
Date_     20081112
Time      16.19
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD         32768
SOLVENT   Acetone
NS         61809
DS         0
SWH        23980.814 Hz
FIDRES     0.731836 Hz
AQ         0.6832628 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         0.0 K
D1         0.20000000 sec
d11        0.03000000 sec
DELTA      0.10000000 sec
MCREST     0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1       13C
P1         7.00 usec
PL1        -4.00 dB
SFO1       100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2       1H
PCPD2     100.00 usec
PL2        -3.00 dB
PL12       16.17 dB
PL13       15.24 dB
SFO2       400.1516006 MHz

F2 - Processing parameters
SI         16384
SF         100.6177088 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
  
```

Espectro 165. RMN ^{13}C (100 MHz, Acetona $-d_6$) da fração 12 da reação de dimerização.

BLI / DIMER XIV - Aurelio
Op. Eliane

27.149
26.952
26.897
26.724

19.1308
19.0691
18.9800

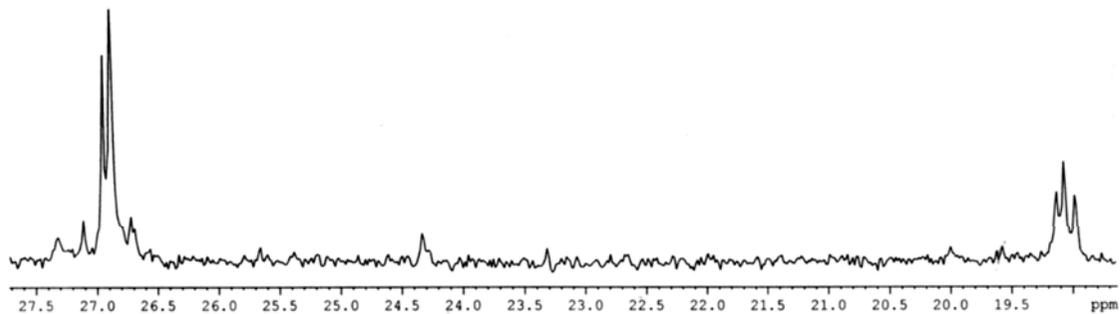
```
Current Data Parameters
NAME      ufrj1181235
EXPNO     11
PROCNO    1

F2 - Acquisition Parameters
Date_     20081112
Time      16.19
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD         32768
SOLVENT   Acetone
NS         61809
DS         0
SWH        23980.814 Hz
FIDRES     0.731836 Hz
AQ         0.6832628 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         0.0 K
D1         0.20000000 sec
d11        0.03000000 sec
DELTA     0.10000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1      13C
P1        7.00 usec
PL1       -4.00 dB
SFO1      100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2      1H
PCPD2     100.00 usec
PL2       -3.00 dB
PL12      16.17 dB
PL13      15.24 dB
SFO2      400.1516006 MHz

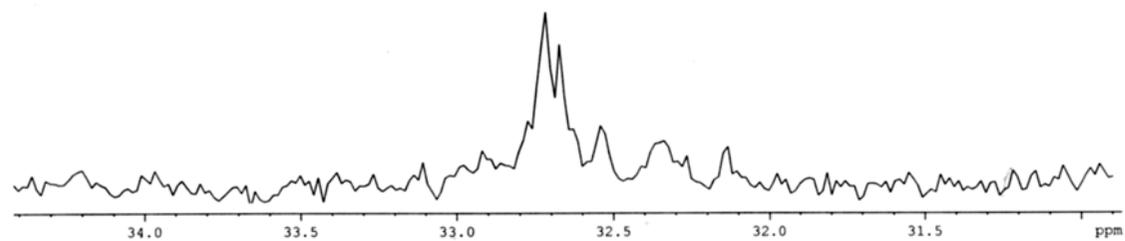
F2 - Processing parameters
SI        16384
SF        100.6177088 MHz
WDW       EM
SSB       0
LB        1.00 Hz
GB        0
PC        1.40
```



Espectro 166. Ampliação 1 de região de hidrogênios alifáticos do espectro de RMN ^{13}C (100 MHz, Acetona $-d_6$) da fração12 da reação de dimerização.

BLI / DIMER XIV - Aurelio
Op. Eliane

32.7174
32.6720



```
Current Data Parameters
NAME      ufrj1181235
EXPNO     11
PROCNO    1

F2 - Acquisition Parameters
Date_     20081112
Time      16.19
INSTRUM   spect
PROBHD    5 mm QNP 1H/13
PULPROG   zgpg30
TD         32768
SOLVENT   Acetone
NS         61809
DS         0
SWH        23980.814 Hz
FIDRES     0.731836 Hz
AQ         0.6832628 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         0.0 K
D1         0.20000000 sec
d11        0.03000000 sec
DELTA      0.10000000 sec
MCREST     0.00000000 sec
MCWRK     0.01500000 sec

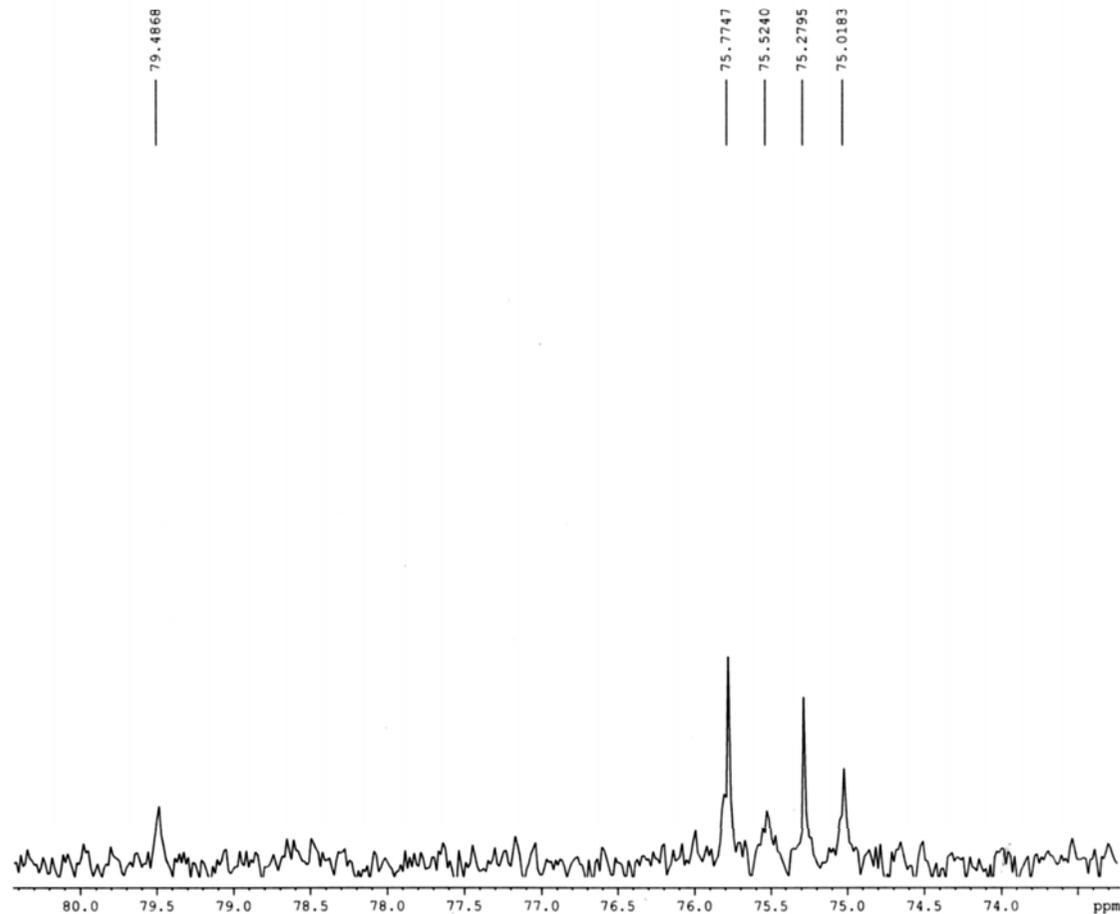
===== CHANNEL f1 =====
NUC1       13C
P1         7.00 usec
PL1        -4.00 dB
SFO1       100.6278593 MHz

===== CHANNEL f2 =====
CPDPRG2    waltz16
NUC2       1H
PCPD2      100.00 usec
PL2        -3.00 dB
PL12       16.17 dB
PL13       15.24 dB
SFO2       400.1516006 MHz

