

Asymmetric Synthesis of Chiral 9,10-Dihydrophenanthrenes Using Pd-Catalyzed Asymmetric Intramolecular Friedel-Crafts Allylic Alkylation of Phenols

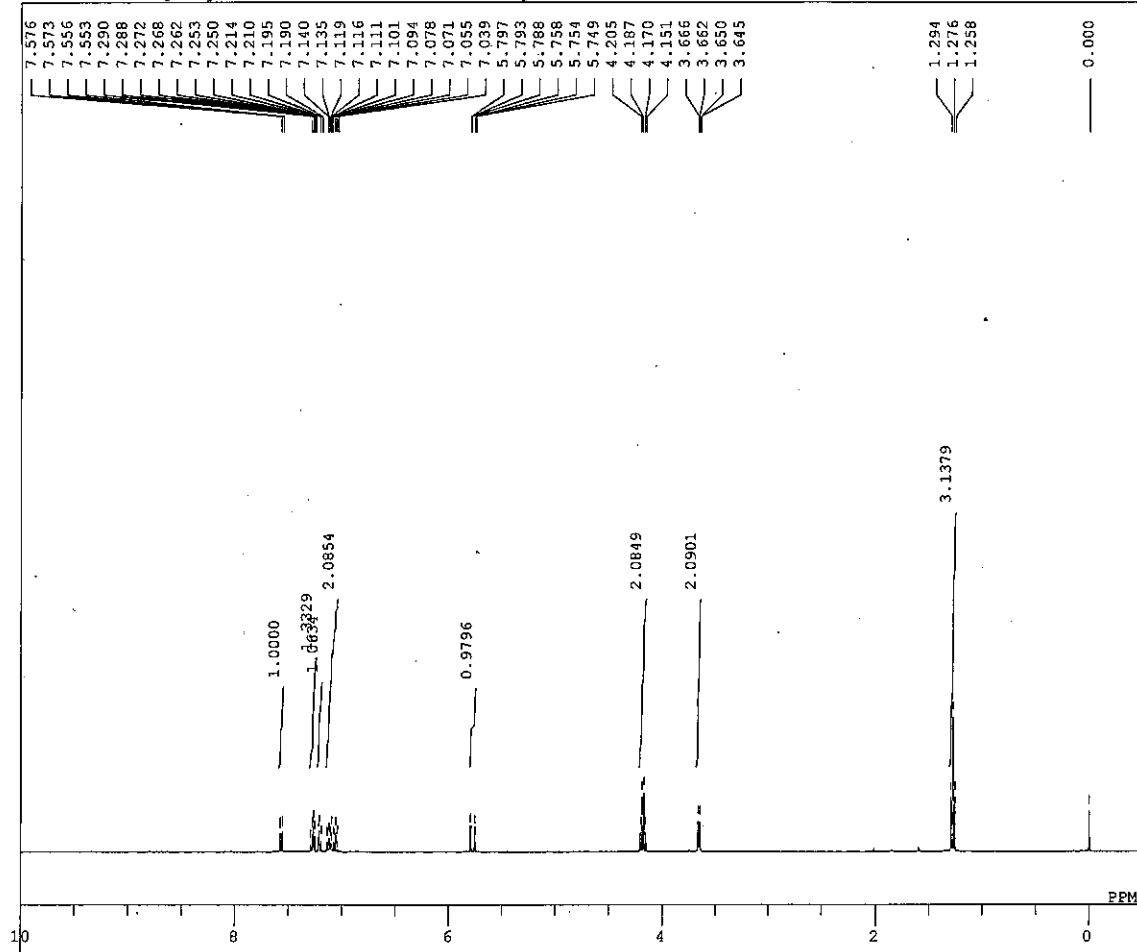
Yuta Suzuki, Tetsuhiro Nemoto, Kazumi Kakugawa, Akinari Hamajima, and Yasumasa Hamada*

Supporting Information 2

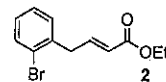
5. ^1H and ^{13}C NMR Charts of New Compounds (Page S-20–S-59)

single pulse

G:\NMR\6-0\Biphenyl data\YK-YS-1H-S1 Proton-1-1.jdf

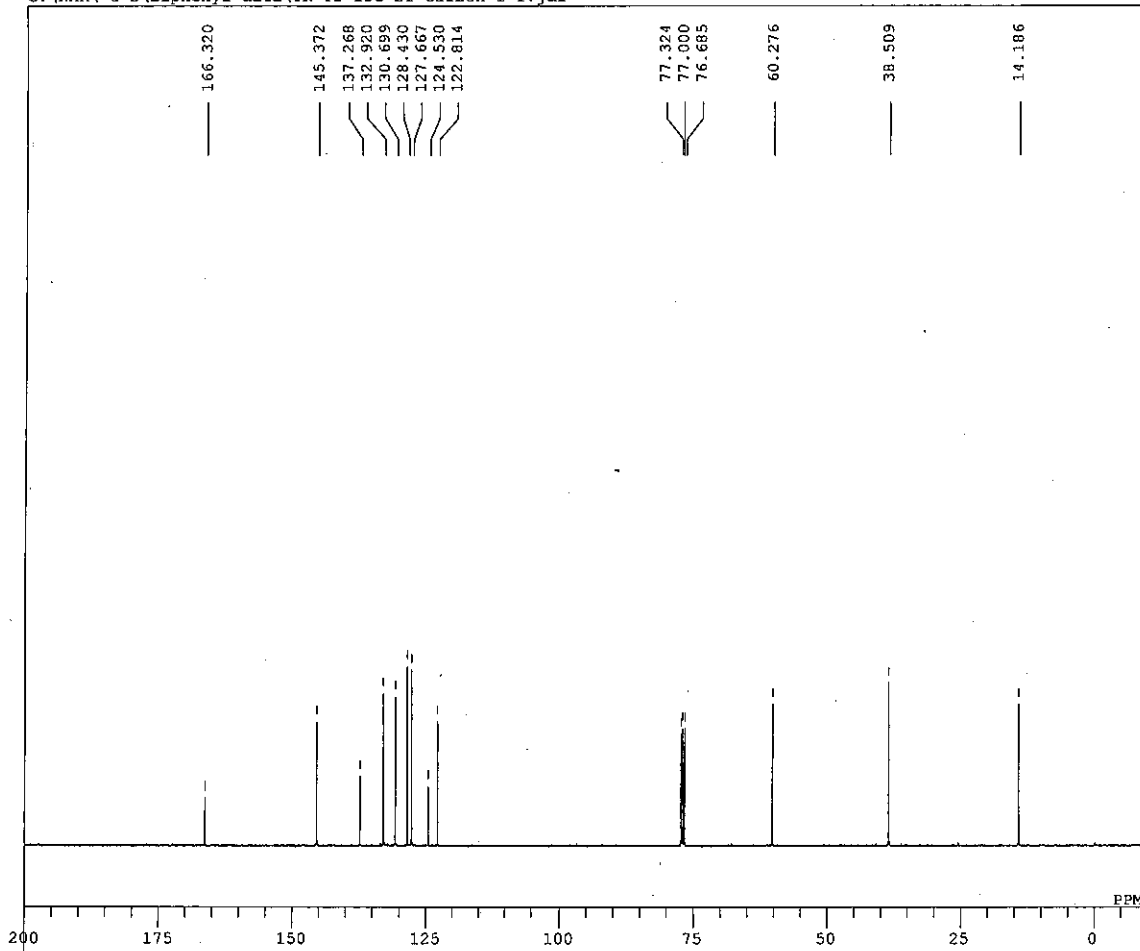


DFILE YK-YS-1H-S1 Proton-1-1.jdf
COMNT single pulse
DATIM 2012-01-19 16:35:13
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 8
ACQTM 2.1837 sec
PD 5.0000 sec
PW1 5.00 usec
IRNUC 1H
CTEMP 19.8 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 42

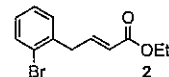


single pulse decoupled gated NOE

G:\NMR\6-0\Biphenyl data\YK-YS-13C-S1 Carbon-1-1.jdf

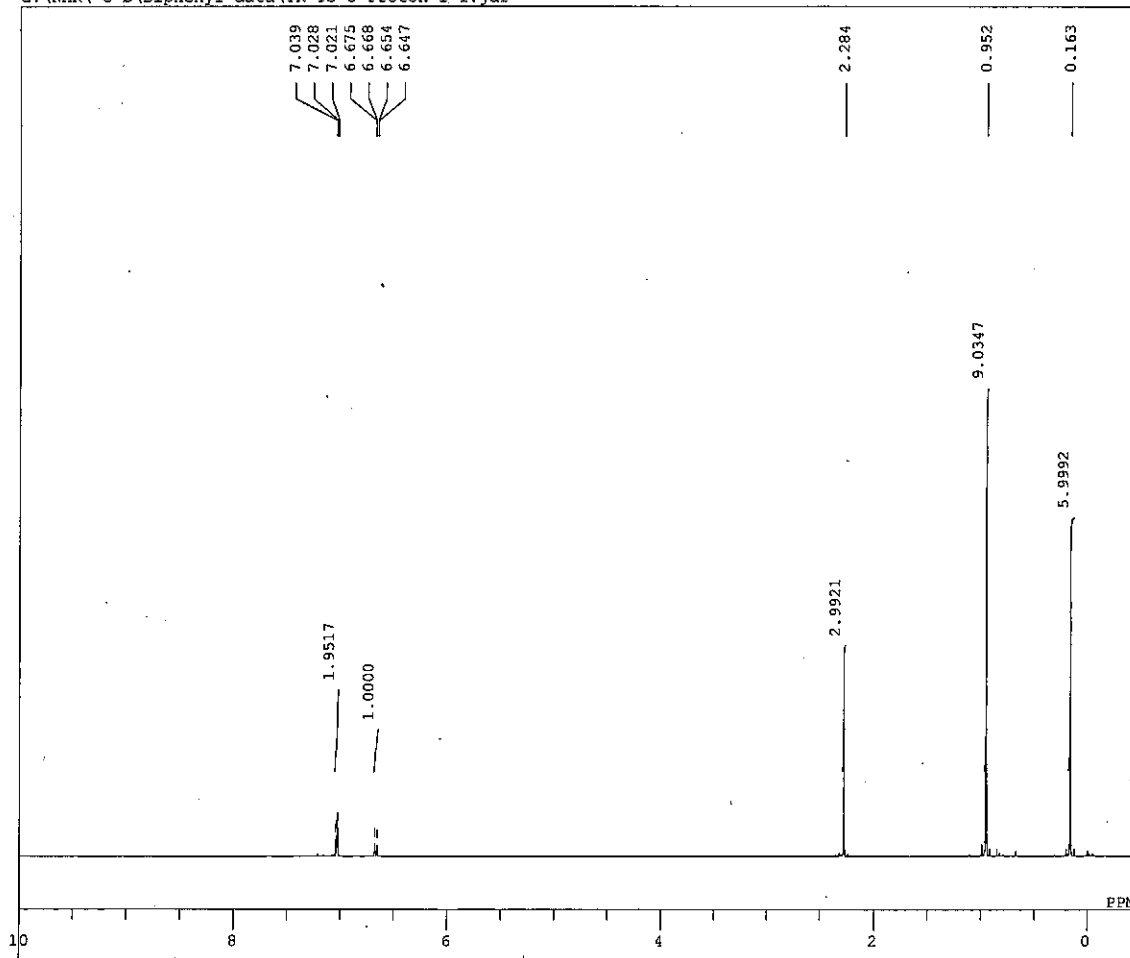


DFILE YK-YS-13C-S1 Carbon-1-1.jdf
COMNT single pulse decoupled gated
DATIM 2012-01-20 23:33:46
OBNUC 13C
EXMOD carbon.jxp
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32767
FREQU 31407.04 Hz
SCANS 512
ACQTM 1.0433 sec
PD 2.0000 sec
PW1 3.07 usec
IRNUC 1H
CTEMP 20.3 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 50

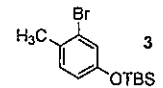


single_pulse

G:\NMR\6-0\Biphenyl_data\YK-YS-3 Proton-1-1.jdf

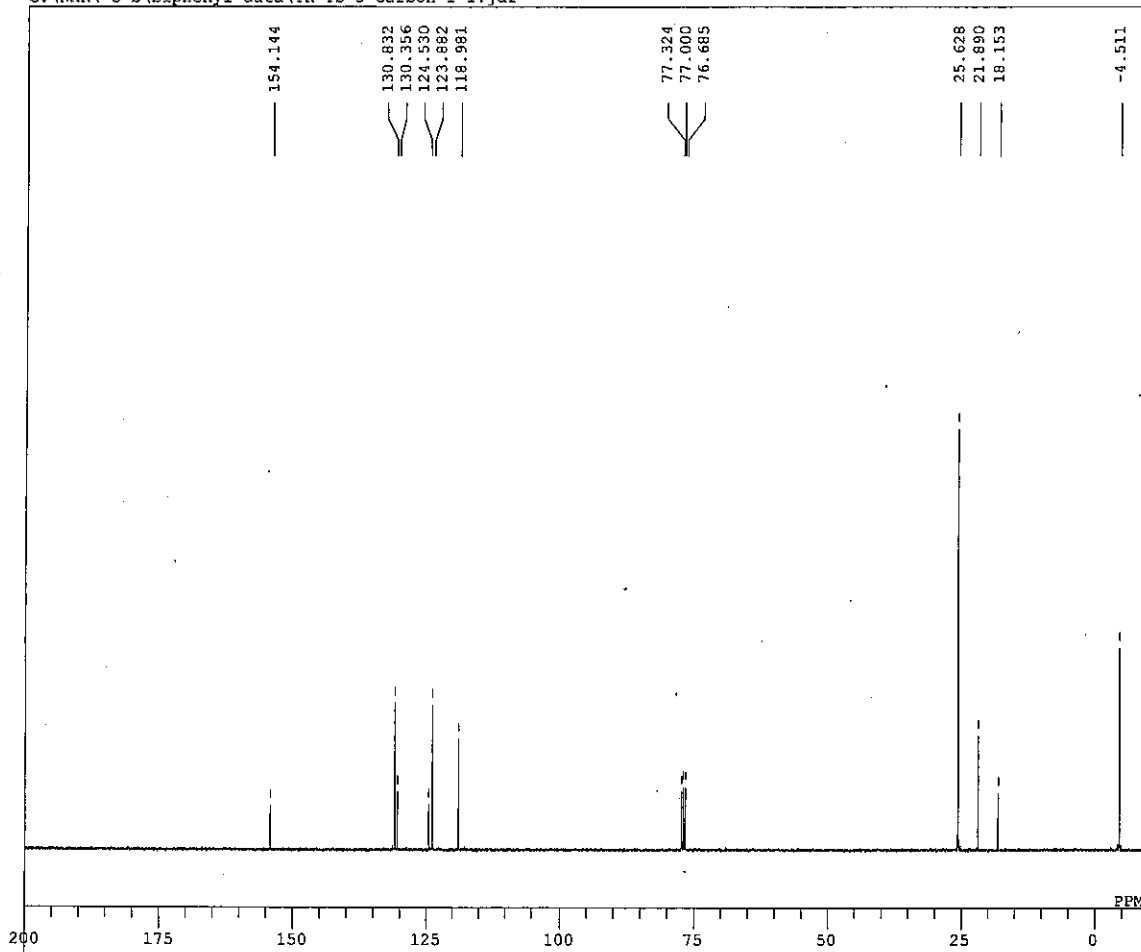


DFILE YK-YS-3 Proton-1-1.jdf
COMNT single_pulse
DATIM 2012-02-14 14:02:19
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 8
ACQTM 2.1837 sec
PD 5.0000 sec
PW1 5.00 usec
IRNUC 1H
CTEMP 21.9 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 22

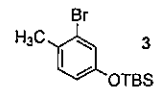


single pulse decoupled gated NOE

G:\NMR\6-0\Biphenyl_data\YK-YS-3 Carbon-1-1.jdf

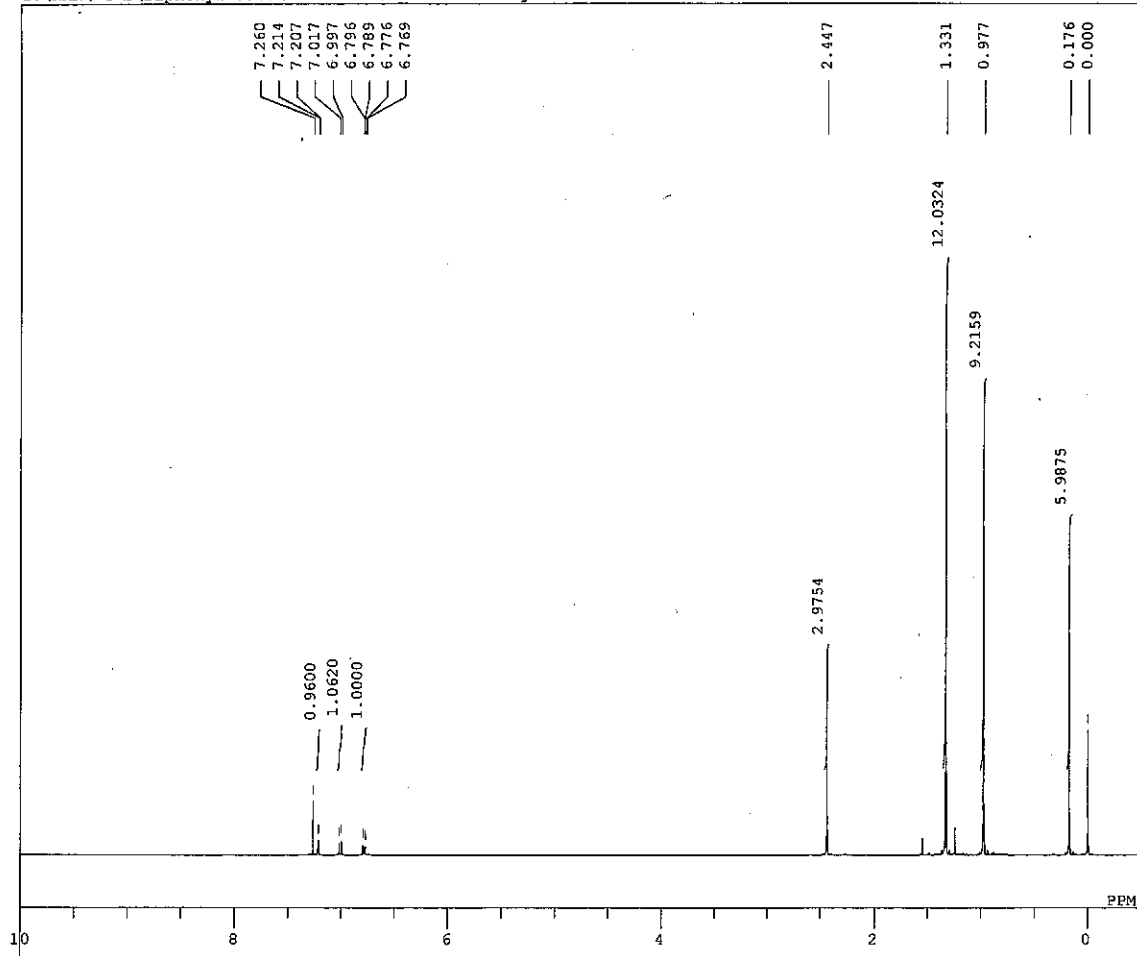


DFILE YK-YS-3 Carbon-1-1.jdf
COMNT single pulse decoupled gated
DATIM 2012-02-14 14:03:39
OBNUC 13C
EXMOD carbon.jxp
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32767
FREQU 31407.04 Hz
SCANS 32
ACQTM 1.0433 sec
PD 2.0000 sec
PW1 3.07 usec
IRNUC 1H
CTEMP 22.1 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 50

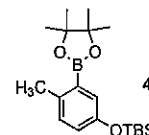


single_pulse

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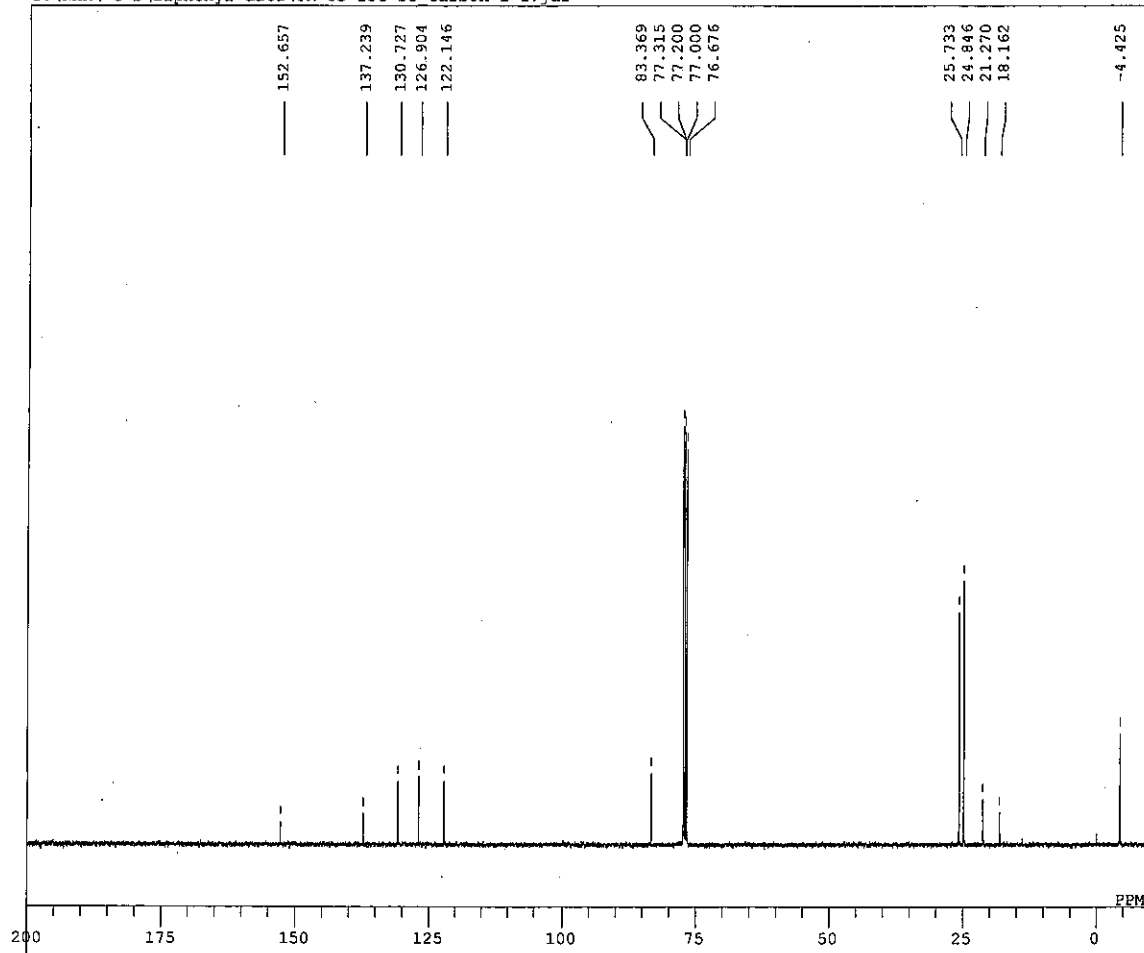


DFILE YK-YS-1H-S3 Proton-1-1.jdf
 COMNT single_pulse
 DATIM 2012-01-19 16:39:01
 OBNUC 1H
 EXMOD proton.jxp
 OBFRQ 399.78 MHz
 OBSET 4.19 KHz
 OBFIN 7.29 Hz
 POINT 16384
 FREQU 7503.00 Hz
 SCANS 8
 ACQTM 2.1837 sec
 PD 5.0000 sec
 PW1 5.00 usec
 IRNUC 1H
 CTEMP 19.8 c
 SLVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 46

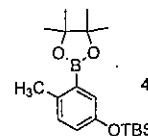


single pulse decoupled gated NOE

G:\NMR\6-2\Biphenyl data\YK-YS-13C-S3 Carbon-1-1.jdf

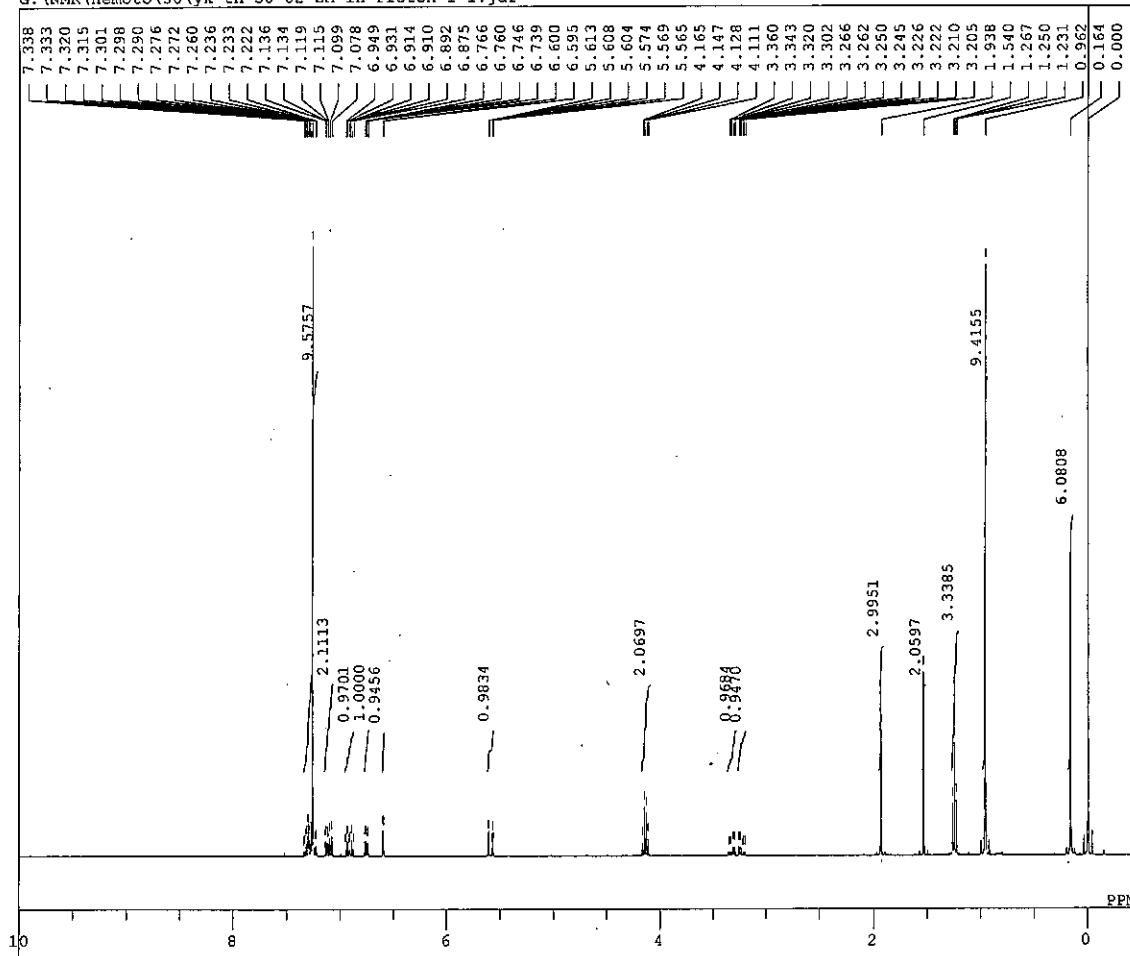


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 COMNT single_pulse decoupled gated
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 OBNUC 13C
 EXMOD carbon.jxp
 OBFRQ 100.53 MHz
 OBSET 5.35 KHz
 OBFIN 5.86 Hz
 POINT 32767
 FREQU 31407.04 Hz
 SCANS 512
 ACQTM 1.0433 sec
 PD 2.0000 sec
 PW1 3.07 usec
 IRNUC 1H
 CTEMP 20.2 c
 SLVNT CDCL3
 EXREF 77.00 ppm
 BF 1.20 Hz
 RGAIN 50

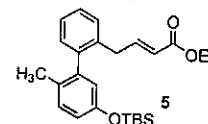


single_pulse

G:\NMR\nemoto\30\yk-tn-30-02-SM-1H Proton-1-1.jdf

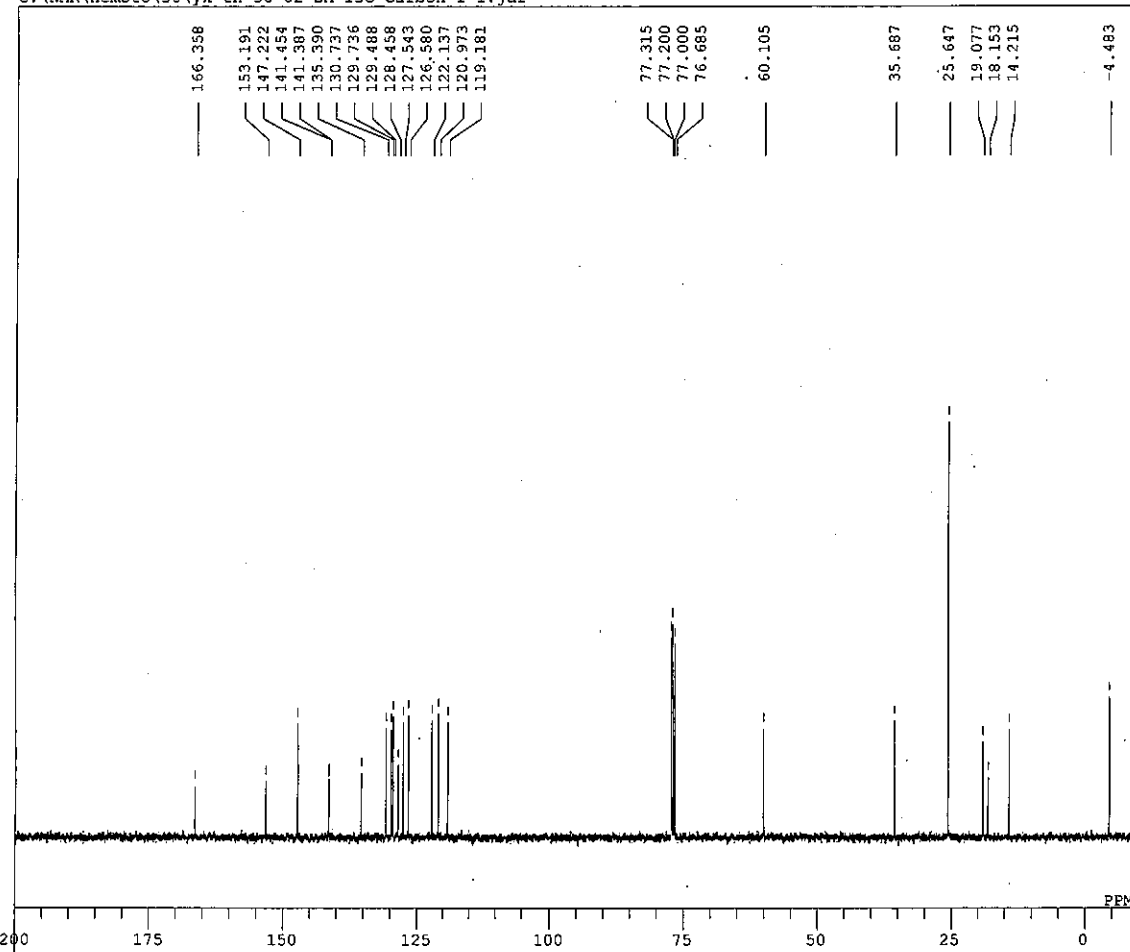


DFILE yk-tn-30-02-SM-1H_Proton-1-1
COMNT single_pulse
DATIM 2012-02-15 19:05:35
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 8
ACQTM 2.1837 sec
PD 5.0000 sec
PW1 5.00 usec
IRNUC 1H
CTEMP 22.8 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 54

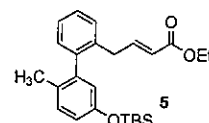


single pulse decoupled gated NOE

G:\NMR\nemoto\30\yk-tn-30-02-SM-13C Carbon-1-1.jdf

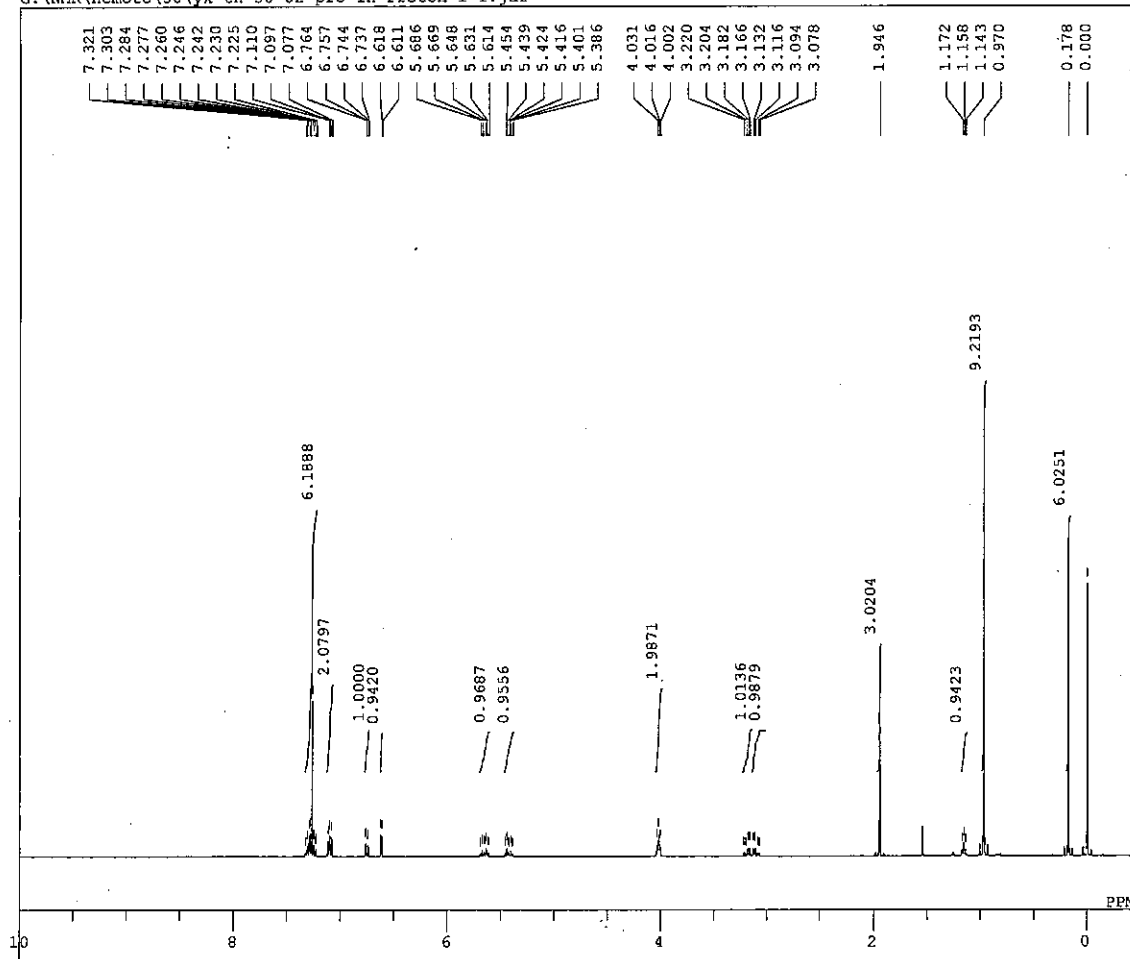


DFILE yk-tn-30-02-SM-13C_Carbon-1-1
COMNT single pulse decoupled gated
DATIM 2012-02-15 19:16:20
OBNUC 13C
EXMOD carbon.jxp
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32767
FREQU 31407.04 Hz
SCANS 32
ACQTM 1.0433 sec
PD 2.0000 sec
PW1 3.07 usec
IRNUC 1H
CTEMP 22.9 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 50

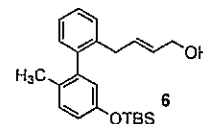


single_pulse

G:\NMR\nemoto\30\yk-tn-30-02-pro-1H Proton-1-1.jdf

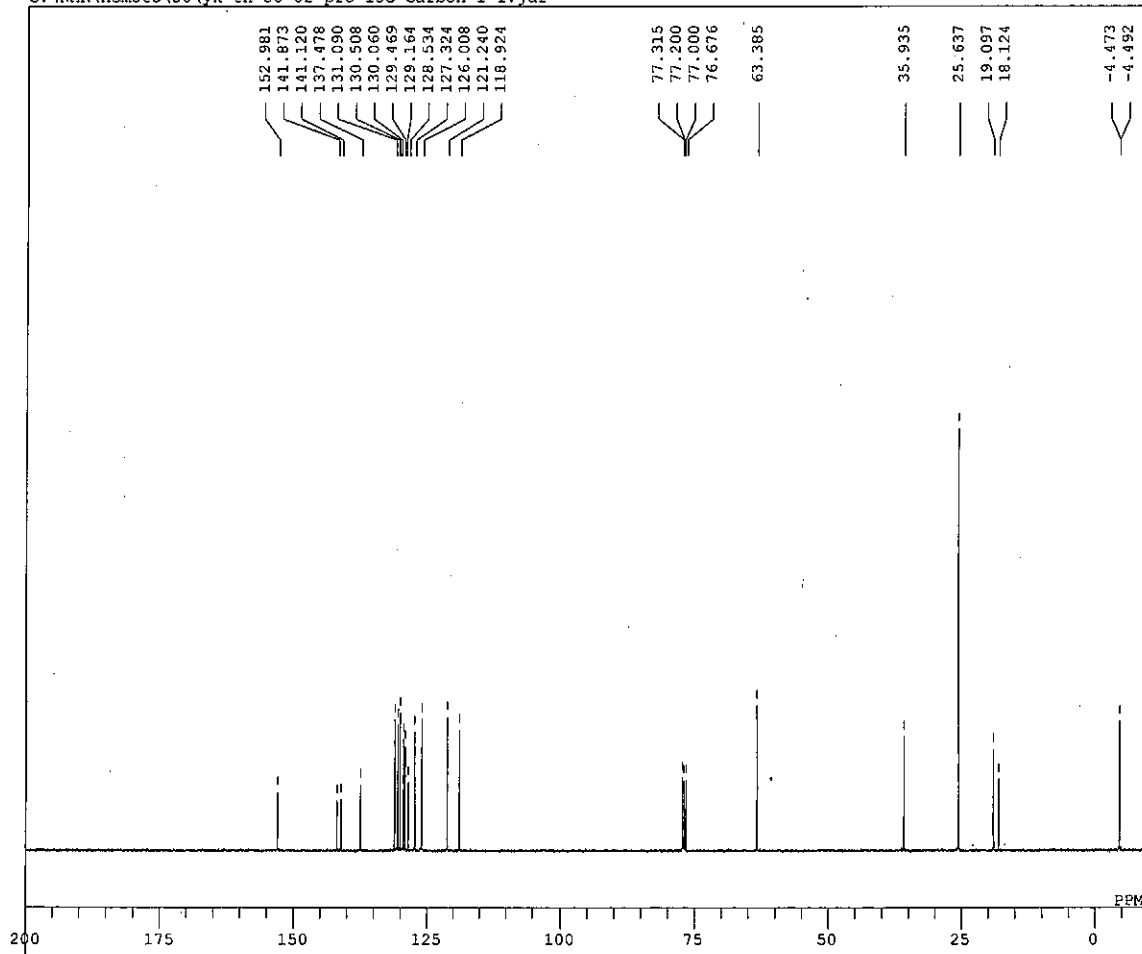


DFILE yk-tn-30-02-pro-1H Proton-1-
COMNT single_pulse
DATIM 2012-02-20 15:03:19
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 16
ACQTM 2.1837 sec
PD 5.0000 sec
PW1 5.00 usec
IRNUC 1H
CTEMP 22.1 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 50

