

Supporting Information

Sulfonic Acid Functionalized Ionic Liquid in Combinatorial Approach, a Recyclable and Water Tolerant-Acidic Catalyst for One-Pot Friedlander Quinoline Synthesis

Jafar Akbari, Akbar Heydari*, Hamid Reza Kalhor, Sirius Azizian Kohan

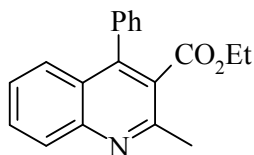
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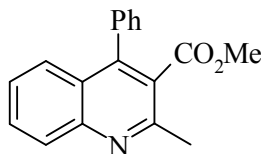
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Spectral data for products S2

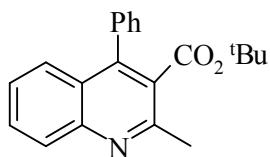
Spectra of products: S5



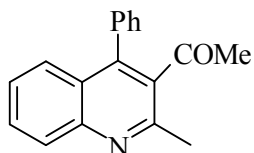
(entry 1): Mp 105-106 °C. $^1\text{H-NMR}$ (CDCl_3 , 500 MHz) δ : 0.97 (t, $J = 7.2$ Hz, 3H), 2.82 (s, 3H), 4.10 (q, $J = 7.2$ Hz, 2H), 7.37-7.42 (m, 2H), 7.45-7.54 (m, 4H), 7.62 (dd, $J = 8.4, 1.0$ Hz, 1H), 7.75 (td, $J = 8.3, 1.5$ Hz, 1H), 8.11 (d, $J = 8.5$ Hz, 1H). $^{13}\text{C-NMR}$ (CDCl_3 , 125 MHz) δ : 14.1, 24.3, 61.8, 125.5, 126.8, 126.9, 127.8, 128.7, 128.9, 129.3, 129.8, 130.7, 136.1, 146.7, 148.1, 155.0, 168.9.



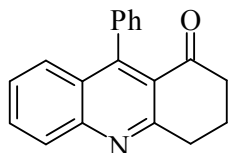
(entry 2): Mp 107 °C; $^1\text{H NMR}$ (500 MHz, CDCl_3): δ : 2.78 (s, 3H), 3.55 (s, 3H), 7.41–8.03 (m, 9H), $^{13}\text{C-NMR}$ (CDCl_3 , 125 MHz): δ : 24.19, 52.59, 126.92, 126.97, 127.72, 128.71, 128.94, 129.66, 130.81, 136.08, 154.97



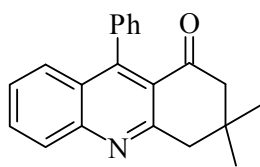
(entry 3), Mp 107 °C; $^1\text{H NMR}$ (500 MHz, CDCl_3): δ : 1.21(s, 9H), 2.81(s, 3H), 6.59-7.69(9H), $^{13}\text{C-NMR}$ (CDCl_3 , 125 MHz): 23.60, 27.61, 82.35, 115.52, 116.99, 125.44, 126.8, 126.9, 127.8, 128.7, 128.9, 129.3, 129.8, 130.7, 136.1, 146.7, 148.1, 155.0, 168.9.



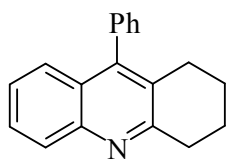
(entry 4): Mp 107 °C; $^1\text{H NMR}$ (500 MHz, CDCl_3): δ 2.01 (s, 3H), 2.70(s,3H), 7.27-8.09 (9H). $^{13}\text{C-NMR}$ (CDCl_3 , 125 MHz): 23.80, 31.91, 125.08, 126.16, 126.50, 128.69, 130.07, 134.87, 143.92, 147.59, 153.59, 205.57.



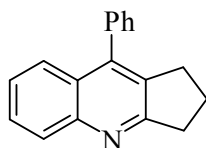
(entry 5): Mp 159 °C; $^1\text{HNMR}$ (500 MHz, CDCl_3): δ : 2.21 (q, 2H), 2.69 (t, 2H), 3.36 (t, 2H), 7.21–8.02 (m, 9H). $^{13}\text{C NMR}$ (125 MHz, CDCl_3): δ : 20.86, 34.09, 40.09, 123.38, 125.90, 127.00, 127.67, 128.09, 131.11, 137.20, 148.21, 150.65, 161.73, 197.08.



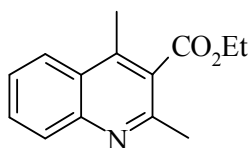
(entry 6): Mp 192°C; ^1H NMR (500 MHz, CDCl_3): δ : 1.15 (s, 6H), 2.55 (s, 2H), 3.27 (s, 2H), 7.18–8.02 (m, 9H). ^{13}C NMR(125 MHz, CDCl_3): δ : 28.18, 31.99, 48.25, 54.04, 126.24, 127.26, 127.91, 127.98, 128.44, 131.27, 137.46, 148.91, 150.71, 160.94, 197.48



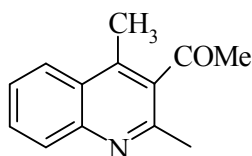
(entry 7): Mp 131-132 °C. ^1H -NMR (CDCl_3 , 500 MHz) δ : 1.64-1.66 (m, 2H), 1.88-1.89 (m, 4H), 2.70-2.75 (m, 2H), 3.31-3.33 (m, 2H), 7.24-7.38 (m, 4H), 7.48-7.65 (m, 4H), 8.06 (d, J = 8.4 Hz, 1H). ^{13}C -NMR (CDCl_3 , 125 MHz) δ : 27.5, 28.9, 31.1, 32.4, 40.6, 126.0, 126.8, 127.3, 128.0, 128.6, 128.9, 129.0, 129.9, 134.2, 138.1, 145.9, 146.2, 165.2.



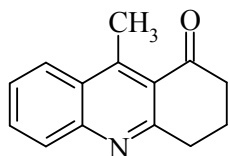
(entry 8): Mp 148-149 °C. ^1H -NMR (CDCl_3 , 500MHz) δ : 1.78-1.86 (m, 2H), 1.94-2.04 (m, 2H), 2.63 (t, J = 6.3 Hz, 2H), 3.23 (t, J = 6.6 Hz, 2H), 7.24-7.35 (m, 4H), 7.49-7.66 (m, 4H), 8.05 (d, J = 8.4 Hz, 1H). ^{13}C -NMR (CDCl_3 , 125MHz) δ : 23.3, 23.4, 28.5, 34.7, 125.8, 126.2, 127.1, 128.1, 128.8, 129.0, 129.5, 137.6, 146.7, 146.9, 159.



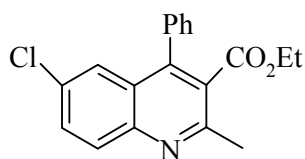
(entry 9): ^1H -NMR (CDCl_3 , 500 MHz) δ : 1.46 (t, J = 7.1 Hz, 3H), 2.67 (s, 3H), 2.73 (s, 3H), 4.51 (q, J = 7.1 Hz, 2H), 7.56 (td, J = 8.2, 1.0 Hz, 1H), 7.72 (td, J = 8.2, 1.0 Hz, 1H), 7.98-8.05 (m, 2H). ^{13}C -NMR (CDCl_3 , 125 MHz) δ : 14.7, 16.1, 24.2, 62.1, 124.4, 126.2, 126.7, 128.4, 129.7, 130.5, 141.8, 147.5, 154.7, 169.6.



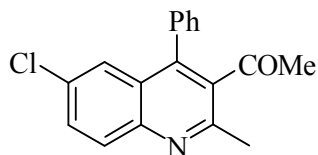
(entry **10**): $^1\text{H-NMR}$ (CDCl_3 , 500MHz) δ : 2.57 (s, 3H), 2.58 (s, 3H), 2.62 (s, 3H), 7.53-8.01 (m, 4H); $^{13}\text{C-NMR}$ (CDCl_3 , 125 MHz): δ : 15, 23.3, 32.4, 123.5, 126.2, 129, 129.6, 135.6, 138.4, 146.7, 152.4, 206.3.



(entry **11**): Mp: 78 °C; $^1\text{H-NMR}$ (CDCl_3 , 500MHz) δ : 2.25 (m, 2H), 2.31(s, 3H), 2.72(t, 2H), 3.21 (t,2H), 7.52-8.14 (m, 4H); $^{13}\text{C-NMR}$, CDCl_3 ,125 MHz) δ : 12.9, 22.3, 33.9, 38.9, 122.8, 124.7, 128.4, 132.2, 135.5, 149.7, 162.3, 198.6.



(entry **12**): Mp 104-105 °C: $^1\text{H-NMR}$ (CDCl_3 , 500 MHz) δ : 0.97 (t, $J = 7.1$ Hz, 3H), 2.80 (s, 3H), 4.10 (q, $J = 7.1$ Hz, 2H), 7.35-7.39 (m, 2H), 7.52-7.57 (m, 4H), 7.68 (dd, $J = 8.9, 2.4$ Hz, 1H), 8.04 (d, $J = 8.9$ Hz, 1H). $^{13}\text{C-NMR}$ (CDCl_3 , 125 MHz) δ : 14.1, 24.2, 61.9, 125.6, 126.4, 128.6, 128.9, 129.2, 129.7, 130.9, 131.6, 132.7, 135.4, 145.8, 146.5, 155.4, 168.5.



