Supporting Information

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1. General Considerations

All chemicals were purchased from commercial sources with purities ≥95% and used without further purification. Deuterated solvents were ordered from Deutero GmbH and stored over molecular sieves. NMR spectra were received using Bruker 300 Fourier, Bruker AV 300 and Bruker AV 400 spectrometers. Chemical shifts are reported in ppm relative to the deuterated solvent. Coupling constants are expressed in Hertz (Hz). The following abbreviations are used: s= singlet, d= doublet, t= triplet and m= multiplet. NMR yields very determined by using mesitylene as internal standard. Gas chromatography was performed on Agilent 7890A GC System, mass spectra were measured on downstream 5975C inert XL MSD mass detector also from Agilent. The reported GC yields are based on a calibrated area of *n*-hexadecane as internal standard. Elementary analysis was performed on a TruSpec CHMS Micro from Leco. High resolution mass spectra (HRMS) were obtained either from a MAT 95 XP from Thermo (EI) or from an HPLC system 1200 and downstream ESI-TOF-MS 6210 from Agilent (ESI). IR spectra were recorded on a Nicolet iS10 MIR FT-IR-spectrometer from Thermo Fisher Scientific. Thin layer chromatography was performed on Merck TLC-plates with fluorescence indication (silica type 60, F_{254}), spots were visualized using UV-light or vanilline. Flash chromatography was performed using silica with a grain size of 40–63 µm from Macherey-Nagel. It has to be considered that in some cases by addition of the epoxide to the catalyst a highly exothermic reaction was observed. This should be considered especially for upscaling experiments.

2. General Procedures (GP)

Coupling reaction of CO_2 and terminal epoxides under ambient conditions (GP1):

A 25 cm^3 flask was charged with 5 mol% CaI_2, 5 mol% 18-crown-6 ether and 1 equiv epoxide **1**, **4** or **6** (2.00 g). The flask was constantly purged with CO_2 under atmospheric pressure. The reaction mixture was stirred for 24 h at 23 °C. The reaction mixture was filtered over silica gel (SiO_2) with cyclohexane:ethyl acetate= 1:1. After removal of all volatiles in vaccuo the product **2**, **5** or **7** was obtained. It has to be considered that in some cases by addition of the epoxide to the catalyst a highly exothermic reaction was observed. This should be considered especially by upscaling experiments.

Coupling reaction of CO_2 and internal epoxides (GP2):

A 45 cm^3 stainless-steel autoclave was charged with 5.0 mol% CaI_2, 5.0 mol% 18-crown-6 ether, 1.0 equiv epoxide **8** or **10** (0.50–2.00 g), and in the case of a solid epoxide additionally 1.5 mL solvent were added. The autoclave was sealed, constantly purged with 10 bar CO_2, and the reaction mixture was stirred for 48 h at 45 °C. Subsequently the reactor was cooled to ≤20 °C with an ice bath and CO_2 was released slowly. The reaction mixture was filtered over silica gel (SiO_2) with cyclohexane:ethyl acetate= 2:1 or purified by flash chromatography. After removal of all volatiles in vaccuo the product **9** or **11** was obtained. It has to be considered that in some cases by addition of the epoxide to the catalyst a very exothermic reaction was observed. This should be considered especially for upscaling experiments.

Catalyst and parameter screening for the conversion of CO_2 with terminal epoxides using an autoclave (GP3):

A 45 cm^3 stainless-steel autoclave was charged with 2.5 mol% of the catalyst, 2.5 mol% 18-crown-6 ether and 1.0 equiv *tert*-butyl glycidyl ether **1a** (2.00 g; 27.7 mmol). The autoclave was sealed, charged with 1–10 bar CO_2, and the reaction mixture was stirred for 4–24 h at 25 °C. Subsequently, the reactor was cooled to ≤20 °C with an ice bath and CO_2 was released slowly. The conversion of the epoxide **1a** and yield of the desired carbonate **2a** were determined by ^1H NMR spectroscopy using mesitylene as internal standard.

Catalyst and parameter screening for the conversion of CO_2 with terminal epoxides using a schlenk flask (GP4):

A 25 mL schlenk flask was charged with 2.5–5.0 mol% of the catalyst, 2.5–5.0 mol% 18-crown-6 ether and 1.0 equiv *tert*-butyl glycidyl ether **1a** (2.00 g; 27.7 mmol). The flask was constantly purged with CO_2 under atmospheric pressure and the reaction mixture was stirred for 24 h at 23 °C. Subsequently the conversion of the epoxide **1a** and yield of the desired carbonate **2a** were determined by ^1H NMR spectroscopy using mesitylene as internal standard.

Parameter optimization for the conversion of CO_2 with internal epoxides (GP5):

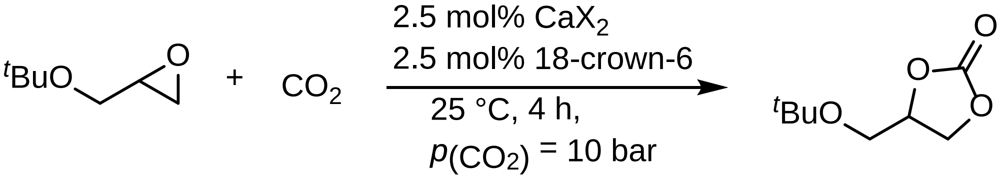
A 45 cm^3 stainless-steel autoclave was charged with 5.0–10 mol% CaI_2, 5.0–10 mol% 18-crown-6 ether and 1.0 equiv cyclohexene oxide **5e** (2.00 g; 20.4 mmol). The autoclave was sealed, charged with 10 bar CO_2, and the reaction mixture was stirred for 24–48 h at 23–45 °C. Subsequently the reactor was cooled to ≤20 °C with an ice bath and CO_2 was released slowly. The conversion of the epoxide **5e** and the yield of cyclohexene carbonate **6e** were determined by ^1H NMR spectroscopy using mesitylene as internal standard.

Solvent screening for the conversion of CO_2 with internal epoxides (GP6):

A 45 cm^3 stainless-steel autoclave was charged with 5.0 mol% CaI_2, 5.0 mol% 18-crown-6 ether, 1.0 equiv trans-stilben oxide **5l** (0.50 g; 2.55 mmol), and 3 mL solvent. The autoclave was sealed, charged with 10 bar CO_2, and the reaction mixture was stirred for 24 h at 23–45 °C. Subsequently the reactor was cooled to ≤20 °C with an ice bath and CO_2 was released slowly. The conversion of the epoxide **5l** and the yield of the desired carbonate **6l** were determined by ^1H NMR spectroscopy using mesitylene as internal standard.

3. Screening Reactions

Catalyst screening

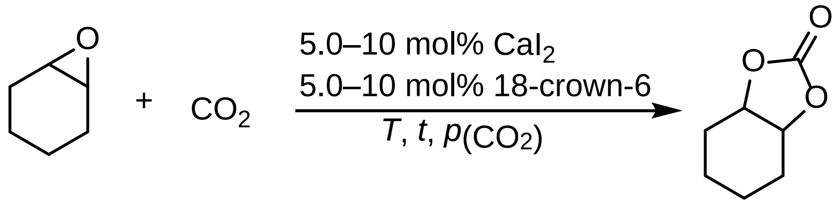


1a **2a**

Entry	Catalyst	Ligand	Yield **2a**[a] / %
1	$CaCl_2$	18-crown-6	0
2	$CaBr_2$	18-crown-6	16
3	CaI_2	18-crown-6	64
4	CaI_2	-	7
5	$Ca(OAc)_2$	18-crown-6	0
6	$Ca(CO_3)$	18-crown-6	0
7	$Ca(D\text{-}Glu)_2$	18-crown-6	0
8	$Ca(OTf)_2$	18-crown-6	0
9	$Ca(acac)_2$	18-crown-6	0
10	Ca(ox)	18-crown-6	0
11	$CaSiO_3$	18-crown-6	0
12	$CaTiO_3$	18-crown-6	0
13	$Ca(OMe)_2$	18-crown-6	0

[a] Reaction conditions: 45 cm^3 stainless-steel autoclave, 1.0 equiv **1a** (15.4 mmol), 0.025 equiv catalyst and ligand (1:1), solvent-free. Yield determined by ^1H NMR with mesitylene as internal standard (**GP1**).

Parameter optimization for the conversion of CO_2 with internal epoxides

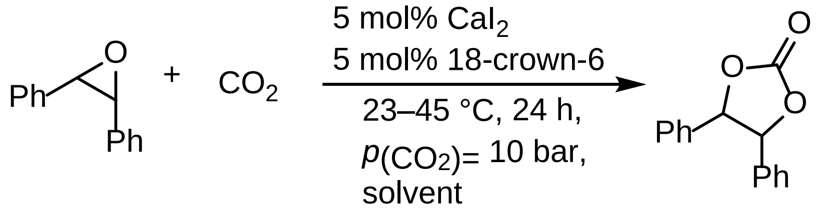


8c **9c**

Entry	CaI_2 / 18-crown-6	T / °C	p / bar	t / h	Yield **4e**[a] / %
1[b]	5	23	1 atm.	24	5
2	5	23	10	24	22
3	10	23	10	24	24
4	5	23	10	48	33
5	10	23	10	48	46
6	5	45	10	48	90
7	10	45	10	48	91

[a] Reaction conditions: 45 cm^3 stainless-steel autoclave, 1.0 equiv **5e** (20.4 mmol), 0.05–0.10 equiv catalyst and ligand (1:1), solvent-free. Yield determined by ^1H NMR with mesitylene as internal standard (**GP4**). [b] Reaction conditions: 25 mL schlenk flask, 1.0 equiv **5e** (20.4 mmol), 0.05 equiv catalyst and ligand (1:1), solvent-free under atmospheric pressure of CO_2.

Solvent screening for the conversion of CO_2 with internal epoxides



10c **11c**

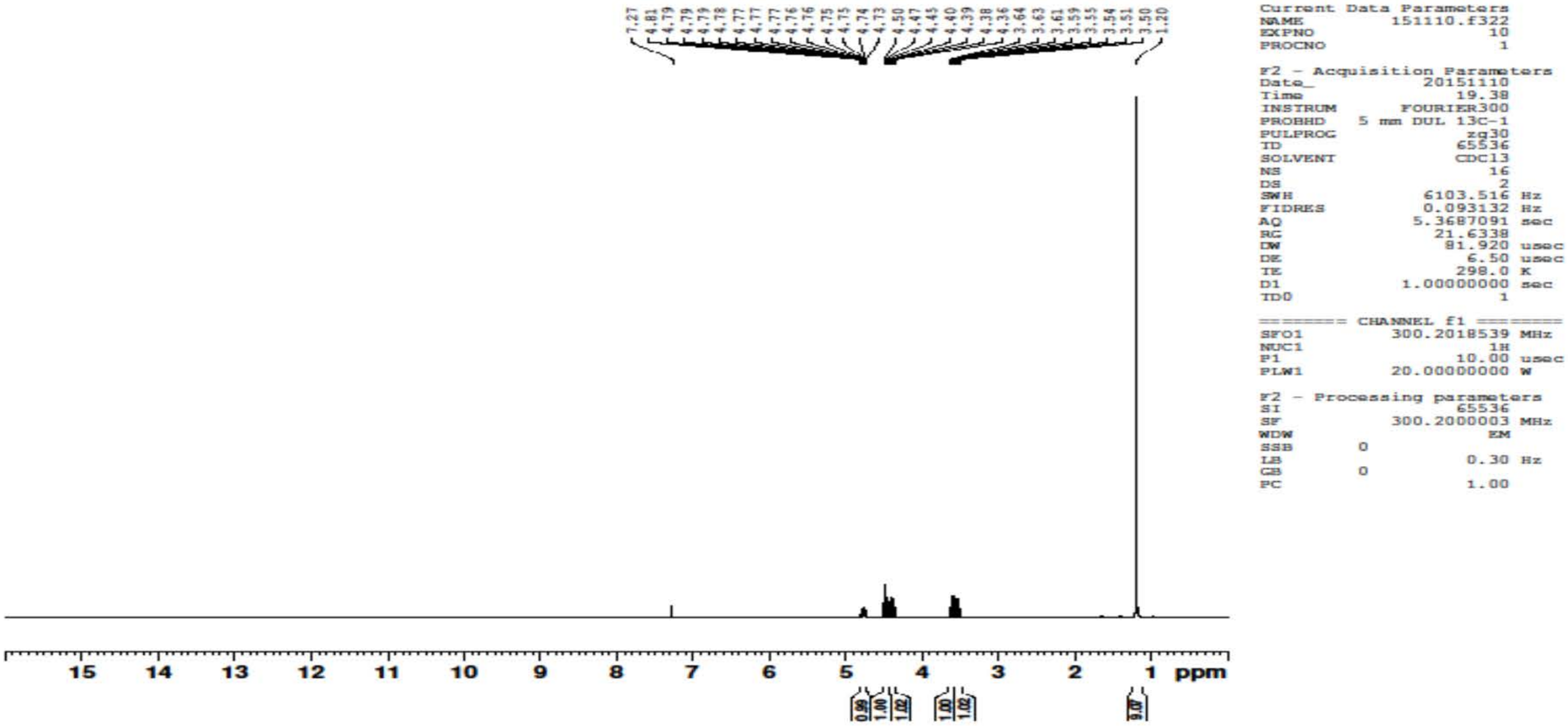
Entry	Solvent	*T* / °C	Yield **4j**[a] / %
1	DCM	45	96
2	Chloroform	45	91
3	EE	45	3
4	THF	45	5
5	MTBE	45	2
6	1,4-dioxane	45	<1
	Di-PG-di-methylether	45	0
	CH_3CN	45	97
	Toluol	45	<1
	$CF_3(CF_2)_3OMe$	45	93
	MEK	45	62
7	DCM	23	86
8	CH_3CN	23	94
9	$CF_3(CF_2)_3OMe$	23	<1

[a] Reaction conditions: 45 cm^3 stainless-steel autoclave, 1.0 equiv **3j** (2.55 mmol), 0.05 equiv catalyst and ligand (1:1), 3 mL solvent. Yield determined by ^1H NMR with mesitylene as internal standard (**GP4**).

4. ^{1}H NMR and ^{13}C NMR spectra

4-(*tert*-Butoxymethyl)-1,3-dioxolan-2-one (2a)[1]

^{1}H NMR



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PULPROG                zg30
TD                    65536
SOLVENT               CDCl3
NS                       16
DS                        2
SWH                6103.516 Hz
FIDRES             0.093132 Hz
AQ                5.3687091 sec
RG                  21.6338
DW                   81.920 usec
DE                     6.50 usec
TE                    298.0 K
D1               1.00000000 sec
TD0                       1

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NUC1                     1H
P1                    10.00 usec
PLW1            20.00000000 W

F2 - Processing parameters
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WDW                      EM
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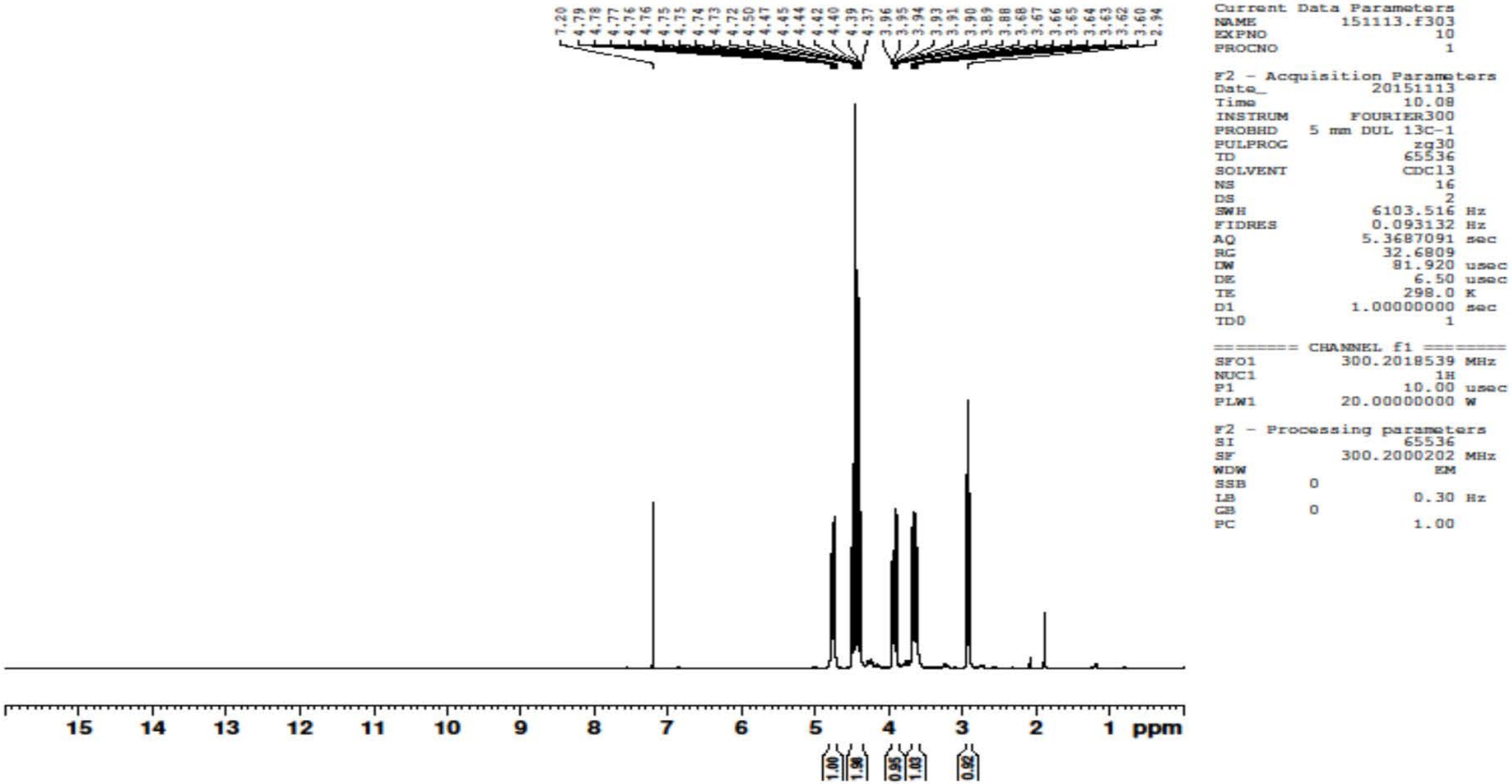
4-(Hydroxymethyl)-1,3-dioxolan-2-one (2b)[1]

^{1}H-NMR



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DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                32.6809
DW                 81.920 usec
DE                   6.50 usec
TE                  298.0 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
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PLW1          20.00000000 W

F2 - Processing parameters
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WDW                    EM
SSB        0
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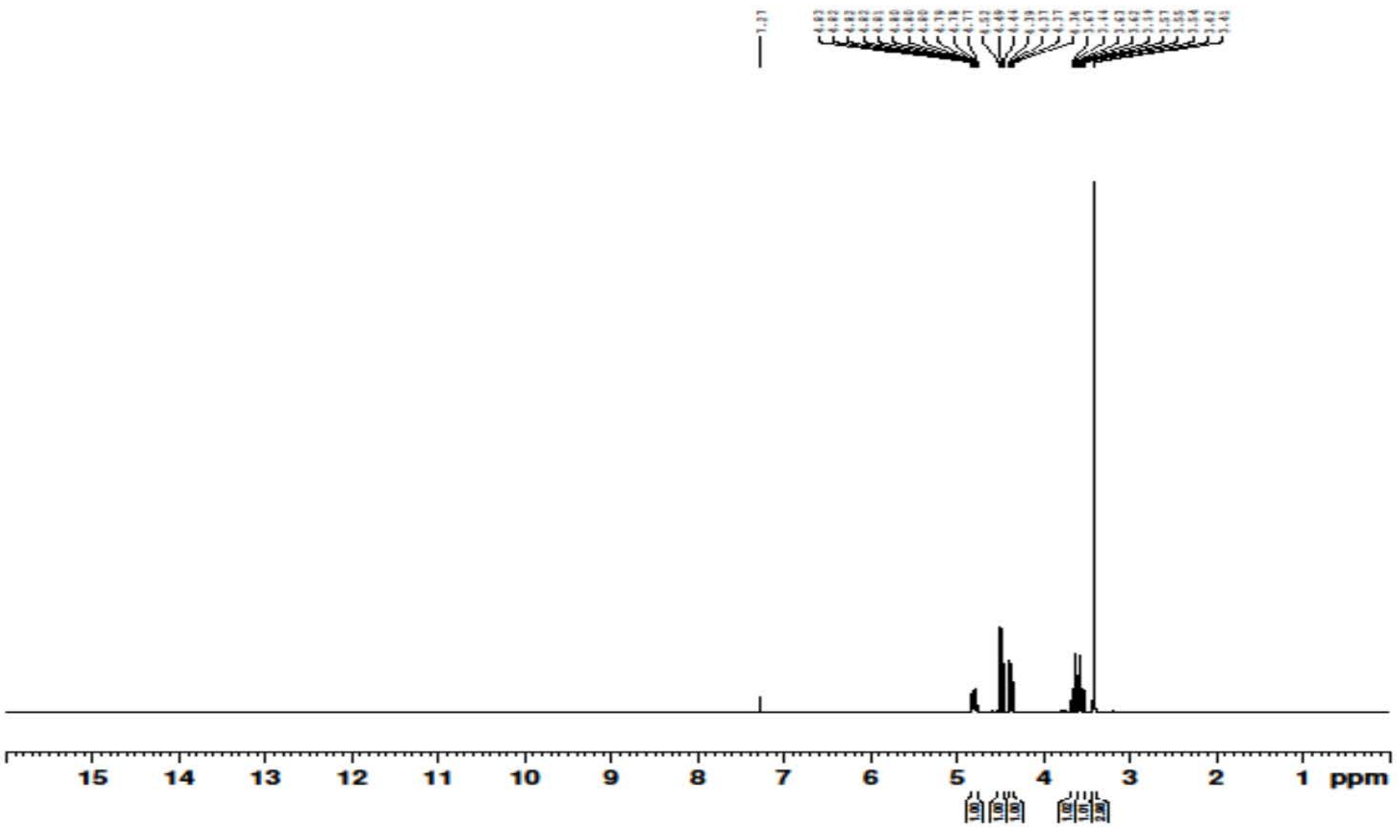
4-(Methoxymethyl)-1,3-dioxolan-2-one (2c)[2]

^{1}H-NMR



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RG                17.7316
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DE                   6.50 usec
TE                  300.0 K
D1             1.00000000 sec
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PLW1          20.00000000 W

F2 - Processing parameters
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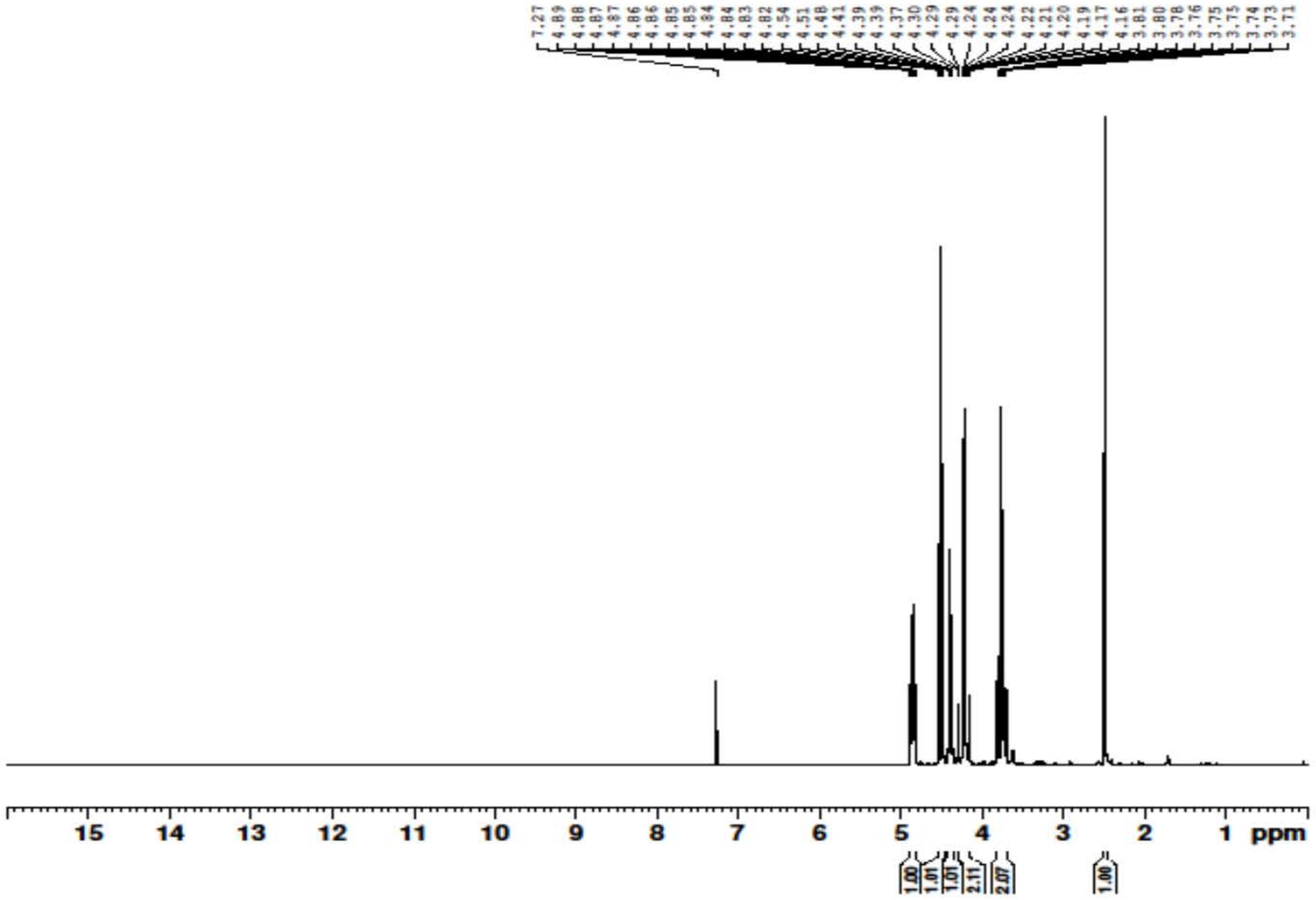
4-((Prop-2-yn-1-yloxy)methyl)-1,3-dioxolan-2-one (2d)[3]

