Supporting Information

AIBN-initiated metal free amidation of aldehydes with *N*-chloroamines

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1. General Information:

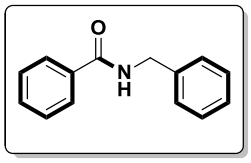
All the reagents were purchased from commercial suppliers and were distilled prior to use. The solvents used in the reactions were distilled and dried prior to use. Purification was done using silica gel column chromatography and reactions were monitored by using thin-layer chromatography (TLC) and visualized using UV light.^{1}H NMR and ^{13}C NMR were recorded on a JEOL FT-NMR spectrometer at 300 and 75.45 MHz using $CDCl_3$ solution and TMS as an internal standard. ^{1}H and ^{13}C shifts are given in ppm scale and are measured relative to tetramethylsilane as a standard (TMS). Coupling constants (*J* values) are given in Hz, and chemical shift multiplicities denoted by s (singlet), bs (broad singlet), d (doublet), dd (doublet of doublets), m (multiplet), q (quartet), and t (triplet).

2. General Experimental Procedure:

N-chlorosuccinimide (1.2 mmol) was added to a solution of amine (1 mmol) in 3 mL of acetonitrile and stirred at room temperature for 3 hours. To this solution, were added an aldehyde (0.5 mmol), AIBN (10 mol %) and TBHP (70% aq.) (4 equiv). The reaction mixture was stirred at 80 °C in an oil bath for 24h. Then the reaction was stopped and extracted with ethyl acetate (3 times). Combined organic layers were dried and evaporated under reduced pressure. The crude obtained was purified using silica gel column chromatography.

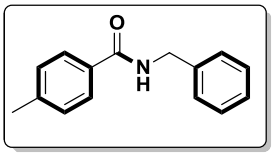
3. Characterization data of the products:

N-Benzylbenzamide (3a)[1]



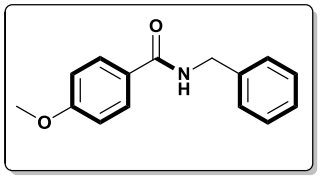
White solid**; ^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.79 (d, *J* = 7.2 Hz, 2H), 7.50-7.32 (m, 8H), 6.61 (bs, 1H), 4.62 (d, *J* = 5.7 Hz, 2H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 167.3, 138.2, 134.3, 131.5, 128.7, 128.5, 127.8, 127.5, 126.9, 44.0.

N-Benzyl-4-methylbenzamide (3b)[7]



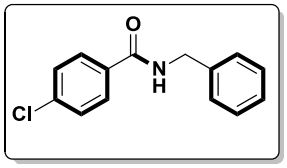
Yellow solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.78-7.65 (m, 2H), 7.36-7.12 (m, 7H), 6.93 (bs, 1H), 4.54 (d, *J* = 4.8 Hz, 2H), 2.34 (s, 3H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 167.4, 141.7, 138.3, 131.3, 129.0, 128.5, 127.6, 127.2, 126.9, 43.8, 21.2.

N-Benzyl-4-methoxybenzamide (3c)[5]



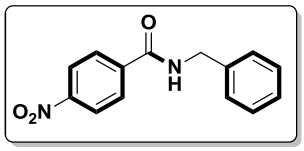
White solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.77 (d, *J* = 8.1 Hz, 2H), 7.34 (bs, 5H), 6.92 (d, *J* = 8.4 Hz, 2H), 6.36 (bs, 1H), 4.64 (d, *J* = 5.4 Hz, 2H), 3.84 (s, 3H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 166.8, 162.2, 138.4, 132.3, 128.7, 127.9, 127.5, 126.6, 113.7, 55.3, 44.1.

N-Benzyl-4-chlorobenzamide (3d)[7]



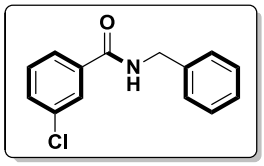
Yellow solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.69-7.60 (m, 2H), 7.33-7.28 (m, 7H), 6.48 (s, 1H), 4.52 (d, *J* = 4.8, 2H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 166.4, 138.0, 137.8, 131.5, 128.8, 128.4, 127.8, 127.6, 126.9, 44.3.

N-Benzyl-4-nitrobenzamide (3e)[2]



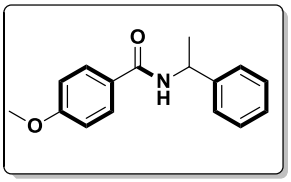
Yellow solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 8.27 (m, 2H), 7.95 (m, 2H), 7.35-7.26 (m, 5H), 6.64 (bs, 1H), 4.66 (d, J = 5.4, 2H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 165.3, 149.6, 139.9, 137.4, 128.9, 128.6, 128.2, 127.9, 123.8, 44.4.

N-Benzyl-3-chlorobenzamide (3f)[6]



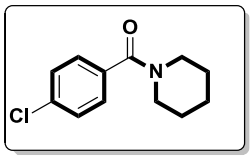
Yellow solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.79-7.76 (m, 1H), 7.66 -7.63 (m, 1H), 7.47-7.34 (m, 7H), 6.44 (bs, 1H), 4.63 (d, *J* = 5.4, 2H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 166.3, 138.0, 137.7, 132.7, 131.5, 131.0, 128.7, 128.4, 127.8, 127.6, 126.9, 44.1.

4-Methoxy-*N*-(1-phenylethyl)benzamide (3g)[13]



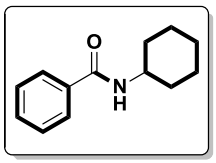
White solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.75-7.72 (m, 2H), 7.37-7.25 (m, 5Hz), 6.91 (d, *J* = 8.7 Hz, 2H) 5.34-5.29 (m, 1H), 3.83 (s, 3H), 1.60 (d, *J* = 6.9 Hz, 3H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 166.1, 162.1, 143.3, 128.7, 127.3, 126.8, 126.2, 113.7, 55.3, 49.2, 21.8.

(4-Chlorophenyl)(piperidin-1-yl)methanone (3h)[4]



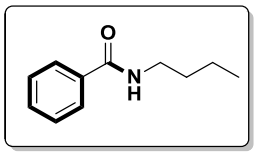
Yellow solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.39-7.31 (m, 4H), 3.68 (bs, 2H), 3.33 (bs, 2H), 1.76-1.44 (m, 6H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 169.2, 135.4, 134.8, 128.6, 128.4, 48.8, 43.3, 25.8, 25.6, 24.5.

N-Cyclohexylbenzamide (3i)[12]



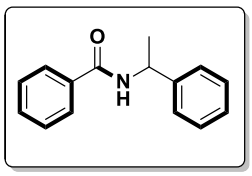
Yellow solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.76 (d, *J* = 6.8 Hz, 2H), 7.47-7.40 (m, 3H), 6.05 (bs, 1H), 3.99 (bs, 1H), 2.04-2.01 (m, 2H), 1.77-1.67 (m, 3H), 1.44-1.22 (m, 5H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 166.6, 135.1, 131.2, 128.4, 126.8, 48.6, 33.2, 25.5, 24.9.

N-Butylbenzamide (3j)[5]



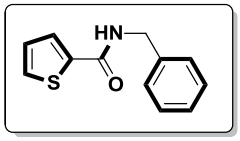
Yellow liquid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.77-7.74 (m, 2H), 7.47-7.38 (m, 3H), 6.32 (bs, 1H), 3.45 (dd, *J* = 6.6, 13.2 Hz, 2H), 1.62-1.54 (m, 2H), 1.44-1.34 (m, 2H), 0.95 (t, *J* = 7.2 Hz, 3H); **^{13}C NMR (CDCl3, 75 MHz):** δ 167.5, 134.8, 131.2, 128.4, 126.8, 39.8, 31.7, 20.1, 13.7.

N-(1-Phenylethyl)benzamide (3k)[3]



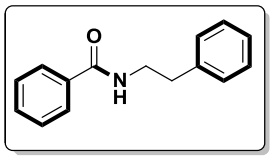
White solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.77-7.75 (m, 2H), 7.47-7.29 (m, 8H), 6.41 (bs, 1H), 5.35-5.30 (m, 1H), 1.60 (d, *J* = 6.6 Hz, 3H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 166.5, 143.1, 134.6, 131.4, 128.7, 128.5, 127.4, 126.9, 126.2, 49.1, 21.6.

N-Benzylthiophene-2-carboxamide (3l)[6]



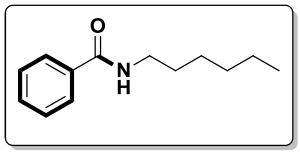
Yellow solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.52-7.25 (m, 7H), 7.06-7.03 (m, 1H), 6.43 (bs, 1H), 4.60 (d, *J* = 5.4, 2H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 161.8, 138.7, 138.0, 131.5, 130.0, 128.7, 128.5, 128.1, 127.9, 127.6, 126.9, 43.9**.**

N-Phenethylbenzamide (3m)[10]



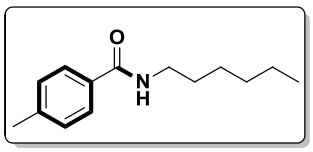
Yellow solid; **^{1}H NMR ($CDCl_3$, 300MHz):** δ 7.71-7.69 (m, 2H), 7.41-7.15 (m, 8H), 6.74 (bs, 1H), 3.68-3.61 (m, 2H), 2.88(t, *J* = 7.0 Hz, 2H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 167.6, 138.8, 134.4, 131.2, 128.6, 128.4, 128.3, 126.7, 126.3, 41.1, 35.5.

N-Hexylbenzamide (3n)[4]



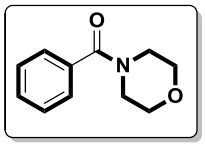
White solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.80-7.75 (m, 2H), 7.48-7.35 (m, 3H), 6.59 (bs, 1H), 3.44-3.37 (m, 2H), 1.61-1.56 (m, 2H), 1.33 (m, 6H), 0.93-0.86 (m, 3H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 167.5, 134.8, 131.1, 128.3, 126.8, 40.0, 31.4, 29.5, 26.6, 22.4, 13.9.

N-Hexyl-4-methylbenzamide (3o)[4]



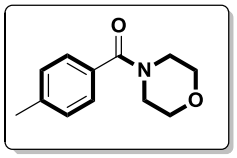
White solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.67 (d, *J* = 7.8 Hz, 2H), 7.22 (d, *J* = 7.8 Hz, 2H), 6.18 (bs, 1H), 3.51-3.40 (m, 2H), 2.38 (s, 3H), 1.60-1.57 (m, 2H), 1.32-1.18 (m, 6H), 0.91-0.87 (m, 3H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 167.5, 141.6, 132.0, 129.1, 126.8, 40.0, 31.5, 29.6, 26.6, 22.5, 21.4, 14.0.

Morpholino(phenyl)methanone (3p)[8]



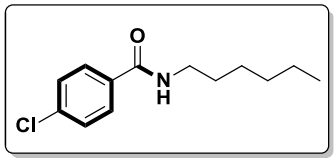
Yellow liquid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.58-7.36 (m, 5H), 3.7 (bs, 8H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 170.3, 135.2, 129.7, 128.4, 126.9, 66.7, 48.0, 42.5.

Morpholino(p-tolyl)methanone (3r)[8]



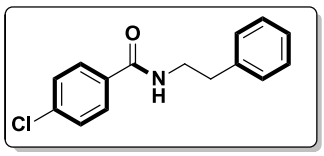
Yellow liquid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.31 (d, *J* = 7.8 Hz, 2H), 7.21 (d, *J* = 7.8 Hz, 2H), 3.68 (bs, 8H), 2.37 (s, 3H); **^{13}C NMR (CDCl3, 75 MHz):** δ 170.4, 139.9, 132.0, 128.9, 127.0, 66.6, 48.1, 42.4, 21.2.

4-Chloro-*N*-hexylbenzamide (3s)[4]



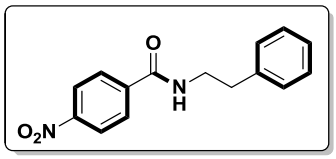
White solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.74-7.68 (m, 2H), 7.43-7.37 (m, 2H), 6.18 (bs, 1H), 3.46-3.39 (m, 2H), 1.71-1.55 (m, 2H), 1.33-1.25 (m, 6H), 0.89-0.87 (m, 3H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 166.4, 137.5, 133.2, 128.7, 128.3, 40.2, 31.5, 29.6, 26.6, 22.5, 14.0.

4-Chloro-*N*-phenethylbenzamide (3t)[9]



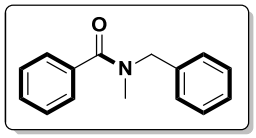
Yellow solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.69-7.60 (m, 2H), 7.47-7.21 (7H, m), 6.12 (bs, 1H), 3.74-3.67 (m, 2H), 2.93 (t, *J* = 6.9 Hz, 2H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 166.1, 138.7, 134.7, 131.4, 129.8, 128.7, 127.2, 126.6, 124.8, 41.2, 35.6.

4-Nitro-*N*-phenethylbenzamide (3u)[10]



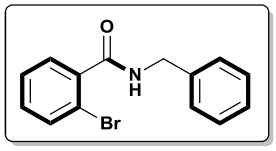
Yellow solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 8.24 (d, *J* = 8.4 Hz, 2H), 7.84 (d, *J* = 8.4 Hz, 2H), 7.35-7.21 (m, 5H), 6.40 (bs, 1H) 3.76-3.70 (m, 2H), 2.95 (t, *J* = 6.9 Hz, 2H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 165.4, 149.4, 140.1, 138.4, 128.7, 128.0, 126.7, 123.7, 41.3, 35.4.

N-Benzyl-*N*-methylbenzamide (3v)[11]



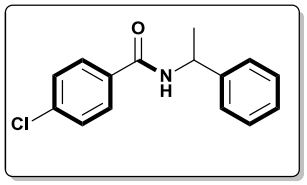
Yellow liquid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.35-7.05 (m, 10H), 4.65 (s, 1H), 4.38 (s, 1H), 2.91 (s, 1.5H), 2.72 (s, 1.5H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 171.5, 170.9, 136.5, 136.1, 135.7, 129.0, 128.4, 128.2, 127.8, 127.5, 127.2, 126.9, 126.3, 54.4, 50.1, 36.3, 32.5.

N-Benzyl-2-bromobenzamide (3y)[14]



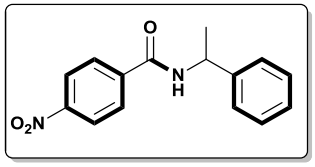
Yellow solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.58 (d, *J* = 7.8 Hz, 1H), 7.5-7.22 (m, 8H), 6.47 (bs, 1H), 4.60 (d, *J* = 5.7 Hz, 2H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 167.5, 137.6, 137.6, 133.2, 131.1, 129.4, 128.6, 128.4, 127.9, 127.4, 119.2, 44.0.

4-Chloro-*N*-(1-phenylethyl)benzamide (3z)[15]



White solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 7.77-7.74 (m, 2H), 7.38-7.25 (m, 7H), 6.40 (bs, 1H), 5.34-5.25 (m, 1H), 1.60 (d, *J* = 7.2 Hz, 3H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 165.5, 142.9, 137.7, 132.9, 128.8, 128.4, 127.5, 126.2, 49.3, 21.6.

4-Nitro-*N*-(1-phenylethyl)benzamide (3ab)[16]



Yellow solid; **^{1}H NMR ($CDCl_3$, 300 MHz):** δ 8.23 (d, *J* = 8.7 Hz, 2H), 7.91 (d, *J* = 8.4 Hz, 2H) 7.37-7.26 (m, 7H), 6.61 (bs, 1H), 5.35-5.26 (m, 1H), 1.63 (d, *J* = 7.2 Hz, 3H); **^{13}C NMR ($CDCl_3$, 75 MHz):** δ 164.6, 149.5, 142.4, 140.1, 128.8, 128.1, 127.7, 126.2, 123.7, 49.7, 21.5.

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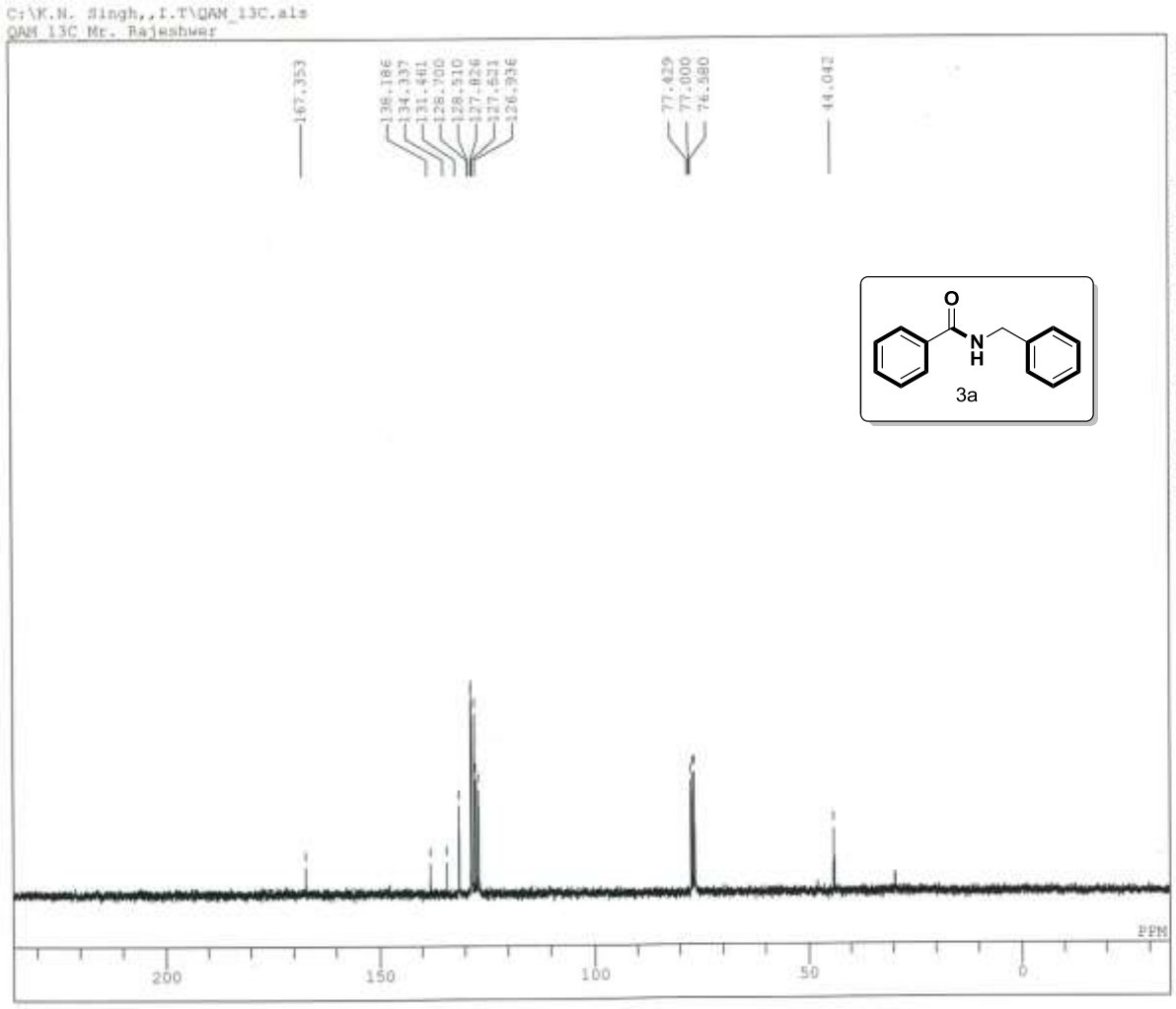
5. Copies of ^{1}H-NMR & ^{13}C- NMR of the products

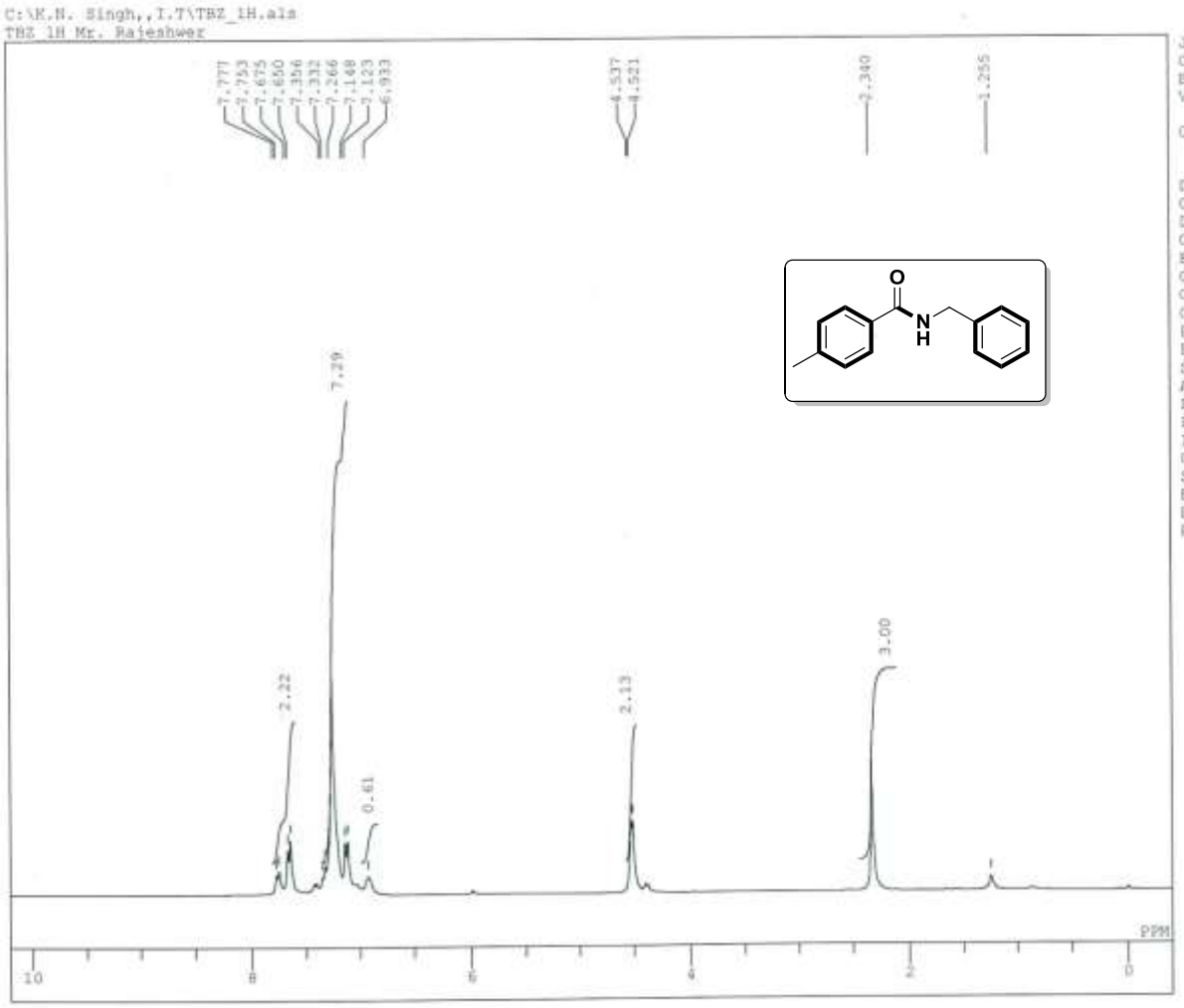
3a

JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005

Operator : Nagendra Kumar
Shishir Singh

DFILE	C:\K.N. Singh,,I.T\QAM_
COMNT	QAM 1H Mr. Rajeshwer
DATIM	Fri Jun 14 15:40:42 20
OBNUC	1H
EXMOD	NON
OBFRQ	300.40 MHz
OBSET	130.00 KHz
OBFIN	1150.0 Hz
POINT	32768
FREQU	9505.7 Hz
SCANS	16
ACQTM	3.447 sec
PD	1.547 sec
PW1	5.2 us
IRNUC	1H
CTEMP	23.7 c
SLVNT	CDCL3
EXREF	0.00 ppm
BF	1.80 Hz
RGAIN	15

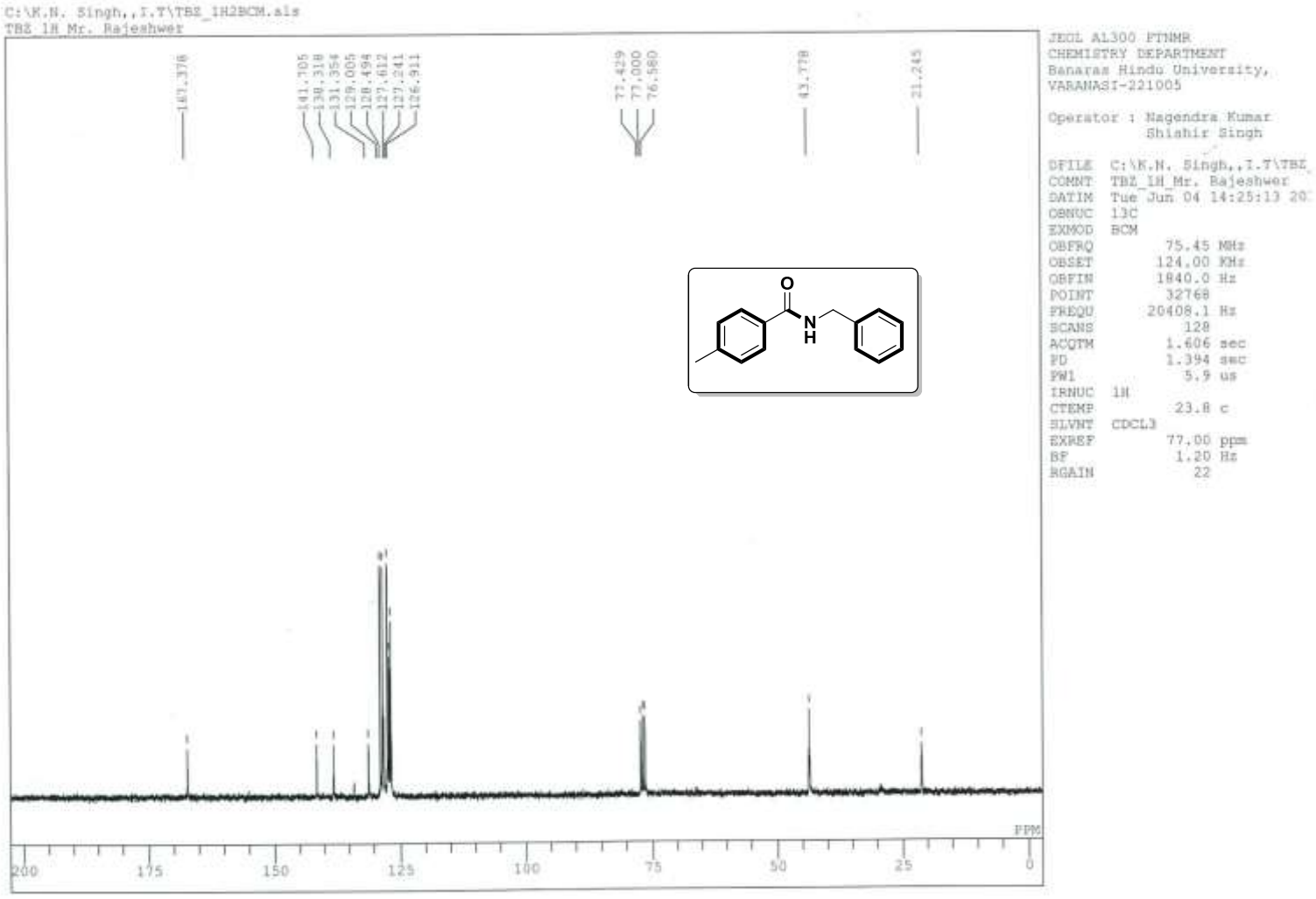

C:\K.N. Singh,,I.T\QAM_13C.als
QAM_13C_Mr. Rajeshwer
167.353
136.186
134.337
131.461
128.700
128.510
127.826
127.621
126.936
77.429
77.000
76.580
44.042
O
N
H
3a
PPM
200
150
100
50
0
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\QAM_
COMNT QAM_13C_Mr. Rajeshwer
DATIM Fri Jun 14 15:52:59 20
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 152
ACQTM 1.606 sec
PD 1.394 sec
PW1 5.9 us
IRNUC 1H
CTEMP 27.3 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 24

