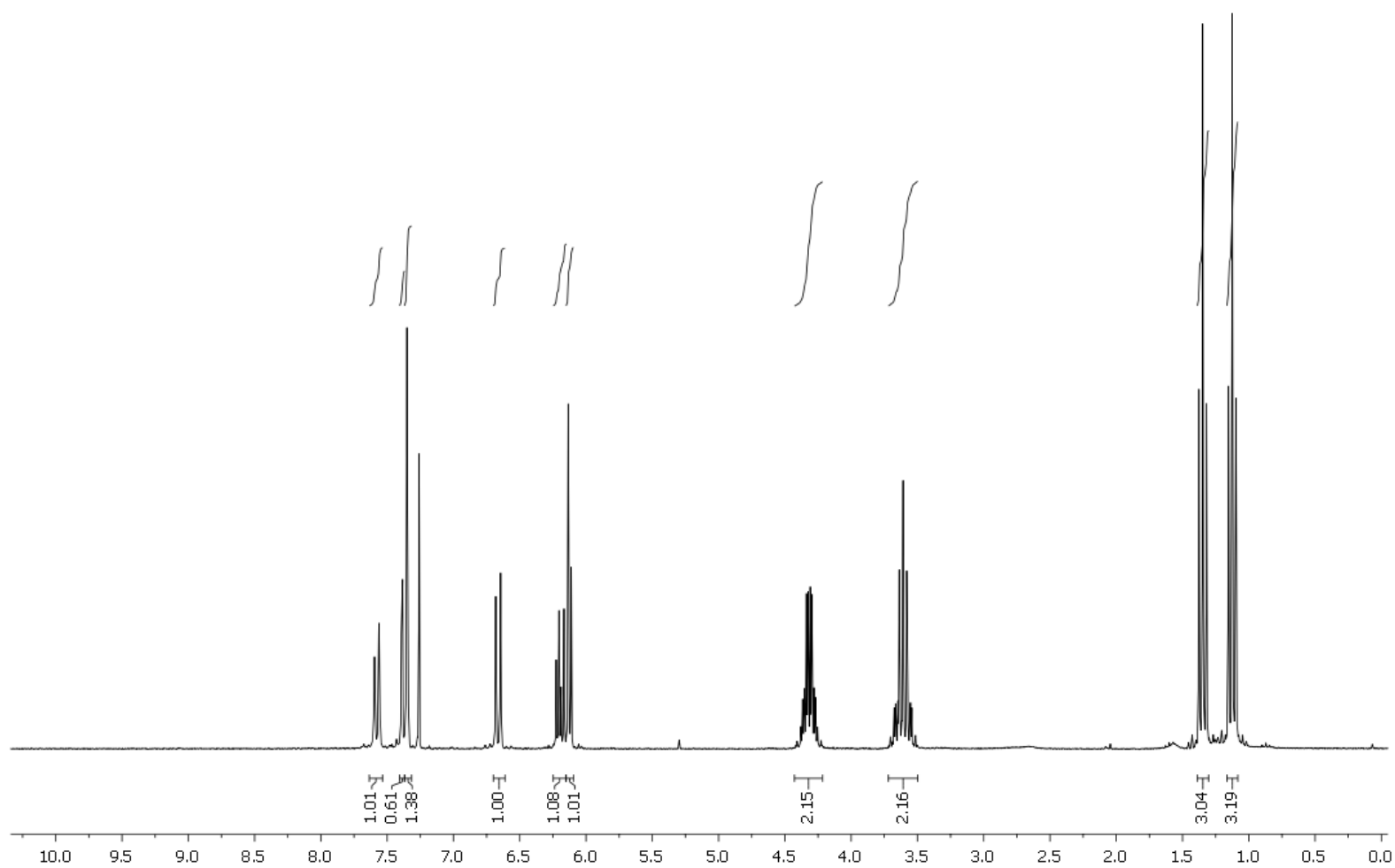
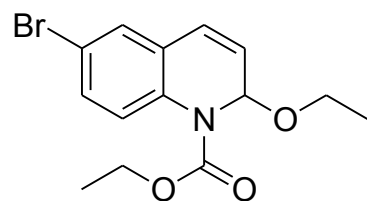
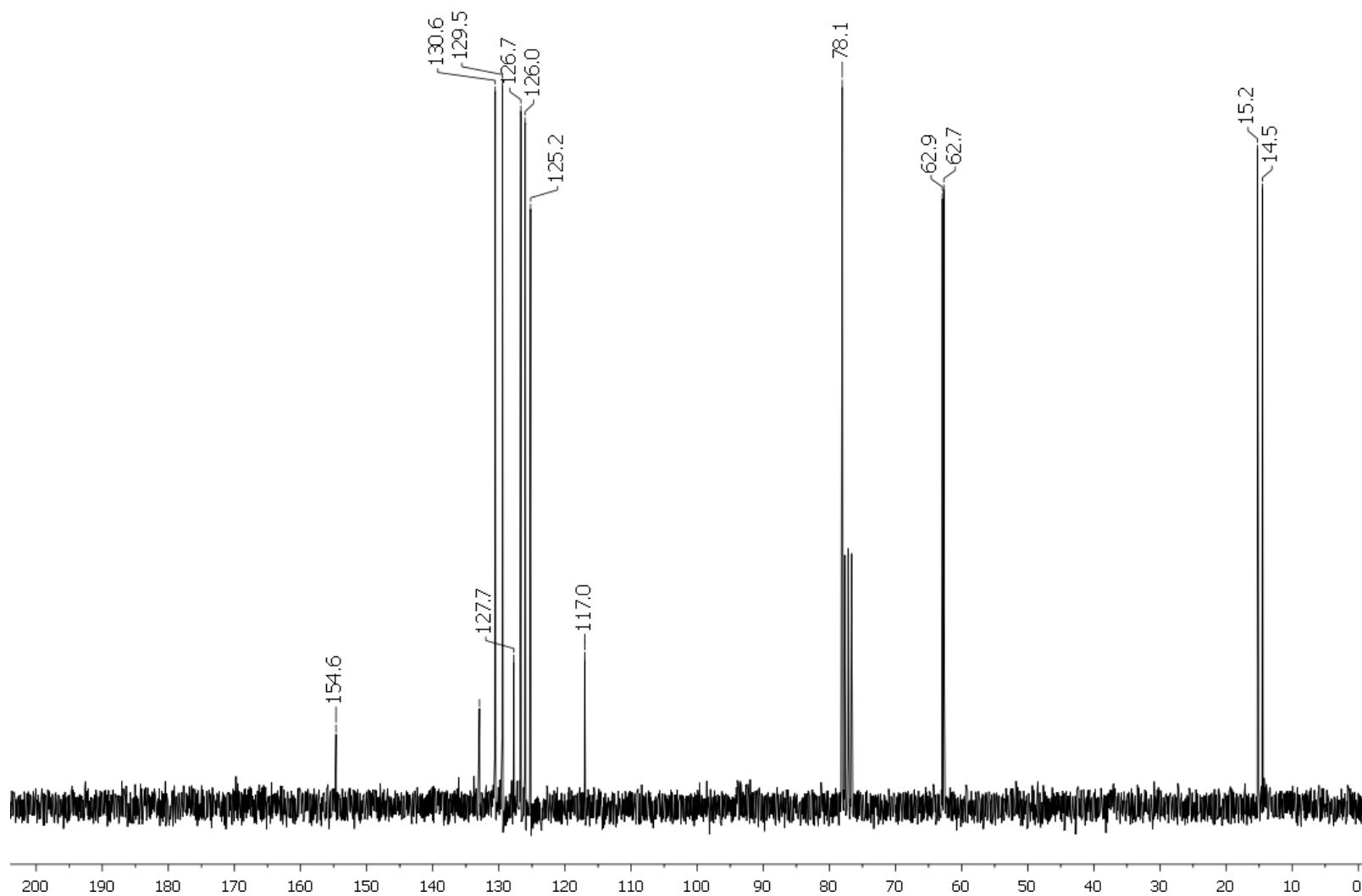
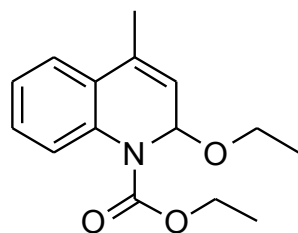
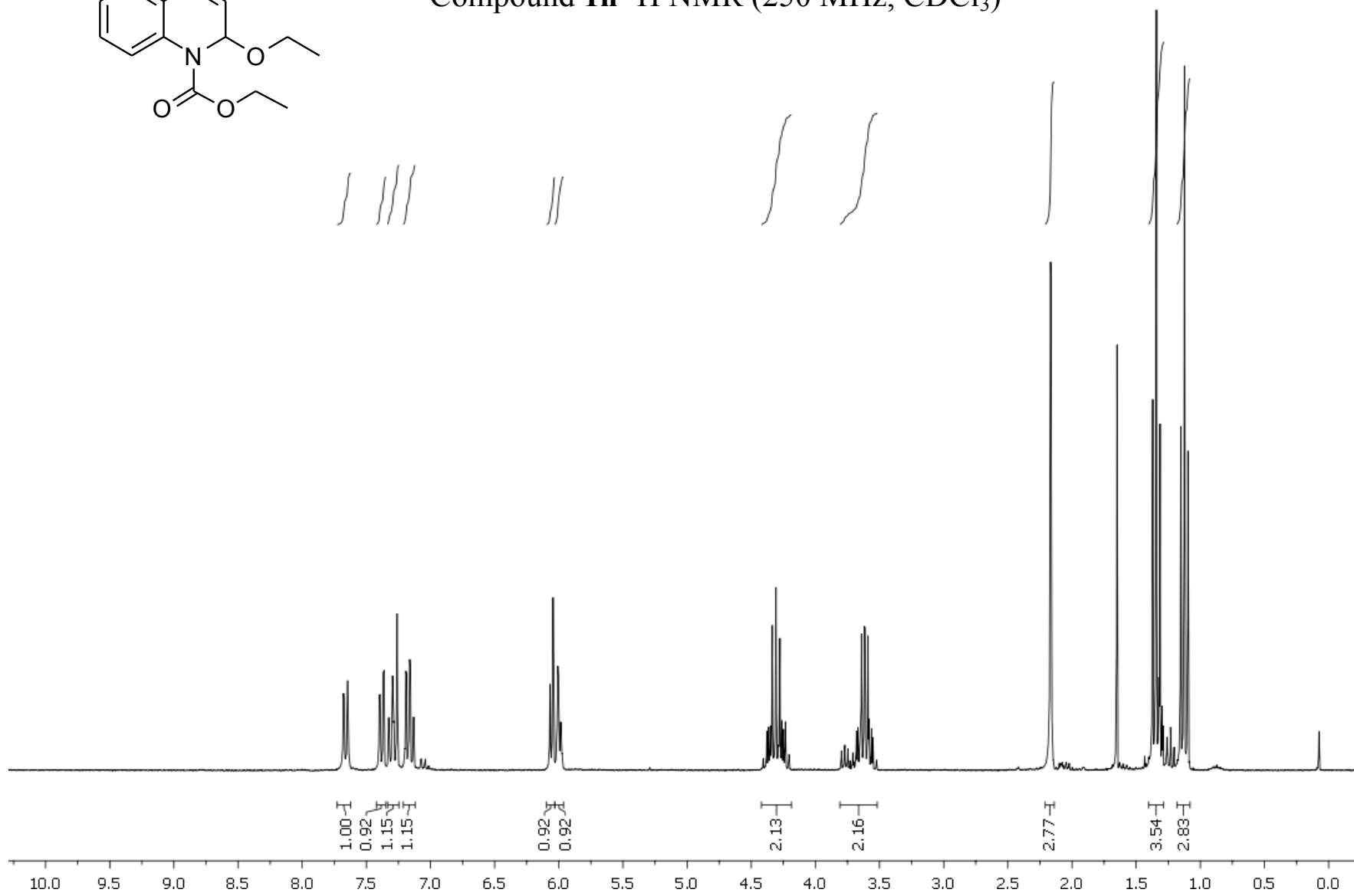
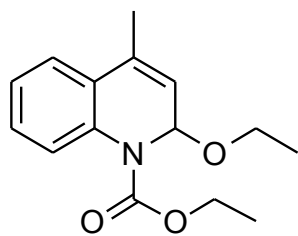
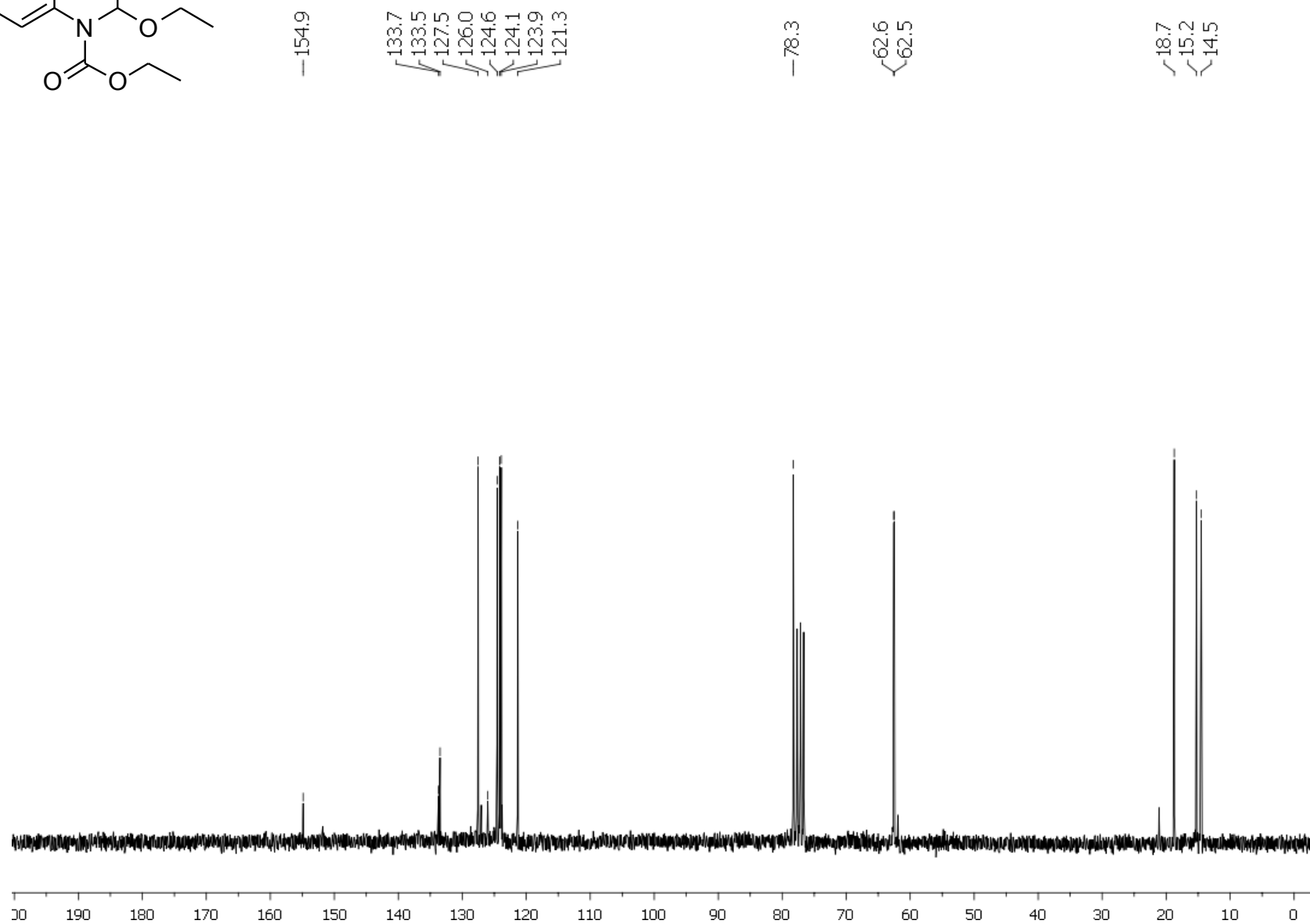


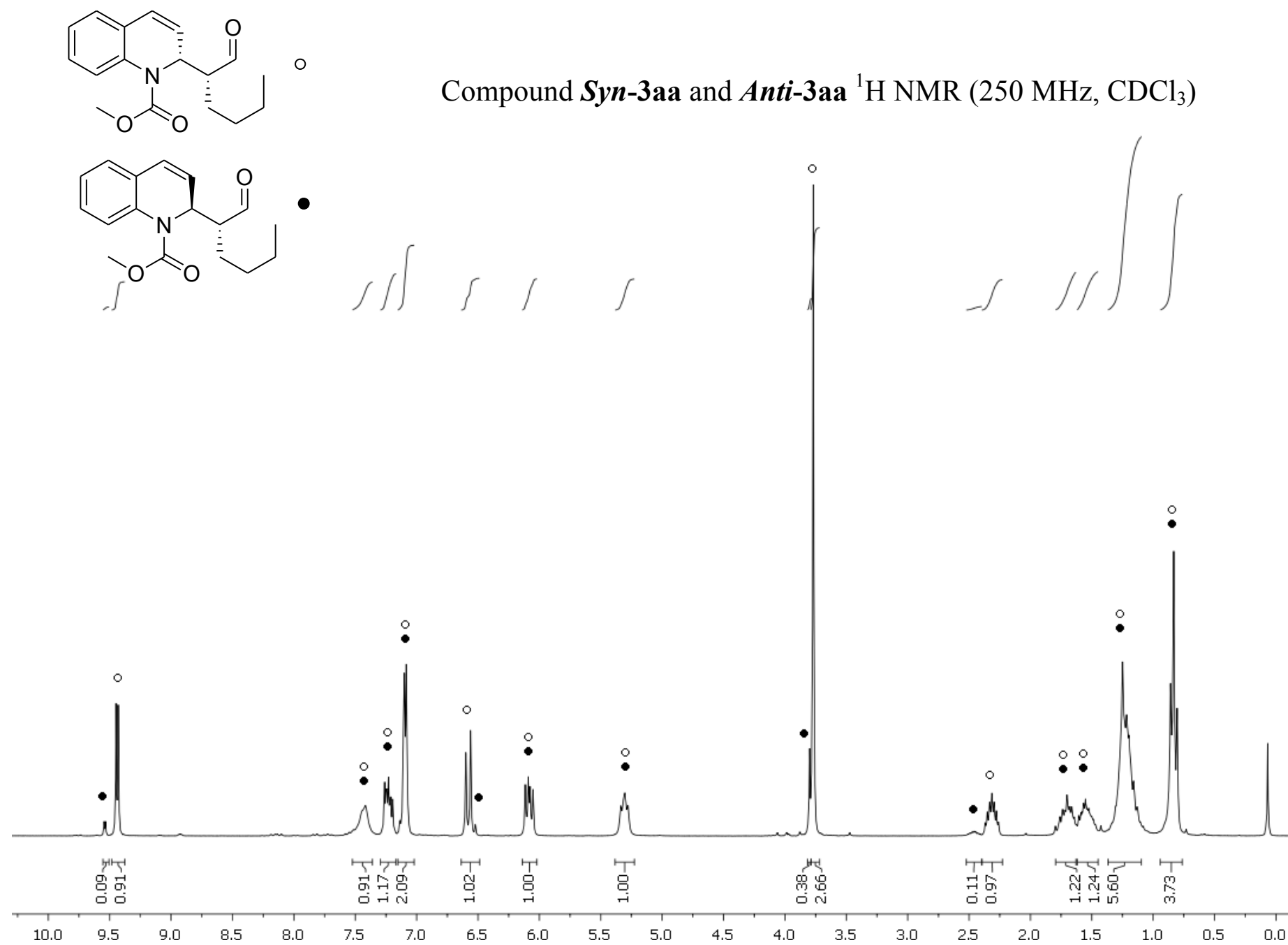
Compound **1d**  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )

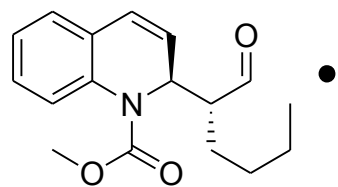
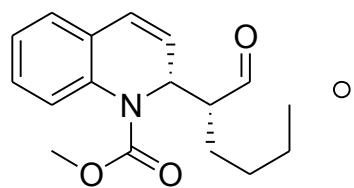


Compound **1d**  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

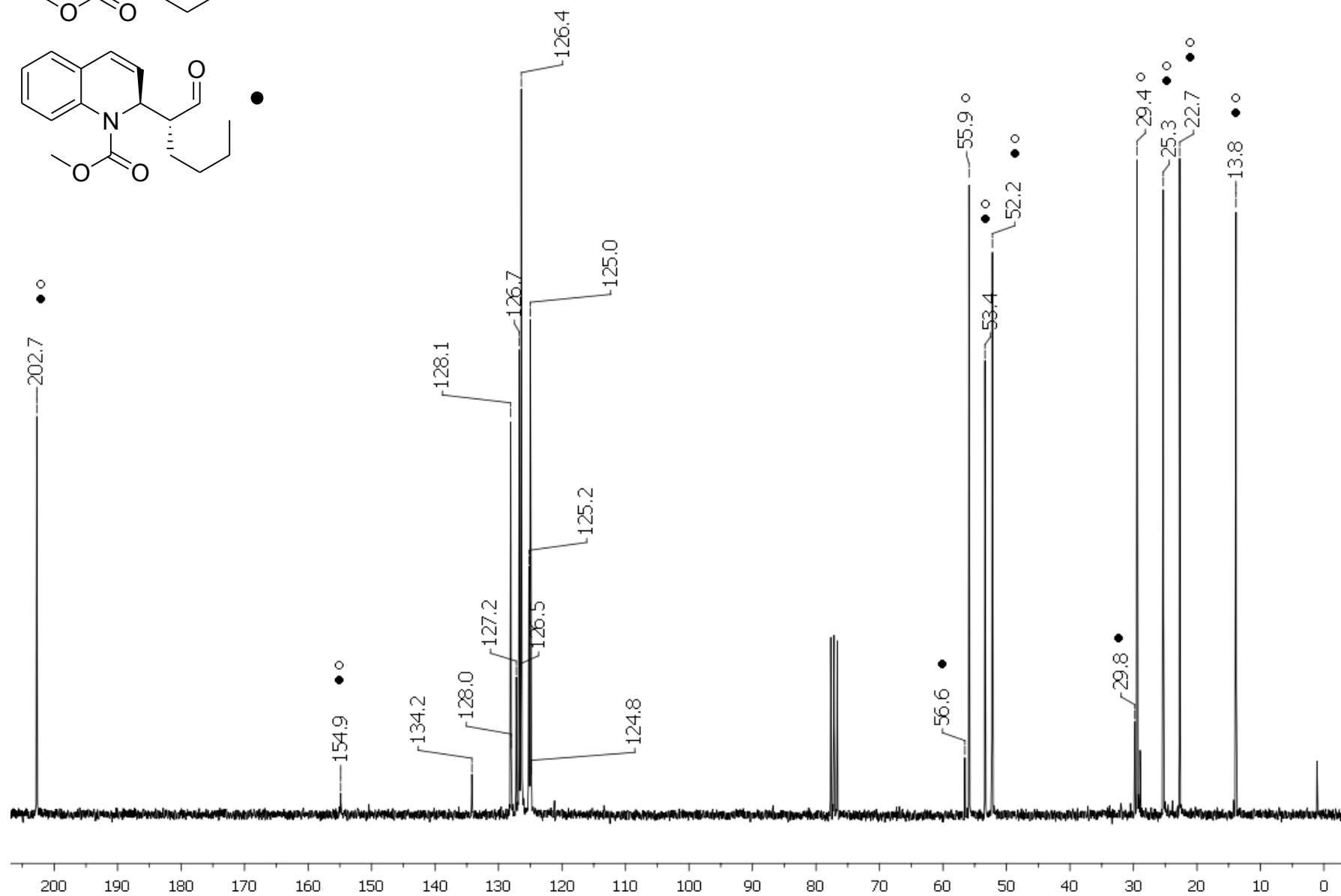
Compound **1h**  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )

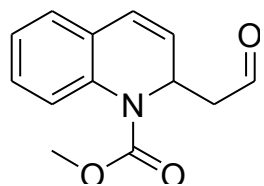
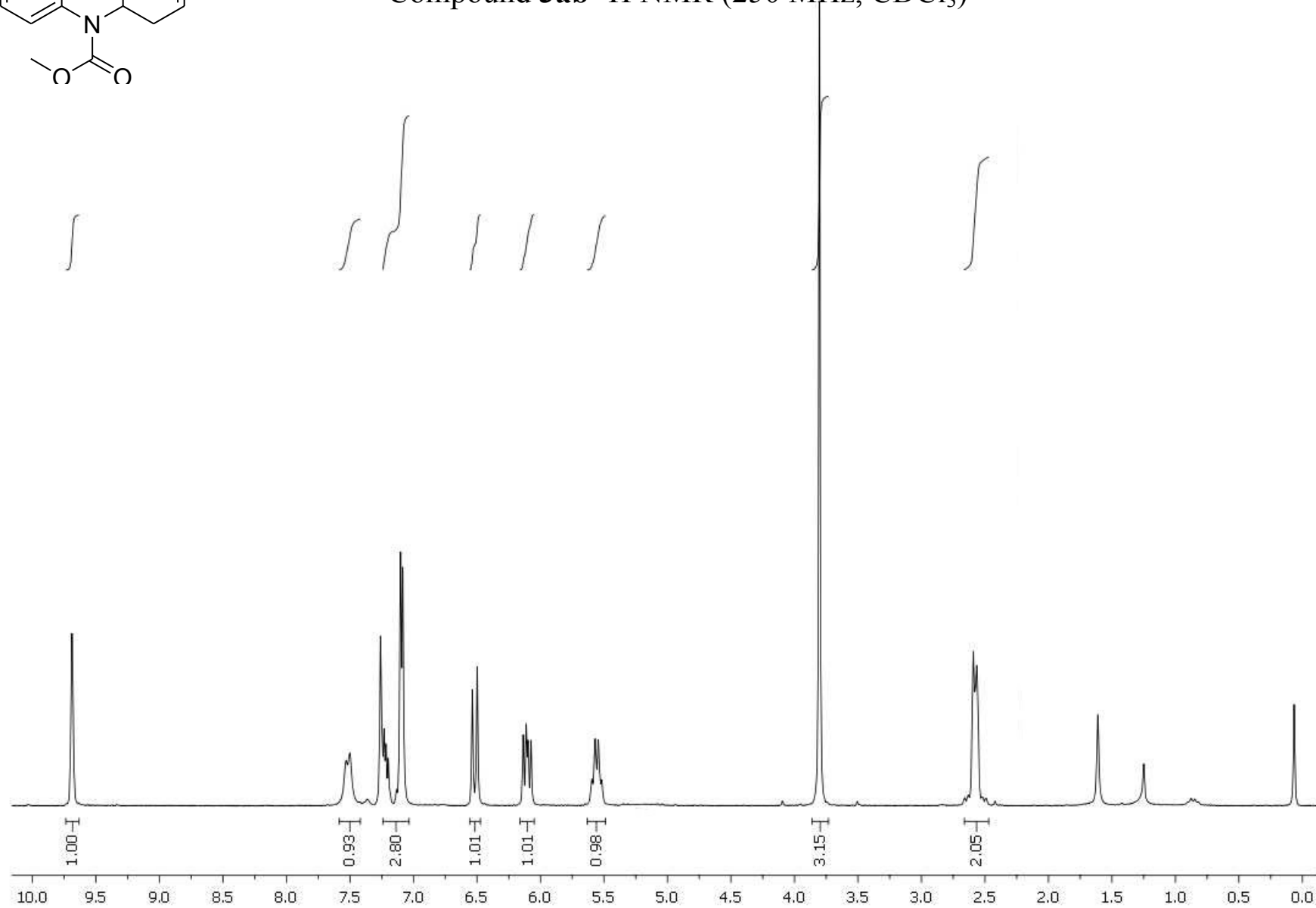
Compound **1h**  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

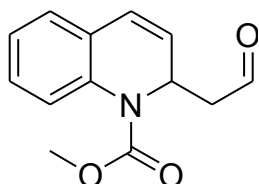
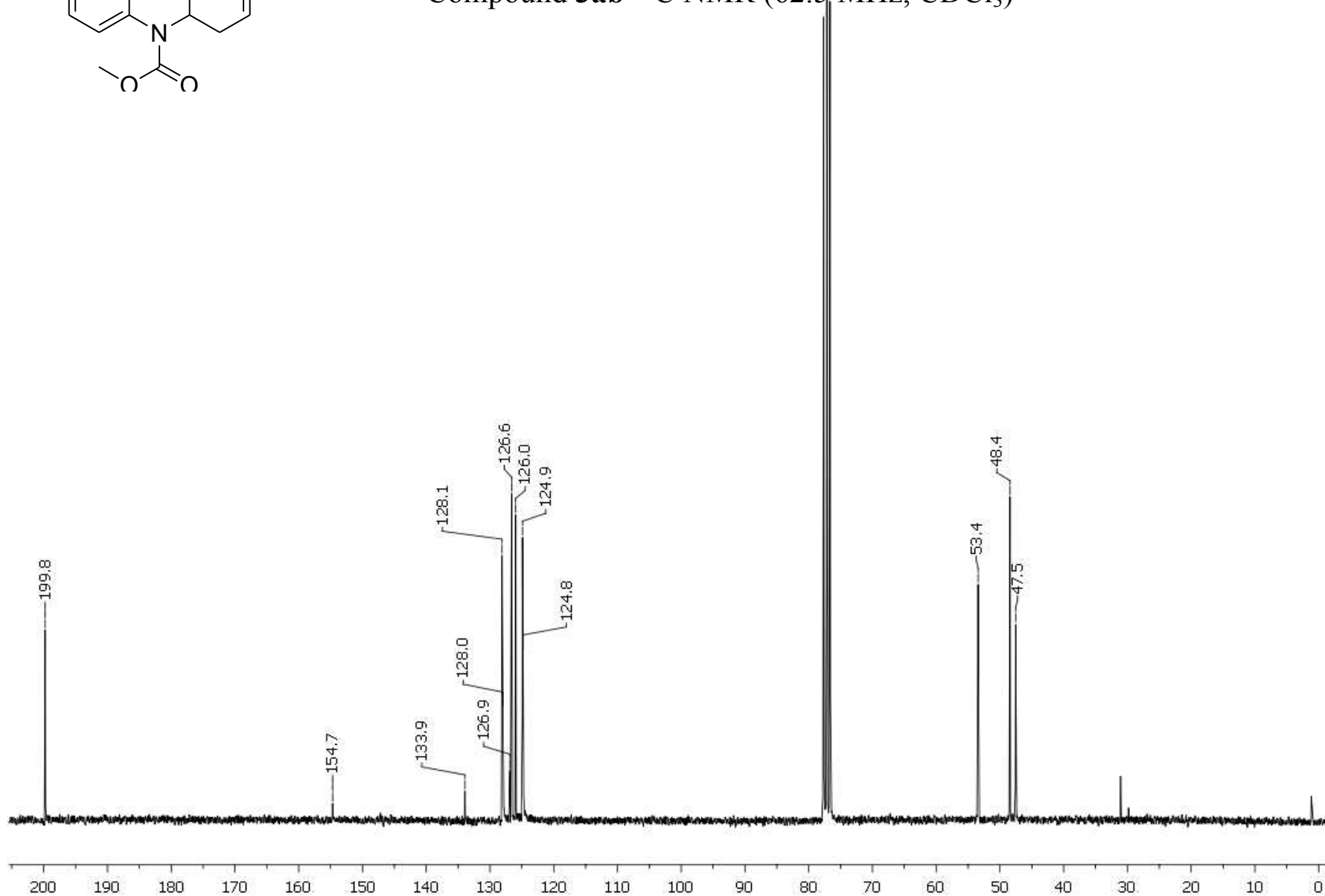




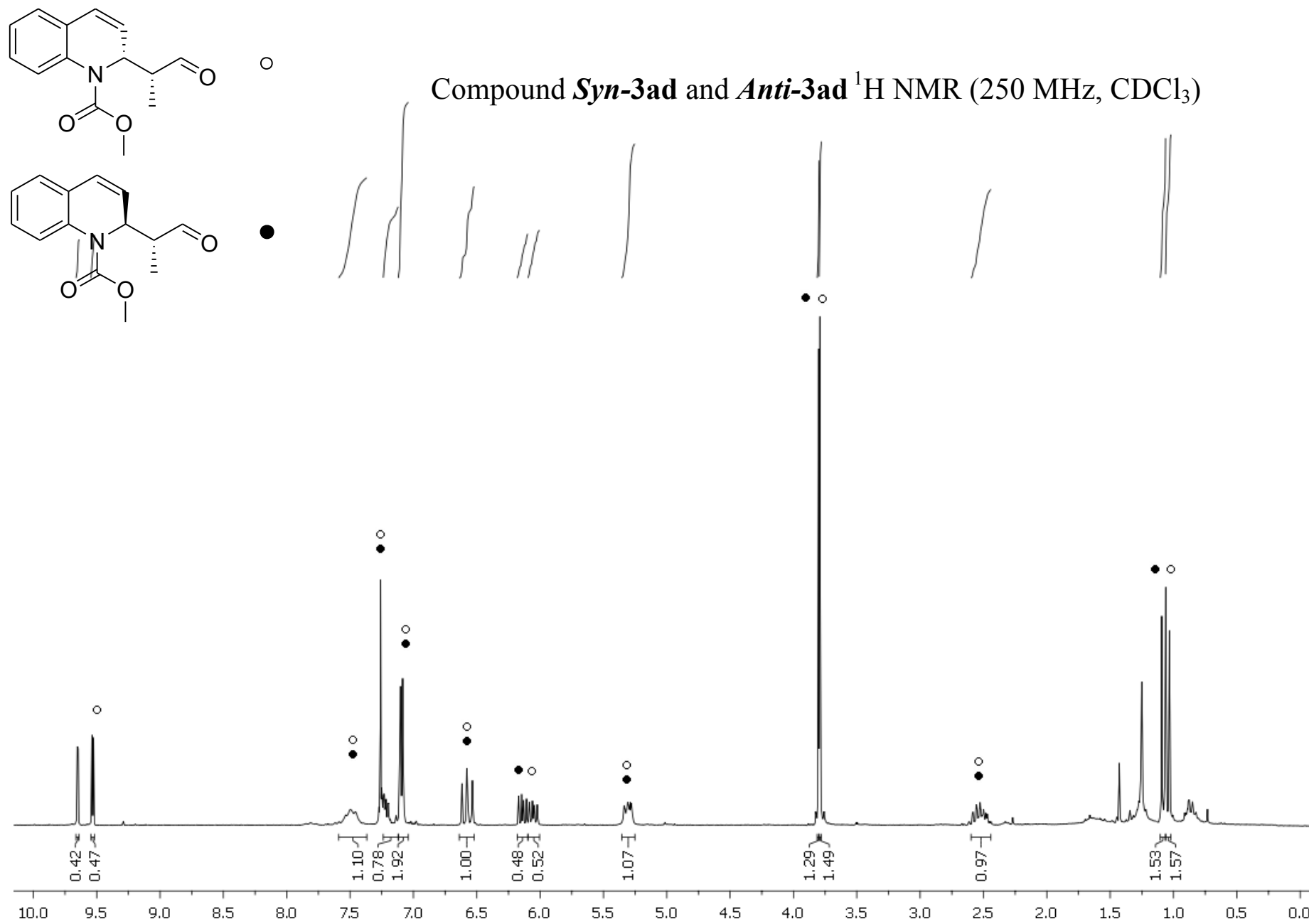
Compound *Syn-3aa* and *Anti-3aa*  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

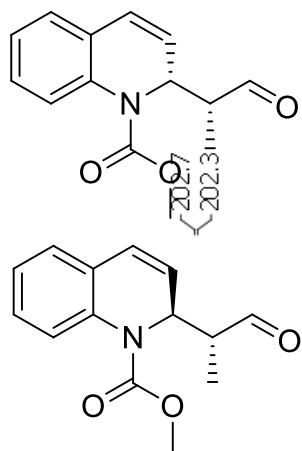


Compound **3ab** <sup>1</sup>H NMR (250 MHz, CDCl<sub>3</sub>)

