

Supporting Information

^1H and ^{13}C NMR Spectra of Key Compounds

Solvent-Dependent Chemoselectivity in Ruthenium-Catalyzed Cyclization of Iodoalkyne-Epoxy Functionalities

Ming-Yuan Lin, Shambabu Joseph Maddirala and Rai-Shung Liu*

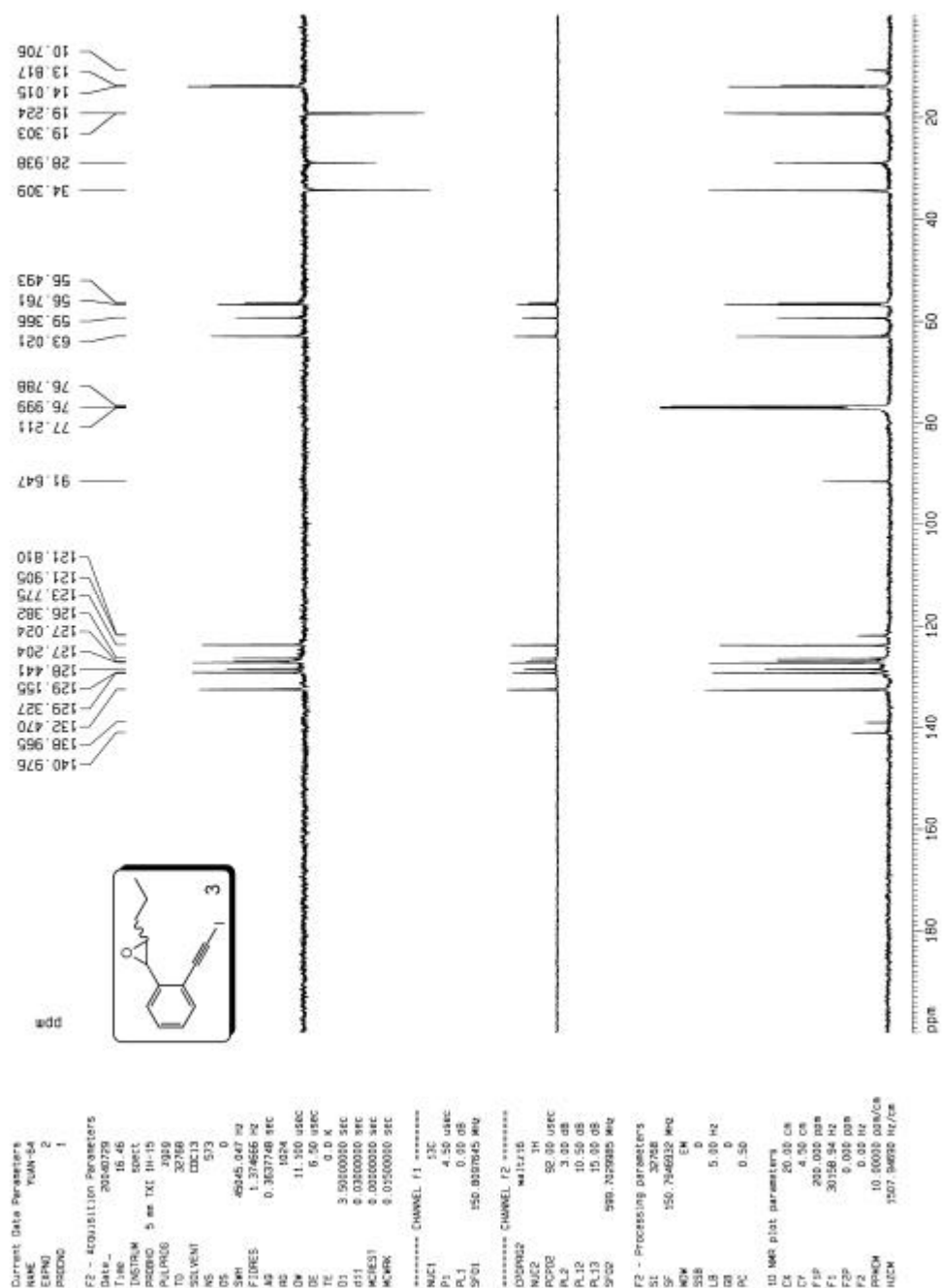
Department of Chemistry, National Tsing-Hua University, Hsinchu, Taiwan, ROC

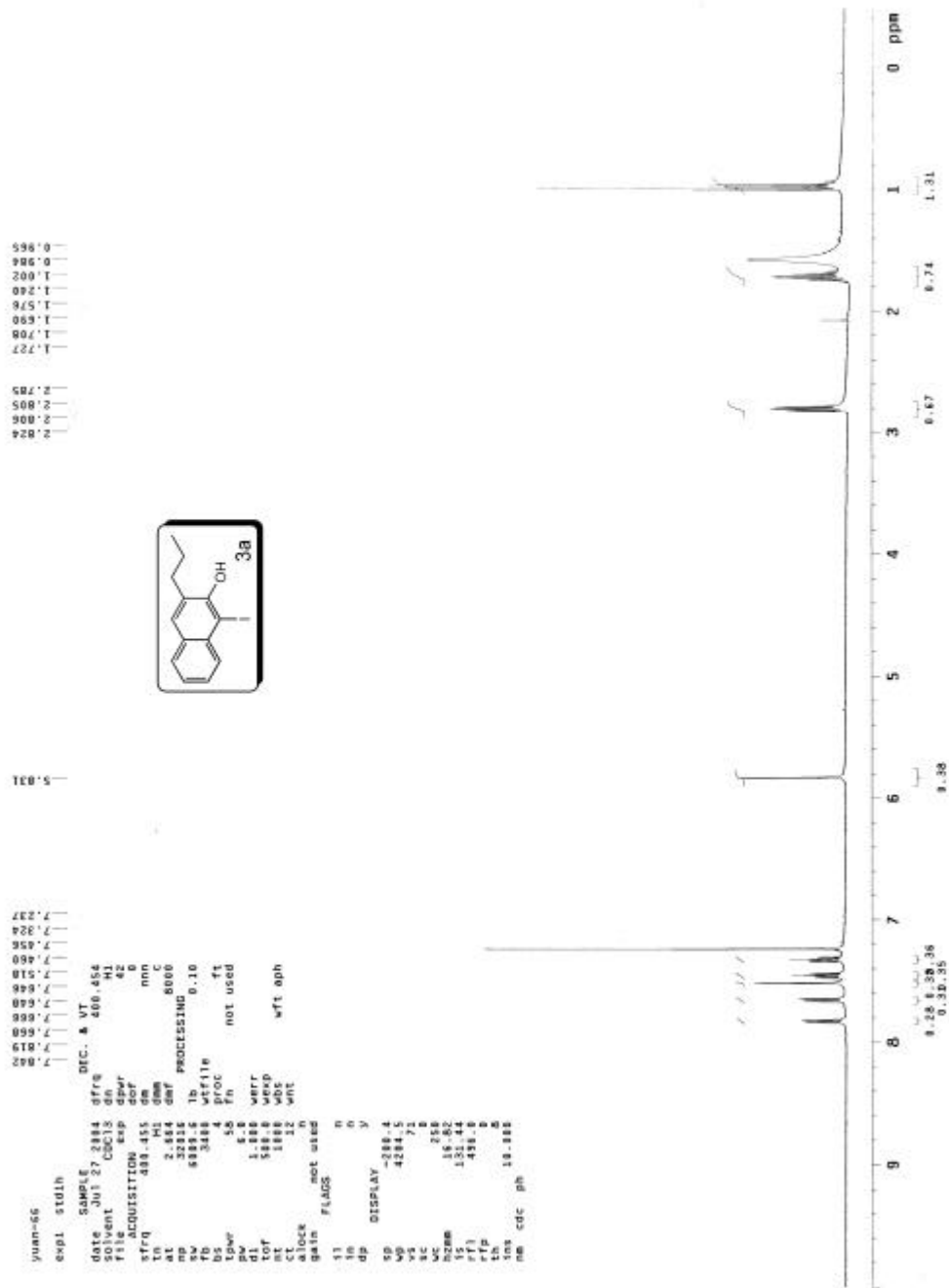
e-mail: rsliu@mx.nthu.edu.tw

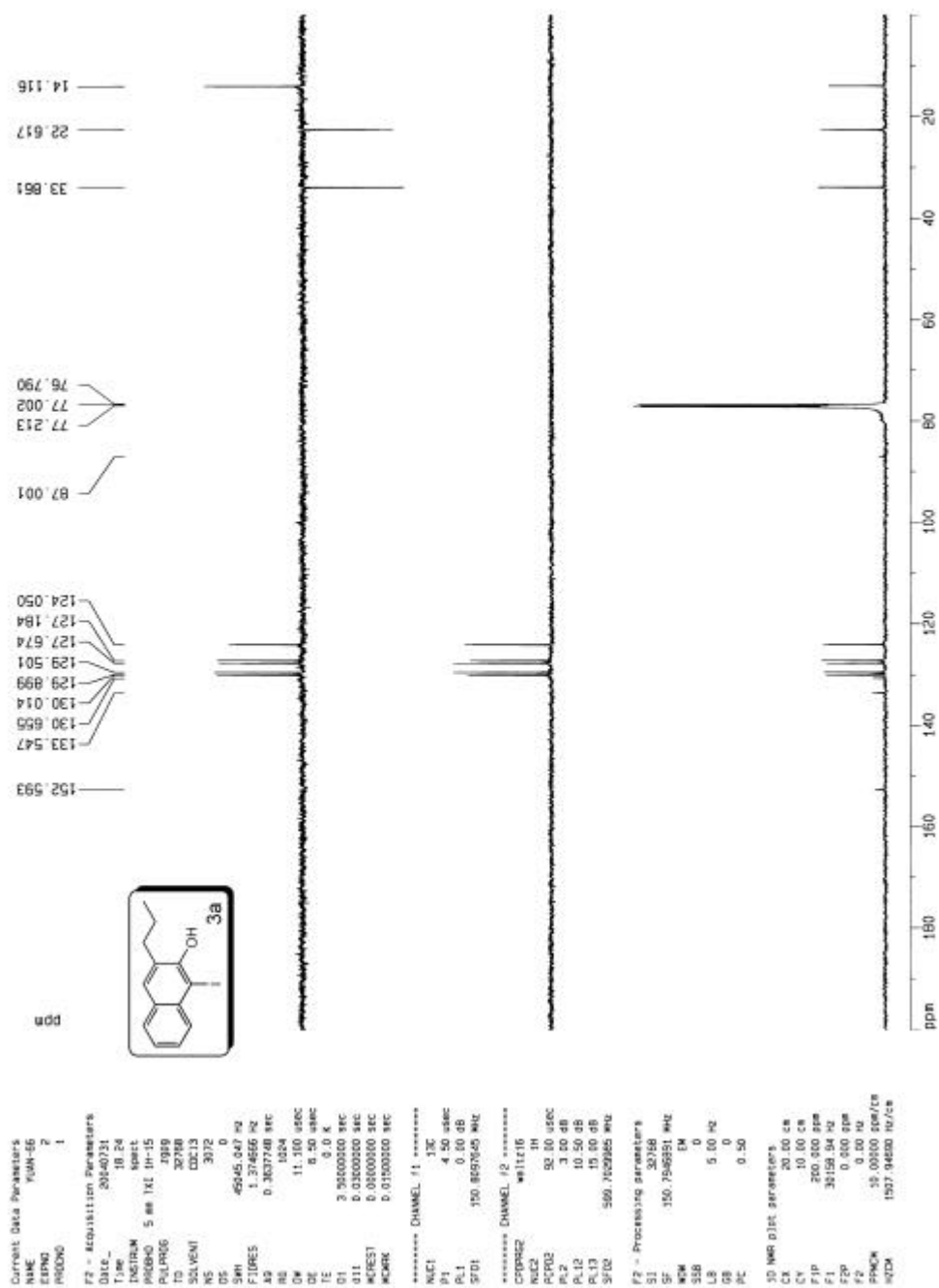
Contents:

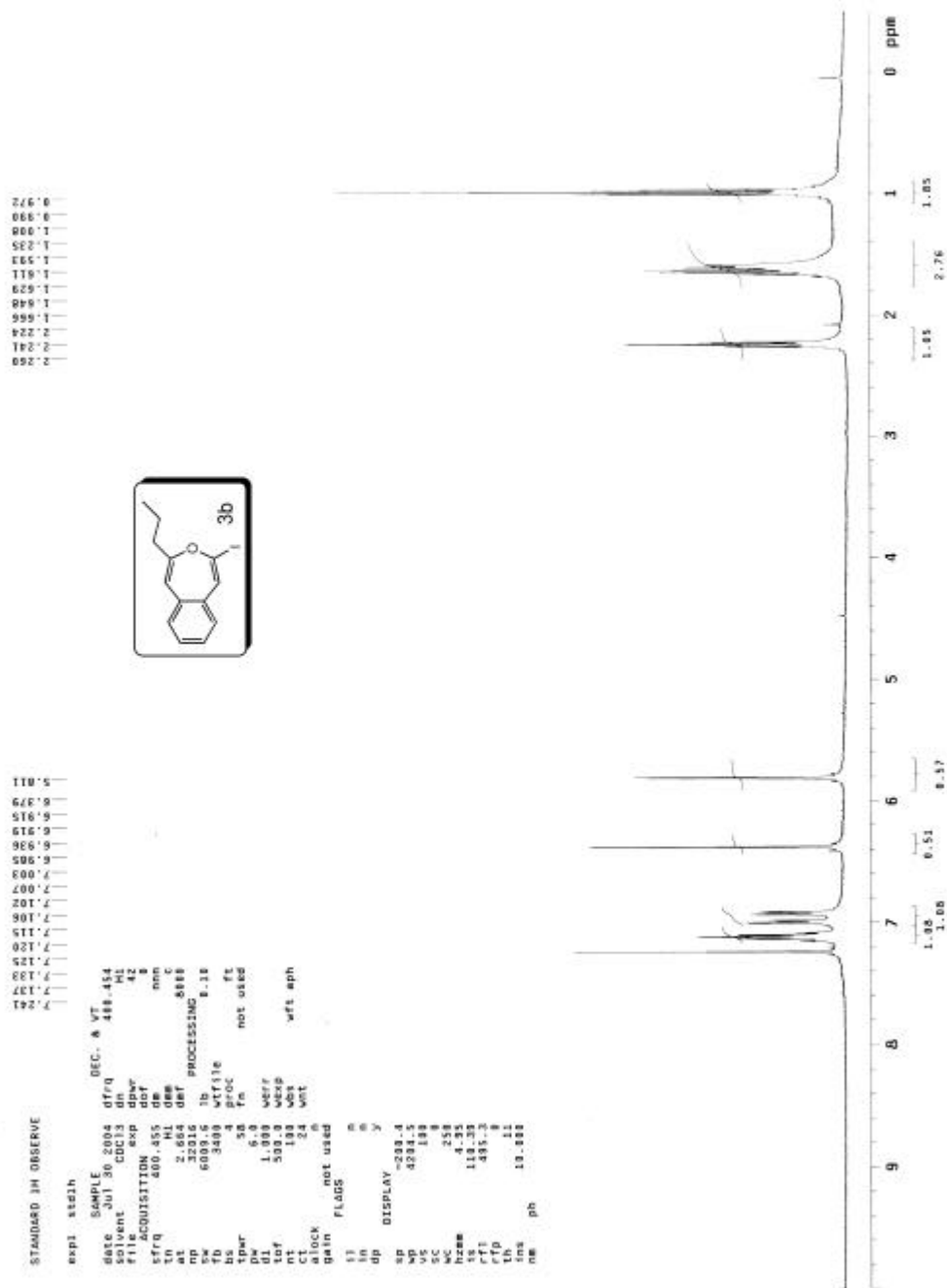
(1) ^1H and ^{13}C NMR spectra of compounds **3-11**, **3a-11a** and **3b-10b**----- 2- 53

