

• Spektren Anhang •

Palladium(II)-katalysierte Cycloisomerisierung von hochsubstituierten 1,5-Hexadienen

Björn Nelson – Dissertation Buch 2

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Inhaltsverzeichnis:

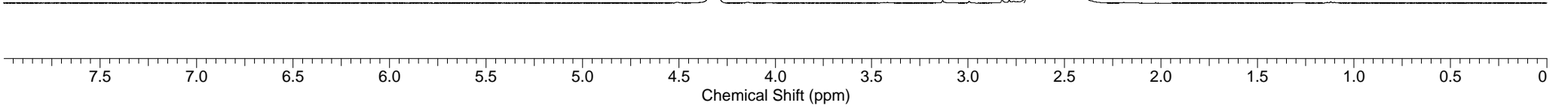
Kopie der NMR Spektren	Seite 1
IR Spektren.....	Seite 289
Elementaranalysen und HRMS-Spektren.....	Seite 377

NMR Spektren

Die 2D $^1\text{H},^1\text{H}$ -COSY, $^1\text{H},^1\text{H}$ -NOESY, $^1\text{H},^{13}\text{C}$ -HSQC und $^1\text{H},^{13}\text{C}$ -HMBC-Spektren wurden vollständig ausgewertet; die Signalzuordnungen im Spektrum vermerkt und wichtige zur Strukturbestimmung herangezogene Kreuzpeaks markiert.

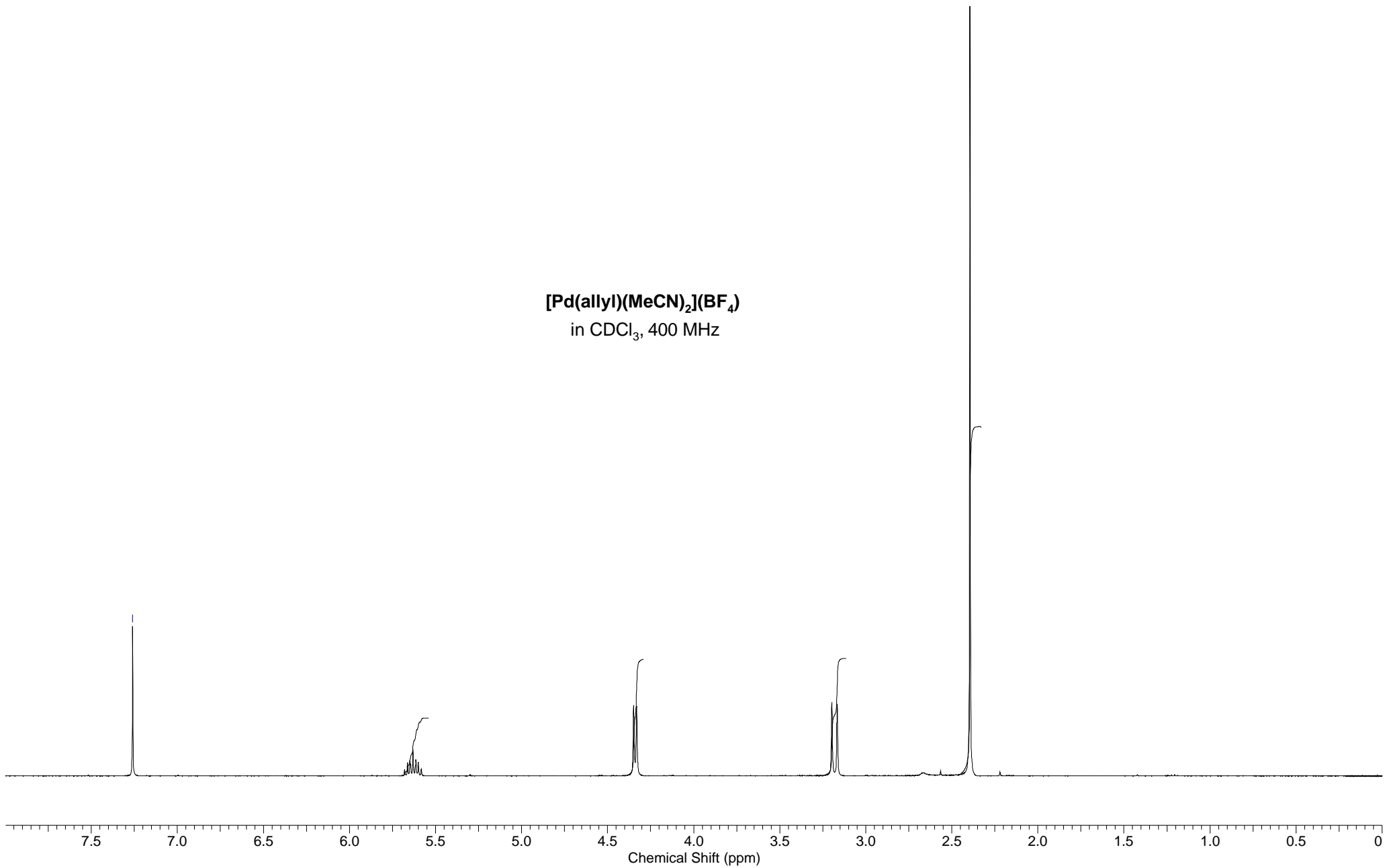
[Pd(MeCN)₄](BF₄)₂
in CD₃NO₂, 400 MHz

—4.33



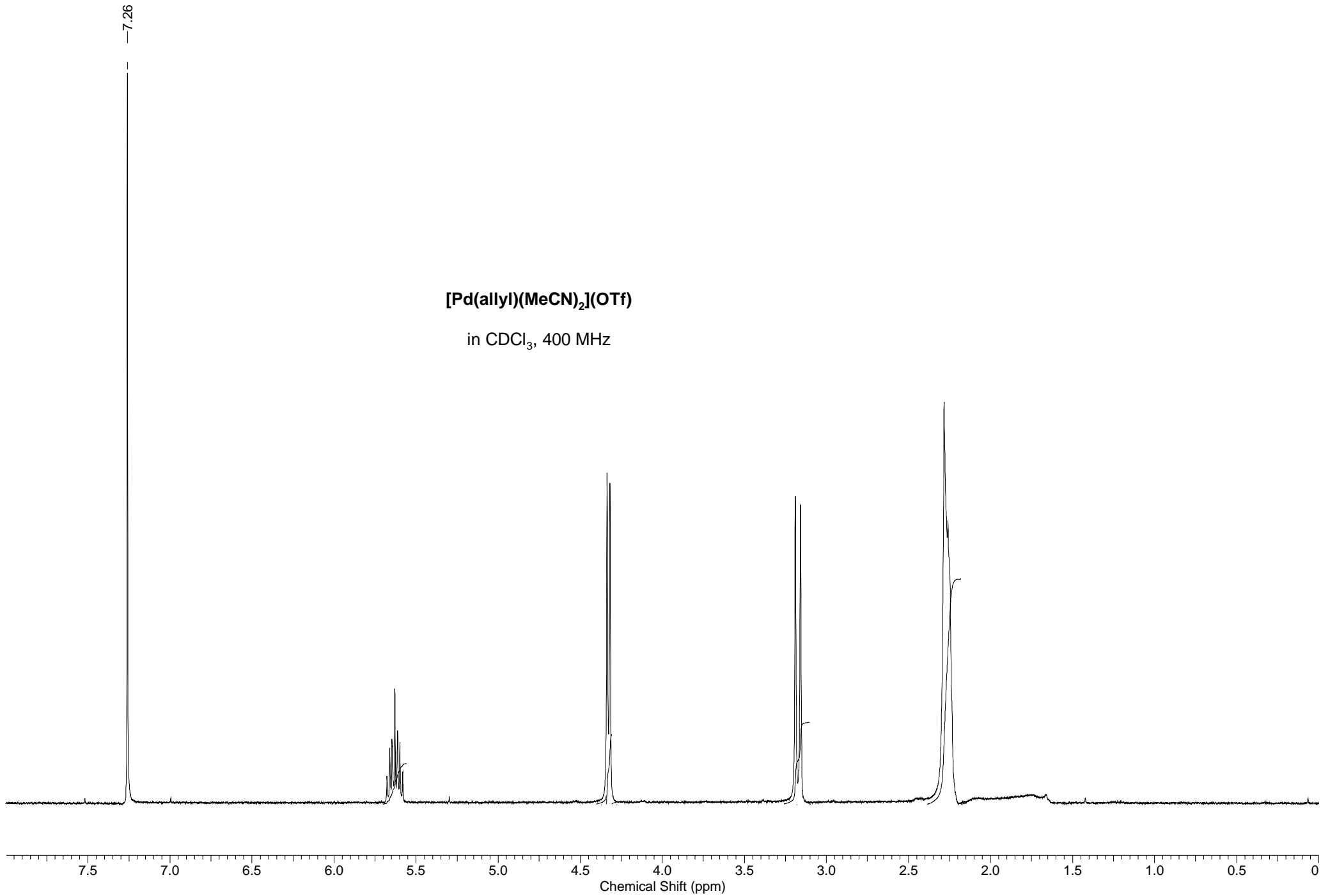
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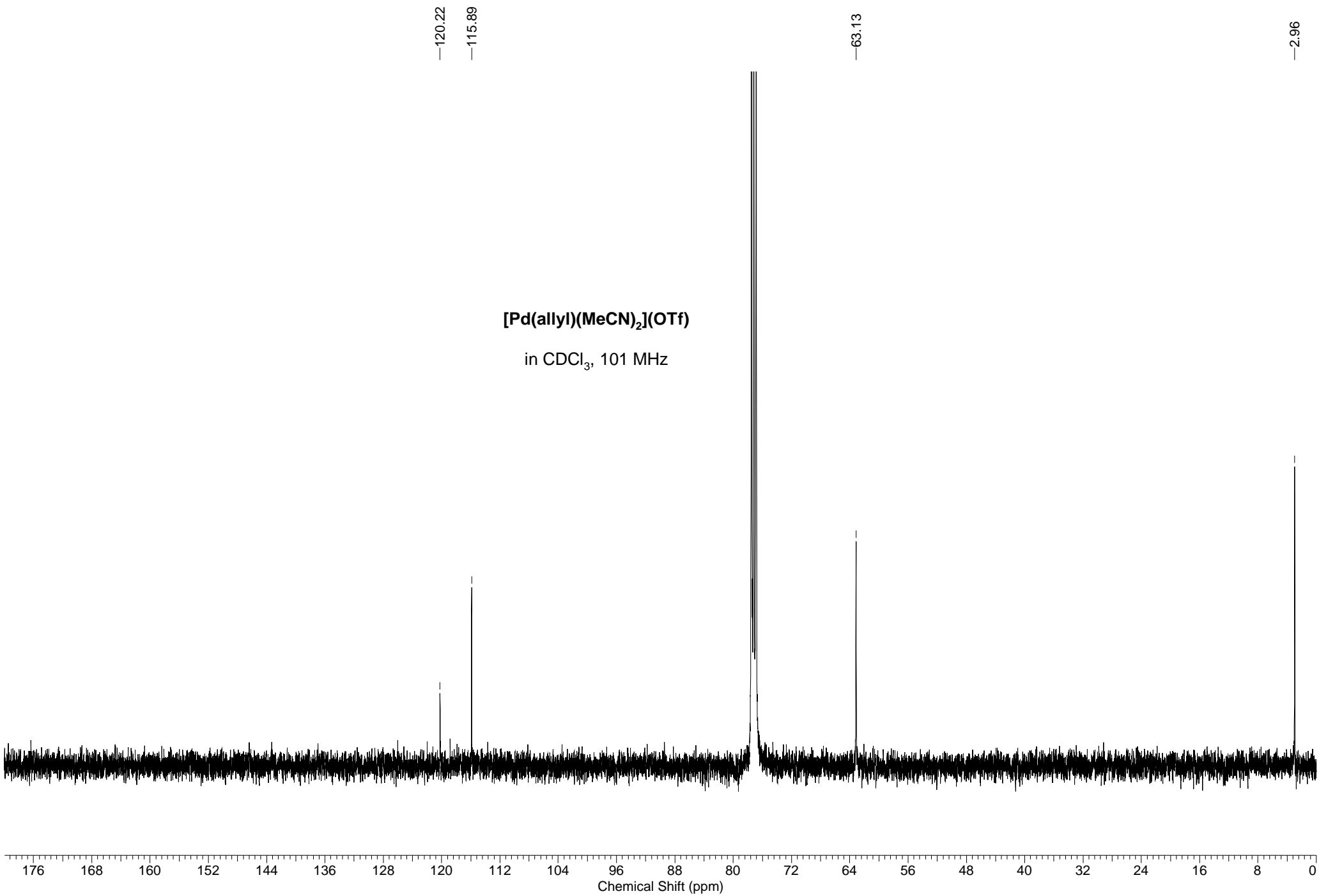
[Pd(allyl)(MeCN)₂](BF₄)
in CDCl₃, 400 MHz



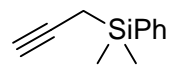
[Pd(allyl)(MeCN)₂](OTf)
in CDCl₃, 400 MHz

-7.26

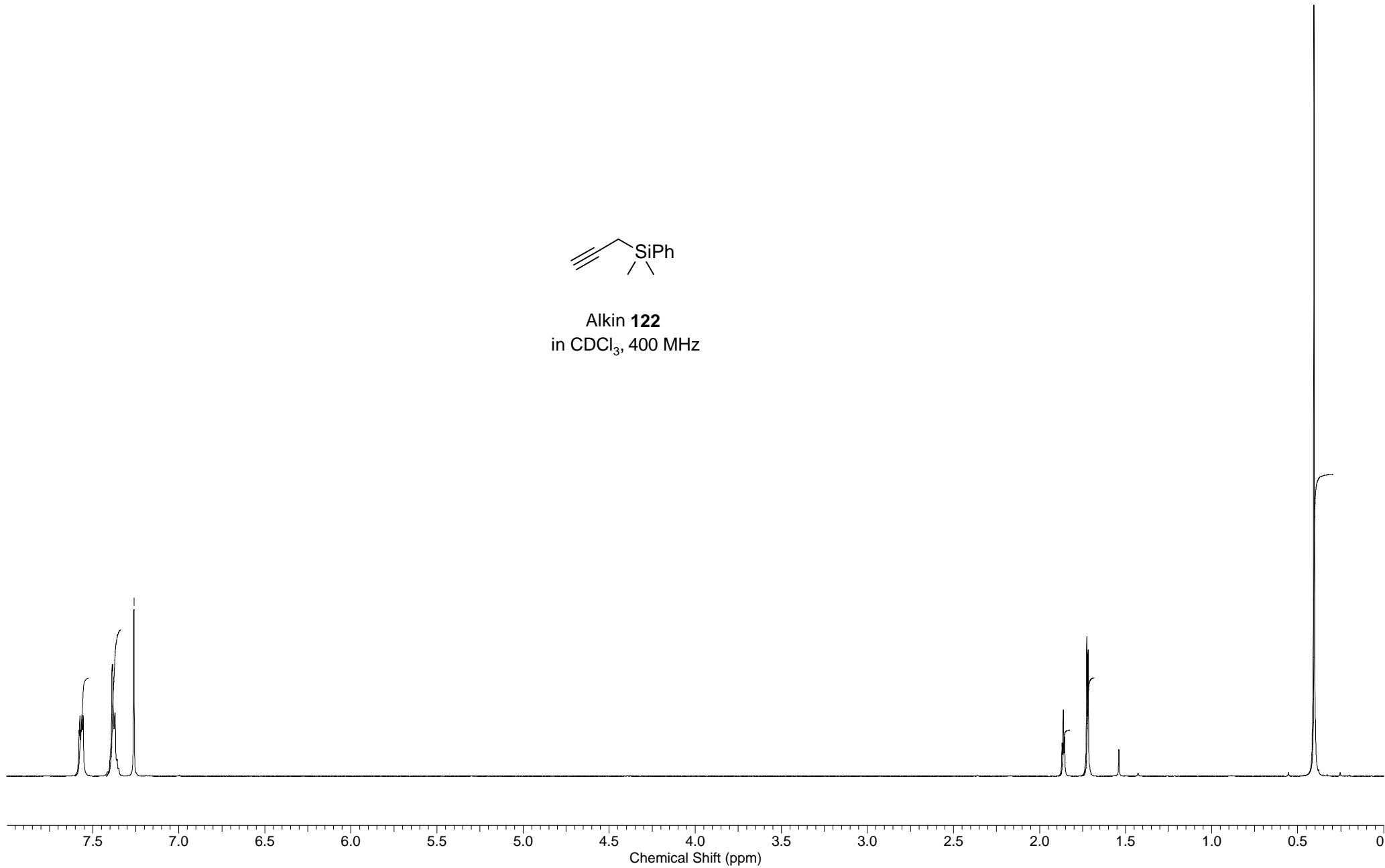


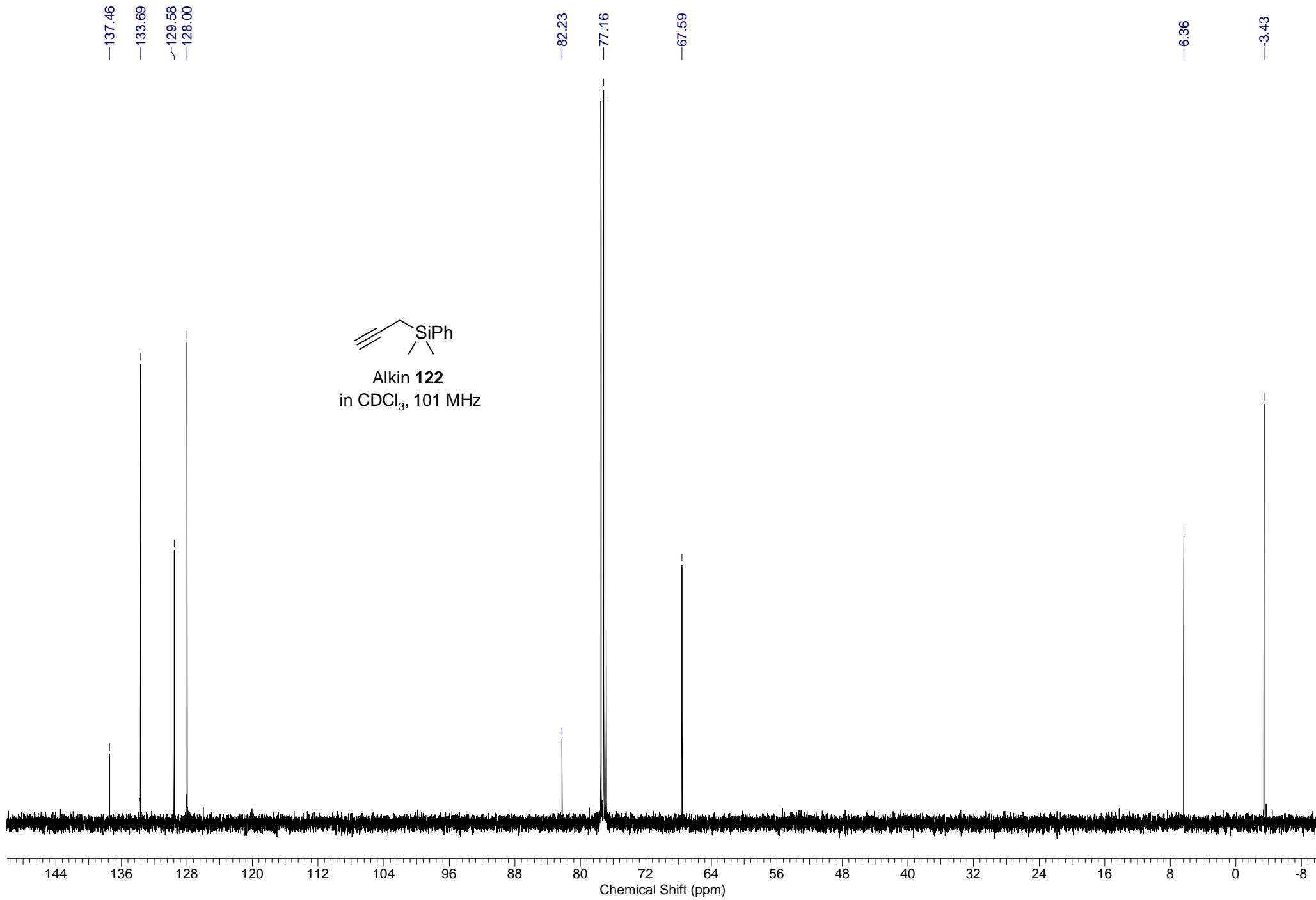


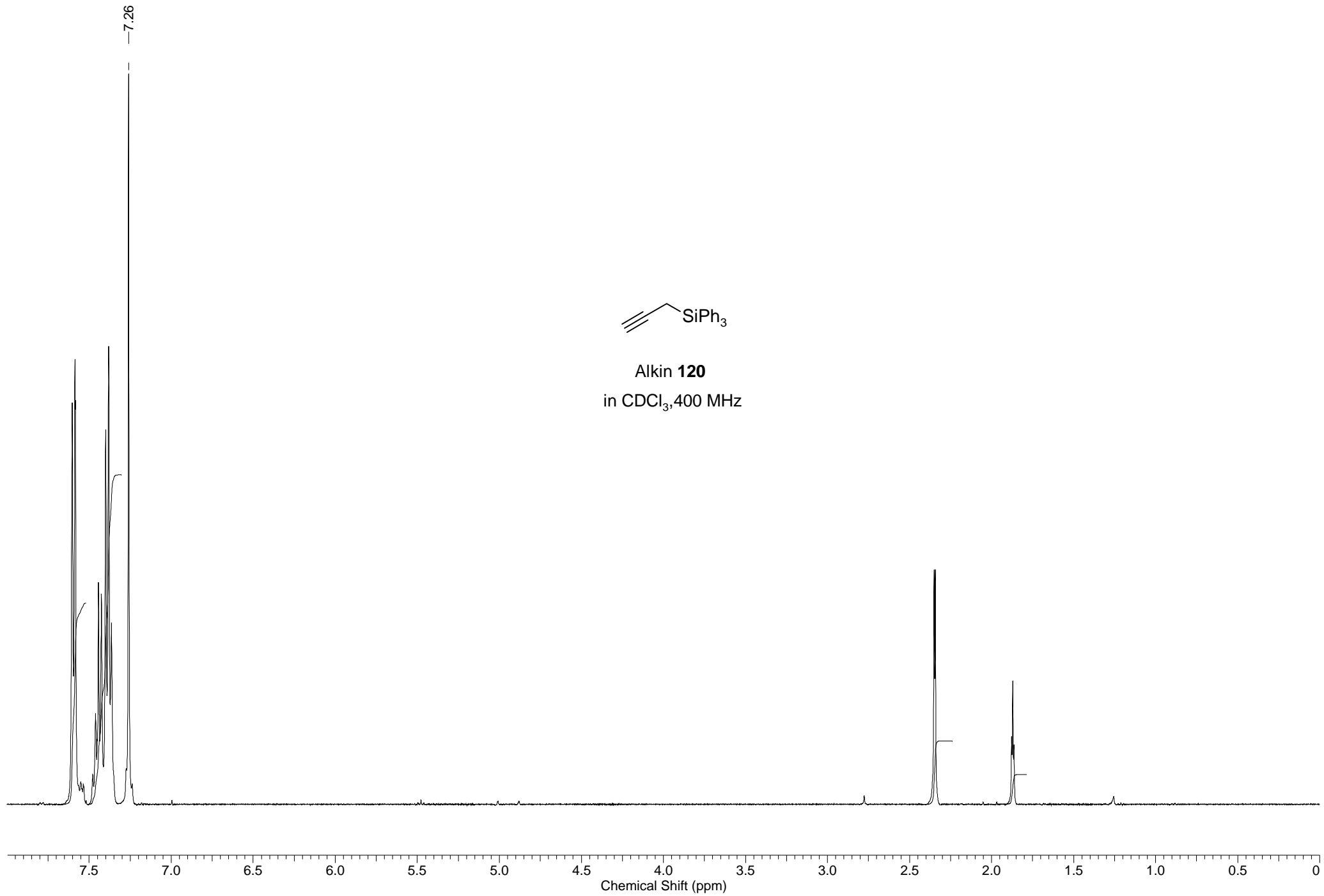
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Alkin **122**
in CDCl₃, 400 MHz



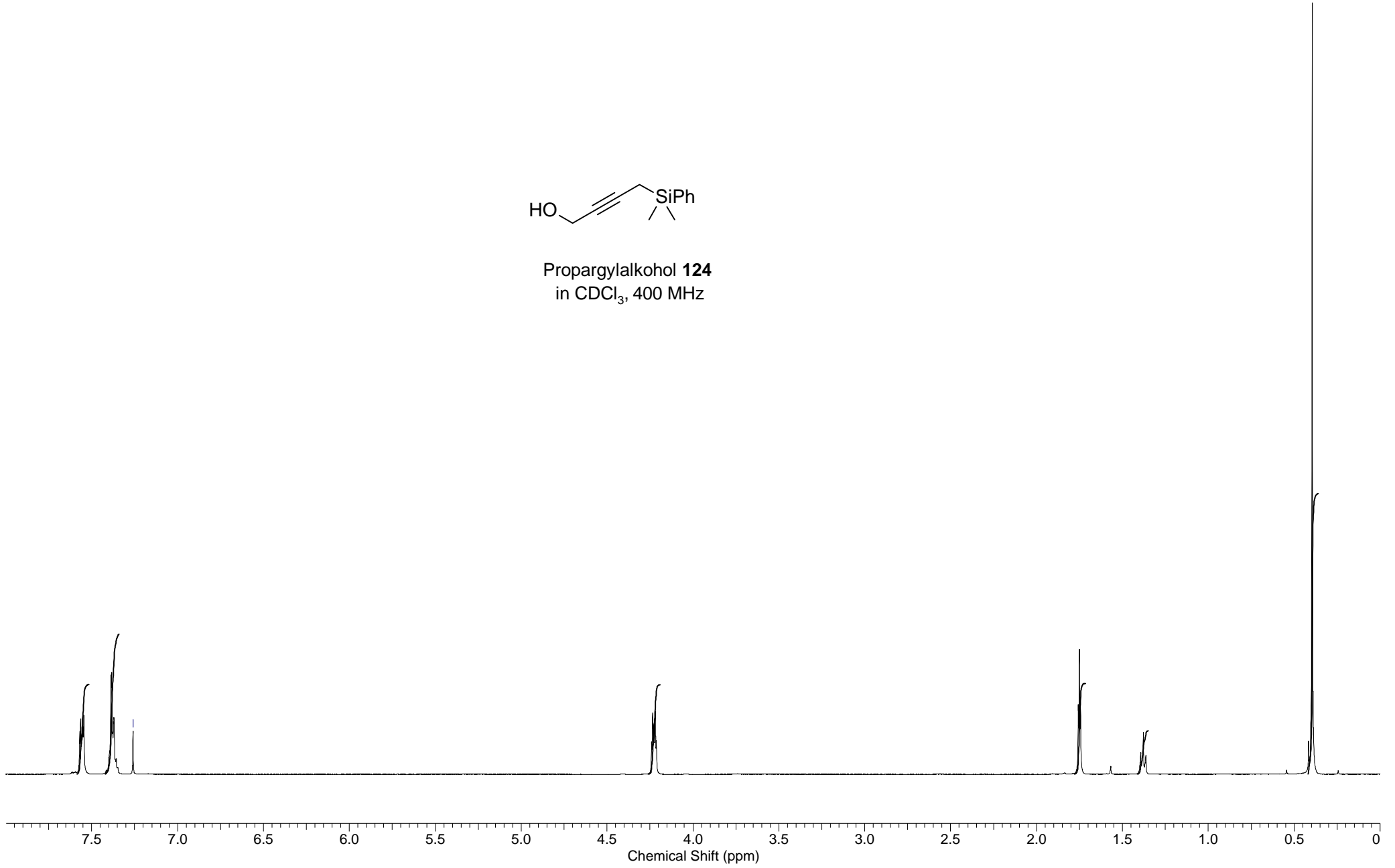


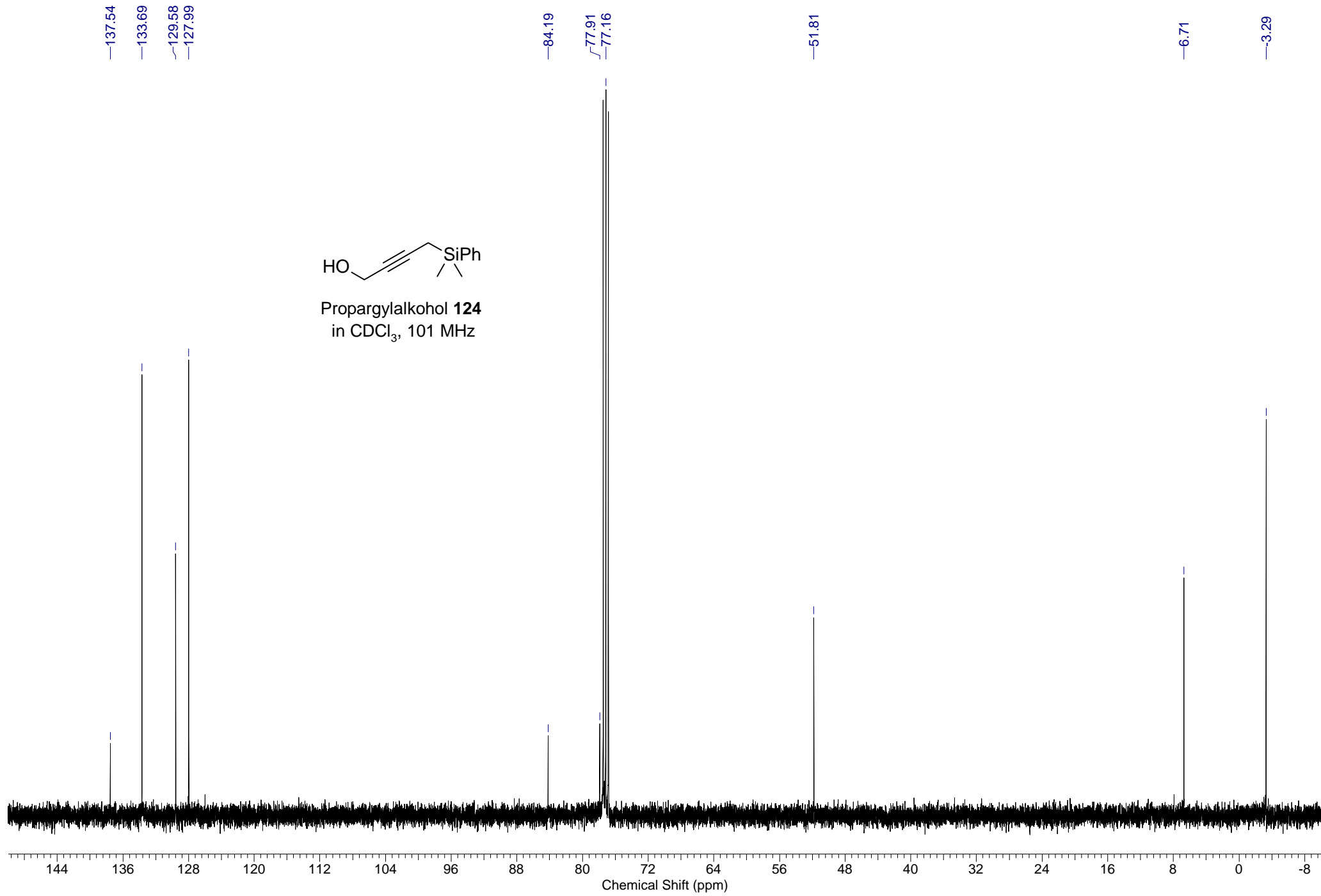


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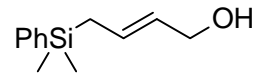


Propargylalkohol **124**
in CDCl₃, 400 MHz

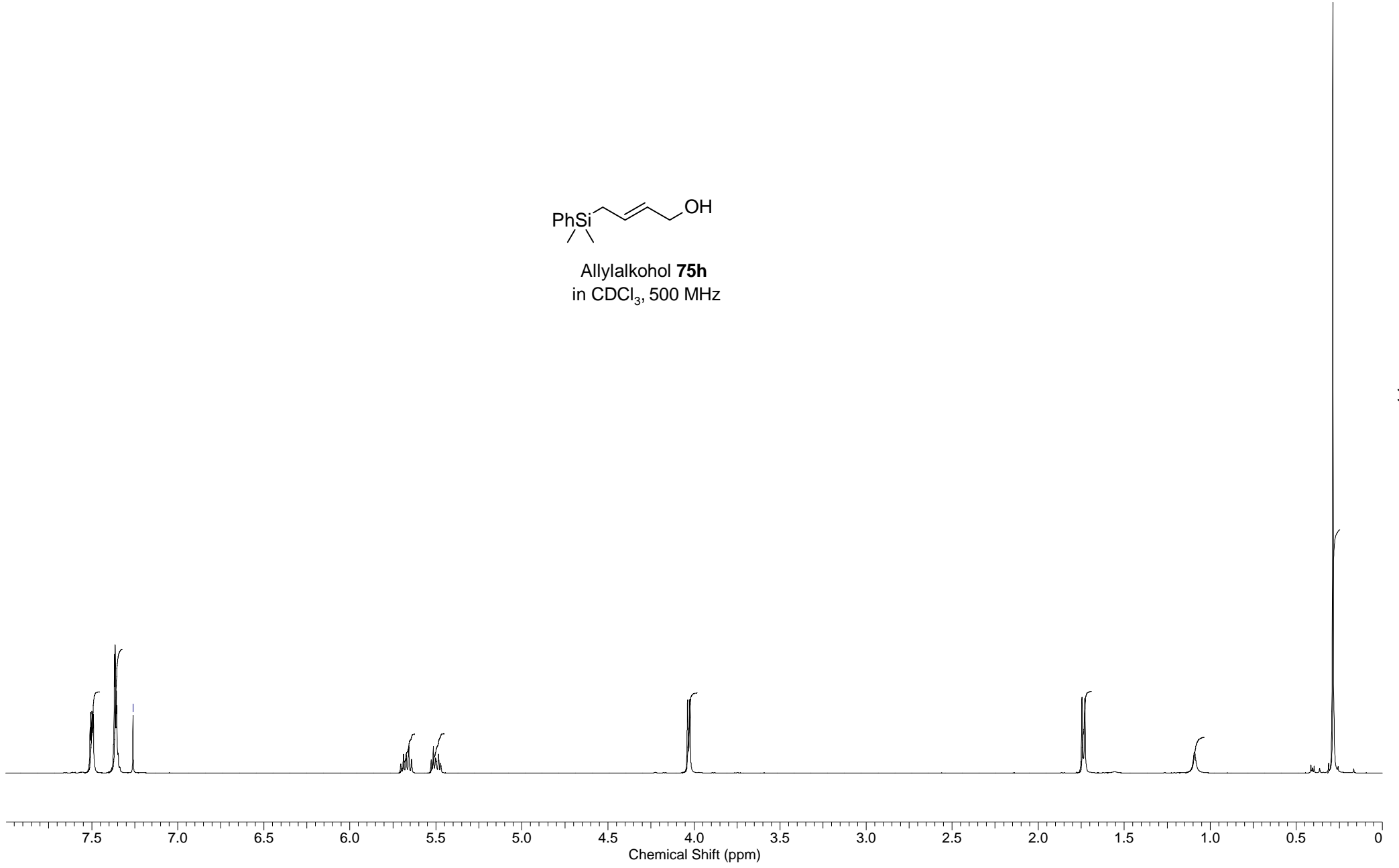


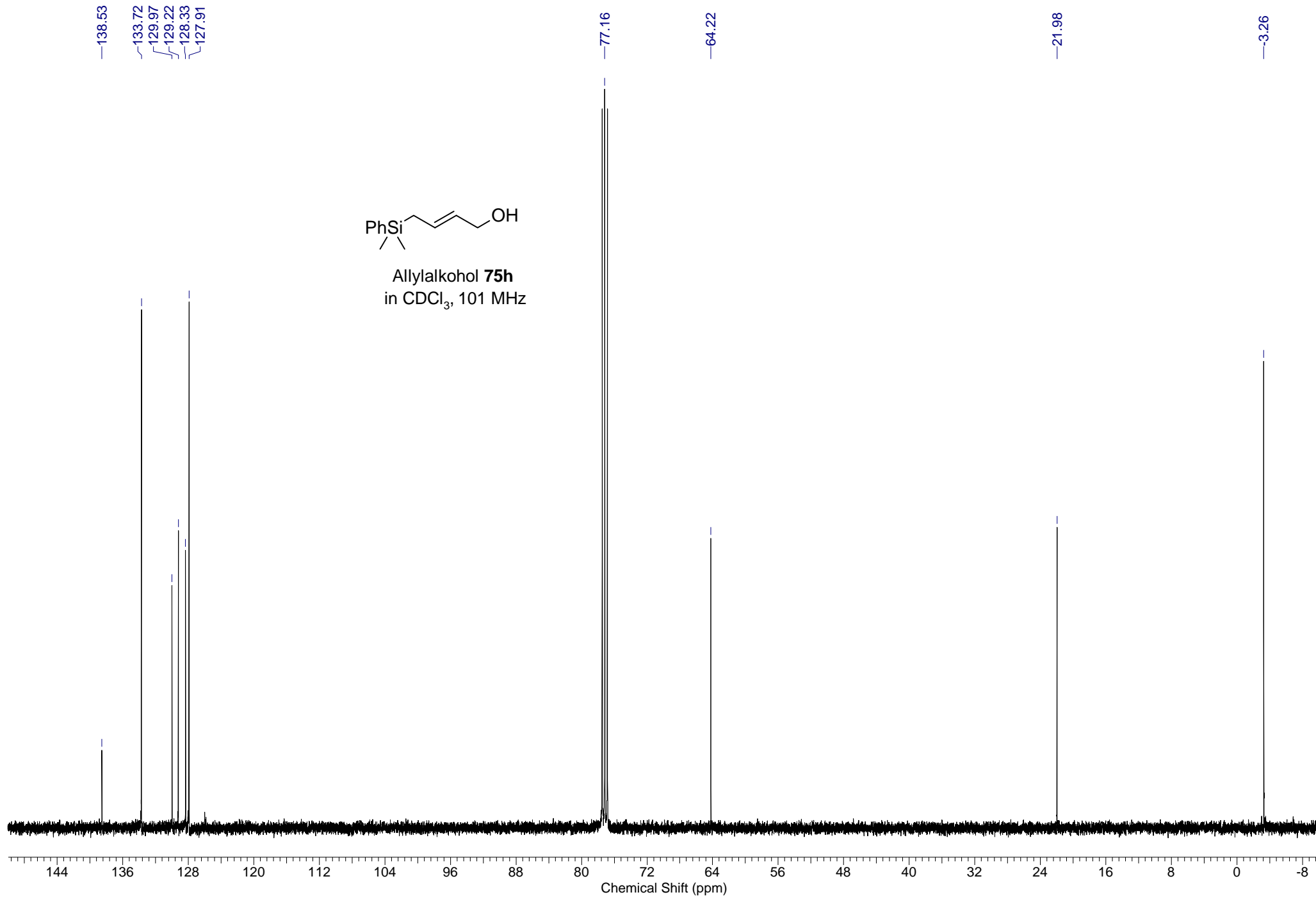


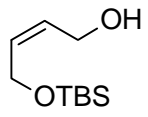
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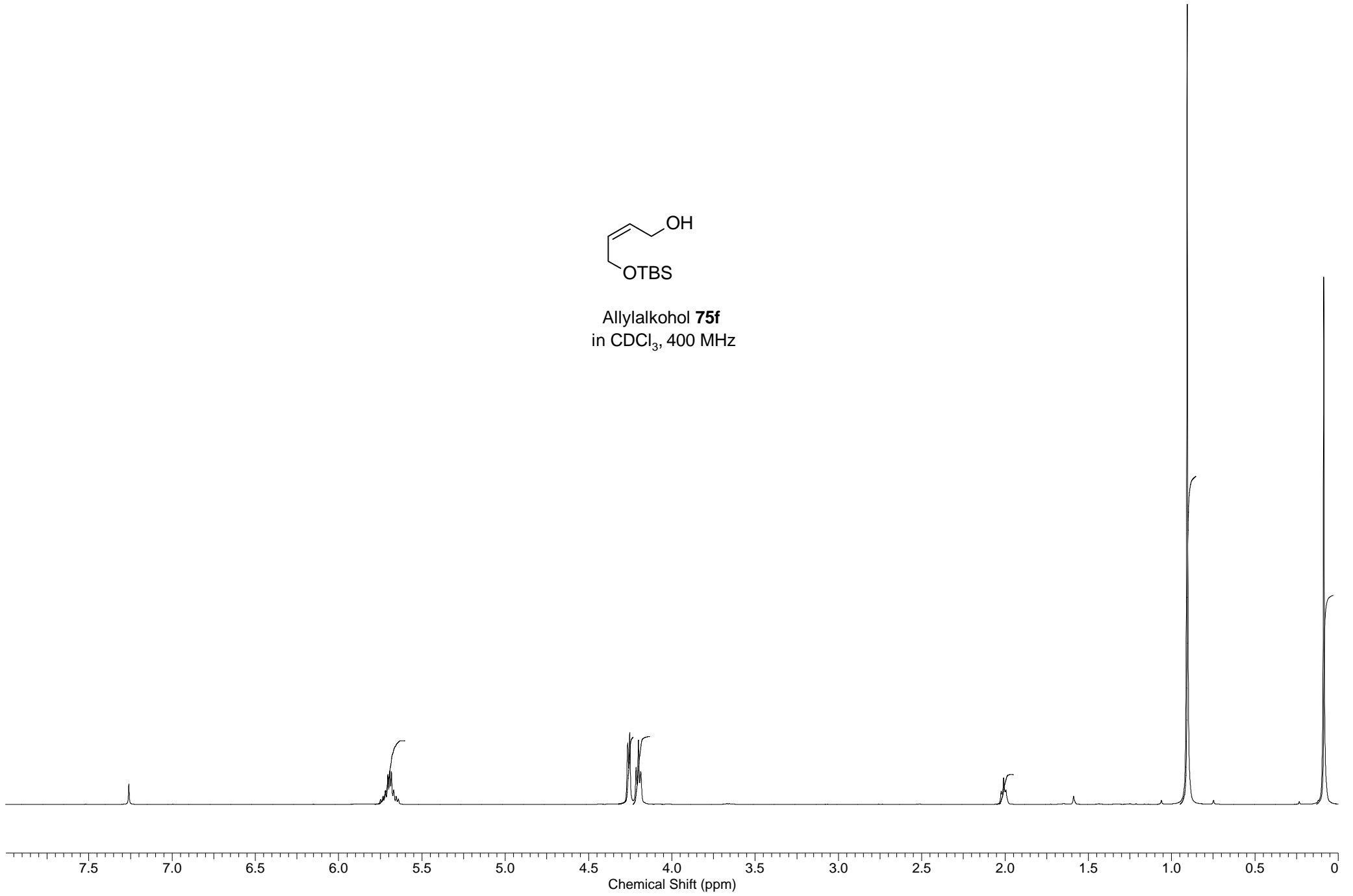
Allylalkohol **75h**
in CDCl₃, 500 MHz

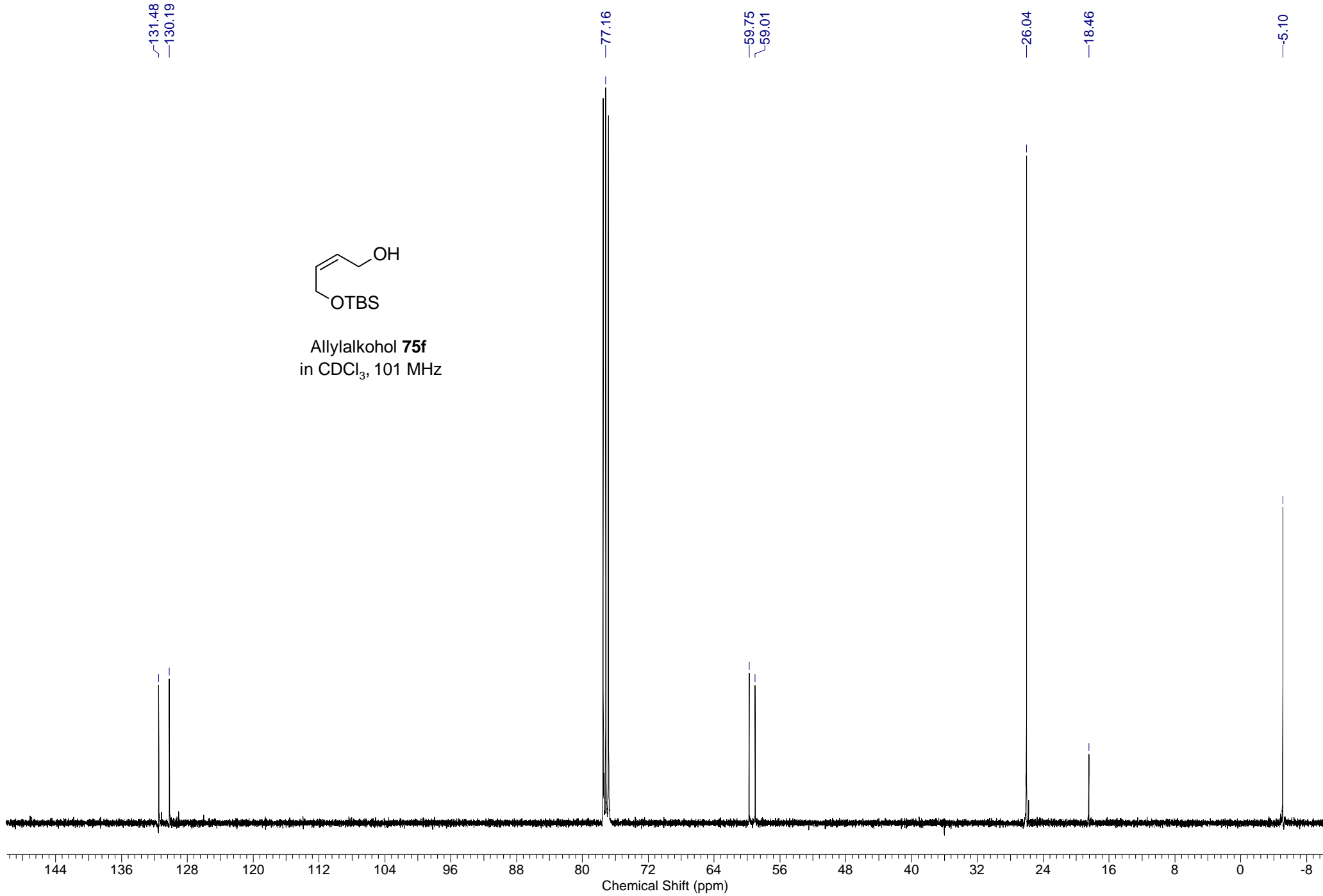


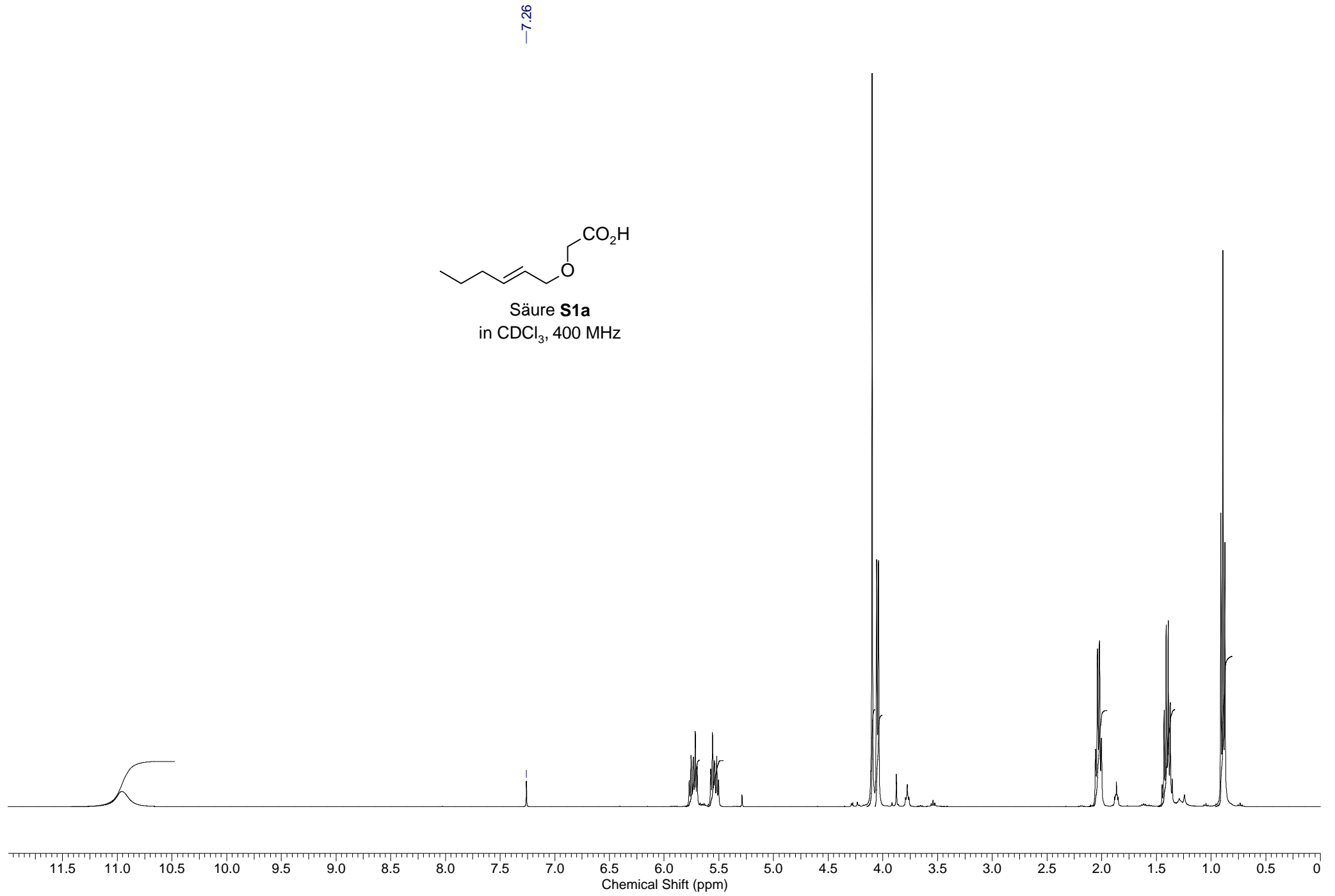


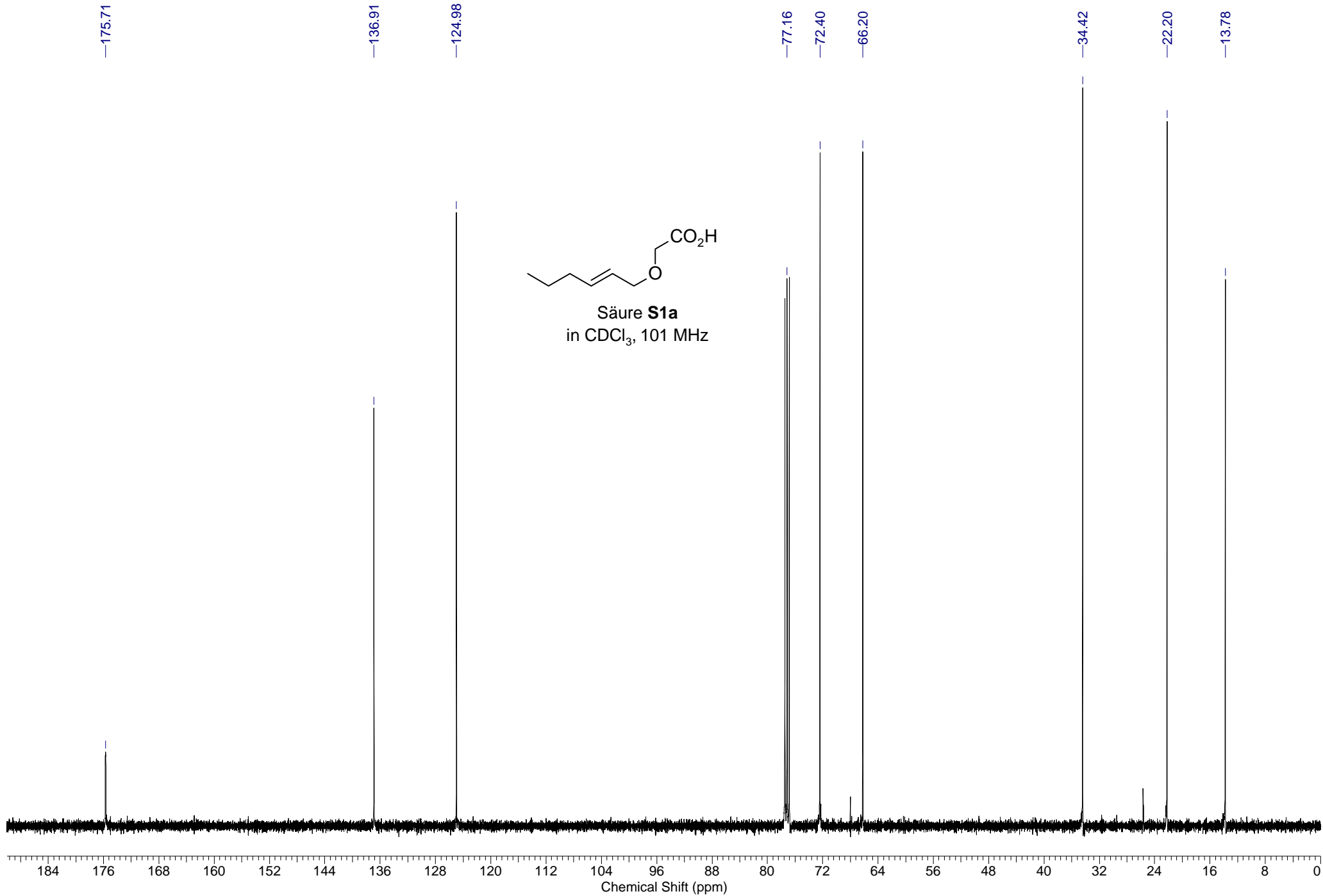


Allylalkohol **75f**
in CDCl₃, 400 MHz

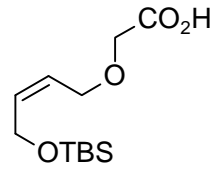




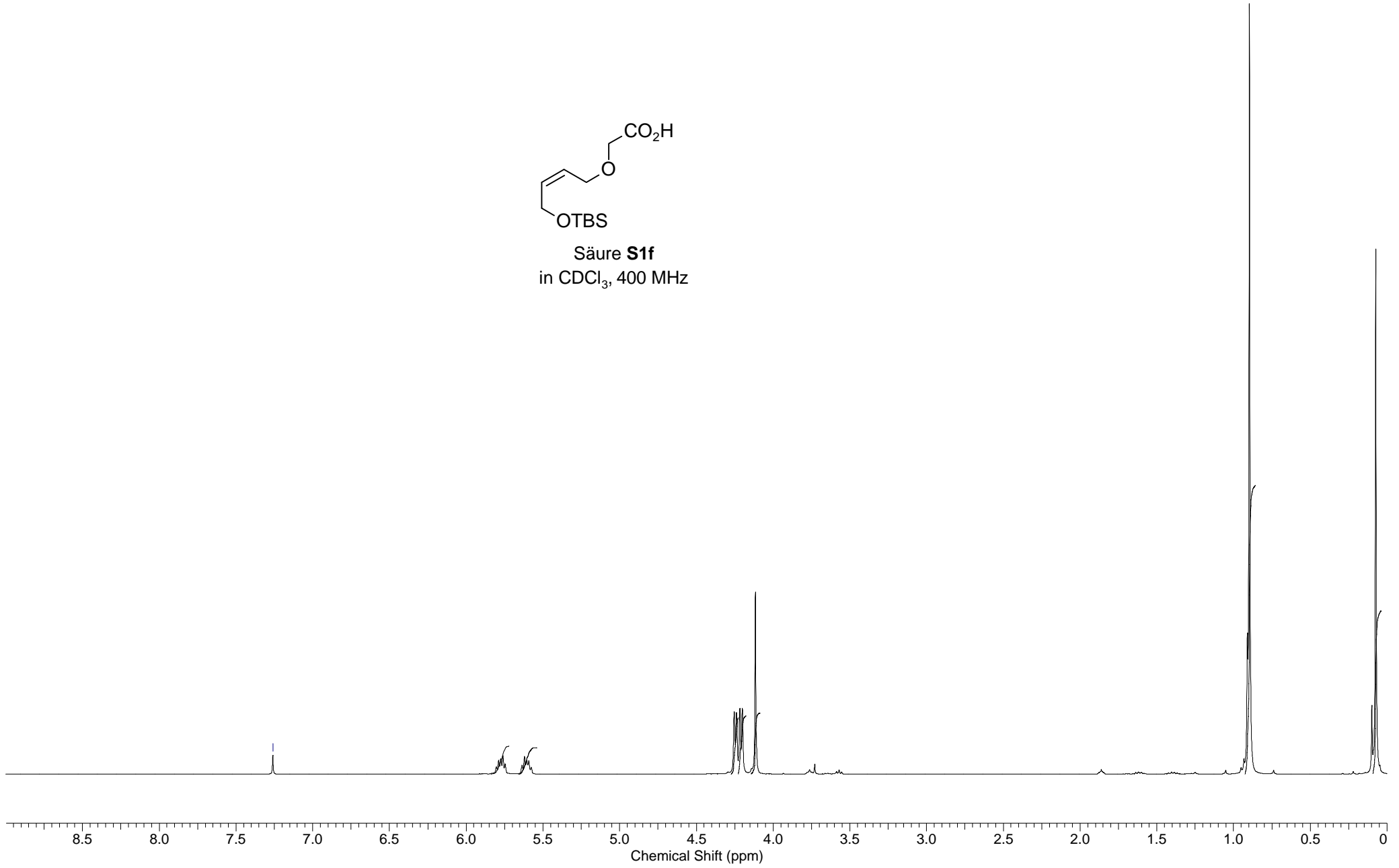




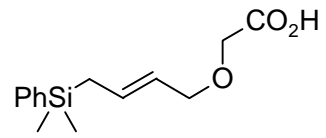
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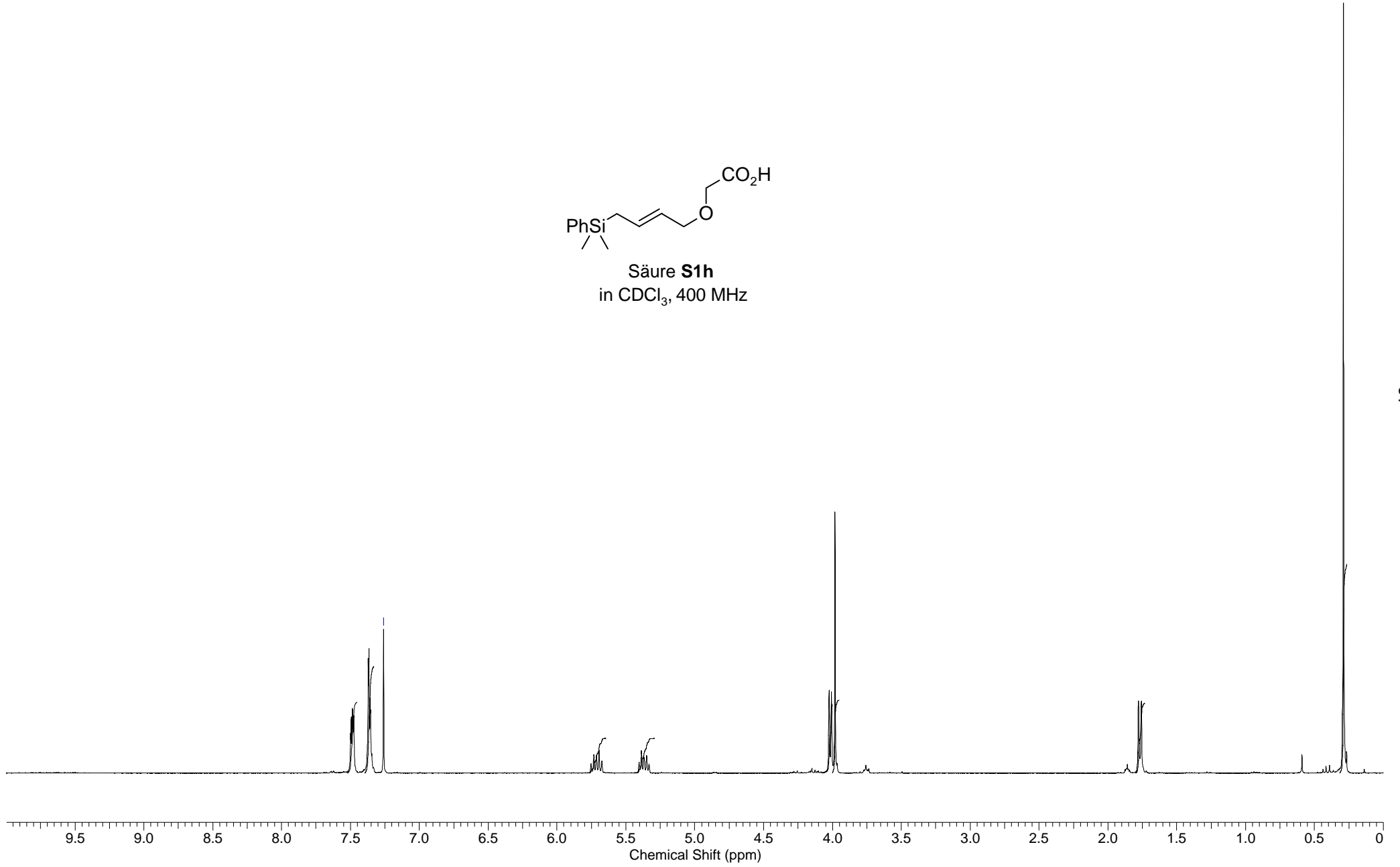
Säure **S1f**
in CDCl₃, 400 MHz

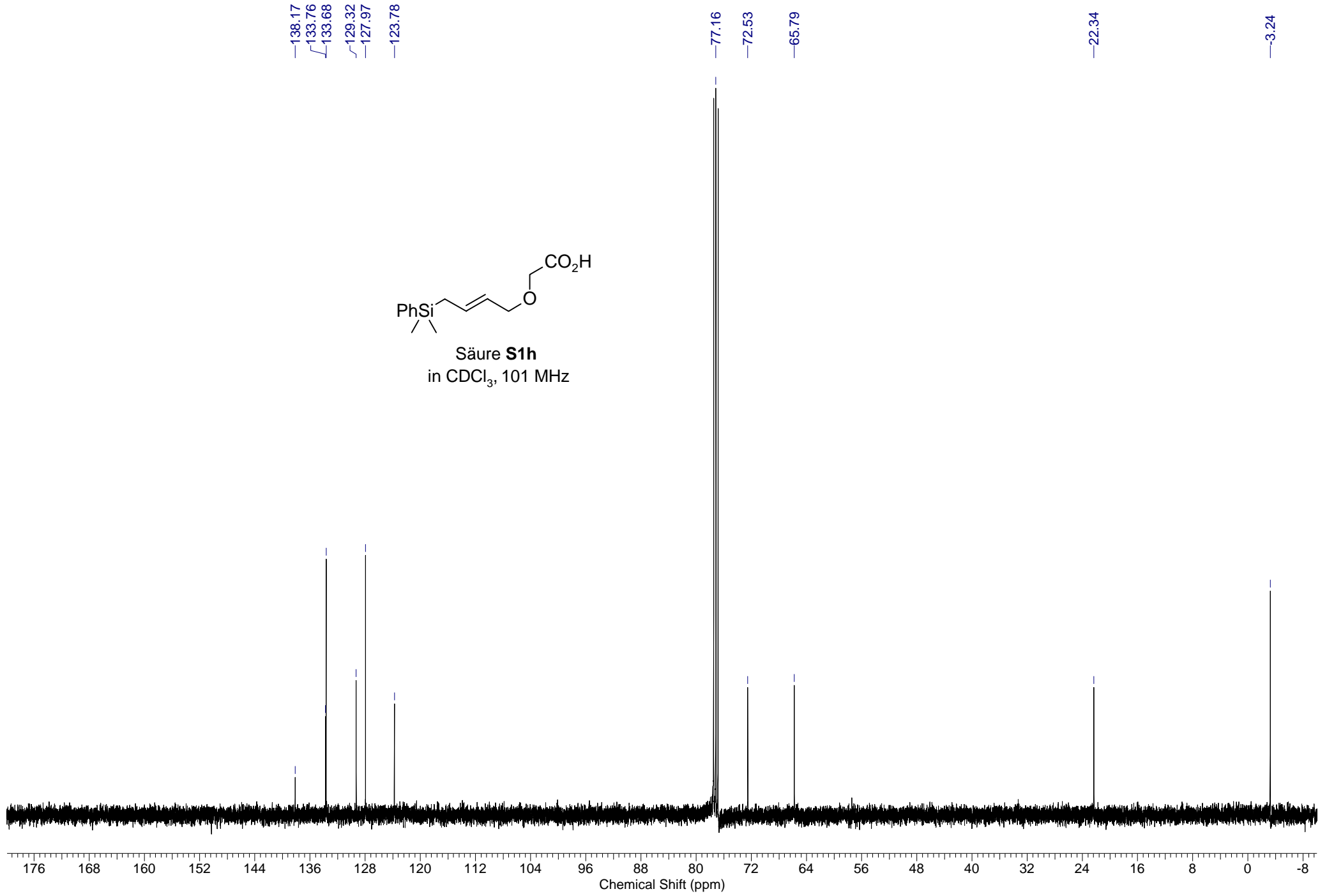
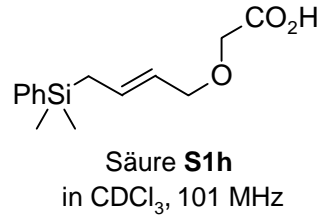


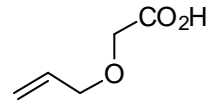
—7.26



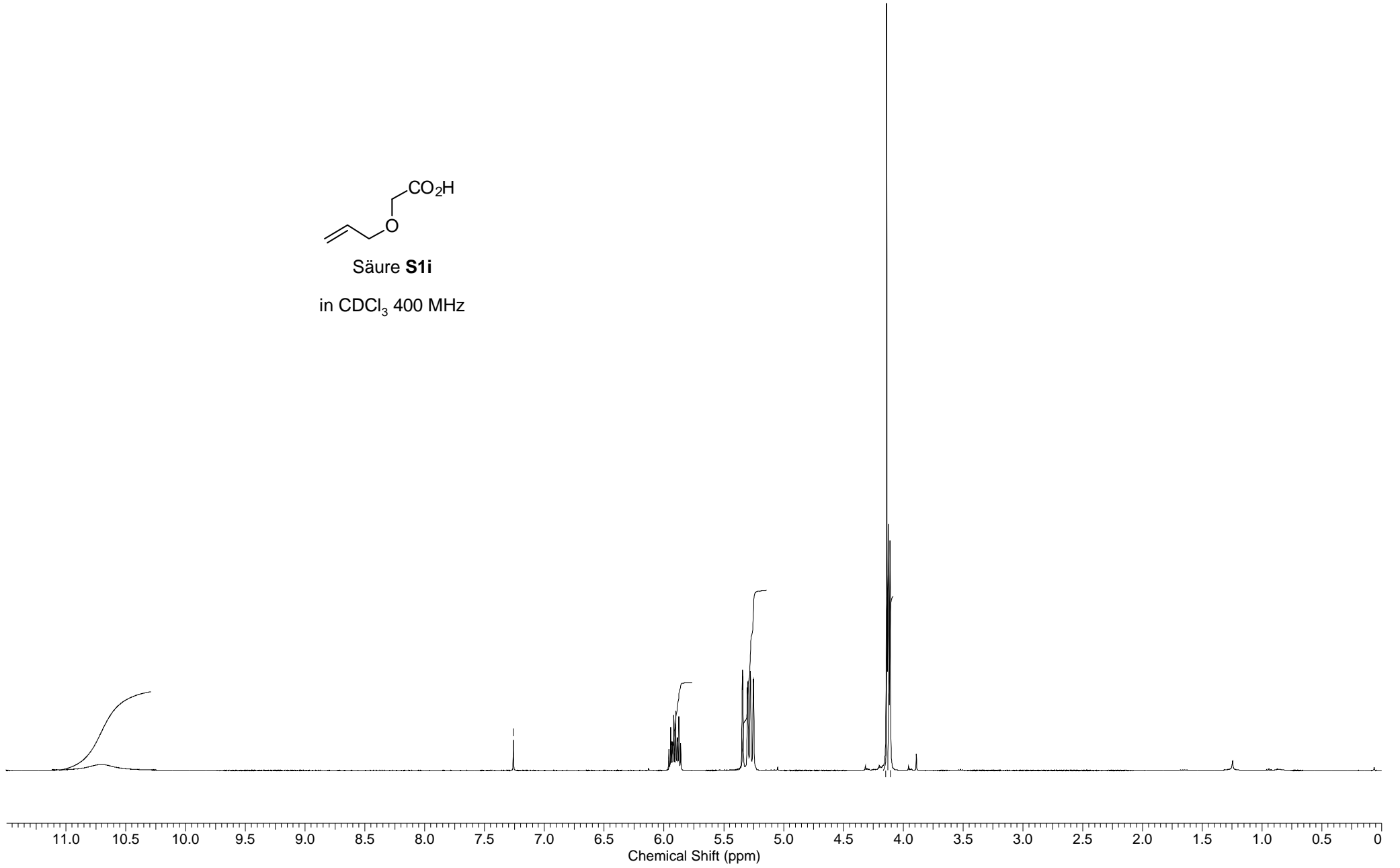
Säure **S1h**
in CDCl₃, 400 MHz

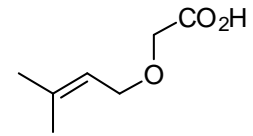




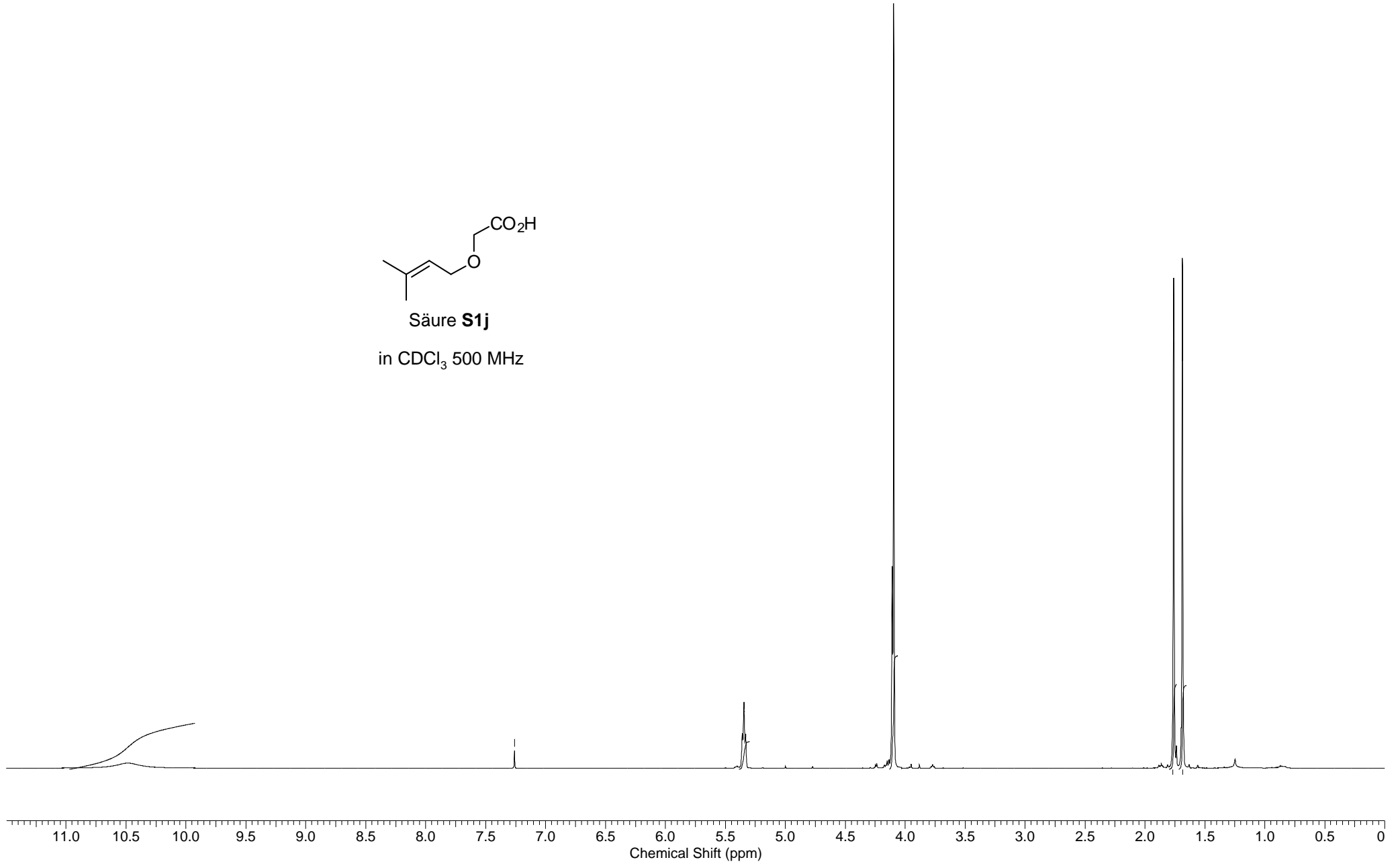
Säure **S1i**in CDCl₃ 400 MHz

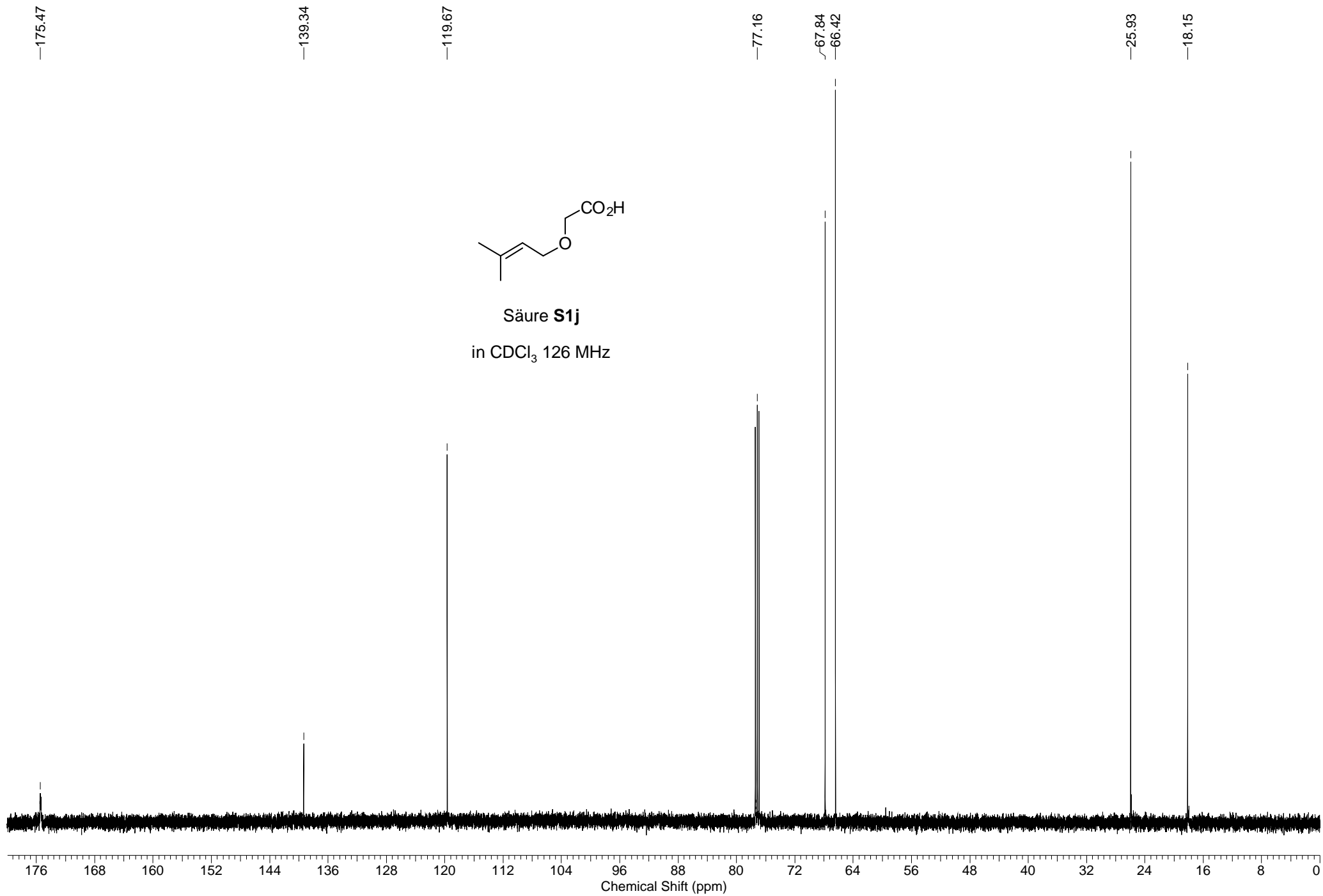
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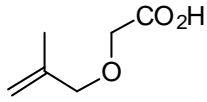
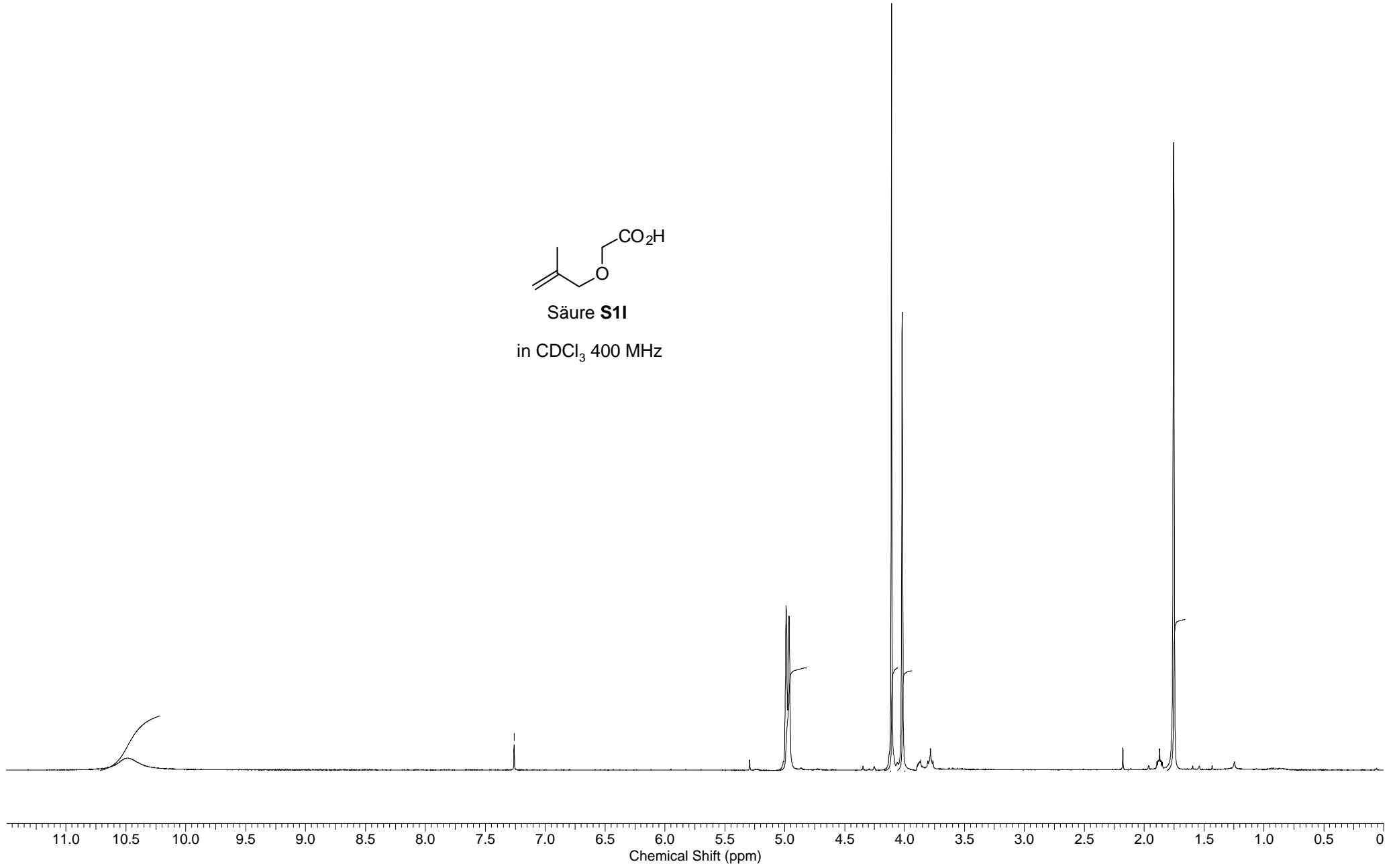
Säure **S1j**in CDCl₃ 500 MHz

—7.26

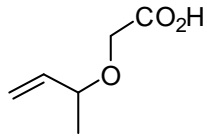




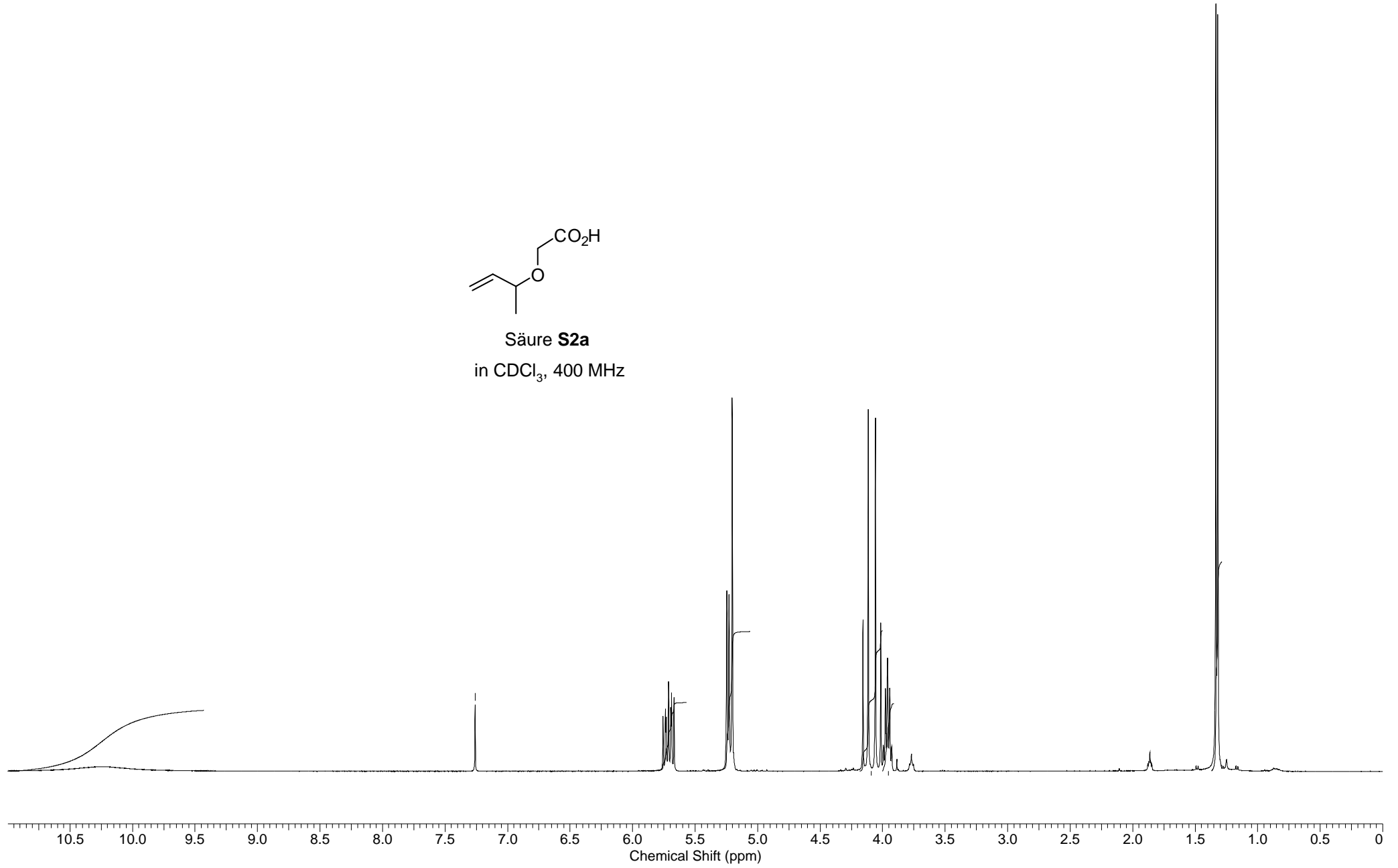
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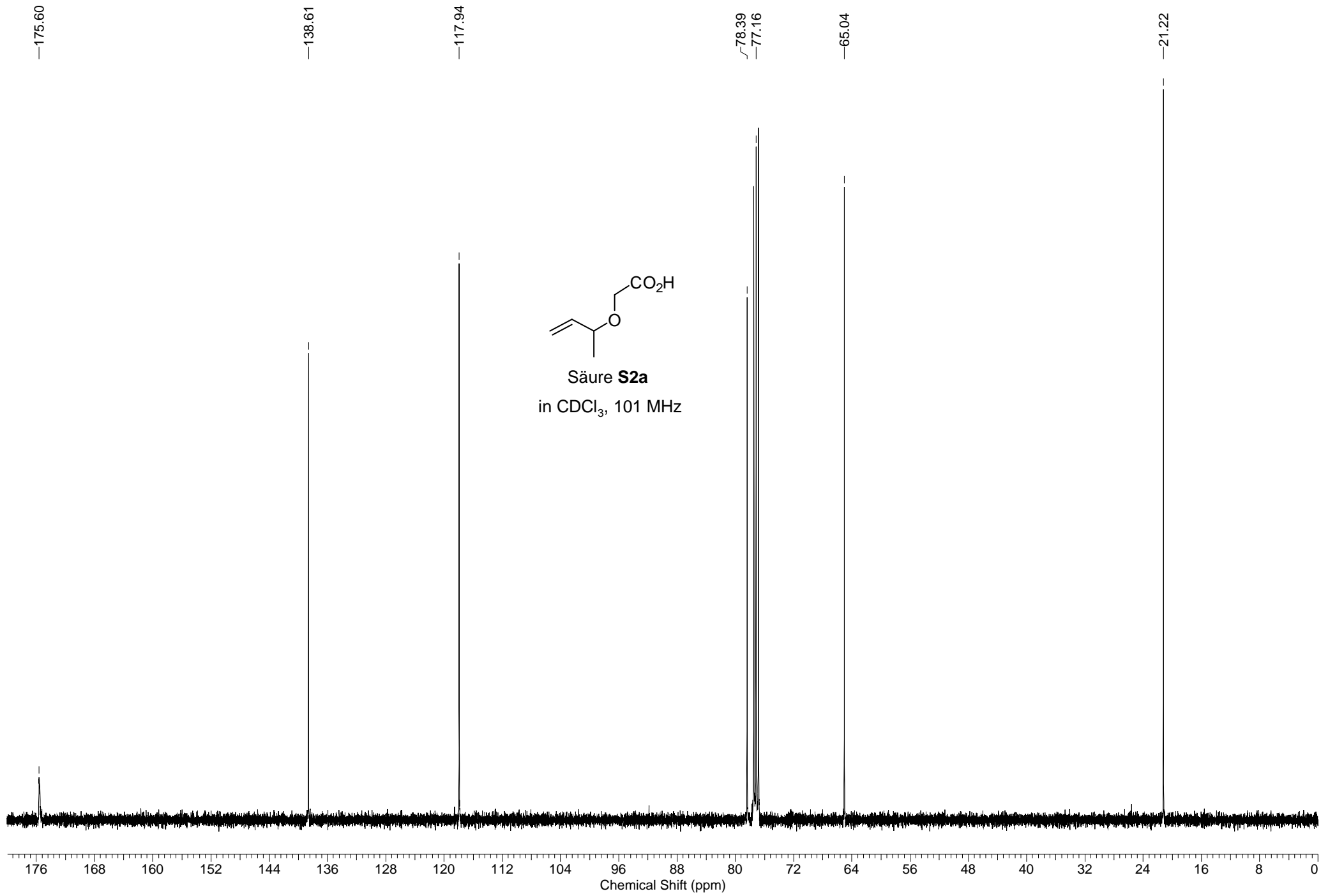
Säure **S11**in CDCl₃ 400 MHz

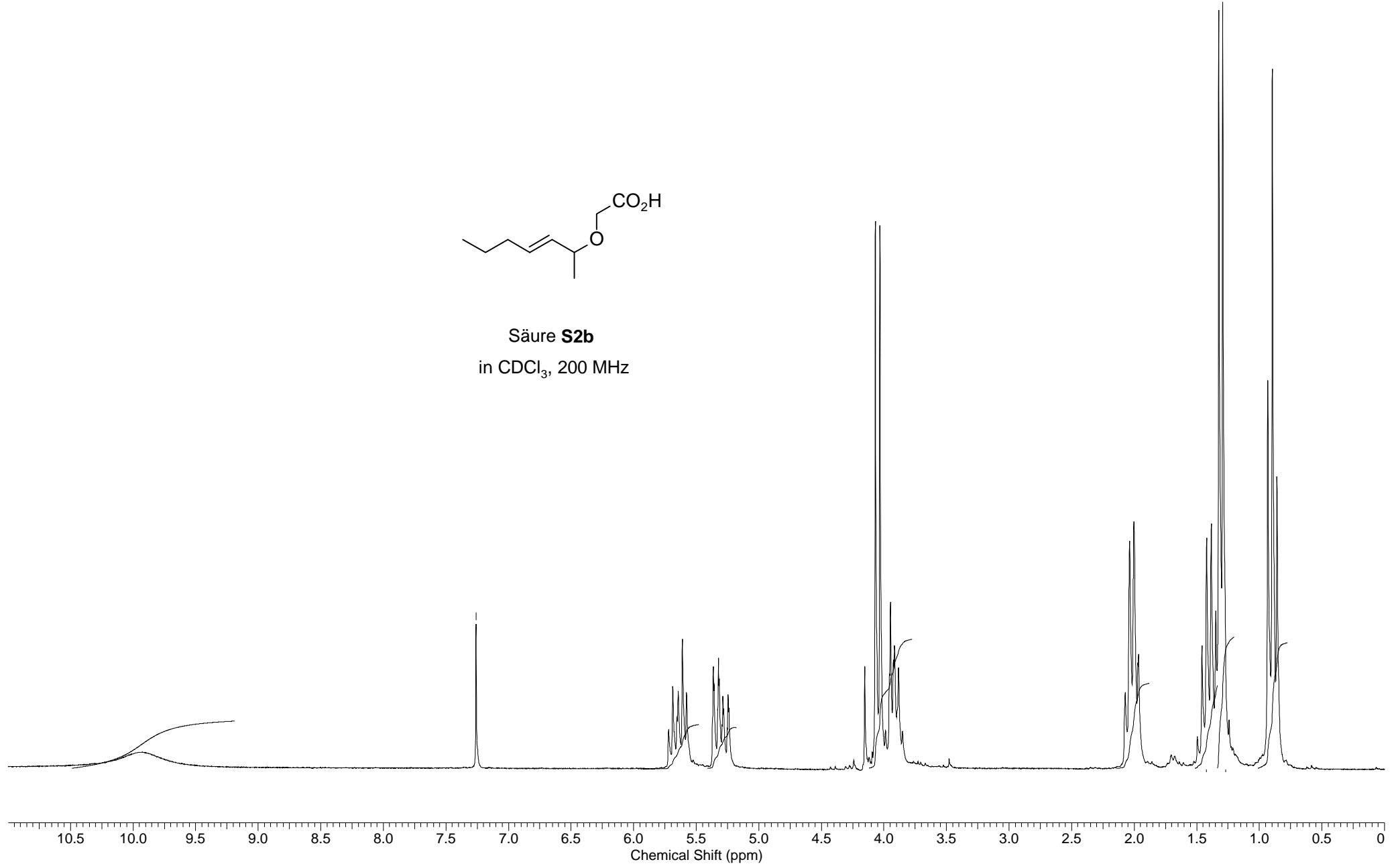
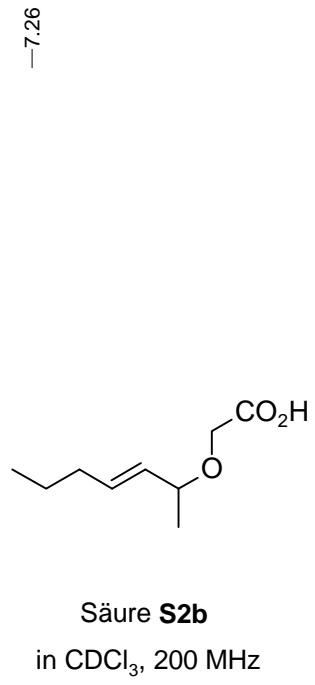
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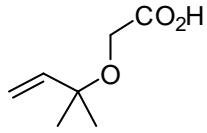
Säure **S2a**
in CDCl₃, 400 MHz



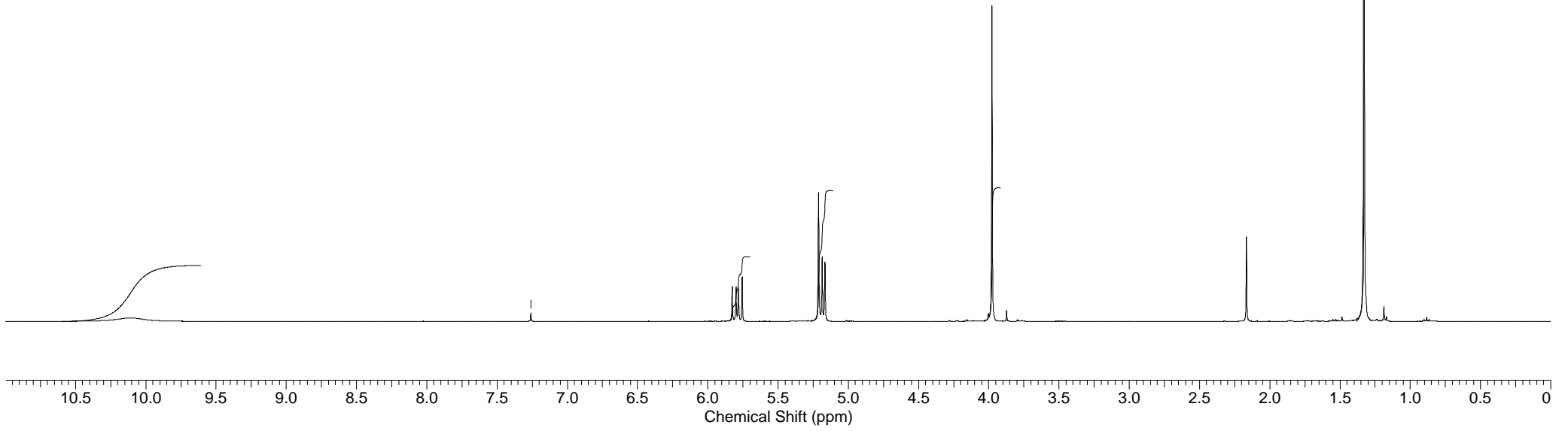


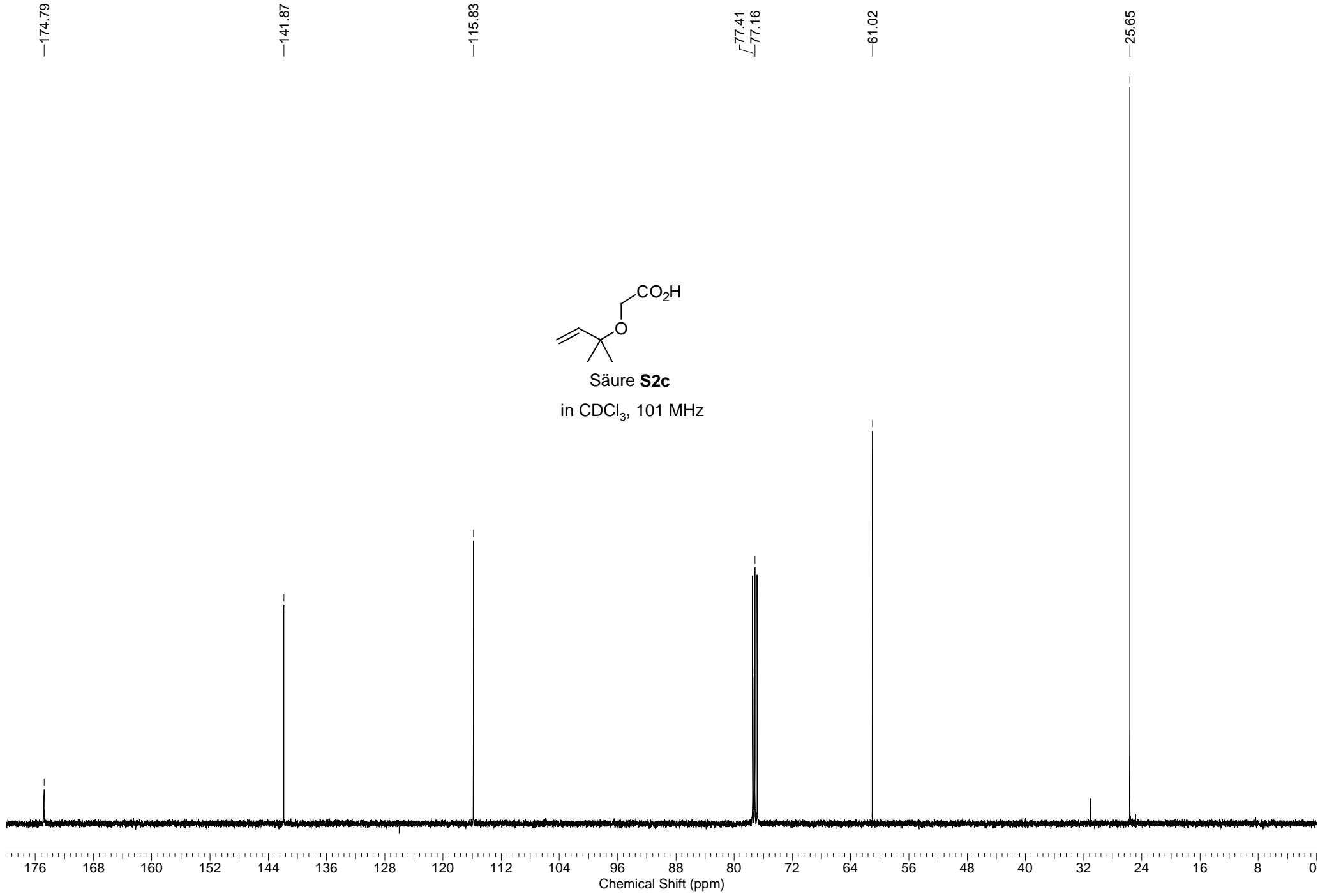


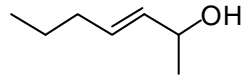
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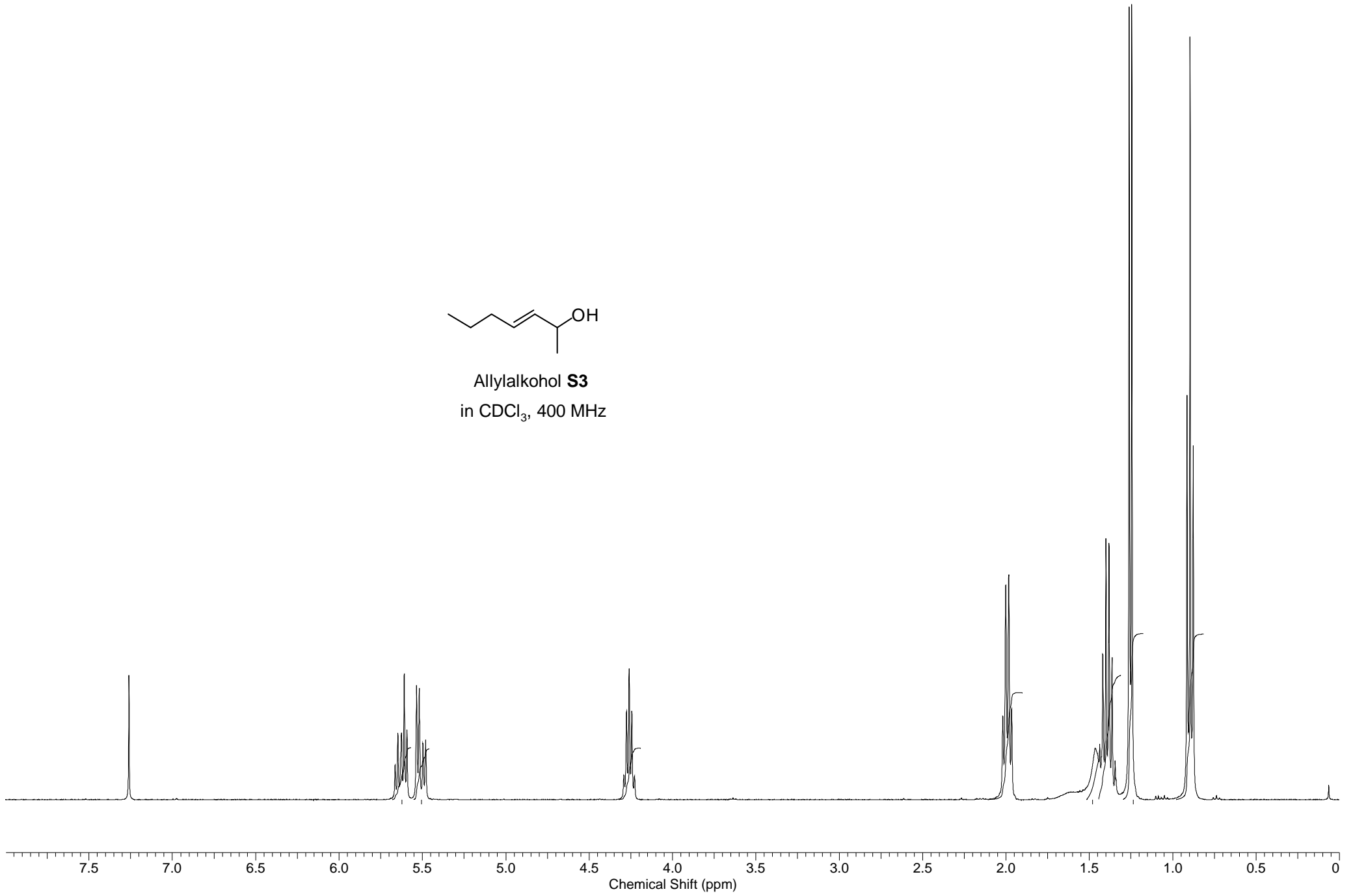
Säure **S2c**
in CDCl₃, 400 MHz

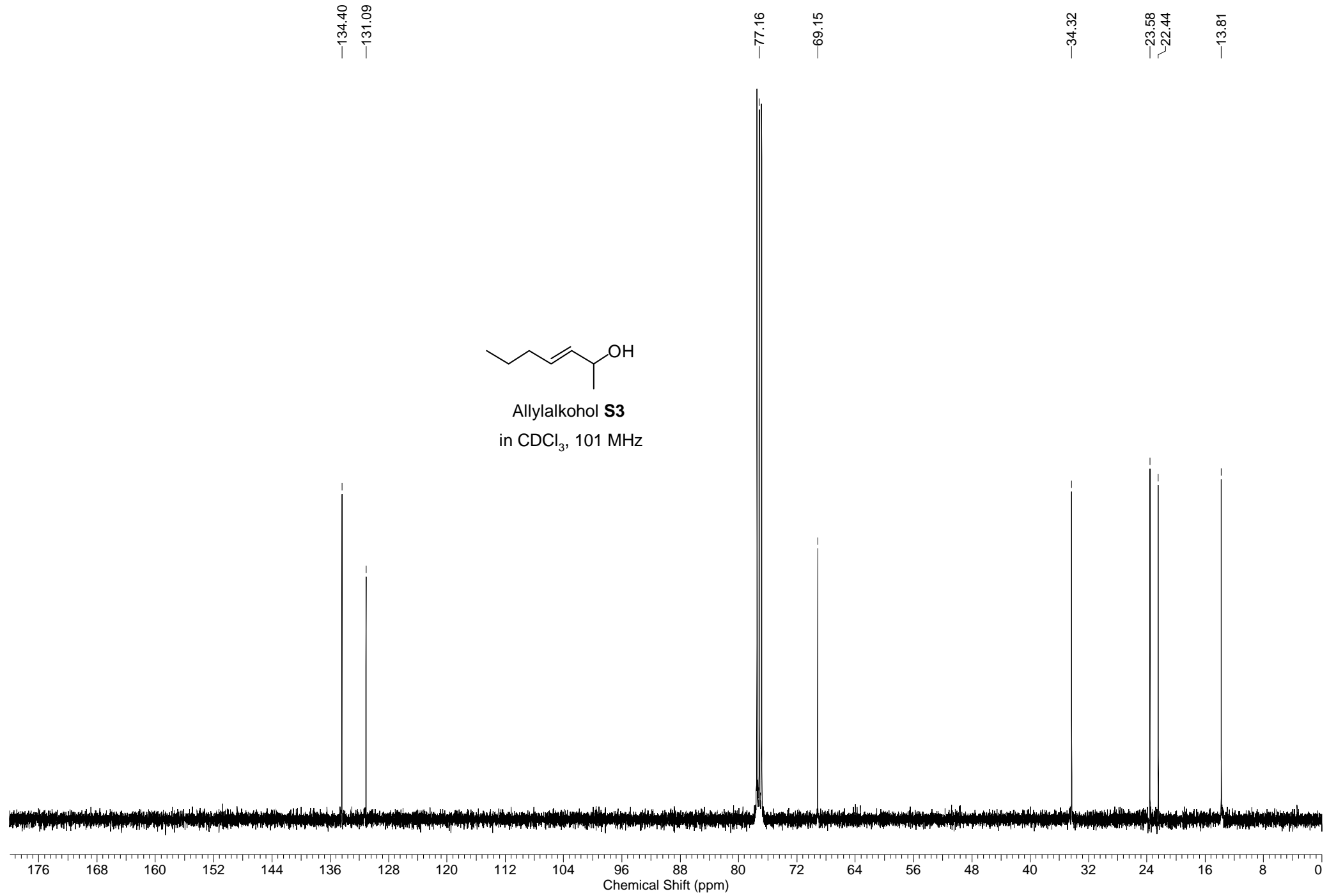


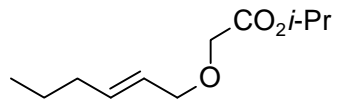




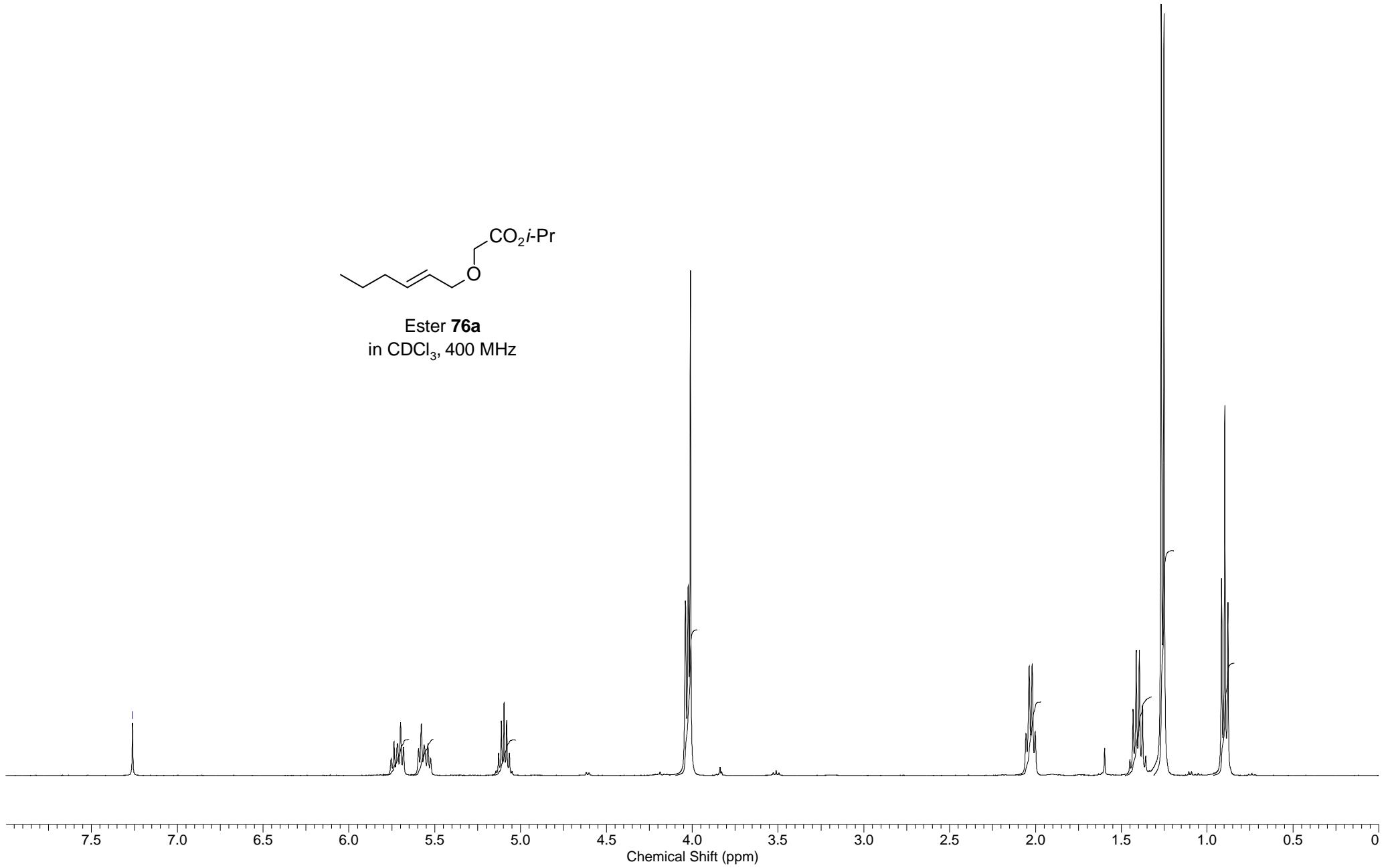
Allylkohol **S3**
in CDCl₃, 400 MHz

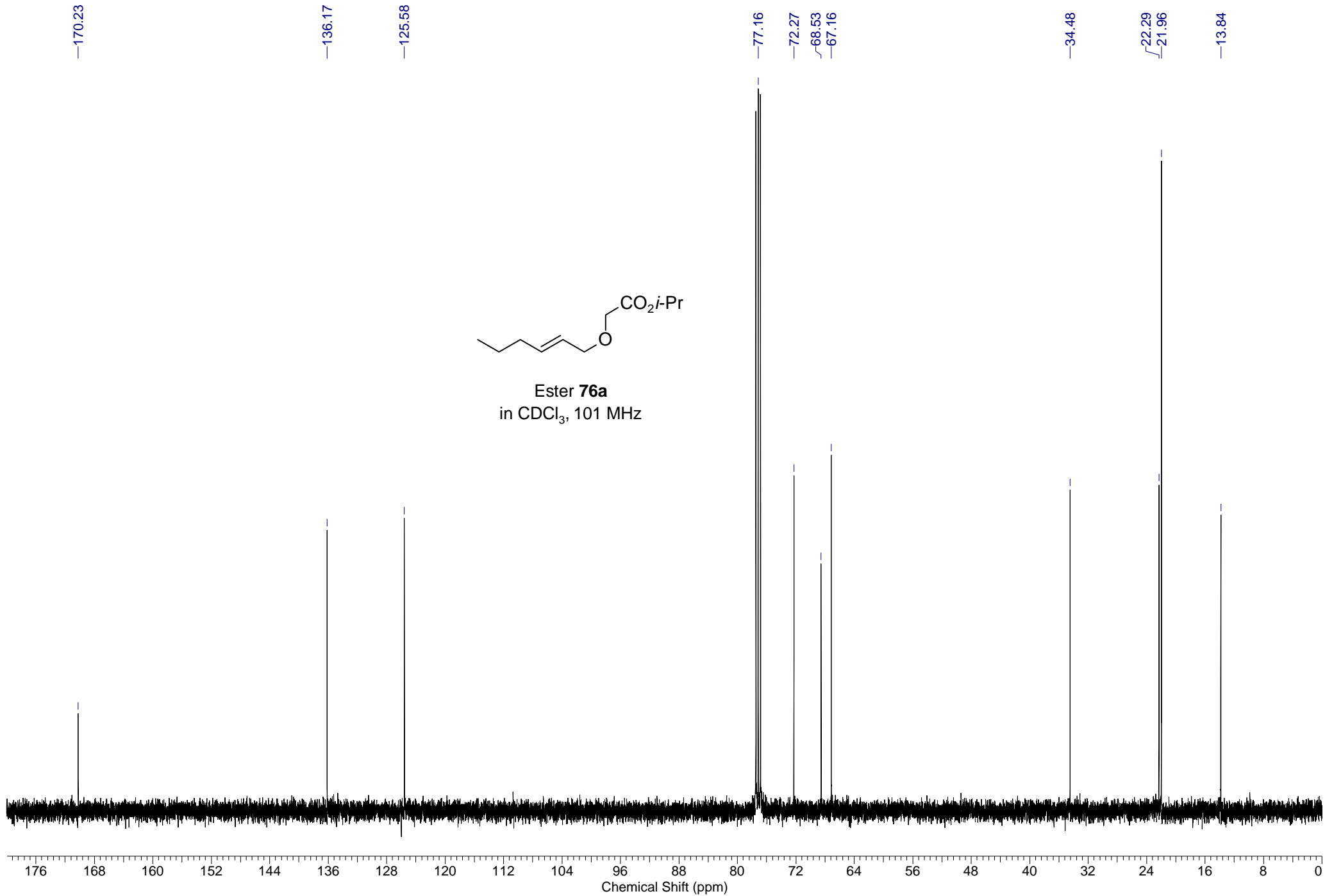


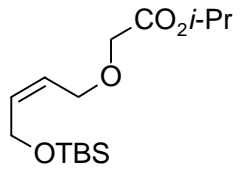




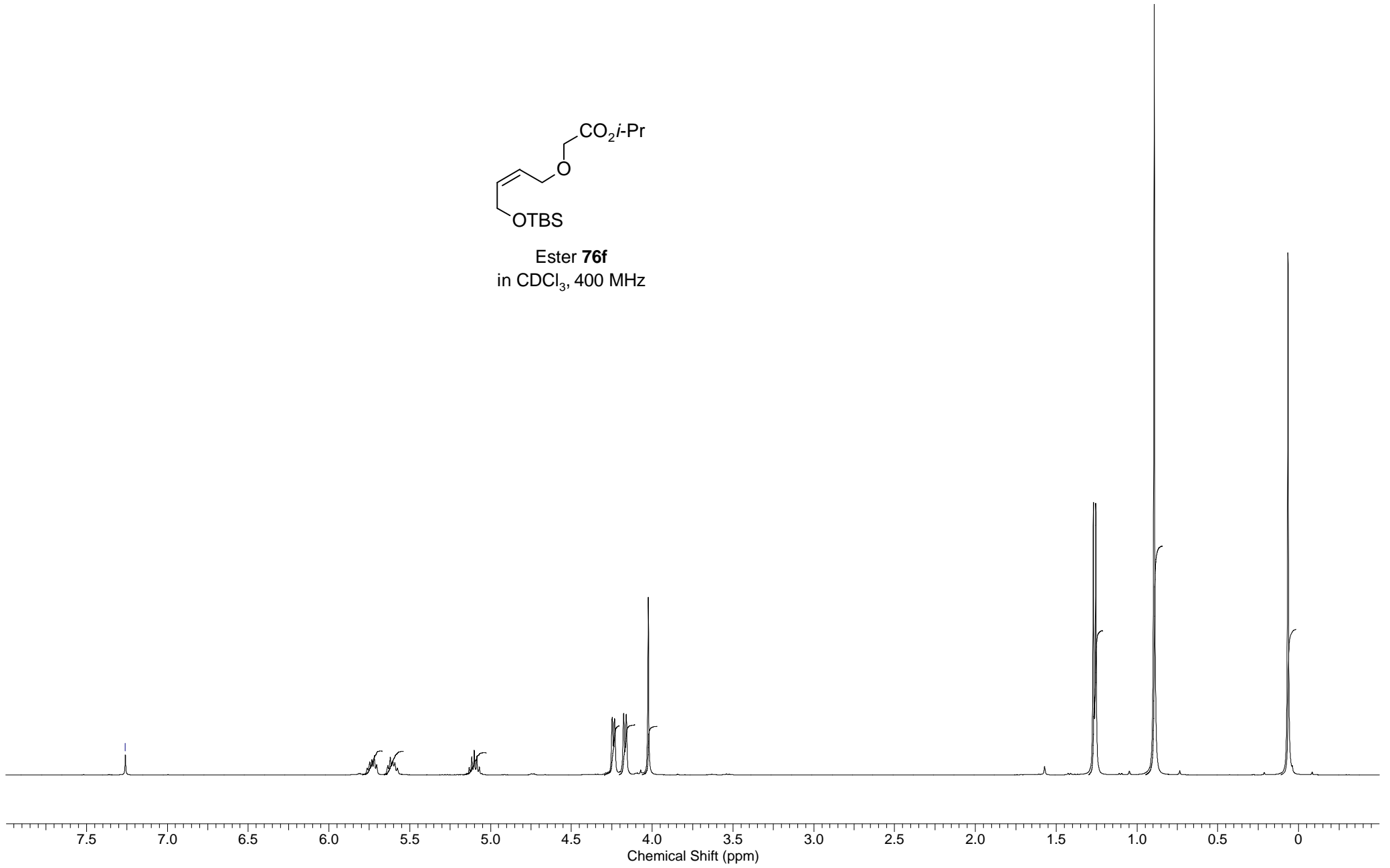
Ester 76a
in CDCl₃, 400 MHz

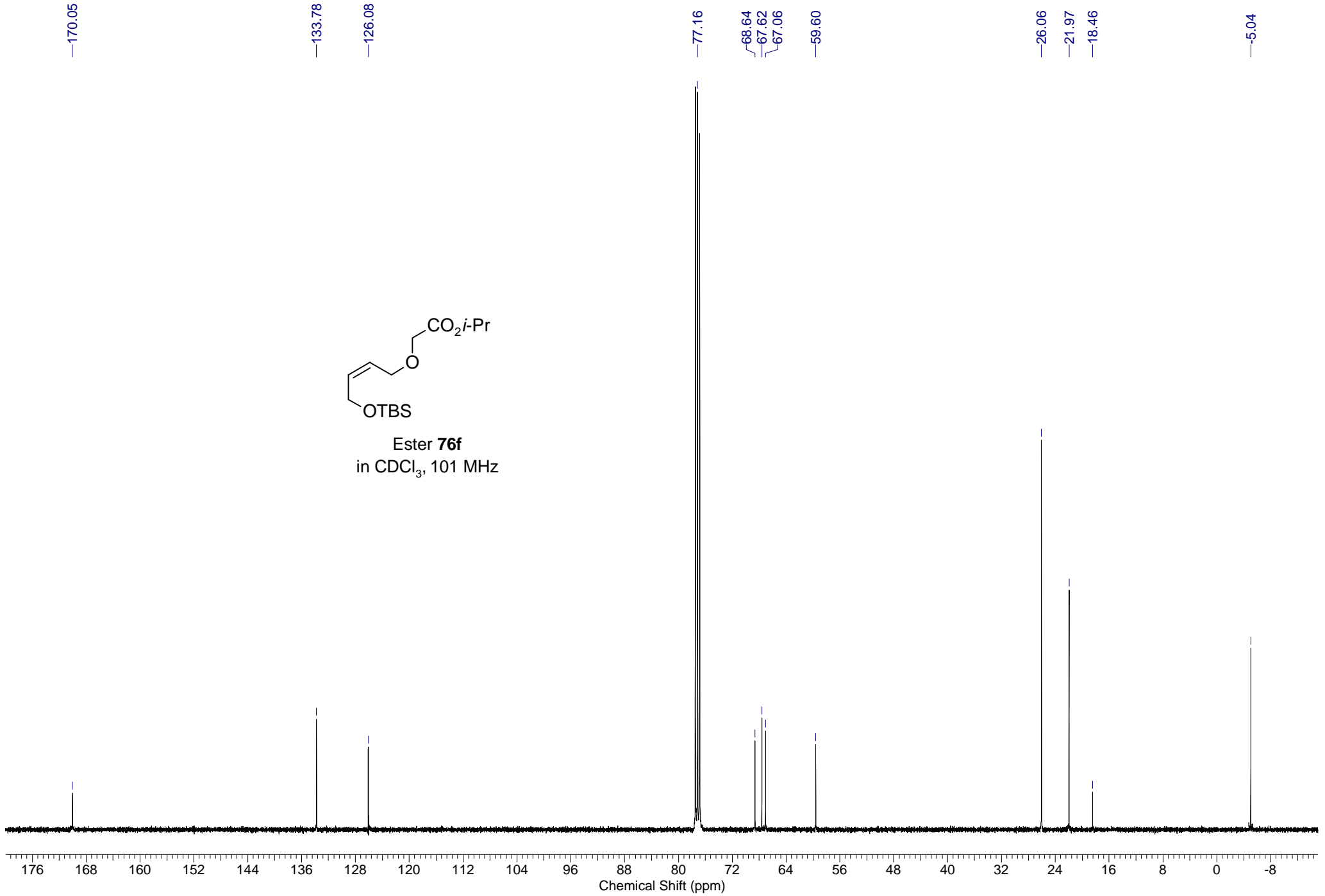


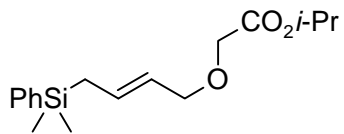




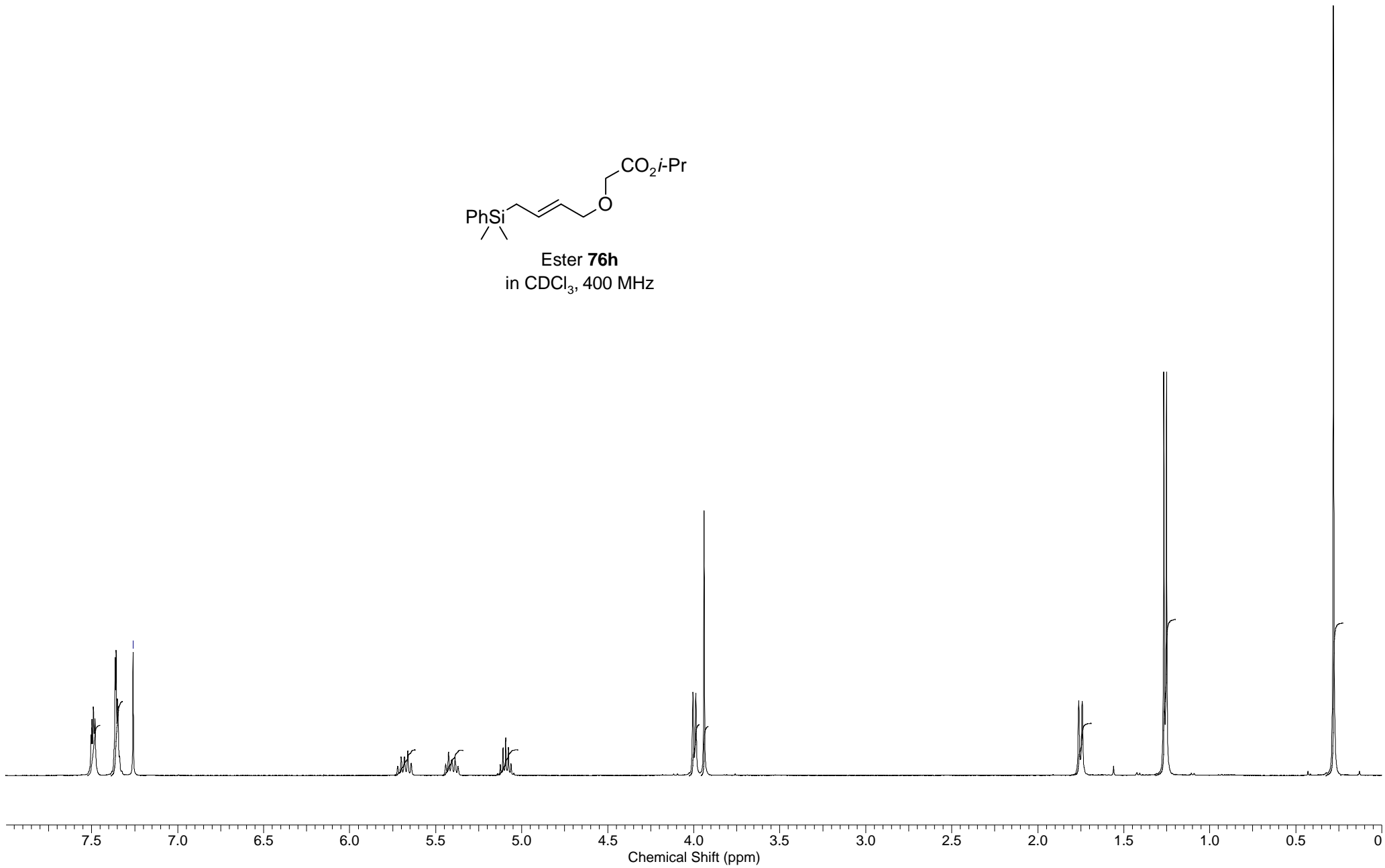
Ester **76f**
in CDCl₃, 400 MHz

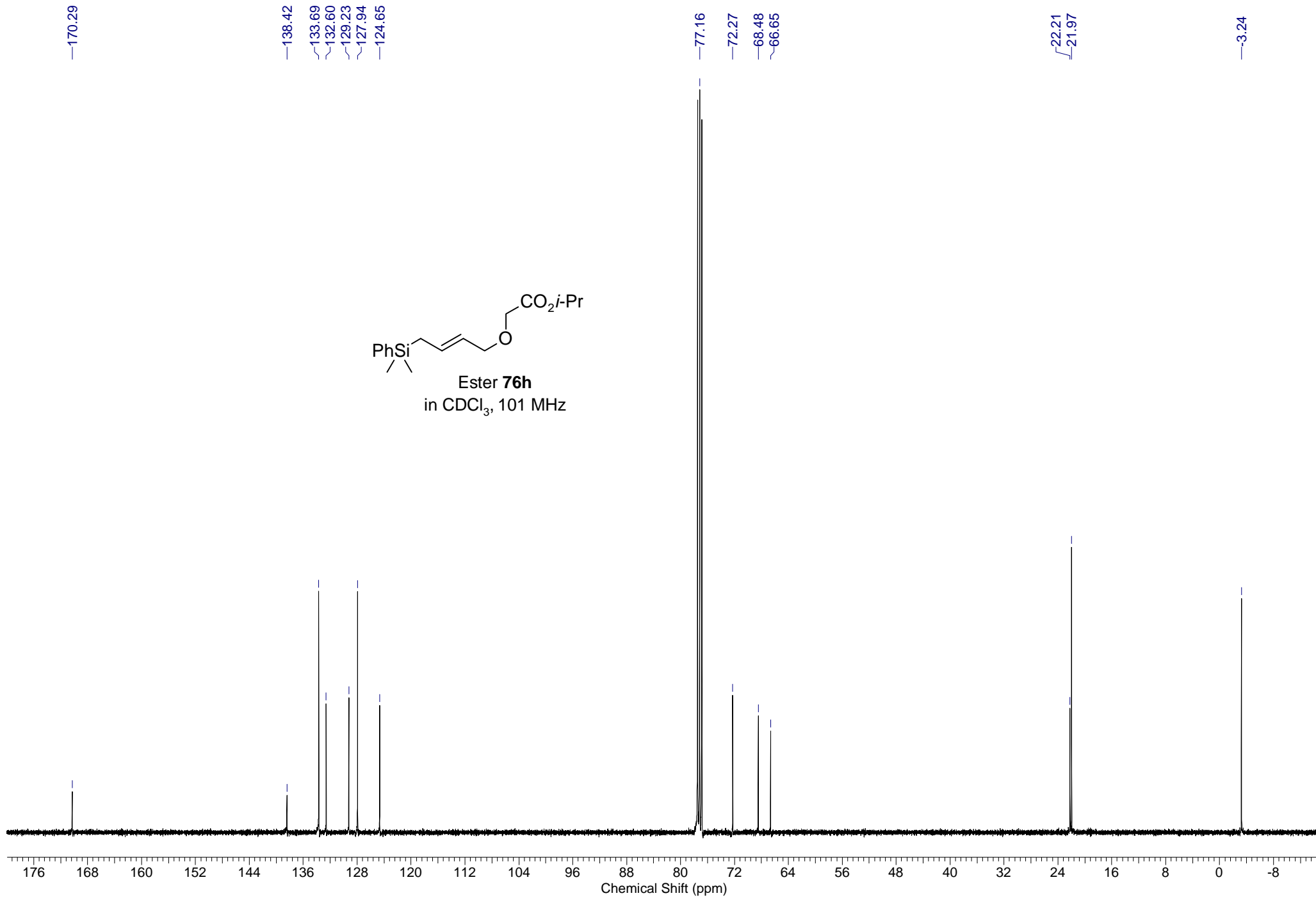


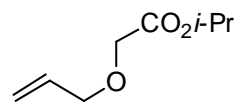
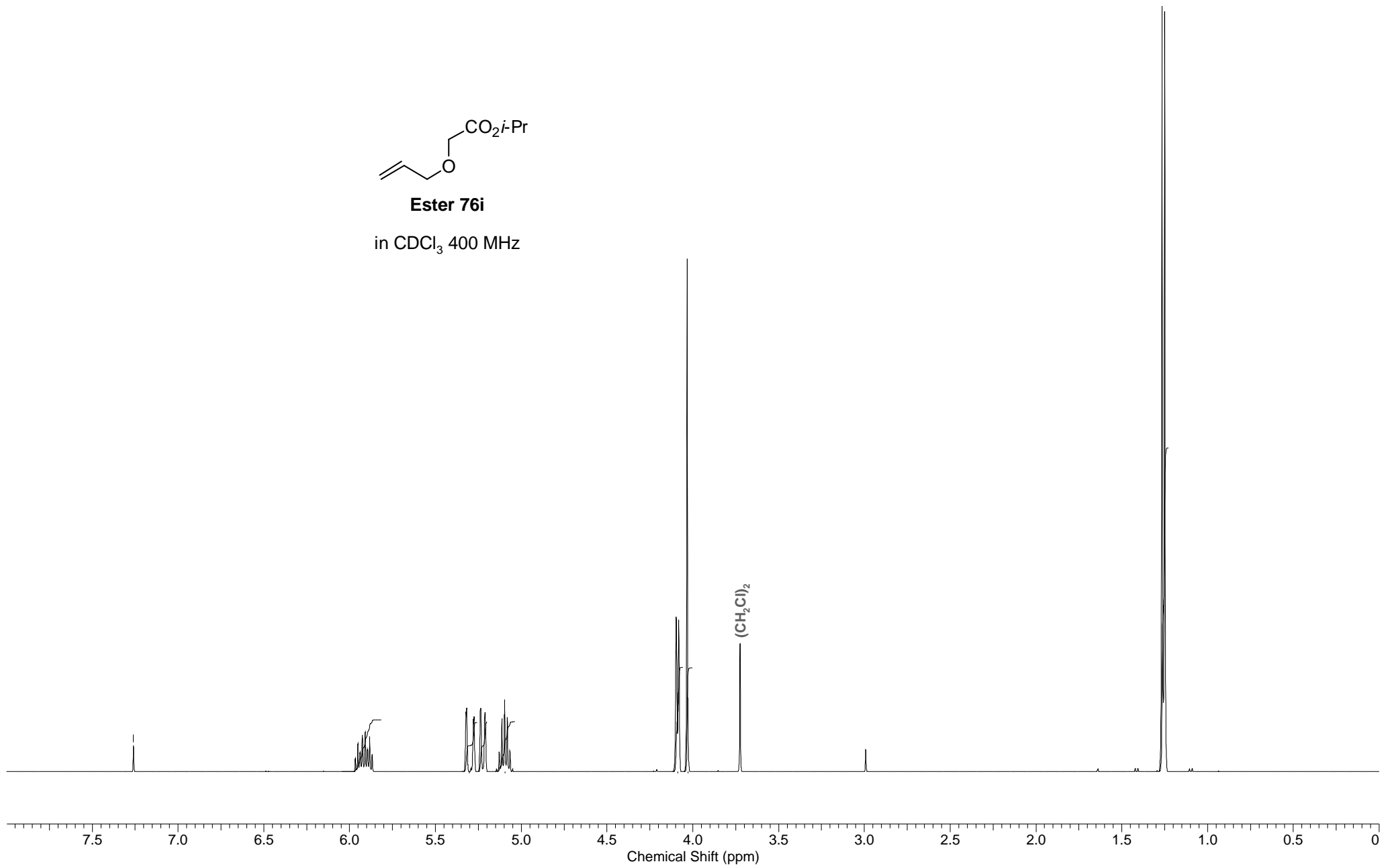


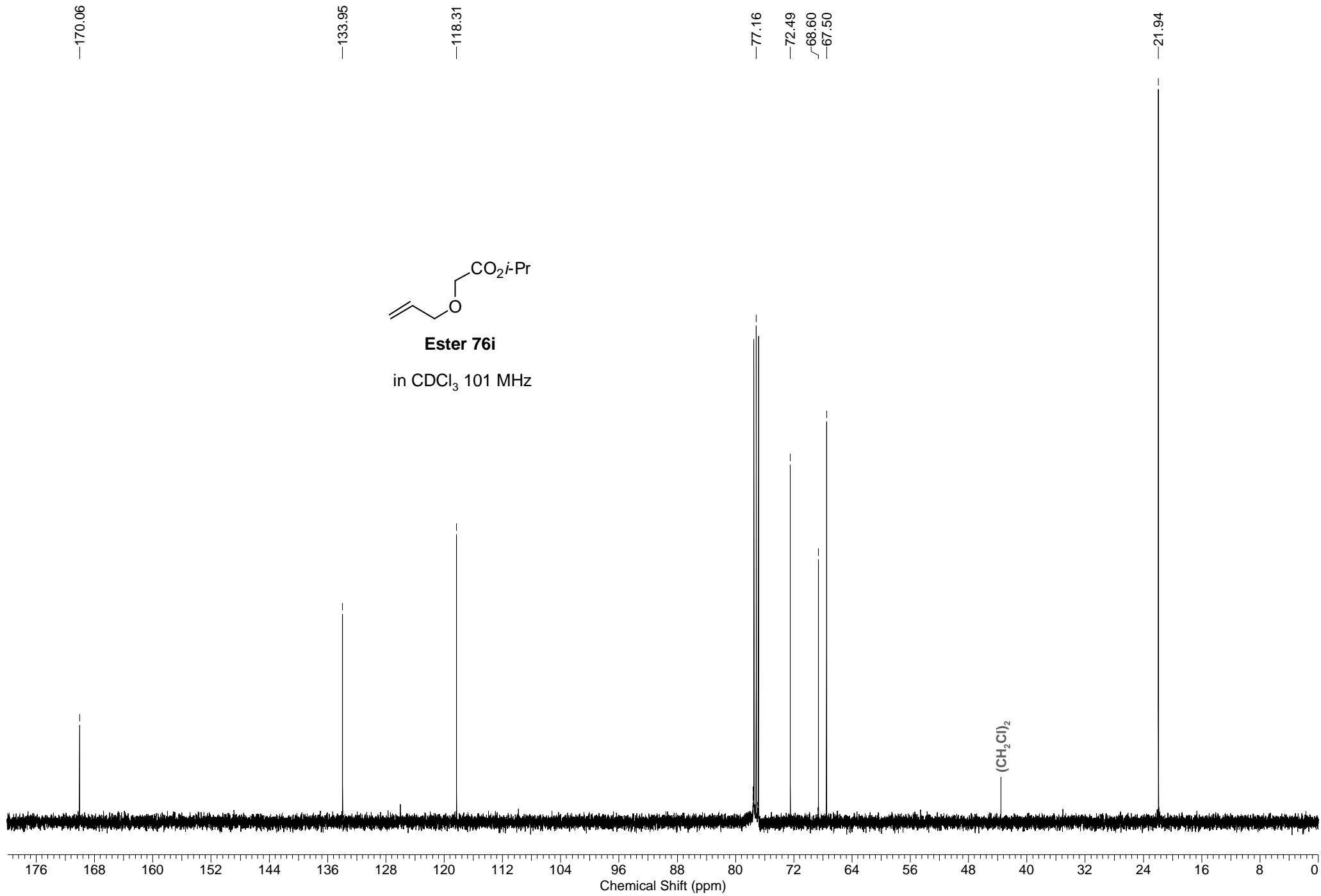


Ester **76h**
in CDCl₃, 400 MHz

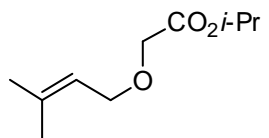
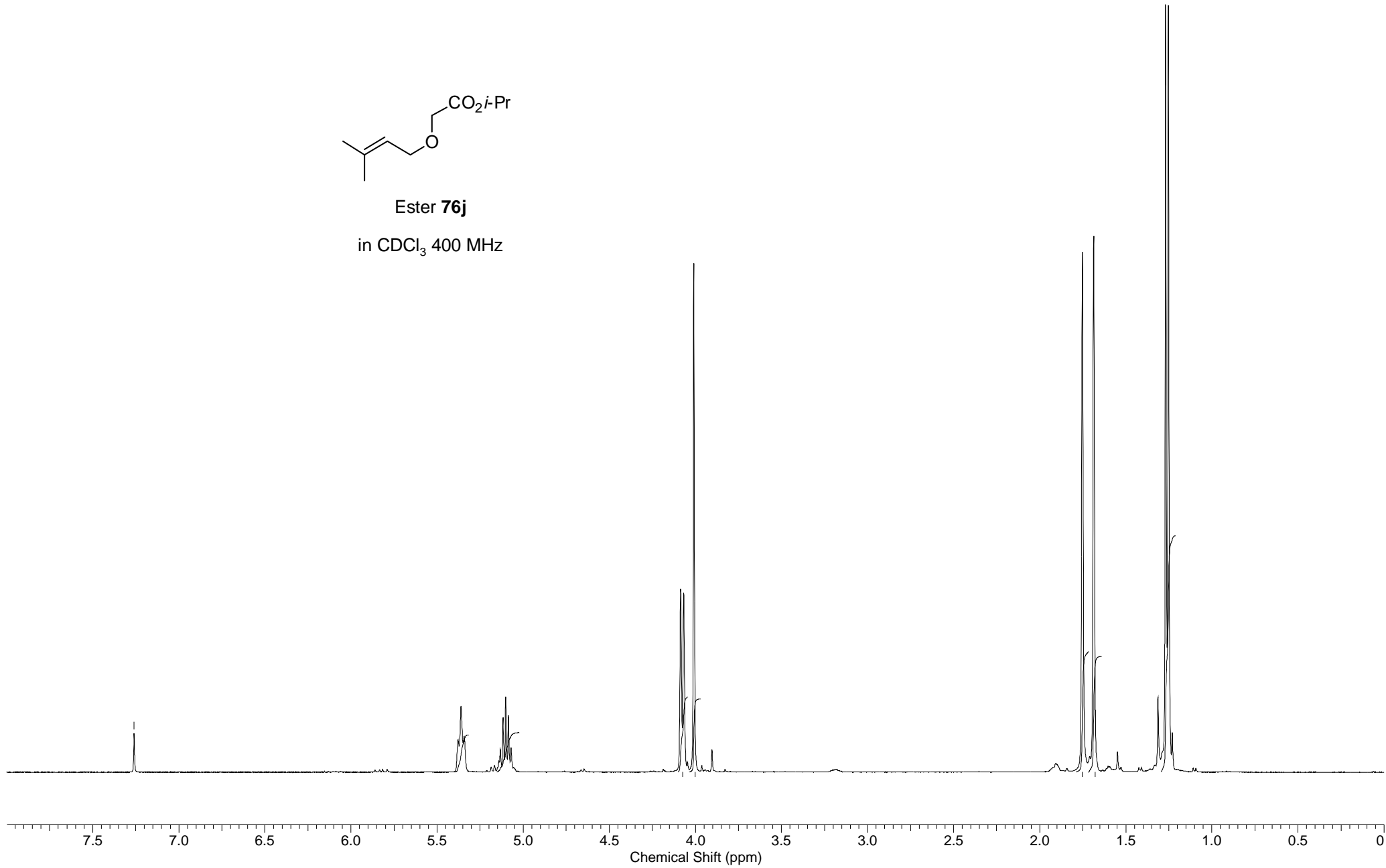


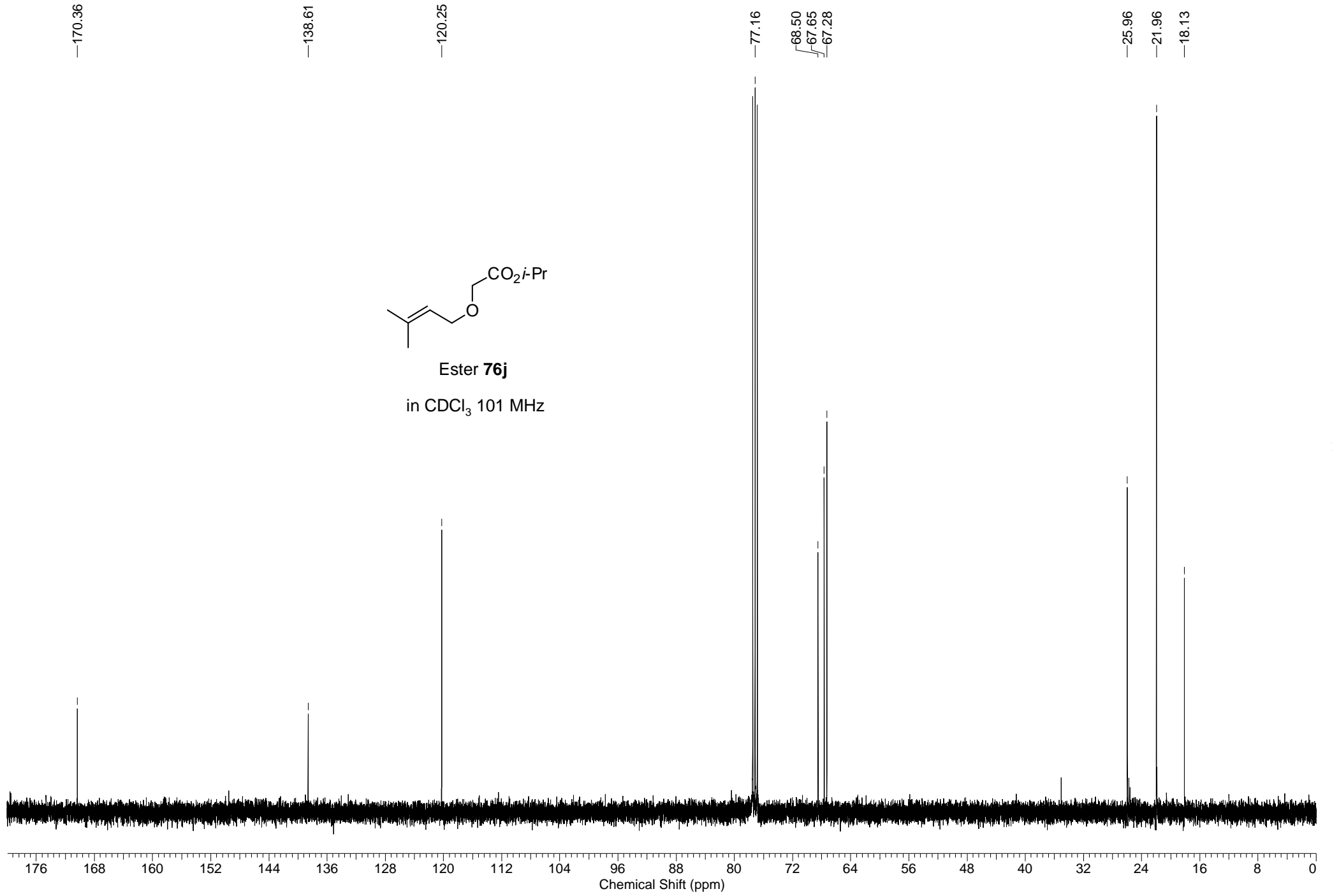


**Ester 76i**in CDCl₃ 400 MHz

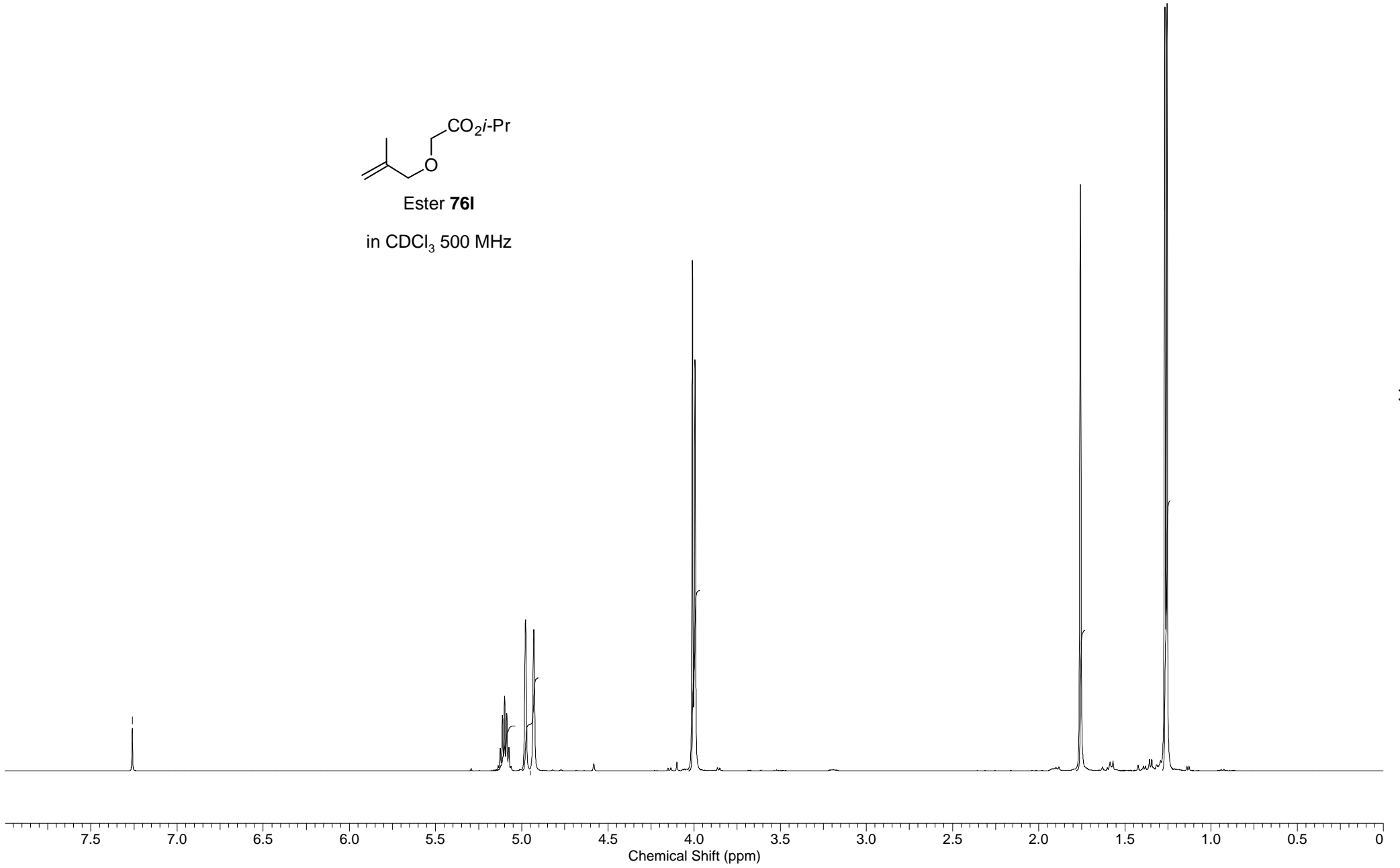
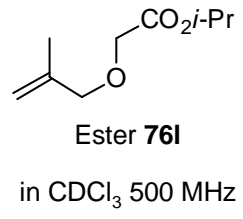


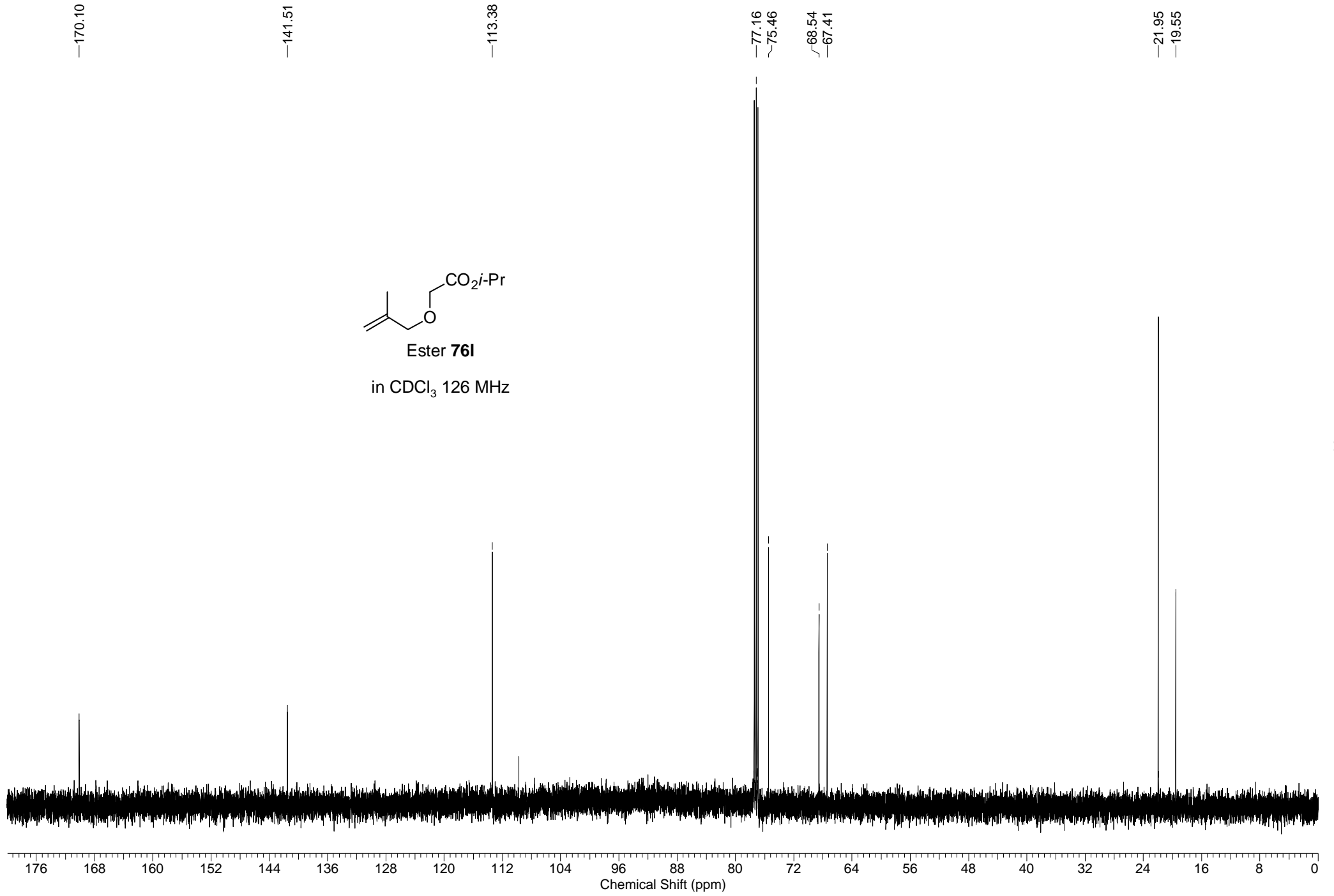
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Ester **76j**in CDCl₃ 400 MHz

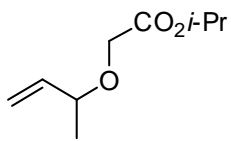


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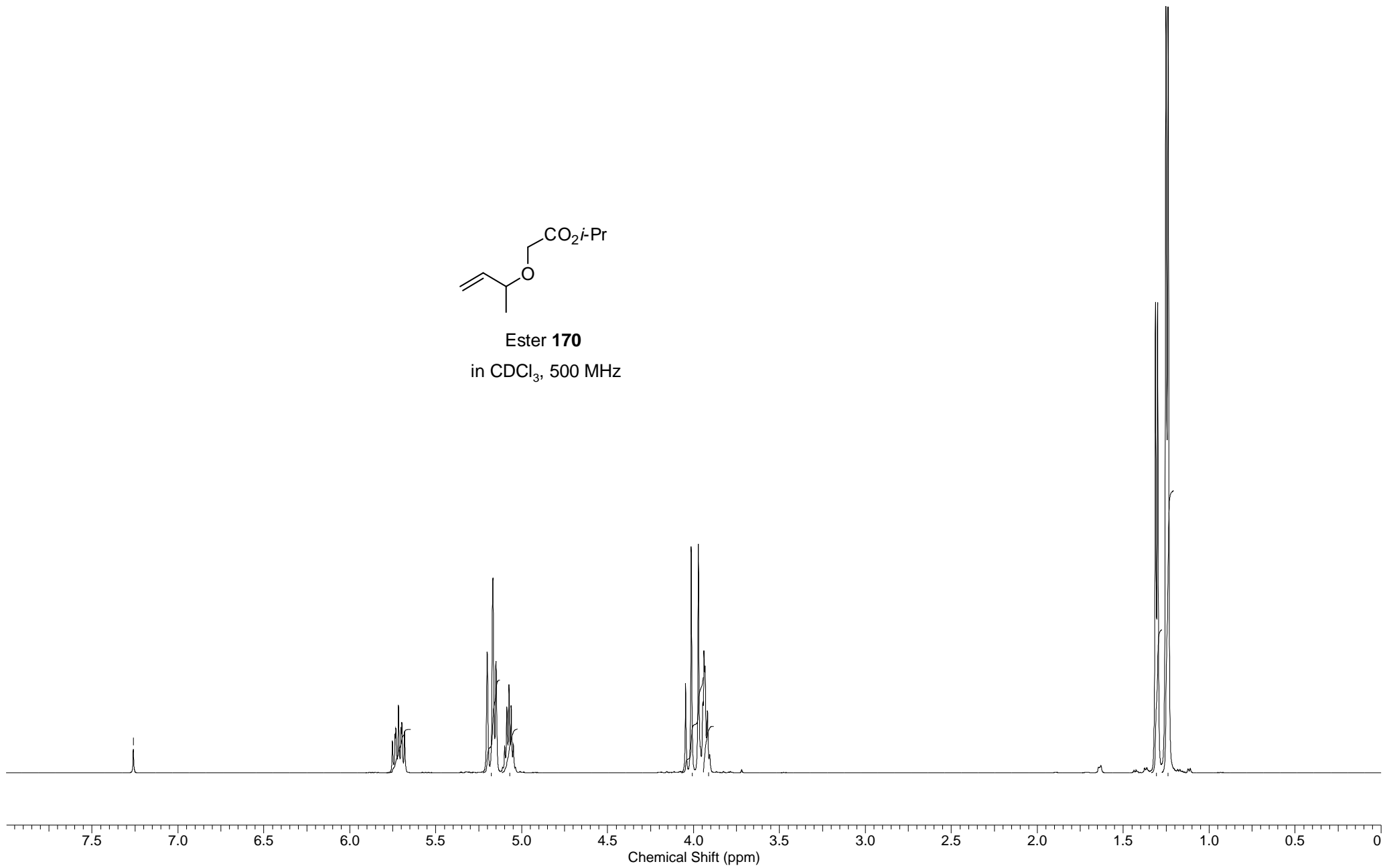


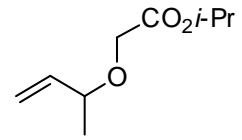


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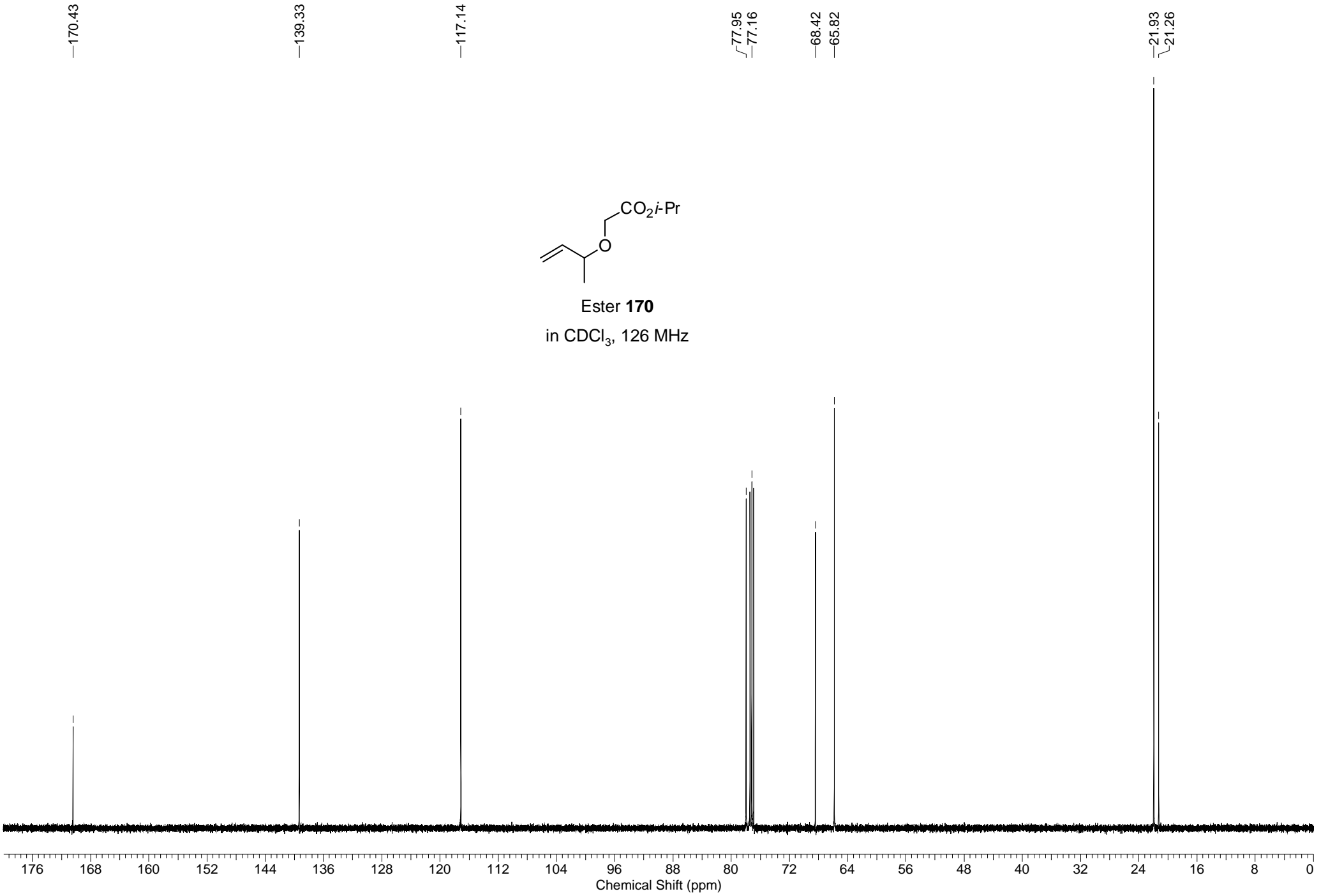


Ester **170**
in CDCl₃, 500 MHz

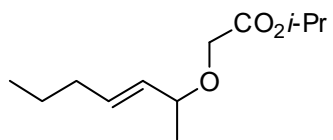




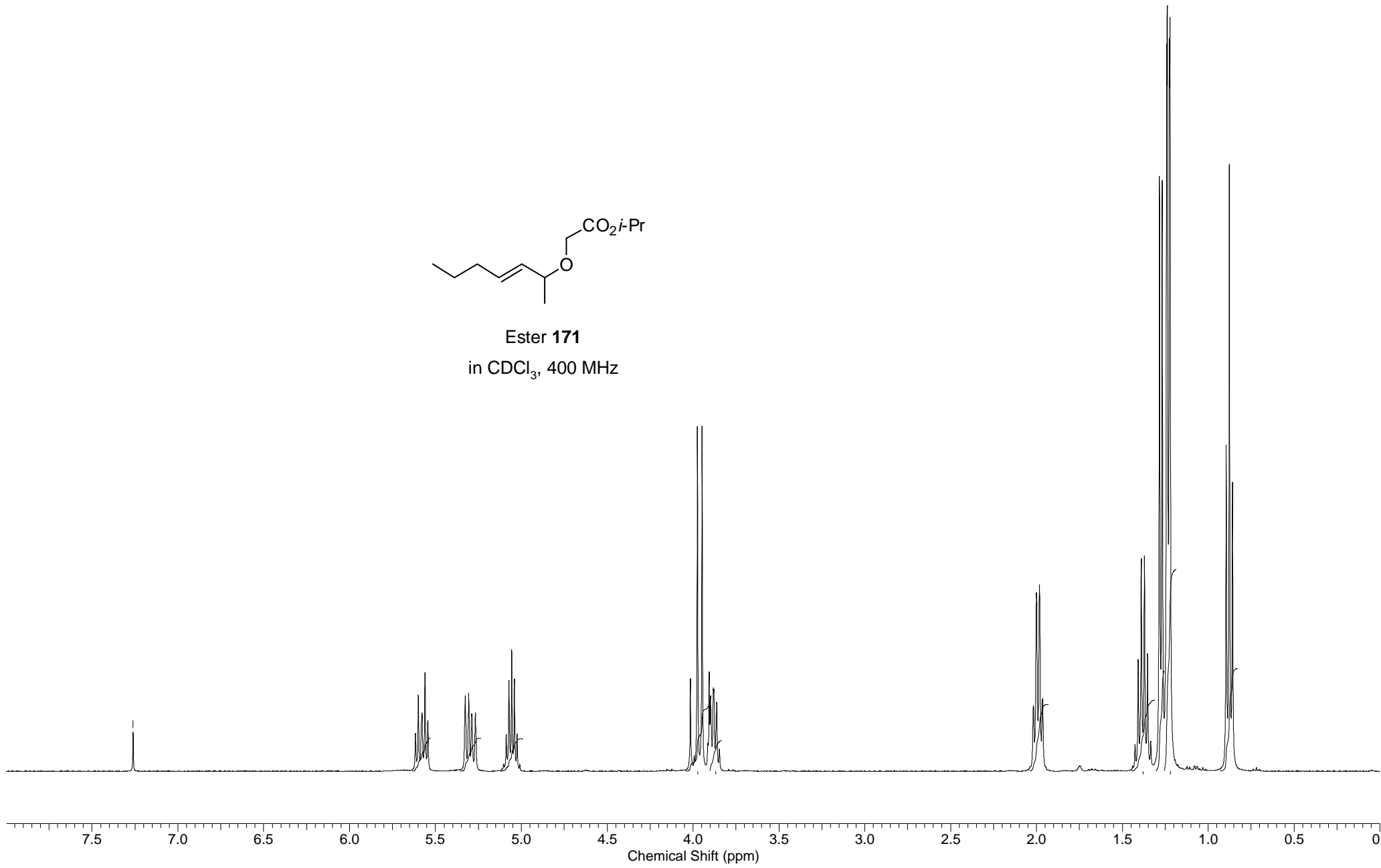
Ester **170**
in CDCl₃, 126 MHz

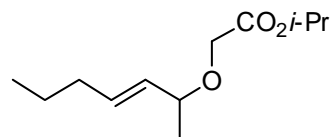


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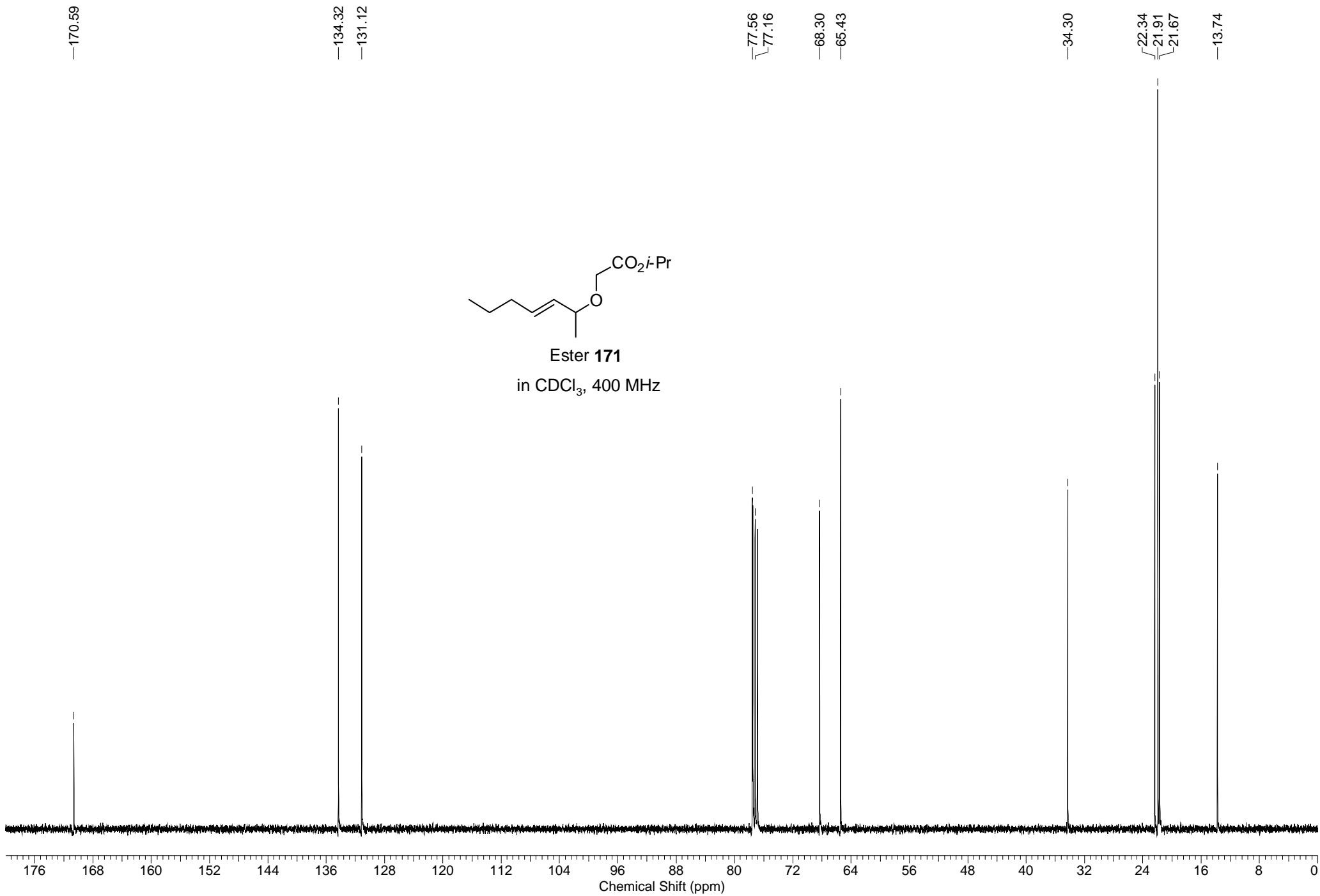


Ester 171
in CDCl₃, 400 MHz

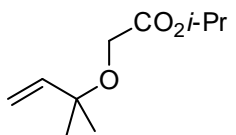




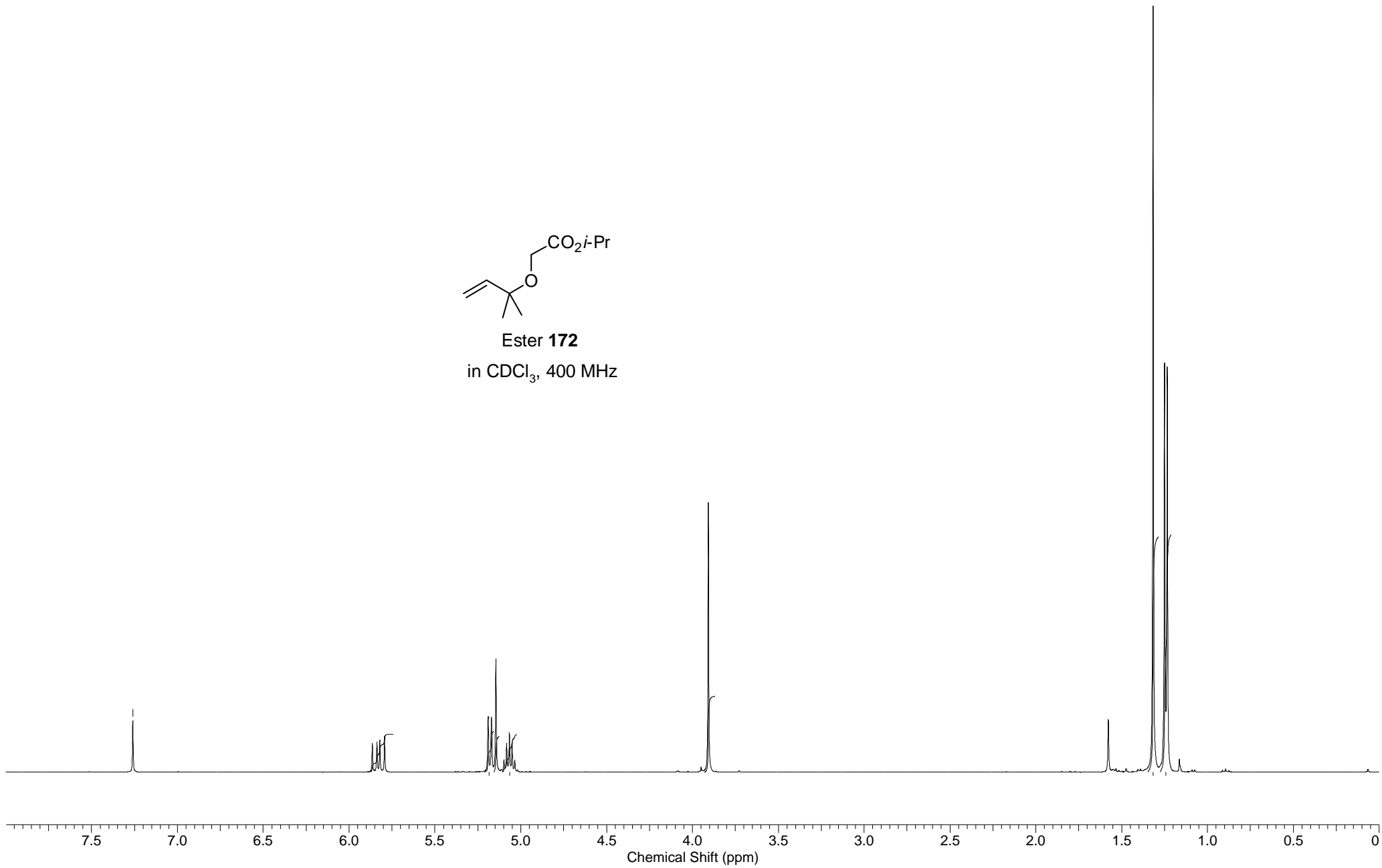
Ester 171
in CDCl₃, 400 MHz

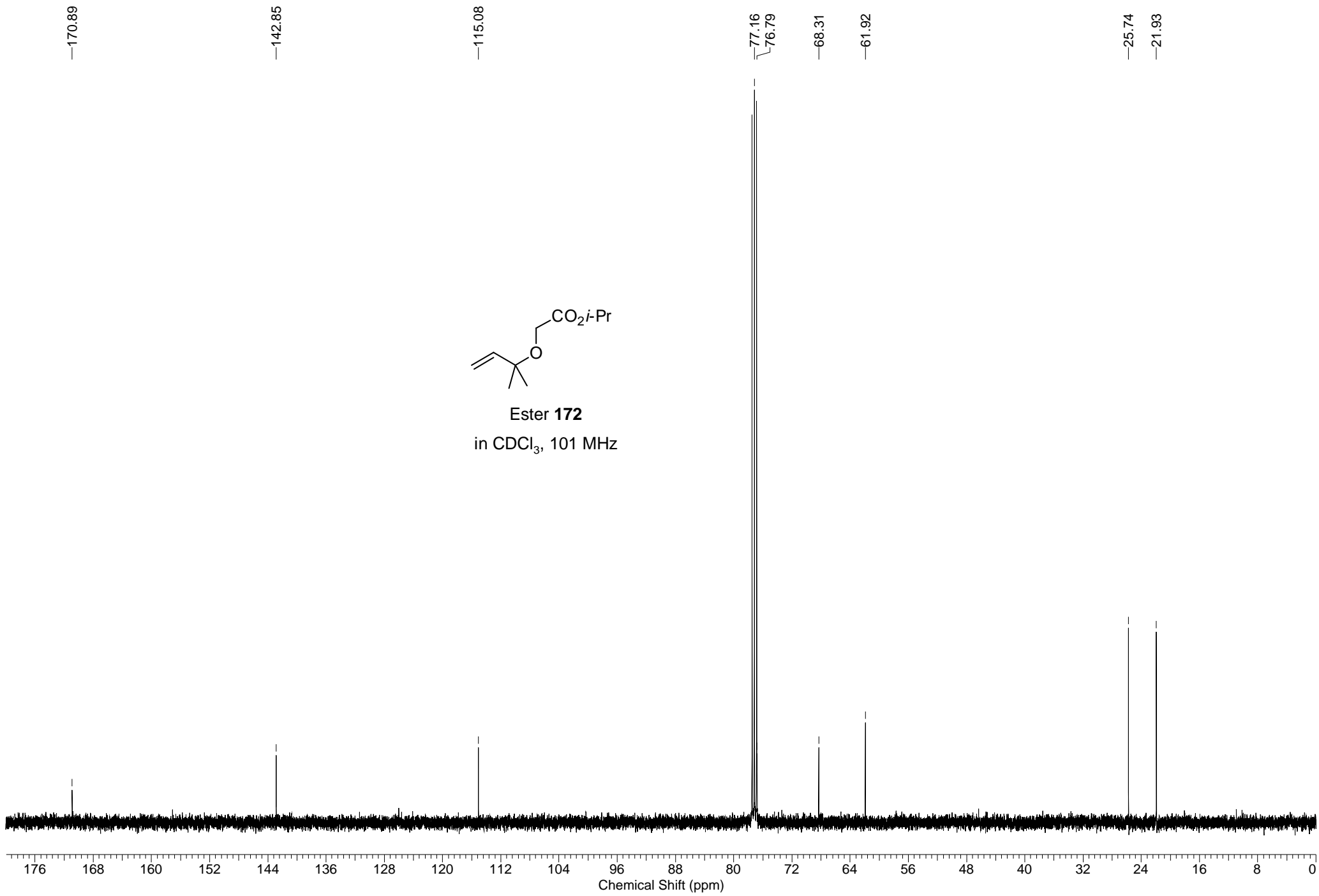


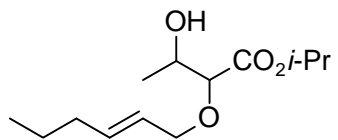
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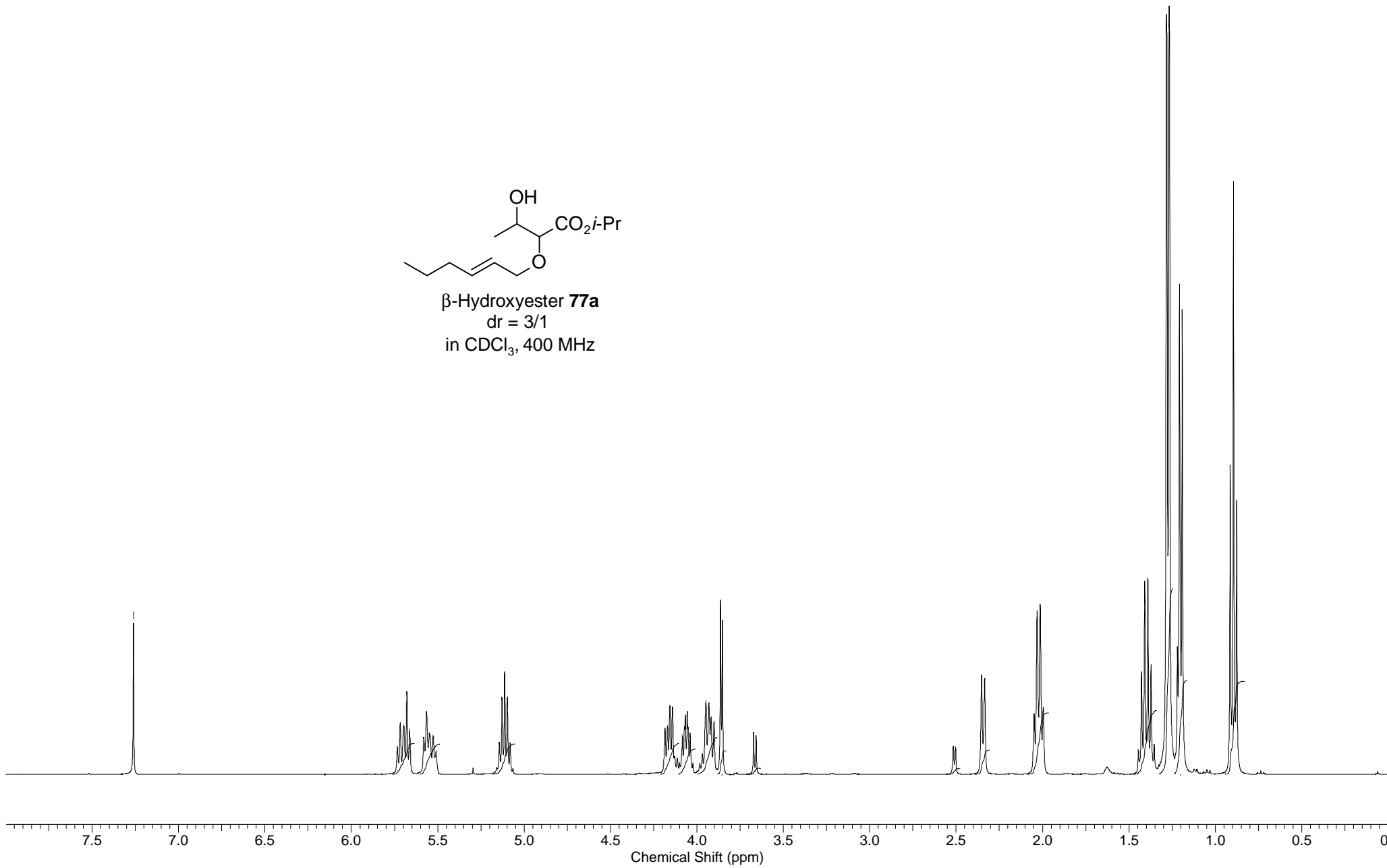
Ester **172**
in CDCl₃, 400 MHz

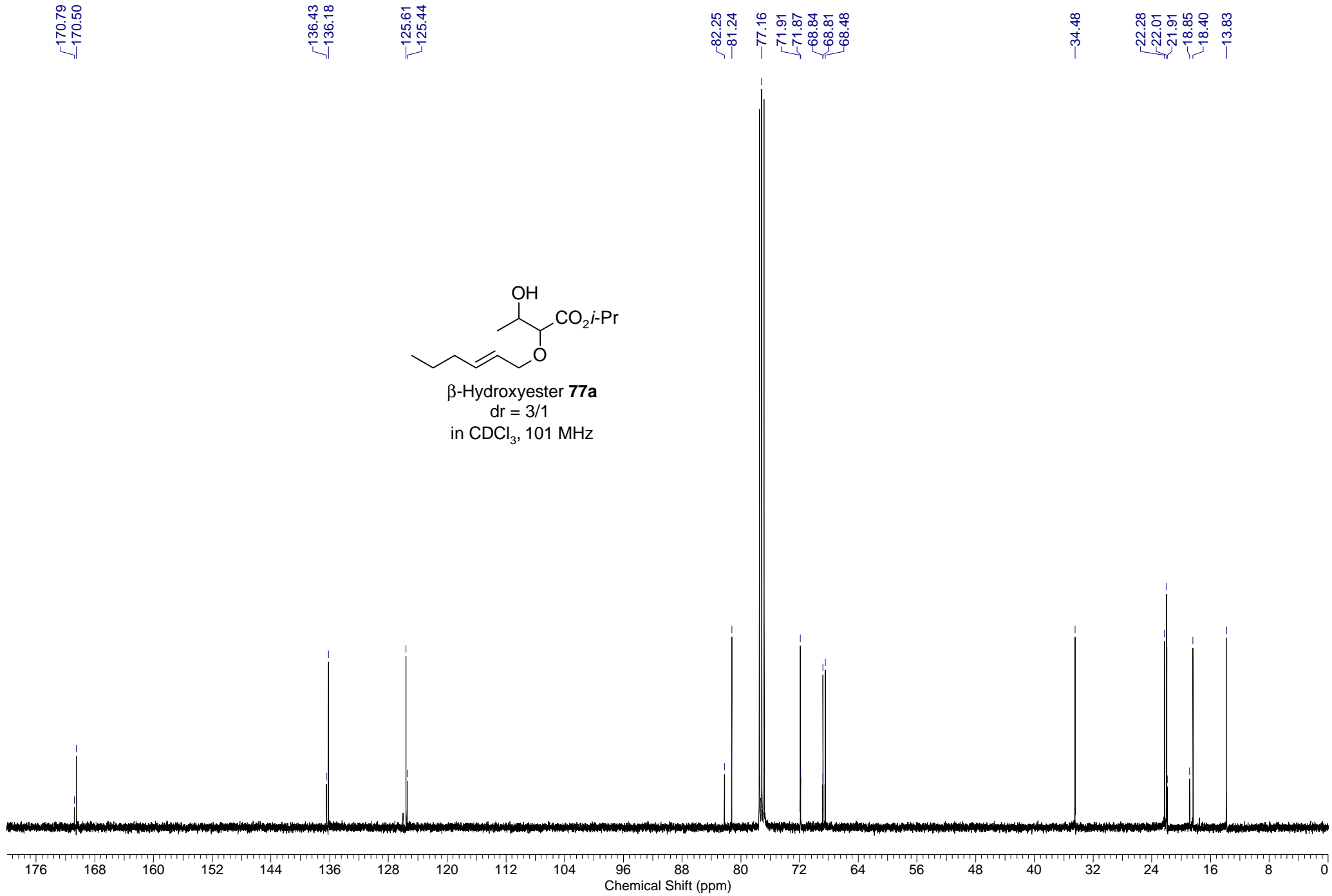


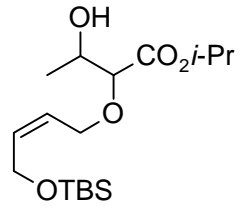




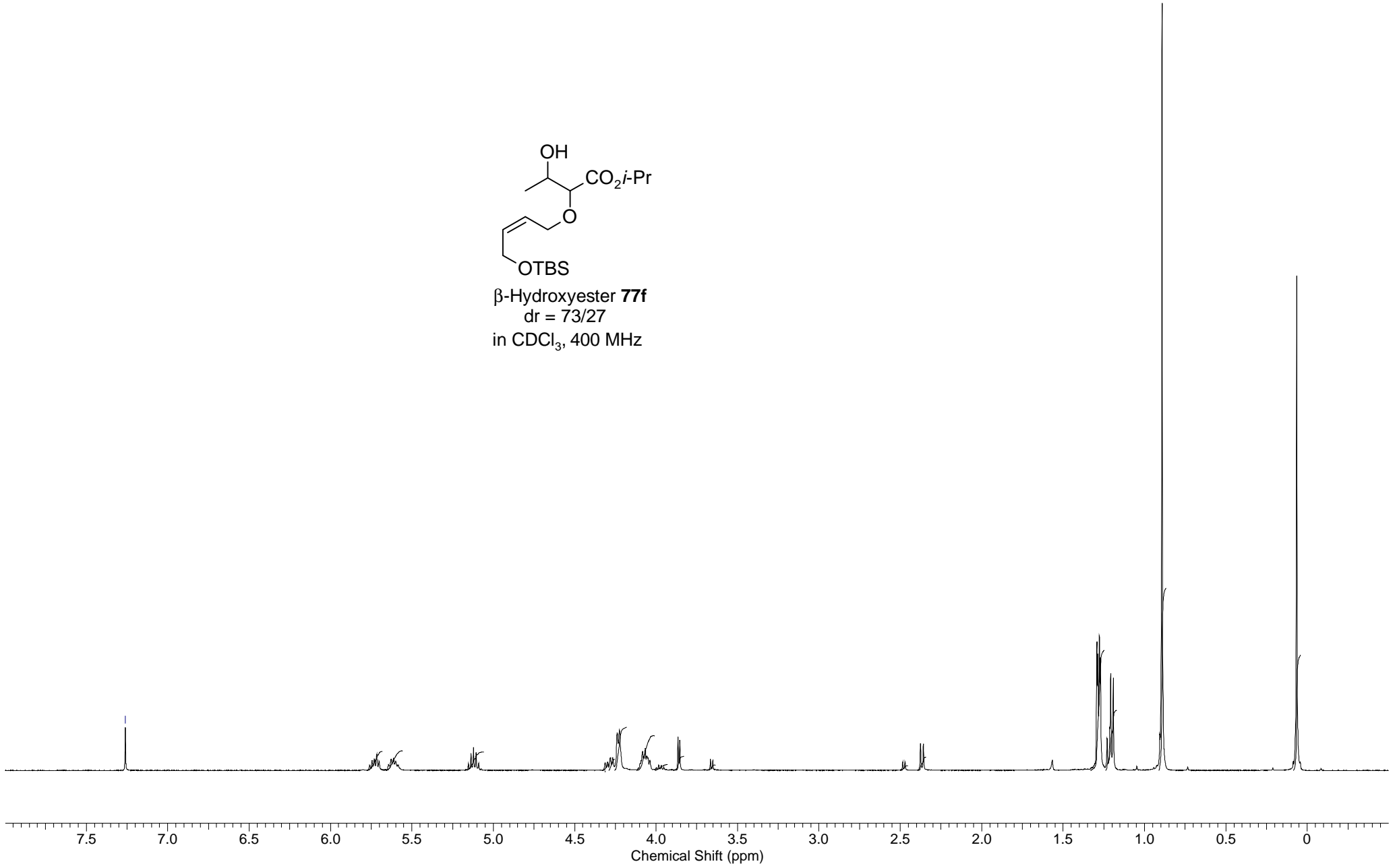
β -Hydroxyester **77a**
dr = 3/1
in CDCl₃, 400 MHz