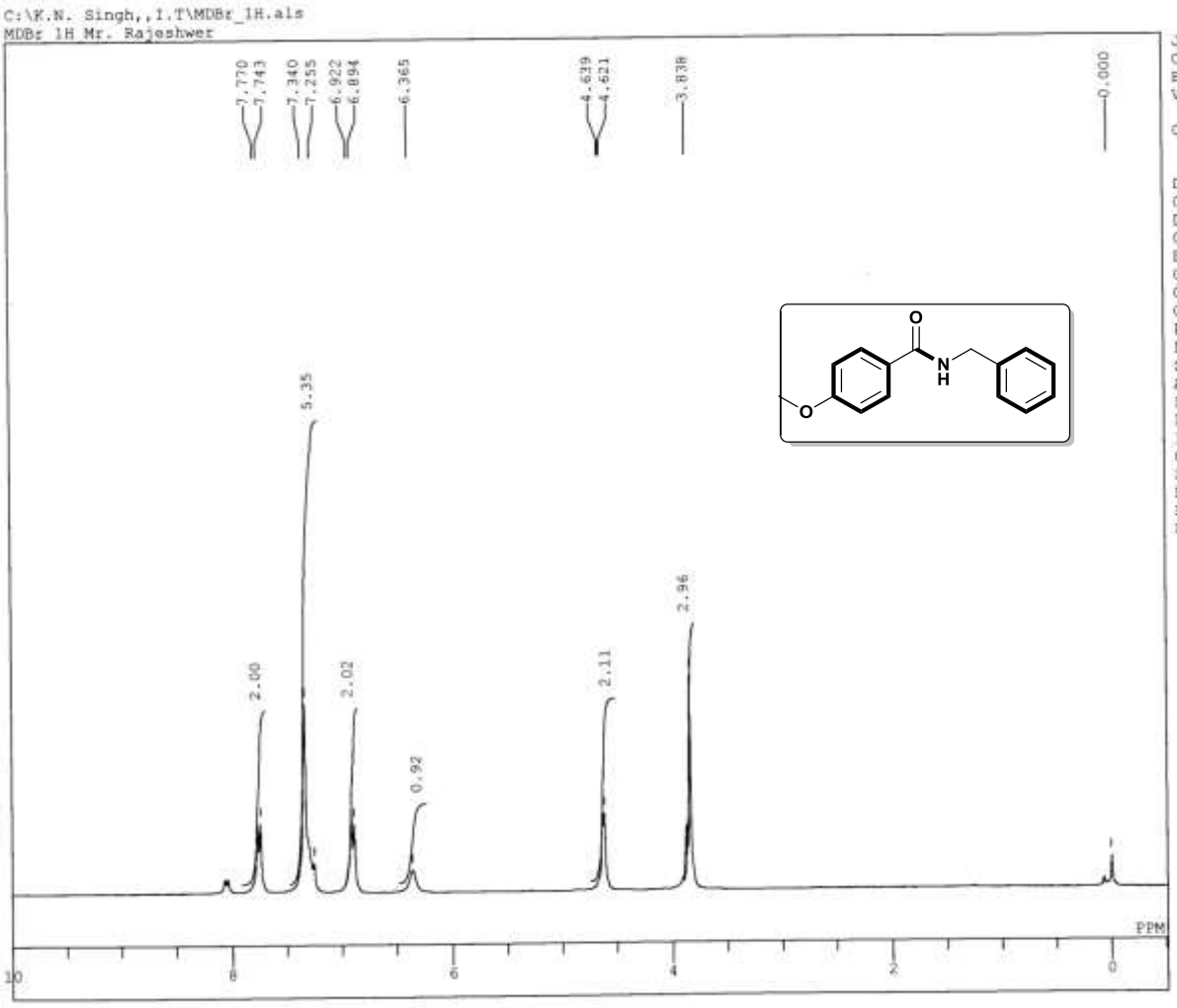


JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005

Operator : Nagendra Kumar
Shishir Singh

DFILE	C:\K.N. Singh,,I.T\TBZ_
COMNT	TBZ_1H_Mr. Rajeshwer
DATIM	Tue Jun 04 14:18:29 20
OBNUC	1H
EXMOD	NON
OBFRQ	300.40 MHz
OBSET	130.00 KHz
OBFIN	1150.0 Hz
POINT	32768
FREQU	6016.8 Hz
SCANS	16
ACQTM	5.446 sec
PD	1.547 sec
PW1	5.6 us
IRNUC	1H
CTEMP	22.0 c
SLVNT	CDCL3
EXREF	0.00 ppm
BF	1.20 Hz
RGAIN	10

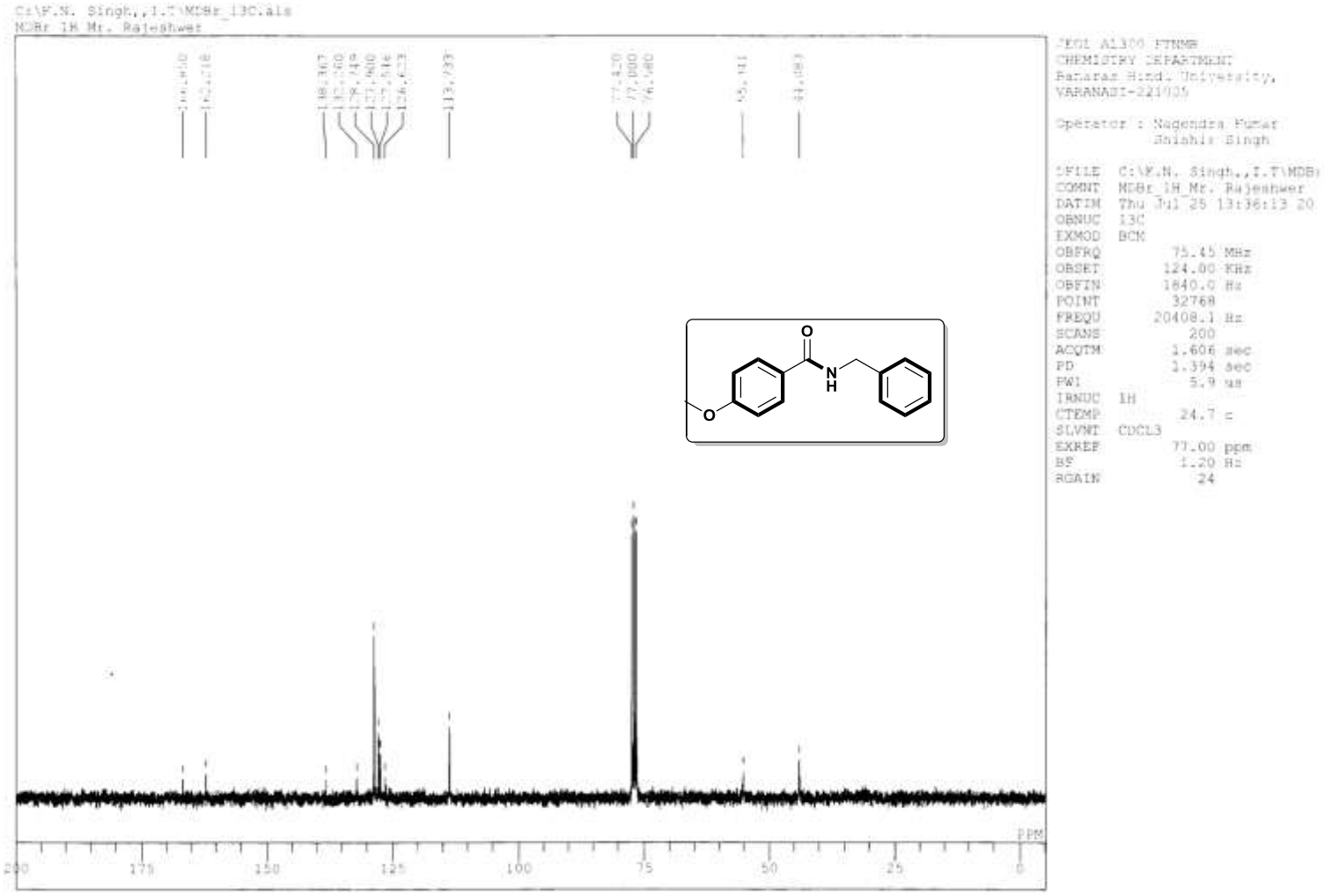

C:\K.N. Singh,,I.7\TBZ_1H2BCM.als
TBZ_1H_Mr. Rajeshwer
167.376
141.705
138.318
131.354
129.005
128.494
127.612
127.241
126.941
77.429
77.000
76.580
43.778
21.245
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.7\TBZ_
COMNT TBZ_1H_Mr. Rajeshwer
DATIM Tue Jun 04 14:25:13 20
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 128
ACQTM 1.606 sec
PD 1.394 sec
PW1 5.9 us
IRNUC 1H
CTEMP 23.8 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 22
O
N
H
PPM
200
175
150
125
100
75
50
25
0




```
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005

Operator : Nagendra Kumar
           Shishir Singh

DFILE  C:\K.N. Singh,,I.T\MDBr
COMNT  MDBr 1H Mr. Rajeshwer
DATIM  Thu Jul 25 13:25:51 20
OBNUC  1H
EXMOD  NON
OBFRQ        300.40 MHz
OBSET        130.00 KHz
OBFIN        1150.0 Hz
POINT         32768
FREQU        6016.8 Hz
SCANS           16
ACQTM         5.446 sec
PD            1.547 sec
PW1             5.6 us
IRNUC  1H
CTEMP          22.4 c
SLVNT  CDCL3
EXREF          0.00 ppm
BF             1.20 Hz
RGAIN            18
```

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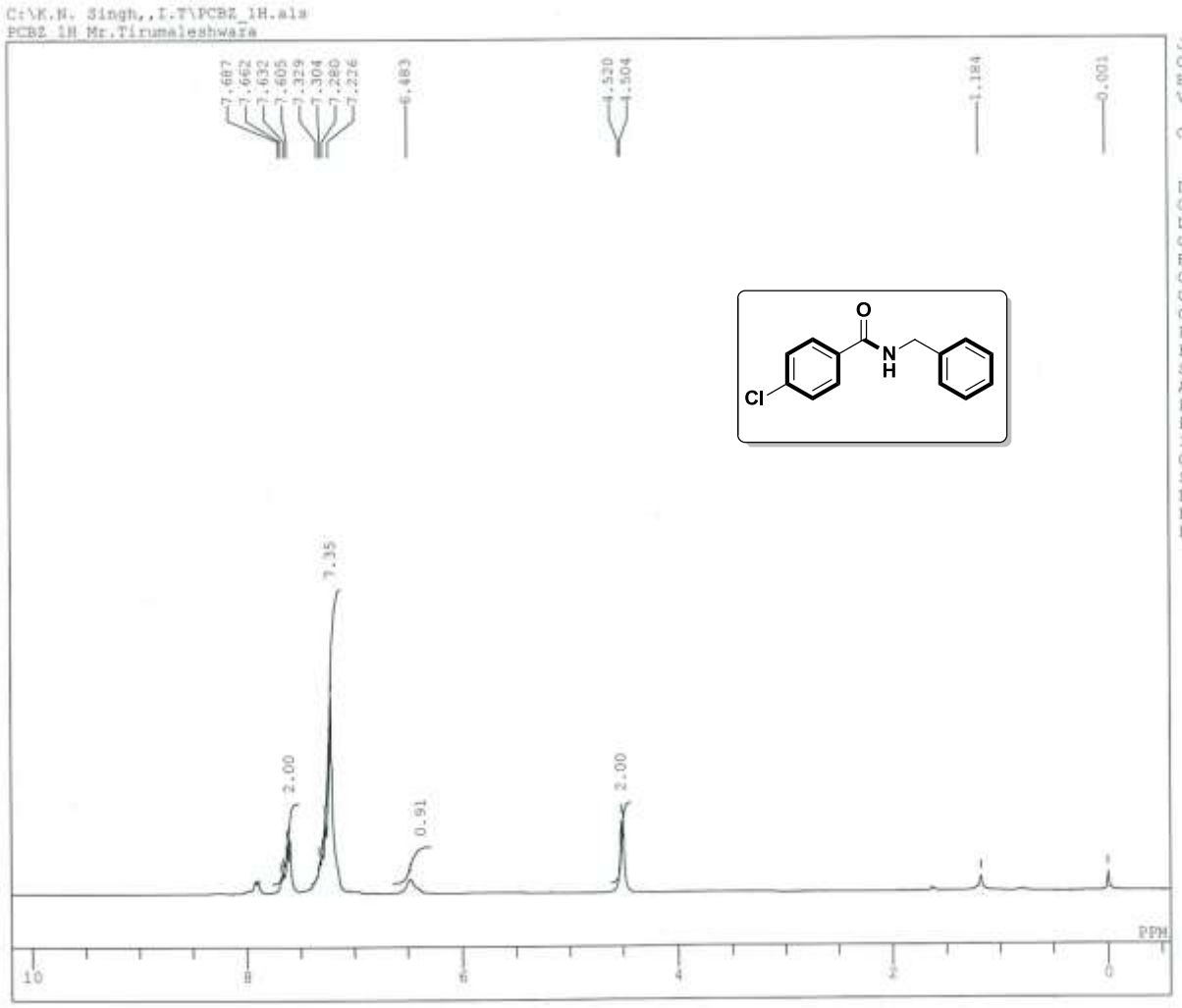
JEOL ALS00 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005

Operator : Nagendra Kumar
           Anishi Singh

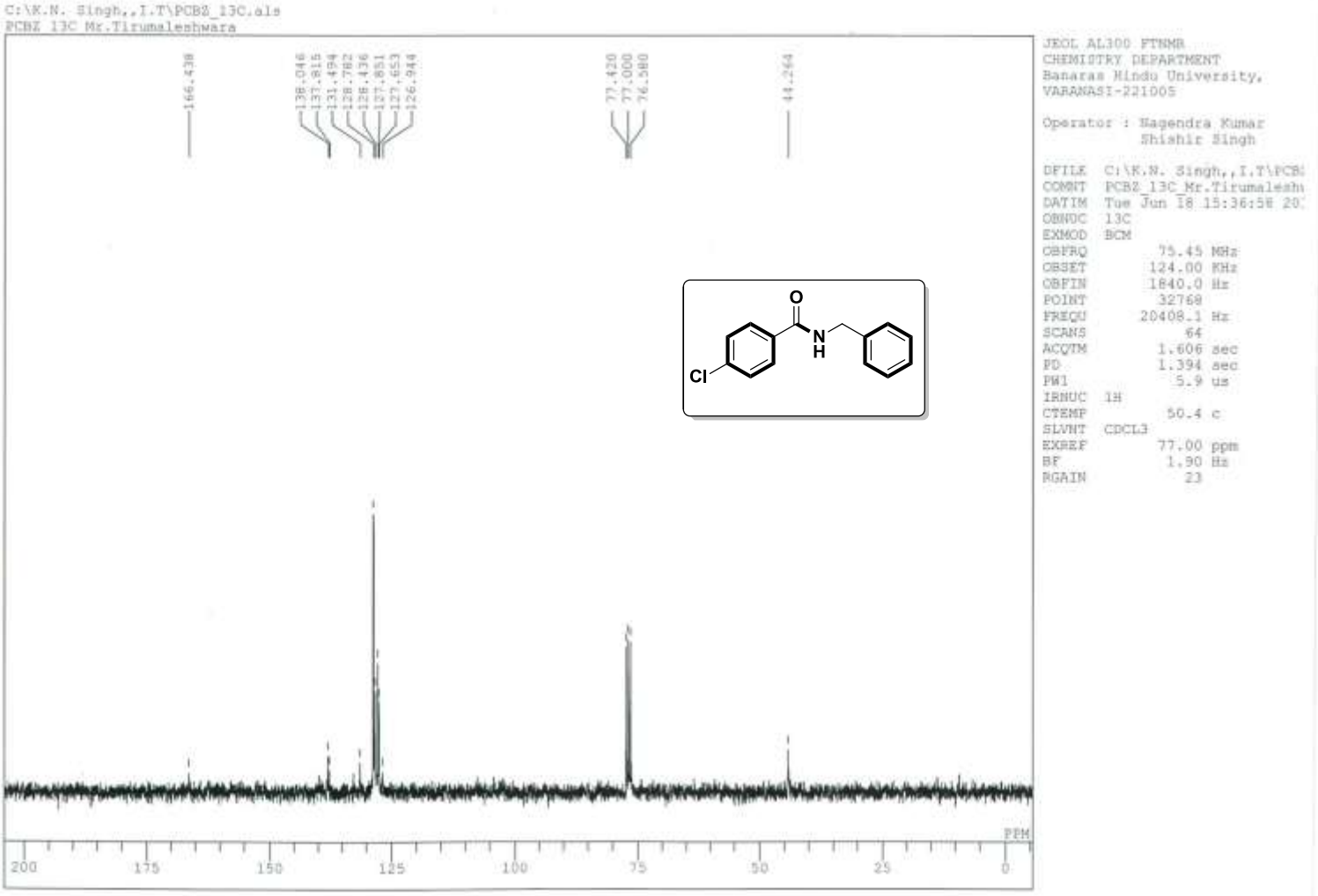
SFILE  C:\F.N. Singh,,I.T\MDBr
COMNT  MDBr 1H Mr. Rajeshwar
DATIM  Thu Jul 25 13:36:13 20
OBNUC  13C
EXMOD  BCM
OBFRQ        75.45 MHz
OBSET       124.00 KHz
OBFIN      1840.0 Hz
POINT       32768
FREQU      20408.1 Hz
SCANS         200
ACQTM        1.606 sec
PD           1.394 sec
PW1            5.9 us
IRNUC  1H
CTEMP         24.7 c
SLVNT  CDCL3
EXREF        77.00 ppm
BF             1.20 Hz
RGAIN           24
```

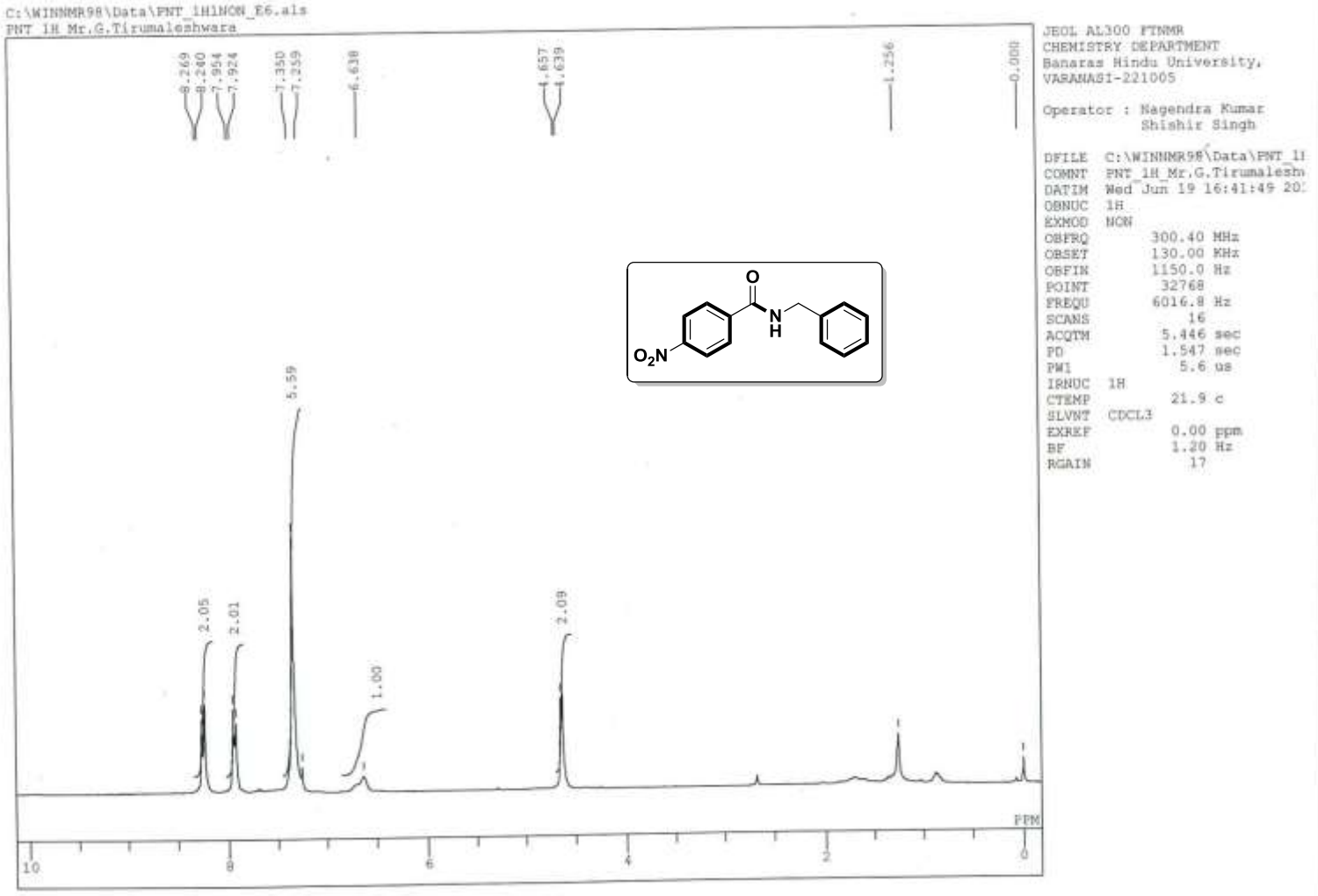


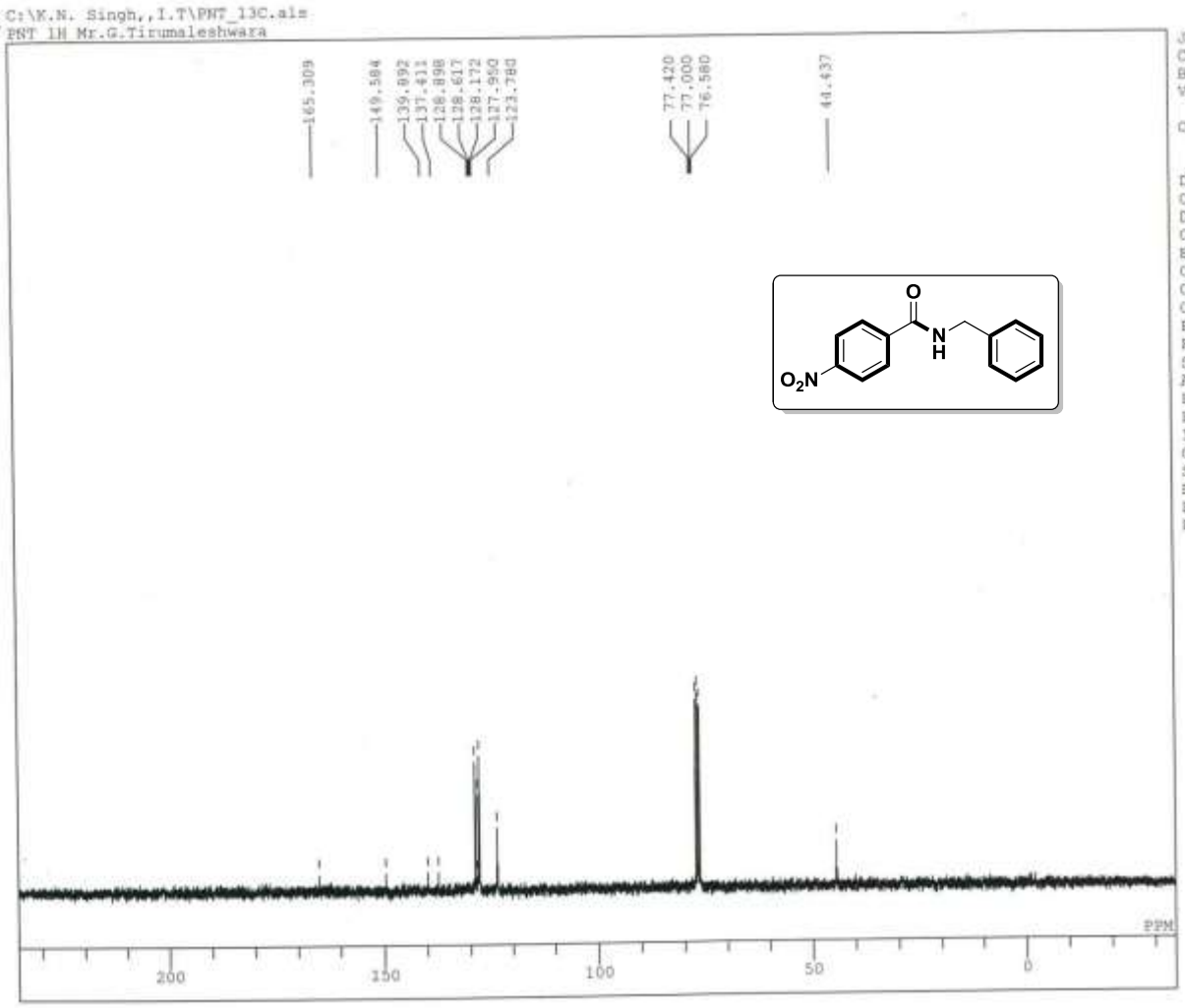

