Supporting Information for

An Approach to C-N Activation: Coupling of Arenesulfonyl Hydrazides and Arenesulfonyl Chlorides with *tert*-Amines via a Metal-, Oxidant- and Halogen-free Anodic Oxidation

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I-General Information

^{1}H and ^{13}CNMR spectra were recorded on 400 and 500 MHz NMR instruments. TMS and $CDCl_3$ used as the internal standards for ^{1}HNMR and ^{13}CNMR, respectively. Graphite anodes and cathodes were 2.0 mm 2B pencil graphite purchased from the supermarket.

II-Experimental Procedures

II-I-Typical procedure for the synthesis of arenesulfonyl hydrazides[1]

Into a 25 mL round-bottomed flask, are added 10 mmol of arenesulfonyl chloride and 3.5 mL of tetrahydrofuran. The mixture is cooled to 10 °C and 1.5 mL hydrazine hydrated (85% hydrazine hydrate, 20 mmol) is added. Stirring is continued for further 15 minutes and then the reaction mixture is transferred to a separatory funnel. The organic layer is filtered and washed with 2.5 mL tetrahydrofuran. The colorless filtrates are stirred during the drop-wise addition of 12 mL of distilled water. Arenenesulfonyl hydrazide separates as fluffy crystalline needles. The product is washed several times with distilled water, and air-dried.

II-II-Electrochemical synthesis of sulfonamides from arenesulfonyl chlorides

An undivided cell was equipped with two pencil graphite electrodes (2.0 mm, 2B) and connected with a DC power supply (Figure S1). A mixture of arenesulfonyl chloride (0.5 mmol), *tert*-amine (1 mmol), and Na_2SO_4 (1.25 mmol, 0.5 M) in H_2O (2.5 mL) was added to the cell. The electrolyte was allowed to stir and the electrolysis was carried out at a constant current of 10 mA (electrode square 1.7 cm^2) at room temperature for 3.2 h until the quantity of the electricity 2.4 F/mol was passed. After washing the mixture with 10% brine solution and extraction with ethyl acetate, the organic layer was dried over sodium sulfate and evaporated under reduced pressure. The organic residue was purified by a silica loaded column chromatography with 1:20 ethyl acetate in hexane as eluent.

II-III-Electrochemical synthesis of sulfonamides from arenesulfonyl hydrazides

An undivided cell was equipped with two pencil graphite electrodes (2.0 mm, 2B) and connected with a DC power supply (Figure S1). A mixture of arenesulfonyl hydrazide (0.5 mmol), *tert*-amine (1 mmol), and Na_2SO_4 (1.25 mmol, 0.5 M) in water/acetonitrile (1:1, 2.5 mL) was added to the cell. The electrolyte was allowed to stir and the electrolysis was carried out at a constant current of 10 mA (electrode square 1.7 cm^2) at room temperature for 9 h until the quantity of the electricity 6.7 F/mol was passed. After washing the mixture with 10% brine solution and extraction with ethyl acetate, the organic layer was dried over sodium sulfate and evaporated under reduced pressure. The organic residue was purified by a silica loaded column chromatography with 1:20 ethyl acetate in hexane as eluent.

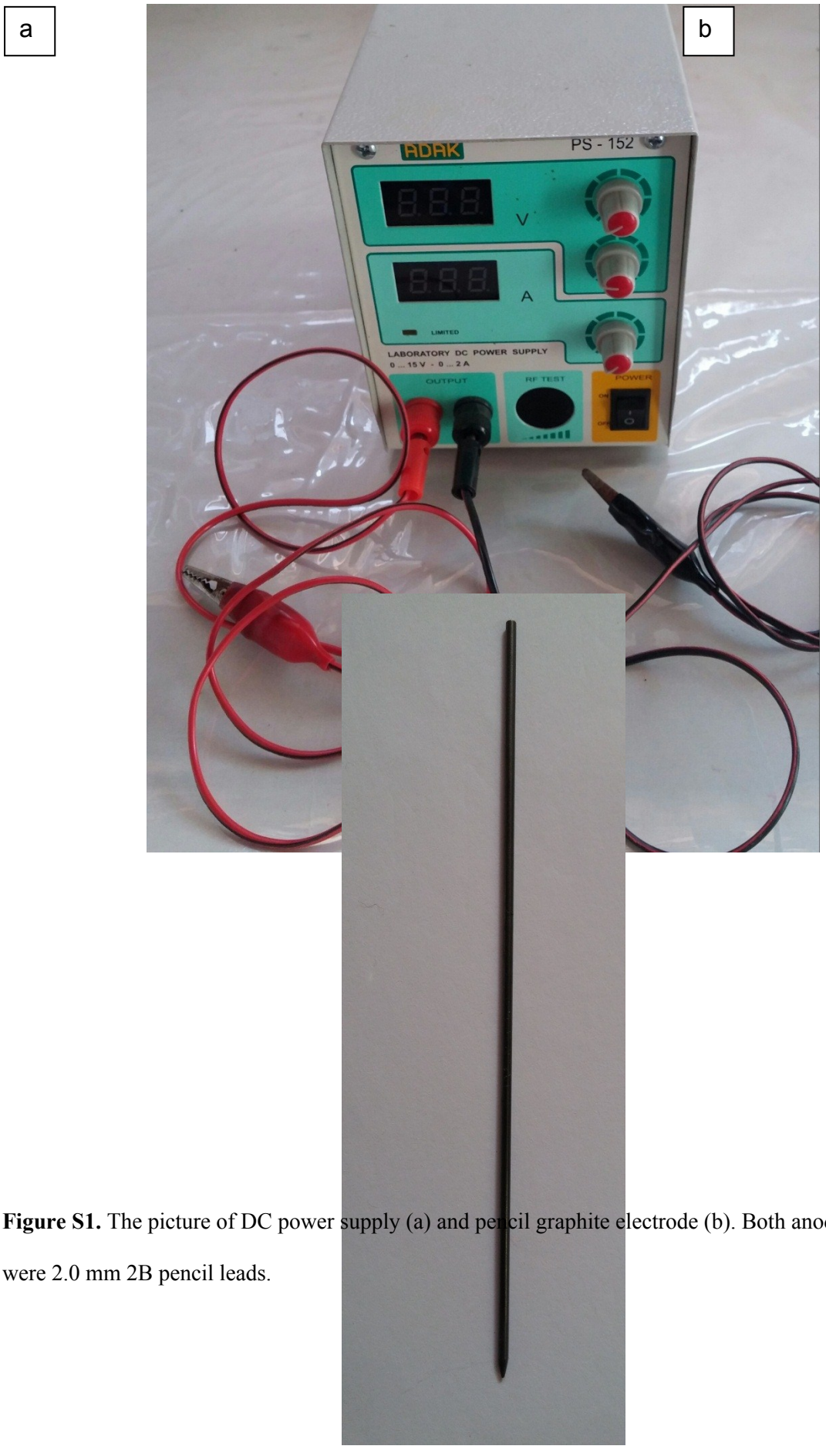
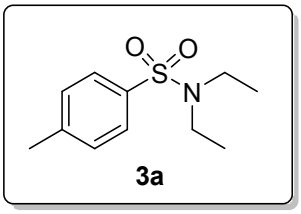


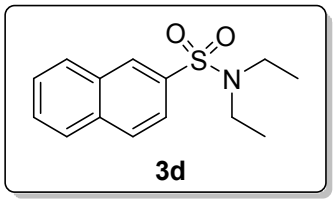
Figure S1. The picture of DC power supply (a) and pencil graphite electrode (b). Both anode and cathode were 2.0 mm 2B pencil leads.

III-Spectral data



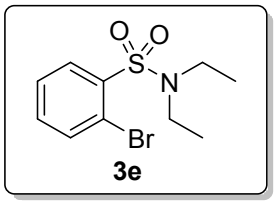
3a

***N,N*-Diethyl-4-methylbenzenesulfonamide (3a):** 71% yield. White crystal, mp 60-62 ^{o}C; ^{1}HNMR (500 MHz, $CDCl_3$) δ 7.68 (d, *J*= 8.0 Hz, 2H), 7.27 (d, *J*= 8.0 Hz, 2H), 3.22 (q, *J*= 7.0, 4H), 2.41 (s, 3H), 1.12 (t, *J*= 7.0 Hz, 6H); ^{13}CNMR (125 MHz, $CDCl_3$) δ 142.8, 137.5, 129.6, 127.1, 42.0, 21.4, 14.1. Known compound.[2]



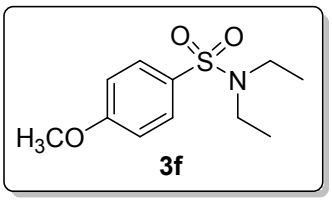
3d

***N,N*-diethylnaphthalene-2-sulfonamide (3d):** 72% yield. White crystal, mp 81-83 ^{o}C; ^{1}HNMR (400 MHz, DMSO-d6) δ 8.49 (d, *J* = 1.2 Hz, 1H), 8.20 (d, *J*= 7.6 Hz, 1H), 8.14 (d, *J*= 8.4 Hz, 1H), 8.06 (d, *J*= 8.0 Hz, 1H), 7.82 (dd, *J*=8.4, 1.6 Hz, 1H), 7.66-7.74 (m, 2H), 3.23 (q, *J*= 7.2 Hz, 4H), 1.05 (t, *J*= 7.2 Hz, 6H). Anal. Calcd for $C_{14}H_{17}NO_2S$: C, 63.85; H, 6.51; N, 5.32; S, 12.18. Found: C, 63.81; H, 6.50; N, 5.33; S, 12.10. Known comound.[3]



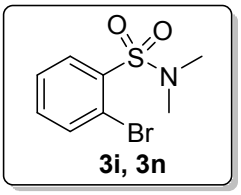
3e

2-Bromo-*N,N*-diethylbenzenesulfonamide (3e): 70% yield. White crystal, mp 74-76 °C; ^{1}HNMR (400 MHz, $CDCl_3$) δ 7.55-7.69 (m, 3H), 7.40 (d, *J*= 8.4 Hz, 1H), 3.16 (q, *J*= 7.2 Hz, 4H), 1.06 (t, *J*= 7.2 Hz, 6H). Anal. Calcd for $C_{10}H_{14}BrNO_2S$: C, 41.11; H, 4.83; N, 4.79; 10.97. Found: C, 41.02; H, 4.76; N, 4.86; S, 11.04.



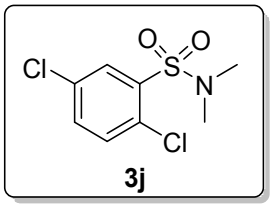
3f

***N,N*-Diethyl-4-methoxybenzenesulfonamide (3f):** 77% yield. White crystal, mp 60-62 °C; ^{1}HNMR (500 MHz, $CDCl_3$) δ 7.76 (d, *J*= 7.0 Hz, 2H), 6.97 (d, *J*= 7.0 Hz, 2H), 3.88 (s, 3H), 3.23 (q, *J*= 7.1 Hz, 4H), 1.40 (t, *J*= 7.1 Hz, 6H). Known compound.[4]



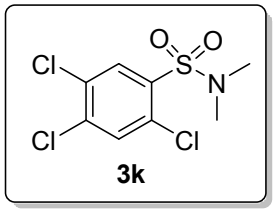
3i, 3n

***N,N*-Dimethyl-2-bromosulfonamide (3i, 3n):** 72% yield (74% yield for **3n**). Pale crystal, mp 87-89 °C; ^{1}HNMR (400 MHz, $CDCl_3$) δ 7.75 (d, *J*= 8.4 Hz, 1H), 7.72 (d, *J*= 8.8 Hz, 1H), 7.67 (d, *J*= 8.8 Hz, 1H), 7.55 (d, *J*= 8.4 Hz, 1H), 2.74 (s, 6H); ^{13}CNMR (100 MHz, $CDCl_3$) δ 134.5, 132.3, 129.4, 129.2, 129.1, 127.8, 37.9. Anal. Calcd for $C_8H_{10}BrNO_2S$: C, 36.38; H, 3.82; N, 5.30; S, 12.14. Found: C, 36.30; H, 3.73; N, 5.31; S, 12.12.