F2 - Processing parameters
SI         16384
SF         100.6177088 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
```

Espectro 167. Ampliação 2 de região de hidrogênios alifáticos do espectro de RMN ^{13}C (400 MHz, Acetona $-d_6$) da fração 12 da reação de dimerização.

BLI / DIMER XIV - Aurelio
Op. Eliane



Current Data Parameters
NAME ufrrj1181235
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20081112
Time 16.19
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 32768
SOLVENT Acetone
NS 61809
DS 0
SWH 23980.814 Hz
FIDRES 0.731836 Hz
AQ 0.6832628 sec
RG 16384
DW 20.850 usec
DE 6.00 usec
TE 0.0 K
D1 0.20000000 sec
d11 0.03000000 sec
DELTA 0.10000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

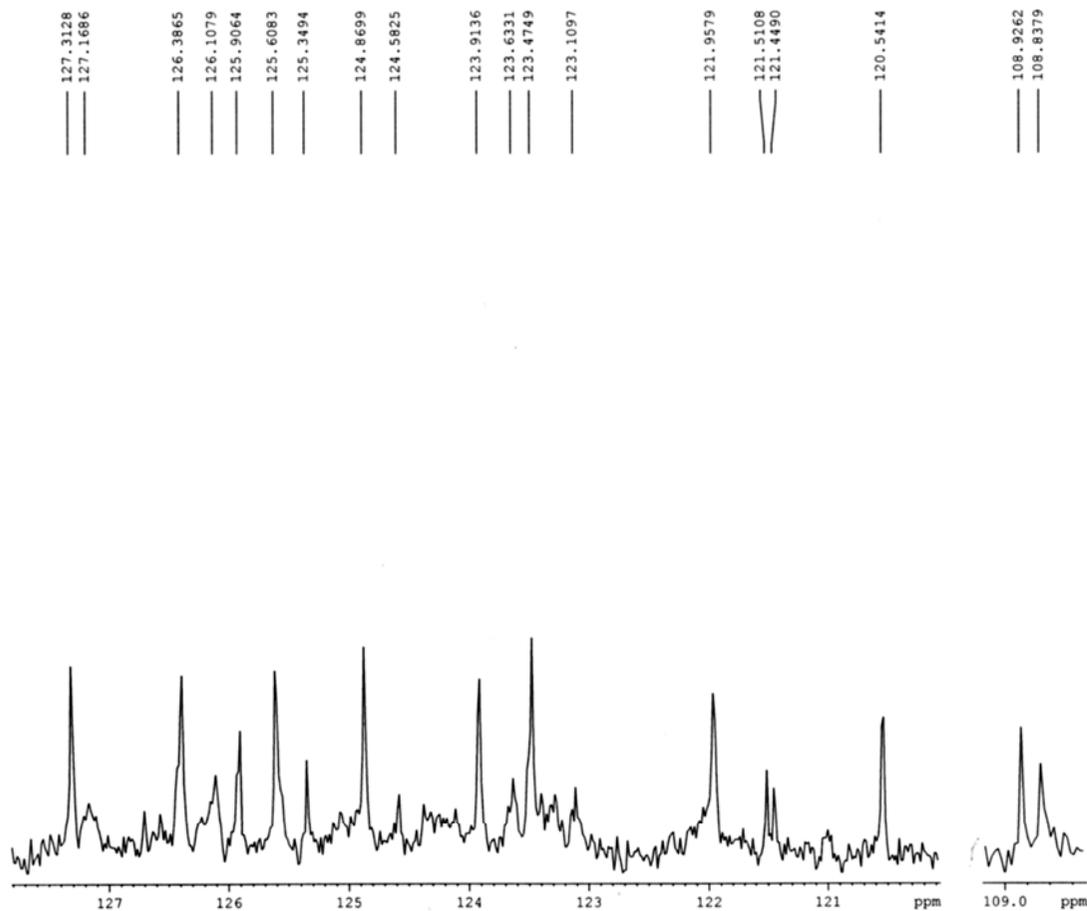
----- CHANNEL f1 -----
NUC1 13C
P1 7.00 usec
PL1 -4.00 dB
SFO1 100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -3.00 dB
PL12 16.17 dB
PL13 15.24 dB
SFO2 400.1516006 MHz

F2 - Processing parameters
SI 16384
SF 100.6177088 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Espectro 168. Ampliação 3 de região de hidrogênios alifáticos do espectro de RMN ^{13}C (400 MHz, Acetona $-d_6$) da fração 12 da reação de dimerização.

BLI / DIMER XIV - Aurelio
Op. Eliane



Current Data Parameters
NAME ufrj1181235
EXPNO 11
PROCNO 1

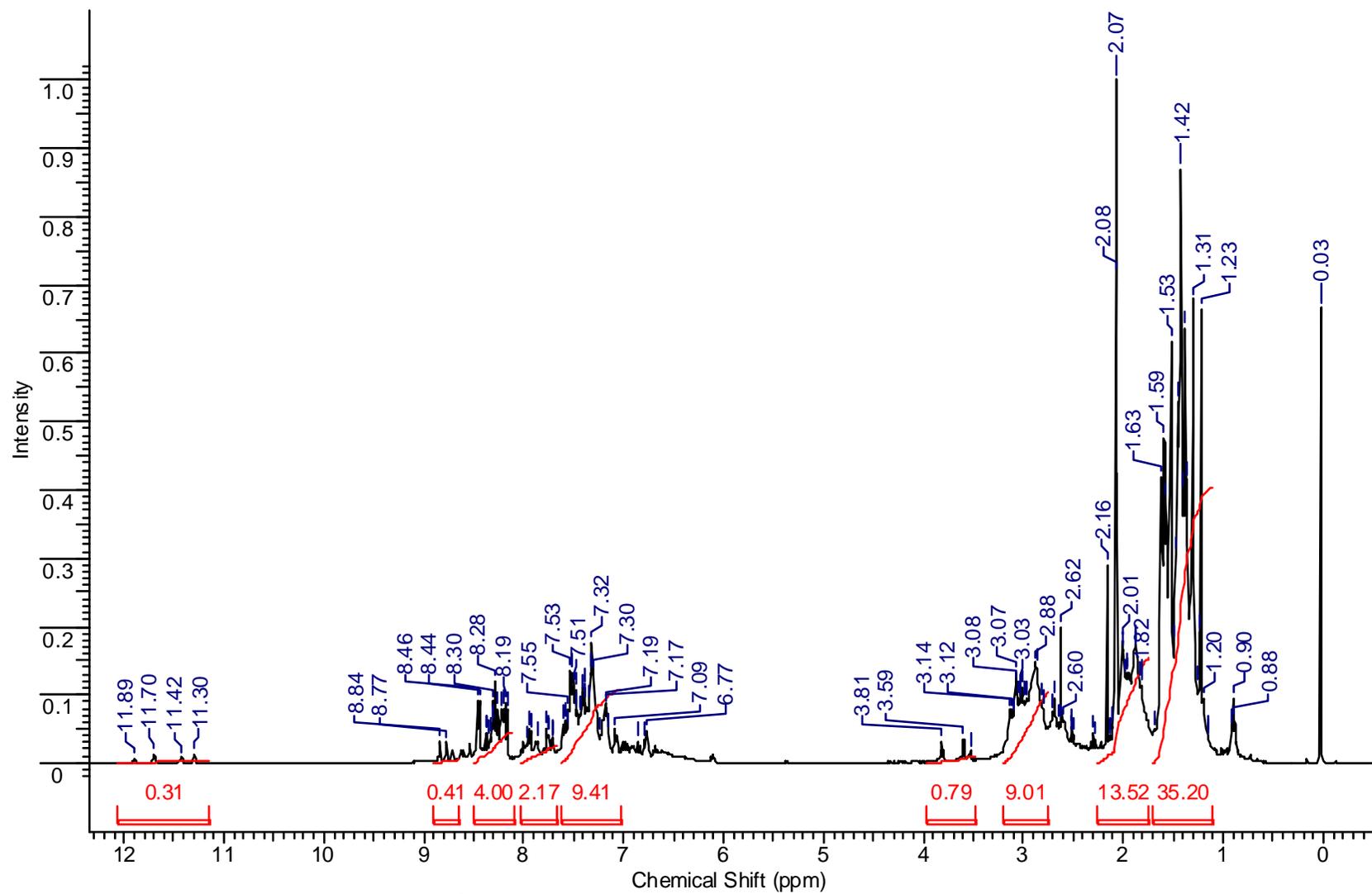
F2 - Acquisition Parameters
Date_ 20081112
Time 16.19
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 32768
SOLVENT Acetone
NS 61809
DS 0
SWH 23980.814 Hz
FIDRES 0.731834 Hz
AQ 0.6832628 sec
RG 16384
DW 20.850 usec
DE 6.00 usec
TE 0.0 K
D1 0.20000000 sec
d11 0.03000000 sec
DELTA 0.10000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

----- CHANNEL f1 -----
NUC1 13C
P1 7.00 usec
PL1 -4.00 dB
SFO1 100.6278593 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPDZ 100.00 usec
PL2 -3.00 dB
PL12 16.17 dB
PL13 15.24 dB
