

Моно γ -С–Н функционализация интернальных алкинов в реакциях с галлиевыми 1,2-цвиттер-ионными комплексами метилиденмалонатов

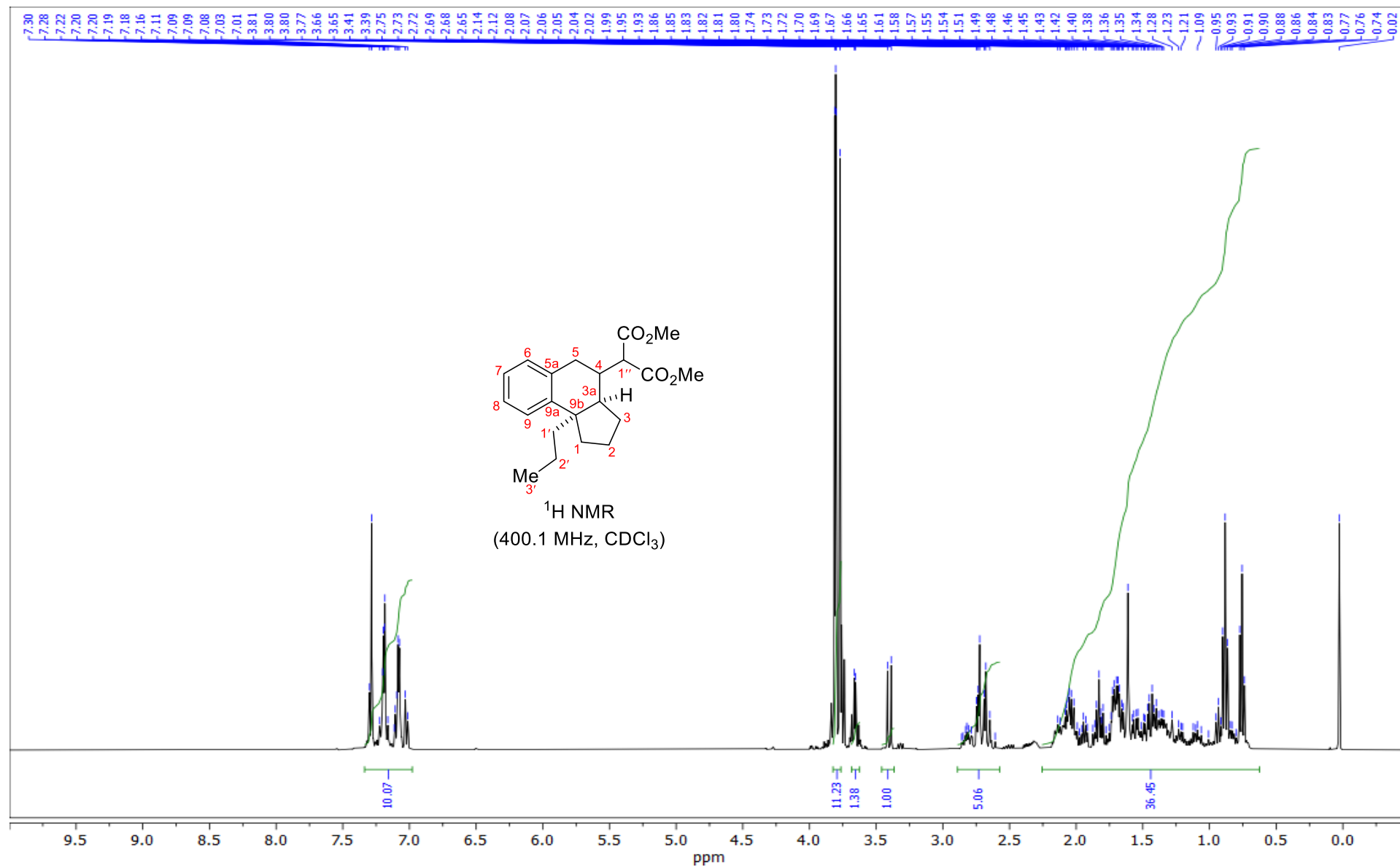
*Д. Д. Борисов, Р. А. Новиков, Ю. В. Томилов**

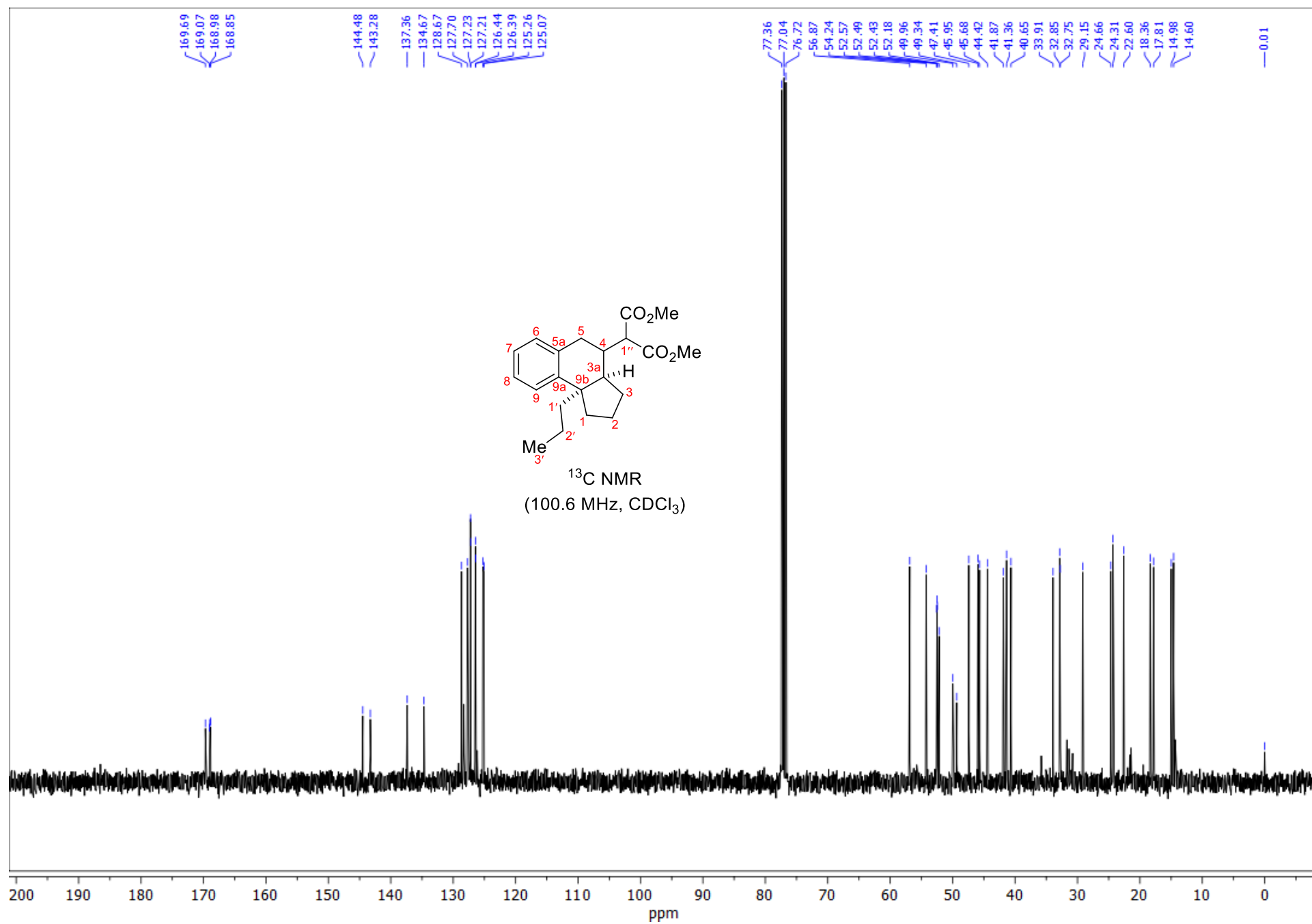
N. D. Zelinsky Institute of Organic Chemistry, Russian Academy of Sciences, 47 Leninsky prosp., 119991 Moscow, Russian Federation.