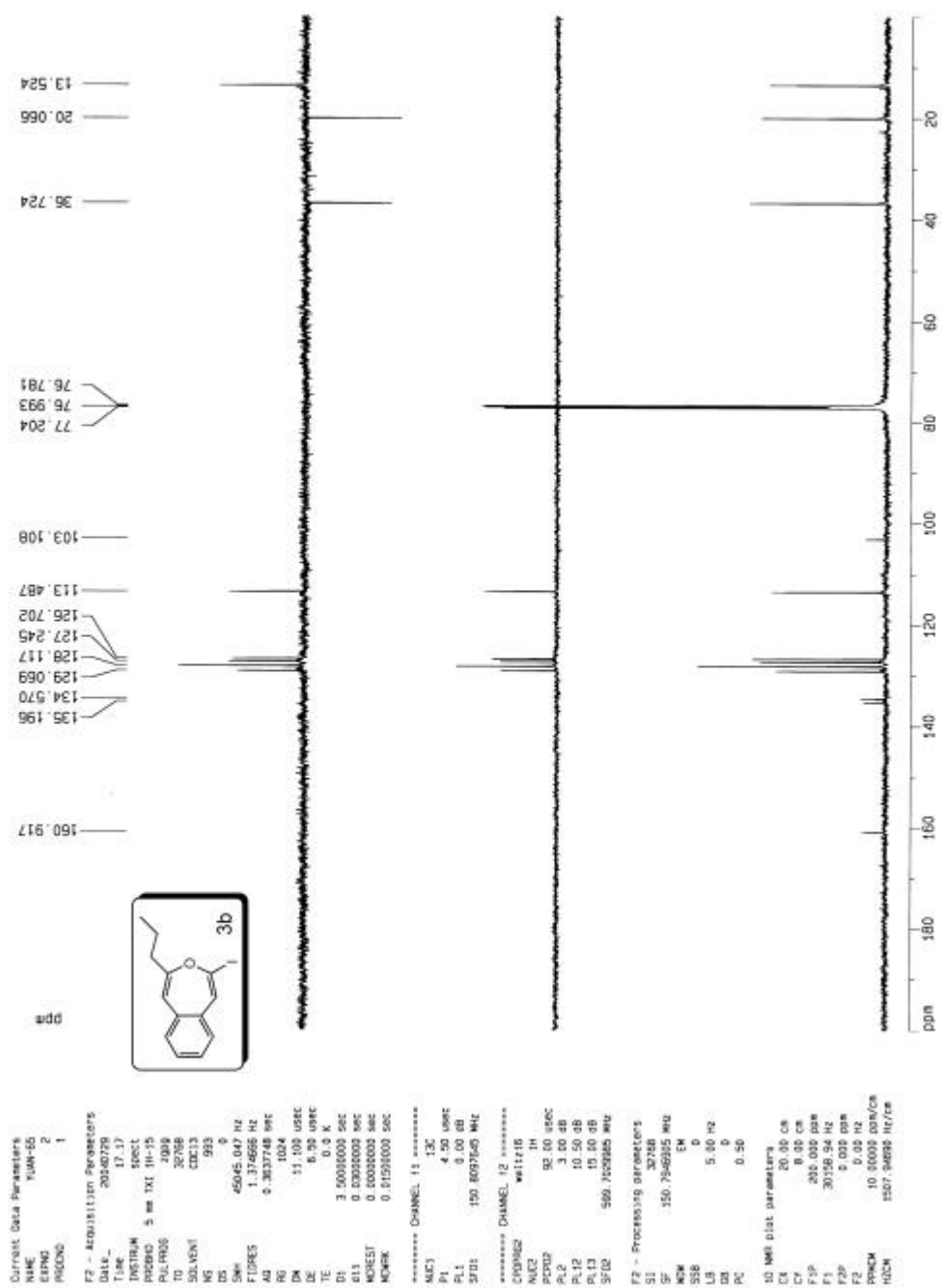


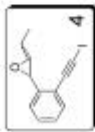


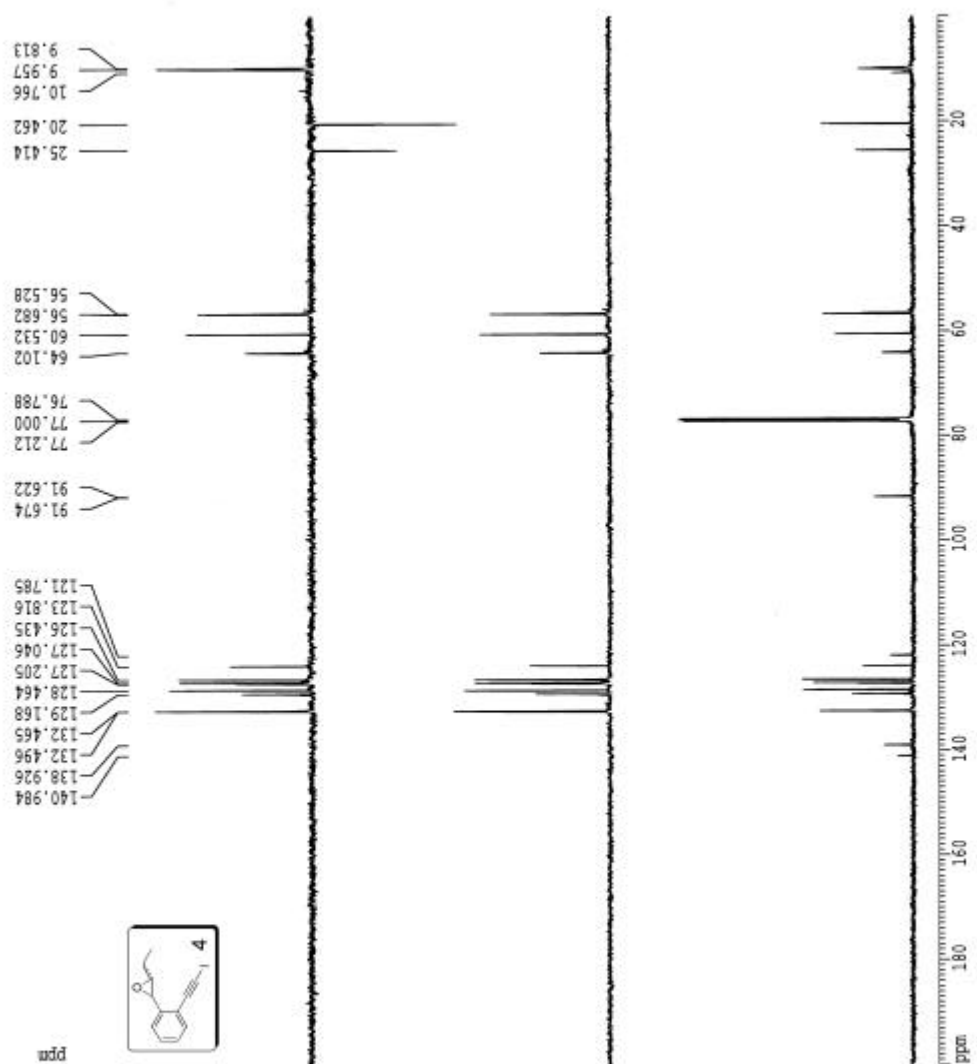












Current Data Parameters
NAME: P000-75
EXPNO: 2
PROCNO: 1

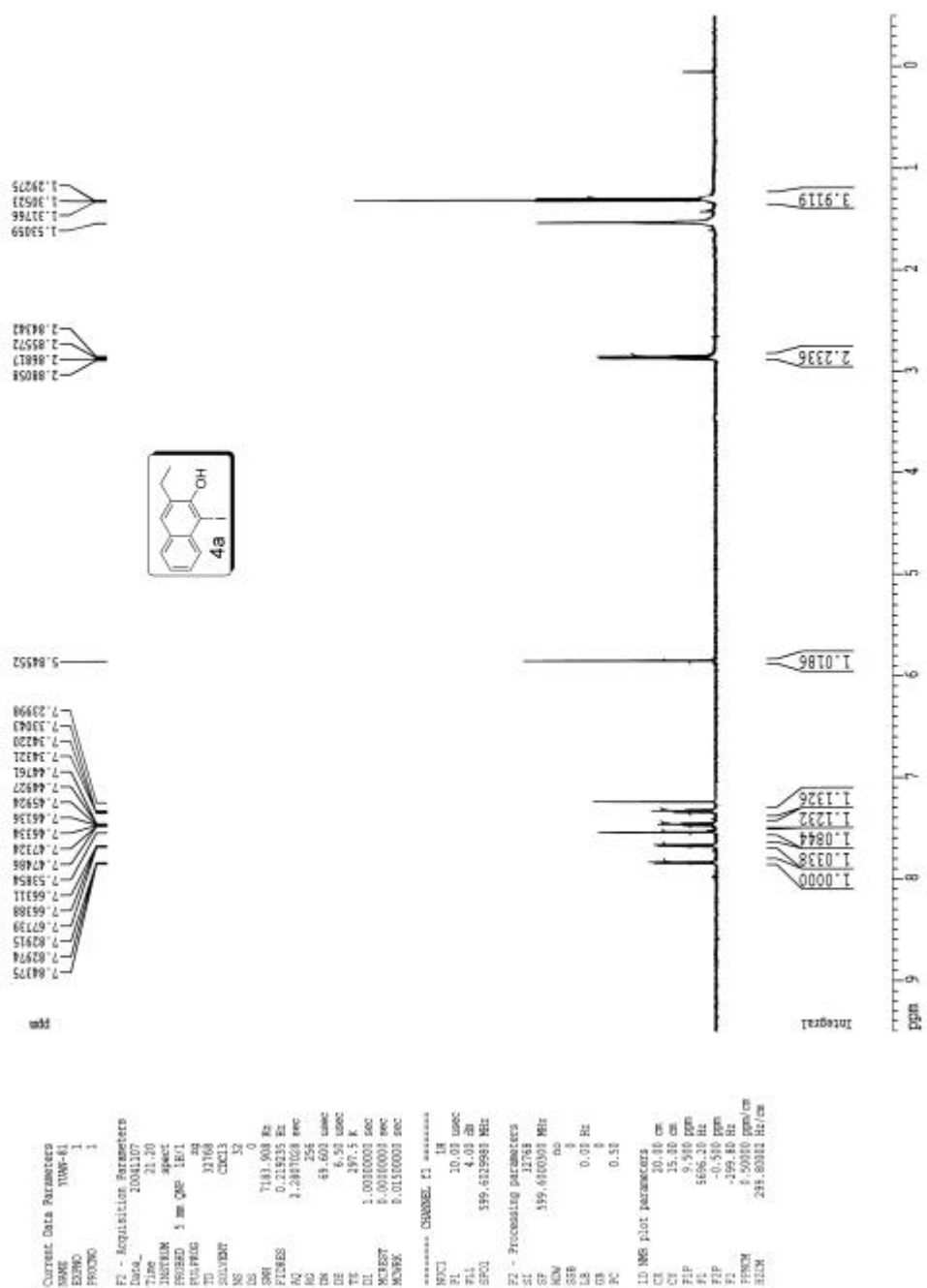
F2 - Acquisition Parameters
Date_: 20111104
Time: 15.18
INSTRUM: spect
PROBHD: 5 mm QNP
PULPROG: zgpg30
TD: 32768
SOLVENT: DMSO
NS: 210
DS: 0
SWH: 37418.789 Hz
FIDRES: 1.155945 Hz
AQ: 0.4125816 sec
RG: 2048
DA: 11.200 usec
DE: 6.50 usec
TE: 300.2 K
D1: 4.00000000 sec
d11: 0.80000000 sec
d12: 3.50000000 sec
DELTA: 0.40000000 sec
MCSSET: 0.40000000 sec
MCSRG: 0.01500000 sec

===== CHANNEL f1 =====
NUC1: 13C
P1: 4.10 usec
PL1: 0.00 dB
SFO1: 150.7841246 MHz

===== CHANNEL f2 =====
CPDPRG2: waltz16
NUC2: 1H
PCPD2: 92.00 usec
PL2: 120.00 dB
PL3: 120.00 dB
PL4: 120.00 dB
PL5: 14.00 dB
SFO2: 500.1360540 MHz

F2 - Processing parameters
SI: 65536
SF: 150.7845528 MHz
WDW: EM
SSB: 0
LB: 1.00 Hz
GB: 0
PC: 0.50

10 NMR plot parameters
SI: 65536
WDW: EM
SSB: 0
LB: 1.00 Hz
GB: 0
PC: 0.50



Current Data Parameters
NAME Y040-41
EXPNO 2
PROCNO 1

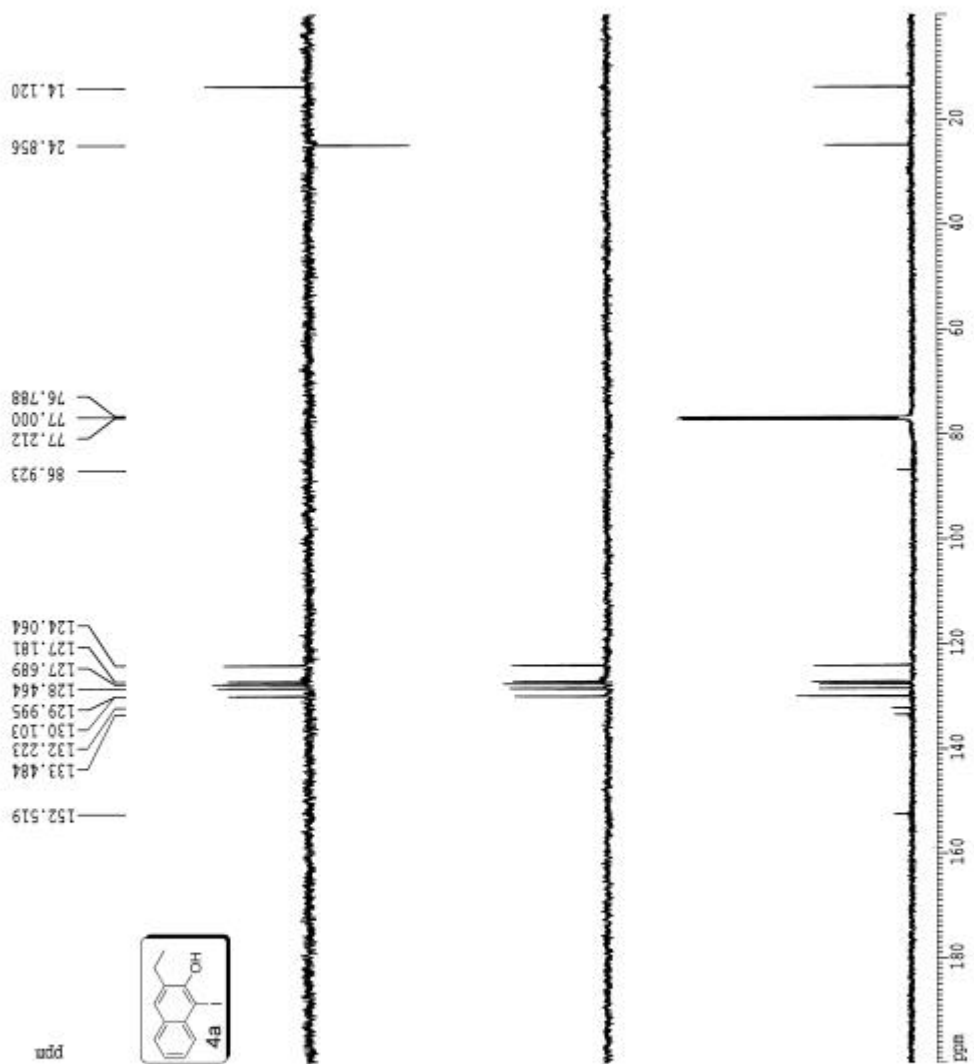
F1 - Acquisition Parameters
Date_ 20041107
Time 21.22
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TO 17.768
SOLVENT DMSO
NS 6144
DS 8
SWH 17018.789 Hz
FIDRES 1.155949 Hz
AQ 0.432876 sec
RG 2048
CW 11.200 usec
DE 6.50 usec
TE 297.5 K
F1 4.0100000 sec
G1 0.0100000 sec
F2 3.9400000 sec
G2 0.0100000 sec
MCSS2 0.0100000 sec
MCSS3 0.0150000 sec