SFO2 400.1516006 MHz

F2 - Processing parameters
SI 16384
SF 100.6177088 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

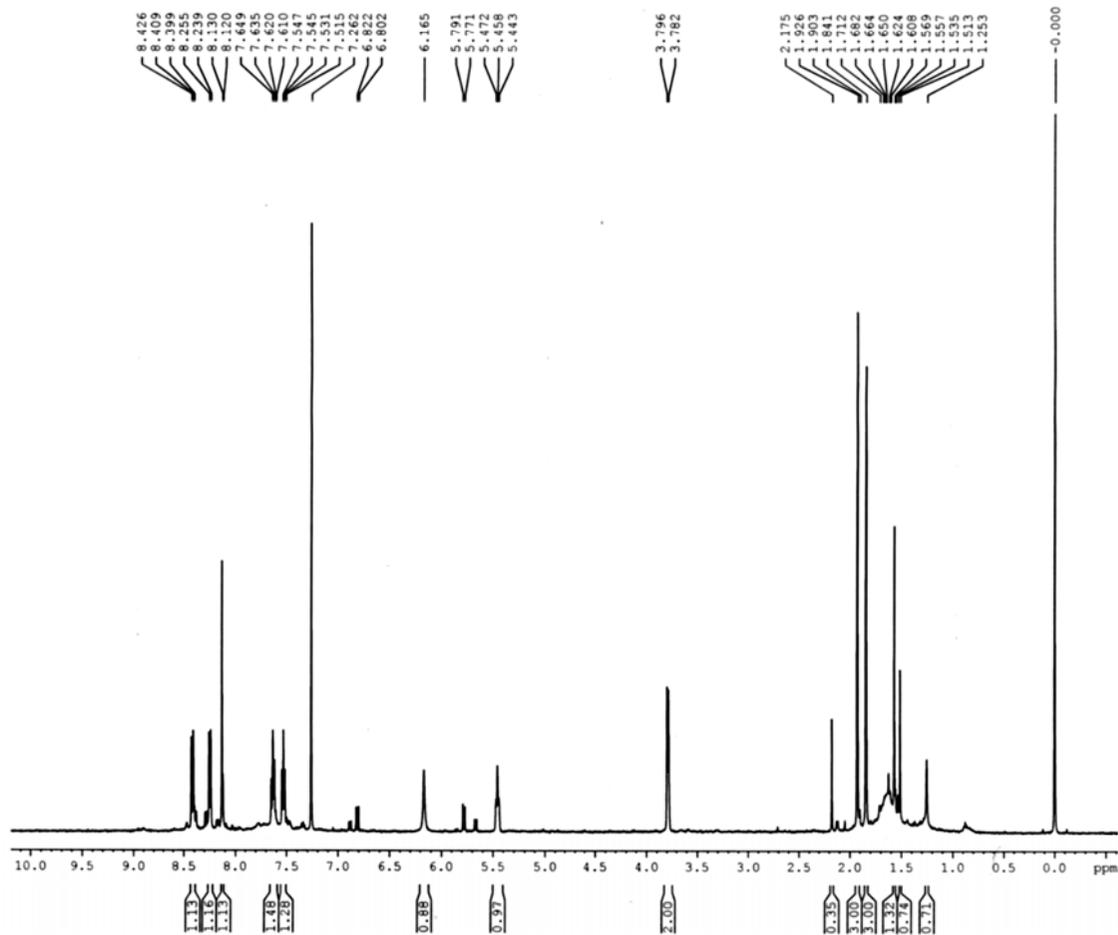
Espectro 169. Ampliação 1 de região de hidrogênios aromáticos do espectro de RMN ^{13}C (100 MHz, Acetona $-d_6$) da fração12 da reação de dimerização.



Espectro 170. RMN ¹H (400 MHz, Acetona-*d*₆) da fração 8 da reação de dimerização.

Lap-imid - Fr2 - Ari
Op. Eliane

Current Data Parameters
NAME ufrrj0470283
EXPNO 10
PROCNO 1



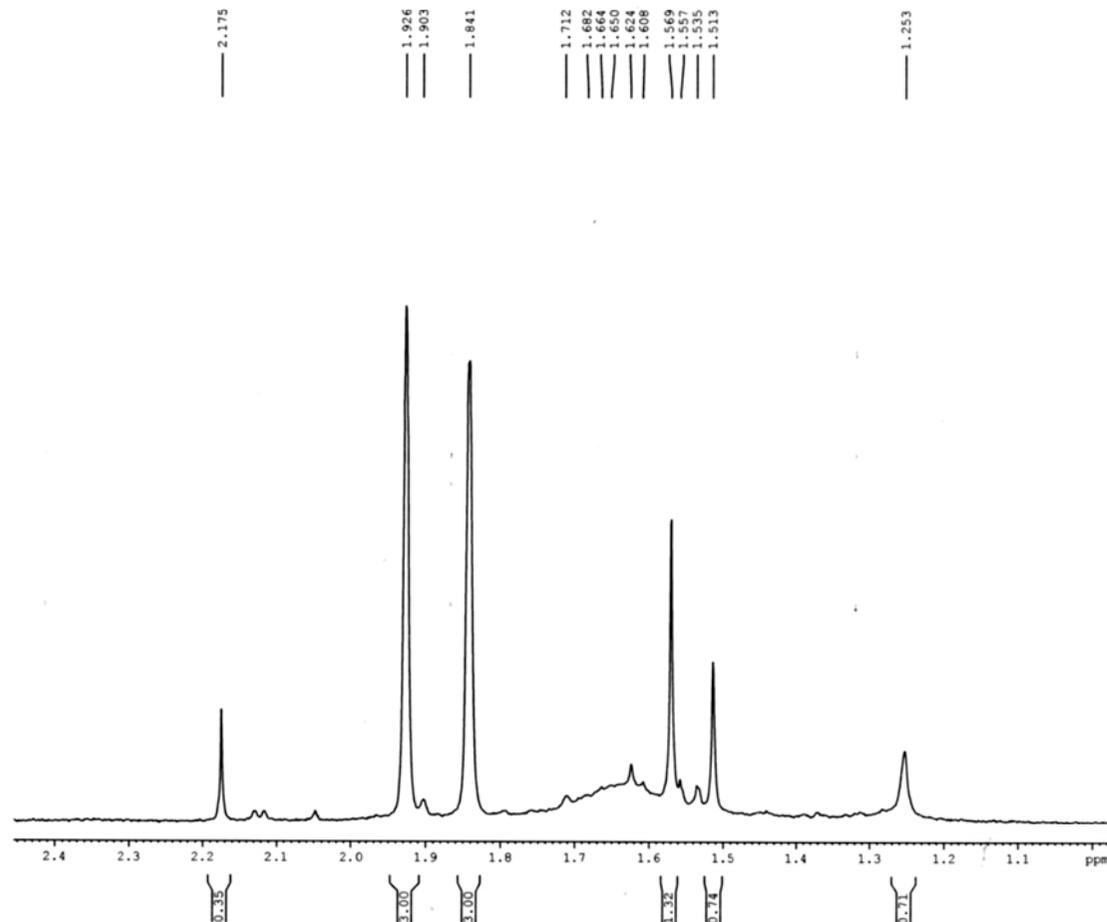
F2 - Acquisition Parameters
Date_ 20070425
Time 11.59
INSTRUM spect
PROBHD 2.5 mm DUL 13C
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 64
DS 2
SWH 10330.578 H:
FIDRES 0.157632 H:
AQ 3.1720407 s:
RG 6896.4
DW 48.400 u:
DE 6.00 u:
TE 293.7 K
D1 1.00000000 s:
MCREST 0.00000000 s:
MCWRK 0.01500000 s:

----- CHANNEL f1 -----
NUC1 1H
P1 9.00 u:
PL1 3.00 d
SFO1 500.1330885 MHz

F2 - Processing parameter:
SI 32768
SF 500.1300128 MHz
WDW EM
SSB 0
LB 0.30 H:
GB 0
PC 1.00

Espectro 171. RMN ¹H (500 MHz, CDCl₃) do composto (78).

Lap-imid - Fr2 - Ari
Op. Eliane



Current Data Parameters
NAME ufrj0470283
EXPNO 10
PROCNO 1

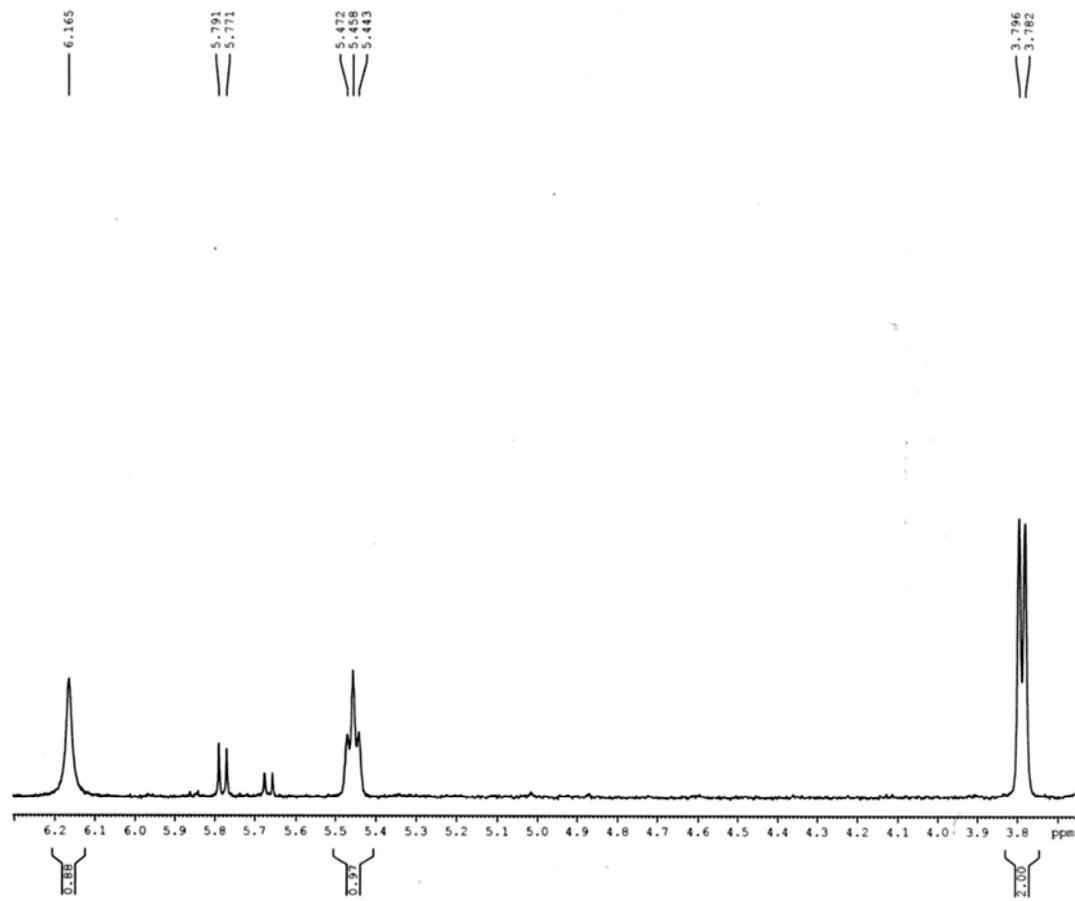
F2 - Acquisition Parameters
Date_ 20070425
Time 11.59
INSTRUM spect
PROBHD 2.5 mm DUL 13C
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 64
DS 2
SWH 10330.578 H:
FIDRES 0.157632 H:
AQ 3.1720407 s:
RG 6896.4
DW 48.400 u:
DE 6.00 u:
TE 293.7 K
D1 1.00000000 s:
MCREST 0.00000000 s:
MCWRK 0.01500000 s:

===== CHANNEL f1 =====
NUC1 1H
P1 9.00 u:
PL1 3.00 dB
SFO1 500.1330885 MHz

F2 - Processing parameters:
SI 32768
SF 500.1300128 MHz
WDW EM
SSB 0
LB 0.30 H:
GB 0
PC 1.00

Espectro 172. Ampliação de região de hidrogênios alifáticos do espectro de RMN ^1H (500 MHz, CDCl_3) do composto (78).

Lap-imid - Fr2 - Ari
Op. Eliane



Current Data Parameters