^{1}H NMR



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FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                13.6685
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======== CHANNEL f1 ========
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NUC1                   1H
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WDW                    EM
SSB        0
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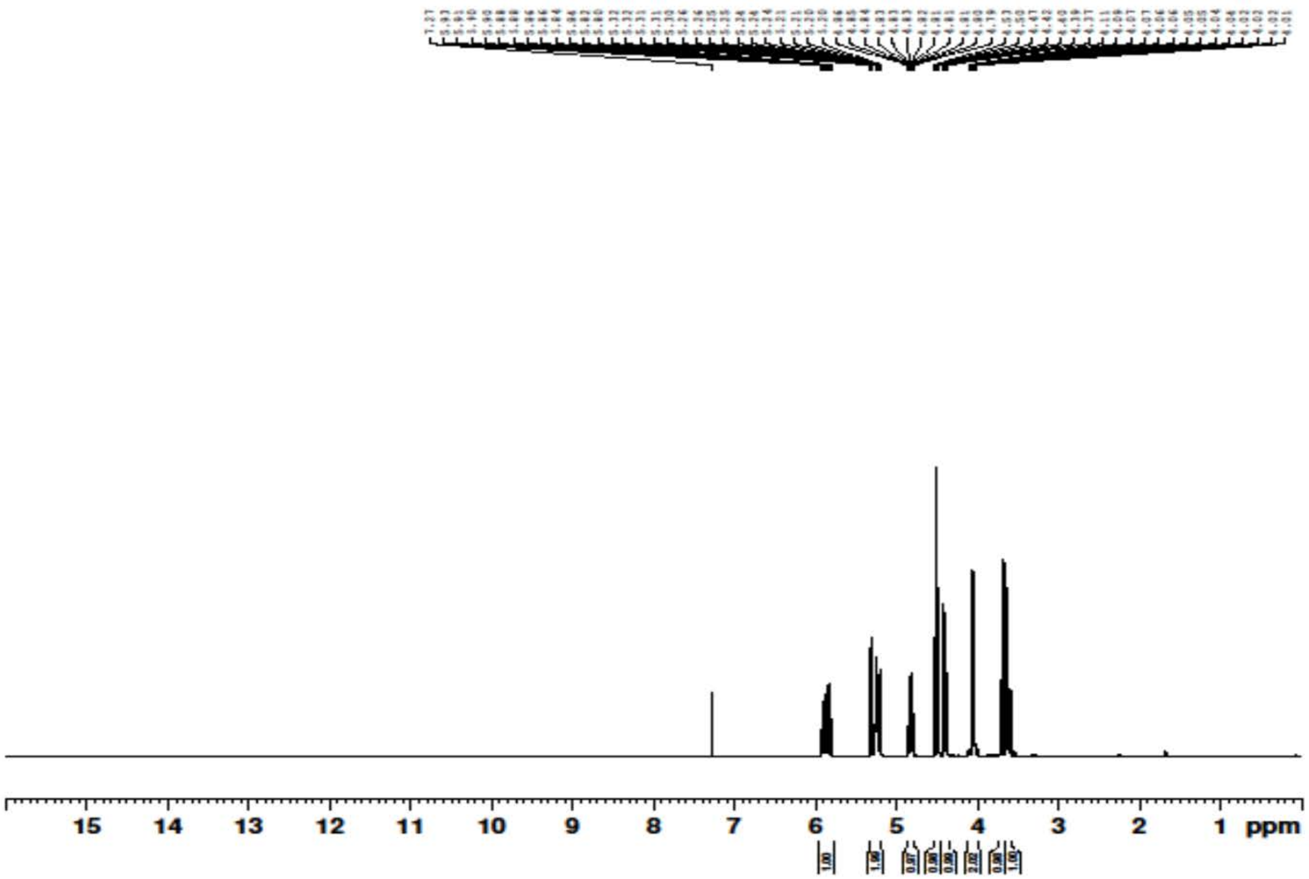
4-((Allyloxy)methyl)-1,3-dioxolan-2-one (2e)[1]

^{1}H NMR



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PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                14.8946
DW                 81.920 usec
DE                   6.50 usec
TE                  298.0 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
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NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000003 MHz
WDW                    EM
SSB      0
LB                   0.30 Hz
GB       0
PC                   1.00
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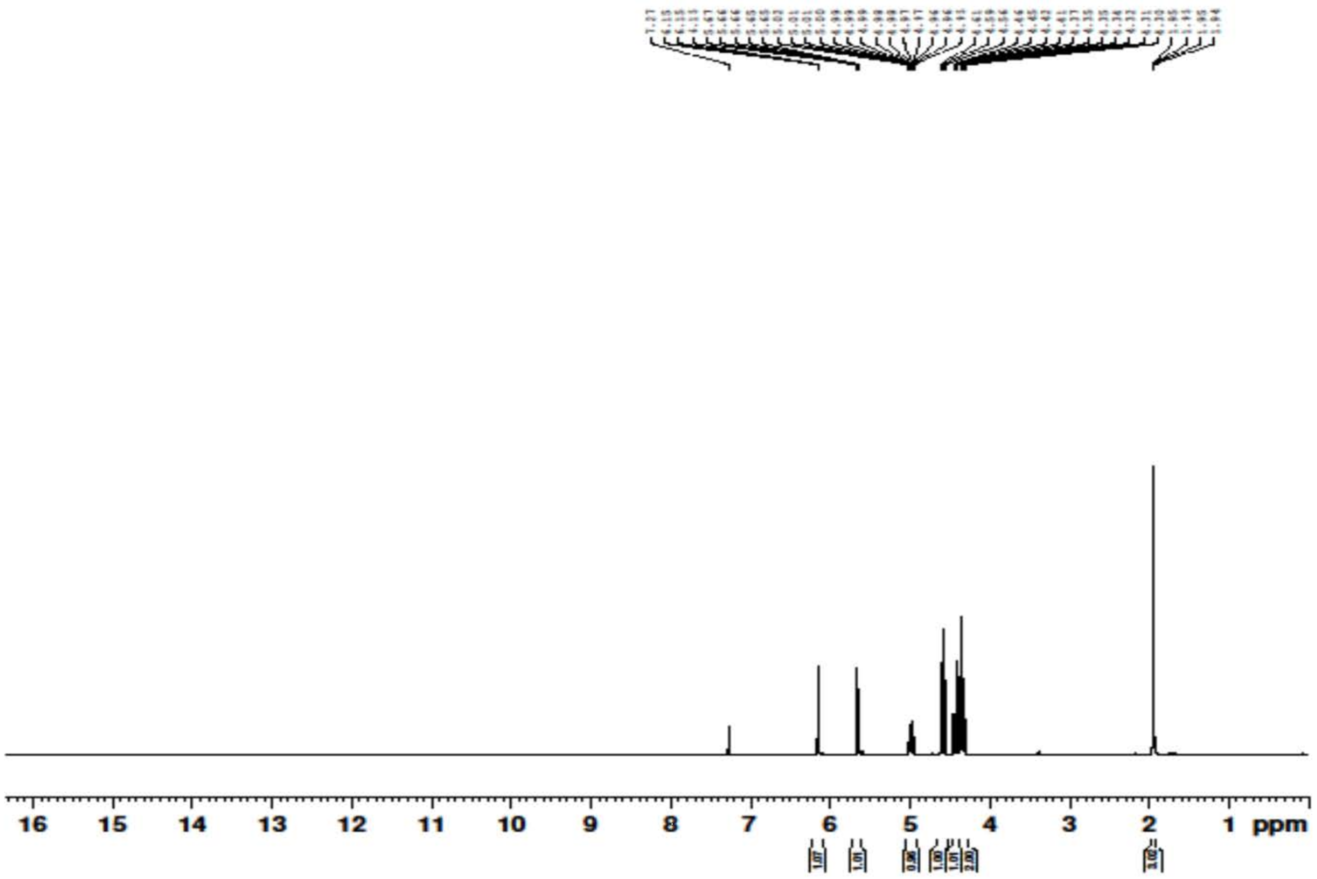
(2-Oxo-1,3-dioxolan-4-yl)methyl methacrylate (2f)[1]

^{1}H NMR



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PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                18.5339
DW                 81.920 usec
DE                   6.50 usec
TE                  298.1 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000003 MHz
WDW                    EM
SSB      0
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PC                   1.00
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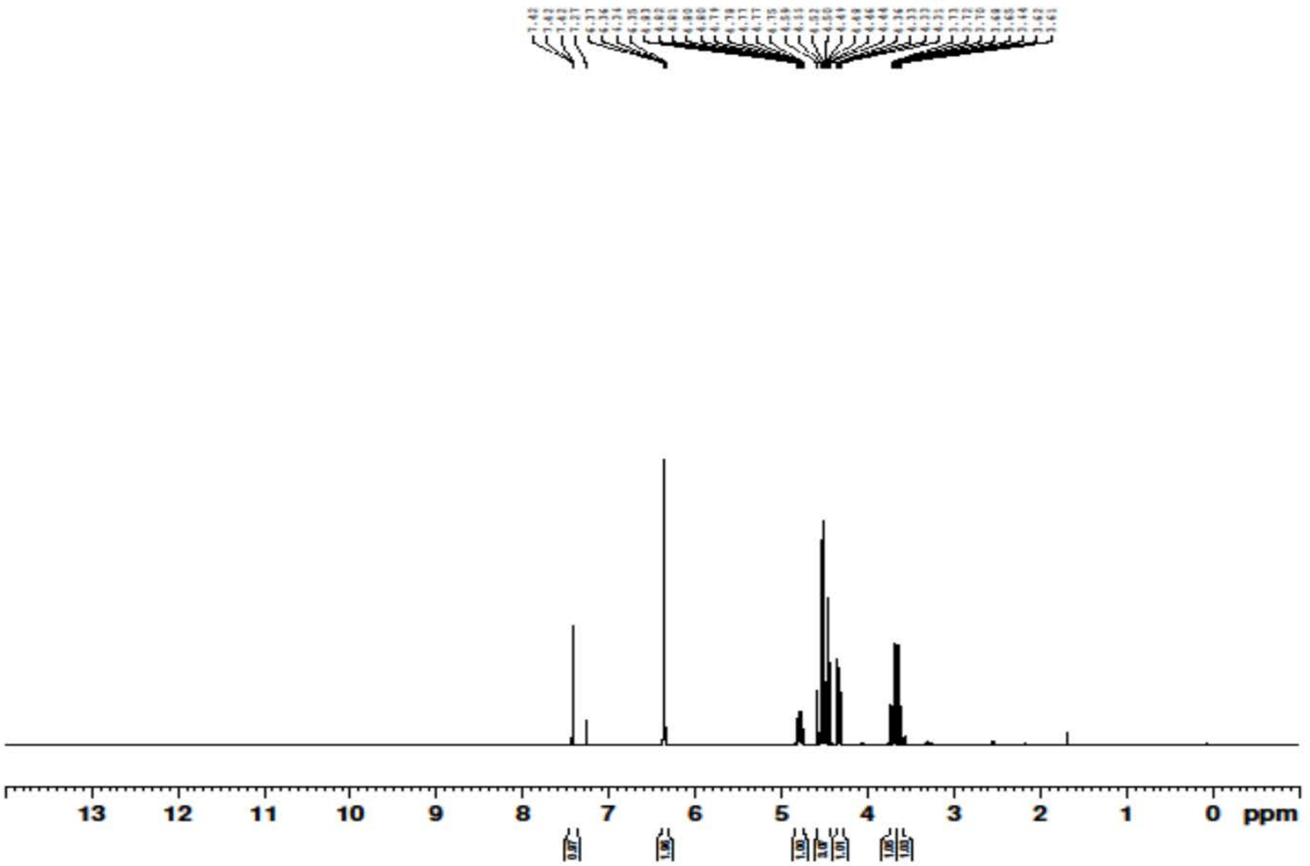
4-((Furan-2-ylmethoxy)methyl)-1,3-dioxolan-2-one (2g)

^{1}H NMR



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PULPROG             zg30
TD                 32768
SOLVENT            CDCl3
NS                    32
DS                     4
SWH             6172.839 Hz
FIDRES          0.188380 Hz
AQ             2.6542079 sec
RG                   128
DW                81.000 usec
DE                  6.00 usec
TE                 295.8 K
D1            1.00000000 sec
TD0                    1

======== CHANNEL f1 ========
NUC1                  1H
P1                 11.00 usec
PL1       0 dB
PL1W         12.28312492 W
SFO1         300.1318534 MHz

F2 - Processing parameters
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PC                  1.00
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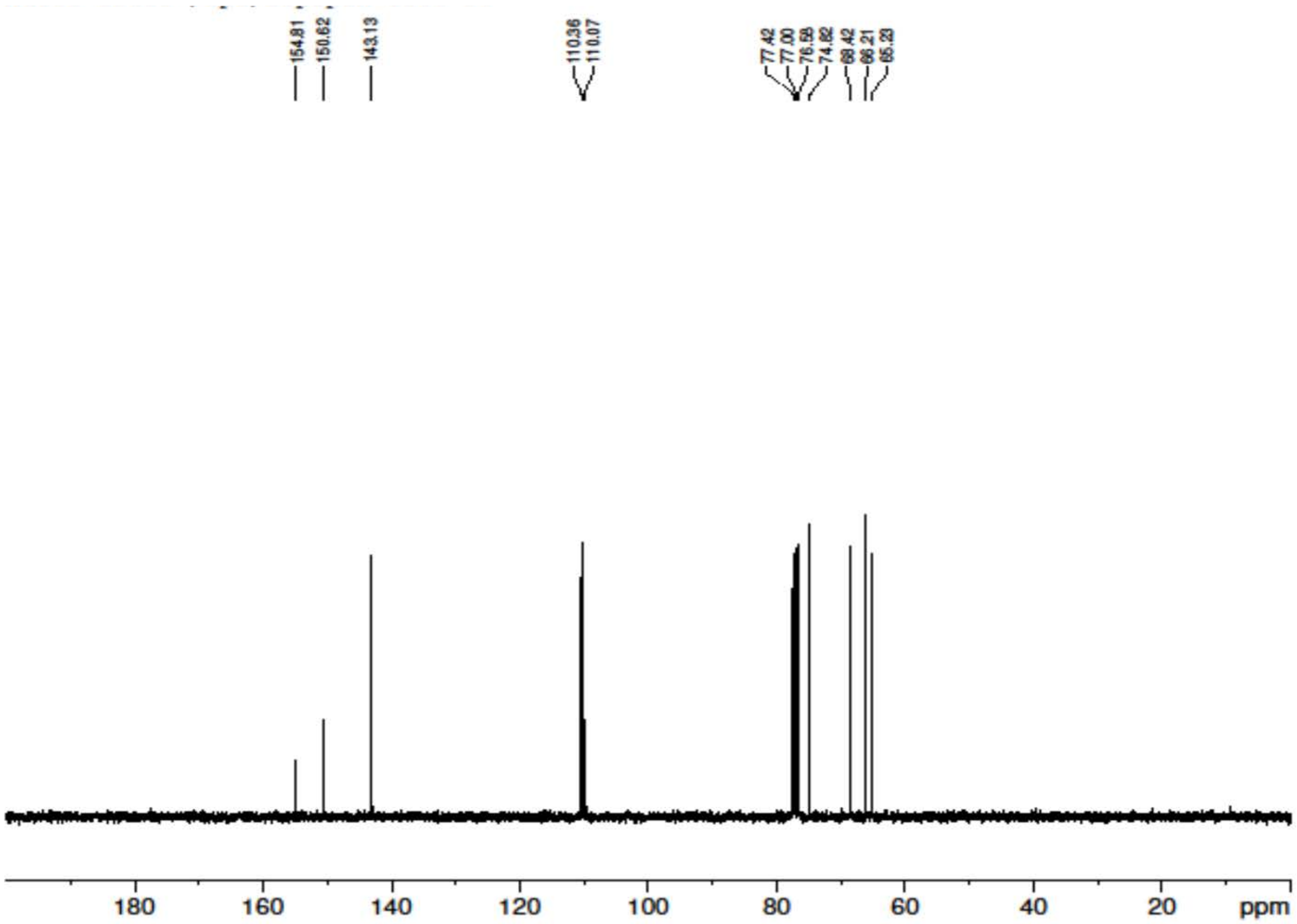
^{13}C NMR



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PULPROG             zgpg30
TD                    32768
SOLVENT               CDCl3
NS                      256
DS                        4
SWH            21097.047 Hz
FIDRES          0.643831 Hz
AQ            0.7766016 sec
RG                    32768
DW               23.700 usec
DE                 6.00 usec
TE                296.1 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                       1

======== CHANNEL f1 ========
NUC1                    13C
P1                 9.60 usec
PL1               -1.10 dB
PL1W        37.53686523 W
SFO1        75.4771825 MHz

======== CHANNEL f2 ========
CPDPRG[2            waltz16
NUC2                     1H
PCPD2            100.00 usec
PL2          0 dB
PL12              19.00 dB
PL13              21.00 dB
PL2W        12.28312492 W
PL12W        0.15463538 W
PL13W        0.09756833 W
SFO2       300.1312005 MHz

F2 - Processing parameters
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WDW                      EM
SSB          0
LB                  1.00 Hz
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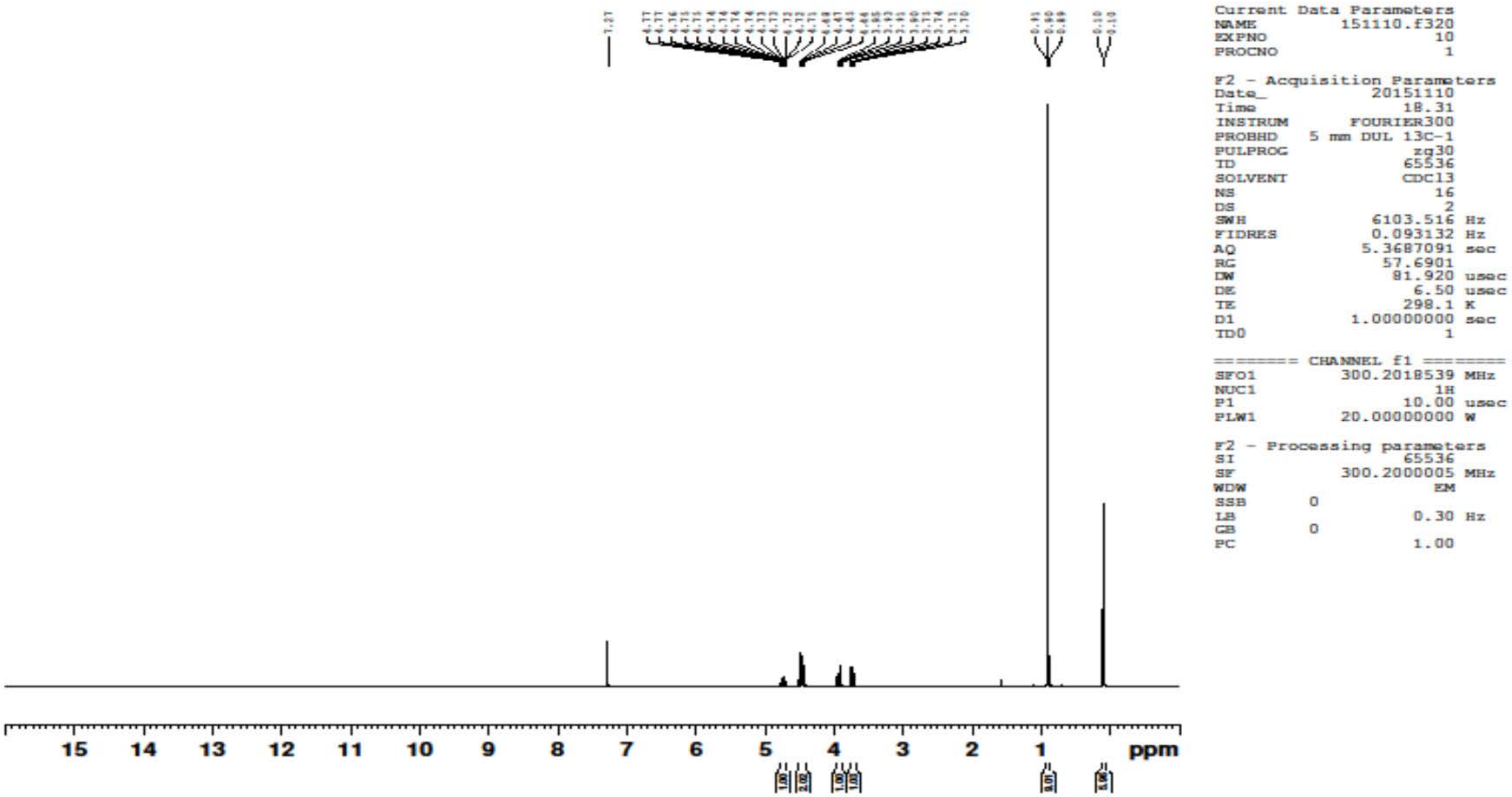
4-(((*tert*-Butyldimethylsilyl)oxy)methyl)-1,3-dioxolan-2-one (2h)

^{1}H NMR



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TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH             6103.516 Hz
FIDRES          0.093132 Hz
AQ             5.3687091 sec
RG                57.6901
DW                 81.920 usec
DE                   6.50 usec
TE                  298.1 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1         300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
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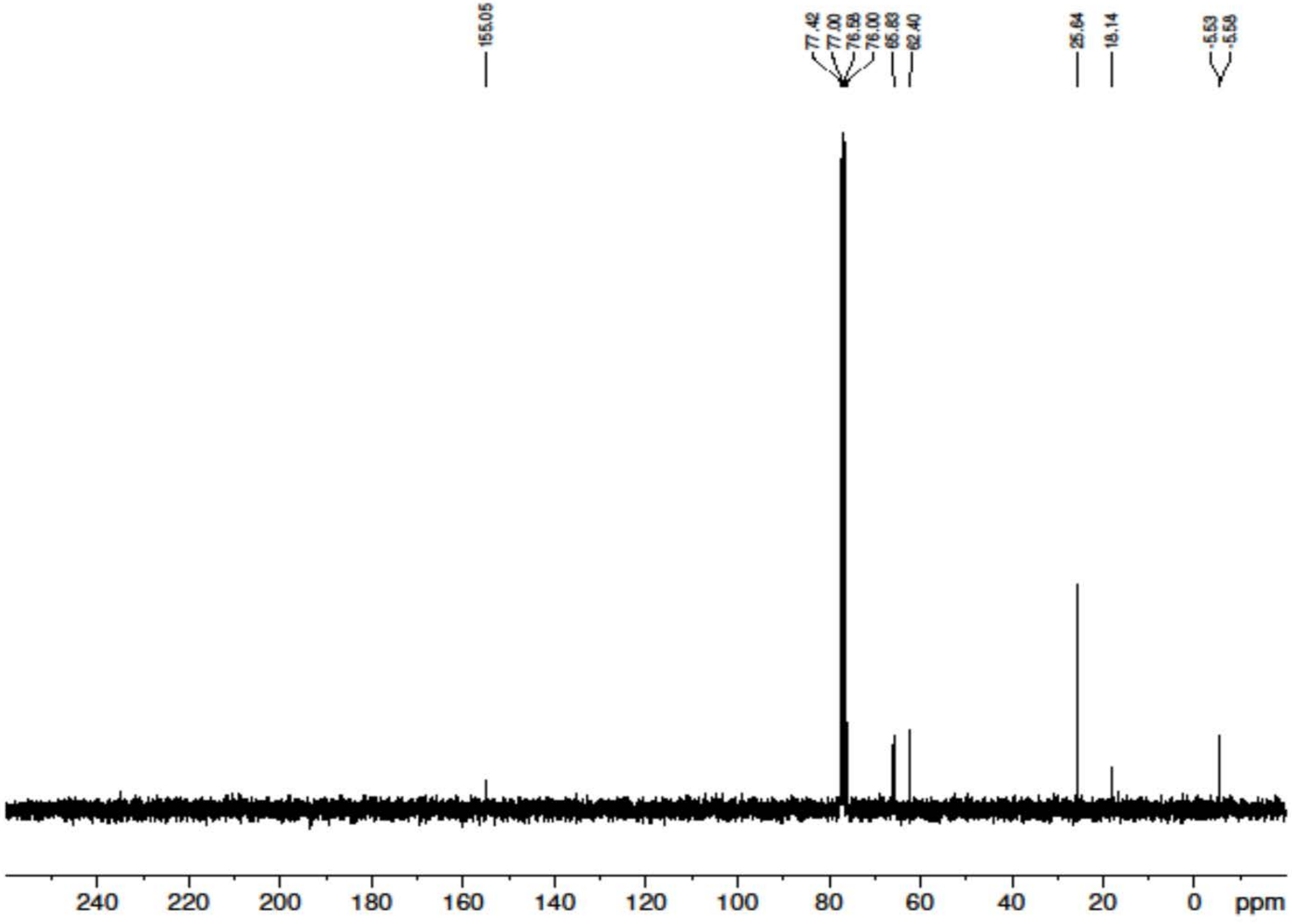
^{13}C NMR



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PULPROG          zgpg30
TD                65536
SOLVENT           CDC13
NS                  256
DS                    4
SWH           24414.063 Hz
FIDRES         0.372529 Hz
AQ            1.3421773 sec
RG              501.187
DW               20.480 usec
DE                 6.50 usec
TE                298.0 K
D1           2.00000000 sec
D11          0.03000000 sec
D31          0.00001200 sec
D40          0.02898005 sec
L4                   40
L5                   57
P32               90.00 usec
TD0                   1

======== CHANNEL f1 ========
SFO1         75.4928982 MHz
NUC1                13C
P1                12.00 usec
PLW1        43.00000000 W

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SFO2        300.2012008 MHz
NUC2                 1H
CPDPRG[2        waltz16
PCPD2             90.00 usec
PLW2        20.00000000 W
PLW12        0.24691001 W
PLW13        0.20000000 W

F2 - Processing parameters
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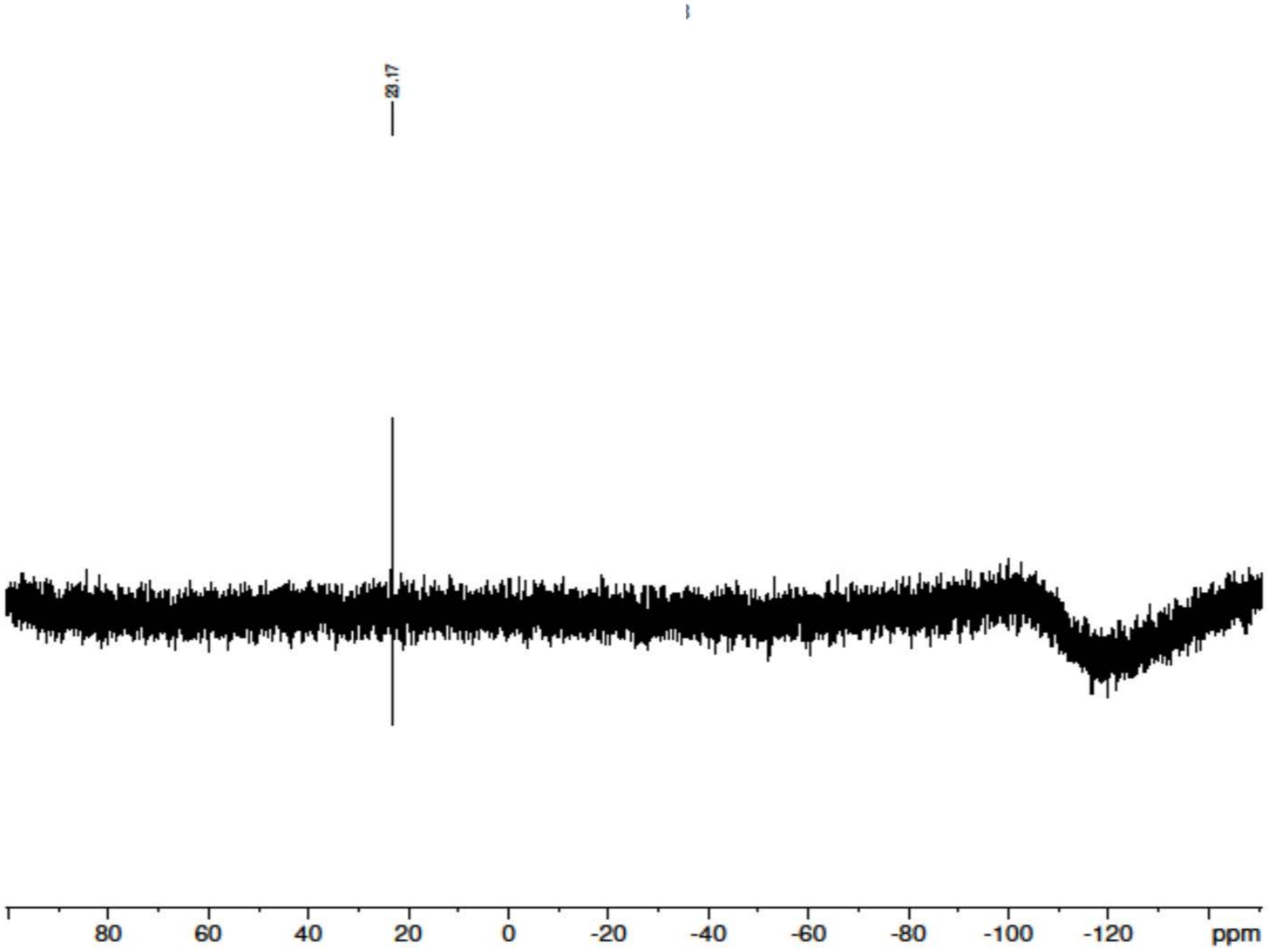
^{29}Si NMR