(entry **13**): Mp 157 °C; $^1\text{H-NMR}$ (CDCl_3 ,500 MHz): δ : 2.00 (s, 3H), 2.68 (s, 3H), 7.35–7.95 (m, 8H). $^{13}\text{C-NMR}$ (CDCl_3 , 125 MHz): δ : 23.6, 31.6, 124.7, 125.8, 128.8, 129.1, 129.8, 130.8, 132.3, 134.5, 135.4, 142.9, 145.8, 153.8, 204.9.

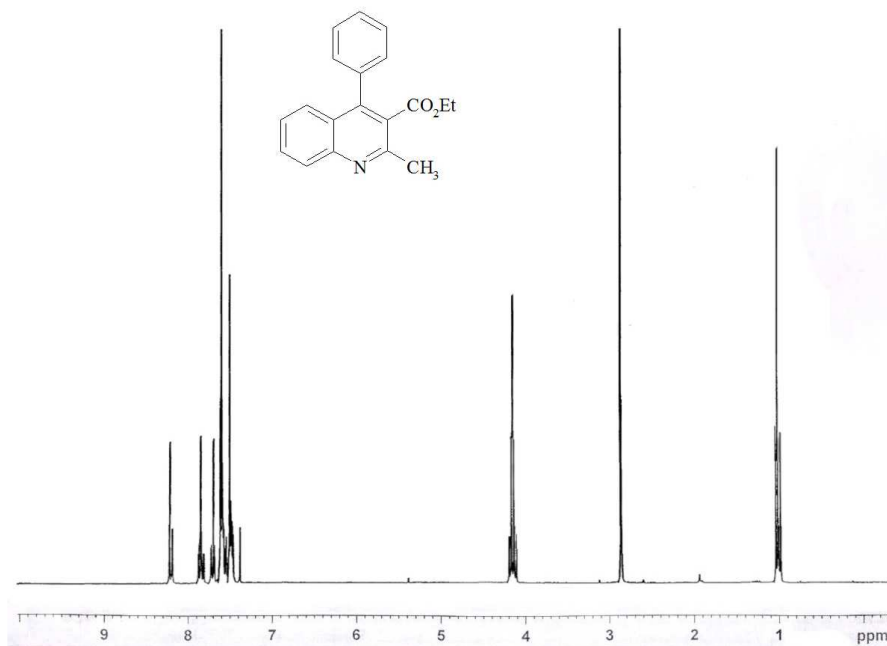


Current Data Parameters
NAME akbari
EXPNO 233
PROCNO 1

F2 - Acquisition Parameters
Date 20090824
Time 9.47
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zg
TD 32768
SOLVENT CDCl3
NS 8
DS 0
SWH 10330.578 Hz
FIDRES 0.315264 Hz
AQ 1.5860696 sec
RG 50.8
DM 48.400 usec
DE 6.00 usec
TE 300.0 K
D1 6.0000000 sec
TDO

CHANNEL f1
NUC1 1H
P1 15.00 usec
PL1 2.00 dB
SFO1 500.130885 MHz

F2 - Processing parameters
SI 32768
SF 500.130093 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



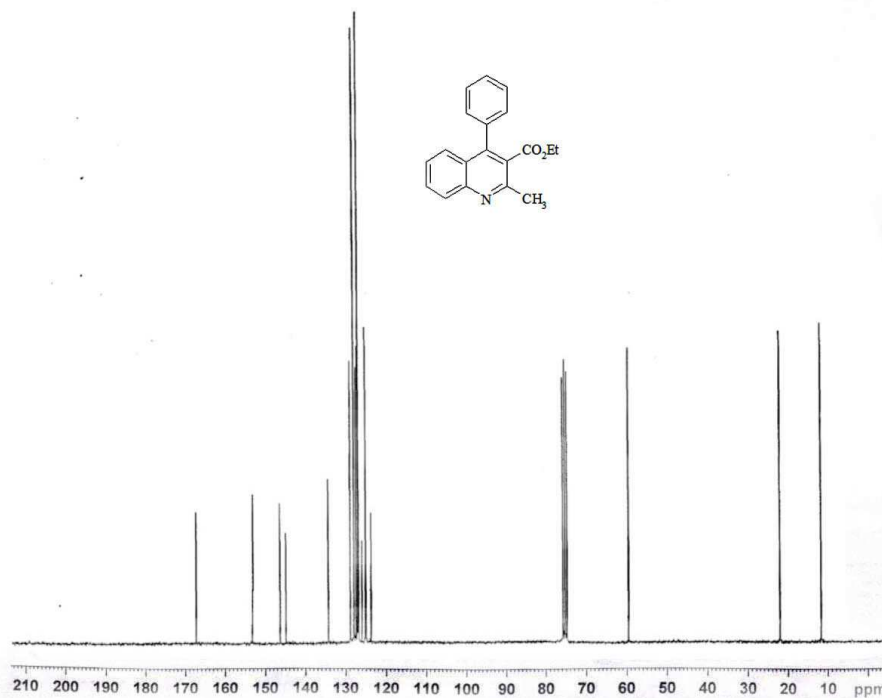
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EXPNO 234
PROCNO 1

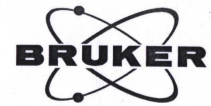
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Time 9.48
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PULPROG zgpg3
TD 65536
SOLVENT CDCl3
NS 935
DS 0
SWH 31446.541 Hz
FIDRES 0.479836 Hz
AQ 1.0420883 sec
RG 1149.4
DM 15.900 usec
DE 6.00 usec
TE 300.0 K
D1 2.0000000 sec
d11 0.0300000 sec
DELTA 1.8999996 sec
TDO

CHANNEL f1
NUC1 13C
P1 10.00 usec
PL1 3.00 dB
SFO1 125.7703643 MHz

CHANNEL f2
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 120.00 dB
ELI2 20.00 dB
ELI3 20.00 dB
SFO2 500.1320005 MHz

F2 - Processing parameters
SI 32768
SF 125.7577879 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.00





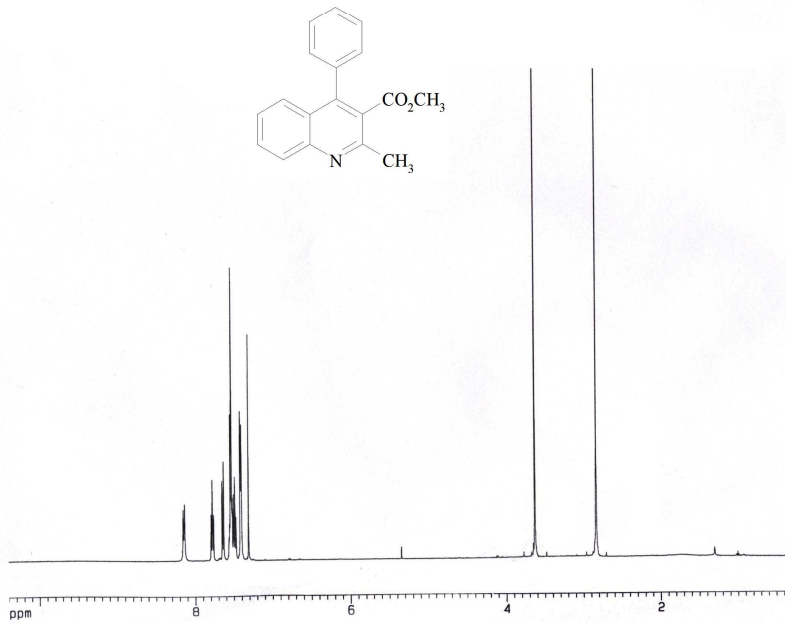
Current Data Parameters
NAME Akbar1
EXPNO 2
PROCNO 1

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Time 13.10
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 32768
SOLVENT CDC13
NS 8
DS 0
SWH 10330.578 Hz
FIDRES 0.315264 Hz
AQ 1.5860696 sec
RG 574.7
DW 48.400 usec
DE 6.50 usec
TE 298.0 K
D1 5.0000000 sec
MCREST 0.0000000 sec
MCWPK 0.0150000 sec

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

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

1D NMR plot parameters
CX 18.00 cm
CY 21.04 cm
F1P 10.400 ppm
F1 5201.58 Hz
F2P 0.331 ppm
F2 165.42 Hz
PPMCM 0.55943 ppm/cm
HZCM 279.78653 Hz/cm