NAME ufrrj0470283
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
Date_ 20070425
Time_ 11.59
INSTRUM spect
PROBHD 2.5 mm DUL 13C
PULPROG zg30
TD 65536
SOLVENT CDC13
NS 64
DS 2
SWH 10330.578 H
FIDRES 0.157632 H
AQ 3.1720407 s
RG 6896.4
DW 48.400 u
DE 6.00 u
TE 293.7 K
D1 1.00000000 s
MCREST 0.00000000 s
MCWRK 0.01500000 s

===== CHANNEL f1 =====
NUC1 1H
P1 9.00 u
PL1 3.00 dB
SFO1 500.1330885 MHz

F2 - Processing parameters:
SI 32768
SF 500.1300128 MHz
WDW EM
SSB 0
LB 0.50 Hz
GB 0
PC 1.00

Espectro 173. Ampliação de região de hidrogênios alifáticos e olefínicos do espectro de RMN ¹H (500 MHz, CDCl₃) do composto (**78**).

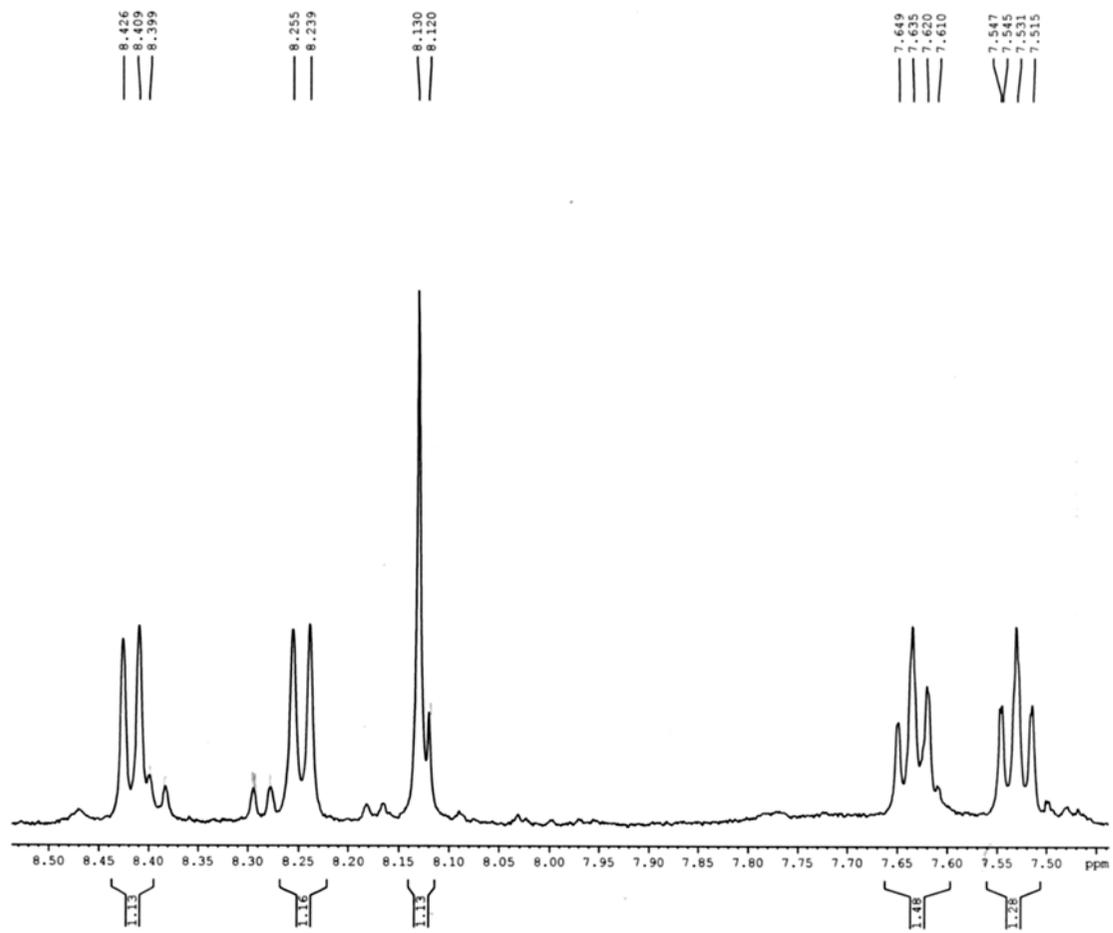
Lap-imid - Fr2 - Ari
Op. Eliane

Current Data Parameters
NAME ufrj0470283
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
Date_ 20070425
Time 11.59
INSTRUM spect
PROBHD 2.5 mm DUL 13C
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 64
DS 2
SWH 10330.578 H
FIDRES 0.157632 H
AQ 3.1720407 s
RG 6896.4
DW 48.400 u
DE 6.00 u
TE 293.7 K
D1 1.0000000 s
MCREST 0.0000000 s
MCWRK 0.0150000 s

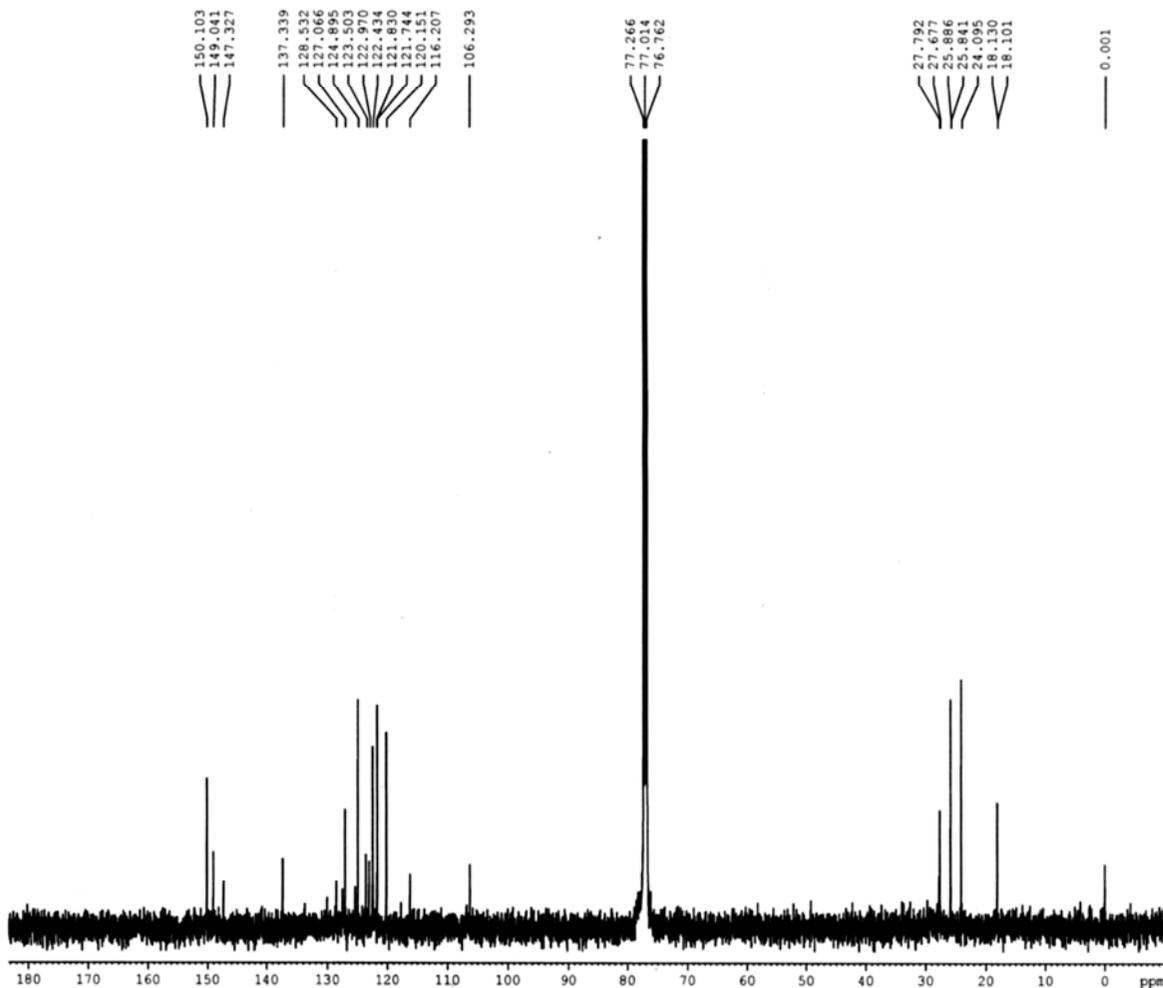
===== CHANNEL f1 =====
NUC1 1H
P1 9.00 u
PL1 3.00 d
SFO1 500.1330885 M

F2 - Processing parameter:
SI 32768
SF 500.1300128 M
WDW EM
SSB 0
LB 0.30 H
GB 0
PC 1.00



Espectro 174. Ampliação de região de hidrogênios aromáticos e olefínicos do espectro de RMN ^1H (500 MHz, CDCl_3) do composto (**78**).

Lap-imid - Fr2 - Ari
Op. Eliane



Current Data Parameters
NAME ufrrj0470283
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20070424
Time 14.48
INSTRUM spect
PROBHD 2.5 mm DUL 13C
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 107021
DS 0
SWH 30030.029 H:
FIDRES 0.916444 H:
AQ 0.5456539 s:
RG 16384
DW 16.650 u:
DE 6.00 u:
TE 294.3 K
D1 1.0000000 s:
d11 0.0300000 s:
DELTA 0.8999999 s:
MCREST 0.0000000 s:
MCWRK 0.0150000 s:

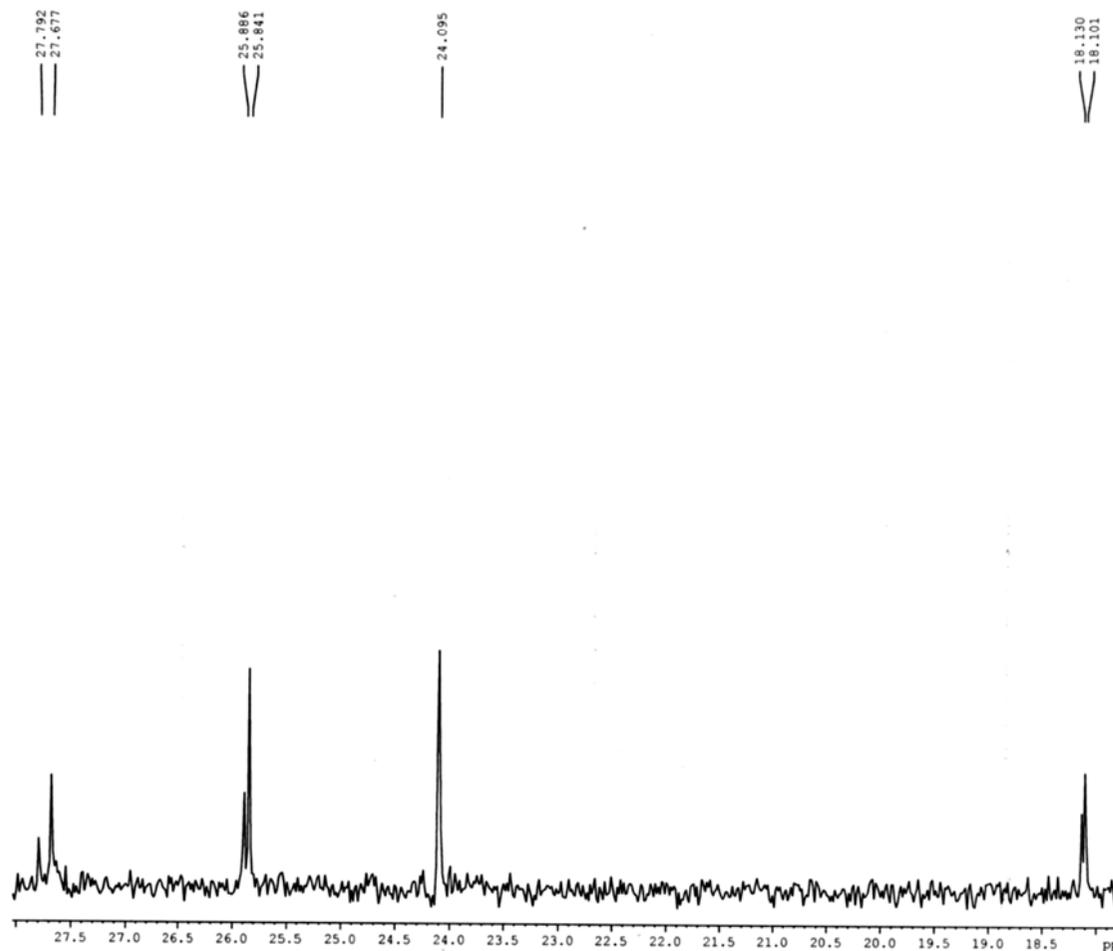