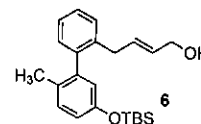


single pulse decoupled gated NOE

G:\NMR\nemoto\30\yk-tn-30-02-pro-13C Carbon-1-1.jdf

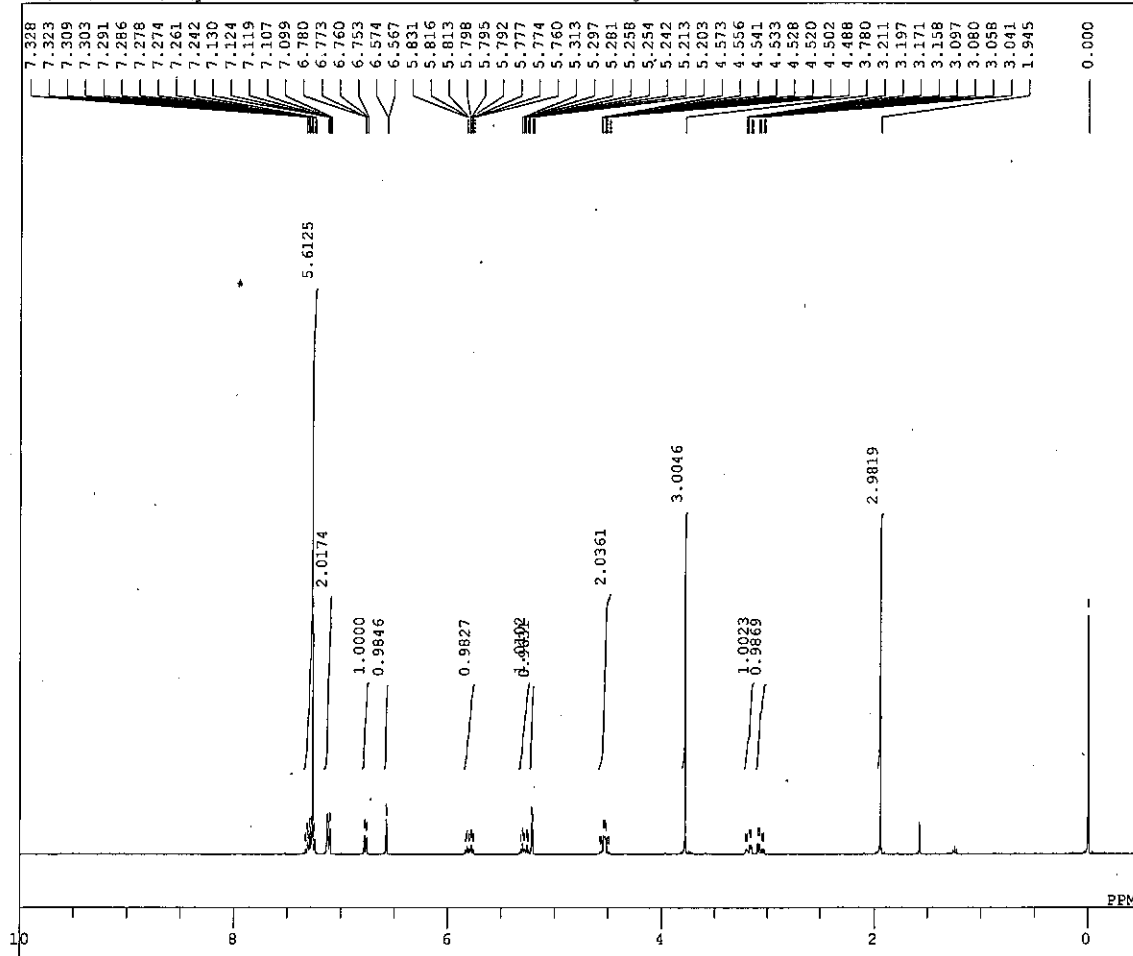


DFILE yk-tn-30-02-pro-13C Carbon-1-
COMNT single pulse decoupled gated
DATIM 2012-02-20 15:10:02
OBNUC 13C
EXMOD carbon.jxp
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32767
FREQU 31407.04 Hz
SCANS 64
ACQTM 1.0433 sec
PD 2.0000 sec
PW1 3.07 usec
IRNUC 1H
CTEMP 22.3 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 50

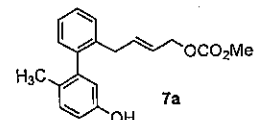


single_pulse

G:\NMR\nemoto\29\yk-tn-29-120120-model-substrate Proton-1-1.jdf

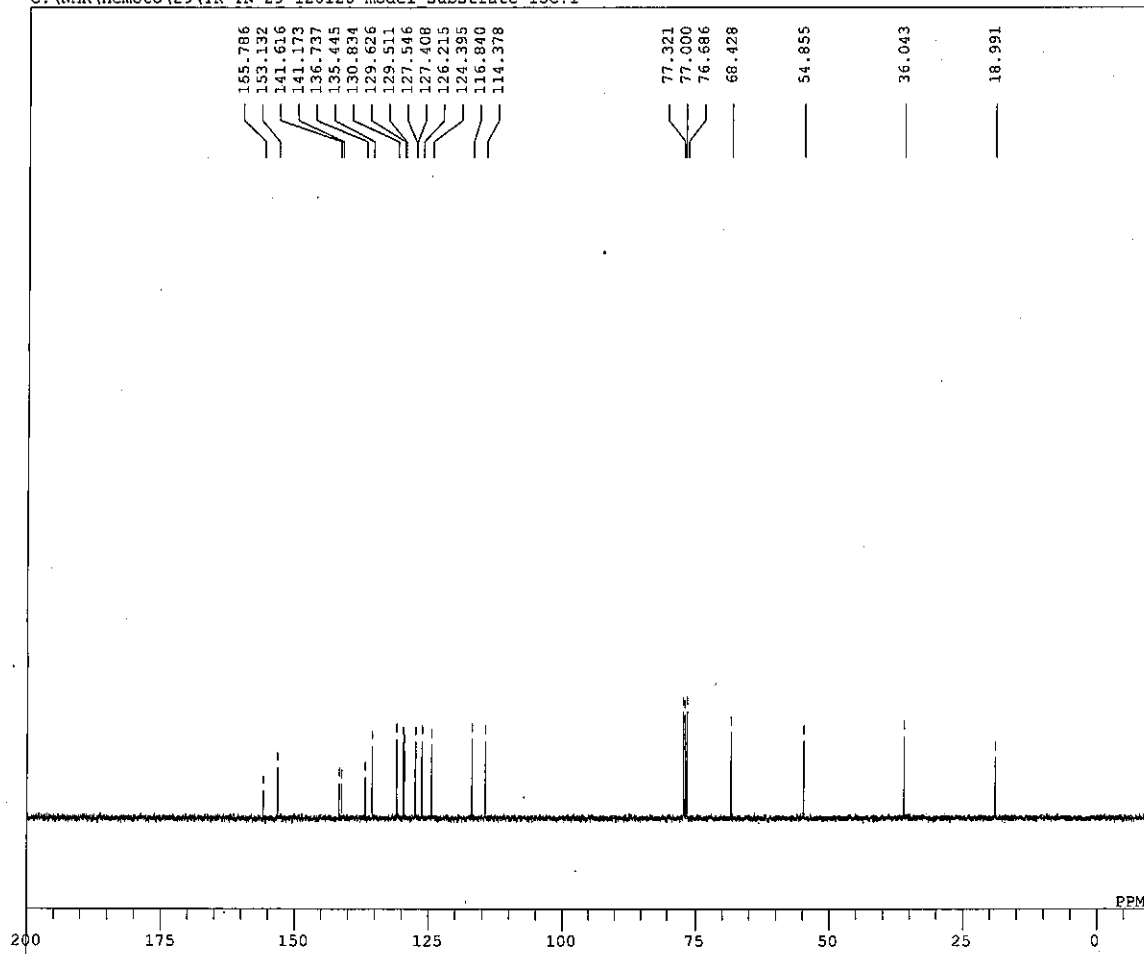


DFILE yk-tn-29-120120-model-substr
COMNT single_pulse
DATIM 2012-01-20 13:37:03
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 8
ACQTM 2.1837 sec
PD 5.0000 sec
PW1 5.00 usec
IRNUC 1H
CTEMP 20.1 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 50

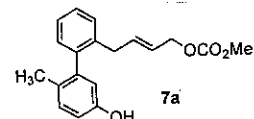


YK-TN-29-120120-model substrate-13C

G:\NMR\nemoto\29\YK-TN-29-120120-model substrate-13C.1

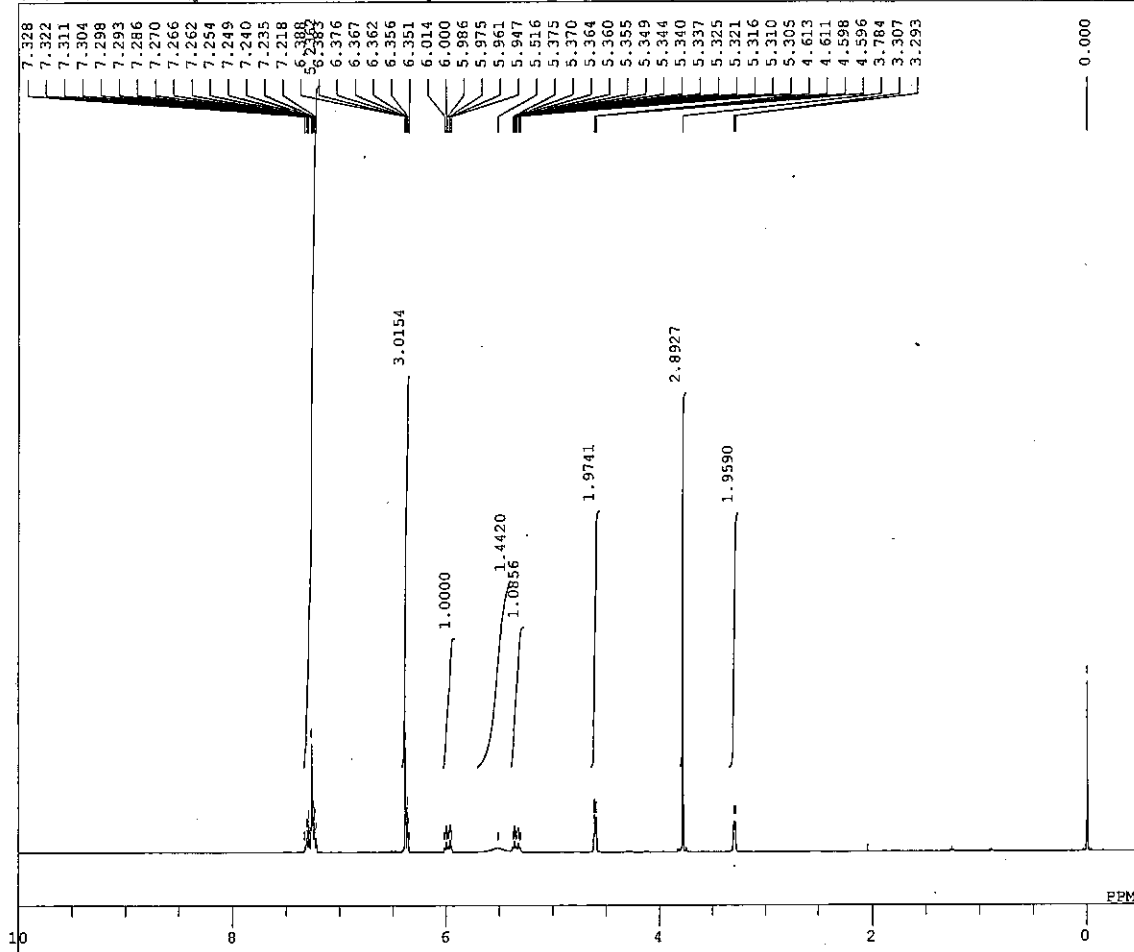


DFILE YK-TN-29-120120-model_substr
COMNT YK-TN-29-120120-model_substr
DATIM 2012-01-20 14:57:12
OBNUC 13C
EXMOD single_pulse_dec
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32768
FREQU 25188.92 Hz
SCANS 54
ACQTM 1.3009 sec
PD 1.0000 sec
PW1 3.17 usec
IRNUC 1H
CTEMP 23.9 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 24

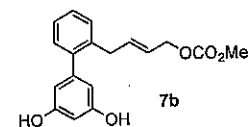


single_pulse

G:\NMR\nemoto\29\yk-tn-29-120120-2OH-vinyl-substrate Proton-1-1.jdf

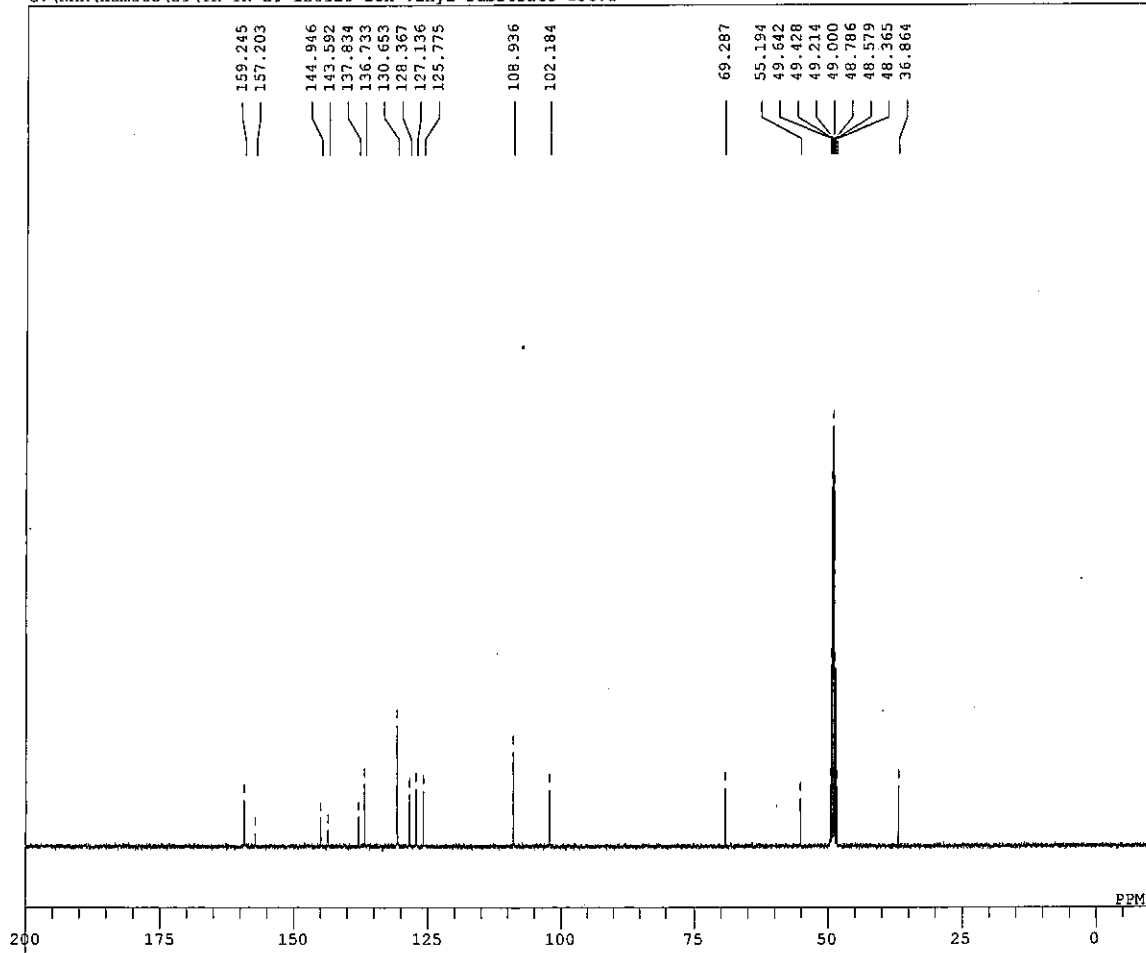


DFILE yk-tn-29-120120-2OH-vinyl-su
COMNT single_pulse
DATIM 2012-01-20 13:47:45
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 16
ACQTM 2.1837 sec
PD 5.0000 sec
PWL 5.00 usec
IRNUC 1H
CTEMP 20.1 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 50

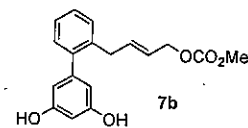


YK-TN-29-120120-2OH-vinyl-substrate-13C

G:\NMR\nemoto\29\YK-TN-29-120120-2OH-vinyl-substrate-13C.1

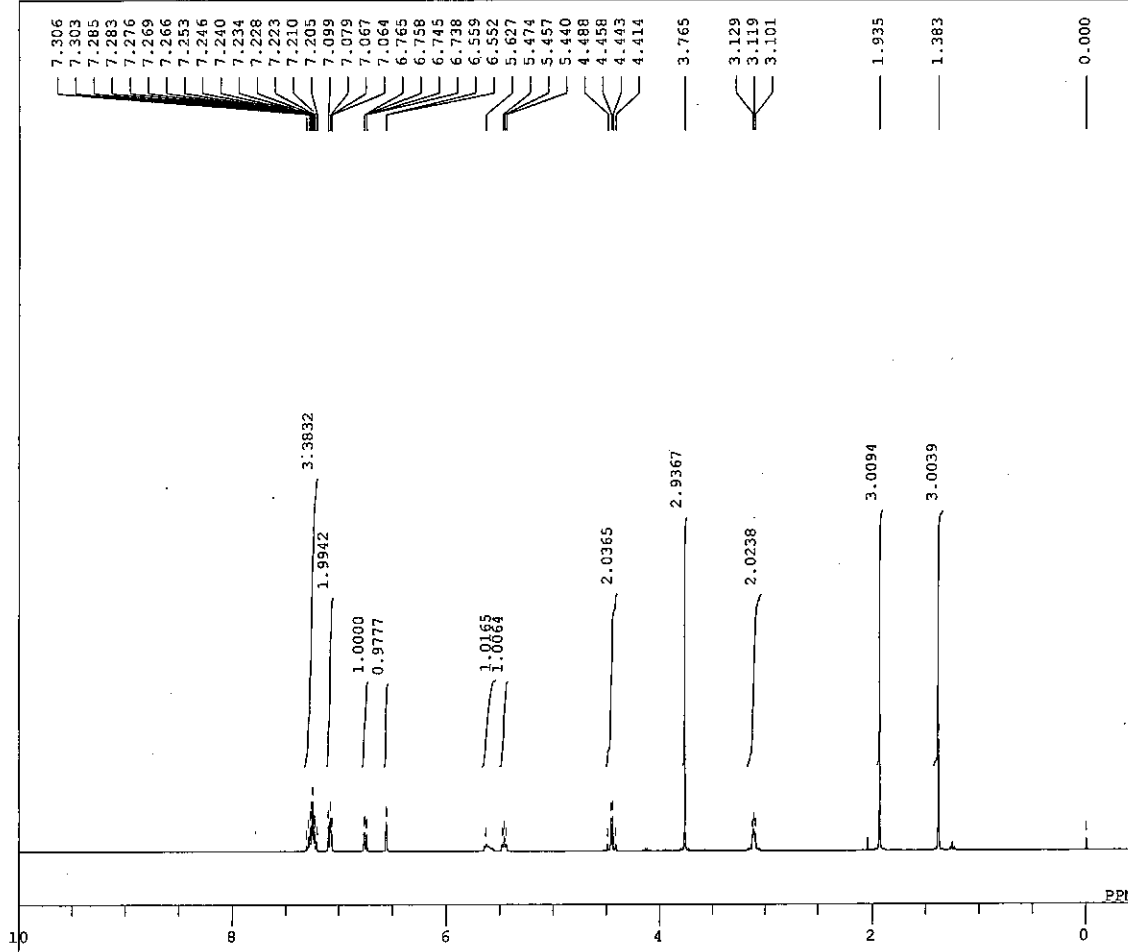


DFILE YK-TN-29-120120-2OH-vinyl-su
COMNT YK-TN-29-120120-2OH-vinyl-su
DATIM 2012-01-20 13:11:45
OBNUC 13C
EXMOD single_pulse_dec
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32768
FREQU 25188.92 Hz
SCANS 223
ACQTM 1.3009 sec
PD 1.0000 sec
PWL 3.17 usec
IRNUC 1H
CTEMP 24.1 c
SLVNT CD3OD
EXREF 49.00 ppm
BF 1.20 Hz
RGAIN 23

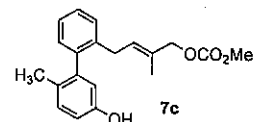


single_pulse

G:\NMR\6-0\Biphenyl data\YK-YS-7c Proton-1-1.jdf

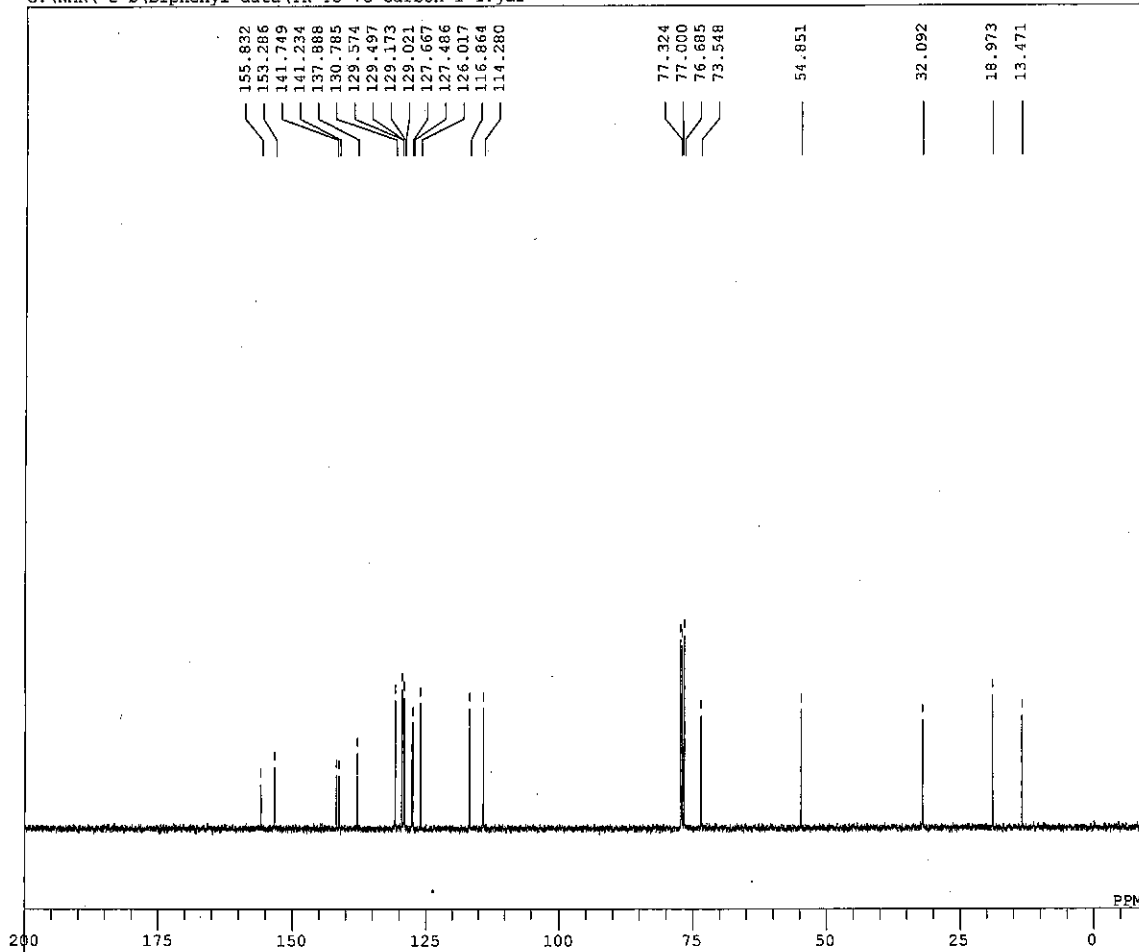


DFILE YK-YS-7c Proton-1-1.jdf
COMNT single_pulse
DATIM 2012-03-12 21:57:27
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 8
ACQIM 2.1837 sec
PD 5.0000 sec
PW1 5.00 usec
IRNUC 1H
CTEMP 24.0 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 30

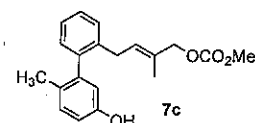


single pulse decoupled gated NOE

G:\NMR\6-0\Biphenyl data\YK-YS-7c Carbon-1-1.jdf

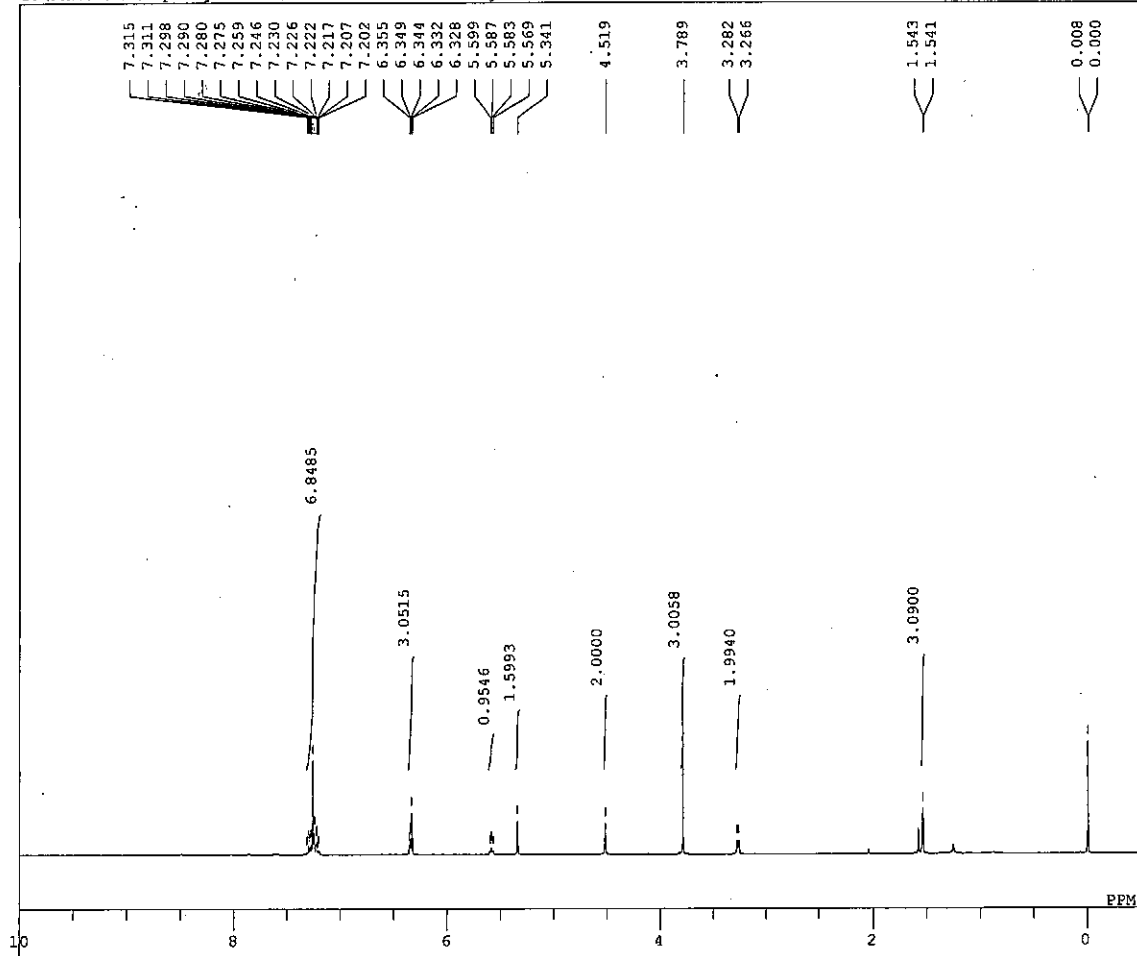


DFILE YK-YS-7c Carbon-1-1.jdf
COMNT single pulse decoupled gated
DATIM 2012-03-12 21:58:48
OBNUC 13C
EXMOD carbon.jxp
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32767
FREQU 31407.04 Hz
SCANS 56
ACQIM 1.0433 sec
PD 2.0000 sec
PW1 3.07 usec
IRNUC 1H
CTEMP 24.2 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 50

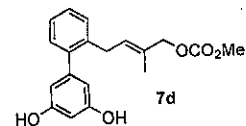


single pulse

G:\NMR\6-0\Biphenyl data\YK-YS-7d Proton-1-1.jdf

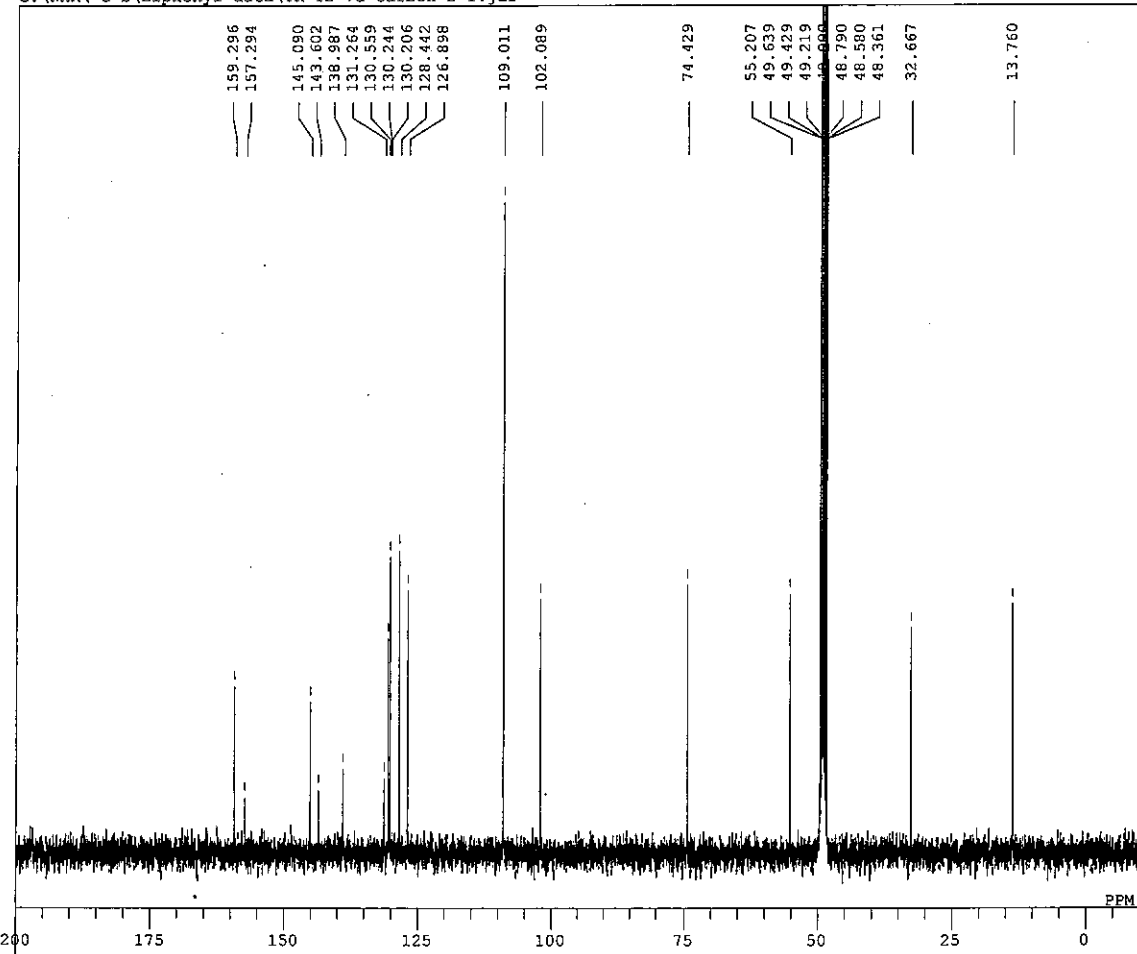


DFILE YK-YS-7d_Proton-1-1.jdf
COMNT single_pulse
DATIM 2012-03-13 18:01:44
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 8
ACQTM 2.1837 sec
PD 5.0000 sec
PW1 5.00 usec
IRNUC 1H
CTEMP 24.6 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 50

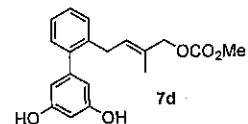


single pulse decoupled gated NOE

G:\NMR\6-0\Biphenyl data\YK-YS-7d Carbon-2-1.jdf

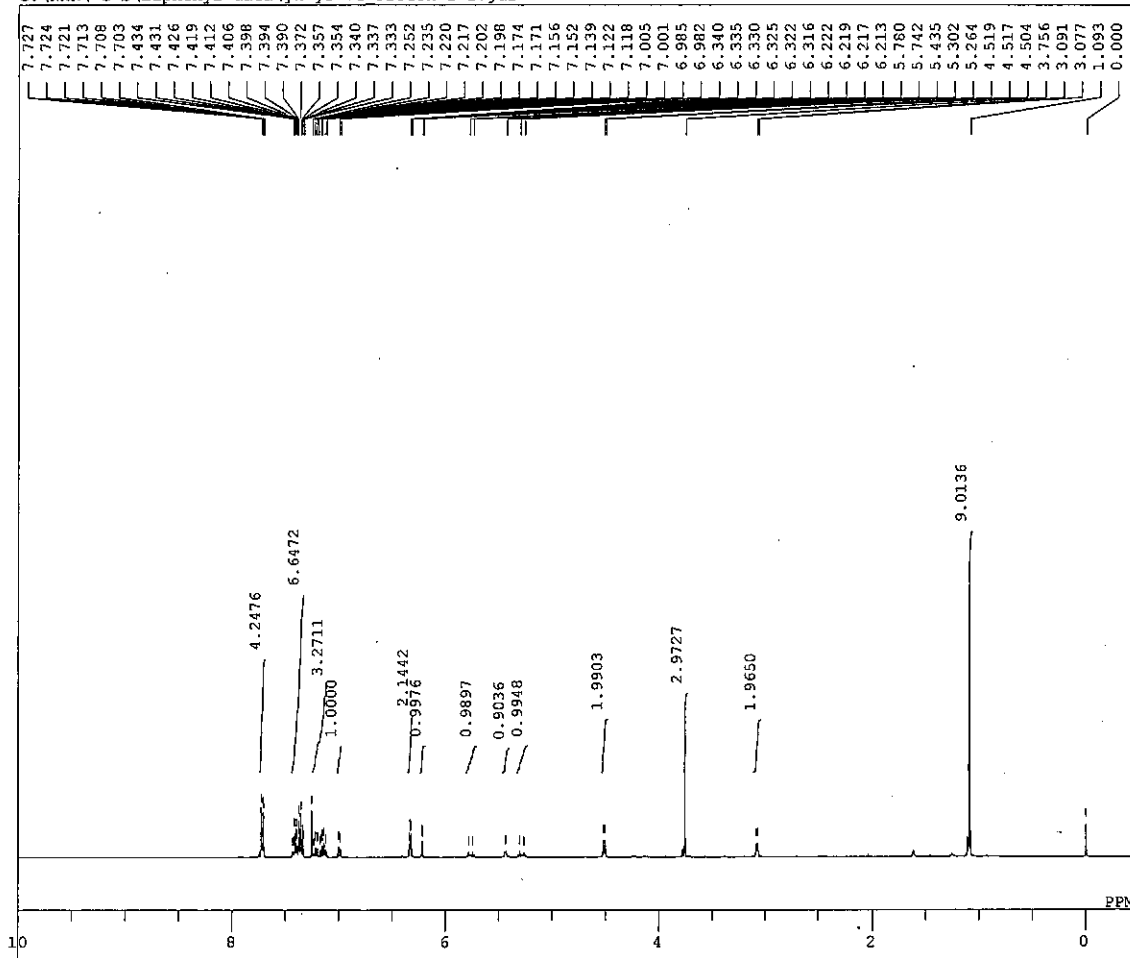


DFILE YK-YS-7d_Carbon-2-1.jdf
COMNT single_pulse decoupled gated
DATIM 2012-03-13 22:48:59
OBNUC 13C
EXMOD carbon.jxp
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32767
FREQU 31407.04 Hz
SCANS 257
ACQTM 1.0433 sec
PD 2.0000 sec
PW1 3.07 usec
IRNUC 1H
CTEMP 24.6 c
SLVNT CD3OD
EXREF 49.00 ppm
BF 1.20 Hz
RGAIN 50

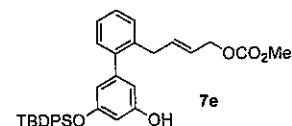


single_pulse

G:\NMR\6-0\Biphenyl data\yk-ys-7e Proton-1-1.jdf

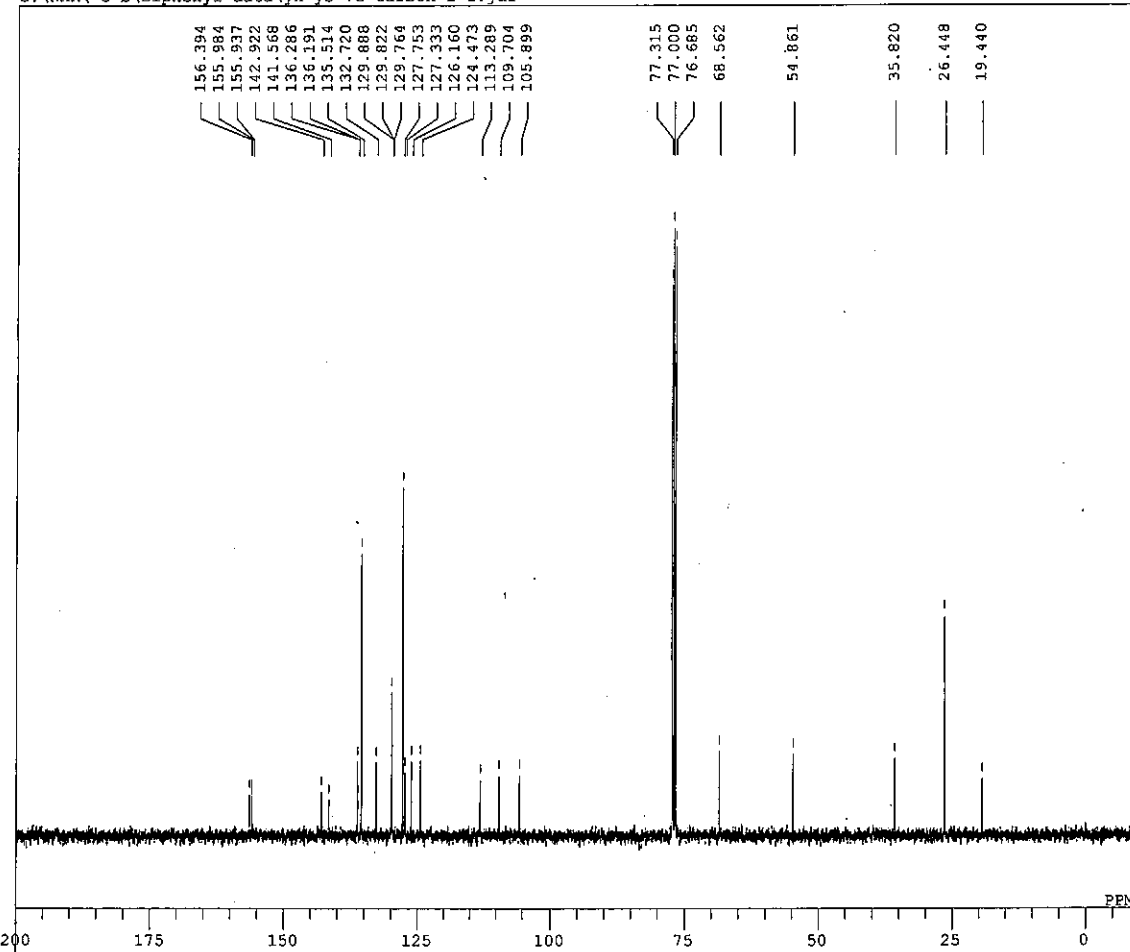


DFILE yk-ys-7e Proton-1-1.jdf
COMNT single_pulse
DATIM 2012-02-29 15:19:58
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 8
ACQTM 2.1837 sec
PD 5.0000 sec
PW1 5.00 usec
IRNUC 1H
CTEMP 21.9 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 40

