

## Supporting Information

### Utilization of Transition Metal Fluoride Based Solid Support Catalysts for the Synthesis of Sulfonamides: Carbonic Anhydrase Inhibitory Activity and *in Silico* Study

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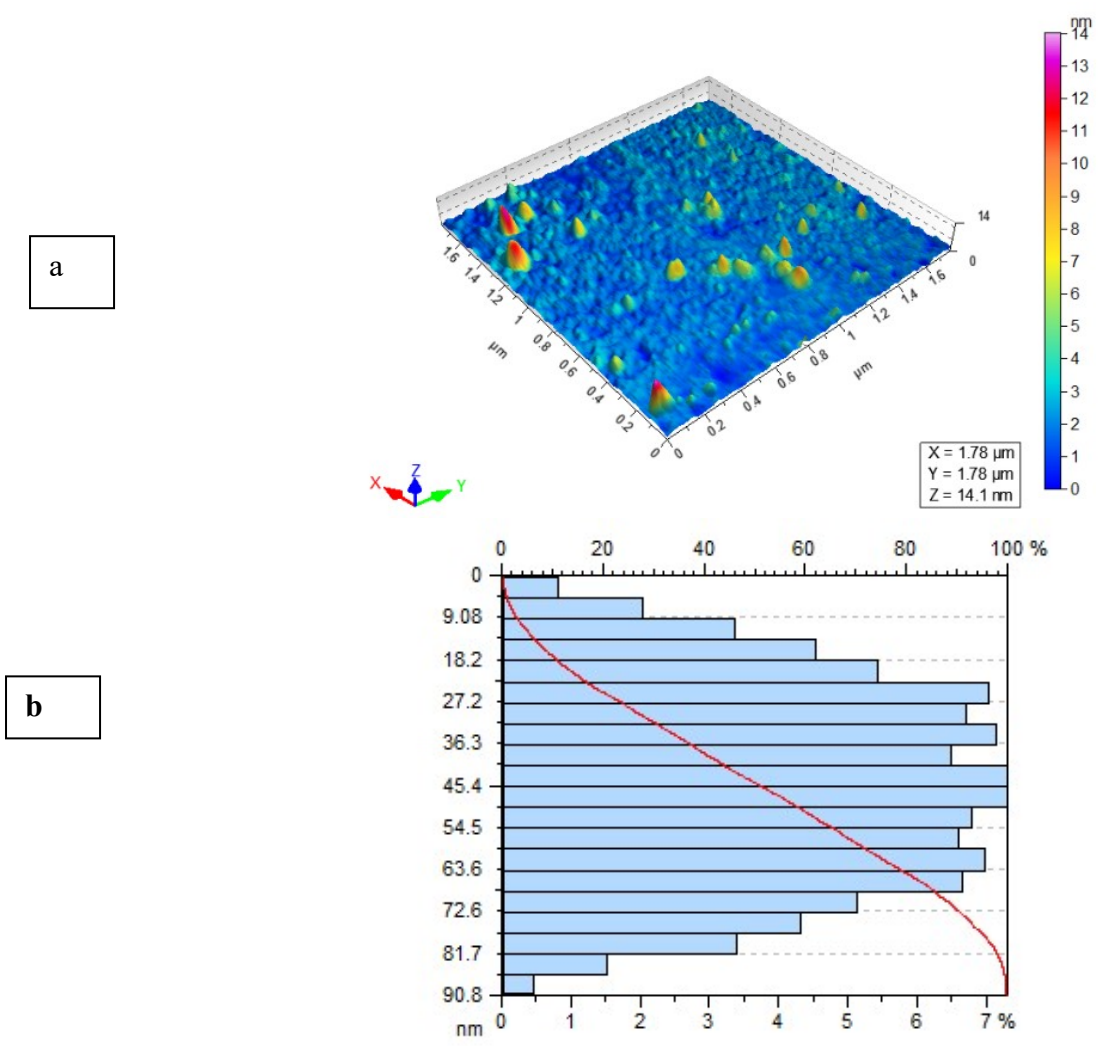
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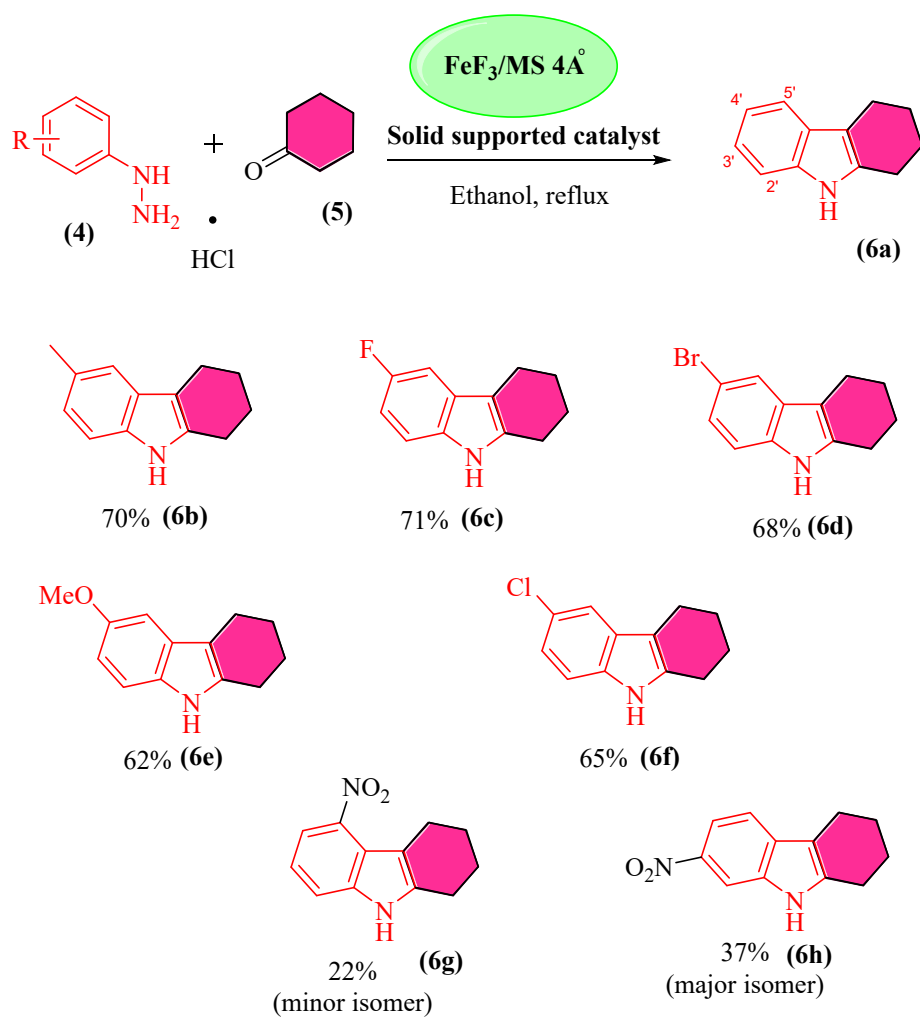
## Experimental

### General Information

Iron fluoride, Molecular sieve 4Å, *p*-toluenesulfonyl chloride (99%), different aromatic amines, cyclohexane ( $\geq 99.5\%$ ), phenyl hydrazine derivatives, trimethylsilyl azide (99%), dimedone (95%), aromatic aldehydes, ammonium acetate etc. were purchased from Sigma Aldrich and used without any purification unless otherwise stated. The progress of reactions was monitored using thin layer chromatography (TLC) on silica gel 60 aluminium-backed plates 0.063-0.200 mm. Analytical grade solvents such as, ethanol, ethyl acetate, n-hexane were used. For TLC plate visualization, UV irradiation at 254 nm was used. The TLC staining reagents,  $\text{KMnO}_4$  or vanillin were also used (where required) for visualization of TLC plates. Infrared (IR) spectra were recorded on Bruker Vector-22 spectrometer. The Bruker spectrometers of 300 MHz, 400 MHz, or 500 MHz were used for  $^1\text{H}$  and  $^{13}\text{C}$  NMR spectroscopic data. The chemical shifts were recorded on the  $\delta$ -scale (ppm) using residual solvents as an internal standard (DMSO;  $^1\text{H}$  2.50,  $^{13}\text{C}$  39.43 and  $\text{CHCl}_3$ ;  $^1\text{H}$  7.26,  $^{13}\text{C}$  77.16). Coupling constants were calculated in Hertz (Hz) and multiplicities were labelled s (singlet), d (doublet), t (triplet), q (quartet), quint (quintet) and the prefixes br (broad) or app (apparent) were used. Mass spectra ( $\text{EI}^+$  and FAB) were recorded on Finnigan MAT-321A, Germany. Melting points of solids were determined using a Stuart<sup>TM</sup> melting point SMP3 apparatus.



**Figure-S1:** (a) size and morphology of molecular sieves (b) Particle size distribution respectively.



**Scheme-S1:** Fisher indole synthesis **6a-6h** of different substituted indoles by using solid supported catalyst ( $\text{FeF}_3/\text{MS } 4\text{\AA}$ ). *Note:* Reactions have been carried out by solid supported catalyst (wt% 1/1, 100 mg) in ethanol

## General procedure for the synthesis of indole derivatives

An oven dried flask was charged with FeF<sub>3</sub> supported crushed molecular sieves 4Å (100 mg), and ethanol (5 mL). To the reaction flask, subsequently, the substituted phenyl hydrazine hydrochloride (1 mmol, 1 equiv.), cyclohexanone (1 mmol, 1 equiv.) was added at room temperature and mixture was heated at reflux (78-80 °C) for 1 h until the completion of reaction as monitored via TLC (ethyl acetate : hexane = 1:9). The crude product was purified with gradient eluents EtOAc/Hexane (1:9 to 1:1) to get the corresponding pure products (**6a-d**) in different yields.

### 2,3,4,9-Tetrahydro-1H-carbazole (**6a**)

Slightly yellow color, yield 70 %, 119 mg, M.P. 116-118 °C, (Lit. 117.4-118.9 °C) <sup>[1]</sup>, IR  $\nu_{\max}$ , cm<sup>-1</sup>: (Solid, KBr) 3398 (NH), 1655 C=C, 1585, 1446, 1233 . <sup>1</sup>H-NMR (400 MHz, DMSO-*d*<sub>6</sub>):  $\delta_{\text{H}}$  10.58 (1H, brs, NH), 7.30 (1H, d, ArH, *J*= 8.0 Hz), 7.21 (1H, d, ArH, *J*= 8.0 Hz), 6.95 (1H, t, ArH, *J*= 8.0 Hz), 6.90 (1H, t, ArH, *J*= 8.0 Hz), 2.67 (2H, app t, CH<sub>2</sub> = 6.0 Hz), 2.60 (2H, app t, CH<sub>2</sub>, *J*= 6.0 Hz), 1.81-1.79 (4H, m, 2CH<sub>2</sub>). ESI-MS, *m/z* (M<sup>+</sup>1) 172.1.

### 6-Methyl-2,3,4,9-tetrahydro-1H-carbazole (**6b**)

Slightly yellow color, Yield 67%, 124 mg, M.P. 141-143 °C, (Lit. 142-144 °C) <sup>[2, 3]</sup> IR  $\nu_{\max}$ , cm<sup>-1</sup>: (Solid, KBr) 3394 (NH), 3021, 1651 C=C, 1589, 1468, 1195. <sup>1</sup>H-NMR (400 MHz, DMSO-*d*<sub>6</sub>):  $\delta_{\text{H}}$  10.42 (1H, brs, NH), 7.10 (2H, app d, ArH, *J*= 8.0 Hz), 6.78 (1H, d, ArH, *J*= 12.0 Hz), 2.67 (2H, app t, CH<sub>2</sub>, *J*= 4.0 Hz), 2.58 (2H, app t, CH<sub>2</sub>, *J*= 4.0 Hz), 2.33 (3H, s, CH<sub>3</sub>), 1.81-1.75 (4H, m, 2CH<sub>2</sub>). ESI-MS, *m/z* (M<sup>+</sup>1) 186.13.

### 6-Fluoro-2,3,4,9-tetrahydro-1H-carbazole (**6c**)

Yellow color, Yield 73%, 138 mg, M.P. 94-96 °C, (Lit. 94-95 °C) <sup>[4]</sup>, IR  $\nu_{\max}$ , cm<sup>-1</sup>: (Solid, KBr) 3406 (NH), 1626, 1583, 1480,1230. <sup>1</sup>H-NMR (400 MHz, DMSO-*d*<sub>6</sub>):  $\delta_{\text{H}}$  10.69 (1H, brs, NH), 7.20 (1H, dd, ArH, *J* = 8.0, 4.0 Hz), 7.05 (1H, d, ArH, *J* = 8.0 Hz), 6.80 (1H, app td, ArH, *J* = 8.0, 4.0 Hz), 2.67 (2H, app t, CH<sub>2</sub>, *J* = 4.0 Hz), 2.56 (2H, app t, CH<sub>2</sub>, *J* = 4.0 Hz), 1.78 (4H, m, 2CH<sub>2</sub>). ESI-MS, *m/z* (M<sup>+</sup>1) 190.1.

### 6-Bromo-2,3,4,9-tetrahydro-1H-carbazole (**6d**)

Pale yellow color, Yield 63%, 156 mg, M.P. 152-154 °C, (Lit. 152.6-154.1 °C) <sup>[5]</sup>, IR  $\nu_{\max}$ , cm<sup>-1</sup>: (Solid, KBr) 3404 (NH), 1617, 1577, 1465. <sup>1</sup>H-NMR (400 MHz, DMSO-*d*<sub>6</sub>):  $\delta_{\text{H}}$  10.84 (1H, brs, NH), 7.46 (1H, s, ArH), 7.19 (1H, d, ArH, *J* = 8.0 Hz), 7.07 (1H, d, ArH, *J* = 8.0 Hz), 2.67 (2H, app brs, CH<sub>2</sub>), 2.56 (2H, app brs, CH<sub>2</sub>), 1.78 (4H, app brs, 2CH<sub>2</sub>) <sup>[5]</sup>. ESI-MS, *m/z* (M + H) 250.

### 6-Methoxy-2,3,4,9-tetrahydro-1H-carbazole (**6e**)

Pale yellow color, Yield 69%, 138 mg, M.P. 107-109 °C, (Lit. 106-108 °C) [2]. IR  $\nu_{\max}$ ,  $\text{cm}^{-1}$ : (Solid, KBr) 3389 (NH), 1624, 1591, 1484, 1219.  $^1\text{H-NMR}$  (400 MHz,  $\text{DMSO-}d_6$ ):  $\delta_{\text{H}}$  10.39 (1H, brs, NH), 7.10 (1H, d, ArH,  $J = 8.0$  Hz), 6.80 (1H, d, ArH,  $J = 4.0$  Hz), 7.19 (1H, dd, ArH,  $J = 8.4, 4.0$  Hz), 3.72 (3H, s,  $\text{CH}_3\text{-O}$ ), 2.65 (2H, app t,  $\text{CH}_2$ ,  $J = 4.0$  Hz), 2.56 (2H, app t,  $\text{CH}_2$ ,  $J = 4.0$  Hz), 1.81-1.75 (4H, m,  $2\text{CH}_2$ ) [2]. ESI-MS,  $m/z$  (M + H) 202.1.