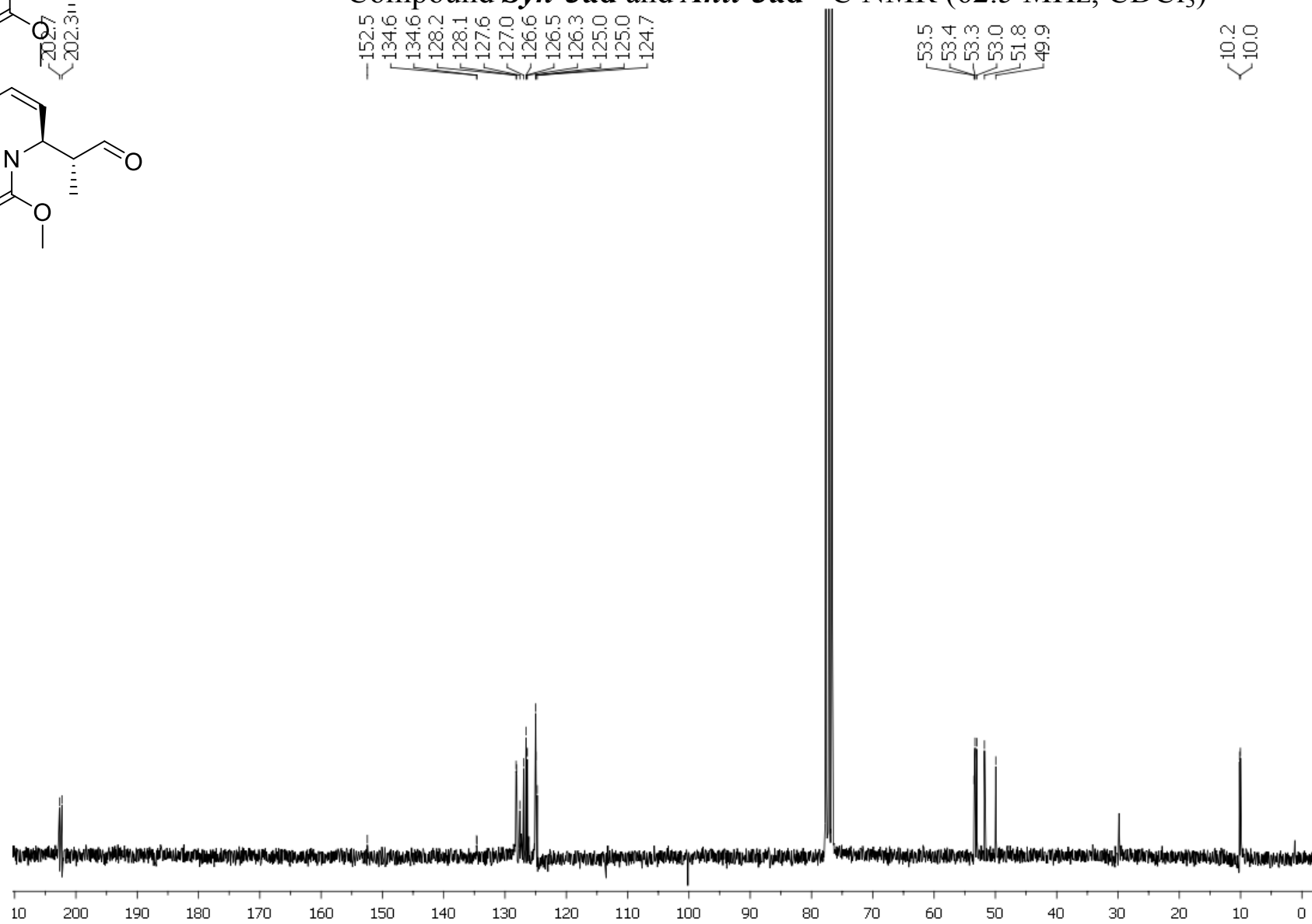
Compound **3ab**  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

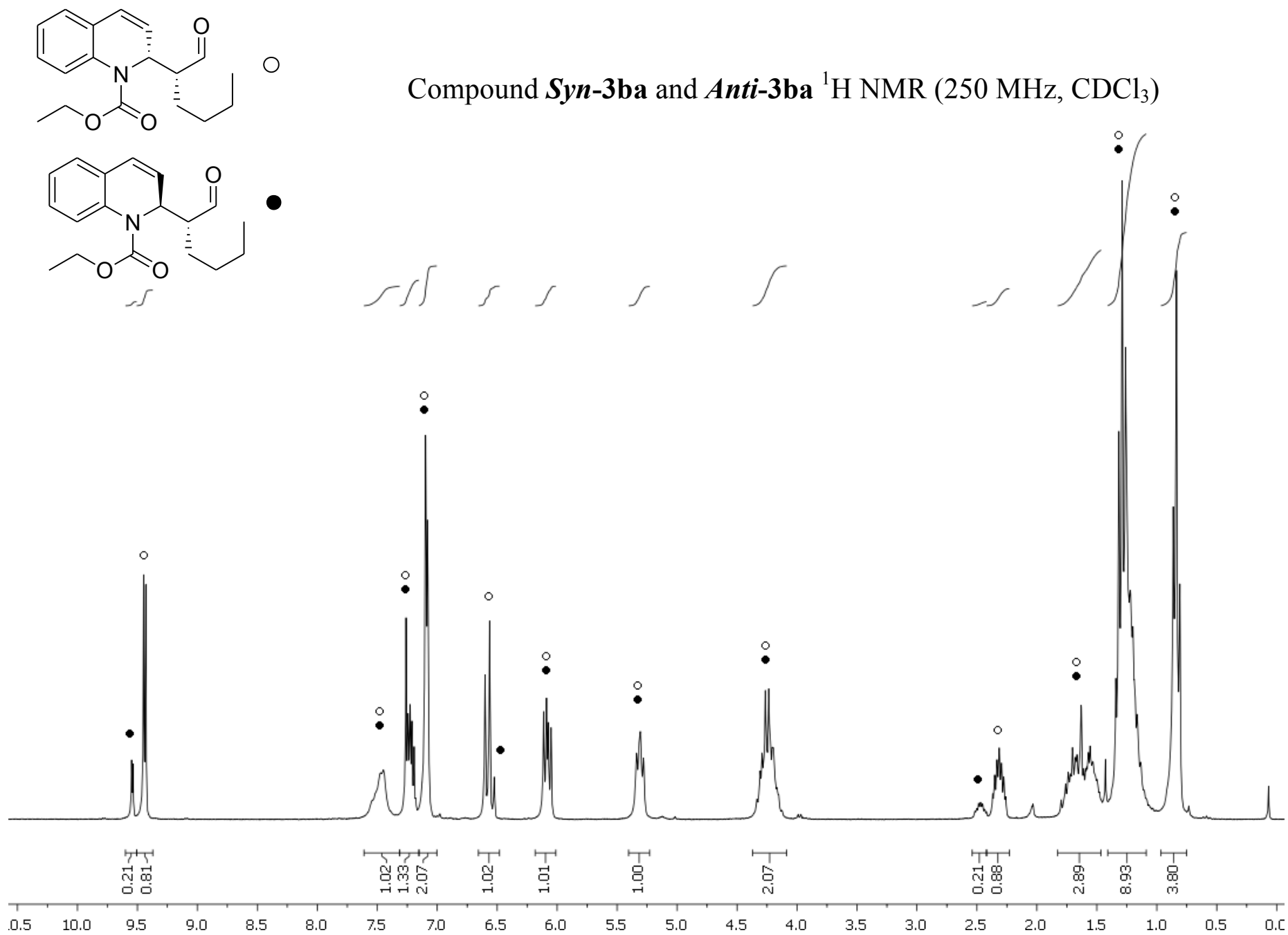


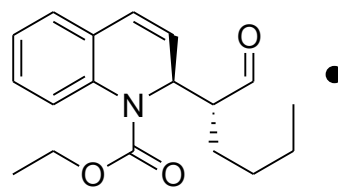
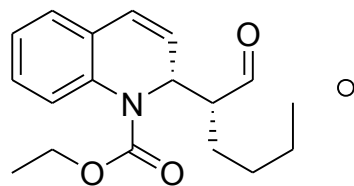




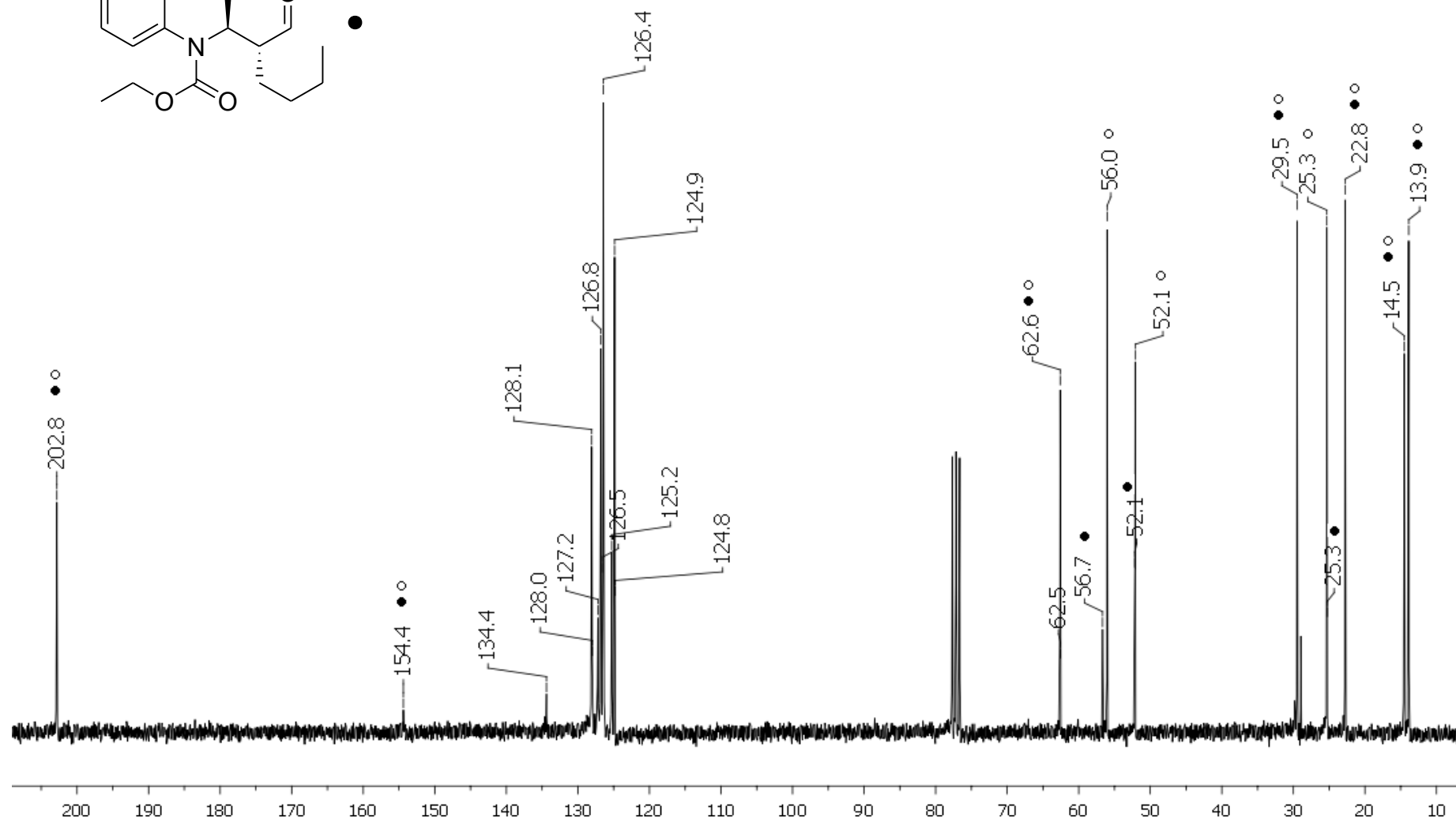
Compound *Syn-3ad* and *Anti-3ad*  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

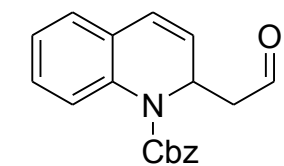
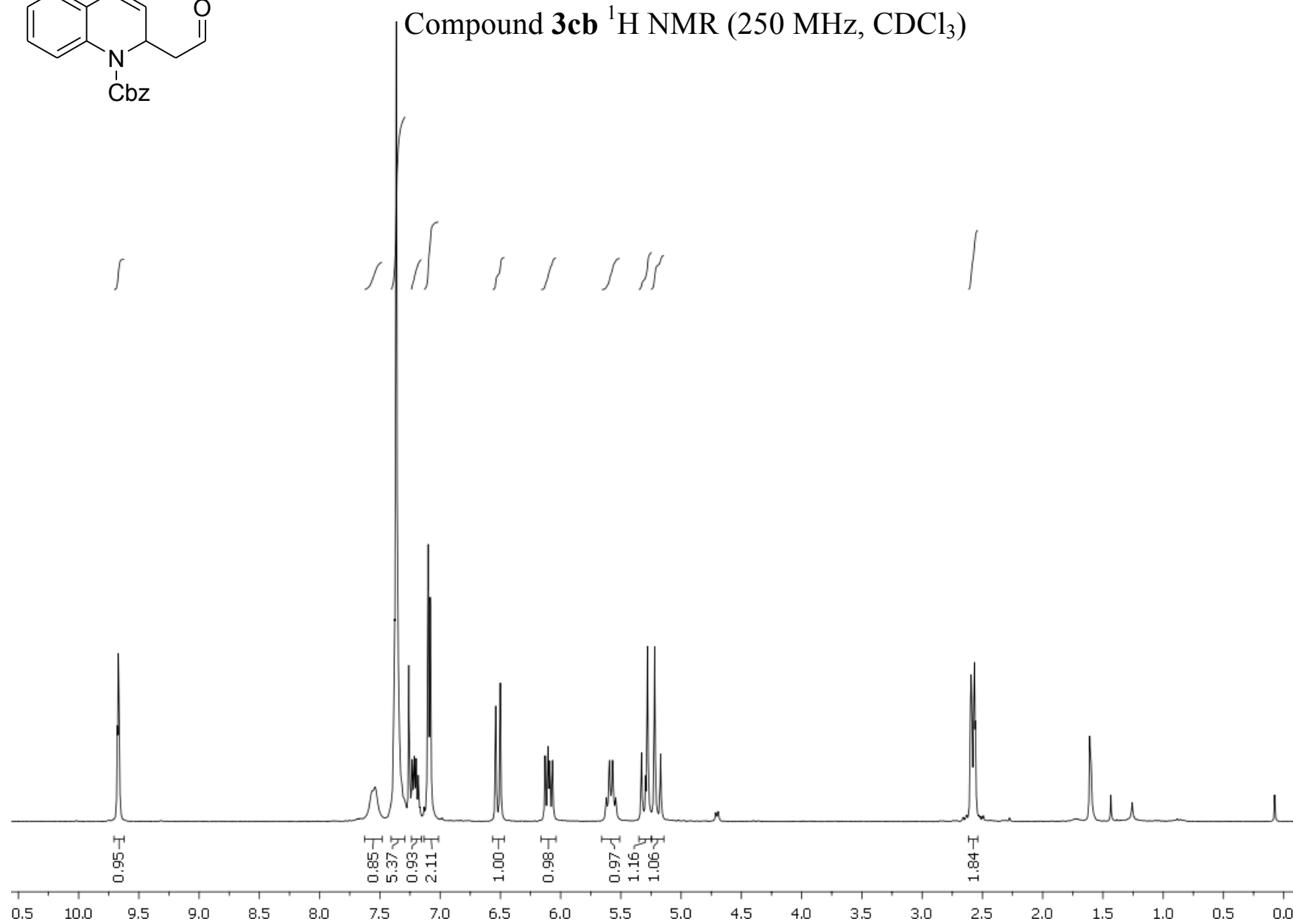


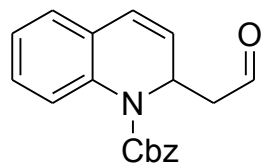
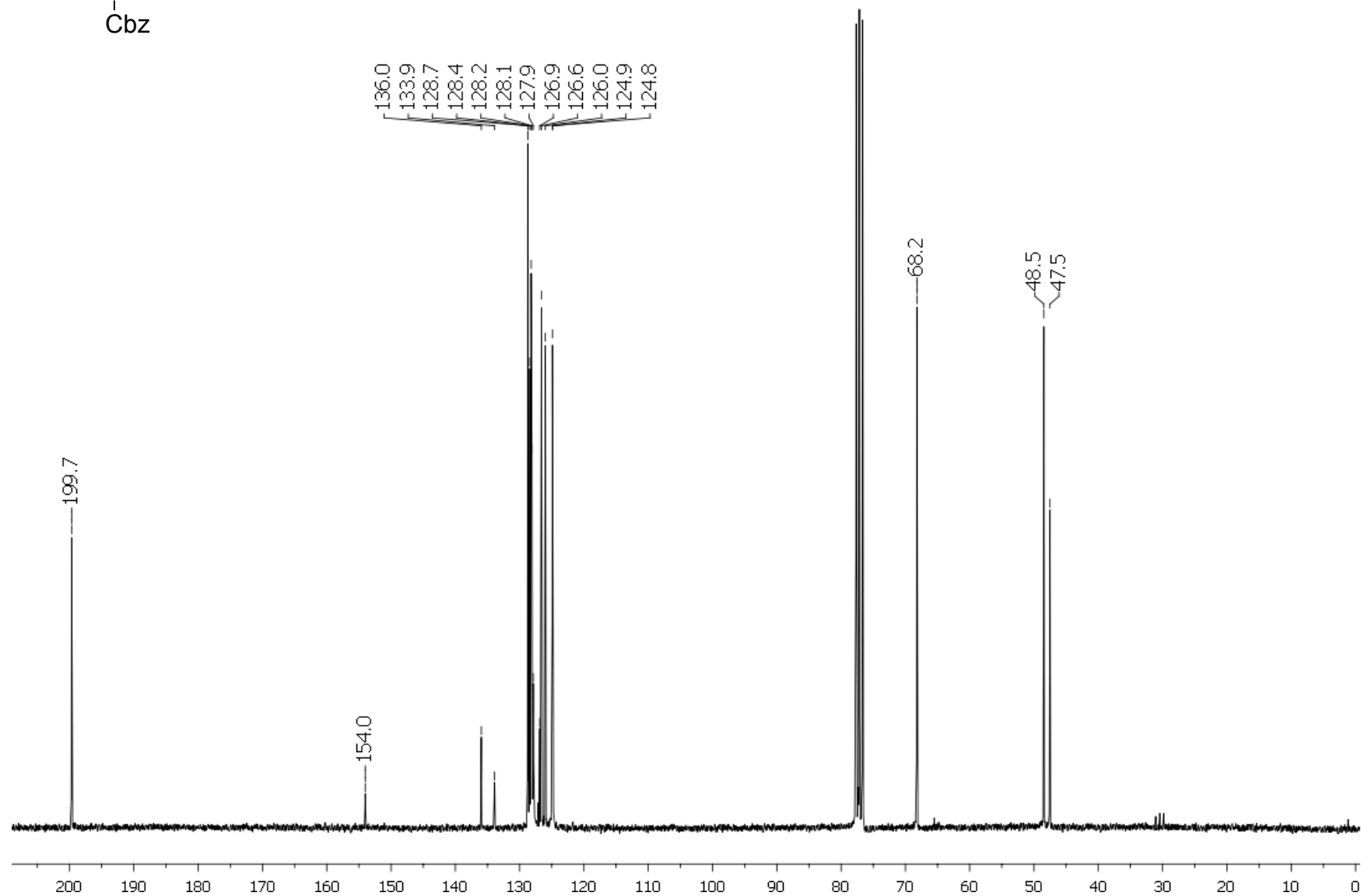


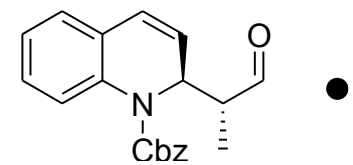
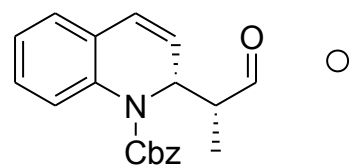


Compound *Syn*-3ba and *Anti*-3ba  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

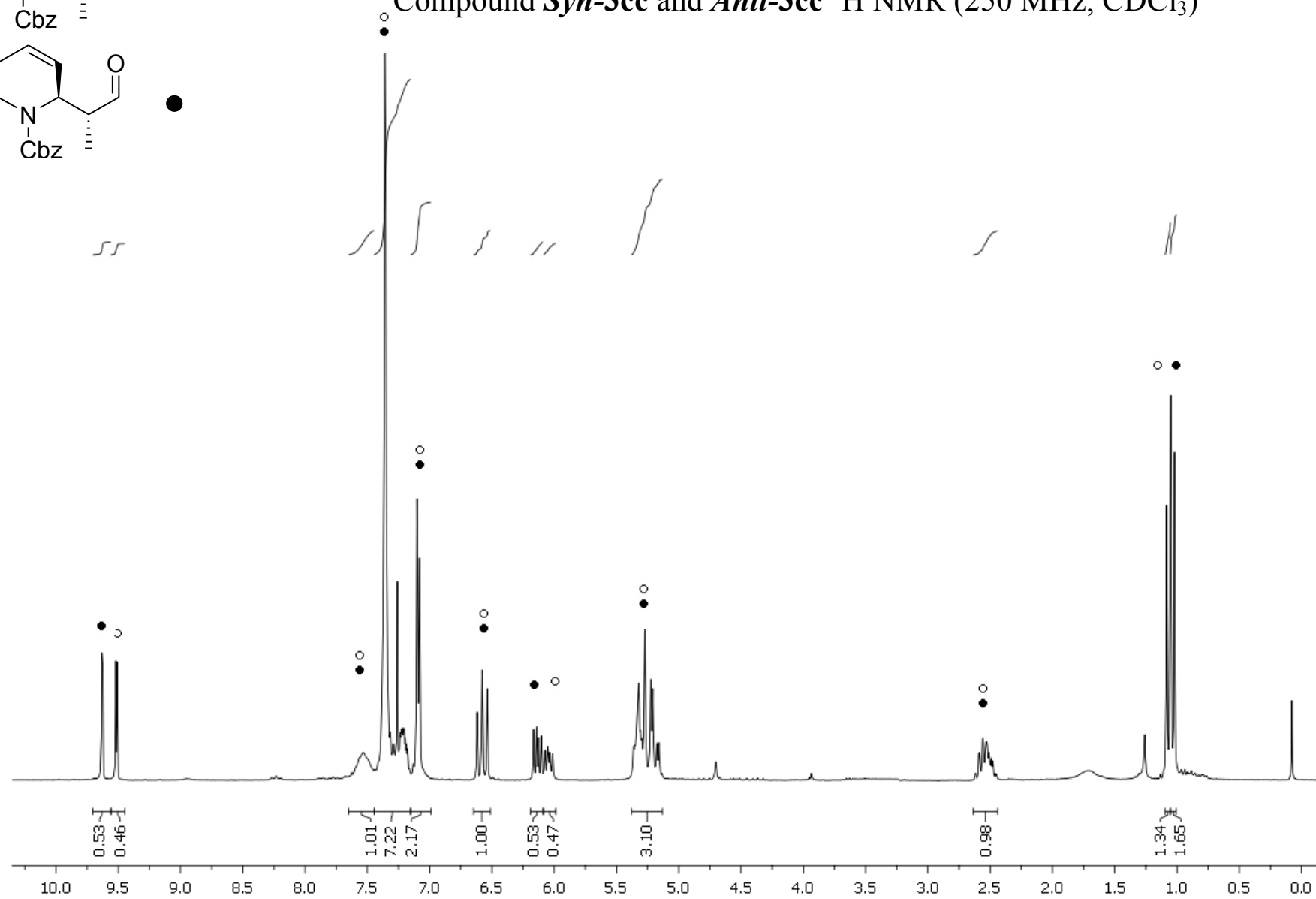


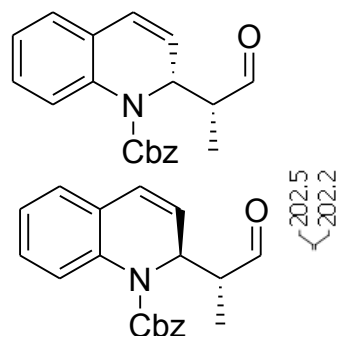
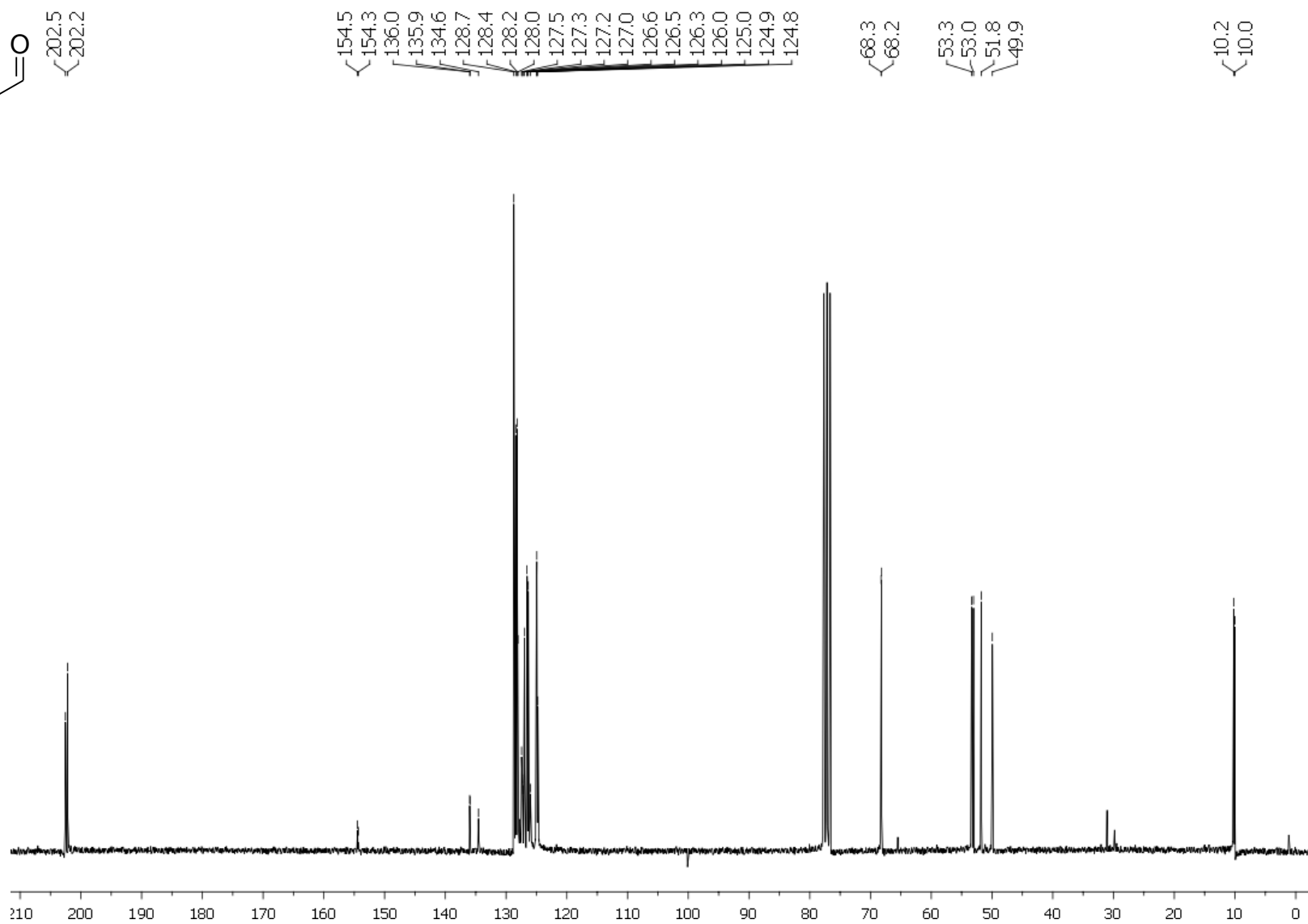
Compound **3cb**  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )

Compound **3cb**  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

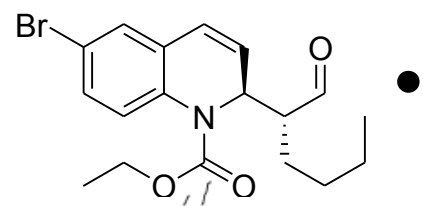
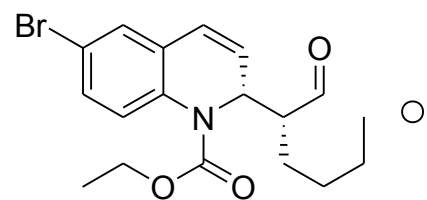


Compound *Syn*-3cc and *Anti*-3cc <sup>1</sup>H NMR (250 MHz, CDCl<sub>3</sub>)

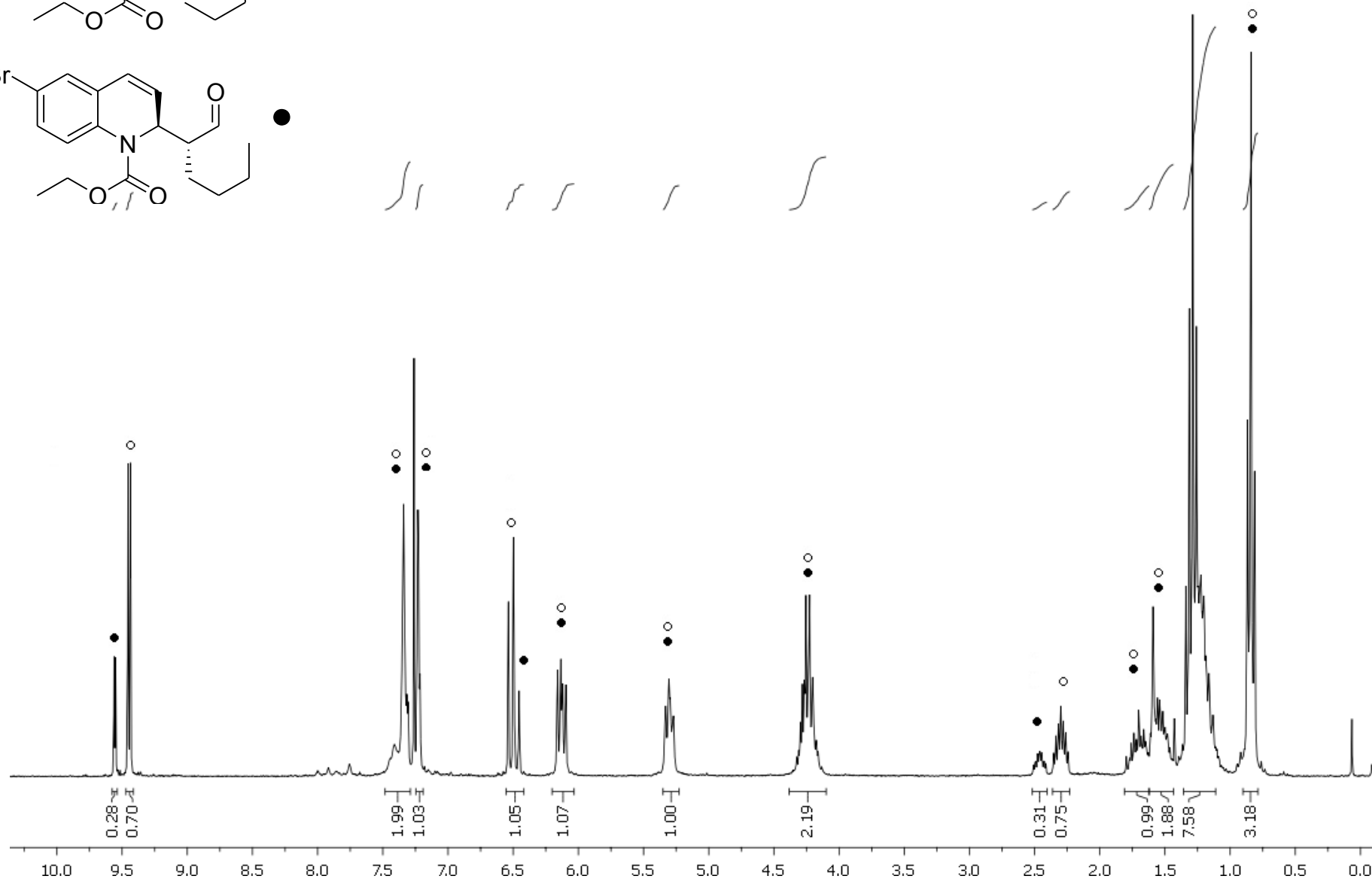


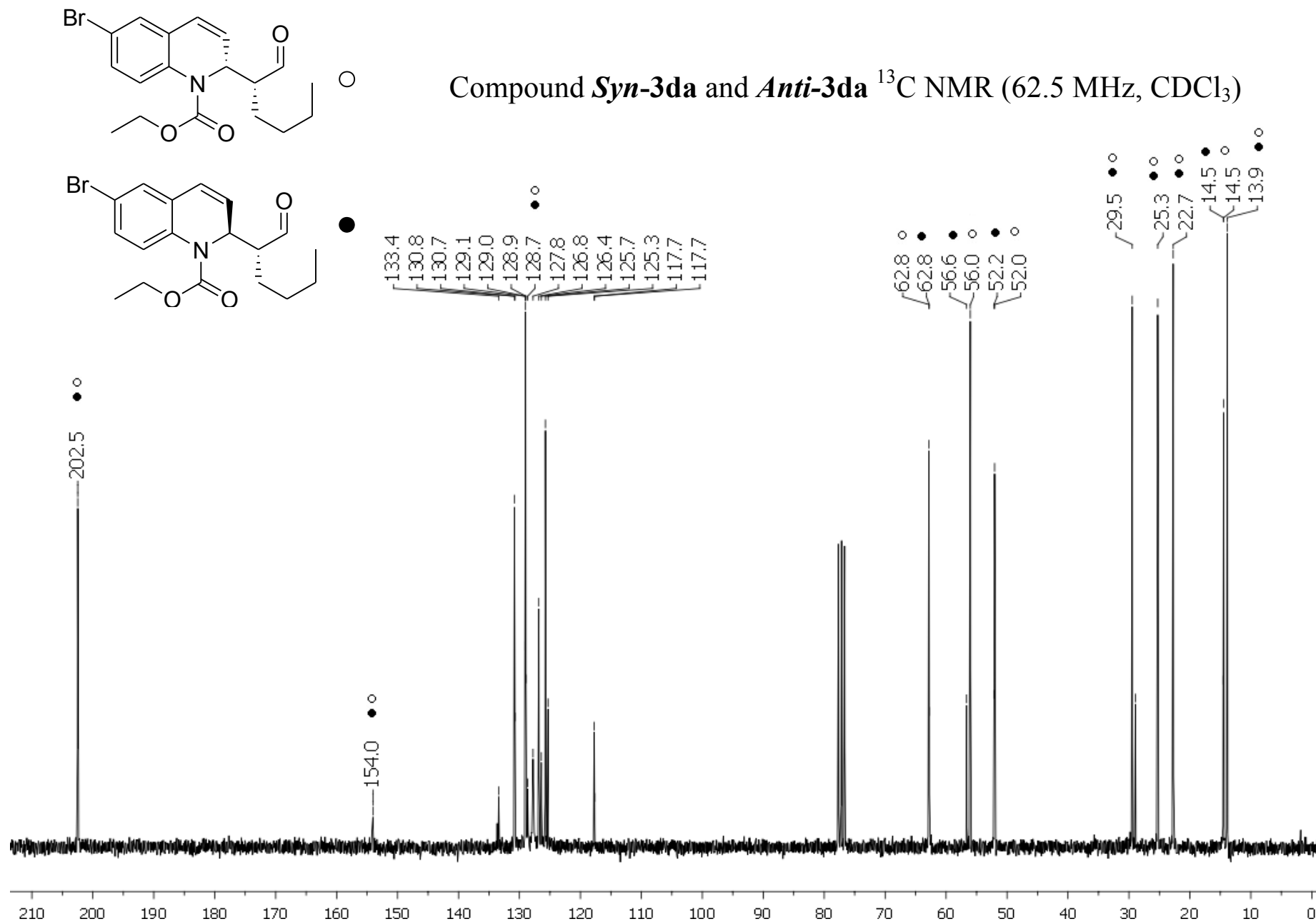
Compound *Syn-3cc* and *Anti-3cc*  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

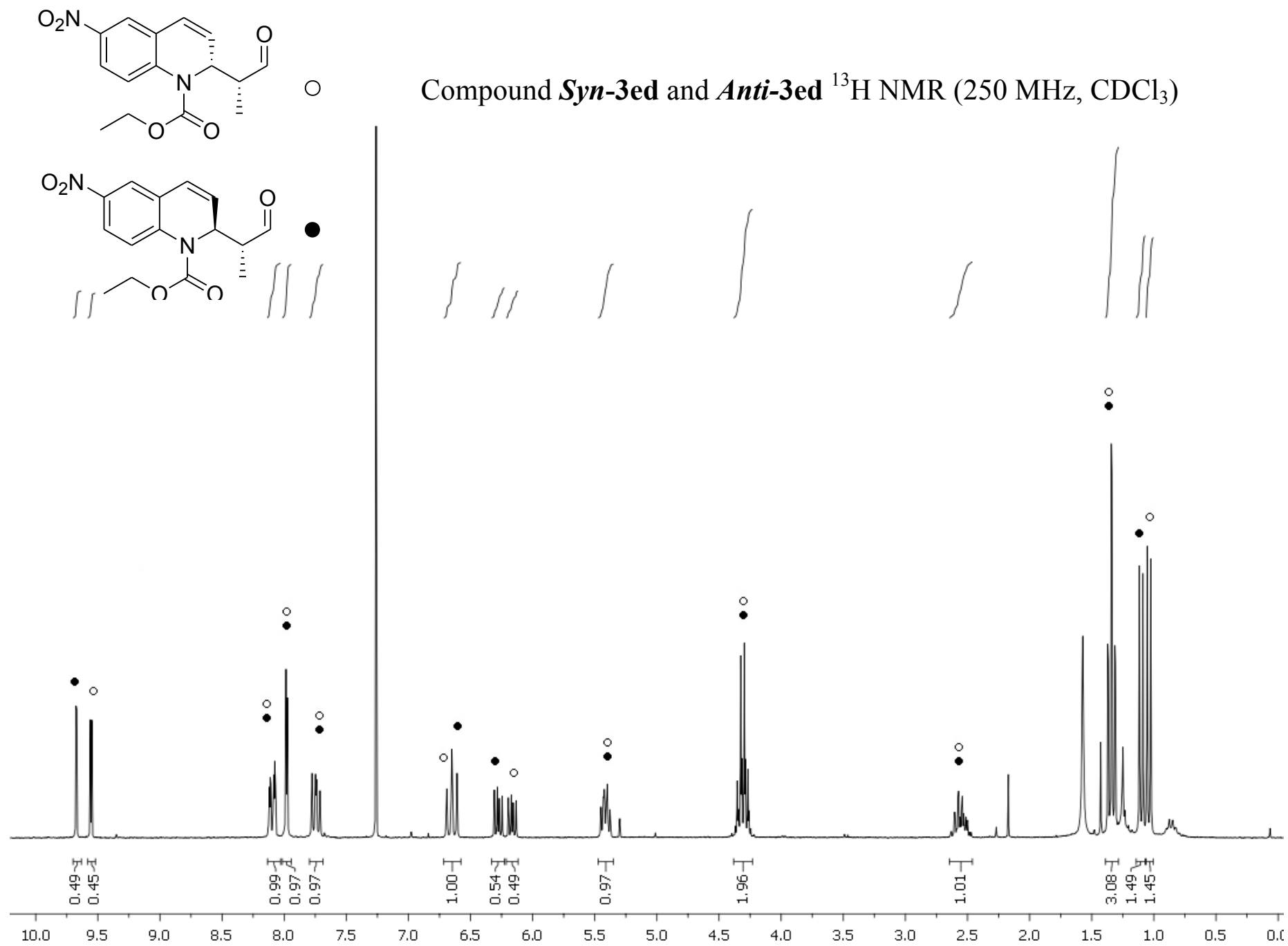


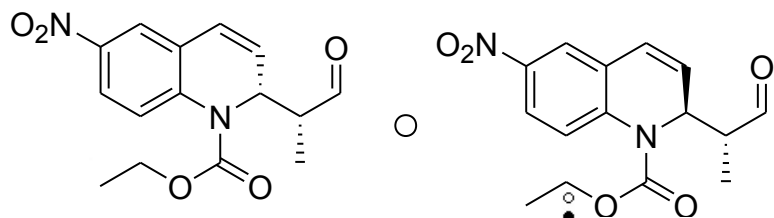


Compound **Syn-3da** and **Anti-5da**  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )