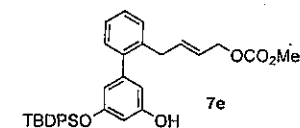


single_pulse decoupled gated NOE

G:\NMR\6-0\Biphenyl data\yk-ys-7e Carbon-1-1.jdf

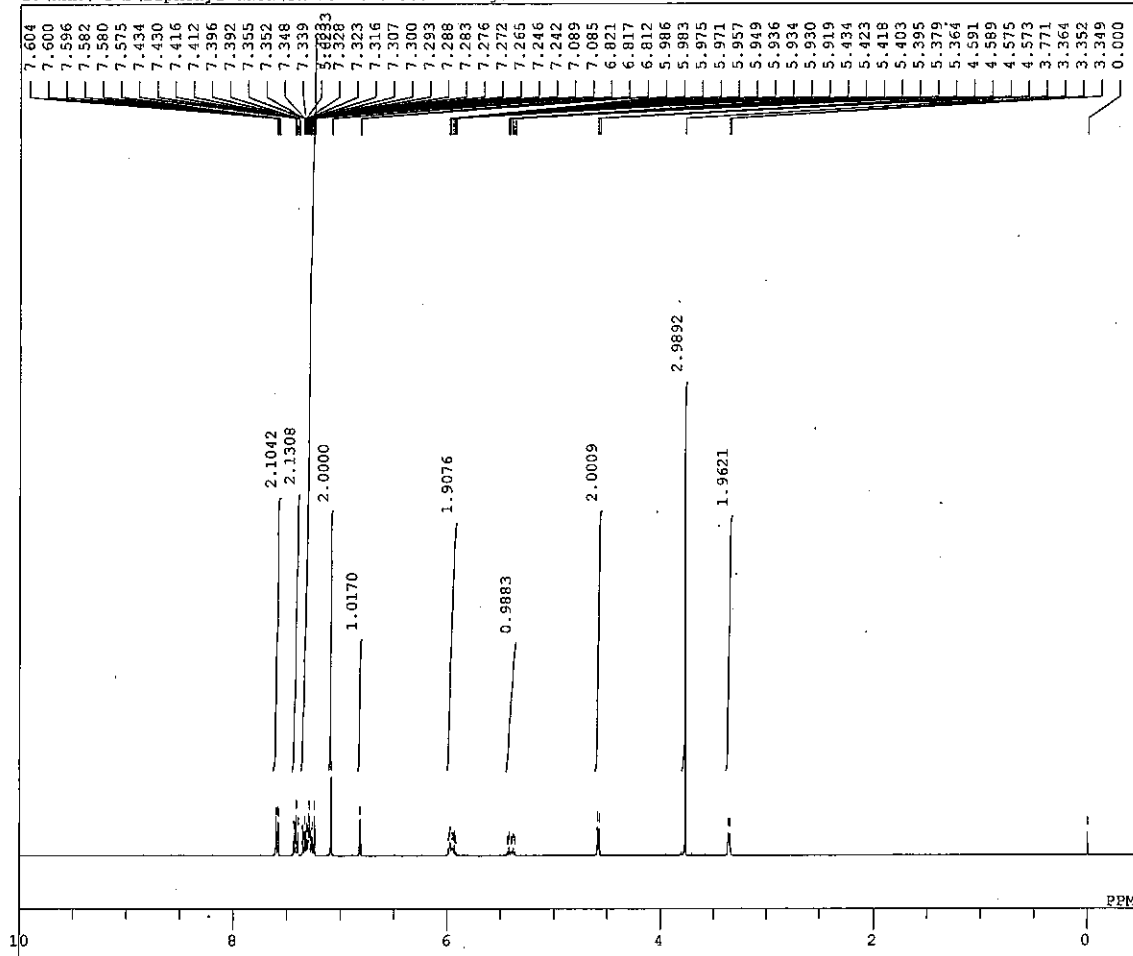


DFILE yk-ys-7e Carbon-1-1.jdf
COMNT single_pulse decoupled gated
DATIM 2012-02-29 15:21:17
OBNUC 13C
EXMOD carbon.jxp
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32767
FREQU 31407.04 Hz
SCANS 128
ACQTM 1.0433 sec
PD 2.0000 sec
PW1 3.07 usec
IRNUC 1H
CTEMP 22.2 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 50

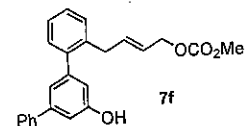


single_pulse

G:\NMR\6-0\Biphenyl data\YK-YS-7f Proton-1-1.jdf

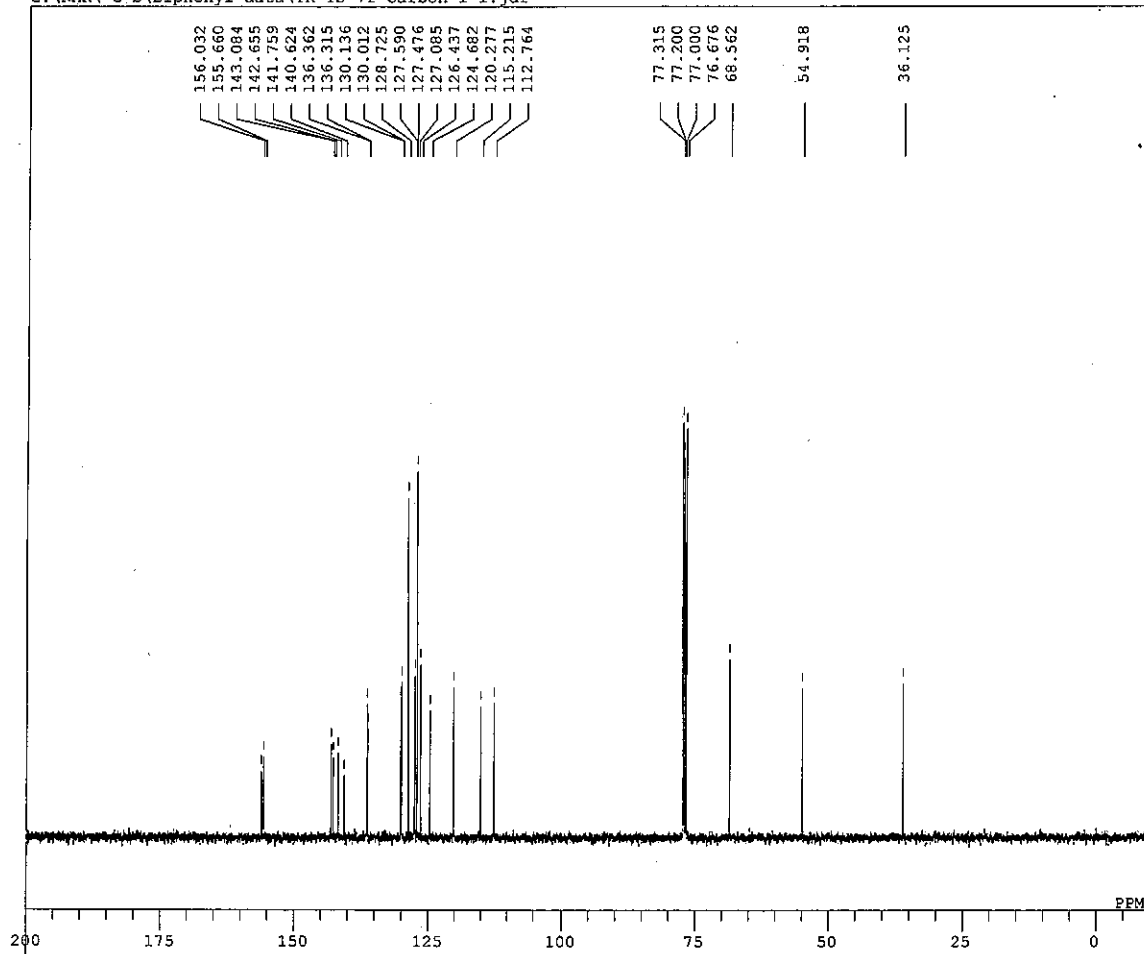


DFILE YK-YS-7f Proton-1-1.jdf
COMNT single_pulse
DATIM 2012-02-28 23:32:44
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 8
ACQTM 2.1837 sec
PD 5.0000 sec
PW1 5.00 usec
IRNUC 1H
CTEMP 22.7 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 34

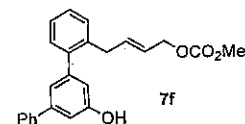


single pulse decoupled gated NOE

G:\NMR\6-0\Biphenyl data\YK-YS-7f Carbon-1-1.jdf

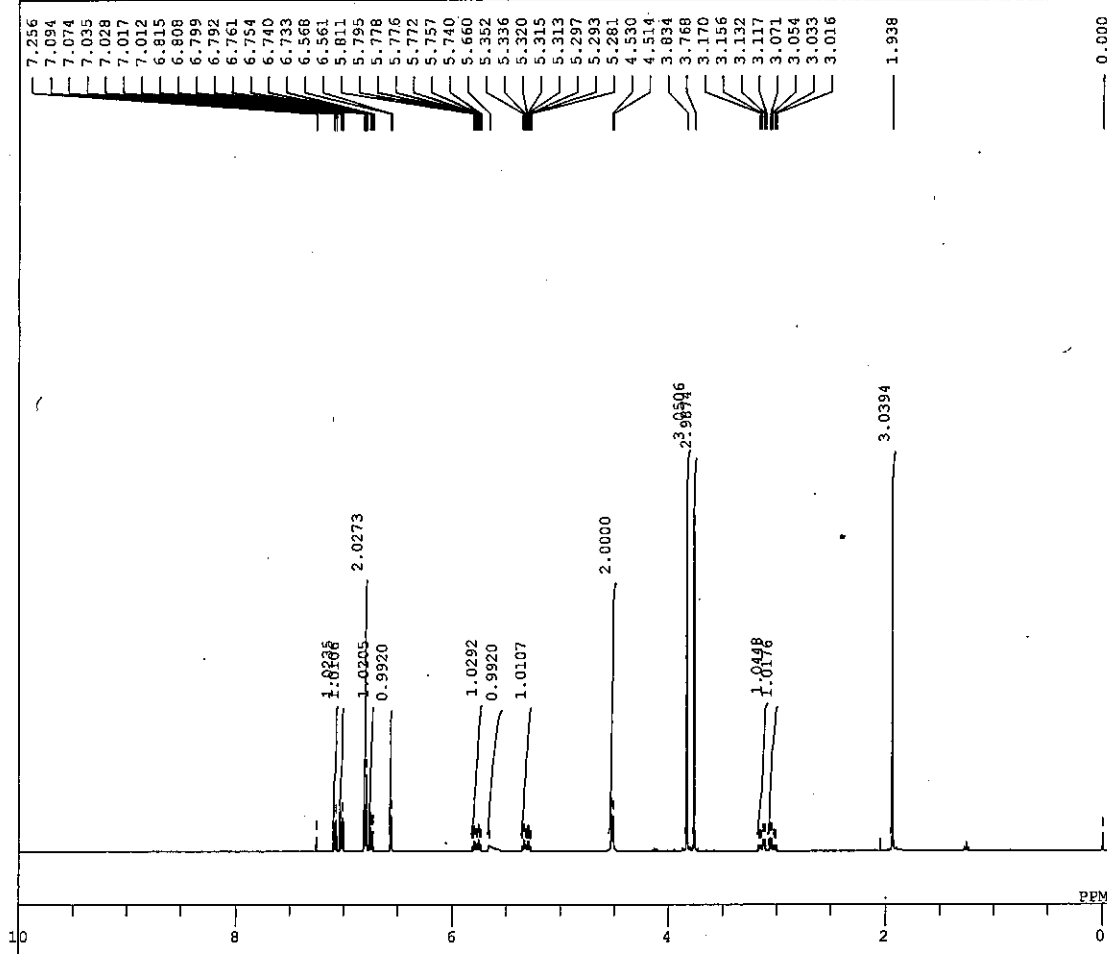


DFILE YK-YS-7f Carbon-1-1.jdf
COMNT single_pulse decoupled gated
DATIM 2012-02-28 23:34:03
OBNUC 13C
EXMOD carbon.jxp
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32767
FREQU 31407.04 Hz
SCANS 128
ACQTM 1.0433 sec
PD 2.0000 sec
PW1 3.07 usec
IRNUC 1H
CTEMP 23.0 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 50

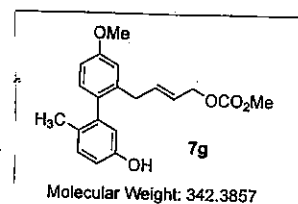


single_pulse

G:\NMR\8p\21\ykkk-21-09 Proton-1-1.als

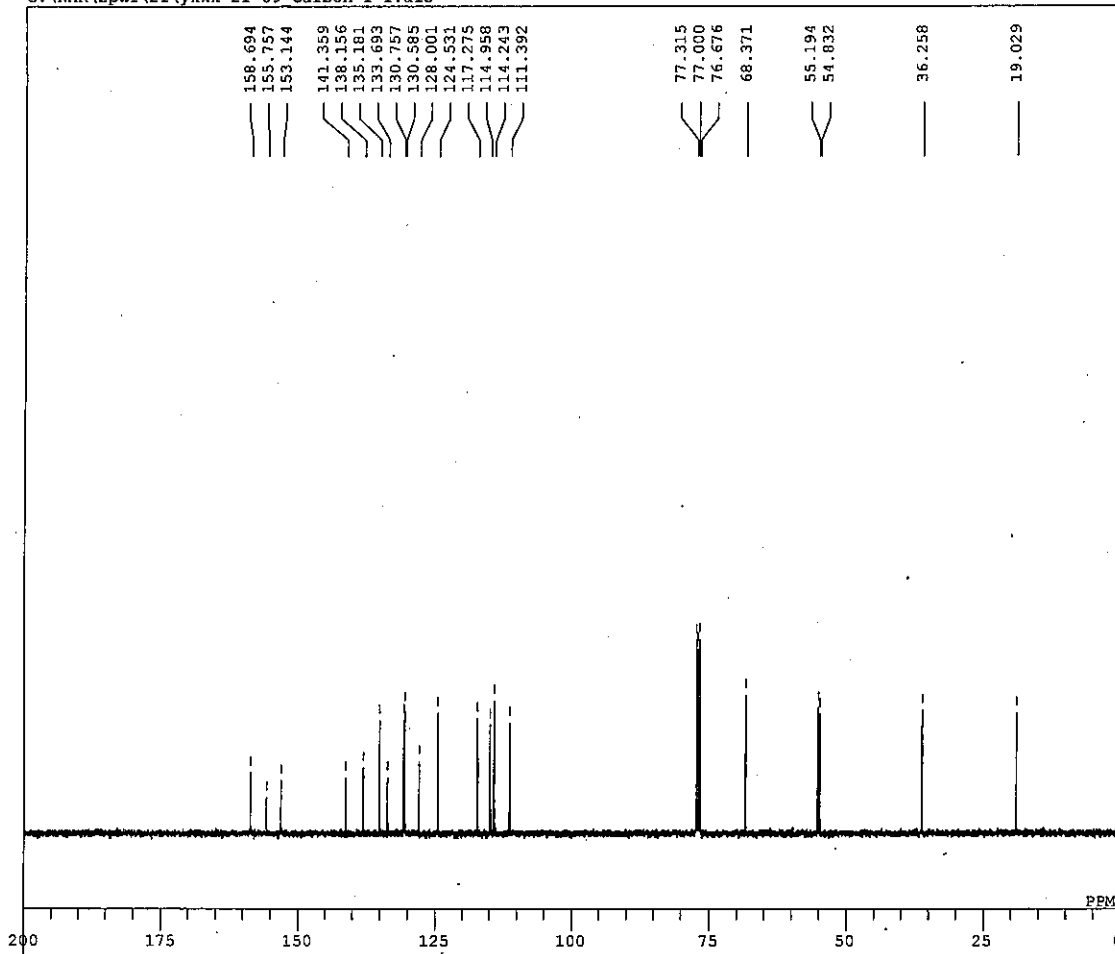


DFILE ykkk-21-09 Proton-1-1.als
 COMNT single_pulse
 DATIM 2012-03-07 08:07:07
 OBNUC 1H
 EXMOD proton.jxp
 OBFRQ 399.78 MHz
 OBSET 4.19 KHz
 OBFIN 7.29 Hz
 POINT 13107
 FREQU 6002.40 Hz
 SCANS 8
 ACQTM 2.1837 sec
 PD 5.0000 sec
 PW1 5.00 usec
 IRNUC 1H
 CTEMP 23.5 c
 SLVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 30

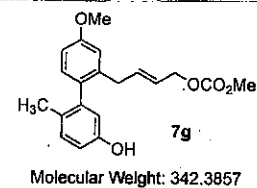


single pulse decoupled gated NOE

G:\NMR\8p\21\ykkk-21-09 Carbon-1-1.als

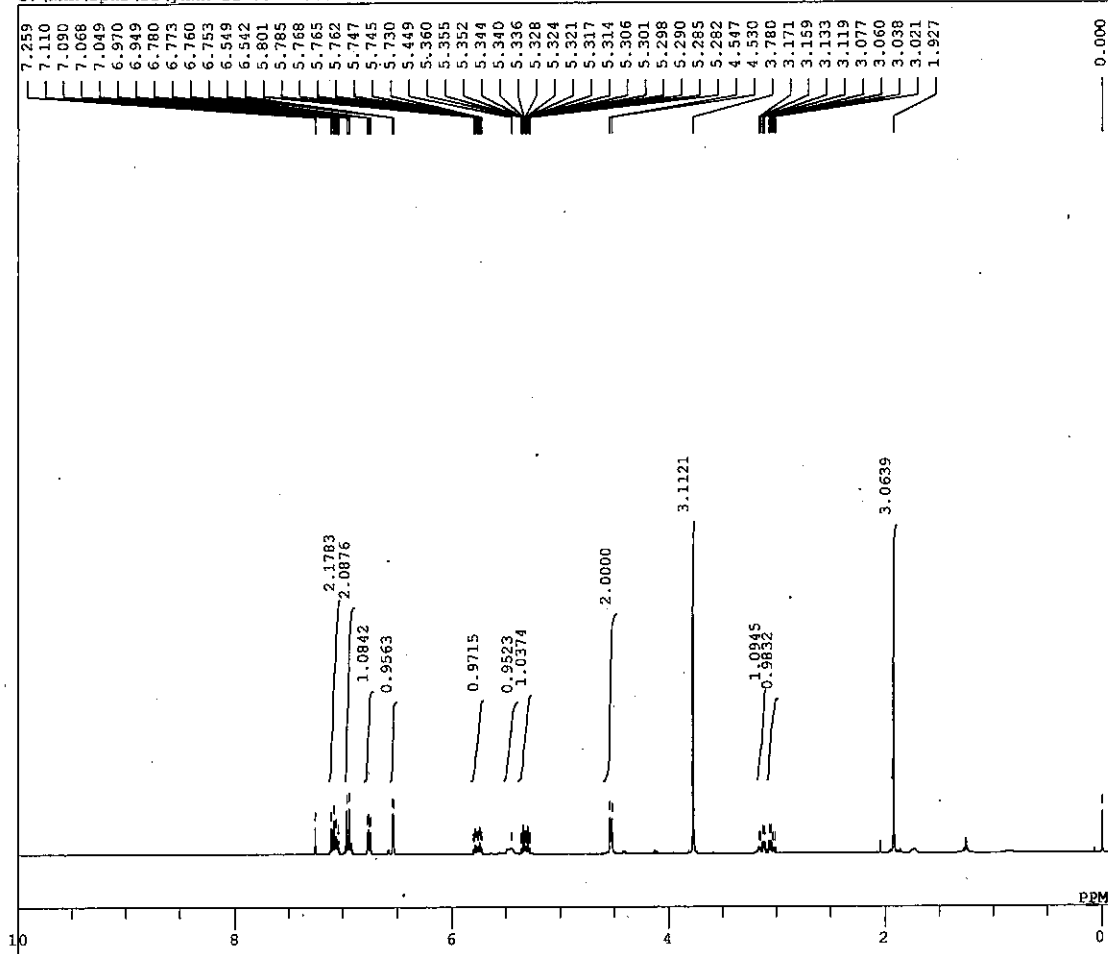


DFILE ykkk-21-09 Carbon-1-1.als
 COMNT single pulse decoupled gated
 DATIM 2012-03-07 08:10:04
 OBNUC 13C
 EXMOD carbon.jxp
 OBFRQ 100.53 MHz
 OBSET 5.35 KHz
 OBFIN 5.86 Hz
 POINT 26214
 FREQU 25125.63 Hz
 SCANS 108
 ACQTM 1.0433 sec
 PD 2.0000 sec
 PW1 3.07 usec
 IRNUC 1H
 CTEMP 23.7 c
 SLVNT CDCL3
 EXREF 77.00 ppm
 BF 1.20 Hz
 RGAIN 50

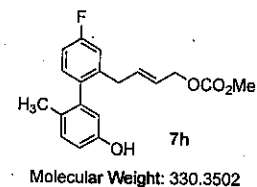


single_pulse

G:\NMR\spkf\21\ykkk-21-08 Proton-1-1.als

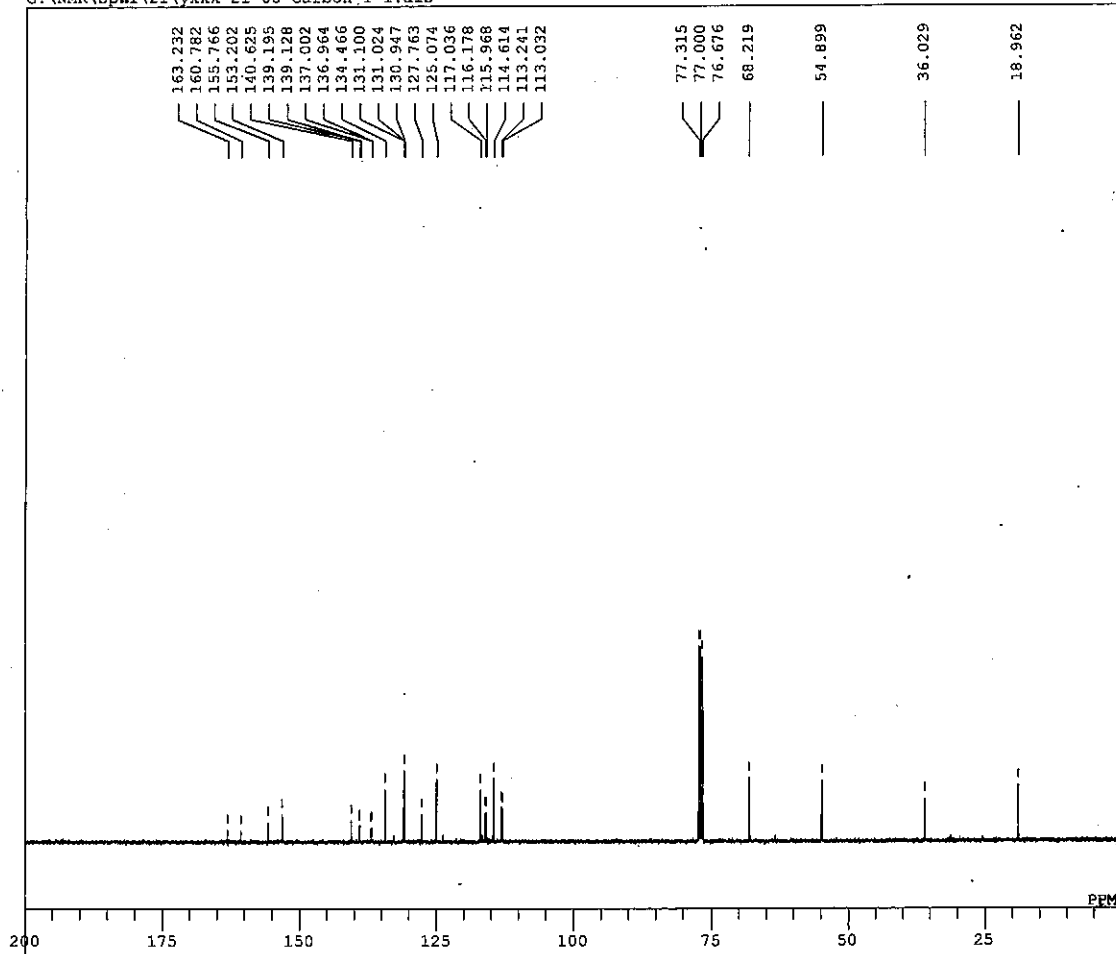


DFILE ykkk-21-08 Proton-1-1.als
 COMNT single_pulse
 DATIM 2012-03-07 07:43:48
 OBNUC 1H
 EXMOD proton.jxp
 OBFRQ 399.78 MHz
 OBSET 4.19 KHz
 OBFIN 7.29 Hz
 POINT 13107
 FREQU 6002.40 Hz
 SCANS 8
 ACQTM 2.1837 sec
 PD 5.0000 sec
 FW1 5.00 usec
 IRNUC 1H
 CTEMP 23.5 c
 SLVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 38

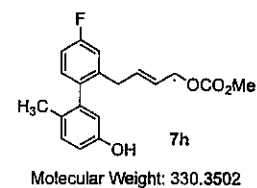


single pulse decoupled gated NOE

G:\NMR\spkf\21\ykkk-21-08 Carbon-1-1.als

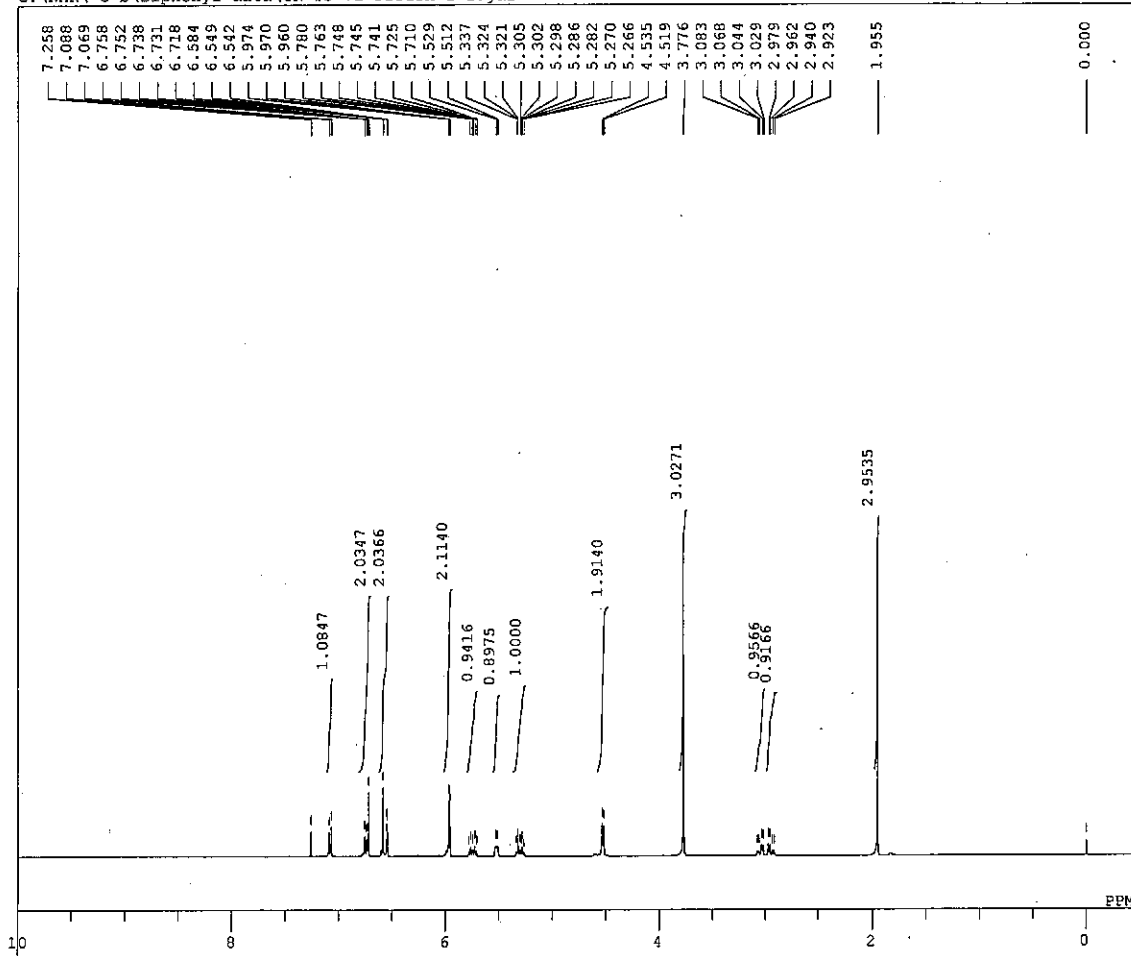


DFILE ykkk-21-08 Carbon-1-1.als
 COMNT single pulse decoupled gated
 DATIM 2012-03-07 07:46:45
 OBNUC 13C
 EXMOD carbon.jxp
 OBFRQ 100.53 MHz
 OBSET 5.35 KHz
 OBFIN 5.86 Hz
 POINT 26214
 FREQU 25125.63 Hz
 SCANS 318
 ACQTM 1.0433 sec
 PD 2.0000 sec
 FW1 3.07 usec
 IRNUC 1H
 CTEMP 23.7 c
 SLVNT CDCL3
 EXREF 77.00 ppm
 BF 1.20 Hz
 RGAIN 50

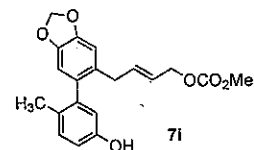


single_pulse

G:\NMR\6-2\Biphenyl data\YK-YS-7i Proton-1-1.jdf

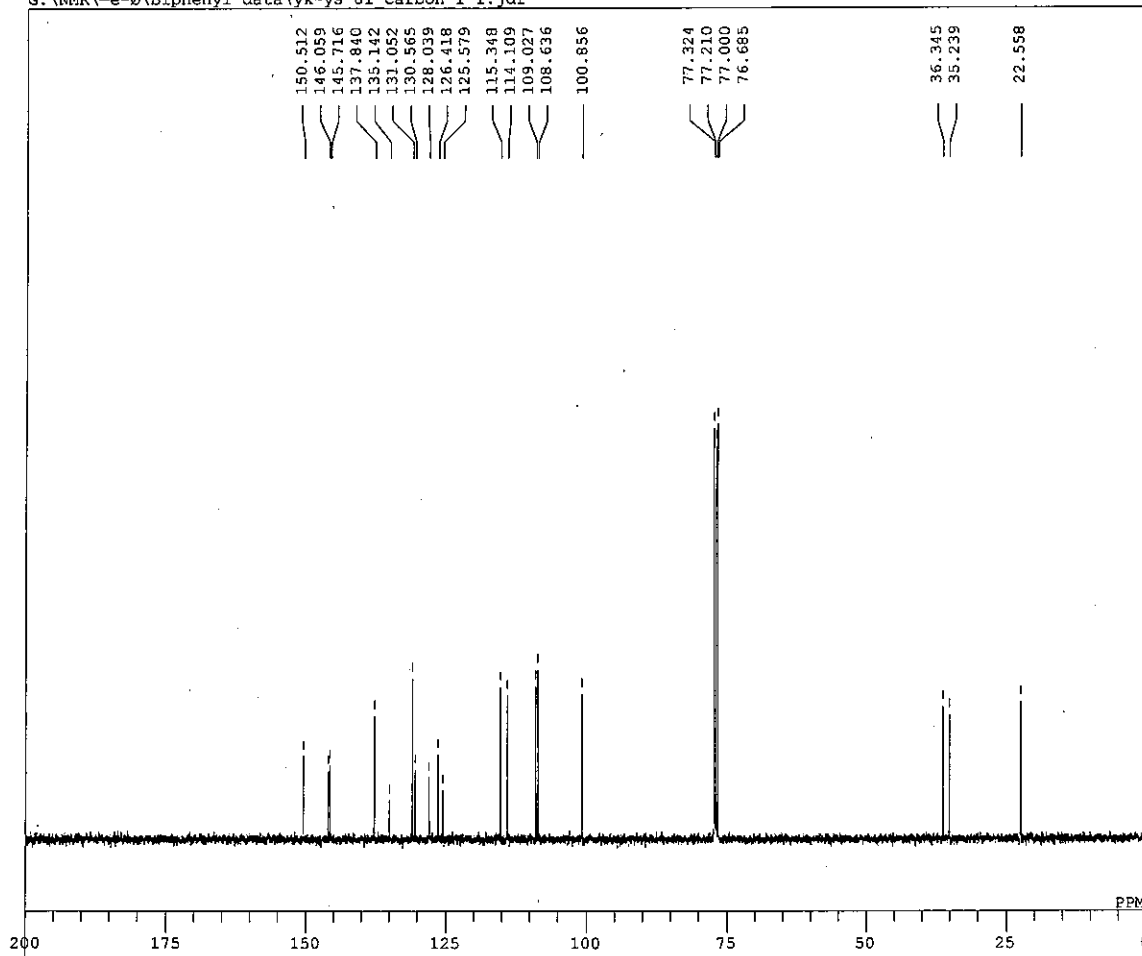


DFILE YK-YS-7i Proton-1-1.jdf
 COMNT single_pulse
 DATIM 2012-02-28 23:46:17
 OBNUC 1H
 EXMOD proton.jxp
 OBFRQ 399.78 MHz
 OBSET 4.19 KHz
 OBFIN 7.29 Hz
 POINT 16384
 FREQU 7503.00 Hz
 SCANS 8
 ACQTM 2.1837 sec
 PD 5.0000 sec
 PW1 5.00 usec
 IRNUC 1H
 CTEMP 22.7 c
 SLVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 34

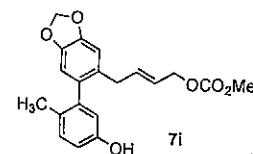


single pulse decoupled gated NOE

G:\NMR\6-2\Biphenyl data\yk-ys-8i Carbon-1-1.jdf

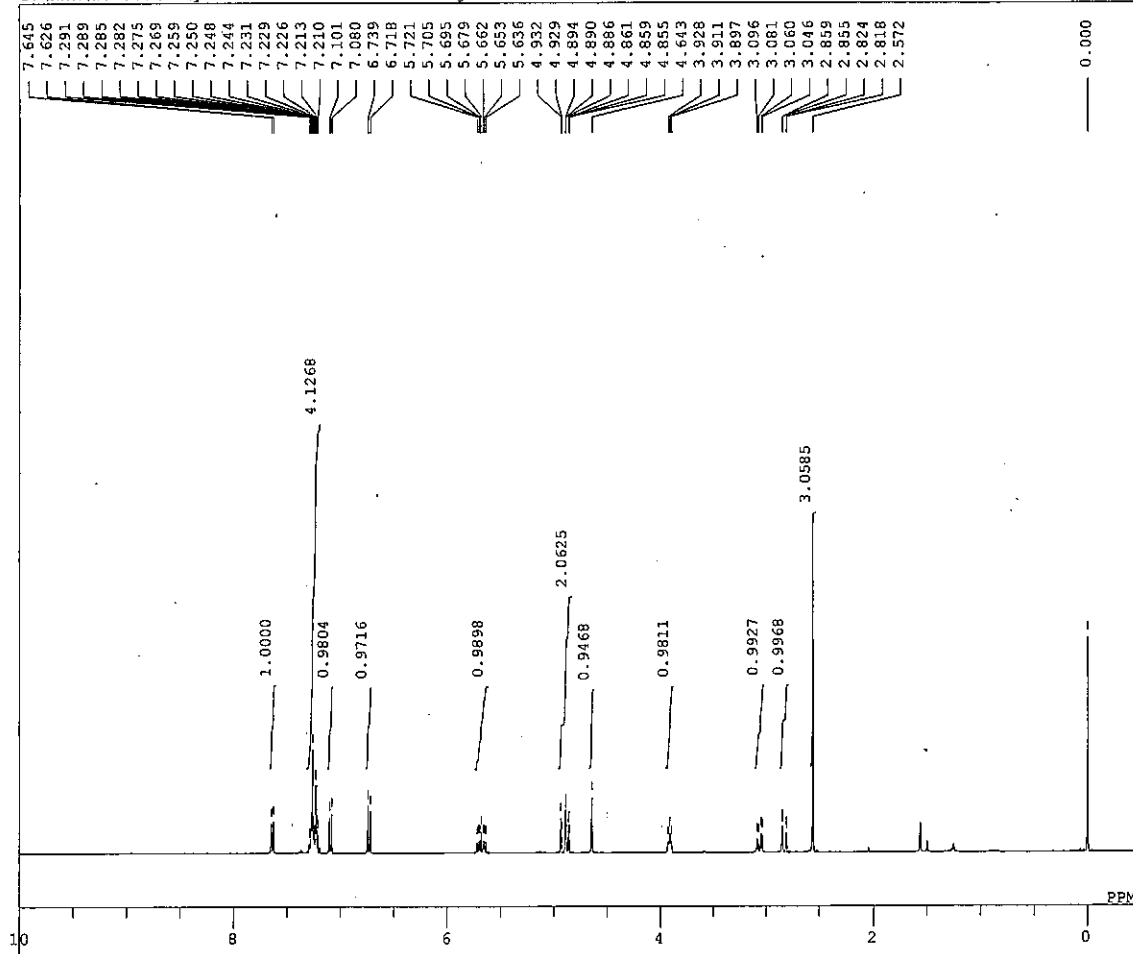


DFILE yk-ys-8i Carbon-1-1.jdf
 COMNT single pulse decoupled gated
 DATIM 2012-02-29 22:53:06
 OBNUC 13C
 EXMOD carbon.jxp
 OBFRQ 100.53 MHz
 OBSET 5.35 KHz
 OBFIN 5.86 Hz
 POINT 32767
 FREQU 31407.04 Hz
 SCANS 128
 ACQTM 1.0433 sec
 PD 2.0000 sec
 PW1 3.07 usec
 IRNUC 1H
 CTEMP 22.0 c
 SLVNT CDCL3
 EXREF 77.00 ppm
 BF 1.20 Hz
 RGAIN 50

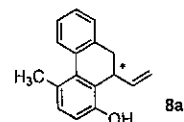


single pulse

G:\NMR\nemoto\29\yk-tn-29-60-1H Proton-1-1.jdf

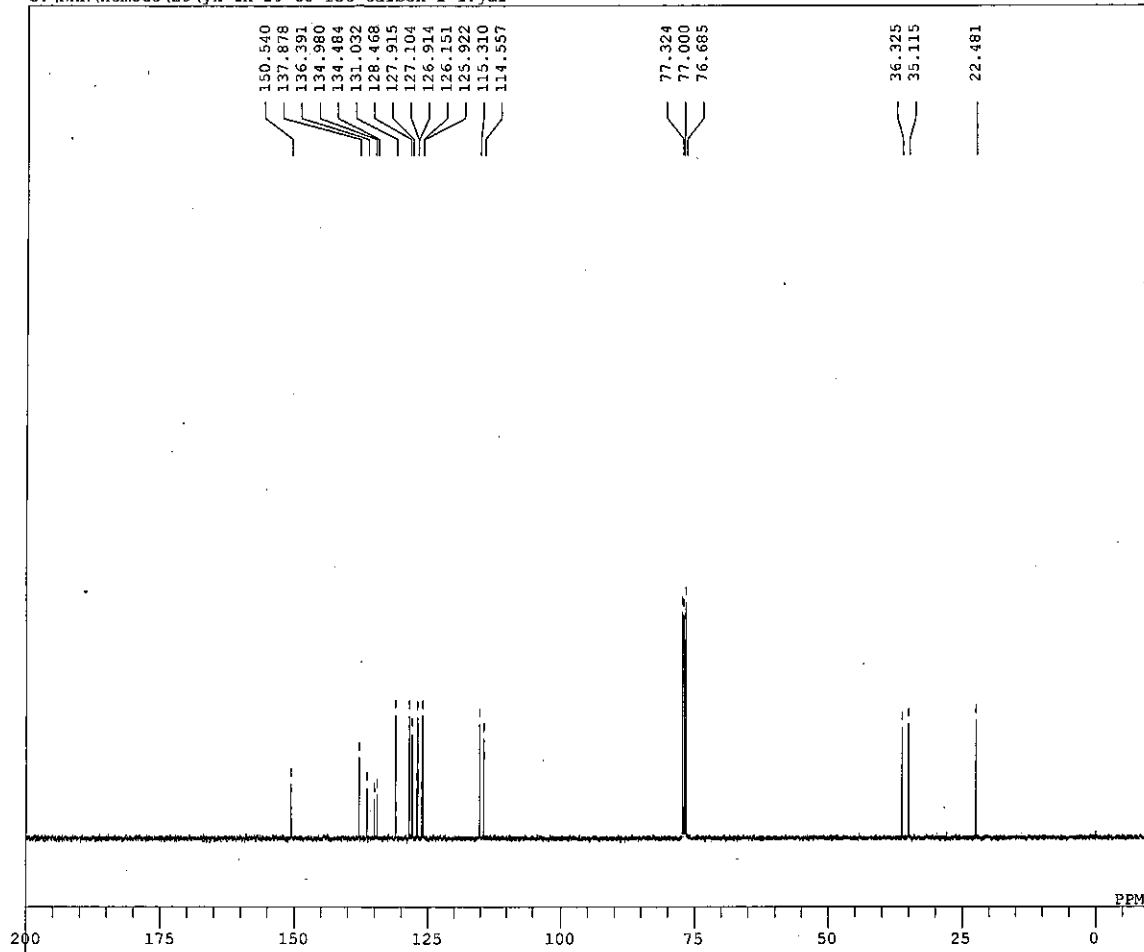


DFILE yk-tn-29-60-1H_Proton-1-1.jd
 COMMT single_pulse
 DATIM 2012-01-21 15:05:16
 OBNUC 1H
 EXMOD proton.jxp
 OBFRQ 399.78 MHz
 OBSET 4.19 KHz
 OBFIN 7.29 Hz
 POINT 16384
 FREQU 7503.00 Hz
 SCANS 8
 ACQTM 2.1837 sec
 PD 5.0000 sec
 PW1 5.00 usec
 IRNUC 1H
 CTEMP 20.1 c
 SLVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 50