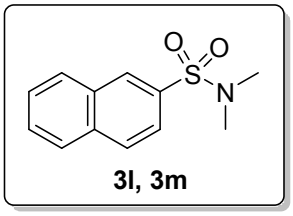
3j

***N,N*-Dimethyl-2,5-dichlorobenzenesulfonamide (3j):** 76% yield. White crystal, mp 73-76 ^{o}C; ^{1}HNMR (500 MHz, $CDCl_3$) δ 8.06 (s, 1H), 7.46-7.48 (m, 2H), 2.94 (s, 6H). Anal. Calcd for $C_8H_9Cl_2NO_2S$: C, 37.81; H, 3.57; N, 5.51; S 12.62. Found: C, 37.76; H, 3.51; N, 5.48; S, 12.65. Known compound.[5]



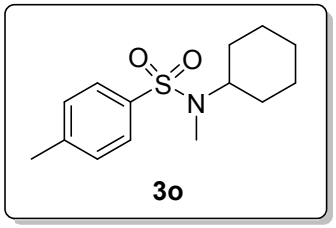
3k

***N,N*-Dimethyl-2,4,5-trichlorobenzenesulfonamide (3k):** 72% yield. White crystal, mp 105-106 ^{o}C; ^{1}HNMR (500 MHz, $CDCl_3$) δ 8.17 (s, 1H), 7.66 (s, 1H), 2.92 (s, 6H). Anal. Calcd for $C_8H_8Cl_3NO_2S$: C, 33.30; H, 2.79; N, 4.85; S, 11.11. Found: C, 33.21; H, 2.73; N, 4.78; S, 11.00. Known compound.[6]



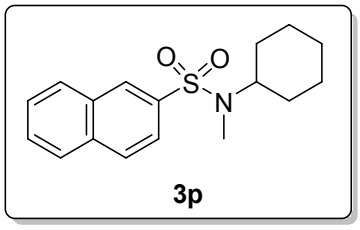
3l, 3m

***N,N*-Dimethyl-naphthalene-2-sulfonamide (3l, 3m):** 71% yield (78% yield for **3m**). White crystal, mp 93-96 ^{o}C; ^{1}HNMR (400 MHz, $CDCl_3$) δ 8.21 (d, *J*= 1.2 Hz, 1H), 7.90-7.95 (m, 3H), 7.68 (td, *J*= 7.2, 1.2 Hz, 1H), 7.63 (td, *J*= 7.2, 1.2 Hz, 1H), 7.52 (dd, *J*= 8.8, 2.0 Hz, 1H), 7.29-7.35 (m, 3H), 7.13-7.16 (m, 2H). Known compound.[7]



3o

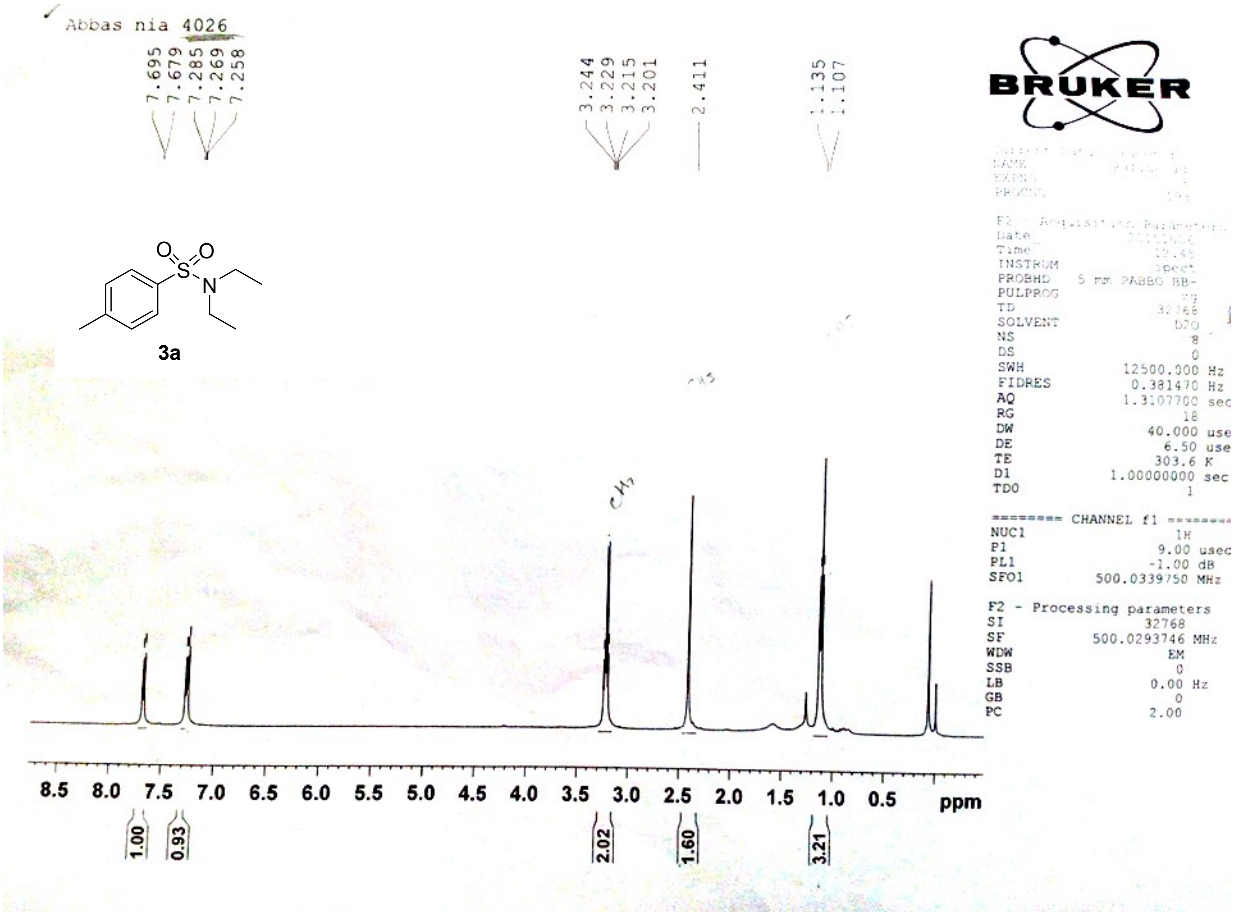
***N*-Cyclohexyl-*N*-methyl-4-methylbenzenesulfonamide (3o):** 69% yield. White crystal, mp 73-76 ^{o}C; ^{1}HNMR (500 MHz, $CDCl_3$) δ 7.70 (d, *J*= 8.3 Hz, 2H), 7.29 (d, *J*= 8.3 Hz, 2H), 3.77 (m, 1H), 2.74 (s, 3H), 2.43 (s, 3H), 1.47-1.74 (m, 5H), 1.25-1.34 (m, 4H), 0.89-1.04 (m, 1H). Known compound.[8]



3p

***N*-Cyclohexyl-*N*-methylnaphthalene-2-sulfonamide (3p):** 75% yield. White crystal, mp 76-79 ^{o}C; ^{1}HNMR (500 MHz, $CDCl_3$) δ 8.41 (s, 1H), 7.96-7.99 (m, 2H), 7.92 (d, *J*= 7.6, 1H), 7.81 (dd, *J*= 8.6 Hz, 1.7 Hz, 1H), 7.61-7.65 (m, 2H), 3.86-3.90 (m, 1H), 2.82 (s, 3H), 1.54-1.74 (m, 5H), 1.27-1.37 (m, 4H), 0.92-1.03 (m, 1H). ^{13}CNMR (100 MHz, $CDCl_3$) δ 137.3, 134.6, 132.2, 129.3, 129.2, 128.5, 128.1, 127.9, 127.4, 122.5, 56.9, 30.4, 28.7, 25.8, 25.3. Anal. Calcd for $C_{17}H_{21}NO_2S$: C, 67.30; H, 6.98; N, 4.62; S, 10.57. Found: C, 67.21; H, 6.91; N, 4.56; S, 10.52.

IV-Copies of ^{1}H- and ^{13}CNMR



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BRUKER
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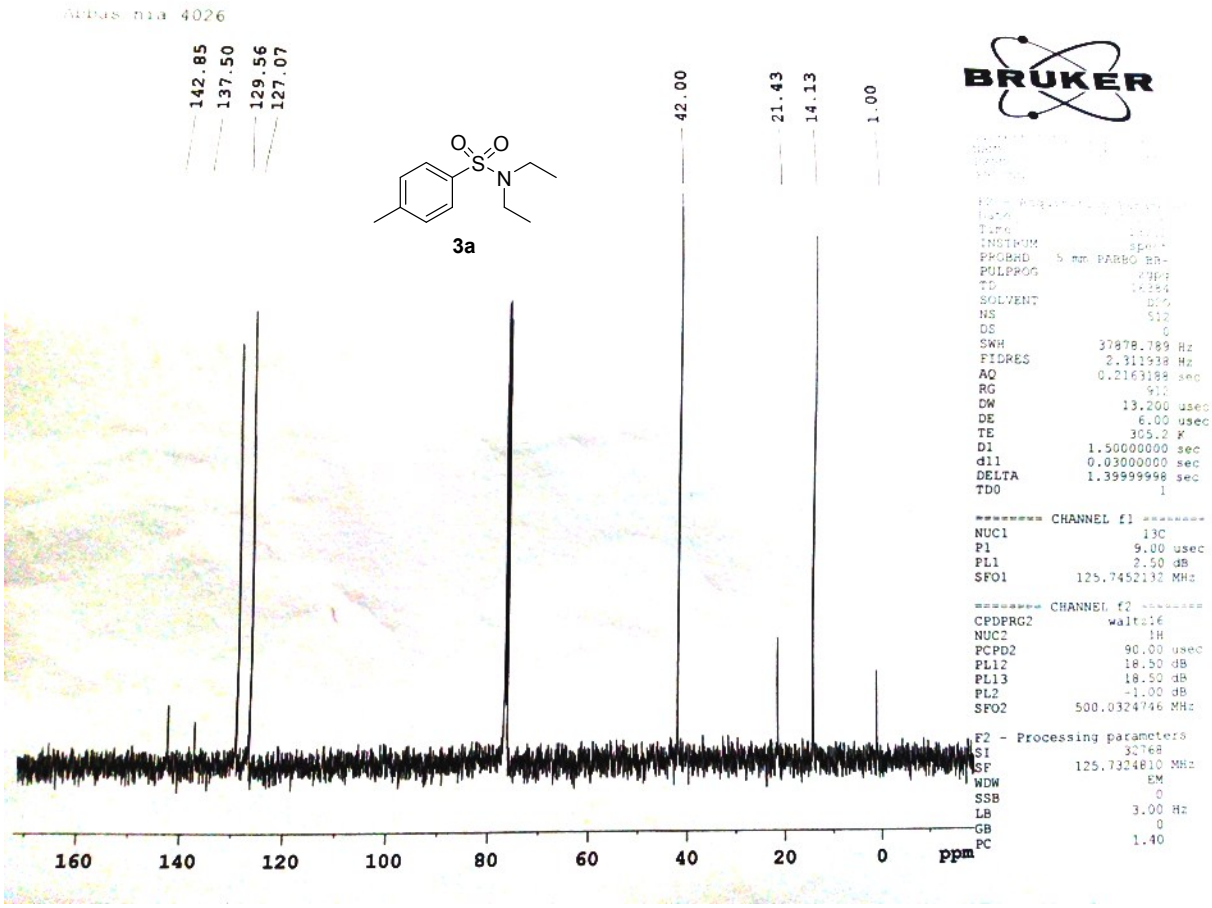
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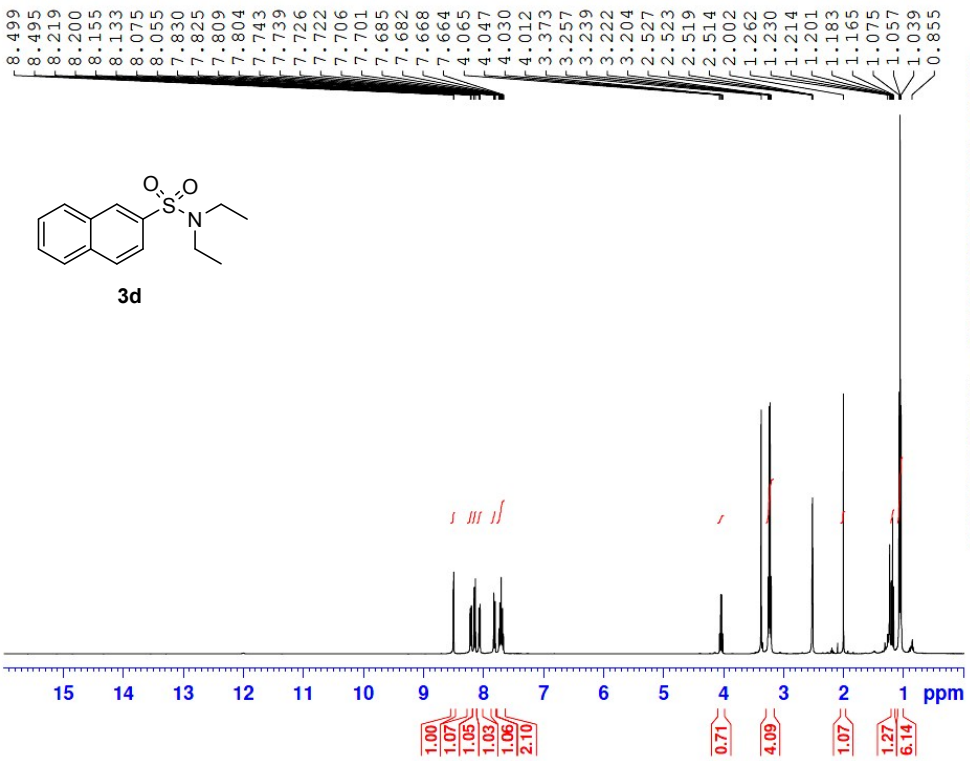
ppm

Sample code: B (shafeei pour)



