Supporting Information for:

An Efficient Protocol for Alcohols Protection under Solvent and Catalyst Free Conditions

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General Information:

Analytical thin layer chromatography (TLC) was carried out using silica gel 60 F254 pre-coated plates. Visualization was accomplished with UV lamp or I_2 stain. All products were characterized by their NMR and MS spectra. ^{1}H and ^{13}C NMR was recorded on 200 and 300 MHz, in $CDCl_3$ using TMS as the internal standard, Chemical shifts were reported in parts per million (ppm, δ) downfield from tetramethylsilane.

General Experimental Procedure:

The piviloylation of alcohols carried out by simple addition of Piv-Cl (1.1 mmol) to hydroxy compound (1.0 mmol) in a 5 ml round bottom flask with out using catalyst and solvent in closed vessel condition.The reaction was monitored by TLC. After completion of the reaction, the reaction mixture was dissolved in 5.0 mL of DCM and washed with distilled water then the organic layer was dried with Na_2SO_4 and solvent was evaporated under vacuum to yield the corresponding product (column chromatography was performed when ever it requires).

Spectral data of Compounds:

2-Pheny-ethyl pivalate (Table 2 entry 1) [a]

^{1}H NMR (300 MHz, $CDCl_3$): δ 7.28-7.14 (m, 5H), 4.24 (t, 2H, *J* = 6.9 Hz), 2.91 (t, 2H, *J* = 6.9 Hz), 1.14 (s, 9H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 178.0, 138.1, 129.0 (2C), 128.0 (2C), 126.5, 65.0, 38.5, 35.0, 27.0 (3C).

IR (ν_{max}): 1728 cm^{-1}. **Mass** (ESI): *m*/z = 229.3 (M+23).

Benzyl pivalate (Table 2 entry 2) [a]

^{1}H NMR (300 MHz, $CDCl_3$): δ 7.36-7.23 (m, 5H), 5.08 (s, 2H), 1.24 (s, 9H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 178.2, 136.3, 128.3 (2C), 127.8, 127.5 (2C), 65.9, 38.6, 27.0 (3C).

IR (ν_{max}): 1730 cm^{-1}. **Mass** (ESI): *m*/z = 215.1 (M+23)

2,3-Di hydro-1H-inden-2-yl pivalate (Table 2 entry 3)

^{1}H NMR (300 MHz, $CDCl_3$): δ 7.24-7.13 (m, 4H), 5.48-5.46 (m, 1H), 3.30 (d d, 2H, *J* = 6.9Hz, 16.6 Hz), 2.96 (d d, 2H, *J* = 3.0Hz, 17.3 Hz), 1.15 (s, 9H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 178.4, 140.4 (2C), 126.6 (2C), 124.5 (2C), 74.7, 39.5 (2C), 38.5, 27.0 (3C).

IR (ν_{max}): 1715 cm^{-1}. **Mass** (ESI): *m*/z = 219 .3 (M+1)

Anal calcd for: $C_{14}H_{18}O_2$ (218) C: 77.03, H: 8.31

Found: C: 76.90, H: 8.27

cyclopentylmethyl pivalate (Table 2 entry 4) [a]

^{1}H NMR (300 MHz, $CDCl_3$): δ 3.91 (d, 2H, *J* = 7.5 Hz), 2.28-2.11 (m, 1H), 1.82-1.67 (m, 2H), 1.66-1.50 (m, 4H), 1.33-1.21 (m, 2H), 1.19 (s, 9H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 178.6, 68.4, 39.0, 38.9, 29.5 (2C), 27.5 (3C), 25.6 (2C).

IR (ν_{max}): 1723 cm^{-1}. **Mass** (ESI): *m*/z = 181.1 (M+1)

Cyclohexyl pivalate (Table 2 entry 5)

^{1}H NMR (300 MHz, $CDCl_3$): δ 4.72-4.70 (m, 1H), 1.76-1.70 (m, 5H), 1.53-1.53 (m, 5H), 1.18 (s, 9H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 178.0, 72.0, 39.0, 31.3 (2C), 27.4 (3C), 26.0, 23.8 (2C).

IR (ν_{max}): 1703 cm^{-1}, **Mass** (ESI): *m*/z = 207.2 (M+23).

Anal calcd for: $C_{11}H_{20}O_2$ (184) C: 71.70, H: 10.94

Found: C: 71.66, H: 10.89

(1R, 2S, 5R)-2-isopropyl-5-methylcyclohexyl pivalate (Table 2 entry 6)

^{1}H NMR (300 MHz, $CDCl_3$): δ 4.57 (t d, 1H), 1.99-1.79 (m, 2H), 1.74-1.64 (m, 2H), 1.57- 1.32 (m, 2H), 1.18 (s, 9H), 1.12-0.95 (m, 2H), 0.92-0.85 (m, 6H), 0.75 (d, 3H, *J* = 6.78 Hz).

^{13}C NMR (75 MHz, $CDCl_3$): δ 177.7, 73.6, 47.1, 40.7, 38.7, 34.4, 31.3, 27.0 (3C), 26.1, 23.3, 22.0, 20.8,16.1.

IR (ν_{max}): 1725 cm^{-1}, **Mass** (ESI): *m*/z = 263.3 (M+23)

Anal calcd for: $C_{15}H_{28}O_2$ (240) C: 74.95, H: 11.74

Found: C: 74.90, H: 11.68

4-methoxybenzyl pivalate (Table 2 entry 7) [a]

^{1}H NMR (200 MHz, $CDCl_3$): δ 7.21 (d, 2H, *J* = 8.5Hz), 6.81 (d, 2H, *J* = 8.5Hz), 5.0 (s, 2H), 3.78 (s, 2H), 1.19 (s, 9H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 177.8, 136,4, 128.4 (2C), 127.9, 127.7 (2C), 65.9, 38.7, 27.2 (3C).

IR: 1701 cm^{-1}. **Mass (**ESI**):** *m*/z **=** 223.4 (M+1)

(Naphthalen-6-yl) Methyl pivalate (Table 2 entry 8)

^{1}H NMR (300 MHz, $CDCl_3$): δ 7.80-7.76 (m, 4H), 7.47-7.37 (m, 3H), 5.23 (s, 2H), 1.23 (s, 9H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 178.3, 133.8, 133.1, 133.0, 128.2, 127.9, 127.6, 126.8, 126.2, 126.1, 125.5, 66.2, 38.8, 27.1 (3C).

IR (ν_{max}): 1729 cm^{-1}, **Mass** (ESI): *m*/z =243.6 (M+1).

Anal calcd for: $C_{16}H_{18}O_2$ (242) C: 79.31, H: 7.49

Found: C: 79.28, H: 7.45

1,2-Diphenylethane-1, 2-Di pivalate (Table 2 entry 9)

^{1}H NMR (300 MHz, $CDCl_3$): δ 7.27-7.23 (m, 6H), 7.20-7.14 (m, 4H), 6.01 (s, 2H), 1.09 (s, 9H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 176.7 (2C), 136.5 (2C), 128.2 (2C), 128.0 (4C), 127.4 (4C), 38.7 (2C), 26.9 (6C).

IR (ν_{max}): 1721 cm^{-1}. **Mass** (ESI): *m*/z = 405.1 (M+23).

Anal calcd for: $C_{24}H_{30}O_4$ (382) C: 75.36, H: 7.91

Found: C: 75.33, H: 7.85

Decyl pivalate (Table 2 entry 10) [a]

^{1}H NMR (300 MHz, $CDCl_3$): δ 4.02 (t, 2H, *J* = 6.79 Hz), 1.65-1.51 (m, 2H), 1.39-1.26 (m, 14H), 0.88 (t, 3H, *J* = 6.03 Hz), 1.18 (s, 9H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 178.9, 64.9, 39.0, 32.0, 29.8 (2C), 29.5 (2C), 28.9, 27.0 (3C), 26.0, 23.0,14.3.

IR (ν_{max}): 1731 cm^{-1}. **Mass** (ESI): *m*/z = 243.1 (M+1).

Isobutyl pivalate (Table 2 entry 11)

^{1}H NMR (300 MHz, $CDCl_3$): δ 3.83 (d, 2H, *J* = 6.5 Hz), 2.00-1.85 (m, 1H), 1.2 (s, 9H), 0.93 (d, 6H, *J* = 6.5 Hz).

IR (ν_{max}): 1730 cm^{-1}. **Mass** (ESI): *m*/z = 181.2 (M+23)

Anal calcd for: $C_9H_{18}O_2$ (158) C: 68.31, H: 11. 47

Found: C: 68.28, H: 11.42

Prop-2-ynyl pivalate (Table 2 entry 12)[a]

^{1}H NMR (300 MHz, $CDCl_3$): δ 4.62 (d, 2H, *J* = 3.0 Hz), 2.38 (t, 1H, *J* = 3.0 Hz,), 1.22 (s, 9H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 185.6, 111.9, 107.4, 46.7, 38.6, 26.9 (3C)

IR (ν_{max}): 1727 cm^{-1}, 2364 cm^{-1}. **Mass** (ESI): *m*/z = 141.3 (M+1)

Butane-1, 4-Dipivalate (Table 2 entry 13) [a]

^{1}H NMR (300 MHz, $CDCl_3$): δ 4.08 (t, 4H, *J* = 6.04 Hz), 1.73-1.68 (m, 4H), 1.20 (s, 9H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 178.0 (2C), 64.2 (2C), 39.0 (2C), 27.5 (6C), 25.8 (2C).

IR(ν_{max}): 1730 cm^{-1} , **Mass** (ESI): *m*/z = 259.2 (M+1).

(E)-hex-2-enyl pivalate (Table 2 entry 14)

^{1}HNMR (300MHz,$CDCl_3$): δ 5.76-5.67 (m, 1H), 5.56-5.47 (m, 1H), 4.47 (d, 2H, *J* = 6.5 Hz), 2.02 (q, 2H, *J* = 6.5 Hz), 1.48-1.34 (m, 2H), 1.19 (s, 9H), 0.91 (t, 3H, *J* = 7.0 Hz),

IR (ν_{max}): 1731 cm^{-1}. **Mass** (ESI): *m*/z = 185.1 (M+1)

Anal calcd for: $C_{11}H_{20}O_2$ (184) C: 71.70, H: 10.94

Found: C: 71.67, H: 10.90

2-methoxyethyl pivalate (Table 2 entry 15)

^{1}H NMR (300 MHz, $CDCl_3$): δ 4.17 (t, 2H, *J* = 4.53 Hz), 3.55 (t, 2H, *J* = 4.53 Hz), 3.36 (s, 3H), 3.36 (s, 9H).

IR (ν_{max}): 1728 cm^{-1}. **Mass** (ESI): *m*/z = 161.4 (M+1)

Anal calcd for: $C_8H_{16}O_3$ (160) C: 59.97, H: 10.07

Found: C: 59.92, H: 10.10

Naphthalen-8-yl pivalate (Table 3 entry 3)

^{1}H NMR (300 MHz, $CDCl_3$): δ 7.81 (q, 2H, *J* = 3.0 Hz), 7.70 (d, 1H, *J* = 8.3 Hz), 7.48- 7.406 (m, 3H), 7.18 (d, 1H, *J* = 6.8 Hz), 1.49 (s, 9H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 176.9, 147.1, 134.9, 128.3, 127.3, 126.5 (2C), 125.9, 125.6, 121.2, 118.1, 39.7, 27.6 (3C).

IR (ν_{max}): 1732 cm^{-1}. **Mass** (ESI): *m*/z = 229.4 (M+1)

Anal calcd for: $C_{15}H_{16}O_2$ (228) C: 78.92, H: 7.06

Found C: 78.87, H: 7.02

Naphthalen-7-yl pivalate (Table 3 entry 4)

^{1}H NMR (300 MHz, $CDCl_3$): δ 7.91-7.76 (m, 3H), 7.57-7.43 (m, 3H), 7.19 (d d, 1H, *J* = 2.2 Hz, 8.8 Hz), 1.41 (s, 9H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 177.2, 148.7, 133.7, 131.3, 129.2, 127.7, 127.5, 126.4, 125.5, 121.1, 118.3, 39.1, 27.1 (3C).

IR (ν_{max}): 1725 cm^{-1}. **Mass** (ESI): *m*/z = 229.4 (M+1)

Anal calcd for: $C_{15}H_{16}O_2$ (228) C: 78.92, H: 7.06

found C: 78.83, H: 7.01

Naphthalene-2, 3-Di-pivalate (Table 3 entry 5)

^{1}H NMR (300 MHz, $CDCl_3$): δ 7.77-7.72 (m, 2H), 7.56 (s, 2H), 7.44-7.38 (m, 2H), 1.38 (s, 9H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 176.4 (2C), 141.8 (2C), 131.7 (2C), 127.5 (2C), 126.3 (2C), 120.9 (2C), 39.4 (2C), 27.5 (6C).

IR (ν_{max}): 1758 cm^{-1}. **Mass** (ESI): *m*/z = 351.1 (M+23)

Anal calcd for: $C_{20}H_2O_4$ (328) C: 73.15, H: 7.37

Found: C: 73.11, H: 8.31

3-(benzyloxy)-2-Hydroxyhex-5-enyl pivalate (Scheme 2. 2b)

^{1}H NMR (300 MHz, $CDCl_3$): δ 7.29-7.29 (m, 5H), 6.00-5.69 (m, 1H), 5.312-5.07 (m, 2H), 4.65 (d d, 1H, *J* = 9.8, 11.7 Hz), 4.50 (d d, 1H, *J* = 3.9Hz, 11.7 Hz), 4.32-4.09 (m, 2H), 3.83-3.74 (m, 1H), 3.55-3.40 (m, 1H), 2.59-2.34 (m, 2H), 2.37 (s, 9H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 179.1, 138.0, 134.2, 128.4 (2C), 127.8 (3C), 117.7, 79.1, 72.2, 71.1, 65.7, 34.4, 31.6, 27.2 (3C).

IR (ν_{max}): 1727 cm^{-1}, (Broad Peak) 3469.2 cm^{-1}. **Mass** (ESI): *m*/z = 329.9 (M+23)

Anal calcd for: $C_{18}H_{26}O_4$ (306) C: 70.56, H: 8.55

Found: C: 70.51, H: 8.49

3-(benzyloxy)-1-tert-butyldimethylsilane - hex-5-enyl-2-pivalate (Scheme 2. 1b)

^{1}H NMR (200 MHz, $CDCl_3$): δ 7.27-7.18 (m, 5H), 5.89-5.71 (m, 1H), 5.10-4.98 (m, 2H), 4.93-4.87 (m, 1H), 4.60-4.46 (m, 2H), 3.81-3.57 (m, 3H), 2.40-2.18 (m, 2H), 1.20 (s, 9H), 0.88 (s, 9H), 0.03 (s, 6H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 177.3, 138.4, 134.5, 128.2(2C), 127.7 (2C), 127.5, 117.3, 77.2, 74.4, 72.3, 61.2, 38.8, 35.2, 27.3 (3C), 25.9 (3C), 18.2, - 5.3 (2C).

IR (ν_{max}): 1730 cm^{-1}. **Mass** (ESI): *m*/z = 421.9 (M+1)

Anal calcd for: $C_{24}H_{40}O_4$ (420) C: 68.53, H: 9.58

Found: C: 68.48, H: 9.52

3-(benzyloxy)-1-Hydroxyhex-5-en-2-yl pivalate (Scheme 2. 1c)

^{1}H NMR (300 MHz, $CDCl_3$): δ 7.42- 7.20 (m, 5H), 5.98-5.64 (m, 1H), 5.22- 4.87 (m, 3H), 4.54 (s, 2H), 4.38-4.12 (m, 1H), 4.00-3.83 (m, 1H), 3.58-3.36 (m, 1H), 2.59- 2.29 (m, 2H), 1.30-1.12 (m, 9H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 179.0, 137.8, 134.0, 128.2 (2C), 127.8 (3C), 117.6, 78.9, 72.1, 71.1, 65.8, 34.3, 31.7, 27.1 (3C).

IR (ν_{max}): 1727 cm^{-1}, (Broad Peak) 3481.5 cm^{-1} . **Mass** (ESI): *m*/z = 329.9 (M+23)

Anal calcd for: $C_{18}H_{26}O_4$ (306) C: 70.56, H: 8.55

Found: C: 70.51, H: 8.48

3-(benzyloxy)-Hex-5-enyl-1,2-Di-pivalate (Scheme 2. 1d).

^{1}H NMR (300 MHz, $CDCl_3$): δ 7.29-7.25 (m, 5H), 5.90-5.74 (m, 1H), 5.20-5.05 (m, 3H), 4.57 (s, 2H), 4.43 (d, 1H, *J* = 11.1 Hz), 4.19-4.09 (m, 1H), 3.65-3.59 (m, 1H), 2.48-2.30 (m, 2H), 1.17 (d, 18H).

^{13}C NMR (75 MHz, $CDCl_3$): δ 177.5, 176.8, 137.9, 133.6, 128.3 (2C), 127.7 (3C), 118.0, 77.5, 72.3, 72.1, 62.4, 38.7 (2C), 35.3, 27.2 (6C).

IR (ν_{max}): 1732 cm^{-1}. **Mass** (ESI): *m*/z = 391.7 (M+1)

Anal calcd for: $C_{23}H_{34}O_5$ (390) C: 70.74, H: 8.78

Found: C: 70.68, H: 8.74

[a]P. Prabhakar, N. Suryakiran, Y. Venkateswarlu, *Chemistry Lett.*,2007, **36**, 732.

On suggestion of reviewers

We have tried for acetylation on substrate **1a** (scheme-2) and results are summarized here.

Acetylation products of **1a** (scheme-2)**,** using Acetyl Chloride under catalyst and solvent free closed vessel conditions at room temperature leads to give TBS deprotected secondary mono-acetylated primary alcohol (NMR-P.no-S33) in less yields about 17% only and predominantly gives Di-acetylated product (NMR-P.no-S33) in 61% yields. The products are characterized by Mass & NMR Spectra. The signal at 2.04 (s, 3H) in NMR spectrum of minor product indicates Mono-Acetylation and the signal at 2.15-21.96 (d, 6H) in major product indicating the Di-Acetylation. The Mass spectral values 287 & 329 also conforming the products.

Mass & NMR Spectral data

Acetylated Product of 1a (17% Yields[b])

^{1}H NMR (300 MHz, $CDCl_3$): δ 7.33 (m, 5H), 5.93-5.77 (m, 1H), 5.16-5.09 (m, 2H), 4.56 (s, 2H), 3.78-3.55 (m, 4H), 2.67-2.49 (b s, 1H), 2.31 (t, 2H *J* = 6.79 Hz), 2.04 (s, 3H).

Mass (ESI): *m*/z = 287 (M+23).