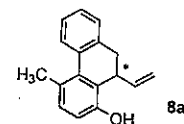


single pulse decoupled gated NOE

G:\NMR\nemoto\29\yk-tn-29-60-13C Carbon-1-1.jdf

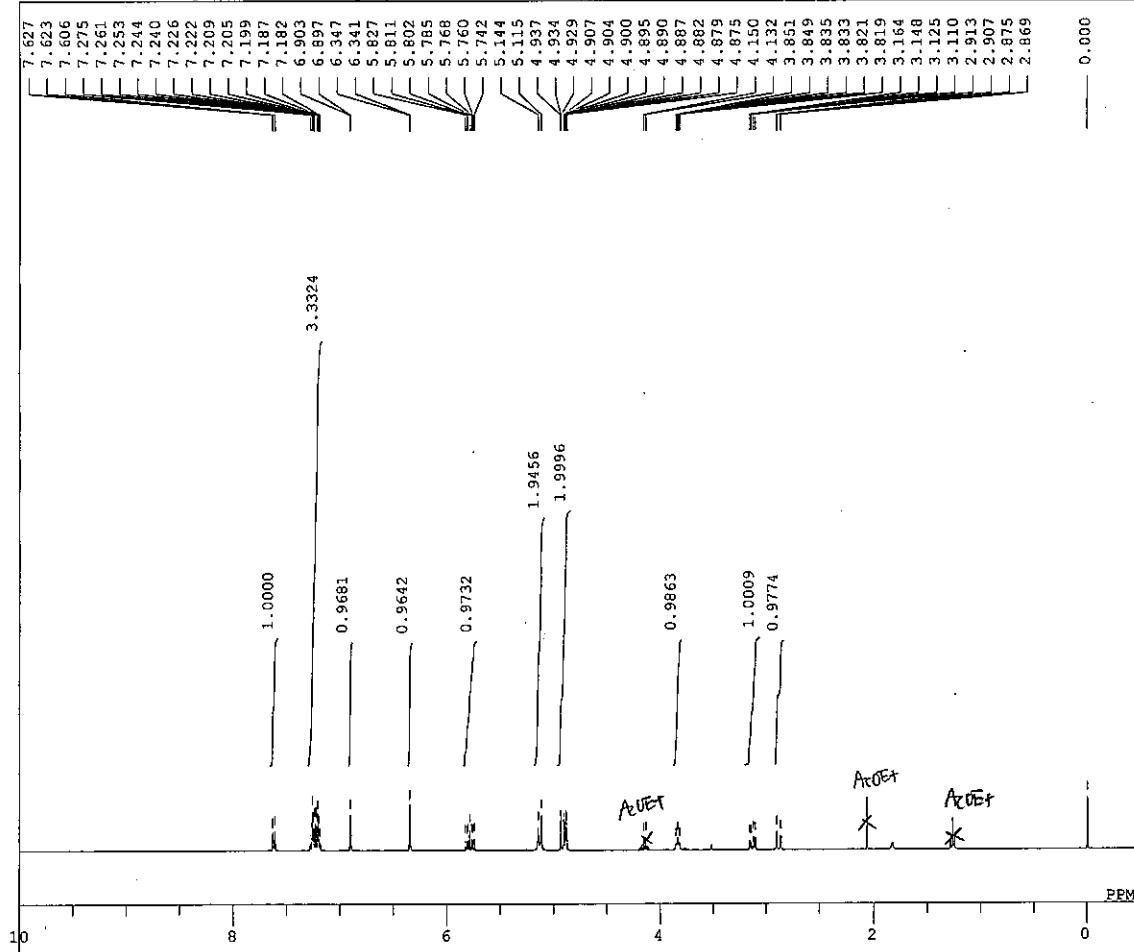


DFILE yk-tn-29-60-13C_Carbon-1-1.j
 COMMT single pulse deCoupled gated
 DATIM 2012-01-21 15:09:32
 OBNUC 13C
 EXMOD carbon.jxp
 OBFRQ 100.53 MHz
 OBSET 5.35 KHz
 OBFIN 5.86 Hz
 POINT 32767
 FREQU 31407.04 Hz
 SCANS 128
 ACQTM 1.0433 sec
 PD 2.0000 sec
 PW1 3.07 usec
 IRNUC 1H
 CTEMP 20.0 c
 SLVNT CDCL3
 EXREF 77.00 ppm
 BF 1.20 Hz
 RGAIN 50

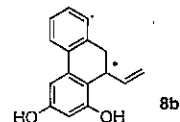


single_pulse

G:\NMR\nemoto\29\yk-tn-29-2OH-vinyl-product Proton-1-1.jdf

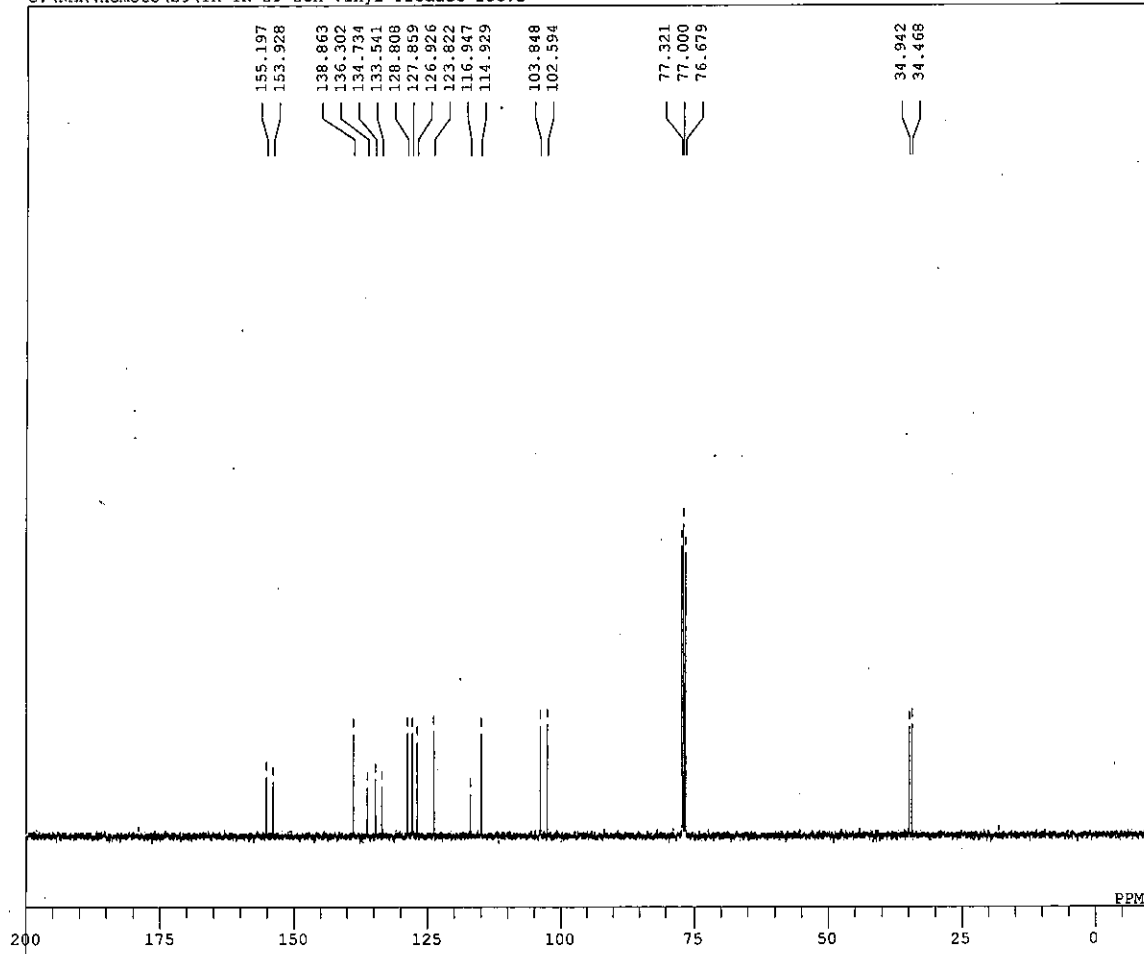


DFILE yk-tn-29-2OH-vinyl-product_P
COMNT single_pulse
DATIM 2012-01-23 16:56:40
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 8
ACQTM 2.1837 sec
PD 5.0000 sec
PWL 5.00 usec
IRNUC 1H
CTEMP 20.0 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 40

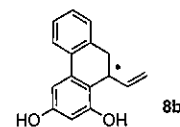


YK-TN-29-2OH-vinyl-Product-13C

G:\NMR\nemoto\29\YK-TN-29-2OH-vinyl-Product-13C.1

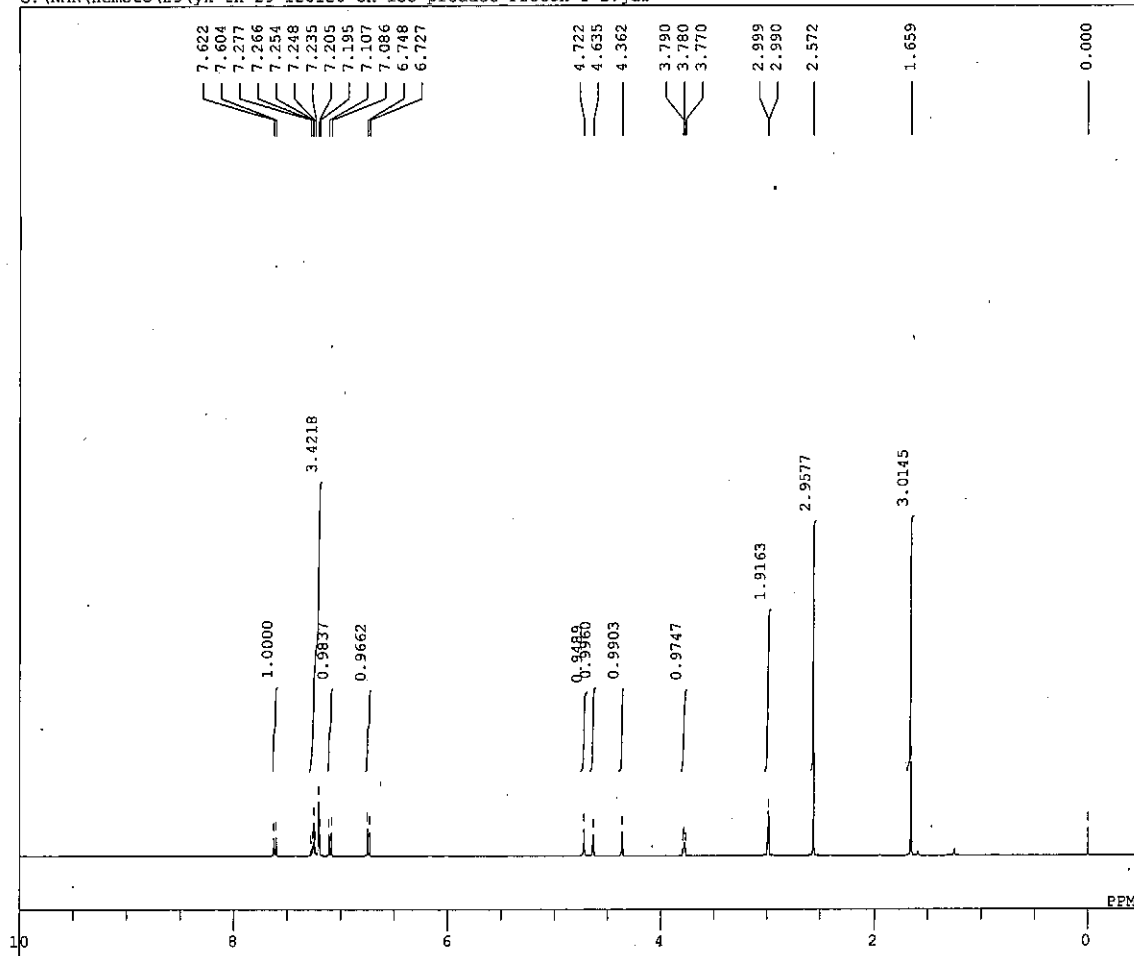


DFILE YK-TN-29-2OH-vinyl-Product-1
COMNT YK-TN-29-2OH-vinyl-Product-1
DATIM 2012-01-23 22:03:30
OBNUC 13C
EXMOD single_pulse_dec
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32768
FREQU 25188.92 Hz
SCANS 248
ACQTM 1.3009 sec
PD 1.0000 sec
PWL 3.17 usec
IRNUC 1H
CTEMP 23.9 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 24

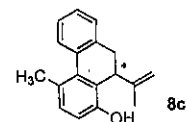


single_pulse

G:\NMR\nemoto\29\yk-tn-29-120120-OH-iso-product Proton-1-1.jdf

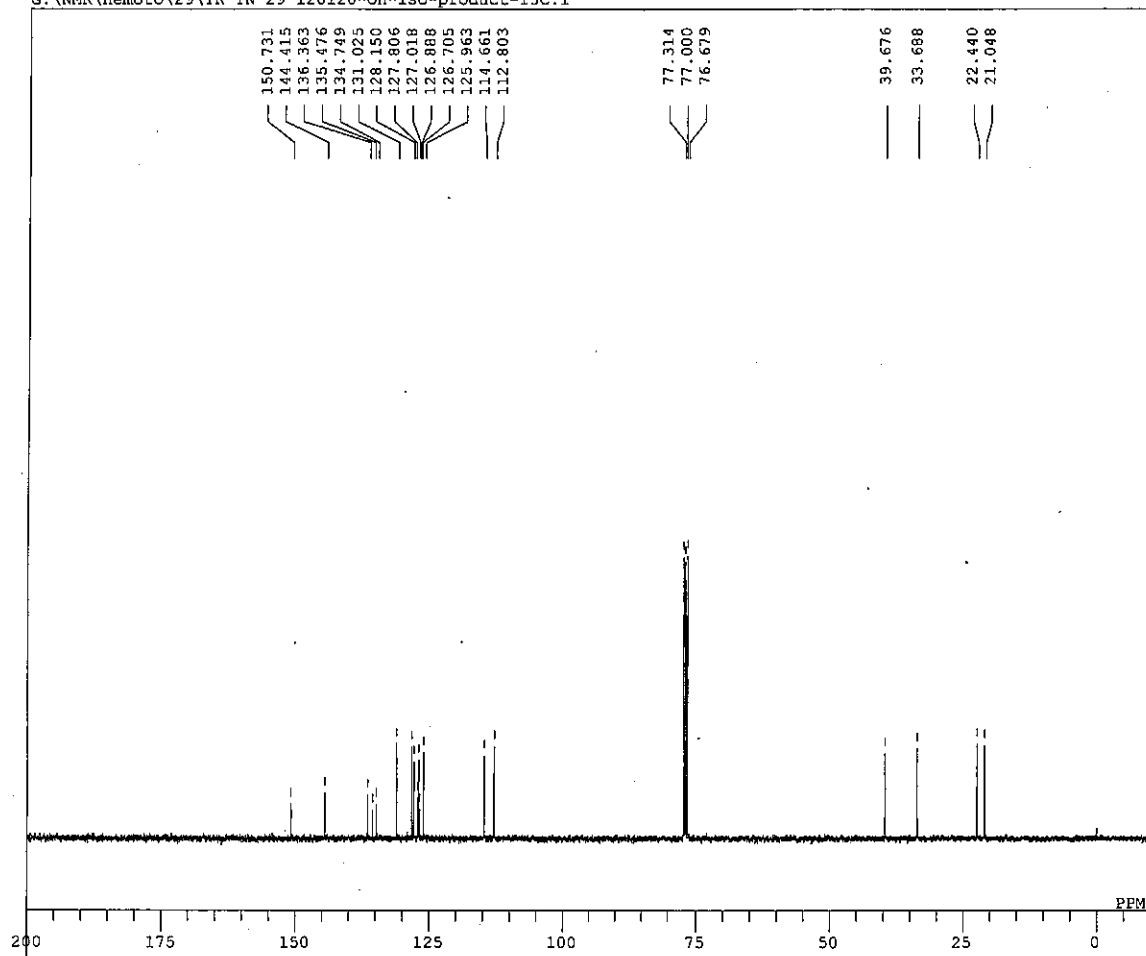


DFILE yk-tn-29-120120-OH-iso-produ
COMNT single_pulse
DATIM 2012-01-20 13:42:28
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 8
ACQTM 2.1837 sec
PD 5.0000 sec
PW1 5.00 usec
IRNUC 1H
CTEMP 20.1 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 38

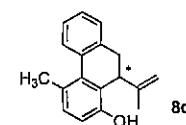


YK-TN-29-120120-OH-iso-product-13C

G:\NMR\nemoto\29\YK-TN-29-120120-OH-iso-product-13C.1

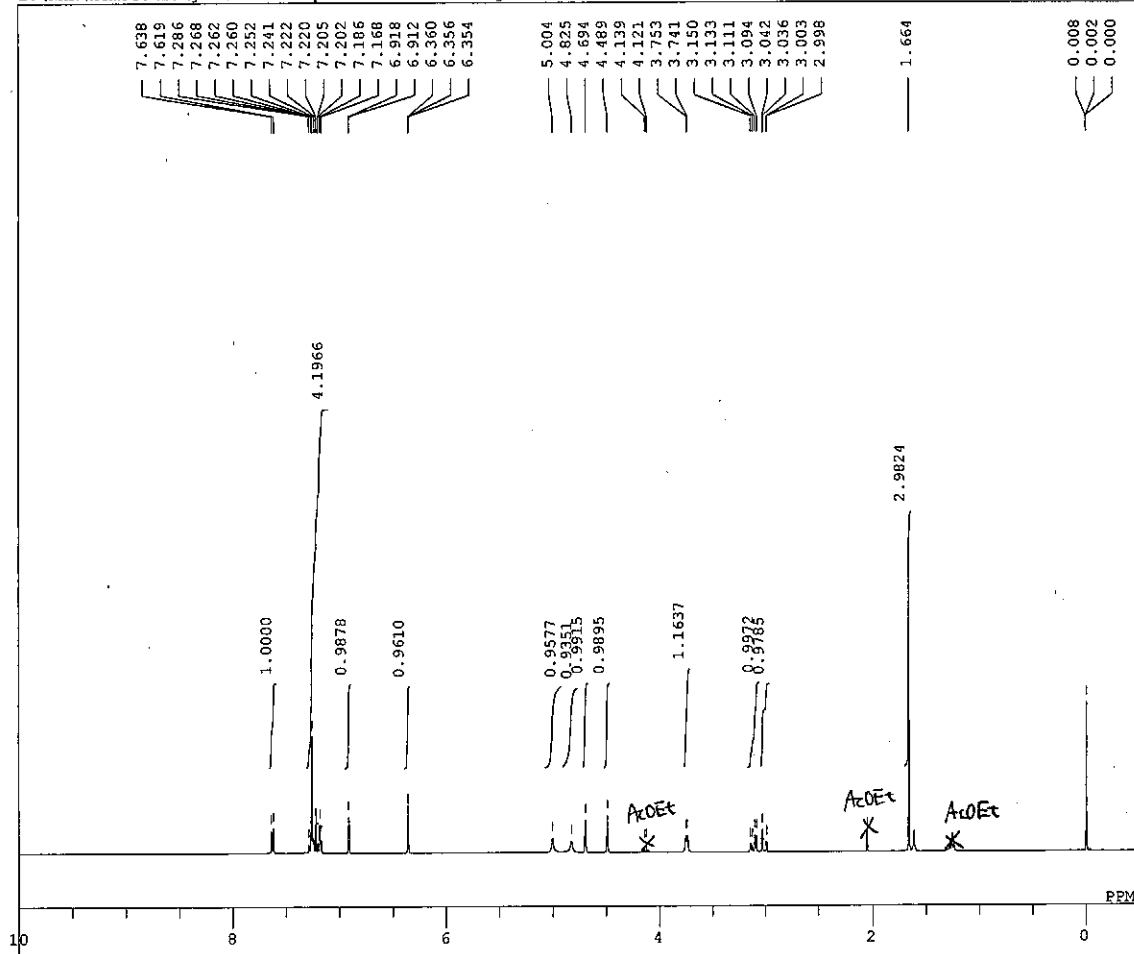


DFILE YK-TN-29-120120-OH-iso-produ
COMNT YK-TN-29-120120-OH-iso-produ
DATIM 2012-01-20 15:32:56
OBNUC 13C
EXMOD single_pulse_dec
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32768
FREQU 25188.92 Hz
SCANS 418
ACQTM 1.3009 sec
PD 1.0000 sec
FW1 3.17 usec
IRNUC 1H
CTEMP 24.3 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 24

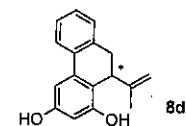


single_pulse

G:\NMR\nemoto\29\yk-tn-29-61-pro-1H Proton-1-1.jdf

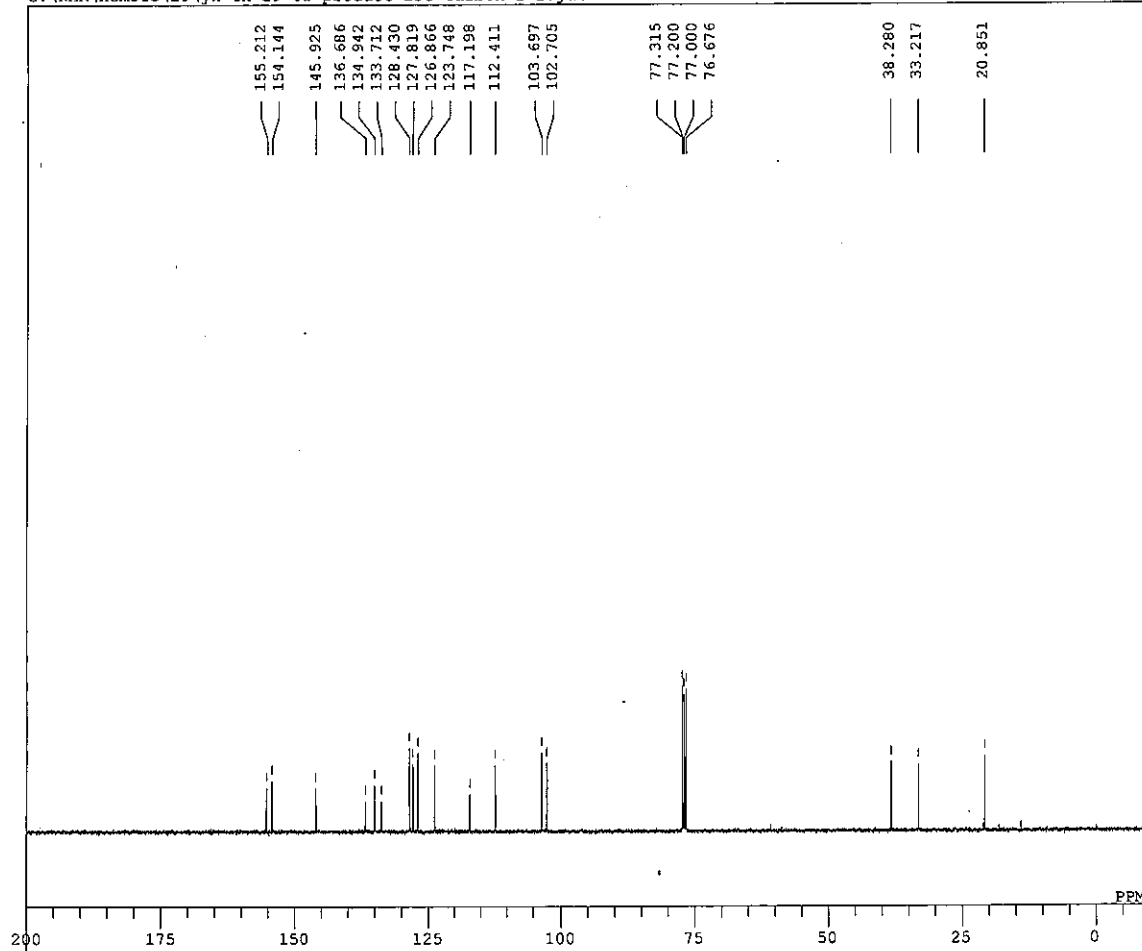


DFILE yk-tn-29-61-pro-1H Proton-1-
 COMNT single_pulse
 DATIM 2012-01-24 15:03:29
 OBNUC 1H
 EXMOD proton.jxp
 OBFRQ 399.78 MHz
 OBSET 4.19 KHz
 OBFIN 7.29 Hz
 POINT 16384
 FREQU 7503.00 Hz
 SCANS 8
 ACQTM 2.1837 sec
 PD 5.0000 sec
 PW1 5.00 usec
 IRNUC 1H
 CTEMP 19.7 c
 SLVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 50

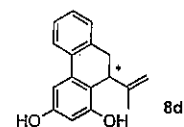


single pulse decoupled gated NOE

G:\NMR\nemoto\29\yk-tn-29-61-product-13C Carbon-1-1.jdf

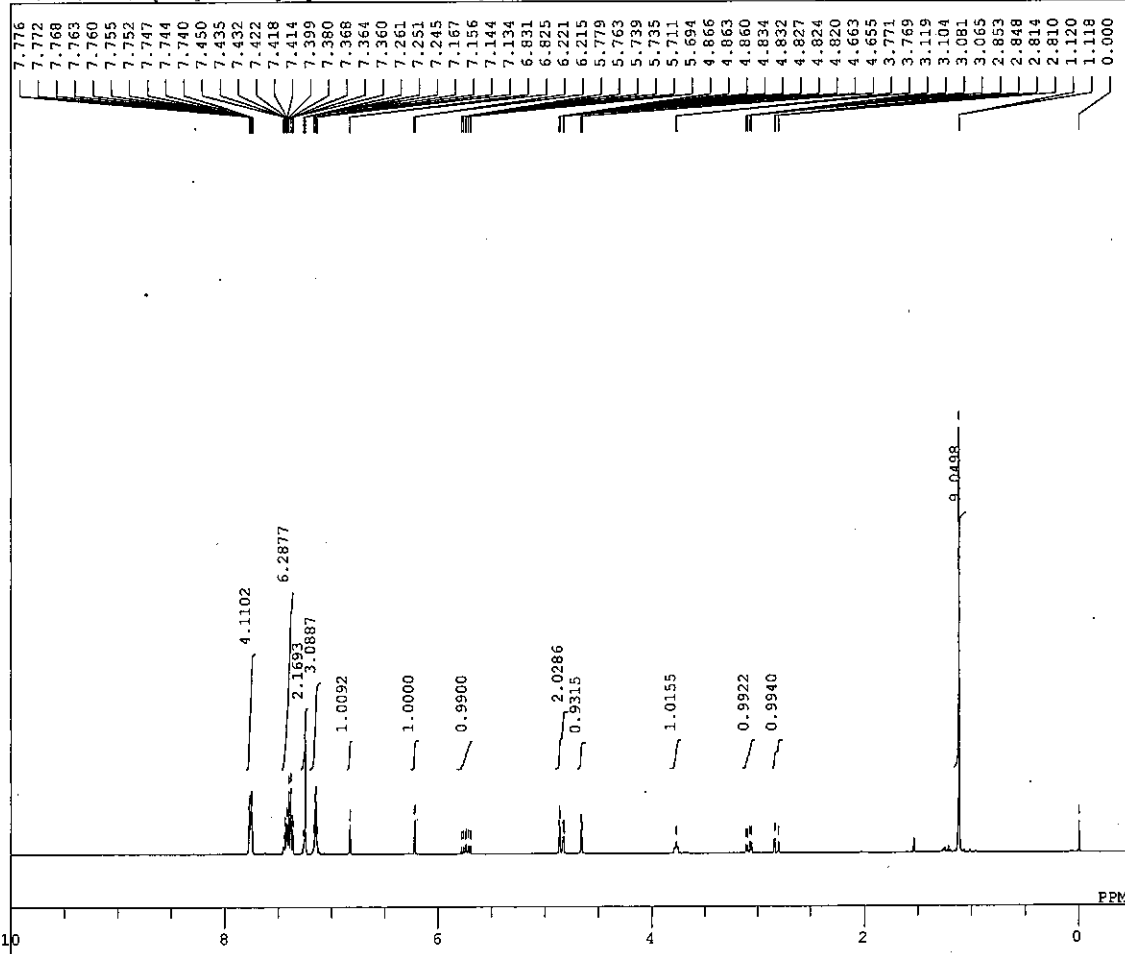


DFILE yk-tn-29-61-product-13C Carb
 COMNT single pulse decoupled gated
 DATIM 2012-01-24 15:07:44
 OBNUC 13C
 EXMOD carbon.jxp
 OBFRQ 100.53 MHz
 OBSET 5.35 KHz
 OBFIN 5.86 Hz
 POINT 32767
 FREQU 31407.04 Hz
 SCANS 128
 ACQTM 1.0433 sec
 PD 2.0000 sec
 PW1 3.07 usec
 IRNUC 1H
 CTEMP 19.9 c
 SLVNT CDCL3
 EXREF 77.00 ppm
 BF 1.20 Hz
 RGAIN 50

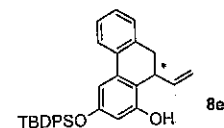


single_pulse

G:\NMR\6-0\Biphenyl data\yk-ys-8e Proton-1-1.jdf

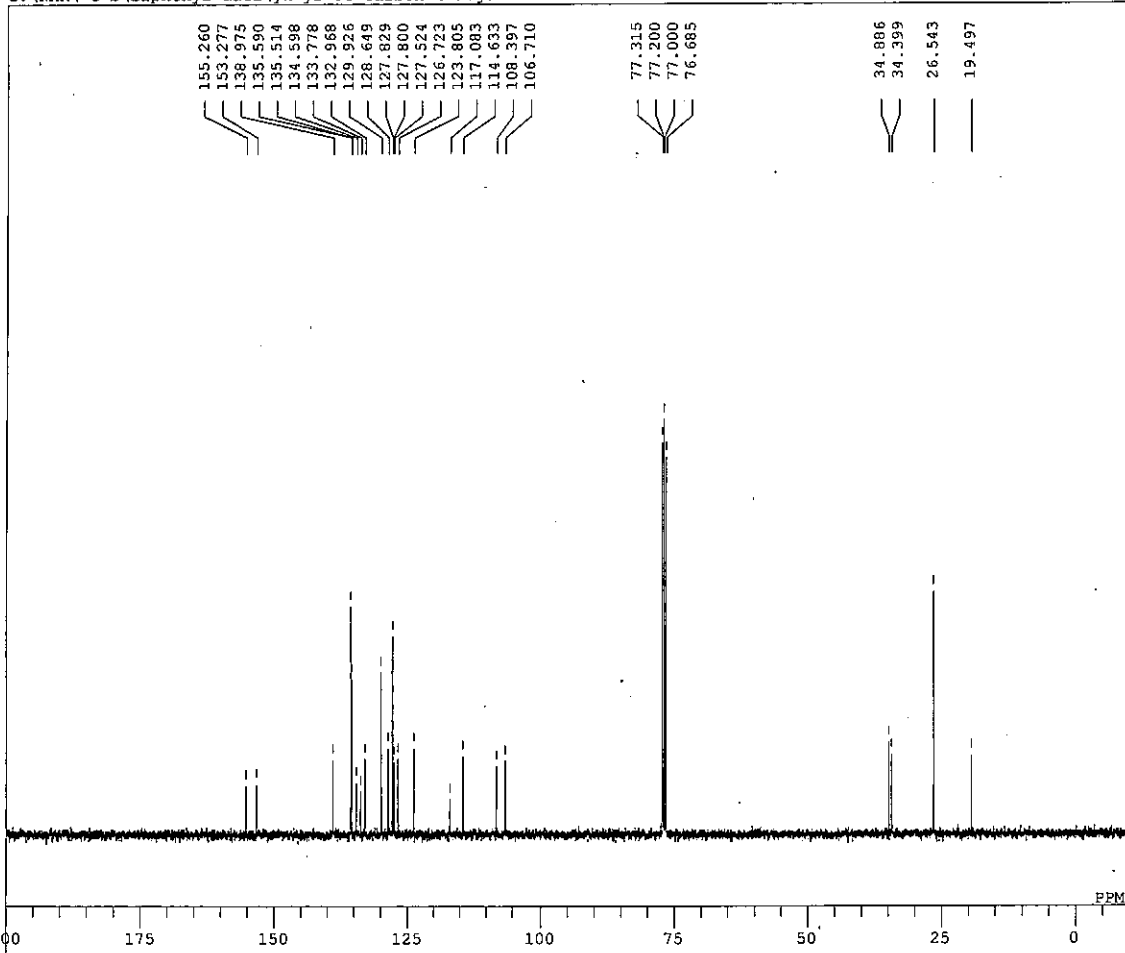


DFILE yk-ys-8e Proton-1-1.jdf
COMNT single_pulse
DATIM 2012-02-29 22:40:04
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 8
ACQTM 2.1837 sec.
PD 5.0000 sec
FW1 5.00 usec
IRNUC 1H
CTEMP 21.8 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 36

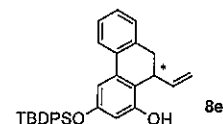


single pulse decoupled gated NOE

G:\NMR\6-0\Biphenyl data\yk-ys-8e Carbon-1-1.jdf

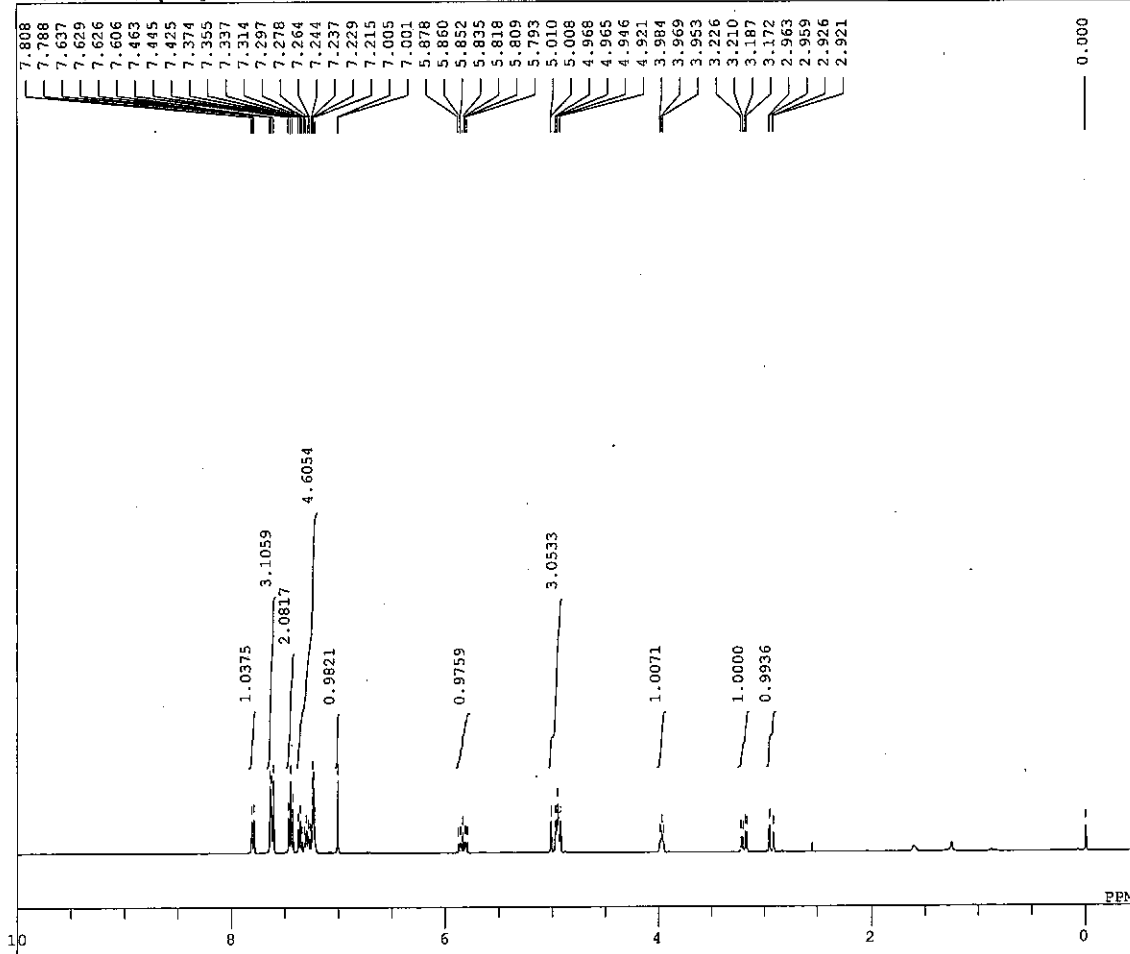


DFILE yk-ys-8e Carbon-1-1.jdf
COMNT single pulse decoupled gated
DATIM 2012-02-29 22:41:23
OBNUC 13C
EXMOD carbon.jxp
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32767
FREQU 31407.04 Hz
SCANS 128
ACQTM 1.0433 sec
PD 2.0000 sec
FW1 3.07 usec
IRNUC 1H
CTEMP 22.1 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 50

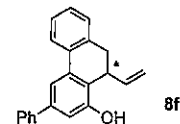


single_pulse

G:\NMR\6-Biphenyl data\YK-YS-8f Proton-2-1.jdf

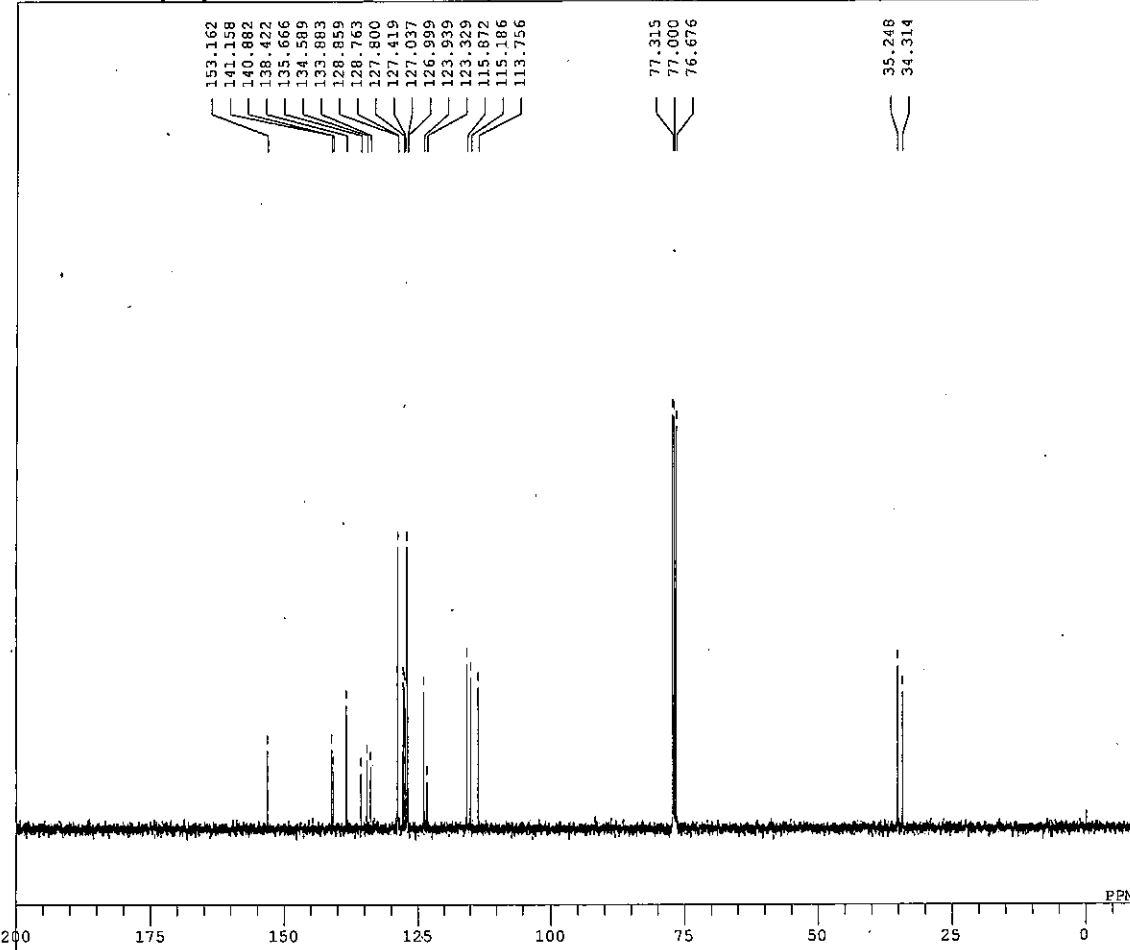


DFILE YK-YS-8f_Proton-2-1.jdf
COMNT single_pulse
DATIM 2012-03-24 18:12:46
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 8
ACQTM 2.1837 sec
PD 5.0000 sec
PW1 5.00 usec
IRNUC 1H
CTEMP 25.2 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 38