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PULPROG              zgig30
TD                    32768
SOLVENT               CDCl3
NS                      256
DS                        4
SWH               19960.080 Hz
FIDRES             0.609133 Hz
AQ                0.8208384 sec
RG                  18390.4
DW                   25.050 usec
DE                    35.79 usec
TE                    297.0 K
D1              20.00000000 sec
D11              0.03000000 sec
TD0                       1

======== CHANNEL f1 ========
NUC1                   29Si
P1                     9.85 usec
PL1                    1.00 dB
SFO1            79.4925750 MHz

======== CHANNEL f2 ========
CPDPRG[2            waltz16
NUC2                     1H
PCPD2                100.00 usec
PL2                   -2.00 dB
PL12                  17.00 dB
PL2W            15.44655800 W
PL12W            0.19446065 W
SFO2           400.1316005 MHz

F2 - Processing parameters
SI                    32768
SF               79.4945710 MHz
WDW                      EM
SSB        0
LB                     1.00 Hz
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PC                     2.00
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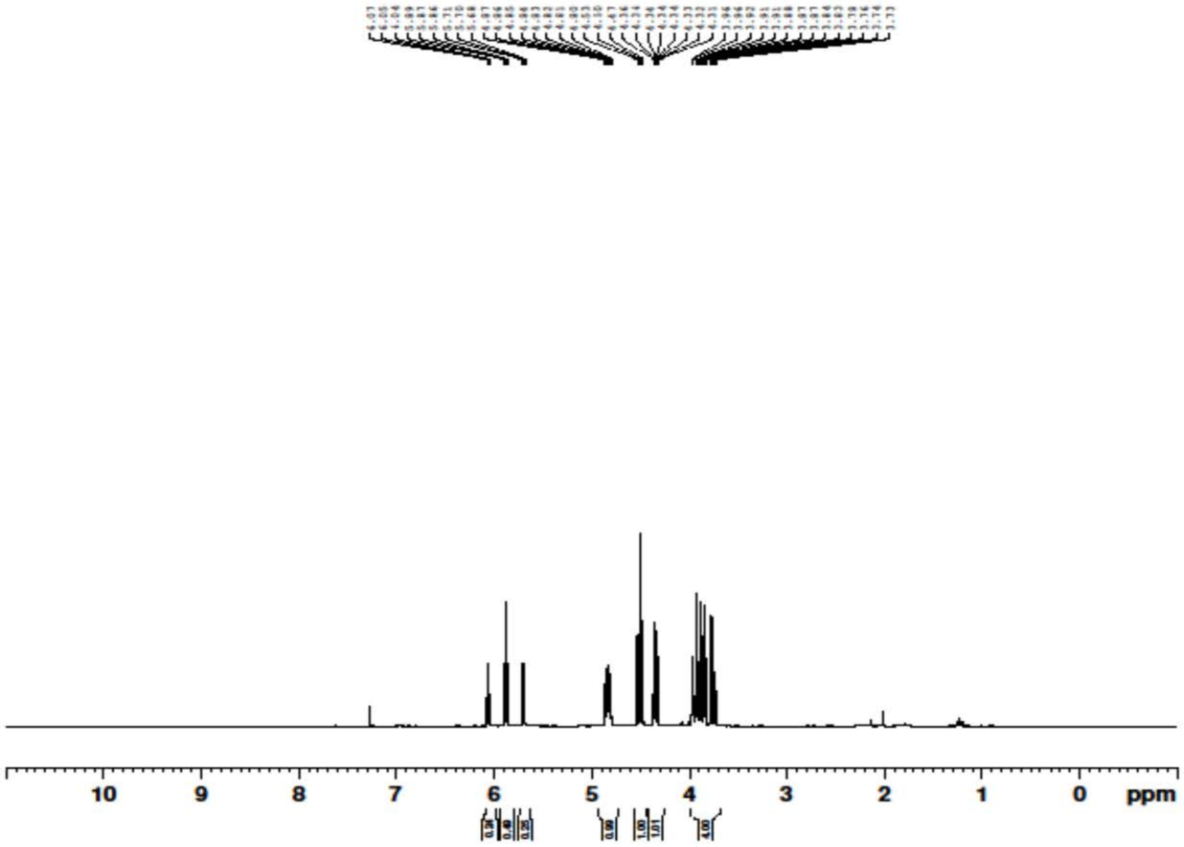
4-((2,2,3,3-tetrafluoropropoxy)methyl)-1,3-dioxolan-2-one (2i)[4]

^{1}H-NMR



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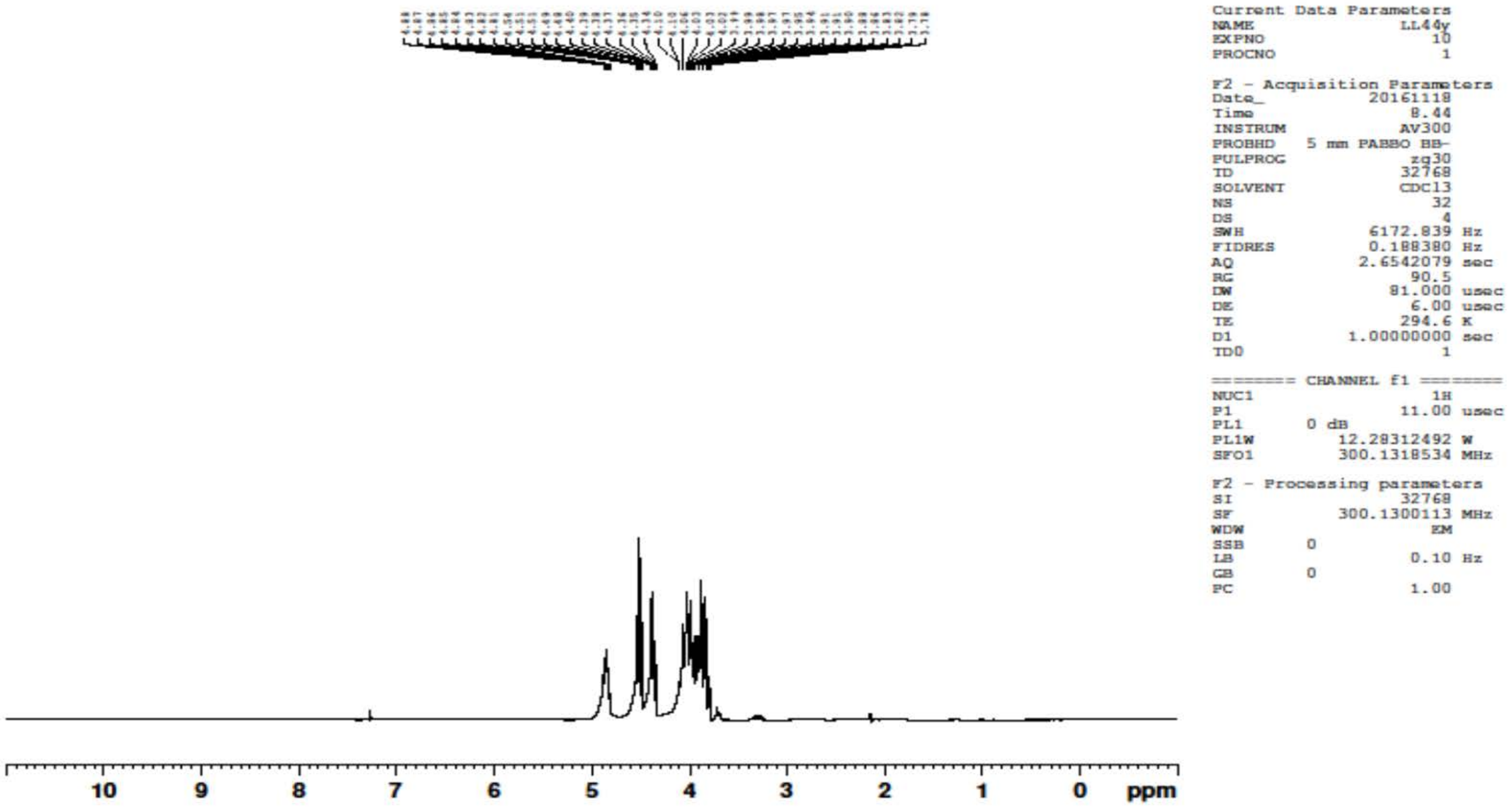
Date_          20161118
Time               8.01
INSTRUM           AV300
PROBHD   5 mm PABBO BB-
PULPROG            zg30
TD                32768
SOLVENT           CDCl3
NS                   32
DS                    4
SWH            6172.839 Hz
FIDRES         0.188380 Hz
AQ            2.6542079 sec
RG                 90.5
DW               81.000 usec
DE                 6.00 usec
TE                294.6 K
D1           1.00000000 sec
TD0                   1

======== CHANNEL f1 ========
NUC1                 1H
P1                11.00 usec
PL1      0 dB
PL1W        12.28312492 W
SFO1        300.1318534 MHz

F2 - Processing parameters
SI                32768
SF          300.1300132 MHz
WDW                  EM
SSB      0
LB                 0.10 Hz
GB       0
PC                 1.00
```

4-((2,2,3,3,3-pentafluoropropoxy)methyl)-1,3-dioxolan-2-one (2j)[5]

^{1}H-NMR



```
Current Data Parameters
NAME                LL44y
EXPNO                  10
PROCNO                  1

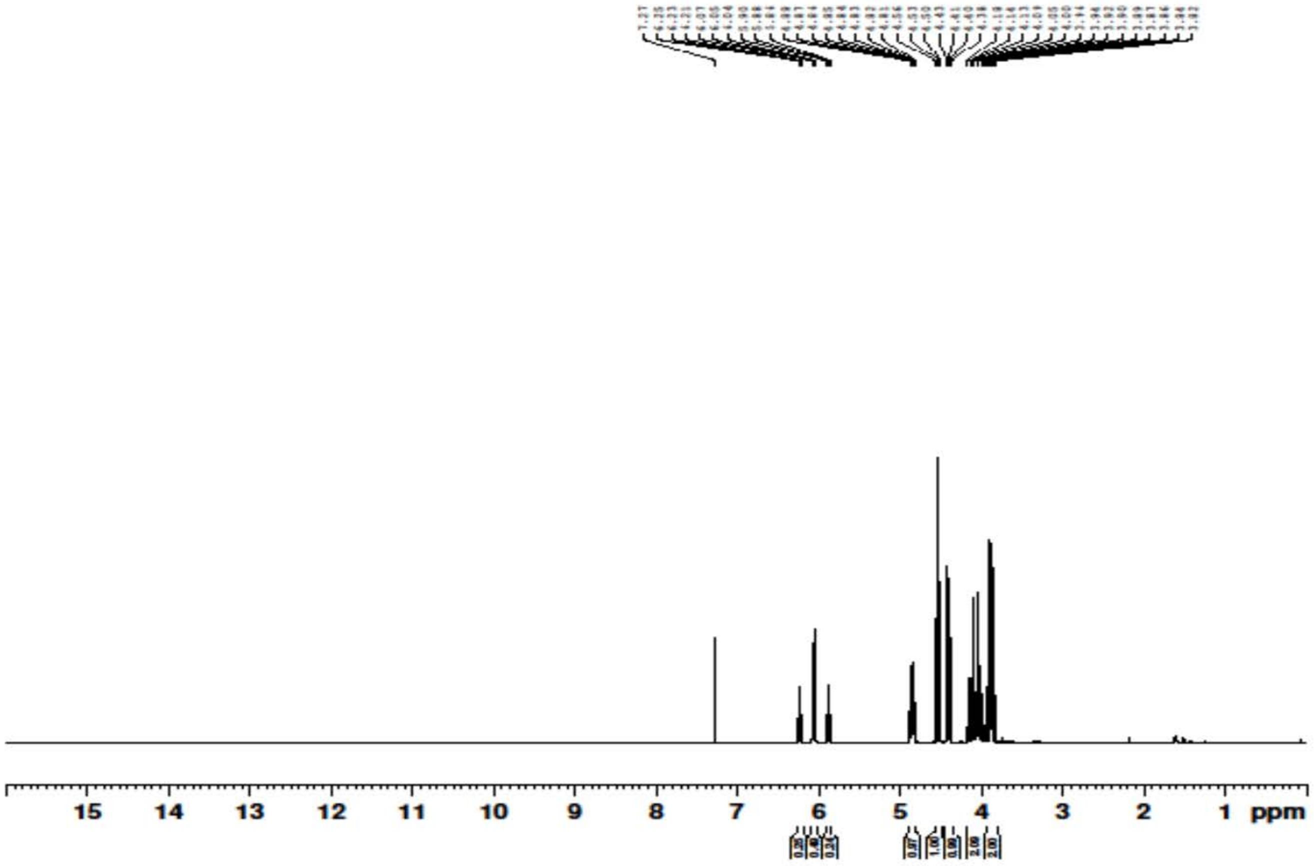
F2 - Acquisition Parameters
Date_            20161118
Time                 8.44
INSTRUM             AV300
PROBHD   5 mm PABBO BB-
PULPROG              zg30
TD                  32768
SOLVENT             CDCl3
NS                     32
DS                      4
SWH              6172.839 Hz
FIDRES           0.188380 Hz
AQ              2.6542079 sec
RG                   90.5
DW                 81.000 usec
DE                   6.00 usec
TE                  294.6 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
NUC1                   1H
P1                  11.00 usec
PL1        0 dB
PL1W          12.28312492 W
SFO1          300.1318534 MHz

F2 - Processing parameters
SI                  32768
SF            300.1300113 MHz
WDW                    EM
SSB        0
LB                   0.10 Hz
GB         0
PC                   1.00
```

4-(((2,2,3,3,4,4,5,5-Octafluoropentyl)oxy)methyl)-1,3-dioxolan-2-one (2k)

^{1}H NMR



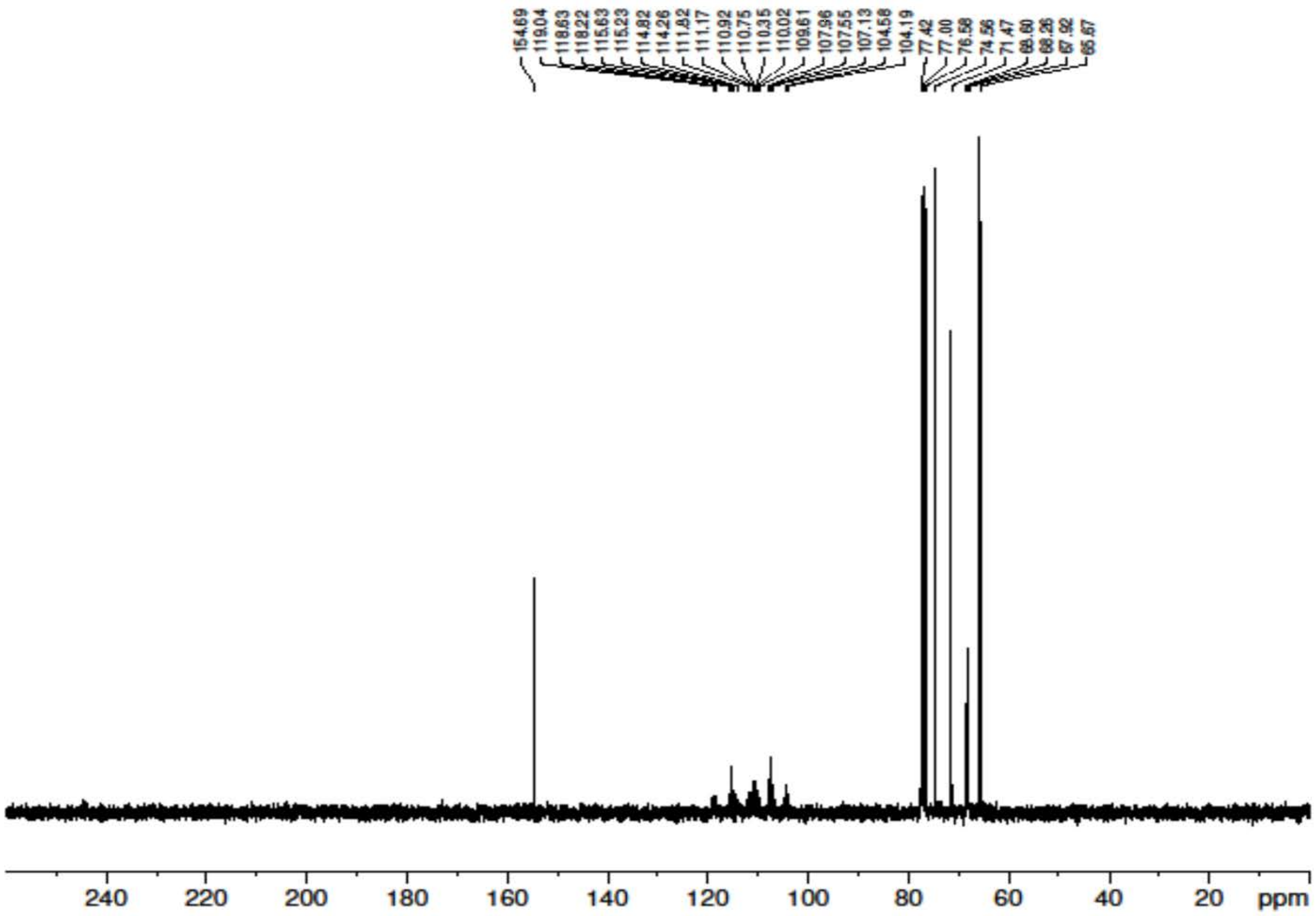
```
Current Data Parameters
NAME             151112.313
EXPNO                    10
PROCNO                    1

F2 - Acquisition Parameters
Date_              20151112
Time                  14.30
INSTRUM               AV300
PROBHD   5 mm PABBO BB-
PULPROG                zg30
TD                    32768
SOLVENT               CDCl3
NS                       32
DS                        4
SWH                6172.839 Hz
FIDRES             0.188380 Hz
AQ                2.6542079 sec
RG                    322.5
DW                   81.000 usec
DE                     6.00 usec
TE                    295.3 K
D1               1.00000000 sec
TD0                       1

======== CHANNEL f1 ========
NUC1                     1H
P1                    11.00 usec
PL1          0 dB
PL1W            12.28312492 W
SFO1            300.1318534 MHz

F2 - Processing parameters
SI                    32768
SF              300.1300124 MHz
WDW                      EM
SSB          0
LB                     0.10 Hz
GB           0
PC                     1.00
```

^{13}C NMR



```
Current Data Parameters
NAME          151119.f306
EXPNO                  10
PROCNO                  1

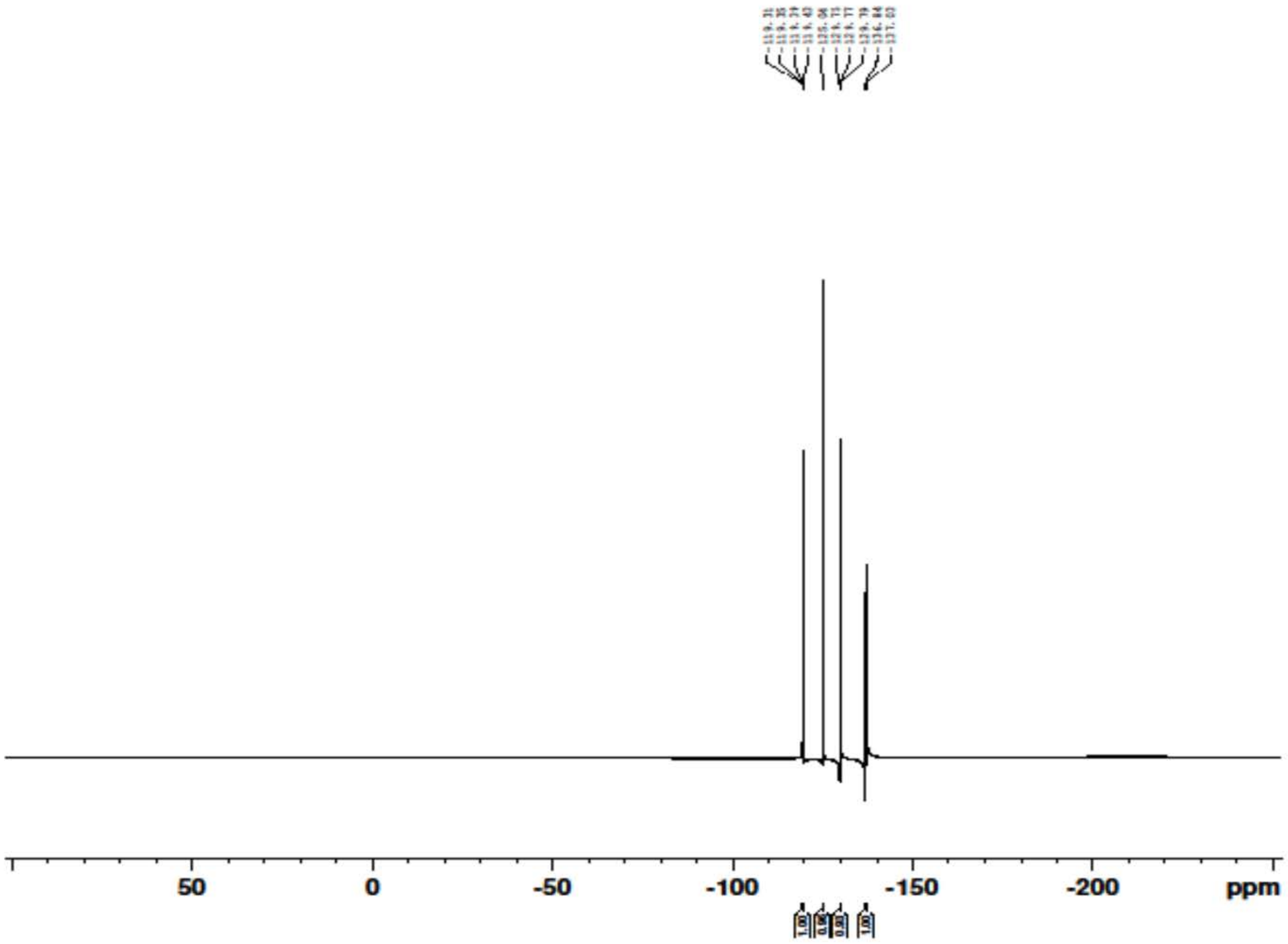
F2 - Acquisition Parameters
Date_            20151119
Time                11.01
INSTRUM        FOURIER300
PROBHD   5 mm DUL 13C-1
PULPROG           zgpg30
TD                 65536
SOLVENT            CDC13
NS                   512
DS                     4
SWH            24414.063 Hz
FIDRES          0.372529 Hz
AQ             1.3421773 sec
RG               501.187
DW                20.480 usec
DE                  6.50 usec
TE                 298.2 K
D1            2.00000000 sec
D11           0.03000000 sec
D31           0.00001200 sec
D40           0.02898005 sec
L4                    40
L5                    57
P32                90.00 usec
TD0                    1

======== CHANNEL f1 ========
SFO1          75.4928982 MHz
NUC1                 13C
P1                 12.00 usec
PLW1         43.00000000 W

======== CHANNEL f2 ========
SFO2         300.2012008 MHz
NUC2                  1H
CPDPRG[2         waltz16
PCPD2              90.00 usec
PLW2         20.00000000 W
PLW12         0.24691001 W
PLW13         0.20000000 W

F2 - Processing parameters
SI                 32768
SF            75.4853527 MHz
WDW                   EM
SSB      0
LB                  1.00 Hz
GB       0
PC                  1.40
```

^{19}F NMR



```
Current Data Parameters
NAME            151112.313
EXPNO                   11
PROCNO                   1

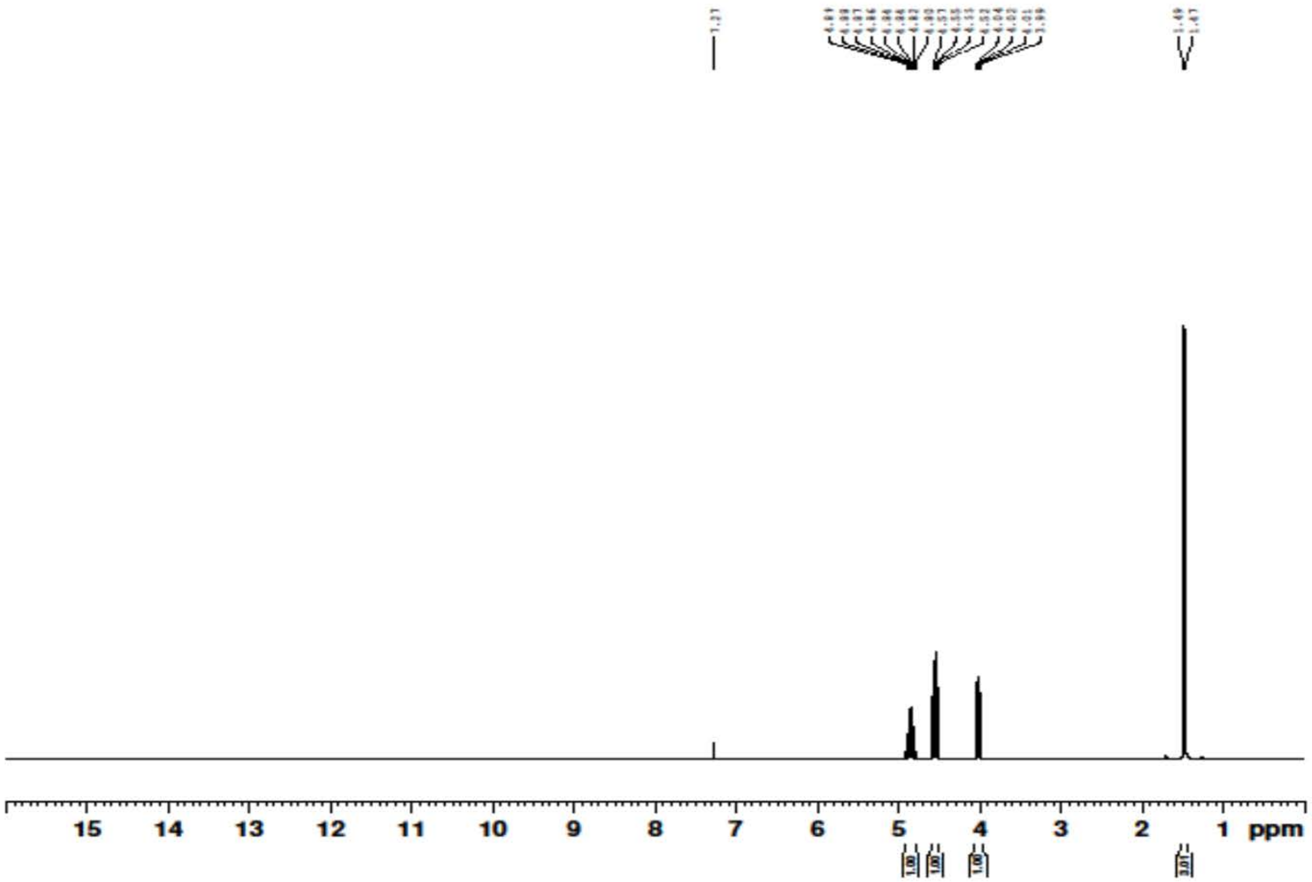
F2 - Acquisition Parameters
Date_             20151112
Time                 14.37
INSTRUM              AV300
PROBHD   5 mm PABBO BB-
PULPROG             zgflqn
TD                   65536
SOLVENT              CDCl3
NS                     128
DS                       4
SWH          100000.000 Hz
FIDRES         1.525879 Hz
AQ            0.3276800 sec
RG                  1625.5
DW                5.000 usec
DE                10.00 usec
TE                 295.3 K
D1           2.00000000 sec
TD0                      1