```
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005

Operator : Nagendra Kumar
           Shishir Singh

DFILE  C:\K.N. Singh,,I.T\PCBZ
COMNT  PCBZ_1H_Mr.Tirumaleshwa
DATIM  Tue Jun 18 15:39:00 201
OBNUC  1H
EXMOD  NON
OBFRQ        300.40 MHz
OBSET        130.00 KHz
OBFIN        1150.0 Hz
POINT         32768
FREQU        9505.7 Hz
SCANS            8
ACQTM         3.447 sec
PD            1.547 sec
PW1             5.2 us
IRNUC  1H
CTEMP          50.3 c
SLVNT  CDCL3
EXREF          0.00 ppm
BF             1.90 Hz
RGAIN            14
```


C:\K.N. Singh,,I.T\PCBZ_13C.als
PCBZ 13C Mr.Tirumaleshwara
166.438
138.046
137.815
131.494
128.762
128.436
127.851
127.653
126.944
77.420
77.000
76.580
44.264
O
N
H
Cl
PPM
200
175
150
125
100
75
50
25
0
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\PCB
COMNT PCBZ_13C_Mr.Tirumalesh
DATIM Tue Jun 18 15:36:58 20
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 64
ACQTM 1.606 sec
PD 1.394 sec
PW1 5.9 us
IRNUC 1H
CTEMP 50.4 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.90 Hz
RGAIN 23

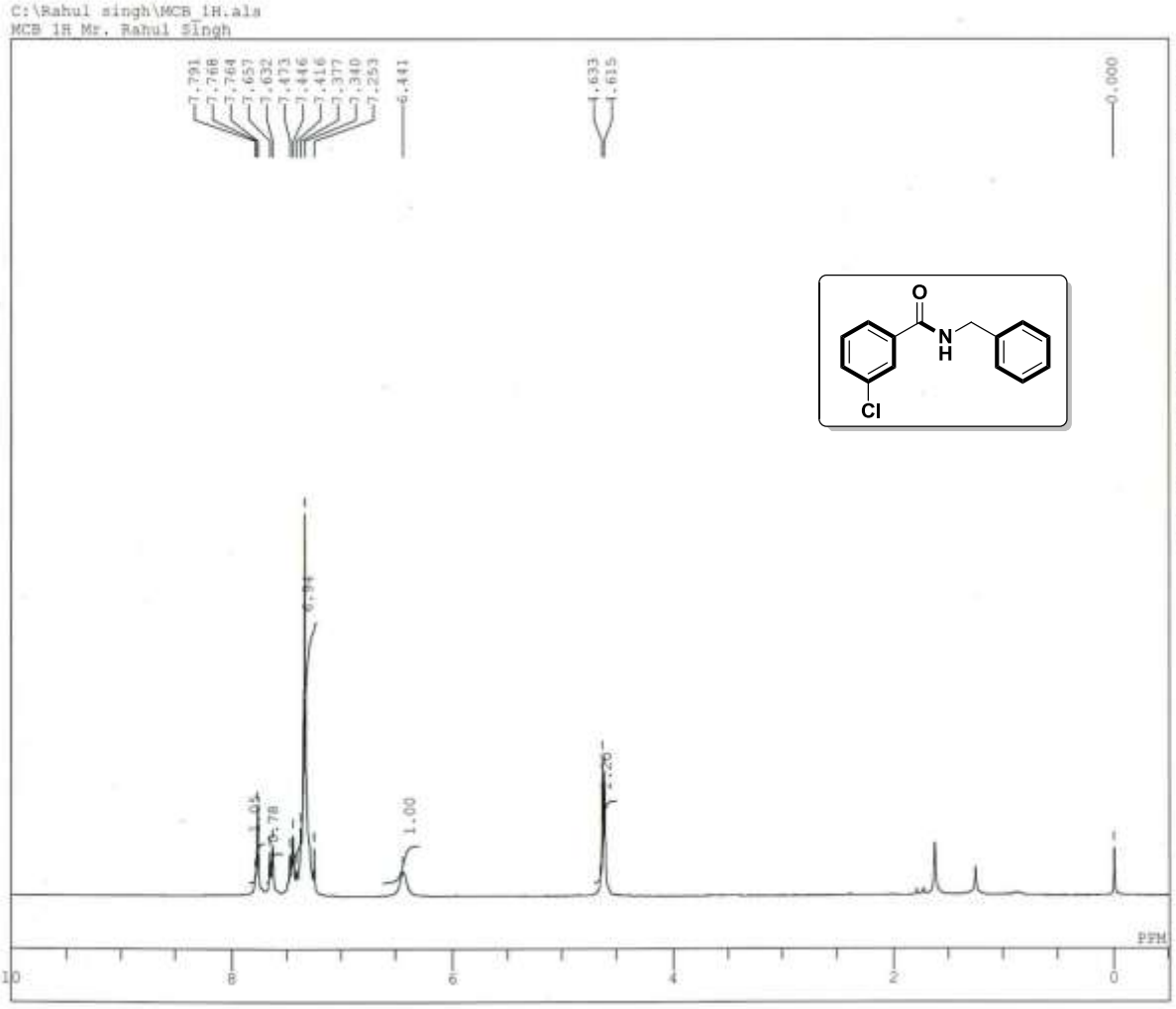

C:\WINNMR98\Data\PNT_1H1NON_E6.als
PNT 1H Mr.G.Tirumaleshwara
8.269
8.240
7.954
7.924
7.350
7.339
6.638
4.657
4.639
1.256
0.000
5.59
2.05
2.01
1.00
2.09
PPM
10
8
6
4
2
0
O
N
H
O2N
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\WINNMR98\Data\PNT_1H
COMNT PNT 1H Mr.G.Tirumaleshw
DATIM Wed Jun 19 16:41:49 20
OBNUC 1H
EXMOD NON
OBFRQ 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQU 6016.8 Hz
SCANS 16
ACQTM 5.446 sec
PD 1.547 sec
PW1 5.6 us
IRNUC 1H
CTEMP 21.9 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 1.20 Hz
RGAIN 17




