# Water mediated synthesis of *N*'-arylmethylene ,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide library

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## Spectral Data

***N*'-phenylmethylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4a**
White solid; IR (KBr): 3626, 3593, 2889, 297, 2852, 1666, 155, 192, 18, 1261, 709, 630 $cm^{-1}$; $^1H$ NMR (DMSO); 12.36 (S, 1H, NH), 10.78 (S, 1H, NH), 8.3 (s, 1H, =CH), 7.76-7.67 (m, 2H, Ar), 7.0-7.37 (m, 3H, Ar), 3.15-2.78 (m, H, $CH_2$), 1.81-1.75 (m, H, $CH_2$); MS (*m/z*): 268 ($M^+$); Anal. Calcd for $C_{15}H_{16}NO$: C, 67.15; H, 6.01; N, 20.88. Found: C, 67.10; H, 6.12; N, 20.8.

***N*'-(-methoxyphenyl)methylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4b**
White solid; IR (KBr): 3628, 2989, 2966, 293, 2033, 1905, 1680, 1627, 1605, 1508, 160, 1251, 835 $cm^{-1}$; $^1H$ NMR (DMSO); 12.6 (S, 1H, NH), 10.81 (S, 1H, NH), 8.57 (s, 1H, =CH), 7.76-7.62 (m, 2H, Ar), 7.29-7.26 (m, 2H, Ar), 3.81 (s, 3H, $OCH_3$), 3.01-2.68 (m, H, $CH_2$), 1.80-1.75 (m, H, $CH_2$); MS (*m/z*): 298 ($M^+$); Anal. Calcd for $C_{16}H_{18}NO_2$: C, 6.1; H, 6.08; N,18.78. Found: C, 6.58; H, 5.93; N, 18.56.

***N*'-(-methylphenyl)methylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4c**
White solid; IR (KBr): 3628, 291, 286, 1681, 1529, 198, 152, 126, 85 $cm^{-1}$; $^1H$ NMR (DMSO); 12.57 (S, 1H, NH), 10.85 (S, 1H, NH), 8.31 (s, 1H, =CH), 7.75-7.62 (m, 2H, Ar), 7.20-7.18 (m, 2H, Ar), 2.97-2.77 (m, 2H, $CH_2$), 2.66-2.58 (m, 2H, $CH_2$), 2.37 (s, 3H, $CH_3$), 1.80-1.7 (m, H, $CH_2$); MS (*m/z*): 282 ($M^+$); Anal. Calcd for $C_{16}H_{18}NO$: C, 68.06; H, 6.3; N, 19.8. Found: C, 68.18; H, 6.50; N, 19.77.

***N*'-(3,-dimethoxyphenyl)methylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4d**
Yellow solid; IR (KBr): 3628, 2905, 287, 1681, 155, 128, 1221, 836 $cm^{-1}$; $^1H$ NMR (DMSO); 12.5 (S, 1H, NH), 10.69 (S, 1H, NH), 8.55 (s, 1H, =CH), 7.59-7.13 (m, 3H, Ar), 3.83 (s, 3H, $OCH_3$), 3.81 (s, 3H, $OCH_3$), 2.97-2.78 (m, H, $CH_2$), 1.81-1.75 (m, H, $CH_2$); MS (*m/z*): 328 ($M^+$); Anal. Calcd for $C_{17}H_{20}NO_3$: C, 62.18; H, 6.1; N, 17.06. Found: C, 62.38; H, 6.29; N, 17.01.

***N*'-(2,5-dimethoxyphenyl)methylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4e**
Pale-yellow solid; IR (KBr): 3650, 3128, 2991, 2883, 166, 155, 1508, 192, 127, 1255, 889 $cm^{-1}$; $^1H$ NMR (DMSO); 12.50 (S, 1H, NH), 10.60 (S, 1H, NH), 8.61 (s, 1H, =CH), 7.57 (t, 1H, Ar), 6.90 (t, 2H, Ar), 3.83 (s, 3H, $OCH_3$), 3.79 (s, 3H, $OCH_3$), 2.80 (d, 2H, $CH_2$), 2.65 (t, 2H, $CH_2$), 1.81-1.7 (m, H, $CH_2$); MS (*m/z*): 328 ($M^+$); Anal. Calcd for $C_{17}H_{20}NO_3$: C, 62.18; H, 6.1; N, 17.06. Found: C, 62.31; H, 6.25; N, 17.02.

***N*'-(3-bromophenyl)methylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4f**
White solid; IR (KBr): 368, 2998, 2915, 1678, 161, 1595, 1539, 15 $cm^{-1}$; $^1H$ NMR (DMSO); 12.51 (S, 1H, NH), 10.75 (S, 1H, NH), 8.6 (s, 1H, =CH), 7.76-7.2 (m, H, Ar), 2.86-2.62 (m, H, $CH_2$), 1.80-1.7 (m, H, $CH_2$); MS (*m/z*): 36 ($M^+$); Anal. Calcd for $C_{15}H_{15}BrNO$: C, 51.89; H, .35; N, 16.1. Found: C, 51.92; H, .17; N, 16.53.

***N*'-(-hydroxyphenyl)methylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4g**
White solid; IR (KBr): 3621, 297, 1691, 1619, 155, 1507, 128 $cm^{-1}$; $^1H$ NMR (DMSO); 12.57 (S, 1H, NH), 10.87 (S, 1H, NH), 10.08 (s, 1H, OH), 8.31 (s, 1H, =CH), 7.67-7.61 (m, 2H, Ar), 7.31-7.27 (m, 2H, Ar), 2.82-2.59 (m, H, $CH_2$), 1.81-1.75 (m, H, $CH_2$); MS (*m/z*): 28 ($M^+$); Anal. Calcd for $C_{15}H_{16}NO_2$: C, 63.37; H, 5.67; N, 19.71. Found: C, 63.6; H, 5.5; N, 19.69.

***N*'-(2-hydroxyphenyl)methylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4h** White solid; IR (KBr): 361, 2978, 299, 2853, 1678, 1660, 159, 128 $cm^{-1}$; $^1H$ NMR (DMSO); 12.61 (S, 1H, NH), 10.8 (S, 1H, NH), 10.01 (s, 1H, OH), 8.32 (s, 1H, =CH), 7.77-7.28 (m, H, Ar), 2.91-2.7 (m, H, $CH_2$), 1.80-1.75 (m, H, $CH_2$); MS (*m/z*): 28 ($M^+$); Anal. Calcd for $C_{15}H_{16}NO_2$: C, 63.37; H, 5.67; N, 19.71. Found: C, 63.58; H, 5.51; N, 19.80.

***N*'-[-(dimethylamino)phenyl]methylene}-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4i**
Yellowish-orange solid; IR (KBr): 361, 2998, 2989, 2850, 2828, 1680, 11 $cm^{-1}$; $^1H$ NMR (DMSO); 12.9 (S, 1H, NH), 10.88 (S, 1H, NH), 8.5 (s, 1H, =CH), 7.56-7.51 (m, 2H, Ar), 7.23-7.12 (m, 2H, Ar), .03 (s, 6H, $CH_3$), 2.98-2.70 (m, H, $CH_2$), 1.80-1.7 (m, H, $CH_2$); MS (*m/z*): 311 ($M^+$); Anal. Calcd for $C_{17}H_{21}N_5O$: C, 65.57; H, 6.80; N, 22.9. Found: C, 65.68; H, 6.69; N, 22.67.

***N*'-(3-chlorophenyl)methylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4j**
Pale-yellow solid; IR (KBr): 3672, 2938, 2886, 1671, 160, 156, 1539, 139 $cm^{-1}$; $^1H$ NMR (DMSO); 12.53 (S, 1H, NH), 10.78 (S, 1H, NH), 8.1 (s, 1H, =CH), 7.5-7.29 (m, H, Ar), 2.85-2.57 (m, H, $CH_2$), 1.81-1.7 (m, H, $CH_2$); MS (*m/z*): 302 ($M^+$); Anal. Calcd for $C_{15}H_{15}ClNO$: C, 59.51; H, .99; N, 18.51. Found: C, 59.35; H, 5.17; N, 18.19.

***N*'-(-chlorophenyl)methylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4k**
White solid; IR (KBr): 359, 2928, 2865, 1678, 160, 1528, 160 $cm^{-1}$; $^1H$ NMR (DMSO); 12.53 (S, 1H, NH), 10.91 (S, 1H, NH), 8.39 (s, 1H, =CH), 7.79-7.71 (m, 2H, Ar), 7.0-7.37 (m, 2H, Ar), 2.87-2.61 (m, H, $CH_2$), 1.81-1.7 (m, H, $CH_2$); MS (*m/z*): 302 ($M^+$); Anal. Calcd for $C_{15}H_{15}ClNO$: C, 59.51; H, .99; N, 18.51. Found: C, 59.39; H, 5.06; N, 18.27.

***N*'-(2-chlorophenyl)methylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4l**
Pale-yellow solid; IR (KBr): 3656, 355, 301, 2978, 291, 2856, 1678, 1505, 128 $cm^{-1}$; $^1H$ NMR (DMSO); 12.3 (S, 1H, NH), 10.75 (S, 1H, NH), 8.39 (s, 1H, =CH), 7.51-7.37 (m, H, Ar), 2.83-2.68 (m, H, $CH_2$), 1.81-1.7 (m, H, $CH_2$); MS (*m/z*): 302 ($M^+$); Anal. Calcd for $C_{15}H_{15}ClNO$: C, 59.51; H, .99; N, 18.51. Found: C, 59.2; H, .91; N, 18.0.

***N*'-(-fluorophenyl)methylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4m**
White solid; IR (KBr): 3626, 297, 1629, 1506, 113, 1228, 829 $cm^{-1}$; $^1H$ NMR (DMSO); 12.9 (S, 1H, NH), 10.67 (S, 1H, NH), 8.7 (s, 1H, =CH), 7.70-7.8 (m, H, Ar), 2.87-2.71 (m, H, $CH_2$), 1.81-1.7 (m, H, $CH_2$); MS (*m/z*): 286 ($M^+$); Anal. Calcd for $C_{15}H_{15}FNO$: C, 62.93; H, 5.28; N, 19.57. Found: C, 62.78; H, 5.39; N, 19.55.

***N*'-(-nitrophenyl)methylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4n**
Yellow solid; IR (KBr): 3671, 2950, 2888, 166, 161, 128 $cm^{-1}$; $^1H$ NMR (DMSO); 12.56 (S, 1H, NH), 10.68 (S, 1H, NH), 8.33 (s, 1H, =CH), 7.6-7.30 (m, H, Ar), 3.02-2.78 (m, H, $CH_2$), 1.80-1.7 (m, H, $CH_2$); MS (*m/z*): 313 ($M^+$); Anal. Calcd for $C_{15}H_{15}N_5O_3$: C, 57.50; H, .83; N, 22.35. Found: C,57.29; H, .7; N, 22.6.

***N*'-(3-nitrophenyl)methylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4o**
Yellow solid; IR (KBr): 3619, 291, 2855, 165, 1515, 196, 17, 1221 $cm^{-1}$; $^1H$ NMR (DMSO); 12.51 (S, 1H, NH), 10.78 (S, 1H, NH), 8.9 (s, 1H, =CH), 7.69-7.19 (m, H, Ar), 2.97-2.79 (m, H, $CH_2$), 1.81-1.75 (m, H, $CH_2$); MS (*m/z*): 313 ($M^+$); Anal. Calcd for $C_{15}H_{15}N_5O_3$: C, 57.50; H, .83; N, 22.35. Found: C, 57.0; H, .99; N, 22.21.

***N*'-pyridin-3-ylmethylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4p**
White solid; IR (KBr): 361, 2927, 289, 1675, 1589, 1528, 156, 1205 $cm^{-1}$; $^1H$ NMR (DMSO); 12.61 (S, 1H, NH), 11.2 (S, 1H, NH), 8.5 (s, 1H, =CH), 8.8 (d, 1H, Ar), 8.57-8.55 (m, 1H, Ar), 8.17 (d, 1H, Ar), 8.38-8.35 (m, 1H, Ar), 2.97-2.77 (m, 2H, $CH_2$), 2.67-2.57 (m, 2H, $CH_2$), 1.82-1.75 (m, H, $CH_2$); MS (*m/z*): 269 ($M^+$); Anal. Calcd for $C_1H_{15}N_5O$: C, 62.; H, 5.61; N, 26.01. Found: C, 62.5; H, 5.38; N, 25.88.

***N*'-2-furylmethylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4q**
White solid; IR (KBr): 3629, 297, 2889, 1692, 1606, 1519, 168, 127, 1221 $cm^{-1}$; $^1H$ NMR (DMSO); 12.61 (S, 1H, NH), 10.98 (S, 1H, NH), 8.5 (s, 1H, =CH), 8.59-8.5 (m, 2H, Ar), 8.21-8.17 (m, 1H, Ar), 2.97-2.62 (m, H, $CH_2$), 1.81-1.75 (m, H, $CH_2$); MS (*m/z*): 258 ($M^+$); Anal. Calcd for $C_{13}H_1NO_2$: C, 60.5; H, 5.6; N, 21.69. Found: C, 60.36; H, 5.36; N, 21.61.

***N*'-1-naphthylmethylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4r**
White solid; IR (KBr): 3626, 3593, 3028, 2978, 2912, 2852, 1668, 155, 192, 18, 1282 $cm^{-1}$; $^1H$ NMR (DMSO); 12.60 (S, 1H, NH), 10.68 (S, 1H, NH), 8.35 (s, 1H, =CH), 7.96-7.62 (m, 7H, Ar), 2.89-2.58 (m, H, $CH_2$), 1.80-1.75 (m, H, $CH_2$); MS (*m/z*): 318 ($M^+$); Anal. Calcd for $C_{19}H_{18}NO$: C, 71.68; H, 5.70; N, 17.60. Found: C, 71.78; H, 5.6; N, 17.51.