#### **6-Chloro-2,3,4,9-tetrahydro-1H-carbazole (6f)**

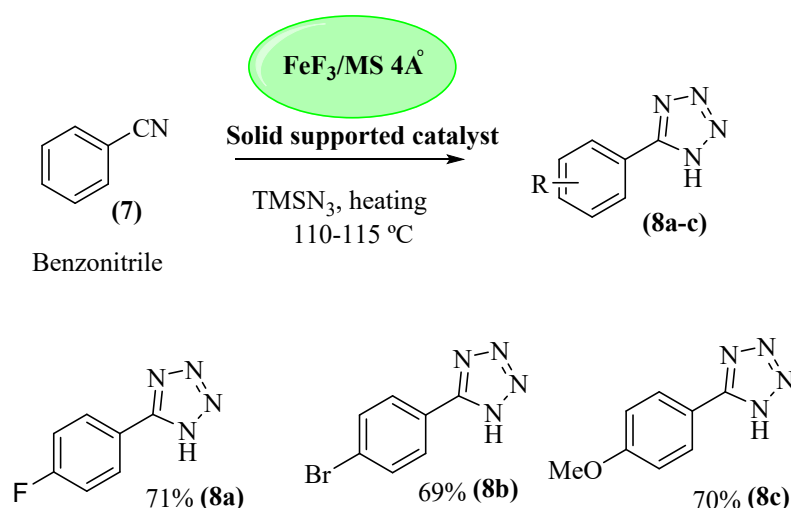
Off-white colour, Yield 59%, 121 mg, M.P. 161-163 °C, (Lit. 162-163 °C) [2], IR  $\nu_{\max}$ ,  $\text{cm}^{-1}$ : (Solid, KBr) 3404 (NH), 1578, 1468, 1231.  $^1\text{H-NMR}$  (400 MHz,  $\text{DMSO-}d_6$ ):  $\delta_{\text{H}}$  10.82 (1H, brs, NH), 7.33 (1H, d, ArH,  $J = 3.0$  Hz), 7.23 (1H, d, ArH,  $J = 8.0$  Hz), 6.94 (1H, dd, ArH,  $J = 12.0, 4.0$  Hz), 2.68 (2H, app t, ArH,  $J = 8.0$  Hz), 2.56 (2H, app t,  $\text{CH}_2$ ,  $J = 8.0$  Hz), 1.82-1.75 (4H, m,  $2\text{CH}_2$ ), 1.82 (4H, m,  $2\text{CH}_2$ ). ESI-MS,  $m/z$  (M + H) 206.1

#### **5-Nitro-2,3,4,9-tetrahydro-1H-carbazole (6g)**

Orange color, Yield 30%, 78 mg, M.P. 150-152 °C, (Lit. 152 °C) [6], IR  $\nu_{\max}$ ,  $\text{cm}^{-1}$ : (Solid, KBr) 3351 (NH), 1672, 1567, 1468, 1271.  $^1\text{H-NMR}$  (400 MHz,  $\text{DMSO-}d_6$ ):  $\delta_{\text{H}}$  11.60 (1H, brs, NH), 7.72 (1H, d, ArH,  $J = 8.0$  Hz), 7.66 (1H, d, ArH,  $J = 12.0$  Hz), 7.15 (1H, t, ArH,  $J = 10.0$  Hz), 2.80-2.73 (4H, m,  $2\text{CH}_2$ ), 1.82-1.74 (4H, m,  $2\text{CH}_2$ ). ESI-MS,  $m/z$  (M + H) 217.1.

#### **7-Nitro-2,3,4,9-tetrahydro-1H-carbazole (6h)**

Orange color, Yield 11%, 28 mg, M.P. 168-170 °C, (Lit. 169 °C) [6], IR  $\nu_{\max}$ ,  $\text{cm}^{-1}$ : (Solid, KBr) 3392 (NH), 1650, 1547, 1462, 1221.  $^1\text{H-NMR}$  (400 MHz,  $\text{DMSO-}d_6$ ):  $\delta_{\text{H}}$  11.52 (1H, brs, NH), 8.17 (1H, d, ArH,  $J = 2.8$  Hz), 7.85-7.82 (1H, dd, ArH,  $J = 12.0, 4.0$  Hz), 7.50 (1H, d, ArH,  $J = 12.0$  Hz), 2.78 (2H, app t,  $\text{CH}_2$ ,  $J = 8.0$  Hz), 2.56 (2H, app t,  $\text{CH}_2$ ,  $J = 8.0$  Hz), 1.83-1.80 (4H, m,  $2\text{CH}_2$ ). ESI-MS,  $m/z$  (M + H) 217.1.



**Scheme-S2:** Synthesis of substituted 1*H*-tetrazoles.

### 2.3. Synthetic protocol for the synthesis 1*H*-Tetrazoles

In a typical procedure, the corresponding benzonitriles (1 mmol) were added with trimethylsilyl azide (3 mmol) to an over dried reaction flask. 100 mg of prepared catalyst was taken in reaction flask and rubber septum was capped tightly. The reaction mixture was heated at 115-125 °C for formation of desired product in a reflux assembly, reaction was monitored via TLC and was continued until complete disappearance of starting materials. The catalyst was separated by filtration while the mixture was still hot. The filtrate was allowed to cool down at ambient temperature. Ethyl acetate (15 mL) was used to dilute the filtrate and washed with 1N hydrochloride (20 mL) in a separating assembly. The organic layer was dried over anhydrous NaSO<sub>4</sub>, followed by filtration. This filtrate was concentrated under reduced pressure to get the final product as a solid.

#### 5-(4-Fluorophenyl)-1*H*-tetrazole (8a)

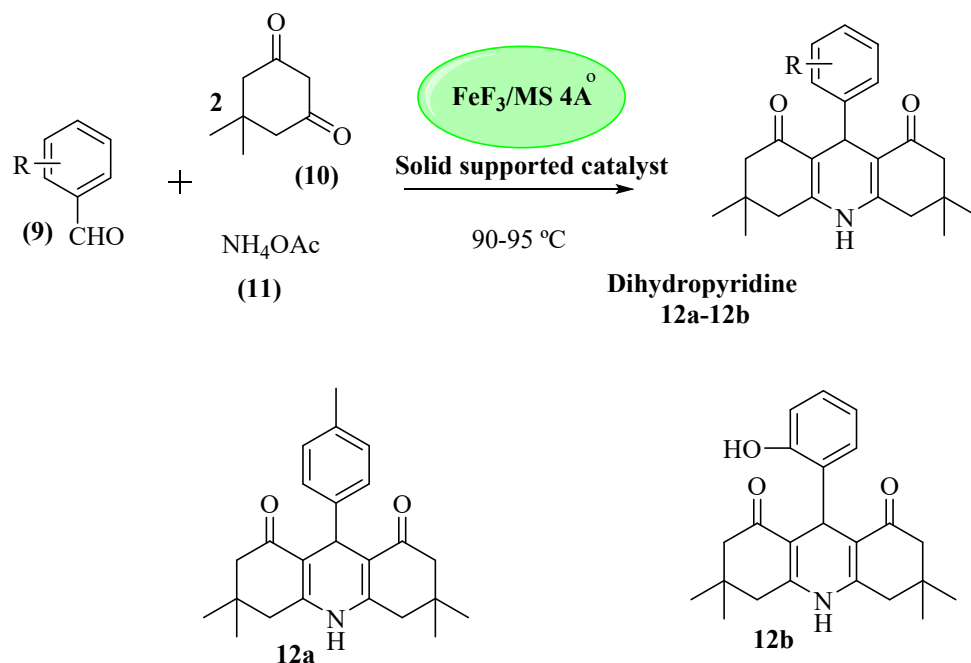
Off-white colour, Yield 71%, 116 mg, 184-186 °C, (Lit. 185 °C) [7, 8], IR  $\nu_{\max}$ , cm<sup>-1</sup>: (Solid, KBr), 3663, 3416, 1664 C=N stretch, 1550 N=N stretch, 1164, 1121. <sup>1</sup>H-NMR (400 MHz, DMSO-*d*<sub>6</sub>):  $\delta_{\text{H}}$  8.09 (2H, app dd, ArH, *J* = 8.0, 4.0 Hz), 7.83 (2H, app t, ArH, *J* = 8.0 Hz). EI-MS, *m/z* (%), 164.1 (62), 136 (100), 121 (33), 109 (87), 95 (17).

#### 5-(4-Bromophenyl)-1*H*-tetrazole (8b)

Pale yellow colour, Yield 69%, 156 mg, M.P. 256-260 °C, (Lit. 257-258 °C) [9] [10], IR  $\nu_{\max}$ , cm<sup>-1</sup>: (Solid, KBr), 3663, 3414, 1660 C=N stretch, 1563 N=N stretch, 1157. <sup>1</sup>H NMR (400 MHz, DMSO- *d*<sub>6</sub>):  $\delta_{\text{H}}$  7.98 (2H, d, ArH, *J* = 8.0 Hz), 7.83 (2H, d, ArH, *J* = 8.0 Hz). EI-MS, *m/z* (%), 224 (23), 198 (100), 90(38), 75 (10).

#### 5-(4-Methoxyphenyl)-1*H*-tetrazole (9c)

Rust colour, Yield 70 %, 123 mg, M.P. 226-228 °C, (Lit. 227 °C) <sup>[9]</sup>, IR  $\nu_{\max}$ ,  $\text{cm}^{-1}$ : (Solid, KBr), 3700, 3662, 3636, 3576, 3413, 1664 C=N stretch, 1550 N=N stretch, 1163. <sup>1</sup>H-NMR (400 MHz, DMSO-*d*<sub>6</sub>):  $\delta_{\text{H}}$  7.98 (2H, d, ArH, *J* = 8.8 Hz) 7.16 (2H, d, ArH, *J* = 8.8 Hz), 3.84 (3H, s, OCH<sub>3</sub>). FABP-MS,  $\text{M}^{+}$  (%), 177.0 (72).



**Scheme-S3:** Synthesized of substituted phenyl 1,4-dihydropyridines.

#### 2.4. Synthetic protocol for the synthesis of dihydropyridines

In a typical one pot synthesis, 5,5-dimethyl-1,3-cyclohexanedione (2.0 mmol) and ammonium acetate (1.0 mmol), was added along with corresponding benzaldehyde derivatives (1.0 mmol) in an oven dried round bottom flask. To the above reaction mixture was added 100 mg of prepared transition metal based solid support catalyst. The reaction was kept at reflux in ethanol for about 4-6 h, until the starting materials disappeared. It was then cooled to ambient temperature, afterwards crushed ice was added to get precipitation. The resultant precipitate was washed by ethyl acetate (3 × 15 mL). Column chromatography was used where it was required for purifications. The dihydropyridines were obtained in solid form with different yields.

##### **3,3,6,6-Tetramethyl-9-(*p*-tolyl)-3,4,6,7,9,10-hexahydroacridine-1,8(2*H*,5*H*)-dione (12a)**

Pale orange colour solid, Yield 61%, 221 mg, M.P. 272-276 °C, (Lit. >250 °C) <sup>[11]</sup>, IR  $\nu_{\max}$ ,  $\text{cm}^{-1}$ : (Solid, KBr) 3278 (NH), 1652, 1606, 1428, 1365. <sup>1</sup>H NMR (400 MHz, DMSO-*d*<sub>6</sub>):  $\delta_{\text{H}}$  9.22 (1H, brs NH), 7.02 (2H, d, *J* = 8.0 Hz, ArH), 6.94 (2H, d, *J* = 8.0 Hz, ArH), 4.75 (1H, s, CH-9), 2.44 (2H, d, *J* = 16.0 Hz, 2CHH), 2.31 (2H, d, *J* = 16.0 Hz, 2CHH), 2.17 (3H, s, Ar-



$CH_3$ ), 2.16 (2H, d,  $J = 16.0$ , 2CHH), 1.97 (2H, d,  $J = 16.0$  Hz, 2CHH), 0.99 (6H, s,  $(CH_3)_2$ ), 0.85 (6H, s,  $(CH_3)_2$ ); EI-MS  $m/z$  364.0 (M + H).

**9-(2-Hydroxyphenyl)-3,3,6,6-tetramethyl-3,4,6,7,9,10-hexahydroacridine-1,8(2H,5H)-dione (12b)**

Yellow colour solid, Yield 57%, 209 mg, M.P. 99-302 °C, (Lit. >300 °C) <sup>[12]</sup> IR  $\nu_{max}$ ,  $cm^{-1}$ : (Solid, KBr) 3545, 3283 (NH), 1623, 1368. <sup>1</sup>H-NMR (400 MHz, DMSO- $d_6$ ):  $\delta_H$  9.59 (1H, s, OH), 9.44 (1H, s, NH), 6.92 (1H, t, ArH,  $J = 8.0$  Hz), 6.86 (1H, app d, ArH  $J = 8.0$  Hz), 6.68-6.65 (2H, m, ArH), 4.84 (1H, s, CH), 2.45 (4H, app q,  $(CH_2)_2$   $J = 16$  Hz), 2.25 (2H, d, 2CHH  $J = 16.0$  Hz), 2.07 (2H, d, 2CHH,  $J = 16.0$  Hz), 1.01 (6H, s,  $(CH_3)_2$ ), 0.88 (6H, s,  $(CH_3)_2$ ). EI-MS,  $m/z$  (%). 365.1.

**Molecular Docking Studies**

The crystal structures of human carbonic anhydrase II (PDB id: 4qjy, 1.3 Å), IX (PDB id: 6g9u 1.7 Å) and XII (PDB id: 1jd0, 1.5 Å) were downloaded from the Protein Data Bank (PDB). All steps of ligand and receptor preparation (deletion of unwanted ligands, solvents molecules, addition of hydrogen and charges etc.) were carried out using default settings in BioSolveIT's LeadIT software (LeadIT version 2.3.2; BioSolveIT GmbH, Sankt Augustin, Germany, 2017, [www.biosolveit.de/LeadIT](http://www.biosolveit.de/LeadIT)). For each compound a total of 10 docked poses were generated, out of these HYDE (a utility of LeadIT software) analysis of each pose was carried out to find out the conformation with most favorable binding free energy, which was selected for detailed evaluation of binding site interactions. For 3D visualization of these binding site interactions Discover Studio Visualizer was used.

