

Supporting Information

Copper-catalyzed aerobic oxidative decarboxylative amination of arylacetic acids: a facile access to 2-arylquinazolines

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and Yanqi Liu^{†*}

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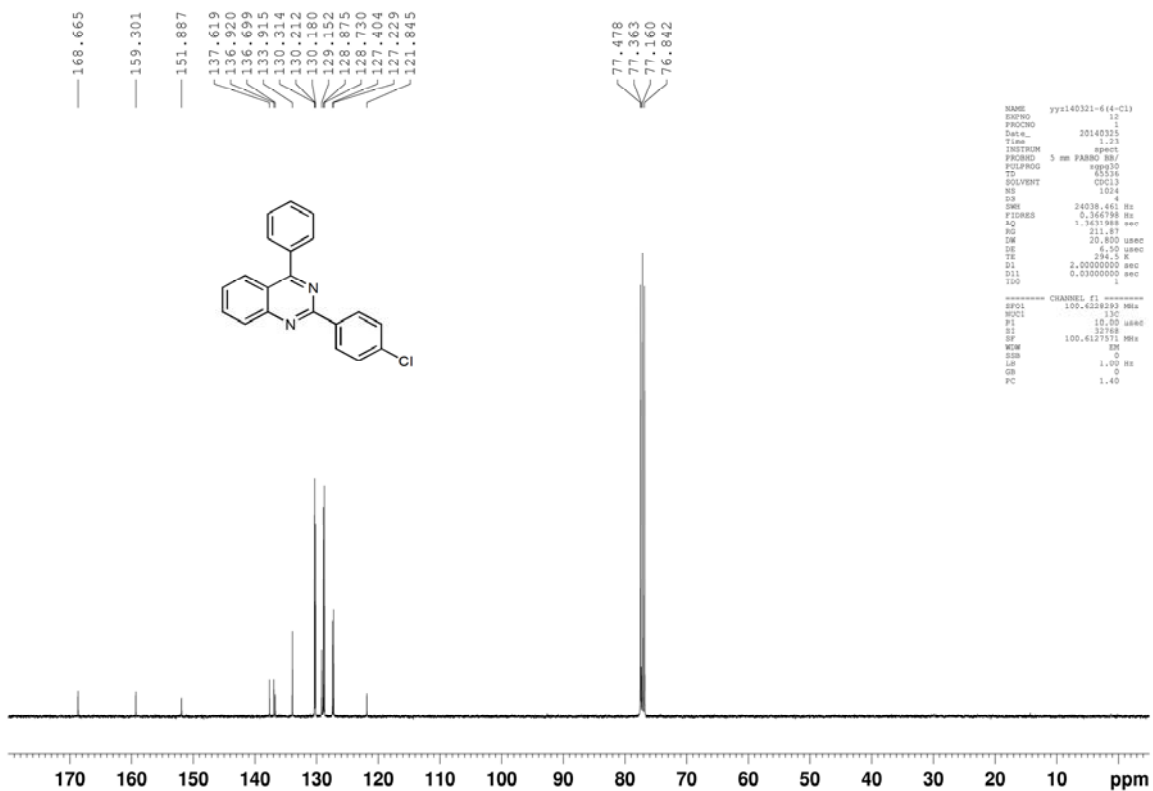
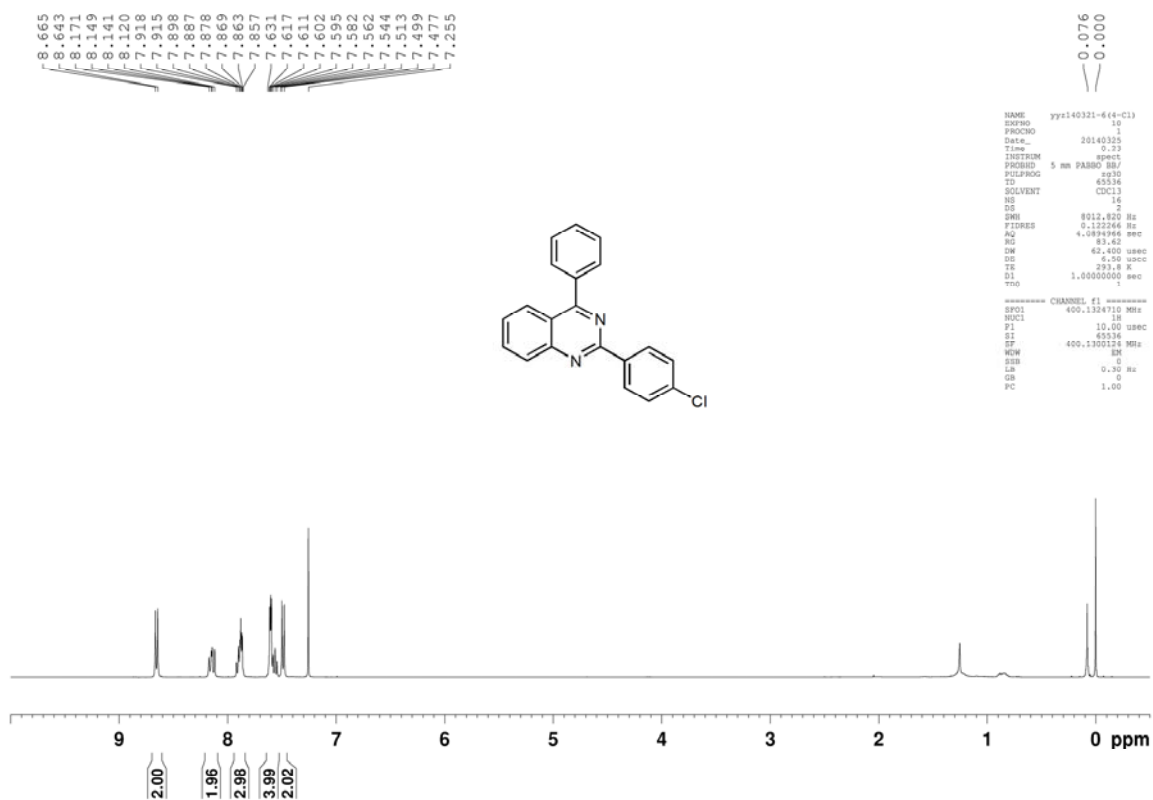
E-mail: yanyizhe@mail.ustc.edu.cn; liuyanqi@zzuli.edu.cn

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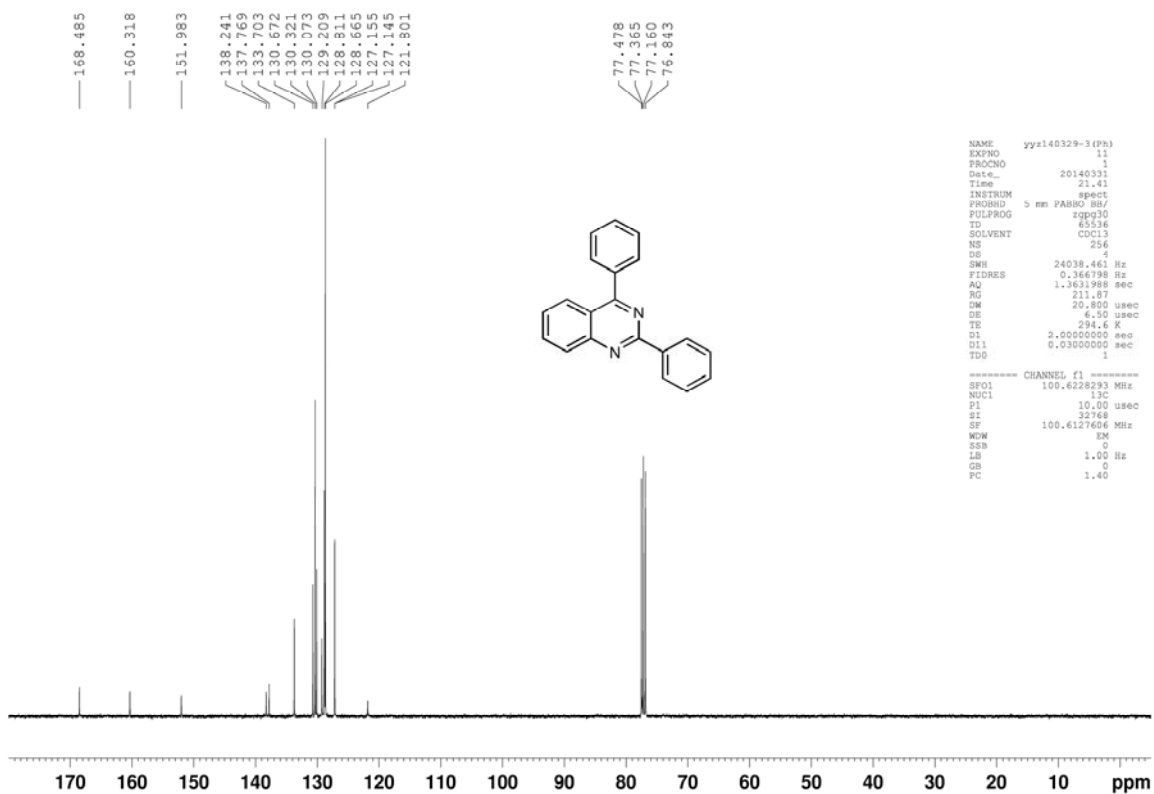
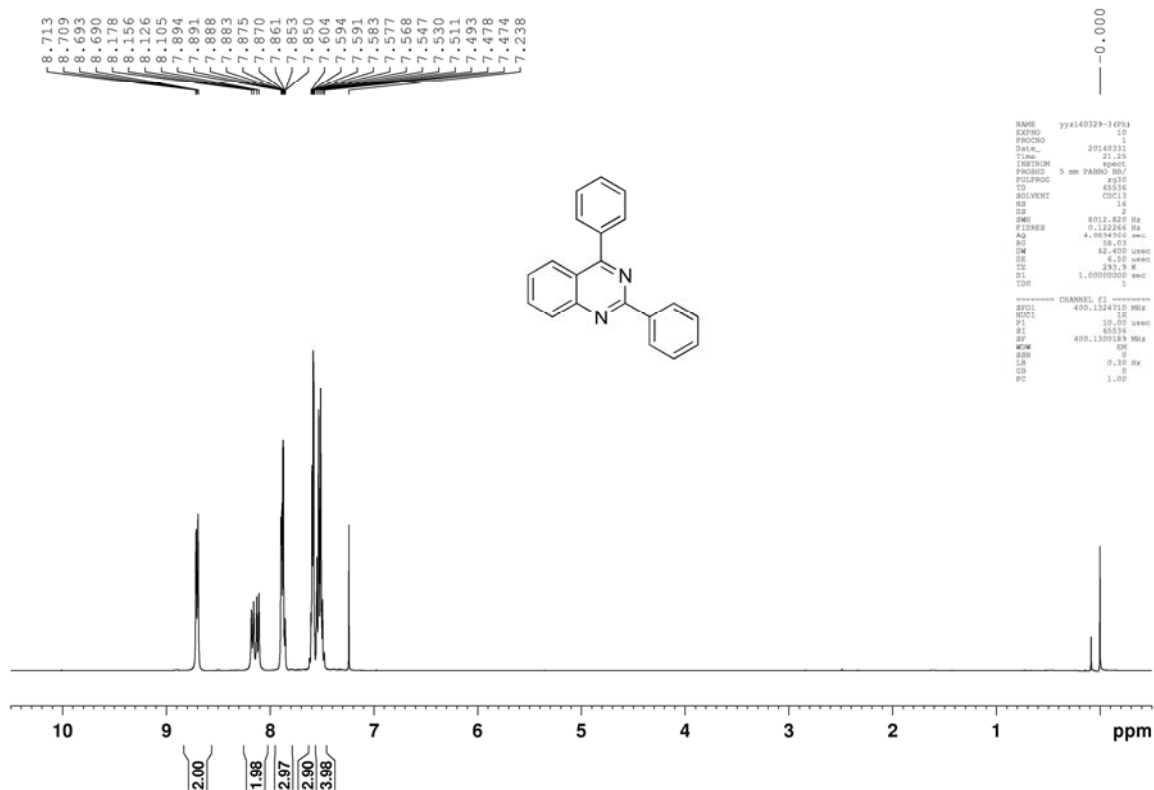
¹H NMR and ¹³C NMR spectra

S1-S31

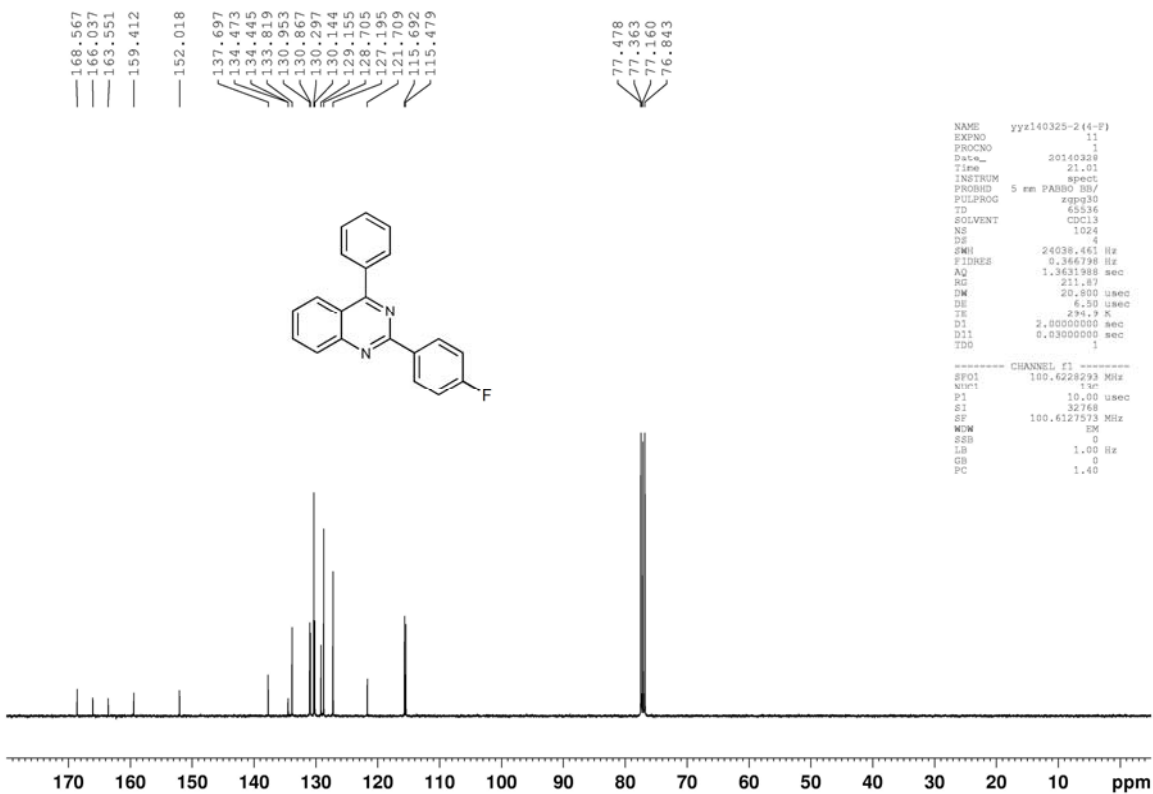
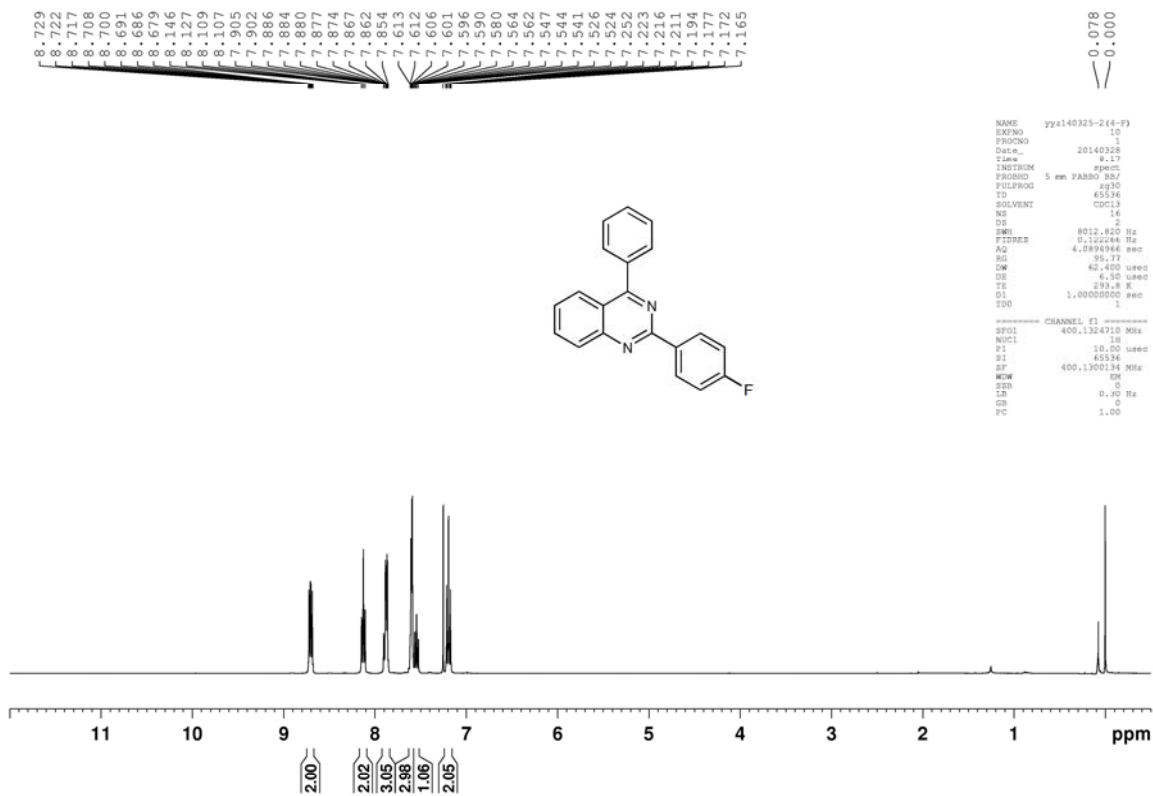
2-(4-chlorophenyl)-4-phenylquinazoline (3aa)



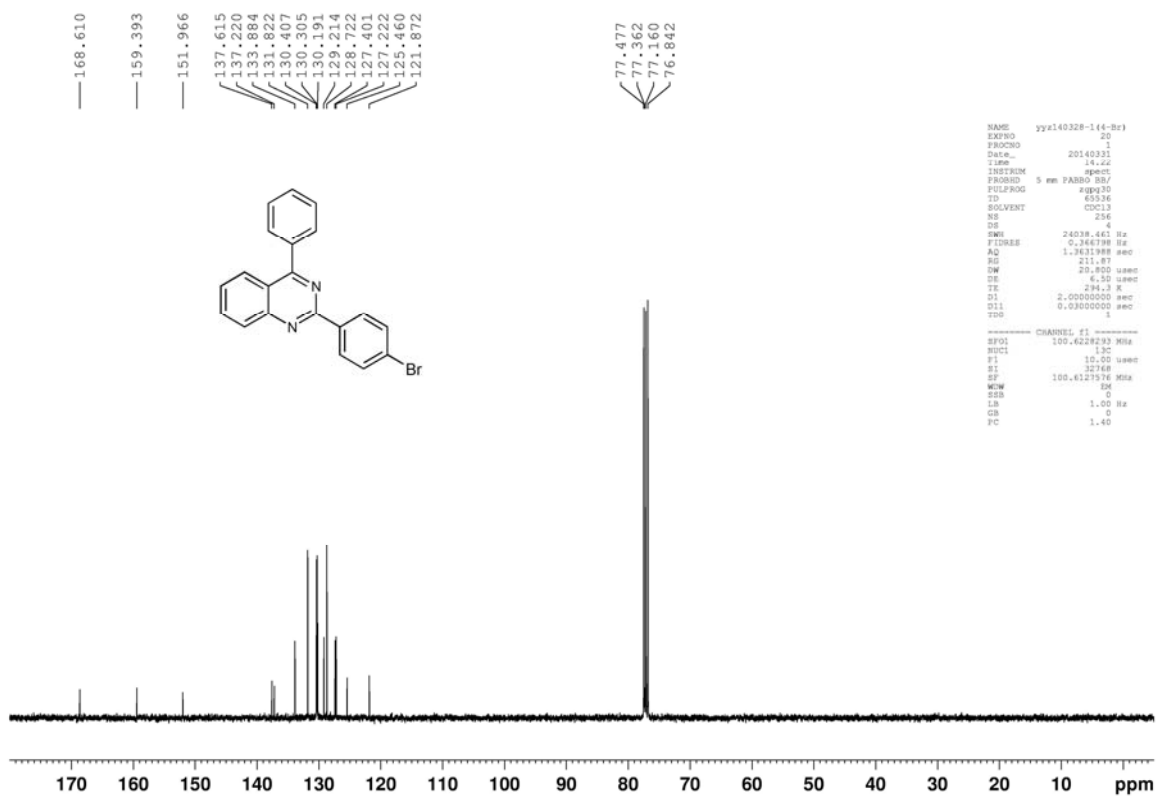
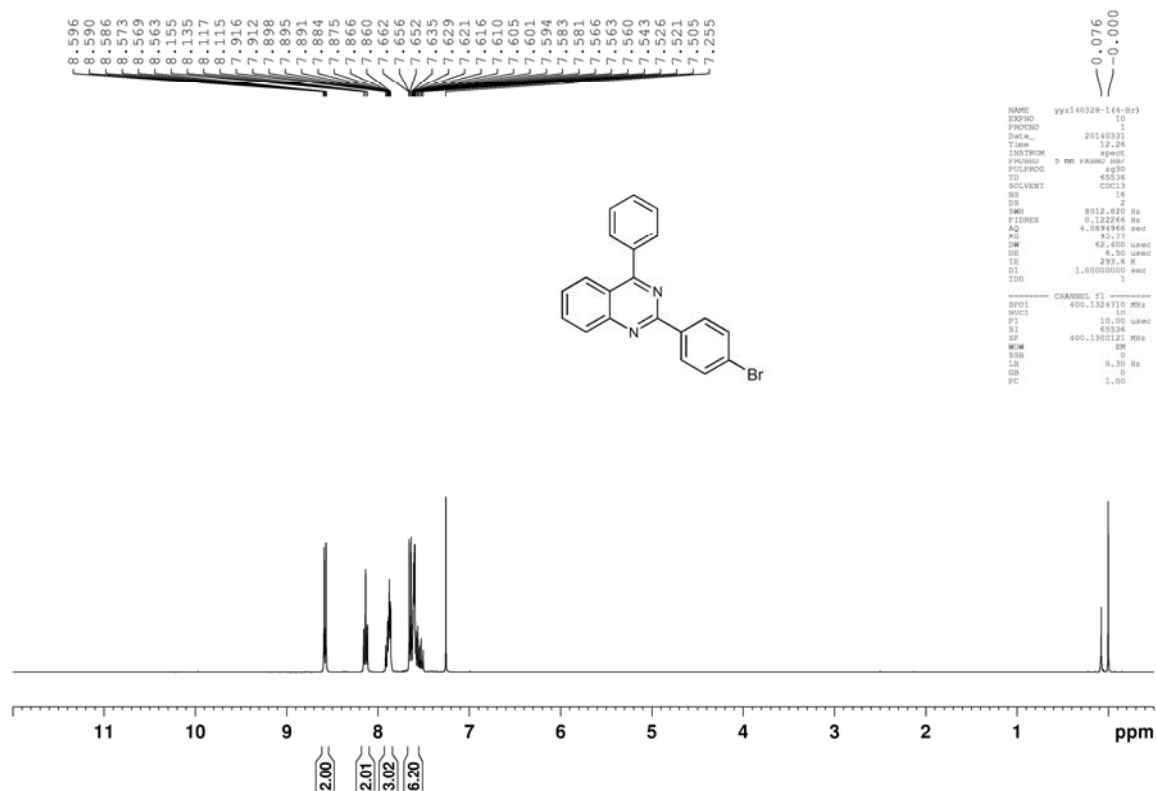
2,4-diphenylquinazoline (3ab)