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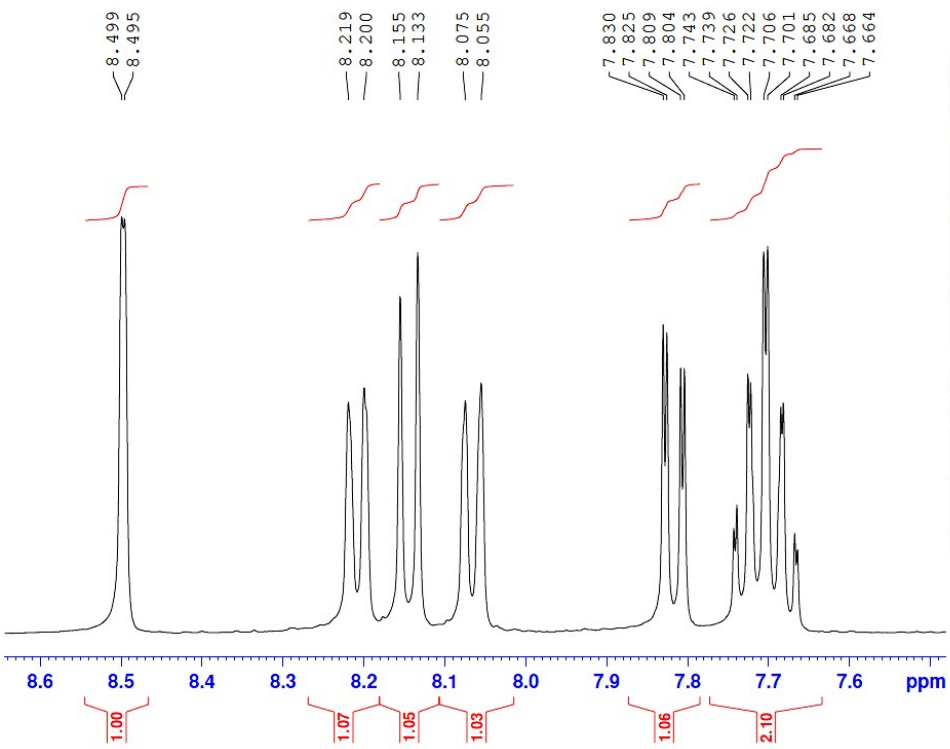


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PULPROG                 zg30
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NS                        20
DS                         0
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FIDRES              0.122266 Hz
AQ                  4.0894966 sec
RG                        101
DW                     62.400 usec
DE                      6.50 usec
TE                     293.2 K
D1                  4.00000000 sec
TD0                         1

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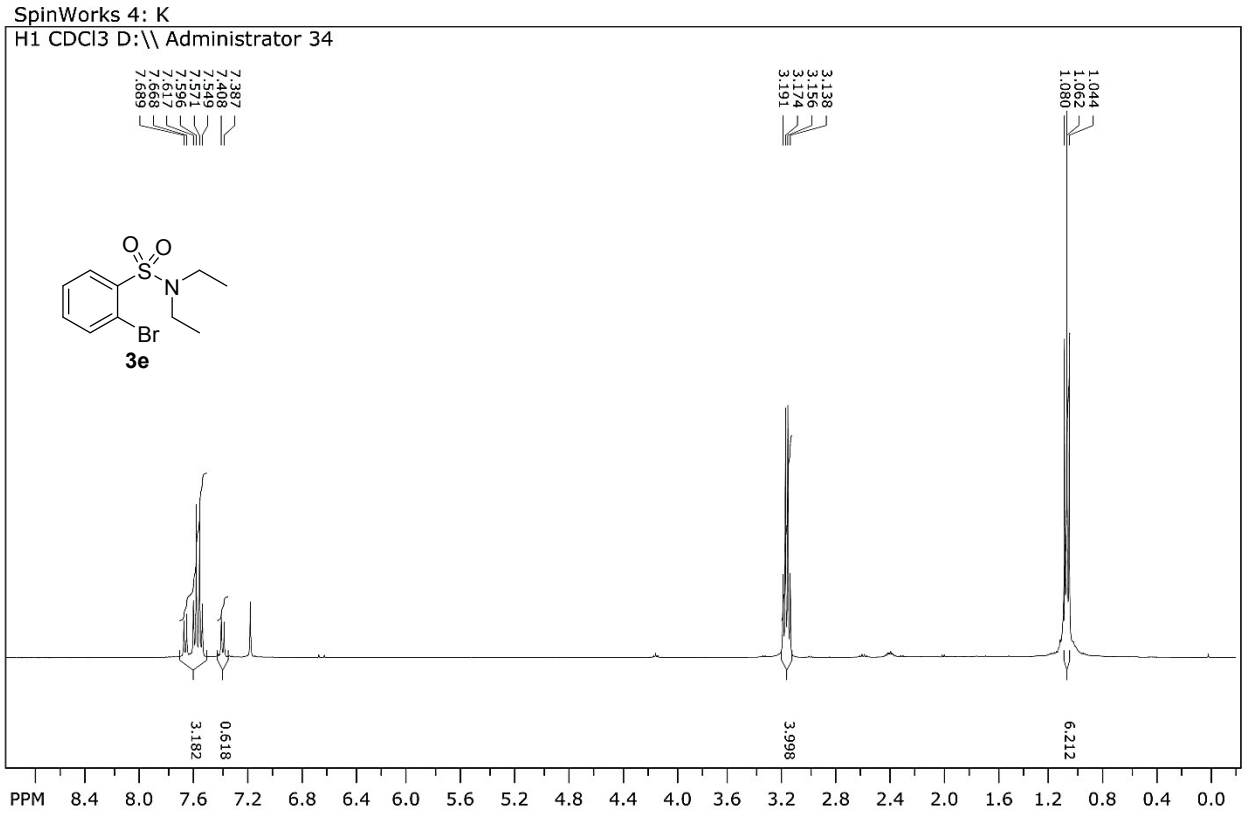

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number of scans: 32

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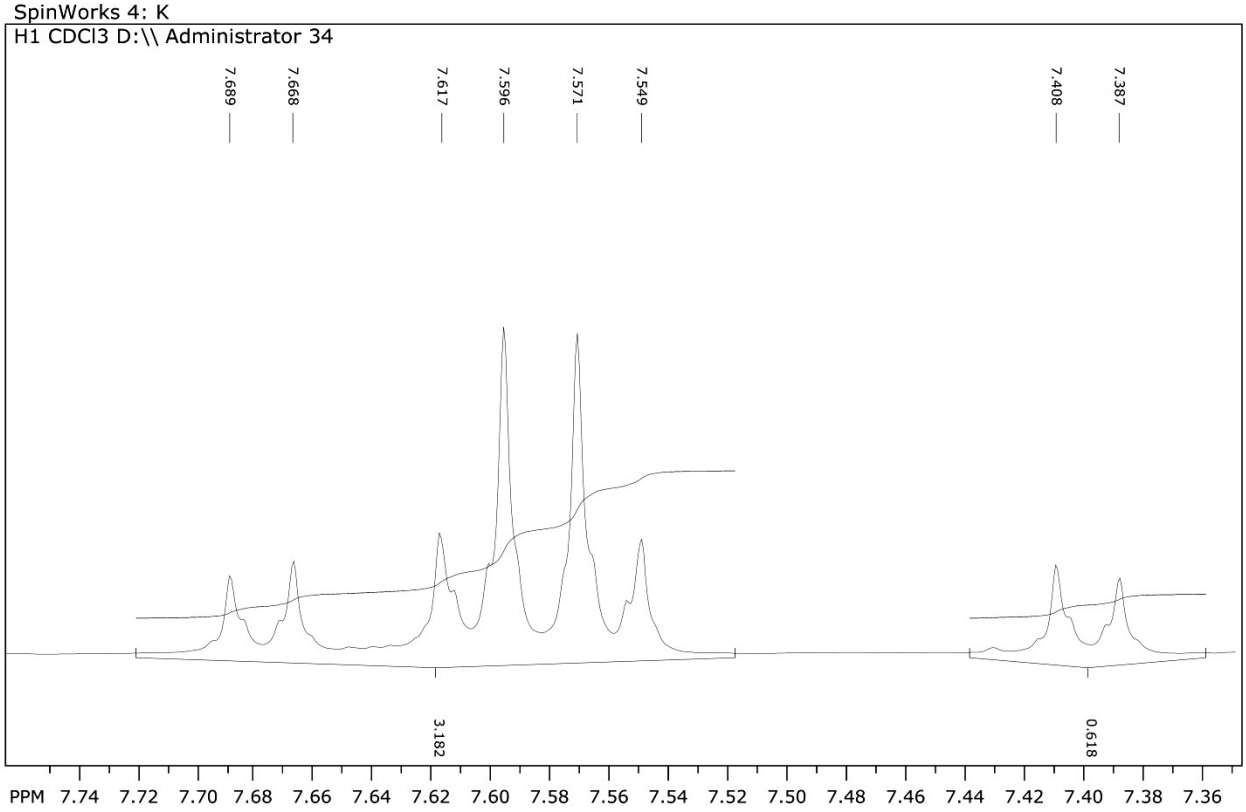
SpinWorks 4: K