Current Data Parameters
NAME Akbar1
EXPNO 3
PROCNO 1

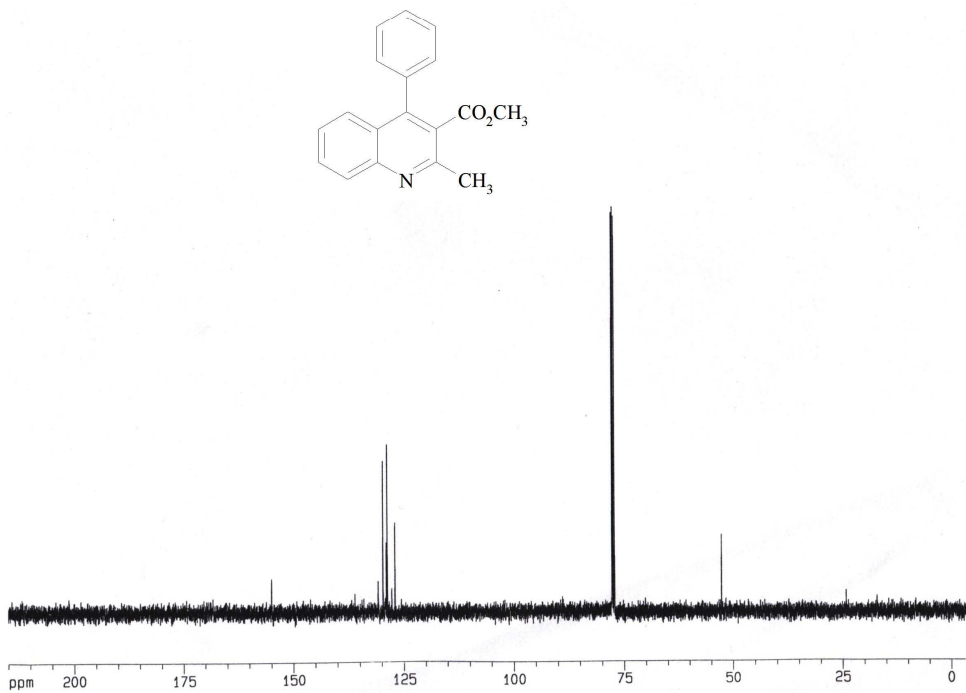
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Date_ 20090603
Time 13.11
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 32768
SOLVENT CDC13
NS 308
DS 4
SWH 30030.029 Hz
FIDRES 0.916444 Hz
AQ 0.5456539 s
RG 13004
DW 16.650 u
DE 6.50 u
TE 298.0 K
D1 1.0000000 s
d11 0.0300000 s
DELTA 0.89999999 s
MCREST 0.0000000 s
MCWPK 0.0150000 s

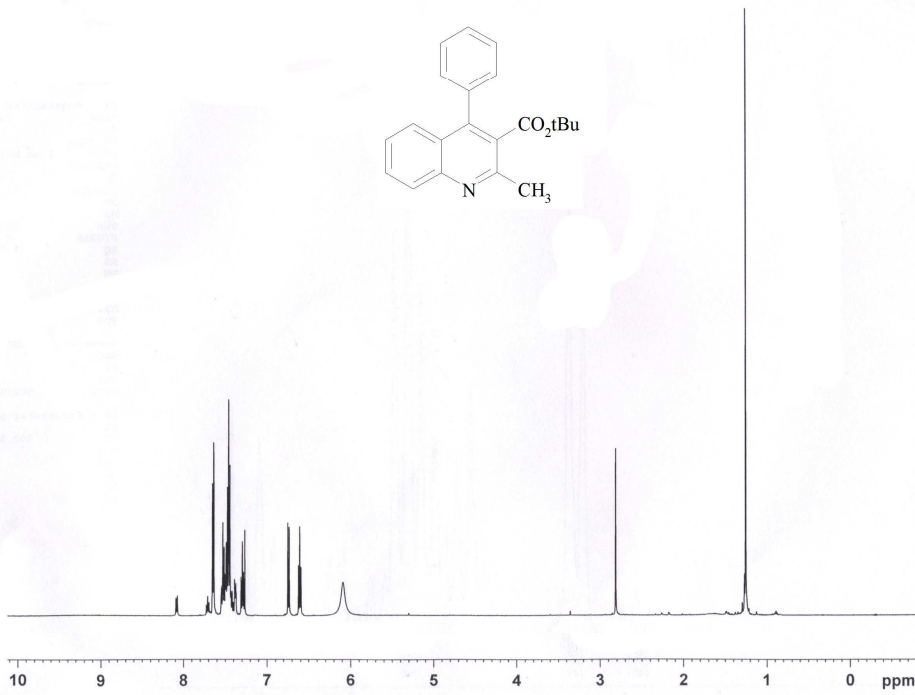
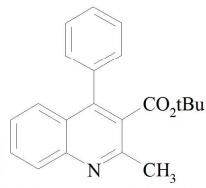
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NUC1 13C
P1 9.10 u
PL1 3.00 dB
SFO1 125.7703643 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 u
PL2 0.00 dB
PL12 15.50 dB
PL13 15.50 dB
SFO2 500.1320005 MHz

F2 - Processing parameter
SI 32768
SF 125.7577390 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 20.00 cm
CY 8.30 cm
F1P 215.000 ppm
F1 27037.92 Hz
F2P -5.000 ppm
F2 -628.79 Hz
PPMCM 11.00000 ppm
HZCM 1383.33508 Hz/cm



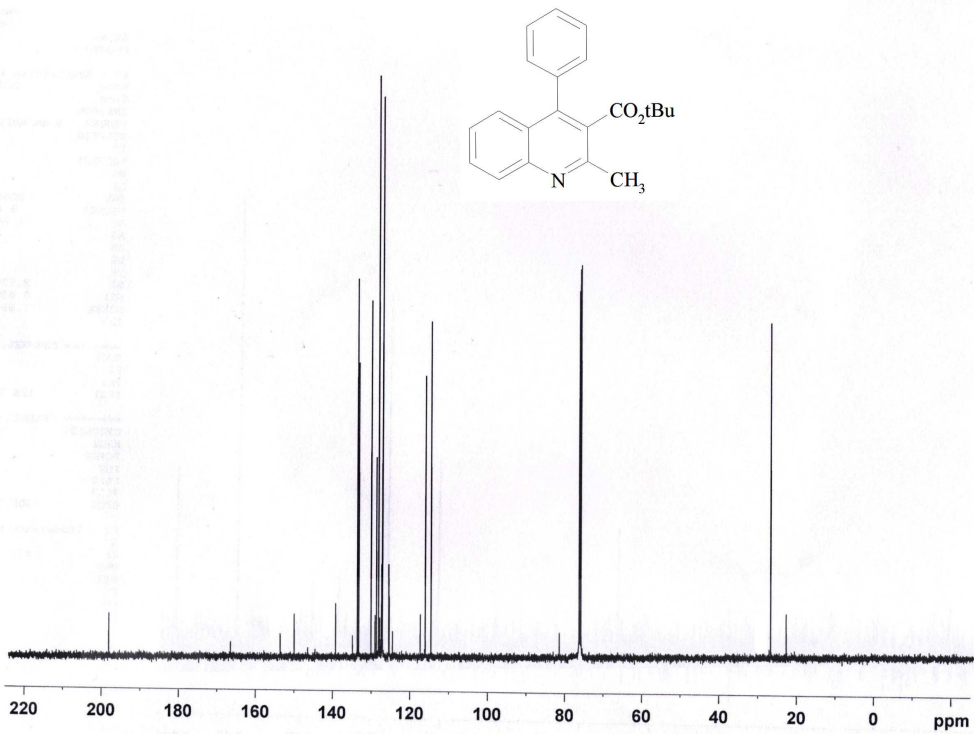
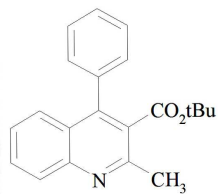


Current Data Parameters
NAME akhari
EXPNO 219
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090620
Time 18.51
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zg
TD 32768
SOLVENT CDCl3
NS 8
DS 0
SWH 10330.578 Hz
FIDRES 0.315264 Hz
AQ 1.5860696 sec
RG 101.6
DW 48.400 usec
DE 6.00 usec
TE 300.0 K
D1 6.0000000 sec
TDO 1

==== CHANNEL f1 =====
NUC1 1H
P1 15.00 usec
PL1 2.00 dB
SFO1 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300993 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 3.00