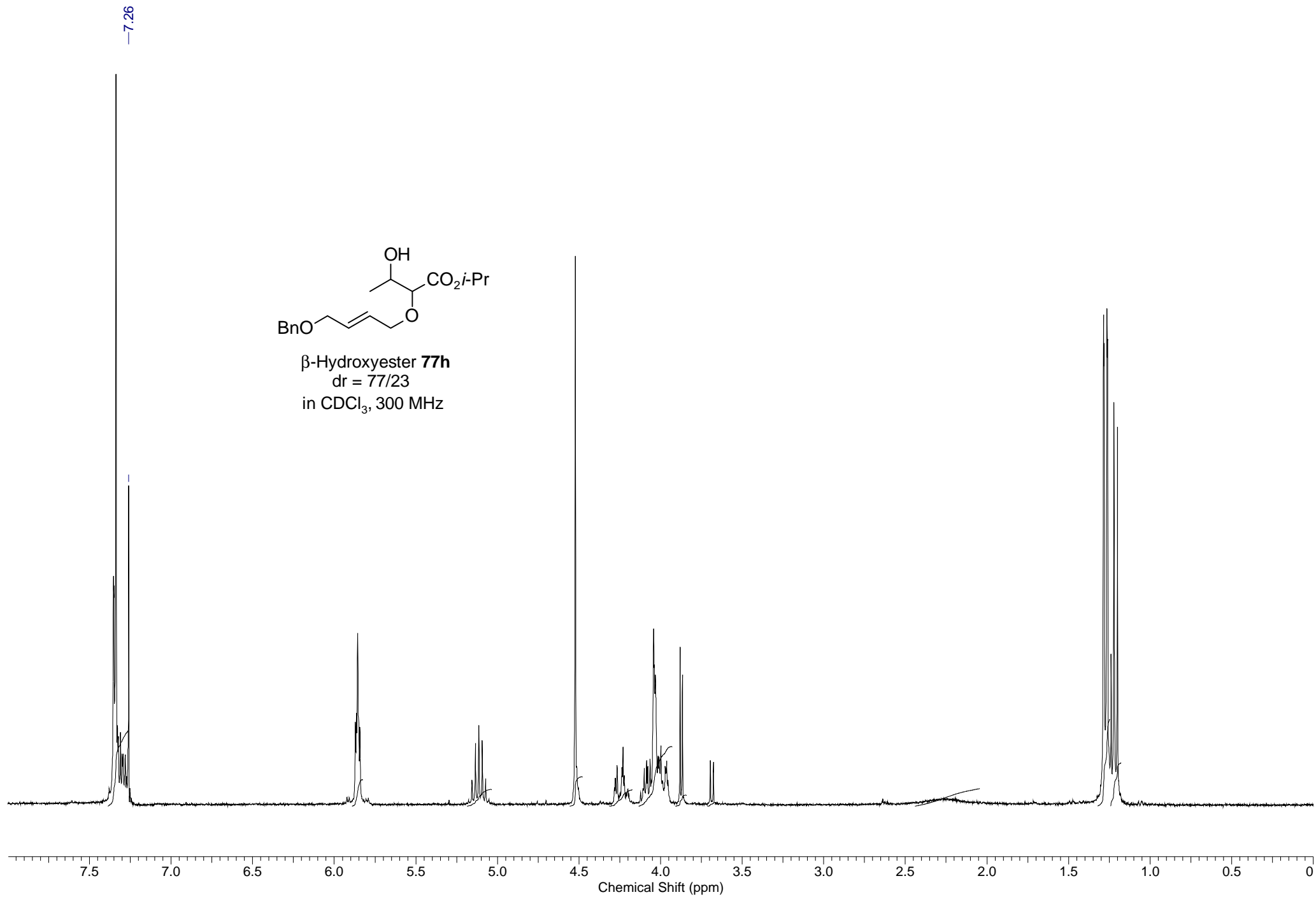


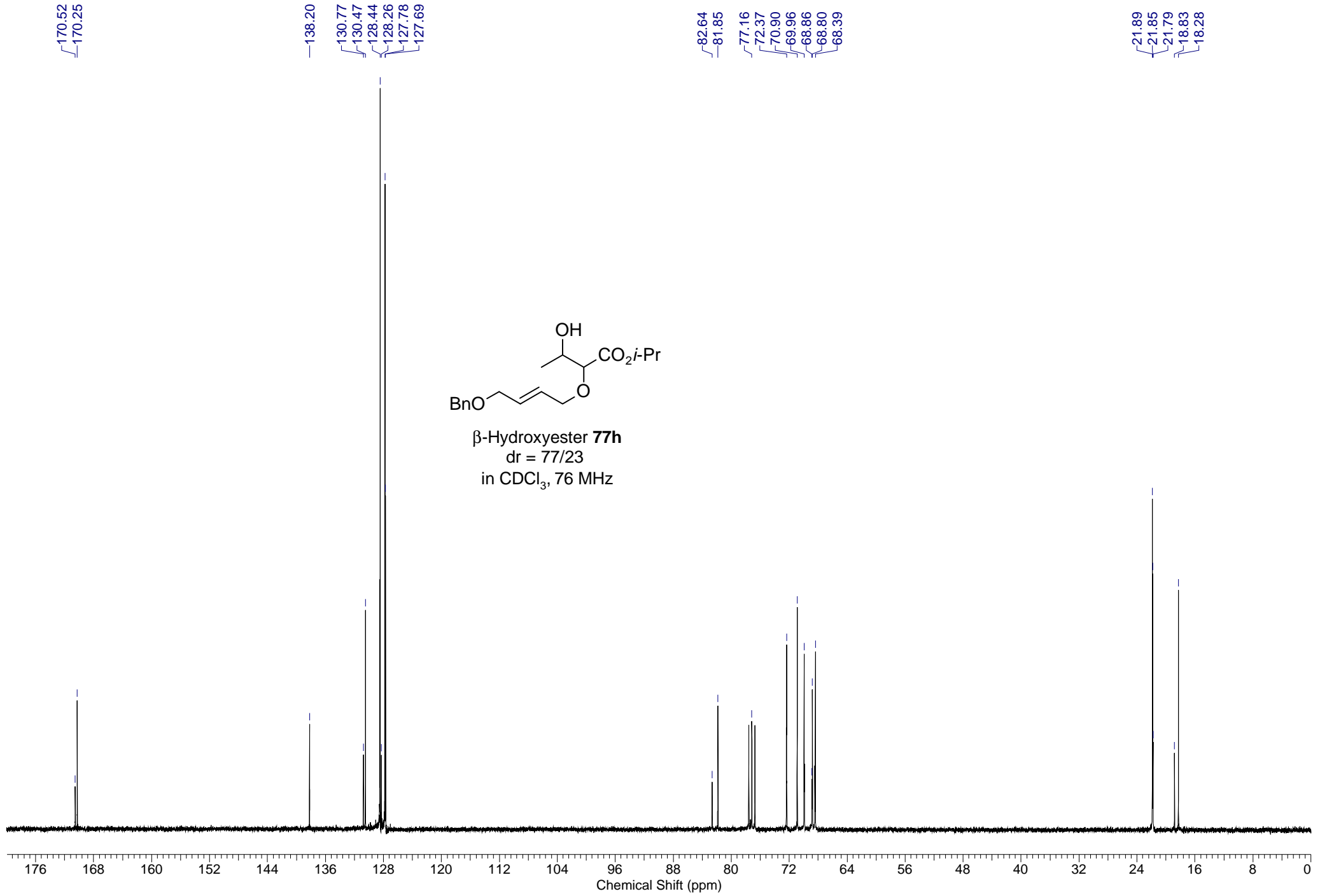


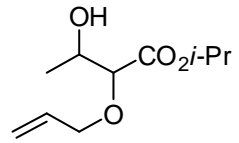
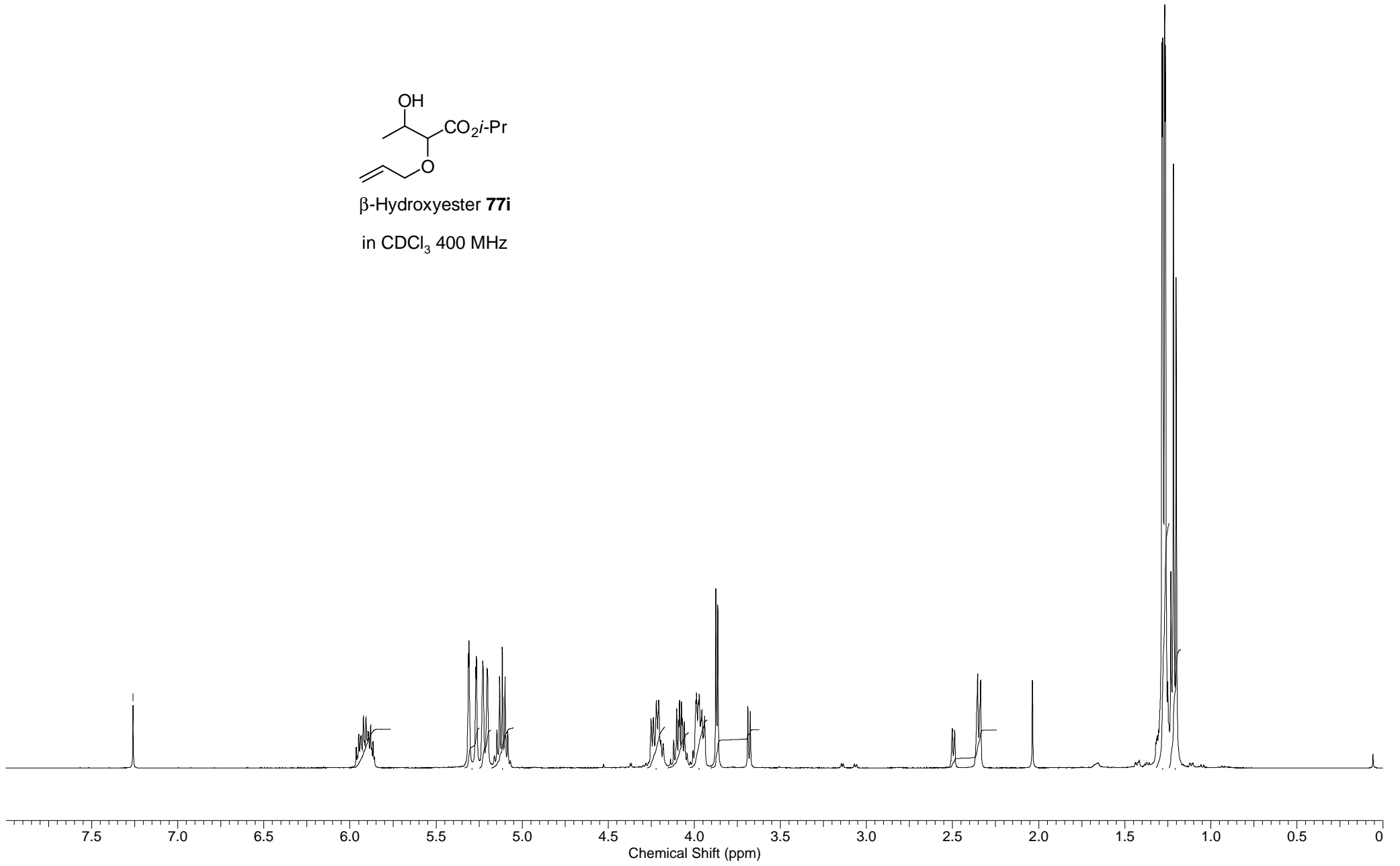


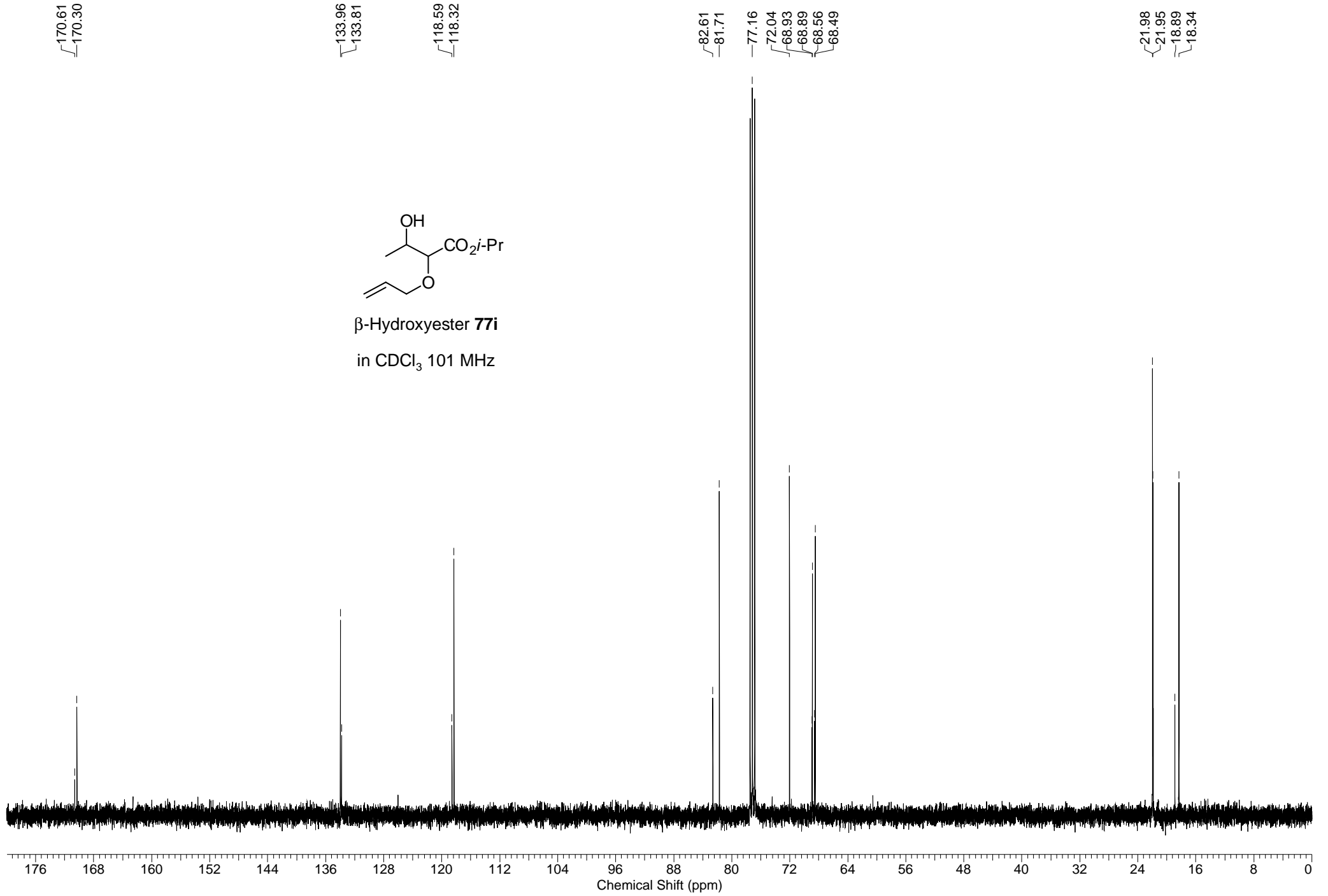
β -Hydroxyester **77f**
dr = 73/27
in CDCl₃, 400 MHz

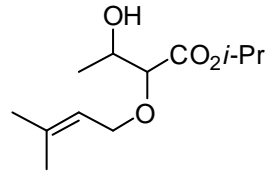




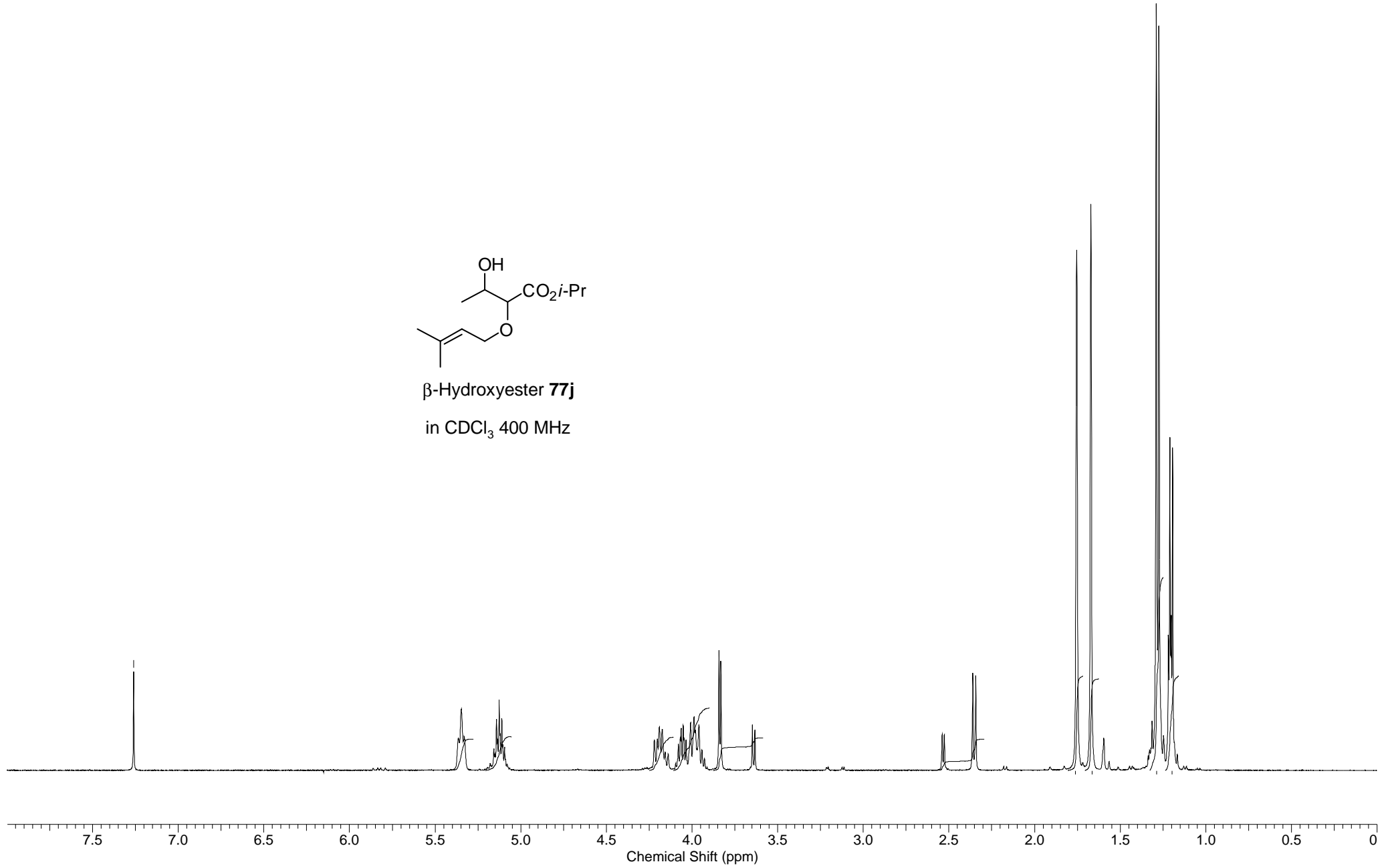


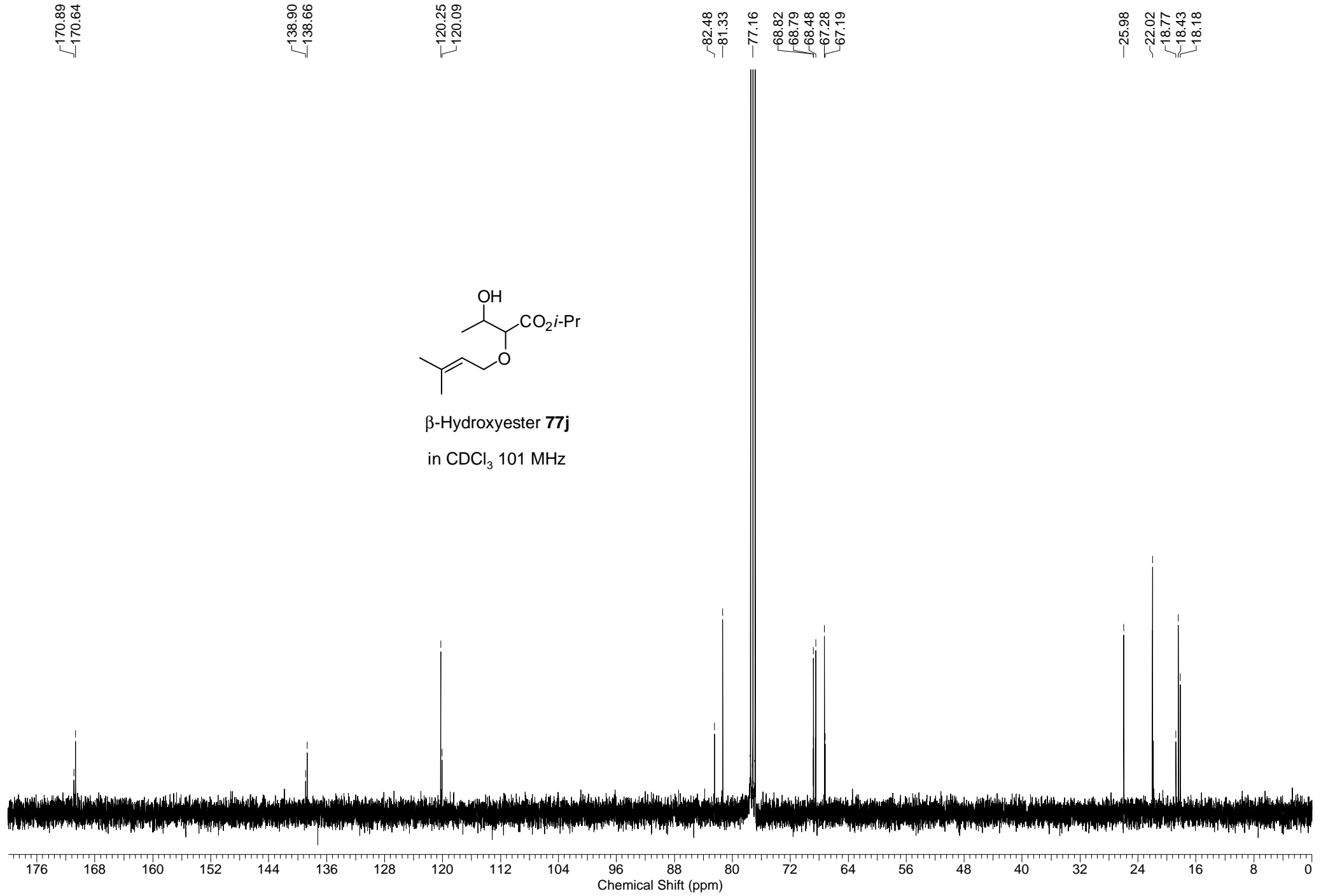
 β -Hydroxyester **77i**in CDCl₃ 400 MHz



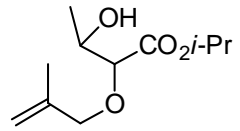


β -Hydroxyester **77j**
in CDCl₃ 400 MHz

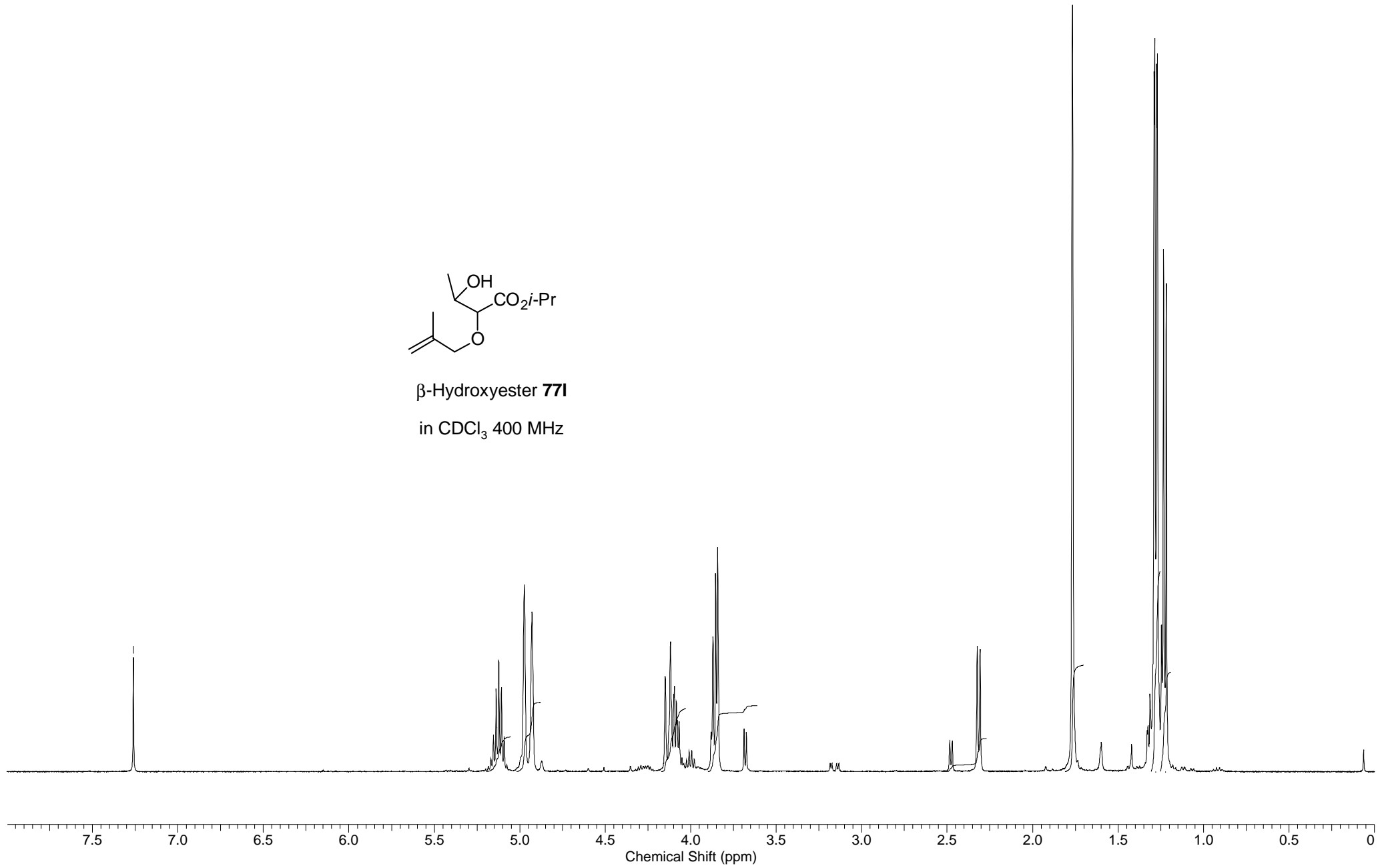


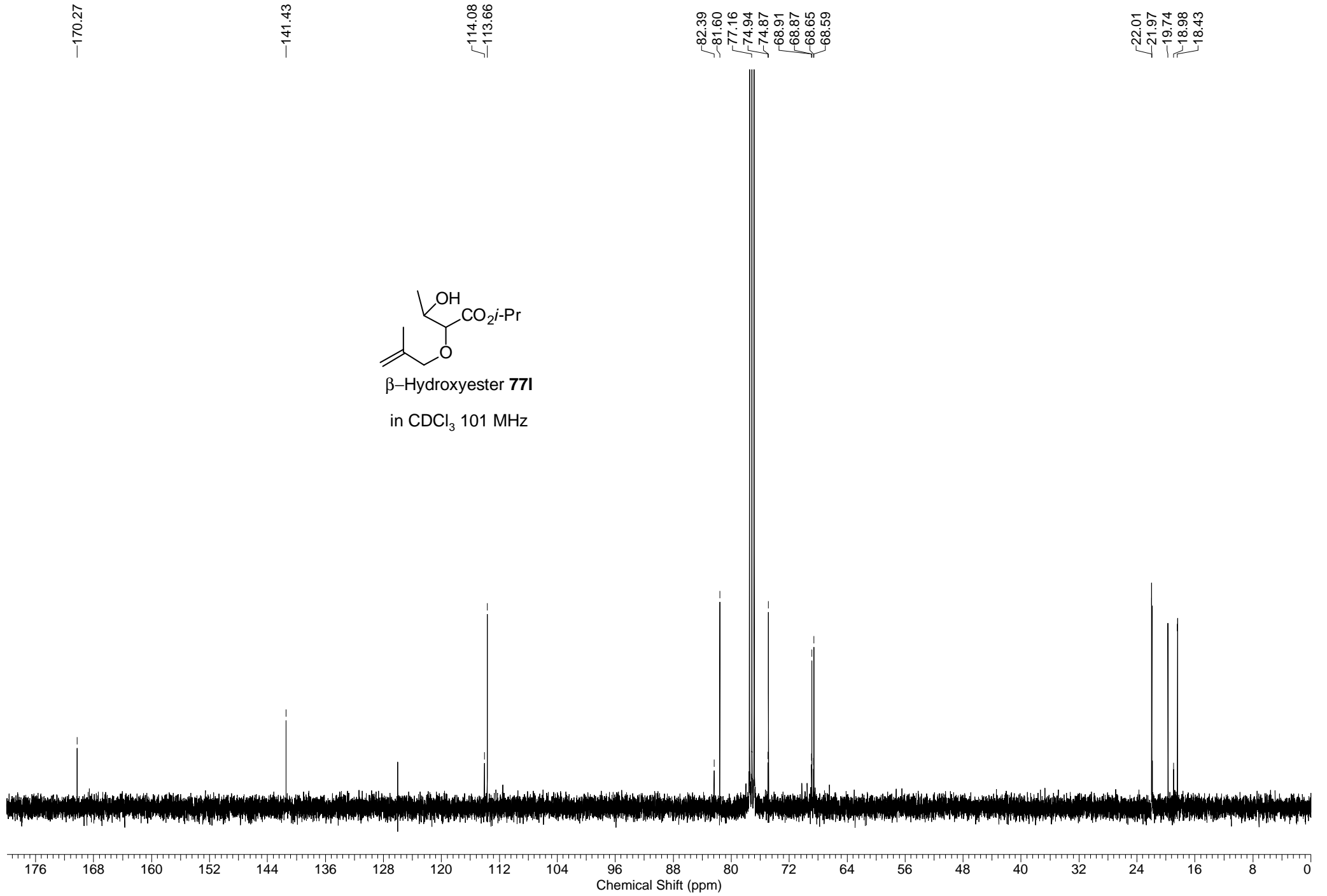


-7.26

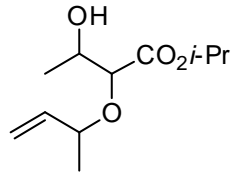


β -Hydroxyester **77I**
in CDCl_3 400 MHz

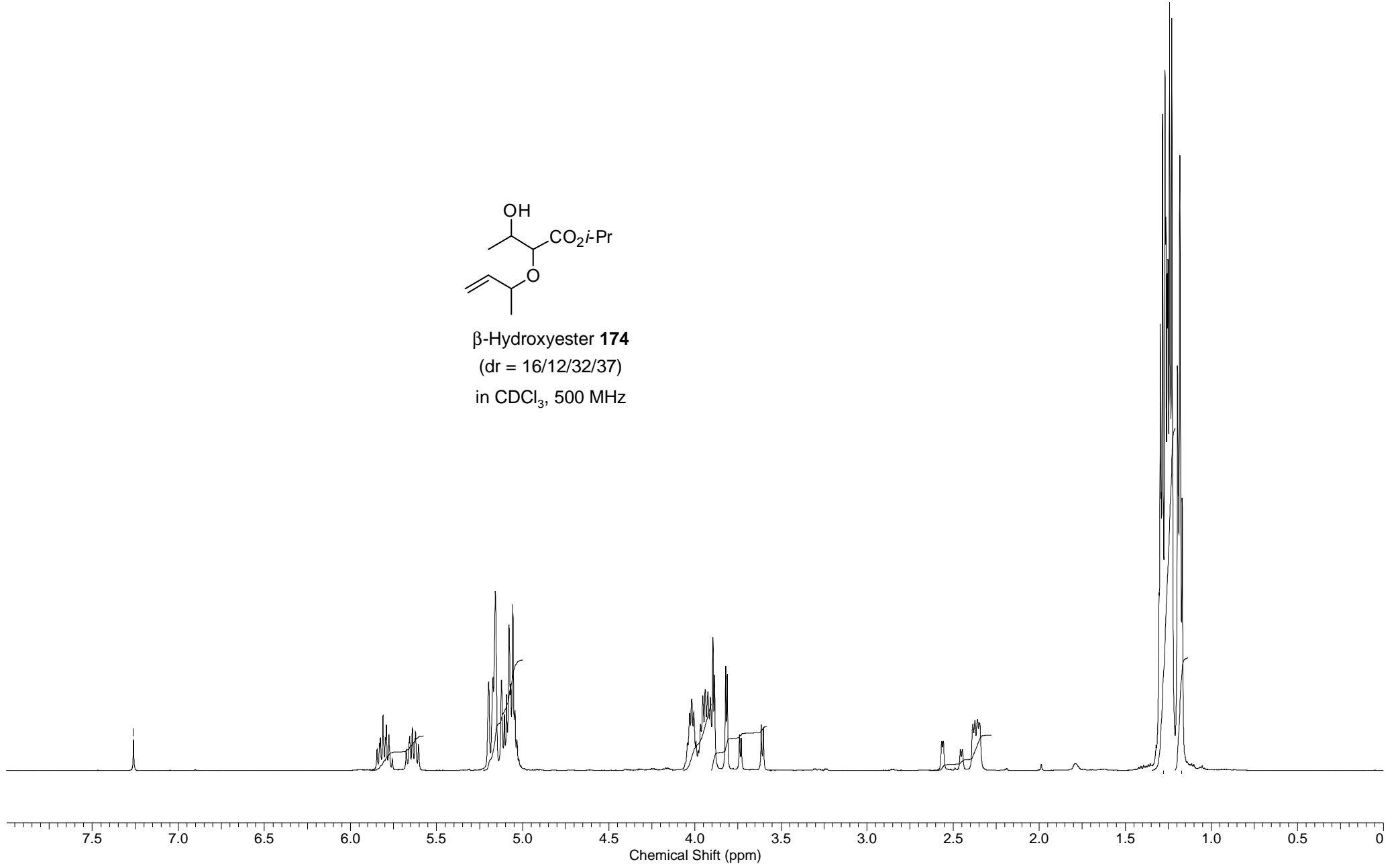


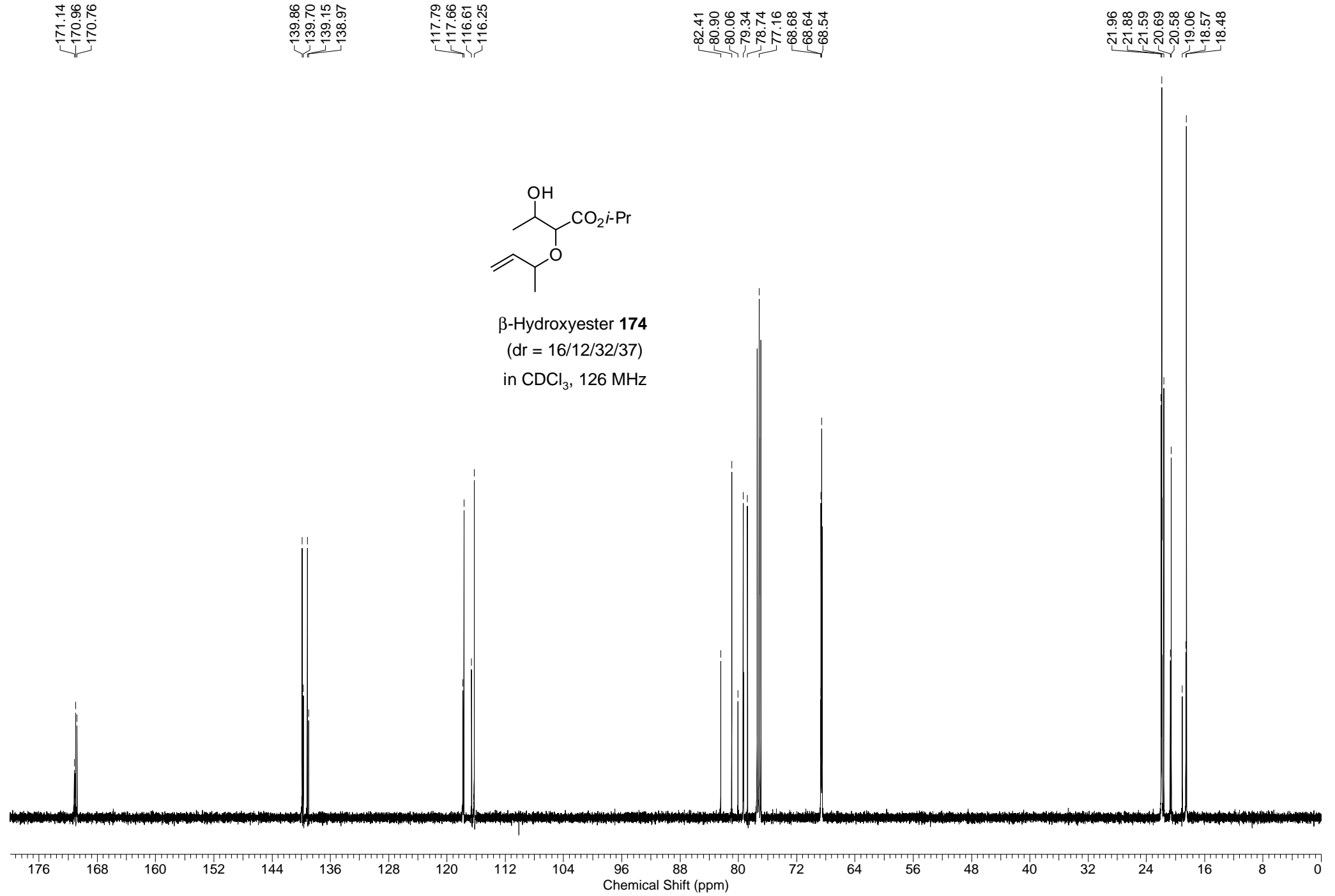


-7.26

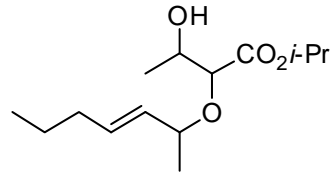


β -Hydroxyester **174**
(dr = 16/12/32/37)
in CDCl₃, 500 MHz

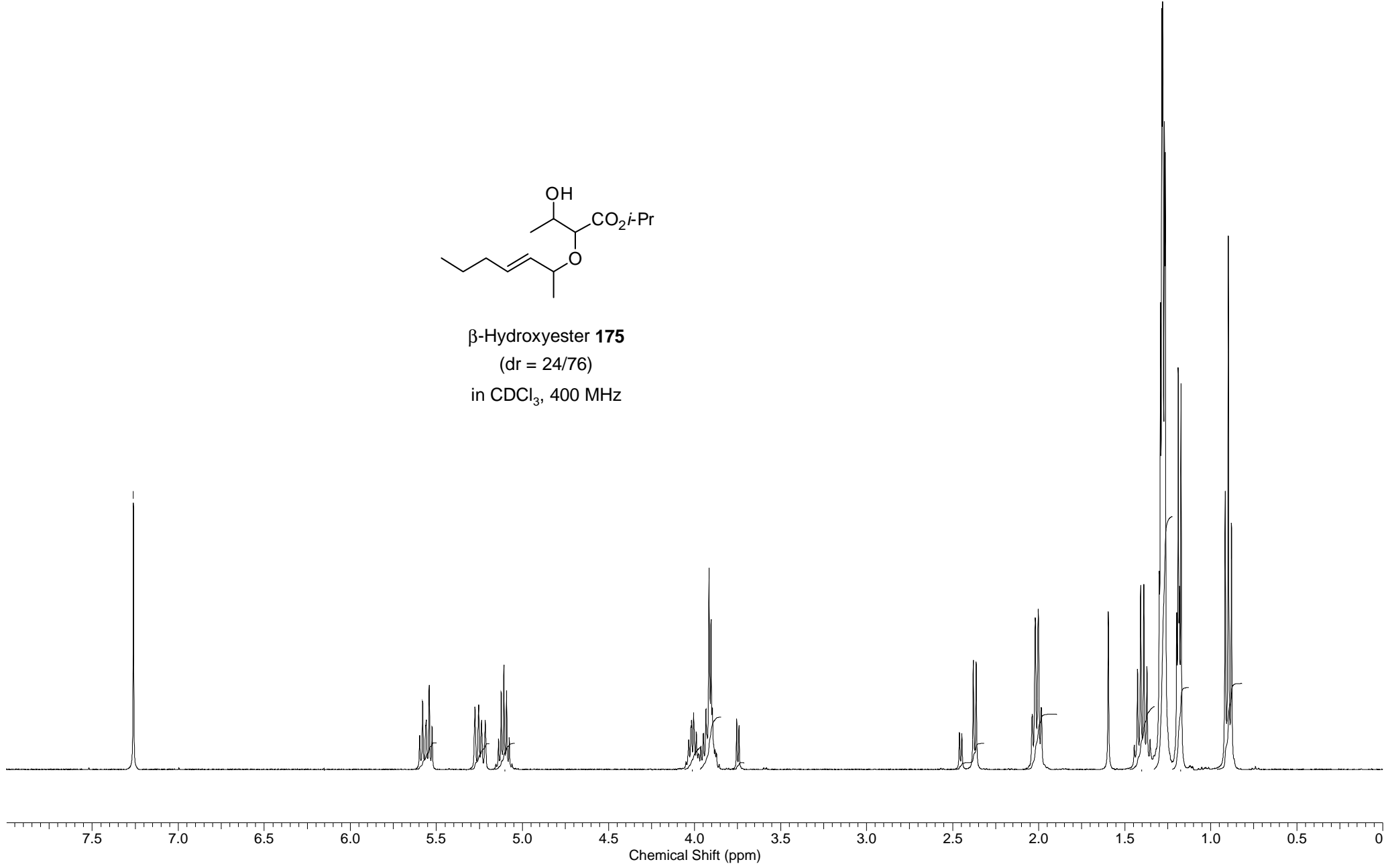


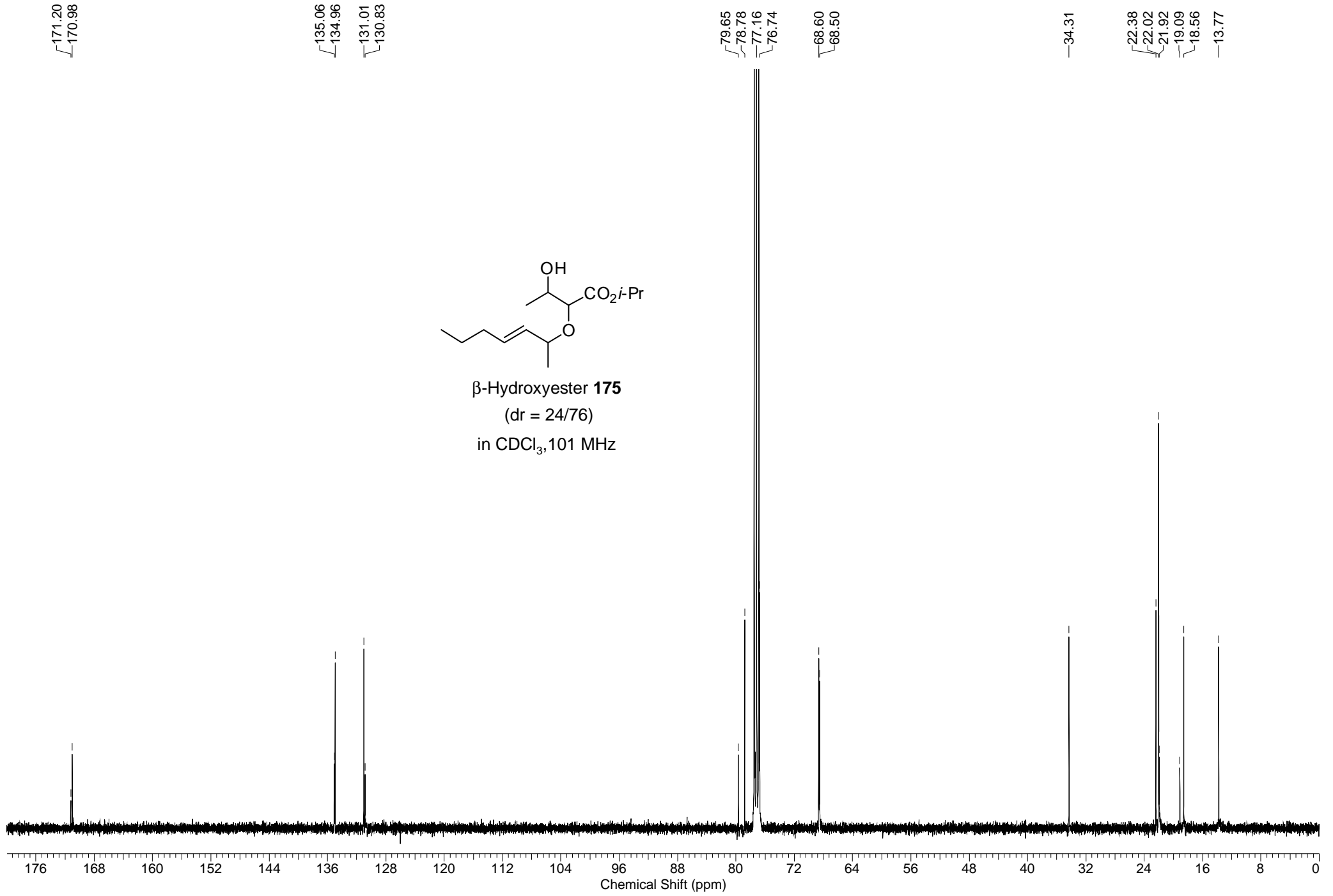


-7.26

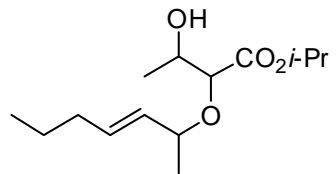


β -Hydroxyester **175**
(dr = 24/76)
in CDCl₃, 400 MHz

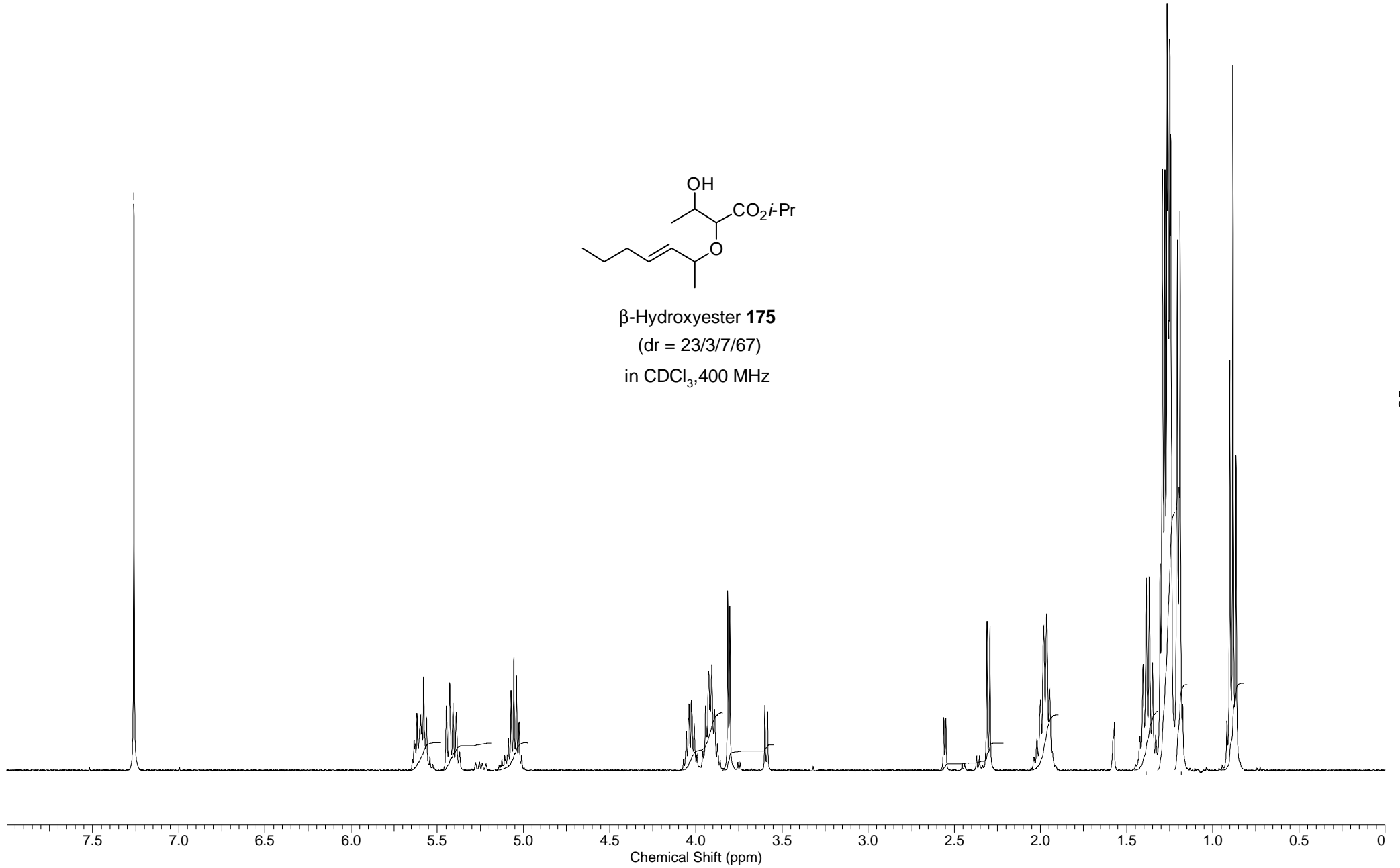




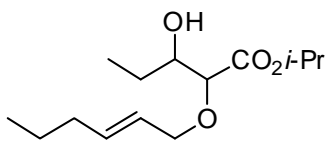
-7.26

 **β -Hydroxyester 175**

(dr = 23/3/7/67)

in CDCl₃, 400 MHz

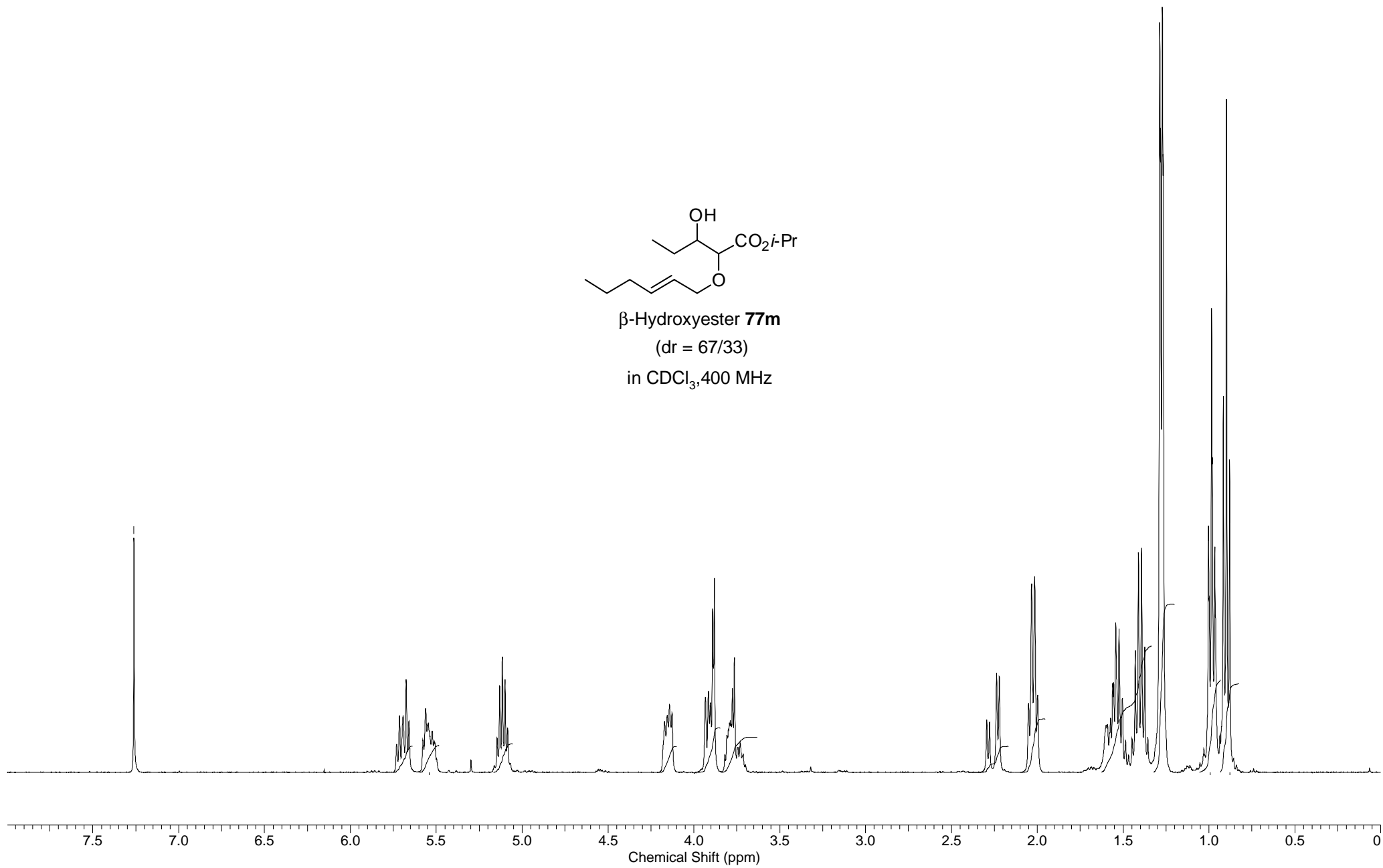
-7.26

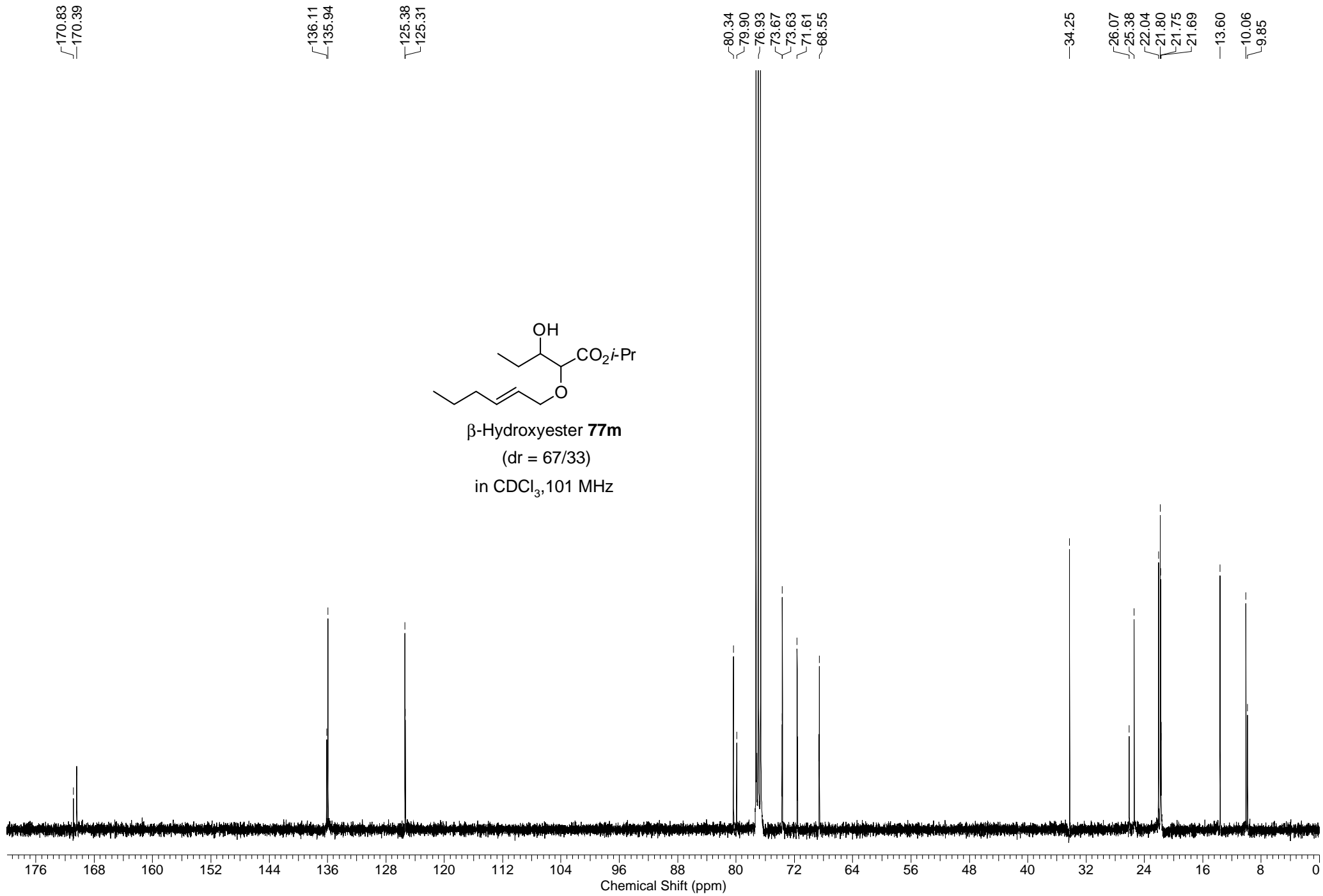


β -Hydroxyester **77m**

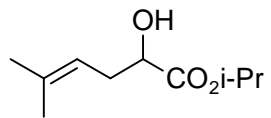
(dr = 67/33)

in CDCl₃, 400 MHz

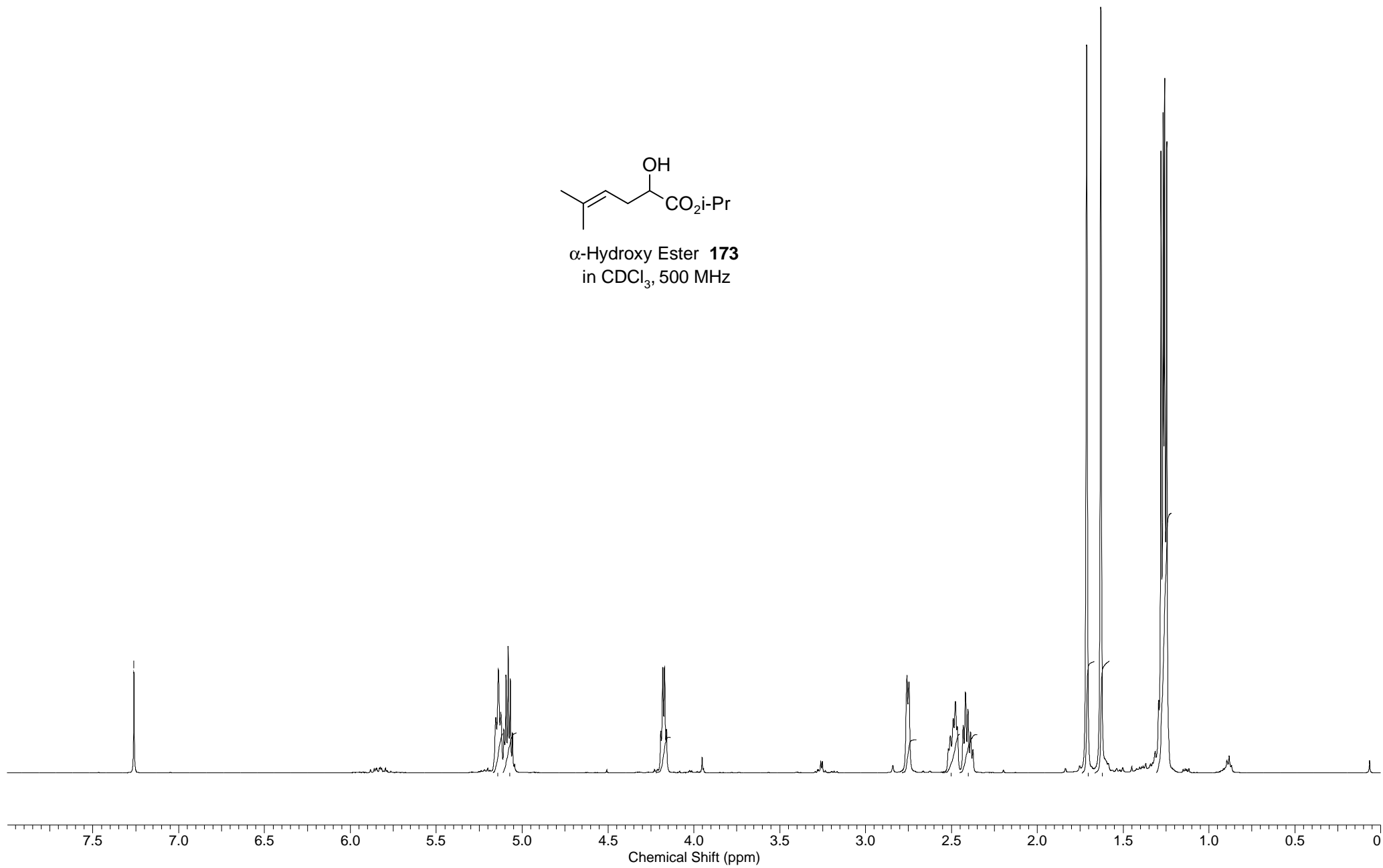


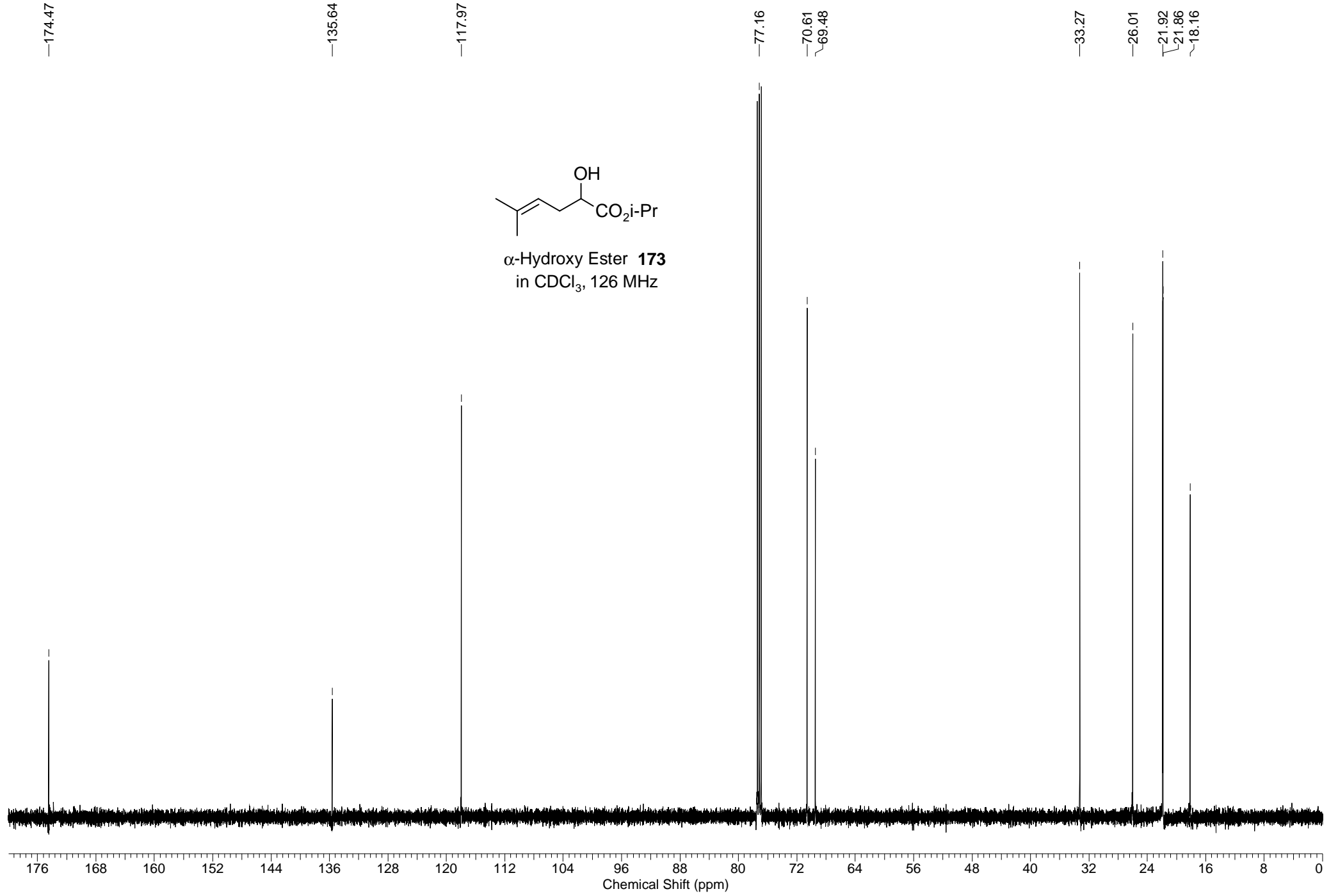


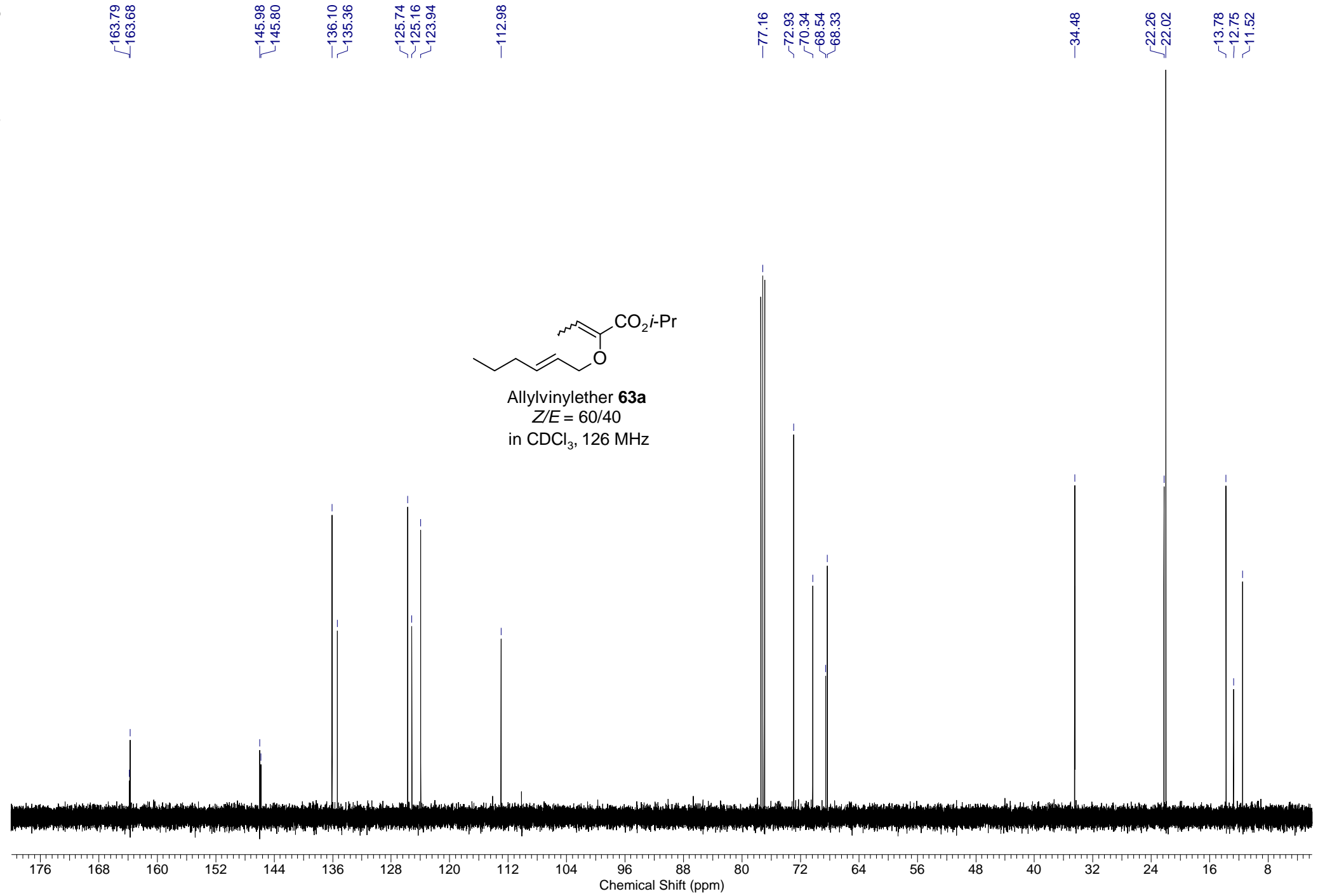
-7.26

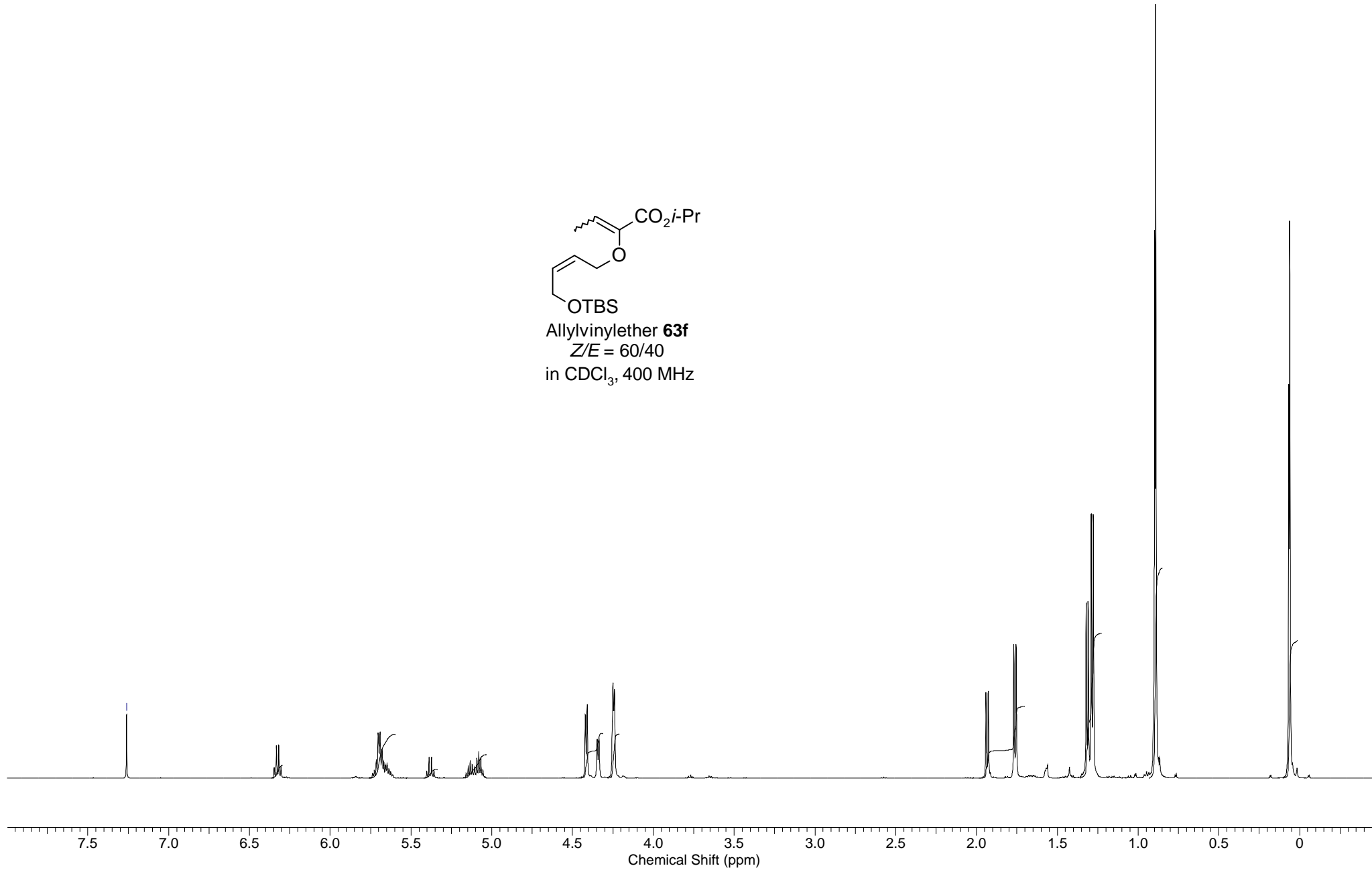
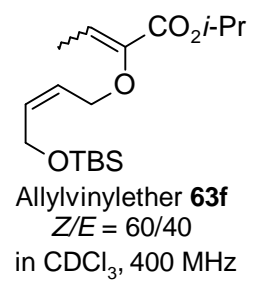


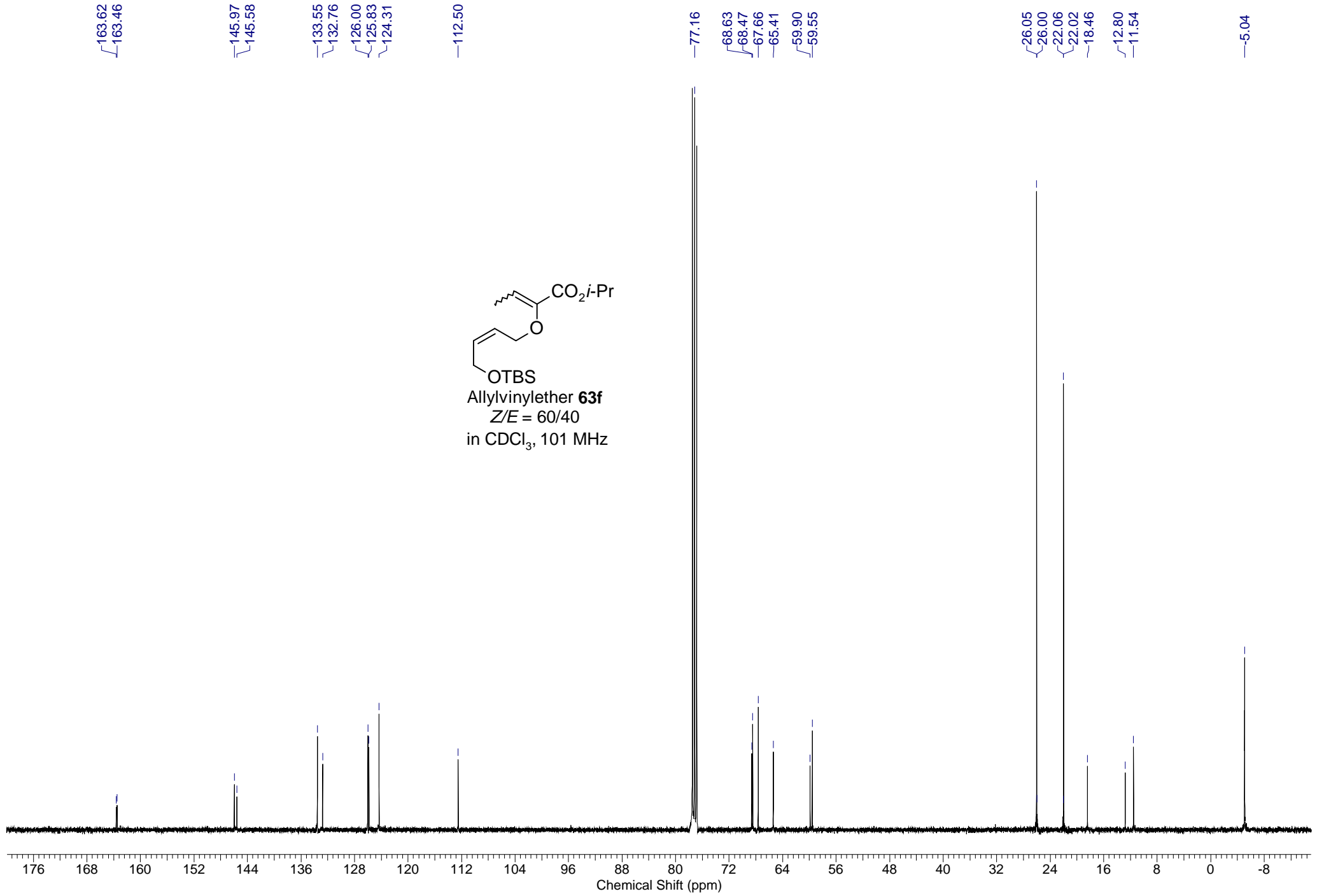
α -Hydroxy Ester **173**
in CDCl₃, 500 MHz

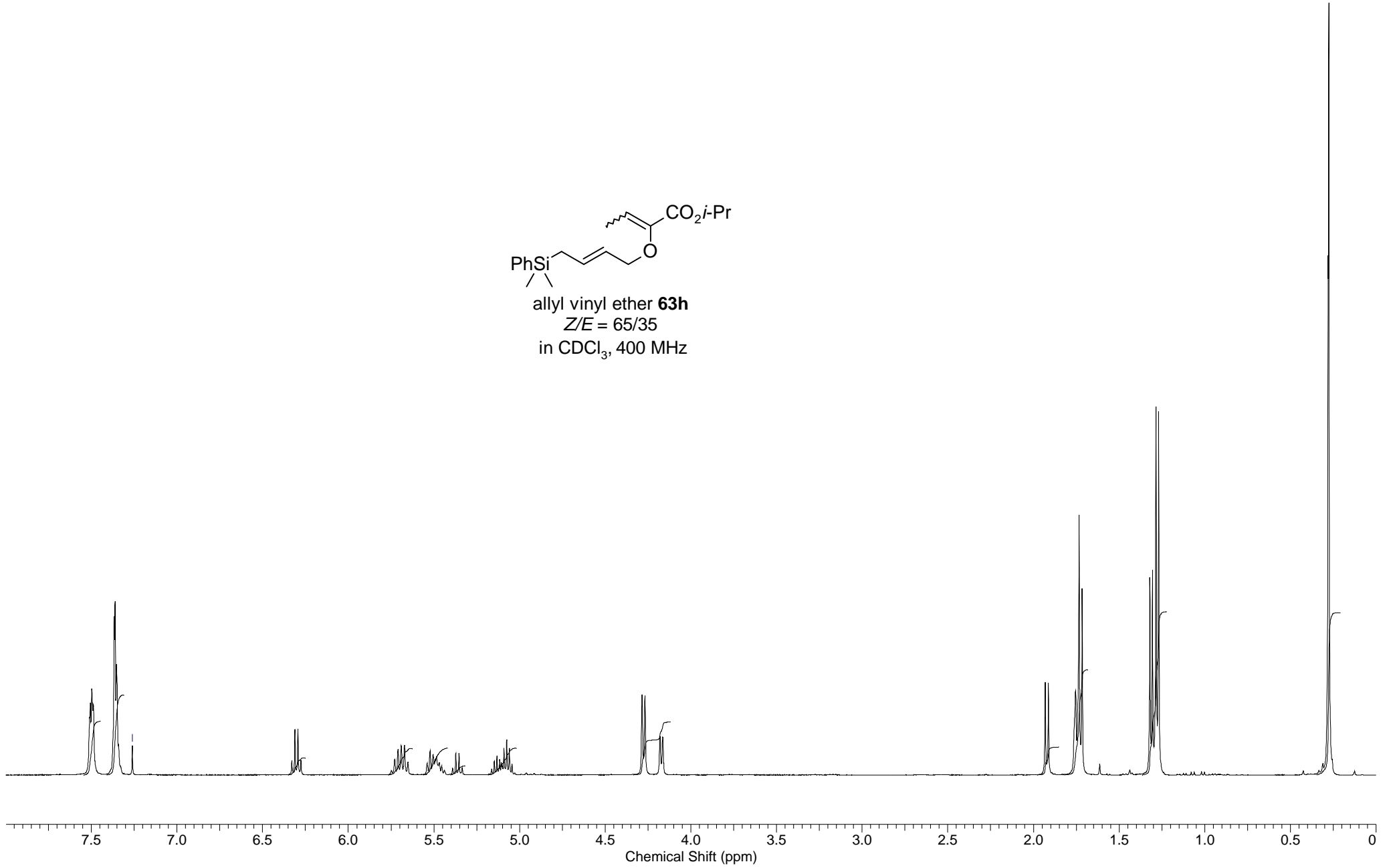
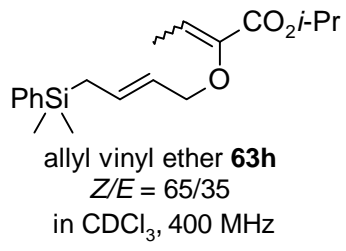


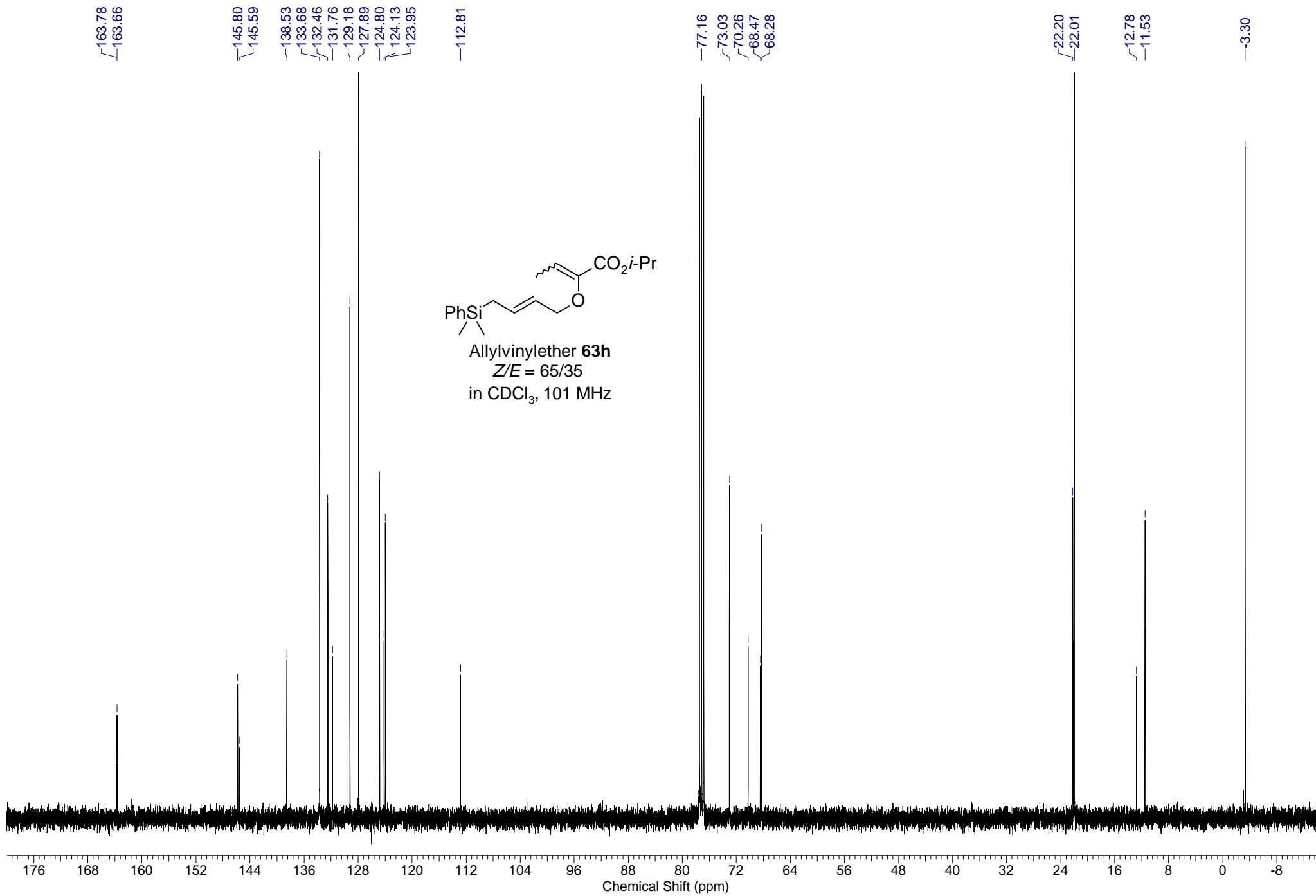


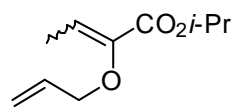




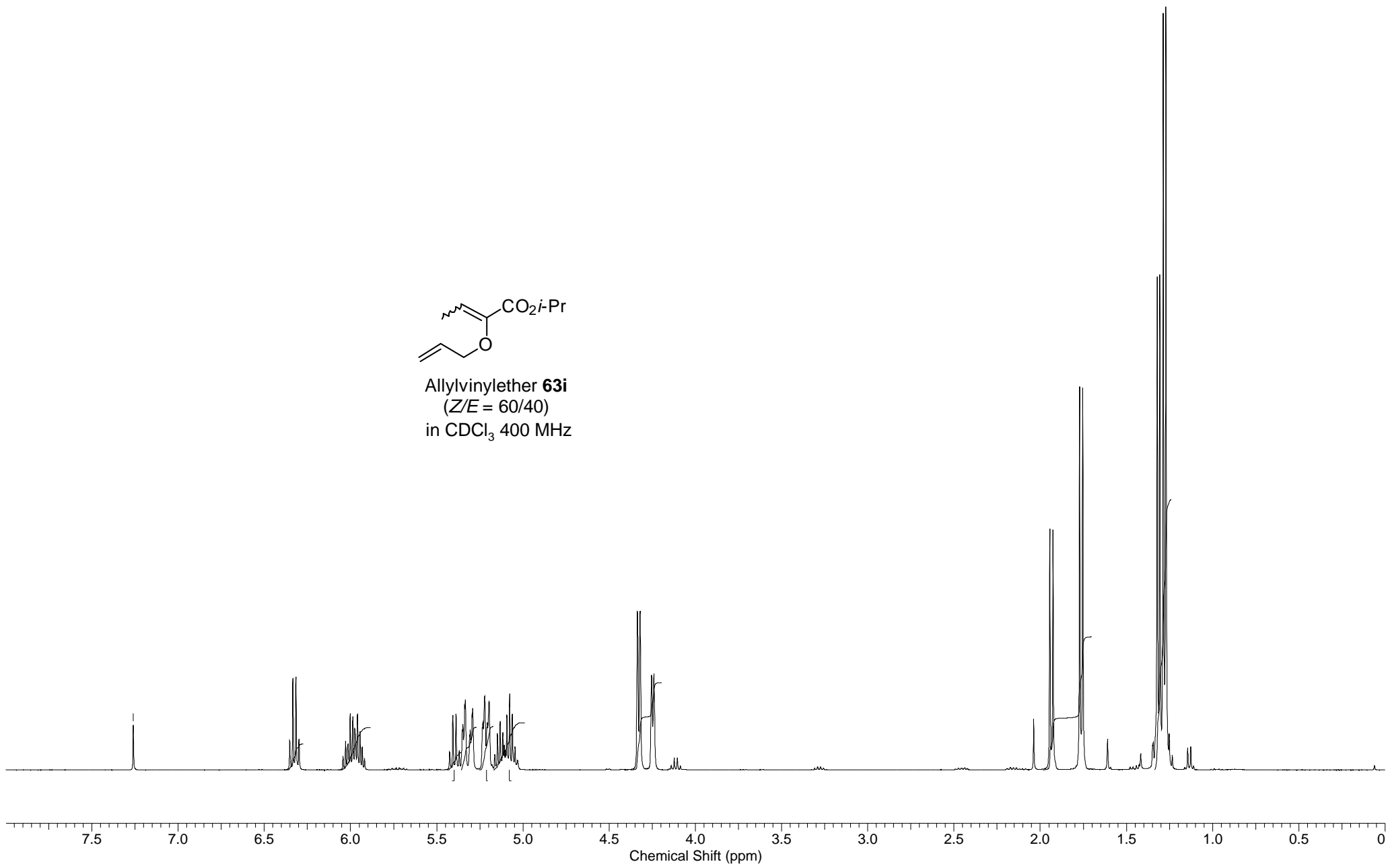


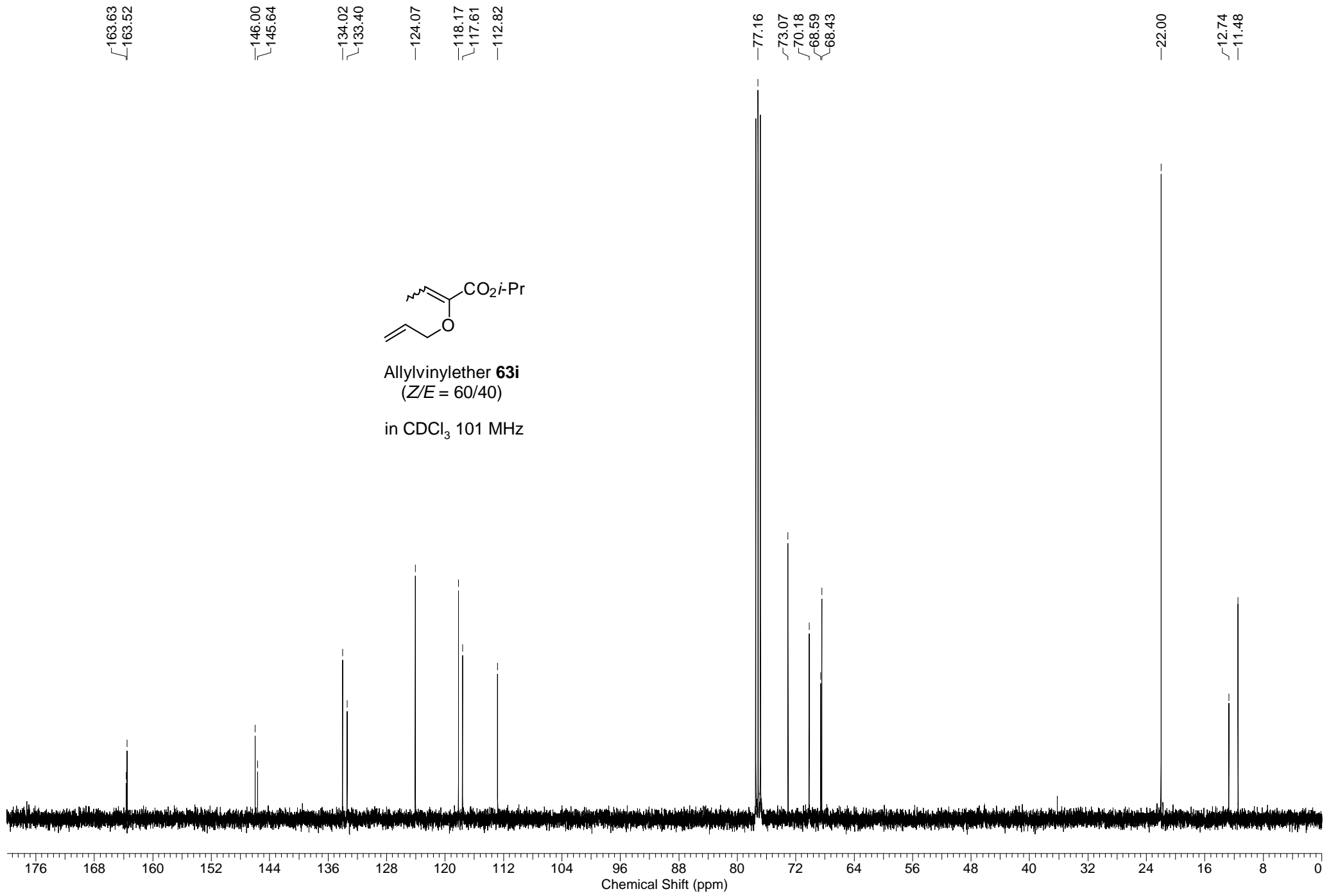


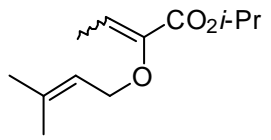




Allylvinylether **63i**
(*Z/E* = 60/40)
in CDCl₃ 400 MHz

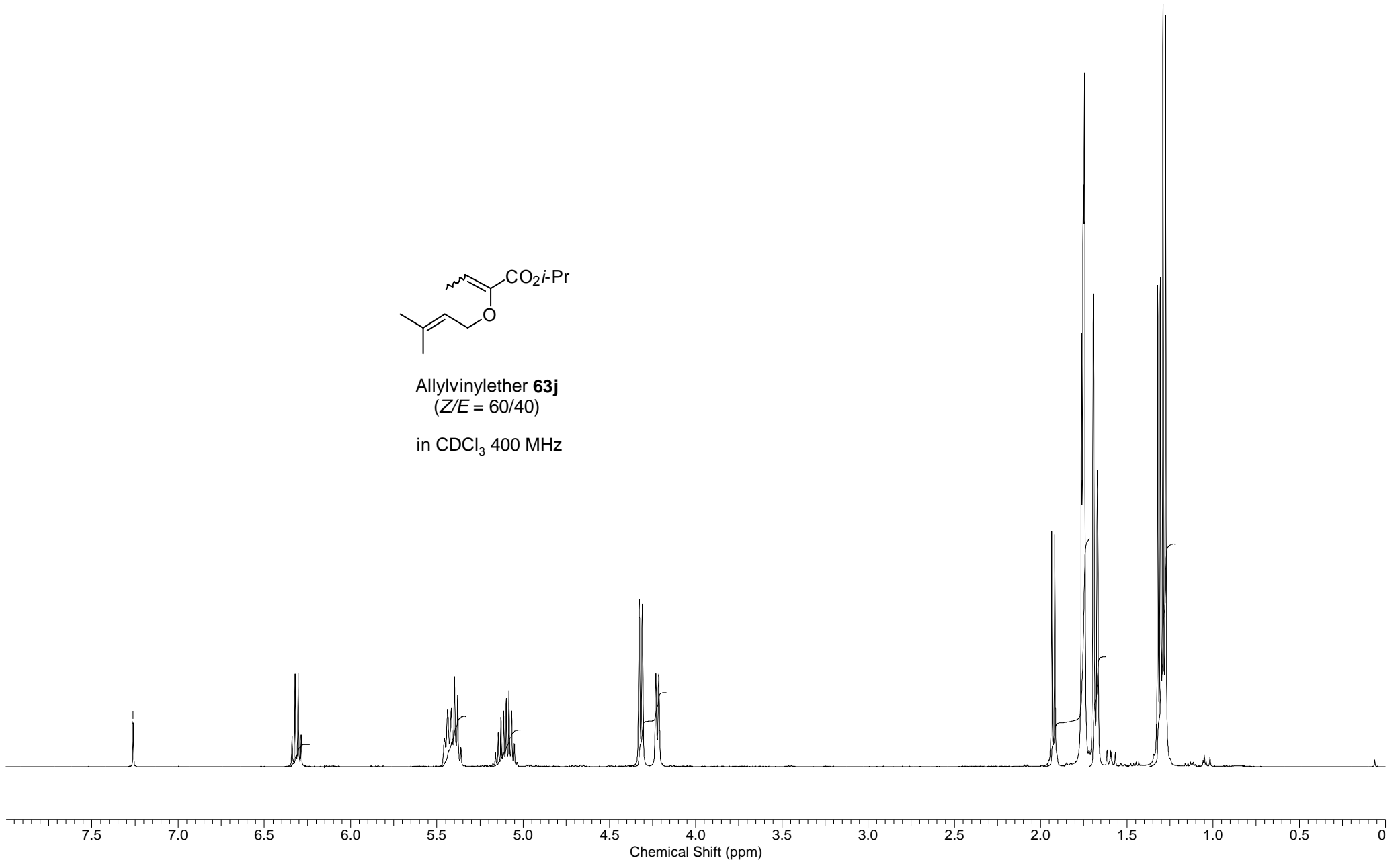


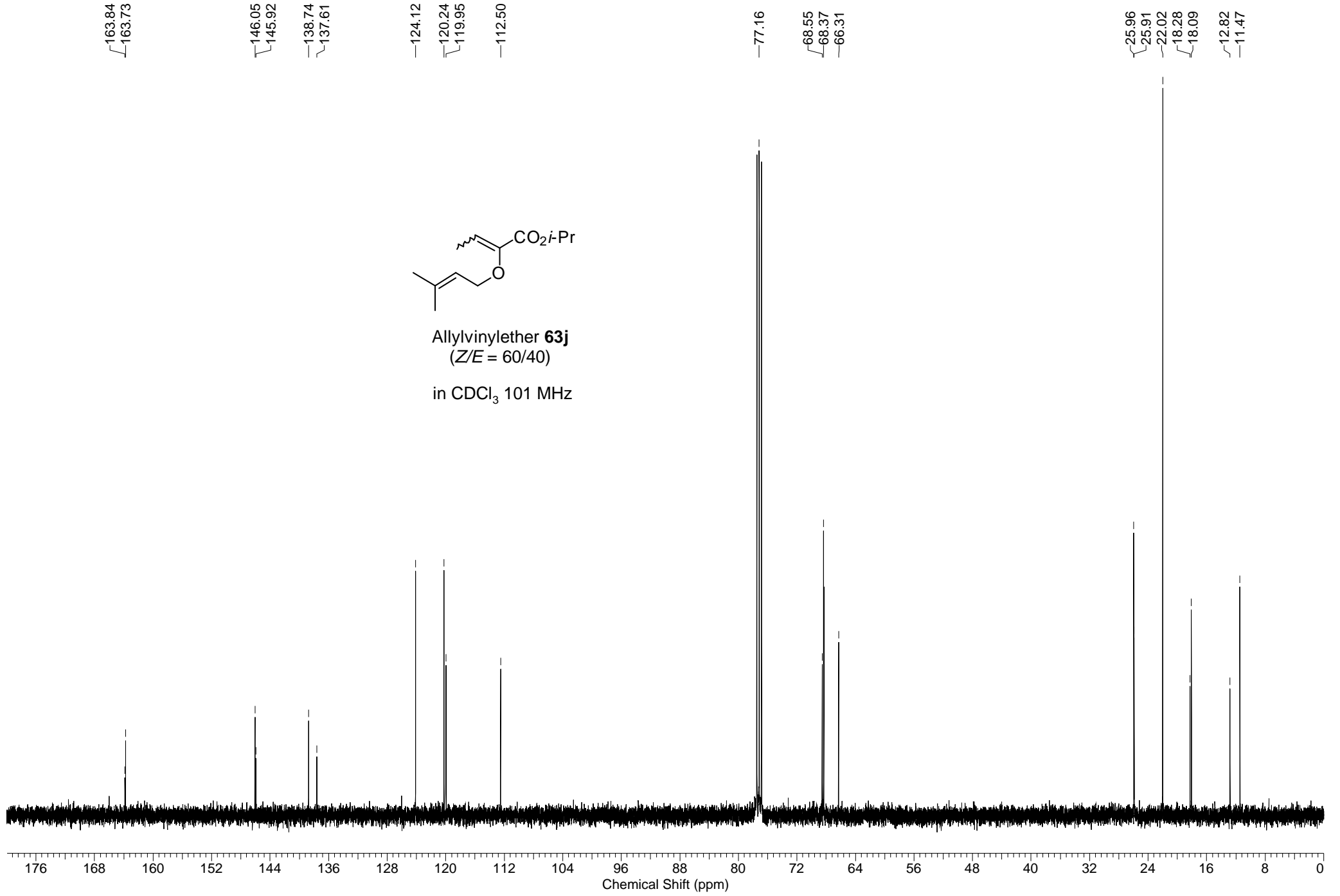


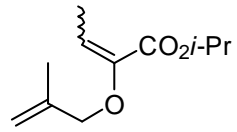


Allylvinyloxy **63j**
(*Z/E* = 60/40)

in CDCl₃ 400 MHz

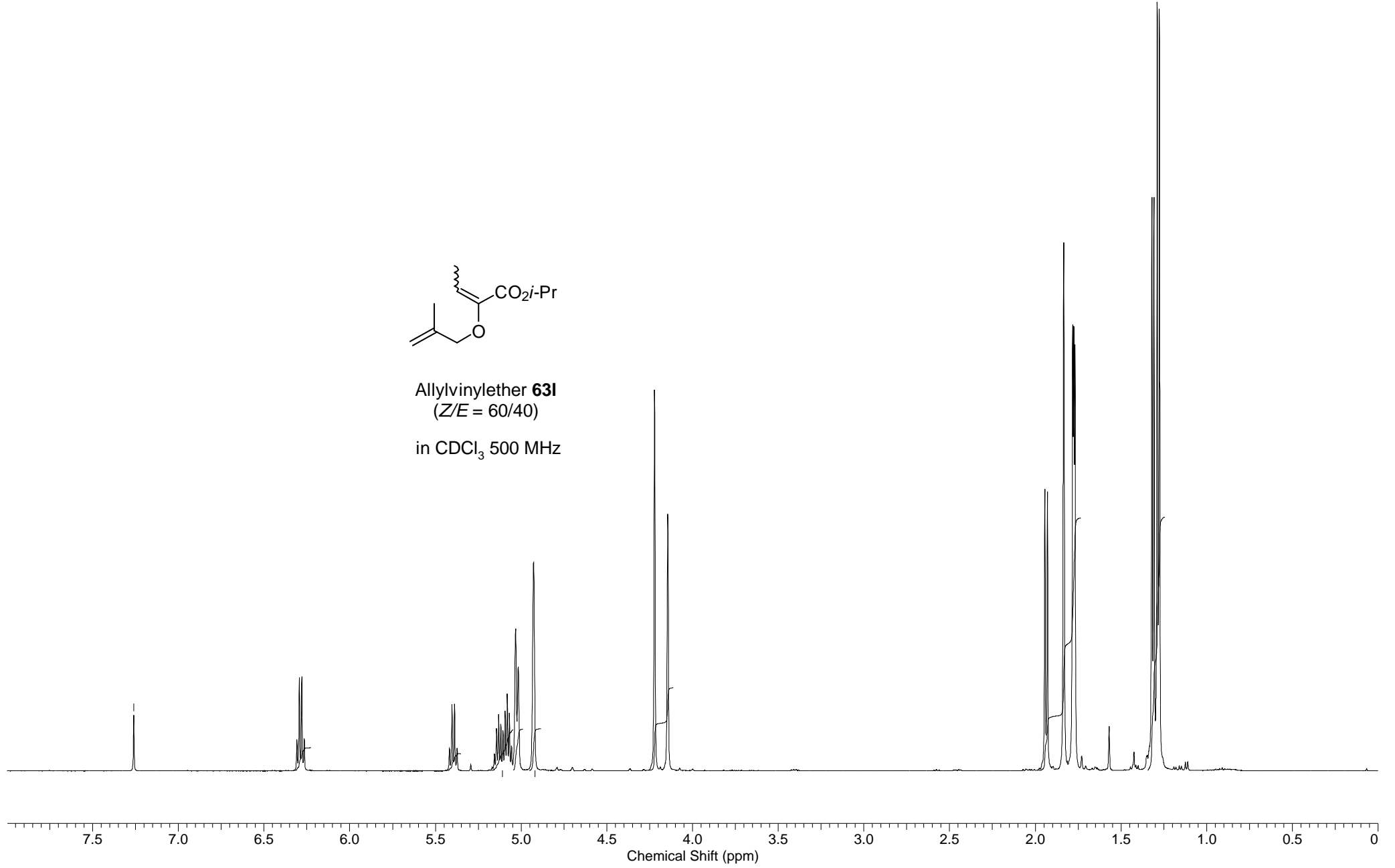


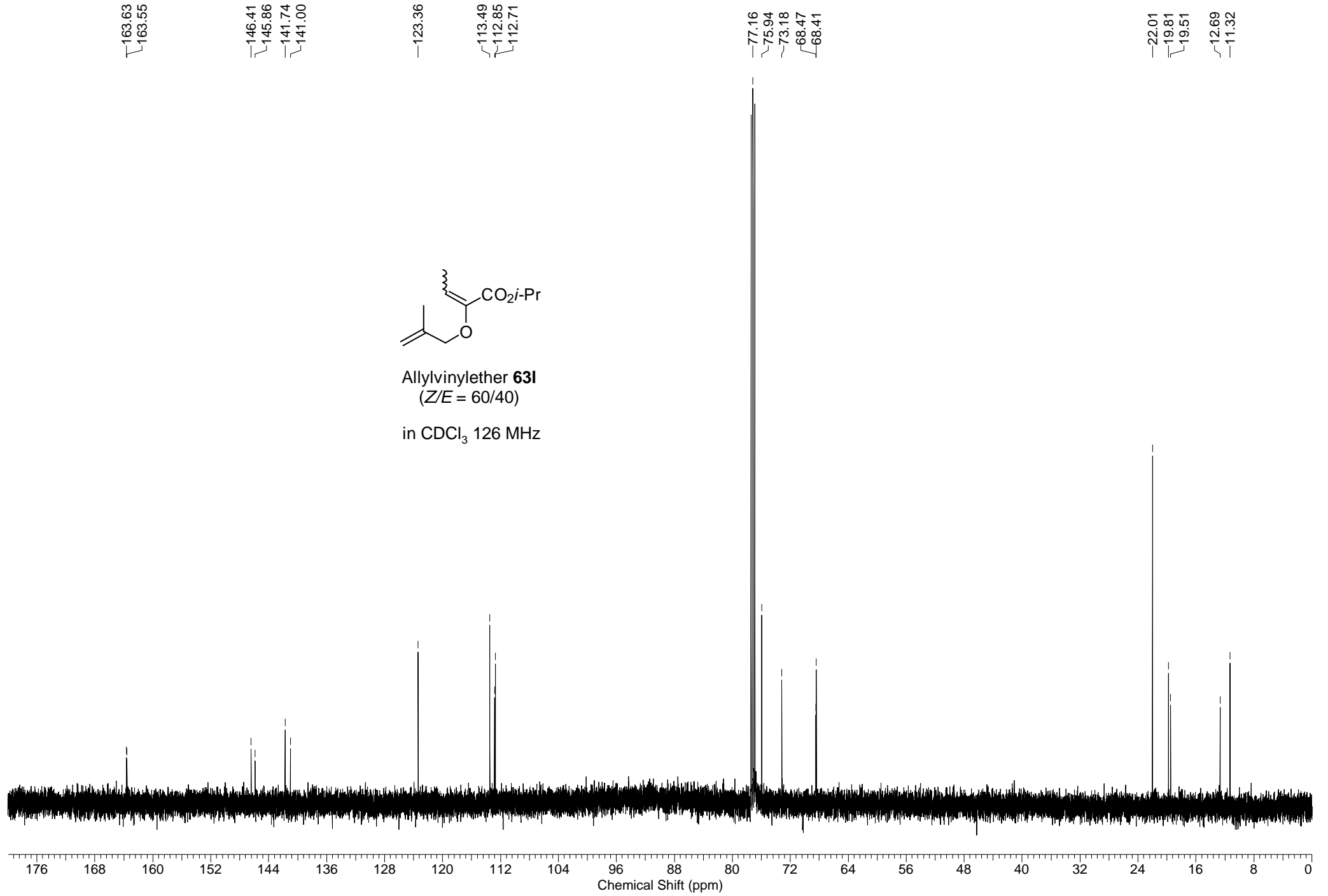


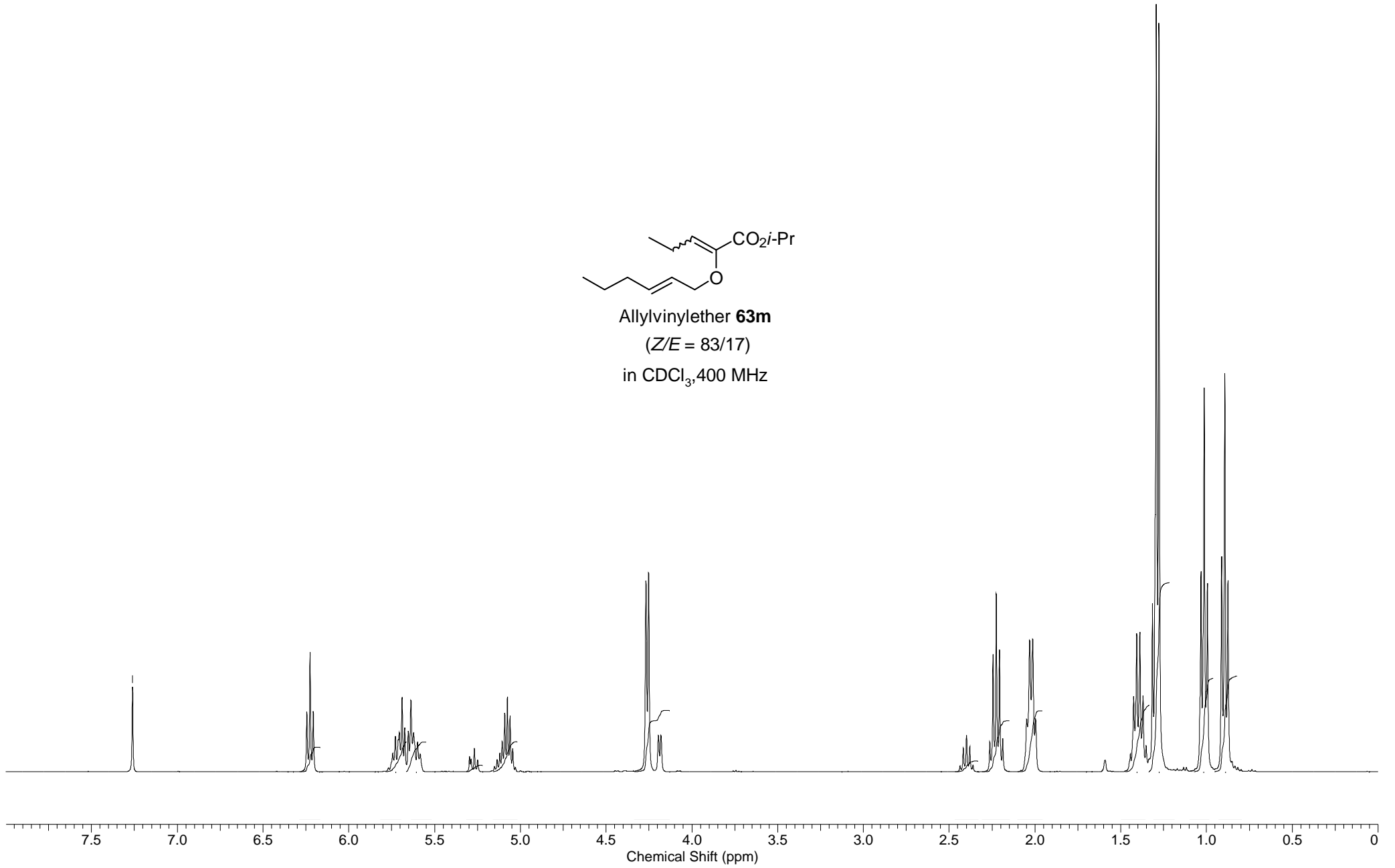
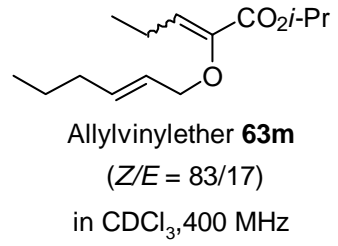


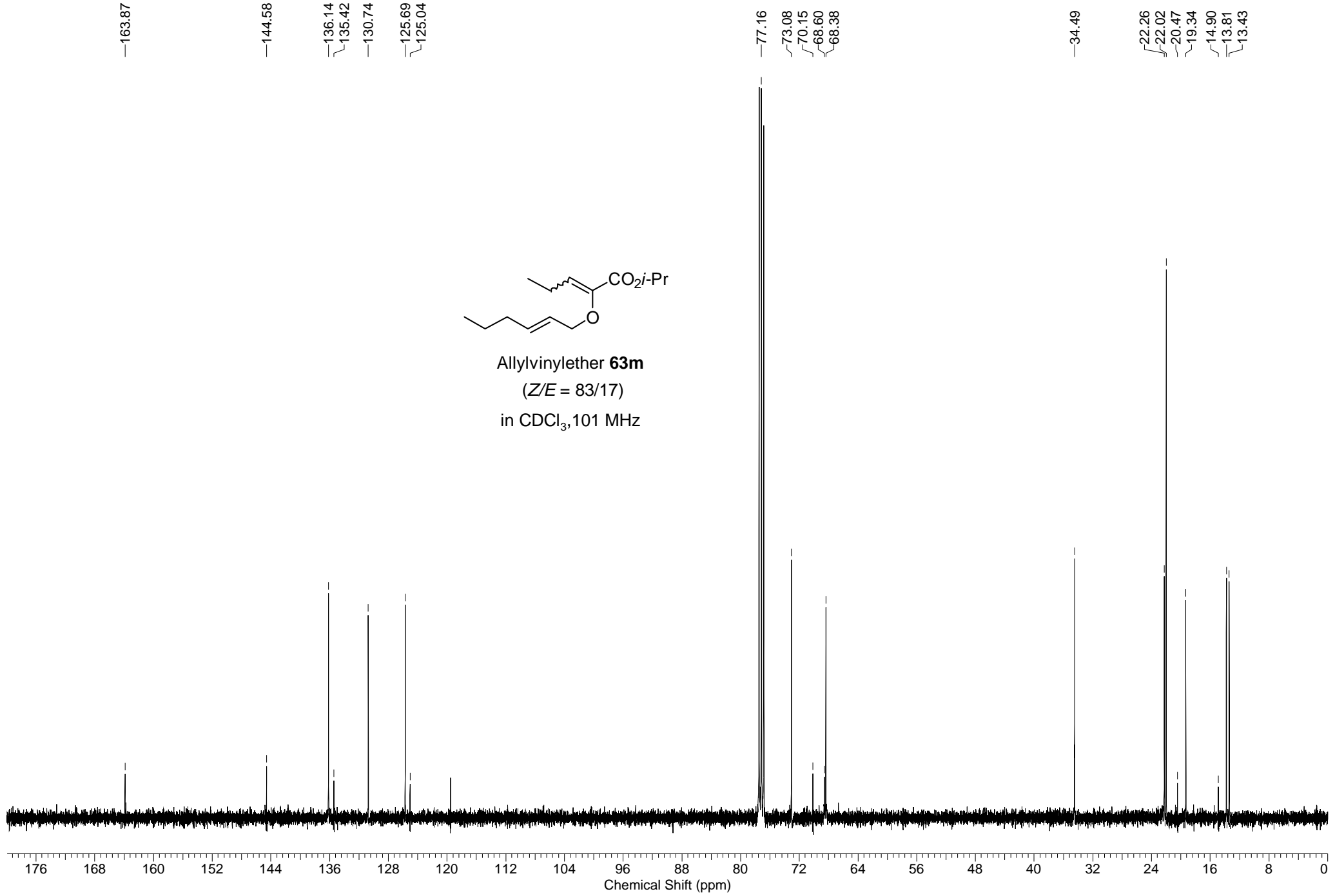
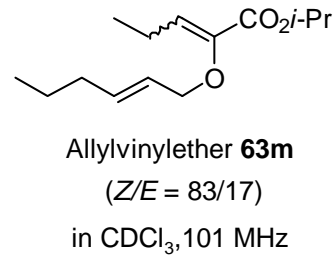
Allylvinyloxyether **63I**
(*Z/E* = 60/40)

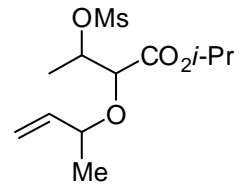
in CDCl₃ 500 MHz



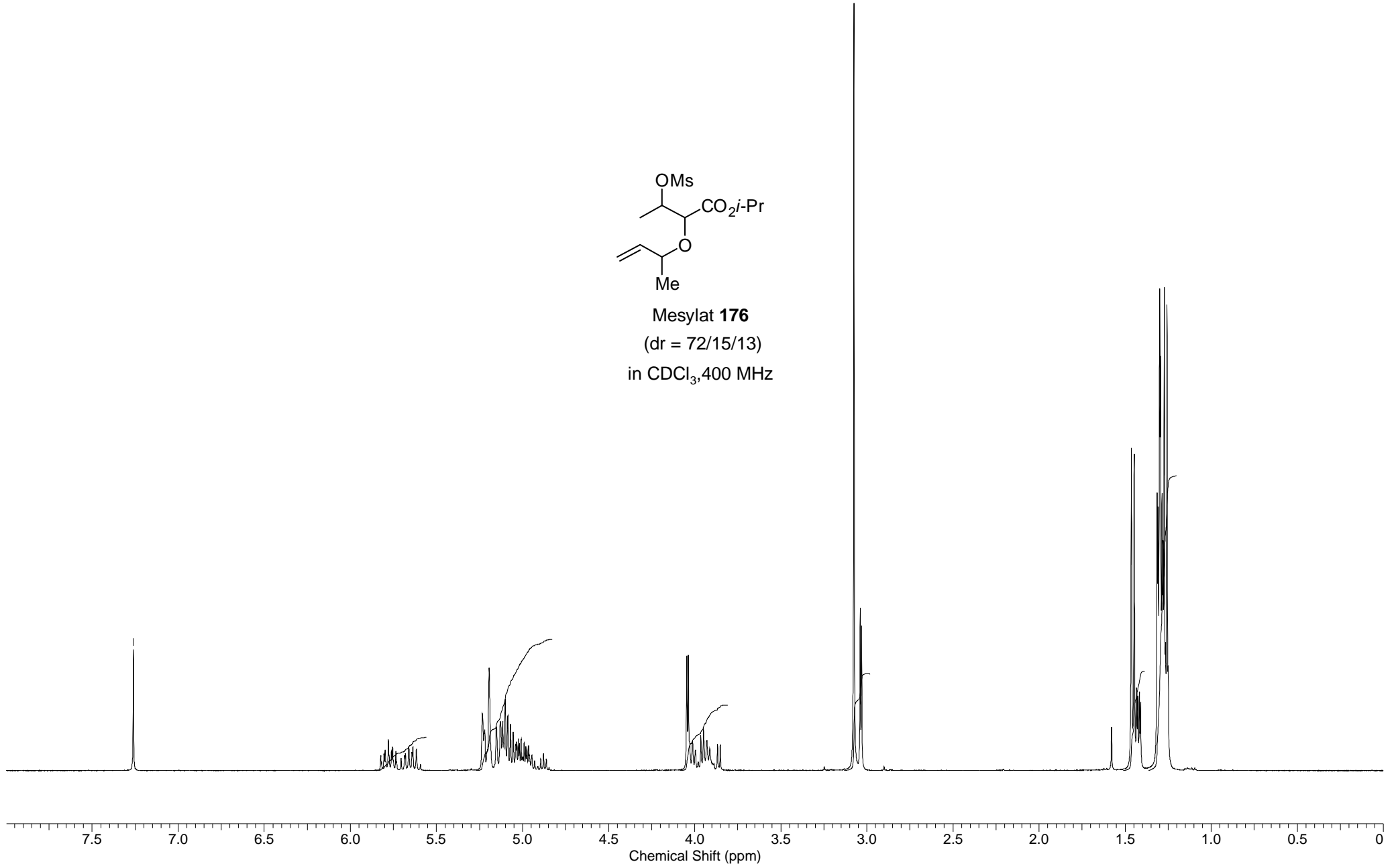


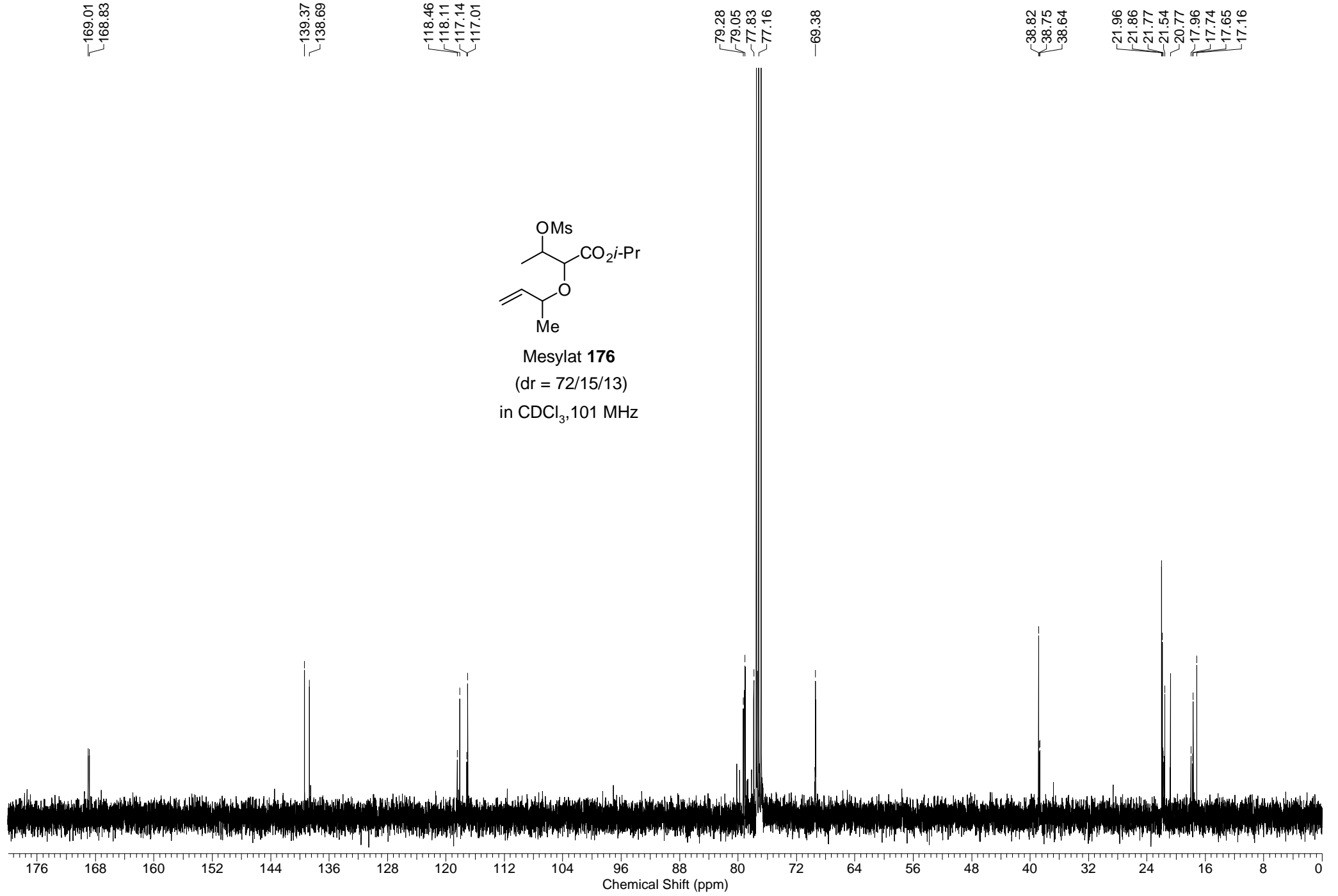




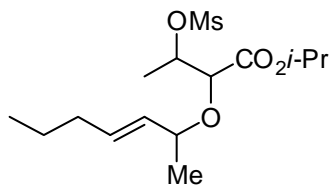


Mesylat **176**
(dr = 72/15/13)
in CDCl₃, 400 MHz

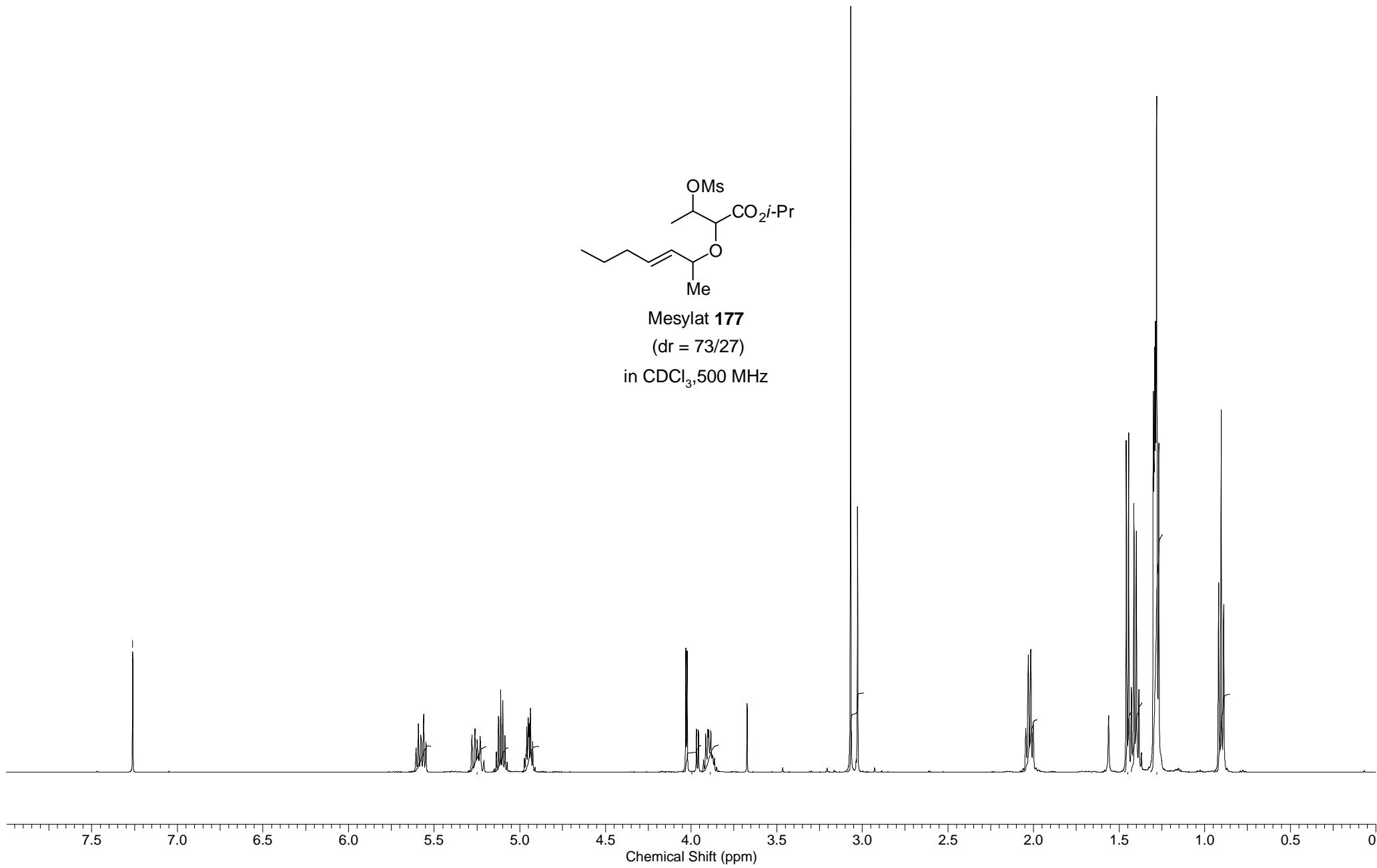


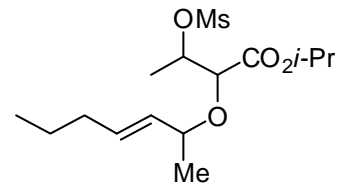


-7.26

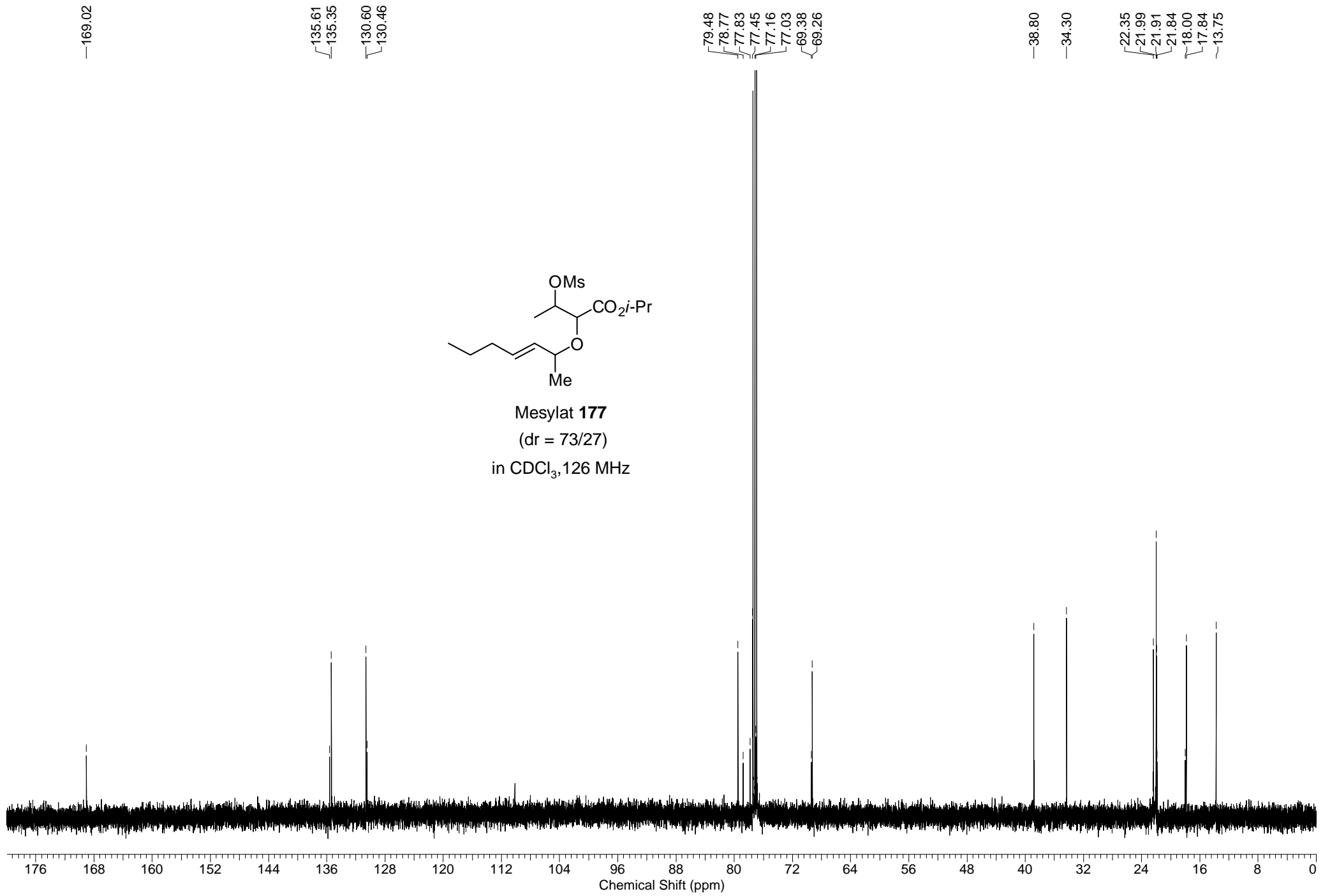
Mesylat **177**

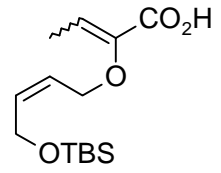
(dr = 73/27)

in CDCl₃, 500 MHz

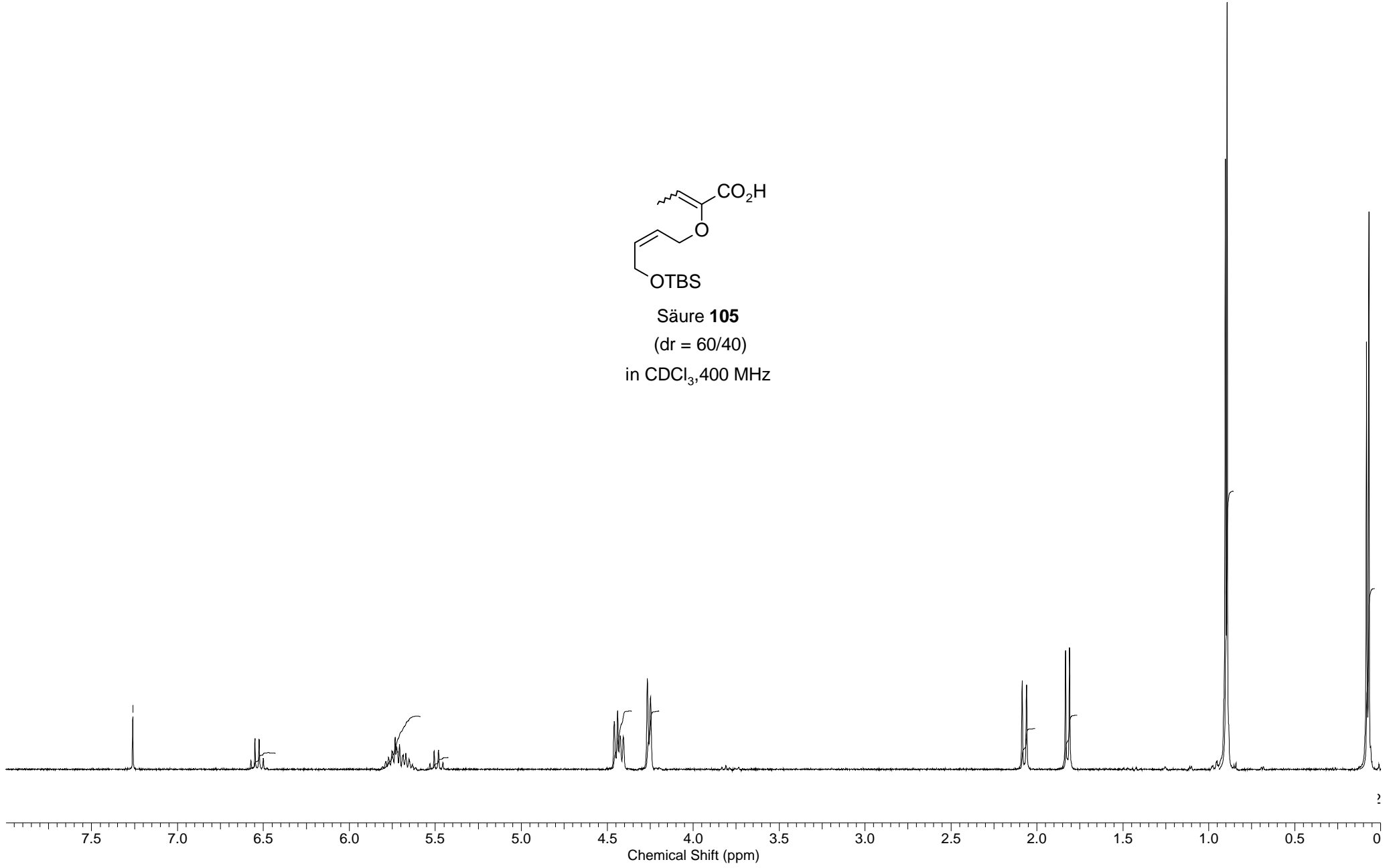


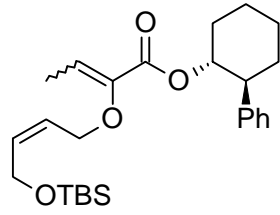
Mesylat 177
(dr = 73/27)
in CDCl₃, 126 MHz



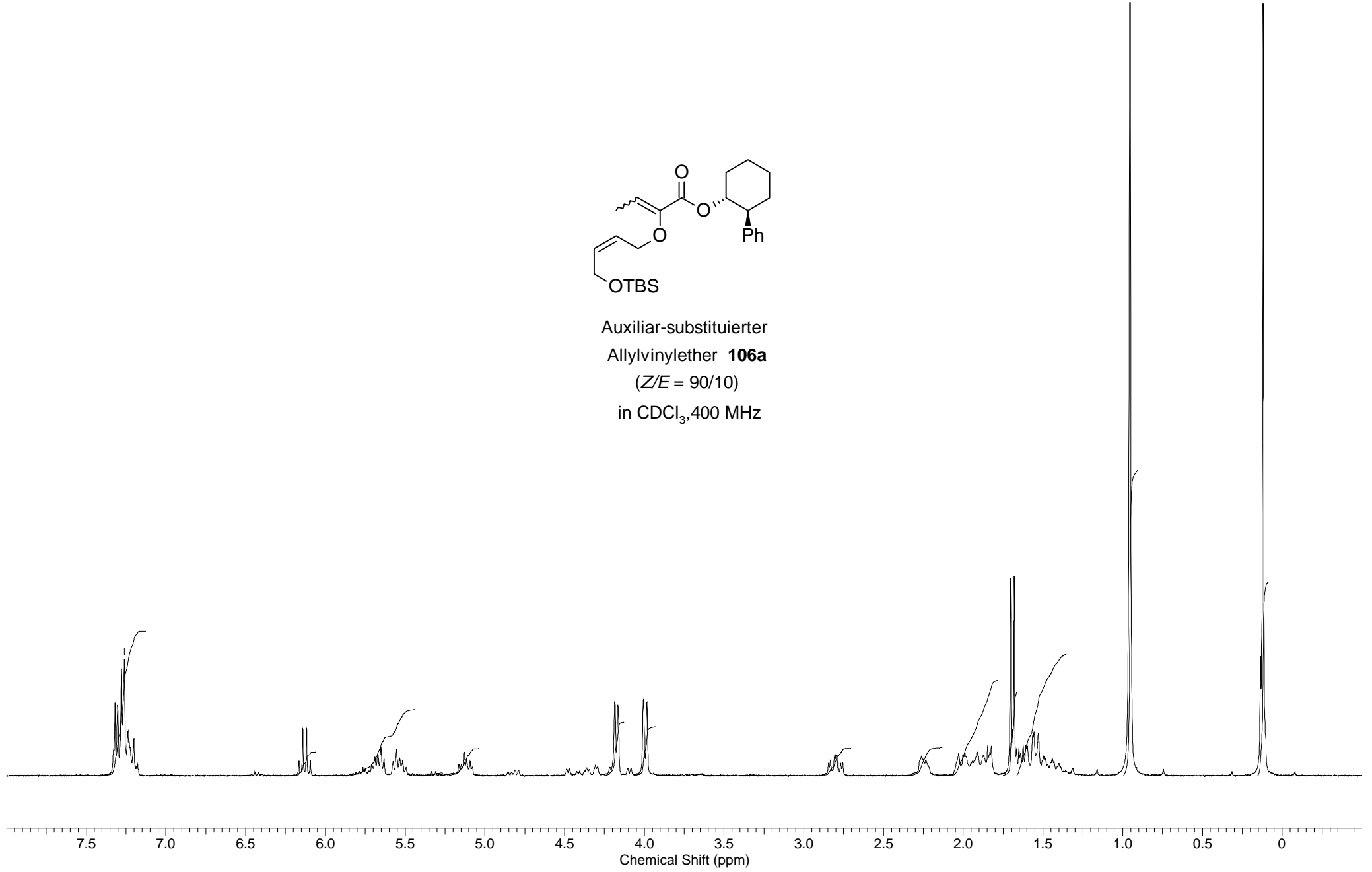


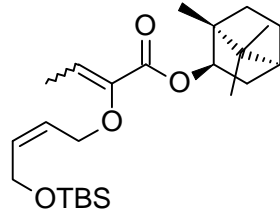
Säure **105**
(dr = 60/40)
in CDCl₃, 400 MHz



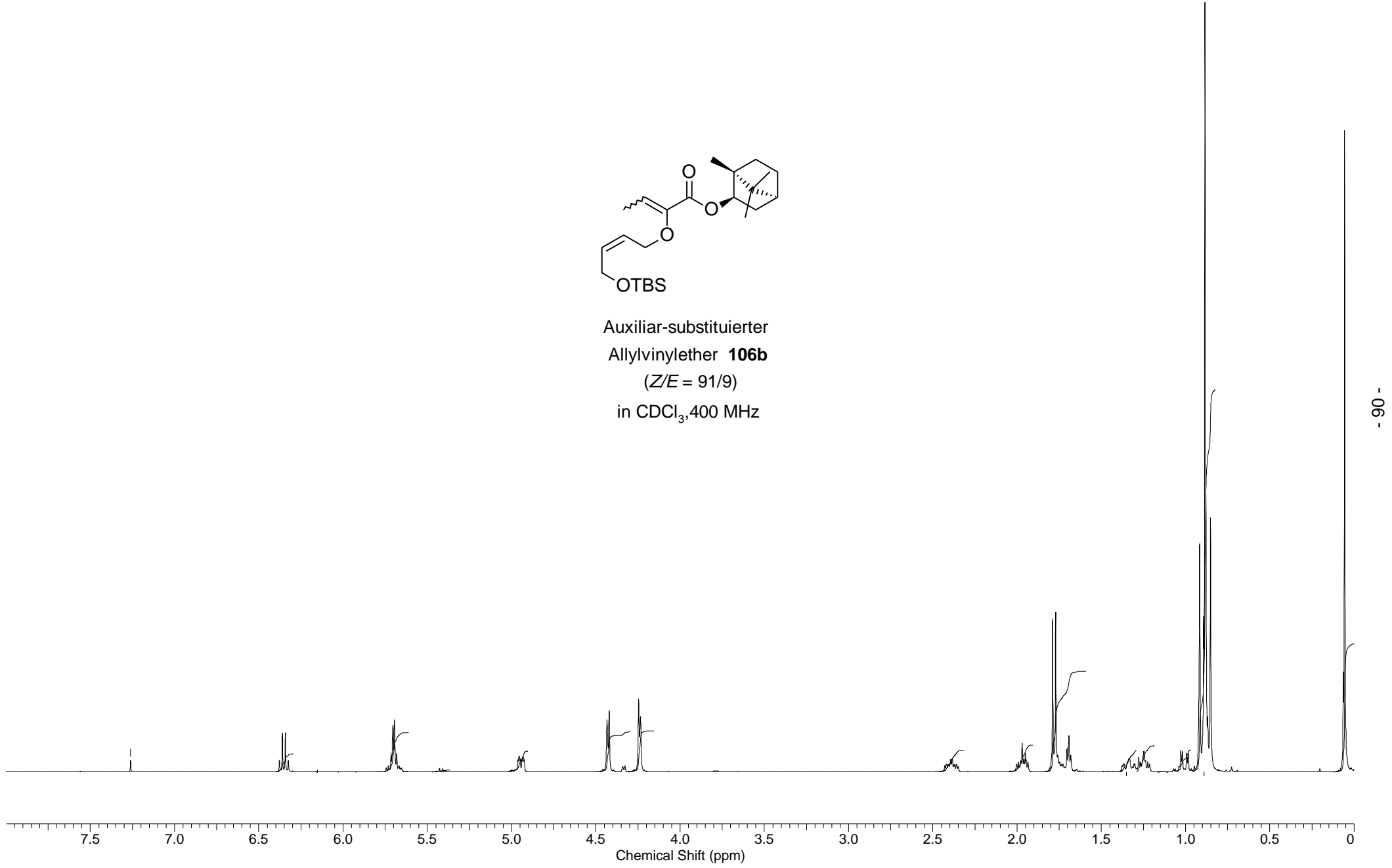


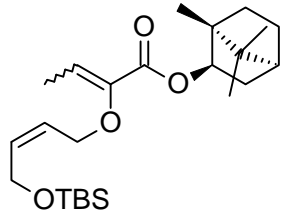
Auxiliar-substituierter
Allylvinylother **106a**
(*Z/E* = 90/10)
in CDCl₃, 400 MHz



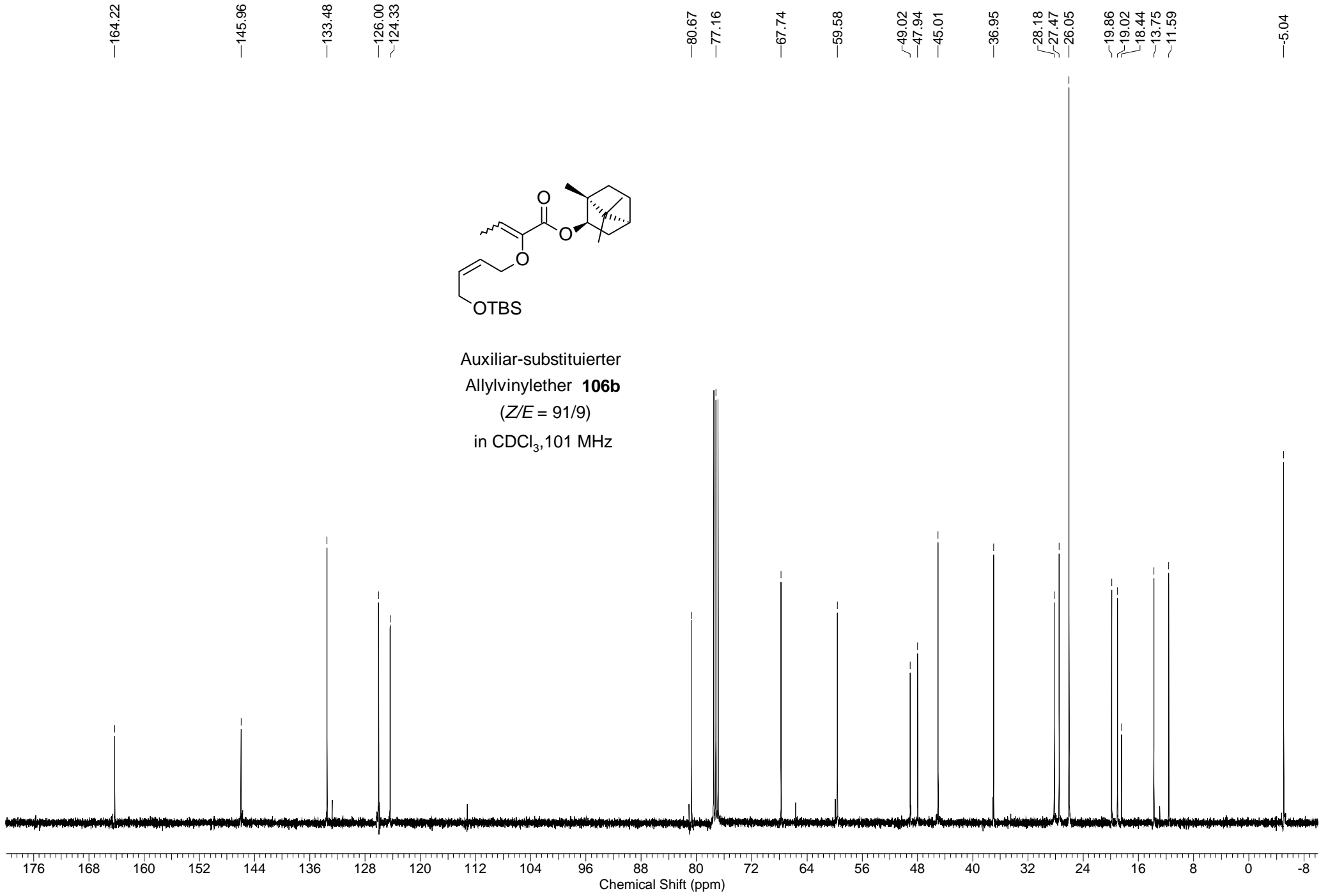


Auxiliar-substituierter
Allylvinylether **106b**
(*Z/E* = 91/9)
in CDCl₃, 400 MHz

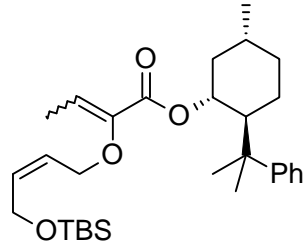




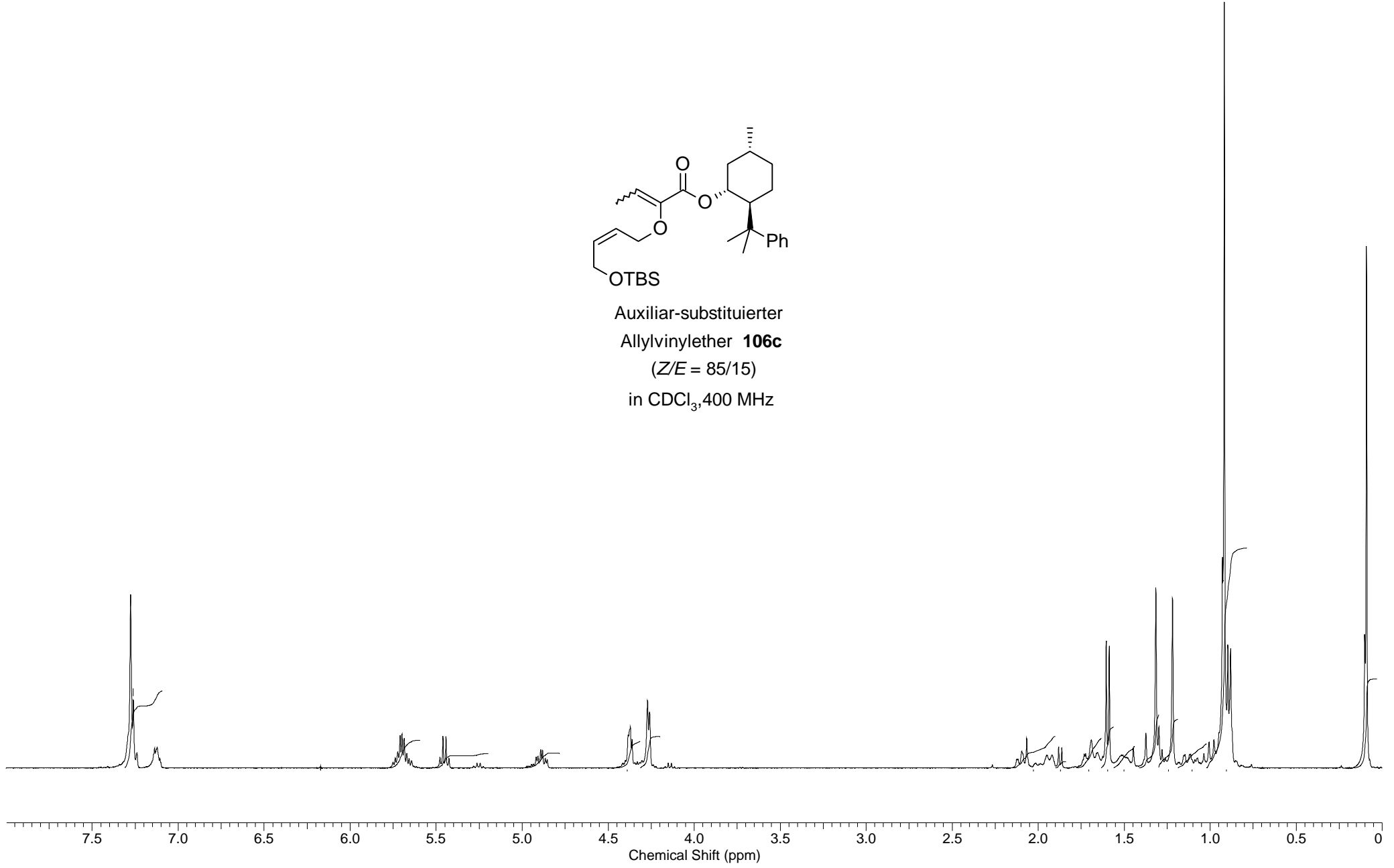
Auxiliar-substituierter
Allylvinylether **106b**
(*Z/E* = 91/9)
in CDCl₃, 101 MHz

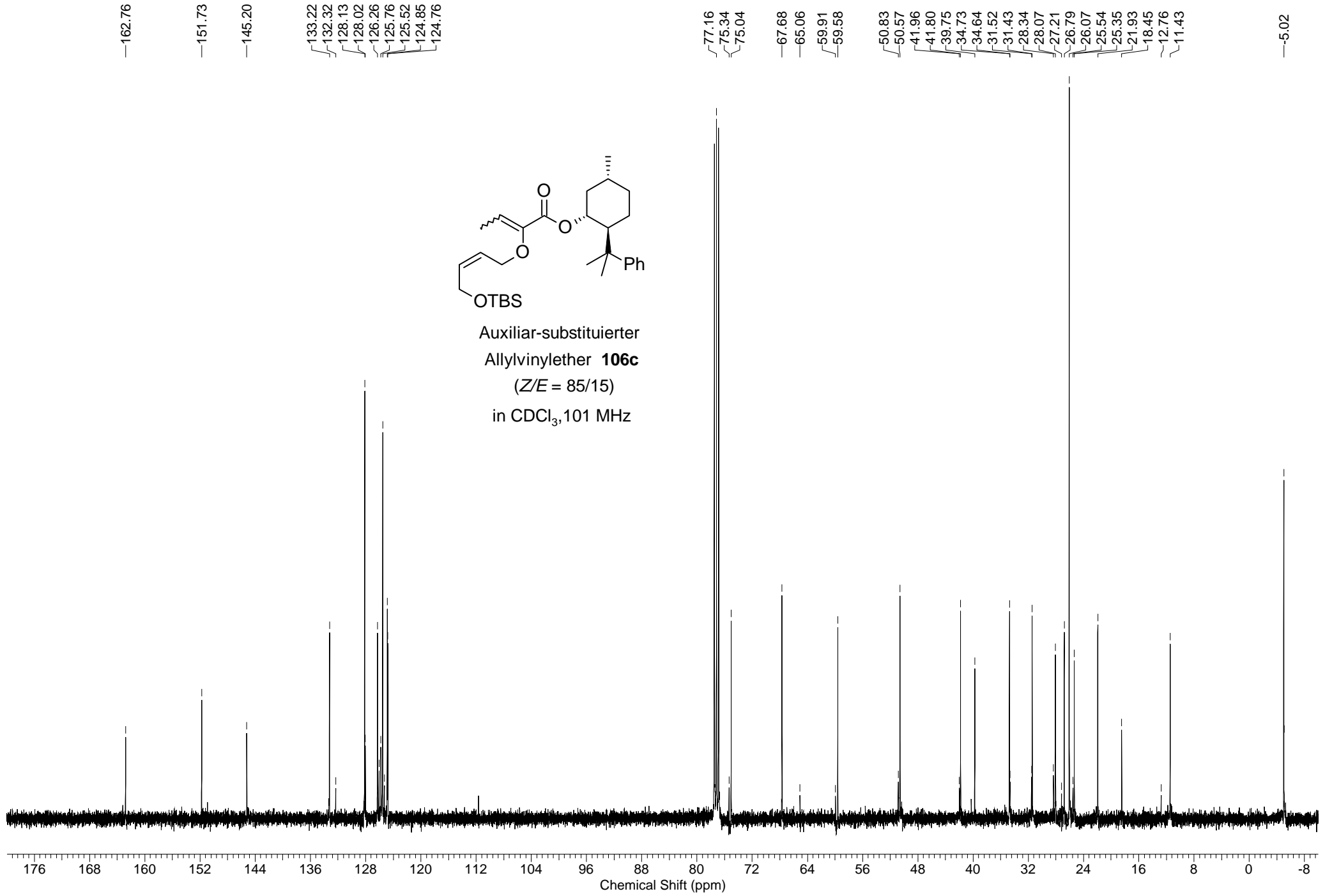


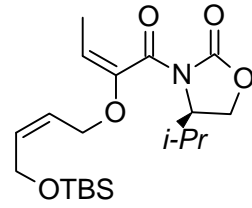
-7.26



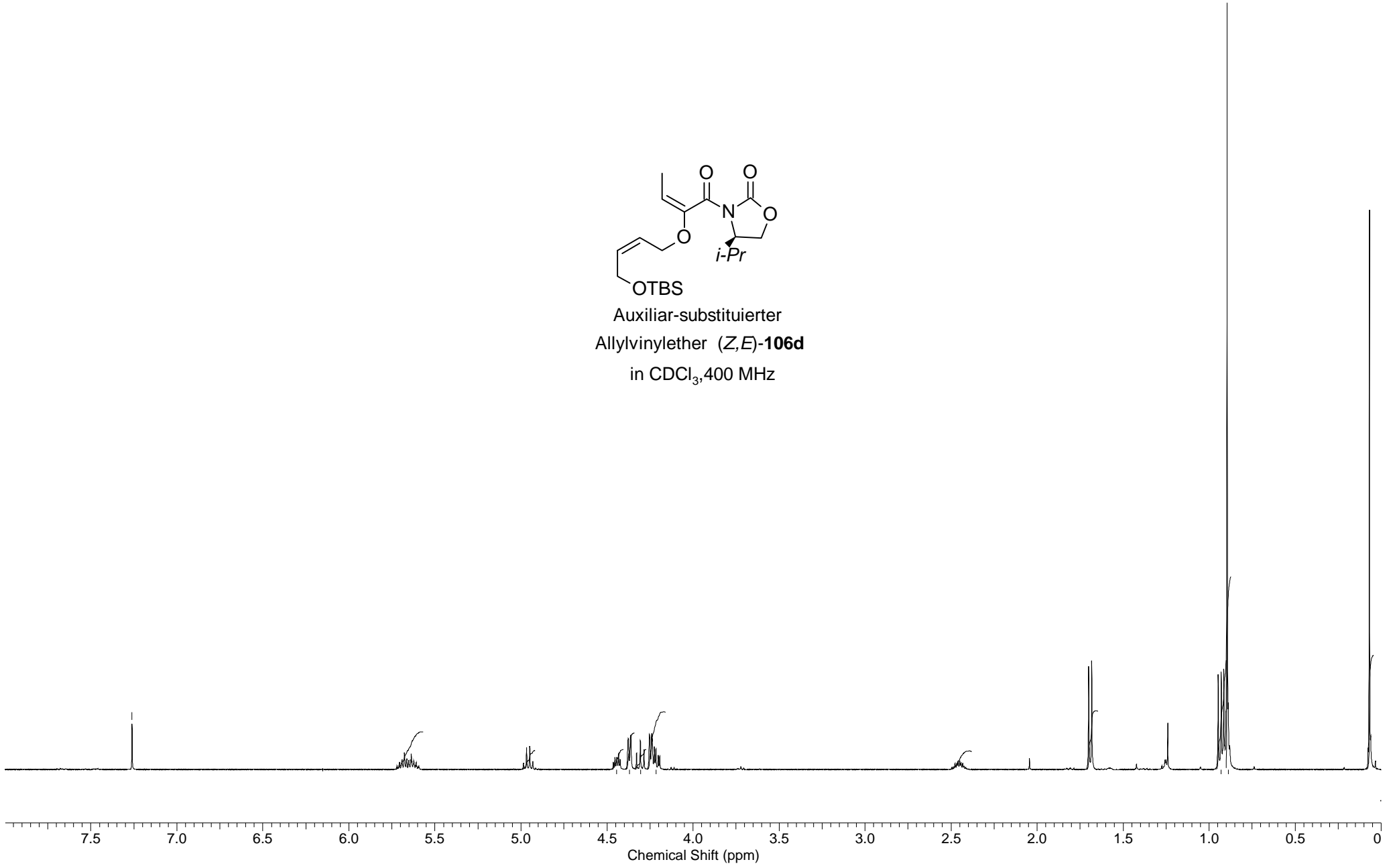
Auxiliar-substituierter
Allylvinylother **106c**
(*Z/E* = 85/15)
in CDCl₃, 400 MHz

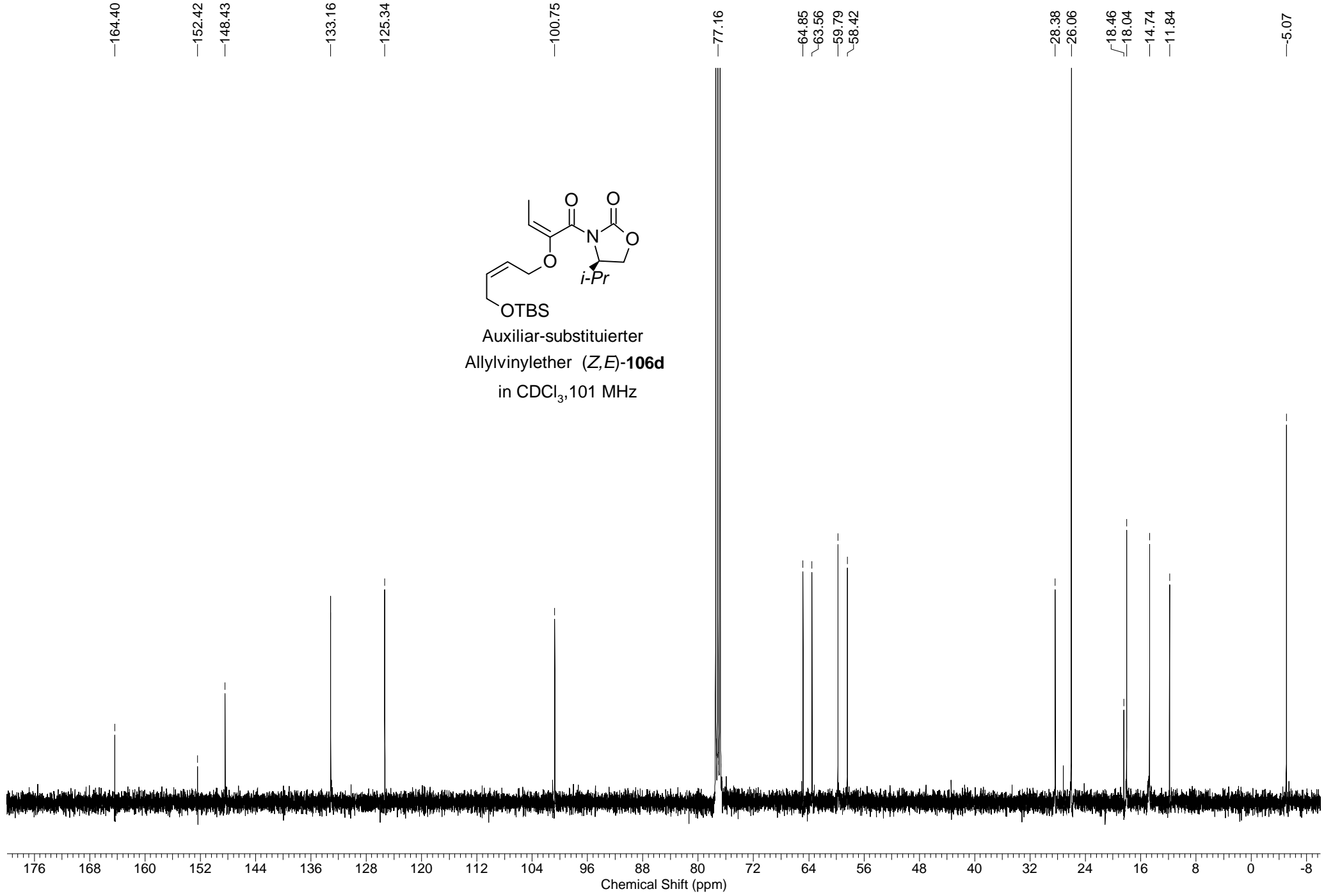
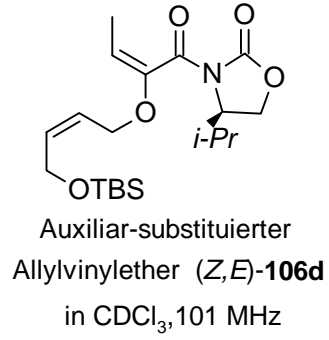


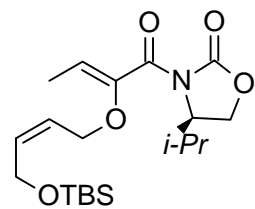




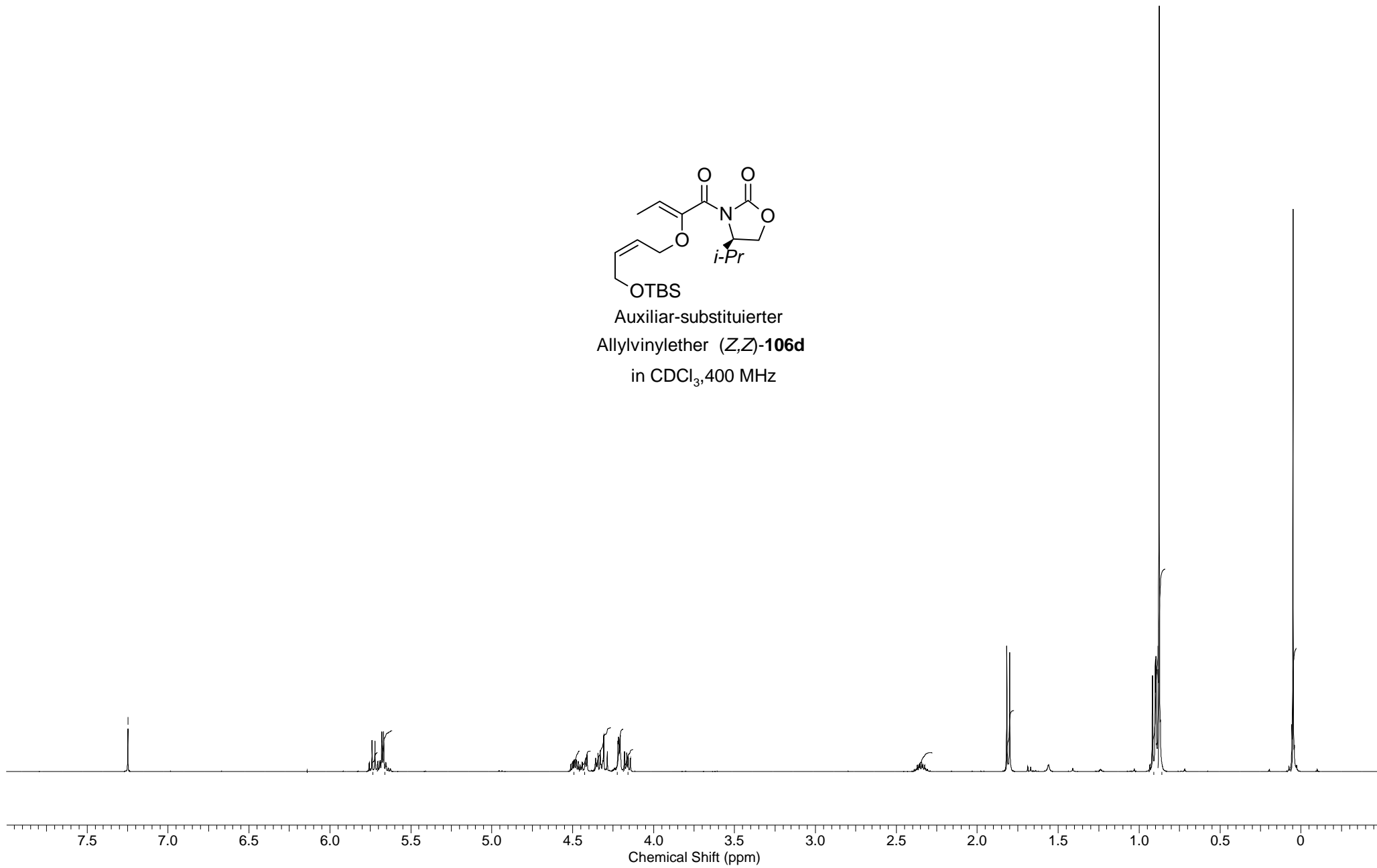
Auxiliar-substituierter
Allylvinylother (*Z,E*)-**106d**
in CDCl₃, 400 MHz

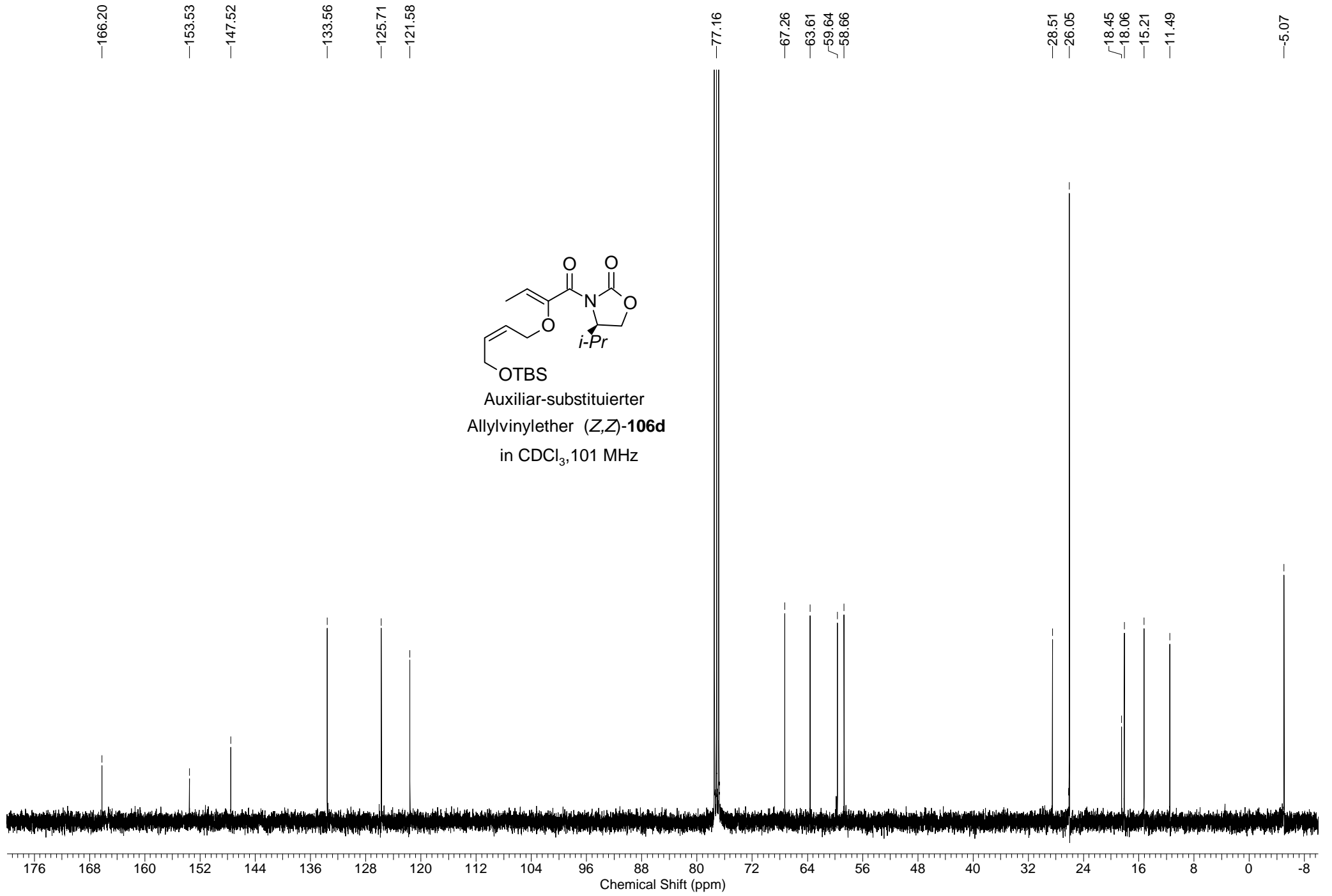


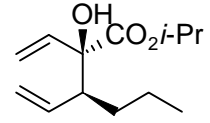




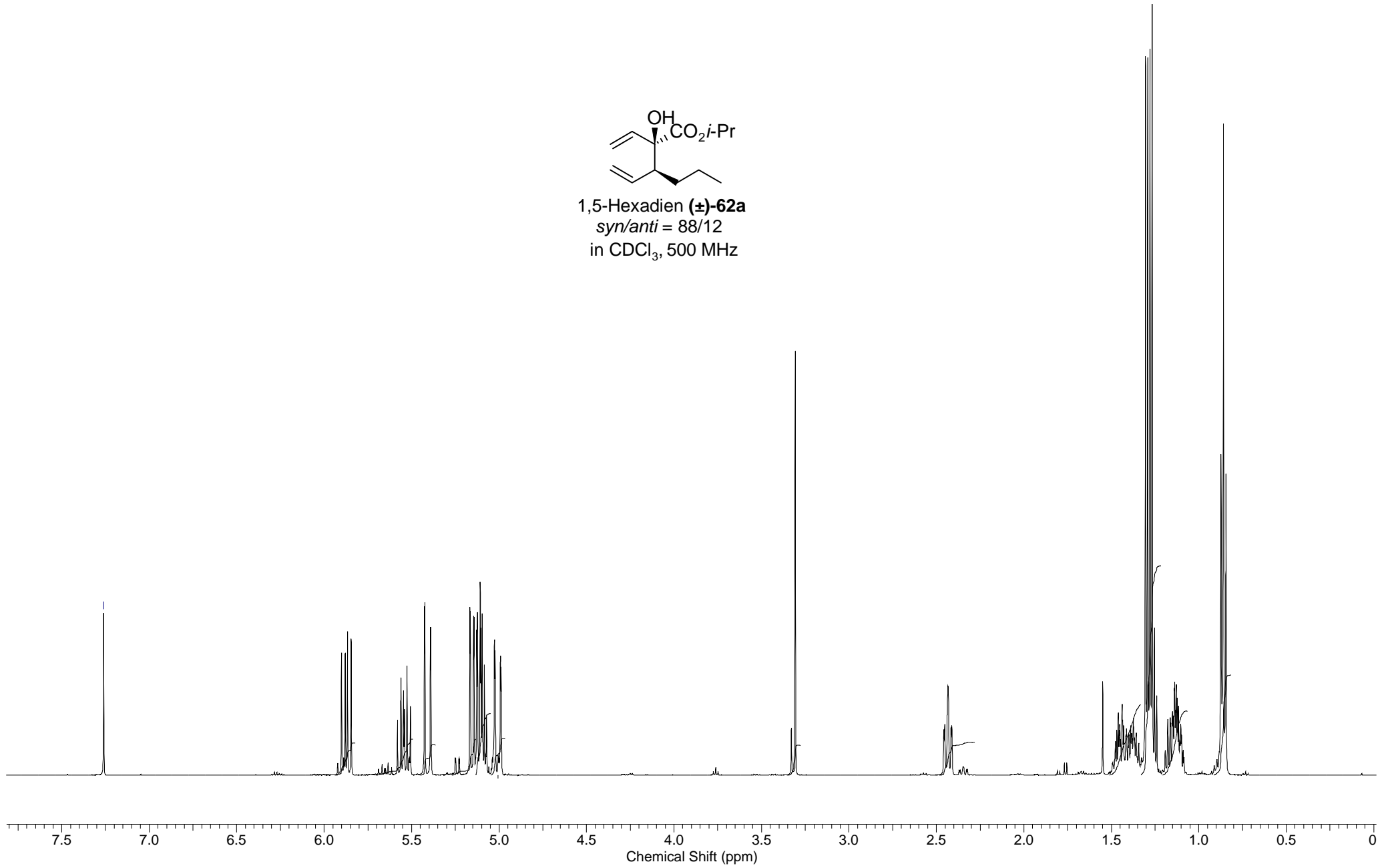
Auxiliar-substituierter
Allylvinylether (*Z,Z*)-**106d**
in CDCl₃, 400 MHz

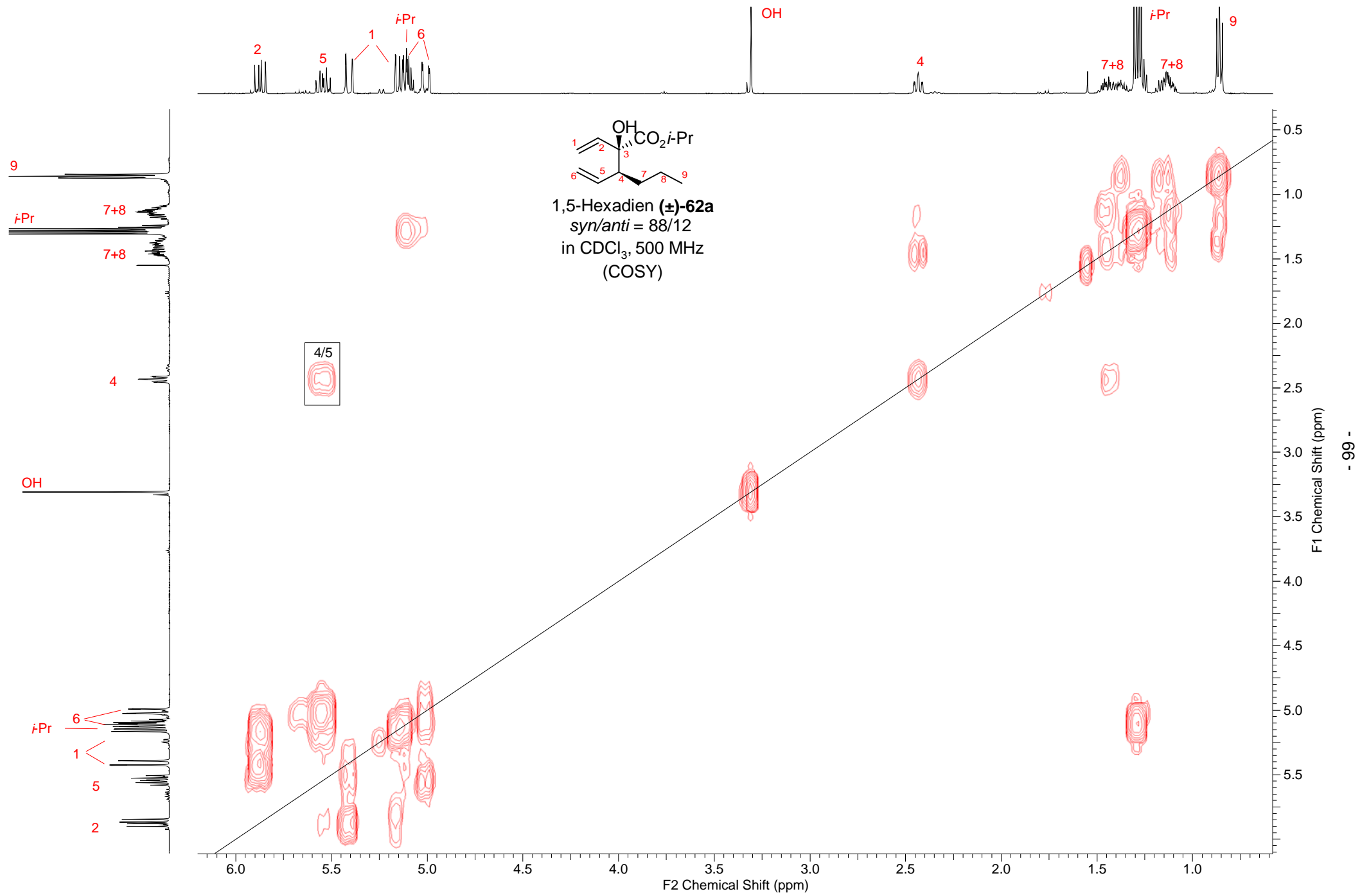


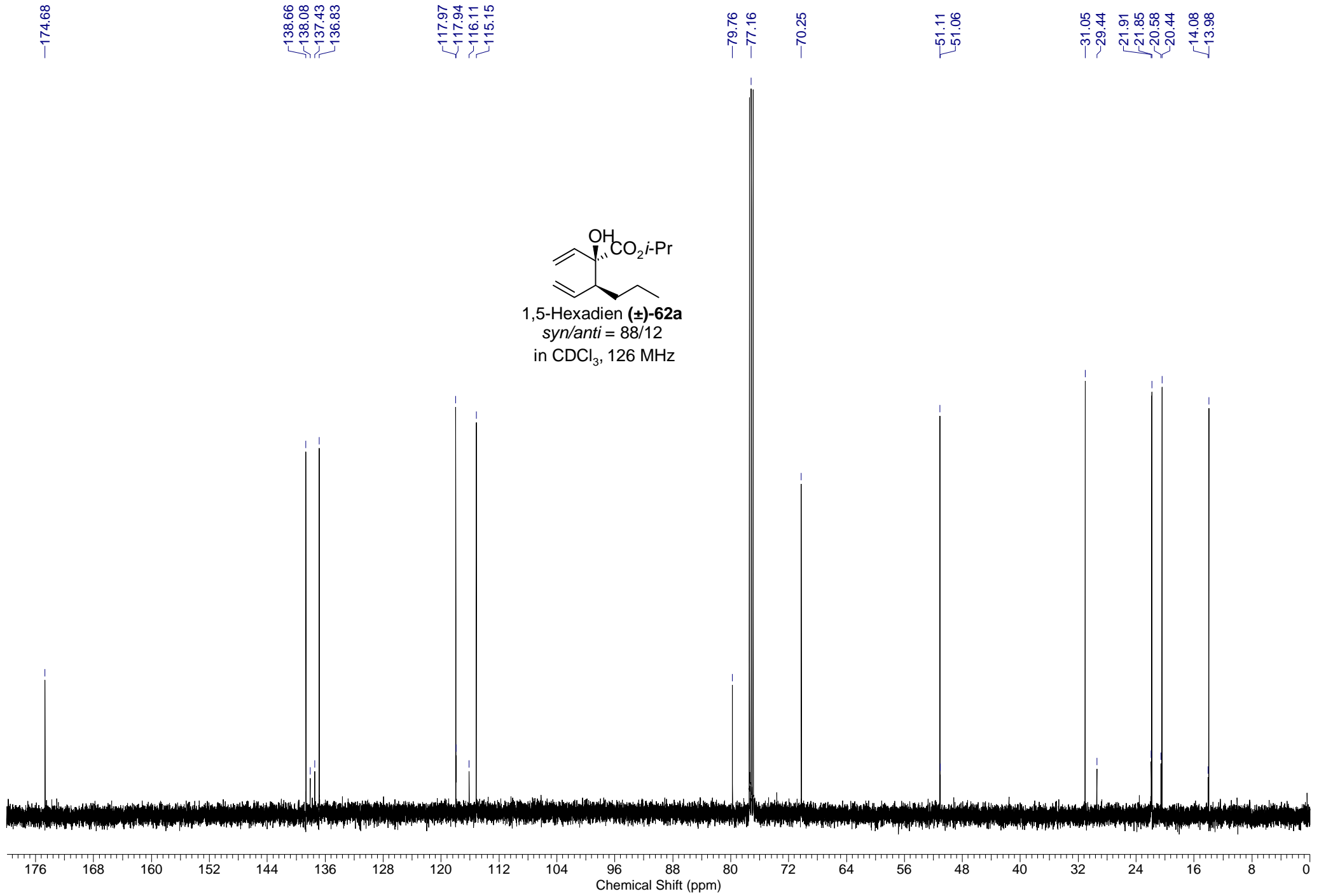


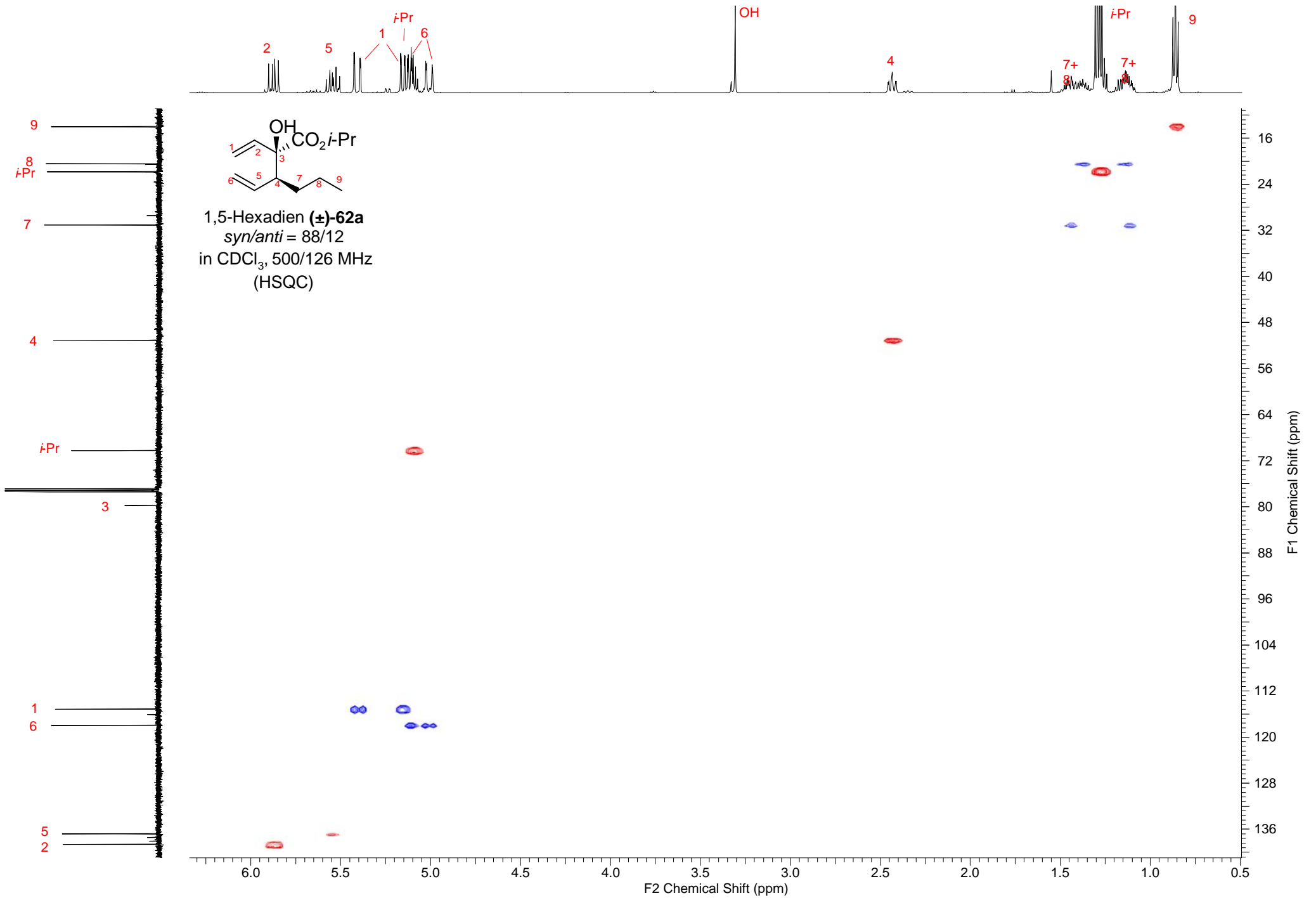


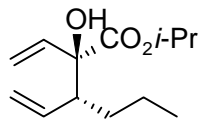
1,5-Hexadien (\pm)-62a
syn/anti = 88/12
in CDCl₃, 500 MHz



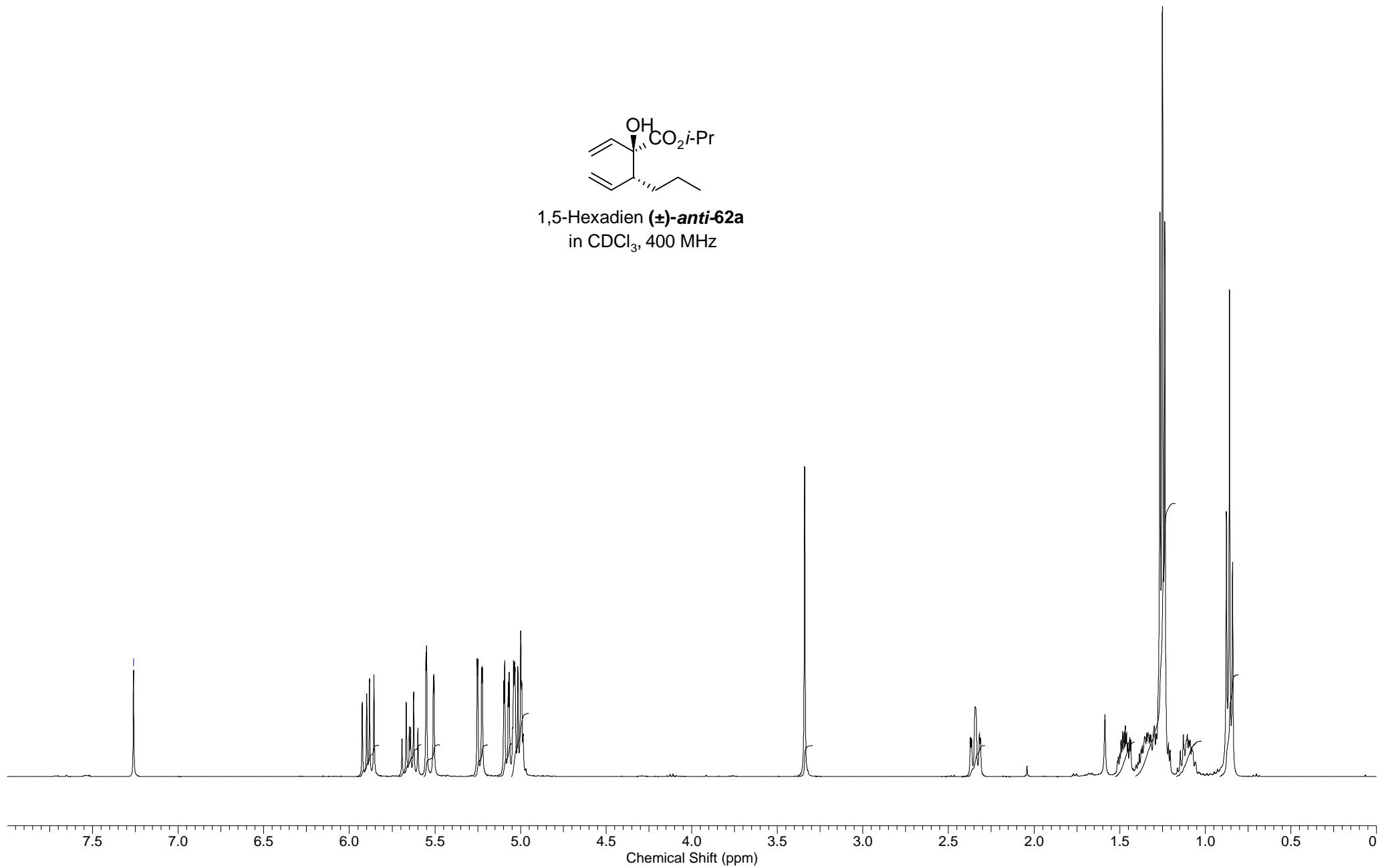


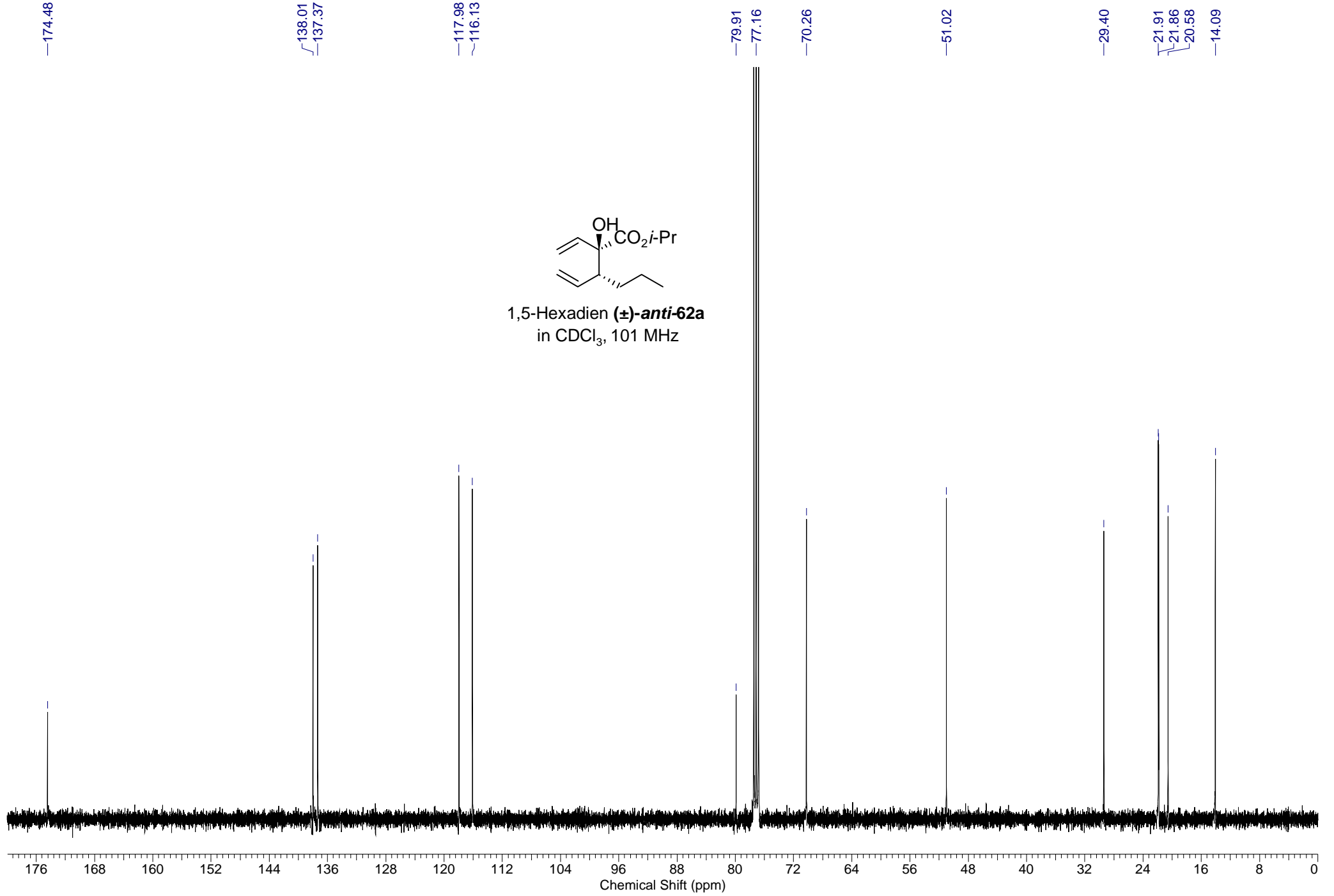


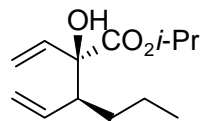




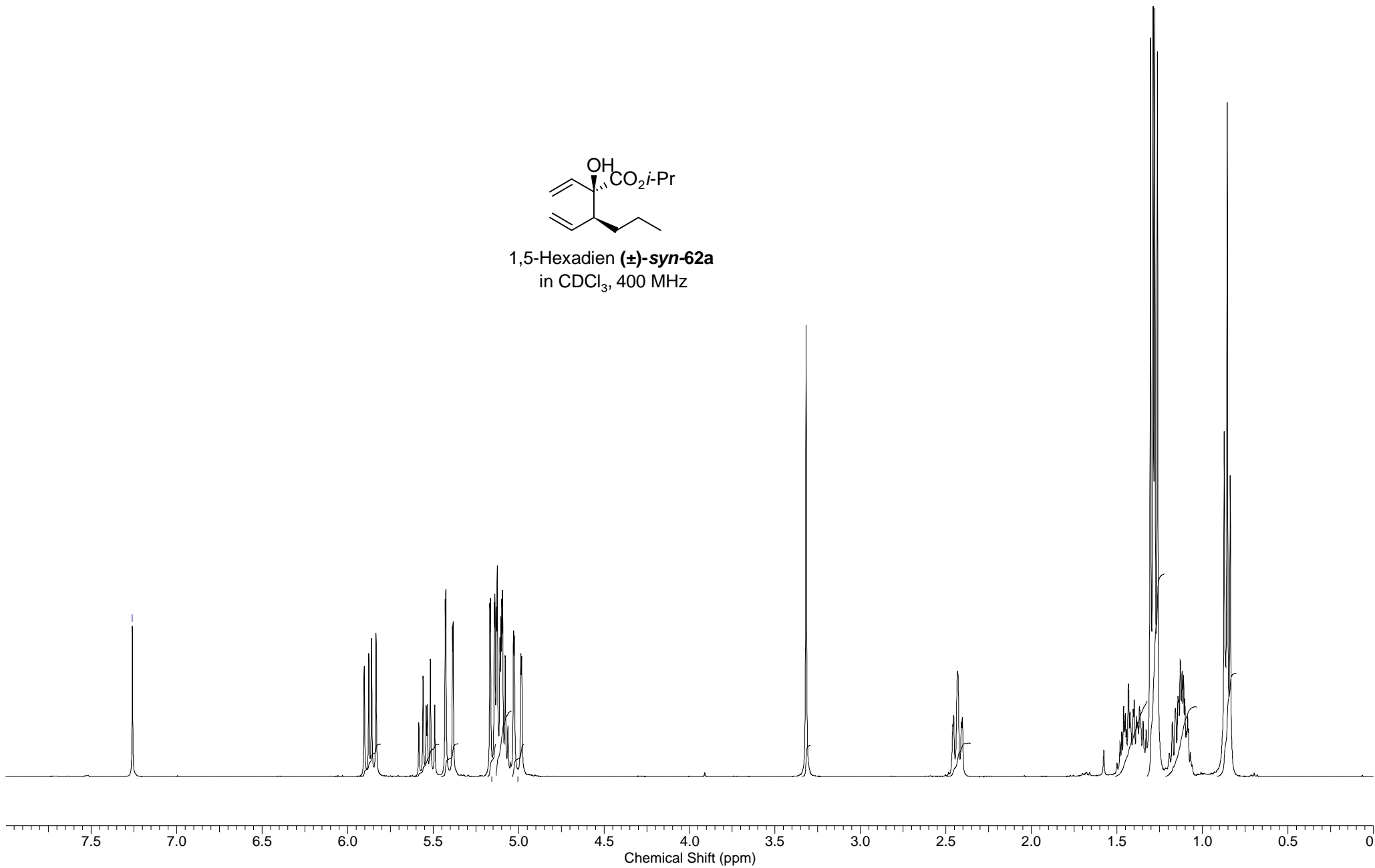
1,5-Hexadien (\pm)-*anti*-62a
in CDCl₃, 400 MHz