***N*'-(3-hydroxyphenyl)methylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4s**
White solid; IR (KBr): 3678, 3638, 2915, 1696, 161, 155, 153 $cm^{-1}$; $^1H$ NMR (DMSO); 12.51 (S, 1H, NH), 10.77 (S, 1H, NH), 10.02 (s, 1H, OH), 8.39 (s, 1H, =CH), 7.71-7.31 (m, H, Ar), 2.93-2.60 (m, H, $CH_2$), 1.81-1.75 (m, H, $CH_2$); MS (*m/z*): 28 ($M^+$); Anal. Calcd for $C_{15}H_{16}NO_2$: C, 63.37; H, 5.67; N, 19.71. Found: C, 63.22; H, 5.56; N, 19.61.

***N*'-(2-methoxyphenyl)methylene-,5,6,7-tetrahydro-2*H*-indazole-3-carbohydrazide 4t**
White solid; IR (KBr): 3609, 2970, 296, 1668, 165, 1568, 13 $cm^{-1}$; $^1H$ NMR (DMSO); 12.57 (S, 1H, NH), 10.70 (S, 1H, NH), 8.5 (s, 1H, =CH), 7.60-7.28 (m, H, Ar), 3.79 (s, 3H, $OCH_3$), 2.87-2.55 (m, H, $CH_2$), 1.81-1.75 (m, H, $CH_2$); MS (*m/z*): 298 ($M^+$); Anal. Calcd for $C_{16}H_{18}NO_2$: C, 6.1; H, 6.08; N, 18.78. Found: C, 6.32; H, 5.91; N, 18.66.

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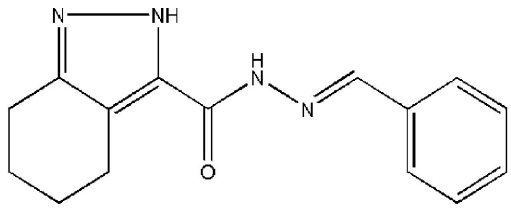


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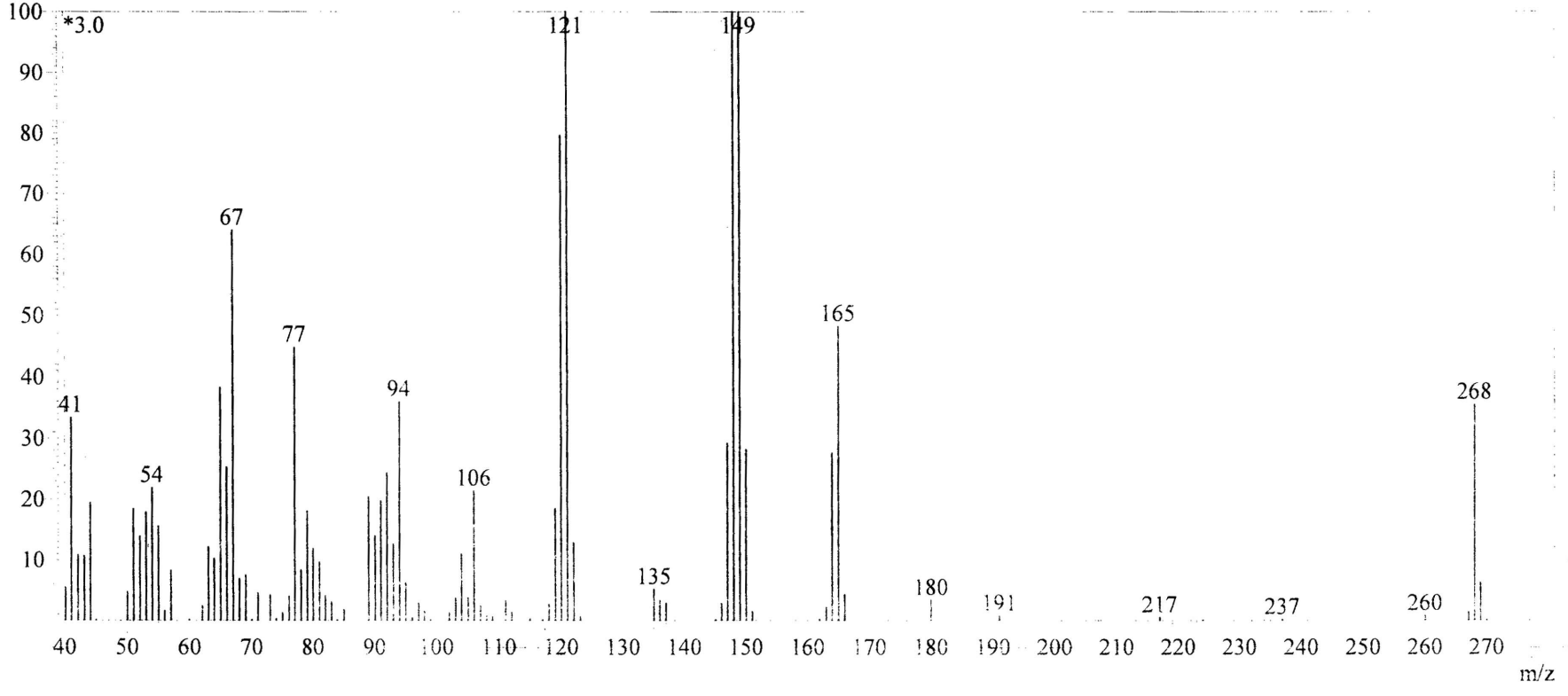

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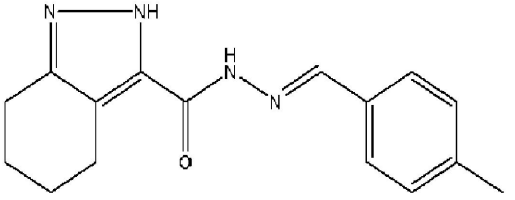
Sample Information

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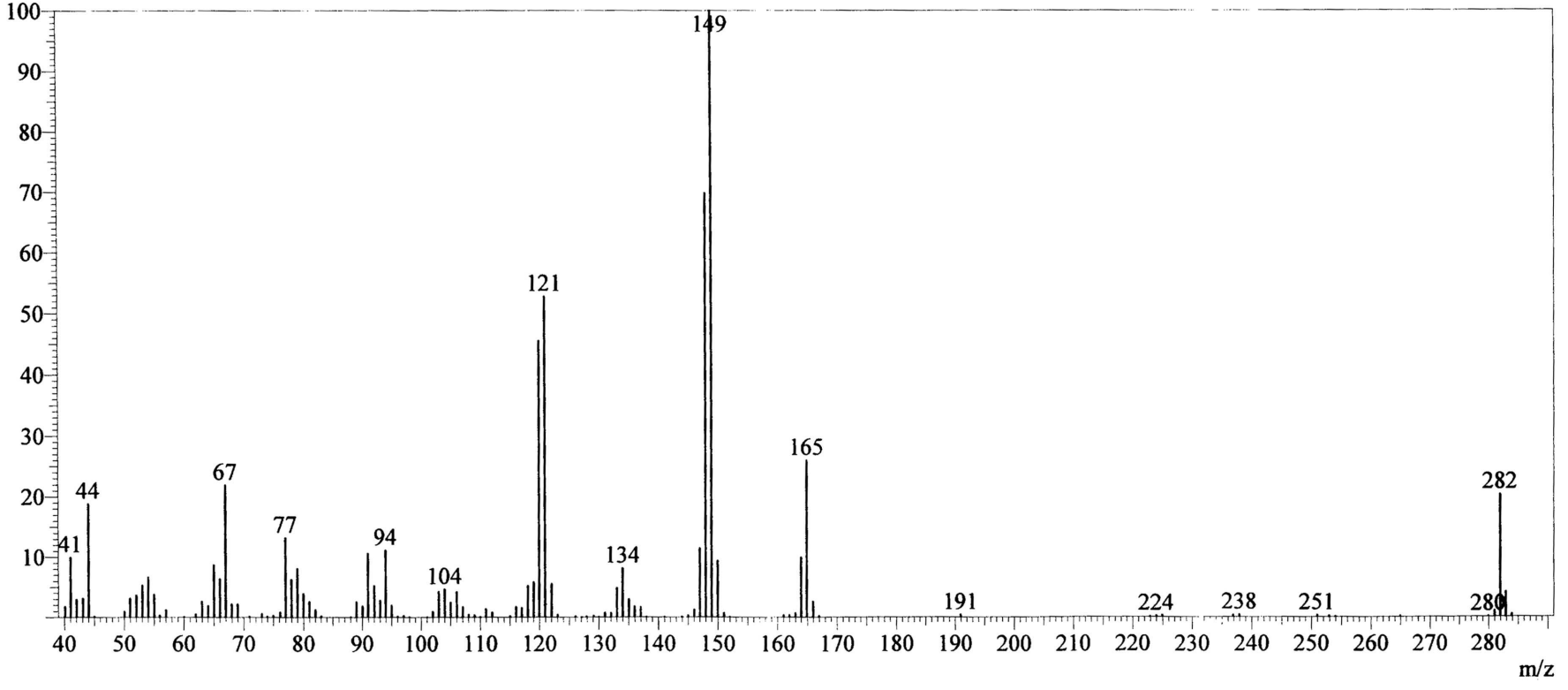

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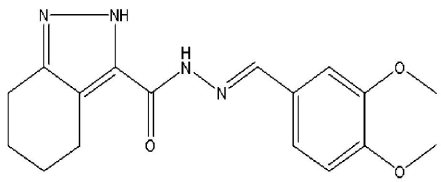


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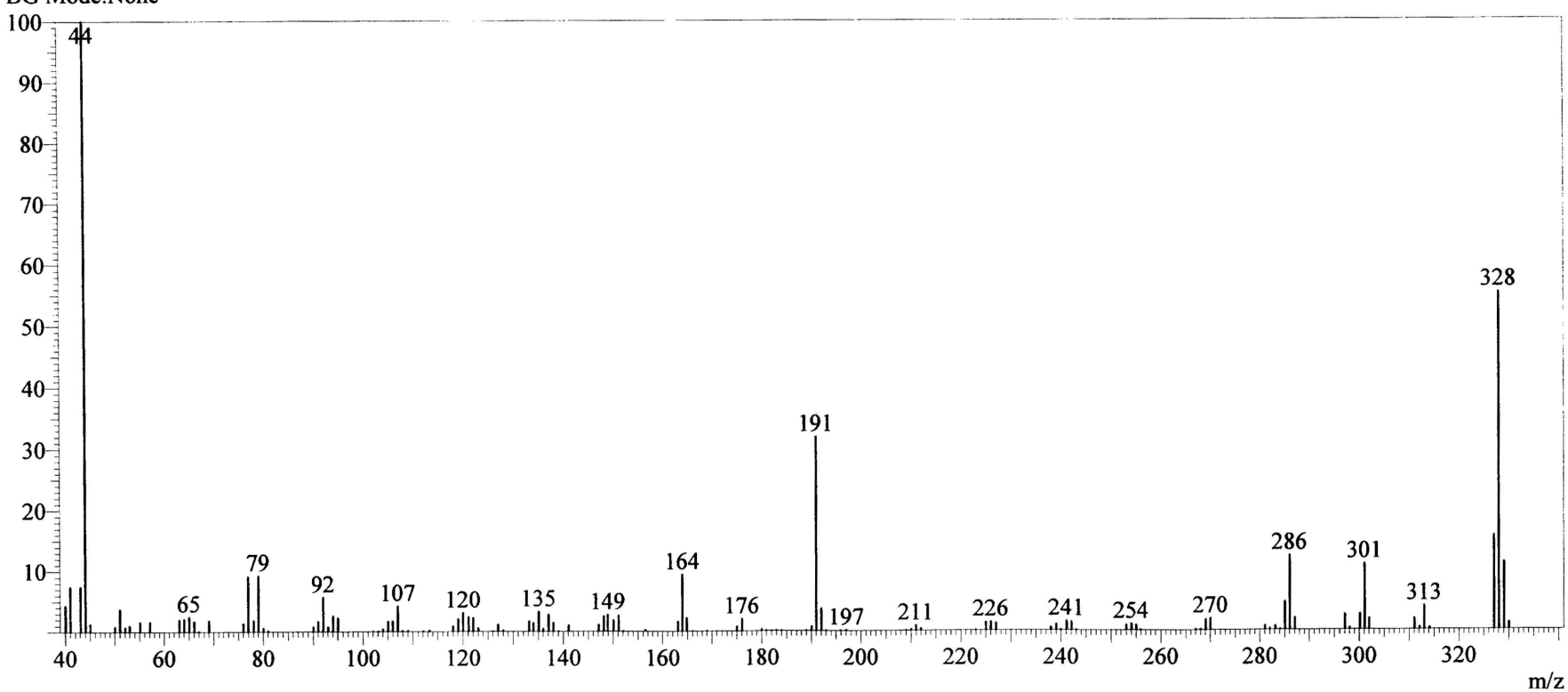

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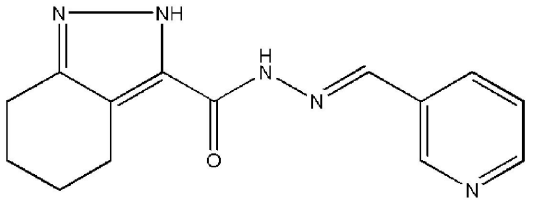