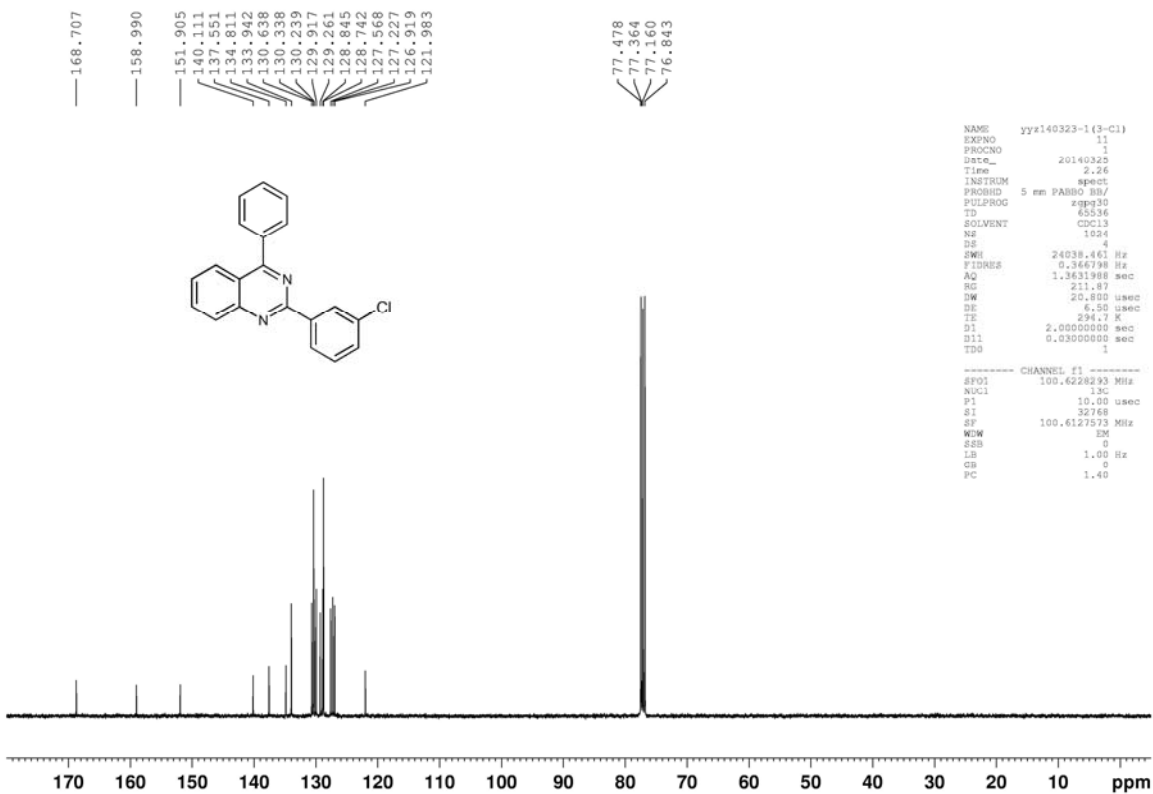
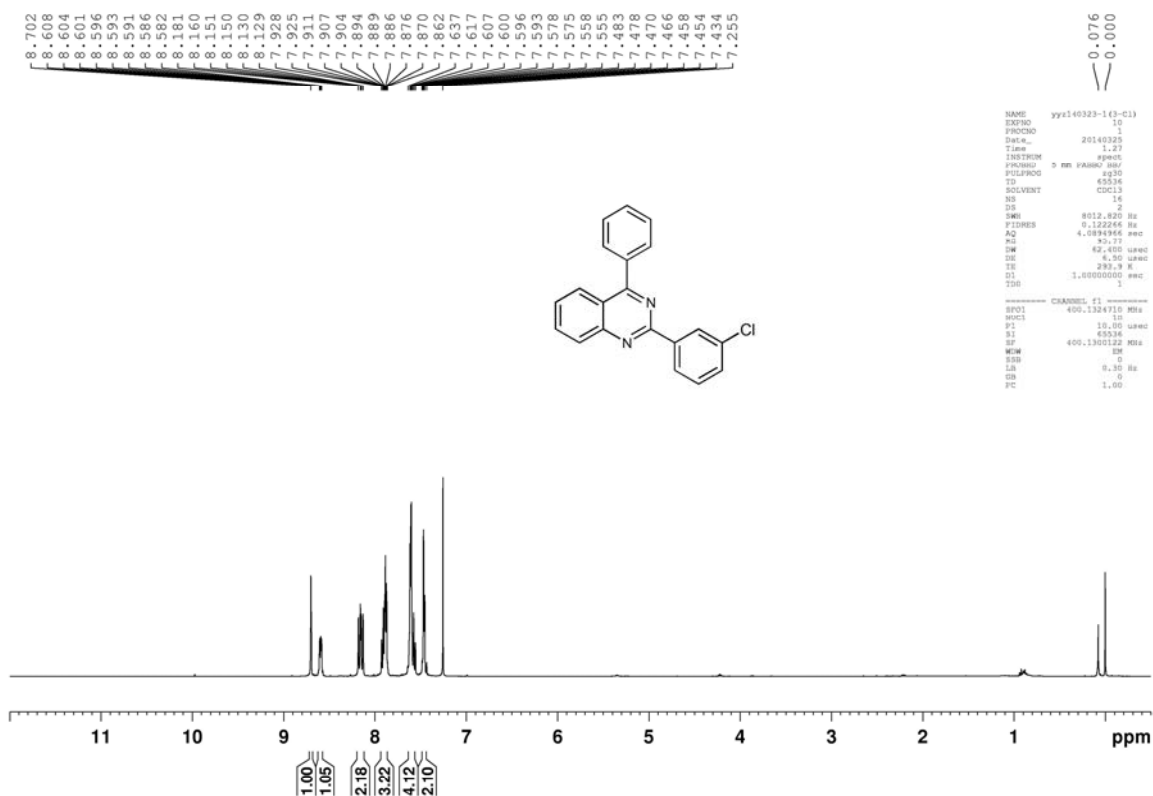
2-(4-fluorophenyl)-4-phenylquinazoline (3ac)



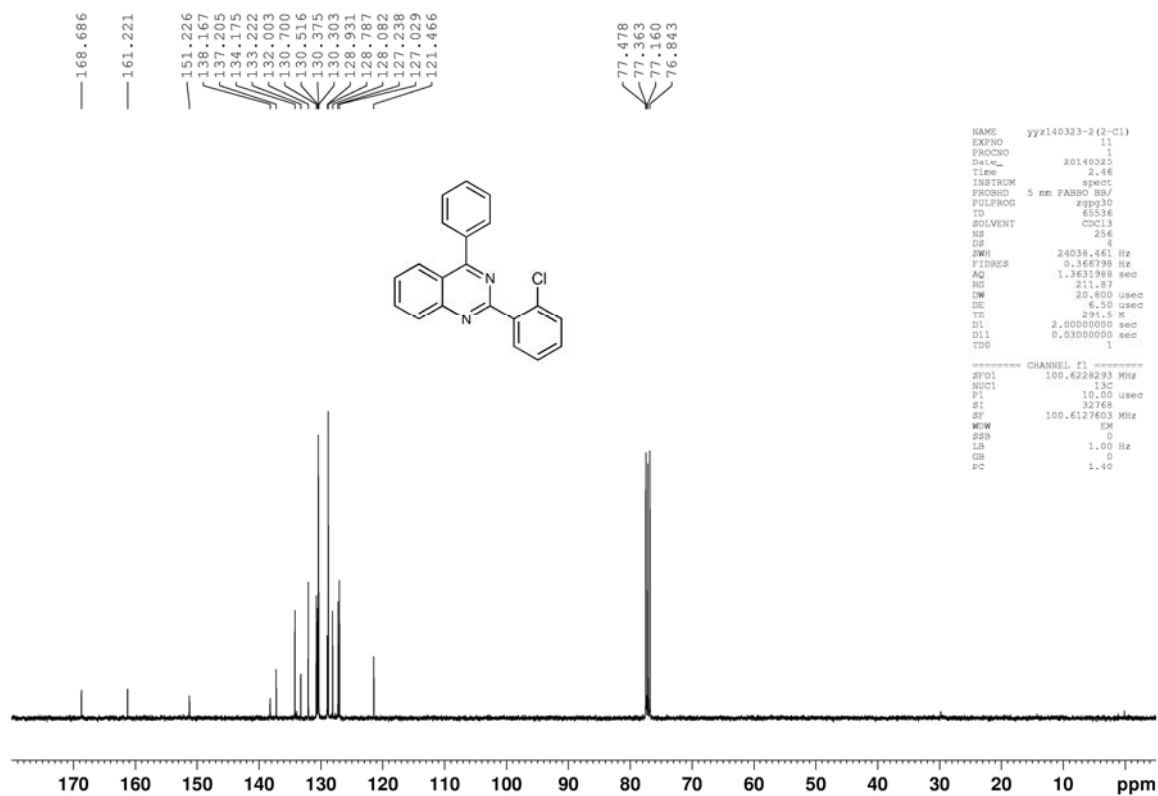
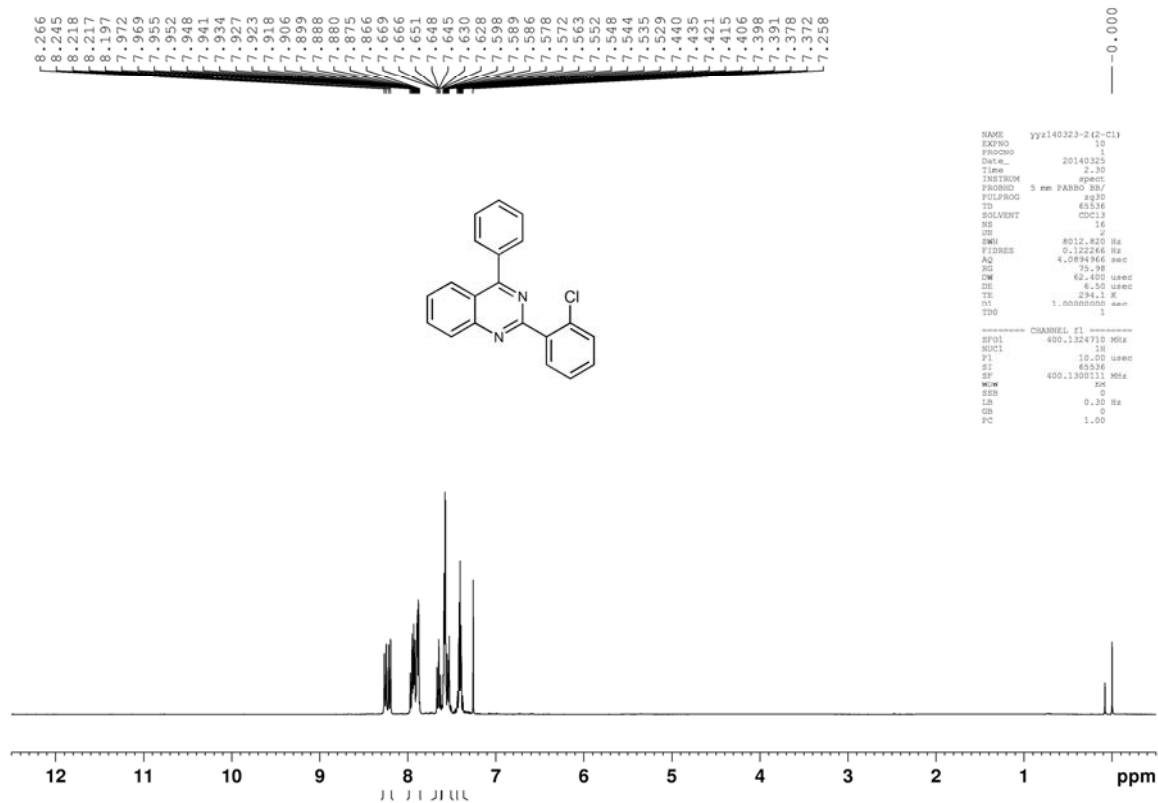
2-(4-bromophenyl)-4-phenylquinazoline (3ad)



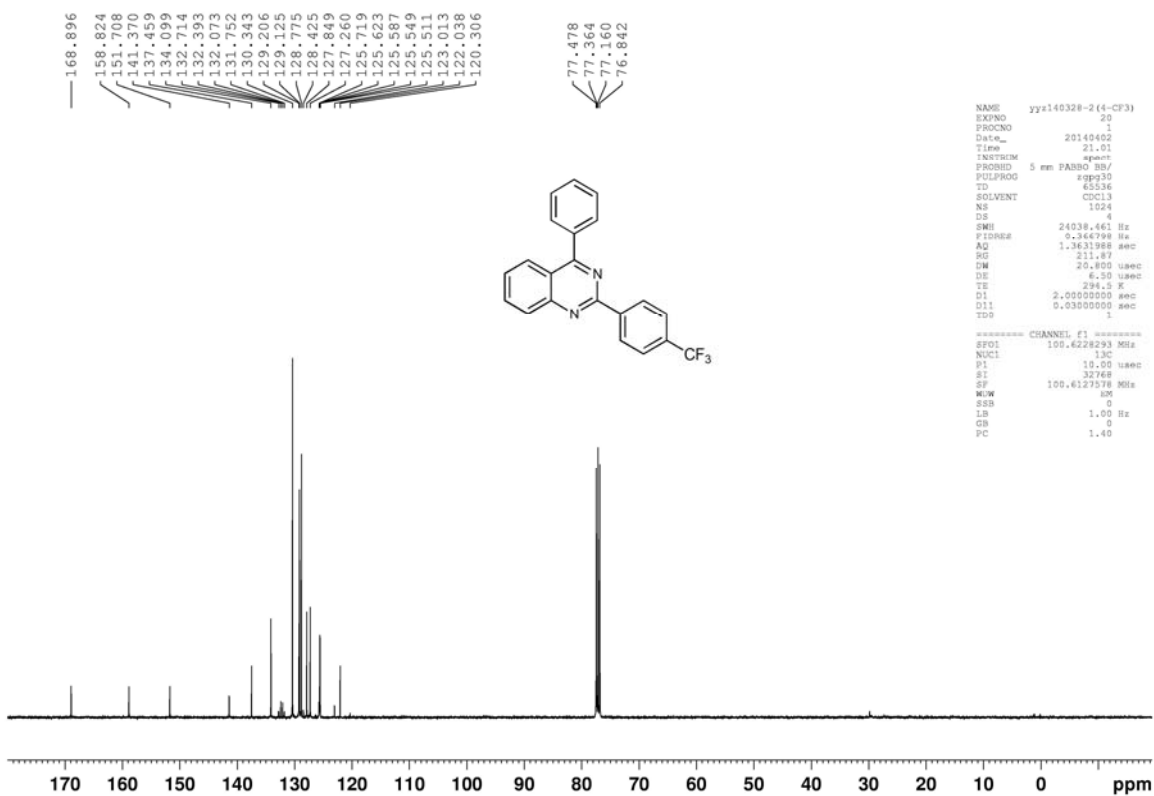
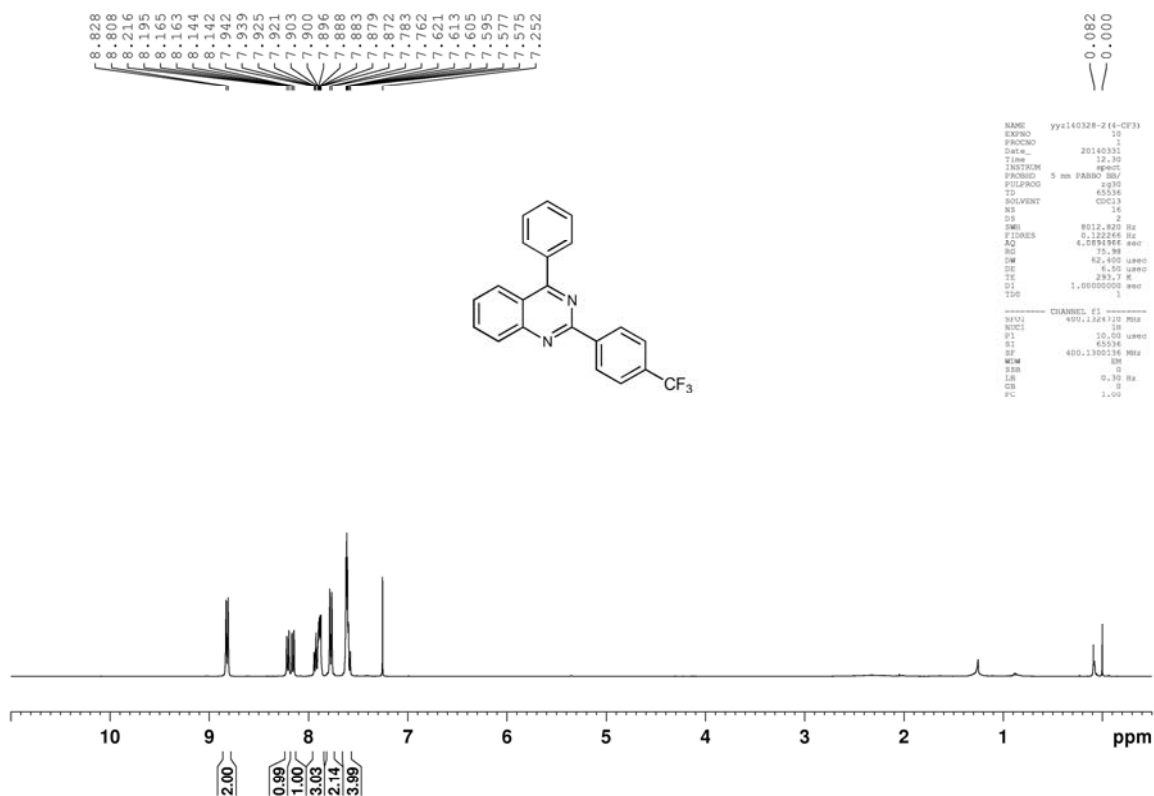
2-(3-chlorophenyl)-4-phenylquinazoline (3ae)



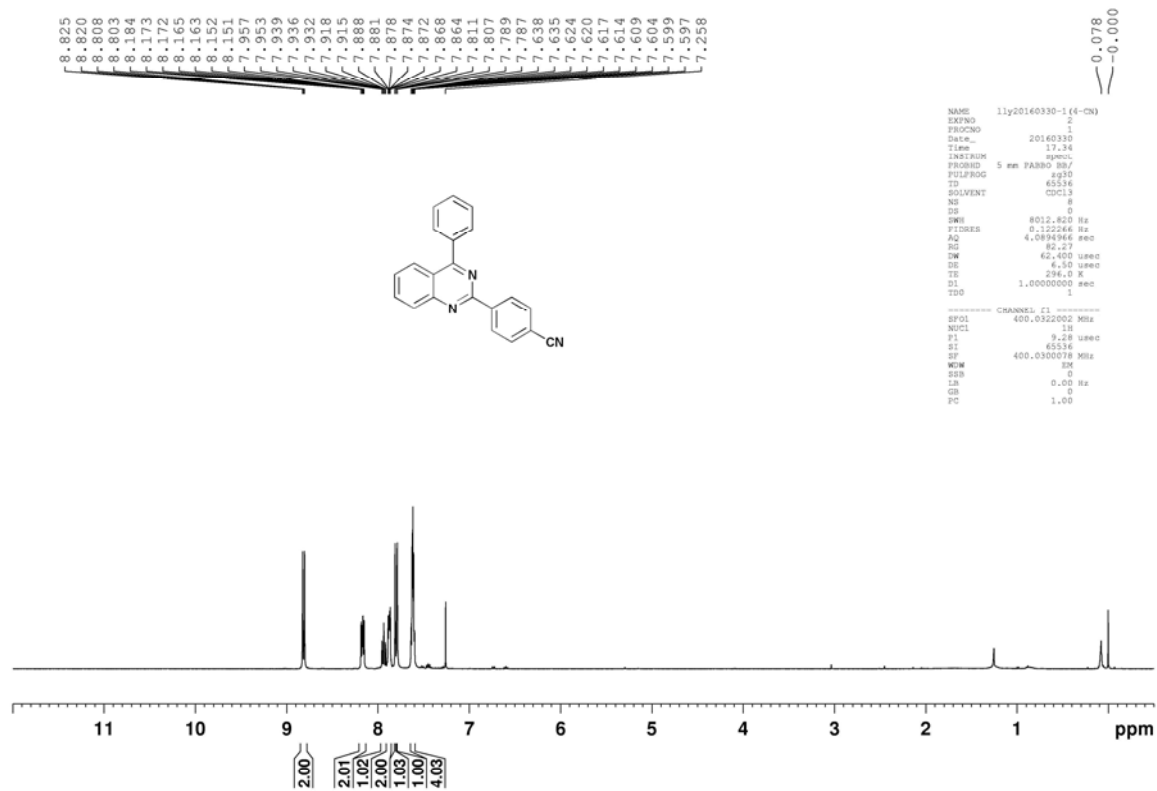
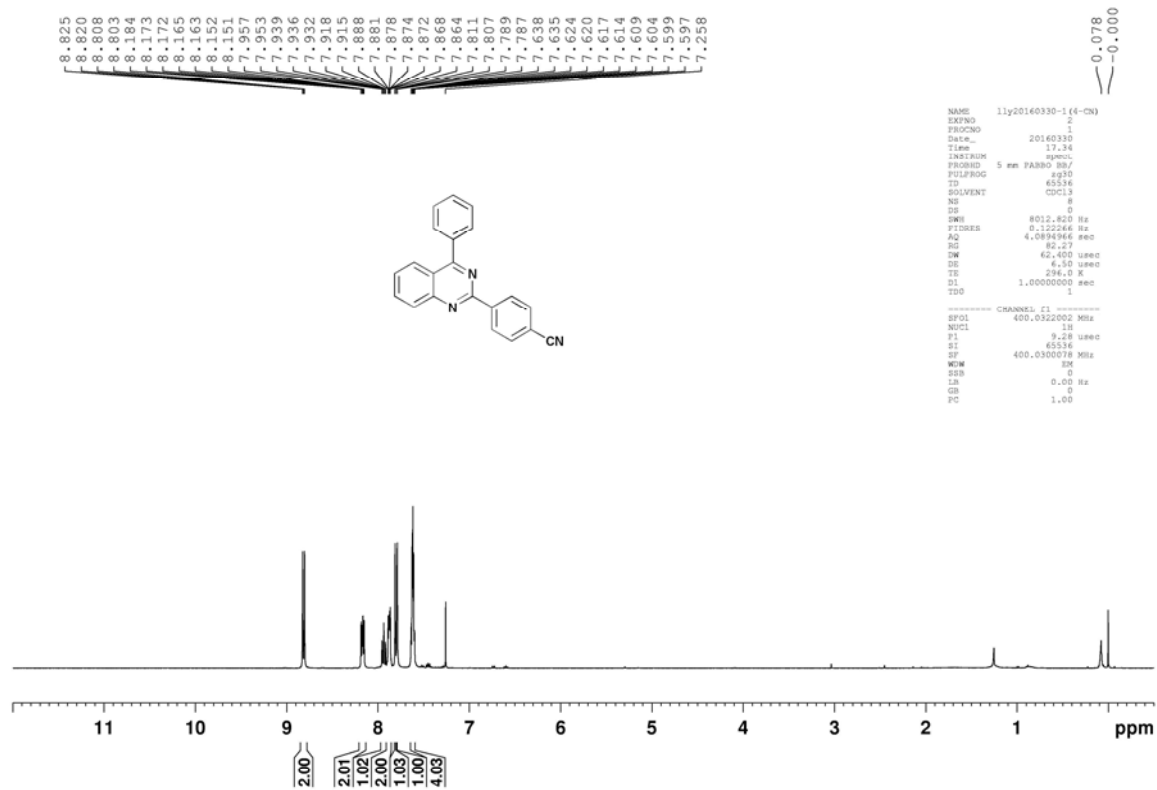
2-(2-chlorophenyl)-4-phenylquinazoline (3af)