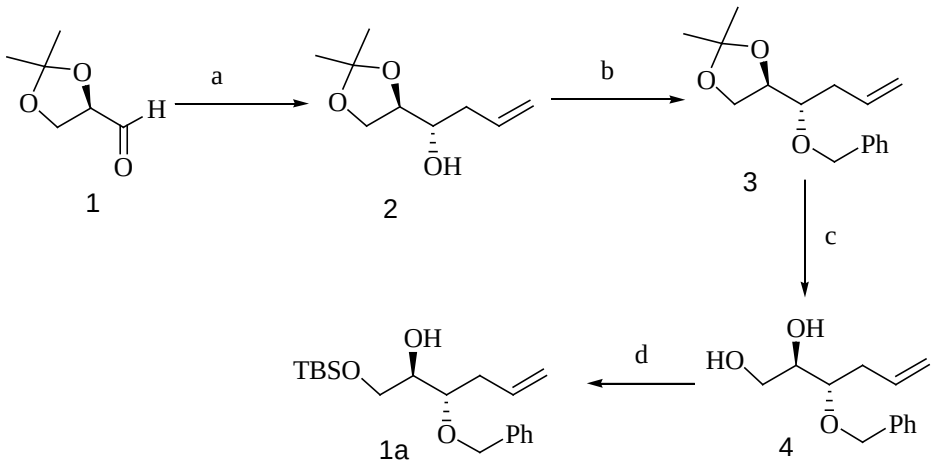
Acetylated Product of 1a(a)(61% Yields[b])

^{1}H NMR (300 MHz, $CDCl_3$): δ 7.31 (m, 5H), 5.93-5.74 (m, 1H), 5.23-5.02 (m, 2H), 4.58 (d, 2H, *J* = 3.58 Hz), 4.57-4.39 (m, 1H), 4.23-4.16 (m, 1H), 3.74-3.61 (m, 1H), 3.58-3.48 (m, 1H), 2.38 (t, 2H, *J* = 6.79 Hz), 2.15-1.96 (d, 6H).

Mass (ESI): *m*/z = 329 (M+23).

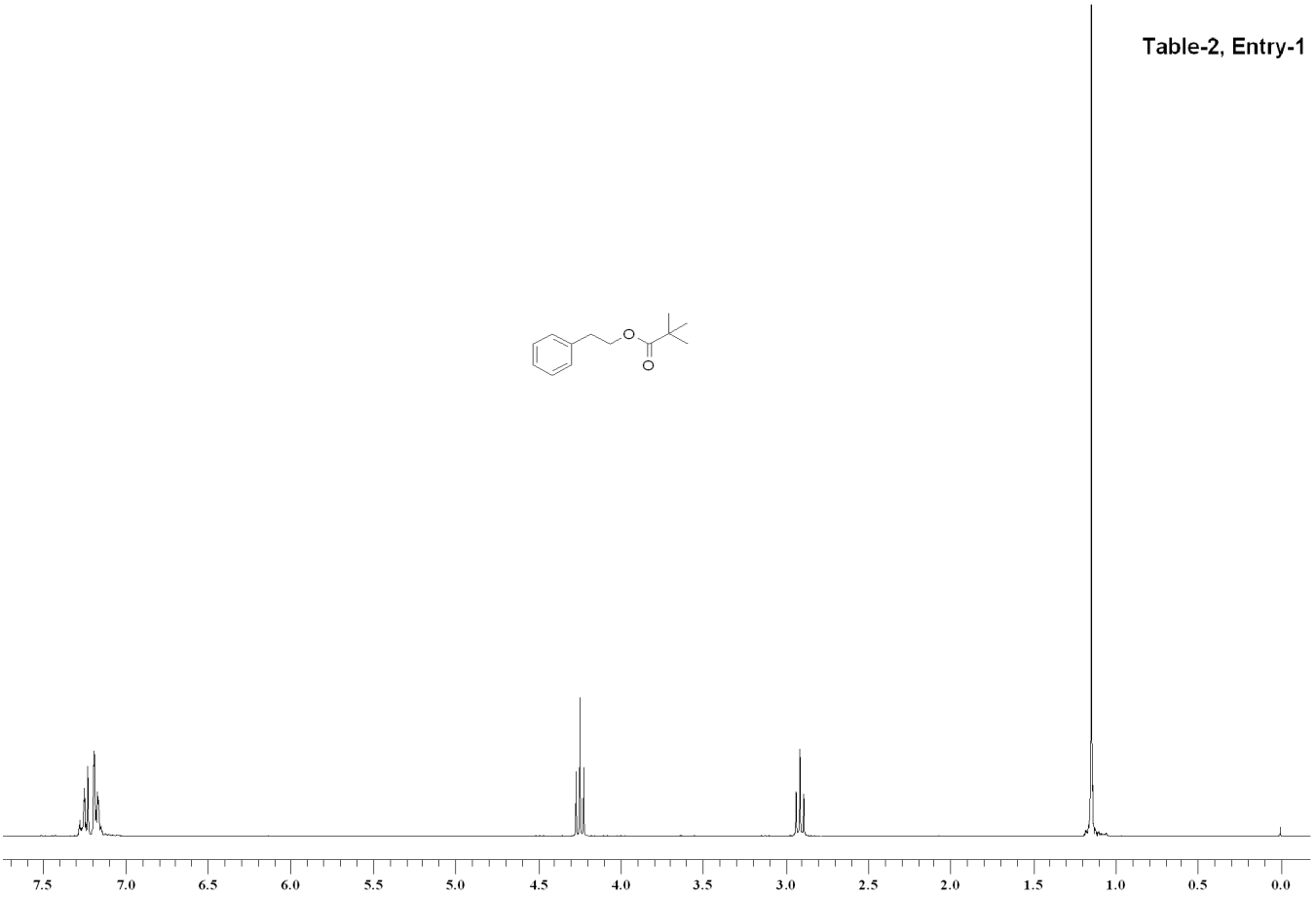
[b]Yields of isolated products.

Preparation of **1a** (scheme-2)



Reagents and conditions : a) ref: S. P. Kumar et al, *Tetrahedron Lett* **2006,** *47*, 7149–7; b) ref: S. Czernecki, C. Georgoulis, C. Provelenghiou, *Tetrahedron Lett.*, **1976**, *17*, 3535-3536 ;c) ref: S. Malla Reddy, Y. Venkat Reddy,Y. Venkateswarlu, *Tetrahedron Lett* 2005, *46*, 7439–7441; d) A. Bartoszewicz, M. Kalek, J. Nilsson, R. Hiresova, J. Stawinski, *Synlett*, **2008**, 37-40.

^{1}H and ^{13}C NMR Spectra of Compounds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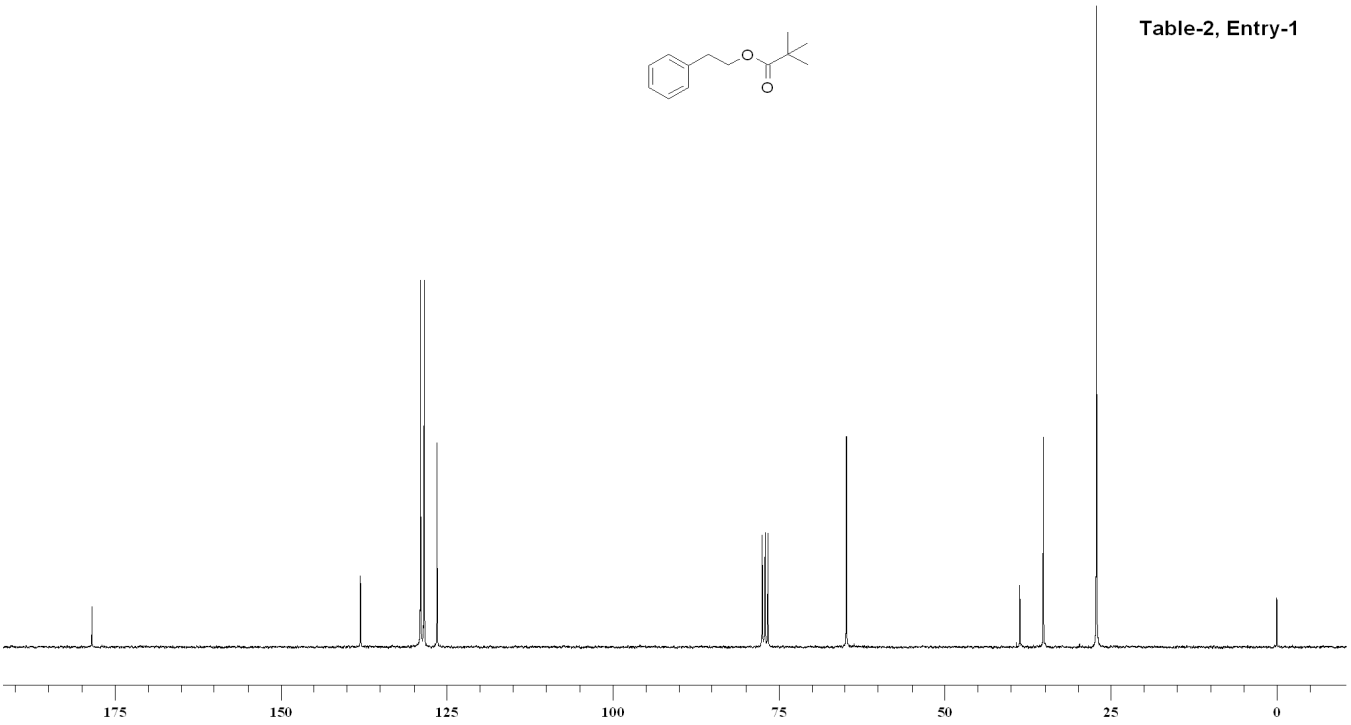
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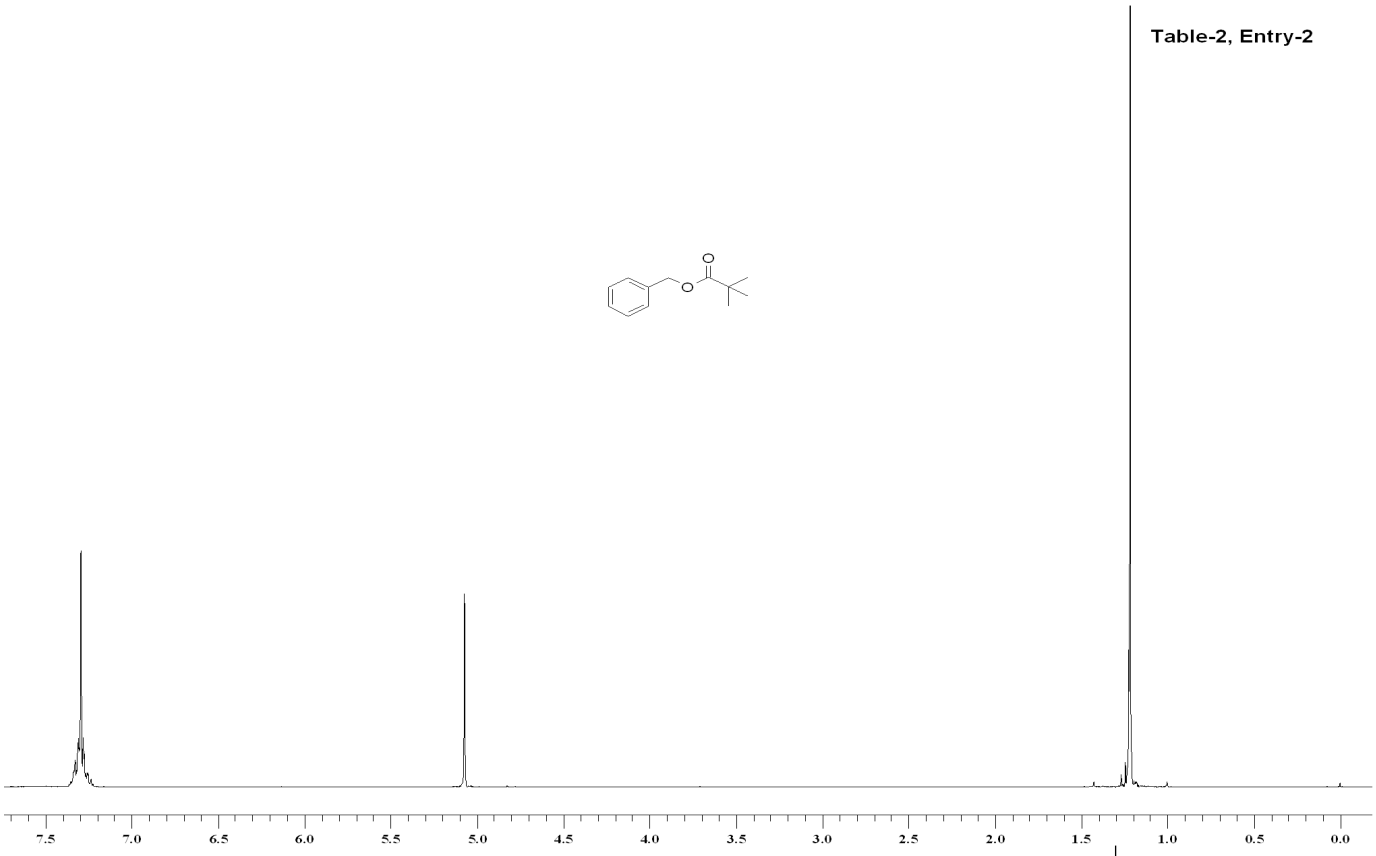
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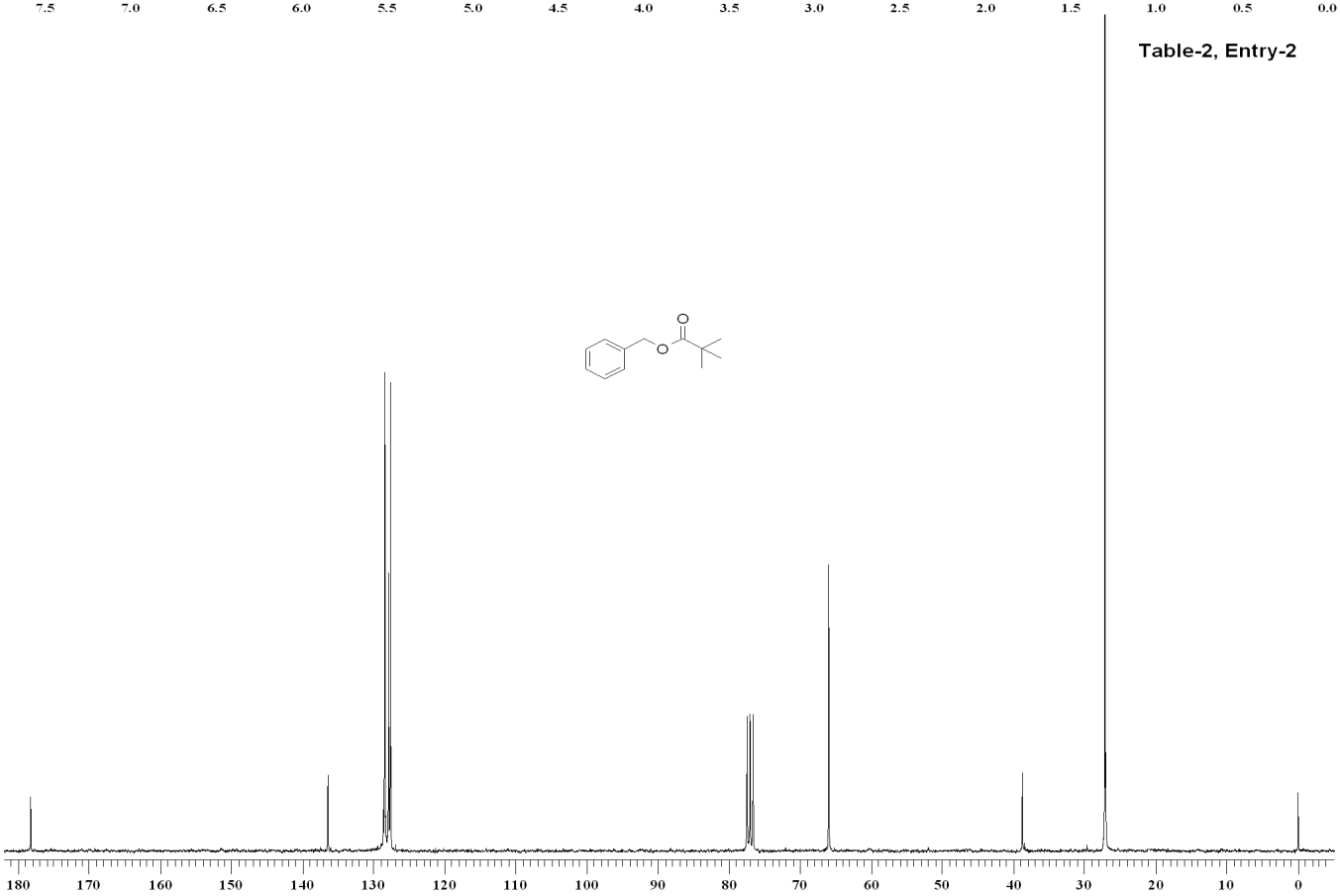
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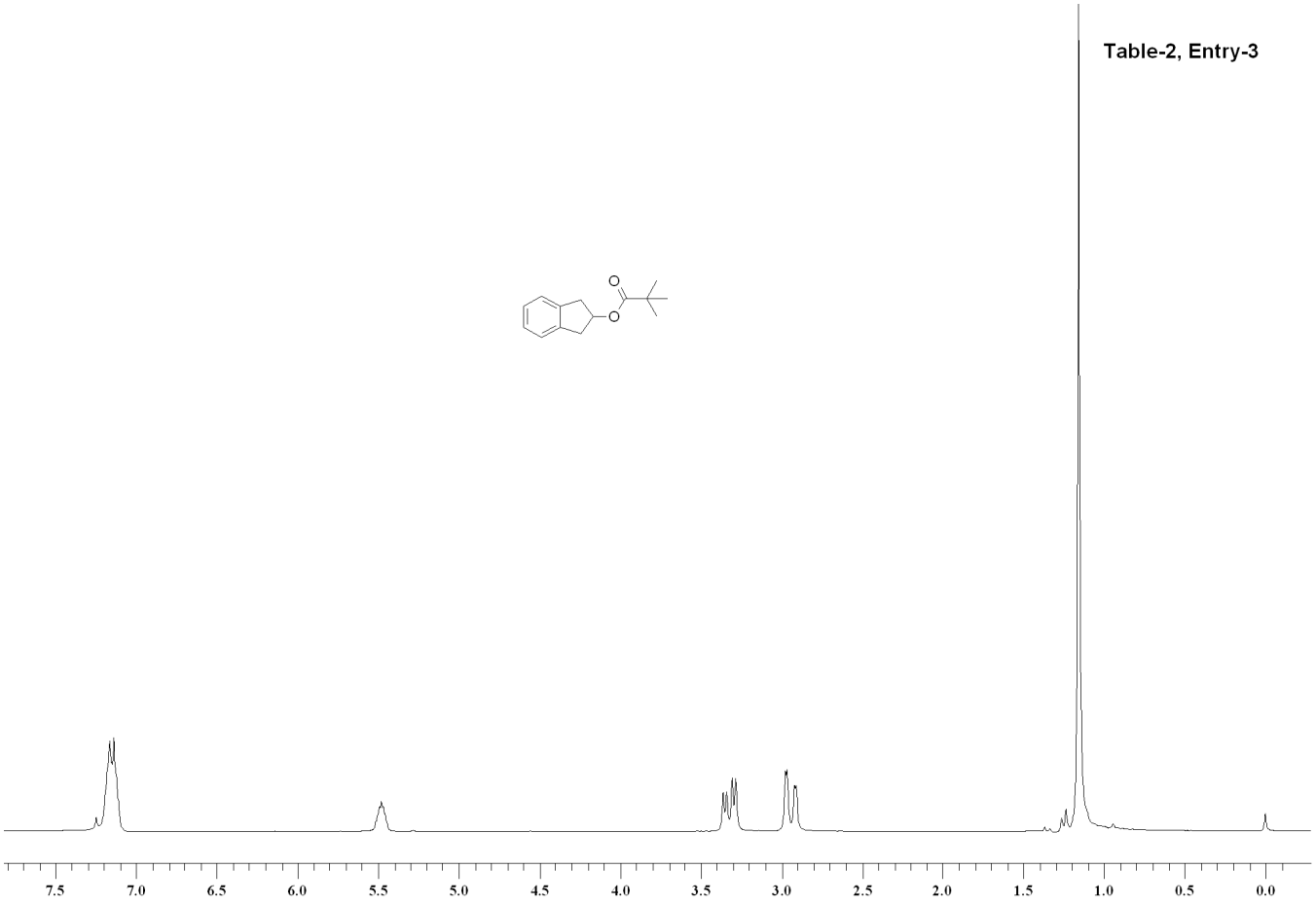
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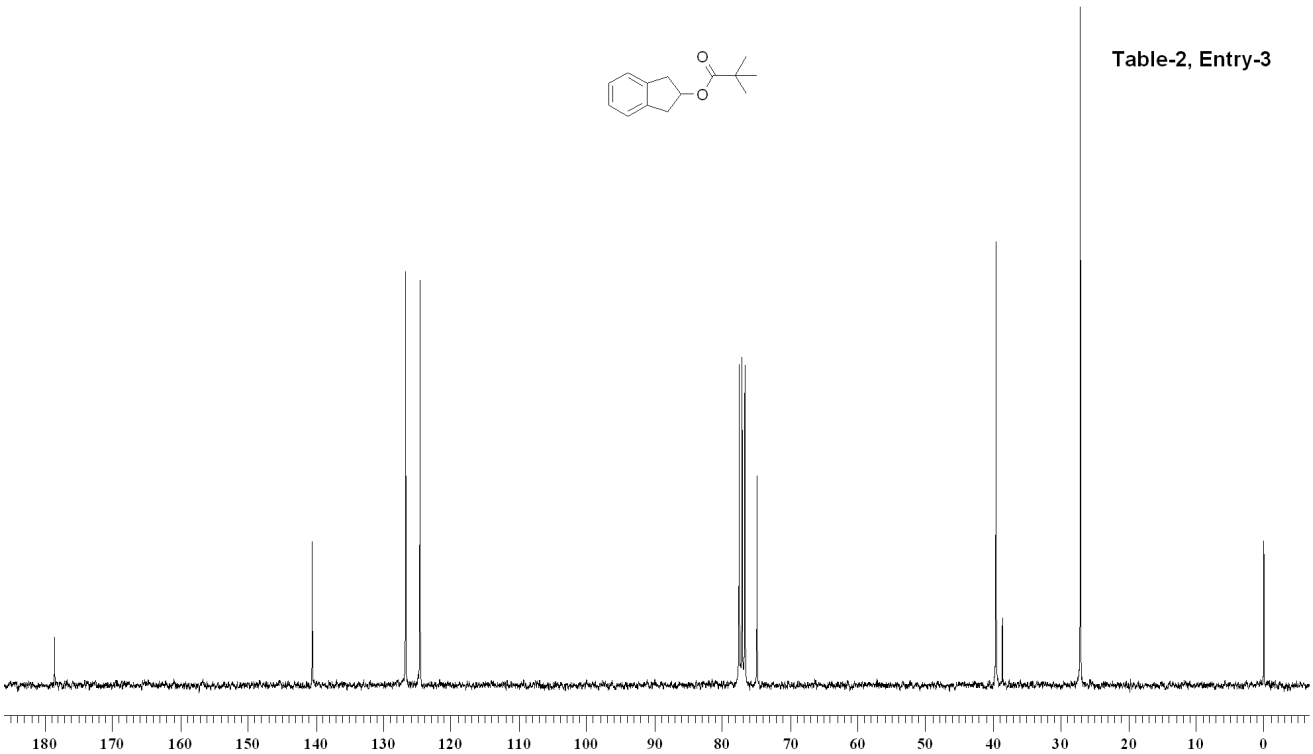
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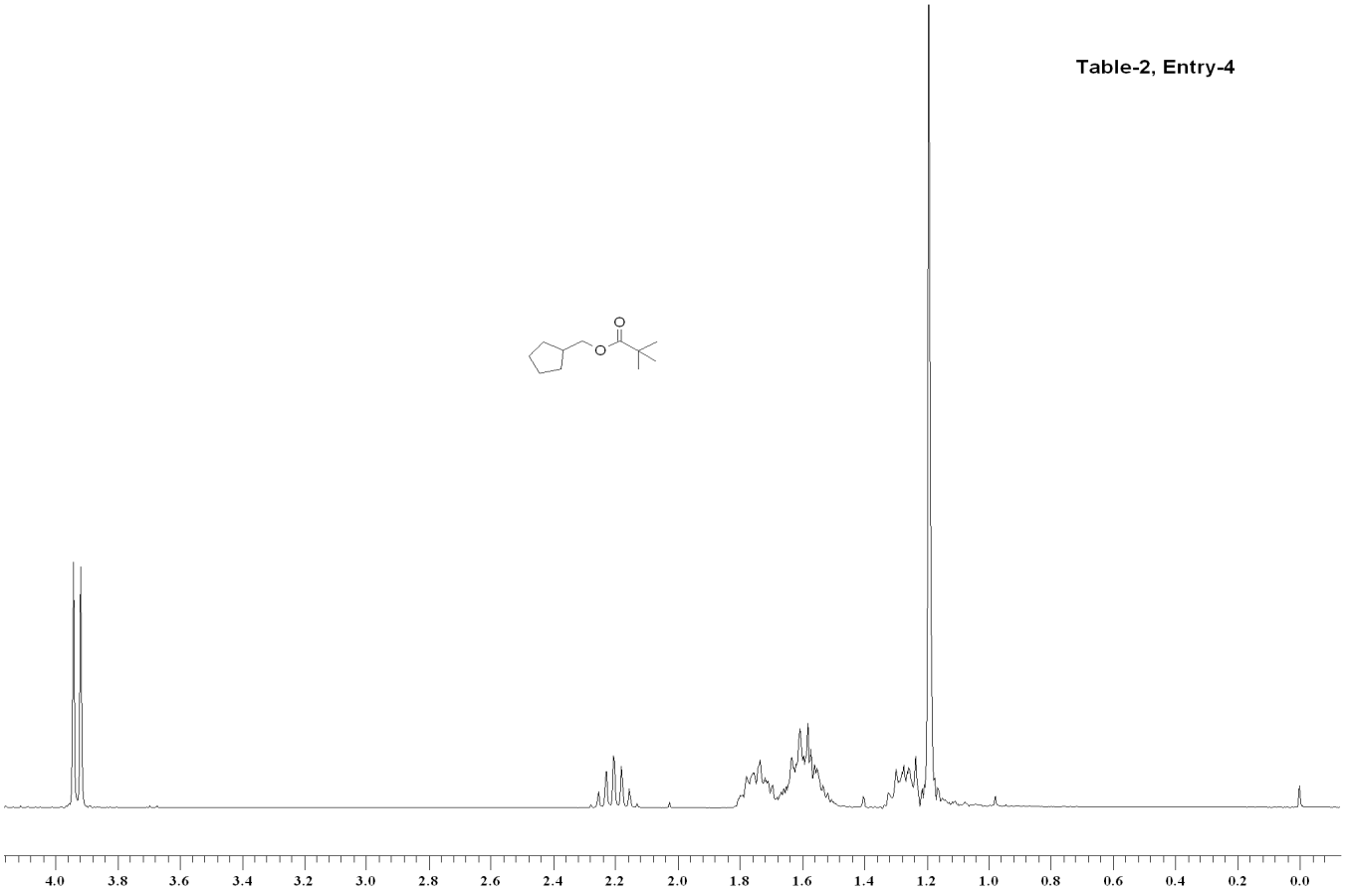