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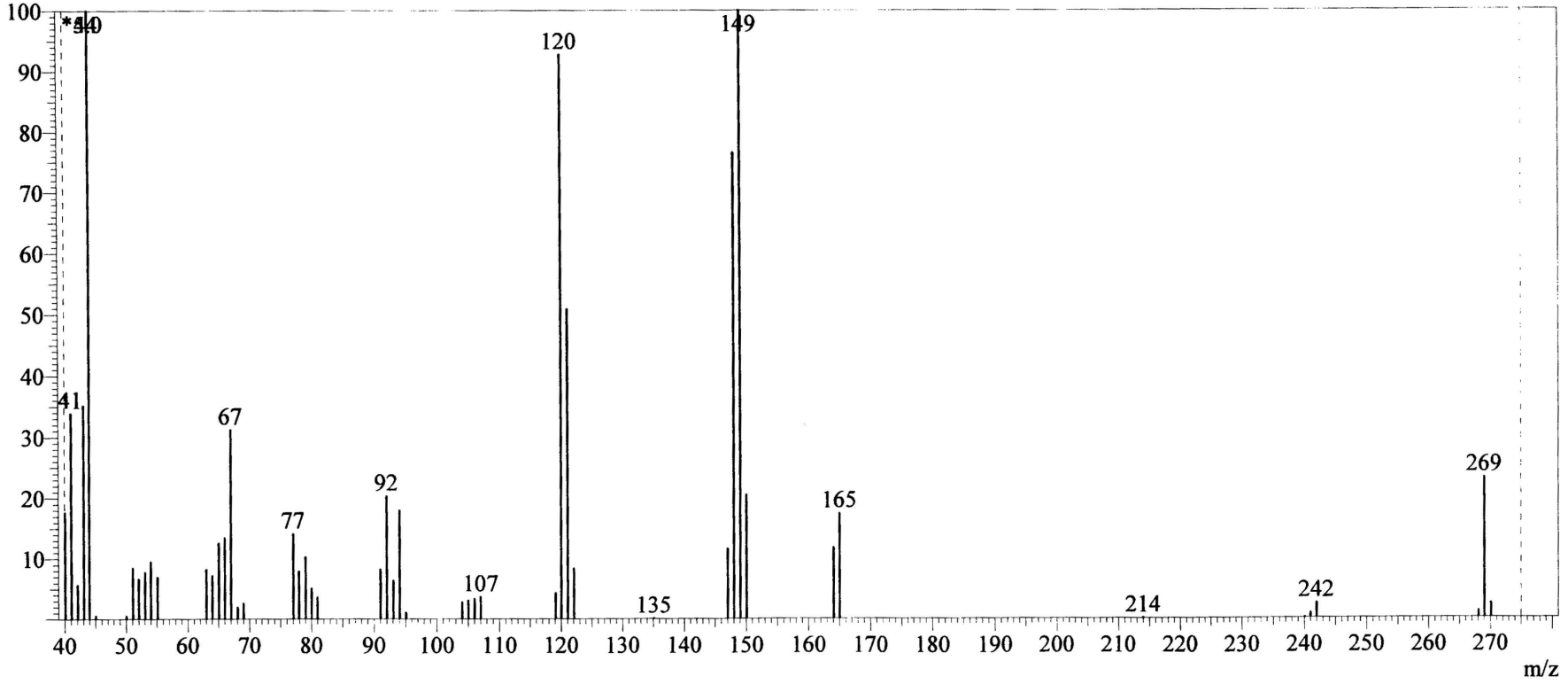

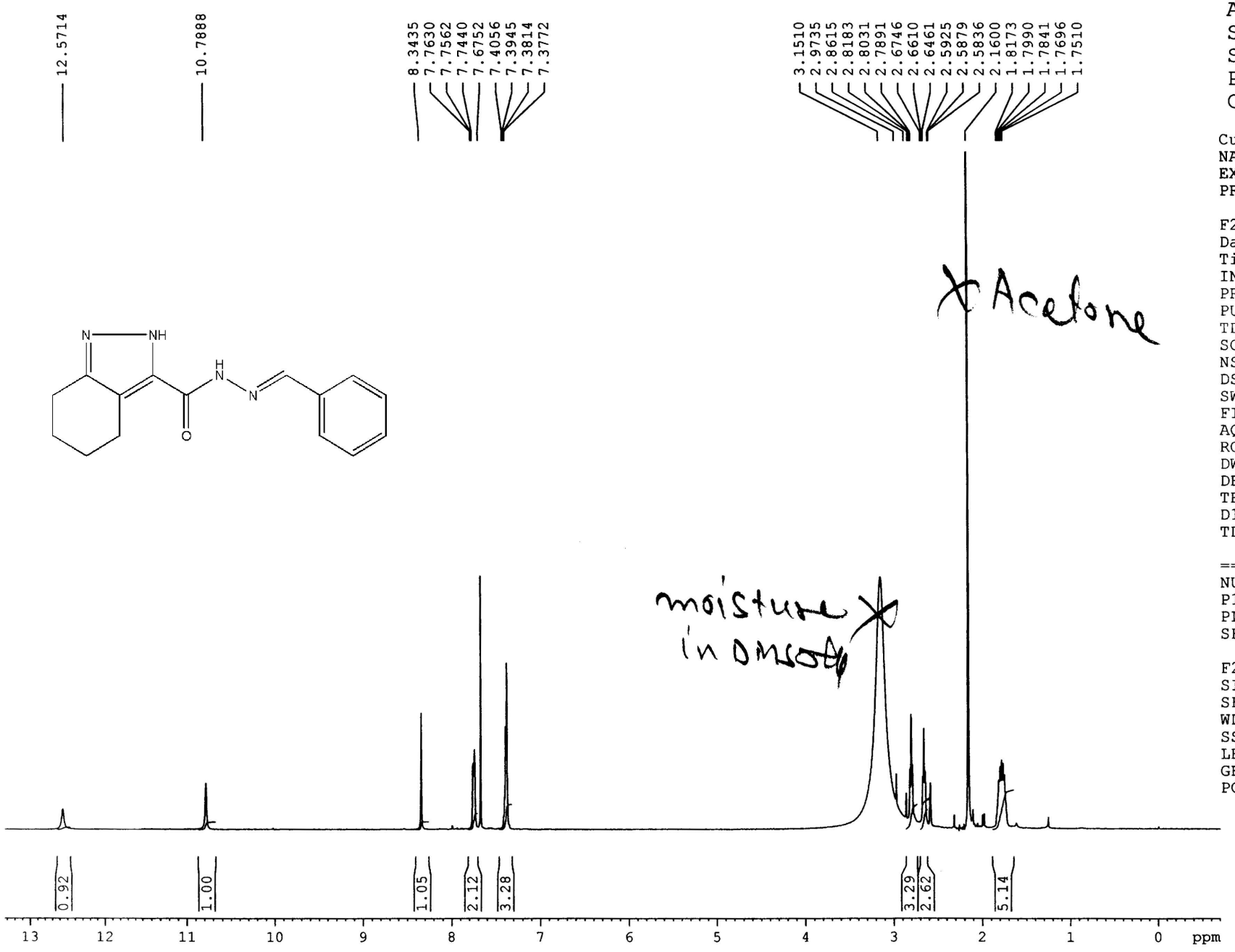


BRUKER
AVANCE II 400 NMR
Spectrometer
SAIF
Panjab University
Chandigarh

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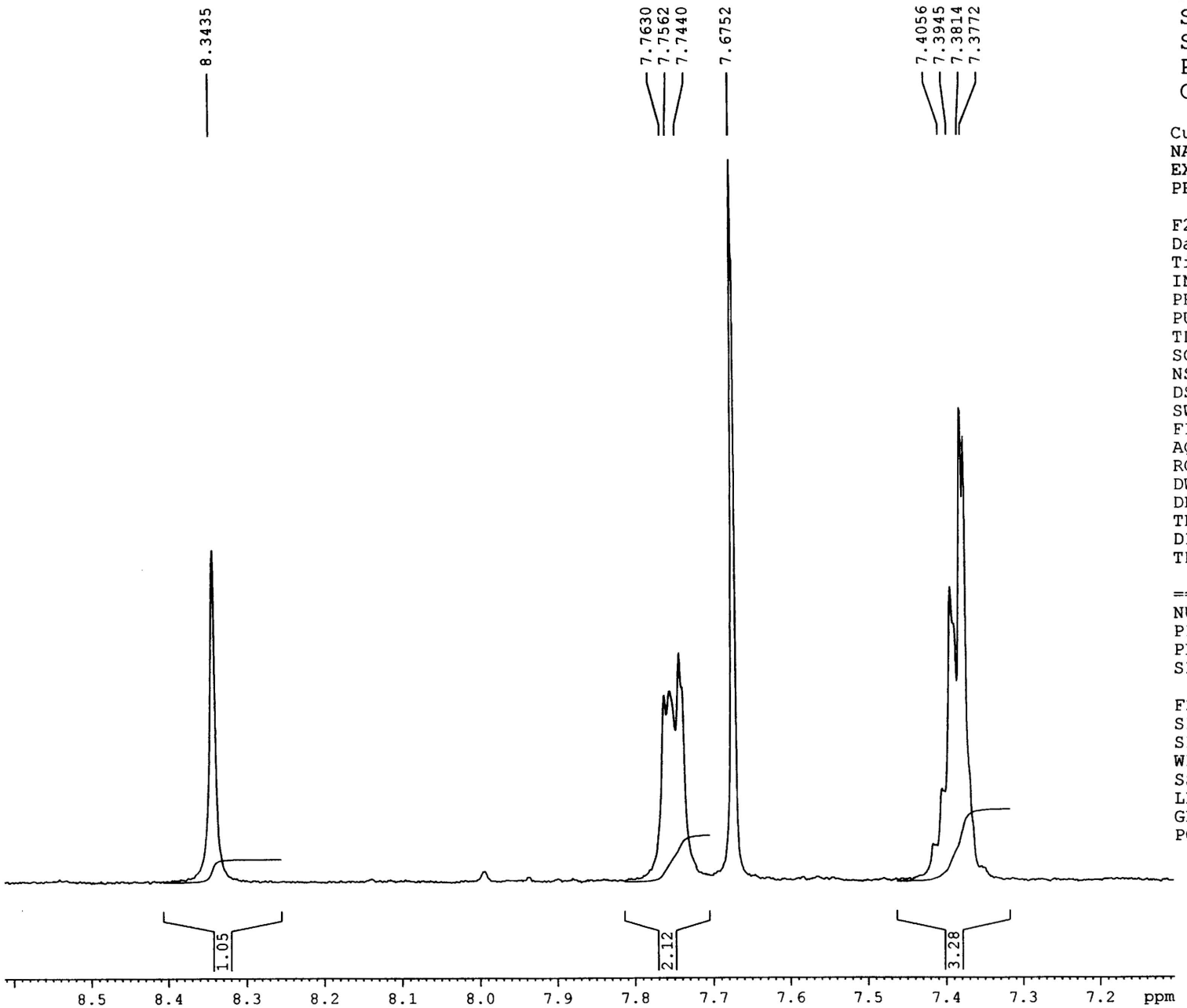
avtar_saifpu@yahoo.co.in

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AVANCE II 400 NMR
Spectrometer
SAIF
Panjab University
Chandigarh

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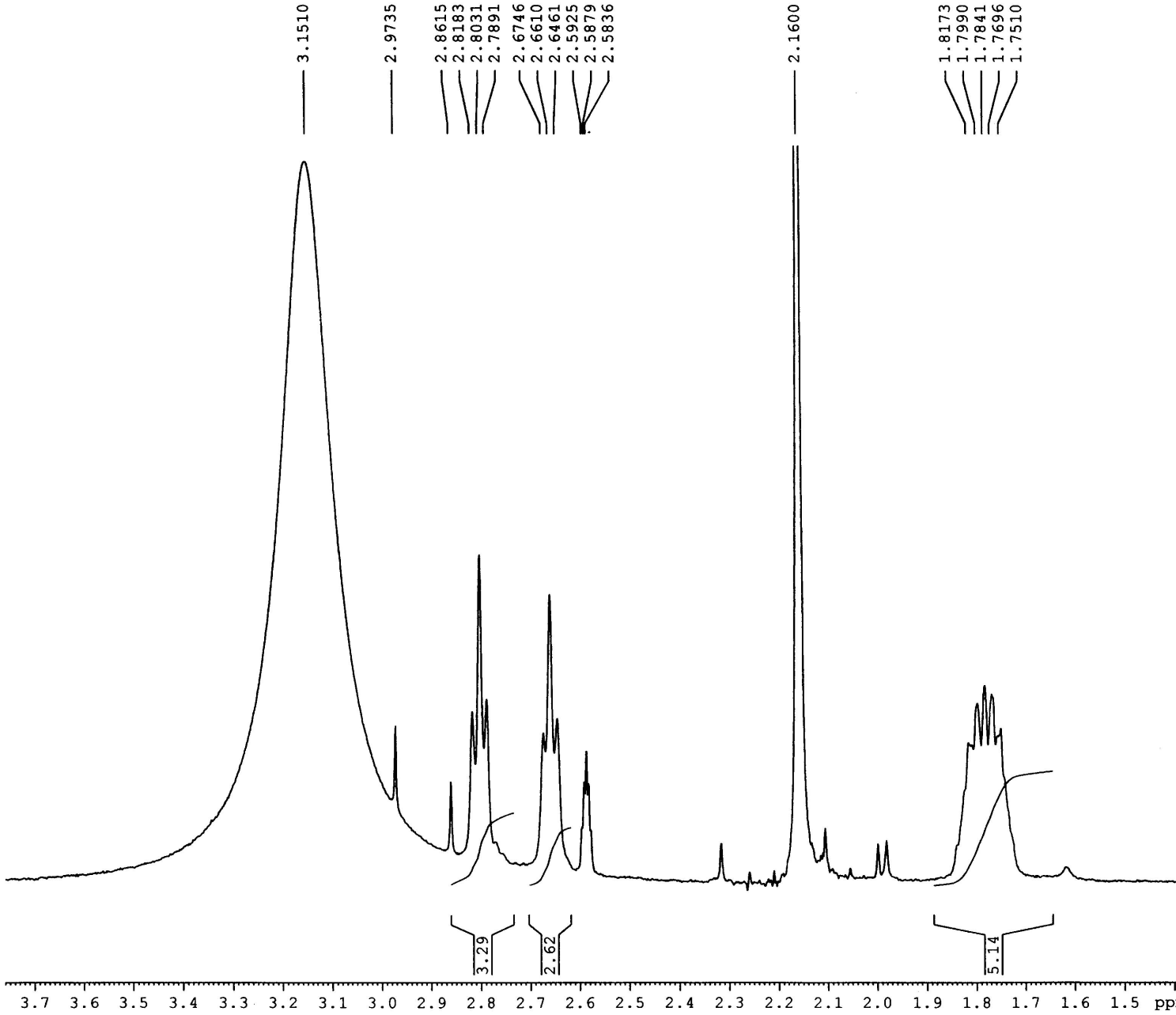
| Date_ | 20080806 |
| Time | 19.44 |
| INSTRUM | spect |
| PROBHD | 5 mm PABBO BB- |
| PULPROG | zg30 |
| TD | 65536 |
| SOLVENT | DMSO |
| NS | 16 |
| DS | 2 |
| SWH | 12019.230 Hz |
| FIDRES | 0.183399 Hz |
| AQ | 2.7263477 sec |
| RG | 322 |
| DW | 41.600 usec |
| DE | 6.00 usec |
| TE | 297.2 K |
| D1 | 1.00000000 sec |
| TD0 | 1 |