```
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005

Operator : Nagendra Kumar
           Shishir Singh

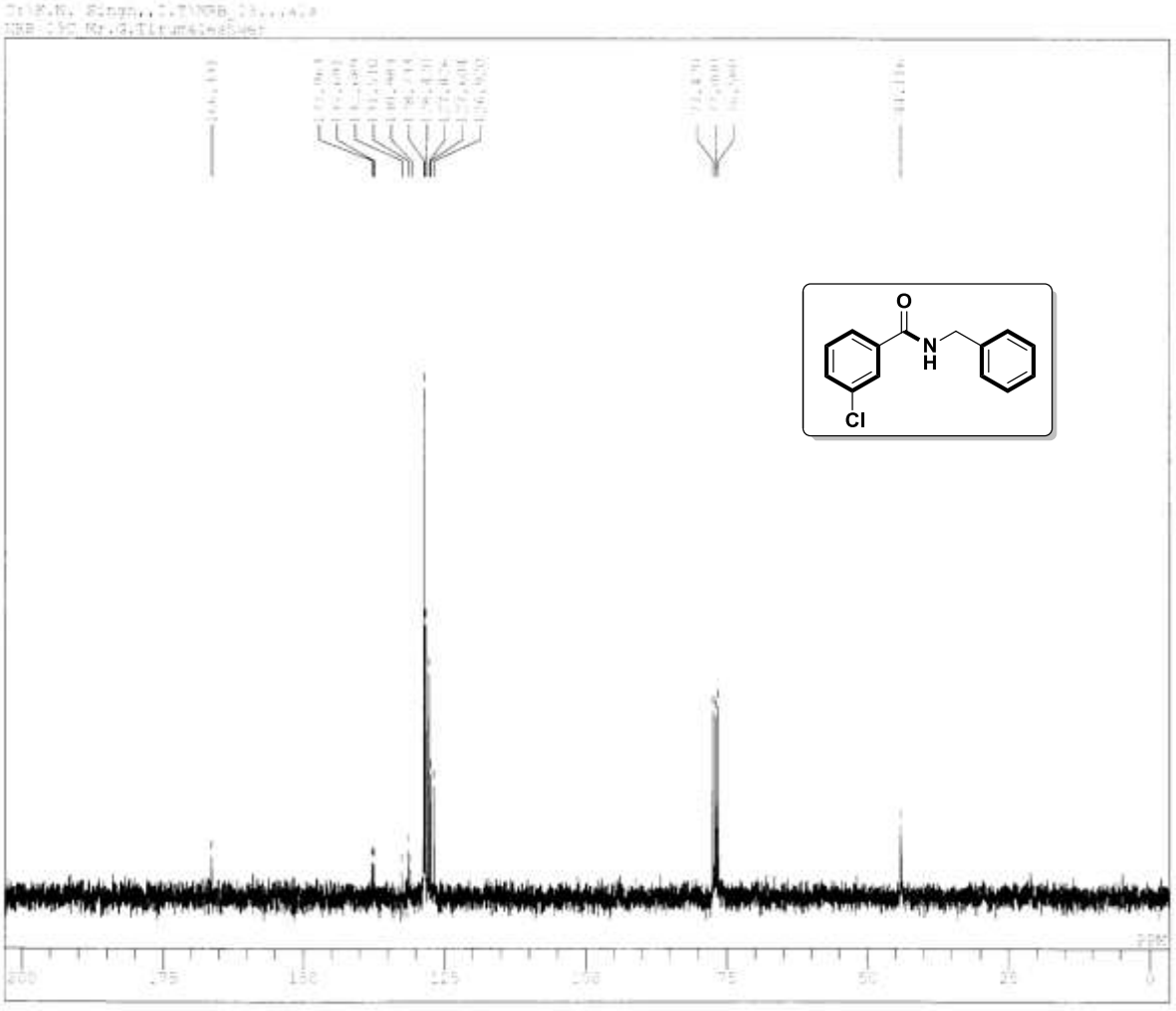
DFILE   C:\K.N. Singh,,I.T\PNT_
COMNT   PNT_1H_Mr.G.Tirumaleshi
DATIM   Wed Jun 19 16:52:11 20
OBNUC   13C
EXMOD   BCM
OBFRQ         75.45 MHz
OBSET        124.00 KHz
OBFIN        1840.0 Hz
POINT         32768
FREQU       20408.1 Hz
SCANS           200
ACQTM         1.606 sec
PD            1.394 sec
PW1             5.9 us
IRNUC   1H
CTEMP          23.9 c
SLVNT   CDCL3
EXREF         77.00 ppm
BF             1.20 Hz
RGAIN            24
```

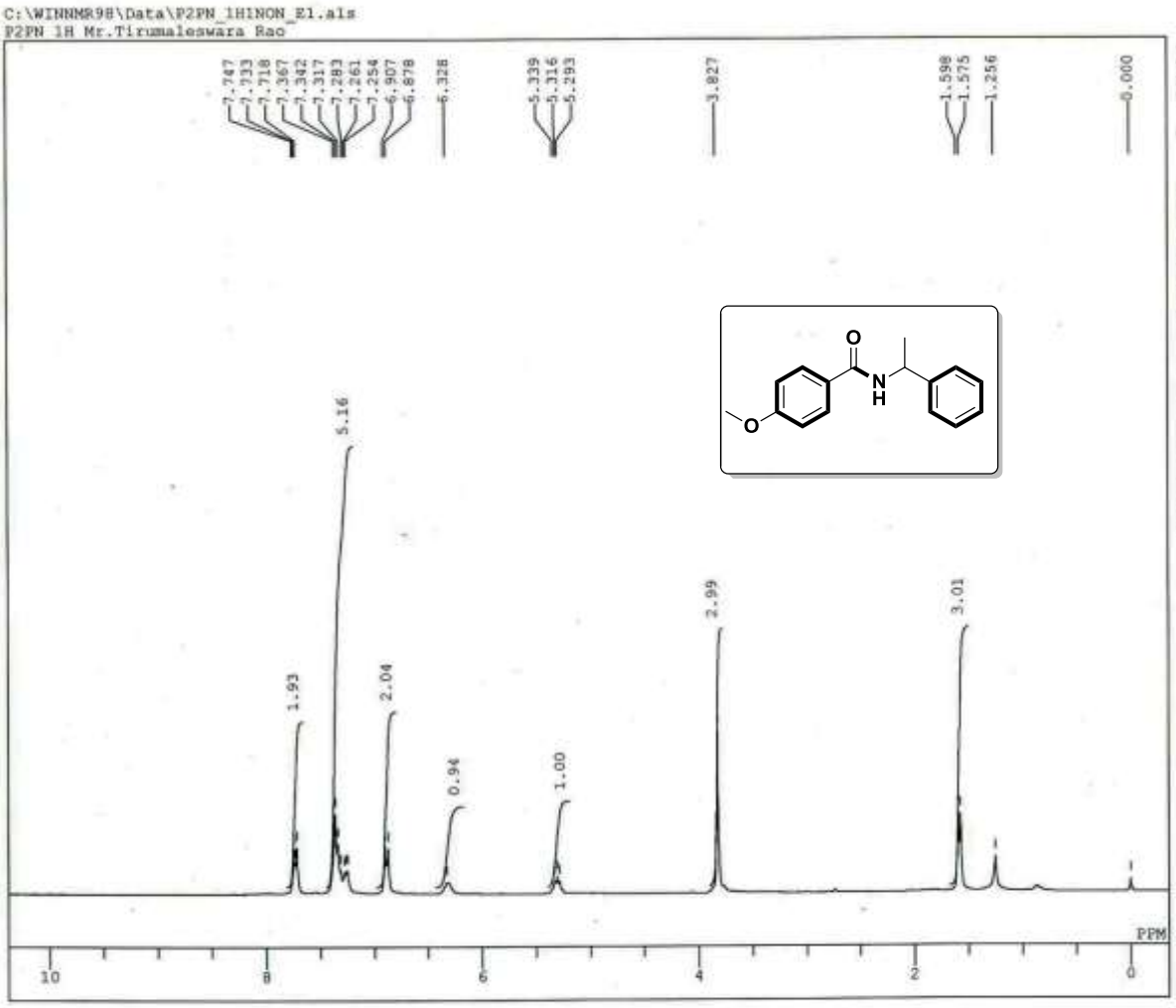


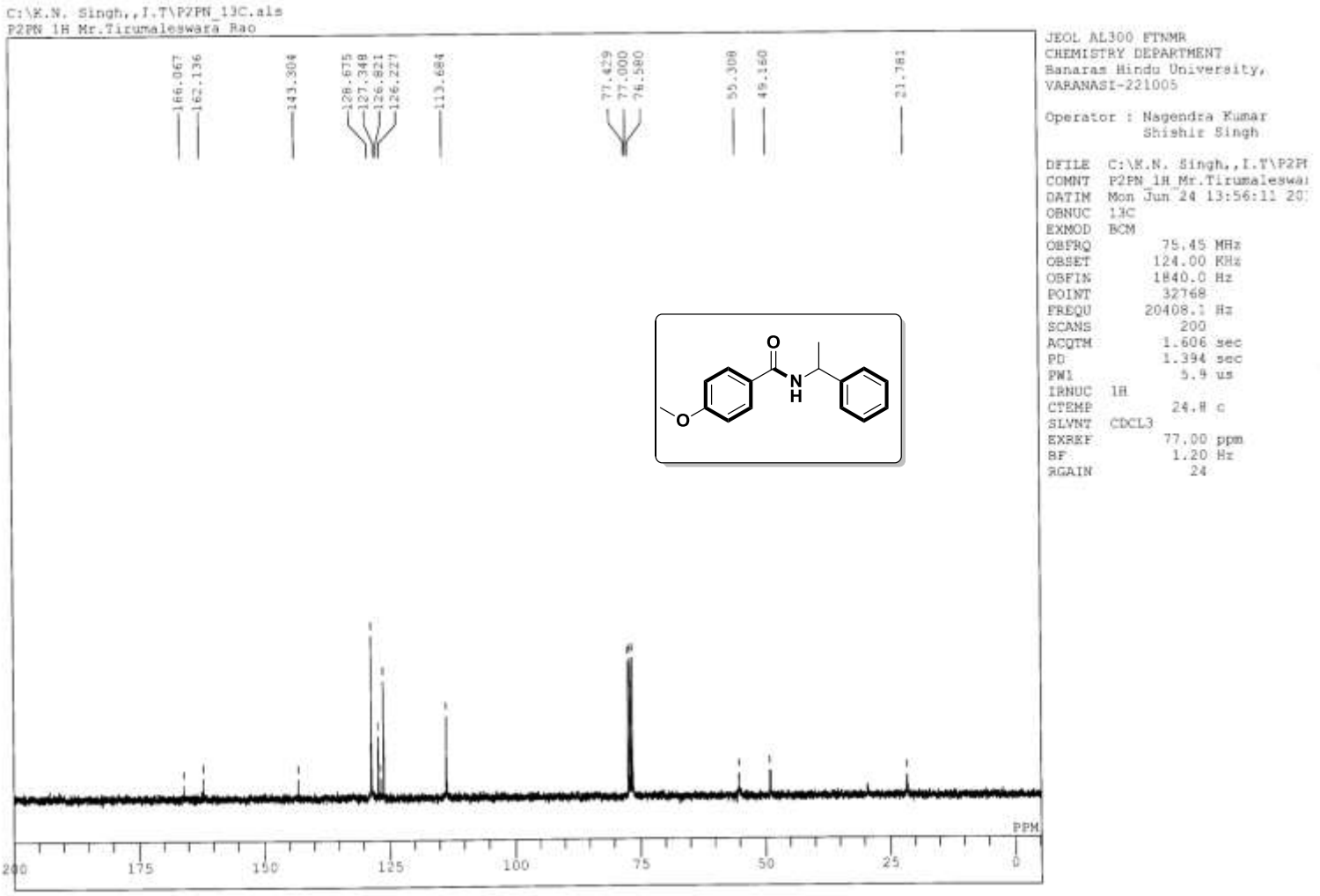
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005

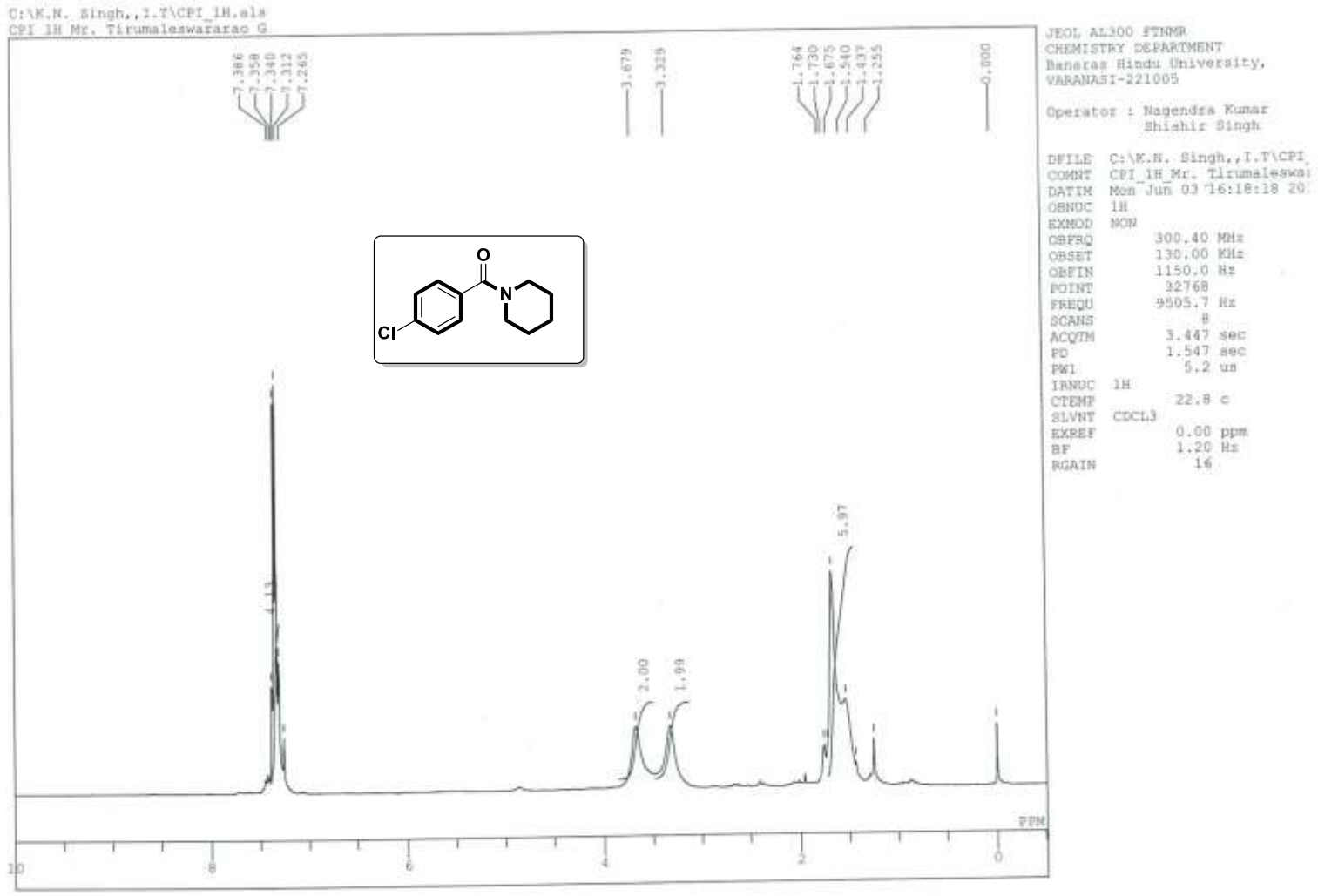
Operator : Nagendra Kumar
Shishir Singh

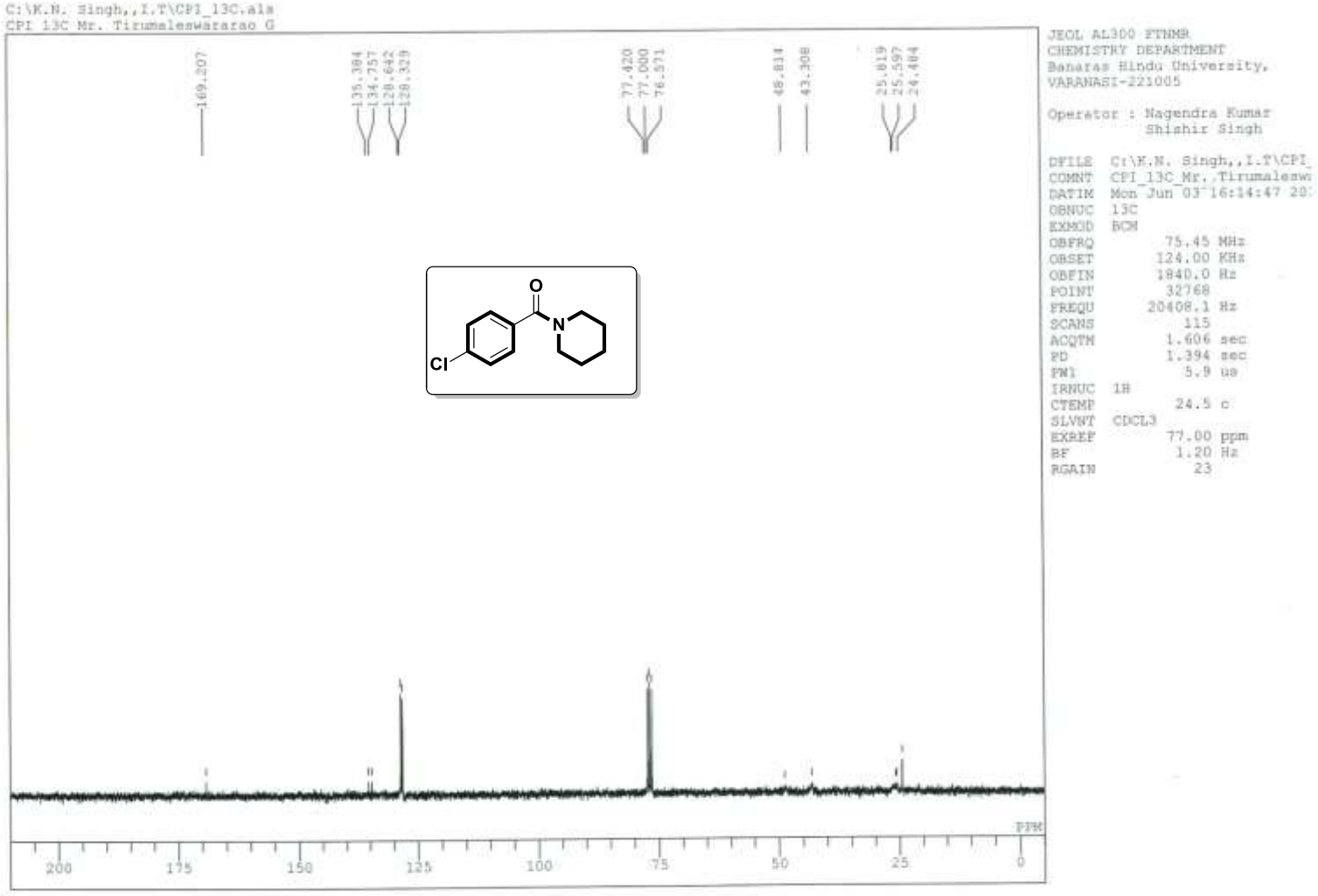
DFILE	C:\Rahul singh\MCB_1H.a
COMNT	MCB_1H_Mr. Rahul Singh
DATIM	Wed May 29 16:45:38 20
OBNUC	1H
EXMOD	NON
OBFRQ	300.40 MHz
OBSET	130.00 KHz
OBFIN	1150.0 Hz
POINT	32768
FREQU	9505.7 Hz
SCANS	21
ACQTM	3.447 sec
PD	1.547 sec
PW1	5.2 us
IRNUC	1H
CTEMP	22.8 c
SLVNT	CDCL3
EXREF	0.00 ppm
BF	1.20 Hz
RGAIN	18

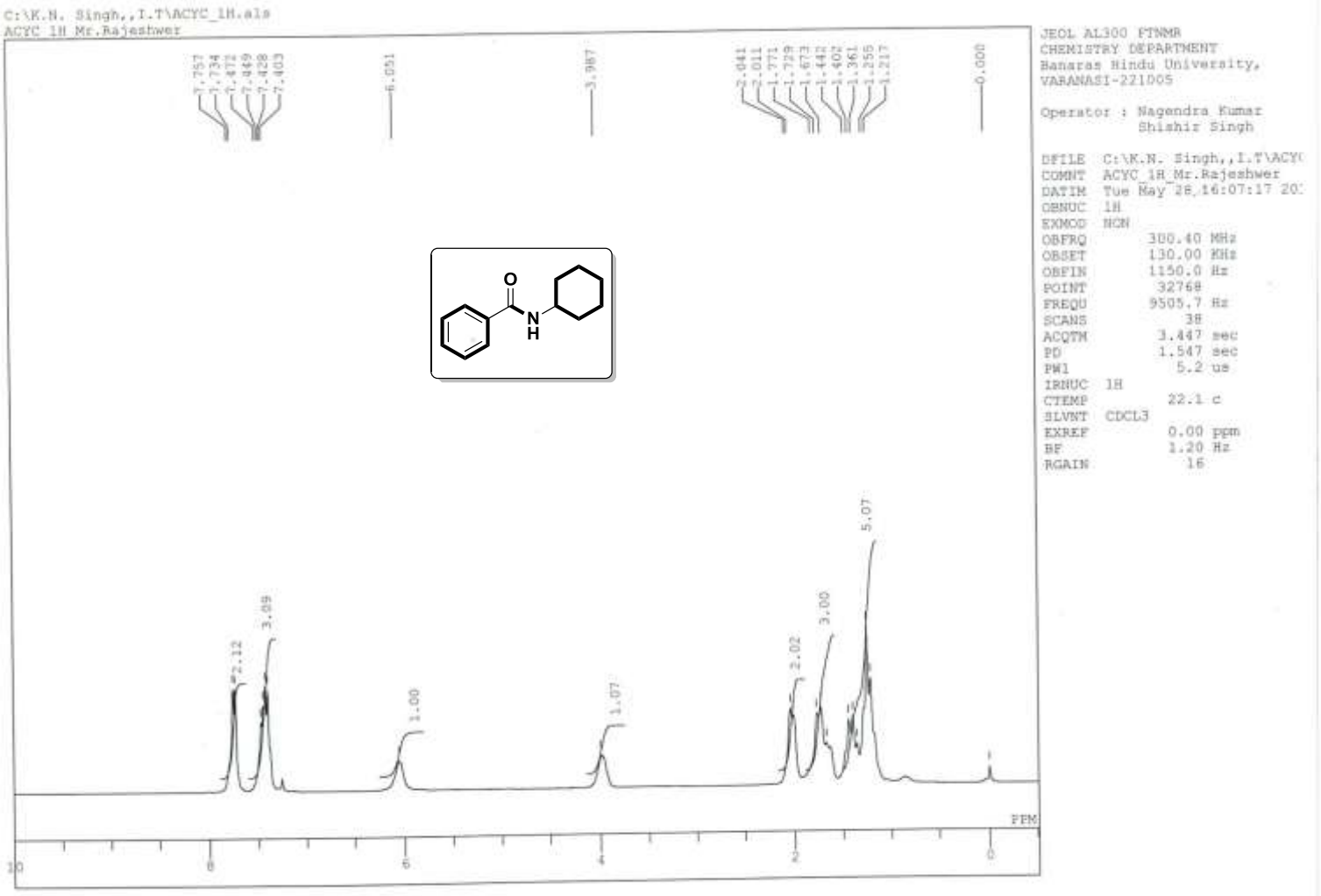

O
N
H
Cl

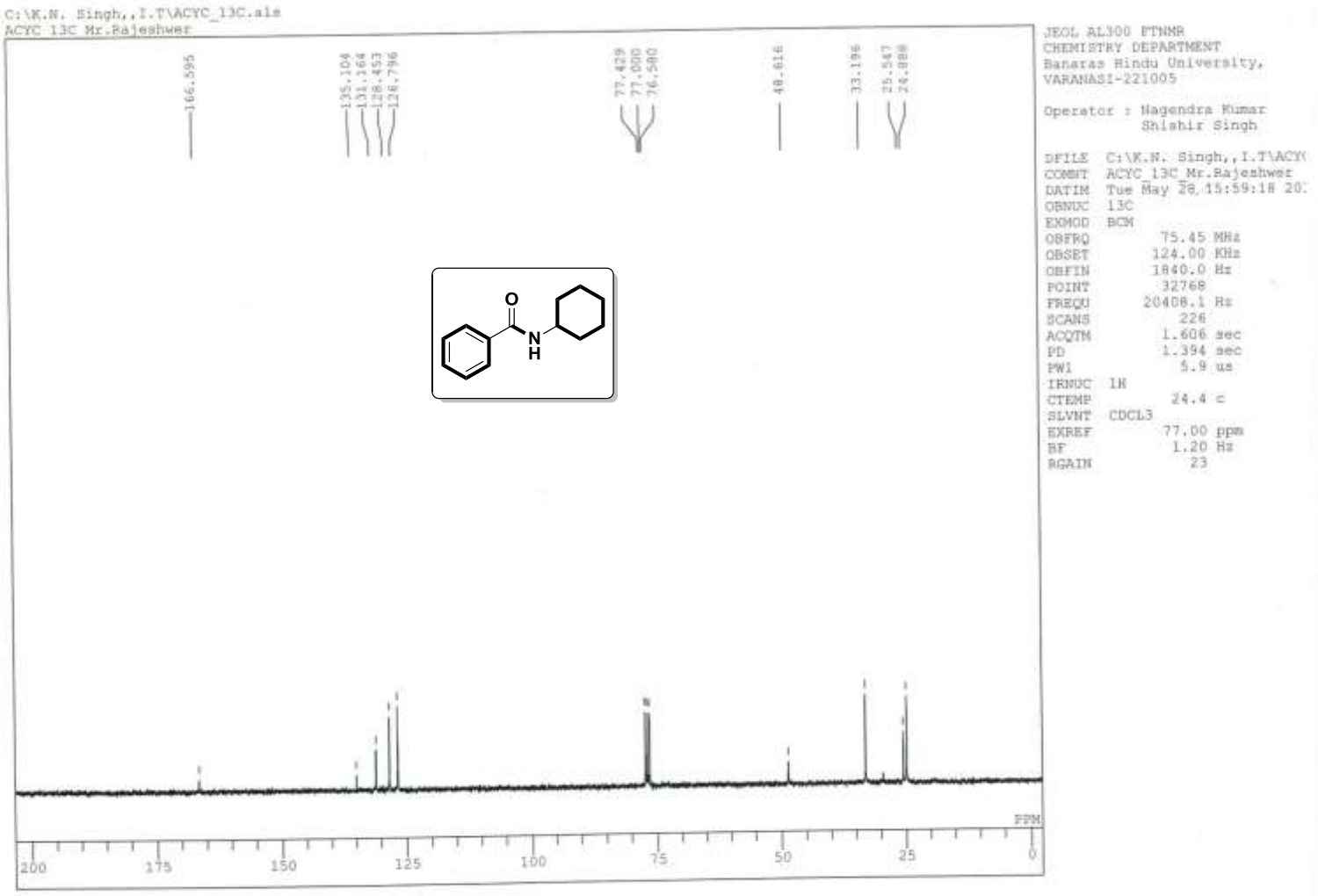

C:\WINNMR98\Data\P2PN_1H1NON_E1.als
P2PN 1H Mr.Tirumaleswara Rao
7.747
7.733
7.718
7.367
7.342
7.317
7.283
7.261
7.254
6.907
6.878
6.328
5.339
5.316
5.293
3.827
1.598
1.575
1.256
0.000
5.16
1.93
2.04
0.94
1.00
2.99
3.01
PPM
10
8
6
4
2
0
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\WINNMR98\Data\P2PN_
COMNT P2PN_1H_Mr.Tirumaleswa
DATIM Mon Jun 24_13:45:49 20
OBNUC 1H
EXMOD NON
OBFRQ 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQU 6016.8 Hz
SCANS 16
ACQTM 5.446 sec
PD 1.547 sec
PW1 5.6 us
IRNUC 1H
CTEMP 22.6 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 1.20 Hz
RGAIN 16

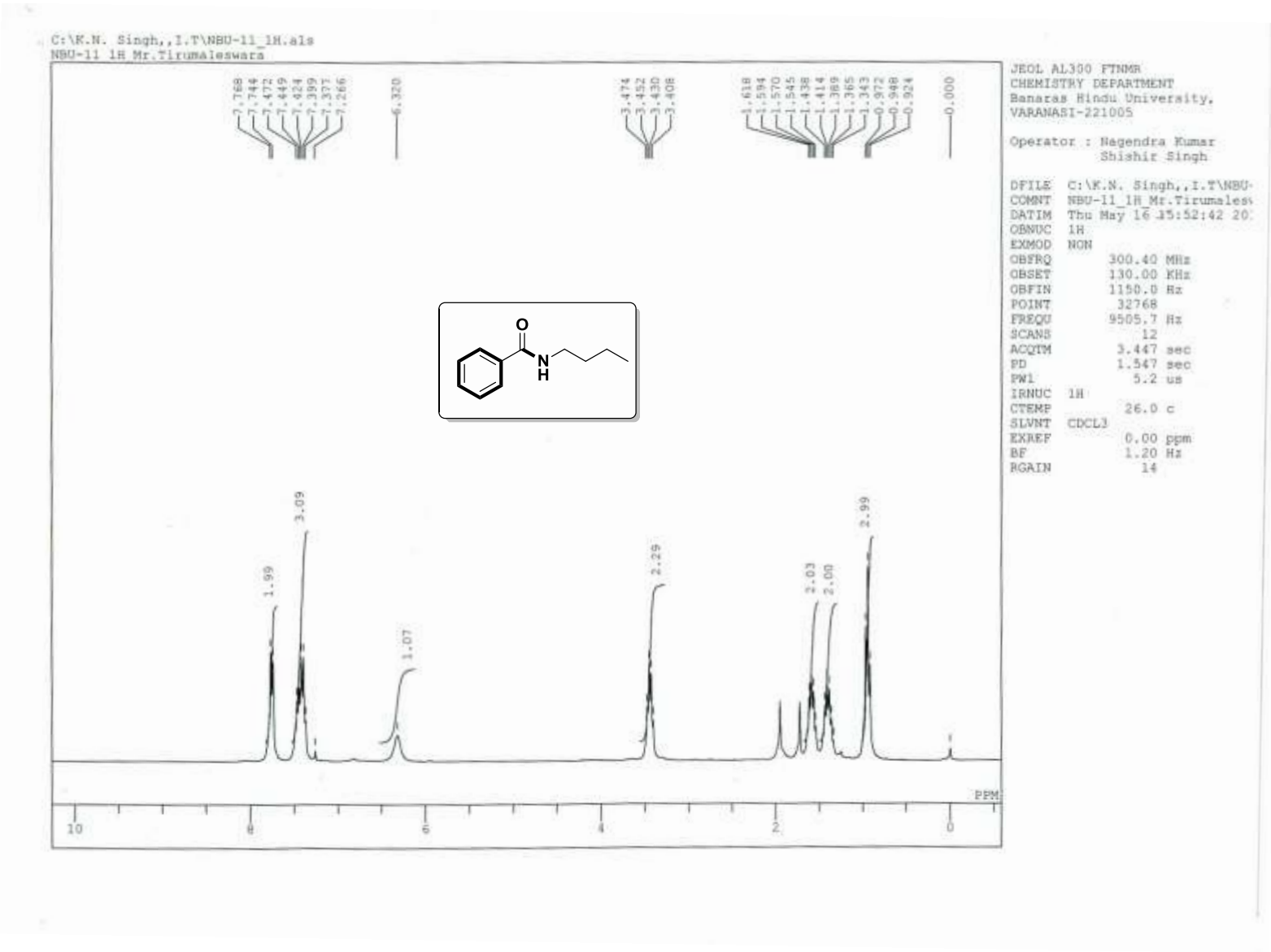

C:\K.N. Singh,,I.T\P2PN_13C.als
P2PN 1H Mr.Tirumaleswara Rao
166.067
162.136
143.304
128.675
127.348
126.821
126.227
113.684
77.429
77.000
76.580
55.308
49.160
21.761
O
N
H
O
PPM
200
175
150
125
100
75
50
25
0
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\P2PN
COMNT P2PN 1H Mr.Tirumaleswa
DATIM Mon Jun 24 13:56:11 20
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 200
ACQTM 1.606 sec
PD 1.394 sec
PW1 5.9 us
IRNUC 1H
CTEMP 24.8 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 24

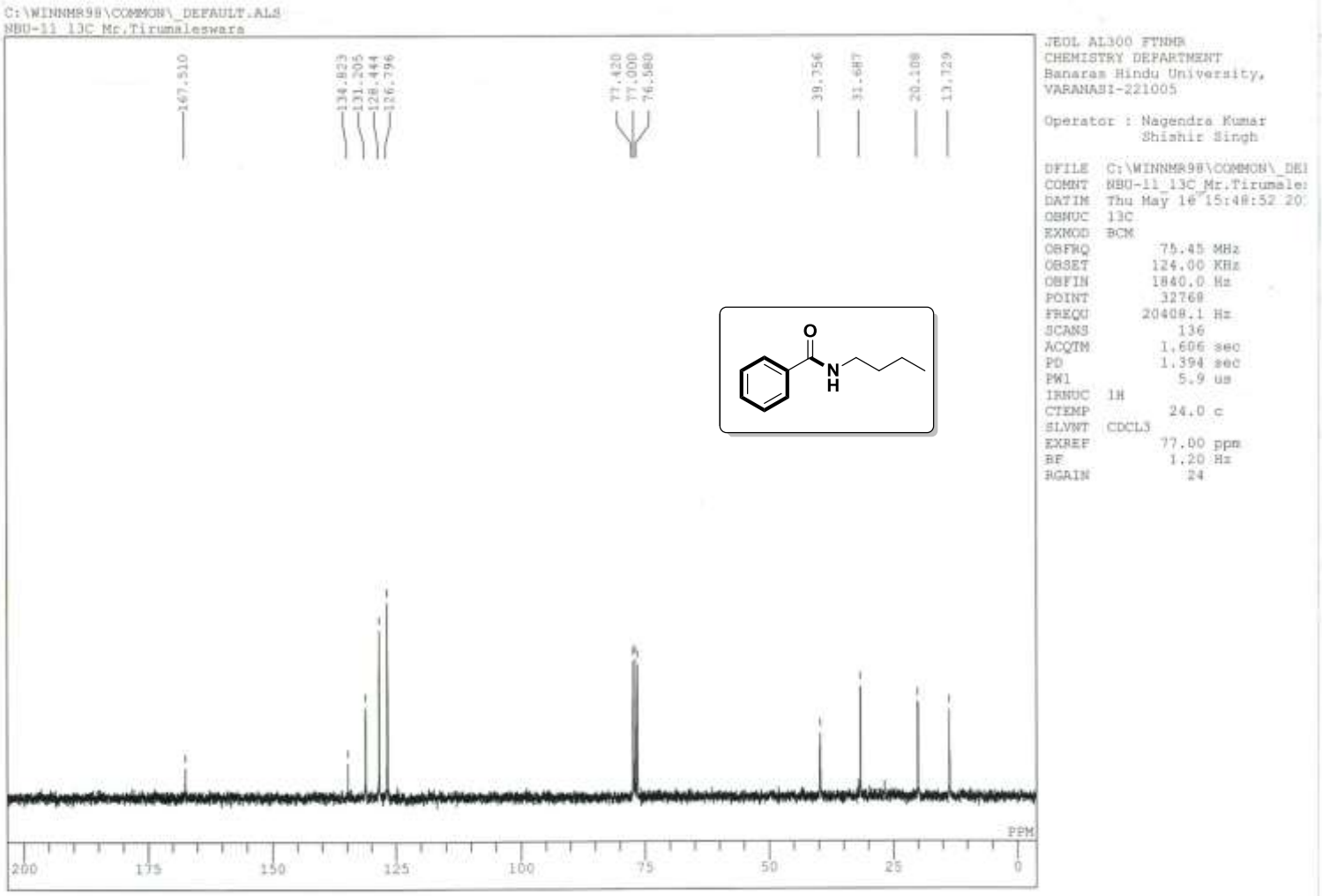

C:\K.N. Singh,,I.T\CPI_1H.als
CPI 1H Mr. Tirumaleswararao G
7.386
7.350
7.340
7.312
7.265
3.679
3.329
1.764
1.730
1.675
1.540
1.437
1.255
0.000
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\CPI_
COMNT CPI_1H Mr. Tirumaleswar
DATIM Mon Jun 03 16:18:18 20
OBNUC 1H
EXMOD NON
OBFRQ 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQU 9505.7 Hz
SCANS 8
ACQTM 3.447 sec
PD 1.547 sec
PW1 5.2 us
IRNUC 1H
CTEMP 22.8 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 1.20 Hz
RGAIN 16
O
N
Cl
4.13
2.00
1.99
5.97
PPM
10
8
6
4
2
0

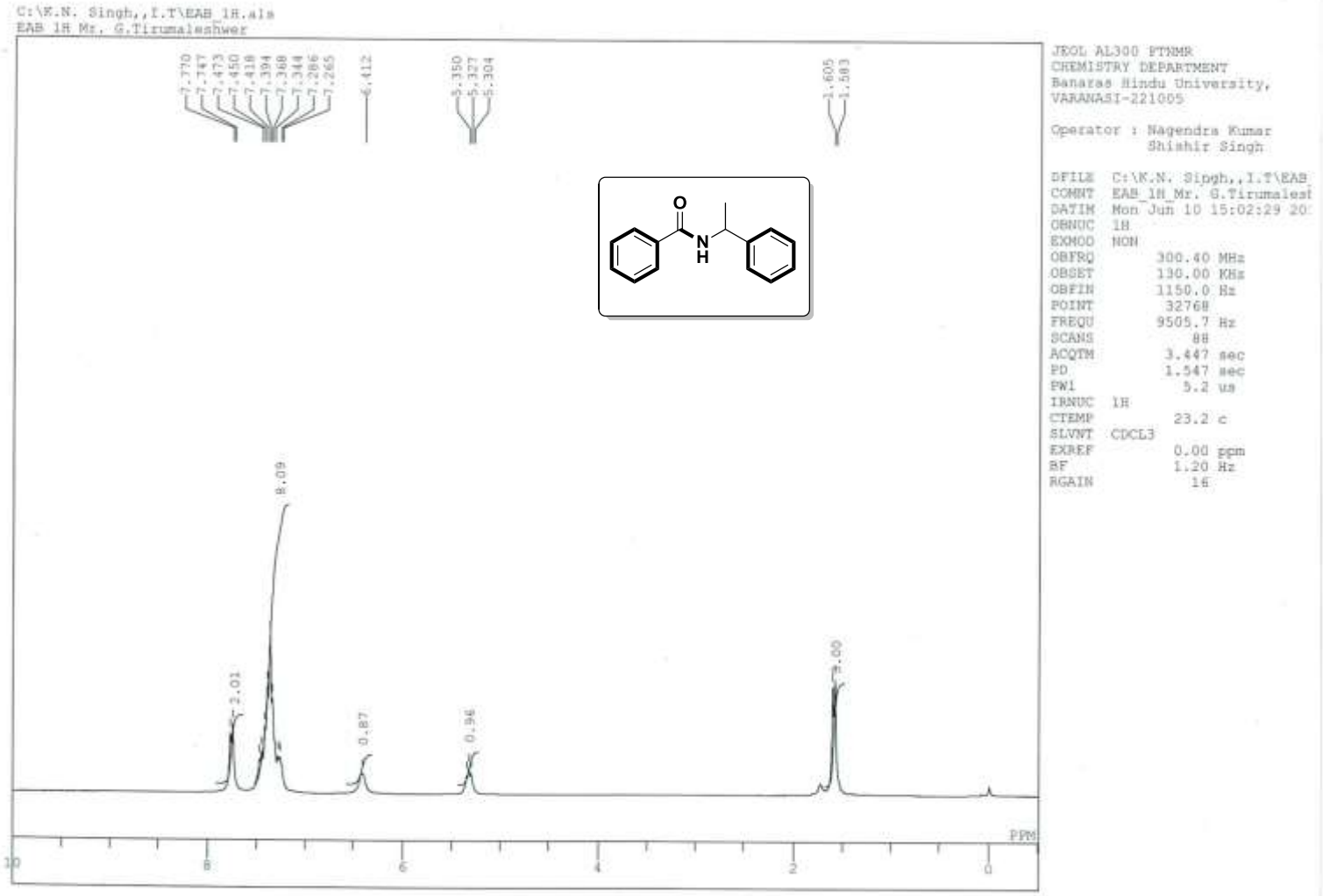

C:\K.N. Singh,,I.T\CPI_13C.als
CPI 13C Mr. Tirumaleswararao G
169.207
135.384
134.757
130.642
128.329
77.420
77.000
76.571
48.814
43.308
25.819
25.597
24.484
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\CPI_
COMNT CPI_13C_Mr.,Tirumaleswa
DATIM Mon Jun 03 16:14:47 20
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 115
ACQTM 1.606 sec
PD 1.394 sec
PW1 5.9 us
IRNUC 1H
CTEMP 24.5 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 23
O
N
Cl
PPM
200
175
150
125
100
75
50
25
0

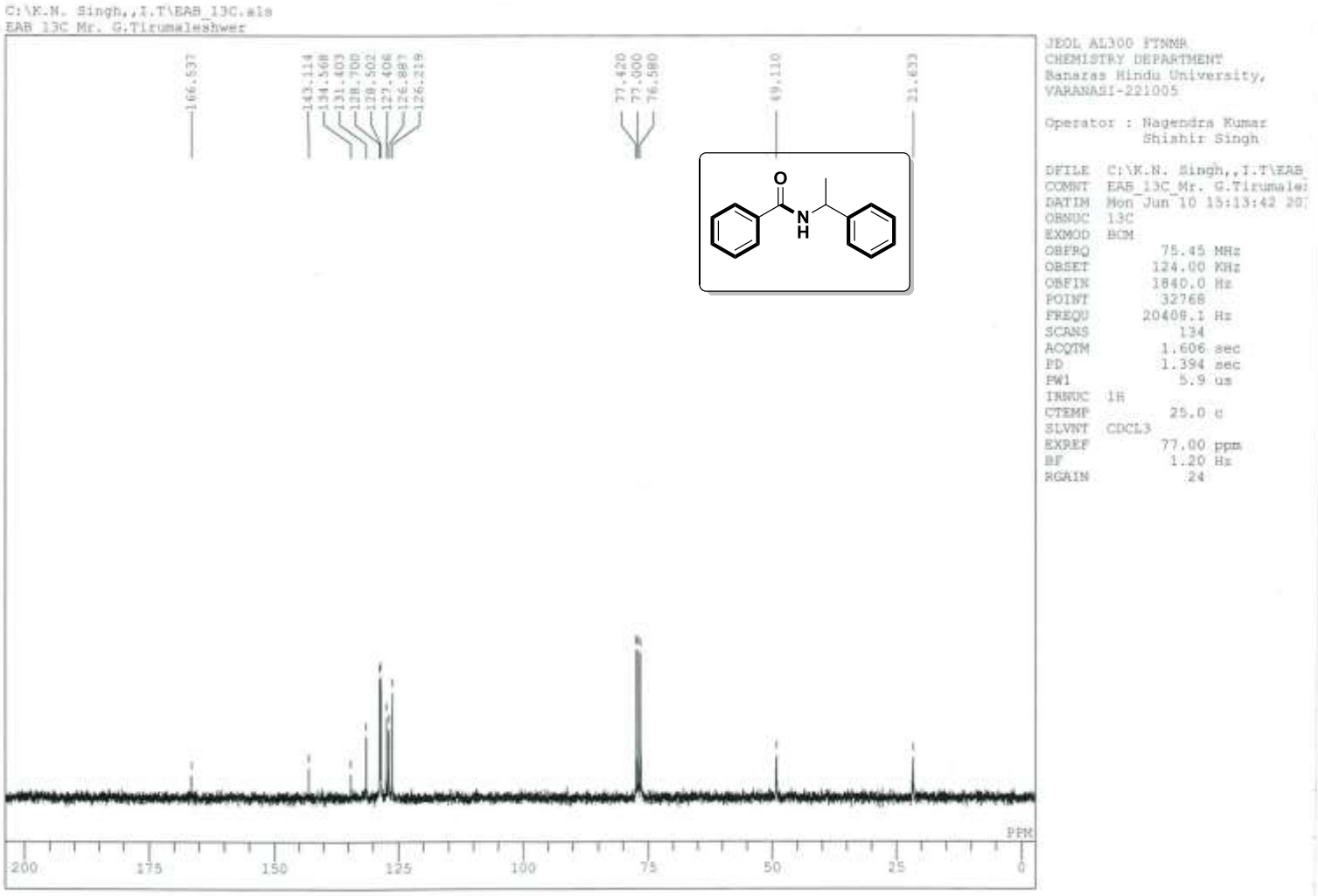

C:\K.N. Singh,,I.T\ACYC_1H.als
ACYC 1H Mr.Rajeshwer
7.757
7.734
7.472
7.449
7.428
7.403
6.051
3.987
2.041
2.011
1.771
1.729
1.673
1.442
1.402
1.361
1.255
1.217
0.000
O
N
H
2.12
3.09
1.00
1.07
2.02
3.00
5.07
PPM
10
8
6
4
2
0
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\ACYC
COMNT ACYC 1H Mr.Rajeshwer
DATIM Tue May 28 16:07:17 20
OBNUC 1H
EXMOD NON
OBFRQ 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQU 9505.7 Hz
SCANS 38
ACQTM 3.447 sec
PD 1.547 sec
PW1 5.2 us
IRNUC 1H
CTEMP 22.1 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 1.20 Hz
RGAIN 16


C:\K.N. Singh,,I.T\ACYC_13C.als
ACYC 13C Mr.Rajeshwer
166.595
135.104
131.164
128.453
126.796
77.429
77.000
76.580
48.616
33.196
25.547
24.888
O
N
H
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\ACY
COMNT ACYC 13C Mr.Rajeshwer
DATIM Tue May 28 15:59:18 20
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 226
ACQTM 1.606 sec
PD 1.394 sec
PW1 5.9 us
IRNUC 1H
CTEMP 24.4 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 23
PPM
200
175
150
125
100
75
50
25
0


C:\K.N. Singh,,I.T\NBU-11_1H.als
NBU-11 1H Mr.Tirumaleswara
7.768
7.744
7.472
7.449
7.424
7.399
7.377
7.266
6.320
3.474
3.452
3.430
3.408
1.618
1.594
1.570
1.545
1.438
1.414
1.389
1.365
1.343
0.972
0.948
0.924
0.000
O
N
H
1.99
3.09
1.07
2.29
2.03
2.00
2.99
PPM
10
8
6
4
2
0
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\NBU-
COMNT NBU-11_1H Mr.Tirumales
DATIM Thu May 16 15:52:42 20
OBNUC 1H
EXMOD NON
OBFRQ 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQU 9505.7 Hz
SCANS 12
ACQTM 3.447 sec
PD 1.547 sec
PW1 5.2 us
IRNUC 1H
CTEMP 26.0 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 1.20 Hz
RGAIN 14


C:\WINNMR98\COMMON_DEFAULT.AL3
NBU-11_13C_Mr.Tirumaleswara
167.510
134.823
131.205
128.444
126.796
77.420
77.000
76.580
39.756
31.687
20.108
13.729
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\WINNMR98\COMMON_DE
COMNT NBU-11_13C_Mr.Tirumale
DATIM Thu May 16 15:48:52 20
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 136
ACQTM 1.606 sec
PD 1.394 sec
PW1 5.9 us
IRNUC 1H
CTEMP 24.0 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 24
O
N
H
PPM
200
175
150
125
100
75
50
25
0

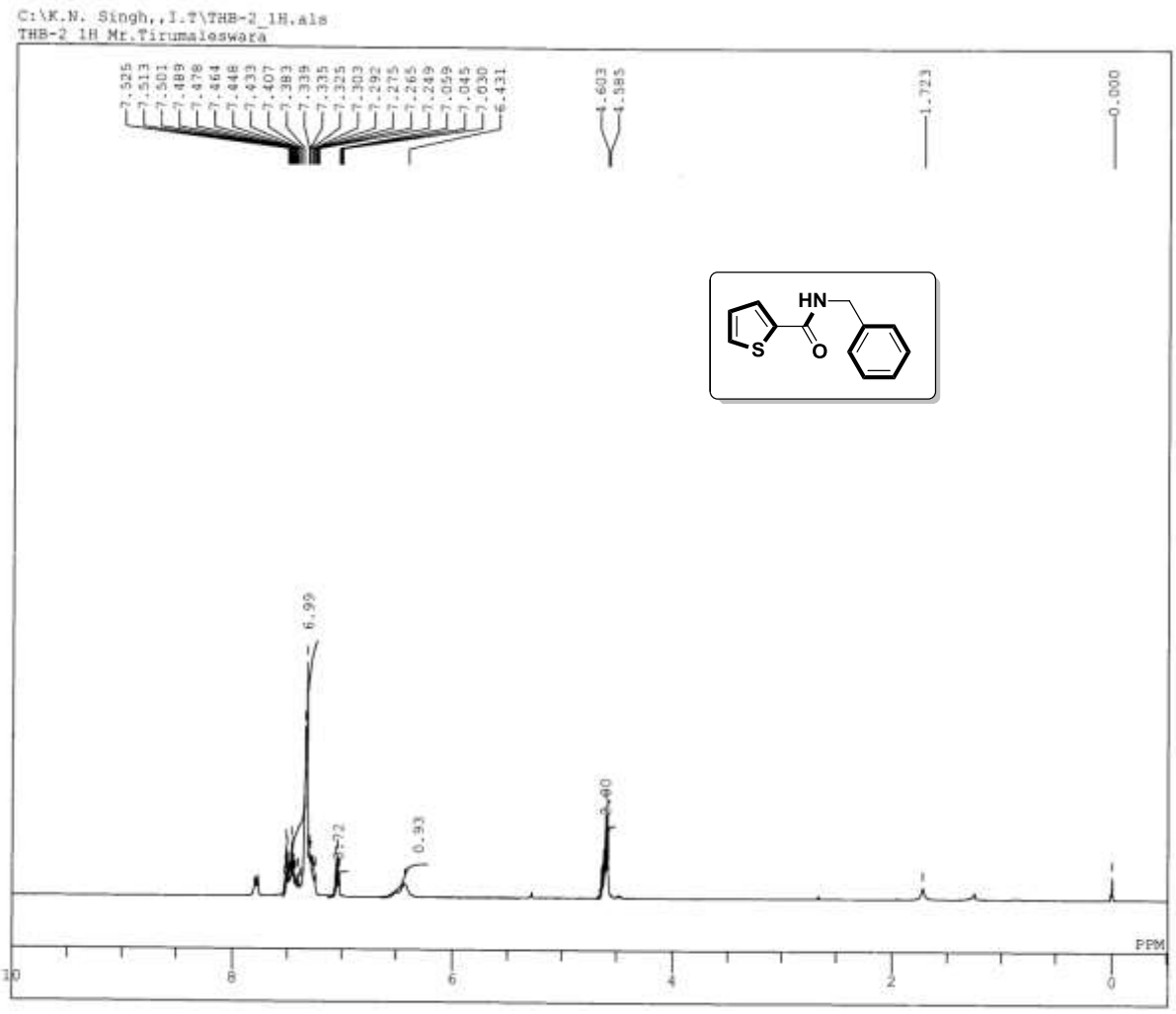

C:\K.N. Singh,,I.T\EAB_1H.als
EAB_1H Mr. G.Tirumaleshwer
7.770
7.747
7.473
7.450
7.418
7.394
7.368
7.344
7.286
7.265
6.412
5.350
5.327
5.304
1.605
1.583
O
N
H
8.09
2.01
0.87
0.96
3.00
PPM
10
8
6
4
2
0
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\EAB
COMNT EAB_1H Mr. G.Tirumalesl
DATIM Mon Jun 10 15:02:29 20
OBNUC 1H
EXMOD NON
OBFRQ 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQU 9505.7 Hz
SCANS 88
ACQTM 3.447 sec
PD 1.547 sec
PW1 5.2 us
IRNUC 1H
CTEMP 23.2 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 1.20 Hz
RGAIN 16



JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005

Operator : Nagendra Kumar
Shishir Singh

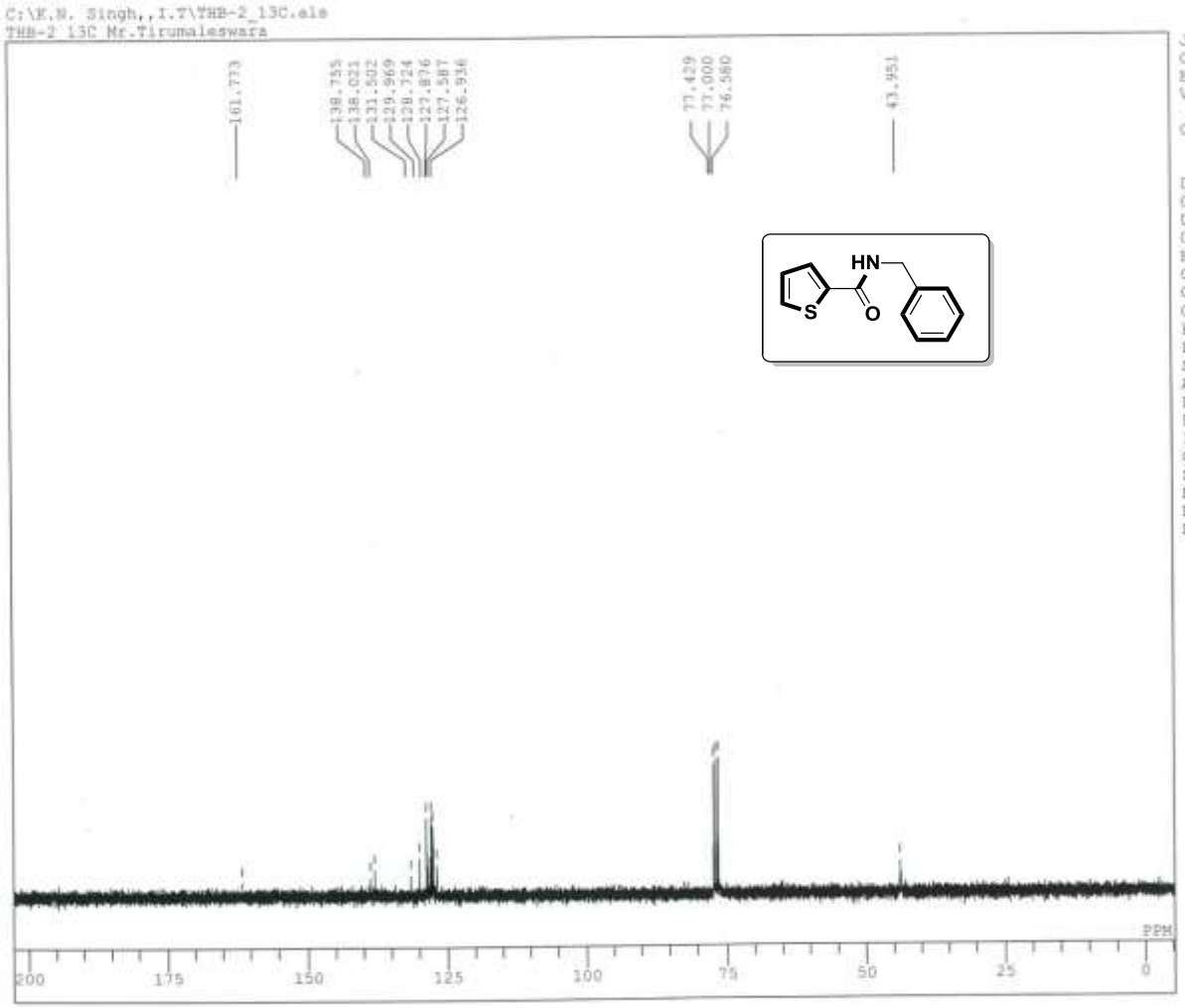
DFILE	C:\K.N. Singh,,I.T\EAB
COMNT	EAB_13C_Mr. G.Tirumale
DATIM	Mon Jun 10 15:13:42 20
OBNUC	13C
EXMOD	BCM
OBFRQ	75.45 MHz
OBSET	124.00 KHz
OBFIN	1840.0 Hz
POINT	32768
FREQU	20408.1 Hz
SCANS	134
ACQTM	1.606 sec
PD	1.394 sec
PW1	5.9 us
INNUC	1H
CTEMP	25.0 c
SLVNT	CDCL3
EXREF	77.00 ppm
BF	1.20 Hz
RGAIN	24



JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005

Operator : Nagendra Kumar
Shishir Singh

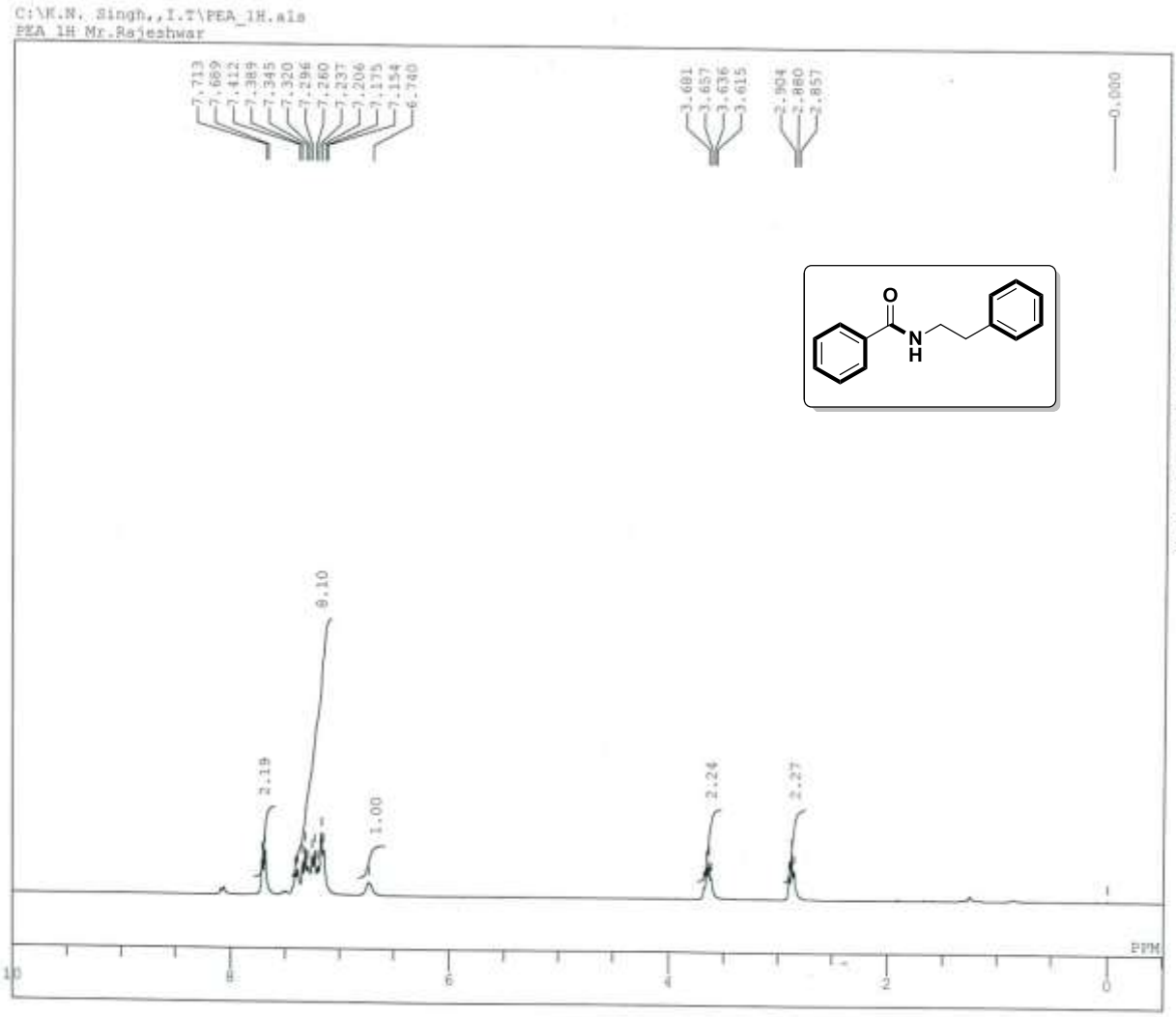
DFILE	C:\K.N. Singh,,I.T\THB-	
COMNT	THB-2_1H_Mr.Tirumalesw	
DATIM	Sat May 18 15:00:12 20	
OBNUC	1H	
EXMOD	NON	
OBFRQ	300.40	MHz
OBSET	130.00	KHz
OBFIN	1150.0	Hz
POINT	32768	
FREQU	9505.7	Hz
SCANS	41	
ACQTM	3.447	sec
PD	1.547	sec
PW1	5.2	us
IRNUC	1H	
CTEMP	22.3	c
SLVNT	CDCL3	
EXREF	0.00	ppm
BF	0.12	Hz
RGAIN	17	