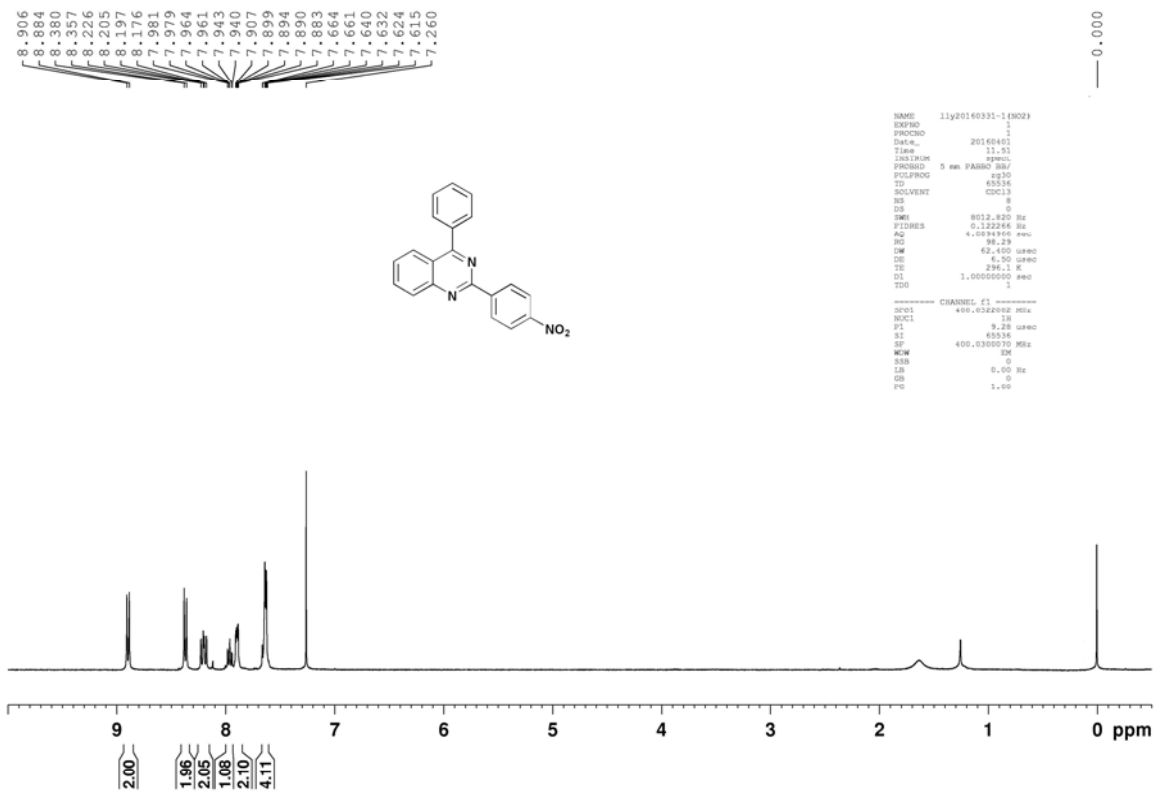
4-phenyl-2-(4-(trifluoromethyl)phenyl)quinazoline (3ag)



4-(4-phenylquinazolin-2-yl)benzotrile (3ah)



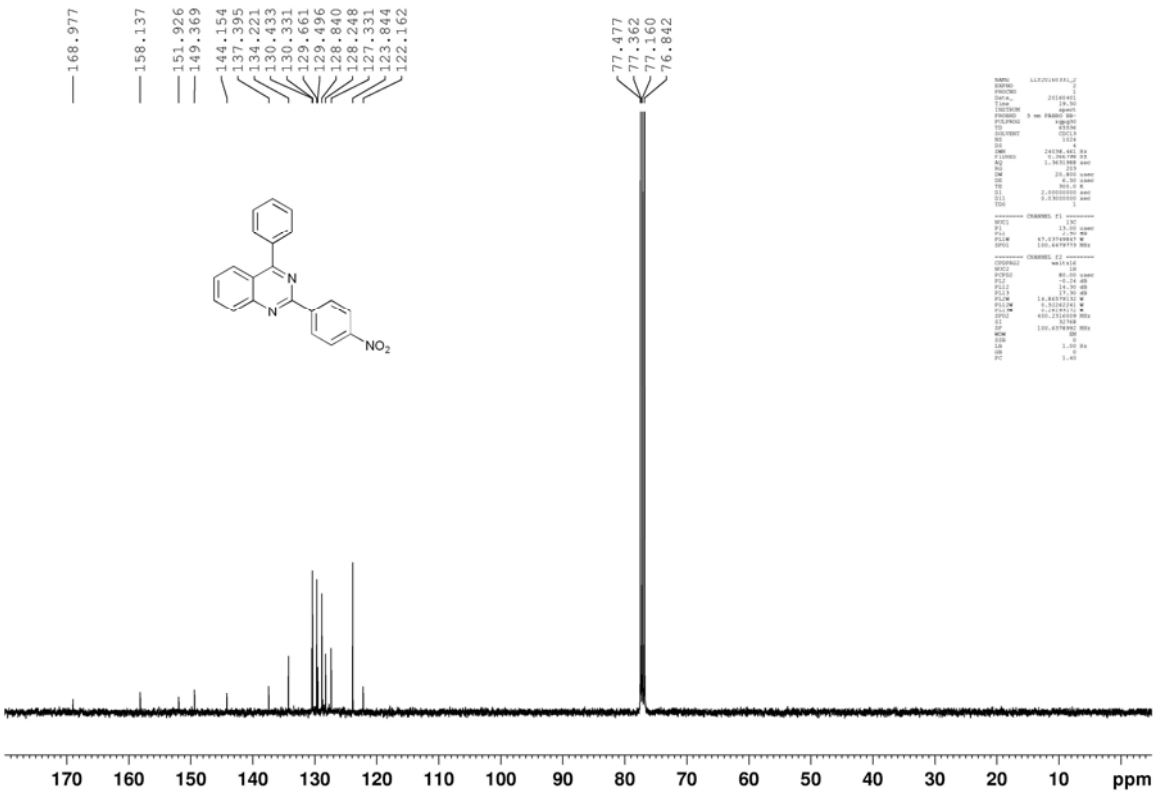
2-(4-nitrophenyl)-4-phenylquinazoline (3ai)



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NAME 11y20160331-1 (002)
EXPNO 1
PROCNO 1
Date_ 20160401
Time 11.51
INSTRUM spect
PROBHD 5 mm PABBO BBI
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 8012.820 Hz
FIDRES 0.122244 Hz
AQ 4.0834956 sec
RG 38.29
DM 62.450 usec
DE 4.200 usec
TE 296.1 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 9.28 usec
SI 65536
SF 400.0300000 MHz
WDW EM
SSB 0
LB 0.60 Hz
GB 0
PC 1.00
    
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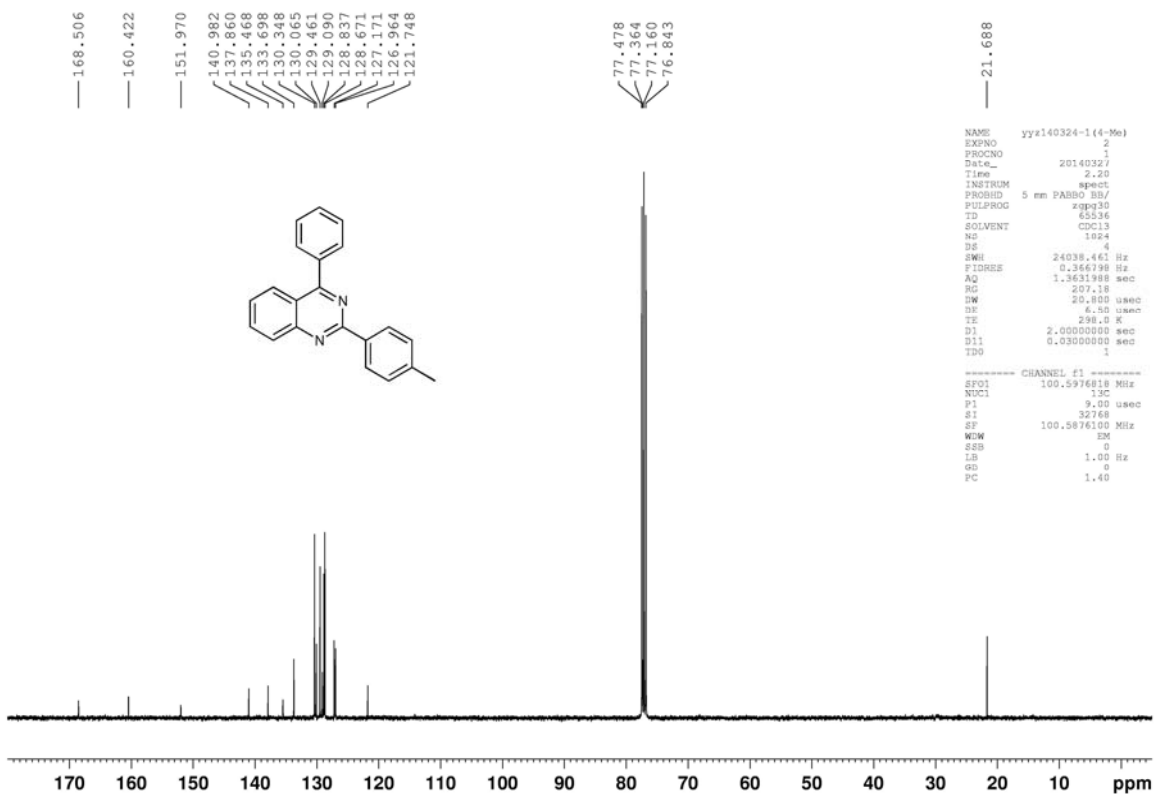
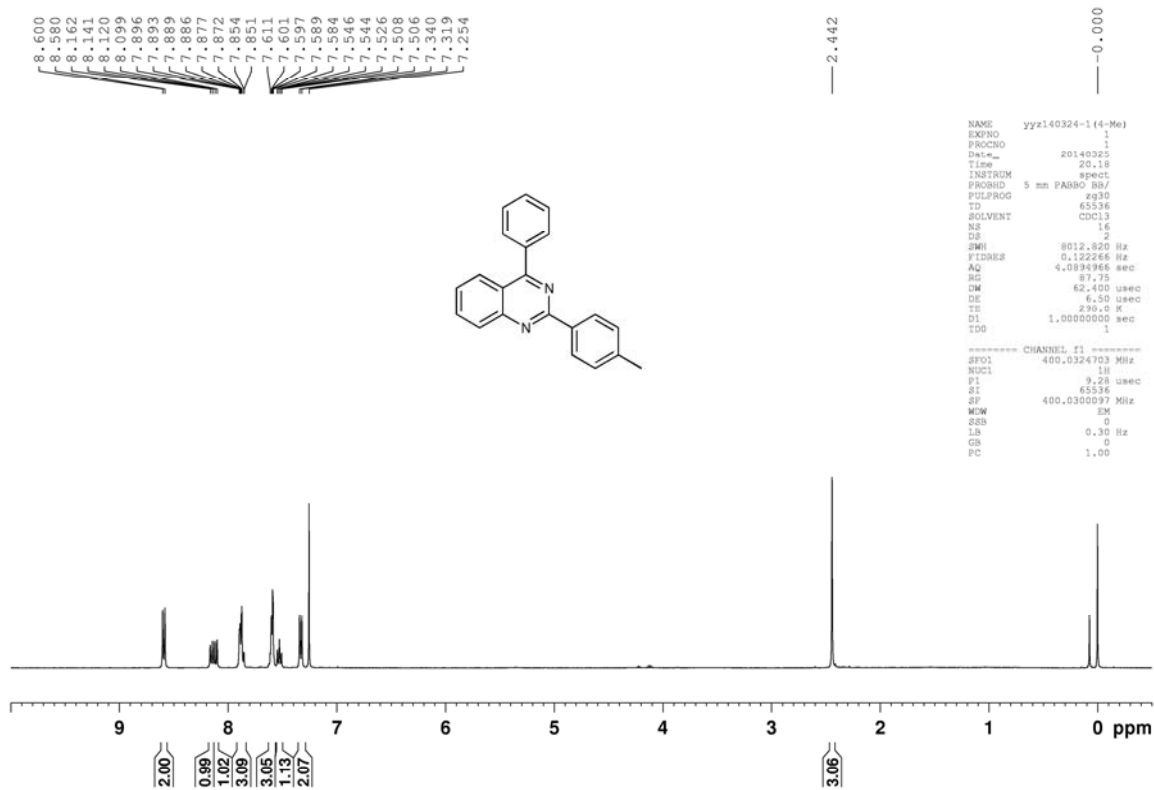
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PROCNO 1
Date_ 20160401
Time 19.30
INSTRUM spect
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PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 24038.442 Hz
FIDRES 0.688688 Hz
AQ 1.3633000 sec
RG 38.29
DM 26.450 usec
DE 4.200 usec
TE 296.1 K
D1 2.00000000 sec
TD0 1

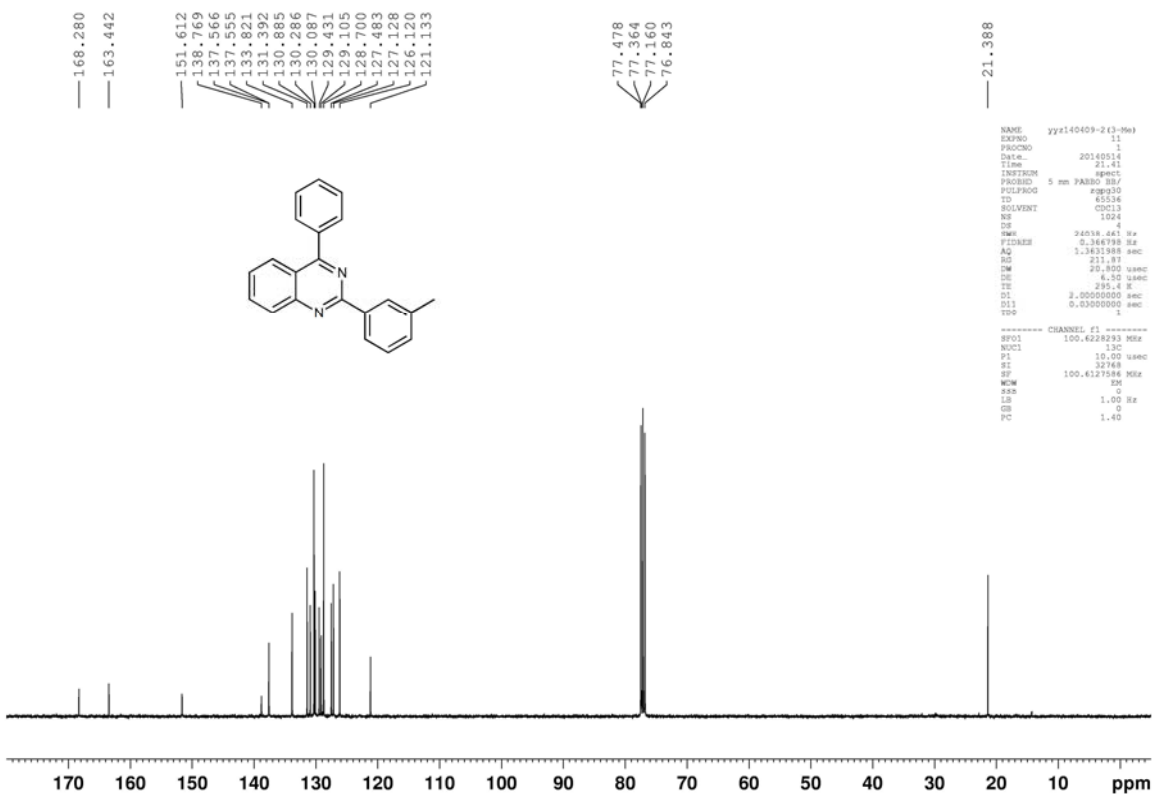
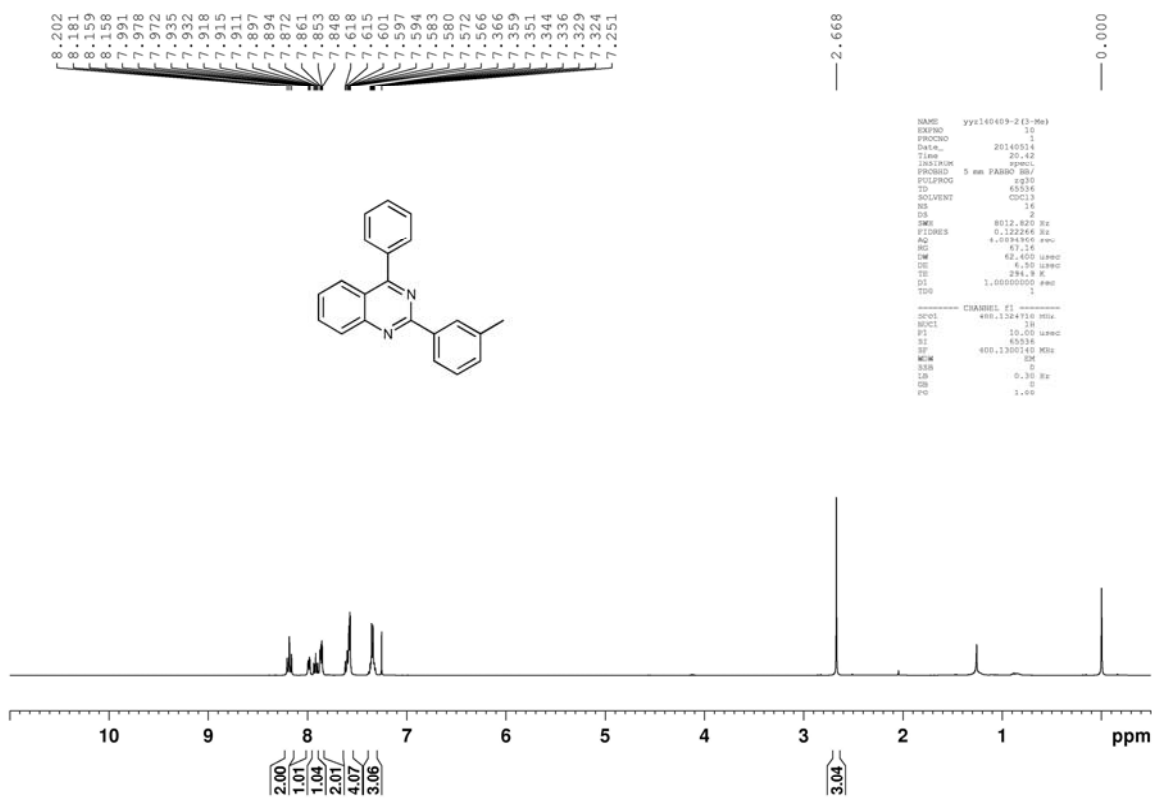
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GB 0
PC 1.00

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EXPNO 1
PROCNO 1
Date_ 20160401
Time 17.30
INSTRUM spect
PROBHD 5 mm PABBO BBI
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 100.6261800 MHz
FIDRES 0.688688 Hz
AQ 1.3633000 sec
RG 38.29
DM 26.450 usec
DE 4.200 usec
TE 296.1 K
D1 2.00000000 sec
TD0 1
    