| ======== CHANNEL f1 ======== | |
|---|---|
| NUC1 | 1H |
| P1 | 10.90 usec |
| PL1 | -3.00 dB |
| SFO1 | 400.1324008 MHz |

| F2 - Processing parameters | |
|---|---|
| SI | 32768 |
| SF | 400.1299691 MHz |
| WDW | EM |
| SSB | 0 |
| LB | 0.30 Hz |
| GB | 0 |
| PC | 1.00 |

avtar_saifpu@yahoo.co.in

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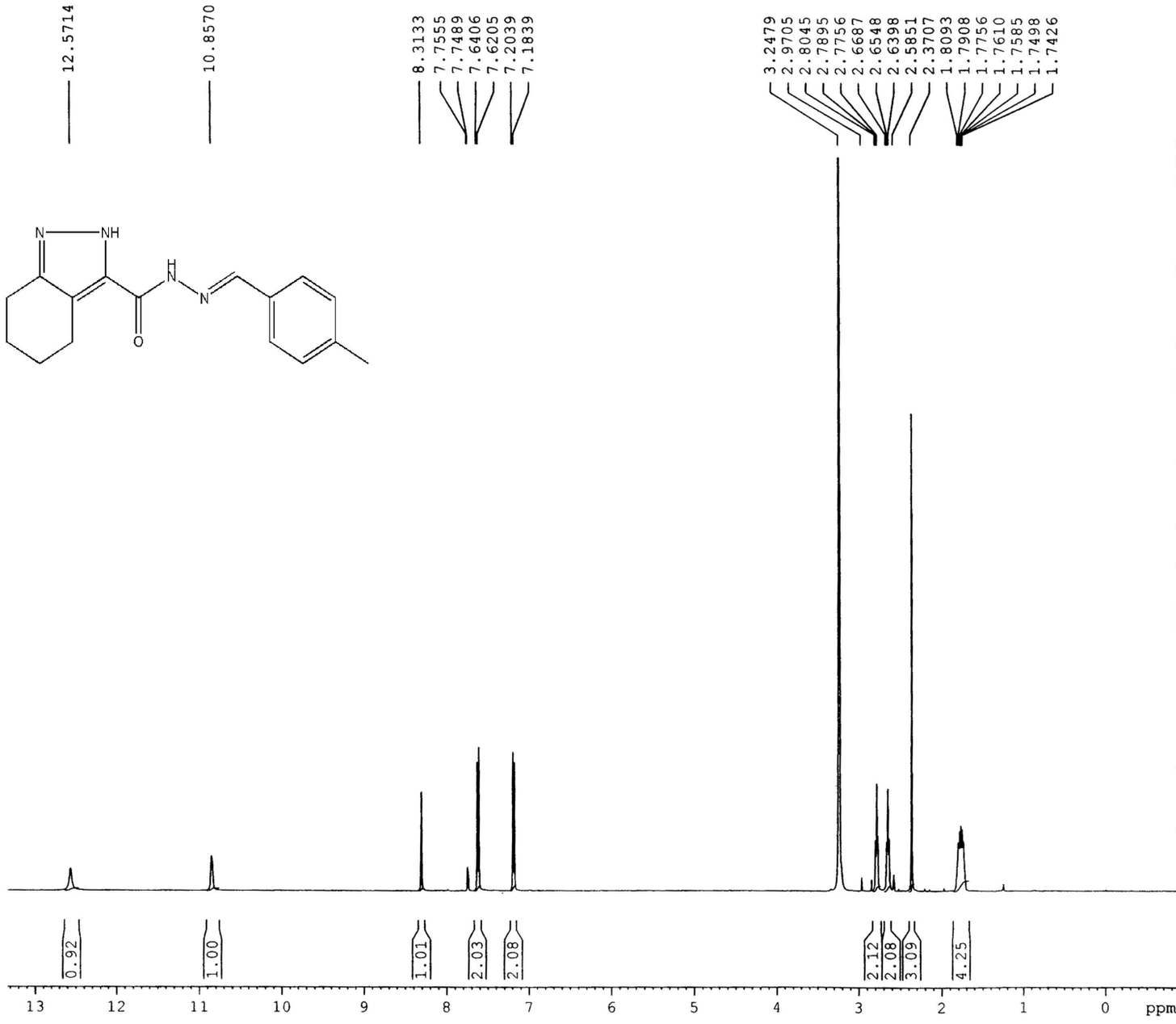
| Current Data Parameters | |
|---|---|
| NAME | Aug06-2008 |
| EXPNO | 280 |
| PROCNO | 1 |

| F2 - Acquisition Parameters | |
|---|---|
| Date_ | 20080806 |
| Time | 19.44 |
| INSTRUM | spect |
| PROBHD | 5 mm PABBO BB- |
| PULPROG | zg30 |
| TD | 65536 |
| SOLVENT | DMSO |
| NS | 16 |
| DS | 2 |
| SWH | 12019.230 Hz |
| FIDRES | 0.183399 Hz |
| AQ | 2.7263477 sec |
| RG | 322 |
| DW | 41.600 usec |
| DE | 6.00 usec |
| TE | 297.2 K |
| D1 | 1.00000000 sec |
| TD0 | 1 |

| ======== CHANNEL f1 ======== | |
|---|---|
| NUC1 | 1H |
| P1 | 10.90 usec |
| PL1 | -3.00 dB |
| SFO1 | 400.1324008 MHz |

| F2 - Processing parameters | |
|---|---|
| SI | 32768 |
| SF | 400.1299691 MHz |
| WDW | EM |
| SSB | 0 |
| LB | 0.30 Hz |
| GB | 0 |
| PC | 1.00 |

avtar_saifpu@yahoo.co.in

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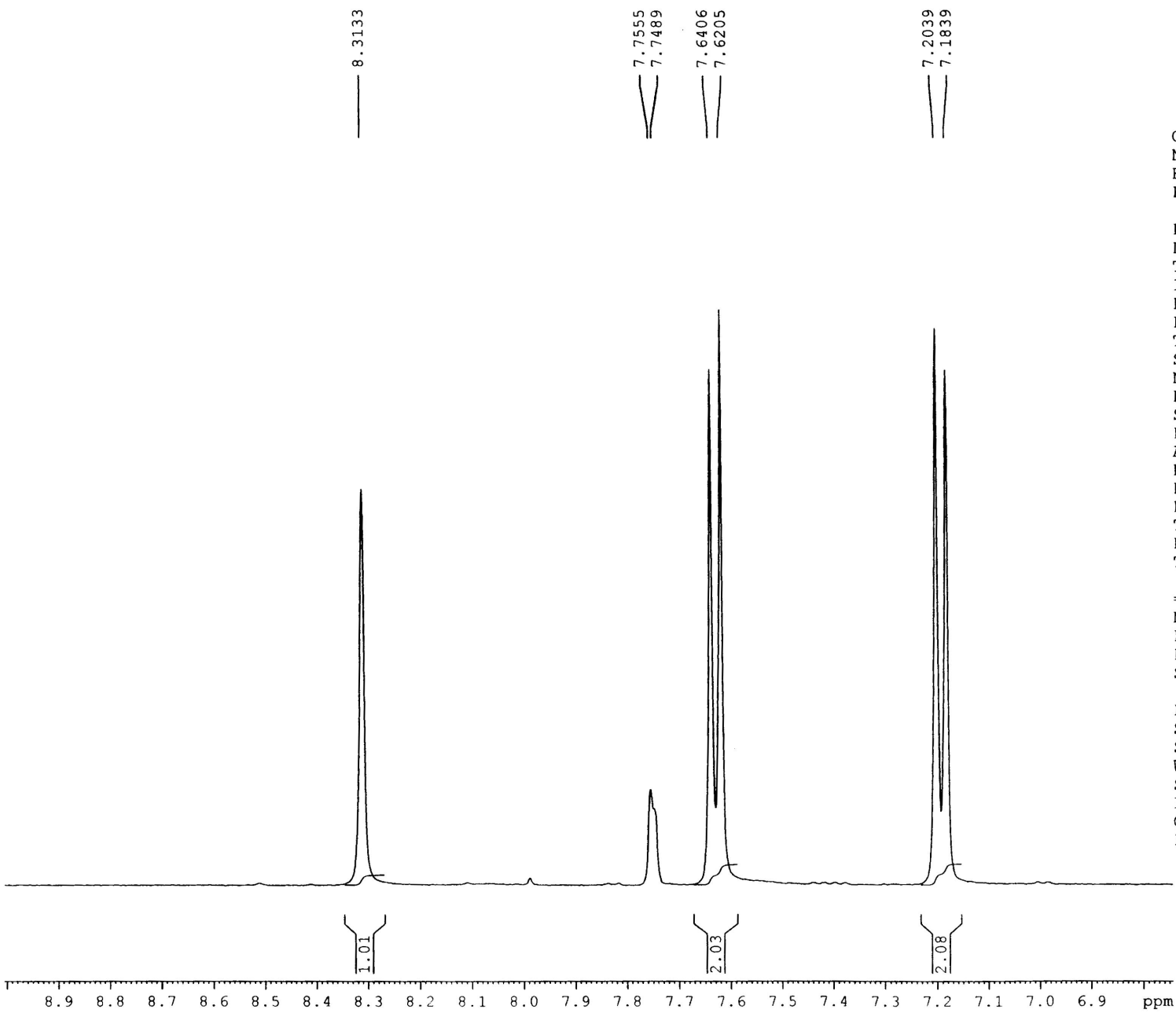
| Current Data Parameters | |
|---|---|
| NAME | Sep25-2008 |
| EXPNO | 31 |
| PROCNO | 1 |

| F2 - Acquisition Parameters | |
|---|---|
| Date_ | 20080925 |
| Time | 21.16 |
| INSTRUM | spect |
| PROBHD | 5 mm PABBO BB- |
| PULPROG | zg30 |
| TD | 65536 |
| SOLVENT | DMSO |
| NS | 16 |
| DS | 2 |
| SWH | 12019.230 Hz |
| FIDRES | 0.183399 Hz |
| AQ | 2.7263477 sec |
| RG | 228 |
| DW | 41.600 usec |
| DE | 6.00 usec |
| TE | 294.8 K |
| D1 | 1.00000000 sec |
| TD0 | 1 |

| ======== CHANNEL f1 ======== | |
|---|---|
| NUC1 | 1H |
| P1 | 10.90 usec |
| PL1 | -3.00 dB |
| SFO1 | 400.1324008 MHz |

| F2 - Processing parameters | |
|---|---|
| SI | 32768 |
| SF | 400.1299701 MHz |
| WDW | EM |
| SSB | 0 |
| LB | 0.30 Hz |
| GB | 0 |
| PC | 1.00 |

avtar_saifpu@yahoo.co.in

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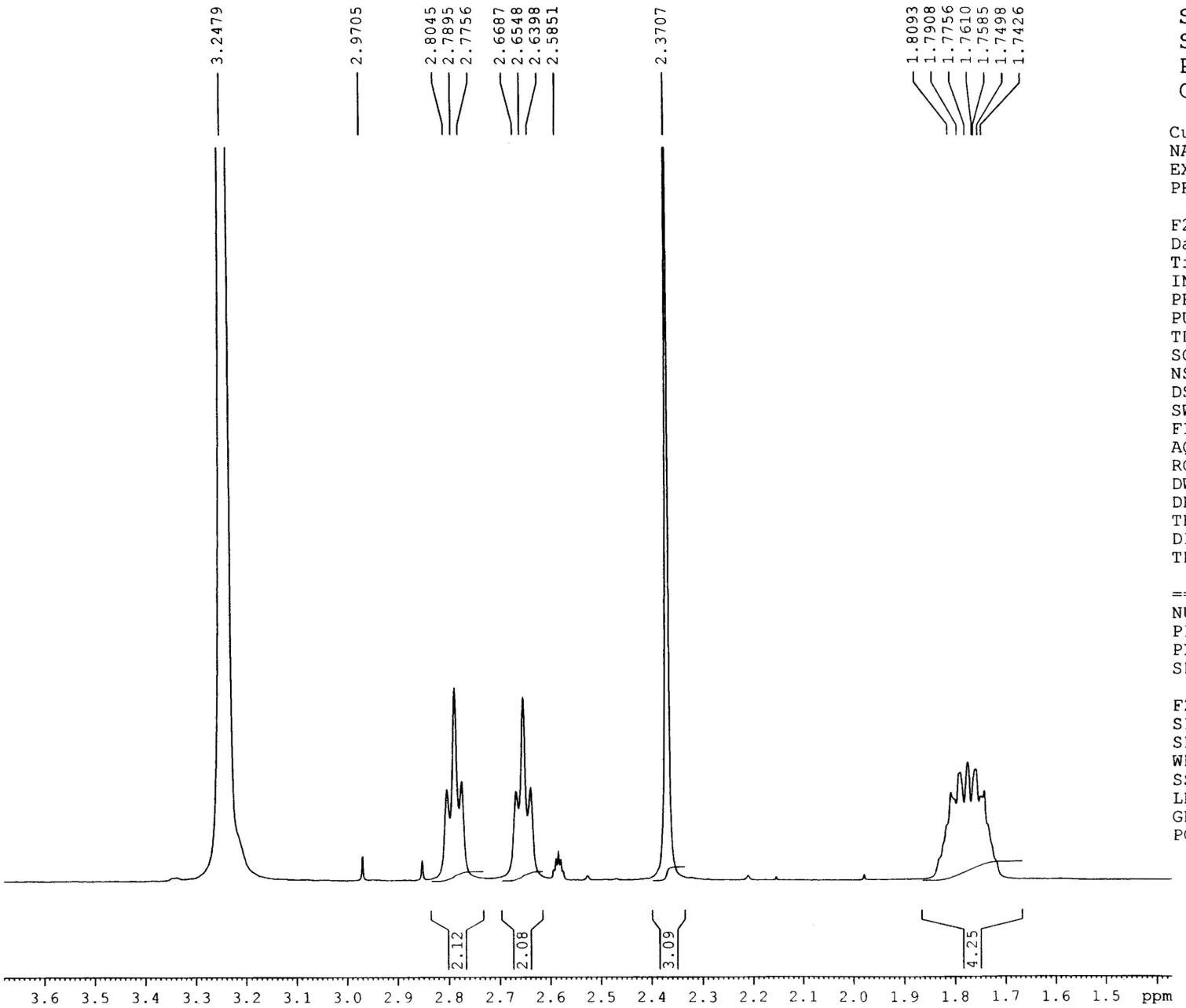
| Current Data Parameters | |
|---|---|
| NAME | Sep25-2008 |
| EXPNO | 31 |
| PROCNO | 1 |