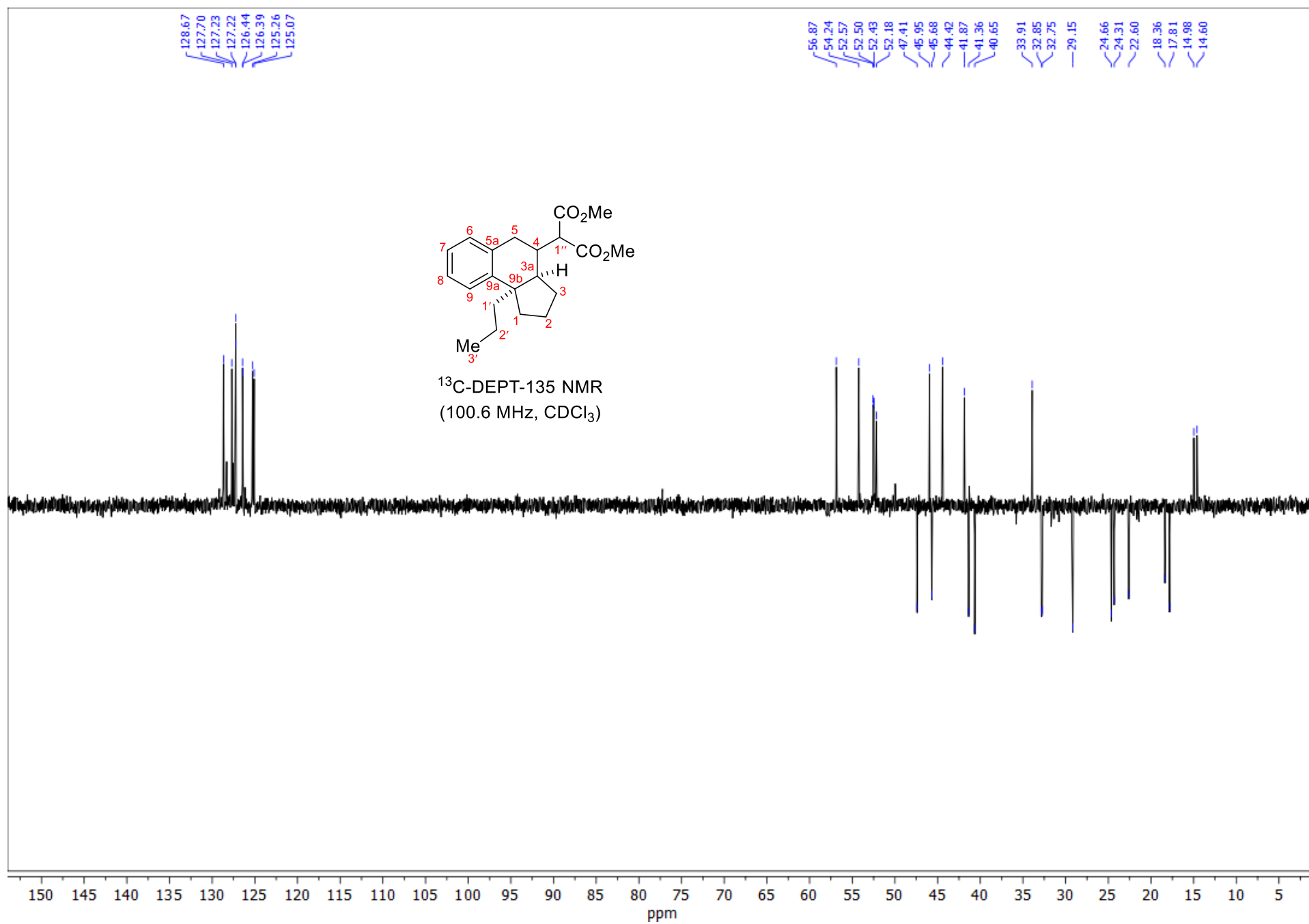
**Corresponding authors; email: tom@ioc.ac.ru*

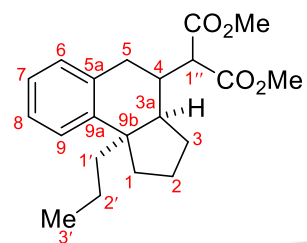
SUPPORTING INFORMATION

NMR spectra of obtained compounds:

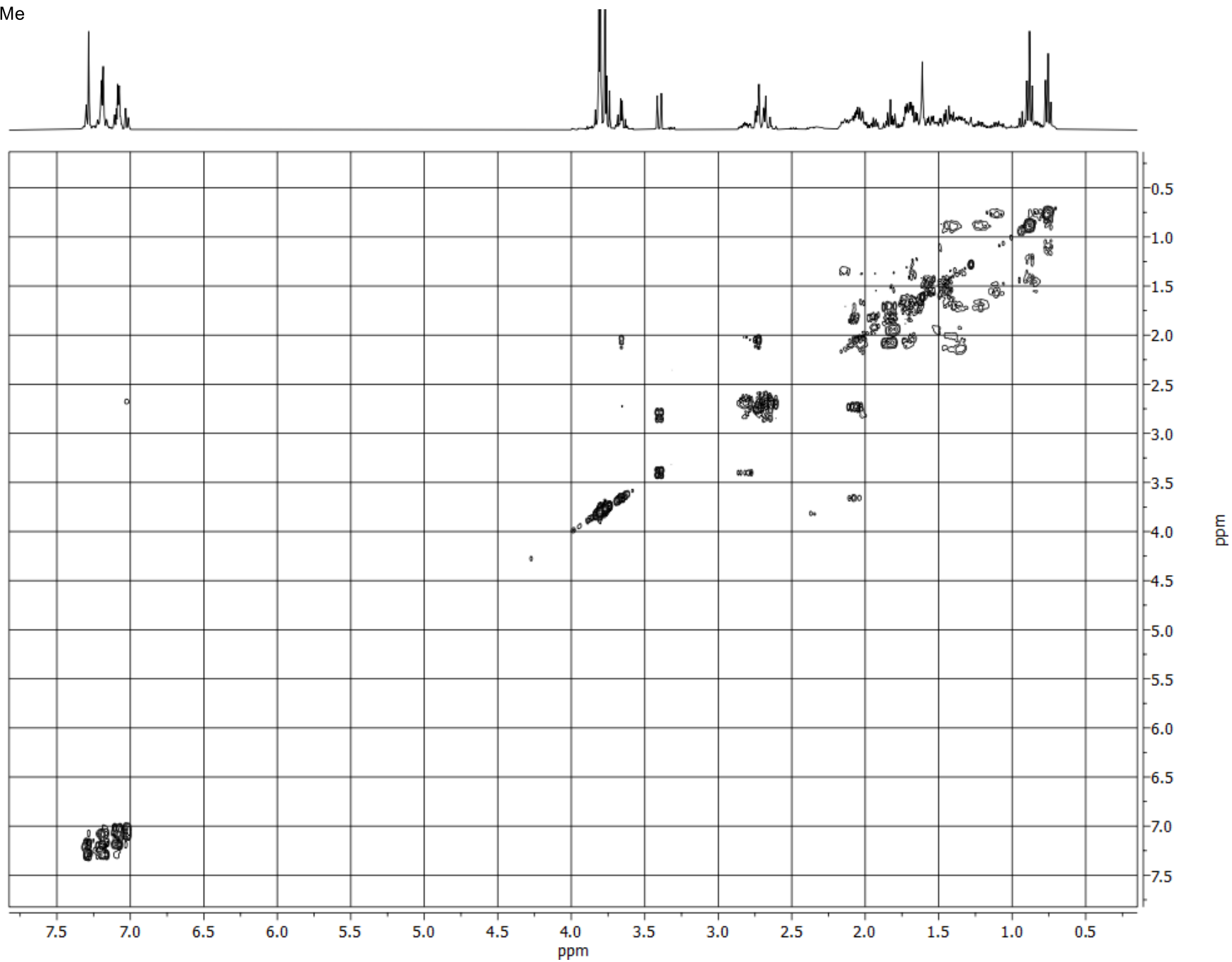


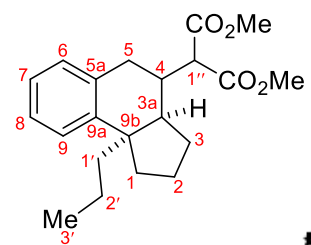




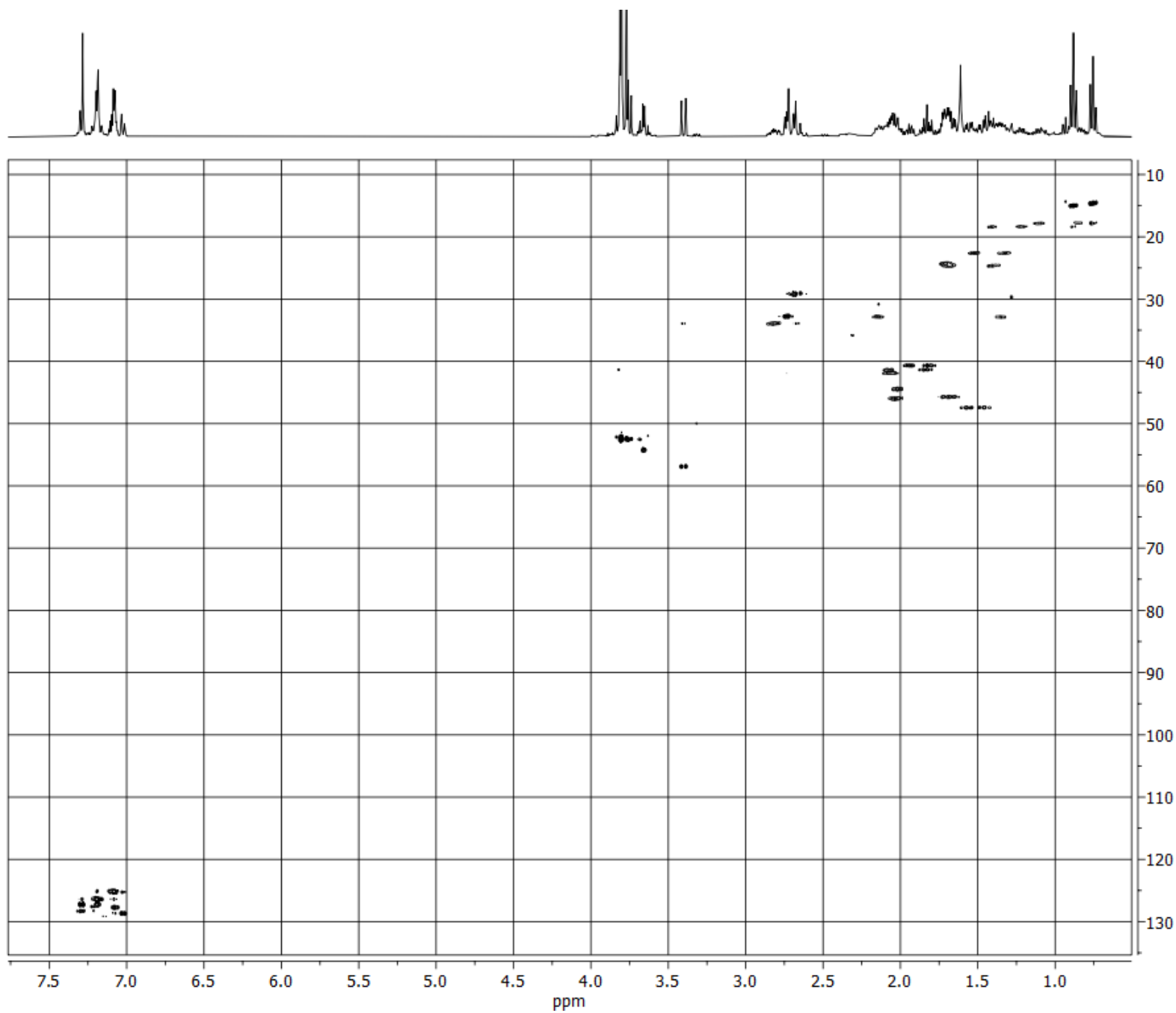


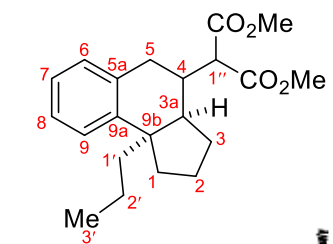
$^1\text{H}, ^1\text{H}$ -COSY
(400.1 MHz, CDCl_3)