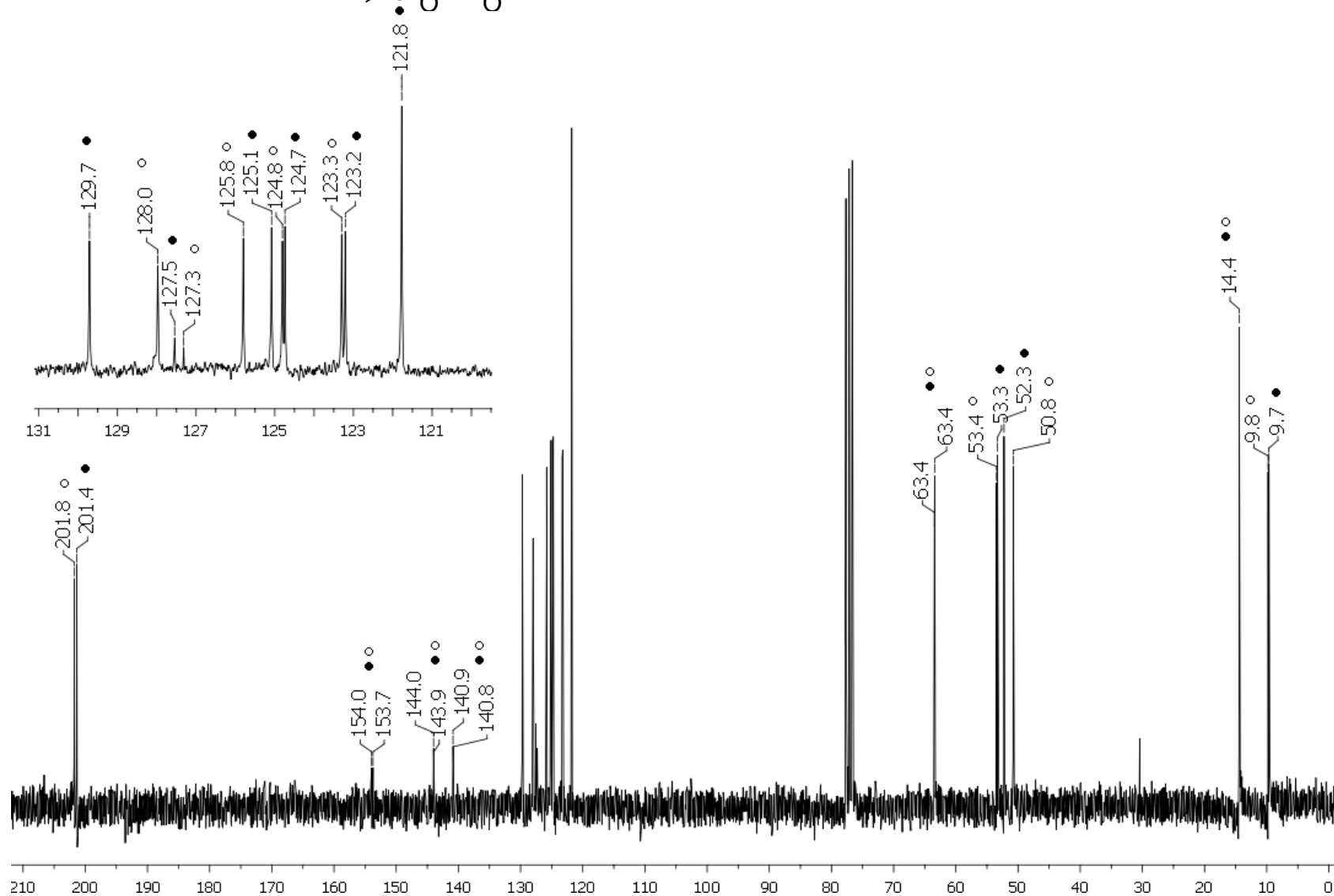


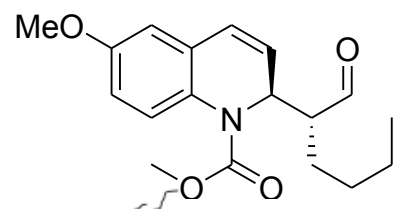
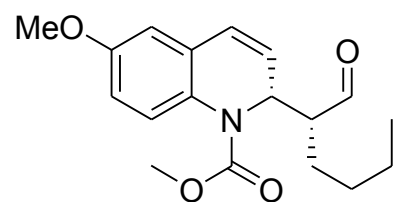




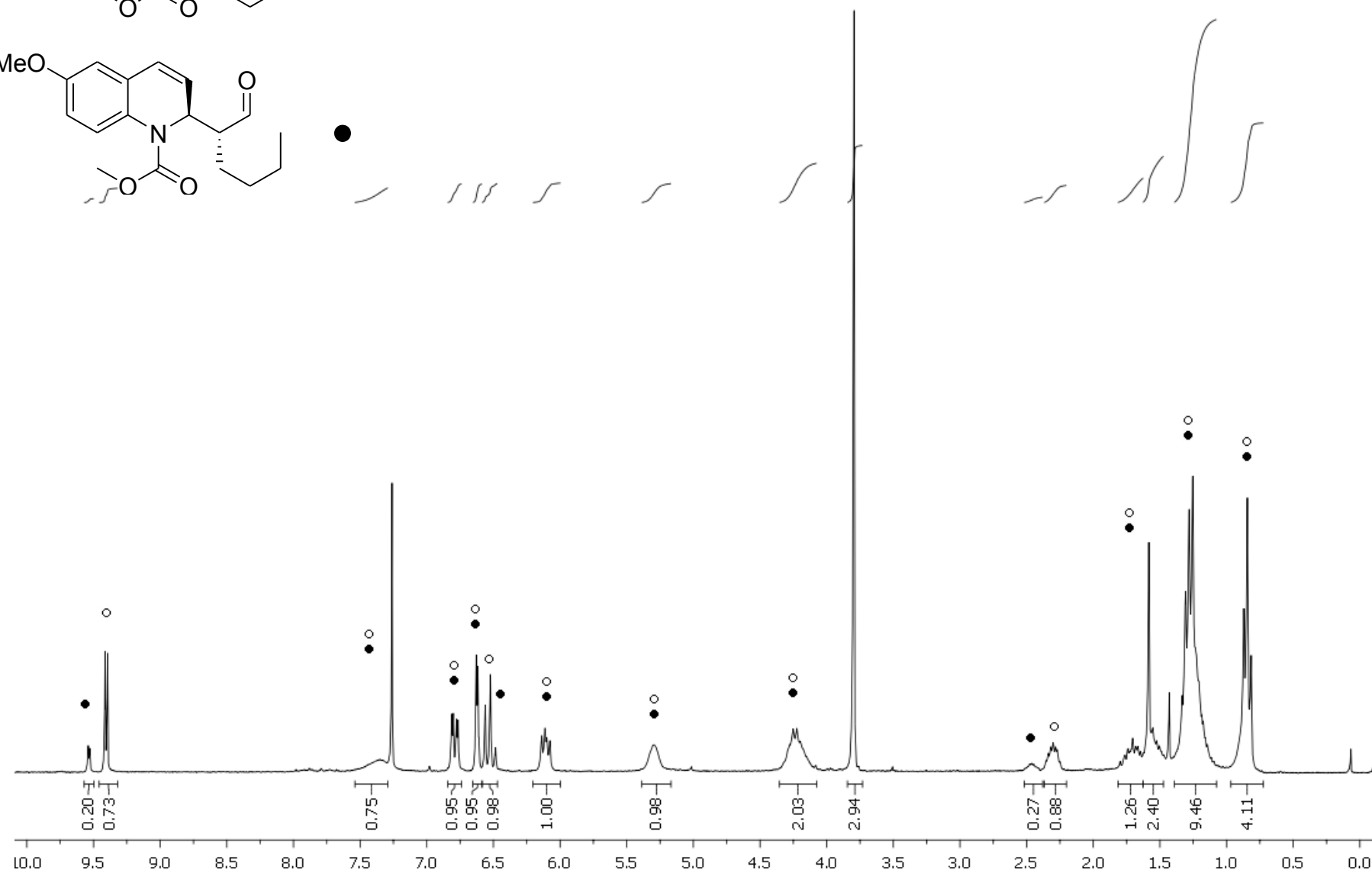


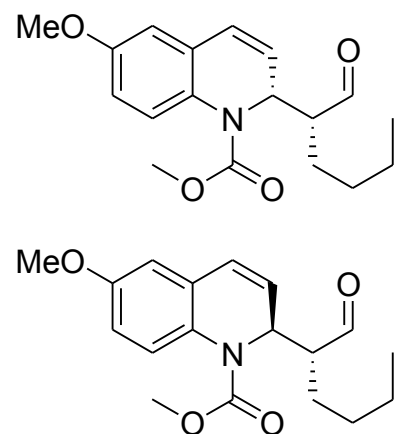
● Compound **Syn-3ed** and **Anti-3ed**  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )





Compound *Syn-3fa* and *Anti-3fa*  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )





-202.9 ○

●

Compound **Syn-3fa** and **Anti-3fa**  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

-156.7

-142.0

128.3

127.8

127.3

126.8

126.5

120.0

113.7

111.1

62.5

56.5

55.9

55.6

52.3

29.9

29.5

25.4

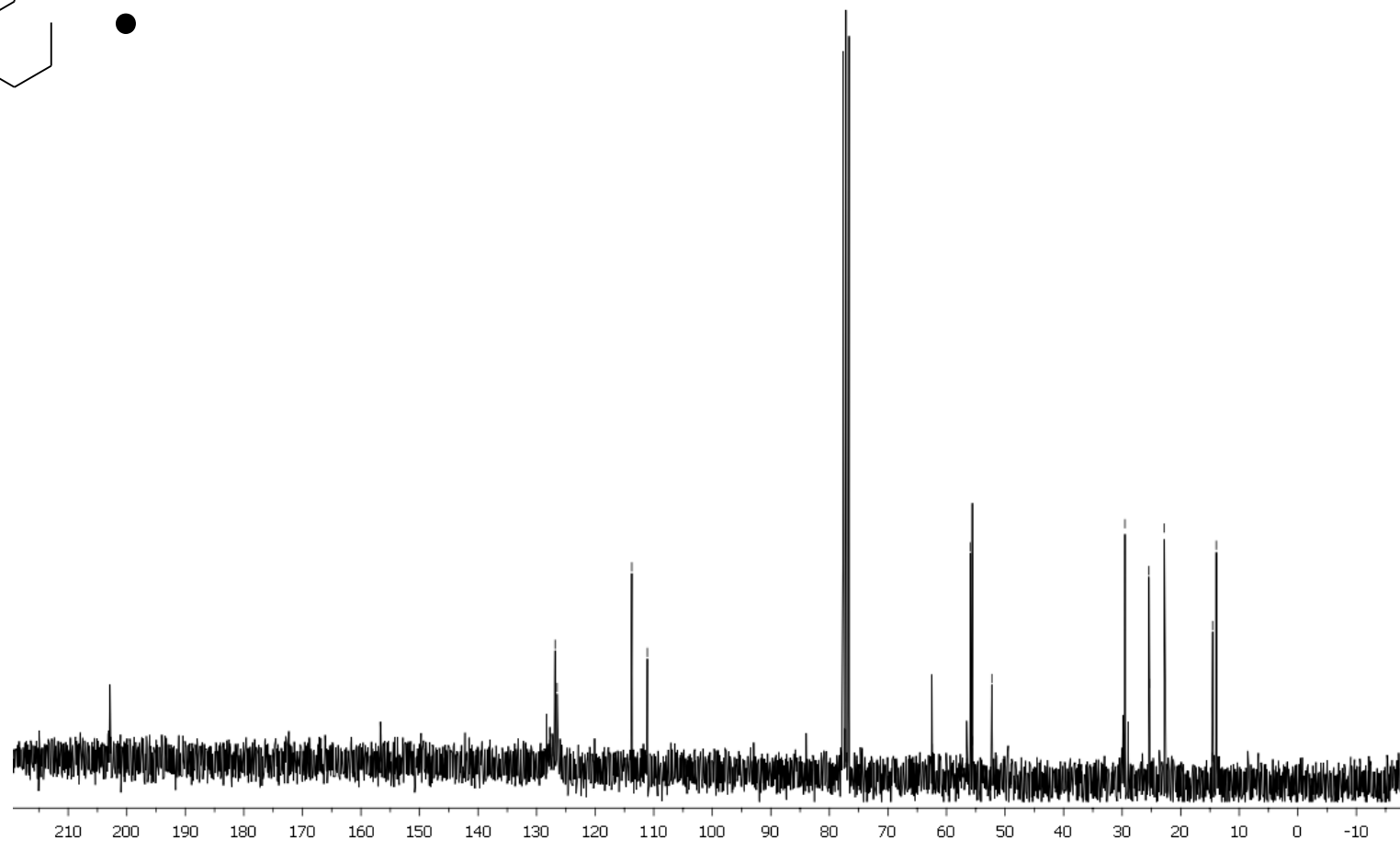
25.4

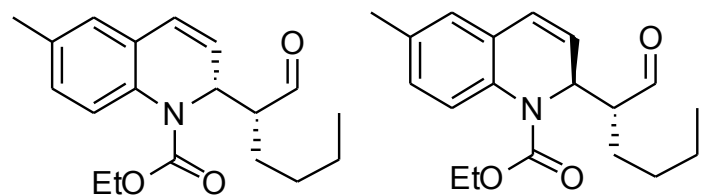
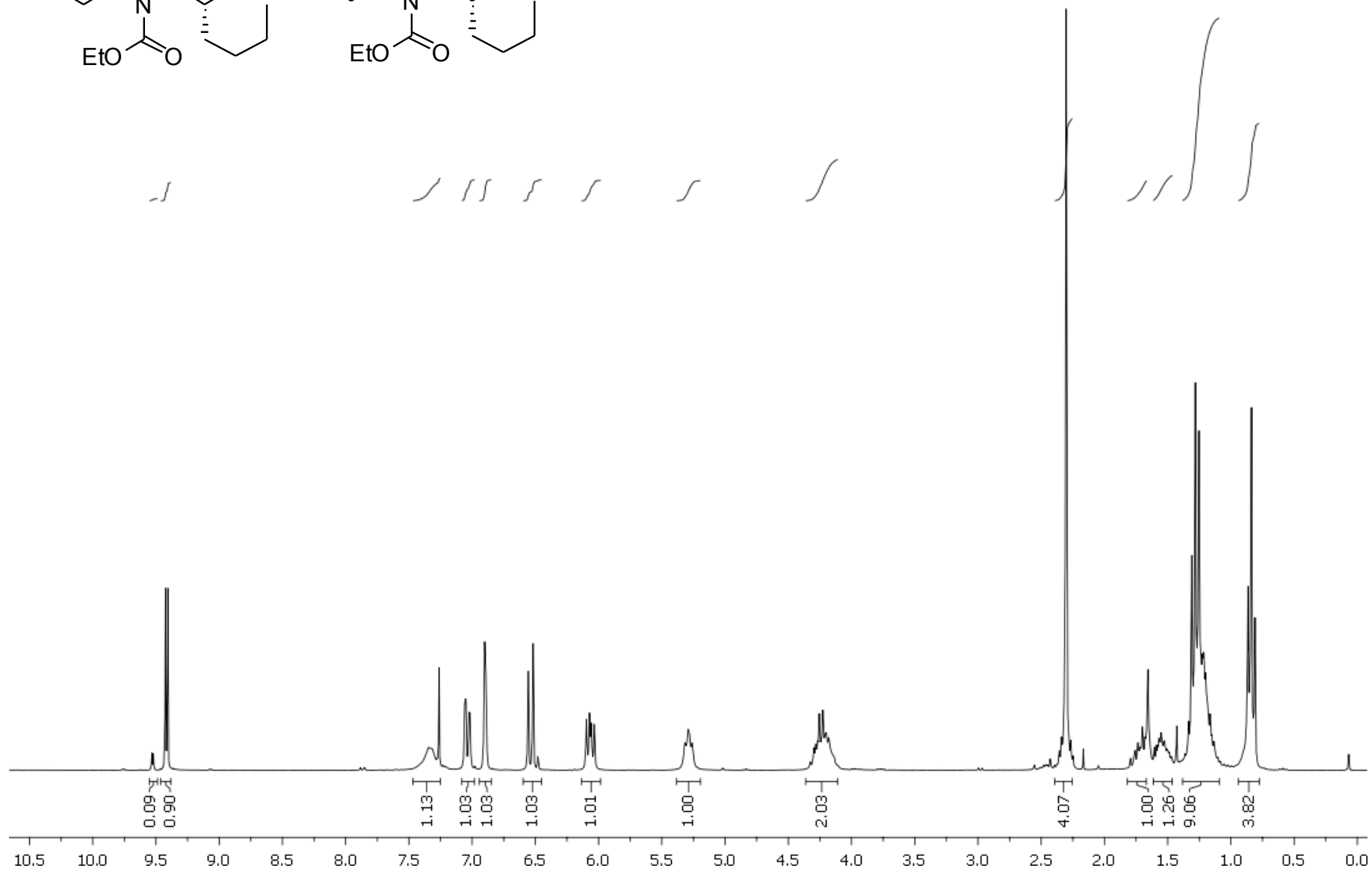
22.8

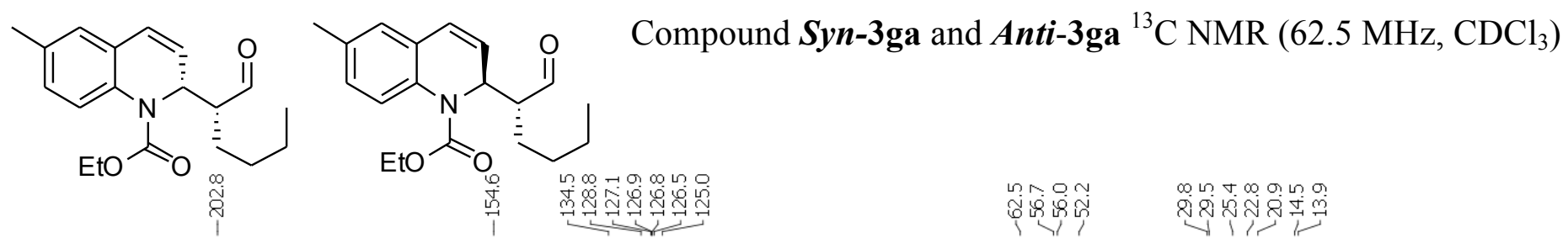
14.6

14.5

13.9

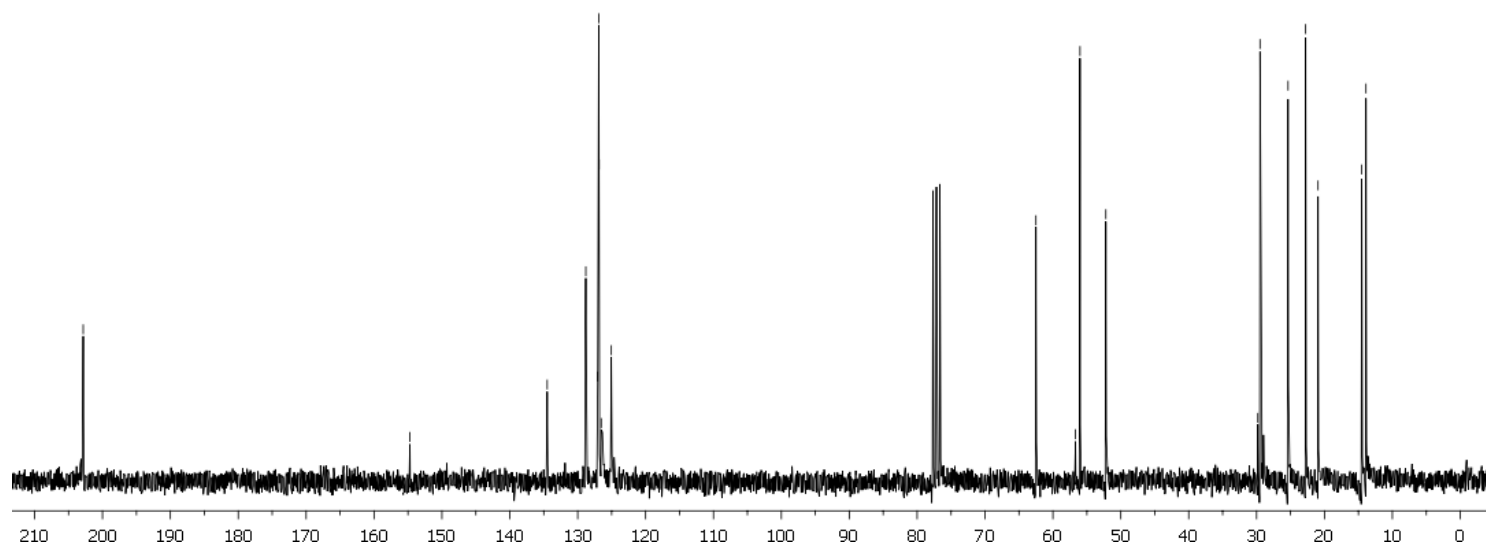


Compound **Syn-3ga** and **Anti-3ga**  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )

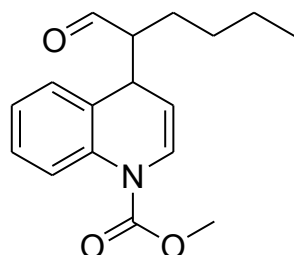
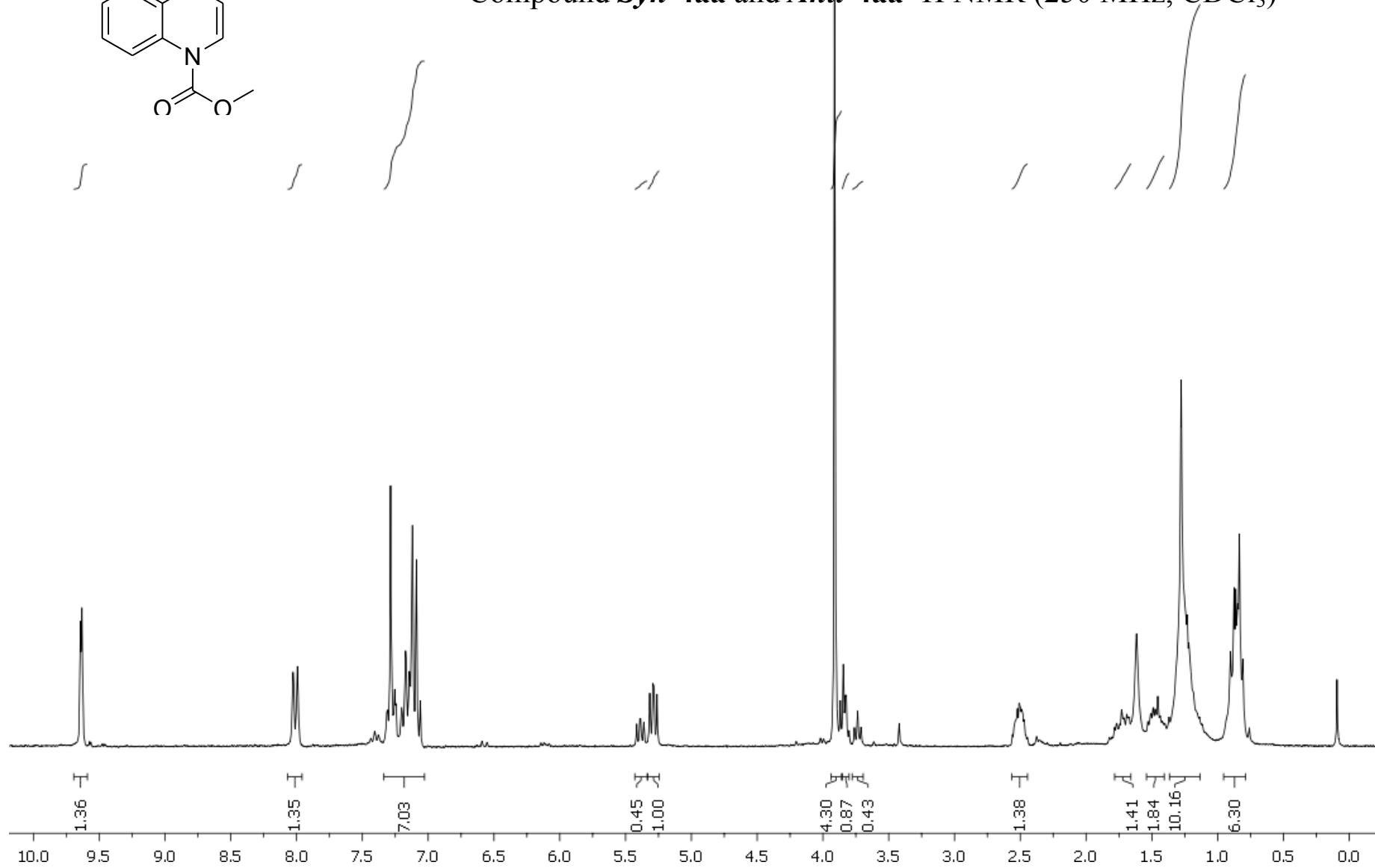


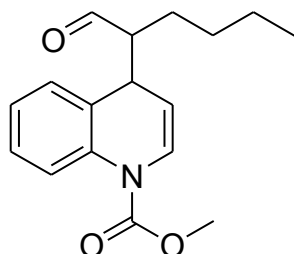
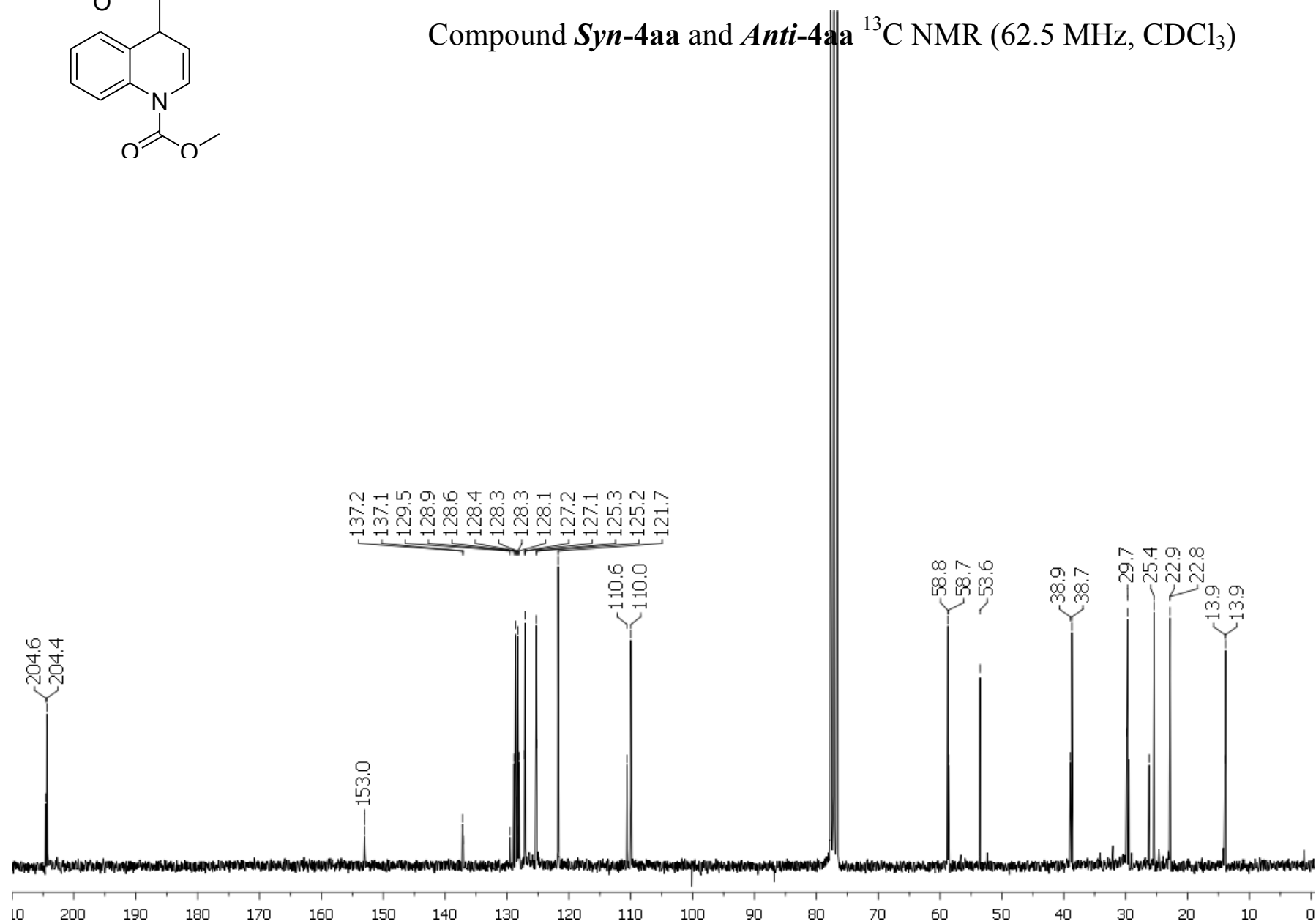
62.5  
56.7  
56.0  
52.2

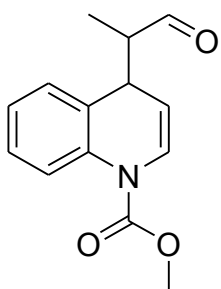
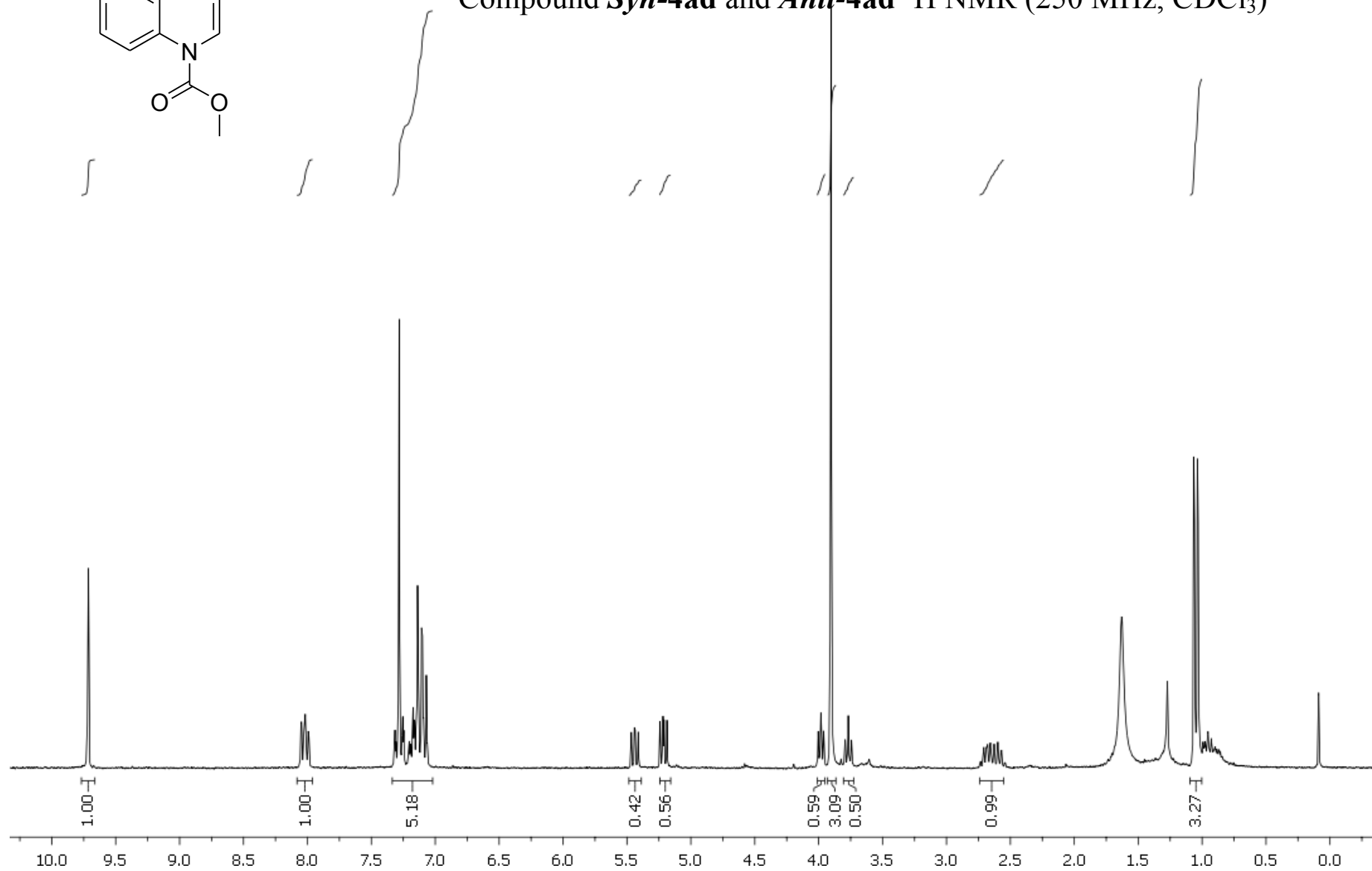
29.8  
29.5  
25.4  
22.8  
20.9  
14.5  
13.9

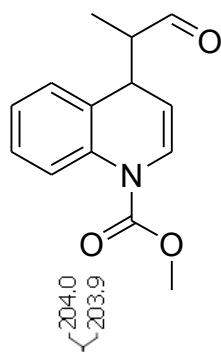




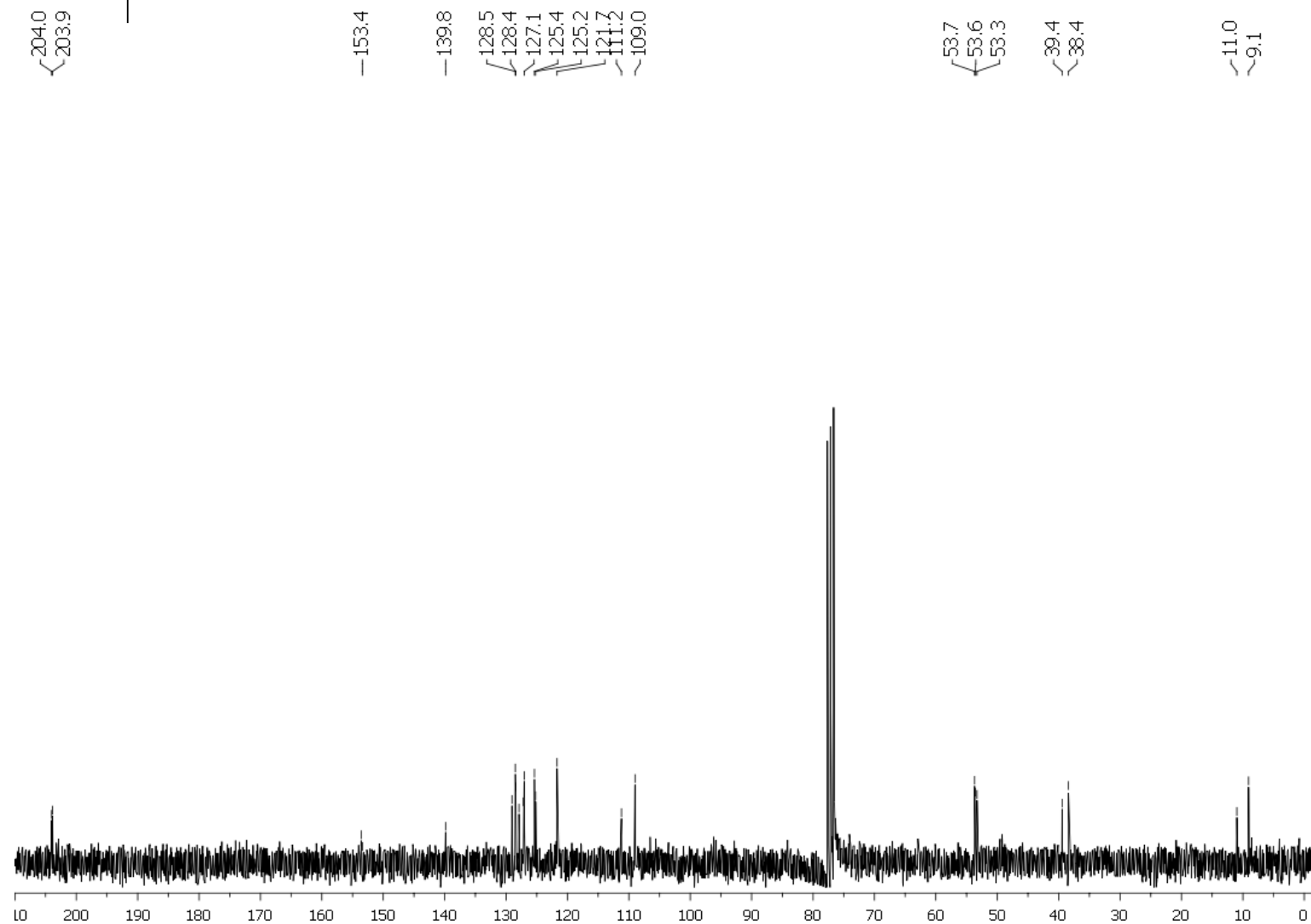
Compound **Syn-4aa** and **Anti-4aa**  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )