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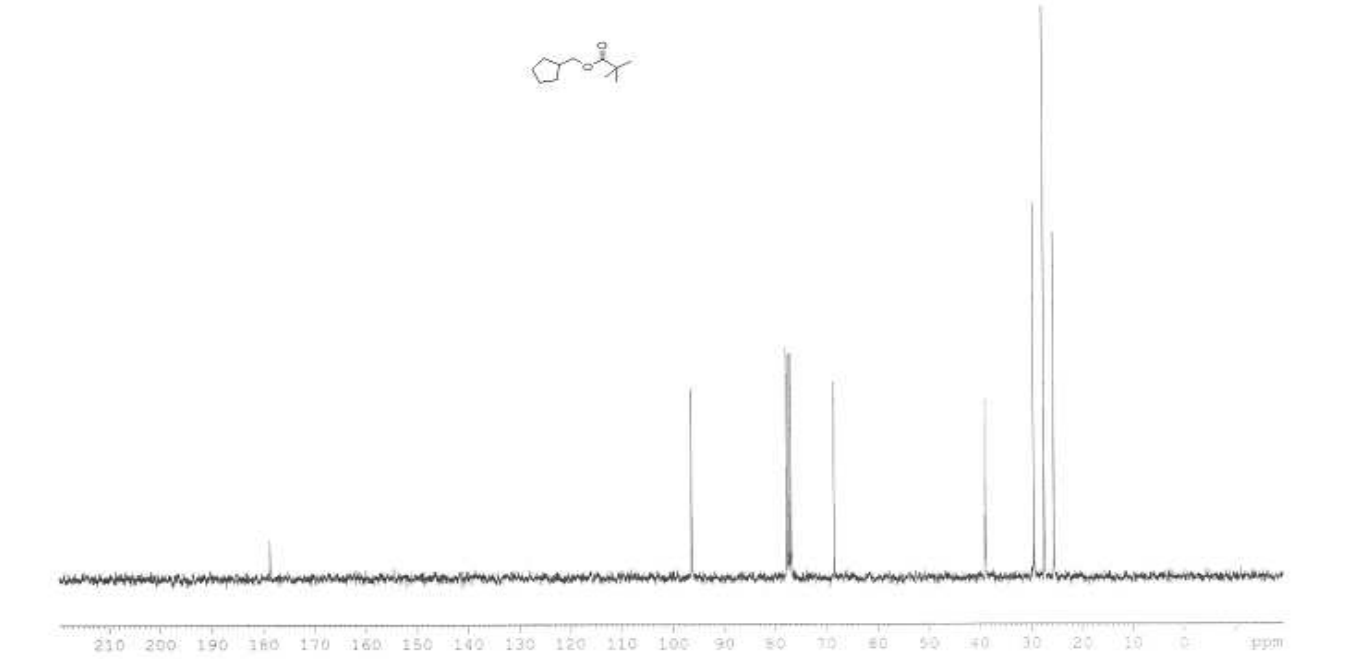

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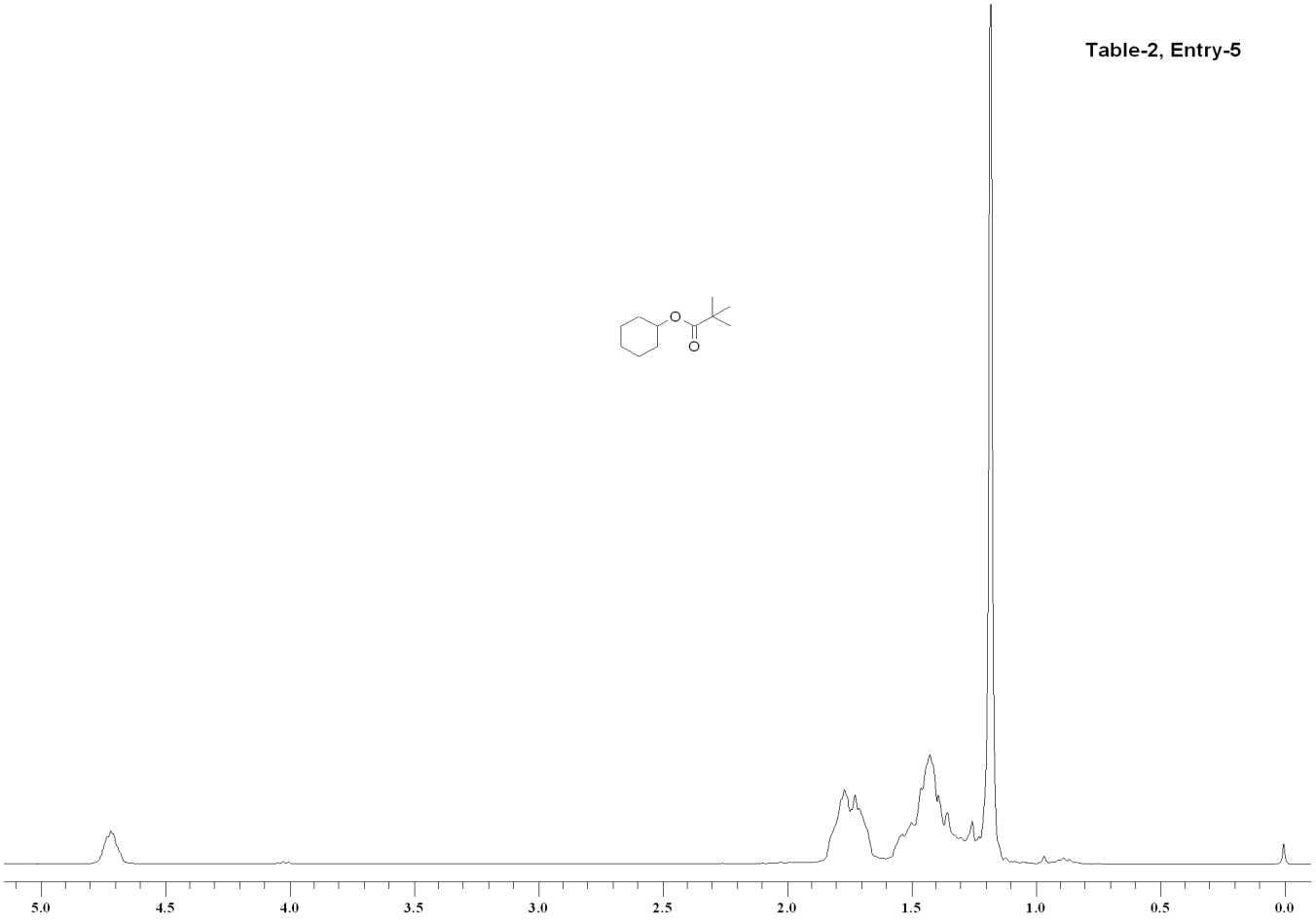