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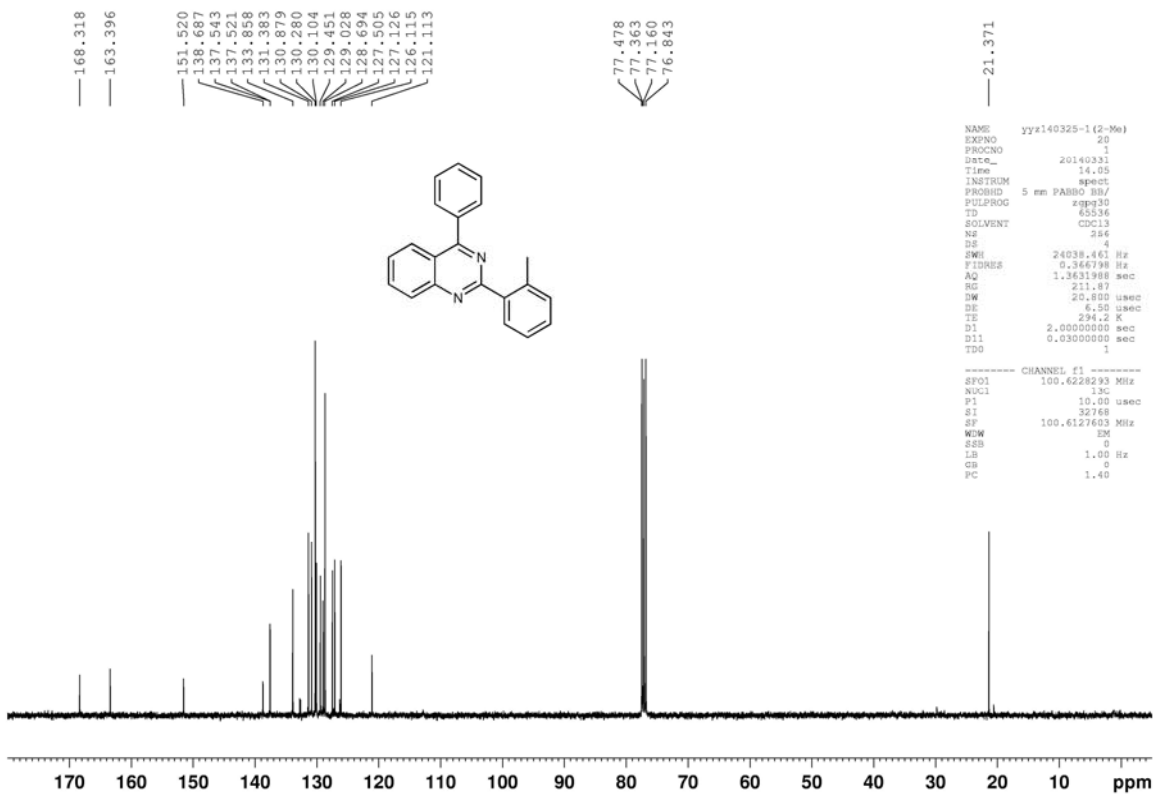
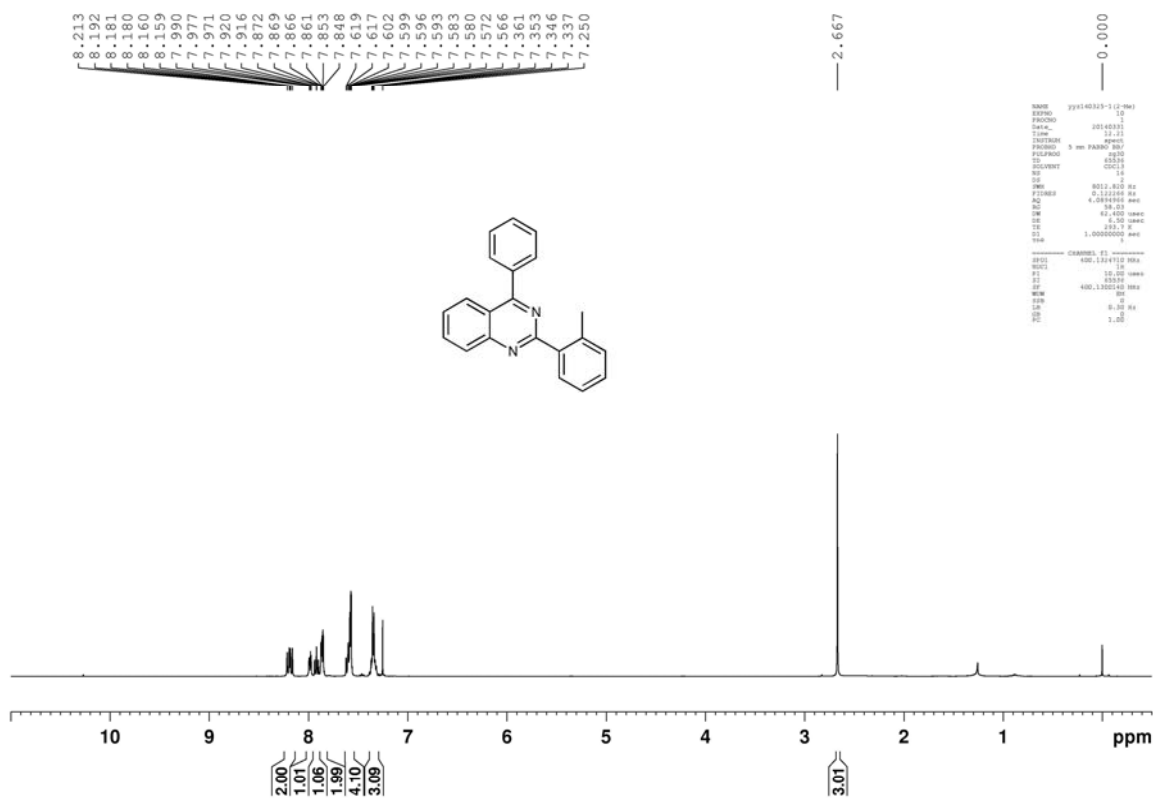
4-phenyl-2-(*p*-tolyl)quinazoline (3aj)



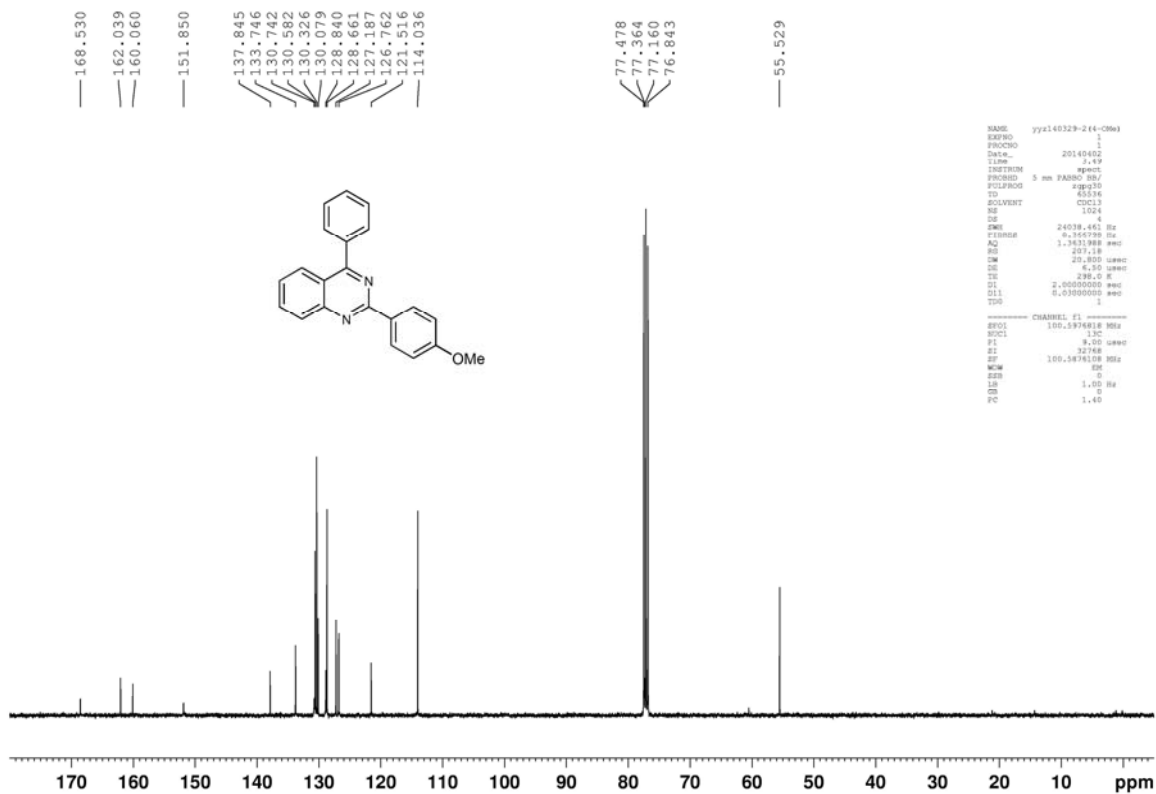
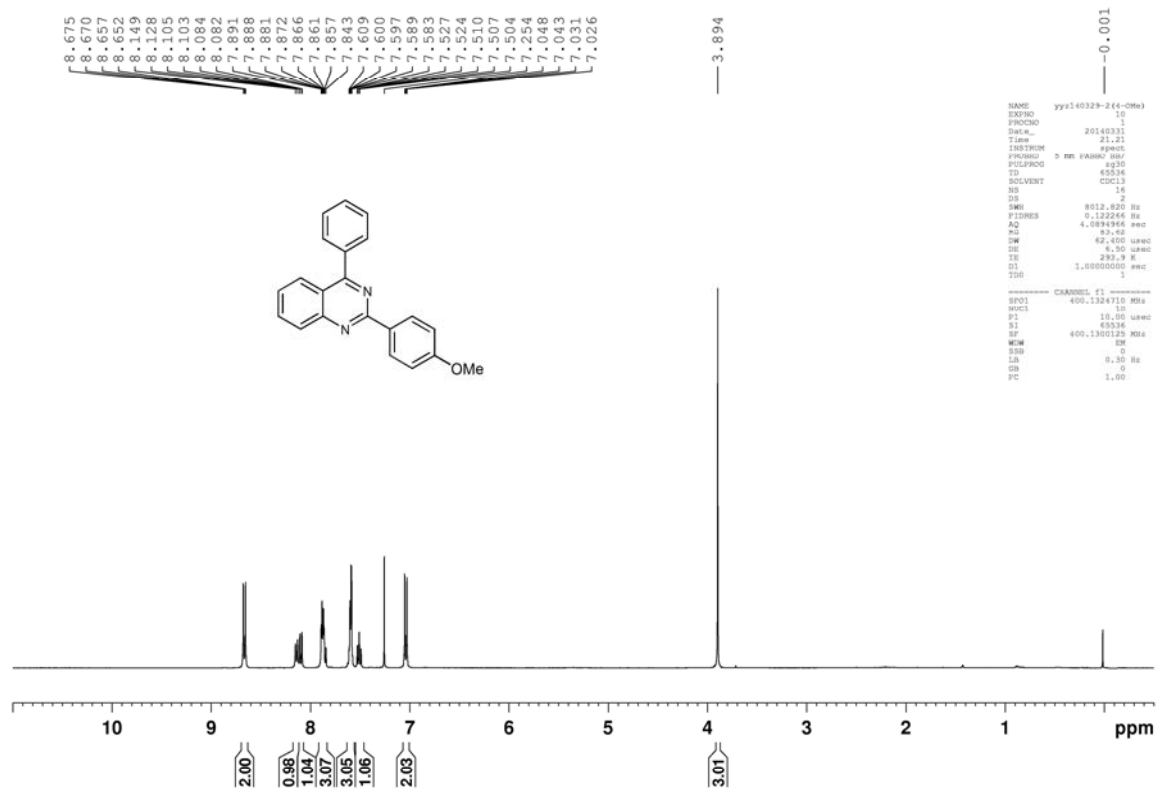
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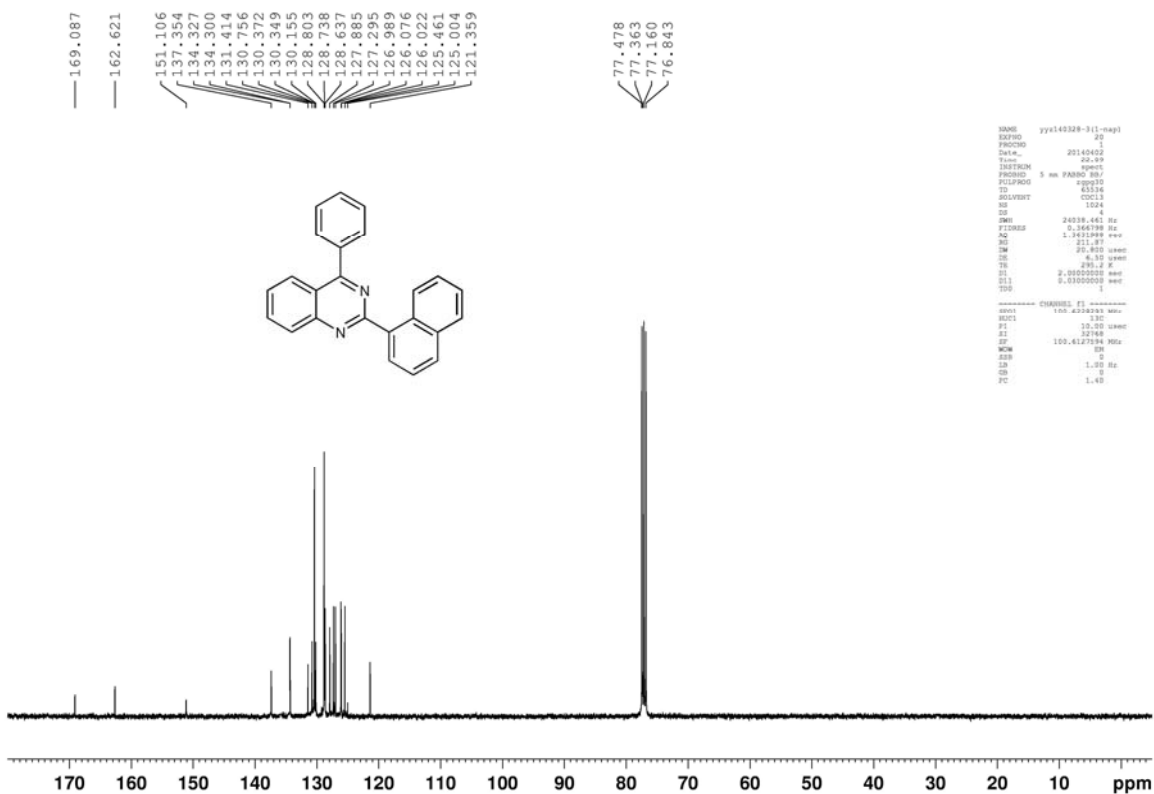
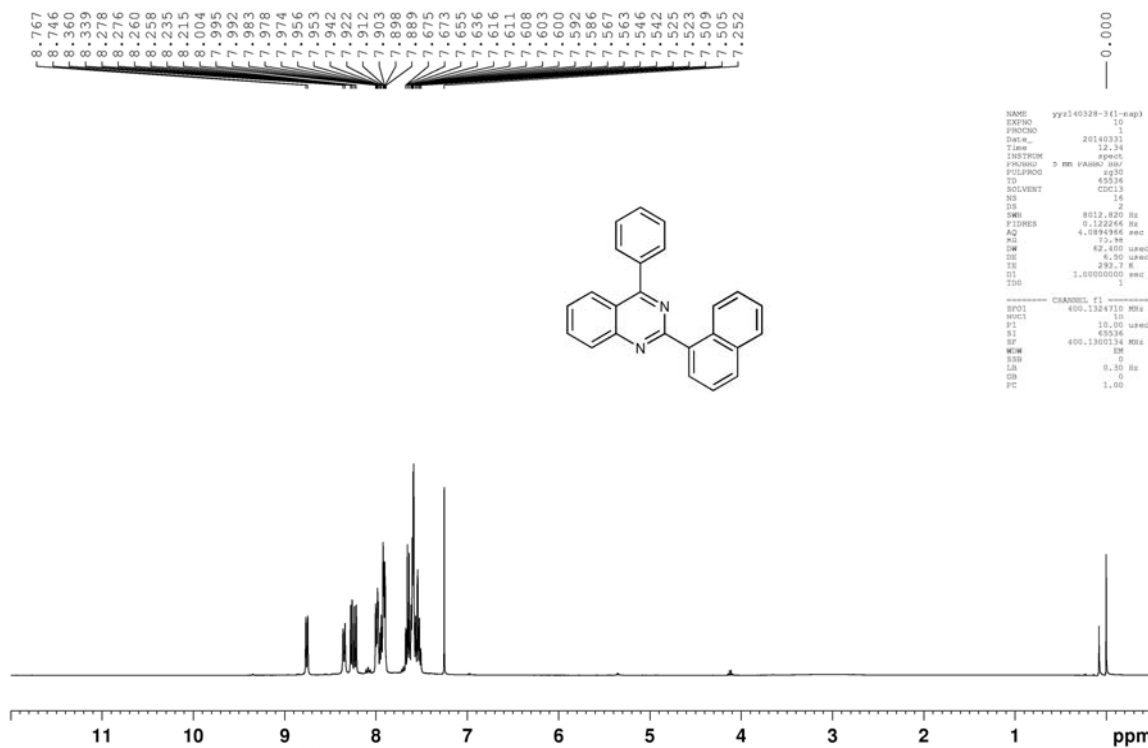
4-phenyl-2-(*o*-tolyl)quinazoline (3a)



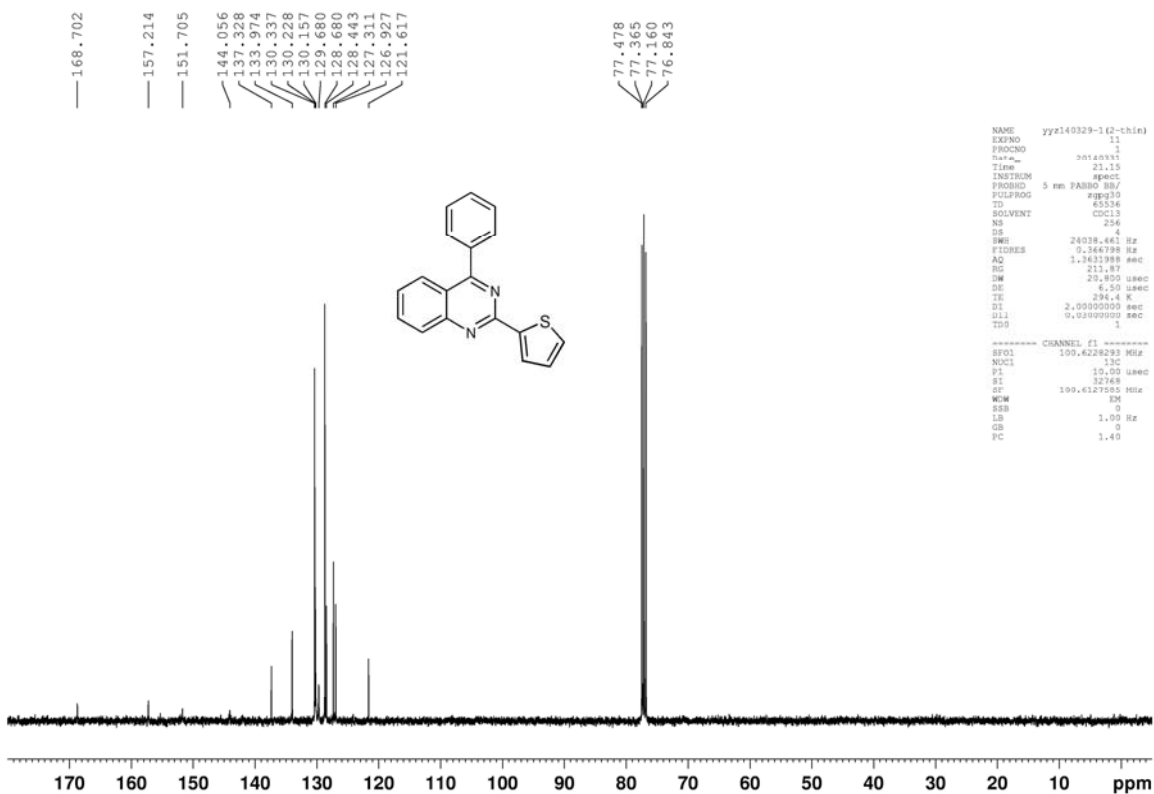
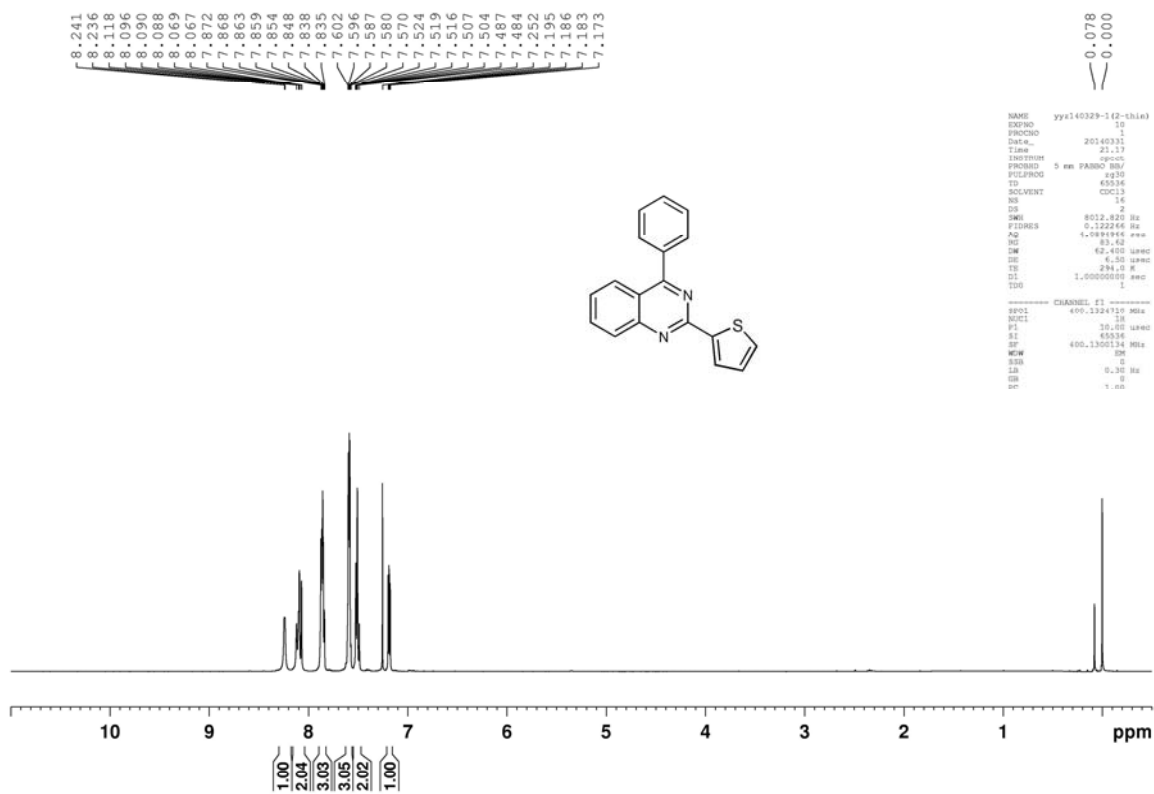
2-(4-methoxyphenyl)-4-phenylquinazoline (3am)