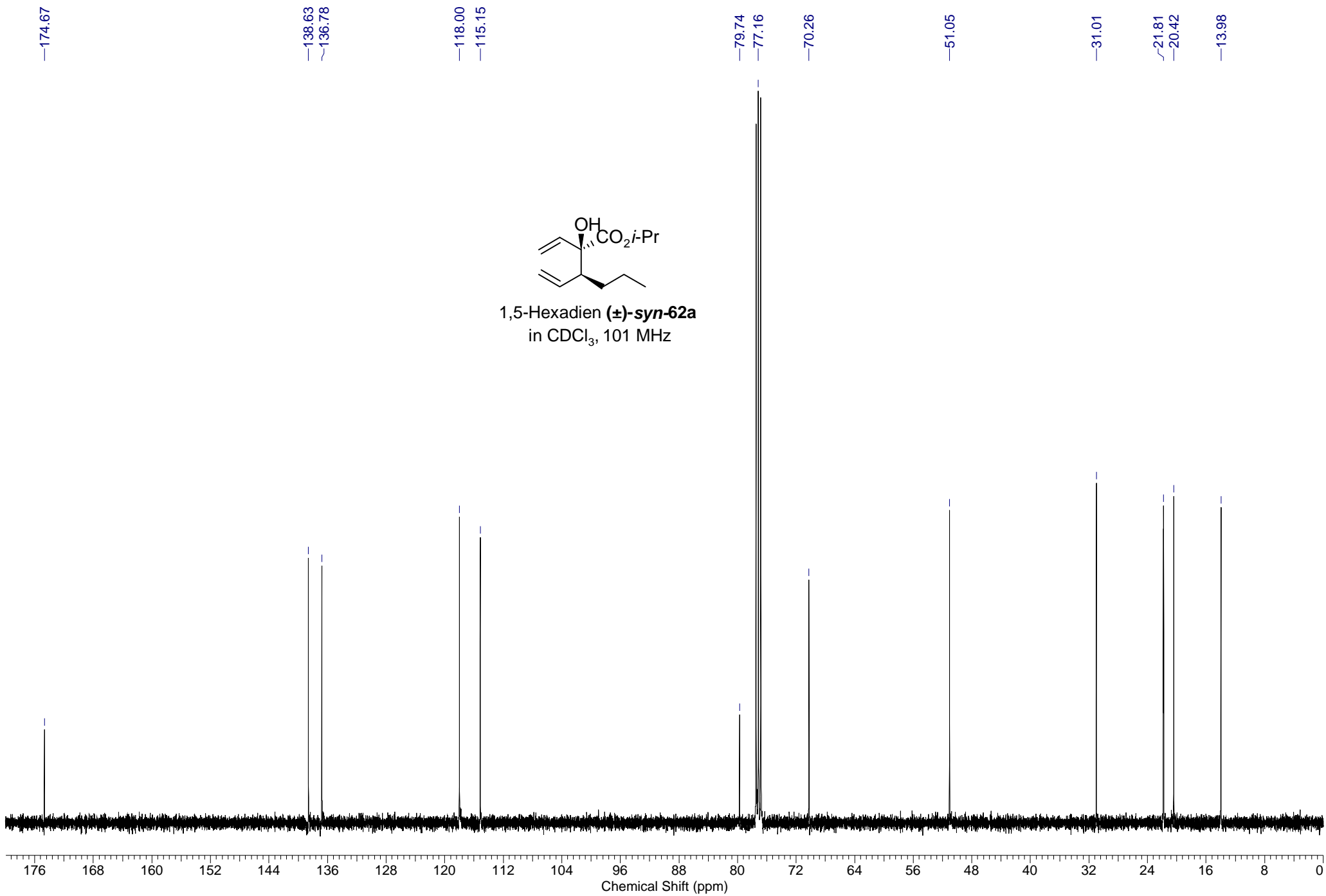


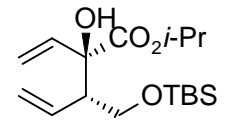




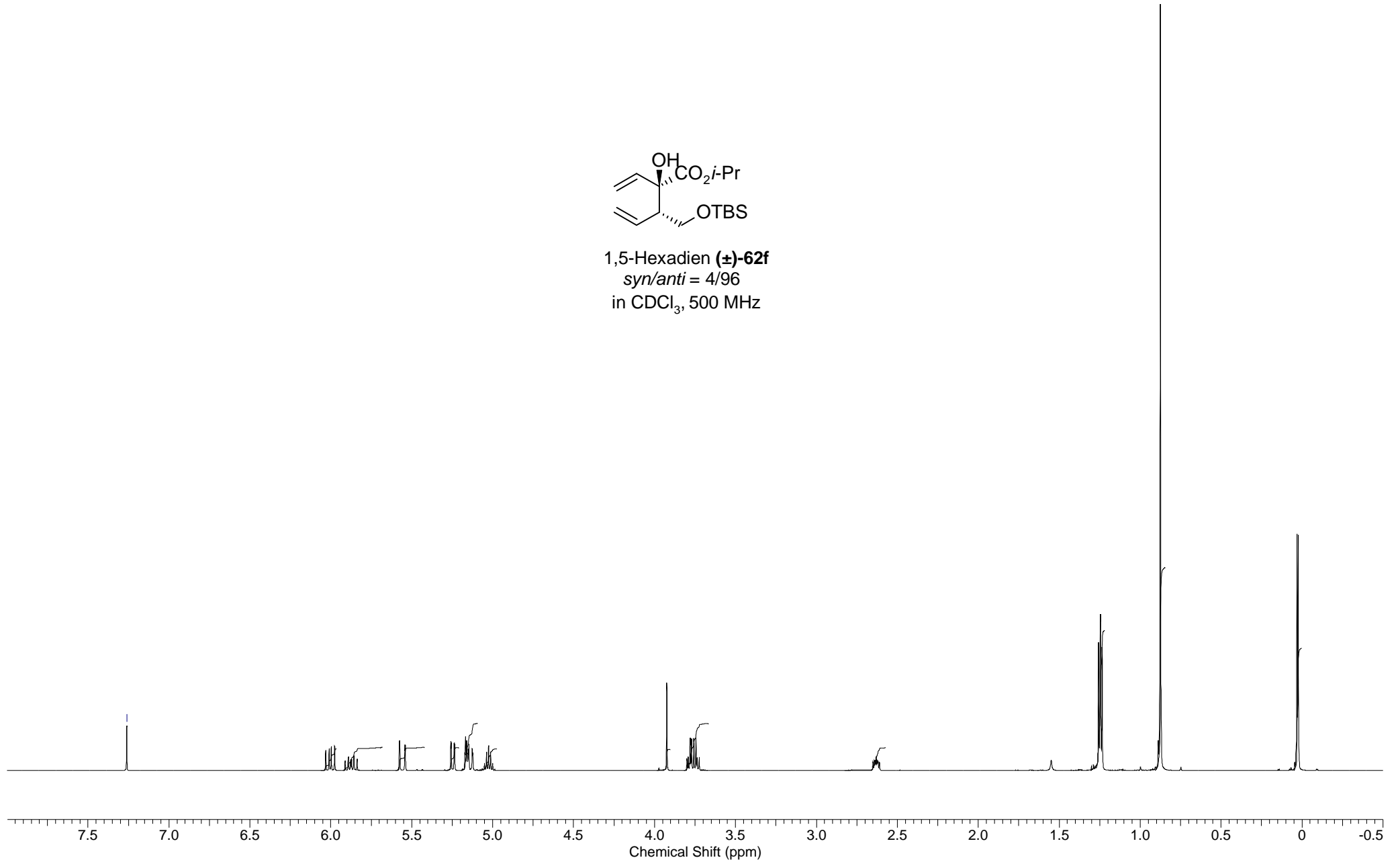
1,5-Hexadien (\pm)-*syn*-62a
in CDCl₃, 400 MHz

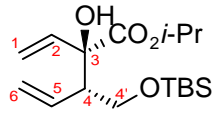






1,5-Hexadien (\pm)-**62f**
syn/anti = 4/96
in CDCl₃, 500 MHz





1,5-Hexadien (\pm)-62f
syn/anti = 4/96
 in CDCl₃, 500 MHz
 (COSY)

TBS-CH₃TBS-*t*-Bu*i*-Pr

4

OH

i-Pr

6

1

5

2

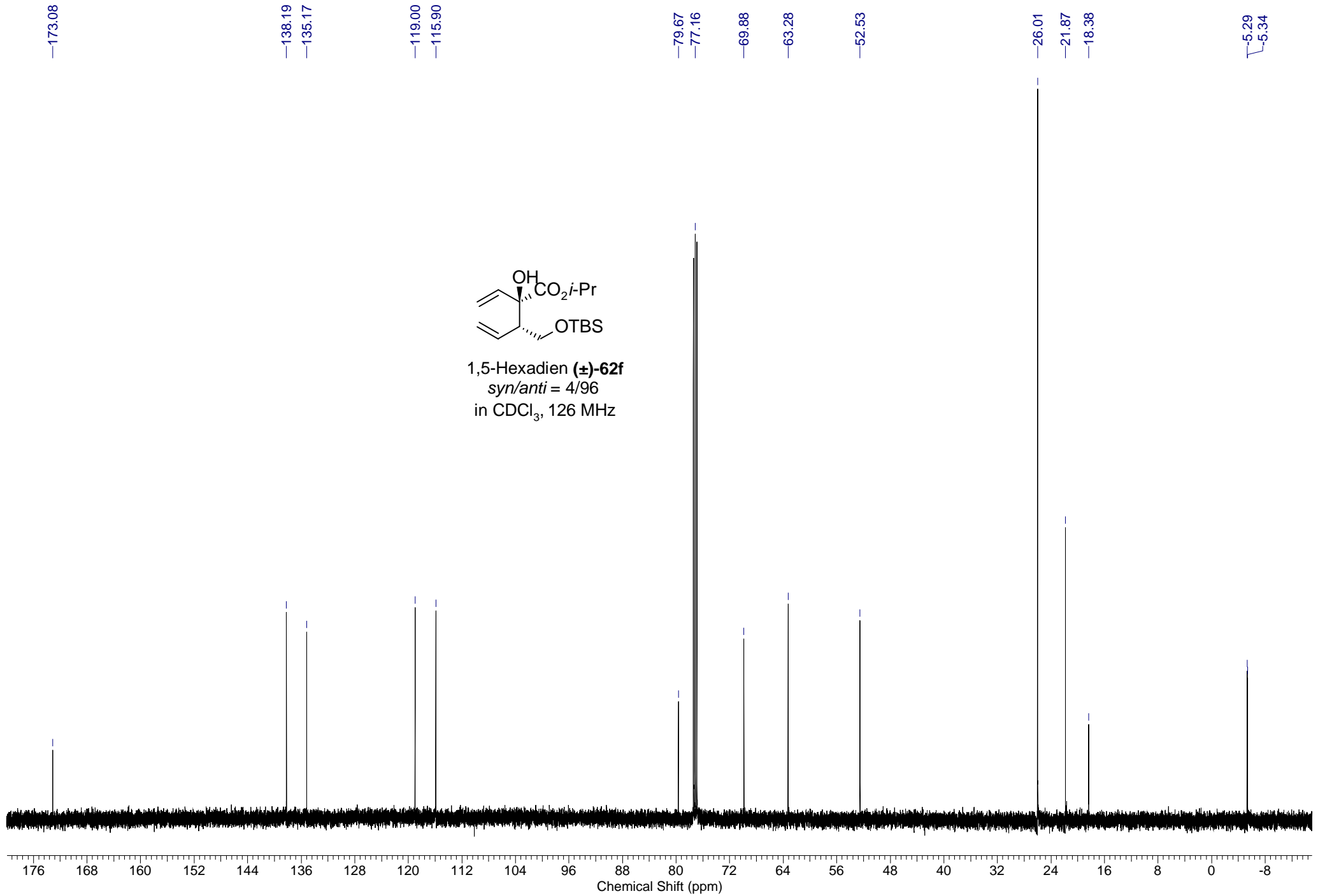
4/5

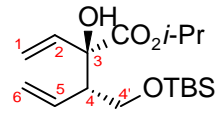
4/4'

5/6

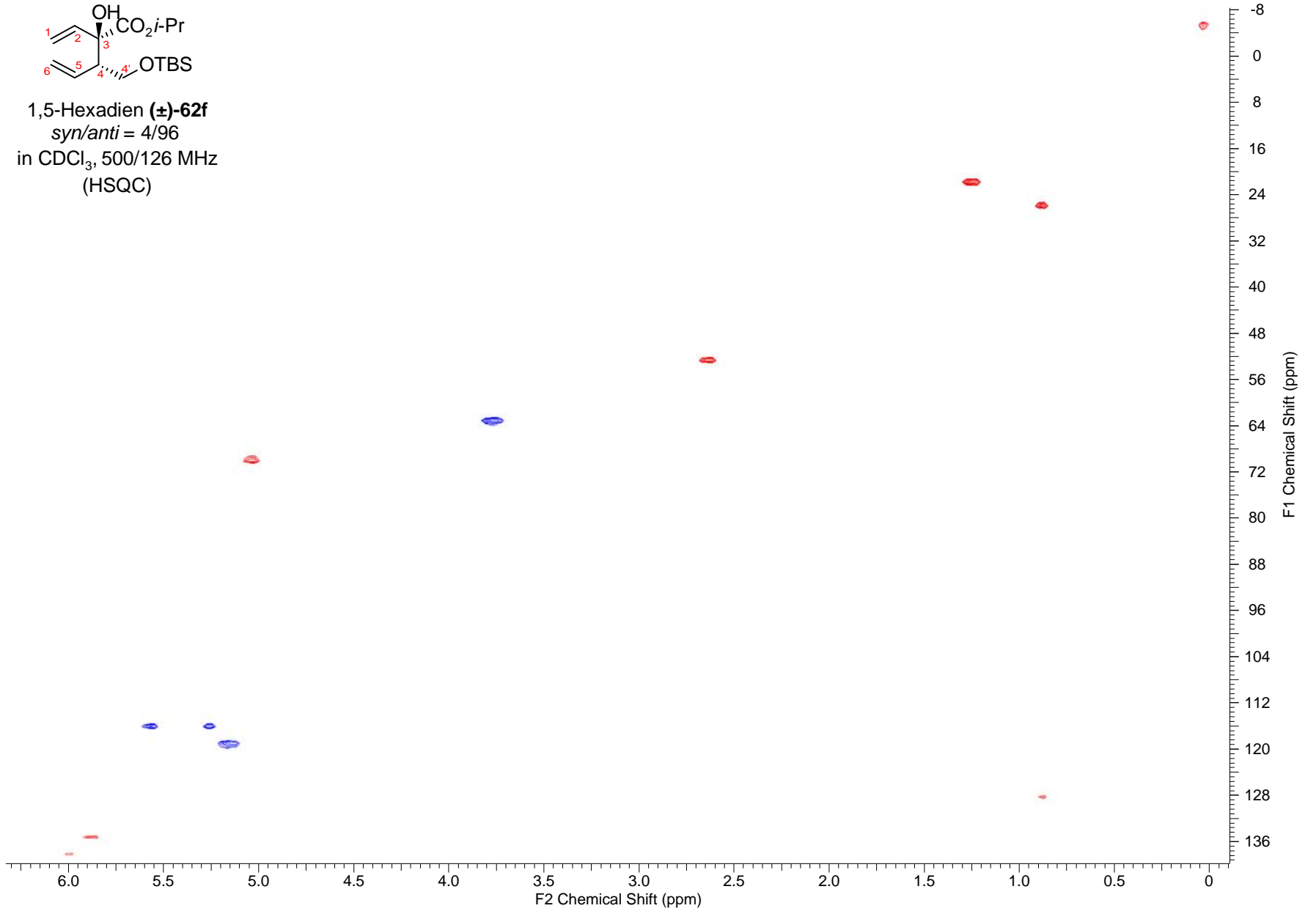
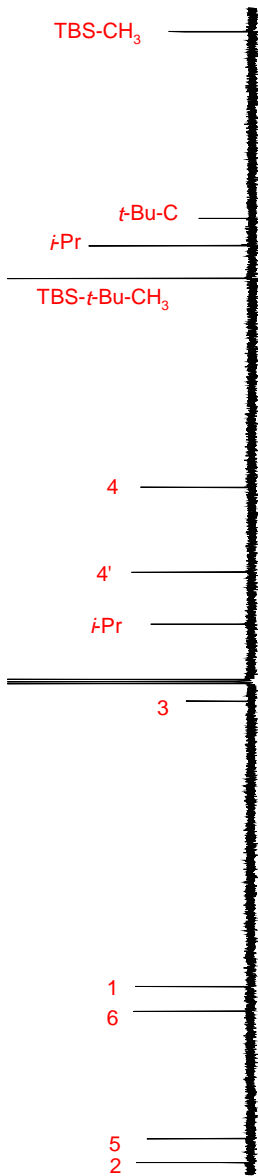
F1 Chemical Shift (ppm)

F2 Chemical Shift (ppm)

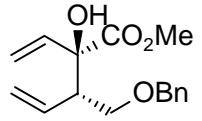




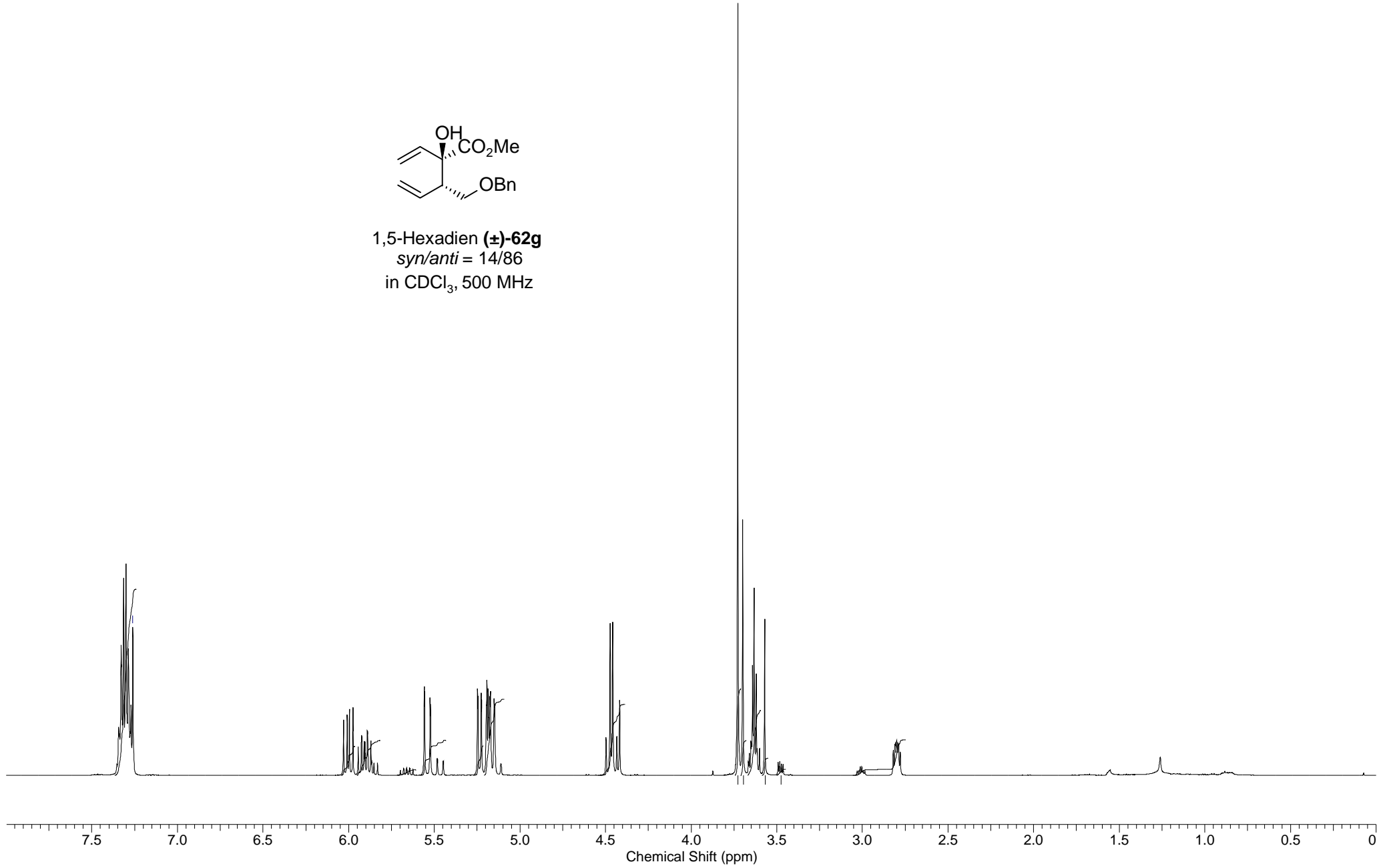
1,5-Hexadien (\pm)-**62f**
syn/anti = 4/96
 in CDCl₃, 500/126 MHz
 (HSQC)

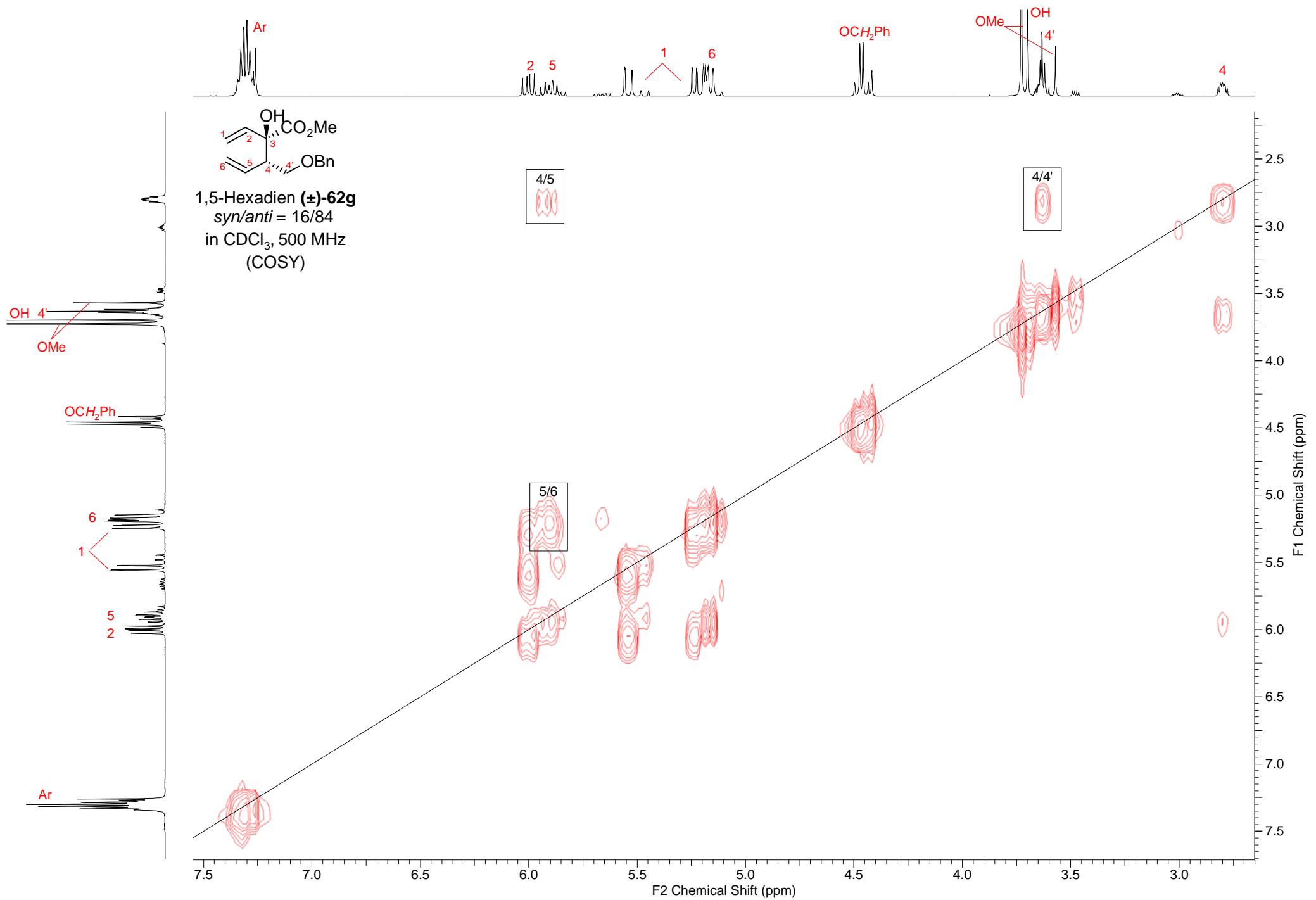


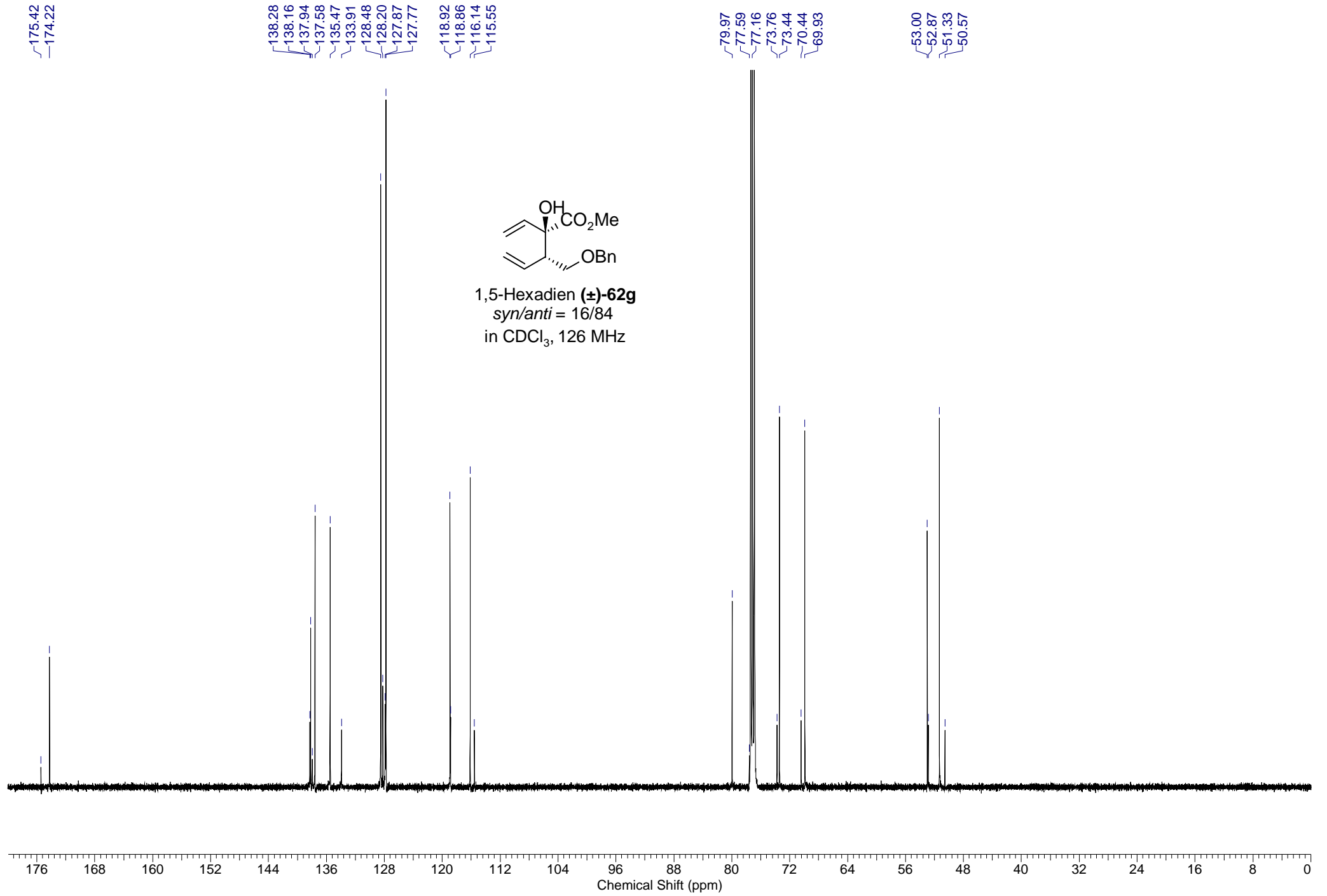
-7.26

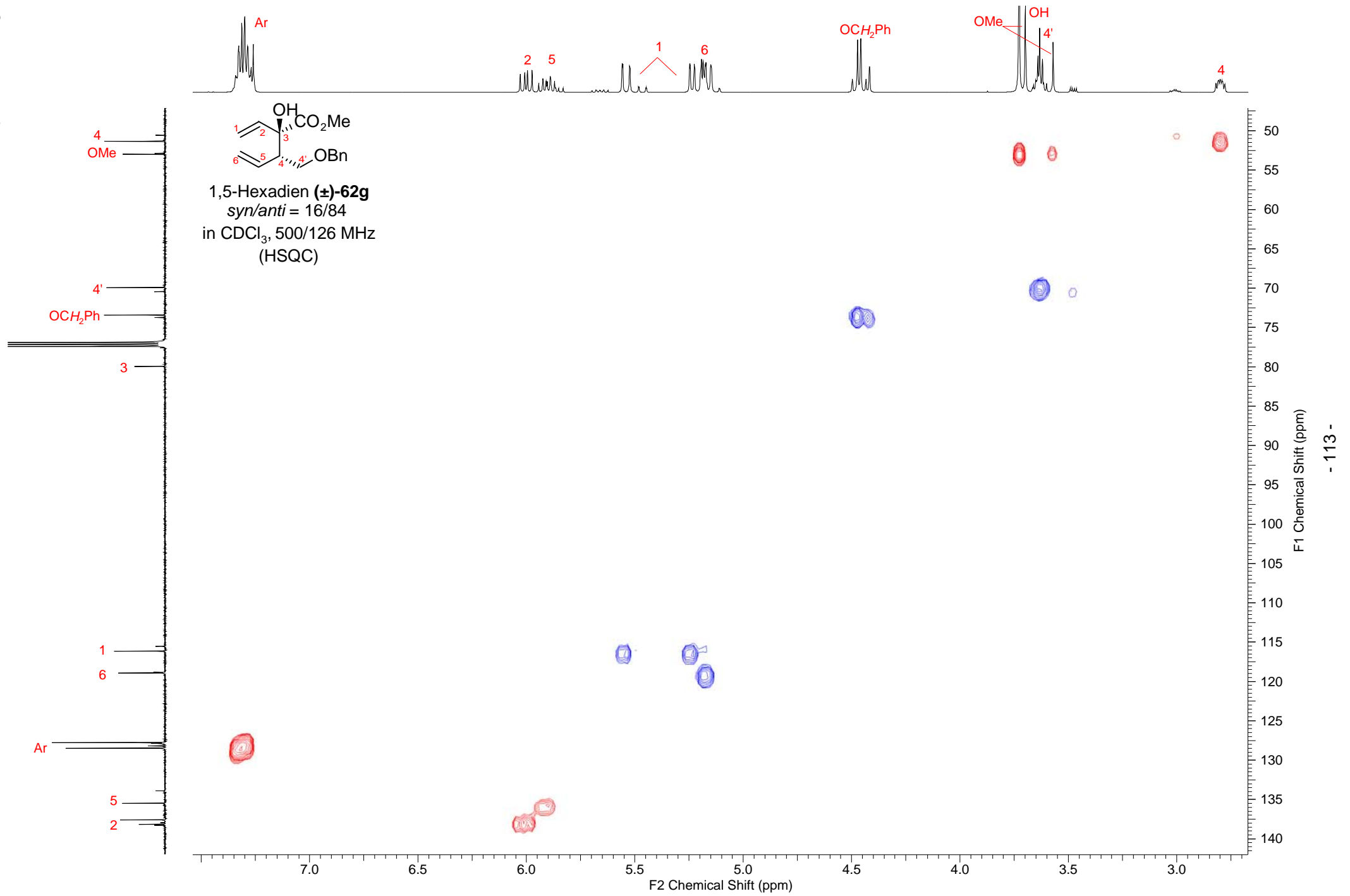


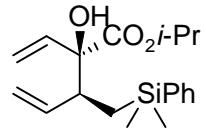
1,5-Hexadien (\pm)-62g
syn/anti = 14/86
in CDCl₃, 500 MHz



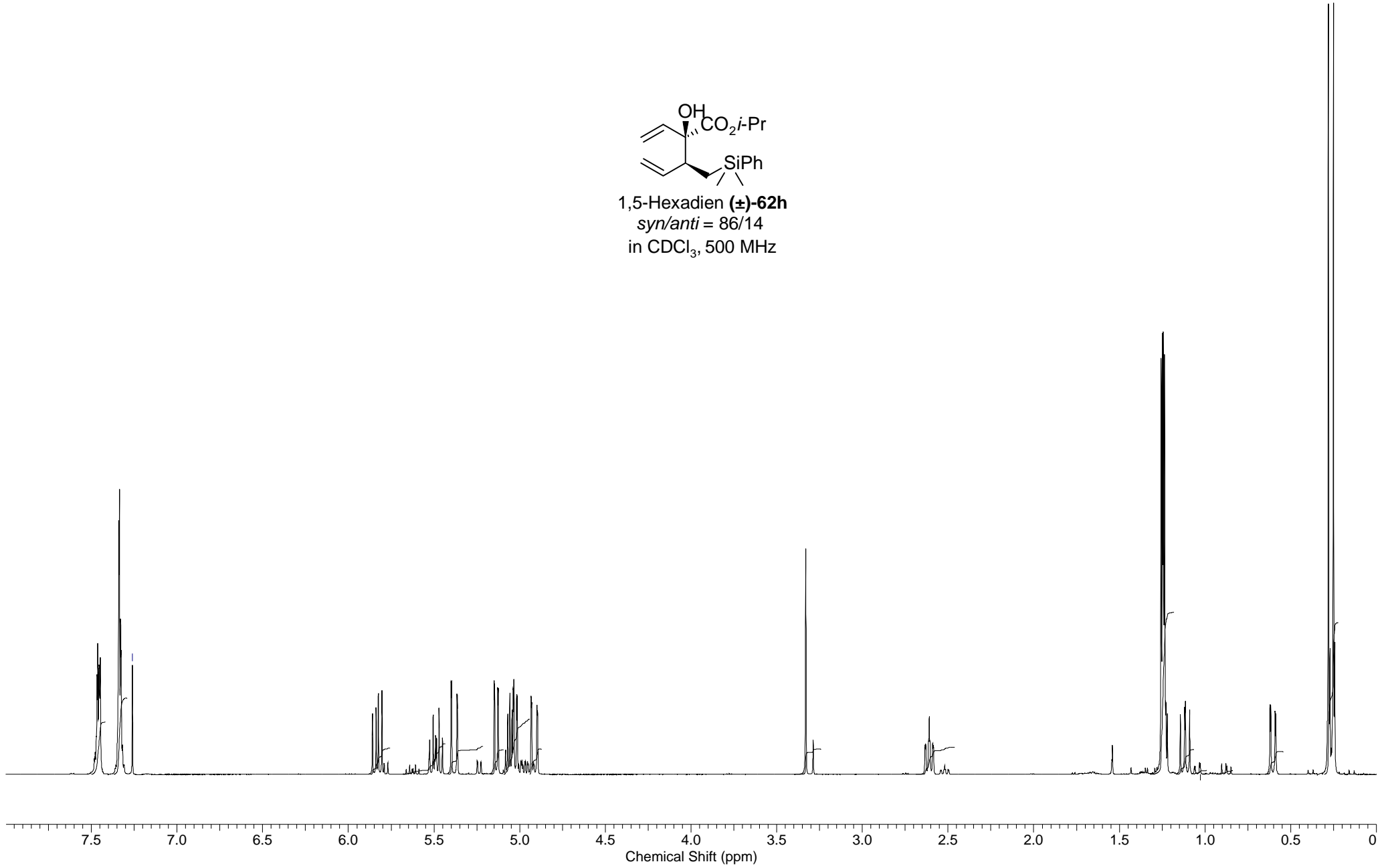


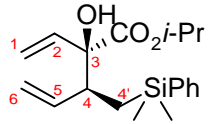
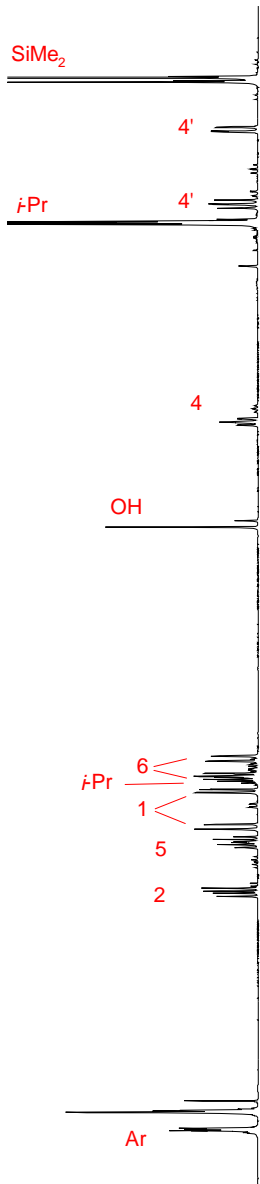
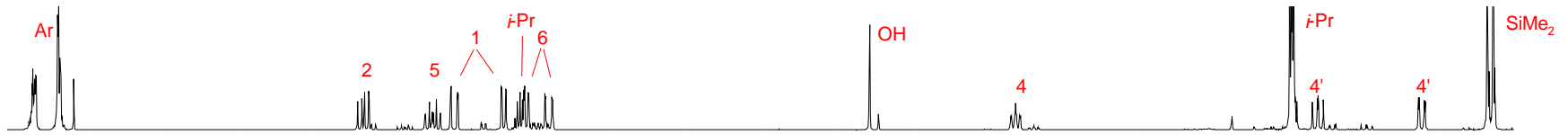




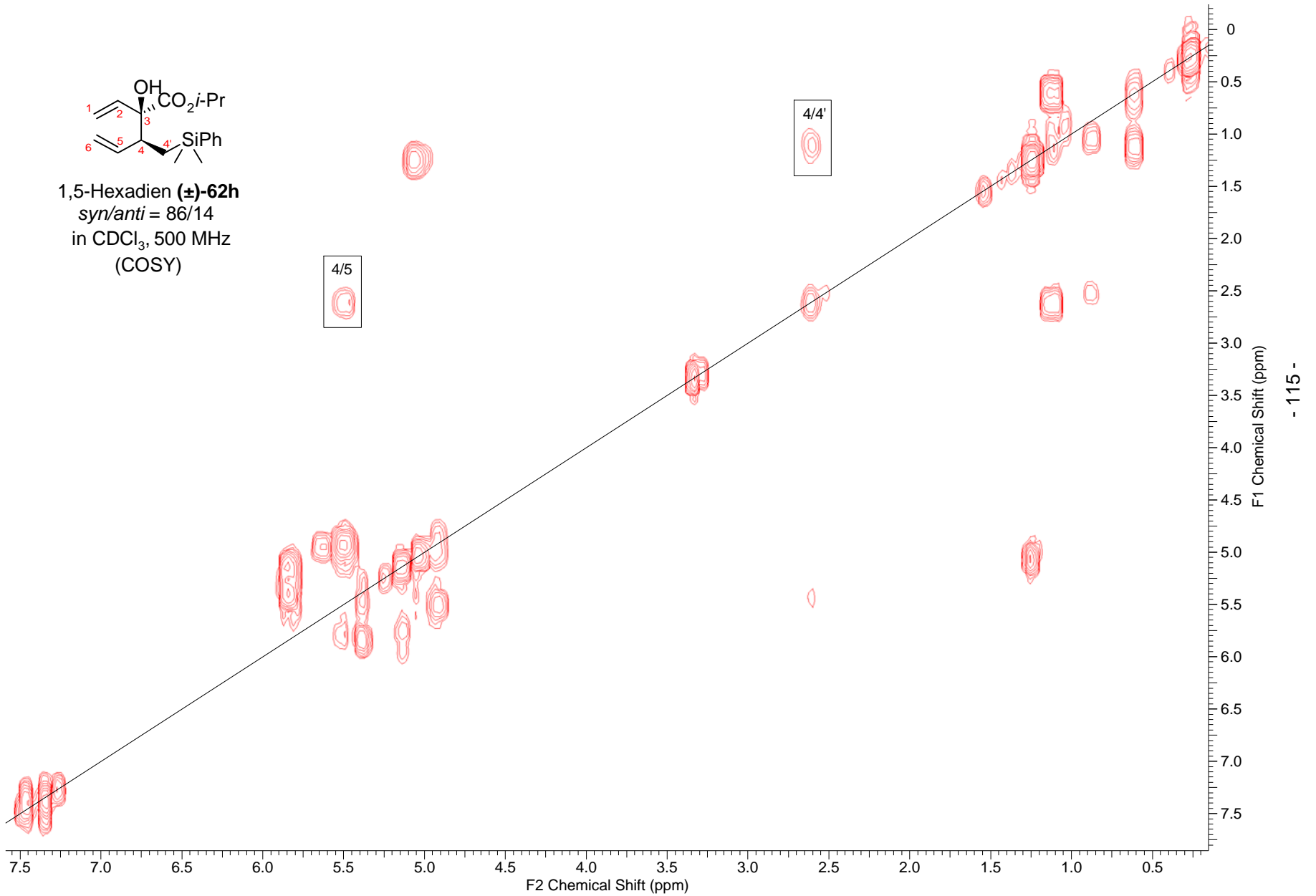


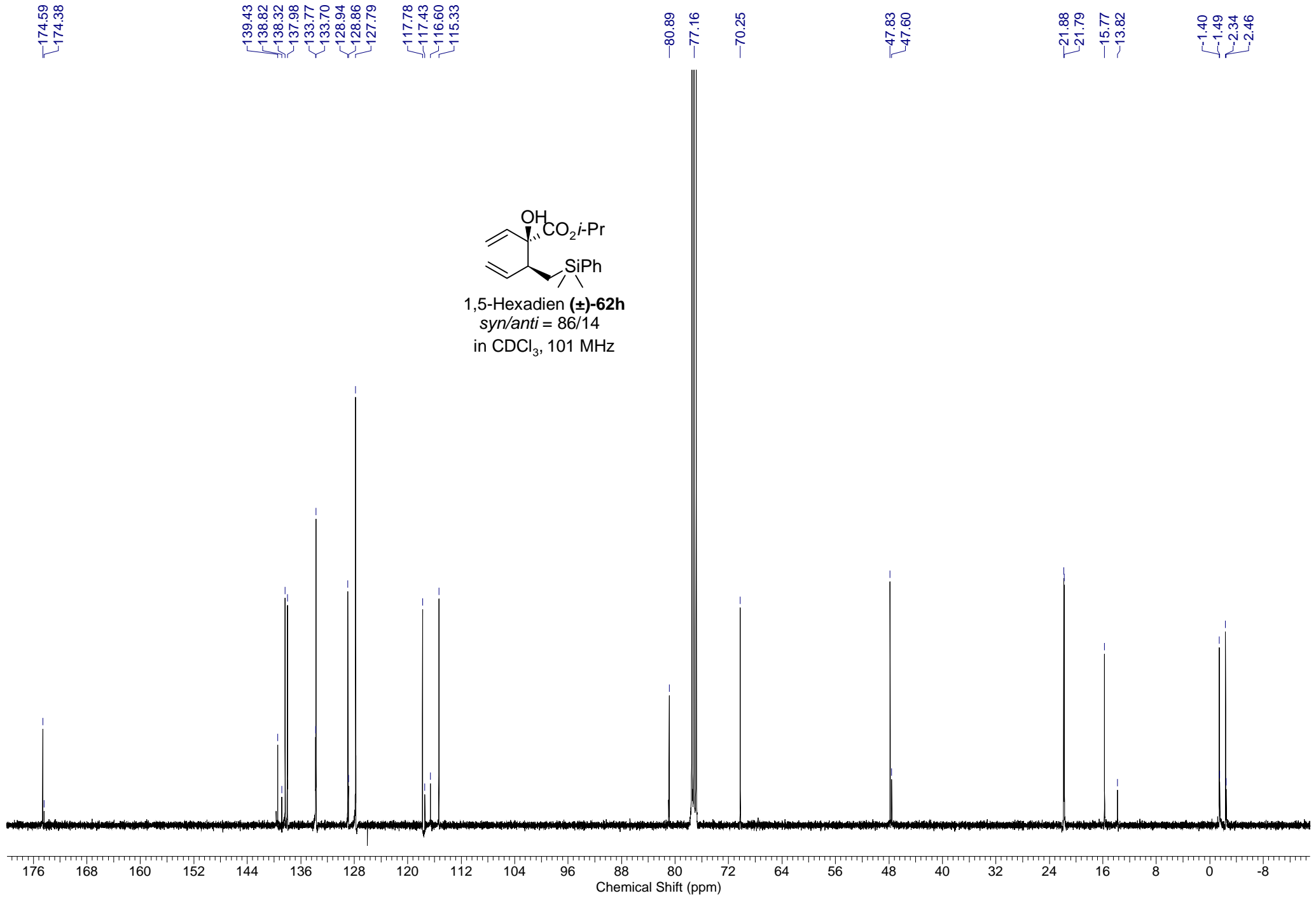
1,5-Hexadien (\pm)-**62h**
syn/anti = 86/14
in CDCl₃, 500 MHz

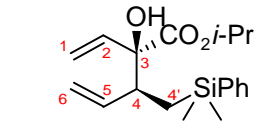
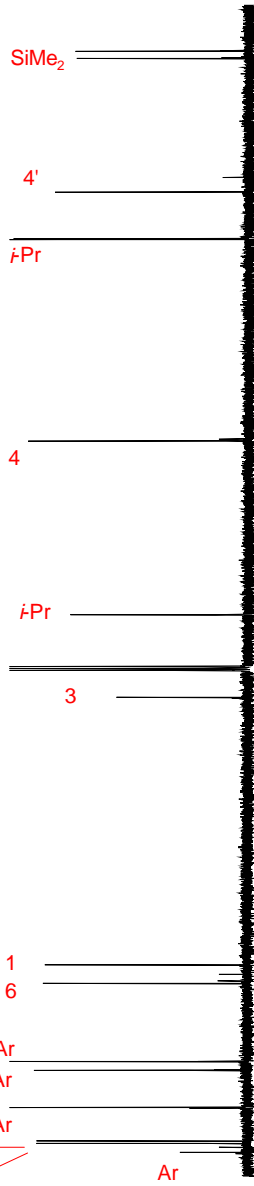
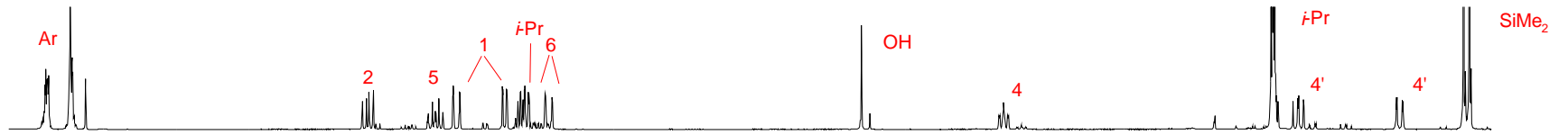




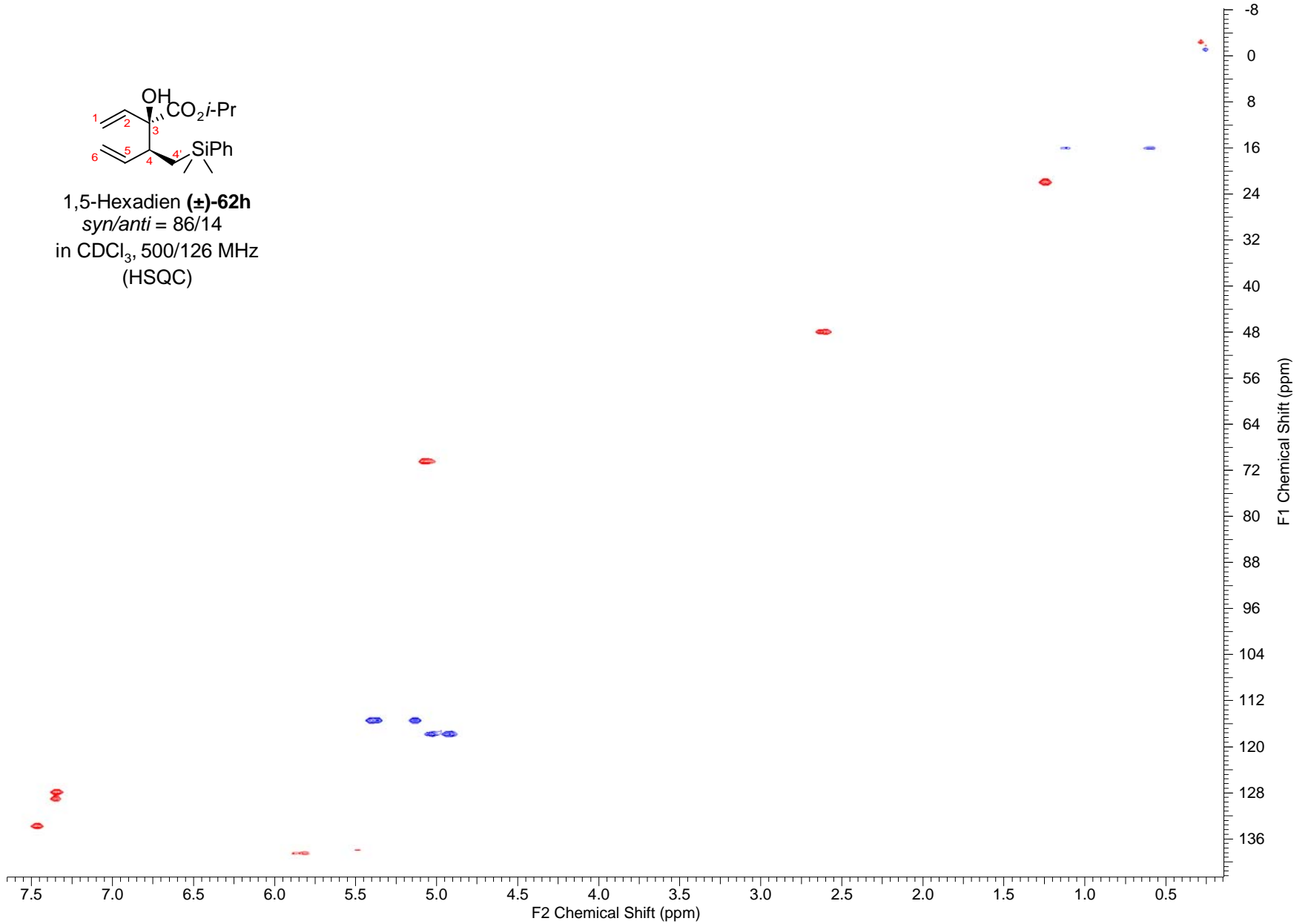
1,5-Hexadien (\pm)-62h
syn/anti = 86/14
 in CDCl₃, 500 MHz
 (COSY)



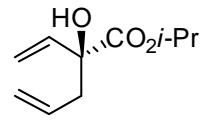
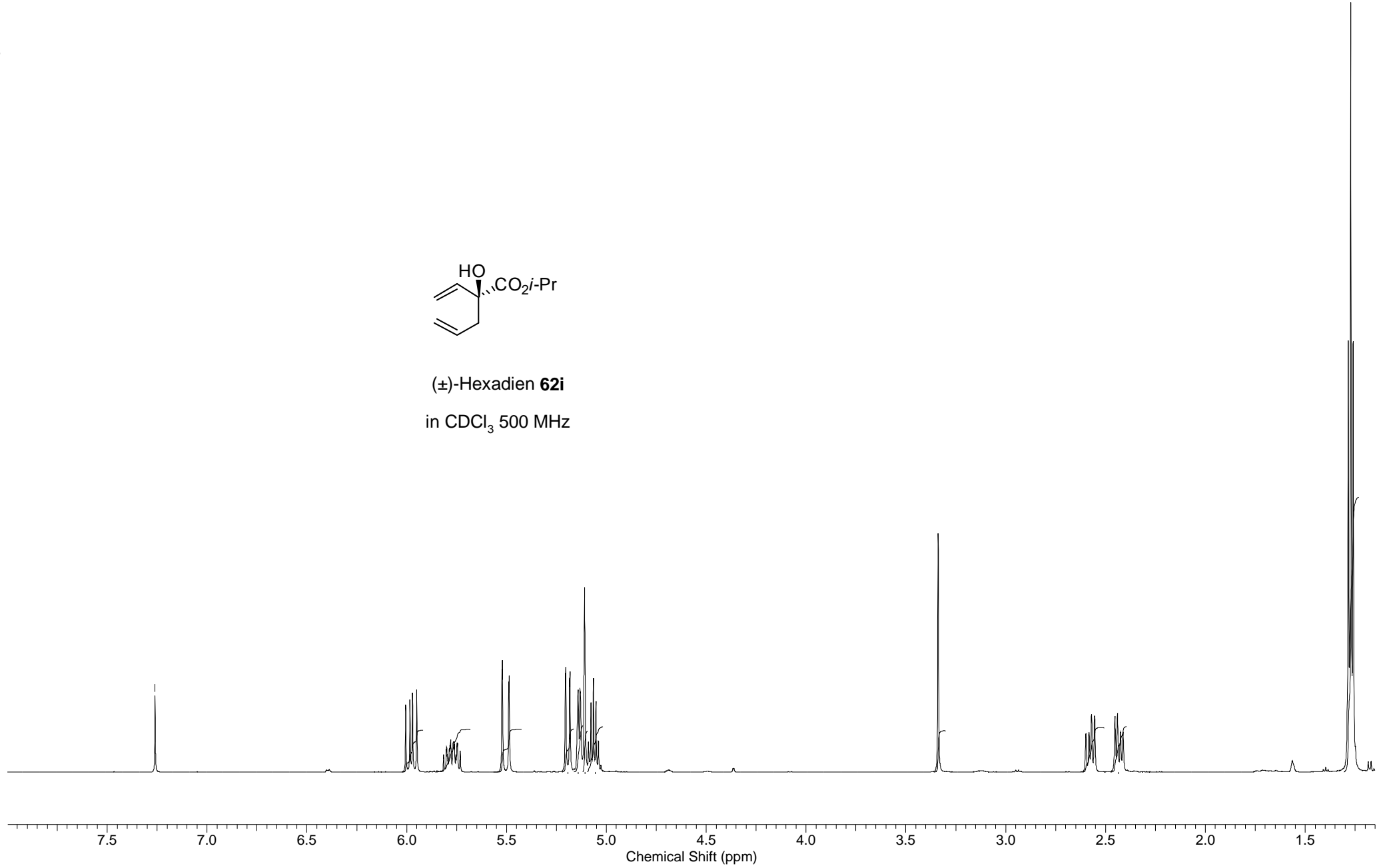


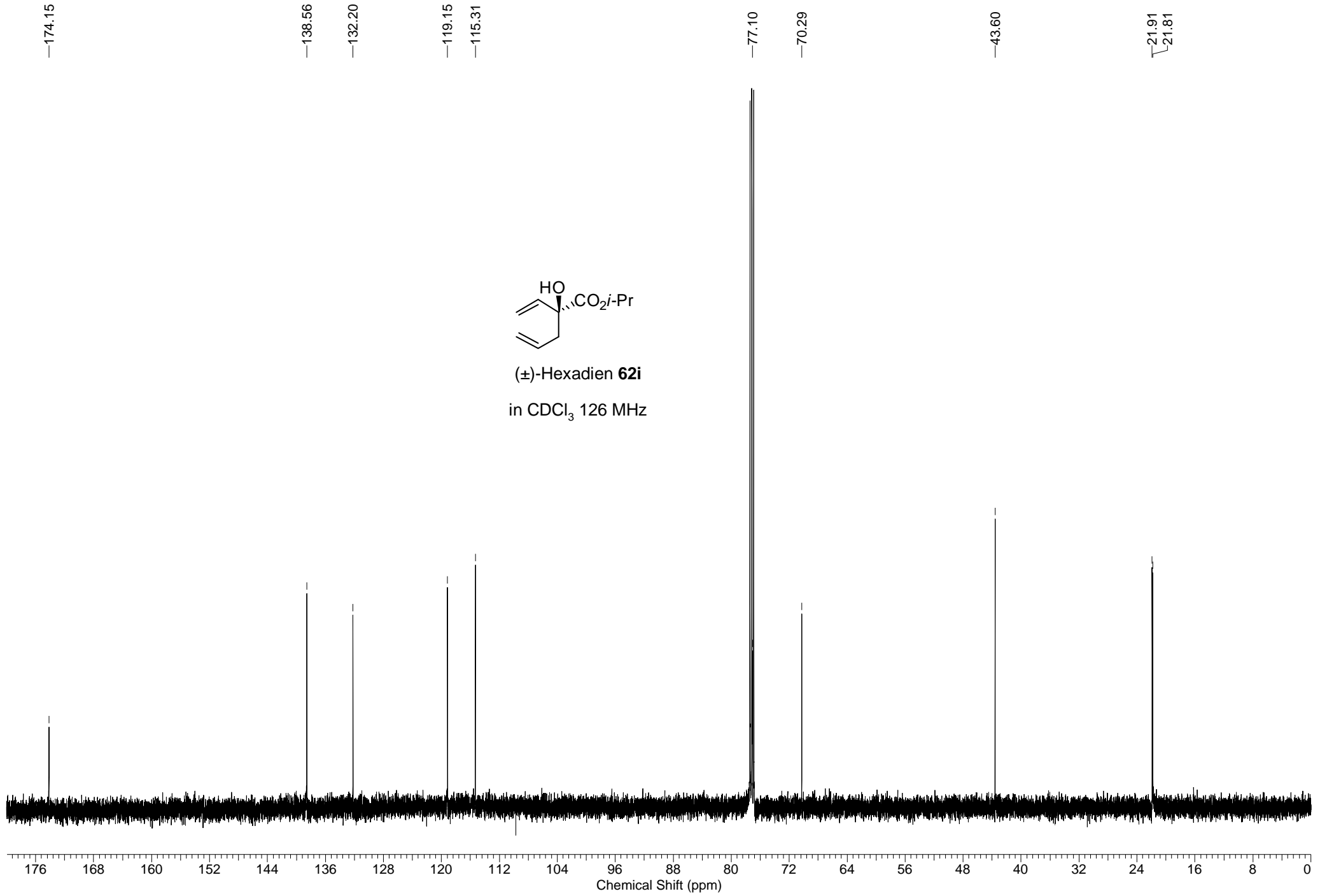


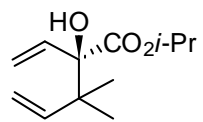
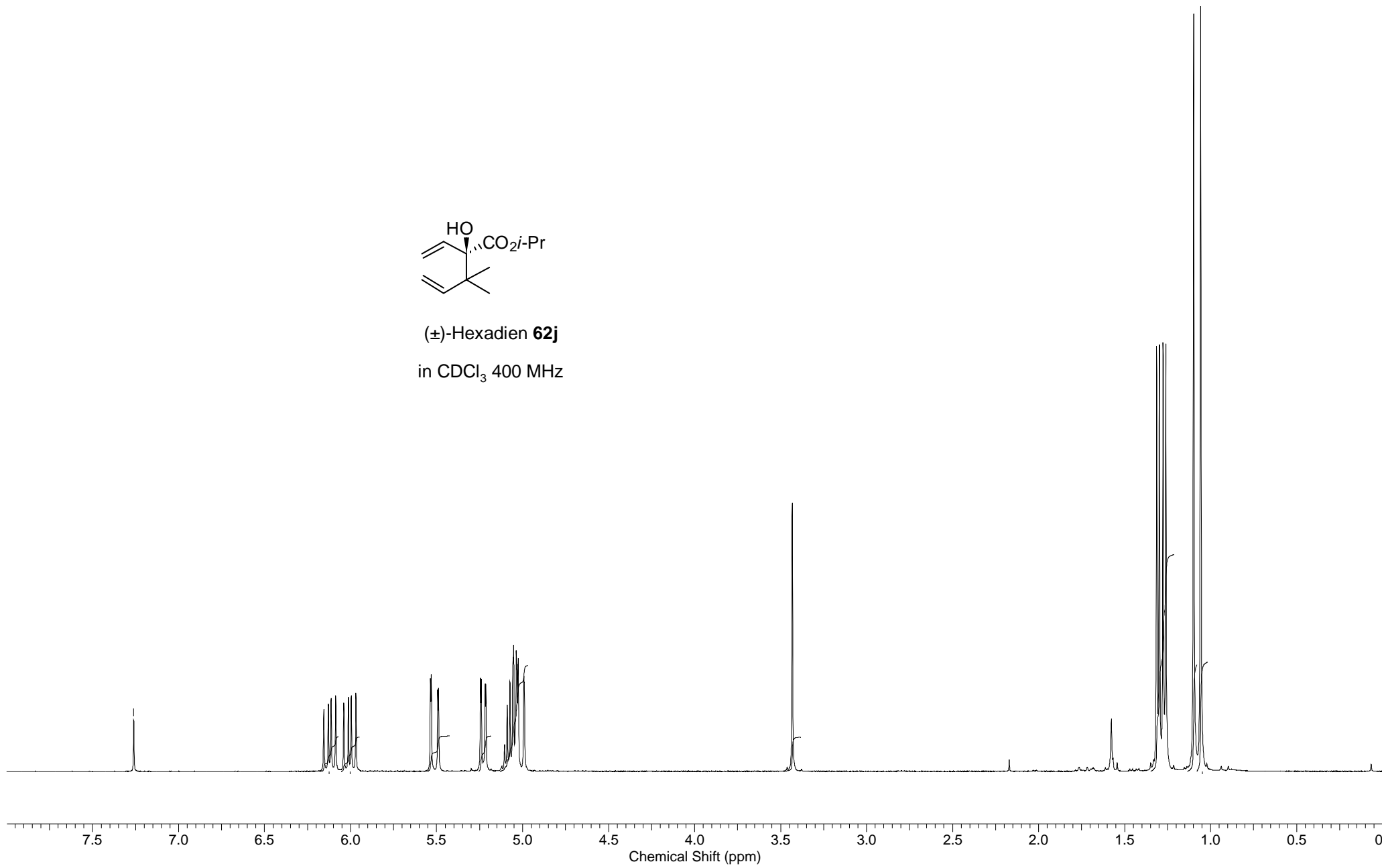
1,5-Hexadien (\pm)-62h
syn/anti = 86/14
 in CDCl_3 , 500/126 MHz
 (HSQC)

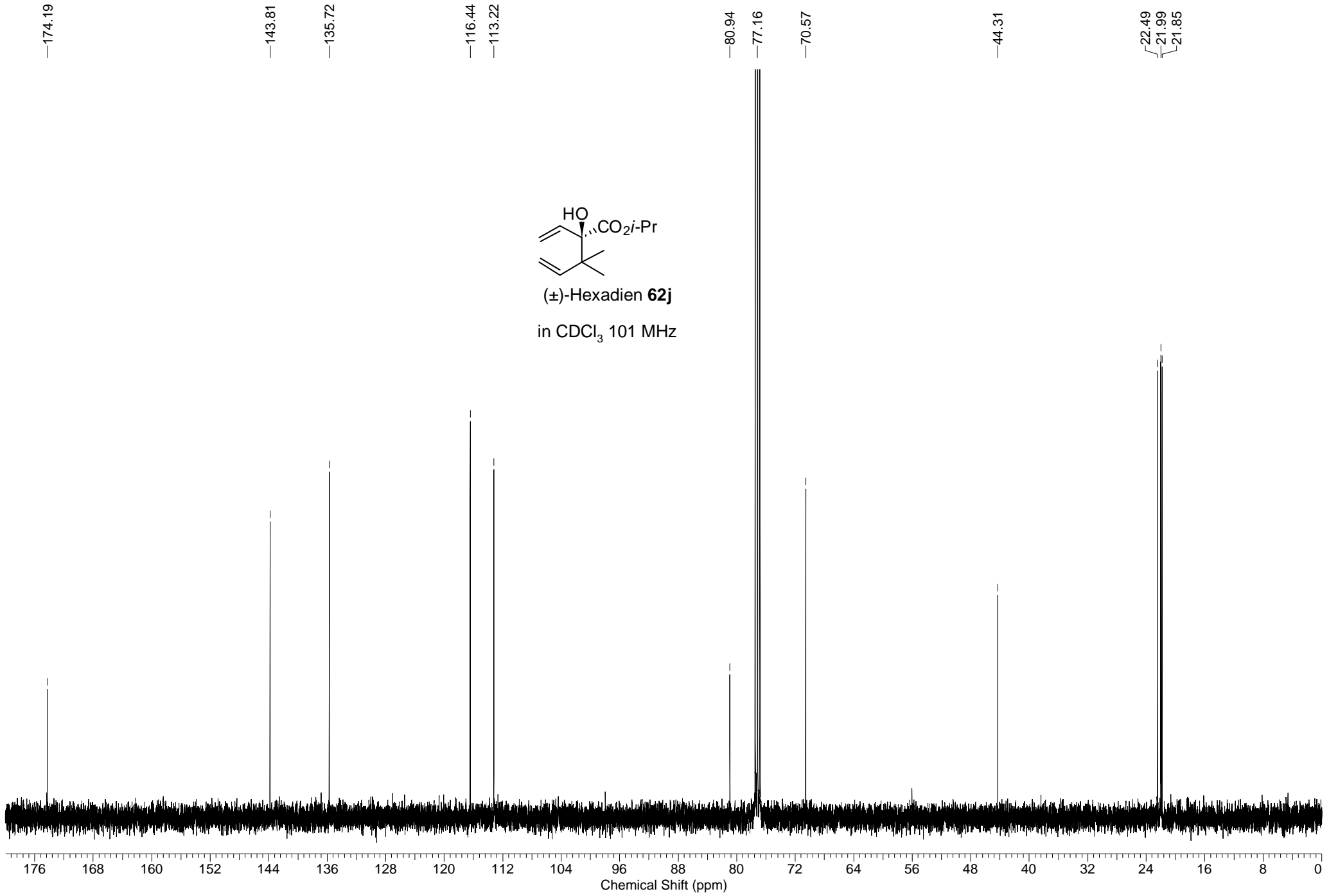


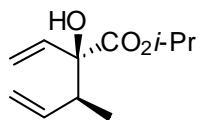
-7.26

(±)-Hexadien **62i**in CDCl₃ 500 MHz



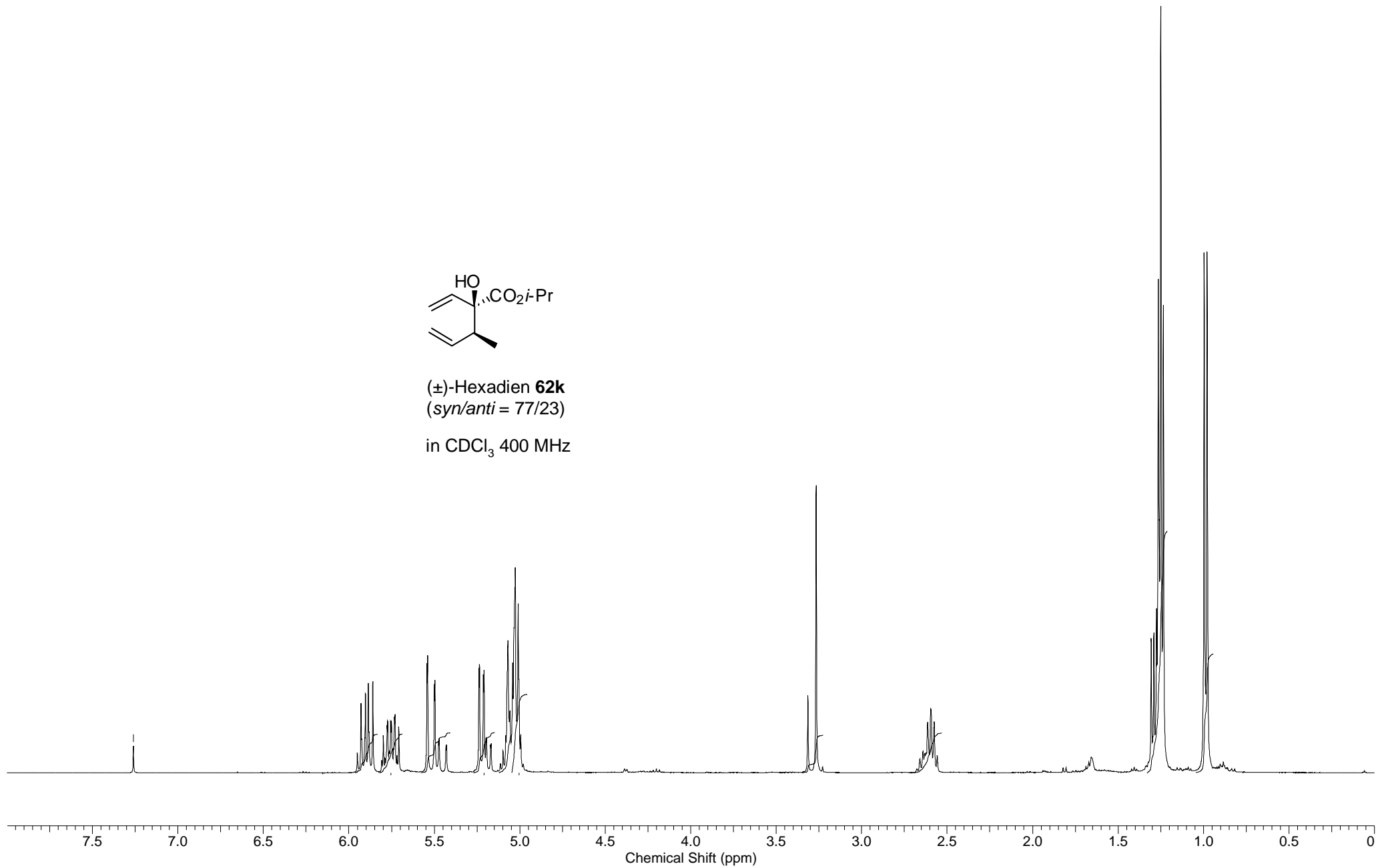
(±)-Hexadien **62j**in CDCl₃ 400 MHz

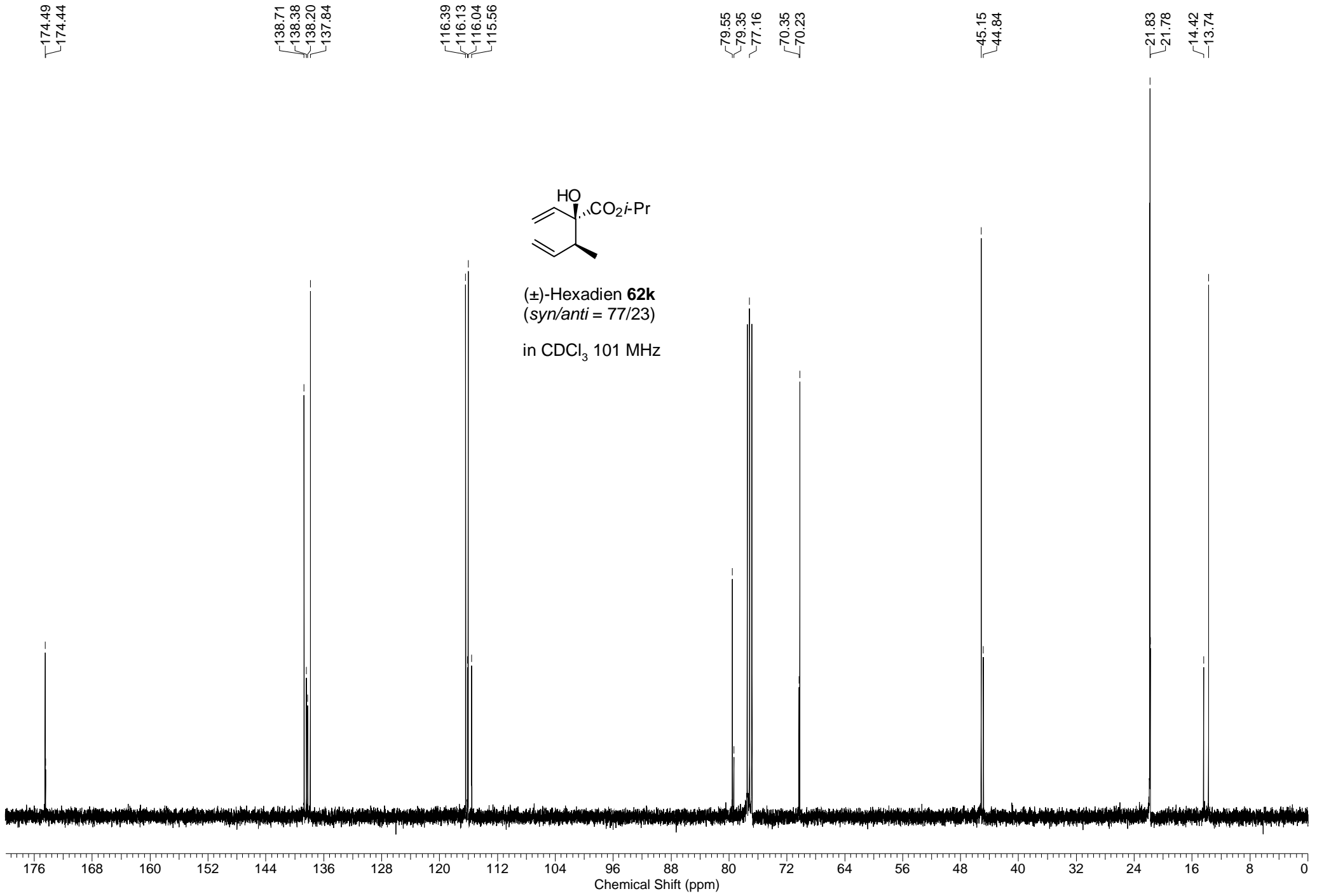




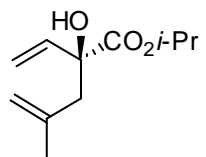
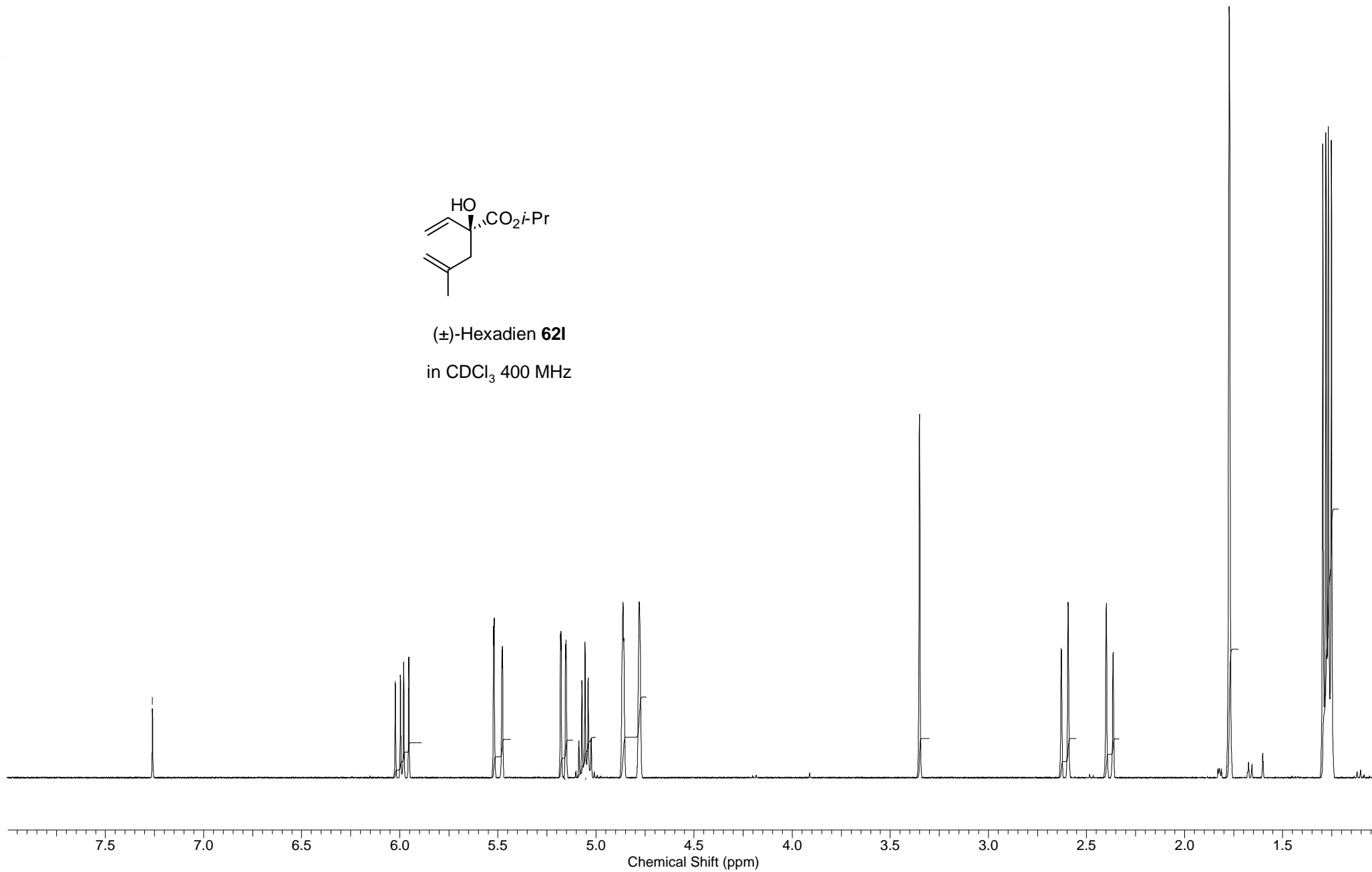
(±)-Hexadien **62k**
(*syn/anti* = 77/23)

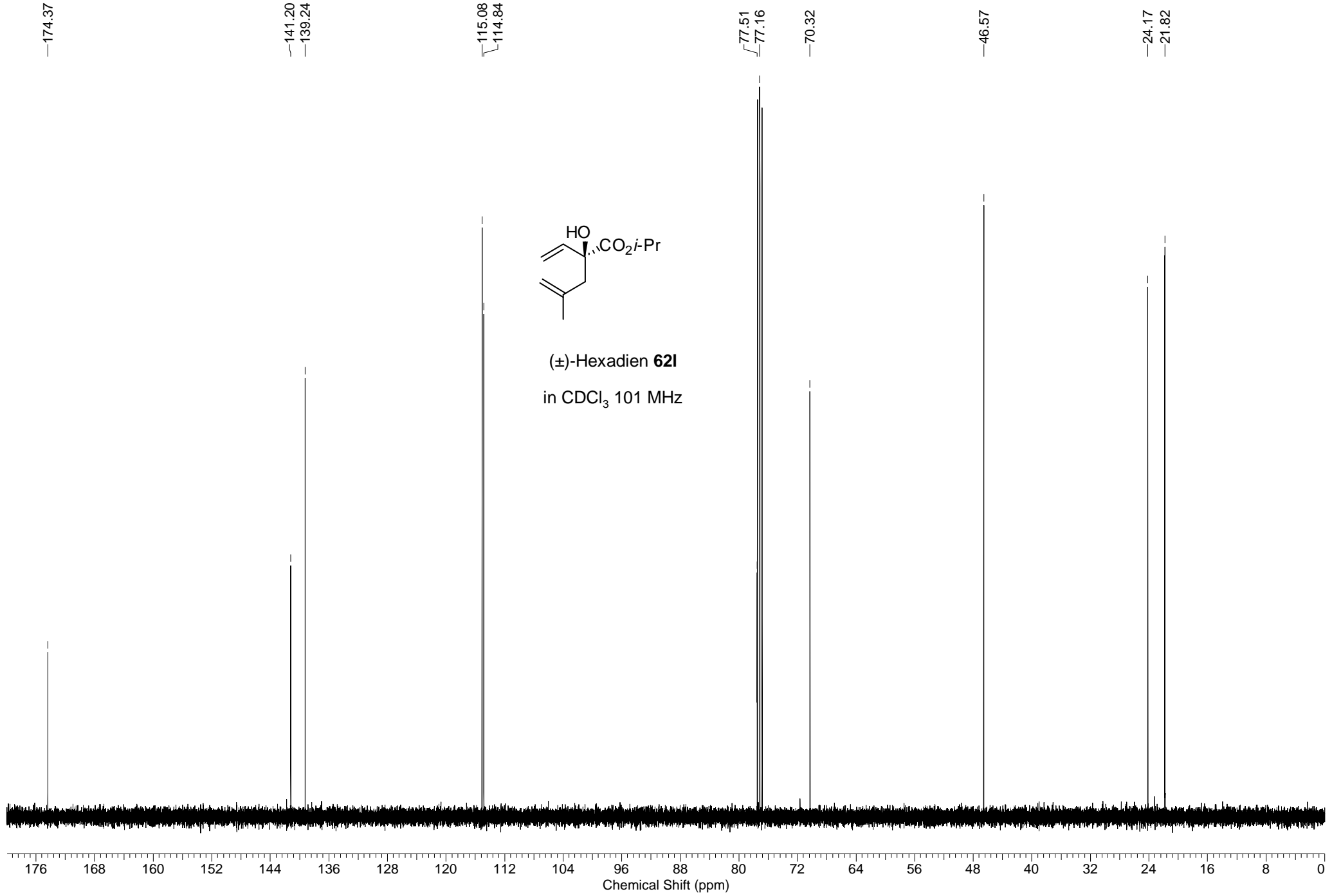
in CDCl₃ 400 MHz

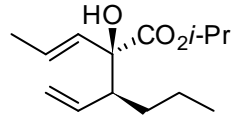




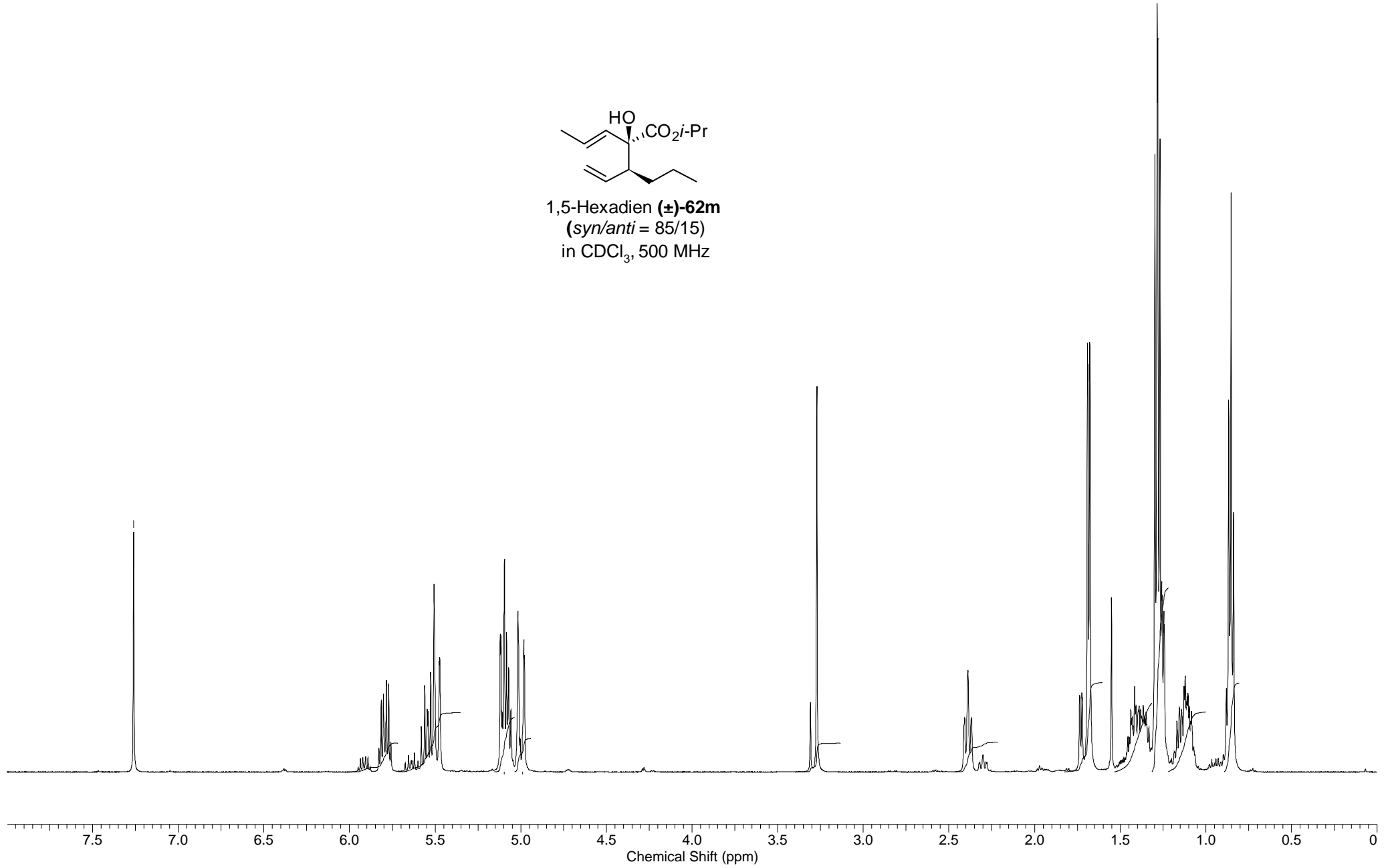
-7.26

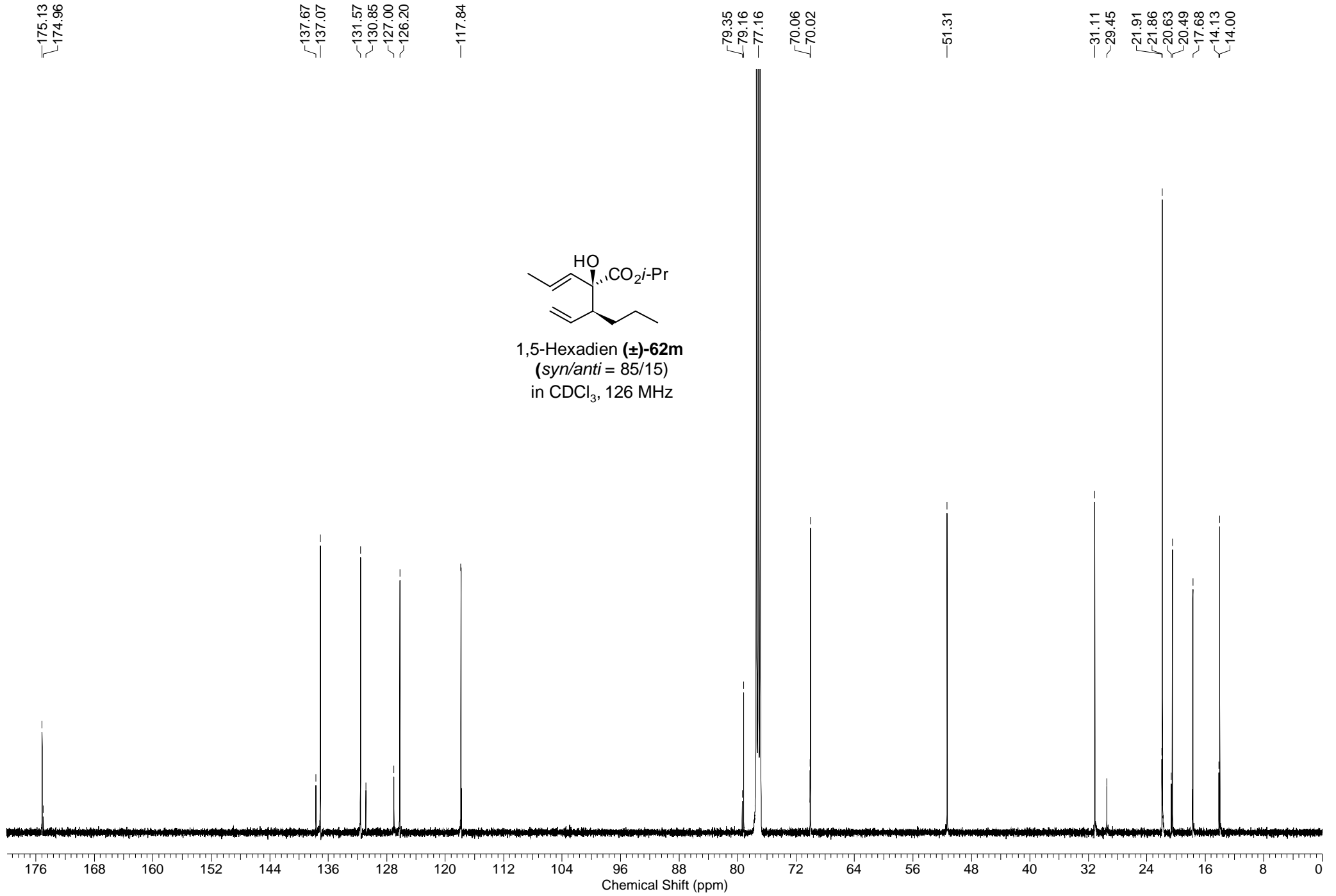
(±)-Hexadien **62I**in CDCl₃ 400 MHz

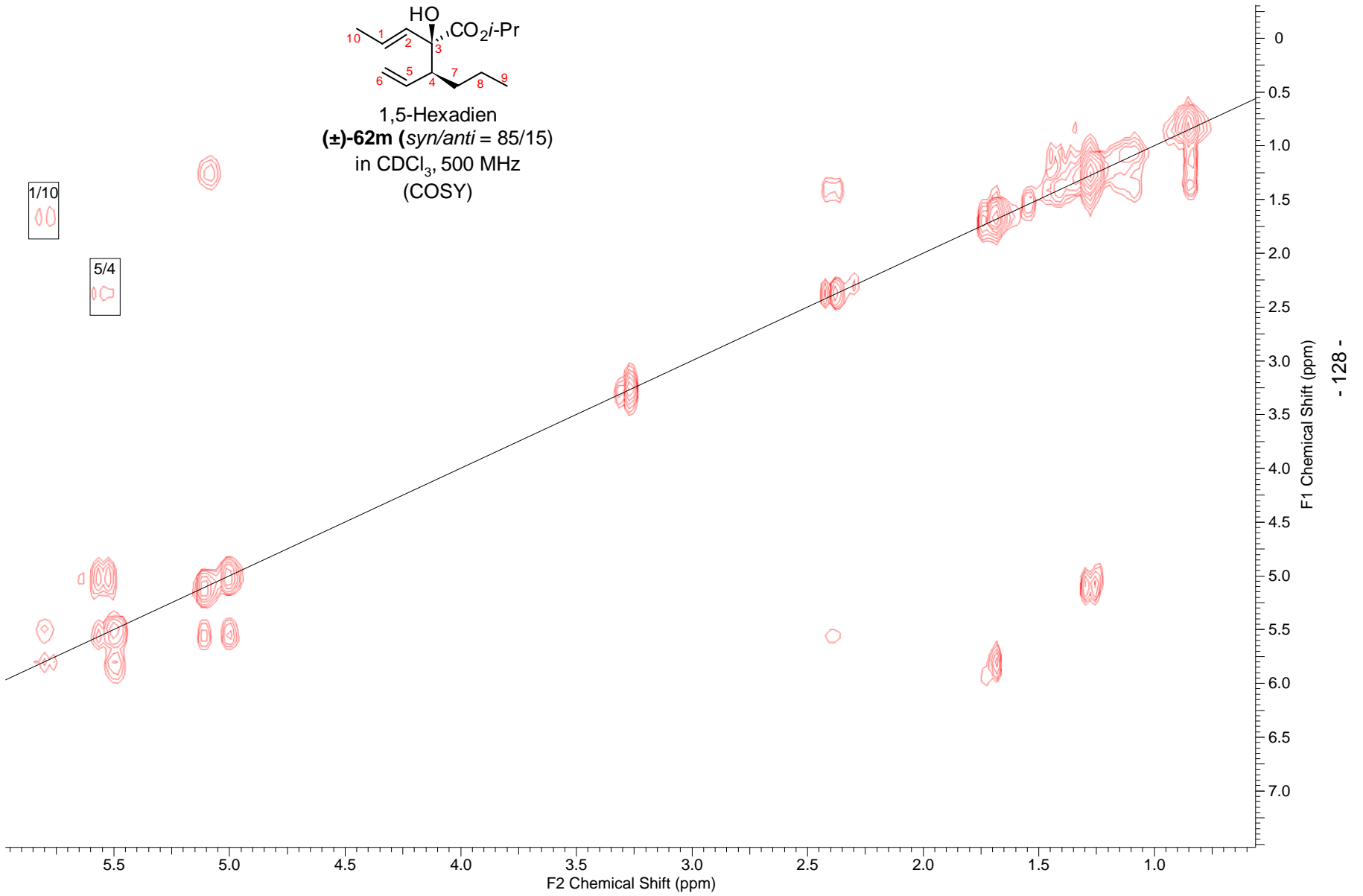
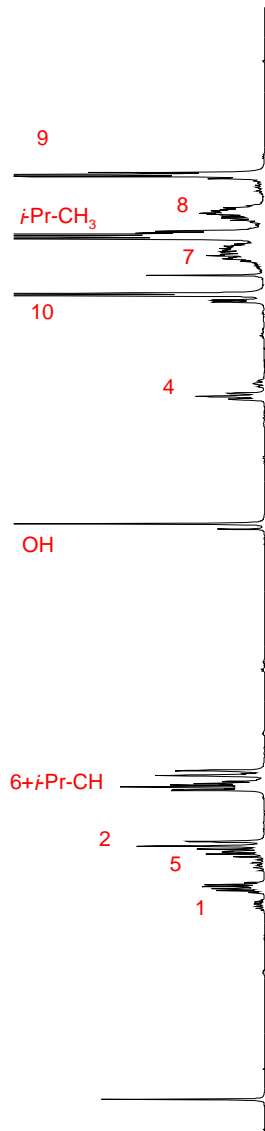
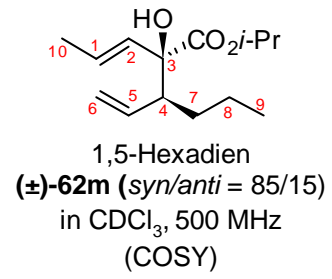


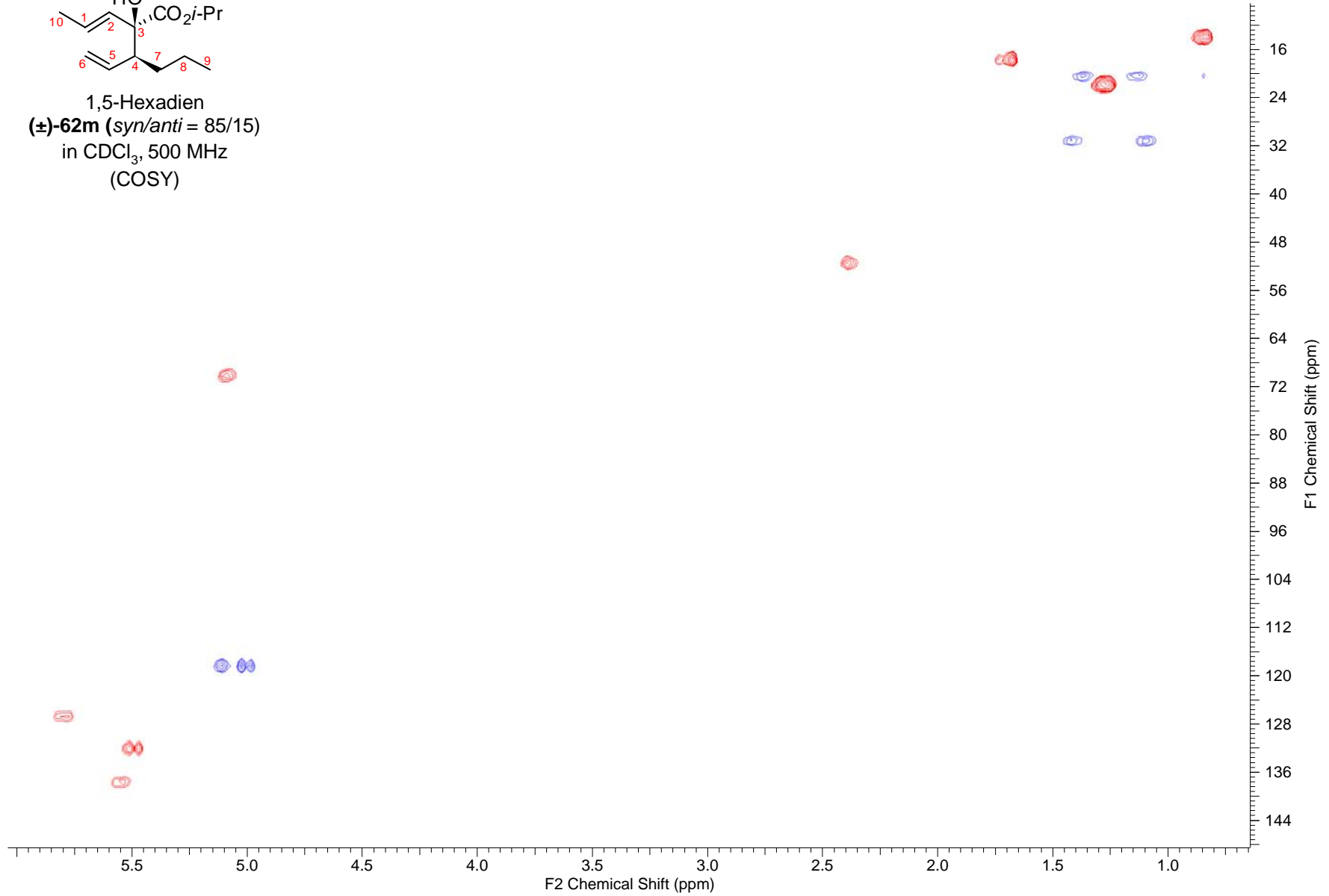
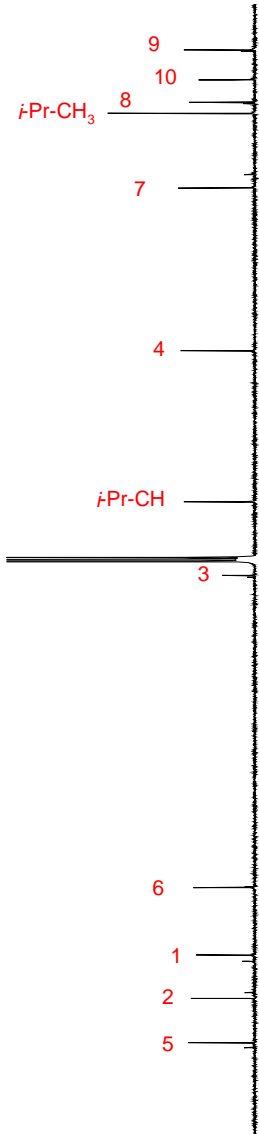
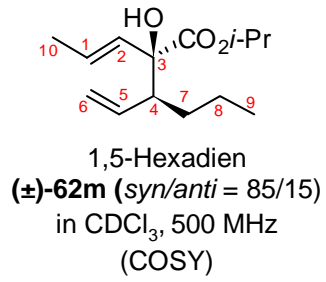
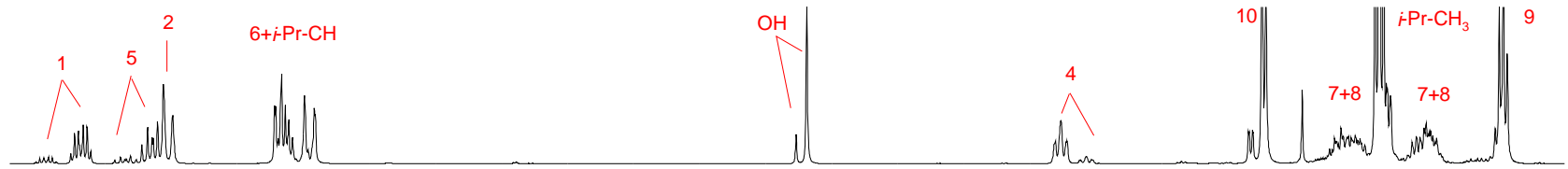


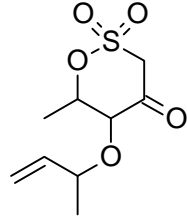
1,5-Hexadien (\pm)-62m
(*syn/anti* = 85/15)
in CDCl₃, 500 MHz



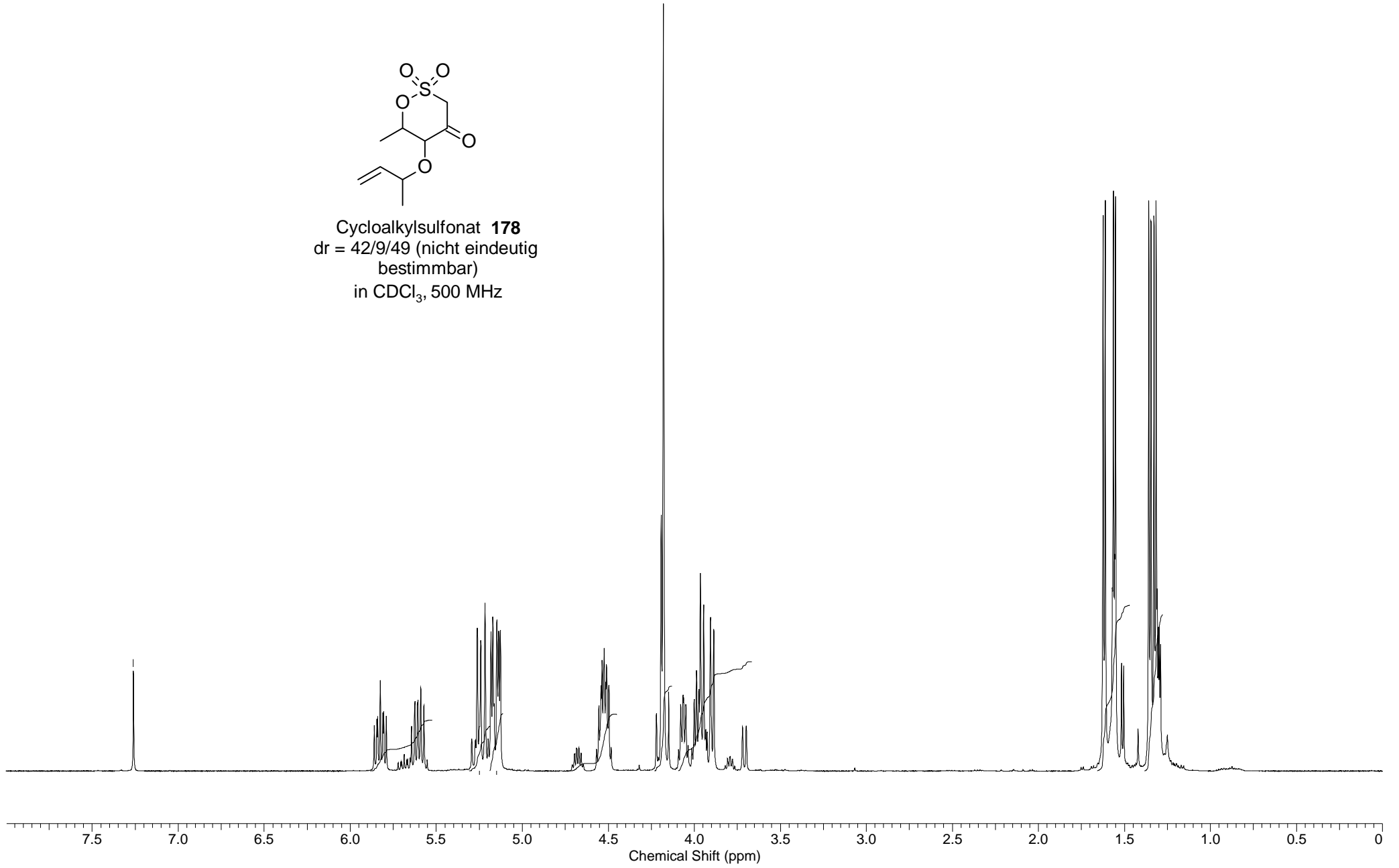


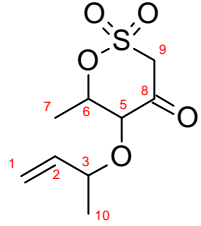
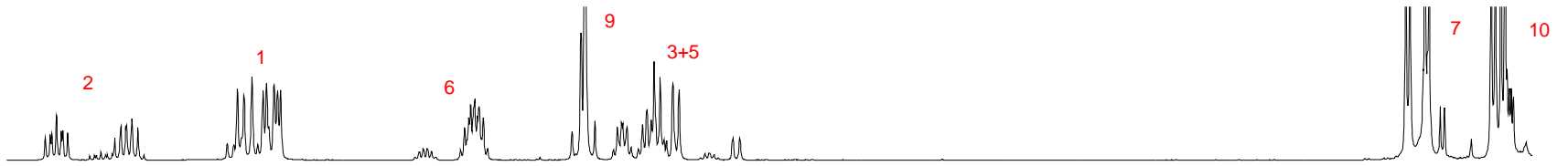




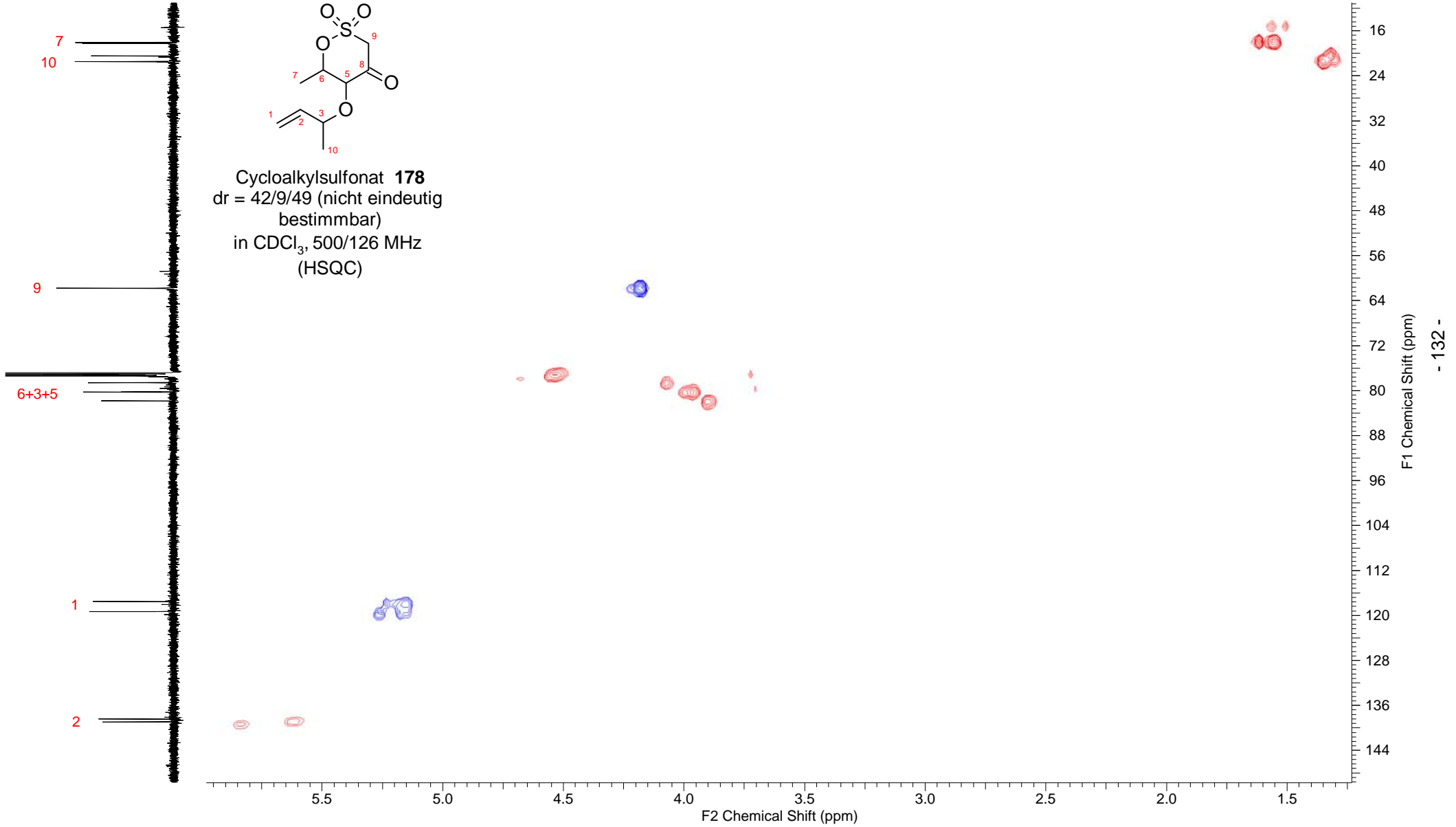


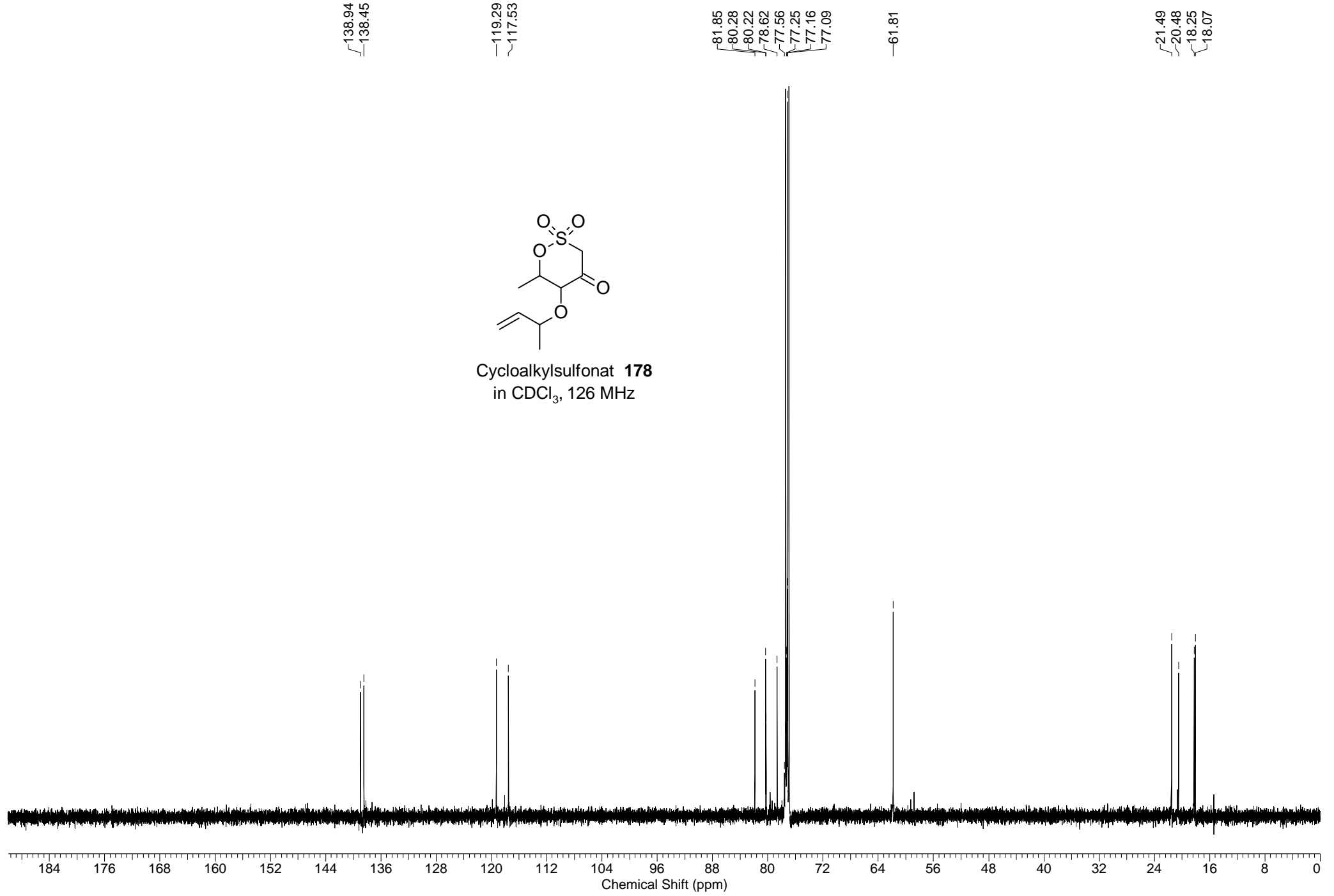
Cycloalkylsulfonat **178**
dr = 42/9/49 (nicht eindeutig
bestimmbar)
in CDCl₃, 500 MHz



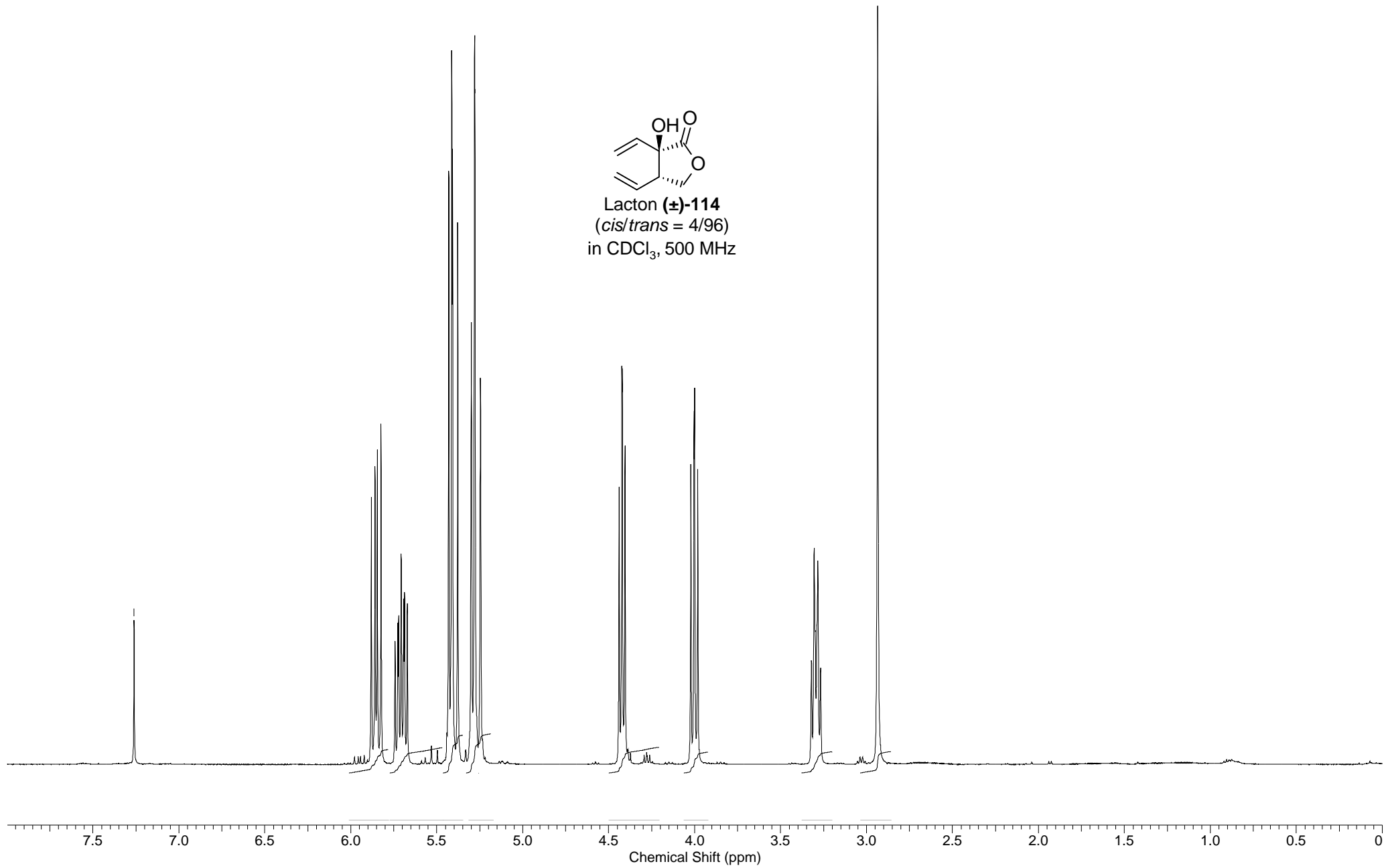
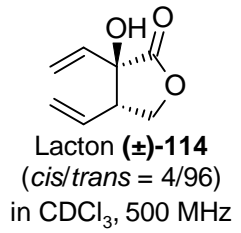


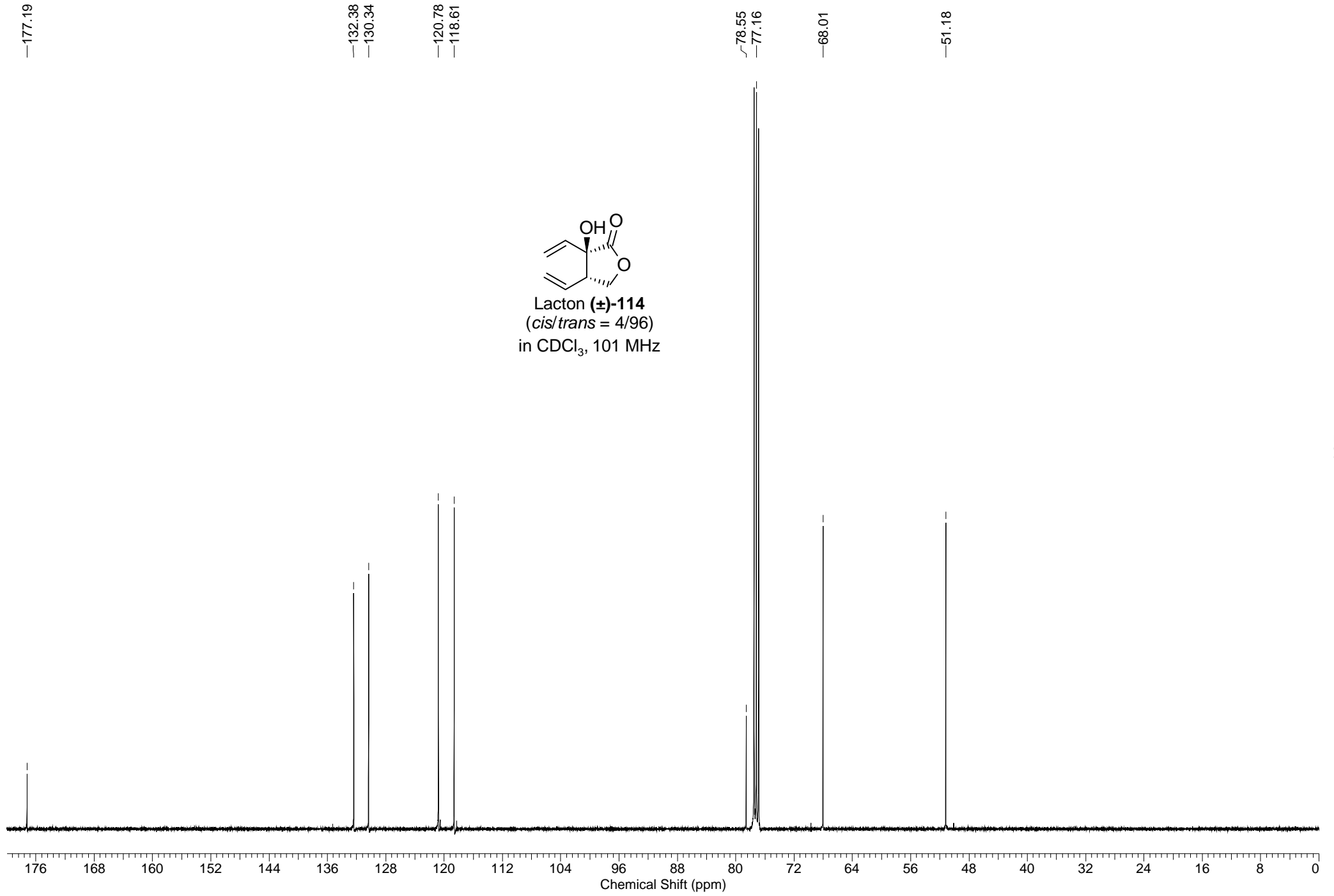
Cycloalkylsulfonat **178**
 dr = 42/9/49 (nicht eindeutig
 bestimmbar)
 in CDCl₃, 500/126 MHz
 (HSQC)

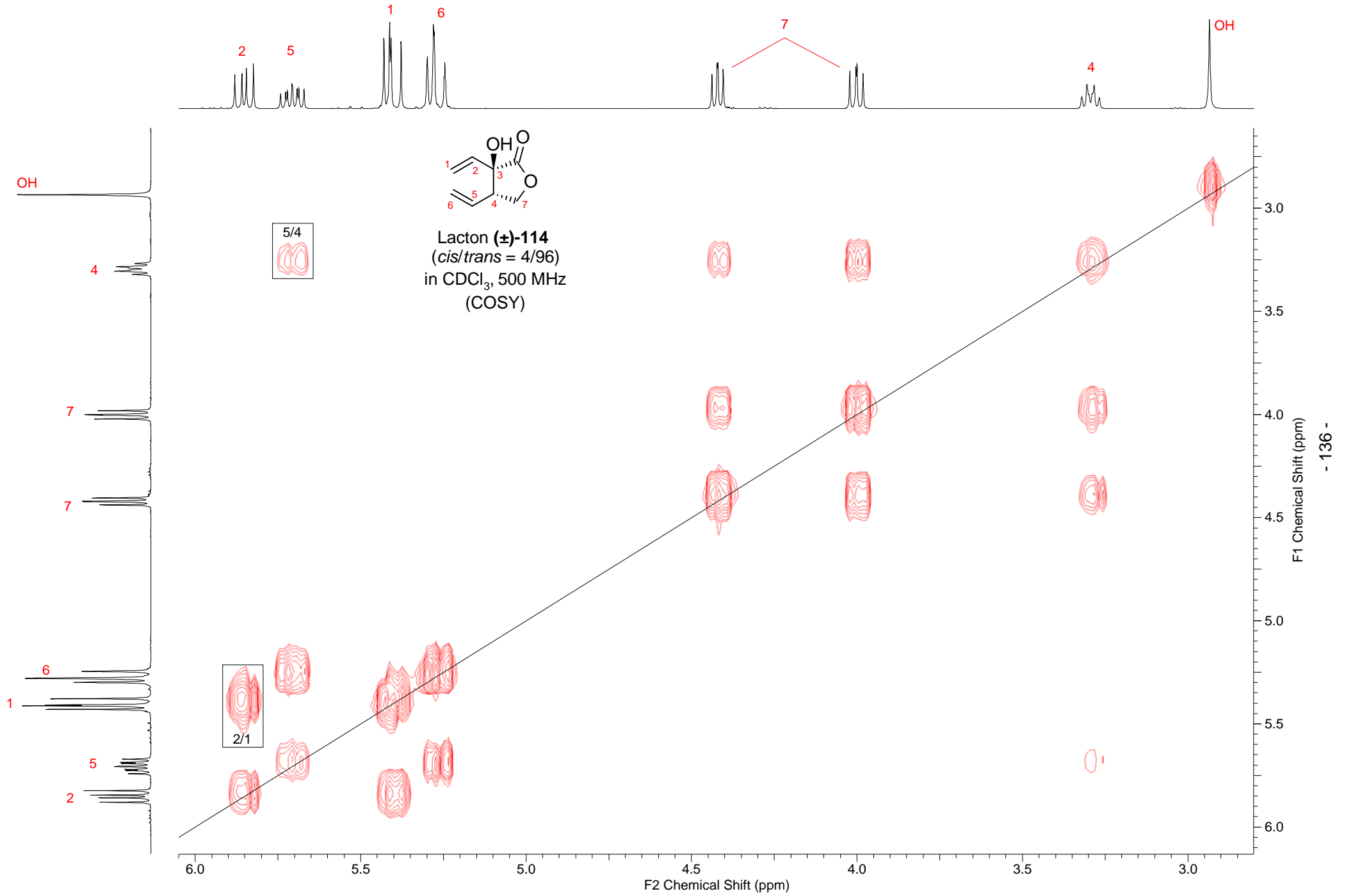


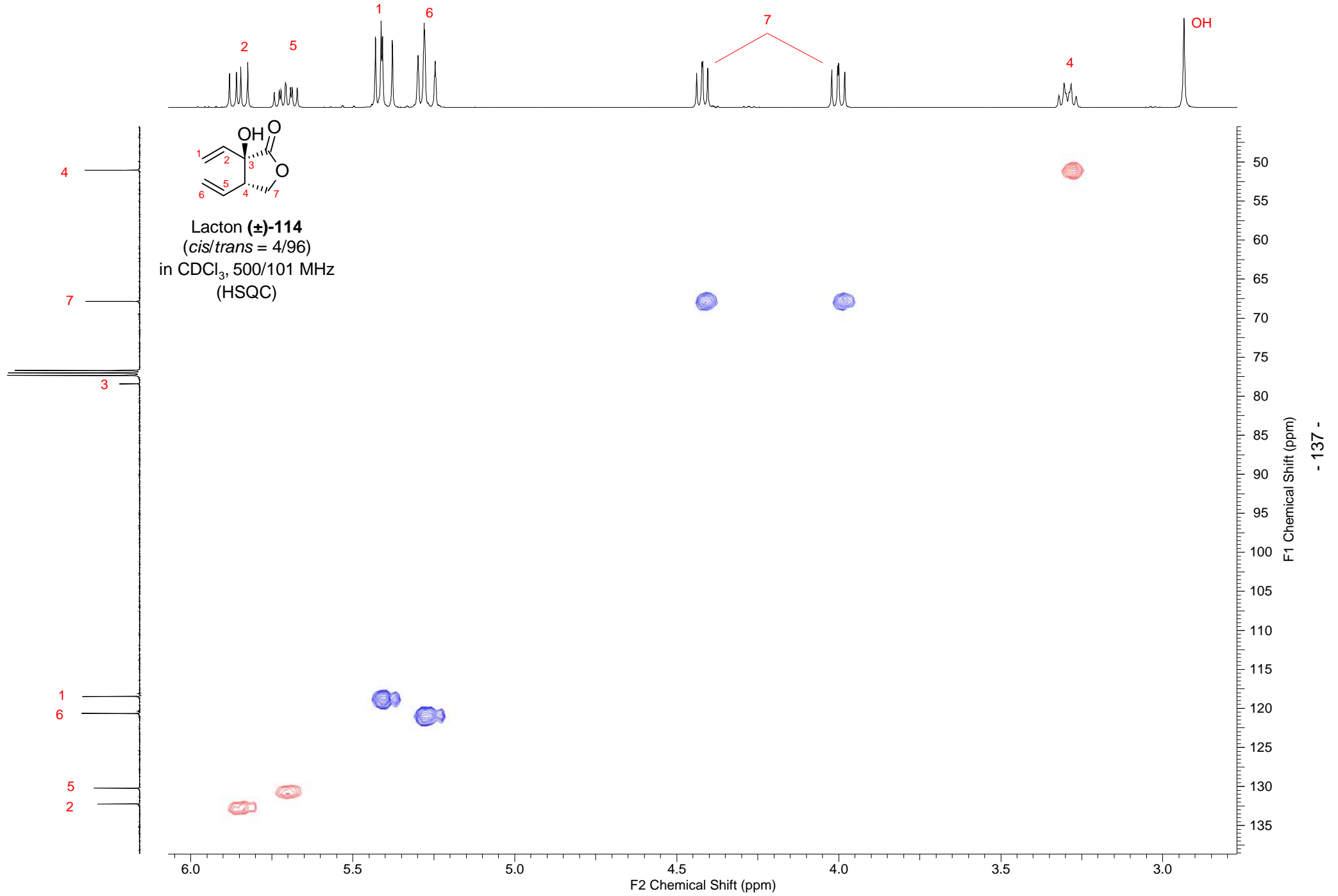


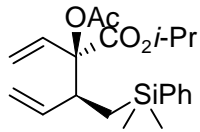
-7.26



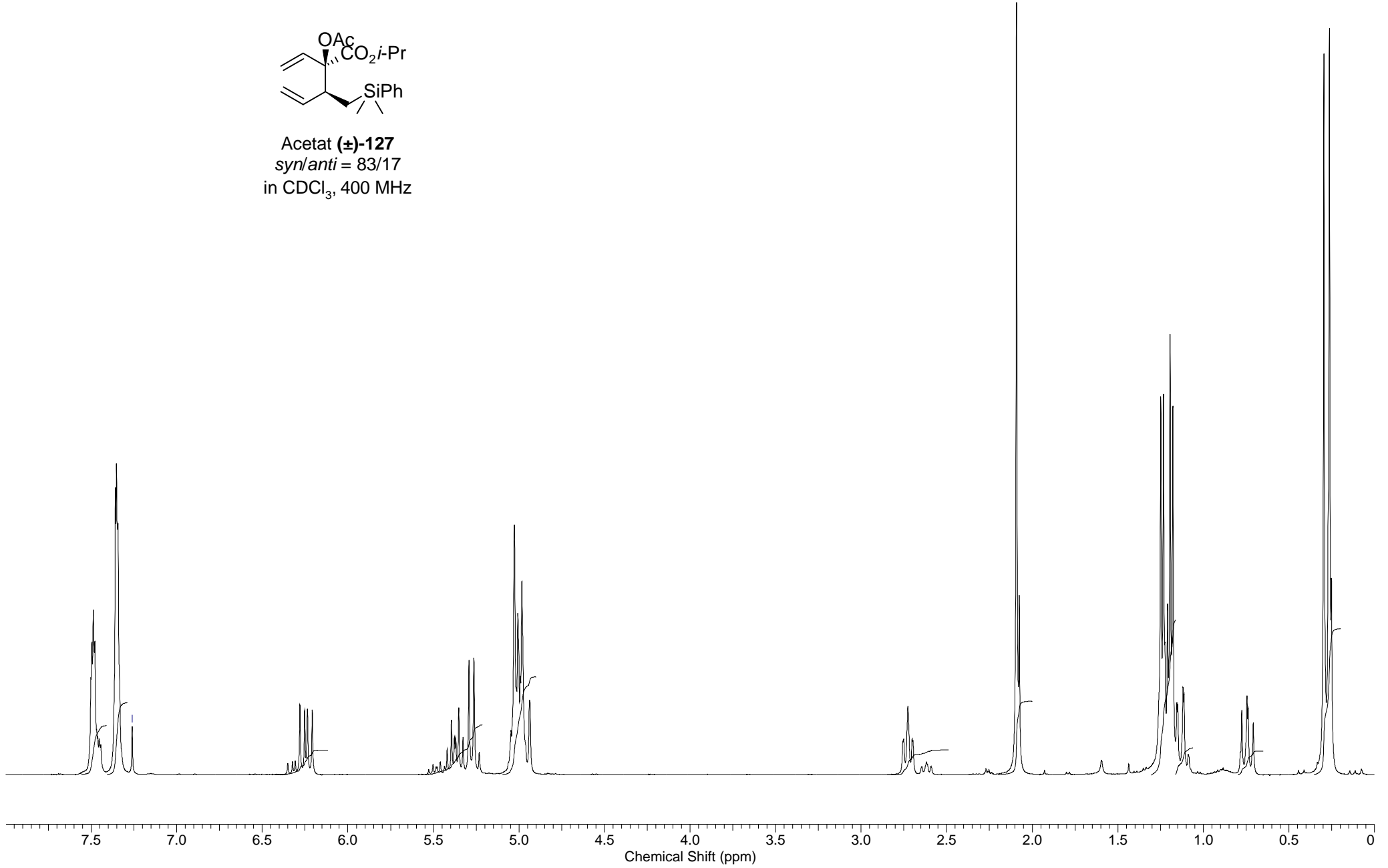


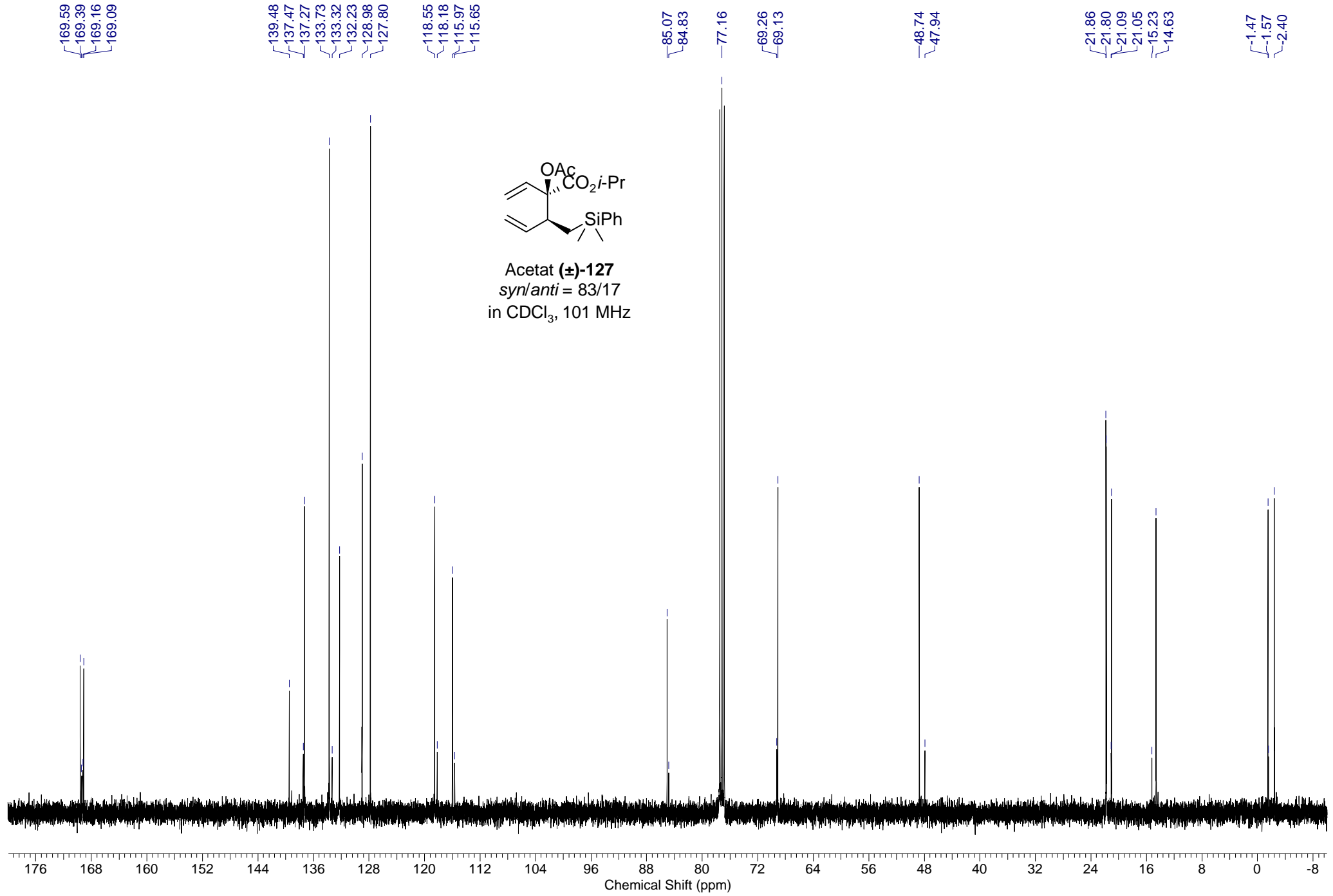


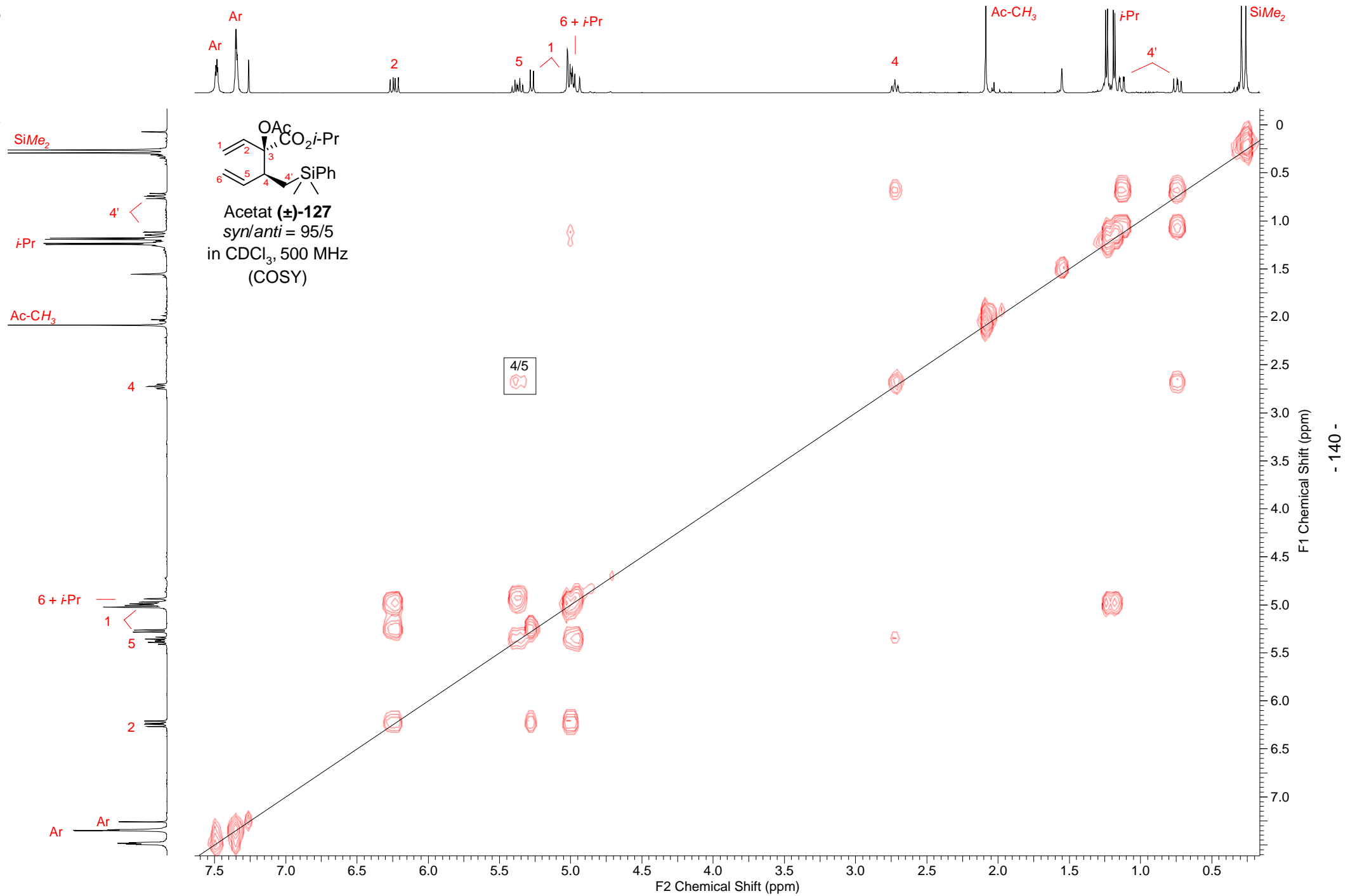


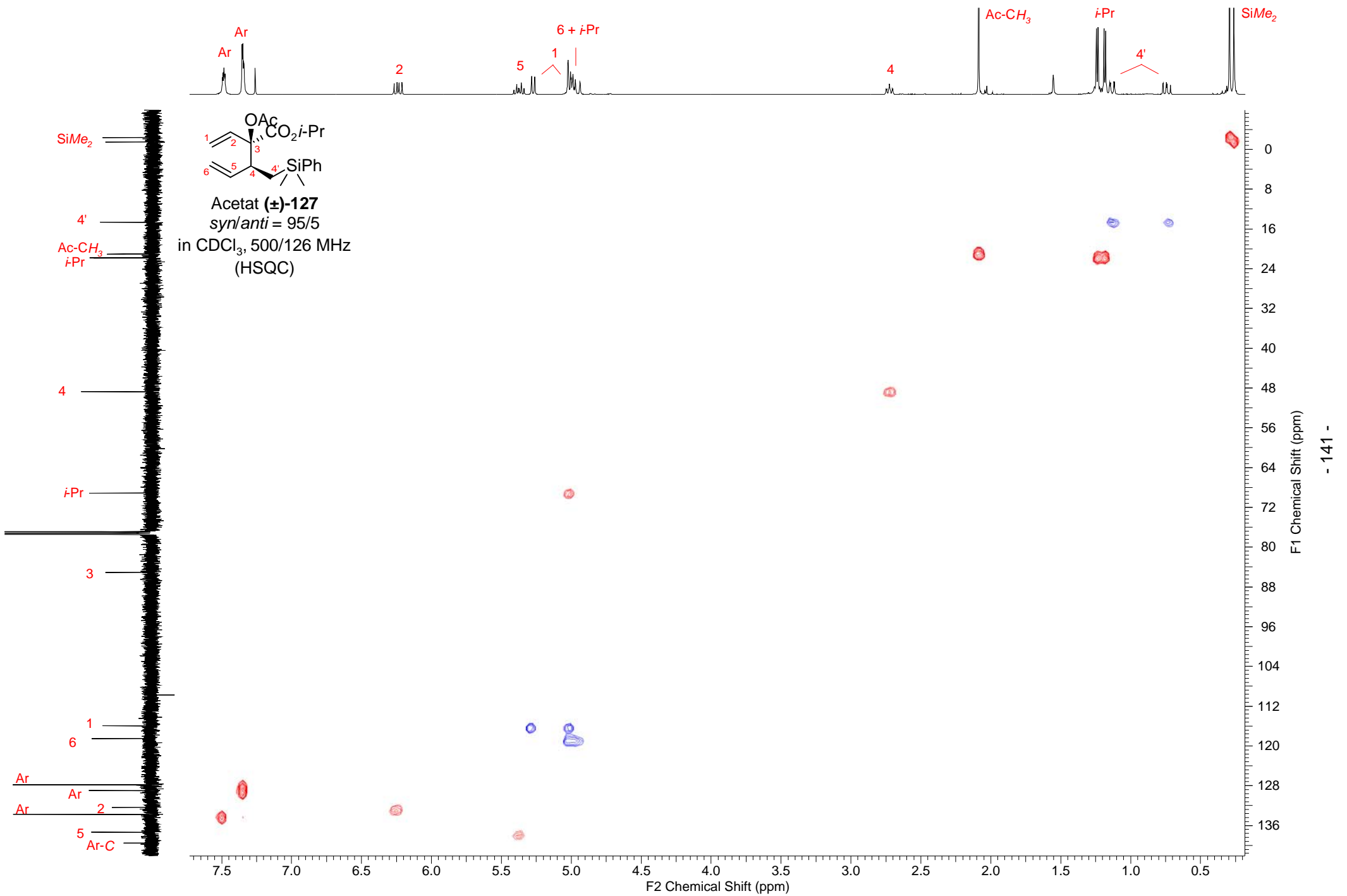


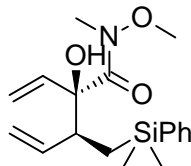
Acetat (\pm)-127
syn/anti = 83/17
in CDCl₃, 400 MHz



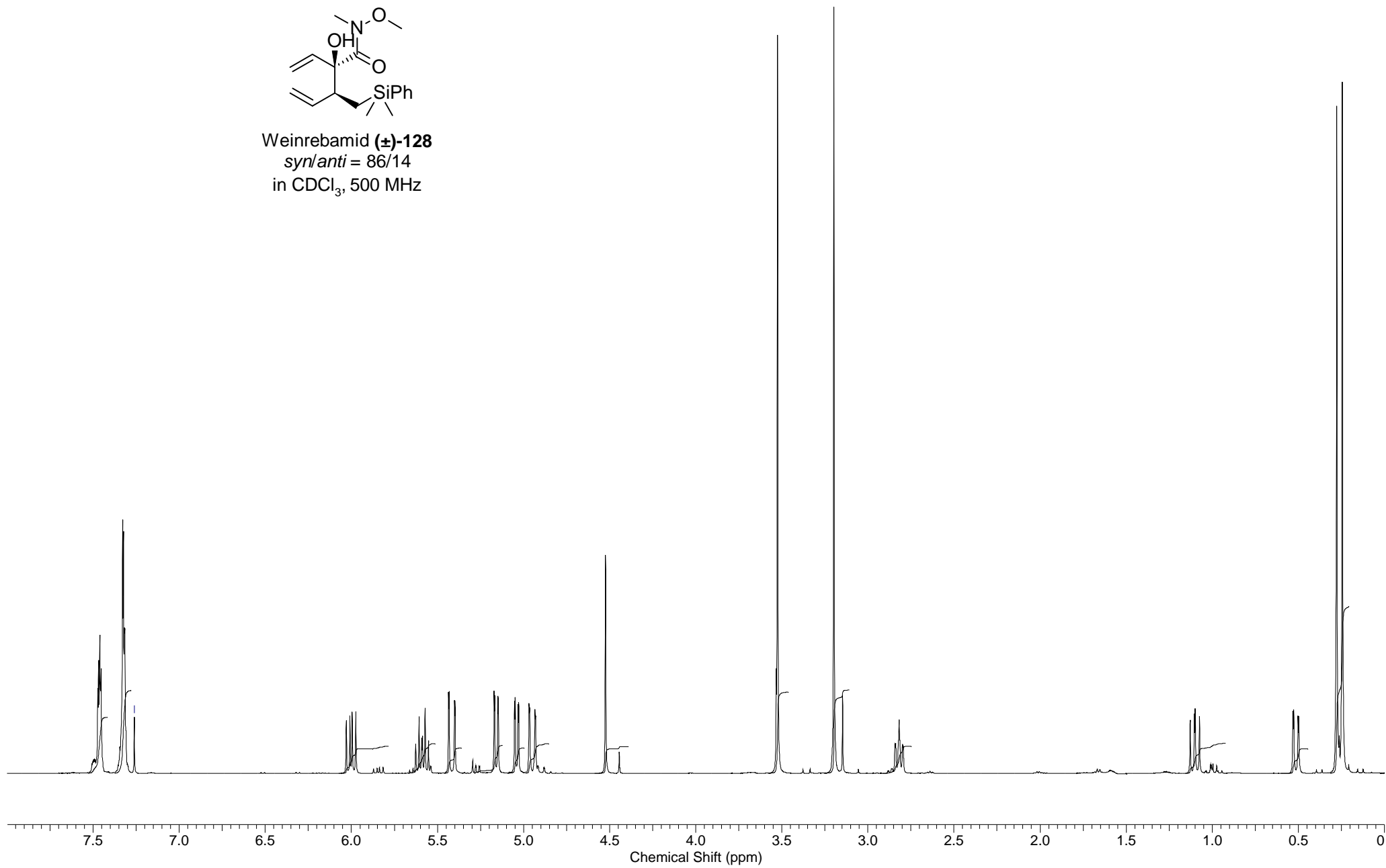


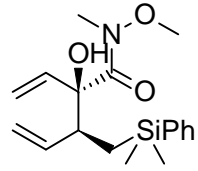




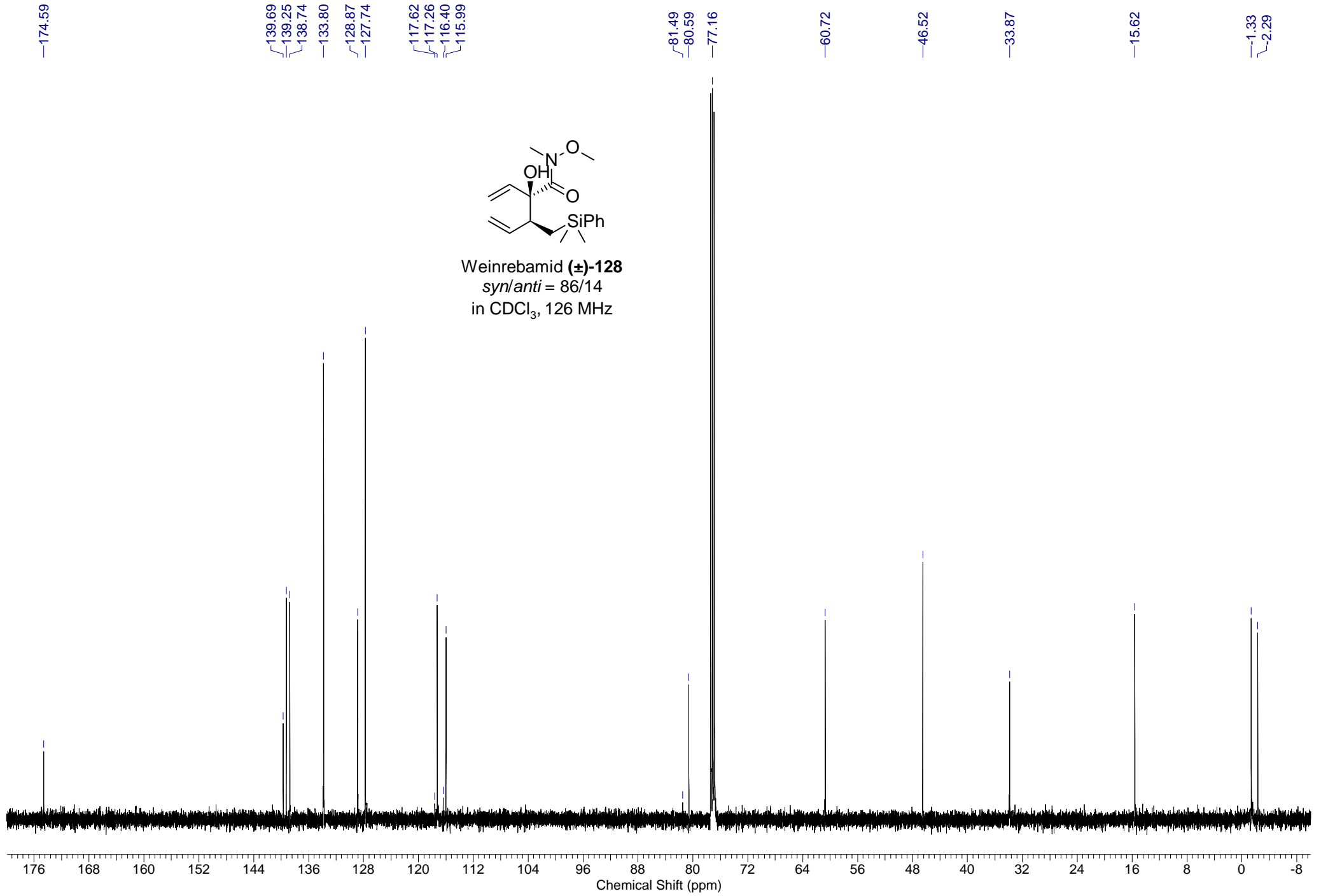


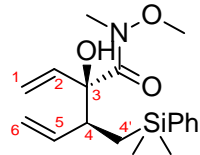
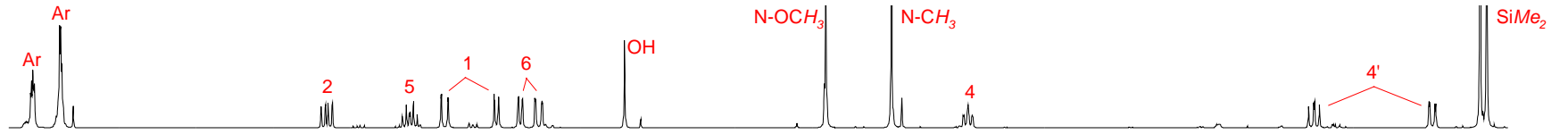
Weinrebamid (\pm)-128
syn/anti = 86/14
in CDCl₃, 500 MHz





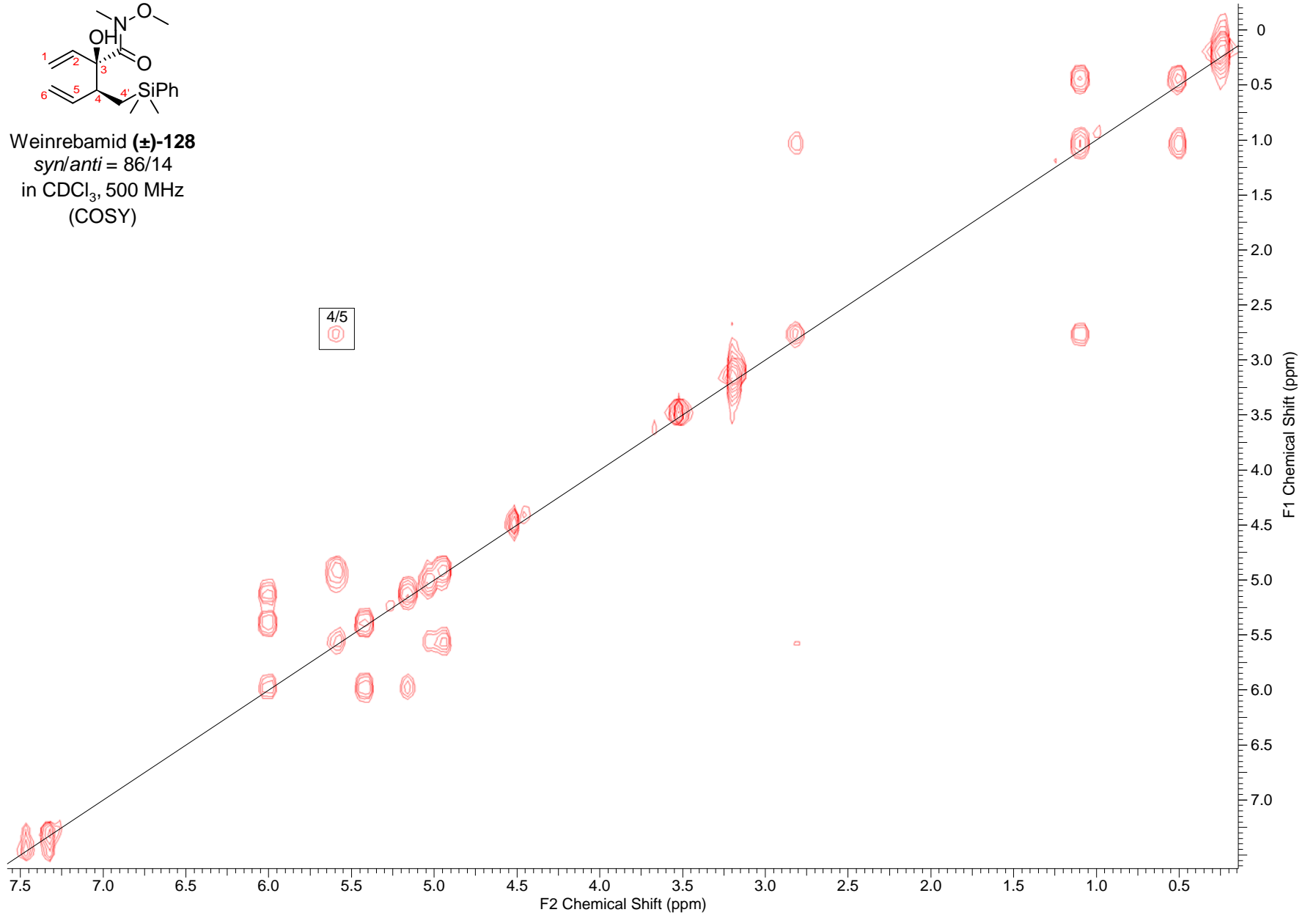
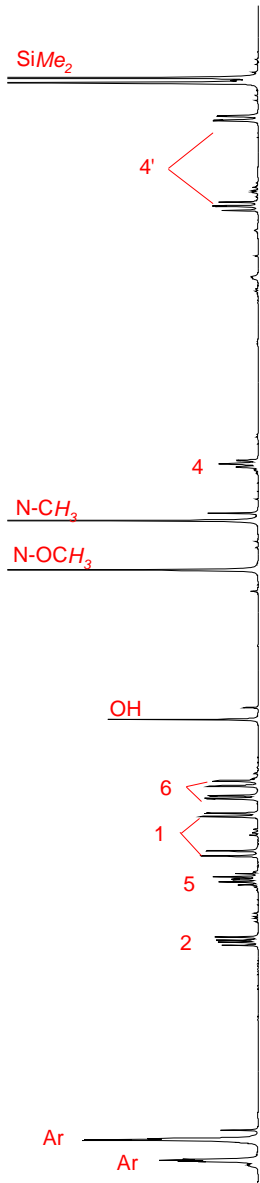
Weinrebamid (\pm)-128
syn/anti = 86/14
in CDCl₃, 126 MHz

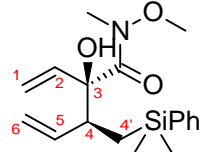
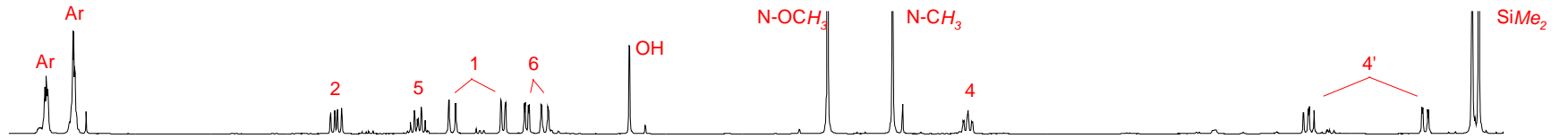




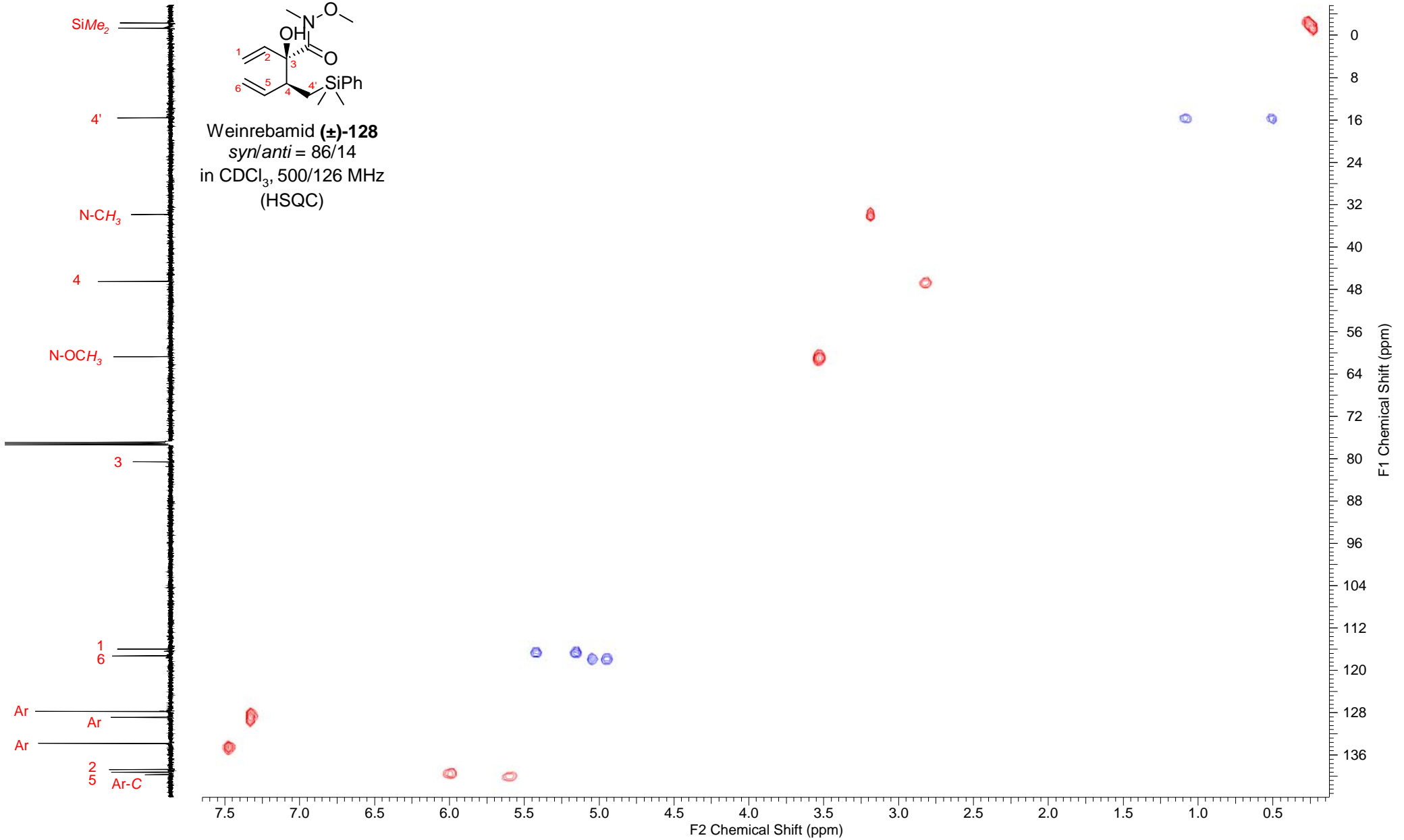
Weinrebamid (\pm)-128
syn/anti = 86/14
 in CDCl_3 , 500 MHz
 (COSY)

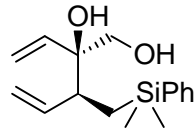
4/5



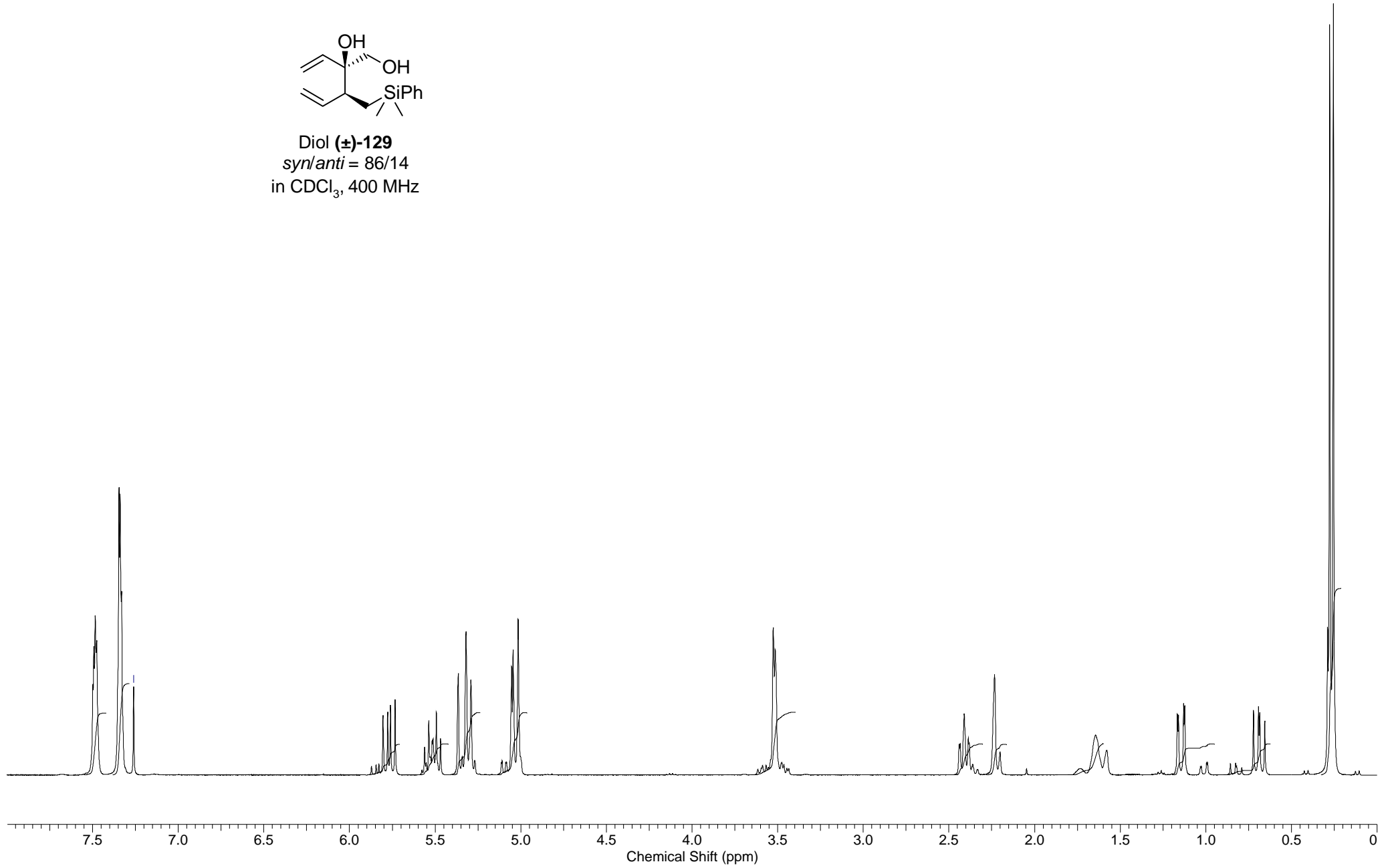


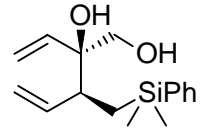
Weinrebamid (\pm)-128
syn/anti = 86/14
 in CDCl₃, 500/126 MHz
 (HSQC)



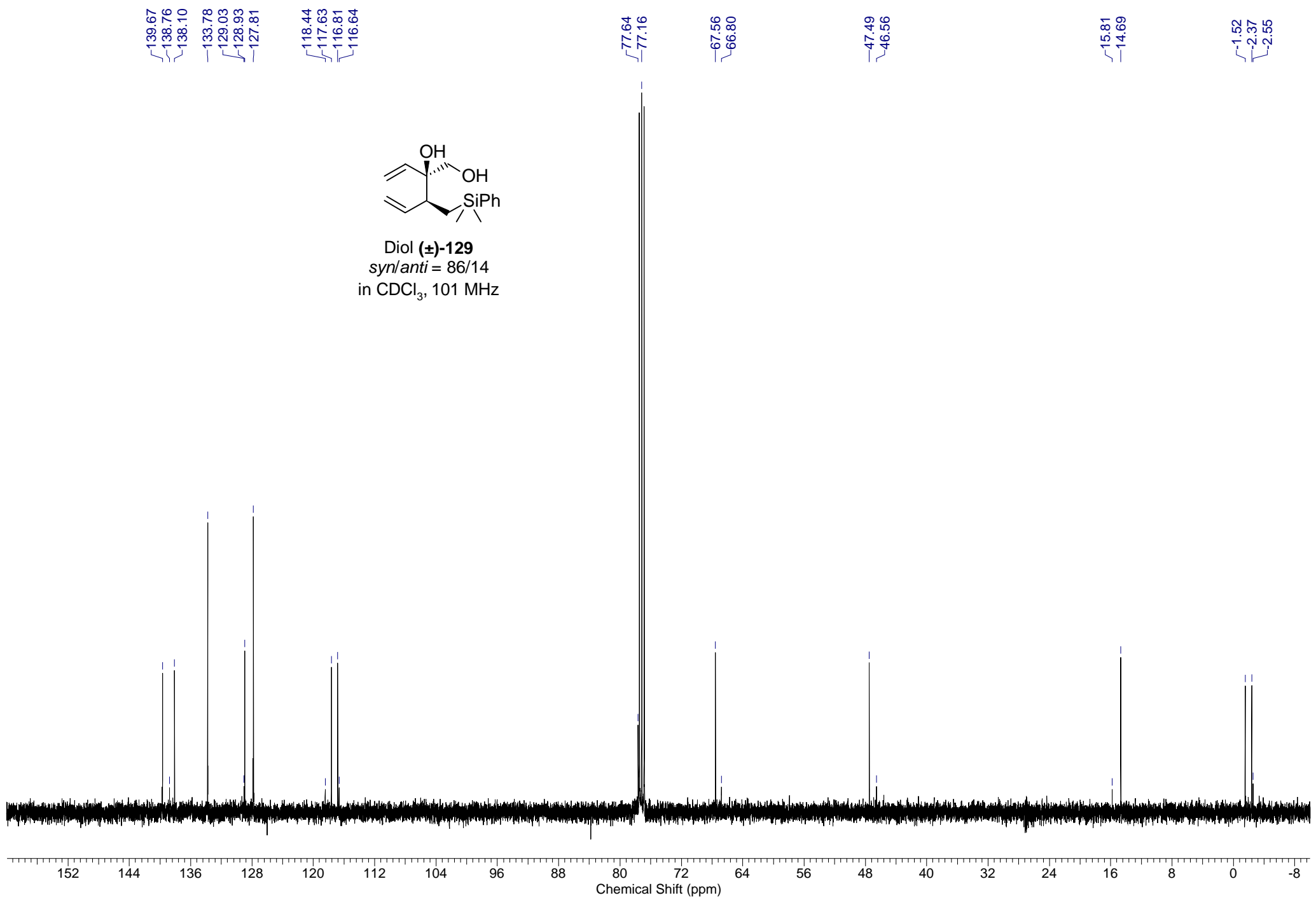


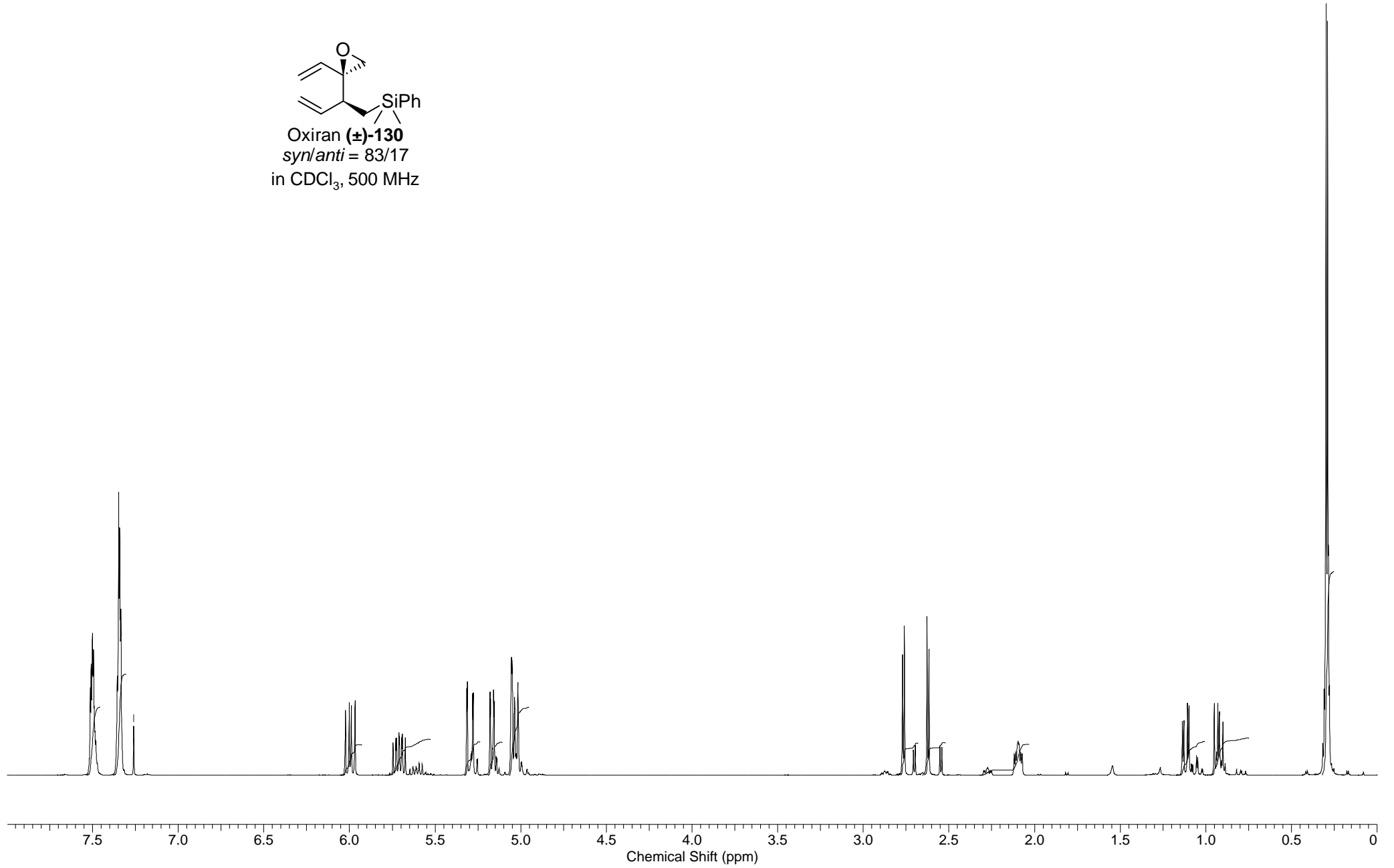
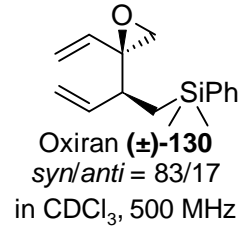
Diol (\pm)-129
syn/anti = 86/14
in CDCl₃, 400 MHz