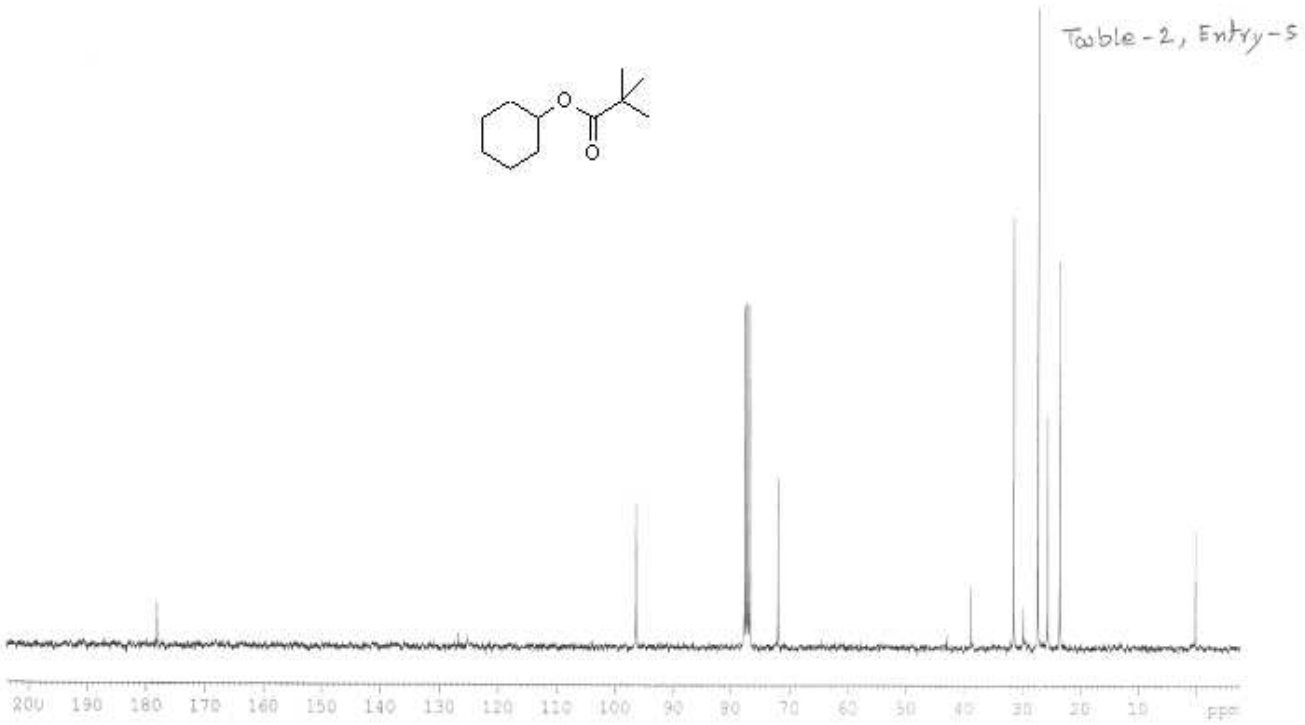


Table-2, Entry-6

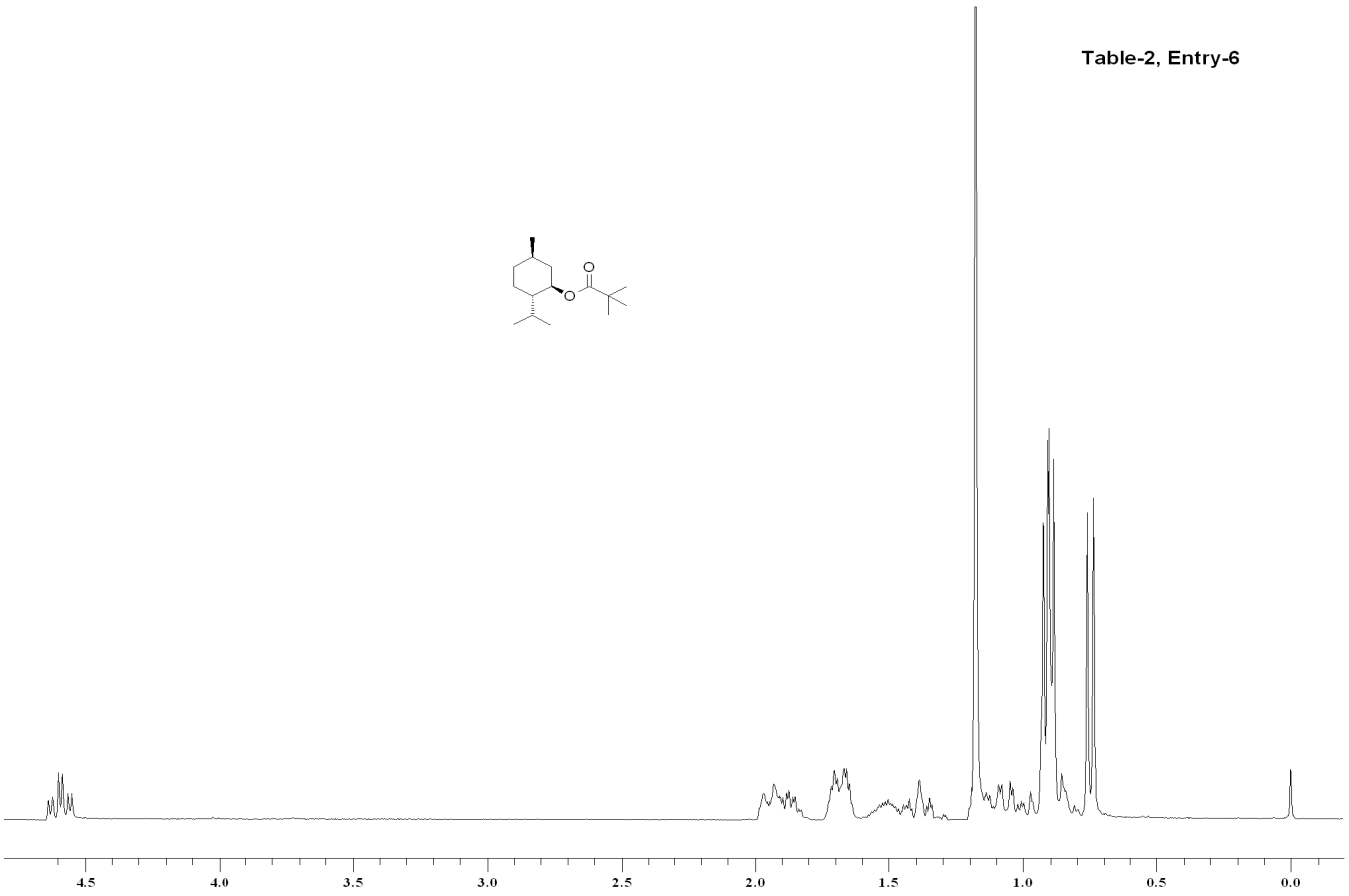


Table-2 Entry-6

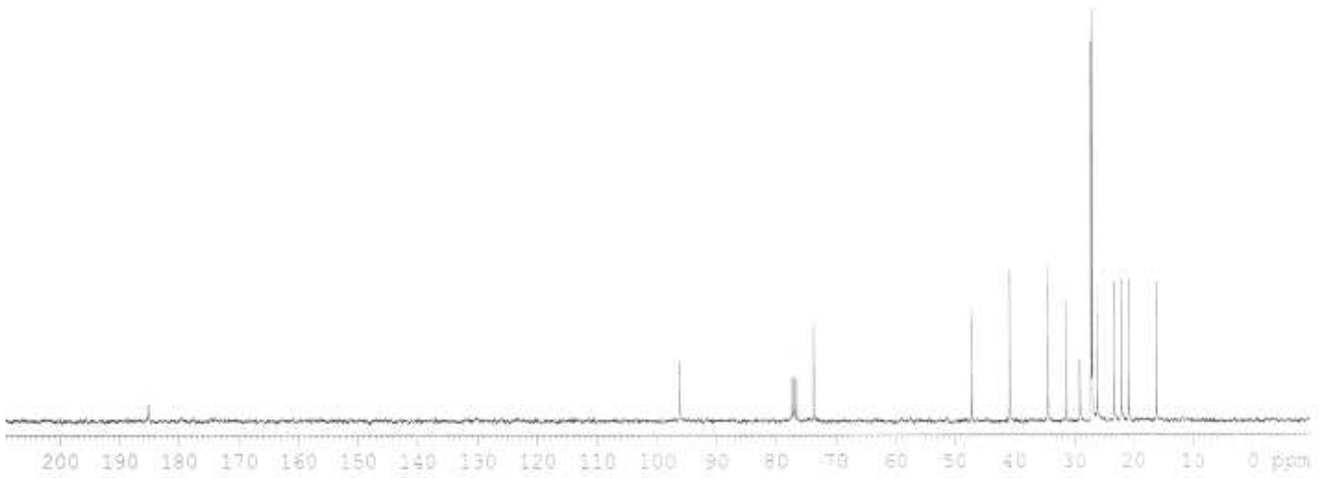


Table-2, Entry-7

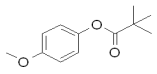


Table-2, Entry-7

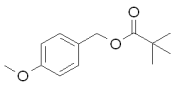
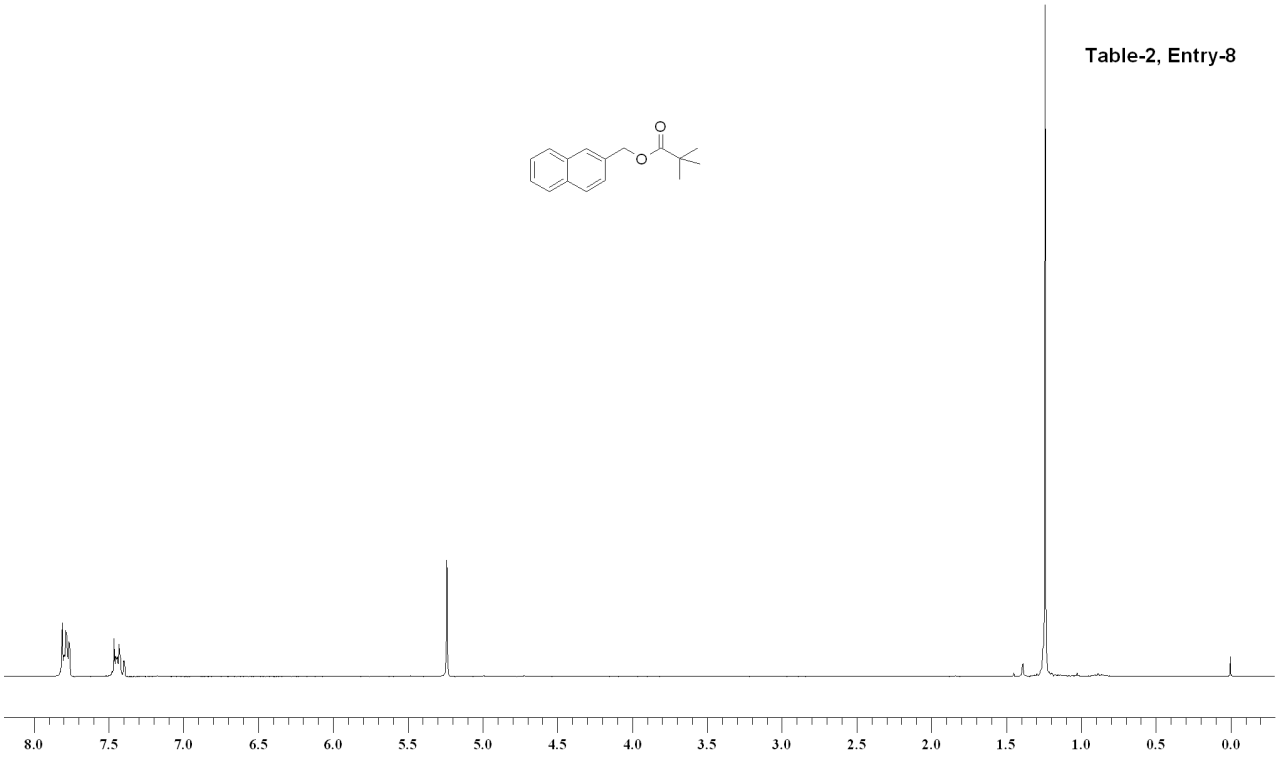
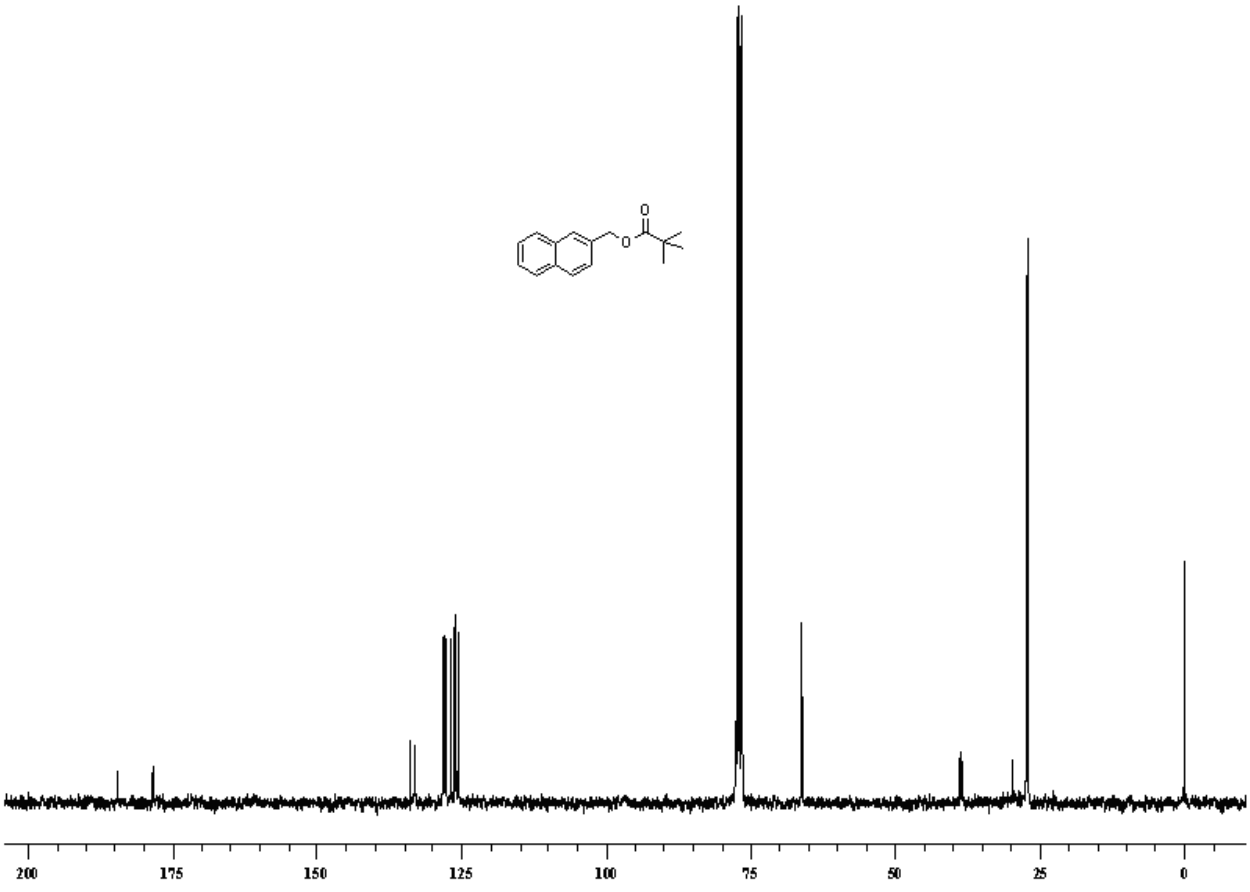


Table-2, Entry-8





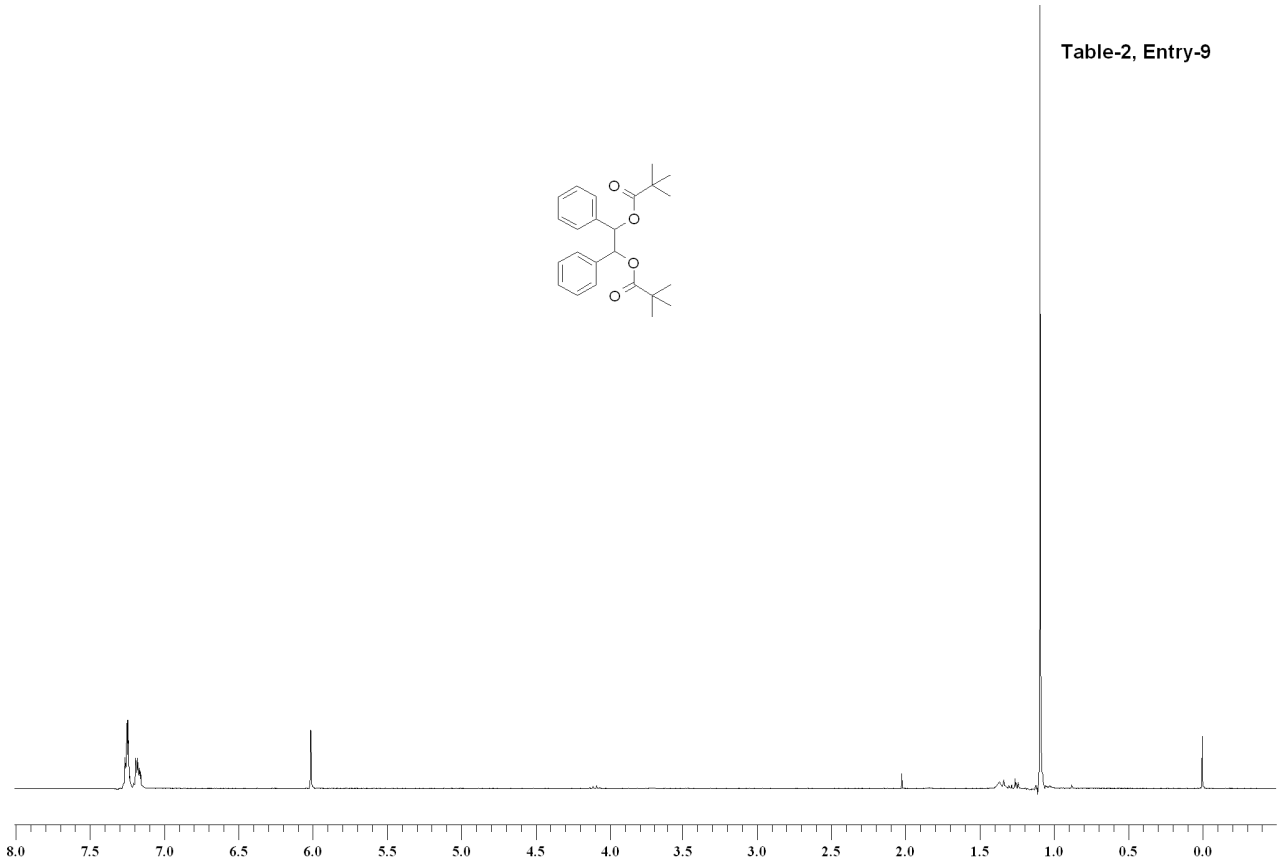


Table-2, Entry-9
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

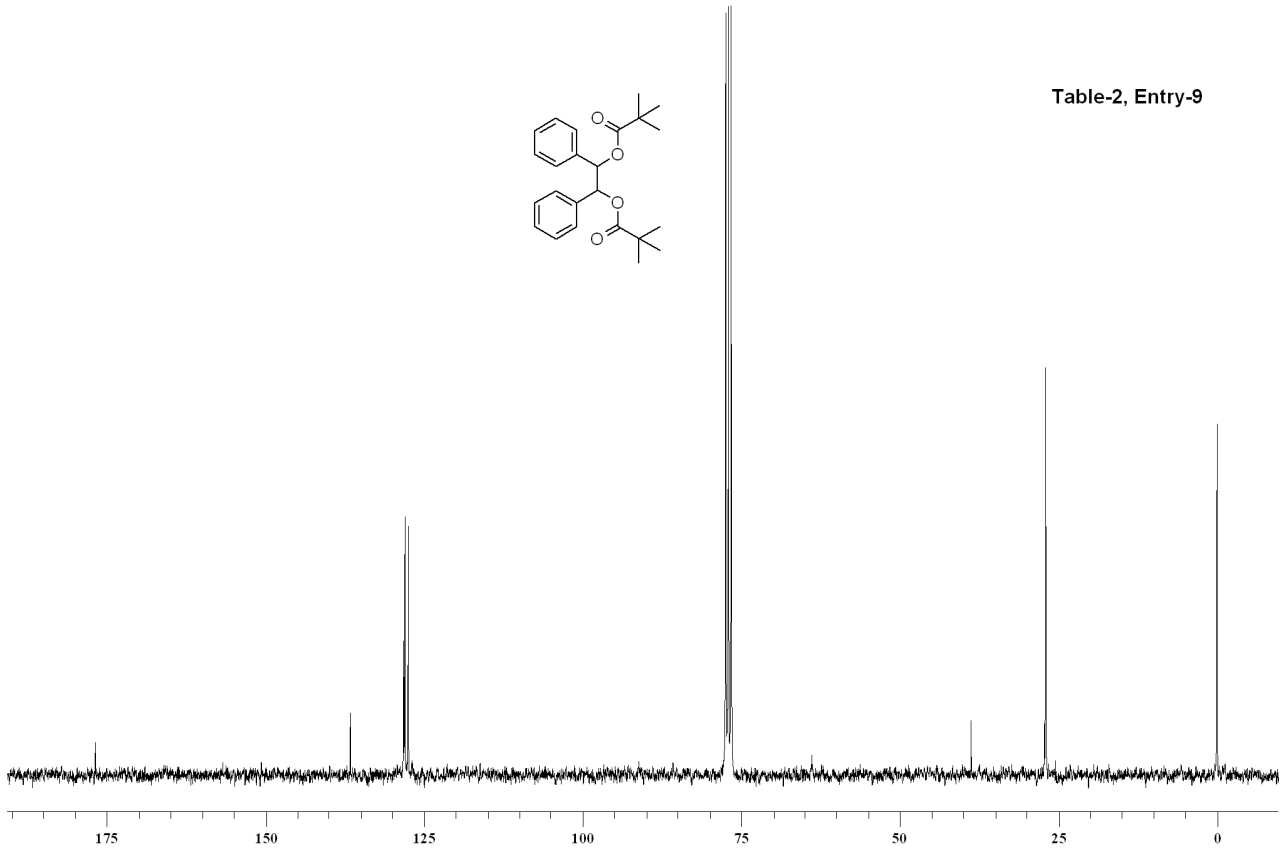


Table-2, Entry-9
175
150
125
100
75
50
25
0

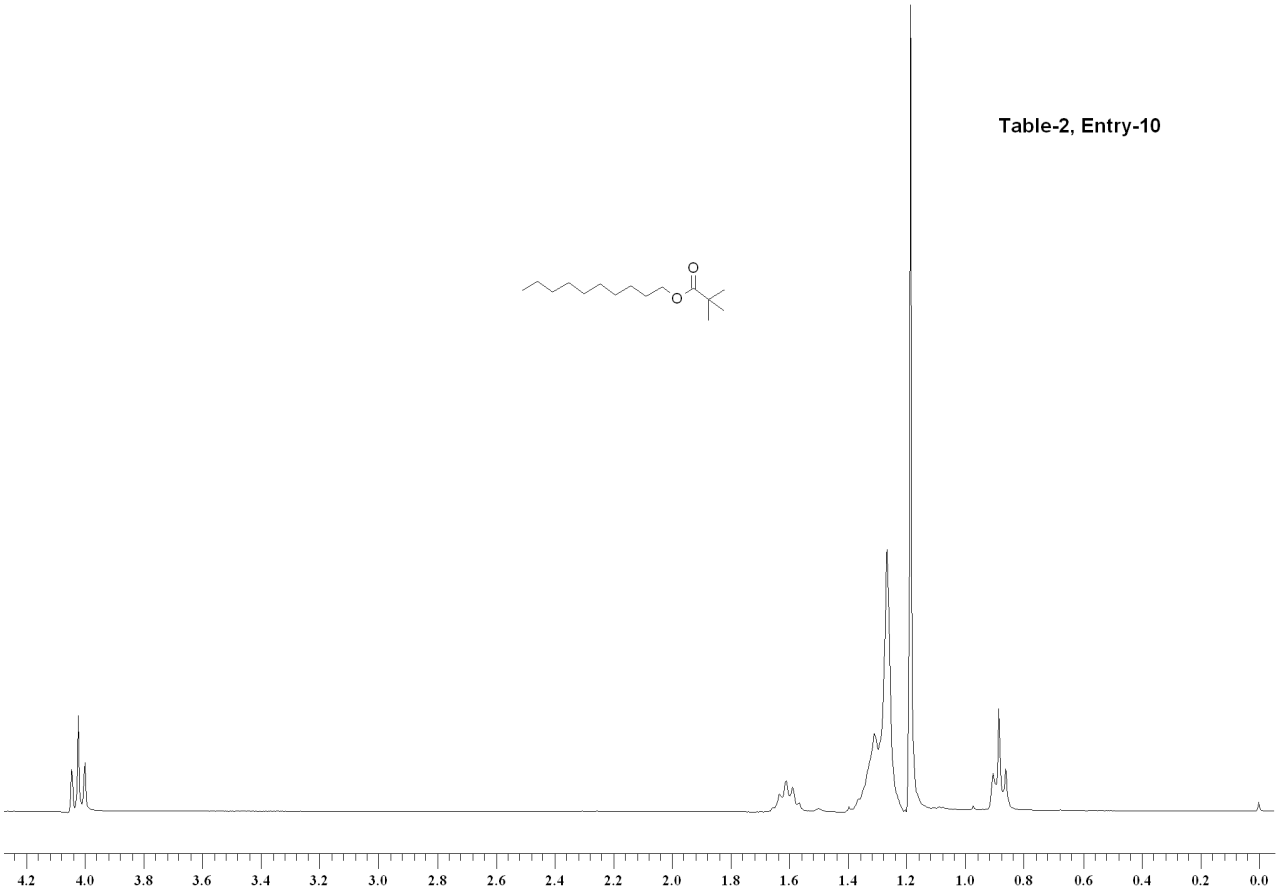


Table-2, Entry-10
4.2
4.0
3.8
3.6
3.4
3.2
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0