## References:

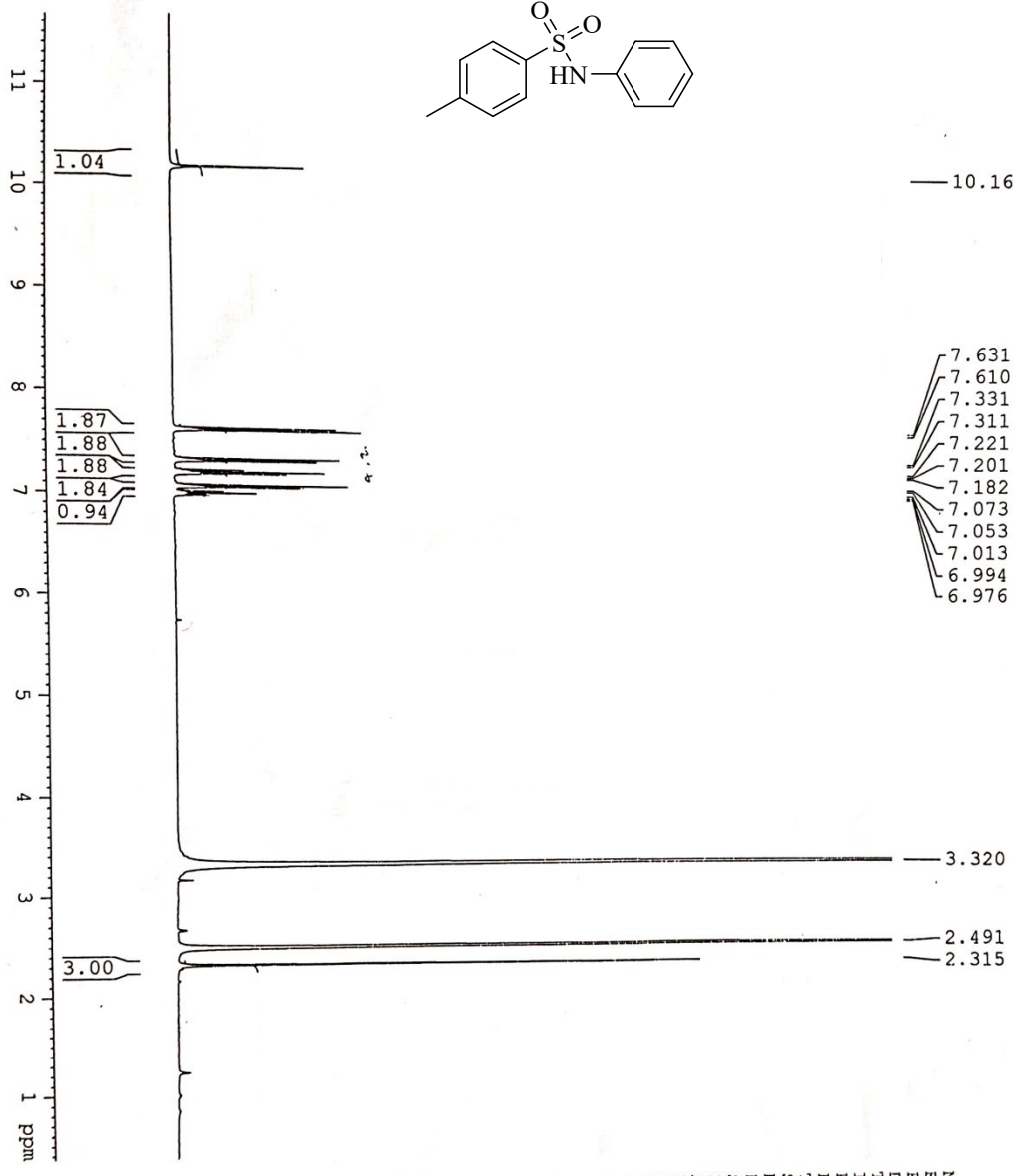
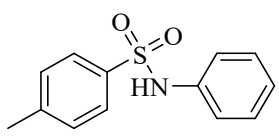
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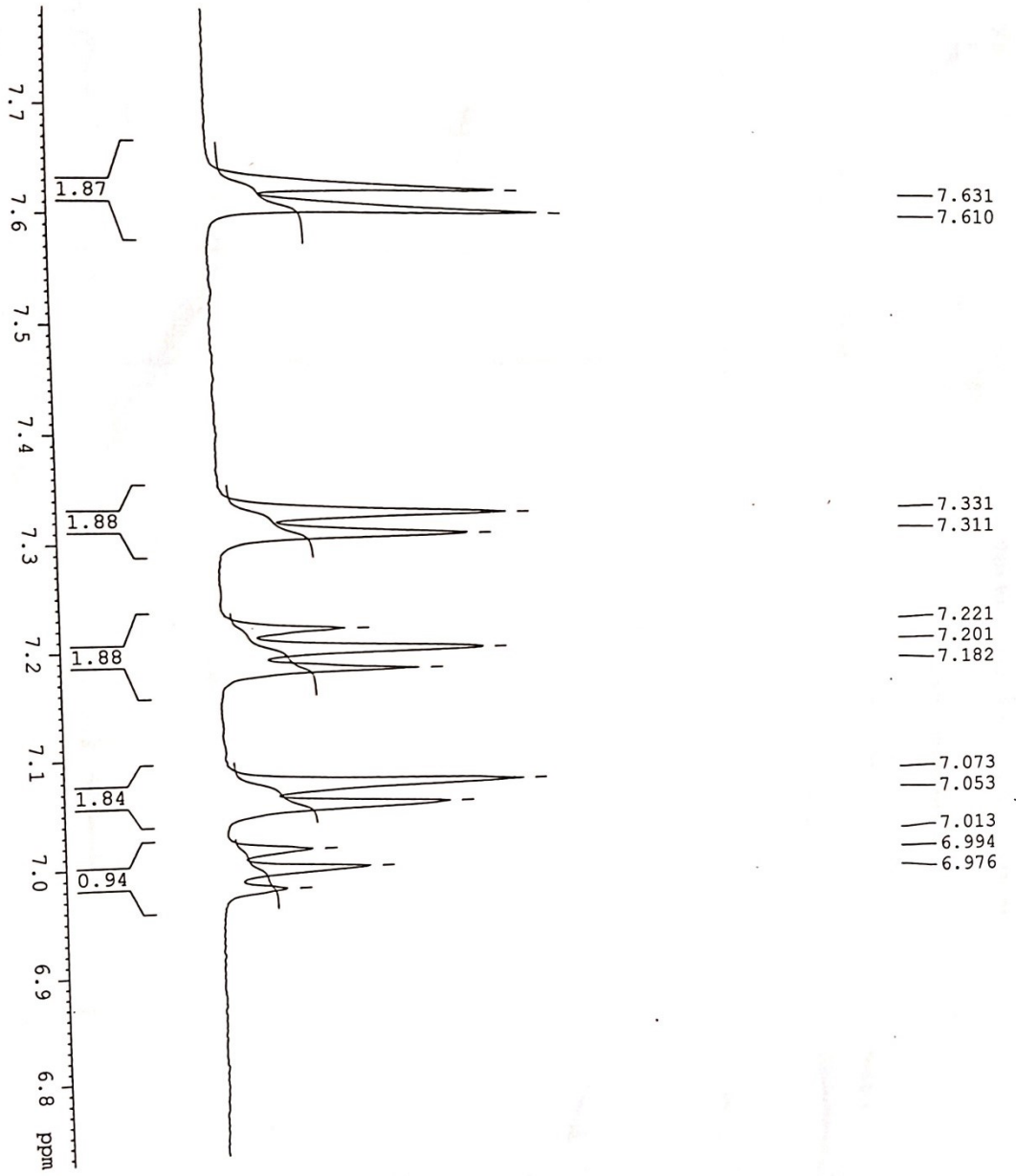
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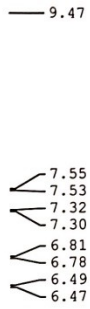
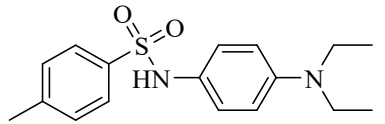
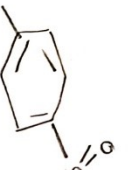
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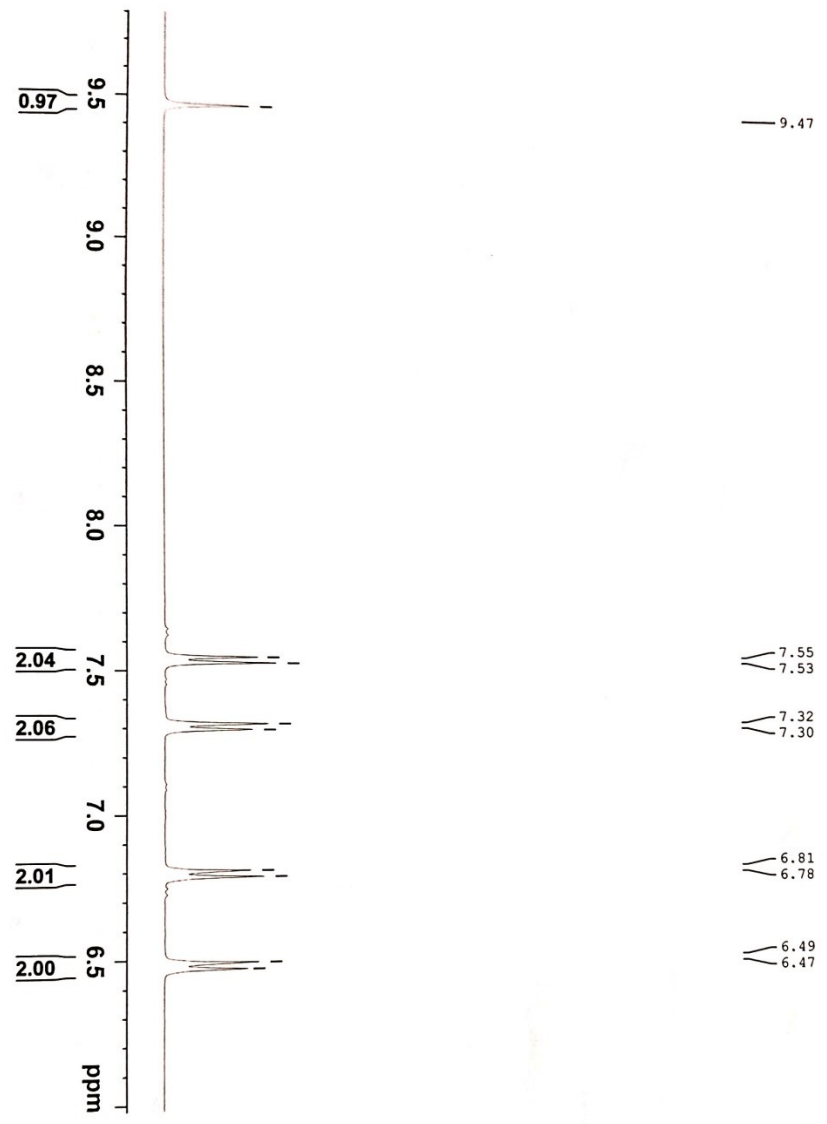
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SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.089465 sec  
 RG 322.5  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 TD0 1

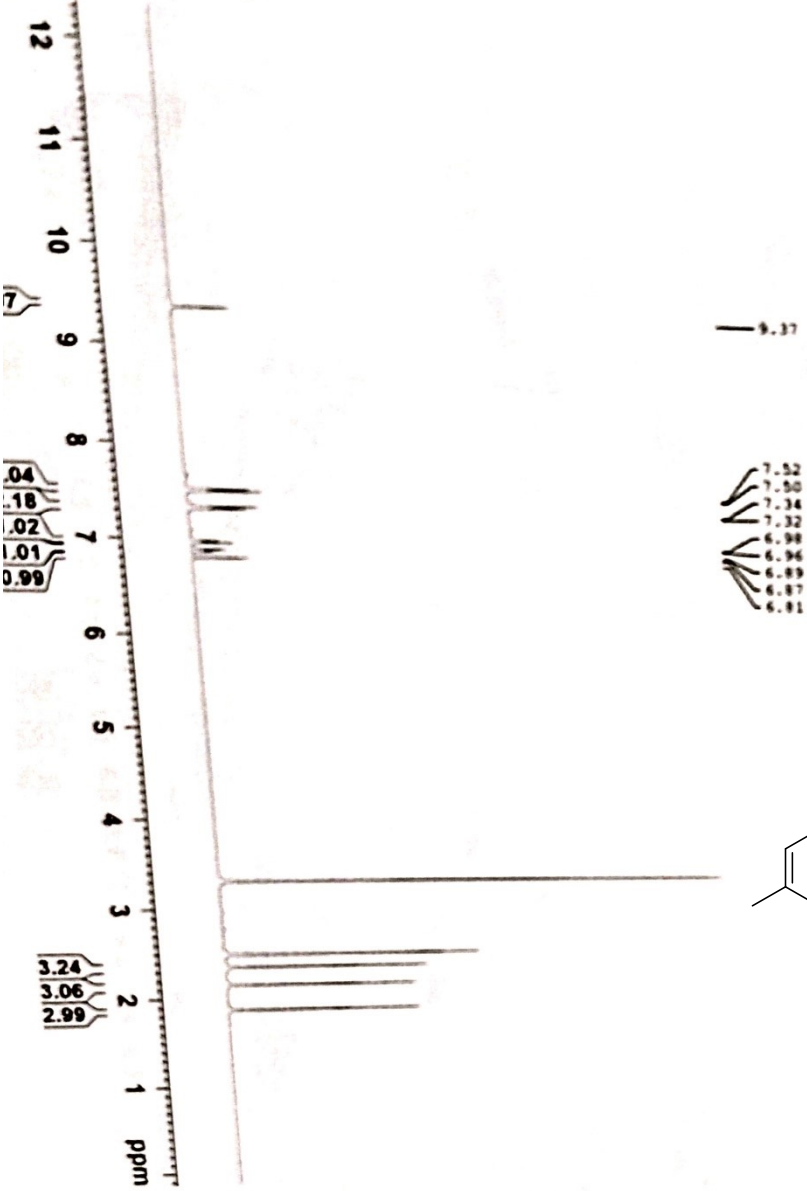
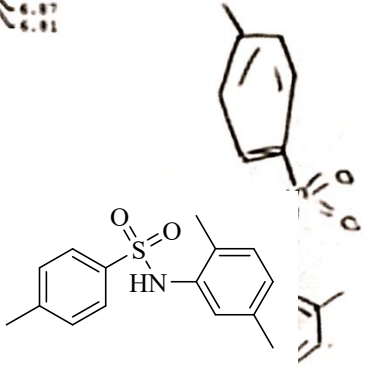
==== CHANNEL f1 =====  
 NUCL1 1H  
 P1 10.80 usec  
 PL1 3.00 dB  
 SFO1 400.0332002 MHz

F2 - Processing parameters  
 SI 32768  
 SF 400.0300041 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 0.20





DEEDAR/DR. HAMEED/DA. I. 19A  
 ICCBS, U.O.K  
 1H



Current Data Parameters  
 NAME: aap2e-16  
 EXTNO: 9  
 PROCNO: 1

F2 - Acquisition Parameters  
 Date\_: 20160926  
 Time: 15.47

INSTRUM: spect  
 PROBHD: 5 mm SRT 1H-1D  
 PULPROG: zg30  
 TD: 65536  
 SOLVENT: DMSO  
 NS: 64  
 DS: 0

SI: 0  
 SF: 400.122266 MHz  
 FIDRES: 4.0894465 sec  
 AQ: 228.1  
 RG: 62.400 used  
 DW: 6.50 used  
 DE: 100.0 K  
 TE: 300.2 K  
 D1: 2.00000000 sec  
 TDO: 1

\*\*\*\*\* CHANNEL F1 \*\*\*\*\*  
 NUC1: 1H  
 NOC1: 10.80 used  
 P1: 3.00 dB  
 PL1: 400.0332002 MHz  
 SFO1: 400.0332002 MHz

F2 - Processing parameters  
 SI: 32768  
 SF: 400.0100041 MHz  
 EM

MW: 0  
 SSB: 0  
 LB: 0  
 GB: 0  
 PC: 0.20



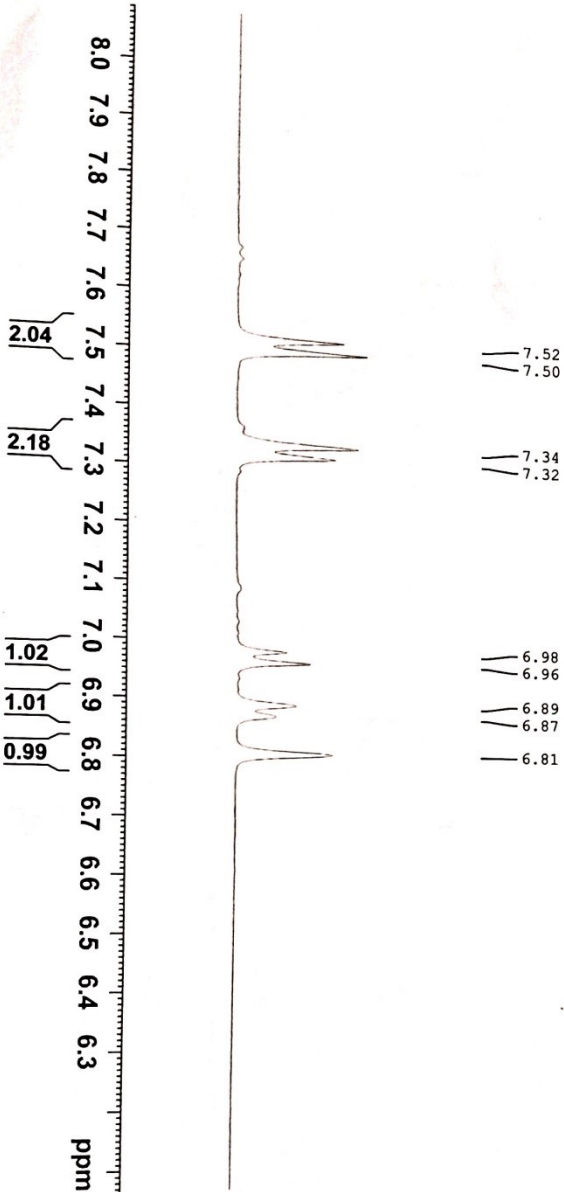
DEEDAR/DR. HAMEED/DA. I. 19A  
 ICCBS, U.O.K  
 1H