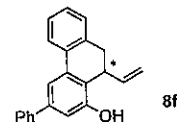


single pulse decoupled gated NOE

G:\NMR\6-Biphenyl data\YK-YS-8f Carbon-2-1.jdf

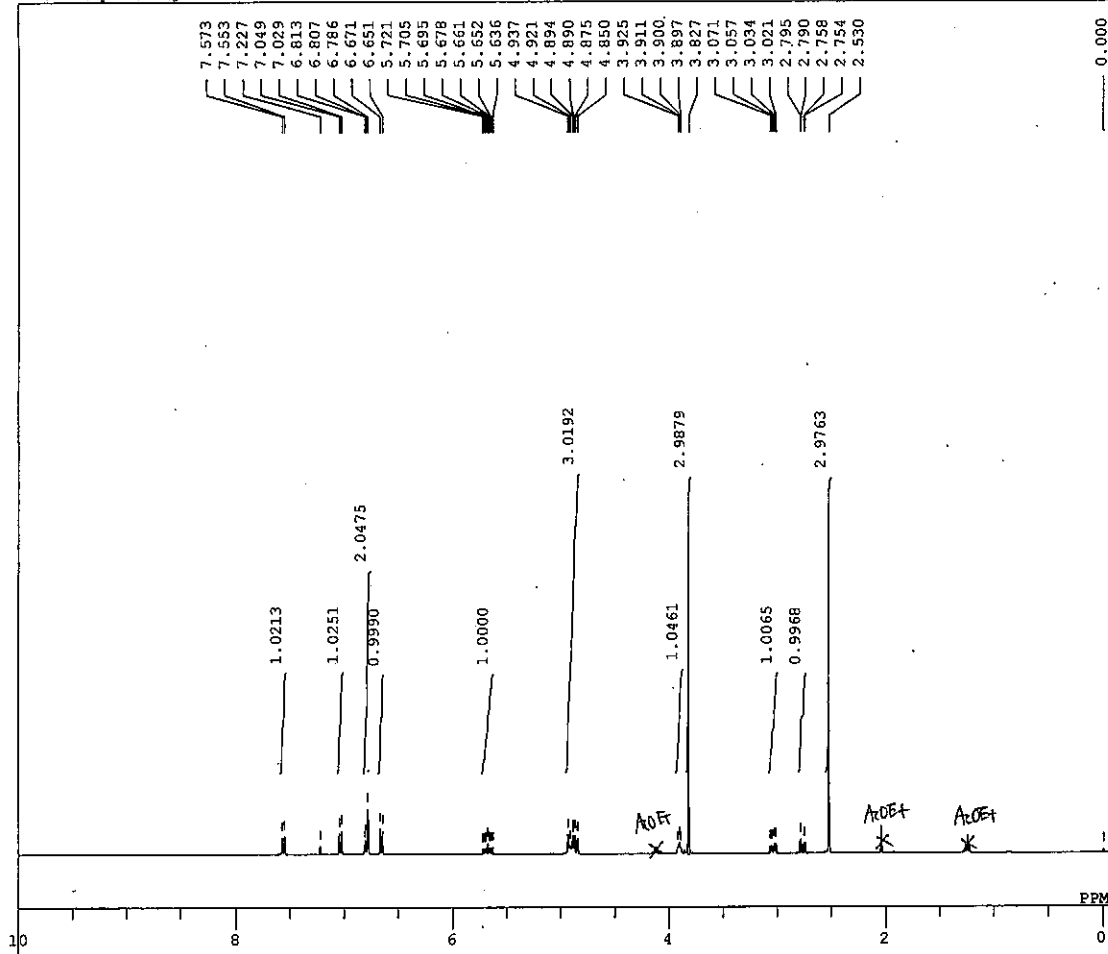


DFILE YK-YS-8f_Carbon-2-1.jdf
COMNT single_pulse decoupled gated
DATIM 2012-03-24 18:14:06
OBNUC 13C
EXMOD carbon.jxp
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32767
FREQU 31407.04 Hz
SCANS 128
ACQTM 1.0433 sec
PD 2.0000 sec
PW1 3.07 usec
IRNUC 1H
CTEMP 25.5 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 50

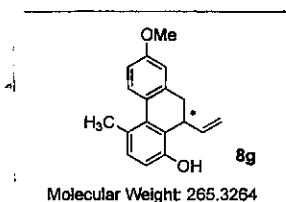


single_pulse

G:\NMR\špf\21\ykkk-21-17 Proton-1-1.als

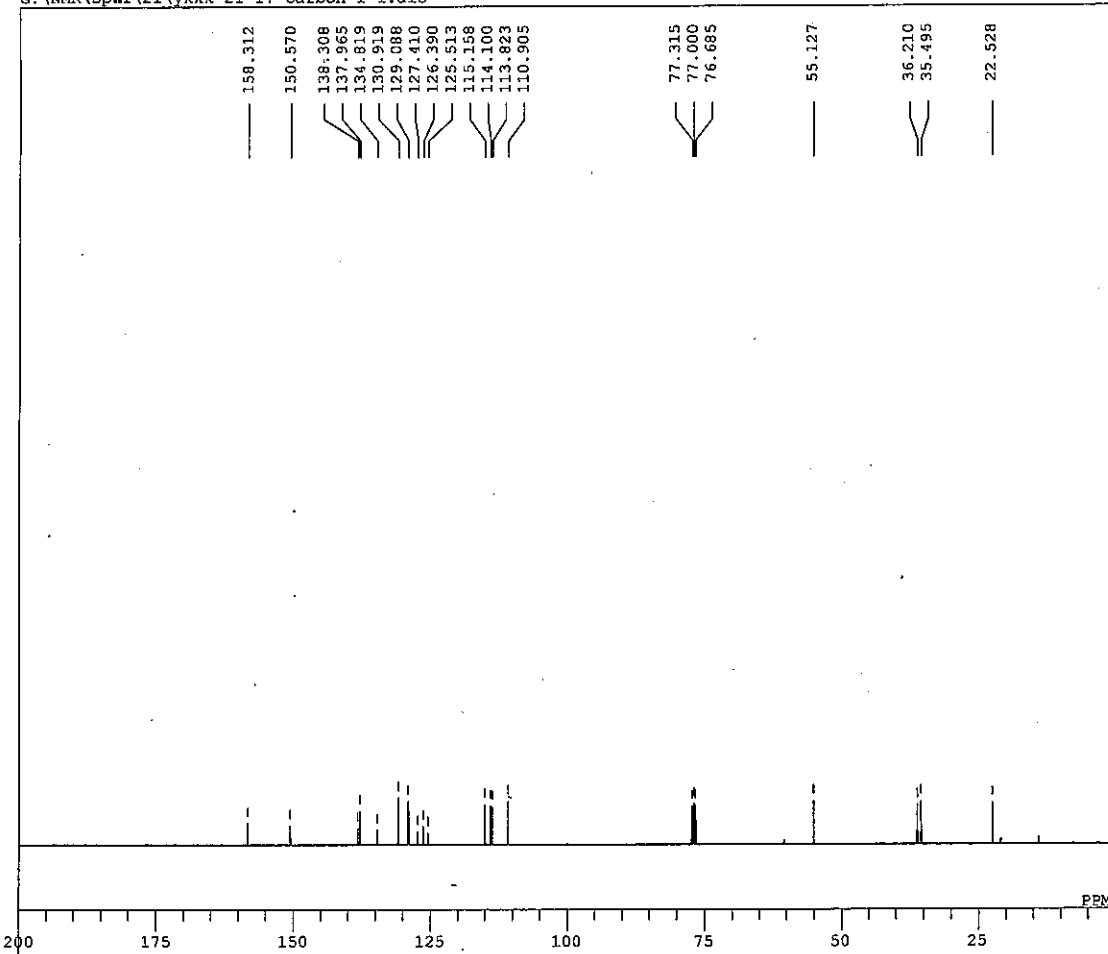


DFILE ykkk-21-17_Proton-1-1.als
COMNT single_pulse
DATIM 2012-03-13 17:04:03
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 13107
FREQU 6002.40 Hz
SCANS 8
ACQTM 2.1837 sec
PD 5.0000 sec
PW1 5.00 usec
IRNUC 1H
CTEMP 24.6 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 30

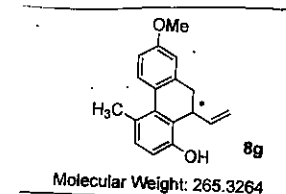


single_pulse decoupled gated NOE

G:\NMR\špf\21\ykkk-21-17 Carbon-1-1.als

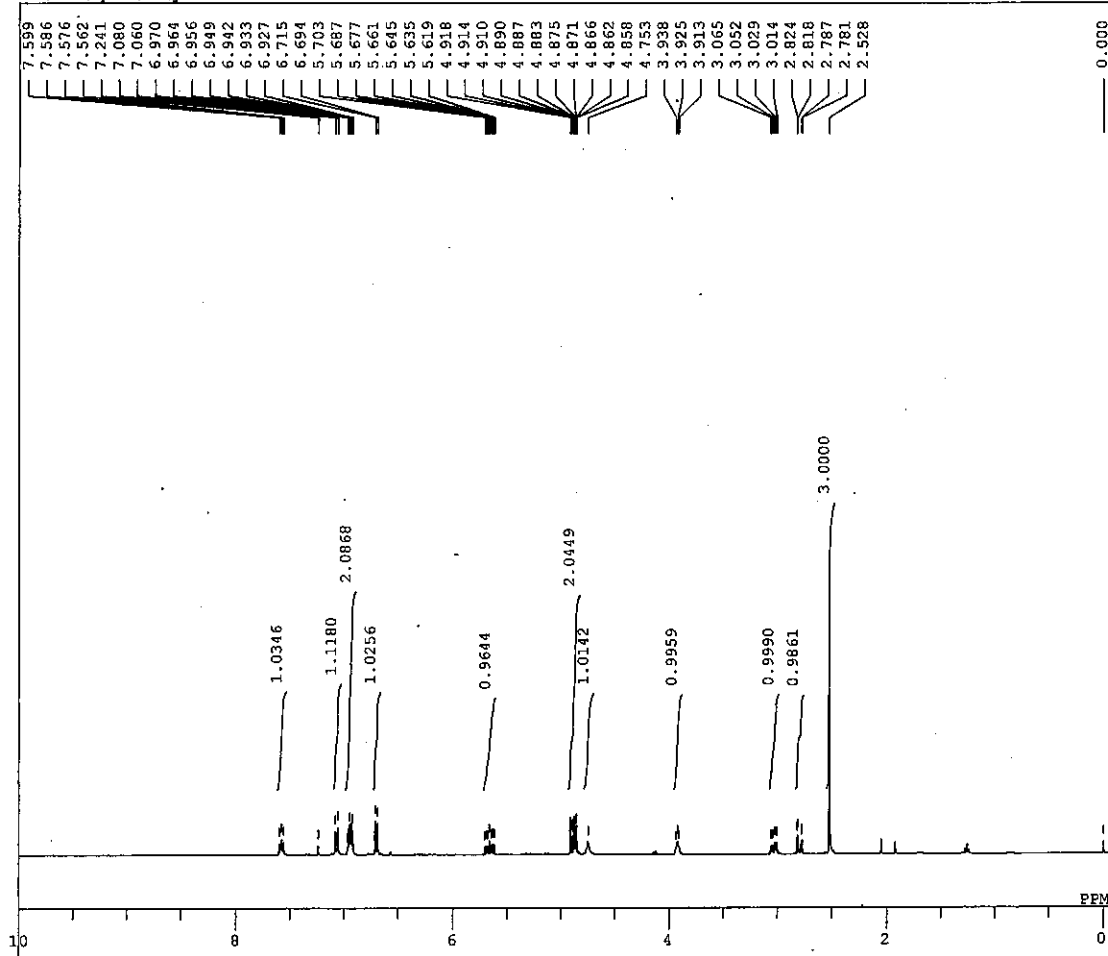


DFILE ykkk-21-17_Carbon-1-1.als
COMNT single_pulse decoupled gated
DATIM 2012-03-13 17:06:57
OBNUC 13C
EXMOD carbon.jxp
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 26214
FREQU 25125.63 Hz
SCANS 367
ACQTM 1.0433 sec
PD 2.0000 sec
PW1 3.07 usec
IRNUC 1H
CTEMP 24.8 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 50

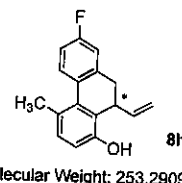


single_pulse

G:\NMR\Sptf\21\ykkk-21-14 Proton-1-1.als

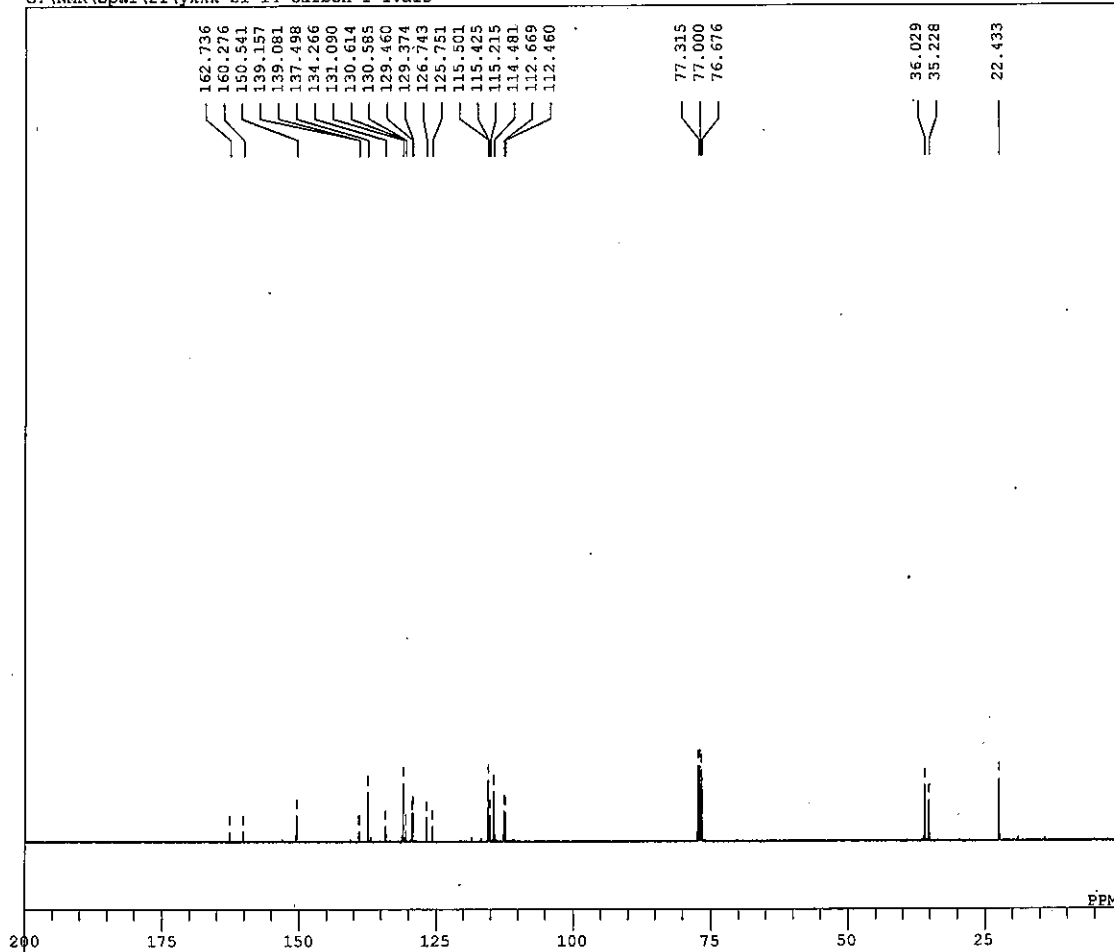


DFILE ykkk-21-14 Proton-1-1.als
COMNT single_pulse
DATIM 2012-03-10 08:07:20
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 13107
FREQU 6002.40 Hz
SCANS 8
ACQTM 2.1837 sec
PD 5.0000 sec
PW1 5.00 usec
IRNUC 1H
CTEMP 23.7 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 34

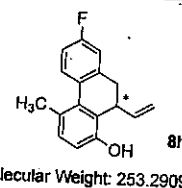


single pulse decoupled gated NOE

G:\NMR\Sptf\21\ykkk-21-14 Carbon-1-1.als

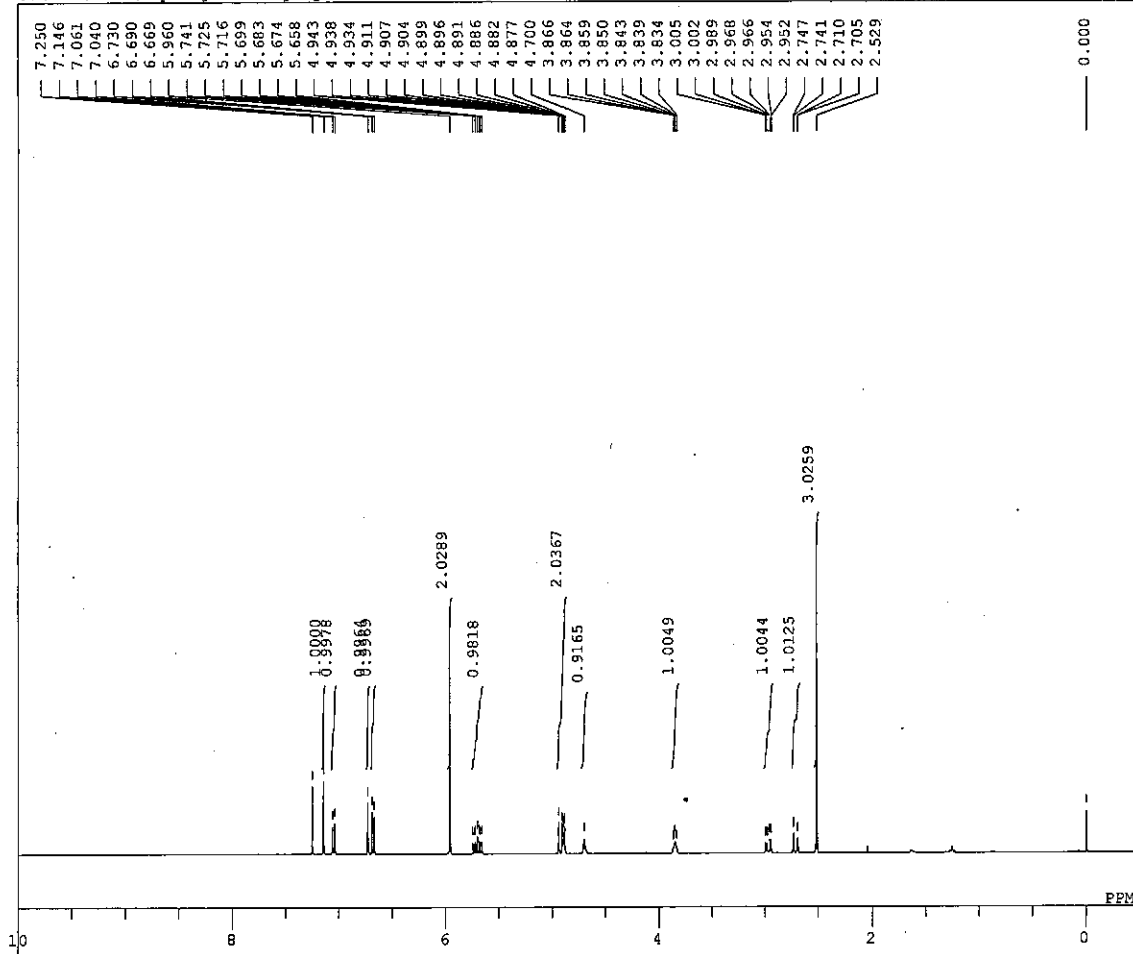


DFILE ykkk-21-14 Carbon-1-1.als
COMNT single pulse decoupled gated
DATIM 2012-03-10 08:10:14
OBNUC 13C
EXMOD carbon.jxp
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 26214
FREQU 25125.63 Hz
SCANS 350
ACQTM 1.0433 sec
PD 2.0000 sec
PW1 3.07 usec
IRNUC 1H
CTEMP 23.9 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 50

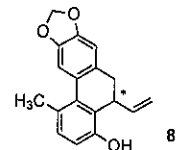


single_pulse

G:\NMR\6-0\Biphenyl data\yk-ys-8i Proton-1-1.jdf

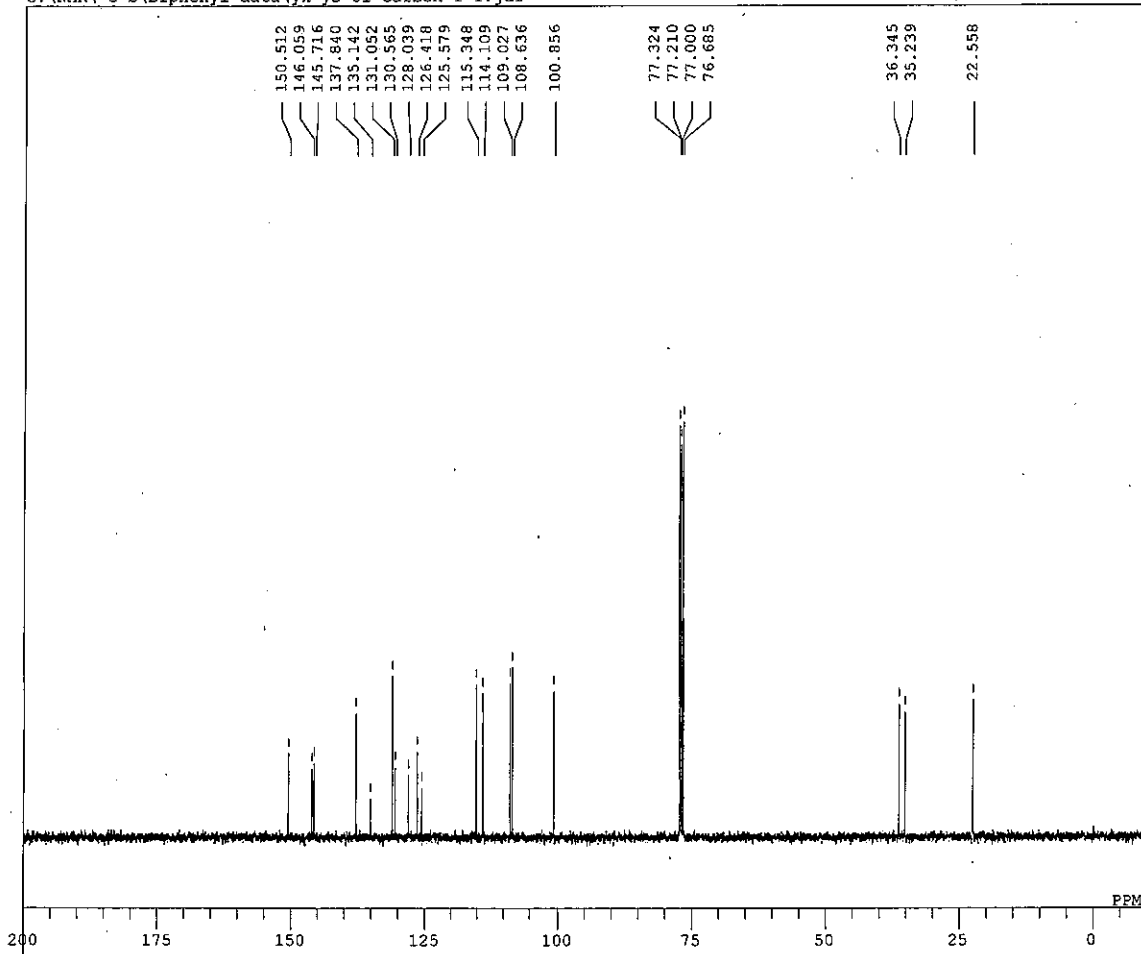


DFILE yk-ys-8i Proton-1-1.jdf
 COMMT single_pulse
 DATIM 2012-02-29 22:51:45
 OBNUC 1H
 EXMOD proton.jxp
 OBFRQ 399.78 MHz
 OBSET 4.19 KHz
 OBFIN 7.29 Hz
 POINT 16384
 FREQU 7503.00 Hz
 SCANS 8
 ACQTM 2.1837 sec
 PD 5.0000 sec
 PW1 5.00 usec
 IRNUC 1H
 CTEMP 21.8 c
 SLVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 38

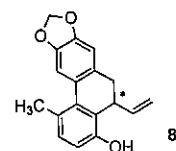


single pulse decoupled gated NOE

G:\NMR\6-0\Biphenyl data\yk-ys-8i Carbon-1-1.jdf

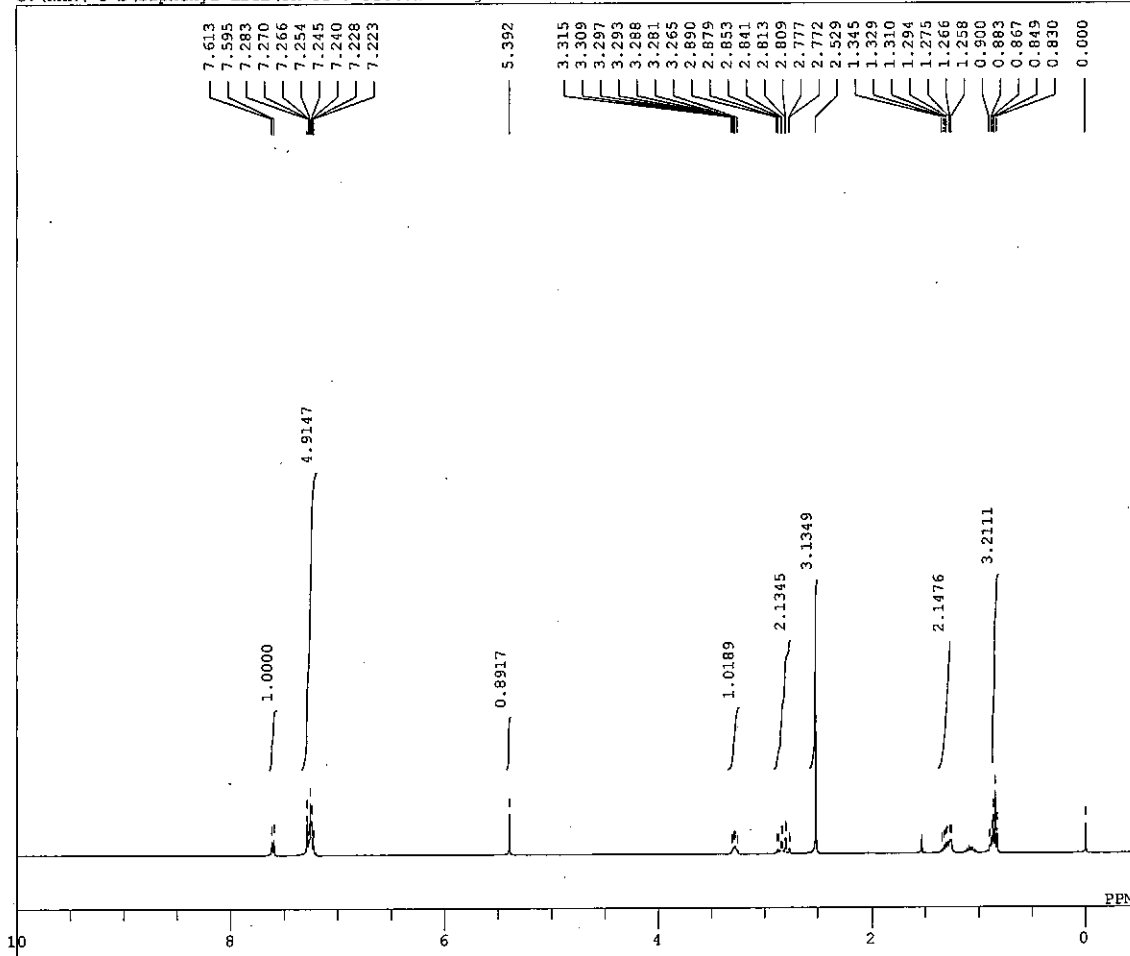


DFILE yk-ys-8i Carbon-1-1.jdf
 COMMT single pulse decoupled gated
 DATIM 2012-02-29 22:53:06
 OBNUC 13C
 EXMOD carbon.jxp
 OBFRQ 100.53 MHz
 OBSET 5.35 KHz
 OBFIN 5.86 Hz
 POINT 32767
 FREQU 31407.04 Hz
 SCANS 128
 ACQTM 1.0433 sec
 PD 2.0000 sec
 PW1 3.07 usec
 IRNUC 1H
 CTEMP 22.0 c
 SLVNT CDCL3
 EXREF 77.00 ppm
 BF 1.20 Hz
 RGAIN 50

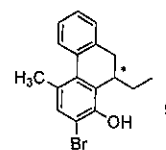


single_pulse

G:\NMR\6-2\Biphenyl data\YK-YS-9 Proton-1-1.jdf

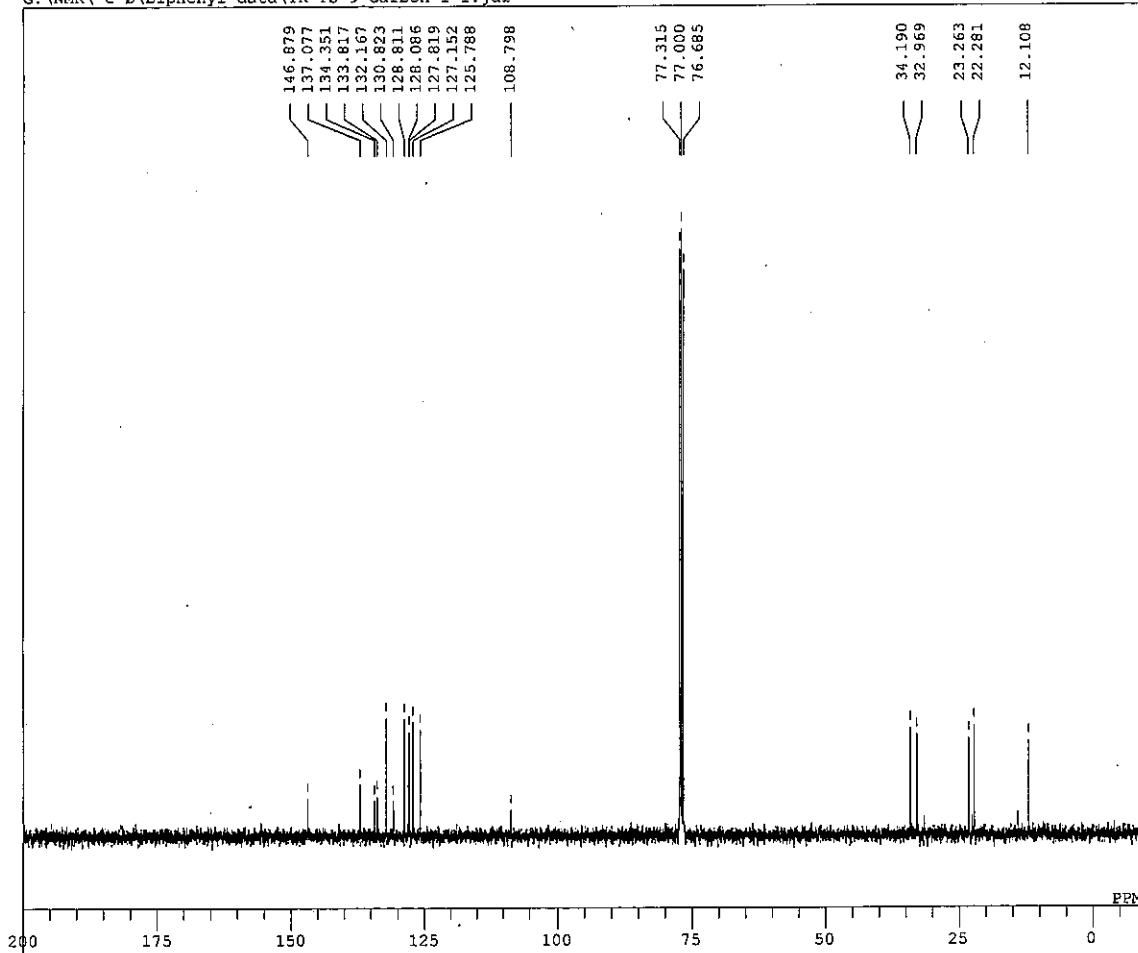


DFILE YK-YS-9 Proton-1-1.jdf
 COMNT single_pulse
 DATIM 2012-03-21 23:15:53
 OBNUC 1H
 EXMOD proton.jxp
 OBFRQ 399.78 MHz
 OBSET 4.19 KHz
 OBFIN 7.29 Hz
 POINT 16384
 FREQU 7503.00 Hz
 SCANS 8
 ACQTM 2.1837 sec
 PD 5.0000 sec
 PW1 5.00 usec
 IRNUC 1H
 CTEMP 25.3 c
 SLVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 44

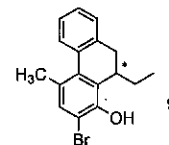


single pulse decoupled gated NOE

G:\NMR\6-2\Biphenyl data\YK-YS-9 Carbon-1-1.jdf

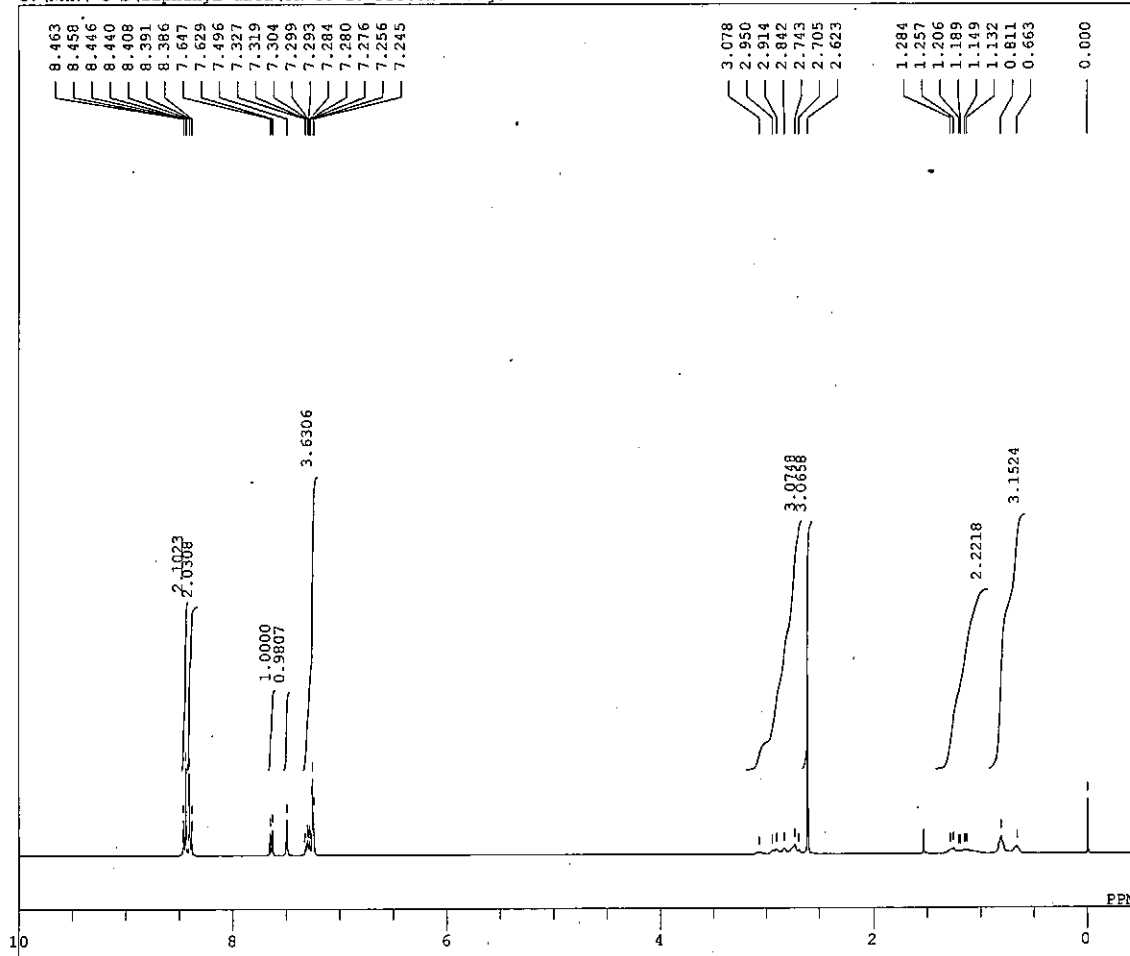


DFILE YK-YS-9 Carbon-1-1.jdf
 COMNT single_pulse decoupled gated
 DATIM 2012-03-21 23:17:13
 OBNUC 13C
 EXMOD carbon.jxp
 OBFRQ 100.53 MHz
 OBSET 5.35 KHz
 OBFIN 5.86 Hz
 POINT 32767
 FREQU 31407.04 Hz
 SCANS 256
 ACQTM 1.0433 sec
 PD 2.0000 sec
 PW1 3.07 usec
 IRNUC 1H
 CTEMP 25.6 c
 SLVNT CDCL3
 EXREF 77.00 ppm
 BF 1.20 Hz
 RGAIN 50