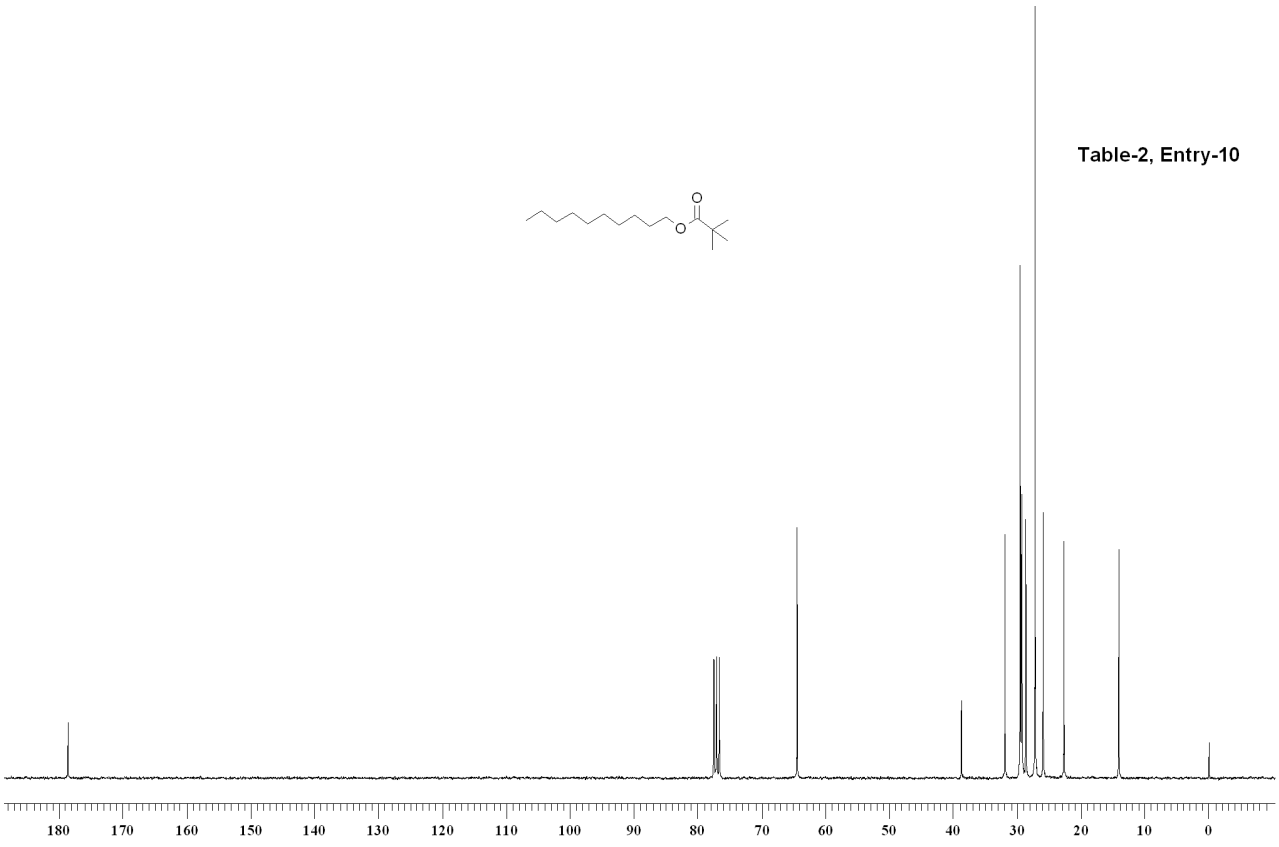


Table-2, Entry-10
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0

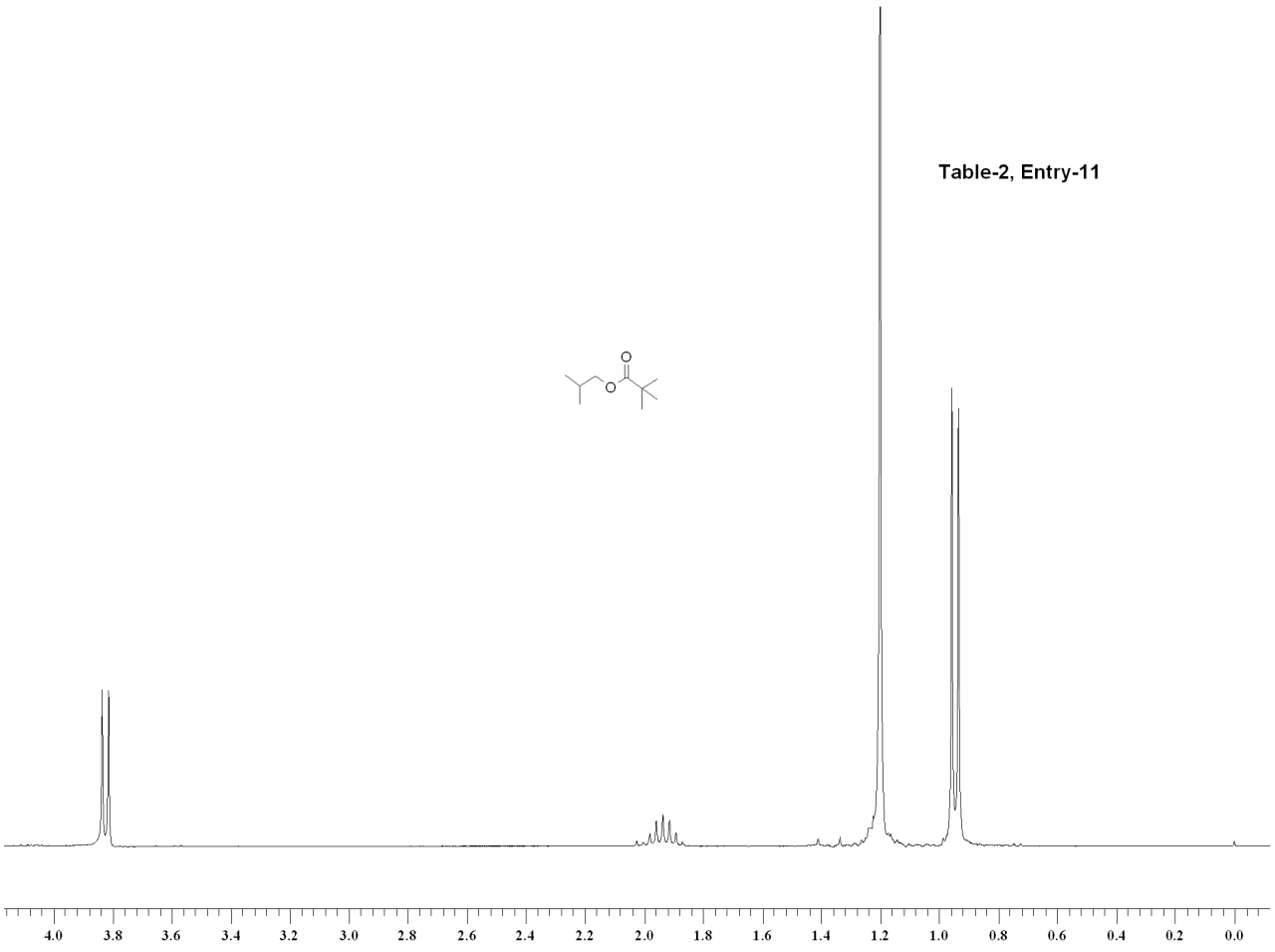


Table-2, Entry-11
O
O
4.0
3.8
3.6
3.4
3.2
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0

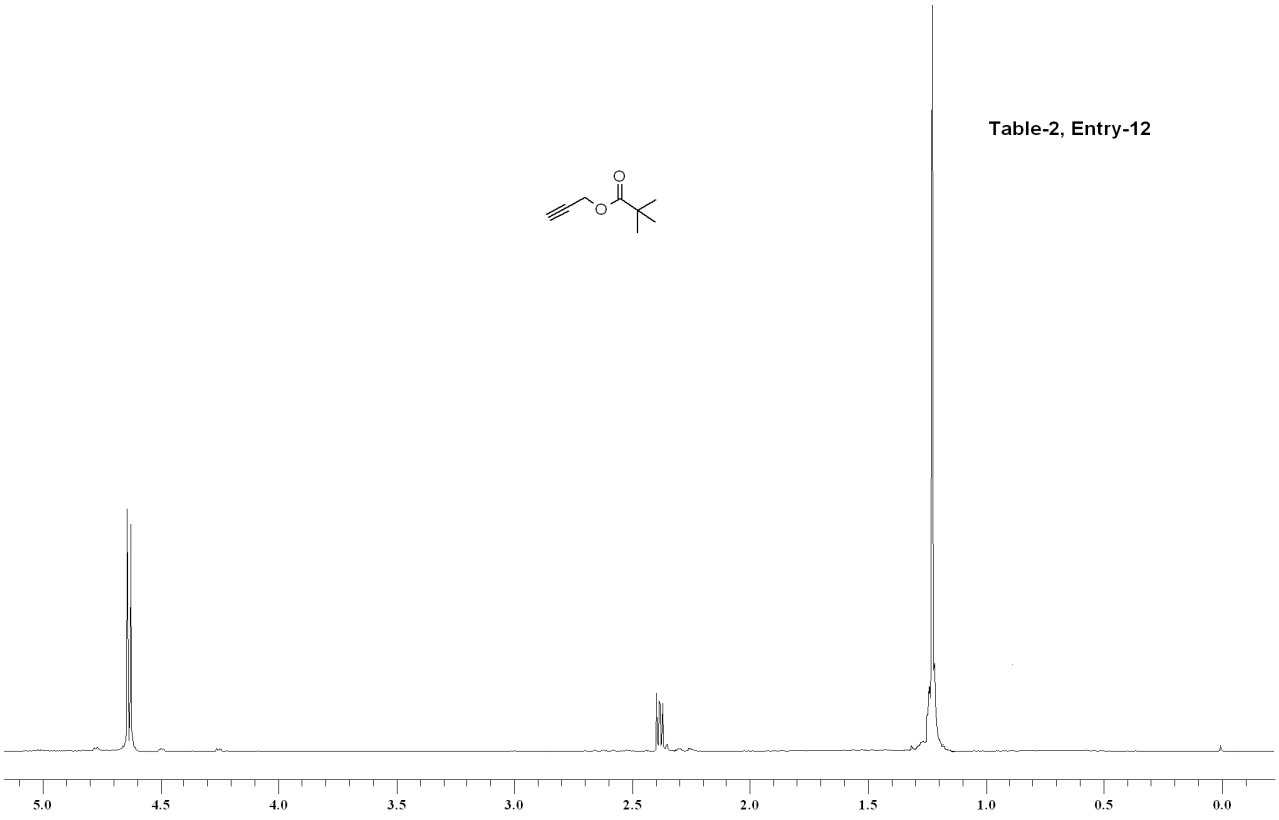


Table-2, Entry-12
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

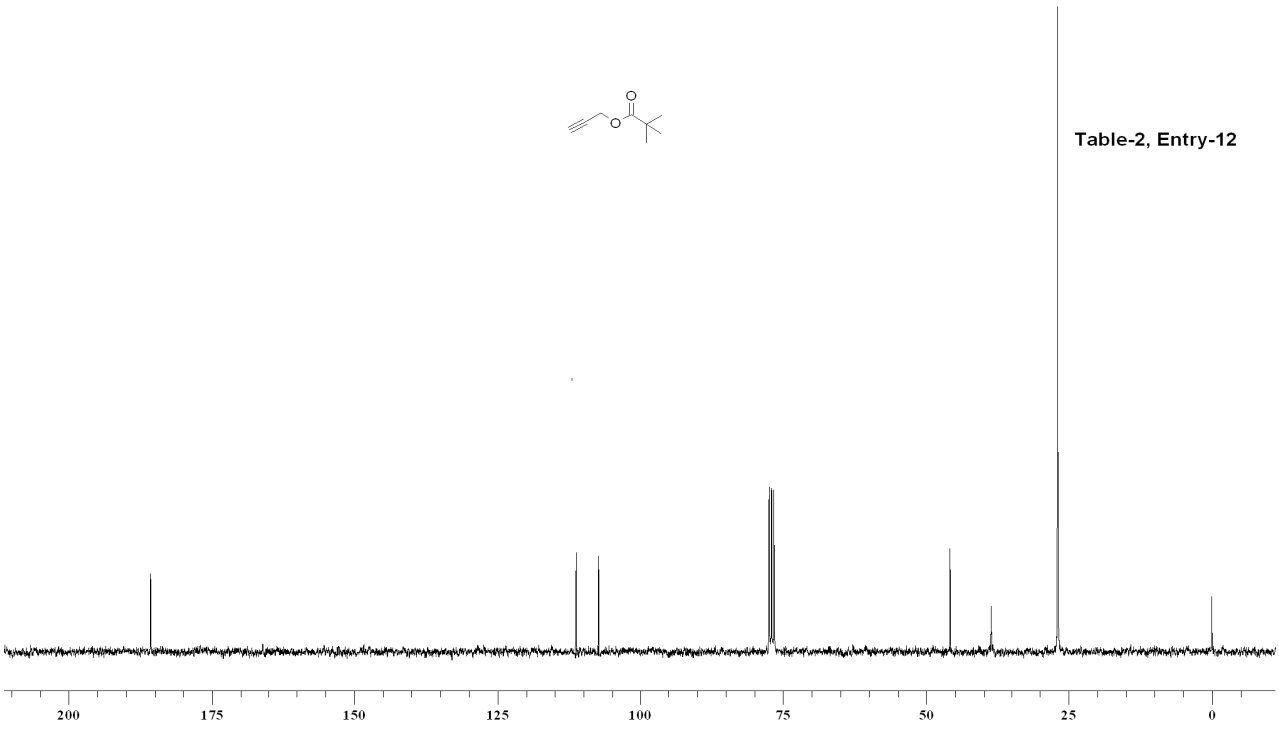


Table-2, Entry-12
200
175
150
125
100
75
50
25
0

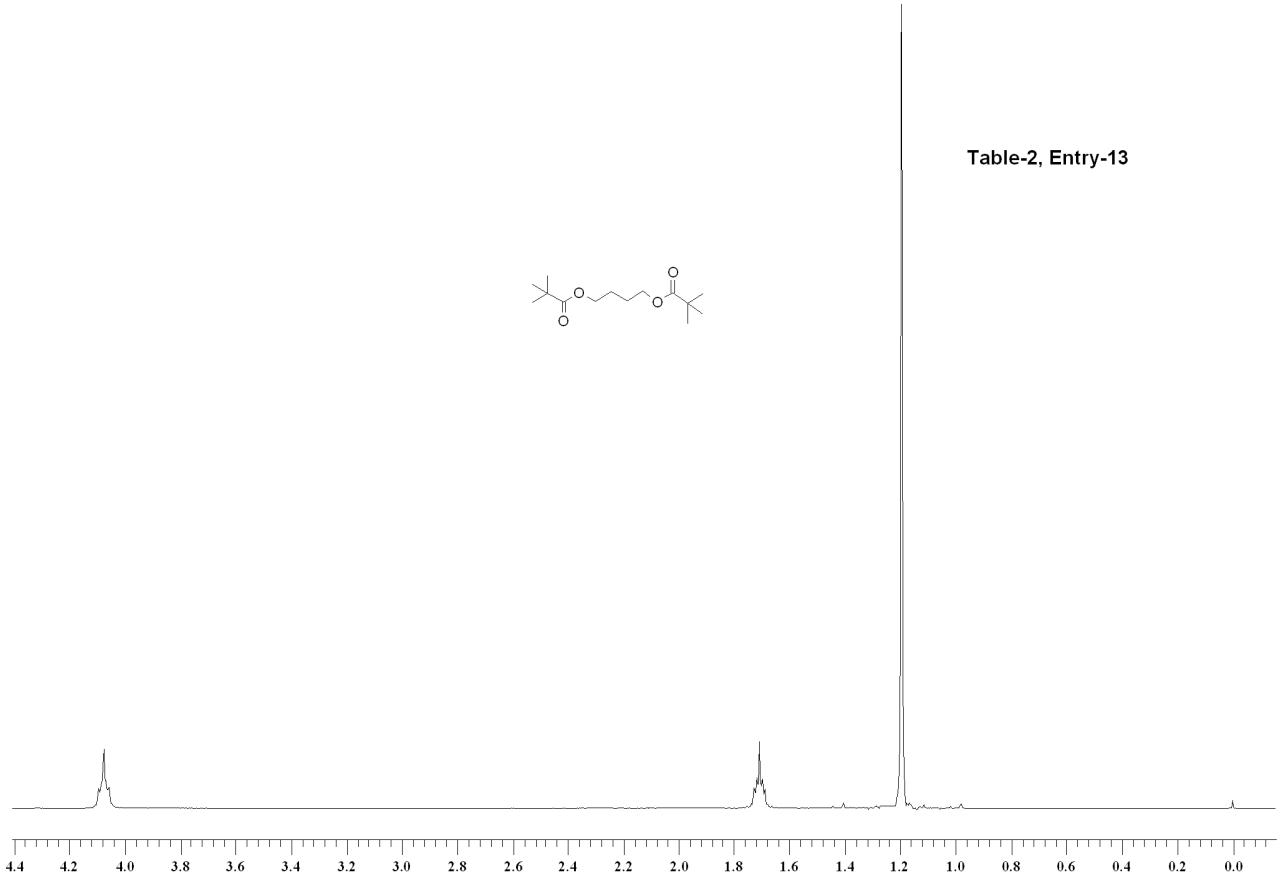


Table-2, Entry-13
4.4 4.2 4.0 3.8 3.6 3.4 3.2 3.0 2.8 2.6 2.4 2.2 2.0 1.8 1.6 1.4 1.2 1.0 0.8 0.6 0.4 0.2 0.0