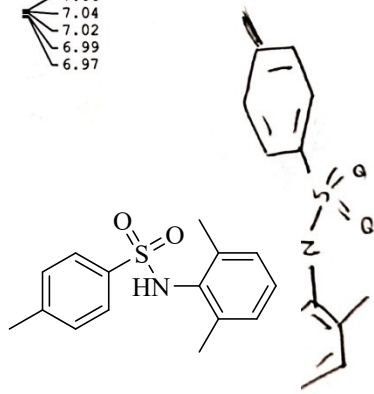


Current Data Parameters  
 NAME sep26-16  
 EXPNO 9  
 PROCNO 1

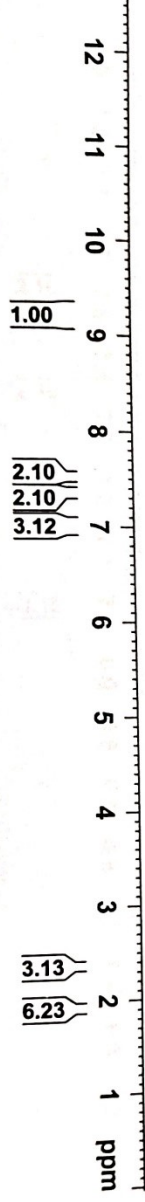
F2 - Acquisition Parameters  
 Date\_ 20160926  
 Time\_ 15:47  
 INSTRUM spect  
 PROBHD 5 mm SEI IH-13  
 PULPROG zg30  
 TD 65536  
 SOLVENT DMSO  
 NS 64  
 DS 0  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.089465 sec  
 RG 228.1  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 TDO 1

==== CHANNEL f1 =====  
 NUCL1 1H  
 P1 10.80 usec  
 PL1 3.00 dB  
 SFO1 400.0332002 MHz  
 F2 - Processing parameters  
 SI 32768  
 SF 400.0300041 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 0.20





- 9.21
- 7.54
- 7.52
- 7.36
- 7.34
- 7.06
- 7.04
- 7.02
- 6.99
- 6.97



Current Data Parameters  
 NAME oct24-16  
 EXPMO 5  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20161024  
 Time\_ 14.45  
 INSTRUM spect  
 PROBD 5 mm SEI 1H-13  
 PULPROG zg30  
 TD 65536  
 SOLVENT DMSO  
 NS 64  
 DS 0  
 SMH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 256  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 300.0 K  
 DI 2.00000000 sec  
 TDO 1

===== CHANNEL #1 =====  
 NUC1 1H  
 P1 10.80 usec  
 PL1 3.00 dB  
 SF01 400.0332002 MHz

F2 - Processing parameters  
 SI 32768  
 SF 400.0300041 MHz  
 WDM EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 0.20

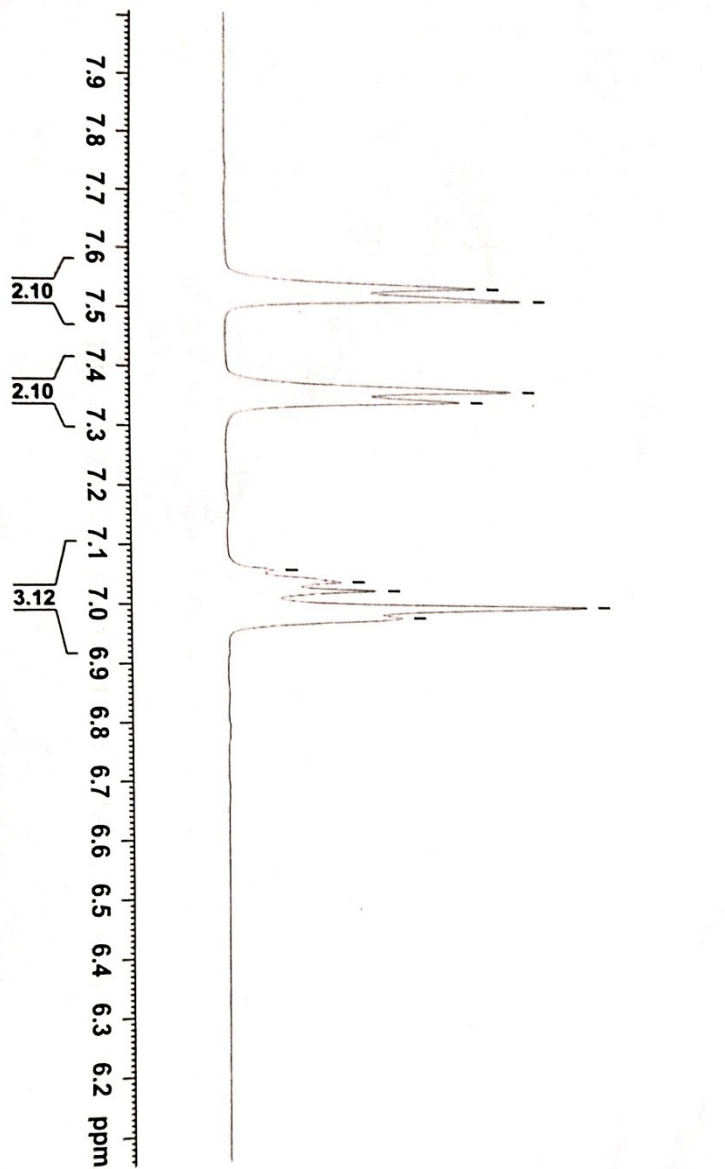


Current Data Parameters  
 NAME oct24-16  
 EXPNO 5  
 PROCNO 1

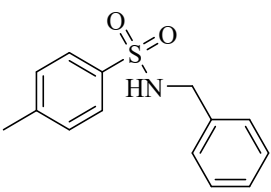
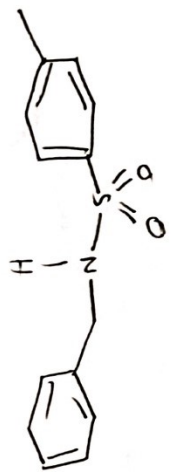
F2 - Acquisition Parameters  
 Date\_ 20161024  
 Time 14.45  
 INSTRUM spect  
 PROBHD 5 mm SEI 1H-13  
 PULPROG zg30  
 TD 65536  
 SOLVENT DMSO  
 NS 64  
 DS 0  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894463 sec  
 RG 256  
 DM 62.400 usec  
 DE 6.50 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 NUCL 1H  
 P1 10.80 usec  
 PL1 3.00 dB  
 SFO1 400.0332002 MHz  
 F2 - Processing parameters  
 SI 32768  
 SF 400.0300041 MHz  
 WDM EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 0.20

7.54  
7.52  
7.36  
7.34  
7.06  
7.04  
7.02  
6.99  
6.97



7.9 7.8 7.7 7.6 7.5 7.4 7.3 7.2 7.1 7.0 6.9 6.8 6.7 6.6 6.5 6.4 6.3 6.2 ppm



8.03  
7.69  
7.67  
7.38  
7.36  
7.29  
7.27  
7.25  
7.23  
7.22  
7.21

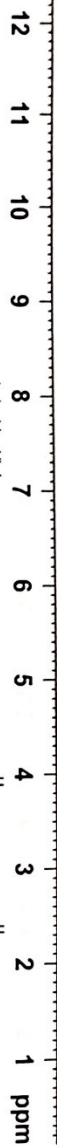
3.93

2.37

1.03  
2.04  
2.06  
5.10

2.06

3.11



Current Data Parameters  
NAME apr11-17  
EXPN0 7  
PROCNO 1

F2 - Acquisition Parameters

Date\_ 20170411  
Time\_ 15.03  
INSTRUM 5 mm DUL spect  
PROBHD 13C-1 2930  
PULPROG zg30  
TD 32768  
SOLVENT DMSO  
NS 64  
DS 0  
SMH 8012.820 Hz  
FIDRES 0.244532 Hz  
AQ 2.0447233 sec  
RG 456.1  
DW 62.400 usec  
DE 6.50 usec  
TE 300.0 K  
D1 2.00000000 sec  
TDO 1

----- CHANNEL f1 -----

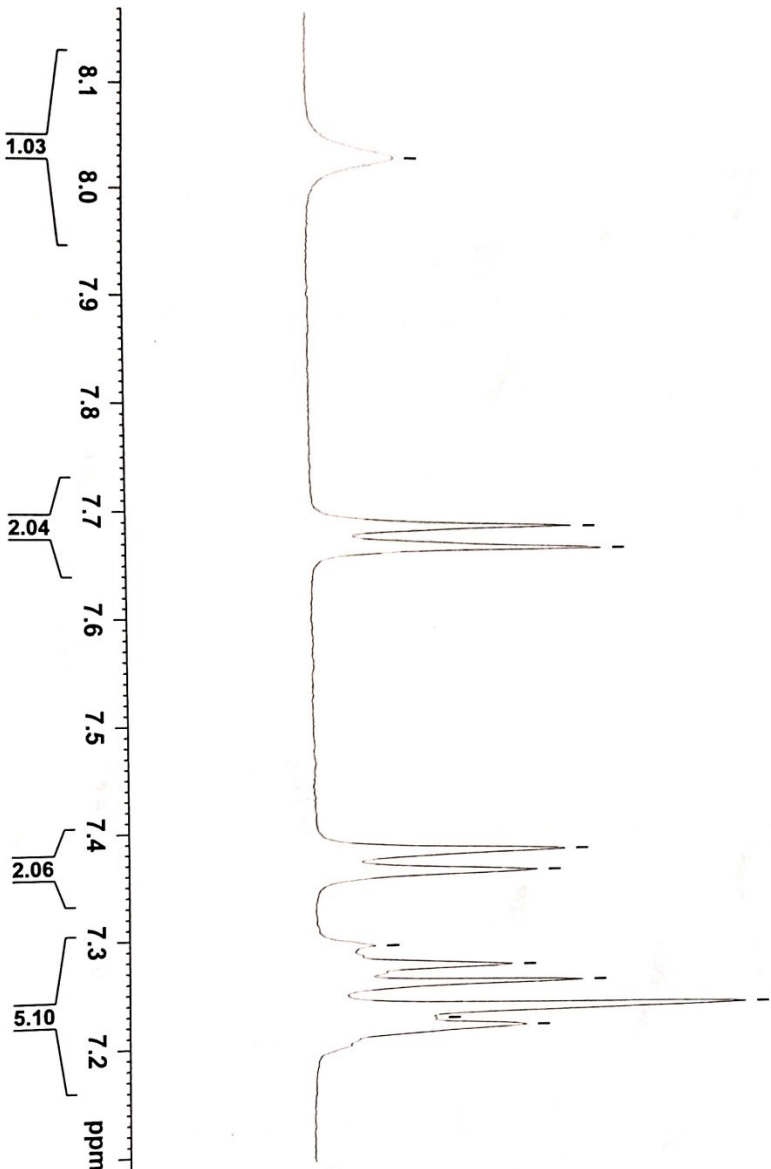
NUC1 1H  
P1 8.40 usec  
PL1 0 dB  
SFO1 400.1332010 MHz

F2 - Processing parameters

SI 16384  
SF 400.1300065 MHz  
WDW EM  
SSB 0  
LB 0.30 Hz  
GB 0  
PC 1.00



8.03  
7.69  
7.67  
7.38  
7.36  
7.29  
7.27  
7.25  
7.23  
7.22  
7.21



Current Data Parameters  
NAME april-17  
EXPNO 7  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20170411  
Time 15.03  
INSTRUM spect  
PROBHD 5 mm DUL 13C-1  
PULPROG zg30  
TD 32768  
SOLVENT DMSO  
NS 64  
DS 0  
SWH 8012.820 Hz  
FIDRES 0.244532 Hz  
AQ 2.0447233 sec  
RG 456.1  
DW 62.400 usec  
DE 6.50 usec  
TE 300.0 K  
D1 2.00000000 sec  
TDO 1

==== CHANNEL f1 =====  
NUC1 1H  
P1 8.40 usec  
PL1 0 dB  
SFO1 400.1332010 MHz

F2 - Processing parameters  
SI 16384  
SF 400.1300065 MHz  
WDW EM  
SSB 0  
LB 0.30 Hz  
GB 0  
PC 1.00

1.03

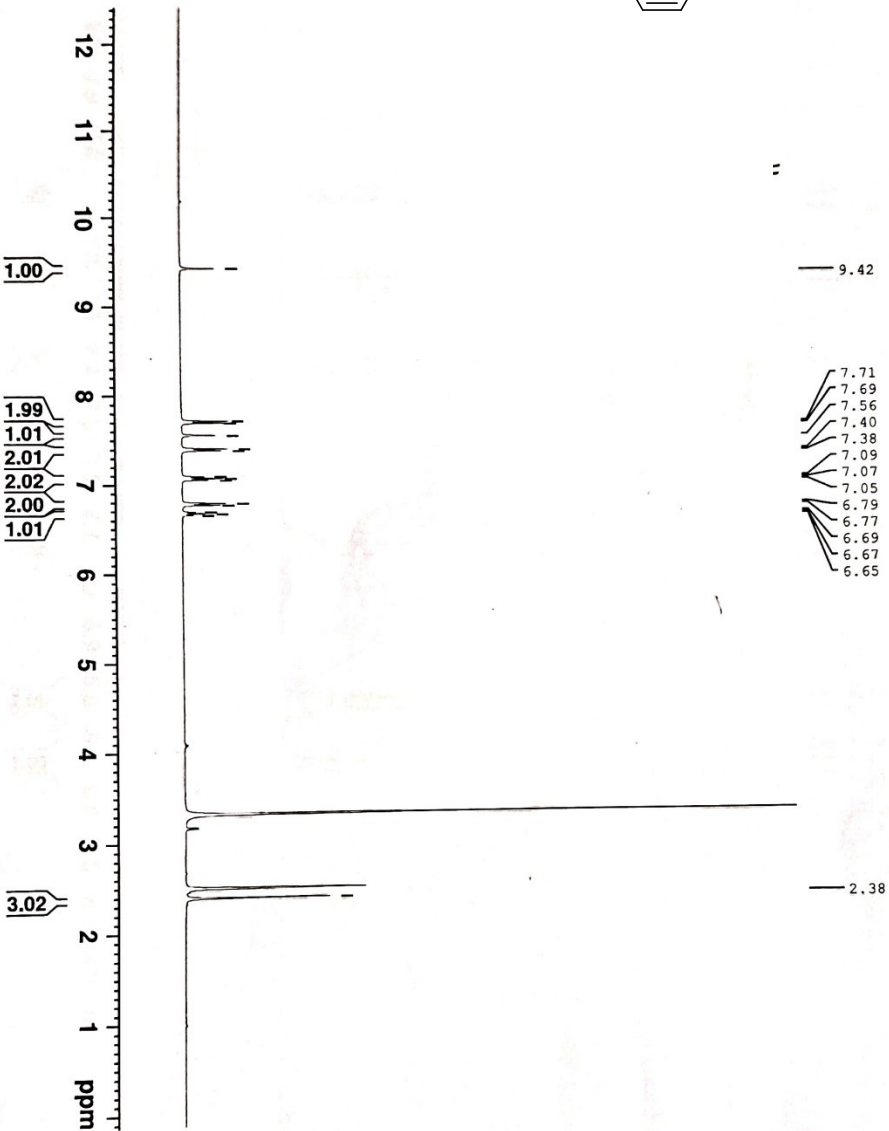
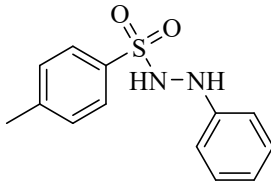
2.04

2.06

5.10

ppm

DEEDAR/DR, ABDUL HAMEED/DA-II-GA/  
 ICCBS,U.O.K/



Current Data Parameters  
 NAME dec26-17  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters