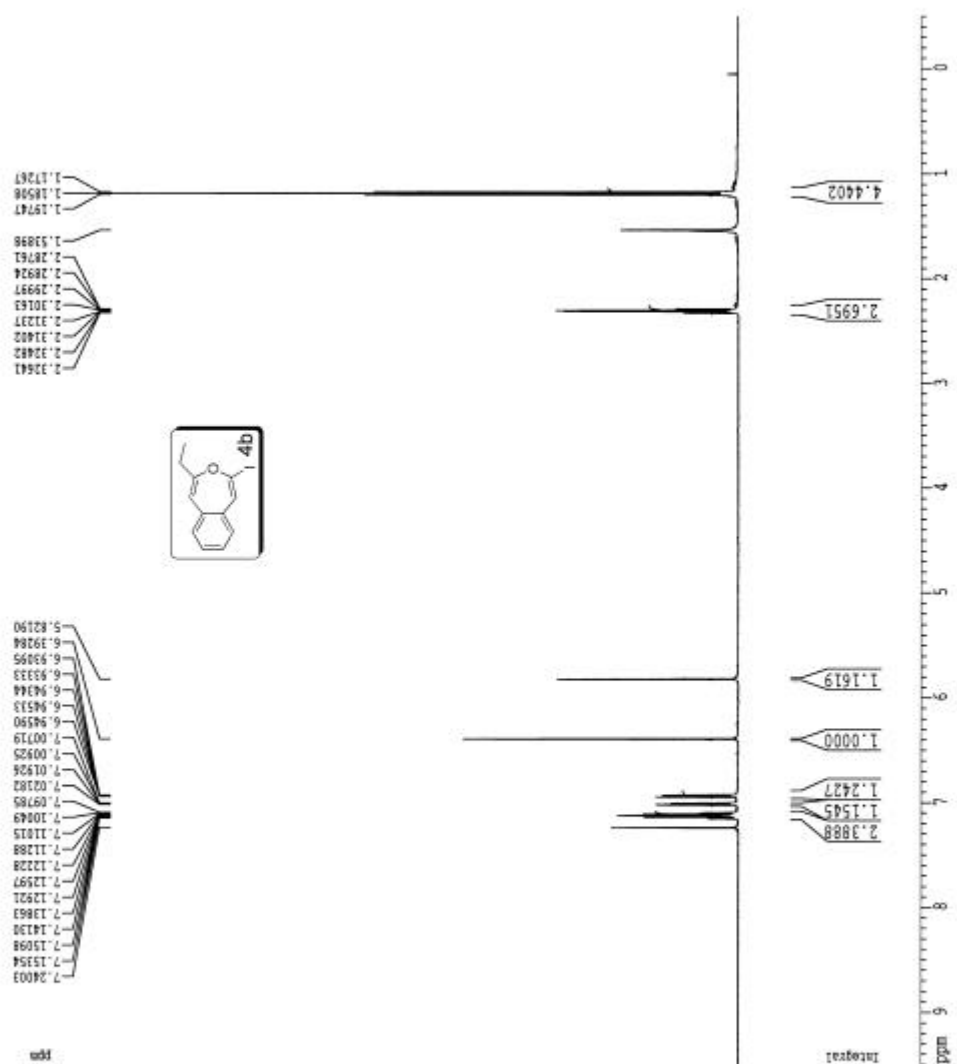
===== CHANNEL f1 =====
NUC1 13C
P1 4.10 usec
PL1 0.10 dB
SFO1 150.765246 MHz

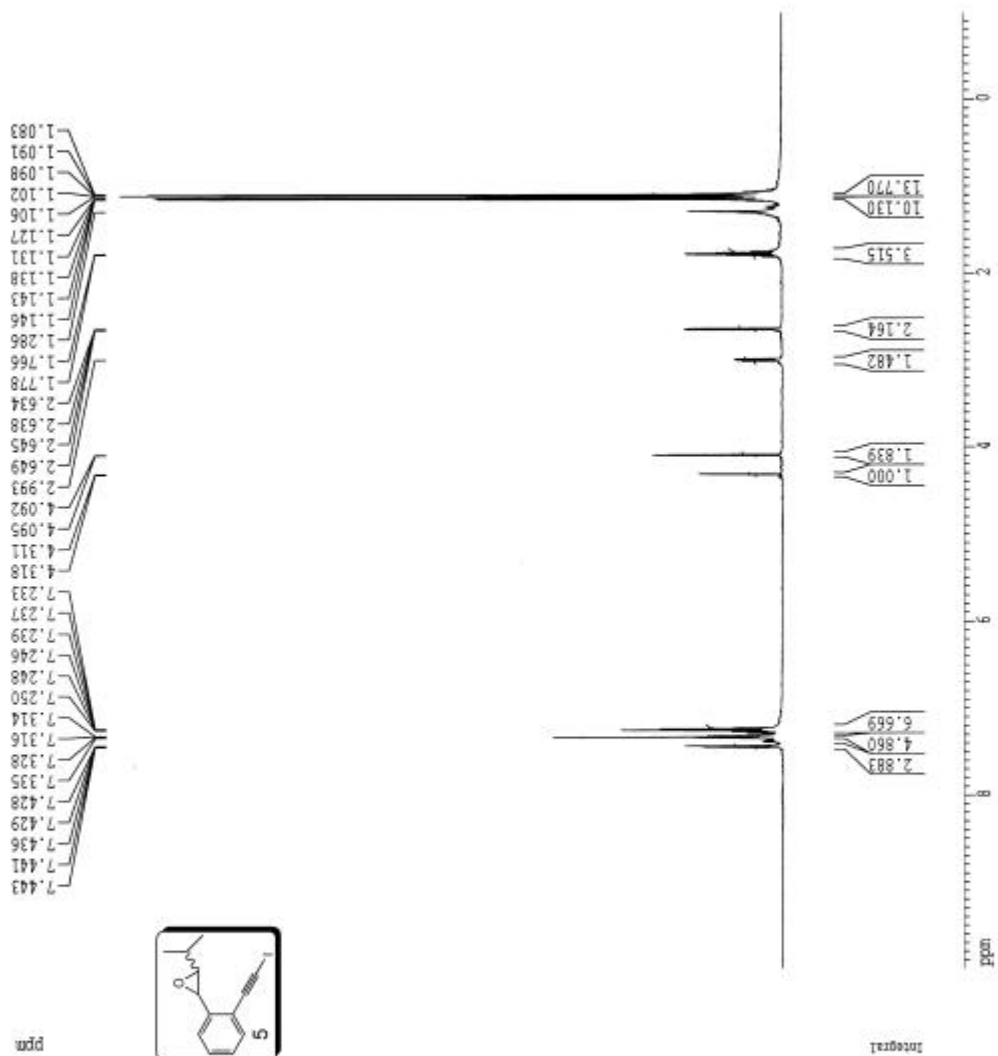
===== CHANNEL f2 =====
CFPRG22 waltz16
NUC2 1H
PCPD2 92.00 usec
PL2 120.00 dB
PL3 11.10 dB
PL4 14.00 dB
SFO2 599.622980 MHz

F2 - Processing parameters
SI 65536
SF 150.765453 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.50

1D NMR plot parameters
CX 20.00 cm
CY 30.00 cm
FID 200.000 ppm
F1 10131.51 Hz
F2 1.000 ppm
F3 1.000 Hz
F4 30.400000 ppm/cm
F5 1507.8543 Hz/cm







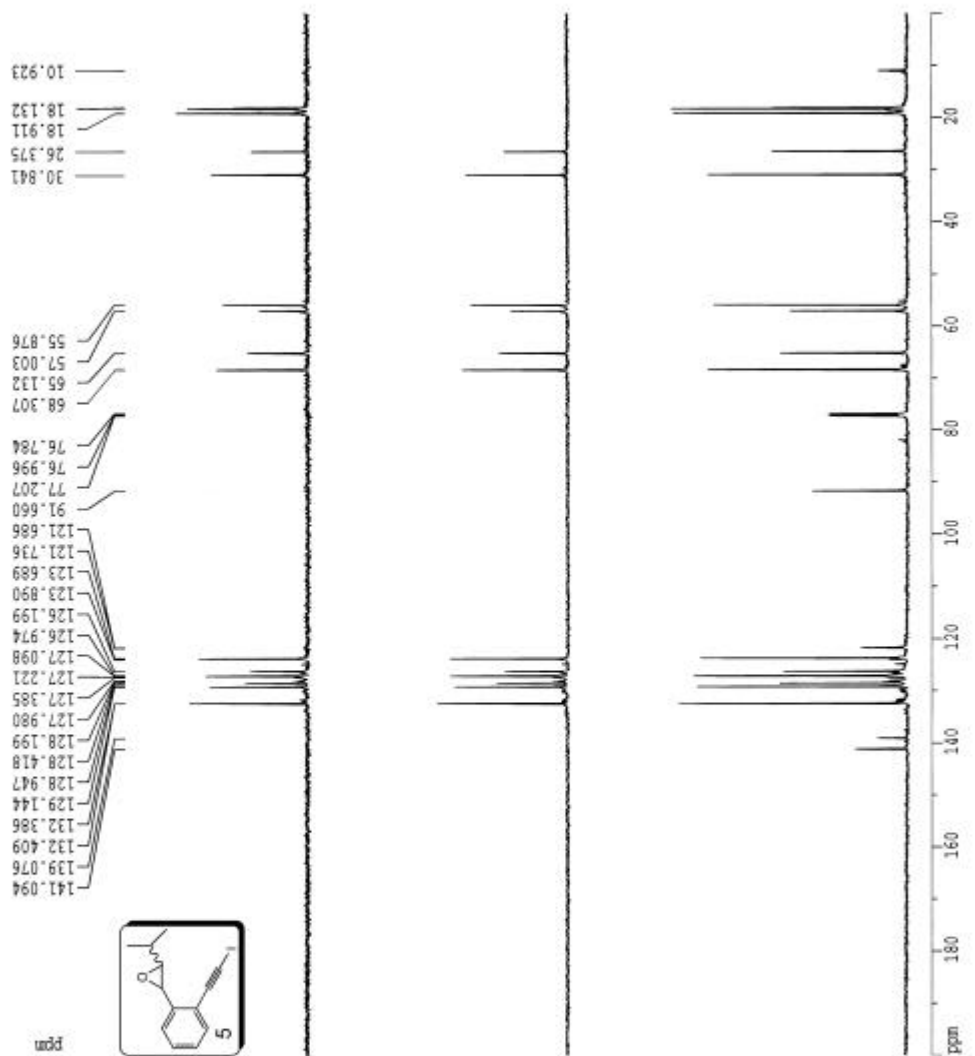
Current Data Parameters
NAME TUM-59
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20040313
Time 14.24
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TD 13104
FIDRES 0.16
AQ 1.6
RG 327.5
SFO 500.136093 MHz
WDW EM
SSB 0
LB 8.00 Hz
GB 0
PC 0.50

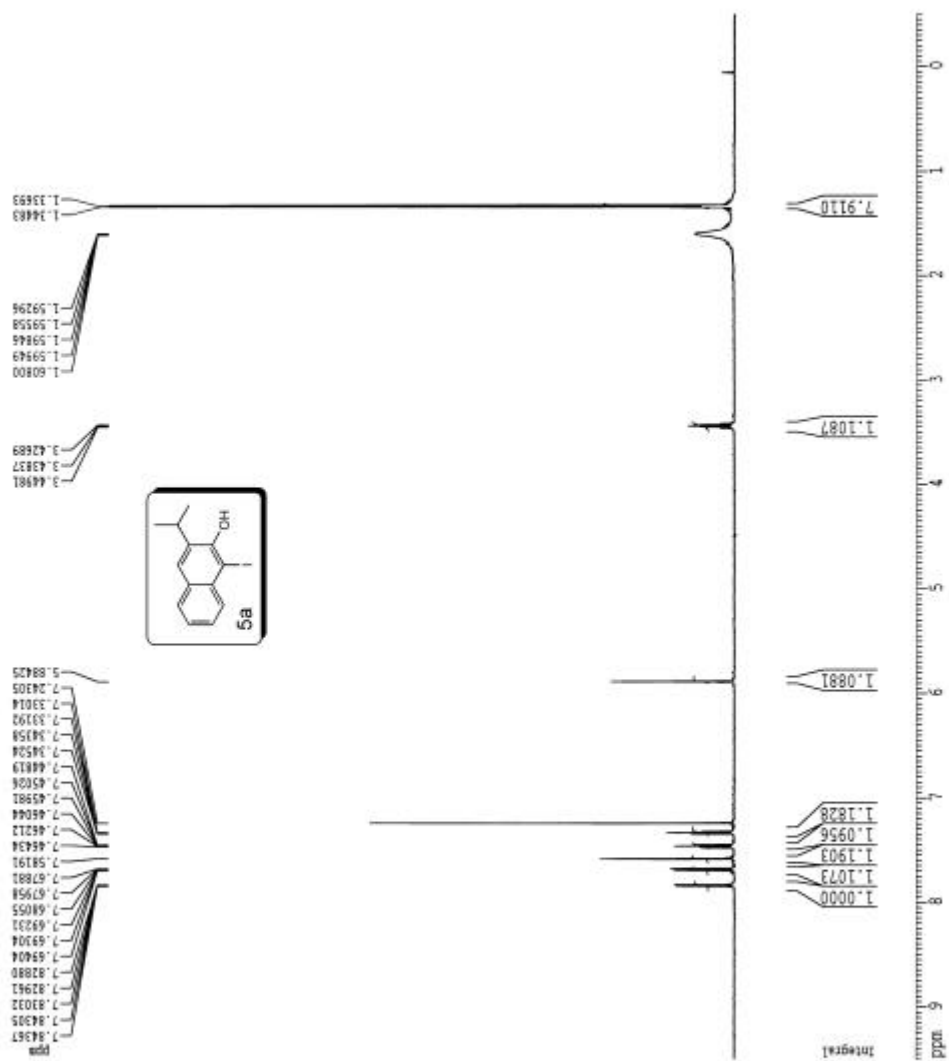
1D NMR plot parameters
SI 327.5
SF 500.136093 MHz
WDW EM
SSB 0
LB 8.00 Hz
GB 0
PC 0.50

F2 - Processing parameters
SI 327.5
SF 500.136093 MHz
WDW EM
SSB 0
LB 8.00 Hz
GB 0
PC 0.50

===== CHANNEL f1 =====
NUC1 1H
P1 10.00 dB
PL 4.00 dB
PL2 4.00 dB
PL3 4.00 dB
SFO1 500.136093 MHz
=====



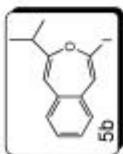
Current Data Parameters
NAME: Y000-69
EXPNO: 2
PROCNO: 1
F2 - Acquisition Parameters
Date_ : 20080514
Time: 14.25
INSTRUM: spect
PROBHD: 5 mm QNP 1H
PULPROG: zgpg30
TD: 65536
SOLVENT: CDCl3
NS: 200
DS: 4
SWH: 37076.784 Hz
FIDRES: 0.111551 Hz
AQ: 0.4225154 sec
RG: 2488
DQ: 0.0001000 sec
WDE: 13.200 kHz
TE: 300.2 K
F2 - Processing parameters
SI: 32768
SF: 400.146 MHz
WDW: EM
SSB: 0
LB: 5.00 Hz
GB: 0
PC: 640
SFO: 100.626131 MHz
F2 - 1D NMR plot parameters
SI: 32768
SF: 400.146 MHz
WDW: EM
SSB: 0
LB: 5.00 Hz
GB: 0
PC: 640
SFO: 100.626131 MHz
F2 - 2D NMR plot parameters
SI: 32768
SF: 400.146 MHz
WDW: EM
SSB: 0
LB: 5.00 Hz
GB: 0
PC: 640
SFO: 100.626131 MHz