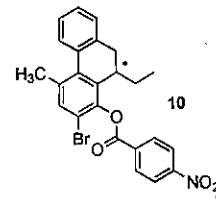


single_pulse

G:\NMR\6-0\Biphenyl data\YK-YS-10 Proton-2-1.jdf



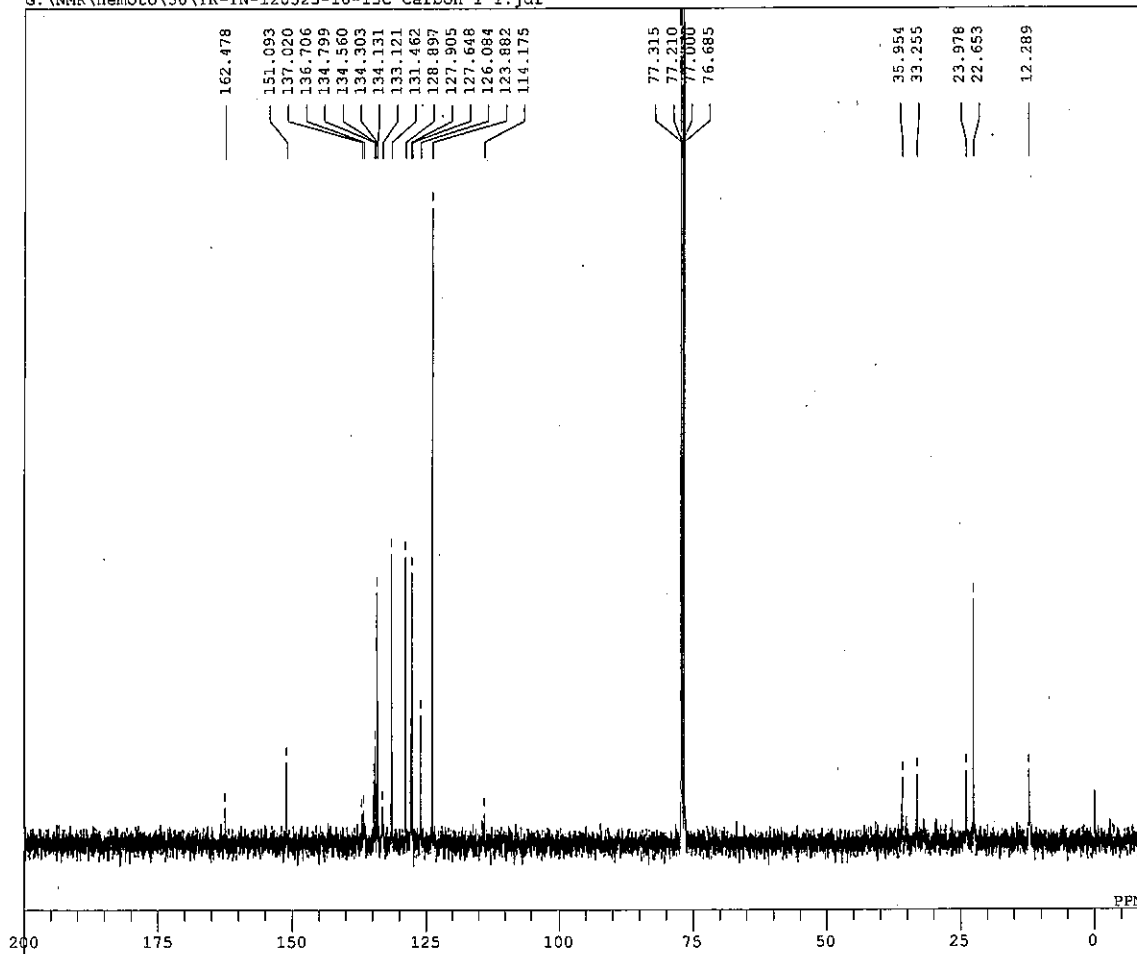
DFILE YK-YS-10_Proton-2-1.jdf
 COMNT single_pulse
 DATIM 2012-03-22 10:56:07
 OBNUC 1H
 EXMOD proton.jxp
 OBFRQ 399.78 MHz
 OBSET 4.19 KHz
 OBFIN 7.29 Hz
 POINT 16384
 FREQU 7503.00 Hz
 SCANS 8
 ACQTM 2.1837 sec
 PD 5.0000 sec
 PW1 5.00 usec
 IRNUC 1H
 CTEMP 26.1 c
 SLVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 42



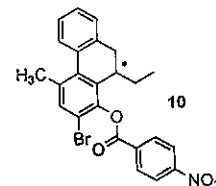
(Mixture of
rotation isomer)

single pulse decoupled gated NOE

G:\NMR\nemoto\30\YK-TN-120323-10-13C Carbon-1-1.jdf



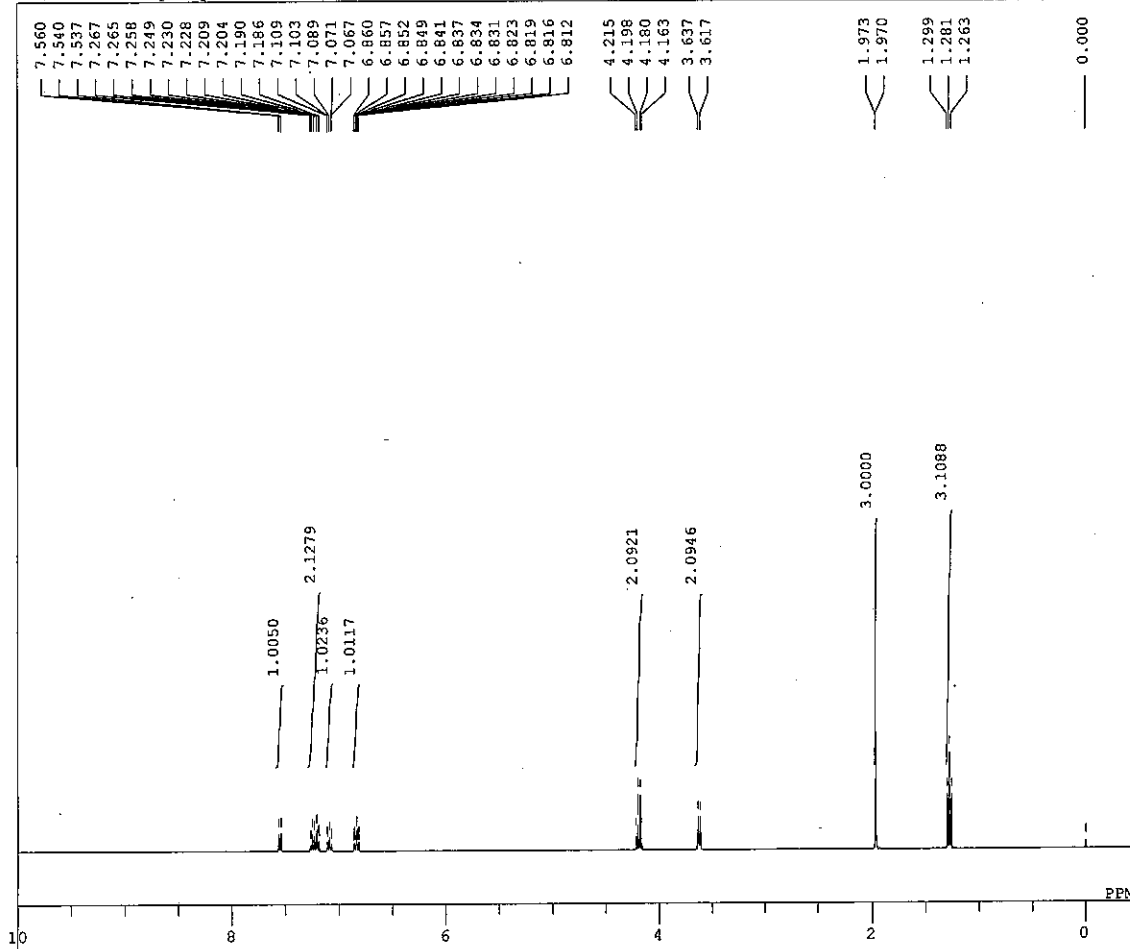
DFILE YK-TN-120323-10-13C Carbon-1
 COMNT single pulse decoupled gated
 DATIM 2012-03-23 16:07:41
 OBNUC 13C
 EXMOD carbon.jxp
 OBFRQ 100.53 MHz
 OBSET 5.35 KHz
 OBFIN 5.86 Hz
 POINT 32767
 FREQU 31407.04 Hz
 SCANS 324
 ACQTM 1.0433 sec
 PD 2.0000 sec
 PW1 3.07 usec
 IRNUC 1H
 CTEMP 25.8 c
 SLVNT CDCL3
 EXREF 77.00 ppm
 BF 1.20 Hz
 RGAIN 50



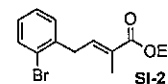
S-44

single_pulse

G:\NMR\6-0\Biphenyl data\YK-YS-SI-2 Proton-1-1.jdf

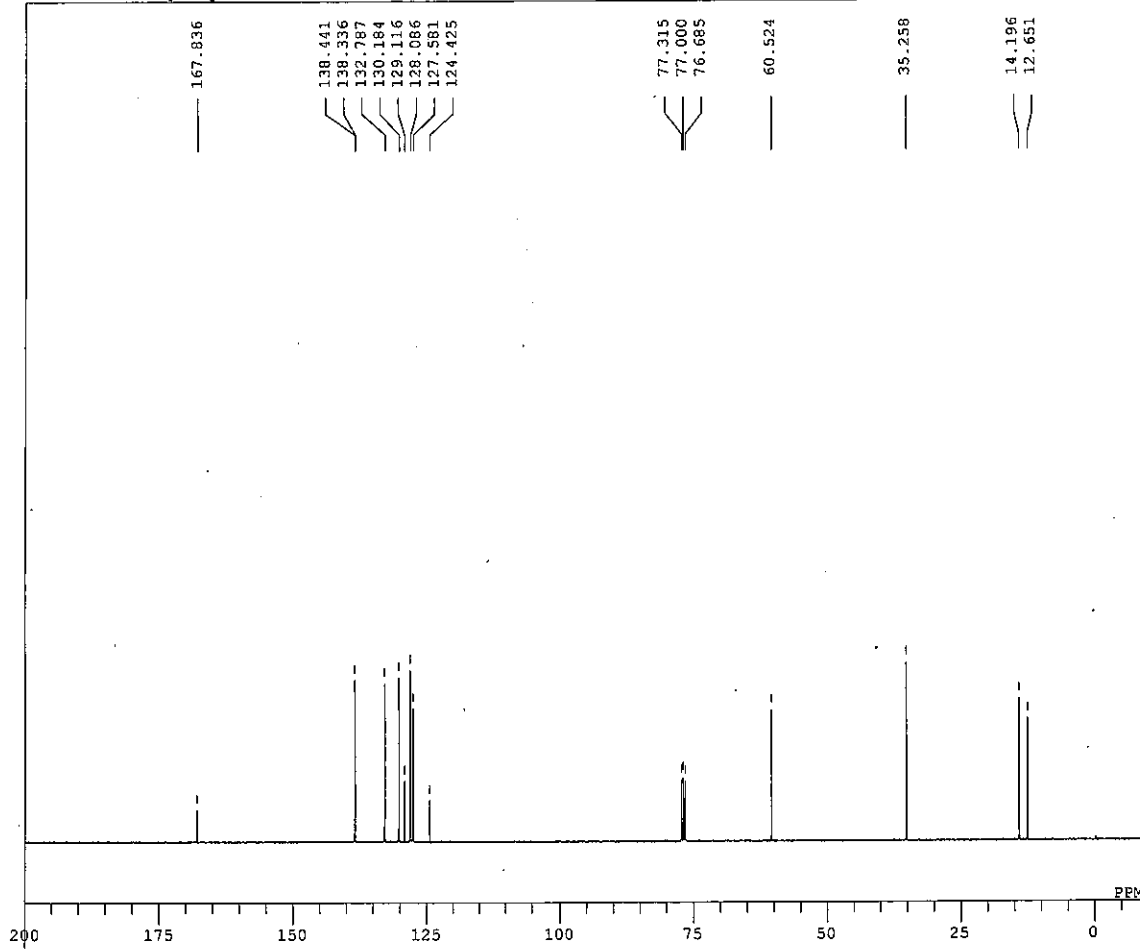


DFILE YK-YS-SI-2 Proton-1-1.jdf
COMNT single_pulse
DATIM 2012-01-26 14:53:32
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 8
ACQTM 2.1837 sec
PD 5.0000 sec
PWL 5.00 usec
IRNUC 1H
CTEMP 19.8 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 26

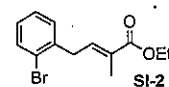


single pulse decoupled gated NOE

G:\NMR\6-0\Biphenyl data\YK-YS-SI-2 Carbon-1-1.jdf

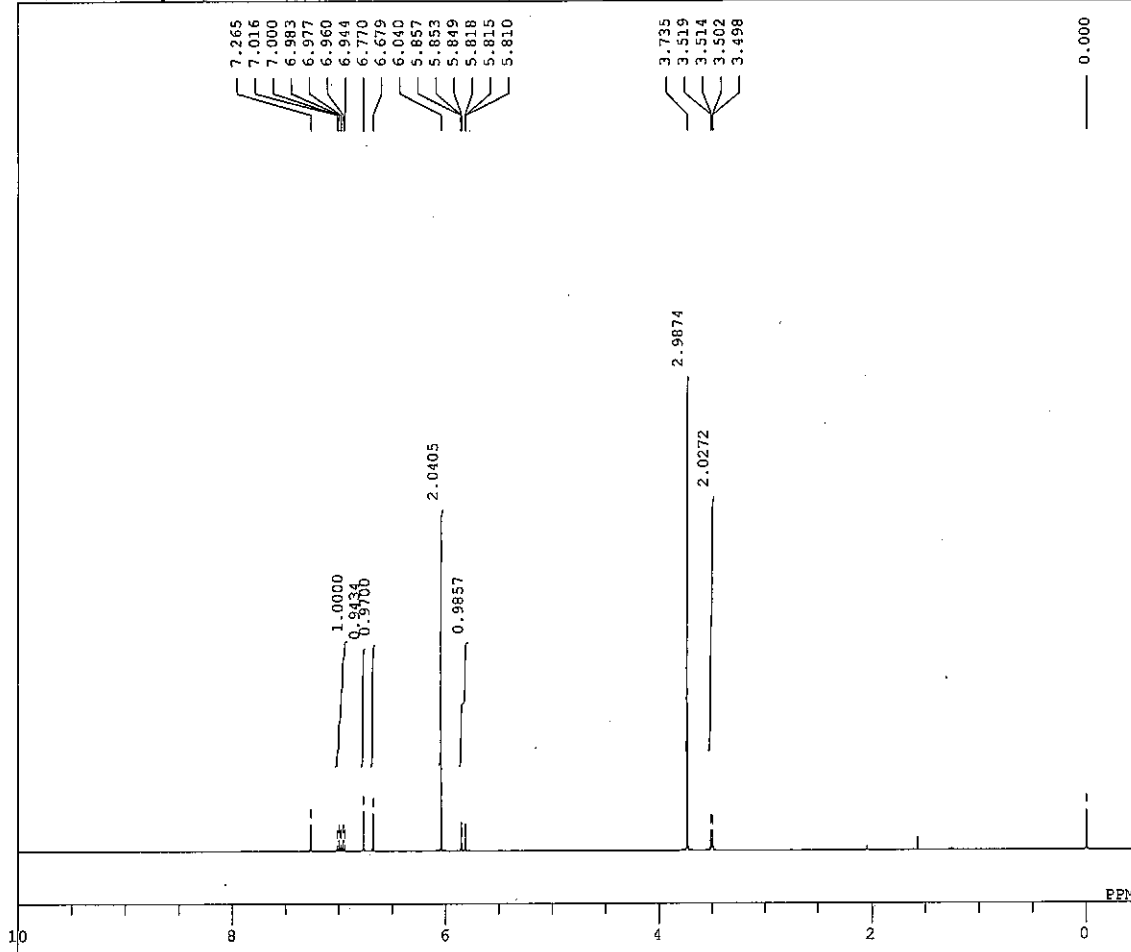


DFILE YK-YS-SI-2 Carbon-1-1.jdf
COMNT single pulse decoupled gated
DATIM 2012-01-26 14:54:56
OBNUC 13C
EXMOD carbon.jxp
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32767
FREQU 31407.04 Hz
SCANS 258
ACQTM 1.0433 sec
PD 2.0000 sec
PWL 3.07 usec
IRNUC 1H
CTEMP 20.1 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 50

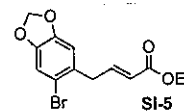


single_pulse

G:\NMR\6-0\Biphenyl data\YK-YS-SI-4 Proton-1-1.jdf

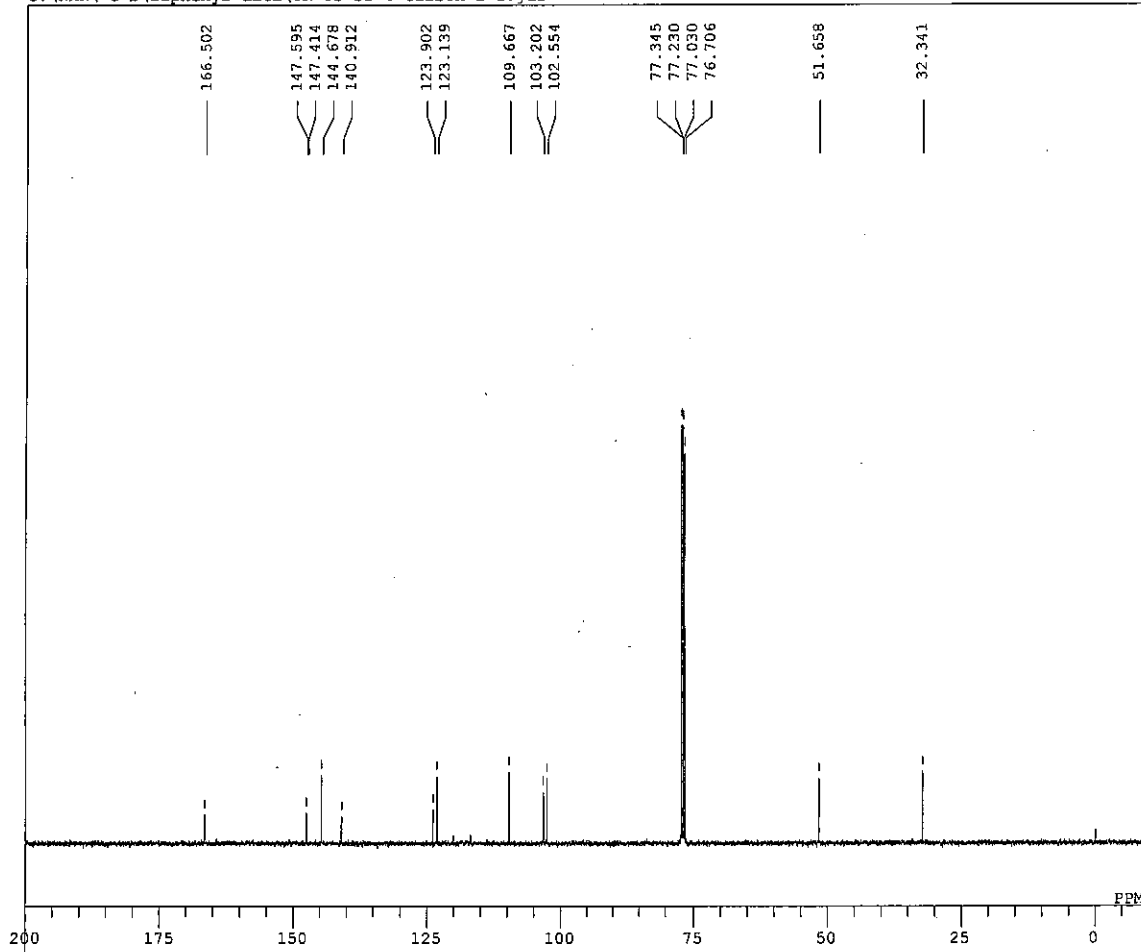


DFILE YK-YS-SI-4 Proton-1-1.jdf
COMNT single_pulse
DATIM 2012-01-23 10:47:09
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 8
ACQTM 2.1837 sec
PD 5.0000 sec
PW1 5.00 usec
IRNUC 1H
CTEMP 19.8 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 46

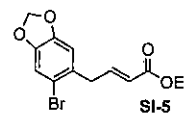


single pulse decoupled gated NOE

G:\NMR\6-0\Biphenyl data\YK-YS-SI-4 Carbon-1-1.jdf

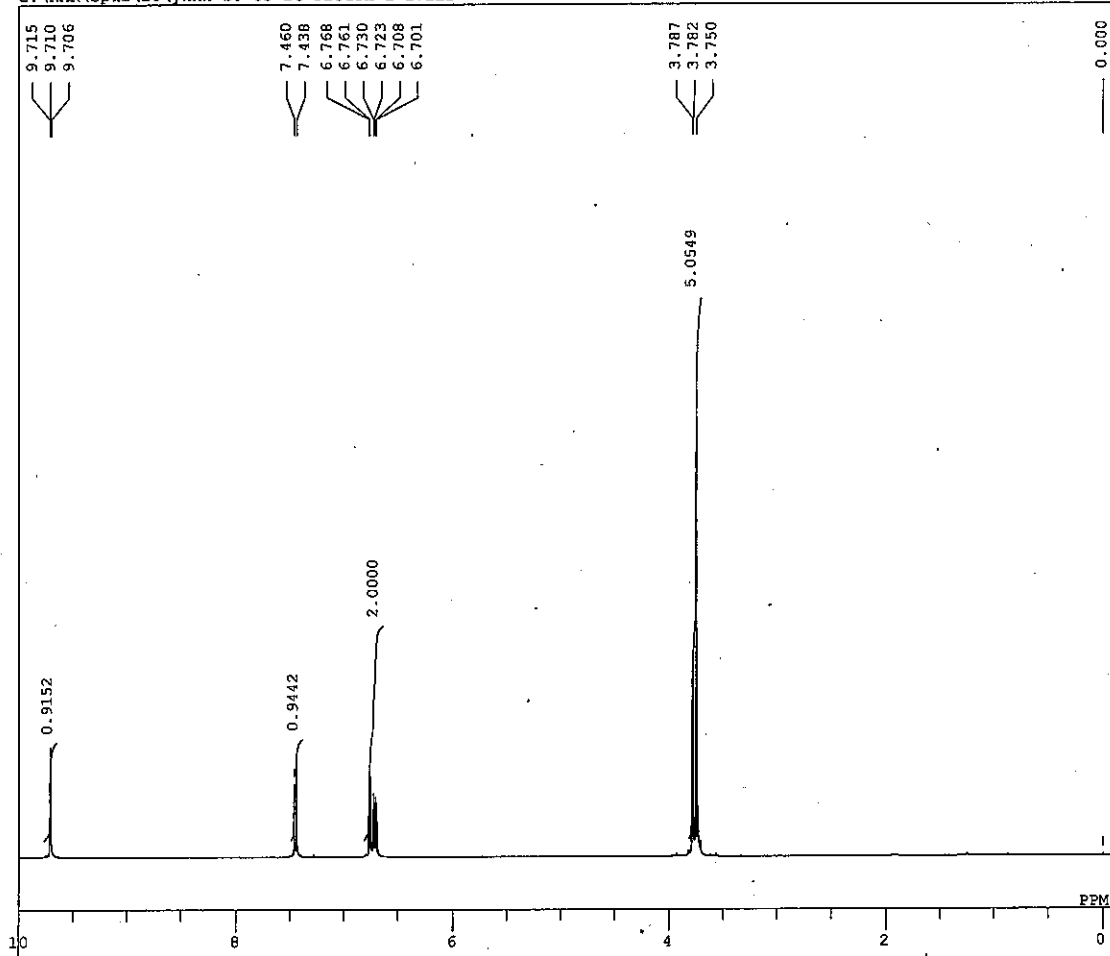


DFILE YK-YS-SI-4 Carbon-1-1.jdf
COMNT single_pulse decoupled gated
DATIM 2012-01-23 10:49:47
OBNUC 13C
EXMOD carbon.jxp
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32767
FREQU 31407.04 Hz
SCANS 512
ACQTM 1.0433 sec
PD 2.0000 sec
PW1 3.07 usec
IRNUC 1H
CTEMP 20.0 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 1.20 Hz
RGAIN 50

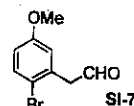


single_pulse

G:\NMR\Spkf\20\ykkk-20-63-rt Proton-1-1.als



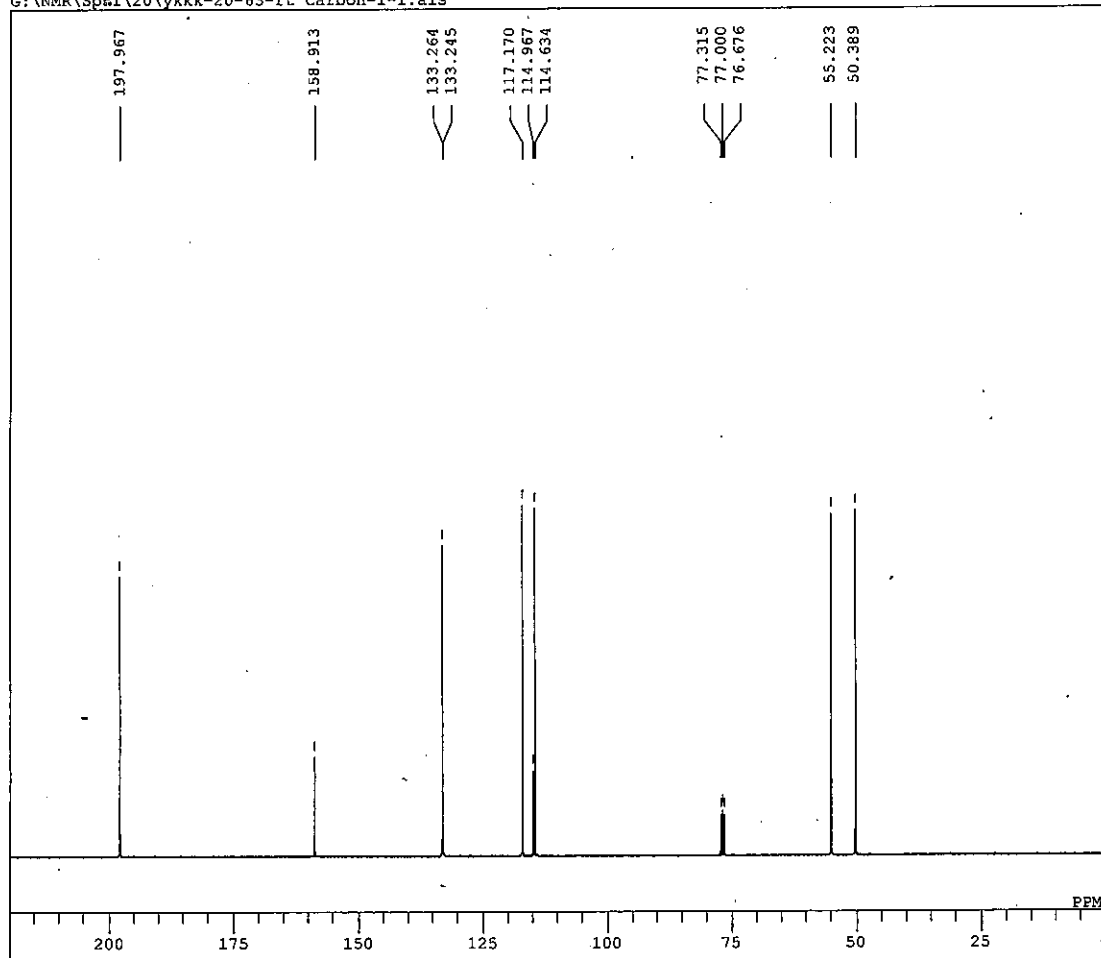
DFILE ykkk-20-63-rt Proton-1-1.als
 COMNT single_pulse
 DATIM 2012-02-23 13:04:43
 OBNUC 1H
 EXMOD proton.jxp
 OBFRQ 399.78 MHz
 OBSET 4.19 KHz
 OBFIN 7.29 Hz
 POINT 13107
 FREQU 6002.40 Hz
 SCANS 8
 ACQTM 2.1837 sec
 PD 5.0000 sec
 PW1 5.00 usec
 IRNUC 1H
 CTEMP 22.4 c
 SLVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 22



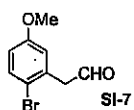
Molecular Weight: 229.0706

single pulse decoupled gated NOE

G:\NMR\Spkf\20\ykkk-20-63-rt Carbon-1-1.als



DFILE ykkk-20-63-rt Carbon-1-1.als
 COMNT single pulse decoupled,gated
 DATIM 2012-02-23 13:07:48
 OBNUC 13C
 EXMOD carbon.jxp
 OBFRQ 100.53 MHz
 OBSET 5.35 KHz
 OBFIN 5.86 Hz
 POINT 26214
 FREQU 25125.63 Hz
 SCANS 369
 ACQTM 1.0433 sec
 PD 2.0000 sec
 PW1 3.07 usec
 IRNUC 1H
 CTEMP 22.6 c
 SLVNT CDCL3
 EXREF 77.00 ppm
 BF 1.20 Hz
 RGAIN 50

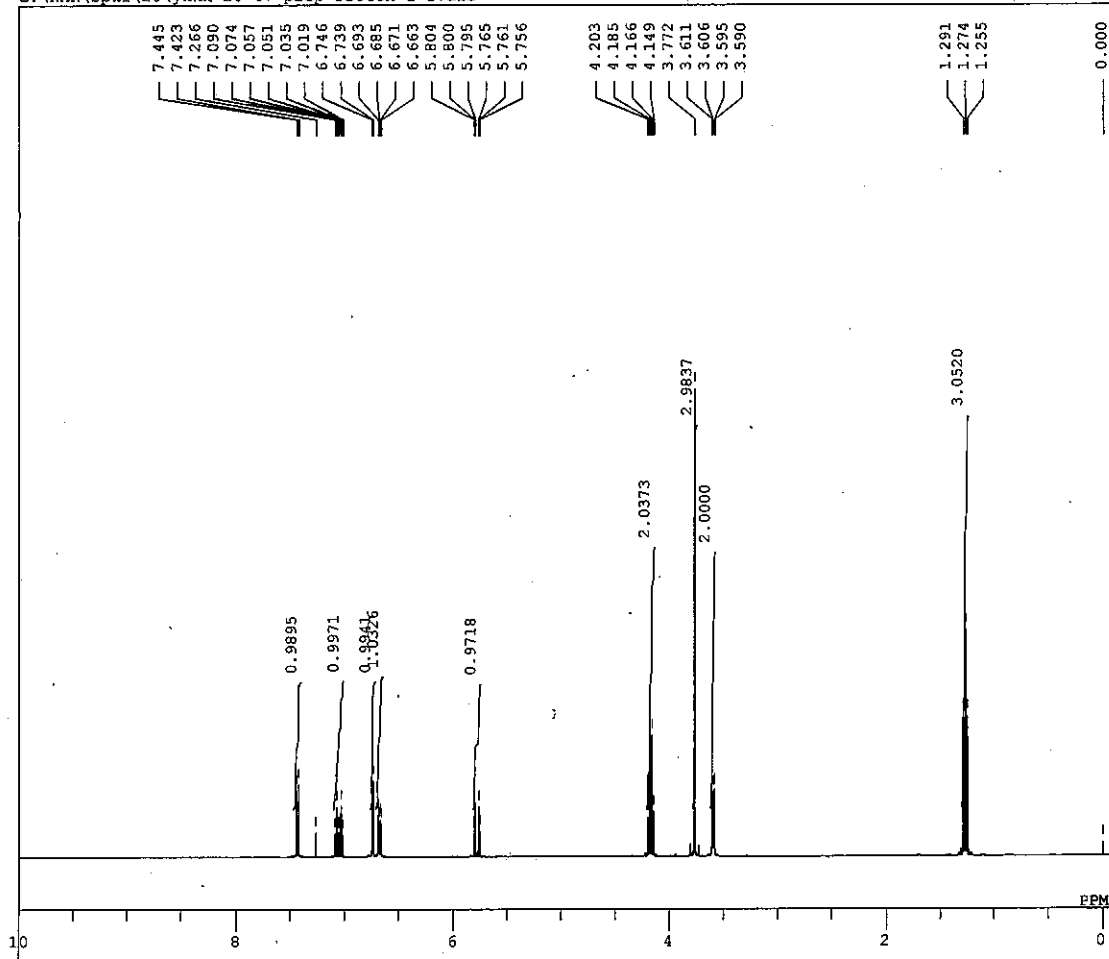


Molecular Weight: 229.0706

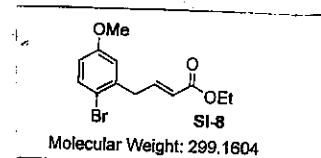
S-47

single_pulse

G:\NMR\spkf\20\ykkk-20-67-prep Proton-1-1.als

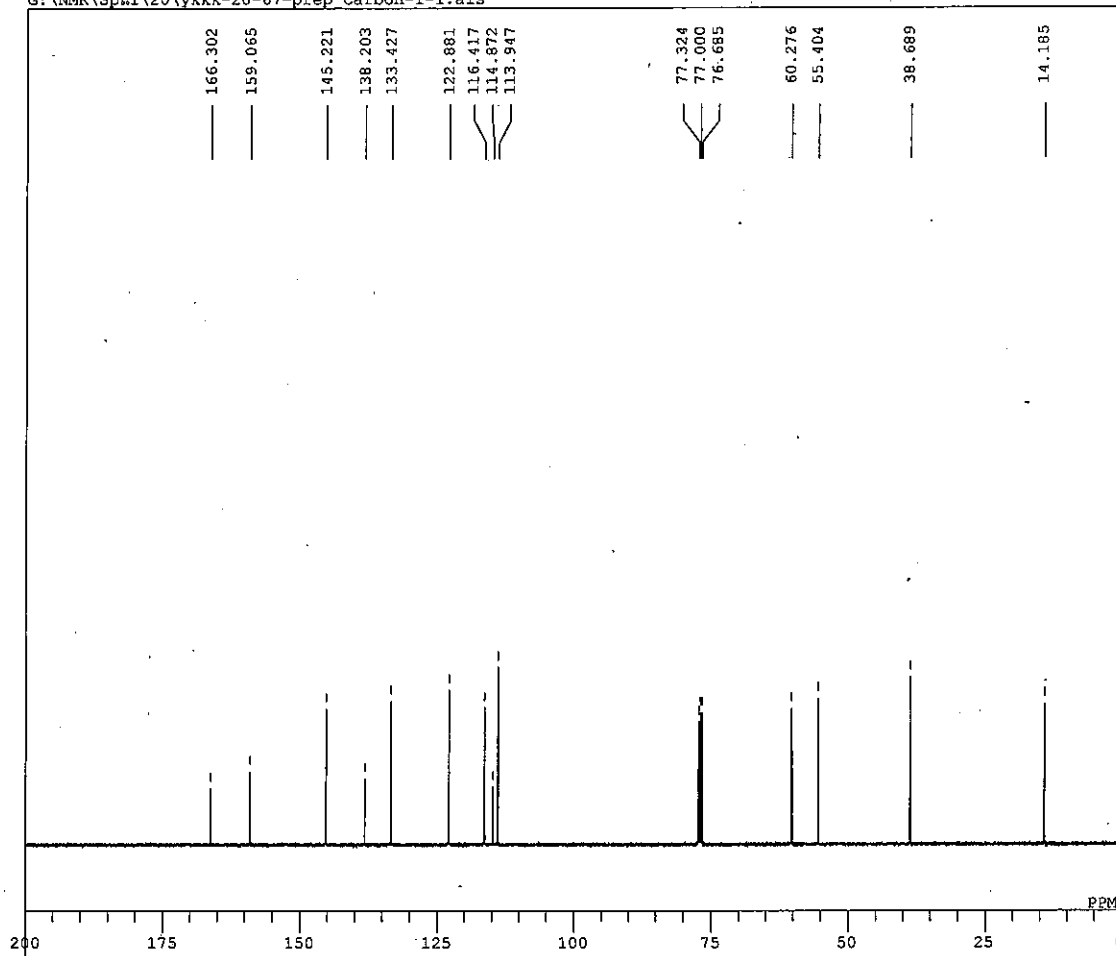


DFILE ykkk-20-67-prep_Proton-1-1.a
 COMNT single_pulse
 DATIM 2012-02-28 00:04:46
 OBNUC 1H
 EXMOD proton.jxp
 OBFRQ 399.78 MHz
 OBSET 4.19 KHz
 OBFIN 7.29 Hz
 POINT 13107
 FREQU 6002.40 Hz
 SCANS 8
 ACQTM 2.1837 sec
 PD 5.0000 sec
 PW1 5.00 usec
 IRNUC 1H
 CTEMP 22.8 c
 SLVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 30

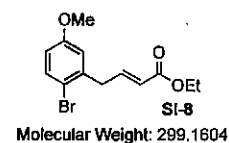


single pulse decoupled gated NOE

G:\NMR\spkf\20\ykkk-20-67-prep Carbon-1-1.als

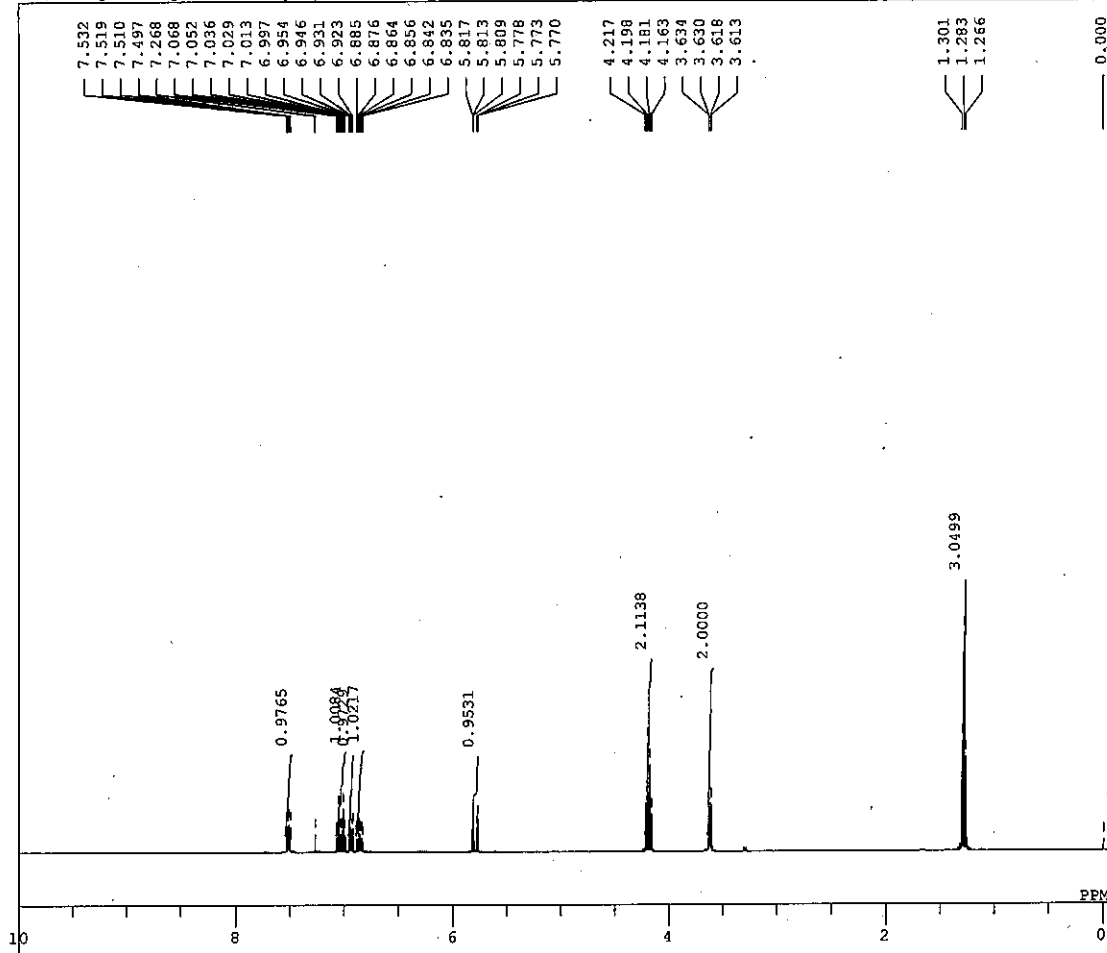


DFILE ykkk-20-67-prep_Carbon-1-1.a
 COMNT single pulse decoupled gated
 DATIM 2012-02-28 00:07:41
 OBNUC 13C
 EXMOD carbon.jxp
 OBFRQ 100.53 MHz
 OBSET 5.35 KHz
 OBFIN 5.86 Hz
 POINT 26214
 FREQU 25125.63 Hz
 SCANS 194
 ACQTM 1.0433 sec
 PD 2.0000 sec
 PW1 3.07 usec
 IRNUC 1H
 CTEMP 23.1 c
 SLVNT CDCL3
 EXREF 77.00 ppm
 BF 1.20 Hz
 RGAIN 50