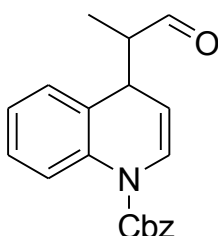
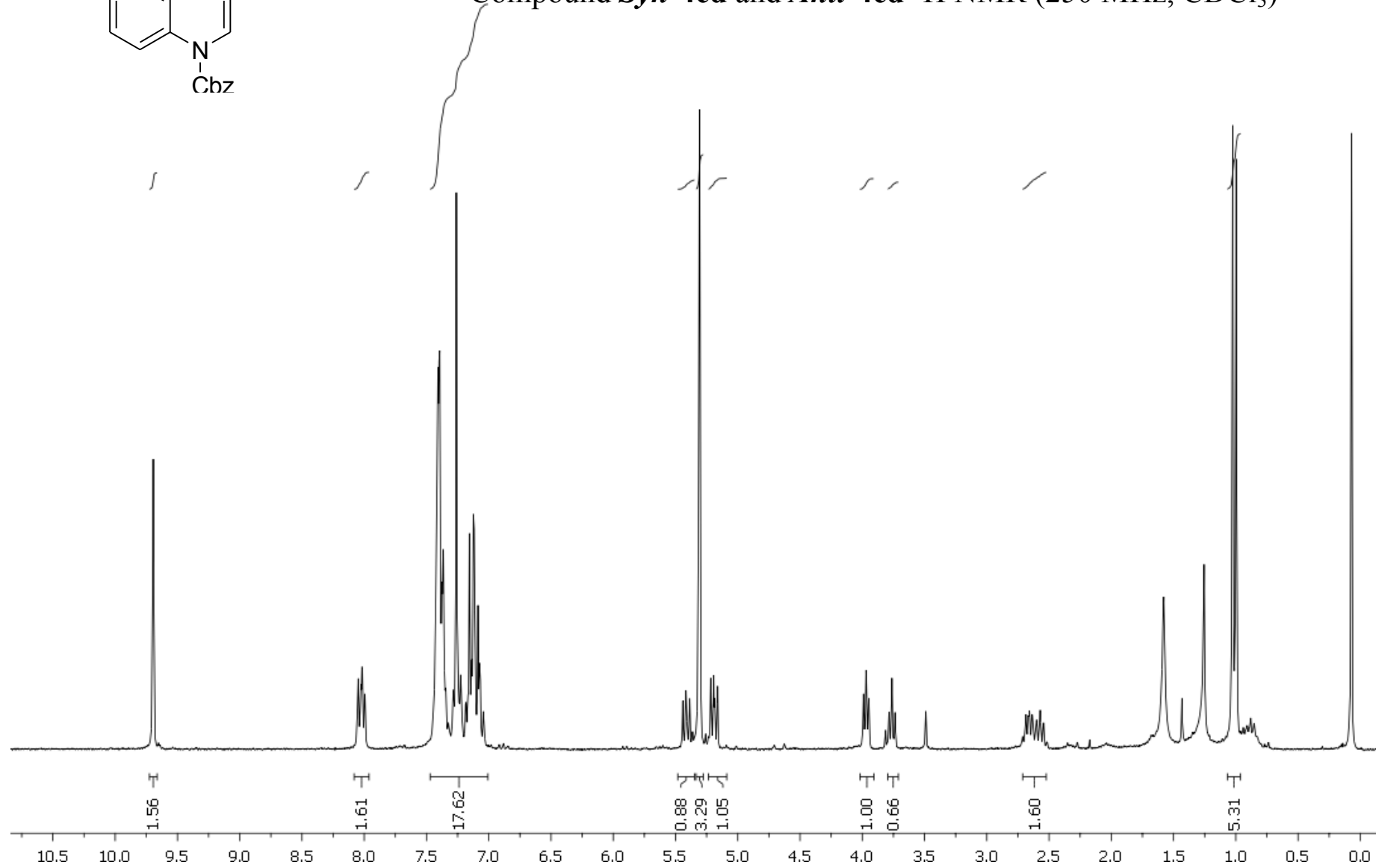
Compound **Syn-4aa** and **Anti-4aa**  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

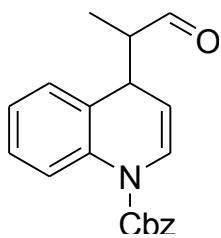
Compound **Syn-4ad** and **Anti-4ad**  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )



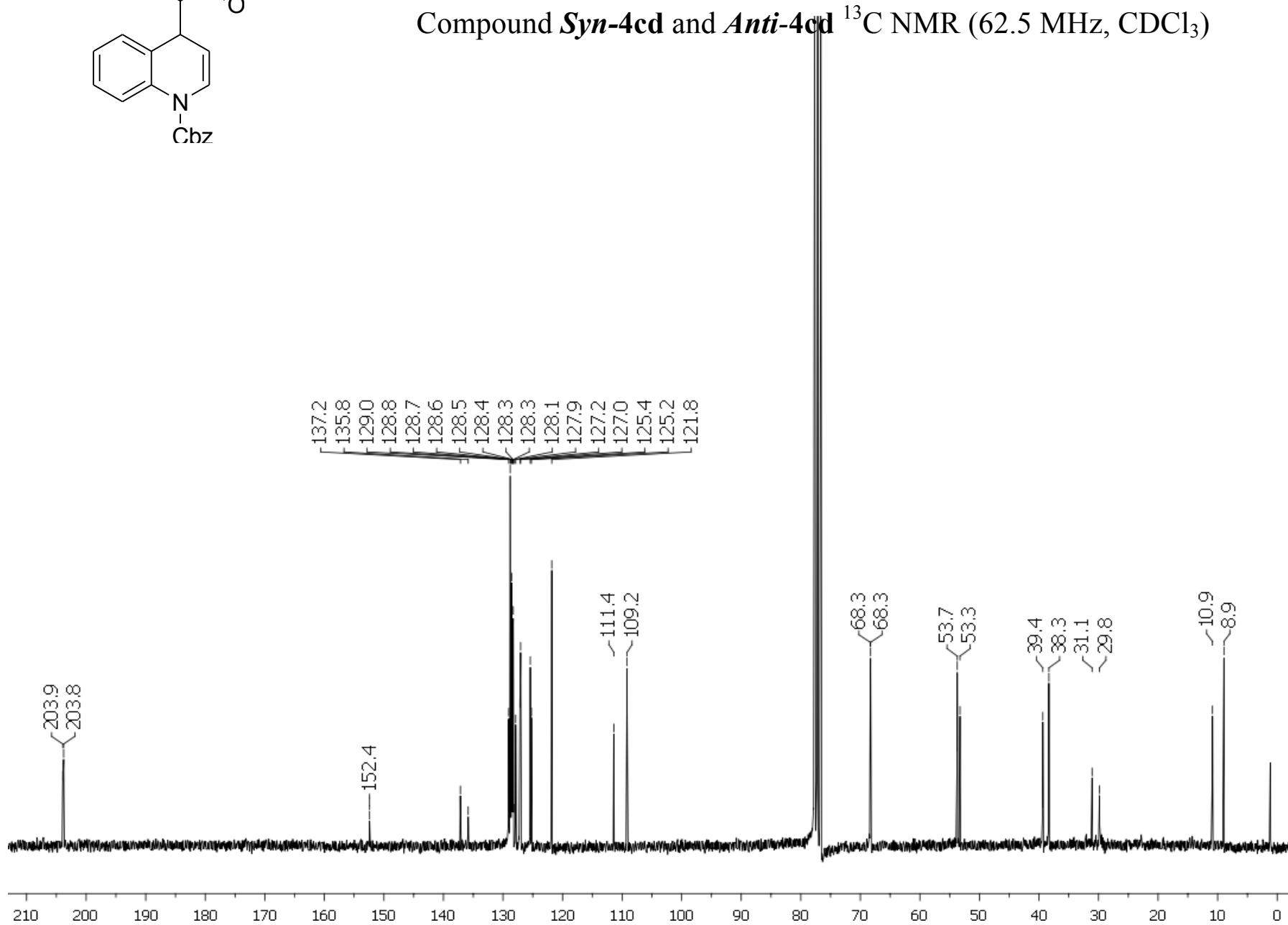
Compound *Syn-4ad* and *Anti-4ad* <sup>13</sup>C NMR (62.5 MHz, CDCl<sub>3</sub>)

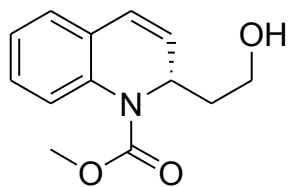


Compound *Syn-4cd* and *Anti-4cd*  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )

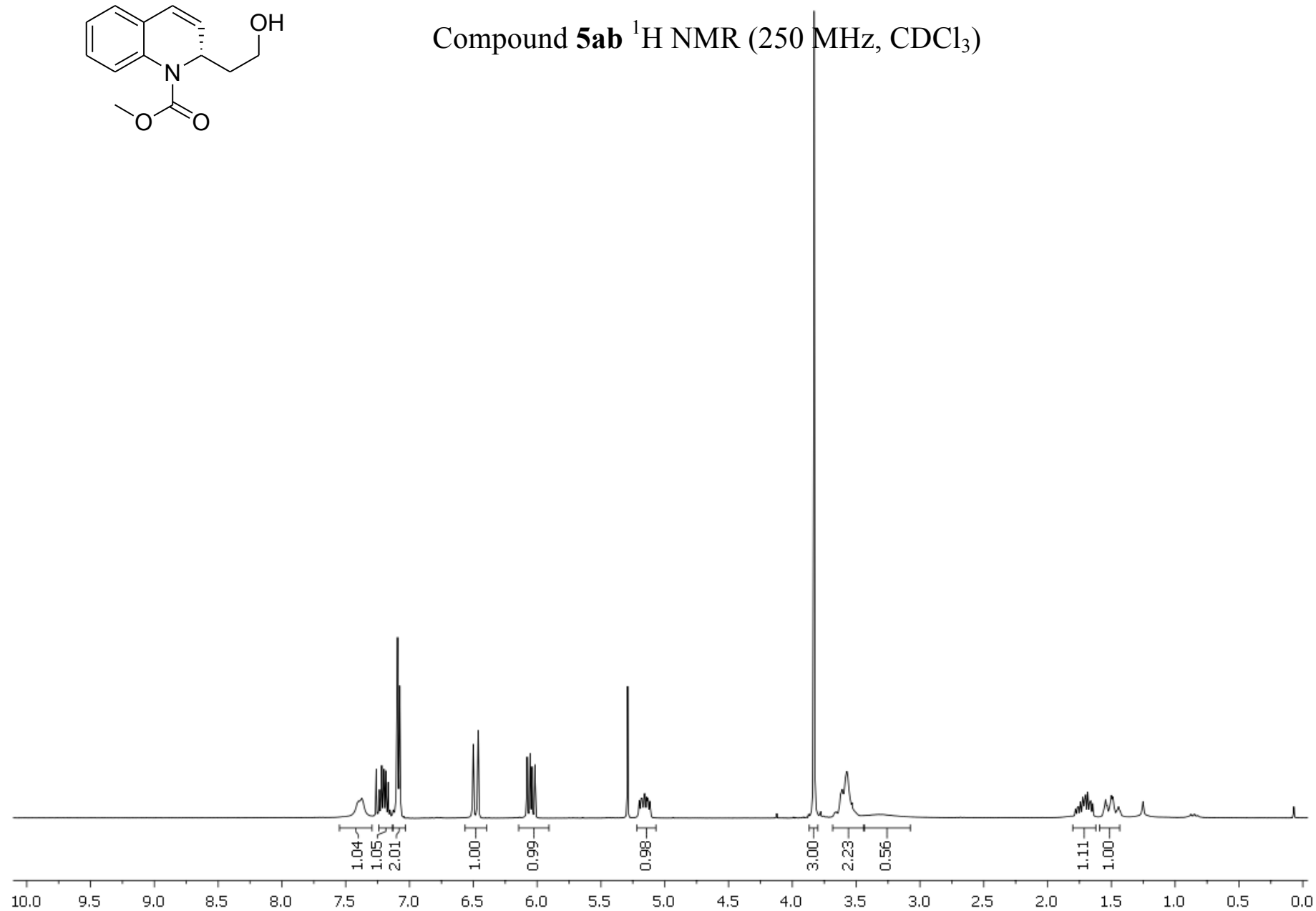


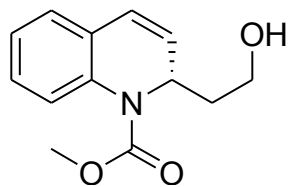
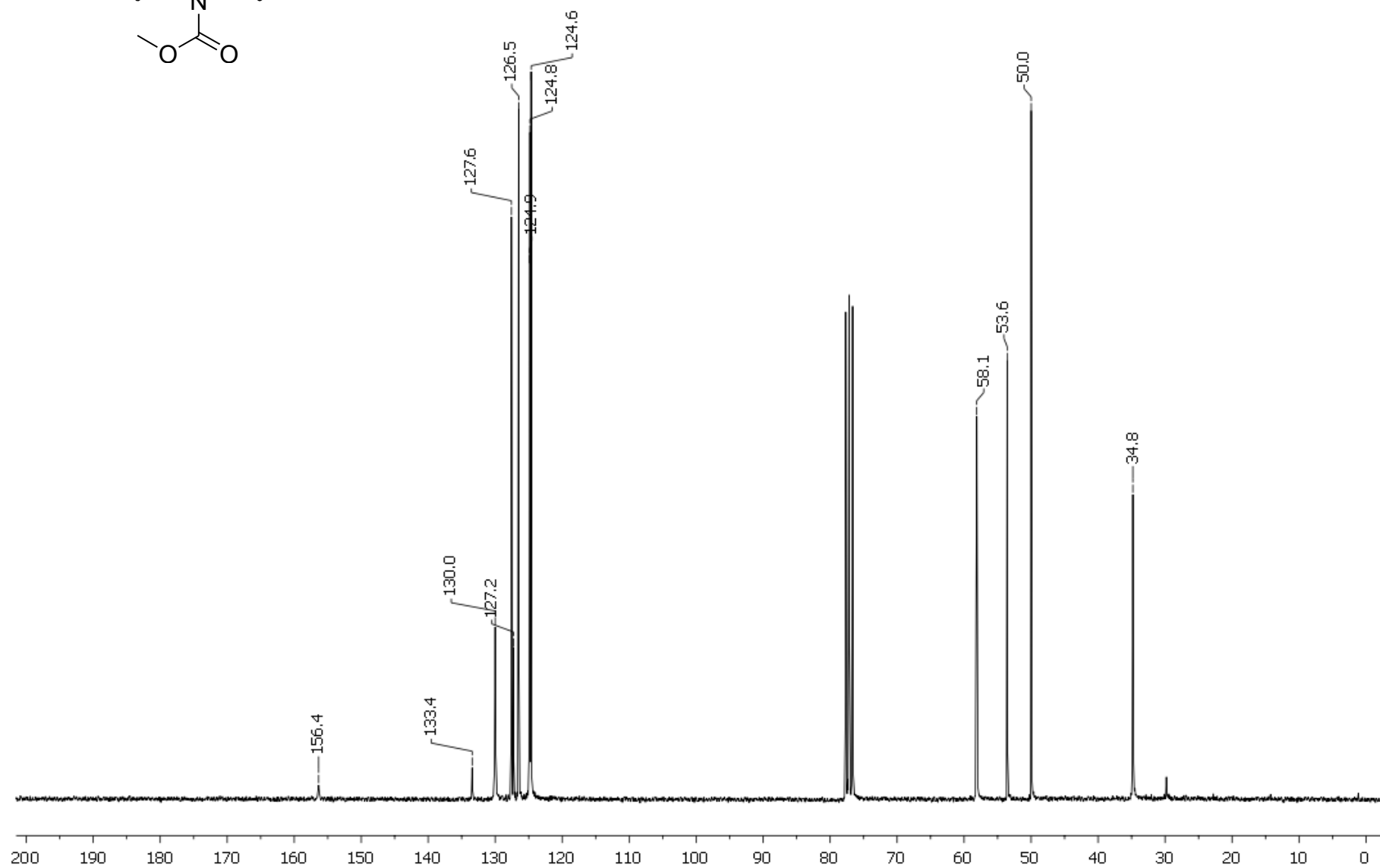
Compound **Syn-4cd** and **Anti-4cd**  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )



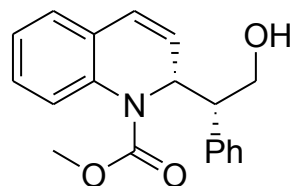


Compound **5ab** <sup>1</sup>H NMR (250 MHz, CDCl<sub>3</sub>)

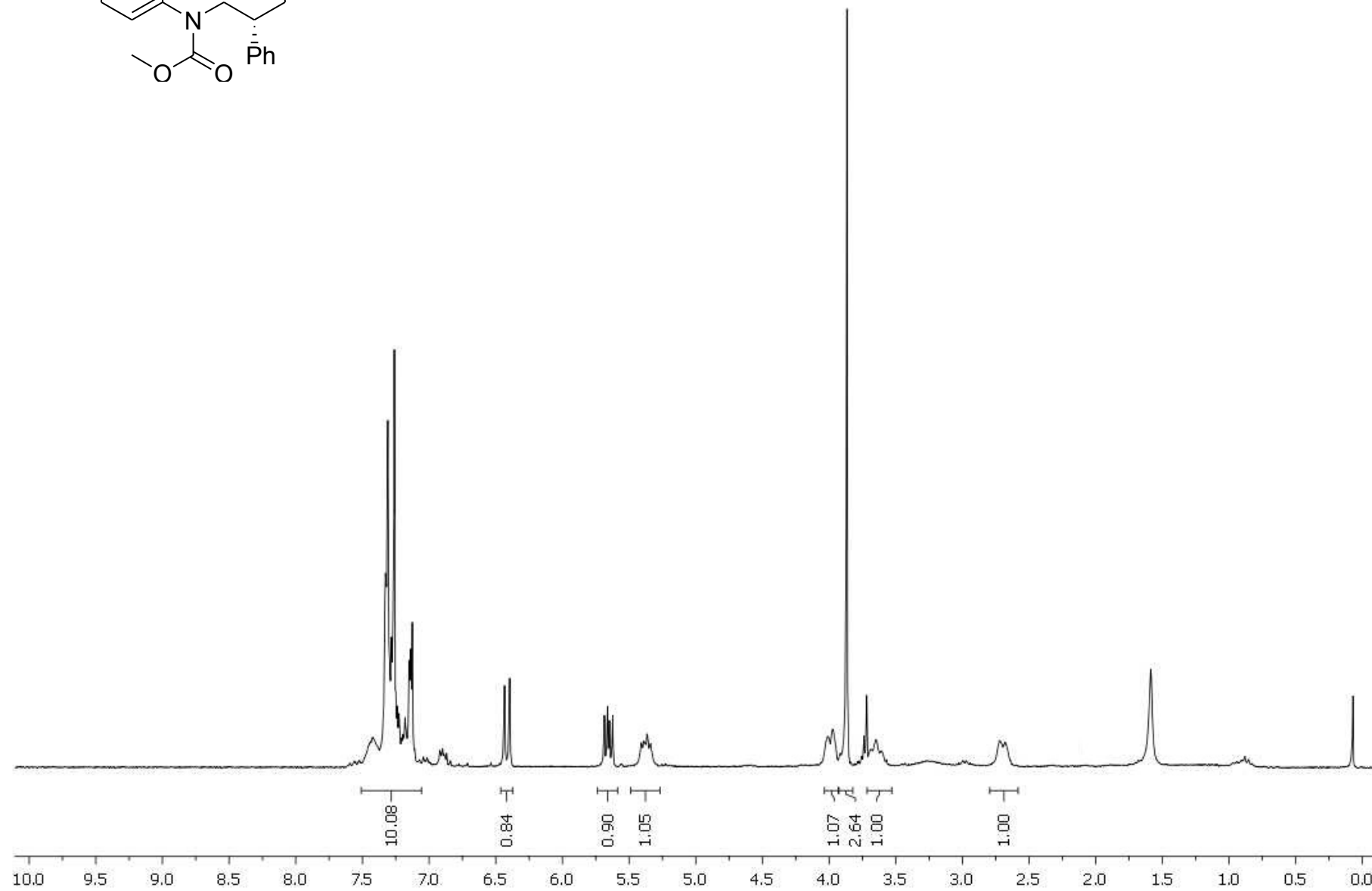


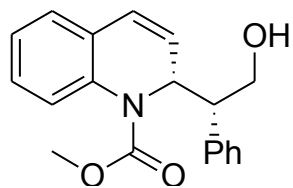
Compound **5ab**  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )



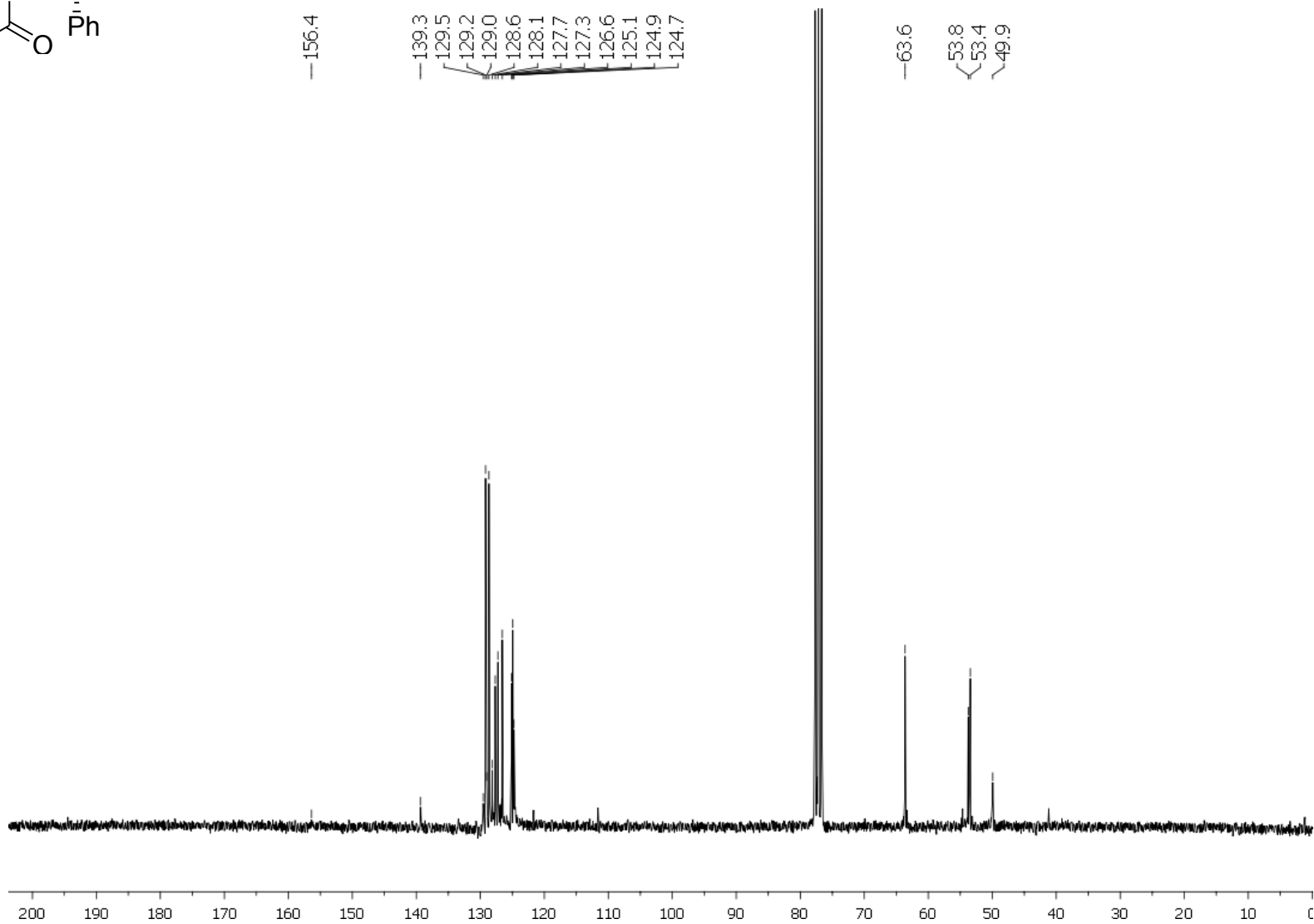


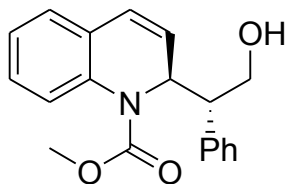
Compound **Syn-5ac** <sup>1</sup>H NMR (250 MHz, CDCl<sub>3</sub>)



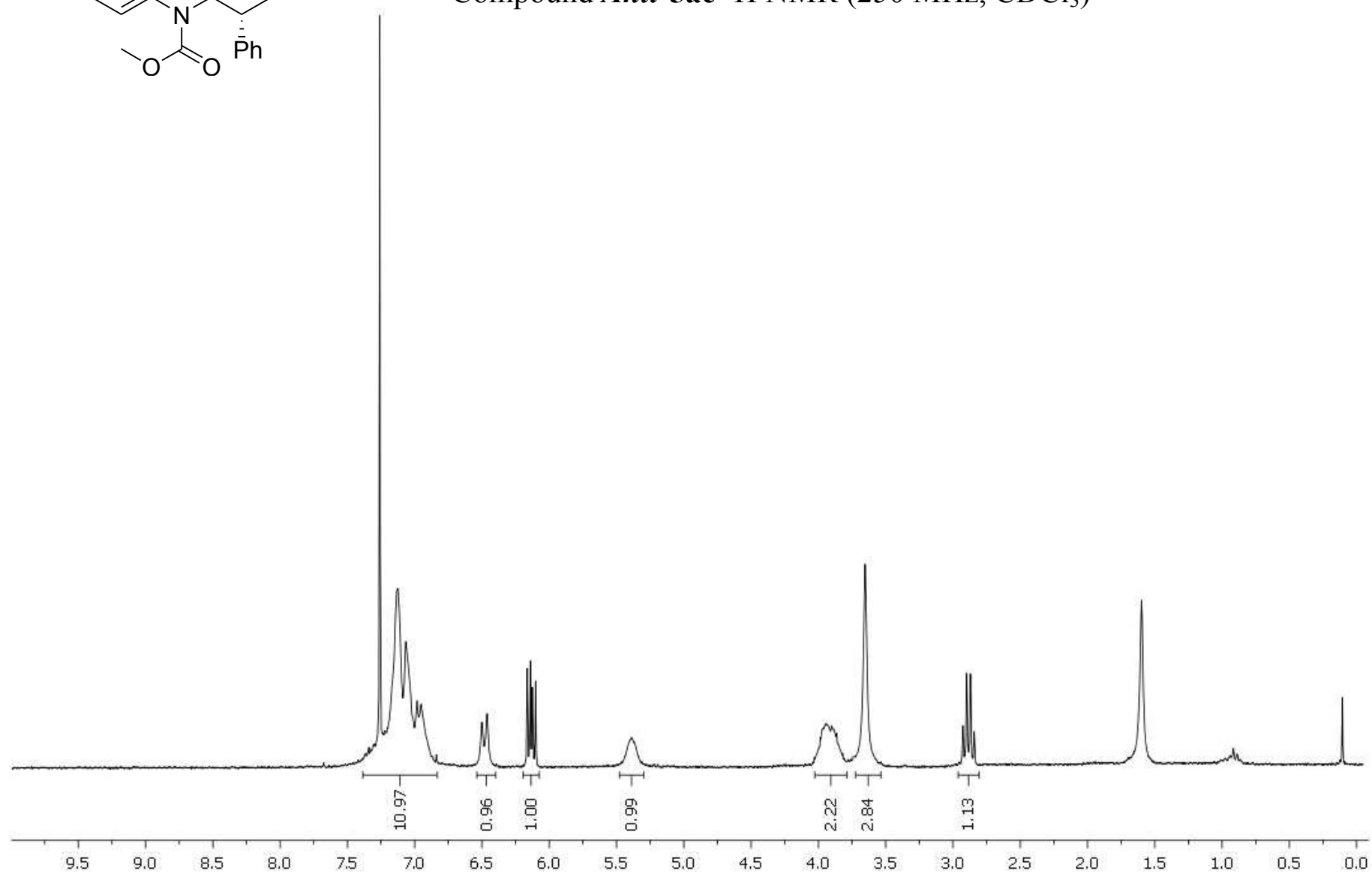


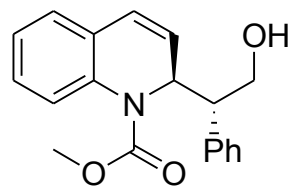
Compound **Syn-5ac** <sup>13</sup>C NMR (62.5 MHz, CDCl<sub>3</sub>)



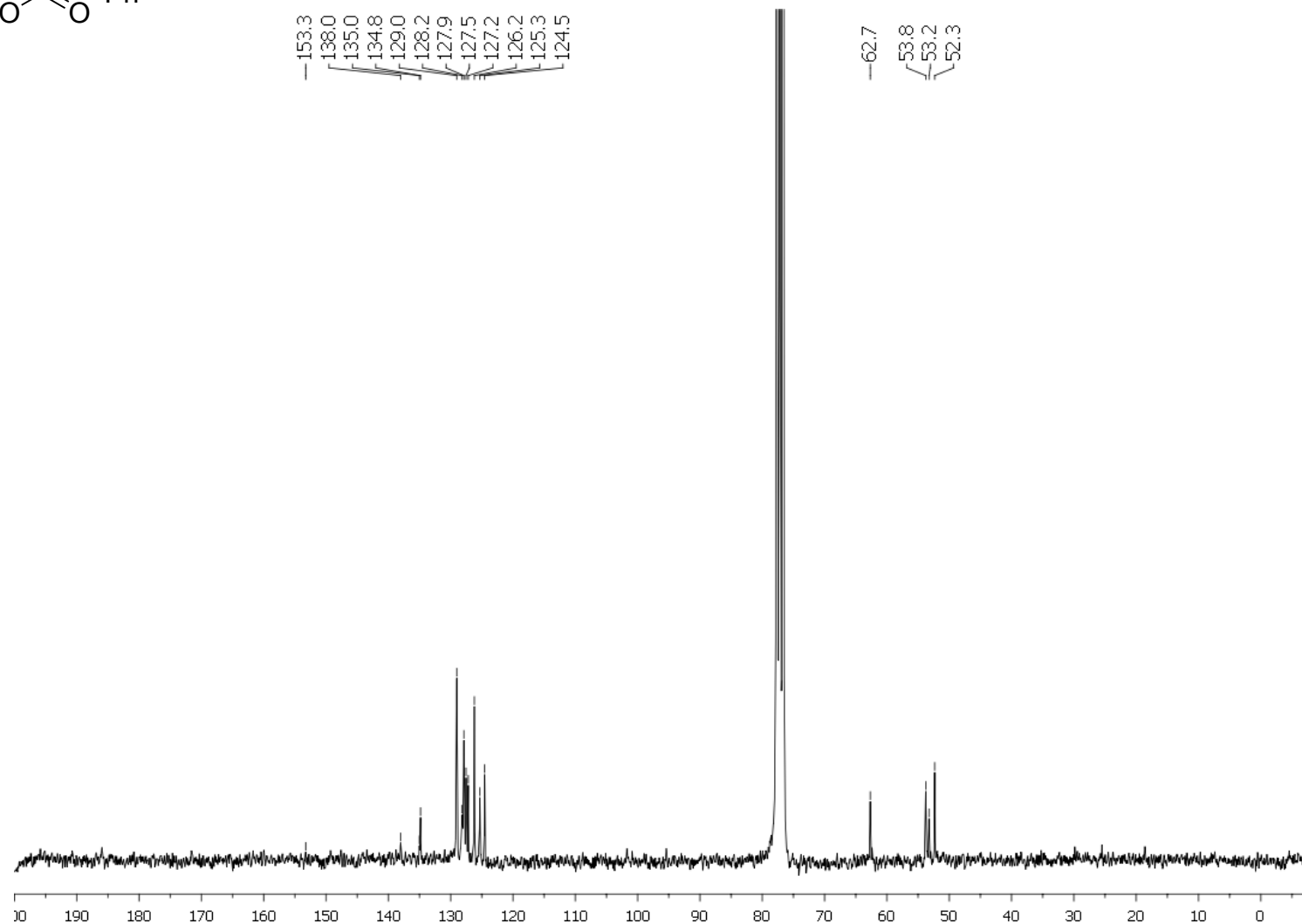


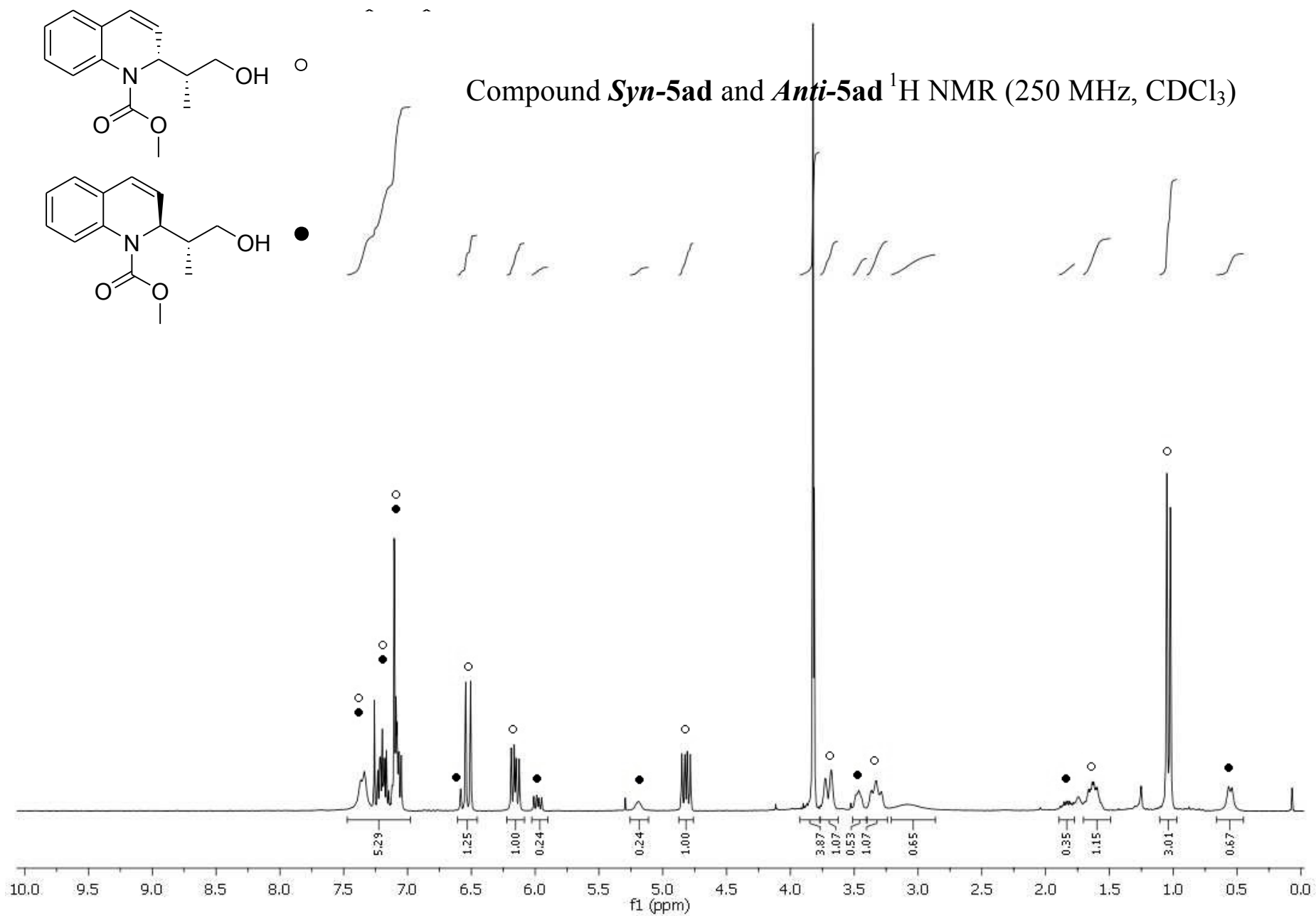
Compound *Anti-5ac* <sup>1</sup>H NMR (250 MHz, CDCl<sub>3</sub>)