======== CHANNEL f1 ========
NUC1                   19F
P1                11.00 usec
PL1                -3.00 dB
PL1W          19.39594650 W
SFO1        282.3830019 MHz

F2 - Processing parameters
SI                   65536
SF          282.4042500 MHz
WDW                     EM
SSB      0
LB                 1.00 Hz
GB       0
PC                    1.00
```

4-Methyl-1,3-dioxolan-2-one (5a)[1]

^{1}H NMR



```
Current Data Parameters
NAME          151110.f325
EXPNO                  10
PROCNO                  1

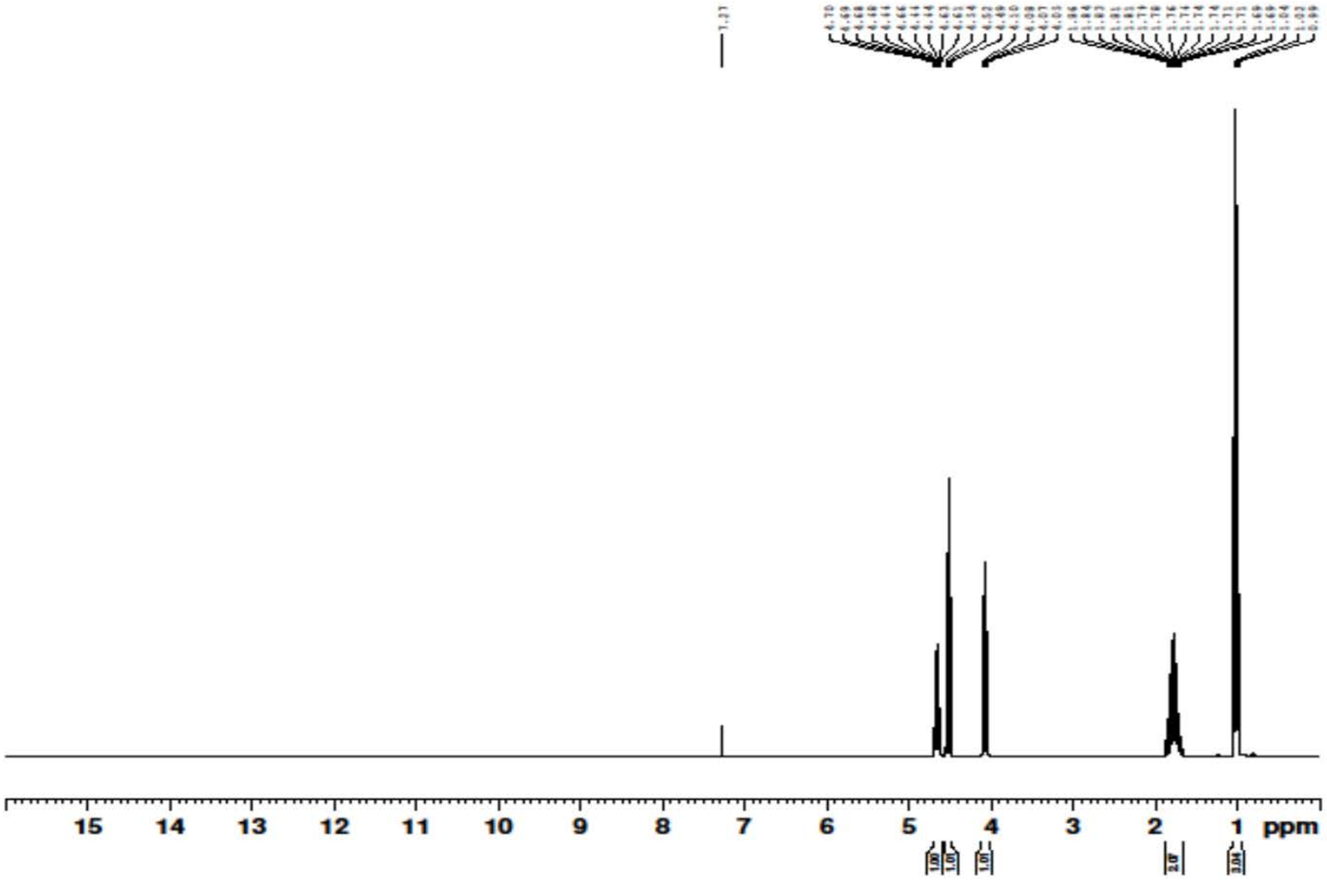
F2 - Acquisition Parameters
Date_            20151110
Time                20.56
INSTRUM       FOURIER300
PROBHD   5 mm DUL 13C-1
PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                19.5048
DW                 81.920 usec
DE                   6.50 usec
TE                  298.1 K
D1            1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000001 MHz
WDW                    EM
SSB       0
LB                   0.30 Hz
GB        0
PC                   1.00
```

4-Ethyl-1,3-dioxolan-2-one (5b)[1]

^{1}H NMR



```
Current Data Parameters
NAME          151020.f304
EXPNO                  10
PROCNO                  1

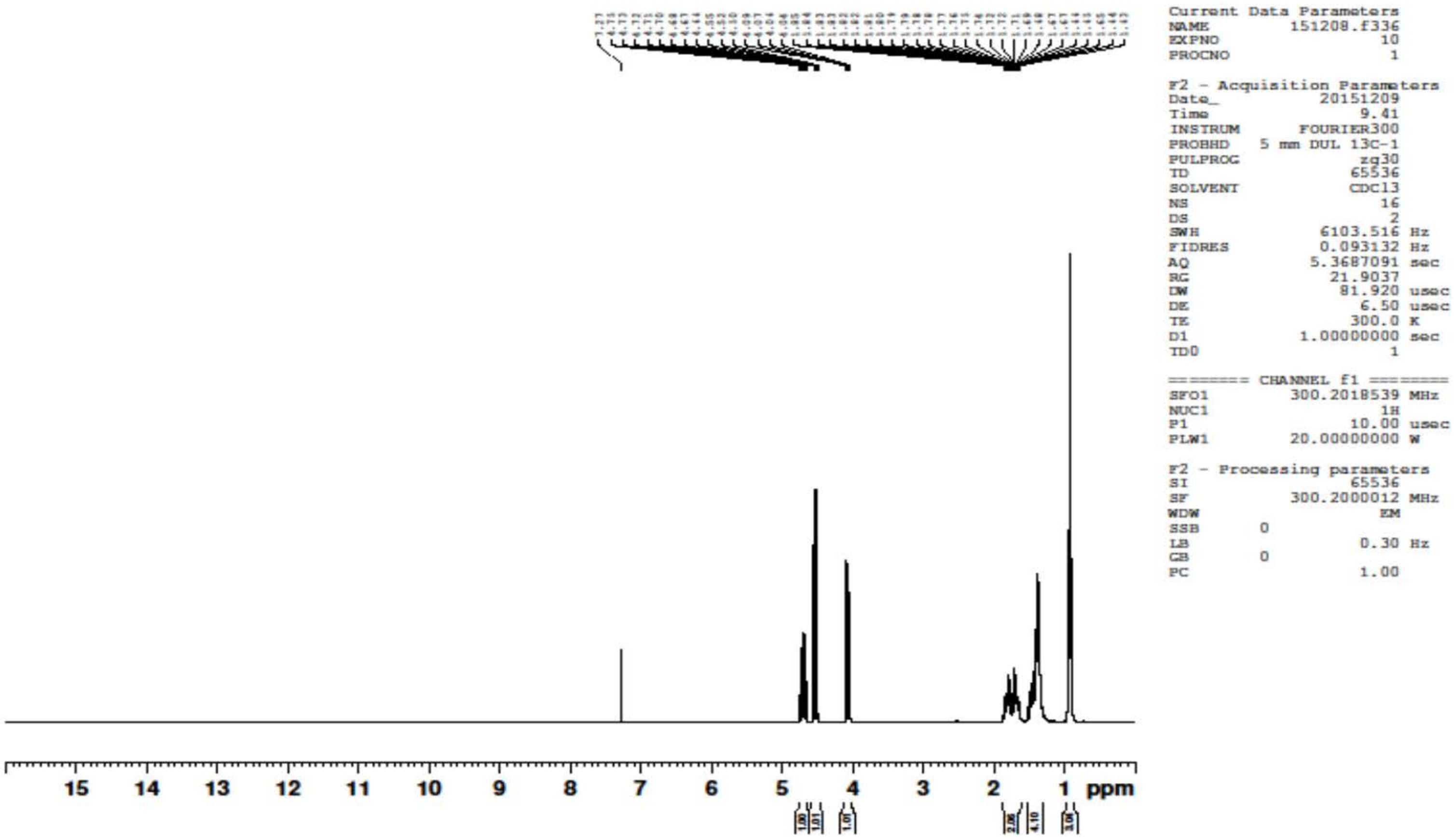
F2 - Acquisition Parameters
Date_            20151020
Time                 9.01
INSTRUM        FOURIER300
PROBHD   5 mm DUL 13C-1
PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                15.1891
DW                 81.920 usec
DE                   6.50 usec
TE                  300.0 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.1999999 MHz
WDW                    EM
SSB      0
LB                   0.30 Hz
GB       0
PC                   1.00
```

4-Butyl-1,3-dioxolan-2-one (5c)[1]

^{1}H-NMR



```
Current Data Parameters
NAME          151208.f336
EXPNO                  10
PROCNO                  1

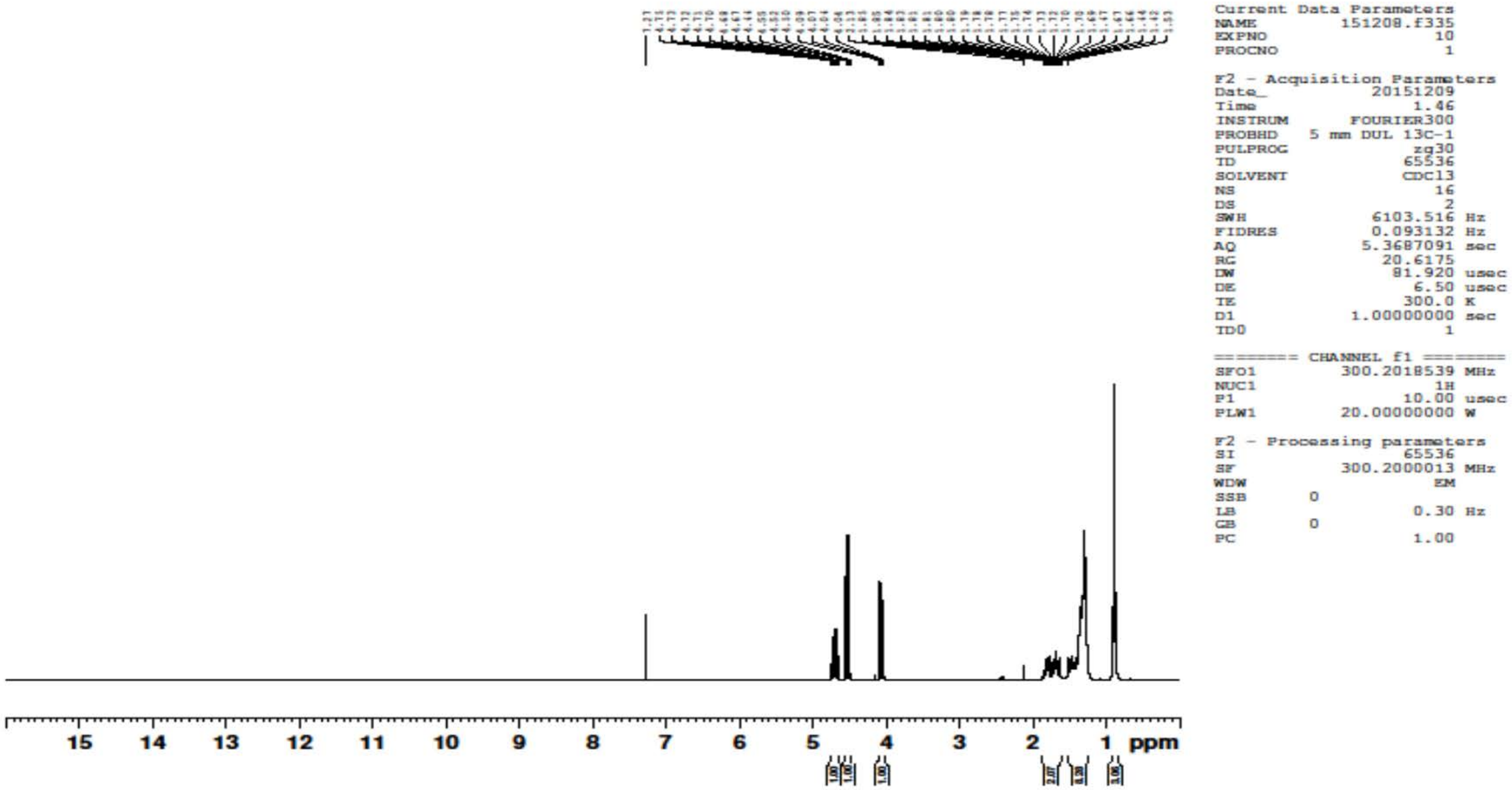
F2 - Acquisition Parameters
Date_            20151209
Time                 9.41
INSTRUM       FOURIER300
PROBHD   5 mm DUL 13C-1
PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                21.9037
DW                 81.920 usec
DE                   6.50 usec
TE                  300.0 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000012 MHz
WDW                    EM
SSB       0
LB                   0.30 Hz
GB        0
PC                   1.00
```

4-Hexyl-1,3-dioxolan-2-one (5d)[1]

^{1}H NMR



```
Current Data Parameters
NAME          151208.f335
EXPNO                  10
PROCNO                  1

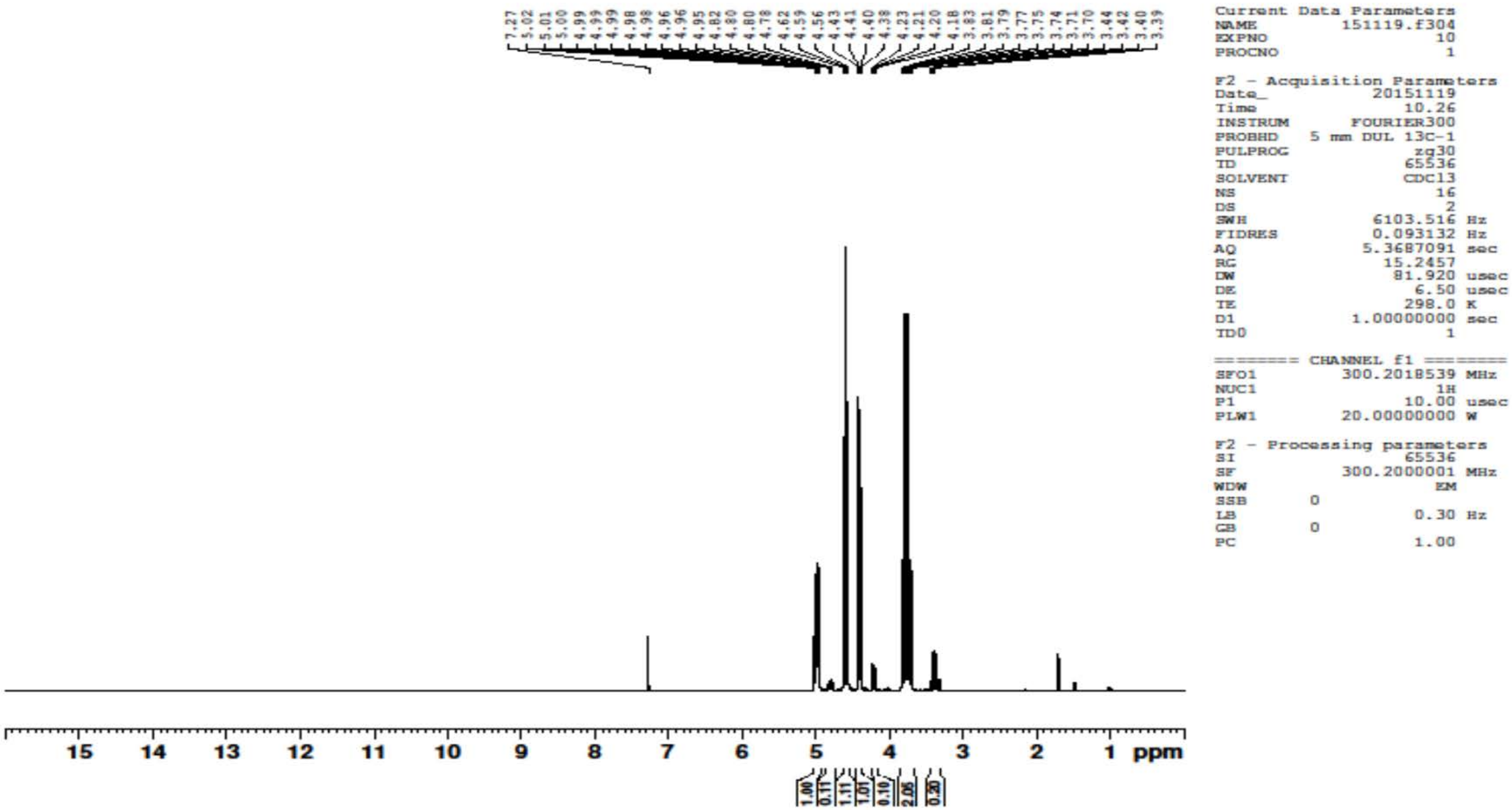
F2 - Acquisition Parameters
Date_            20151209
Time                 1.46
INSTRUM       FOURIER300
PROBHD    5 mm DUL 13C-1
PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                20.6175
DW                 81.920 usec
DE                   6.50 usec
TE                  300.0 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000013 MHz
WDW                    EM
SSB       0
LB                   0.30 Hz
GB        0
PC                   1.00
```

4-(Chloromethyl)-1,3-dioxolan-2-one (5e)[1]

^{1}H NMR



```
Current Data Parameters
NAME          151119.f304
EXPNO                  10
PROCNO                  1

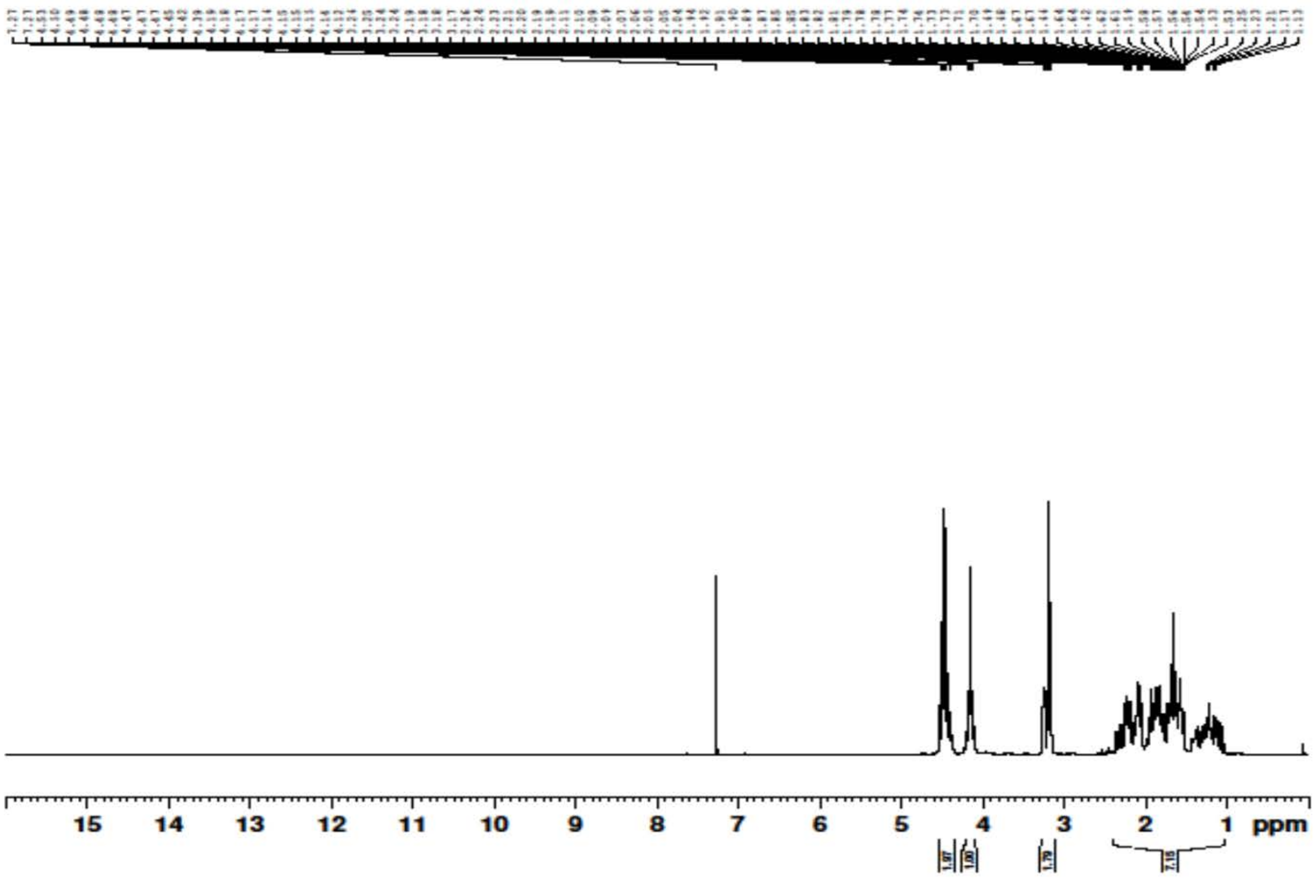
F2 - Acquisition Parameters
Date_            20151119
Time                10.26
INSTRUM        FOURIER300
PROBHD    5 mm DUL 13C-1
PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                15.2457
DW                 81.920 usec
DE                   6.50 usec
TE                  298.0 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000001 MHz
WDW                    EM
SSB      0
LB                   0.30 Hz
GB       0
PC                   1.00
```

4-(7-Oxabicyclo[4.1.0]heptan-3-yl)-1,3-dioxolan-2-one (5f)[6]

^{1}H NMR



```
Current Data Parameters
NAME            151211.f321
EXPNO                    10
PROCNO                    1

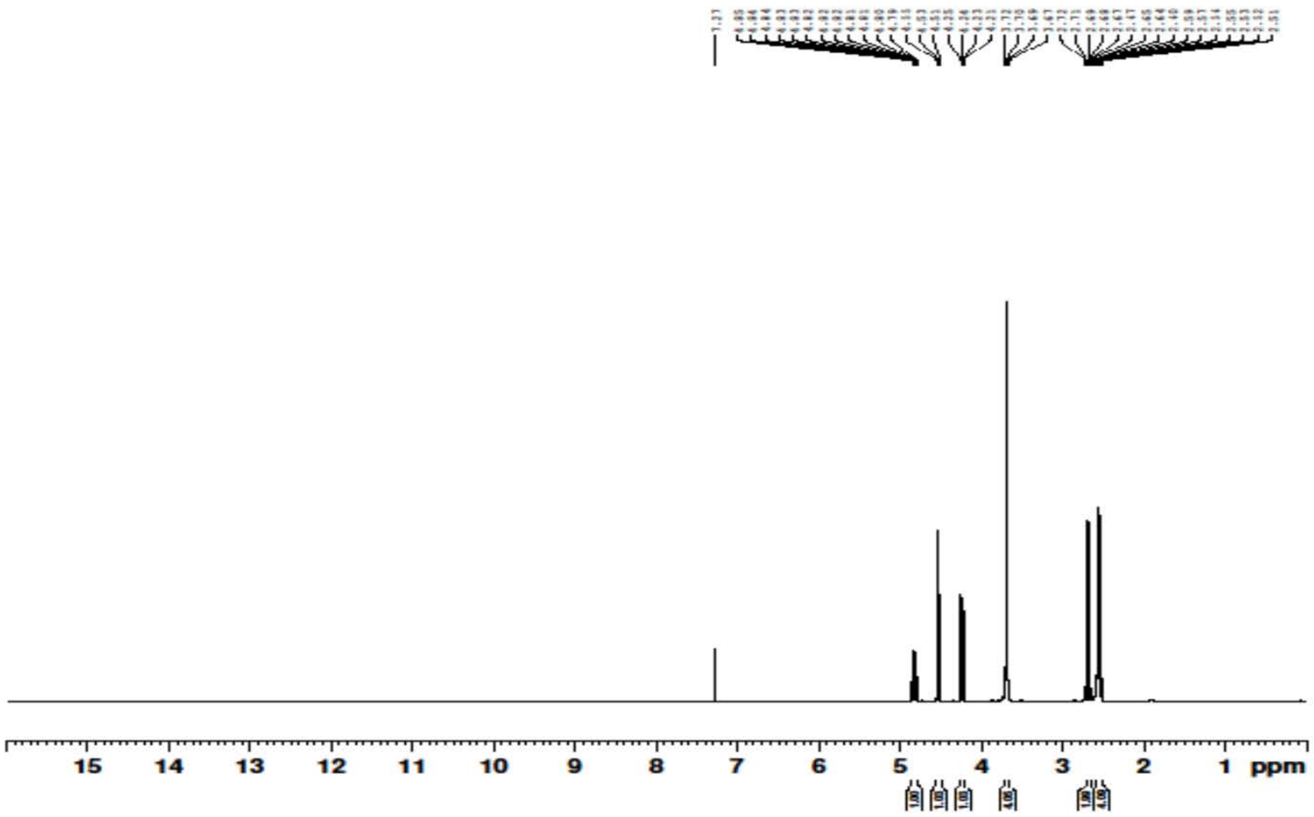
F2 - Acquisition Parameters
Date_              20151211
Time                  14.43
INSTRUM          FOURIER300
PROBHD    5 mm DUL 13C-1
PULPROG                zg30
TD                    65536
SOLVENT               CDCl3
NS                       16
DS                        2
SWH                6103.516 Hz
FIDRES             0.093132 Hz
AQ                5.3687091 sec
RG                  27.6135
DW                   81.920 usec
DE                     6.50 usec
TE                    299.9 K
D1               1.00000000 sec
TD0                       1