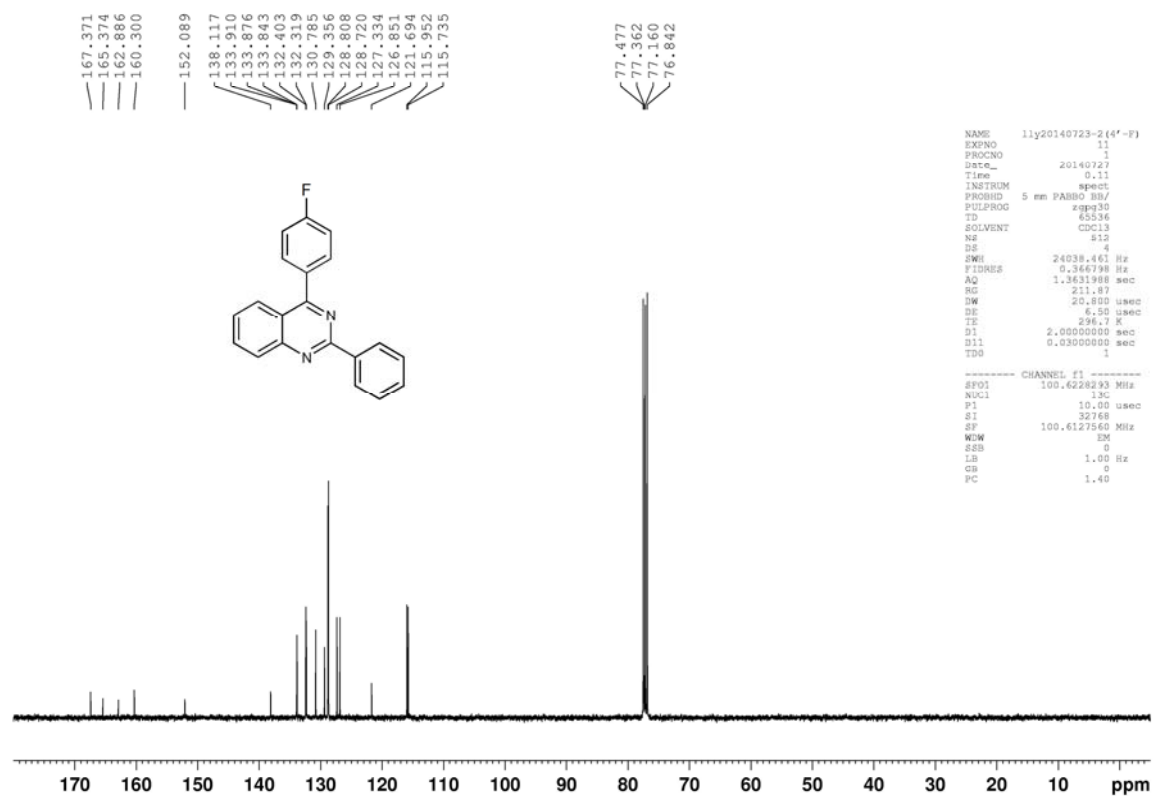
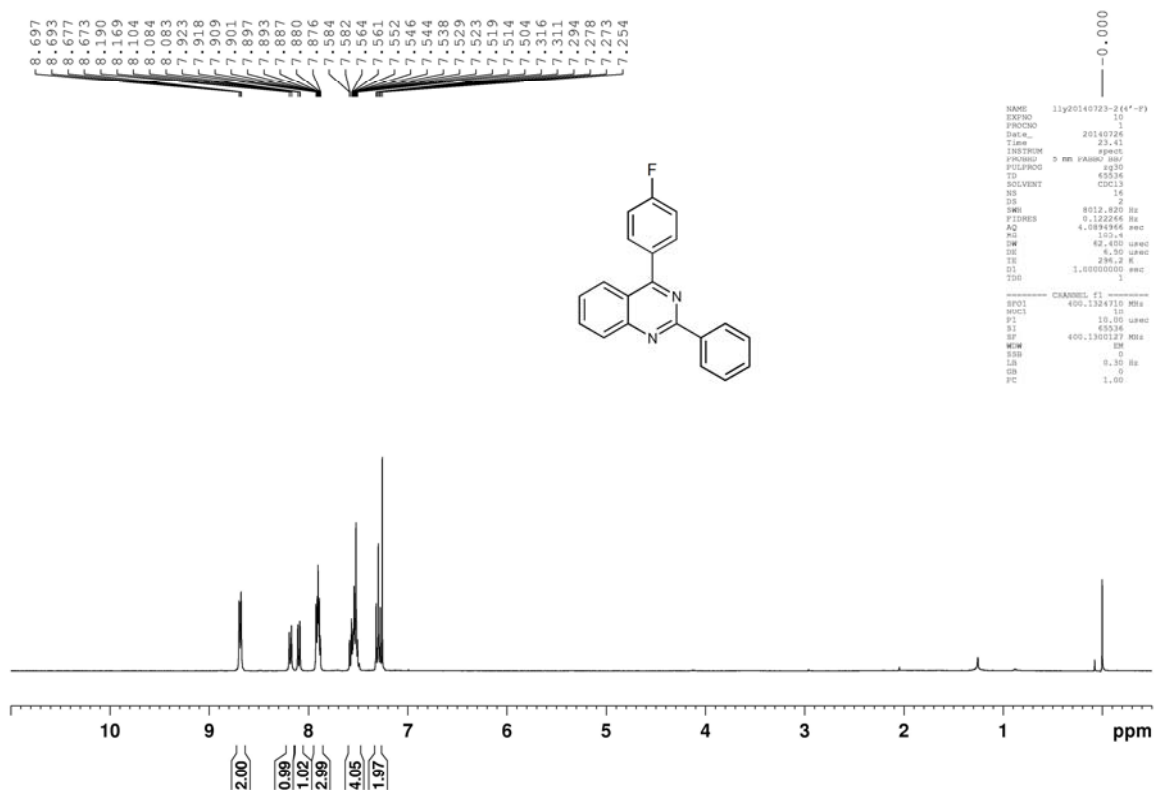
2-(naphthalen-1-yl)-4-phenylquinazoline (3an)



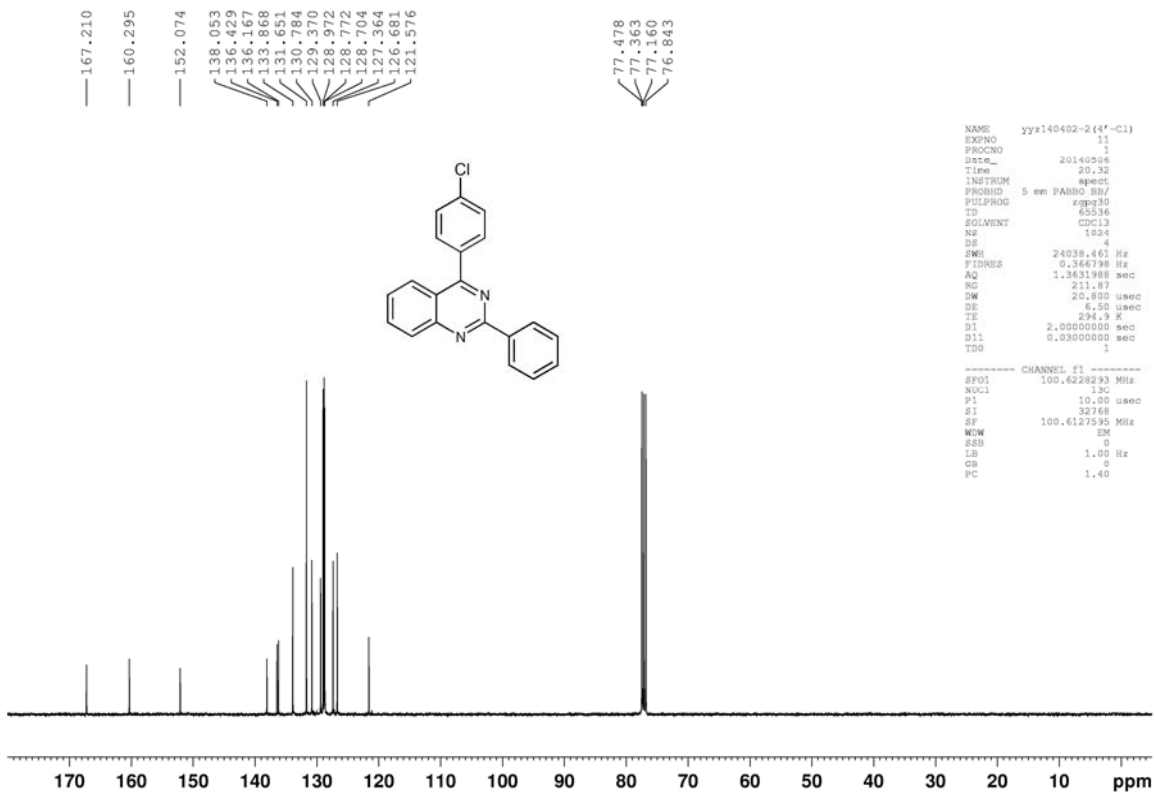
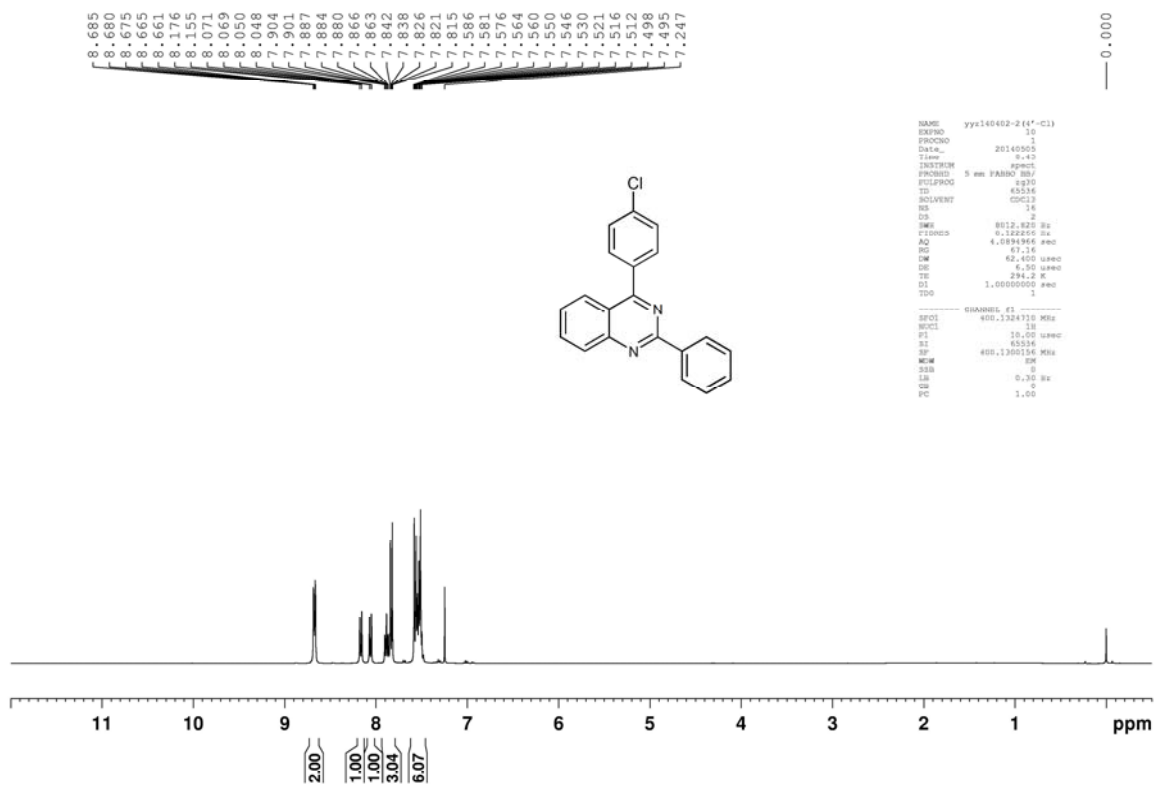
4-phenyl-2-(thiophen-2-yl)quinazoline (3ao)



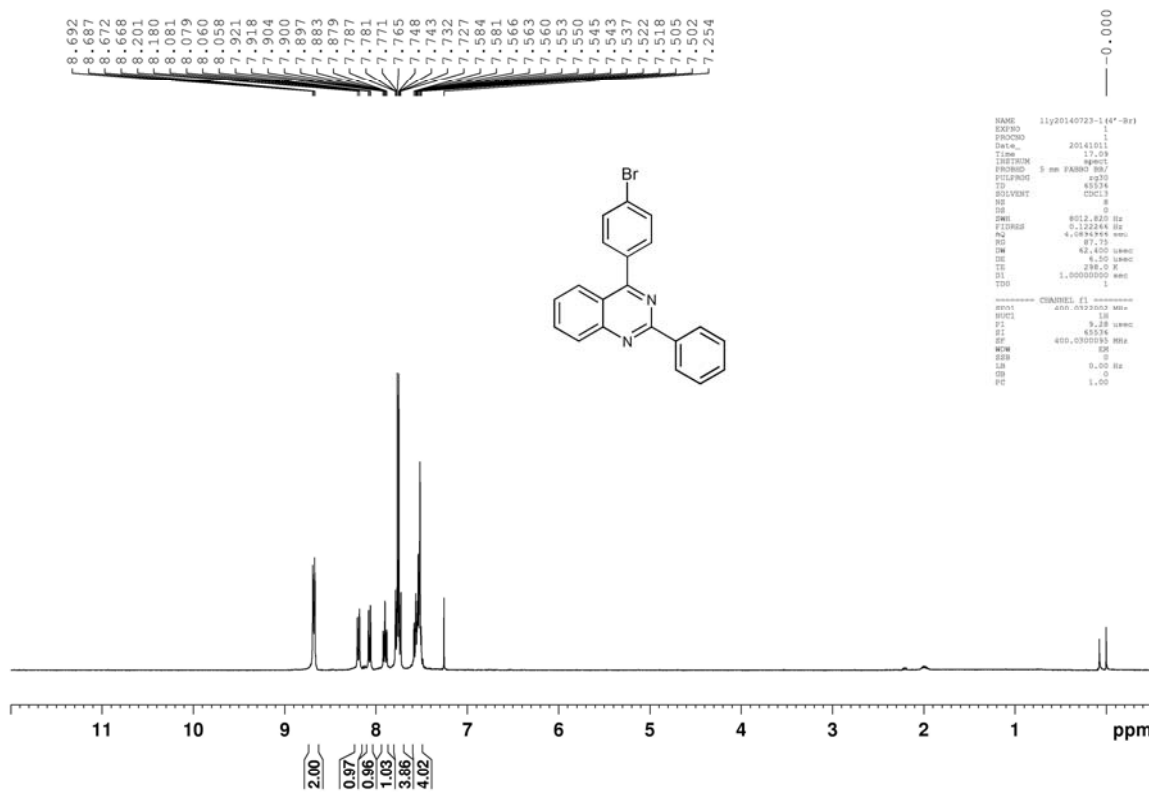
4-(4-fluorophenyl)-2-phenylquinazoline (3bb)



4-(4-chlorophenyl)-2-phenylquinazoline (3cb)

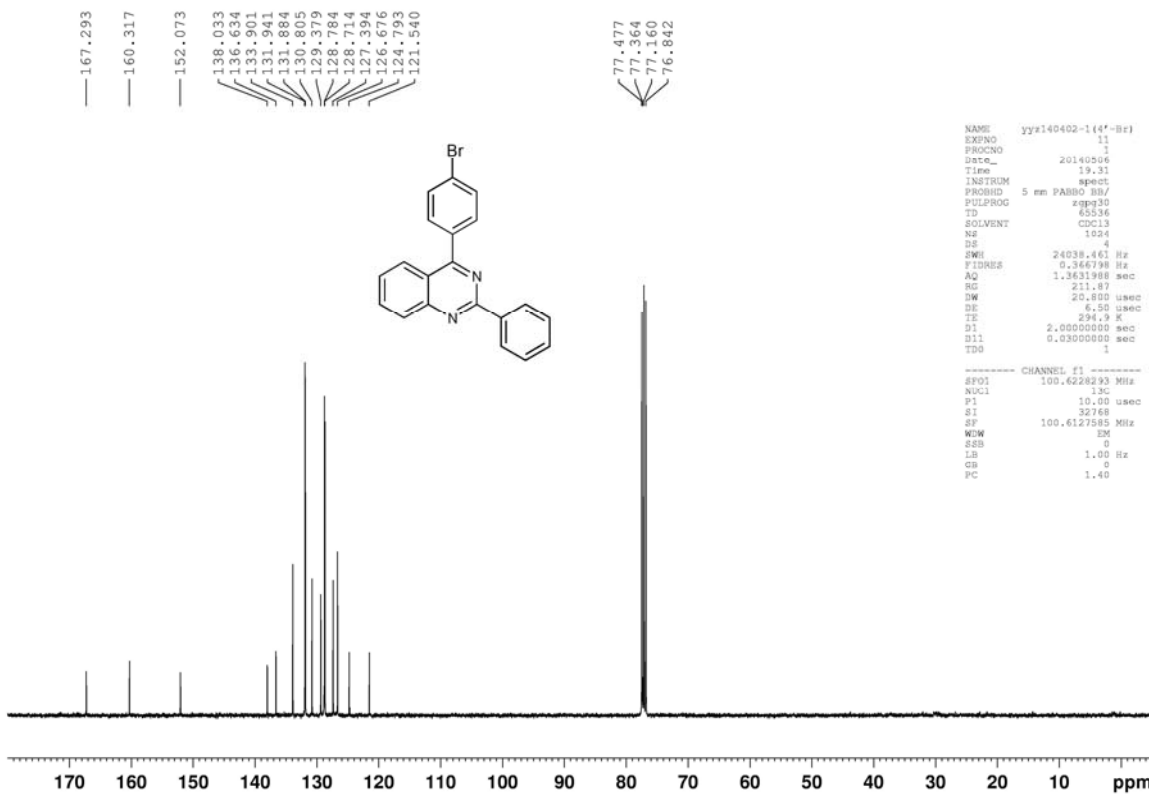


4-(4-bromophenyl)-2-phenylquinazoline (3db)



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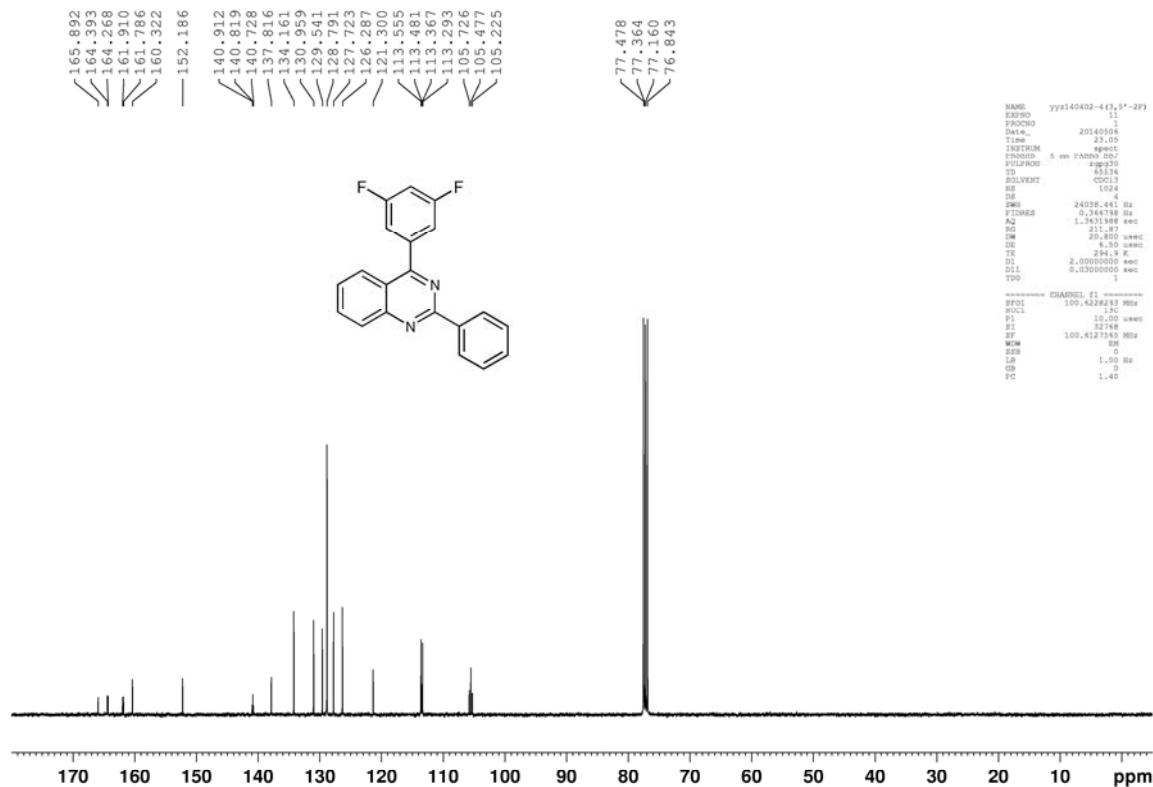
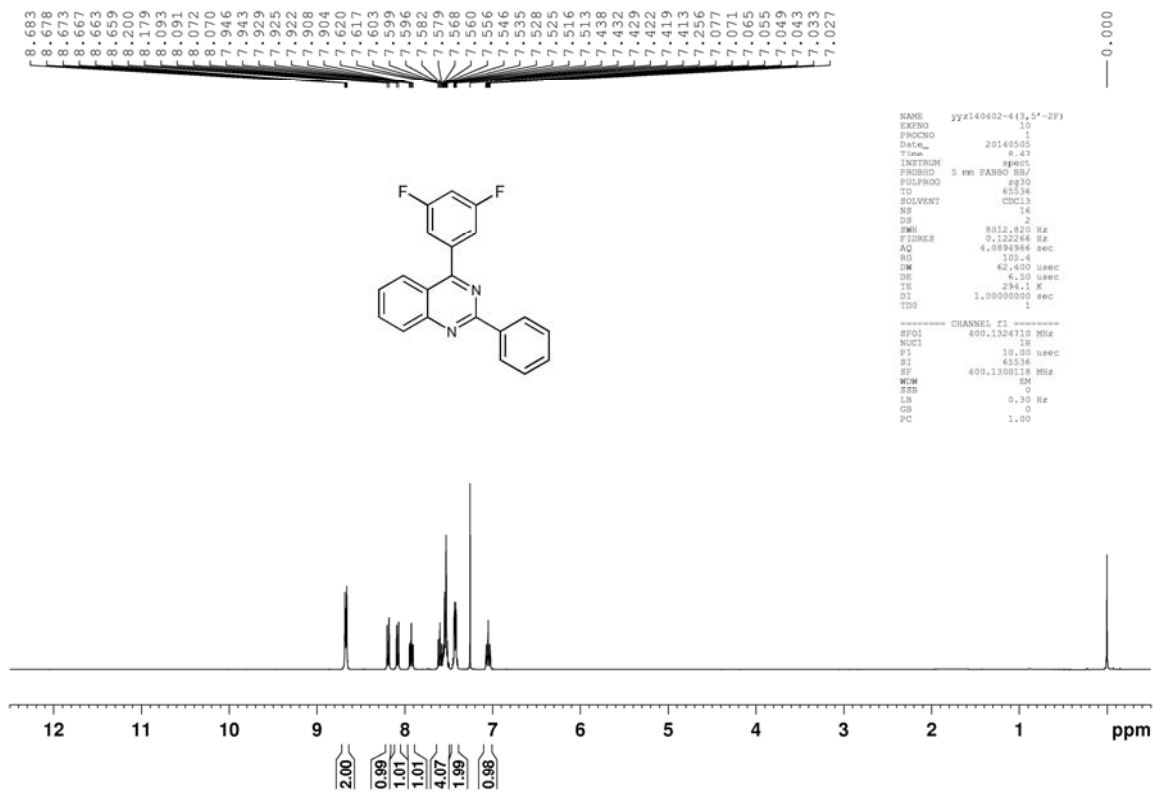
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PROCNO   1
Date_    20141011
Time     17.09
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PROBHD   5 mm PABBO BBP
PULPROG  zgpg30
TD        65536
SOLVENT  CDCl3
NS        4
DS        4
SWH       8612.820 Hz
FIDRES   0.122348 Hz
AQ        4.0834344 sec
RG        87.75
DW        62.400 usec
DE        6.50 usec
TE        298.0 K
D1        1.0000000 sec
D11       1
TD0       1
----- CHANNEL f1 -----
NUC1     13C
P1       10.00 usec
SI       32768
SF       100.627585 MHz
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SSB       0
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PC       1.40
    