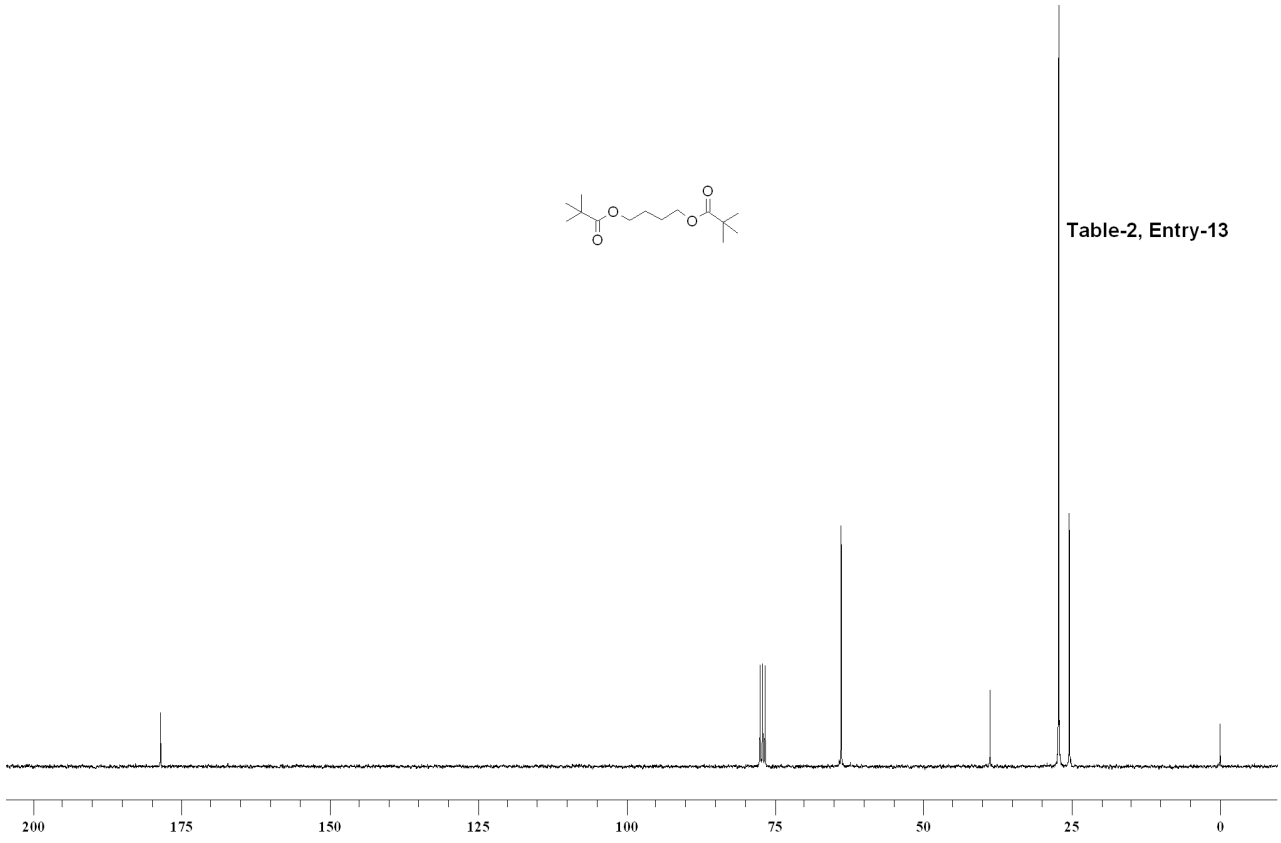


Table-2, Entry-13
200 175 150 125 100 75 50 25 0

Table-2, Entry-14

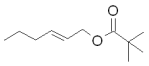
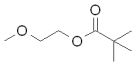