```
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005

Operator : Nagendra Kumar
           Shishir Singh

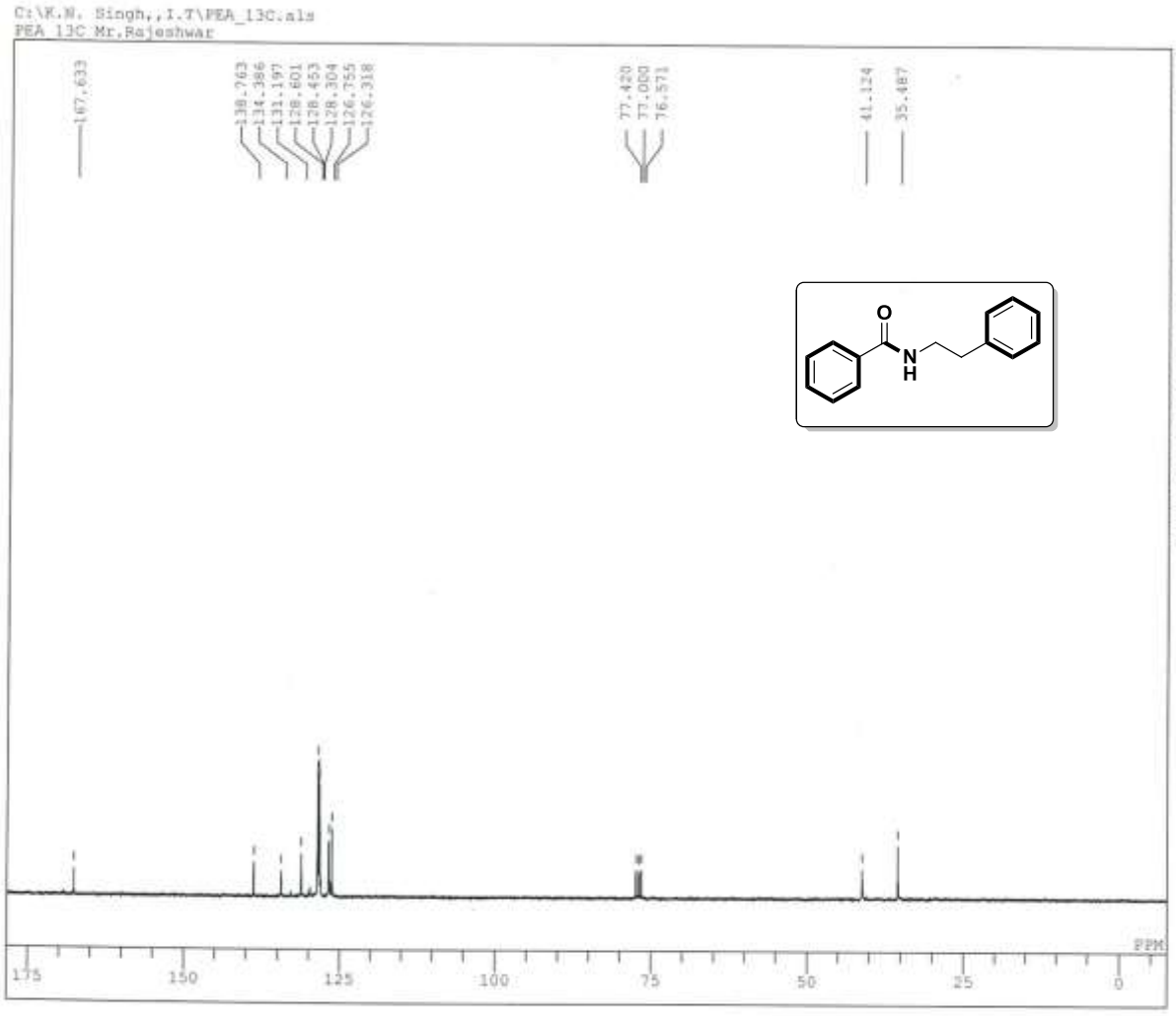
DFILE  C:\K.N. Singh,,I.T\THB
COMNT  THB-2 13C Mr.Tirumales
DATIM  Sat May 18 14:54:03 20
OBNUC  13C
EXMOD  BCM
OBFRQ        75.45 MHz
OBSET       124.00 KHz
OBFIN       1840.0 Hz
POINT        32768
FREQU       20408.1 Hz
SCANS          270
ACQTM        1.606 sec
PD           1.394 sec
PW1            5.9 us
IRNUC  1H
CTEMP         24.4 c
SLVNT  CDCL3
EXREF        77.00 ppm
BF            0.12 Hz
RGAIN           24
```



JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005

Operator : Nagendra Kumar
Shishir Singh

DFILE	C:\K.N. Singh,,I.T\P	
COMNT	PEA_1H_Mr.Rajeshwar	
DATIM	Thu Jun 06 13:07:33	
OBNUC	1H	
EXMOD	NON	
OBFRQ	300.40	MHz
OBSET	130.00	KHz
OBFIN	1150.0	Hz
POINT	32768	
FREQU	9505.7	Hz
SCANS	10	
ACQTM	3.447	sec
PD	1.547	sec
PW1	5.2	us
IRNUC	1H	
CTEMP	24.9	c
SLVNT	CDCL3	
EXREF	0.00	ppm
BF	1.20	Hz
RGAIN	10	

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JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005

Operator : Nagendra Kumar
           Shishir Singh

DFILE  C:\K.N. Singh,,I.T\PEA
COMNT  PEA_13C_Mr.Rajeshwar
DATIM  Thu Jun 06 13:03:10 20
OBNUC  13C
EXMOD  BCM
OBFRQ        75.45 MHz
OBSET       124.00 KHz
OBFIN      1840.0 Hz
POINT       32768
FREQU      20408.1 Hz
SCANS         48
ACQTM        1.606 sec
PD           1.394 sec
PW1           5.9 us
IRNUC  1H
CTEMP         26.1 c
SLVNT  CDCL3
EXREF        77.00 ppm
BF            1.20 Hz
RGAIN           22
```
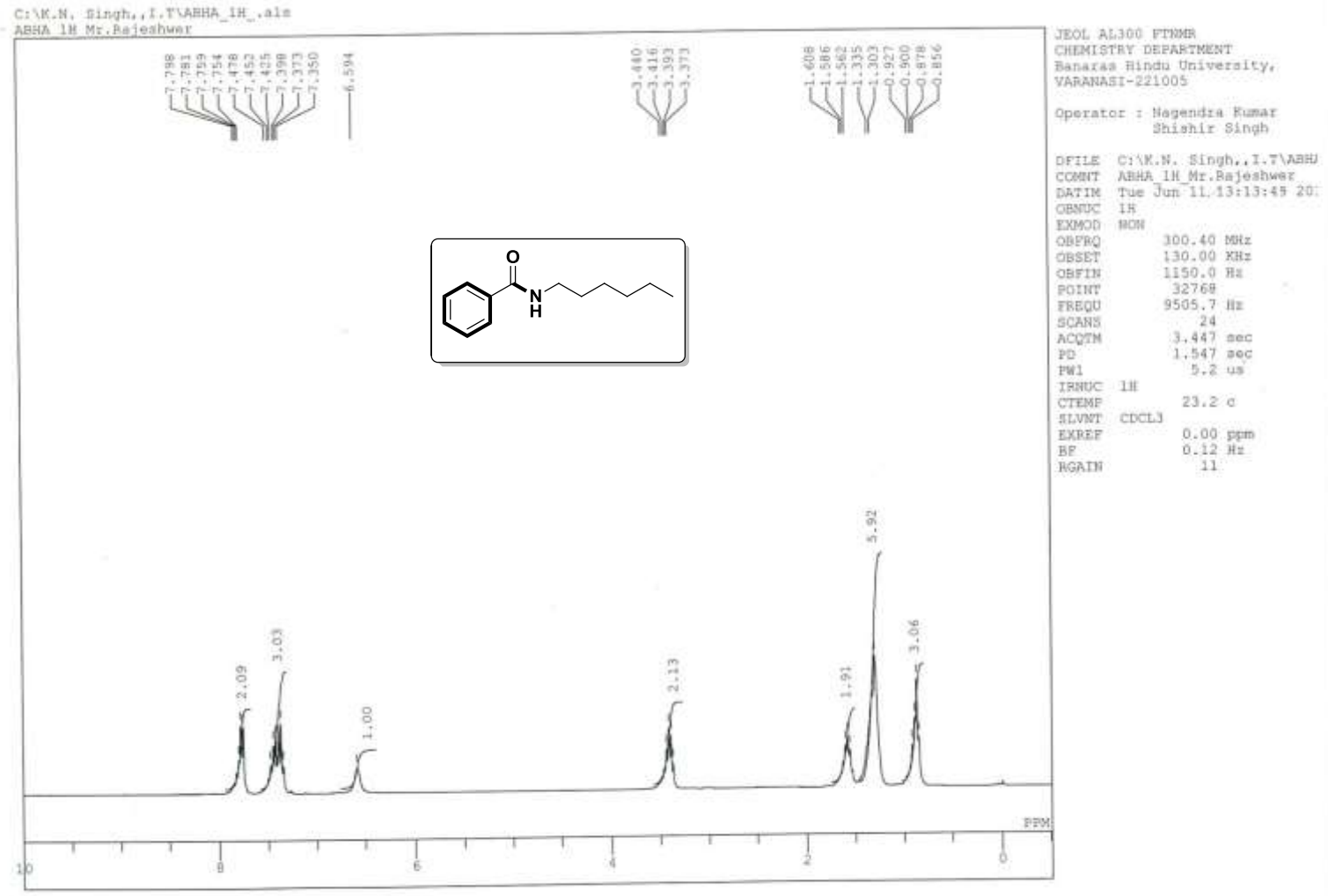
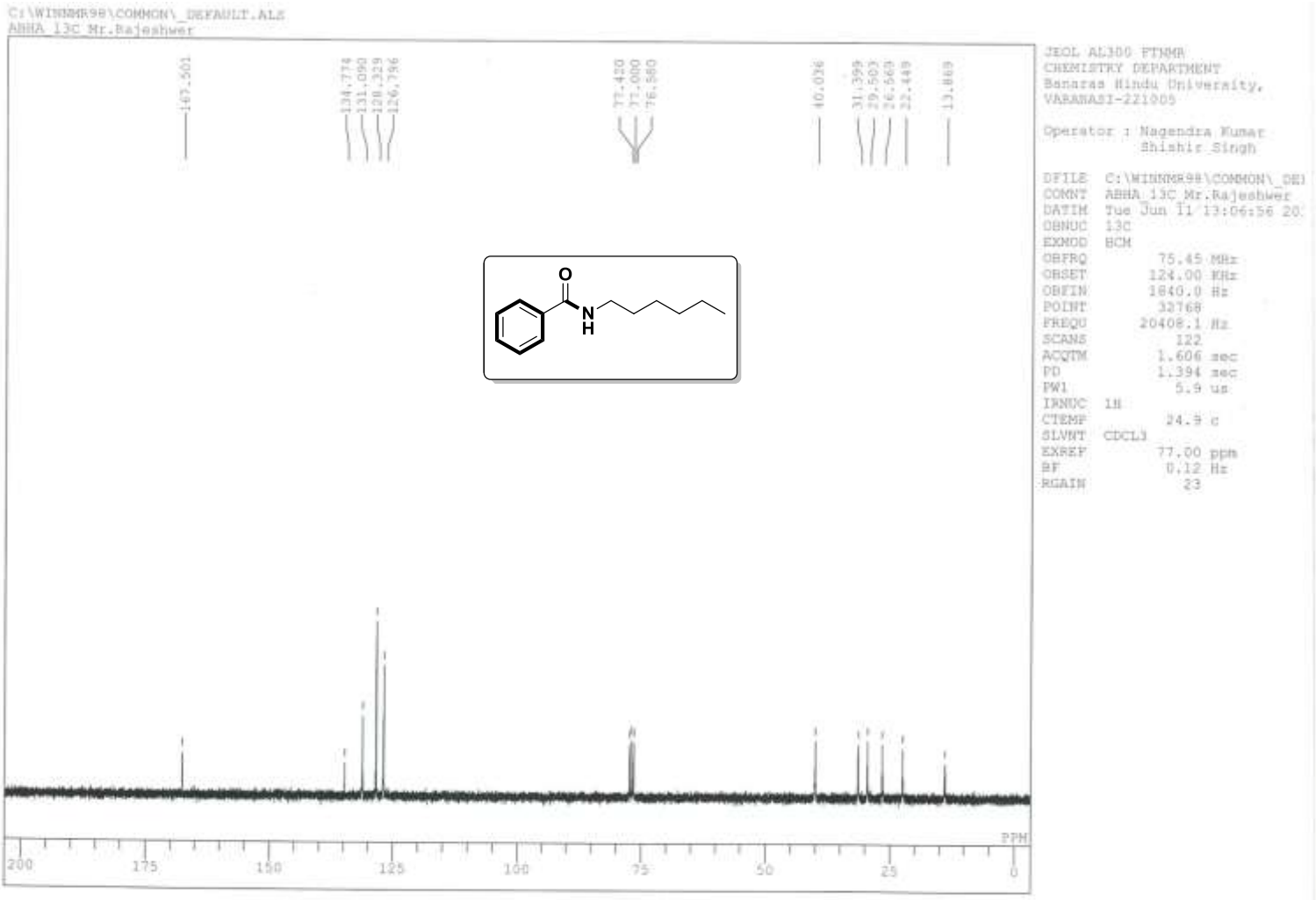
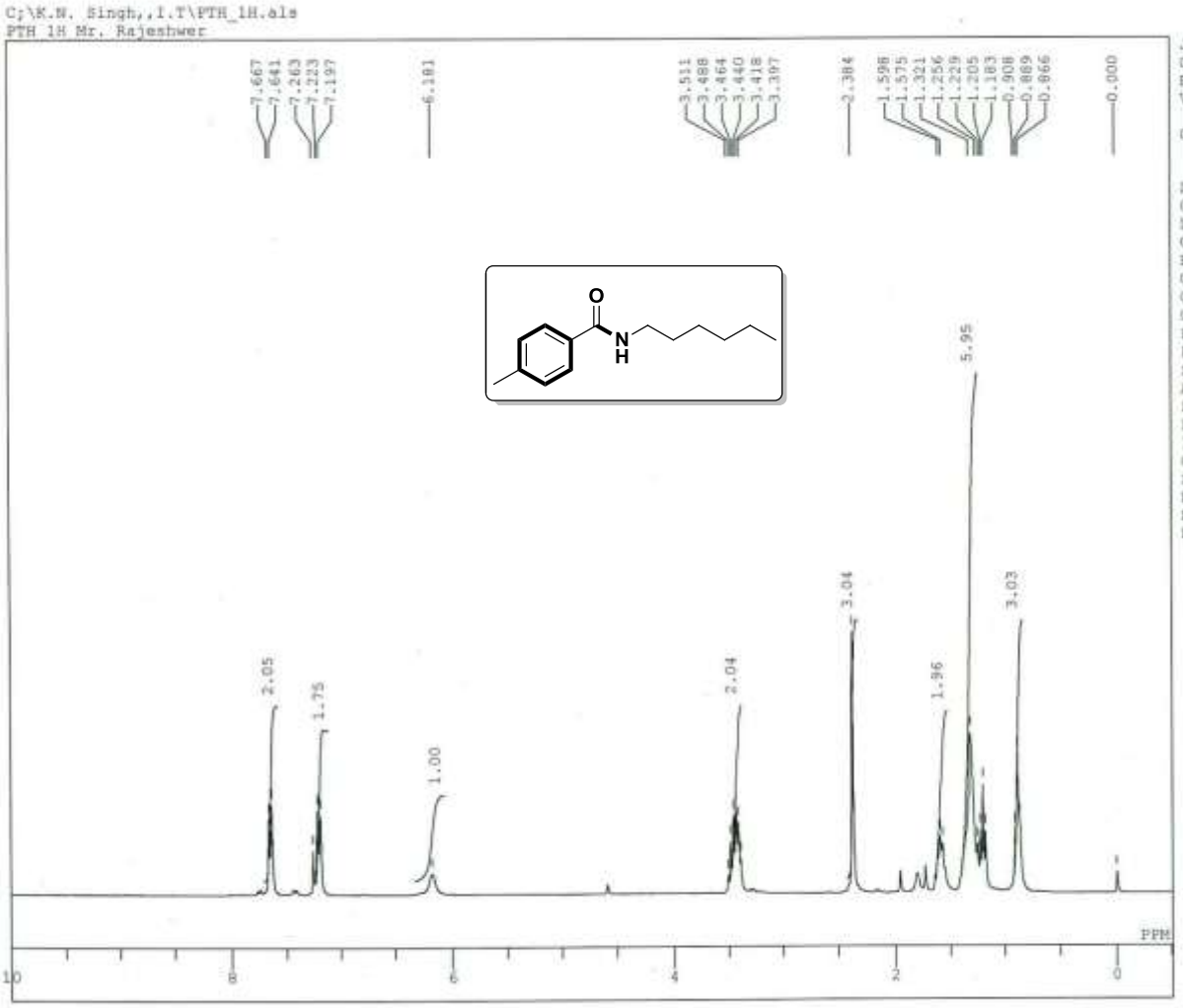


C:\K.N. Singh,,I.T\ABHA_1H_.als
ABHA 1H Mr.Rajeshwer
7.798
7.781
7.759
7.754
7.478
7.452
7.425
7.398
7.373
7.350
6.594
3.440
3.416
3.393
3.373
1.608
1.586
1.562
1.335
1.303
0.927
0.900
0.878
0.856
O
N
H
2.09
3.03
1.00
2.13
1.91
5.92
3.06
PPM
10
8
6
4
2
0
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\ABHA
COMNT ABHA 1H Mr.Rajeshwer
DATIM Tue Jun 11 13:13:49 20
OBNUC 1H
EXMOD NON
OBFRQ 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQU 9505.7 Hz
SCANS 24
ACQTM 3.447 sec
PD 1.547 sec
PW1 5.2 us
IRNUC 1H
CTEMP 23.2 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 11