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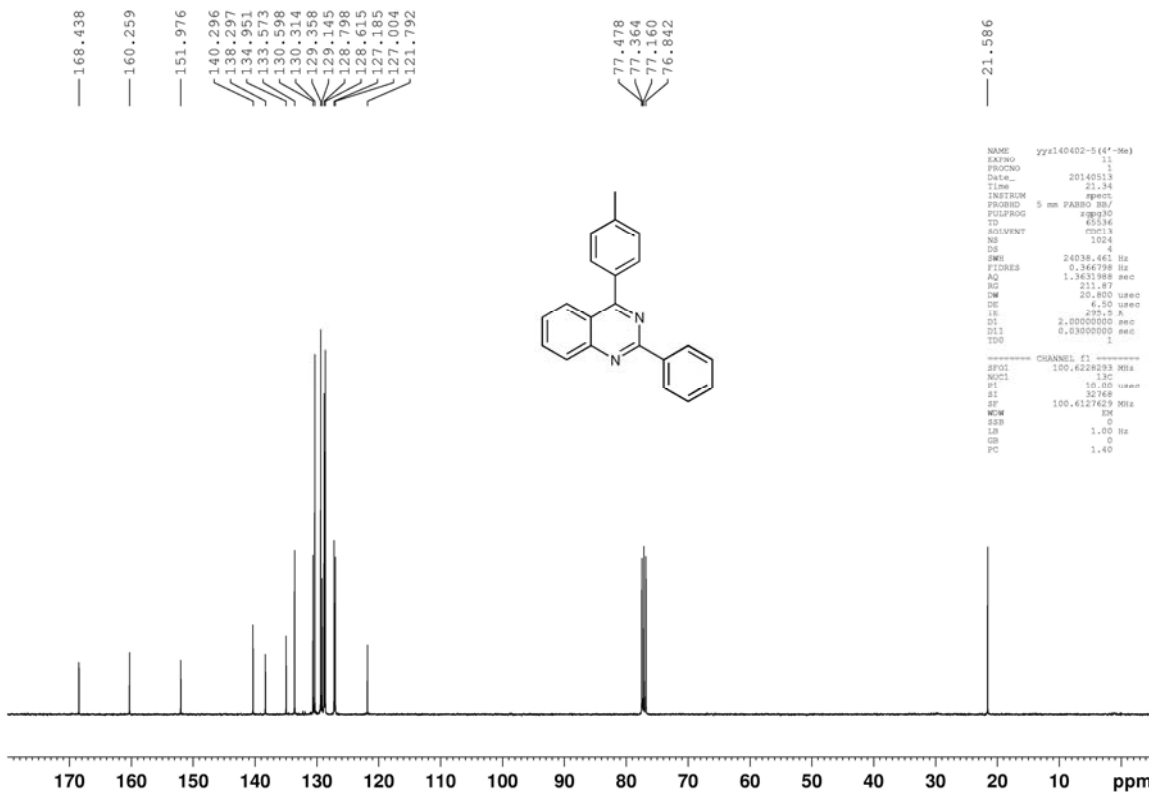
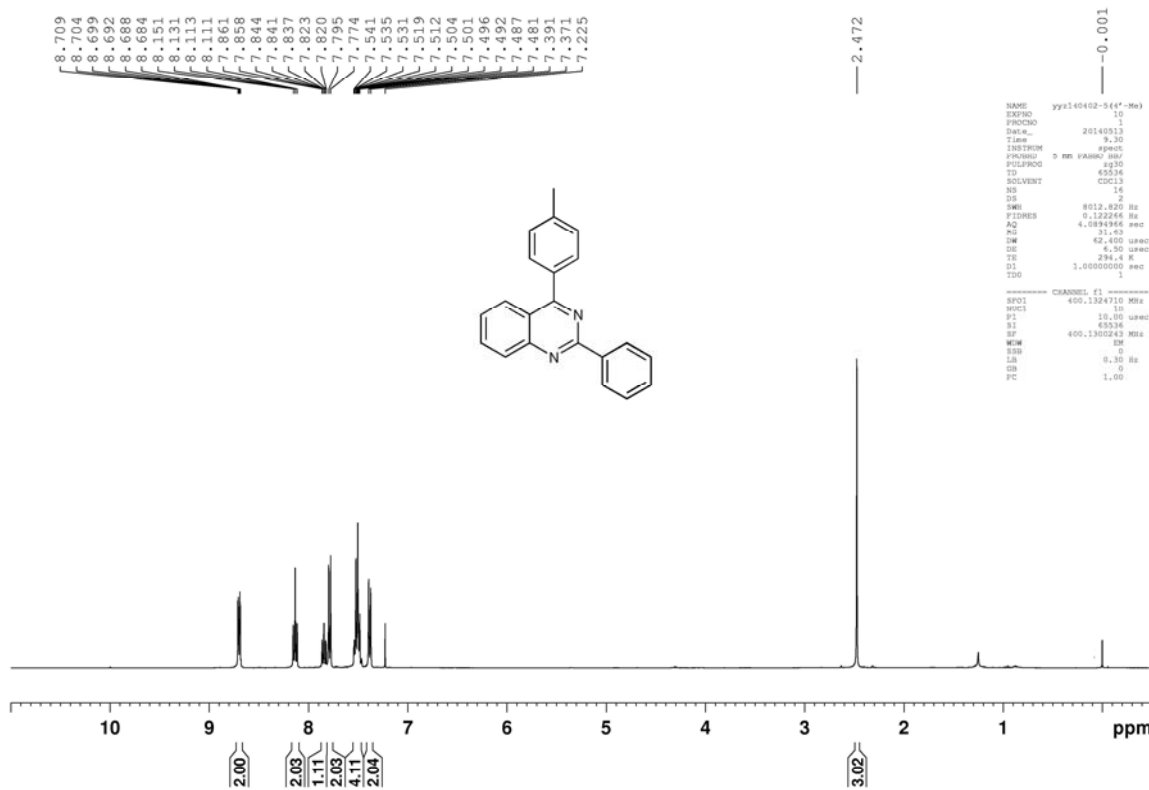
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EXPNO    11
PROCNO   1
Date_    20140506
Time     19.31
INSTRUM  spect
PROBHD   5 mm PABBO BBP
PULPROG  zgpg30
TD        65536
SOLVENT  CDCl3
NS        4
DS        4
SWH       24038.462 Hz
FIDRES   0.366798 Hz
AQ        1.3631988 sec
RG        211.87
DW        20.800 usec
DE        6.50 usec
TE        294.9 K
D1        2.0000000 sec
D11       0.0300000 sec
TD0       1
----- CHANNEL f1 -----
SFO1     100.6228293 MHz
NUC1     13C
P1       10.00 usec
SI       32768
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SSB       0
LB       1.00 Hz
GB       0
PC       1.40
    
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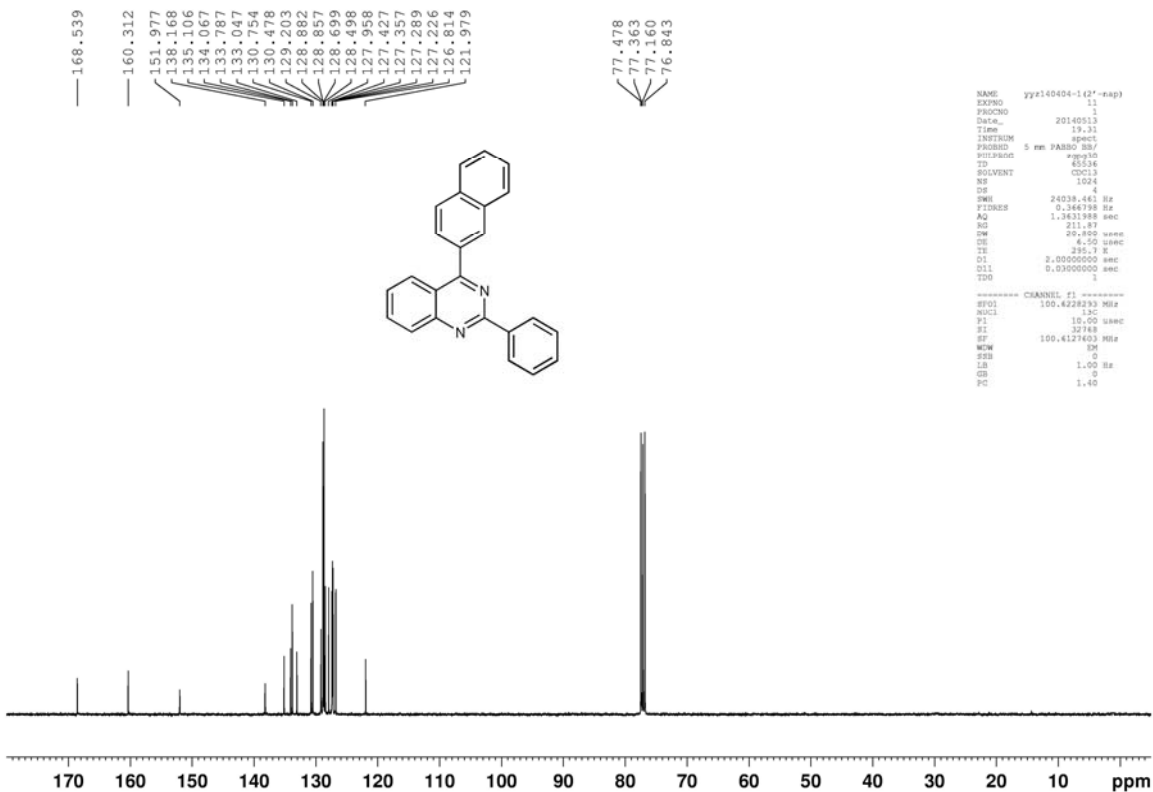
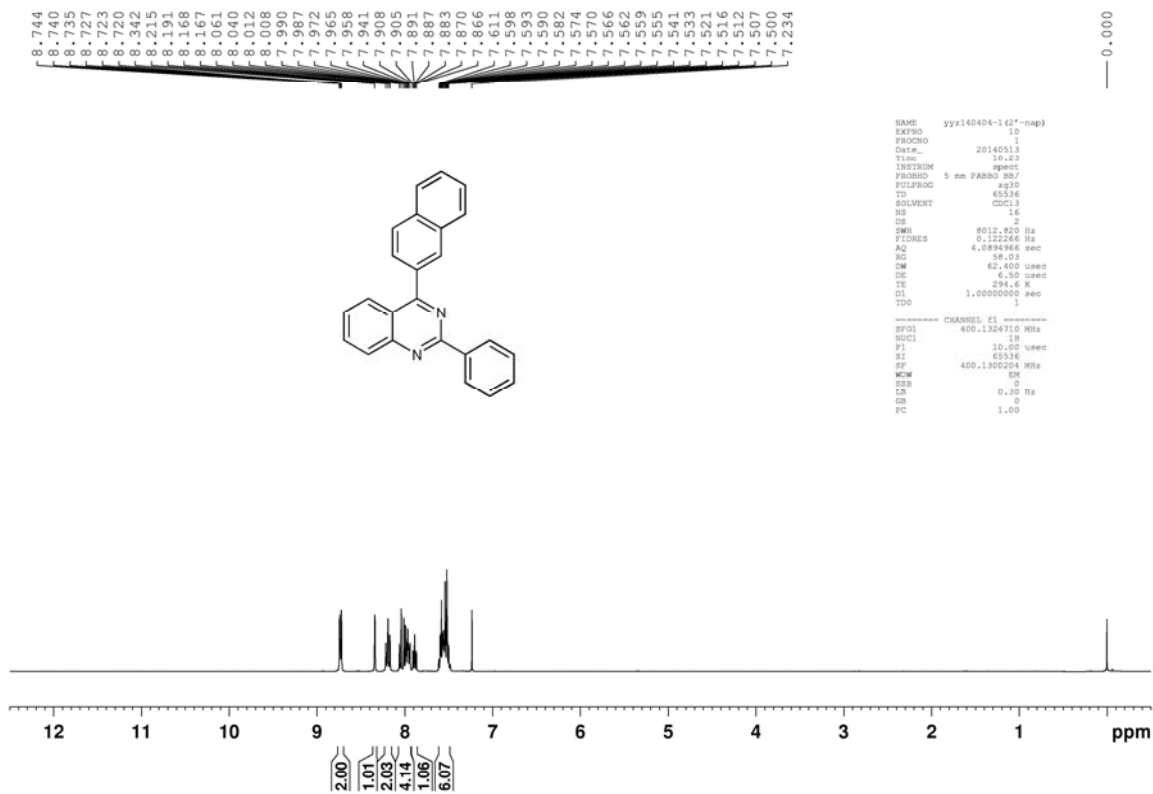
4-(3,5-difluorophenyl)-2-phenylquinazoline (3eb)



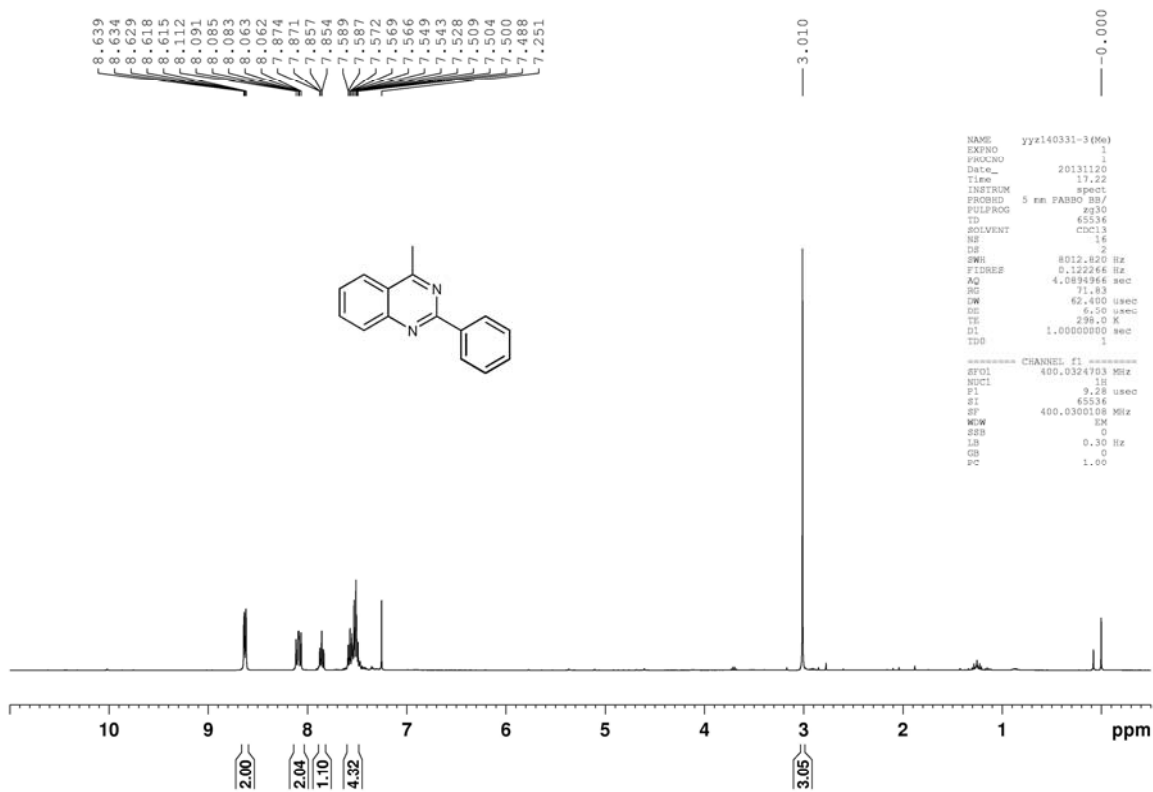
2-phenyl-4-(p-tolyl)quinazoline (3fb)



4-(naphthalen-2-yl)-2-phenylquinazoline (3gb)

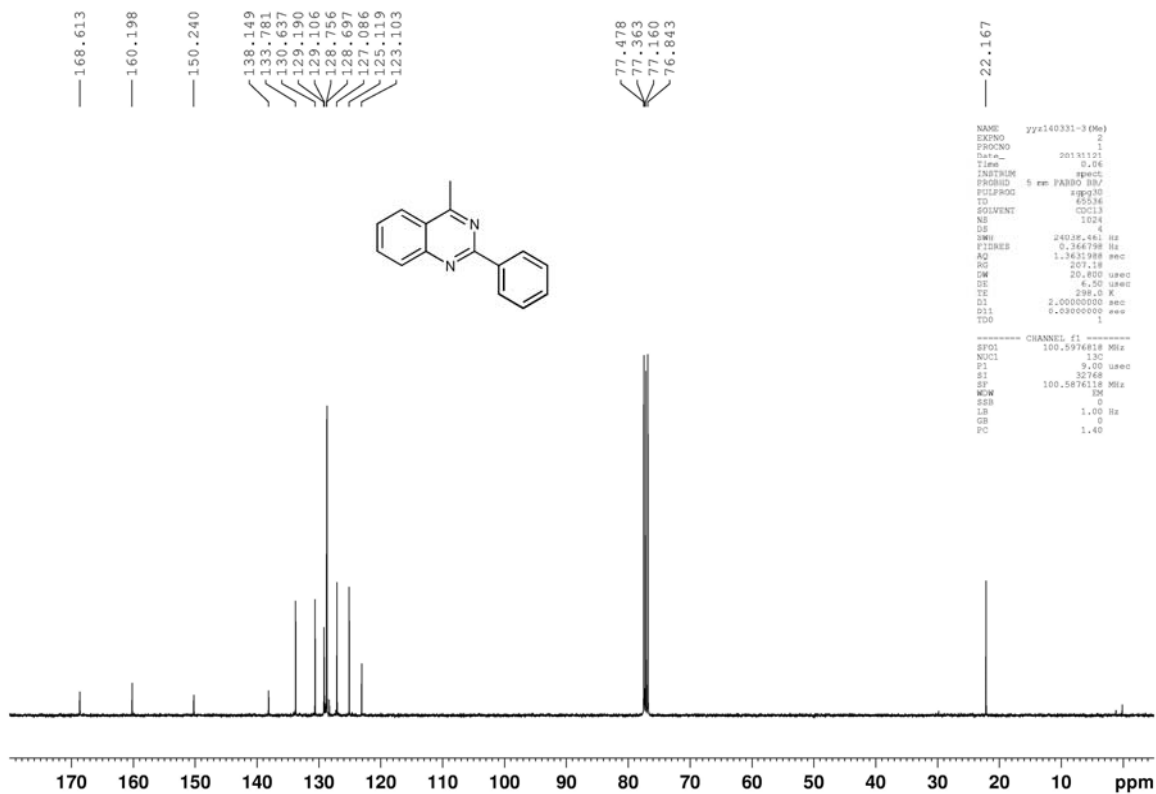


4-methyl-2-phenylquinazoline (3hb)



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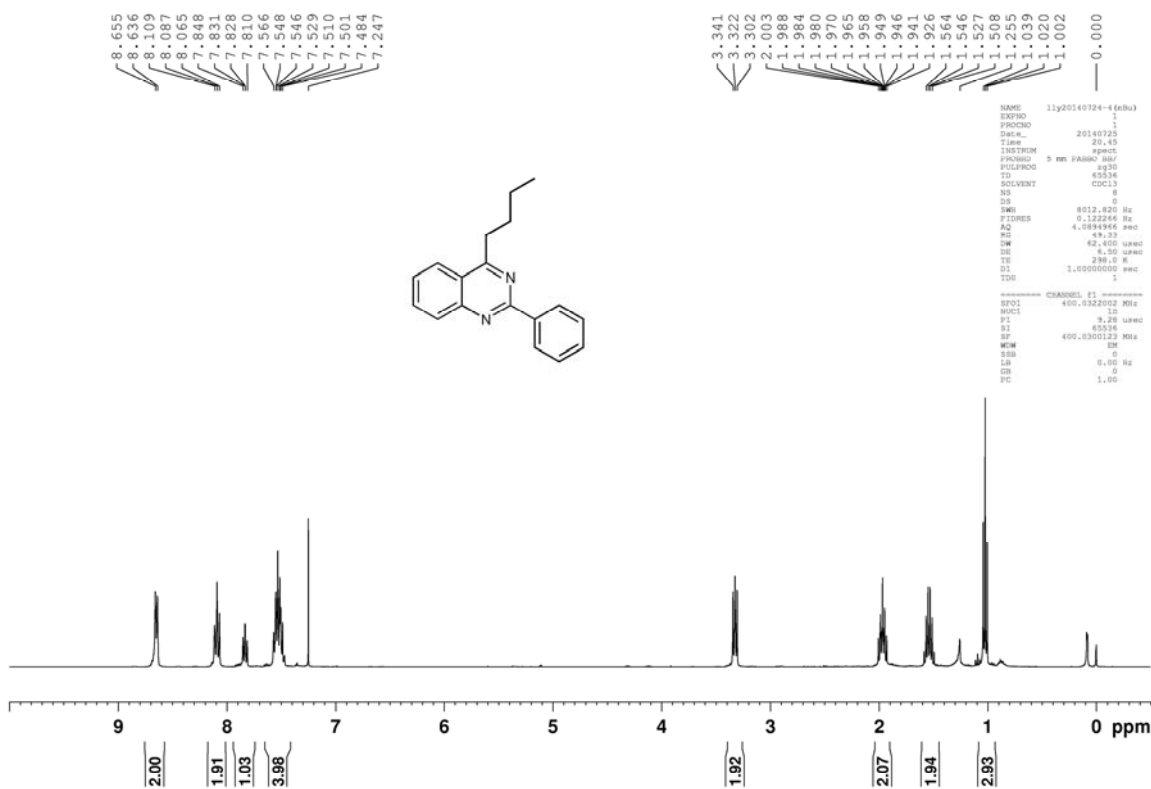
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EXPNO 1
PROCNO 1
Date_ 20131120
Time 17.22
INSTRUM spect
PROBHD 5 mm FAPBBO BB/
PULPROG zg30
TD 65536
SOLVENT cdcl3
NS 16
DS 2
SF 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 31.93
DW 62.400 usec
DE 6.50 usec
TE 298.0 K
D1 1.0000000 sec
TD0 1
===== CHANNEL f1 =====
SF01 400.0324763 MHz
NUC1 1H
P1 9.28 usec
SI 65536
SF 400.0300108 MHz
MW 0
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
    
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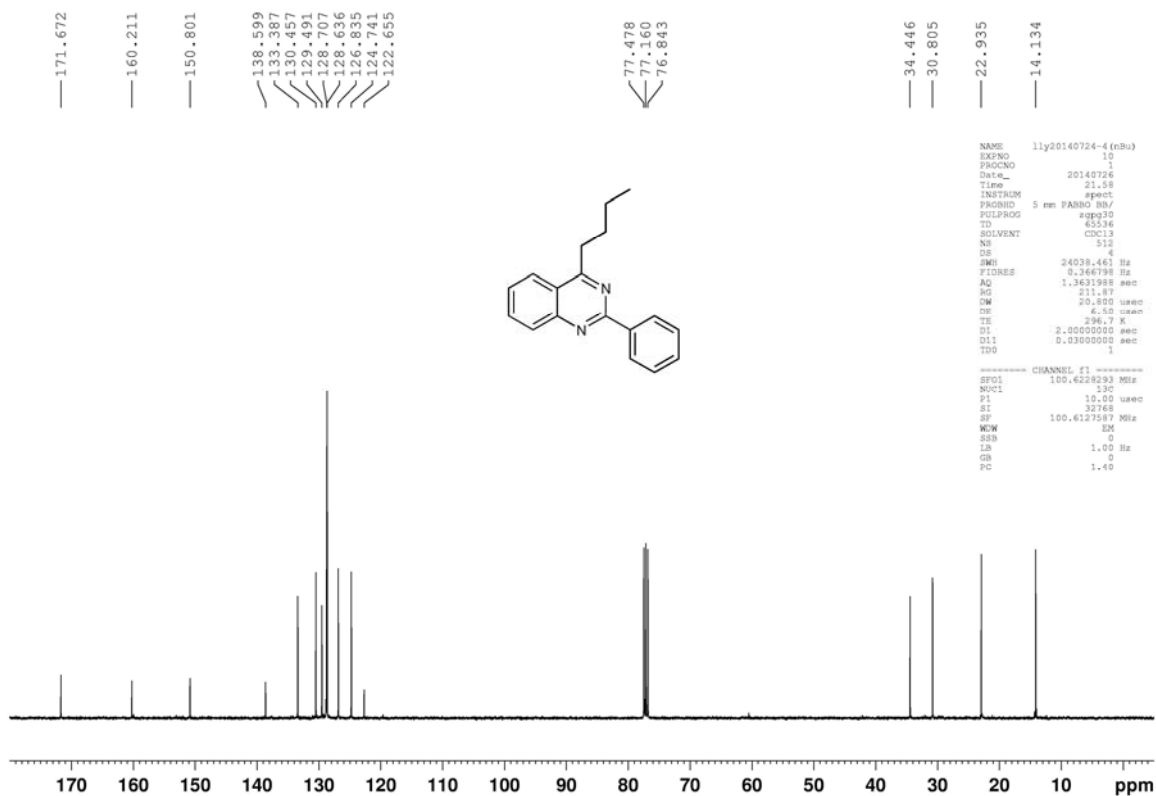
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EXPNO 2
PROCNO 1
Date_ 20131121
Time 0.06
INSTRUM spect
PROBHD 5 mm FAPBBO BB/
PULPROG zgpg30
TD 65536
SOLVENT cdcl3
NS 1624
DS 4
SF 24019.401 Hz
FIDRES 0.346798 Hz
AQ 1.3461988 sec
RG 207.18
DW 20.800 usec
DE 6.50 usec
TE 298.0 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1
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SF01 100.5976818 MHz
NUC1 13C
P1 9.00 usec
SI 32768
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SSB 0
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4-butyl-2-phenylquinazoline (3ib)