Table-2, Entry-15



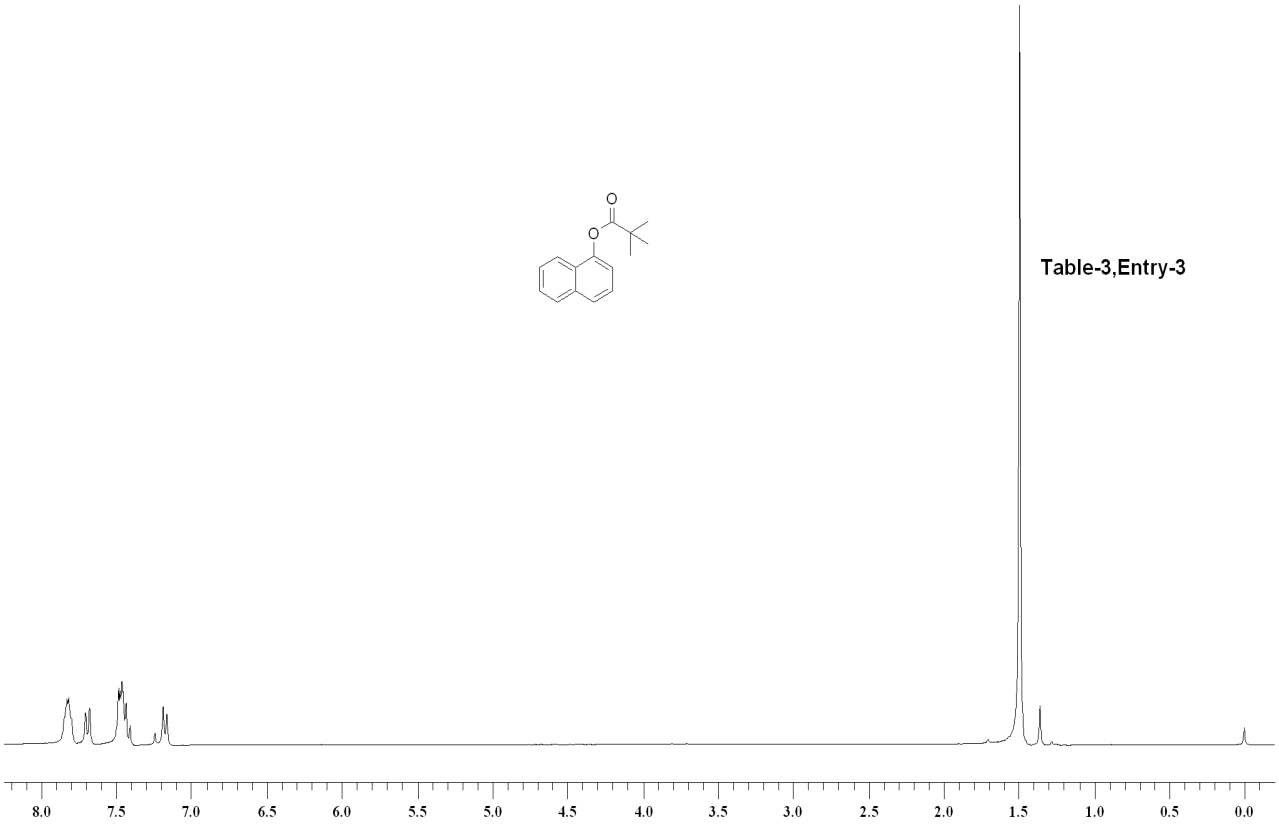


Table-3,Entry-3
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

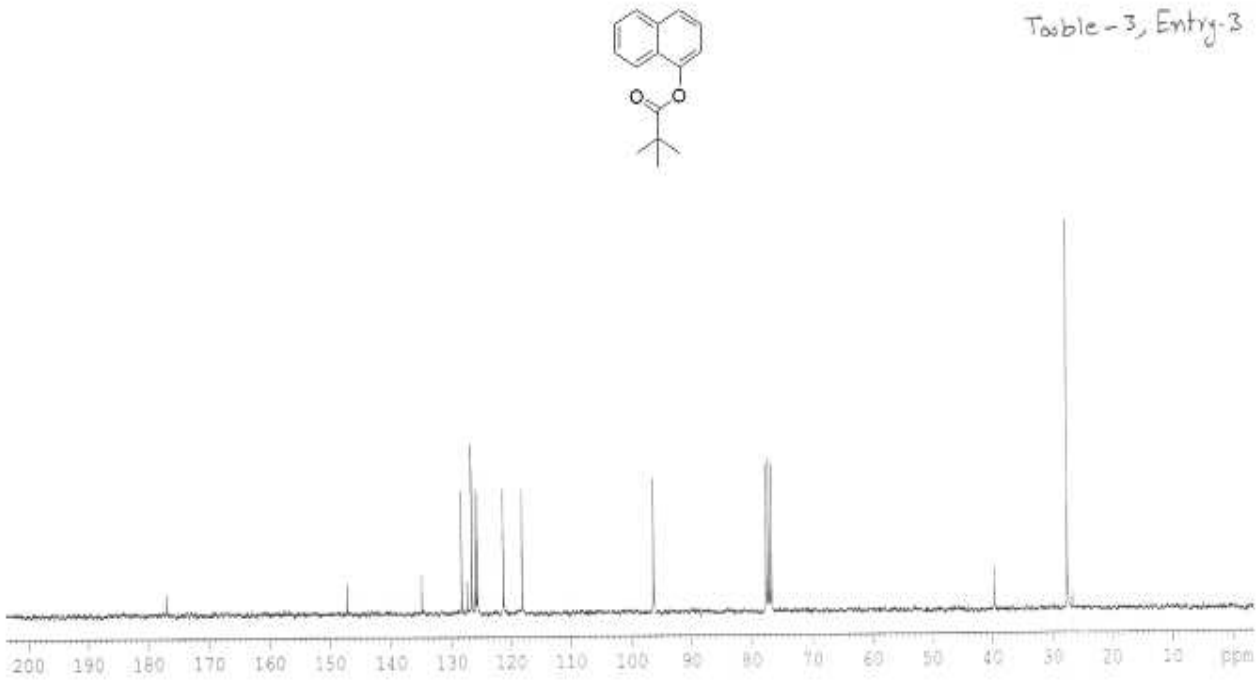


Table-3, Entry-3
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
ppm

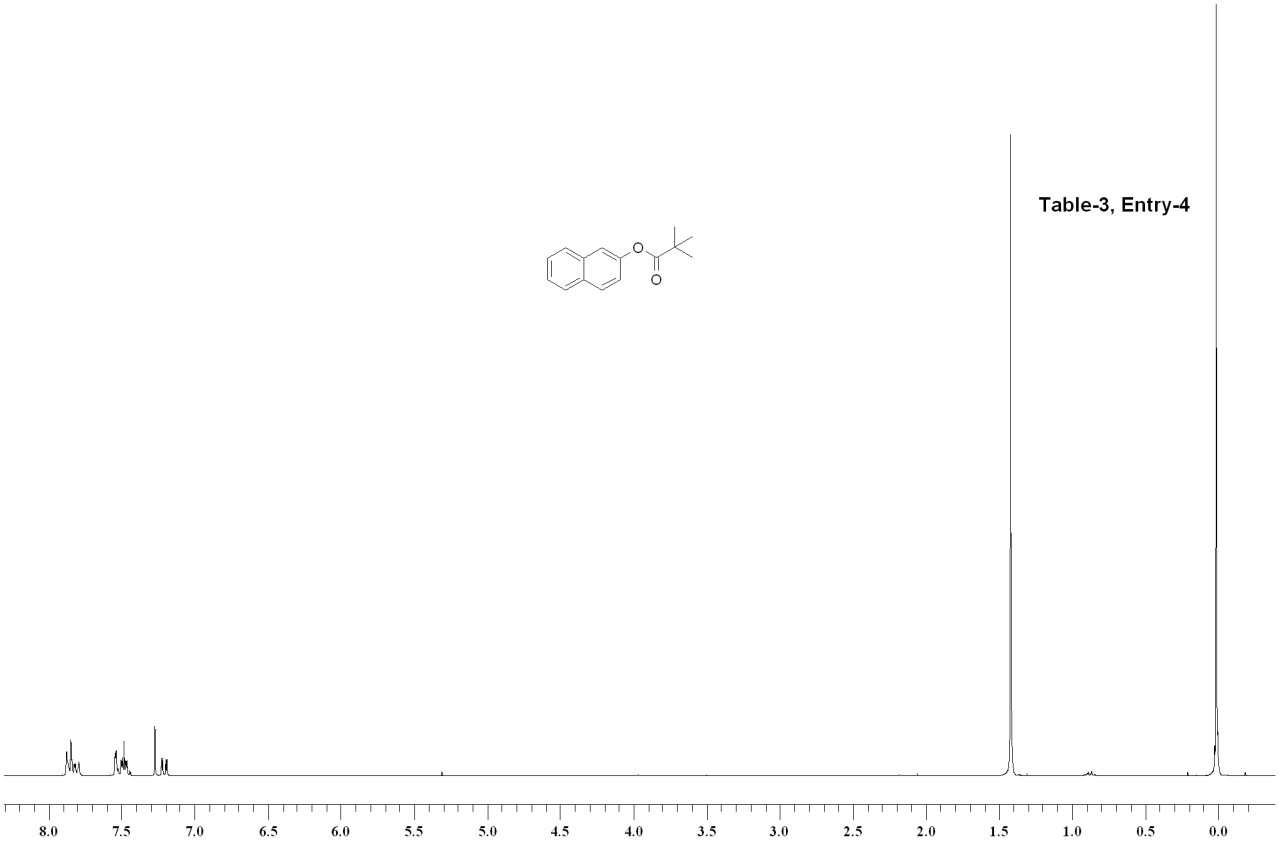


Table-3, Entry-4
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

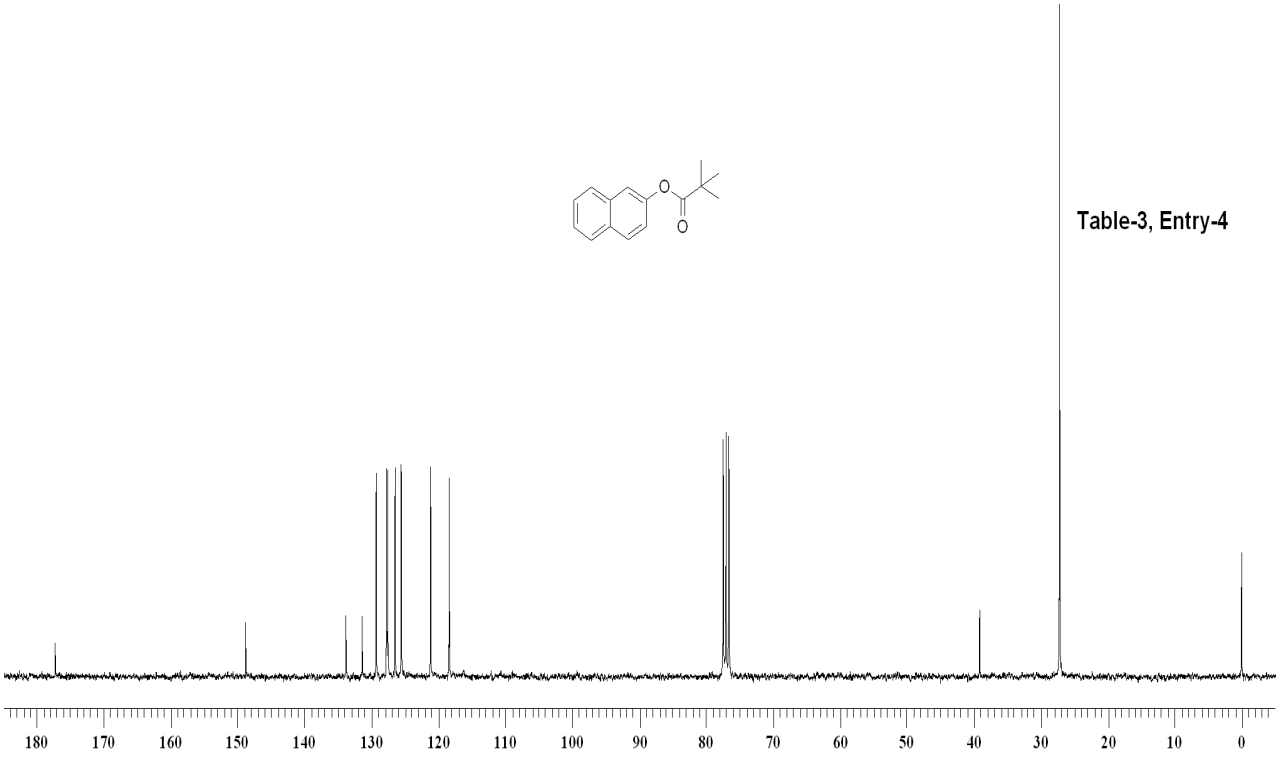


Table-3, Entry-4
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0

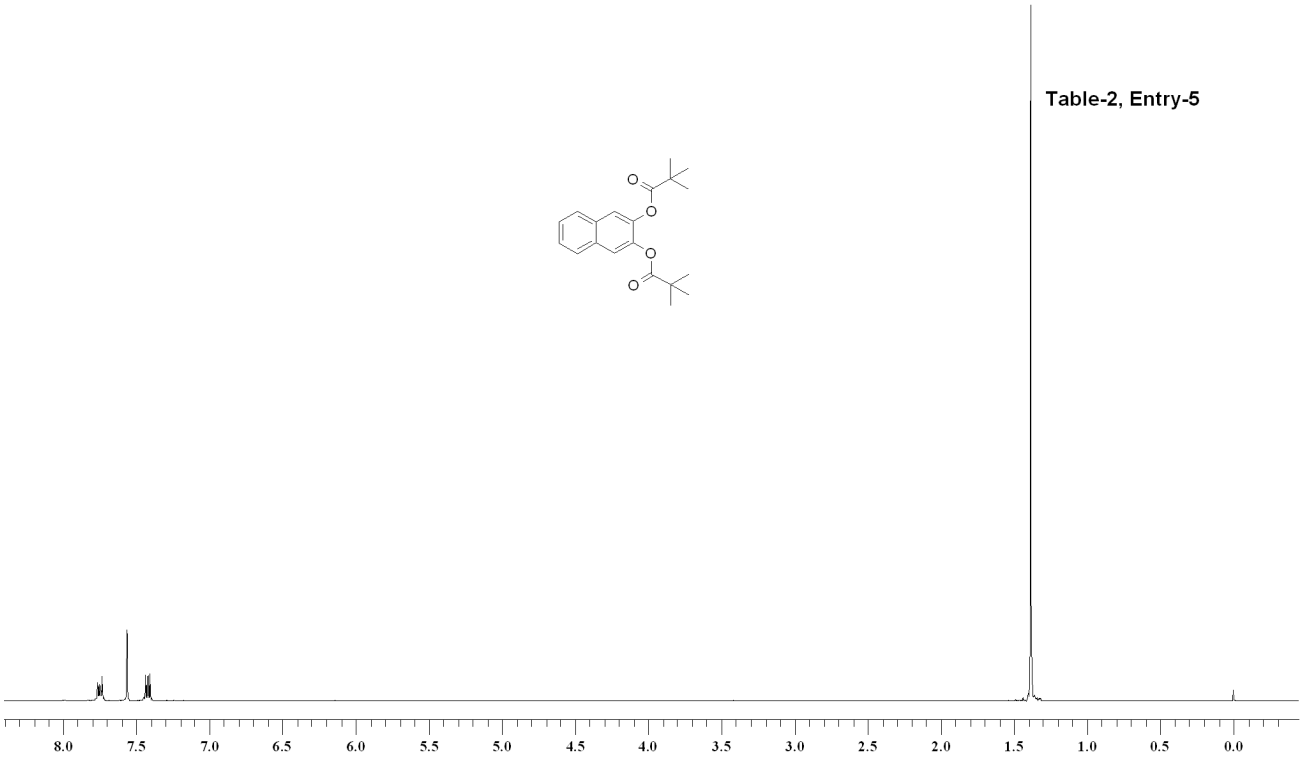


Table-2, Entry-5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

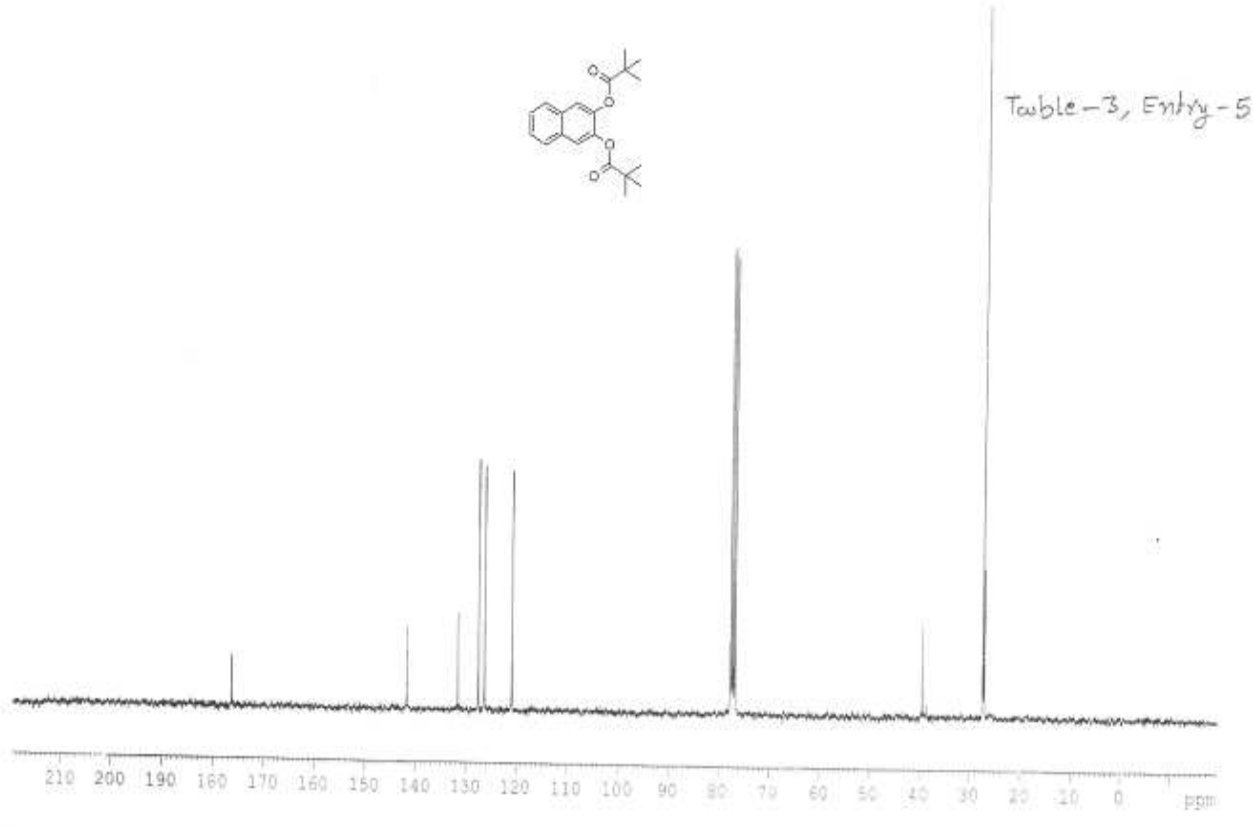
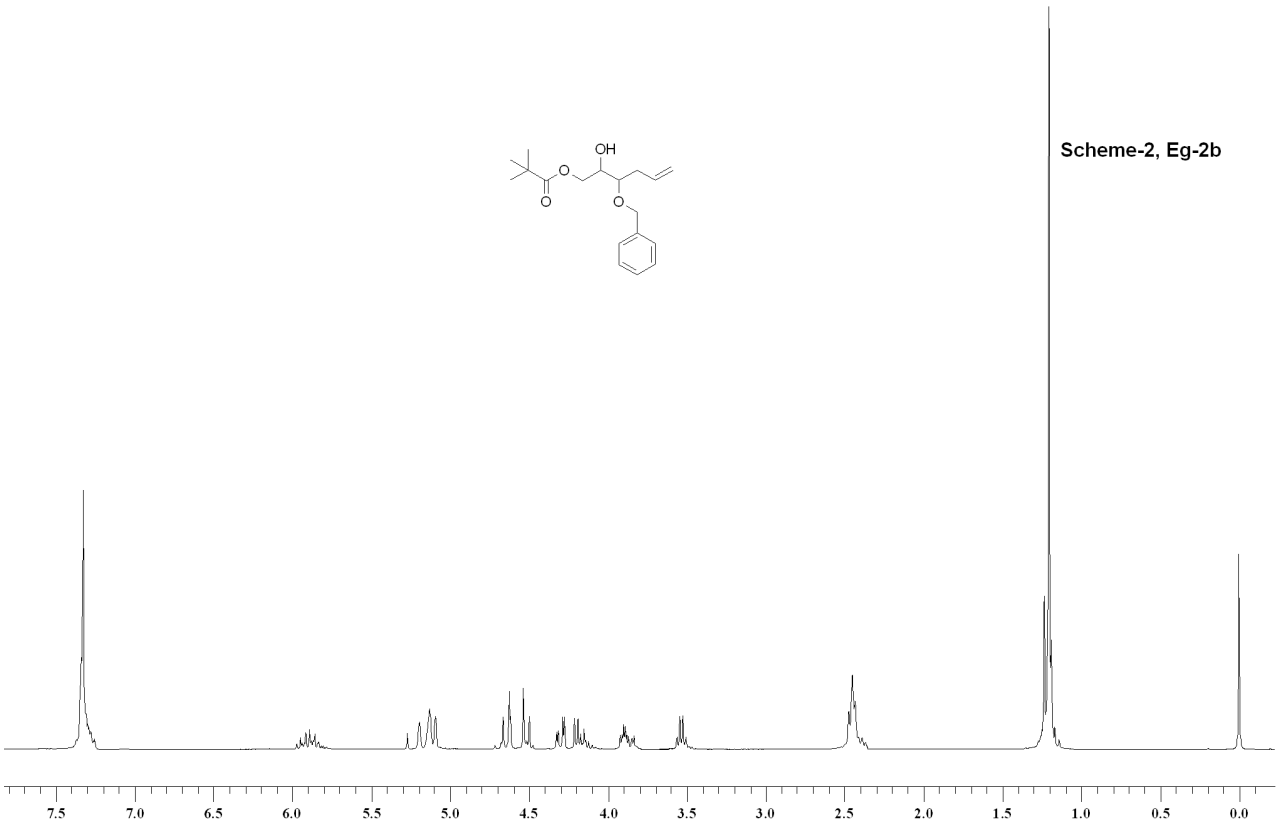
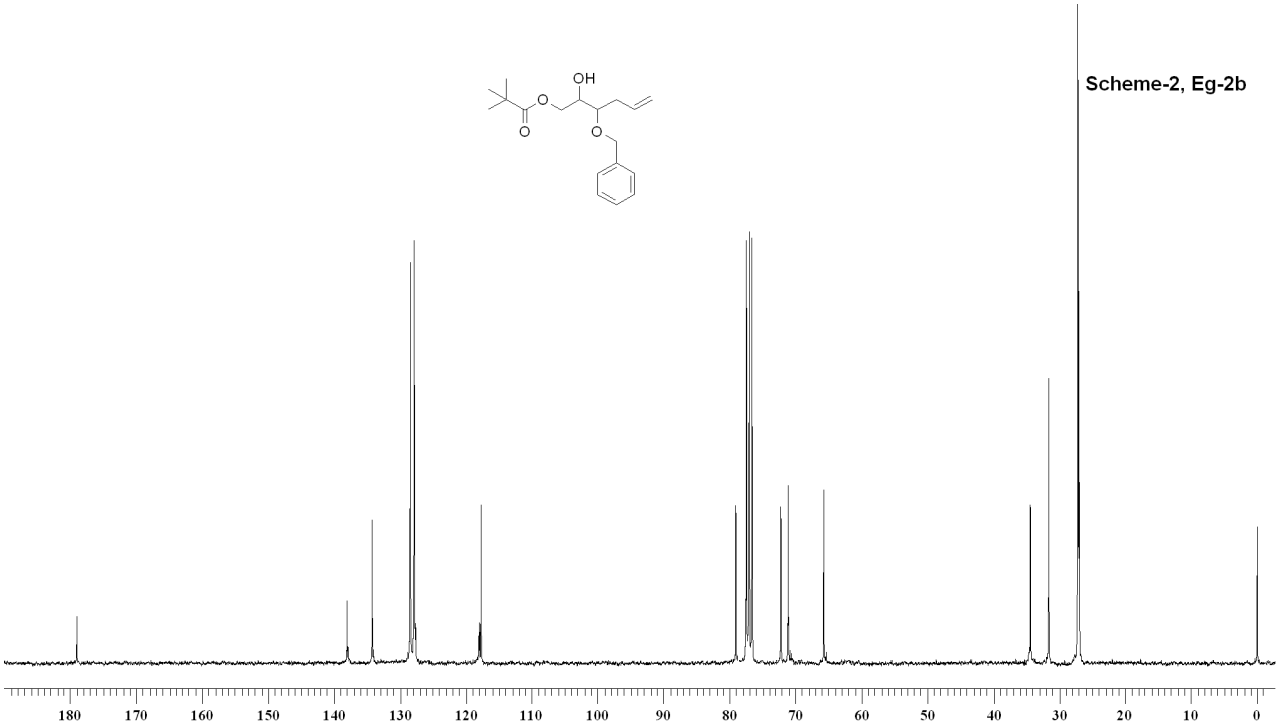
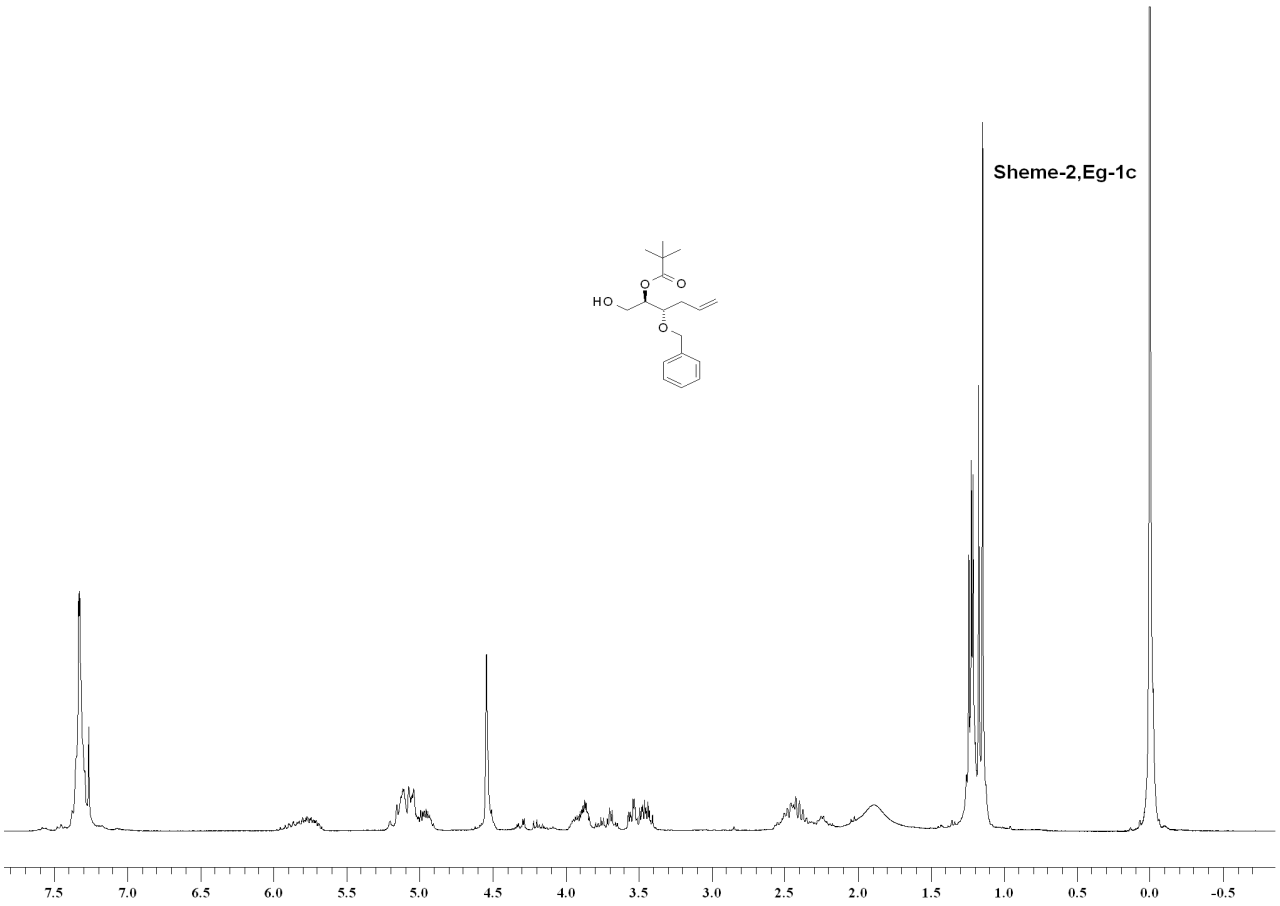
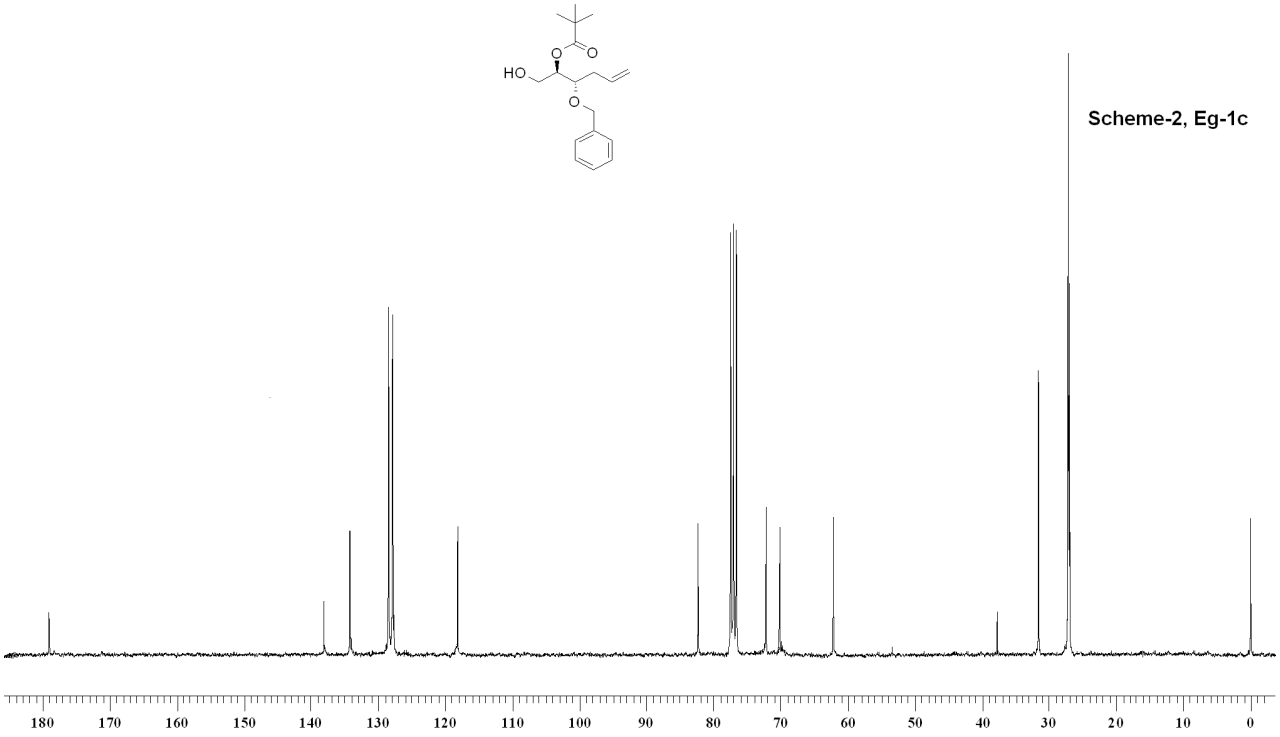


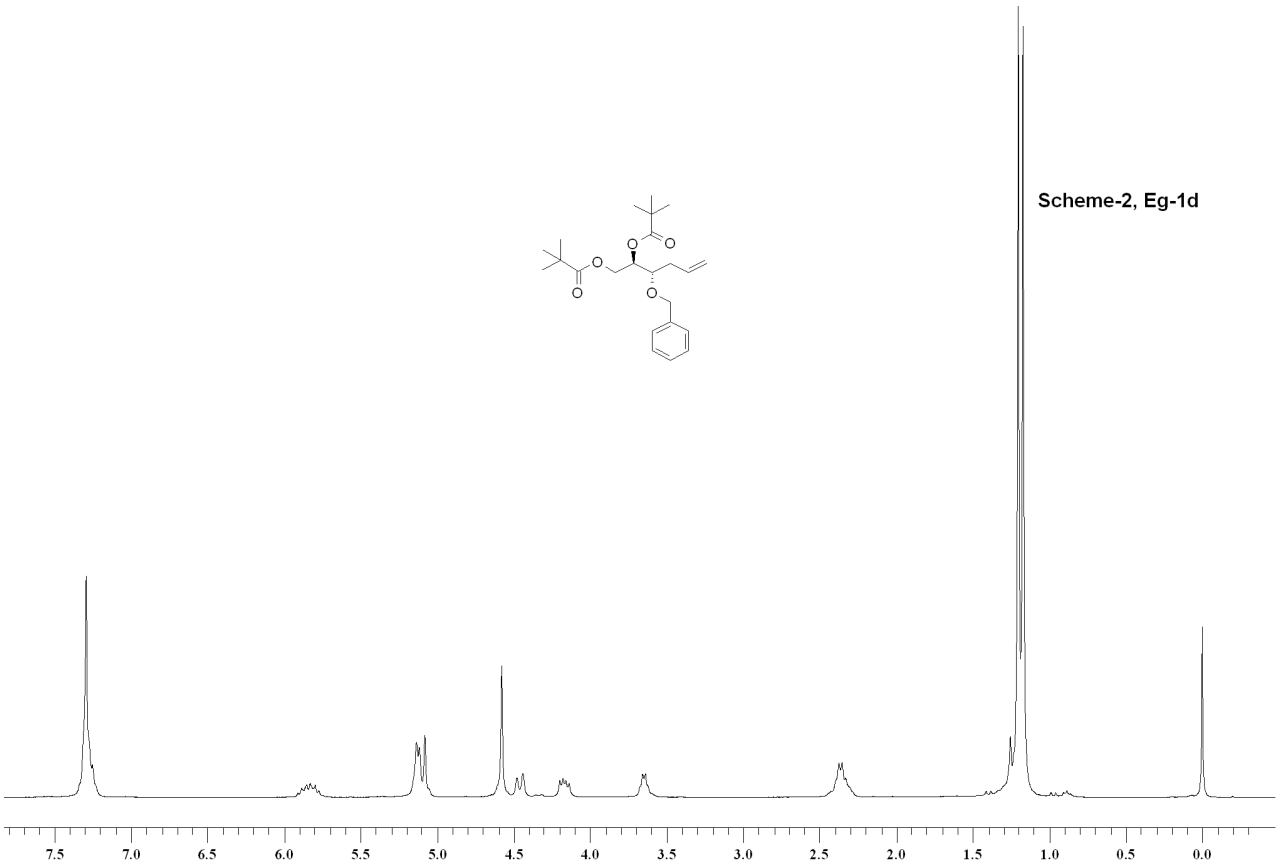
Table-3, Entry-5
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
ppm