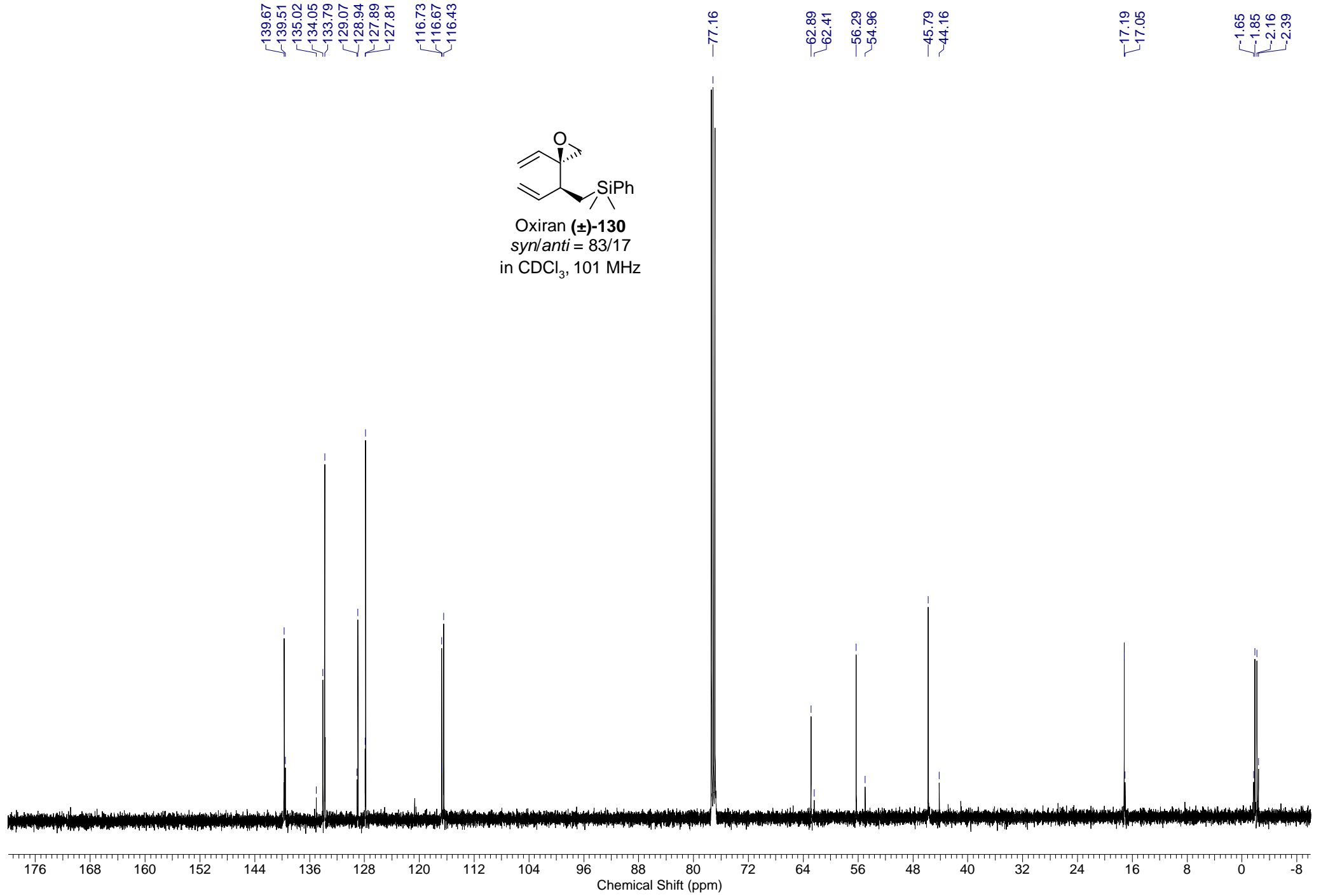


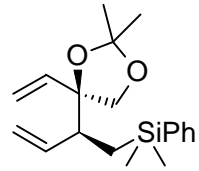


Diol (\pm)-129
syn/anti = 86/14
in CDCl₃, 101 MHz

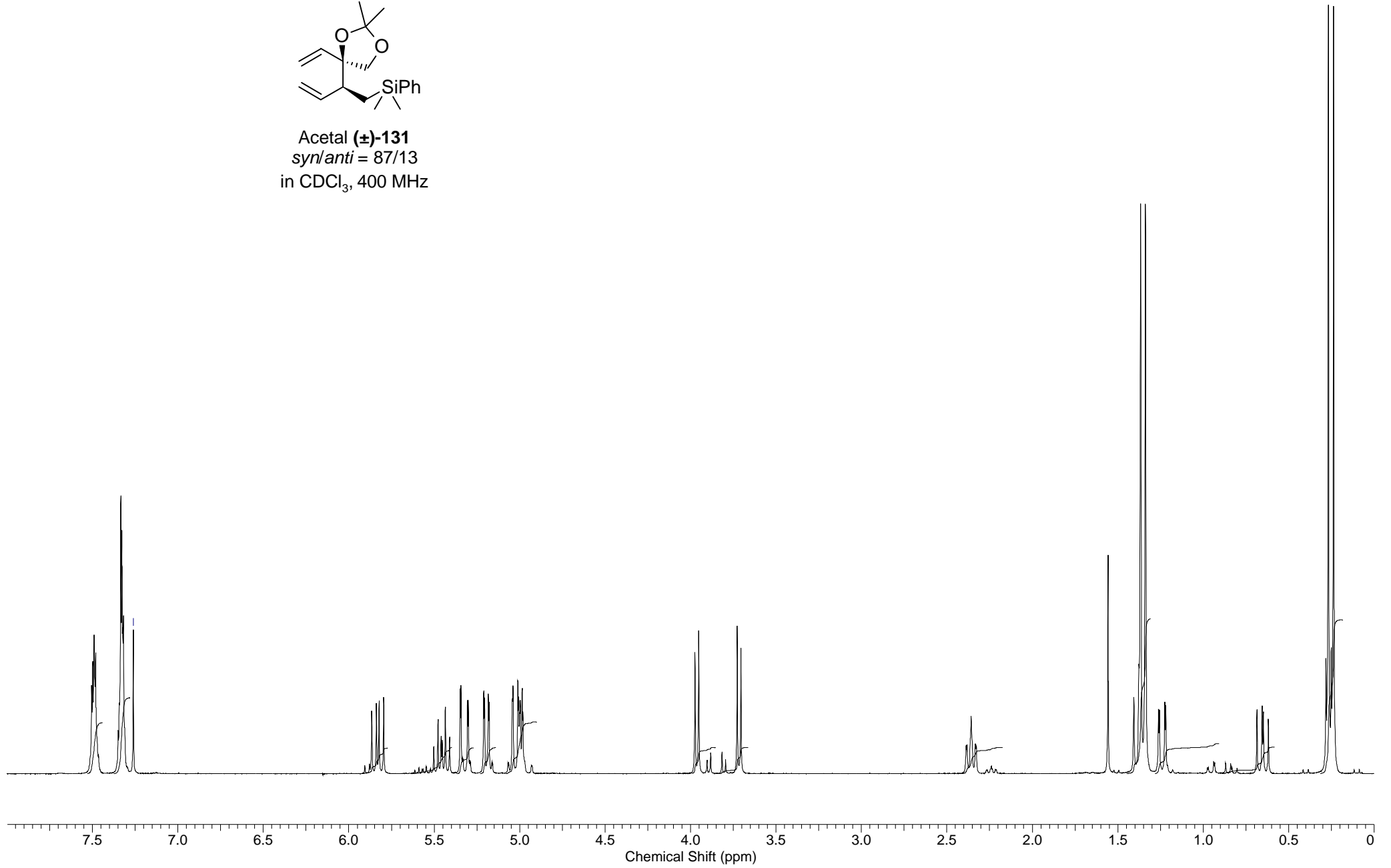


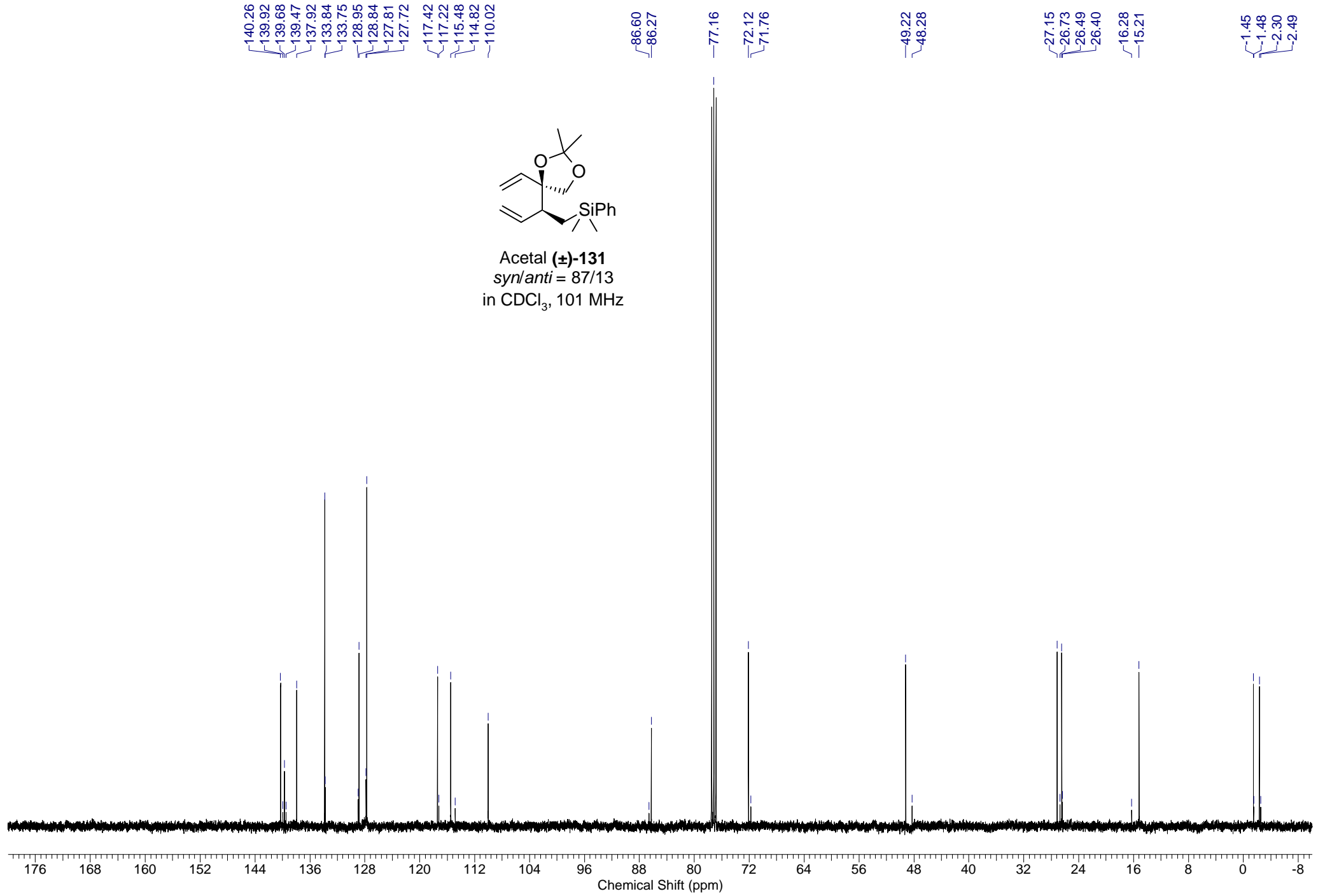




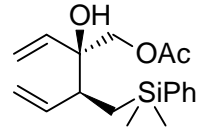


Acetal (\pm)-131
syn/anti = 87/13
in CDCl₃, 400 MHz

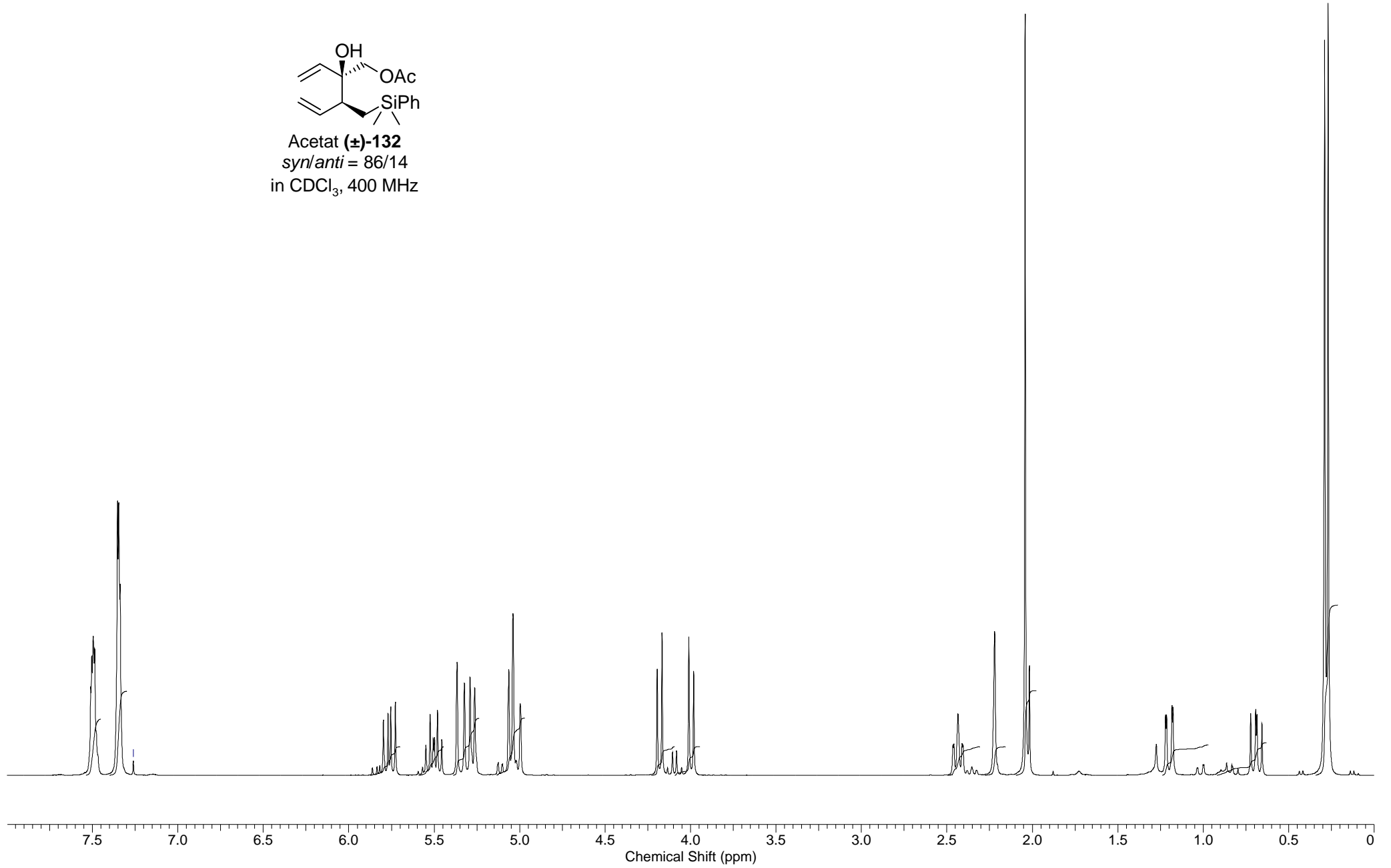


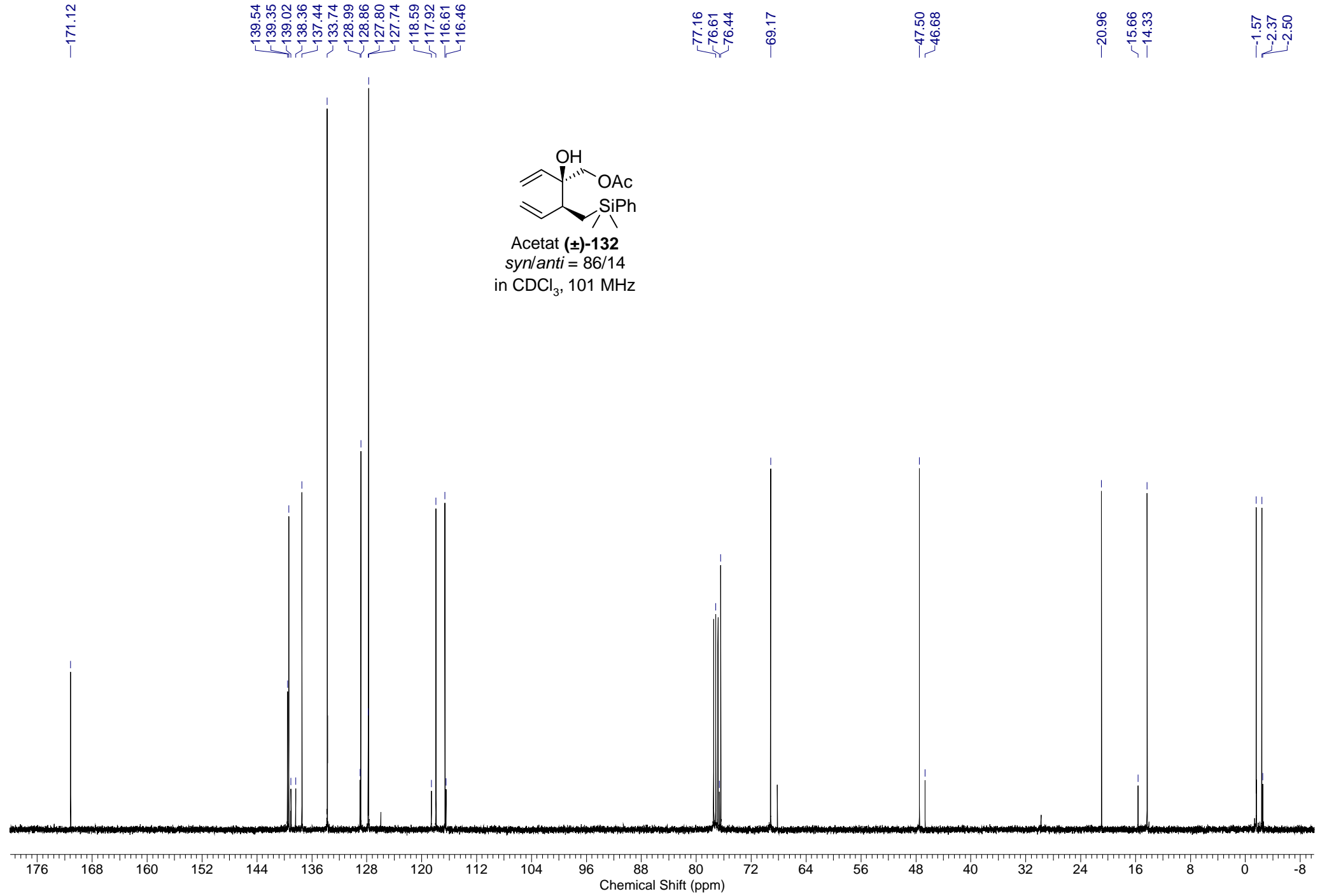


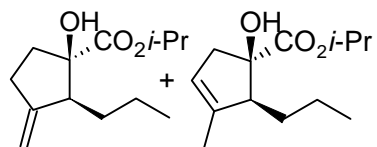
-7.26



Acetat (\pm)-**132**
syn/anti = 86/14
in CDCl₃, 400 MHz





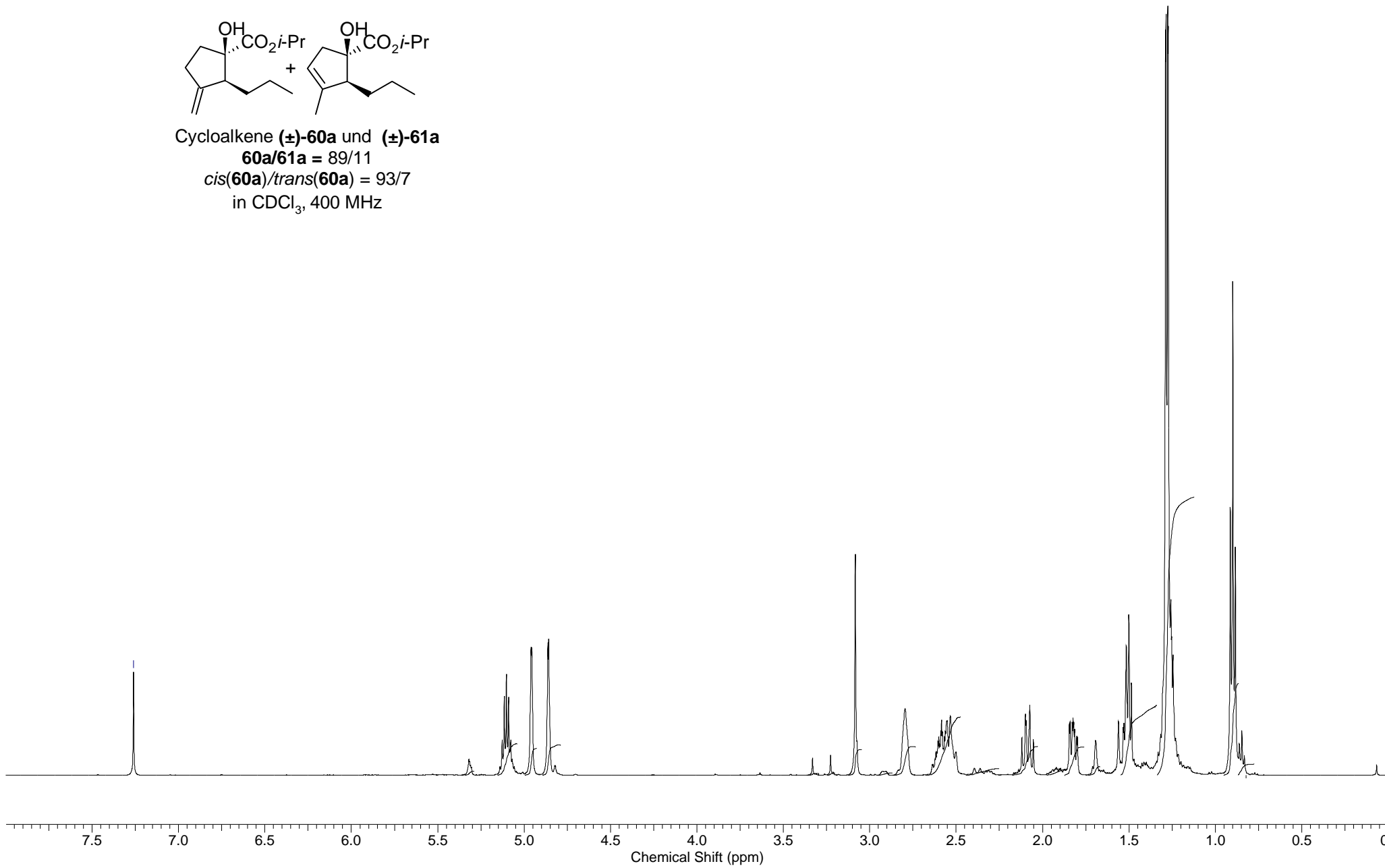


Cycloalkene (±)-**60a** und (±)-**61a**

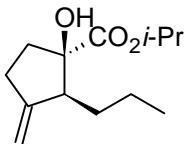
60a/61a = 89/11

cis(**60a**)/*trans*(**60a**) = 93/7

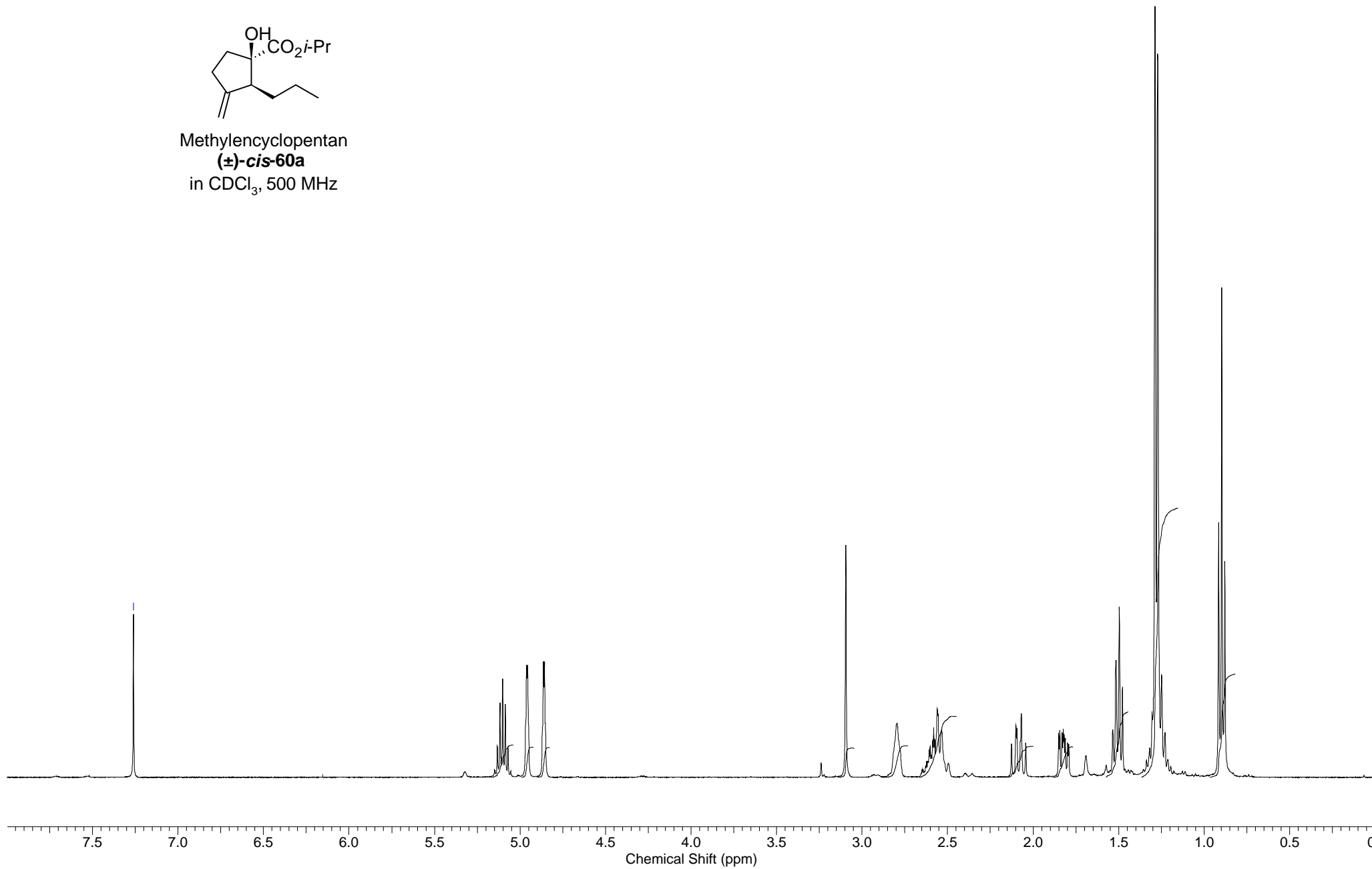
in CDCl₃, 400 MHz

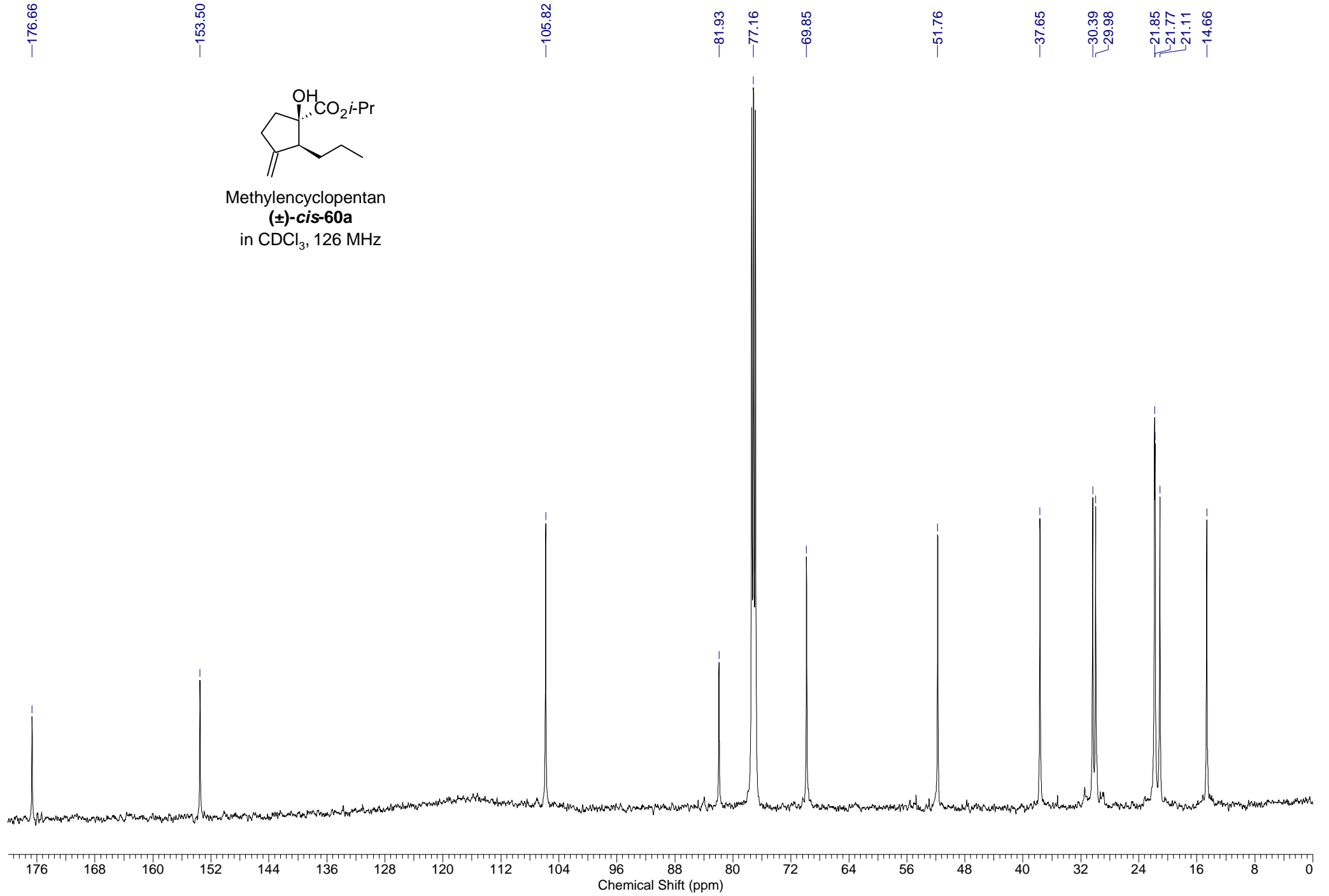


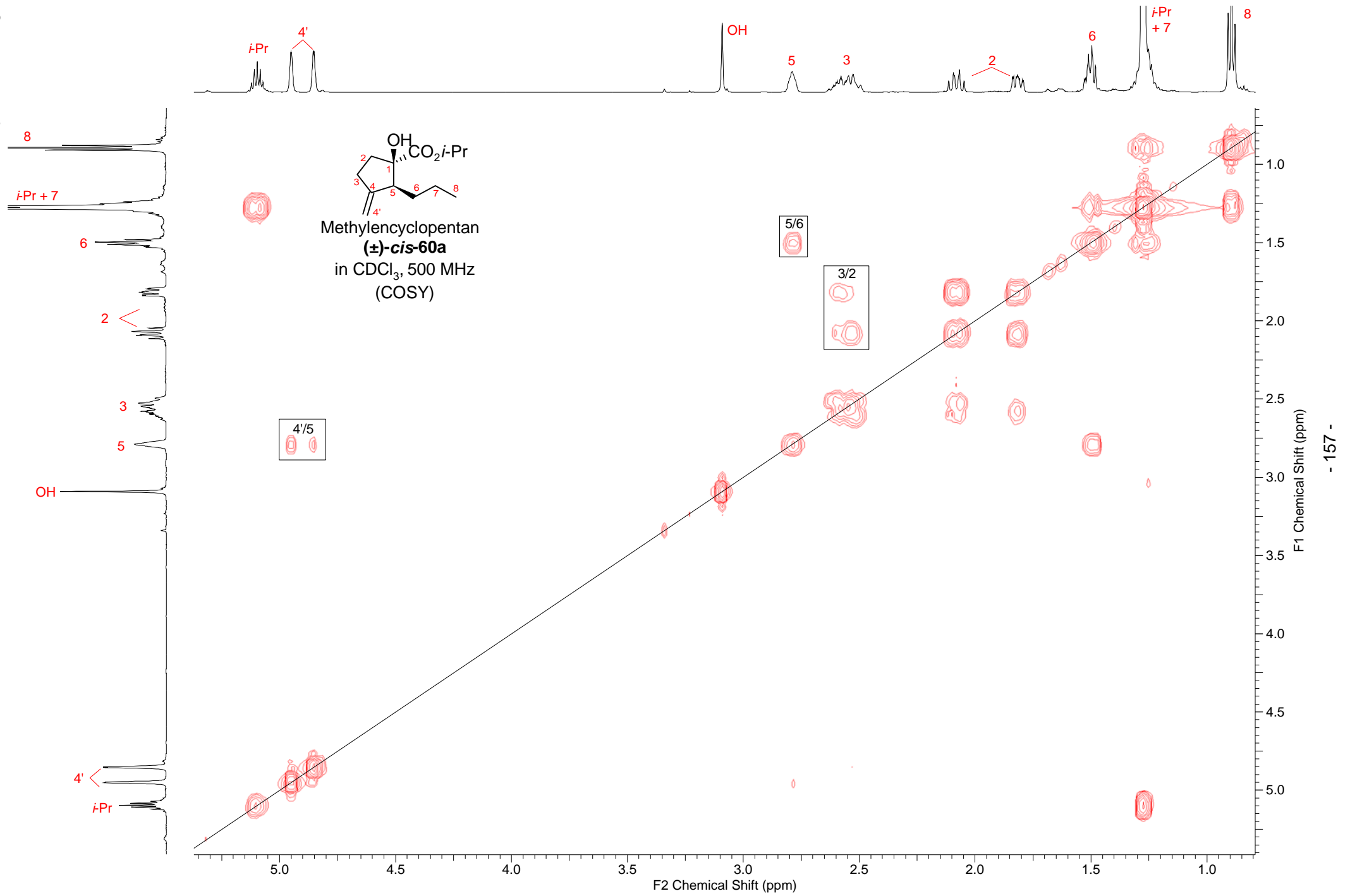
-7.26

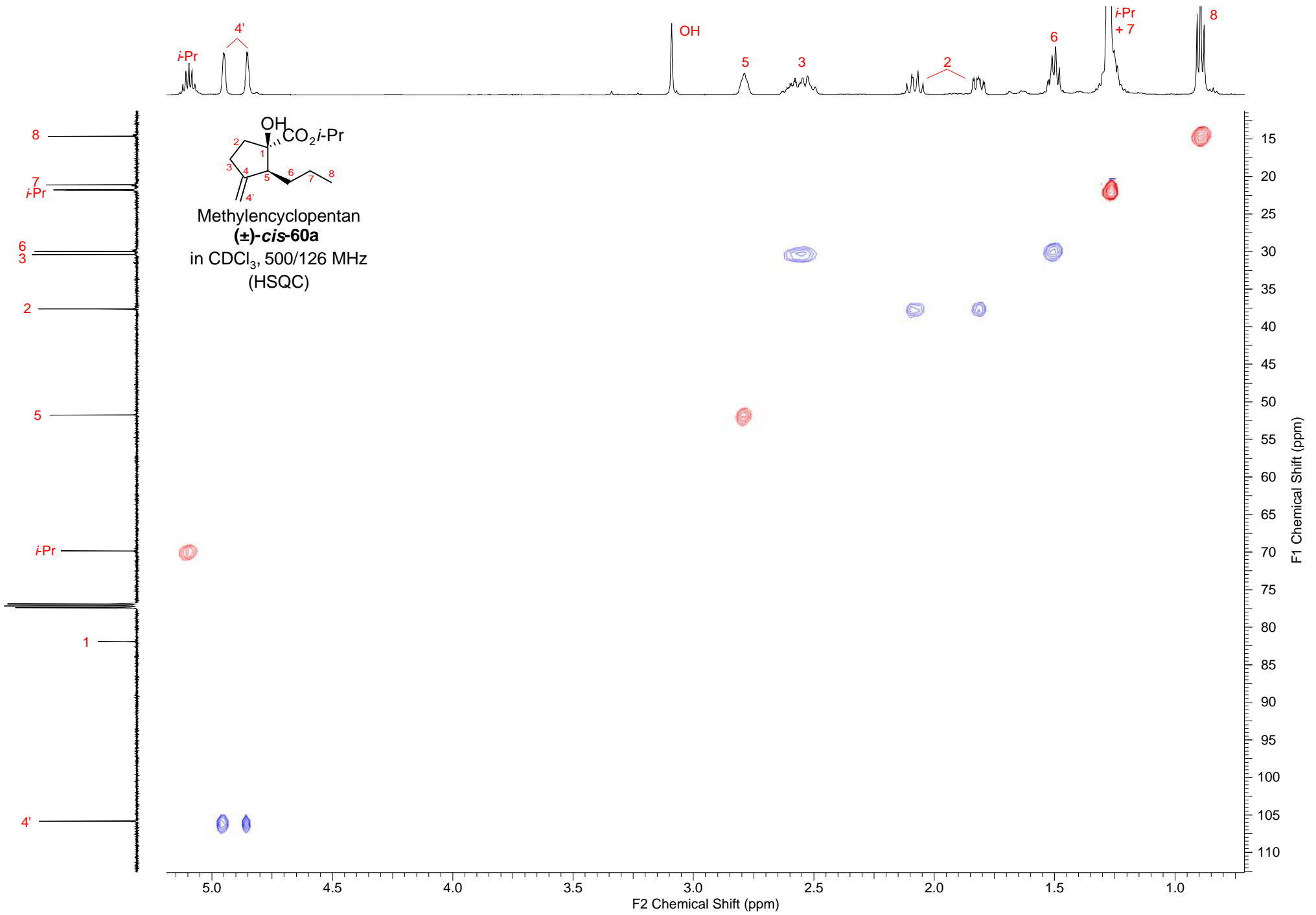


Methylcyclopentan
(±)-cis-60a
in CDCl₃, 500 MHz

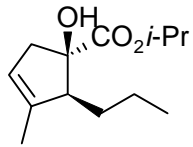




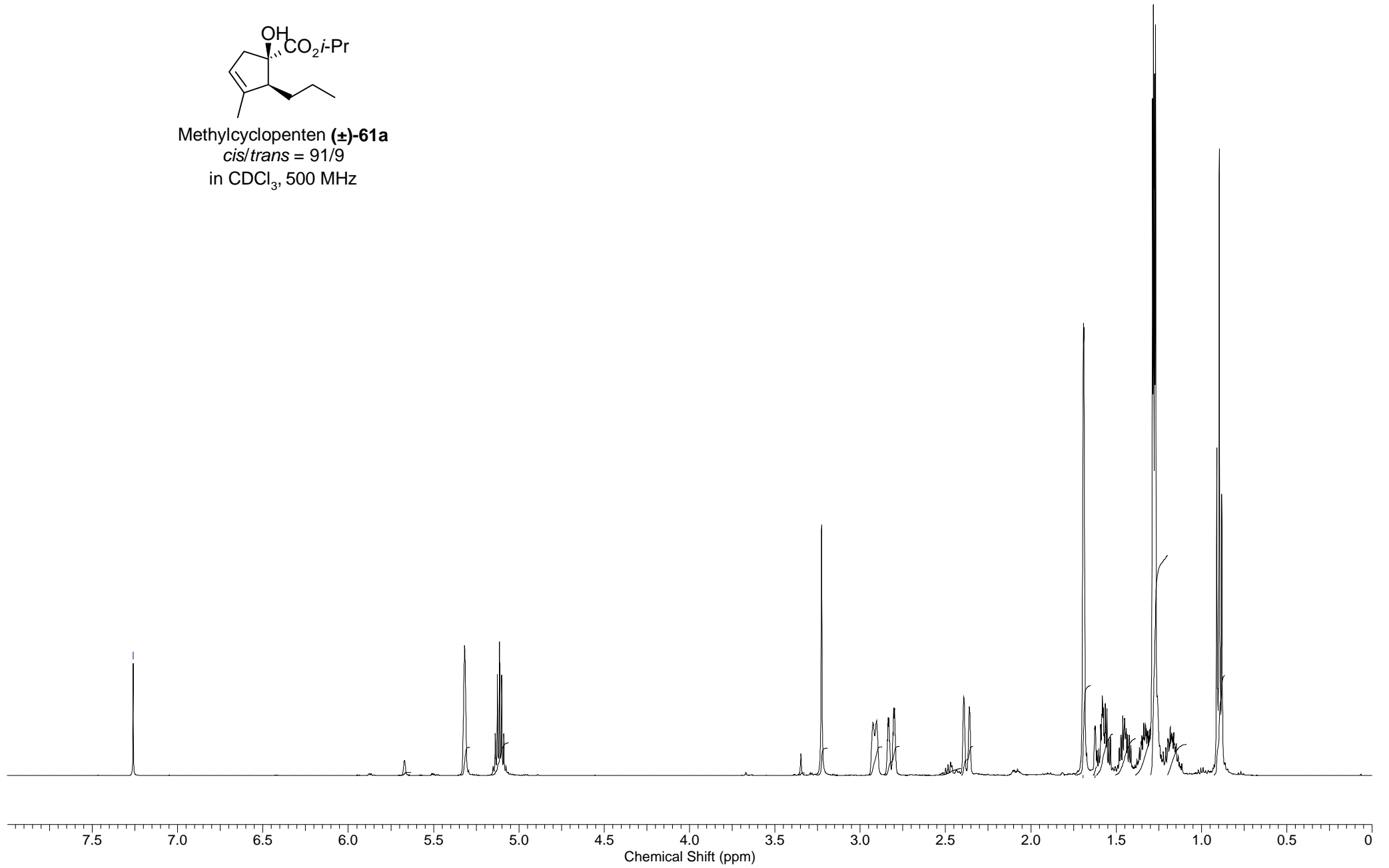


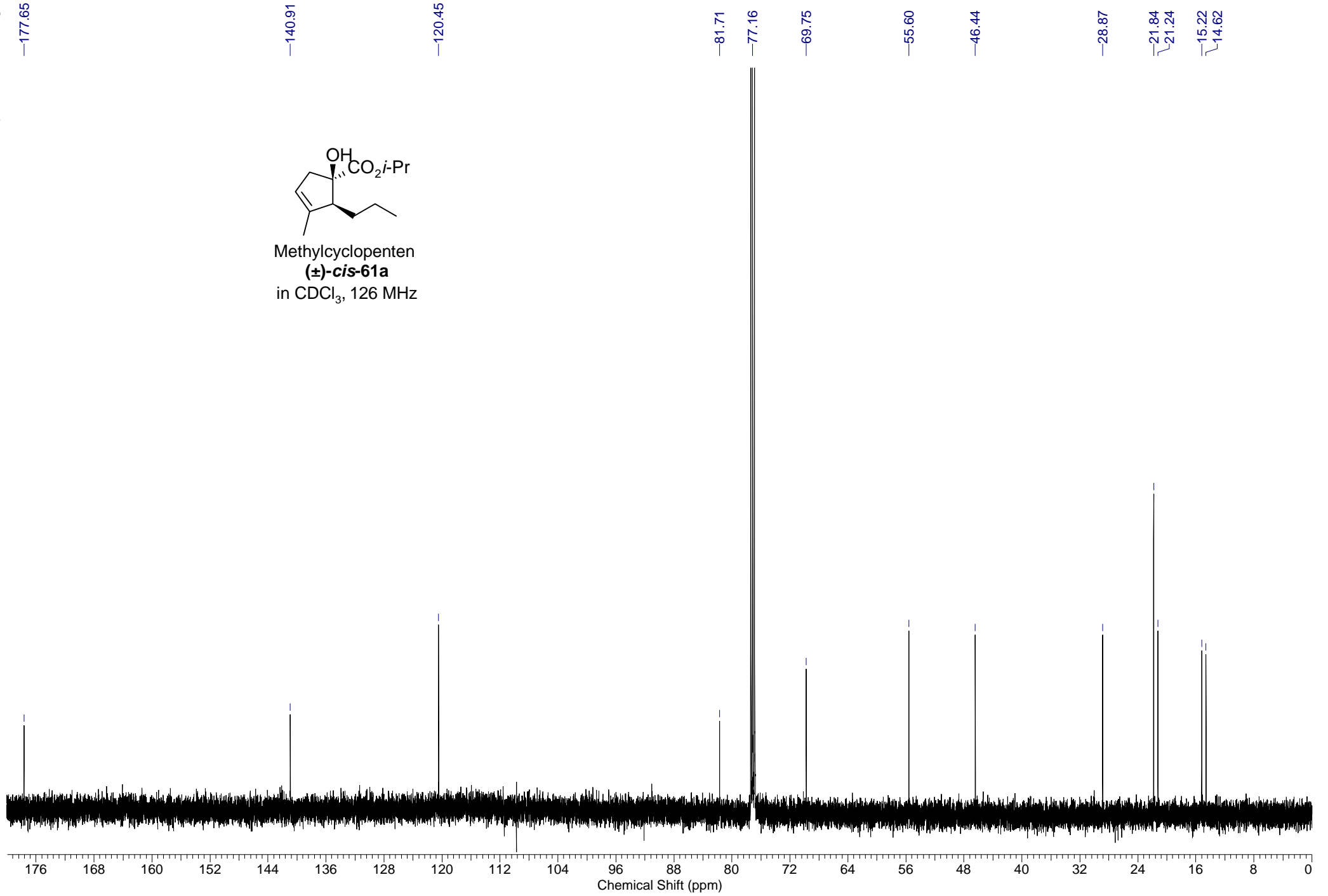


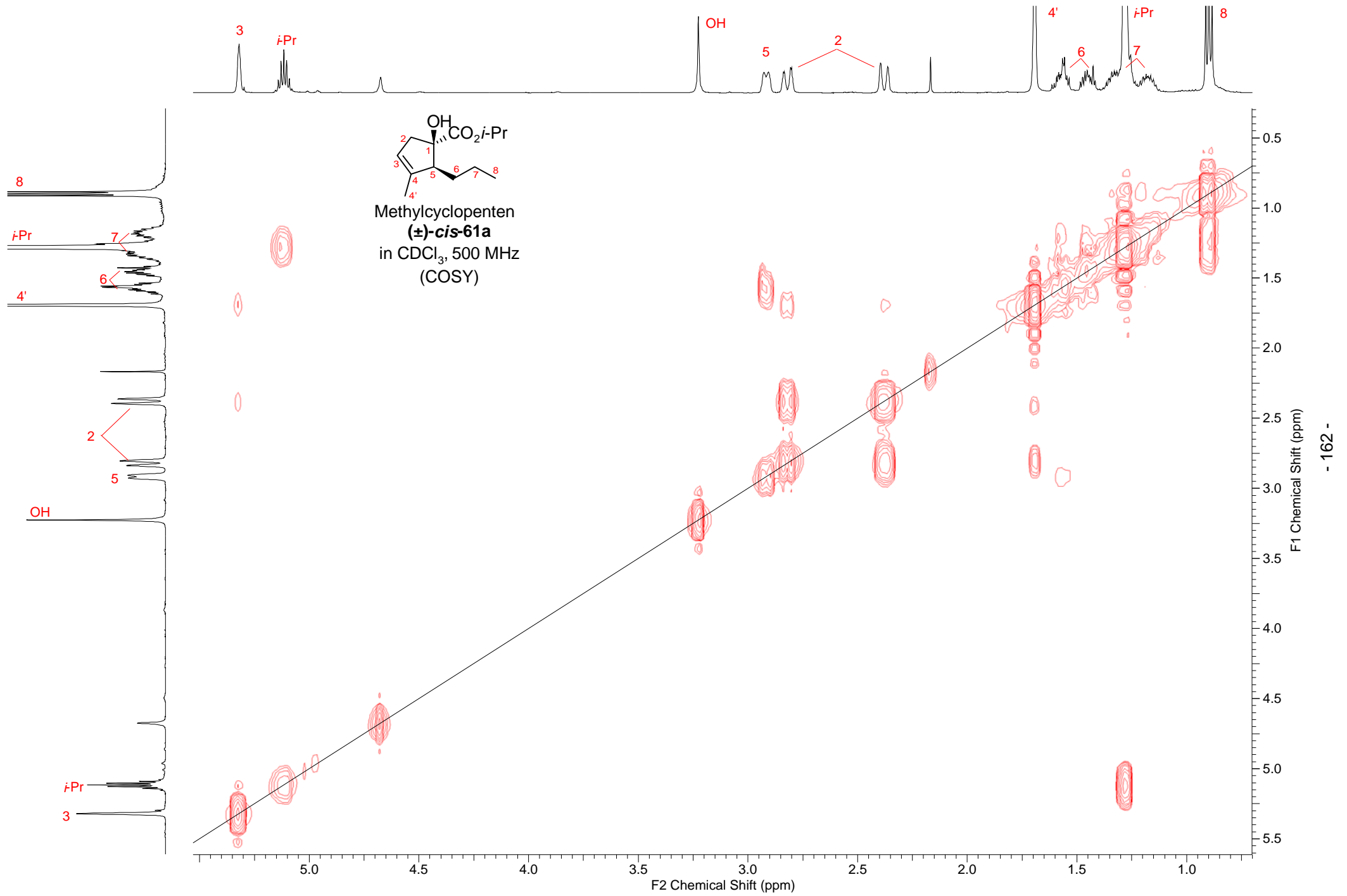
-7.26

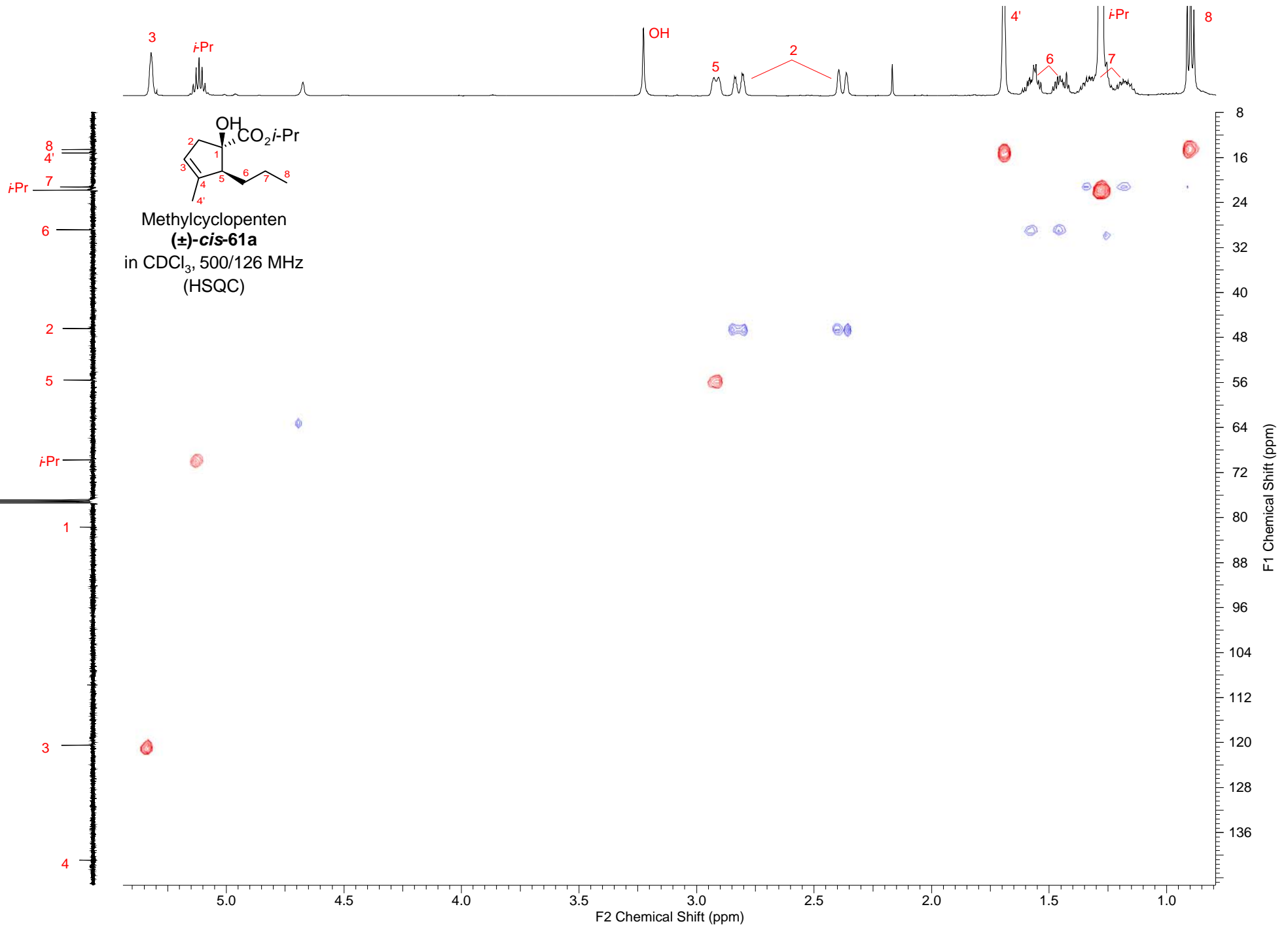


Methylcyclopenten (\pm)-**61a**
cis/trans = 91/9
in CDCl₃, 500 MHz

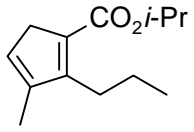
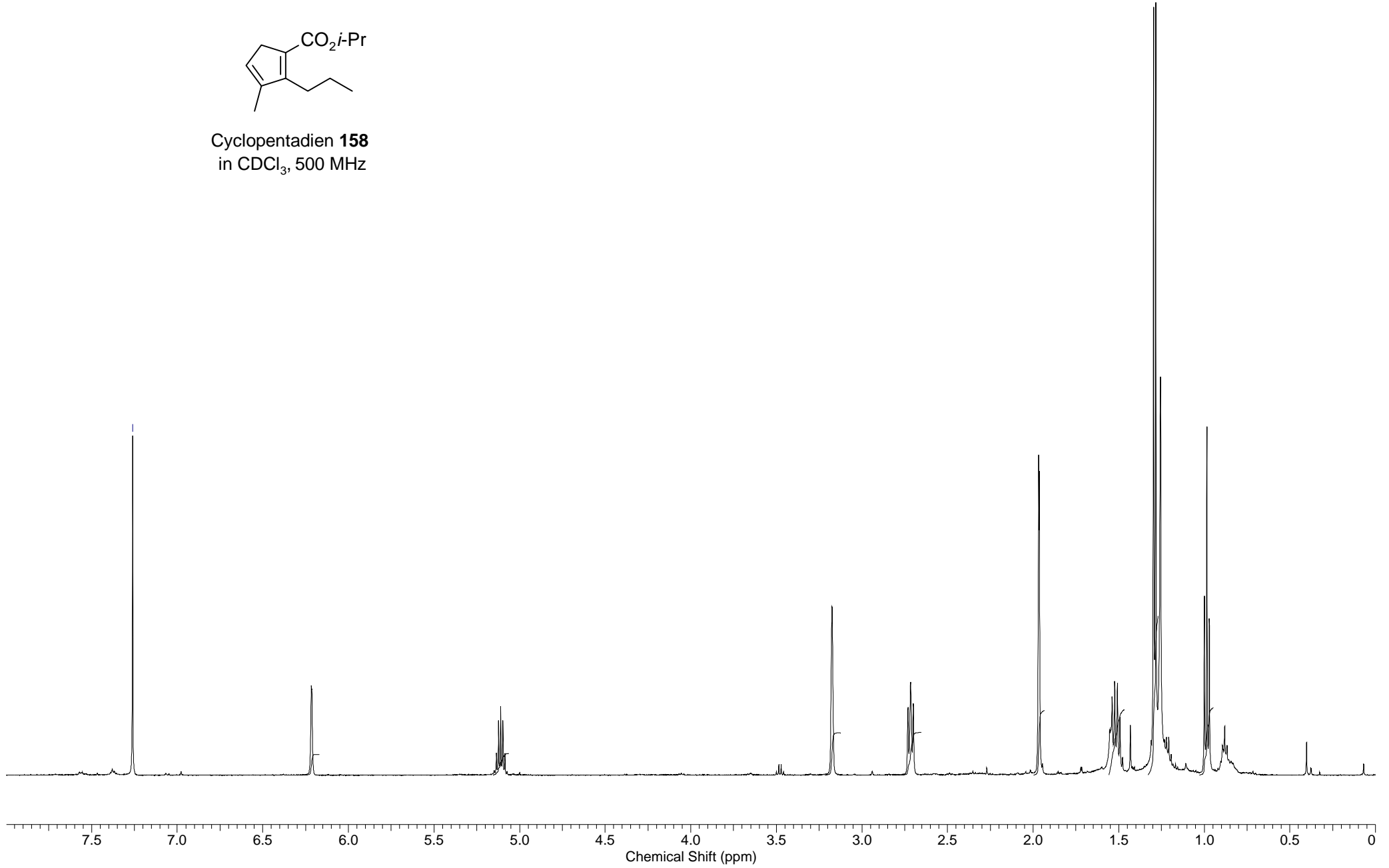








-7.26

Cyclopentadien **158**
in CDCl₃, 500 MHz

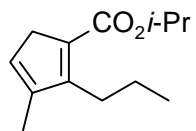
-164.84

-159.86

-144.23

-132.81

-130.54

Cyclopentadien **158**
in CDCl₃, 126 MHz

-77.16

-66.68

-40.82

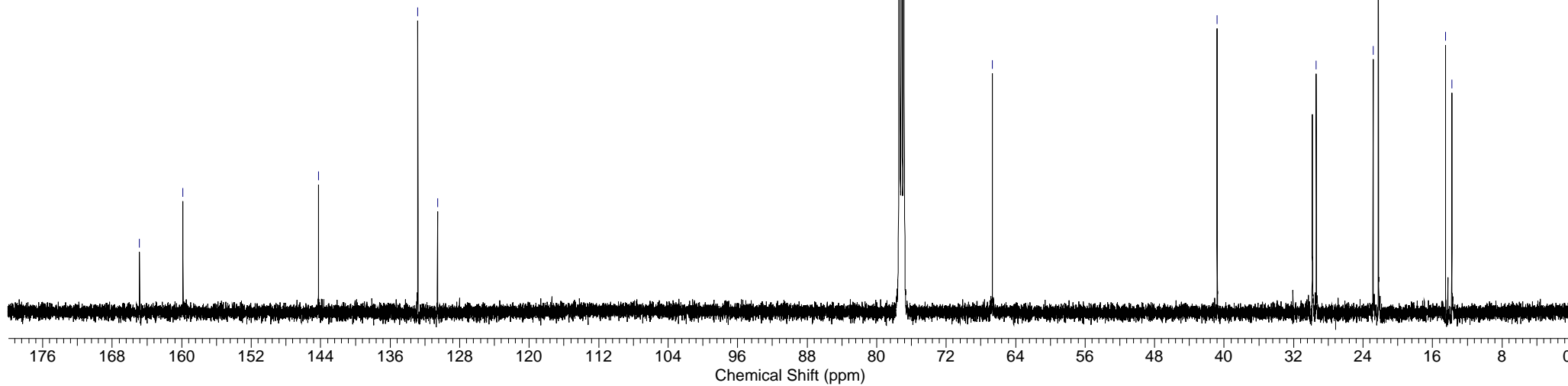
-29.39

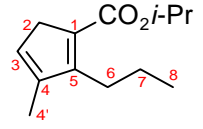
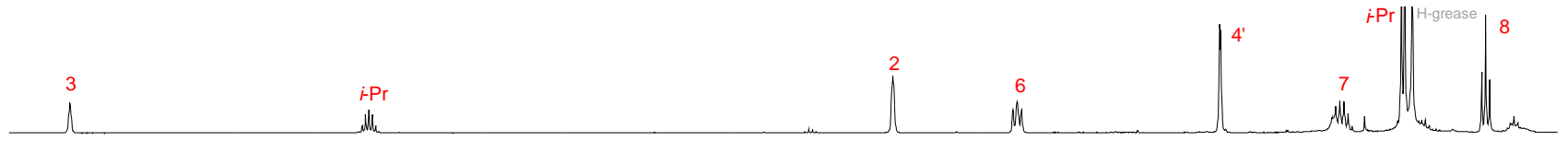
-22.86

-22.25

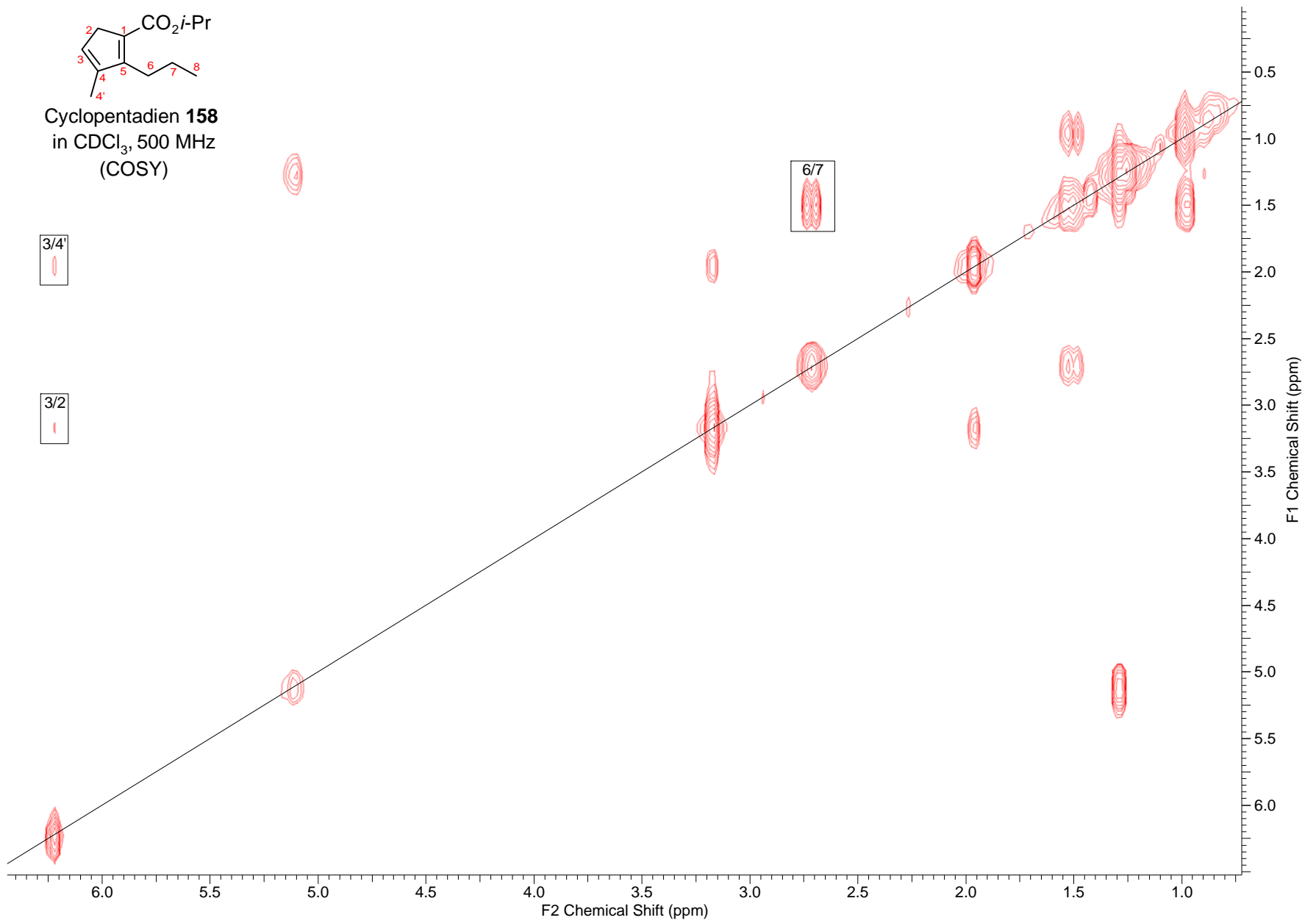
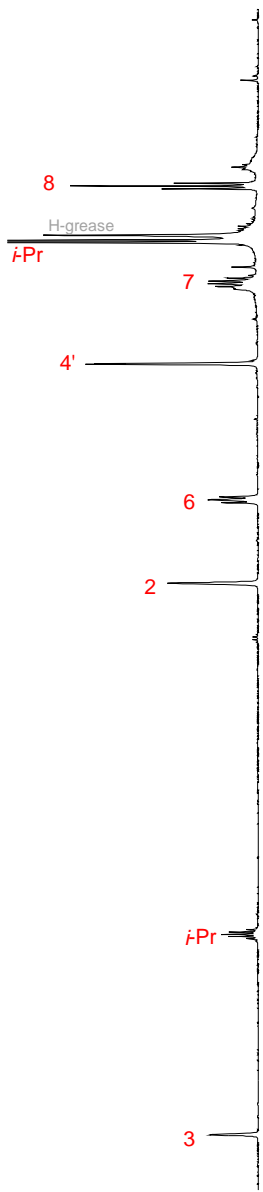
-14.53

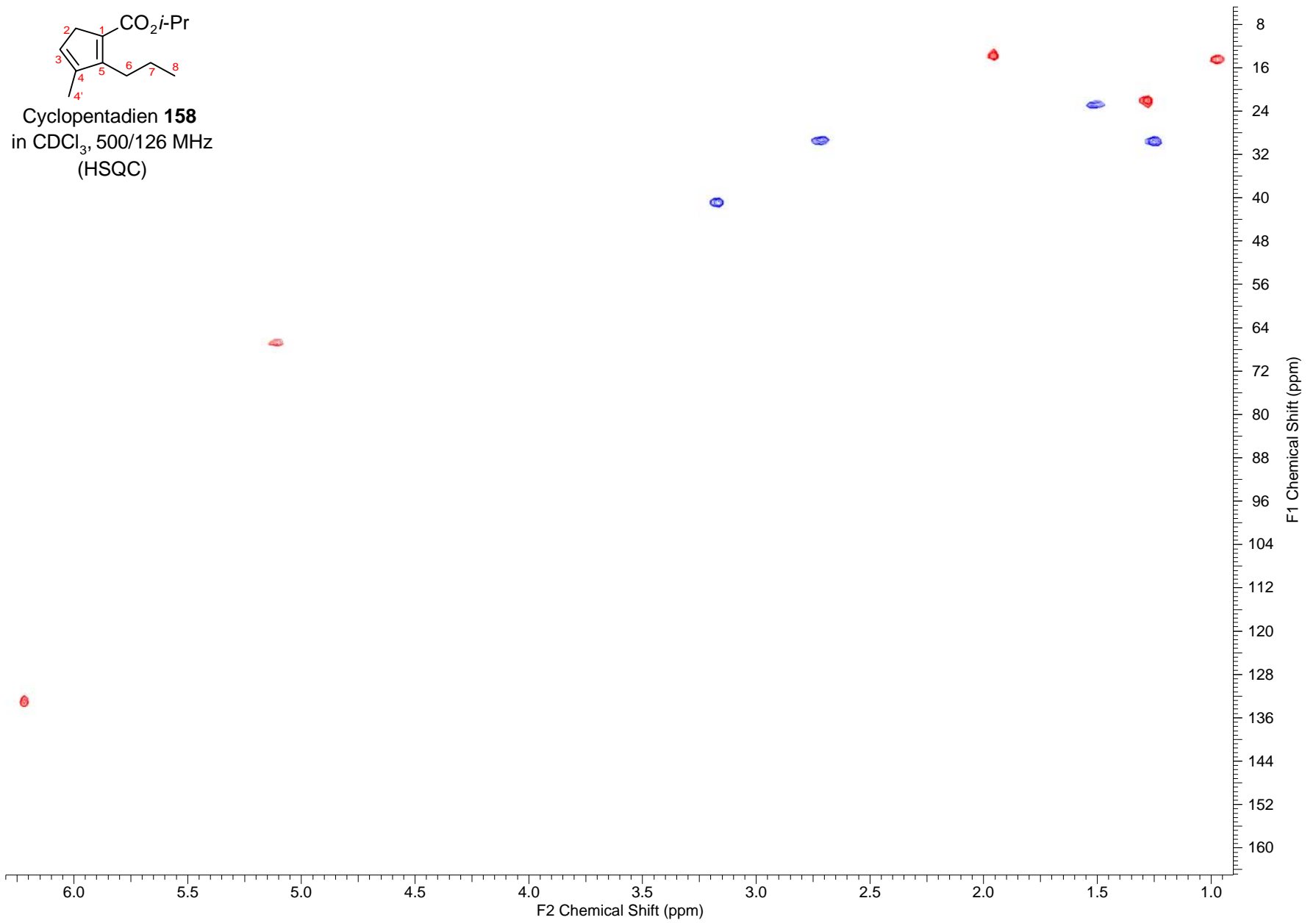
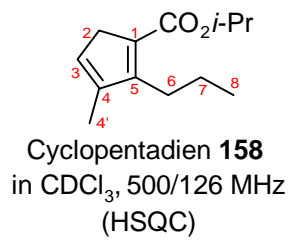
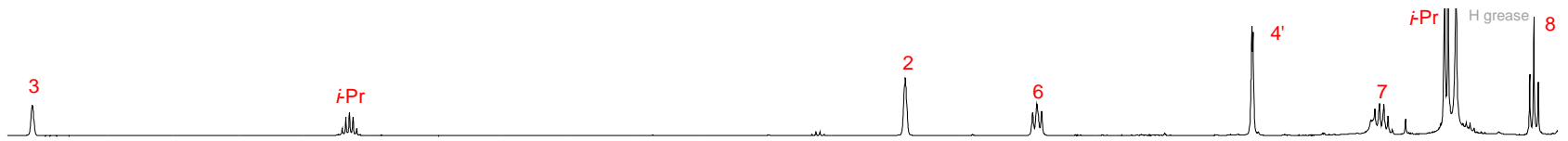
-13.81

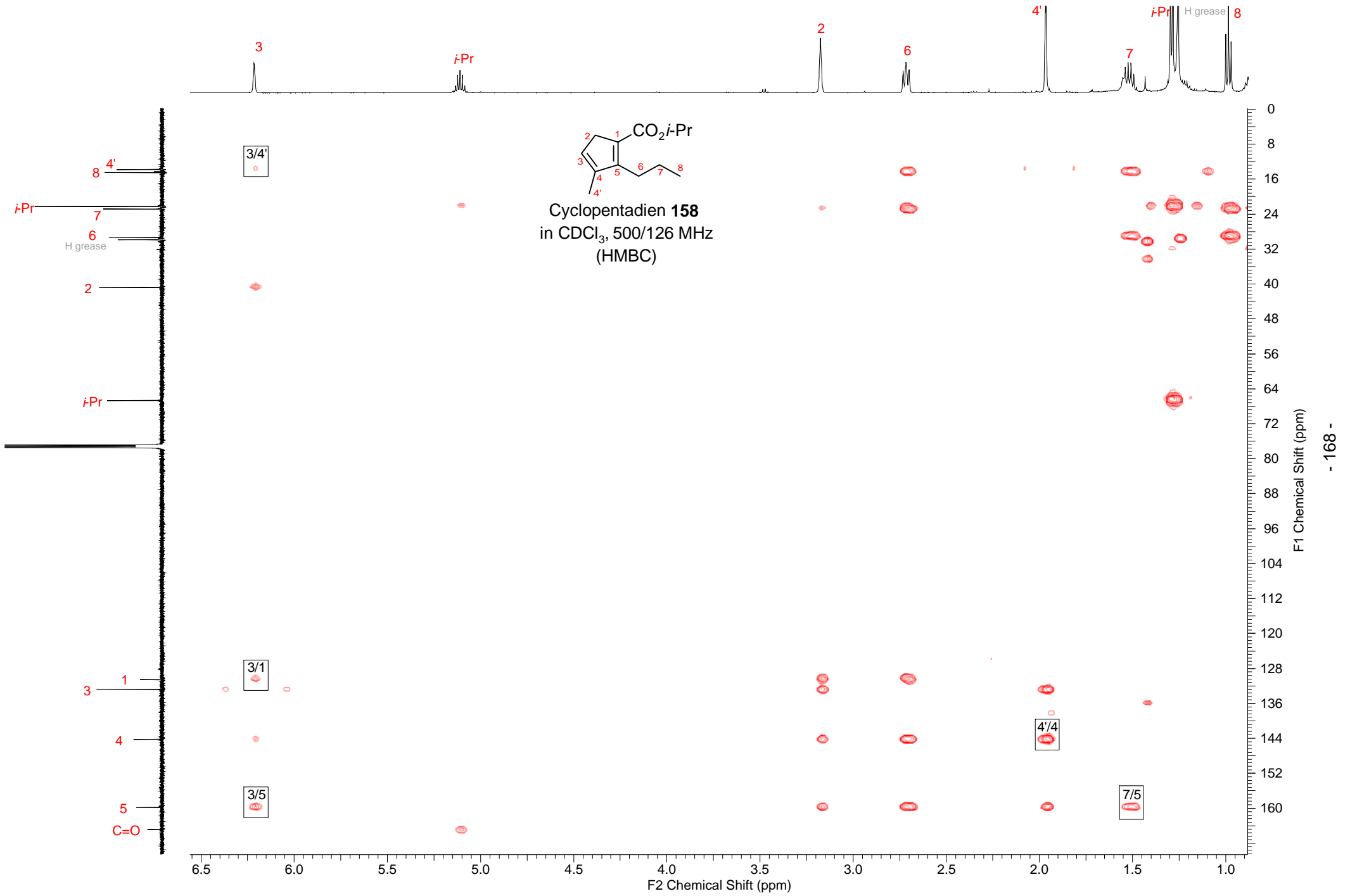




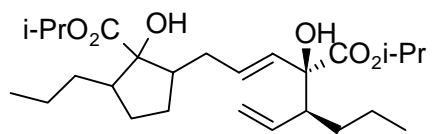
Cyclopentadien **158**
in CDCl₃, 500 MHz
(COSY)



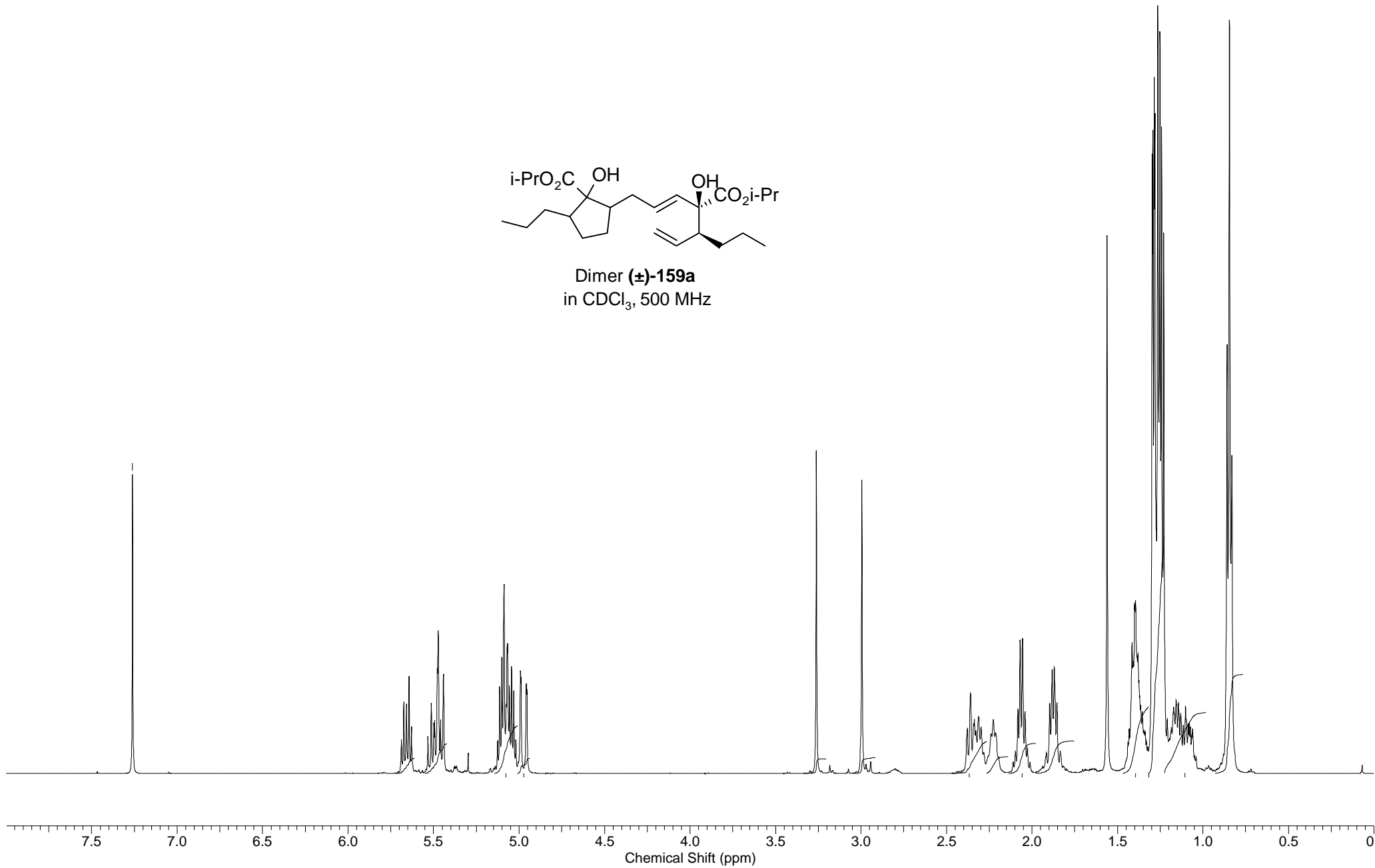


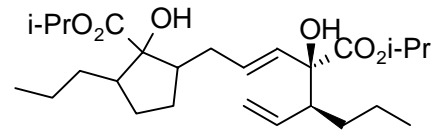


-7.26

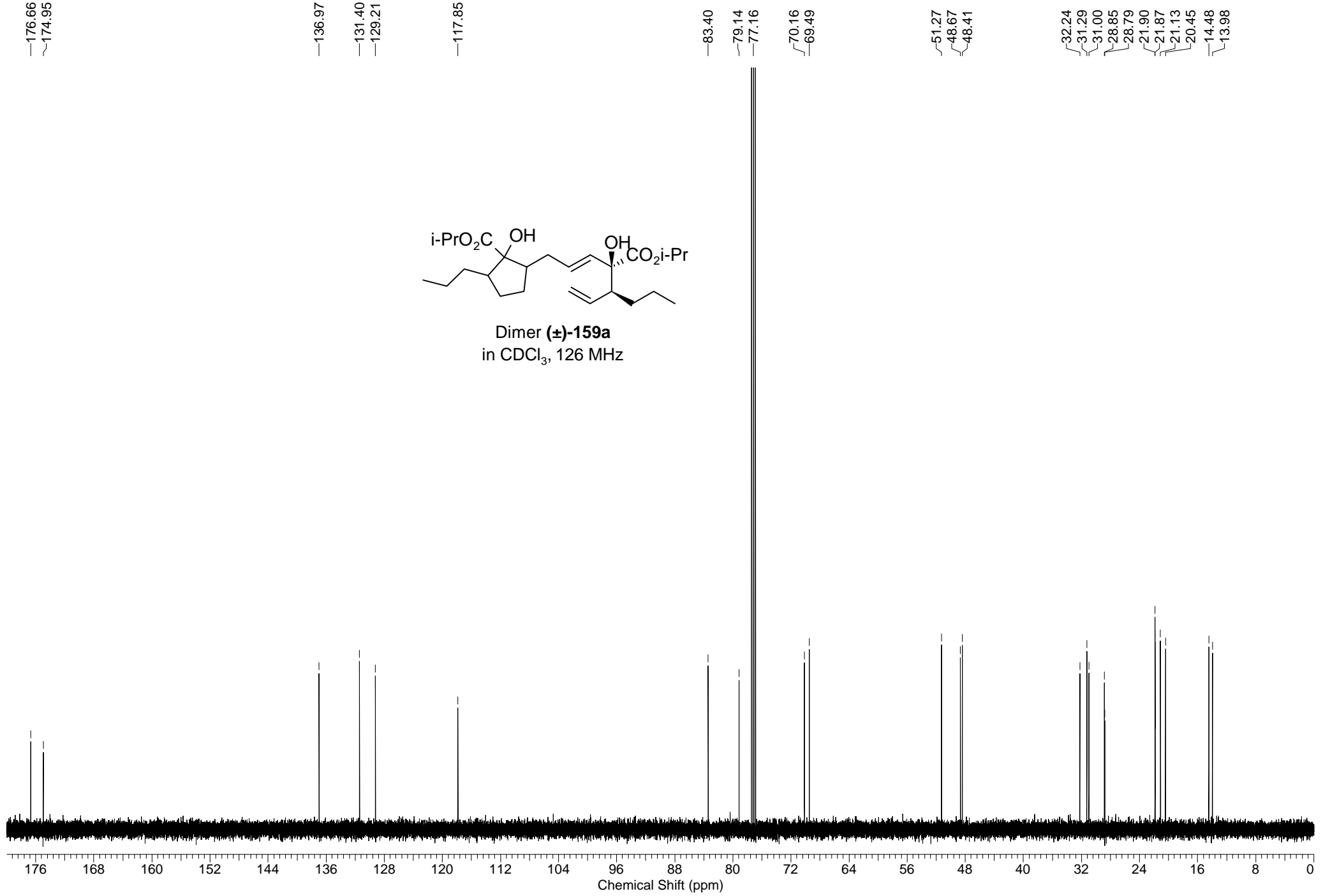


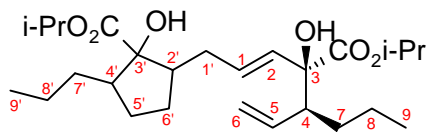
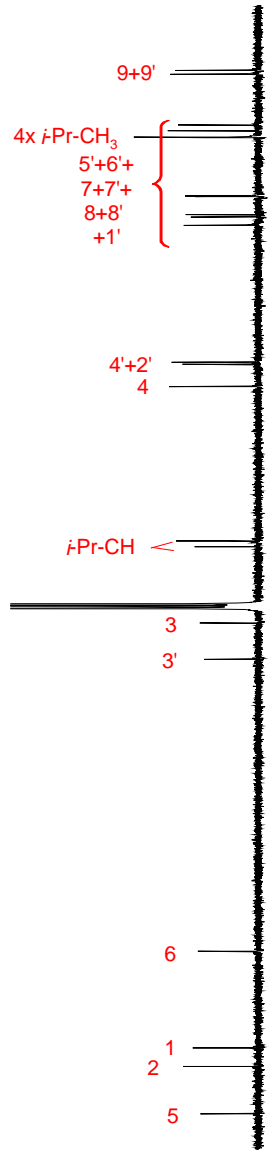
Dimer (±)-159a
in CDCl₃, 500 MHz



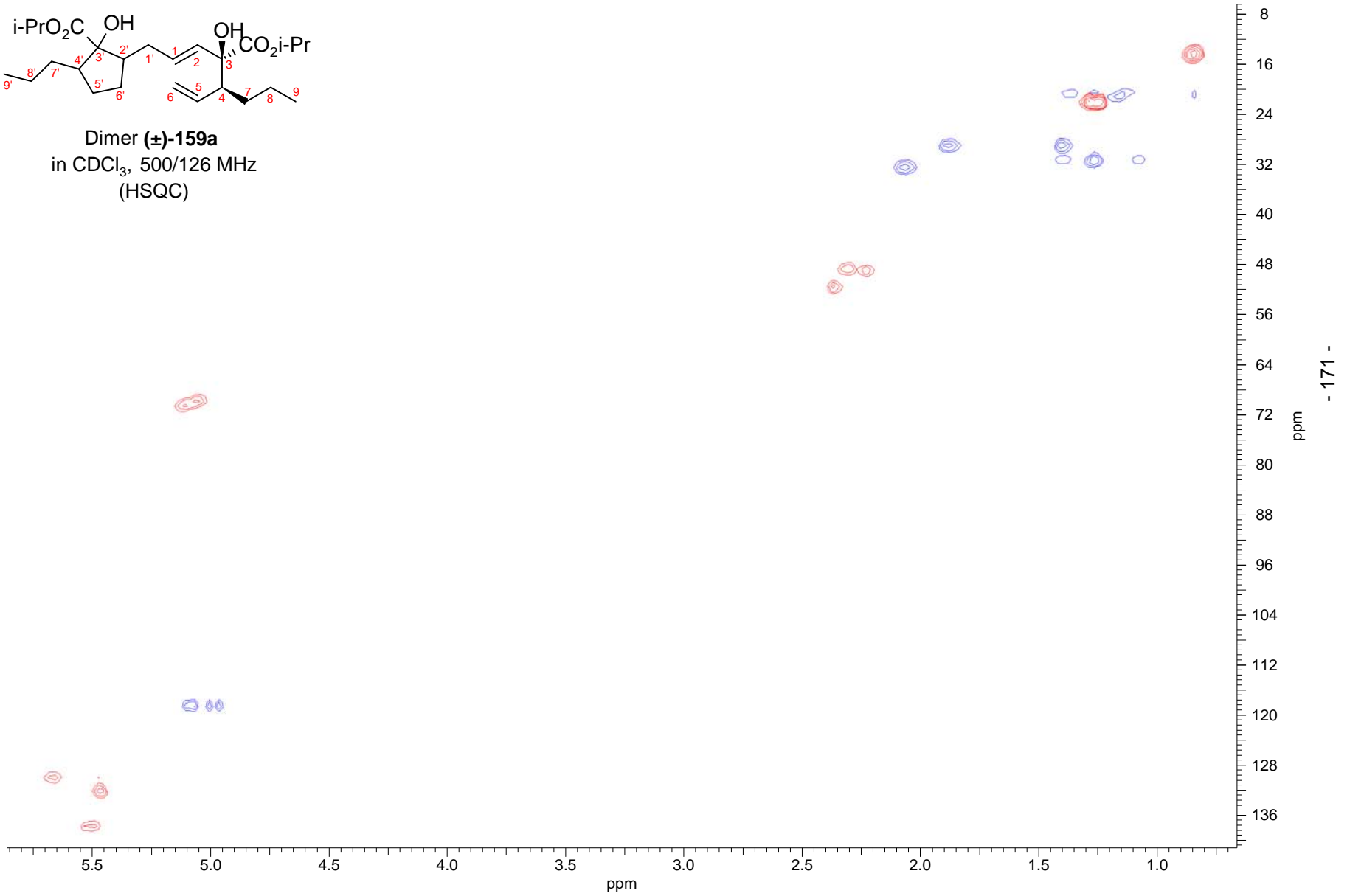


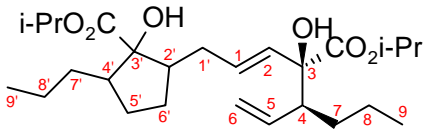
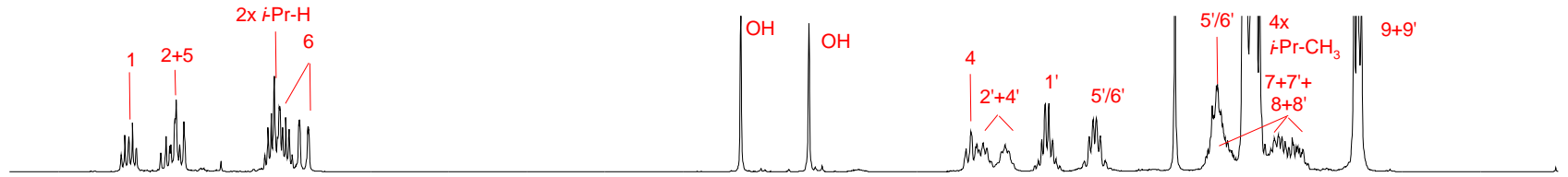
Dimer (±)-159a
in CDCl₃, 126 MHz



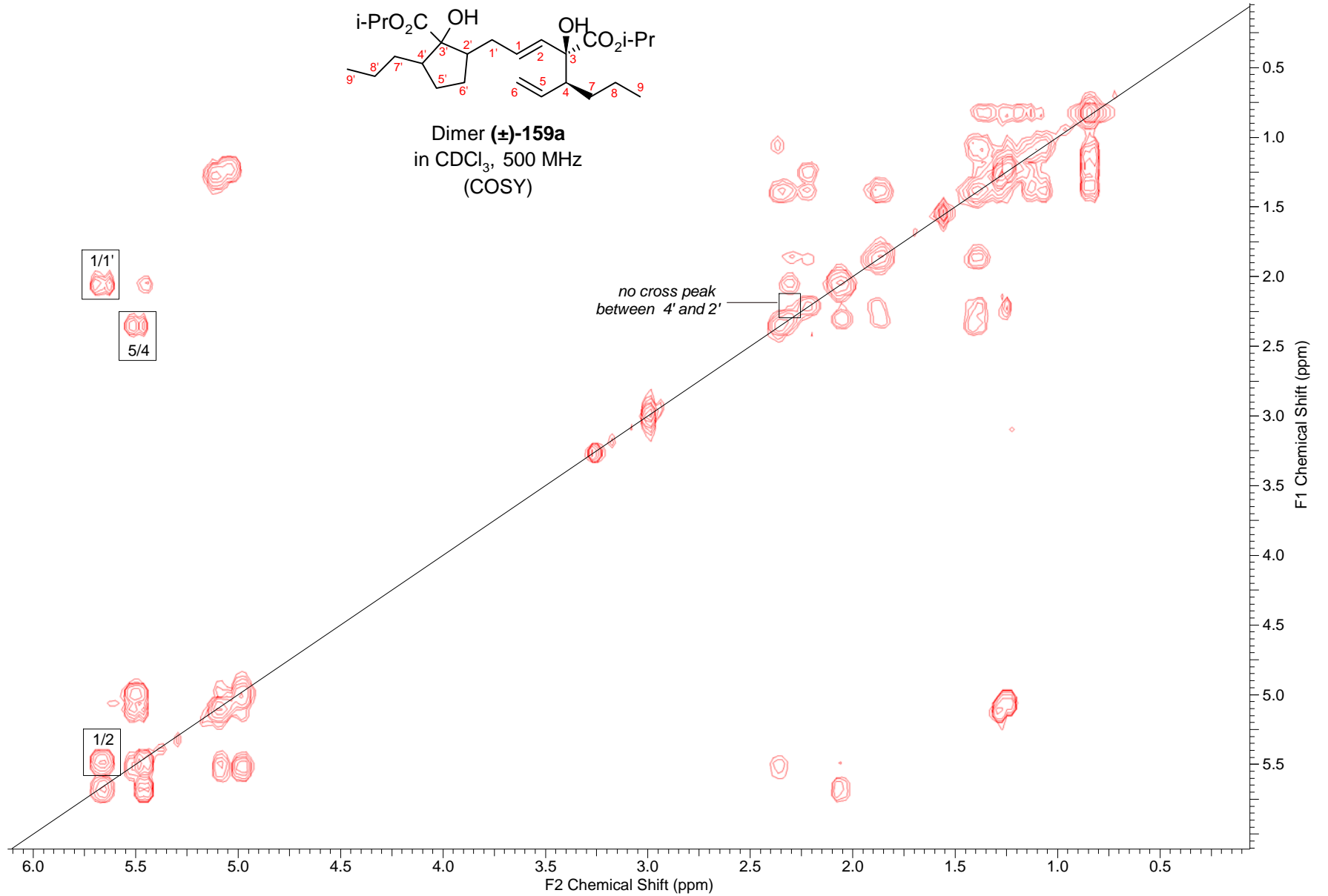
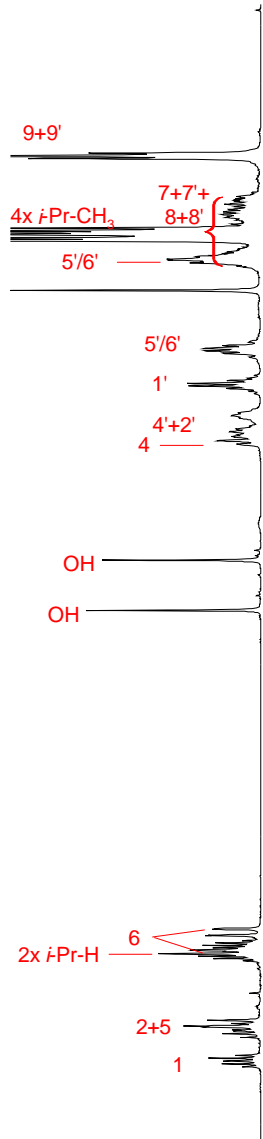


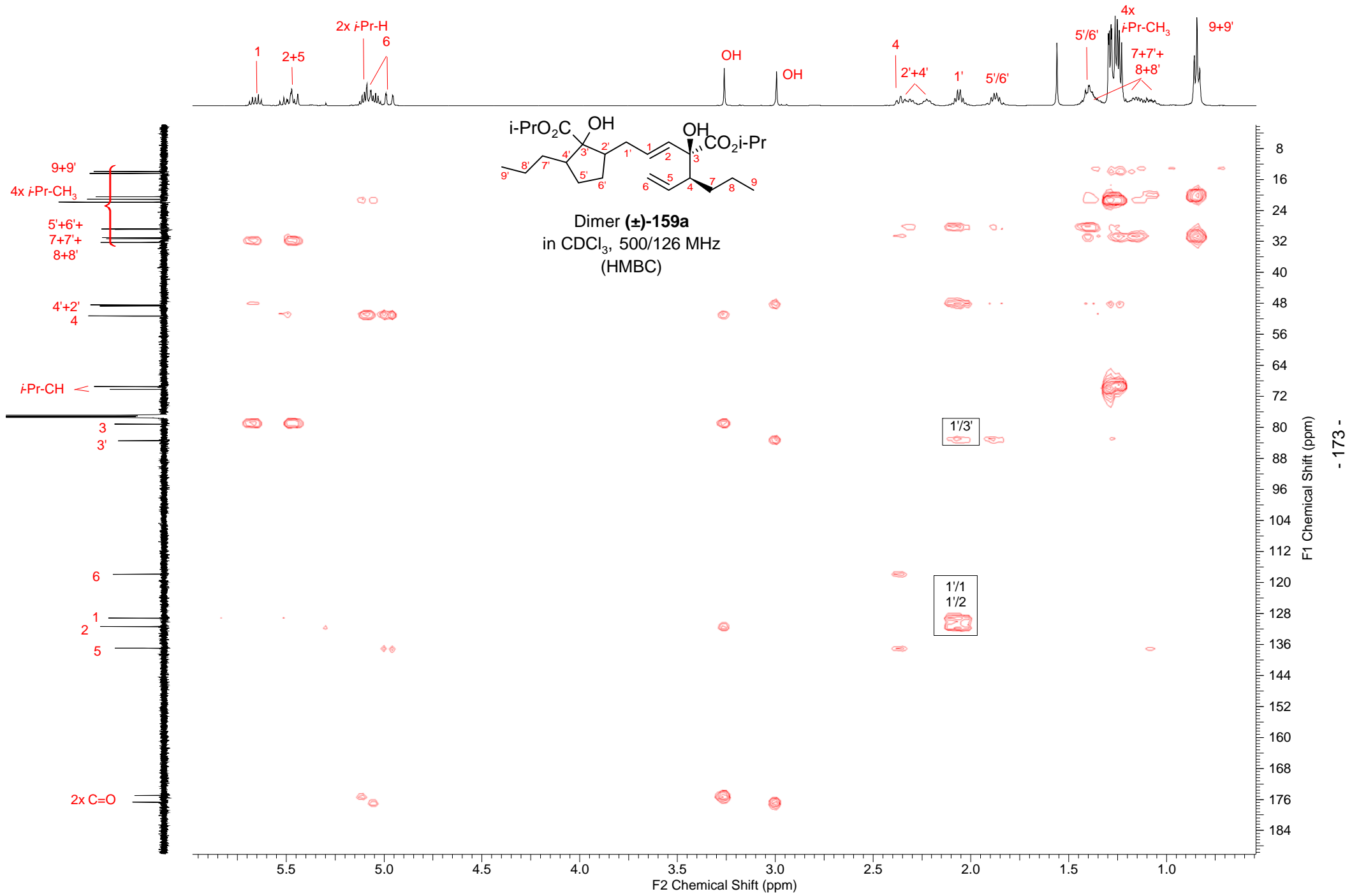
Dimer (\pm)-159a
in CDCl_3 , 500/126 MHz
(HSQC)

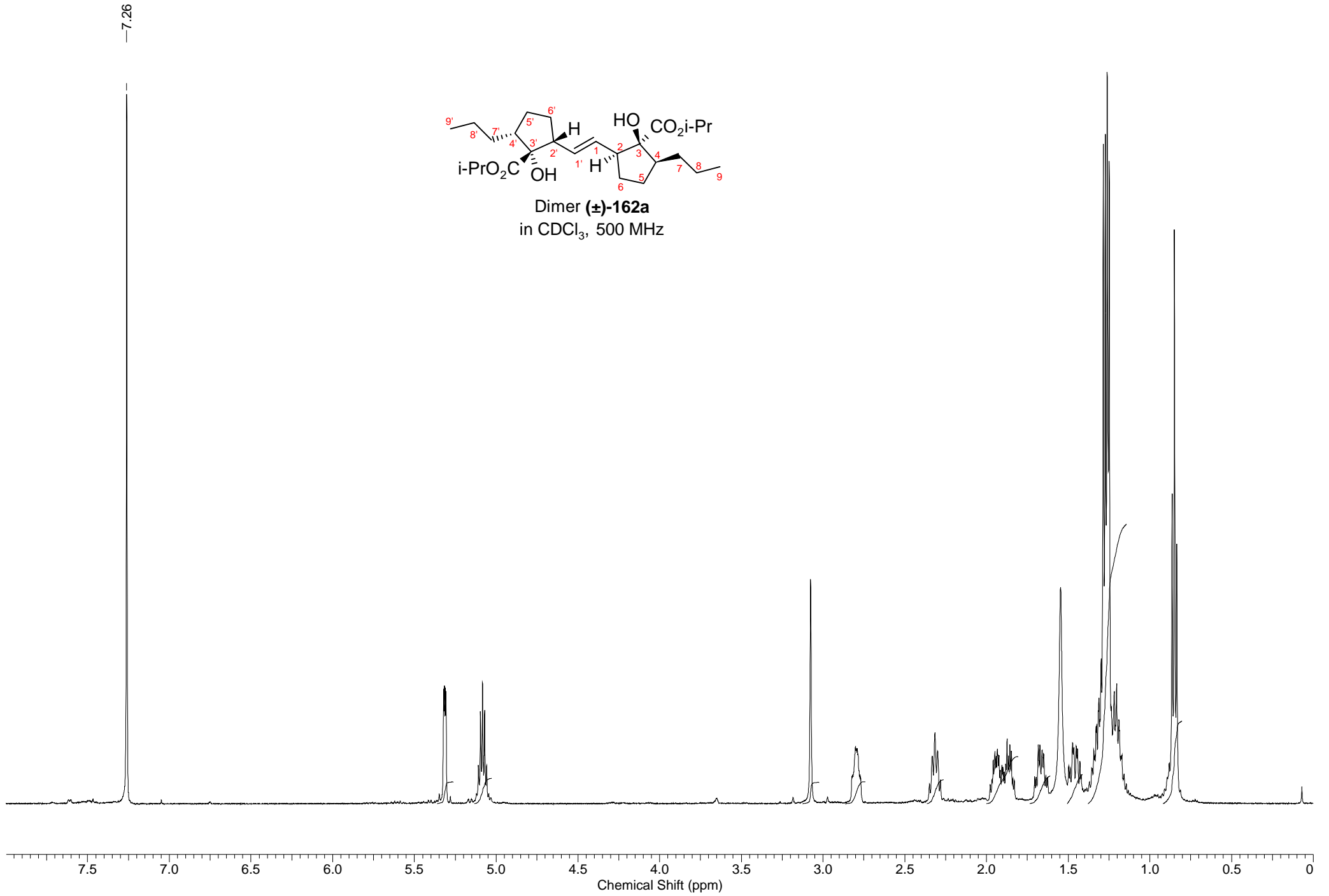


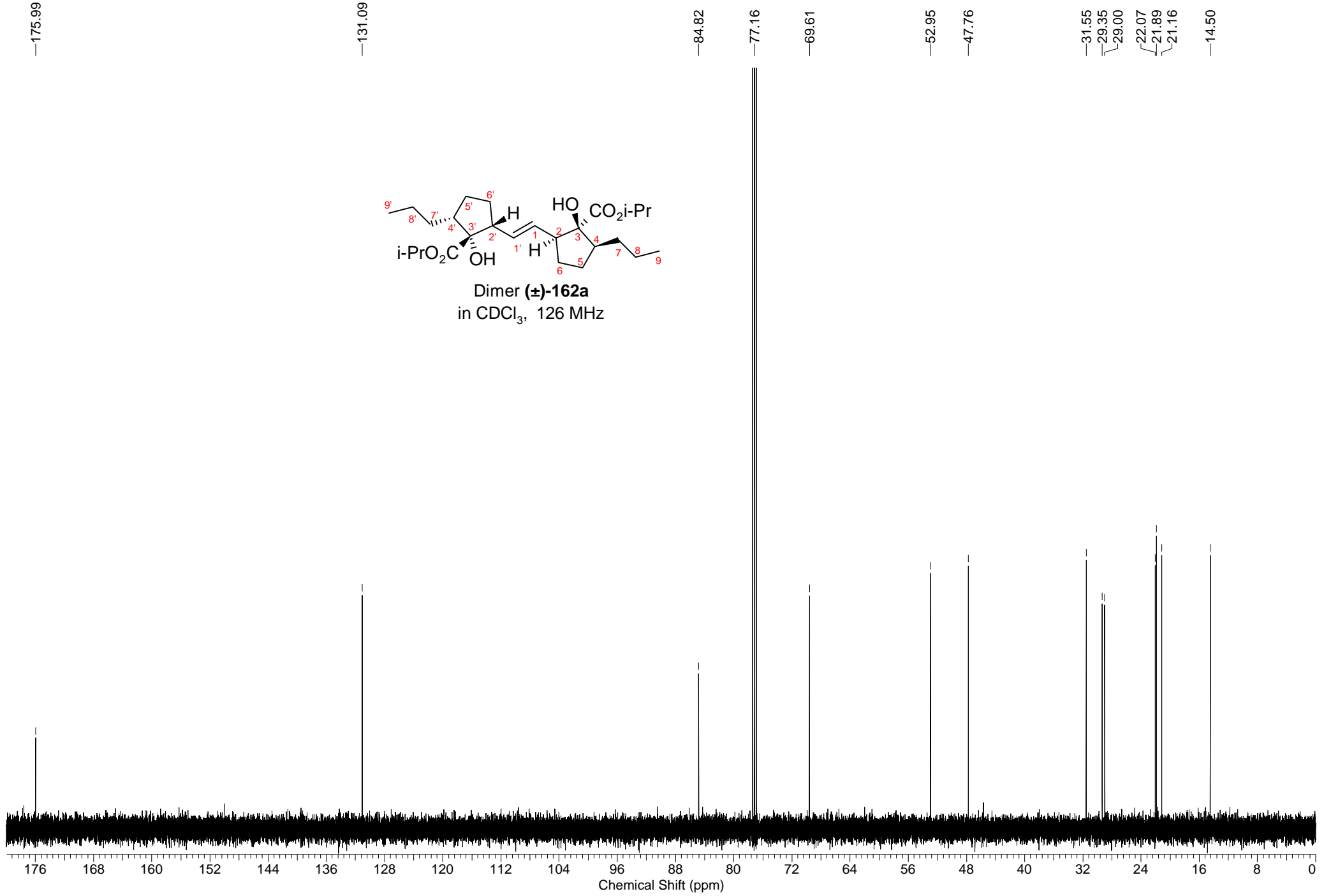


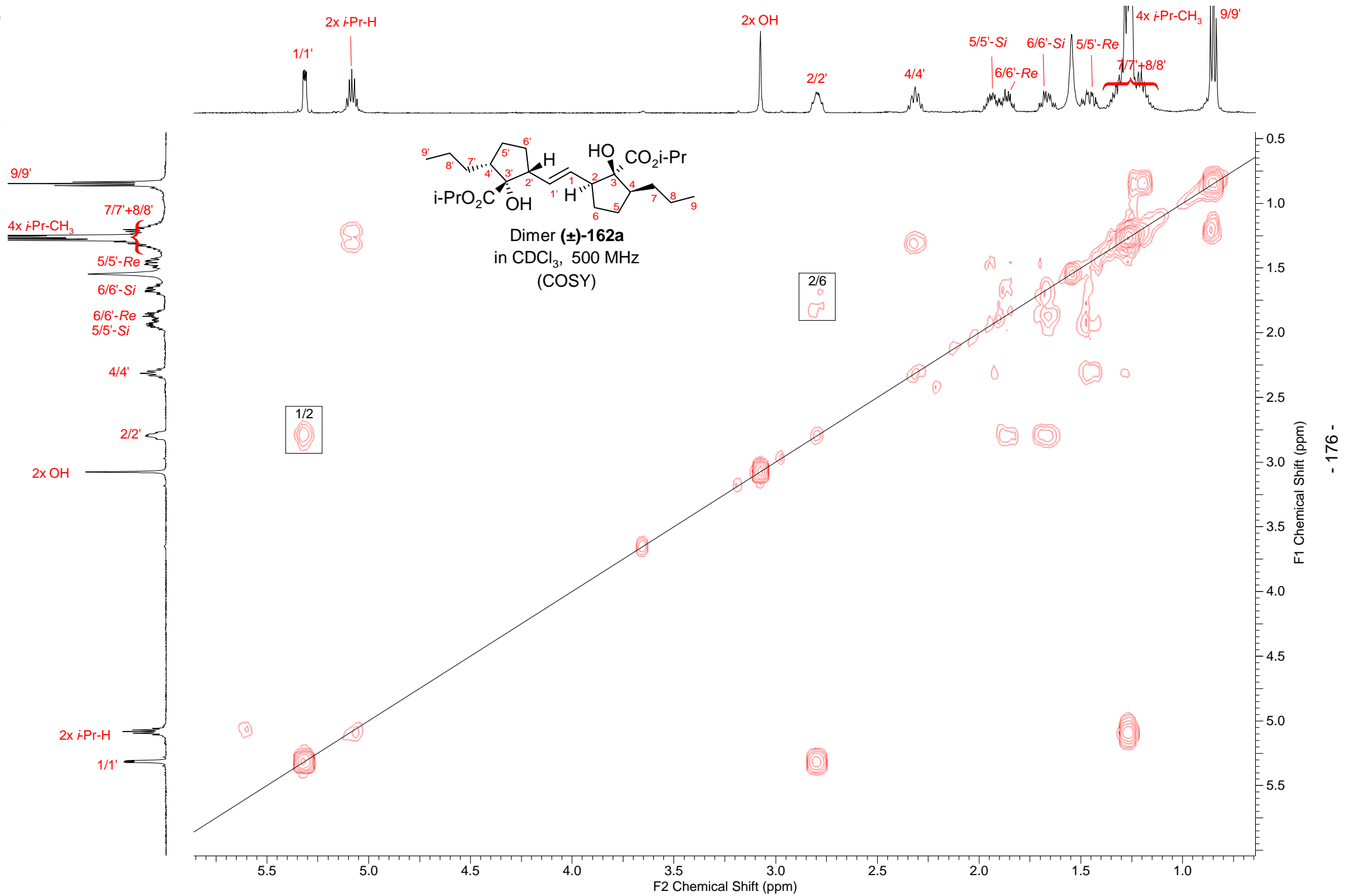
Dimer (±)-159a
in CDCl₃, 500 MHz
(COSY)

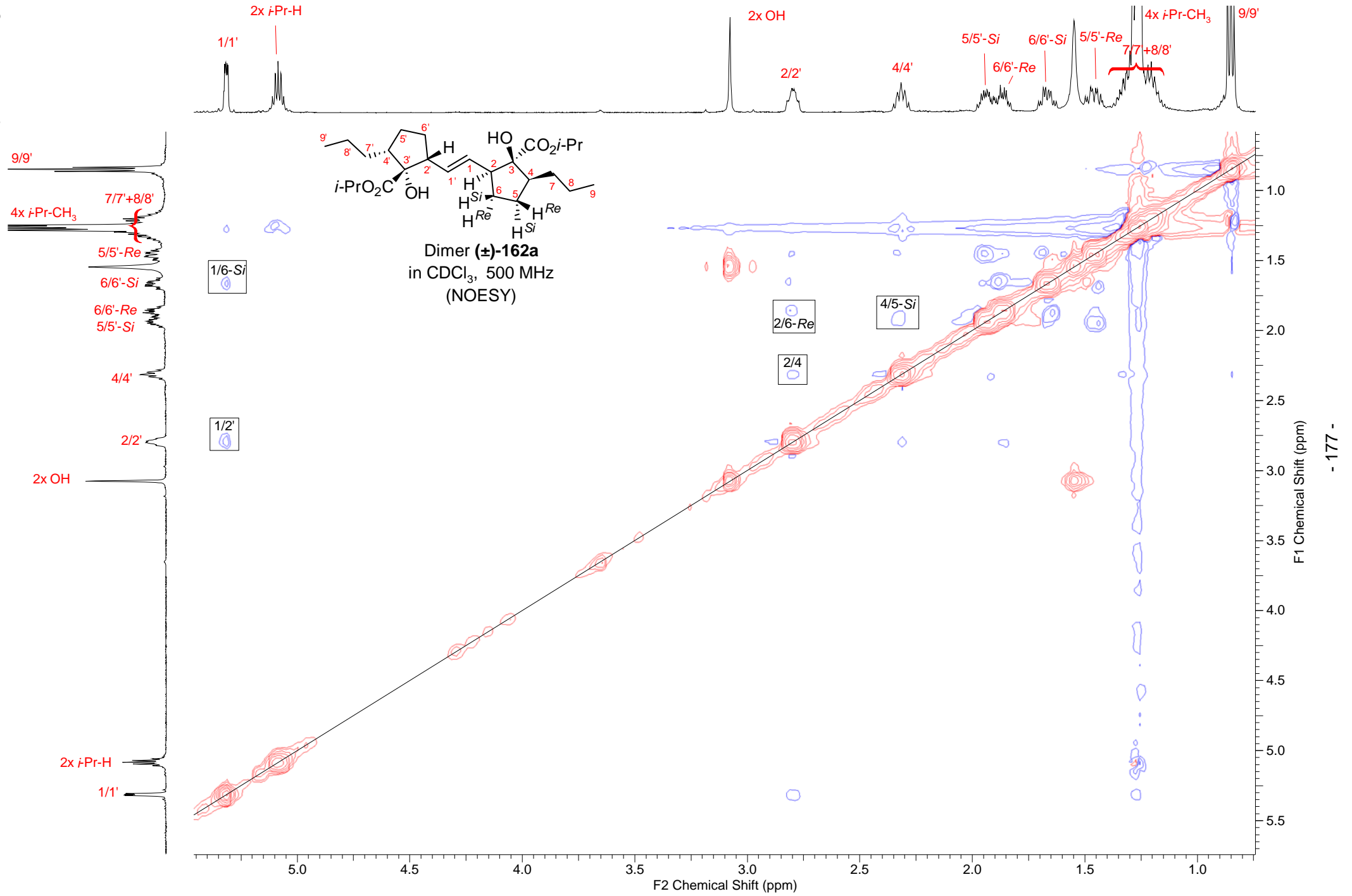


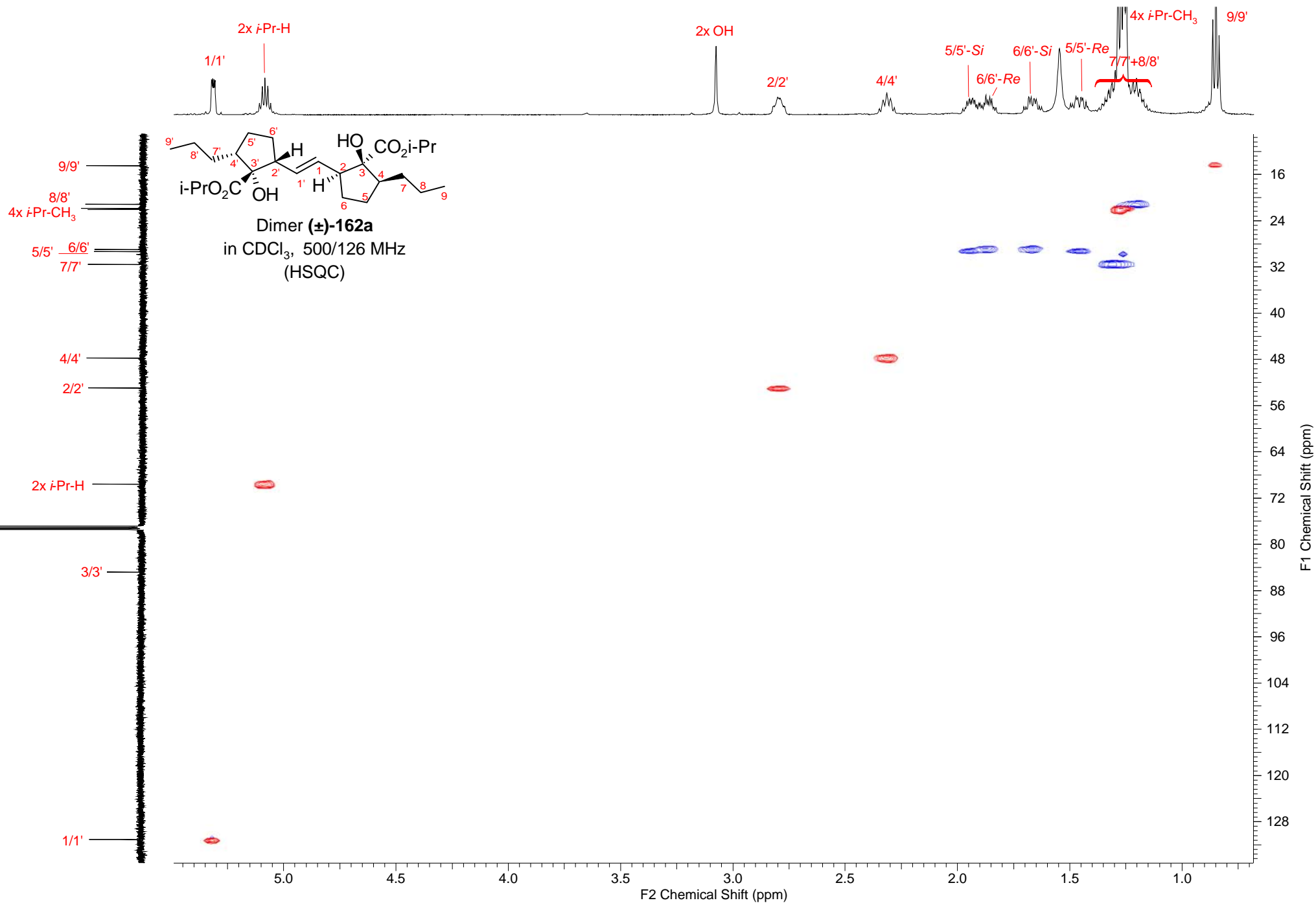


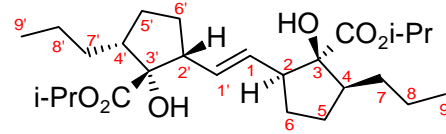
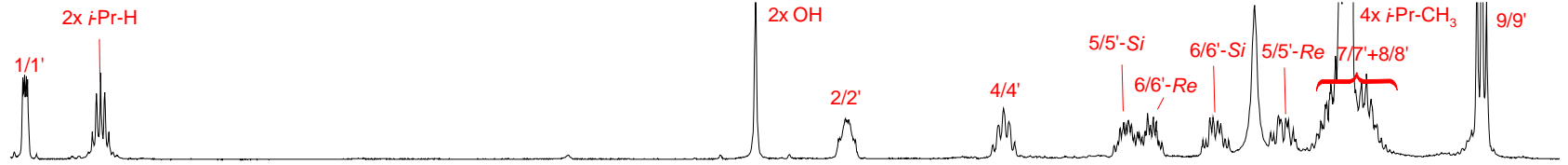




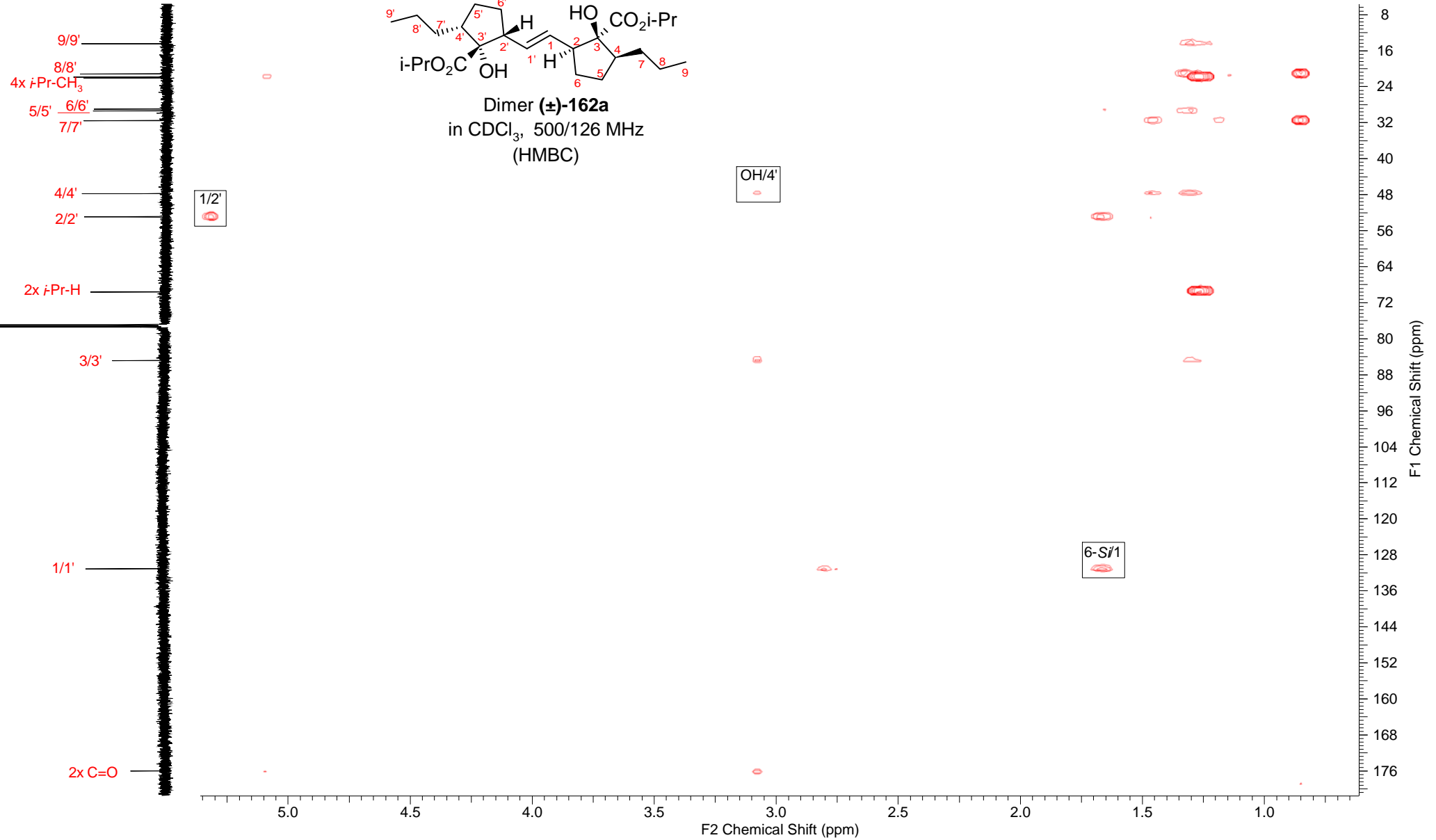


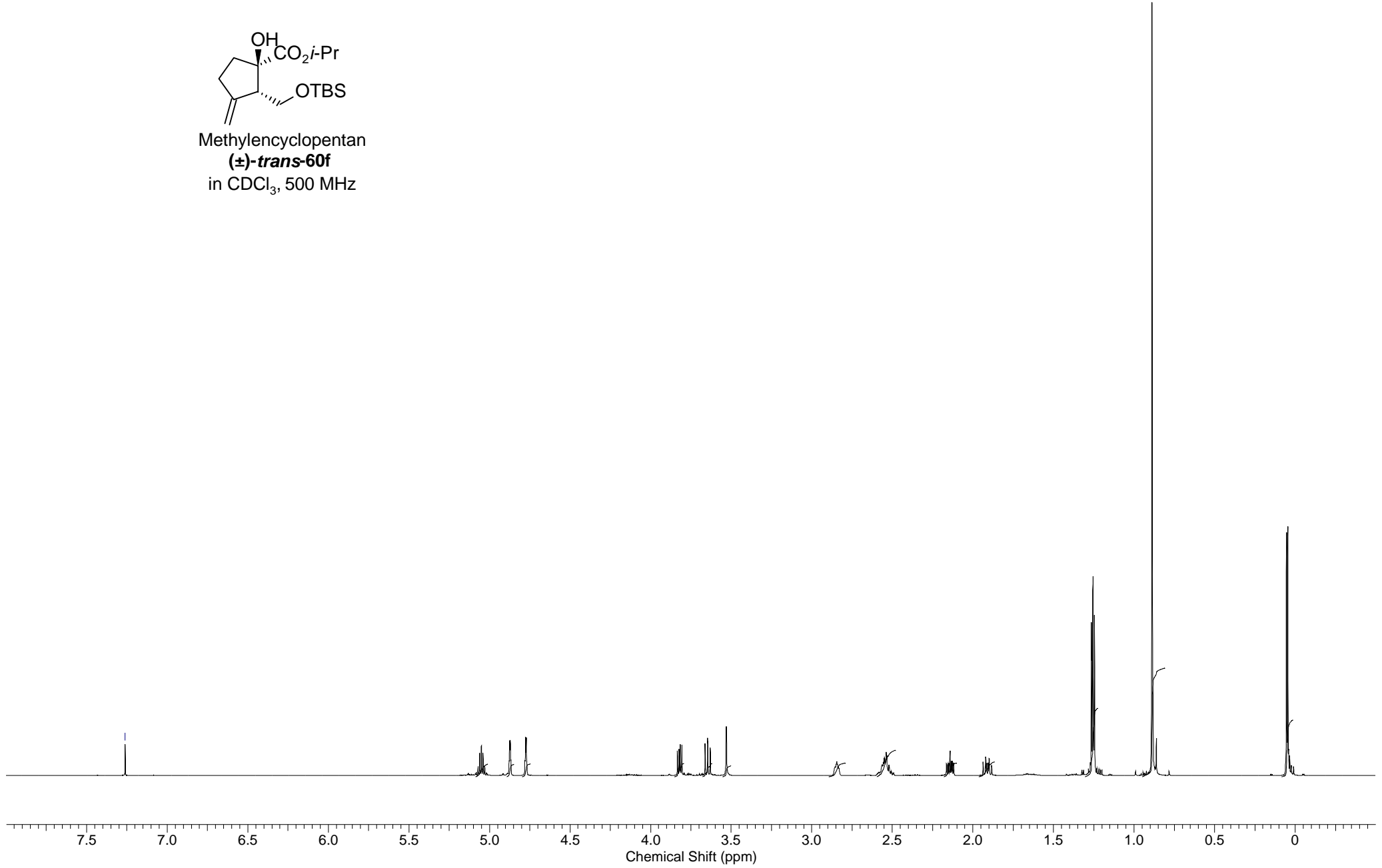
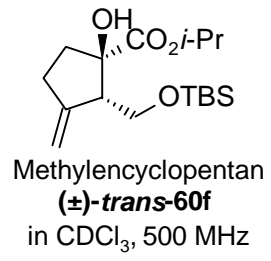


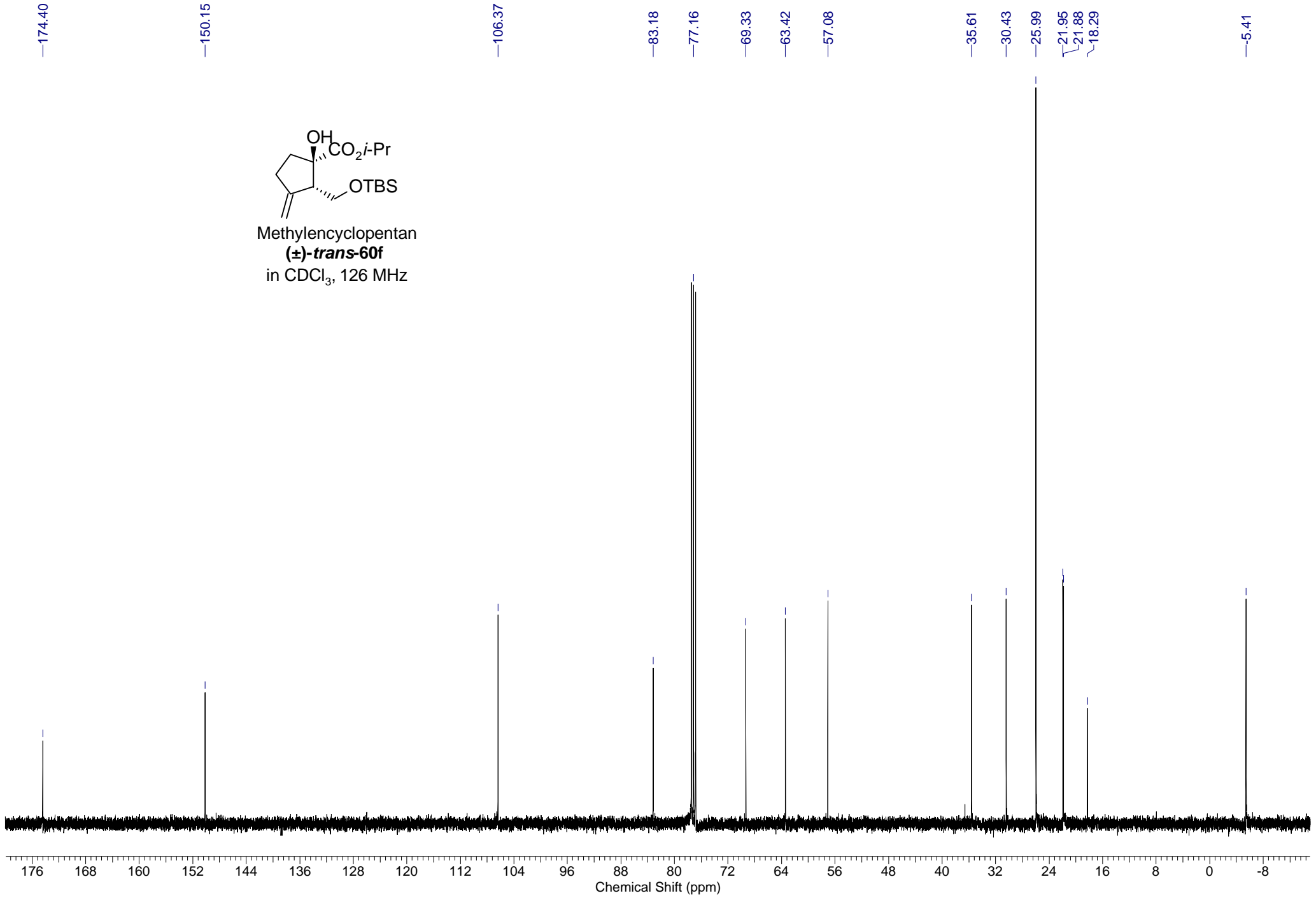
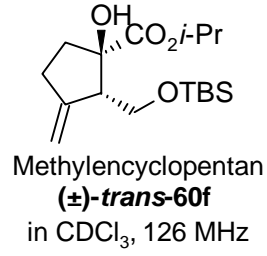


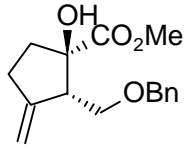


Dimer (\pm)-162a
in CDCl_3 , 500/126 MHz
(HMBC)

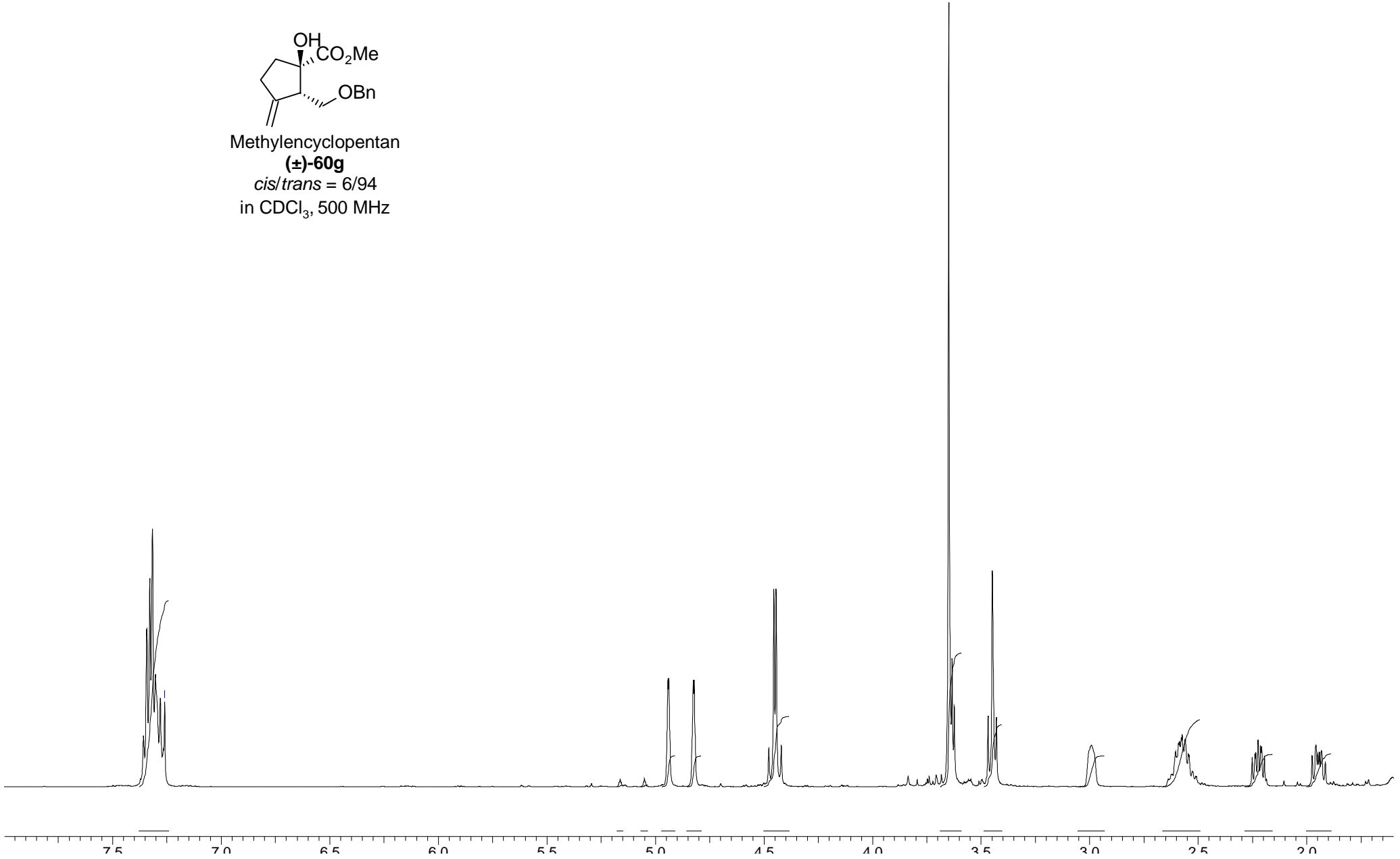


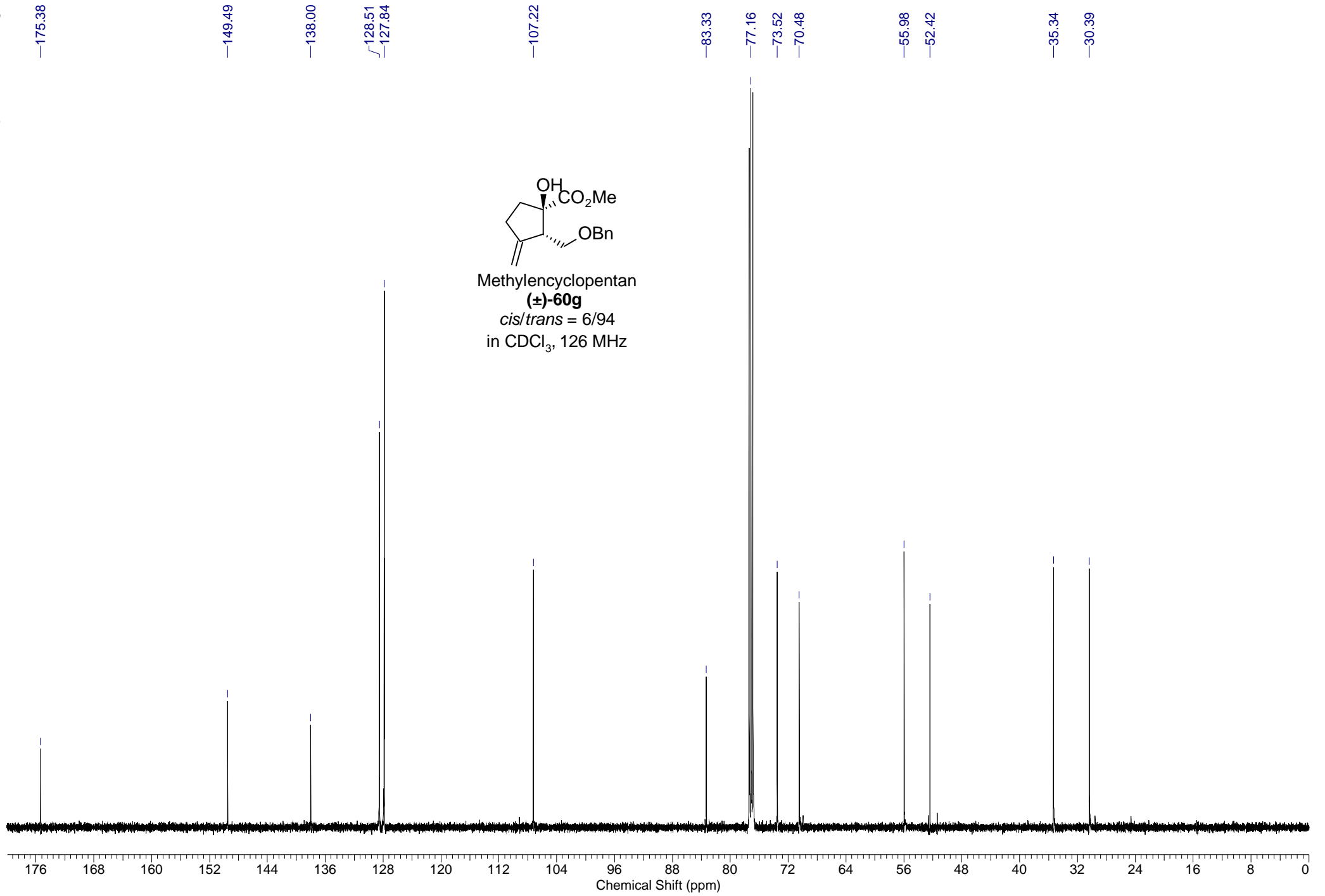


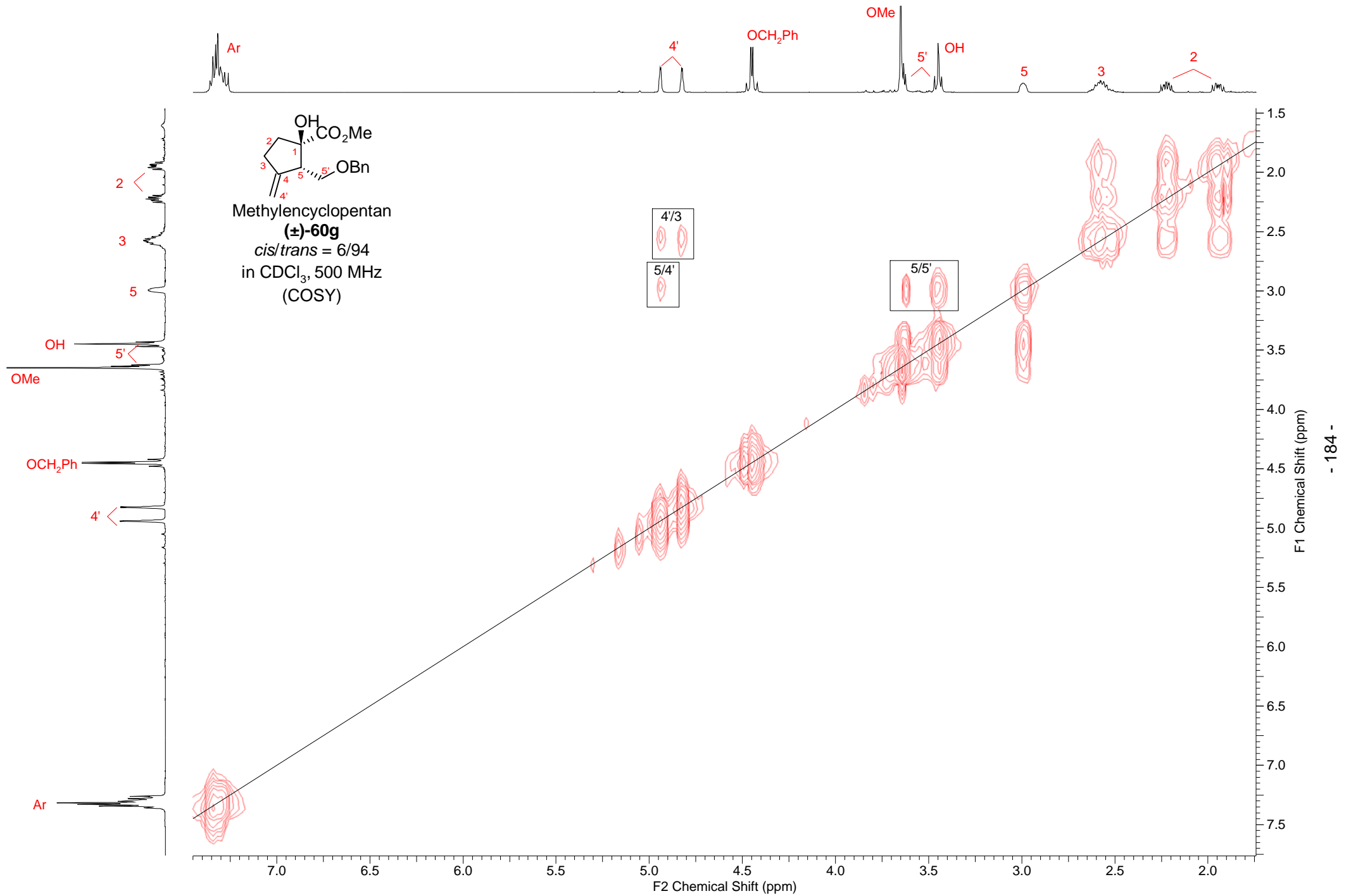


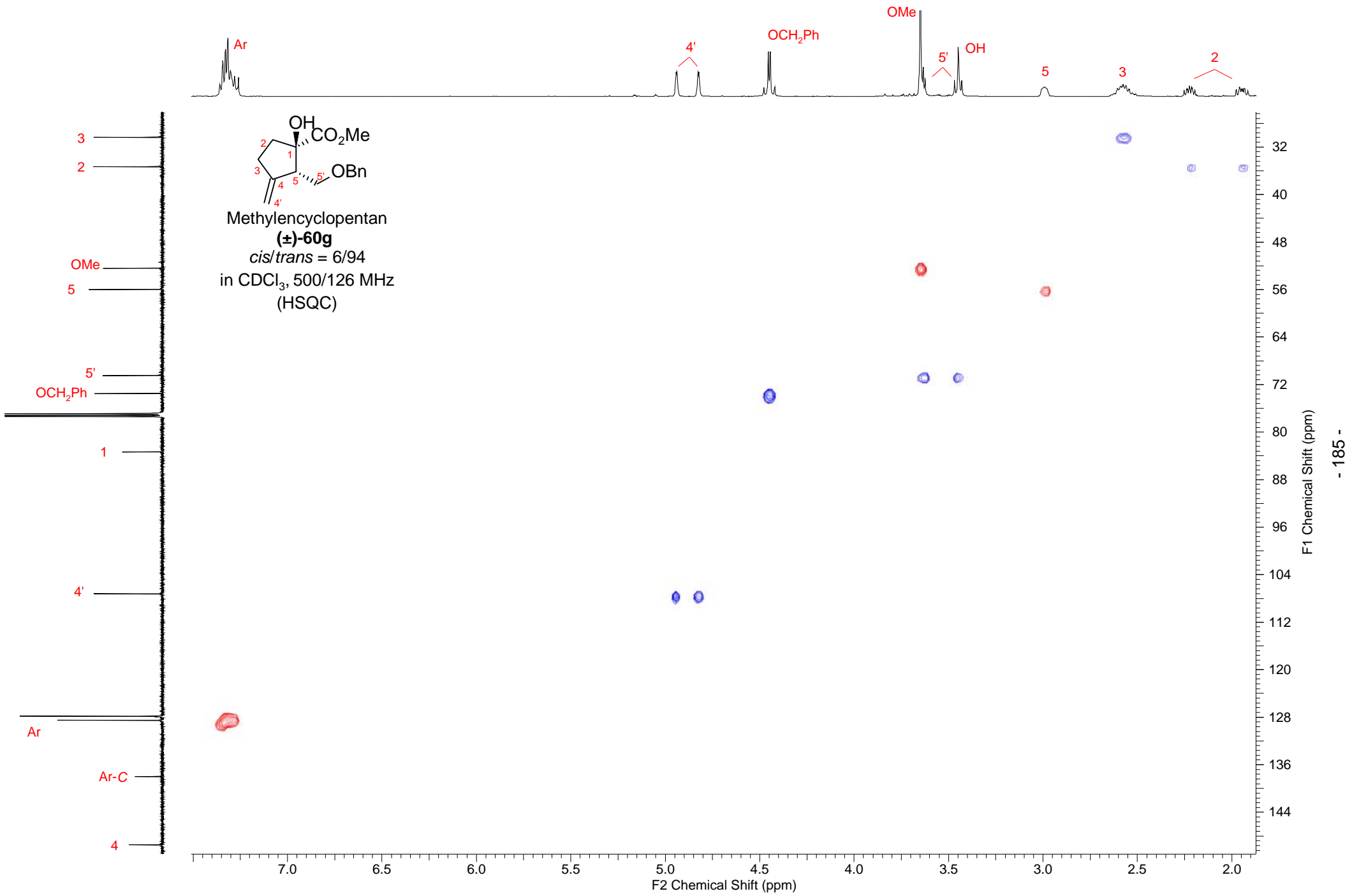


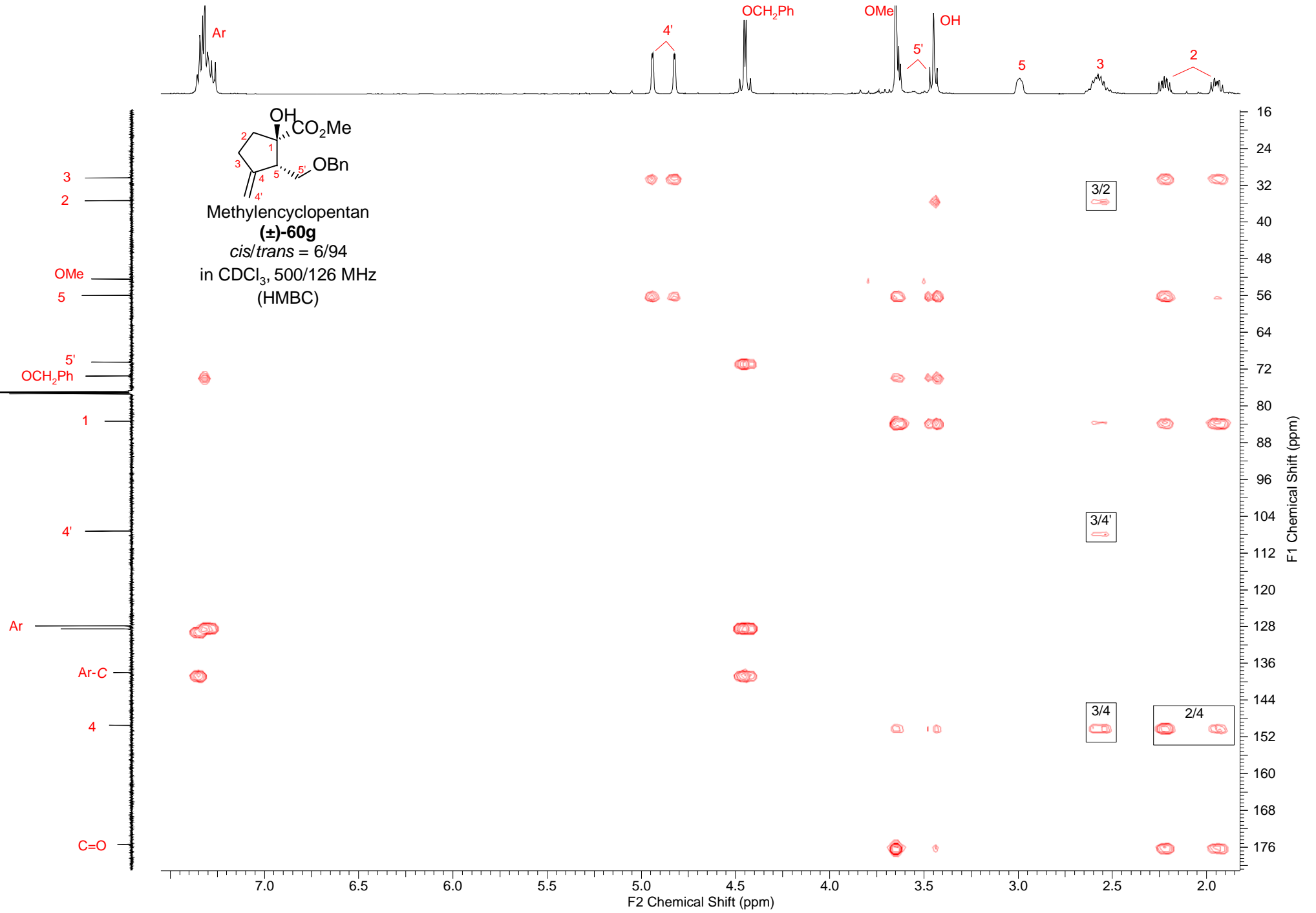
Methylencyclopentan
(±)-60g
cis/trans = 6/94
in CDCl₃, 500 MHz



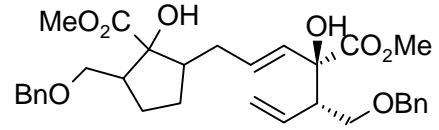




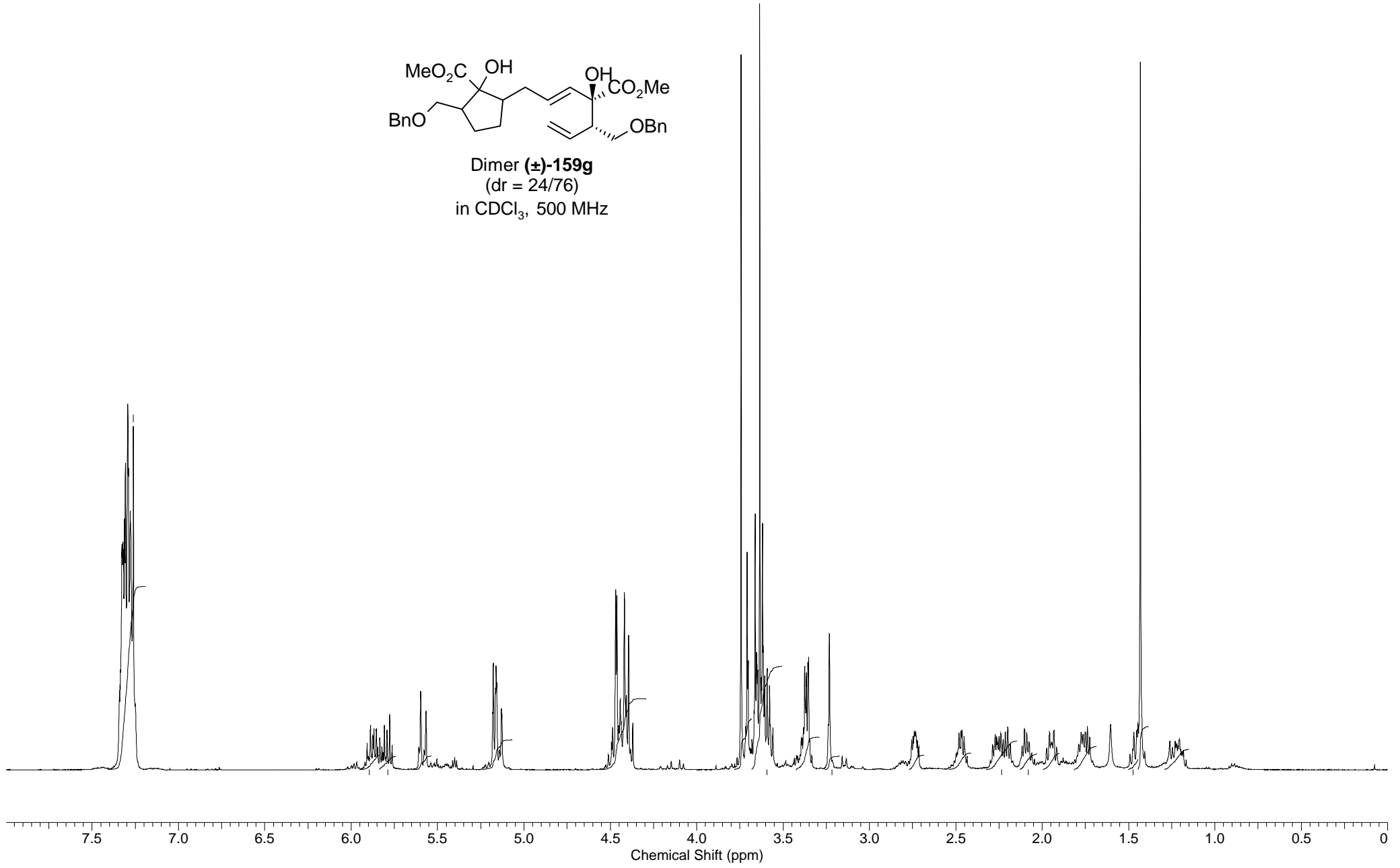


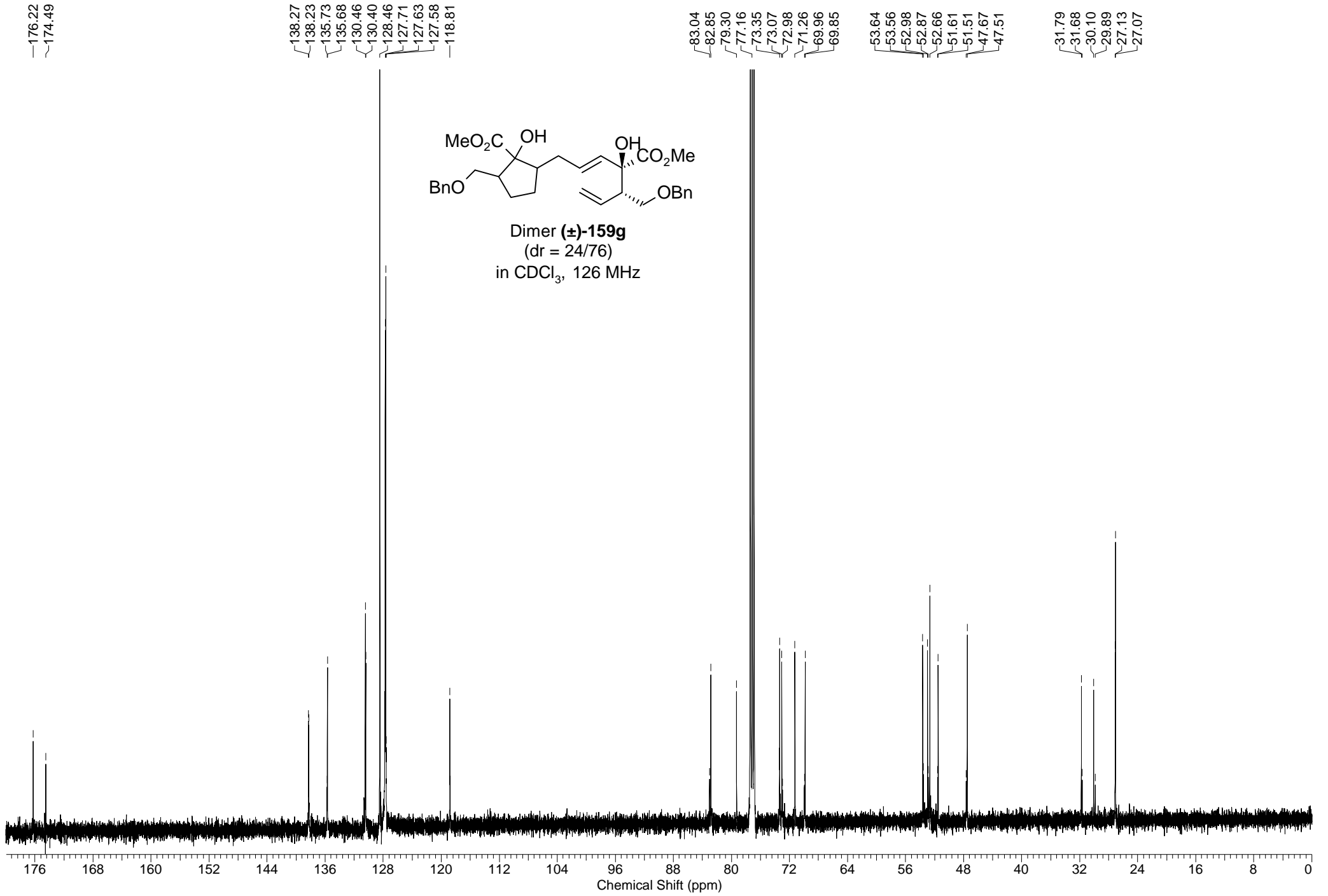


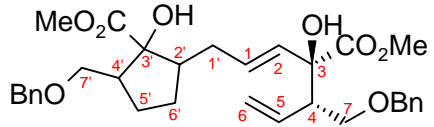
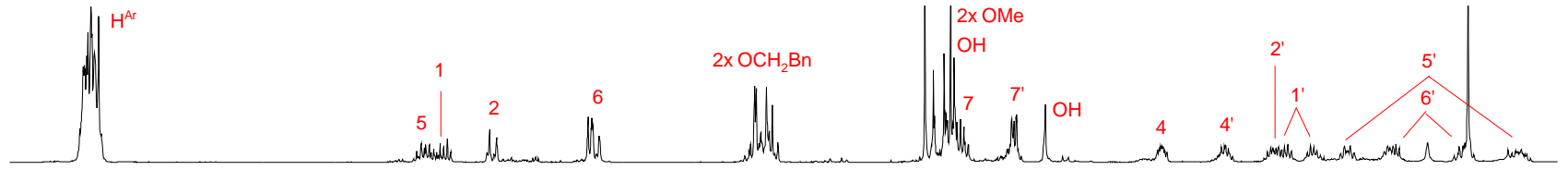
-7.26



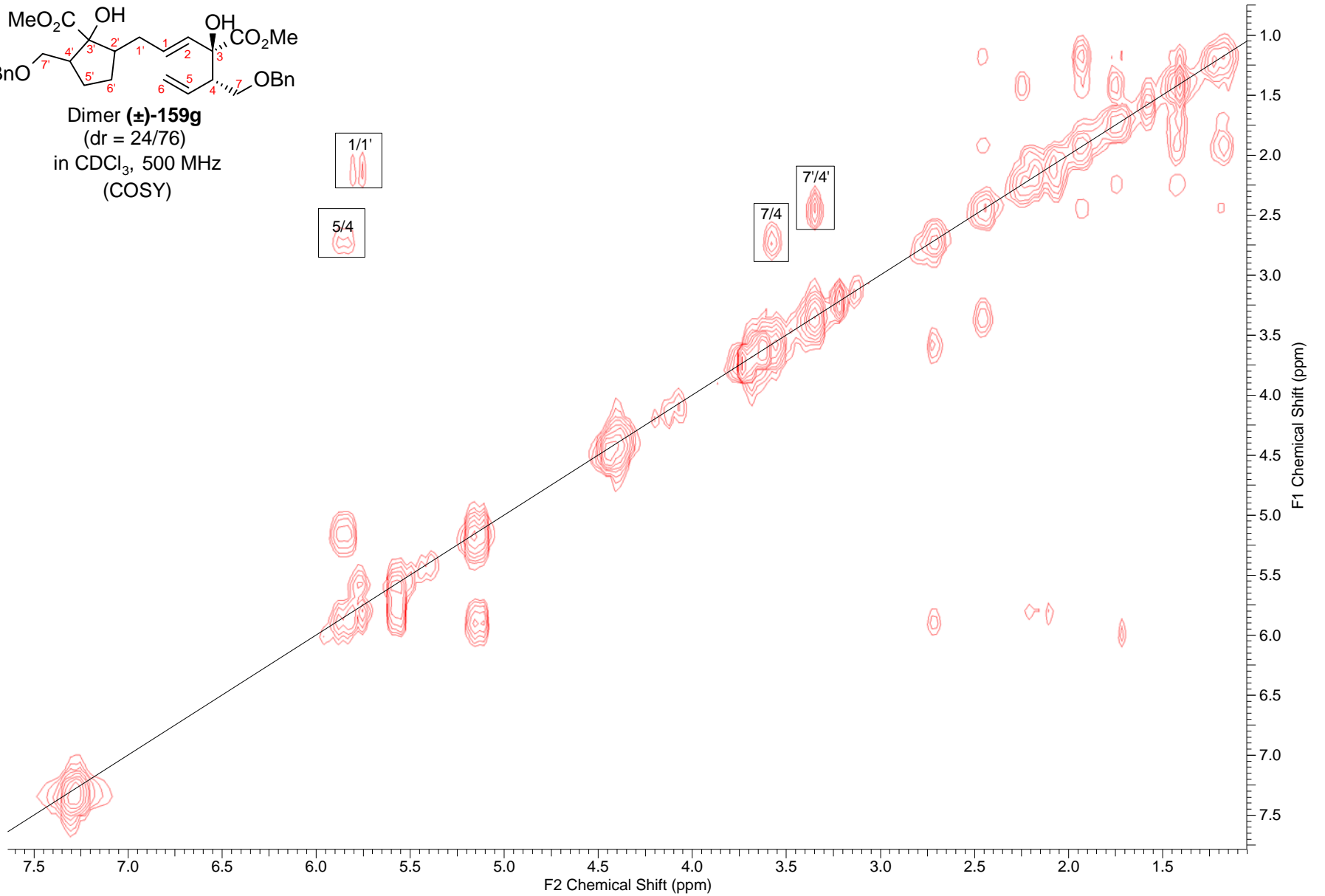
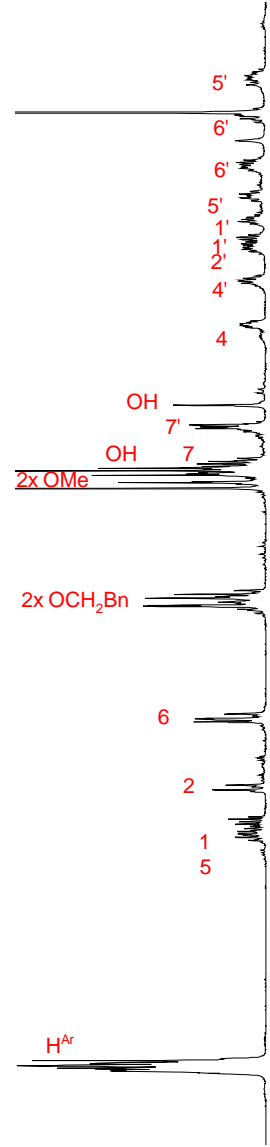
Dimer (\pm)-159g
(dr = 24/76)
in CDCl₃, 500 MHz

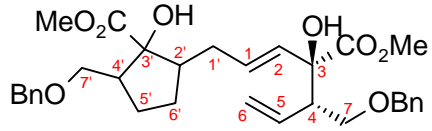
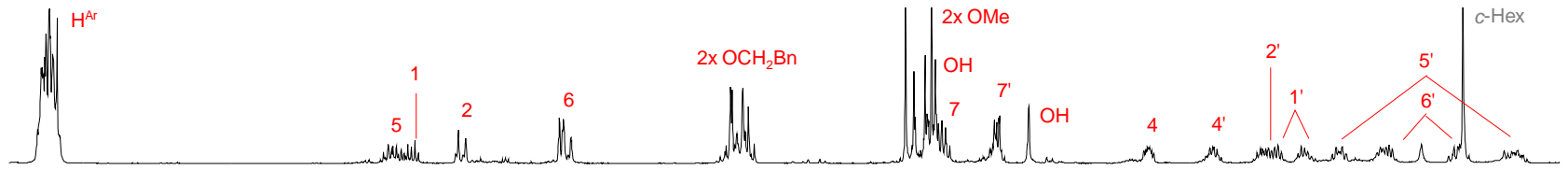




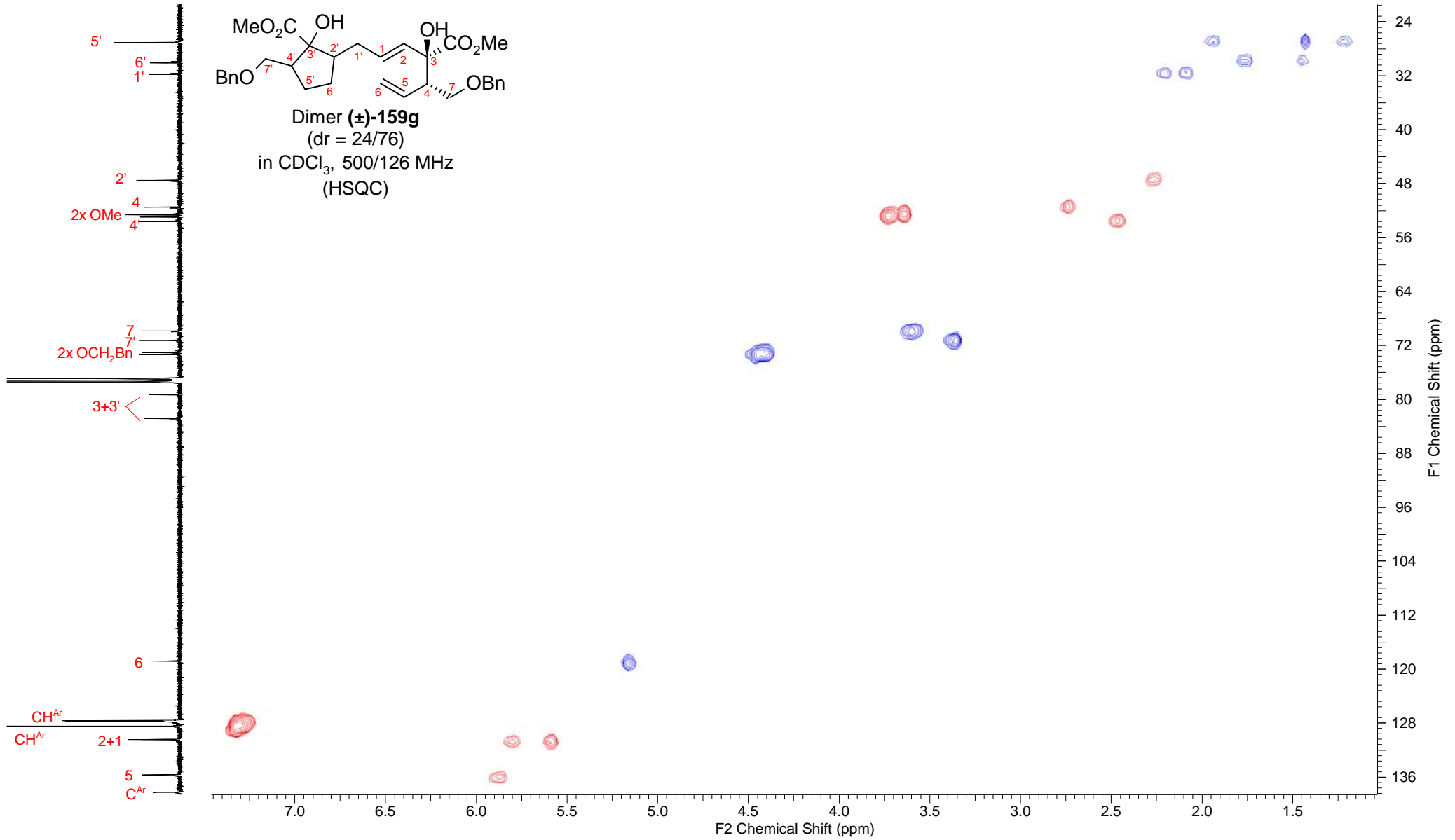


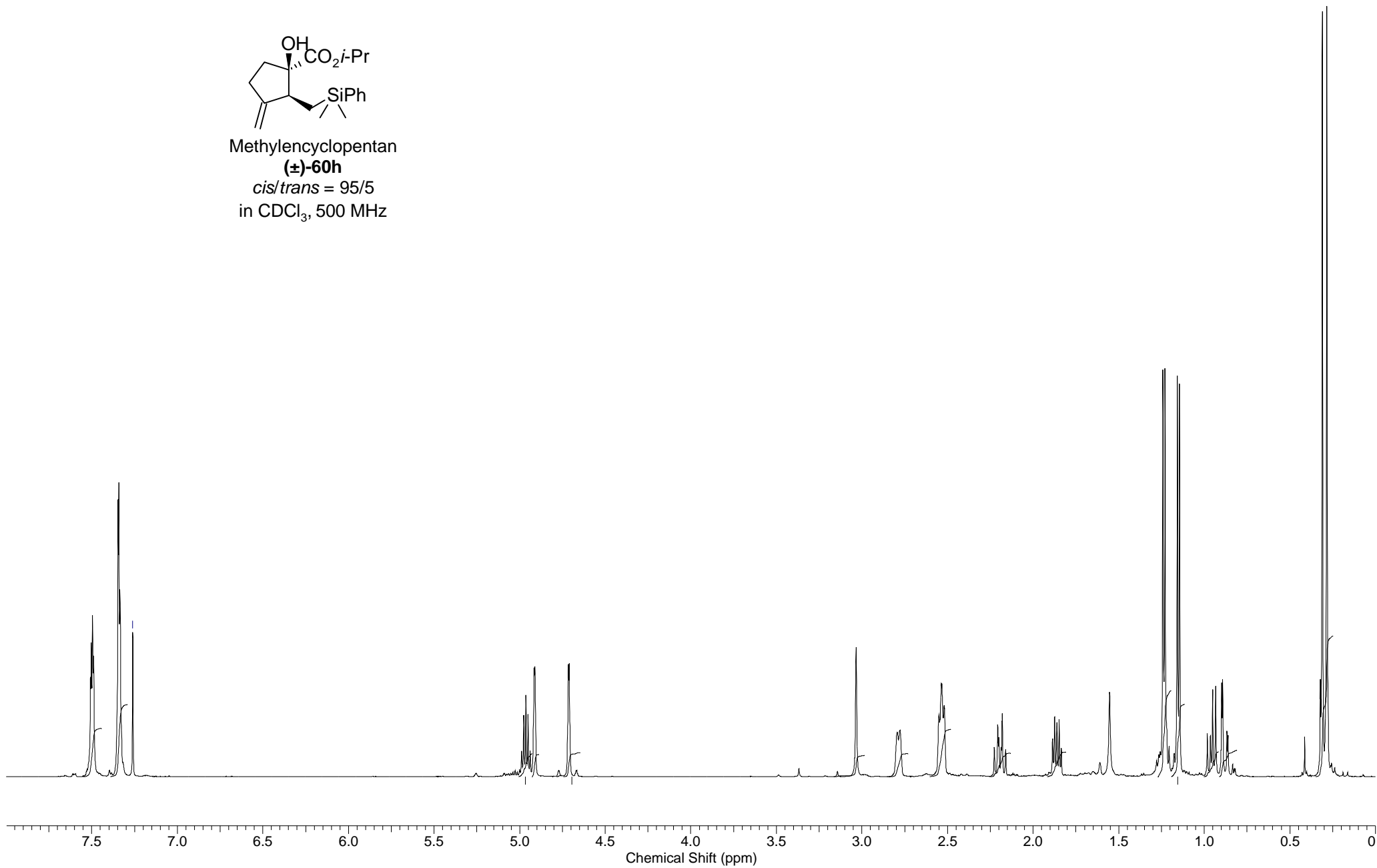
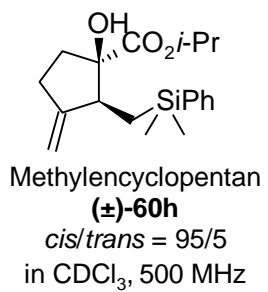
Dimer (\pm)-159g
(dr = 24/76)
in CDCl₃, 500 MHz
(COSY)

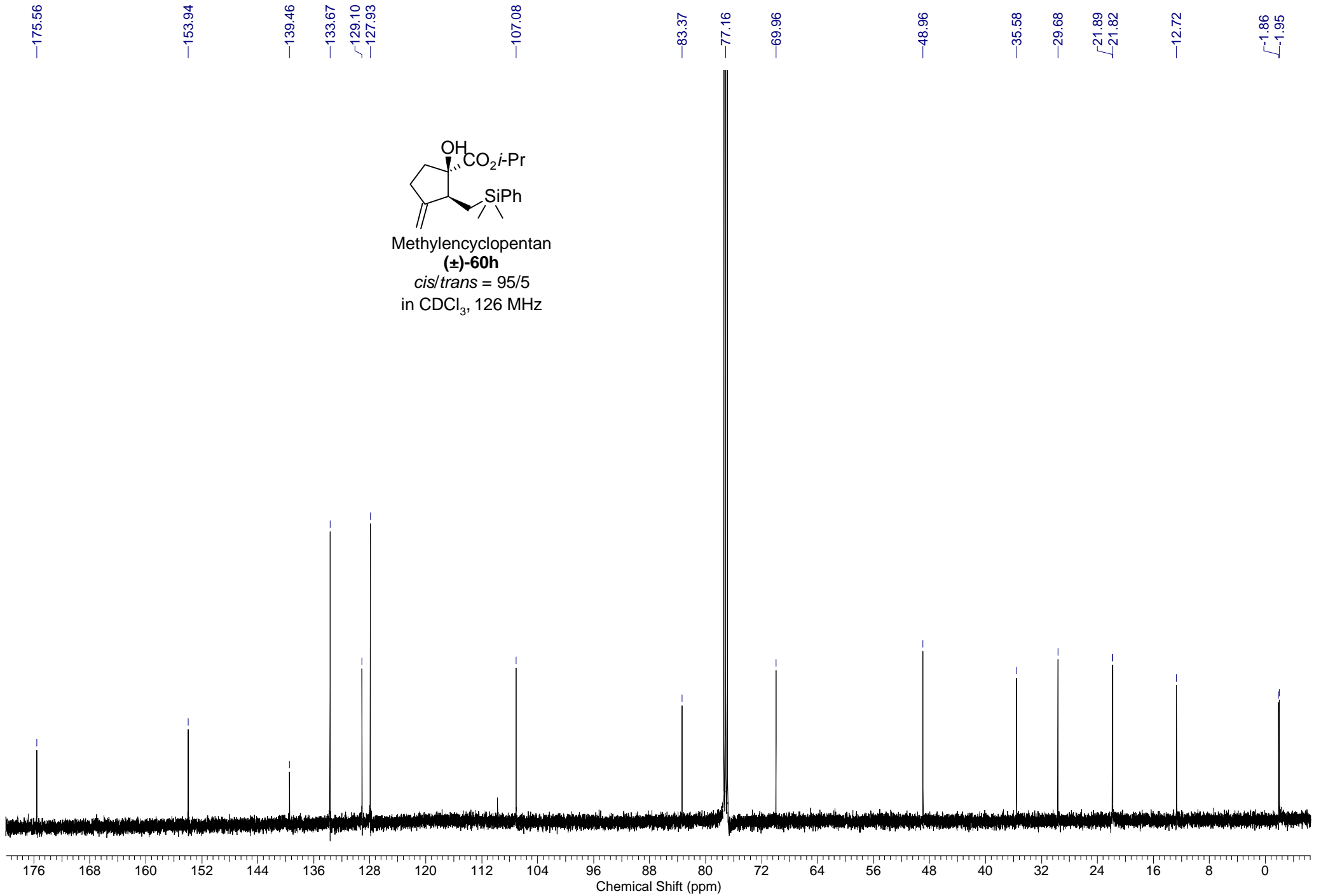


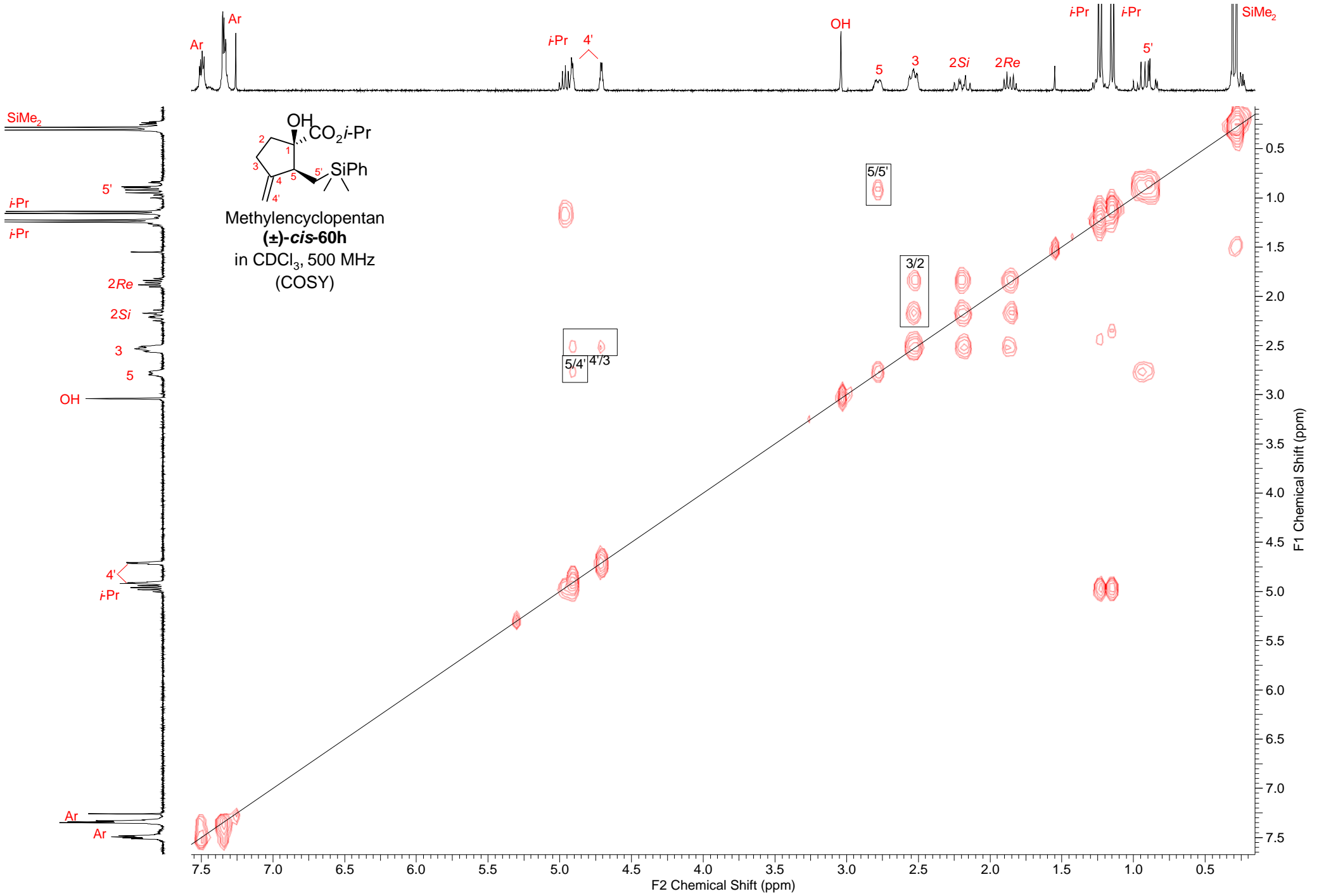


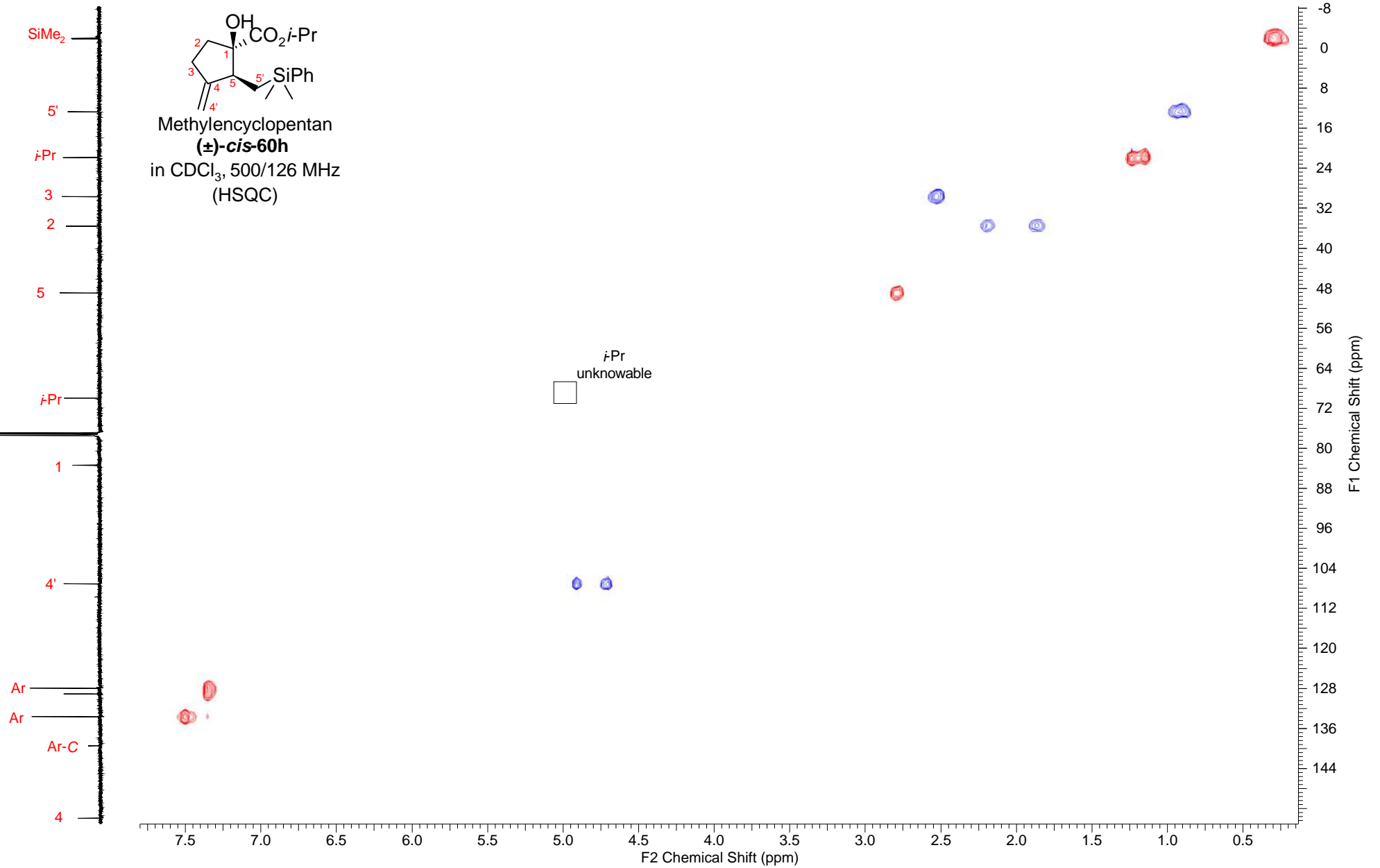
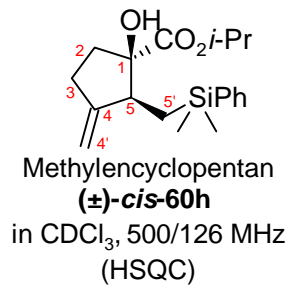
Dimer (\pm)-159g
(dr = 24/76)
in CDCl₃, 500/126 MHz
(HSQC)

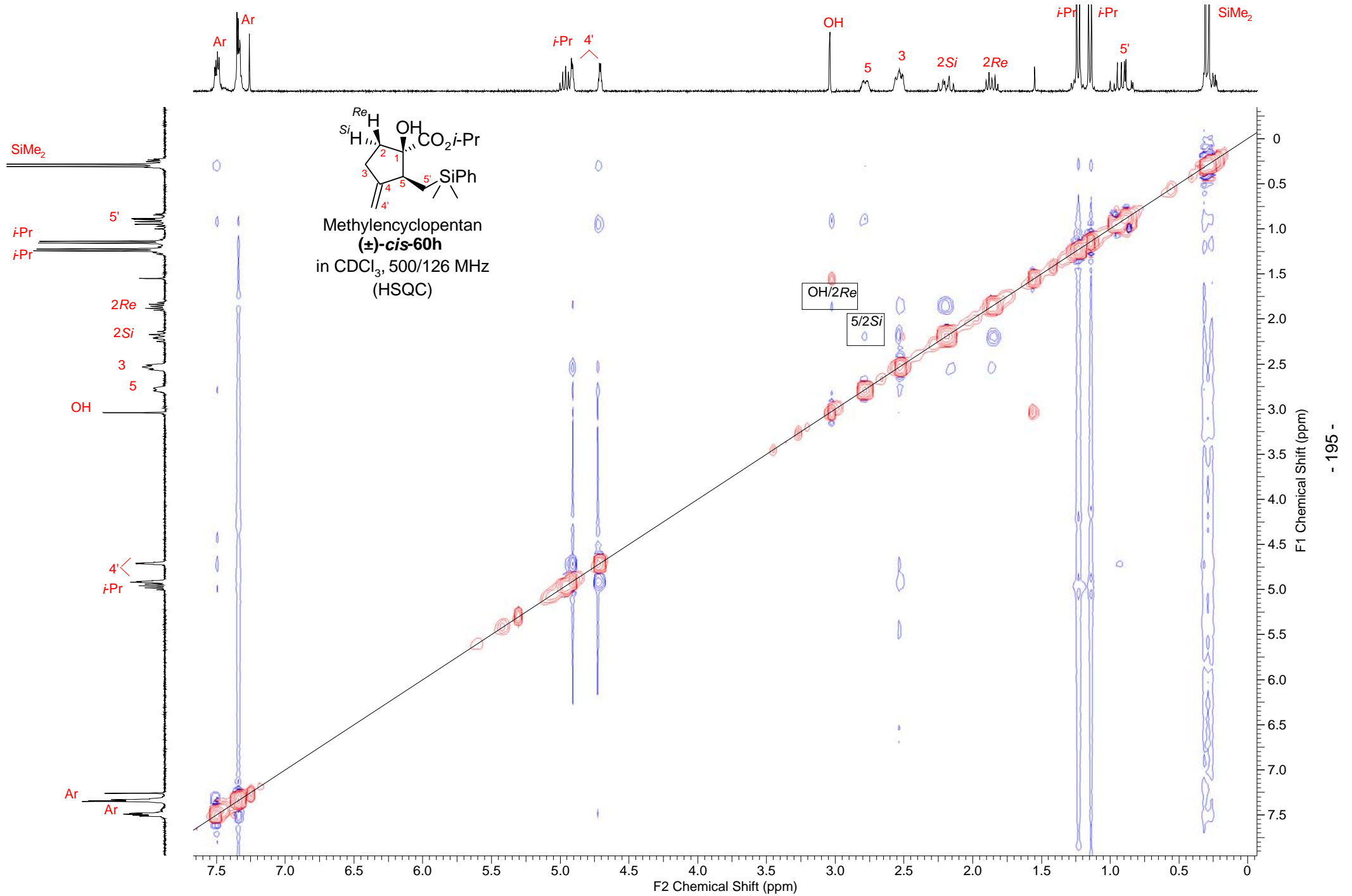


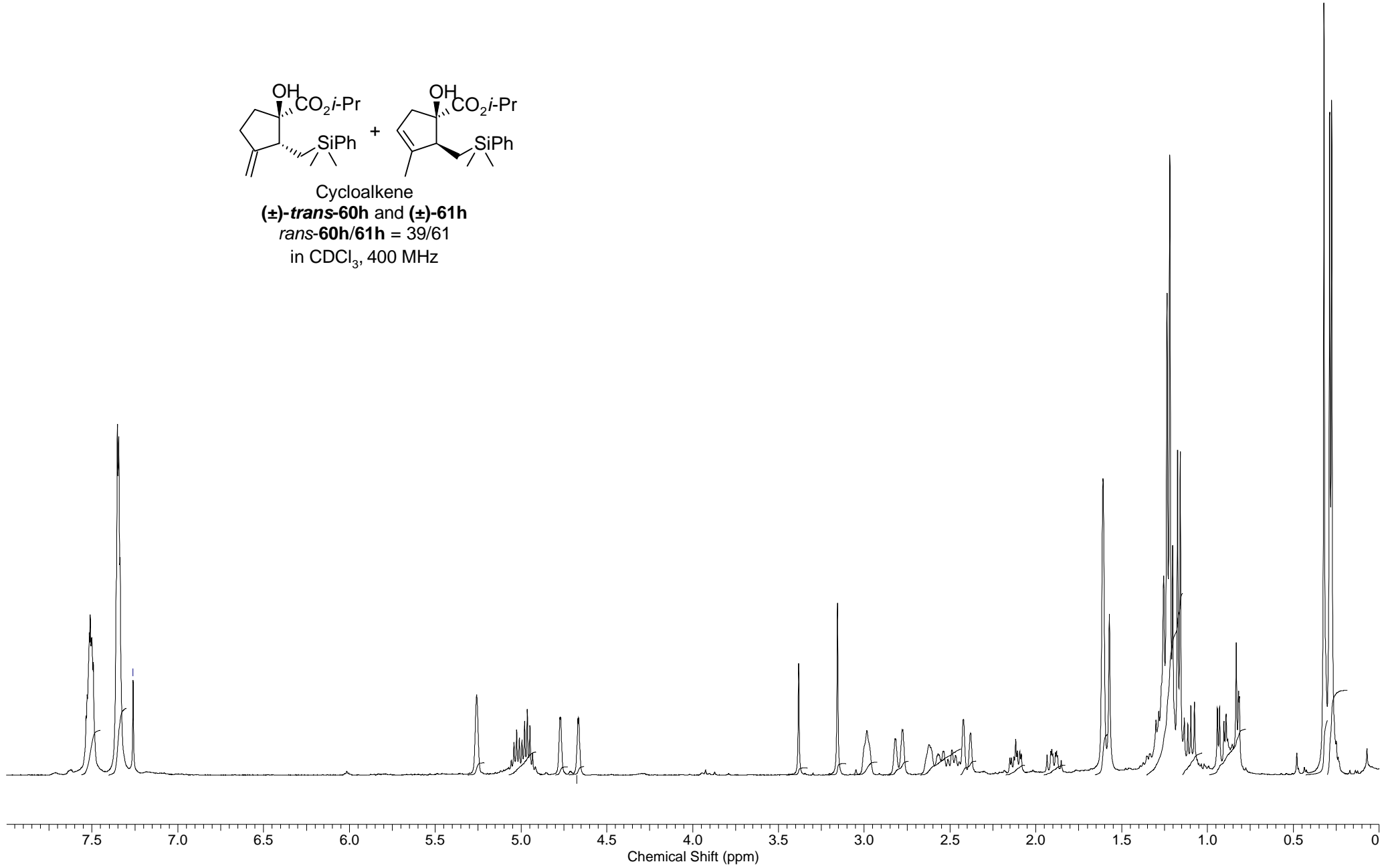
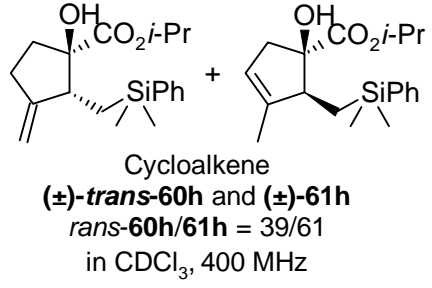




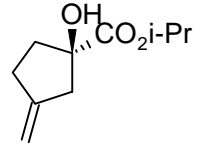




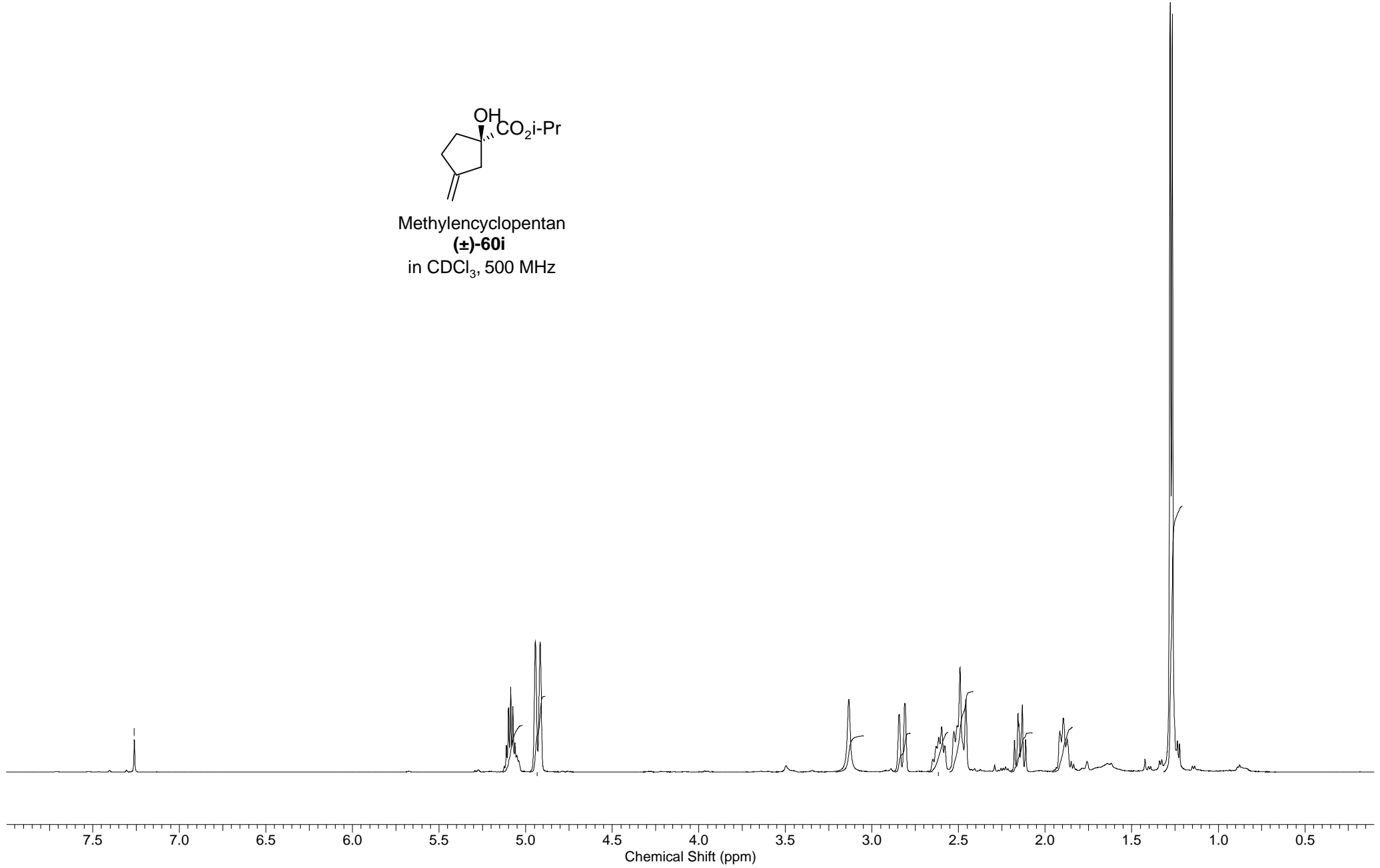


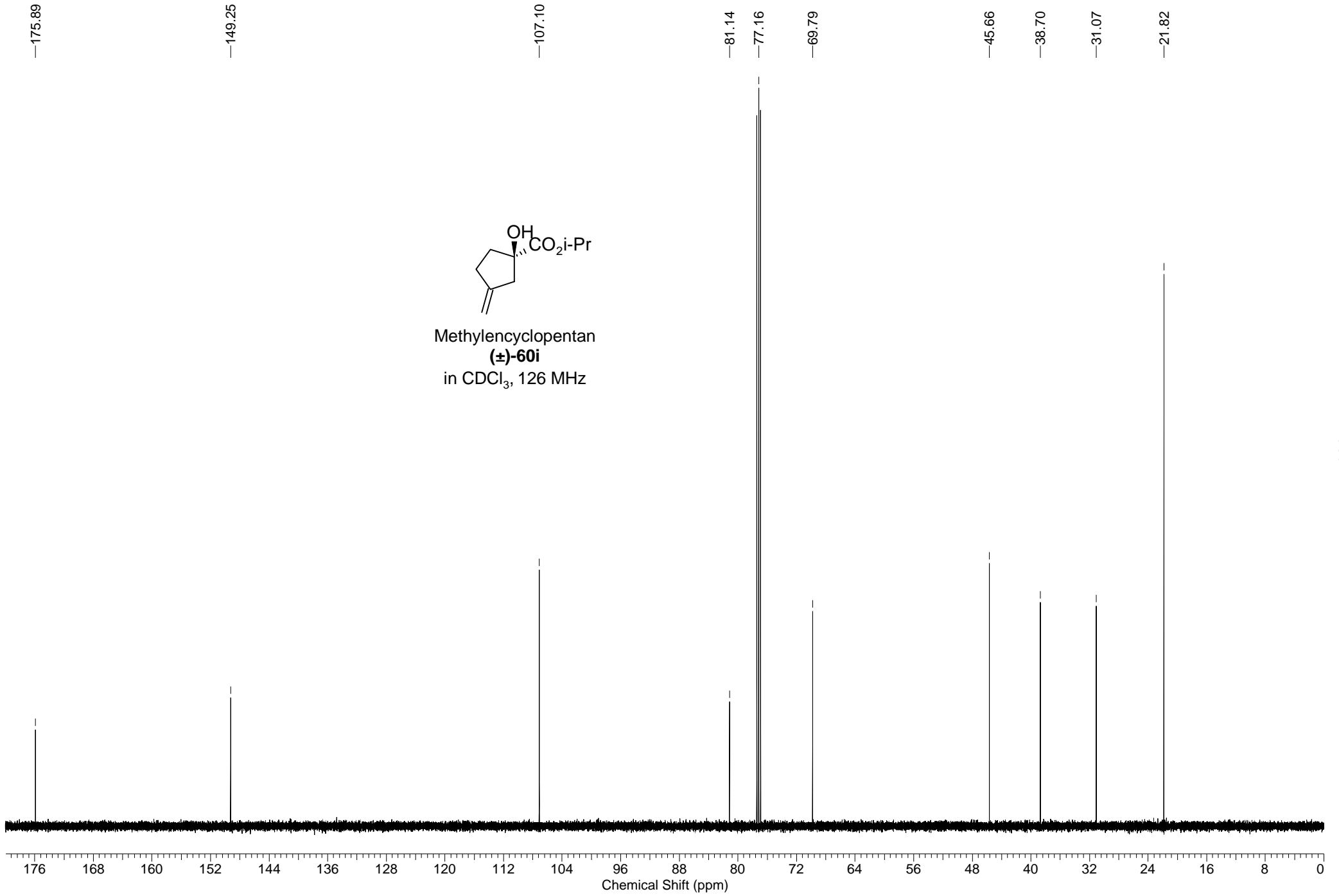


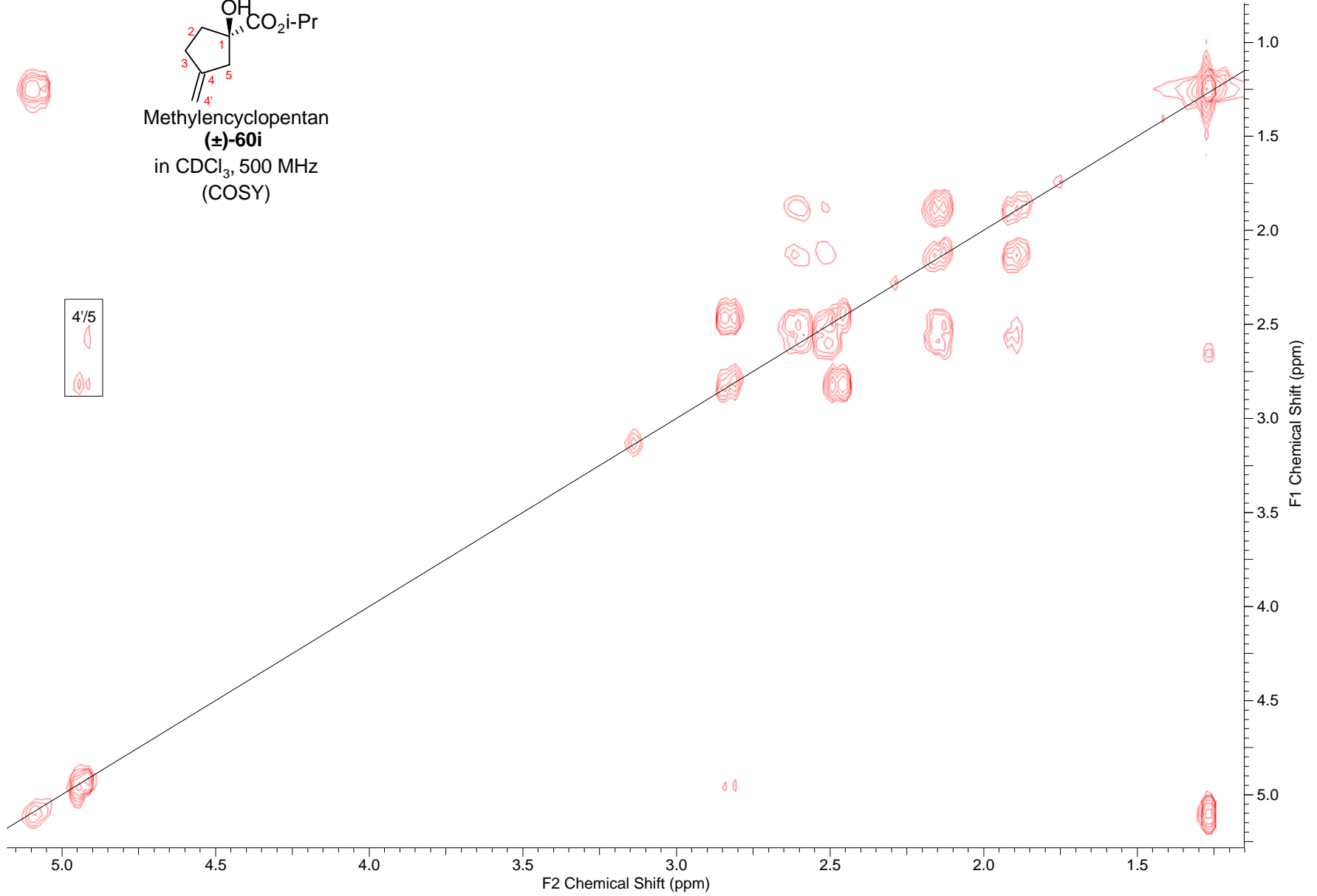
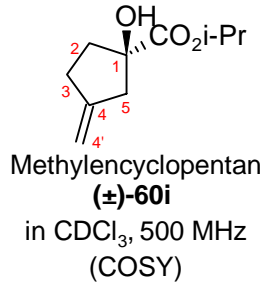
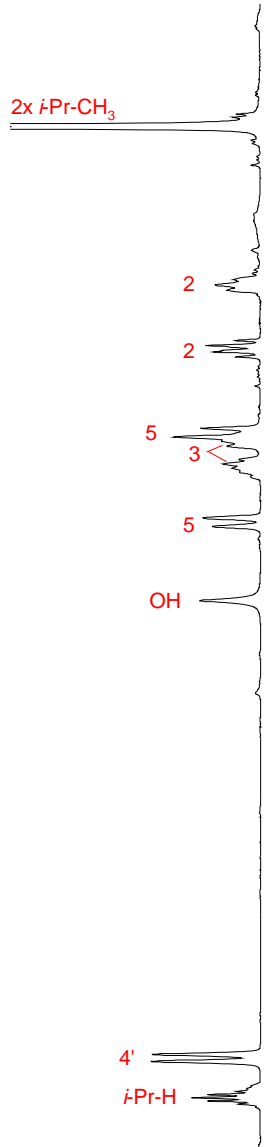
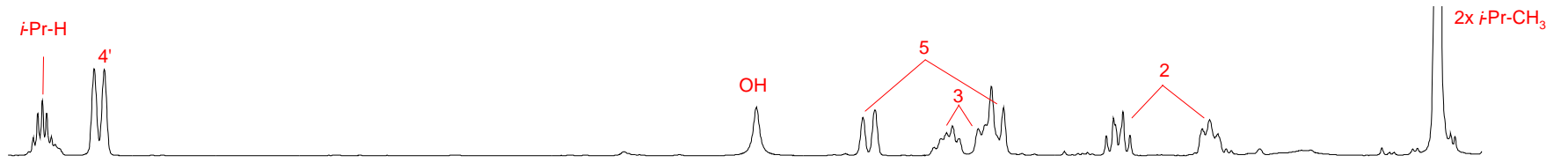
-7.26

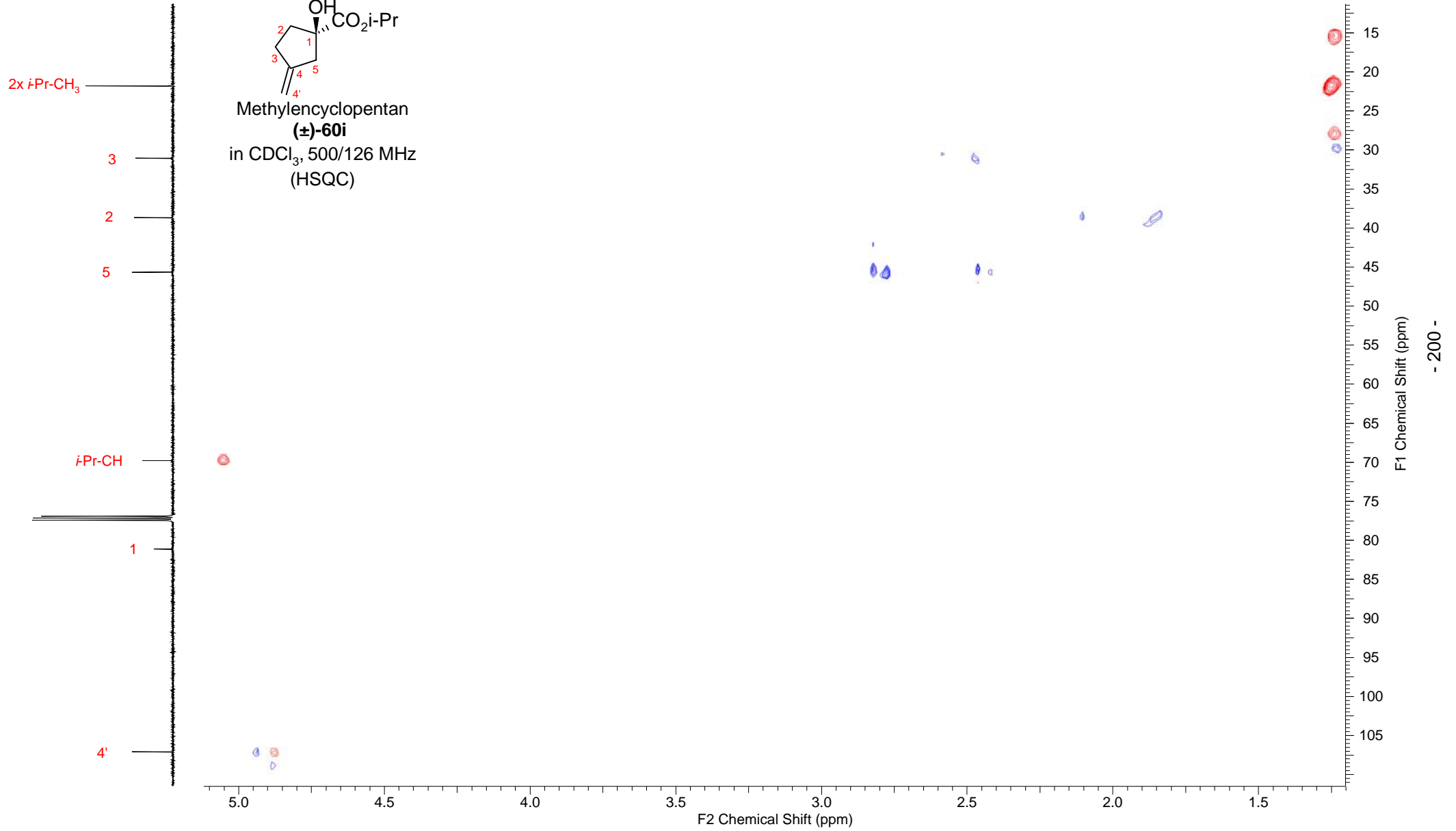
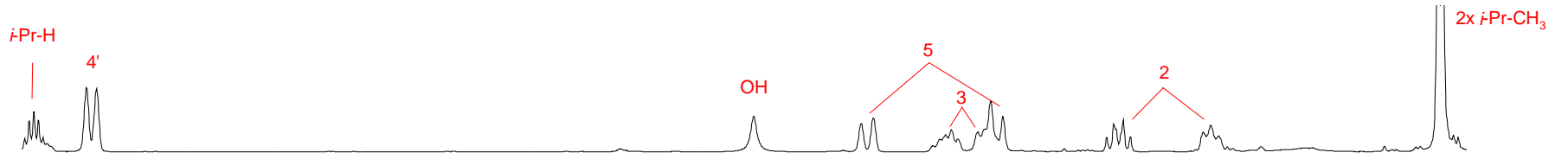


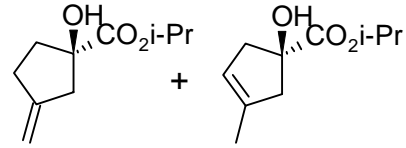
Methylcyclopentan
(±)-60i
in CDCl₃, 500 MHz



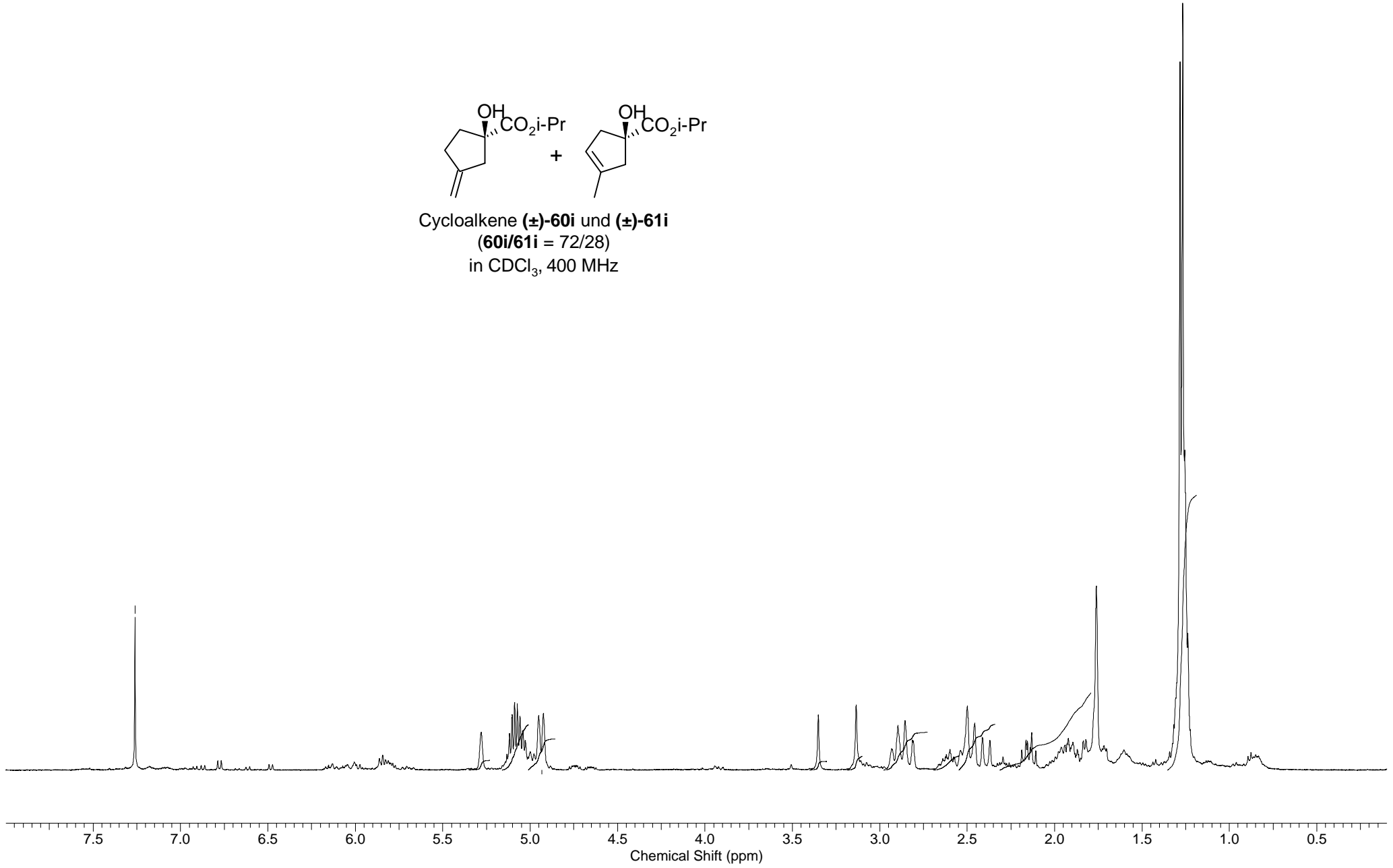


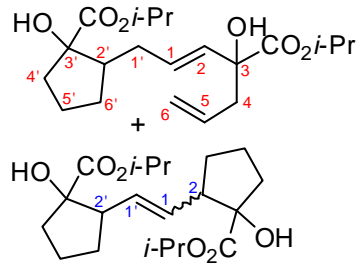




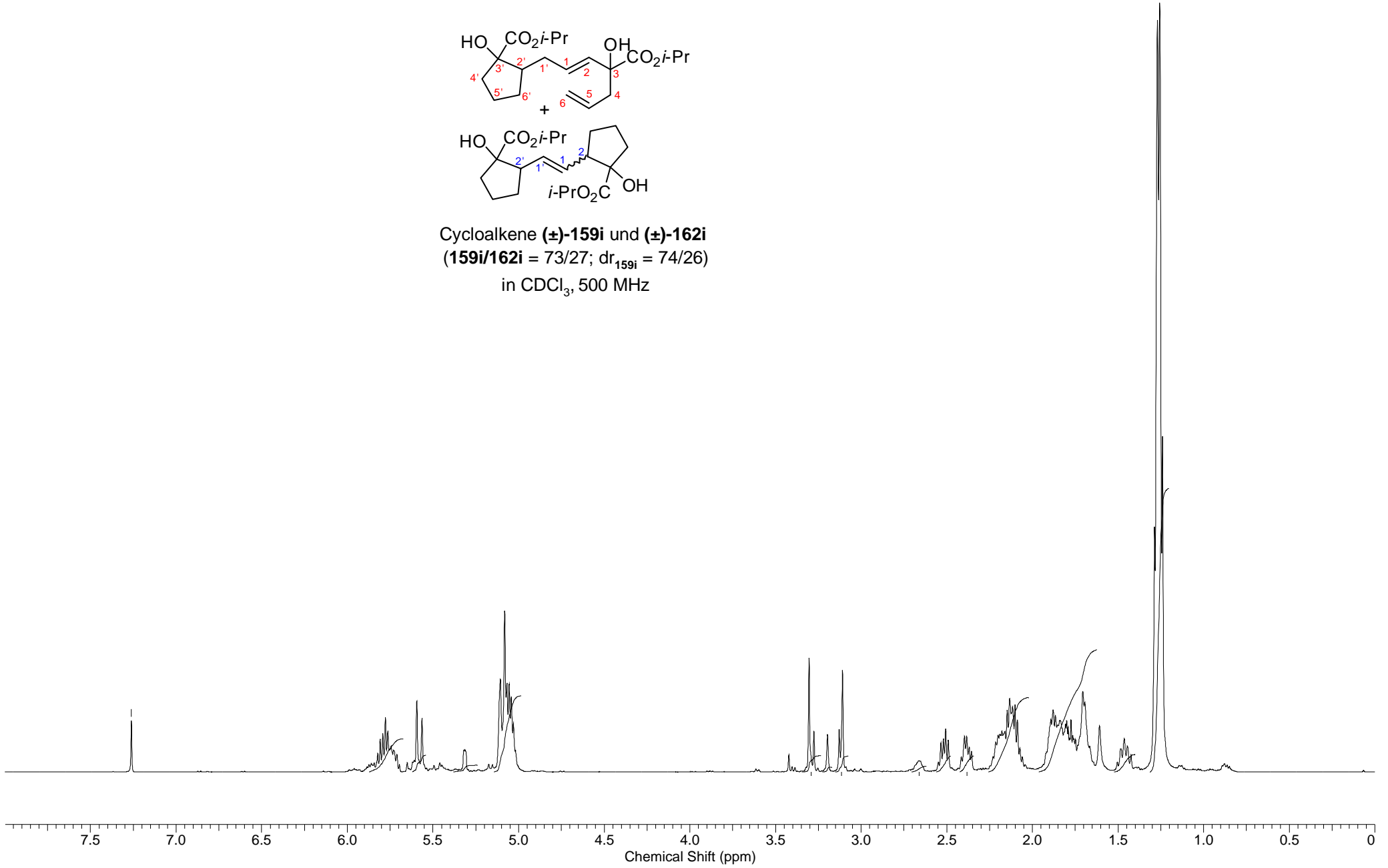


Cycloalkene (±)-60i und (±)-61i
(60i/61i = 72/28)
in CDCl₃, 400 MHz





Cycloalkene **(±)-159i** und **(±)-162i**
(**159i/162i** = 73/27; dr_{159i} = 74/26)
in $CDCl_3$, 500 MHz