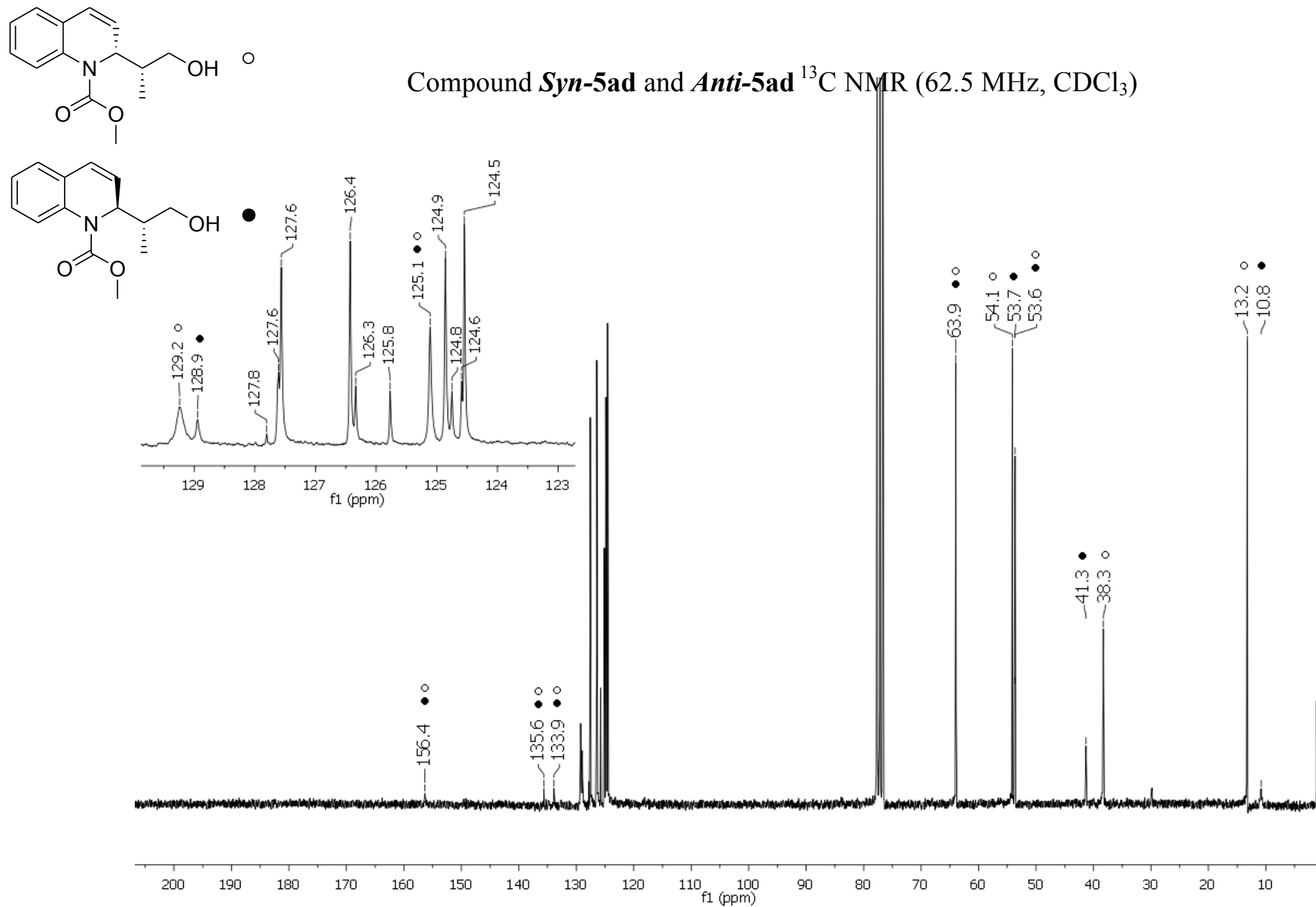


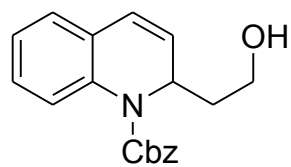
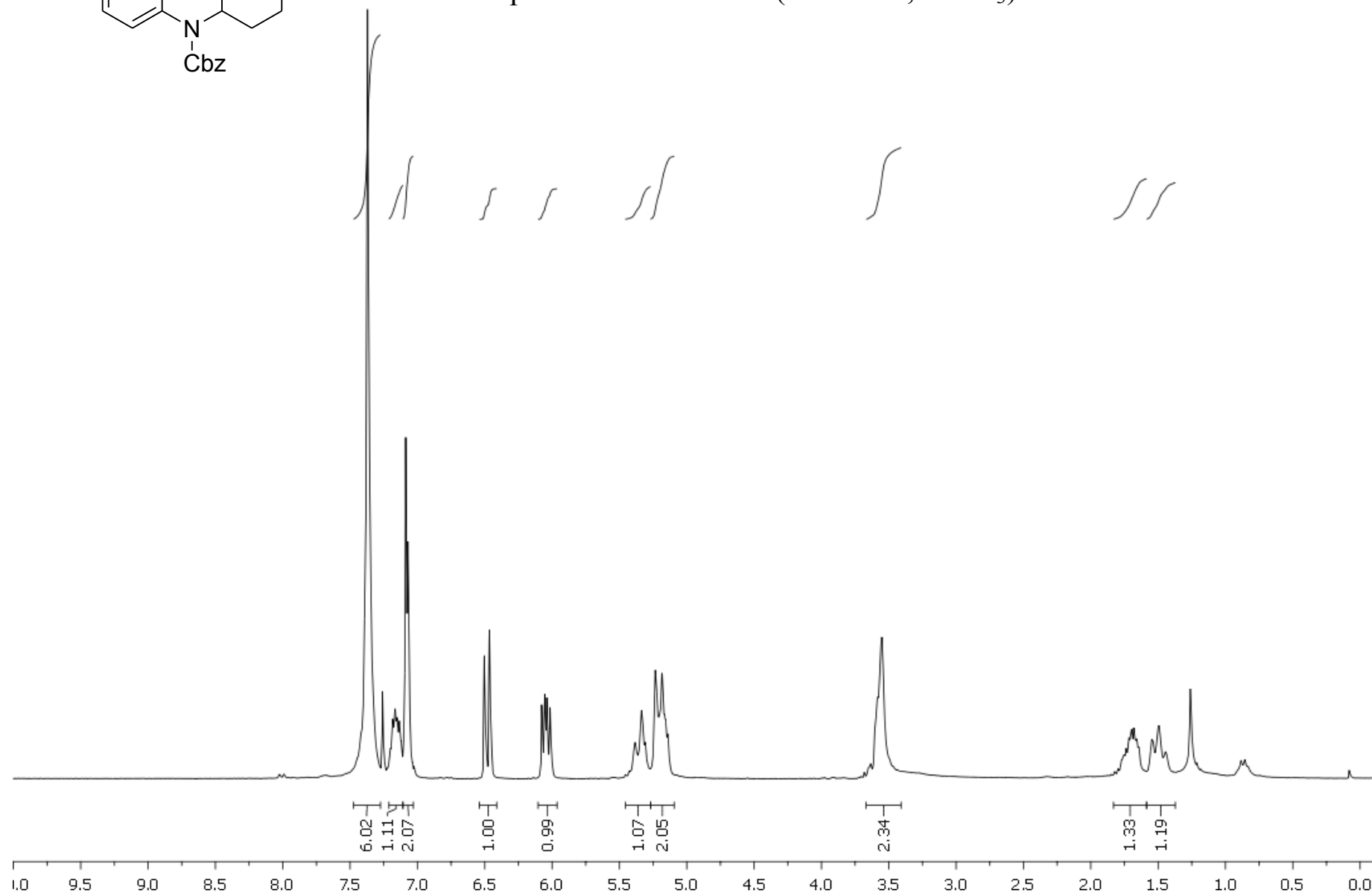


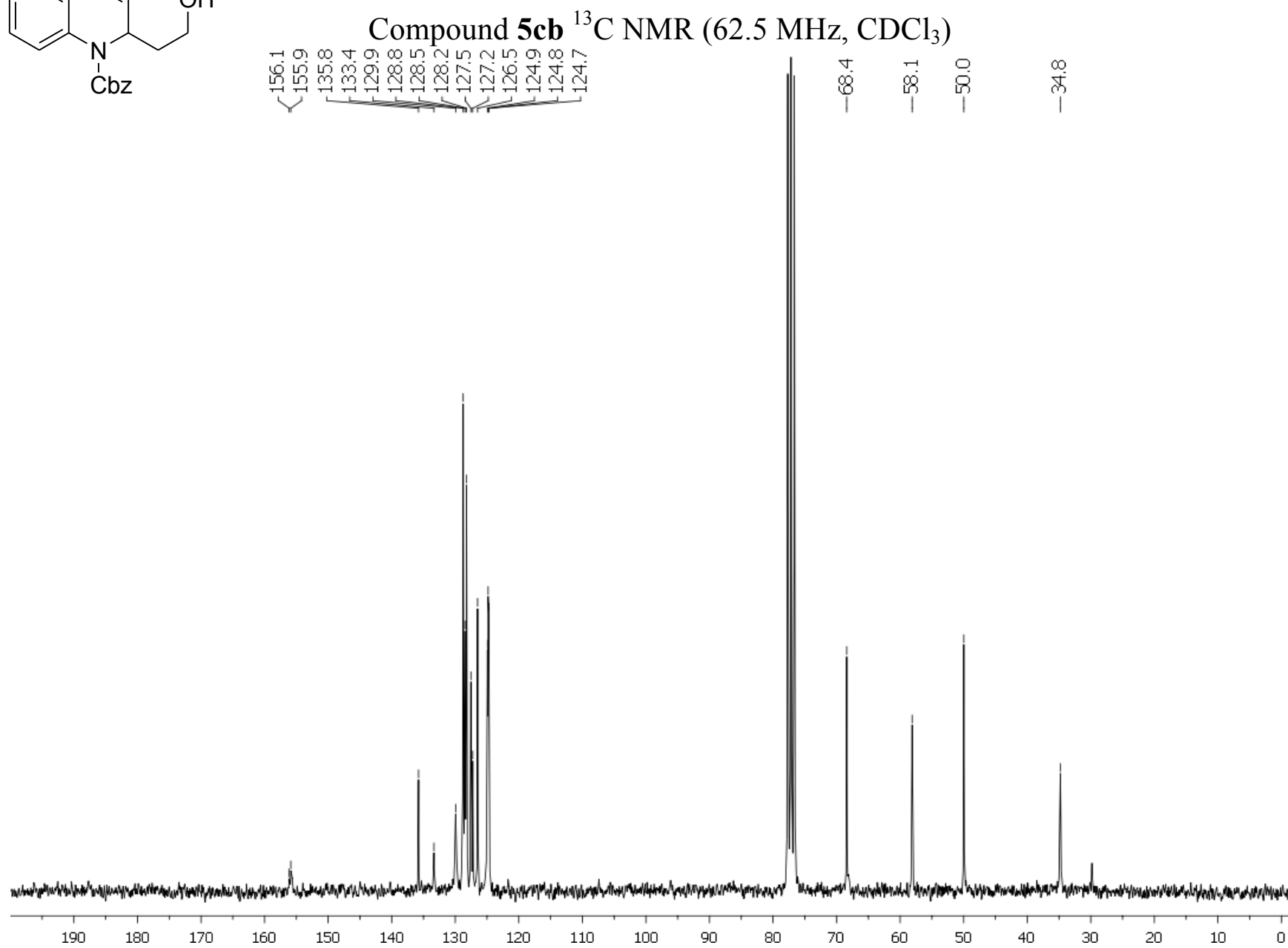
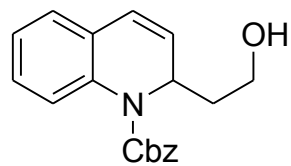
Compound *Anti-5ac*  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )



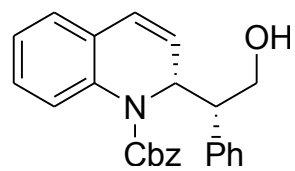




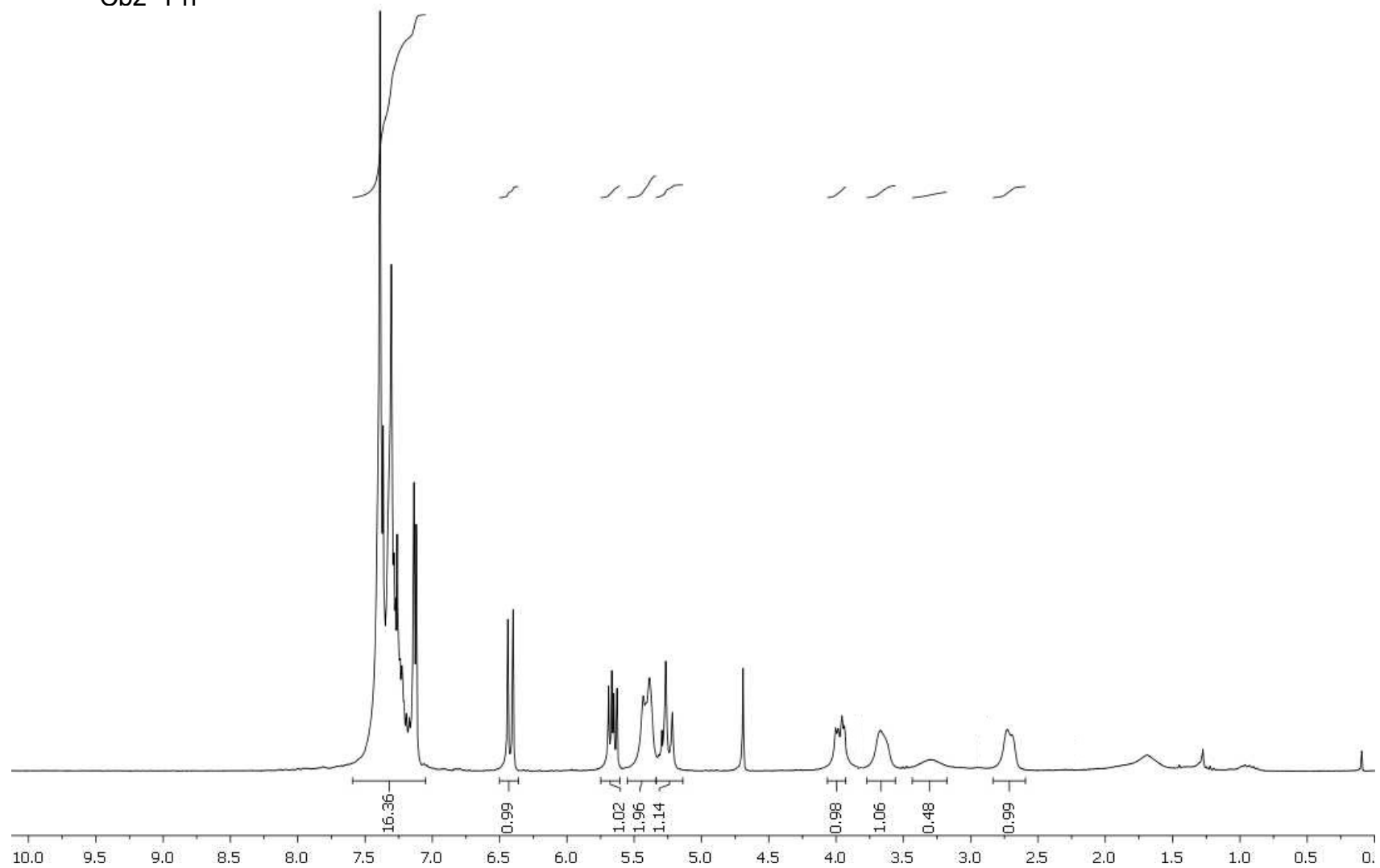
Compound **5cb**  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )

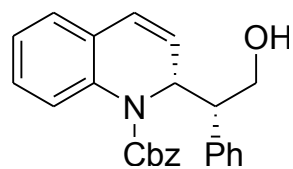
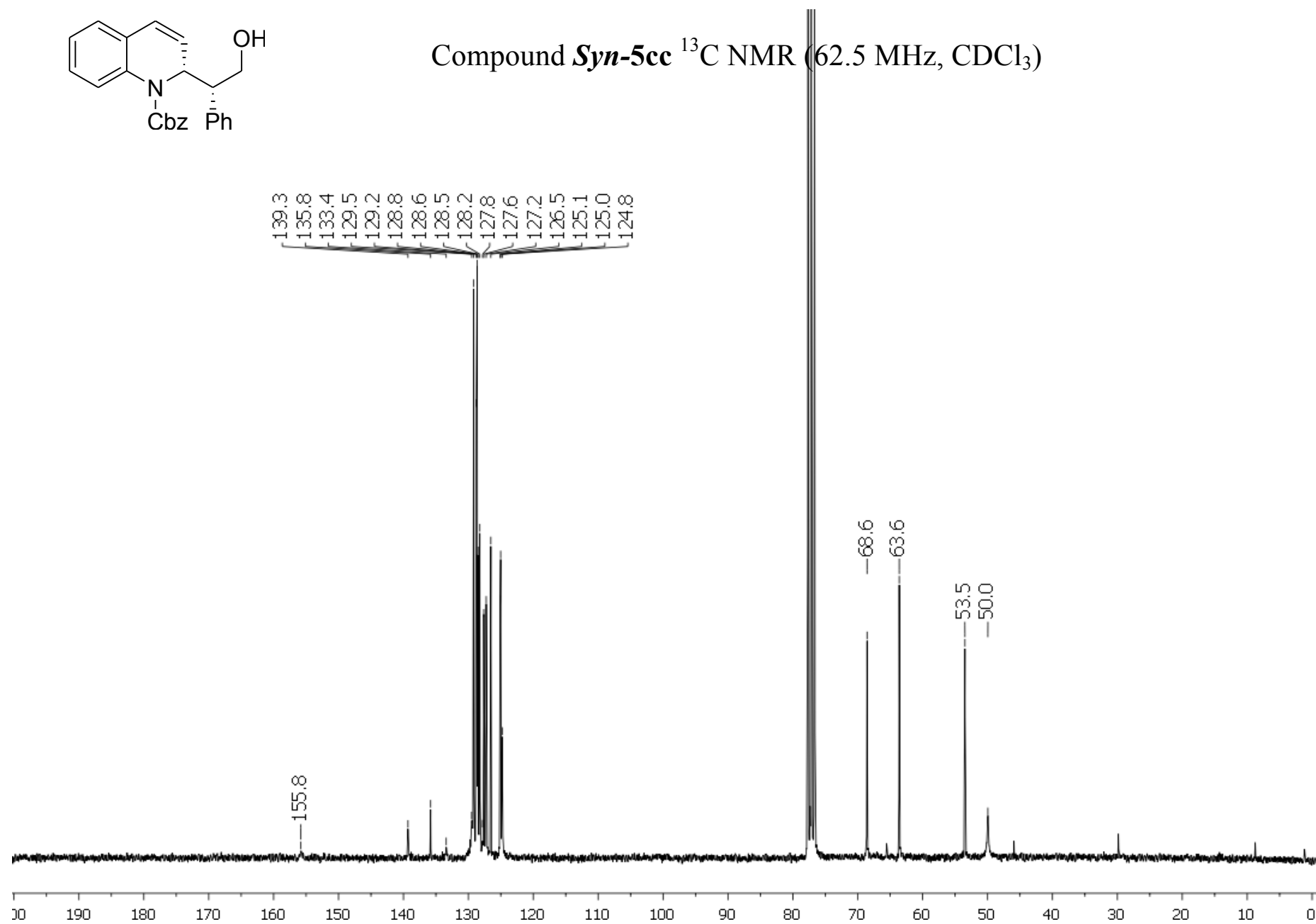


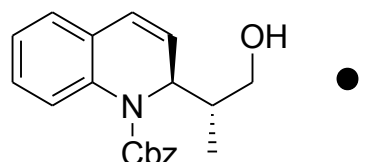
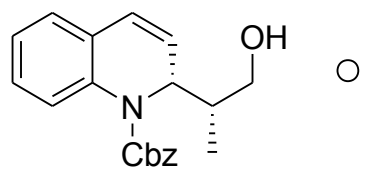




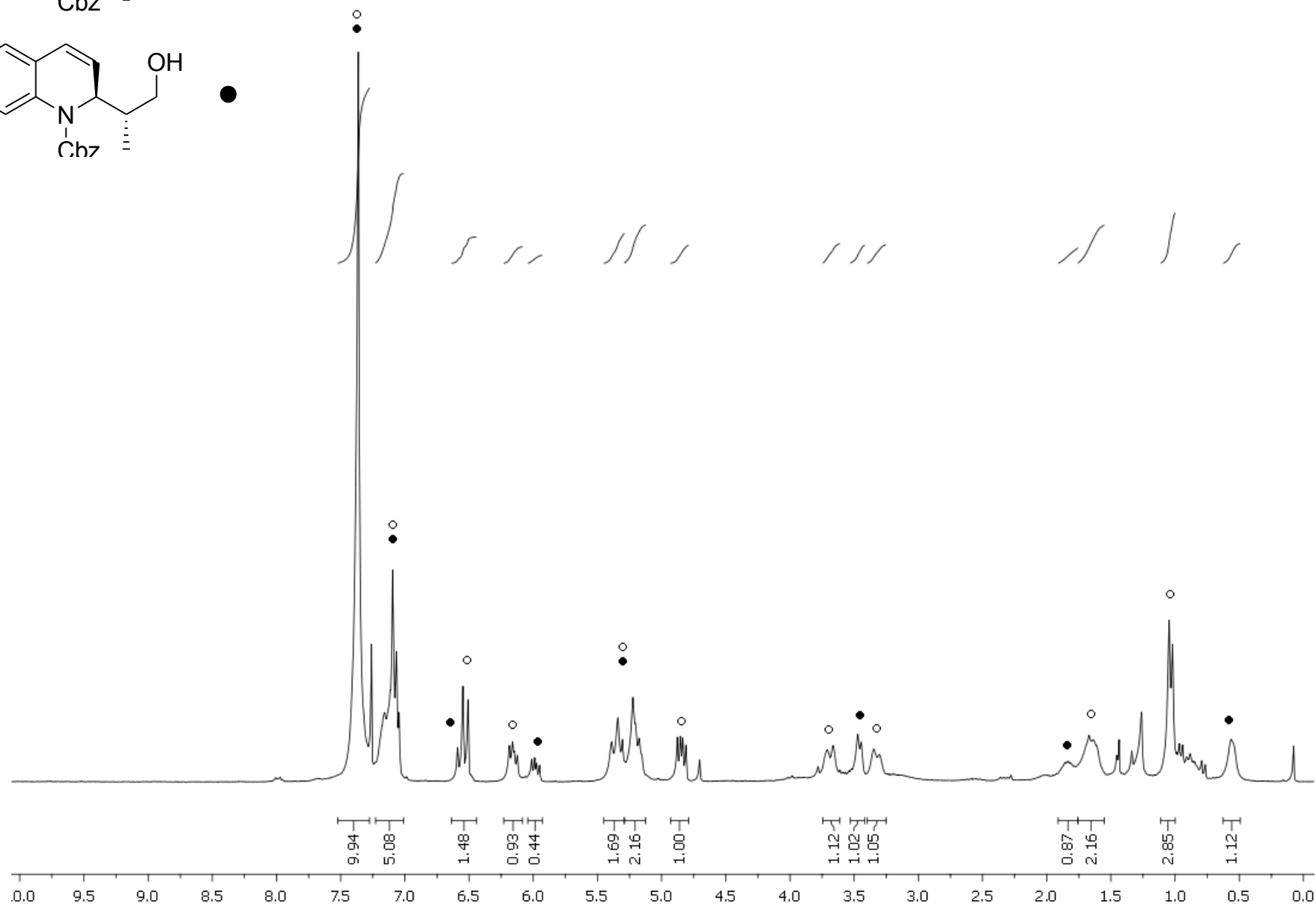
Compound **Syn-5cc** <sup>1</sup>H NMR (250 MHz, CDCl<sub>3</sub>)

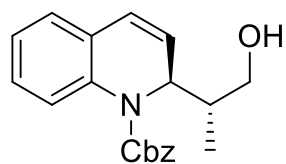
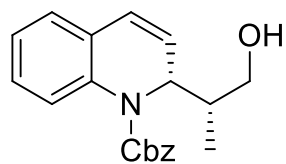


Compound *Syn-5cc*  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

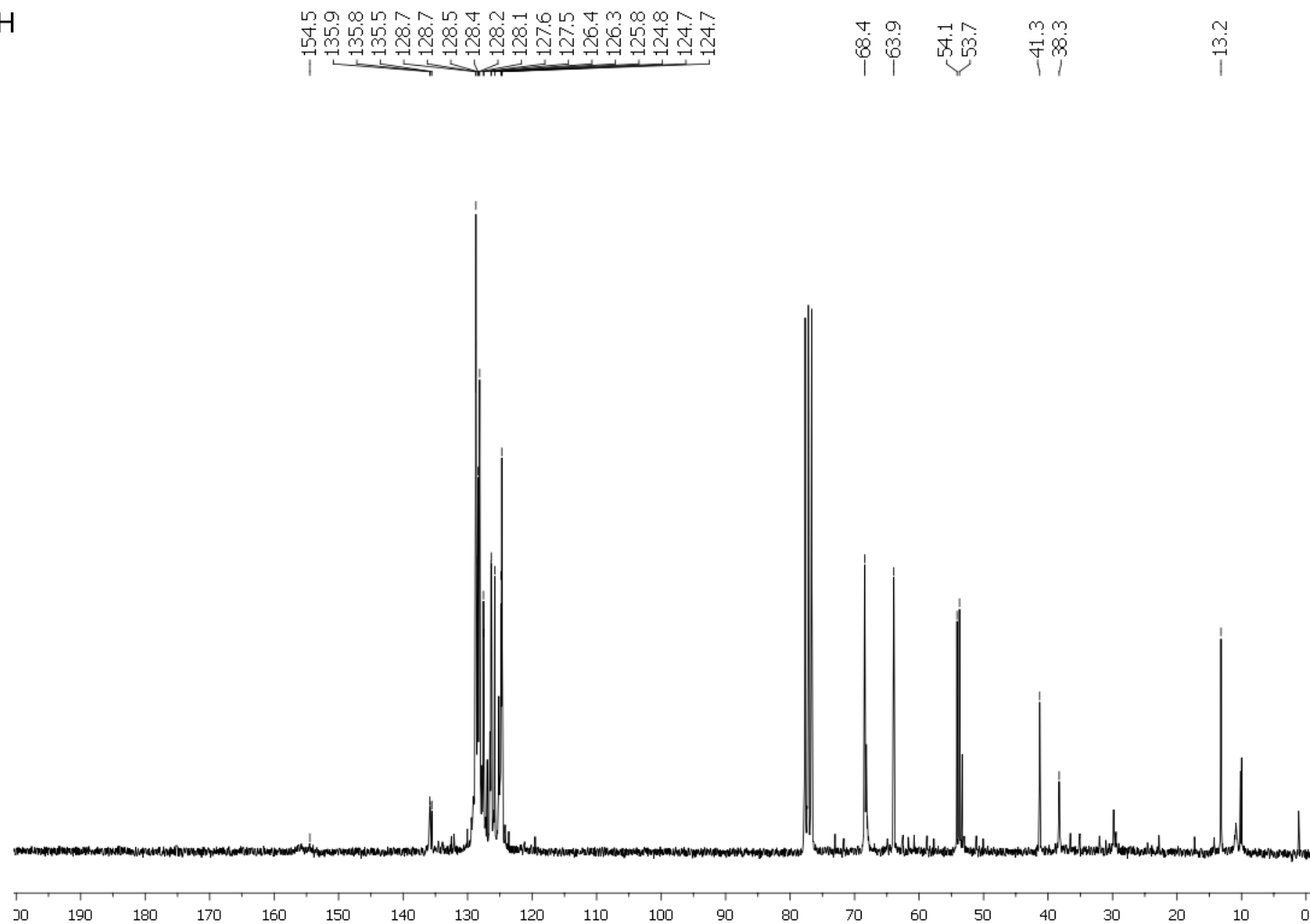


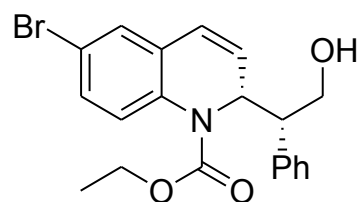
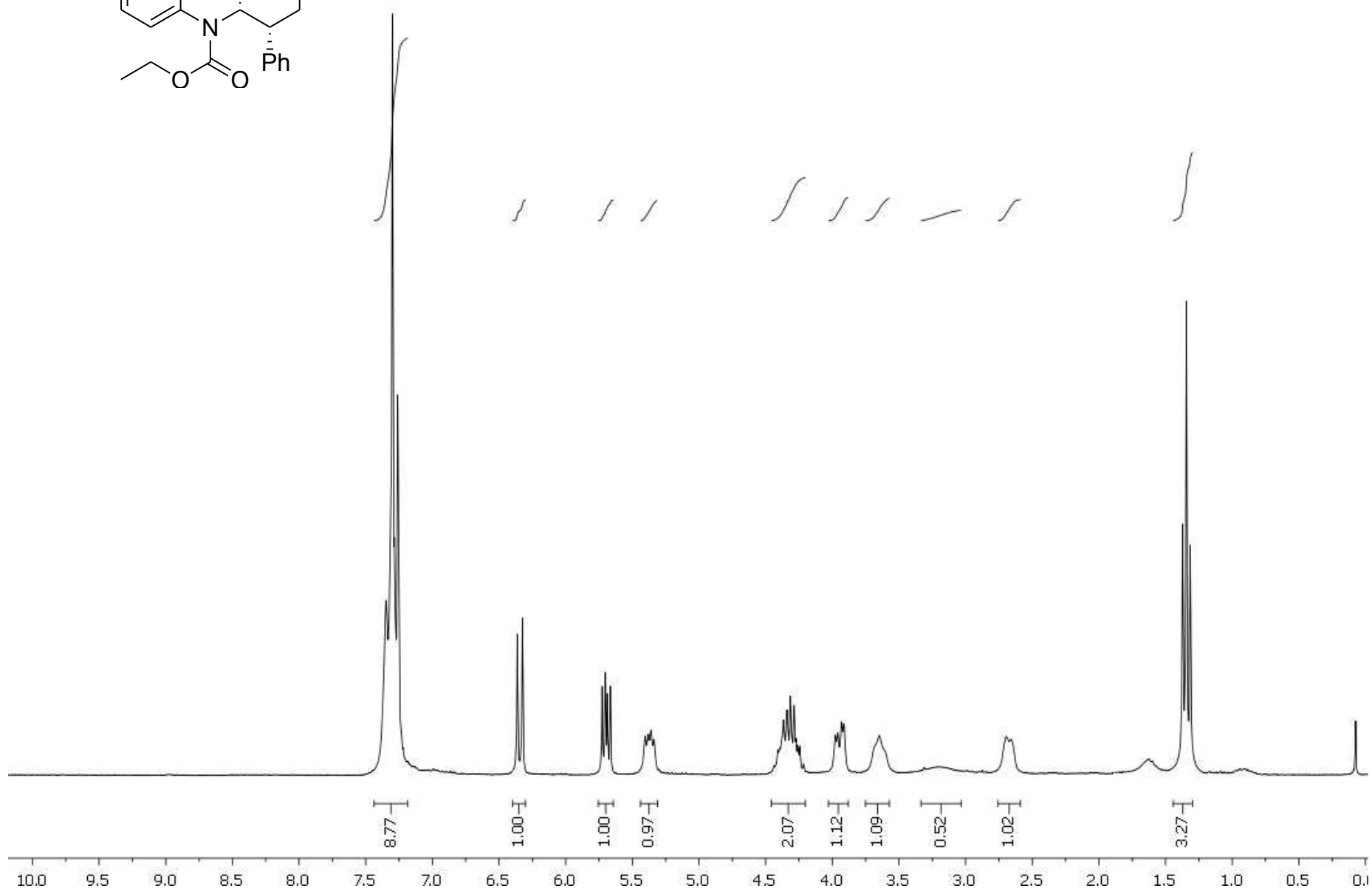
Compound *Syn-5cd* and *Anti-5cd* <sup>1</sup>H NMR (250 MHz, CDCl<sub>3</sub>)

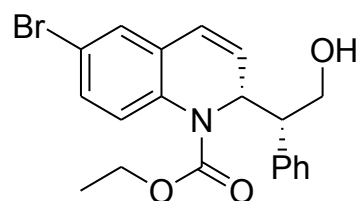
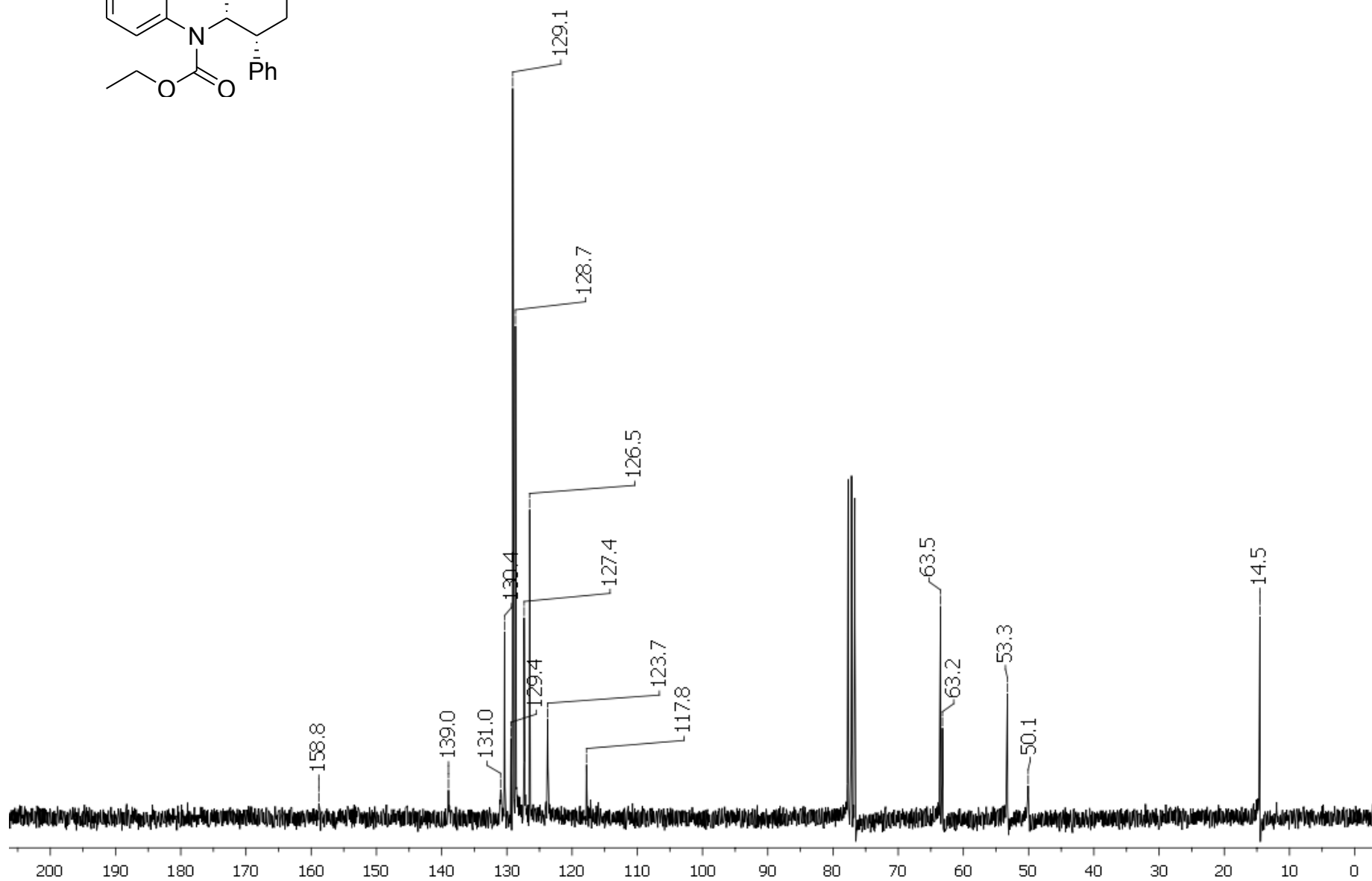


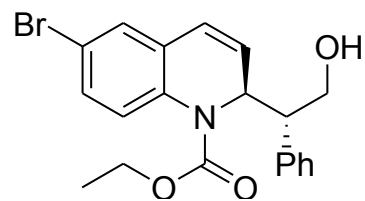
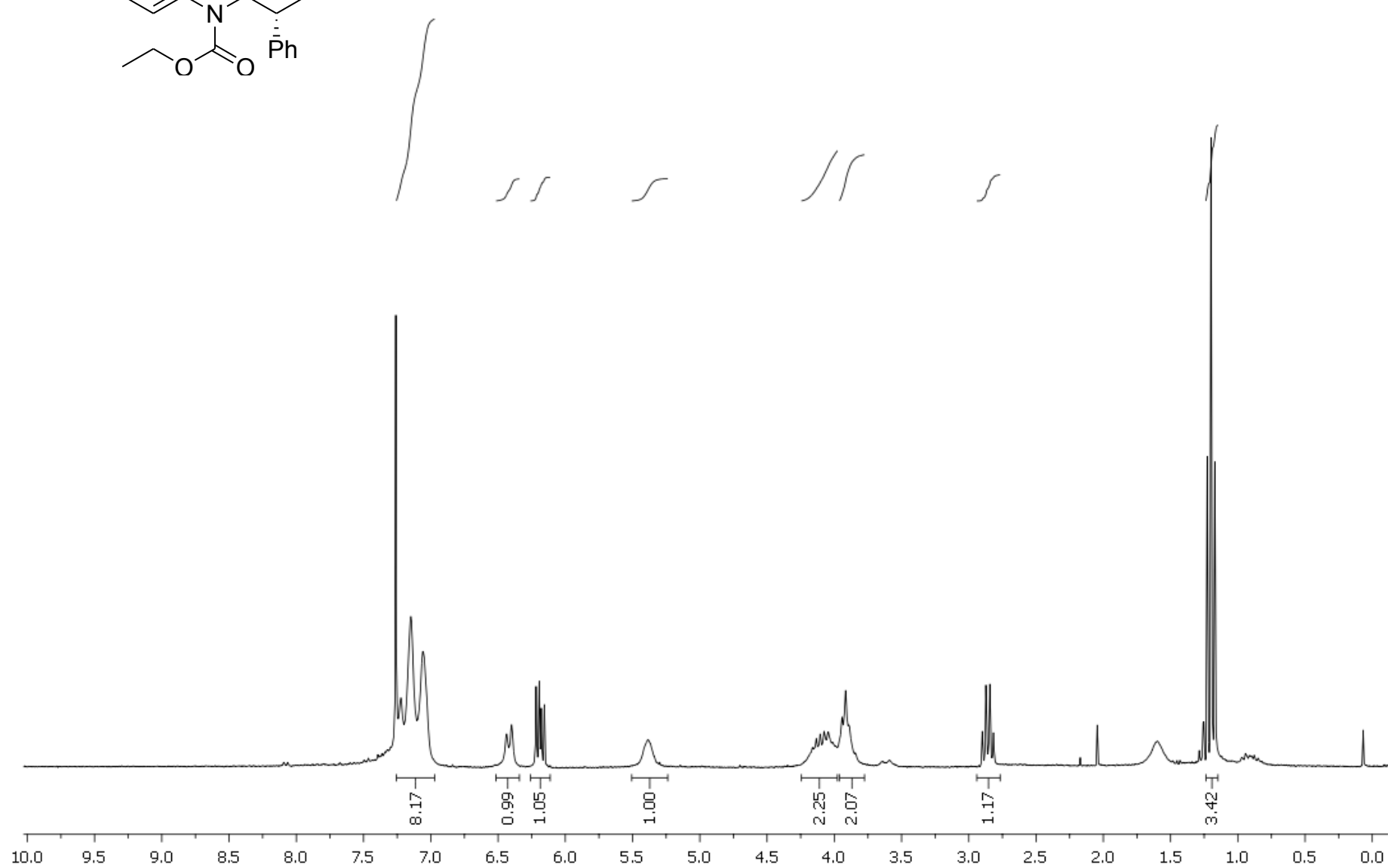