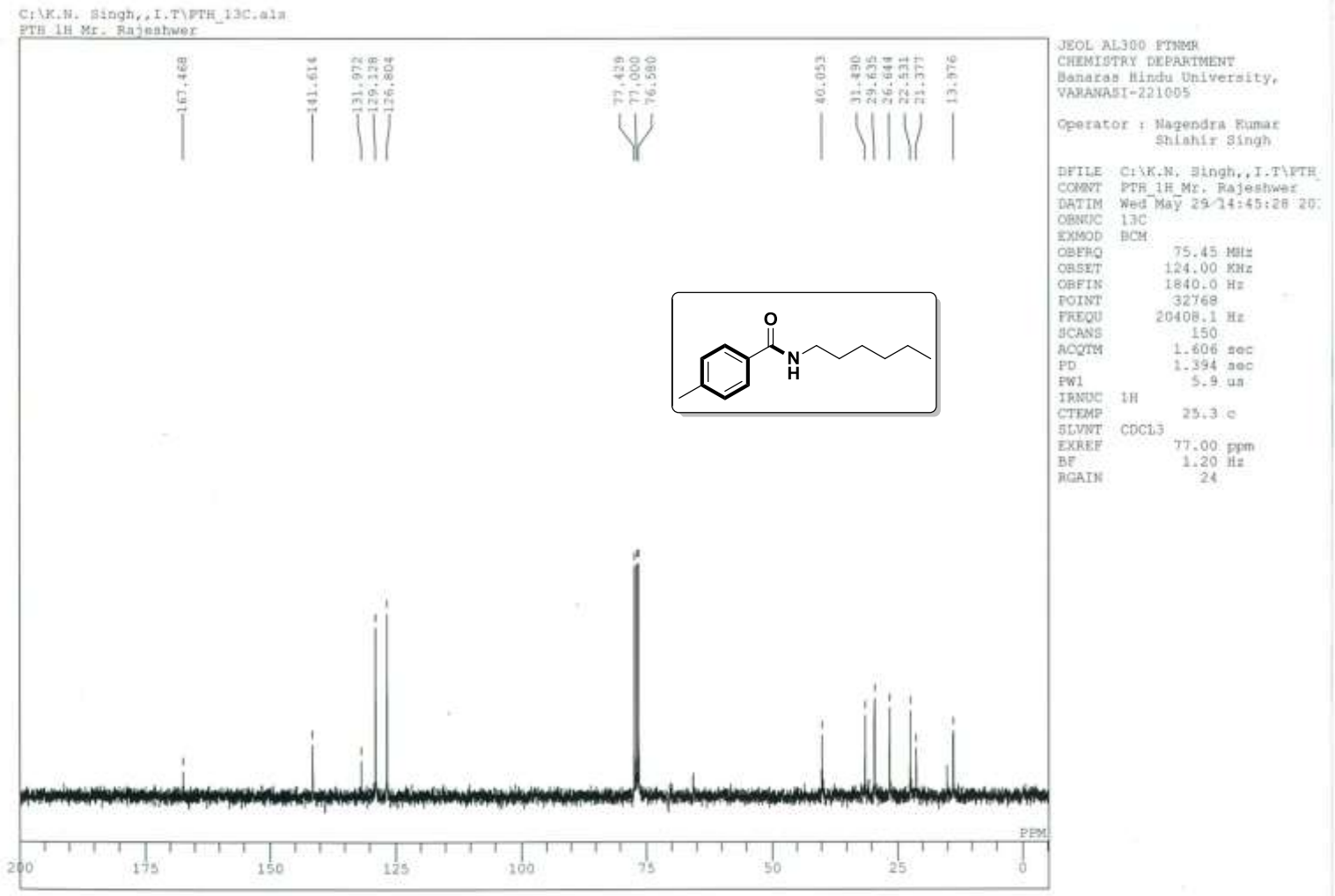

C:\WINNMR98\COMMON_DEFAULT.ALS
ABHA_13C Mr.Rajeshwer
167.501
134.774
131.090
128.329
126.796
77.420
77.000
76.580
40.036
31.399
29.503
26.669
22.449
13.869
O
N
H
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\WINNMR98\COMMON_DEI
COMNT ABHA_13C Mr.Rajeshwer
DATIM Tue Jun 11 13:06:56 20
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 122
ACQTM 1.606 sec
PD 1.394 sec
PW1 5.9 us
IRNUC 1H
CTEMP 24.9 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 0.12 Hz
RGAIN 23
PPM
200
175
150
125
100
75
50
25
0

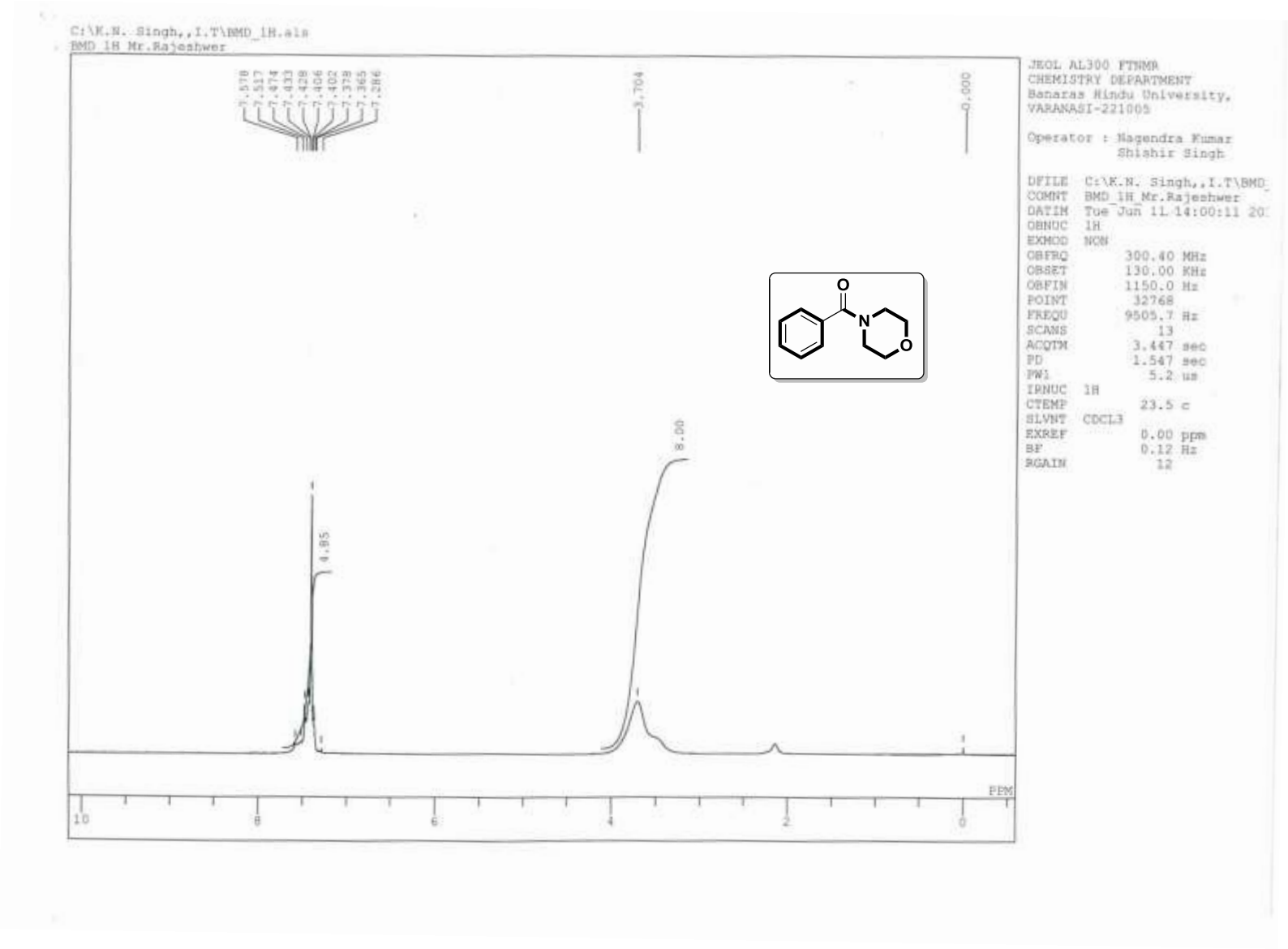


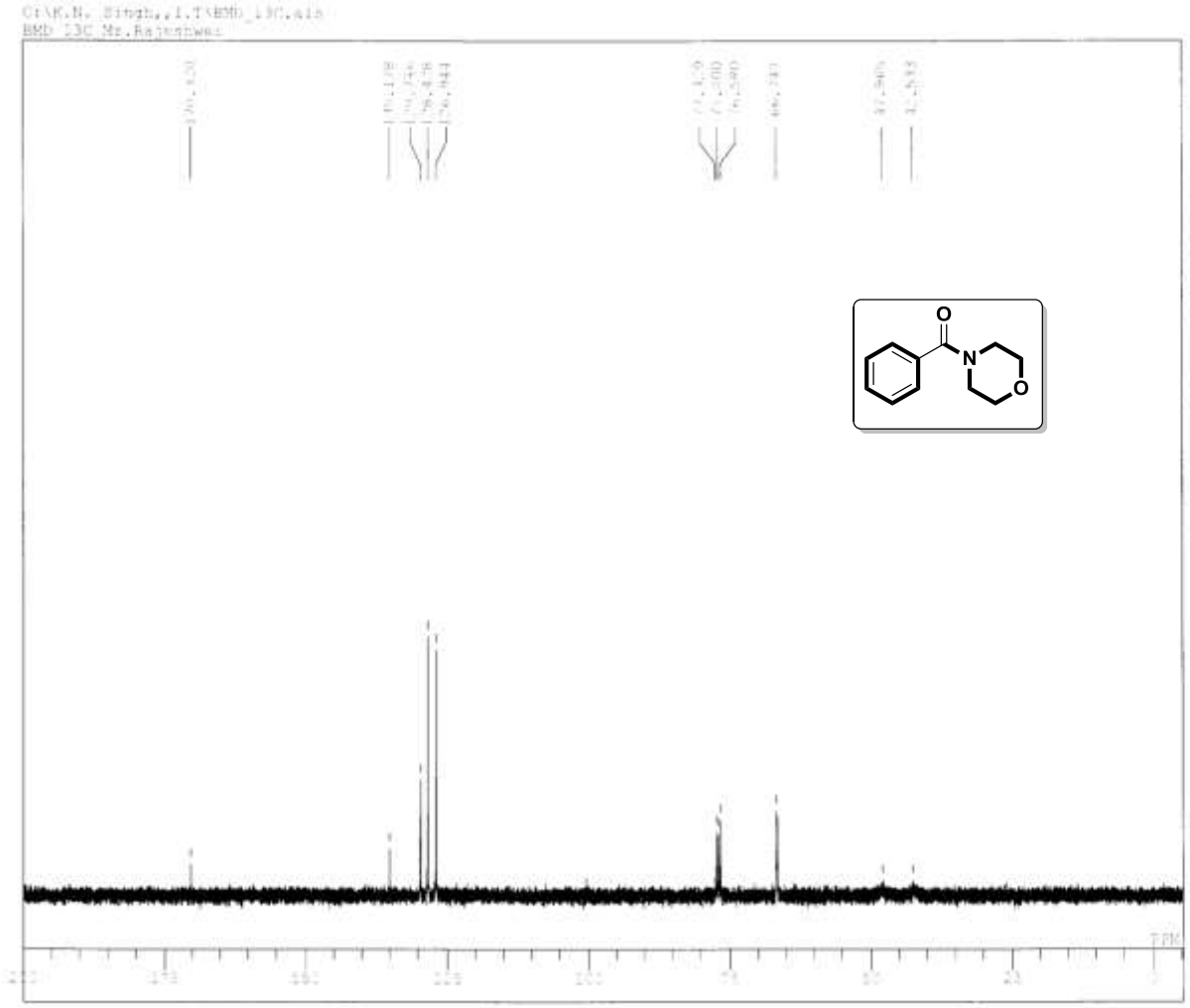
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005

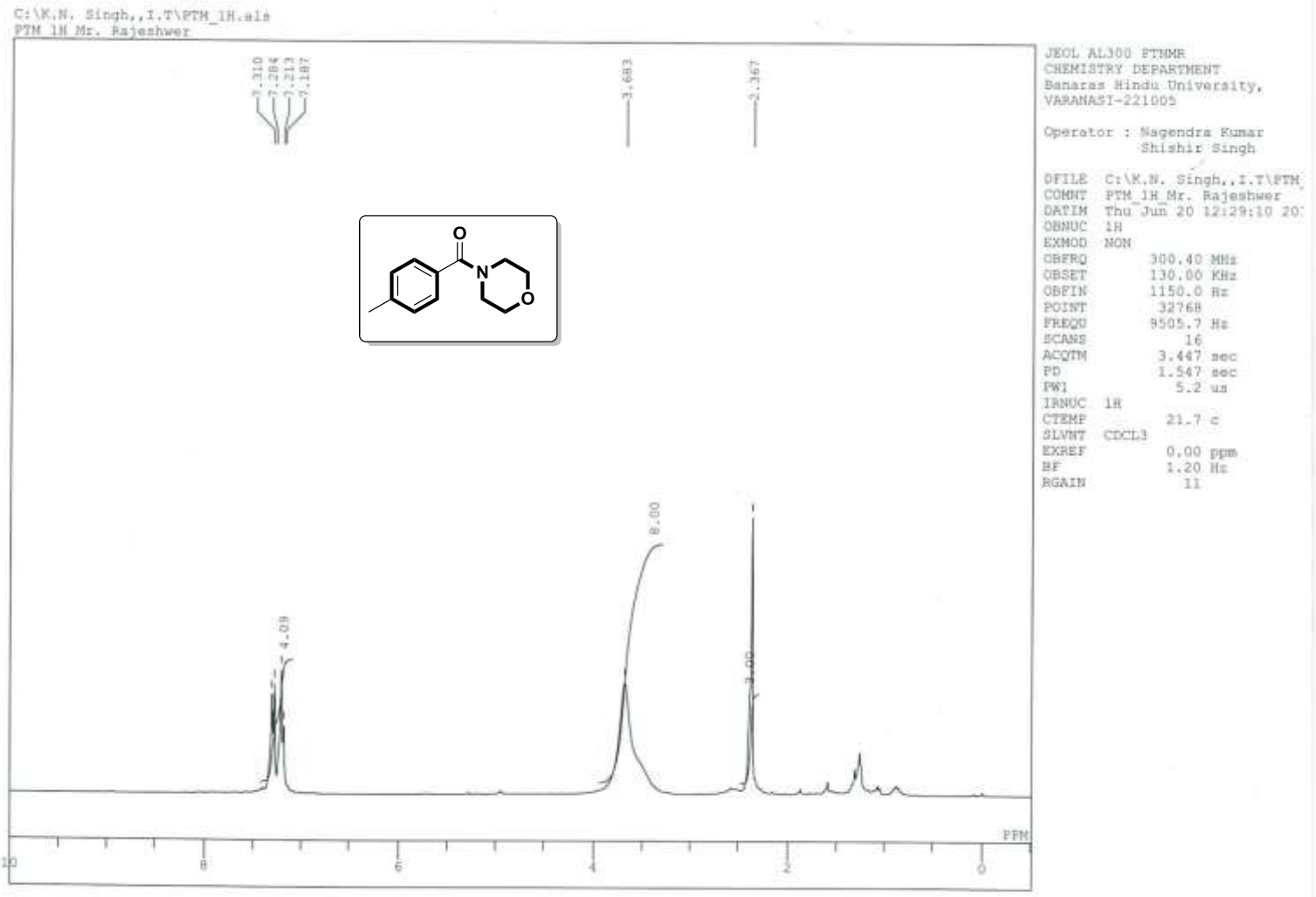
Operator : Nagendra Kumar
Shishir Singh

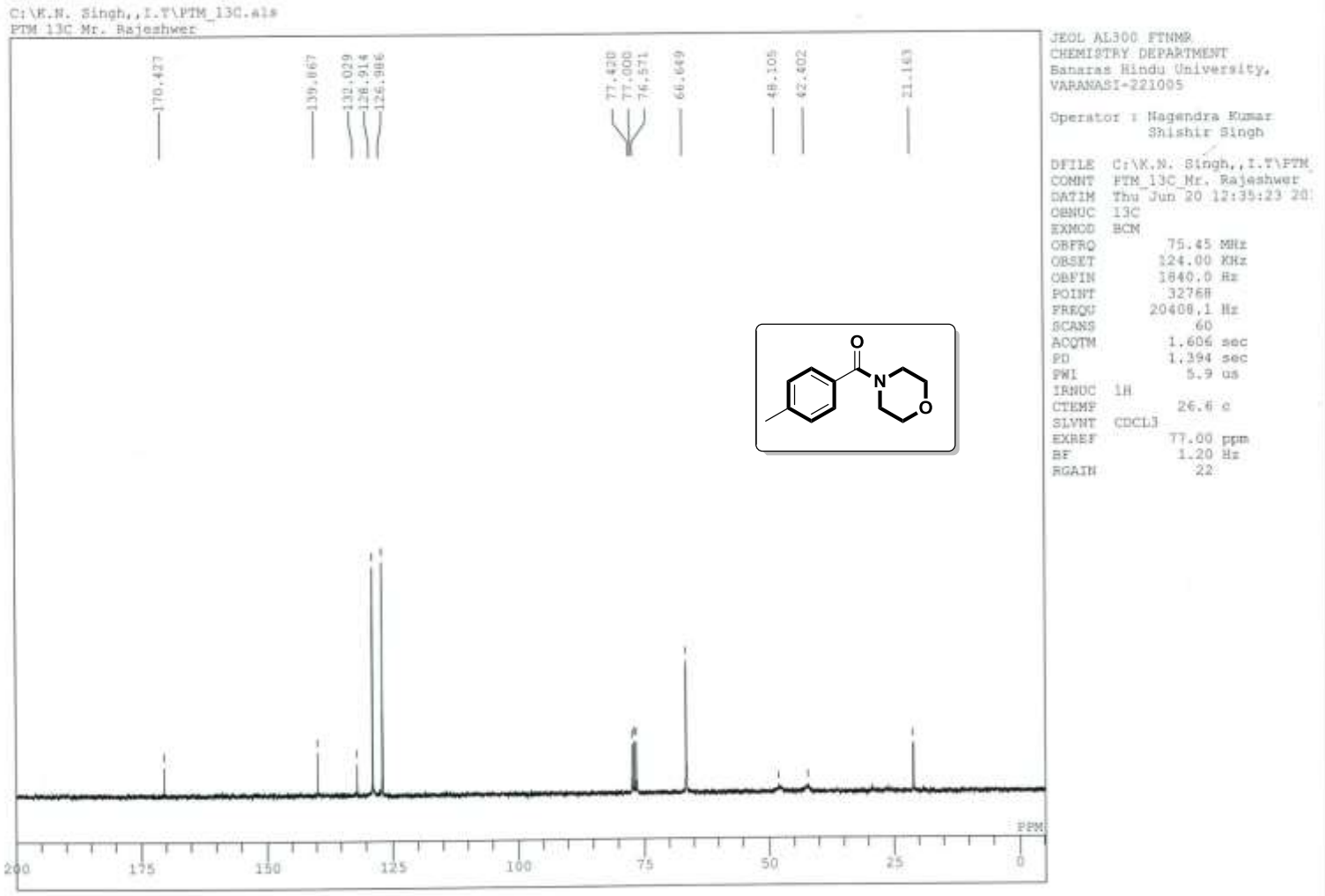
DFILE	C:\K.N. Singh,,I.T\PTH_
COMNT	PTH_1H Mr. Rajeshwer
DATIM	Wed May 29 14:37:36 20
OBNUC	1H
EXMOD	NON
OBFRQ	300.40 MHz
OBSET	130.00 KHz
OBFIN	1150.0 Hz
POINT	32768
FREQU	6016.8 Hz
SCANS	16
ACQTM	5.446 sec
PD	1.547 sec
PW1	5.6 us
IRNUC	1H
CTEMP	23.5 c
SLVNT	CDCL3
EXREF	0.00 ppm
BF	1.20 Hz
RGAIN	16

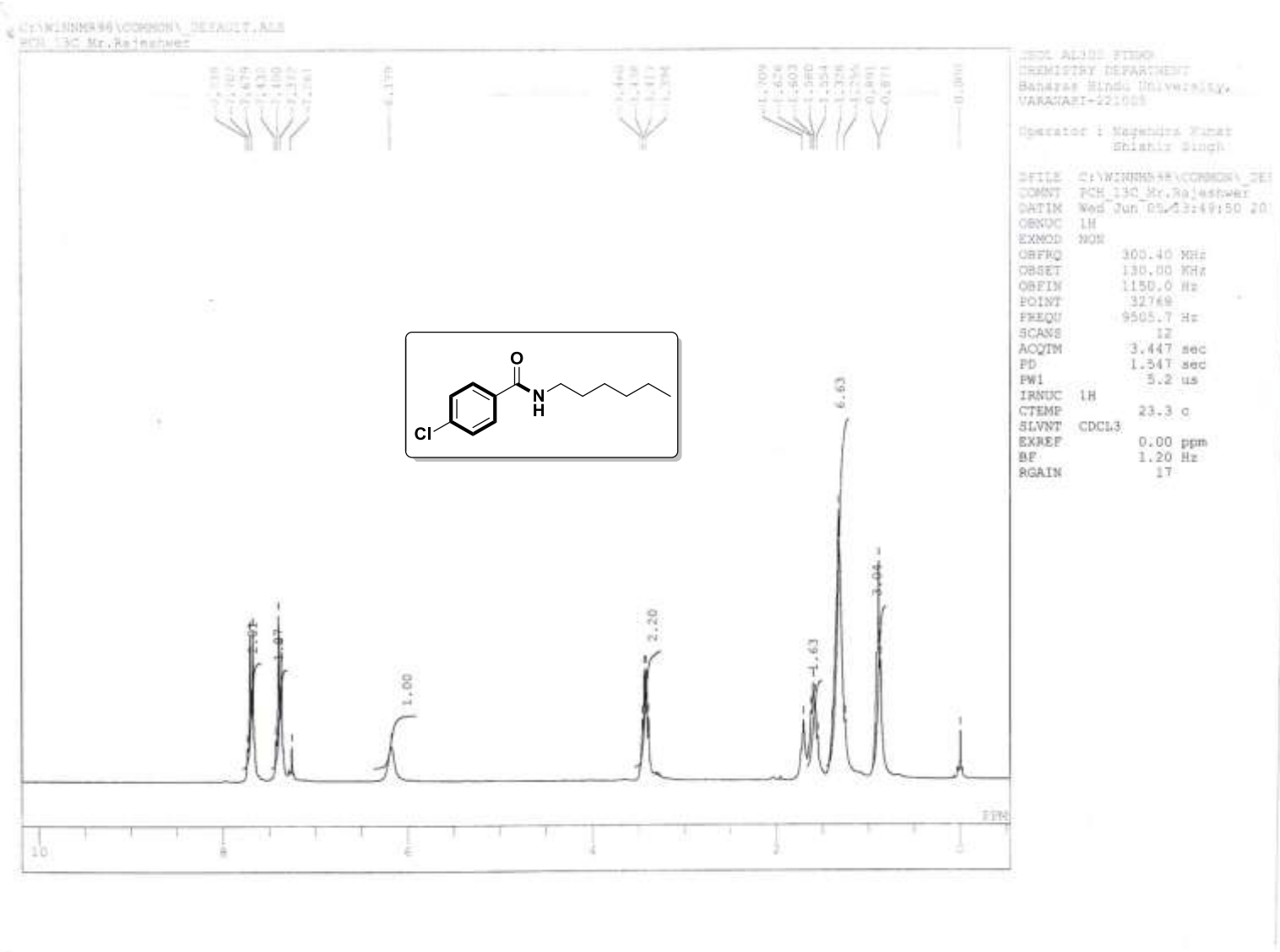

C:\K.N. Singh,,I.T\PTH_13C.als
PTH_1H Mr. Rajeshwer
167.468
141.614
131.972
129.338
126.804
77.429
77.000
76.580
40.053
31.490
29.635
26.844
22.531
21.377
13.976
O
N
H
PPM
200
175
150
125
100
75
50
25
0
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shiahir Singh
DFILE C:\K.N. Singh,,I.T\PTH_
COMNT PTH_1H Mr. Rajeshwer
DATIM Wed May 29 14:45:28 20
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 150
ACQTM 1.606 sec
PD 1.394 sec
PW1 5.9 us
IRNUC 1H
CTEMP 25.3 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 24

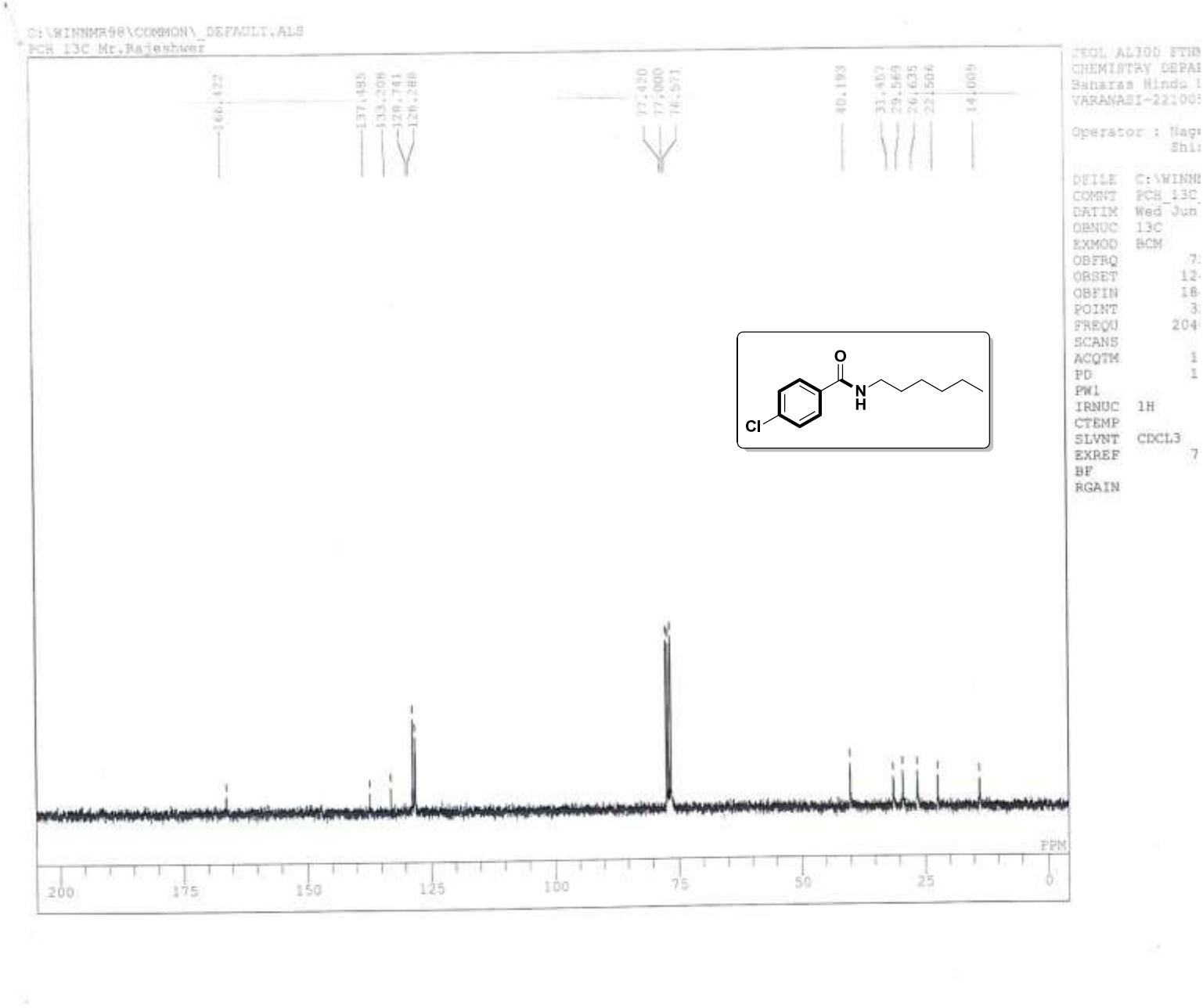

C:\K.N. Singh,,I.T\BMD_1H.als
BMD_1H Mr.Rajeshwer
7.578
7.557
7.474
7.433
7.428
7.406
7.402
7.379
7.365
7.286
3.704
0.000
8.00
4.85
PPM
10
8
6
4
2
0
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\BMD_
COMNT BMD_1H Mr.Rajeshwer
DATIM Tue Jun 11 14:00:11 20
OBNUC 1H
EXMOD NON
OBFRQ 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQU 9505.7 Hz
SCANS 13
ACQTM 3.447 sec
PD 1.547 sec
PW1 5.2 us
IRNUC 1H
CTEMP 23.5 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 12