===== CHANNEL f1 =====
NUC1 13C
P1 8.00 u:
PL1 8.00 d:
SFO1 125.7703643 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 u:
PL2 3.00 d:
PL12 22.00 d:
PL13 22.44 d:
SFO2 500.1320005 MHz

F2 - Processing parameter:
SI 16384
SF 125.7577889 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Espectro 175. RMN ^{13}C (125 MHz, CDCl_3) do composto (78).

Lap-imid - Fr2 - Ari
Op. Eliane



Current Data Parameters
NAME ufrj0470283
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20070424
Time 14.48
INSTRUM spect
PROBHD 2.5 mm DUL 13C
PULPROG zgpg30
TD 32768
SOLVENT CDC13
NS 107021
DS 0
SWH 30030.029 H:
FIDRES 0.916444 H:
AQ 0.5456539 s:
RG 16384
DM 16.650 u:
DE 6.00 u:
TE 294.3 K
D1 1.00000000 s:
d11 0.03000000 s:
DELTA 0.89999998 s:
MCREST 0.00000000 s:
MCWRK 0.01500000 s:

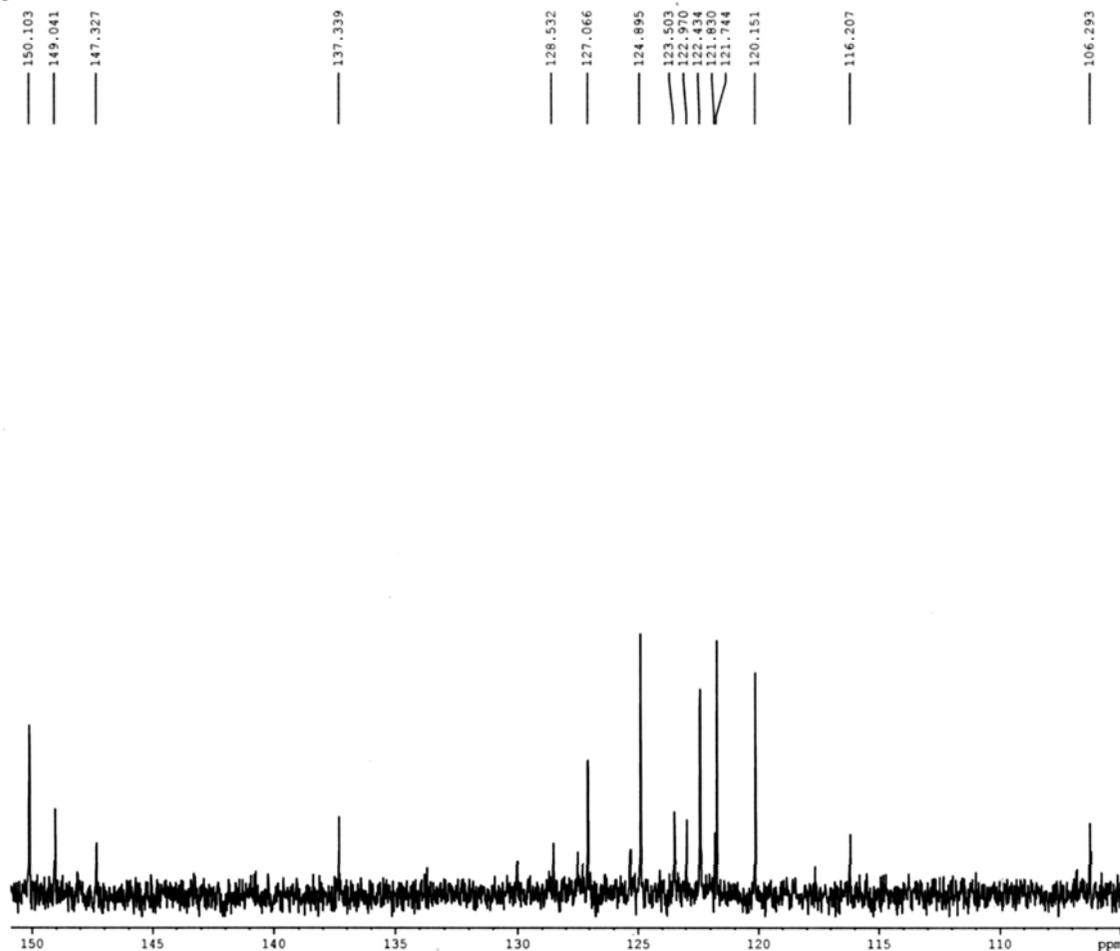
===== CHANNEL f1 =====
NUC1 13C
P1 8.00 u:
PL1 8.00 dI
SFO1 125.7703643 MI

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 u:
PL2 3.00 dI
PL12 22.00 dI
PL13 22.44 dI
SFO2 500.1320005 MI

F2 - Processing parameters:
SI 16384
SF 125.7577889 MI
WDW EM
SSB 0
LB 1.00 H:
GB 0
PC 1.40

Espectro 176. Ampliação de região de carbonos alifáticos do espectro de RMN ¹³C (125 MHz, CDC1₃) do composto (78).

Lap-imid - Fr2 - Ari
Op. Eliane



Current Data Parameters
NAME ufrrj0470283
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20070424
Time 14.48
INSTRUM spect
PROBHD 2.5 mm DUL 13C
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 107021
DS 0
SWH 30030.029 H
FIDRES 0.916444 H
AQ 0.5456539 s
RG 16384
DW 16.650 u
DE 6.00 u
TE 294.3 K
D1 1.0000000 s
d11 0.0300000 s
DELTA 0.89999998 s
MCREST 0.0000000 s
MCWRK 0.0150000 s

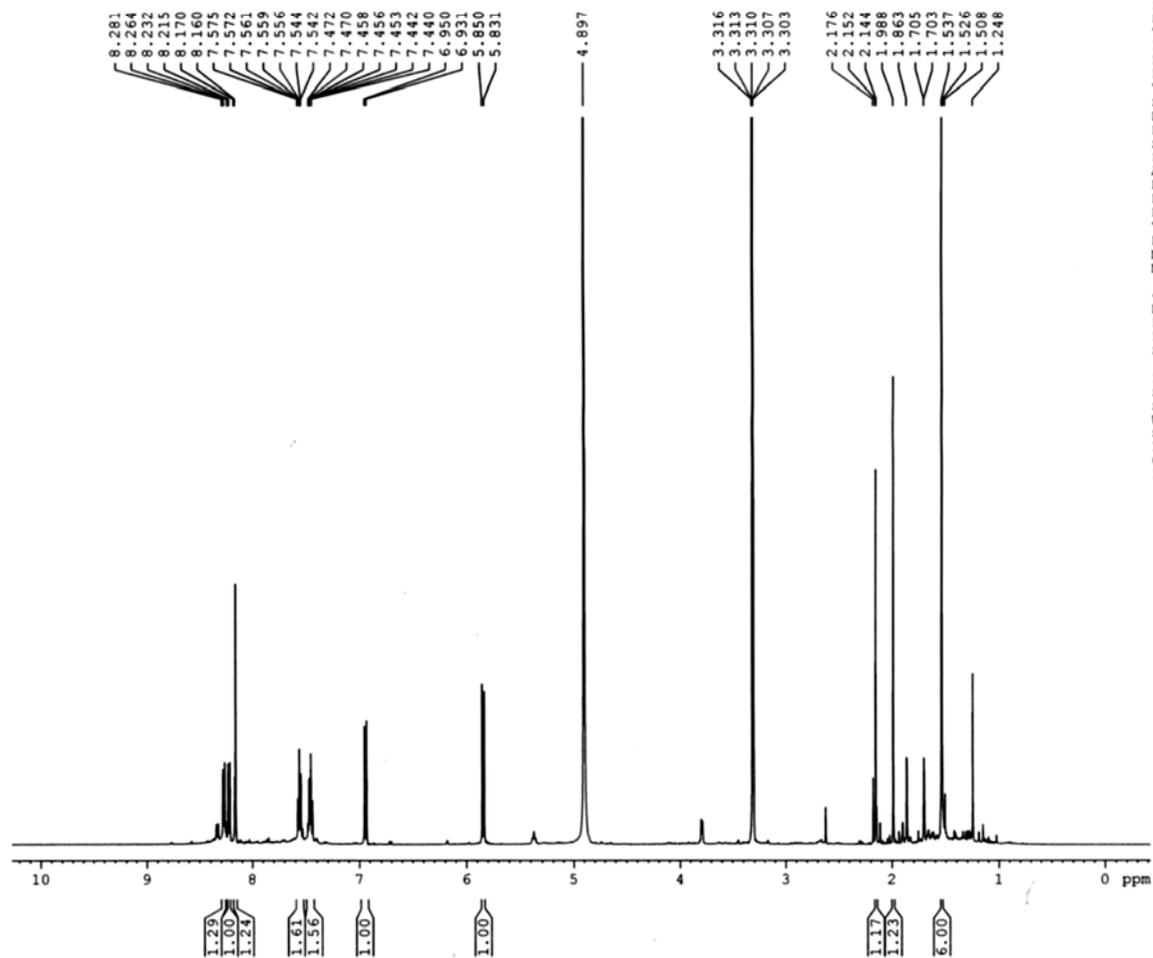
===== CHANNEL f1 =====
NUC1 13C
P1 8.00 u
PL1 8.00 d
SFO1 125.7703643 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 u
PL2 3.00 d
PL12 22.00 d