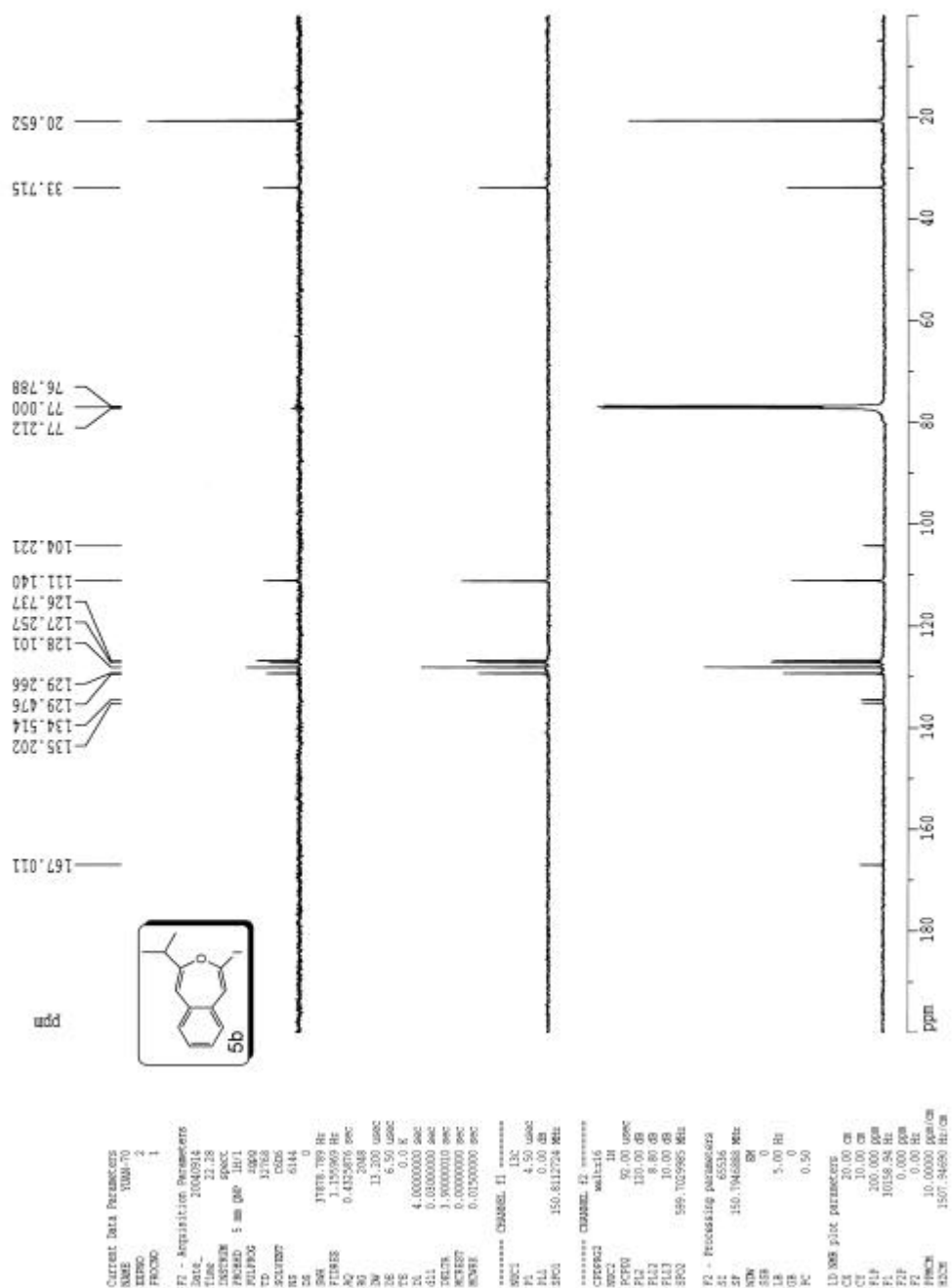


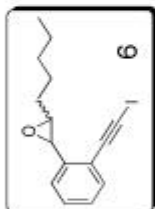
CC(C)C1=C(C)C(=C2C=CC=CC=C2C=C1)O

152.069
 136.745
 133.286
 130.008
 129.942
 127.906
 127.235
 126.136
 124.033
 87.442
 77.209
 76.997
 76.785
 28.932
 22.518