176.87
176.81
176.10
174.48
174.39

132.45
132.35
131.56
131.42
131.17
129.71
129.57

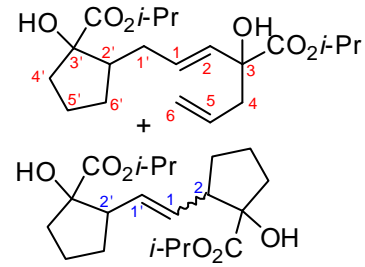
118.99

83.72
82.07
77.16
76.43
70.19
70.03
69.68
69.59

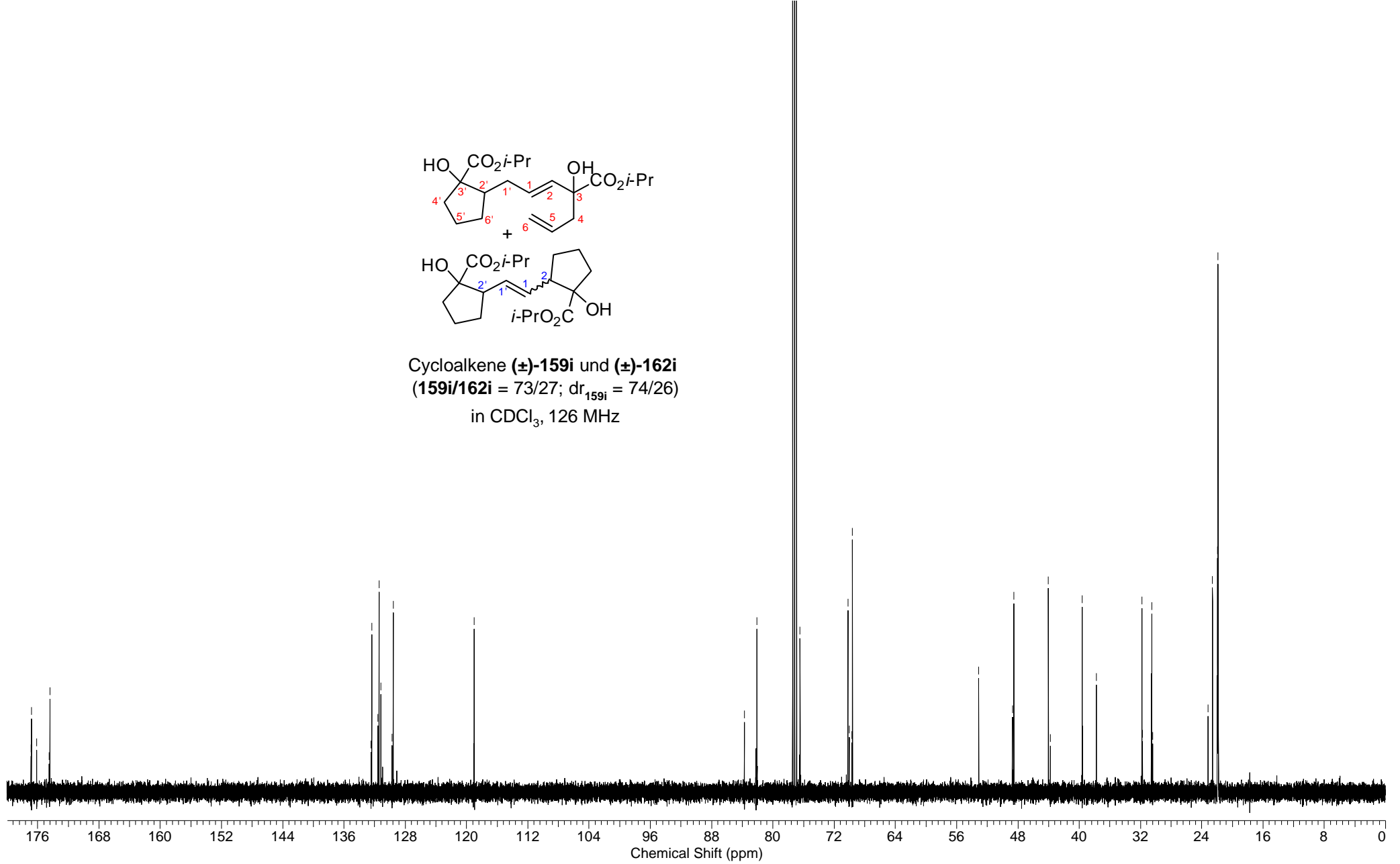
53.11
48.71
48.53

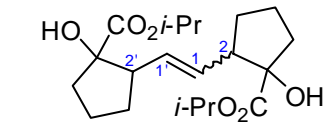
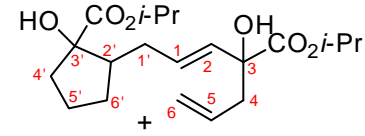
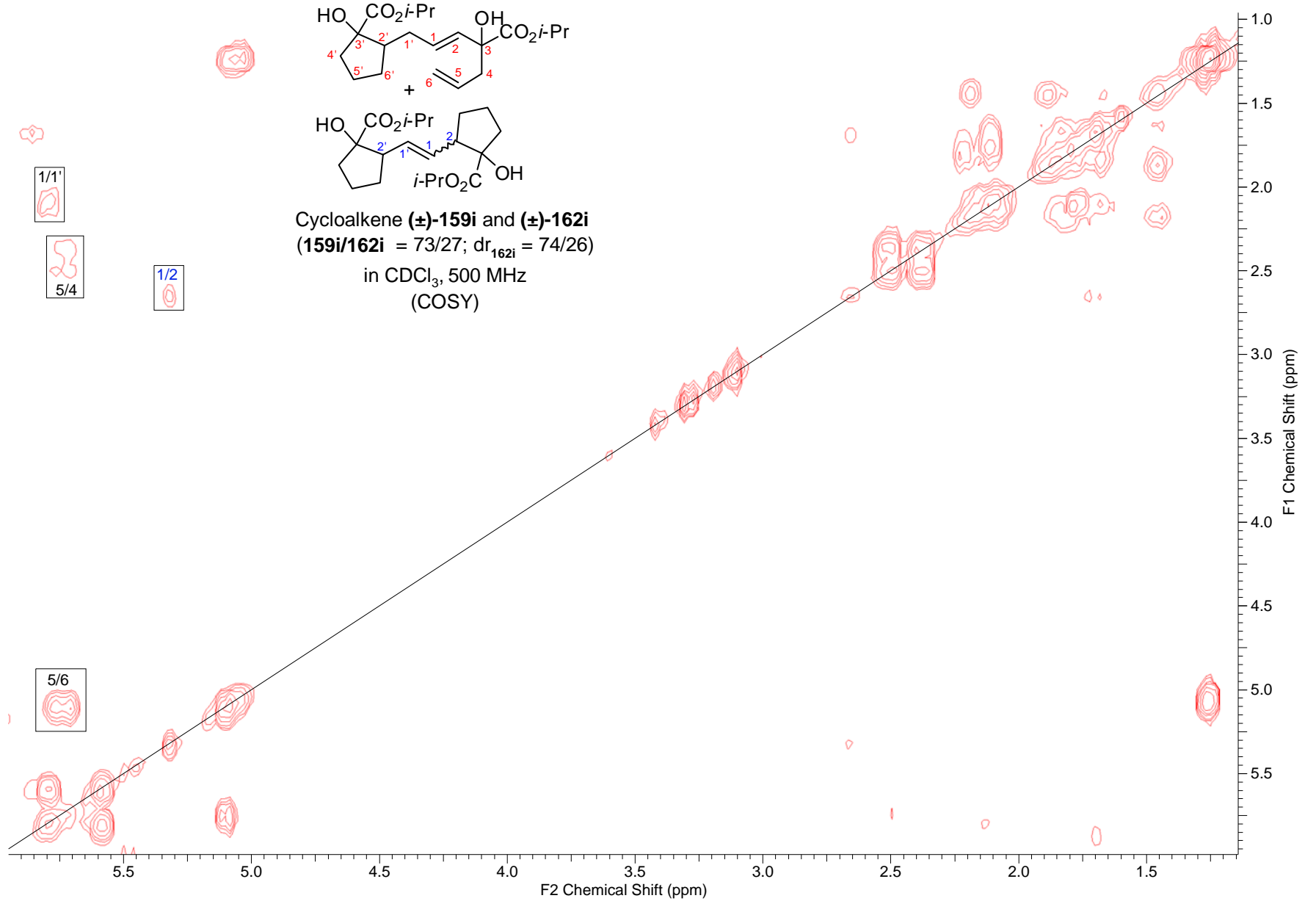
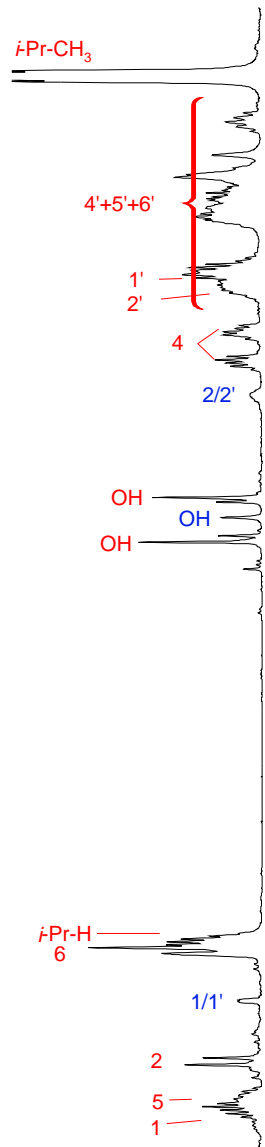
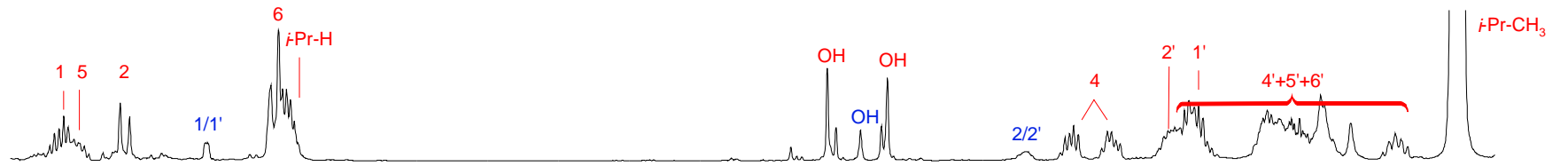
44.01
43.76
39.60
37.74

31.78
31.73
30.52
30.40
23.16
22.57
21.92
21.84
21.78



Cycloalkene (\pm)-**159i** und (\pm)-**162i**
(**159i/162i** = 73/27; dr_{159i} = 74/26)
in CDCl₃, 126 MHz

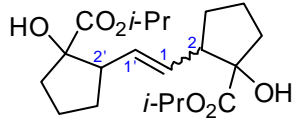
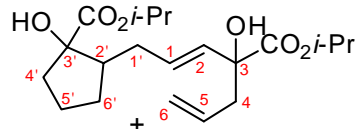
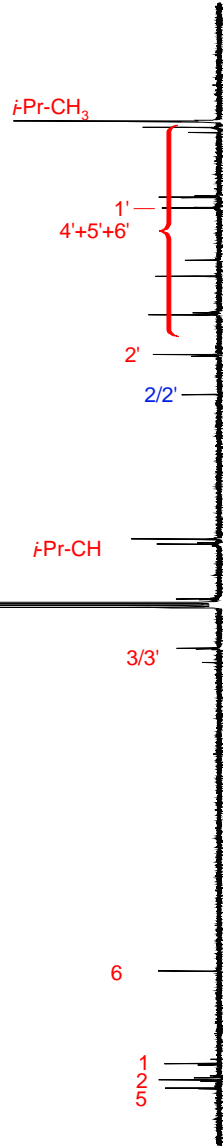
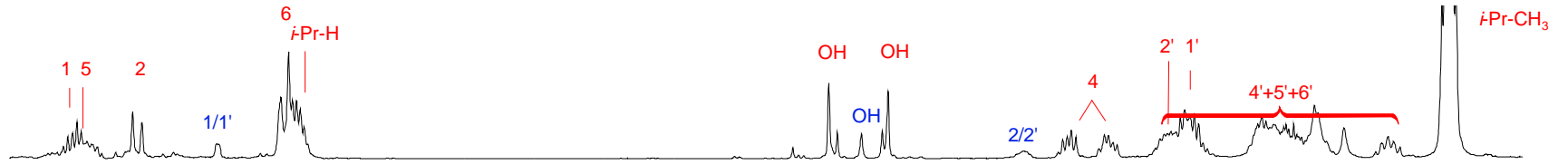




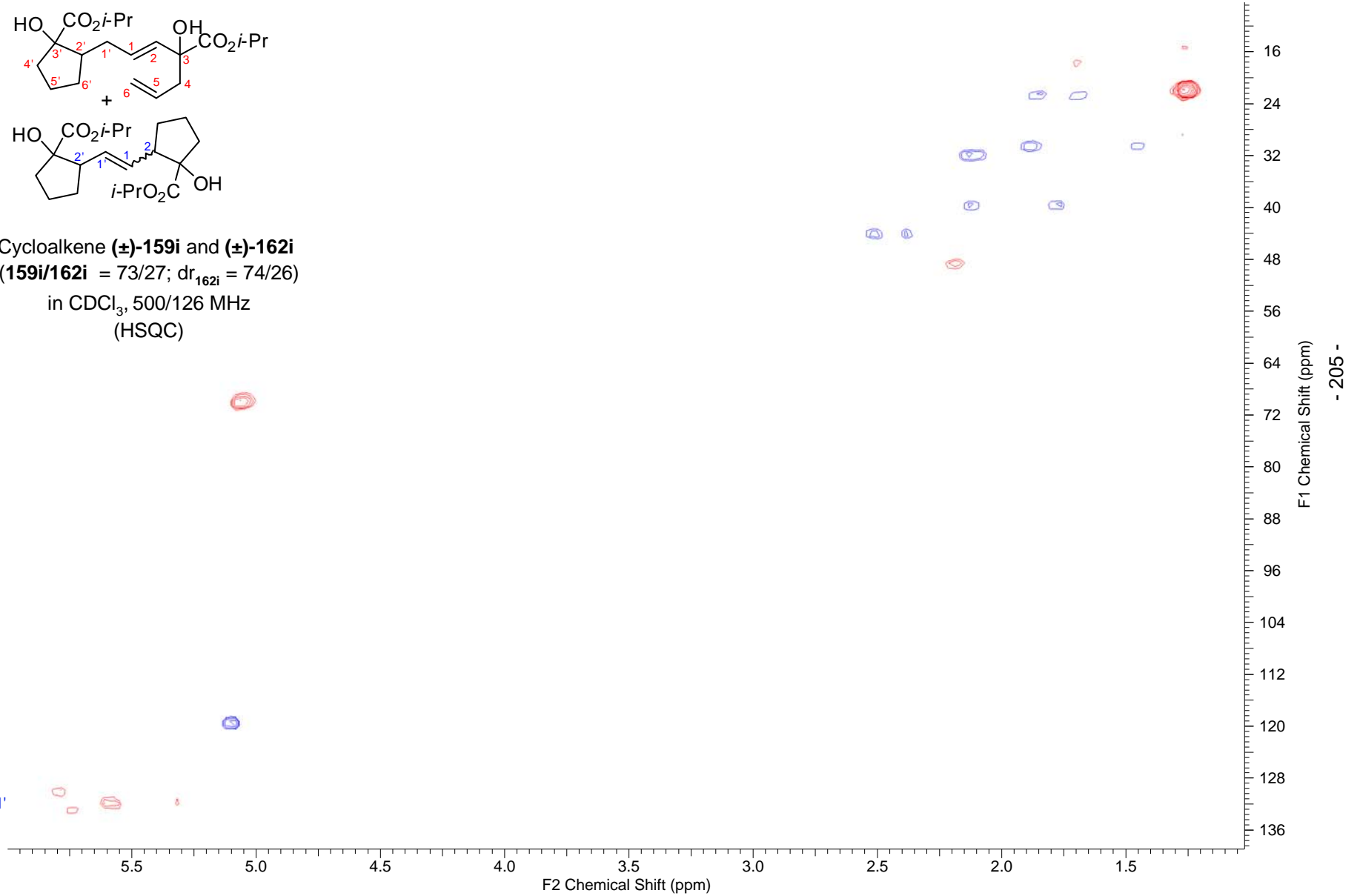
Cycloalkene (±)-159i and (±)-162i
 (159i/162i = 73/27; dr_{162i} = 74/26)
 in CDCl₃, 500 MHz
 (COSY)

F1 Chemical Shift (ppm)

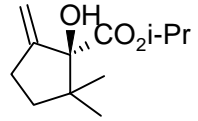
F2 Chemical Shift (ppm)



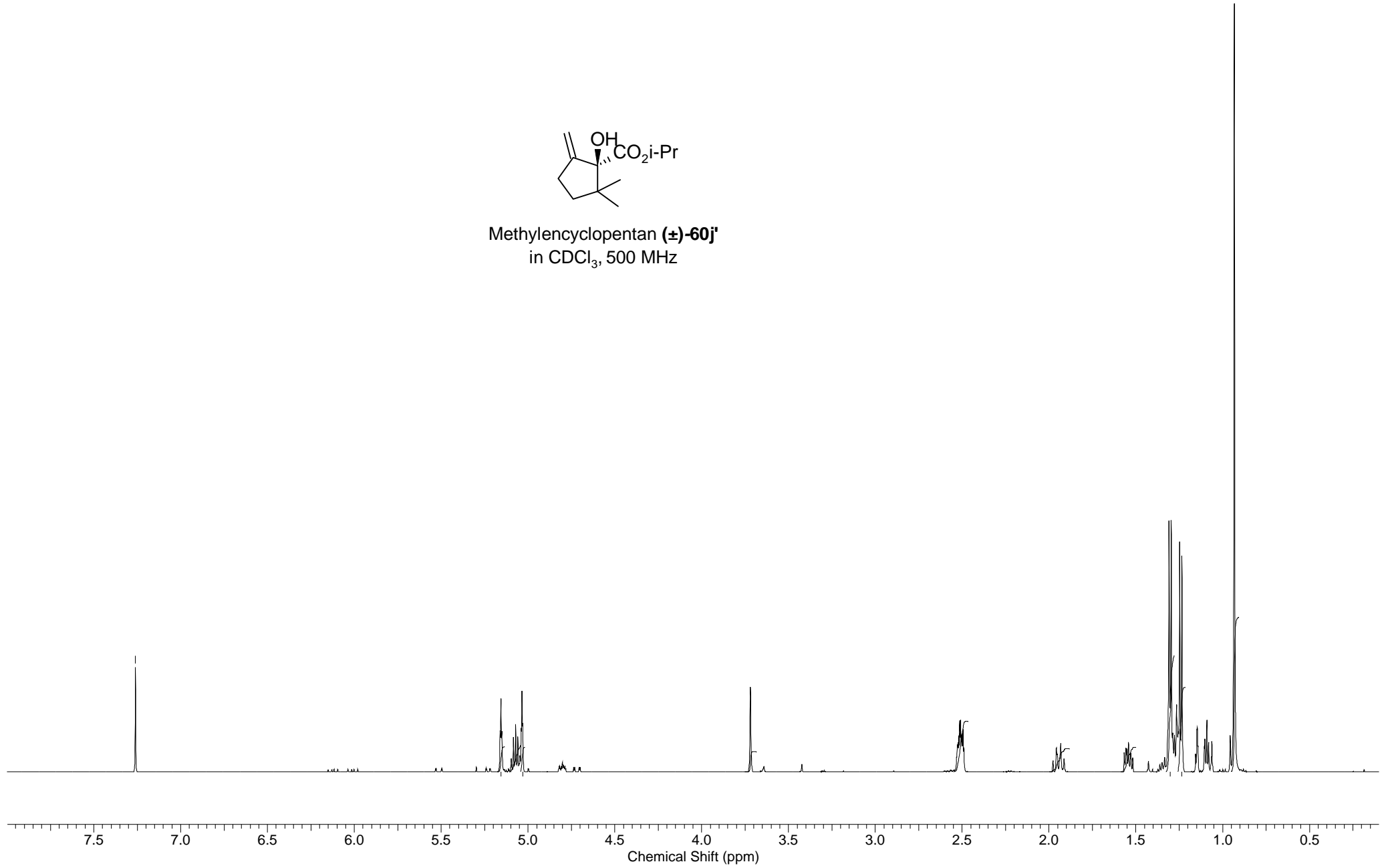
Cycloalkene (\pm)-**159i** and (\pm)-**162i**
 (**159i/162i** = 73/27; dr_{162i} = 74/26)
 in $CDCl_3$, 500/126 MHz
 (HSQC)

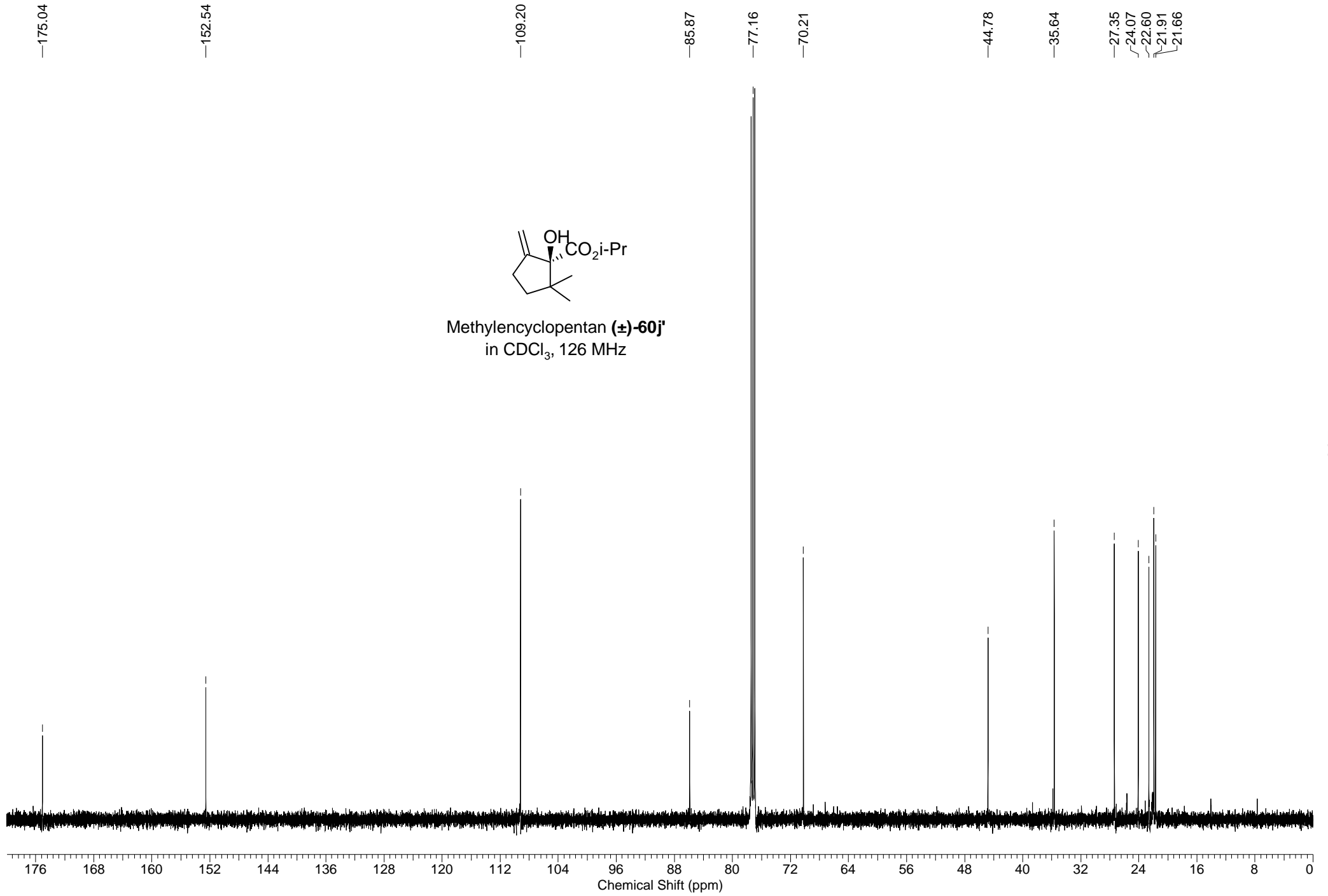


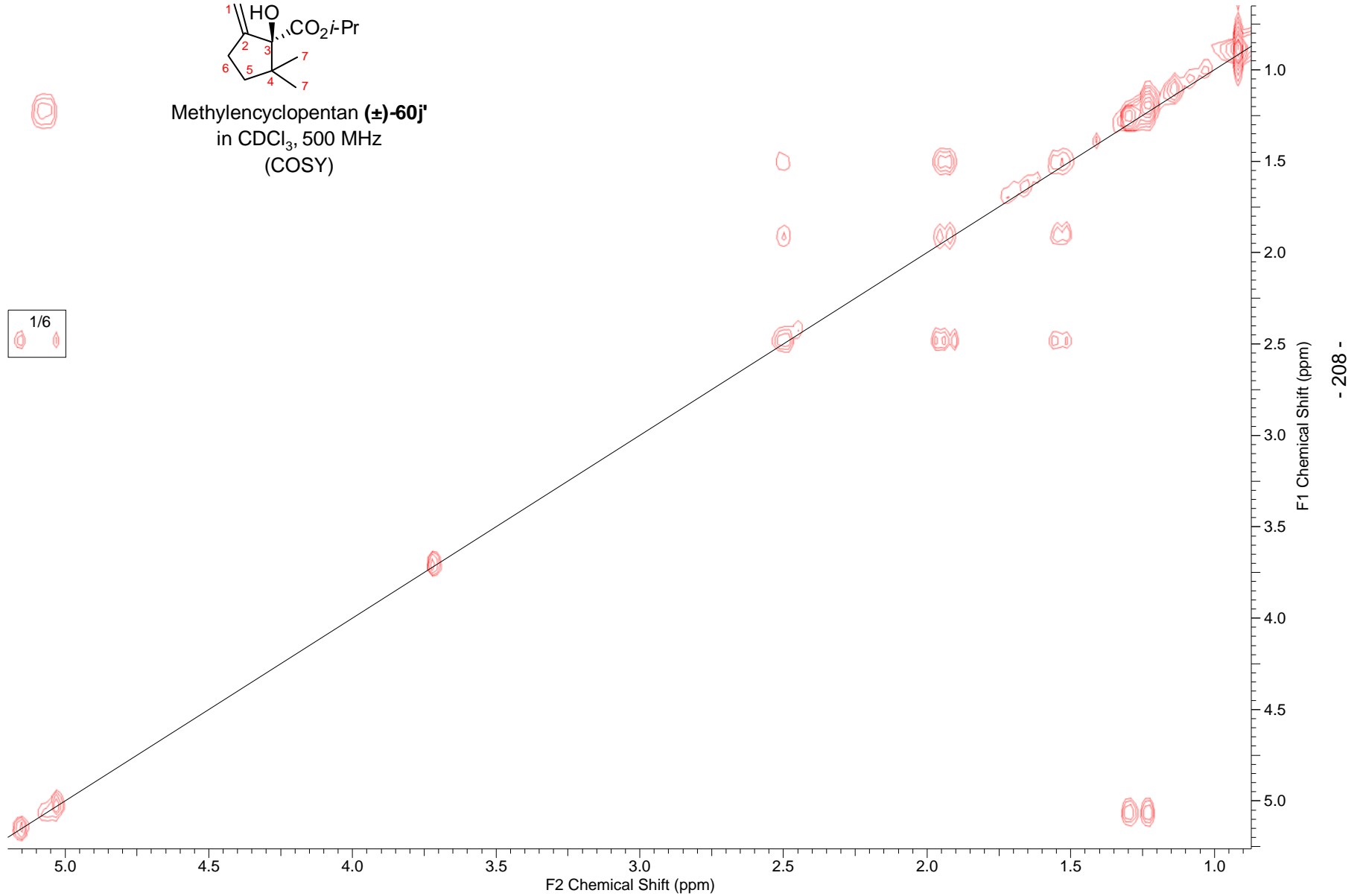
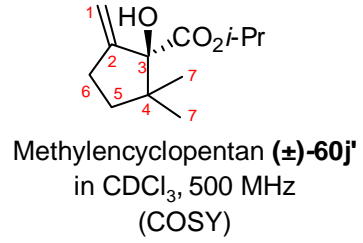
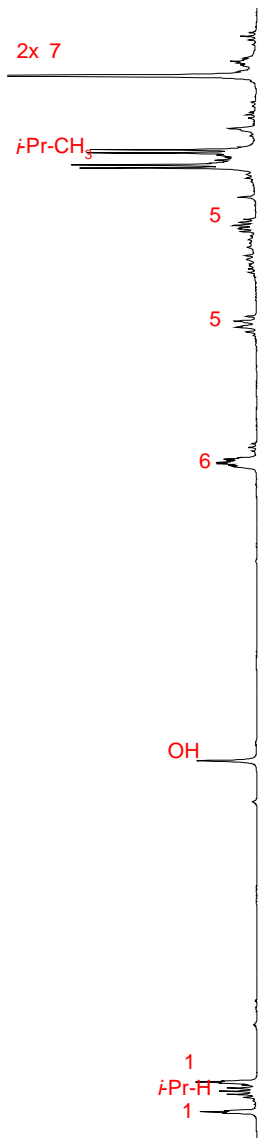
-7.26

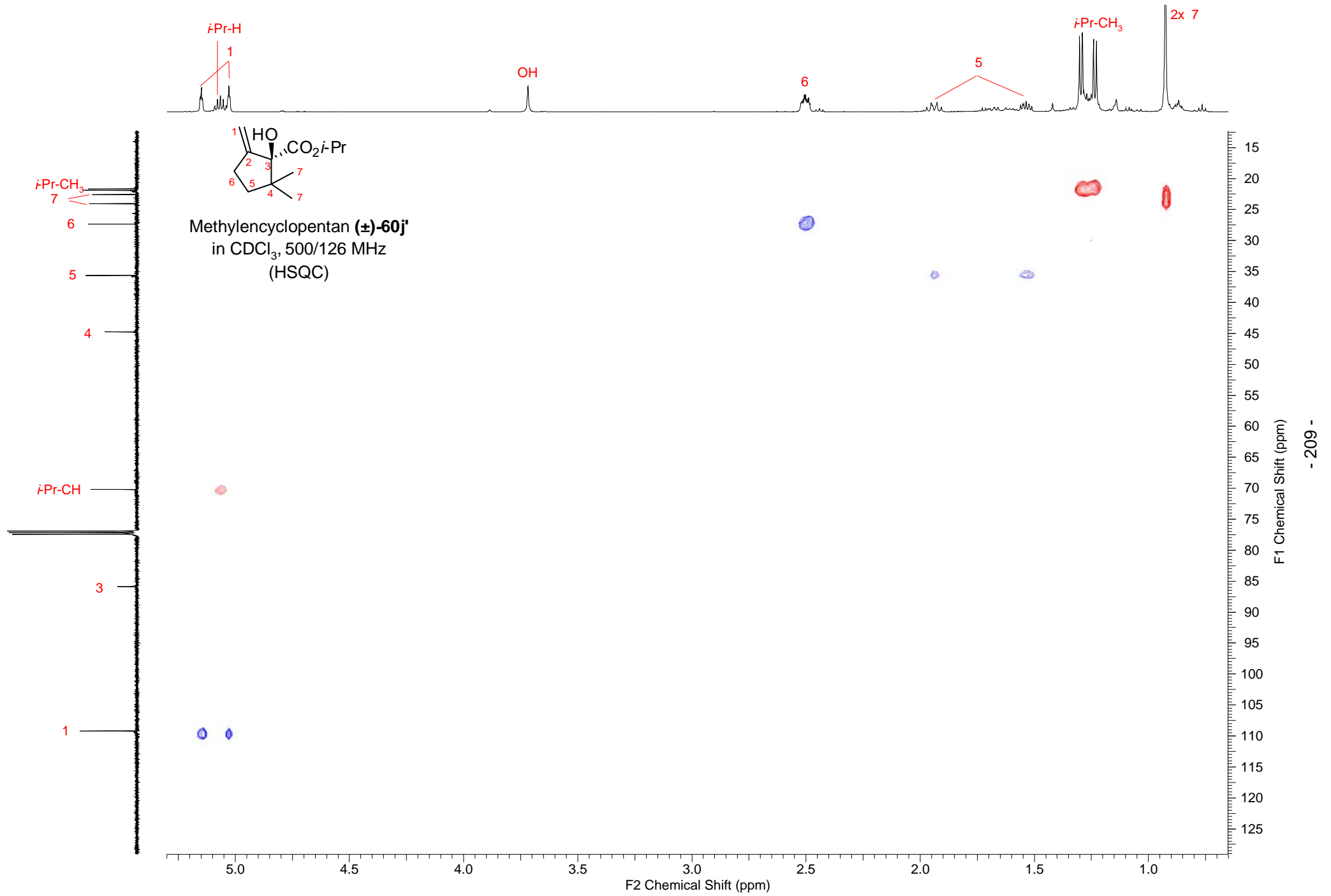


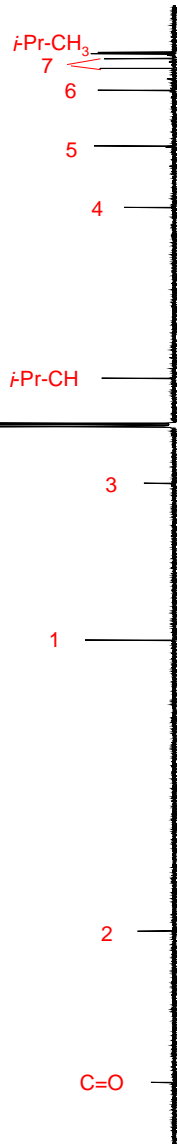
Methylcyclopentan (\pm)-60j'
in CDCl₃, 500 MHz





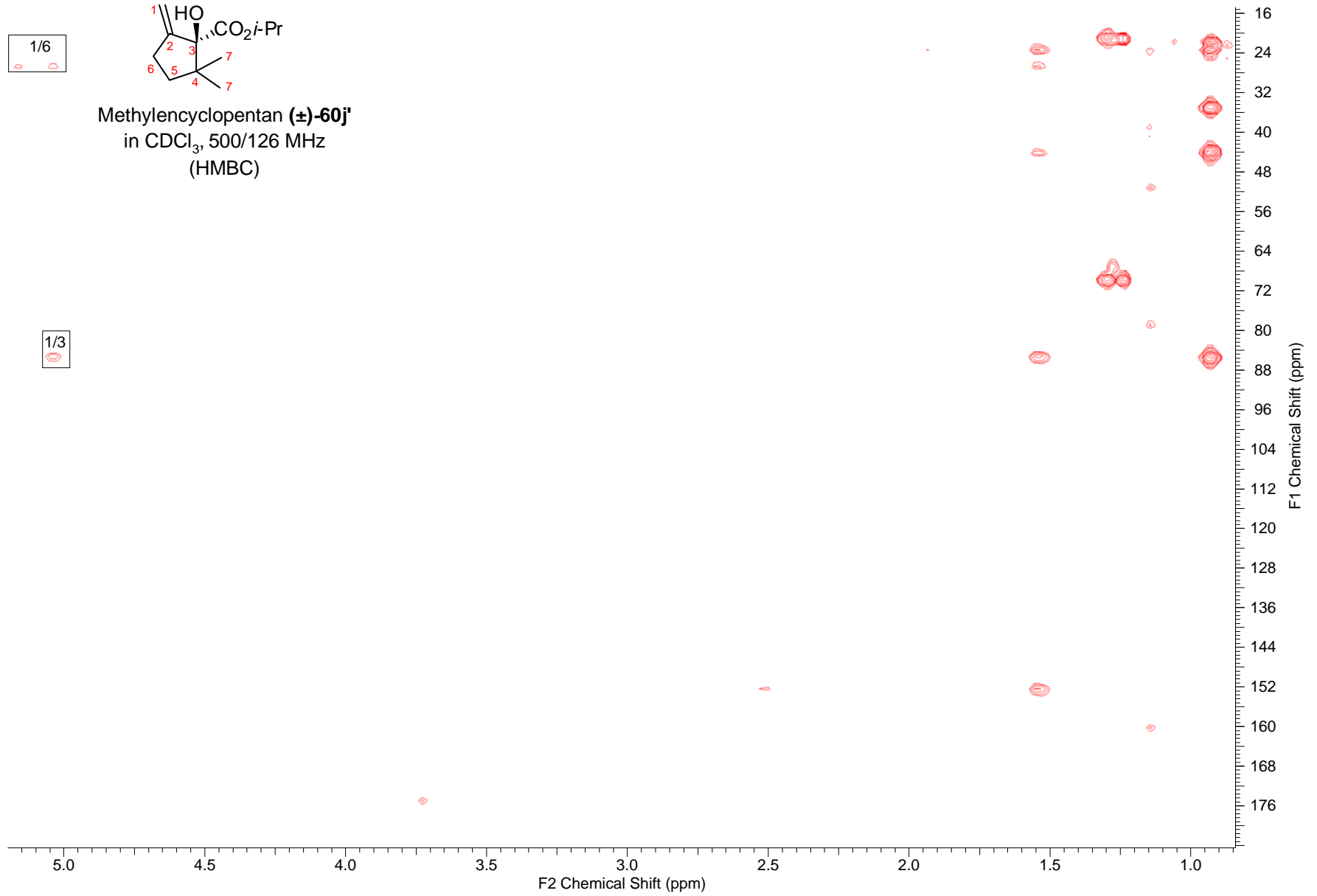
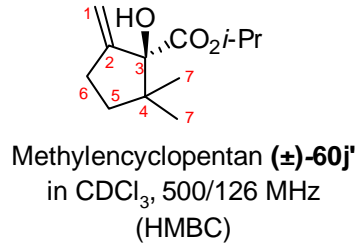


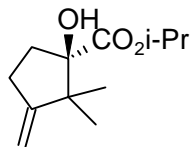




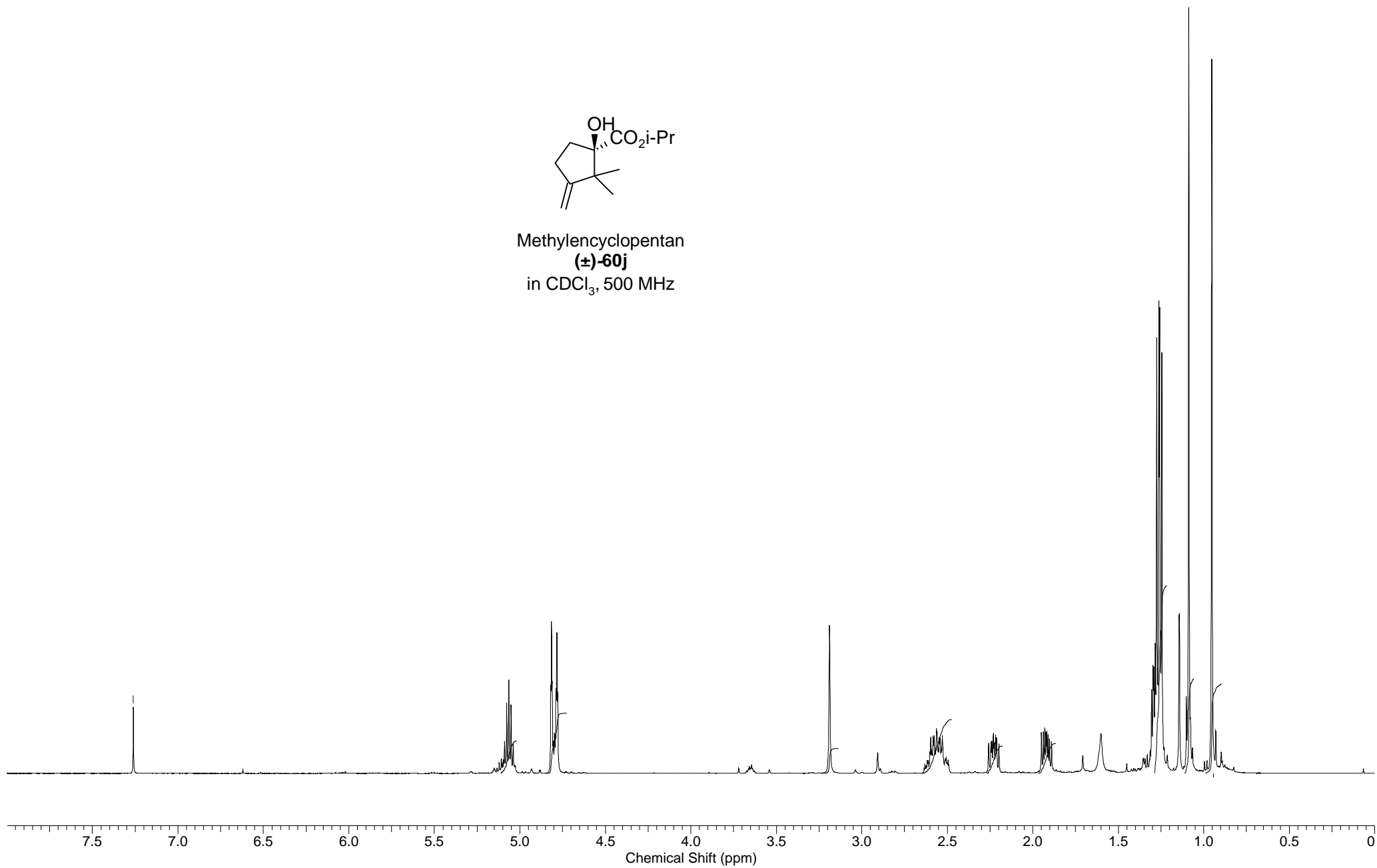
1/6

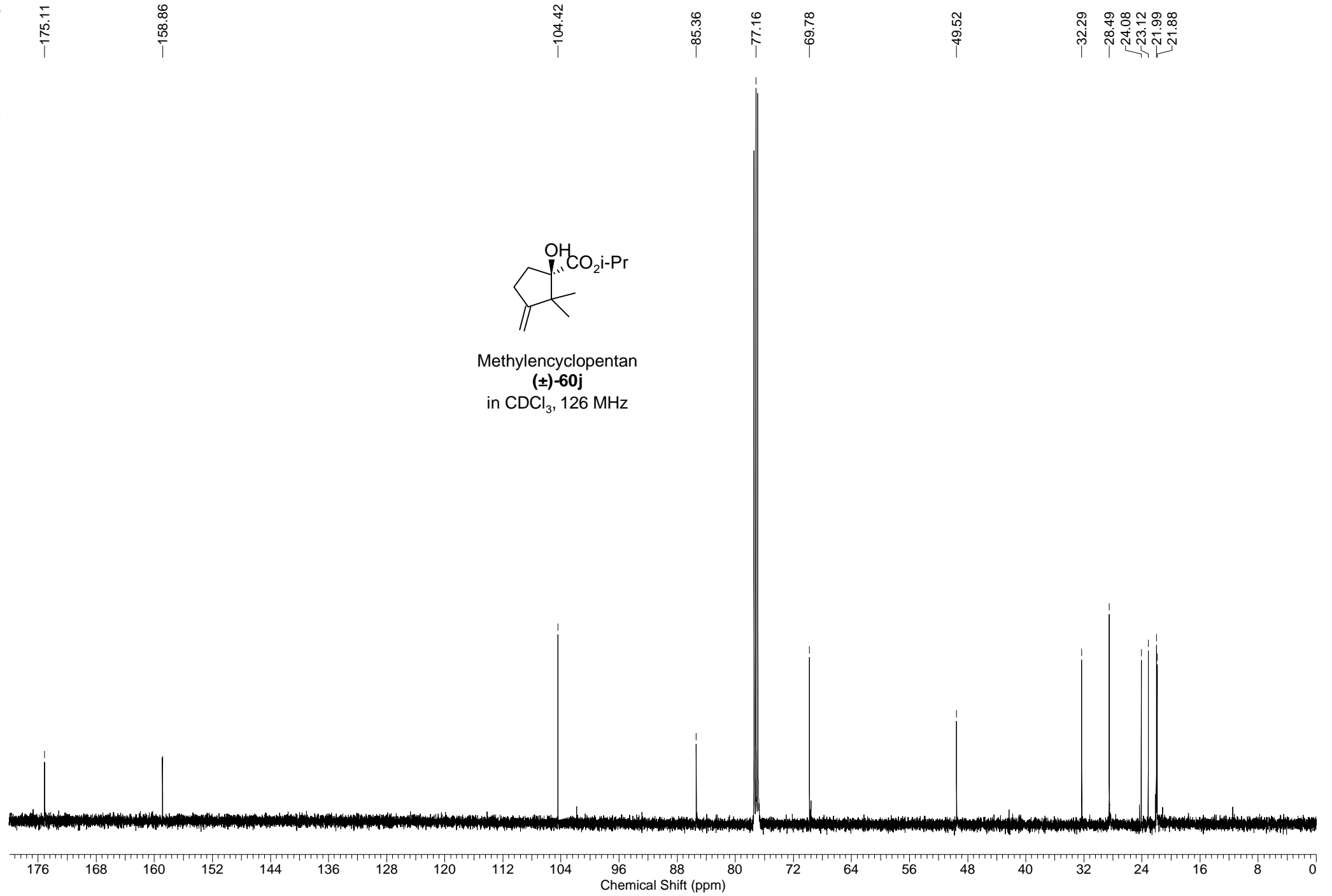
1/3

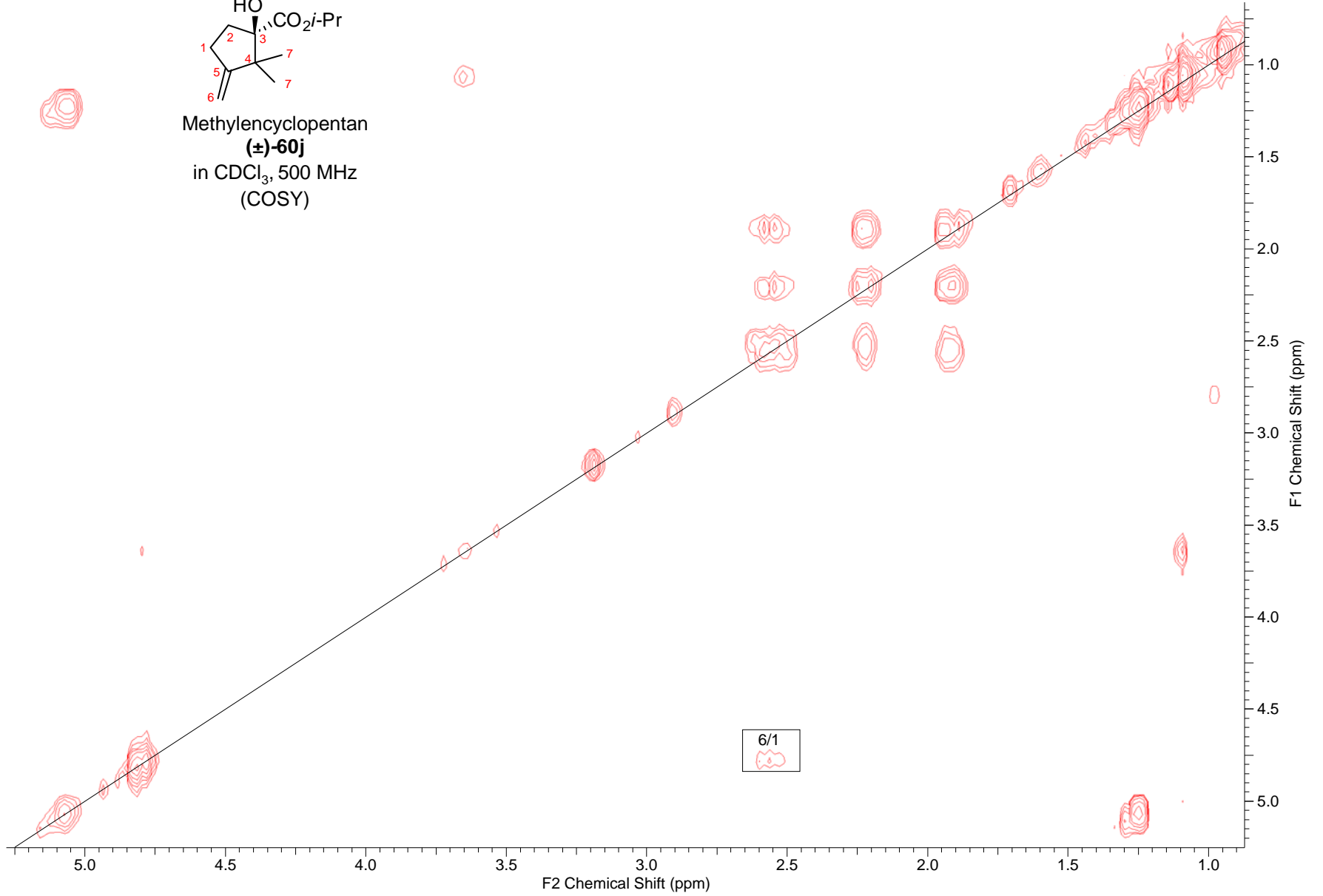
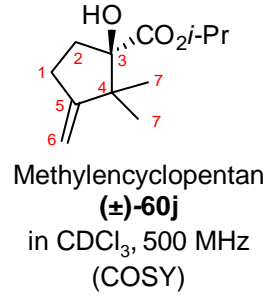
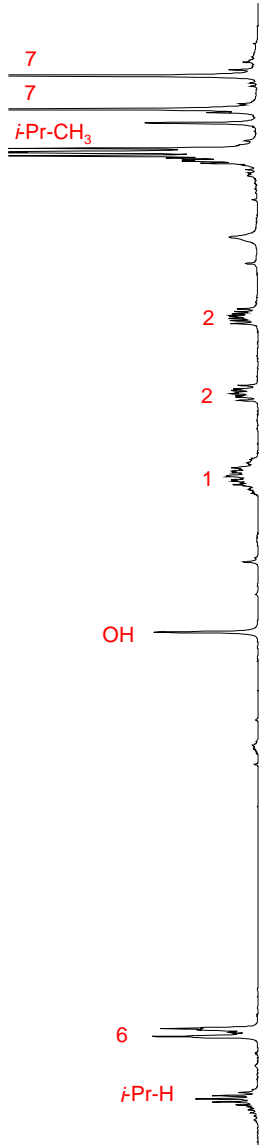
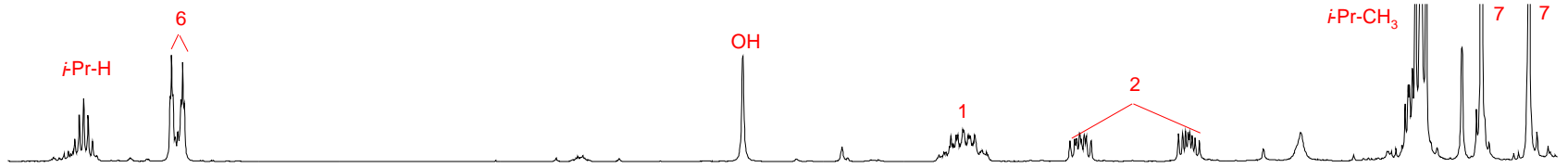


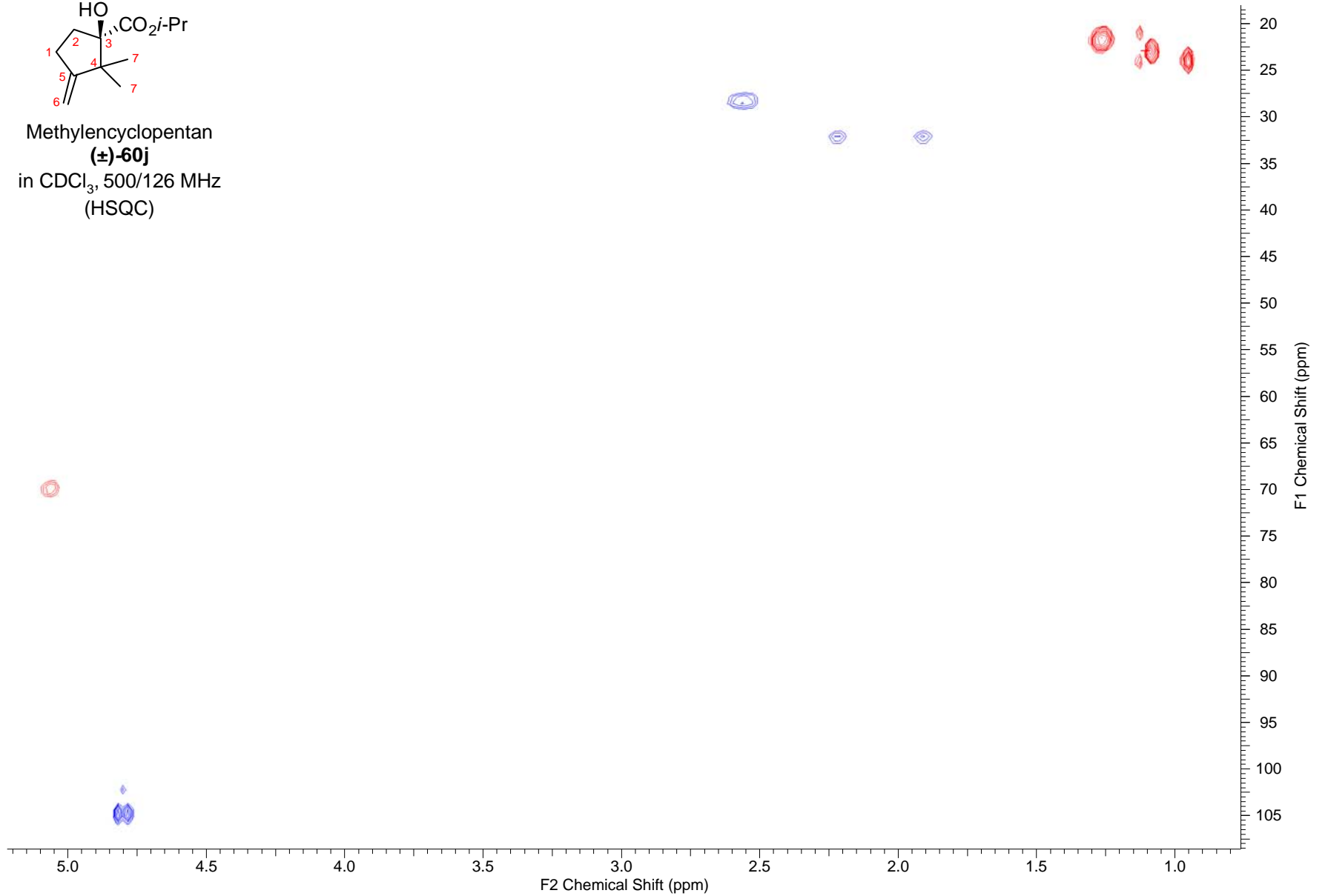
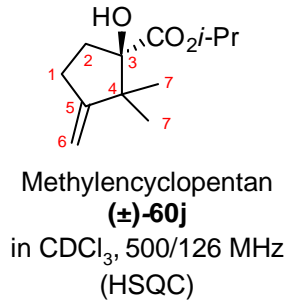
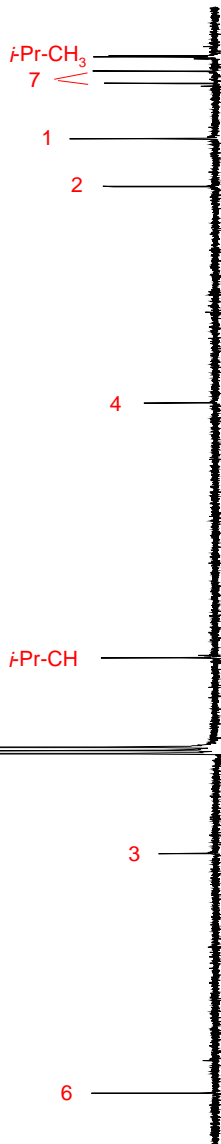


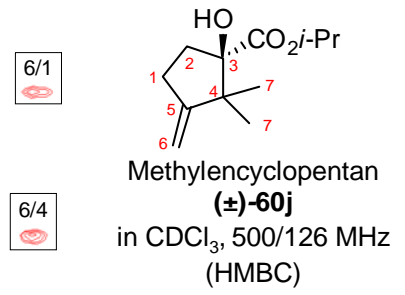
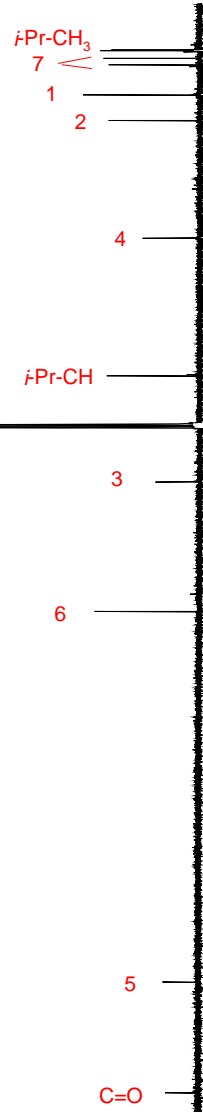
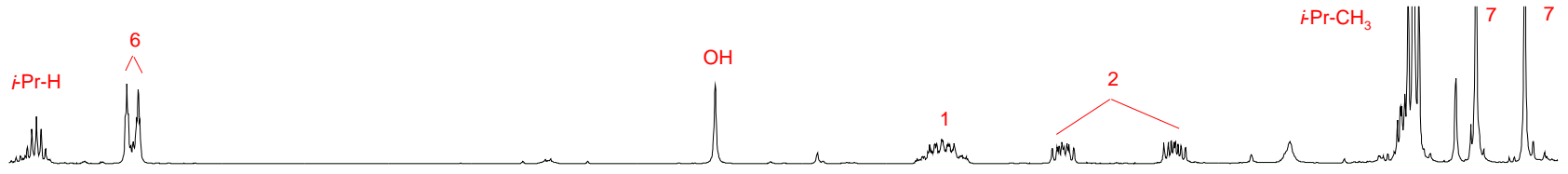
Methylcyclopentan
(±)-60j
in CDCl₃, 500 MHz











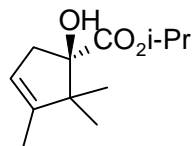
6/1

OH/2

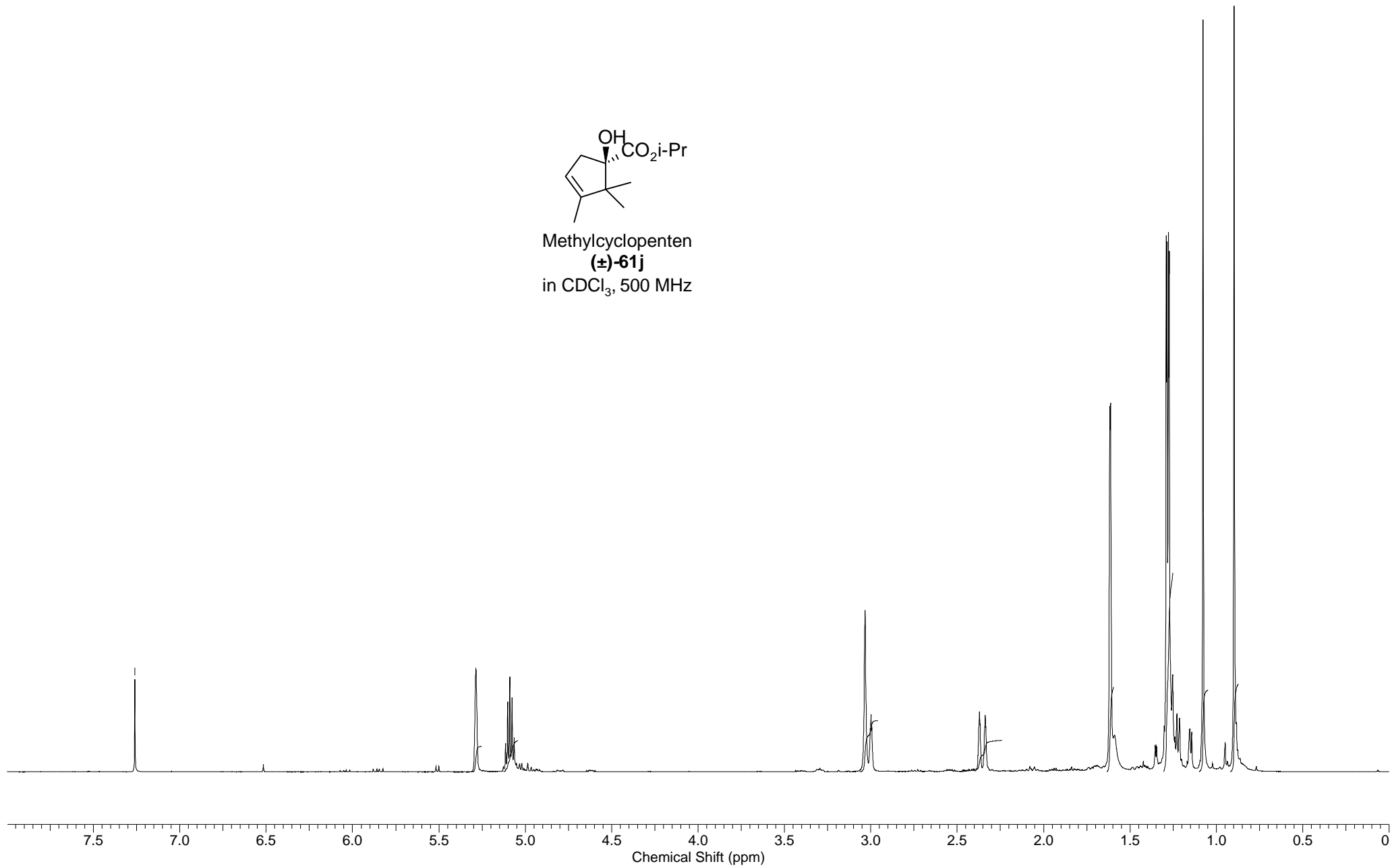
6/4

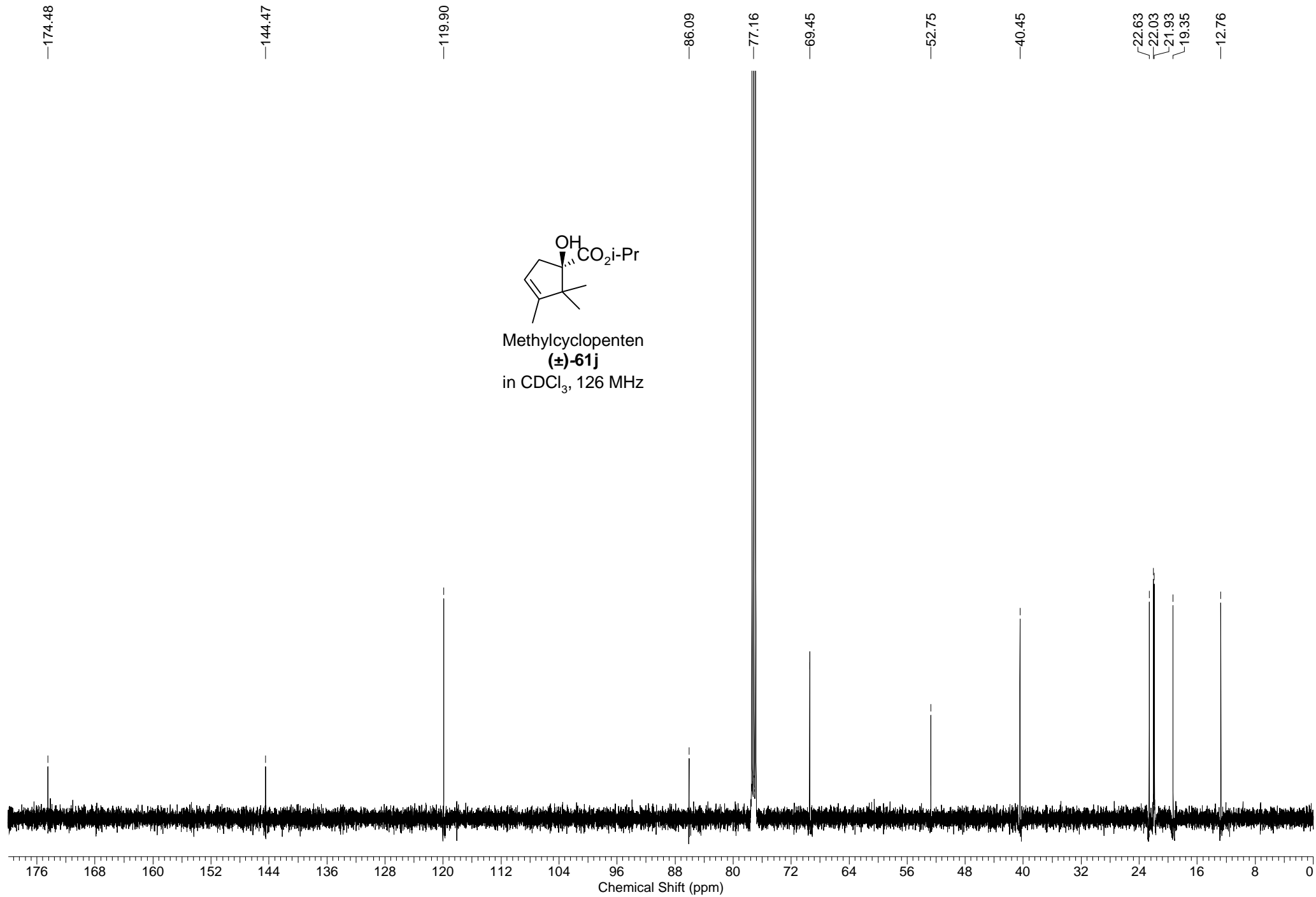
F1 Chemical Shift (ppm)

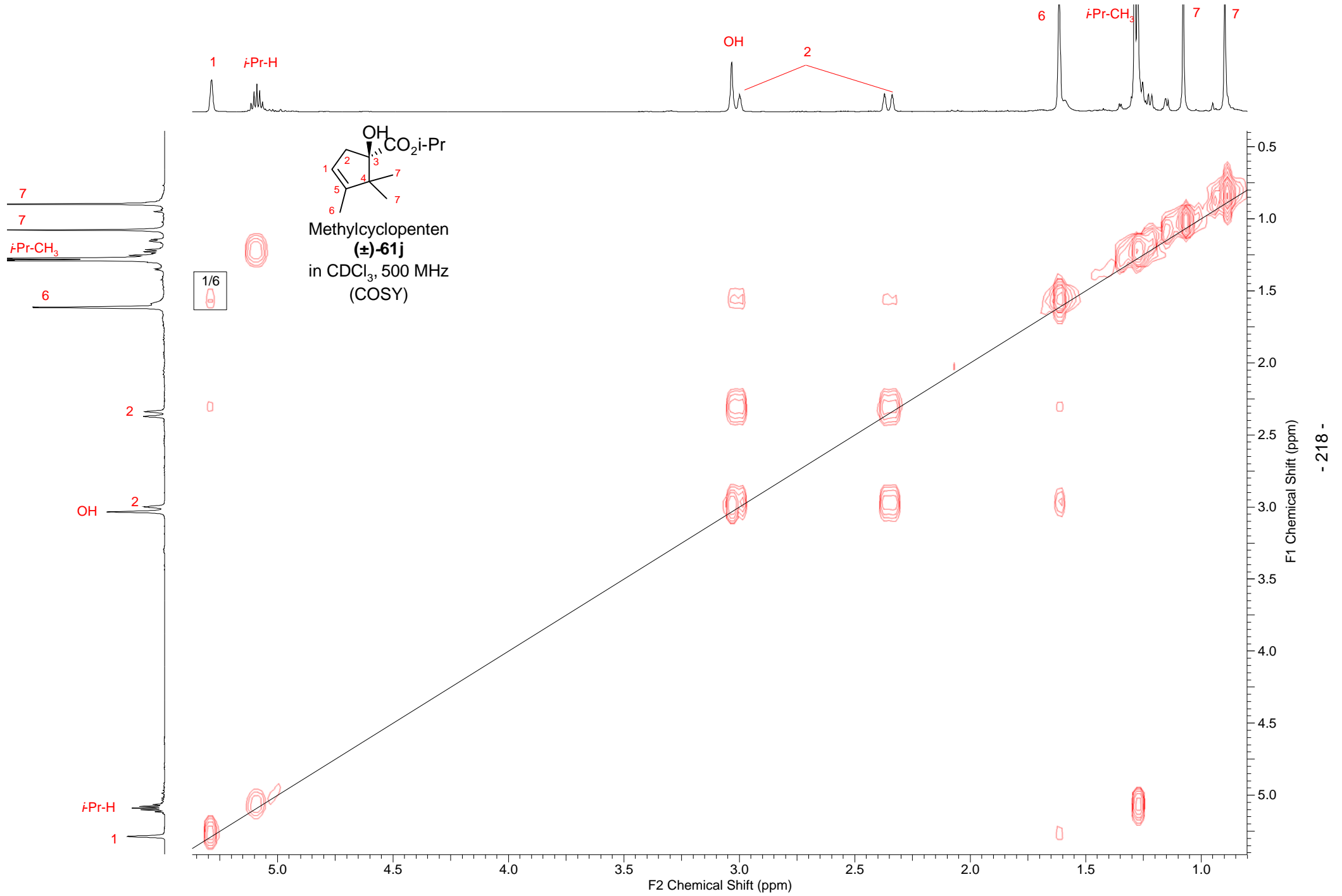
F2 Chemical Shift (ppm)

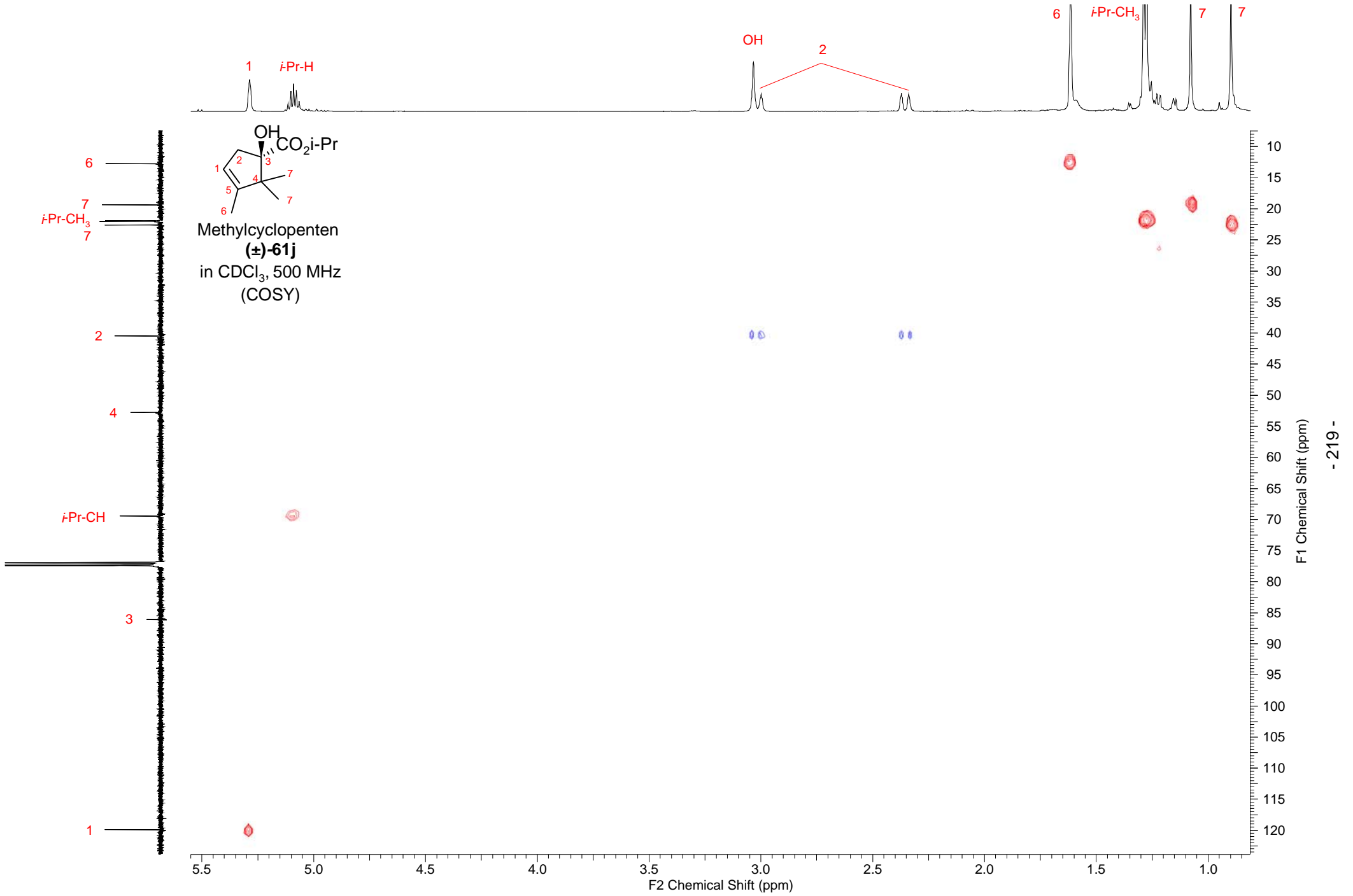


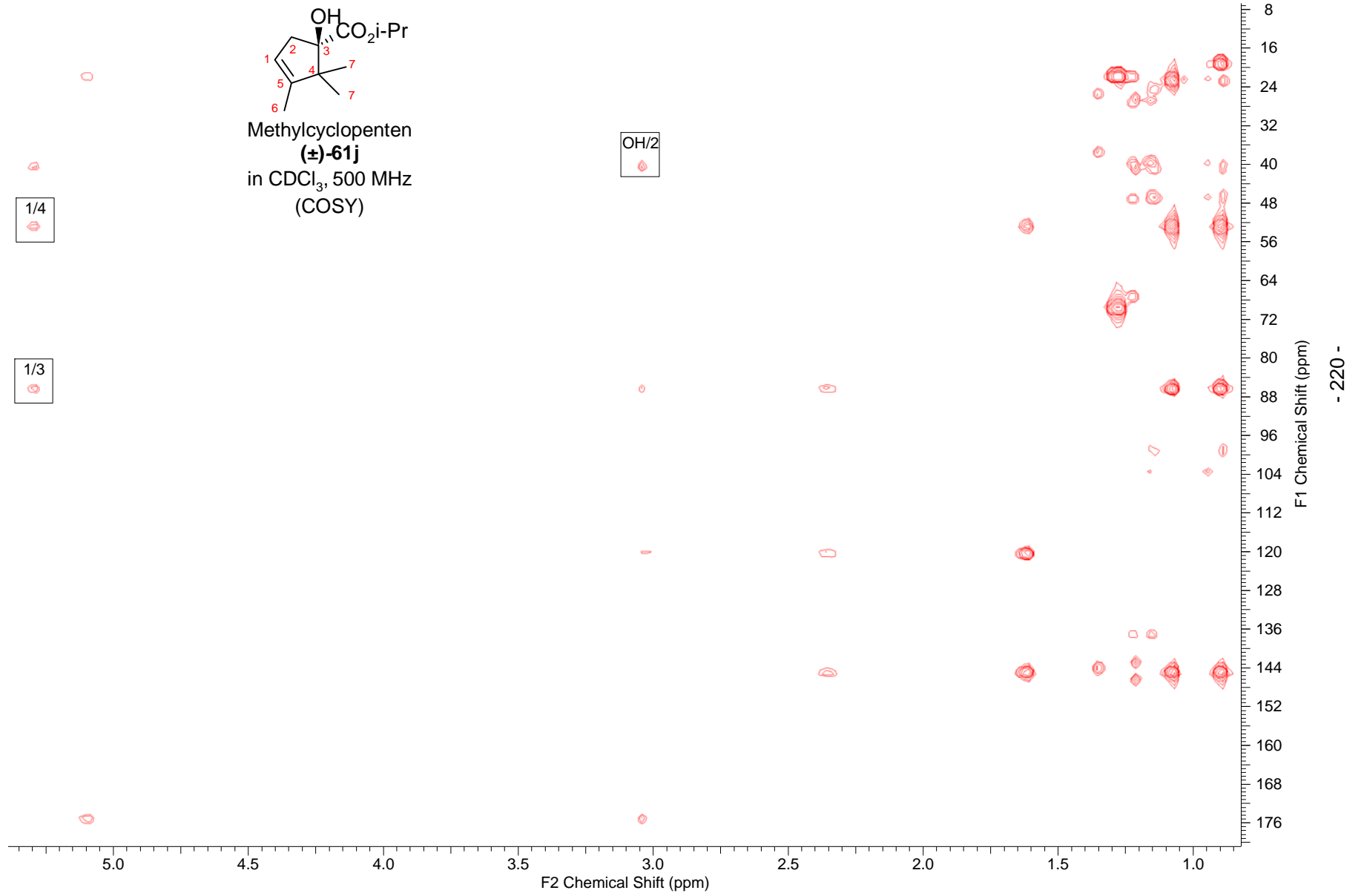
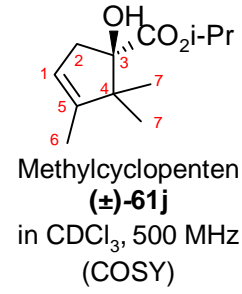
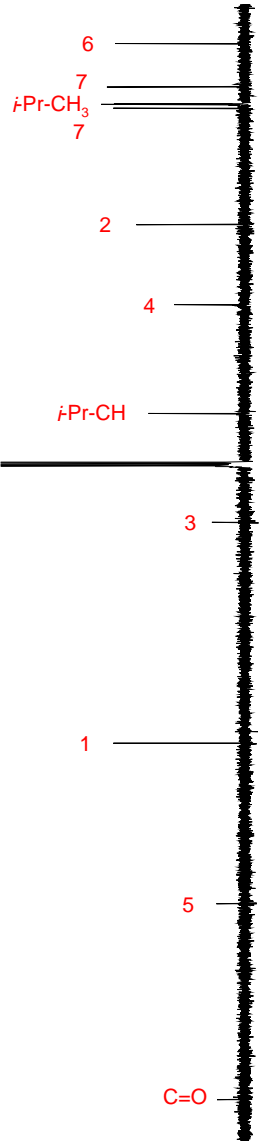
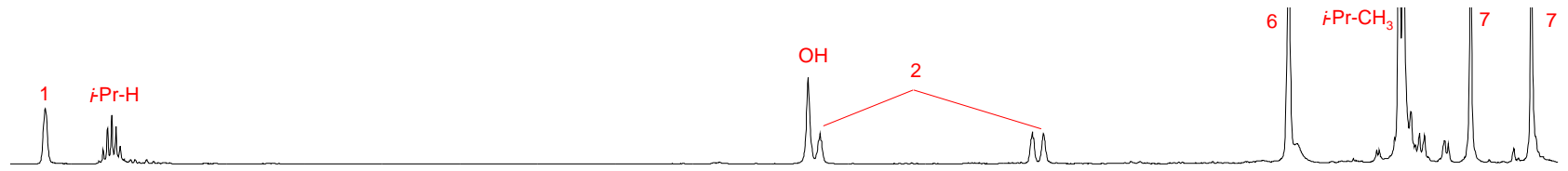
Methylcyclopenten
(±)-61j
in CDCl₃, 500 MHz

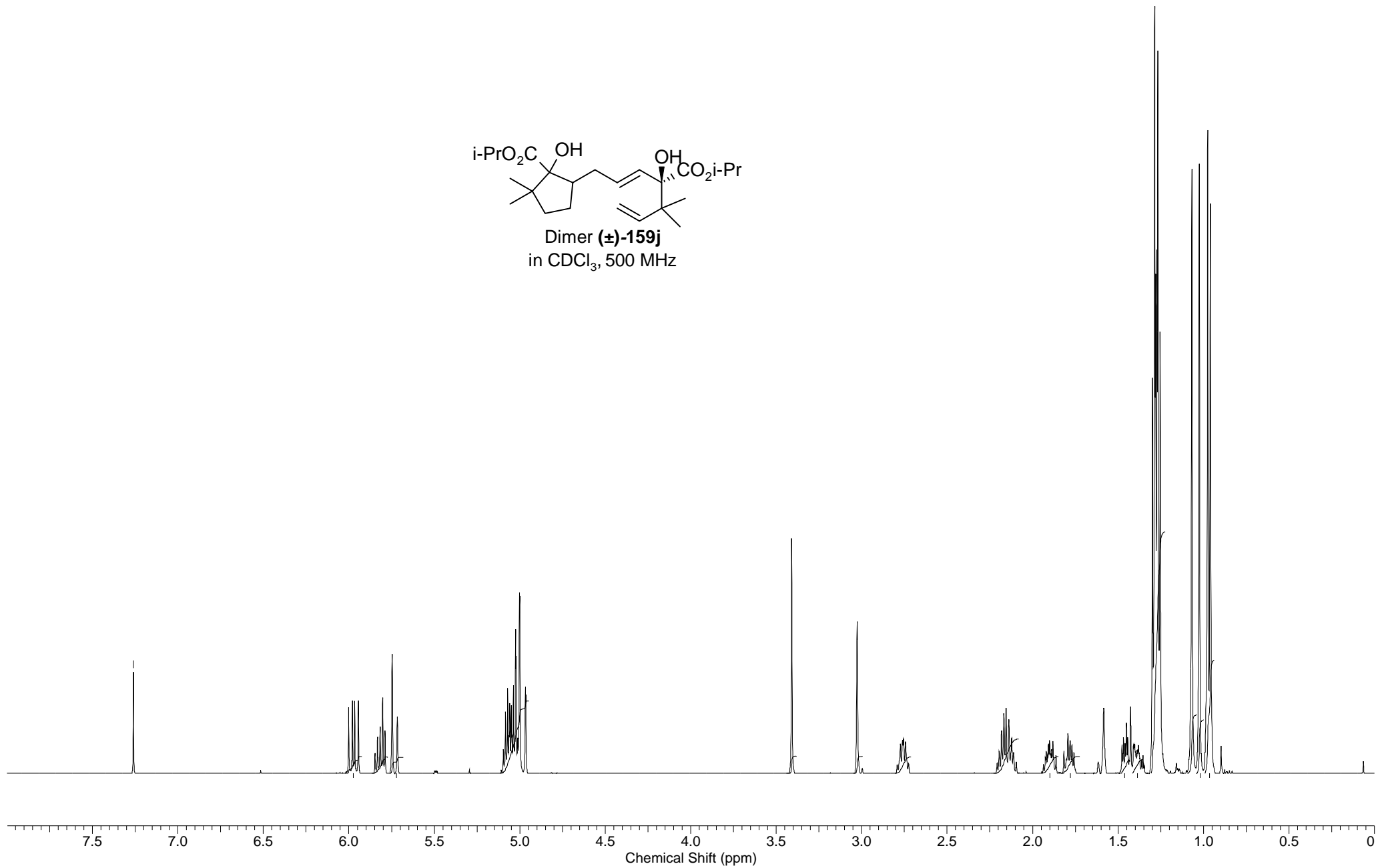
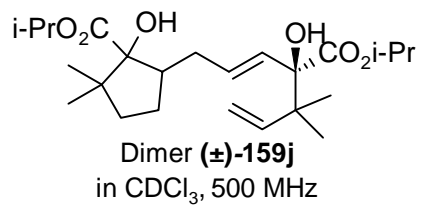


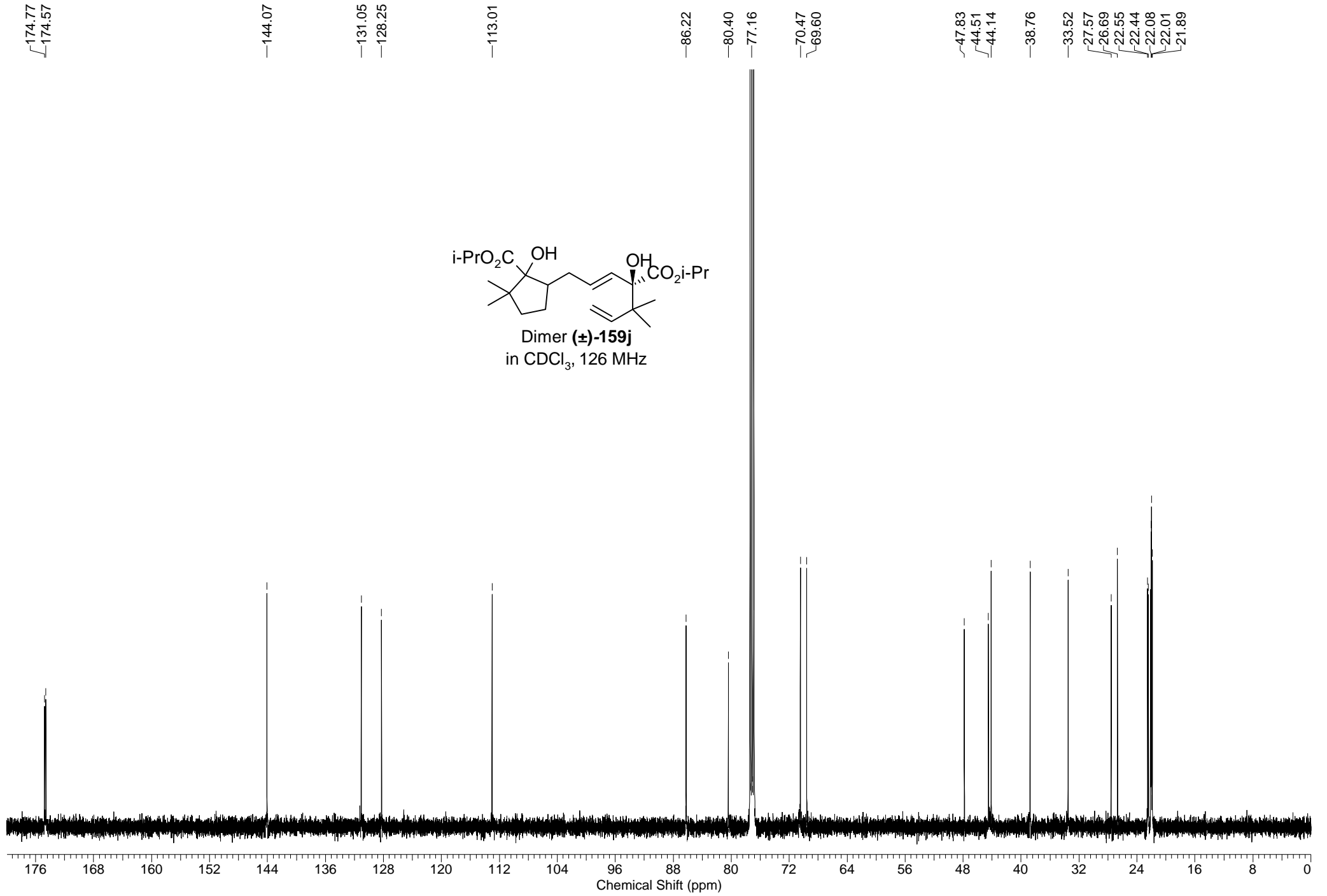


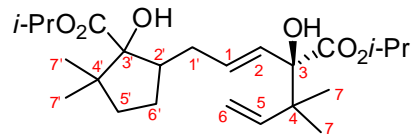
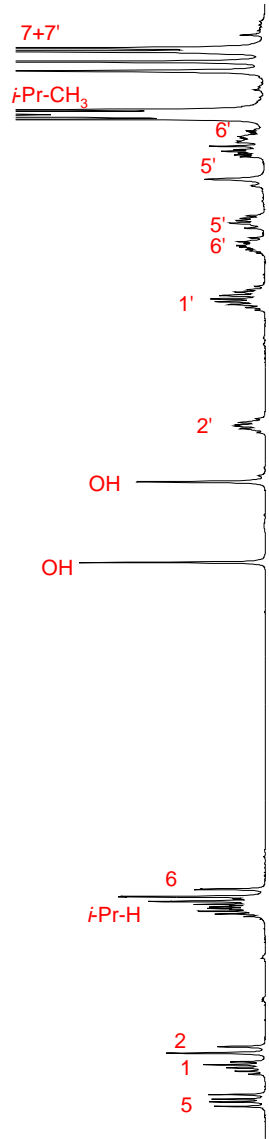
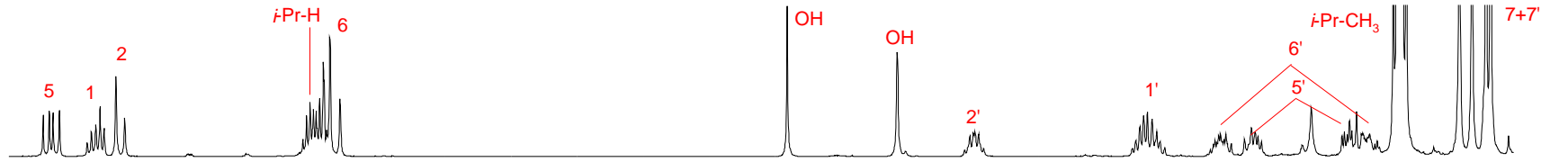




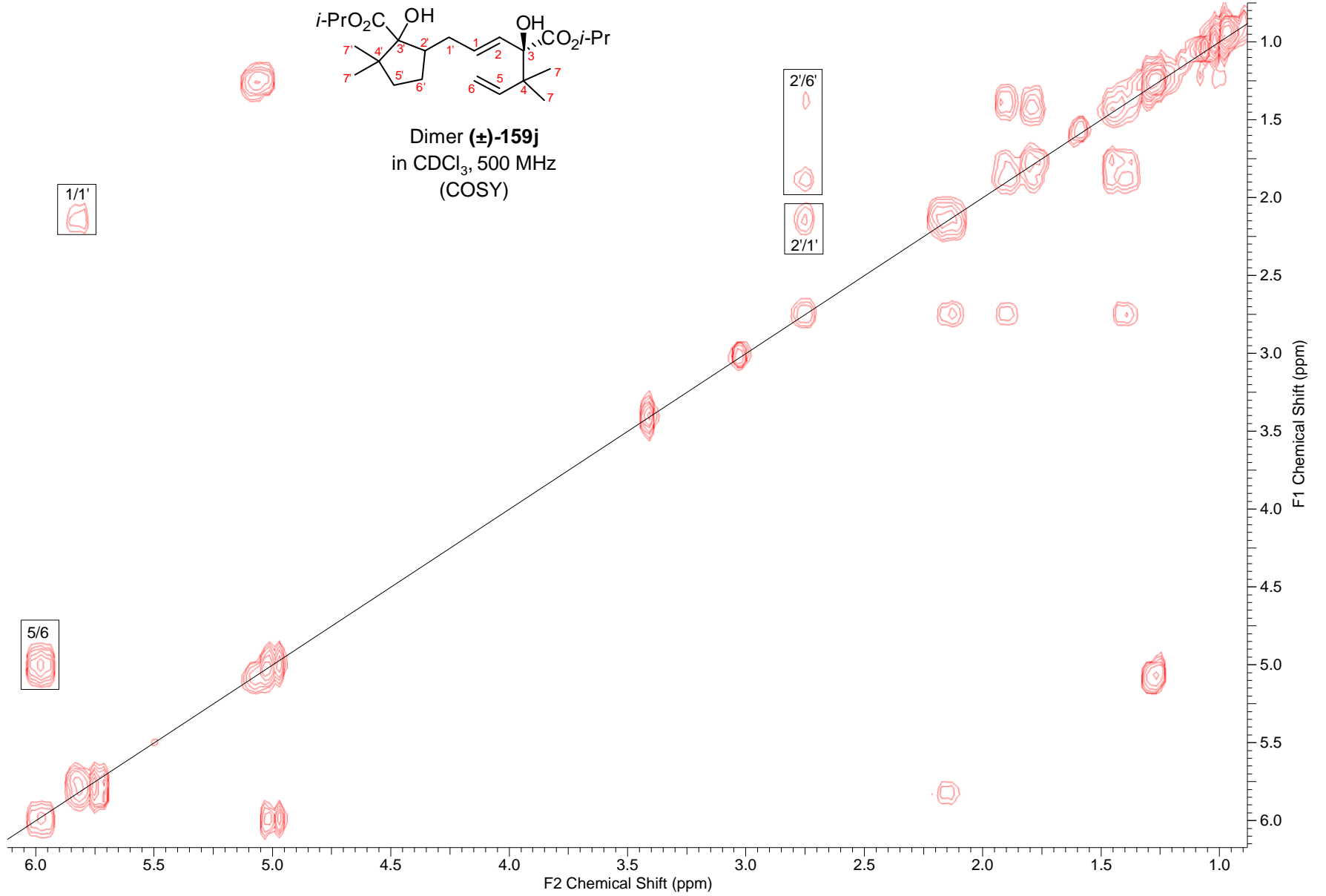


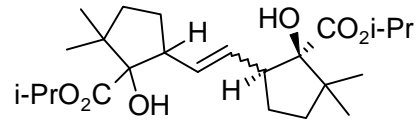




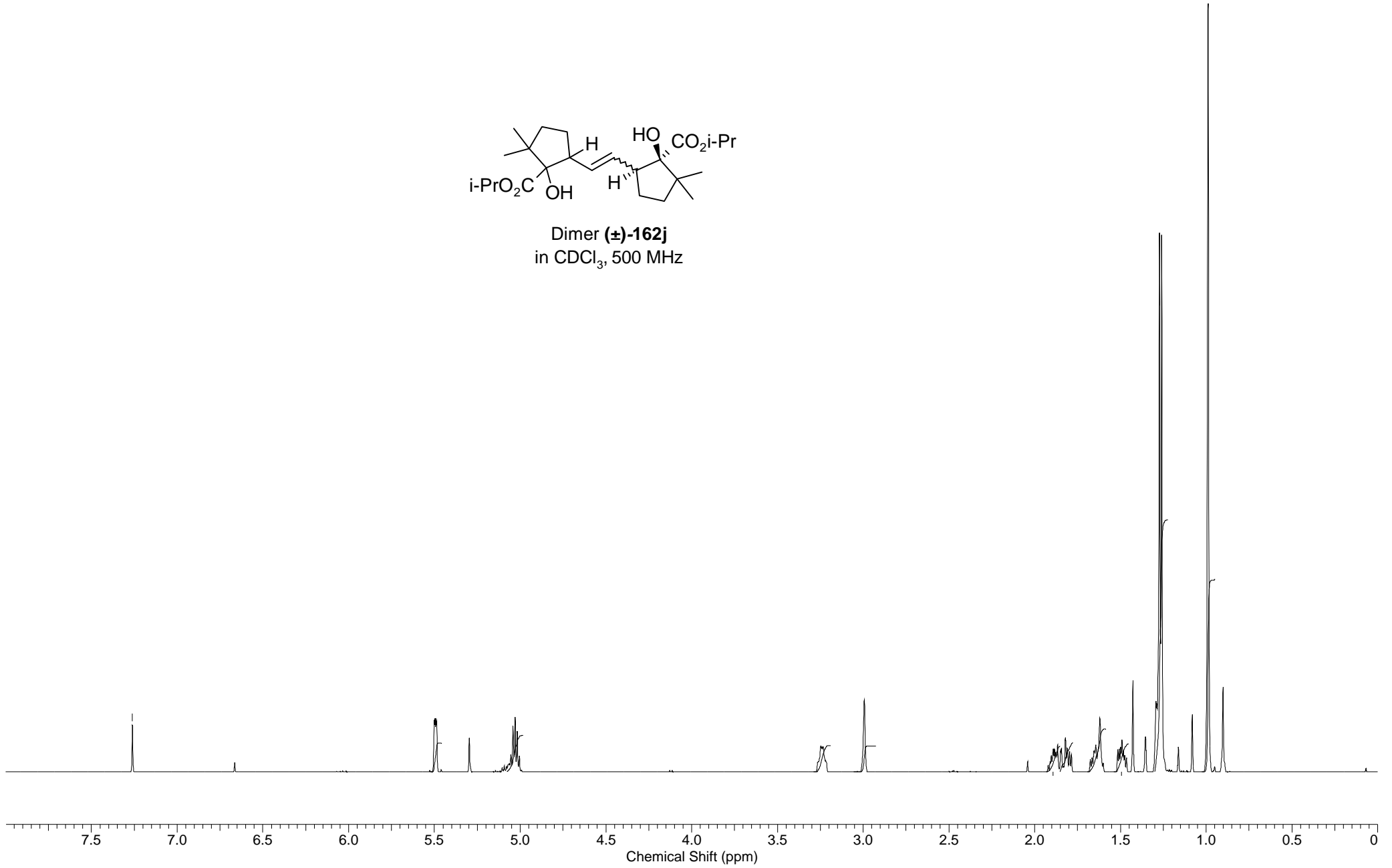


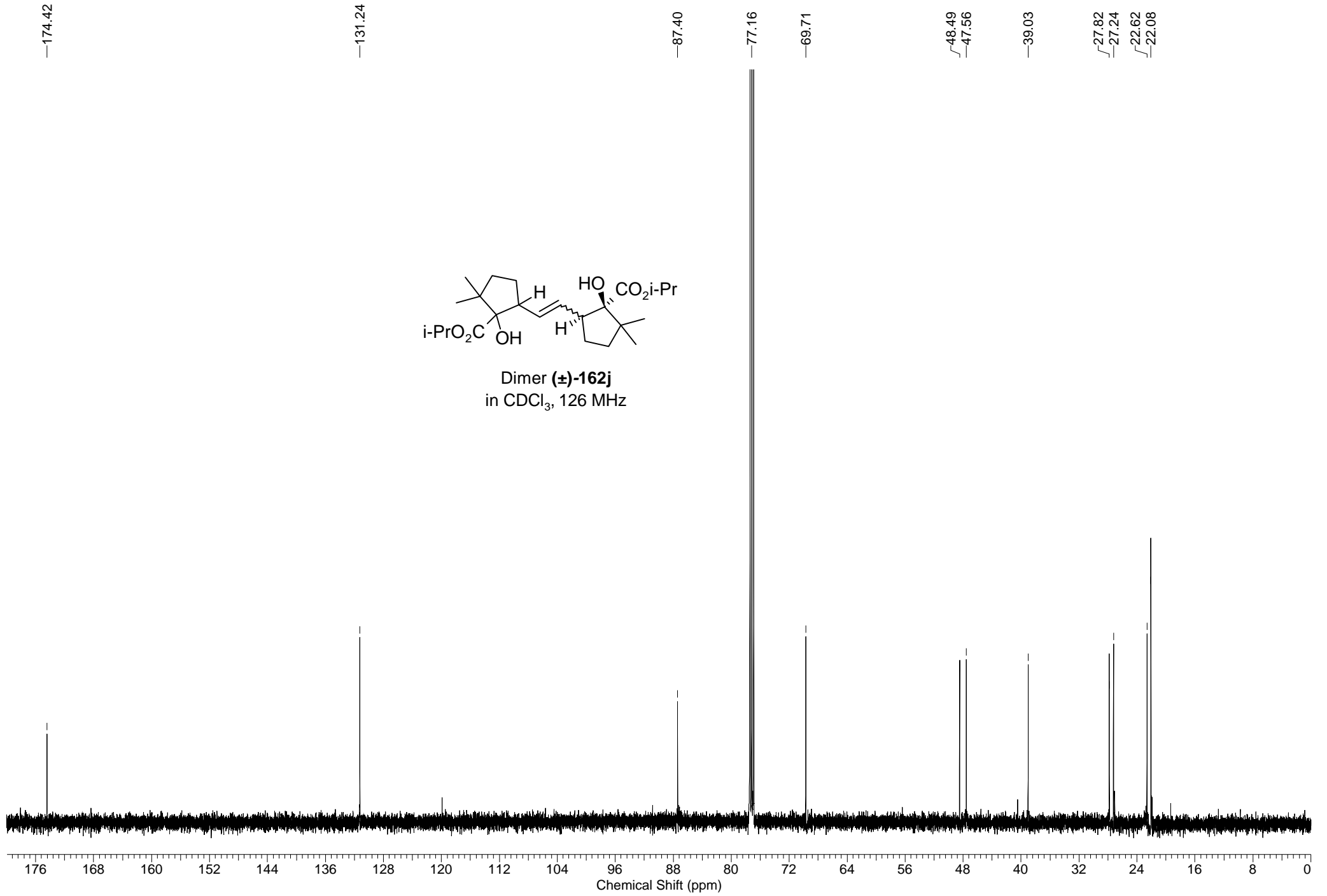
Dimer (±)-159j
in CDCl₃, 500 MHz
(COSY)

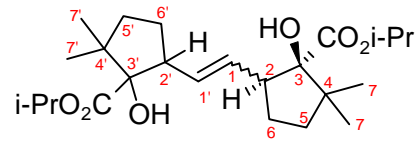
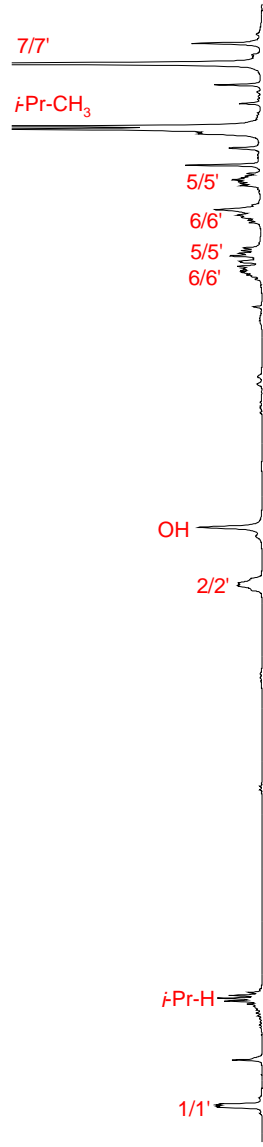
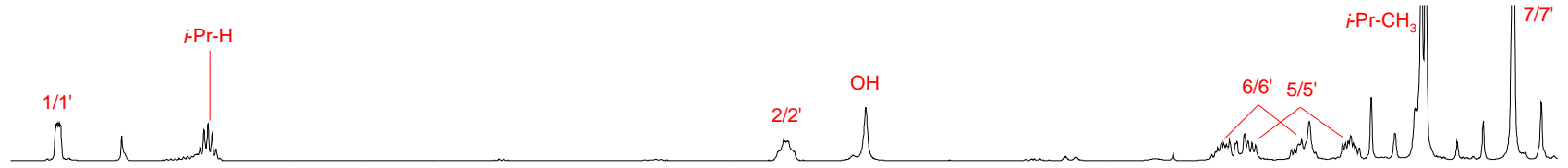




Dimer (\pm)-**162j**
in CDCl₃, 500 MHz

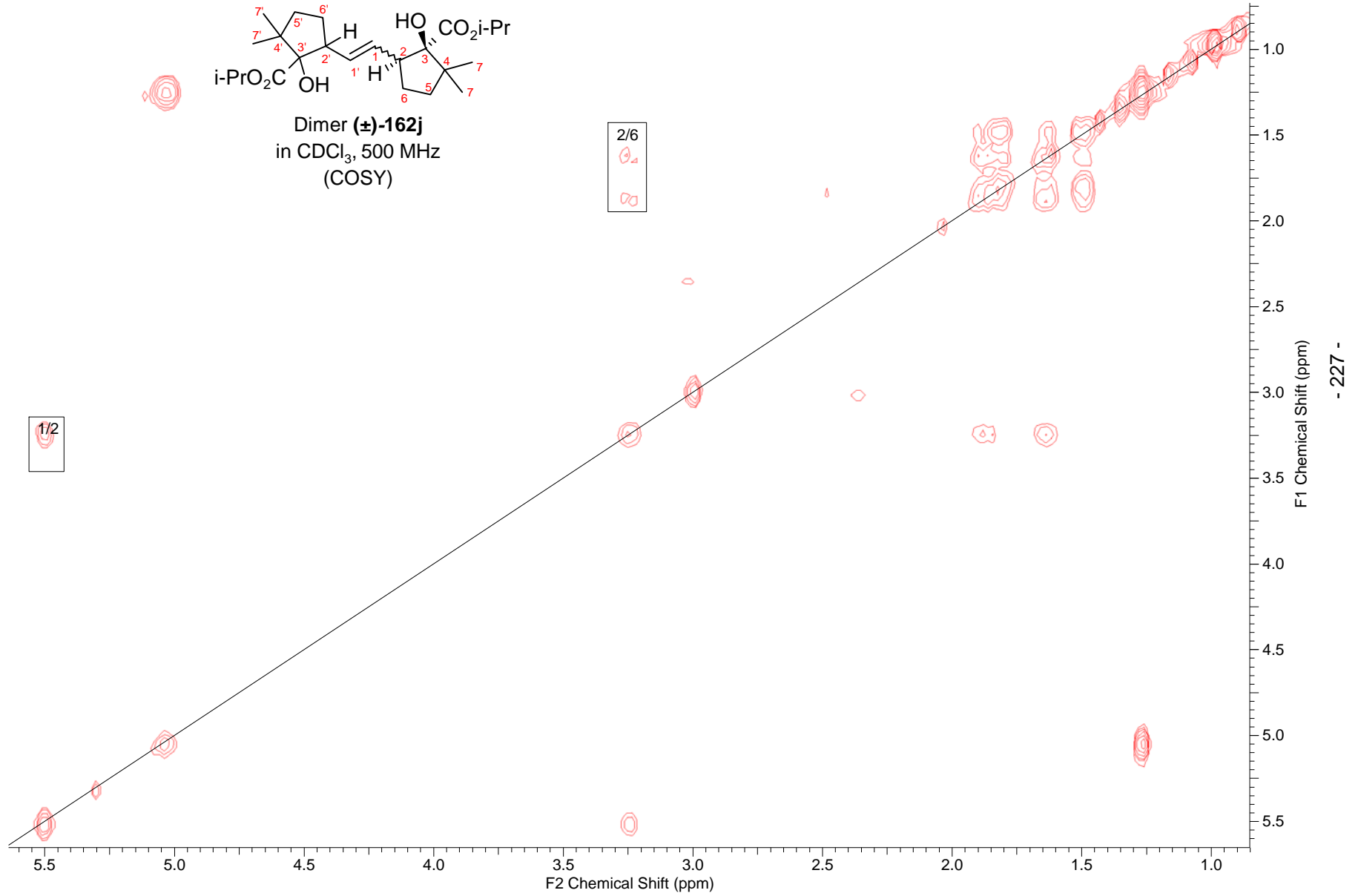


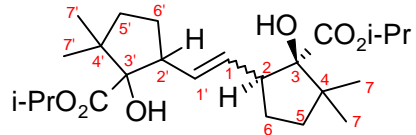
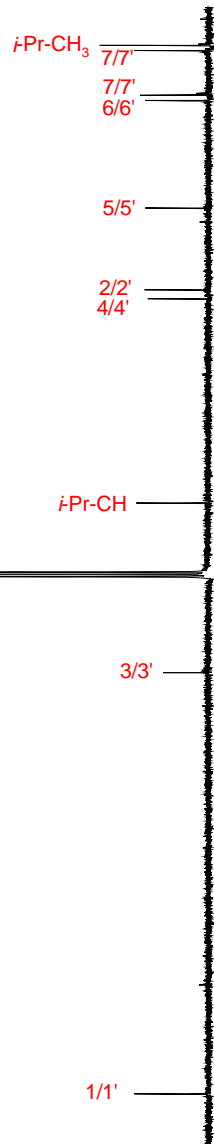
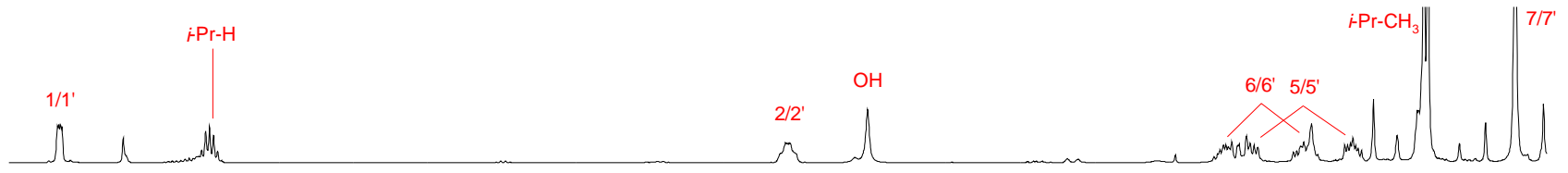




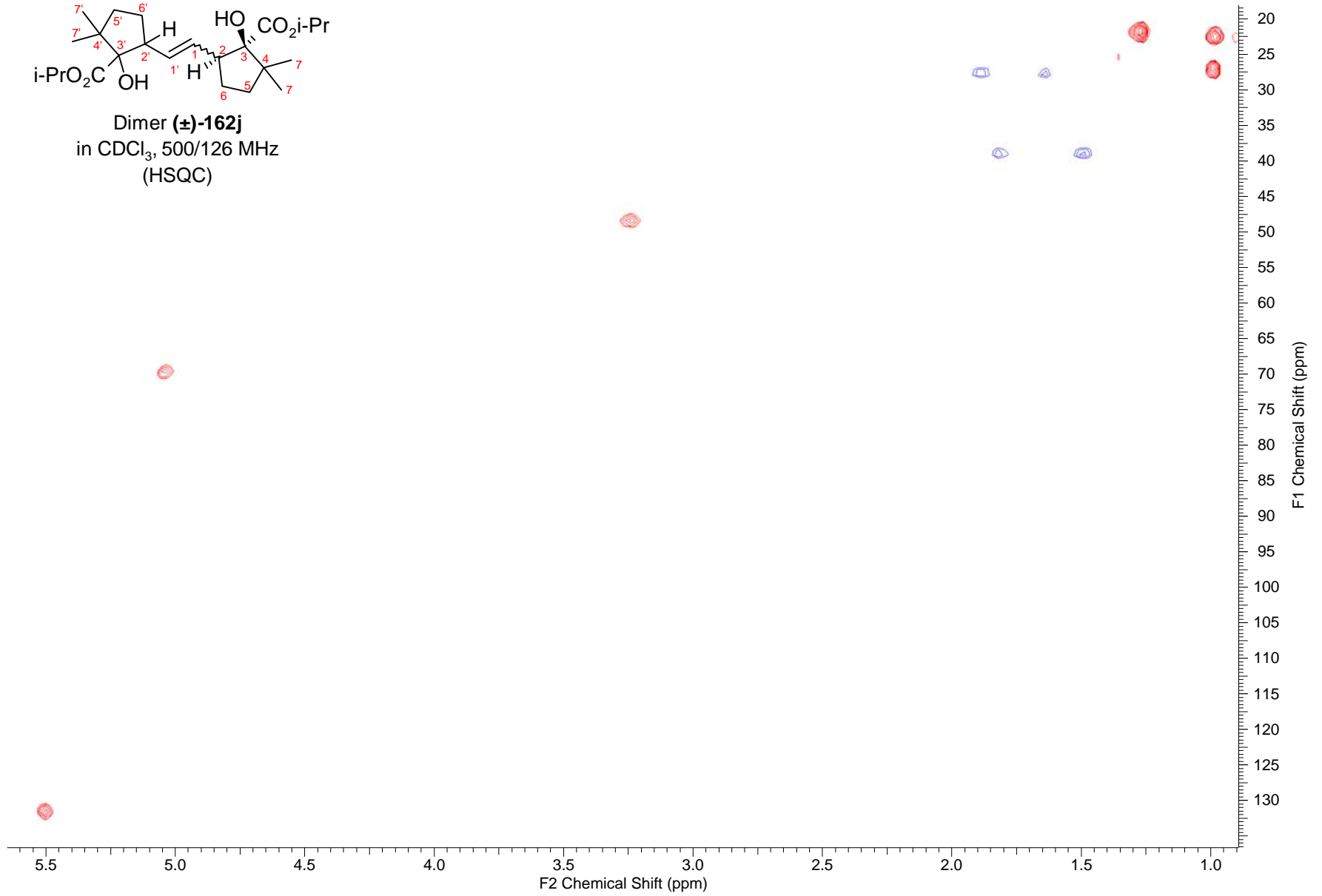
Dimer (\pm)-162j
in CDCl₃, 500 MHz
(COSY)

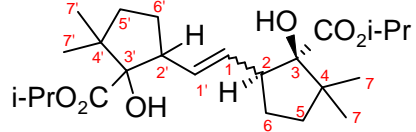
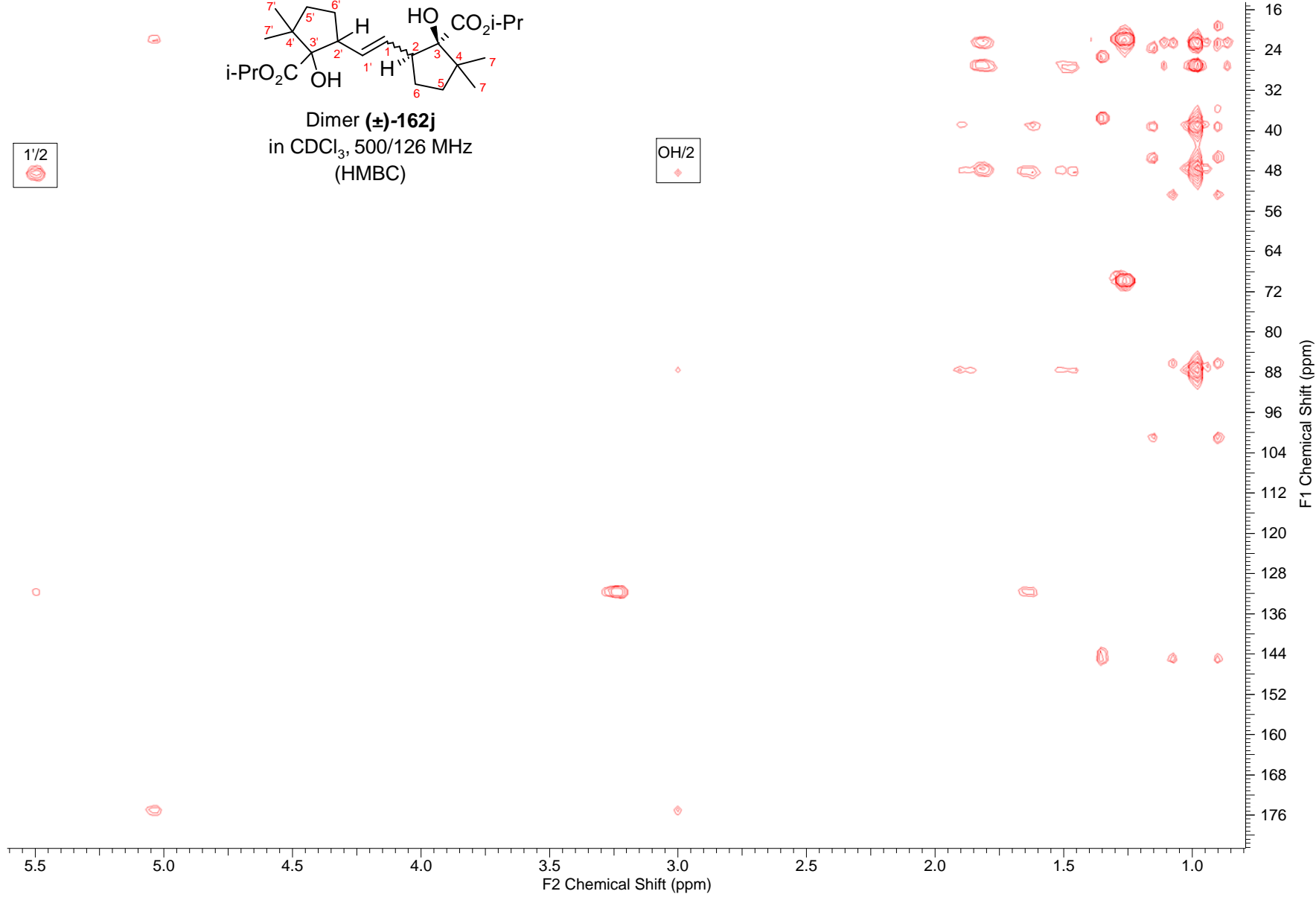
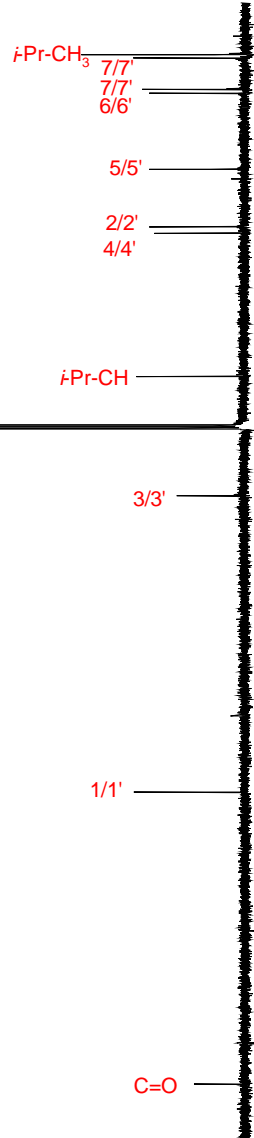
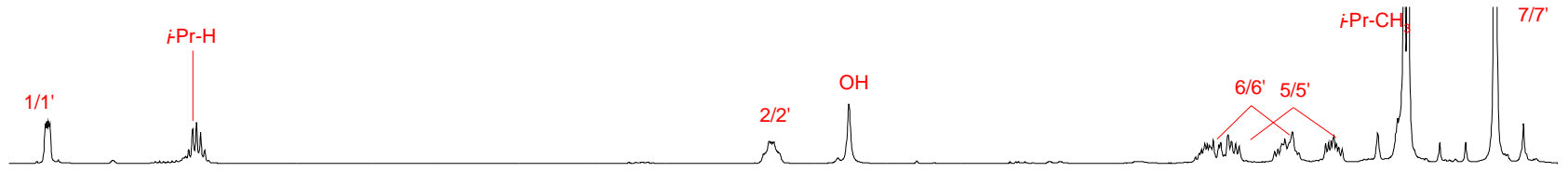
2/6



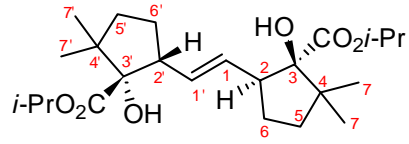


Dimer (±)-162j
in CDCl₃, 500/126 MHz
(HSQC)

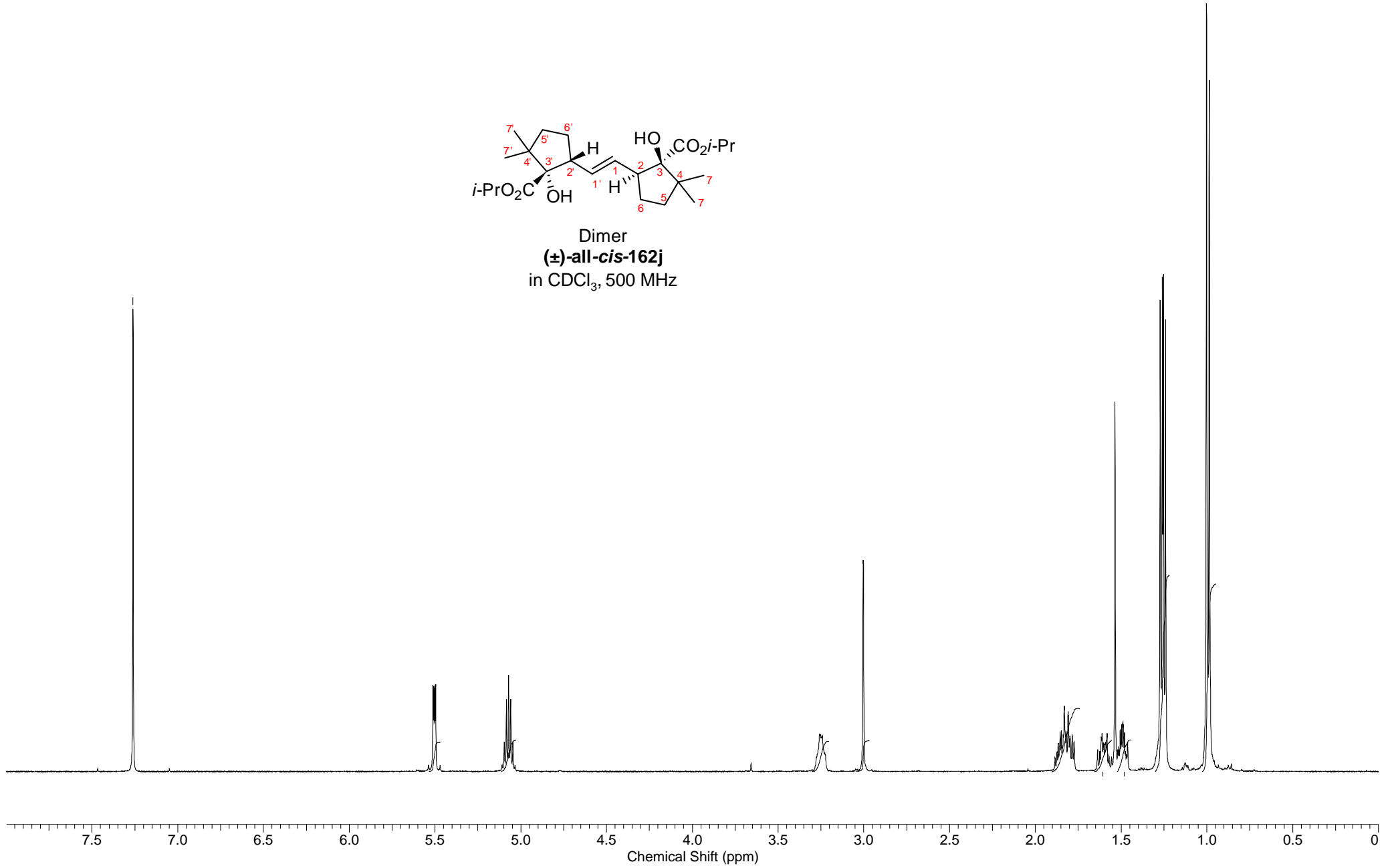


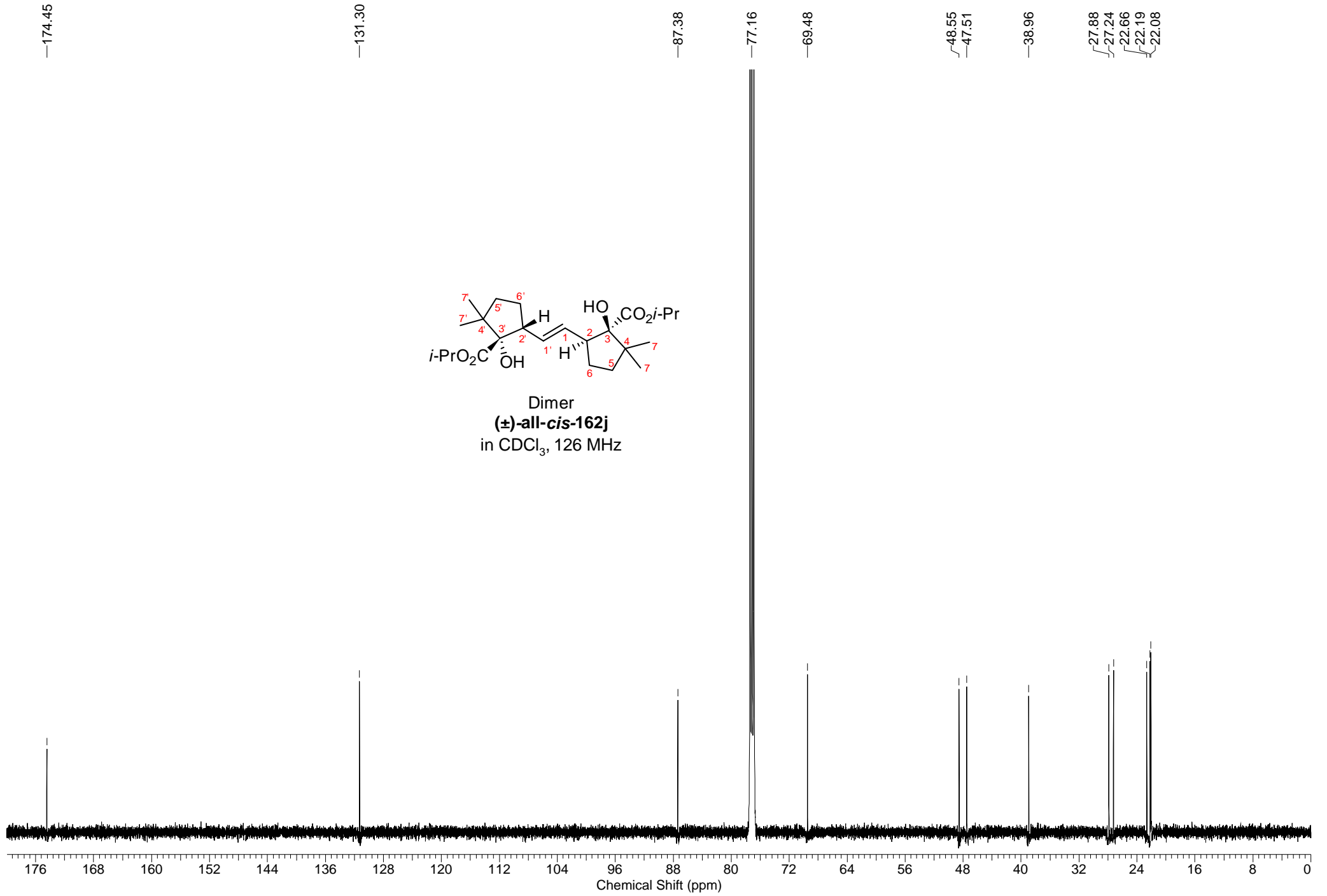


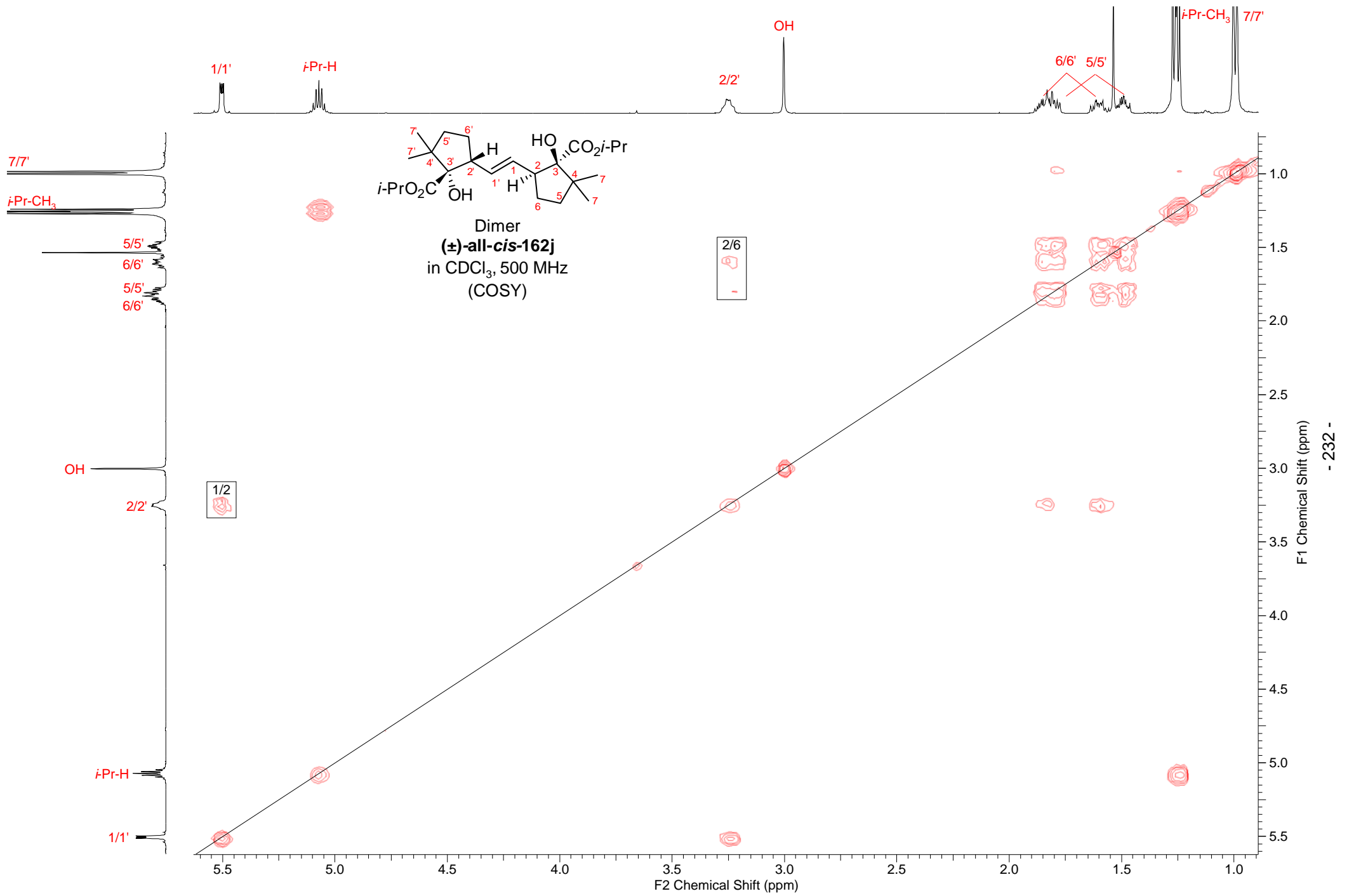
Dimer (±)-162j
in CDCl₃, 500/126 MHz
(HMBC)

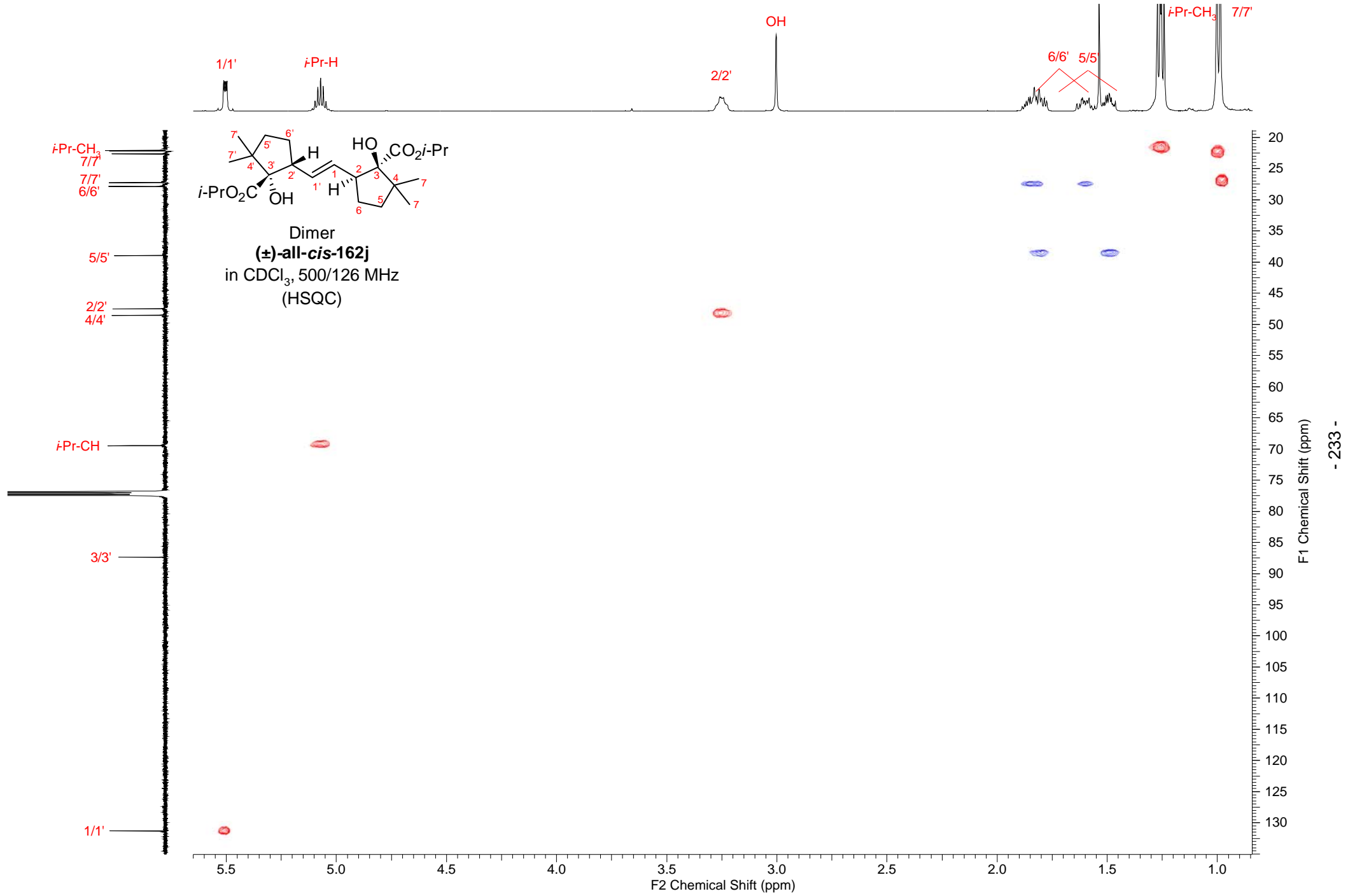


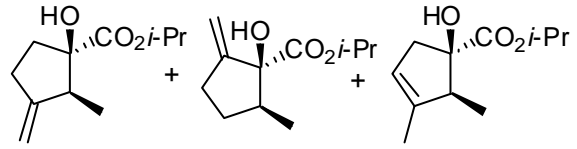
Dimer
(±)-all-cis-162j
in CDCl₃, 500 MHz



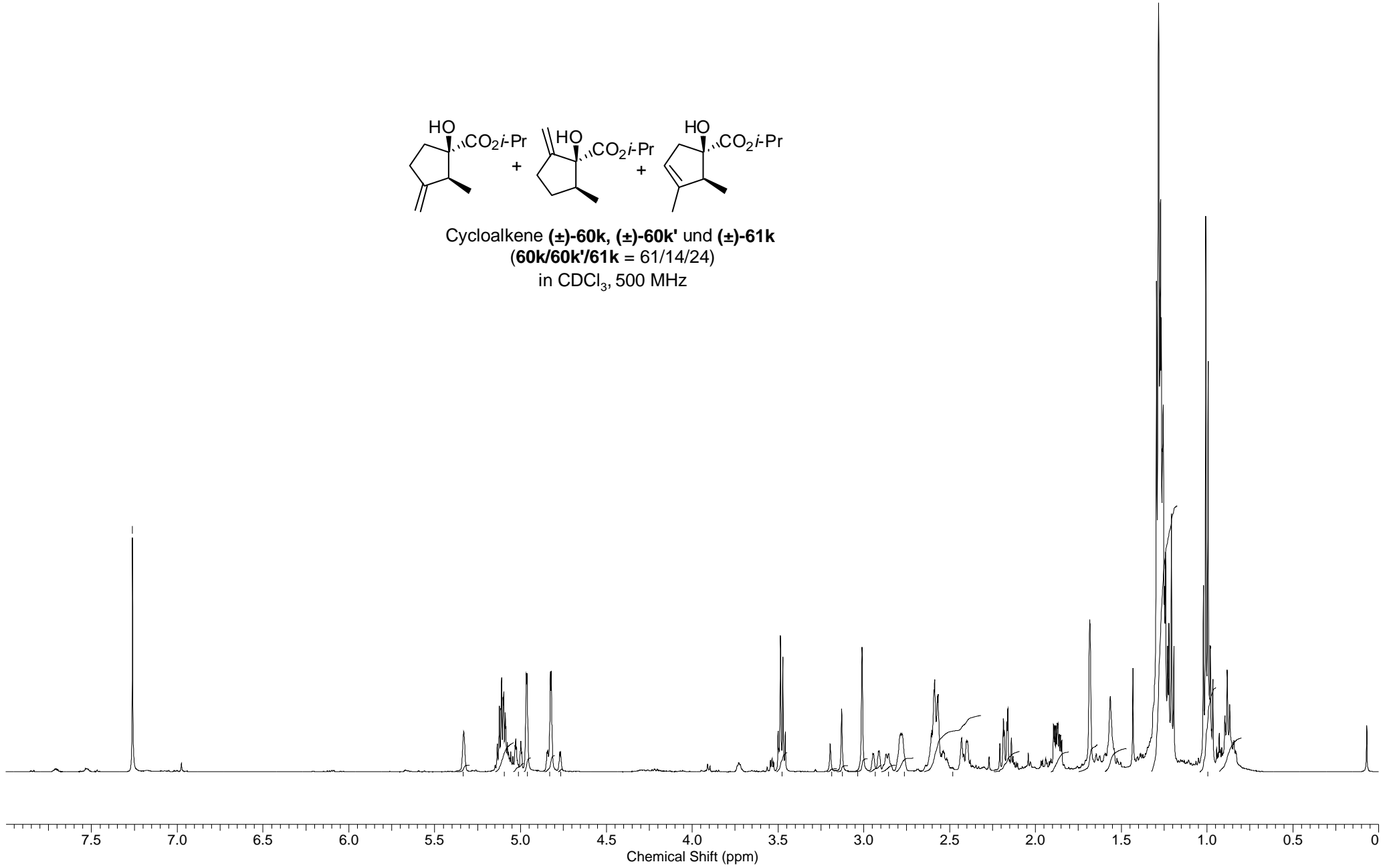


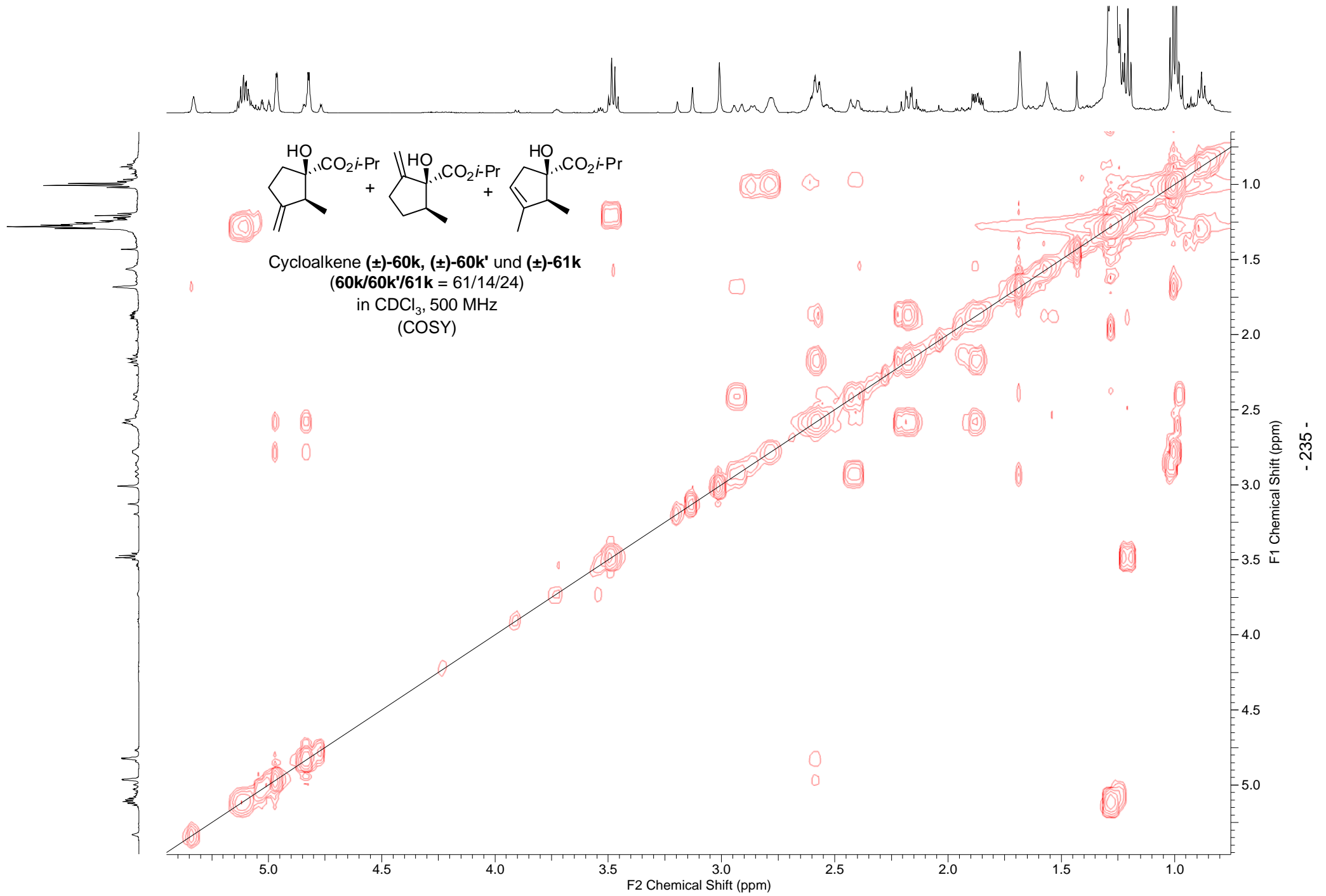


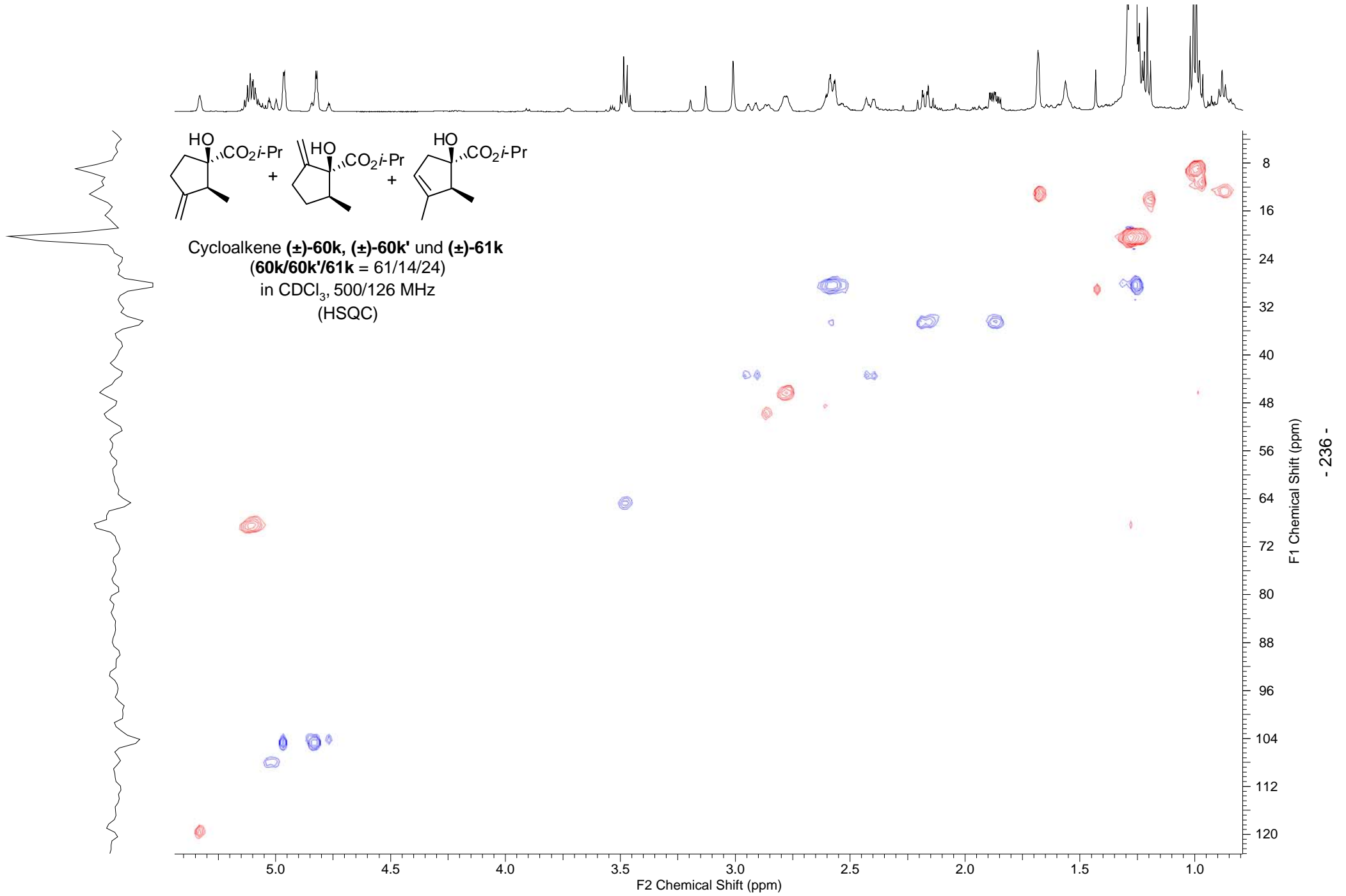


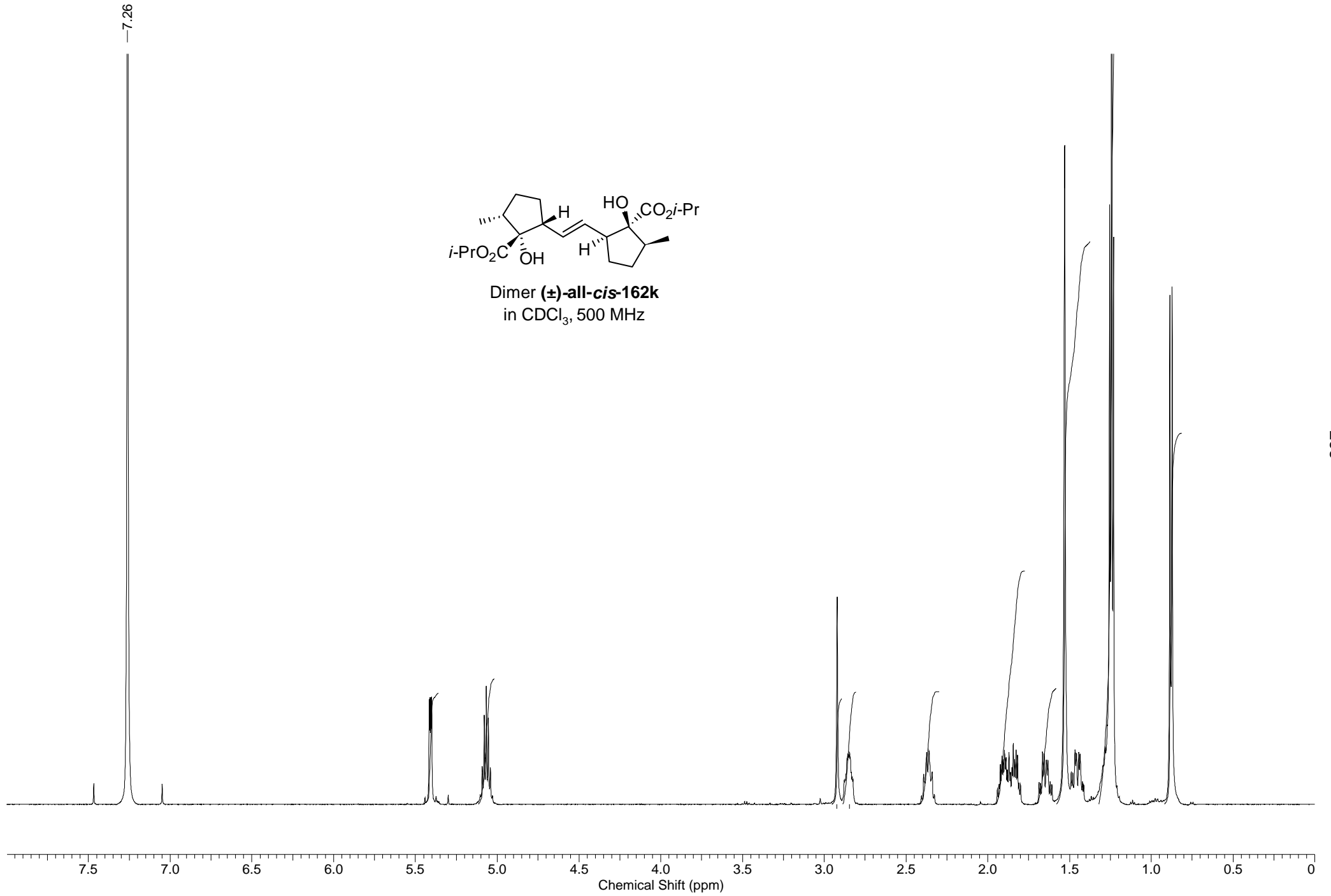
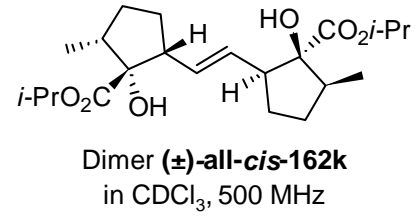


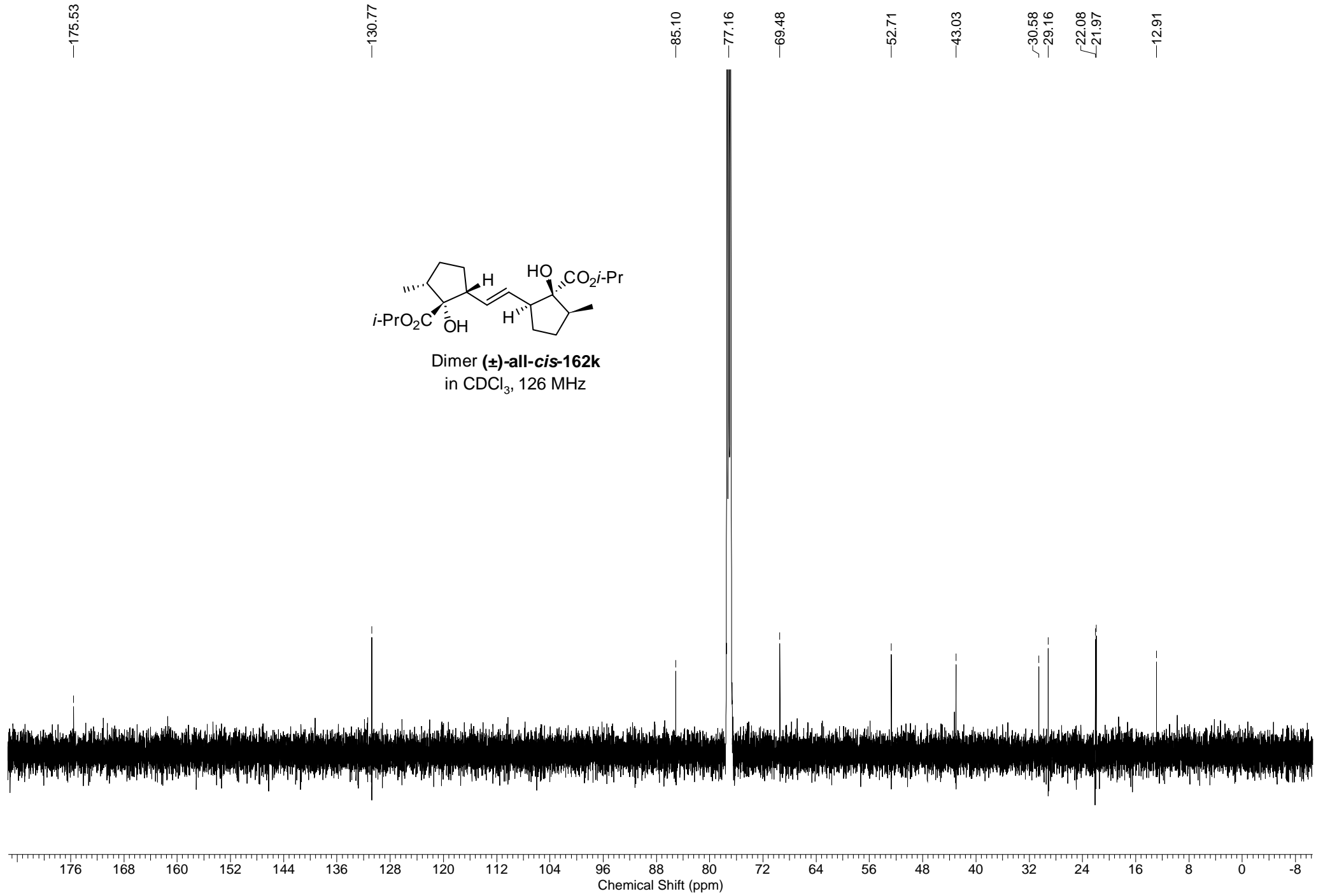
Cycloalkene (±)-**60k**, (±)-**60k'** und (±)-**61k**
(**60k/60k'/61k** = 61/14/24)
in CDCl₃, 500 MHz

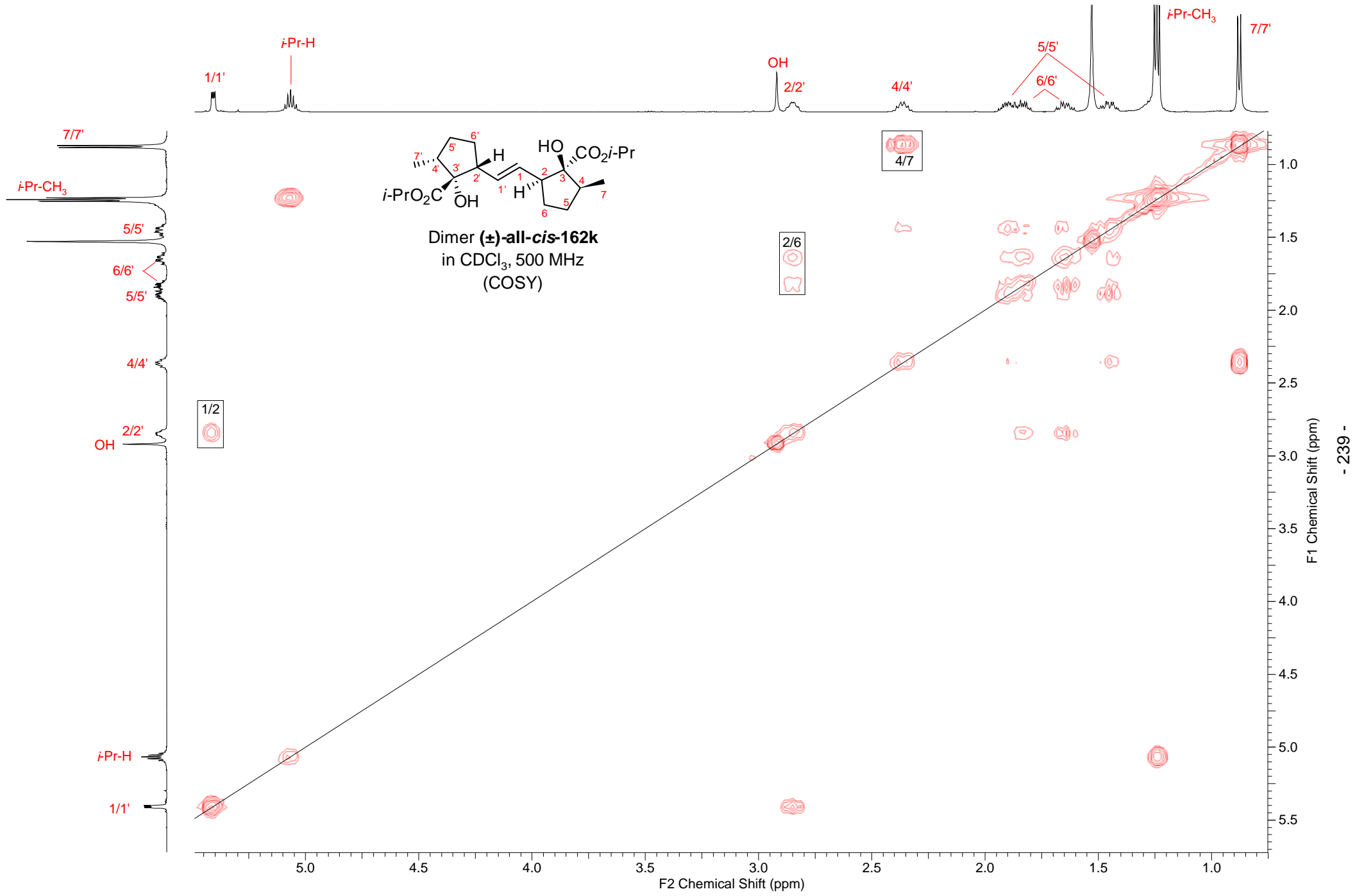


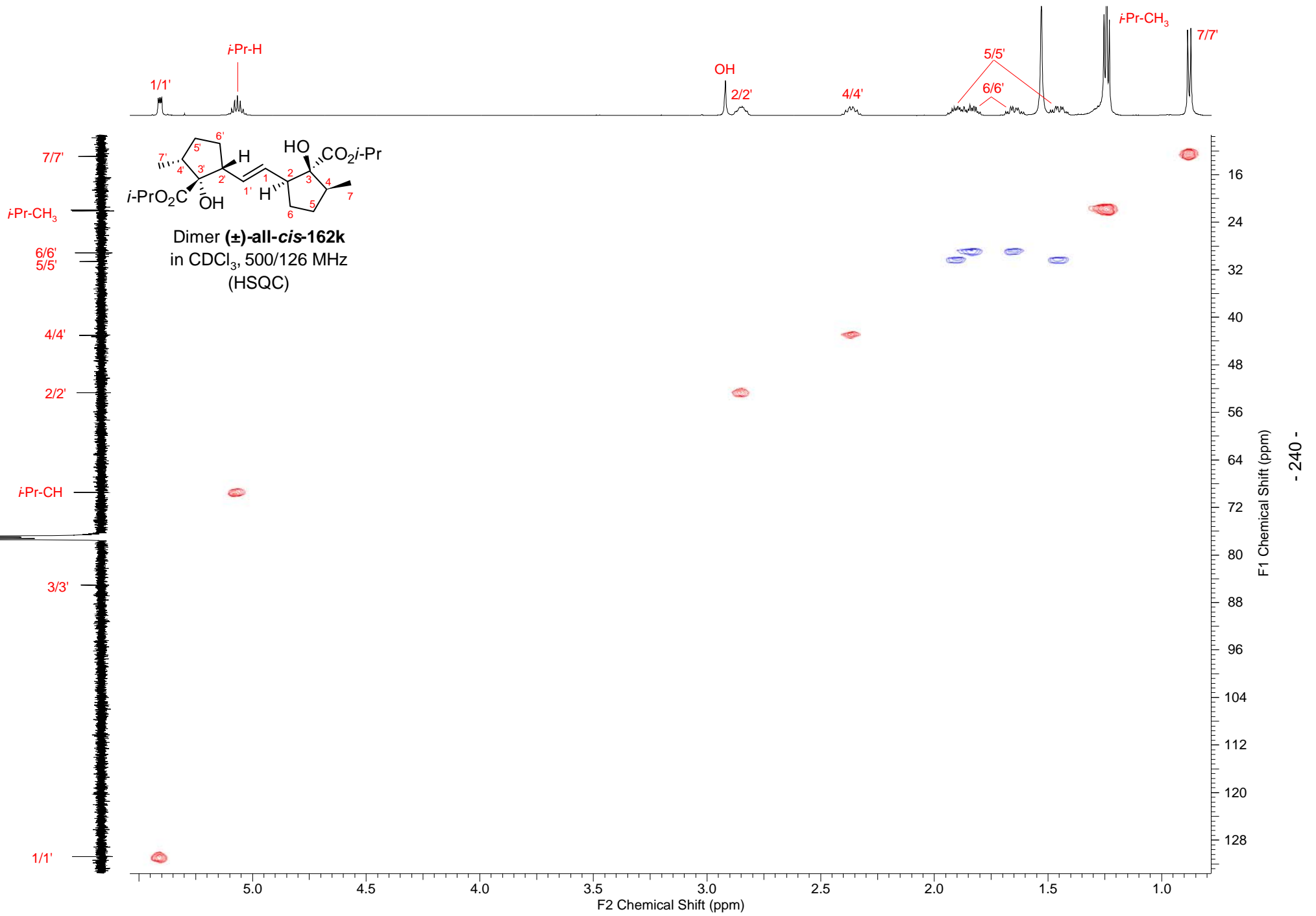


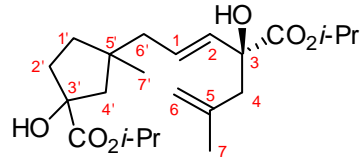




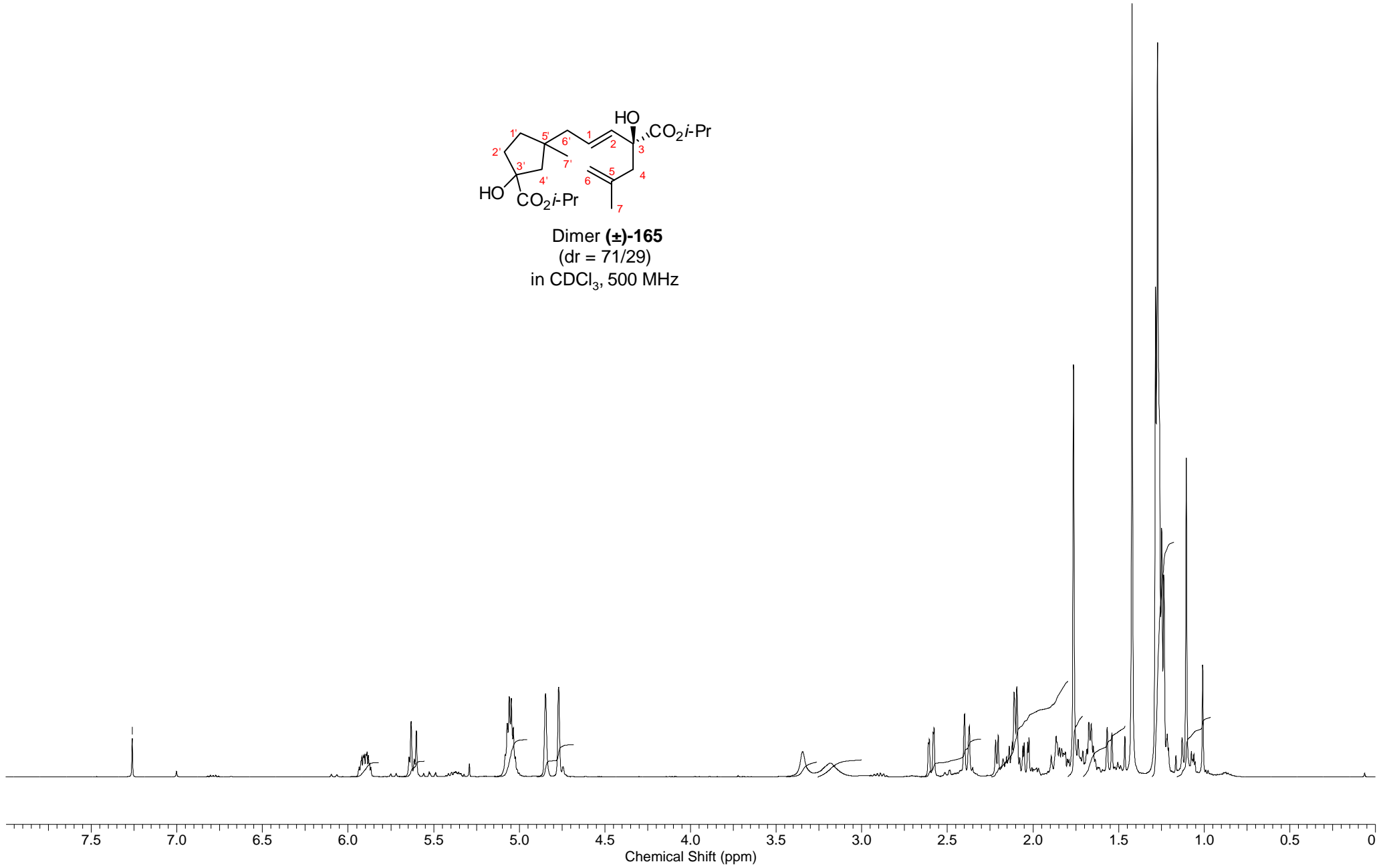








Dimer (\pm)-165
(dr = 71/29)
in CDCl₃, 500 MHz



—176.88
—174.73

└141.40
└141.31

└133.82
└133.73
└128.15
└127.96

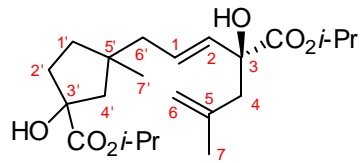
└114.98
└114.93

└82.31
└82.25

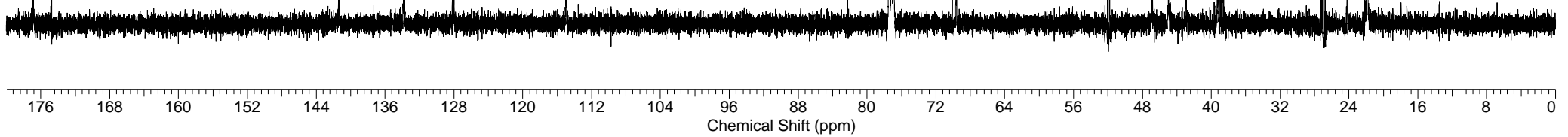
└70.11
└69.60

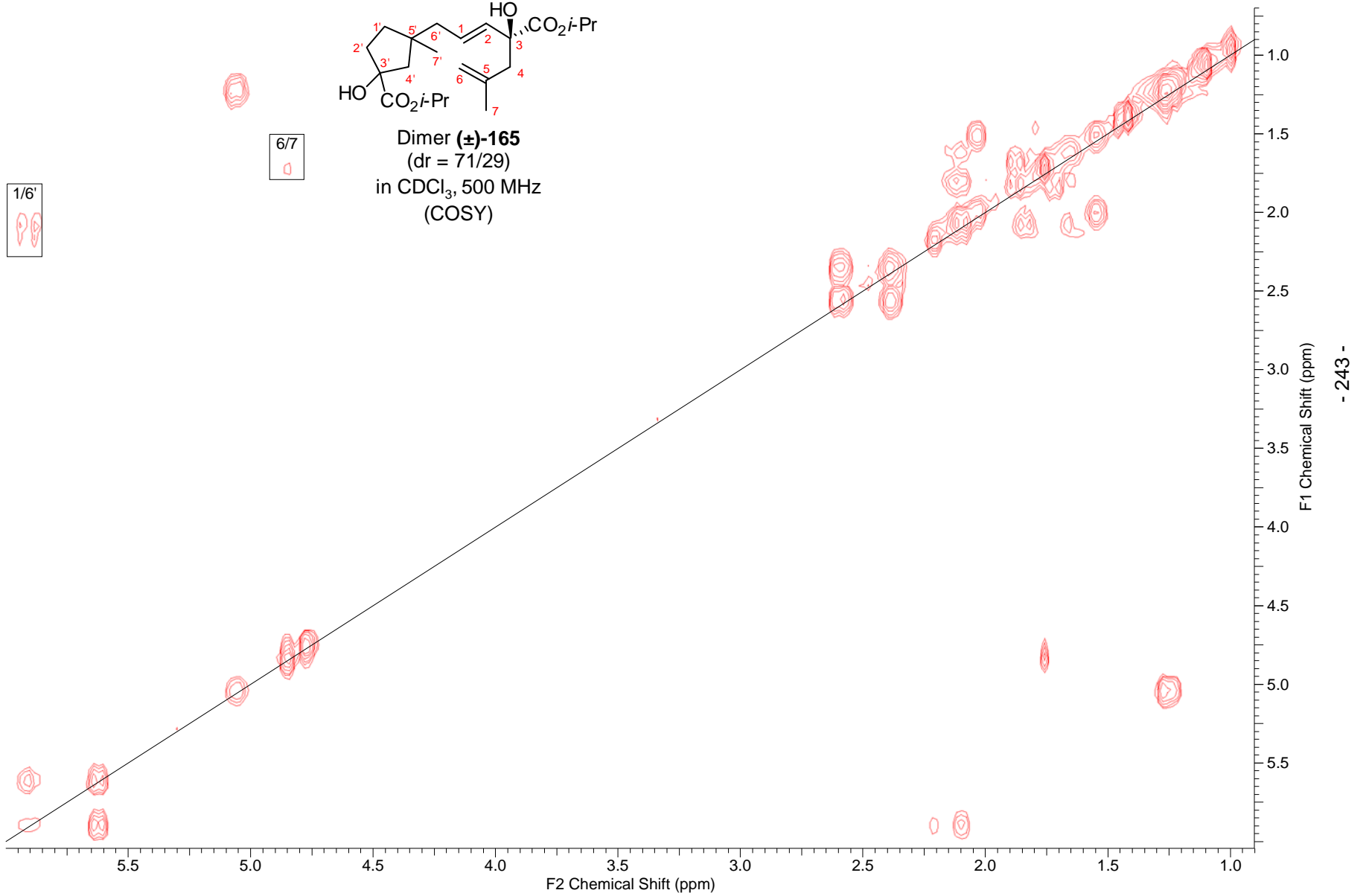
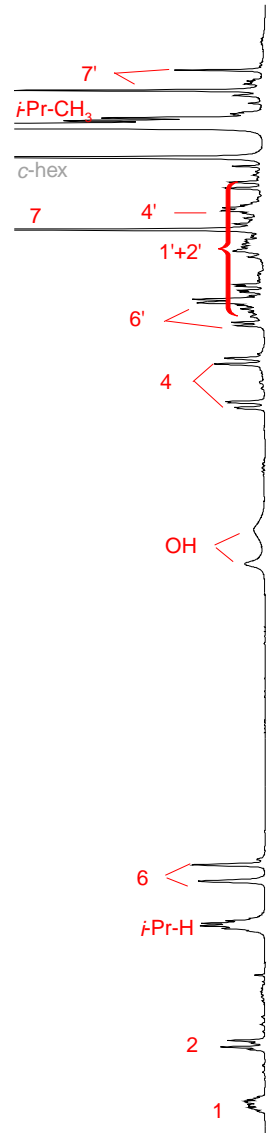
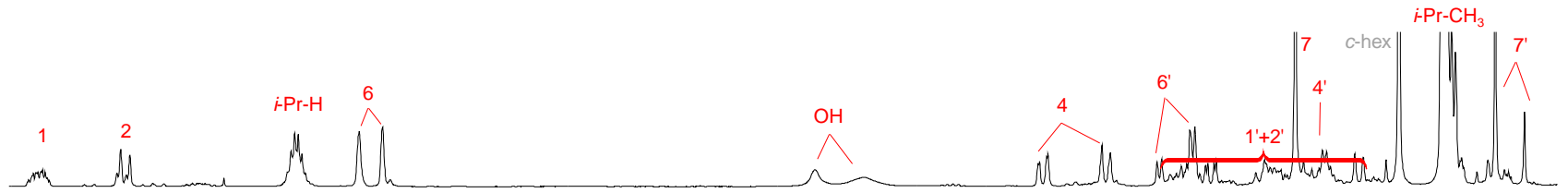
—51.80
└46.90
└44.97
└42.91
└38.96
└38.83
└38.73
└38.56

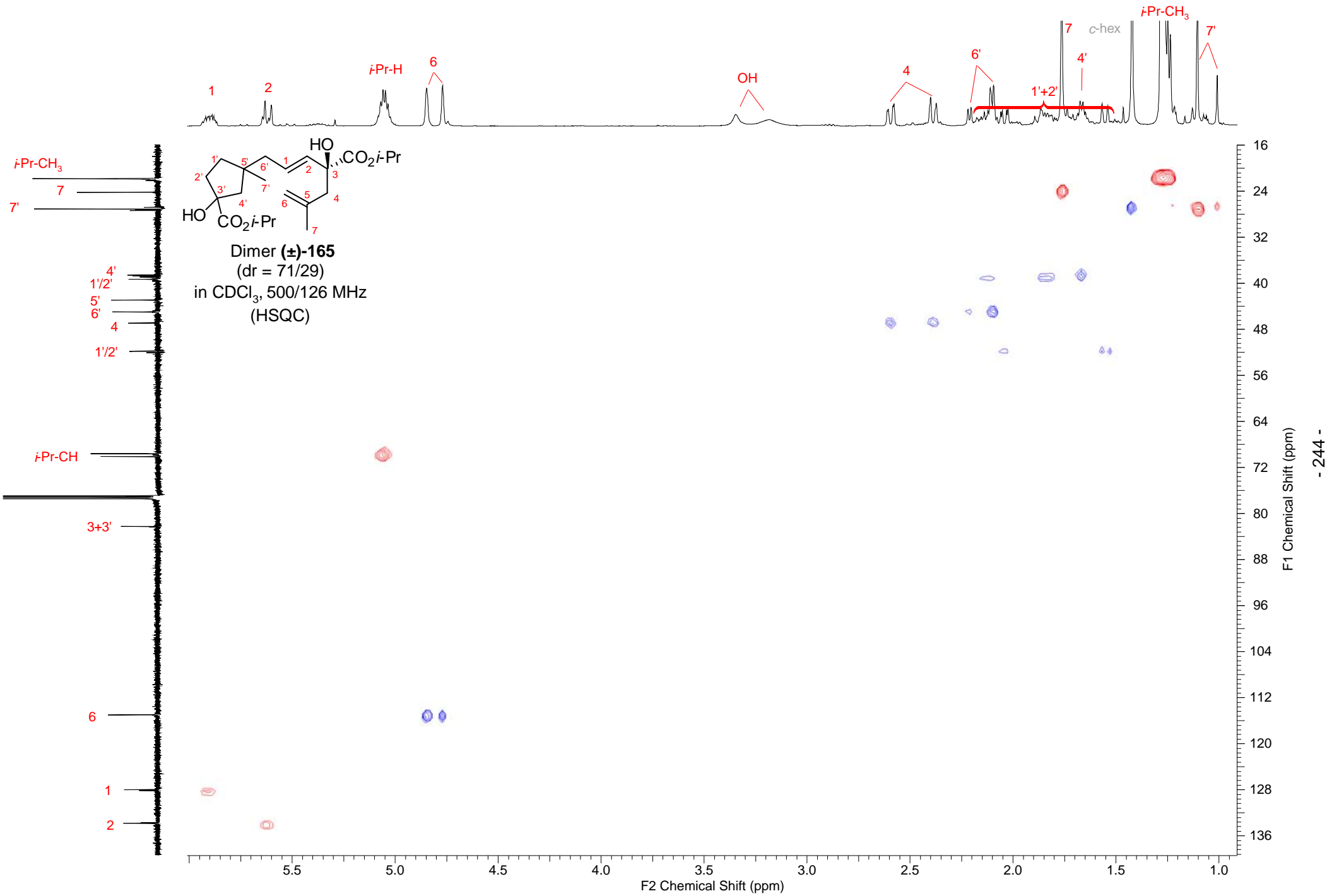
└27.20
└27.07
└24.18
└21.93
└21.82
└21.76

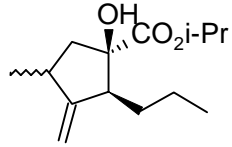


Dimer (±)-165
(dr = 71/29)
in CDCl₃, 126 MHz

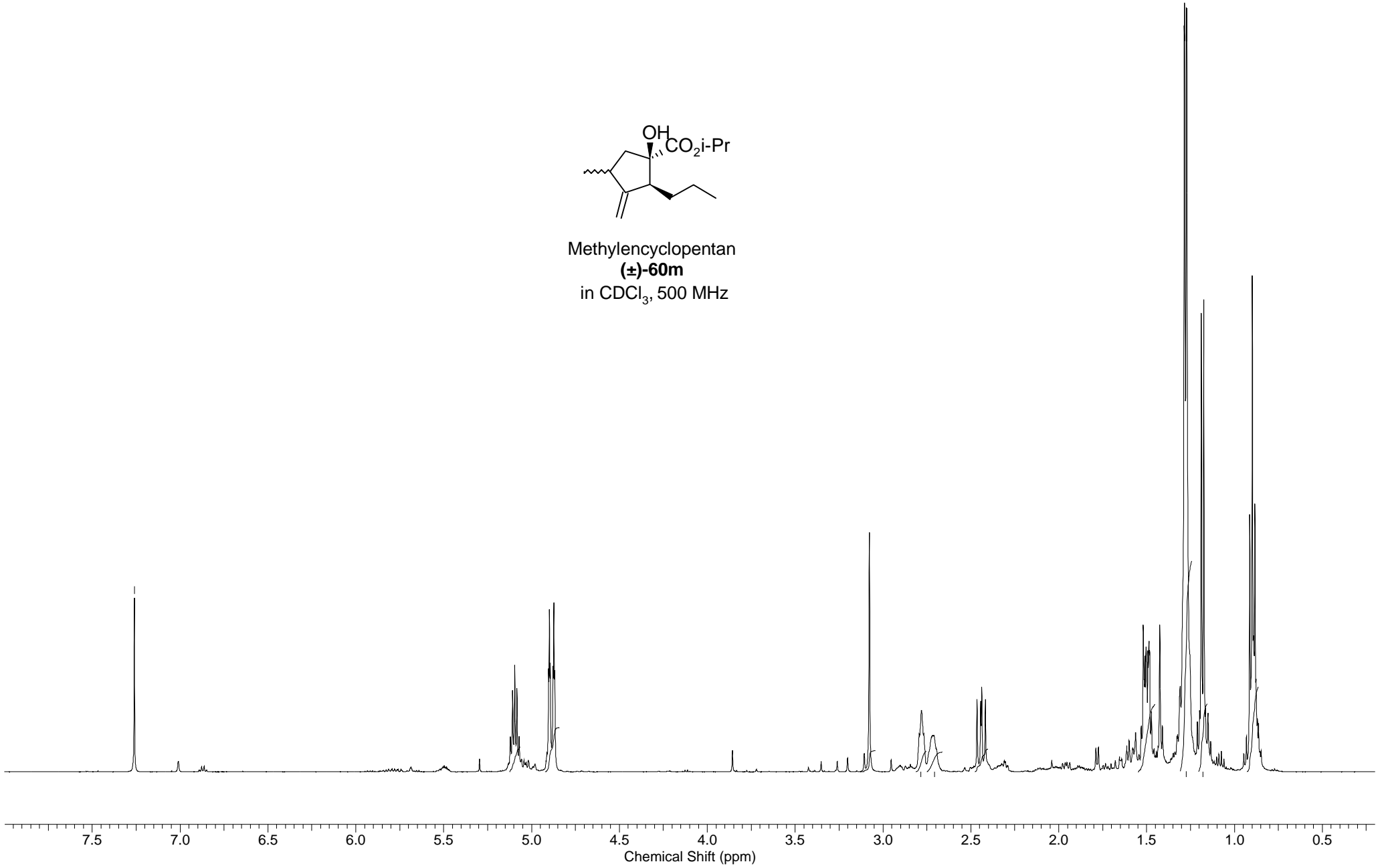


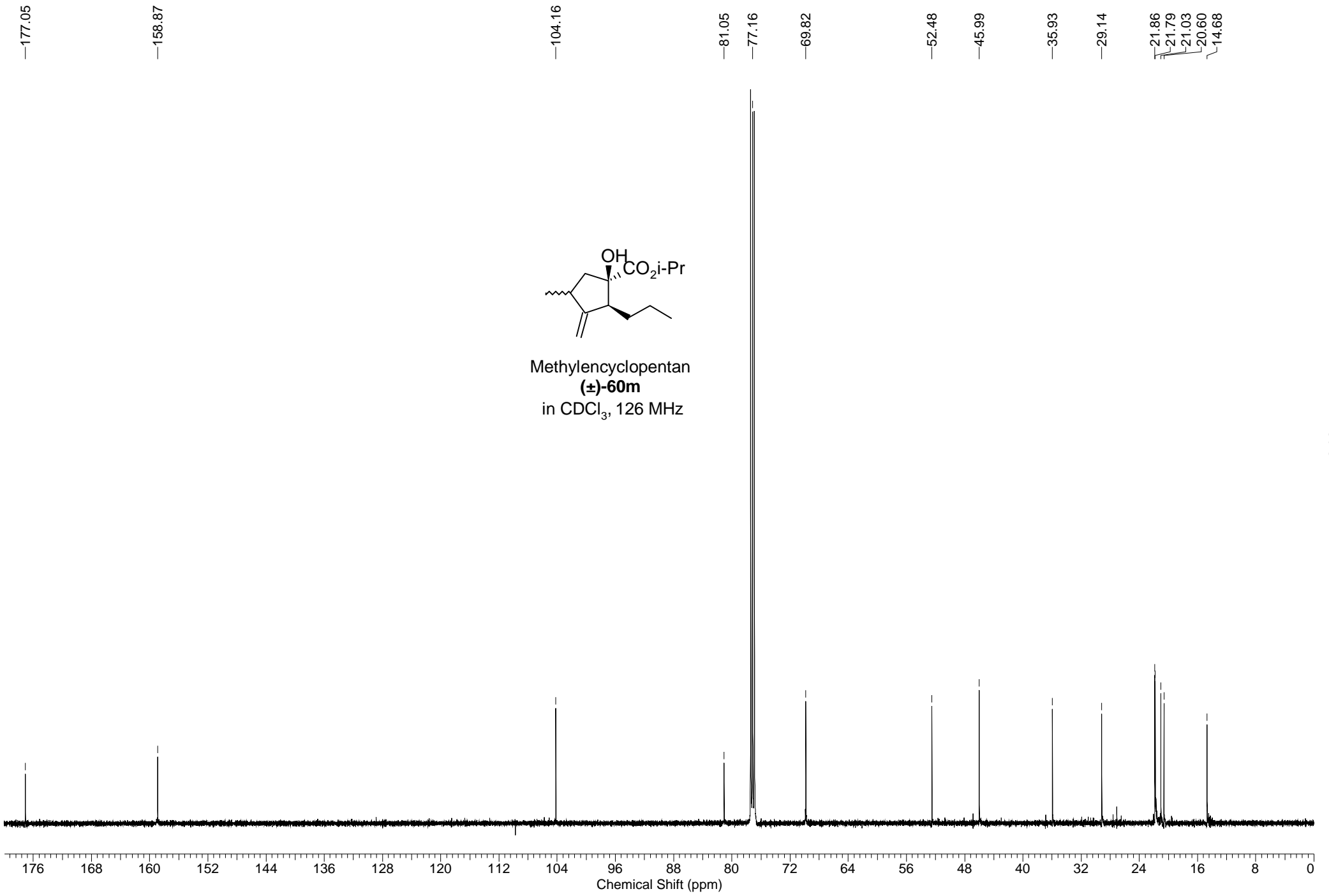


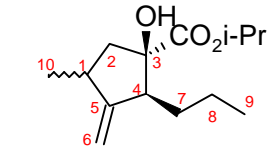
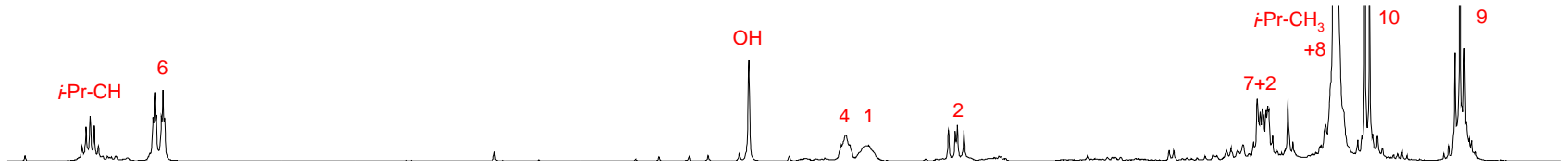




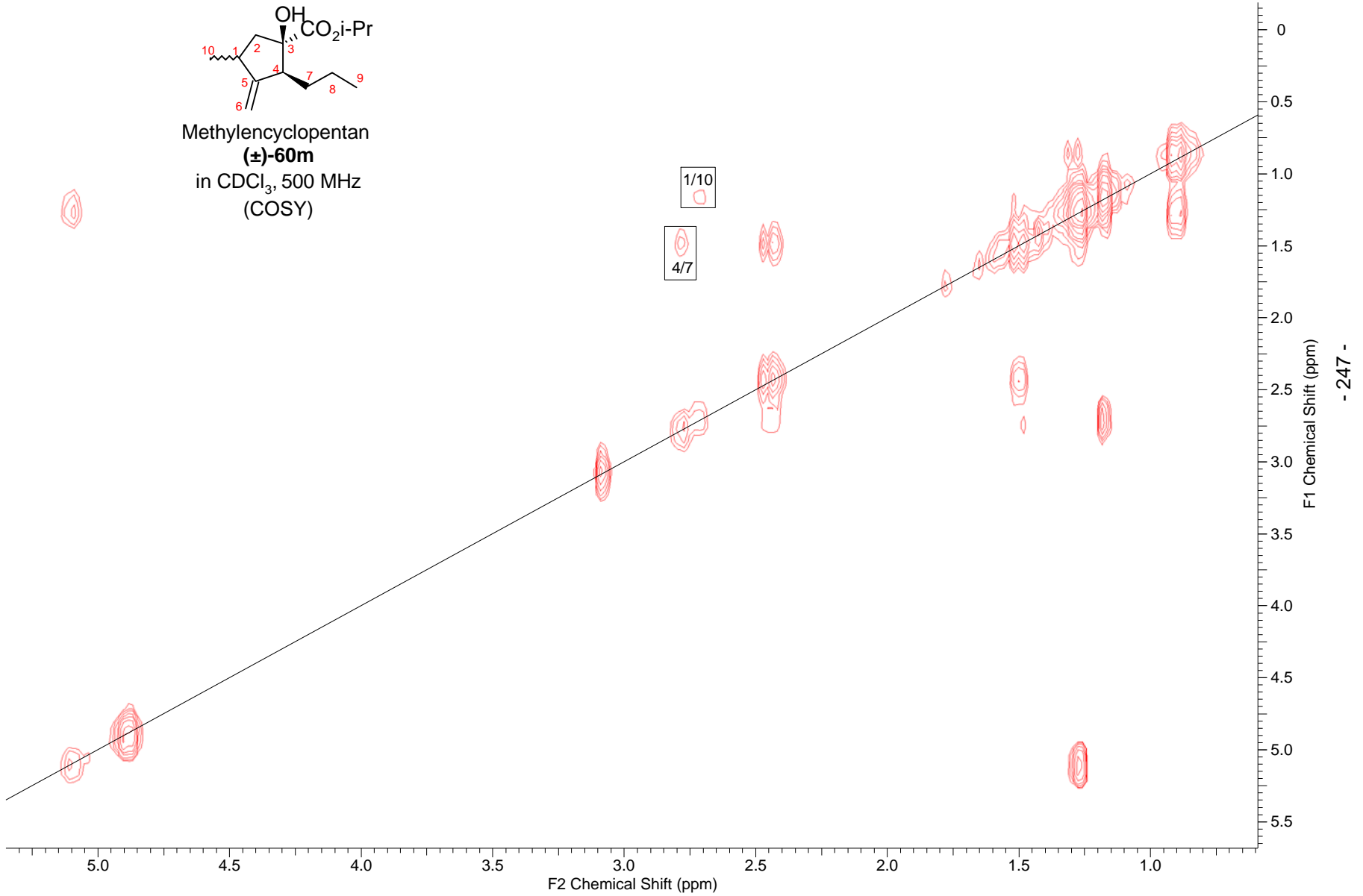
Methylcyclopentan
(±)-60m
in CDCl₃, 500 MHz

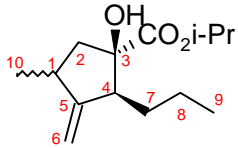
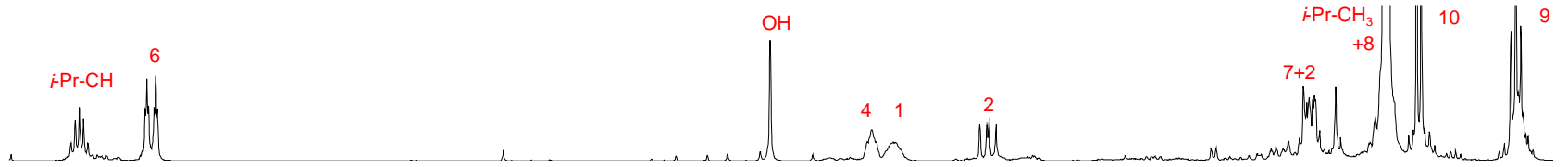




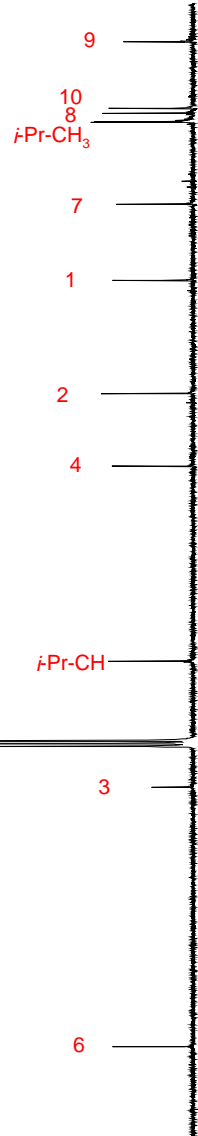


Methylcyclopentan
(±)-60m
in CDCl₃, 500 MHz
(COSY)