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number of scans: 32

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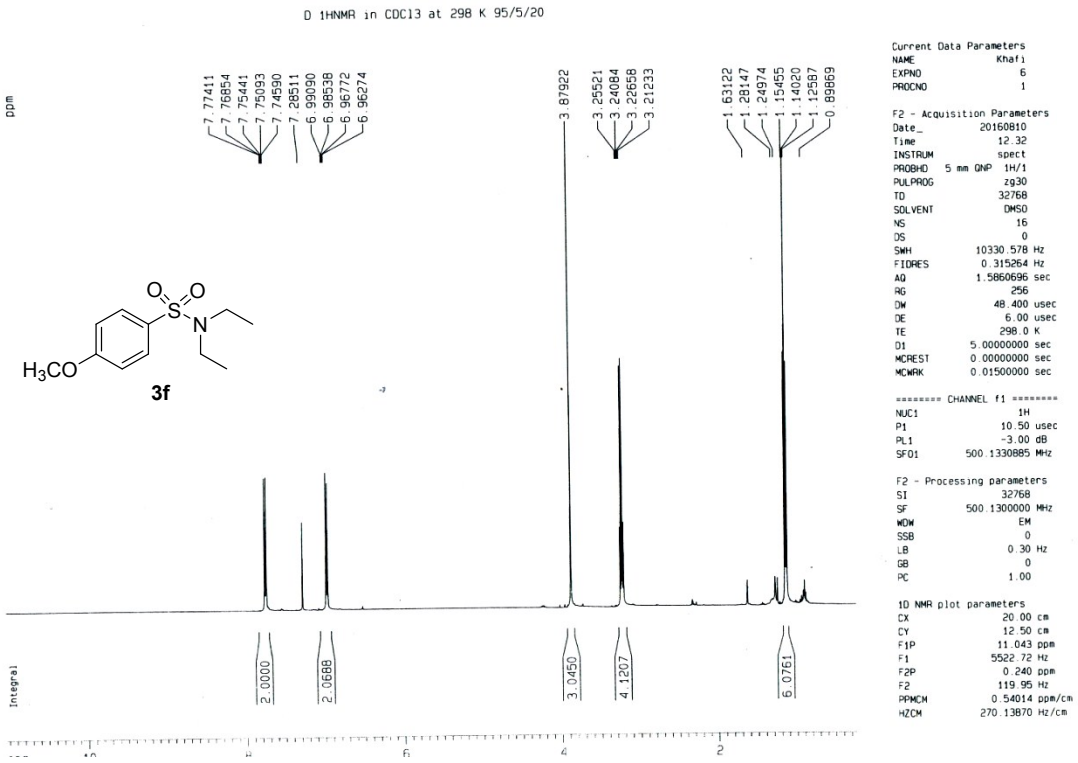
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3.22658
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1.63122
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3.0450
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3f
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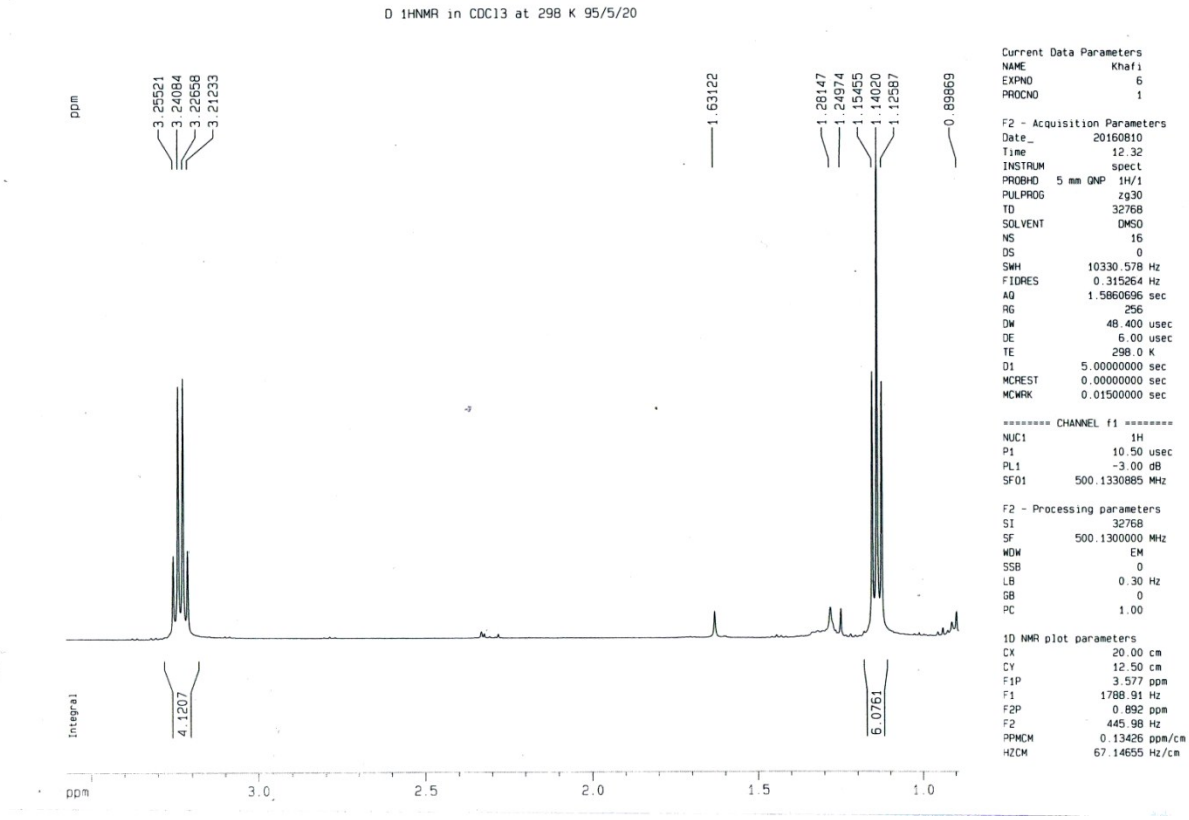
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ppm
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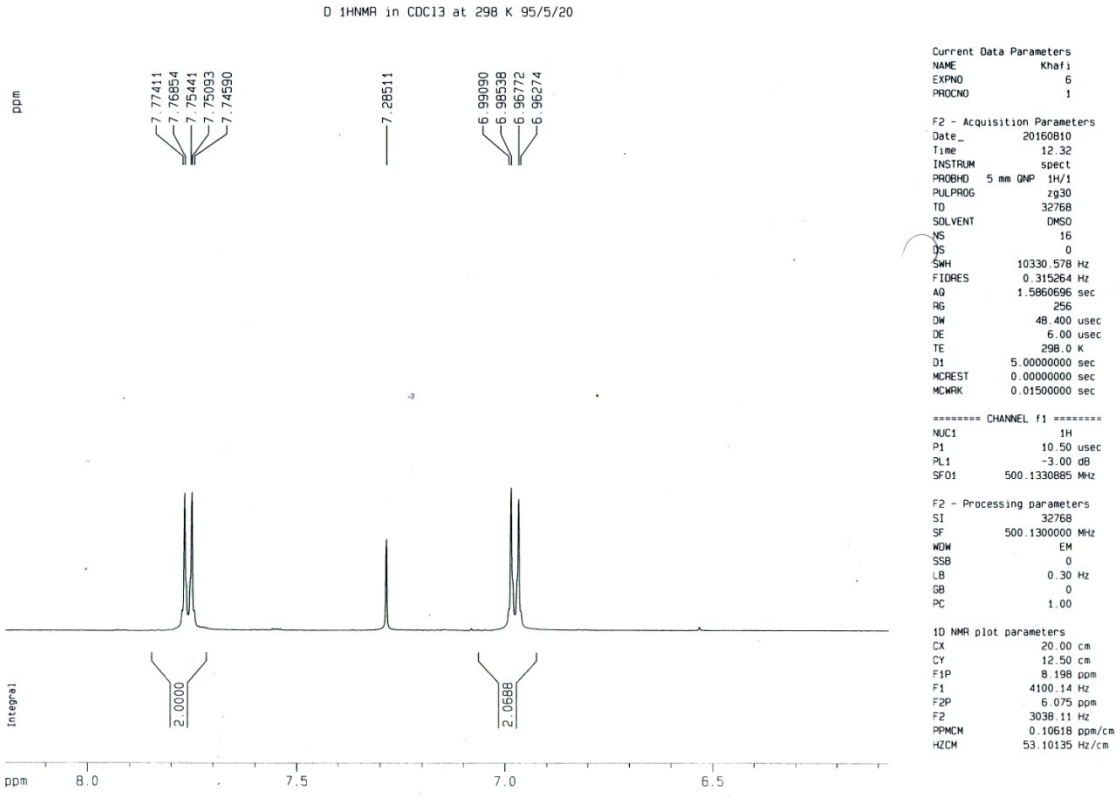
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ppm
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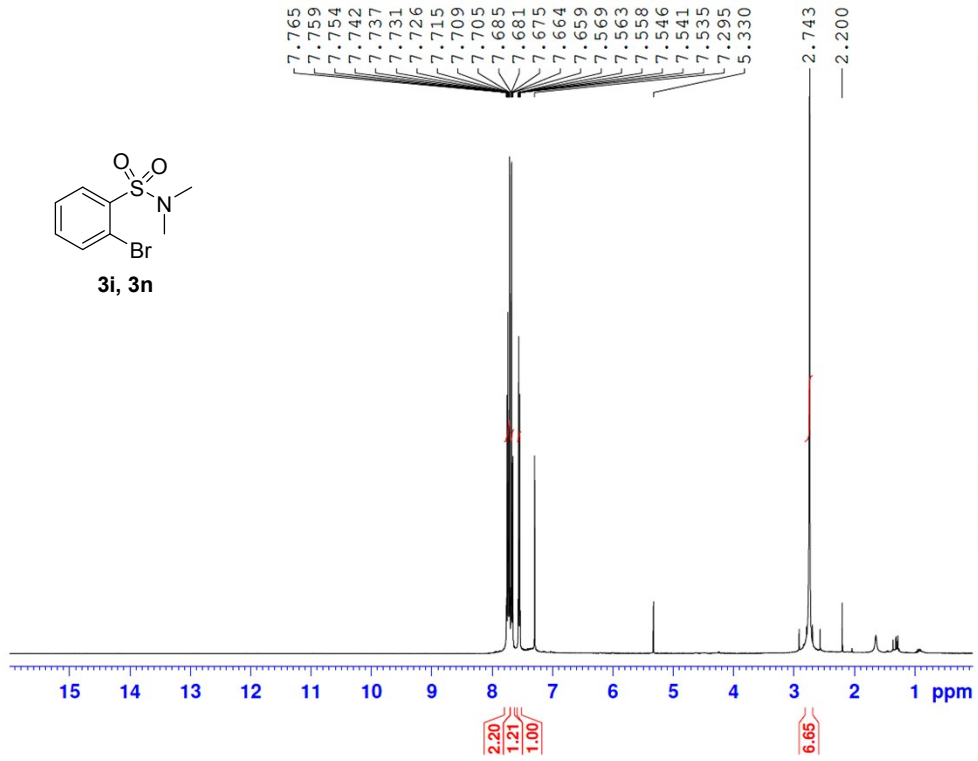
HZCM 53.10135 Hz/cm

Sample code:12 (shafieepour)

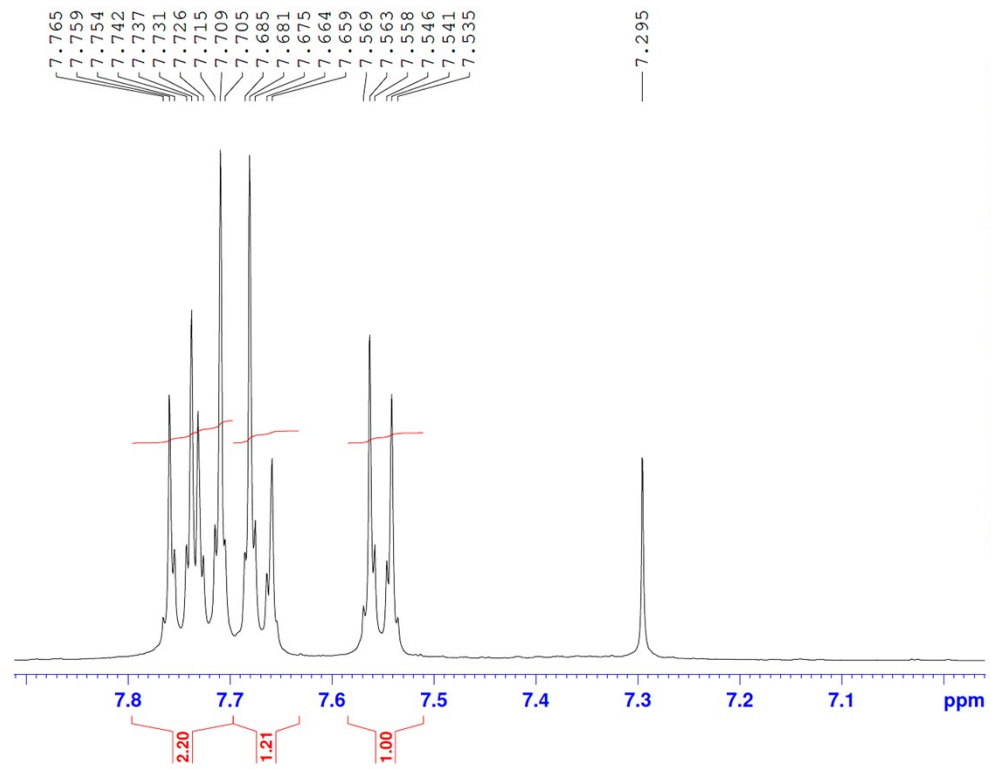


3i, 3n

BRUKER

NAME	Gilan UN
EXPNO	2447
PROCNO	1
Date_	20160612
Time	17.35
INSTRUM	spect
PROBHD	5 mm PABBO BB-
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	20
DS	0
SWH	8012.820 Hz
FIDRES	0.122266 Hz
AQ	4.0894966 sec
RG	161
DW	62.400 usec
DE	6.50 usec
TE	296.5 K
D1	4.00000000 sec
TD0	1
======== CHANNEL f1 ========	
NUC1	1H
P1	14.00 usec
PL1	-2.00 dB
PL1W	11.86359406 W
SFO1	400.2236020 MHz
SI	32768
SF	400.2200000 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

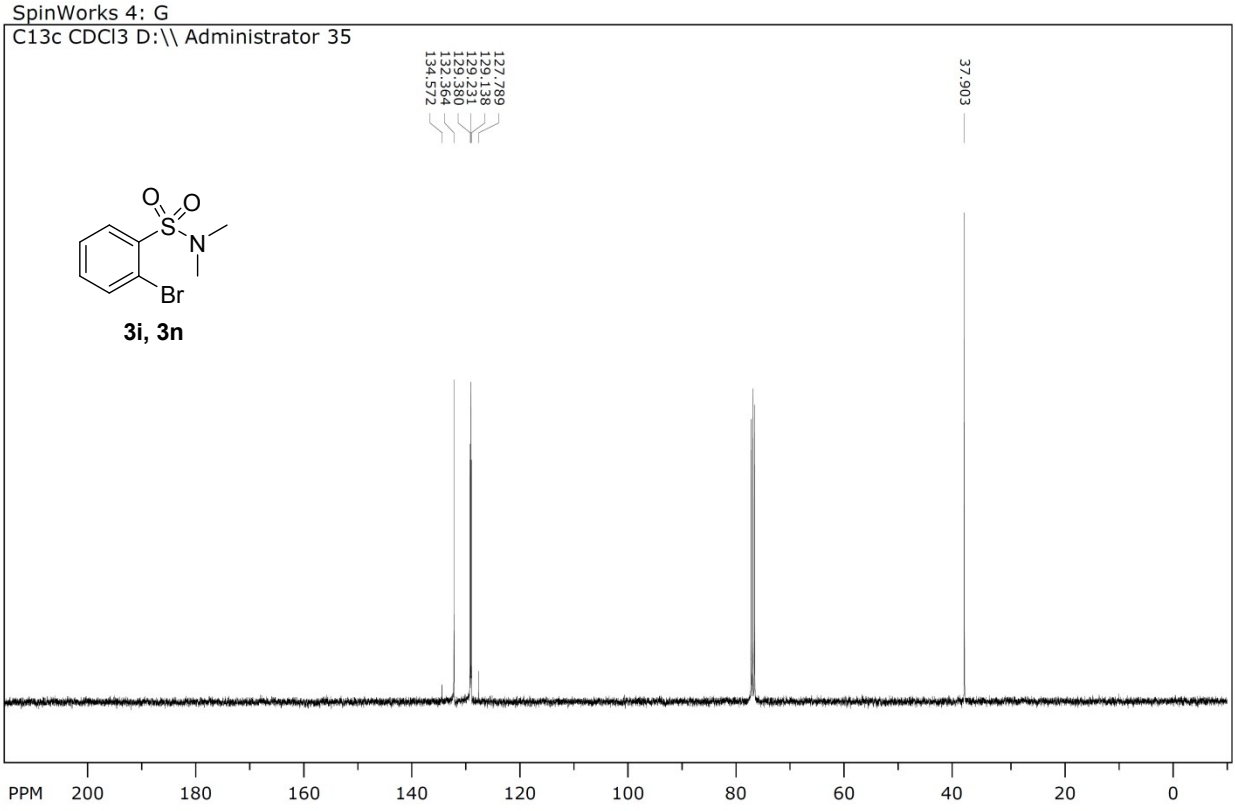
Sample code:12 (shafieepour)



BRUKER

NAME	Gilan UN
EXPNO	2447
PROCNO	1
Date_	20160612
Time	17.35
INSTRUM	spect
PROBHD	5 mm PABBO BB-
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	20
DS	0
SWH	8012.820 Hz
FIDRES	0.122266 Hz
AQ	4.0894966 sec
RG	161
DW	62.400 usec
DE	6.50 usec
TE	296.5 K
D1	4.00000000 sec
TD0	1
======== CHANNEL f1 ========	
NUC1	1H
P1	14.00 usec
PL1	-2.00 dB
PL1W	11.86359406 W
SFO1	400.2236020 MHz
SI	32768
SF	400.2200000 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