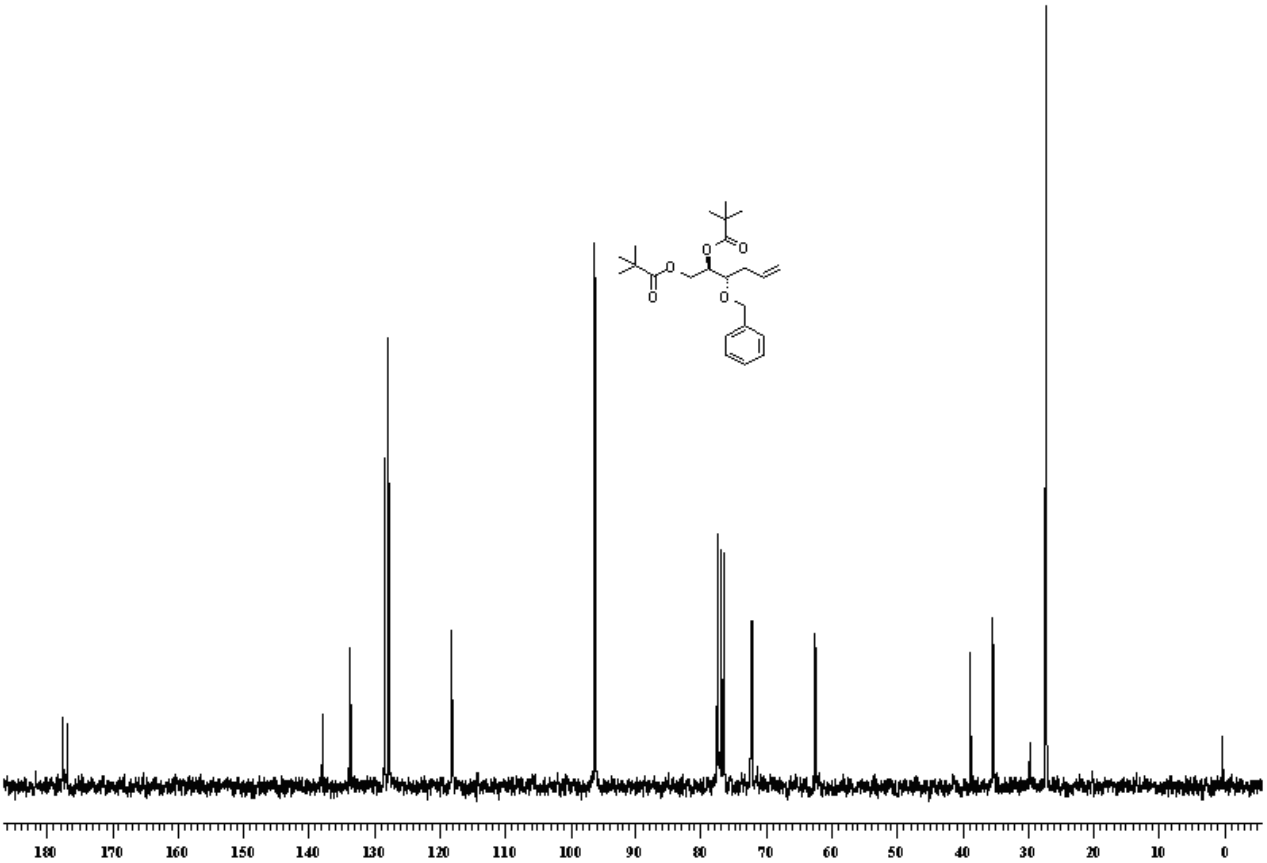

OH
O
O
O
Scheme-2, Eg-2b
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

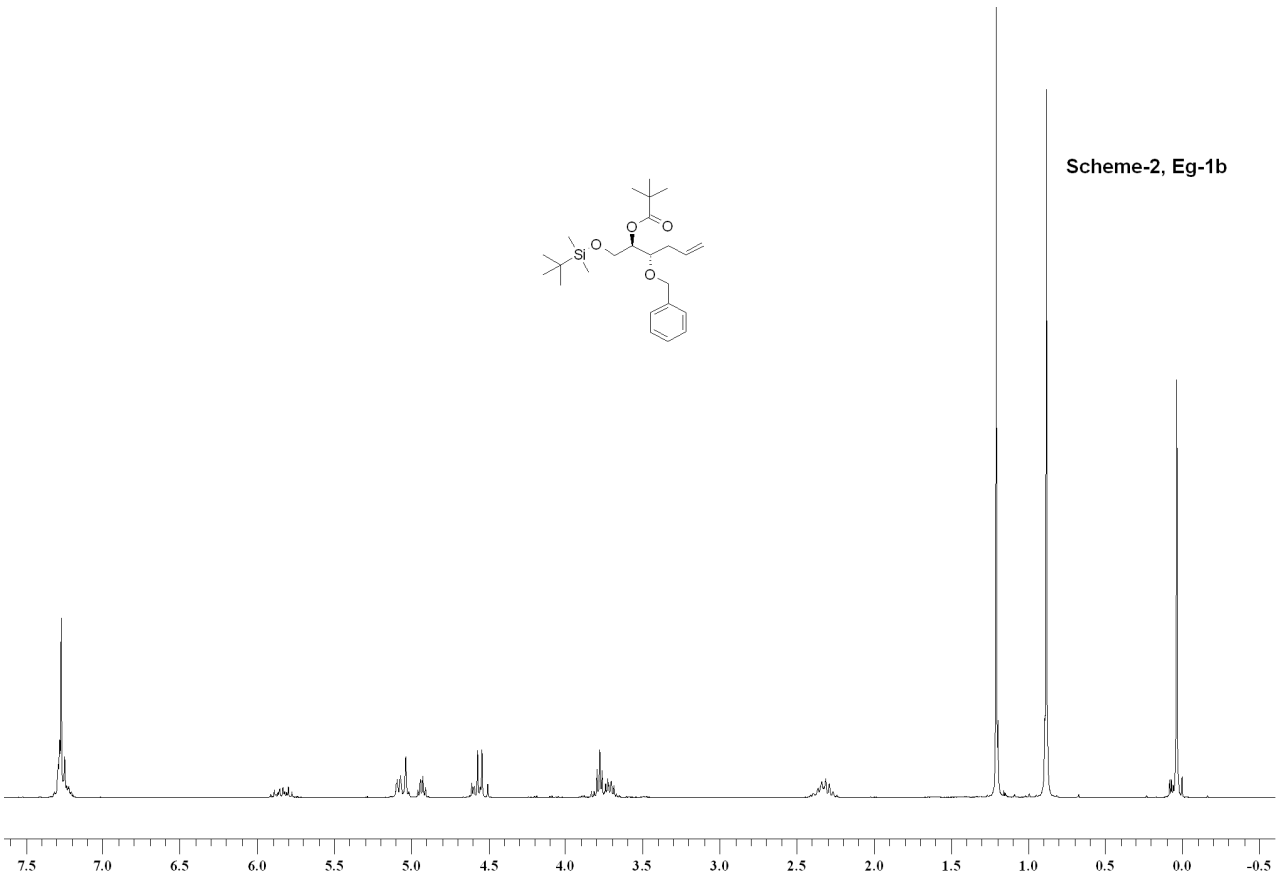

OH
O
O
O
Scheme-2, Eg-2b
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0

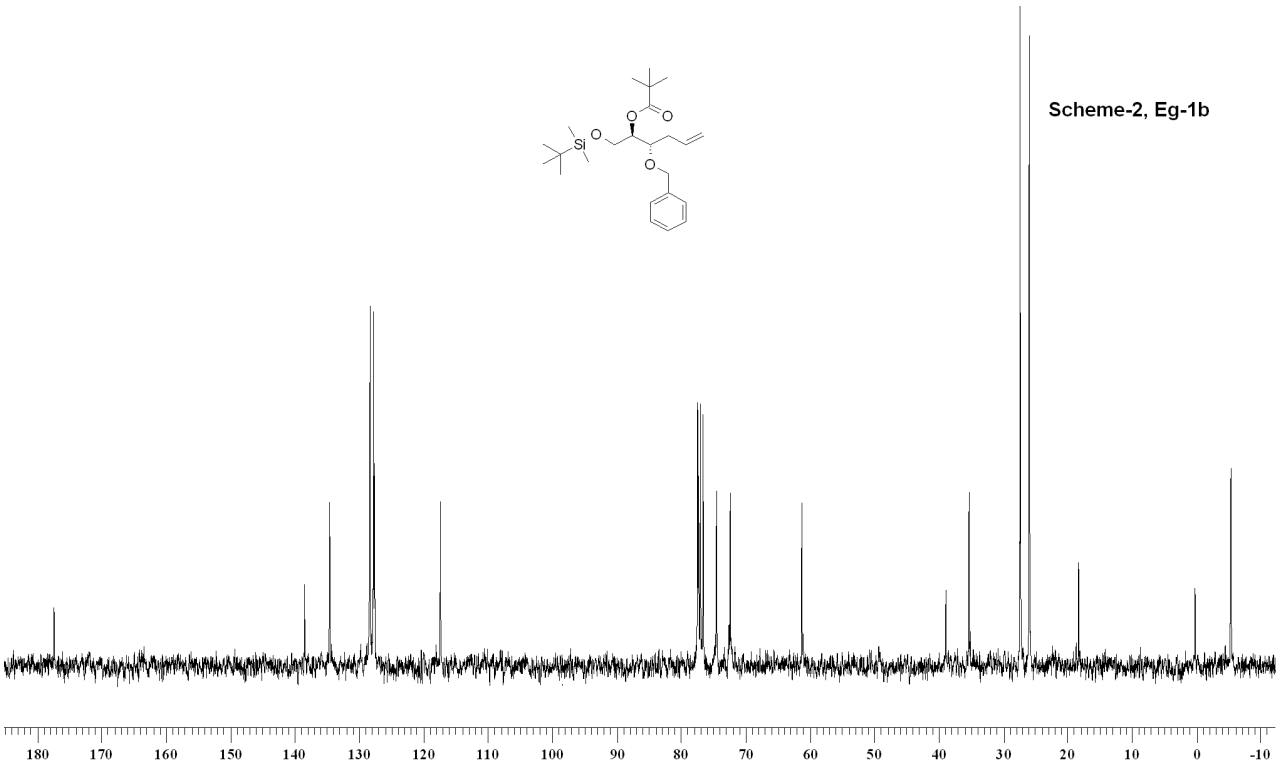

Sheme-2,Eg-1c
HO
O
O
O
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5

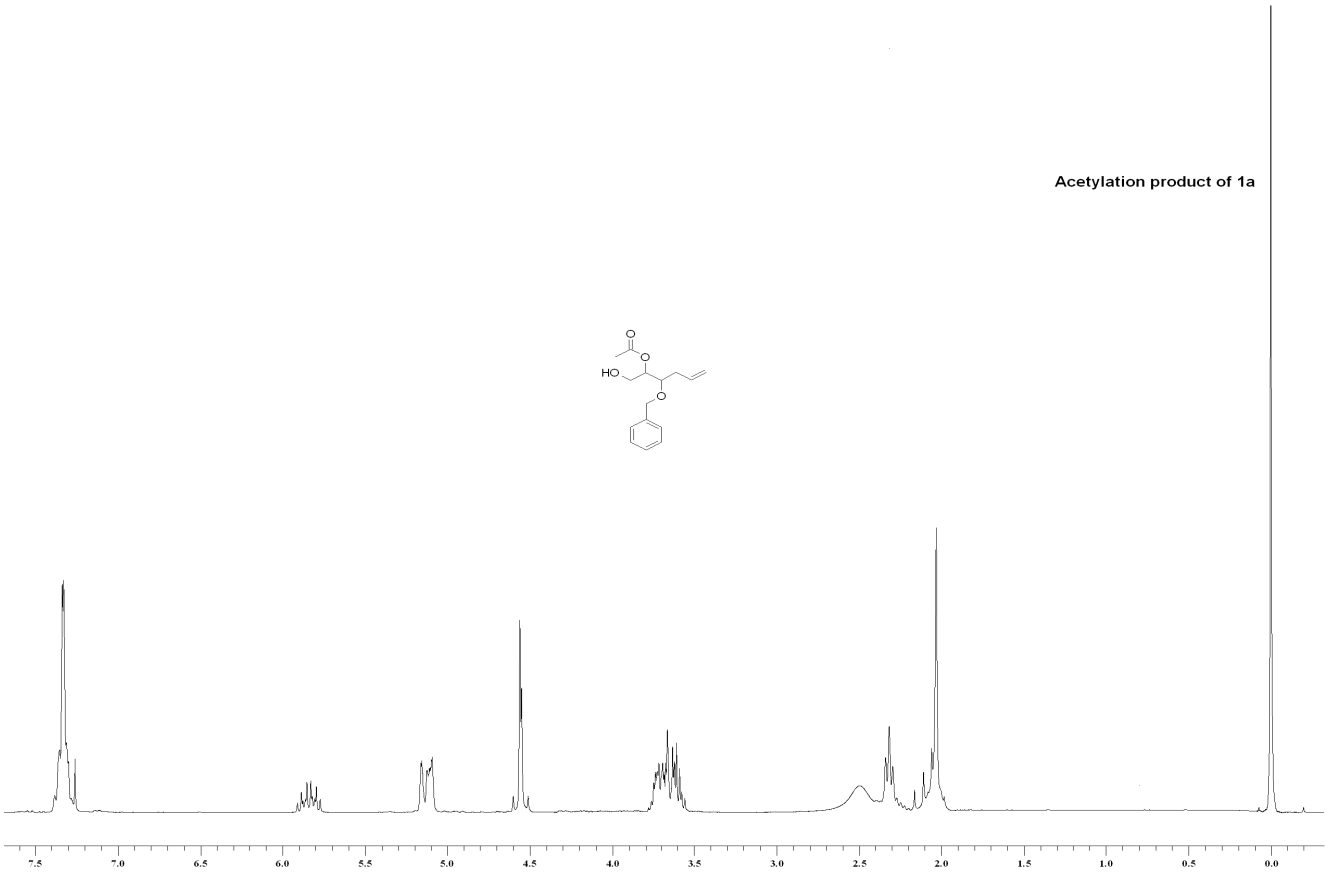

Scheme-2, Eg-1c
HO
O
O
O
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0

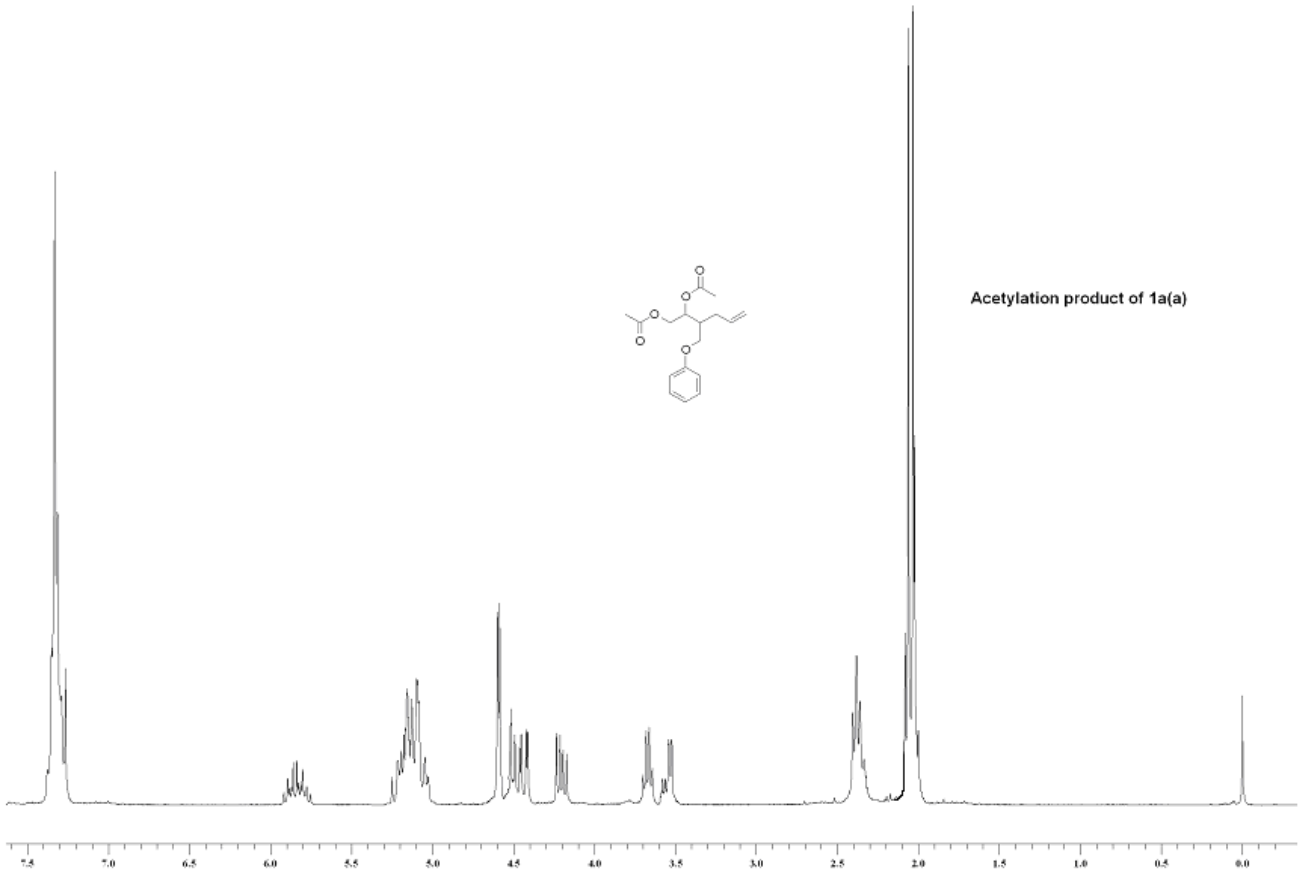

Scheme-2, Eg-1d
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0


180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0


Scheme-2, Eg-1b
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5


Scheme-2, Eg-1b
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10


Acetylation product of 1a
HO
O
O
O
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0


Acetylation product of 1a(a)
O
O
O
O
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0