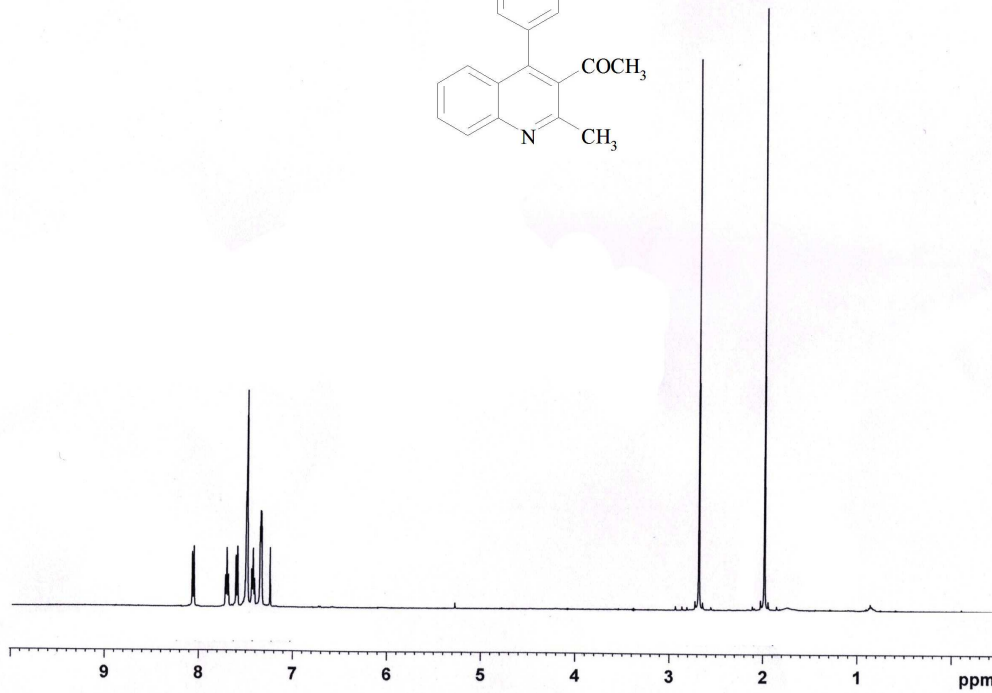
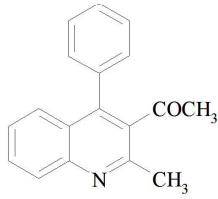
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NAME akhari
EXPNO 220
PROCNO 1

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Time 18.54
INSTRUM spect
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PULPROG zgpg
TD 65536
SOLVENT CDCl3
NS 1418
DS 0
SWH 31446.541 Hz
FIDRES 0.479836 Hz
AQ 1.0420882 sec
RG 5160.6
DW 15.900 usec
DE 6.00 usec
TE 300.0 K
D1 2.0000000 sec
d11 0.0300000 sec
DELTA 1.89999998 sec
TDO 1

==== CHANNEL f1 =====
NUC1 13C
P1 10.00 usec
PL1 3.00 dB
SFO1 125.7703643 MHz

==== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 120.00 dB
PL12 20.00 dB
PL13 20.00 dB
SFO2 500.1320005 MHz

F2 - Processing parameters
SI 32768
SF 125.7577879 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.00

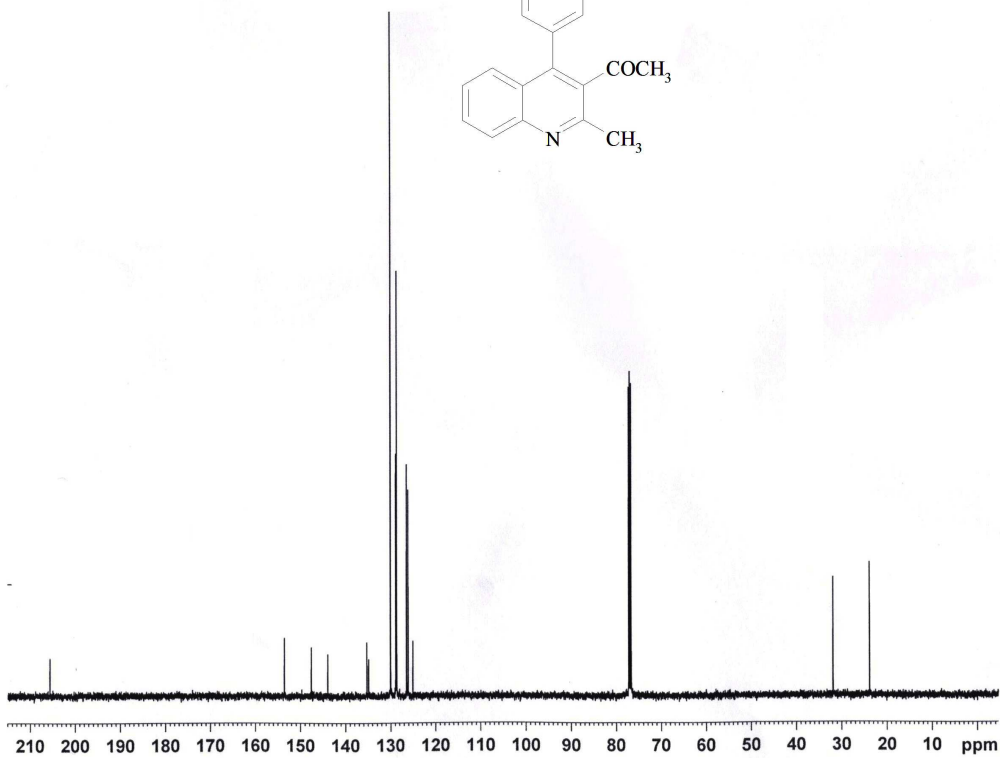
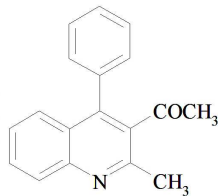


Current Data Parameters
NAME akbari
EXPNO 213
PROCNO 1

F2 - Acquisition Parameters
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Time 14.03
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zg
TD 32768
SOLVENT CDC13
NS 8
DS 0
SWH 10330.578 Hz
FIDRES 0.315264 Hz
AQ 1.5860696 sec
RG 101.6
DW 48.400 usec
DE 6.00 usec
TE 300.0 K
D1 6.0000000 sec
TDO 1

===== CHANNEL f1 =====
NUC1 1H
P1 15.00 usec
PL1 2.00 dB
SFO1 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300093 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 3.00



Current Data Parameters
NAME akbari
EXPNO 214
PROCNO 1

F2 - Acquisition Parameters
Date 20090620
Time 14.32
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zgpg
TD 65536
SOLVENT CDC13
NS 600
DS 0
SWH 31446.541 Hz
FIDRES 0.479836 Hz
AQ 1.0420883 sec
RG 1149.4
DW 15.900 usec
DE 6.00 usec
TE 300.0 K
D1 2.0000000 sec
d11 0.0300000 sec
DELTA 1.89999998 sec
TDO 1

===== CHANNEL f1 =====
NUC1 13C
P1 10.00 usec
PL1 3.00 dB
SFO1 125.7703643 MHz

===== CHANNEL f2 =====
CDEPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 120.00 dB
PL12 20.00 dB
PL13 20.00 dB
SFO2 500.1320005 MHz

F2 - Processing parameter
SI 32768
SF 125.7577879 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.00

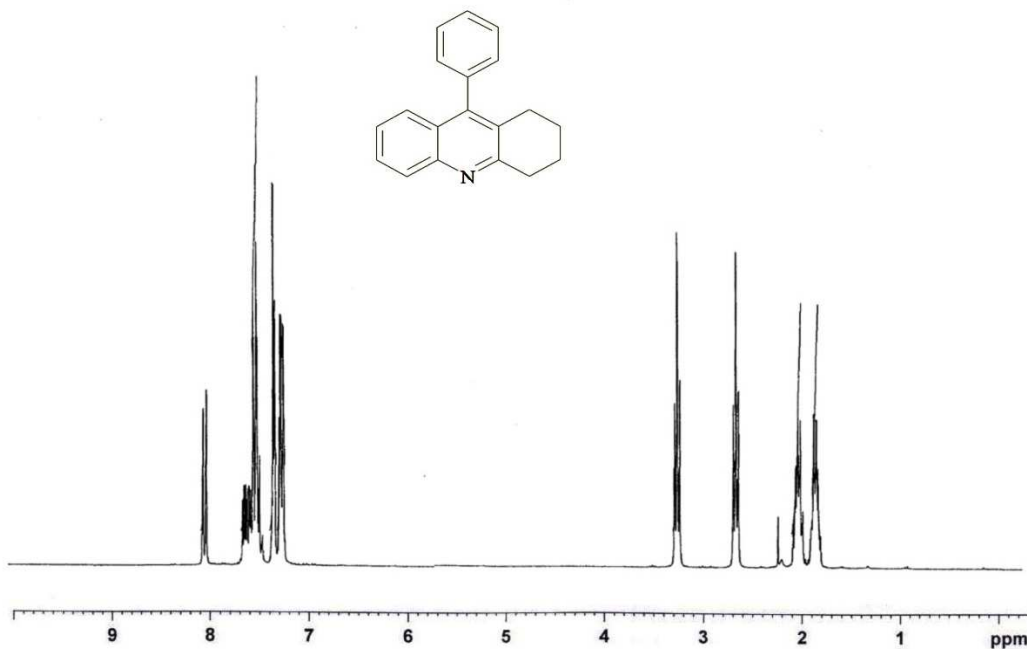


Current Data Parameters
NAME hossainim
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090927
Time 11.39
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zg
TD 32768
SOLVENT (CDCl3)
NS 8
DS 0
SWH 10330.578 Hz
FIDRES 0.315264 Hz
AQ 1.5860696 sec
RG 80.6
DW 48.400 usec
DE 6.00 usec
TE 300.0 K
D1 6.0000000 sec
TDO 1

===== CHANNEL f1 =====
NUC1 1H
P1 15.00 usec
PL1 1.00 dB
SFO1 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300097 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 0.70