Date 20171226  
 Time 16.10  
 INSTRUM spect  
 PROBD 5 mm DUL 13C-1  
 PULPROG zgpg30  
 TD 32768  
 FIDRES 0.244532 Hz  
 AQ 2.0447233 sec  
 RG 362  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 TDO 1

==== CHANNEL f1 =====

NUC1 1H  
 P1 8.40 usec  
 PL1 0 dB  
 SFO1 400.1332010 MHz

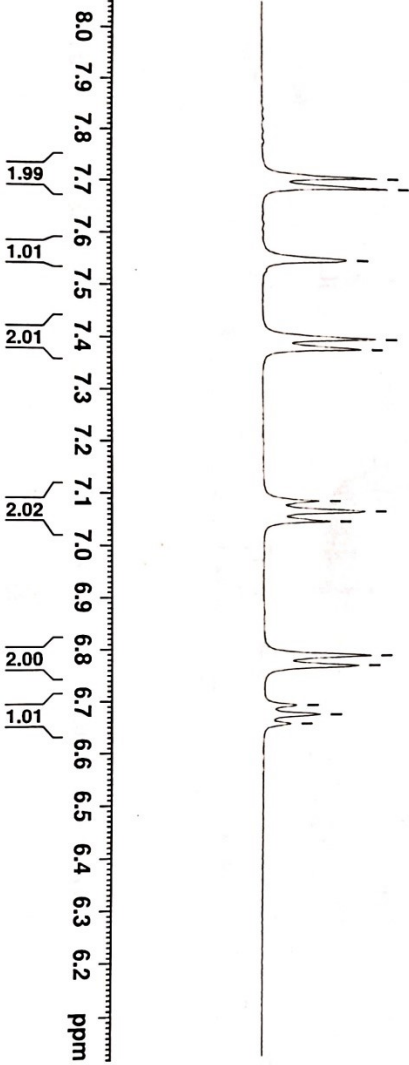
F2 - Processing parameters

SI 16384  
 SF 400.130065 MHz  
 WDM EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

DEEDAR/DR, ABDUL HAMEED/DA-II-6A/  
 ICCBS, U.O.K/



7.71  
7.69  
7.56  
7.40  
7.38  
7.09  
7.07  
7.05  
6.79  
6.77  
6.69  
6.67  
6.65



Current Data Parameters  
 NAME dec26-17  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20171226  
 Time 16.10  
 INSTRUM spect  
 PROBHD 5 mm DUL 13C-1  
 PULPROG zg30  
 TD 32768  
 SOLVENT DMSO  
 NS 12  
 DS 0  
 SMH 8012.820 Hz  
 FIDRES 0.244512 Hz  
 AQ 2.0447233 sec  
 RG 362  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 NUCL1 1H  
 P1 8.40 usec  
 PL1 0 dB  
 SF01 400.1332010 MHz  
 F2 - Processing parameters  
 SI 16384  
 SF 400.1300065 MHz  
 WDM EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

DEEDAR/DR, ABDUL HAMEED/DA-II-8A/  
 ICCBS, U.O.K/

9.33  
 9.33  
 7.75  
 7.73  
 7.54  
 7.12  
 7.10  
 7.08  
 7.06  
 7.04  
 6.95  
 6.76  
 6.68  
 6.66  
 6.65



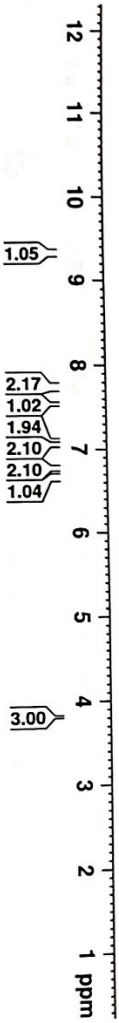
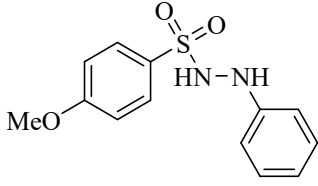
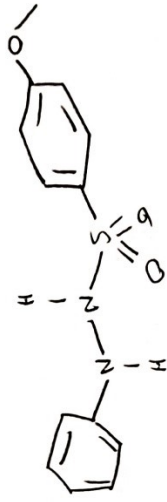
Current Data Parameters  
 NAME dec26-17  
 EXPNO 4  
 PROCNO 1

F2 - Acquisition Parameters

Date\_ 20171226  
 Time 16.23  
 INSTRUM spect  
 PROBRD 5 mm DUL 13C-1  
 PULPROG zg30  
 TD 32768  
 SOLVENT DMSO  
 NS 32  
 DS 0  
 SWH 8012.820 Hz  
 FIDRES 0.244235 Hz  
 AQ 2.041512 sec  
 RG 62.400 usec  
 DM 6.50 usec  
 DE 300.0 K  
 D1 2.00000000 sec  
 TDO 1

----- CHANNEL f1 -----

NUC1 1H  
 P1 8.40 usec  
 PL1 0 dB  
 SFO1 400.132010 MHz  
 F2 - Processing parameters  
 SI 16384  
 SF 400.130065 MHz  
 WDM 0  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00







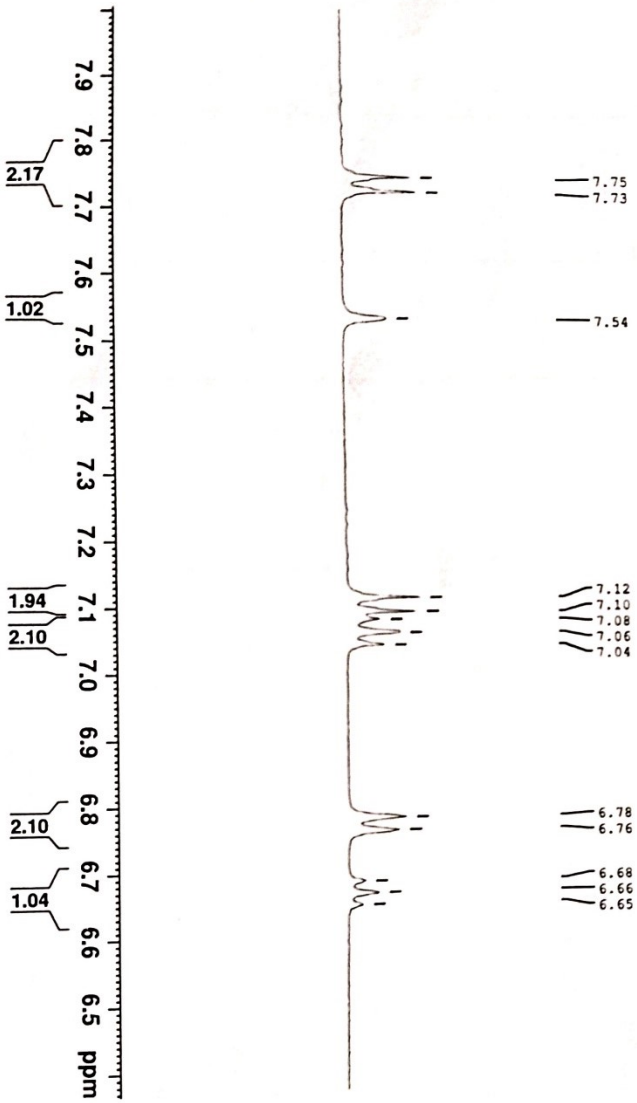
Current Data Parameters  
 NAME dec26-17  
 EXPNO 4  
 PROCNO 1

F2 - Acquisition Parameters

Date\_ 20171226  
 Time 16:23  
 INSTRUM spect  
 PROBHD 5 mm DUL 13C-1  
 PULPROG zg30  
 TD 32768  
 SOLVENT DMSO  
 NS 32  
 DS 0  
 SMH 8012.820 Hz  
 FIDRES 0.244532 Hz  
 AQ 2.0447233 sec  
 RG 512  
 DM 62.400 usec  
 DE 6.50 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 TD0 1

----- CHANNEL f1 -----

NUC1 1H  
 P1 8.40 usec  
 PL1 0 dB  
 SFO1 400.1332010 MHz  
 F2 - Processing parameters  
 SI 16384  
 SF 400.130065 MHz  
 MDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00





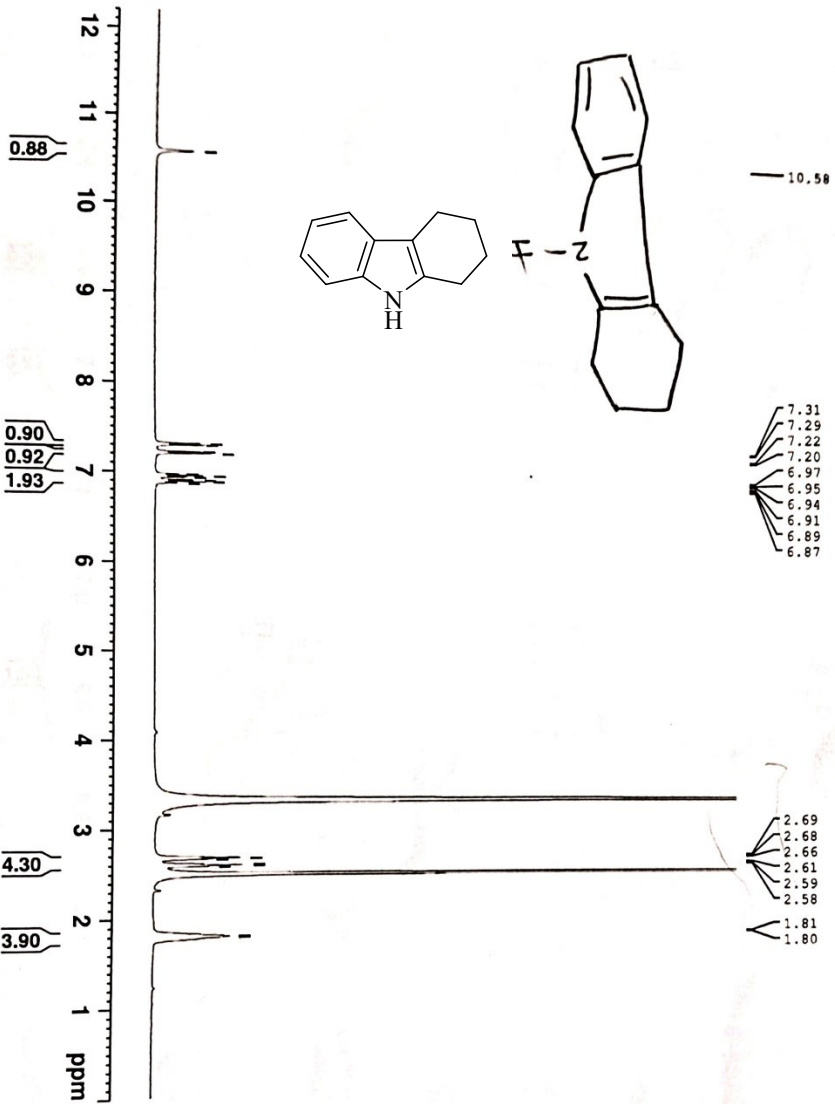
Current Data Parameters  
 NAME Desktop  
 EXPNO 15  
 PROCNO 1

F2 - Acquisition Parameters

Date\_ 20180809  
 Time 18.48  
 INSTRUM spect  
 PROBHD 5 mm SET 1H-13  
 PULPROG zg30  
 TD 32768  
 SOLVENT DMSO  
 NS 64  
 DS 0  
 SMH 8012.820 Hz  
 FIDRES 0.244532 Hz  
 AQ 2.0417233 sec  
 RG 181  
 DM 62.400 usec  
 DE 17.47 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 TDO 1

===== CHANNEL f1 =====  
 NUC1 1H  
 P1 10.63 usec  
 PL1 2.00 dB  
 SFO1 399.9331394 MHz

F2 - Processing Parameters  
 SI 32768  
 SF 399.9300086 MHz  
 MDM EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



Dedar Ali/Dr. Abdul Hameed/DD-II-78/  
 1H

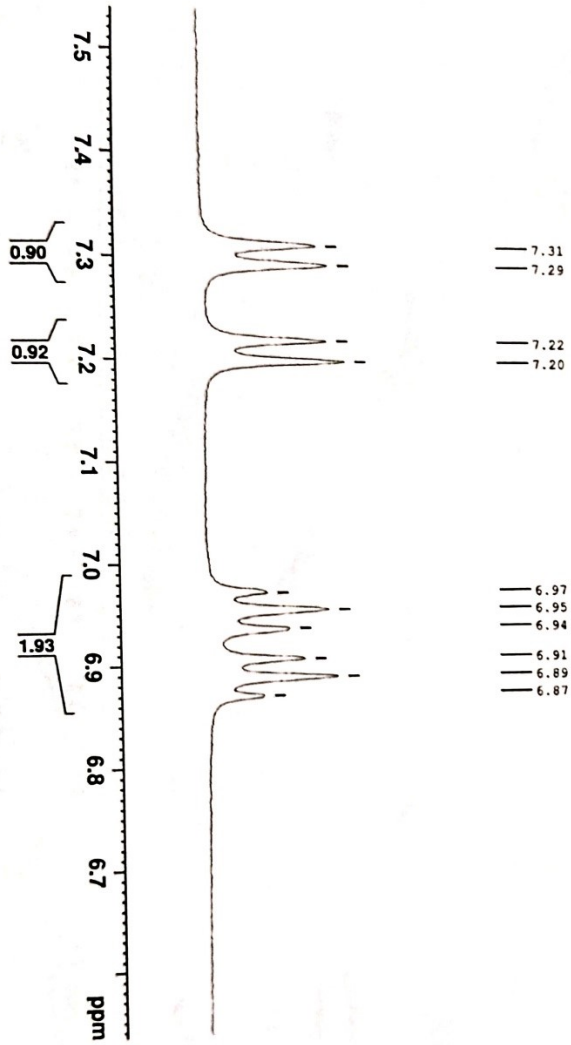


Current Data Parameters  
 NAME Desktop  
 EXPRNO 15  
 PROCNO 1

F2 - Acquisition Parameters

Date\_ 20180809  
 Time 18.48  
 INSTRUM spect  
 PROBRD 5 mm SEI IH-13  
 PULPROG zg30  
 TD 32768  
 SOLVENT DMSO  
 NS 54  
 DS 0  
 SWH 8012.820 Hz  
 FIDRES 0.244510 Hz  
 AQ 2.0487130 sec  
 RG 52.101 usec  
 DM 1.747 usec  
 DE 300.0 K  
 DI 2.00000000 sec  
 TD0 1

\*\*\*\*\* CHANNEL #1 \*\*\*\*\*  
 NUC1 1H  
 P1 10.53 usec  
 PL 2.30 dB  
 SFO1 399.331994 MHz  
 F2 - Processing parameters  
 SI 32768  
 SF 399.330085 MHz  
 WCN EM  
 SSB 0  
 LA 0  
 GB 0  
 PC 1.00