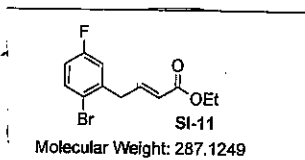


single_pulse

G:\NMR\spkf\20\ykkk-20-66-prep Proton-1-1.als

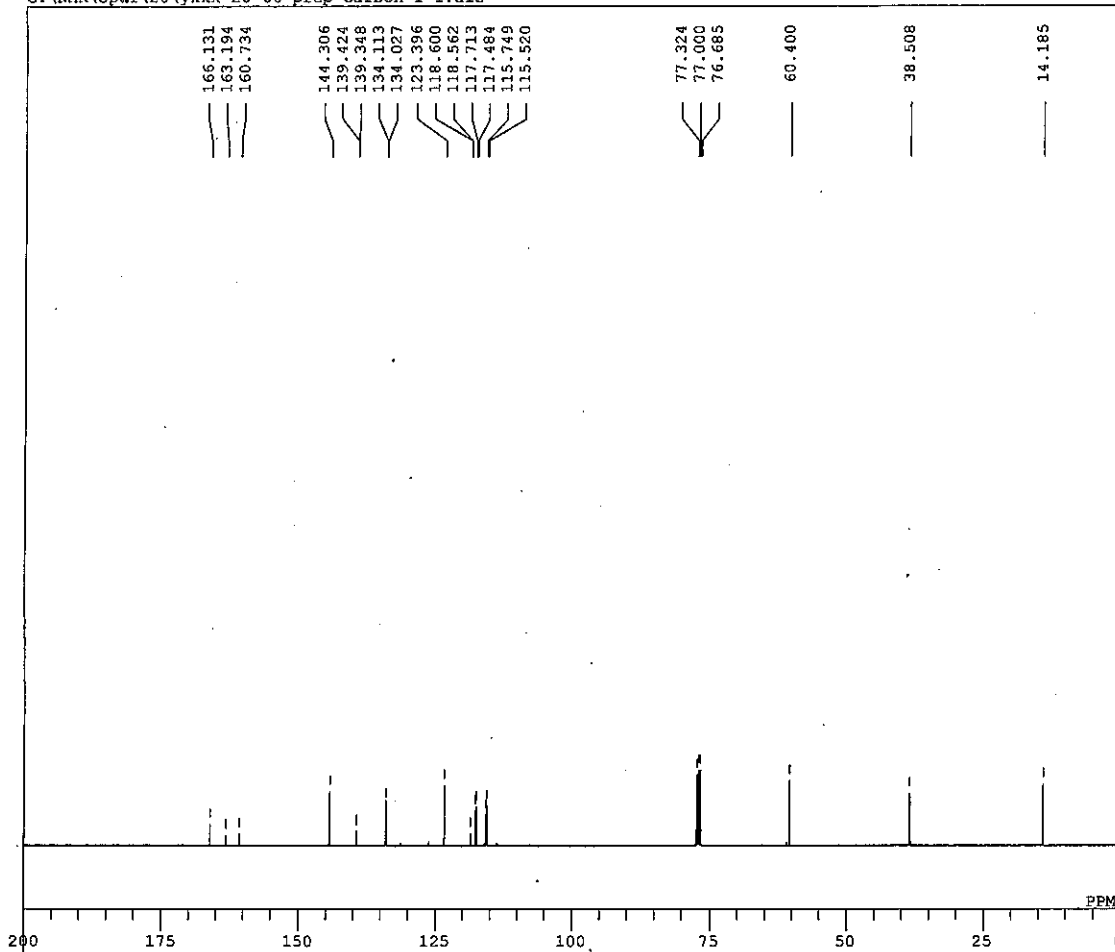


DFILE ykkk-20-66-prep_Proton-1-1.a
 COMNT single_pulse
 DATIM 2012-02-28 00:24:25
 OBNUC 1H
 EXMOD proton.jxp
 OBFRQ 399.78 MHz
 OBSET 4.19 KHz
 OBFIN 7.29 Hz
 POINT 13107
 FREQU 6002.40 Hz
 SCANS 8
 ACQTM 2.1837 sec
 PD 5.0000 sec
 PW1 5.00 usec
 IRNUC 1H
 CTEMP 22.8 c
 SLVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 34

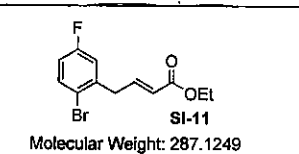


single pulse decoupled gated NOE

G:\NMR\spkf\20\ykkk-20-66-prep Carbon-1-1.als

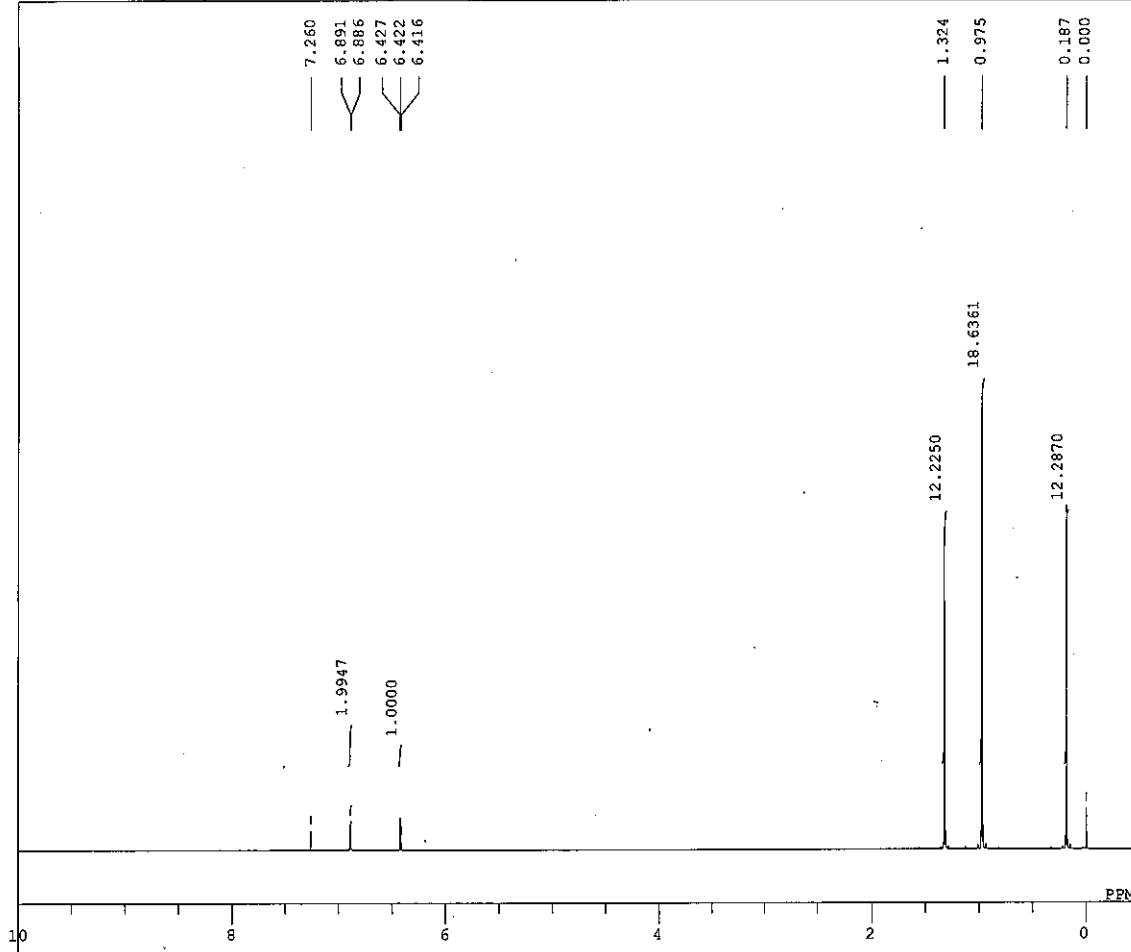


DFILE ykkk-20-66-prep_Carbon-1-1.a
 COMNT single pulse decoupled gated
 DATIM 2012-02-28 00:27:20
 OBNUC 13C
 EXMOD carbon.jxp
 OBFRQ 100.53 MHz
 OBSET 5.35 KHz
 OBFIN 5.86 Hz
 POINT 26214
 FREQU 25125.63 Hz
 SCANS 567
 ACQTM 1.0433 sec
 PD 2.0000 sec
 PW1 3.07 usec
 IRNUC 1H
 CTEMP 23.1 c
 SLVNT CDCL3
 EXREF 77.00 ppm
 BF 1.20 Hz
 RGAIN 50

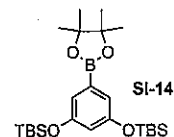


single_pulse

G:\NMR\6-0\Biphenyl data\YK-YS-SI-7 Proton-1-1.jdf

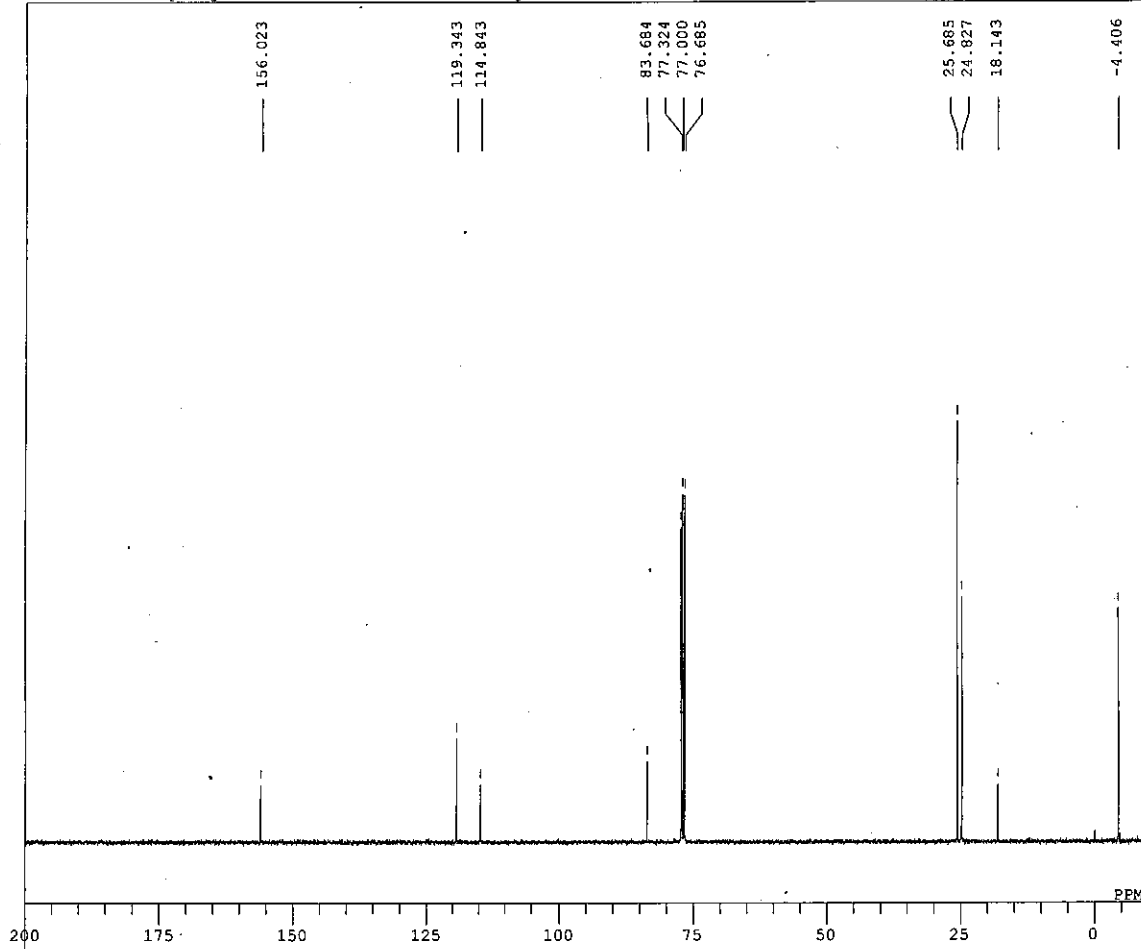


DFILE YK-YS-SI-7 Proton-1-1.jdf
 COMMT single_pulse
 DATIM 2012-01-25 23:51:46
 OBNUC 1H
 EXMOD proton.jxp
 OBFRQ 399.78 MHz
 OBSET 4.19 KHz
 OBFIN 7.29 Hz
 POINT 16384
 FREQU 7503.00 Hz
 SCANS 8
 ACQTM 2.1837 sec
 PD 5.0000 sec
 PW1 5.00 usec
 IRNUC 1H
 CTEMP 20.1 c
 SLVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 38

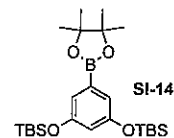


single pulse decoupled gated NOE

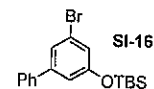
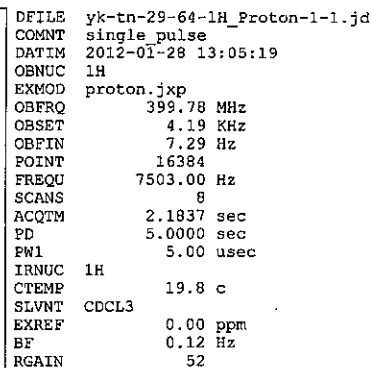
G:\NMR\6-0\Biphenyl data\YK-YS-SI-7 Carbon-1-1.jdf



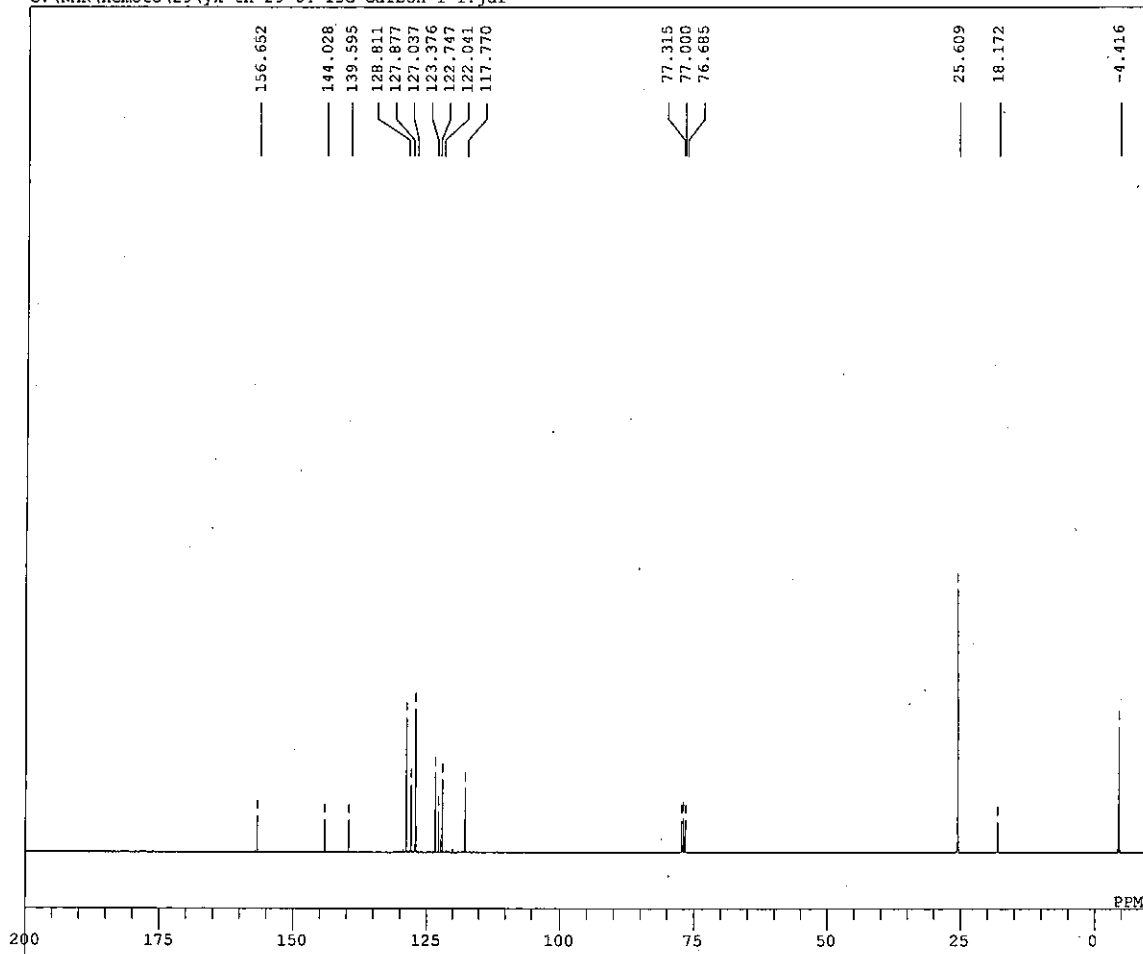
DFILE YK-YS-SI-7 Carbon-1-1.jdf
 COMMT single pulse decoupled gated
 DATIM 2012-01-25 23:54:40
 OBNUC 13C
 EXMOD carbon.jxp
 OBFRQ 100.53 MHz
 OBSET 5.35 KHz
 OBFIN 5.86 Hz
 POINT 32767
 FREQU 31407.04 Hz
 SCANS 512
 ACQTM 1.0433 sec
 PD 2.0000 sec
 PW1 3.07 usec
 IRNUC 1H
 CTEMP 20.2 c
 SLVNT CDCL3
 EXREF 77.00 ppm
 BF 1.20 Hz
 RGAIN 50



G:\NMR\nemoto\29\yk-tn-29-64-1H Proton-1-1.jdf



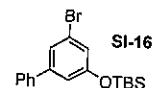
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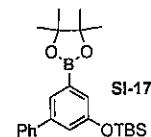
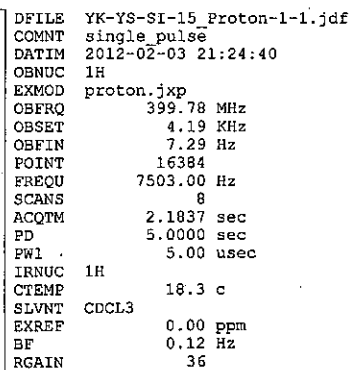
```

PFILE      yk-tn-29-64-13C_Carbon-1-1.j
COMMT      single pulse decoupled gated
DATIM      2012-01-28 13:11:36
OBNUC      13C
EXMOD      carbon.jxp
OBFREQ      100.53 MHz
OBSST      5.35 KHz
OBFIN      5.86 Hz
POINT      32767
FREQU      31407.04 Hz
SCANS      128
AQTM      1.0433 sec
PD      2.0000 sec
PW1      3.07 usec
IRNUC      1H
CTEMP      20.0 c
SLVNT      CDCl3
EXREF      77.00 ppm
BF      1.20 Hz
RGAIN      50

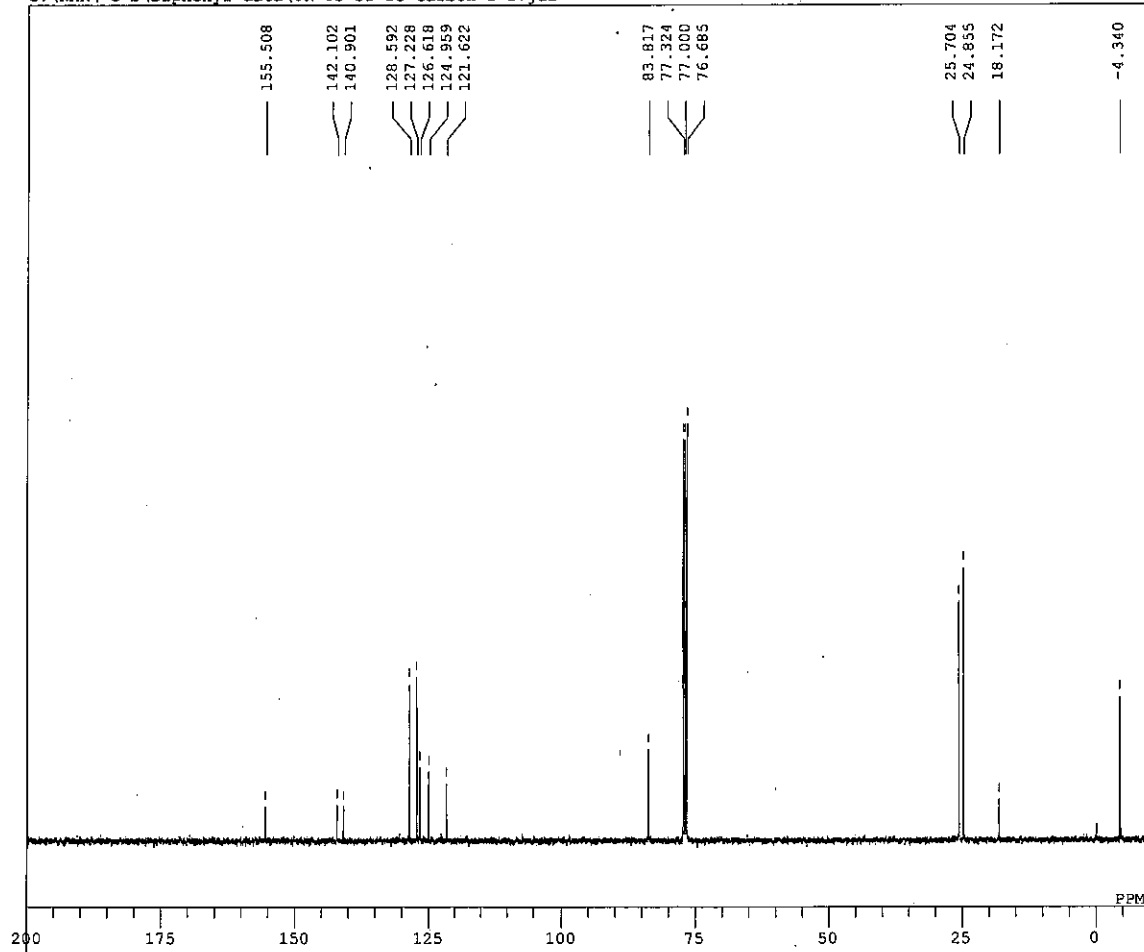
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G:\NMR\é-Ø\Biphenyl data\YK-YS-SI-15 Proton-1-1.jdf



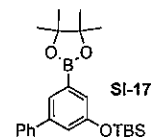
G:\NMR\é-Ø\Biphenyl data\YK-YS-SI-15 Carbon-1-1.jdf



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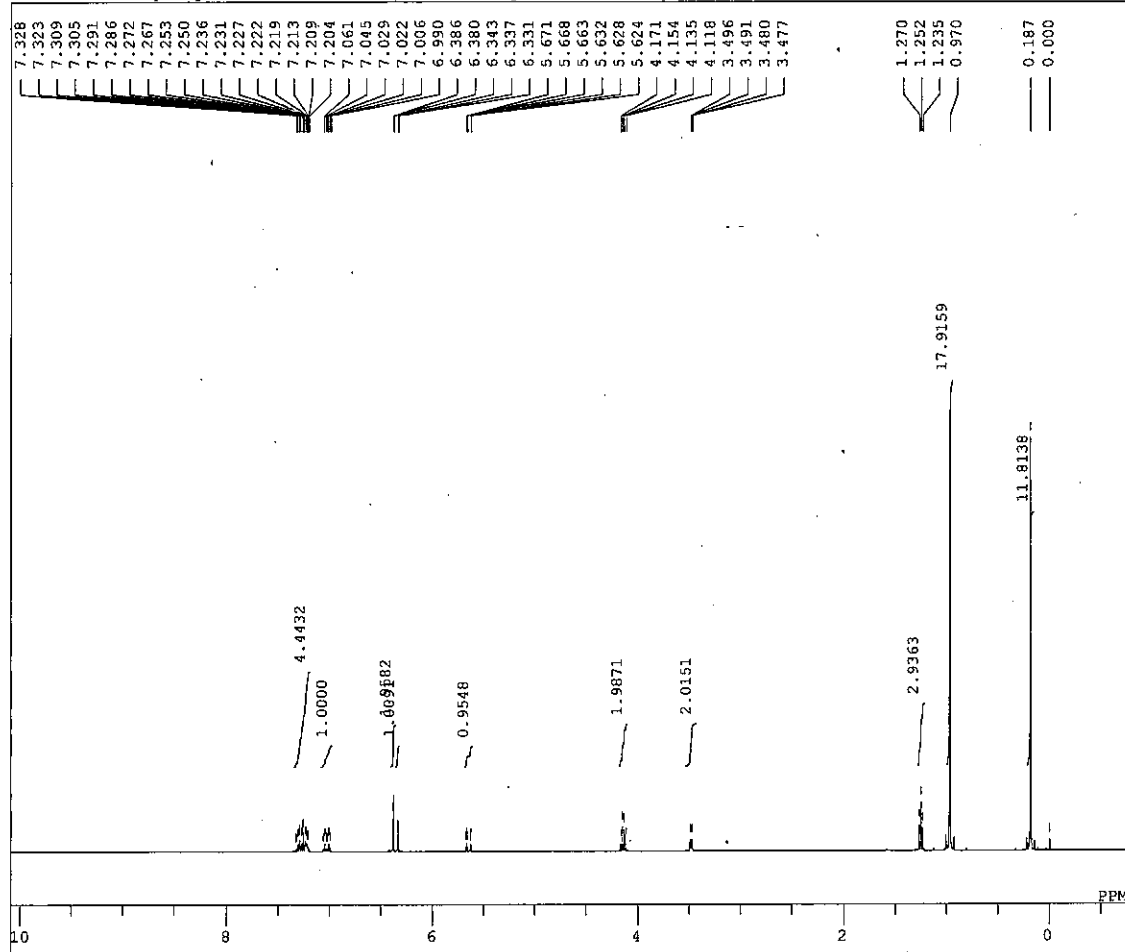
PFILE      YK-Y5-SI-15_Carbon-1-1.jdf
COMMT      single pulse decoupled gated
DATIM      2012-02-03 21:26:05
OBNUC      13C
EXMDO      carbon.jxp
OBFREQ      100.53 MHz
OBSET      5.35 KHz
OBFIN      5.86 Hz
POINT      32767
FREQU      31407.04 Hz
SCANS      256
ACQTM      1.0433 sec
PD         2.0000 sec
FW1        3.07 usec
IRNUC      1H
CTEMP      18.5 c
SLVNT      CDCL3
EXREF      77.00 ppm
BF         1.20 Hz
RGAIN      50

```

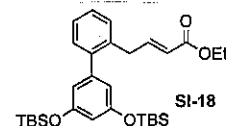


single_pulse

G:\NMR\6-0\Biphenyl data\YK-YS-SI-11 Proton-1-1.jdf

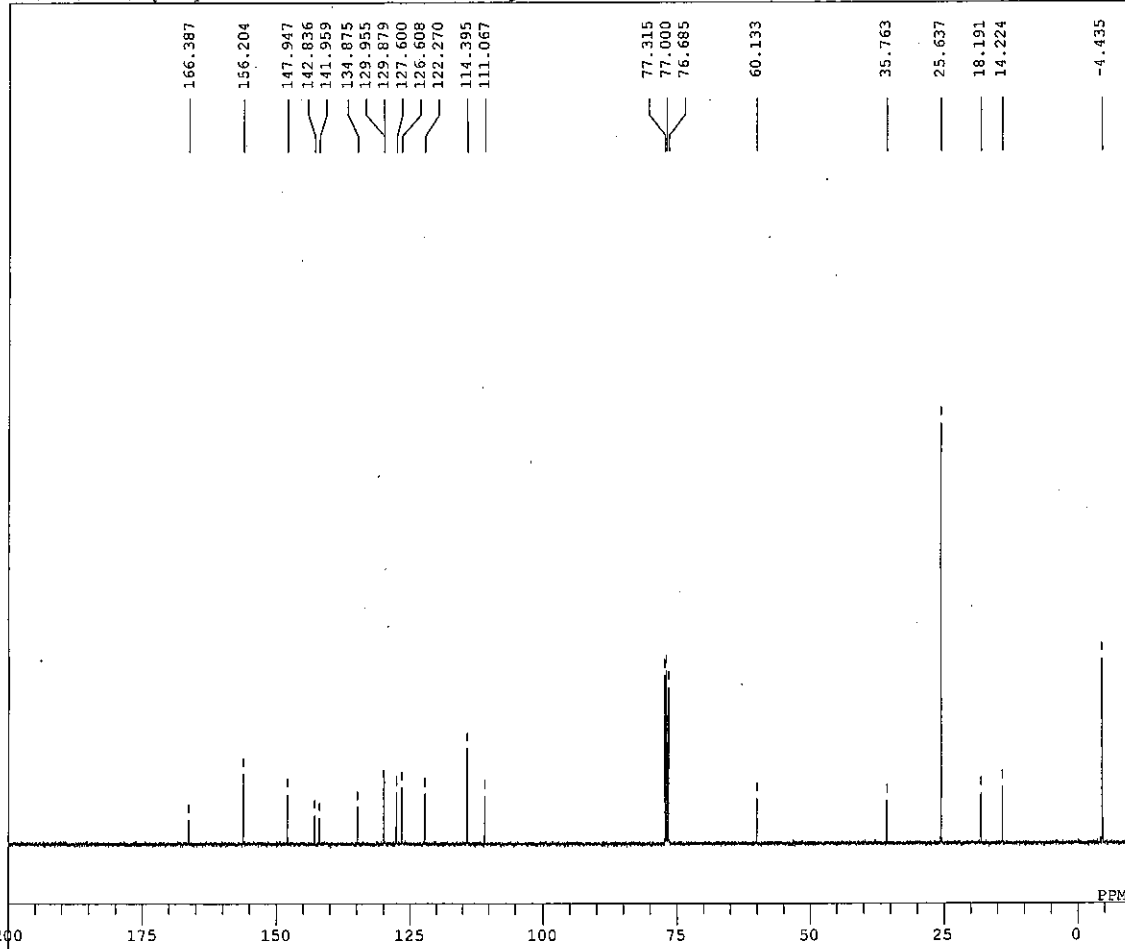


DFILE YK-YS-SI-11_Proton-1-1.jdf
COMNT single_pulse
DATIM 2012-02-11 16:42:35
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 8
ACQTM 2.1837 sec
PD 5.0000 sec
FW1 5.00 usec
IRNUC 1H
CTEMP 22.5 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 30

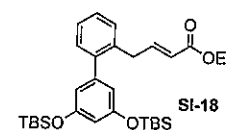


single pulse decoupled gated NOE

G:\NMR\6-0\Biphenyl data\YK-YS-SI-11 Carbon-1-1.jdf

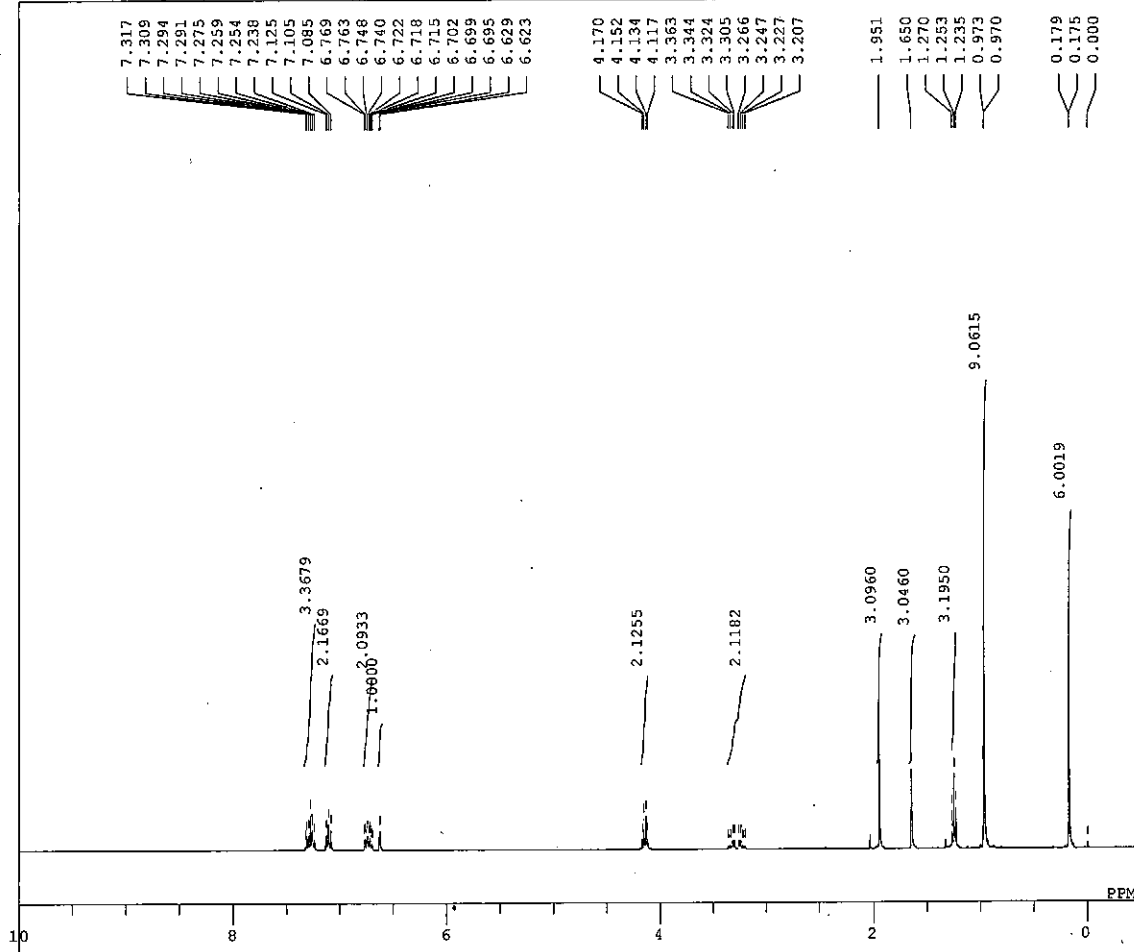


DFILE YK-YS-SI-11_Carbon-1-1.jdf
COMNT single pulse decoupled gated
DATIM 2012-02-11 16:43:55
OBNUC 13C
EXMOD carbon.jxp
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32767
FREQU 31407.04 Hz
SCANS 128
ACQTM 1.0433 sec
PD 2.0000 sec
FW1 3.07 usec
IRNUC 1H
CTEMP 22.8 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 50

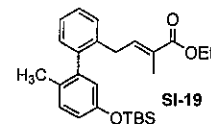


single_pulse

G:\NMR\6-0\Biphenyl data\YK-YS-SI-12 Proton-1-1.jdf

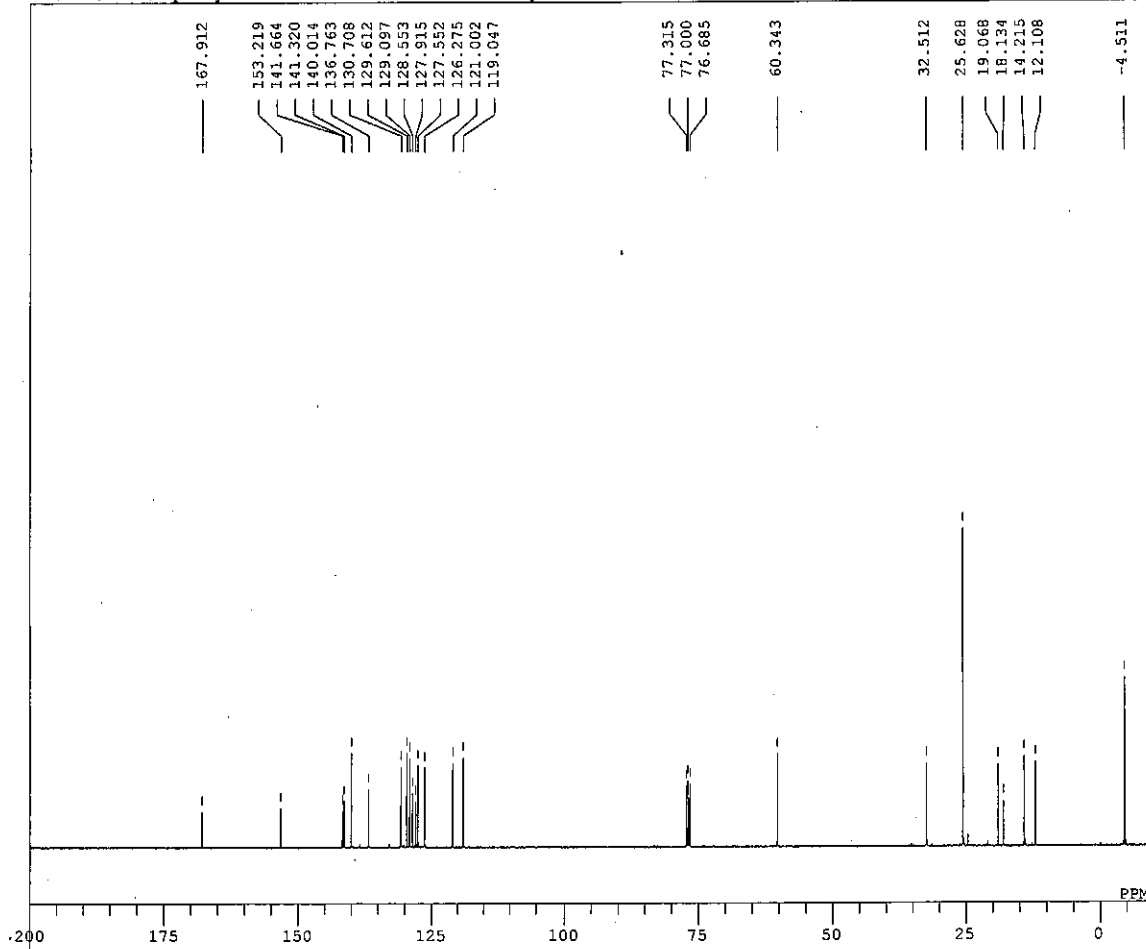


DFILE YK-YS-SI-12_Proton-1-1.jdf
COMNT single_pulse
DATIM 2012-01-27 22:12:42
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 8
ACQTM 2.1837 sec
PD 5.0000 sec
PW1 5.00 usec
IRNUC 1H
CTEMP 20.0 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 22

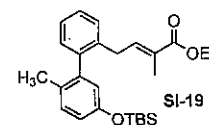


single pulse decoupled gated NOE

G:\NMR\6-0\Biphenyl data\YK-YS-SI-12 Carbon-1-1.jdf

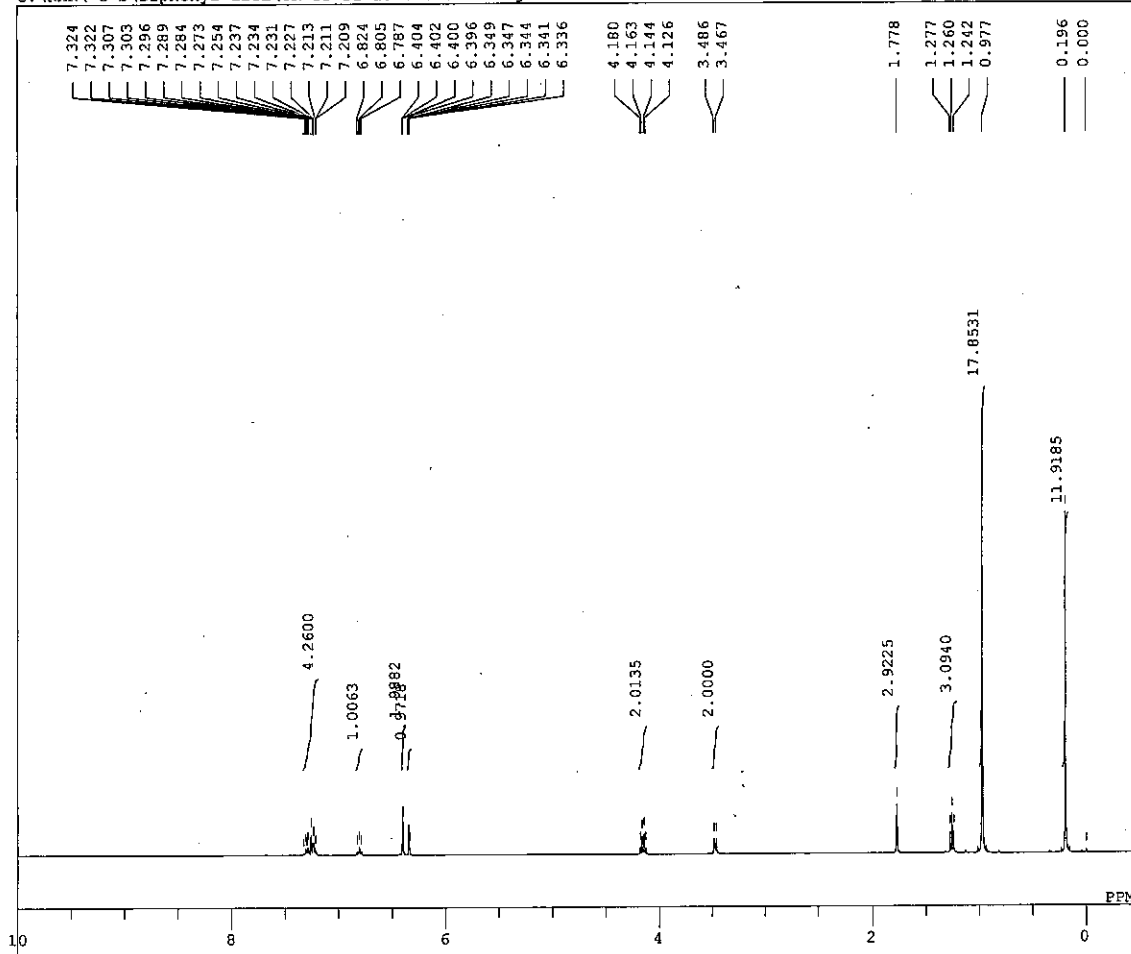


DFILE YK-YS-SI-12_Carbon-1-1.jdf
COMNT single pulse decoupled gated
DATIM 2012-01-27 22:14:07
OBNUC 13C
EXMOD carbon.jxp
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32767
FREQU 31407.04 Hz
SCANS 256
ACQTM 1.0433 sec
PD 2.0000 sec
PW1 3.07 usec
IRNUC 1H
CTEMP 20.2 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 50