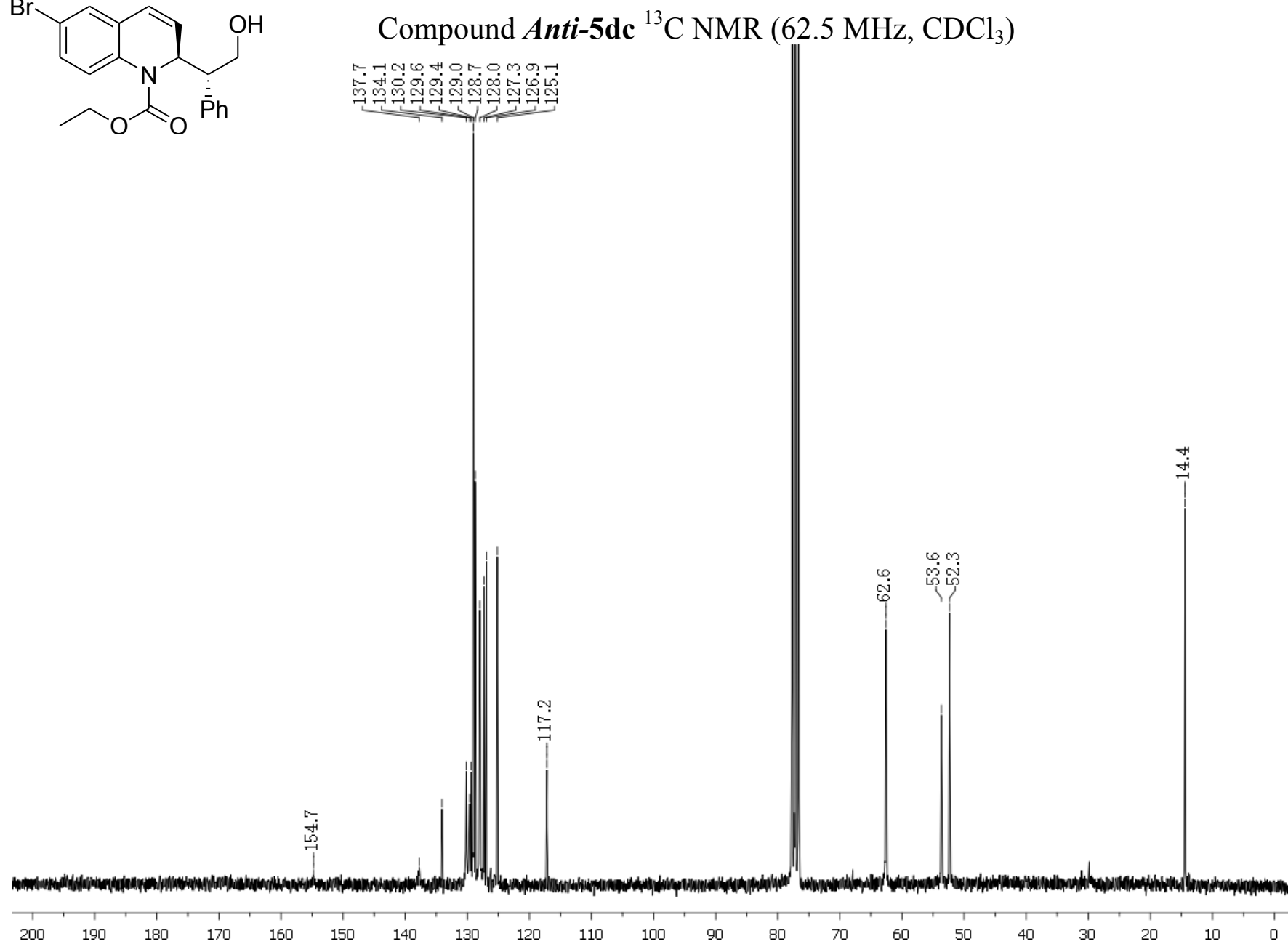
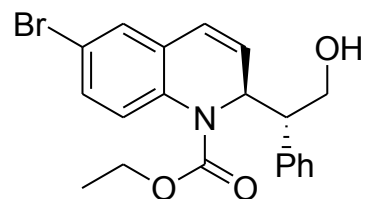
Compound *Syn-5cd* and *Anti-5cd* <sup>13</sup>C NMR (62.5 MHz, CDCl<sub>3</sub>)



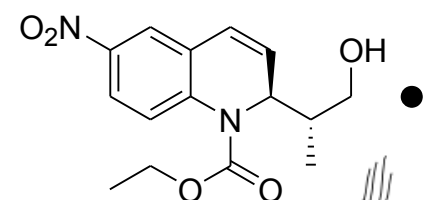
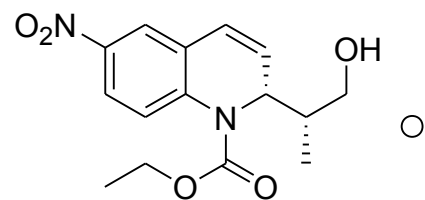
Compound **Syn-5dc**  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )

Compound **Syn-5dc**  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

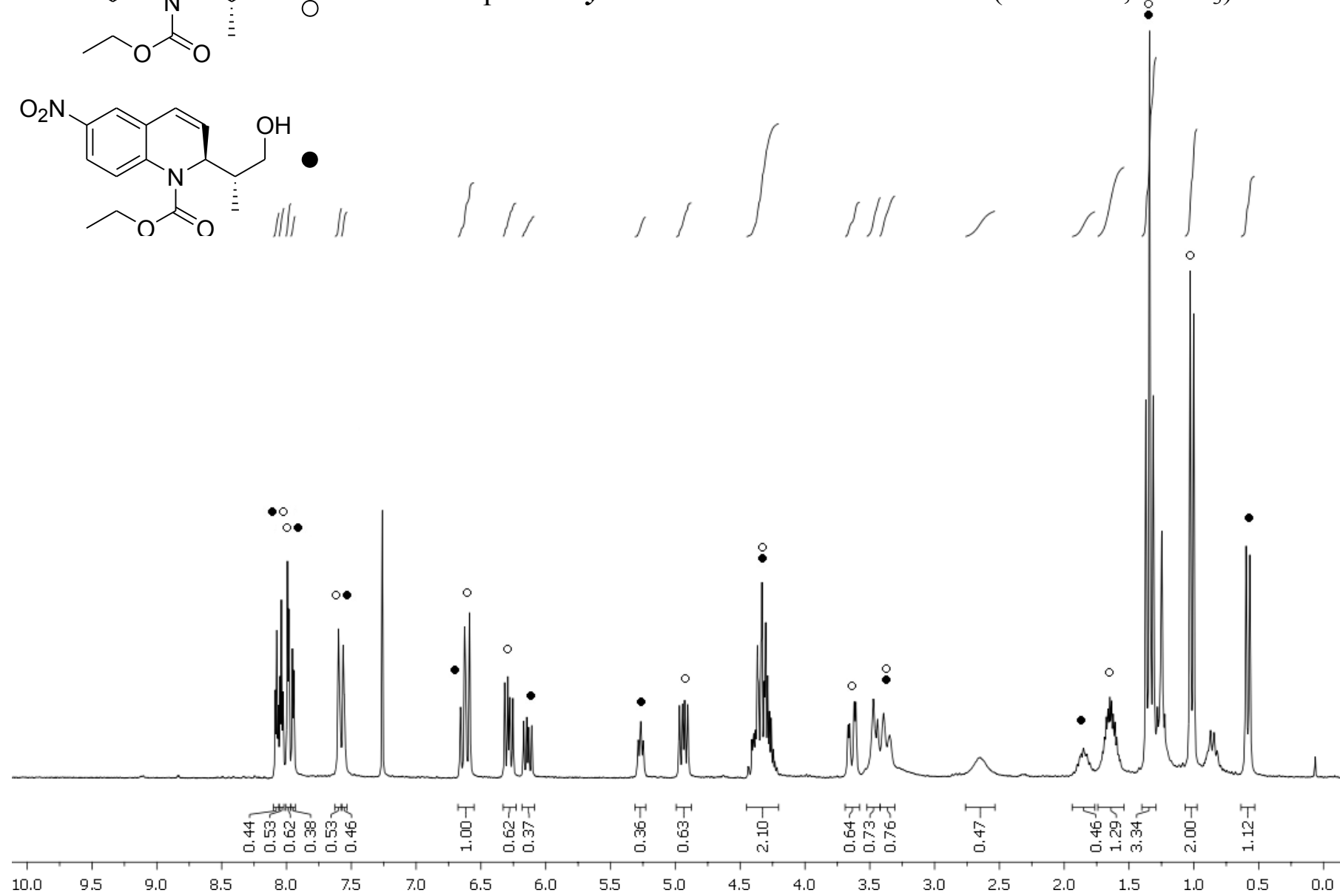
Compound *Anti-5dc* <sup>1</sup>H NMR (250 MHz, CDCl<sub>3</sub>)

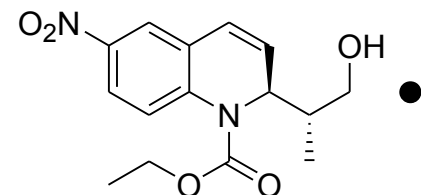
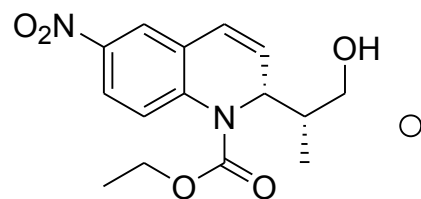




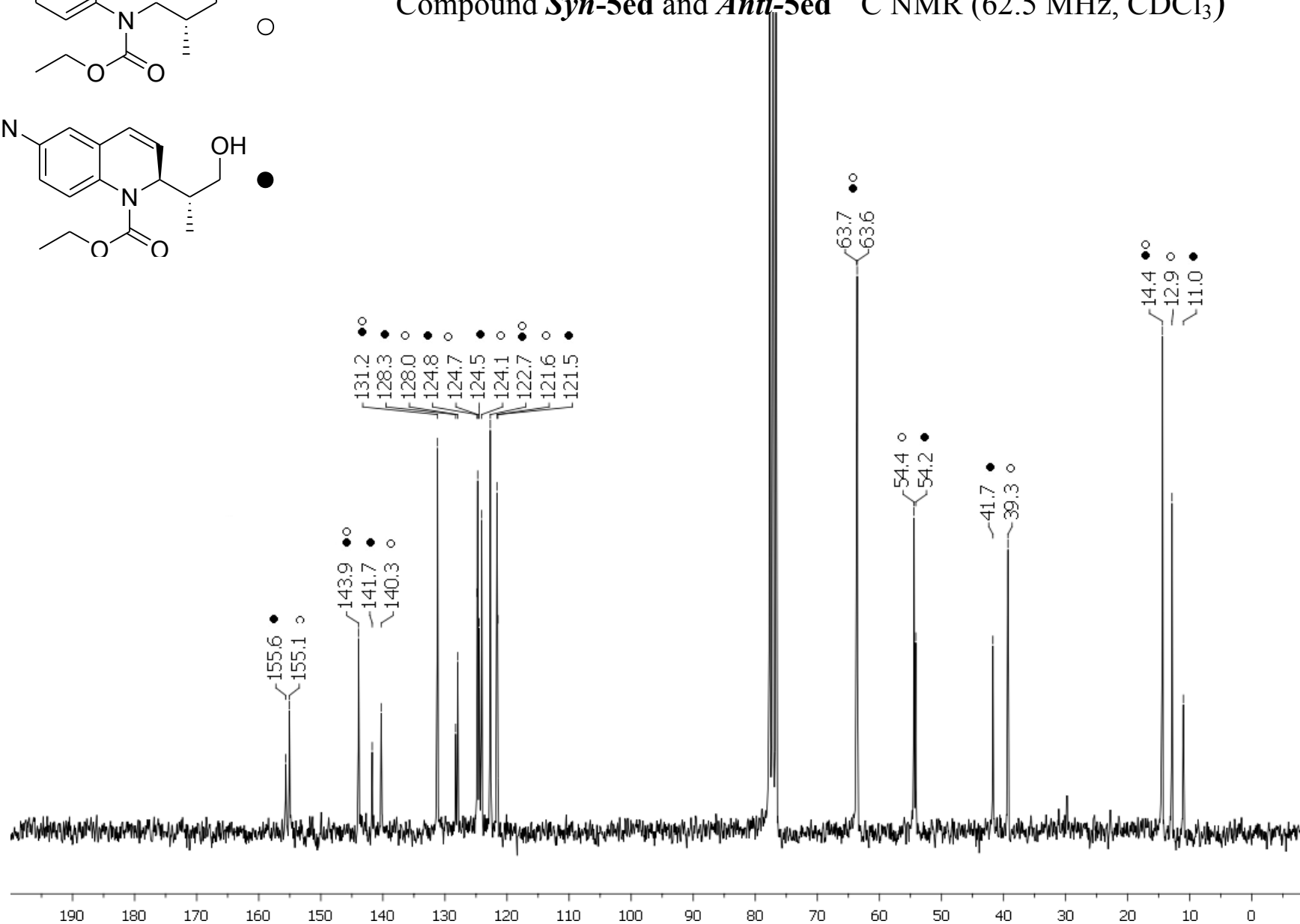


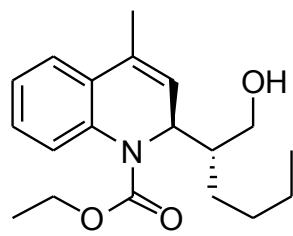
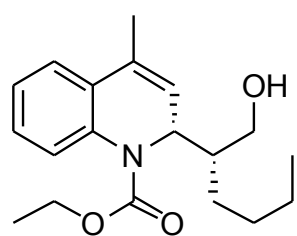
Compound *Syn-3ed* and *Anti-3ed*  $^{13}\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )



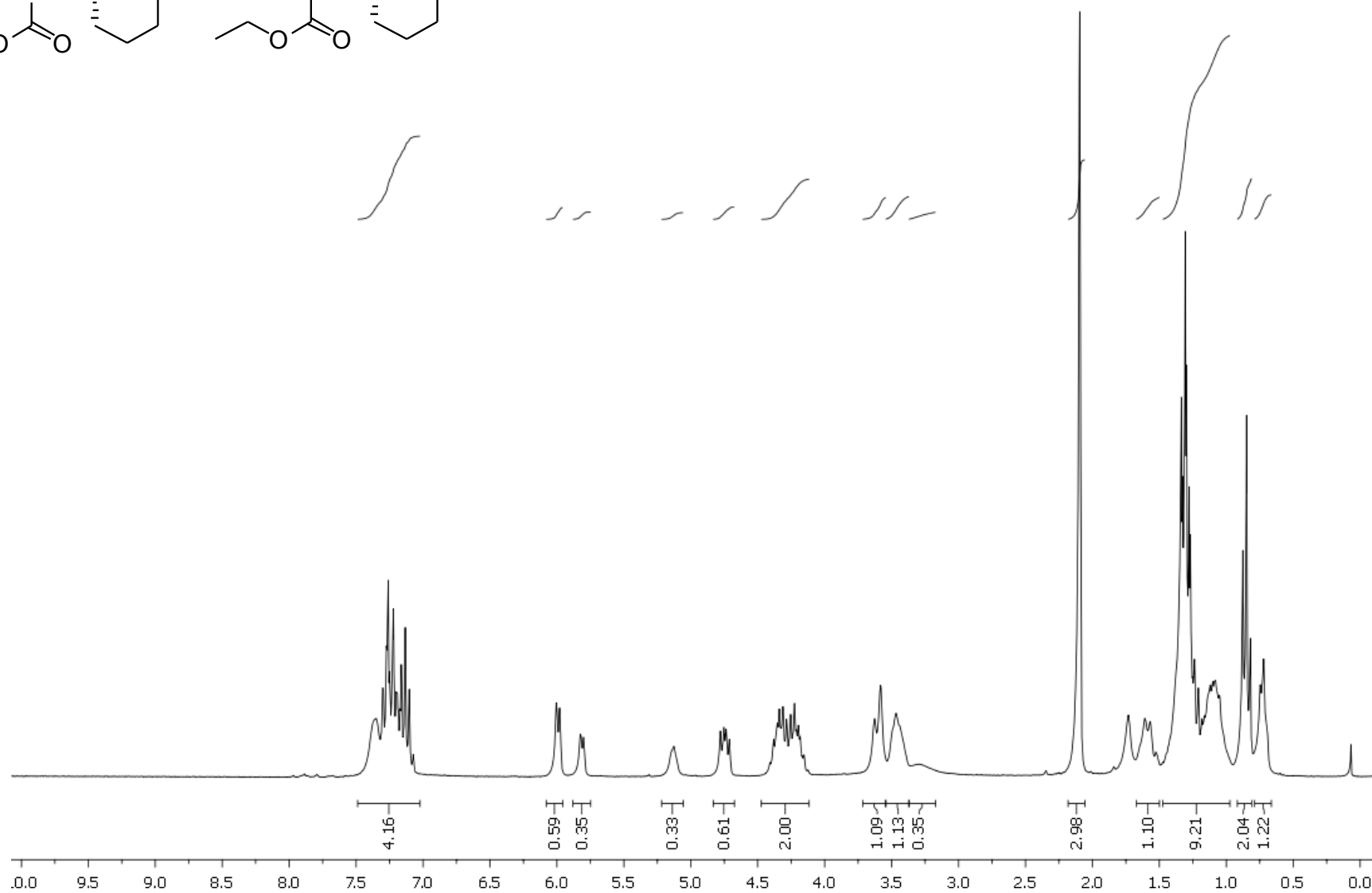


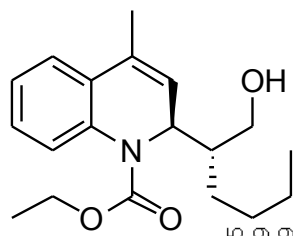
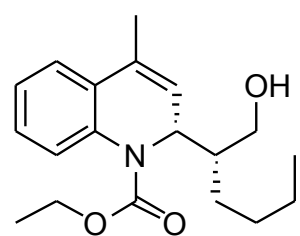
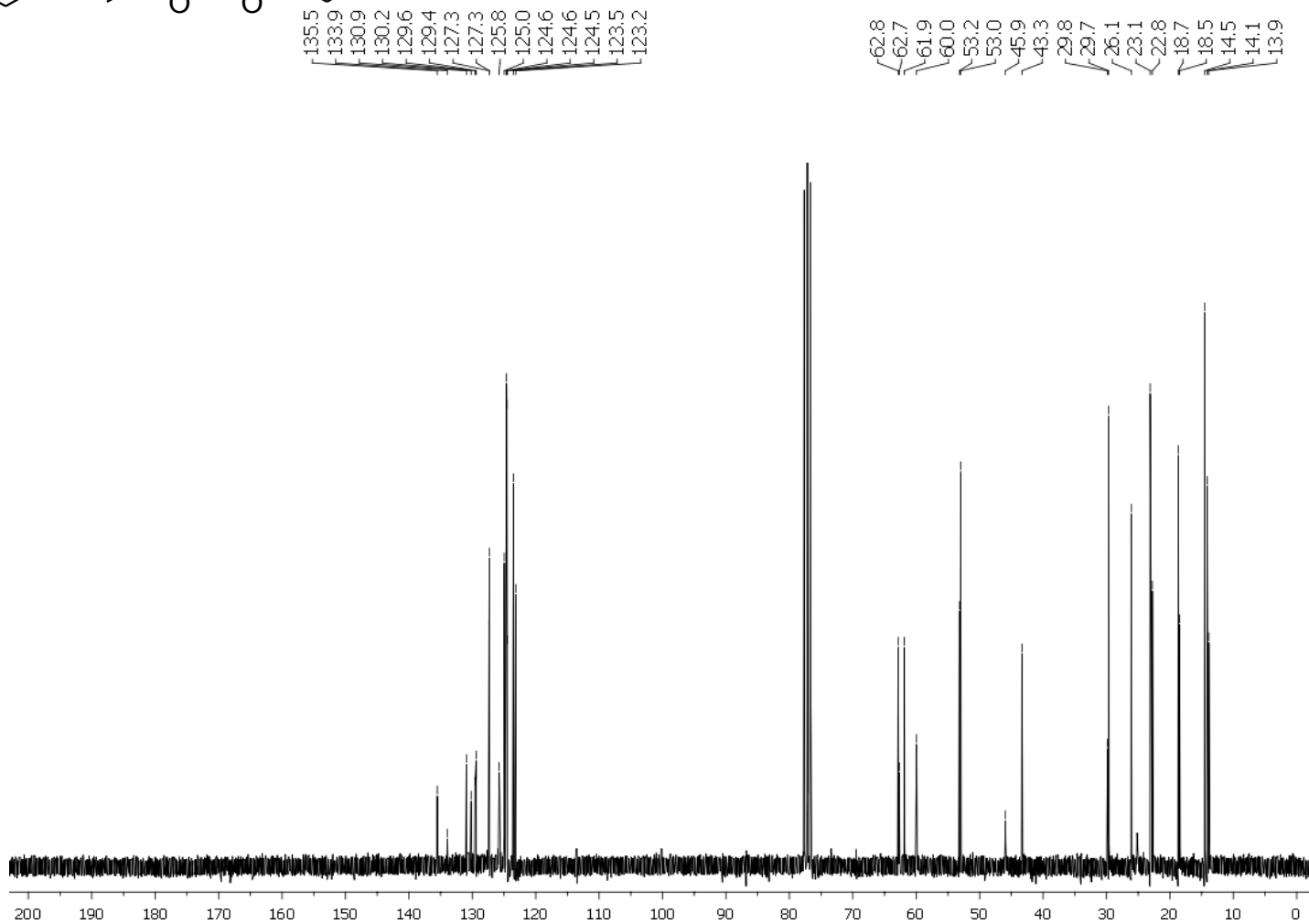
Compound *Syn*-5ed and *Anti*-5ed  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

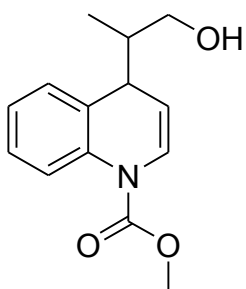




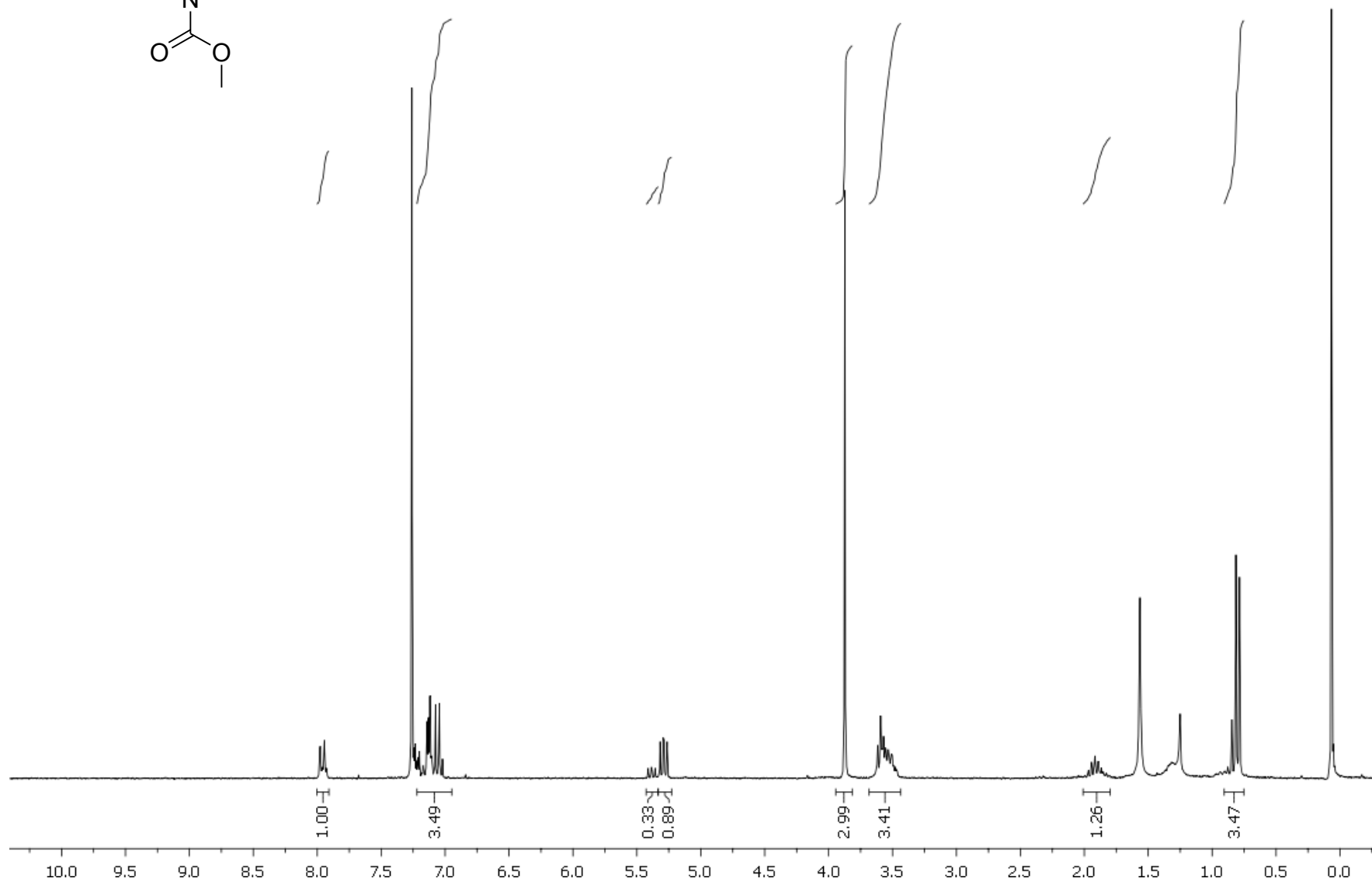
Compound *Syn-5ha* and *Anti-5ha*  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )

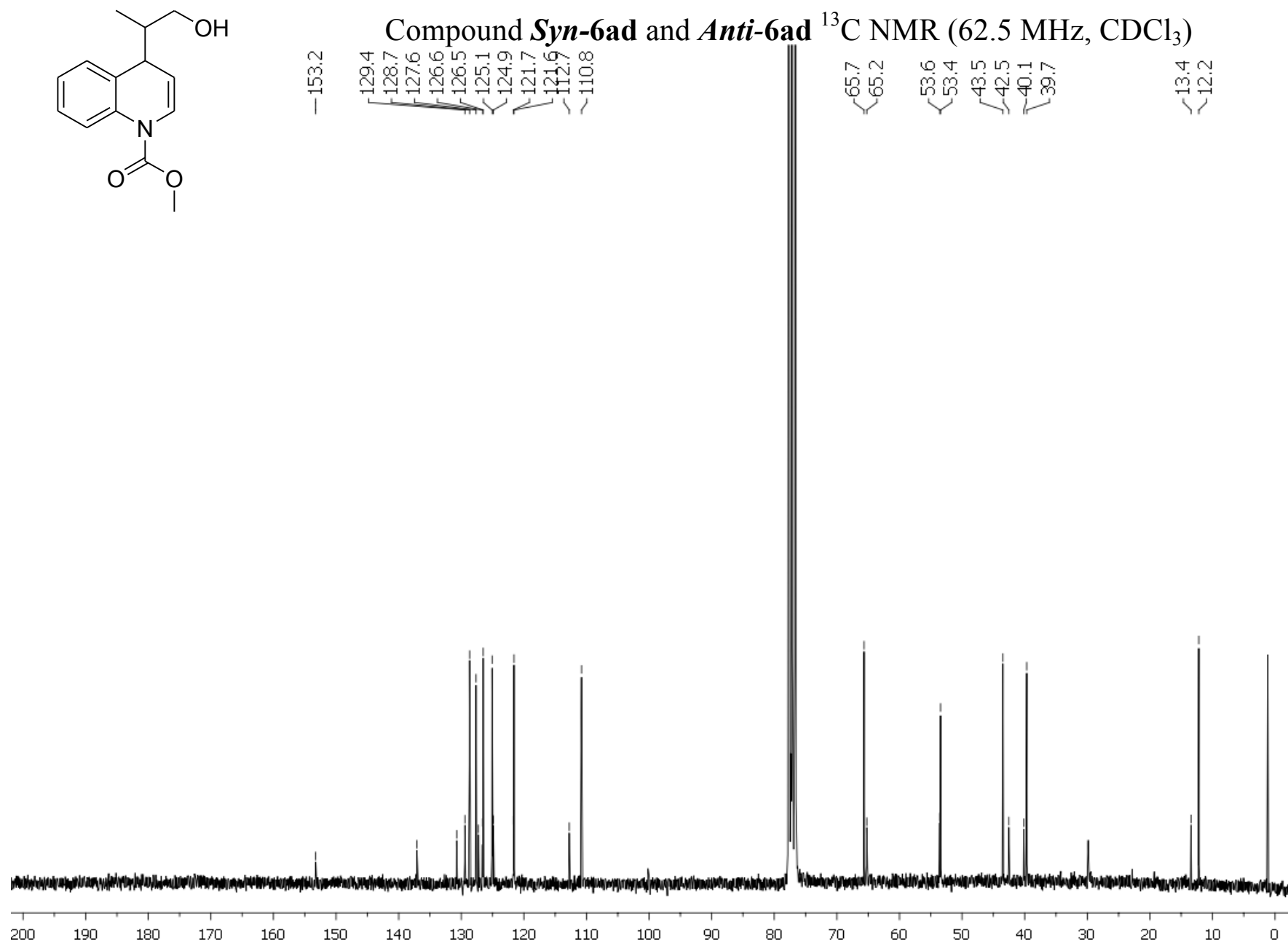


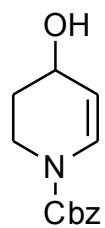
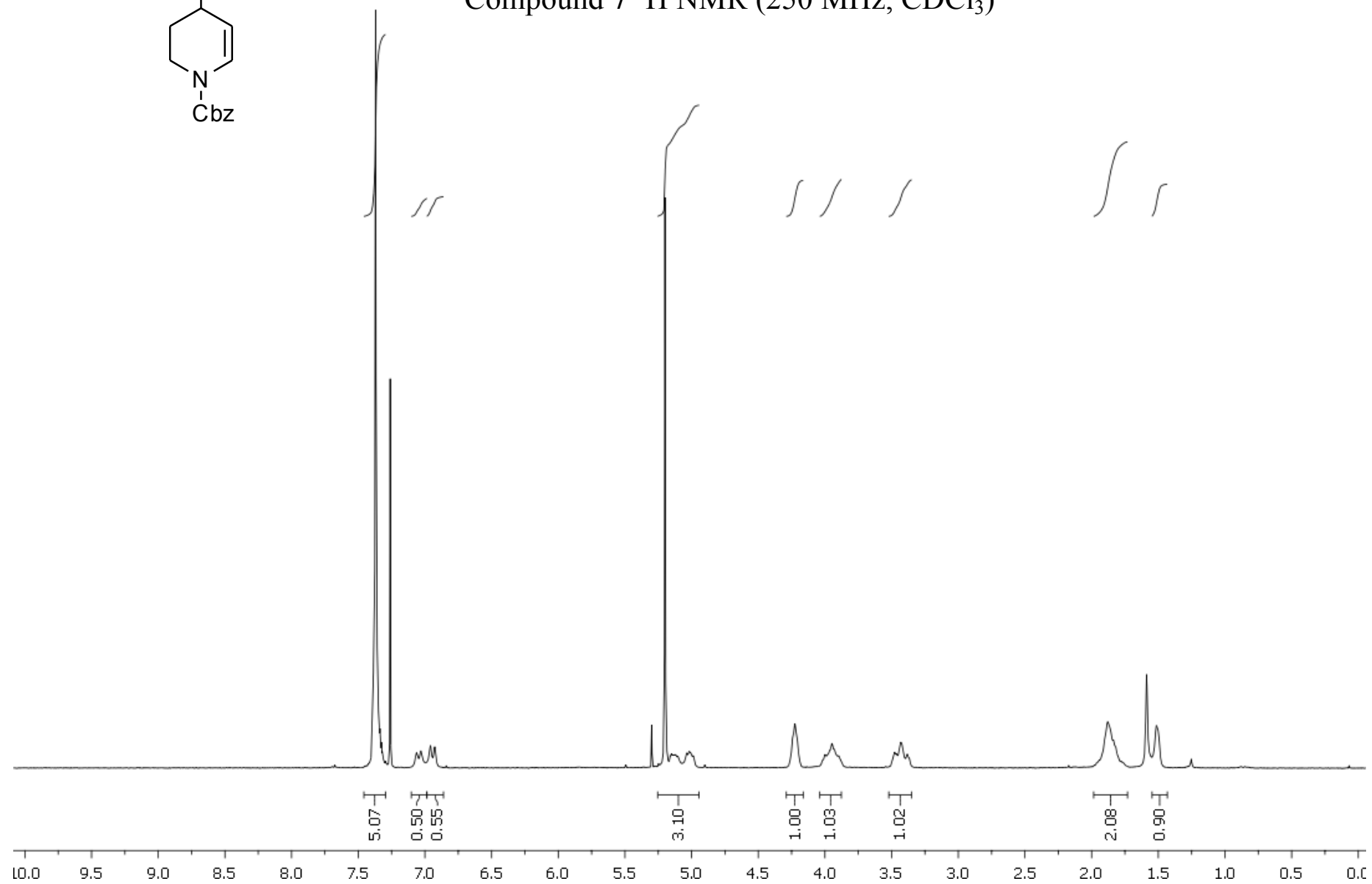
Compound *Syn-5ha* and *Anti-5ha*  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

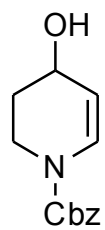
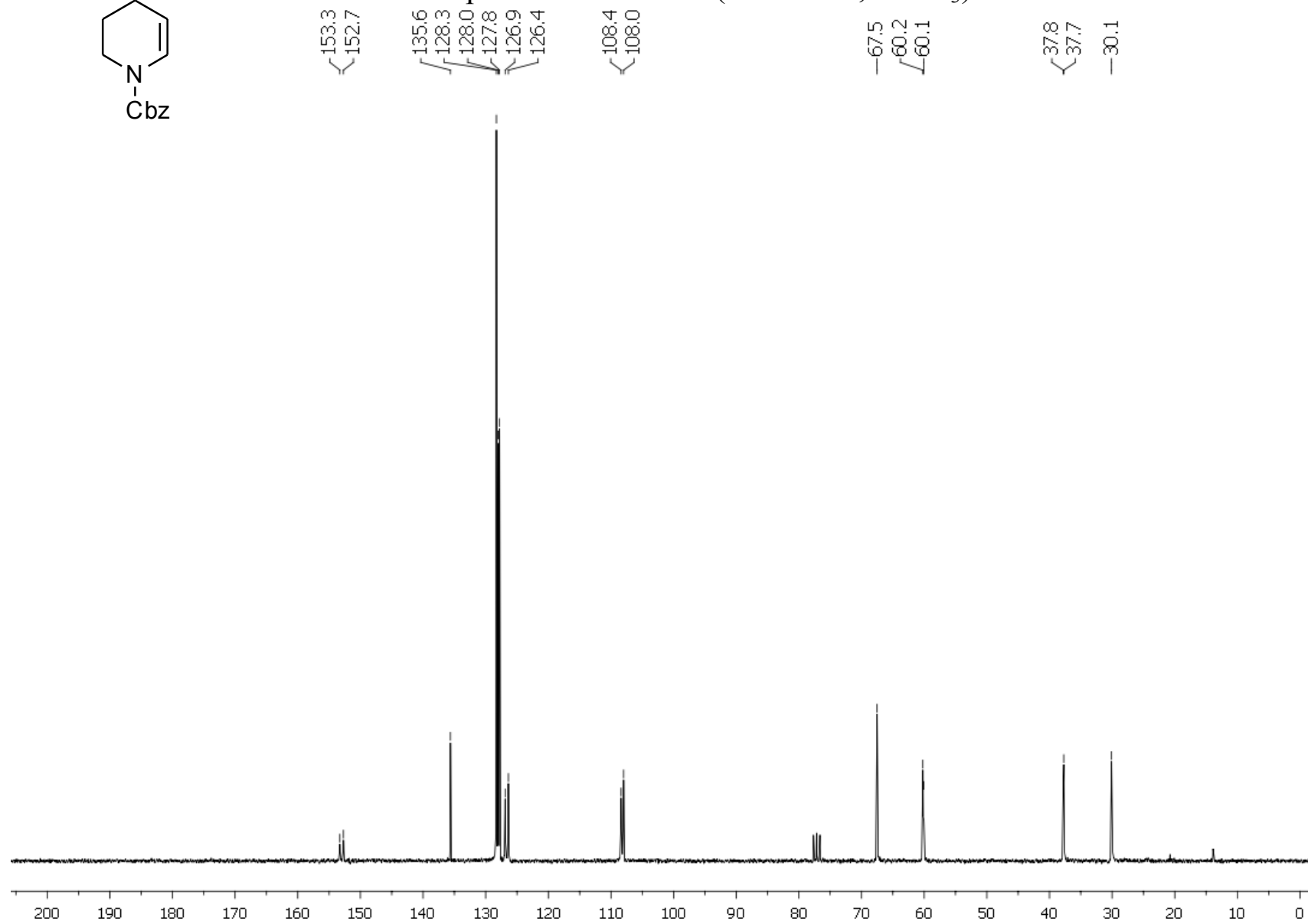