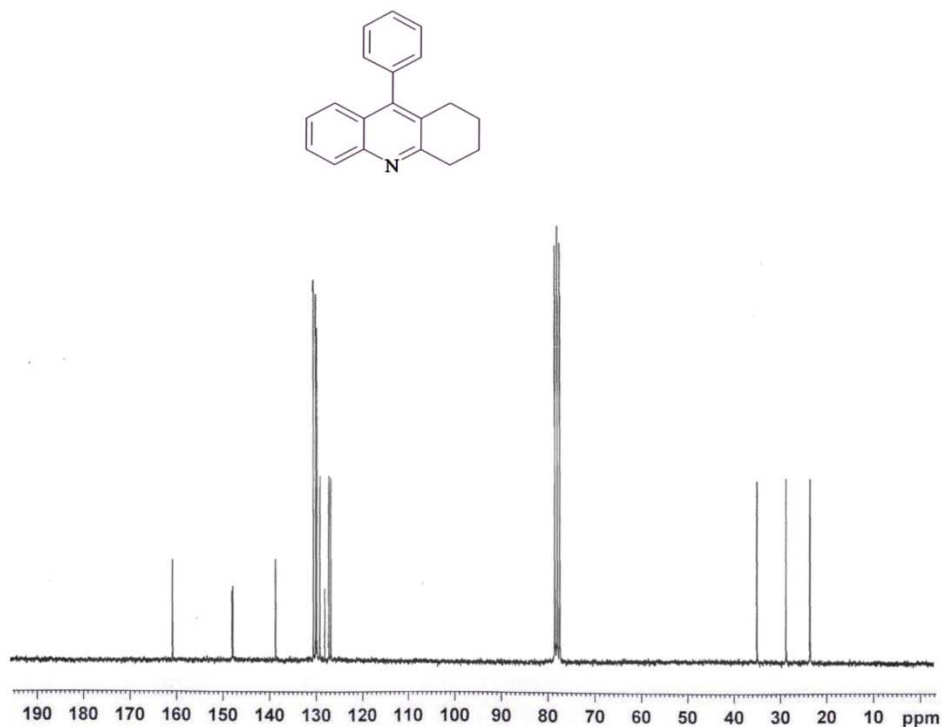
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EXPNO 12
PROCNO 1

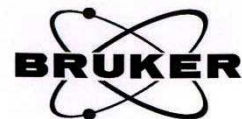
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Date_ 20090927
Time 11.46
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zgpg
TD 65536
SOLVENT CDCl3
NS 200
DS 0
SWH 31446.541 Hz
FIDRES 0.479836 Hz
AQ 1.0420883 sec
RG 81.92
DW 15.900 usec
DE 6.00 usec
TE 300.0 K
D1 2.0000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TDO 1

===== CHANNEL f1 =====
NUC1 13C
P1 10.00 usec
PL1 3.00 dB
SFO1 125.7703643 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 120.00 dB
PL12 20.00 dB
PL13 20.00 dB
SFO2 500.1320005 MHz

F2 - Processing parameters
SI 32768
SF 125.7577867 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 0.10



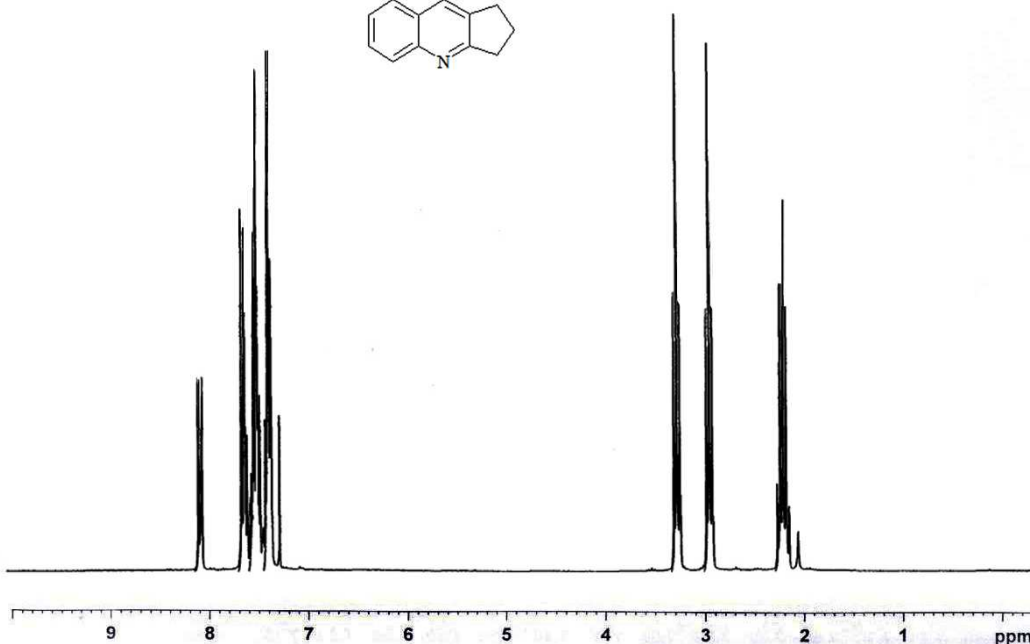
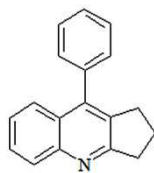


Current Data Parameters
NAME akbari
EXPNO 241
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090901
Time 11.00
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zg
TD 32768
SOLVENT CDCl3
NS 8
DS 0
SWH 10330.578 Hz
FIDRES 0.315264 Hz
AQ 1.5860696 sec
RG 181
DW 48.400 usec
DE 6.00 usec
TE 300.0 K
D1 6.0000000 sec
TDO 1

==== CHANNEL f1 =====
NUC 1H
P1 15.00 usec
PL1 2.00 dB
SFO 500.1330885 MHz

F2 ssing parameters
SI 32768
SF 500.1300093 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



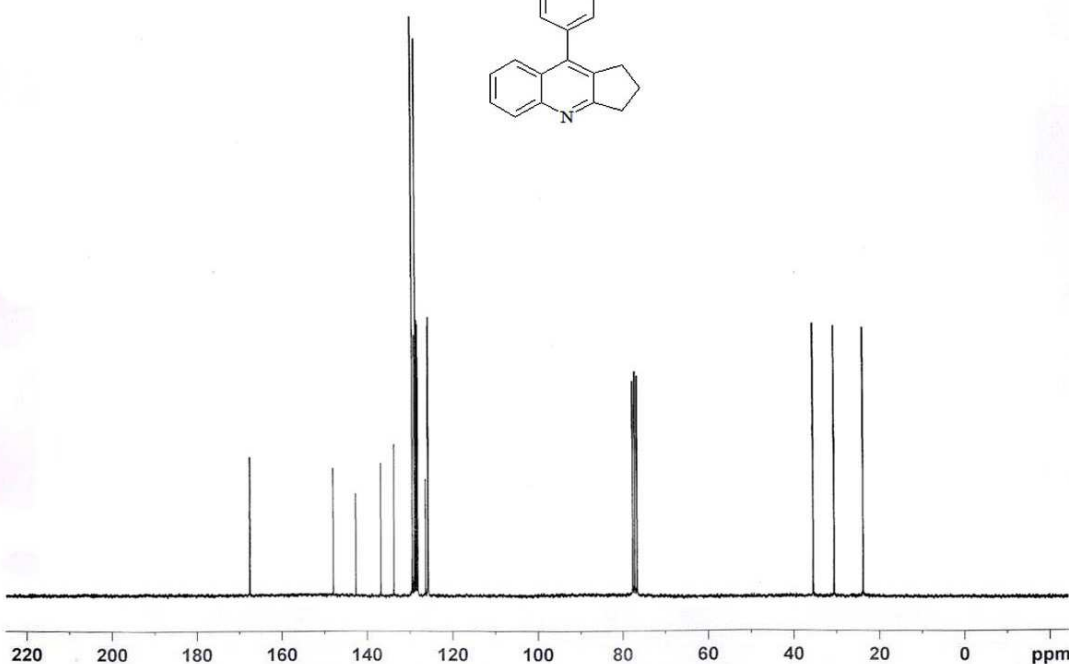
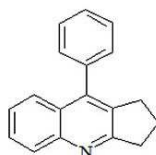
Current Data Parameters
NAME akbari
EXPNO 242
PROCNO 1

F2 - Acquisition Parameter
Date_ 20090901
Time 12.37
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zgpg
TD 65536
SOLVENT CDCl3
NS 2400
DS 0
SWH 31446.541 Hz
FIDRES 0.479836 Hz
AQ 1.0420883 sec
RG 2298.8
DW 15.900 usec
DE 6.00 usec
TE 300.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TDO 1

==== CHANNEL f1 =====
NUC1 13C
P1 10.00 usec
PL1 3.00 dB
SFO1 125.7703643 MHz

==== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 120.00 dB
PLI2 20.00 dB
PLI3 20.00 dB
SFO2 500.1320005 MHz

F2 - Processing parameters
SI 32768
SF 125.7577871 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.00