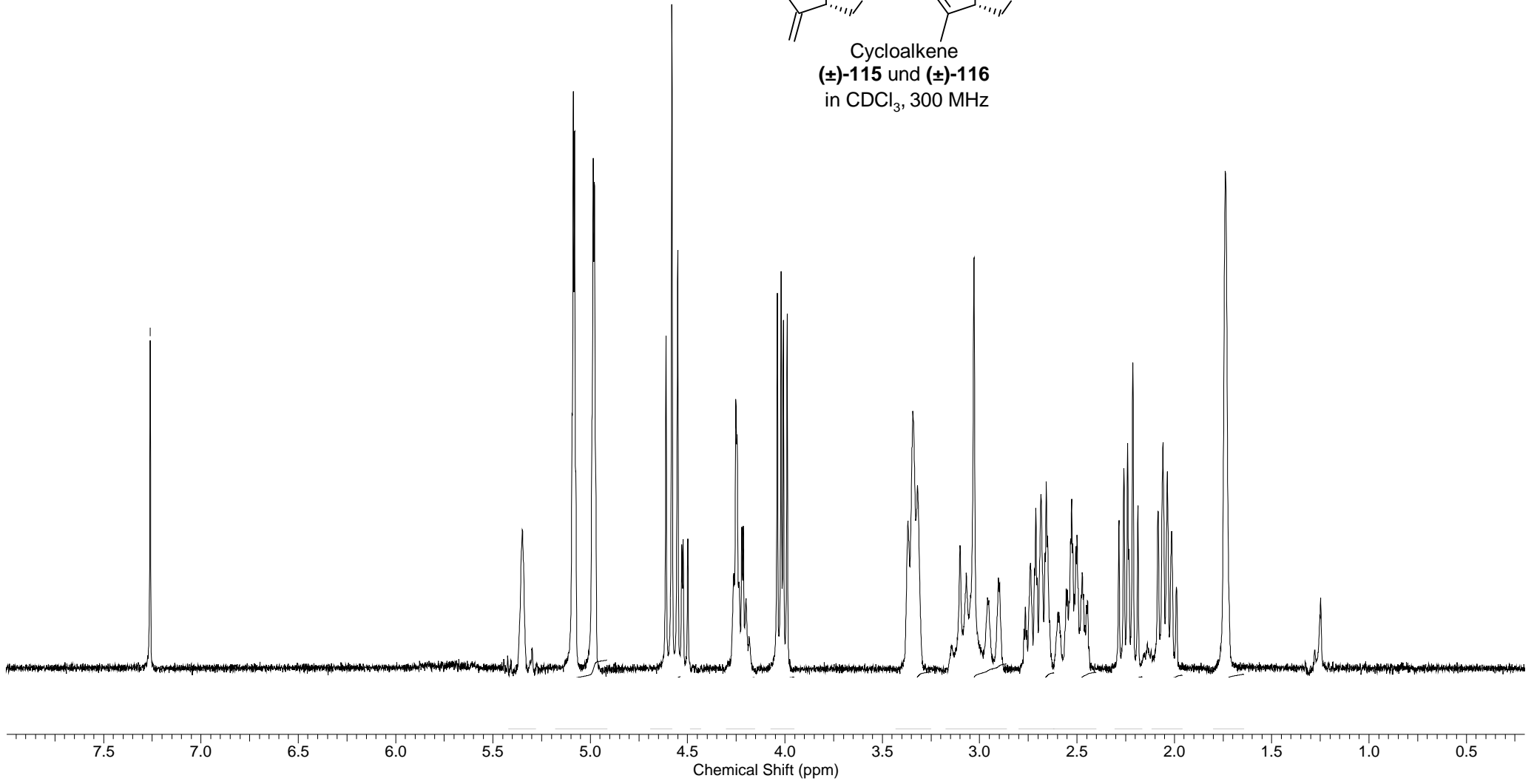
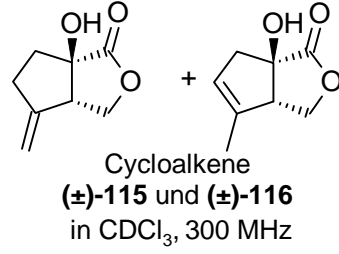


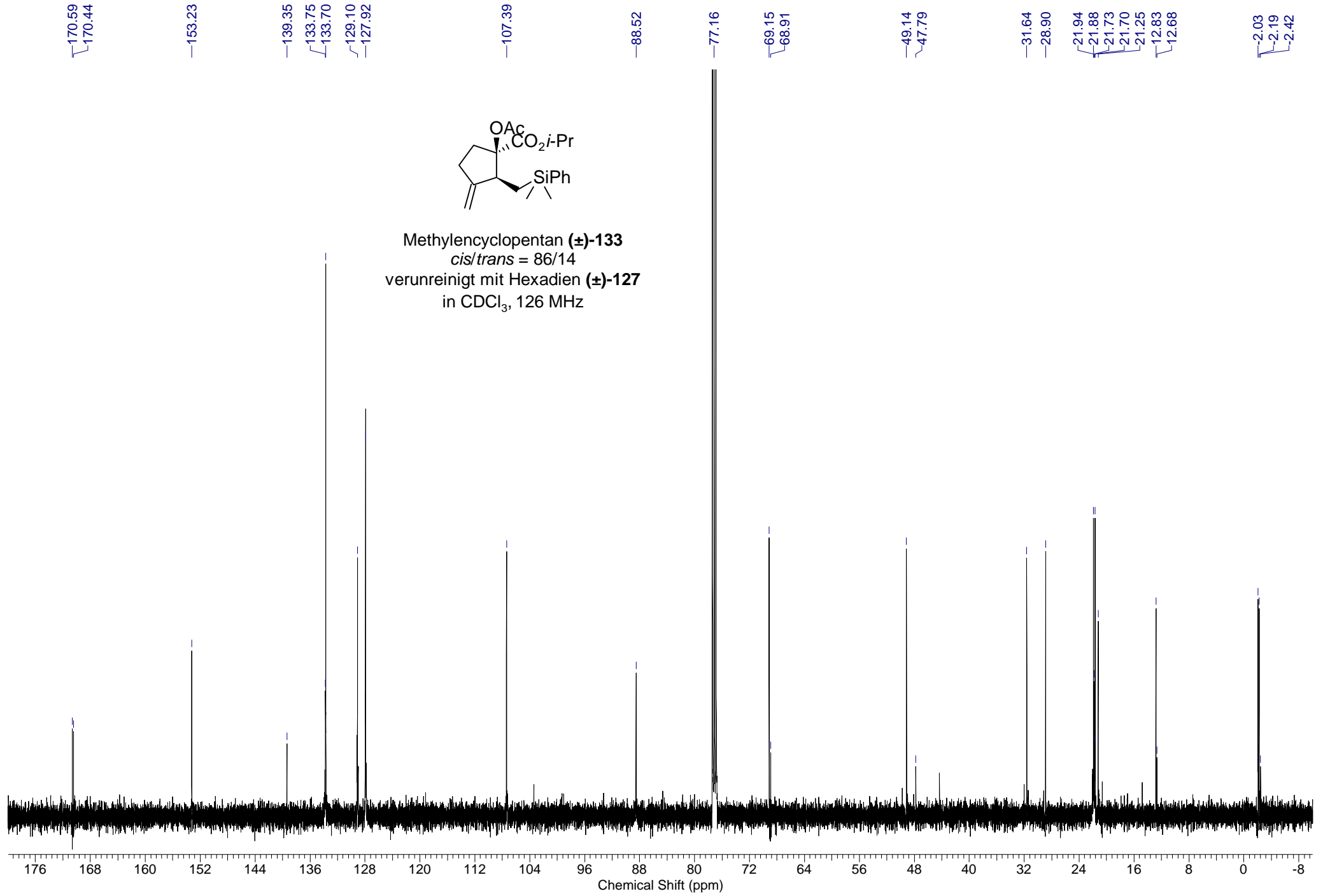
Methylcyclopentan
(±)-60m
in CDCl₃, 500/126 MHz
(HSQC)

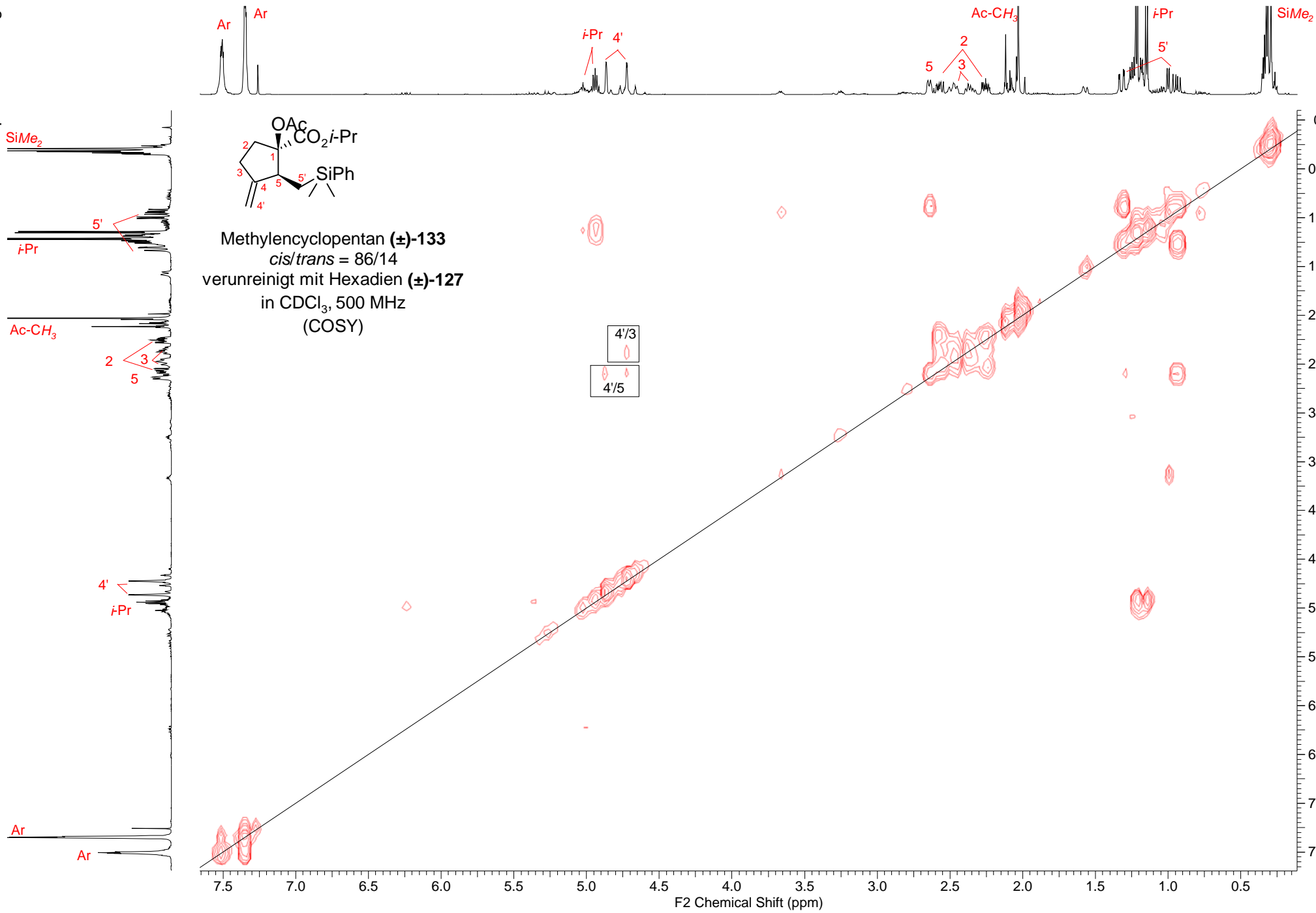


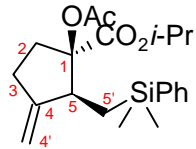
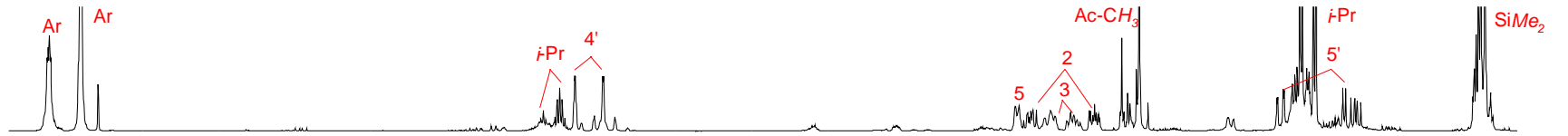
F1 Chemical Shift (ppm)
- 248 -

F2 Chemical Shift (ppm)

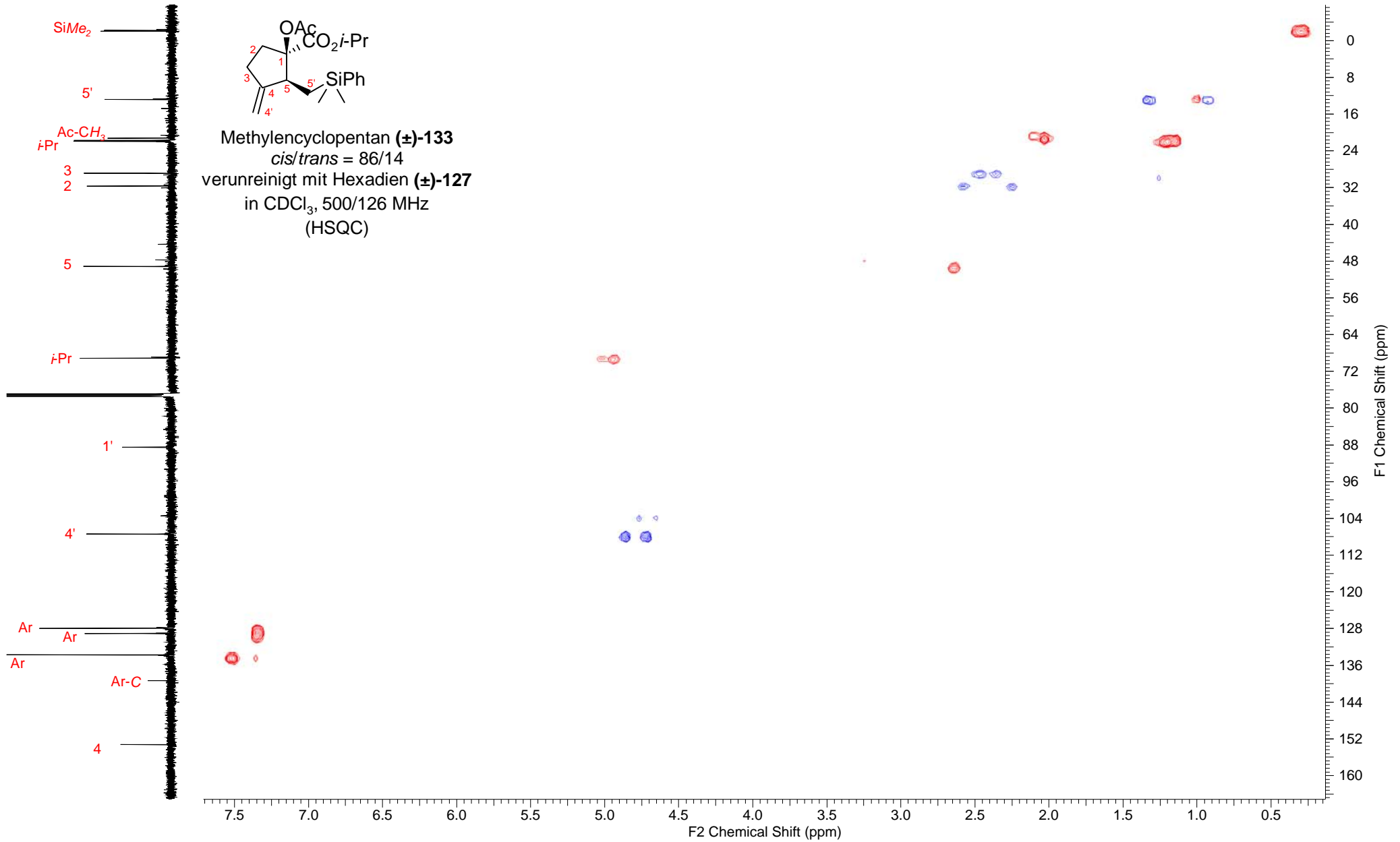




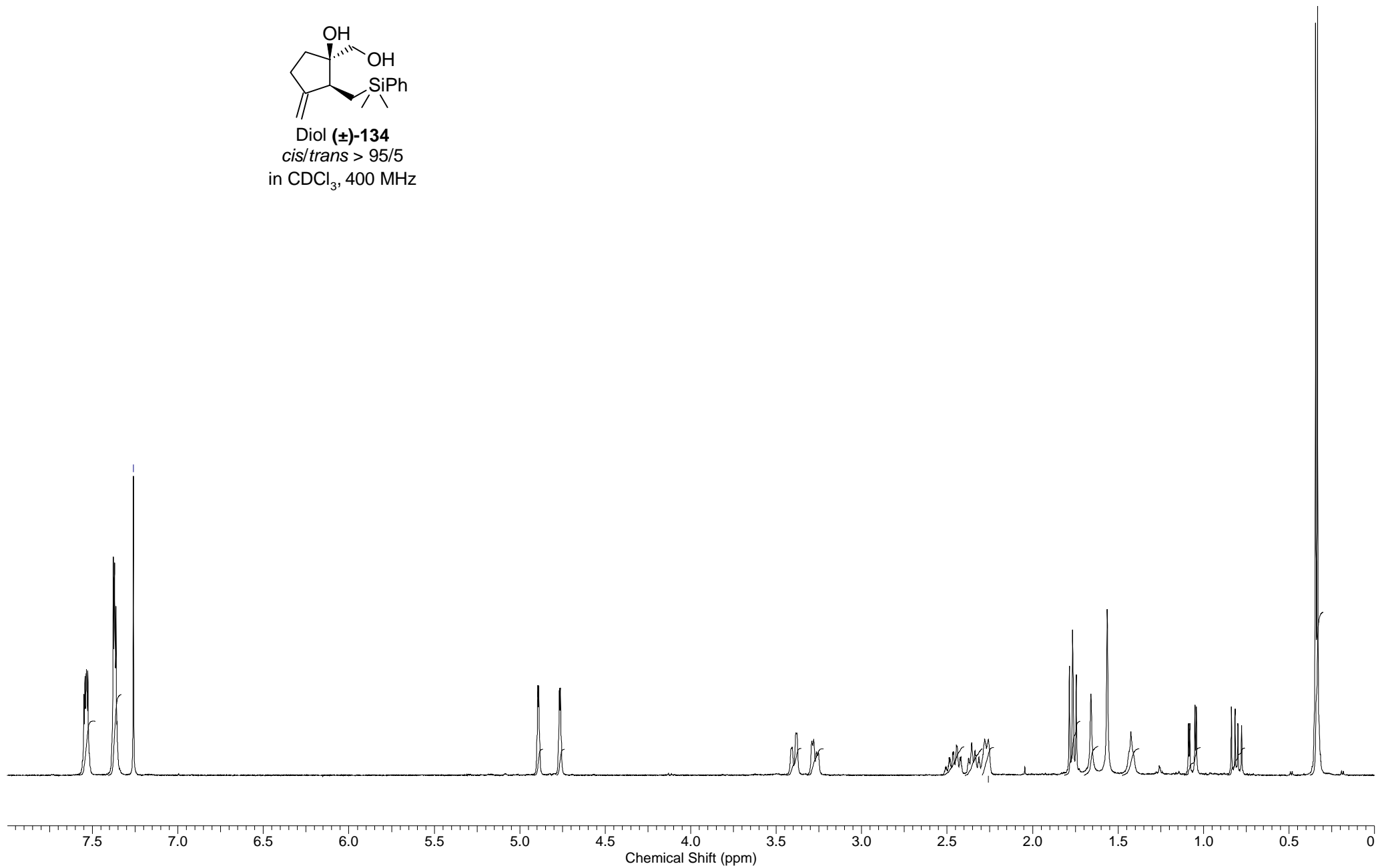
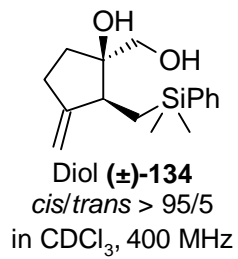


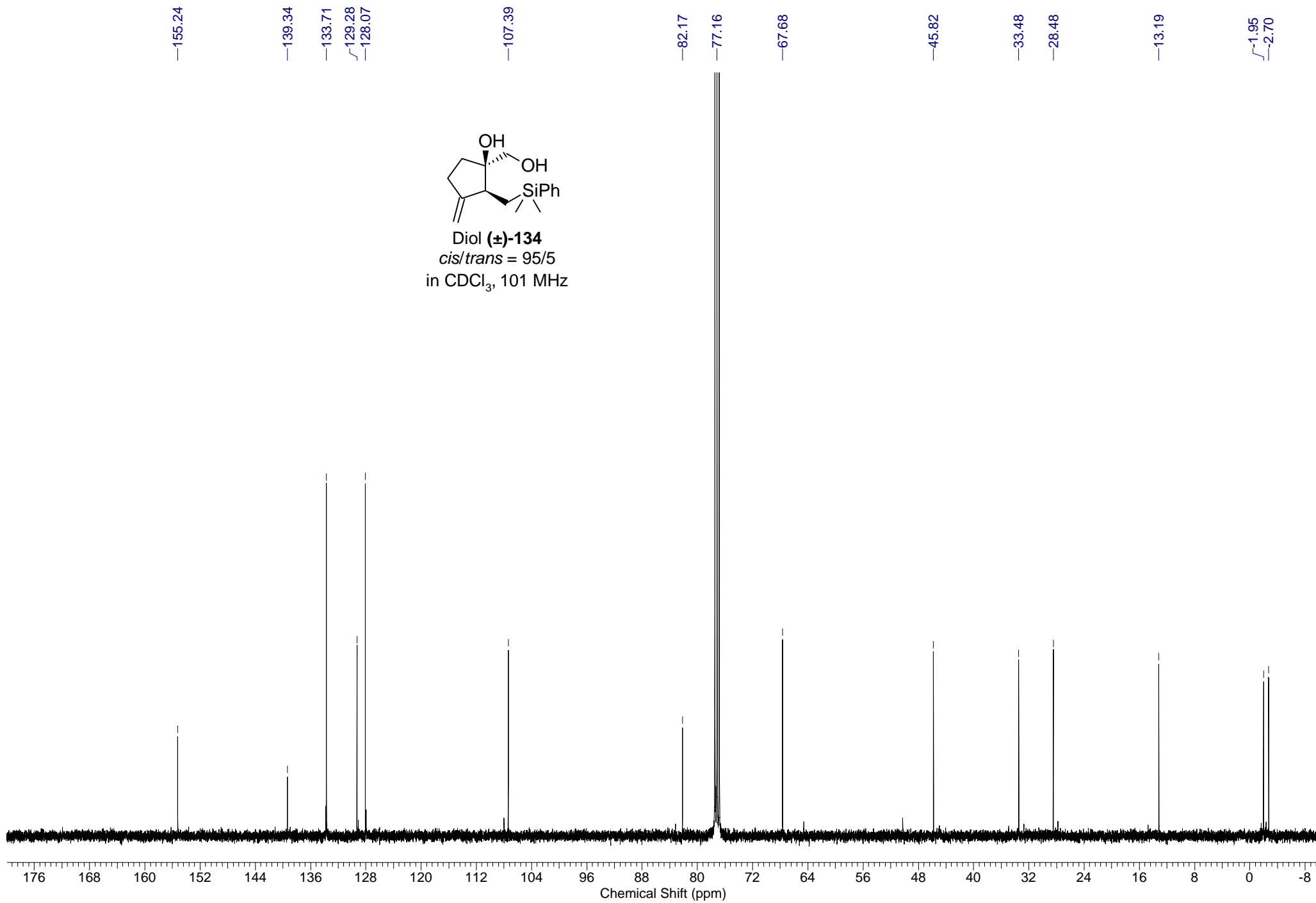


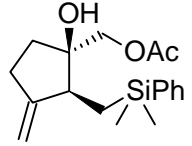
Methylcyclopentan (\pm)-133
cis/trans = 86/14
 verunreinigt mit Hexadien (\pm)-127
 in CDCl_3 , 500/126 MHz
 (HSQC)



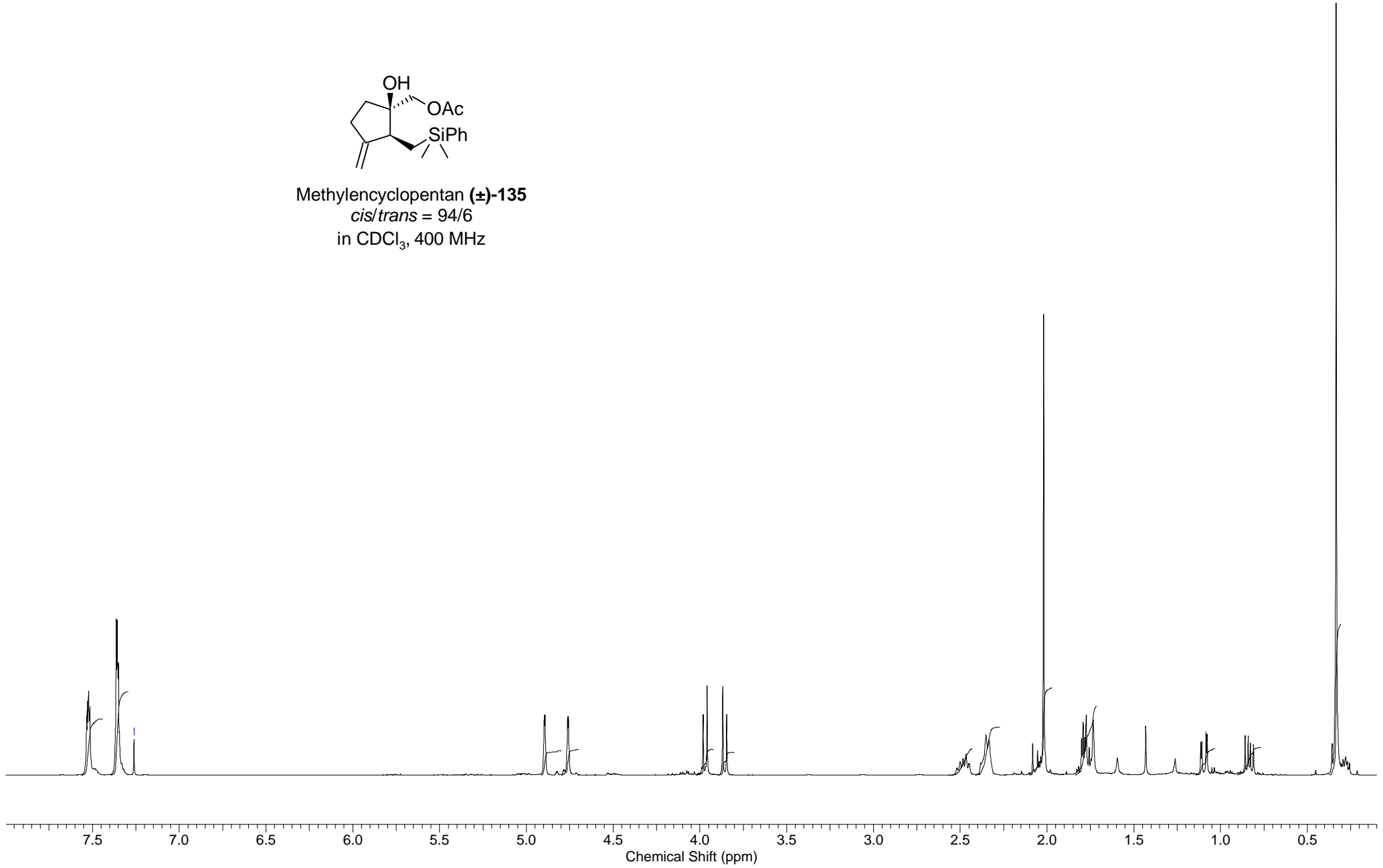
-7.26

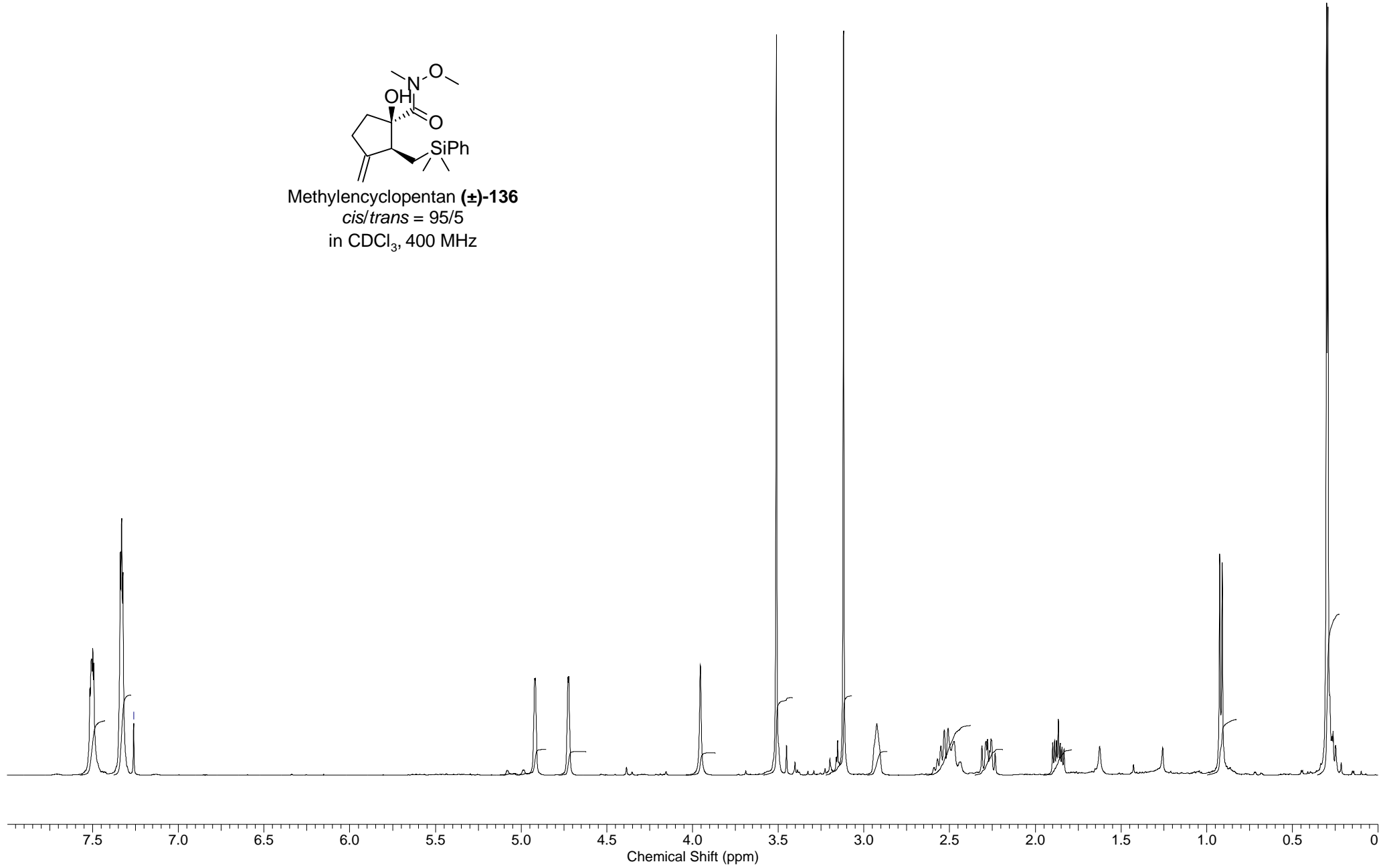
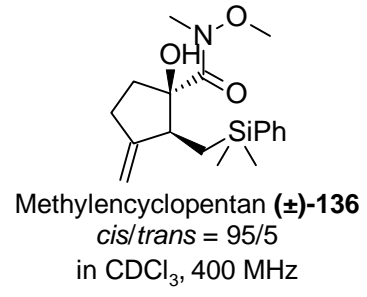


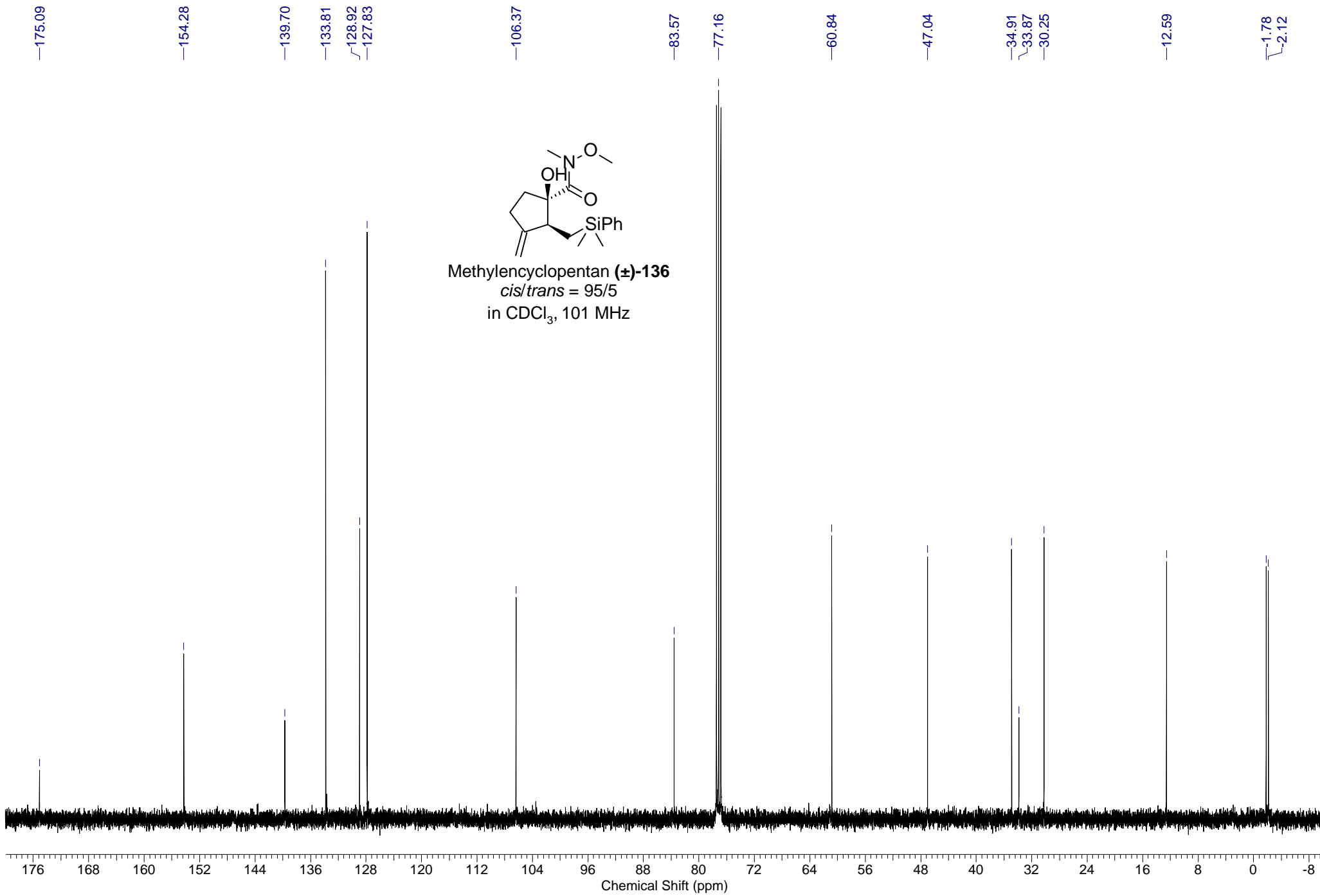


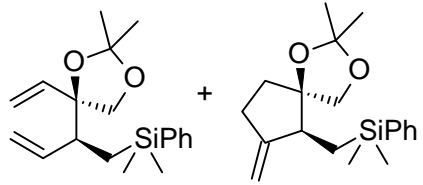


Methylcyclopentan (\pm)-**135**
cis/trans = 94/6
in CDCl_3 , 400 MHz

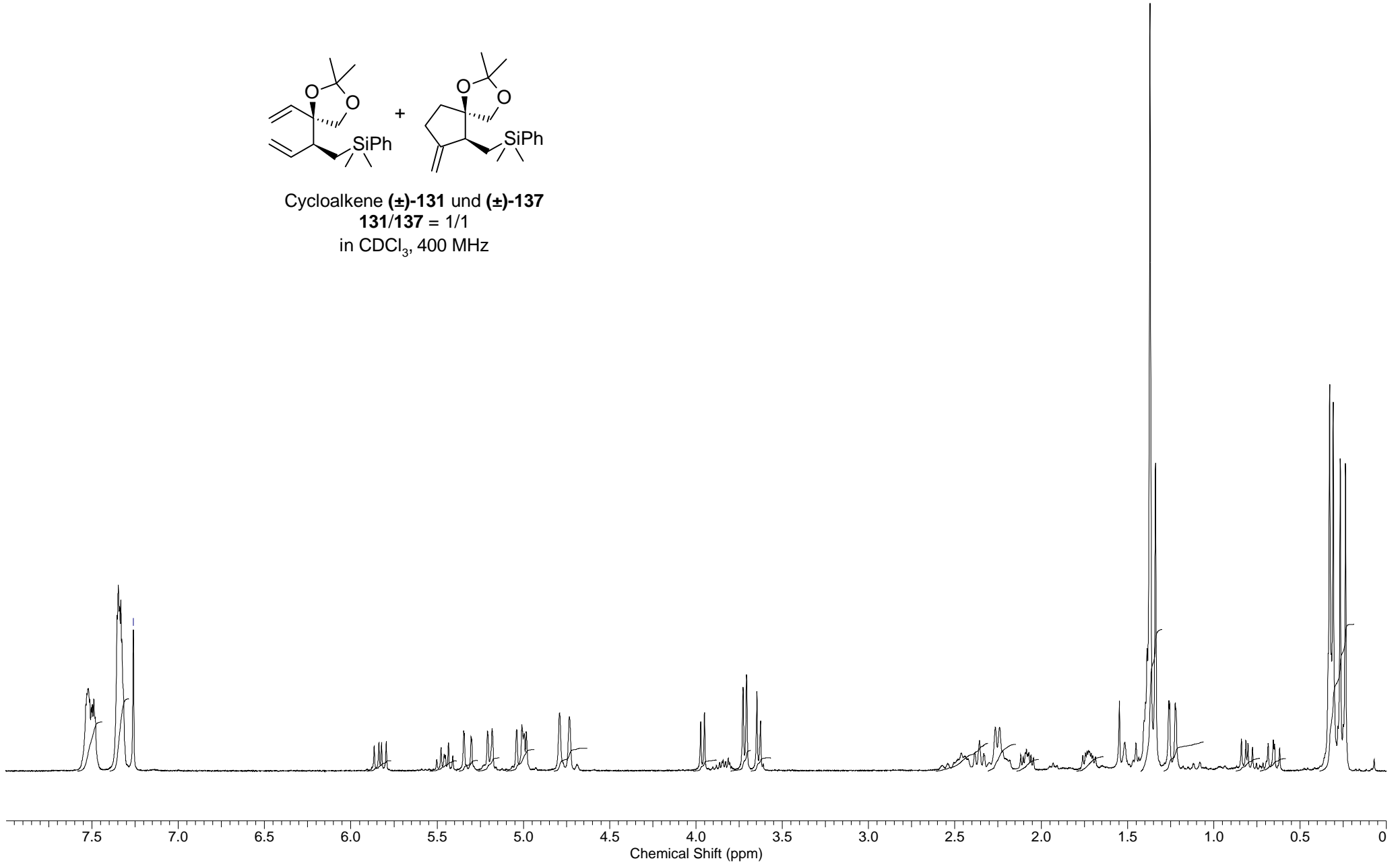


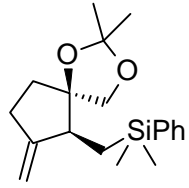




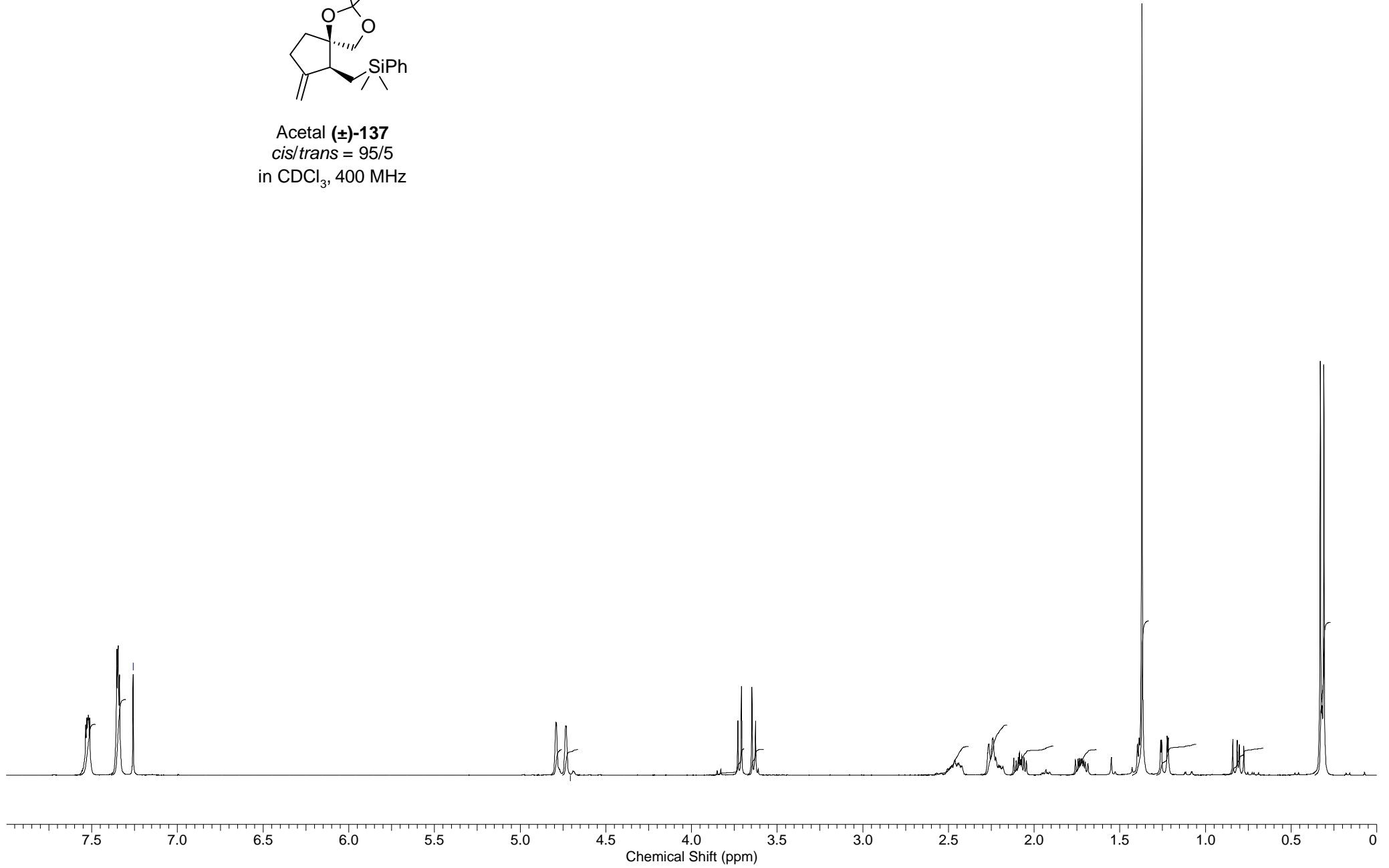


Cycloalkene (\pm)-131 und (\pm)-137
 $131/137 = 1/1$
in CDCl_3 , 400 MHz

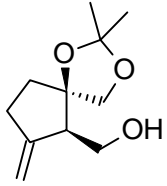




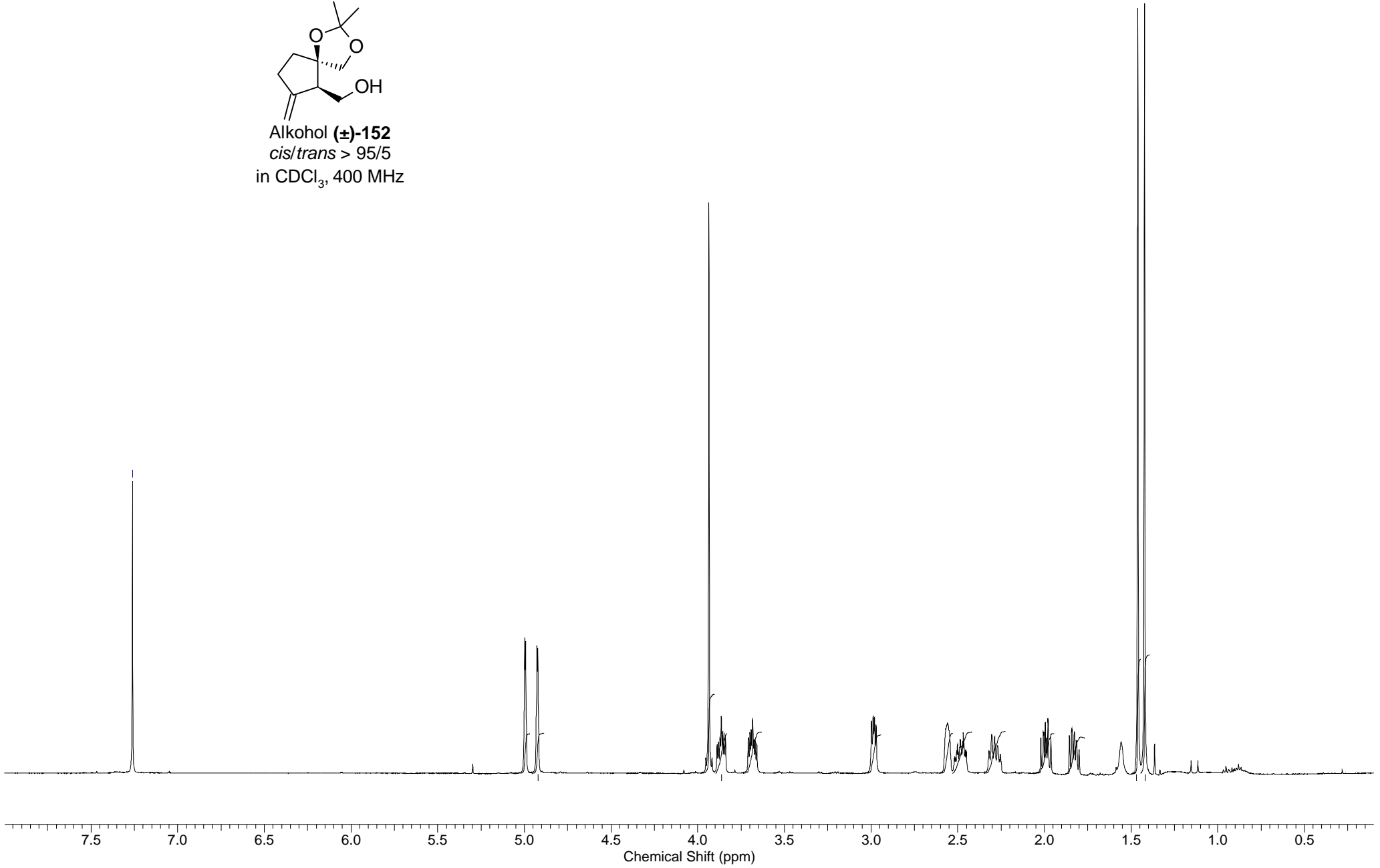
Acetal (±)-137
cis/trans = 95/5
in CDCl₃, 400 MHz

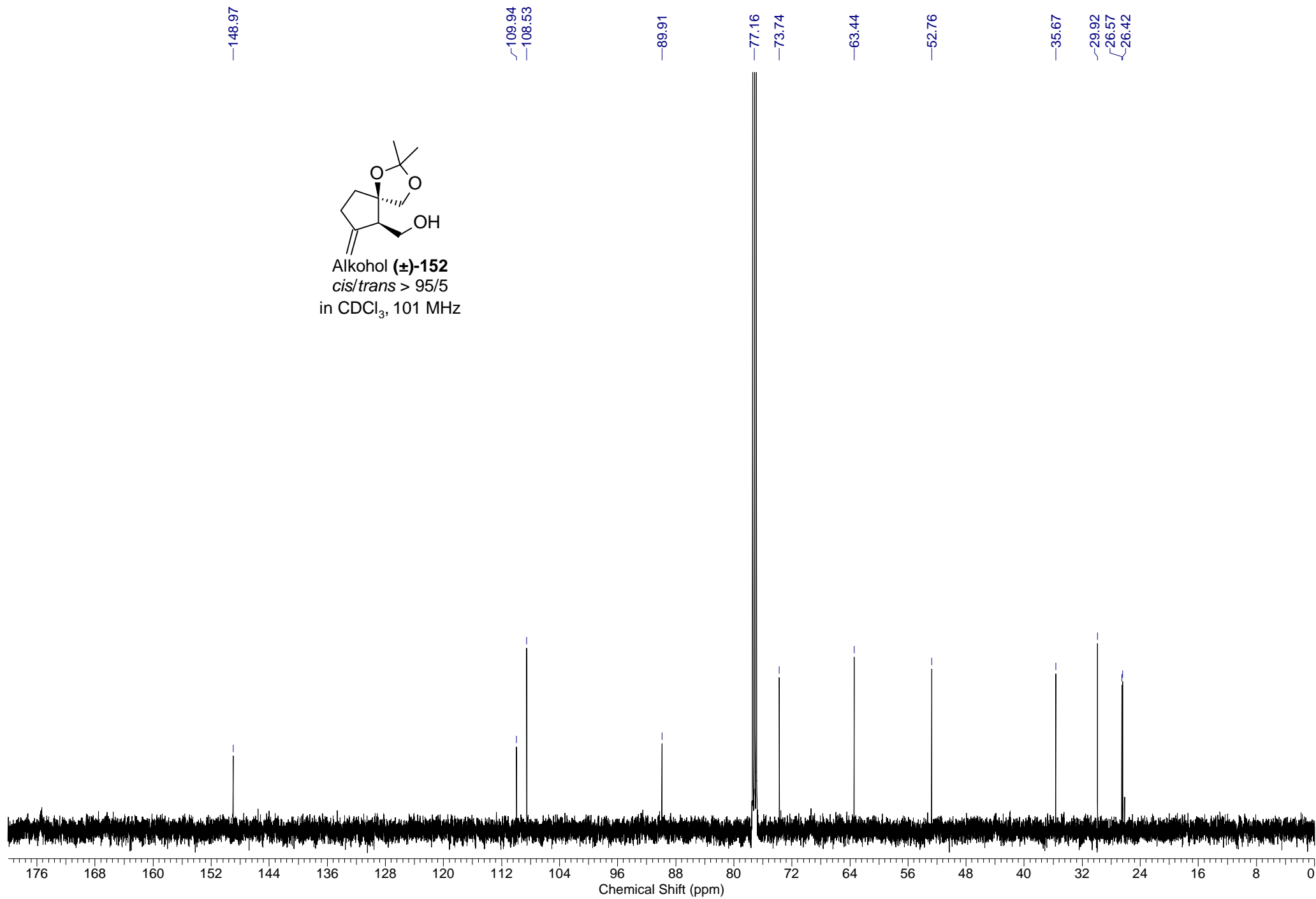
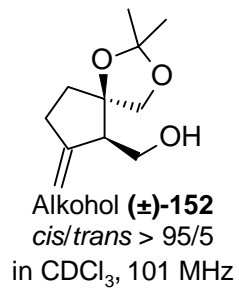


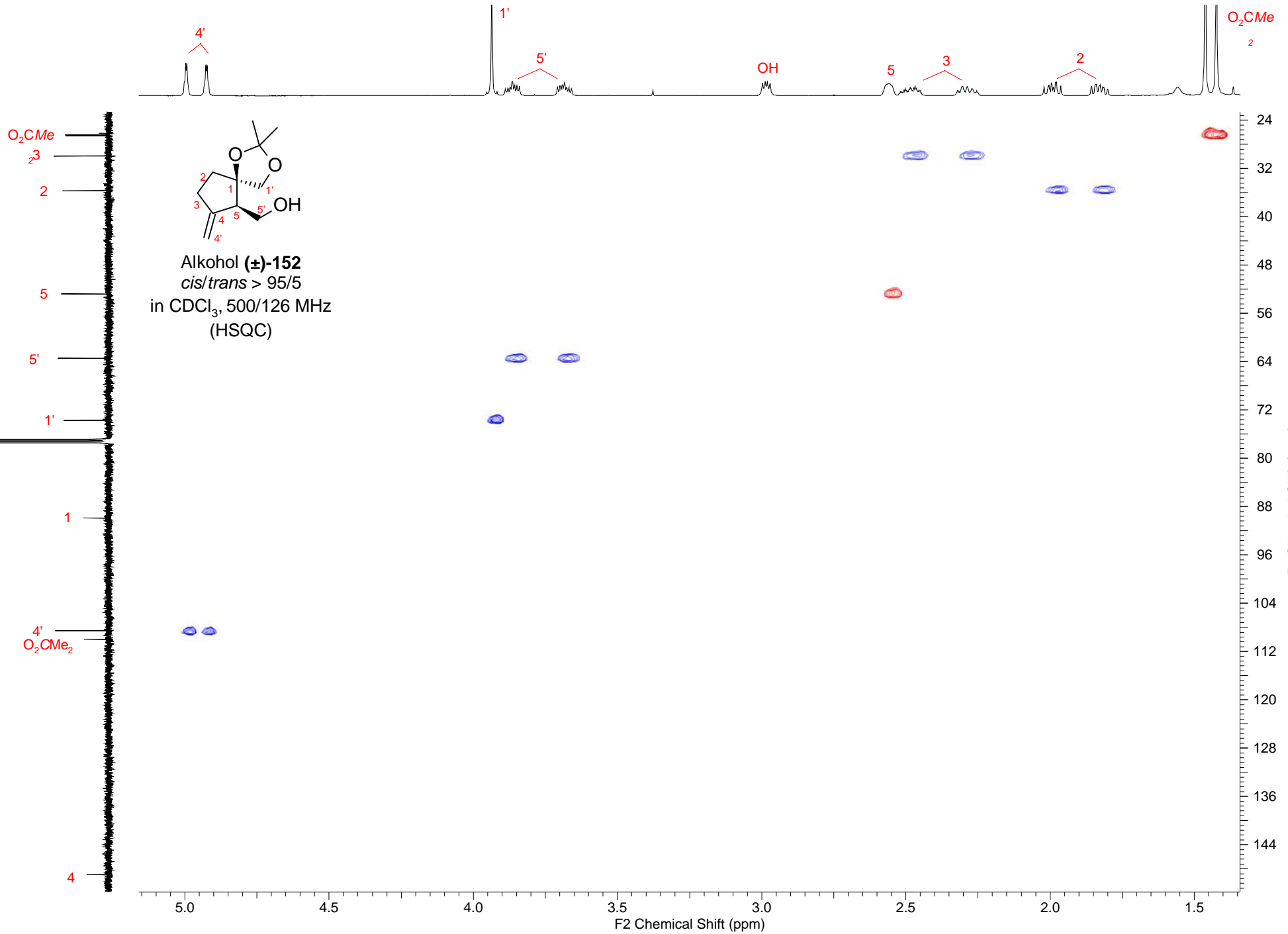
-7.26

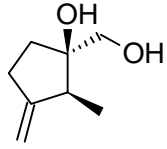


Alkohol (±)-152
cis/trans > 95/5
in CDCl₃, 400 MHz

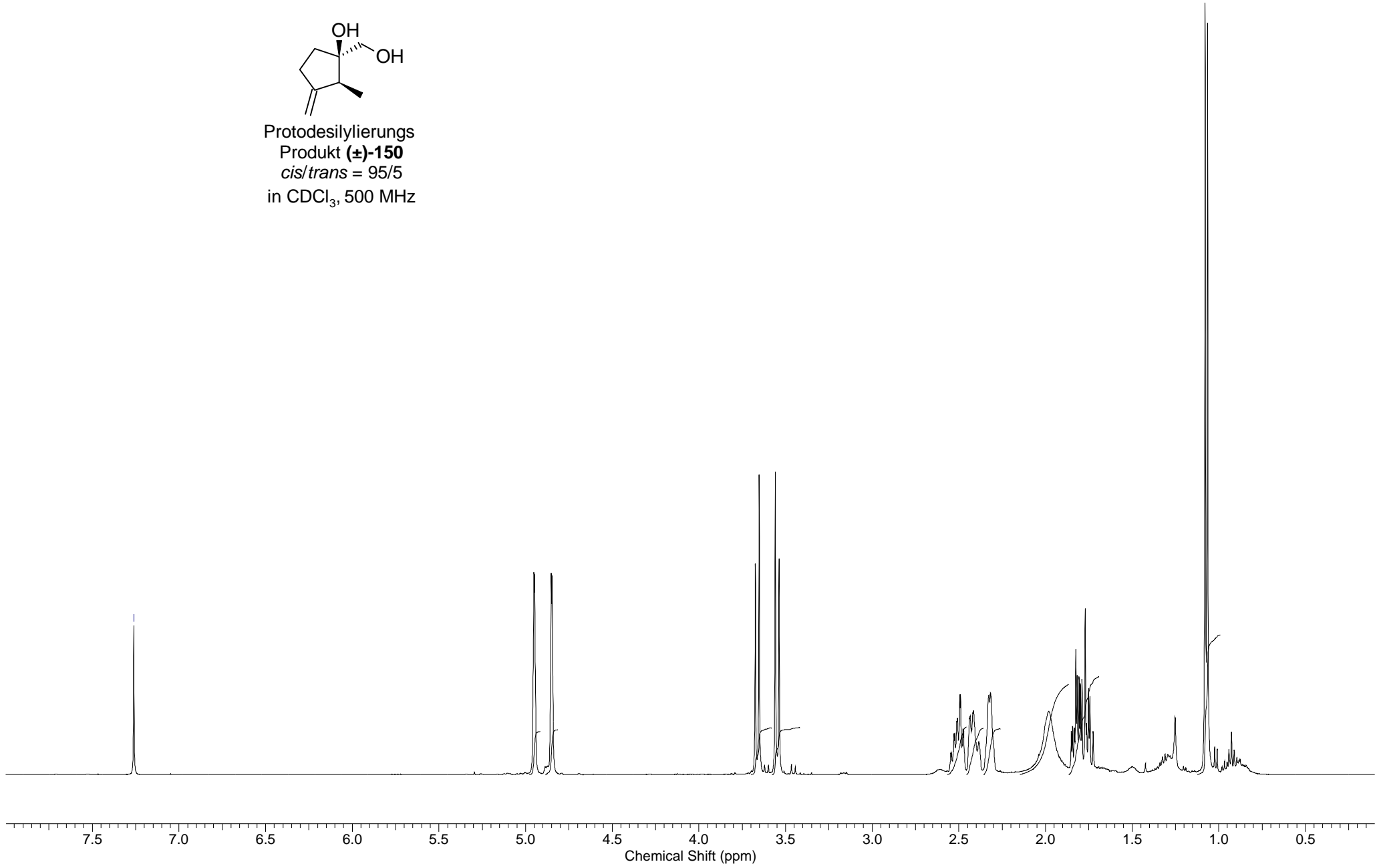


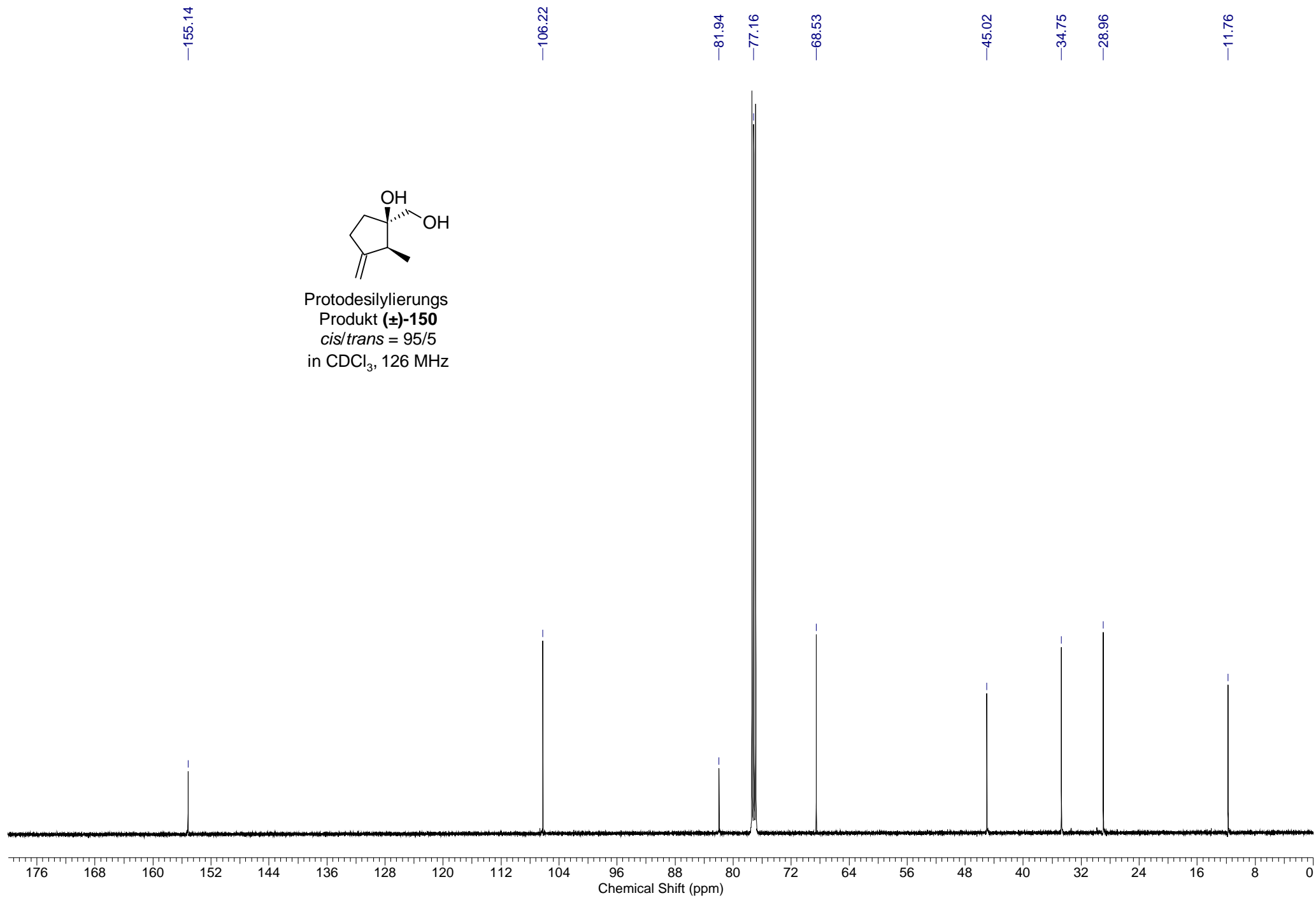
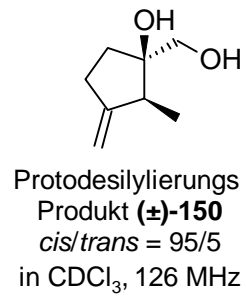


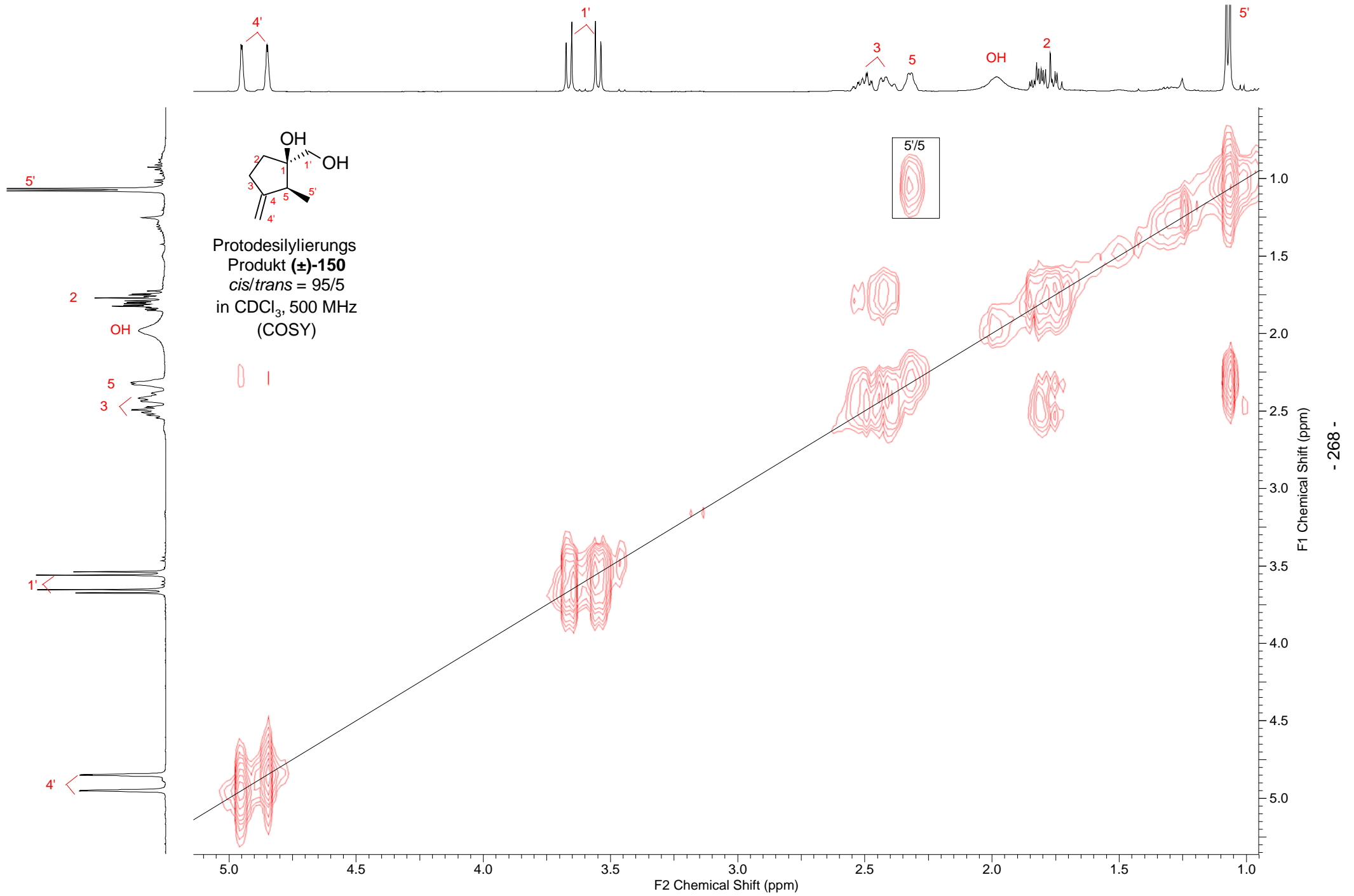


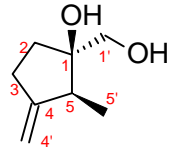


Protodesilylierungs
Produkt (\pm)-**150**
cis/trans = 95/5
in CDCl₃, 500 MHz

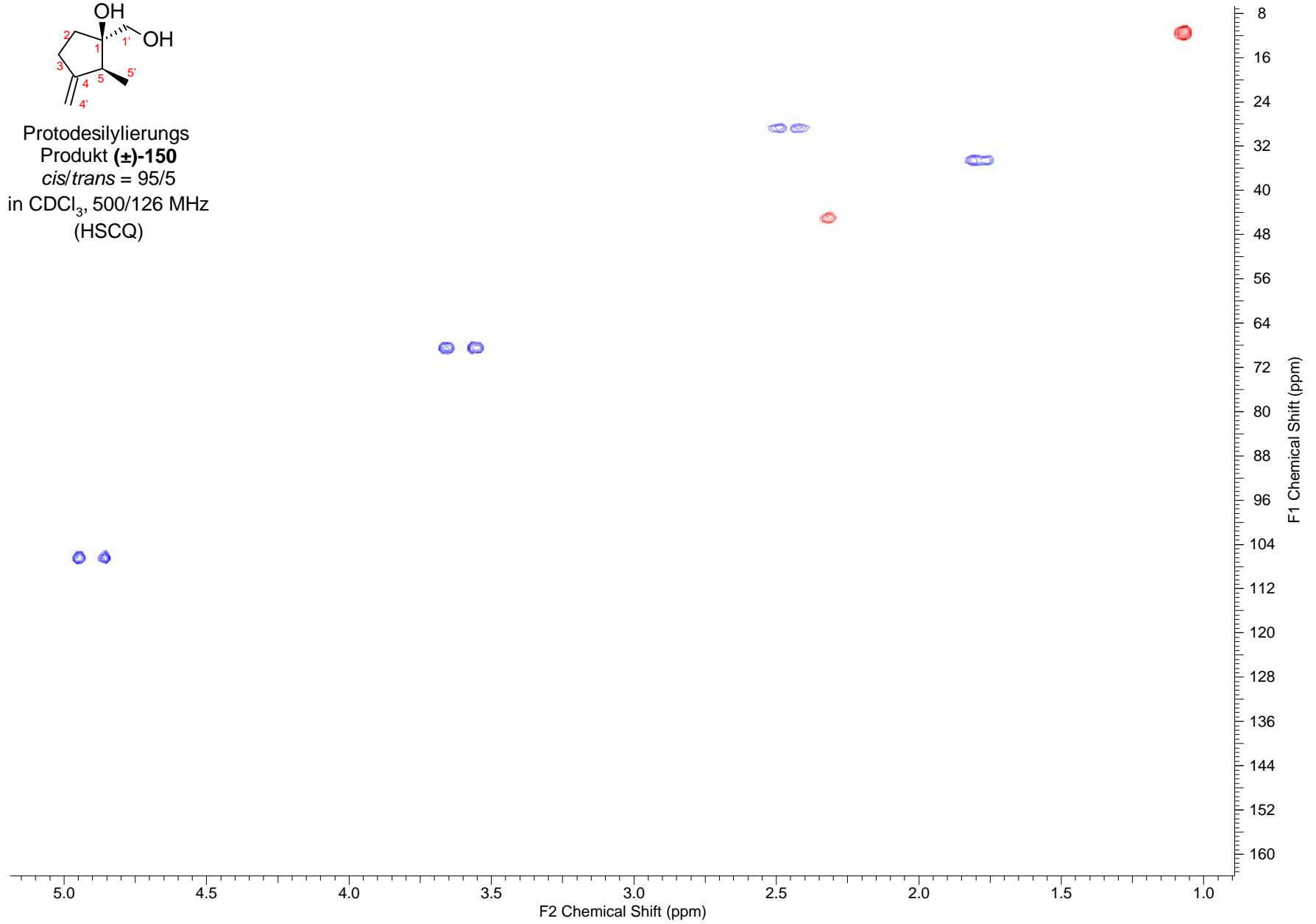
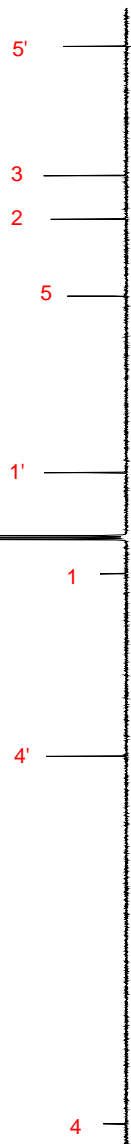


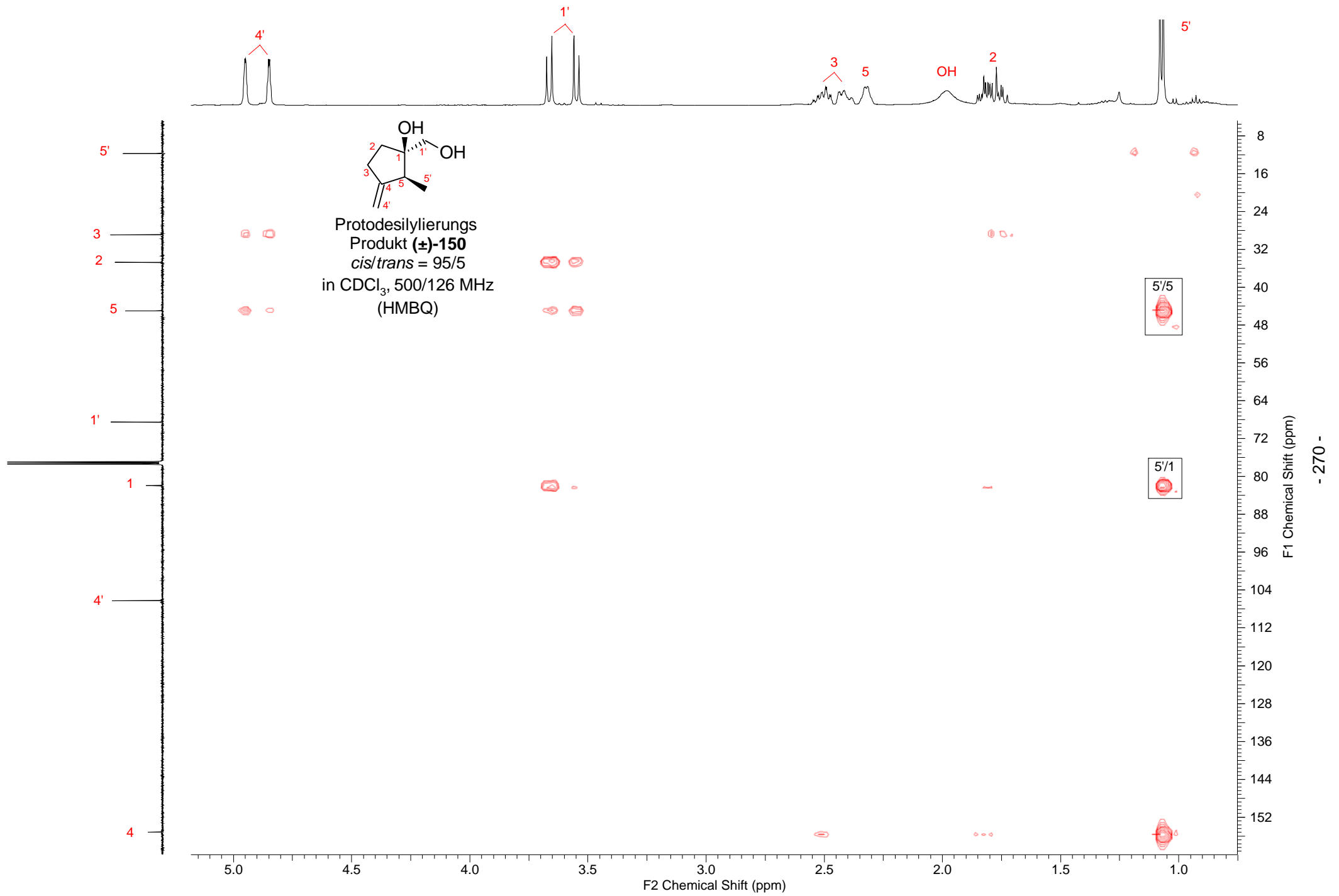


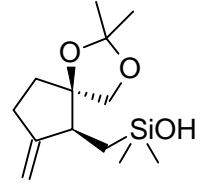




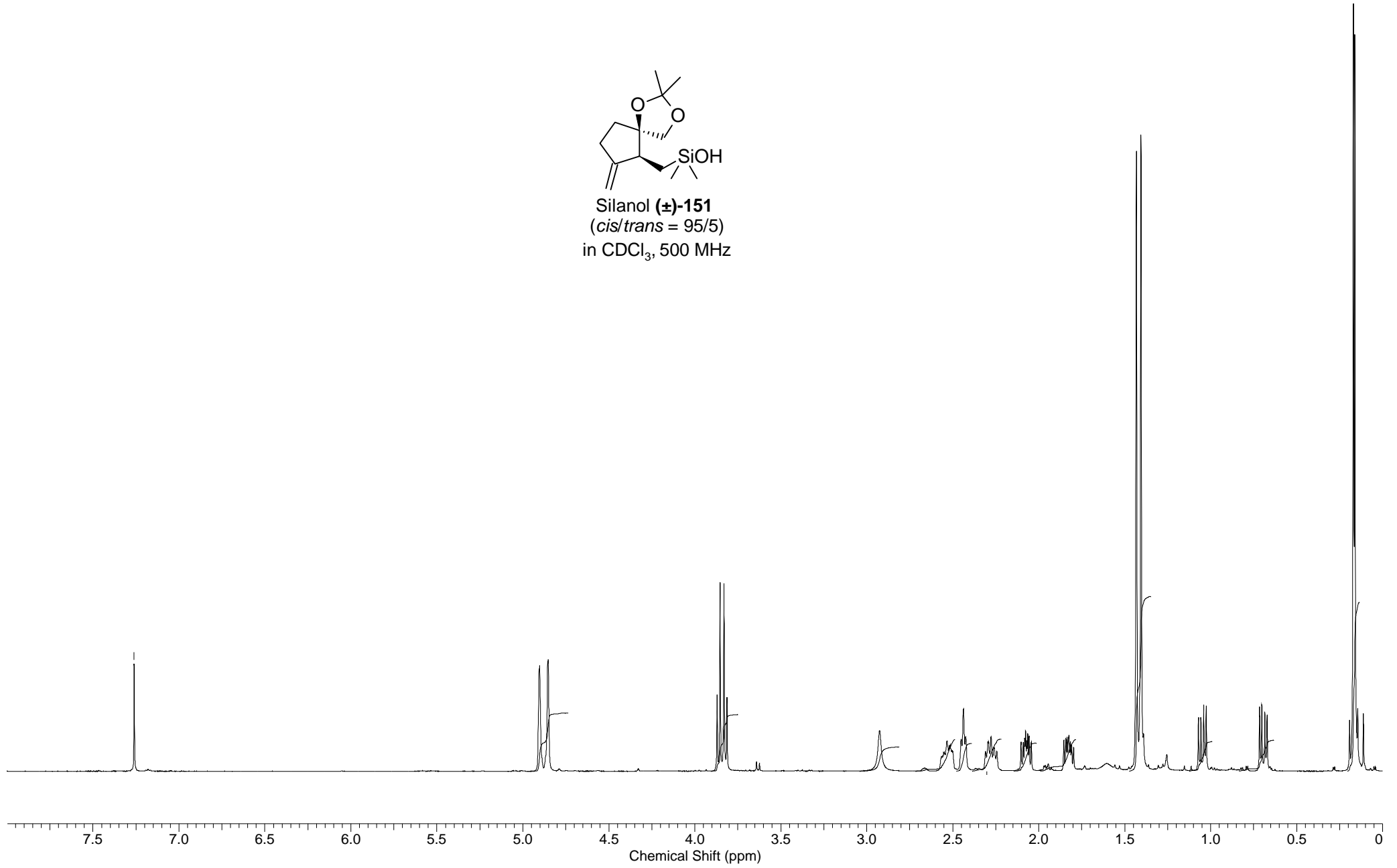
Protodesilylierungs
Produkt (\pm)-150
cis/trans = 95/5
in CDCl₃, 500/126 MHz
(HSCQ)

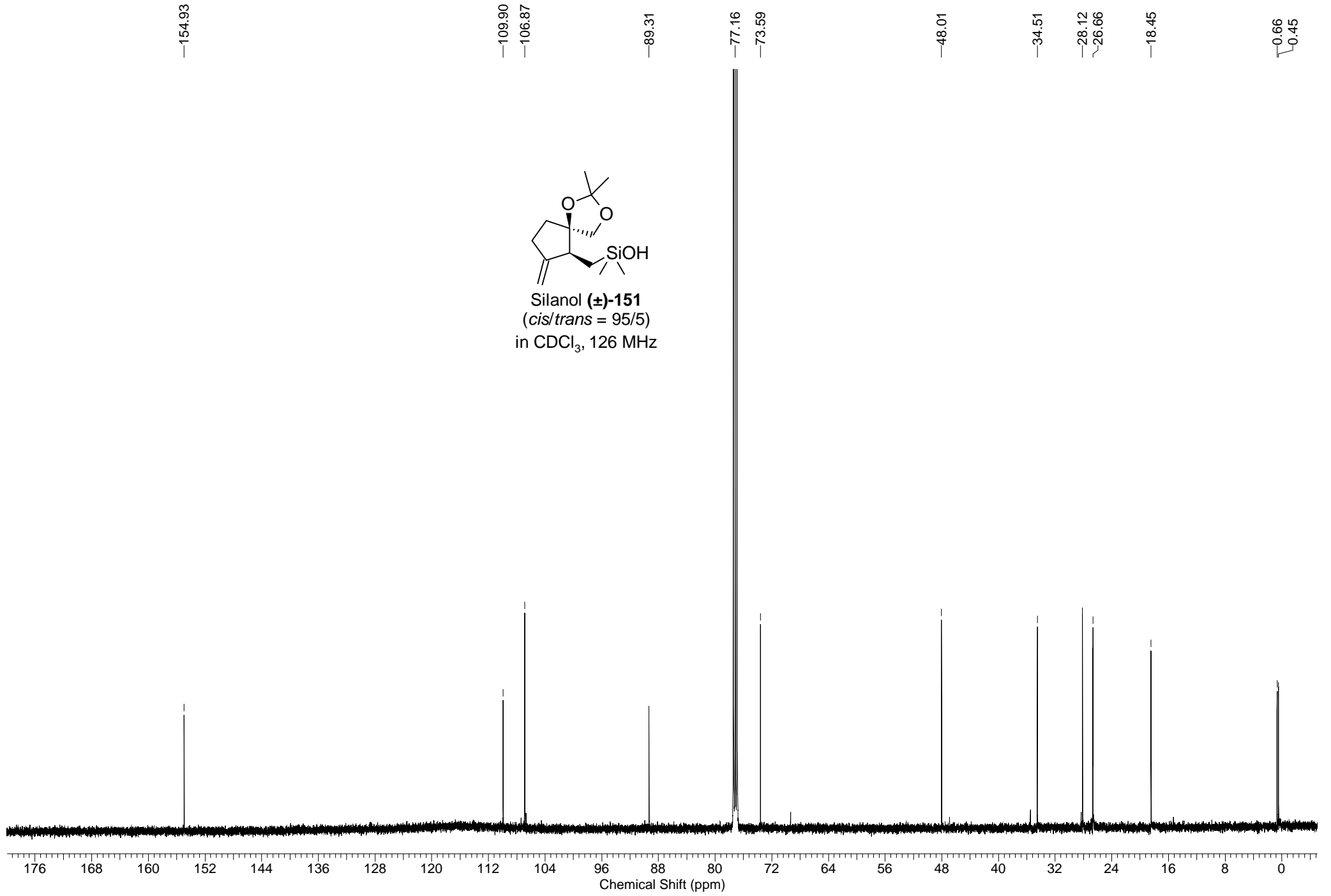


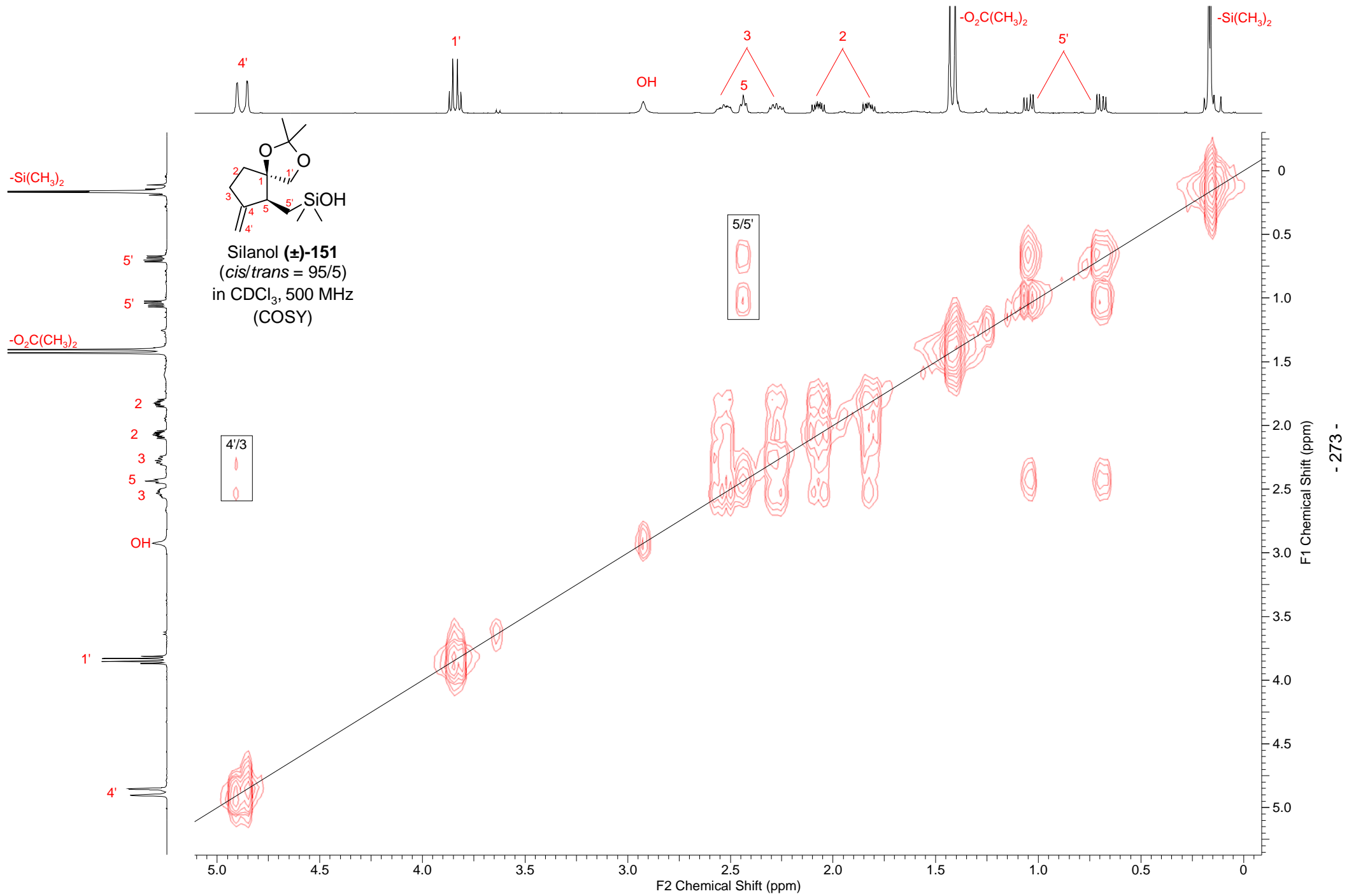


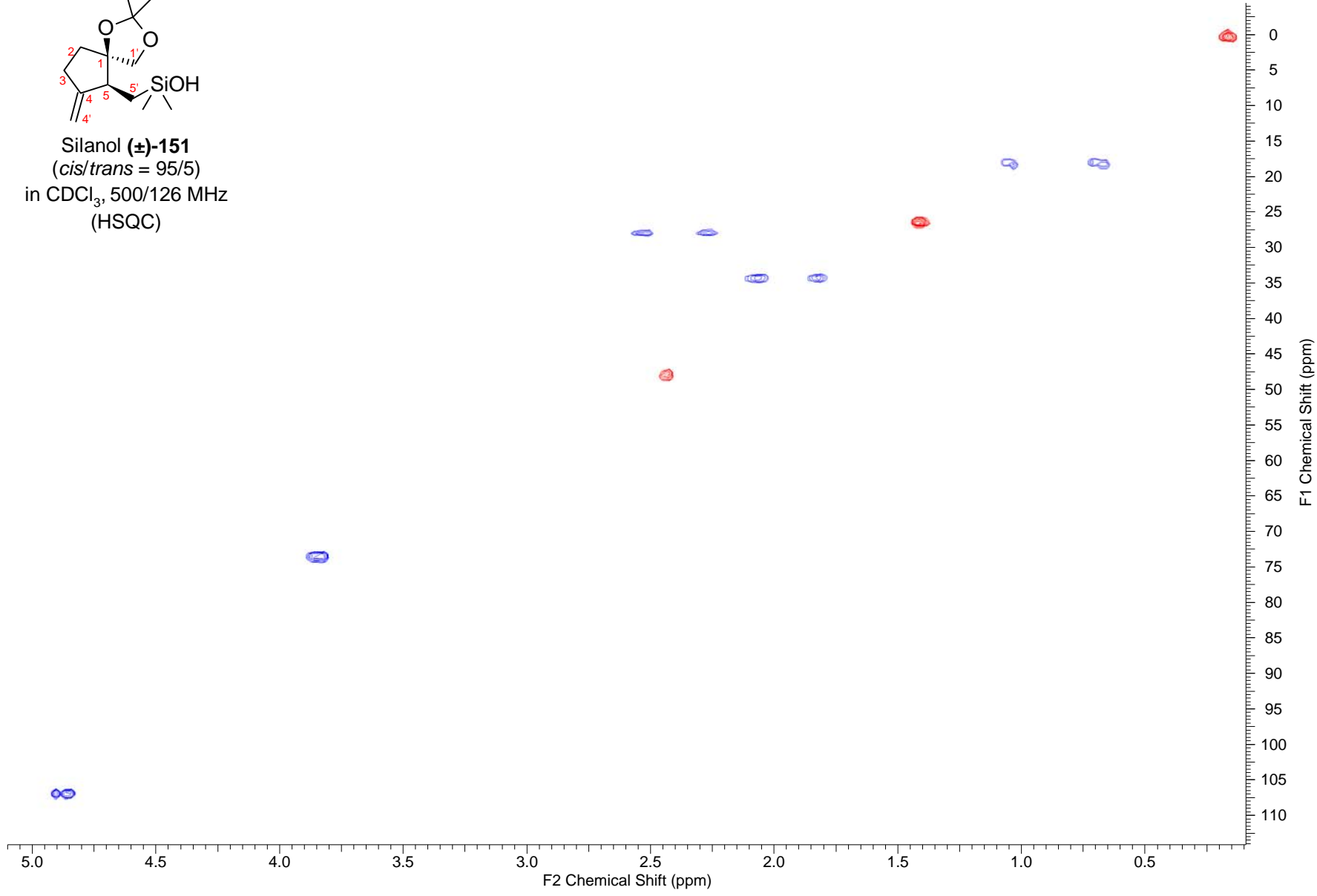
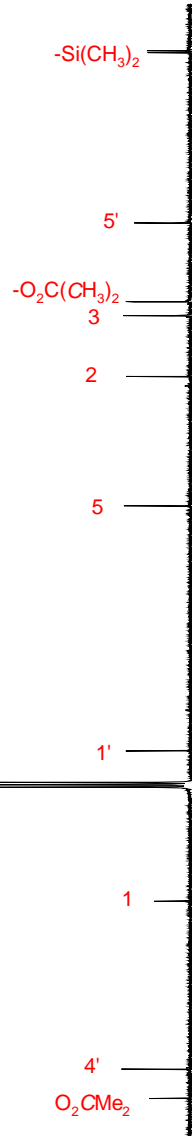
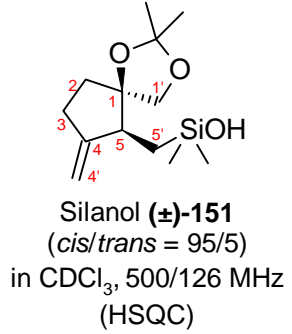
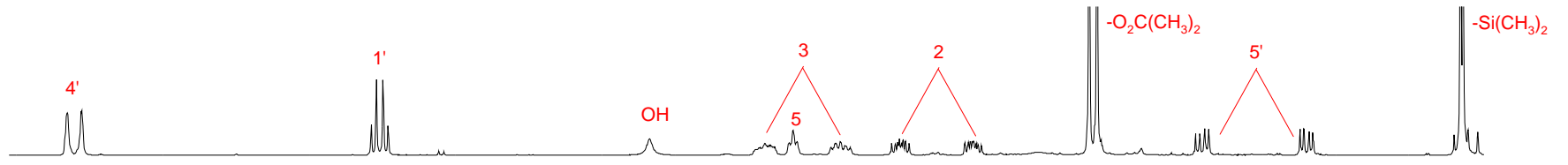


Silanol (±)-151
(*cis/trans* = 95/5)
in CDCl₃, 500 MHz



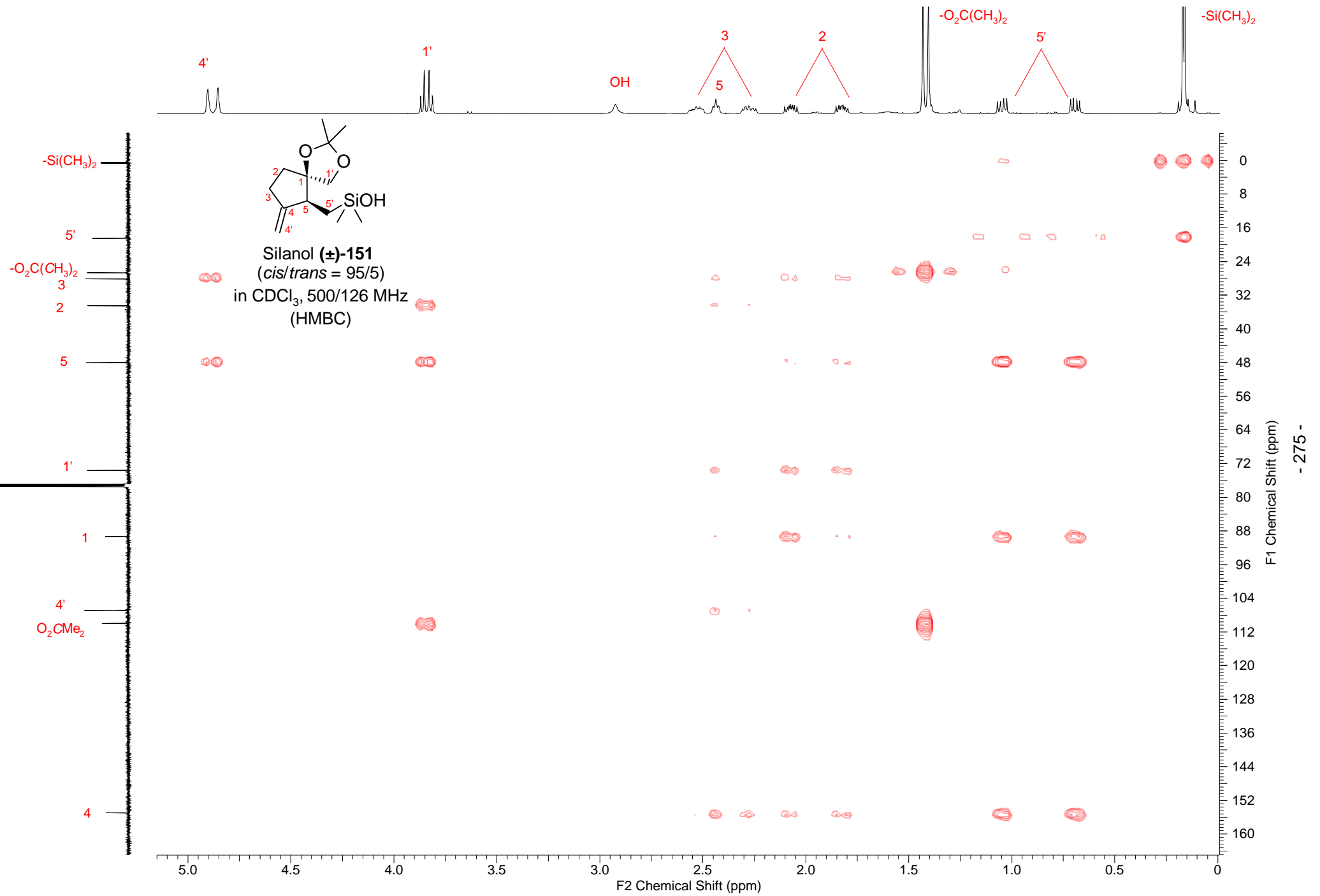




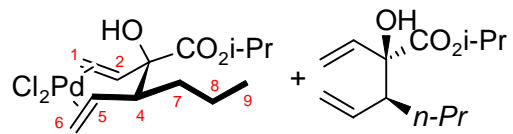


F1 Chemical Shift (ppm)

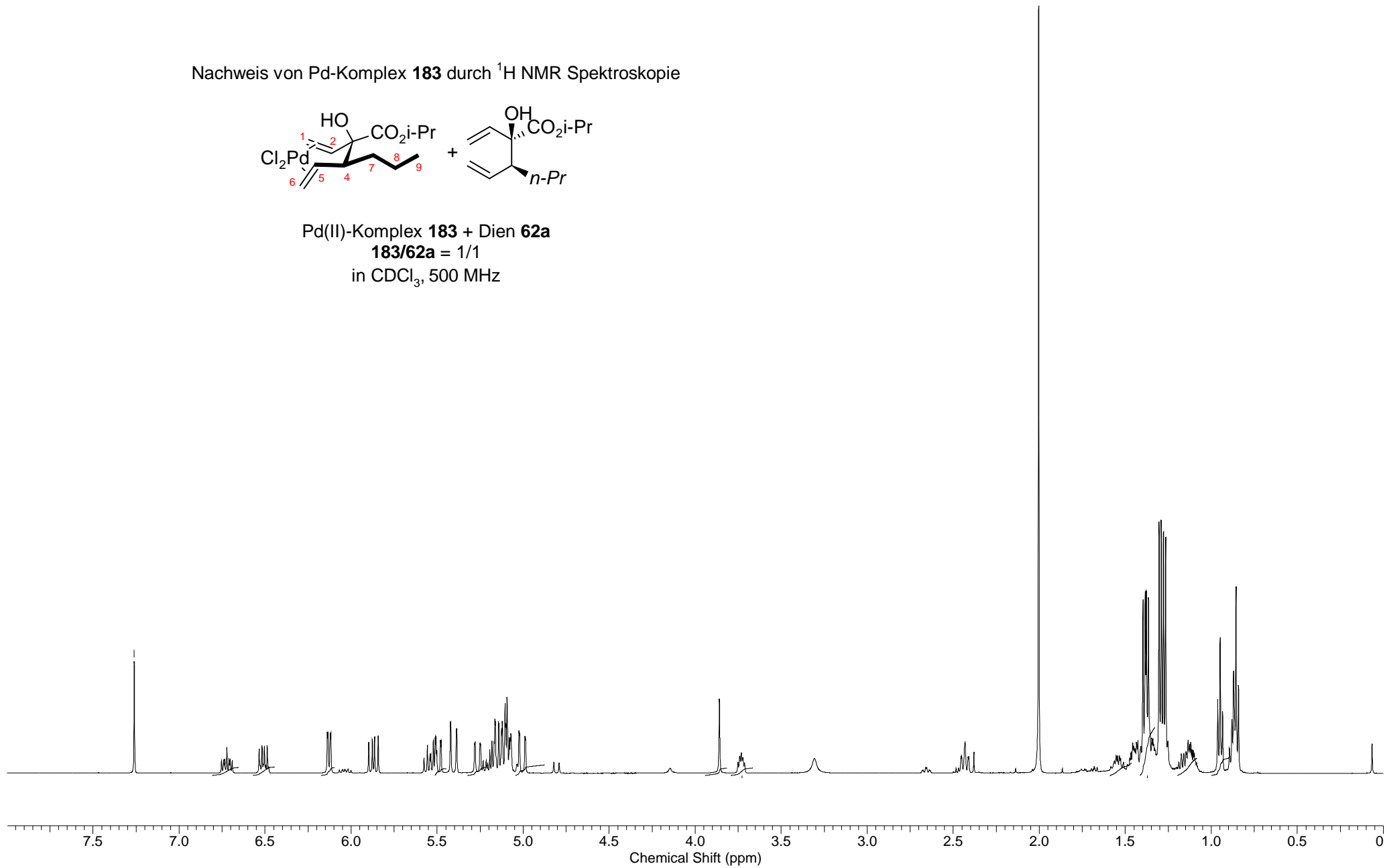
- 274 -

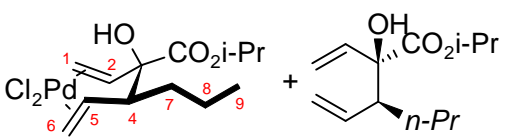
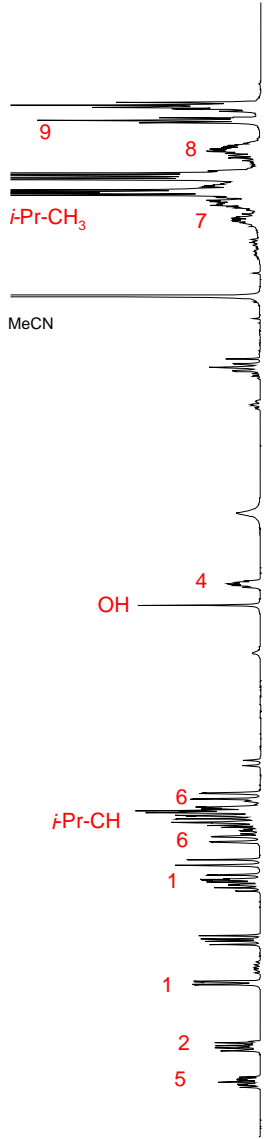
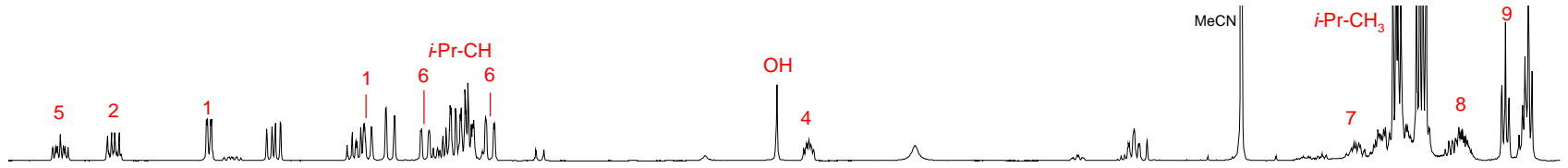


Nachweis von Pd-Komplex **183** durch ^1H NMR Spektroskopie

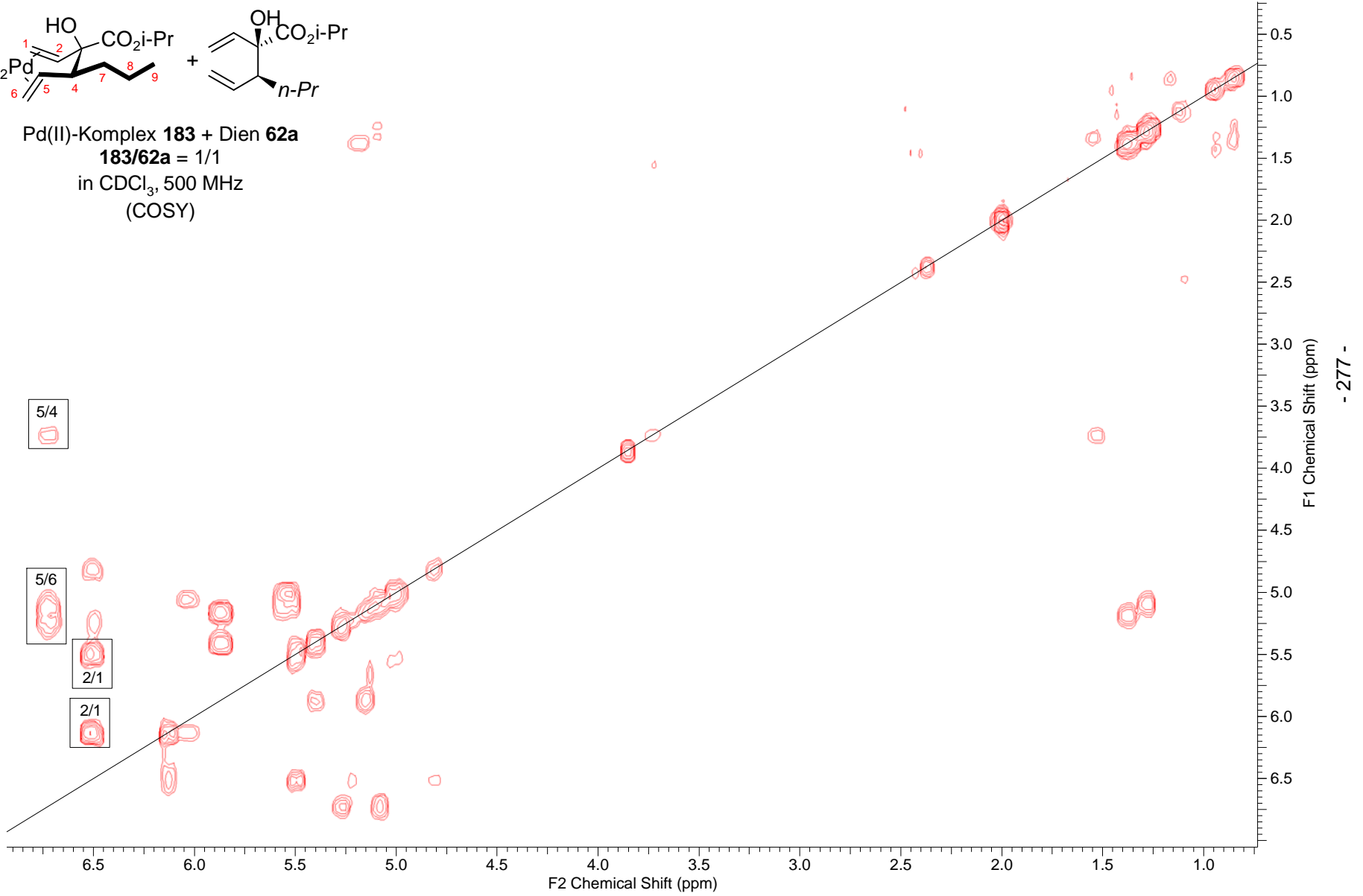


Pd(II)-Komplex **183** + Dien **62a**
183/62a = 1/1
in CDCl₃, 500 MHz

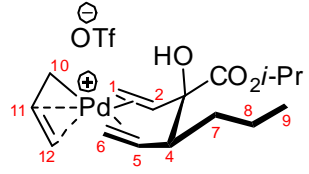




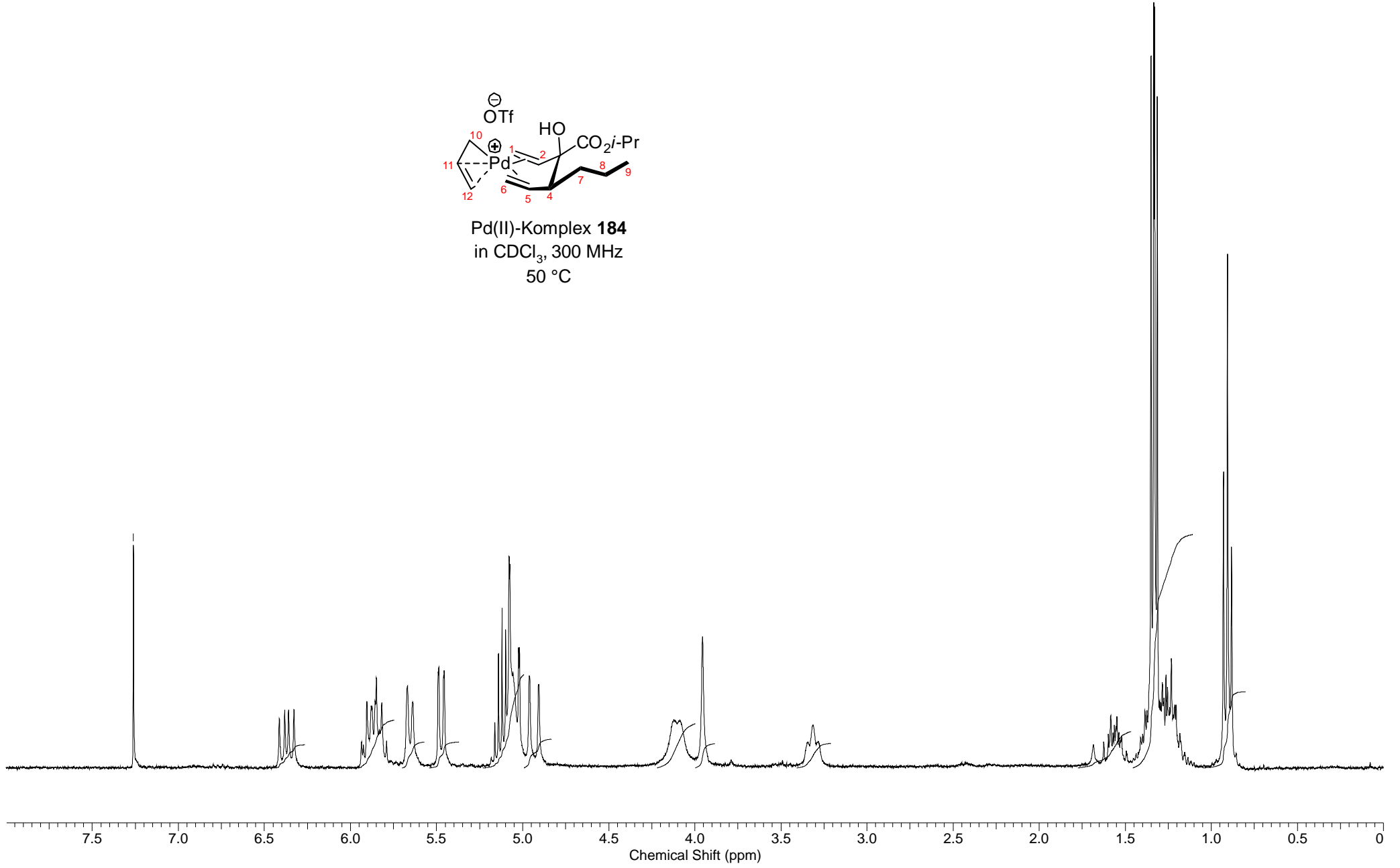
Pd(II)-Komplex 183 + Dien 62a
 183/62a = 1/1
 in CDCl₃, 500 MHz
 (COSY)

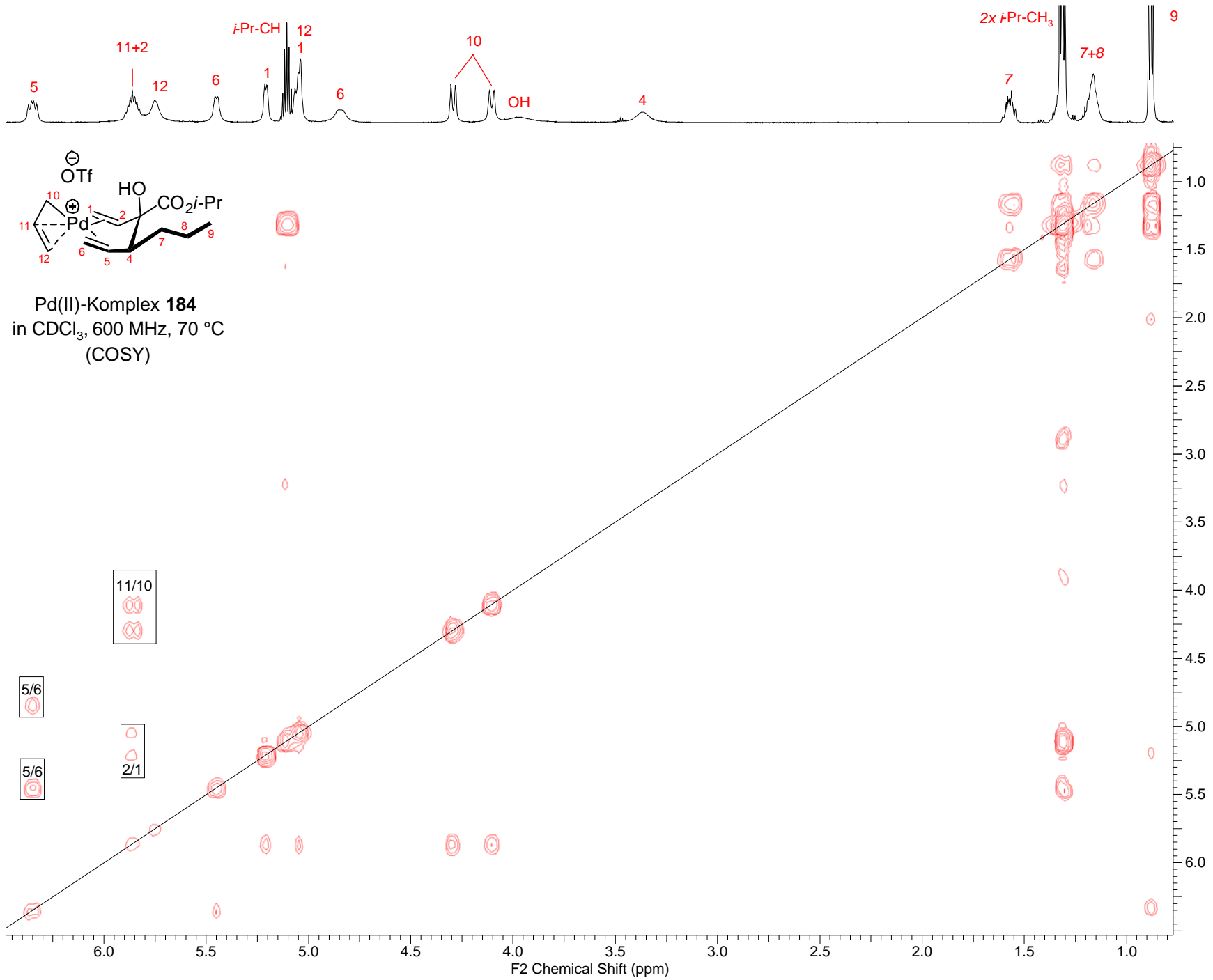


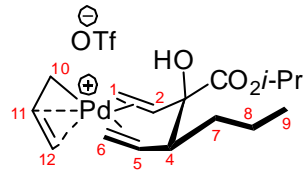
-7.26



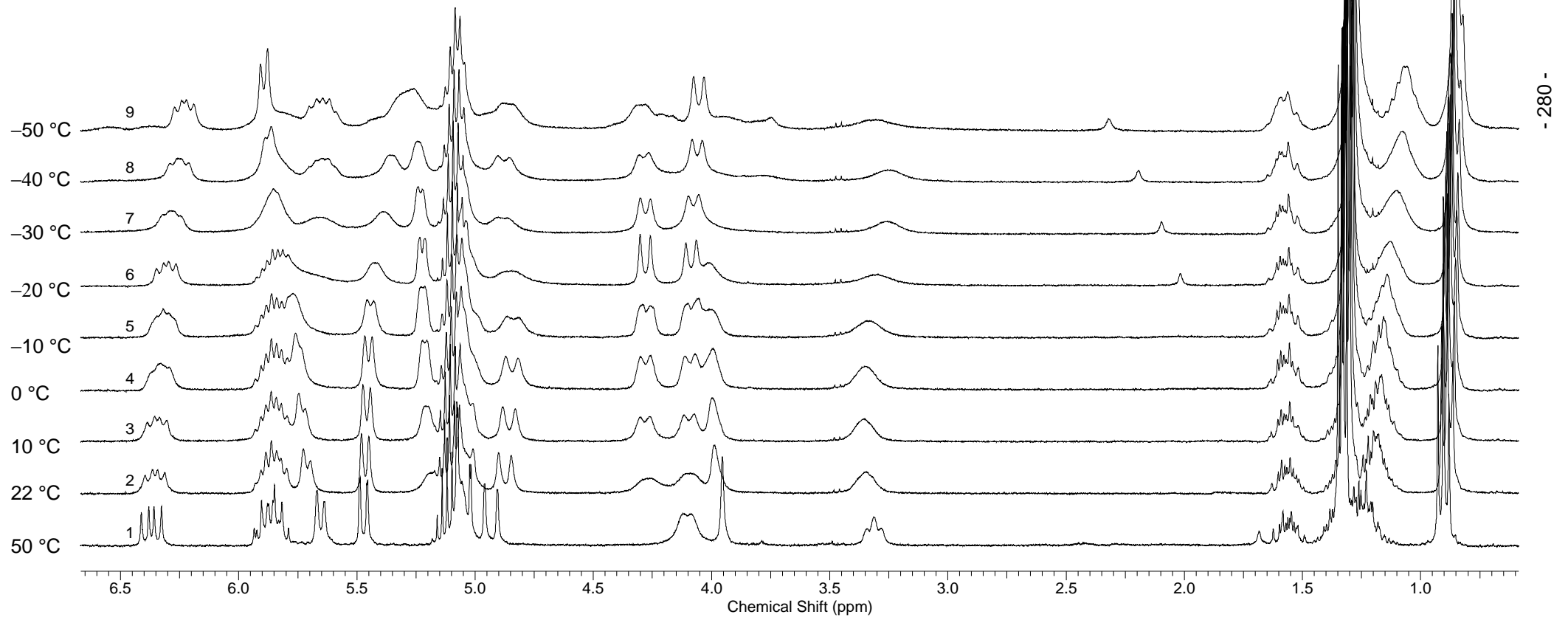
Pd(II)-Komplex **184**
in CDCl₃, 300 MHz
50 °C

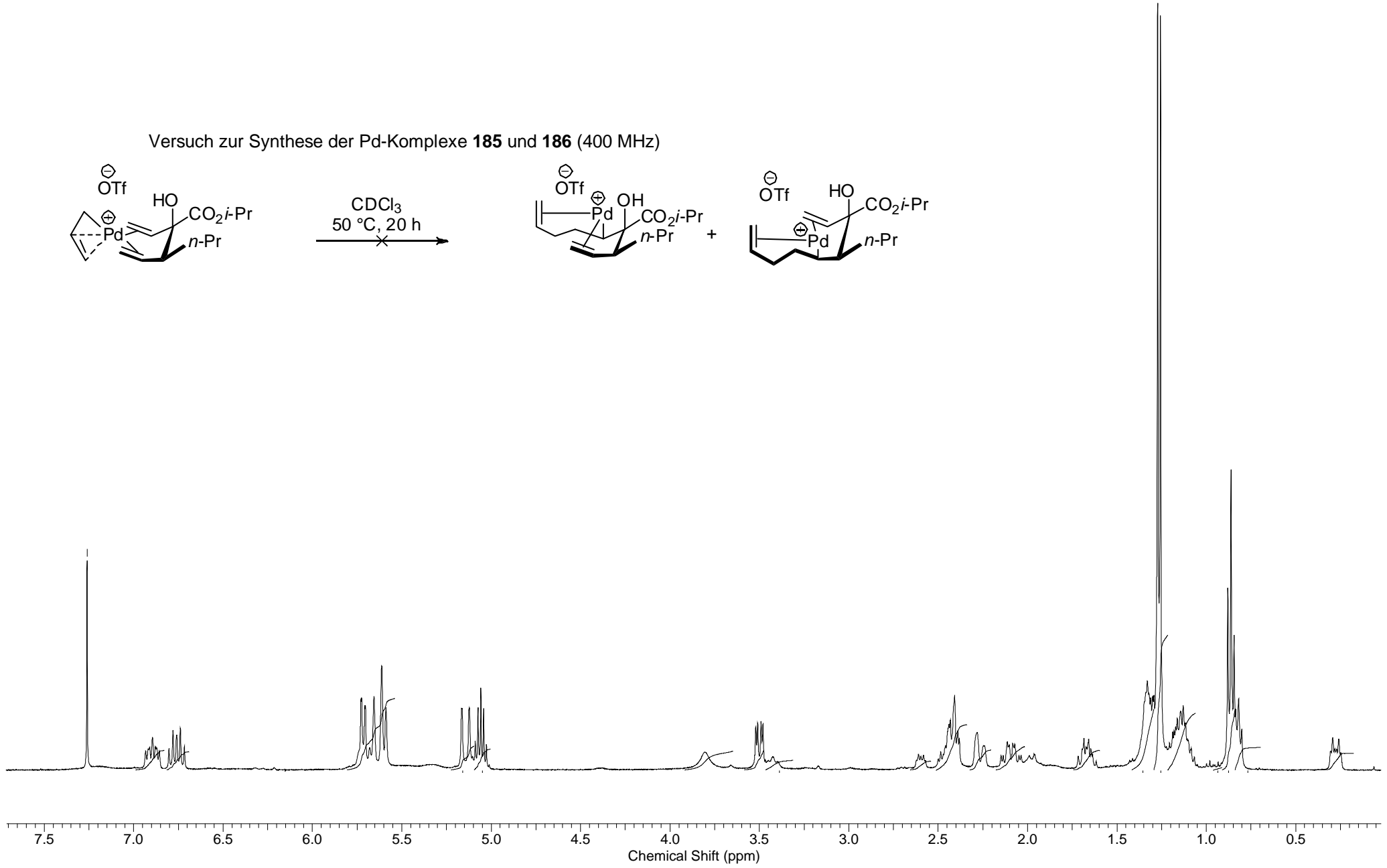
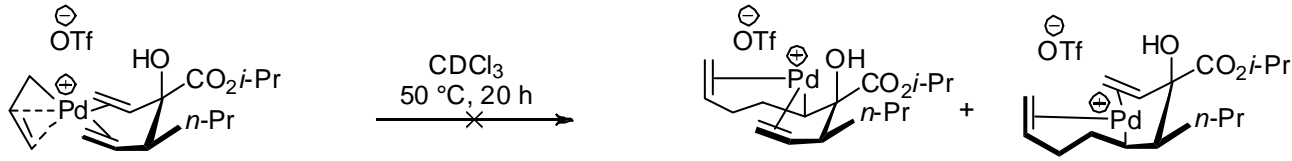




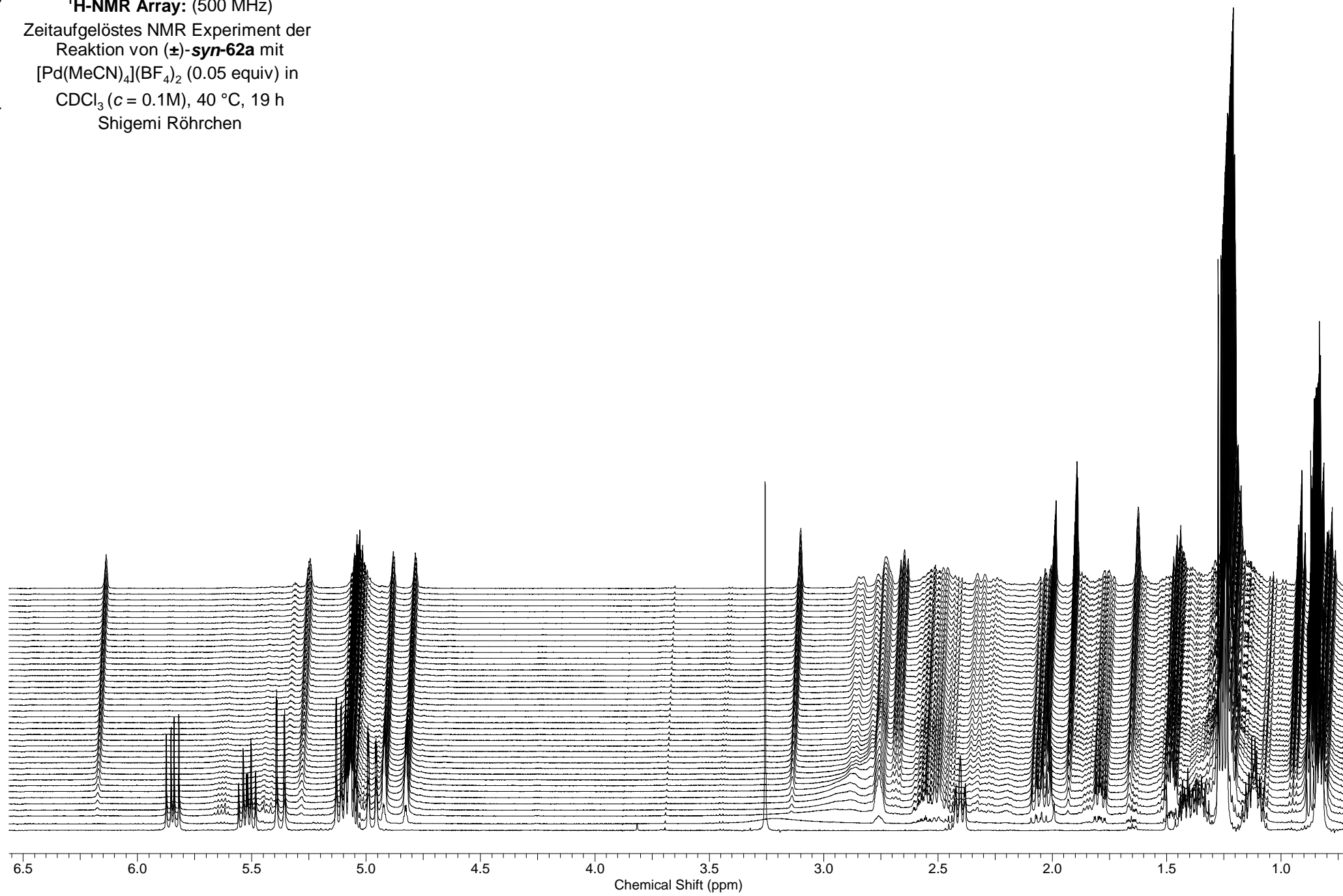


Pd(II)-Komplex **184**
in CDCl₃, 300 MHz
(-50 - 50 °C)

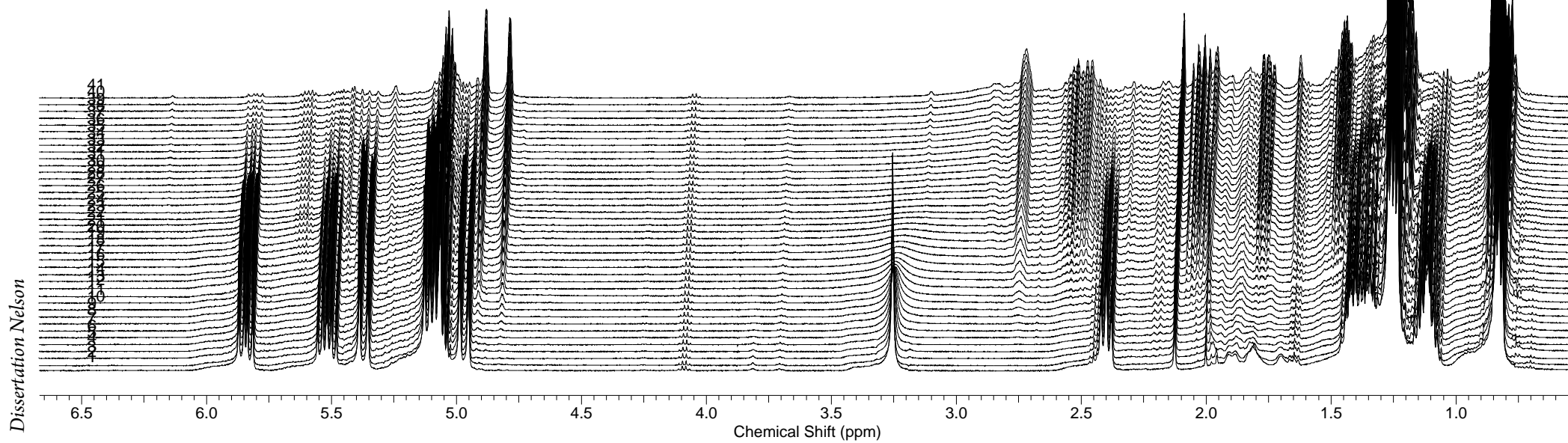


Versuch zur Synthese der Pd-Komplexe **185** und **186** (400 MHz)

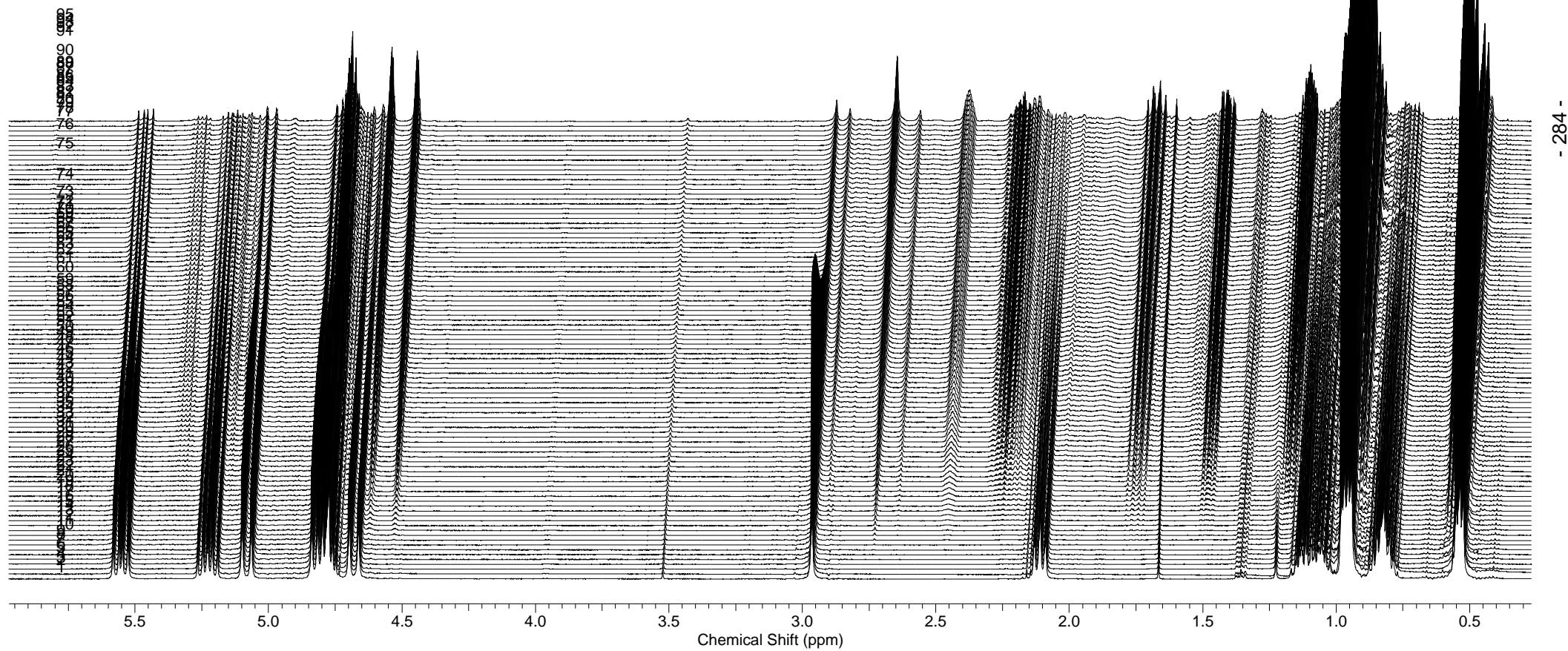
¹H-NMR Array: (500 MHz)
Zeitaufgelöstes NMR Experiment der
Reaktion von (±)-**syn-62a** mit
[Pd(MeCN)₄](BF₄)₂ (0.05 equiv) in
CDCl₃ (c = 0.1M), 40 °C, 19 h
Shigemi Röhrchen



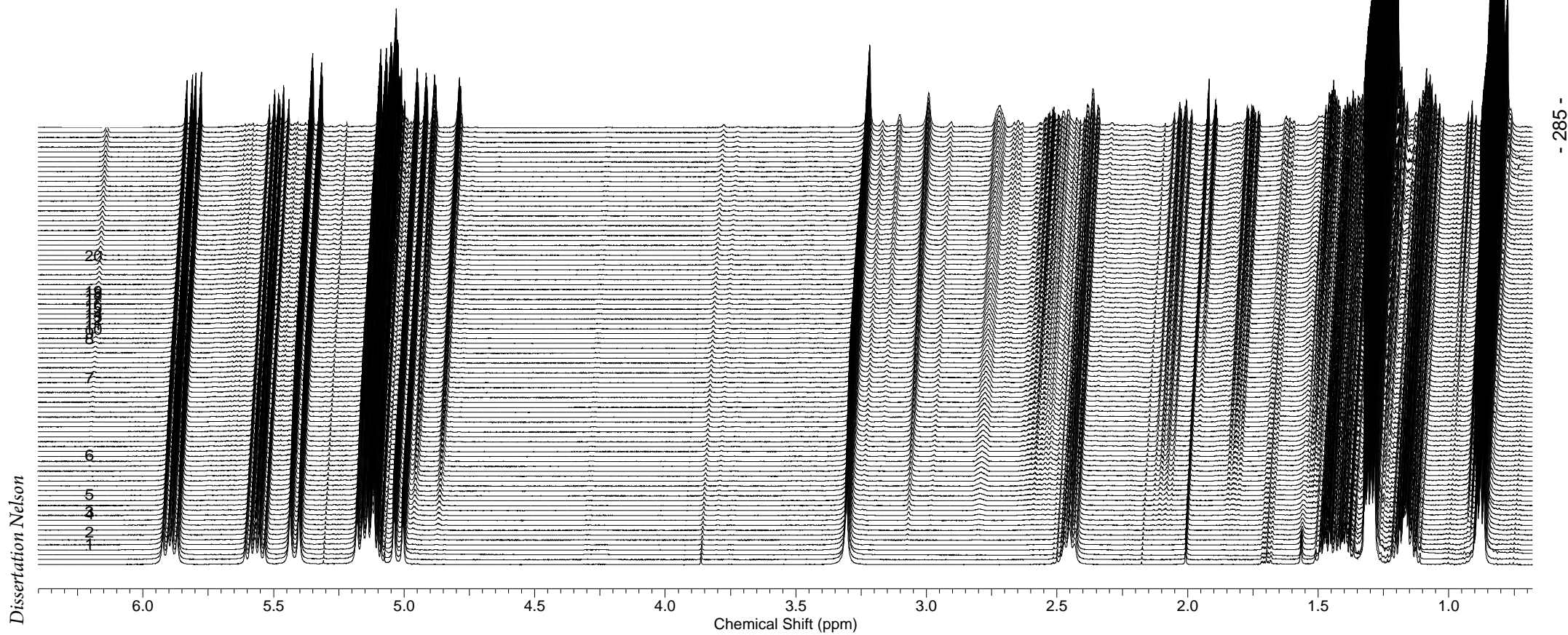
¹H-NMR Array: (500 MHz)
Zeitaufgelöstes NMR Experiment der
Reaktion von (±)-**syn-62a** mit
[Pd(MeCN)₄](BF₄)₂ (0.05 equiv) und
PCy₃ (0.05 equiv) in CDCl₃ (c = 0.1M),
40 °C, 19 h
Shigemi Röhren



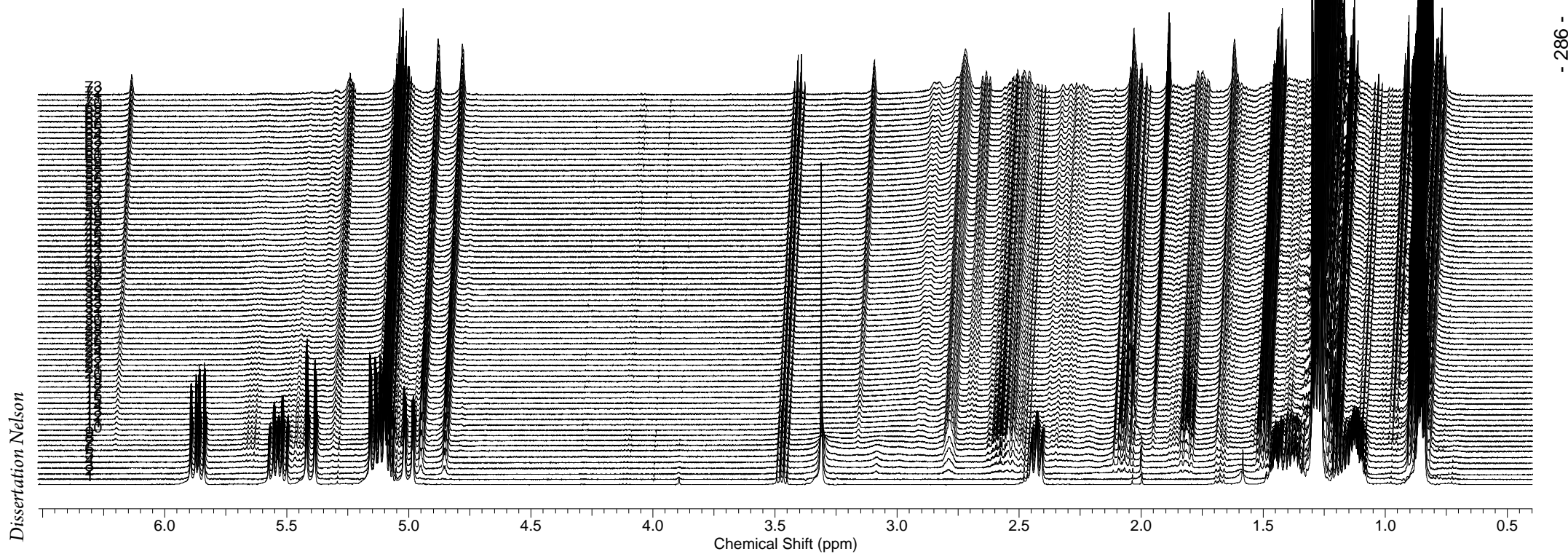
¹H-NMR Array: (500 MHz)
Zeitaufgelöstes NMR Experiment der
Reaktion von (±)-**syn-62a** mit
[Pd(allyl)(MeCN)₂](BF₄) (0.05 equiv) in
CDCl₃ (c = 0.1M), 40 °C, 46 h
Shigemi Röhrchen



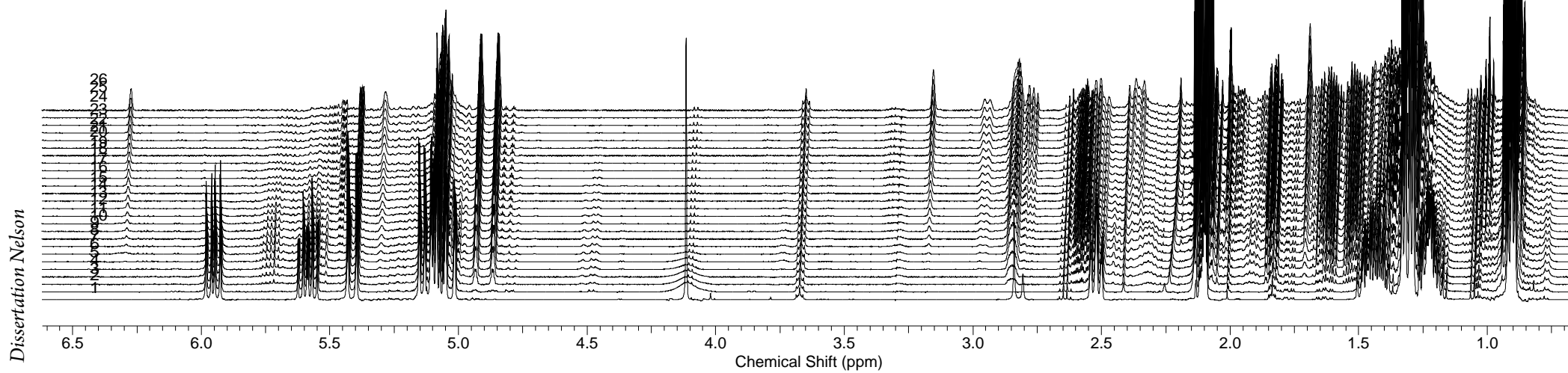
¹H-NMR Array: (500 MHz)
Zeitaufgelöstes NMR Experiment der
Reaktion von (±)-**syn-62a** mit
[Pd(allyl)(MeCN)₂](OTf) (0.05 equiv)
in CDCl₃ (c = 0.1M), 40 °C, 88 h
Shigemi Röhrchen



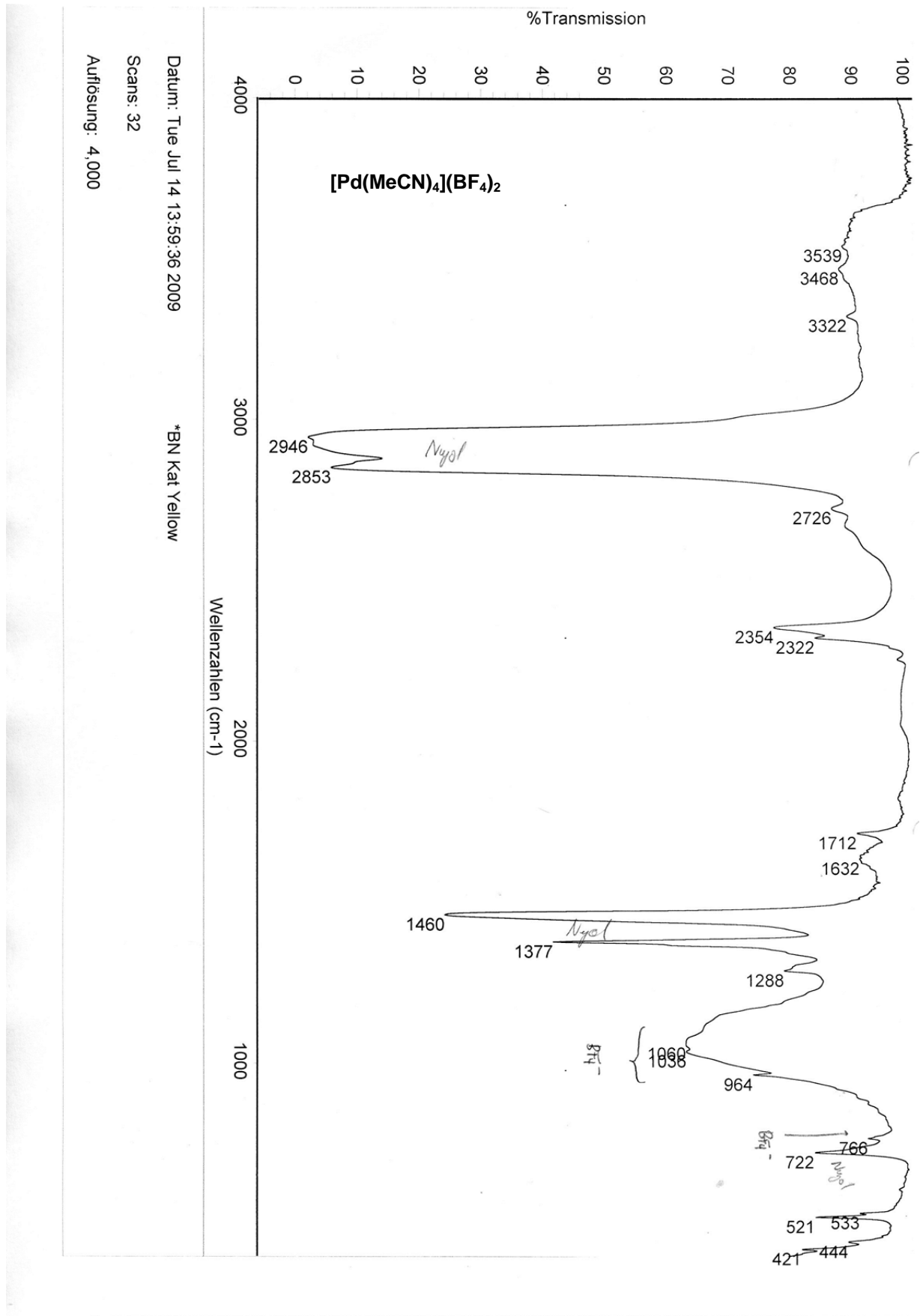
¹H-NMR Array: (500 MHz)
Zeitaufgelöstes NMR Experiment der
Reaktion von (±)-**syn-62a** mit
[Pd(MeCN)₄](BF₄)₂ (0.05 equiv) in
CDCl₃ (c = 0.1M), 37 °C, 69 h
Shigemi Röhrchen

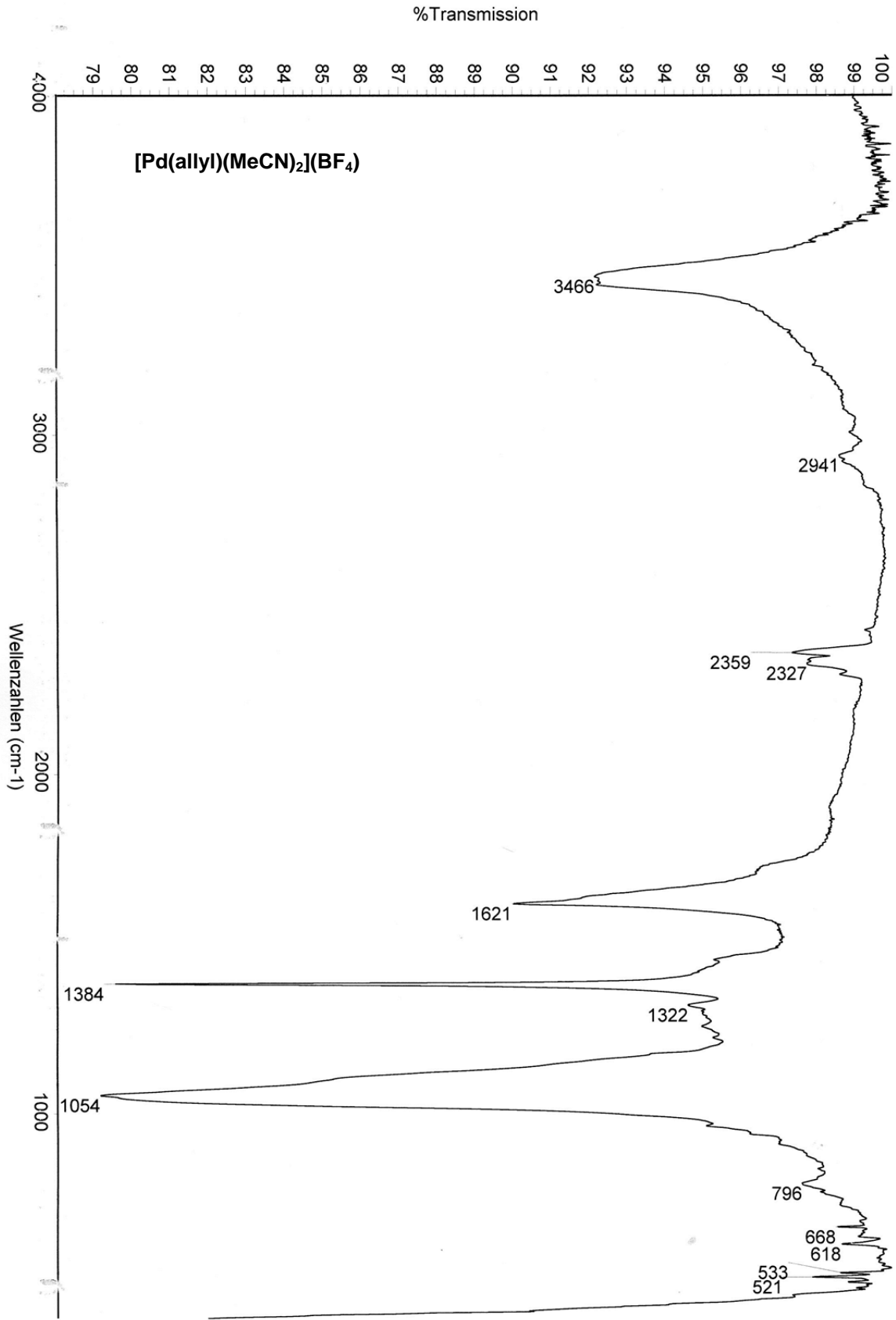


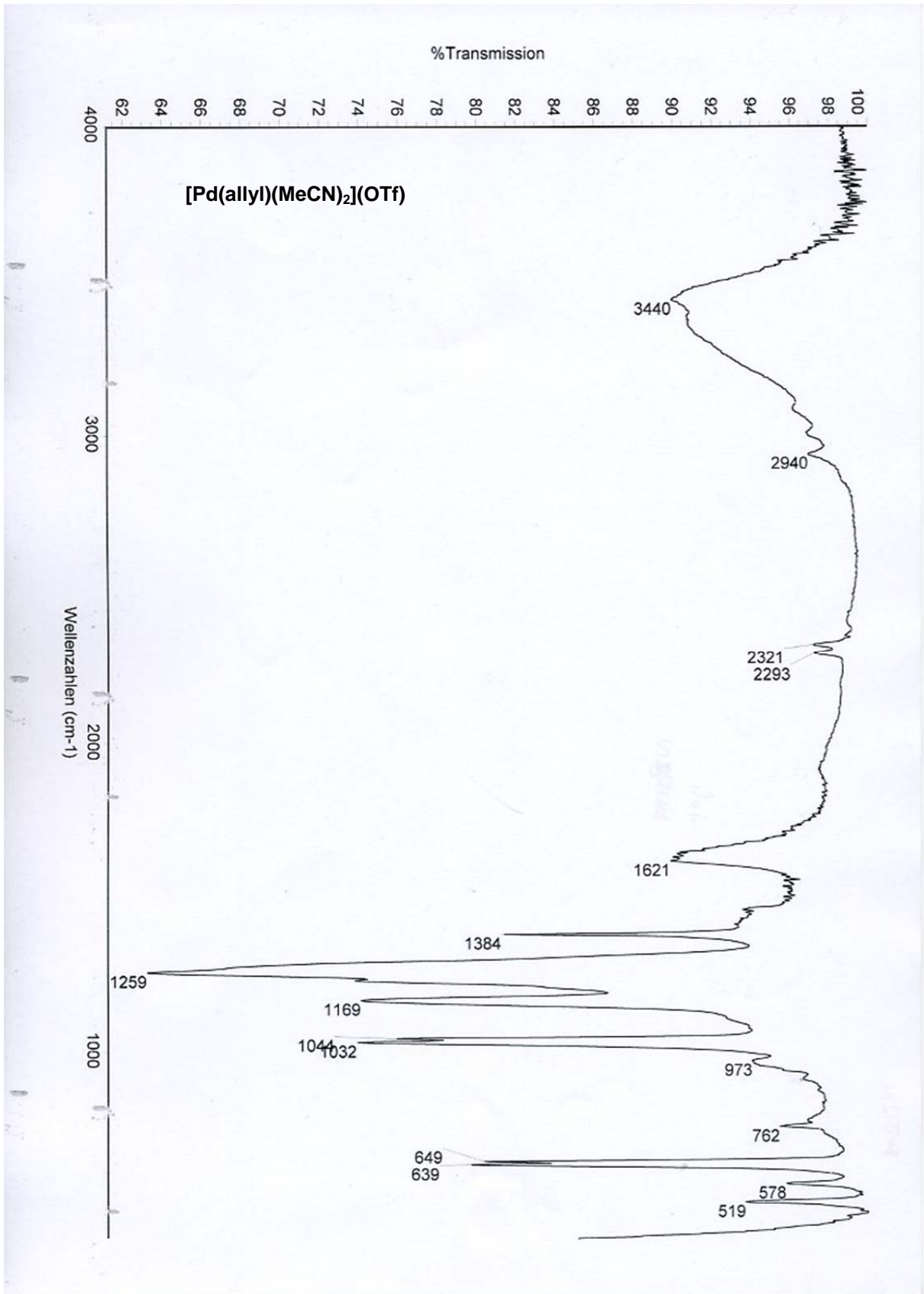
¹H-NMR Array: (500 MHz)
Zeitaufgelöstes NMR Experiment der
Reaktion von (±)-**syn-62a** mit
[Pd(MeCN)₄](BF₄)₂ (0.05 equiv) in
Aceton-d₆ (c = 0.1M), 27 °C, 22 h