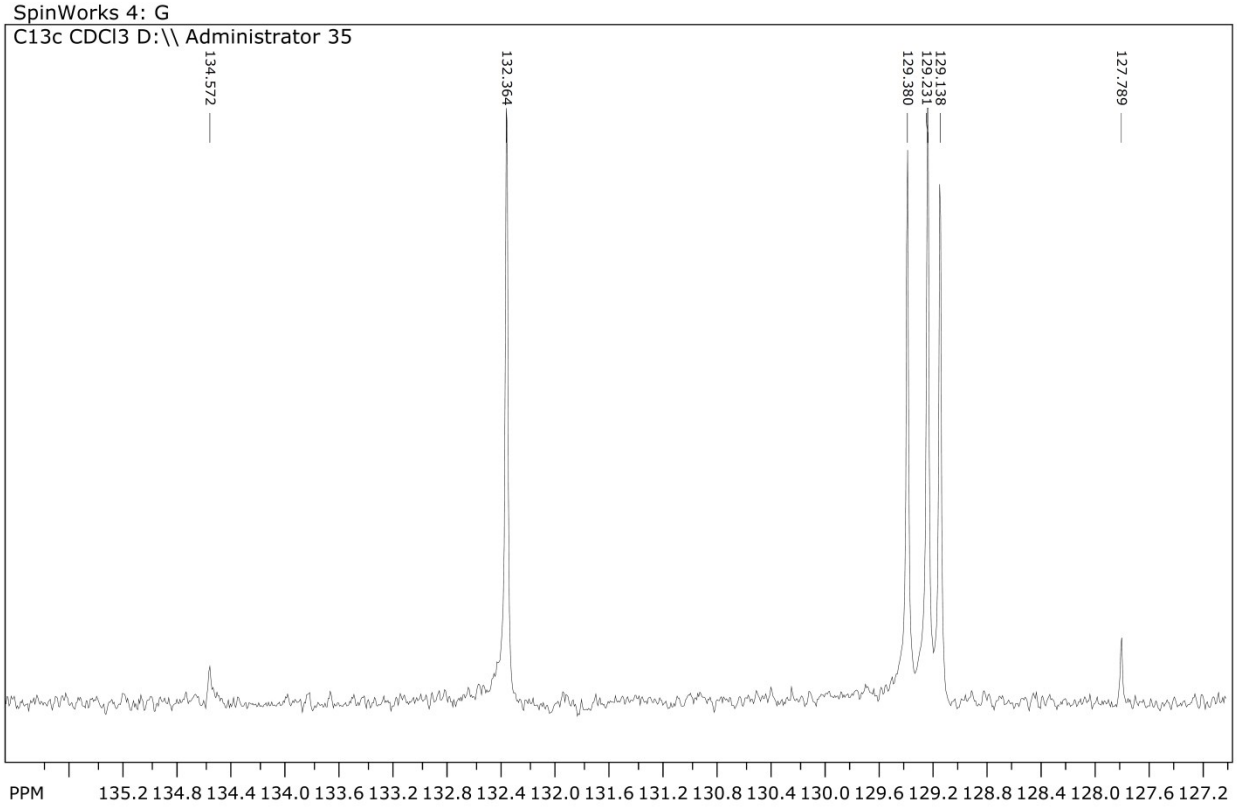
SpinWorks 4: G



file: ...han-Mahdi-EN951018-401..408\61\fid expt: <zgpg>
transmitter freq.: 100.623836 MHz
time domain size: 50502 points
width: 25252.53 Hz = 250.9597 ppm = 0.500030 Hz/pt
number of scans: 1500

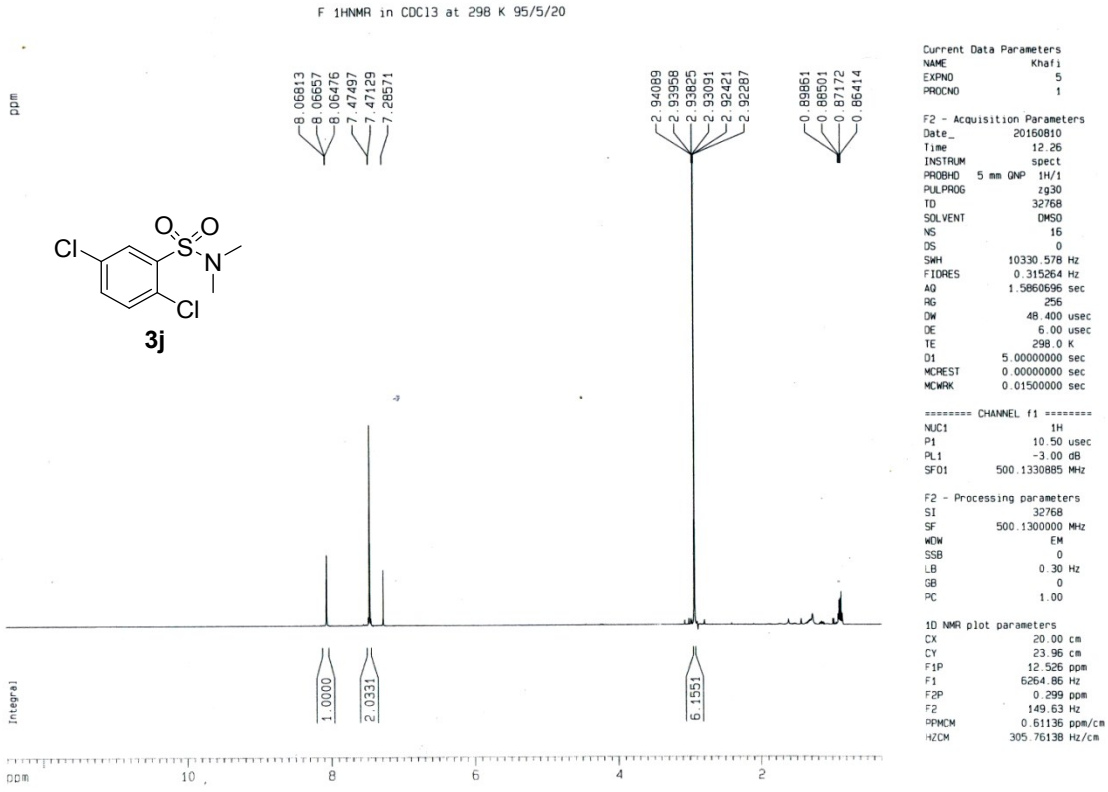
freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 1.000 GF: 0.0000
Hz/cm: 910.895 ppm/cm: 9.05247

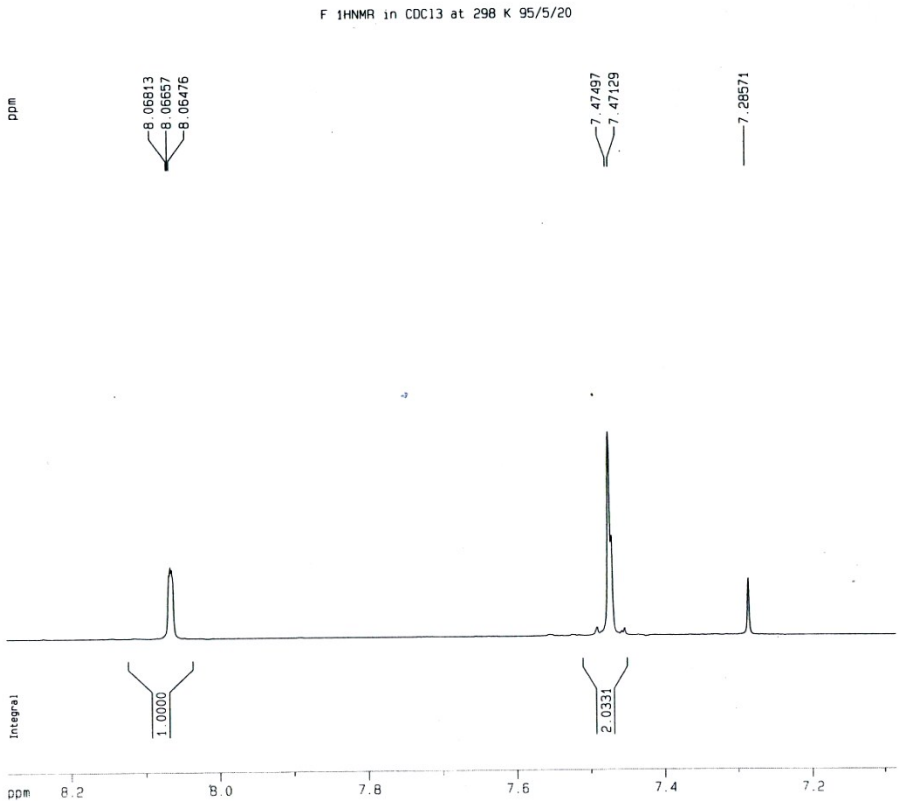
SpinWorks 4: G



file: ...han-Mahdi-EN951018-401..408\61\fid expt: <zgpg>
transmitter freq.: 100.623836 MHz
time domain size: 50502 points
width: 25252.53 Hz = 250.9597 ppm = 0.500030 Hz/pt
number of scans: 1500

freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 1.000 GF: 0.0000
Hz/cm: 36.612 ppm/cm: 0.36385


F 1HNMR in CDCl3 at 298 K 95/5/20
ppm
8.06813
8.06657
8.06476
7.47497
7.47129
7.28571
2.94089
2.93958
2.93825
2.93091
2.92421
2.92287
0.89861
0.88501
0.87172
0.86414
Cl
O
S
O
N
Cl
3j
Integral
1.0000
2.0331
6.1551
ppm
10
8
6
4
2
Current Data Parameters
NAME Khafi
EXPNO 5
PROCNO 1
F2 - Acquisition Parameters
Date_ 20160810
Time 12.26
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 32768
SOLVENT DMSO
NS 16
DS 0
SWH 10330.578 Hz
FIDRES 0.315264 Hz
AQ 1.5860696 sec
RG 256
DW 48.400 usec
DE 6.00 usec
TE 298.0 K
D1 5.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec
======== CHANNEL f1 ========
NUC1 1H
P1 10.50 usec
PL1 -3.00 dB
SFO1 500.1330885 MHz
F2 - Processing parameters
SI 32768
SF 500.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
1D NMR plot parameters
CX 20.00 cm
CY 23.96 cm
F1P 12.526 ppm
F1 6264.86 Hz
F2P 0.299 ppm
F2 149.63 Hz
PPMCM 0.61136 ppm/cm
HZCM 305.7613B Hz/cm



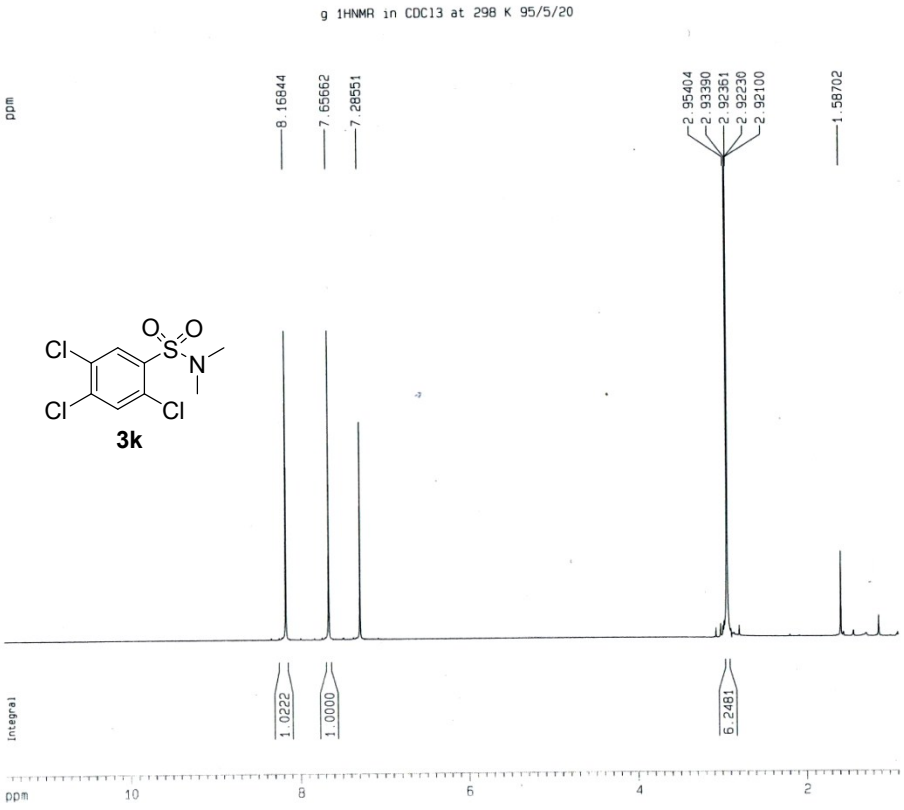

```
Current Data Parameters
NAME                  Khafi
EXPNO                     5
PROCNO                    1

F2 - Acquisition Parameters
Date_              20160810
Time                  12.26
INSTRUM               spect
PROBHD   5 mm QNP  1H/1
PULPROG                zg30
TD                    32768
SOLVENT                DMSO
NS                       16
DS                        0
SWH               10330.578 Hz
FIDRES             0.315264 Hz
AQ                 1.5860696 sec
RG                      256
DW                   48.400 usec
DE                    6.00 usec
TE                   298.0 K
D1                5.00000000 sec
MCREST            0.00000000 sec
MCWRK             0.01500000 sec

======== CHANNEL f1 ========
NUC1                     1H
P1                    10.50 usec
PL1                   -3.00 dB
SFO1           500.1330885 MHz

F2 - Processing parameters
SI                    32768
SF             500.1300000 MHz
WDW                      EM
SSB                       0
LB                     0.30 Hz
GB                        0
PC                     1.00

1D NMR plot parameters
CX                    20.00 cm
CY                    23.96 cm
F1P                    8.287 ppm
F1                  4144.65 Hz
F2P                    7.085 ppm
F2                  3543.26 Hz
PPMCM              0.06012 ppm/cm
HZCM              30.06944 Hz/cm
```