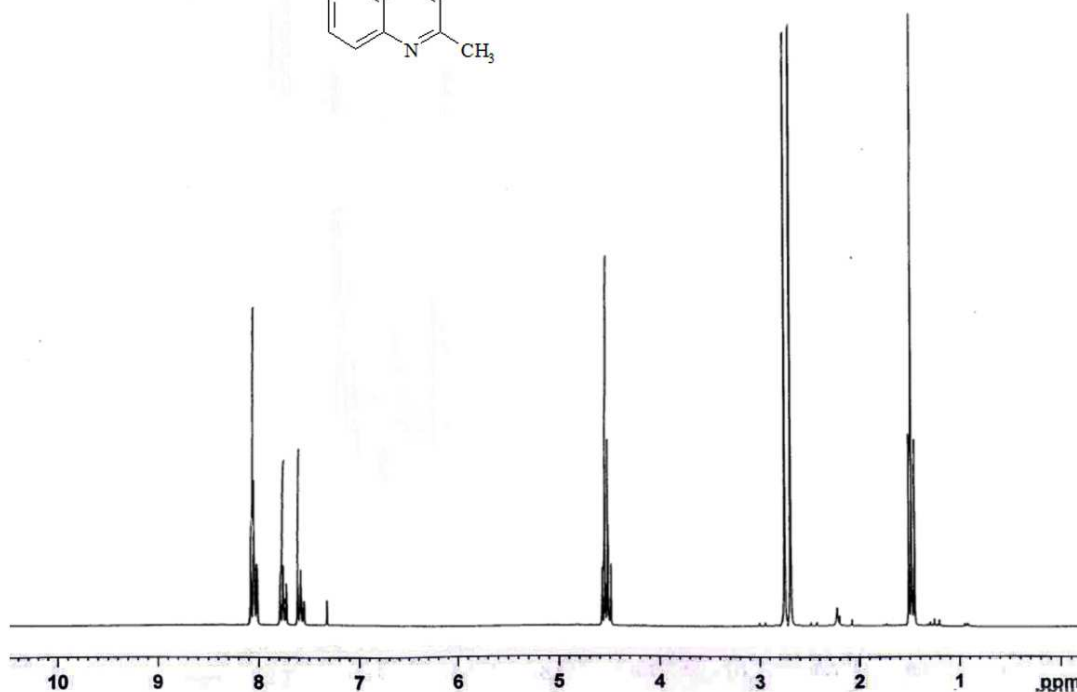
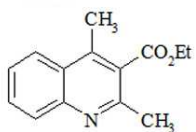


Current Data Parameters
 NAME akbari
 EXPNO 255
 PROCNO 1

F2 - Acquisition Parameters:
 Date_ 20090919
 Time_ 16.12
 INSTRUM spect
 PROBHD 5 mm Multinucl
 PULPROG zg
 TD 32768
 SOLVENT CDCl3
 NS 8
 DS 0
 SWH 10330.578 Hz
 FIDRES 0.315264 Hz
 AQ 1.5860696 sec
 RG 71.8
 DW 48.400 usec
 DE 6.00 usec
 TE 300.0 K
 D1 6.00000000 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 1H
 P1 15.00 usec
 PL1 2.00 dB
 SFO1 500.1330885 MHz

F2 - Processing parameters
 SI 32768
 SF 500.1330093 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00



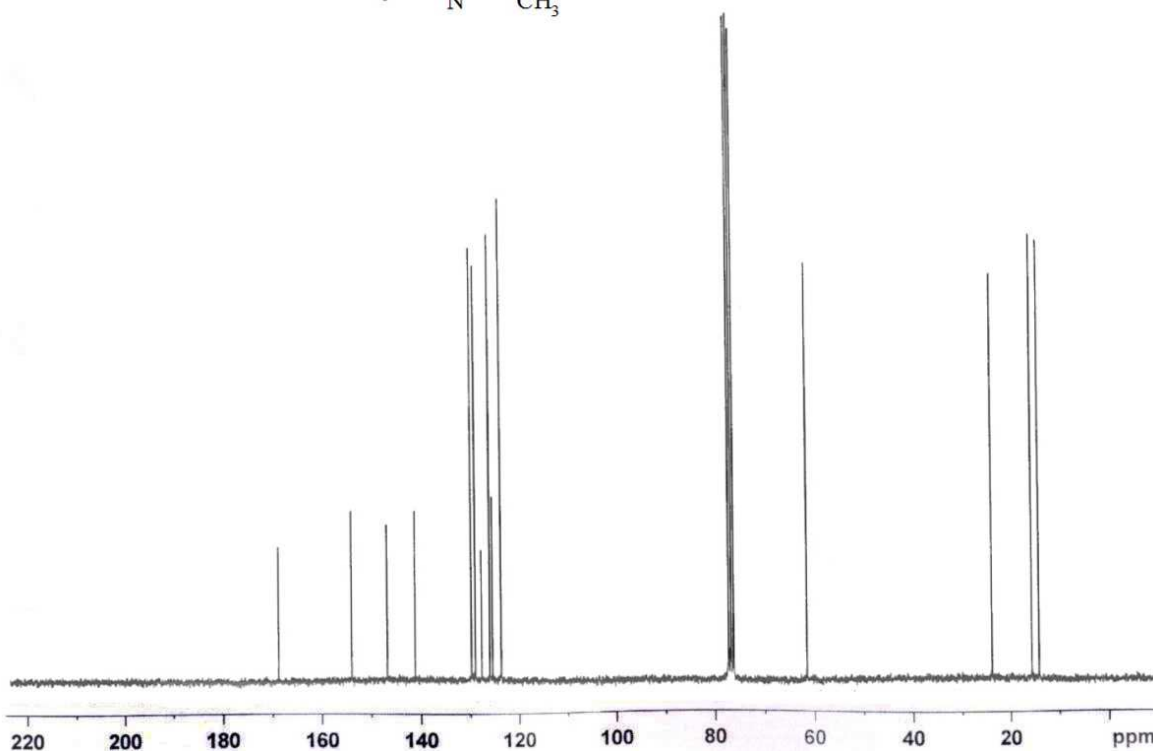
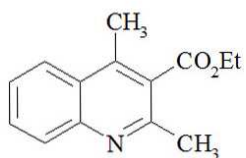
Current Data Parameters
 NAME akbari
 EXPNO 256
 PROCNO 1

F2 - Acquisition Parameters:
 Date_ 20090919
 Time_ 16.47
 INSTRUM spect
 PROBHD 5 mm Multinucl
 PULPROG zgpg
 TD 65536
 SOLVENT CDCl3
 NS 714
 DS 0
 SWH 31446.541 Hz
 FIDRES 0.479836 Hz
 AQ 1.0420883 sec
 RG 3251
 DW 15.900 usec
 DE 6.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 13C
 P1 10.00 usec
 PL1 3.00 dB
 SFO1 125.7703643 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 100.00 usec
 PL2 120.00 dB
 PL12 20.00 dB
 PL13 20.00 dB
 SFO2 500.1320005 MHz

F2 - Processing parameters
 SI 32768
 SF 125.7577879 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.00

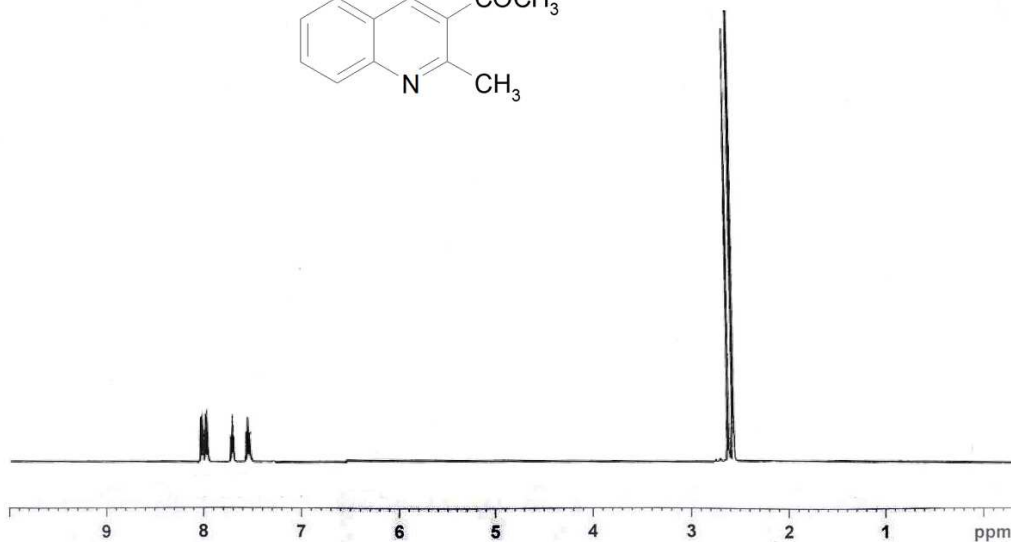
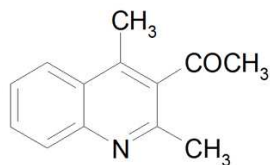


S11



Current Data Parameters
NAME akbari
EXPNO 253
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090916
Time_ 13.13
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zg
TD 32768
SOLVENT CDCl3
NS 8
DS 0
SWH 10330.578 Hz
FIDRES 0.315264 Hz
AQ 1.5860696 sec
RG 40.3
DW 48.400 usec
DE 6.00 usec
TE 300.0 K
D1 6.0000000 sec
TDO 1