======== CHANNEL f1 ========
SFO1            300.2018539 MHz
NUC1                     1H
P1                    10.00 usec
PLW1            20.00000000 W

F2 - Processing parameters
SI                    65536
SF              300.2000013 MHz
WDW                      EM
SSB        0
LB                     0.30 Hz
GB         0
PC                     1.00
```

4-(Morpholinomethyl)-1,3-dioxolan-2-one (5g)[3]

^{1}H NMR



```
Current Data Parameters
NAME           151207.409
EXPNO                  10
PROCNO                  1

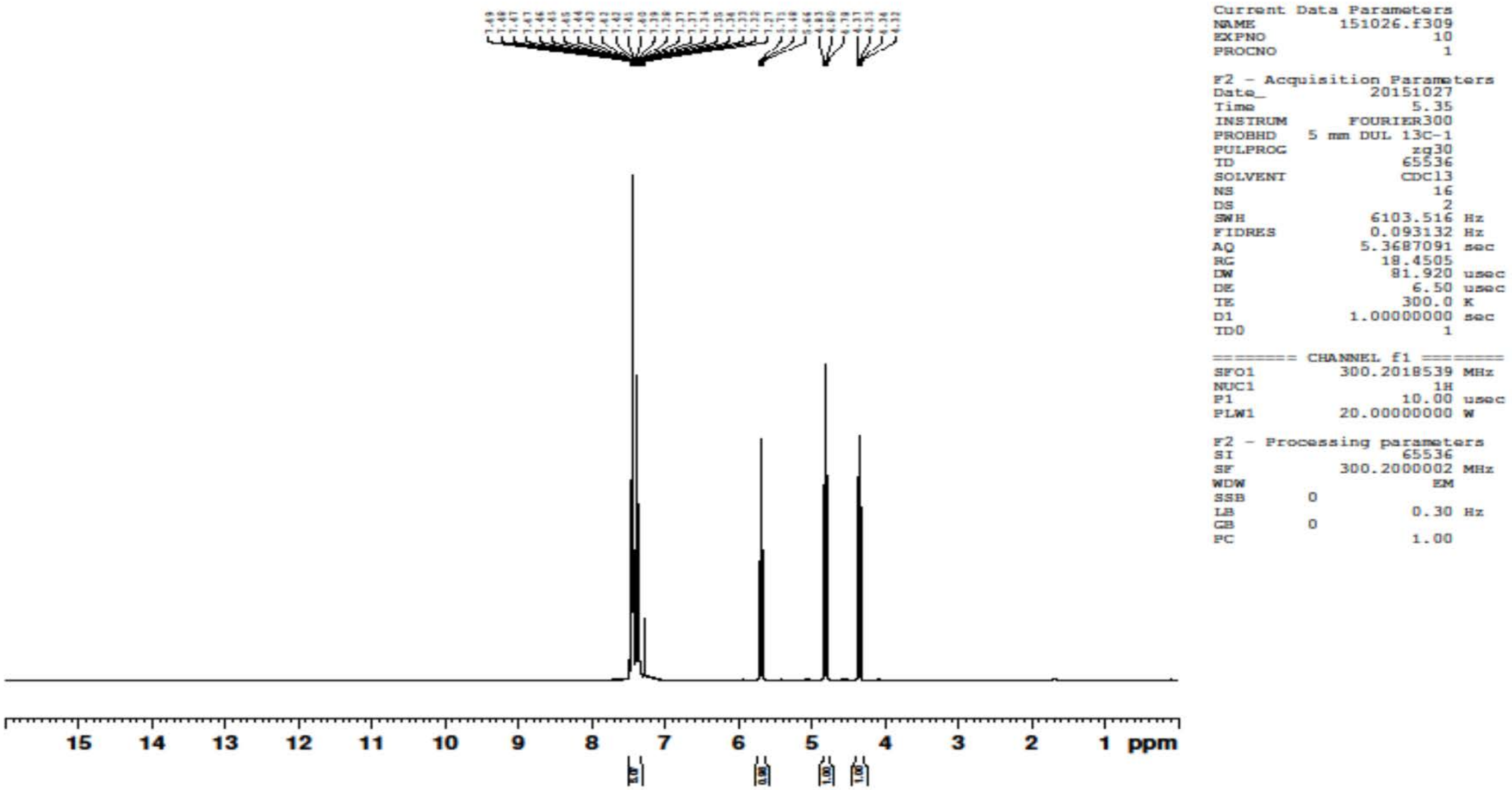
F2 - Acquisition Parameters
Date_            20151207
Time                22.53
INSTRUM             AV400
PROBHD     5 mm PABBO BB-
PULPROG              zg30
TD                  32768
SOLVENT             CDCl3
NS                     32
DS                      4
SWH              8012.820 Hz
FIDRES           0.244532 Hz
AQ              2.0447233 sec
RG                    128
DW                 62.400 usec
DE                   6.00 usec
TE                  297.0 K
D1             1.50000000 sec
TD0                     1

======== CHANNEL f1 ========
NUC1                   1H
P1                  12.20 usec
PL1                 -2.00 dB
PL1W          15.44655800 W
SFO1          400.1324000 MHz

F2 - Processing parameters
SI                  32768
SF            400.1300172 MHz
WDW                    EM
SSB          0
LB                   0.10 Hz
GB           0
PC                   1.00
```

4-Phenyl-1,3-dioxolan-2-one (5h)[1]

^{1}H NMR



```
Current Data Parameters
NAME          151026.f309
EXPNO                  10
PROCNO                  1

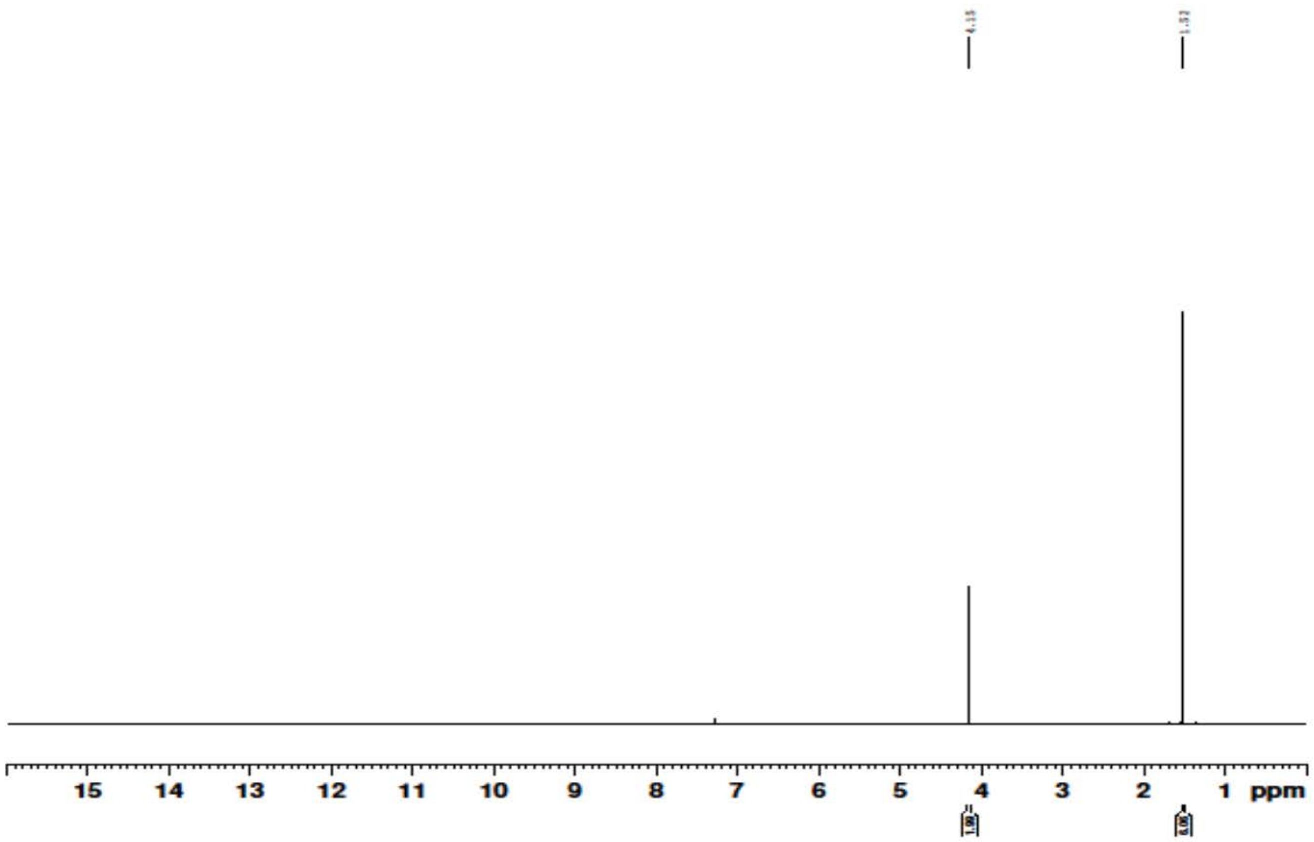
F2 - Acquisition Parameters
Date_            20151027
Time                 5.35
INSTRUM       FOURIER300
PROBHD    5 mm DUL 13C-1
PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                18.4505
DW                 81.920 usec
DE                   6.50 usec
TE                  300.0 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000002 MHz
WDW                    EM
SSB      0
LB                   0.30 Hz
GB       0
PC                   1.00
```

4,4-Dimethyl-1,3-dioxolan-2-one (7a)[3]

^{1}H NMR



```
Current Data Parameters
NAME          151207.418
EXPNO                 10
PROCNO                 1

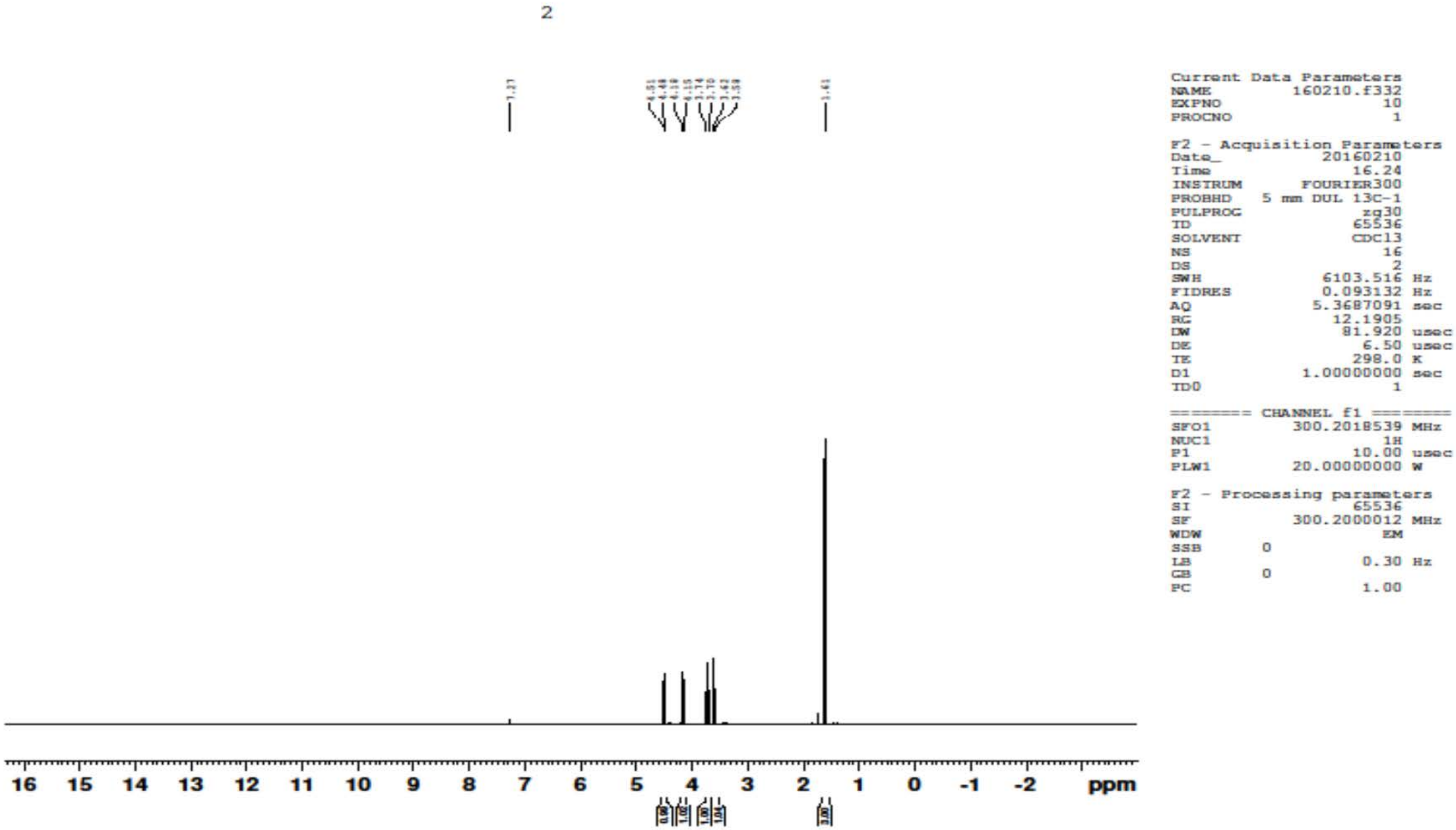
F2 - Acquisition Parameters
Date_           20151208
Time                4.20
INSTRUM            AV400
PROBHD   5 mm PABBO BB-
PULPROG             zg30
TD                 32768
SOLVENT            CDCl3
NS                    32
DS                     4
SWH             8012.820 Hz
FIDRES          0.244532 Hz
AQ             2.0447233 sec
RG                 161.3
DW                62.400 usec
DE                  6.00 usec
TE                 297.0 K
D1            1.50000000 sec
TD0                    1

======== CHANNEL f1 ========
NUC1                  1H
P1                 12.20 usec
PL1                -2.00 dB
PL1W         15.44655800 W
SFO1         400.1324000 MHz

F2 - Processing parameters
SI                 32768
SF           400.1300172 MHz
WDW                   EM
SSB       0
LB                  0.10 Hz
GB        0
PC                  1.00
```

4-(Chloromethyl)-4-methyl-1,3-dioxolan-2-one (7b)[7]

^{1}H NMR



```
Current Data Parameters
NAME          160210.f332
EXPNO                  10
PROCNO                  1

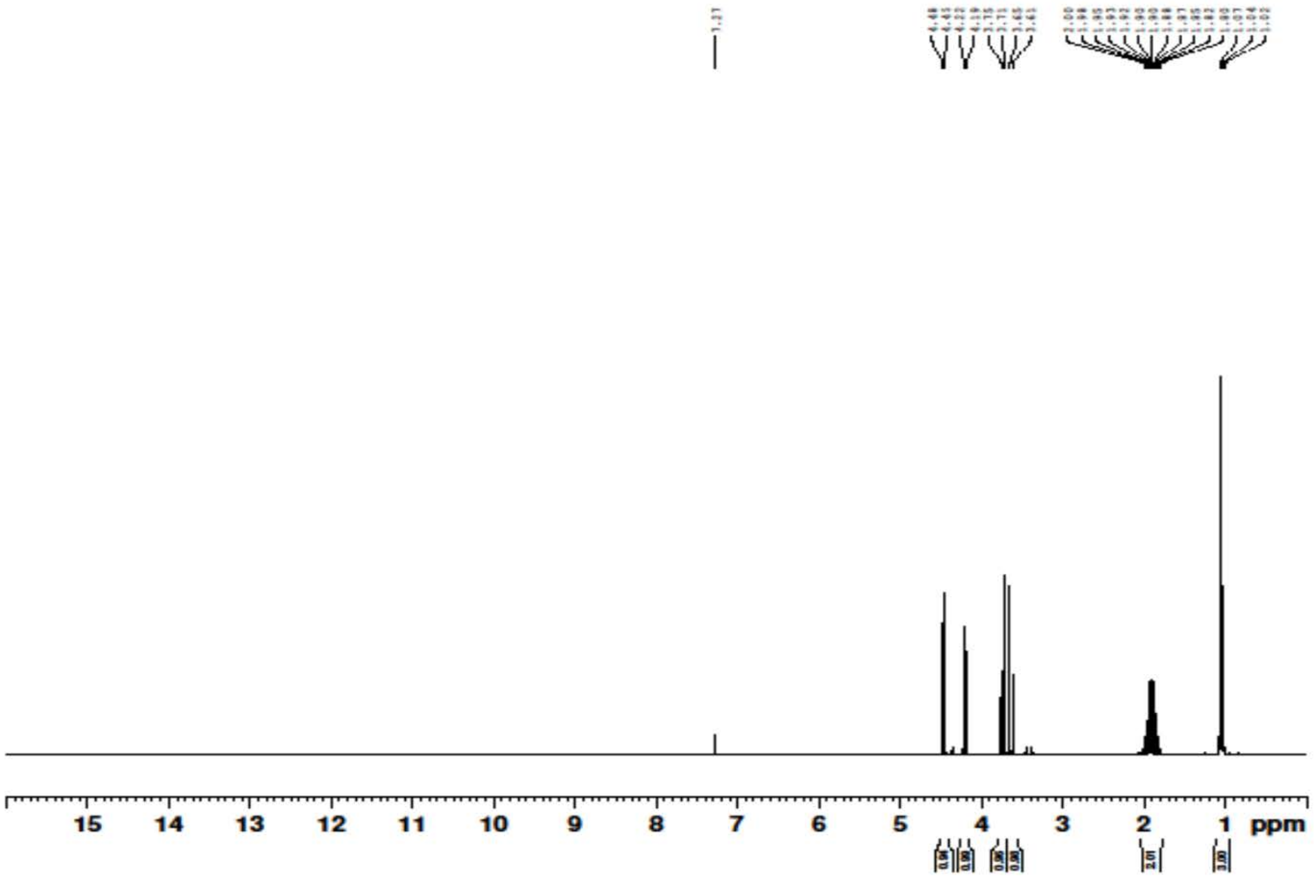
F2 - Acquisition Parameters
Date_            20160210
Time                16.24
INSTRUM         FOURIER300
PROBHD   5 mm DUL 13C-1
PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                12.1905
DW                 81.920 usec
DE                   6.50 usec
TE                  298.0 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000012 MHz
WDW                    EM
SSB      0
LB                   0.30 Hz
GB       0
PC                   1.00
```

4-(Chloromethyl)-4-ethyl-1,3-dioxolan-2-one (7c)

^{1}H NMR



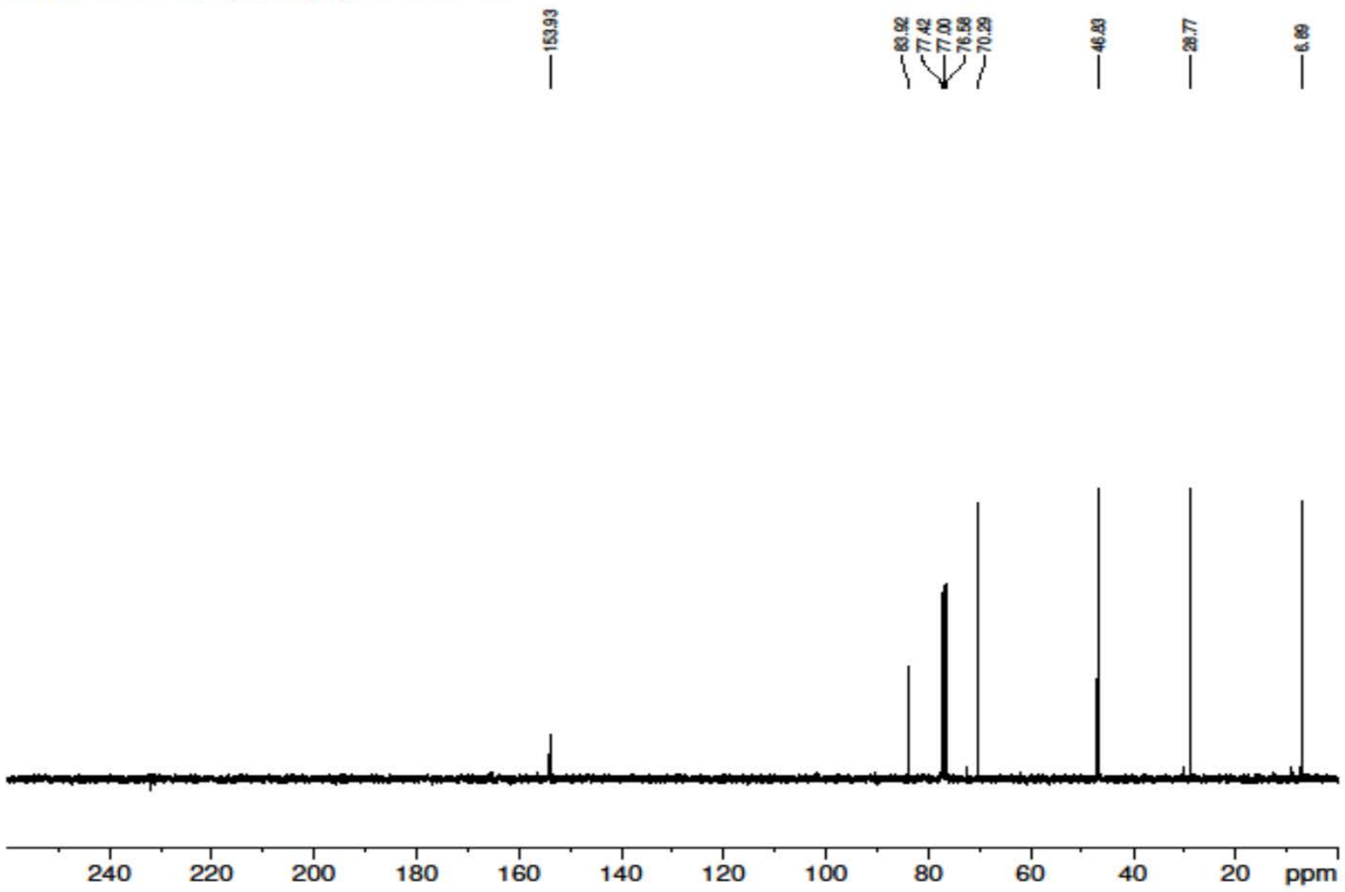
```
Current Data Parameters
NAME              160212.312
EXPNO                     10
PROCNO                     1

F2 - Acquisition Parameters
Date_               20160212
Time                   22.31
INSTRUM                AV300
PROBHD    5 mm PABBO BB-
PULPROG                 zg30
TD                     32768
SOLVENT                CDCl3
NS                        32
DS                         4
SWH                 6172.839 Hz
FIDRES              0.188380 Hz
AQ                 2.6542079 sec
RG                       128
DW                    81.000 usec
DE                      6.00 usec
TE                     294.1 K
D1                1.00000000 sec
TD0                        1

======== CHANNEL f1 ========
NUC1                      1H
P1                     11.00 usec
PL1          0 dB
PL1W             12.28312492 W
SFO1             300.1318534 MHz

F2 - Processing parameters
SI                     32768
SF               300.1300124 MHz
WDW                       EM
SSB          0
LB                      0.10 Hz
GB           0
PC                      1.00
```

^{13}C NMR



```
Current Data Parameters
NAME          160212.312
EXPNO                 11
PROCNO                 1

F2 - Acquisition Parameters
Date_           20160212
Time               22.46
INSTRUM            AV300
PROBHD   5 mm PABBO BB-
PULPROG          zgpg30
TD                 32768
SOLVENT            CDCl3
NS                   256
DS                     4
SWH            21097.047 Hz
FIDRES          0.643831 Hz
AQ             0.7766016 sec
RG                 32768
DW                23.700 usec
DE                  6.00 usec
TE                 294.5 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                    1

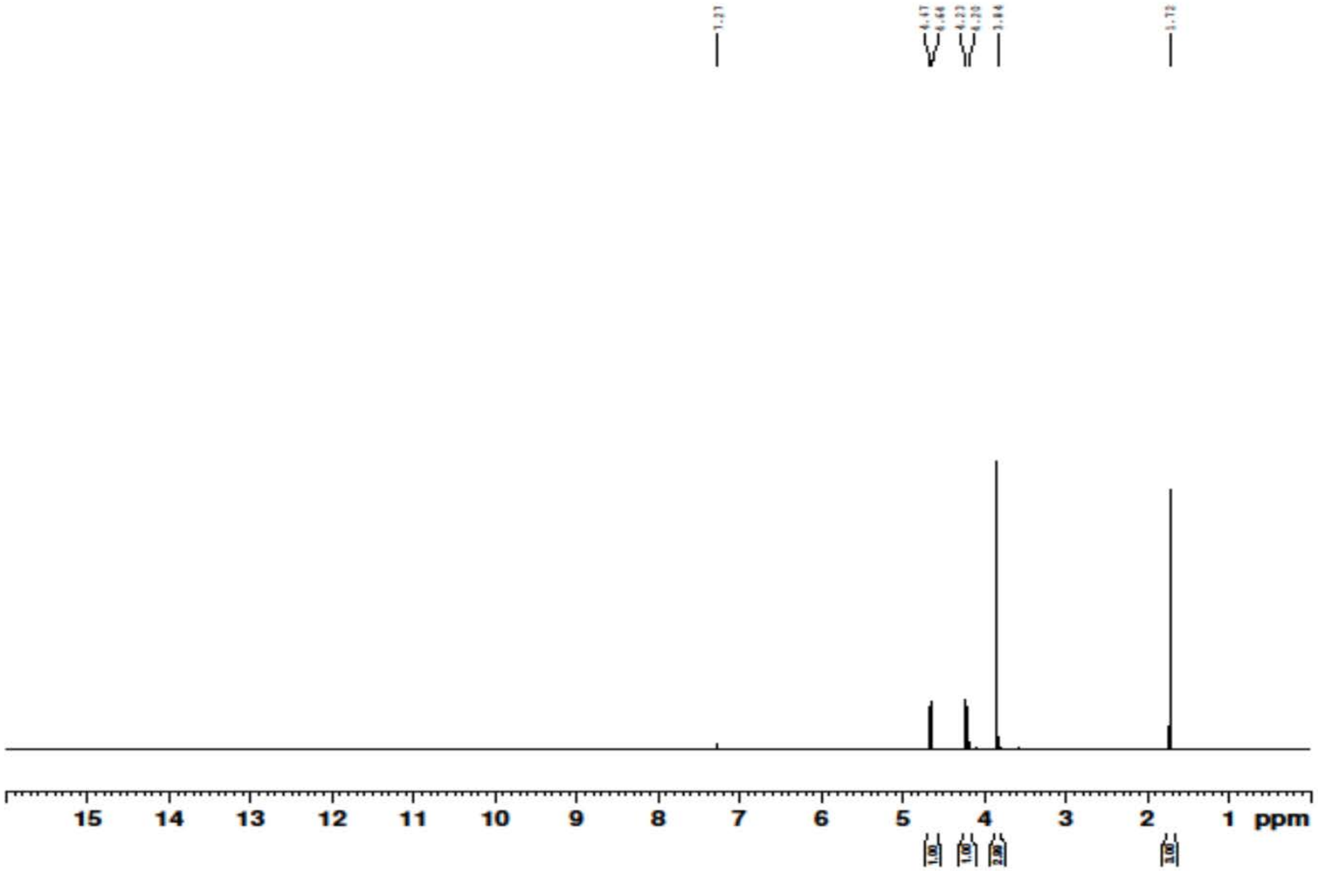
======== CHANNEL f1 ========
NUC1                 13C
P1                  9.60 usec
PL1                -1.10 dB
PL1W         37.53686523 W
SFO1          75.4771825 MHz