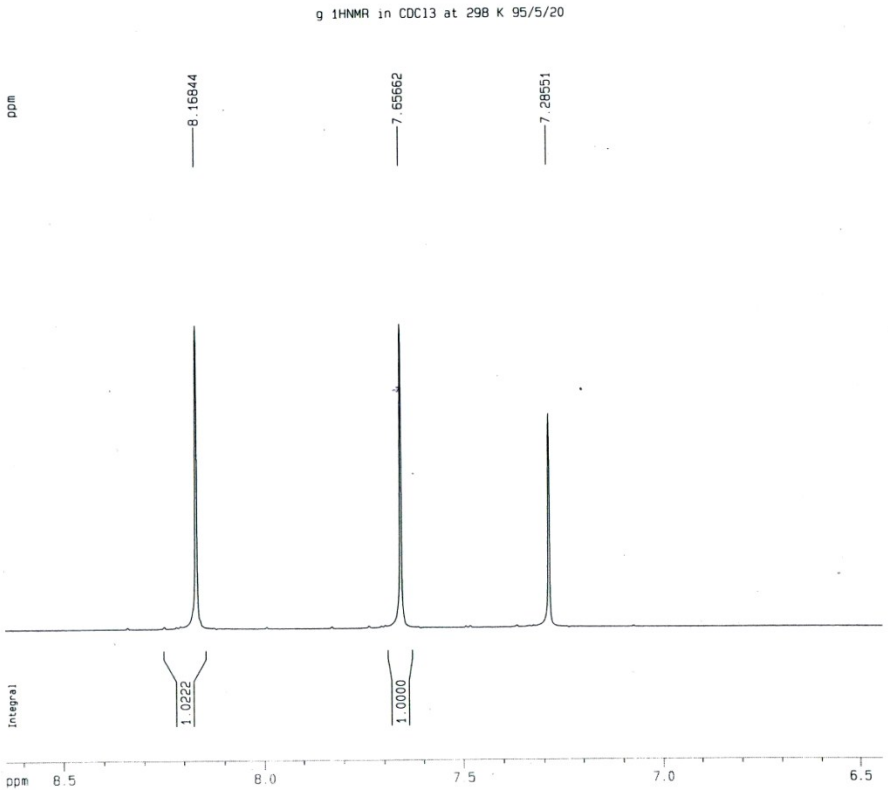
Current Data Parameters
NAME Khafi
EXPNO 4
PROCNO 1

F2 - Acquisition Parameters
Date_ 20160810
Time 10.50
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 32768
SOLVENT DMSO
NS 16
DS 0
SWH 10330.578 Hz
FIDRES 0.315264 Hz
AQ 1.5860696 sec
RG 645.1
DW 48.400 usec
DE 6.00 usec
TE 298.0 K
D1 5.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

======== CHANNEL f1 ========
NUC1 1H
P1 10.50 usec
PL1 -3.00 dB
SF01 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 20.00 cm
CY 43.82 cm
F1P 11.488 ppm
F1 5745.36 Hz
F2P 0.893 ppm
F2 446.49 Hz
PPMCM 0.52975 ppm/cm
HZCM 264.94376 Hz/cm



Current Data Parameters

NAME	Khafi
EXPNO	4
PROCNO	1

F2 - Acquisition Parameters

Date_	20160810
Time	10.50
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	32768
SOLVENT	DMSO
NS	16
DS	0
SWH	10330.578 Hz
FIDRES	0.315264 Hz
AQ	1.5860696 sec
RG	645.1
DW	48.400 usec
DE	6.00 usec
TE	298.0 K
D1	5.00000000 sec
MCREST	0.00000000 sec
MCWRK	0.01500000 sec

======== CHANNEL f1 ========

NUC1	1H
P1	10.50 usec
PL1	-3.00 dB
SFO1	500.1330885 MHz

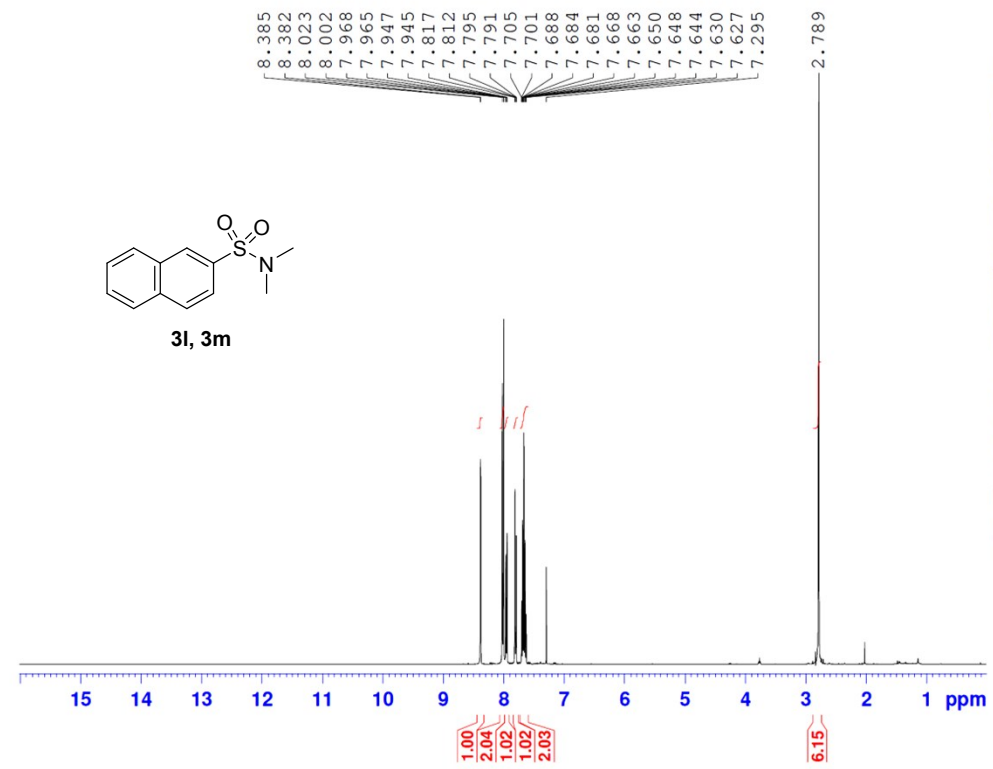
F2 - Processing parameters

SI	32768
SF	500.1300000 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
CY	43.82 cm
F1P	8.646 ppm
F1	4324.30 Hz
F2P	6.444 ppm
F2	3222.60 Hz
PPMCM	0.11014 ppm/cm
HZCM	55.08465 Hz/cm

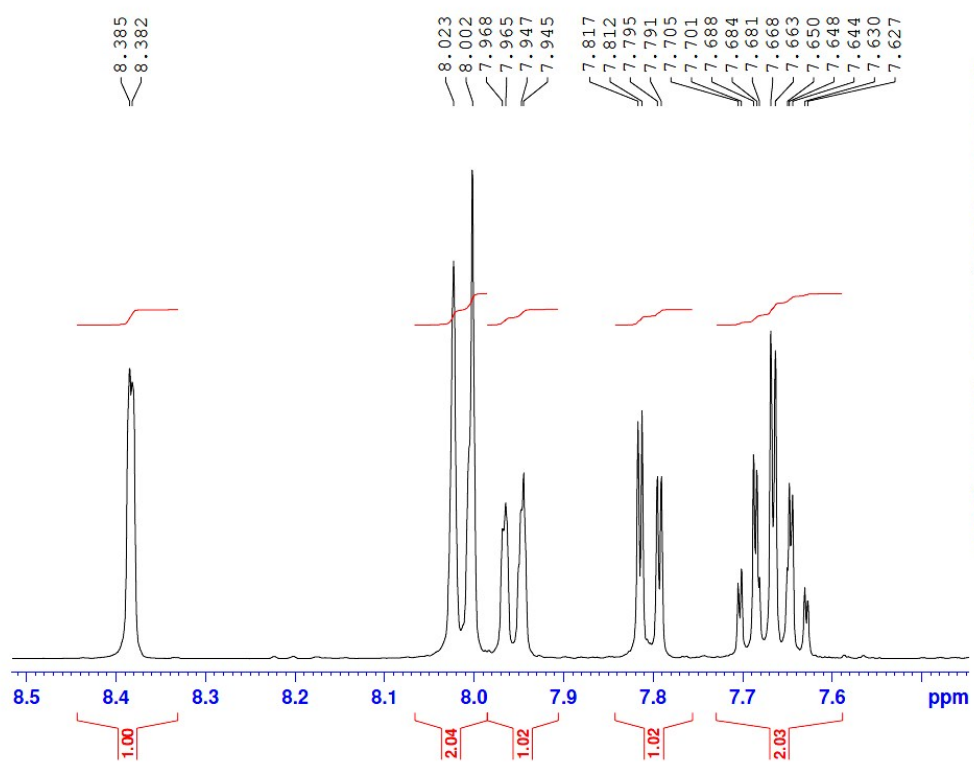
Sample code:11 (shafieepour)



3l, 3m

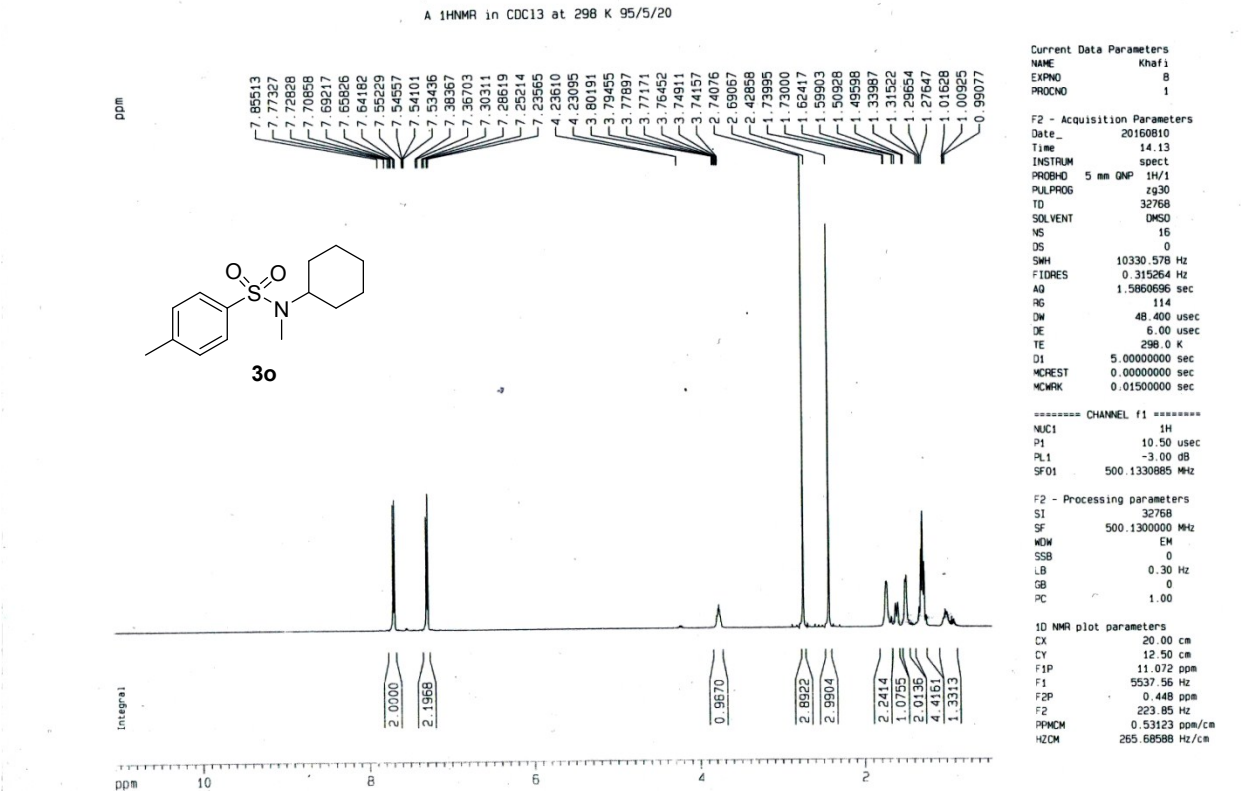
NAME	Gilan UN
EXPNO	2450
PROCNO	1
Date_	20160612
Time	18.01
INSTRUM	spect
PROBHD	5 mm PABBO BB-
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	20
DS	0
SWH	8012.820 Hz
FIDRES	0.122266 Hz
AQ	4.0894966 sec
RG	101
DW	62.400 usec
DE	6.50 usec
TE	296.4 K
D1	4.00000000 sec
TD0	1
======== CHANNEL f1 ========	
NUC1	1H
P1	14.00 usec
PL1	-2.00 dB
PL1W	11.86359406 W
SFO1	400.2236020 MHz
SI	32768
SF	400.2200000 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

Sample code:11 (shafieepour)



BRUKER

NAME	Gilan UN
EXPNO	2450
PROCNO	1
Date_	20160612
Time	18.01
INSTRUM	spect
PROBHD	5 mm PABBO BB-
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	20
DS	0
SWH	8012.820 Hz
FIDRES	0.122266 Hz
AQ	4.0894966 sec
RG	101
DW	62.400 usec
DE	6.50 usec
TE	296.4 K
D1	4.00000000 sec
TD0	1
======== CHANNEL f1 ========	
NUC1	1H
P1	14.00 usec
PL1	-2.00 dB
PL1W	11.86359406 W
SFO1	400.2236020 MHz
SI	32768
SF	400.2200000 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00