PL13 22.44 d
SFO2 500.1320005 MHz

F2 - Processing parameter:
SI 16384
SF 125.7577889 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Espectro 177. Ampliação de região de carbonos olefínicos e aromáticos do espectro de RMN ^{13}C (125 MHz, CDCl_3) do composto (78).

lap-imid-Fr 9 - Ari
Op. Eliane



Current Data Parameters
 NAME ufrj0670550
 EXPNO 10
 PROCNO 1

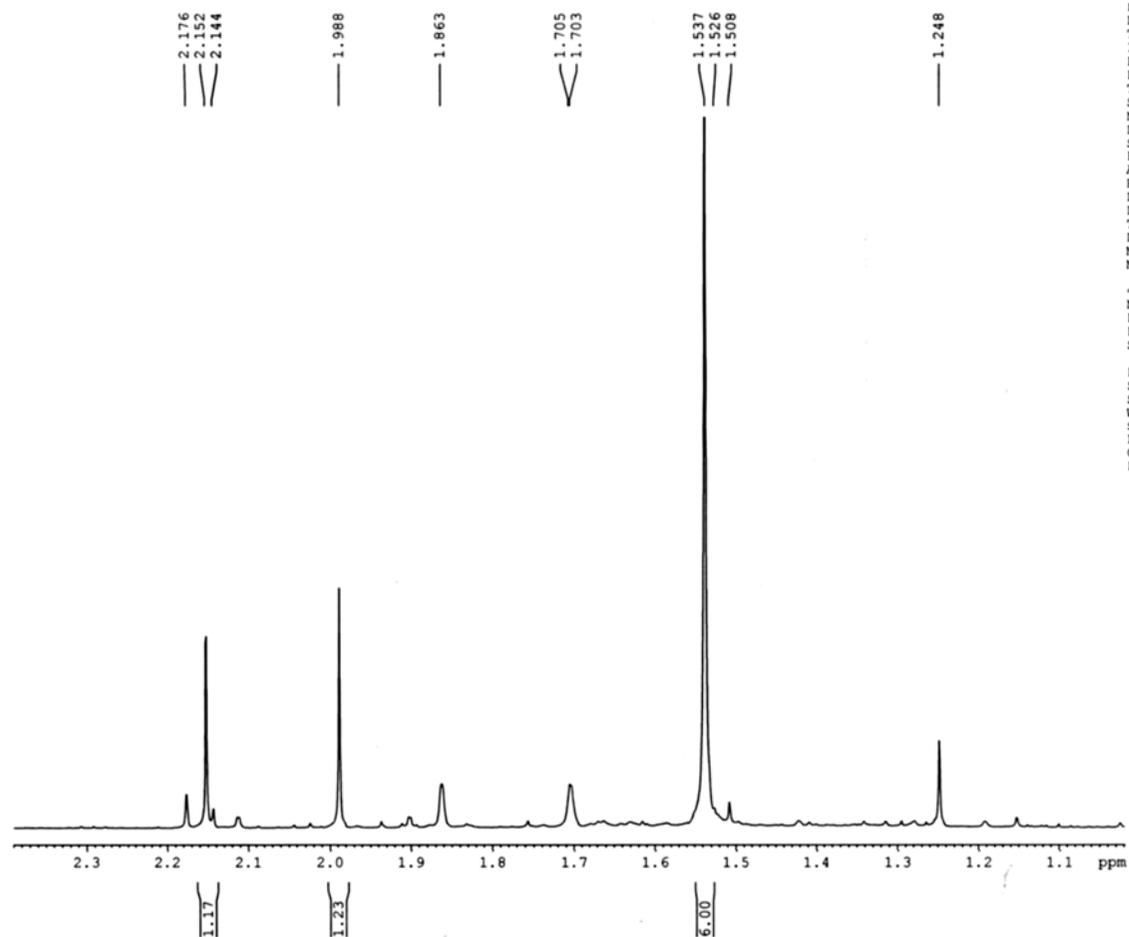
F2 - Acquisition Parameters
 Date_ 20070612
 Time_ 9.30
 INSTRUM spect
 PROBHD 5 mm BBO BB-1H
 PULPROG zg30
 TD 65536
 SOLVENT MeOD
 NS 64
 DS 2
 SWH 10330.578 Hz
 FIDRES 0.157632 Hz
 AQ 3.1720407 sec
 RG 684.3
 DW 48.400 usec
 DE 6.00 usec
 TE 295.9 K
 D1 1.00000000 sec
 MCREST 0.00000000 sec
 MCWRK 0.01500000 sec

----- CHANNEL f1 -----
 NUC1 1H
 P1 13.75 usec
 PL1 0.00 dB
 SF01 500.1330885 MHz

F2 - Processing parameters
 SI 32768
 SF 500.1300112 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

Espectro 178. RMN ^1H (500 MHz, MeOD- d_4) do composto (79).

lap-imid-Fr 9 - Ari
Op. Eliane



Current Data Parameters
NAME ufrj0670550
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
Date_ 20070612
Time 9.30
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zg30
TD 65536
SOLVENT MeOD
NS 64
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1720407 sec
RG 684.3
DW 48.400 usec
DE 6.00 usec
TE 295.9 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 13.75 usec
PL1 0.00 dB
SFO1 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300112 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Espectro 179. Ampliação de região de hidrogênios alifáticos do espectro de RMN ^1H (500 MHz, MeOD- d_4) do composto (79).

lap-imid-Fr 9 - Ari
Op. Eliane

8.281
8.264
8.232
8.215
8.170
8.160

7.575
7.572
7.561
7.559
7.556
7.544
7.542
7.472
7.470
7.458
7.456
7.453
7.442
7.440

6.950
6.931

5.850
5.831

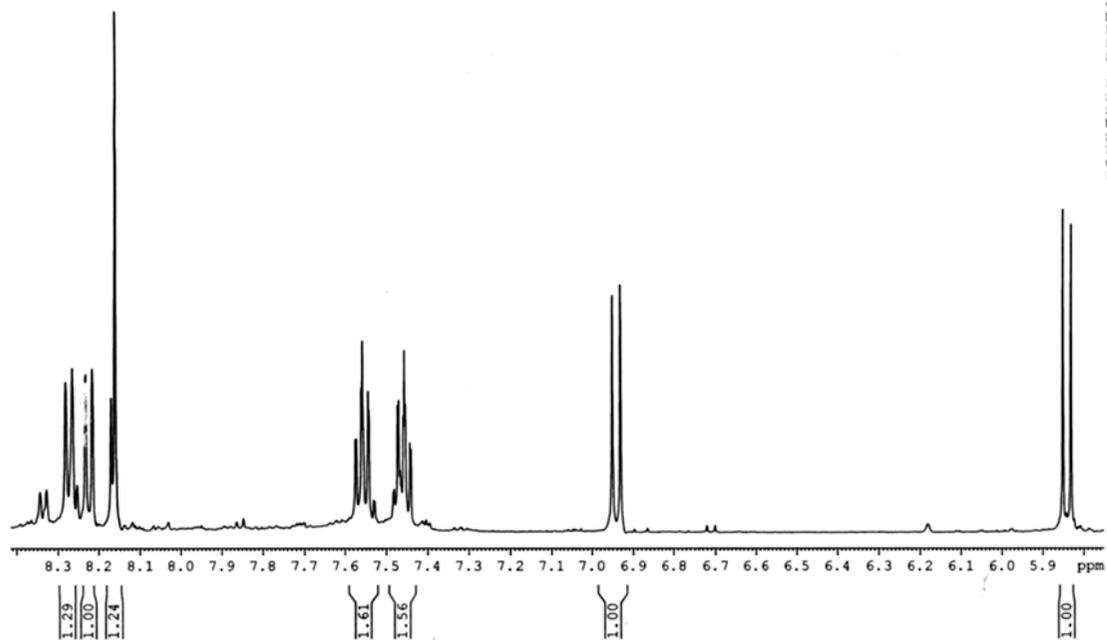
```