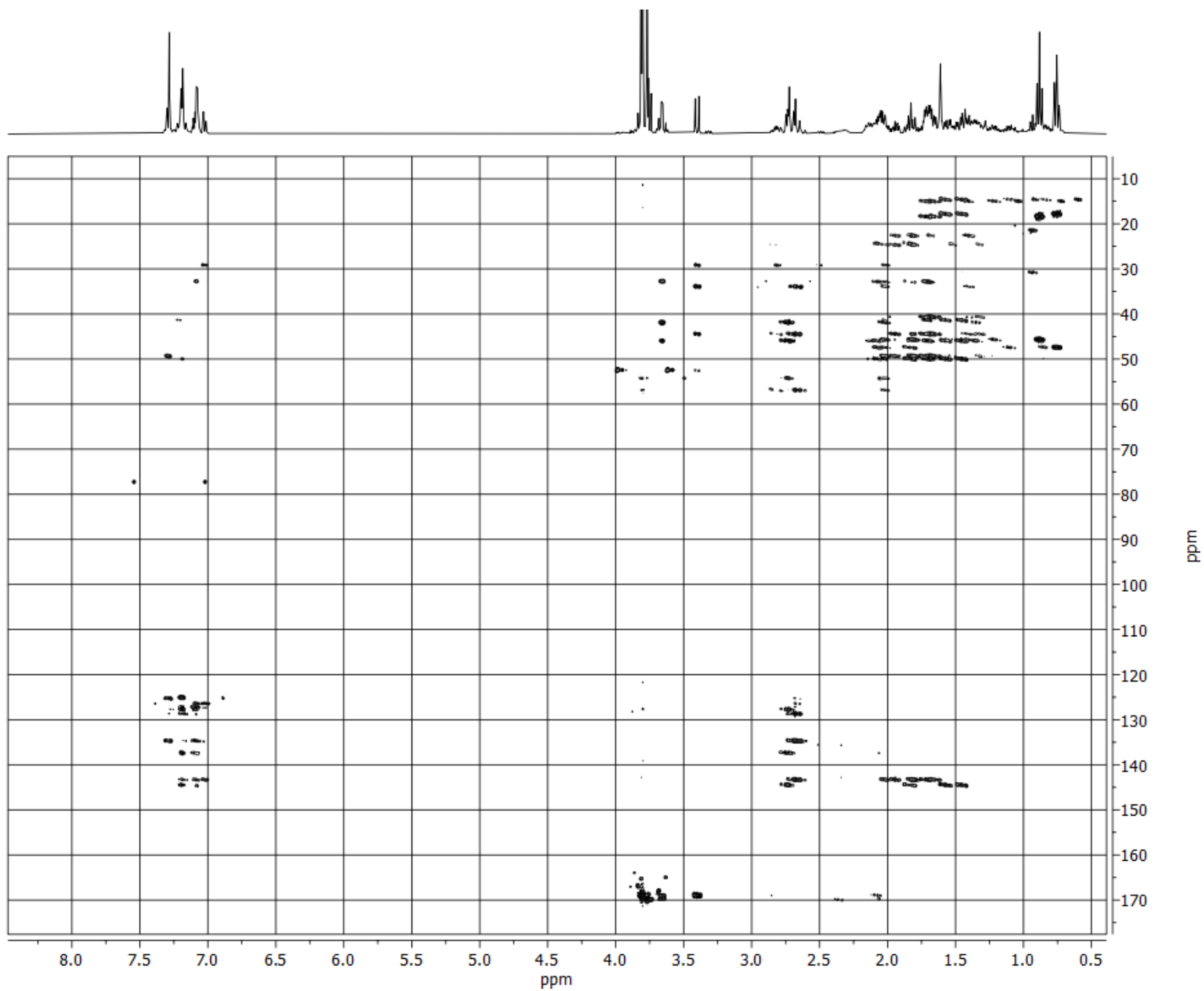


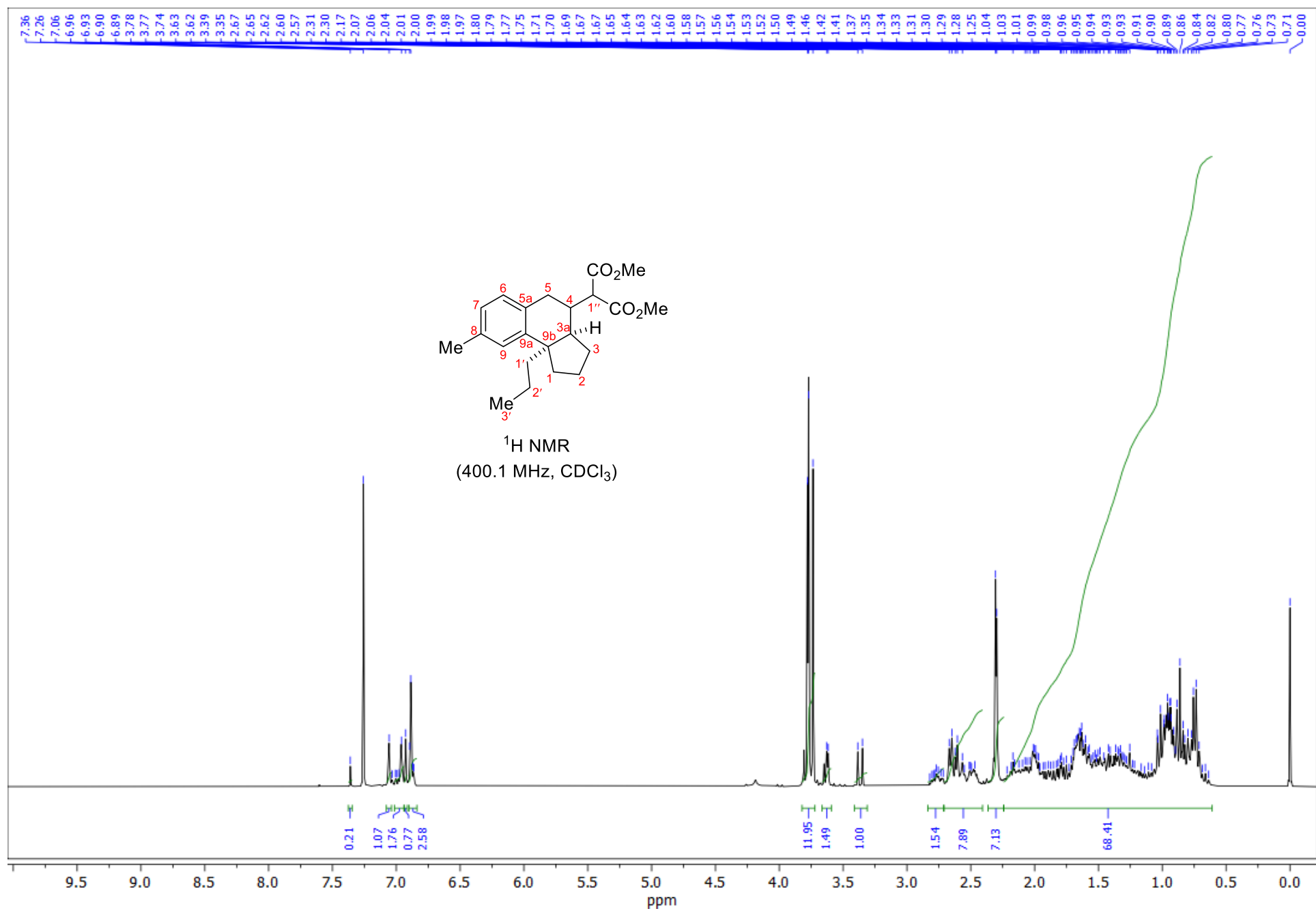
¹H, ¹³C-HSQC
 (¹H: 400.1 MHz,
¹³C: 100.6 MHz
 CDCl₃)

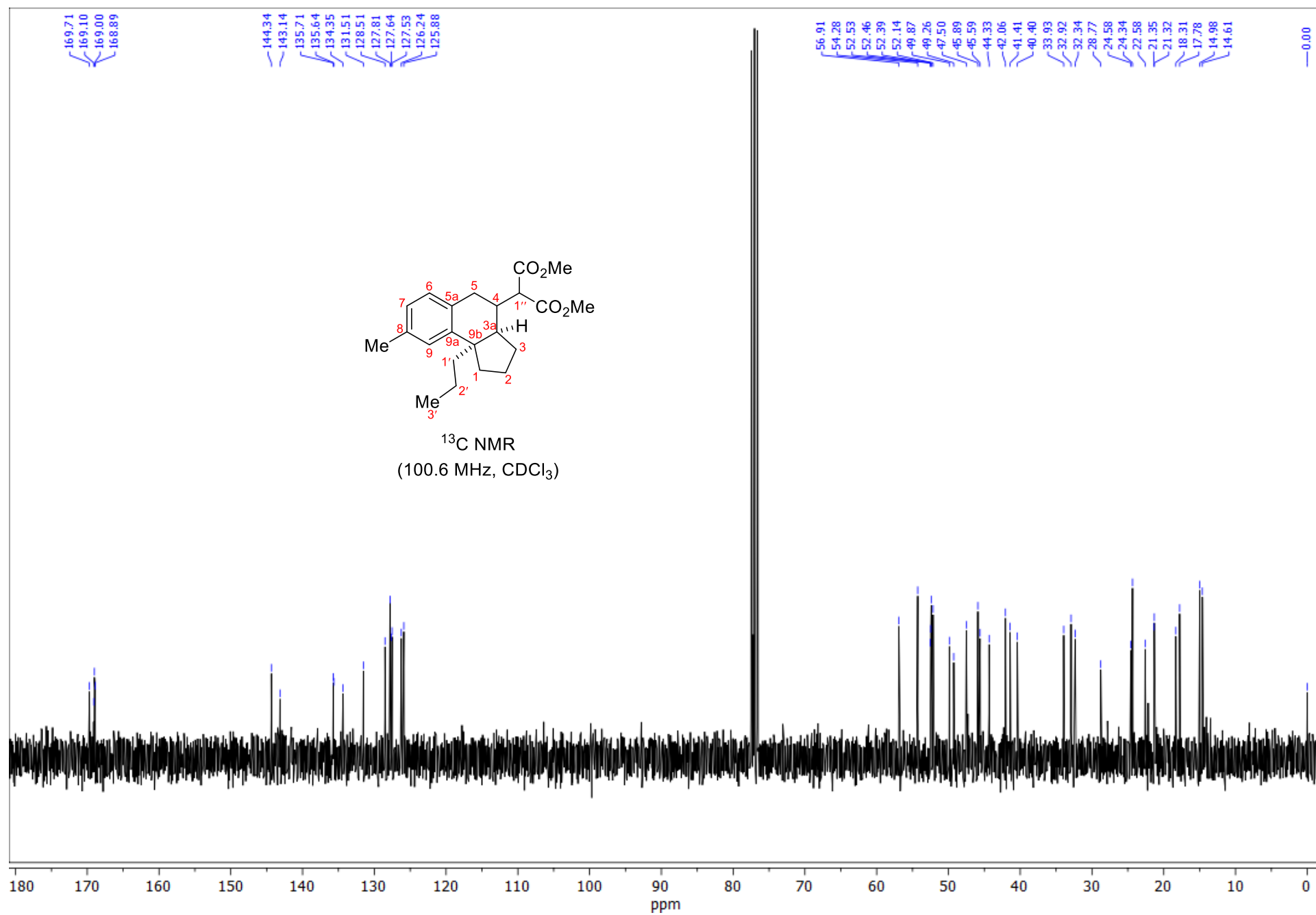


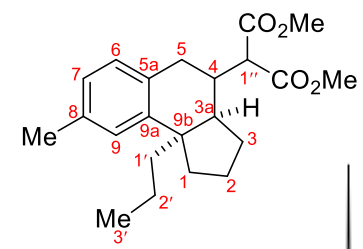


$^1\text{H}, ^{13}\text{C}$ -HMBC
 (^1H : 400.1 MHz,
 ^{13}C : 100.6 MHz
 CDCl_3)