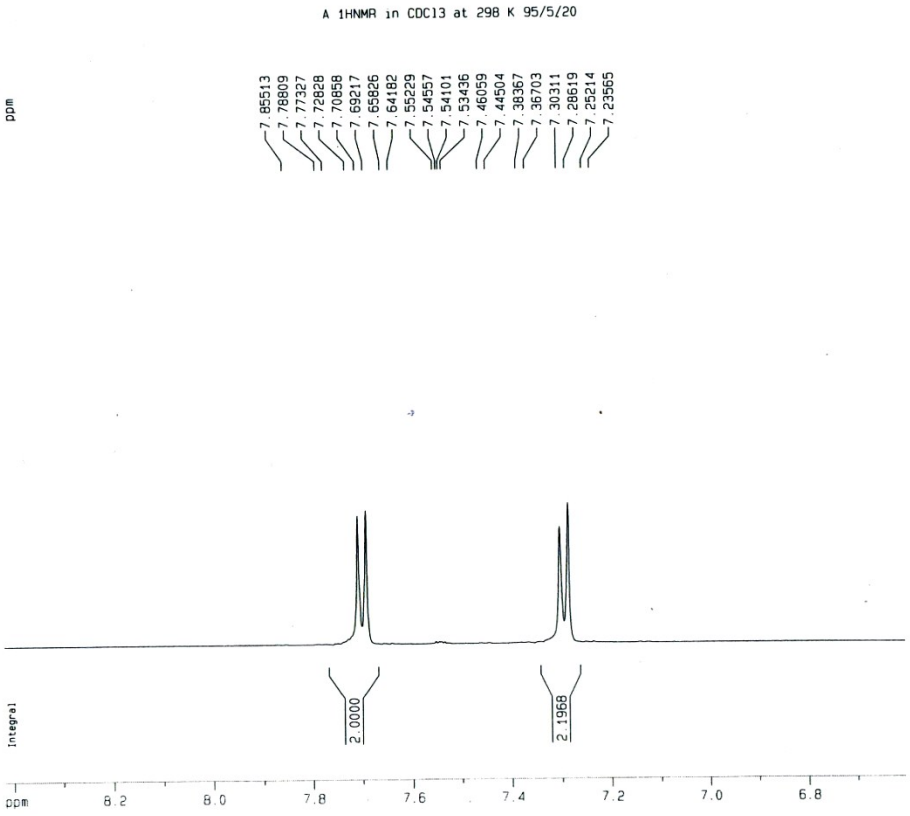
Current Data Parameters
NAME Khafi
EXPNO 8
PROCNO 1

F2 - Acquisition Parameters
Date_ 20160810
Time 14.13
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 32768
SOLVENT DMSO
NS 16
DS 0
SWH 10330.578 Hz
FIDRES 0.315264 Hz
AQ 1.5860696 sec
RG 114
DW 48.400 usec
DE 6.00 usec
TE 298.0 K
D1 5.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

======== CHANNEL f1 ========
NUC1 1H
P1 10.50 usec
PL1 -3.00 dB
SFO1 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 20.00 cm
CY 12.50 cm
F1P 11.072 ppm
F1 5537.56 Hz
F2P 0.448 ppm
F2 223.85 Hz
PPMCM 0.53123 ppm/cm
HZCM 265.68588 Hz/cm



Current Data Parameters

NAME	Khafi
EXPNO	8
PROCNO	1

F2 - Acquisition Parameters

Date_	20160810
Time	14.13
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	32768
SOLVENT	DMSO
NS	16
DS	0
SWH	10330.578 Hz
FIDRES	0.315264 Hz
AQ	1.5860696 sec
RG	114
DW	48.400 usec
DE	6.00 usec
TE	298.0 K
D1	5.00000000 sec
MCREST	0.00000000 sec
MCWRK	0.01500000 sec

======== CHANNEL f1 ========

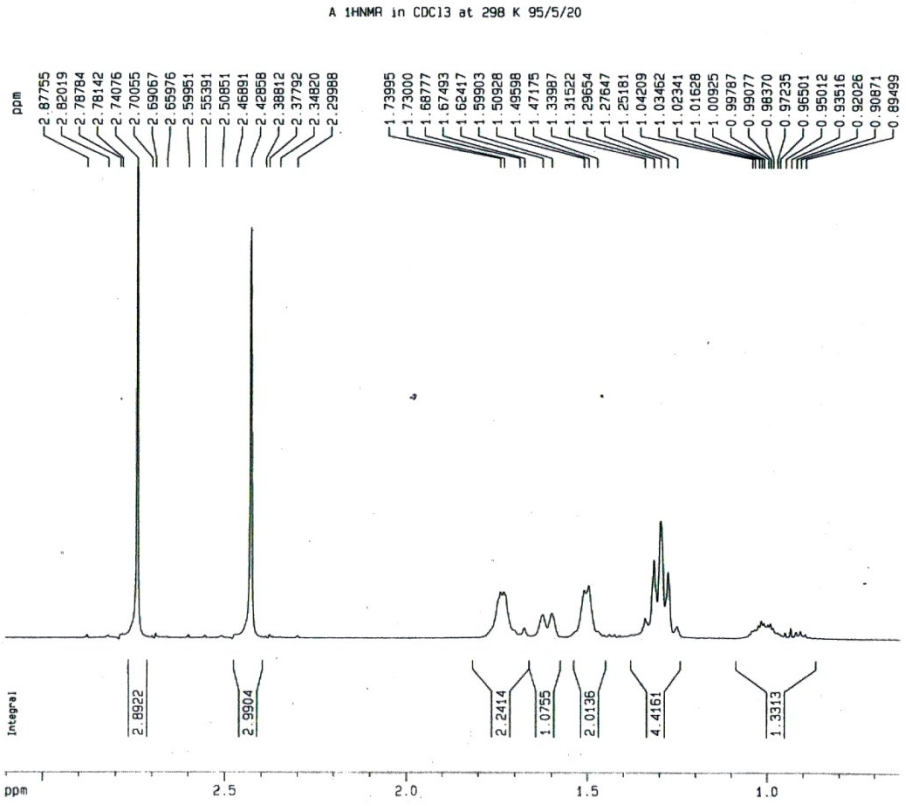
NUC1	1H
P1	10.50 usec
PL1	-3.00 dB
SFO1	500.1330885 MHz

F2 - Processing parameters

SI	32768
SF	500.1300000 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
CY	12.50 cm
F1P	8.420 ppm
F1	4211.06 Hz
F2P	6.604 ppm
F2	3302.83 Hz
PPMCM	0.09080 ppm/cm
HZCM	45.41125 Hz/cm



Current Data Parameters

NAME	Khafi
EXPNO	8
PROCNO	1

F2 - Acquisition Parameters

Date_	20160810
Time	14.13
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	32768
SOLVENT	DMSO
NS	16
DS	0
SWH	10330.578 Hz
FIDRES	0.315264 Hz
AQ	1.5860696 sec
RG	114
DW	48.400 usec
DE	6.00 usec
TE	298.0 K
D1	5.00000000 sec
MCREST	0.00000000 sec
MCWRK	0.01500000 sec

======== CHANNEL f1 ========

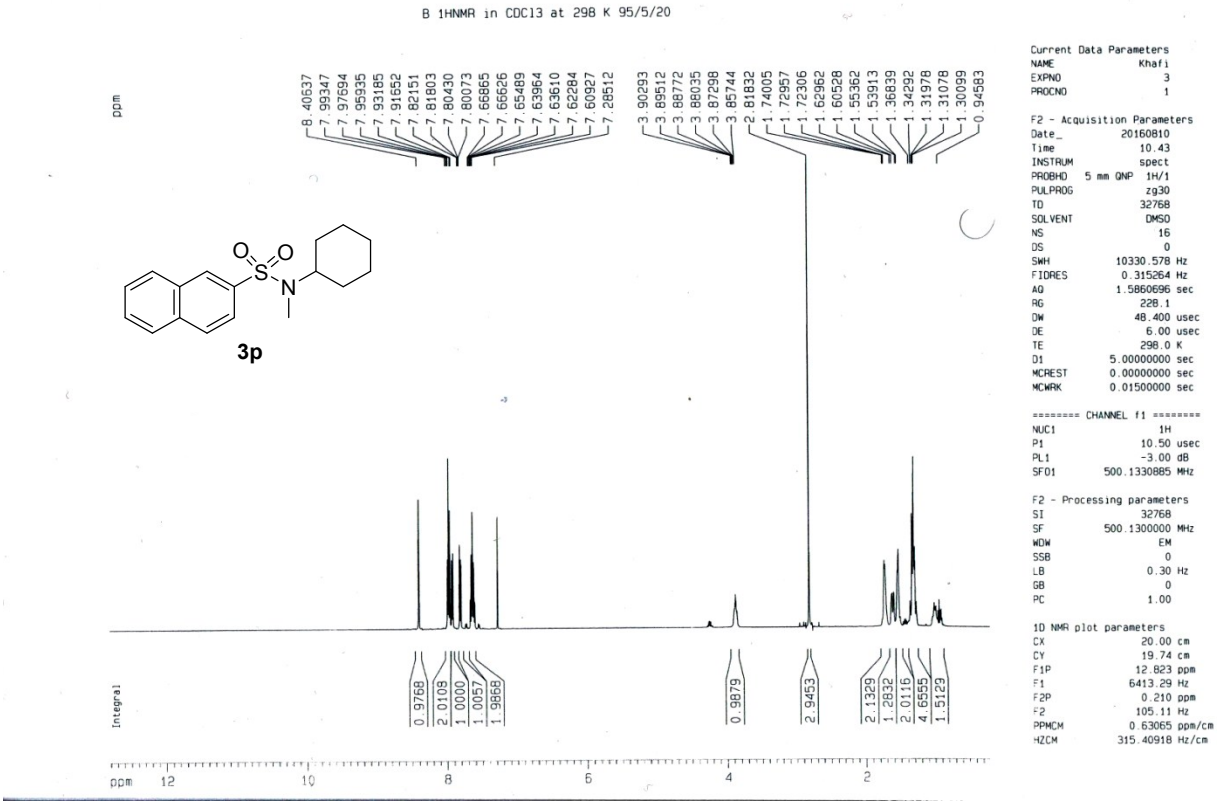
NUC1	1H
P1	10.50 usec
PL1	-3.00 dB
SFO1	500.1330885 MHz

F2 - Processing parameters

SI	32768
SF	500.1300000 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
CY	12.50 cm
F1P	3.104 ppm
F1	1552.28 Hz
F2P	0.631 ppm
F2	315.46 Hz
PPMCM	0.12365 ppm/cm
HZCM	61.84068 Hz/cm



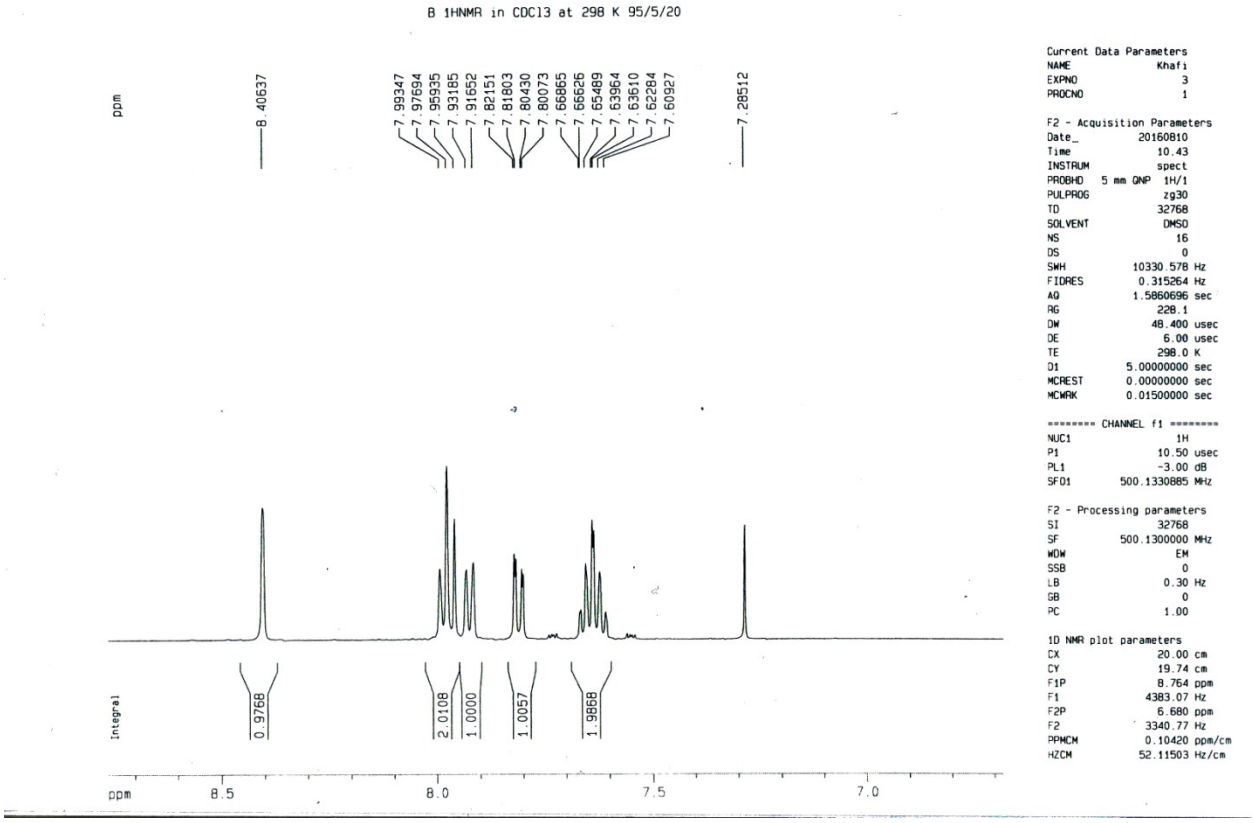
Current Data Parameters
NAME Khafi
EXPNO 3
PROCNO 1