Current Data Parameters
NAME      ufrj0670550
EXPNO    10
PROCNO   1

F2 - Acquisition Parameters
Date_    20070612
Time     9.30
INSTRUM  spect
PROBHD   5 mm BBO BB-1H
PULPROG  zg30
TD       65536
SOLVENT  MeOD
NS       64
DS       2
SWH      10330.578 Hz
FIDRES   0.157632 Hz
AQ       3.1720407 sec
RG       684.3
DW       48.400 usec
DE       6.00 usec
TE       295.9 K
D1       1.00000000 sec
MCREST   0.00000000 sec
MCWRK    0.01500000 sec

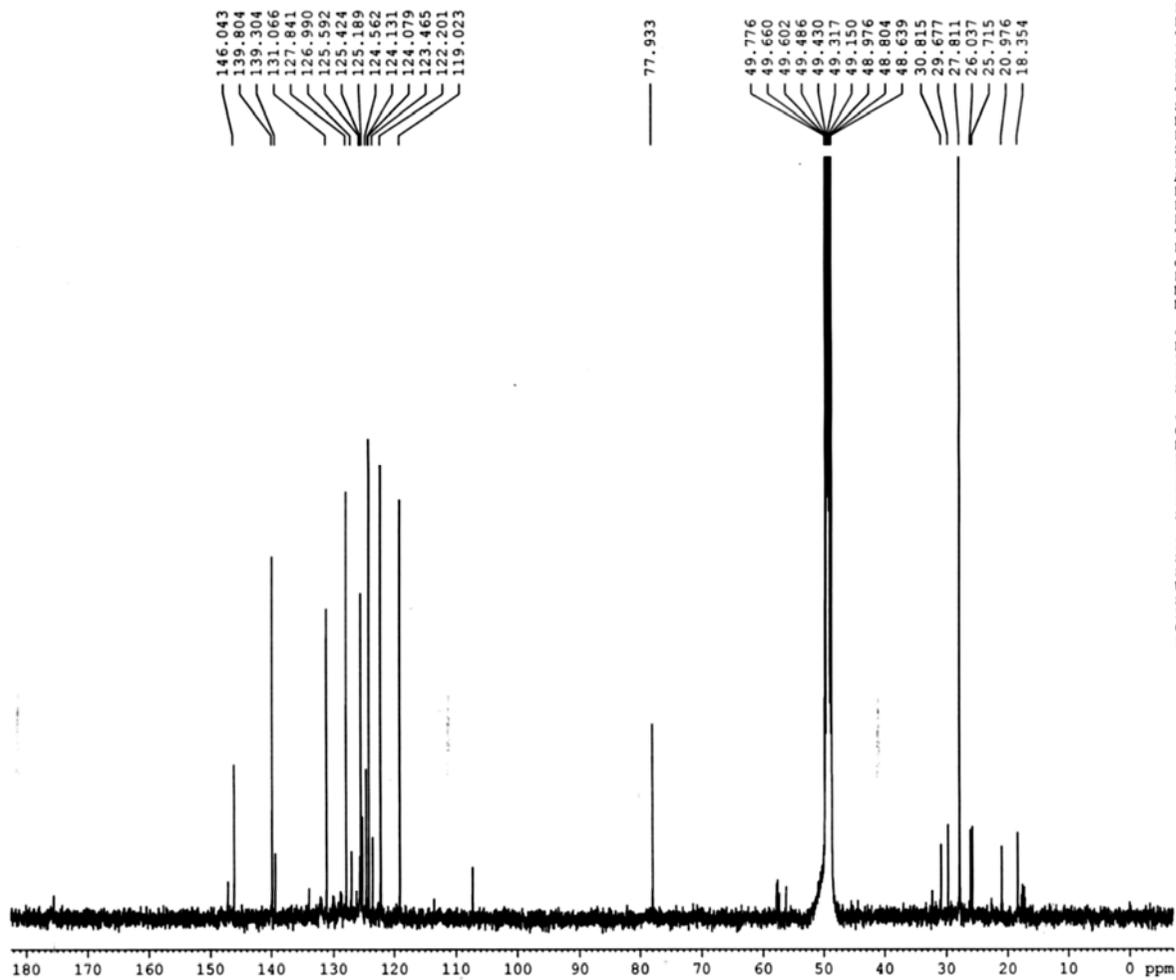
----- CHANNEL f1 -----
NUC1     1H
P1       13.75 usec
PL1      0.00 dB
SFO1     500.1330885 MHz