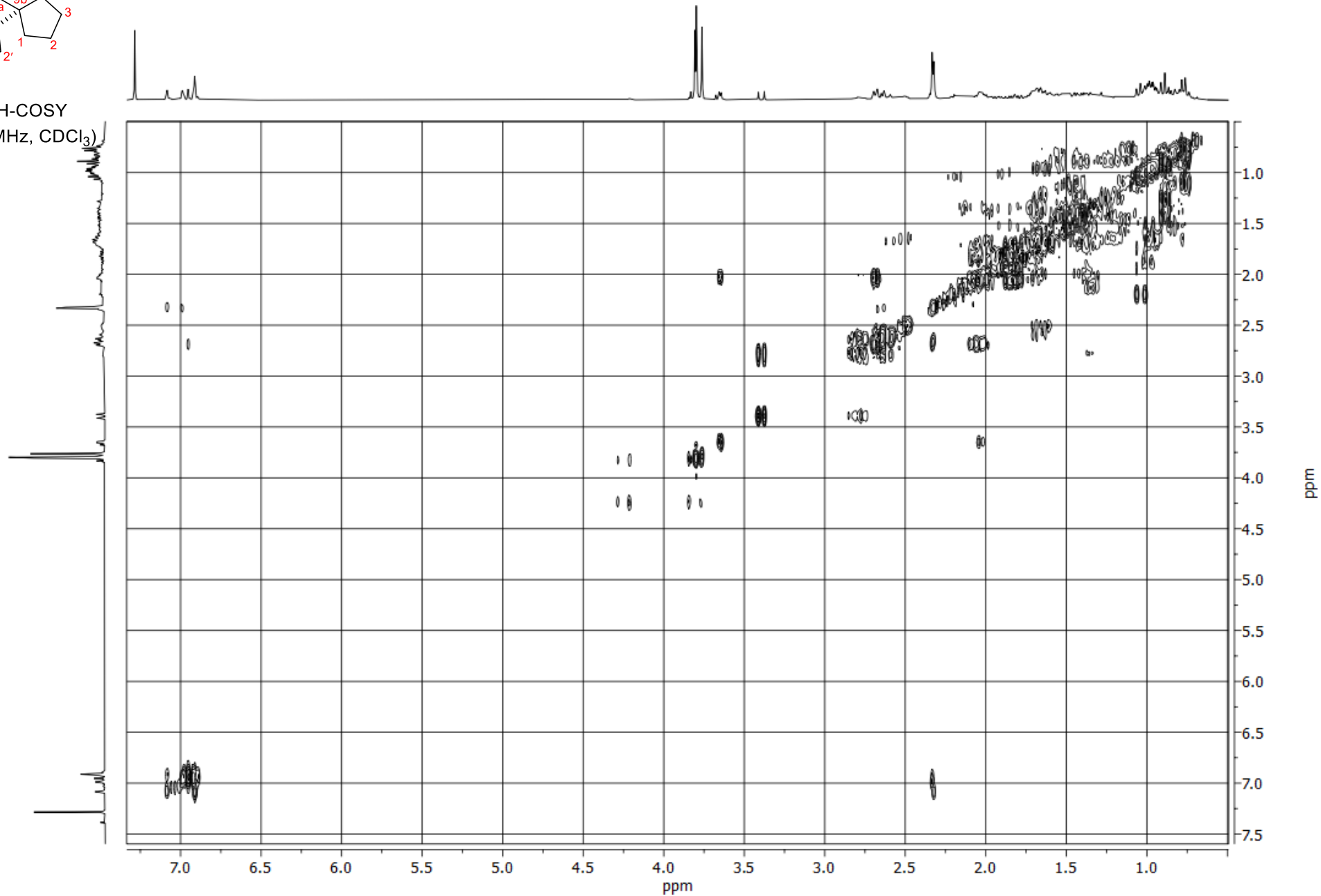


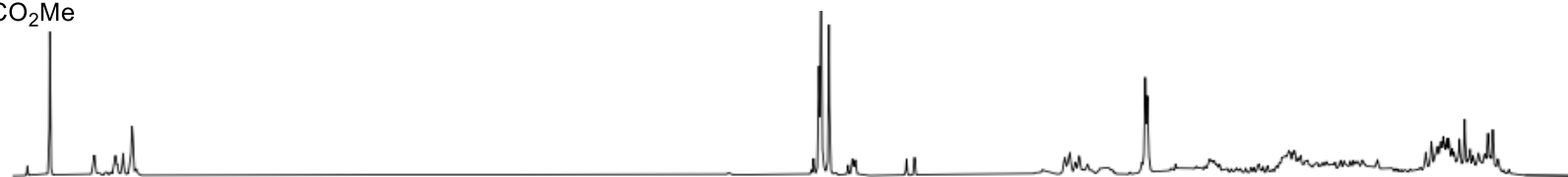
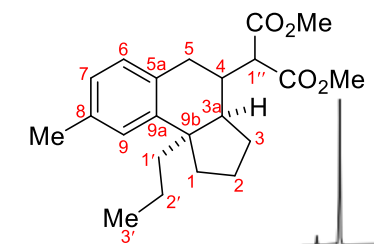




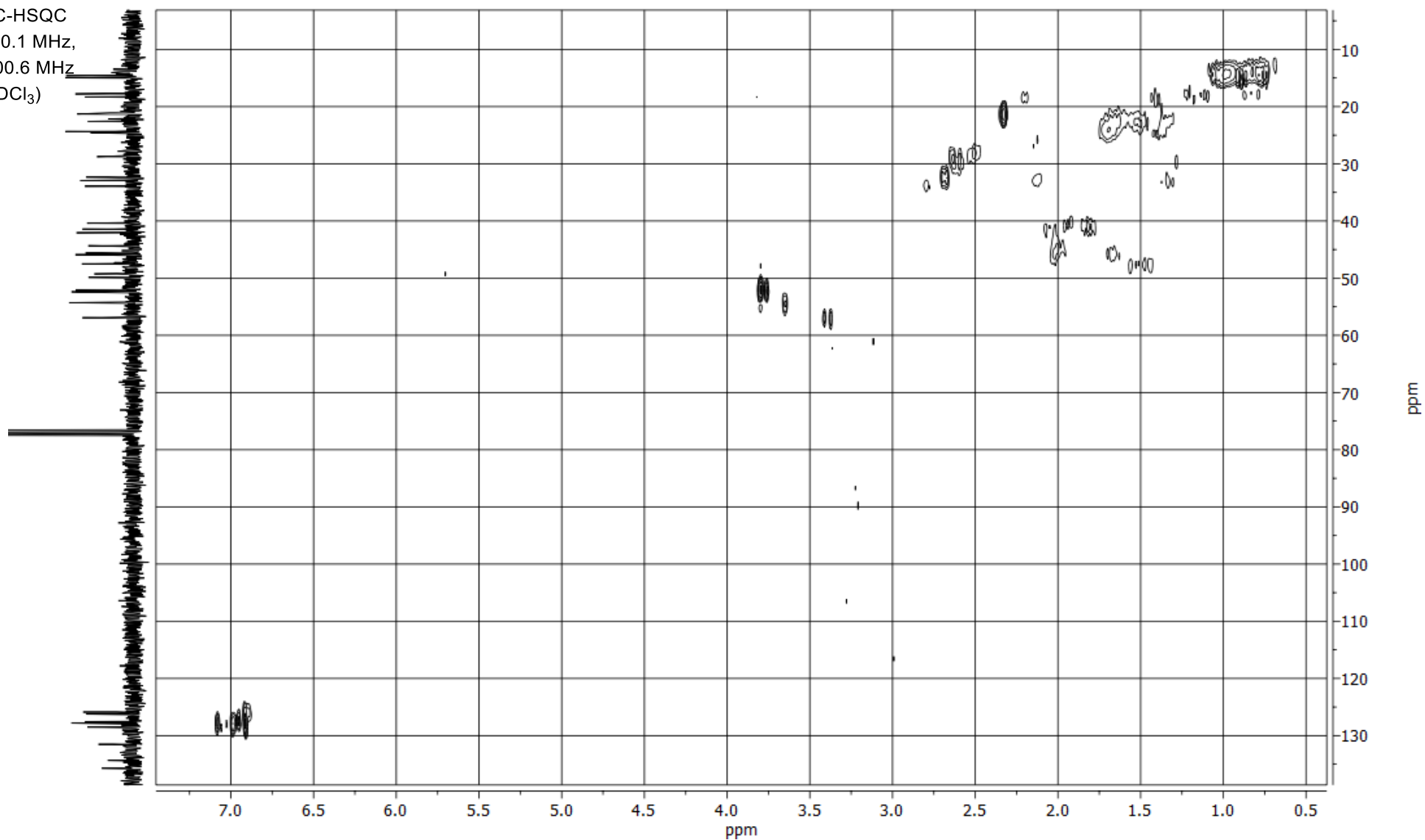


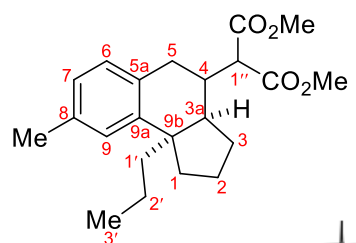
$^1\text{H}, ^1\text{H}$ -COSY
(400.1 MHz, CDCl_3)