Current Data Parameters  
 NAME Desktop  
 EXPNO 13  
 PROCNO 1

F2 - Acquisition Parameters

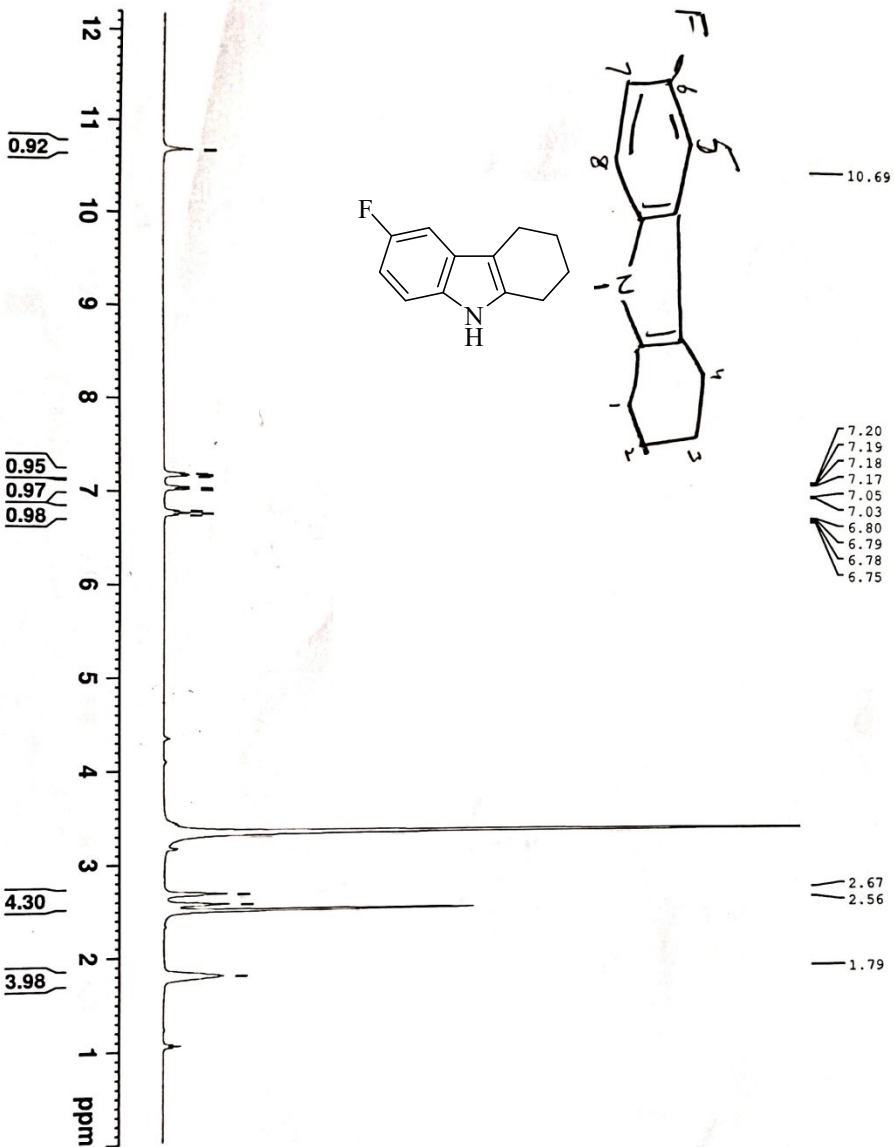
Date\_ 20180809  
 Time 18.30  
 INSTRUM spect  
 PROBD 5 mm SEI 1H-13  
 PULPROG zg30  
 TD 32768  
 SOLVENT DMSO  
 NS 64  
 DS 0  
 SWH 8012.820 Hz  
 FIDRES 0.244532 Hz  
 AQ 2.0447233 sec  
 RG 128  
 DW 62.400 usec  
 DE 17.47 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 TD0 1

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

NUC1 1H  
 P1 10.63 usec  
 PL1 2.00 dB  
 SFO1 399.9331994 MHz

F2 - Processing parameters

SI 32768  
 SF 399.9300086 MHz  
 MDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00





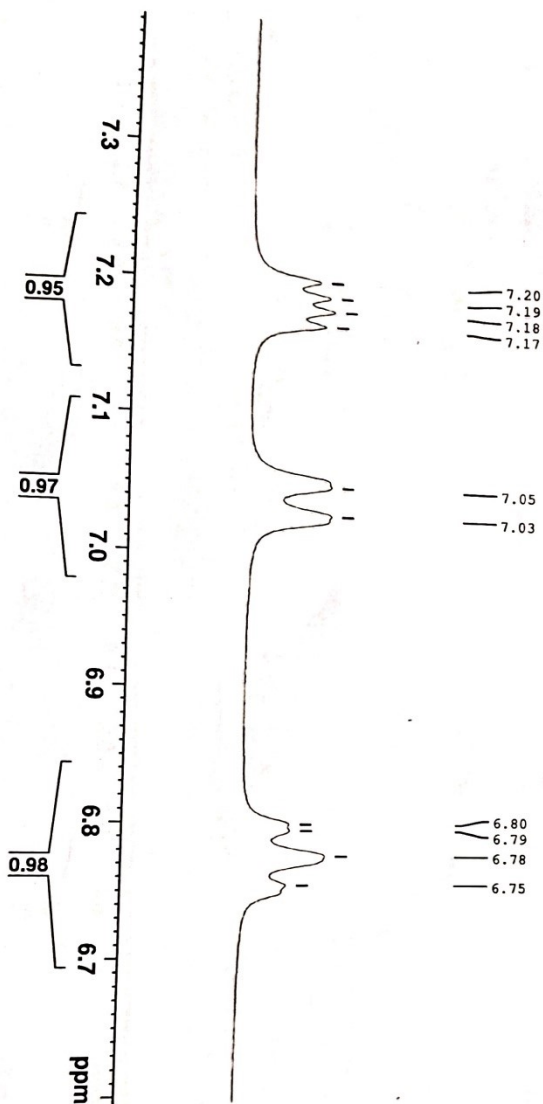
Current Data Parameters  
NAME Desktop  
EXPNO 13  
PROCNO 1

F2 - Acquisition Parameters

Date\_ 20190809  
Time 18:30  
INSTRUM spect  
PROBHD 5 mm SFL IH-13  
PULPROG zg30  
TD 32768  
SOLVENT DMSO  
NS 64  
DS 0  
SWH 8012.820 Hz  
FIDRES 0.244532 Hz  
AQ 2.0447233 sec  
RG 2.0447233 sec  
DM 128  
DE 62.400 usec  
TE 17.47 usec  
D1 300.0 K  
D11 2.00000000 sec  
TDO 1

----- CHANNEL f1 -----

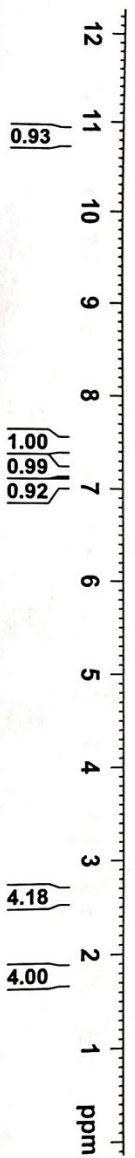
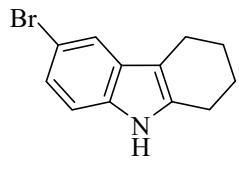
NUC1 1H  
P1 10.63 usec  
PL1 2.00 dB  
SFO1 399.9331994 MHz  
F2 - Processing parameters  
SI 32768  
SF 399.9300086 MHz  
WDW EM  
SSB 0  
LB 0.30 Hz  
GB 0  
PC 1.00



Dedar Ali/Dr, Abdul Hameed/DD-II-84/  
 1H



10.84  
 7.46  
 7.19  
 7.17  
 7.07  
 7.05



Current Data Parameters  
 NAME Desktop  
 EXPNO 11  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20180809  
 Time\_ 18.10

INSTRUM spect  
 PROBHD 5 mm SEI 1H-13  
 PULPROG zg30  
 TD 32768  
 SOLVENT DMSO  
 NS 64

DS 0  
 SWH 8012.820 Hz  
 FIDRES 0.244532 Hz  
 AQ 2.0447233 sec  
 RG 181  
 DW 62.400 usec  
 DE 17.47 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 NUC1 1H  
 P1 10.63 usec  
 PL1 2.00 dB  
 SFO1 399.9331994 MHz

F2 - Processing parameters:  
 SI 32768  
 SF 399.9300086 MHz  
 WDM 0 EM  
 SSB 0  
 LB 0 0.30 Hz  
 GB 0  
 PC 1.00



Current Data Parameters  
 NAME Desktop  
 EXPNO 11  
 PROCNO 1

F2 - Acquisition Parameters

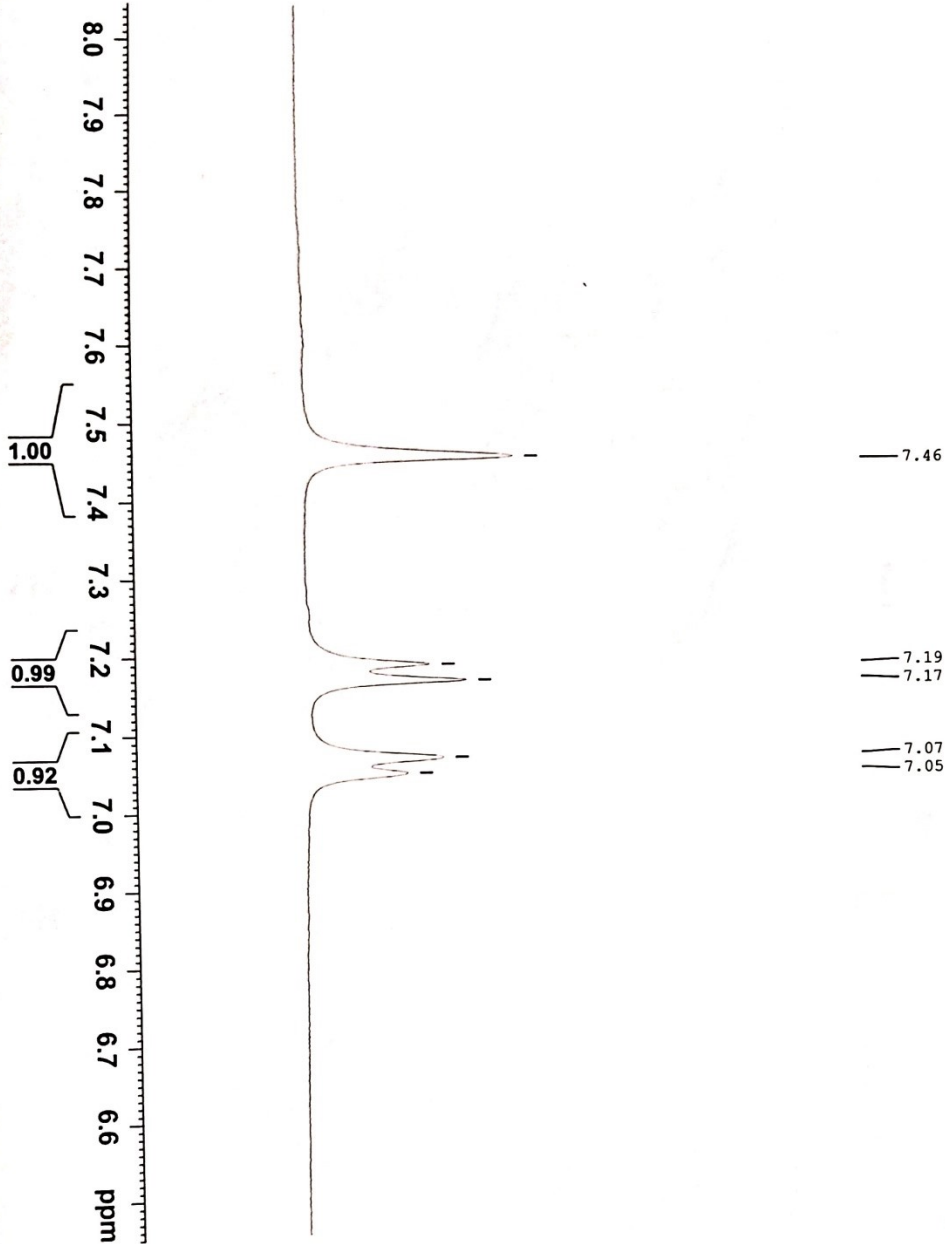
Date\_ 20180809  
 Time 18.10  
 INSTRUM spect  
 PROBHD 5 mm SEI 1H-13  
 PULPROG zg30  
 TD 32768  
 SOLVENT DMSO  
 NS 64  
 DS 0  
 SWH 8012.820 Hz  
 FIDRES 0.244532 Hz  
 AQ 2.0447233 sec  
 RG 181  
 DW 62.400 usec  
 DE 17.47 usec  
 TE 300.0 K  
 DI 2.00000000 sec  
 TDO 1

==== CHANNEL f1 =====

NUC1 1H  
 P1 10.63 usec  
 PL1 2.00 dB  
 SFO1 399.9331994 MHz

F2 - Processing parameters

SI 32768  
 SF 399.9300086 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



Dedar Ali/Dr, Abdul Hameed/DD-III-86/  
 1H



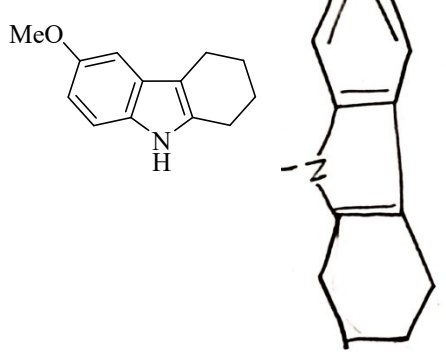
Current Data Parameters  
 NAME Desktop  
 EXPNO 12  
 F2PROCNO 1

F2 - Acquisition Parameters

Date\_ 20180809  
 Time 18.19  
 INSTRUM spect  
 PROBD 5 mm SEI IH-13  
 PULPROG zg30  
 TD 32768  
 SOLVENT DMSO  
 NS 64  
 DS 0  
 SSWH 8012.820 Hz  
 FIDRES 0.244532 Hz  
 AQ 2.0447233 sec  
 RG 90.5  
 DW 62.400 usec  
 DE 17.47 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 TD0 1

----- CHANNEL f1 -----  
 NUC1 1H  
 P1 10.63 usec  
 PL1 2.00 dB  
 SF01 399.9311994 MHz

F2 - Processing Parameters  
 SI 32768  
 SF 399.9300086 MHz  
 MDM EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00





edar Ali/Dr, Abdul Hameed/DD-III-86/  
1H



7.10  
7.08

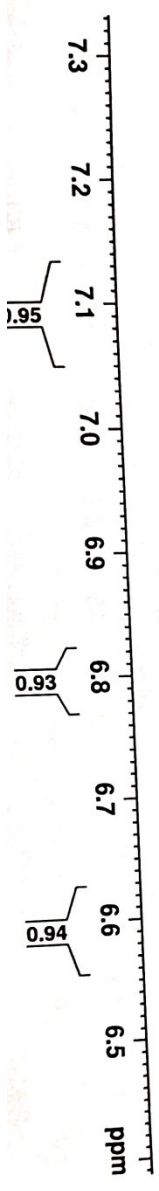
6.80  
6.80

6.88  
6.88  
6.88  
6.88

Current Data Parameters  
NAME Desktop  
EXRNO 12  
PROCNO 1

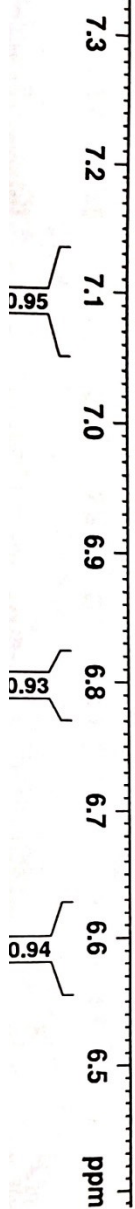
F2 - Acquisition Parameters  
Date\_ 20180809  
Time 18.19  
INSTRUM spect  
PROBHD 5 mm SEI 1H-13  
PULPROG zg30  
TD 32768  
SOLVENT DMSO  
NS 64  
DS 0  
SMH 8012.820 F  
PRDRES 0.244532 F  
AQ 2.0447233 F  
RG 90.5  
DM 62.400  
DE 17.47  
TE 300.0  
D1 2.00000000  
TD0 1

==== CHANNEL f1 ===  
NUC1 1H  
P1 10.63  
P11 2.00  
SE01 399.933199  
F2 - Processing param  
SI 399.930008 F  
SE  
MCM 0  
SSB 0  
LB 0  
GB 0  
PC 1.