Compound *Syn-6ad* and *Anti-6ad* <sup>1</sup>H NMR (250 MHz, CDCl<sub>3</sub>)

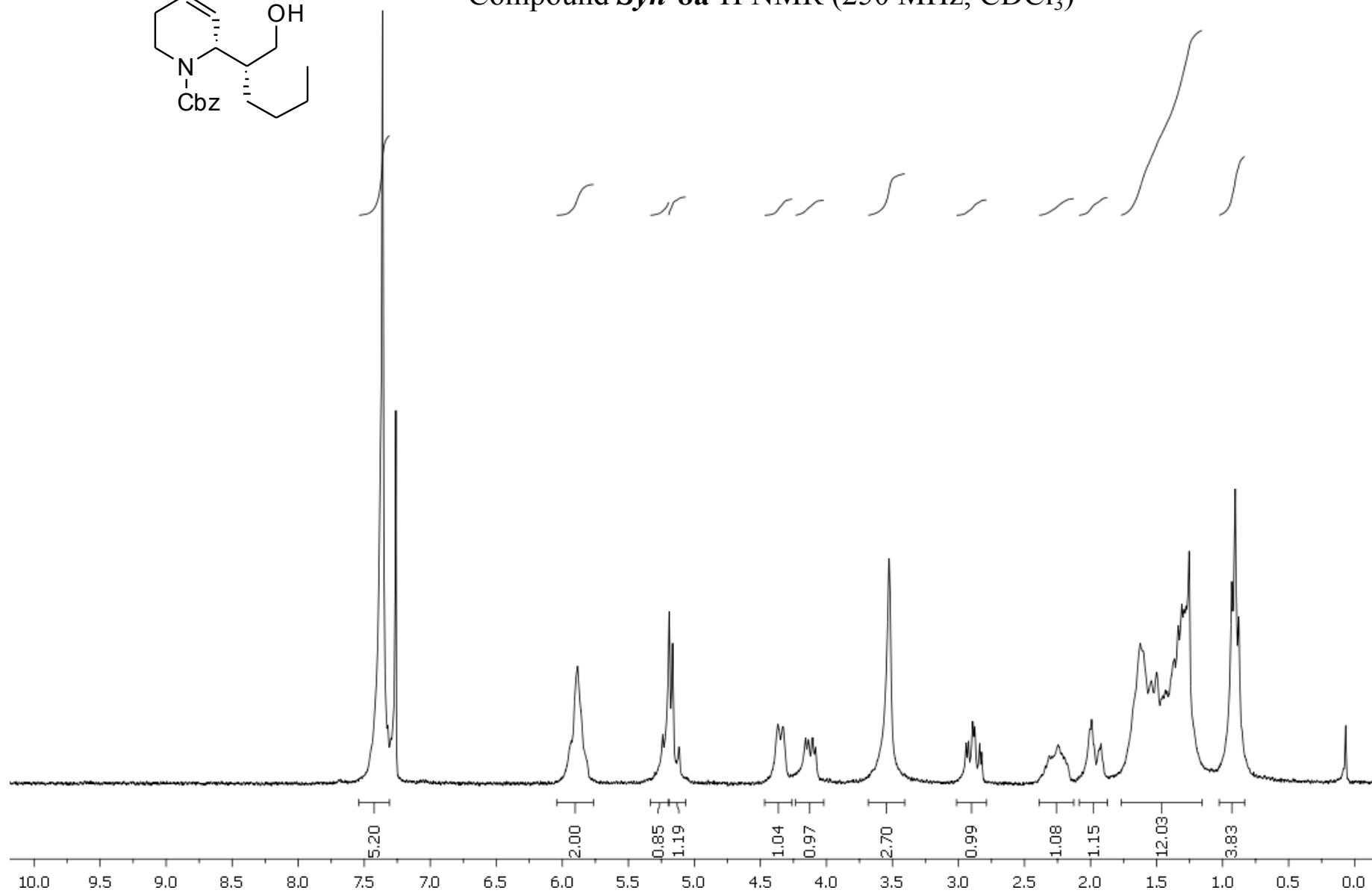
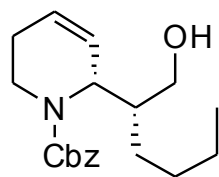


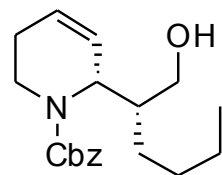
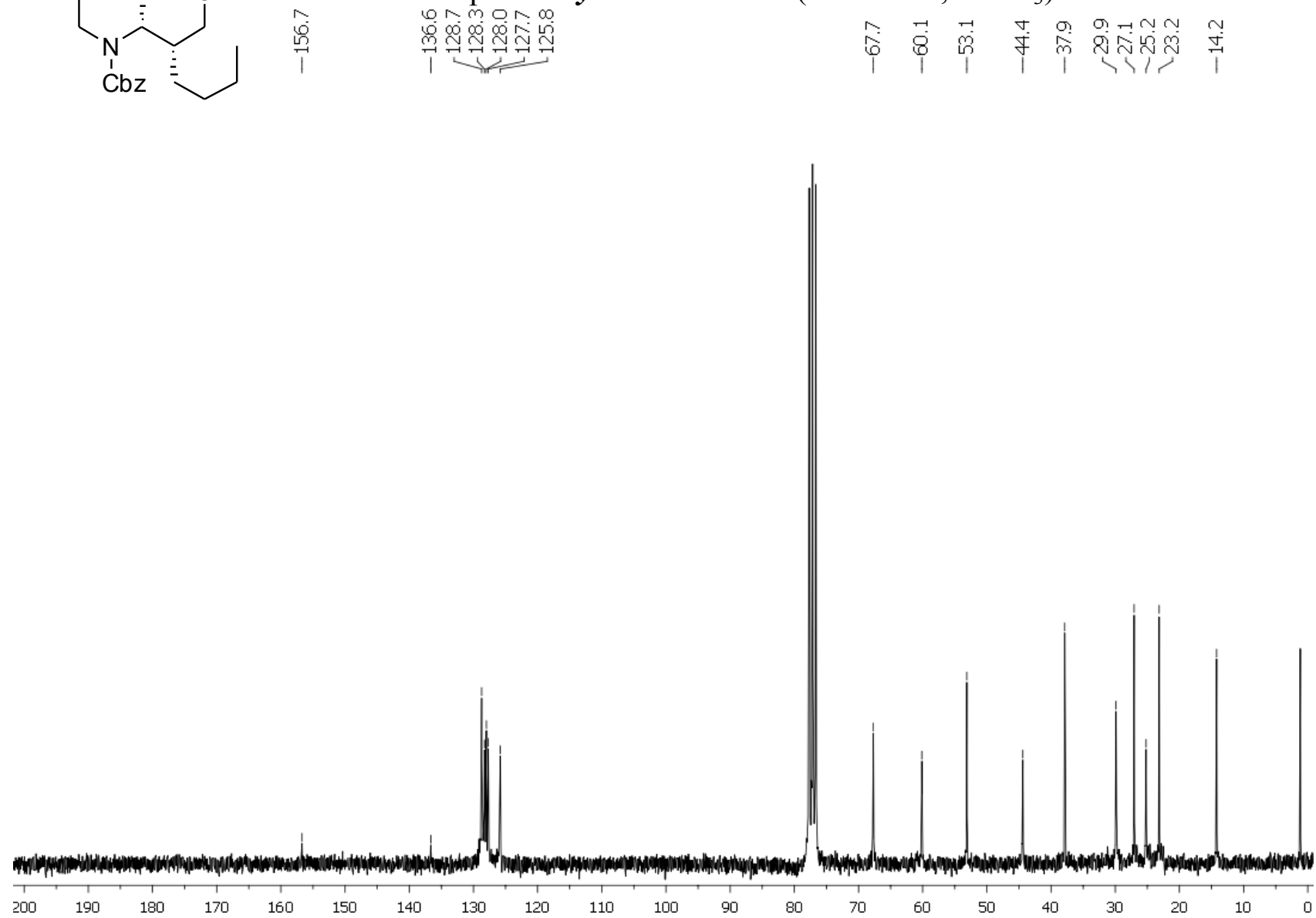


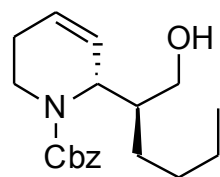
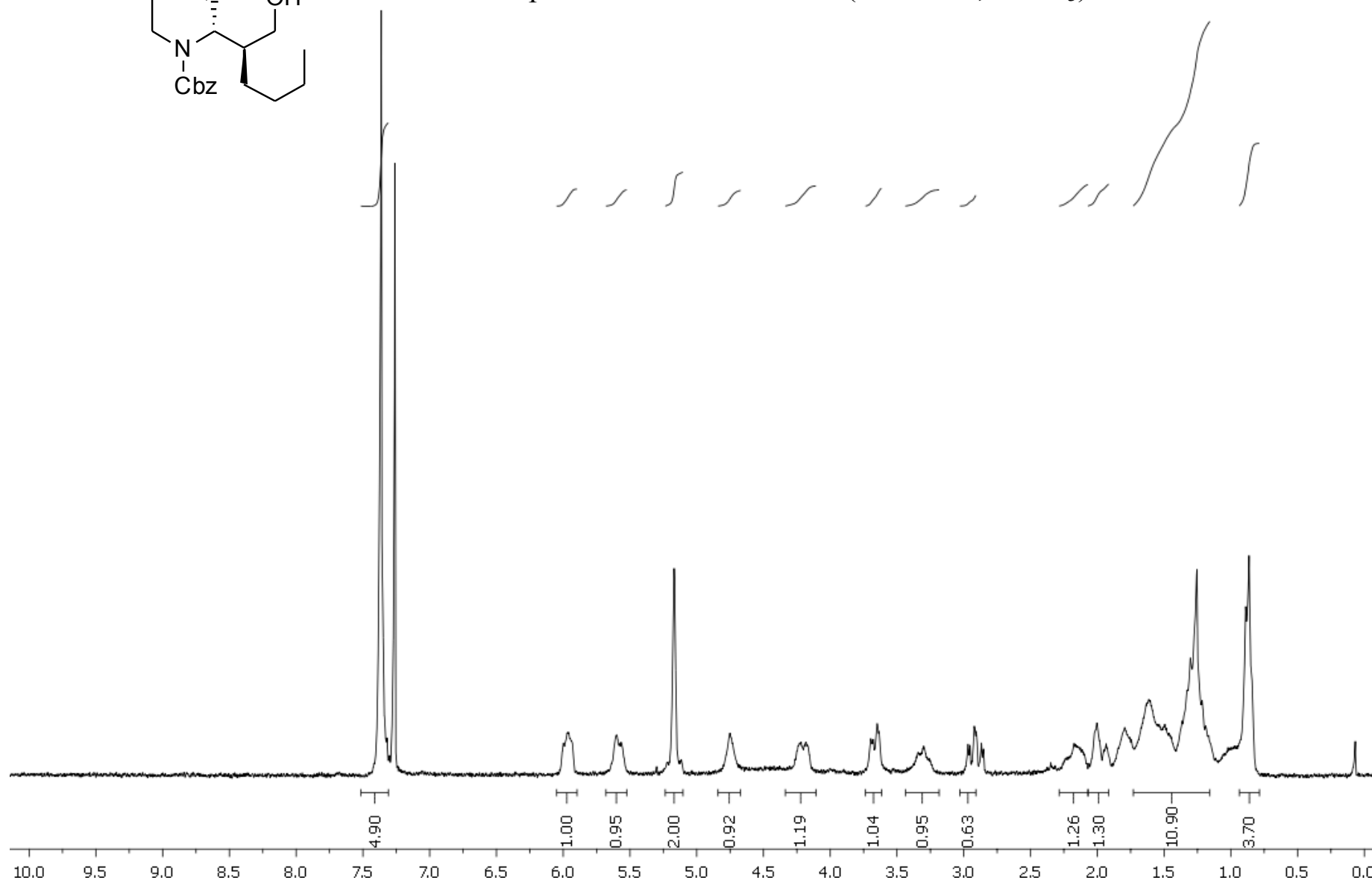
Compound 7  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )

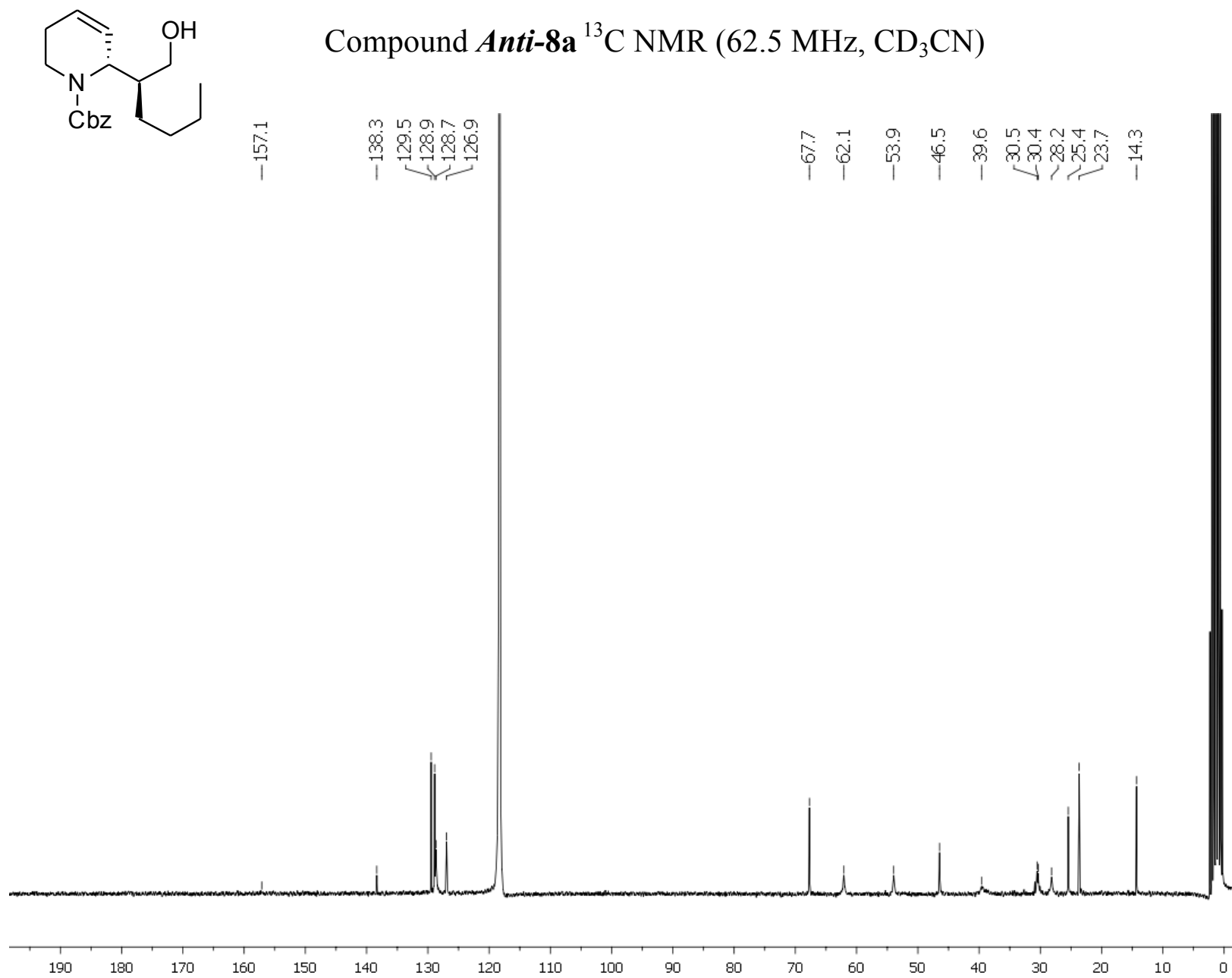
Compound 7  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

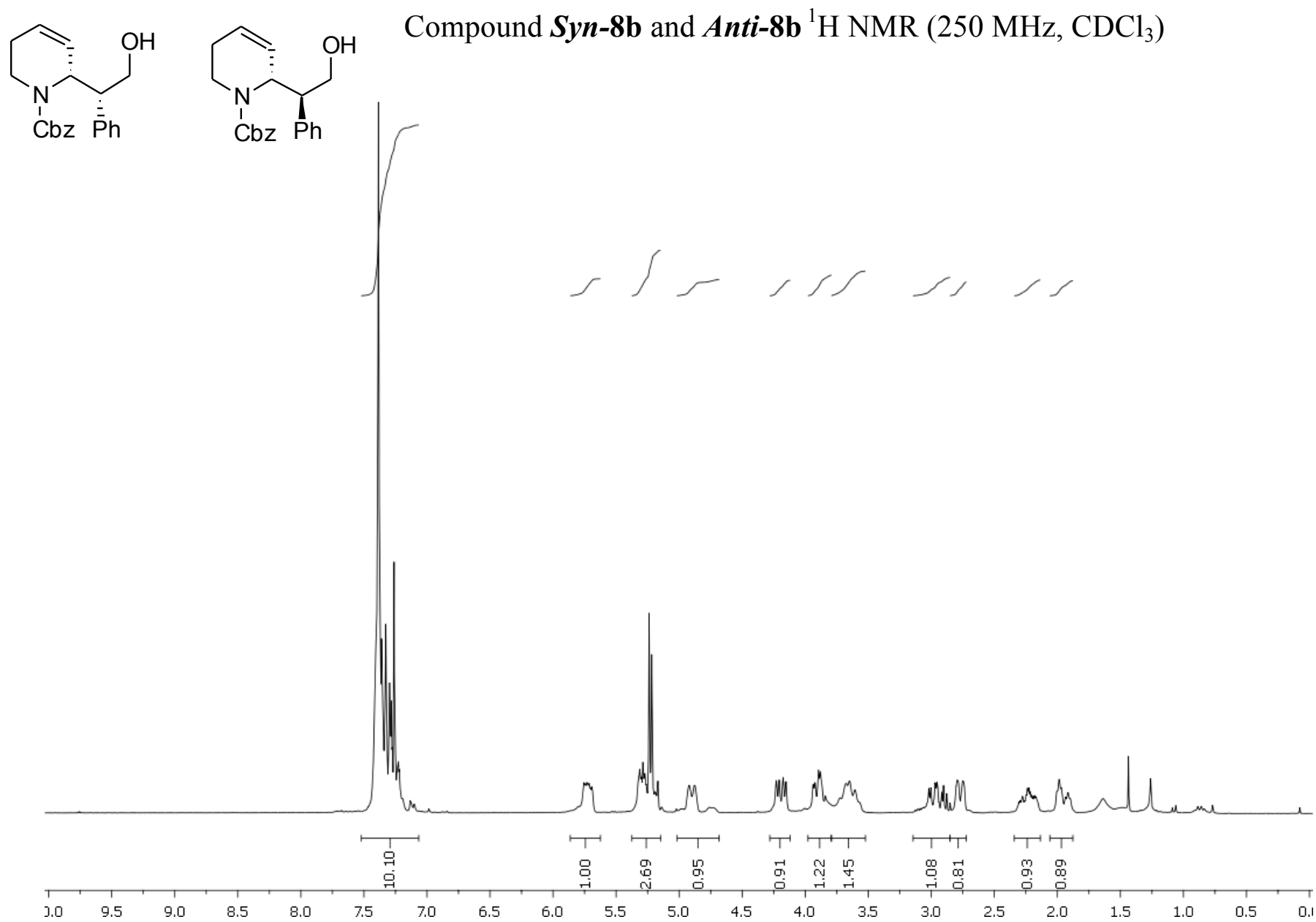


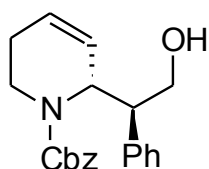
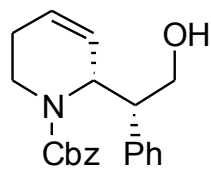
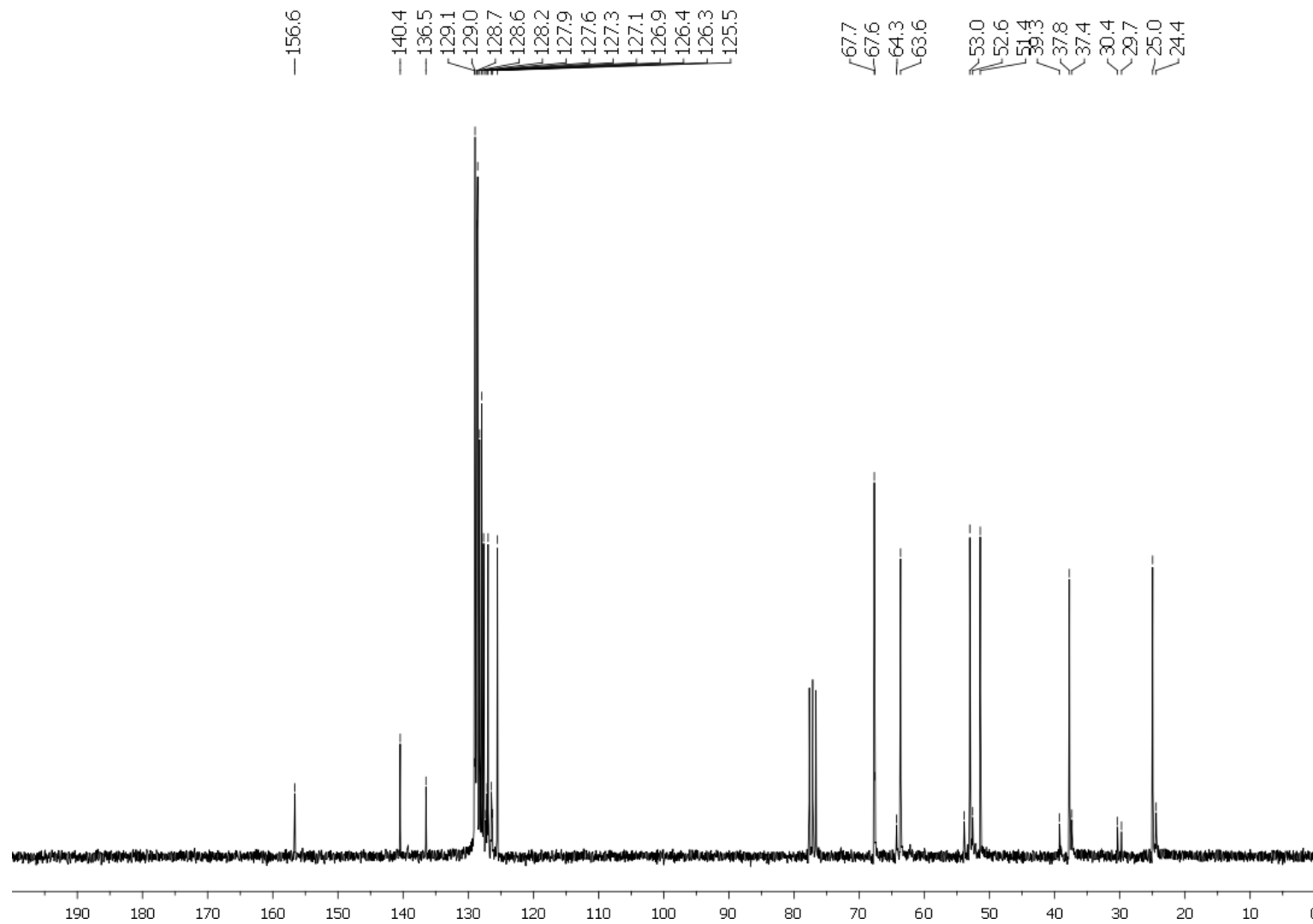
Compound **Syn-8a**  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )

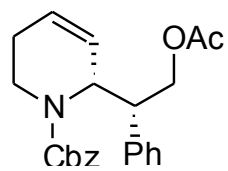
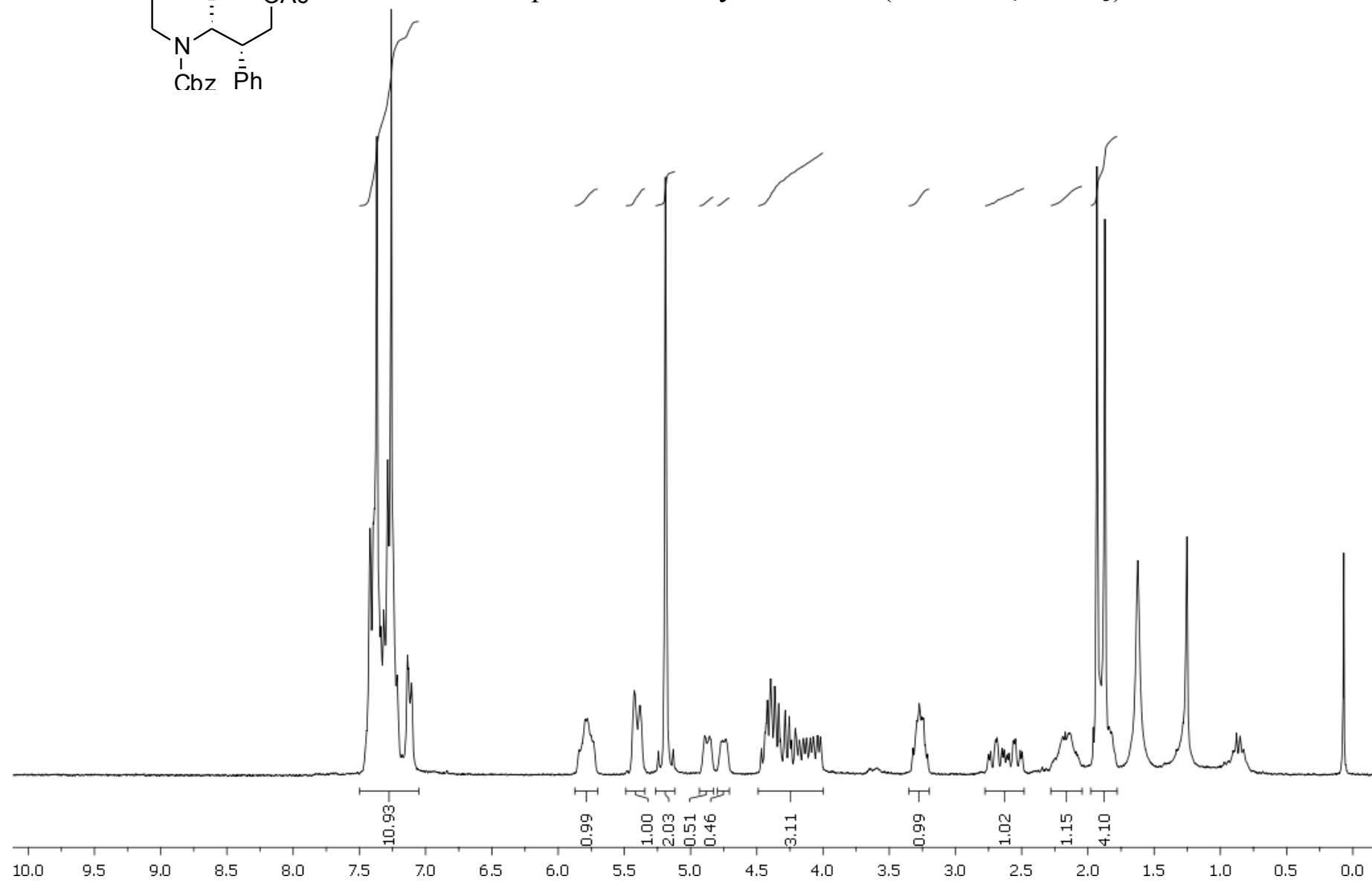
Compound *Syn-8a*  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

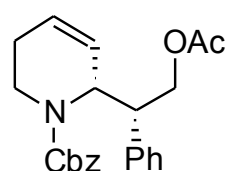
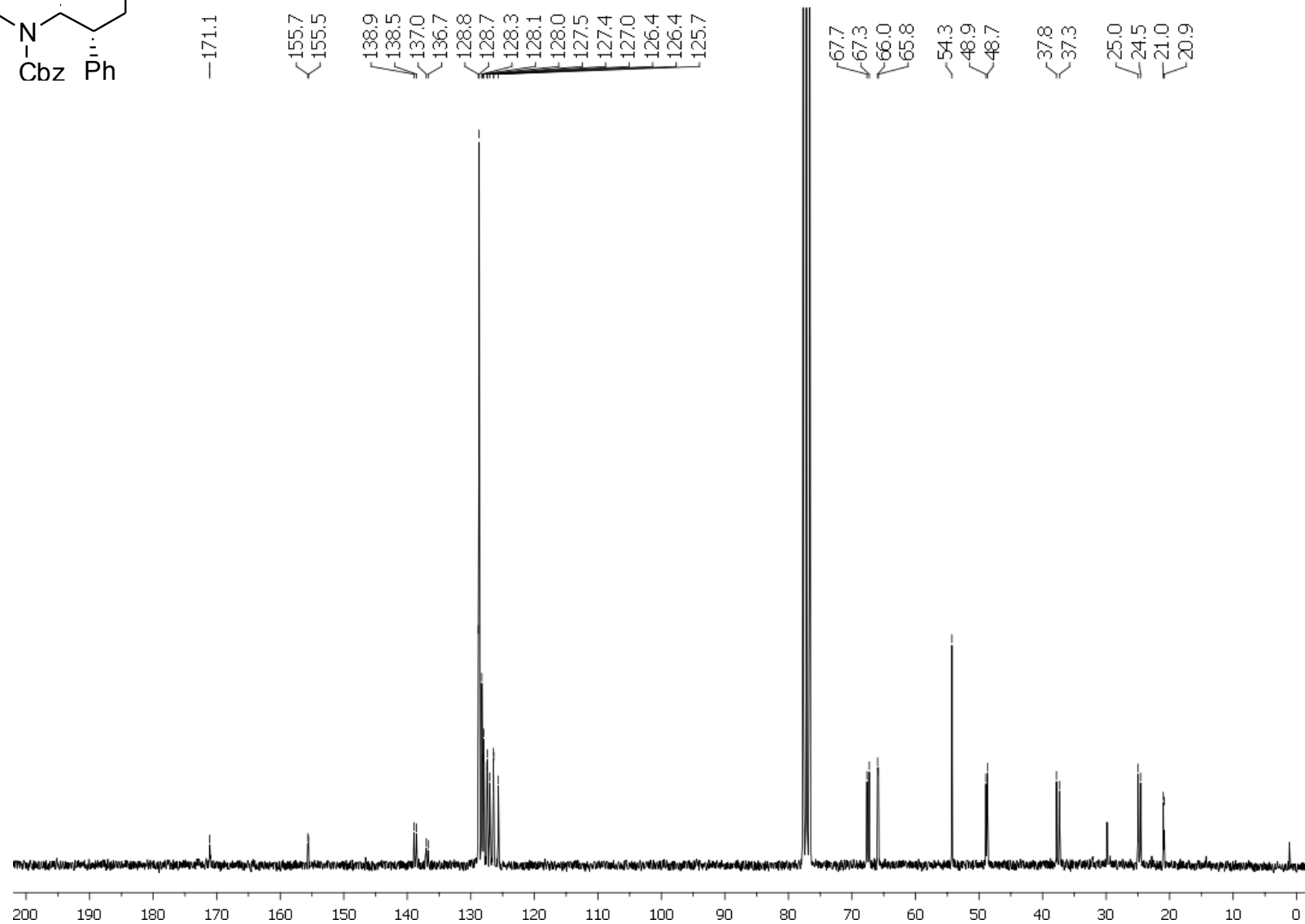
Compound *Anti-8a*  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )



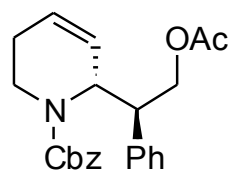
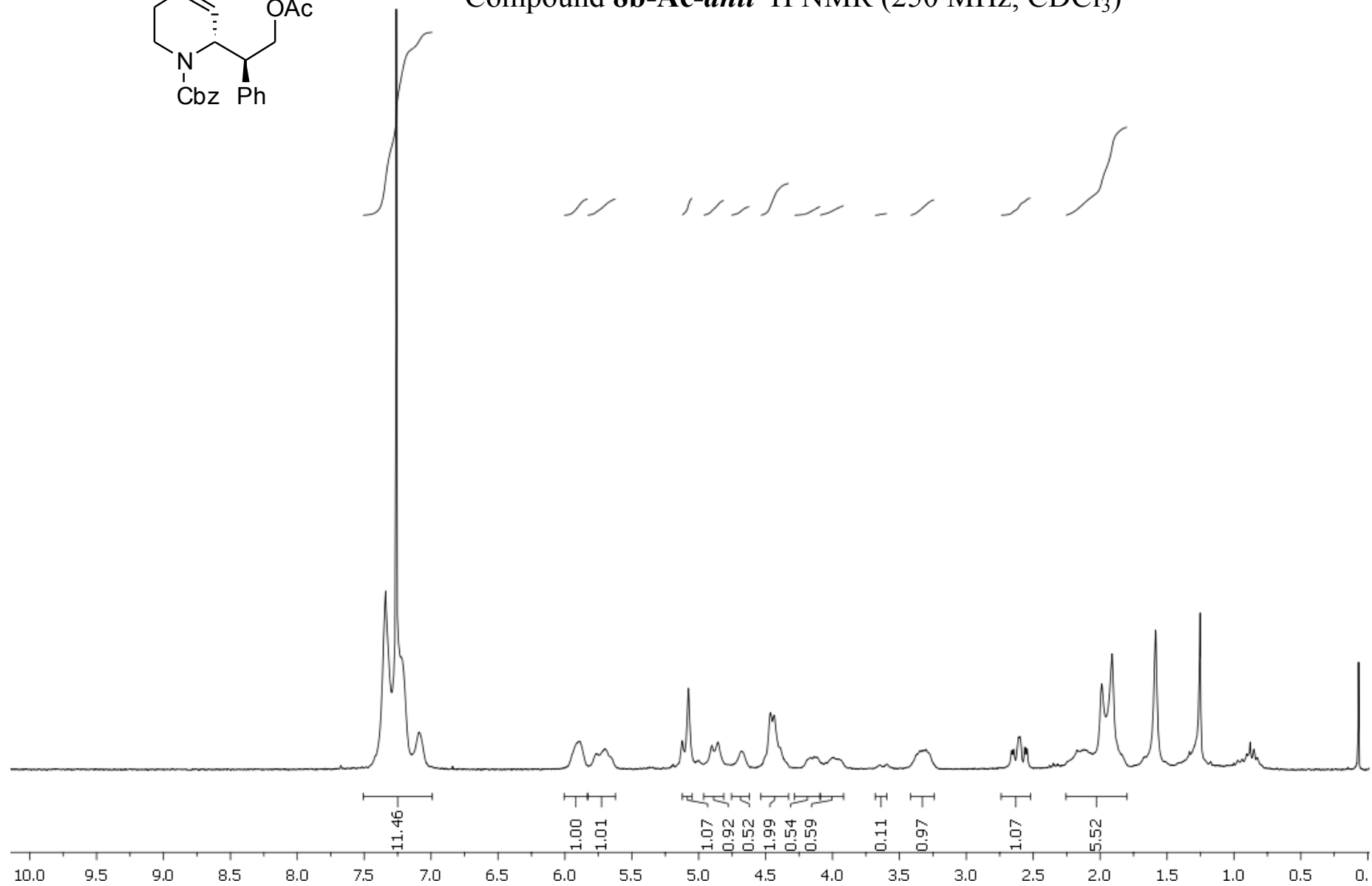


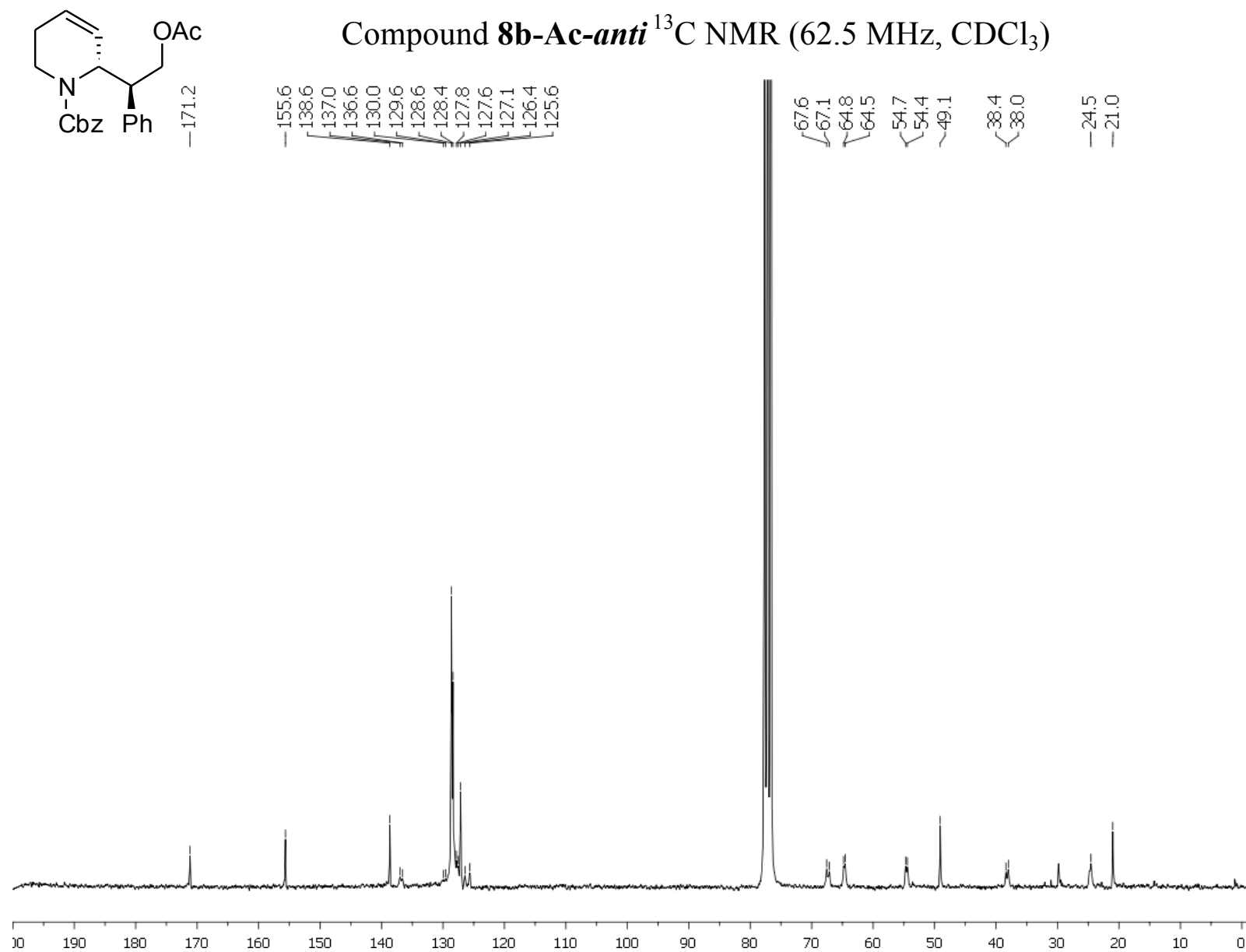
Compound **Syn-8b** and **Anti-8b**  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