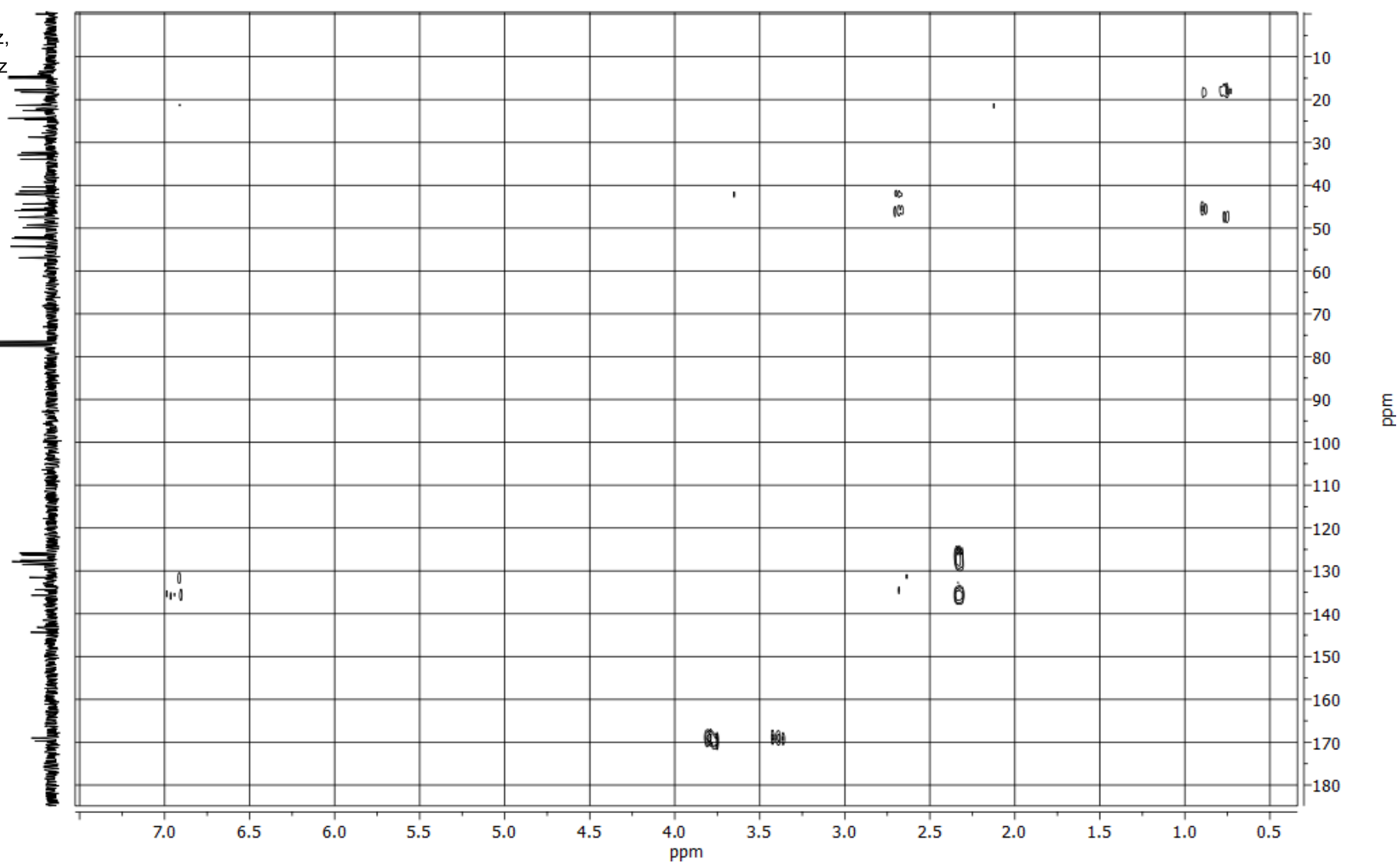
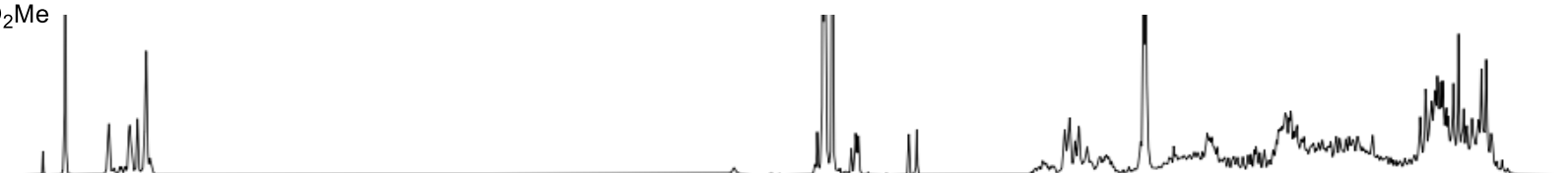


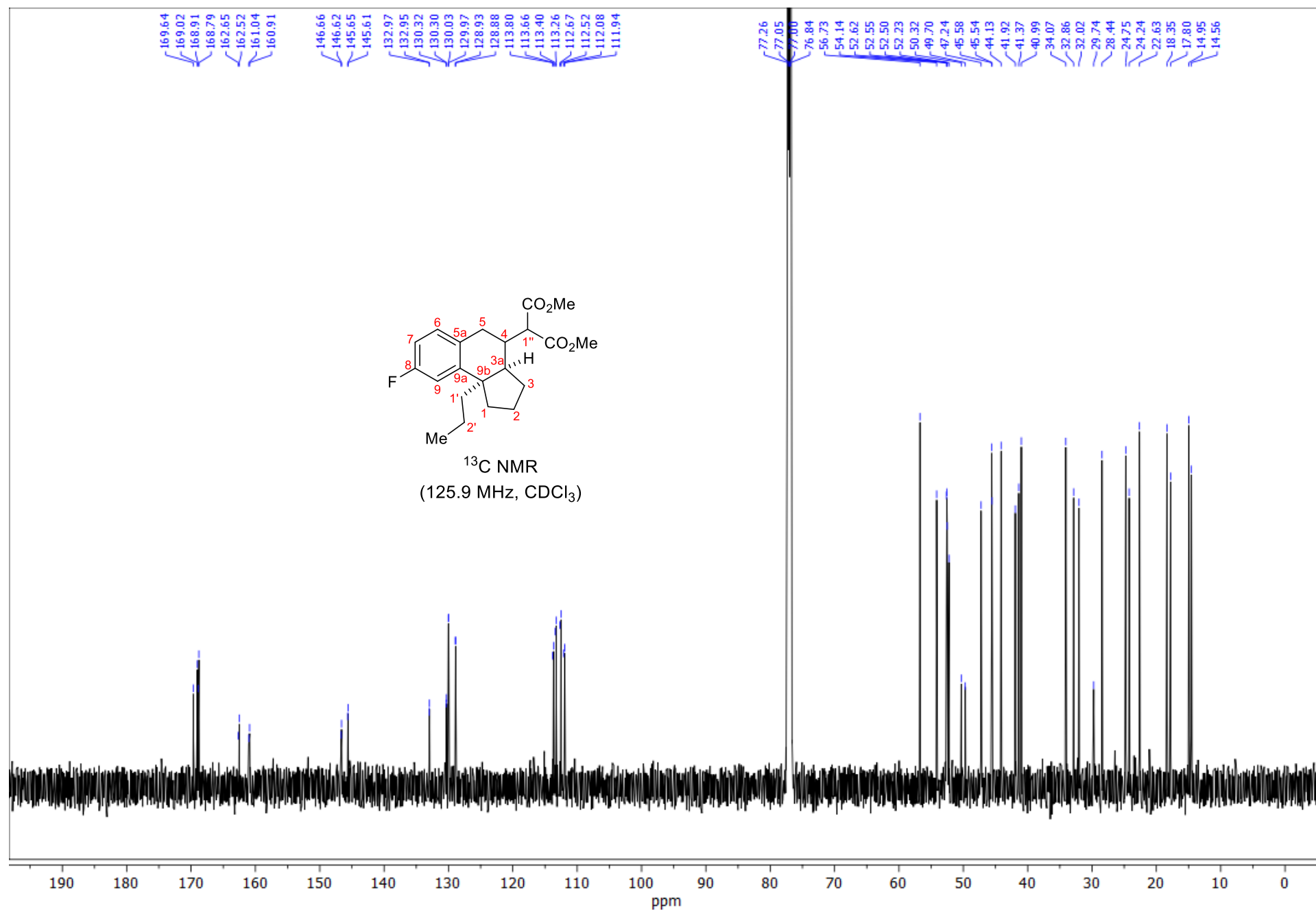
¹H, ¹³C-HSQC
(¹H: 400.1 MHz,
¹³C: 100.6 MHz
CDCl₃)