7.10  
7.08  
6.80  
6.80  
6.61  
6.60  
6.58  
6.58



Current Data Parameters  
NAME Desktop  
EXPNO 12  
PROCNO 1

F2 - Acquisition Parameters

Date\_ 20180809  
Time 18:19  
INSTRUM spect  
PROBHD 5 mm SET 1H-13  
PULPROG zg30  
TD 32768  
SOLVENT DMSO  
NS 64  
DS 0  
SWH 8012.820 Hz  
FIDRES 0.244532 Hz  
AQ 2.0447233 sec  
RG 90.5  
DM 62.400 usec  
DE 17.47 usec  
TE 300.0 K  
D1 2.00000000 sec  
TD0 1

CHANNEL #1

NUC1 1H  
P1 10.63 usec  
PL1 2.00 dB  
SFO1 399.9311994 MHz

F2 - Processing parameters

SI 32768  
SF 399.9300086 MHz  
WDW EM  
SSB 0  
LB 0.30 Hz  
GB 0  
PC 1.00



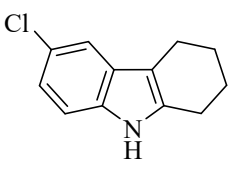
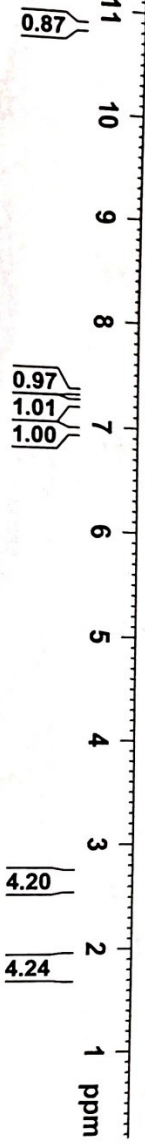
Current Data Parameters  
 NAME sep19-18  
 EXPNO 10  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20180919  
 Time 14.00  
 INSTRUM Spect  
 PROBHD 5 mm BBO BB-1H  
 PULPROG zg30  
 TD 32768  
 SOLVENT DMSO  
 NS 64  
 DS 0  
 SWH 6009.615 Hz  
 FIDRES 0.183399 Hz  
 AQ 2.7262976 sec  
 RG 456  
 DW 83.200 usec  
 DE 6.30 usec  
 TE 300.0 K  
 DI 2.00000000 sec  
 TDO 1

===== CHANNEL f1 =====  
 NUCL 1H  
 P1 12.00 usec  
 PL1 0 dB  
 PL1W 13.16228485 W  
 SFO1 300.1324010 MHz  
 F2 - Processing parameters  
 SI 16384  
 SF 300.1300037 MHz  
 WDM EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

7.33  
7.32  
7.23  
7.21  
6.96  
6.96  
6.94  
6.93

2.70  
2.68  
2.66  
2.59  
2.57  
2.56  
1.82  
1.80  
1.78  
1.75





Current Data Parameters  
 NAME sep19-18  
 EXPNO 10  
 PROCNO 1

F2 - Acquisition Parameters

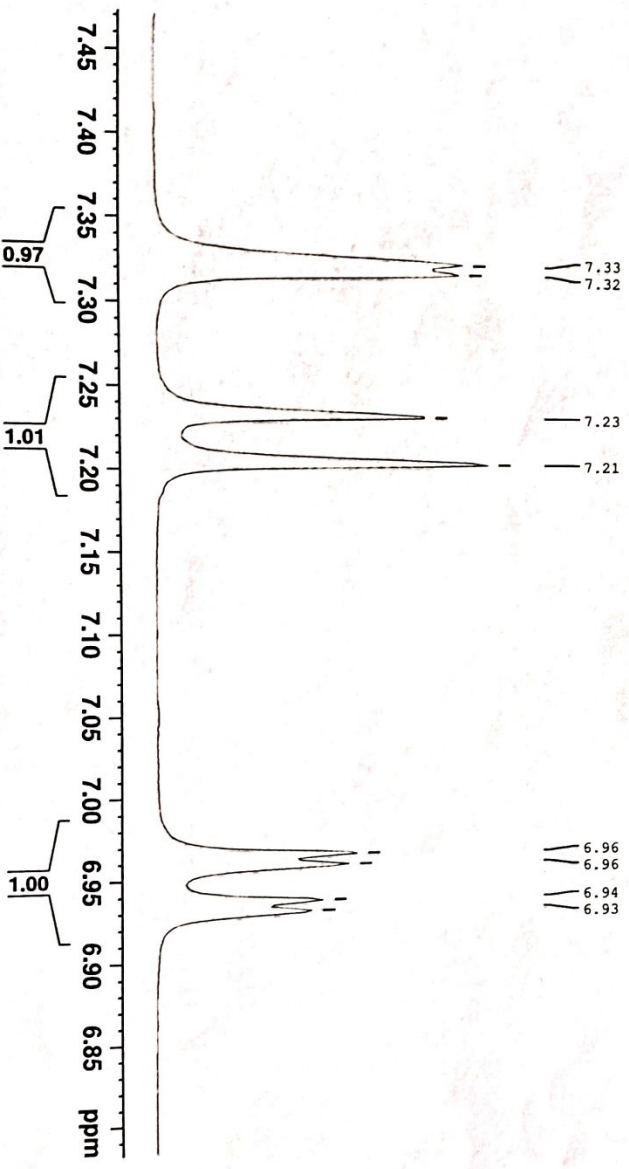
Date\_ 20180919  
 Time 14.00  
 INSTRUM 5 mm BBO BB-1H  
 PROBHD zg30  
 PULPROG 32768  
 TD 64  
 SOLVENT DMSO  
 NS 0  
 DS 0  
 SMH 6009.615 Hz  
 FIDRES 0.183399 Hz  
 AQ 2.7262976 se  
 RG 456  
 DM 83.200 us  
 DE 6.50 us  
 TE 300.0 K  
 D1 2.00000000 s  
 TDO 1

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

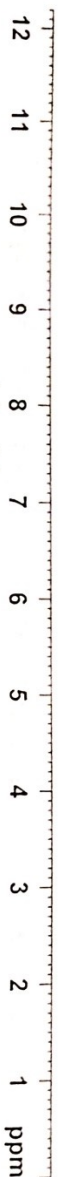
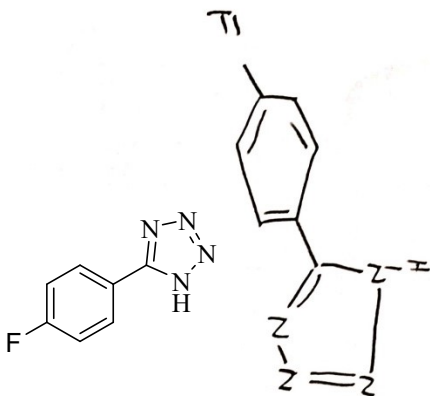
NUC1 1H  
 P1 12.00 u  
 P1L 0 dB  
 P1W 13.16228485 W  
 SF01 300.1324010 M

F2 - Processing parameters

SI 16384  
 SF 300.13000371 M  
 WDM EM  
 SSB 0  
 IB 0.30  
 GB 0  
 PC 1.00



8.10  
 8.10  
 8.09  
 8.08  
 8.07  
 8.07  
 7.48  
 7.48  
 7.44  
 7.44



Current Data Parameters  
 NAME 28MARCH  
 EXPNO 4  
 PROCNO 1



F2 - Acquisition Parameters

Date\_ 20180328  
 Time\_ 15.34  
 INSTRUM spect  
 PROBHD 5 mm DUL 13C-1  
 PULPROG zg30  
 TD 32768  
 SOLVENT DMSO  
 NS 32  
 DS 0  
 SSW 8012.820 Hz  
 FIDRES 0.214552 Hz  
 AQ 2.044223 sec  
 RG 574.7  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 TDO 1

==== CHANNEL F1 =====  
 NUCL 1H  
 P1 8.40 usec  
 PL1 0 dB  
 SFO1 400.1332010 MHz

F2 - Processing parameters  
 SI 16384  
 SF 400.130065 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

8.10  
8.09  
8.06  
8.07  
8.07

7.48  
7.48  
7.46  
7.44  
7.44



Current Data Parameters  
 NAME 28MRCH  
 EXPNO 4  
 PROCNO 1

F2 - Acquisition Parameters

Date\_ 20180328  
 Time 15.54  
 INSTRUM spect  
 PROBHD 5 mm DUL 13c-1  
 PULPROG zg30  
 TD 32768  
 SOLVENT DMSO  
 NS 32  
 DS 0  
 SWH 6012.920 Hz  
 FIDRES 0.244532 Hz  
 AQ 2.0447233 sec  
 RG 574.7  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 TD0 1

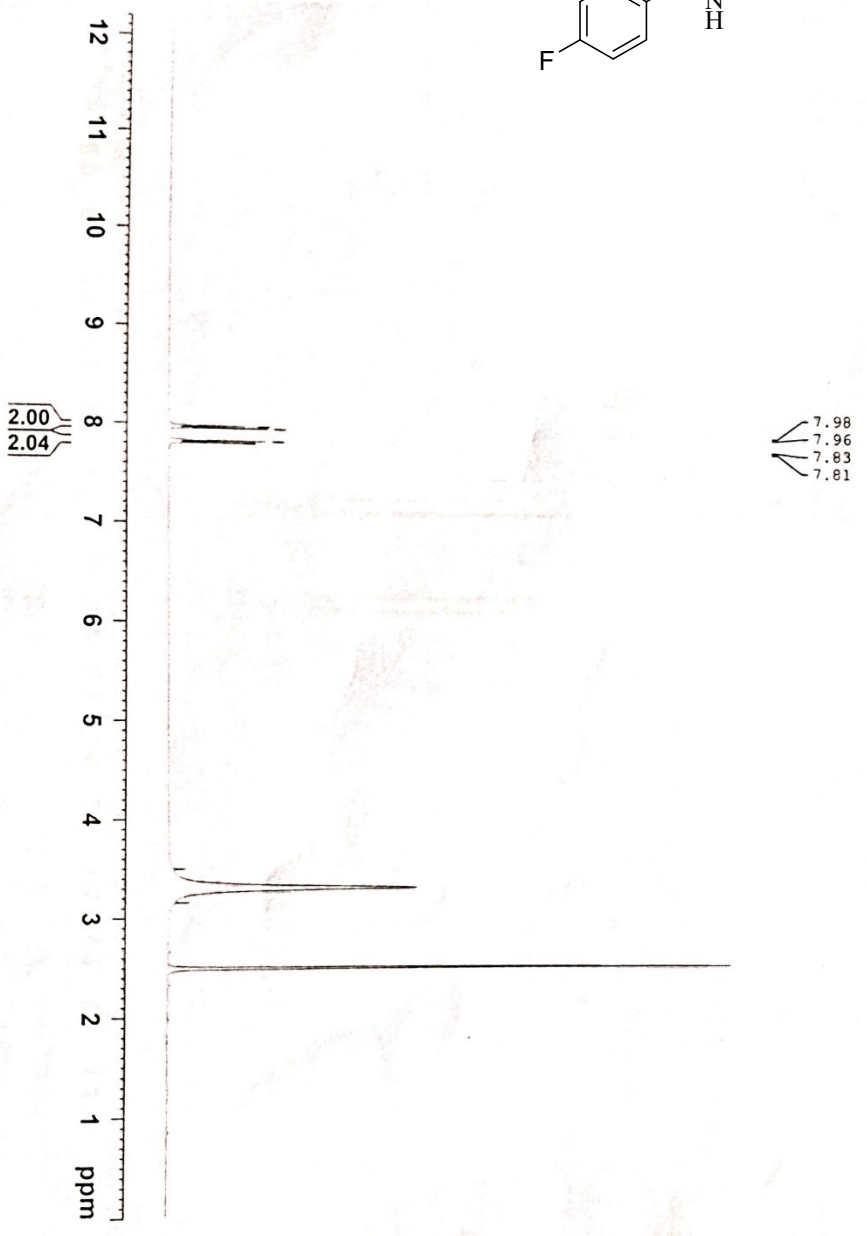
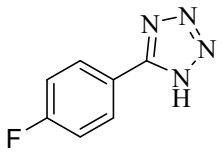
===== CHANNEL F1 =====  
 NUCL1 1H  
 P1 8.40 usec  
 PL1 0 dB  
 SFO1 400.1332010 MHz

F2 - Processing parameters

SI 16381  
 SF 400.1300065 MHz  
 MDW EH  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



DEEDAR ALI/DR, ABDUL HAMEED/DA-II-50/  
 ICCBS, U.O.K/



7.98  
 7.96  
 7.83  
 7.81



Current Data Parameters  
 NAME 28MARCH  
 EXPNO 2  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20180328  
 Time 14.31

INSTRUM spect  
 PROBHD 5 mm DUL 13C-1  
 PULPROG zg30  
 TD 32768  
 SOLVENT DMSO

NS 32  
 DS 0  
 SWH 8012.820 Hz  
 FIDRES 0.244532 Hz  
 AQ 2.0447233 sec  
 RG 574.7  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 TD0 1

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1 1H  
 P1 8.40 usec  
 PL1 0 dB  
 SFO1 400.1332010 MHz

F2 - Processing parameters  
 SI 16384  
 SF 400.1300065 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

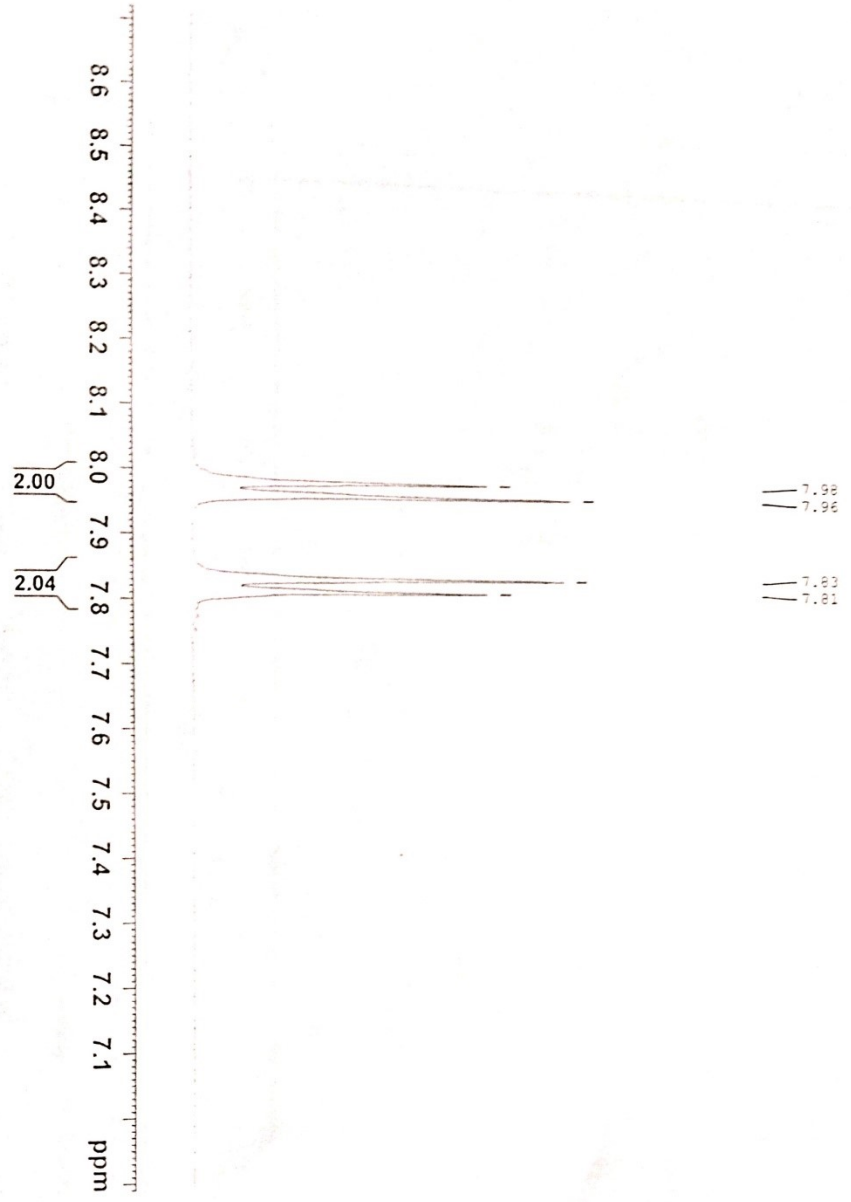
DEEDAR ALI/DR, ABDUL HAMEED/DA-II-50/  
 ICCBS, U.O.K/