| F2 - Acquisition Parameters | | |
|---|---|---|
| Date_ | 20080925 | |
| Time | 21.16 | |
| INSTRUM | spect | |
| PROBHD | 5 mm PABBO BB- | |
| PULPROG | zg30 | |
| TD | 65536 | |
| SOLVENT | DMSO | |
| NS | 16 | |
| DS | 2 | |
| SWH | 12019.230 | Hz |
| FIDRES | 0.183399 | Hz |
| AQ | 2.7263477 | sec |
| RG | 228 | |
| DW | 41.600 | usec |
| DE | 6.00 | usec |
| TE | 294.8 | K |
| D1 | 1.00000000 | sec |
| TD0 | 1 | |

| ======== CHANNEL f1 ======== | | |
|---|---|---|
| NUC1 | 1H | |
| P1 | 10.90 | usec |
| PL1 | -3.00 | dB |
| SFO1 | 400.1324008 | MHz |

| F2 - Processing parameters | | |
|---|---|---|
| SI | 32768 | |
| SF | 400.1299701 | MHz |
| WDW | EM | |
| SSB | 0 | |
| LB | 0.30 | Hz |
| GB | 0 | |
| PC | 1.00 | |

avtar_saifpu@yahoo.co.in

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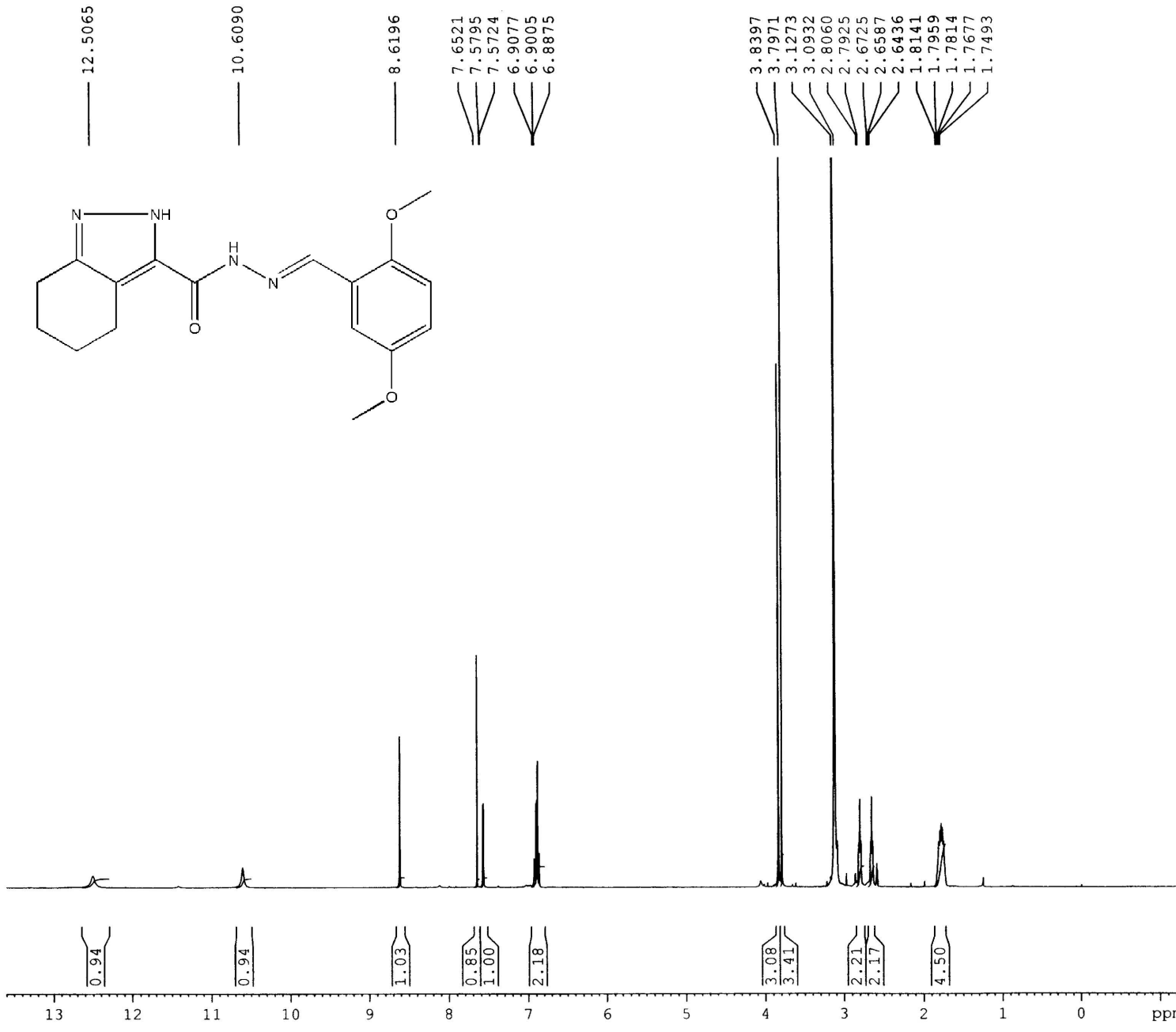
| Current Data Parameters | |
|---|---|
| NAME | Sep25-2008 |
| EXPNO | 31 |
| PROCNO | 1 |

| F2 - Acquisition Parameters | |
|---|---|
| Date_ | 20080925 |
| Time | 21.16 |
| INSTRUM | spect |
| PROBHD | 5 mm PABBO BB- |
| PULPROG | zg30 |
| TD | 65536 |
| SOLVENT | DMSO |
| NS | 16 |
| DS | 2 |
| SWH | 12019.230 Hz |
| FIDRES | 0.183399 Hz |
| AQ | 2.7263477 sec |
| RG | 228 |
| DW | 41.600 usec |
| DE | 6.00 usec |
| TE | 294.8 K |
| D1 | 1.00000000 sec |
| TD0 | 1 |

| ======== CHANNEL f1 ======== | |
|---|---|
| NUC1 | 1H |
| P1 | 10.90 usec |
| PL1 | -3.00 dB |
| SFO1 | 400.1324008 MHz |

| F2 - Processing parameters | |
|---|---|
| SI | 32768 |
| SF | 400.1299701 MHz |
| WDW | EM |
| SSB | 0 |
| LB | 0.30 Hz |
| GB | 0 |
| PC | 1.00 |

avtar_saifpu@yahoo.co.in

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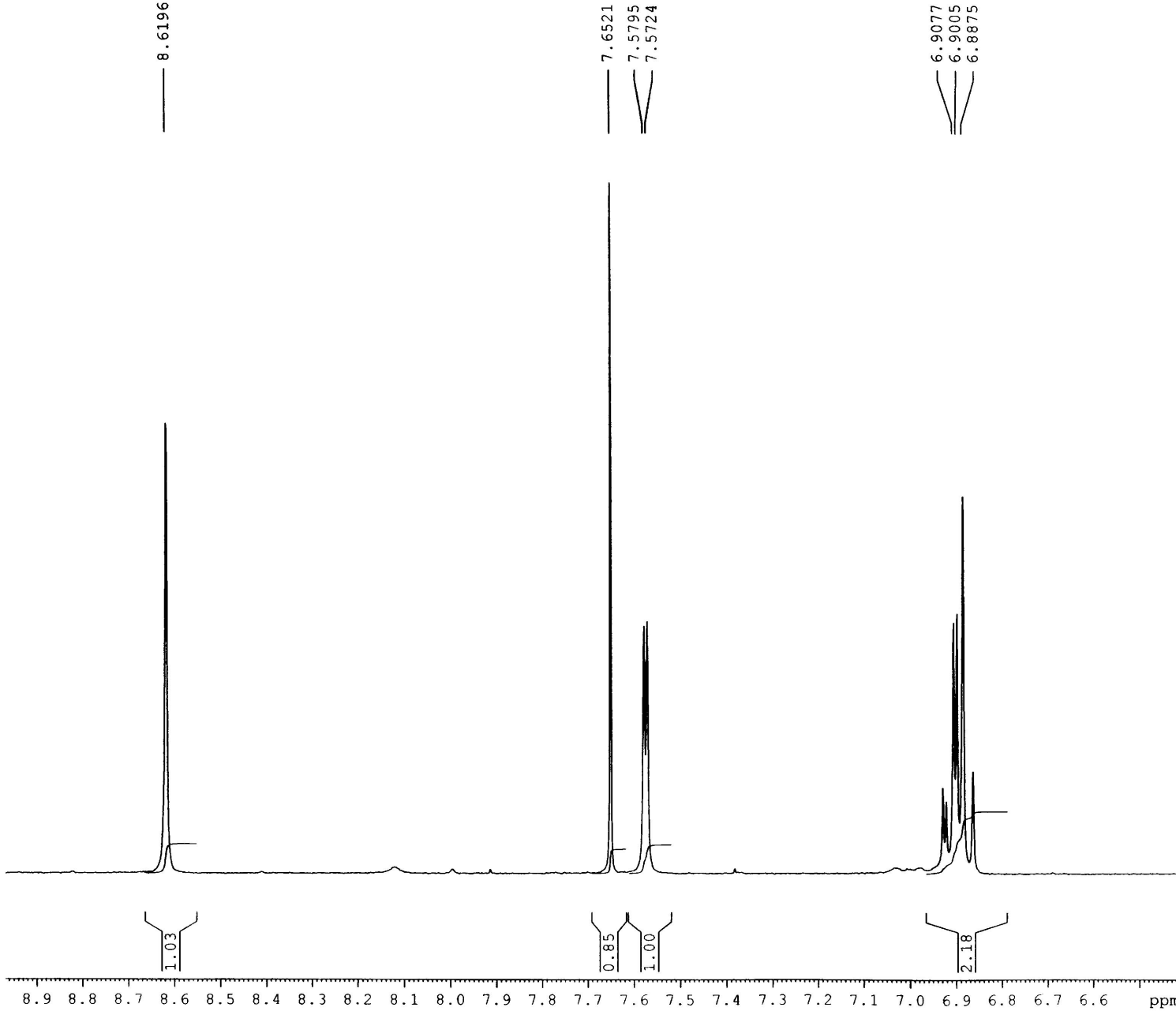
| Current Data Parameters | |
|---|---|
| NAME | Sep25-2008 |
| EXPNO | 41 |
| PROCNO | 1 |

| F2 - Acquisition Parameters | |
|---|---|
| Date_ | 20080925 |
| Time | 21.22 |
| INSTRUM | spect |
| PROBHD | 5 mm PABBO BB- |
| PULPROG | zg30 |
| TD | 65536 |
| SOLVENT | DMSO |
| NS | 16 |
| DS | 2 |
| SWH | 12019.230 Hz |
| FIDRES | 0.183399 Hz |
| AQ | 2.7263477 sec |
| RG | 287 |
| DW | 41.600 usec |
| DE | 6.00 usec |
| TE | 294.8 K |
| D1 | 1.00000000 sec |
| TD0 | 1 |

| ======== CHANNEL f1 ======== | |
|---|---|
| NUC1 | 1H |
| P1 | 10.90 usec |
| PL1 | -3.00 dB |
| SFO1 | 400.1324008 MHz |

| F2 - Processing parameters | |
|---|---|
| SI | 32768 |
| SF | 400.1299677 MHz |
| WDW | EM |
| SSB | 0 |
| LB | 0.30 Hz |
| GB | 0 |
| PC | 1.00 |