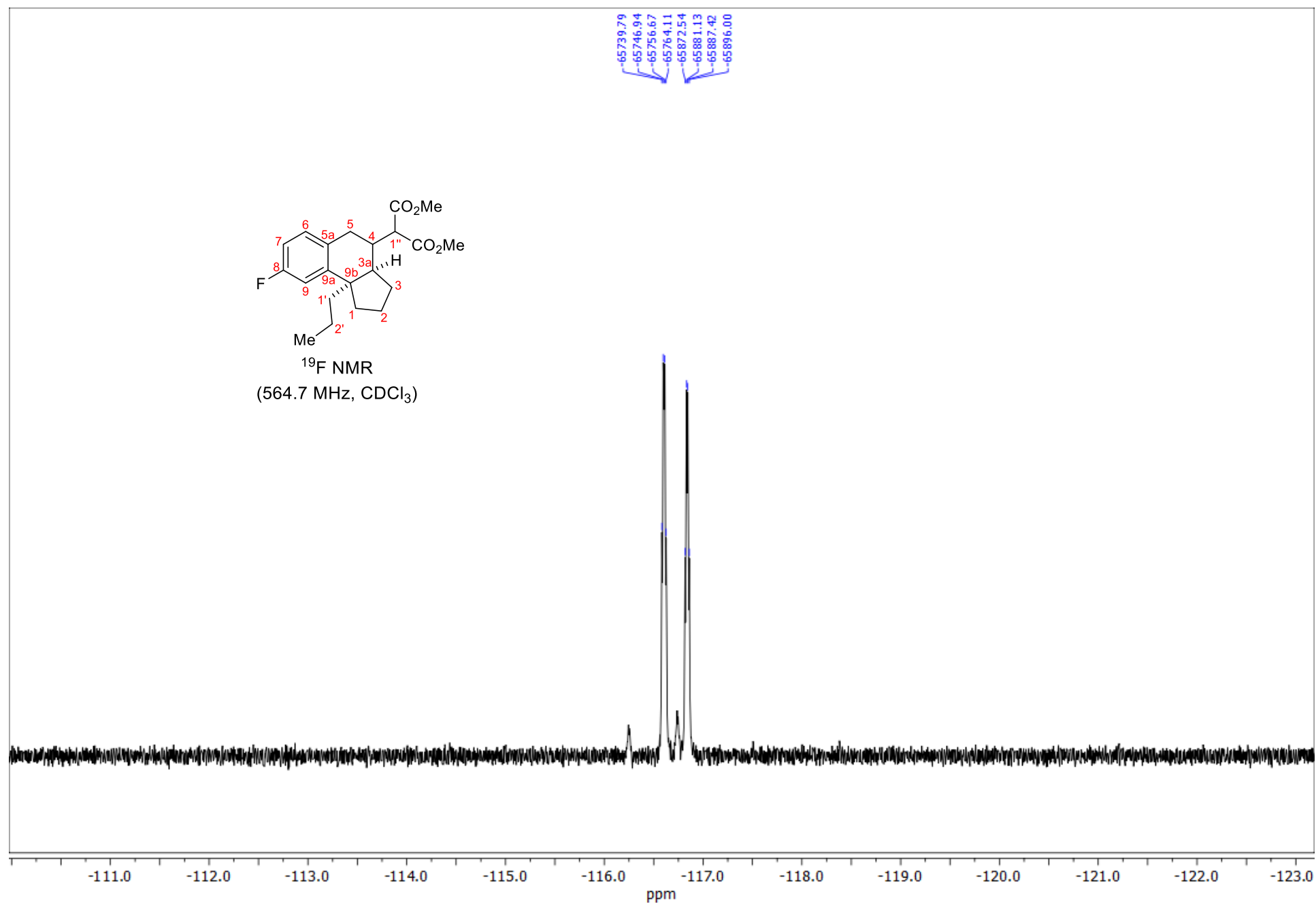


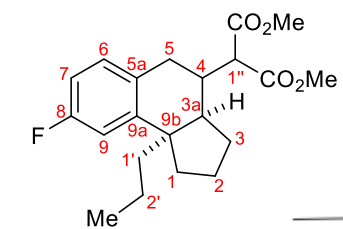


¹H, ¹³C-HMBC
 (¹H: 400.1 MHz,
¹³C: 100.6 MHz
 CDCl₃)