F2 - Processing parameters
SI       32768
SF       500.1300112 MHz
WDW      EM
SSB      0
LB       0.30 Hz
GB       0
PC       1.00
  
```



Espectro 180. Ampliação de região de hidrogênios olefínicos e aromáticos do espectro de RMN ¹H (500 MHz, MeOD-*d*₄) do composto (78).

lap-imid-Fr 9 - Ari
Op. Eliane



Current Data Parameters
NAME ufrj0670550
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20070611
Time_ 16.12
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zgpg30
TD 32768
SOLVENT MeOD
NS 77079
DS 0
SWH 30030.029 Hz
FIDRES 0.916444 Hz
AQ 0.5456539 sec
RG 16384
DW 16.650 usec
DE 6.00 usec
TE 294.5 K
D1 0.20000000 sec
d11 0.03000000 sec
DELTA 0.10000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

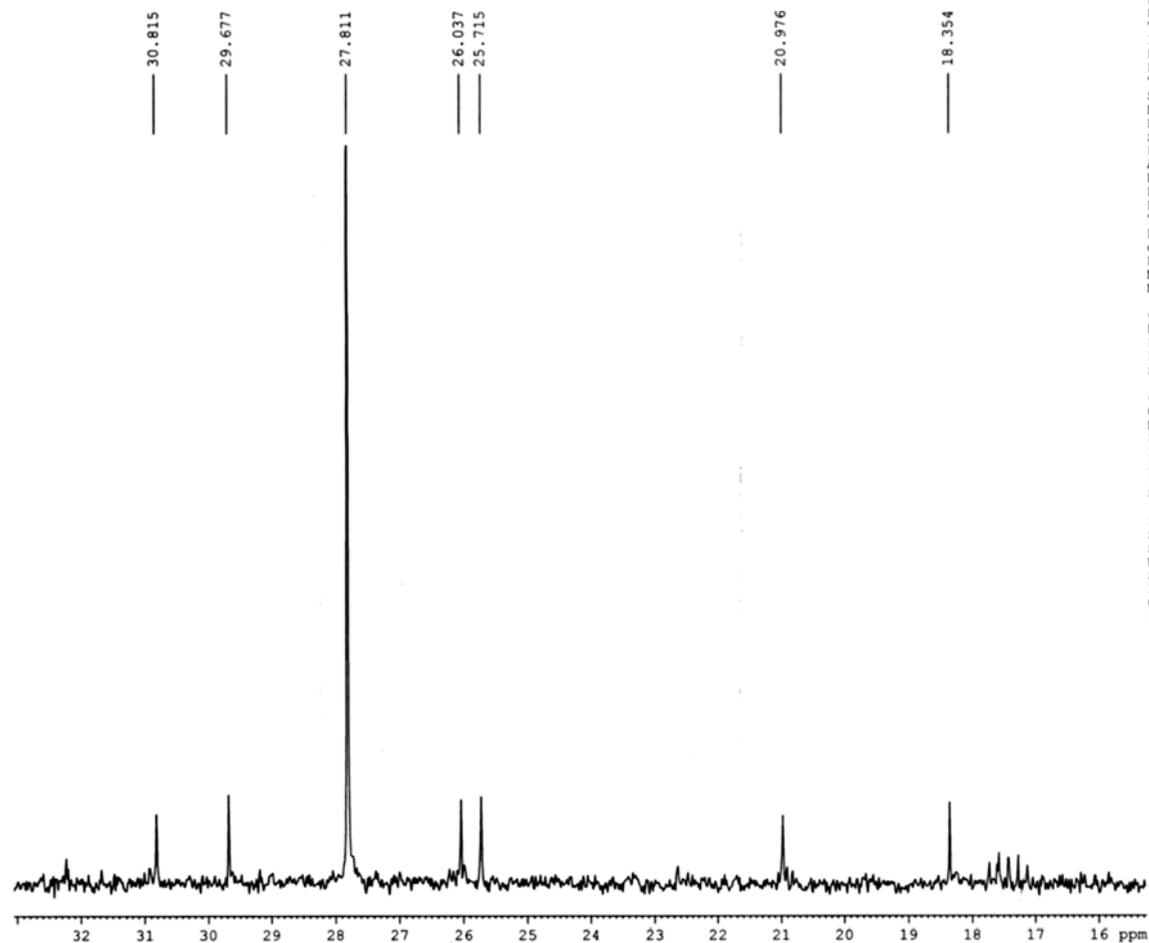
----- CHANNEL f1 -----
NUC1 13C
P1 7.00 usec
PL1 3.00 dB
SFO1 125.7703643 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 0.00 dB
PL12 17.23 dB
PL13 17.89 dB
SFO2 500.1320005 MHz

F2 - Processing parameters
SI 16384
SF 125.7575941 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

Espectro 181. RMN ^{13}C (125 MHz, MeOD- d_4) do composto (79).

lap-imid-Fr 9 - Ari
Op. Eliane



```
Current Data Parameters
NAME      ufrj0670550
EXPNO     11
PROCNO    1

F2 - Acquisition Parameters
Date_     20070611
Time      16.12
INSTRUM   spect
PROBHD    5 mm BBO BB-1H
PULPROG   zgpg30
TD         32768
SOLVENT   MeOD
NS         77079
DS         0
SWH        30030.029 Hz
FIDRES     0.916444 Hz
AQ         0.5456539 sec
RG         16384
DW         16.650 usec
DE         6.00 usec
TE         294.5 K
D1         0.20000000 sec
d11        0.03000000 sec
DELTA     0.10000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

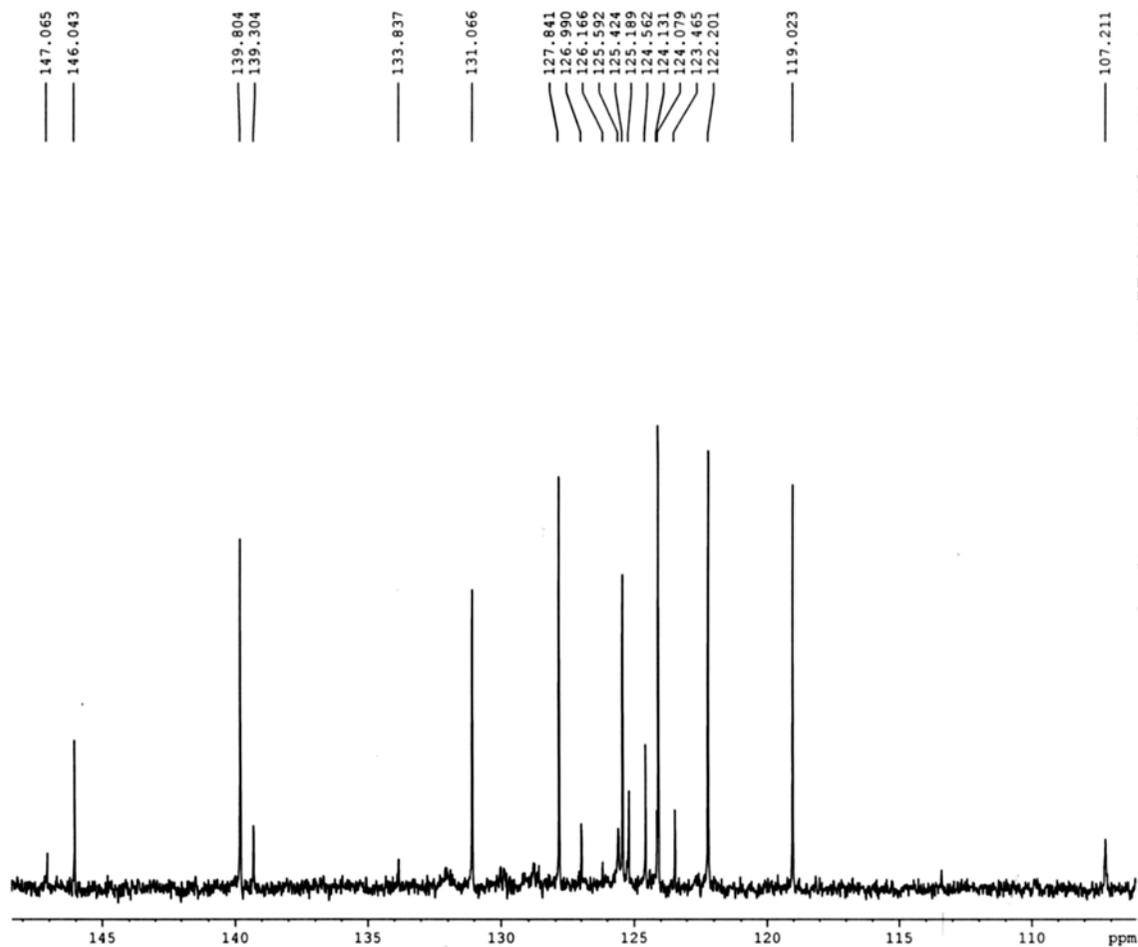
----- CHANNEL f1 -----
NUC1       13C
P1         7.00 usec
PL1        3.00 dB
SFO1       125.7703643 MHz

----- CHANNEL f2 -----
CPDPRG2    waltz16
NUC2        1H
PCPD2      100.00 usec
PL2         0.00 dB
PL12        17.23 dB
PL13        17.89 dB
SFO2       500.1320005 MHz

F2 - Processing parameters
SI         16384
SF         125.7575941 MHz
WDW        EM
SSB         0
LB         1.00 Hz
GB         0
PC         1.40
```

Espectro 182. Ampliação de região de carbonos alifáticos do espectro de RMN ¹³C (125 MHz, MeOD-*d*₄) do composto (79).

lap-imid-Fr 9 - Ari
Op. Eliane



```

Current Data Parameters
NAME      ufrj0670550
EXPNO     11
PROCNO    1

F2 - Acquisition Parameters
Date_     20070611
Time      16.12
INSTRUM   spect
PROBHD    5 mm BBO BB-1H
PULPROG   zgpg30
TD        32768
SOLVENT   MeOD
NS         77079
DS         0
SWH       30030.029 Hz
FIDRES    0.916444 Hz
AQ        0.5456539 sec
RG         16384
DW        16.650 usec
DE         6.00 usec
TE        294.5 K
D1         0.20000000 sec
d11        0.03000000 sec
DELTA     0.10000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1      13C
P1        7.00 usec
PL1       3.00 dB
SFO1     125.7703643 MHz

----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2      1H
PCPD2     100.00 usec
PL2       0.00 dB
PL12     17.23 dB
PL13     17.89 dB
SFO2     500.1320005 MHz

F2 - Processing parameters
SI        16384
SF        125.7575941 MHz
WDW       EM
SSB       0
LB        1.00 Hz
GB        0
PC        1.40

```

Espectro 183. Ampliação de região de carbonos olefínicos e aromáticos do espectro de RMN ^{13}C (125 MHz, MeOD- d_4) do composto (79).

Relação das estruturas dos imidazóis sintetizados.