======== CHANNEL f2 ========
CPDPRG[2         waltz16
NUC2                  1H
PCPD2             100.00 usec
PL2         0 dB
PL12               19.00 dB
PL13               21.00 dB
PL2W         12.28312492 W
PL12W         0.15463538 W
PL13W         0.09756833 W
SFO2         300.1312005 MHz

F2 - Processing parameters
SI                 32768
SF            75.4677578 MHz
WDW                   EM
SSB         0
LB                  1.00 Hz
GB          0
PC                  1.40
```

Methyl 4-methyl-2-oxo-1,3-dioxolane-4-carboxylate (7d)

^{1}H NMR



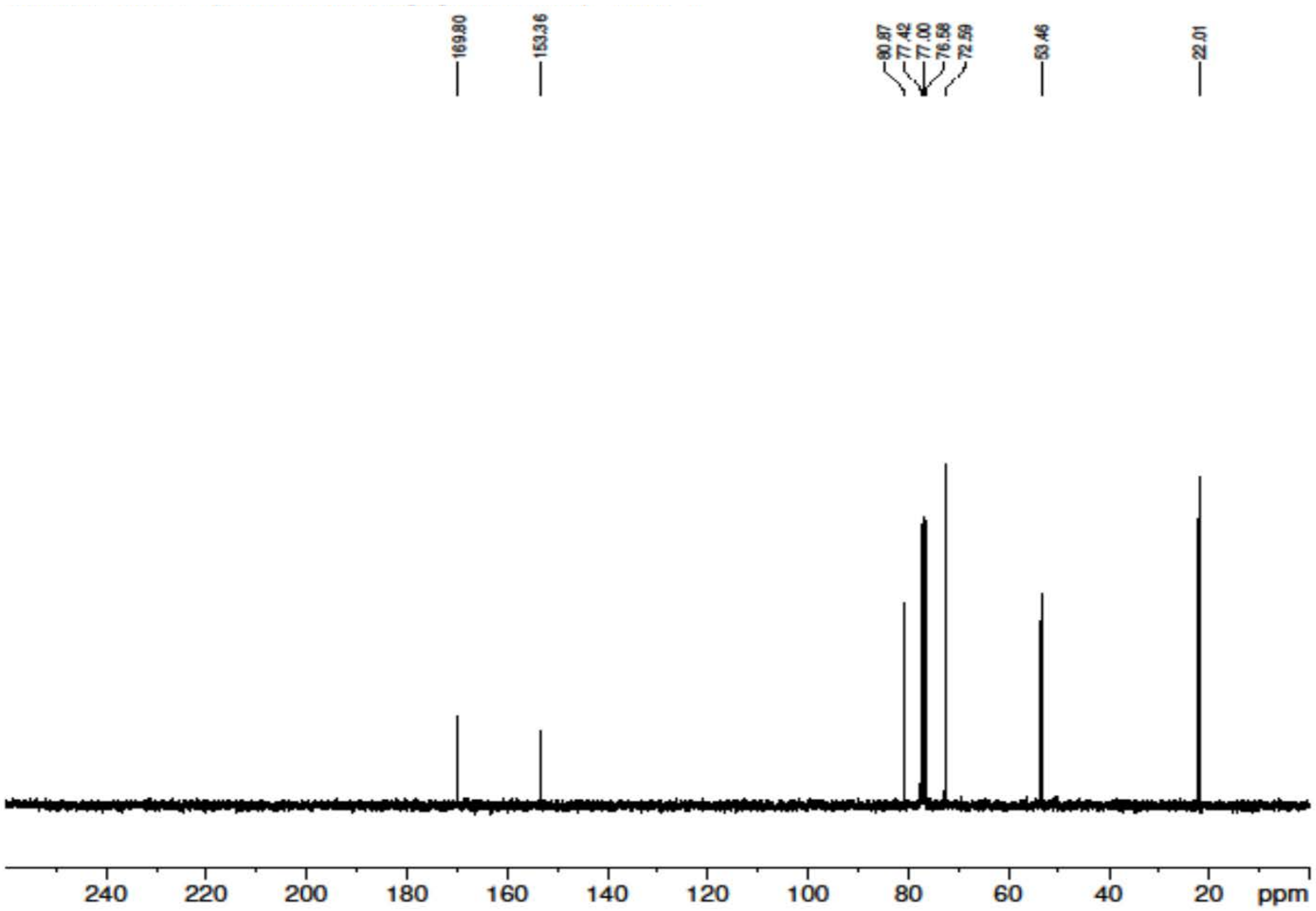
```
Current Data Parameters
NAME          160219.f306
EXPNO                  10
PROCNO                  1

F2 - Acquisition Parameters
Date_            20160219
Time                 9.32
INSTRUM        FOURIER300
PROBHD   5 mm DUL 13C-1
PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                 13.533
DW                 81.920 usec
DE                   6.50 usec
TE                  298.0 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000011 MHz
WDW                    EM
SSB      0
LB                   0.30 Hz
GB       0
PC                   1.00
```

^{13}C NMR



```
Current Data Parameters
NAME        160219.f306
EXPNO                11
PROCNO                1

F2 - Acquisition Parameters
Date_          20160219
Time               9.35
INSTRUM     FOURIER300
PROBHD   5 mm DUL 13C-1
PULPROG         zgpg30
TD               65536
SOLVENT          CDC13
NS                 256
DS                   4
SWH          24414.063 Hz
FIDRES        0.372529 Hz
AQ           1.3421773 sec
RG             501.187
DW              20.480 usec
DE                6.50 usec
TE               298.0 K
D1          2.00000000 sec
D11         0.03000000 sec
D31         0.00001200 sec
D40         0.02898005 sec
L4                  40
L5                  57
P32              90.00 usec
TD0                  1

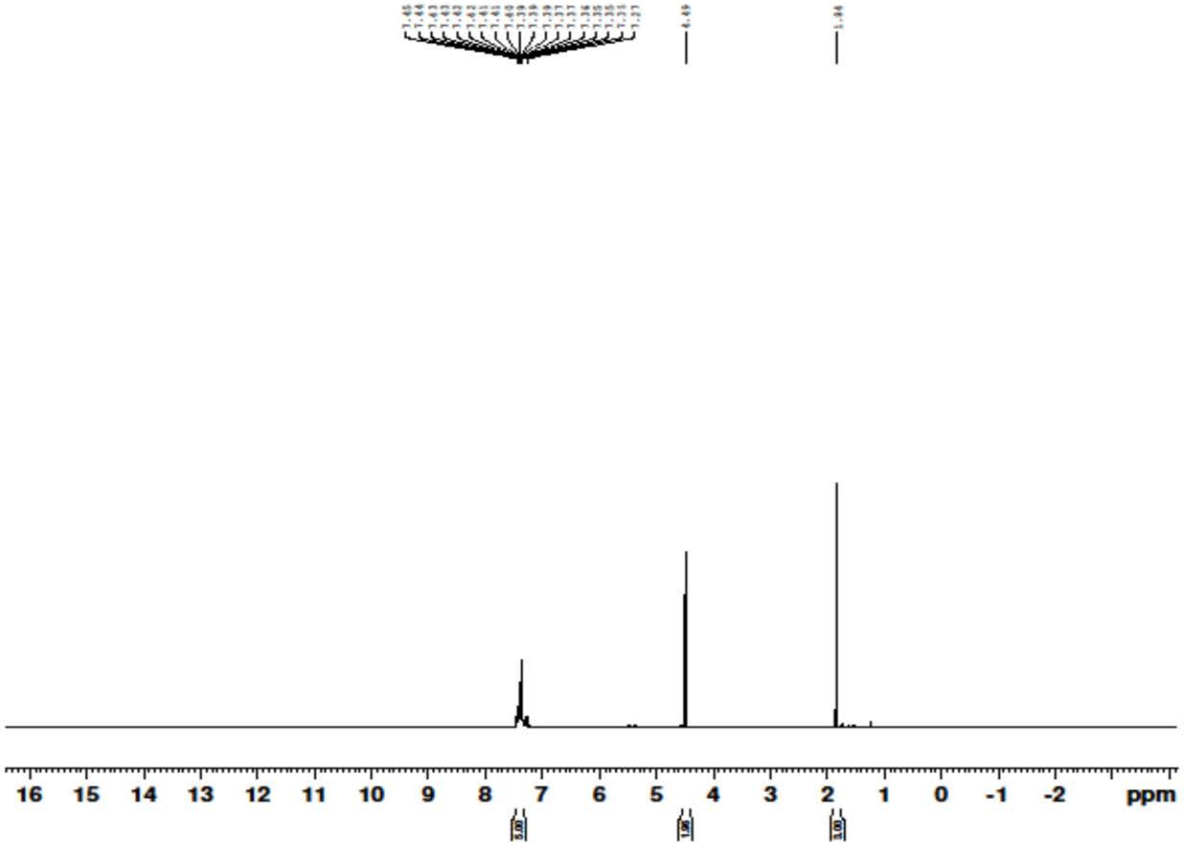
======== CHANNEL f1 ========
SFO1        75.4928982 MHz
NUC1               13C
P1               12.00 usec
PLW1       43.00000000 W

======== CHANNEL f2 ========
SFO2       300.2012008 MHz
NUC2                1H
CPDPRG[2       waltz16
PCPD2            90.00 usec
PLW2       20.00000000 W
PLW12       0.24691001 W
PLW13       0.20000000 W

F2 - Processing parameters
SI               32768
SF          75.4853566 MHz
WDW                 EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```

4-Methyl-4-phenyl-1,3-dioxolan-2-one (7e)[8]

^{1}H-NMR



```
Current Data Parameters
NAME          151217.301
EXPNO                 10
PROCNO                 1

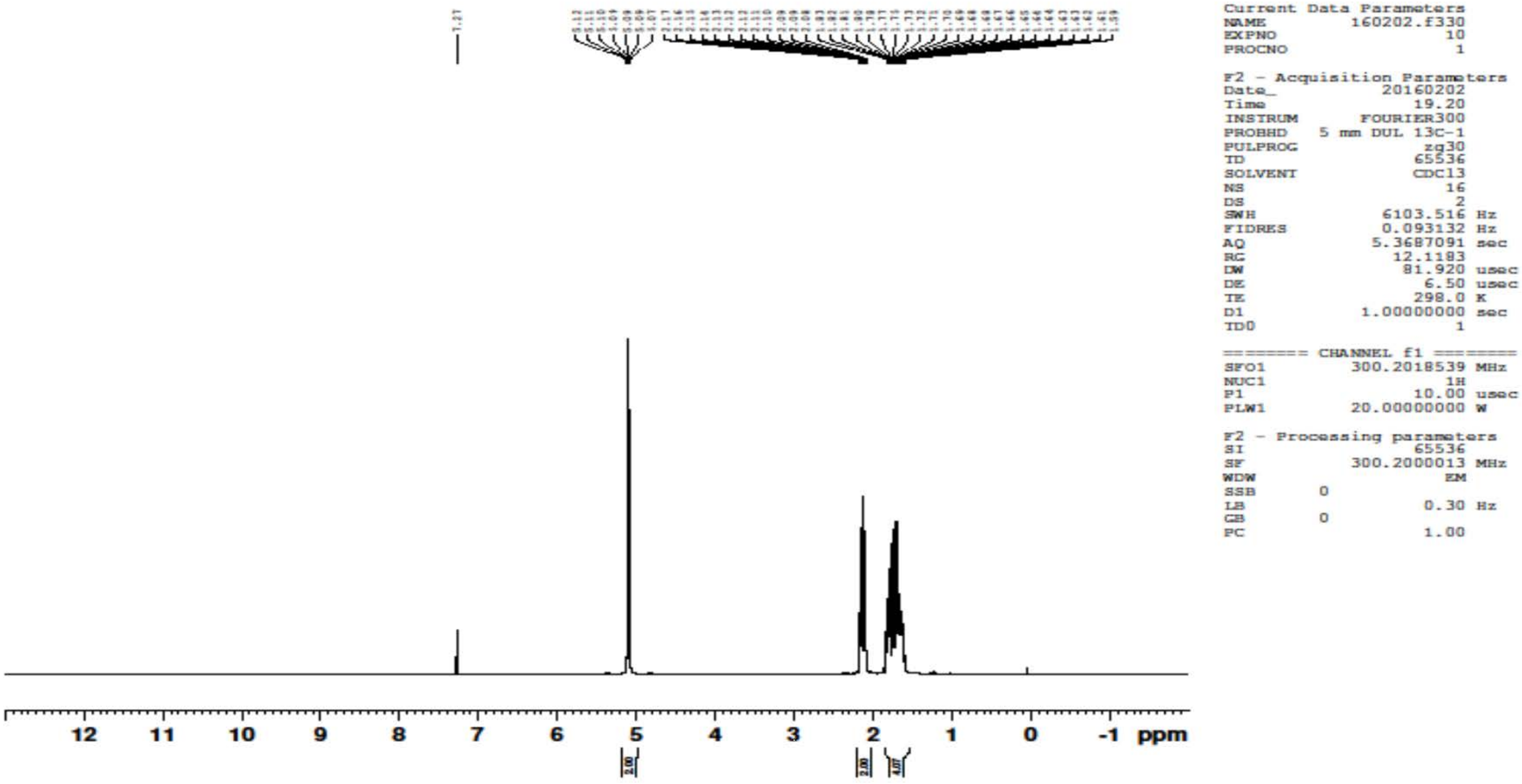
F2 - Acquisition Parameters
Date_           20151218
Time                3.38
INSTRUM            AV300
PROBHD   5 mm PABBO BB-
PULPROG             zg30
TD                 32768
SOLVENT            CDC13
NS                    32
DS                     4
SWH             6172.839 Hz
FIDRES          0.188380 Hz
AQ             2.6542079 sec
RG                   114
DW                81.000 usec
DE                  6.00 usec
TE                 294.6 K
D1            1.00000000 sec
TD0                    1

======== CHANNEL f1 ========
NUC1                  1H
P1                 11.00 usec
PL1          0 dB
PL1W         12.28312492 W
SFO1         300.1318534 MHz

F2 - Processing parameters
SI                 32768
SF           300.1300122 MHz
WDW                   EM
SSB          0
LB                  0.10 Hz
GB           0
PC                  1.00
```

cis Tetrahydro-8_H_-cyclopenta-1,3-dioxol-2-one (9a)[1]

^{1}H NMR



```
Current Data Parameters
NAME          160202.f330
EXPNO                  10
PROCNO                  1

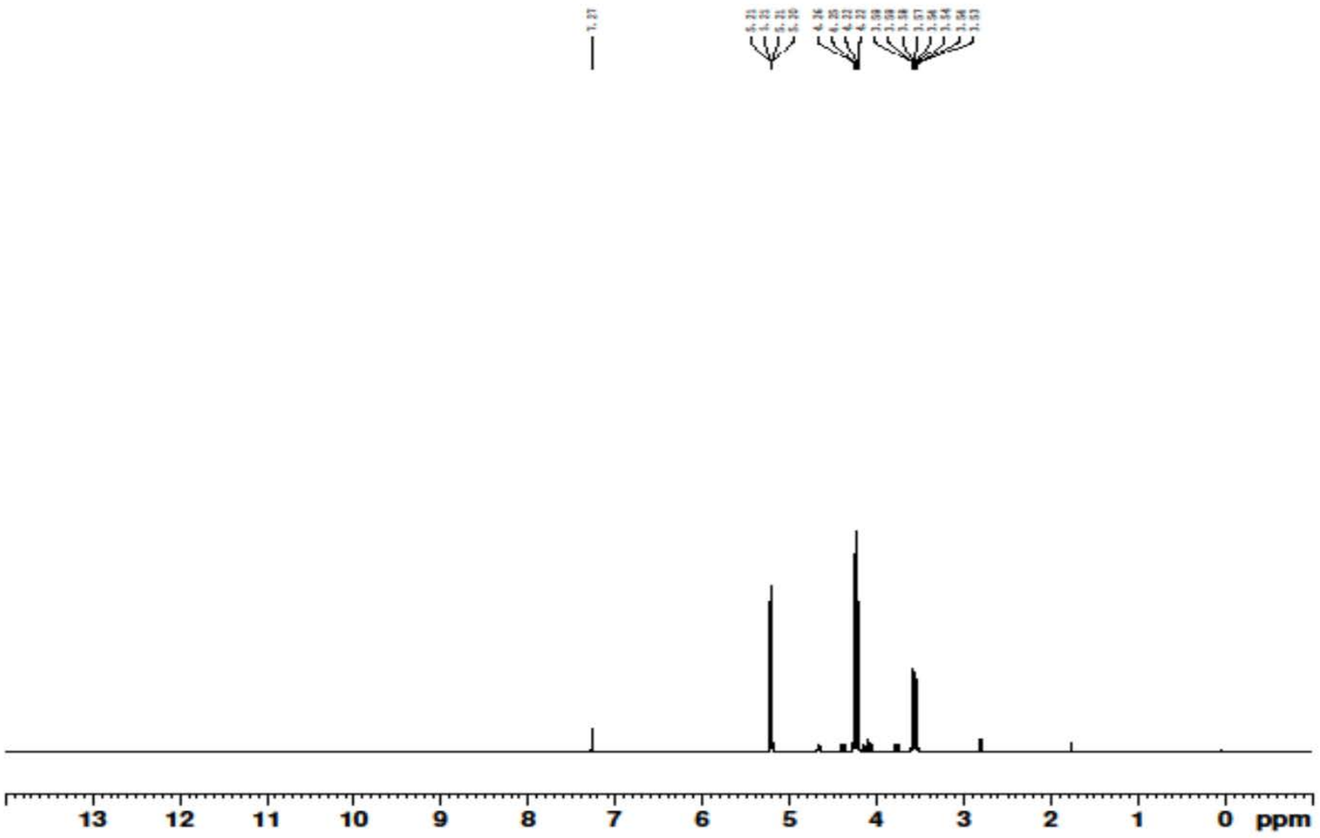
F2 - Acquisition Parameters
Date_            20160202
Time                19.20
INSTRUM       FOURIER300
PROBHD     5 mm DUL 13C-1
PULPROG              zg30
TD                  65536
SOLVENT             CDC13
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RC                12.1183
DW                 81.920 usec
DE                   6.50 usec
TE                  298.0 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000013 MHz
WDW                    EM
SSB      0
LB                   0.30 Hz
GB       0
PC                   1.00
```

cis Tetrahydrofuro[3,4-*d*][1,3]dioxol-2-one (4d)[1]

^{1}H NMR



```
Current Data Parameters
NAME            160210.f336
EXPNO                    10
PROCNO                    1

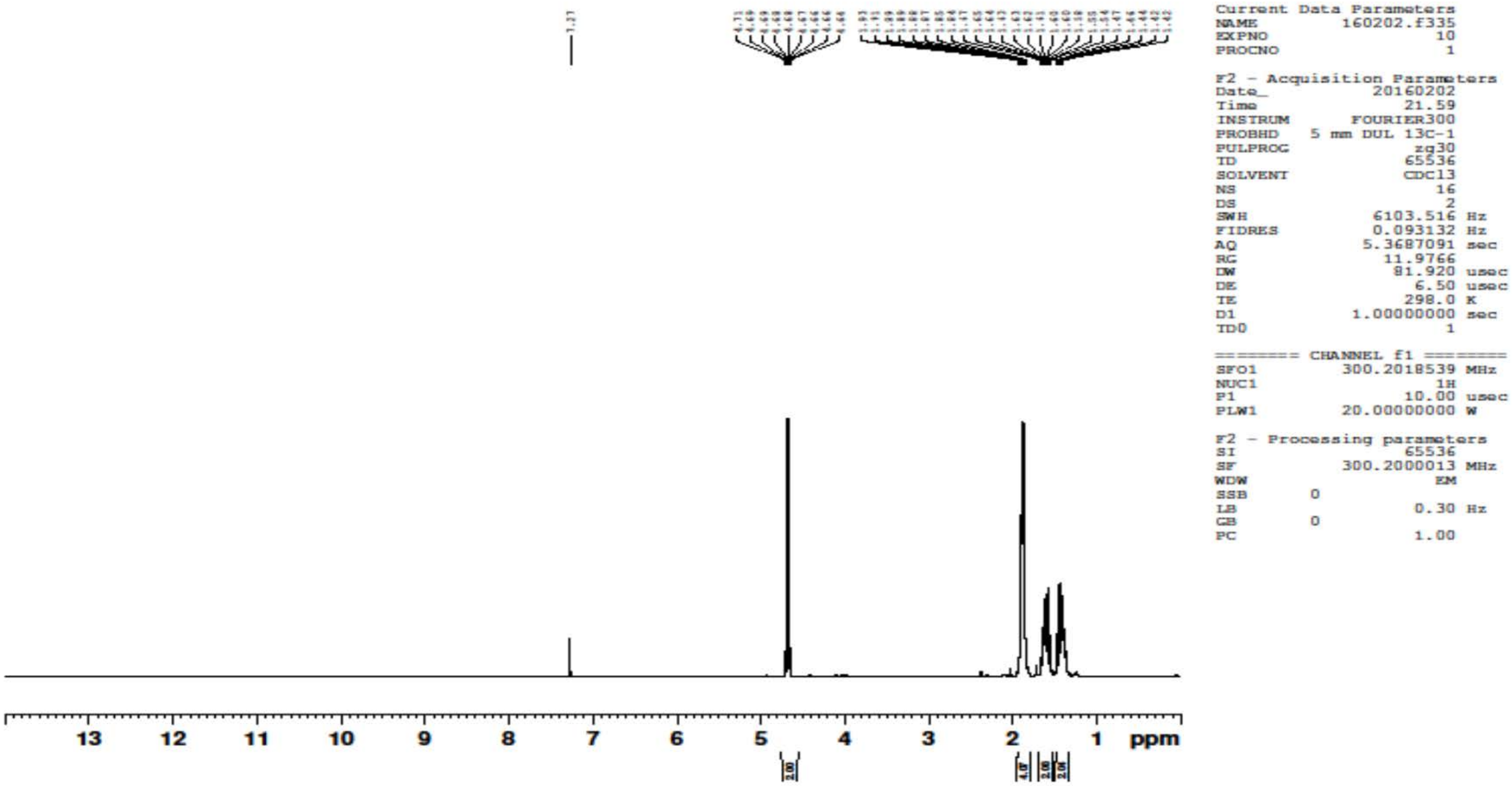
F2 - Acquisition Parameters
Date_              20160210
Time                  18.41
INSTRUM         FOURIER300
PROBHD    5 mm DUL 13C-1
PULPROG              zg30
TD                   65536
SOLVENT              CDCl3
NS                      16
DS                       2
SWH             6103.516 Hz
FIDRES          0.093132 Hz
AQ             5.3687091 sec
RG                16.6054
DW                81.920 usec
DE                  6.50 usec
TE                 298.0 K
D1            1.00000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1         300.2018539 MHz
NUC1                    1H
P1                   10.00 usec
PLW1         20.00000000 W

F2 - Processing parameters
SI                   65536
SF           300.2000012 MHz
WDW                     EM
SSB        0
LB                    0.30 Hz
GB         0
PC                    1.00
```

***cis* Cyclohexene carbonate (9c)**[1]

^{1}H NMR



```
Current Data Parameters
NAME         160202.f335
EXPNO                 10
PROCNO                 1

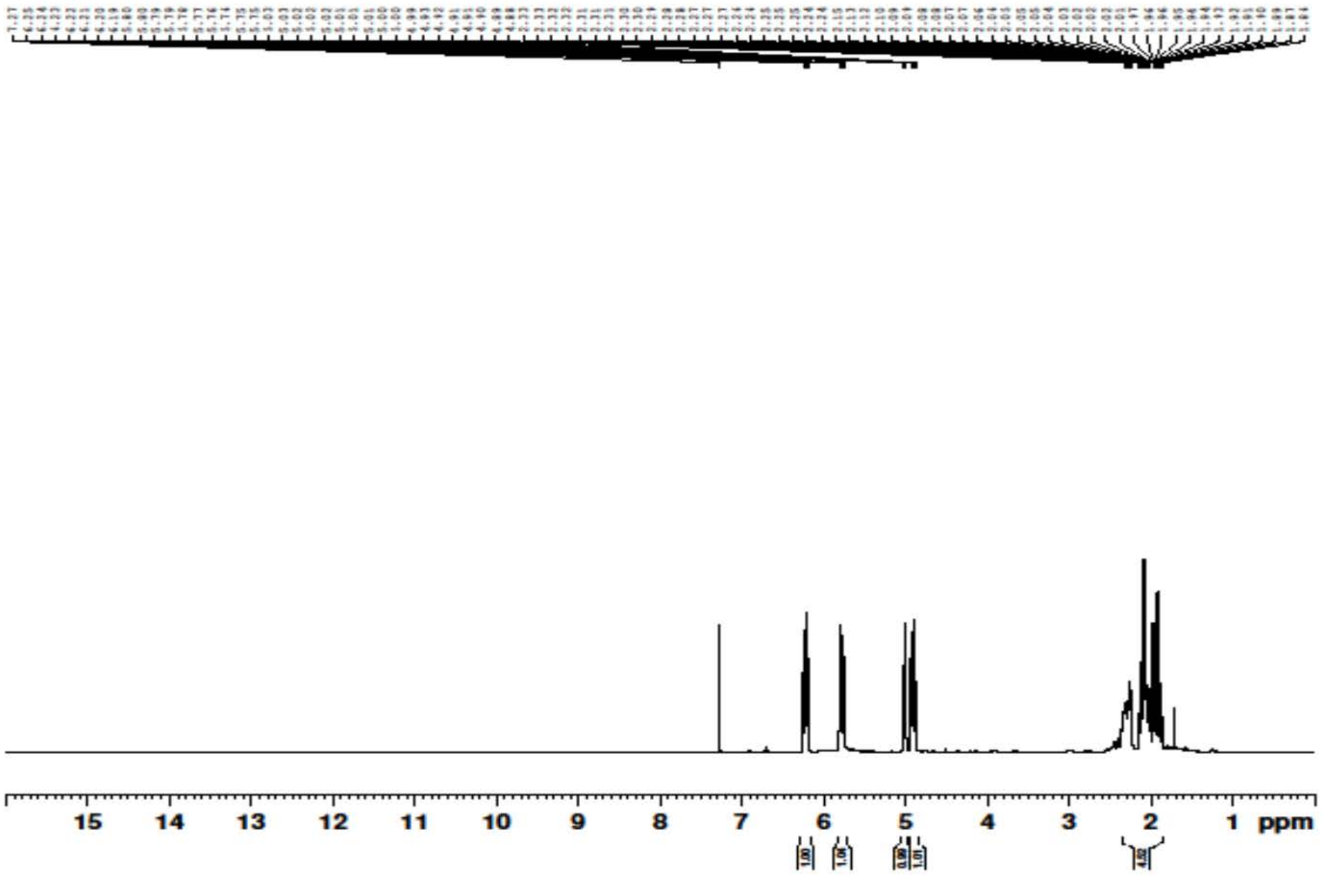
F2 - Acquisition Parameters
Date_           20160202
Time               21.59
INSTRUM      FOURIER300
PROBHD   5 mm DUL 13C-1
PULPROG             zg30
TD                 65536
SOLVENT            CDCl3
NS                    16
DS                     2
SWH             6103.516 Hz
FIDRES          0.093132 Hz
AQ             5.3687091 sec
RG               11.9766
DW                81.920 usec
DE                  6.50 usec
TE                 298.0 K
D1            1.00000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1         300.2018539 MHz
NUC1                  1H
P1                 10.00 usec
PLW1         20.00000000 W

F2 - Processing parameters
SI                 65536
SF           300.2000013 MHz
WDW                   EM
SSB      0
LB                  0.30 Hz
GB       0
PC                  1.00
```