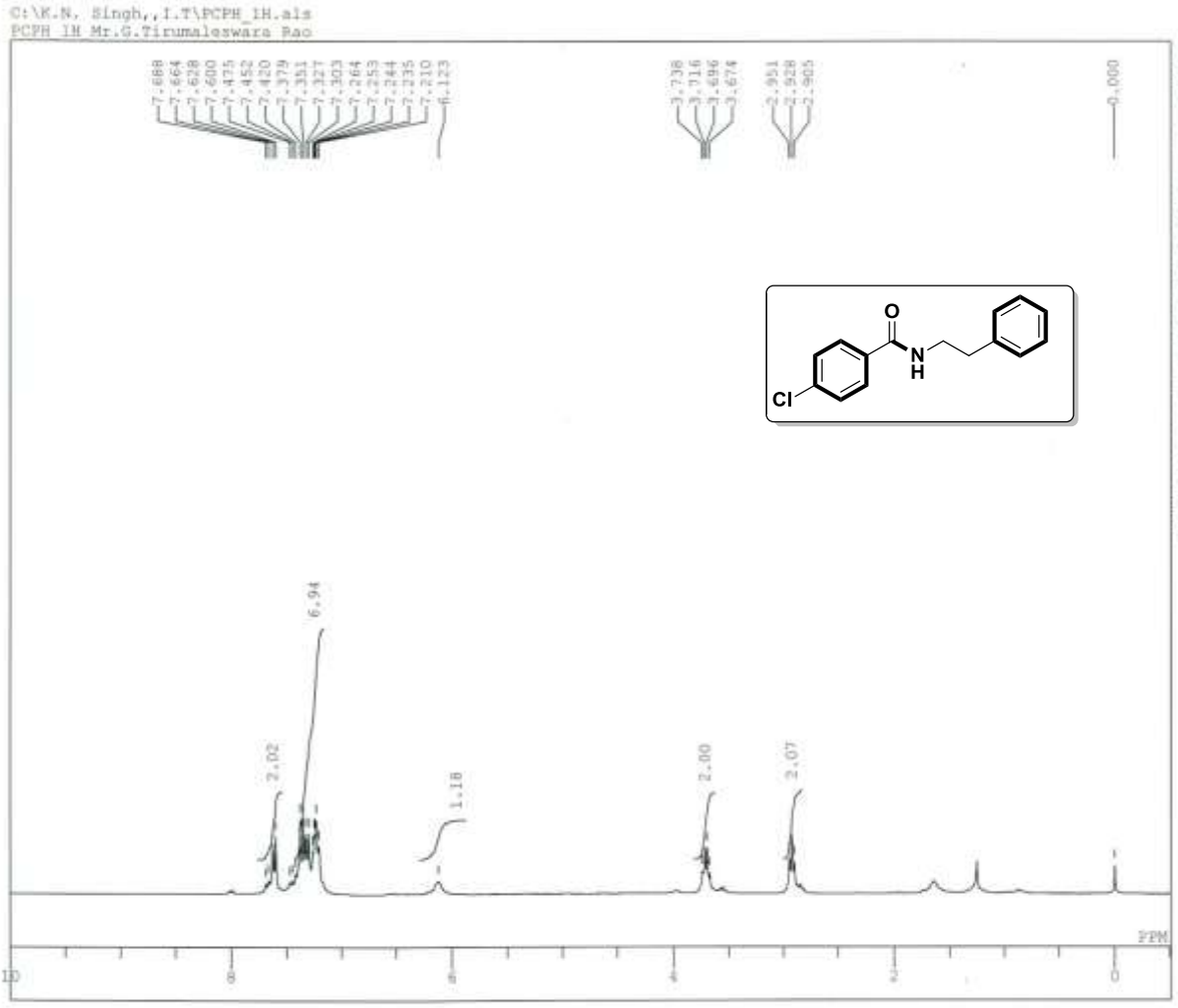

O
N
O
PPM

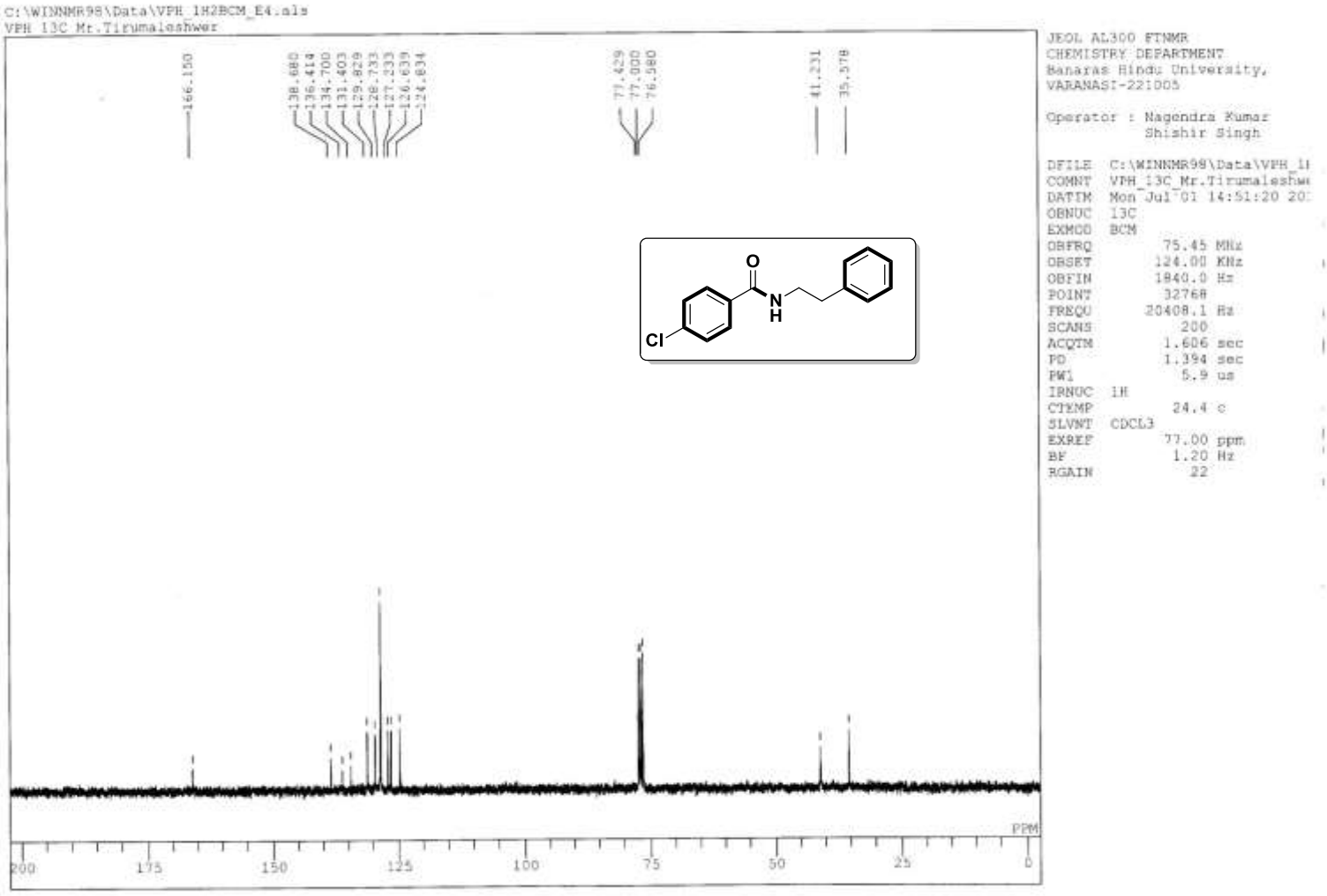

C:\K.N. Singh,,I.T\PTM_1H.als
PTM 1H Mr. Rajeshwer
7.310
7.284
7.213
7.187
3.683
2.367
8.00
4.09
3.00
PPM
10
8
6
4
2
0
JEOL AL300 PTMMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\PTM
COMNT PTM 1H Mr. Rajeshwer
DATIM Thu Jun 20 12:29:10 20
OBNUC 1H
EXMOD NON
OBFRQ 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQU 9505.7 Hz
SCANS 16
ACQTM 3.447 sec
PD 1.547 sec
PW1 5.2 us
IRNUC 1H
CTEMP 21.7 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 1.20 Hz
RGAIN 11

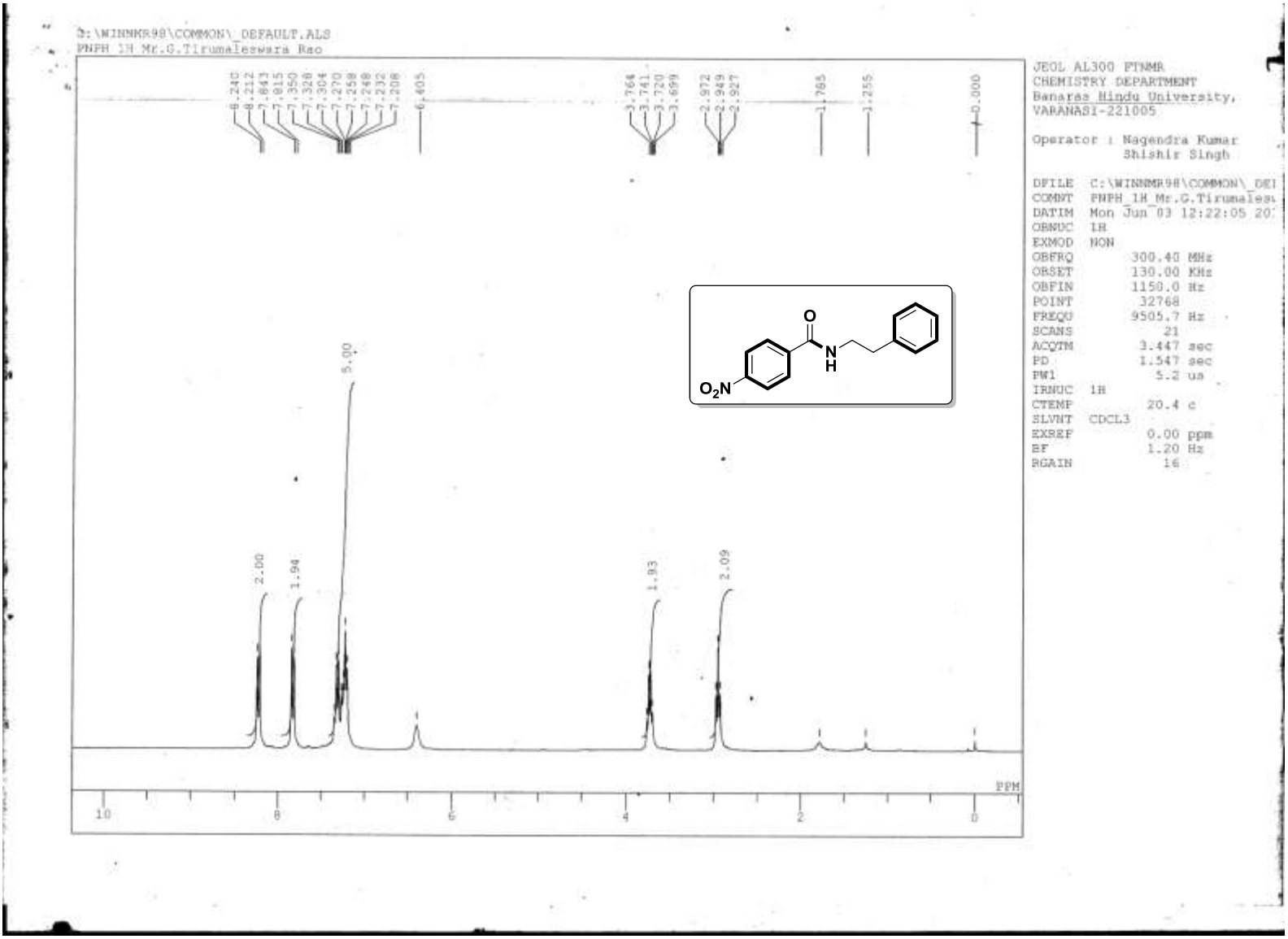

C:\K.N. Singh,,I.T\PTM_13C.als
PTM 13C Mr. Rajeshwer
170.427
139.867
132.029
128.914
126.986
77.420
77.000
76.571
66.649
48.105
42.402
21.163
O
N
O
PPM
200
175
150
125
100
75
50
25
0
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\PTM
COMNT PTM_13C_Mr. Rajeshwer
DATIM Thu Jun 20 12:35:23 20
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 60
ACQTM 1.606 sec
PD 1.394 sec
PW1 5.9 us
IRNUC 1H
CTEMP 26.6 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 22

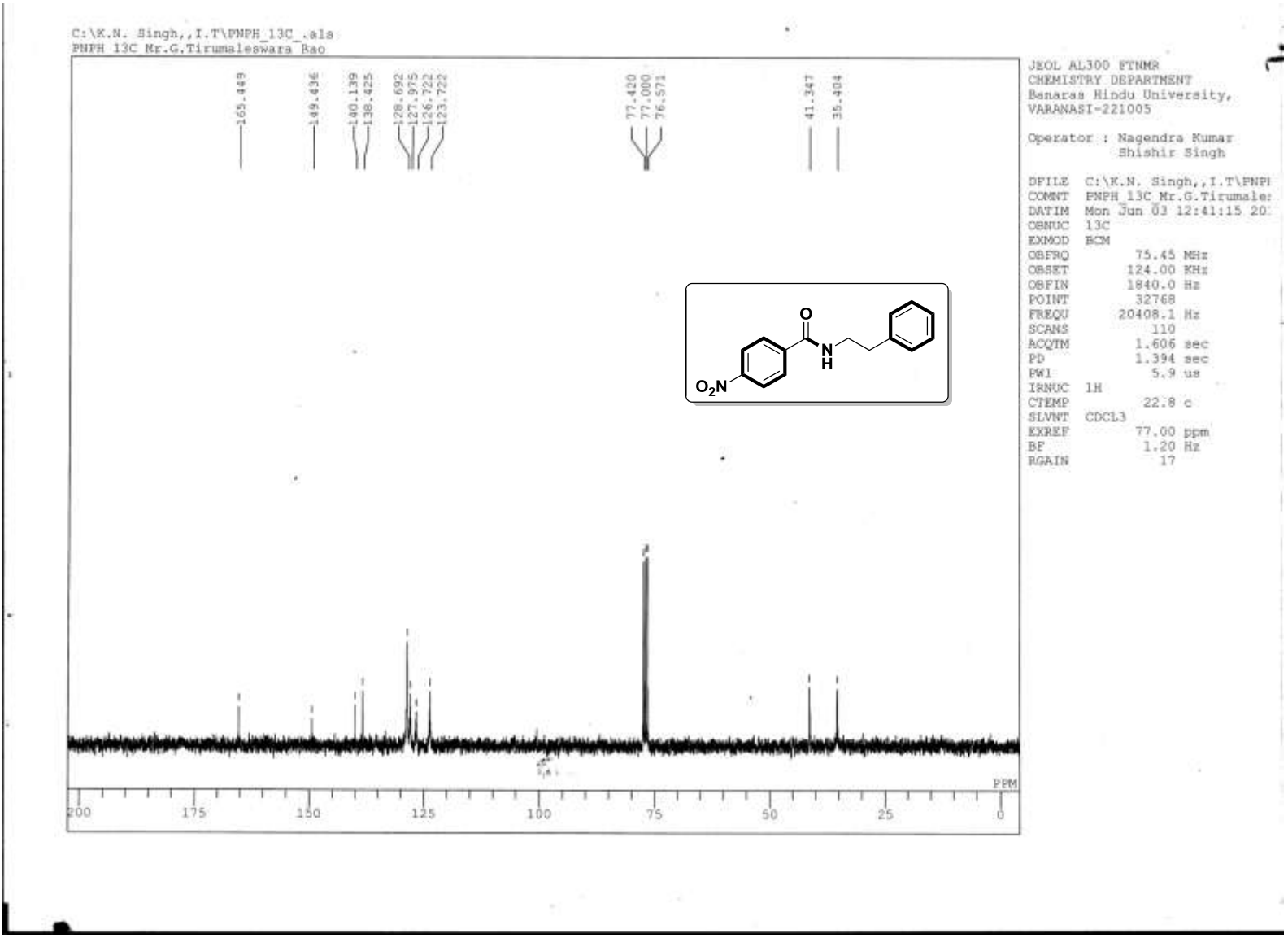

O
N
H
Cl
6.63
3.04
2.20
1.63
1.00
PPM

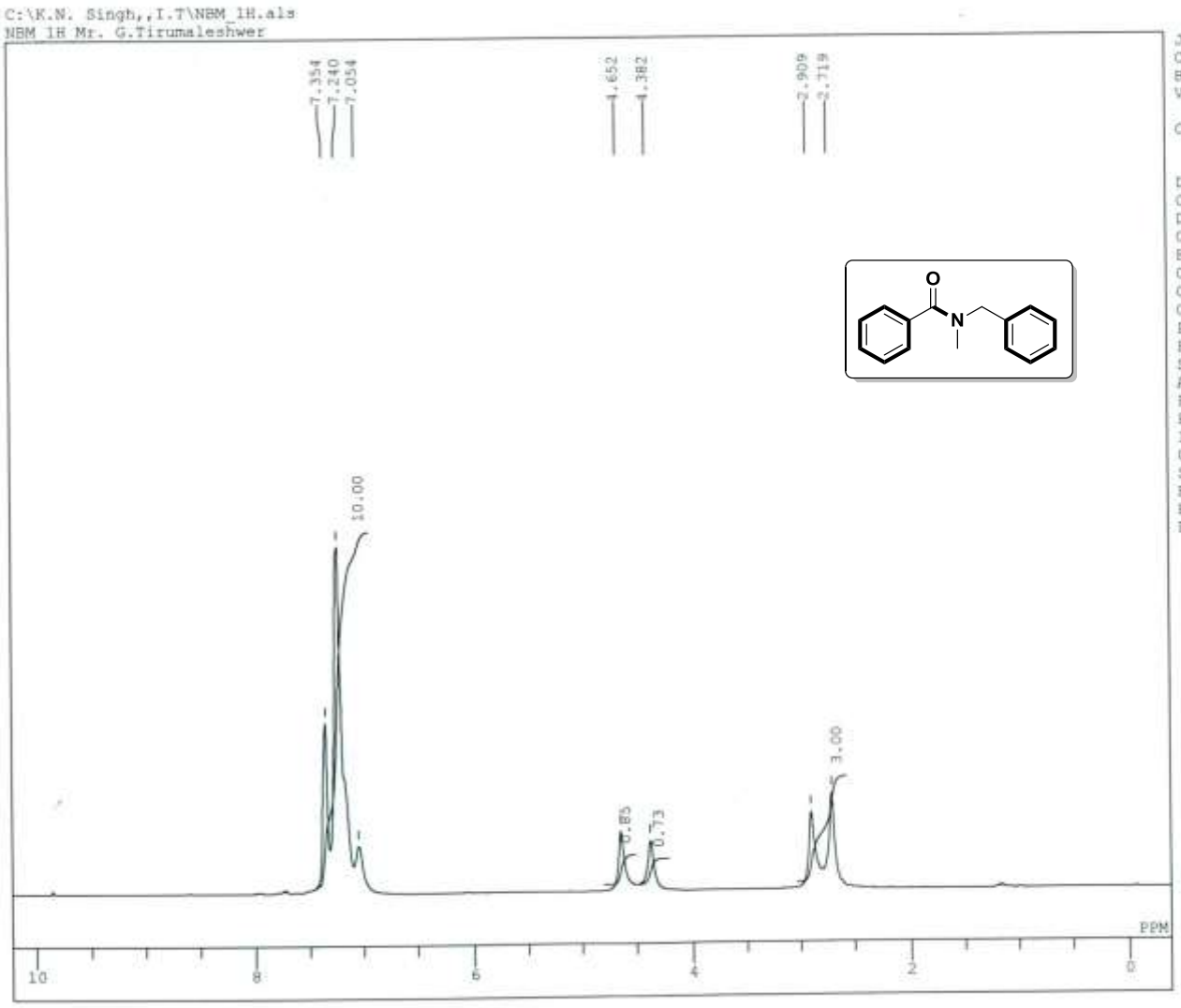

C:\WINNMR98\COMMON_DEFAULT.ALS
PCH_13C_Mr.Rajeshwer
166.422
137.485
133.208
129.741
126.388
77.420
77.000
76.571
40.193
31.452
29.569
26.635
22.584
14.009
JEOL AL300 FTNM
CHEMISTRY DEPAR
Banaras Hindu U
VARANASI-221005
Operator : Nage
Shi
DFILE C:\WINNM
COMNT PCH_13C_
DATIM Wed Jun
OBNUC 13C
EXMOD BCM
OBFRQ 7
OBSET 12
OBFIN 16
POINT 3
FREQU 204
SCANS
ACQTM 1
PD 1
PW1
IRNUC 1H
CTEMP
SLVNT CDCL3
EXREF 7
BF
RGAIN
O
N
H
Cl
PPM
200
175
150
125
100
75
50
25
0

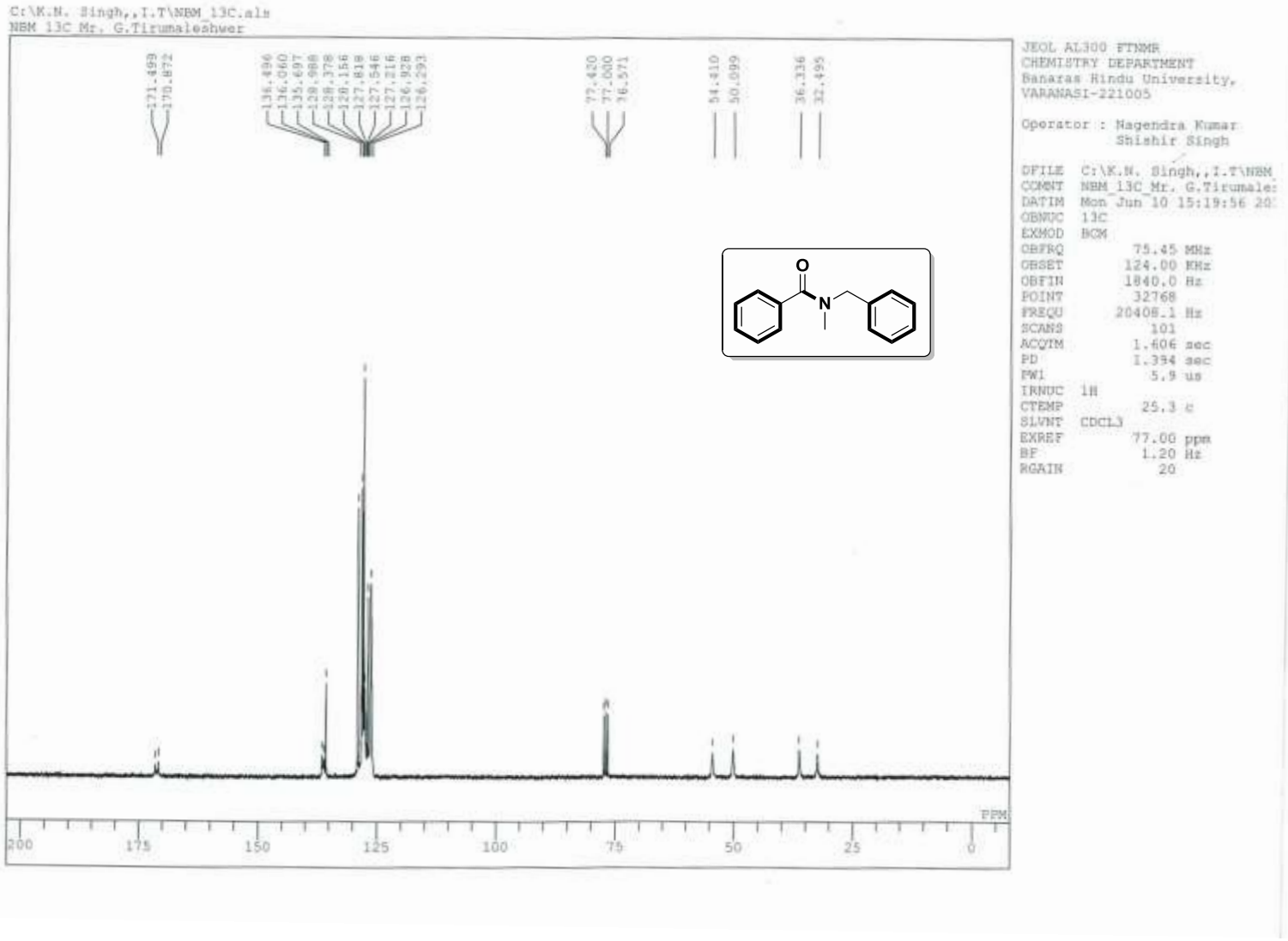

C:\K.N. Singh,,I.T\PCPH_1H.als
PCPH_1H Mr.G.Tirumaleswara Rao
7.688
7.664
7.628
7.600
7.475
7.452
7.420
7.379
7.351
7.327
7.303
7.264
7.253
7.244
7.235
7.210
6.123
3.738
3.716
3.696
3.674
2.951
2.928
2.905
0.000
6.94
2.02
1.18
2.00
2.07
PPM
10
8
6
4
2
0
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\PCPH
COMNT PCPH_1H Mr.G.Tirumalesw
DATIM Sat Jun 08 11:34:31 20
OBNUC 1H
EXMOD NON
OBFRQ 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQU 9505.7 Hz
SCANS 21
ACQTM 3.447 sec
PD 1.547 sec
PW1 5.2 us
IRNUC 1H
CTEMP 22.3 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 1.20 Hz
RGAIN 18
O
N
H
Cl

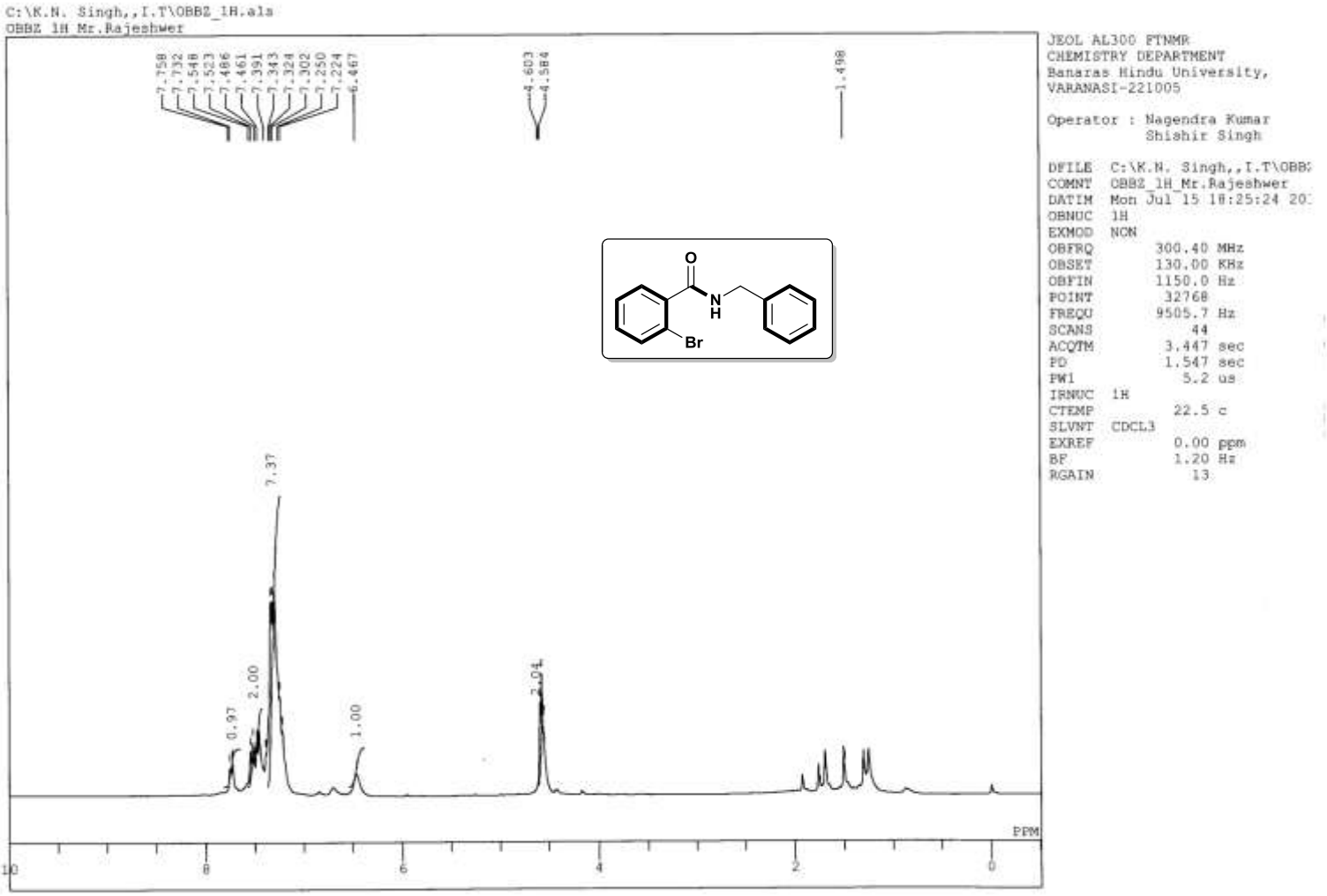

C:\WINNMR98\Data\VPH_1H2BCM_E4.als
VPH 13C Mr.Tirumaleshwer
166.150
138.680
136.414
134.700
131.403
129.829
128.733
127.233
126.639
124.834
77.429
77.000
76.580
41.231
35.578
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\WINNMR98\Data\VPH_1
COMNT VPH_13C_Mr.Tirumaleshw
DATIM Mon Jul 01 14:51:20 20
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 200
ACQTM 1.606 sec
PD 1.394 sec
PW1 5.9 us
IRNUC 1H
CTEMP 24.4 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 22
O
N
H
Cl
PPM
200
175
150
125
100
75
50
25
0