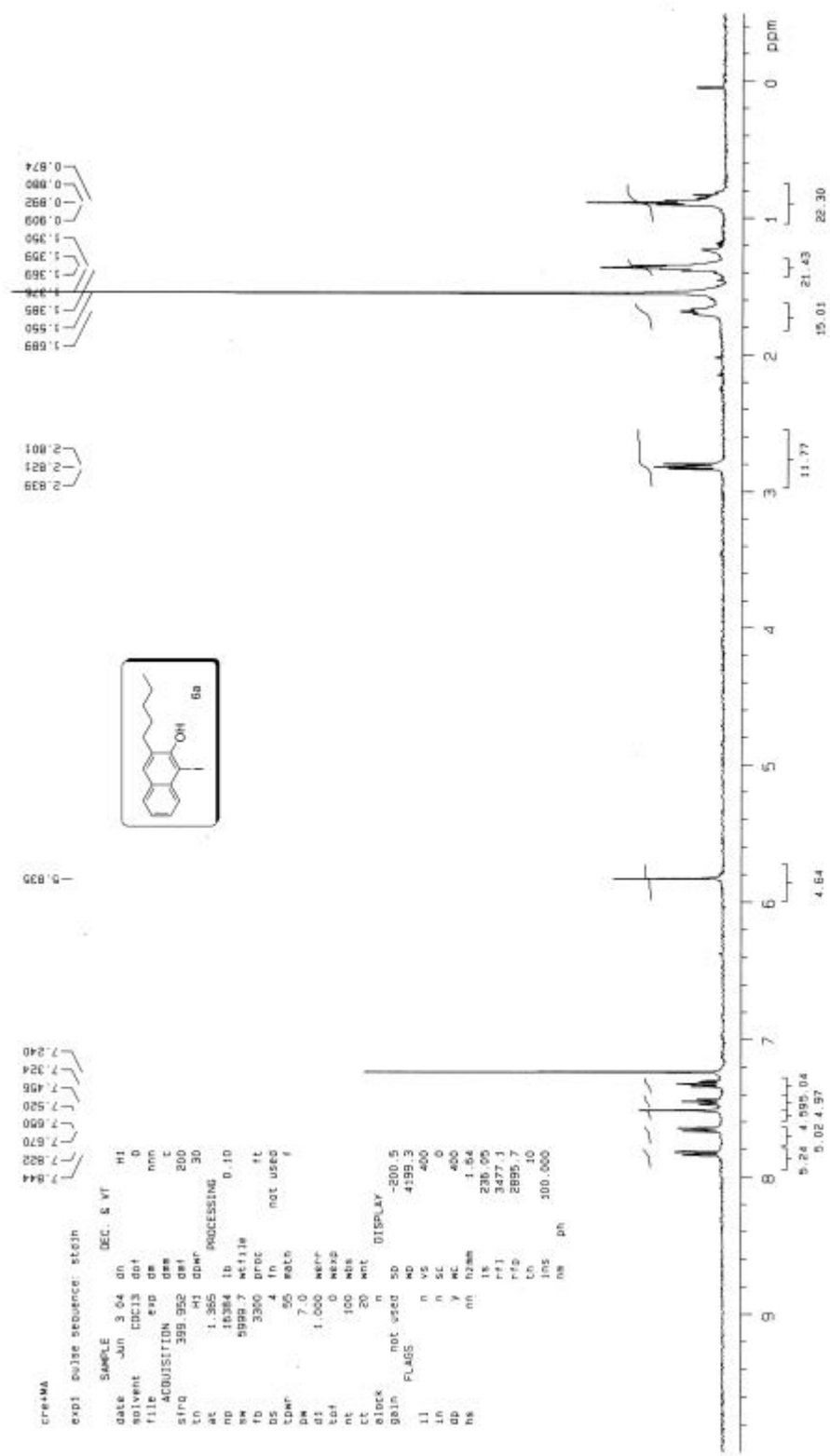
ppm



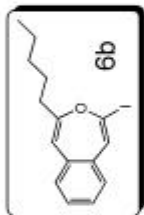


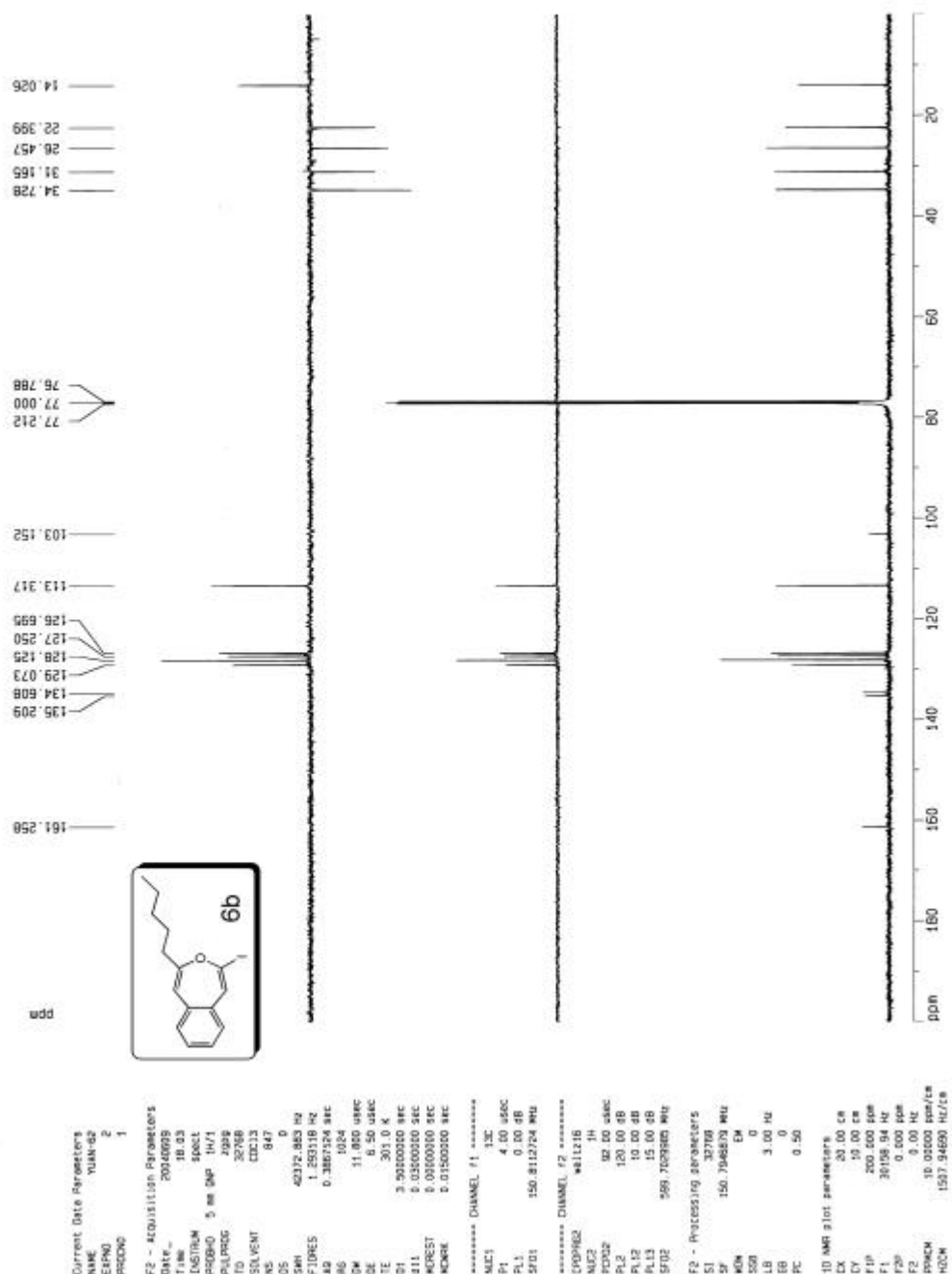


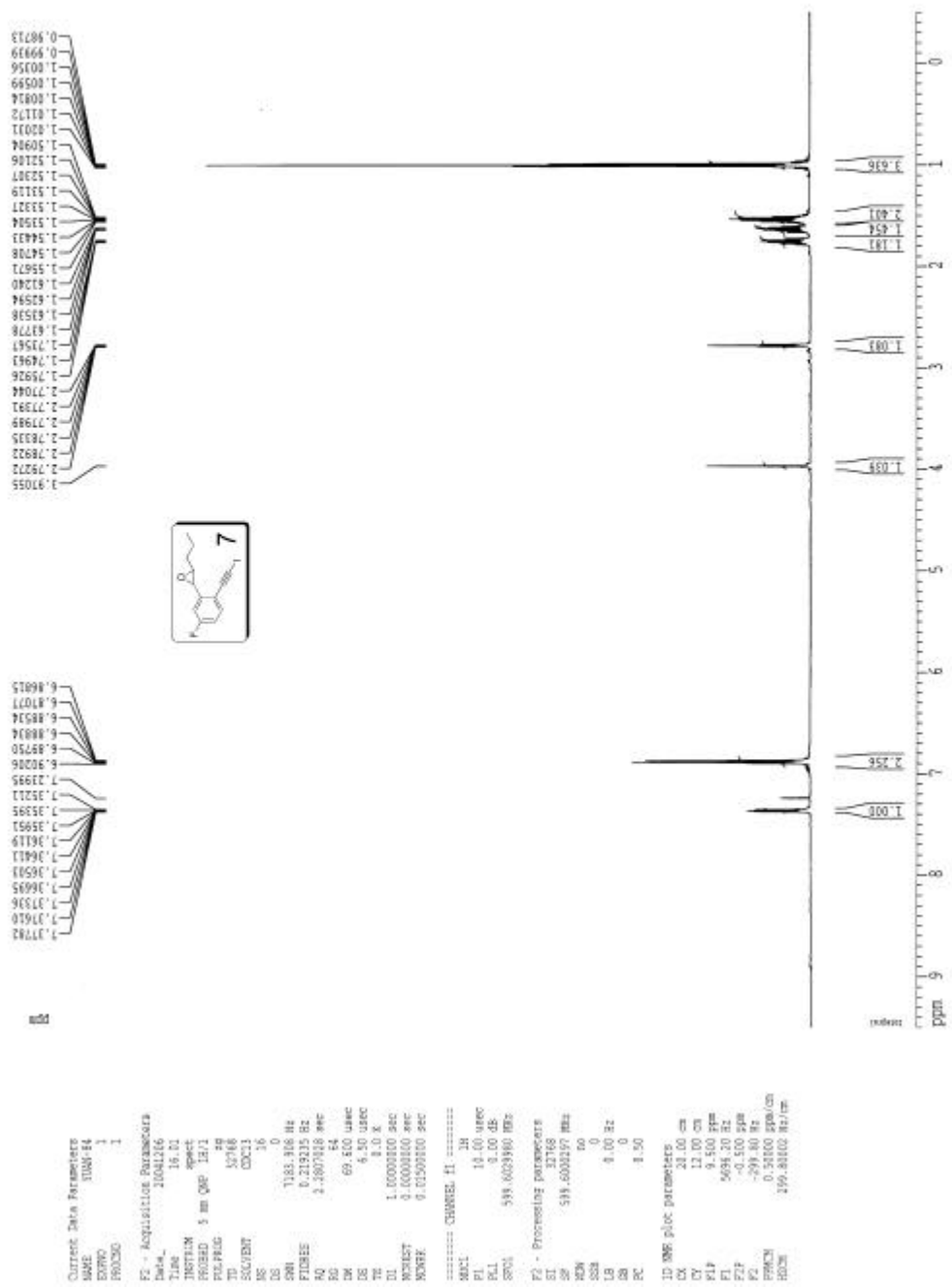


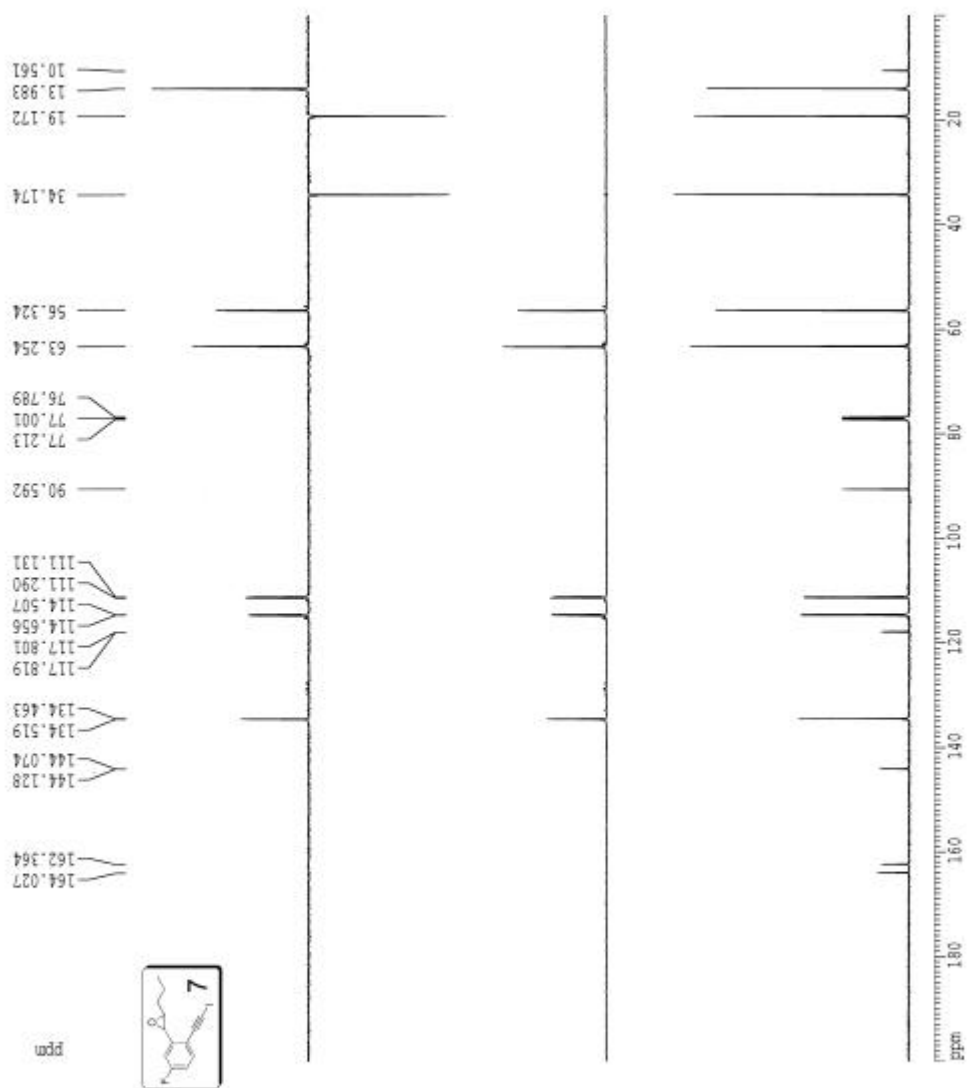


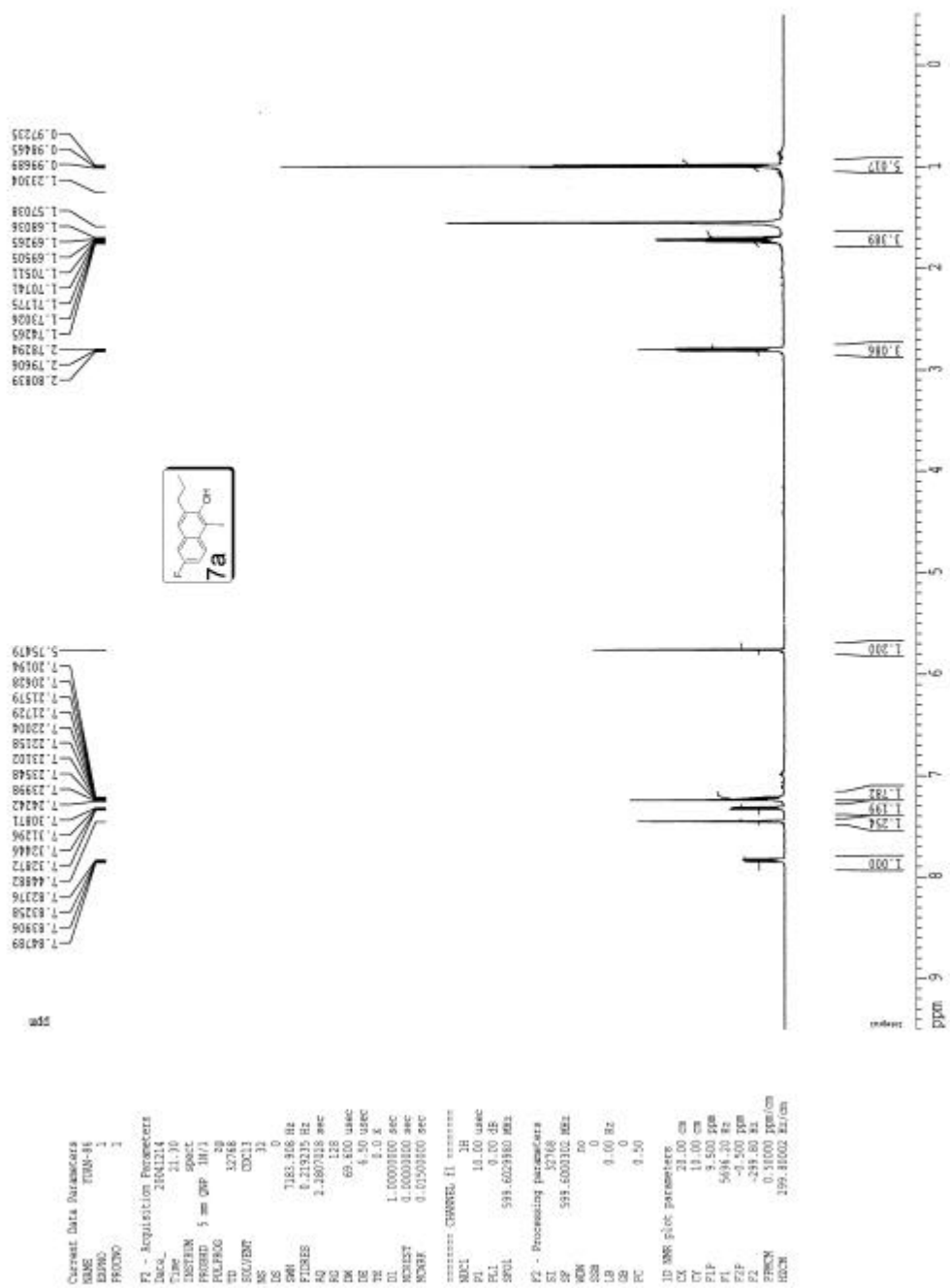


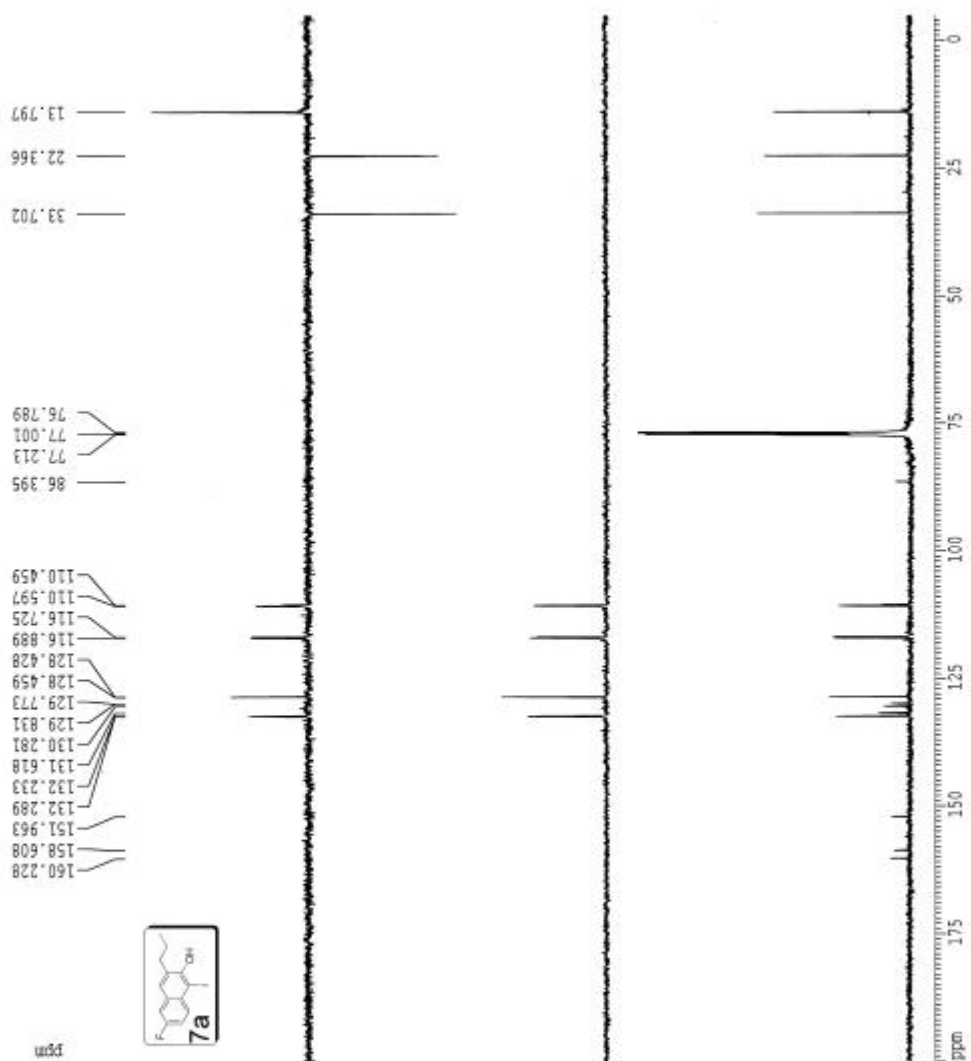












Current Data Parameters
 NAME: 7a-16
 EXPNO: 2
 PROCNO: 1

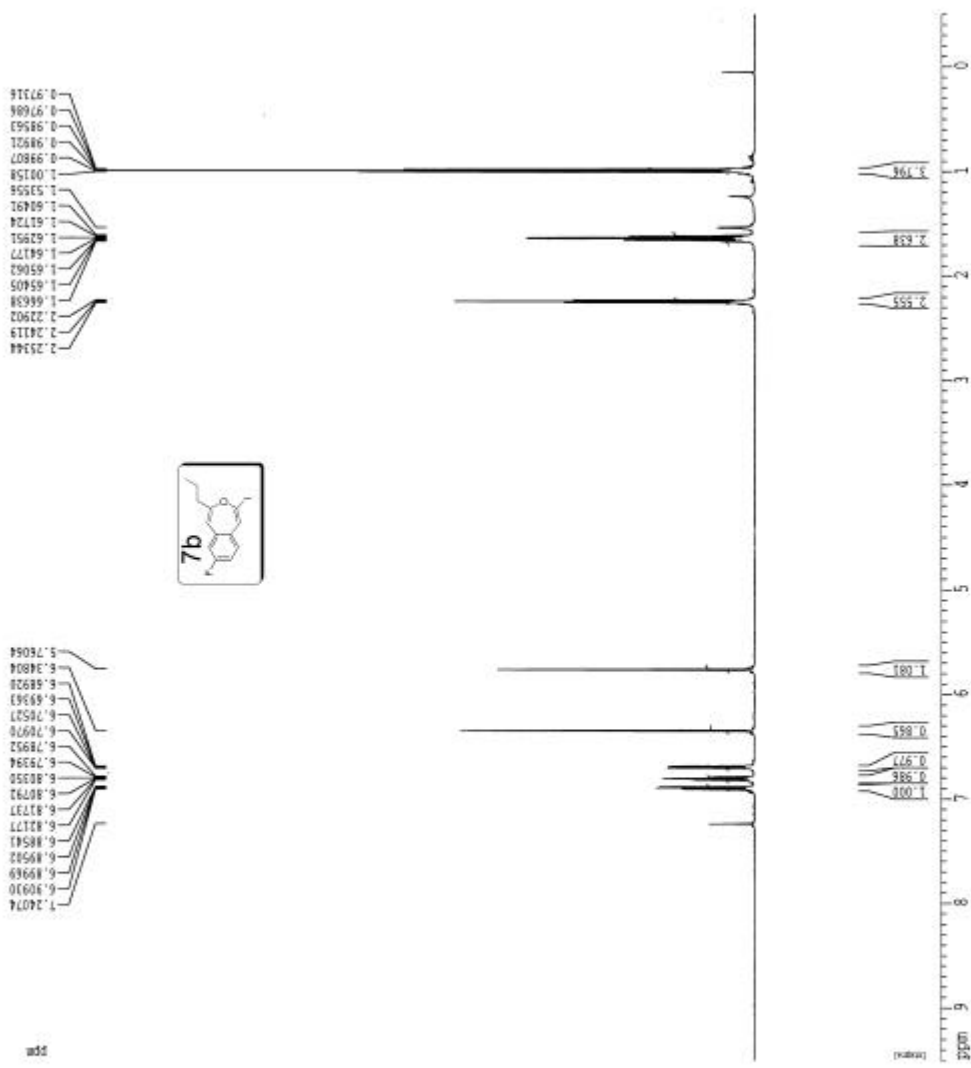
F2 - Acquisition Parameters
 Date_ 20081114
 Time 12:13
 INSTRUM spect
 PROCNO 1
 PULPROG zgpg30
 PROCRD 5 mm QNP 1H/1
 F2 500 MHz
 TO 32168
 SOLVENT DMSO
 NS 614
 DS 0
 SWH 17878.769 Hz
 FIDRES 1.155869 Hz
 AQ 0.432376 sec
 RG 2543
 DW 13.200 usec
 DE 6.50 usec
 TE 300.2 K
 D1 0.00 sec
 D11 3.00001000 sec
 D12 0.00000000 sec
 D13 2.00000000 sec
 ACQRES 2.00000000 sec
 NSREST 0.00000000 sec
 NSMRP 0.00000000 sec

===== CHANNEL f1 =====
 NUCL1 13C
 P1 4.50 usec
 PL1 0.00 dB
 SFO1 125.761146 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUCL2 1H
 P2 19.00 usec
 PL2 10.00 dB
 PL12 11.50 dB
 PL13 11.50 dB
 PL14 14.00 dB
 SFO2 500.1360990 MHz

F2 - Processing parameters
 SI 32768
 SF 500.136099 MHz
 DSF 65536
 SWH 150.7485703 MHz
 FWH 0.00000000 MHz
 GB 0
 PC 1.00 Hz
 LB 0
 GB 0
 LB 0
 GB 0
 LB 0

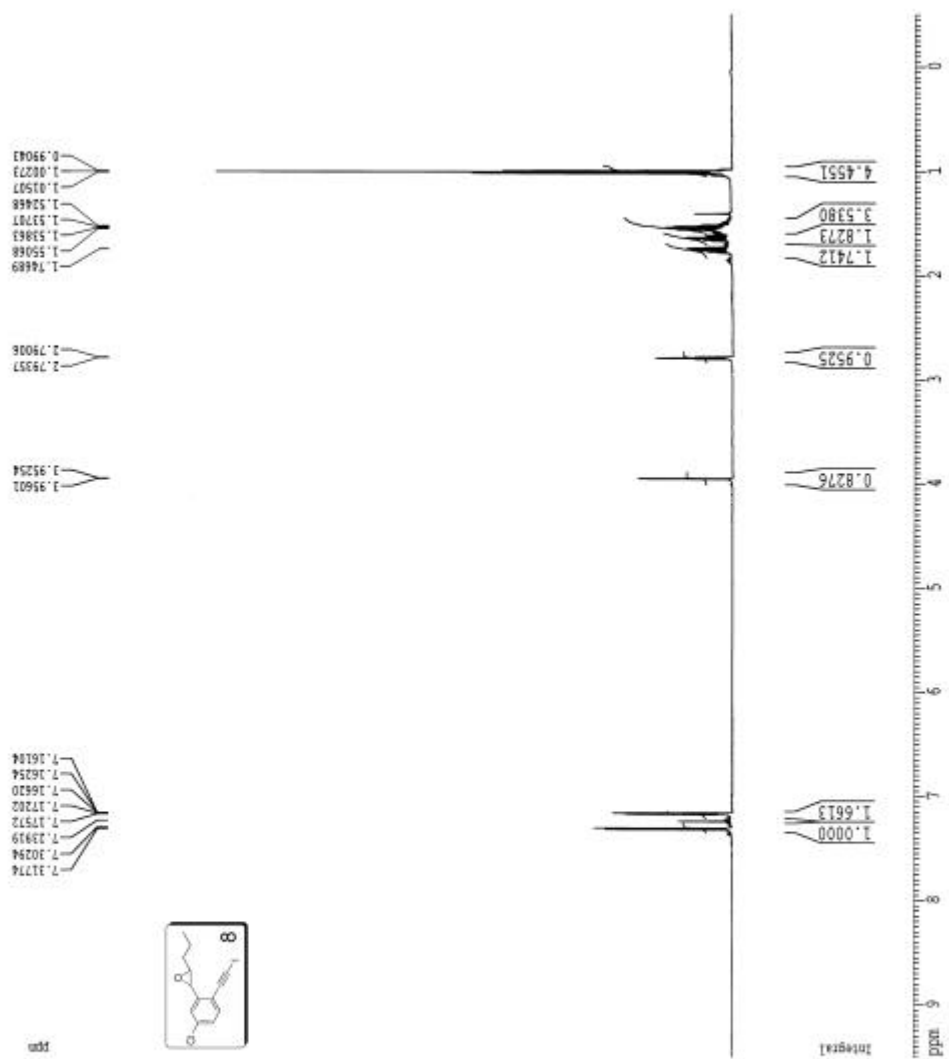
1D NMR plot parameters
 SI 32768
 SF 500.136099 MHz
 DSF 65536
 SWH 150.7485703 MHz
 FWH 0.00000000 MHz
 GB 0
 PC 1.00 Hz
 LB 0
 GB 0
 LB 0
 GB 0
 LB 0



Current Data Parameters
NAME YMW-45
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20211111
Time 18:13:16
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 16
DS 0
SWH 1185.160 Hz
FIDRES 0.213215 Hz
AQ 2.2807328 sec
RG 328
DM 65.400 usec
DE 4.50 usec
TE 297.2 K
D1 1.80000000 sec
DELTA 1.10000000 sec
ACQRES 0.12000000 sec
F2 - Processing parameters
SI 16384
SF 599.800245 MHz
WDW MC
SSB 0
LB 0.40 Hz
GB 0
PC 0.50
F2 - 1D NMR plot parameters
CX 20.00 cm
CY 15.00 cm
CZ 9.500 cm
F1 5696.10 Hz
F2 -0.550 ppm
F3 -299.80 Hz
FREQM 0.50010 ppm/cm
NUC1M 299.00012 Hz/cm

CC1=CC=C2C(=C1)C(=C(C=C2)C)C(=O)O

¹³C NMR spectrum (CDCl₃) of compound 7b. The spectrum shows peaks at the following chemical shifts (ppm): 162.191, 161.728, 160.551, 136.740, 136.686, 131.402, 131.385, 129.894, 129.838, 127.378, 115.347, 115.201, 113.857, 113.712, 112.713, 112.519, 102.312, 77.211, 76.999, 76.788, 36.718, 19.958, 13.523.