***cis* 3a,4,5,7a-tetrahydrobenzo[*d*][1,3]dioxol-2-one (9d)[9]**

^{1}H NMR



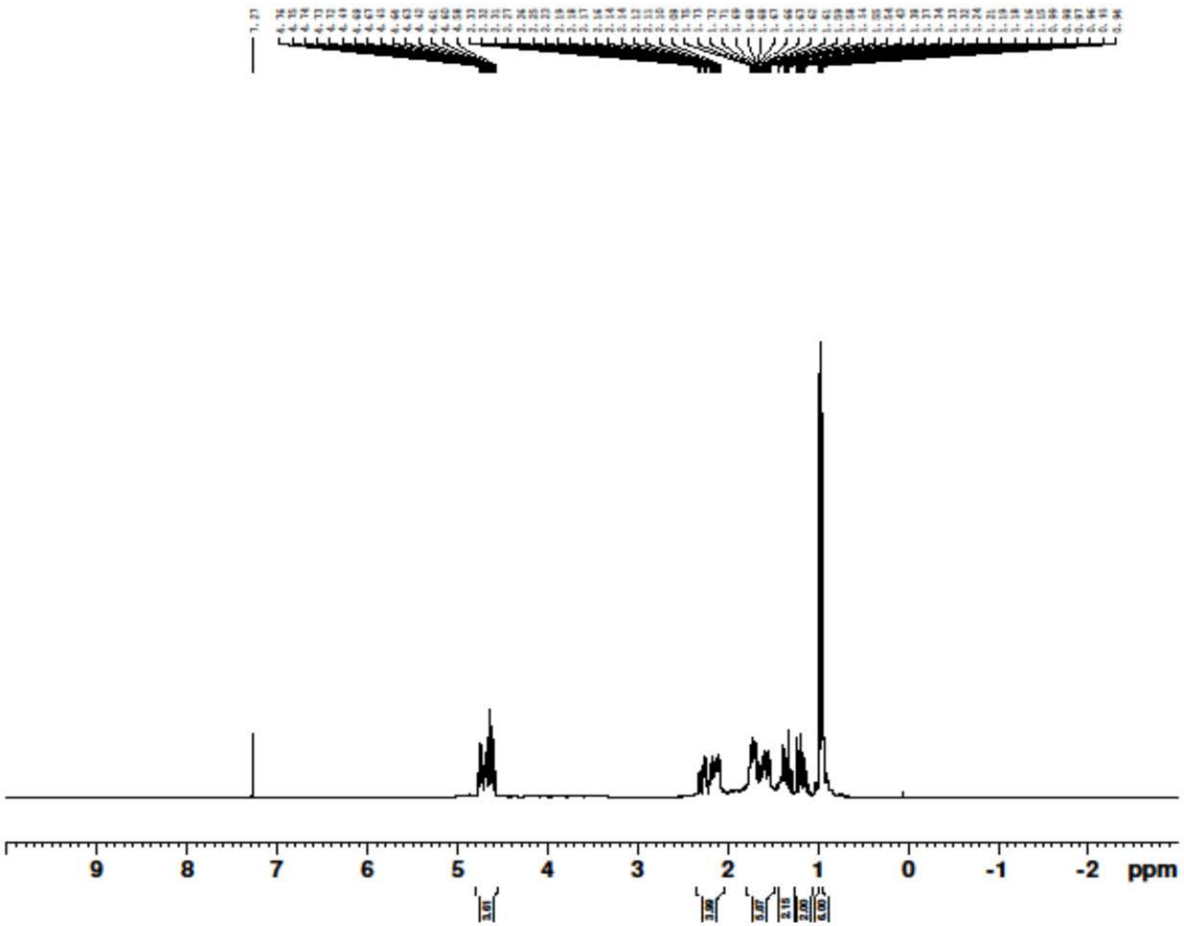
```
Current Data Parameters
NAME          151119.f303
EXPNO                  10
PROCNO                  1

F2 - Acquisition Parameters
Date_            20151119
Time                 9.39
INSTRUM       FOURIER300
PROBHD   5 mm DUL 13C-1
PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                 16.673
DW                 81.920 usec
DE                   6.50 usec
TE                  298.0 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000002 MHz
WDW                    EM
SSB      0
LB                   0.30 Hz
GB       0
PC                   1.00
```

5-Methylhexahydrobenzo[*d*][1,3]dioxol-2-one (9e)[6]



```
Current Data Parameters
NAME          160210.f334
EXPNO                  10
PROCNO                  1

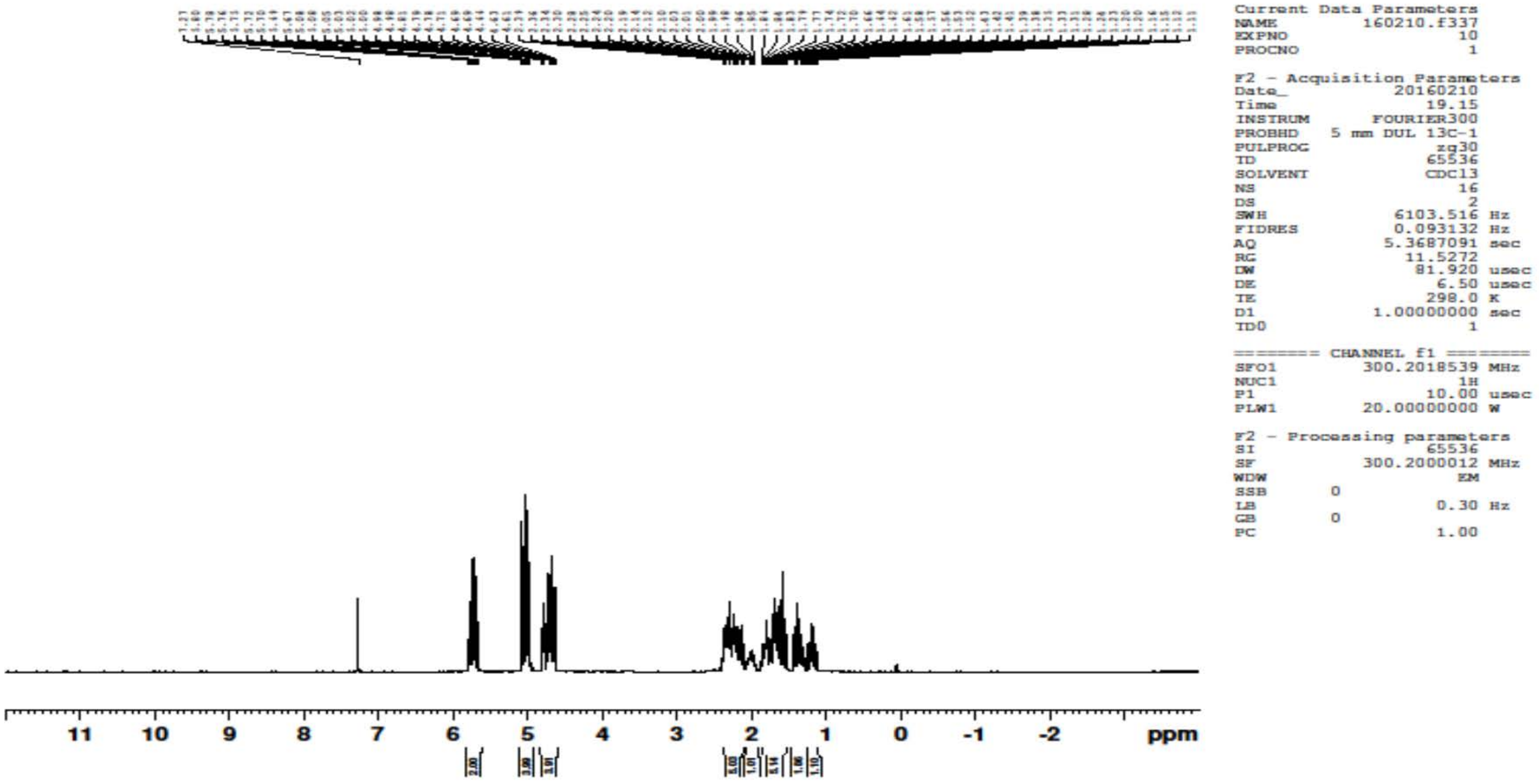
F2 - Acquisition Parameters
Date_            20160210
Time                17.32
INSTRUM       FOURIER300
PROBHD   5 mm DUL 13C-1
PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                11.8573
DW                 81.920 usec
DE                   6.50 usec
TE                  298.0 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000012 MHz
WDW                    EM
SSB      0
LB                   0.30 Hz
GB       0
PC                   1.00
```

cis 5-vinylhexahydrobenzo[_d_][1,3]dioxol-2-one (9f)[6]

^{1}H NMR



```
Current Data Parameters
NAME          160210.f337
EXPNO                  10
PROCNO                  1

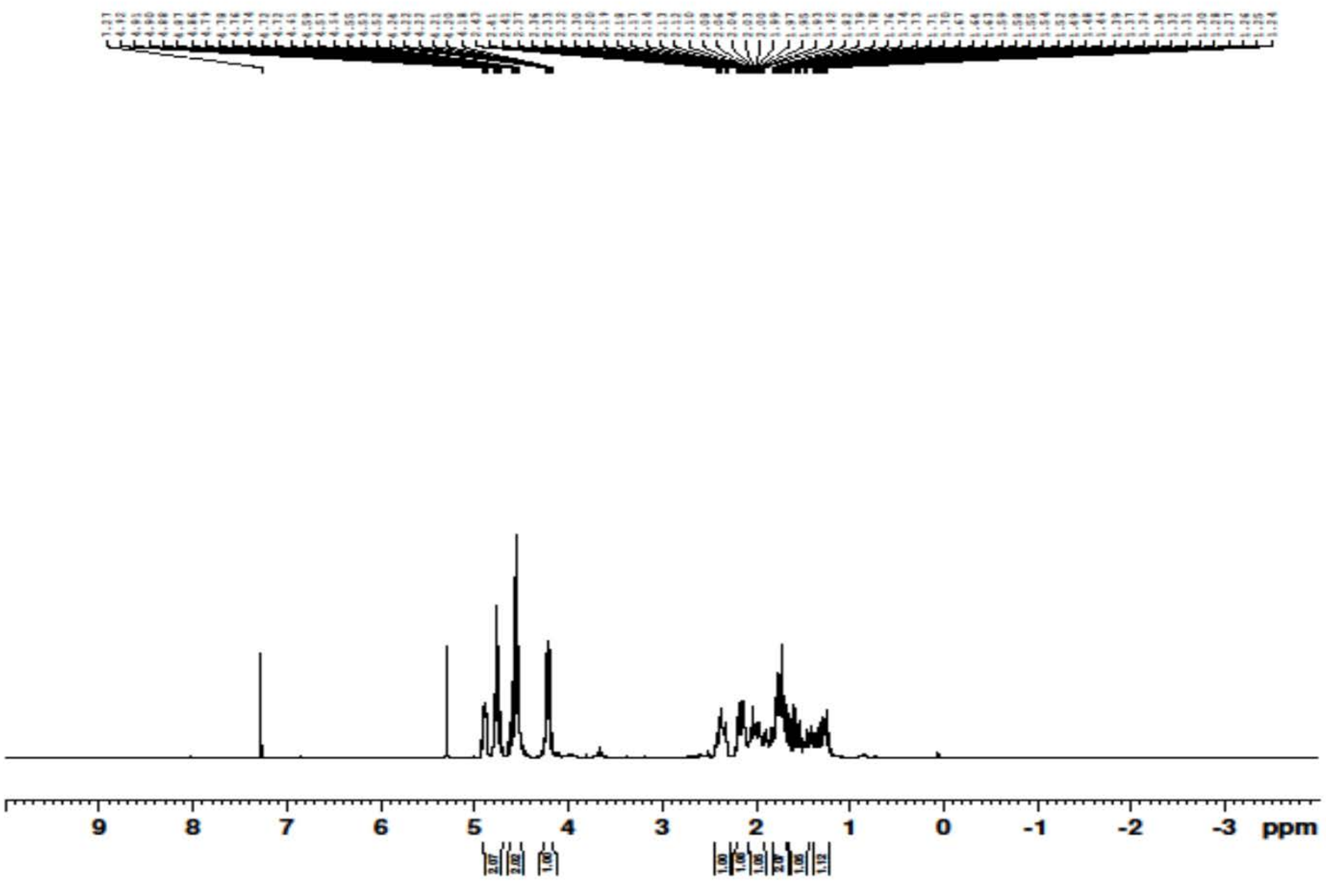
F2 - Acquisition Parameters
Date_            20160210
Time                19.15
INSTRUM       FOURIER300
PROBHD   5 mm DUL 13C-1
PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                11.5272
DW                 81.920 usec
DE                   6.50 usec
TE                  298.0 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000012 MHz
WDW                    EM
SSB      0
LB                   0.30 Hz
GB       0
PC                   1.00
```

cis 5-(2-Oxo-1,3-dioxolan-4-yl)hexahydrobenzo[*d*][1,3]dioxol-2-one (9g)[6]

^{1}H NMR



```
Current Data Parameters
NAME          150814.f312
EXPNO                  10
PROCNO                  1

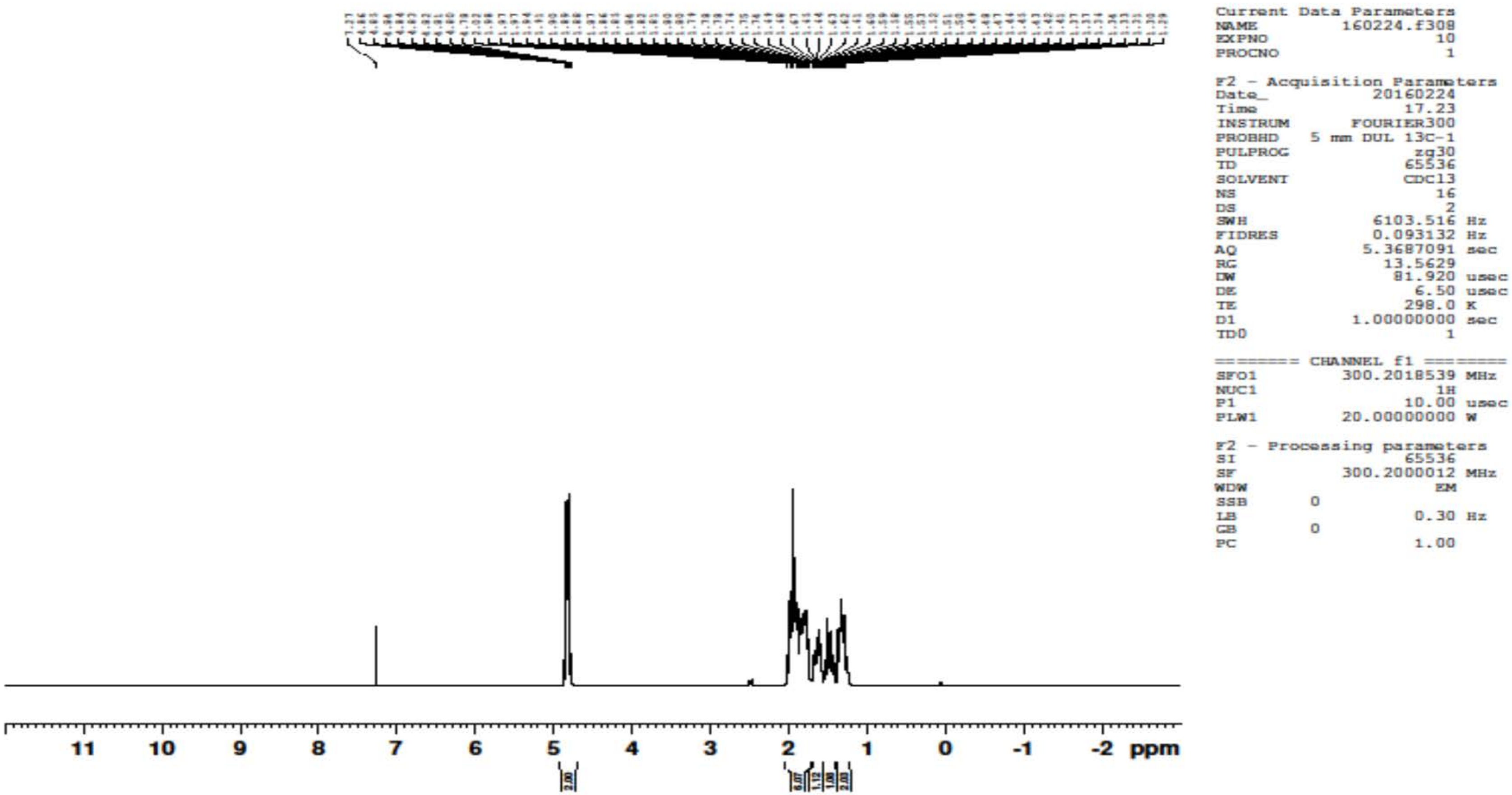
F2 - Acquisition Parameters
Date_            20150814
Time                16.48
INSTRUM       FOURIER300
PROBHD   5 mm DUL 13C-1
PULPROG              zg30
TD                  65536
SOLVENT             CDC13
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                 15.876
DW                 81.920 usec
DE                   6.50 usec
TE                  300.3 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000015 MHz
WDW                    EM
SSB       0
LB                   0.30 Hz
GB        0
PC                   1.00
```

cis hexahydro-4_H_-cyclohepta[_d_][1,3]dioxol-2-one (9h)[6]

^{1}H NMR



```
Current Data Parameters
NAME          160224.f308
EXPNO                  10
PROCNO                  1

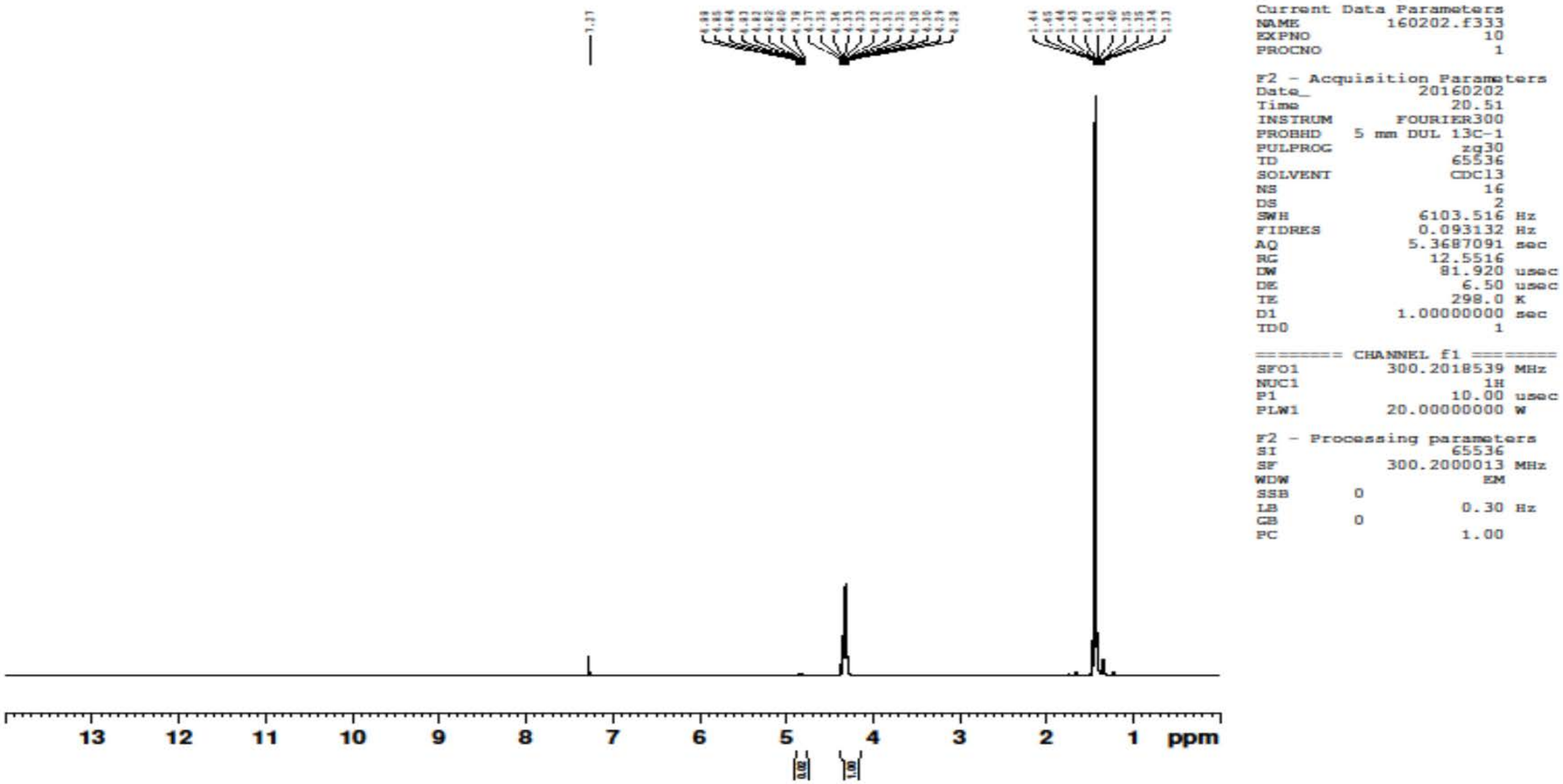
F2 - Acquisition Parameters
Date_            20160224
Time                17.23
INSTRUM       FOURIER300
PROBHD   5 mm DUL 13C-1
PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                13.5629
DW                 81.920 usec
DE                   6.50 usec
TE                  298.0 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000012 MHz
WDW                    EM
SSB      0
LB                   0.30 Hz
GB       0
PC                   1.00
```

trans 4,5-Dimethyl-1,3-dioxolan-2-one (11a)[1]

^{1}H NMR



```
Current Data Parameters
NAME          160202.f333
EXPNO                  10
PROCNO                  1

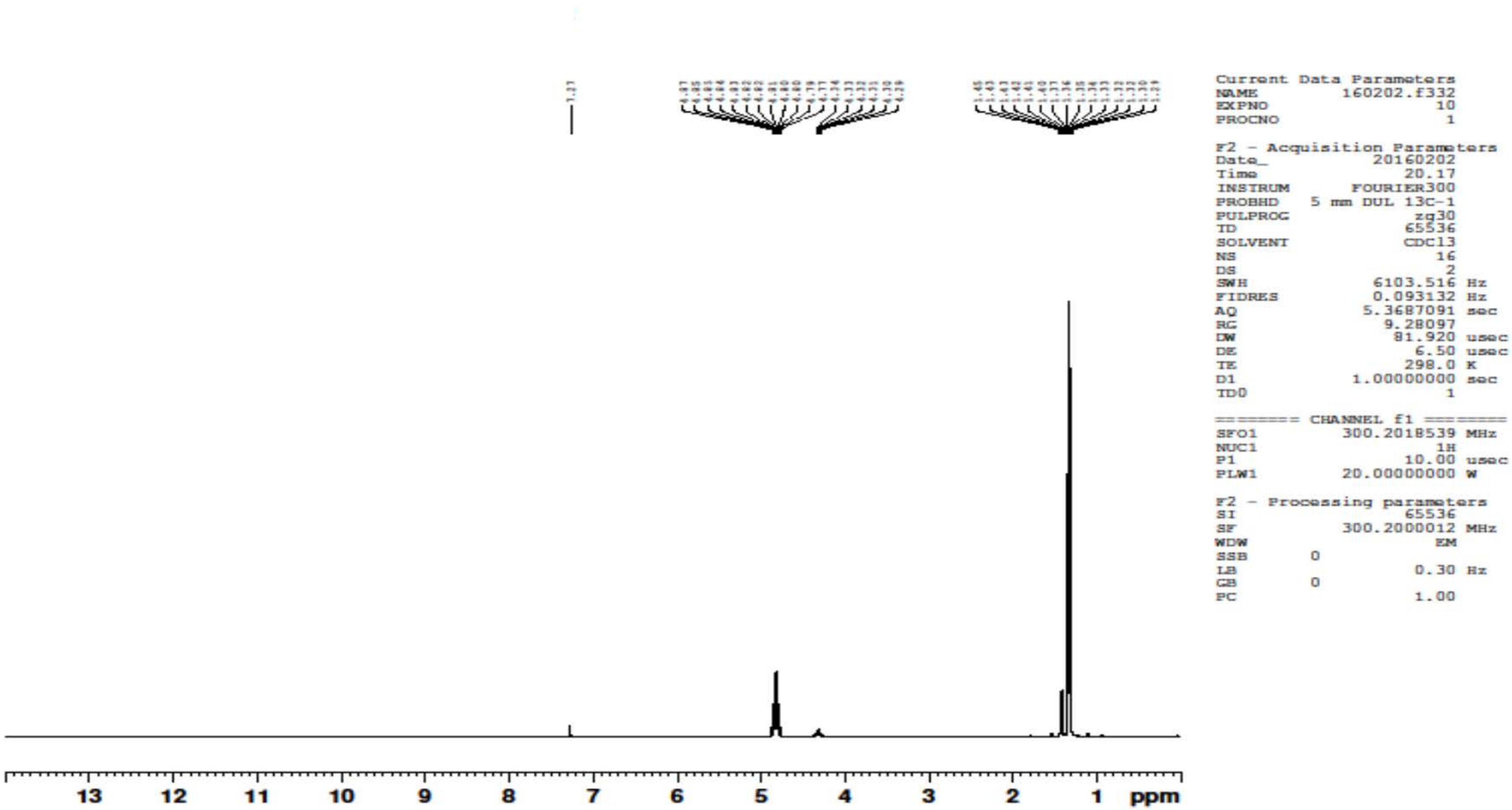
F2 - Acquisition Parameters
Date_            20160202
Time                20.51
INSTRUM       FOURIER300
PROBHD   5 mm DUL 13C-1
PULPROG             zg30
TD                 65536
SOLVENT            CDCl3
NS                    16
DS                     2
SWH             6103.516 Hz
FIDRES          0.093132 Hz
AQ             5.3687091 sec
RG               12.5516
DW                81.920 usec
DE                  6.50 usec
TE                 298.0 K
D1            1.00000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1         300.2018539 MHz
NUC1                  1H
P1                 10.00 usec
PLW1         20.00000000 W

F2 - Processing parameters
SI                 65536
SF           300.2000013 MHz
WDW                   EM
SSB      0
LB                  0.30 Hz
GB       0
PC                  1.00
```

cis 4,5-Dimethyl-1,3-dioxolan-2-one (11b)[1]