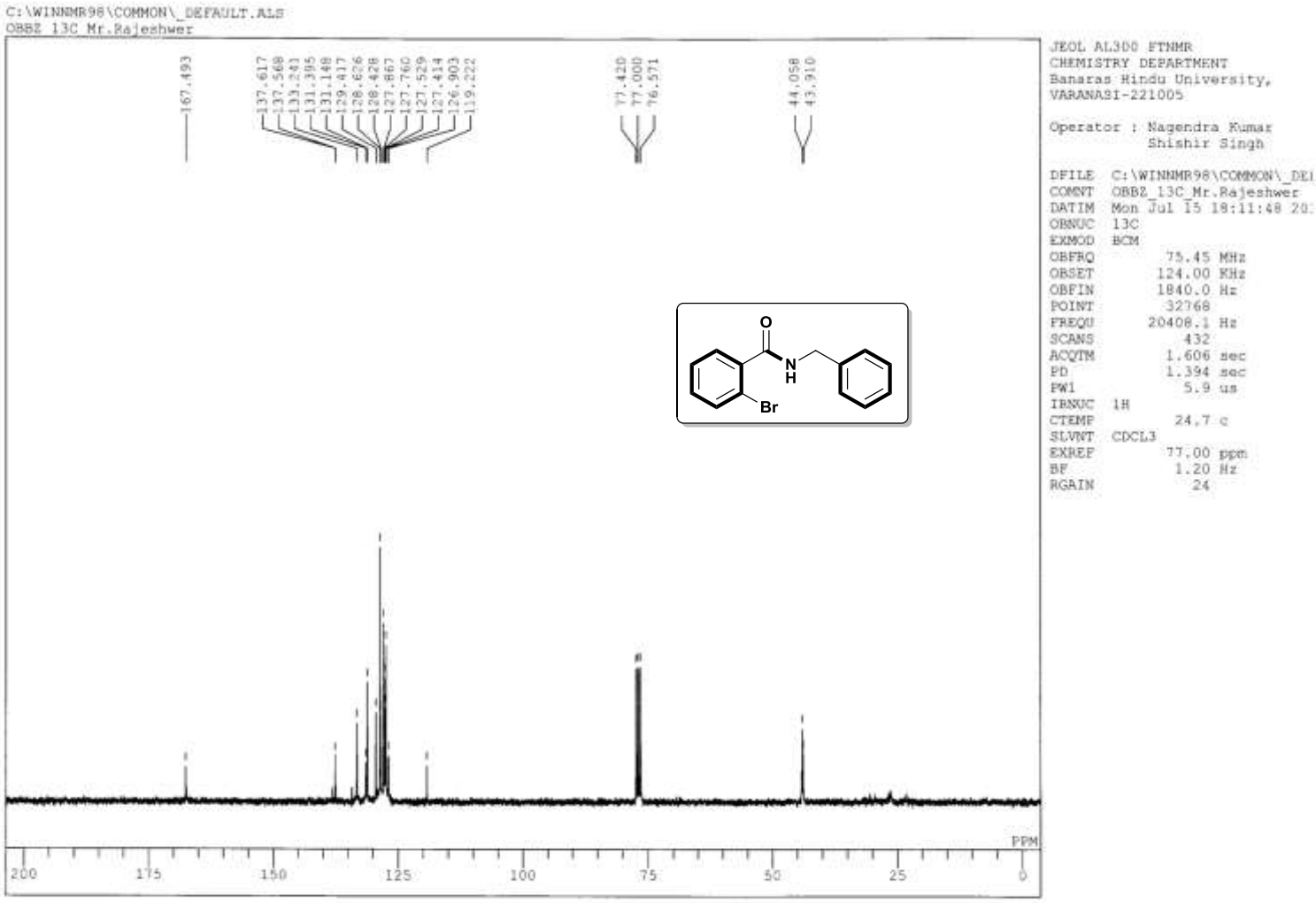

D:\WINNMR98\COMMON_DEFAULT.ALS
PNPH_1H_Mr.G.Tirumaleswara_Rao
8.240
8.212
7.843
7.815
7.350
7.328
7.304
7.270
7.258
7.248
7.232
7.208
6.405
3.764
3.741
3.720
3.699
2.972
2.949
2.927
1.785
1.255
0.000
5.00
2.00
1.94
1.93
2.09
PPM
10
8
6
4
2
0
O
N
H
O2N
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\WINNMR98\COMMON_DEI
COMNT PNPH_1H_Mr.G.Tirumales
DATIM Mon Jun 03 12:22:05 20
OBNUC 1H
EXMOD NON
OBFRQ 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQQ 9505.7 Hz
SCANS 21
ACQTM 3.447 sec
PD 1.547 sec
PW1 5.2 us
IRNUC 1H
CTEMP 20.4 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 1.20 Hz
RGAIN 16

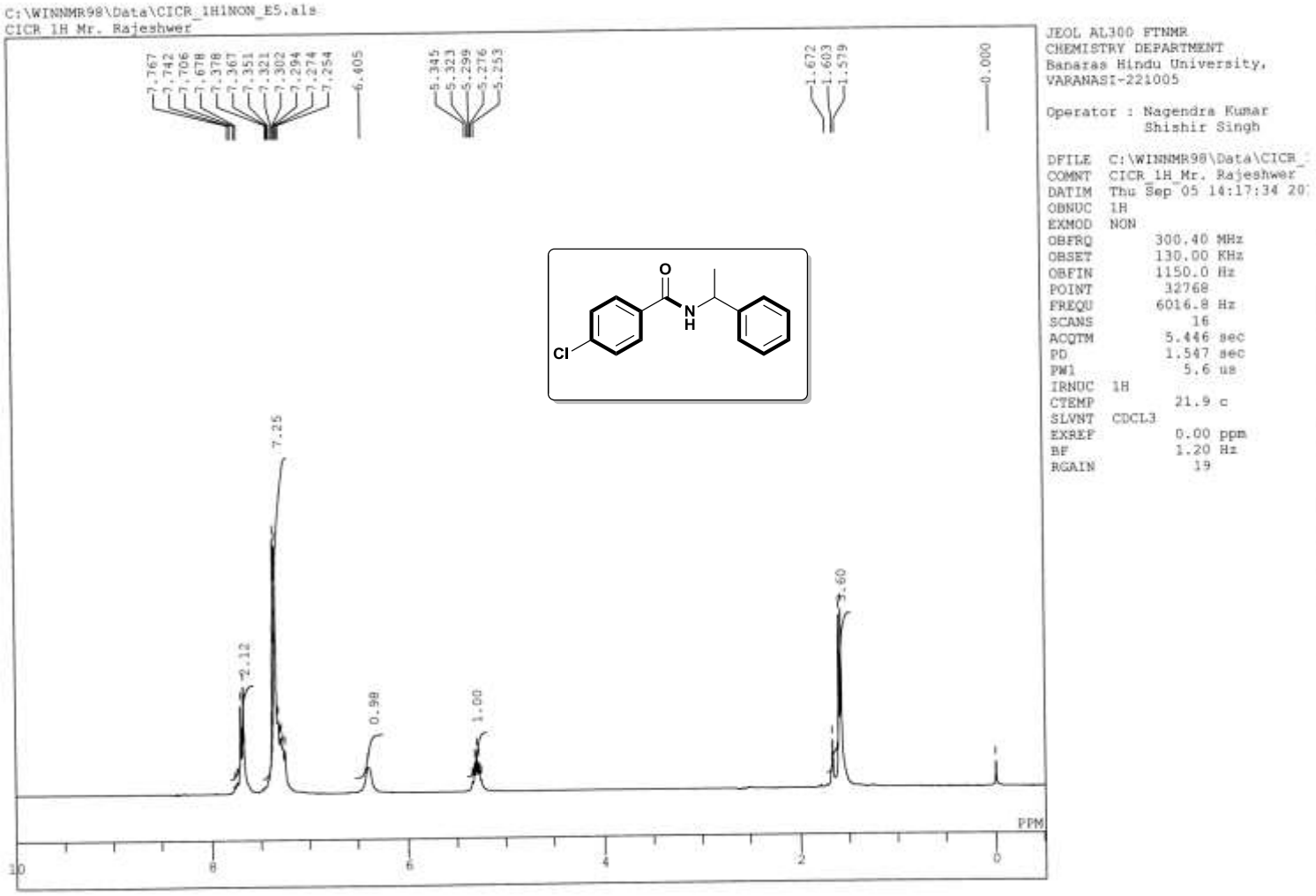

C:\K.N. Singh,,I.T\PNPH_13C_.als
PNPH 13C Mr.G.Tirumaleswara Rao
165.449
149.436
140.139
138.425
128.692
127.975
126.722
123.722
77.420
77.000
76.571
41.347
35.404
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\PNPH
COMNT PNPH 13C Mr.G.Tirumales
DATIM Mon Jun 03 12:41:15 20
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 110
ACQTM 1.606 sec
PD 1.394 sec
PW1 5.9 us
IRNUC 1H
CTEMP 22.8 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 17
O
N
H
O2N
PPM
200
175
150
125
100
75
50
25
0

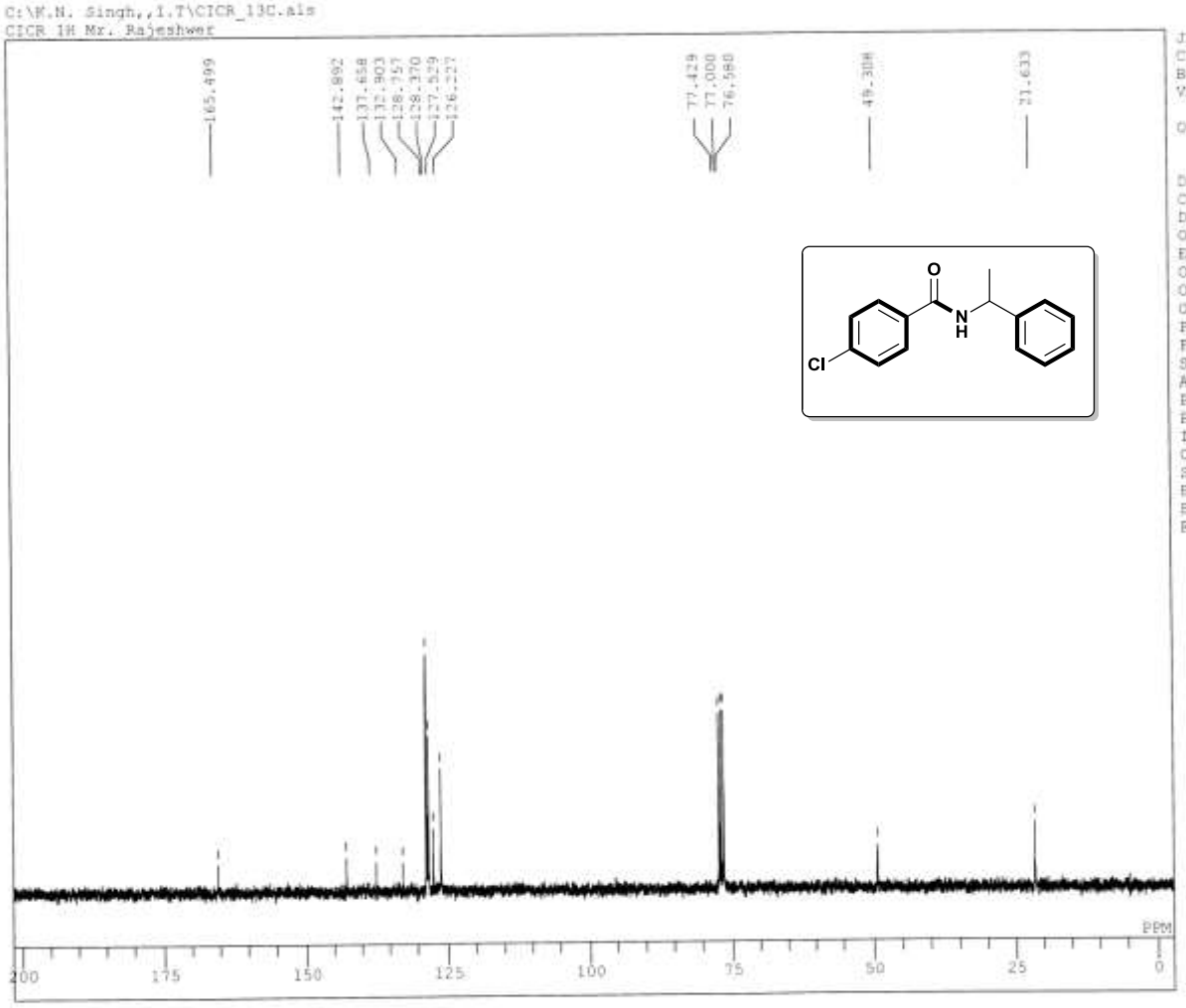

C:\K.N. Singh,,I.T\NBM_1H.als
NBM 1H Mr. G.Tirumaleshwer
7.354
7.240
7.054
4.652
4.382
2.909
2.719
10.00
0.85
0.73
3.00
PPM
10
8
6
4
2
0
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University
VARANASI-221005
Operator : Nagendra Kuma
Shishir Singh
DFILE C:\K.N. Singh,,I
COMNT NBM_1H_Mr. G.Tir
DATIM Mon Jun 10 15:23
OBNUC 1H
EXMOD NON
OBFRQ 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQU 9505.7 Hz
SCANS 8
ACQTM 3.447 sec
PD 1.547 sec
PW1 5.2 us
IRNUC 1H
CTEMP 23.7 c
SLVNT CDCL3
EXREF 7.24 ppm
BF 1.20 Hz
RGAIN 7

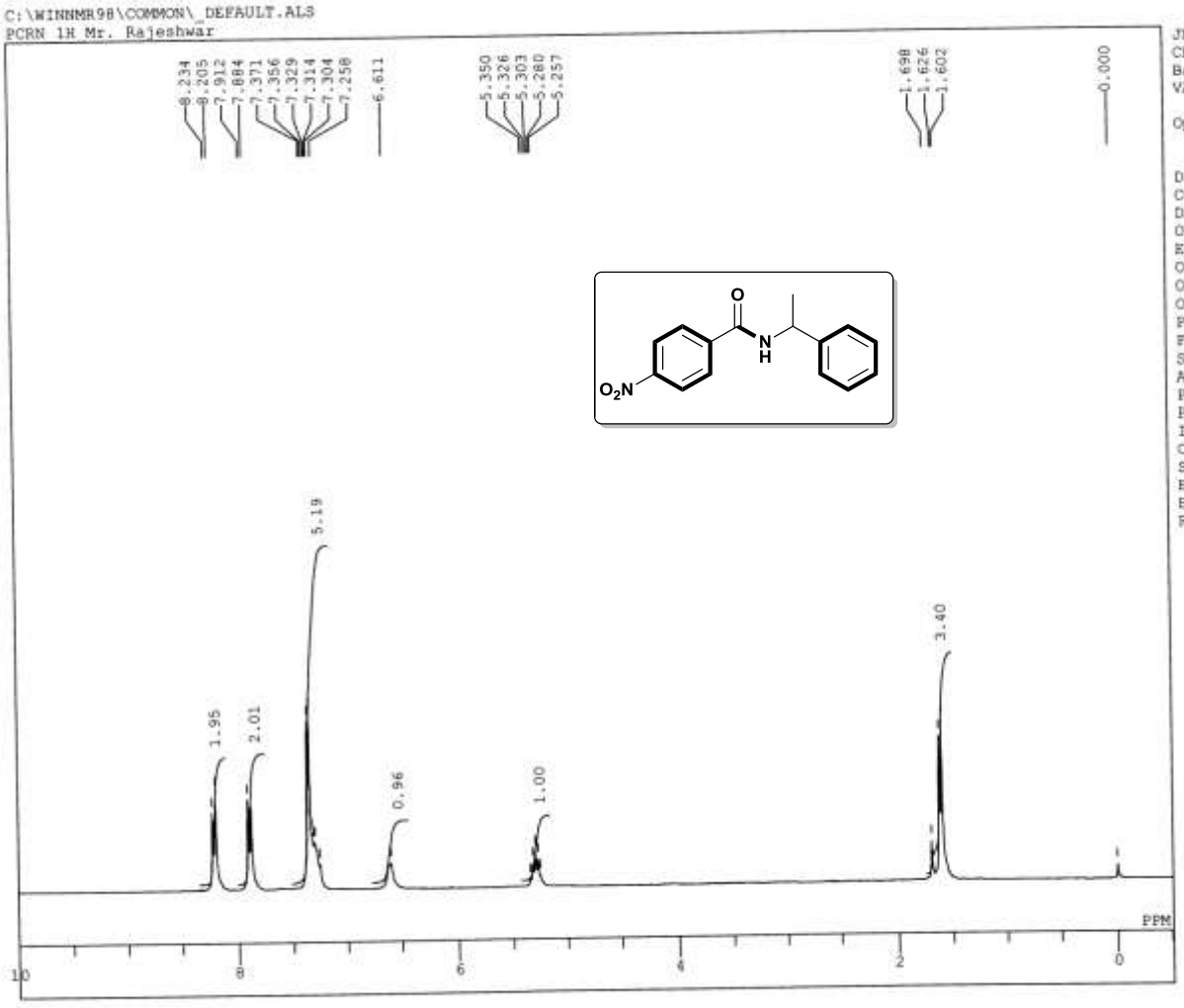

C:\K.N. Singh,,I.T\NBM_13C.als
NBM 13C Mr. G.Tirumaleshwer
171.499
170.872
136.496
136.060
135.697
129.988
128.378
128.156
127.818
127.546
127.216
126.928
126.293
77.420
77.000
76.571
54.410
50.099
36.336
32.495
O
N
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\NBM_
COMNT NBM_13C Mr. G.Tirumale
DATIM Mon Jun 10 15:19:56 20
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 101
ACQTM 1.606 sec
PD 1.394 sec
PW1 5.9 us
IRNUC 1H
CTEMP 25.3 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 20
PPM
200
175
150
125
100
75
50
25
0


C:\K.N. Singh,,I.T\OBBZ_1H.als
OBBZ 1H Mr.Rajeshwer
7.758
7.732
7.548
7.523
7.466
7.461
7.391
7.343
7.324
7.302
7.250
7.224
6.467
4.603
4.584
1.498
O
N
H
Br
7.37
2.00
0.97
1.00
2.04
PPM
10
8
6
4
2
0
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\OBB
COMNT OBBZ_1H_Mr.Rajeshwer
DATIM Mon Jul 15 18:25:24 20
OBNUC 1H
EXMOD NON
OBFRQ 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQU 9505.7 Hz
SCANS 44
ACQTM 3.447 sec
PD 1.547 sec
PW1 5.2 us
IRNUC 1H
CTEMP 22.5 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 1.20 Hz
RGAIN 13


C:\WINNMR98\COMMON_DEFAULT.ALS
OBBZ 13C Mr.Rajeshwer
167.493
137.617
137.568
133.241
131.395
131.148
129.417
128.626
128.428
127.867
127.760
127.529
127.414
126.903
119.222
77.420
77.000
76.571
44.058
43.910
O
N
H
Br
PPM
200
175
150
125
100
75
50
25
0
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\WINNMR98\COMMON_DE
COMNT OBBZ 13C Mr.Rajeshwer
DATIM Mon Jul 15 18:11:48 20
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 432
ACQTM 1.606 sec
PD 1.394 sec
PW1 5.9 us
IRNUC 1H
CTEMP 24.7 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 24


C:\WINNMR98\Data\CICR_1H1NON_E5.als
CICR 1H Mr. Rajeshwer
7.767
7.742
7.706
7.678
7.378
7.367
7.351
7.321
7.302
7.294
7.274
7.254
6.605
5.345
5.323
5.299
5.276
5.253
1.672
1.603
1.579
0.000
O
N
H
Cl
7.25
2.12
0.98
1.00
3.60
PPM
10
8
6
4
2
0
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\WINNMR98\Data\CICR_
COMNT CICR_1H_Mr. Rajeshwer
DATIM Thu Sep 05 14:17:34 20
OBNUC 1H
EXMOD NON
OBFRQ 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQU 6016.8 Hz
SCANS 16
ACQTM 5.446 sec
PD 1.547 sec
PW1 5.6 us
IRNUC 1H
CTEMP 21.9 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 1.20 Hz
RGAIN 19

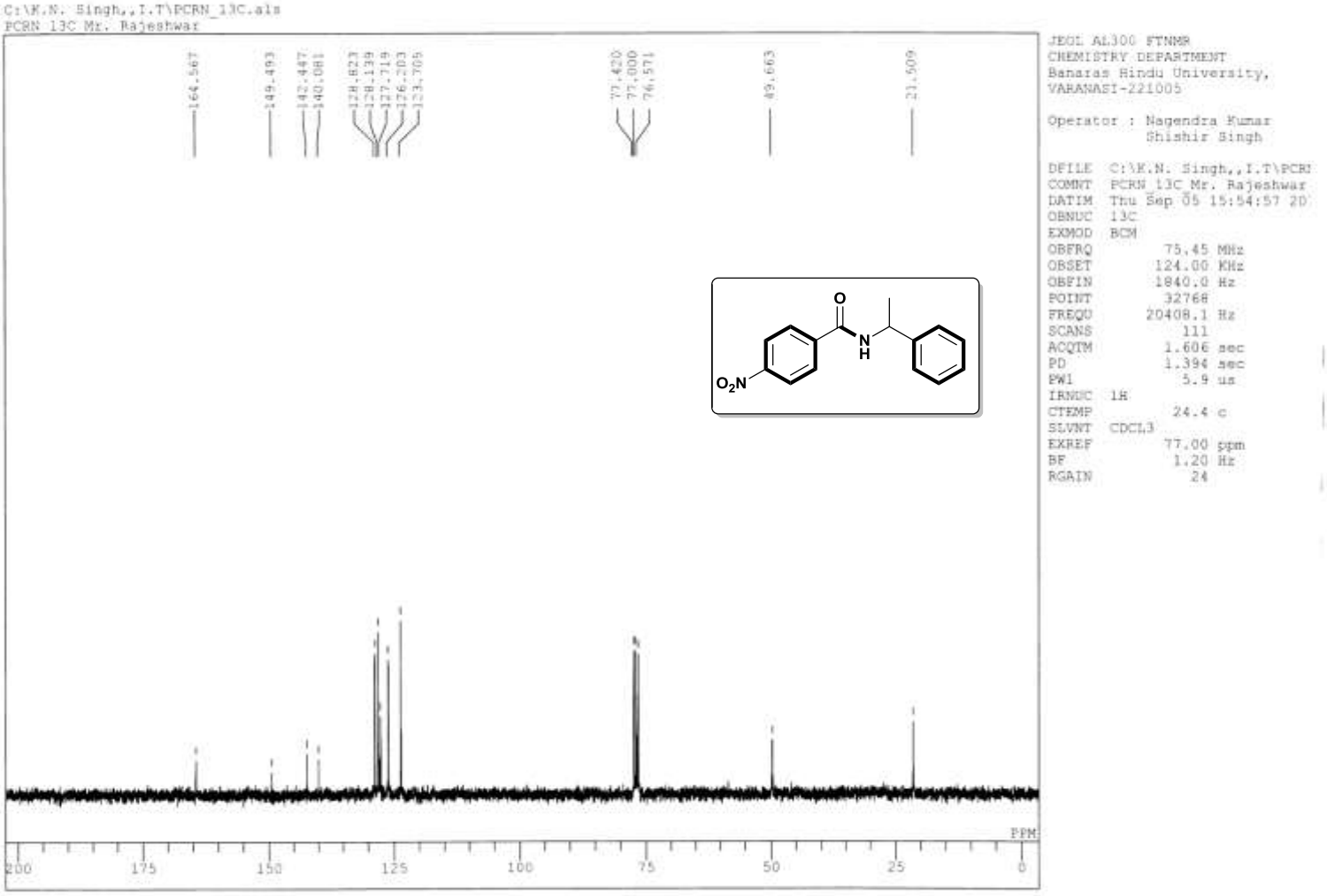

C:\K.N. Singh,,I.T\CICR_13C.als
CICR 1H Mr. Rajeshwer
165.499
142.892
137.658
132.903
128.757
128.370
127.529
126.227
77.429
77.000
76.580
49.308
21.633
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\CICI
COMNT CICR_1H_Mr. Rajeshwer
DATIM Thu Sep 05 14:27:56 20
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 200
ACQTM 1.606 sec
PD 1.394 sec
PW1 5.9 us
IRNUC 1H
CTEMP 23.8 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 24
O
N
H
Cl
PPM
200
175
150
125
100
75
50
25
0



JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005

Operator : Nagendra Kumar
Shishir Singh

DFILE	C:\WINNMR98\COMMON_DEI
COMNT	PCRN 1H Mr. Rajeshwar
DATIM	Thu Sep 05 15:47:36 20
OBNUC	1H
EXMOD	NON
OBFRQ	300.40 MHz
OBSET	130.00 KHz
OBFIN	1150.0 Hz
POINT	32768
FREQU	9505.7 Hz
SCANS	16
ACQTM	3.447 sec
PD	1.547 sec
PW1	5.2 us
IRNUC	1H
CTEMP	22.3 c
SLVNT	CDCL3
EXREF	0.00 ppm
BF	1.20 Hz
RGAIN	18


C:\K.N. Singh,,I.T\PCRN_13C.als
PCRN 13C Mr. Rajeshwar
164.567
149.493
142.447
140.081
128.823
128.139
127.719
126.203
123.705
77.420
77.000
76.571
49.663
21.509
O
N
H
O2N
PPM
200
175
150
125
100
75
50
25
0
JEOL AL300 FTNMR
CHEMISTRY DEPARTMENT
Banaras Hindu University,
VARANASI-221005
Operator : Nagendra Kumar
Shishir Singh
DFILE C:\K.N. Singh,,I.T\PCRN
COMNT PCRN 13C Mr. Rajeshwar
DATIM Thu Sep 05 15:54:57 20
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 111
ACQTM 1.606 sec
PD 1.394 sec
PW1 5.9 us
IRNUC 1H
CTEMP 24.4 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 24