avtar_saifpu@yahoo.co.in

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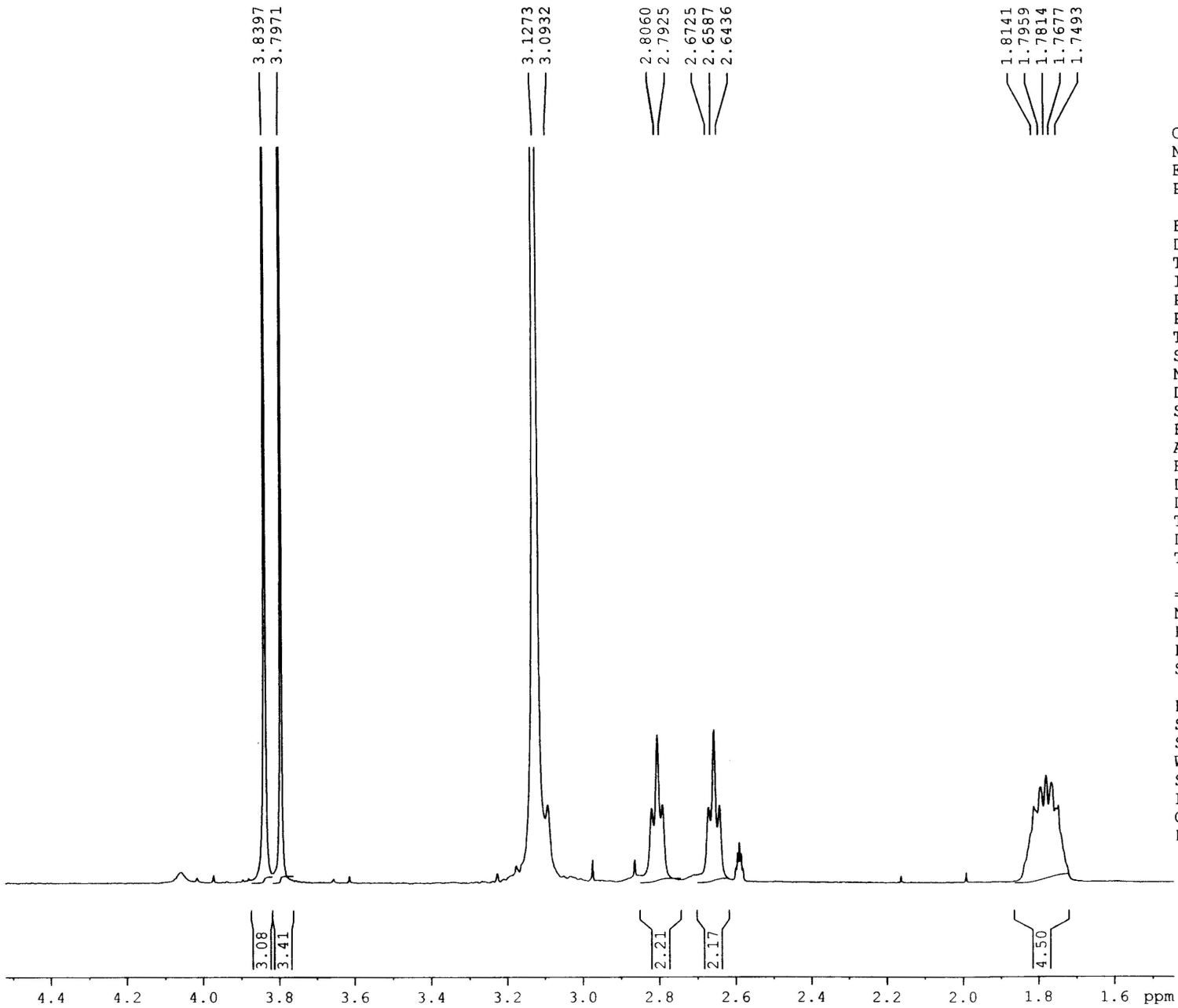
| Current Data Parameters | |
|---|---|
| NAME | Sep25-2008 |
| EXPNO | 41 |
| PROCNO | 1 |

| F2 - Acquisition Parameters | |
|---|---|
| Date_ | 20080925 |
| Time | 21.22 |
| INSTRUM | spect |
| PROBHD | 5 mm PABBO BB- |
| PULPROG | zg30 |
| TD | 65536 |
| SOLVENT | DMSO |
| NS | 16 |
| DS | 2 |
| SWH | 12019.230 Hz |
| FIDRES | 0.183399 Hz |
| AQ | 2.7263477 sec |
| RG | 287 |
| DW | 41.600 usec |
| DE | 6.00 usec |
| TE | 294.8 K |
| D1 | 1.00000000 sec |
| TD0 | 1 |

| ======== CHANNEL f1 ======== | |
|---|---|
| NUC1 | 1H |
| P1 | 10.90 usec |
| PL1 | -3.00 dB |
| SFO1 | 400.1324008 MHz |

| F2 - Processing parameters | |
|---|---|
| SI | 32768 |
| SF | 400.1299677 MHz |
| WDW | EM |
| SSB | 0 |
| LB | 0.30 Hz |
| GB | 0 |
| PC | 1.00 |

avtar_saifpu@yahoo.co.in

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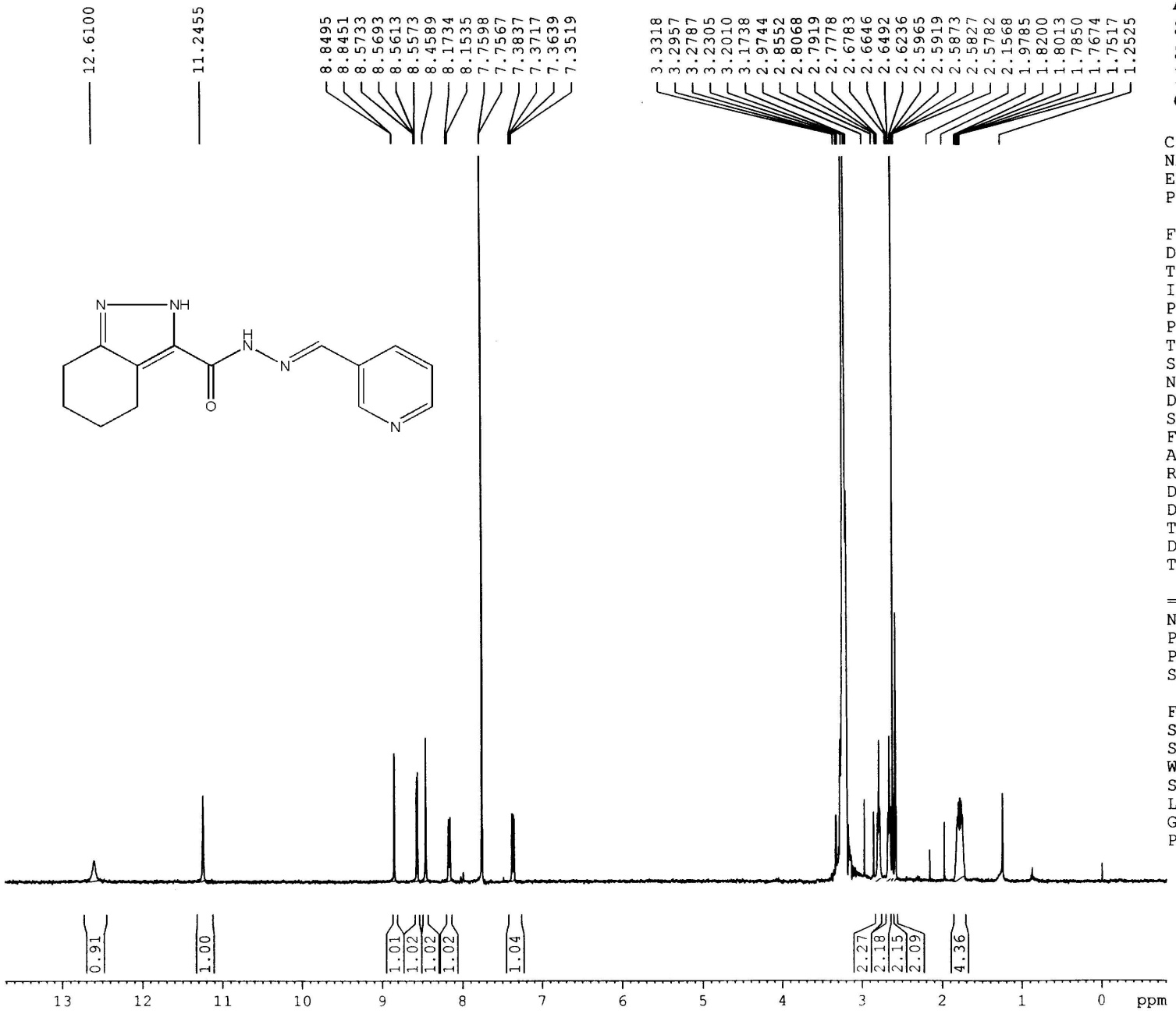
| Current Data Parameters | |
|---|---|
| NAME | Sep25-2008 |
| EXPNO | 41 |
| PROCNO | 1 |

| F2 - Acquisition Parameters | | |
|---|---|---|
| Date_ | 20080925 | |
| Time | 21.22 | |
| INSTRUM | spect | |
| PROBHD | 5 mm PABBO BB- | |
| PULPROG | zg30 | |
| TD | 65536 | |
| SOLVENT | DMSO | |
| NS | 16 | |
| DS | 2 | |
| SWH | 12019.230 | Hz |
| FIDRES | 0.183399 | Hz |
| AQ | 2.7263477 | sec |
| RG | 287 | |
| DW | 41.600 | usec |
| DE | 6.00 | usec |
| TE | 294.8 | K |
| D1 | 1.00000000 | sec |
| TD0 | 1 | |

| ======== CHANNEL f1 ======== | | |
|---|---|---|
| NUC1 | 1H | |
| P1 | 10.90 | usec |
| PL1 | -3.00 | dB |
| SFO1 | 400.1324008 | MHz |

| F2 - Processing parameters | | |
|---|---|---|
| SI | 32768 | |
| SF | 400.1299677 | MHz |
| WDW | EM | |
| SSB | 0 | |
| LB | 0.30 | Hz |
| GB | 0 | |
| PC | 1.00 | |

avtar_saifpu@yahoo.co.in

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Current Data Parameters

| | |
|---|---|
| NAME | Sep25-2008 |
| EXPNO | 51 |
| PROCNO | 1 |

F2 - Acquisition Parameters

| | |
|---|---|
| Date_ | 20080925 |
| Time | 21.29 |
| INSTRUM | spect |
| PROBHD | 5 mm PABBO BB- |
| PULPROG | zg30 |
| TD | 65536 |
| SOLVENT | DMSO |
| NS | 16 |
| DS | 2 |
| SWH | 12019.230 Hz |
| FIDRES | 0.183399 Hz |
| AQ | 2.7263477 sec |
| RG | 322 |
| DW | 41.600 usec |
| DE | 6.00 usec |
| TE | 294.8 K |
| D1 | 1.00000000 sec |
| TD0 | 1 |

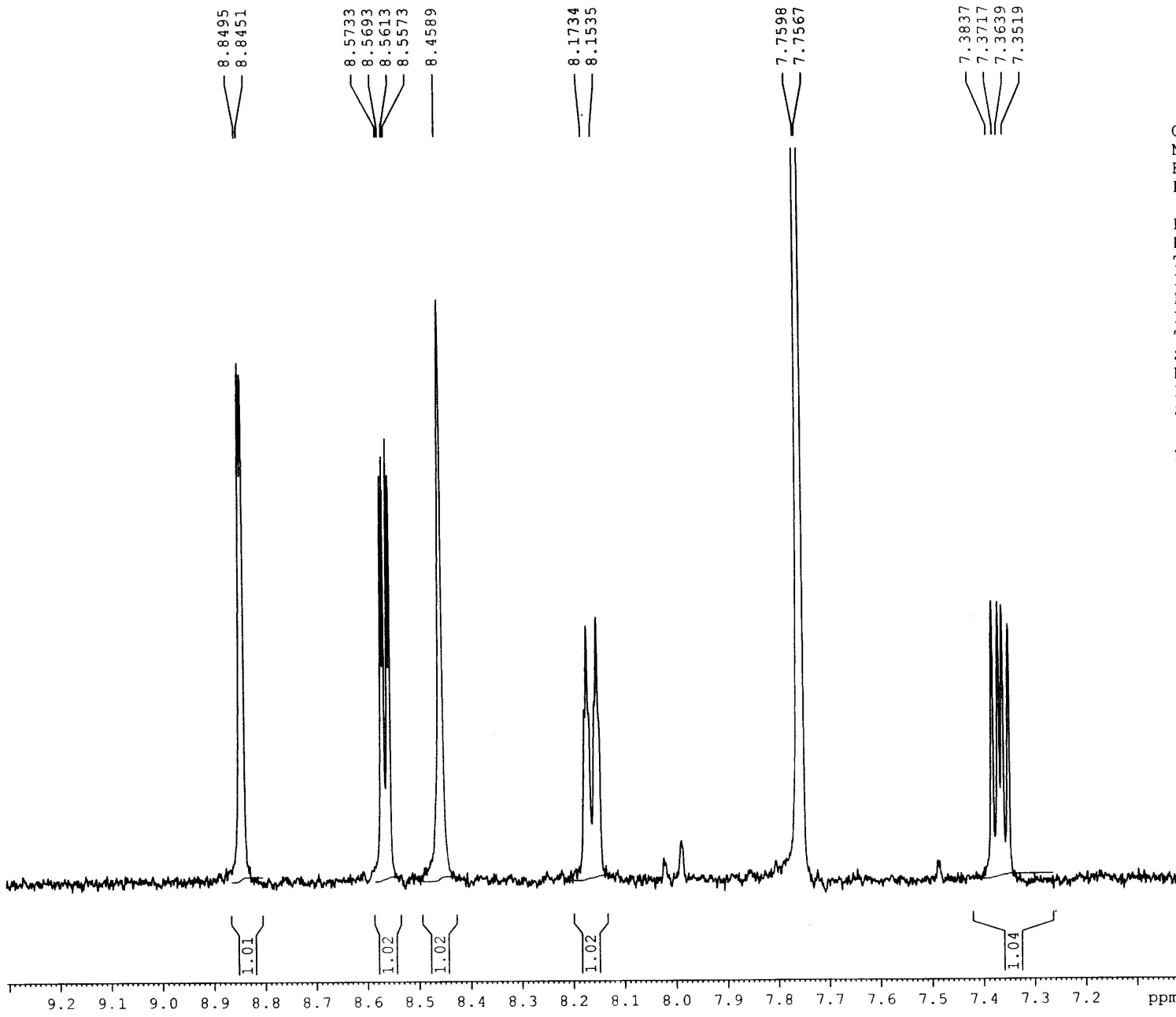
======== CHANNEL f1 ========

| | |
|---|---|
| NUC1 | 1H |
| P1 | 10.90 usec |
| PL1 | -3.00 dB |
| SFO1 | 400.1324008 MHz |