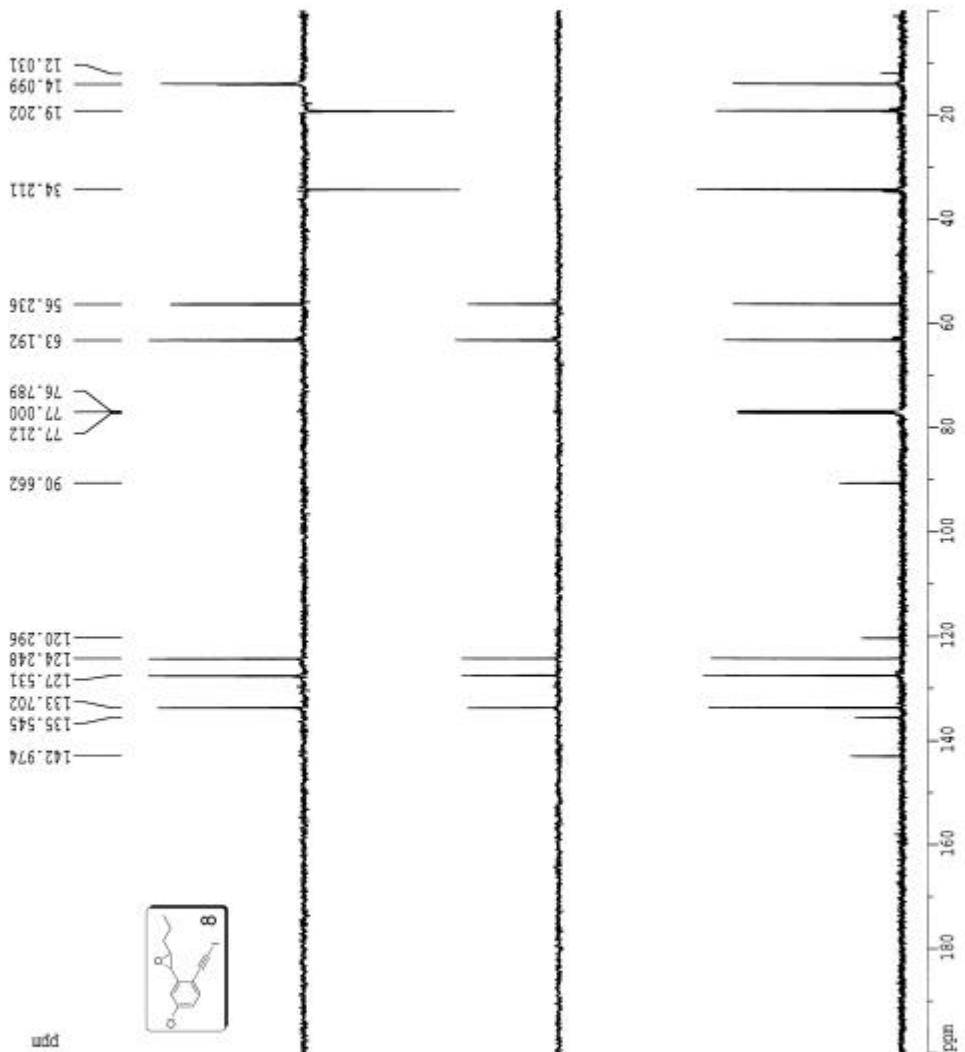


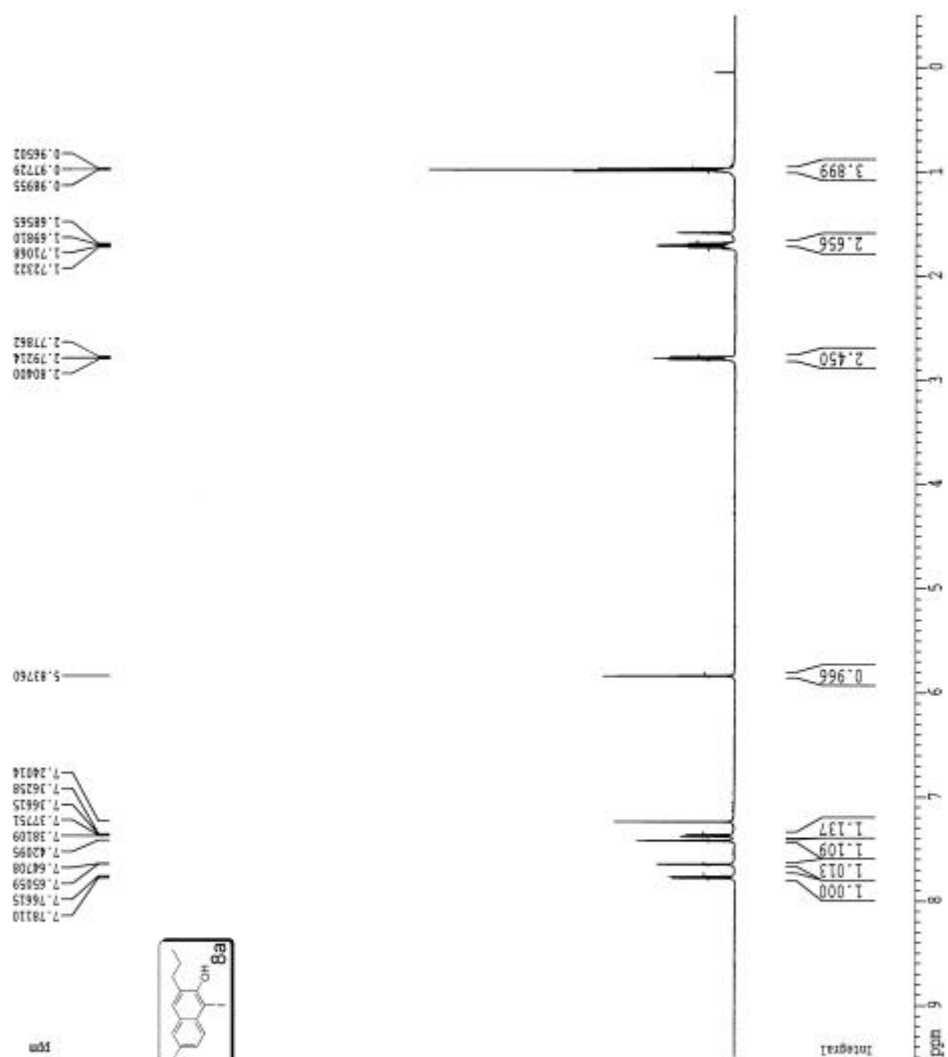
Current Data Parameters
NAME Y04-75
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 2011012
Time 21.00
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
AQ 327.68
SOLVENT CDCl3
NS 16
DS 0
SWH 8389.162 Hz
FIDRES 0.254000 Hz
AQ 1.9531228 sec
RG 64
DM 35.800 usec
DE 1.50 usec
TE 300.2 K
D1 1.0000000 sec
DELTA 1.0000000 sec
PC 0.0159100 sec
===== CHANNEL f1 =====
NUC1 1H
P1 13.00 usec
PL1 0 dB
SFO 500.13605 MHz
VOLF 0.68
POLT 4.00 dB
PC1 17.0
PC2 18
F2 - Processing parameters
SI 32768
SF 500.13605 MHz
WDW EM
SSB 0
GB 0
PC 0.10 sec
SC 0
SD 0
TD 65536
FIDRES 0.254000 Hz
AQ 1.9531228 sec
RG 64
DM 35.800 usec
DE 1.50 usec
TE 300.2 K
D1 1.0000000 sec
DELTA 1.0000000 sec
PC 0.0159100 sec
===== CHANNEL f2 =====
NUC2 13C
P2 12.00 usec
PL2 0 dB
SFO 125.76032 MHz
VOLF 0.68
POLT 4.00 dB
PC2 17.0
PC3 18
F2 - Acquisition Parameters
Date_ 2011012
Time 21.00
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
AQ 327.68
SOLVENT CDCl3
NS 16
DS 0
SWH 8389.162 Hz
FIDRES 0.254000 Hz
AQ 1.9531228 sec
RG 64
DM 35.800 usec
DE 1.50 usec
TE 300.2 K
D1 1.0000000 sec
DELTA 1.0000000 sec
PC 0.0159100 sec
===== CHANNEL f2 =====
NUC2 13C
P2 12.00 usec
PL2 0 dB
SFO 125.76032 MHz
VOLF 0.68
POLT 4.00 dB
PC2 17.0
PC3 18
F2 - Acquisition Parameters
Date_ 2011012
Time 21.00
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
AQ 327.68
SOLVENT CDCl3
NS 16
DS 0
SWH 8389.162 Hz
FIDRES 0.254000 Hz
AQ 1.9531228 sec
RG 64
DM 35.800 usec
DE 1.50 usec
TE 300.2 K
D1 1.0000000 sec
DELTA 1.0000000 sec
PC 0.0159100 sec
===== CHANNEL f2 =====
NUC2 13C
P2 12.00 usec
PL2 0 dB
SFO 125.76032 MHz
VOLF 0.68
POLT 4.00 dB
PC2 17.0
PC3 18

Current Data Parameters
NAME YUM-75
EXPNO 2
PROCNO 1

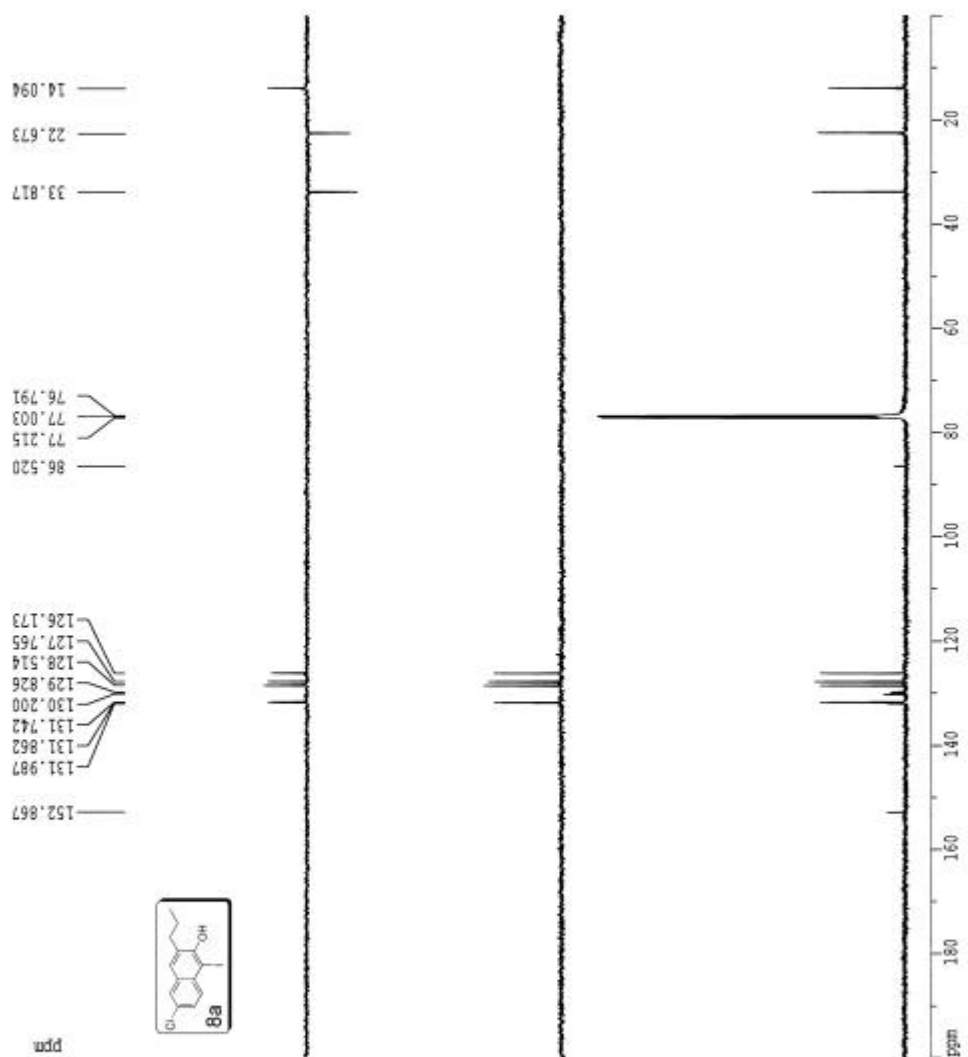
F2 - Acquisition Parameters
Date_ 20141012
Time 21:01
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TD 32768
F2 - Processing parameters
SI 65536
SF 150.7946002 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 0.50

1D NMR plot parameters
CX 20.00 cm
CY 4.00 cm
ZP 308.000 mm
FID 50124.94 Hz
ZG 0.000 mm
ZD 0.000 mm
FPCSN 10.00003 mm/cm
RGZM 1507.94693 Hz/cm