Current Data Parameters  
 NAME 20MARCH  
 EXPNO 2  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20190428  
 Time 14.31  
 INSTRUM spect  
 PROBRD 5 mm DDL 13C-1  
 PULPROG zg30  
 TD 32768  
 SOLVENT DMSO  
 NS 32  
 DS 0  
 SMI 8012.820 Hz  
 FIDPRESS 0.244932 Hz  
 AQ 2.0447233 sec  
 RG 574.7  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 TPO 1

===== CHANNEL f1 =====  
 NUCL 1H  
 P1 8.40 usec  
 PL1 0 dB  
 SFO1 400.1332010 MHz  
 F2 - Processing parameters  
 SI 16384  
 SF 400.1300065 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00







Current Data Parameters  
 NAME apr25  
 EXPNO 6  
 PROCNO 1

F2 - Acquisition Parameters

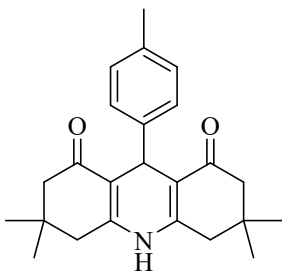
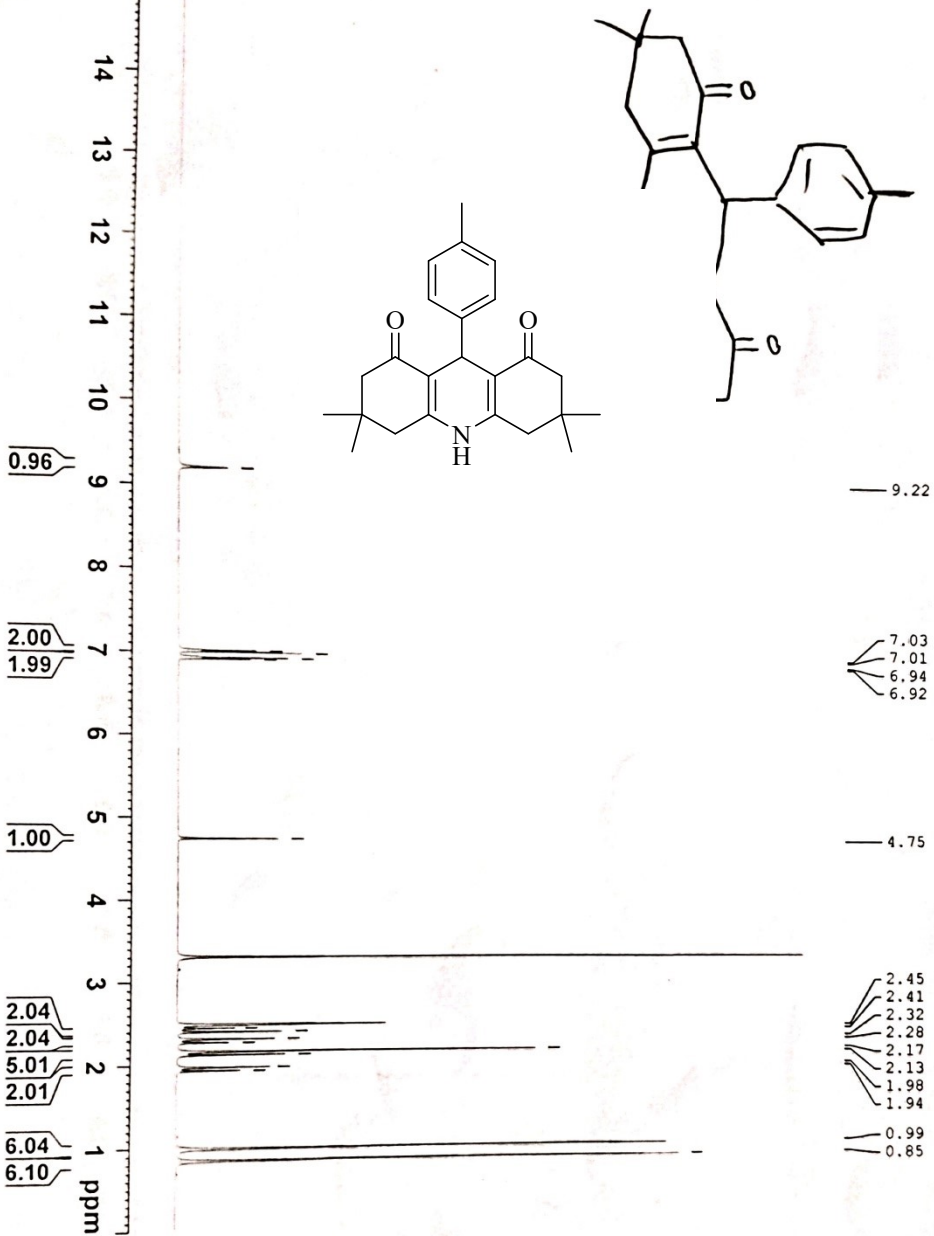
Date\_ 20180425  
 Time 15.13  
 INSTRUM spect  
 PROBHD 5 mm DUL 13C-1  
 PULPROG zg30  
 TD 32768  
 SOLVENT DMSO  
 NS 32  
 DS 0  
 SWH 8012.820 Hz  
 FIDRES 0.244532 Hz  
 AQ 2.0447233 sec  
 RG 256  
 DE 62.400 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 TDO 1

==== CHANNEL f1 =====

NUC1 1H  
 P1 8.40 usec  
 PL1 0 dB  
 SFO1 400.1332010 MHz

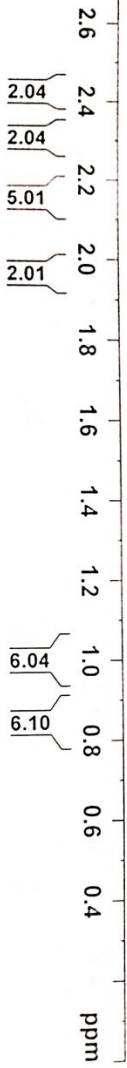
F2 - Processing parameters

SF 16394  
 SF 400.130065 MHz  
 WDM EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00





2.45  
 2.41  
 2.32  
 2.28  
 2.17  
 2.13  
 1.98  
 1.94



0.99  
 0.85

Current Data Parameters  
 NAME apr25  
 EXPNO 6  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20180425  
 Time\_ 15.13  
 INSTRUM spect  
 PROBHD 5 mm DUL 13C-1  
 PULPROG zgpg30  
 TD 32768  
 ID DMSO  
 SOLVENT DMSO  
 NS 32  
 DS 0  
 SWH 9012.820 Hz  
 FIDRES 0.244532 Hz  
 AQ 2.0447233 sec  
 RG 256  
 DW 52.400 usec  
 DE 6.50 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 TDO 1

==== CHANNEL F1 =====  
 NUCL1 1H  
 P1 8.40 usec  
 PL1 0 dB  
 SFO1 400.1332010 MHz  
 F2 - Processing parameters  
 SI 16384  
 SF 400.1300065 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



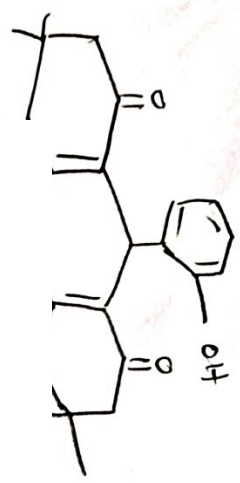
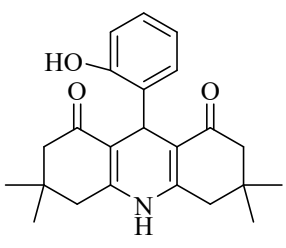
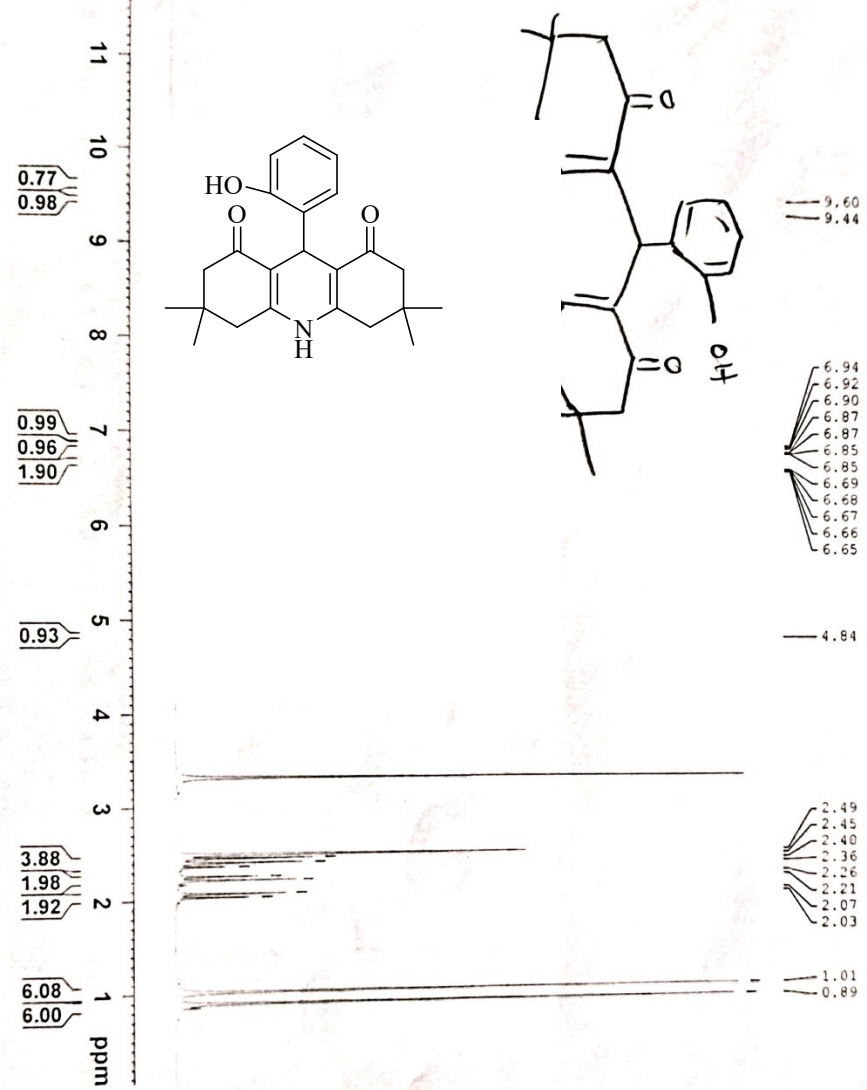
Current Data Parameters  
 NAME: ma/14-18  
 EXPNO: 5  
 PROCNO: 1

F2 - Acquisition Parameters

Date: 20180514  
 Time: 19.28  
 INSTRUM: spect  
 PROBRD: 5 mm SEI 1H-13  
 PULPROG: zg30  
 TD: 32768  
 SOLVENT: DMSO  
 NS: 64  
 DS: 0  
 SWH: 8012.920 Hz  
 FIDRES: 0.244532 Hz  
 AQ: 2.0417233 sec  
 RG: 512  
 DW: 62.400 usec  
 DE: 17.47 usec  
 TE: 300.0 K  
 D1: 2.00000000 sec  
 TDO: 1

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

MUCL: 1H  
 P1: 10.63 usec  
 PL1: 2.00 dB  
 SFO1: 399.9811994 MHz  
 F2 - Processing parameters  
 SI: 16384  
 SF: 399.9800079 MHz  
 WDM: EM  
 SSB: 0  
 LB: 0.30 Hz  
 GB: 0  
 PC: 1.00



0.77  
0.98

0.99  
0.96  
1.90

0.93

3.88  
1.98  
1.92

6.08  
6.00

ppm



Current Data Parameters  
NAME may14-18  
EXPTNO 5  
PROCNO 1

F2 - Acquisition Parameters

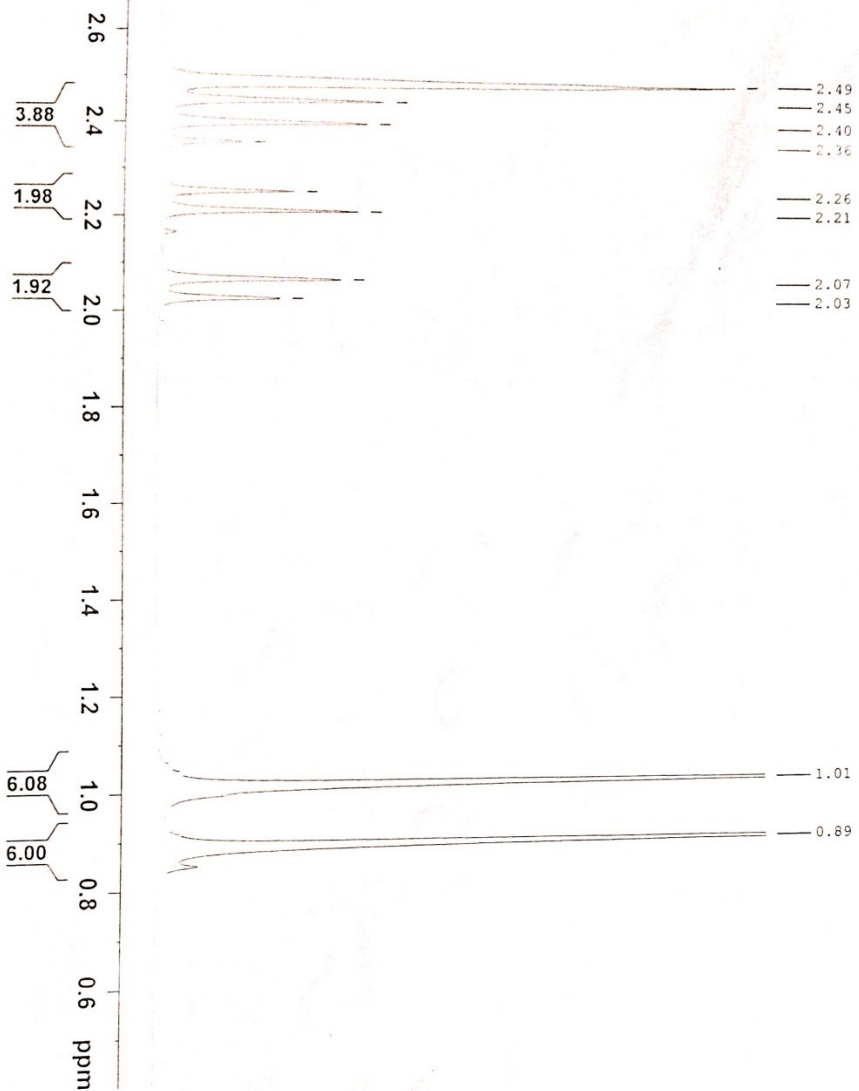
Date\_ 20180514  
Time 18.28  
INSTRUM spect  
PROBHD 5 mm SEI 1H-13  
PULPROG zg30  
TD 32768  
SOLVENT DMSO  
NS 44  
DS 0  
SRH 9012.920 Hz  
FIDRES 0.114532 Hz  
AQ 2.041733 sec  
RG 512  
DW 62.400 usec  
DE 17.47 usec  
TE 300.0 K  
D1 2.00000000 sec  
TD0 1

\*\*\*\*\* CHANNEL F1 \*\*\*\*\*

NUC1 1H  
P1 10.63 usec  
PL 2.00 dB  
SFO1 399.931954 MHz

F2 - Processing Parameters

SI 16384  
SE 399.930019 MHz  
WDW EM  
SSB 0  
LB 0.30 Hz  
GB 0  
PC 1.00



2.6  
2.4  
2.2  
2.0  
1.8  
1.6  
1.4  
1.2  
1.0  
0.8  
0.6  
ppm