F2 - Processing parameters

| | |
|---|---|
| SI | 32768 |
| SF | 400.1299692 MHz |
| WDW | EM |
| SSB | 0 |
| LB | 0.30 Hz |
| GB | 0 |
| PC | 1.00 |

avtar_saifpu@yahoo.co.in




BRUKER
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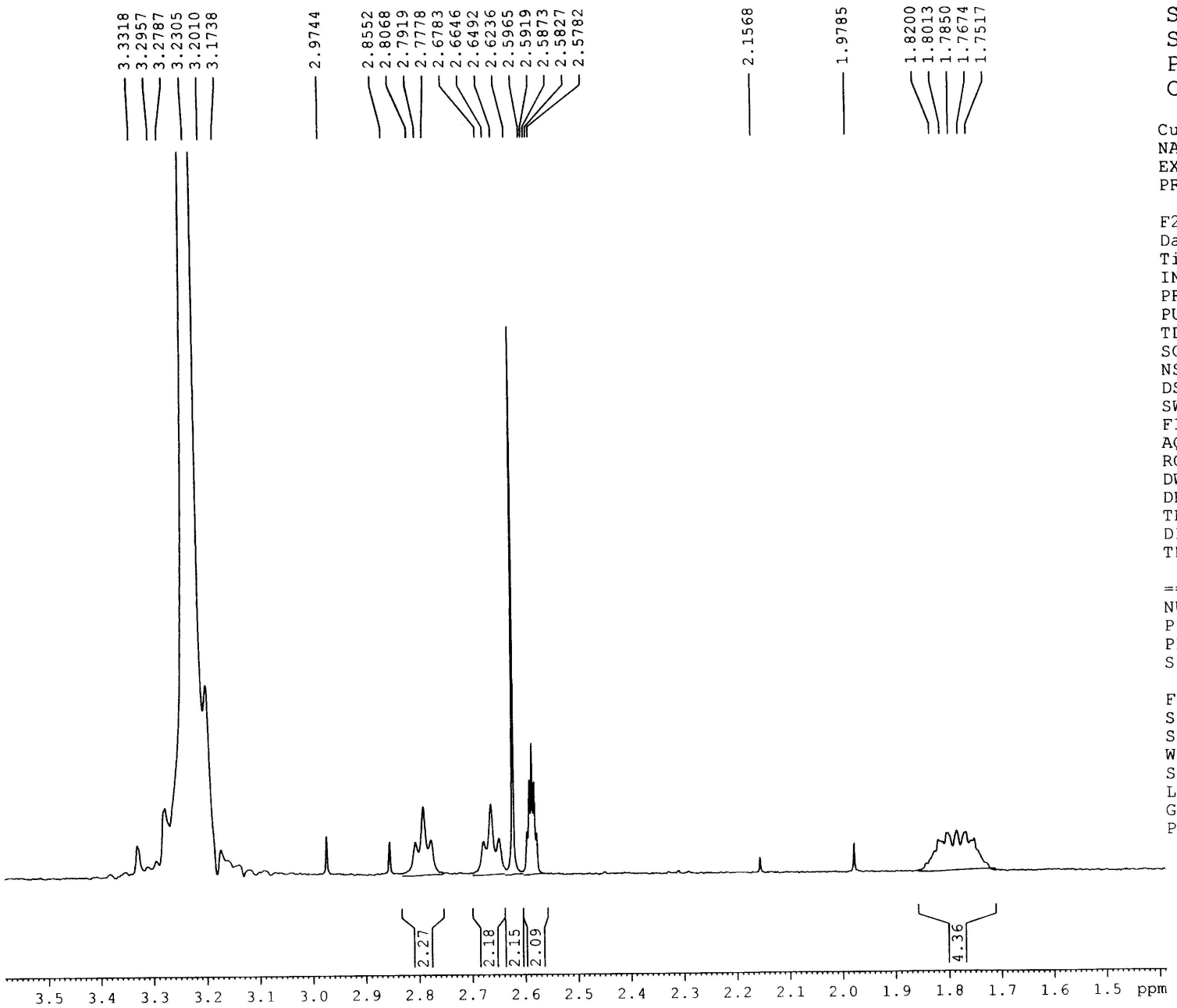
| Current Data Parameters | |
|---|---|
| NAME | Sep25-2008 |
| EXPNO | 51 |
| PROCNO | 1 |

| F2 - Acquisition Parameters | |
|---|---|
| Date_ | 20080925 |
| Time | 21.29 |
| INSTRUM | spect |
| PROBHD | 5 mm PABBO BB- |
| PULPROG | zg30 |
| TD | 65536 |
| SOLVENT | DMSO |
| NS | 16 |
| DS | 2 |
| SWH | 12019.230 Hz |
| FIDRES | 0.183399 Hz |
| AQ | 2.7263477 sec |
| RG | 322 |
| DW | 41.600 usec |
| DE | 6.00 usec |
| TE | 294.8 K |
| D1 | 1.00000000 sec |
| TD0 | 1 |

| ======== CHANNEL f1 ======== | |
|---|---|
| NUC1 | 1H |
| P1 | 10.90 usec |
| PL1 | -3.00 dB |
| SFO1 | 400.1324008 MHz |

| F2 - Processing parameters | |
|---|---|
| SI | 32768 |
| SF | 400.1299692 MHz |
| WDW | EM |
| SSB | 0 |
| LB | 0.30 Hz |
| GB | 0 |
| PC | 1.00 |

avtar_saifpu@yahoo.co.in

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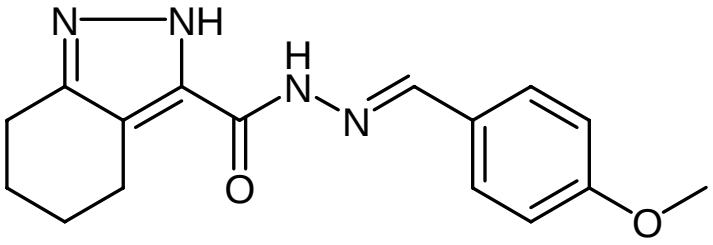
| Current Data Parameters | |
|---|---|
| NAME | Sep25-2008 |
| EXPNO | 51 |
| PROCNO | 1 |

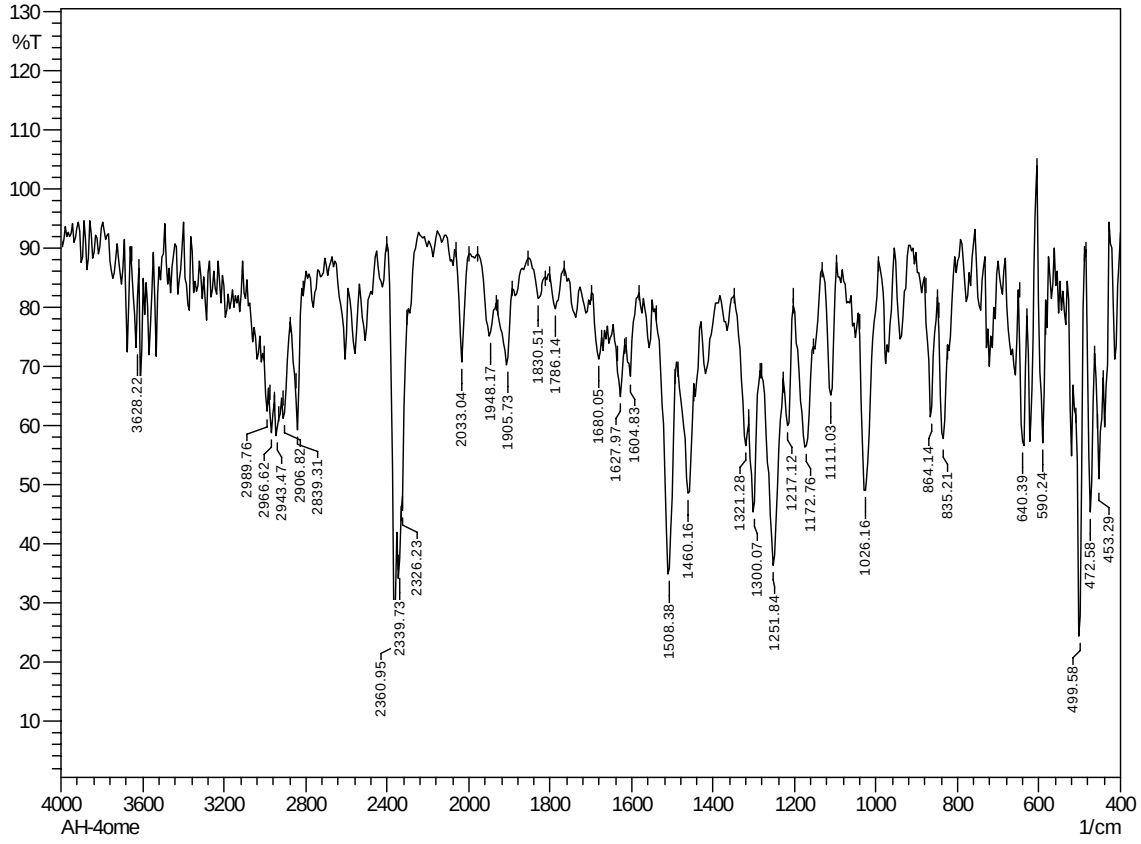
| F2 - Acquisition Parameters | |
|---|---|
| Date_ | 20080925 |
| Time | 21.29 |
| INSTRUM | spect |
| PROBHD | 5 mm PABBO BB- |
| PULPROG | zg30 |
| TD | 65536 |
| SOLVENT | DMSO |
| NS | 16 |
| DS | 2 |
| SWH | 12019.230 Hz |
| FIDRES | 0.183399 Hz |
| AQ | 2.7263477 sec |
| RG | 322 |
| DW | 41.600 usec |
| DE | 6.00 usec |
| TE | 294.8 K |
| D1 | 1.00000000 sec |
| TD0 | 1 |

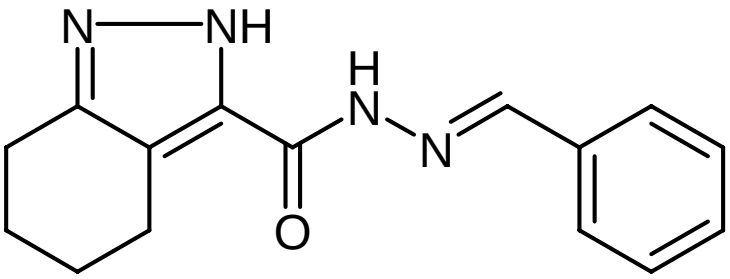
| ======== CHANNEL f1 ======== | |
|---|---|
| NUC1 | 1H |
| P1 | 10.90 usec |
| PL1 | -3.00 dB |
| SFO1 | 400.1324008 MHz |

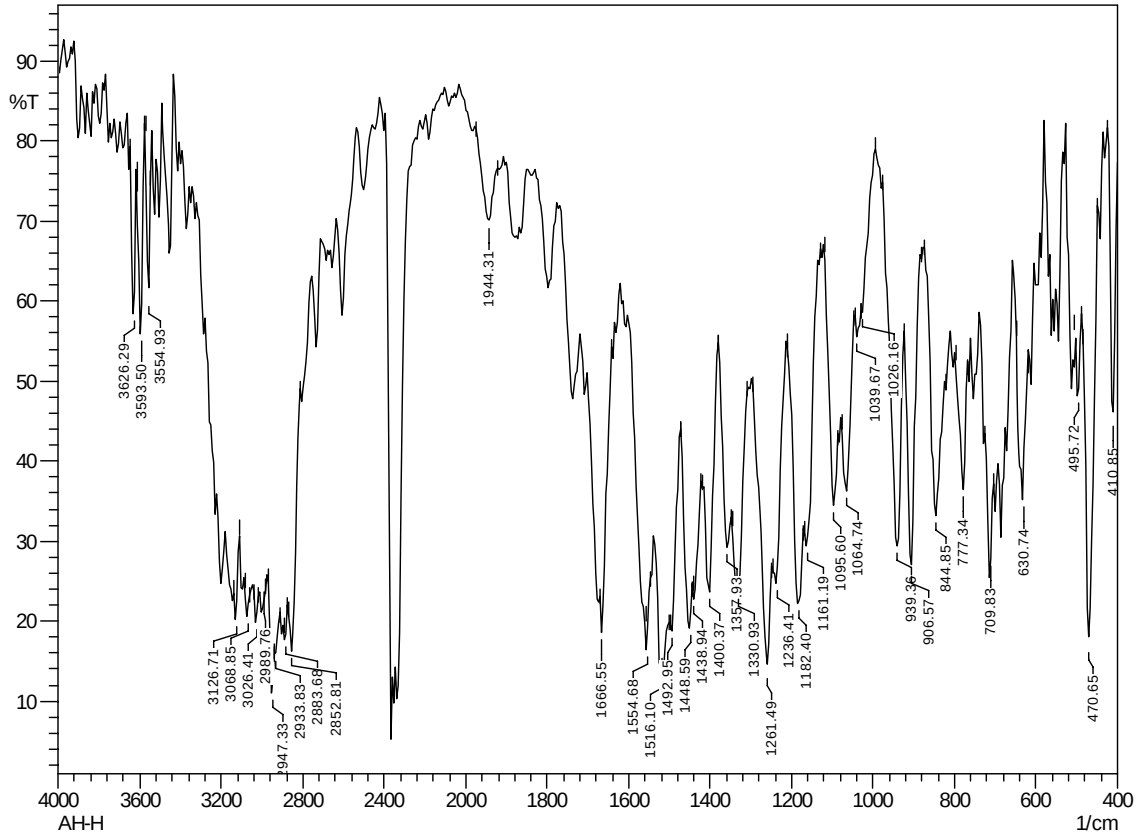
| F2 - Processing parameters | |
|---|---|
| SI | 32768 |
| SF | 400.1299692 MHz |
| WDW | EM |
| SSB | 0 |
| LB | 0.30 Hz |
| GB | 0 |
| PC | 1.00 |