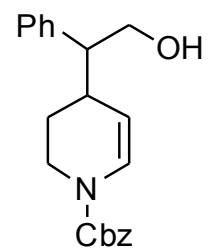
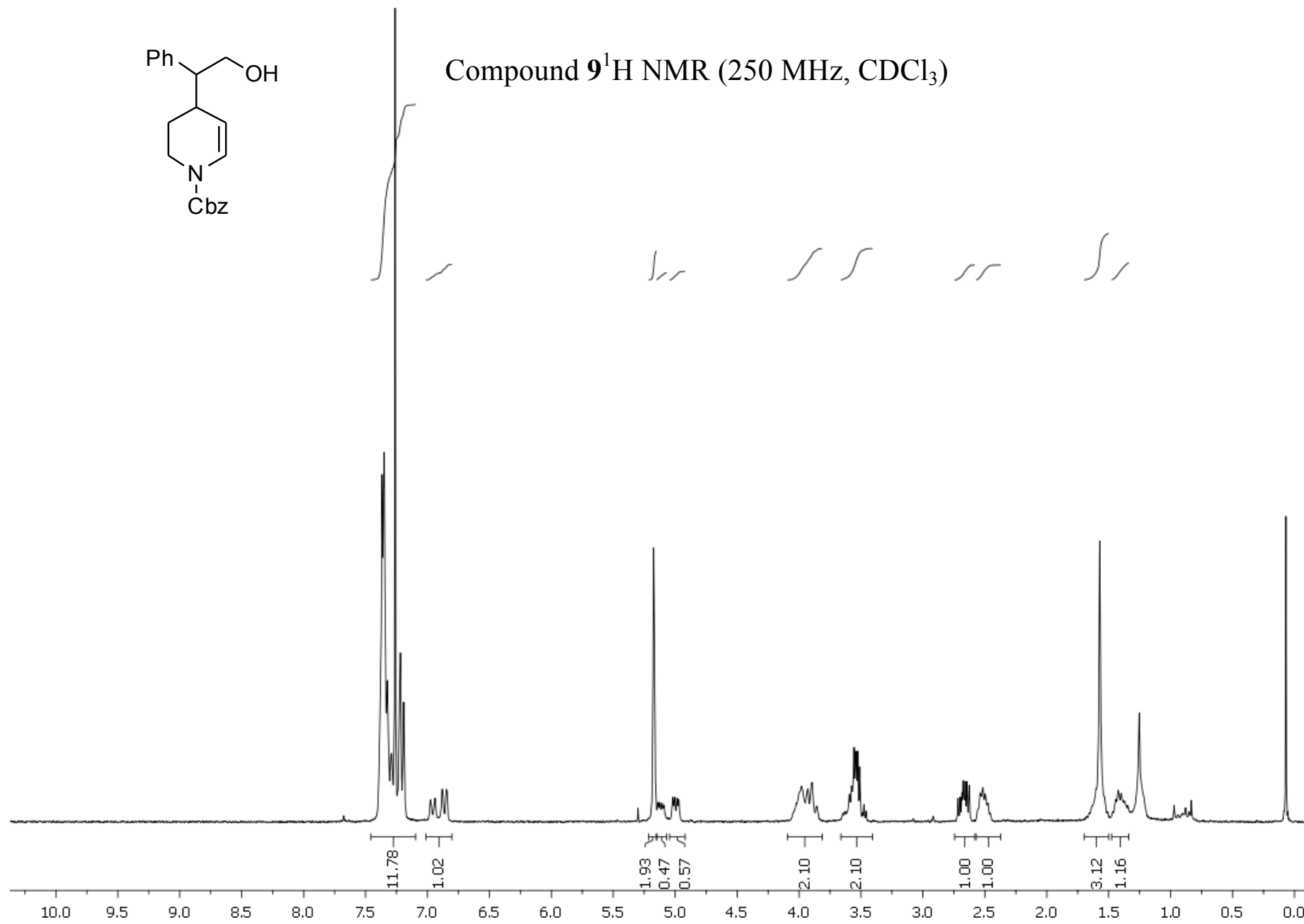
Compound **8b-Ac-syn**  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )

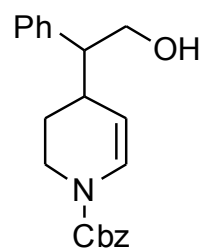
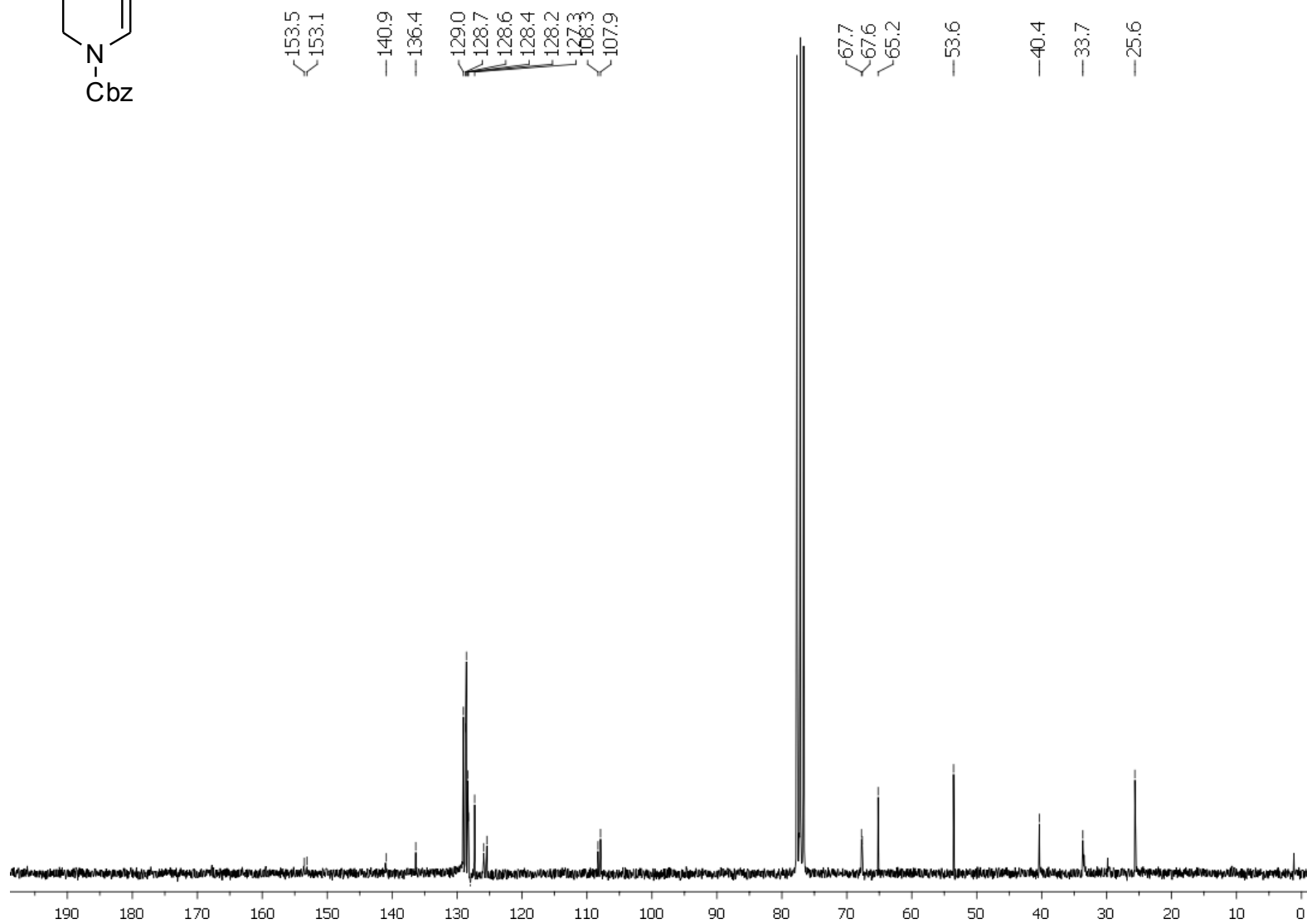
Compound **8b-Ac-syn**  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

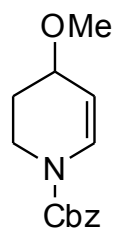
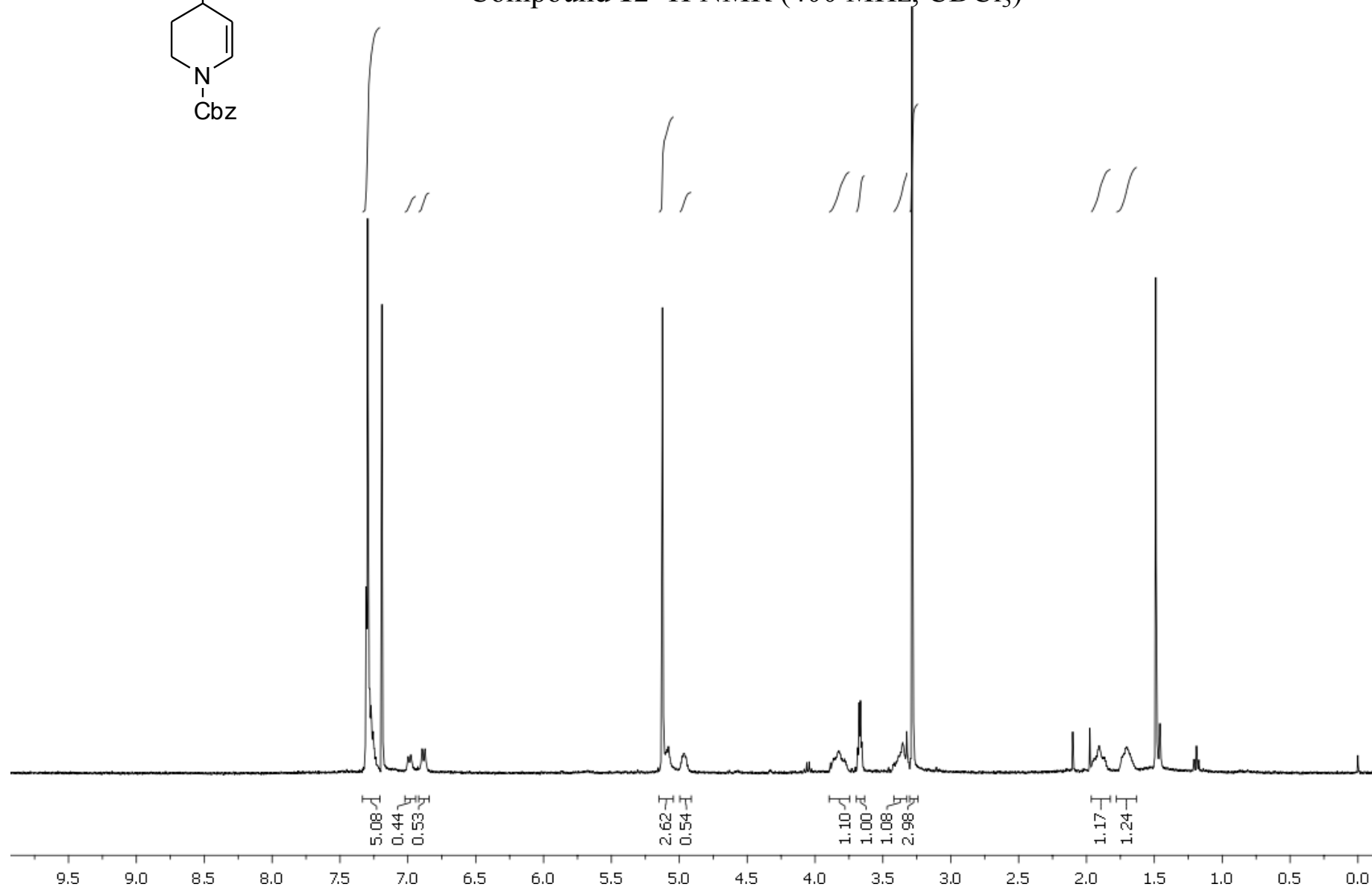


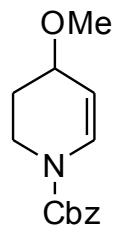
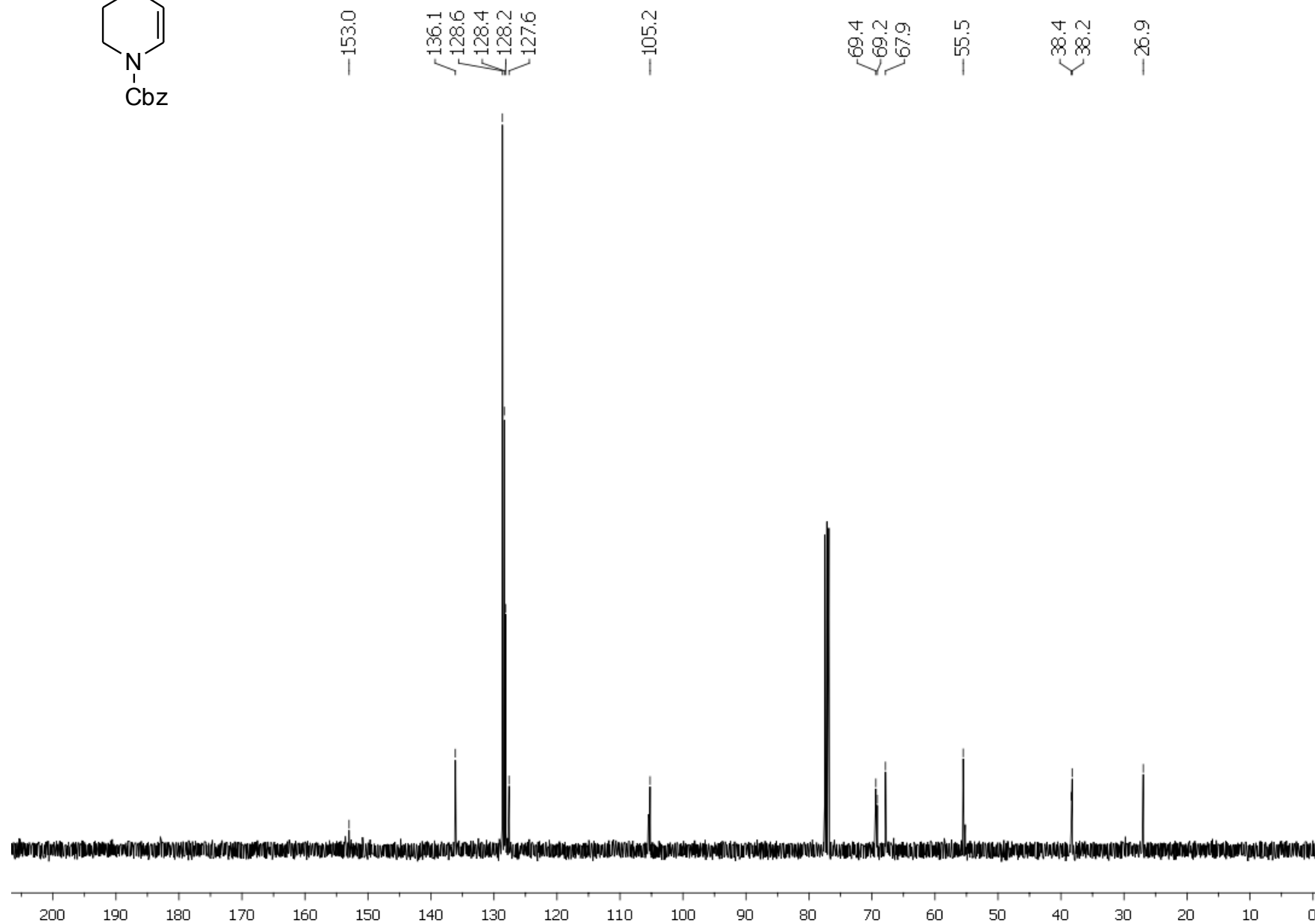
Compound **8b-Ac-anti**  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )

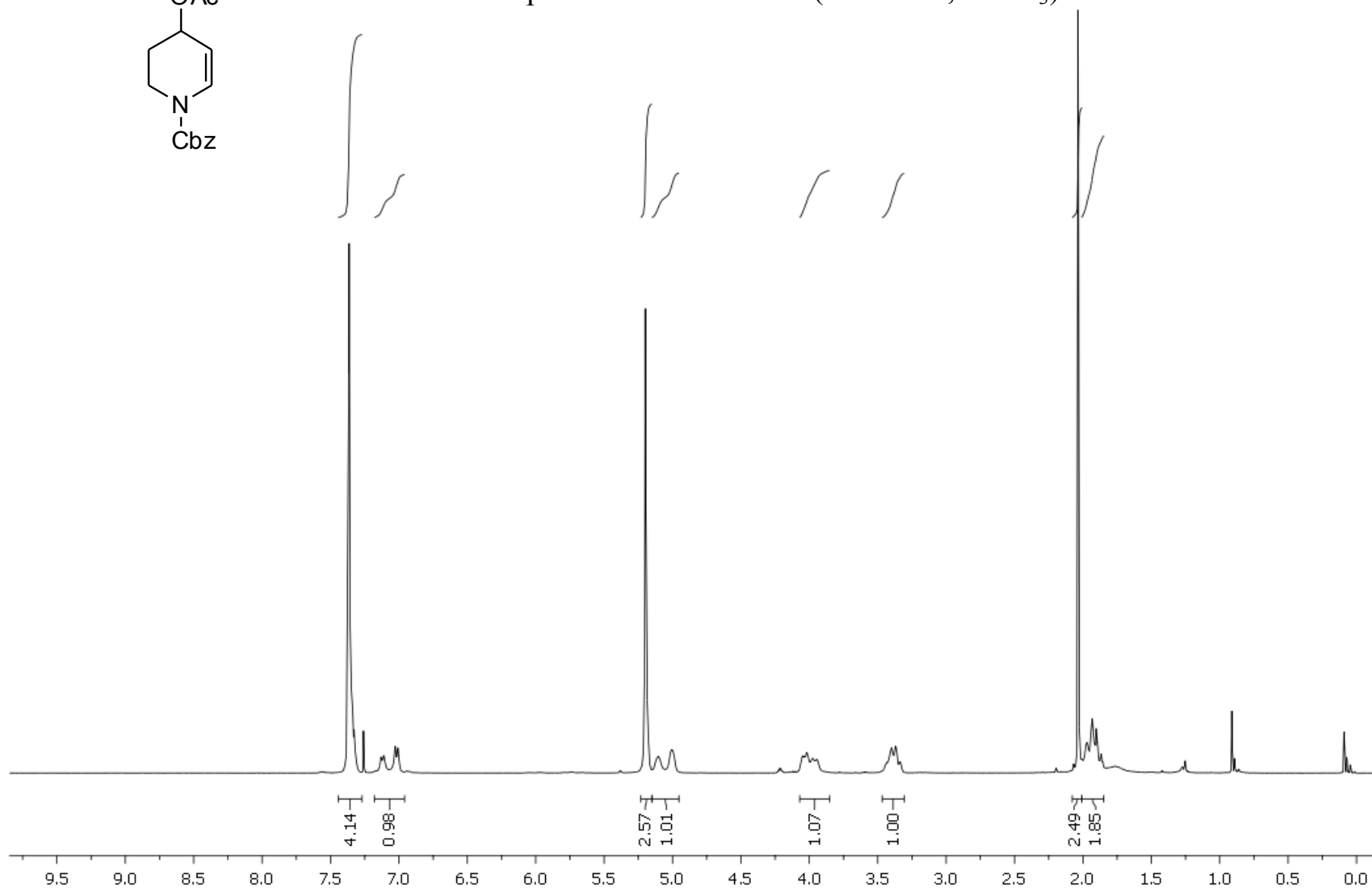
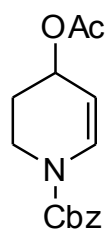


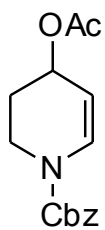
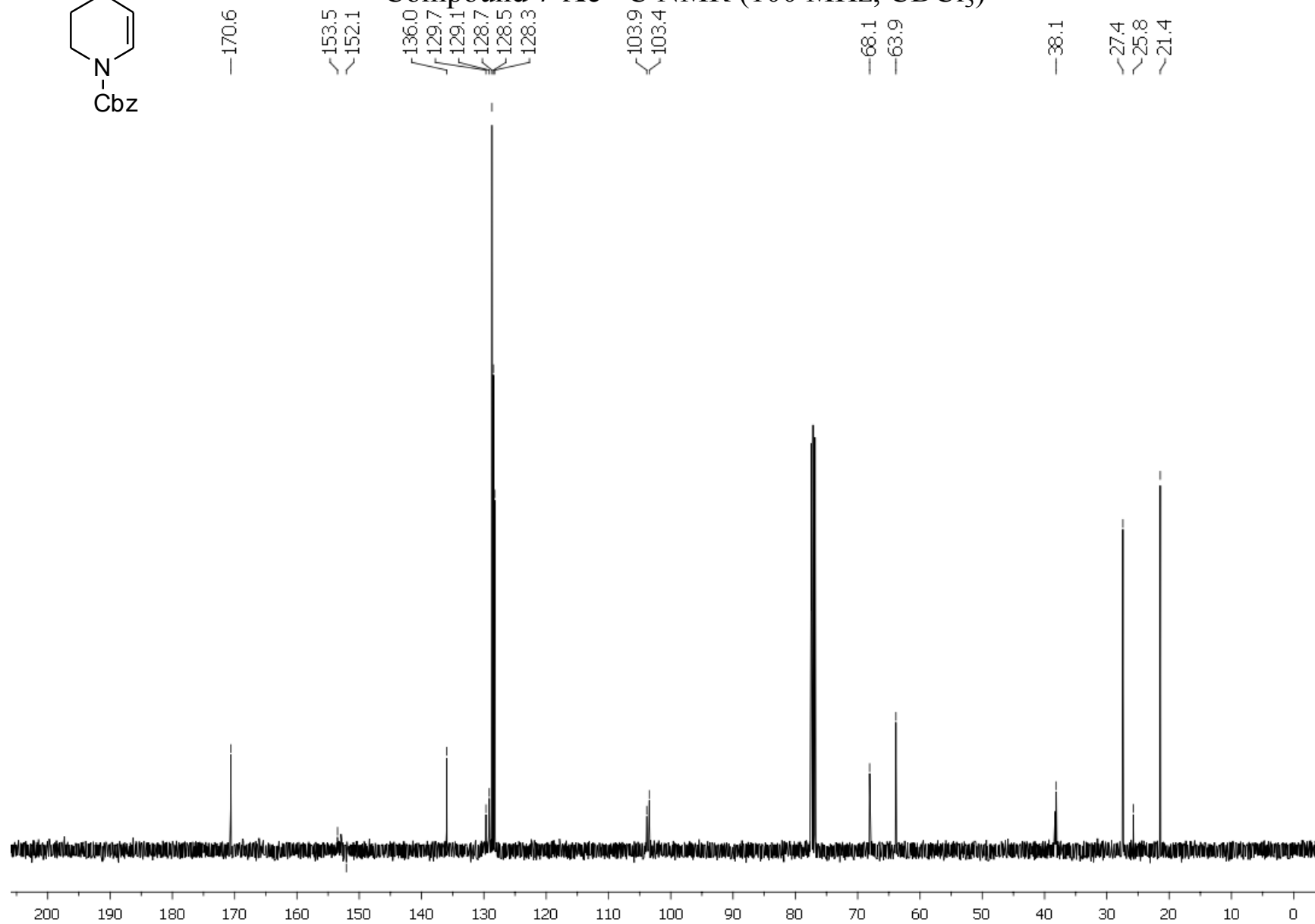
Compound 9  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )

Compound 9 <sup>13</sup>C NMR (62.5 MHz, CDCl<sub>3</sub>)

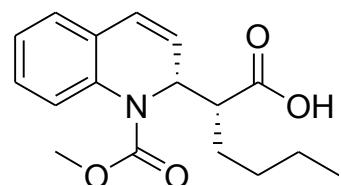
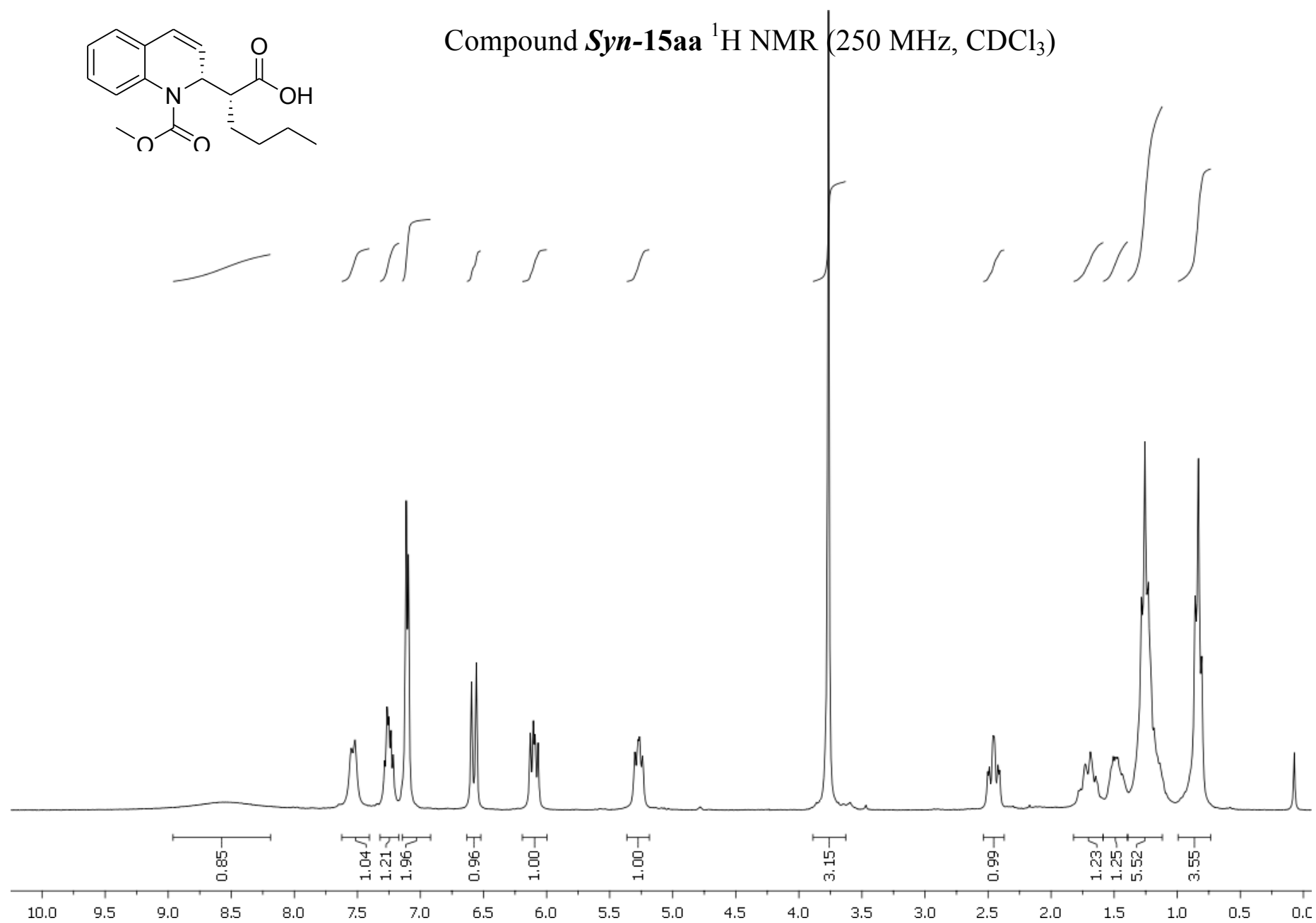
Compound **12**  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )

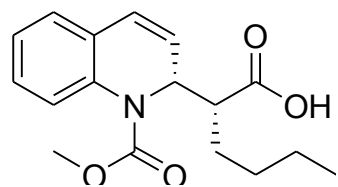
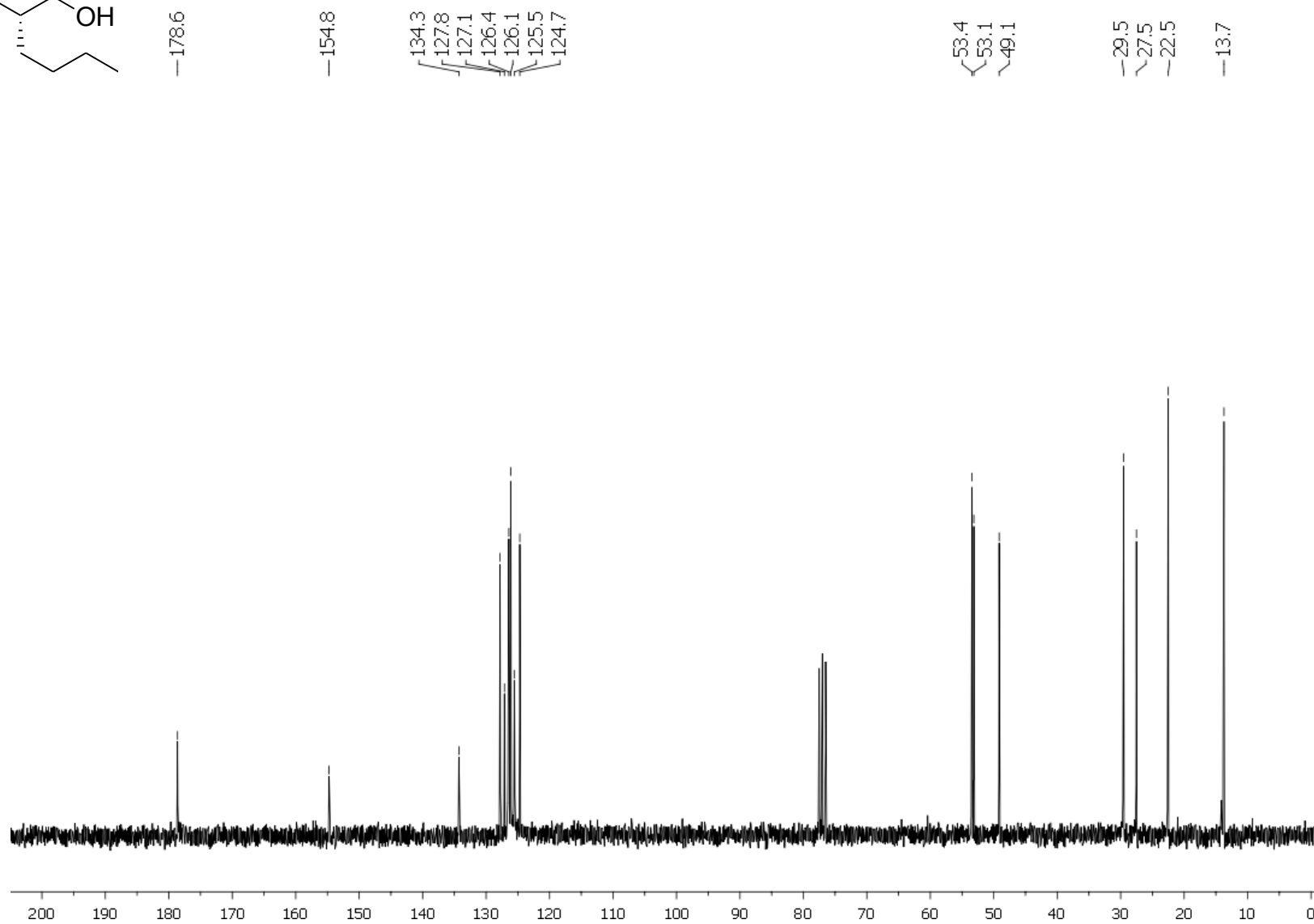
Compound **12**  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ )

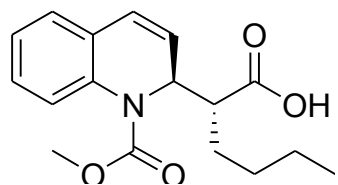
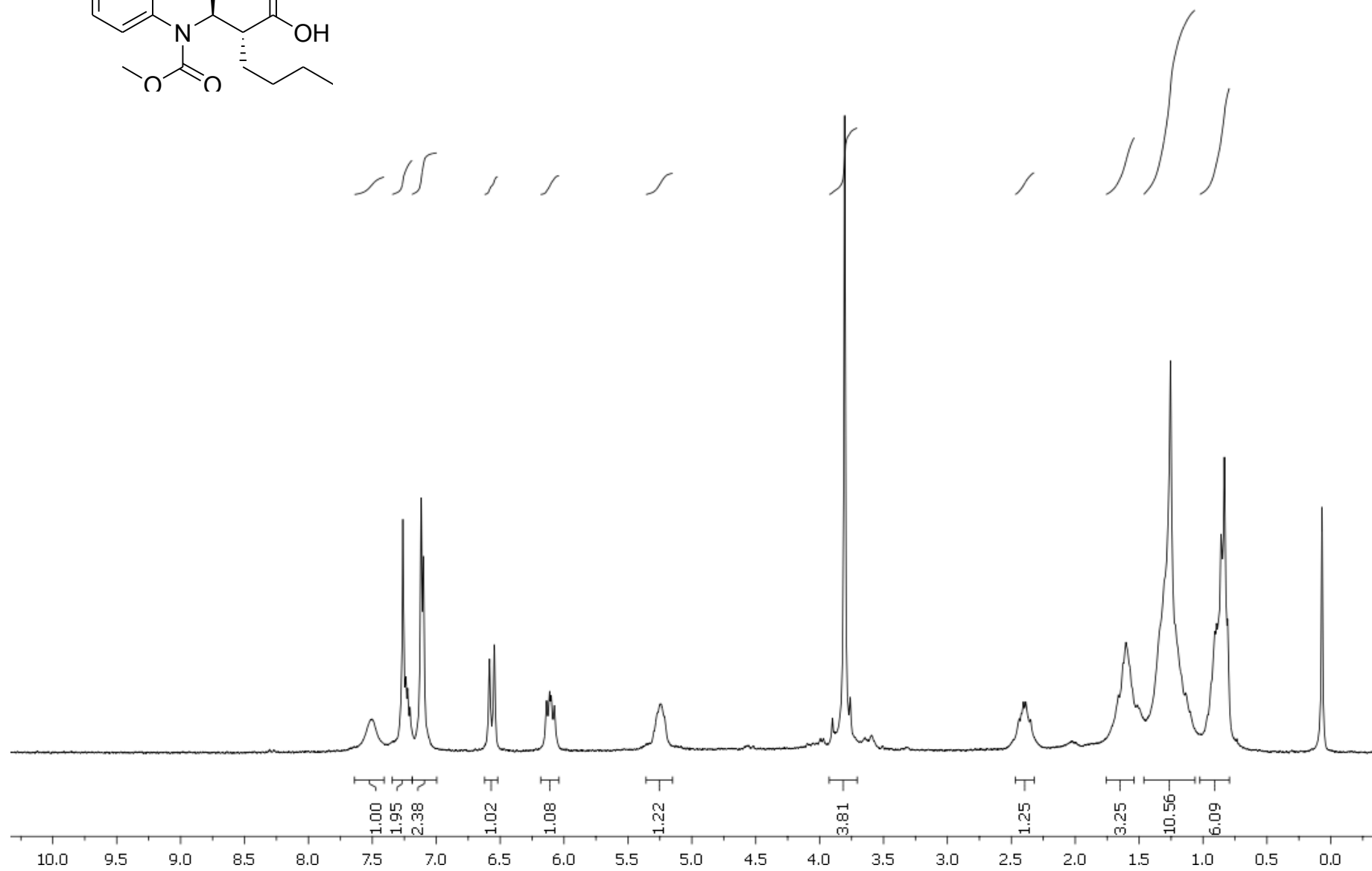
Compound 7-Ac  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )

Compound 7-Ac  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ )



Compound **Syn-15aa** <sup>1</sup>H NMR (250 MHz, CDCl<sub>3</sub>)

Compound **Syn-15aa**  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )

Compound *Anti-15aa*  $^1\text{H}$  NMR (250 MHz,  $\text{CDCl}_3$ )

Compound *Anti-15aa*  $^{13}\text{C}$  NMR (62.5 MHz,  $\text{CDCl}_3$ )