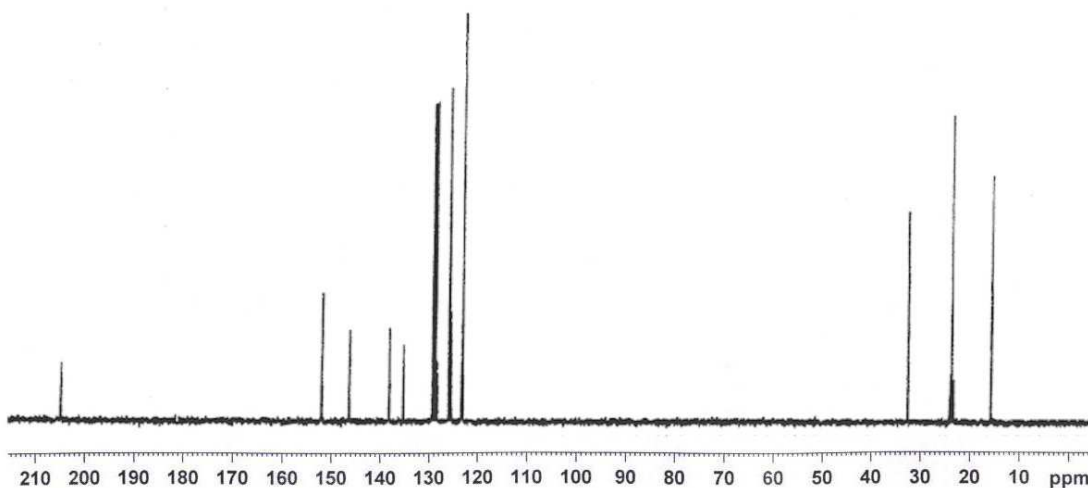
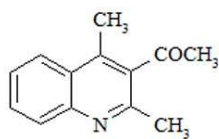
===== CHANNEL f1 =====
NUC1 1H
P1 15.00 usec
PL1 2.00 dB
SFO1 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300093 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



Current Data Parameters
NAME akbari
EXPNO 254
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090916
Time_ 13.43
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zgpg
TD 65536
SOLVENT CDCl3
NS 632
DS 0
SWH 31446.541 Hz
FIDRES 0.479836 Hz
AQ 1.0420883 sec
RG 2298.8
DW 15.900 usec
DE 6.00 usec
TE 300.0 K
D1 2.0000000 sec
d11 0.0300000 sec
DELTA 1.89999998 sec
TDO 1



===== CHANNEL f1 =====
NUC1 13C
P1 10.00 usec
PL1 3.00 dB
SFO1 125.7703643 MHz

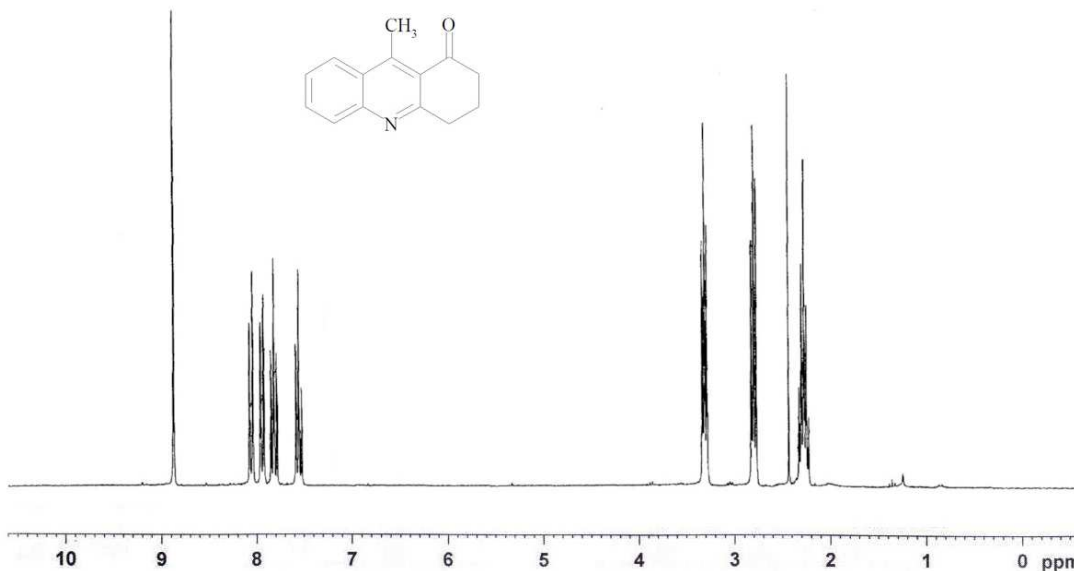
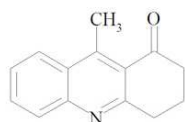
===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 120.00 dB
PL12 20.00 dB
PL13 20.00 dB
SFO2 500.1320005 MHz

F2 - Processing parameters
SI 32768
SF 125.7577879 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.00



Current Data Parameters
NAME akbari
EXPNO 259
PROCNO 1

F2 - Acquisition Parameters
Date 20090926
Time 17.37
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zg
TD 32768
SOLVENT CDCl3
NS 8
DS 0
SWH 10330.578 Hz
FIDRES 0.315264 Hz
AQ 1.5860696 sec
RG 16
DW 48.400 usec
DE 6.00 usec
TE 300.0 K
D1 6.0000000 sec
TDO 1



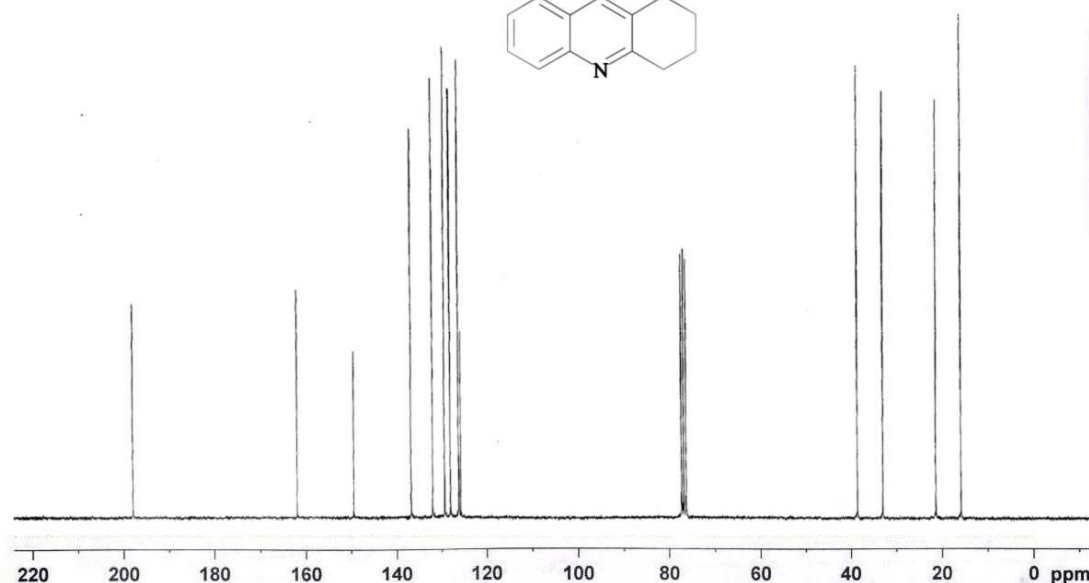
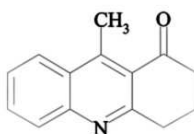
===== CHANNEL f1 =====
NUC1 1H
P1 15.00 usec
PL1 2.00 dB
SFO1 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300093 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



Current Data Parameters
NAME akbari
EXPNO 260
PROCNO 1

F2 - Acquisition Parameters
Date 20090926
Time 17.39
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zgpg
TD 65536
SOLVENT CDCl3
NS 400
DS 0
SWH 31446.541 Hz
FIDRES 0.479836 Hz
AQ 1.0420883 sec
RG 3251
DW 15.900 usec
DE 6.00 usec
TE 300.0 K
D1 2.0000000 sec
d11 0.0300000 sec
DELTA 1.89999998 sec
TDO 1



===== CHANNEL f1 =====
NUC1 13C
P1 10.00 usec
PL1 3.00 dB
SFO1 125.7703643 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 120.00 dB
PL12 20.00 dB
PL13 20.00 dB
SFO2 500.1320005 MHz

F2 - Processing parameters
SI 32768
SF 125.7577879 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.00