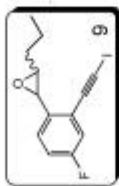




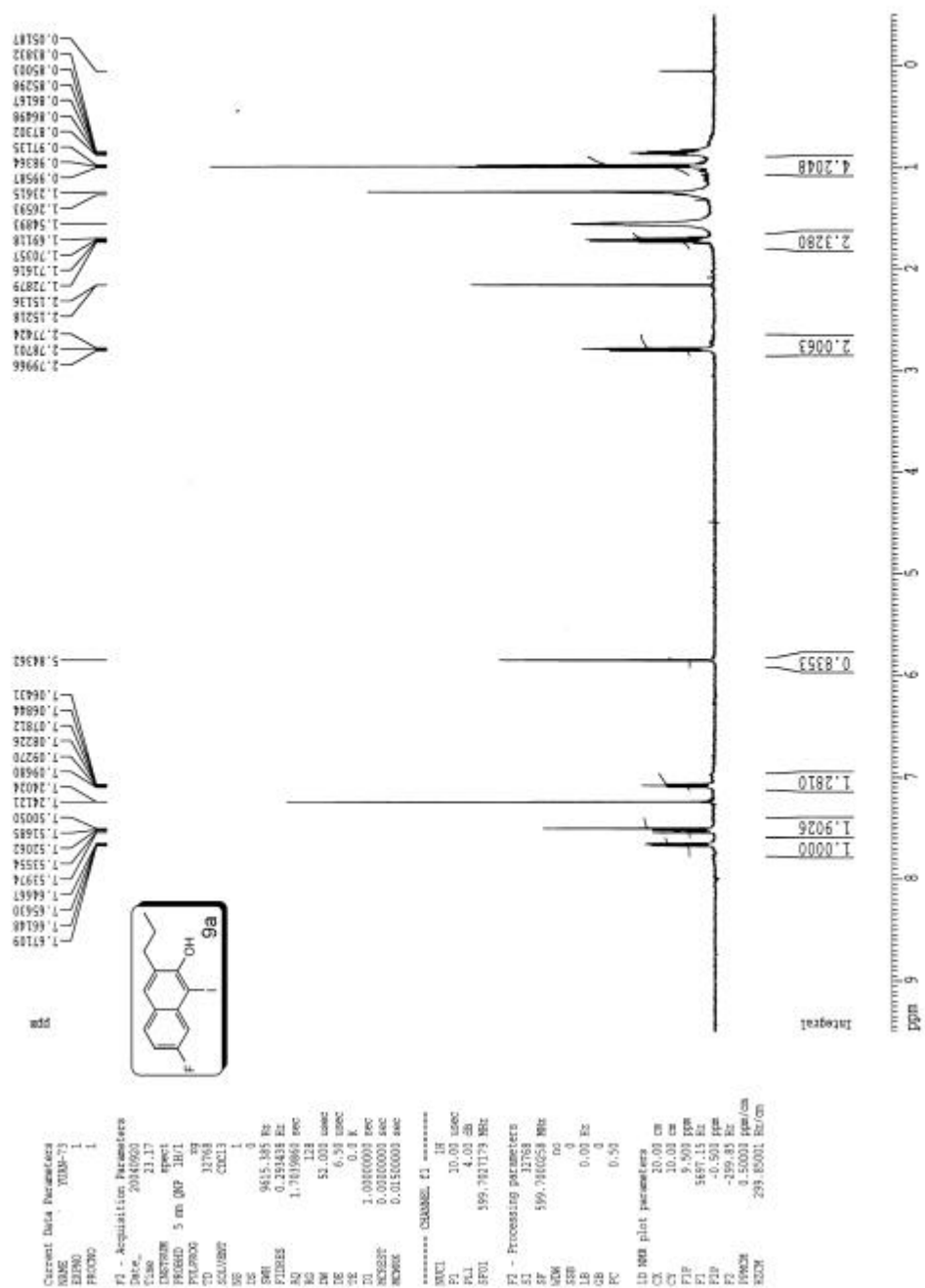
Current Data Parameters		F1 - Acquisition Parameters		F2 - Processing parameters		ID: NMR plot parameters	
NAME	VALUE	NAME	VALUE	NAME	VALUE	NAME	VALUE
EXPNO	2	PROBHD	5 mm QNP 1H/1	P1	0.01 sec	NUC1	13C
F2CNO	1	TD	32768	P2	0.01 sec	NUC2	13C
		RG	0.0300	P3	0.01 sec	NUC3	13C
		RG2	0.0300	P4	0.01 sec	NUC4	13C
		RG3	0.0300	P5	0.01 sec	NUC5	13C
		RG4	0.0300	P6	0.01 sec	NUC6	13C
		RG5	0.0300	P7	0.01 sec	NUC7	13C
		RG6	0.0300	P8	0.01 sec	NUC8	13C
		RG7	0.0300	P9	0.01 sec	NUC9	13C
		RG8	0.0300	P10	0.01 sec	NUC10	13C
		RG9	0.0300	P11	0.01 sec	NUC11	13C
		RG10	0.0300	P12	0.01 sec	NUC12	13C
		RG11	0.0300	P13	0.01 sec	NUC13	13C
		RG12	0.0300	P14	0.01 sec	NUC14	13C
		RG13	0.0300	P15	0.01 sec	NUC15	13C
		RG14	0.0300	P16	0.01 sec	NUC16	13C
		RG15	0.0300	P17	0.01 sec	NUC17	13C
		RG16	0.0300	P18	0.01 sec	NUC18	13C
		RG17	0.0300	P19	0.01 sec	NUC19	13C
		RG18	0.0300	P20	0.01 sec	NUC20	13C
		RG19	0.0300	P21	0.01 sec	NUC21	13C
		RG20	0.0300	P22	0.01 sec	NUC22	13C
		RG21	0.0300	P23	0.01 sec	NUC23	13C
		RG22	0.0300	P24	0.01 sec	NUC24	13C
		RG23	0.0300	P25	0.01 sec	NUC25	13C
		RG24	0.0300	P26	0.01 sec	NUC26	13C
		RG25	0.0300	P27	0.01 sec	NUC27	13C
		RG26	0.0300	P28	0.01 sec	NUC28	13C
		RG27	0.0300	P29	0.01 sec	NUC29	13C
		RG28	0.0300	P30	0.01 sec	NUC30	13C
		RG29	0.0300	P31	0.01 sec	NUC31	13C
		RG30	0.0300	P32	0.01 sec	NUC32	13C
		RG31	0.0300	P33	0.01 sec	NUC33	13C
		RG32	0.0300	P34	0.01 sec	NUC34	13C
		RG33	0.0300	P35	0.01 sec	NUC35	13C
		RG34	0.0300	P36	0.01 sec	NUC36	13C
		RG35	0.0300	P37	0.01 sec	NUC37	13C
		RG36	0.0300	P38	0.01 sec	NUC38	13C
		RG37	0.0300	P39	0.01 sec	NUC39	13C
		RG38	0.0300	P40	0.01 sec	NUC40	13C
		RG39	0.0300	P41	0.01 sec	NUC41	13C
		RG40	0.0300	P42	0.01 sec	NUC42	13C
		RG41	0.0300	P43	0.01 sec	NUC43	13C
		RG42	0.0300	P44	0.01 sec	NUC44	13C
		RG43	0.0300	P45	0.01 sec	NUC45	13C
		RG44	0.0300	P46	0.01 sec	NUC46	13C
		RG45	0.0300	P47	0.01 sec	NUC47	13C
		RG46	0.0300	P48	0.01 sec	NUC48	13C
		RG47	0.0300	P49	0.01 sec	NUC49	13C
		RG48	0.0300	P50	0.01 sec	NUC50	13C
		RG49	0.0300	P51	0.01 sec	NUC51	13C
		RG50	0.0300	P52	0.01 sec	NUC52	13C
		RG51					