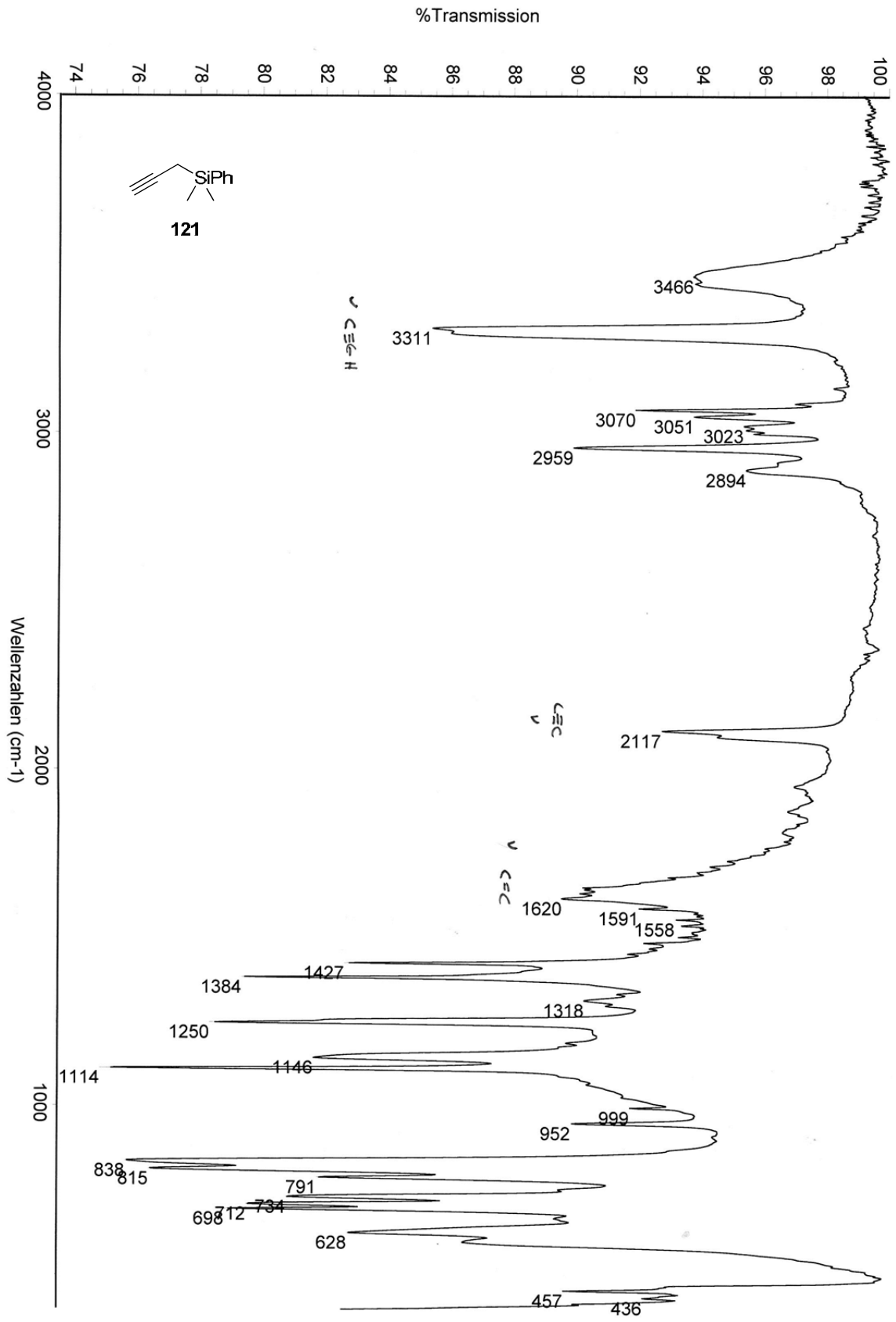


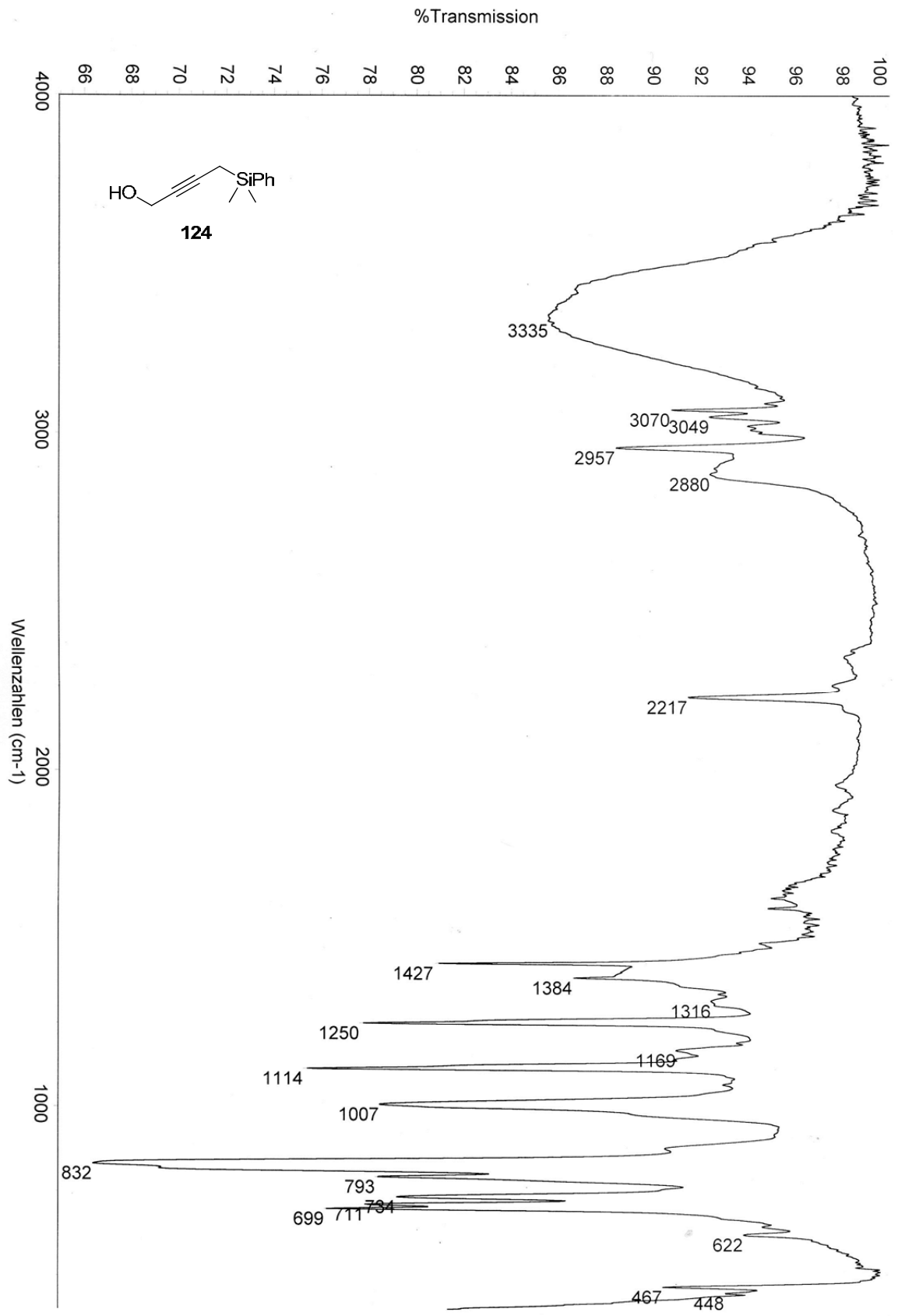
IR Spektren

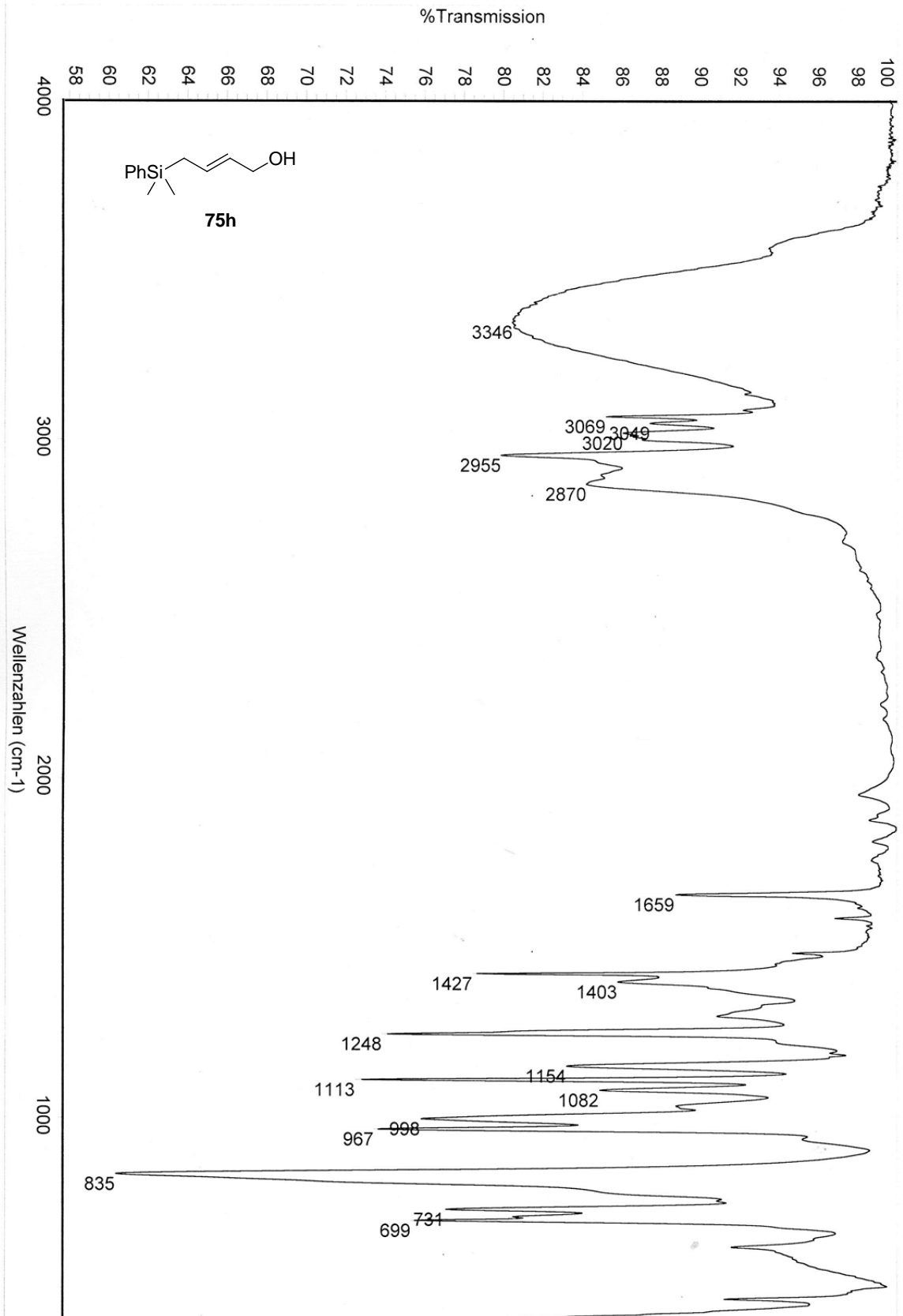


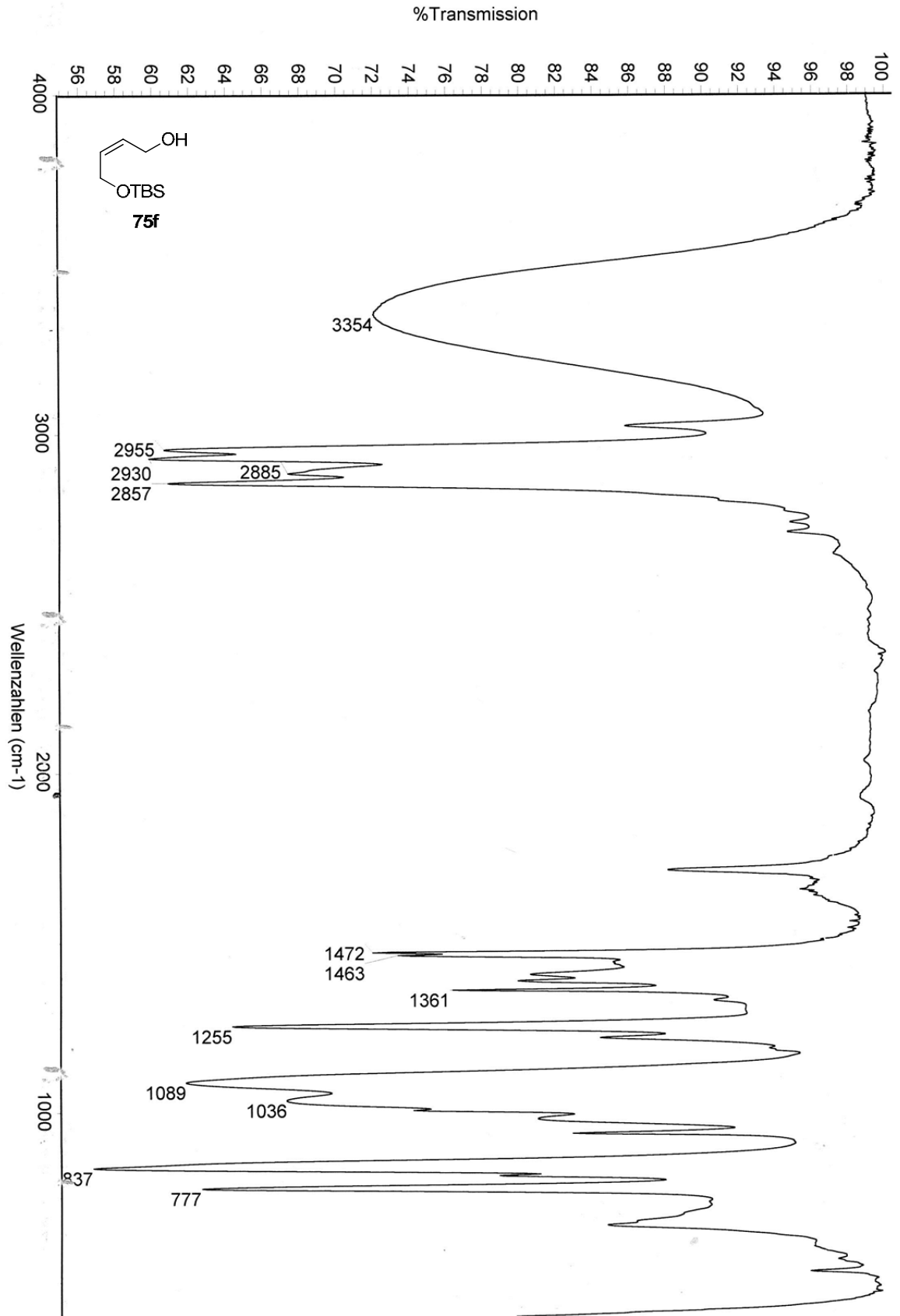


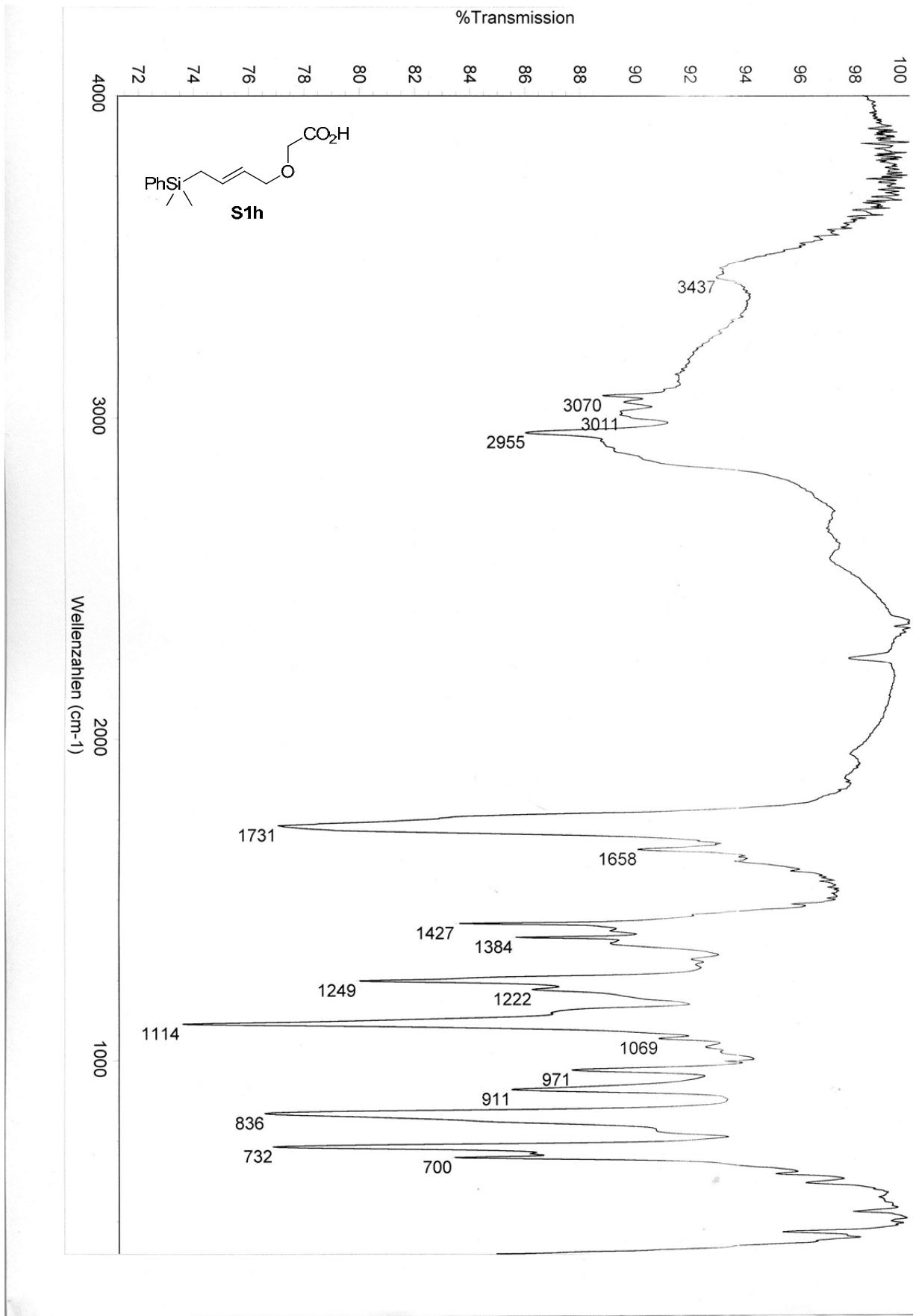


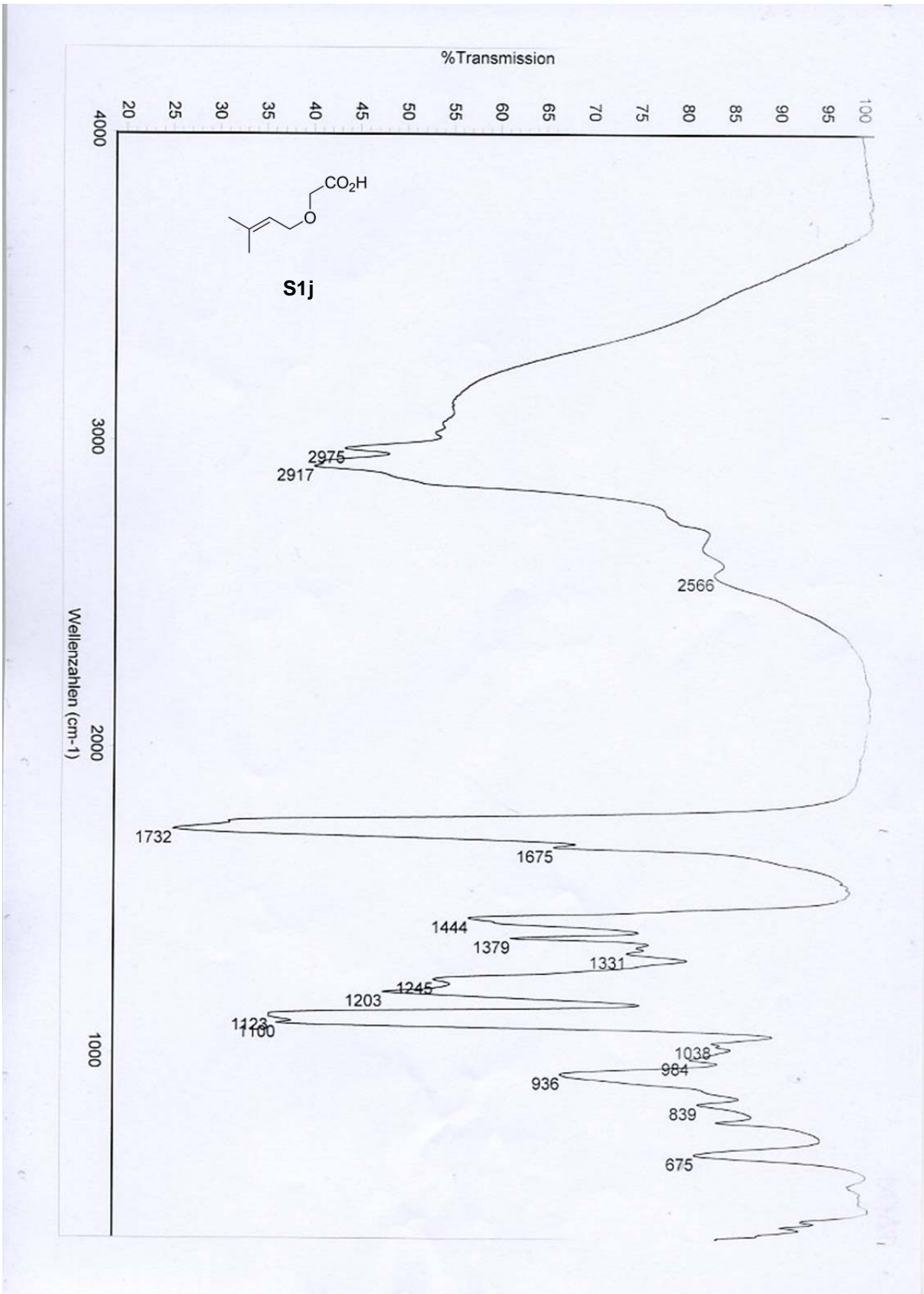


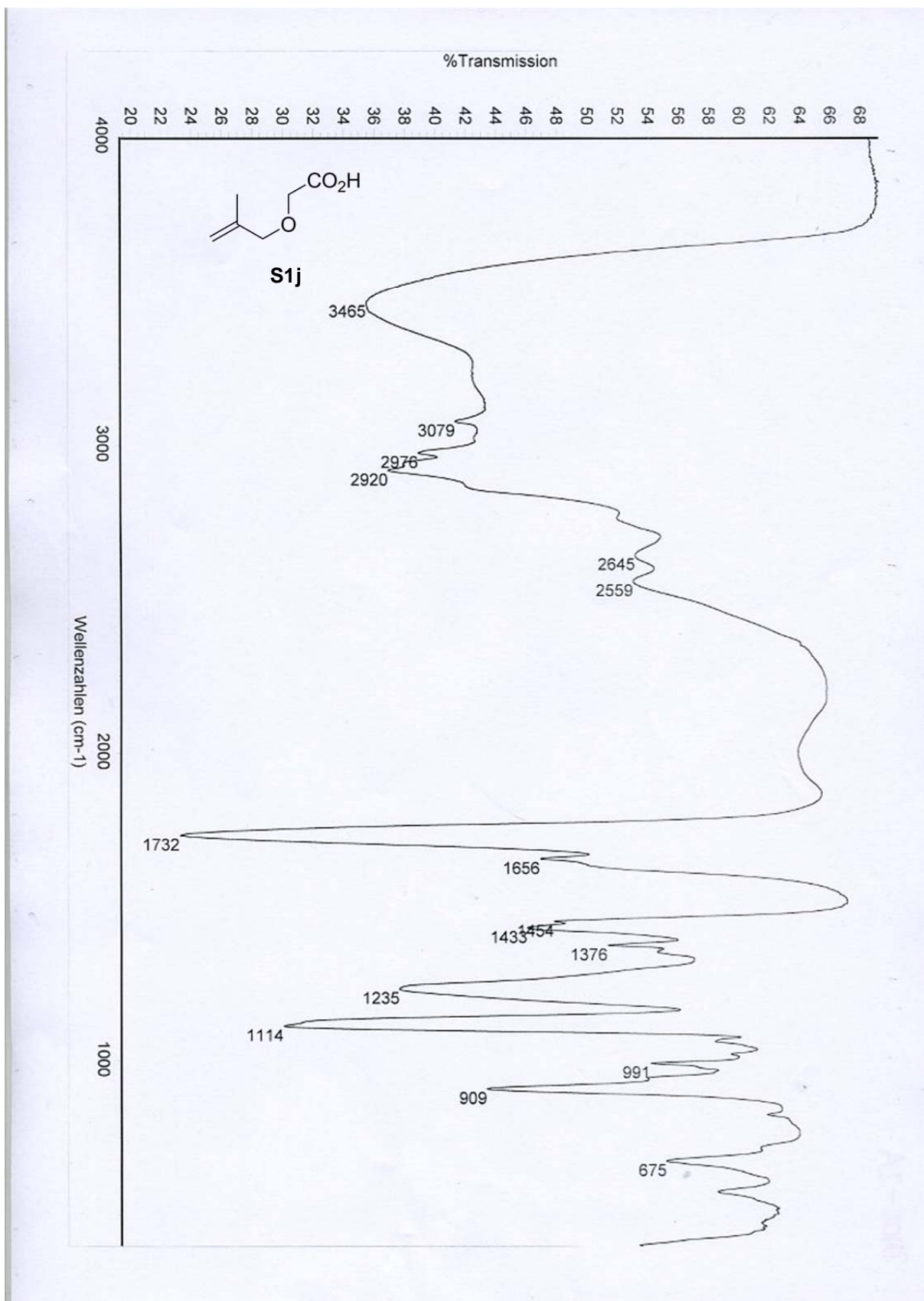


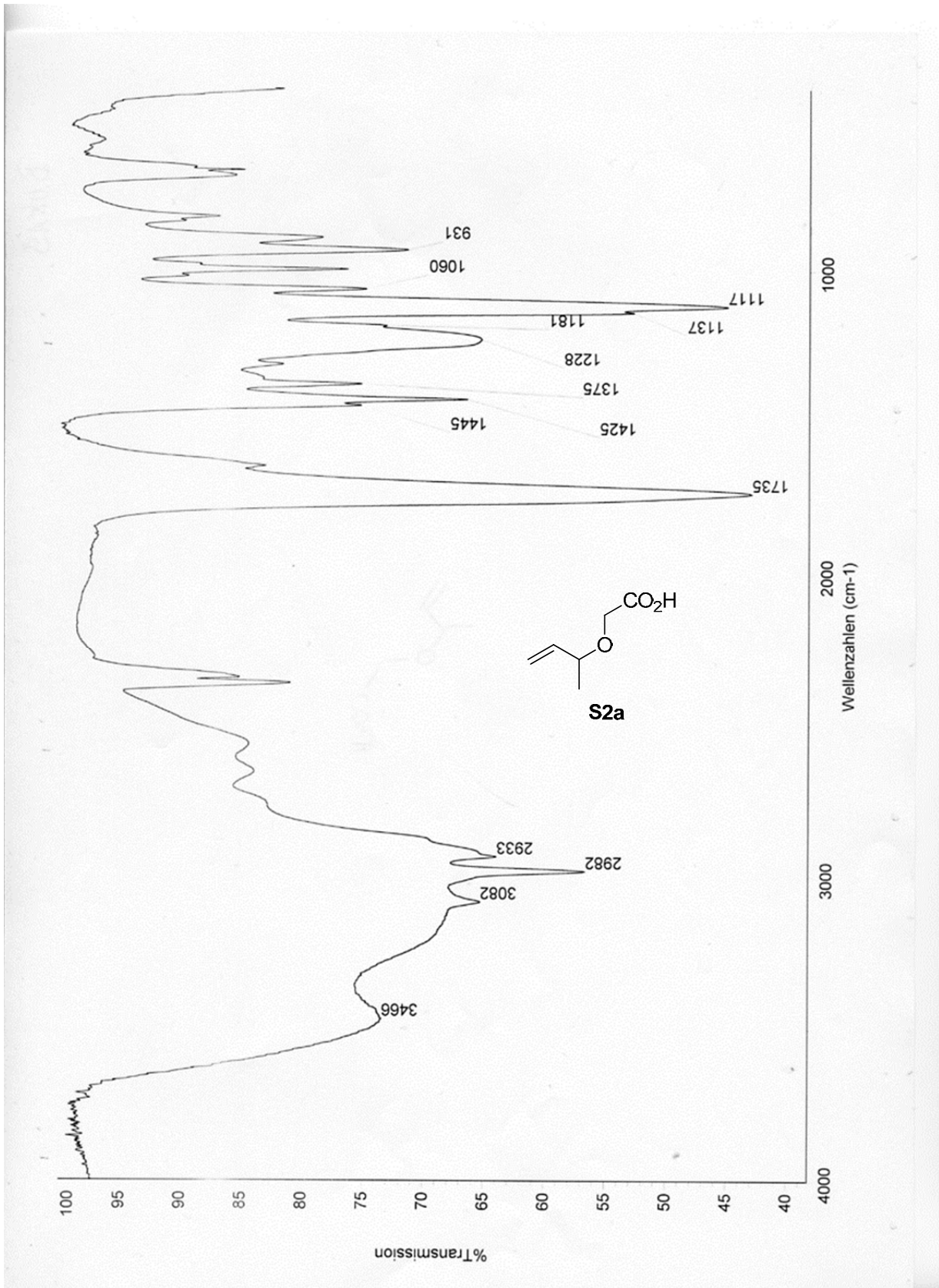


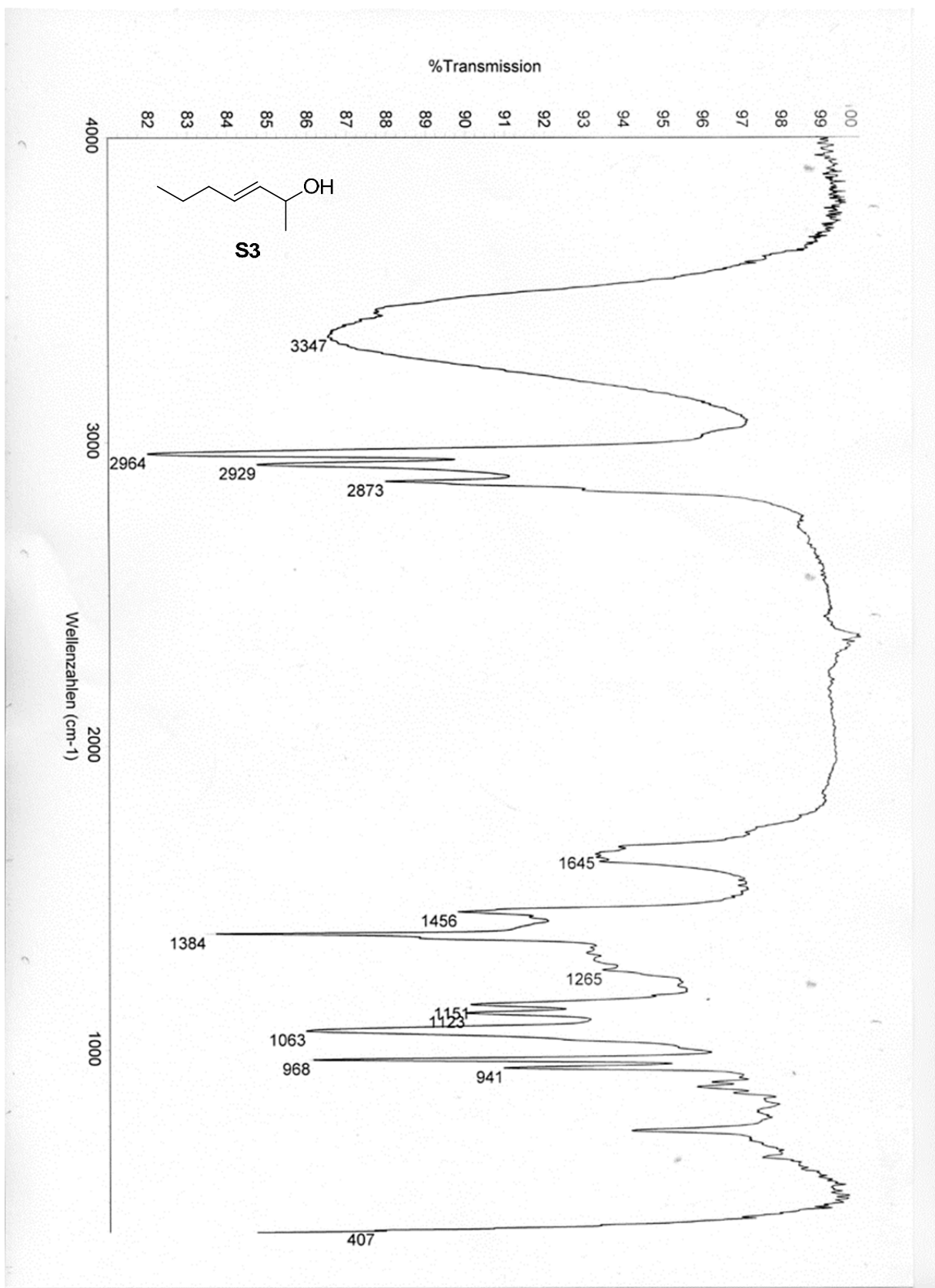


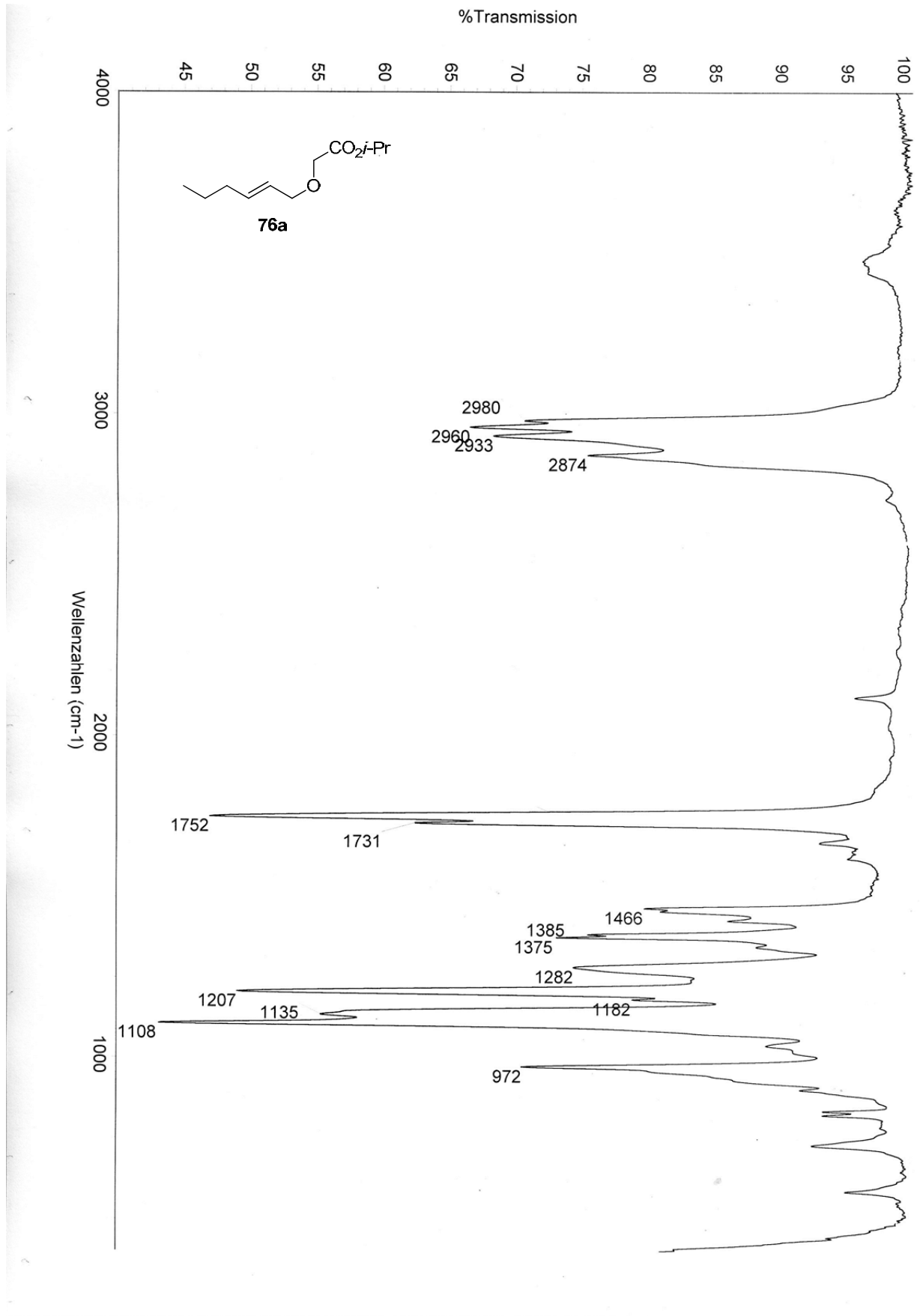


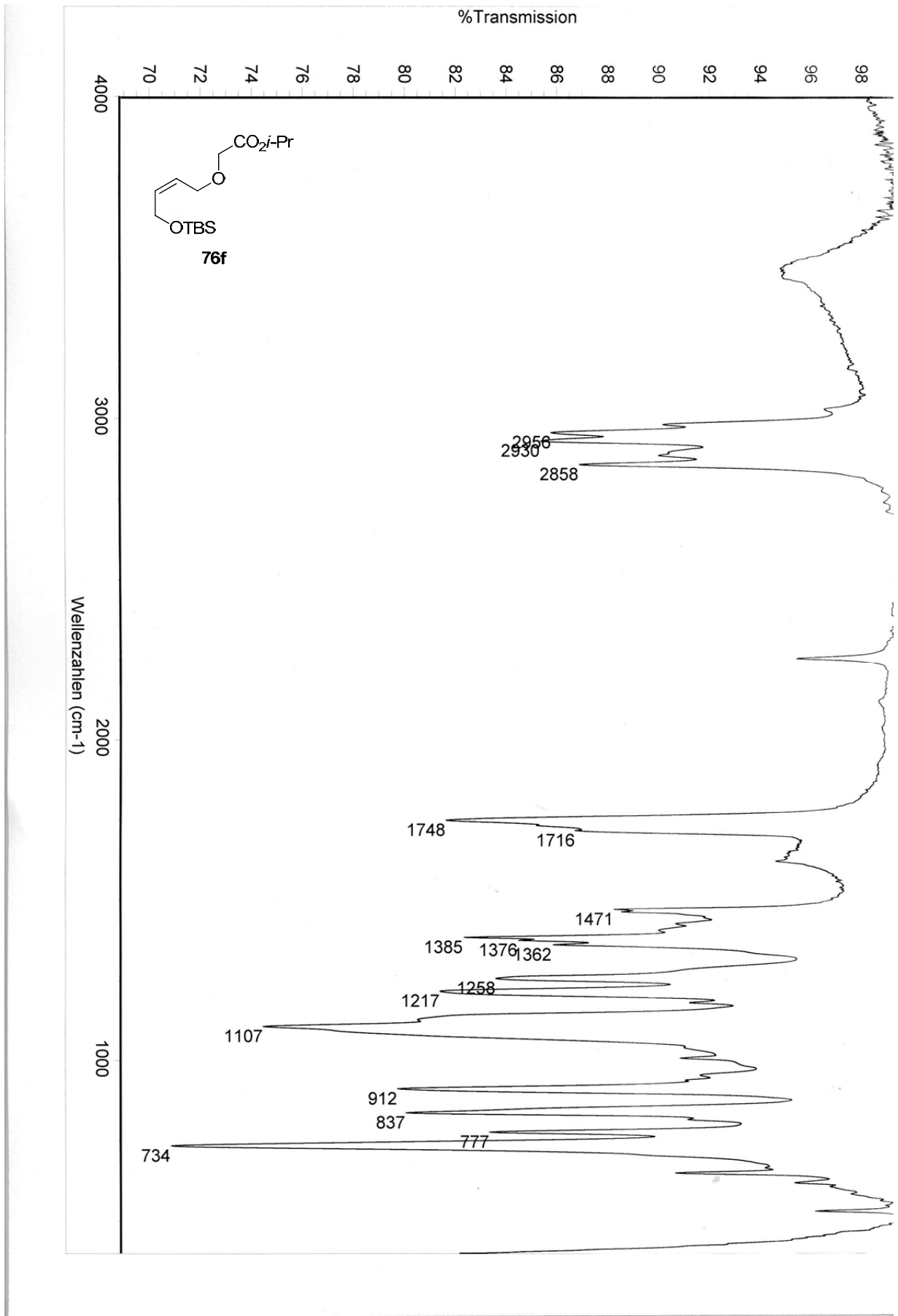


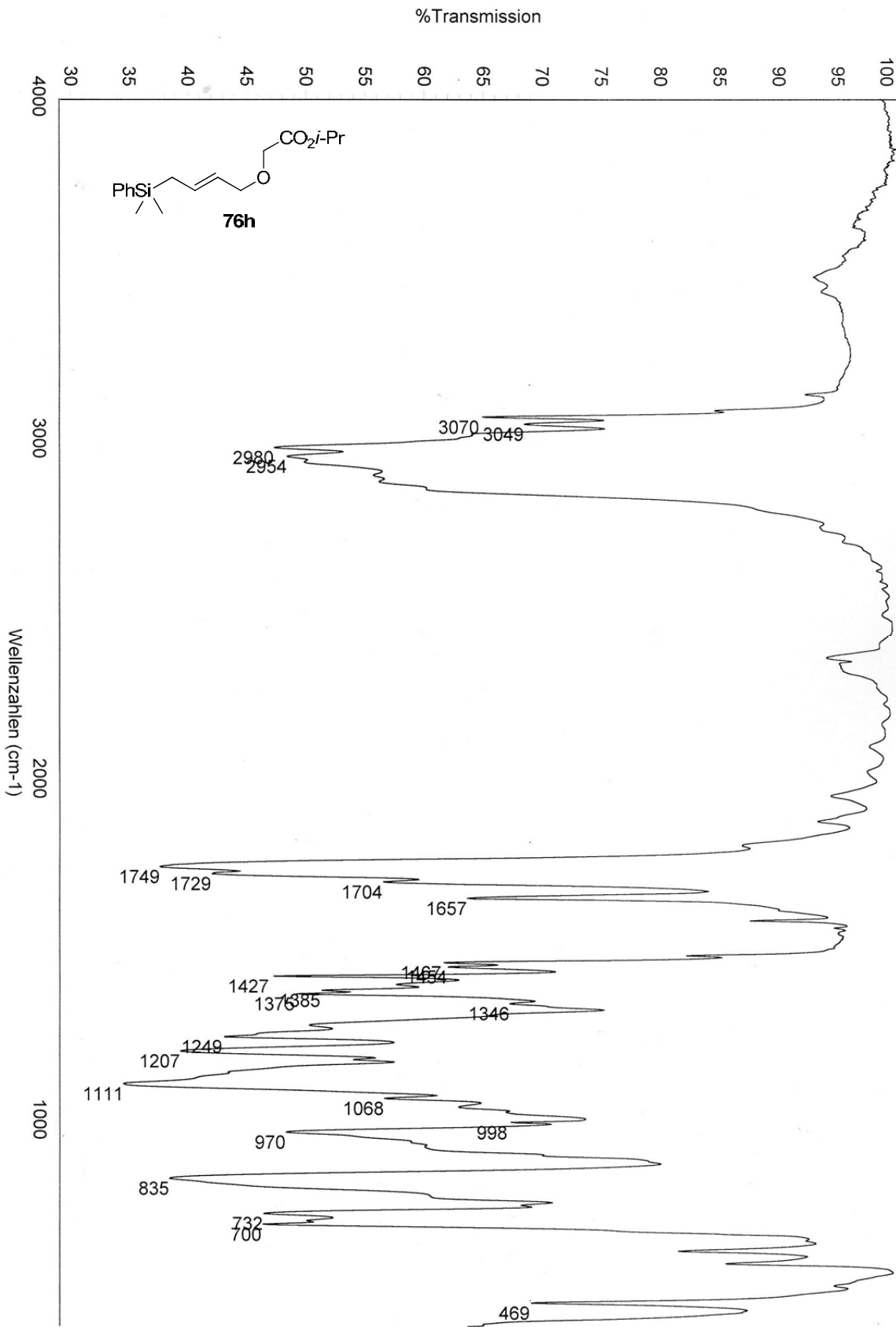


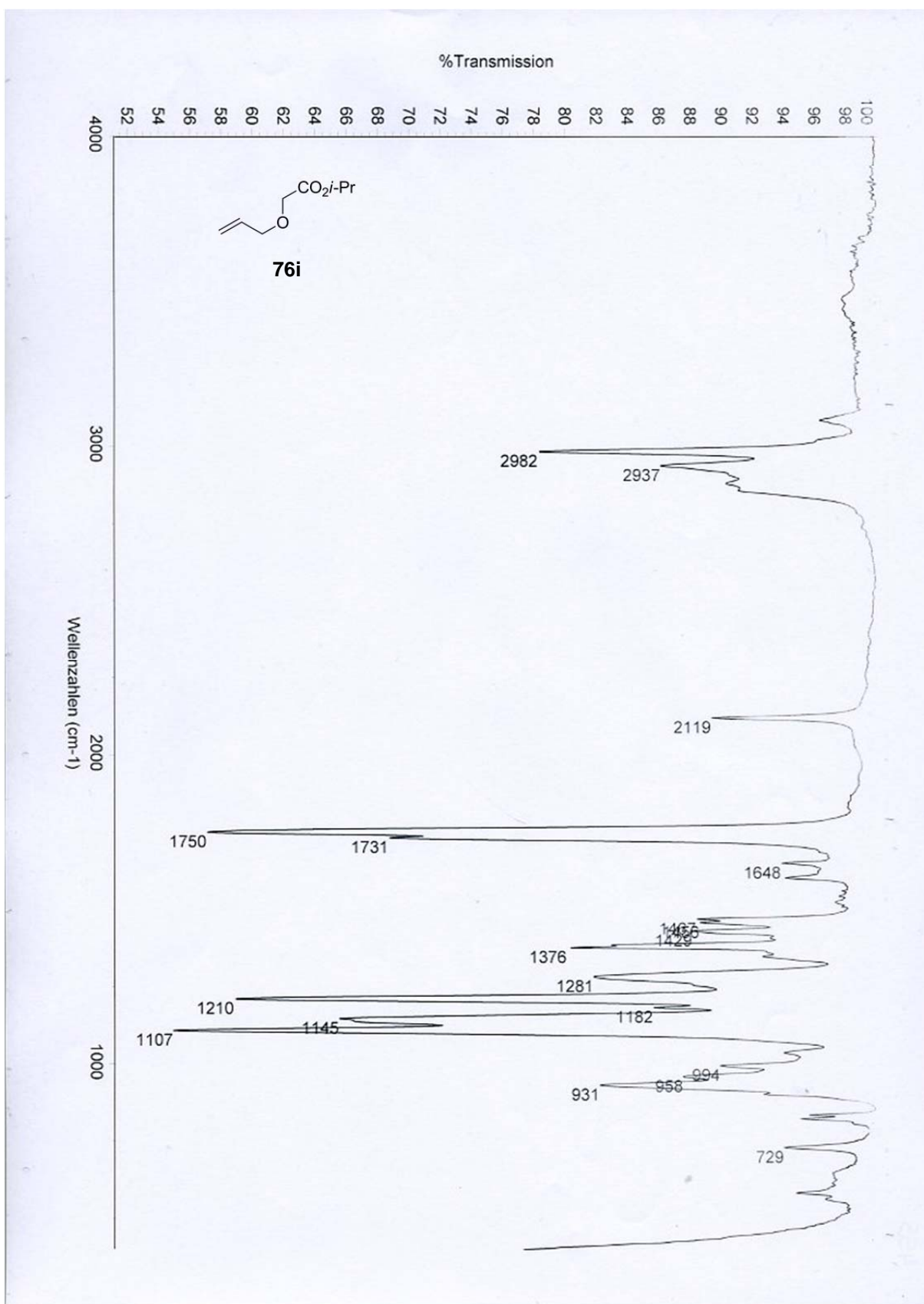


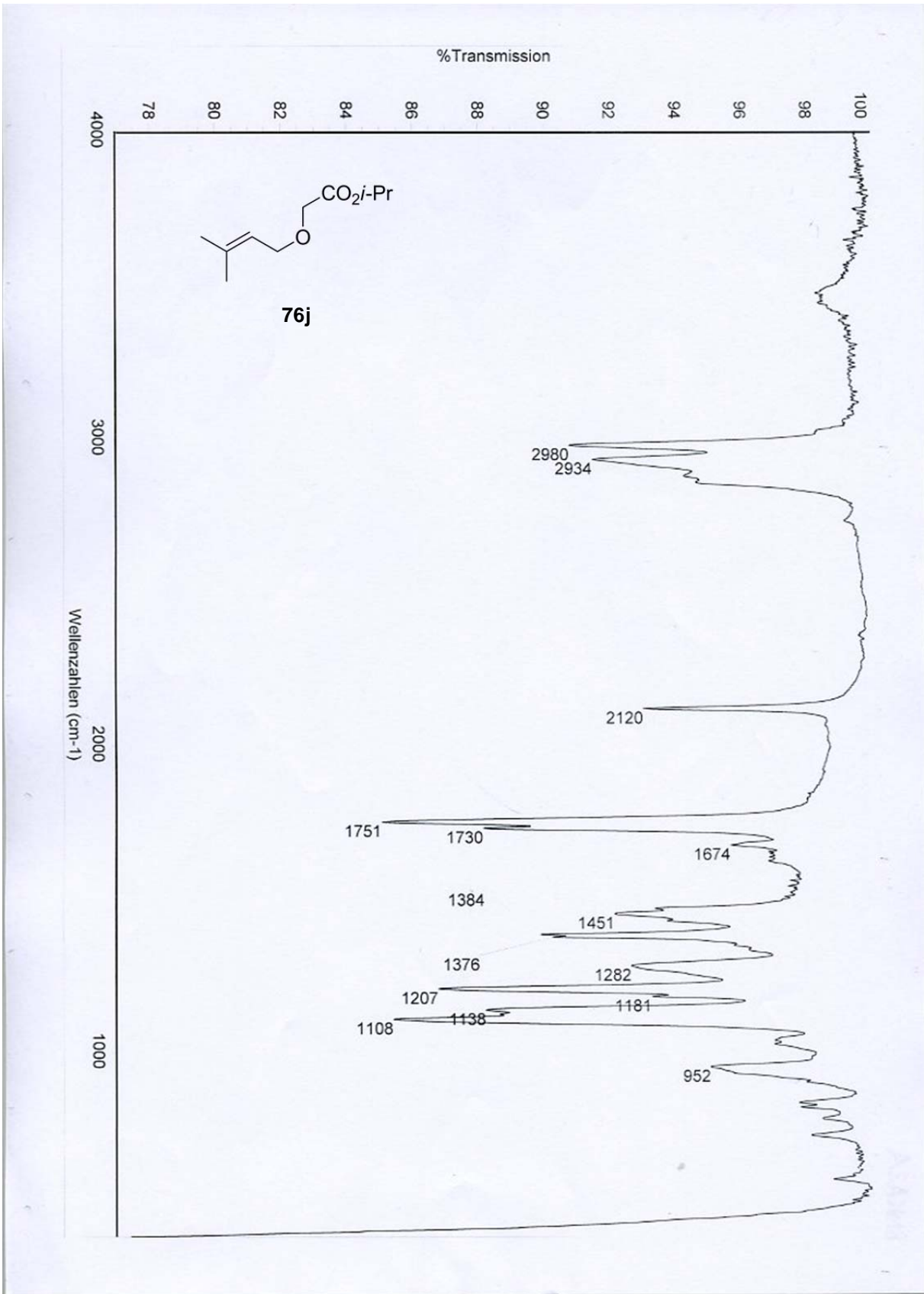


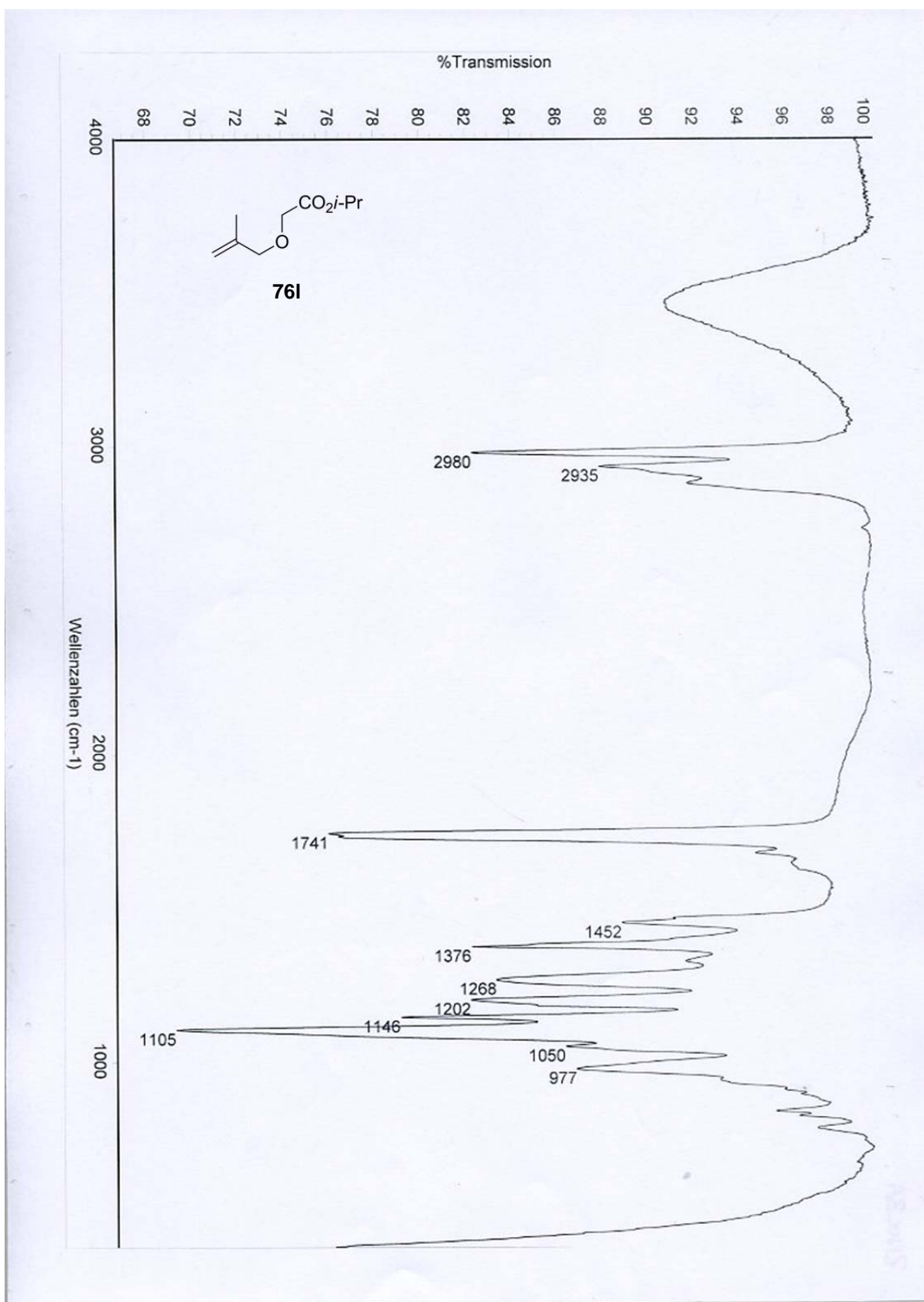


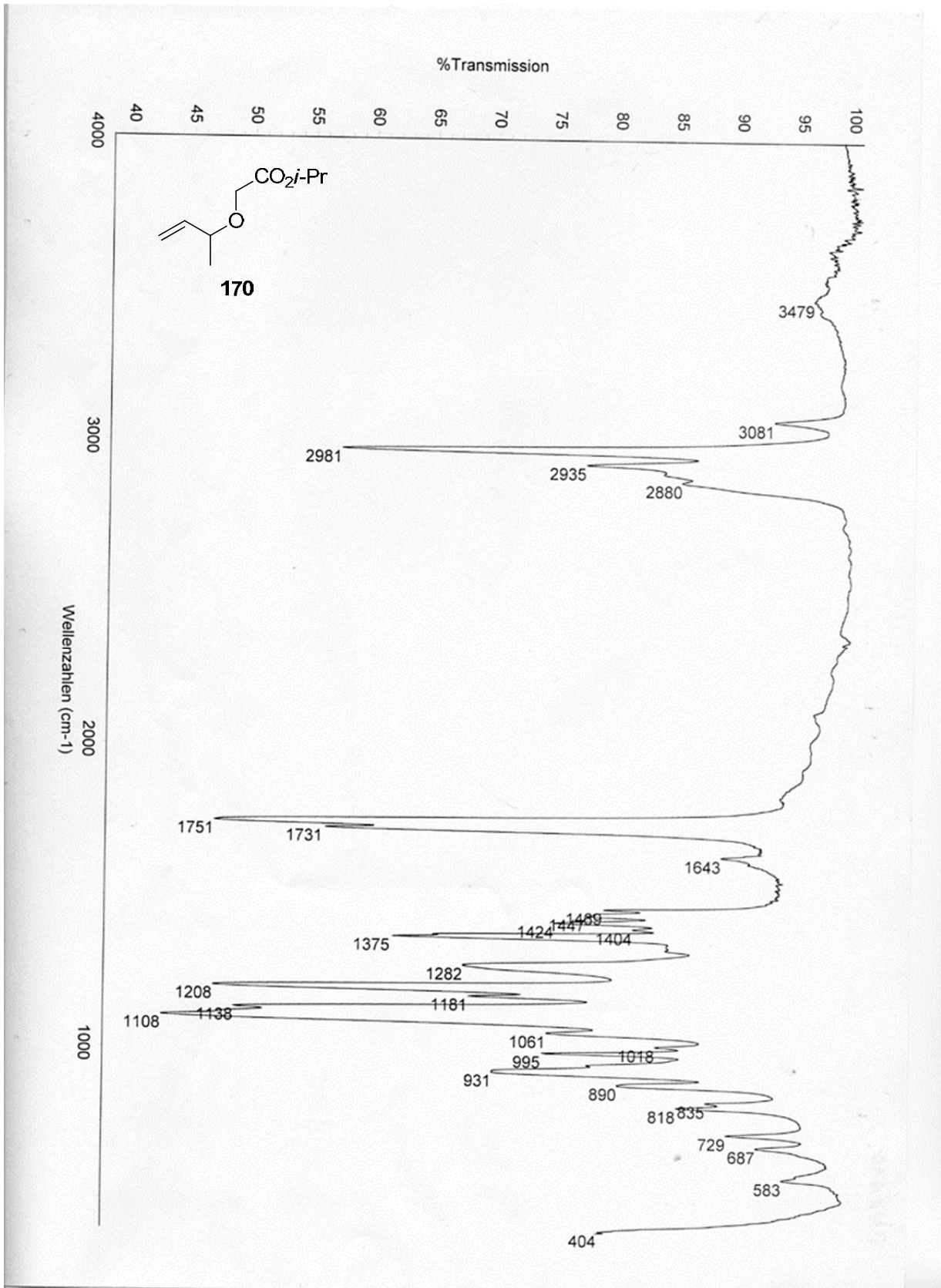


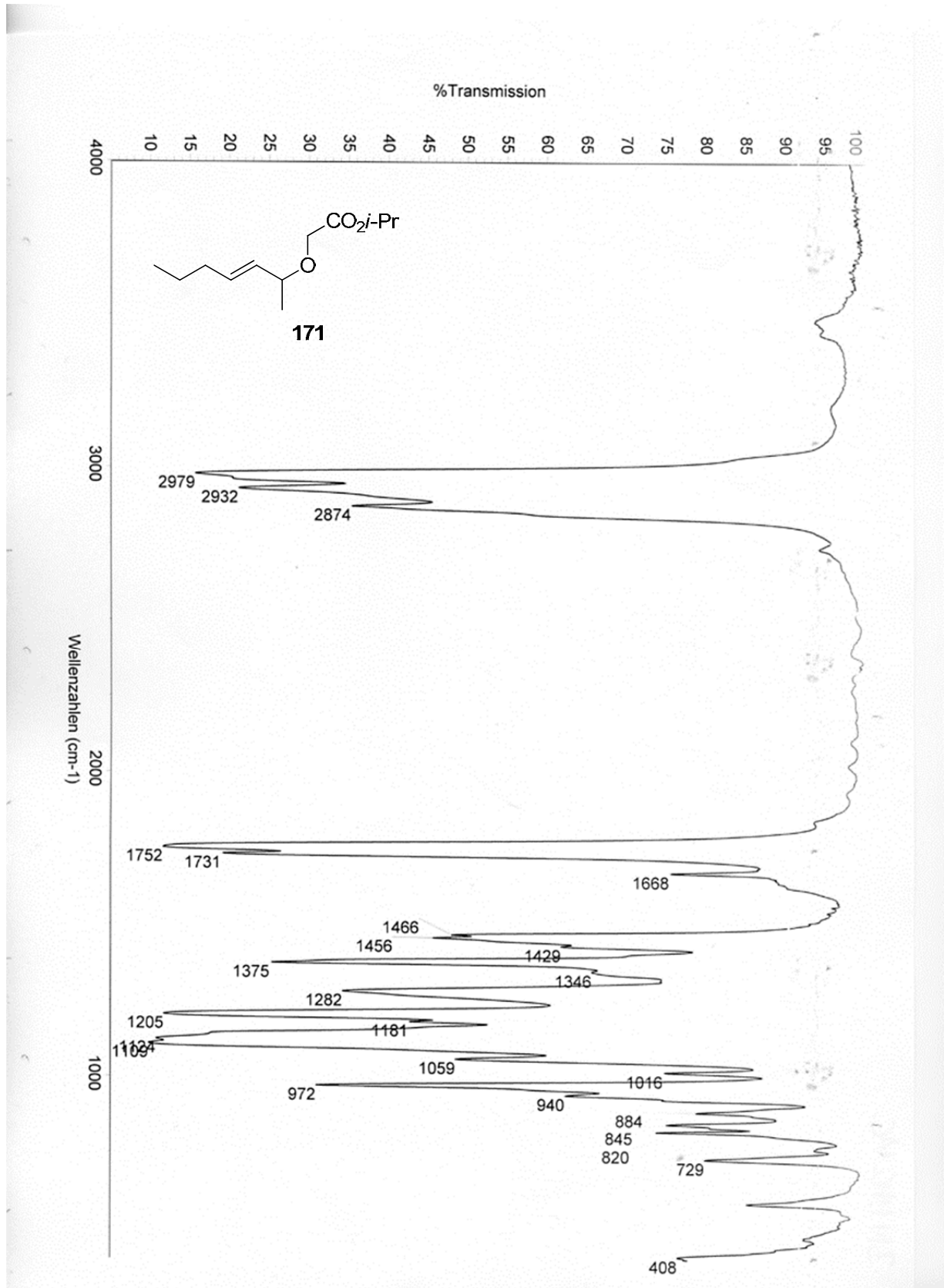


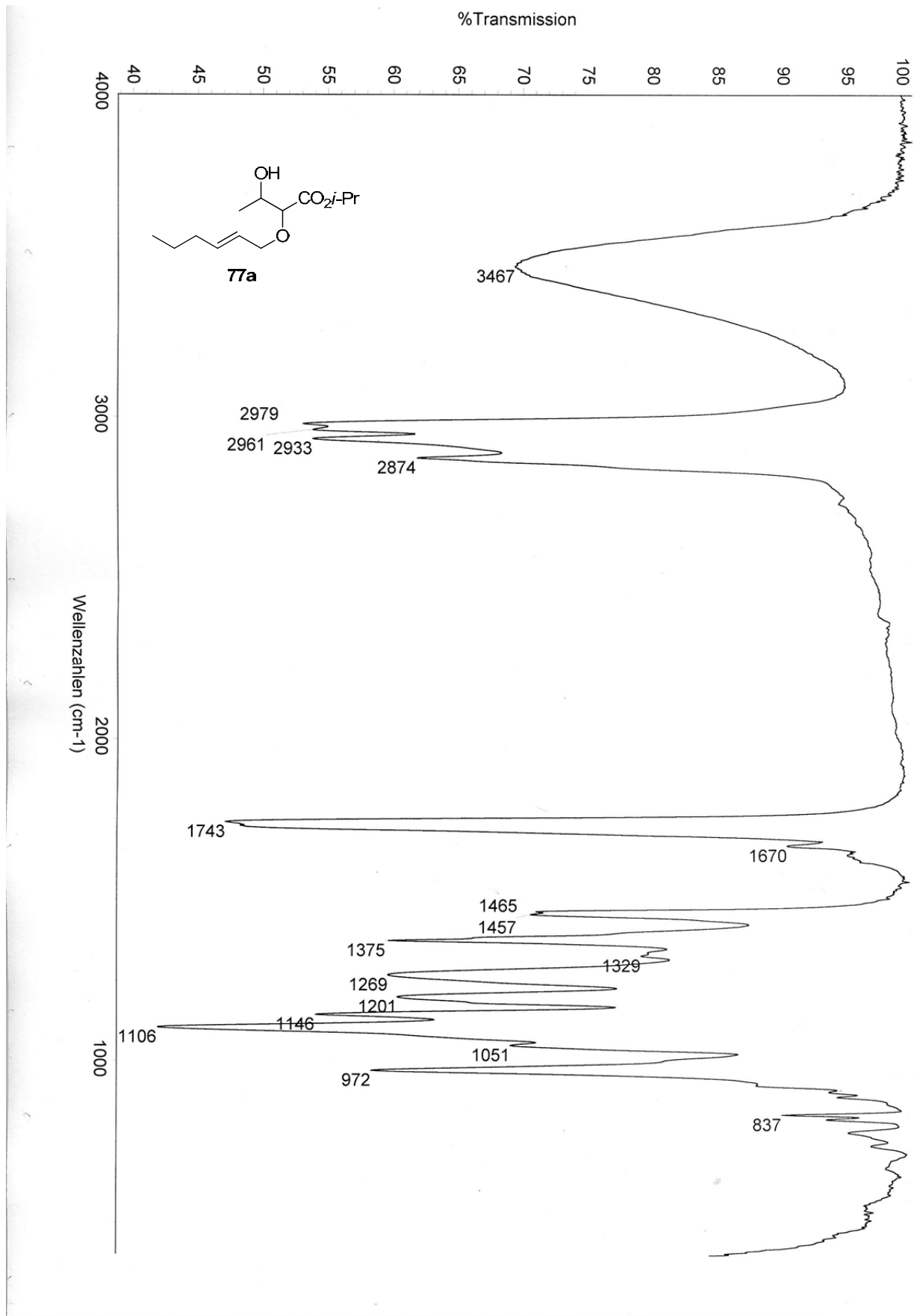


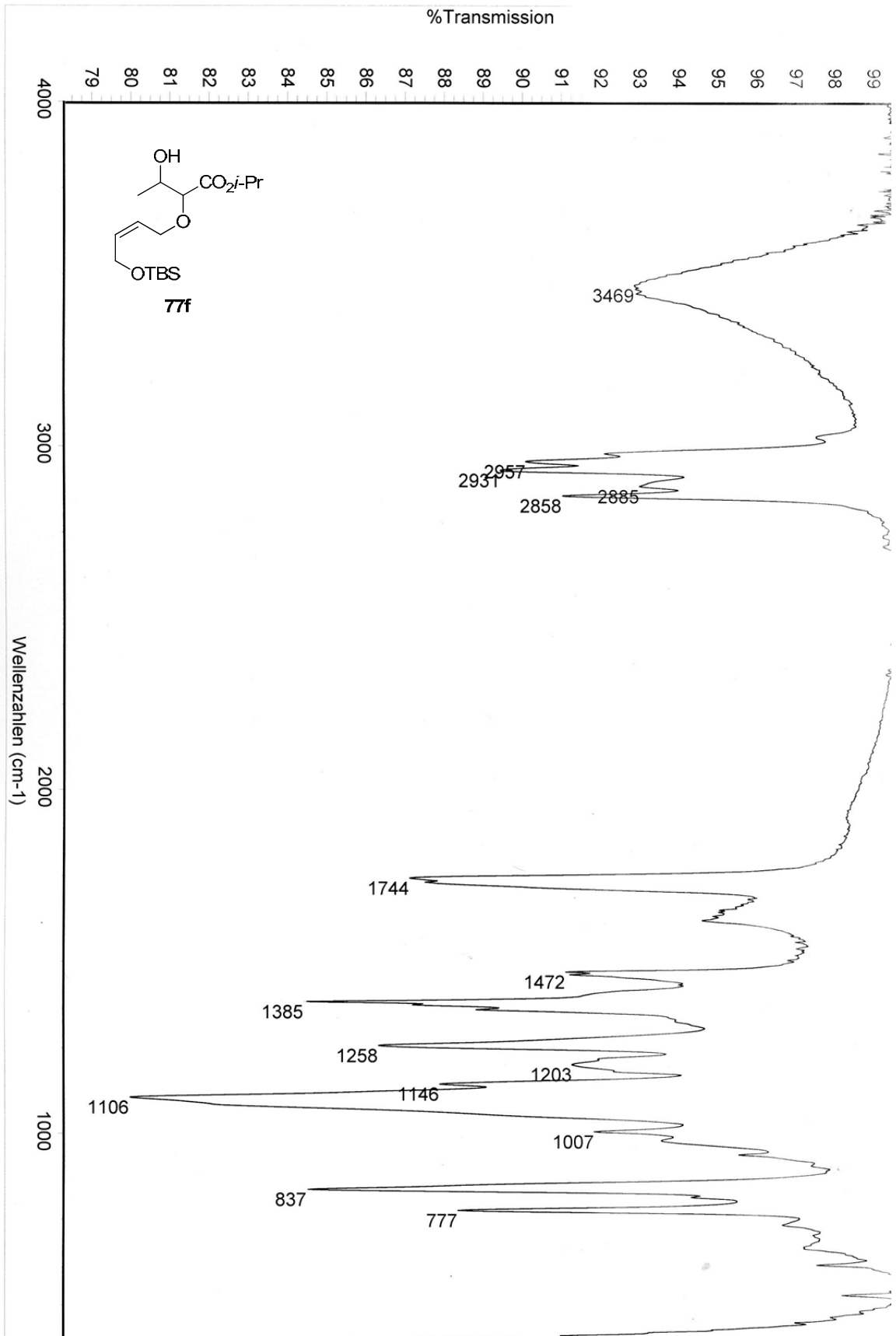


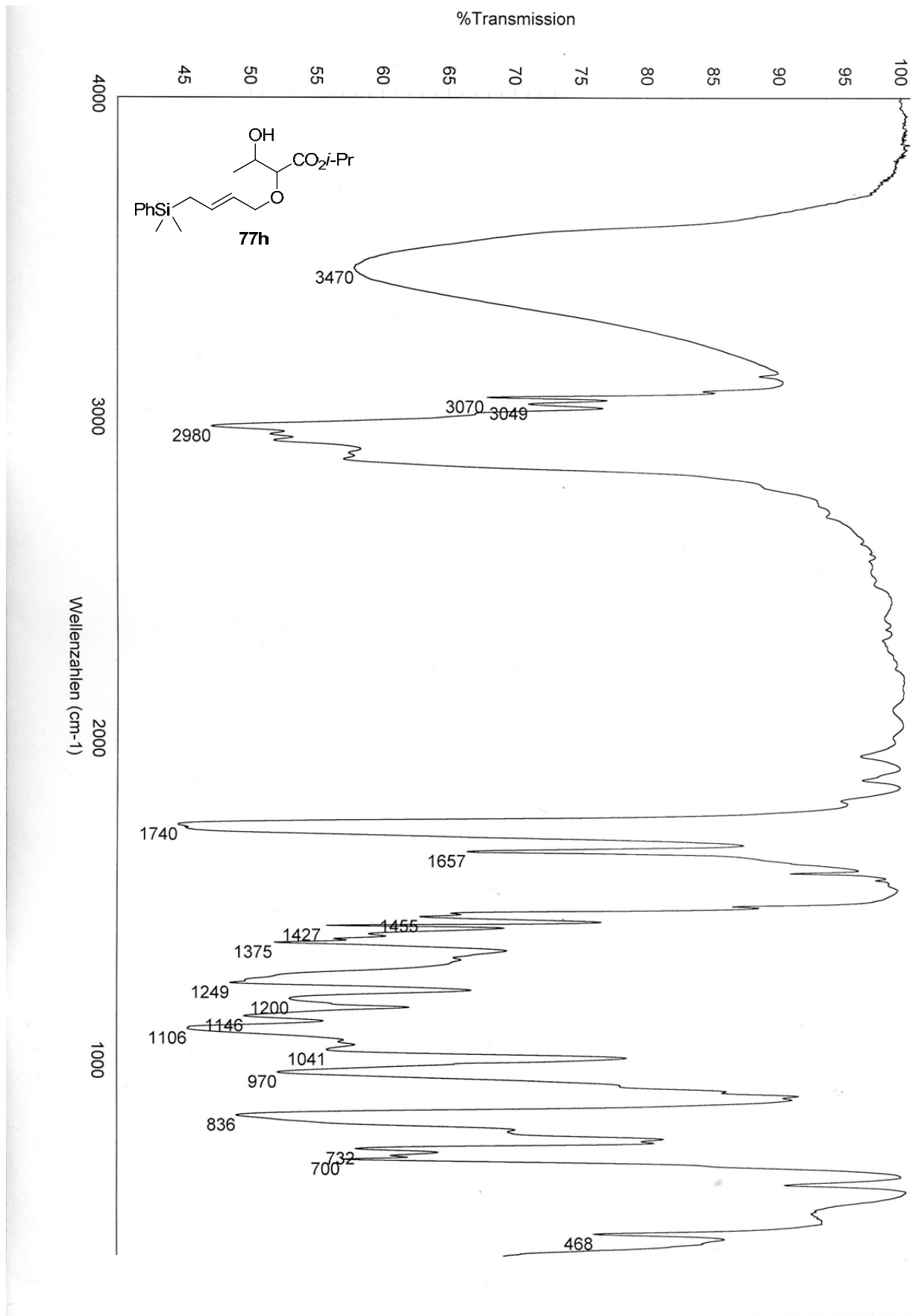


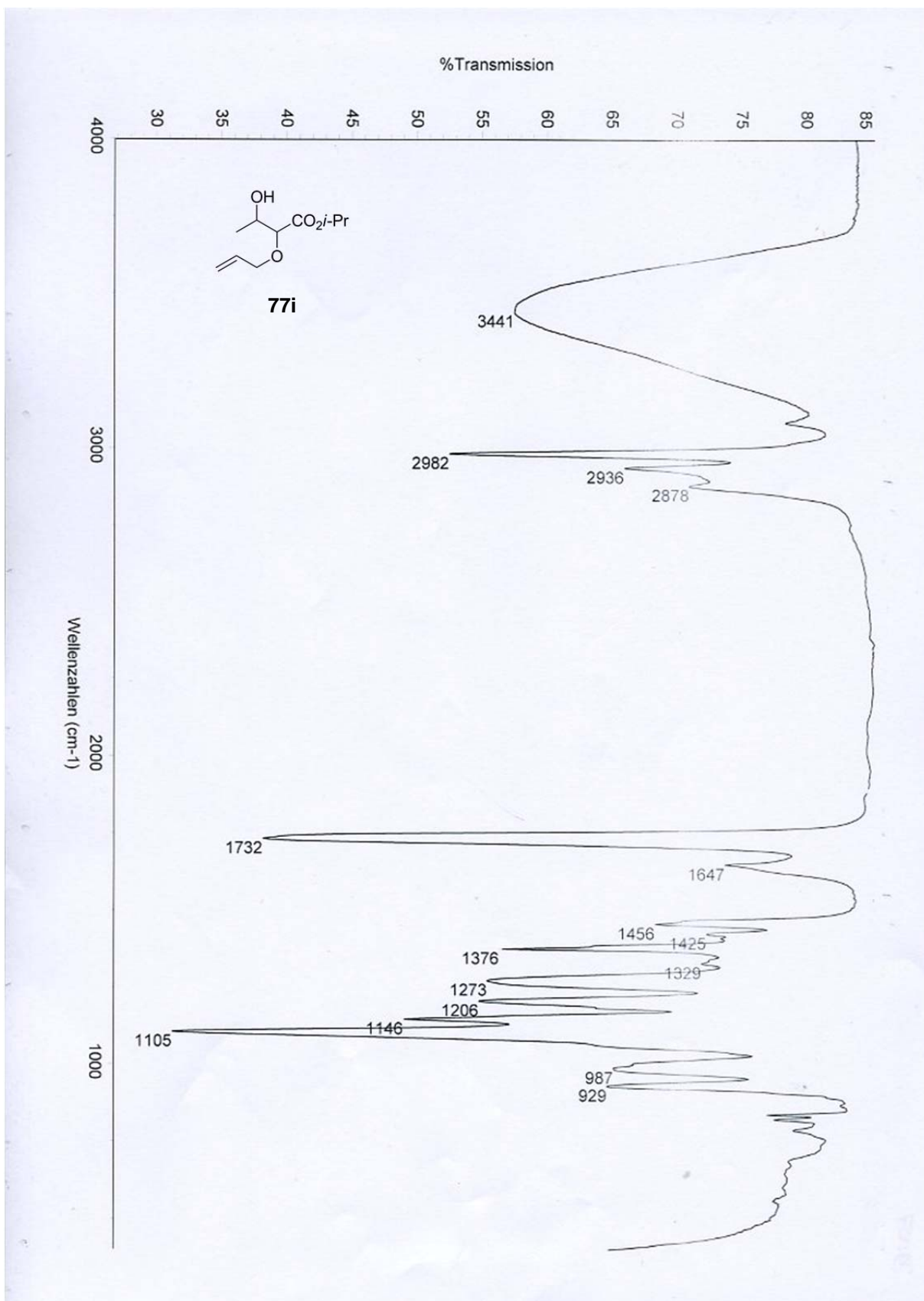


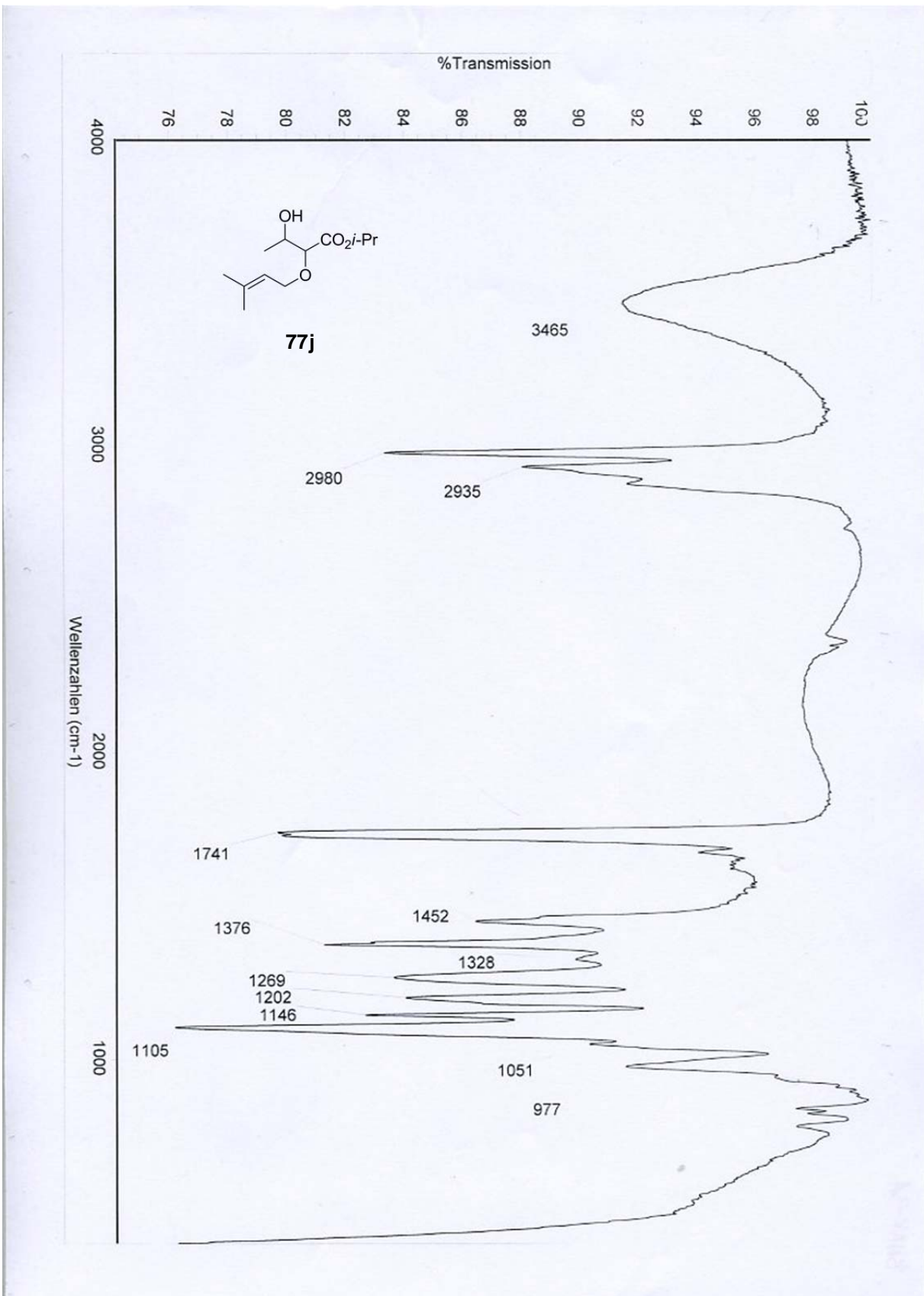


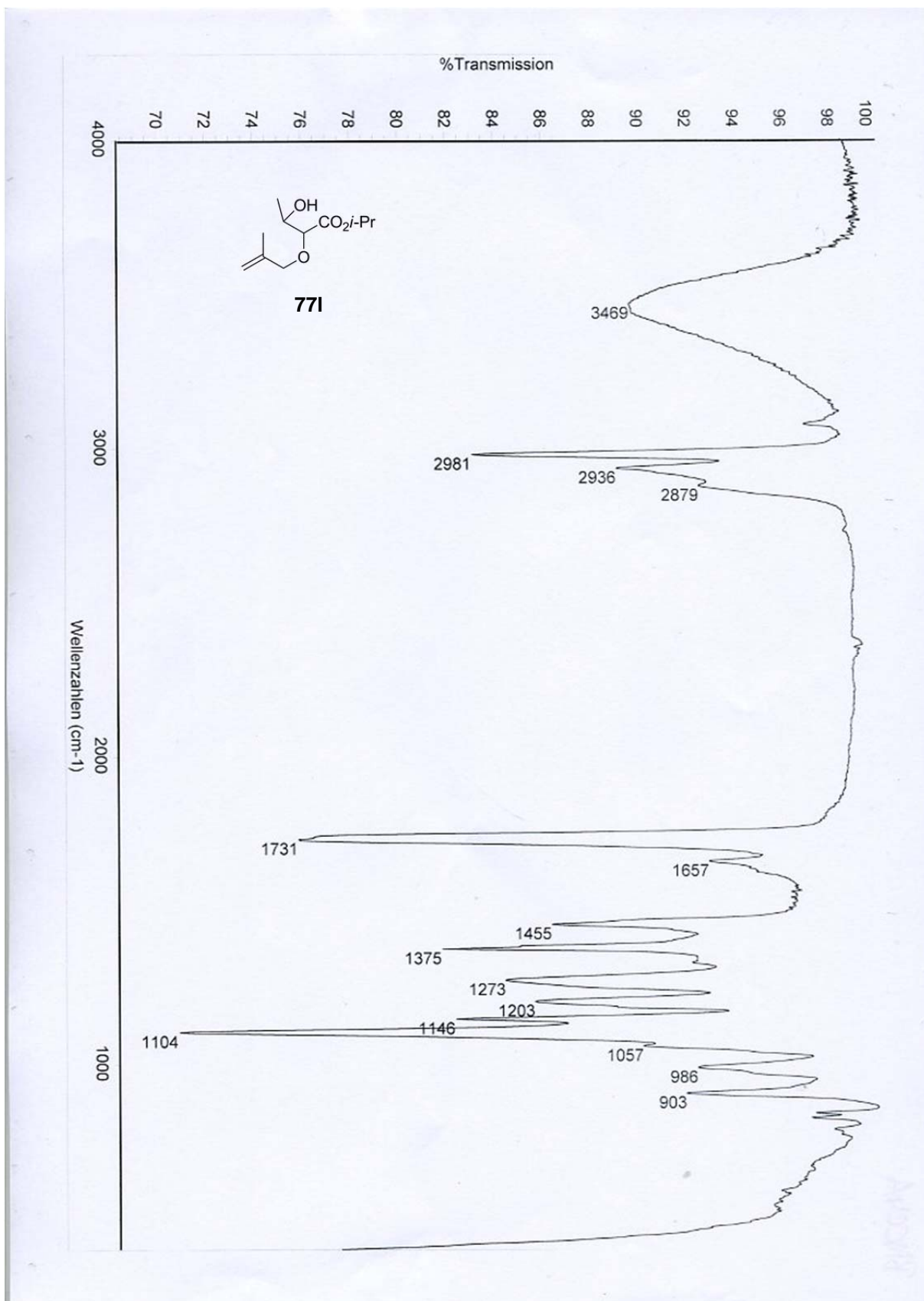


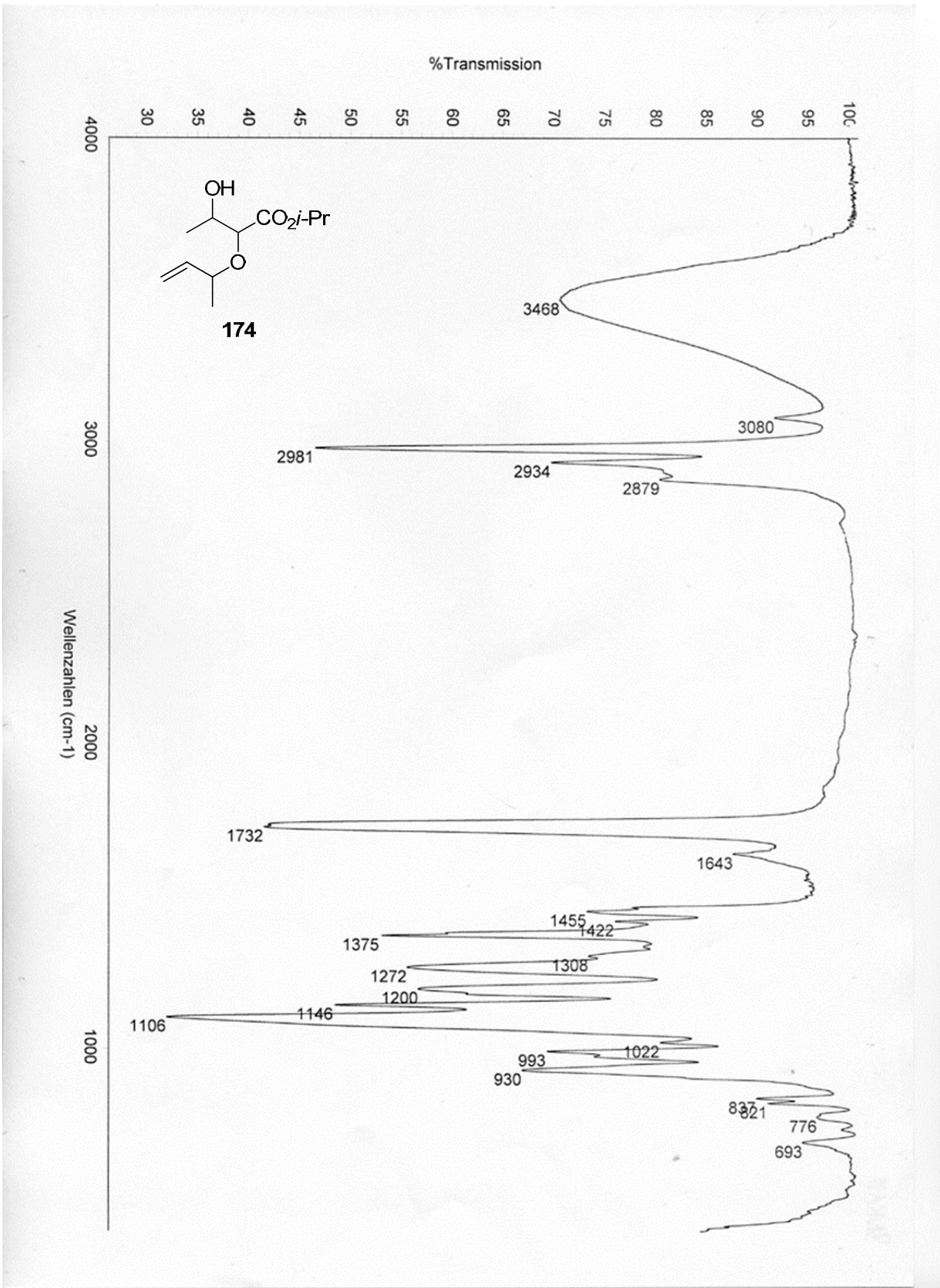


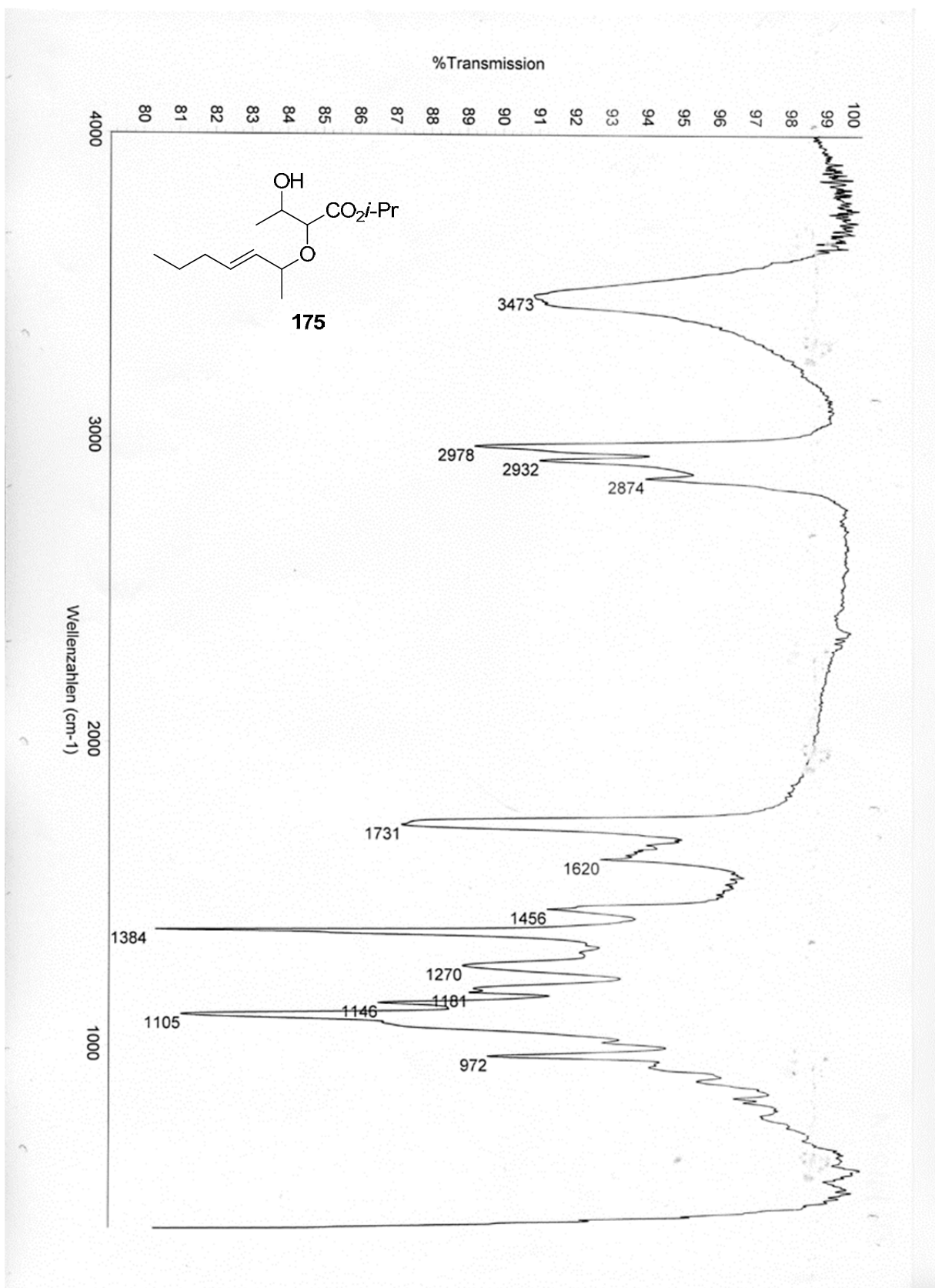


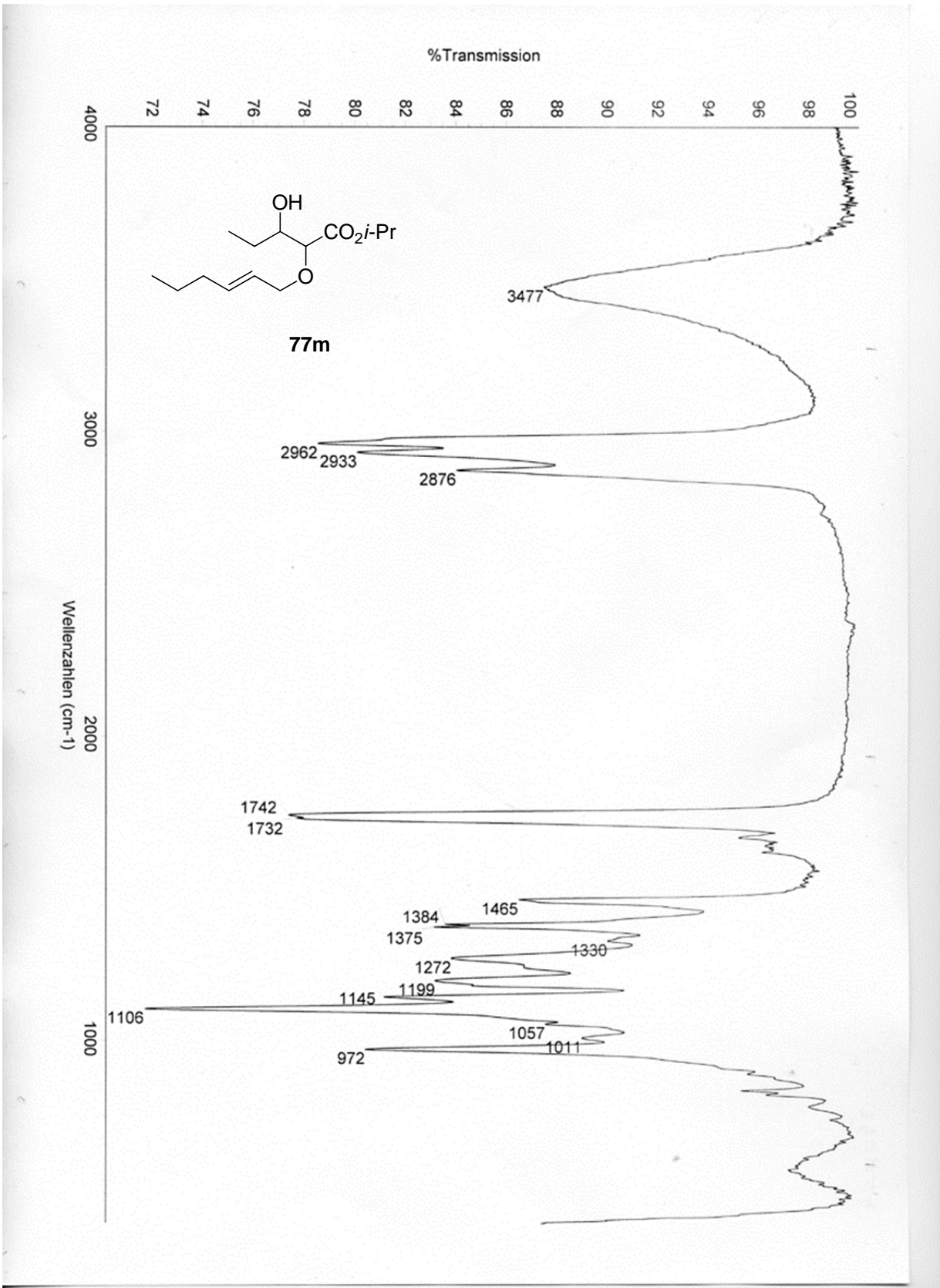


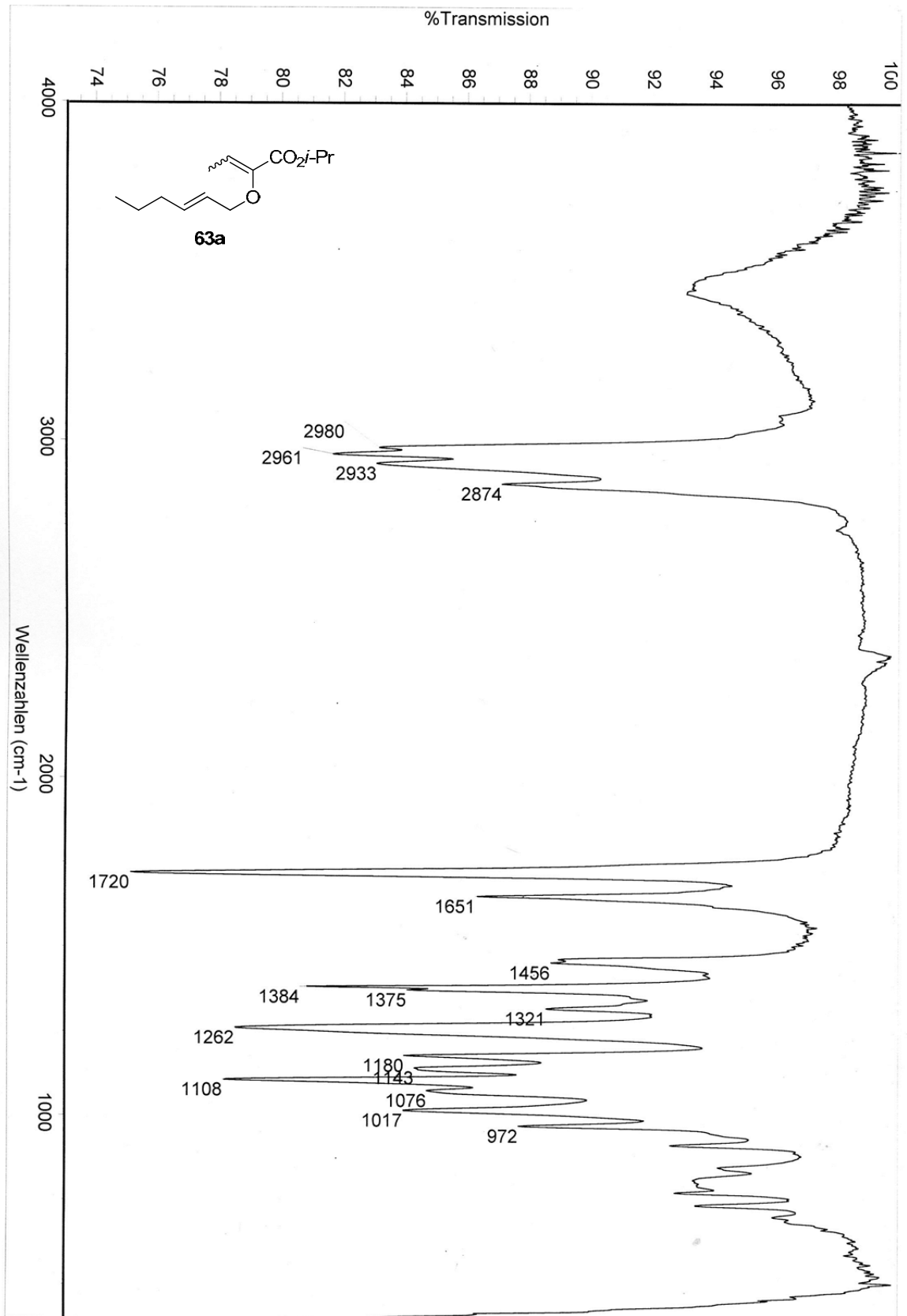


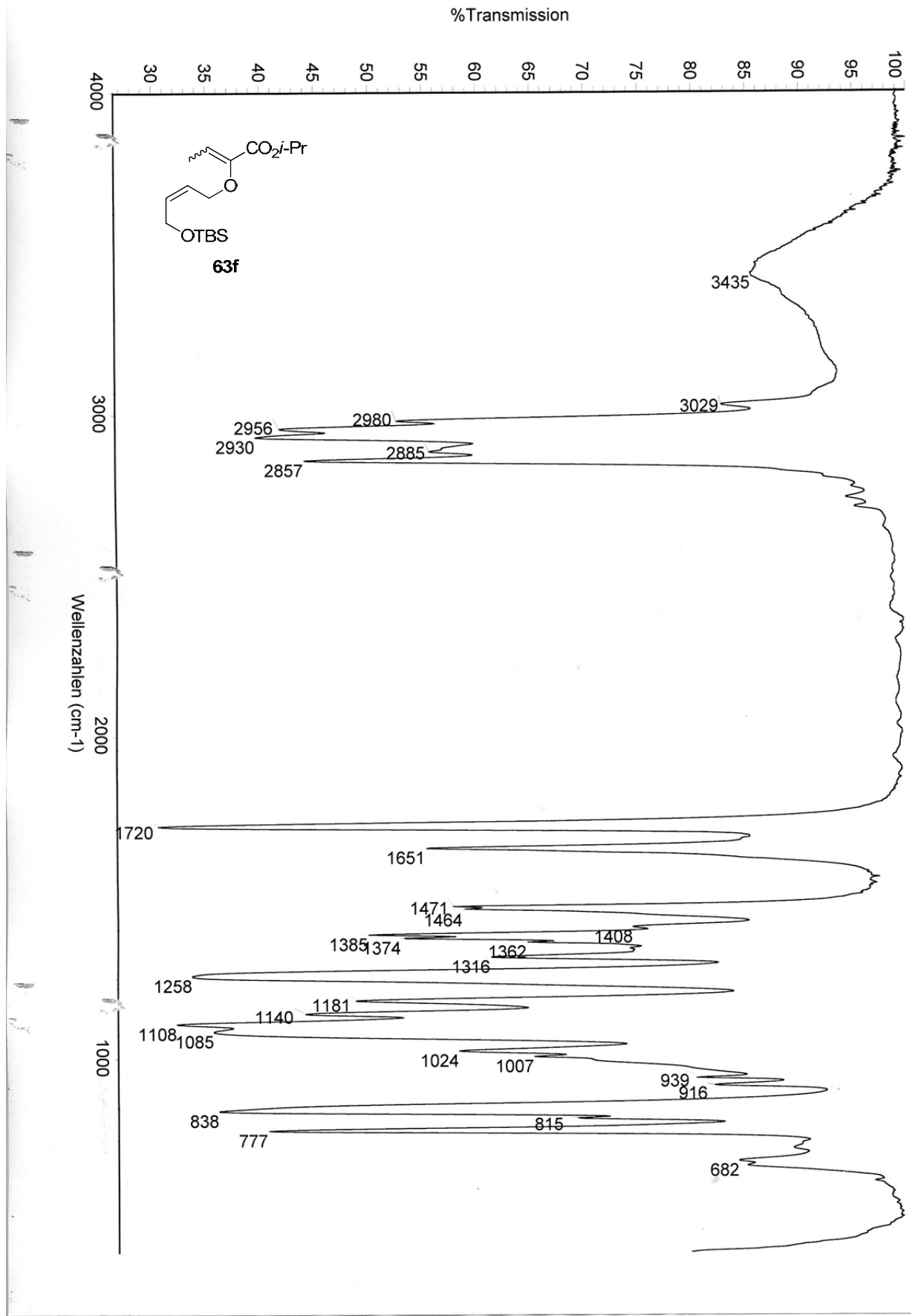


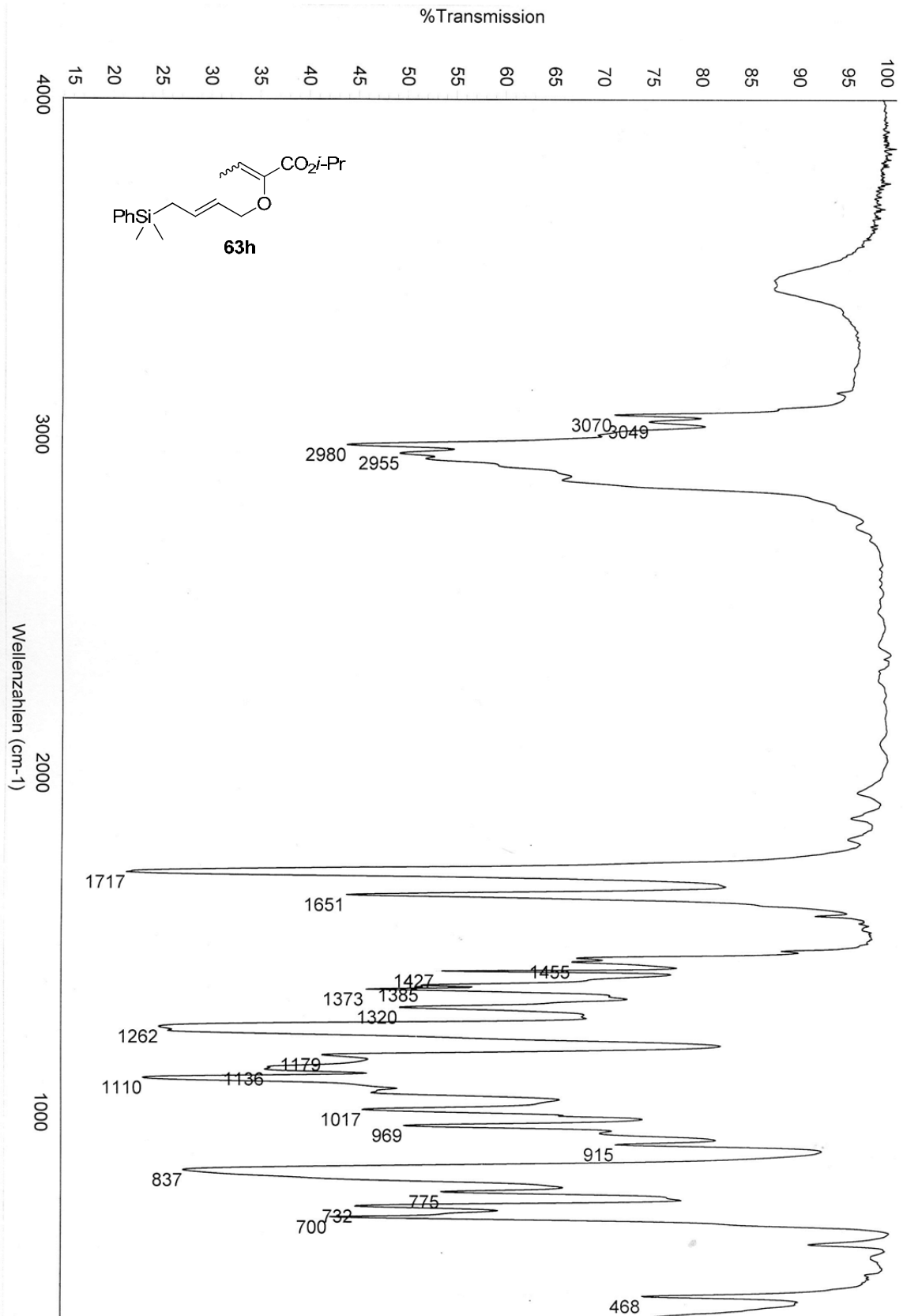


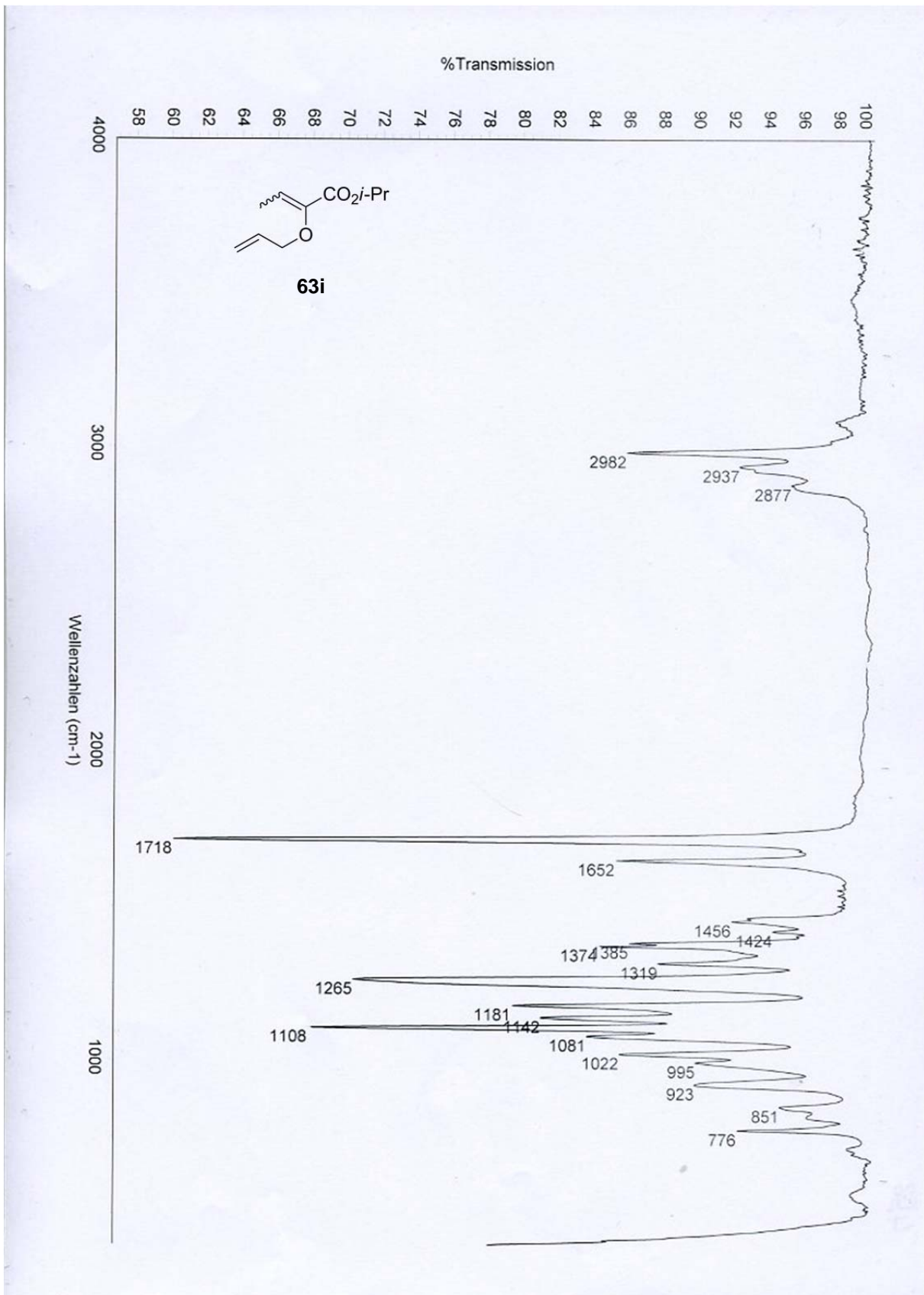


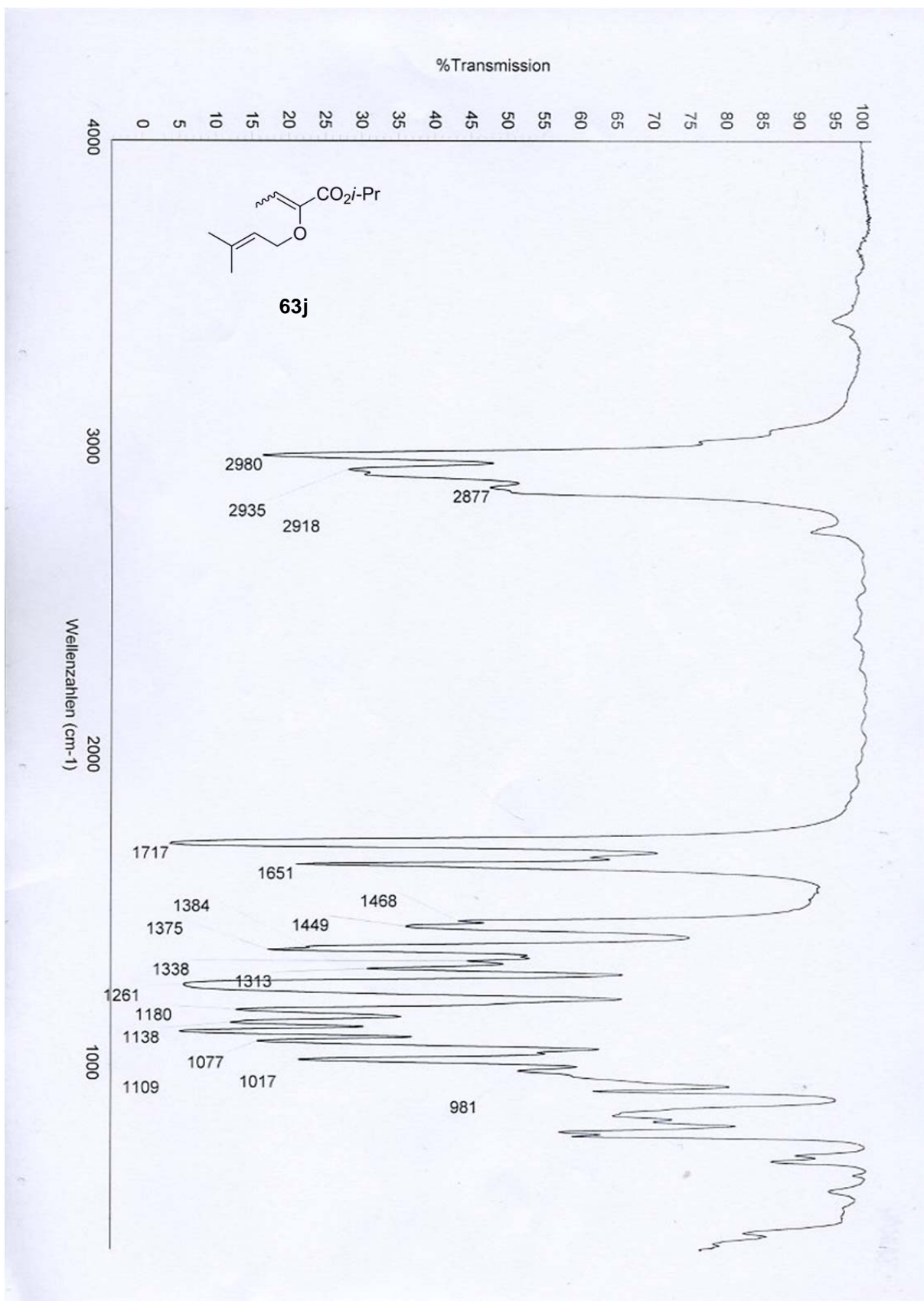


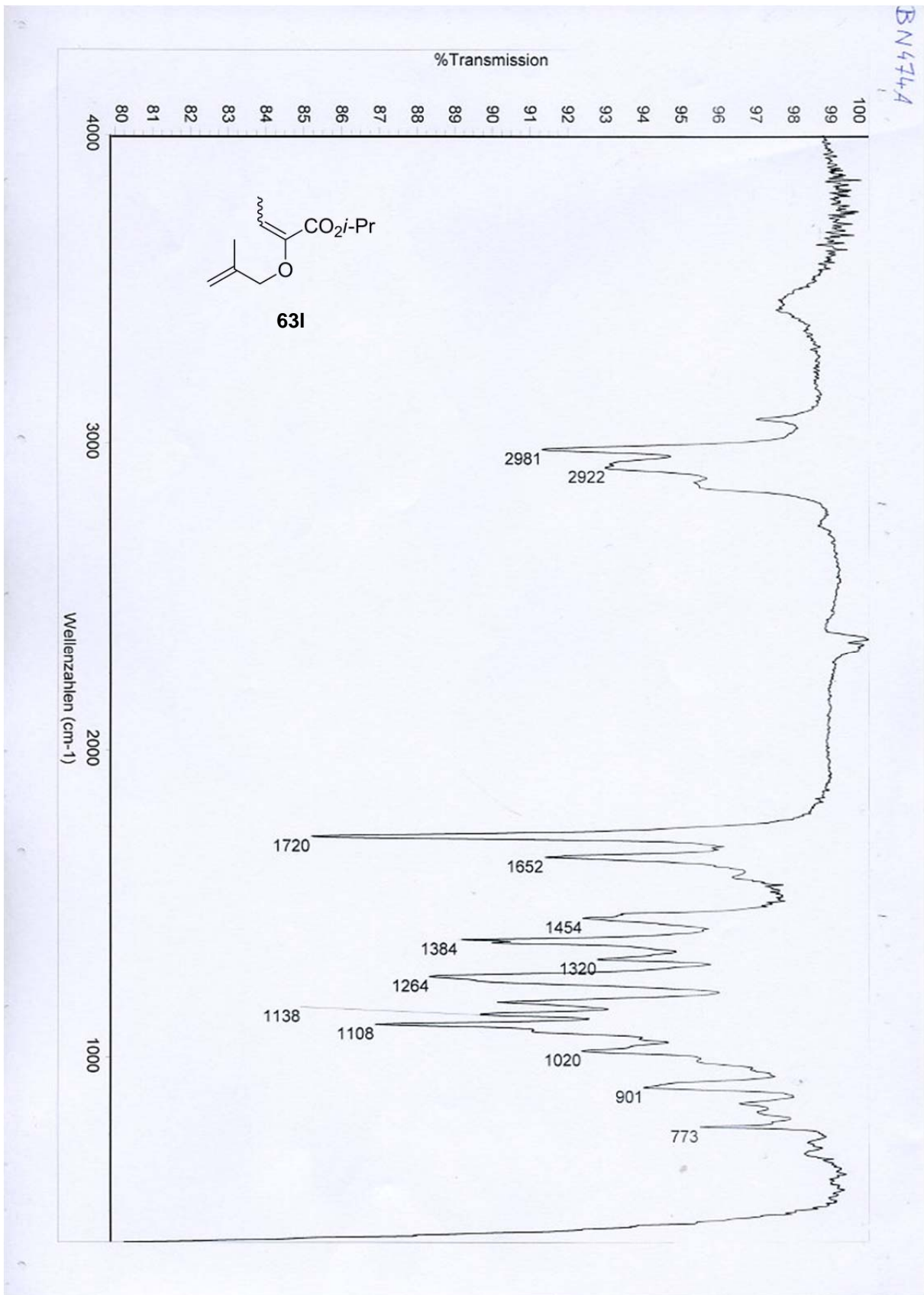


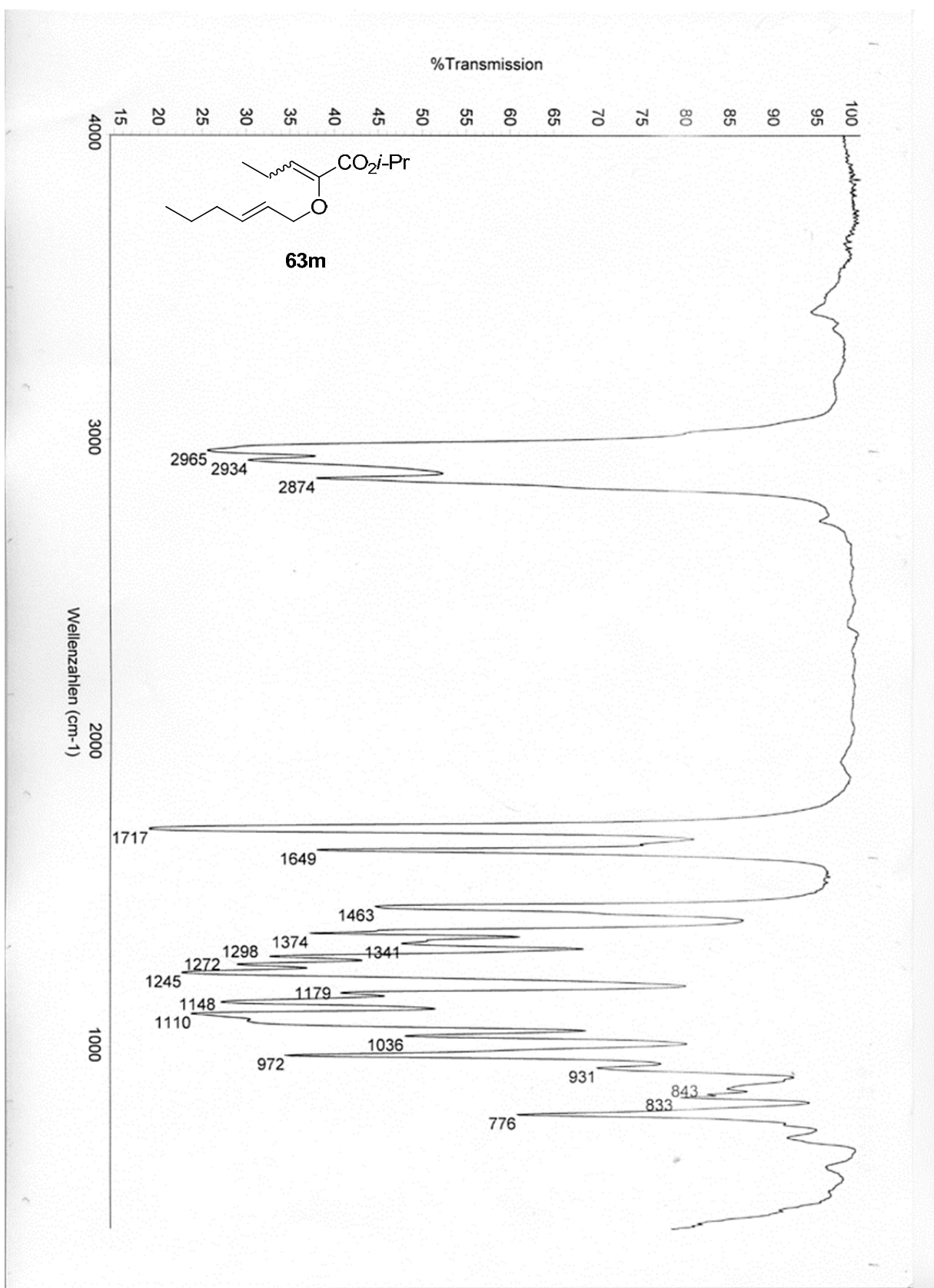


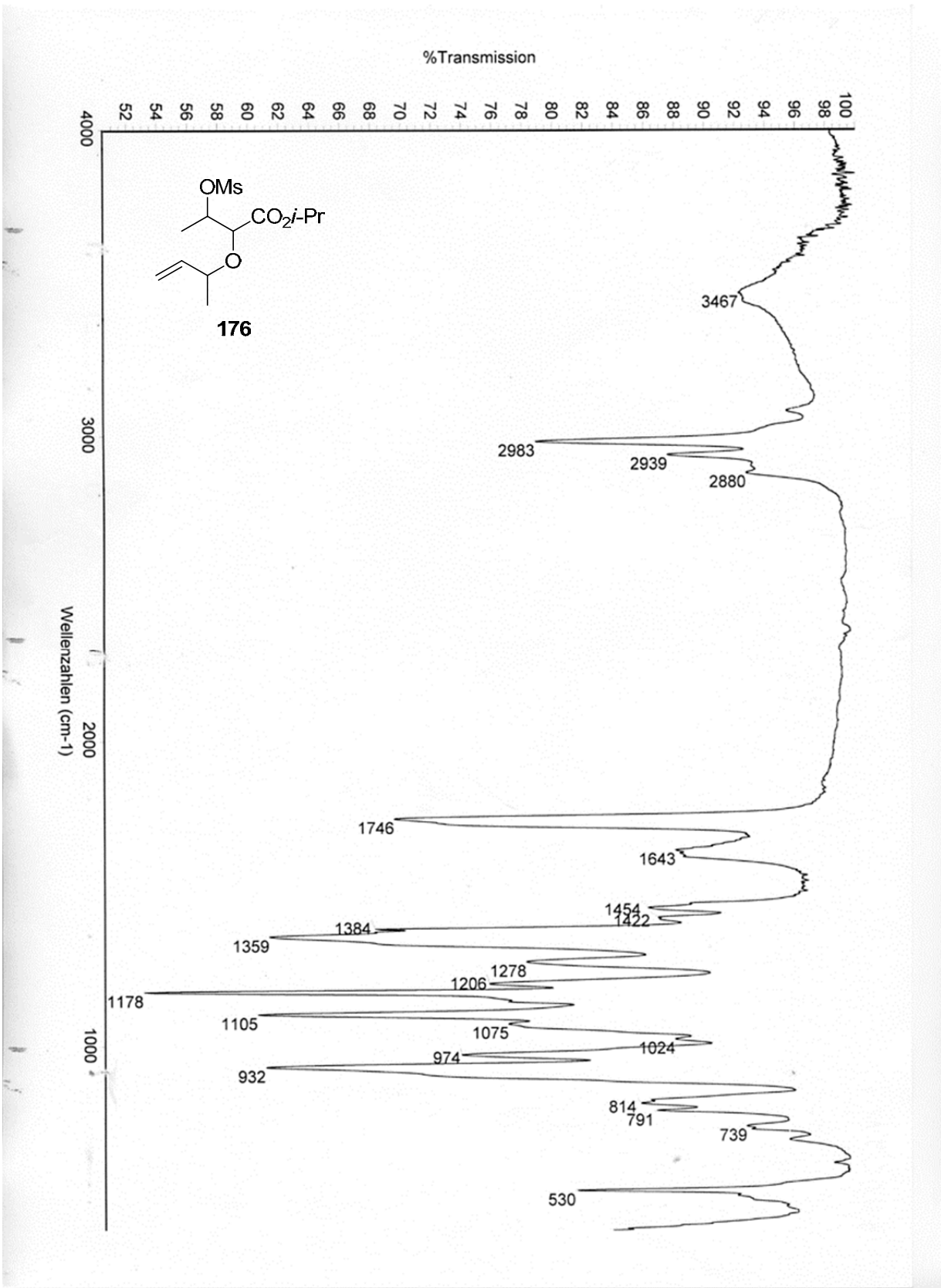


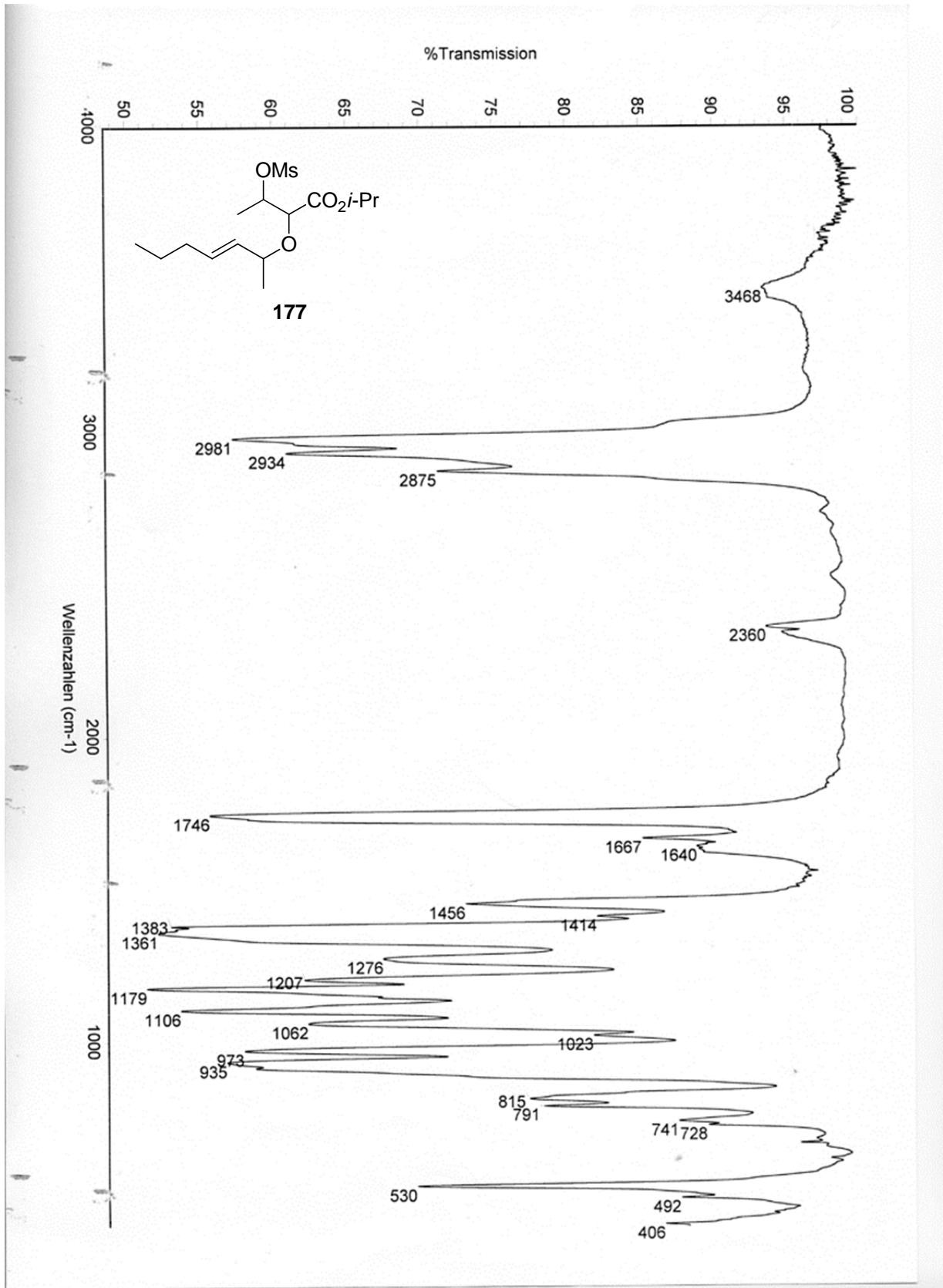


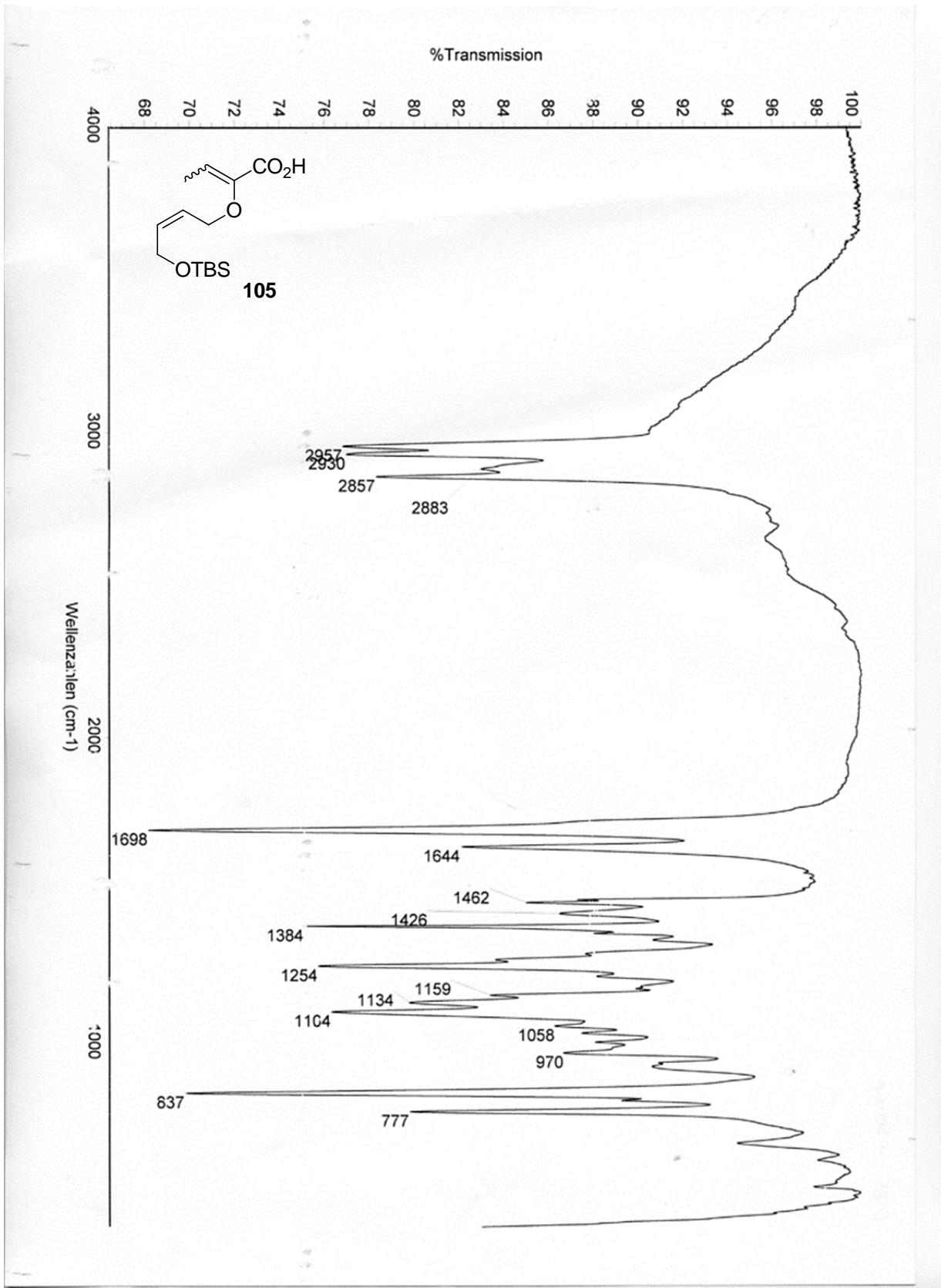


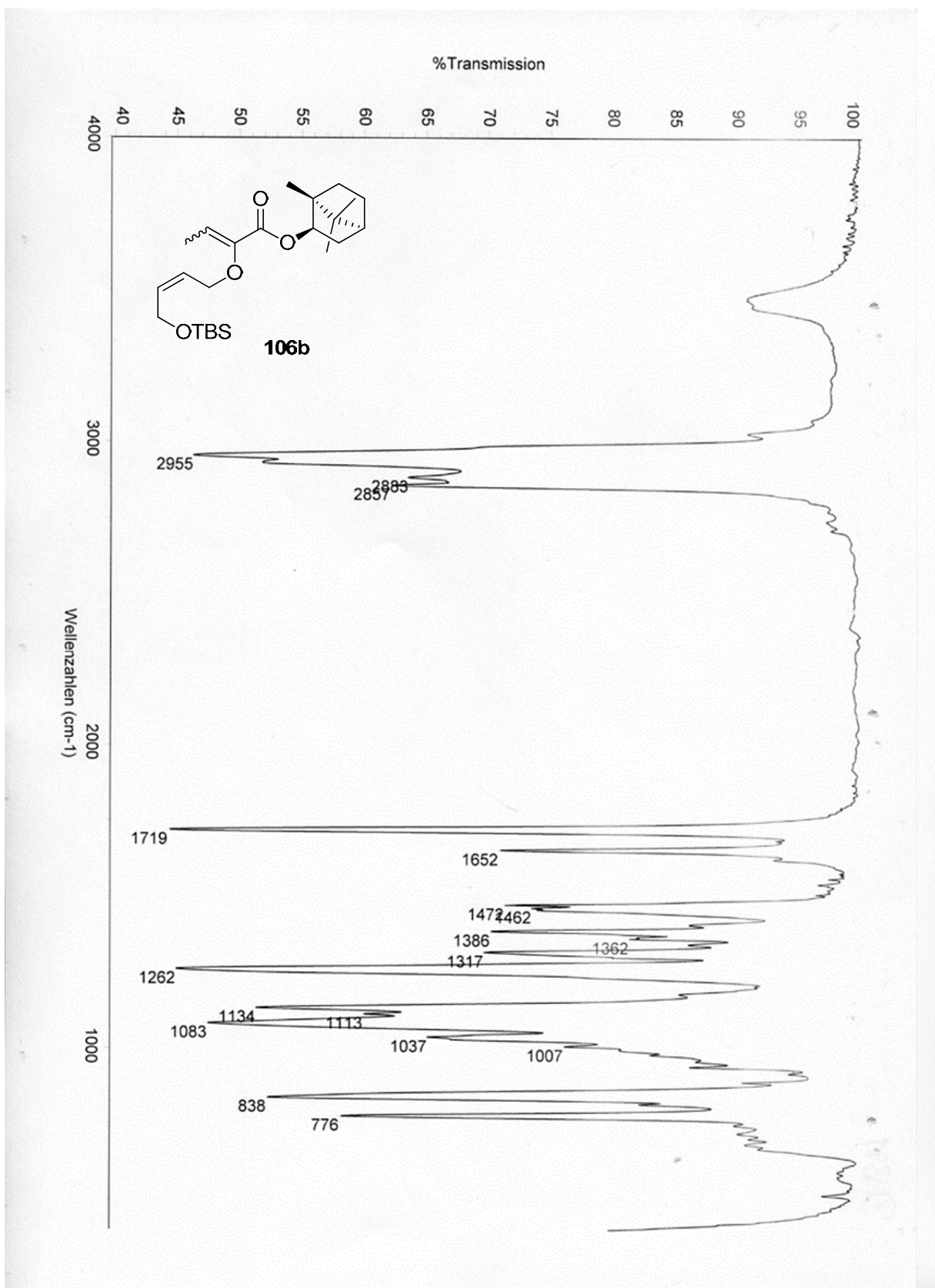


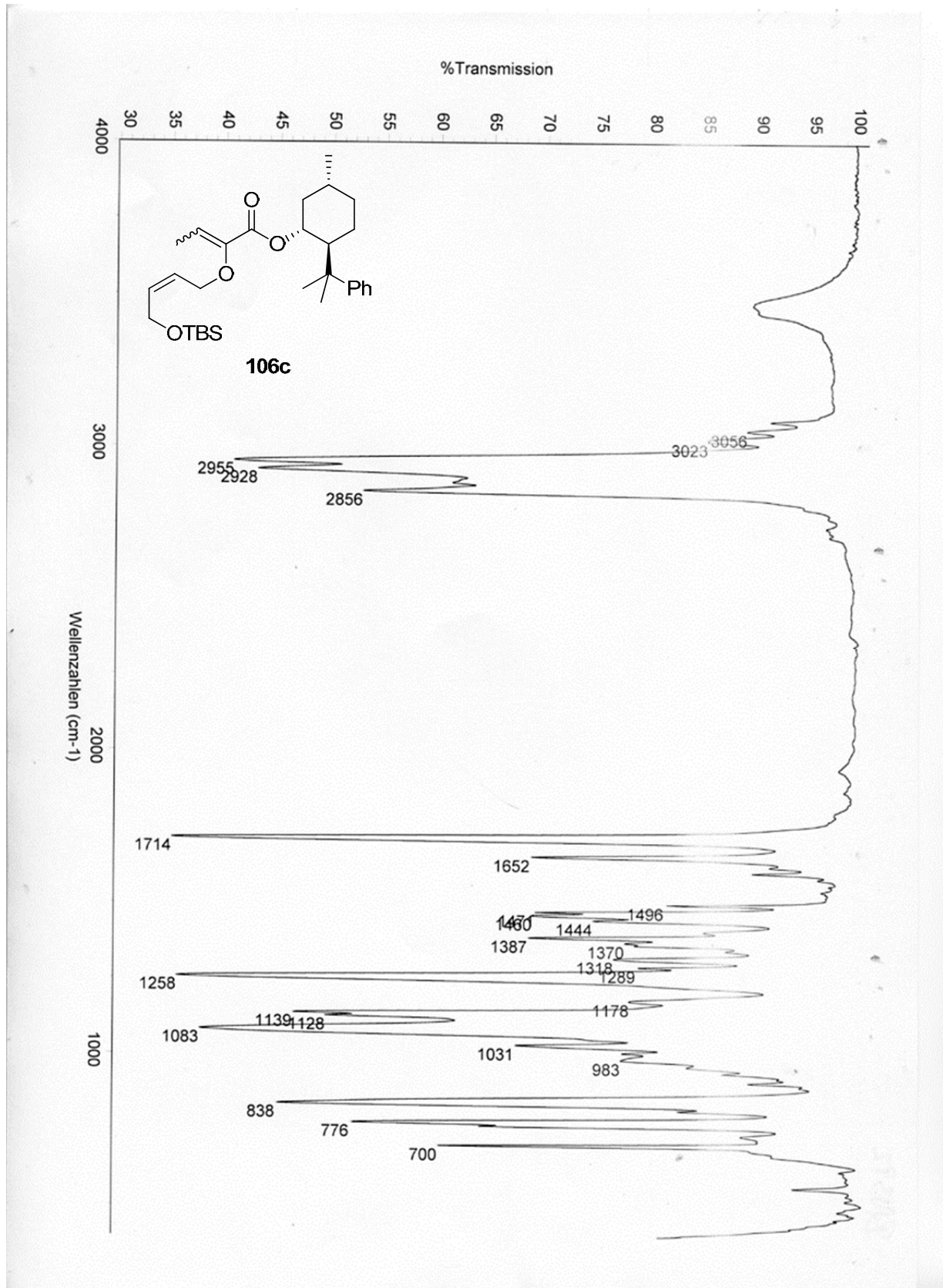


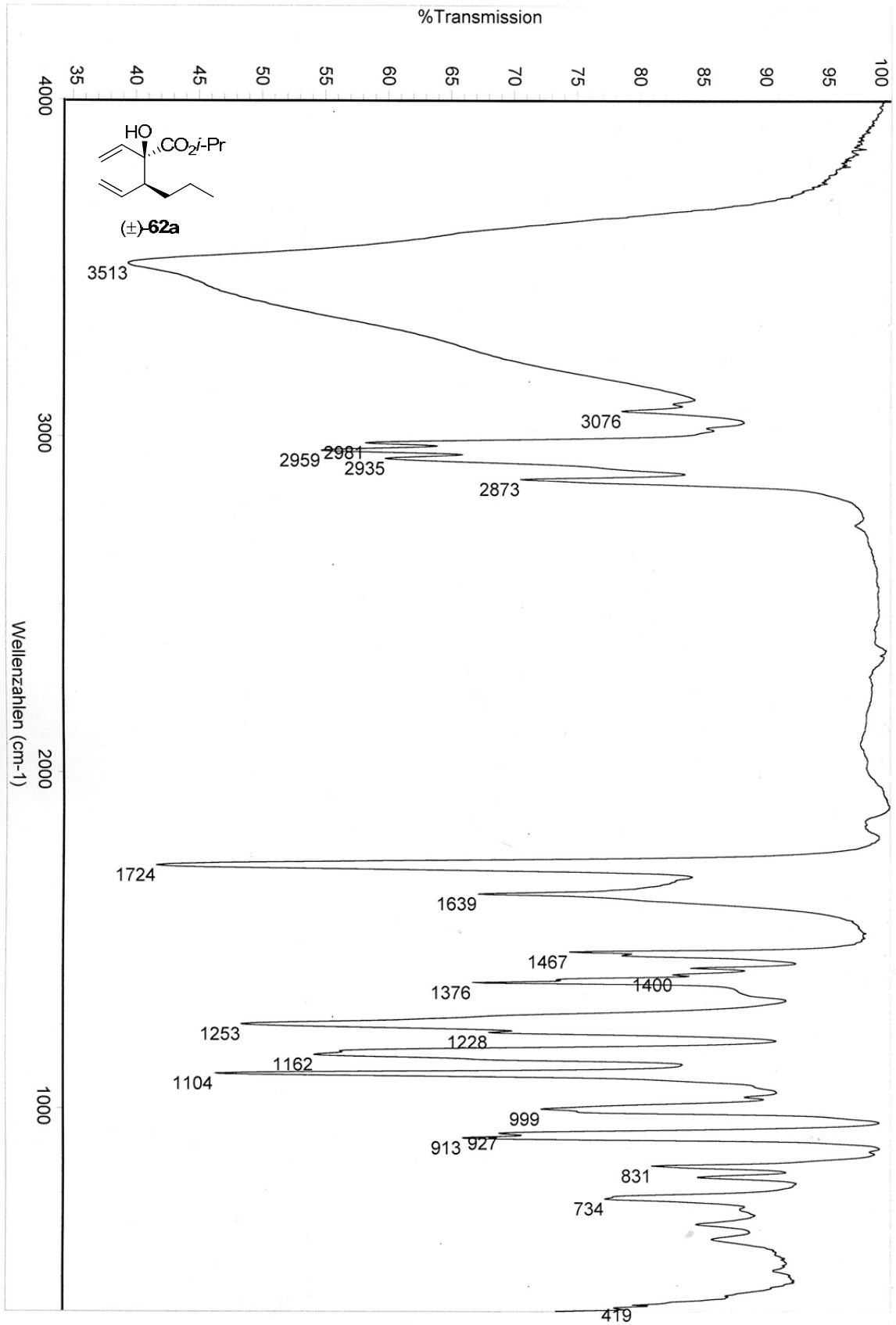


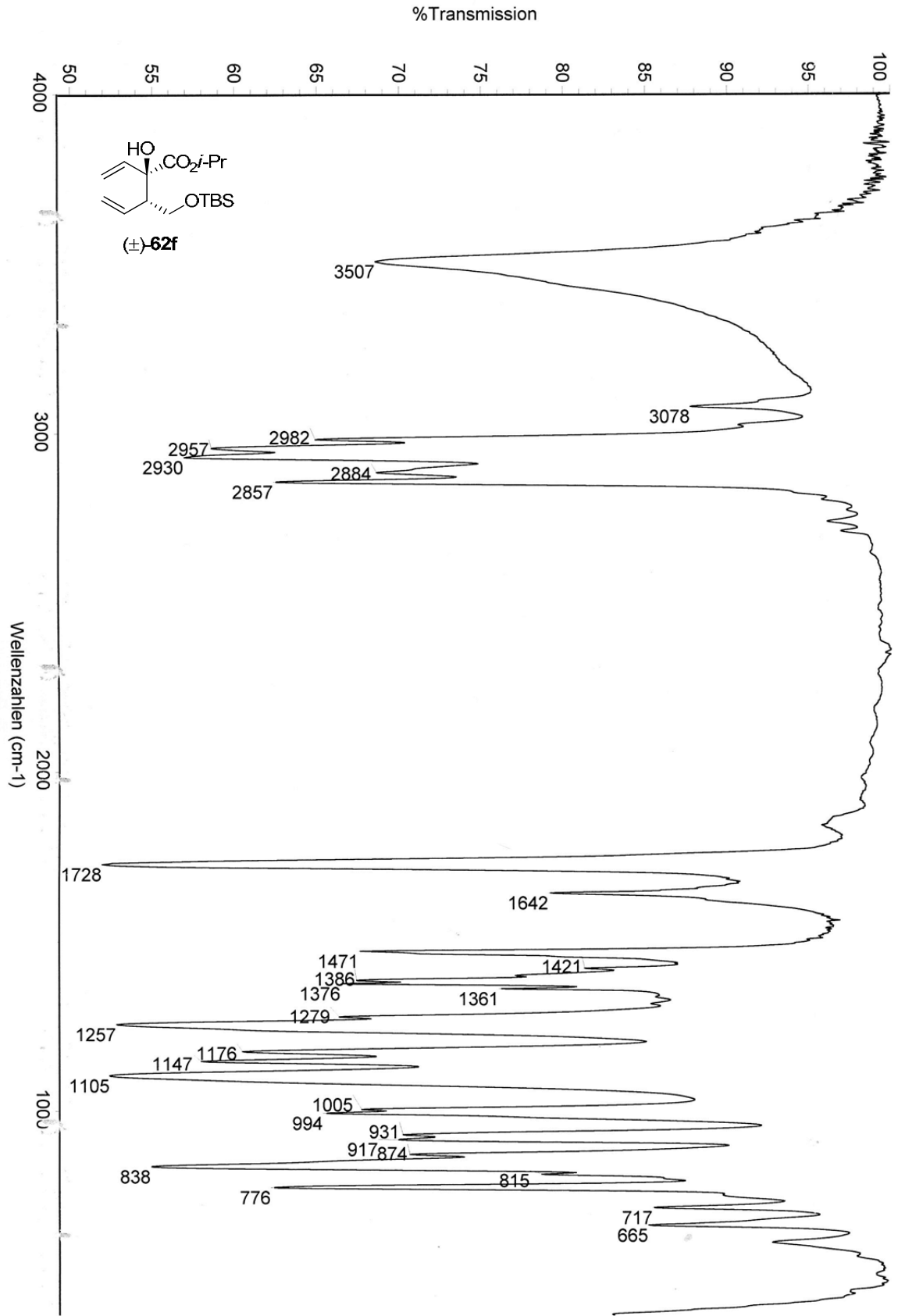


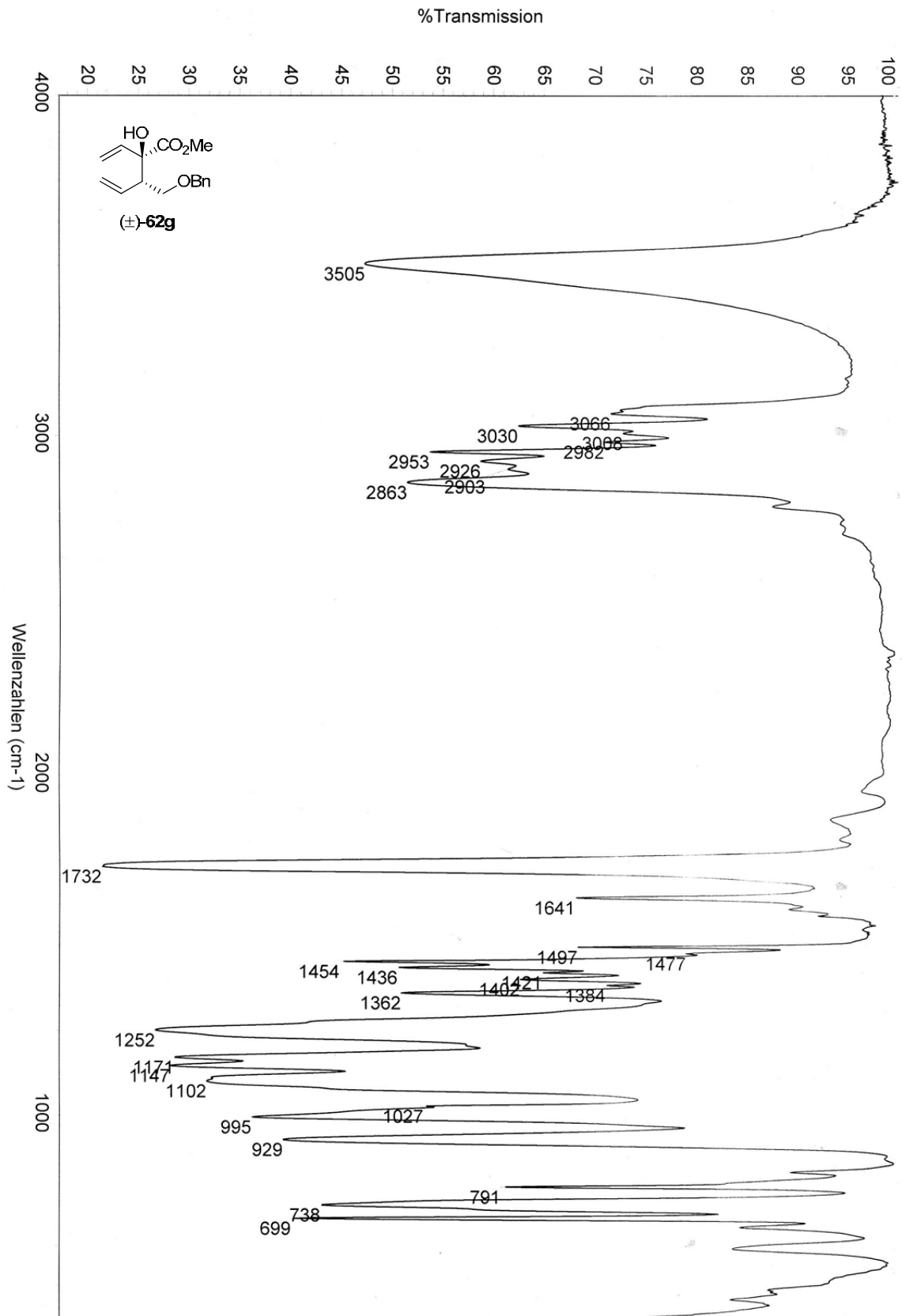


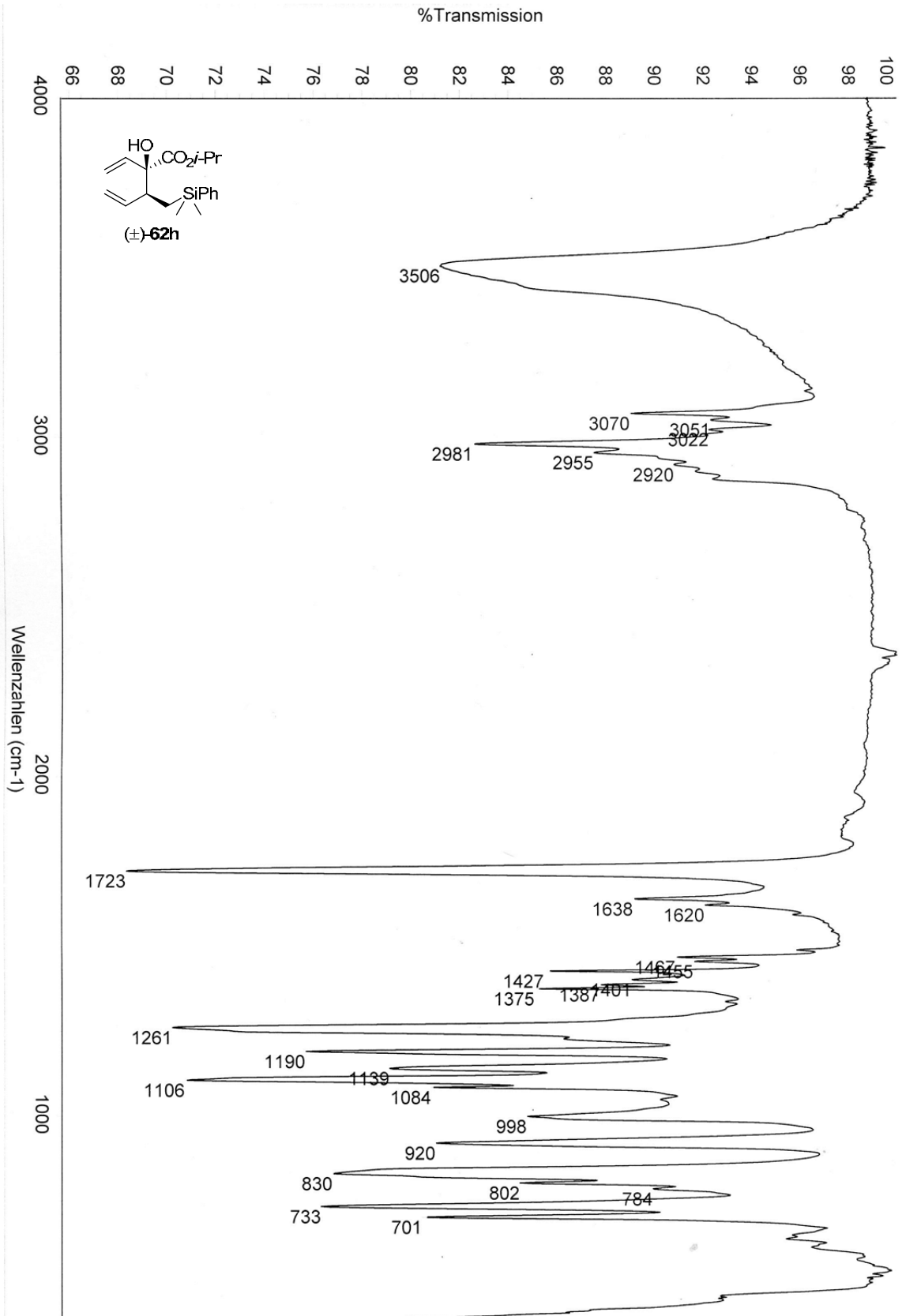


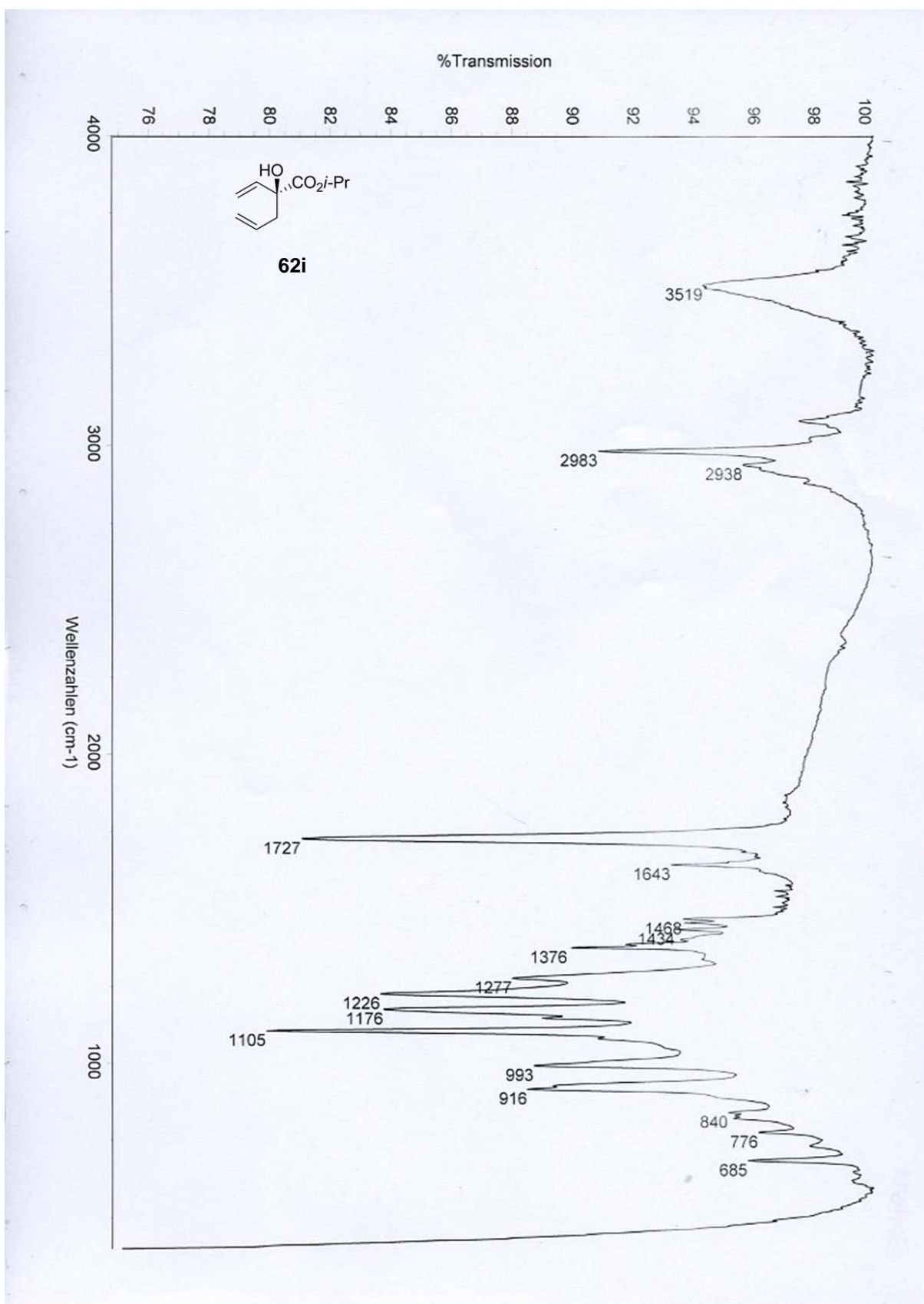


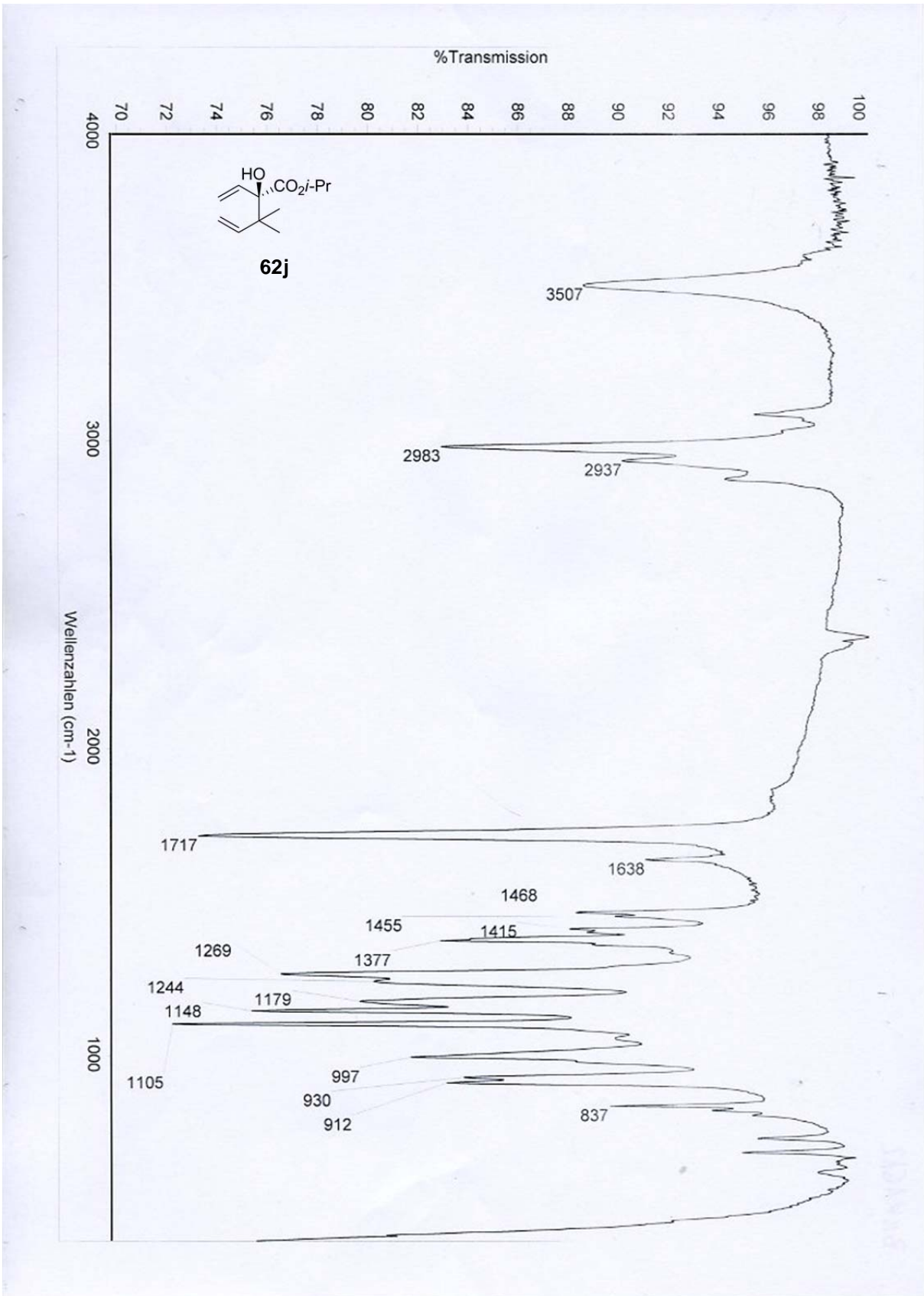


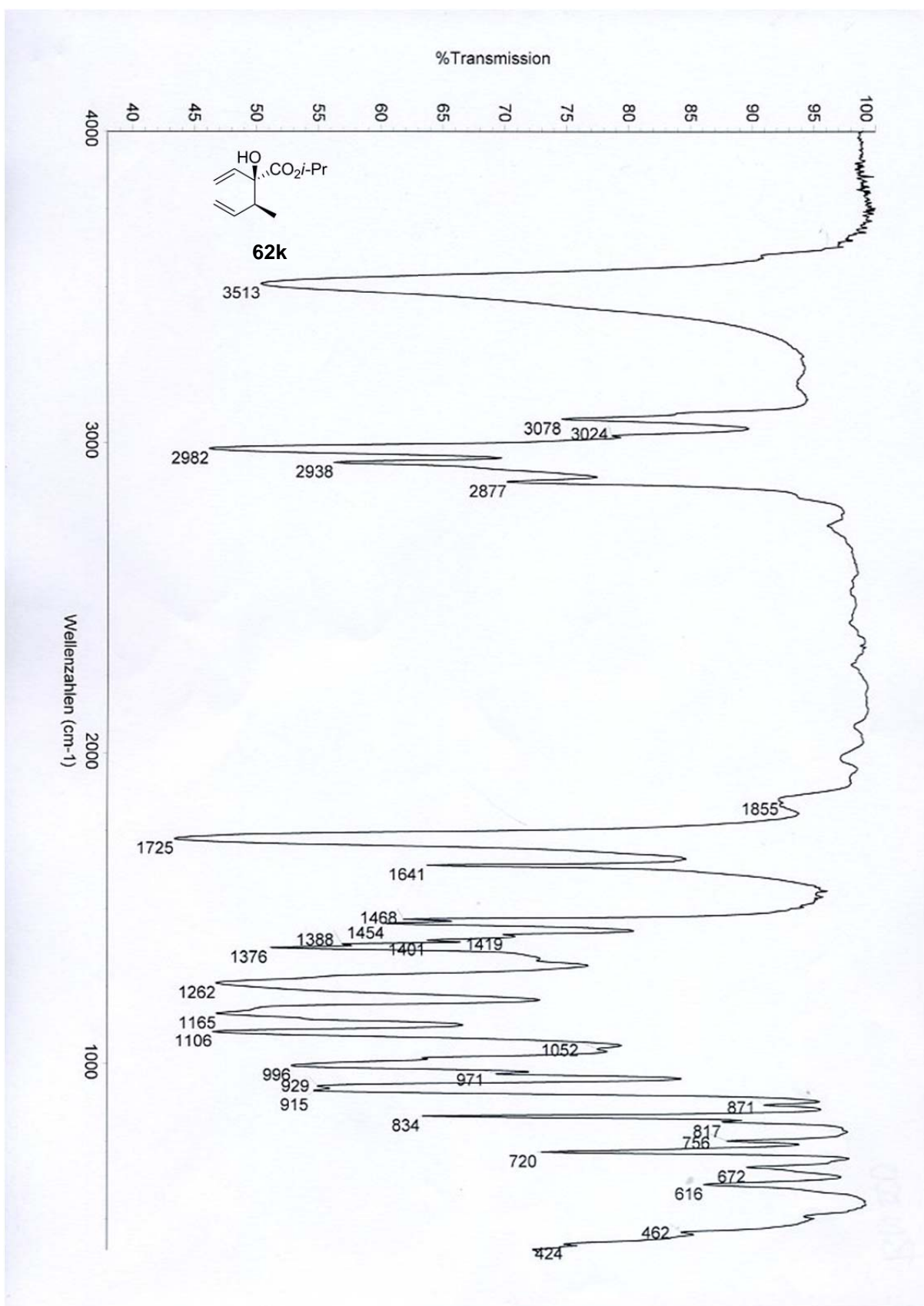


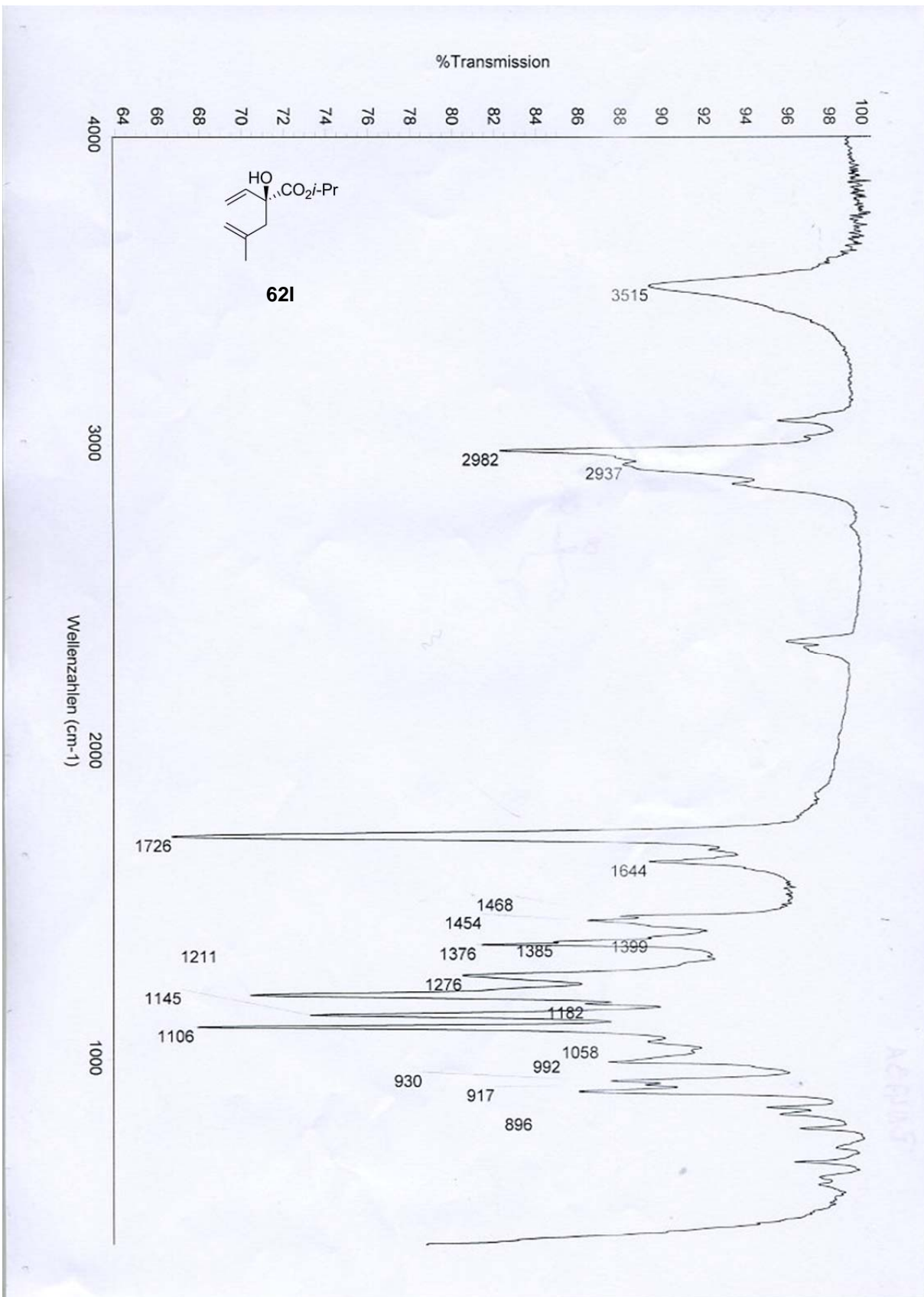


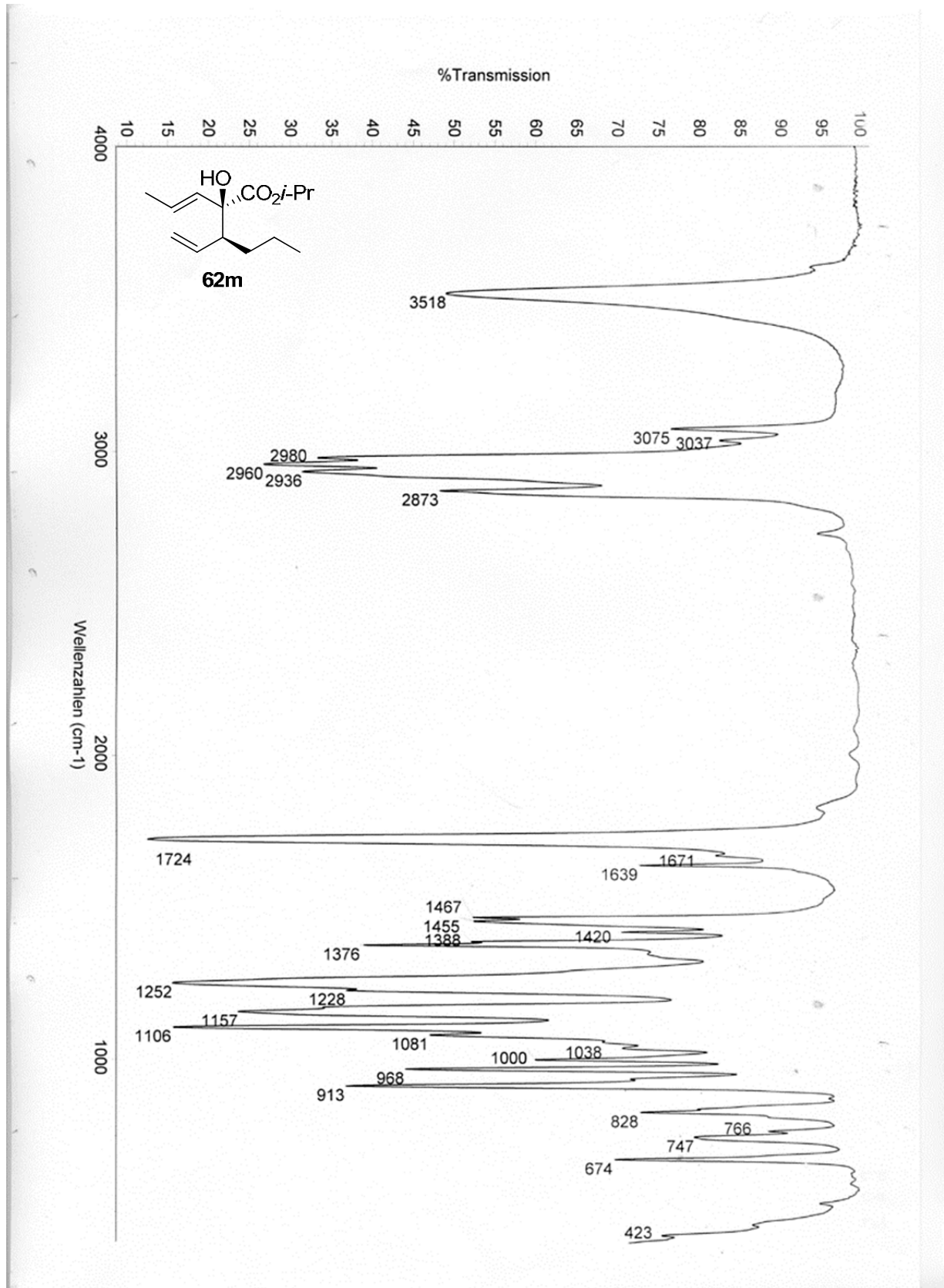


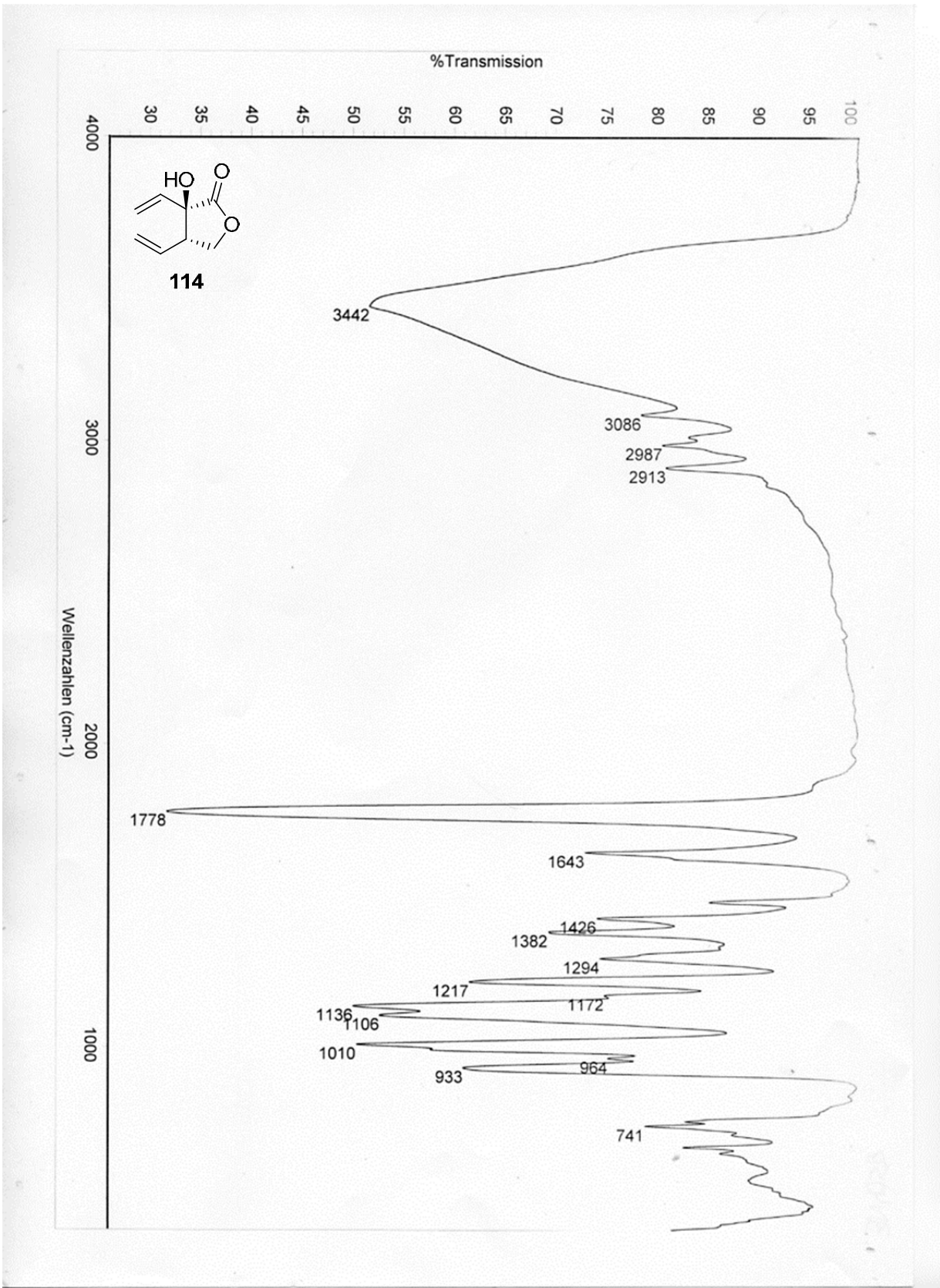


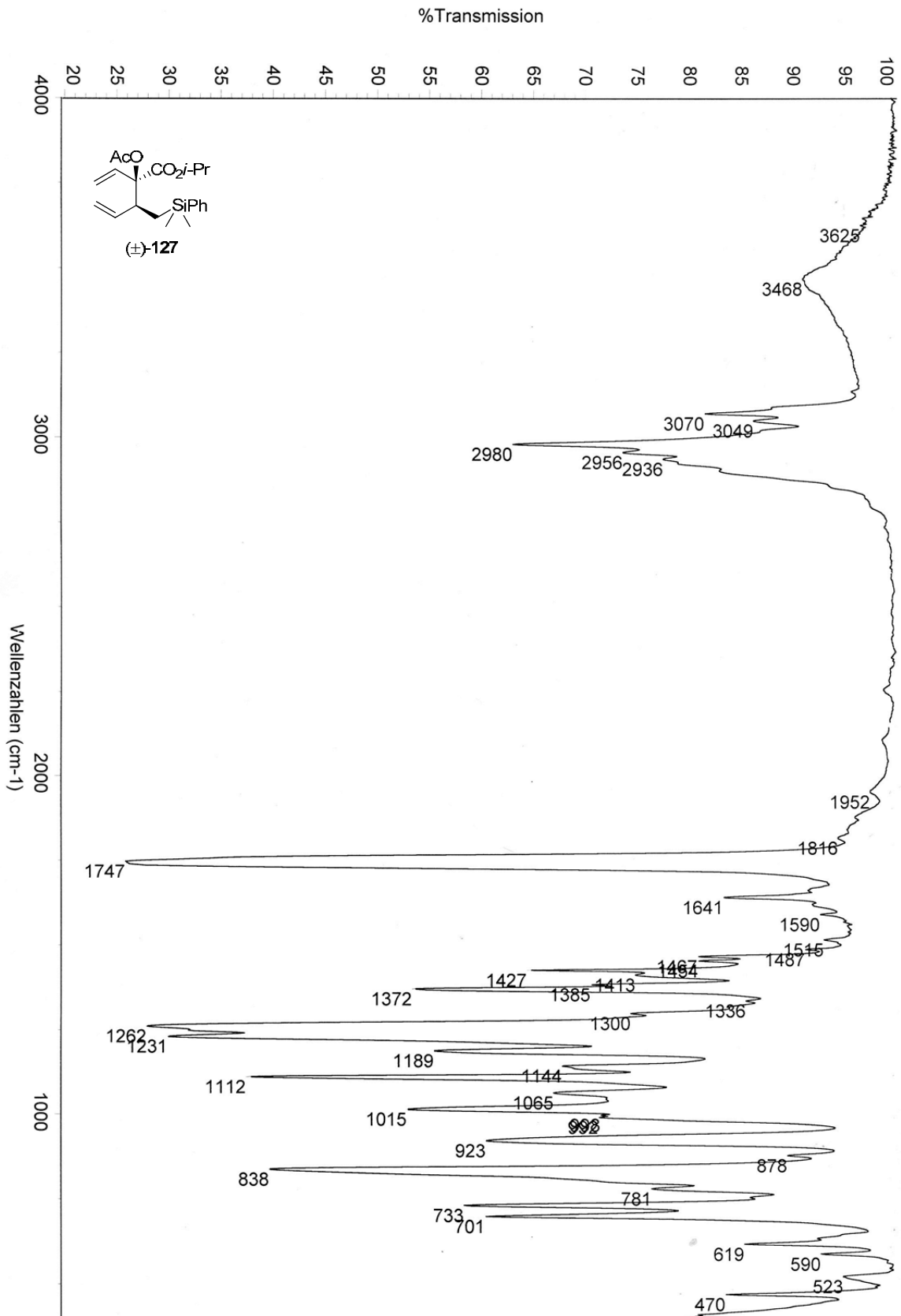


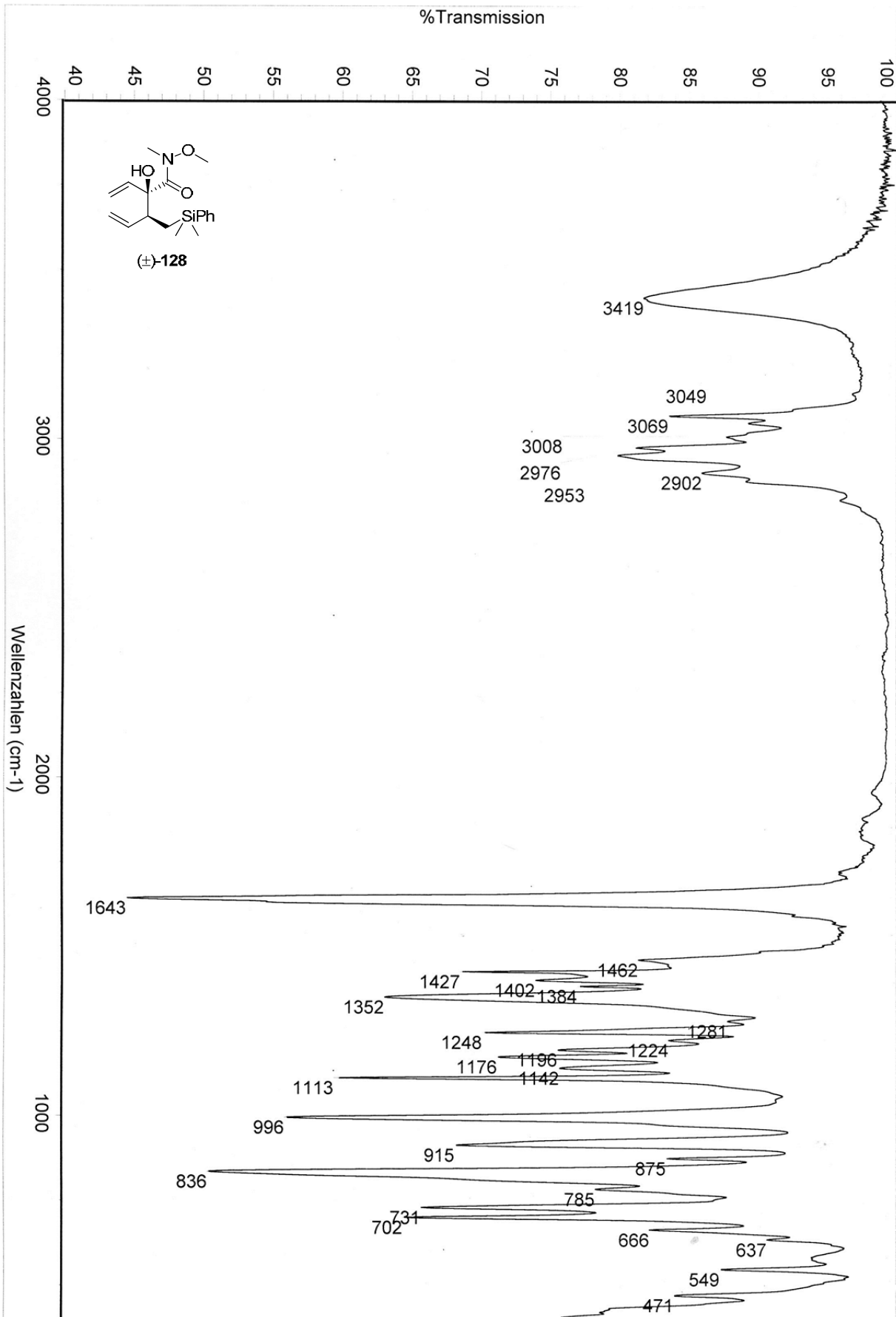


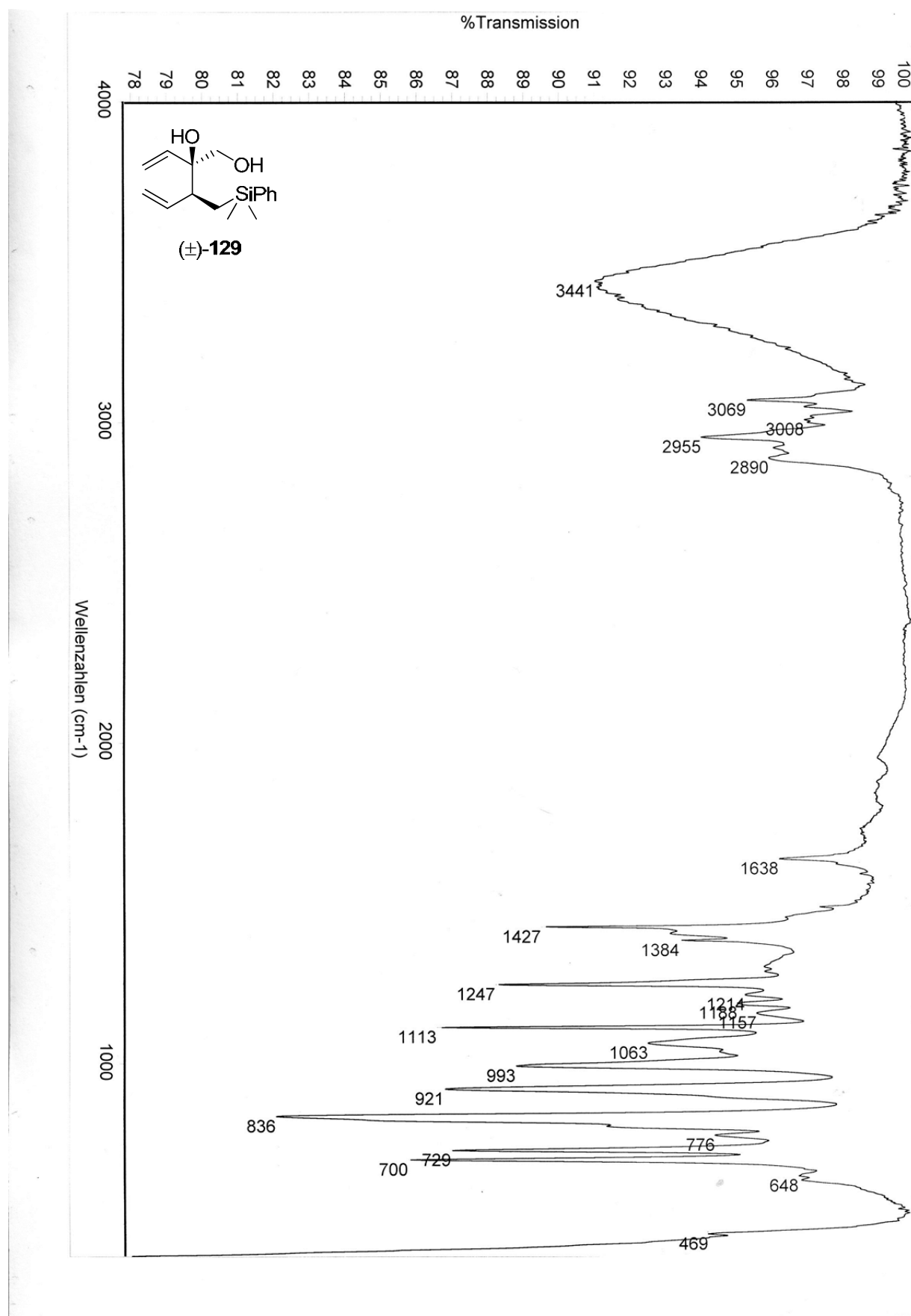


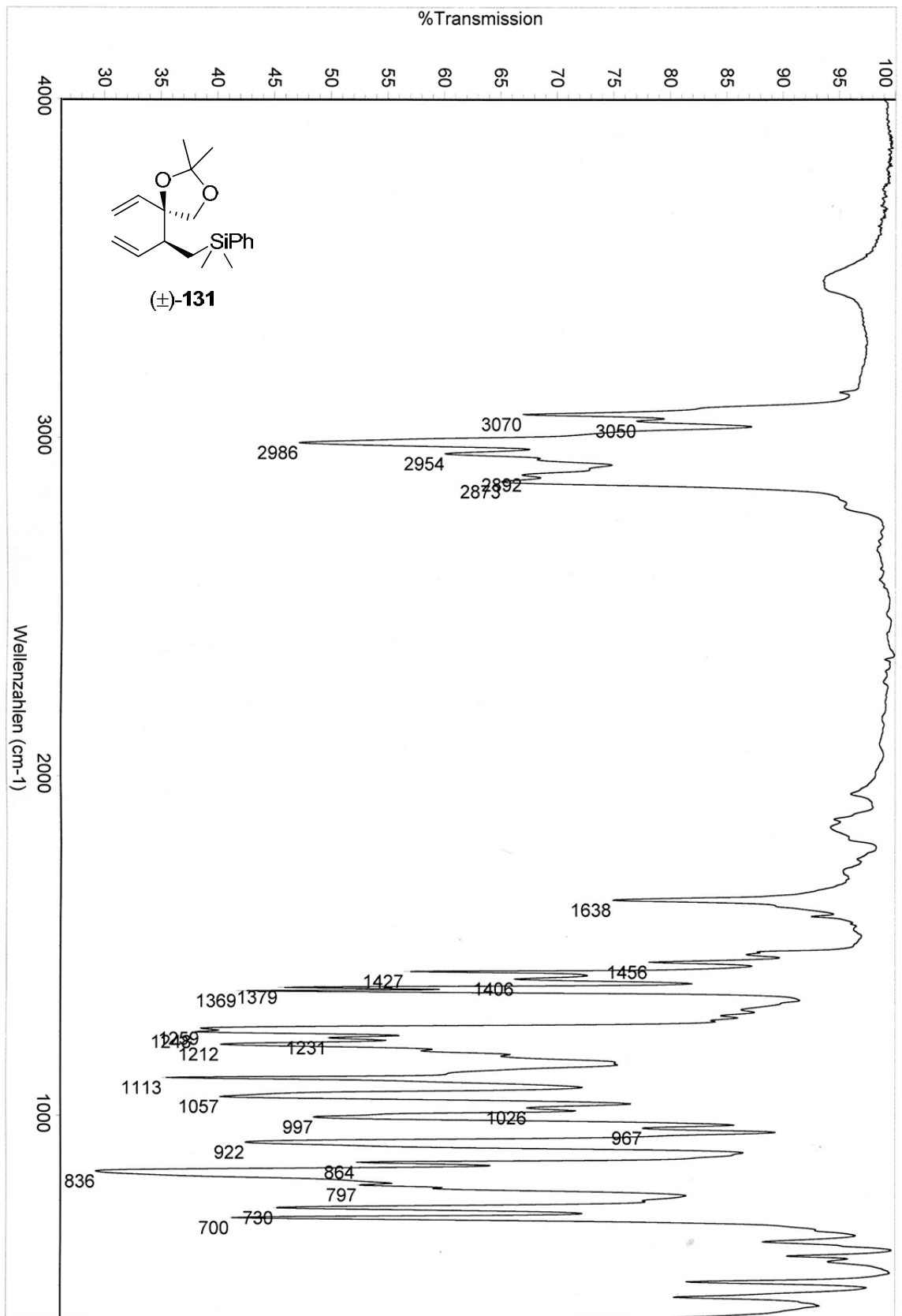


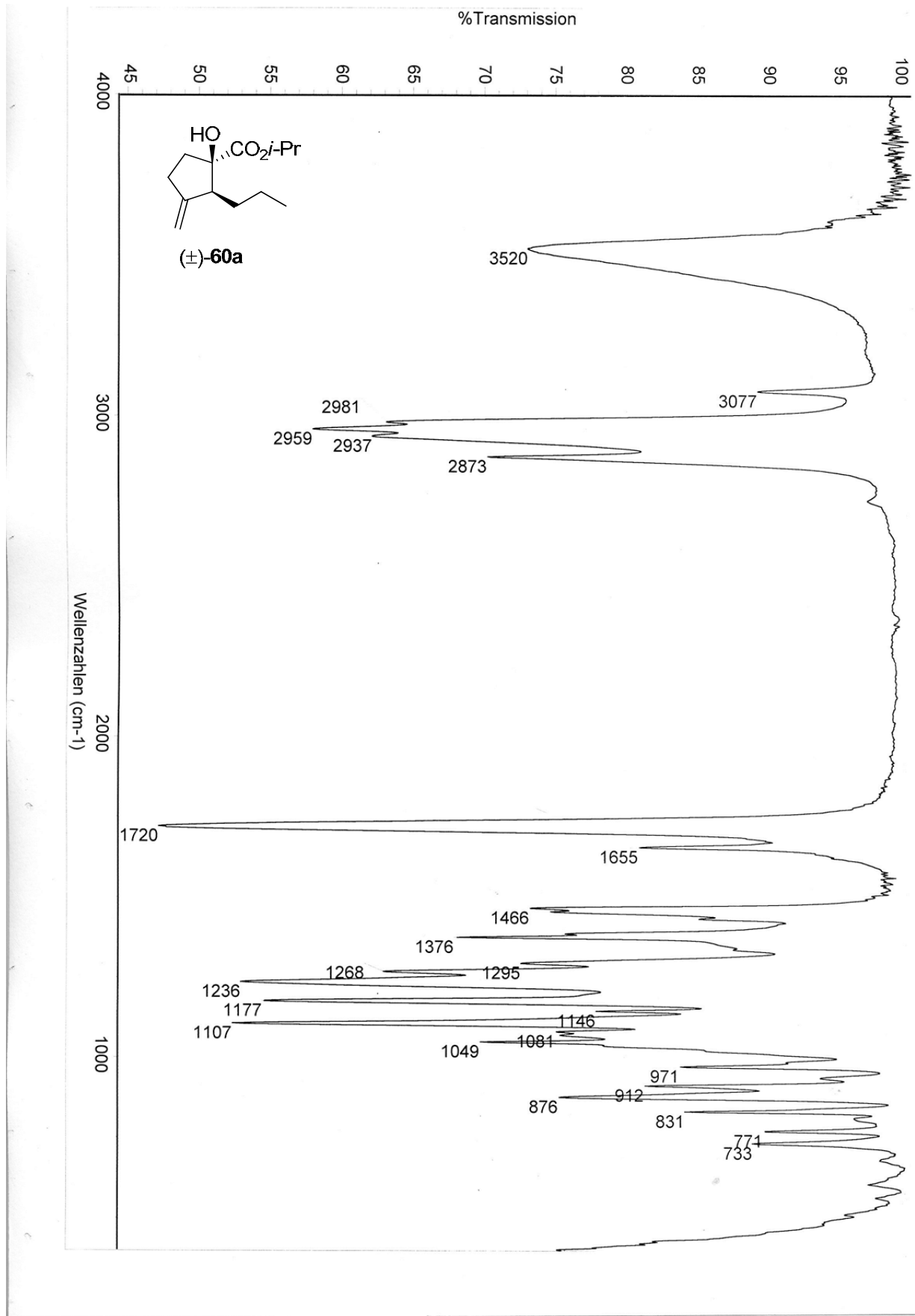


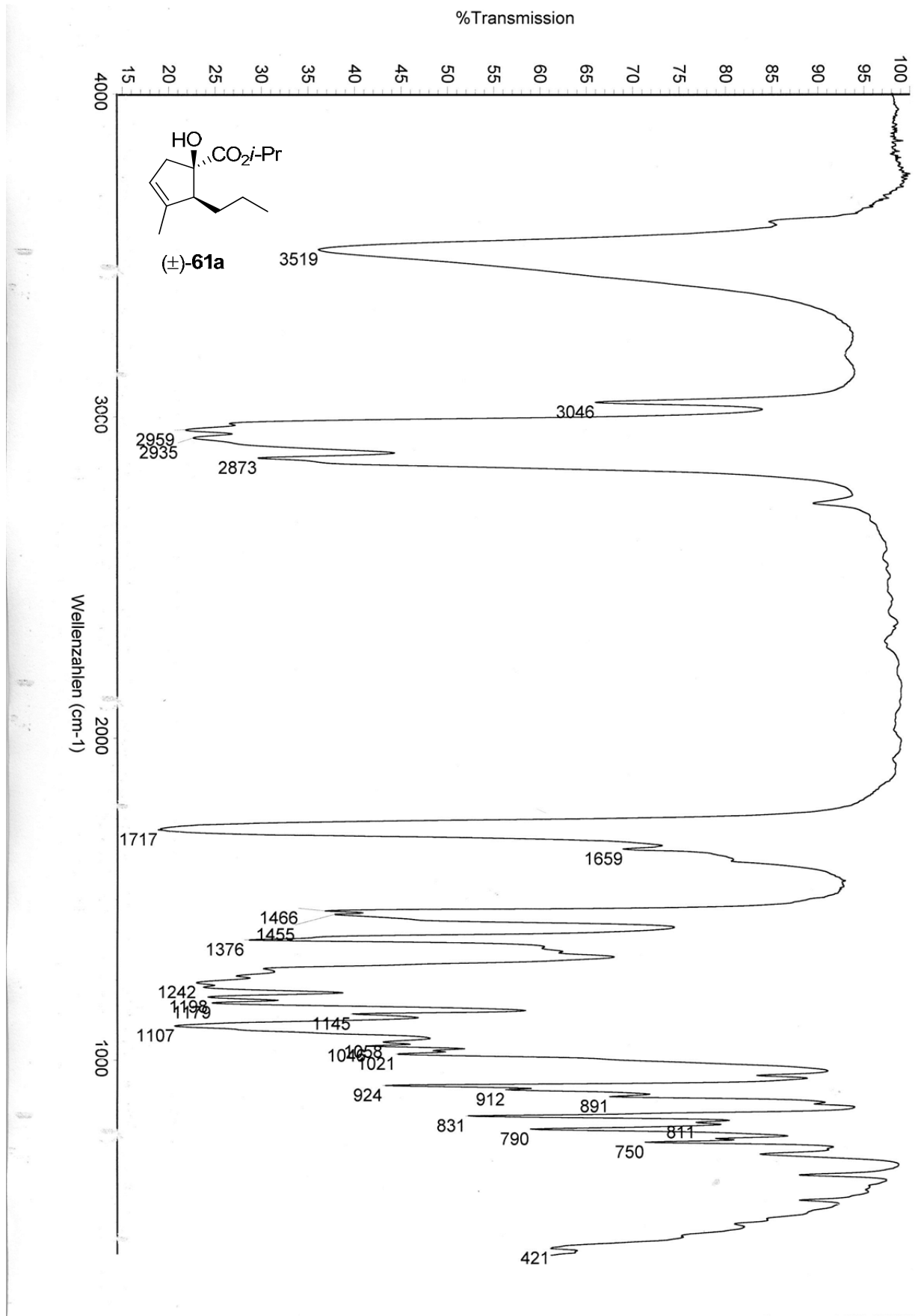


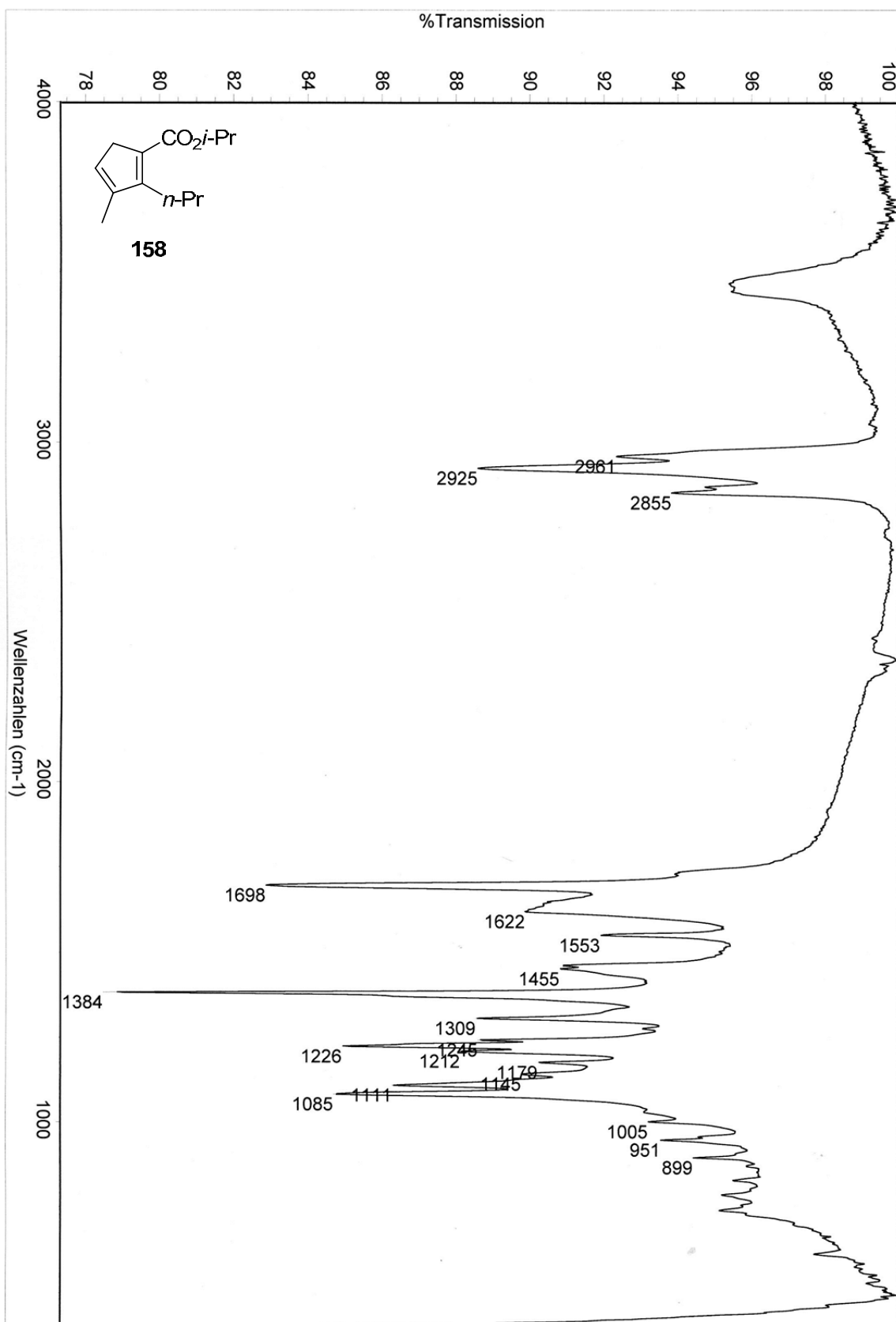


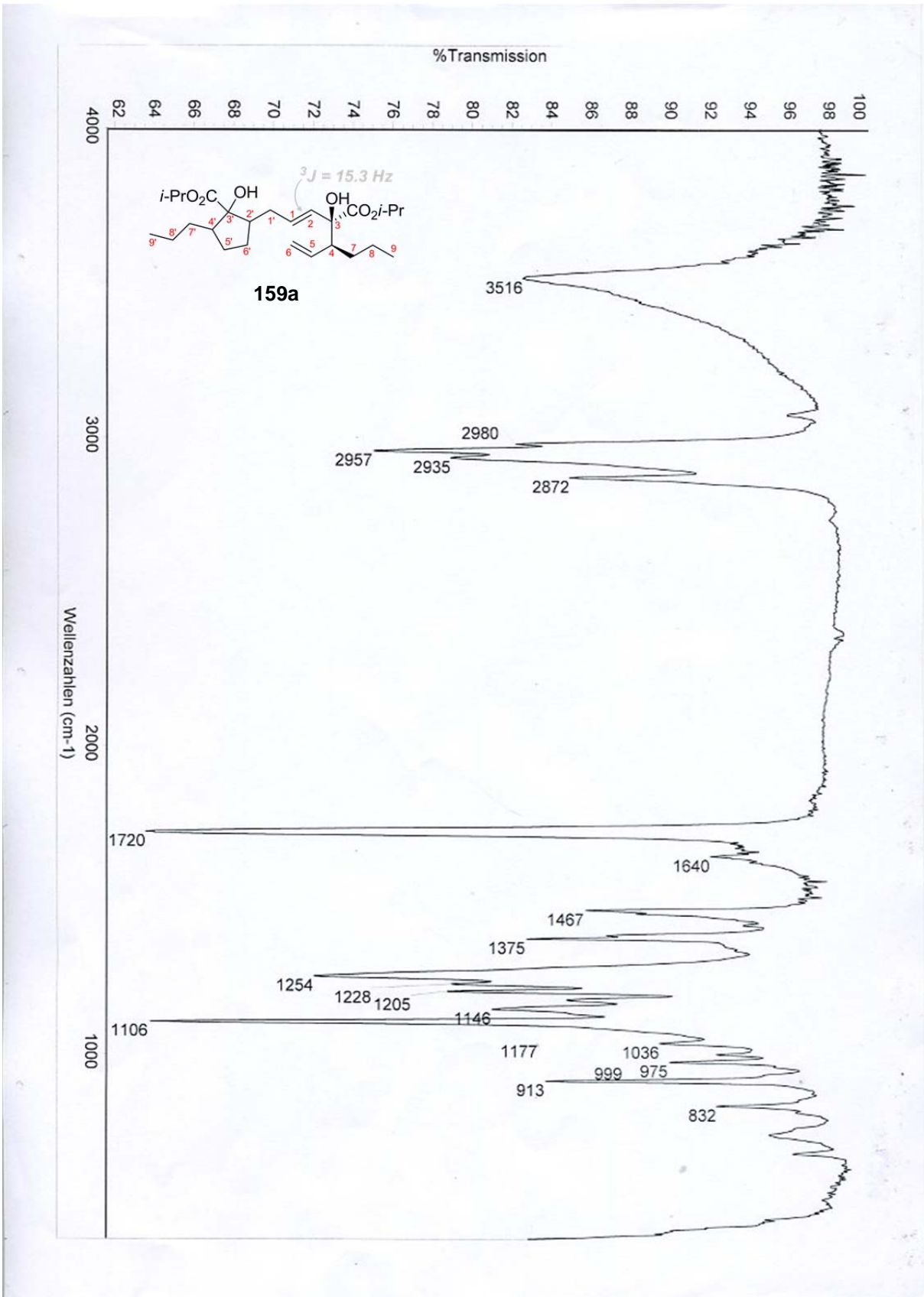


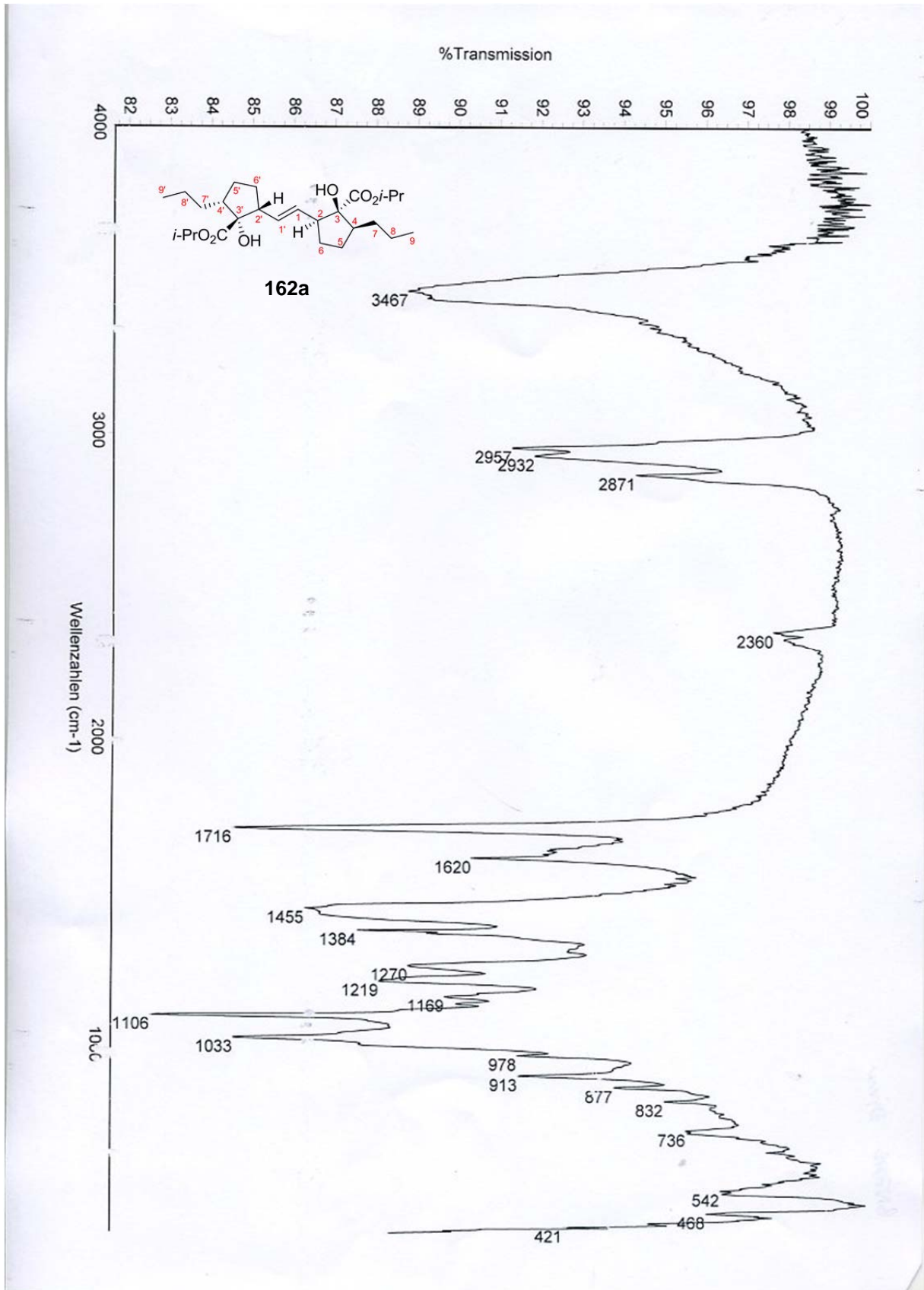


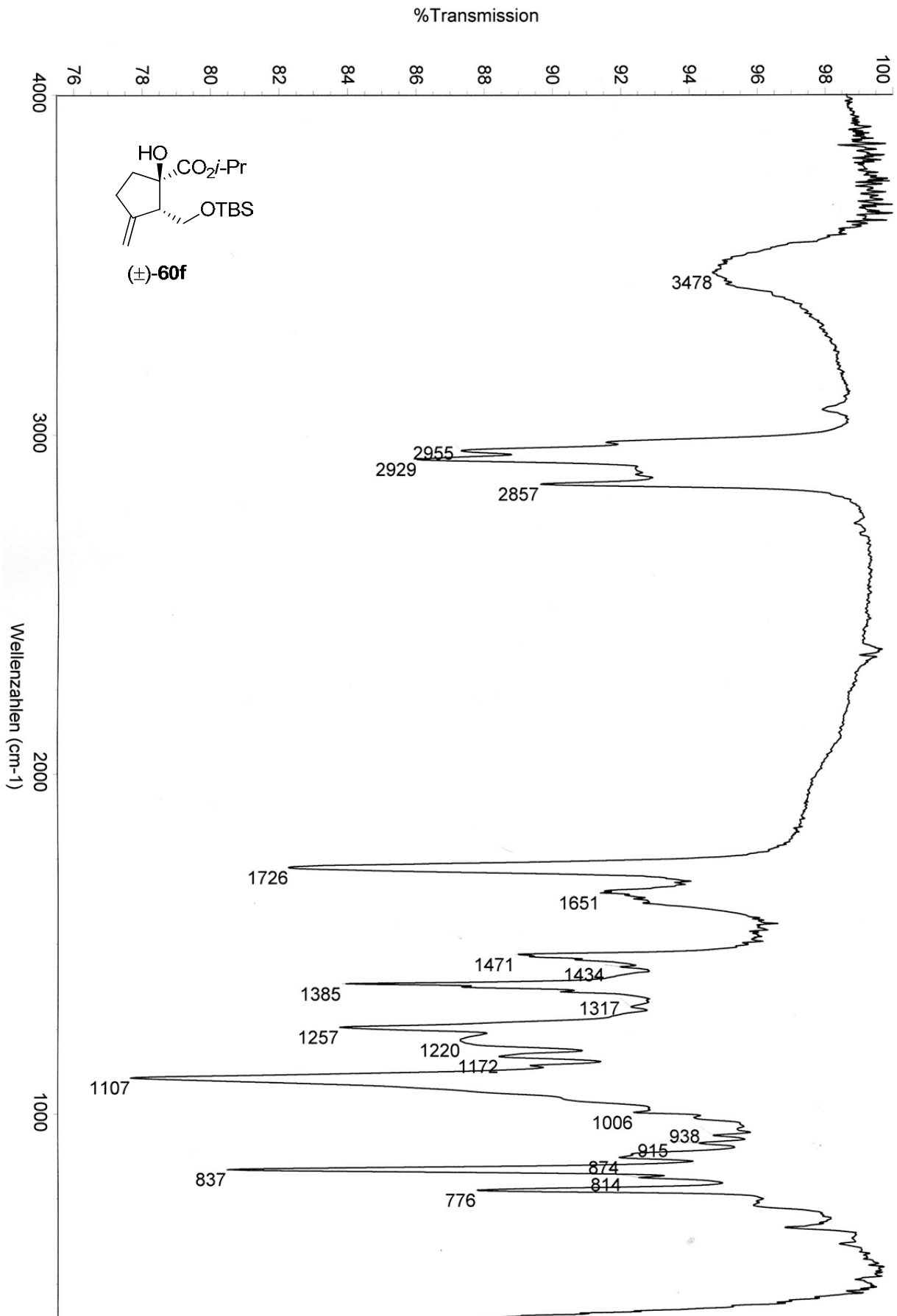


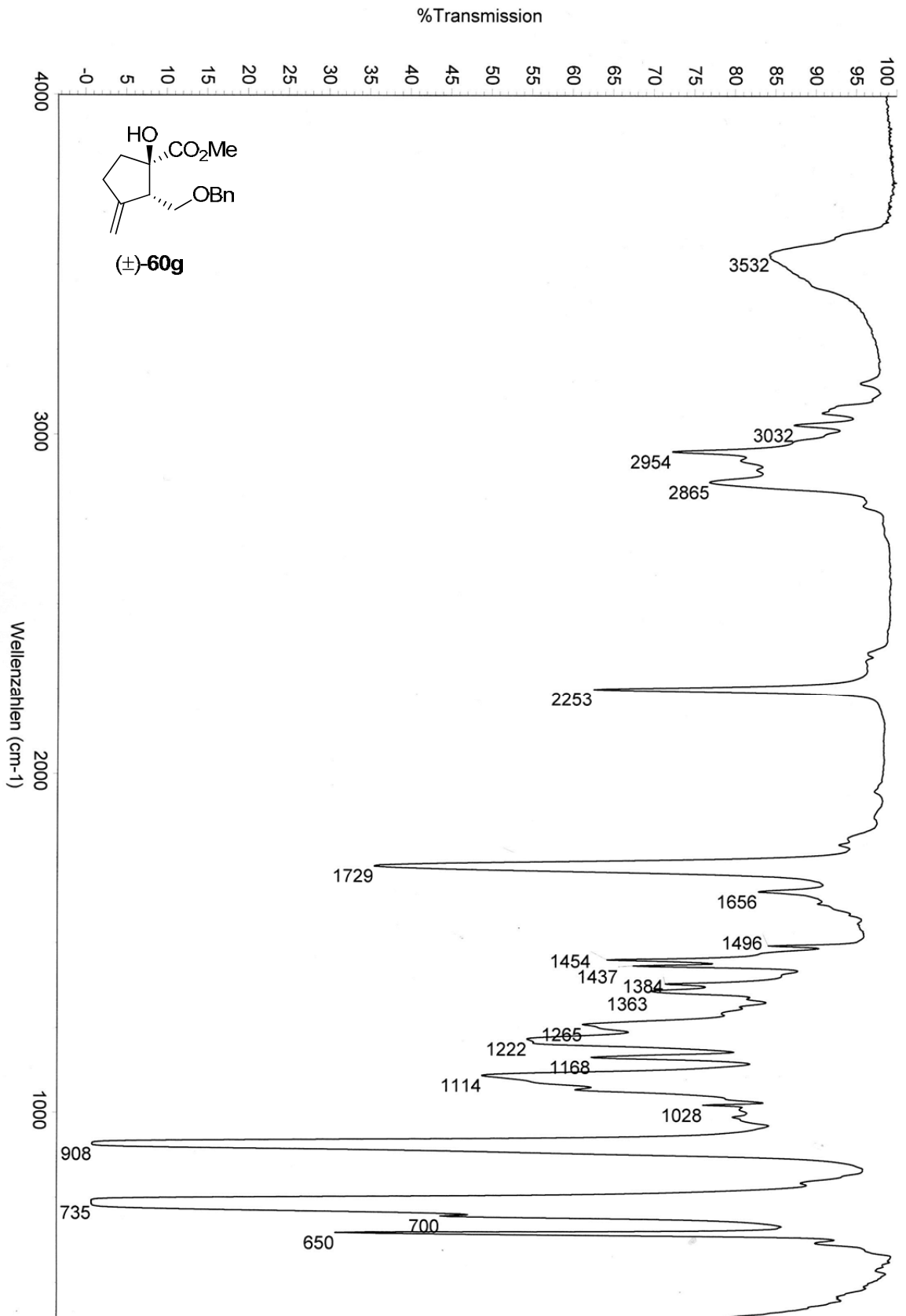


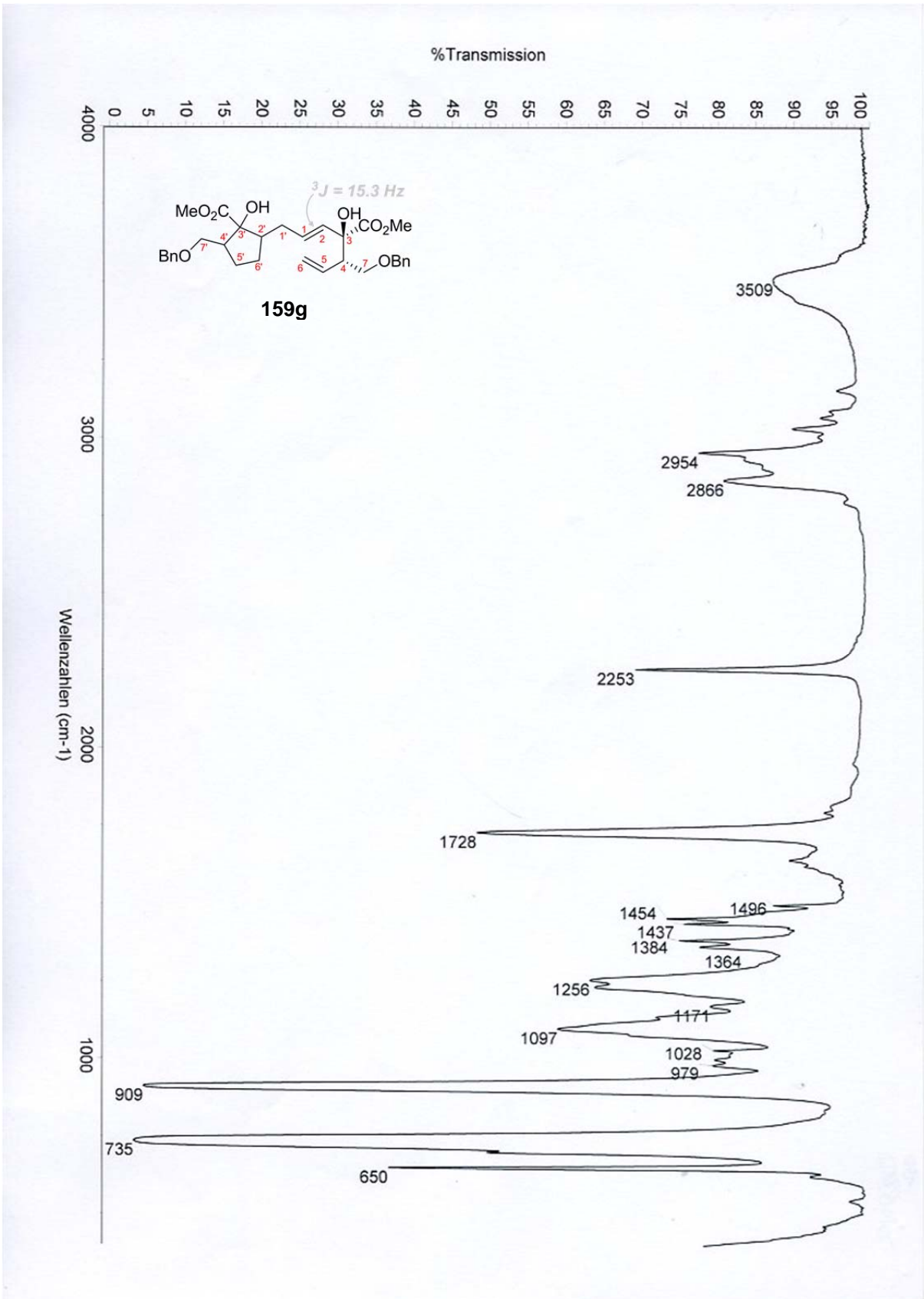


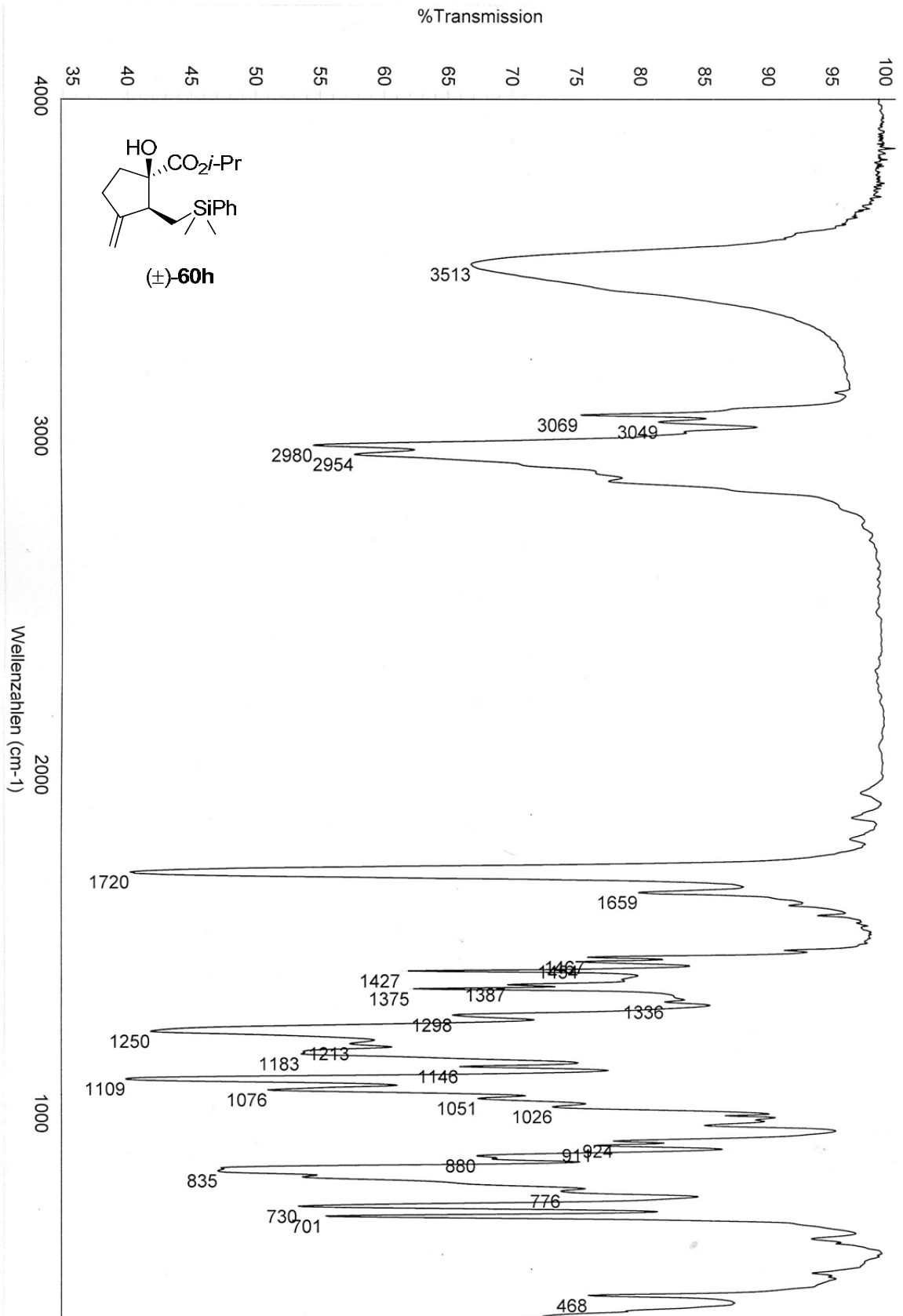


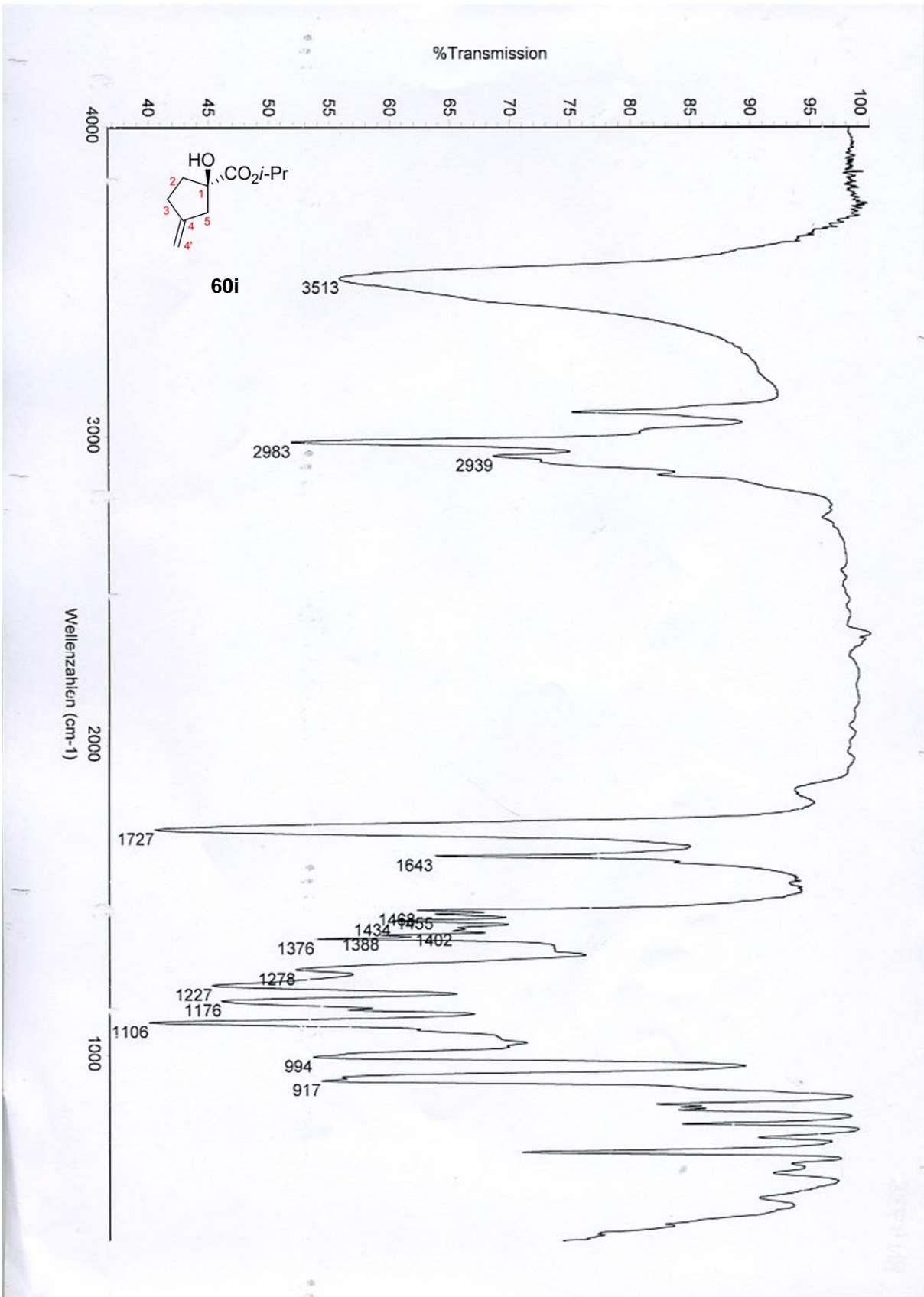


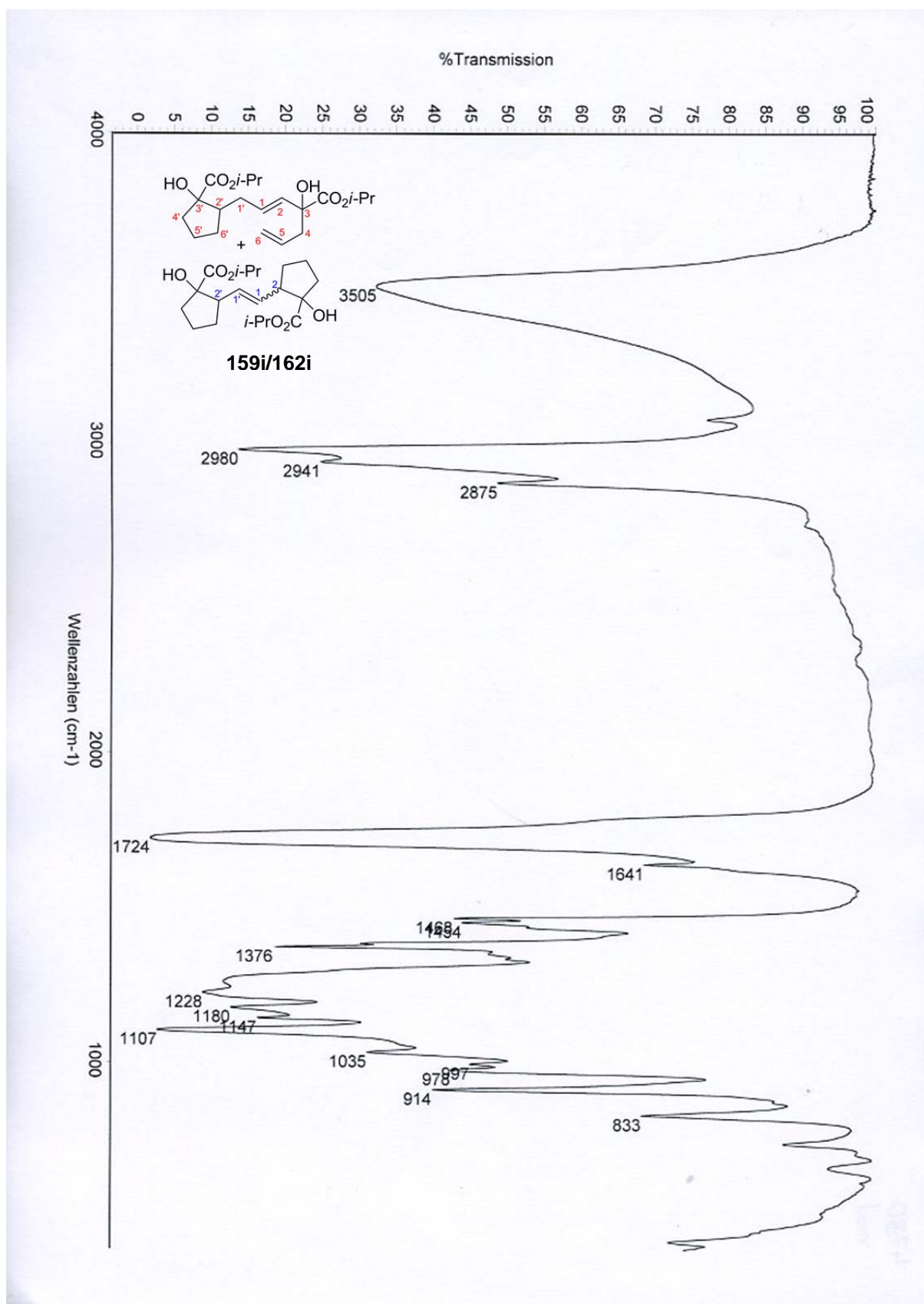


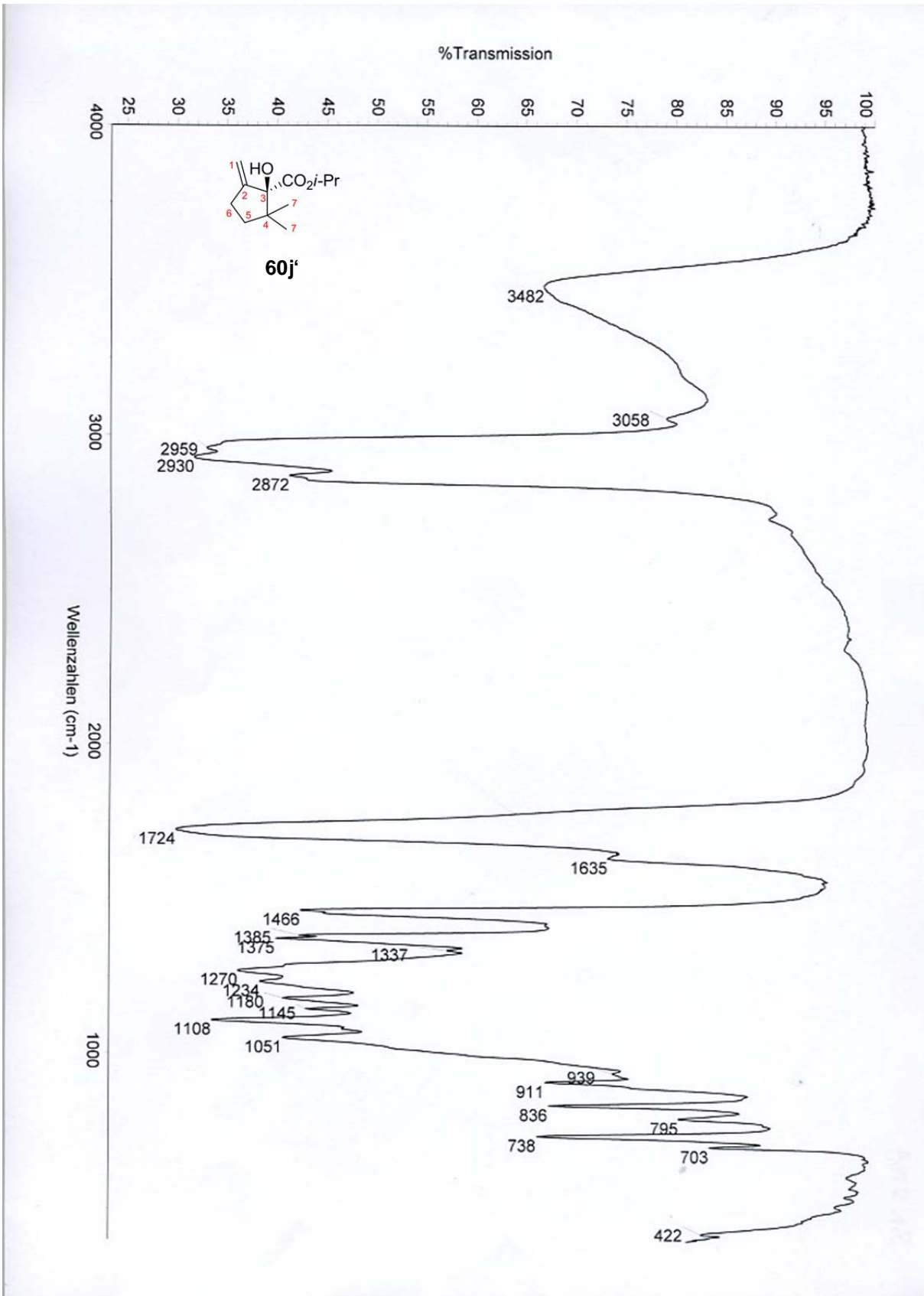


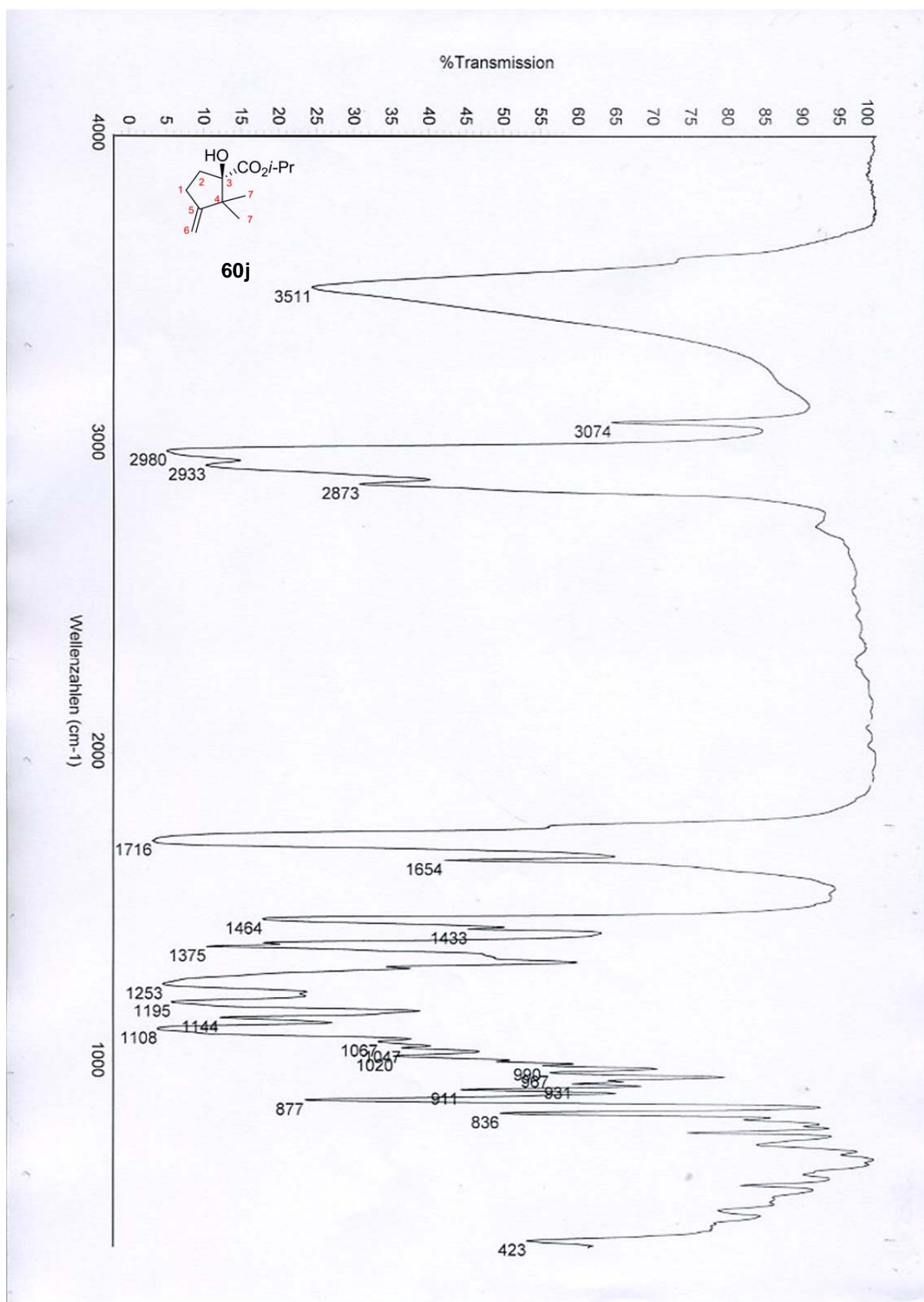


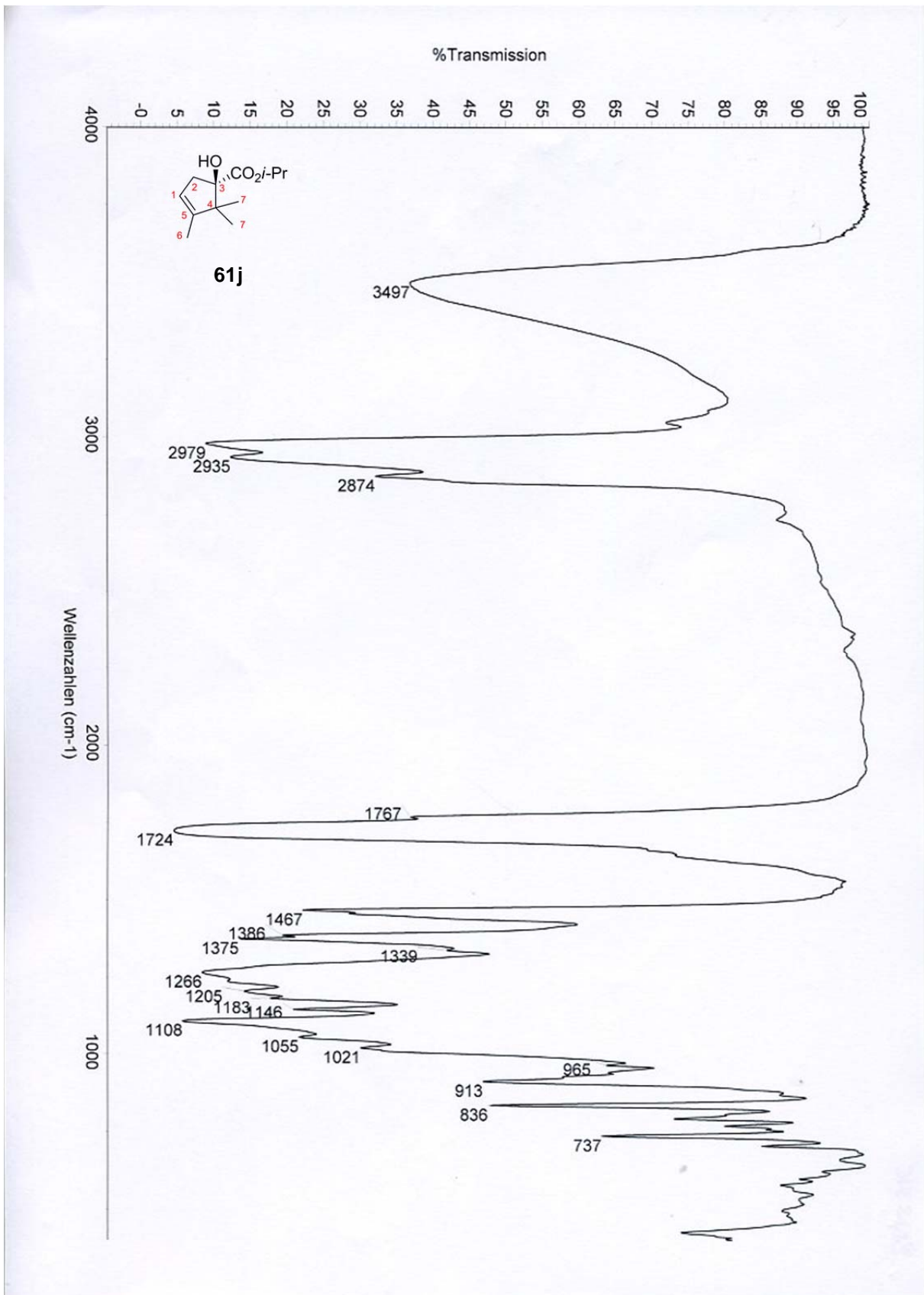


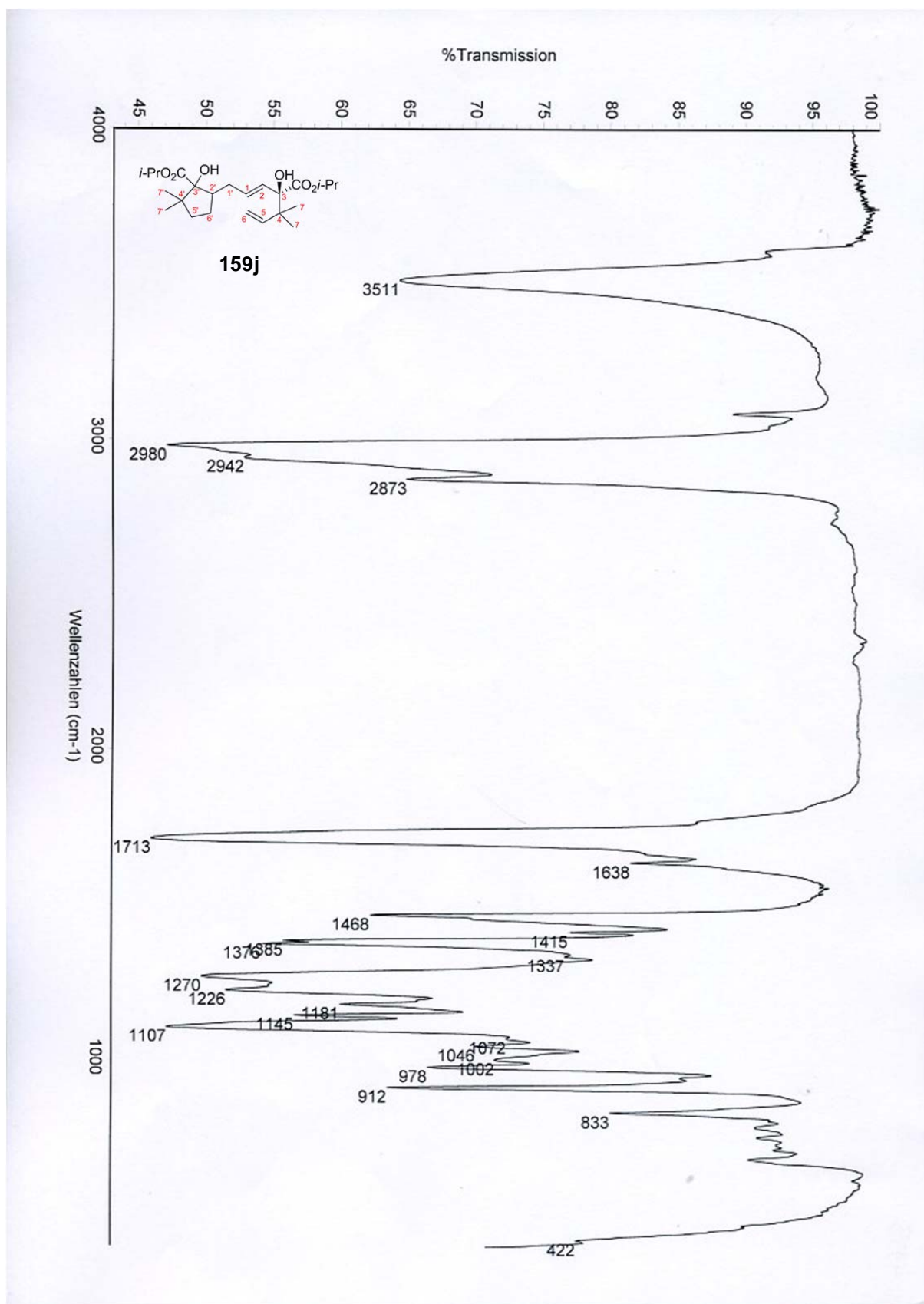


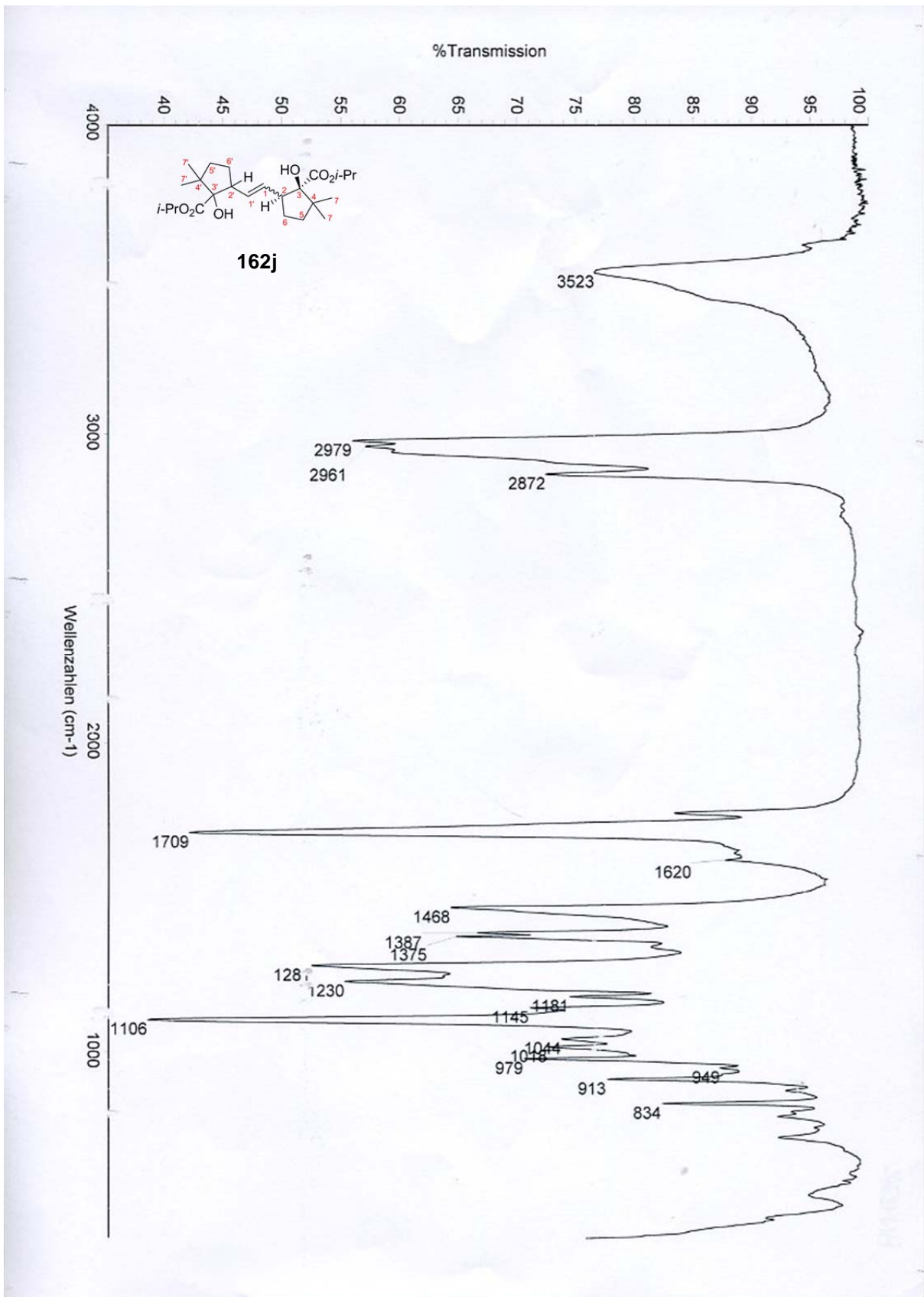


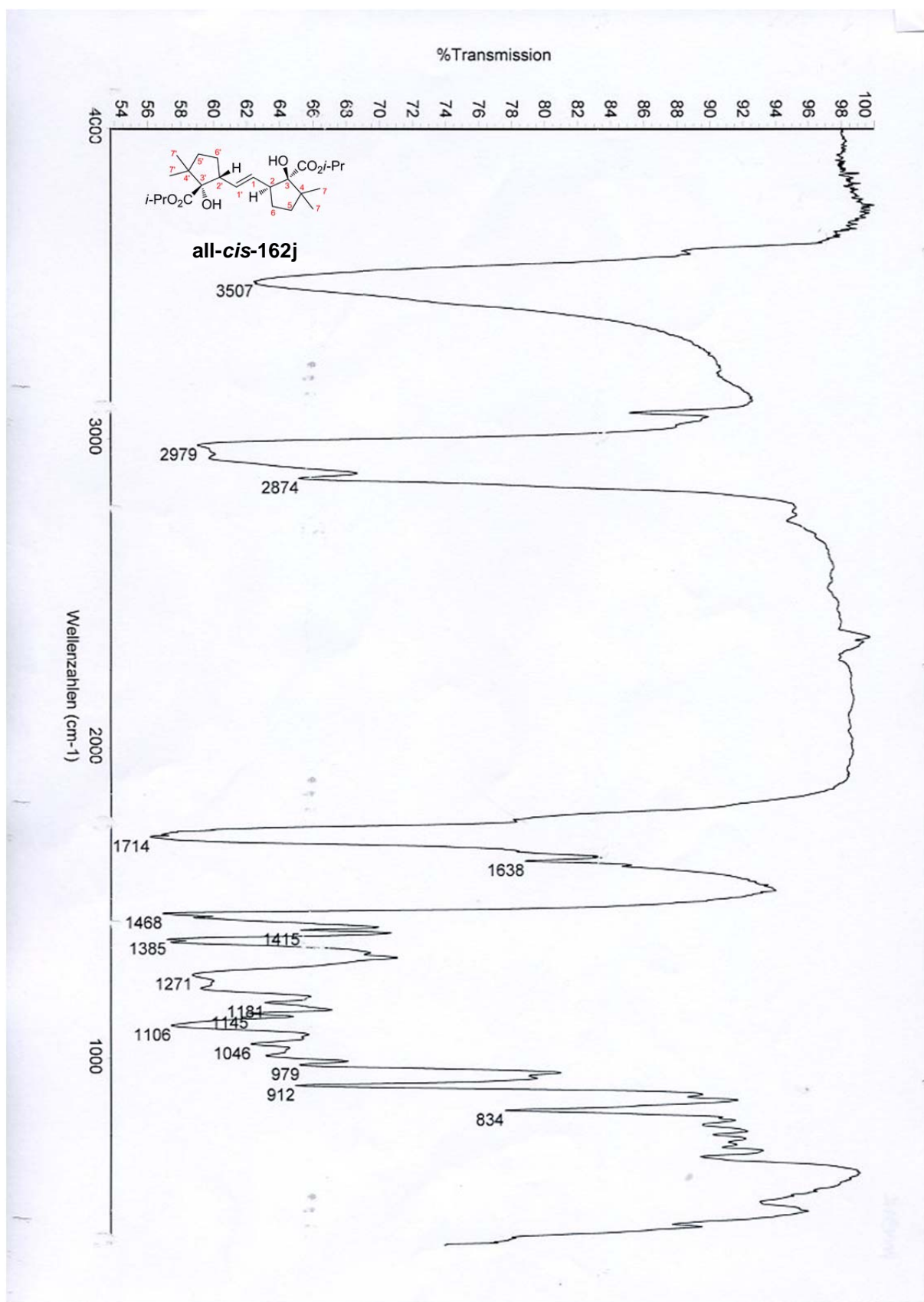


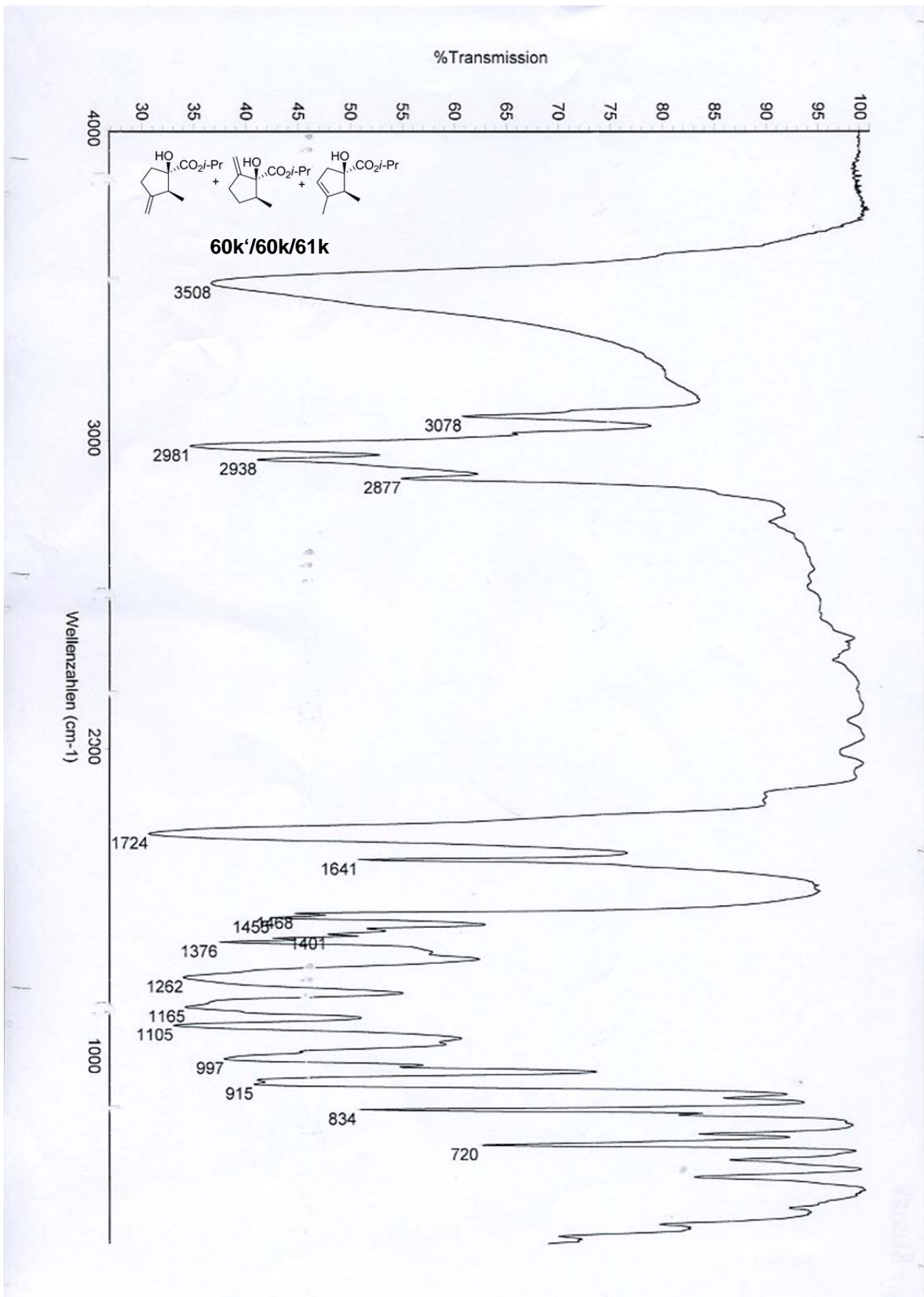


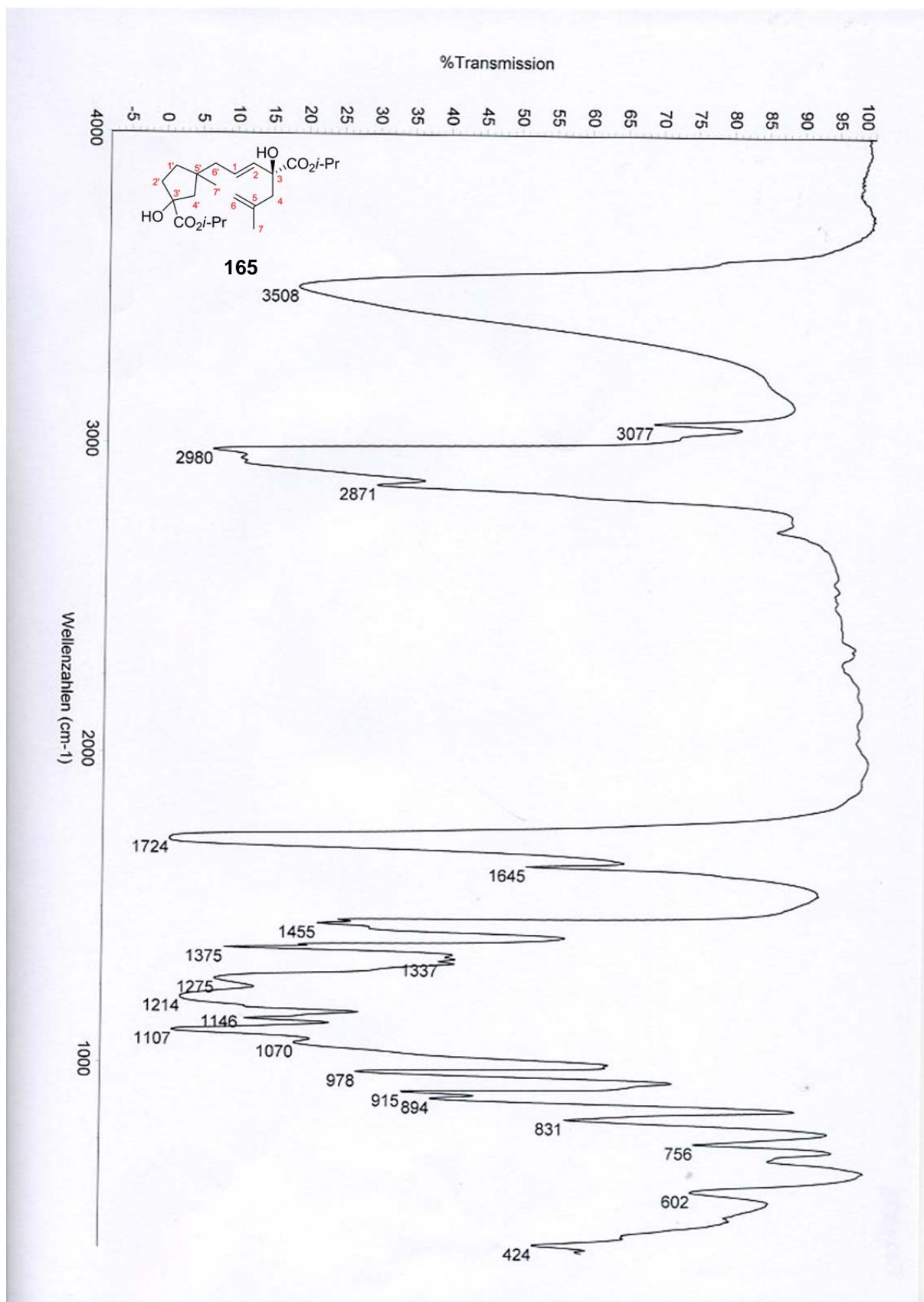


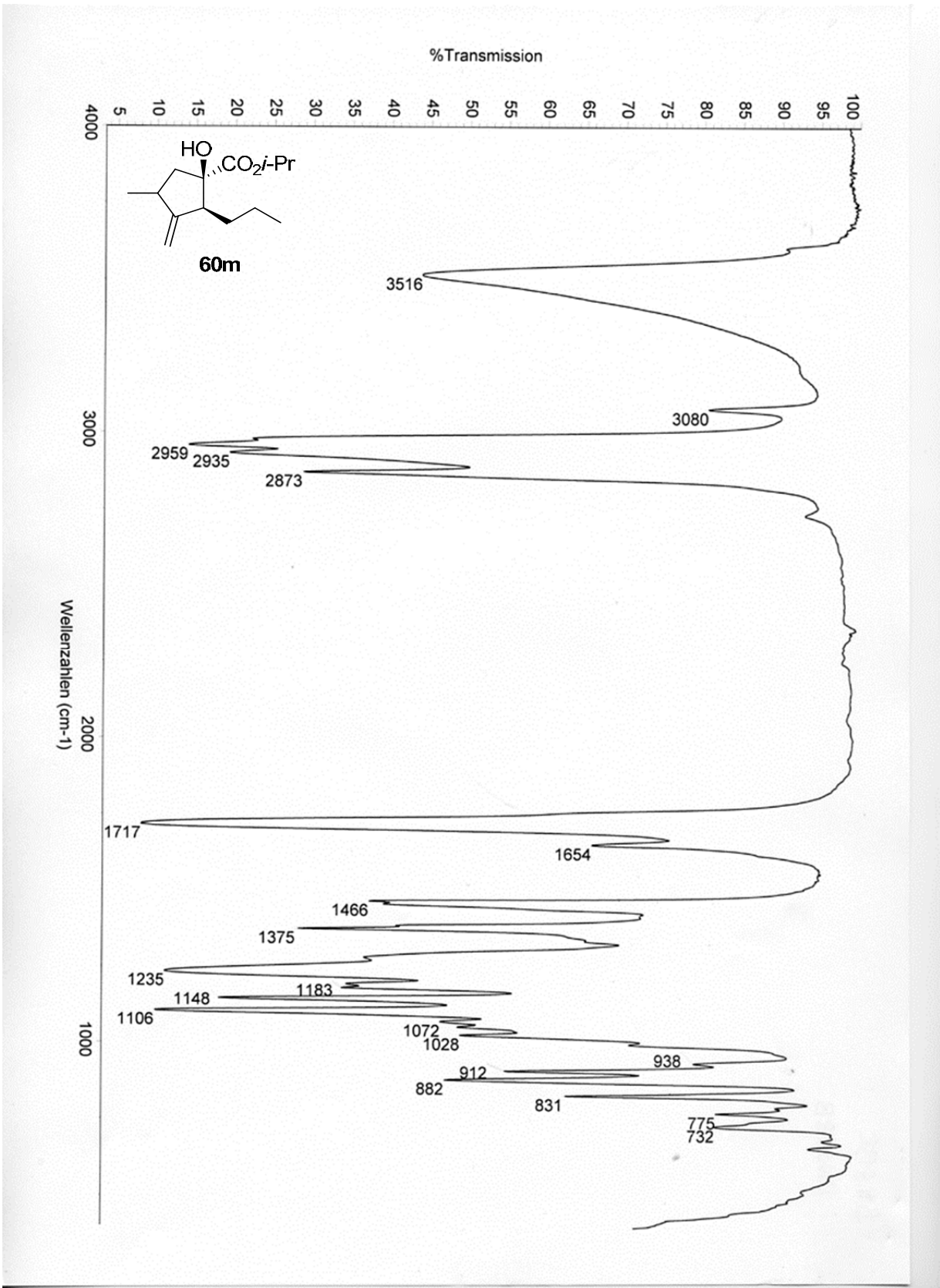


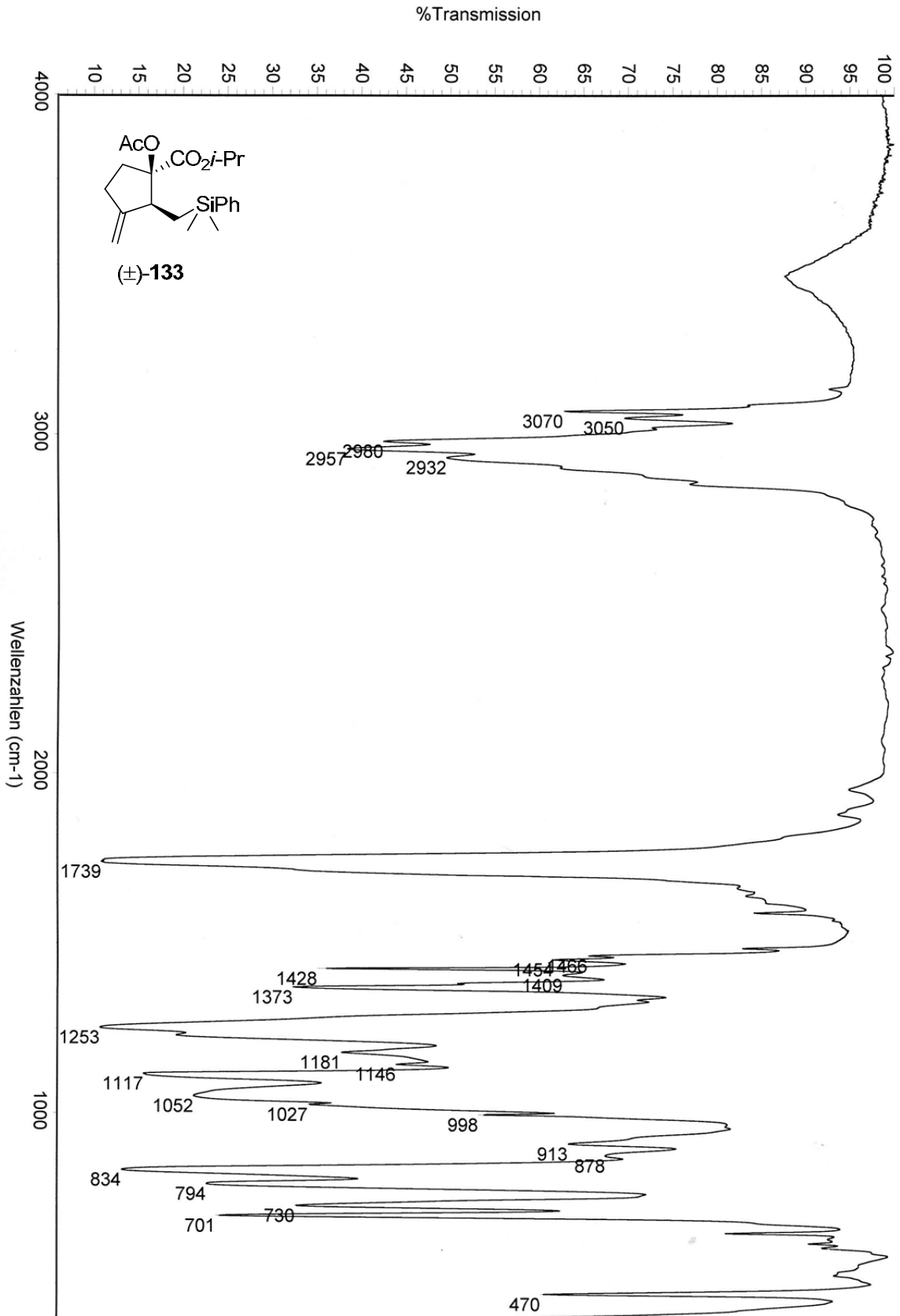


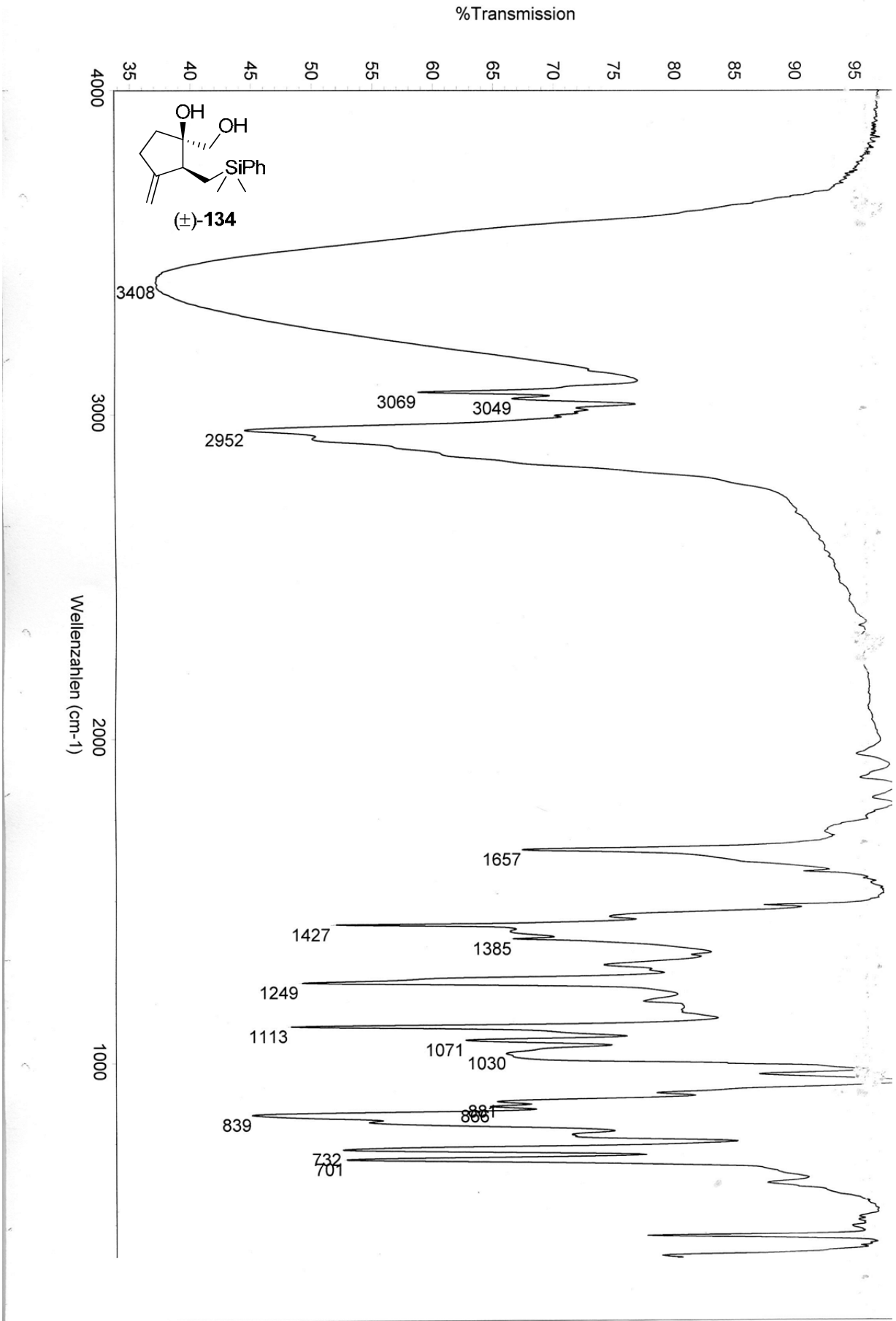


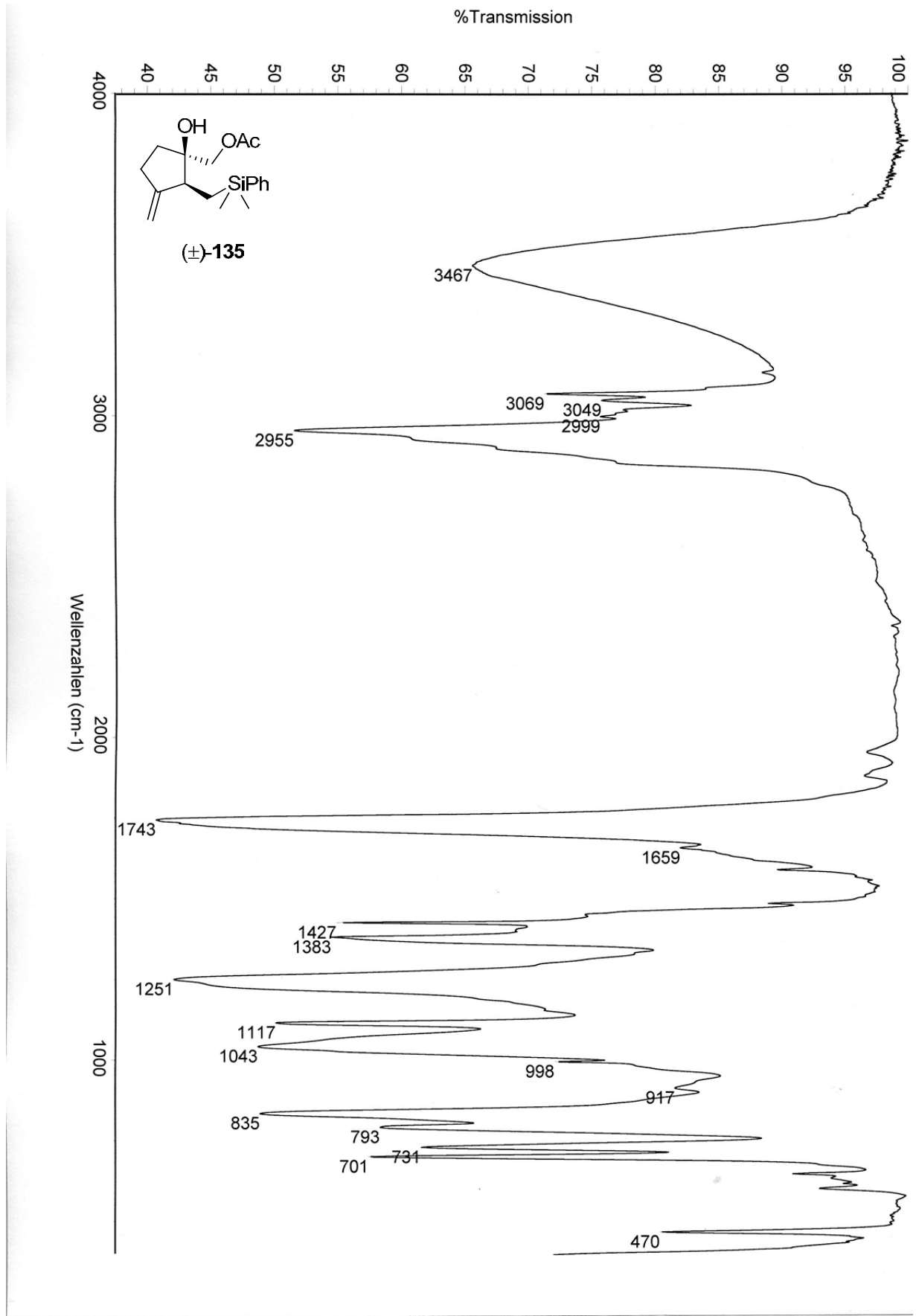


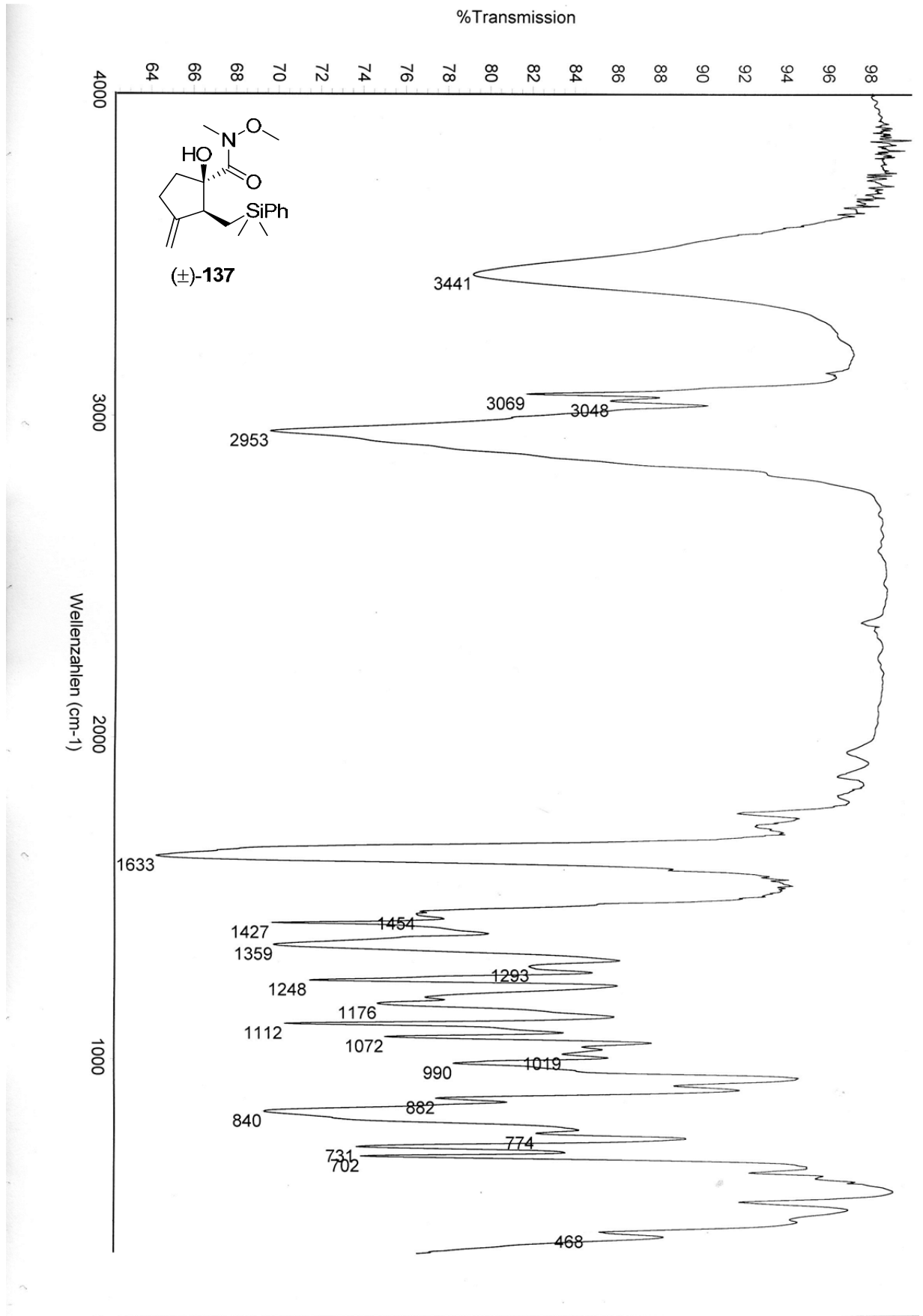


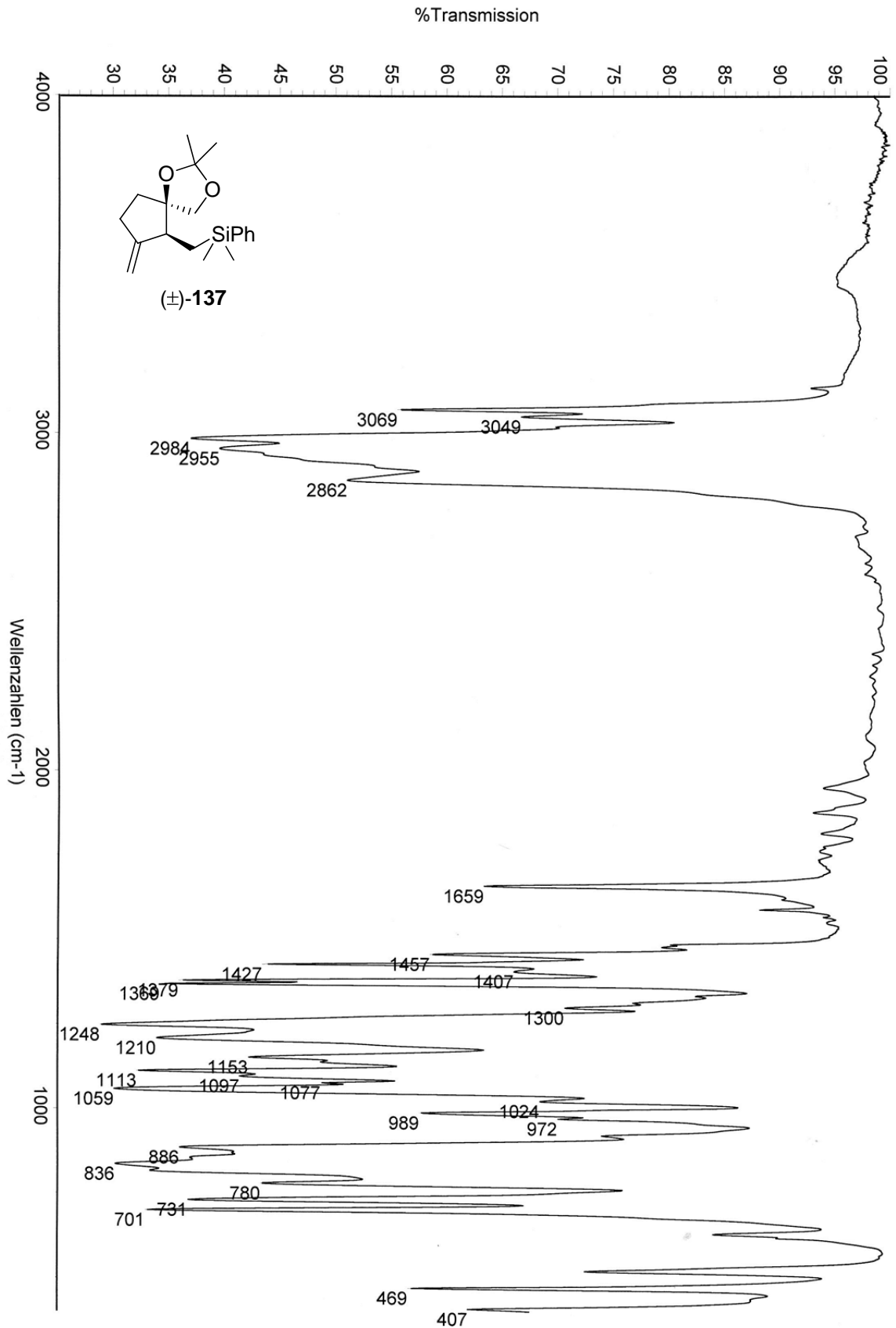


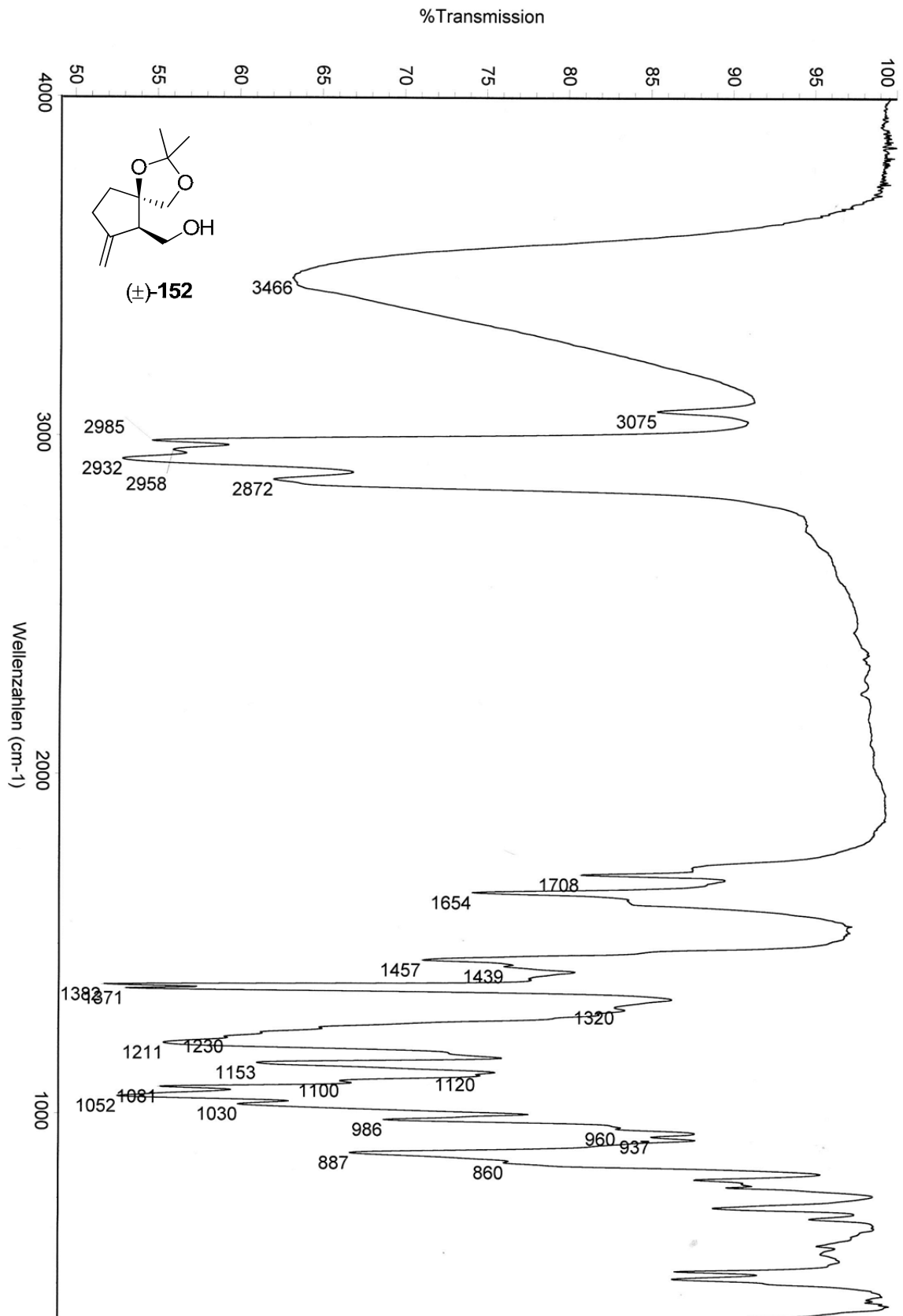


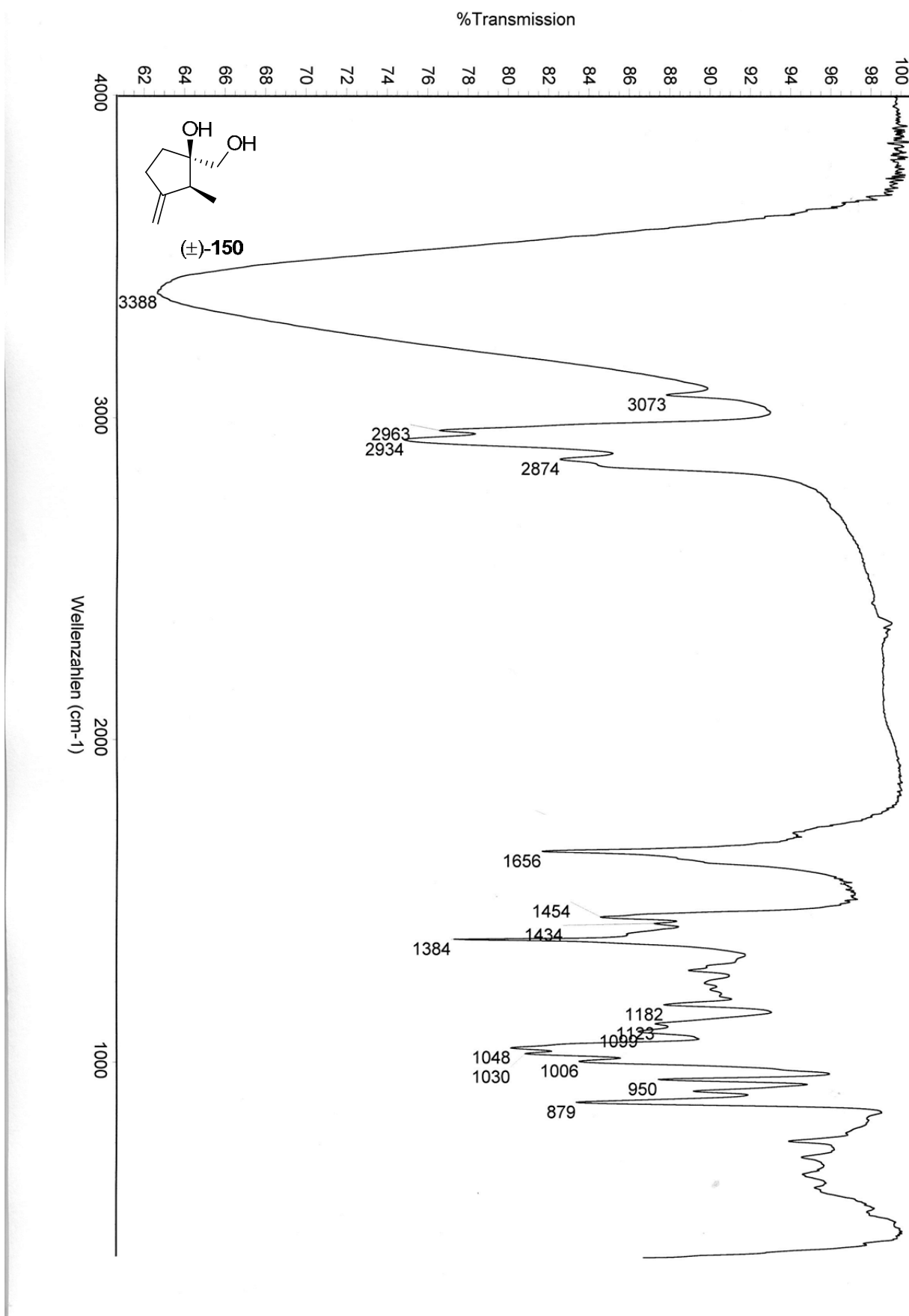


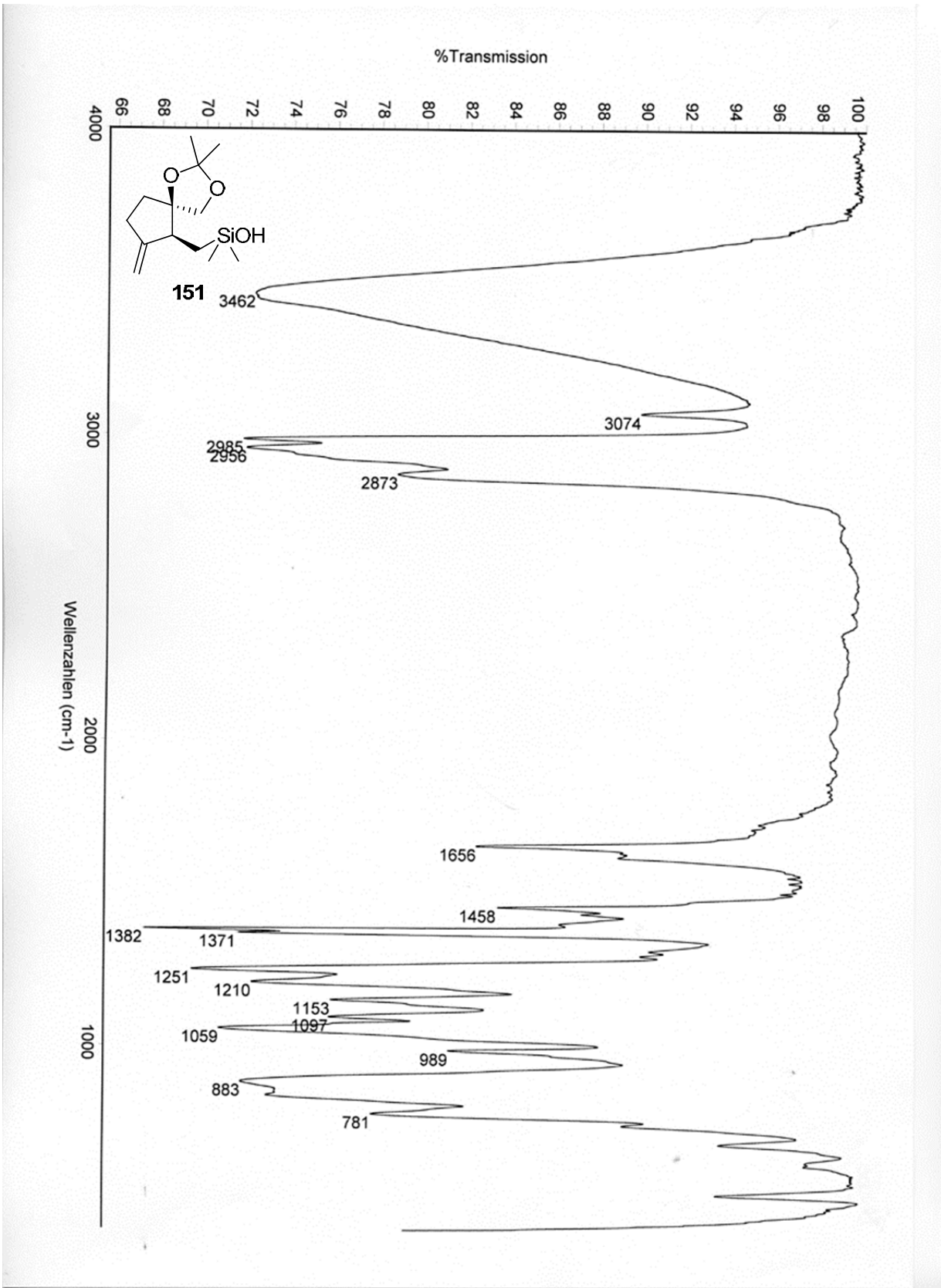


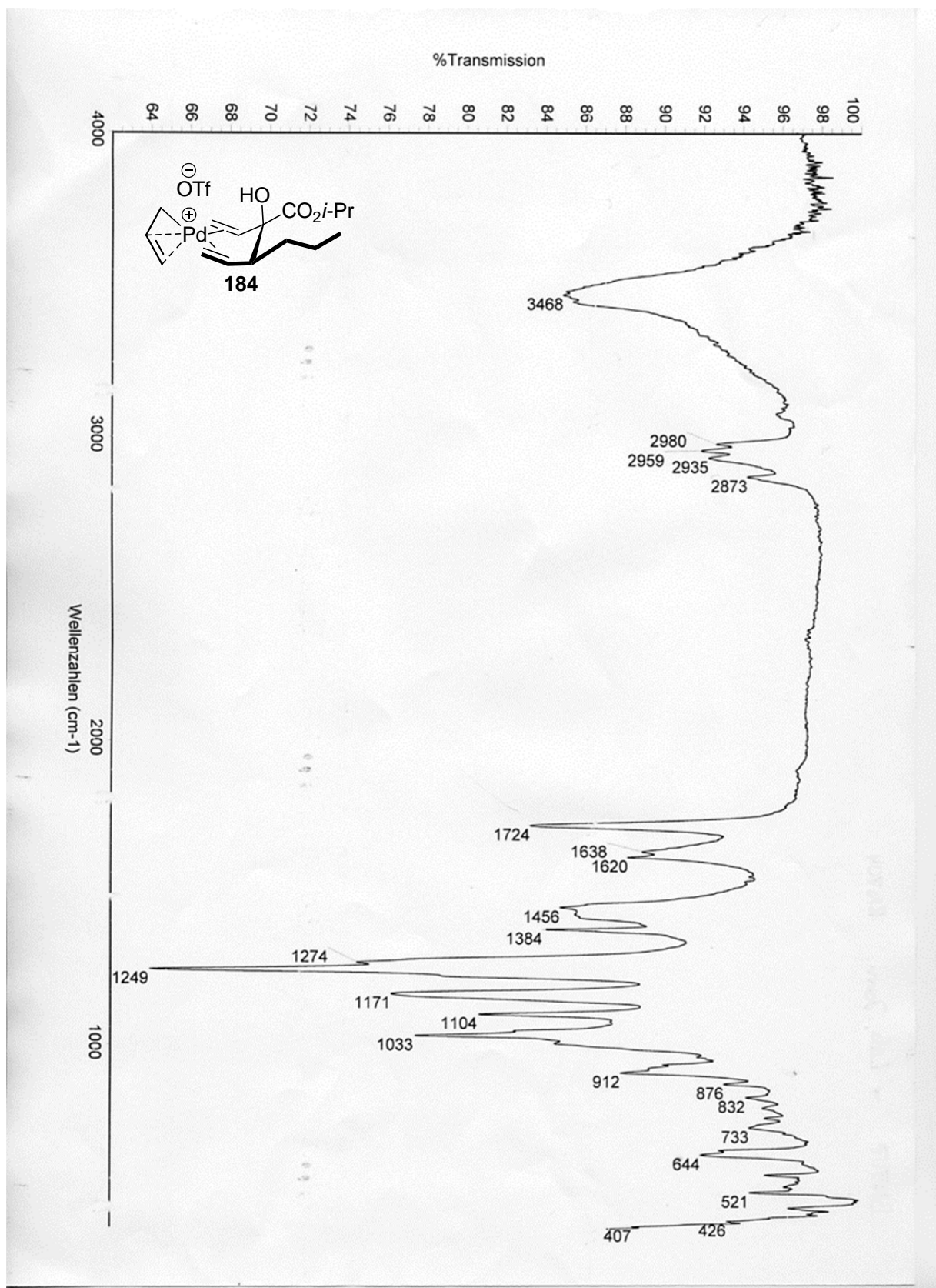












Elementaranalysen und HRMS-Spektren

Elementaranalysen

Elementaranalysenauftrag

Nelson 3899 19.05.2010 310 Katea
 Auftraggeber Tel. Datum Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält : C₈H₁₂B₂F₈N₄Pd
 $[Pd(MeCN)_4](BF_4)_2$

M Smp.: _____ auf Abruf ? Luftempfindlich :
 Sdp.: _____ [Pd(MeCN)₄](BF₄)₂ FejstbH Hygroskopisch :
 B Bemerkungen : _____

Einwaage :		theor.		prax.	
				a	b
a.)	2,956	% C : <u>21.6</u>	<u>21,2</u>	<u>20,7</u>	
b.)	2,074	% H : <u>2.7</u>	<u>2,7</u>	<u>2,6</u>	
		% N : <u>12.6</u>	<u>13,0</u>	<u>12,6</u>	

Hiersemann 25.5.10 M. Giffen
 Arbeitskreisleiter Datum der Ausführung

Elementaranalysenauftrag

Nelson Büro 3899 09.07.2010 BNS13 EA
 Auftraggeber Lab: 3898 Tel. Datum Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält : C₇H₁₁BF₄N₂Pd
 $[Pd(allyl)(MeCN)_2](BF_4)$

M Smp.: _____ auf Abruf ? Luftempfindlich :
 Sdp.: _____ [Pd(η^3 -allyl)(MeCN)₂](BF₄) Hygroskopisch : Kat.
 B Bemerkungen : _____

Einwaage :		theor.		prax.	
				a	b
a.)	1,310	% C : <u>26.6</u>	<u>26,5</u>		
b.)		% H : <u>3.5</u>	<u>3,8</u>		
		% N : <u>8.9</u>	<u>8,7</u>		

Hiersemann 13.7.10 M. Giffen
 Arbeitskreisleiter Datum der Ausführung

Elementaranalysenauftrag

Nelson 3897
Auftraggeber Tel.

10.12.08
Datum

BN189 EA
Probenbezeichnung
(max. 7 Stellen)

Die Substanz enthält : C₁₅H₃₀O₄Si

M Smp.: _____ auf Abruf ? X!

Luftempfindlich :

Sdp.: _____

Hygroskopisch :

Bemerkungen : 

Einwaage :

theor.

prax.

a) 1.487

a

b

% C : 59.56

59.5

59.5

b) 1.660

% H : 10.00

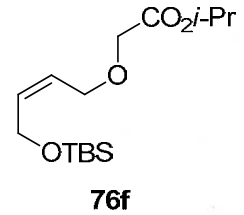
9.8

9.7

% N : /

/

/



Hiersemann
Arbeitskreisleiter

12.12.08 M. Kipfm
Datum der Ausführung

Elementaranalysenauftrag

Nelson 3897
Auftraggeber Tel.

22.6.09
Datum

BN295 - EA
Probenbezeichnung
(max. 7 Stellen)

Die Substanz enthält : C₁₇H₂₆O₃Si

M Smp.: _____ auf Abruf ? X

Luftempfindlich :

Sdp.: _____

Hygroskopisch :

Bemerkungen : 

Einwaage :

theor.

prax.

a) 1.770

a

b

% C : 66.6

66.9

66.7

b) 1.987

% H : 8.6

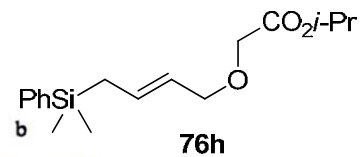
8.2

8.4

% N : /

0,3

0,3 ?



Hiersemann
Arbeitskreisleiter

29.6.09 M. Kipfm
Datum der Ausführung

Elementaranalysenauftrag

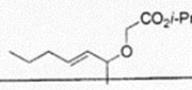
Nelson Büro 3899 17.02.2011
 Auftraggeber Tel. Lab: 3898 Datum

Probenbezeichnung: BN11124EA
 (max. 7 Stellen)

Die Substanz enthält: C₁₂H₂₂O₃

M Smp.: _____ auf Abruf?

Sdp.: _____

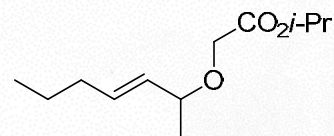
Bemerkungen: 

Luftempfindlich:
 Hygroskopisch:

Einwaage:	theor.		prax.	
			a	b
a) <u>1,585</u>	% C: <u>67.3</u>	<u>67.3</u>	<u>66.8</u>	
b) <u>1,682</u>	% H: <u>10.4</u>	<u>10.4</u>	<u>10.3</u>	
	% N: _____	_____	_____	

Hiersemann
Arbeitskreisleiter

28.2.11 M. Kiefer
Datum der Ausführung

 171

Elementaranalysenauftrag

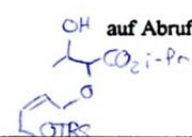
Nelson 3897 5.1.09
 Auftraggeber Tel. Lab: 3898 Datum

Probenbezeichnung: BN190EA
 (max. 7 Stellen)

Die Substanz enthält: C₁₇H₃₄O₅Si

M Smp.: _____ auf Abruf?

Sdp.: _____

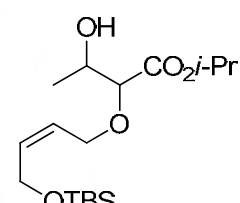
Bemerkungen: 

Luftempfindlich:
 Hygroskopisch:

Einwaage:	theor.		prax.	
			a	b
a) <u>1,565</u>	% C: <u>58.9</u>	<u>59.2</u>	<u>59.1</u>	
b) <u>1,677</u>	% H: <u>9.9</u>	<u>9.8</u>	<u>9.5</u>	
	% N: <u>/</u>	<u>/</u>	<u>/</u>	

Hiersemann
Arbeitskreisleiter

20.1.09 M. Kiefer
Datum der Ausführung

 77f

Elementaranalysenauftrag

Nelson 3897
Auftraggeber Tel.

24.6.09
Datum

BN298EA
Probenbezeichnung
(max. 7 Stellen)

Die Substanz enthält: C₁₉H₃₀O₄Si

M Smp.: _____ auf Abruf?

Luftempfindlich:

Sdp.: _____

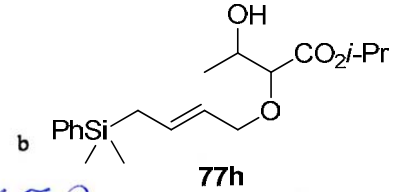
Hygroskopisch:

Bemerkungen: PhSi 

Einwaage: theor. prax.

a.) 1,824

a



b.) 1,712

% C: 65.1

65.0

65,2

% H: 8.6

8,4

8,5

% N: /

/

/

Hiersemann
Arbeitskreisleiter

3.7.09 M. Kiffner
Datum der Ausführung

Elementaranalysenauftrag

Nelson Büro 3899
Auftraggeber Lab: 3898 Tel.

22.02.2011
Datum

BNHM25A
Probenbezeichnung
(max. 7 Stellen)

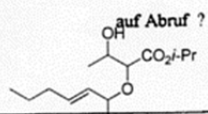
Die Substanz enthält: C₁₄H₂₆O₄

M Smp.: _____ auf Abruf?

Luftempfindlich:

Sdp.: _____

Hygroskopisch:

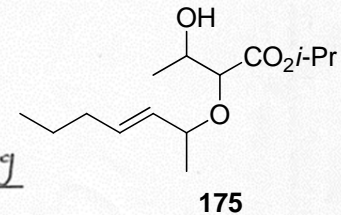
Bemerkungen: 

Einwaage: theor. prax.

a.) 1,514

a

b



b.) 1,365

% C: 65.1

64,9

64,9

% H: 10.1

9,9

9,9

% N: /

/

/

Hiersemann
Arbeitskreisleiter

10.3.11 M. Kiffner
Datum der Ausführung

Elementaranalysenauftrag

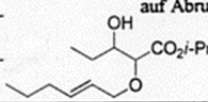
Nelson Büro 3899 17.11.2010
 Auftraggeber Tel. Lab: 3898 Datum

Probenbezeichnung: MM64
 (max. 7 Stellen)

Die Substanz enthält: C₁₄H₂₆O₄

M Smp.: _____ auf Abruf?

Sdp.: _____

Bemerkungen: 

Luftempfindlich:
 Hygroskopisch:

Einwaage:	theor.	prax.	
a) 1,448		a	
b) 1,484	% C: 65,1	64,8	65,0
	% H: 10,1	10,1	10,2
	% N: /	/	/

Hiersemann
Arbeitskreisleiter

26.11.10 M. Müller
Datum der Ausführung

77m

Elementaranalysenauftrag

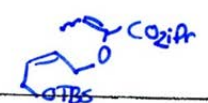
Nelson Büro 3899 20.5.11
 Auftraggeber Tel. Lab: 3898 Datum

Probenbezeichnung: BNAKS EA
 (max. 7 Stellen)

Die Substanz enthält: C₁₇H₃₂O₄Si

M Smp.: _____ auf Abruf?

Sdp.: _____

Bemerkungen: 

Luftempfindlich:
 Hygroskopisch:

Einwaage:	theor.	prax.	
a) 1,590		a	
b) 1,740	% C: 62,2	62,0	62,3
	% H: 9,8	9,9	9,8
	% N: /	/	/

Hiersemann
Arbeitskreisleiter

25.5.11 M. Müller
Datum der Ausführung

63f

Elementaranalysenauftrag

Nelson 3897
Auftraggeber Tel.

24.6.09
Datum

BN302EA
Probenbezeichnung
(max. 7 Stellen)

Die Substanz enthält : C₁₉H₂₈O₃Si

M Smp.: _____ auf Abruf ?

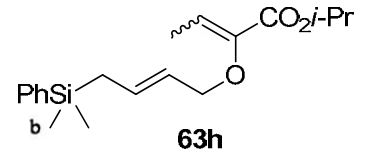
Luftempfindlich :

Sdp.: _____

Hygroskopisch :

Bemerkungen : PhSi 

	Einwaage :		
	theor.	prax.	
a) <u>1.902</u>		a	
% C : <u>68.6</u>	<u>68.8</u>	<u>68.9</u>	
b) <u>1.788</u>			
% H : <u>8.5</u>	<u>8.5</u>	<u>8.5</u>	
% N : <u>/</u>	<u>/</u>	<u>/</u>	



Hiersemann
Arbeitskreisleiter

3.7.09 M. Kiffner
Datum der Ausführung

Elementaranalysenauftrag

Nelson Büro 3899
Auftraggeber Lab: 3898 Tel.

25.11.2010
Datum

BN MM7B
Probenbezeichnung
(max. 7 Stellen)

Die Substanz enthält : C₁₄H₂₄O₃

M Smp.: _____ auf Abruf ?

Luftempfindlich :

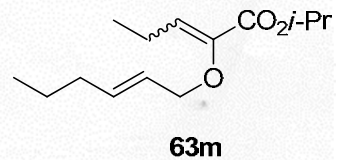
Sdp.: _____

Hygroskopisch :

Bemerkungen : 

	Einwaage :		
	theor.	prax.	
a) <u>1.637</u>		a	
% C : <u>70.0</u>	<u>69.8</u>	<u>70.2</u>	
b) <u>1.566</u>			
% H : <u>10.1</u>	<u>10.0</u>	<u>10.0</u>	
% N : <u>/</u>	<u>/</u>	<u>/</u>	

leichte Geruchsaufnahme!



Hiersemann
Arbeitskreisleiter

26.11.10 M. Kiffner
Datum der Ausführung

Elementaranalysenauftrag 20.5.11

Nelson Büro 3899 28.04.2011

Auftraggeber Lab: 3898 Datum

BNCC9N EA
Probenbezeichnung
(max. 7 Stellen)

Die Substanz enthält: C₁₂H₂₂O₆S

M Smp.: _____ auf Abruf?

Sdp.: _____

Bemerkungen: _____

176

Luftempfindlich:

Hygroskopisch:

Einwaage:		theor.		prax.	
		a	b	a	b
a) 2,141	% C:	49,0	49,0	48,9	49,0
b) 1,809	% H:	7,5	7,5	7,5	7,5
	% N:	/	/	/	/

Hiersemann 8.6.11 M. Löffler
Arbeitskreisleiter Datum der Ausführung

Elementaranalysenauftrag 27.05.2011

Nelson Büro 3899 27.05.2011

Auftraggeber Lab: 3898 Datum

B N M M 3 5 E A
Probenbezeichnung
(max. 7 Stellen)

Die Substanz enthält: C₁₅H₂₈O₆S

M Smp.: _____ auf Abruf?

Sdp.: _____

Bemerkungen: _____

177

Luftempfindlich:

Hygroskopisch:

Einwaage:		theor.		prax.	
		a	b	a	b
a) 1,794	% C:	53,6	53,8	53,8	53,8
b) 1,827	% H:	8,4	8,6	8,6	8,6
	% N:	/	/	/	/

Hiersemann 1.6.11 M. Löffler
Arbeitskreisleiter Datum der Ausführung

Elementaranalysenauftrag

Auftraggeber: Nelson 3897 Tel. 7.1.10 Datum 3N391 EA Probenbezeichnung (max. 7 Stellen)

Die Substanz enthält: C₂₄H₄₂O₄Si

M Smp.: _____ auf Abruf?

Sdp.: _____

Bemerkungen: OTBS

Luftempfindlich: Hygroskopisch:

Einwaage:	theor.		prax.	
			a	b
a) <u>1,937</u>	% C: <u>68,2</u>	<u>68,4</u>	<u>68,5</u>	
b) <u>1,695</u>	% H: <u>10,0</u>	<u>10,1</u>	<u>9,7</u>	
	% N: <u>/</u>	<u>/</u>	<u>/</u>	

Hiersemann Arbeitskreisleiter

15.1.10 M. Künzler Datum der Ausführung

Elementaranalysenauftrag

Auftraggeber: Nelson 3897 Tel. 7.1.10 Datum 3N392 EA Probenbezeichnung (max. 7 Stellen)

Die Substanz enthält: C₃₀H₄₂O₄Si

M Smp.: _____ auf Abruf?

Sdp.: _____

Bemerkungen: OTBS

Luftempfindlich: Hygroskopisch:

Einwaage:	theor.		prax.	
			a	b
a) <u>1,843</u>	% C: <u>72,0</u>	<u>72,2</u>	<u>72,1</u>	
b) <u>1,854</u>	% H: <u>9,7</u>	<u>9,5</u>	<u>9,4</u>	
	% N: <u>/</u>	<u>/</u>	<u>/</u>	

Hiersemann Arbeitskreisleiter

15.1.10 M. Künzler Datum der Ausführung

Elementaranalysenauftrag

Nelson Büro 3899
 Auftraggeber Lab: 3898
 Tel.

17.11.2010
 Datum

BN541B

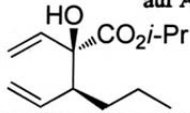
Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält : C₁₃H₂₂O₃

M Smp.: _____ auf Abruf ?

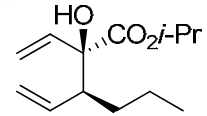
Sdp.: _____

Bemerkungen : _____



Luftempfindlich :

Hygroskopisch :



(±)-62a

Einwaage :	theor.	prax.	
		a	b
a.) <u>1,436</u>	% C : <u>69,0</u>	<u>69,5</u>	<u>69,4</u>
b.) <u>1,536</u>	% H : <u>9,8</u>	<u>10,1</u>	<u>10,0</u>
	% N : <u>/</u>	<u>/</u>	<u>/</u>

Hiersemann

Arbeitskreisleiter

26.11.10 M. Hüfner
 Datum der Ausführung

Elementaranalysenauftrag

Nelson Büro 3899
 Auftraggeber Lab: 3898
 Tel.

27.05.2011
 Datum

BN1136 EA

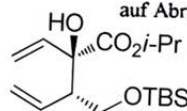
Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält : C₁₇H₃₂O₄Si

M Smp.: _____ auf Abruf ?

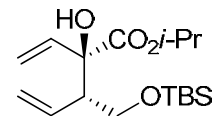
Sdp.: _____

Bemerkungen : _____



Luftempfindlich :

Hygroskopisch :



(±)-62f

Einwaage :	theor.	prax.	
		a	b
a.) <u>1,622</u>	% C : <u>62,2</u>	<u>62,5</u>	<u>62,4</u>
b.) <u>1,792</u>	% H : <u>9,8</u>	<u>9,8</u>	<u>9,8</u>
	% N : <u>/</u>	<u>/</u>	<u>/</u>

Hiersemann

Arbeitskreisleiter

16.11.11 M. Hüfner