^{1}H NMR



```
Current Data Parameters
NAME             160202.f332
EXPNO                     10
PROCNO                     1

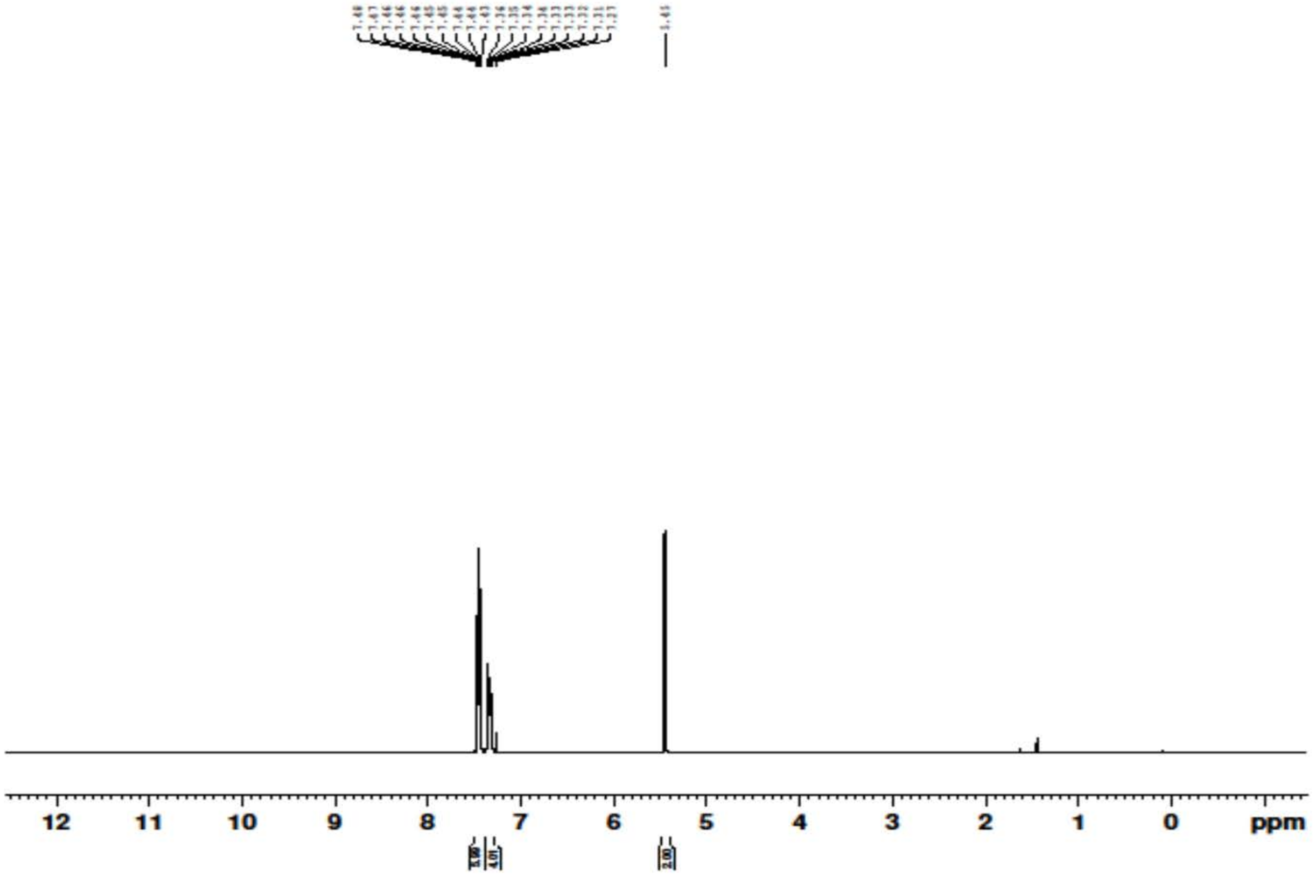
F2 - Acquisition Parameters
Date_               20160202
Time                   20.17
INSTRUM          FOURIER300
PROBHD      5 mm DUL 13C-1
PULPROG                 zg30
TD                     65536
SOLVENT                CDCl3
NS                        16
DS                         2
SWH                 6103.516 Hz
FIDRES              0.093132 Hz
AQ                 5.3687091 sec
RG                   9.28097
DW                    81.920 usec
DE                      6.50 usec
TE                     298.0 K
D1                1.00000000 sec
TD0                        1

======== CHANNEL f1 ========
SFO1             300.2018539 MHz
NUC1                      1H
P1                     10.00 usec
PLW1             20.00000000 W

F2 - Processing parameters
SI                     65536
SF               300.2000012 MHz
WDW                       EM
SSB         0
LB                      0.30 Hz
GB          0
PC                      1.00
```

***trans* 4,5-Diphenyl-1,3-dioxolan-2-one (11c)[1]**

^{1}H NMR



```
Current Data Parameters
NAME             160202.f334
EXPNO                     10
PROCNO                     1

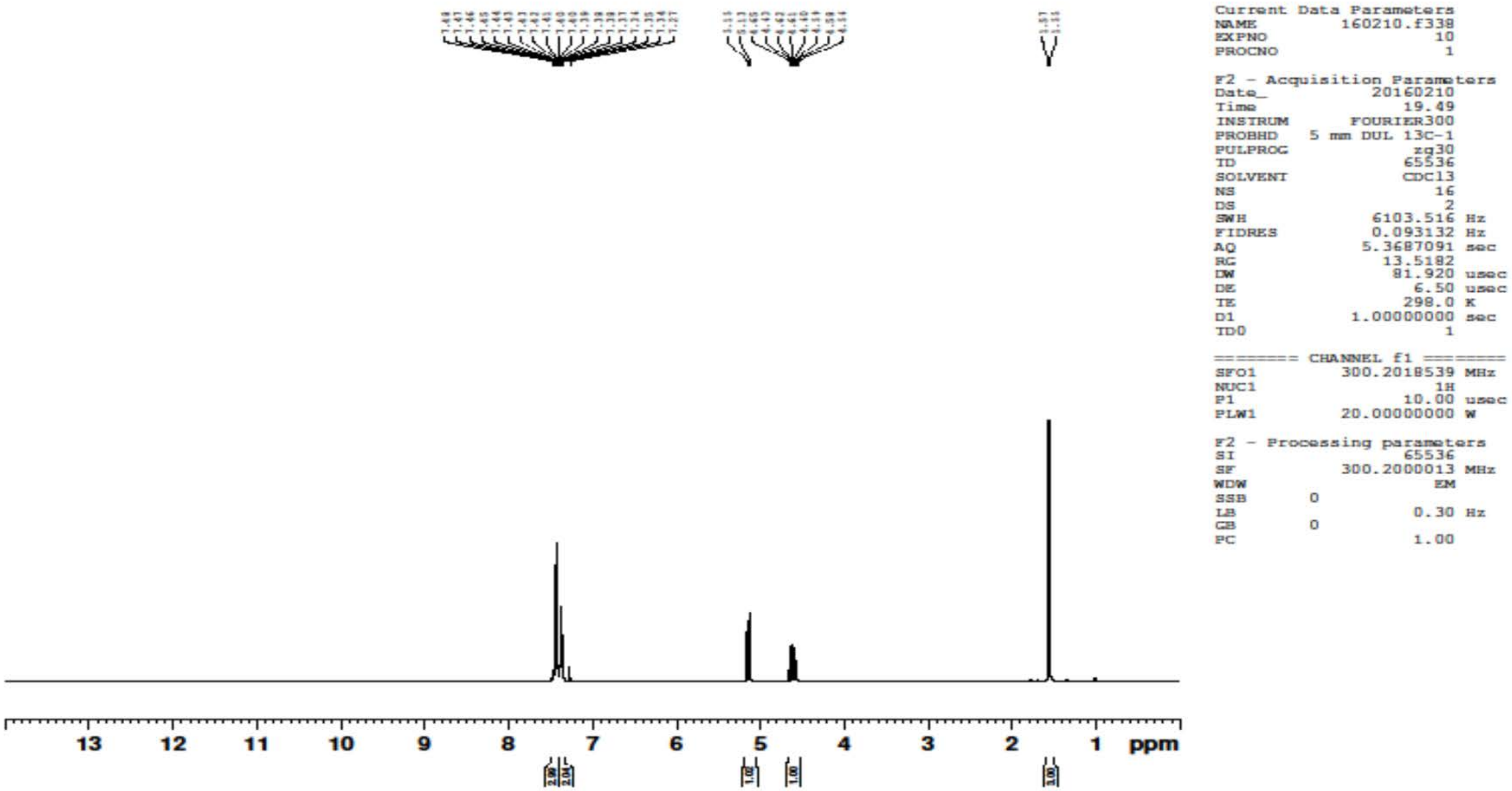
F2 - Acquisition Parameters
Date_               20160202
Time                   21.25
INSTRUM          FOURIER300
PROBHD   5 mm DUL 13C-1
PULPROG                 zg30
TD                     65536
SOLVENT                CDCl3
NS                        16
DS                         2
SWH                 6103.516 Hz
FIDRES              0.093132 Hz
AQ                 5.3687091 sec
RG                   16.4059
DW                    81.920 usec
DE                      6.50 usec
TE                     298.0 K
D1                1.00000000 sec
TD0                        1

======== CHANNEL f1 ========
SFO1             300.2018539 MHz
NUC1                      1H
P1                     10.00 usec
PLW1             20.00000000 W

F2 - Processing parameters
SI                     65536
SF               300.2000012 MHz
WDW                       EM
SSB          0
LB                      0.30 Hz
GB           0
PC                      1.00
```

trans **4-Methyl-5-phenyl-1,3-dioxolan-2-one (11e)[10]**

^{1}H NMR



```
Current Data Parameters
NAME          160210.f338
EXPNO                  10
PROCNO                  1

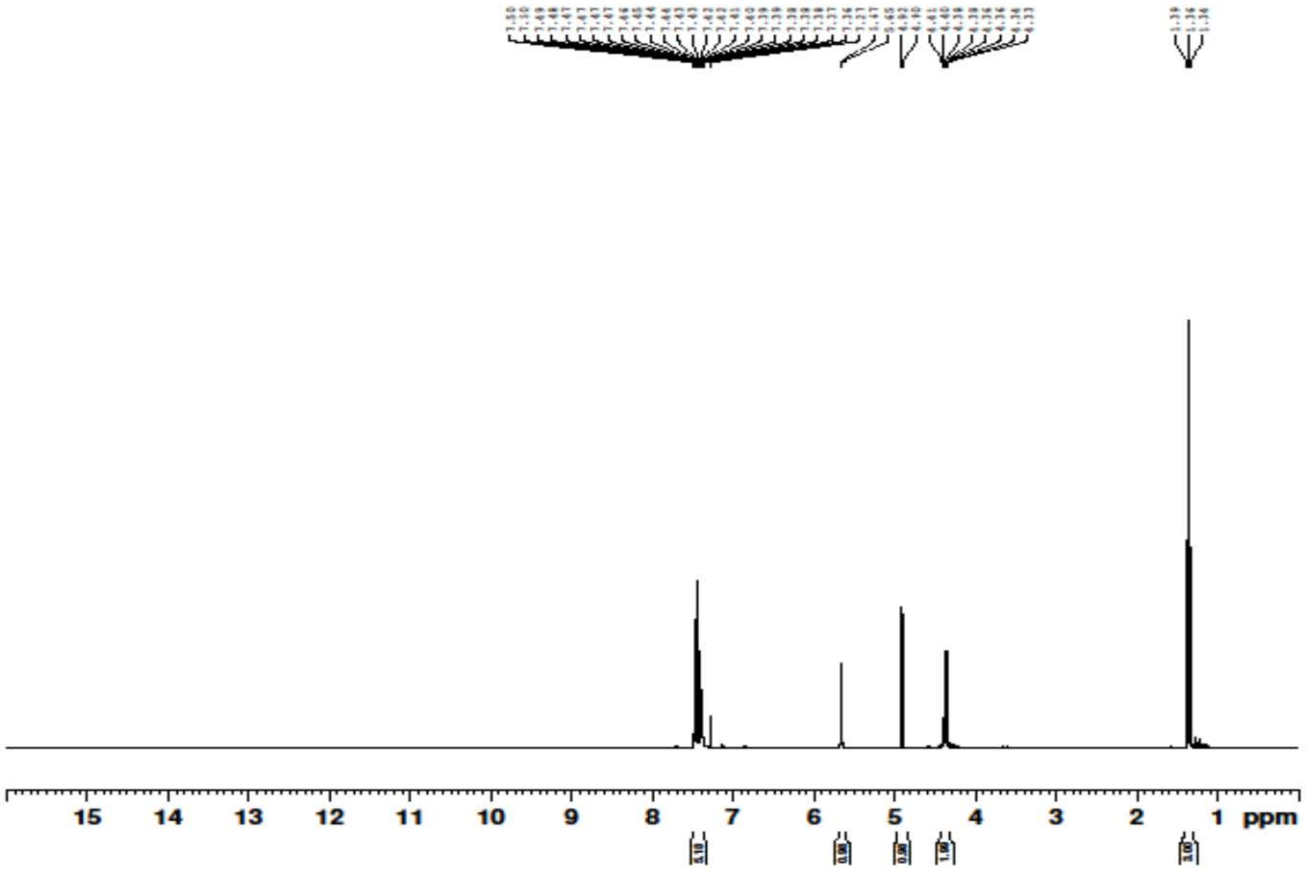
F2 - Acquisition Parameters
Date_            20160210
Time                19.49
INSTRUM       FOURIER300
PROBHD   5 mm DUL 13C-1
PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                13.5182
DW                 81.920 usec
DE                   6.50 usec
TE                  298.0 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000013 MHz
WDW                    EM
SSB      0
LB                   0.30 Hz
GB       0
PC                   1.00
```

trans Ethyl 2-oxo-5-phenyl-1,3-dioxolane-4-carboxylate (11g)[11]

^{1}H NMR



```
Current Data Parameters
NAME          160304.f316
EXPNO                  10
PROCNO                  1

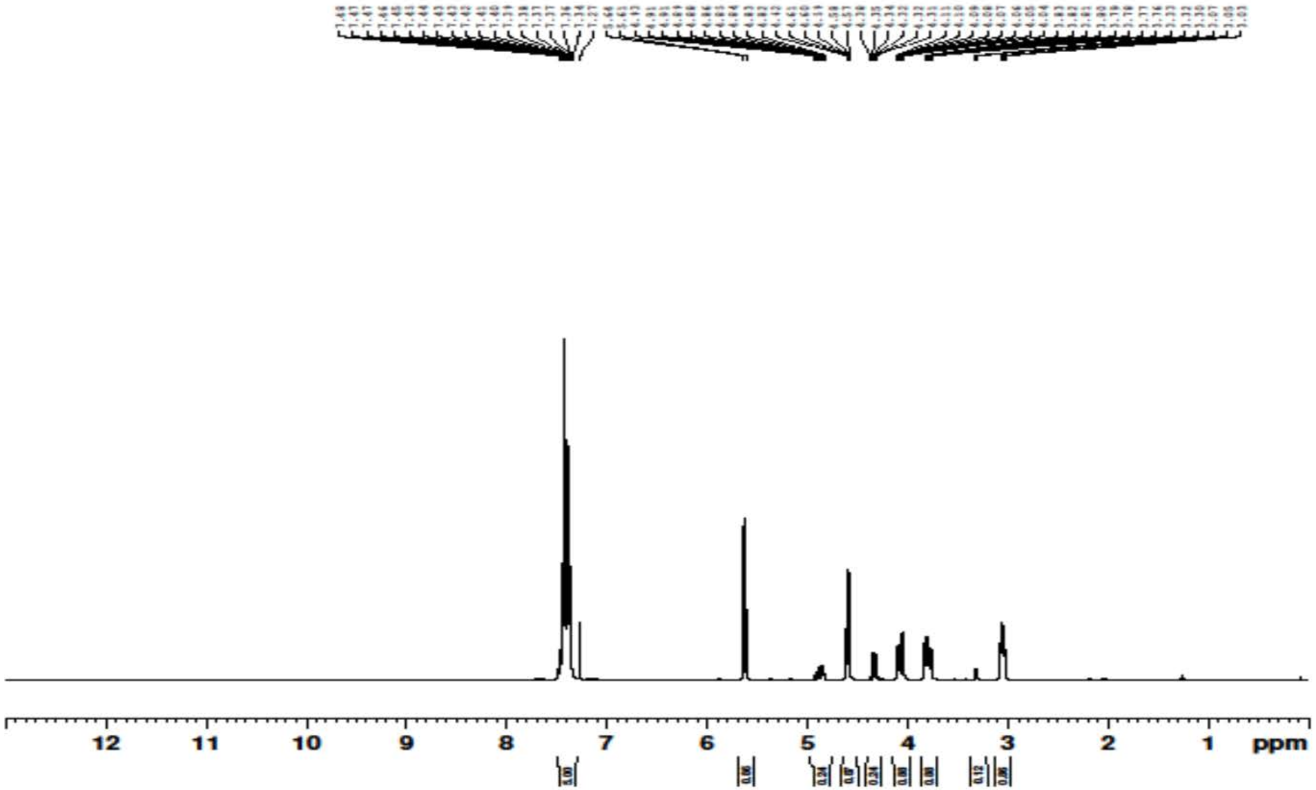
F2 - Acquisition Parameters
Date_            20160304
Time                13.50
INSTRUM       FOURIER300
PROBHD    5 mm DUL 13C-1
PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                 16.254
DW                 81.920 usec
DE                   6.50 usec
TE                  298.0 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000012 MHz
WDW                    EM
SSB      0
LB                   0.30 Hz
GB       0
PC                   1.00
```

Mixture of *trans* 4-(Hydroxymethyl)-5-phenyl-1,3-dioxolan-2-one (11h)[12] 4-(Hydroxy(phenyl)methyl)-1,3-dioxolan-2-one (11i)[13]

^{1}H NMR



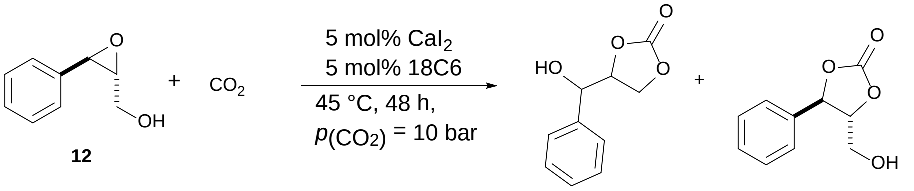
```
Current Data Parameters
NAME          160219.f305
EXPNO                  10
PROCNO                  1

F2 - Acquisition Parameters
Date_            20160219
Time                 8.58
INSTRUM        FOURIER300
PROBHD   5 mm DUL 13C-1
PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
SWH              6103.516 Hz
FIDRES           0.093132 Hz
AQ              5.3687091 sec
RG                19.3512
DW                 81.920 usec
DE                   6.50 usec
TE                  297.9 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          300.2018539 MHz
NUC1                   1H
P1                  10.00 usec
PLW1          20.00000000 W

F2 - Processing parameters
SI                  65536
SF            300.2000013 MHz
WDW                    EM
SSB      0
LB                   0.30 Hz
GB       0
PC                   1.00
```

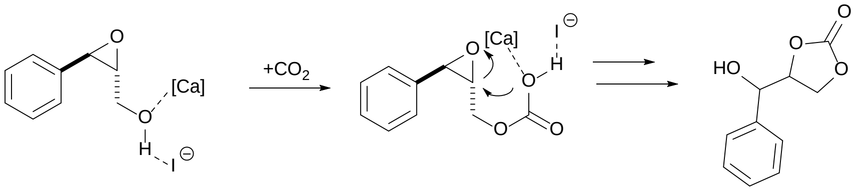
5. Formation of product 13 and proposed mechanism



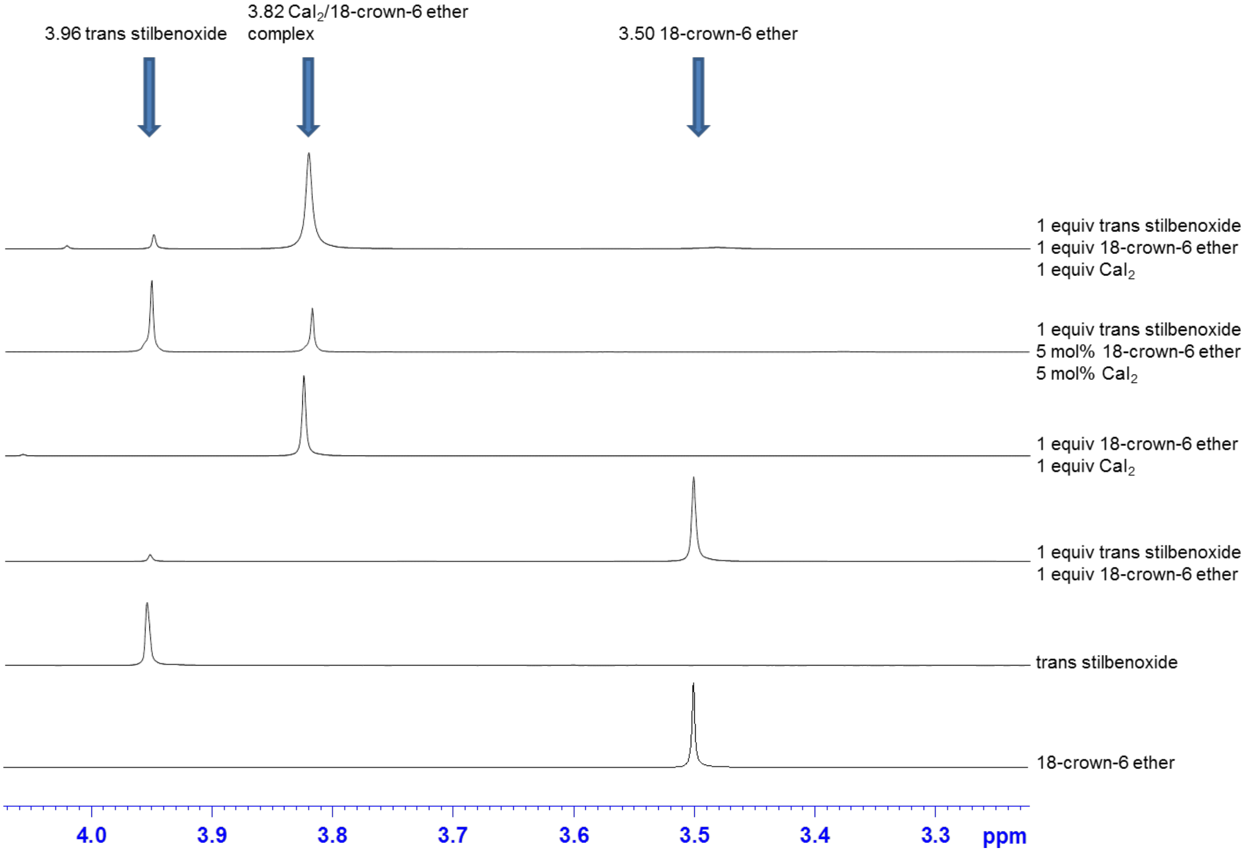
12

13 Major product: 88% **14** Minor product: 12%

Alternativ mechanism:



6. NMR-Investigations


3.96 trans stilbenoxide

3.82 CaI_2/18-crown-6 ether complex

3.50 18-crown-6 ether

All solutions were prepared in CH_3CN and CD_3CN was used as NMR-solvent.

To investigate the in situ complexation of the CaI_2 by 18C6 we conducted some ^{1}H-NMR experiments. In the spectrum on the bottom the signal of the 18C6 protons at 3.50 ppm is shown in a pure 18C6 solution. In the spectrum above the signal of the two epoxide protons at 3.96 ppm of a pure trans stilbenoxide solution is shown. The third spectrum from below shows a spectrum from a 1:1 mixture of 18C6 and trans stilbenoxide which indicates that the crown ether and the substrate don't interact. The spectrum above this shows the signals of a solution with a 1:1 mixture of CaI_2 and 18C6. In this spectrum the signal of the 18C6 compound at 3.50 ppm disappears entirely and a new signal at 3.82 ppm appears. This indicates that all the crown ether coordinates to the CaI_2 salt and the new signal at 3.82 ppm can be attributed to a CaI_2/18C6 complex. Furthermore we prepared a solution containing the trans stilbenoxide substrate and 5 mol% of CaI_2 and 18C6 to simulate the concentration ratios under reaction conditions. The spectrum of this solution is the second spectrum from the top. In this spectrum also the signal of the 18C6 is entirely disappeared, which indicates a highly selective complexation of the CaI_2 salt by the crown ether under reaction conditions. Furthermore, even at much higher catalyst concentrations the complexation is highly selective (spectrum at the top).

7. Crystallographic Data

Data were collected on a Bruker Kappa APEX II Duo diffractometer. The structures were solved by direct methods (SHELXS-97: Sheldrick, G. M. *Acta Crystallogr.* **2008**, *A64*, 112.) and refined by full-matrix least-squares procedures on F^2 (SHELXL-2014: Sheldrick, G. M. *Acta Crystallogr.* **2015**, *C71*, 3.). Mercury (Macrae, C. F., Edgington, P. R., McCabe, P., Pidcock, E., Shields, G. P., Taylor, R., Towler, M., van de Streek, J. *J. Appl. Cryst.* **2006**, *39*, 453.) was used for graphical representations.

Crystal data for CaI_2/18C6-complex **3**·2 DMF: $C_{18}H_{38}CaI_2N_2O_8$, M = 704.38, triclinic, space group $P\bar{1}$, a = 7.4395(2), b = 10.2984(3), c = 10.4052(3) Å, α = 118.1251(6), β = 94.6199(7), γ = 92.7499(7)°, V = 697.42(3) Å^3, T = 150(2) K, Z = 1, 19016 reflections measured, 3203 independent reflections (R_{int} = 0.0198), final R values ($I > 2\sigma(I)$): R_1 = 0.0158, wR_2 = 0.0361, final R values (all data): R_1 = 0.0173, wR_2 = 0.0369, 148 parameters.

Crystal data for **11i**: $C_{10}H_{10}O_4$, M = 194.18, orthorhombic, space group $P2_12_12_1$, a = 8.6487(2), b = 9.6280(2), c = 10.6343(2) Å, V = 885.51(3) Å^3, T = 150(2) K, Z = 4, 6385 reflections measured, 1657 independent reflections (R_{int} = 0.0181), final R values ($I > 2\sigma(I)$): R_1 = 0.0282, wR_2 = 0.0707, final R values (all data): R_1 = 0.0283, wR_2 = 0.0708, 131 parameters, Flack parameter x = 0.02(4).

CCDC 1532107 and 1542896 contain the supplementary crystallographic data for this paper. These data are provided free of charge by The Cambridge Crystallographic Data Centre.

8. References

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