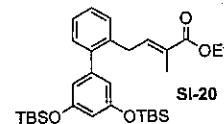


single_pulse

G:\NMR\6-0\Biphenyl data\YK-YS-SI-13 Proton-1-1.jdf

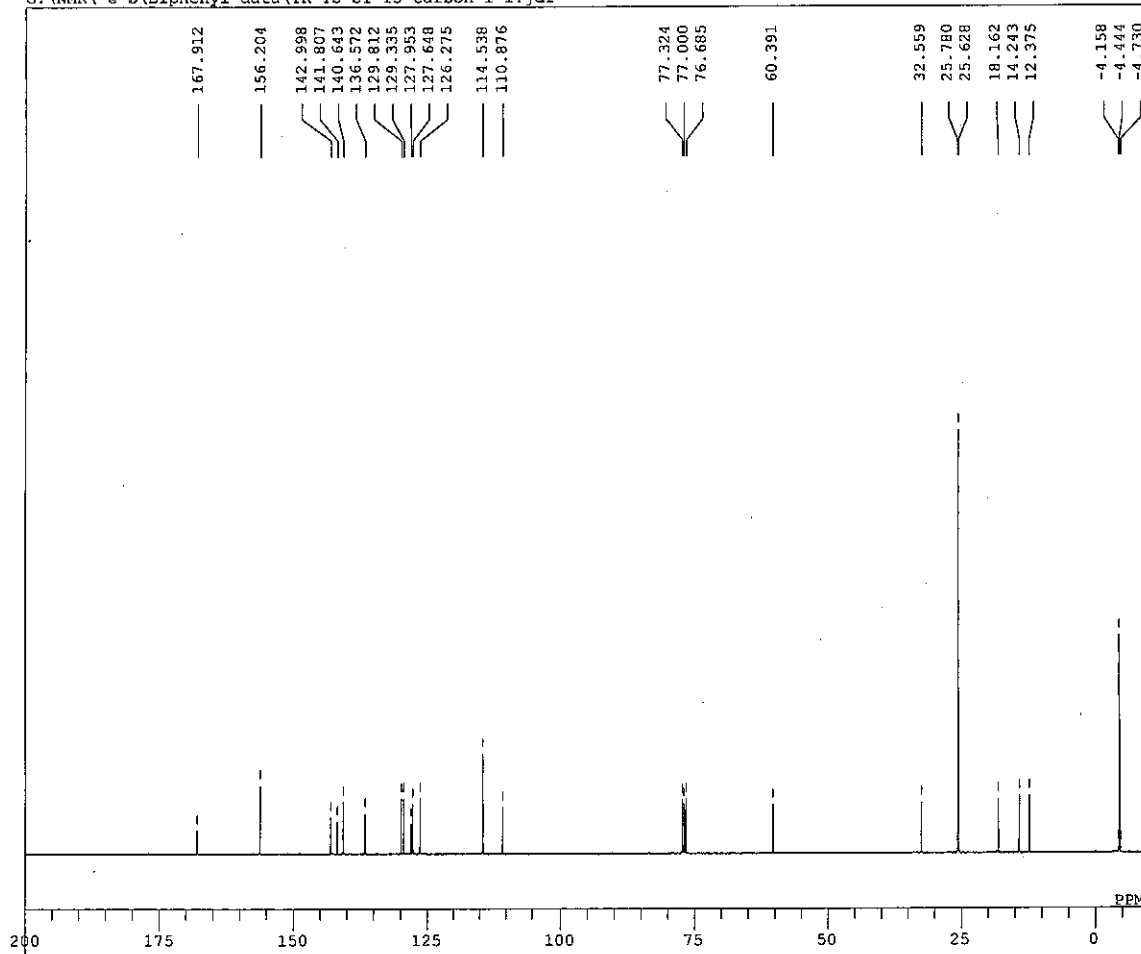


DFILE YK-YS-SI-13 Proton-1-1.jdf
 COMNT single_pulse
 DATIM 2012-01-28 22:46:05
 OBNUC 1H
 EXMOD proton.jxp
 OBFRQ 399.78 MHz
 OBSET 4.19 KHz
 OBFIN 7.29 Hz
 POINT 16384
 FREQU 7503.00 Hz
 SCANS 8
 ACQTM 2.1837 sec
 PD 5.0000 sec
 PW1 5.00 usec
 IRNUC 1H
 CTEMP 19.6 c
 SLVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 20

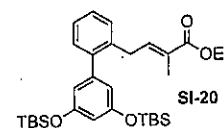


single pulse decoupled gated NOE

G:\NMR\6-0\Biphenyl data\YK-YS-SI-13 Carbon-1-1.jdf

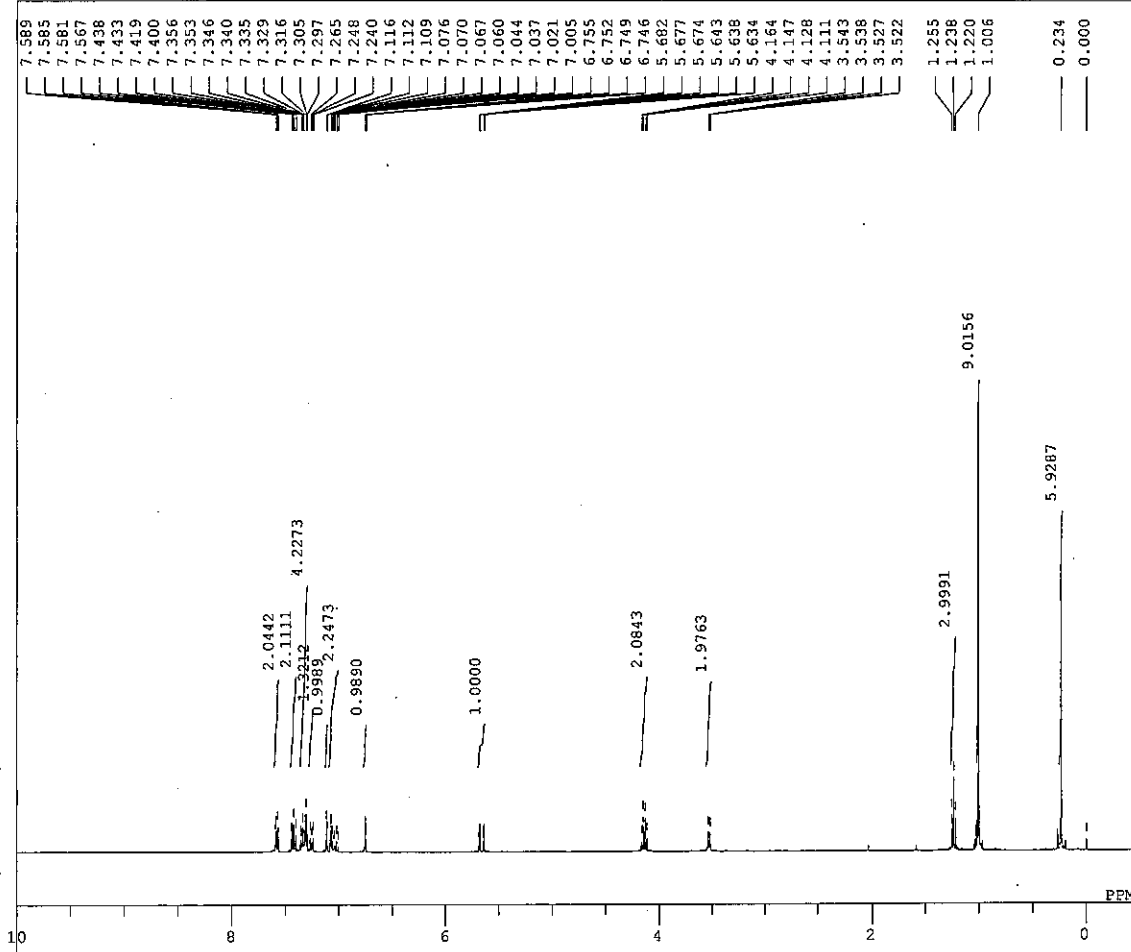


DFILE YK-YS-SI-13 Carbon-1-1.jdf
 COMNT single pulse decoupled gated
 DATIM 2012-01-28 22:47:31
 OBNUC 13C
 EXMOD carbon.jxp
 OBFRQ 100.53 MHz
 OBSET 5.35 KHz
 OBFIN 5.86 Hz
 POINT 32767
 FREQU 31407.04 Hz
 SCANS 256
 ACQTM 1.0433 sec
 PD 2.0000 sec
 PW1 3.07 usec
 IRNUC 1H
 CTEMP 19.8 c
 SLVNT CDCL3
 EXREF 77.00 ppm
 BF 1.20 Hz
 RGAIN 50

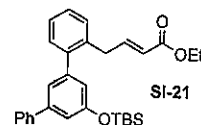


single_pulse

G:\NMR\6-0\Biphenyl data\YK-YS-SI-15 Proton-4-1.jdf

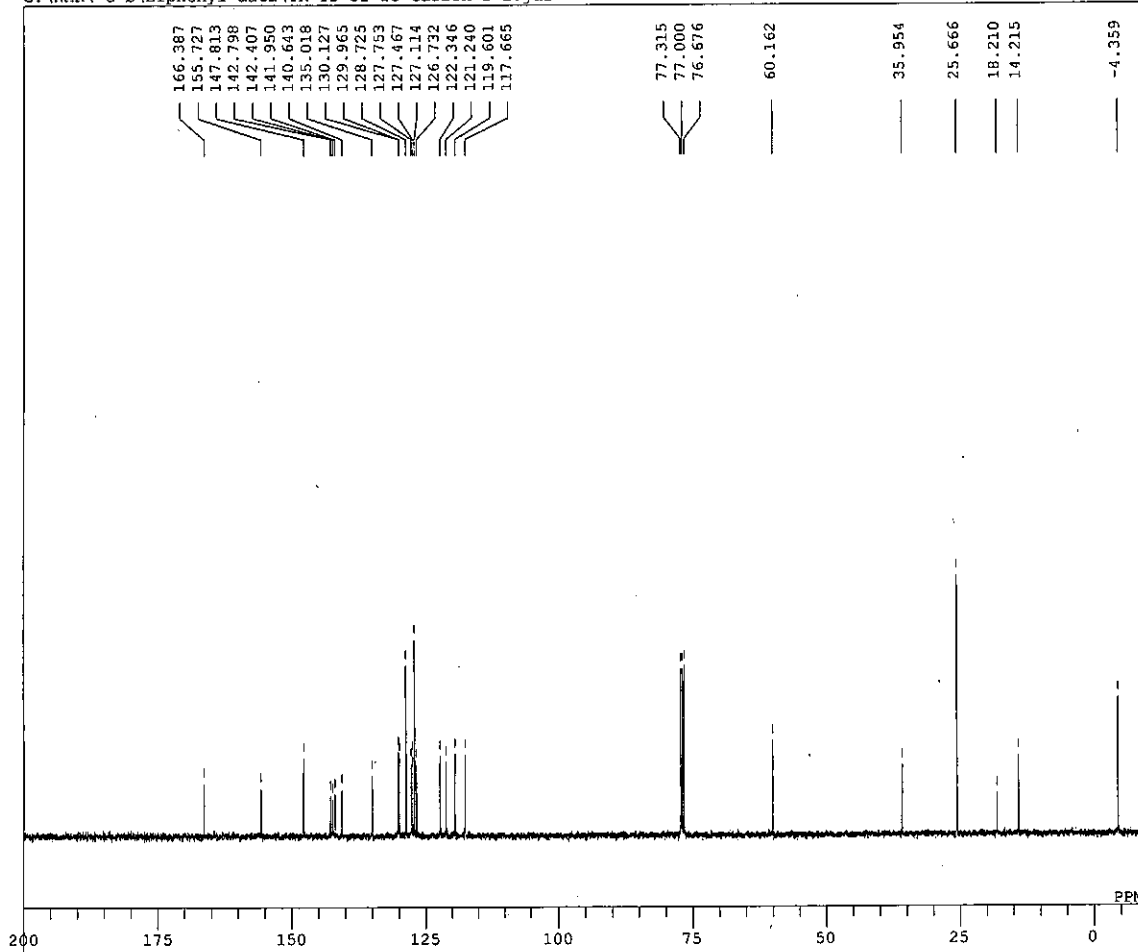


DFILE YK-YS-SI-15_Proton-4-1.jdf
COMNT single_pulse
DATIM 2012-02-11 16:54:05
OBNUC 1H
EXMOD proton.jxp
OBFRQ 399.78 MHz
OBSET 4.19 KHz
OBFIN 7.29 Hz
POINT 16384
FREQU 7503.00 Hz
SCANS 8
ACQTM 2.1837 sec
PD 5.0000 sec
PW1 5.00 usec
IRNUC 1H
CTEMP 22.5 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 30

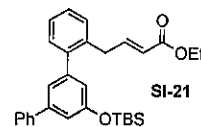


single_pulse decoupled gated NOE

G:\NMR\6-0\Biphenyl data\YK-YS-SI-15 Carbon-2-1.jdf

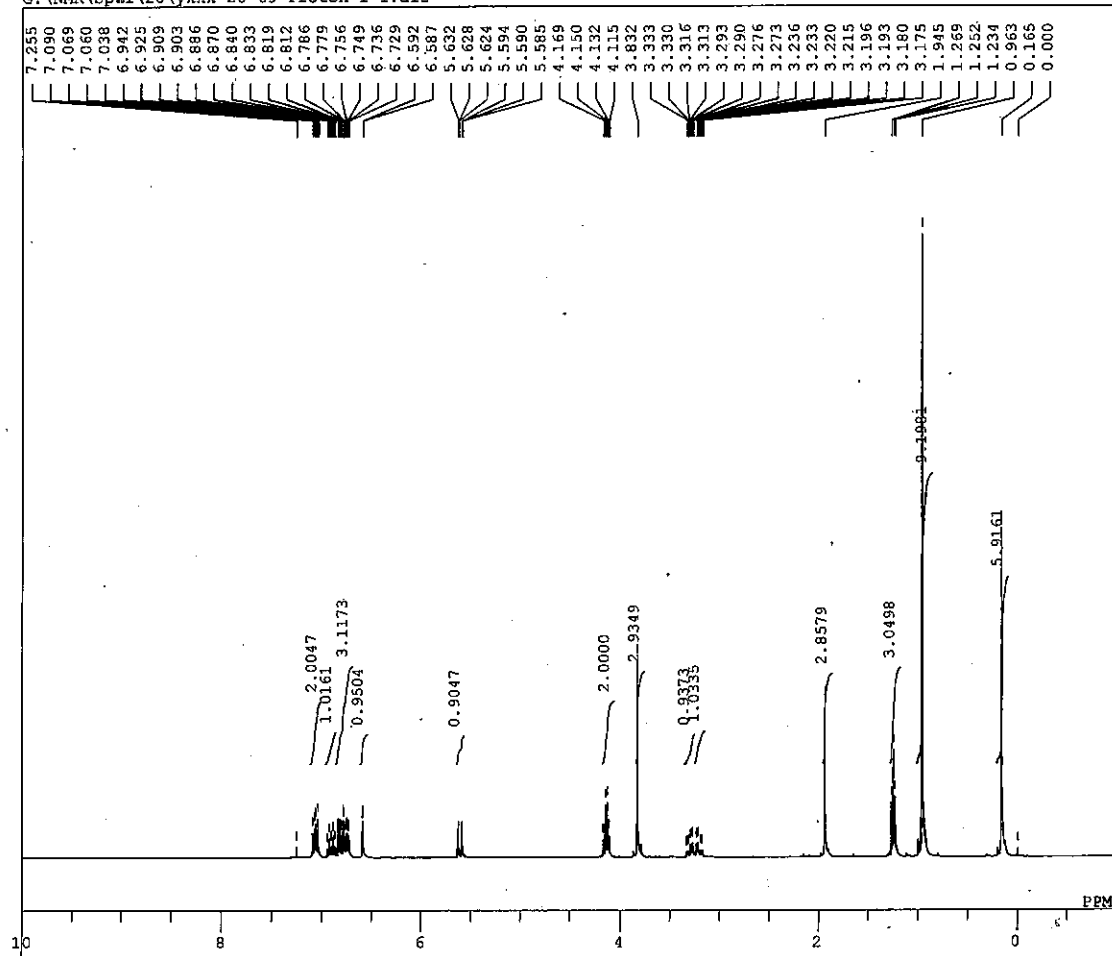


DFILE YK-YS-SI-15_Carbon-2-1.jdf
COMNT single_pulse decoupled gated
DATIM 2012-02-09 18:51:10
OBNUC 13C
EXMOD carbon.jxp
OBFRQ 100.53 MHz
OBSET 5.35 KHz
OBFIN 5.86 Hz
POINT 32767
FREQU 31407.04 Hz
SCANS 128
ACQTM 1.0433 sec
PD 2.0000 sec
PW1 3.07 usec
IRNUC 1H
CTEMP 22.5 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 50

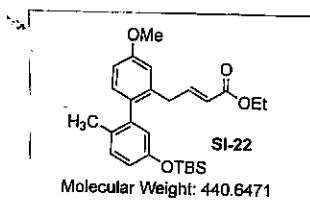


single_pulse

G:\NMR\spkf\20\yk-kk-20-69 Proton-1-1.als

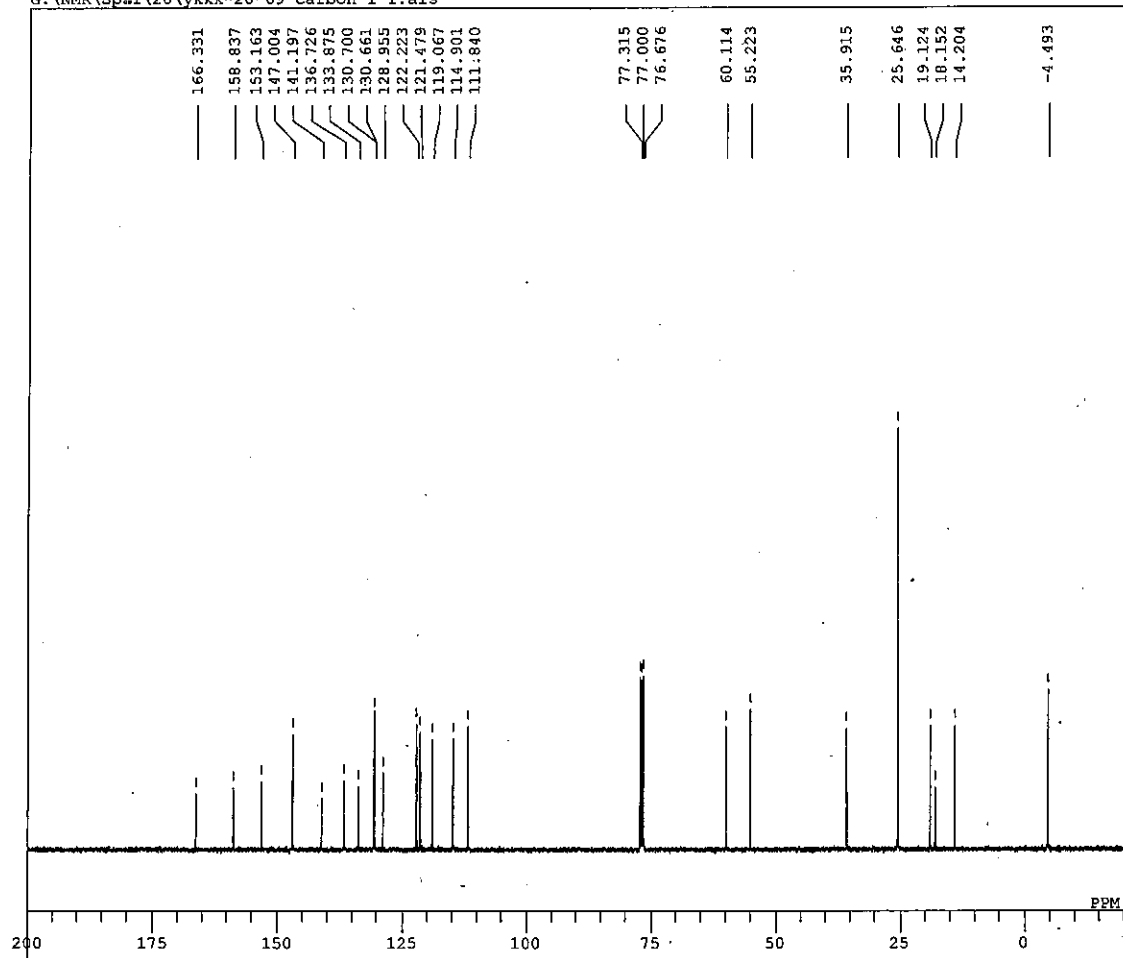


DFILE ykkk-20-69 Proton-1-1.als
 COMNT single_pulse
 DATIM 2012-02-27 23:05:46
 OBNUC 1H
 EXMOD proton.jxp
 OBFRQ 399.78 MHz
 OBSET 4.19 KHz
 OBFIN 7.29 Hz
 POINT 13107
 FREQU 6002.40 Hz
 SCANS 8
 ACQTM 2.1837 sec
 PD 5.0000 sec
 PW1 5.00 usec
 IRNUC 1H
 CTEMP 22.9 c
 SLVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 28

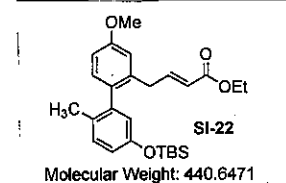


single_pulse decoupled gated NOE

G:\NMR\spkf\20\yk-kk-20-69 Carbon-1-1.als



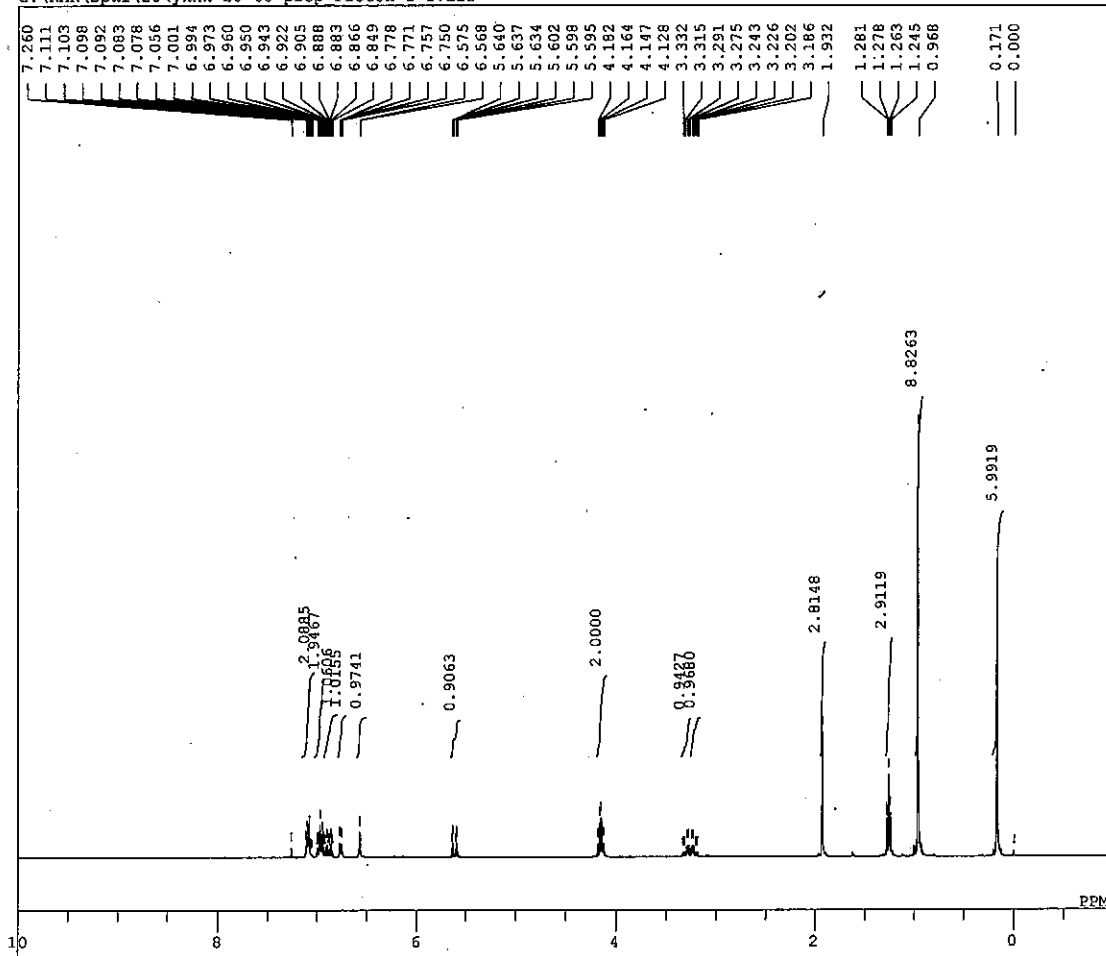
DFILE ykkk-20-69 Carbon-1-1.als
 COMNT single_pulse decoupled gated
 DATIM 2012-02-27 23:08:59
 OBNUC 13C
 EXMOD carbon.jxp
 OBFRQ 100.53 MHz
 OBSET 5.35 KHz
 OBFIN 5.86 Hz
 POINT 26214
 FREQU 25125.63 Hz
 SCANS 283
 ACQTM 1.0433 sec
 PD 2.0000 sec
 PW1 3.07 usec
 IRNUC 1H
 CTEMP 23.2 c
 SLVNT CDCL3
 EXREF 77.00 ppm
 BF 1.20 Hz
 RGAIN 50



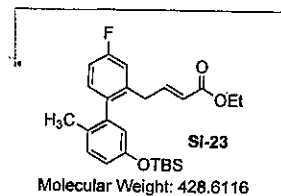
S-57.

single_pulse

G:\NMR\Spkf\20\yk-kk-20-68-prep Proton-1-1.als

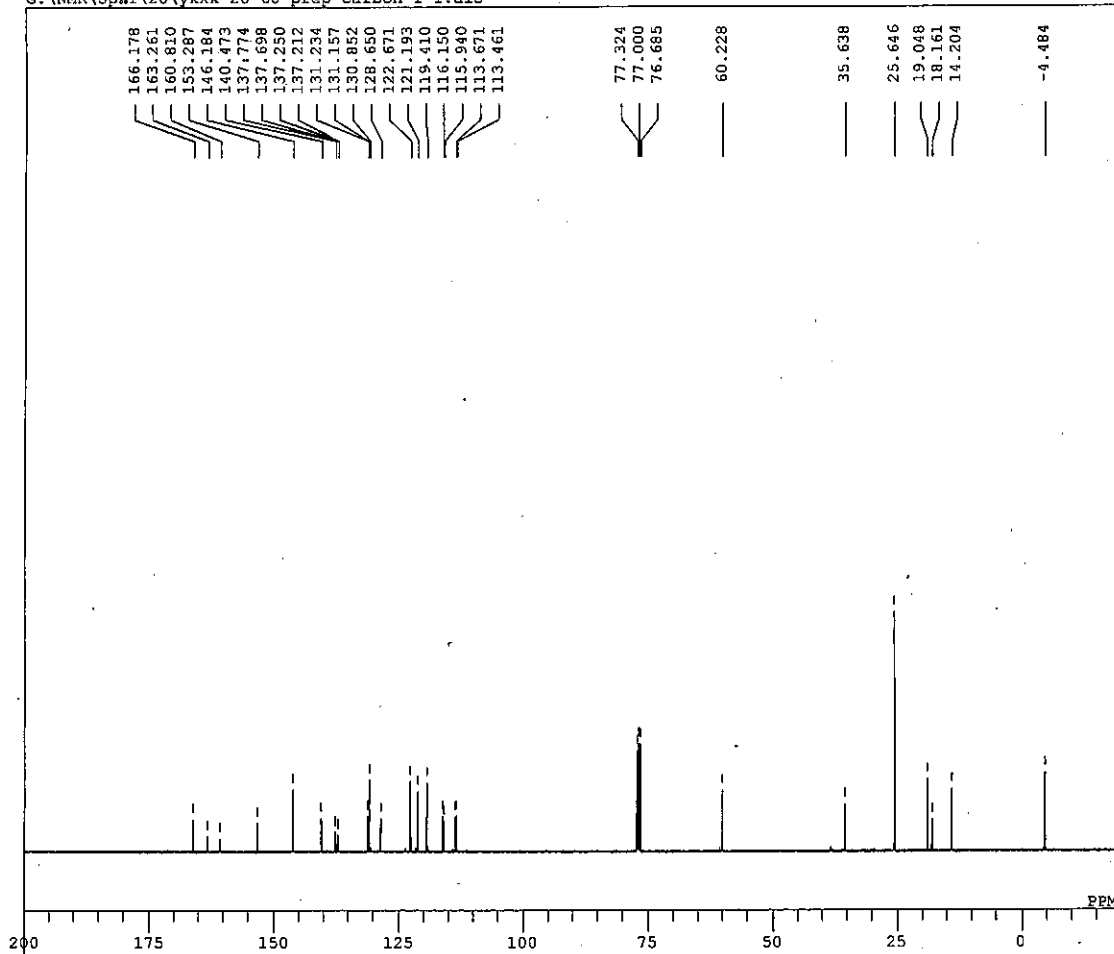


DFILE yk-kk-20-68-prep_Proton-1-1.a
 COMNT single_pulse
 DATIM 2012-02-27 23:27:50
 OBNUC 1H
 EXMOD proton.jxp
 OBFREQ 399.78 MHz
 OBSET 4.19 KHz
 OBFIN 7.29 Hz
 POINT 13107
 FREQU 6002.40 Hz
 SCANS 8
 ACQTM 2.1837 sec
 PD 5.0000 sec
 PW1 5.00 usec
 IRNUC 1H
 CTEMP 22.9 c
 SLVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 30

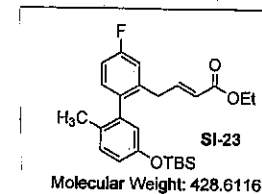


single_pulse decoupled gated NOE

G:\NMR\Spkf\20\yk-kk-20-68-prep Carbon-1-1.als

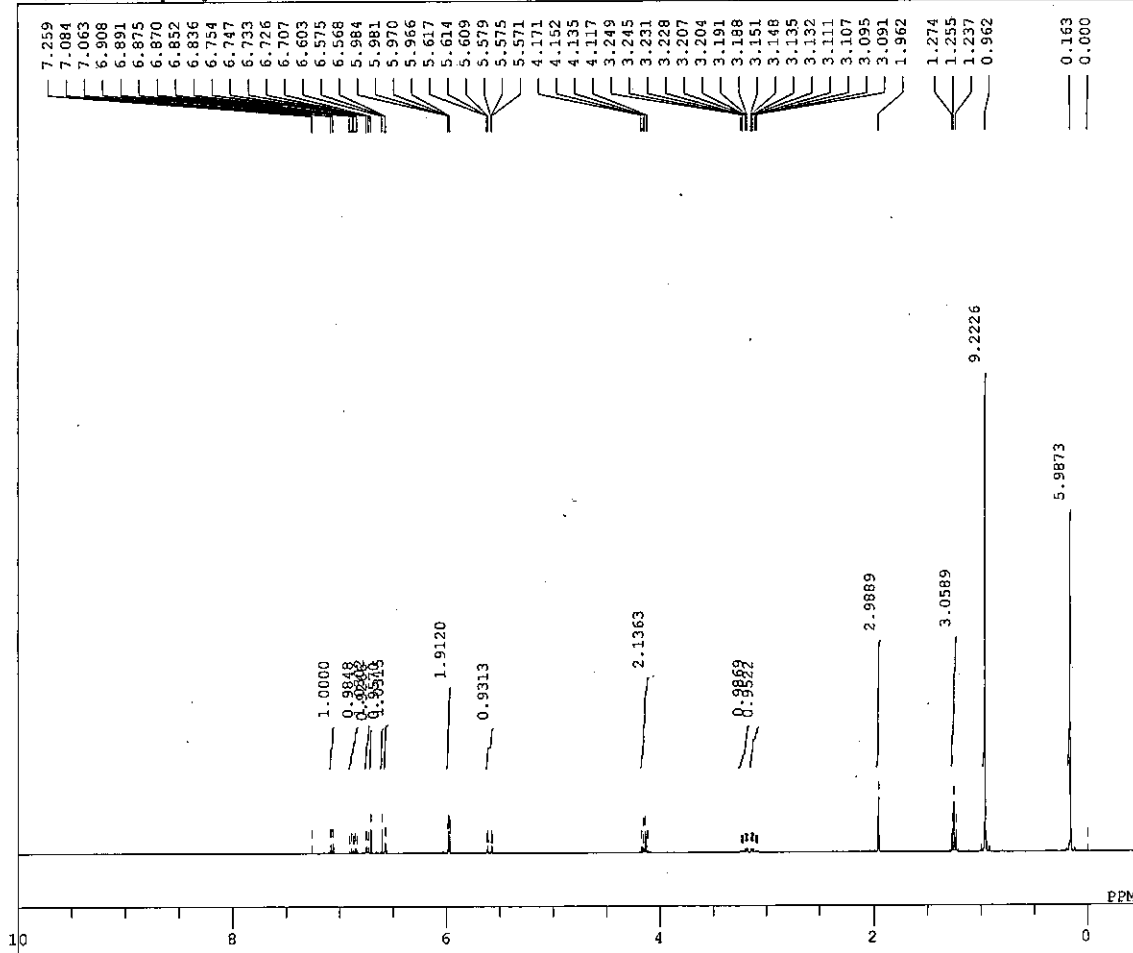


DFILE yk-kk-20-68-prep_Carbon-1-1.a
 COMNT single_pulse decoupled gated
 DATIM 2012-02-27 23:30:44
 OBNUC 13C
 EXMOD carbon.jxp
 OBFREQ 100.53 MHz
 OBSET 5.35 KHz
 OBFIN 5.86 Hz
 POINT 26214
 FREQU 25125.63 Hz
 SCANS 537
 ACQTM 1.0433 sec
 PD 2.0000 sec
 PW1 3.07 usec
 IRNUC 1H
 CTEMP 23.2 c
 SLVNT CDCL3
 EXREF 77.00 ppm
 BF 1.20 Hz
 RGAIN 50

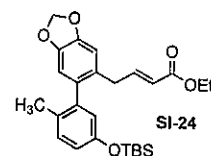


single_pulse

G:\NMR\é-Ø\Biphenyl data\YK-YS-SI-14 Proton-1-1.jdf

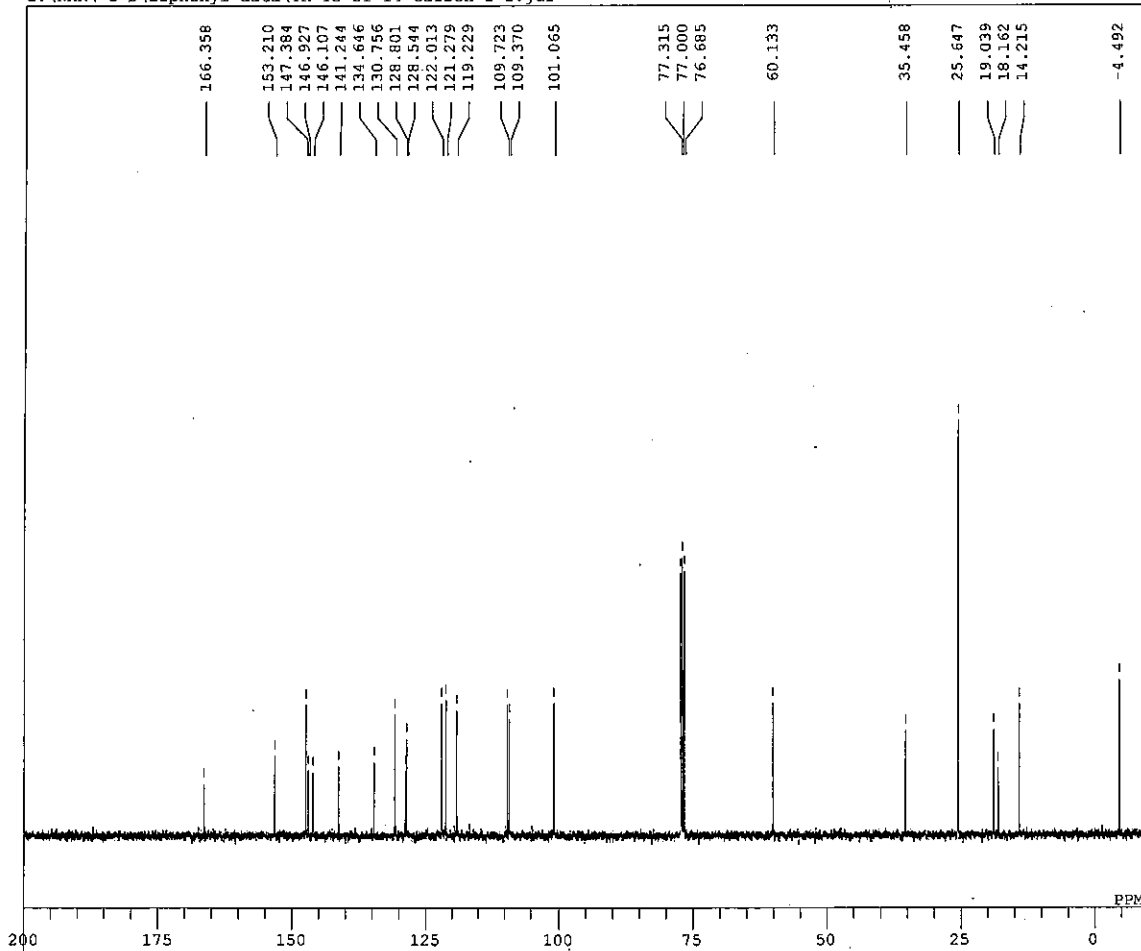


DFILE YK-YS-SI-14 Proton-1-1.jdf
 COMNT single_pulse
 DATIM 2012-02-11 16:34:43
 OBNUC 1H
 EXMOD proton.jxp
 OBFRQ 399.78 MHz
 OBSET 4.19 KHz
 OBFIN 7.29 Hz
 POINT 16384
 FREQU 7503.00 Hz
 SCANS 8
 ACQTM 2.1837 sec
 PD 5.0000 sec
 PW1 5.00 usec
 IRNUC 1H
 CTEMP 22.5 c
 SLVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 30



single pulse decoupled gated NOE

G:\NMR\é-Ø\Biphenyl data\YK-YS-SI-14 Carbon-1-1.jdf



DFILE YK-YS-SI-14 Carbon-1-1.jdf
 COMNT single pulse decoupled gated
 DATIM 2012-02-11 16:36:07
 OBNUC 13C
 EXMOD carbon.jxp
 OBFRQ 100.53 MHz
 OBSET 5.35 KHz
 OBFIN 5.86 Hz
 POINT 32767
 FREQU 31407.04 Hz
 SCANS 65
 ACQTM 1.0433 sec
 PD 2.0000 sec
 PW1 3.07 usec
 IRNUC 1H
 CTEMP 22.7 c
 SLVNT CDCL3
 EXREF 77.00 ppm
 BF 1.20 Hz
 RGAIN 50