 Datum der Ausführung

Elementaranalysenauftrag

Nelson Büro 3899
 Auftraggeber Lab: 3898
 Tel.

11.01.2011
 Datum

BNS90EA
 Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält: C₁₆H₂₀O₄

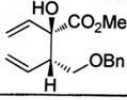
M Smp.: _____ auf Abruf?

Luftempfindlich:

Sdp.: _____

Hygroskopisch:

Bemerkungen: _____



Einwaage:

theor.

prax.

a.) 1,537

a

b

b.) 1,700

% C: 69.5

69.5

69.8

(±)-62g

% H: 7.3

7.4

7.4

% N: /

/

/

Hiersemann

Arbeitskreisleiter

14.1.11.1. Hiersemann
 Datum der Ausführung

Elementaranalysenauftrag

Nelson 3897
 Auftraggeber Tel.

23.9.09
 Datum

BNS51EA
 Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält: C₁₉H₂₀O₃Si

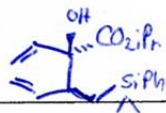
M Smp.: _____ auf Abruf?

Luftempfindlich:

Sdp.: _____

Hygroskopisch:

Bemerkungen: _____



Einwaage:

theor.

prax.

a.) 1,353

a

b

b.) 1,581

% C: 68.6

68.6

68.9

(±)-62h

% H: 8.5

8.2

8.4

% N: /

/

/

Hiersemann
 Arbeitskreisleiter

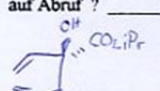
25.9.09 M. Hiersemann
 Datum der Ausführung

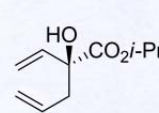
Elementaranalysenauftrag

Nelson 3899 27.04.2010
 Auftraggeber Tel. Datum

BN461EA
 Probenbezeichnung
(max. 7 Stellen)

Die Substanz enthält : C₁₀H₁₆O₃

M Smp.: _____ auf Abruf ? Luftempfindlich :
 Sdp.: _____ Hygroskopisch :
 Bemerkungen : 

Einwaage :		theor.		prax.		
		a	b	a	b	
a) 1,896	% C :	65,2	64,3	65,1		 62i
b) 2,007	% H :	8,8	8,8	9,1		
	% N :	/	/	/		

Hiersemann
 Arbeitskreisleiter

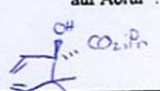
19.5.10 M. Kipfler
 Datum der Ausführung

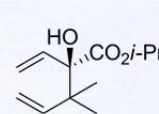
Elementaranalysenauftrag

Nelson 3899 29.04.2010
 Auftraggeber Tel. Datum

KAG
 BN461EA
 Probenbezeichnung
(max. 7 Stellen)

Die Substanz enthält : C₁₂H₂₀O₃

M Smp.: _____ auf Abruf ? Luftempfindlich :
 Sdp.: _____ Hygroskopisch :
 Bemerkungen : 

Einwaage :		theor.		prax.		
		a	b	a	b	
a) 1,855	% C :	67,9	67,7	67,8		 62j
b) 1,776	% H :	9,5	9,5	9,5		
	% N :	/	/	/		

Hiersemann
 Arbeitskreisleiter

27.5.10 M. Kipfler
 Datum der Ausführung

Elementaranalysenauftrag

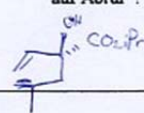
Nelson 3899 27.04.2010
 Auftraggeber Tel. Datum

479
 BNS EA
 Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält: C₁₁H₁₈O₂

M Smp.: _____ auf Abruf?

Sdp.: _____

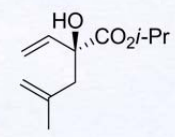
Bemerkungen: 

Luftempfindlich:

Hygroskopisch:

Einwaage:

	theor.	prax.	
		a	b
a) 1,862			
b) 1,857	% C: <u>66.6</u>	<u>66.8</u>	<u>66.7</u>
	% H: <u>9.2</u>	<u>9.4</u>	<u>9.4</u>
	% N: <u>/</u>	<u>/</u>	<u>/</u>


621

Hiersemann
Arbeitskreisleiter

27.5.10 M Küpfer
Datum der Ausführung

Elementaranalysenauftrag

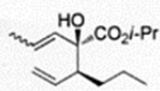
Nelson Büro 3899 11.01.2011
 Auftraggeber Lab: 3898 Tel. Datum

BNS EA
 Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält: C₁₁H₂₄O₂

M Smp.: _____ auf Abruf?

Sdp.: _____

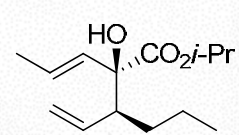
Bemerkungen: 

Luftempfindlich:

Hygroskopisch:

Einwaage:

	theor.	prax.	
		a	b
a) 1,298			
b) 1,476	% C: <u>70.0</u>	<u>70.1</u>	<u>69.7</u>
	% H: <u>10.1</u>	<u>10.1</u>	<u>9.9</u>
	% N: <u>/</u>	<u>/</u>	<u>/</u>


62m

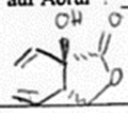
Hiersemann
Arbeitskreisleiter

14.1.11 M Küpfer
Datum der Ausführung

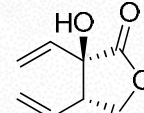
Elementaranalysenauftrag

Nelson 3897 25.1.10 BN405EA
 Auftraggeber Tel. Datum Probenbezeichnung
(max. 7 Stellen)

Die Substanz enthält : C₈H₁₀O₃

M Smp.: _____ auf Abruf ? Luftempfindlich :
 Sdp.: _____ Hygroskopisch :
 Bemerkungen : 

Einwaage :	theor.		prax.	
			a	b
a) 2,200	% C : <u>62,3</u>	<u>62,2</u>	<u>62,7</u>	
b) 2,554	% H : <u>6,5</u>	<u>6,7</u>	<u>6,6</u>	
	% N : <u>/</u>	<u>/</u>	<u>/</u>	

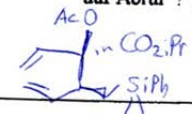

114

Hiersemann 2.2.10 M. Köpf
 Arbeitskreisleiter Datum der Ausführung

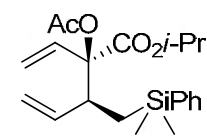
Elementaranalysenauftrag

Nelson Büro 3899 30.06.2010 509
 Auftraggeber Lab: 3898 Tel. Datum Probenbezeichnung
(max. 7 Stellen)

Die Substanz enthält : C₂₂H₃₀O₄Si

M Smp.: _____ auf Abruf ? Luftempfindlich :
 Sdp.: _____ Hygroskopisch :
 Bemerkungen : 

Einwaage :	theor.		prax.	
			a	b
a) 1,275	% C : <u>67,3</u>	<u>67,3</u>	<u>67,7</u>	
b) 1,270	% H : <u>8,1</u>	<u>8,0</u>	<u>8,3</u>	
	% N : <u>/</u>	<u>/</u>	<u>/</u>	


(±)-127

Hiersemann 9.7.10 M. Köpf
 Arbeitskreisleiter Datum der Ausführung

Elementaranalysenauftrag

Nelson Büro 3899
 Auftraggeber Tel. Lab: 3898

28.09.2010
 Datum

BN523B
 Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält : C₁₈H₂₇NO₃Si

M Smp.: _____ auf Abruf ?

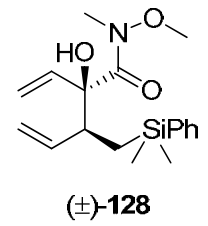
Luftempfindlich :

Sdp.: _____

Hygroskopisch :

Bemerkungen : 

Einwaage :	theor.	prax.	
		a	b
a) <u>1,404</u>	% C : <u>64,8</u>	<u>64,9</u>	<u>65,1</u>
b) <u>1,287</u>	% H : <u>8,2</u>	<u>8,2</u>	<u>8,1</u>
	% N : <u>4,2</u>	<u>4,1</u>	<u>4,0</u>



Hiersemann
 Arbeitskreisleiter

5.10.10 M. Kuffner
 Datum der Ausführung

Elementaranalysenauftrag

Nelson 3899
 Auftraggeber Tel.

27.4.10
 Datum

BN472EA
 Probenbezeichnung
 (max. 7 Stellen)


Die Substanz enthält : C₁₆H₂₄O₂Si

M Smp.: _____ auf Abruf ?

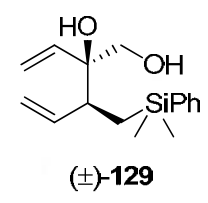
Luftempfindlich :

Sdp.: _____

Hygroskopisch :

Bemerkungen : 

Einwaage :	theor.	prax.	
		a	b
a) <u>1,506</u>	% C : <u>69,5</u>	<u>69,7</u>	<u>69,4</u>
b) <u>1,735</u>	% H : <u>8,8</u>	<u>8,9</u>	<u>8,7</u>
	% N : <u>/</u>	<u>/</u>	<u>/</u>



Hiersemann
 Arbeitskreisleiter

19.5.10 M. Kuffner
 Datum der Ausführung

Elementaranalysenauftrag

Nelson Büro 3899
 Auftraggeber Lab: 3898
 Tel.

31.03.2011
 Datum

BNS46 EA
 Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält : C₁₀H₈O₂Si

M Smp.: _____ auf Abruf ? _____

Sdp.: _____

Bemerkungen : 

Luftempfindlich :

Hygroskopisch :

Einwaage :

a.) 1,629

b.) 1,494 % C : 72.1

% H : 8.9

% N : /

theor.

prax.

a

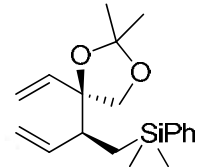
b

72.5

72.3

9.2

9.1



(±)-131

Hiersemann

Arbeitskreisleiter

5.4.11 M. Kießler
 Datum der Ausführung

Elementaranalysenauftrag

Nelson Büro 3899
 Auftraggeber Lab: 3898
 Tel.

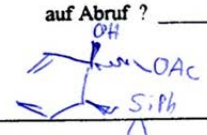
30.06.2010
 Datum

BNS03 EA
 Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält : C₁₈H₂₆O₃Si

M Smp.: _____ auf Abruf ?

Sdp.: _____

Bemerkungen : 

Luftempfindlich :

Hygroskopisch :

Einwaage :

a.) 1,758

b.) 1,503 % C : 67.9

% H : 8.2

% N : /

theor.

prax.

a

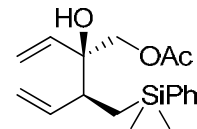
b

68.0

68.0

8.3

8.2



(±)-132

Hiersemann

Arbeitskreisleiter

9.7.10 M. Kießler
 Datum der Ausführung

Elementaranalysenauftrag

Nelson Büro 3899
 Auftraggeber Lab: 3898
 Tel. Tel.

22.02.2011
 Datum

5308
 BNO2218
 Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält : C₁₃H₂₂O₃

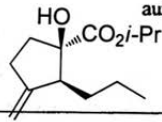
M Smp.: _____ auf Abruf ?

Luftempfindlich :

Sdp.: _____

Hygroskopisch :

Bemerkungen : _____



Einwaage :

theor.

prax.

a) 1,612

a

b

b) 1,563

% C : 69.0

69.8

69.9

% H : 9.8

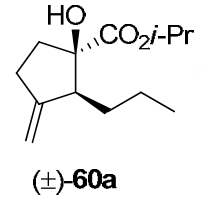
9.8

9.7

% N : /

/

/



Hiersemann

Arbeitskreisleiter

10.3.11 M. Kießner
 Datum der Ausführung

Elementaranalysenauftrag

Nelson Büro 3899
 Auftraggeber Lab: 3898
 Tel. Tel.

16.06.2011
 Datum

BNO85A2 EA
 Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält : C₁₃H₂₂O₃

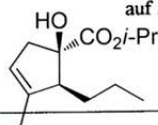
M Smp.: _____ auf Abruf ? _____

Luftempfindlich :

Sdp.: _____

Hygroskopisch :

Bemerkungen : _____



Einwaage :

theor.

prax.

a) 1,662

a

b

b) 1,722

% C : 69.0

69.2

69.0

% H : 9.8

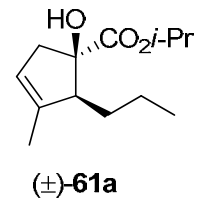
9.7

9.6

% N : /

/

/



Hiersemann

Arbeitskreisleiter

20.6.11 M. Kießner
 Datum der Ausführung

Elementaranalysenauftrag

Nelson 3897
 Auftraggeber Tel.

23.9.09
 Datum

BN340EA
 Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält : C₁₉H₂₈O₃Si

M
 Smp.: _____

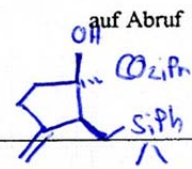
auf Abruf ?

Luftempfindlich :

Sdp.: _____

Hygroskopisch :

Bemerkungen : _____



Einwaage :

theor.

prax.

a) 1.660

a

b

% C : 88.6

68.4

69.1

b) 1.553

% H : 8.5

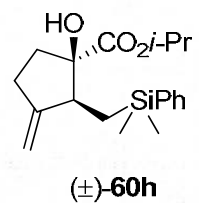
8.3

8.4

% N : /

/

/



Hiersemann
 Arbeitskreisleiter

25.9.09 M. Kuffner
 Datum der Ausführung

Elementaranalysenauftrag

Nelson Büro 3899 28.09.2010
 Auftraggeber Lab: 3898 Datum

BN531B
 Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält : C₁₂H₂₀O₃

M
 Smp.: _____ auf Abruf ?

Sdp.: _____

Bemerkungen : _____

Luftempfindlich :

Hygroskopisch :

Einwaage :

theor. prax.

a) 1.621

a b

% C : 67.9 67.9 68.0

b) 1.658

% H : 9.5 9.6 9.4

% N : / / /

Hiersemann
 Arbeitskreisleiter

5.10.10 M. Kuffner
 Datum der Ausführung

Elementaranalysenauftrag

Nelson Büro 3899
 Auftraggeber Lab: 3898
 Tel. Tel.

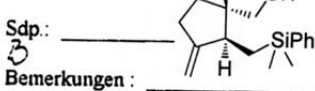
29.03.2011
 Datum

BNS42EA

Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält: C₁₆H₂₄O₂Si

M Smp.: _____ auf Abruf?

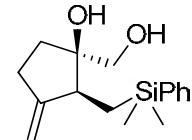


Bemerkungen: _____

Luftempfindlich:

Hygroskopisch:

Einwaage:	theor.	prax.	
		a	b
a) 1,465	% C: 69.5	69.5	69.6
b) 1,995	% H: 8.8	8.9	9.0
	% N: /	/	/



(±)-134

Hiersemann

Arbeitskreisleiter

5.4.11 M. Kiffner
 Datum der Ausführung

Elementaranalysenauftrag

Nelson Büro 3899
 Auftraggeber Lab: 3898
 Tel. Tel.

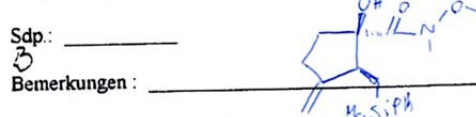
05.10.2010
 Datum

BNS38B

Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält: C₁₈H₂₇N₃O₃Si

M Smp.: _____ auf Abruf?

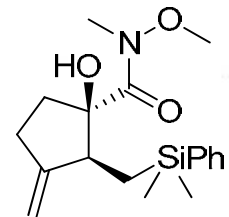


Bemerkungen: _____

Luftempfindlich:

Hygroskopisch:

Einwaage:	theor.	prax.	
		a	b
a) 2.056	% C: 64.8	65.0	65.1
b) 2.027	% H: 8.2	8.4	8.3
	% N: 4.2	3.9	3.9



(±)-136

Hiersemann

Arbeitskreisleiter

13.10.10 M. Kiffner
 Datum der Ausführung

Elementaranalysenauftrag

Nelson Büro 3899
 Auftraggeber Lab: 3898
 Tel.

31.03.2011
 Datum

BN645EA
 Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält : C₁₃H₂₈O₂Si

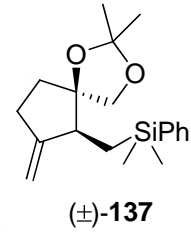
M Smp.: _____ auf Abruf ?

Sdp.: _____

Bemerkungen : SiPh

Luftempfindlich :
 Hygroskopisch :

	Einwaage :	theor.		prax.	
		a	b	a	b
a.)	1,360	% C : 72,1	72,2	72,1	
b.)	1,442	% H : 8,9	9,0	9,1	
		% N : /	/	/	



Hiersemann
 Arbeitskreisleiter

5.4.11 M. Köpf
 Datum der Ausführung

Elementaranalysenauftrag

Nelson Büro 3899
 Auftraggeber Lab: 3898
 Tel.

03.08.2011
 Datum

BN705EA
 Probenbezeichnung
 (max. 7 Stellen)

Die Substanz enthält : C₁₇H₂₇F₃O₆PdS

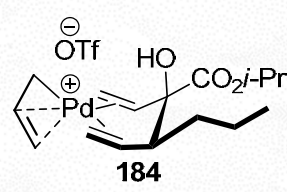
M Smp.: _____ auf Abruf ?

Sdp.: _____

Bemerkungen : prof. nfr. Pd → Totf

Luftempfindlich : Kat-Komplex!
 Hygroskopisch : unter Argon

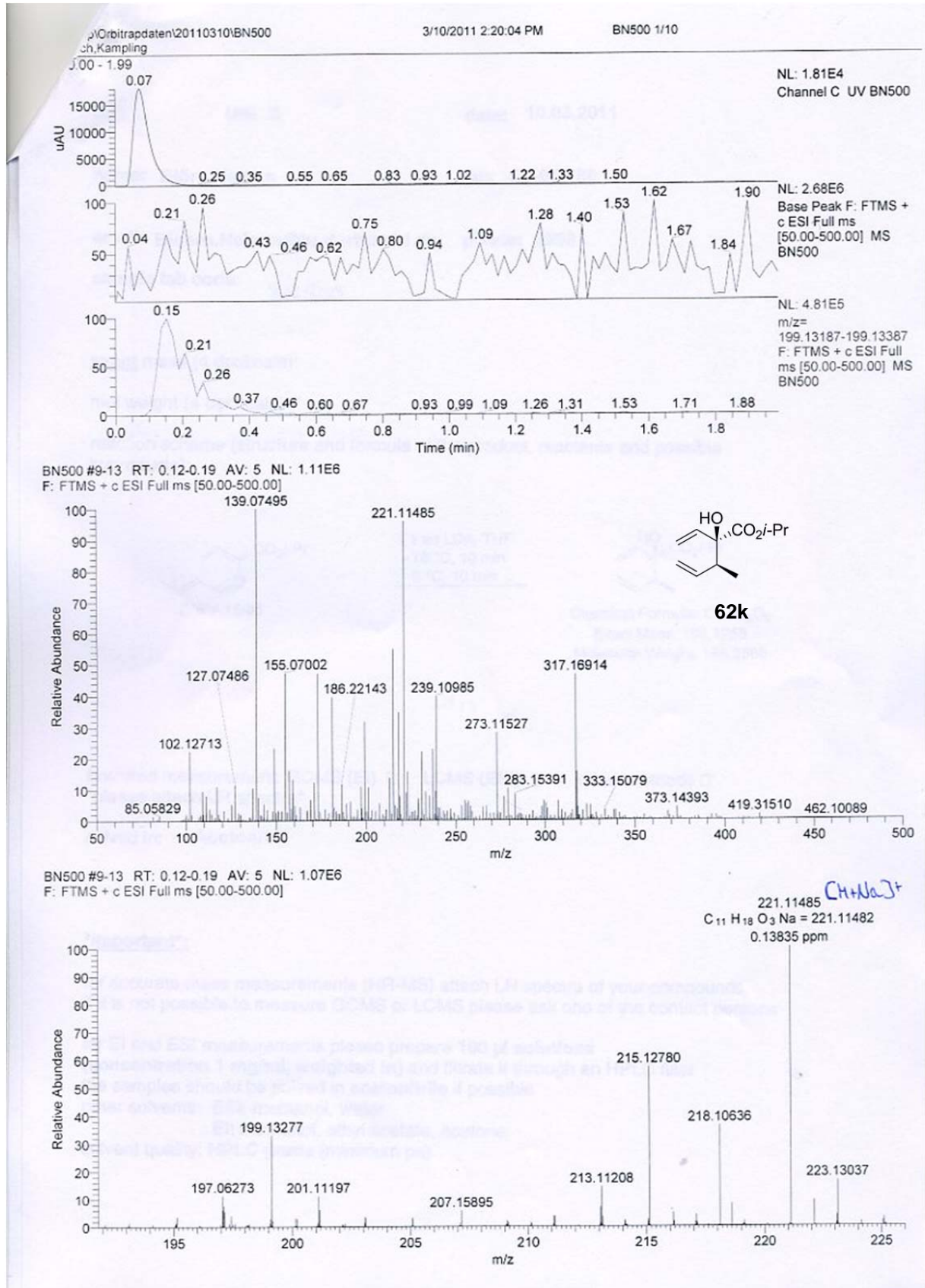
	Einwaage :	theor.		prax.	
		a	b	a	b
a.)	1,098	% C : 39,1	39,2	39,1	
b.)	1,170	% H : 5,2	5,1	5,1	
		% N : /	/	/	

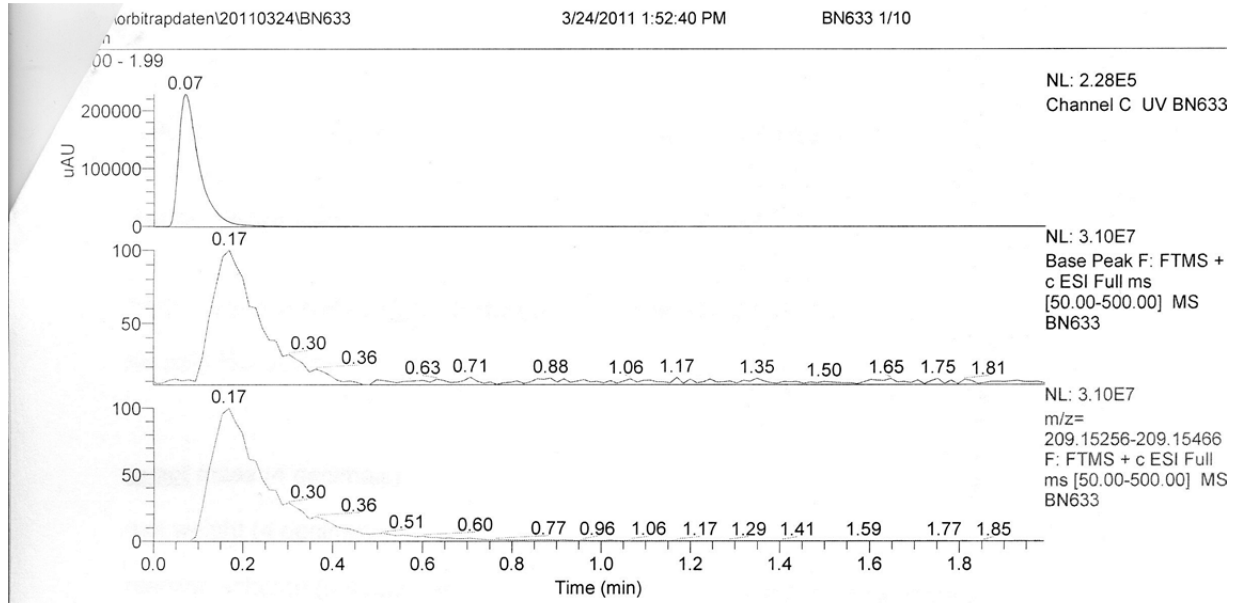


Hiersemann
 Arbeitskreisleiter

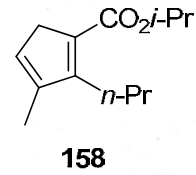
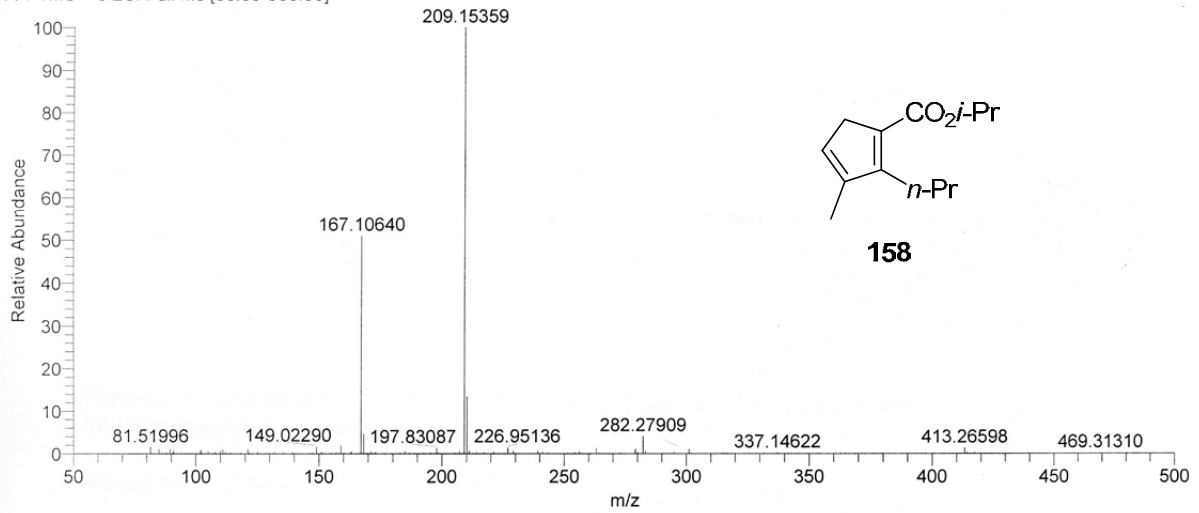
15.8.11 M. Köpf
 Datum der Ausführung

HRMS-Spektren

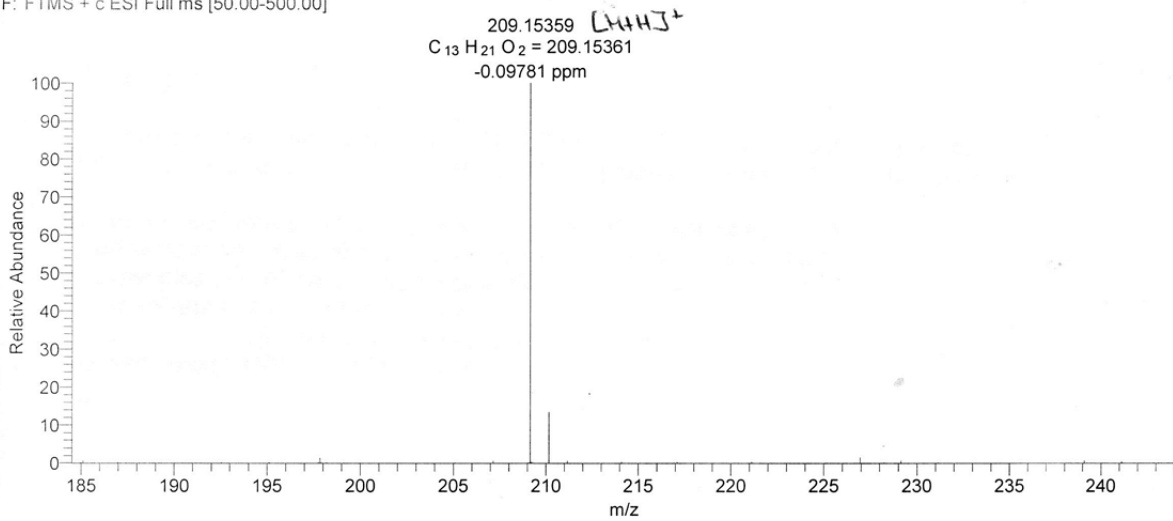


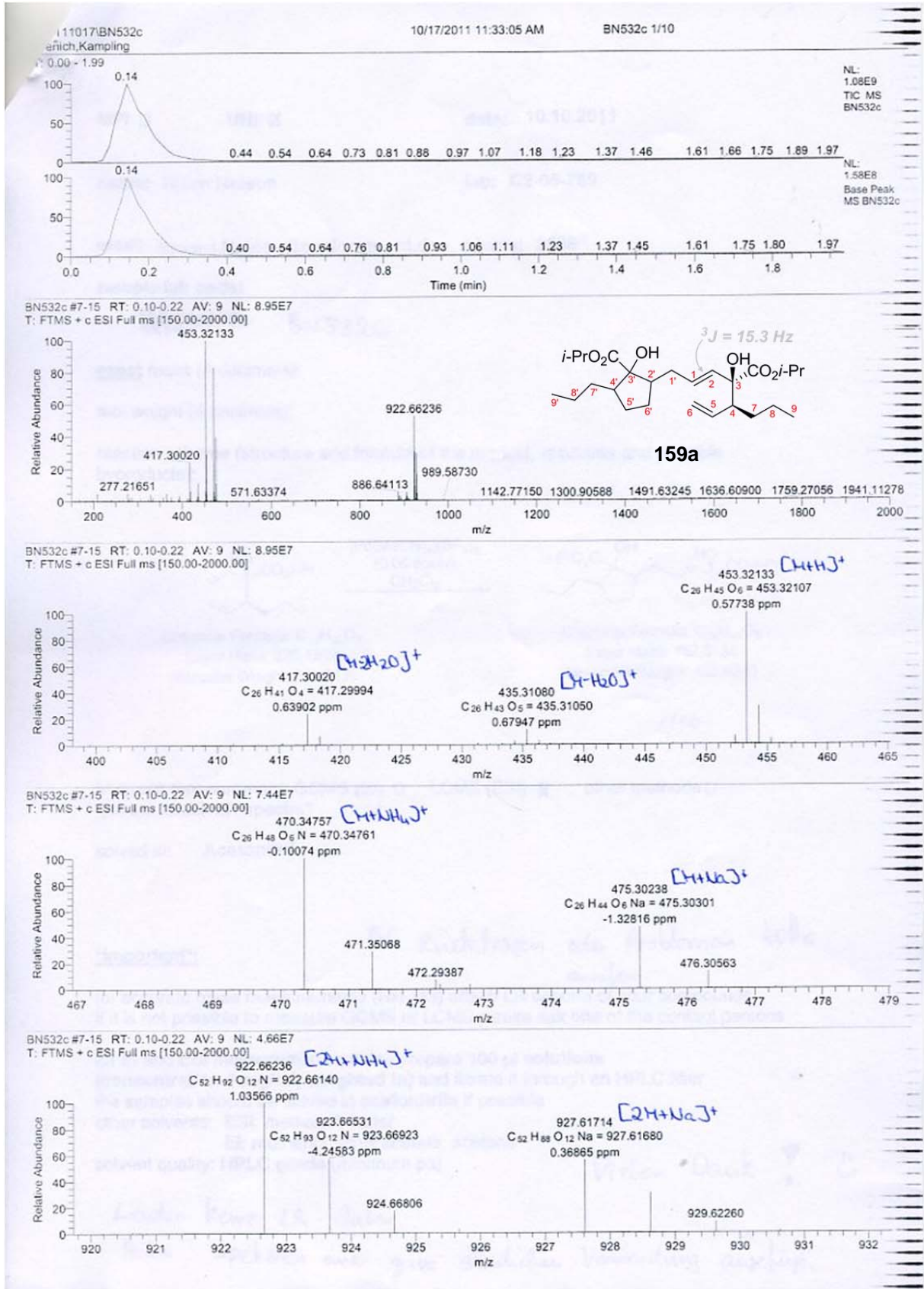


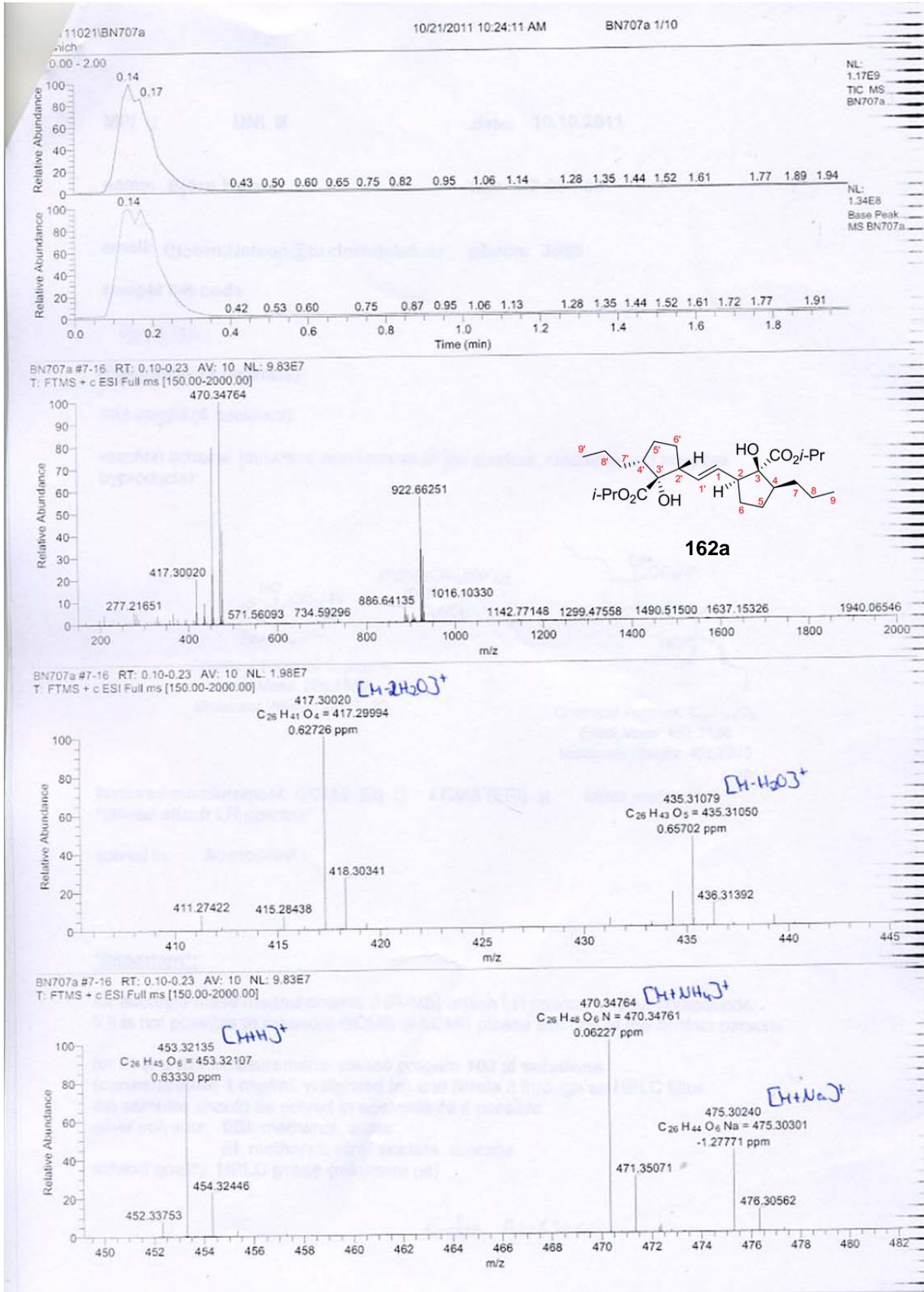
BN633 #10-20 RT: 0.12-0.27 AV: 11 NL: 2.09E7
F: FTMS + c ESI Full ms [50.00-500.00]

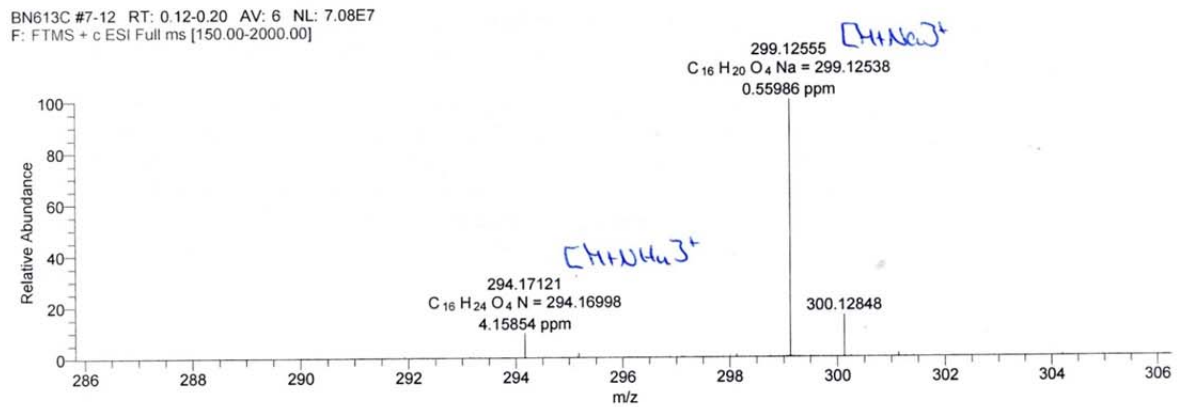
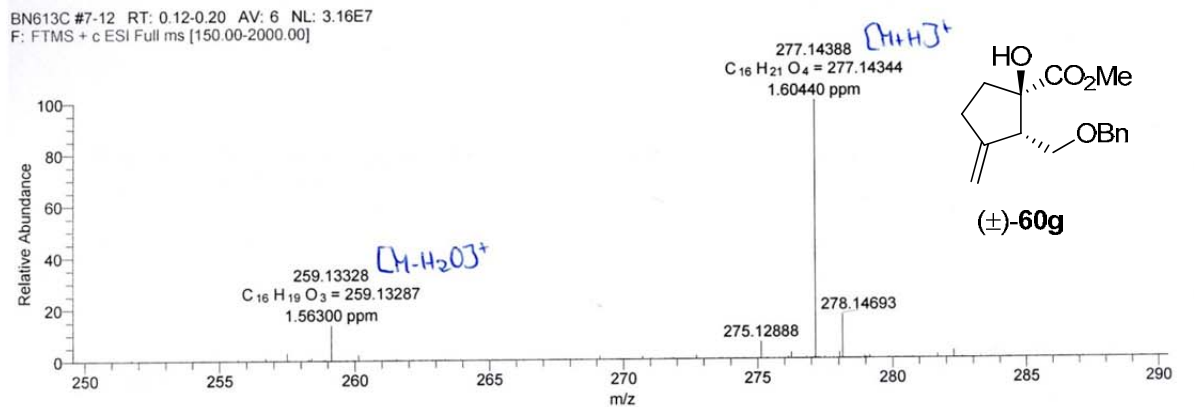
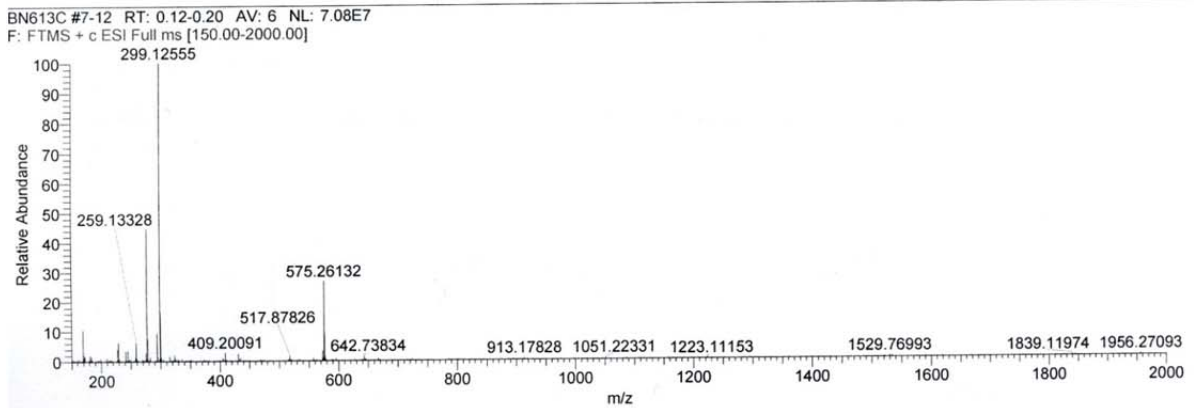
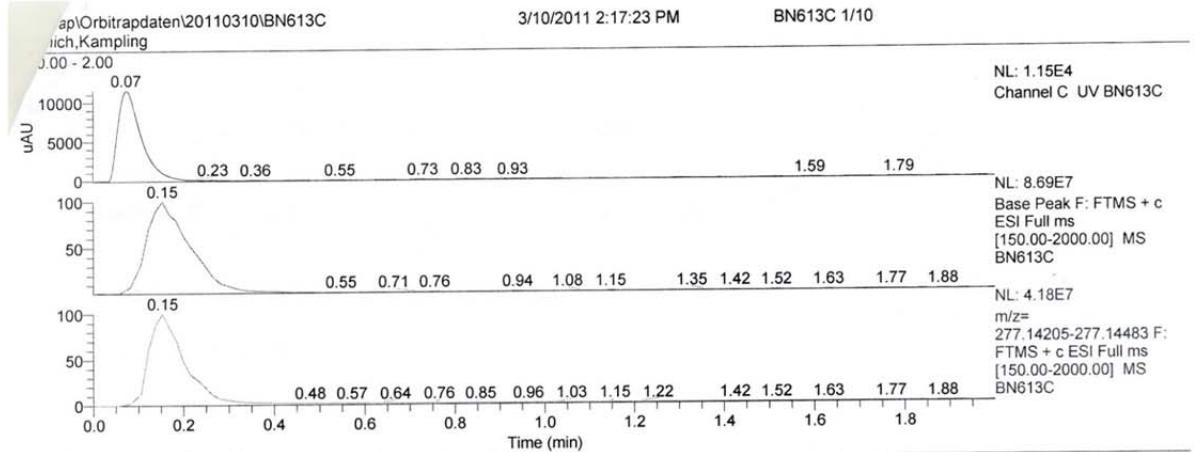


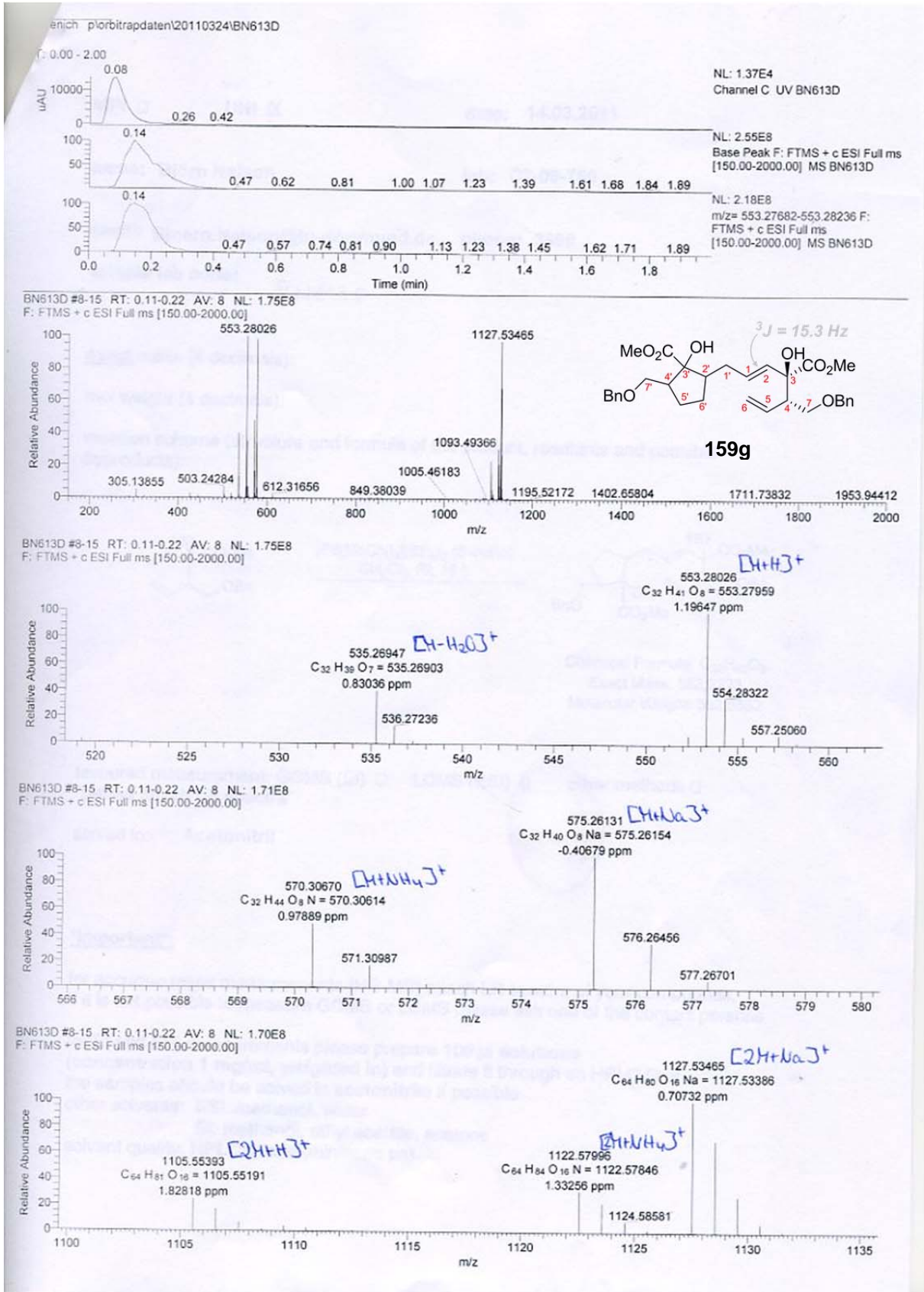
BN633 #10-20 RT: 0.12-0.27 AV: 11 NL: 2.09E7
F: FTMS + c ESI Full ms [50.00-500.00]

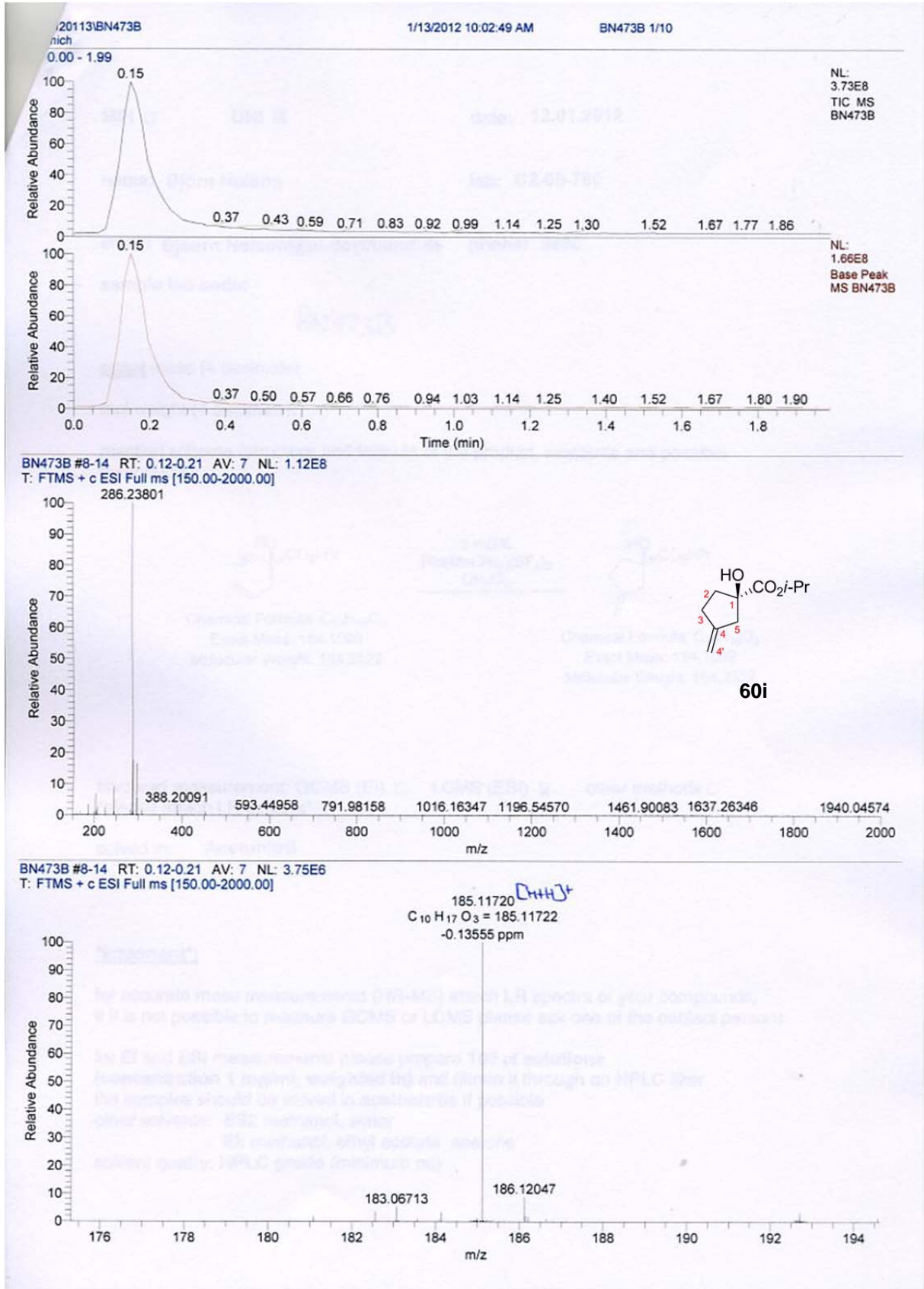


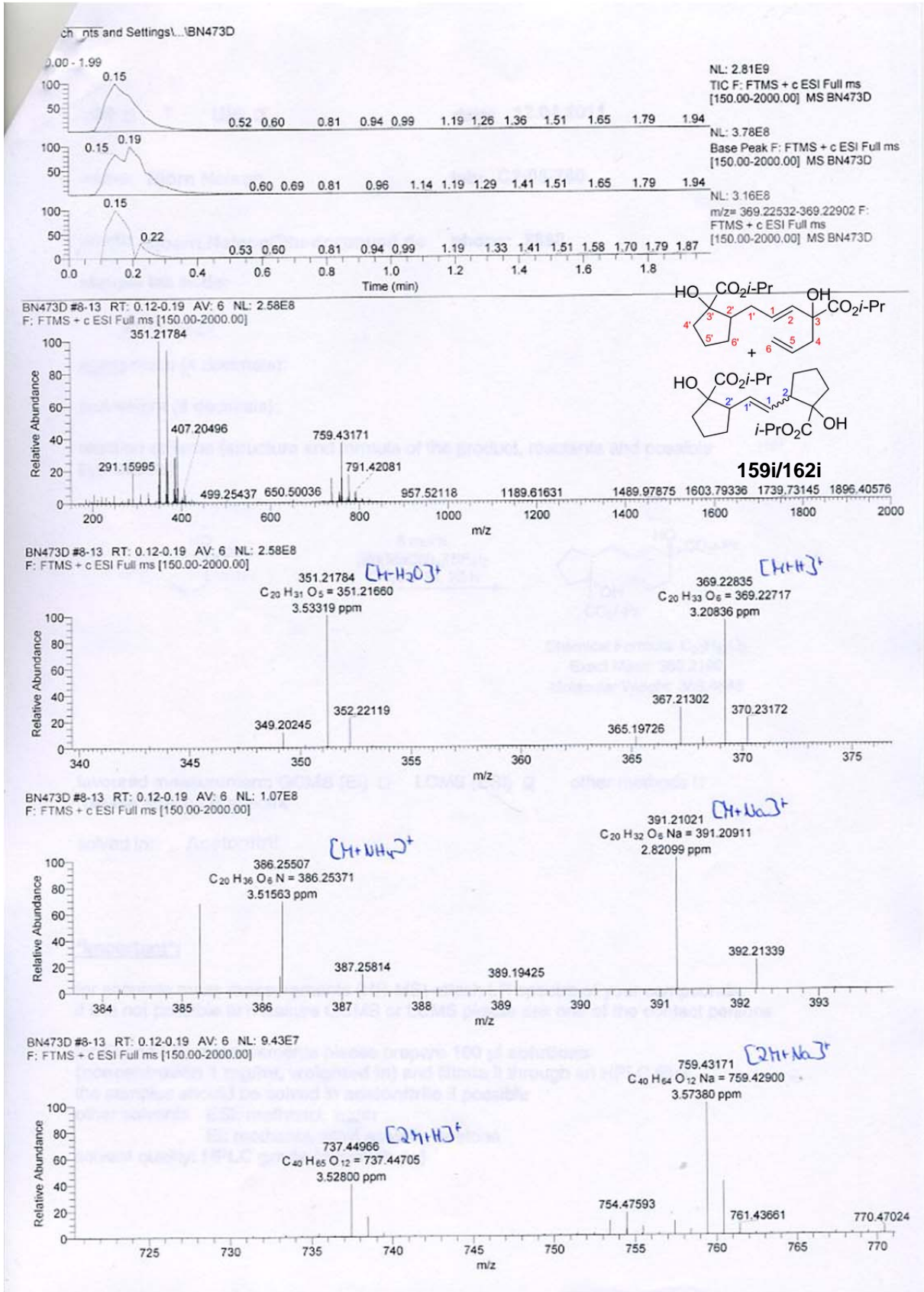


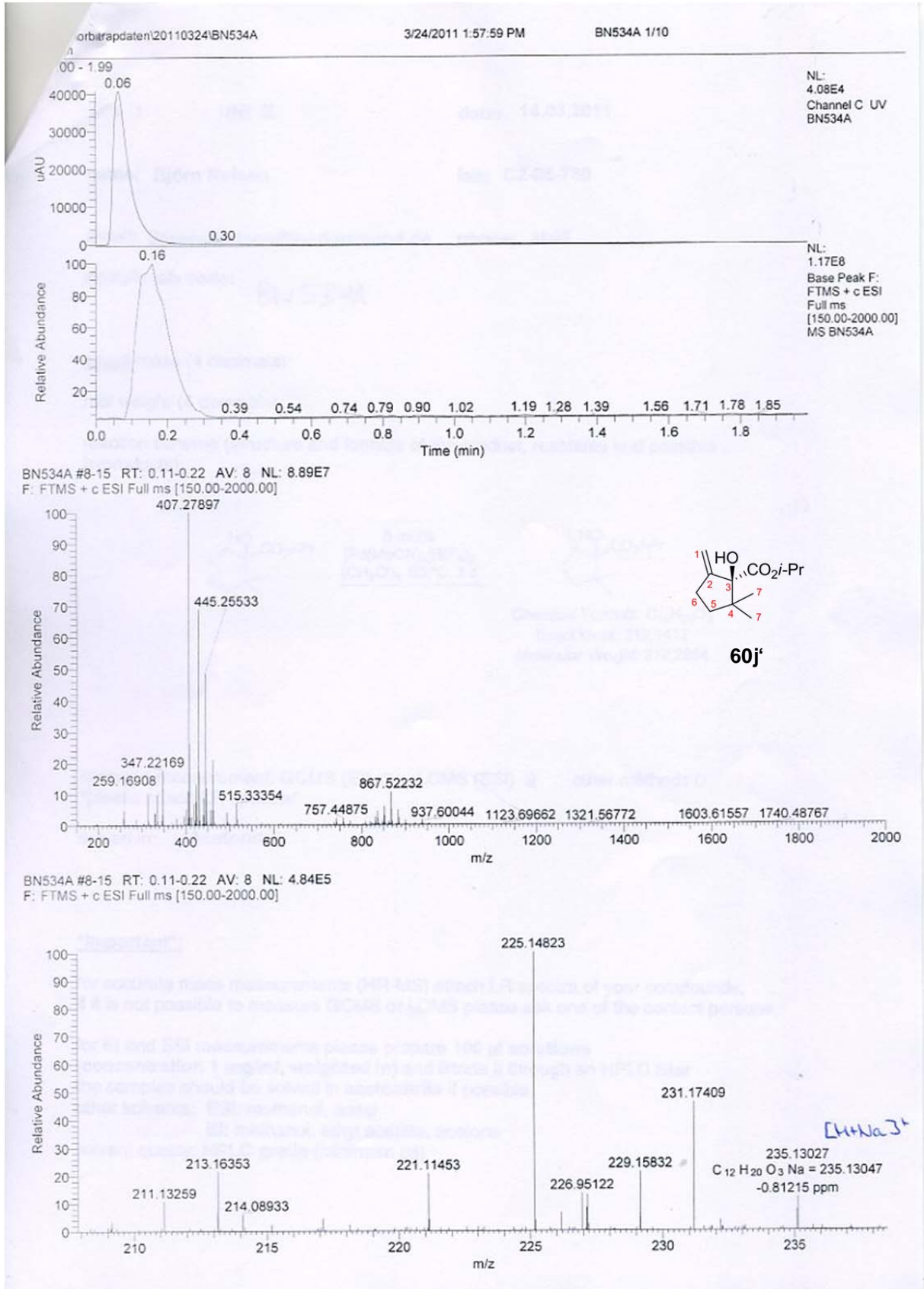


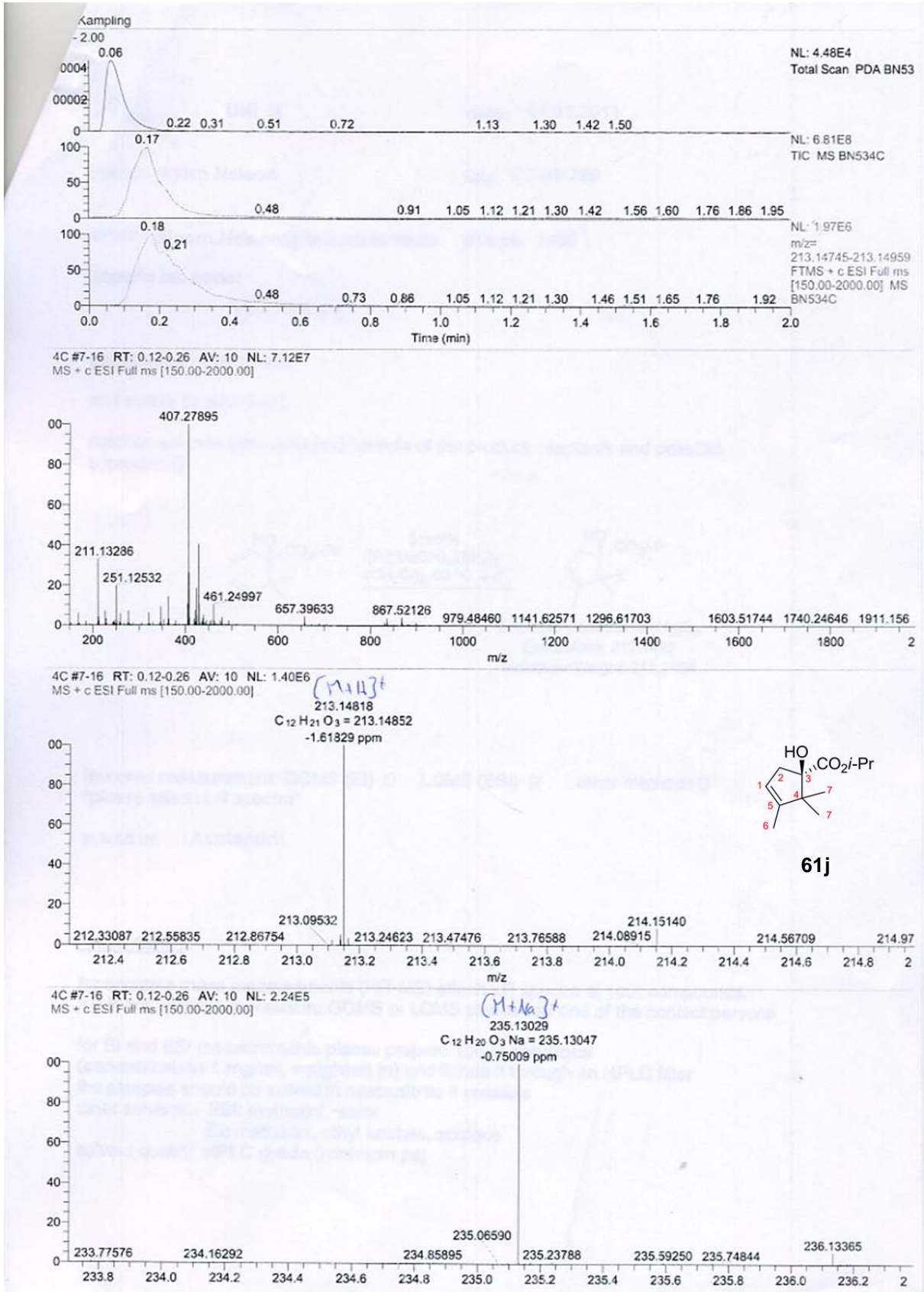


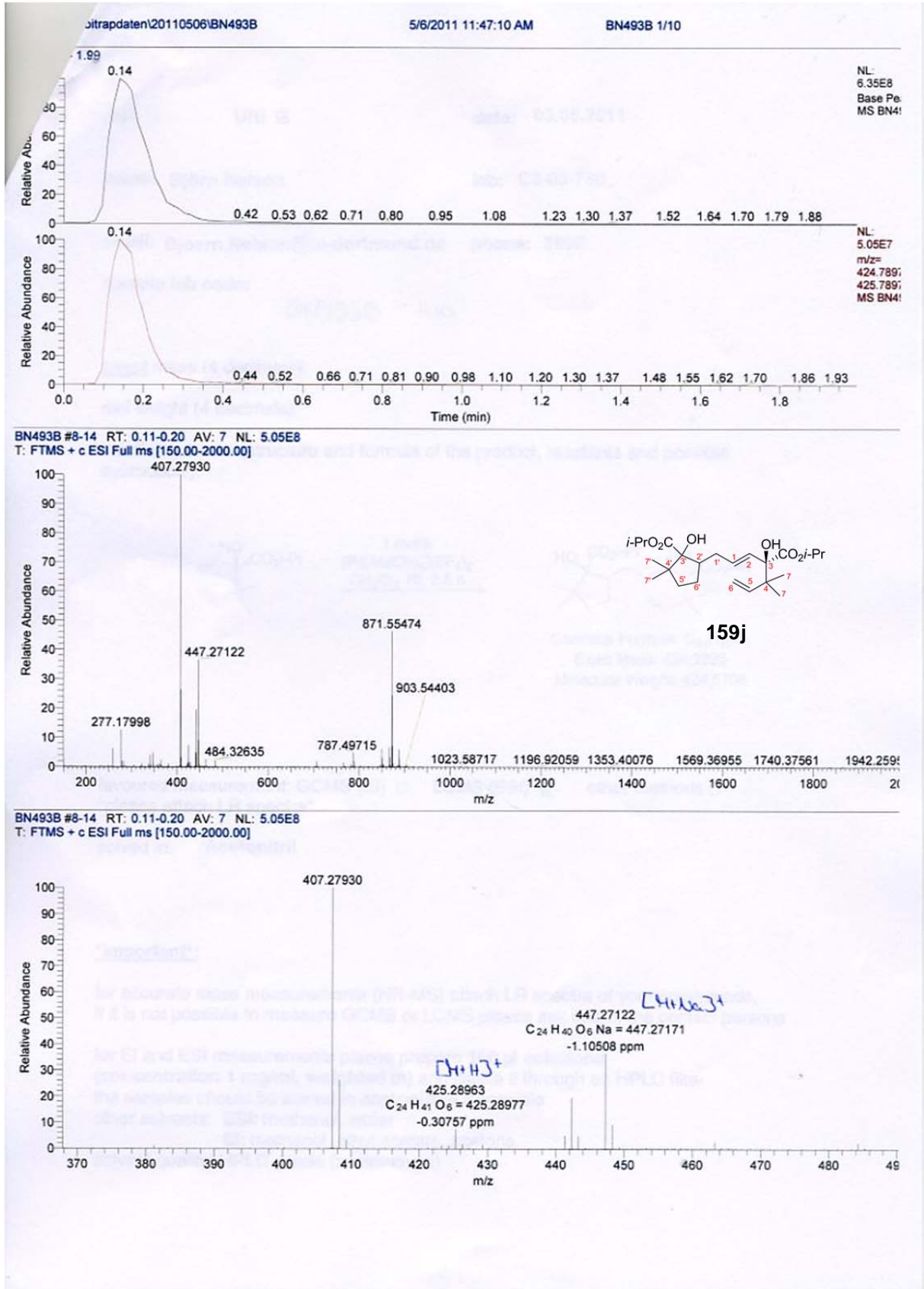


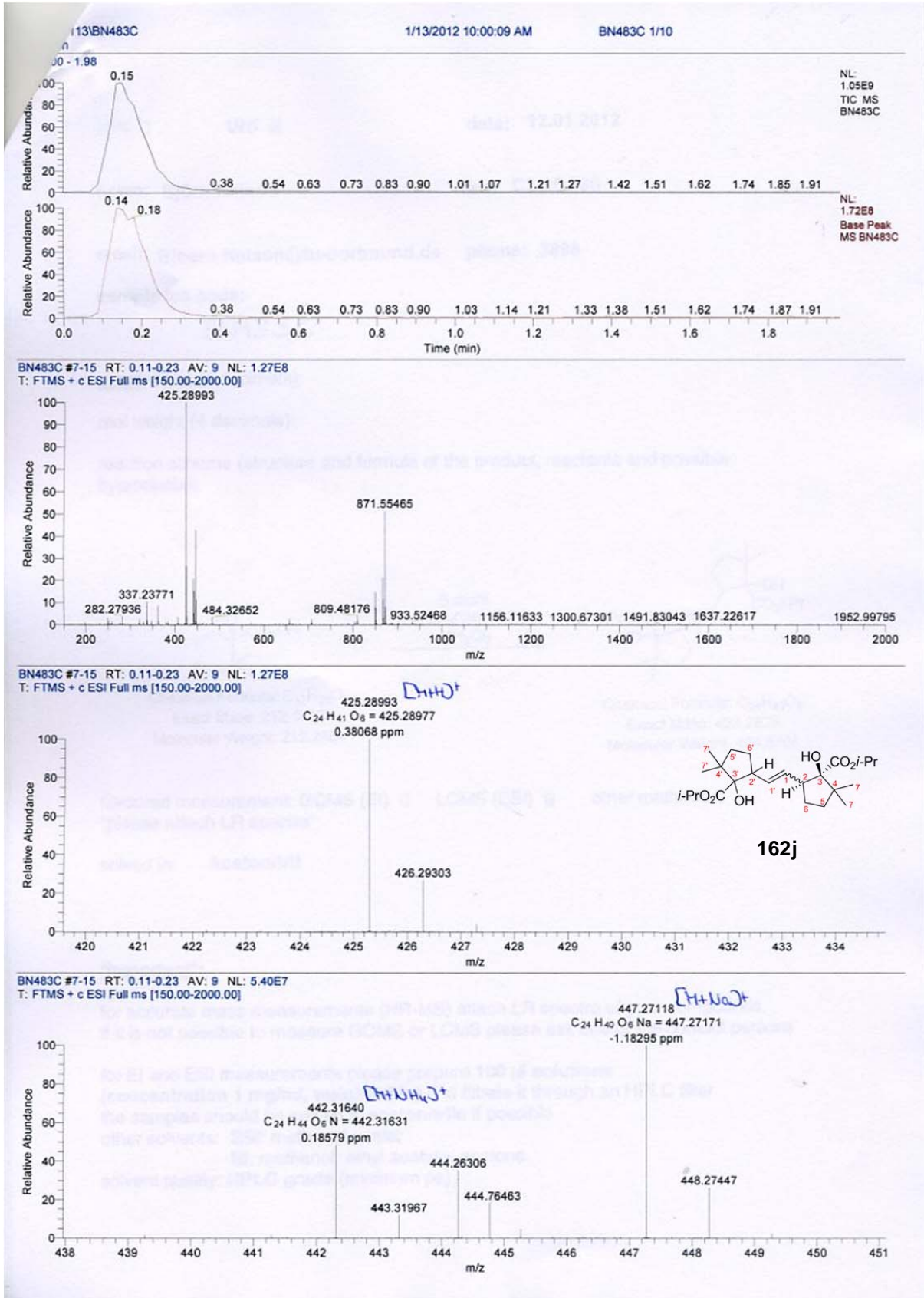


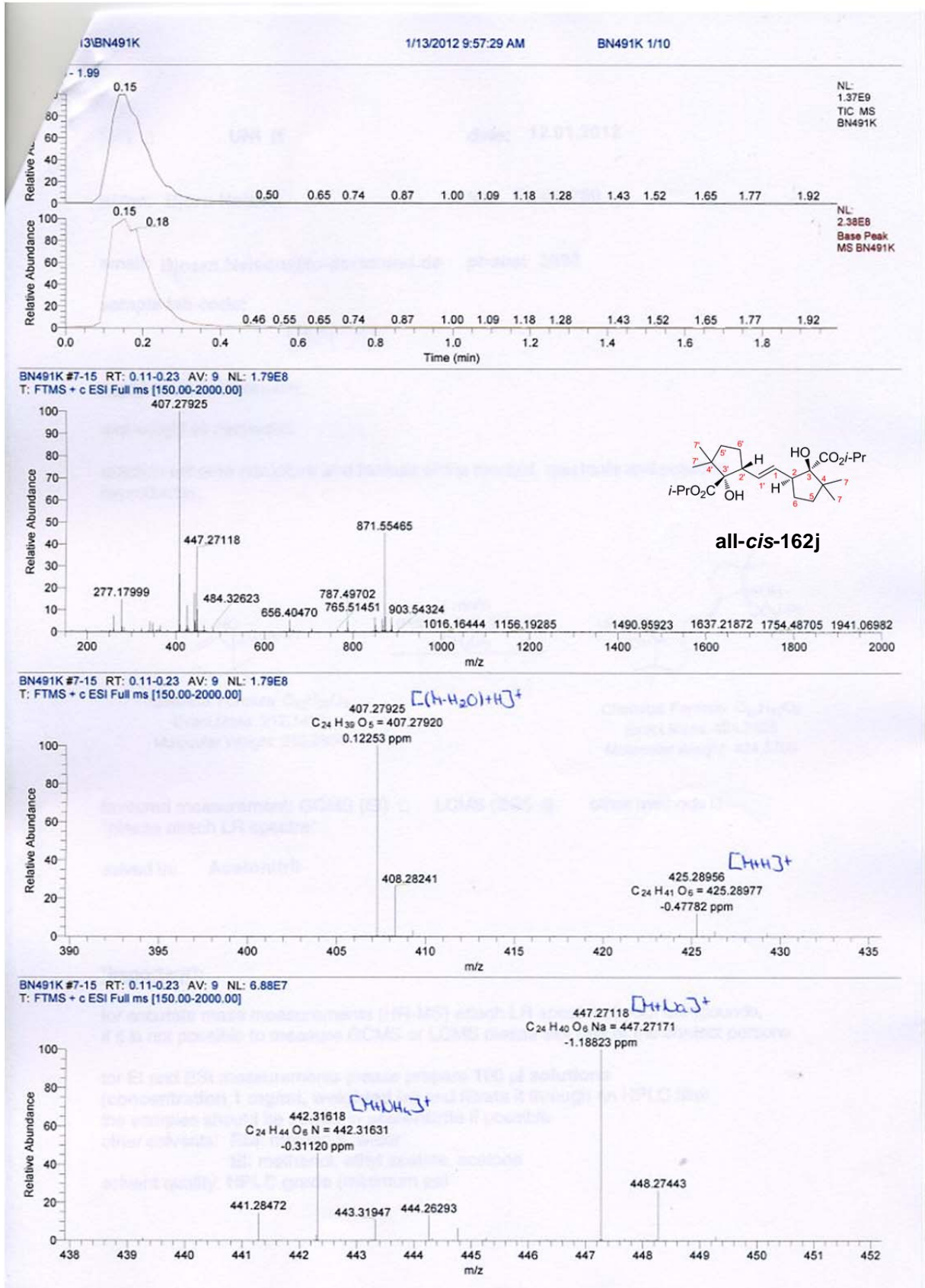


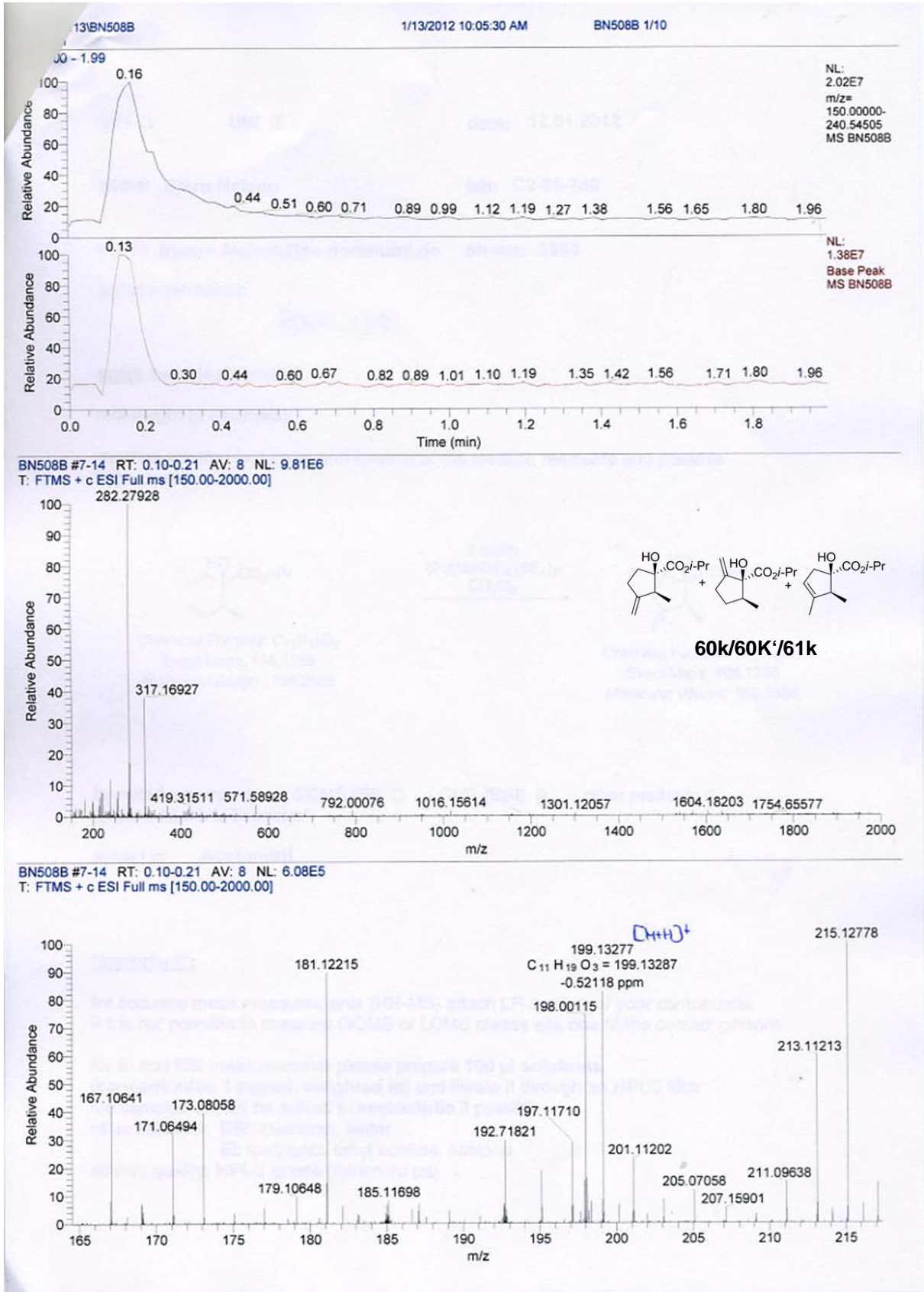


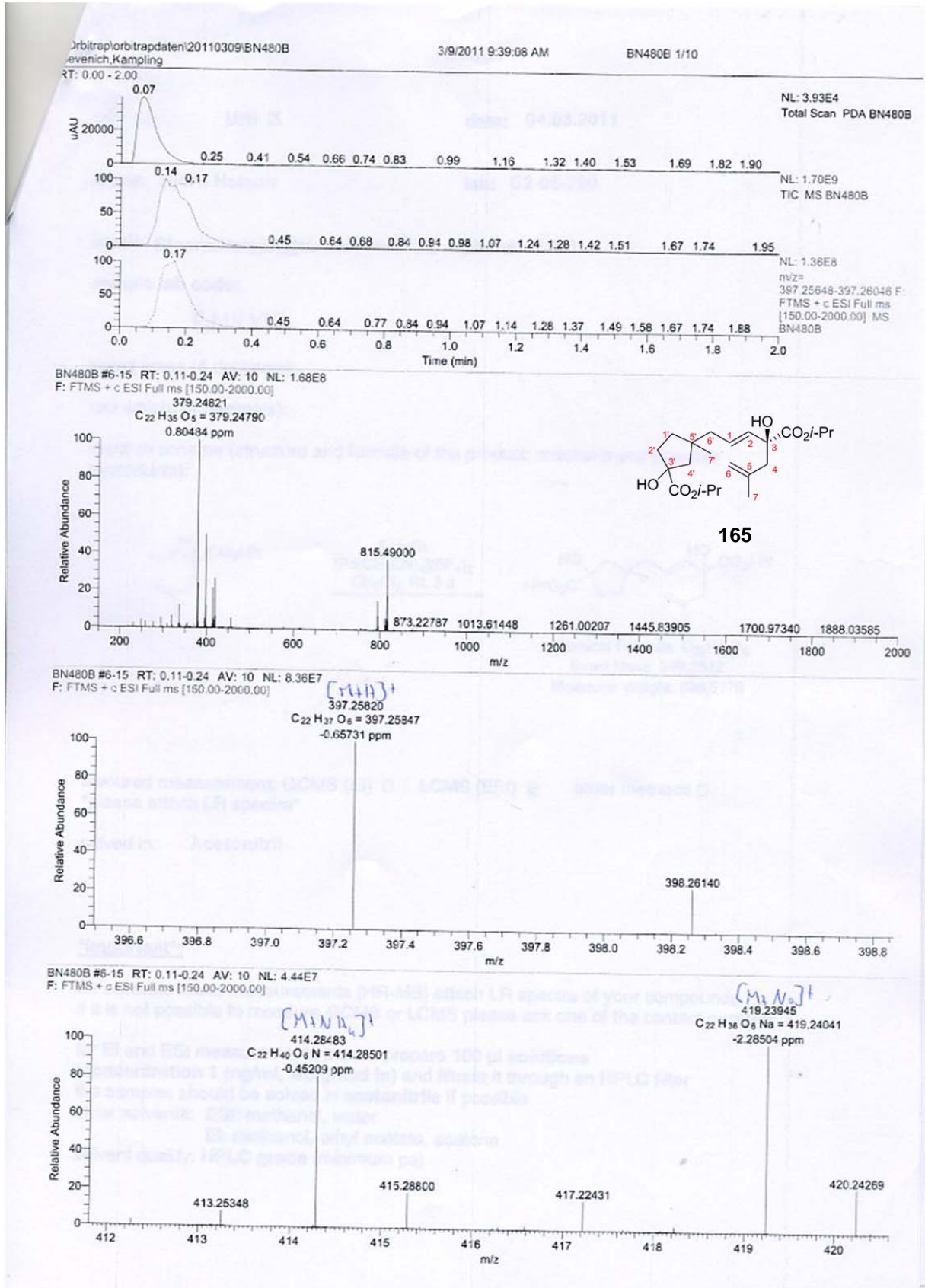


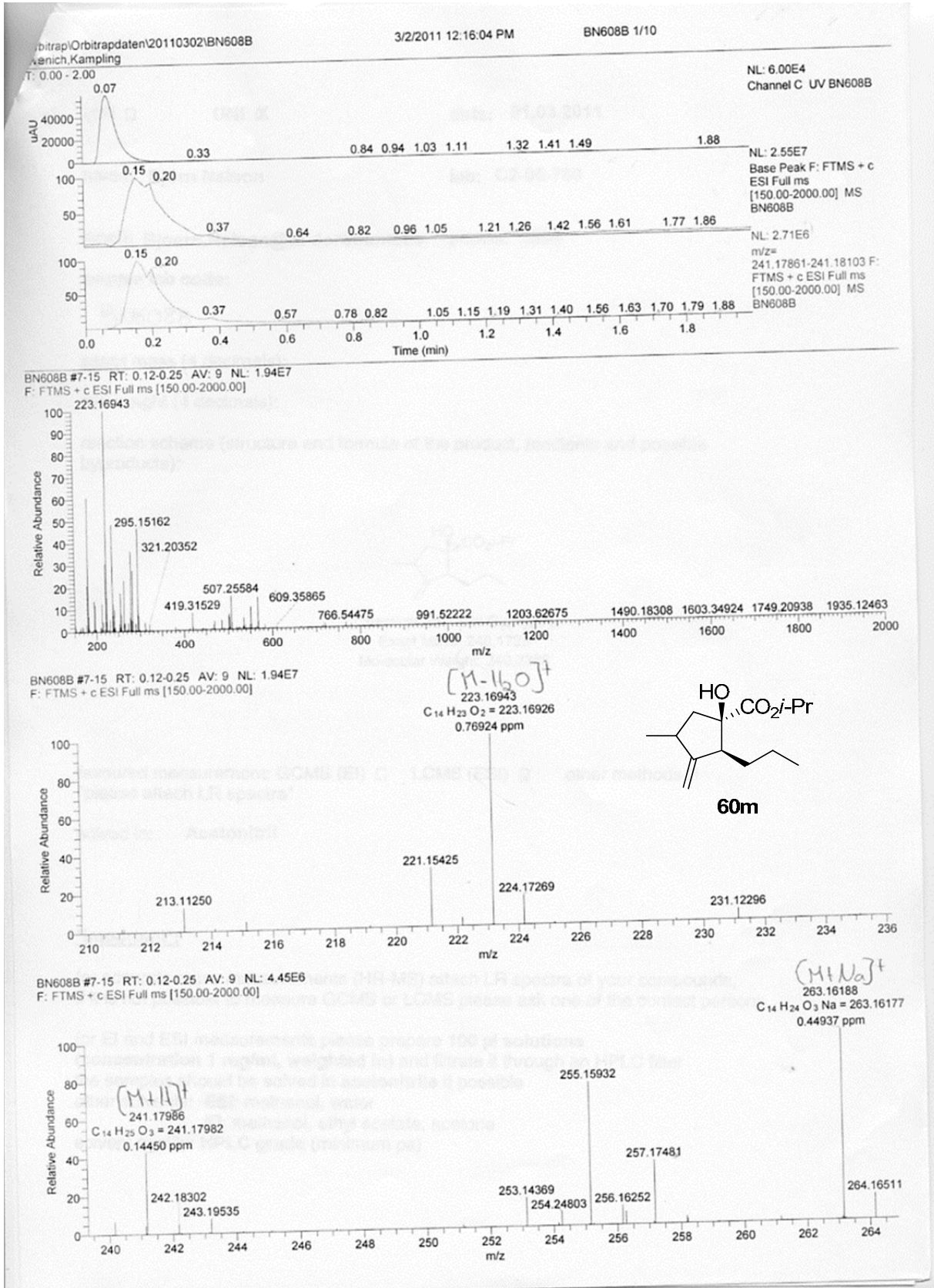


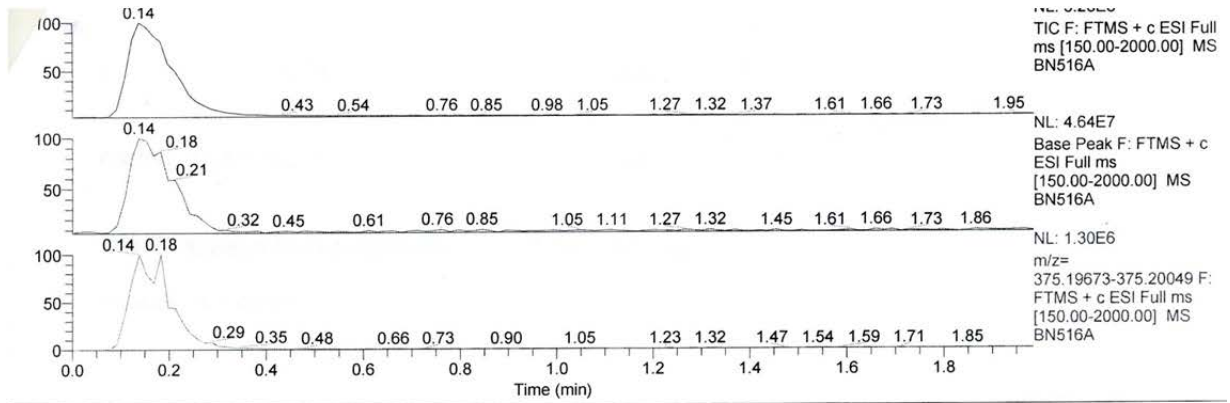




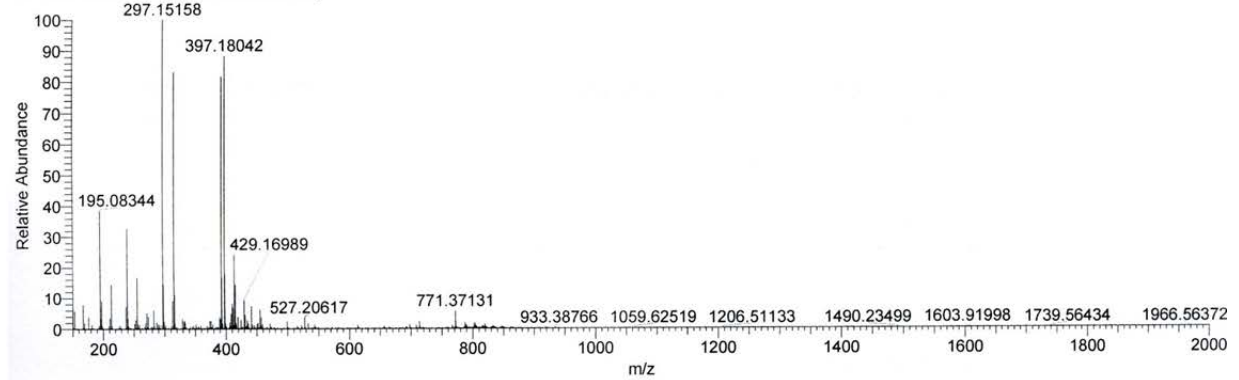




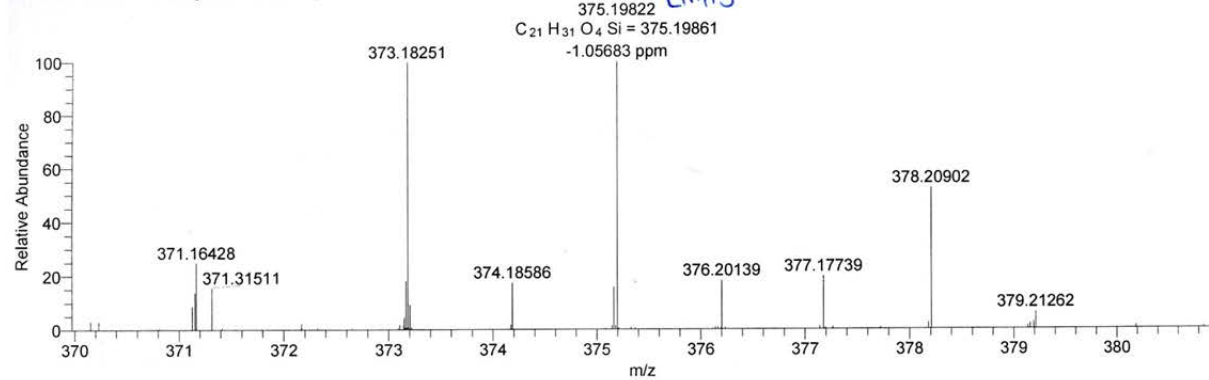




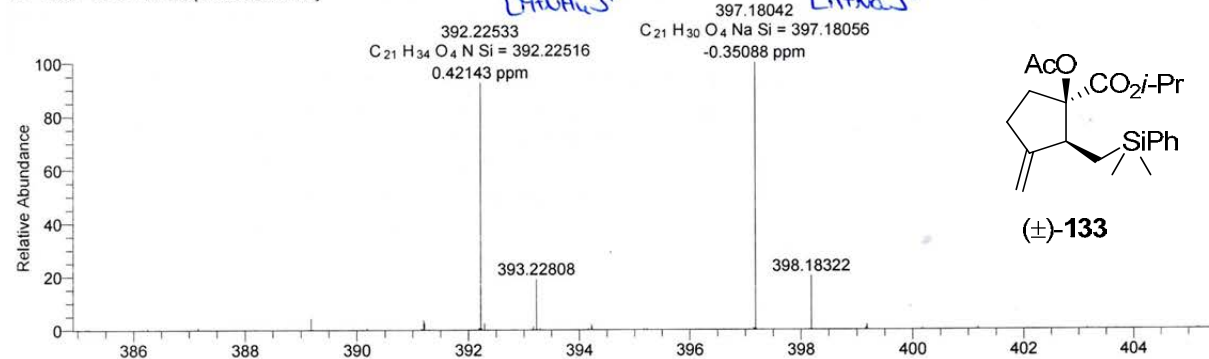
BN516A #8-16 RT: 0.11-0.23 AV: 9 NL: 3.28E7
 F: FTMS + c ESI Full ms [150.00-2000.00]

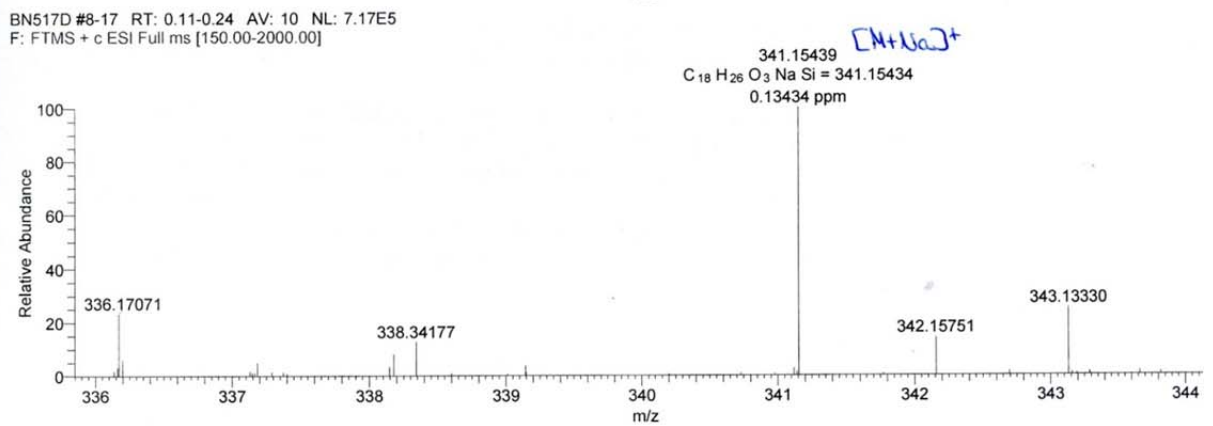
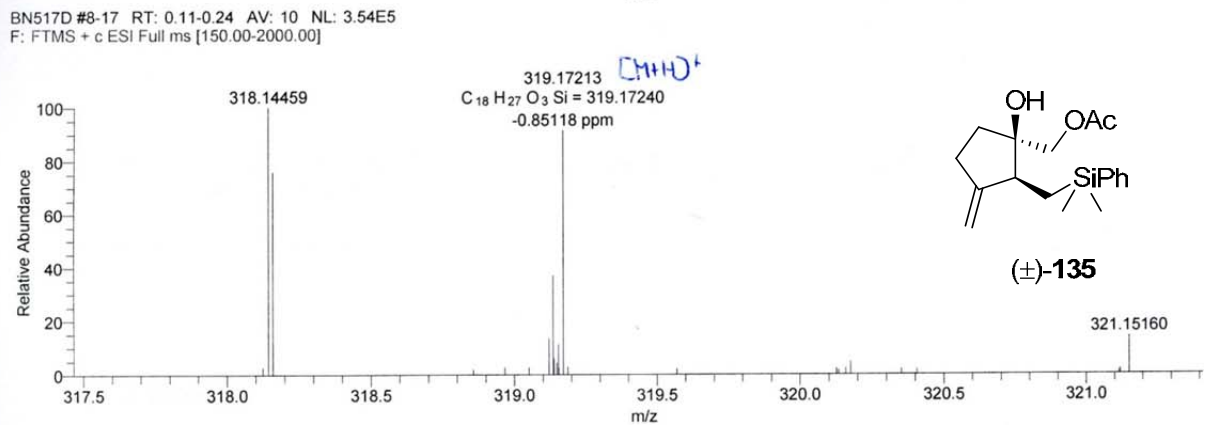
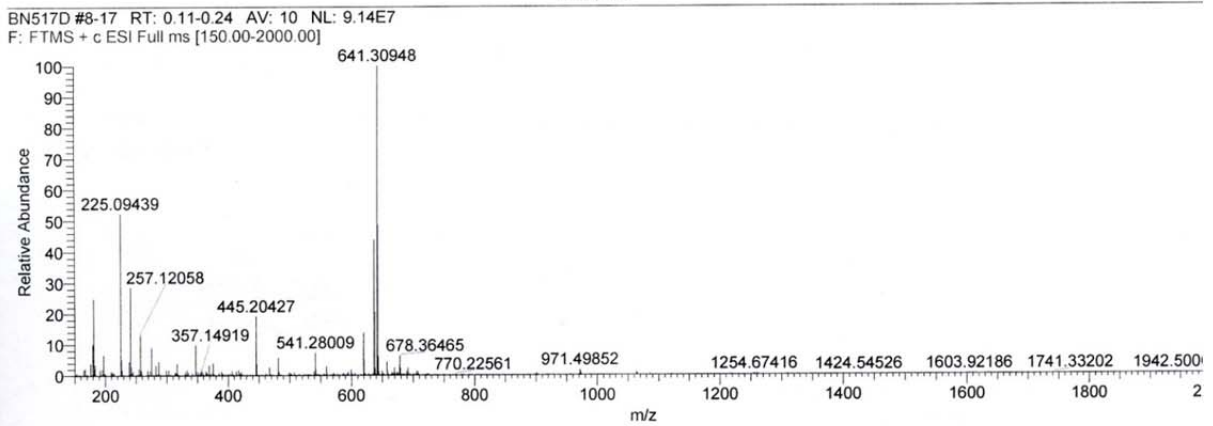
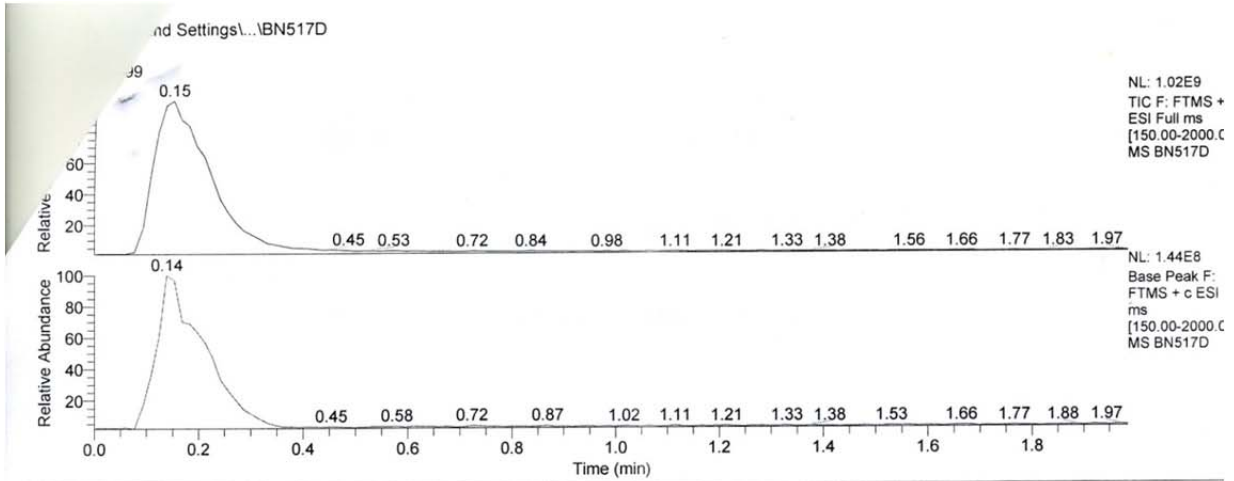


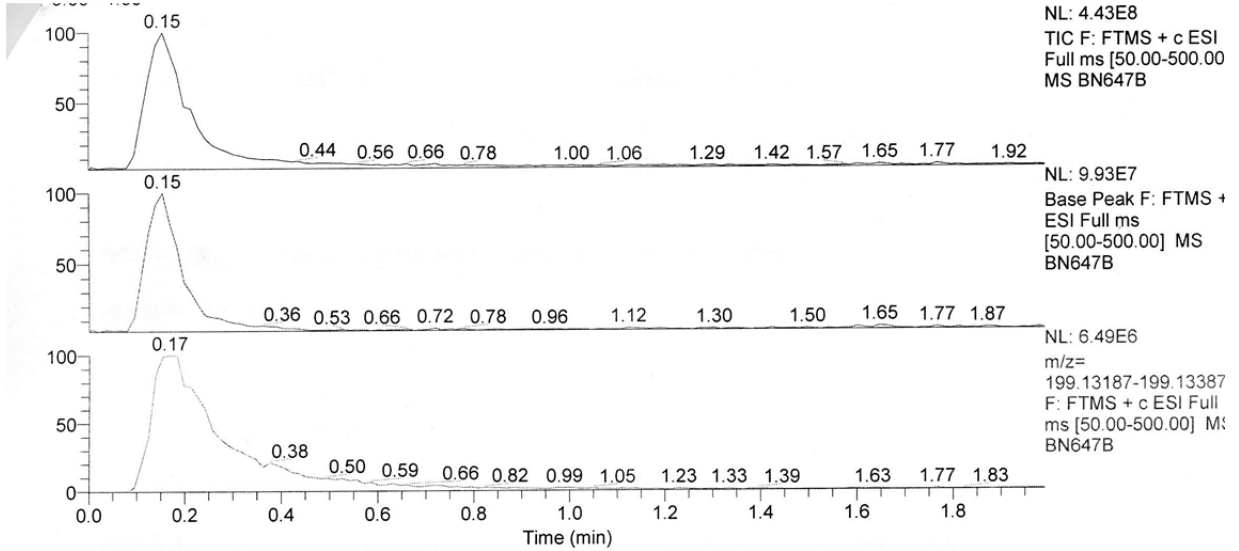
BN516A #8-16 RT: 0.11-0.23 AV: 9 NL: 8.39E5
 F: FTMS + c ESI Full ms [150.00-2000.00]



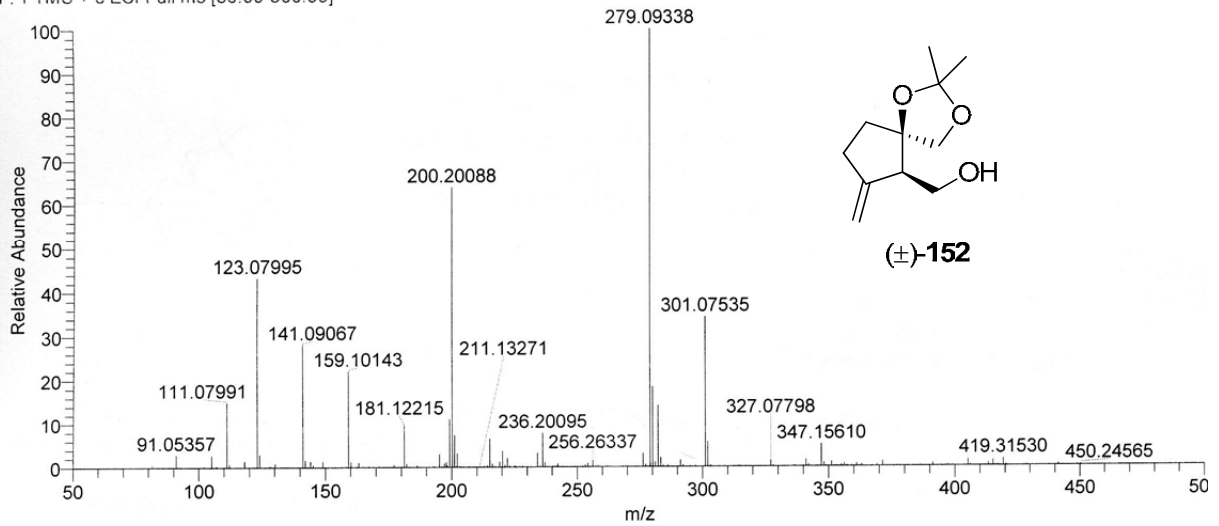
BN516A #8-16 RT: 0.11-0.23 AV: 9 NL: 2.90E7
 F: FTMS + c ESI Full ms [150.00-2000.00]



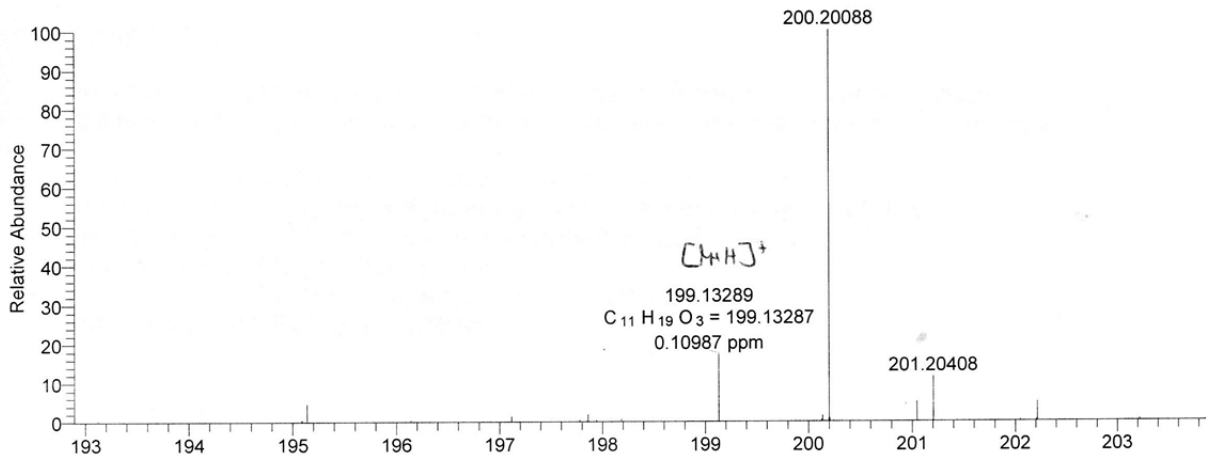


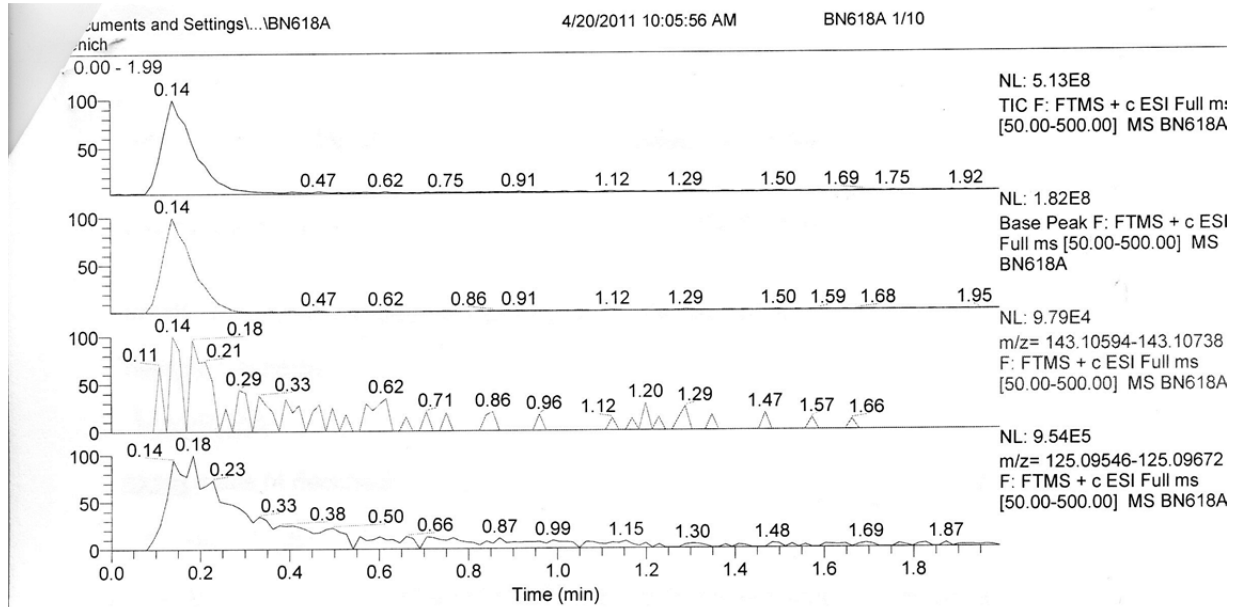


BN647B #10-23 RT: 0.12-0.32 AV: 14 NL: 3.74E7
F: FTMS + c ESI Full ms [50.00-500.00]

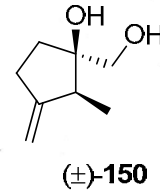
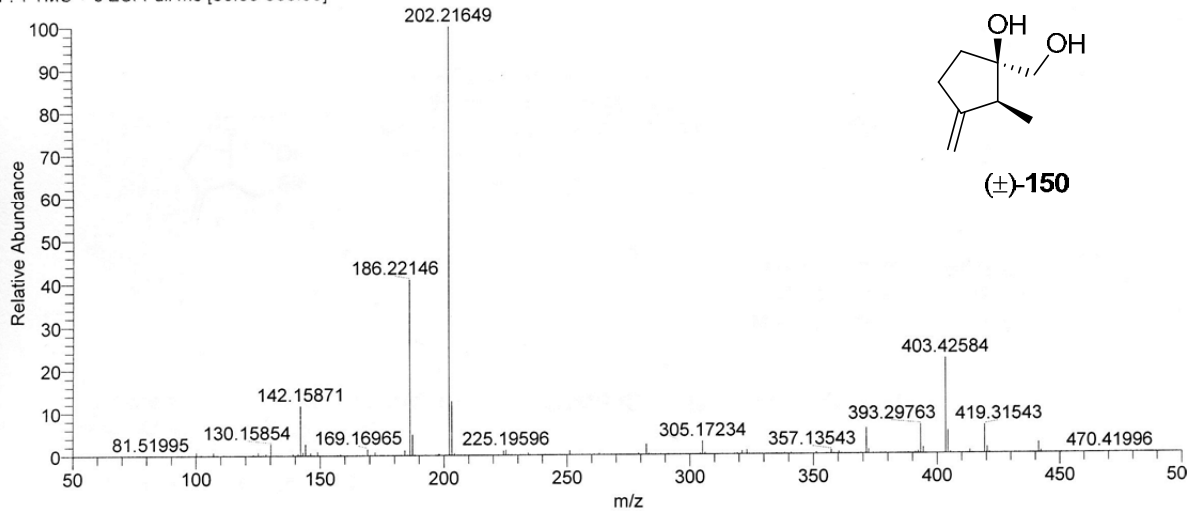


BN647B #10-23 RT: 0.12-0.32 AV: 14 NL: 2.39E7
F: FTMS + c ESI Full ms [50.00-500.00]





BN618A #9-19 RT: 0.11-0.26 AV: 11 NL: 8.46E7
 F: FTMS + c ESI Full ms [50.00-500.00]



BN618A #9-19 RT: 0.11-0.26 AV: 11 NL: 9.81E6
 F: FTMS + c ESI Full ms [50.00-500.00]