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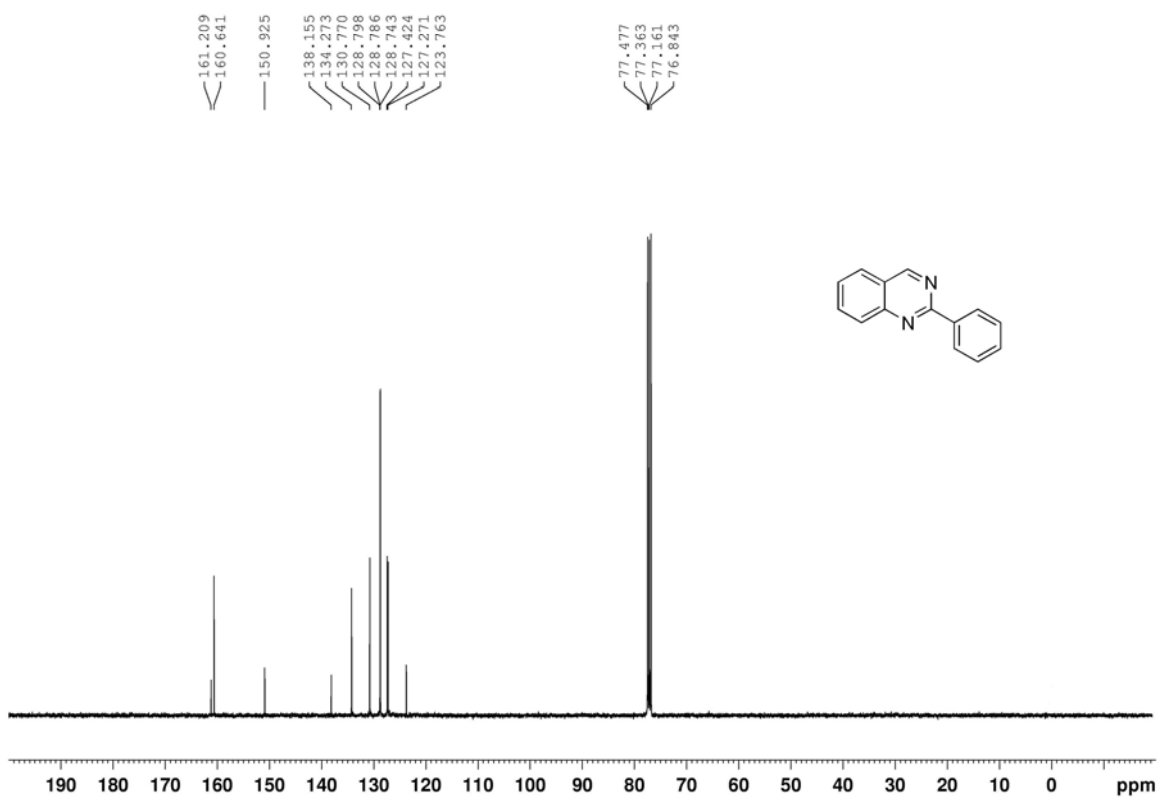
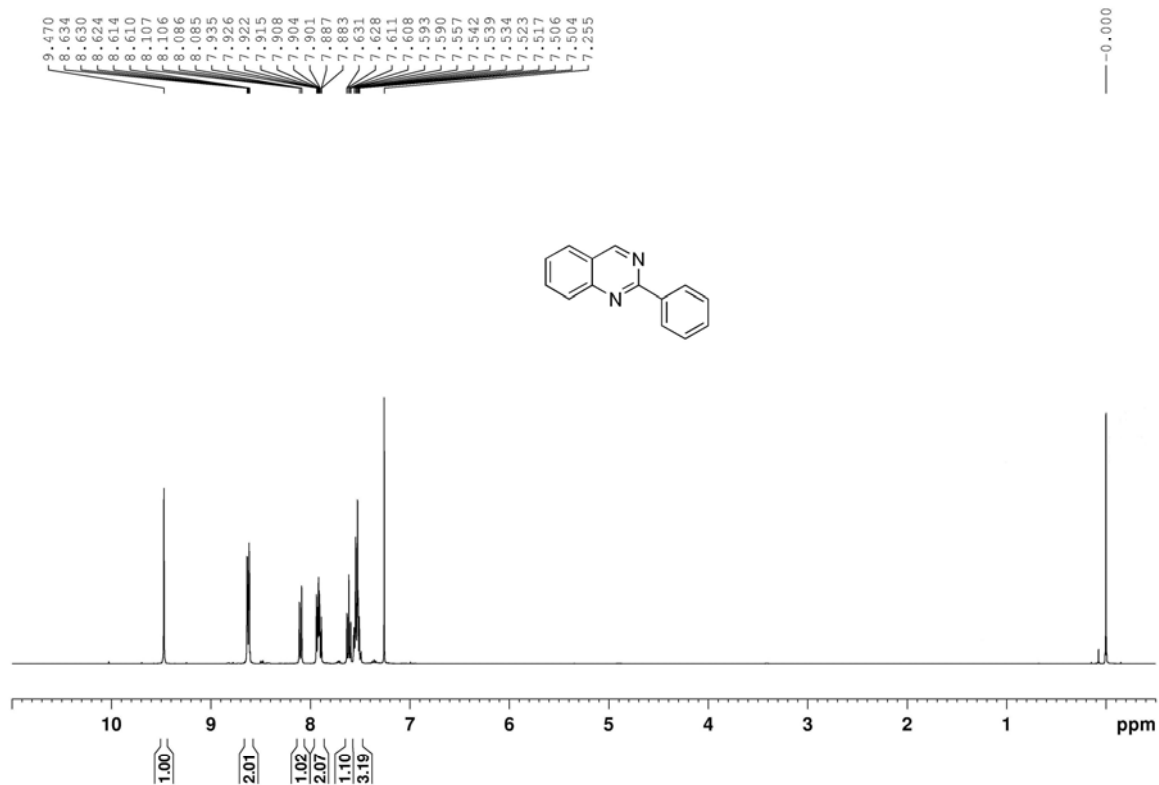
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EXPNO    1
PROCNO   1
Date_    20140725
Time     21.45
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PROBHD   5 mm PABBO 90V
PULPROG  zgpg30
TD       65536
SOLVENT  CDCl3
NS       4
DS       0
SWH      8012.420 Hz
FIDRES   0.122244 Hz
AQ       4.0394344 sec
RG       49.33
DM       421.400 usec
DE       4.50 usec
TE       298.0 K
D1       1.00000000 sec
TD0      1
----- CHANNEL f1 -----
SFO1     400.1522002 MHz
NUC1     13C
P1       9.28 usec
SI       65536
SF       400.1501222 MHz
WDW      EM
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LB       0.00 Hz
GB       0
PC       1.00
    
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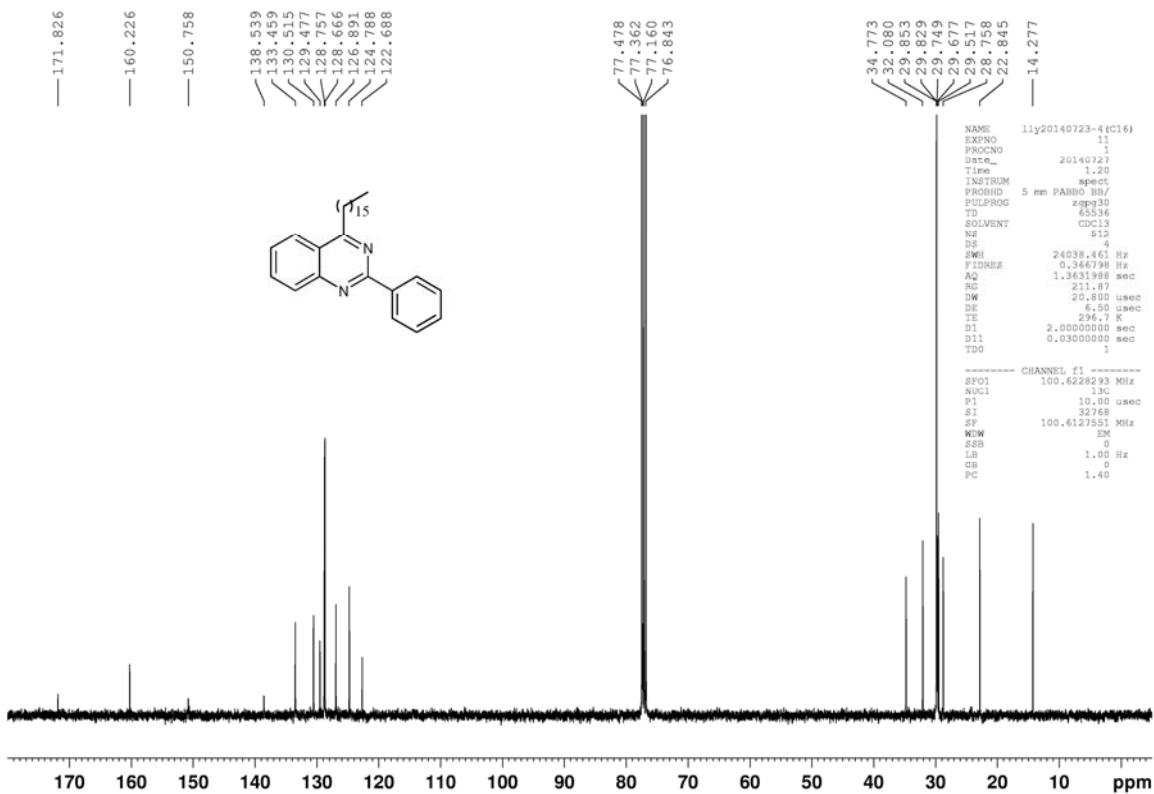
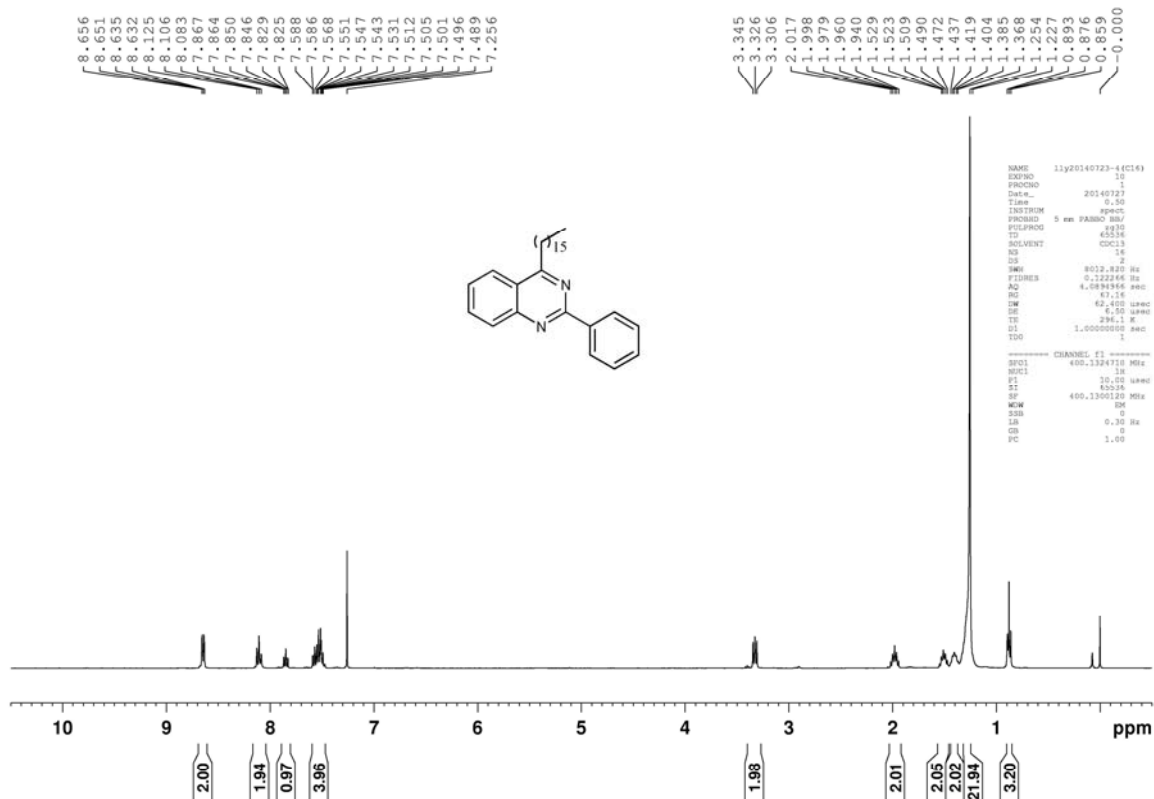
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NAME      11y20140724-4 (nBu)
EXPNO    1
PROCNO   1
Date_    20140724
Time     21.58
INSTRUM  spect
PROBHD   5 mm PABBO 90V
PULPROG  zgpg30
TD       65536
SOLVENT  CDCl3
NS       512
DS       4
SWH      24039.461 Hz
FIDRES   0.3464798 Hz
AQ       1.3631988 sec
RG       211.87
DM       20.800 usec
DE       6.50 usec
TE       296.17 K
D1       2.00000000 sec
D11      0.03000000 sec
TD0      1
----- CHANNEL f1 -----
SFO1     100.6282933 MHz
NUC1     13C
P1       10.00 usec
SI       32768
SF       100.6127587 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
    
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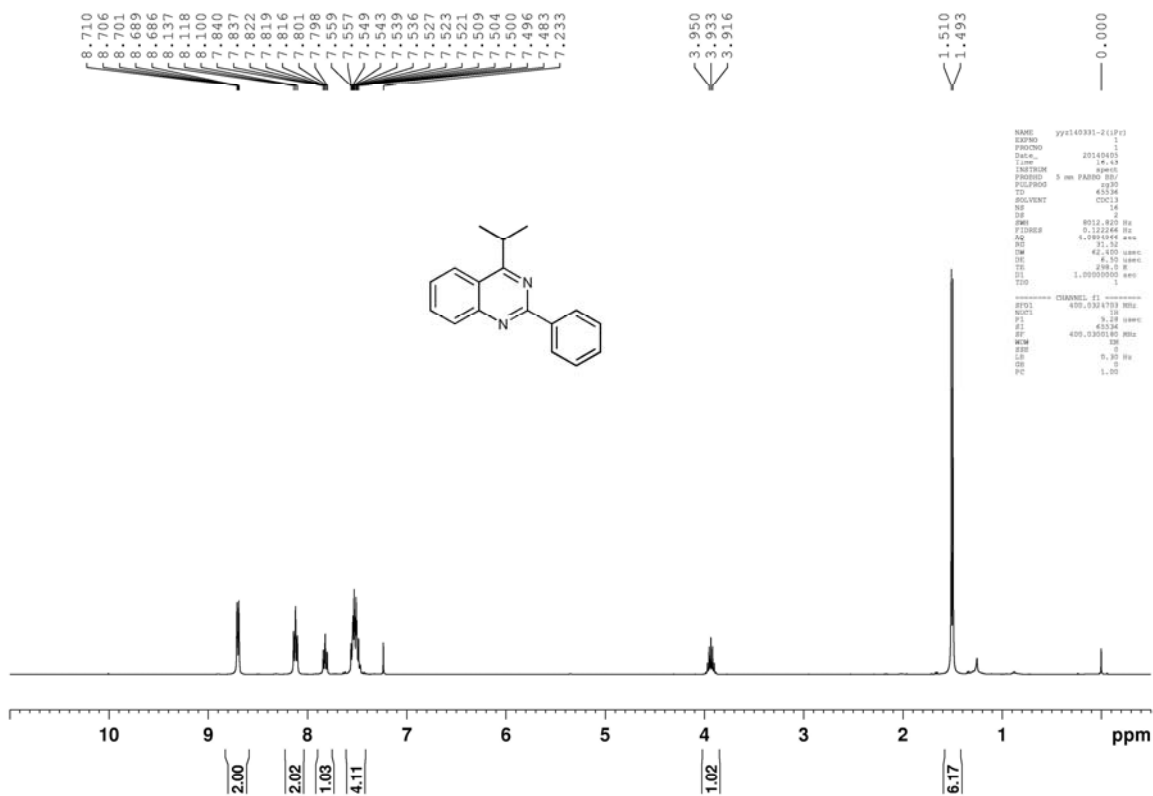

2-phenylquinazoline (3ib' or 3jb')



4-hexadecyl-2-phenylquinazoline (3jb)



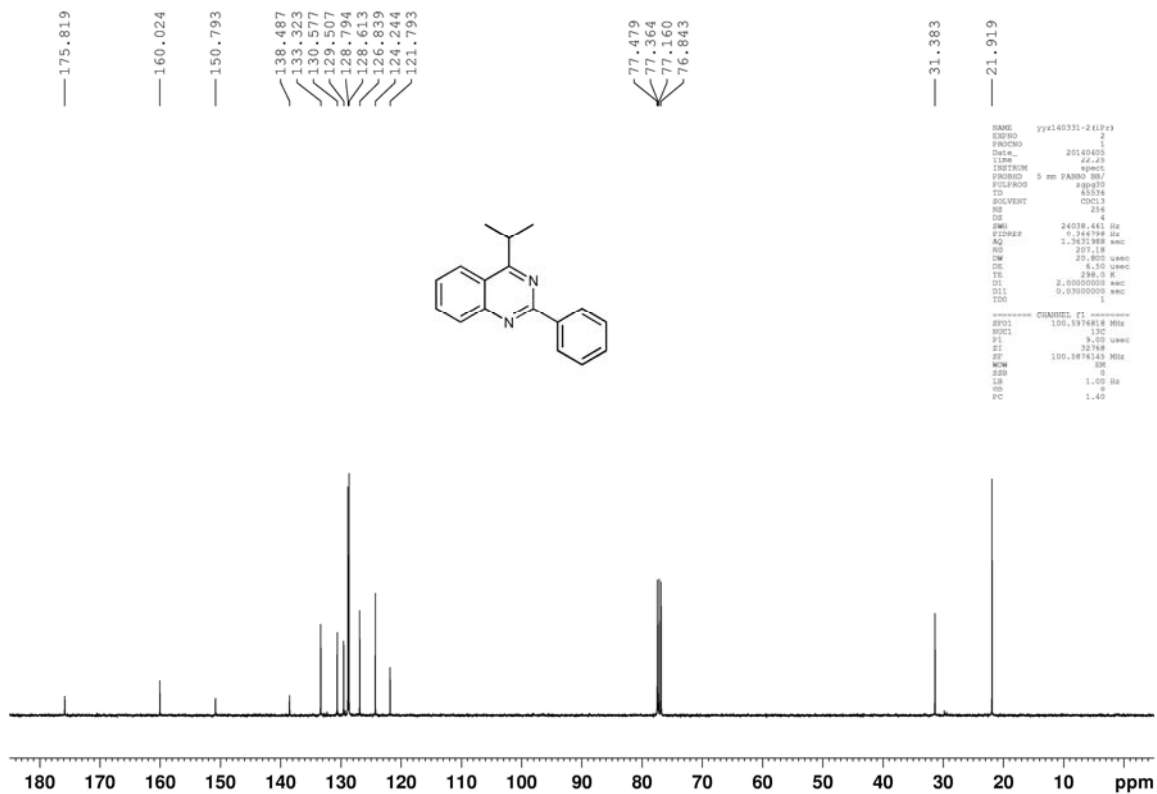
4-isopropyl-2-phenylquinazoline (3kb)