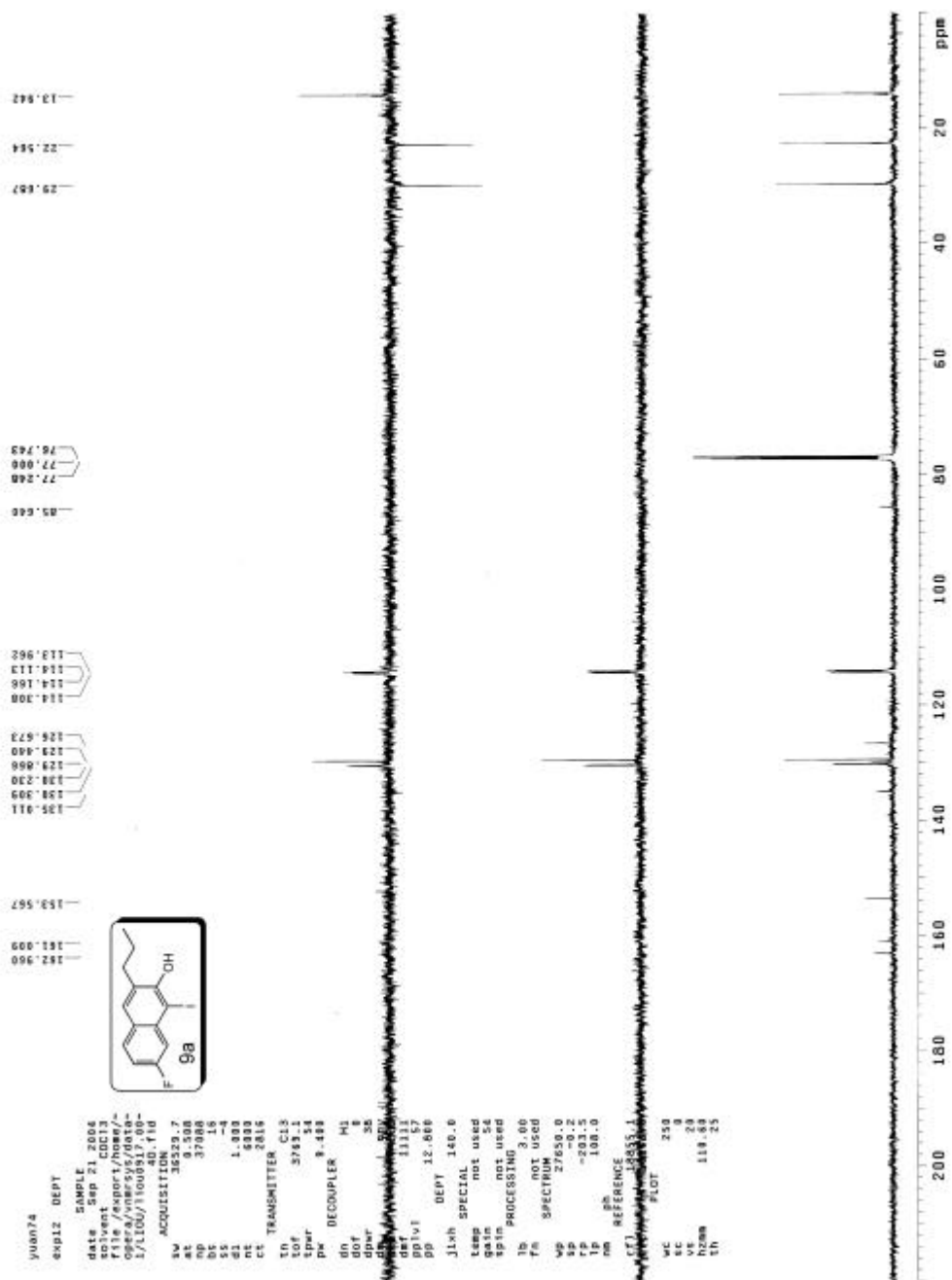


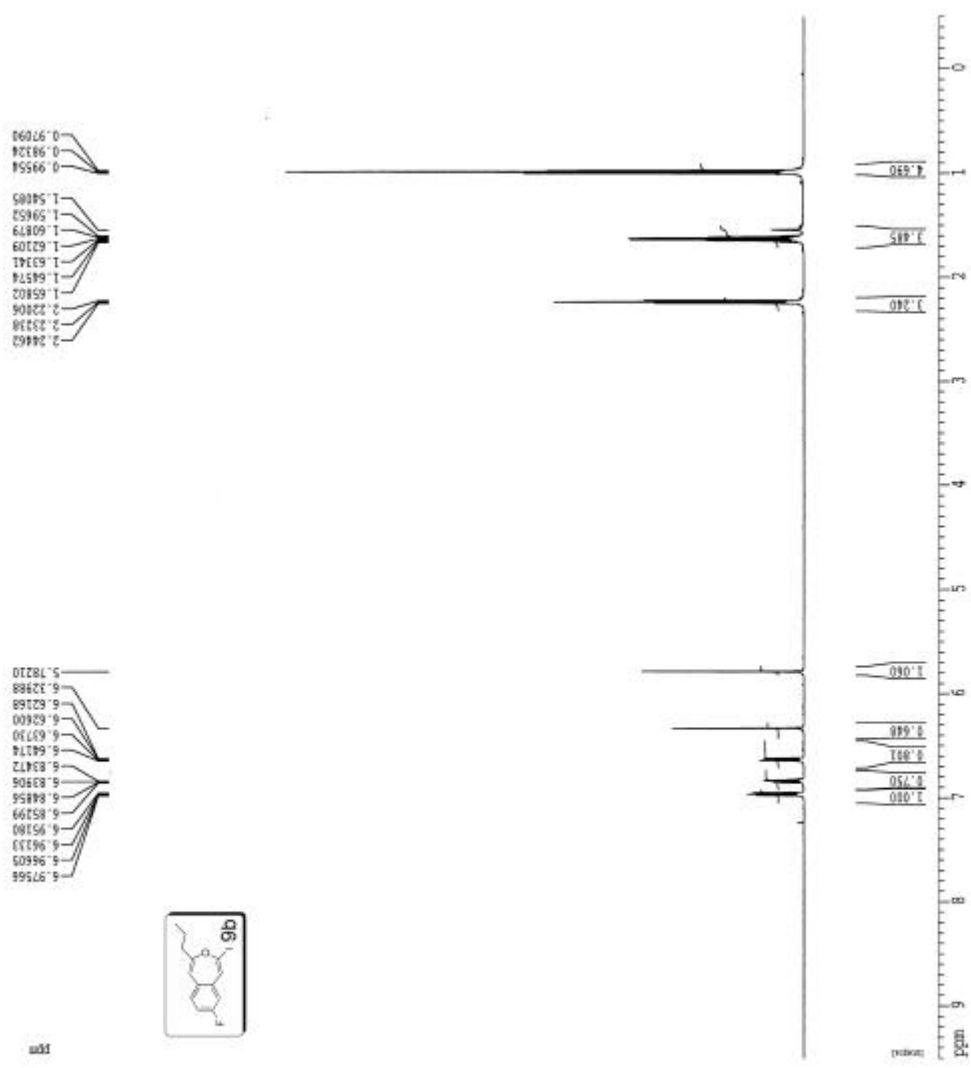


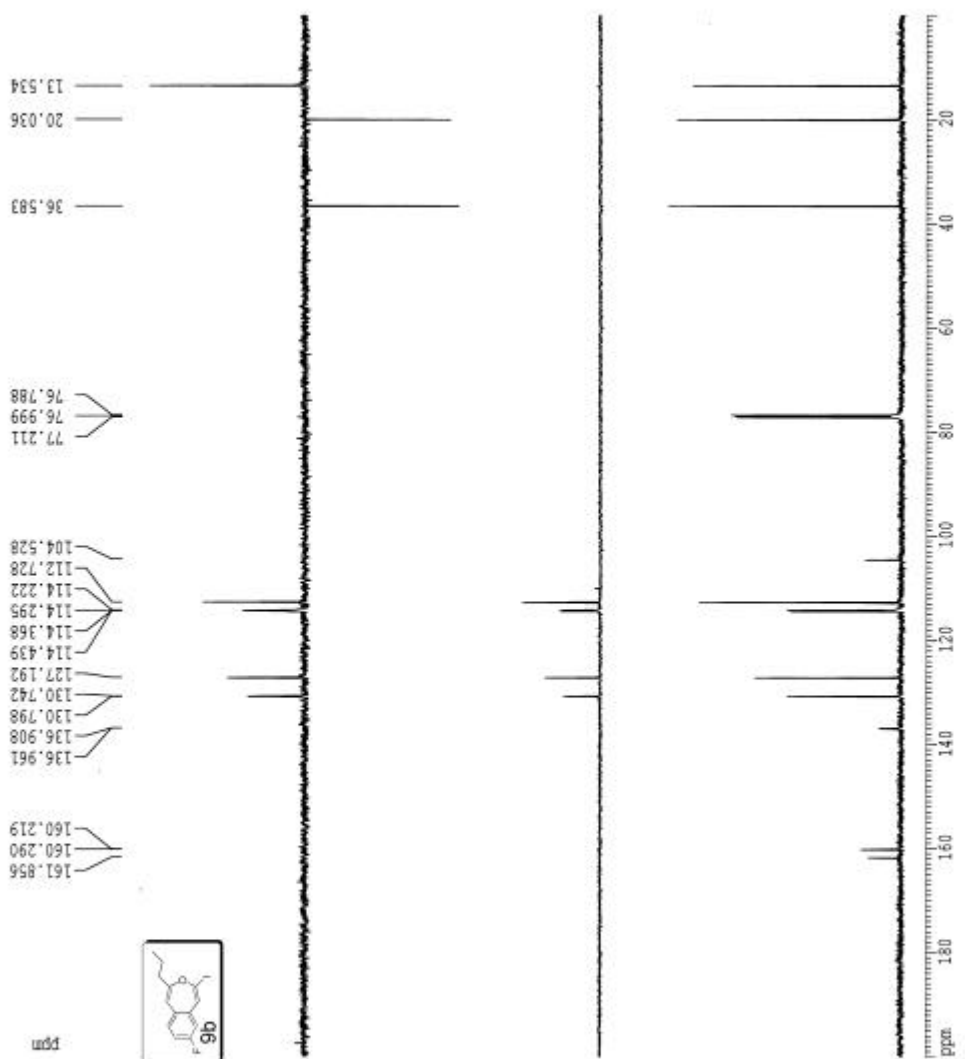




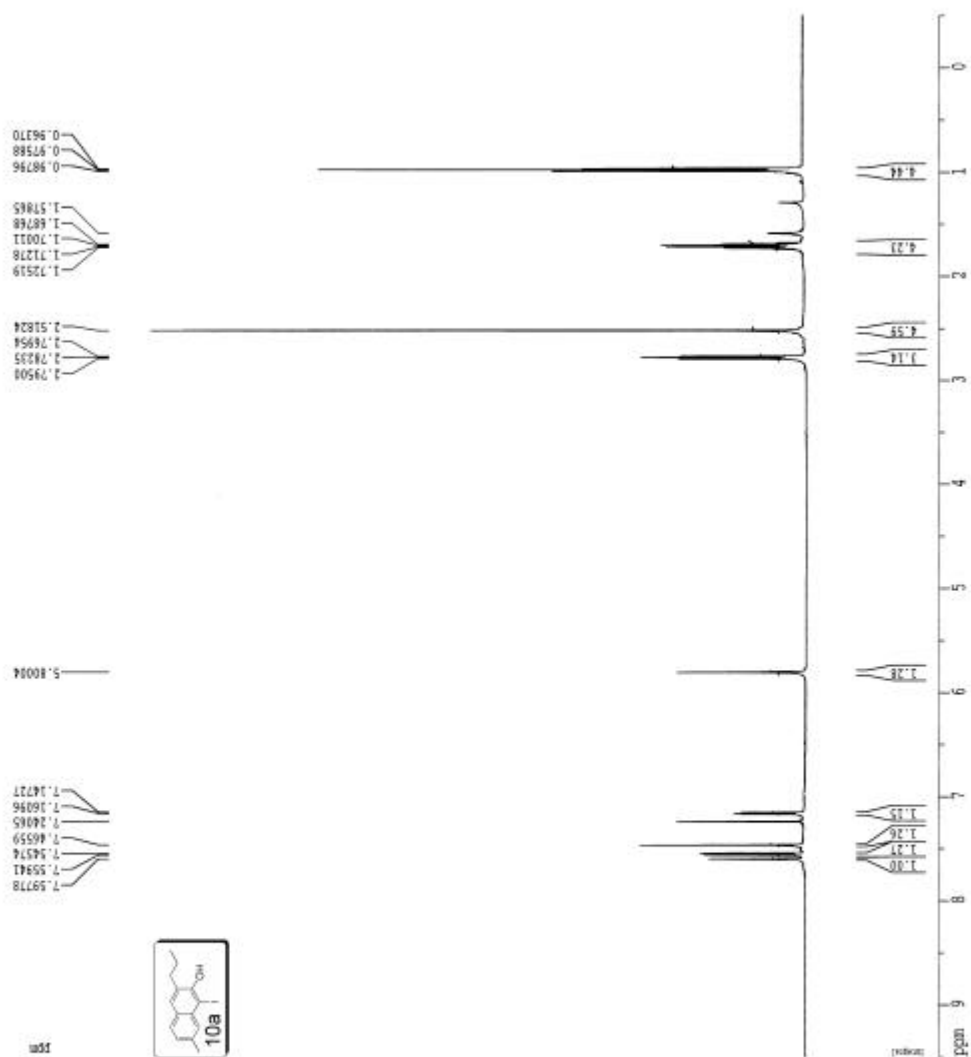












Current Data Parameters
NAME YUM-58
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 2015104
Time 22.10
INSTRUM spect
PROBHD 5 mm BBO 1H1
PULPROG zgpg30
TD 65536
FIDRES 0.3768
AQ 0.0213
RG 327.68
CQ 13.3
CIVERT 0
SFO 128
SOLVENT CDCl₃
NS 8388.262 R2
DS 0
F16653 0.251610 R4
AQ 2.531228 sec
RG 128
SFO 59.600 14sec
DS 8.50 14sec
SC 32
284.4 K
1.0001000 sec
RG 128
SFO 0.0001000 sec
RG 128
SFO 0.01311000 sec
RG 128
===== CHANNEL f1 =====
NUC1 13C
P1 18.00 14sec
PL1 0.00 dB
RG1 8.00 dB
SFO1 159.601560 MHz
===== CHANNEL f2 =====
NUC2 1H
P2 14.154
PL2 0.00 dB
RG2 8.00 dB
SFO2 500.1352 MHz
===== Processing parameters =====
SI 32768
SF 500.1352 MHz
WDW EM
SSB 0
GB 1.8
PC 1.00 sec
F2 0.50
F3 0
F4 0
F5 0
F6 0
F7 0
F8 0
F9 0
F10 0
F11 0
F12 0
F13 0
F14 0
F15 0
F16 0
F17 0
F18 0
F19 0
F20 0
F21 0
F22 0
F23 0
F24 0
F25 0
F26 0
F27 0
F28 0
F29 0
F30 0
F31 0
F32 0
F33 0
F34 0
F35 0
F36 0
F37 0
F38 0
F39 0
F40 0
F41 0
F42 0
F43 0
F44 0
F45 0
F46 0
F47 0
F48 0
F49 0
F50 0
F51 0
F52 0
F53 0
F54 0
F55 0
F56 0
F57 0
F58 0
F59 0
F60 0
F61 0
F62 0
F63 0
F64 0
F65 0
F66 0
F67 0
F68 0
F69 0
F70 0
F71 0
F72 0
F73 0
F74 0
F75 0
F76 0
F77 0
F78 0
F79 0
F80 0
F81 0
F82 0
F83 0
F84 0
F85 0
F86 0
F87 0
F88 0
F89 0
F90 0
F91 0
F92 0
F93 0
F94 0
F95 0
F96 0
F97 0
F98 0
F99 0
F100 0
F101 0
F102 0
F103 0
F104 0
F105 0
F106 0
F107 0
F108 0
F109 0
F110 0
F111 0
F112 0
F113 0
F114 0
F115 0
F116 0
F117 0
F118 0
F119 0
F120 0
F121 0
F122 0
F123 0
F124 0
F125 0
F126 0
F127 0
F128 0
F129 0
F130 0
F131 0
F132 0
F133 0
F134 0
F135 0
F136 0
F137 0
F138 0
F139 0
F140 0
F141 0
F142 0
F143 0
F144 0
F145 0
F146 0
F147 0
F148 0
F149 0
F150 0
F151 0
F152 0
F153 0
F154 0
F155 0
F156 0
F157 0
F158 0
F159 0
F160 0
F161 0
F162 0
F163 0
F164 0
F165 0
F166 0
F167 0
F168 0
F169 0
F170 0
F171 0
F172 0
F173 0
F174 0
F175 0
F176 0
F177 0
F178 0
F179 0
F180 0
F181 0
F182 0
F183 0
F184 0
F185 0
F186 0
F187 0
F188 0
F189 0
F190 0
F191 0
F192 0
F193 0
F194 0
F195 0
F196 0
F197 0
F198 0
F199 0
F200 0
F201 0
F202 0
F203 0
F204 0
F205 0
F206 0
F207 0
F208 0
F209 0
F210 0
F211 0
F212 0
F213 0
F214 0
F215 0
F216 0
F217 0
F218 0
F219 0
F220 0
F221 0
F222 0
F223 0
F224 0
F225 0
F226 0
F227 0
F228 0
F229 0
F230 0
F231 0
F232 0
F233 0
F234 0
F235 0
F236 0
F237 0
F238 0
F239 0
F240 0
F241 0
F242 0
F243 0
F244 0
F245 0
F246 0
F247 0
F248 0
F249 0
F250 0
F251 0
F252 0
F253 0
F254 0
F255 0
F256 0
F257 0
F258 0
F259 0
F260 0
F261 0
F262 0
F263 0
F264 0
F265 0
F266 0
F267 0
F268 0
F269 0
F270 0
F271 0
F272 0
F273 0
F274 0
F275 0
F276 0
F277 0
F278 0
F279 0
F280 0
F281 0
F282 0
F283 0
F284 0
F285 0
F286 0
F287 0
F288 0
F289 0
F290 0
F291 0
F292 0
F293 0
F294 0
F295 0
F296 0
F297 0
F298 0
F299 0
F300 0
F301 0
F302 0
F303 0
F304 0
F305 0
F306 0
F307 0
F308 0
F309 0
F310 0
F311 0
F312 0
F313 0
F314 0
F315 0
F316 0
F317 0
F318 0
F319 0
F320 0
F321 0
F322 0
F323 0
F324 0
F325 0
F326 0
F327 0
F328 0
F329 0
F330 0
F331 0
F332 0
F333 0
F334 0
F335 0
F336 0
F337 0
F338 0
F339 0
F340 0
F341 0
F342 0
F343 0
F344 0
F345 0
F346 0
F347 0
F348 0
F349 0
F350 0
F351 0
F352 0
F353 0
F354 0
F355 0
F356 0
F357 0
F358 0
F359 0
F360 0
F361 0
F362 0
F363 0
F364 0
F365 0
F366 0
F367 0
F368 0
F369 0
F370 0
F371 0
F372 0
F373 0
F374 0
F375 0
F376 0
F377 0
F378 0
F379 0
F380 0
F381 0
F382 0
F383 0
F384 0
F385 0
F386 0
F387 0
F388 0
F389 0
F390 0
F391 0
F392 0
F393 0
F394 0
F395 0
F396 0
F397 0
F398 0
F399 0
F400 0
F401 0
F402 0
F403 0
F404 0
F405 0
F406 0
F407 0
F408 0
F409 0
F410 0
F411 0
F412 0
F413 0
F414 0
F415 0
F416 0
F417 0
F418 0
F419 0
F420 0
F421 0
F422 0
F423 0
F424 0
F425 0
F426 0
F427 0
F428 0
F429 0
F430 0
F431 0
F432 0
F433 0
F434 0
F435 0
F436 0
F437 0
F438 0
F439 0
F440 0
F441 0
F442 0
F443 0
F444 0
F445 0
F446 0
F447 0
F448 0
F449 0
F450 0
F451 0
F452 0
F453 0
F454 0
F455 0
F456 0
F457 0
F458 0
F459 0
F460 0
F461 0
F462 0
F463 0
F464 0
F465 0
F466 0
F467 0
F468 0
F469 0
F470 0
F471 0
F472 0
F473 0
F474 0
F475 0
F476 0
F477 0
F478 0
F479 0
F480 0
F481 0
F482 0
F483 0
F484 0
F485 0
F486 0
F487 0
F488 0
F489 0
F490 0
F491 0
F492 0
F493 0
F494 0
F495 0
F496 0
F497 0
F498 0
F499 0
F500 0
F501 0
F502 0
F503 0
F504 0
F505 0
F506 0
F507 0
F508 0
F509 0
F510 0
F511 0
F512 0
F513 0
F514 0
F515 0
F516 0
F517 0
F518 0
F519 0
F520 0
F521 0
F522 0
F523 0
F524 0
F525 0
F526 0
F527 0
F528 0
F529 0
F530 0
F531 0
F532 0
F533 0
F534 0
F535 0
F536 0
F537 0
F538 0
F539 0
F540 0
F541 0
F542 0
F543 0
F544 0
F545 0
F546 0
F547 0
F548 0
F549 0
F550 0
F551 0
F552 0
F553 0
F554 0
F555 0
F556 0
F557 0
F558 0
F559 0
F560 0
F561 0
F562 0
F563 0
F564 0
F565 0
F566 0
F567 0
F568 0
F569 0
F570 0
F571 0
F572 0
F573 0
F574 0
F575 0
F576 0
F577 0
F578 0
F579 0
F580 0
F581 0
F582 0
F583 0
F584 0
F585 0
F586 0
F587 0
F588 0
F589 0
F590 0
F591 0
F592 0
F593 0
F594 0
F595 0
F596 0
F597 0
F598 0
F599 0
F600 0
F601 0
F602 0
F603 0
F604 0
F605 0
F606 0
F607 0
F608 0
F609 0
F610 0
F611 0
F612 0
F613 0
F614 0
F615 0
F616 0
F617 0
F618 0
F619 0
F620 0
F621 0
F622 0
F623 0
F624 0
F625 0
F626 0
F627 0
F628 0
F629 0
F630 0
F631 0
F632 0
F633 0
F634 0
F635 0
F636 0
F637 0
F638 0
F639 0
F640 0
F641 0
F642 0
F643 0
F644 0
F645 0
F646 0
F647 0
F648 0
F649 0
F650 0
F651 0
F652 0
F653 0
F654 0
F655 0
F656 0
F657 0
F658 0
F659 0
F660 0
F661 0
F662 0
F663 0
F664 0
F665 0
F666 0
F667 0
F668 0
F669 0
F670 0
F671 0
F672 0
F673 0
F674 0
F675 0
F676 0
F677 0
F678 0
F679 0
F680 0
F681 0
F682 0
F683 0
F684 0
F685 0
F686 0
F687 0
F688 0
F689 0
F690 0
F691 0
F692 0
F693 0
F694 0
F695 0
F696 0
F697 0
F698 0
F699 0
F700 0
F701 0
F702 0
F703 0
F704 0
F705 0
F706 0
F707 0
F708 0
F709 0
F710 0
F711 0
F712 0
F713 0
F714 0
F715 0
F716 0
F717 0
F718 0
F719 0
F720 0
F721 0
F722 0
F723 0
F724 0
F725 0
F726 0
F727 0
F728 0
F729 0
F730 0
F731 0
F732 0
F733 0
F734 0
F735 0
F736 0
F737 0
F738 0
F739 0
F740 0
F741 0
F742 0
F743 0
F744 0
F745 0
F746 0
F747 0
F748 0
F749 0
F750 0
F751 0
F752 0
F753 0
F754 0
F755 0
F756 0
F757 0
F758 0
F759 0
F760 0
F761 0
F762 0
F763 0
F764 0
F765 0
F766 0
F767 0
F768 0
F769 0
F770 0
F771 0
F772 0
F773 0
F774 0
F775 0
F776 0
F777 0
F778 0
F779 0
F780 0
F781 0
F782 0
F783 0
F784 0
F785 0
F786 0
F787 0
F788 0
F789 0
F790 0
F791 0
F792 0
F793 0
F794 0
F795 0
F796 0
F797 0
F798 0
F799 0
F800 0
F801 0
F802 0
F803 0
F804 0
F805 0
F806 0
F807 0
F808 0
F809 0
F810 0
F811 0
F812 0
F813 0
F814 0
F815 0
F816 0
F817 0
F818 0
F819 0
F820 0
F821 0
F822 0
F823 0
F824 0
F825 0
F826 0
F827 0
F828 0
F829 0
F830 0
F831 0
F832 0
F833 0
F834 0
F835 0
F836 0
F837 0
F838 0
F839 0
F840 0
F841 0
F842 0
F843 0
F844 0
F845 0
F846 0
F847 0
F848 0
F849 0
F850 0
F851 0
F852 0
F853 0
F854 0
F855 0
F856 0
F857 0
F858 0
F859 0
F860 0
F861 0
F862 0
F863 0
F864 0
F865 0
F866 0
F867 0
F868 0
F869 0
F870 0
F871 0
F872 0
F873 0
F874 0
F875 0
F876 0
F877 0
F878 0
F879 0
F880 0
F881 0
F882 0
F883 0
F884 0
F885 0
F886 0
F887 0
F888 0
F889 0
F890 0
F891 0
F892 0
F893 0
F894 0
F895 0
F896 0
F897 0
F898 0
F899 0
F900 0
F901 0
F902 0
F903 0
F904 0
F905 0
F906 0
F907 0
F908 0
F909 0
F910 0
F911 0
F912 0
F913 0
F914 0
F915 0
F916 0
F917 0
F918 0
F919 0
F920 0
F921 0
F922 0
F923 0
F924 0
F925 0
F926 0
F927 0
F928 0
F929 0
F930 0
F931 0
F932 0
F933 0
F934 0
F935 0
F936 0
F937 0
F938 0
F939 0
F940 0
F941 0
F942 0
F943 0
F944 0
F945 0
F946 0
F947 0
F948 0
F949 0
F950 0
F951 0
F952 0
F953 0
F954 0
F955 0
F956 0
F957 0
F958 0
F959 0
F960 0
F961 0
F962 0
F963 0
F964 0
F965 0
F966 0
F967 0
F968 0
F969 0
F970 0
F971 0
F972 0
F973 0
F974 0
F975 0
F976 0
F977 0
F978 0
F979 0
F980 0
F981 0
F982 0
F983 0
F984 0
F985 0
F986 0
F987 0
F988 0
F989 0
F990 0
F991 0
F992 0
F993 0
F994 0
F995 0
F996 0
F997 0
F998 0
F999 0
F1000 0