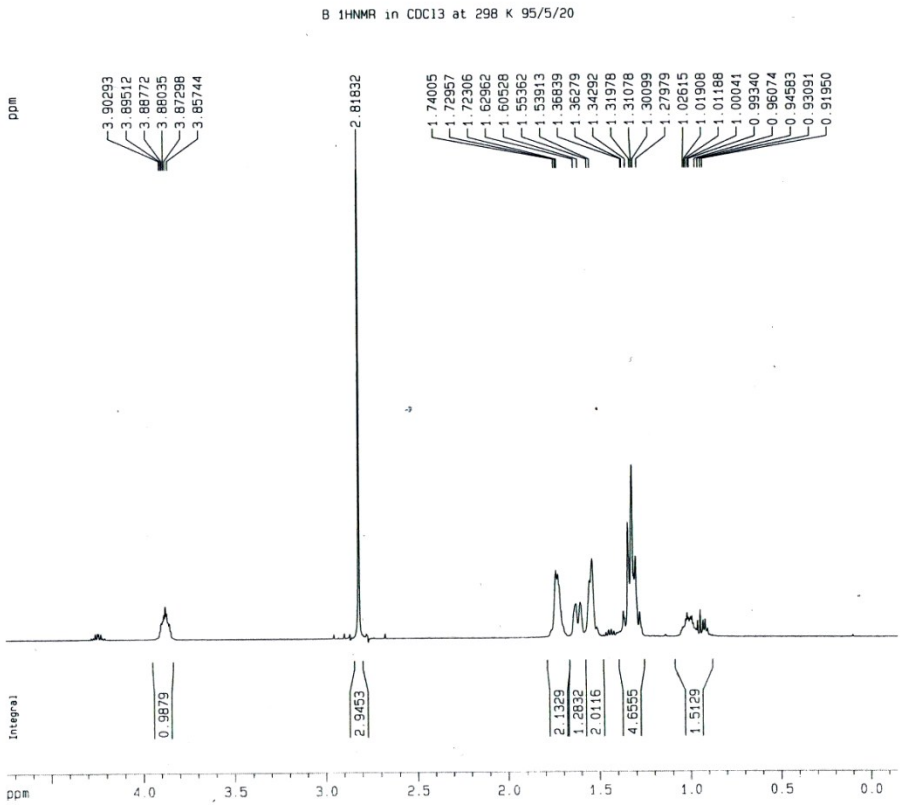
F2 - Acquisition Parameters
Date_ 20160810
Time 10.43
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 32768
SOLVENT DMSO
NS 16
DS 0
SWH 10330.578 Hz
FIDRES 0.315264 Hz
AQ 1.5860696 sec
RG 228.1
DW 48.400 usec
DE 6.00 usec
TE 298.0 K
D1 5.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

======== CHANNEL f1 ========
NUC1 1H
P1 10.50 usec
PL1 -3.00 dB
SFO1 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 20.00 cm
CY 19.74 cm
F1P 12.823 ppm
F1 6413.29 Hz
F2P 0.210 ppm
F2 105.11 Hz
PPMCM 0.63065 ppm/cm
HZCM 315.40918 Hz/cm


B 1HNMR in CDCl3 at 298 K 95/5/20
ppm
8.40637
7.99347
7.97694
7.95935
7.93185
7.91652
7.82151
7.81803
7.80430
7.80073
7.66865
7.66626
7.65489
7.63964
7.63610
7.62284
7.60927
7.28512
Integral
0.9768
2.0108
1.0000
1.0057
1.9868
ppm
8.5
8.0
7.5
7.0
Current Data Parameters
NAME Khafi
EXPNO 3
PROCNO 1
F2 - Acquisition Parameters
Date_ 20160810
Time 10.43
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 32768
SOLVENT DMSO
NS 16
DS 0
SWH 10330.578 Hz
FIDRES 0.315264 Hz
AQ 1.5860696 sec
RG 228.1
DW 48.400 usec
DE 6.00 usec
TE 298.0 K
D1 5.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec
======== CHANNEL f1 ========
NUC1 1H
P1 10.50 usec
PL1 -3.00 dB
SF01 500.1330885 MHz
F2 - Processing parameters
SI 32768
SF 500.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
1D NMR plot parameters
CX 20.00 cm
CY 19.74 cm
F1P 8.764 ppm
F1 4383.07 Hz
F2P 6.680 ppm
F2 3340.77 Hz
PPMCM 0.10420 ppm/cm
HZCM 52.11503 Hz/cm



Current Data Parameters

NAME	Khafi
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

Date_	20160810
Time	10.43
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	32768
SOLVENT	DMSO
NS	16
DS	0
SWH	10330.578 Hz
FIDRES	0.315264 Hz
AQ	1.5860696 sec
RG	228.1
DW	48.400 usec
DE	6.00 usec
TE	298.0 K
D1	5.00000000 sec
MCREST	0.00000000 sec
MCWRK	0.01500000 sec

======== CHANNEL f1 ========

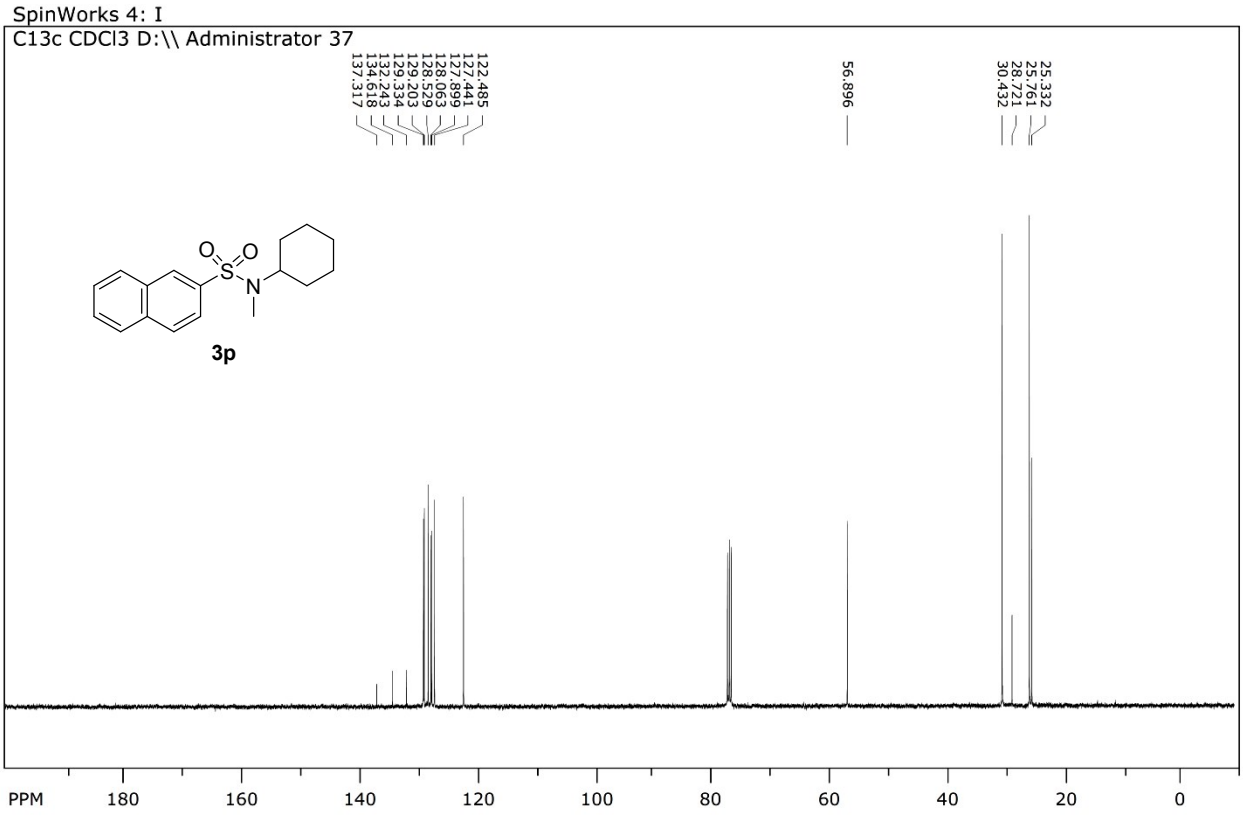
NUC1	1H
P1	10.50 usec
PL1	-3.00 dB
SFO1	500.1330885 MHz

F2 - Processing parameters

SI	32768
SF	500.1300000 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

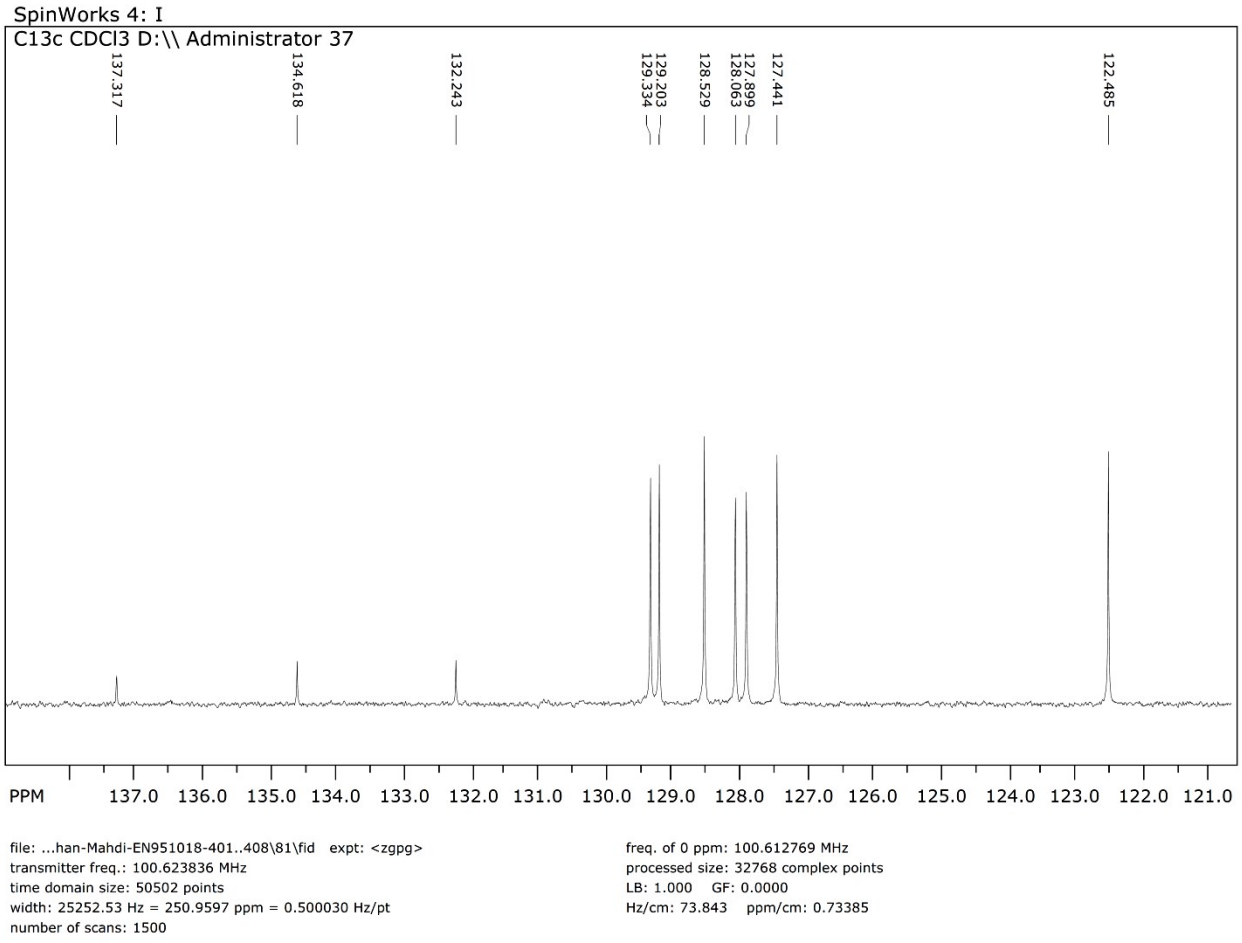
1D NMR plot parameters

CX	20.00 cm
CY	19.74 cm
F1P	4.751 ppm
F1	2376.05 Hz
F2P	-0.146 ppm
F2	-73.01 Hz
PPMCM	0.24484 ppm/cm
HZCM	122.45299 Hz/cm



file: ...han-Mahdi-EN951018-401..408\81\fid expt: <zgpg>
transmitter freq.: 100.623836 MHz
time domain size: 50502 points
width: 25252.53 Hz = 250.9597 ppm = 0.500030 Hz/pt
number of scans: 1500

freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 1.000 GF: 0.0000
Hz/cm: 846.150 ppm/cm: 8.40904



V-References:

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