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EXPNO     1
PROCNO    1
Date_     20140405
Time      14.44
INSTRUM   spect
PROBHD    5 mm PABBO 507
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS        2
DS        4
SWH        8012.800 Hz
F2       0.122264 Hz
AQ         1.9891944 sec
RG         31.32
SQ         62.400 usec
DE         4.30 usec
TE         298.0 K
DQ         1.00000000 sec
TD0        1
===== CHANNEL f1 =====
NUC1       13C
P1         9.19 usec
PL         0.00 dB
RF         400.1300140 MHz
SFO        100.6261250 MHz
ZS0        0
ZS1        0
ZS2        0
ZS3        0
ZS4        0
ZS5        0
ZS6        0
ZS7        0
ZS8        0
ZS9        0
ZS10       0
===== CHANNEL f2 =====
NUC2       13C
P2         9.19 usec
PL         0.00 dB
RF         400.1300140 MHz
SFO        100.6261250 MHz
ZS0        0
ZS1        0
ZS2        0
ZS3        0
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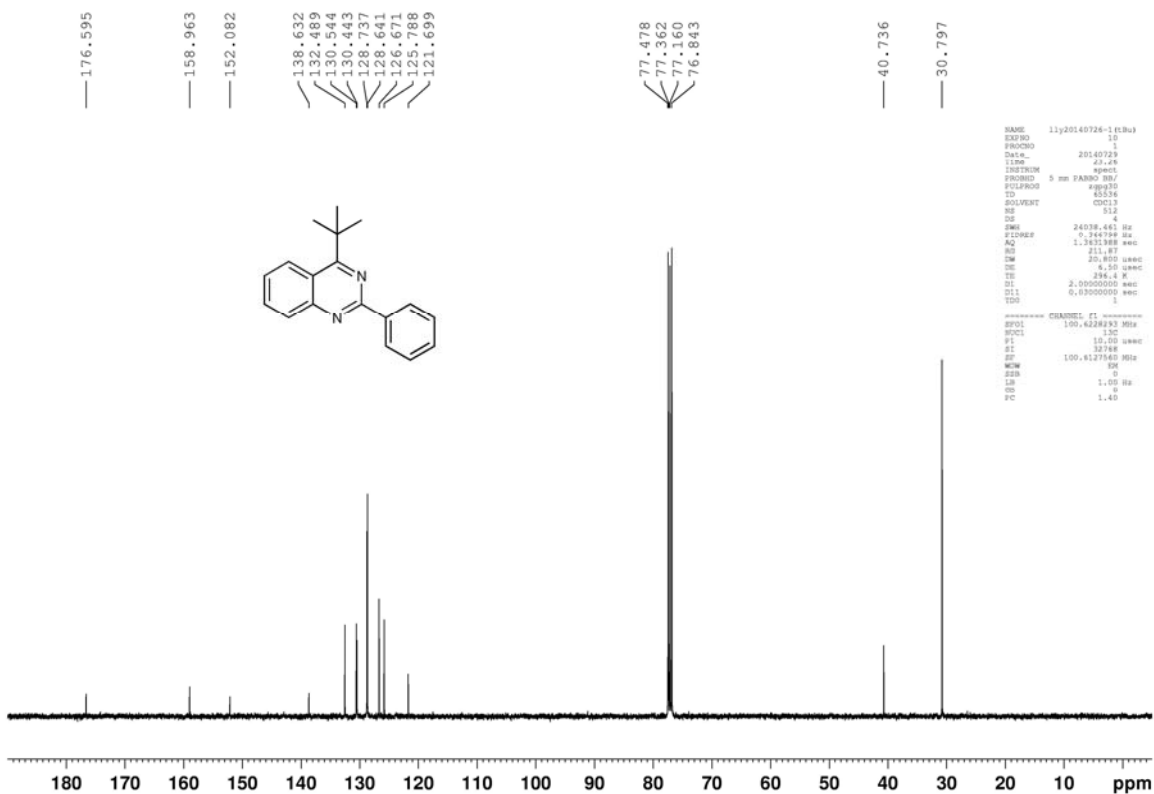
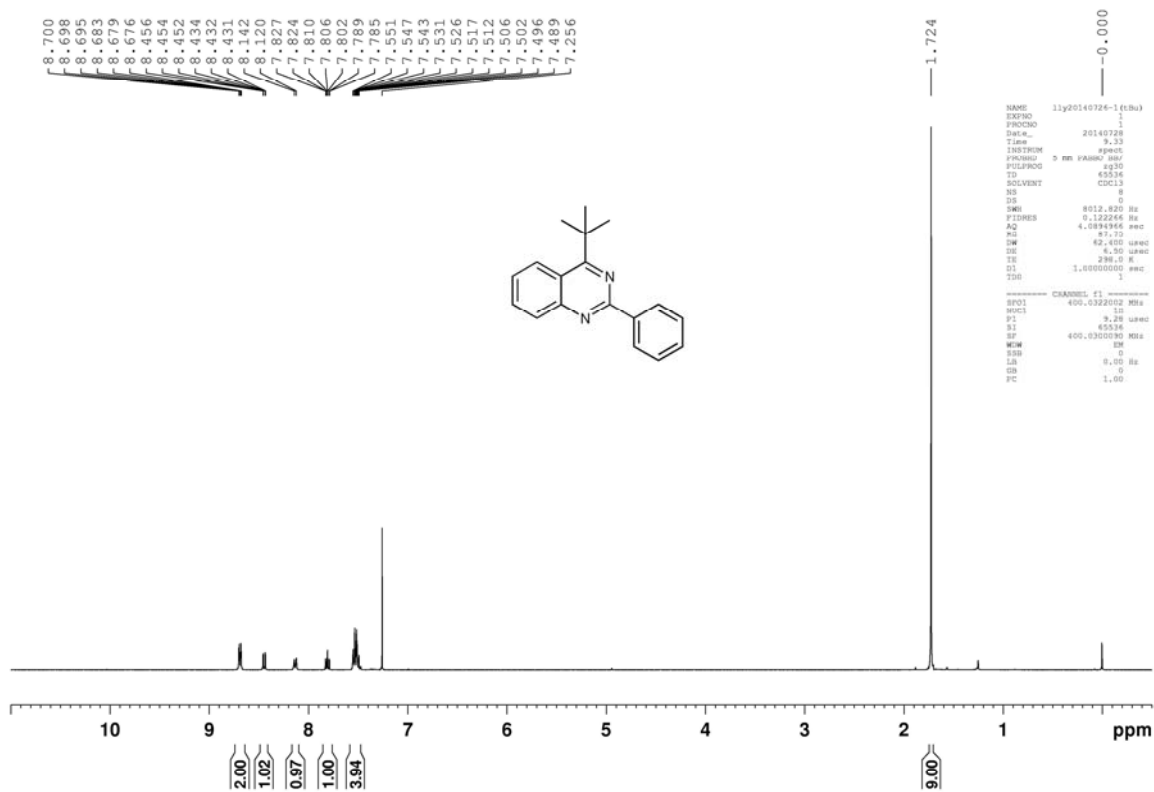


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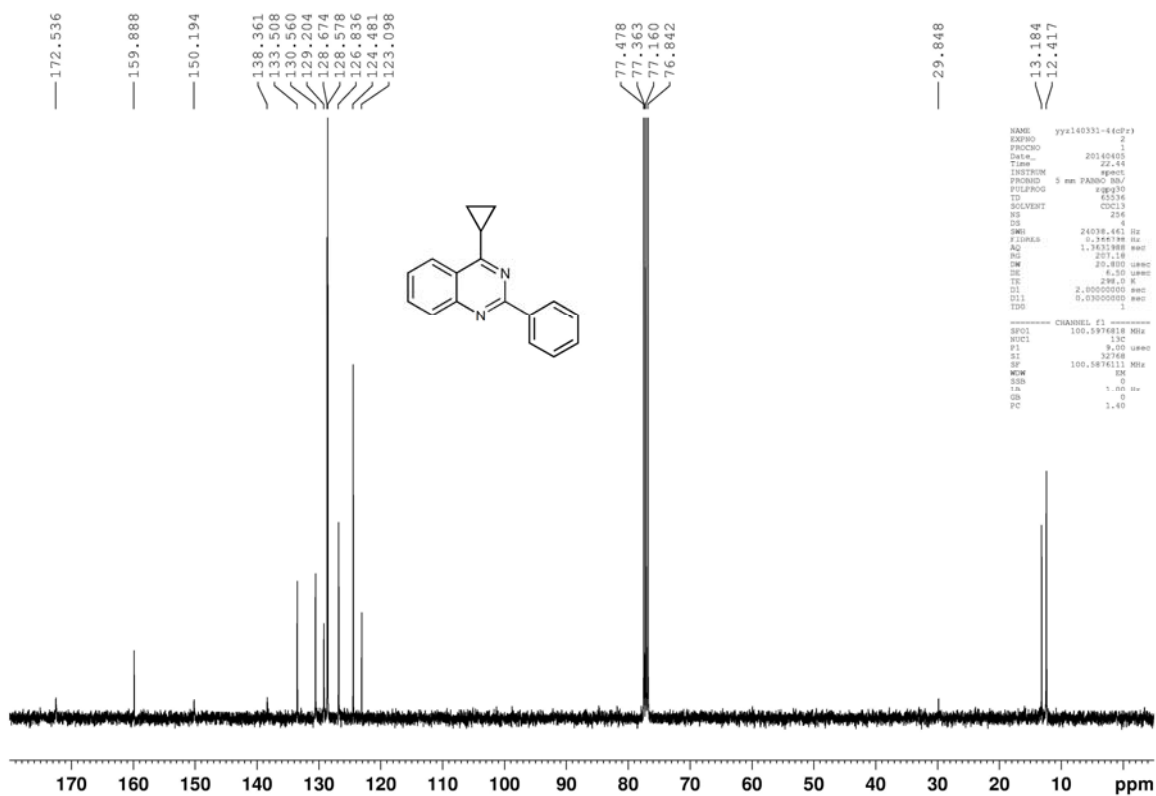
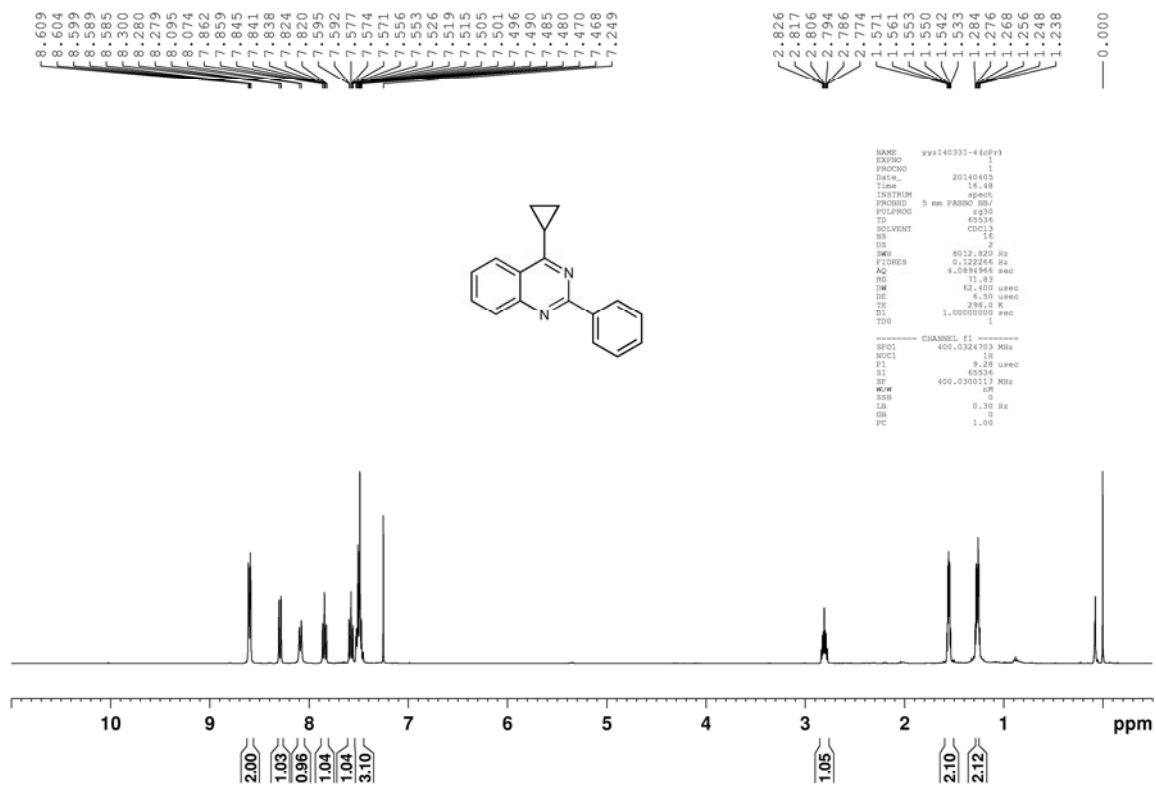
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EXPNO     2
PROCNO    1
Date_     20140405
Time      14.43
INSTRUM   spect
PROBHD    5 mm PABBO 507
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS        2
DS        4
SWH        24038.441 Hz
F2       0.149194 Hz
AQ         1.9571988 sec
RG         207.18
SQ         20.800 usec
DE         4.30 usec
TE         298.0 K
DQ         2.00000000 sec
TD0        1
===== CHANNEL f1 =====
NUC1       13C
P1         9.19 usec
PL         0.00 dB
RF         100.6261250 MHz
SFO        100.6261250 MHz
ZS0        0
ZS1        0
ZS2        0
ZS3        0
ZS4        0
ZS5        0
ZS6        0
ZS7        0
ZS8        0
ZS9        0
ZS10       0
===== CHANNEL f2 =====
NUC2       13C
P2         9.19 usec
PL         0.00 dB
RF         100.6261250 MHz
SFO        100.6261250 MHz
ZS0        0
ZS1        0
ZS2        0
ZS3        0
ZS4        0
ZS5        0
ZS6        0
ZS7        0
ZS8        0
ZS9        0
ZS10       0

```

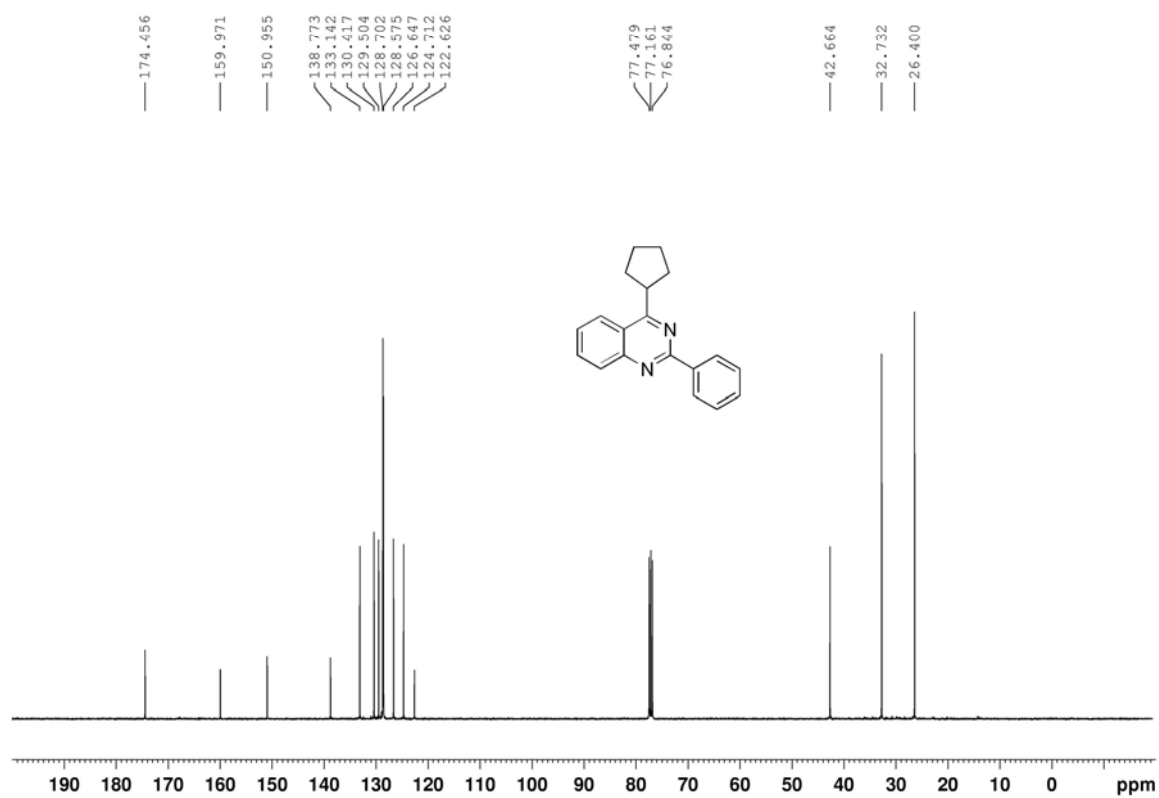
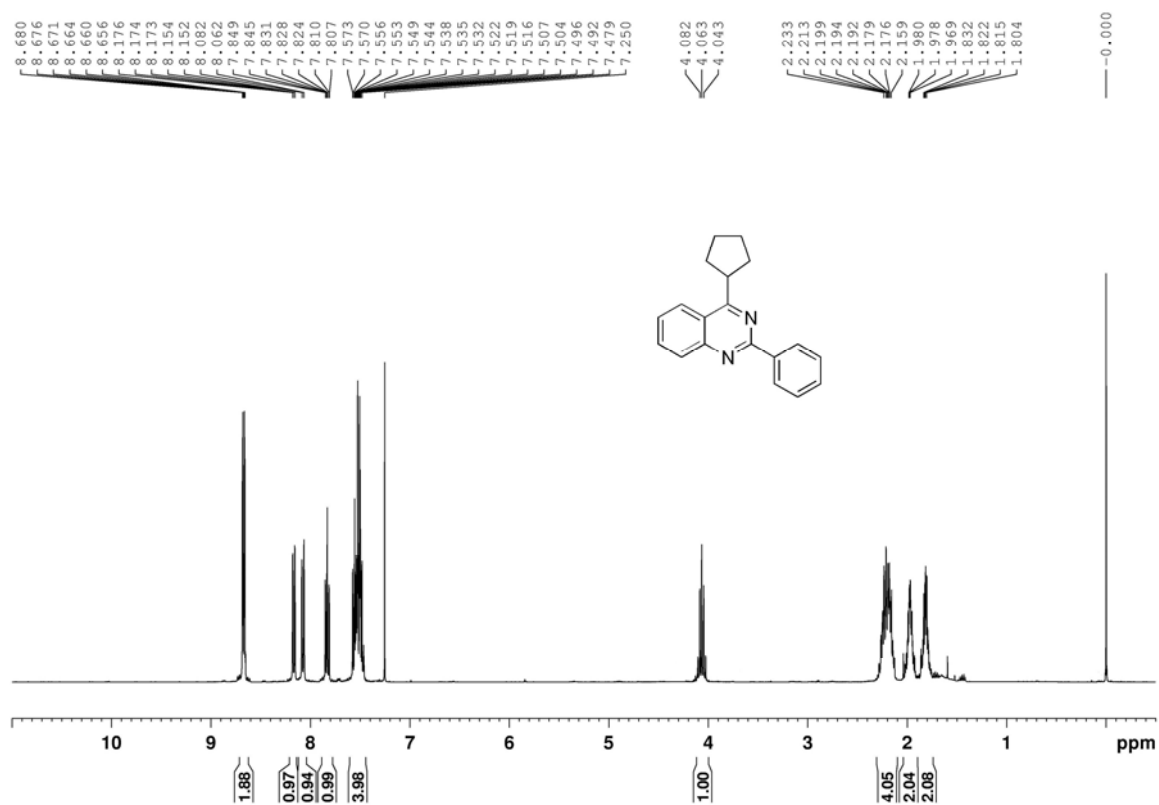
4-(*tert*-butyl)-2-phenylquinazoline (31b)



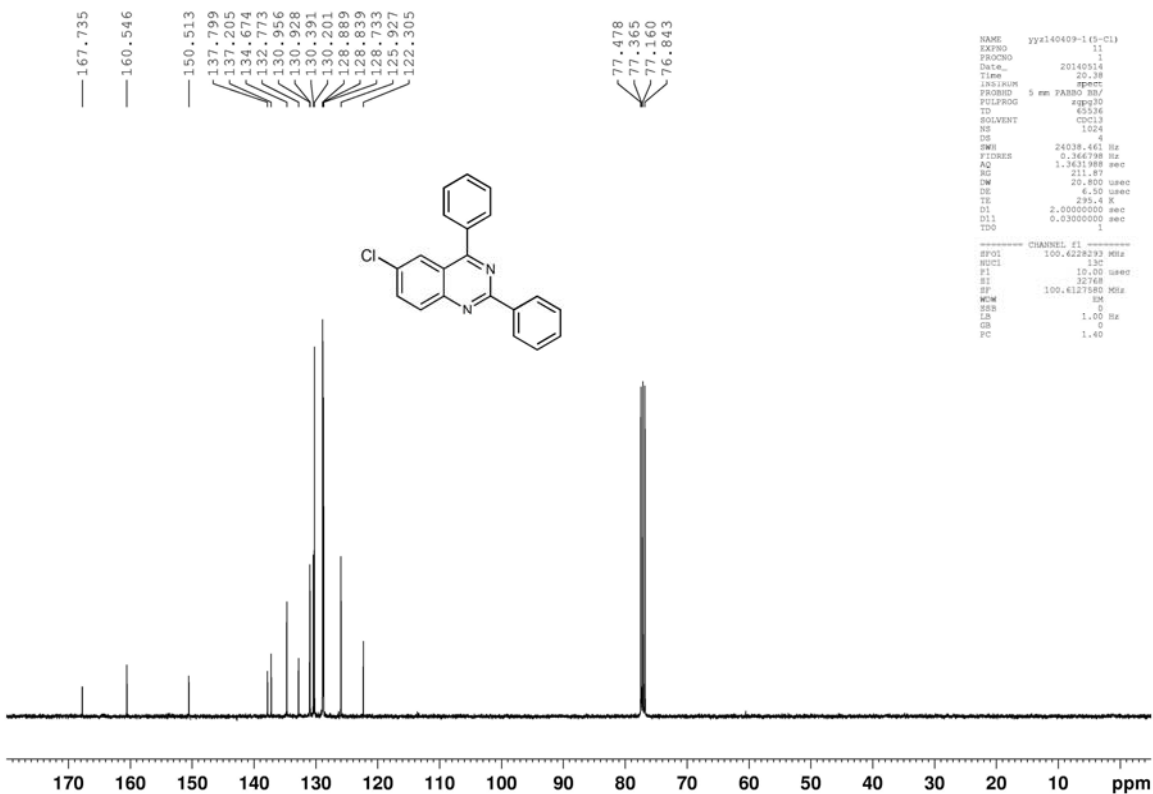
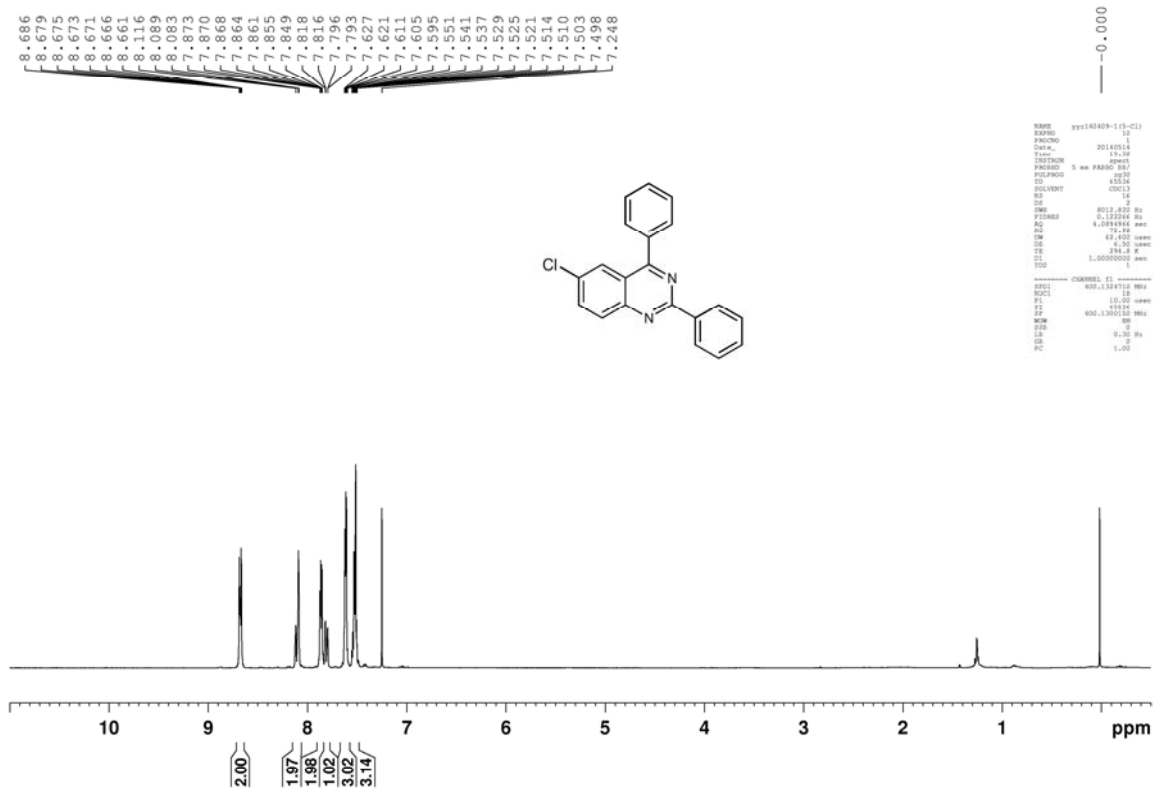
4-cyclopropyl-2-phenylquinazoline (3mb)



4-cyclopentyl-2-phenylquinazoline (3nb)



6-chloro-2,4-diphenylquinazoline (3ob)



6-nitro-2,4-diphenylquinazoline (3pb)