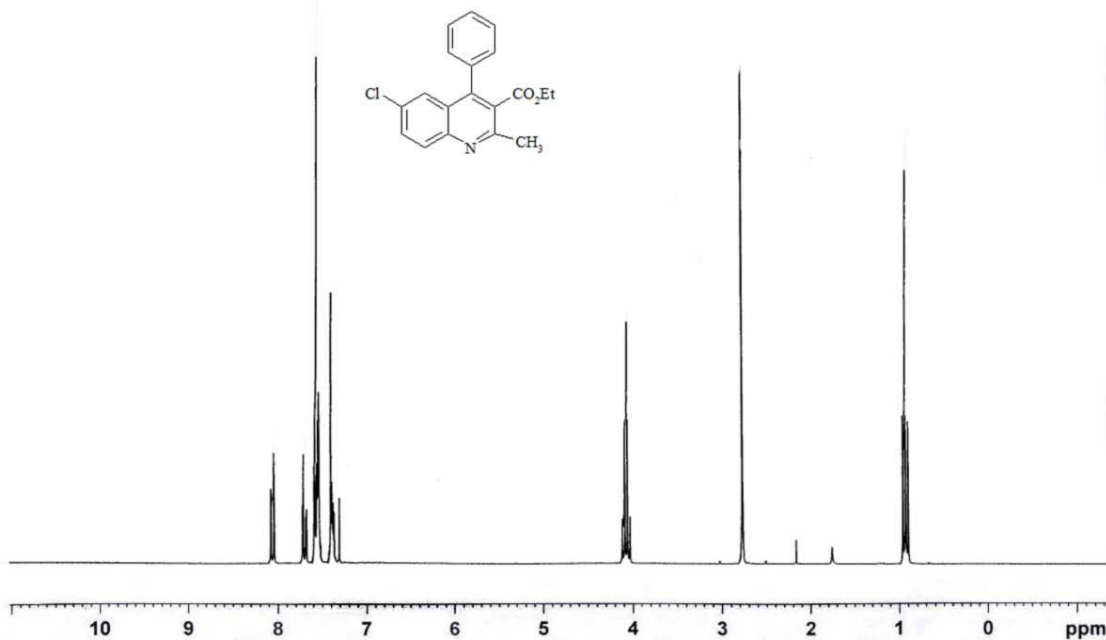


Current Data Parameters
NAME akhari
EXPNO 245
PROCNO 1

F2 - Acquisition Parameter:
Date_ 20090905
Time 16.46
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zg
TD 32768
SOLVENT CDCl3
NS 0
DS 0
SWH 10330.578 H
FIDRES 0.315264 H
AQ 1.5860696 s
RG 128
DW 48.400 u
DE 6.00 u
TE 300.0 K
D1 6.0000000 s
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 15.00 u
PL1 2.00 d
SFO1 500.1330885 M

F2 - Processing parameter:
SI 32768
SF 500.130093 M
WDW EM
SSB 0
LB 0.30 H
GB 0
PC 1.00



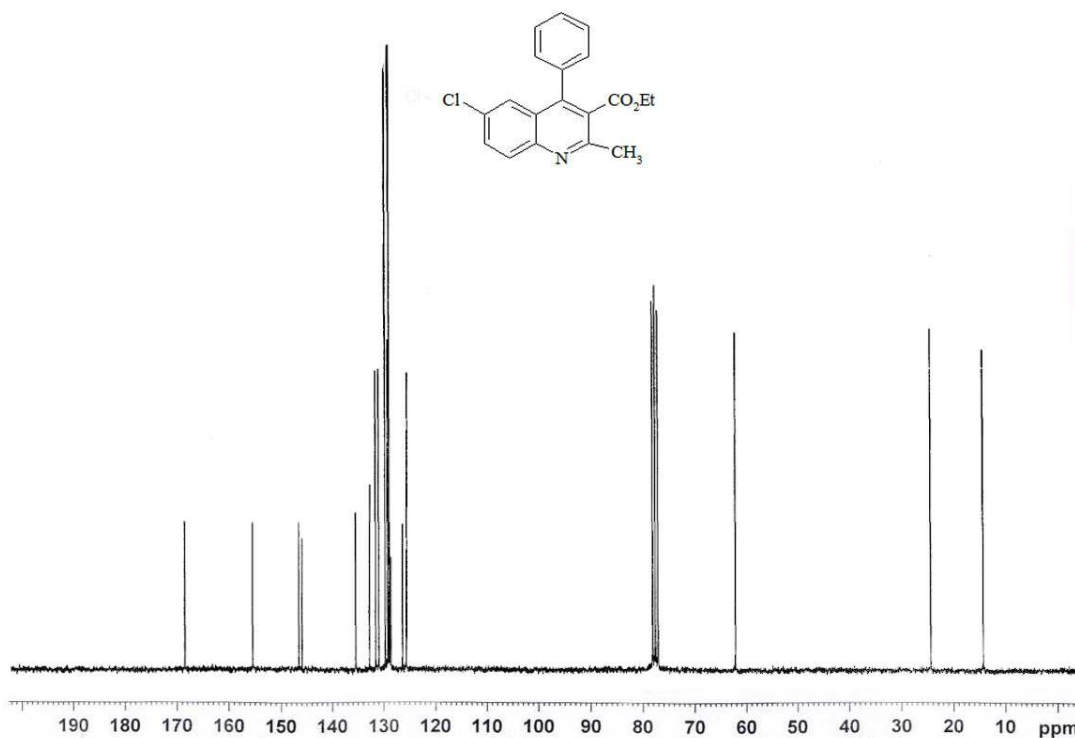
Current Data Parameters
NAME akhari
EXPNO 246
PROCNO 1

F2 - Acquisition Parameter:
Date_ 20090905
Time 16.50
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zgpg
TD 65536
SOLVENT CDCl3
NS 574
DS 0
SWH 31446.541 F
FIDRES 0.479836 F
AQ 1.0420883 s
RG 1625.5
DW 15.900 u
DE 6.00 u
TE 300.0 F
D1 2.0000000 s
d11 0.0300000 s
DELTA 1.8999999 s
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 10.00 u
PL1 3.00 d
SFO1 125.7703643 M

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 u
PL2 120.00 d
PL12 20.00 c
PL13 20.00 c
SFO2 500.1320005 M

F2 - Processing parameter:
SI 32768
SF 125.7577879 M
WDW EM
SSB 0
LB 1.00 H
GB 0
PC 1.00



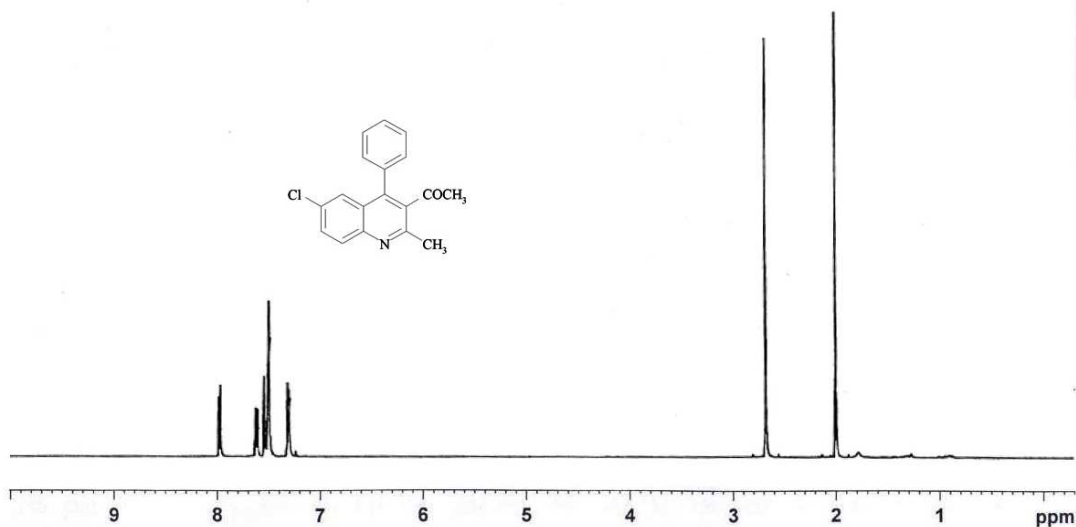


Current Data Parameters
NAME akbari
EXPNO 9
PROCNO 1

F2 - Acquisition Parameters
Date 20090926
Time 10.24
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zg
TD 32768
SOLVENT CDCl3
NS 8
DS 0
SWH 10330.578 H
FIDRES 0.315264 H
AQ 1.5860696 s
RG 50.8
DW 48.400 u
DE 6.00 u
TE 300.0 K
D1 6.0000000 s
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 15.00 u
PL1 1.00 d
SFO1 500.1330885 M

F2 - Processing parameter
SI 32768
SF 500.1300097 M
WDW EM
SSB 0
LB 0.30 H
GB 0
PC 0.70



Current Data Parameters
NAME akbari
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
Date 20090926
Time 10.45
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zgpg
TD 65536
SOLVENT CDCl3
NS 700
DS 0
SWH 31446.541 Hz
FIDRES 0.479836 Hz
AQ 1.0420883 sec
RG 8192
DW 15.900 usec
DE 6.00 usec
TE 300.0 K
D1 2.0000000 sec
d11 0.0300000 sec
DELTA 1.8999999 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 10.00 usec
PL1 3.00 dB
SFO1 125.7703643 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 120.00 dB
PL12 20.00 dB
PL13 20.00 dB
SFO2 500.1320005 MHz

F2 - Processing parameters
SI 32768
SF 125.7577867 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 0.10