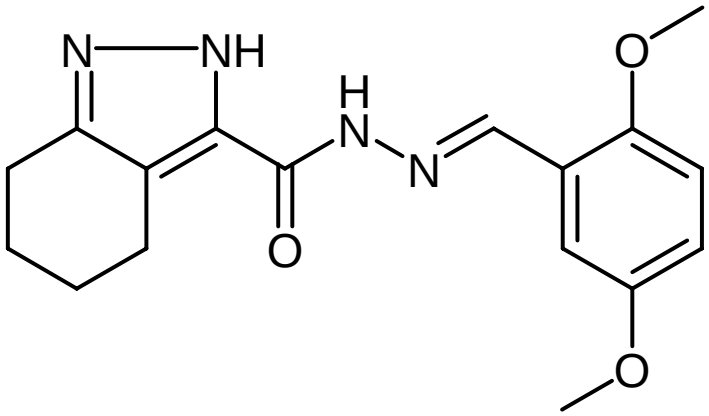
avtar_saifpu@yahoo.co.in

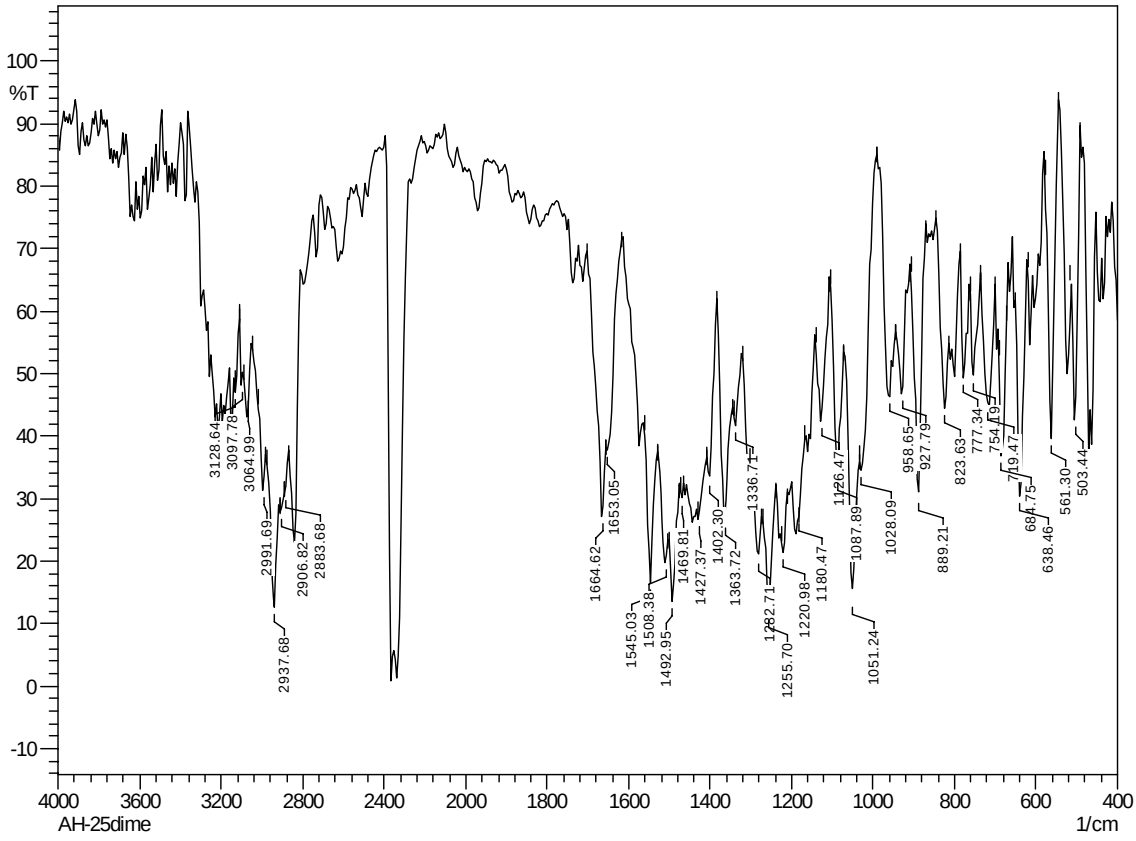

N
NH
H
N
N
O
O

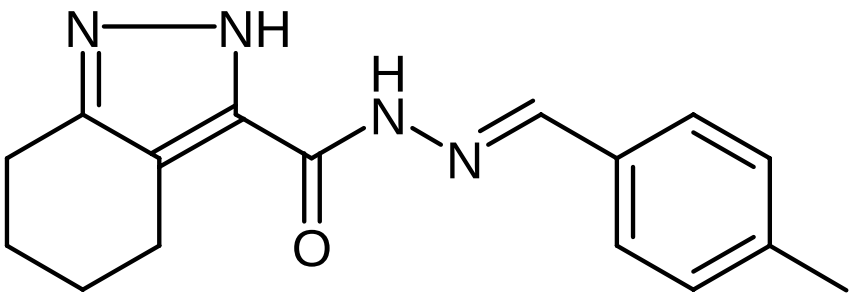

%T
130
120
110
100
90
80
70
60
50
40
30
20
10
3628.22
2989.76
2966.62
2943.47
2906.82
2839.31
2360.95
2339.73
2326.23
2033.04
1948.17
1905.73
1830.51
1786.14
1680.05
1627.97
1604.83
1508.38
1460.16
1321.28
1300.07
1251.84
1217.12
1172.76
1111.03
1026.16
864.14
835.21
640.39
590.24
499.58
472.58
453.29
4000
3600
3200
2800
2400
2000
1800
1600
1400
1200
1000
800
600
400
AH-4ome
1/cm

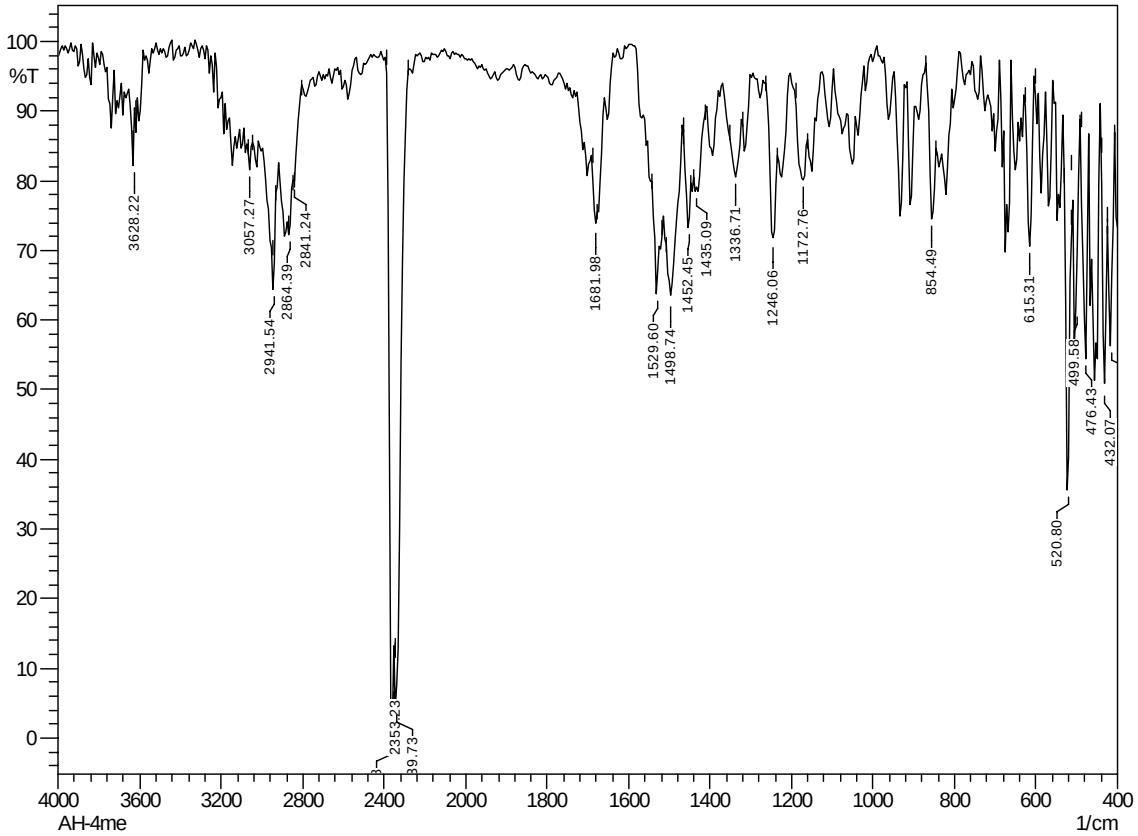

N
NH
H
N
N
O


%T
90
80
70
60
50
40
30
20
10
3626.29
3593.50
3554.93
3126.71
3068.85
3026.41
2989.76
2947.33
2933.83
2883.68
2852.81
1944.31
1666.55
1554.68
1516.10
1492.95
1448.59
1438.94
1400.37
1357.93
1330.93
1261.49
1236.41
1182.40
1161.19
1095.60
1064.74
1039.67
1026.16
939.96
906.57
844.85
777.34
709.83
630.74
495.72
470.65
410.85
4000
3600
3200
2800
2400
2000
1800
1600
1400
1200
1000
800
600
400
AH-H
1/cm


N
NH
H
N
N
O
O
O


100
%T
90
80
70
60
50
40
30
20
10
0
-10
4000
3600
3200
2800
2400
2000
1800
1600
1400
1200
1000
800
600
400
AH-25dime
1/cm
3128.64
3097.78
3064.99
2991.69
2937.68
2906.82
2883.68
1664.62
1653.05
1545.03
1508.38
1492.95
1469.81
1427.37
1402.30
1363.72
1336.71
1282.71
1255.70
1220.98
1180.47
1126.47
1087.89
1051.24
1028.09
958.65
927.79
889.21
823.63
777.34
754.19
719.47
684.75
638.46
561.30
503.44


N
NH
H
N
N
O


100
%T
90
80
70
60
50
40
30
20
10
0
3628.22
3057.27
2941.54
2864.39
2841.24
2353.23
2339.73
1681.98
1529.60
1498.74
1452.45
1435.09
1336.71
1246.06
1172.76
854.49
615.31
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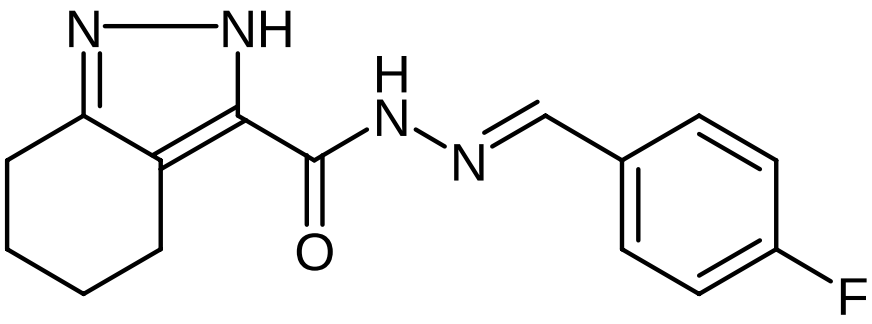
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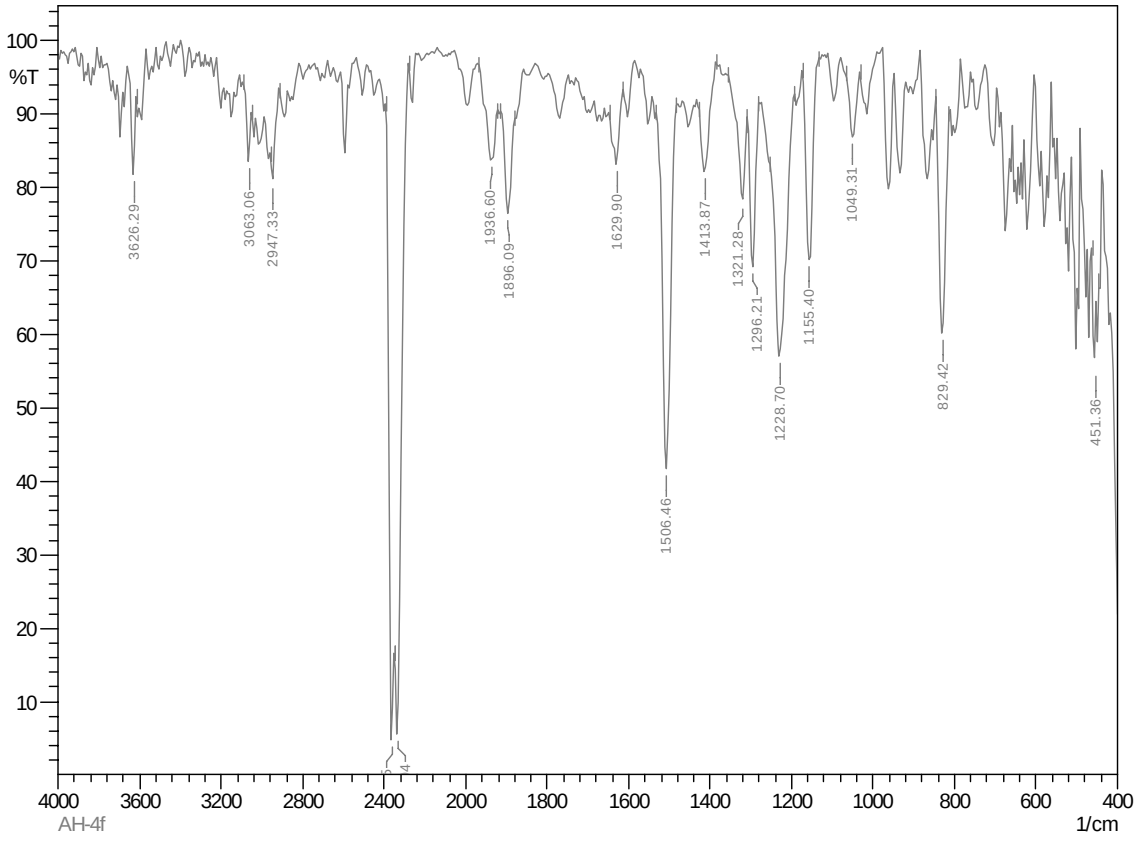
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AH-4f