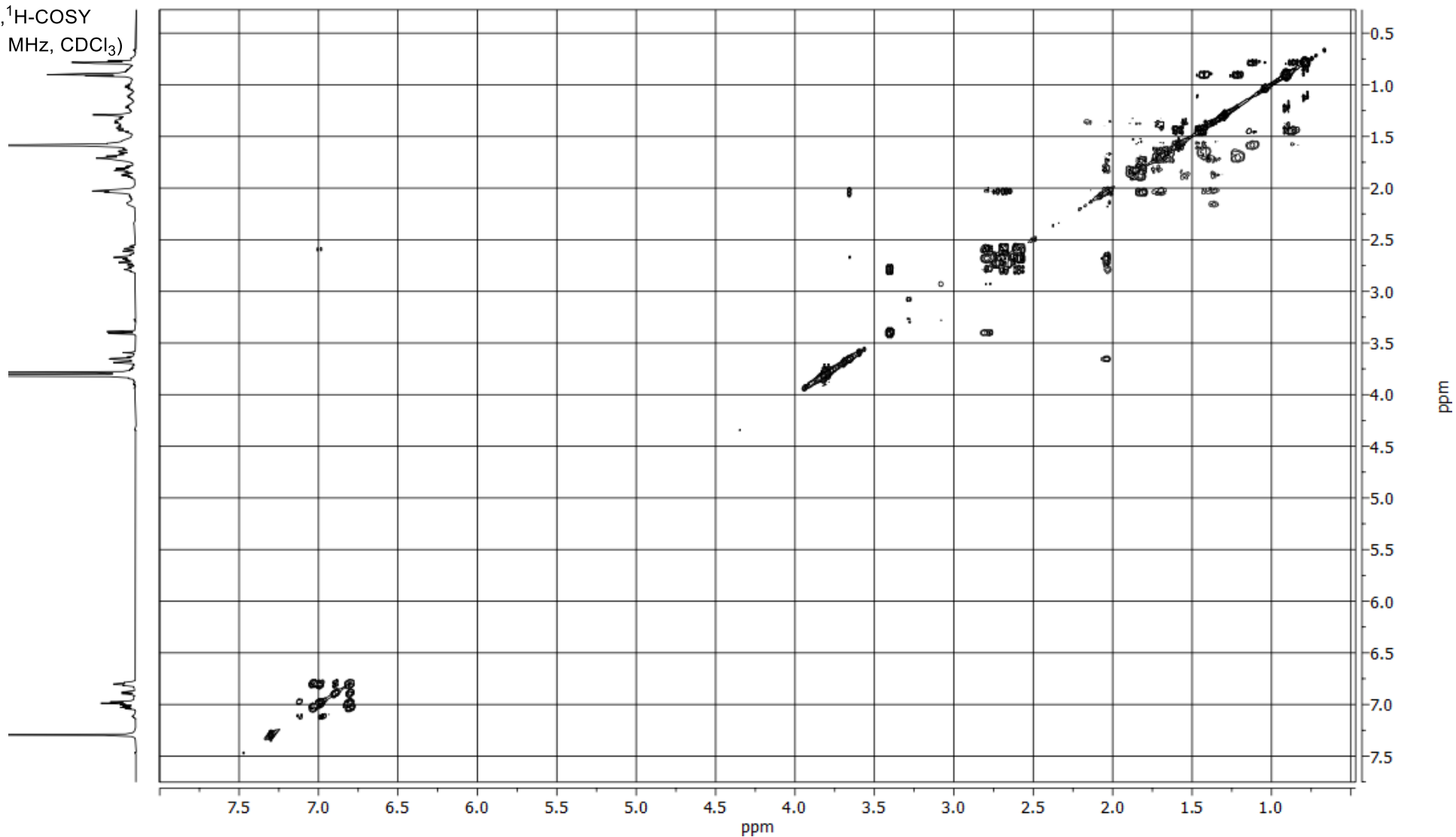


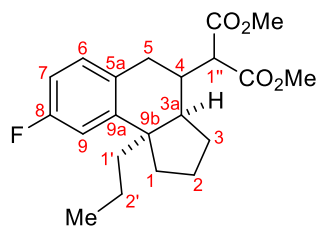




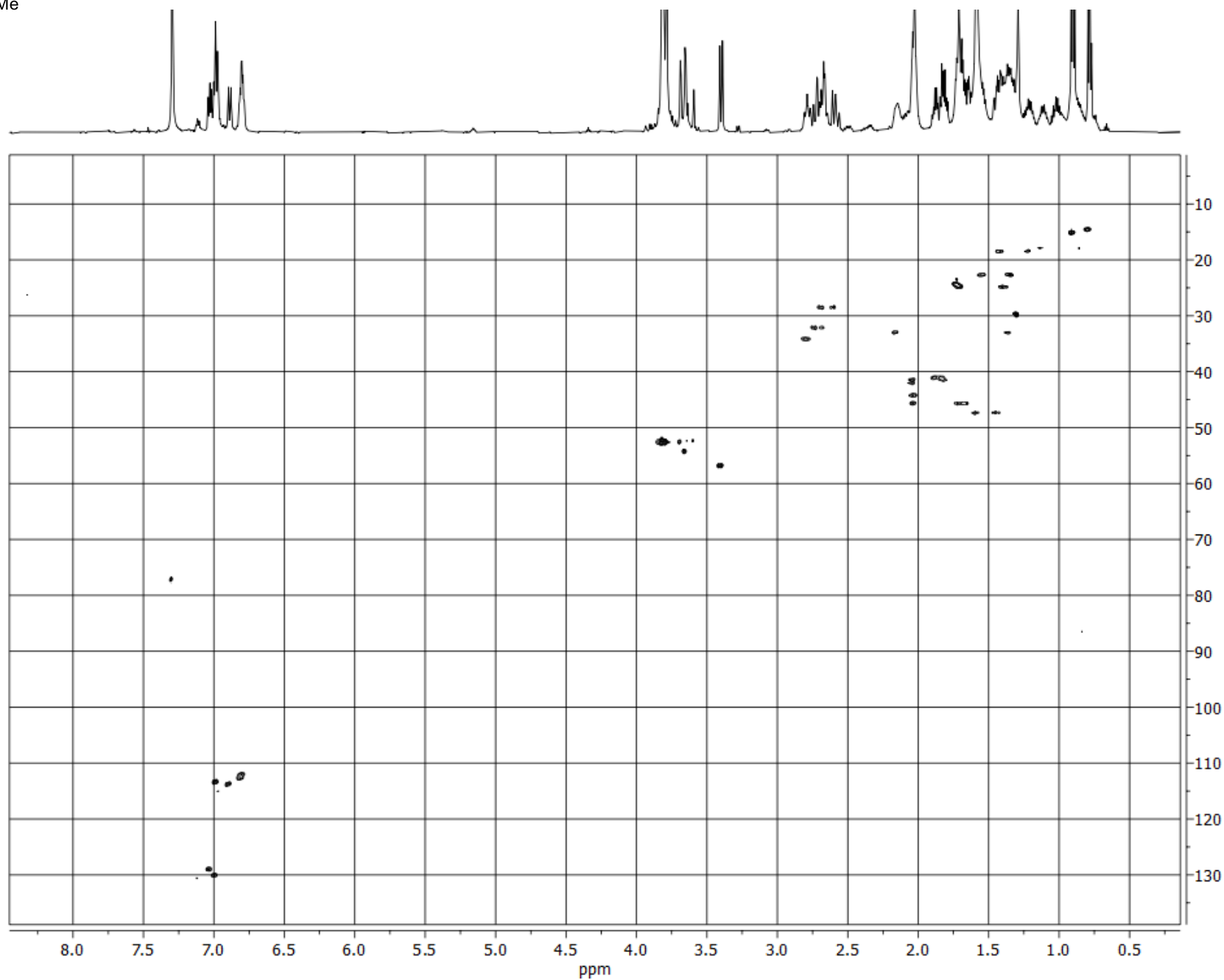


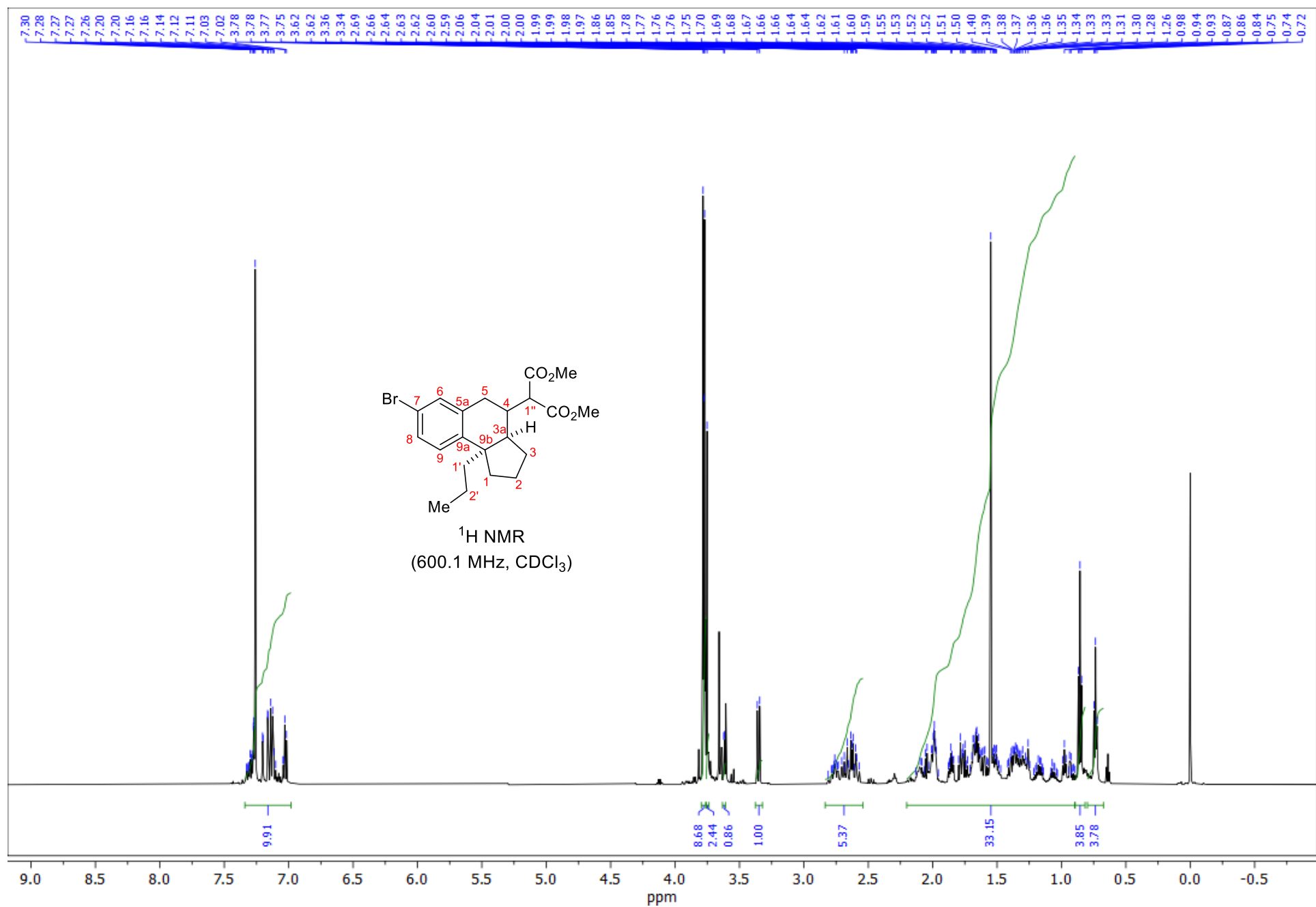
¹H, ¹H-COSY
(600.1 MHz, CDCl₃)

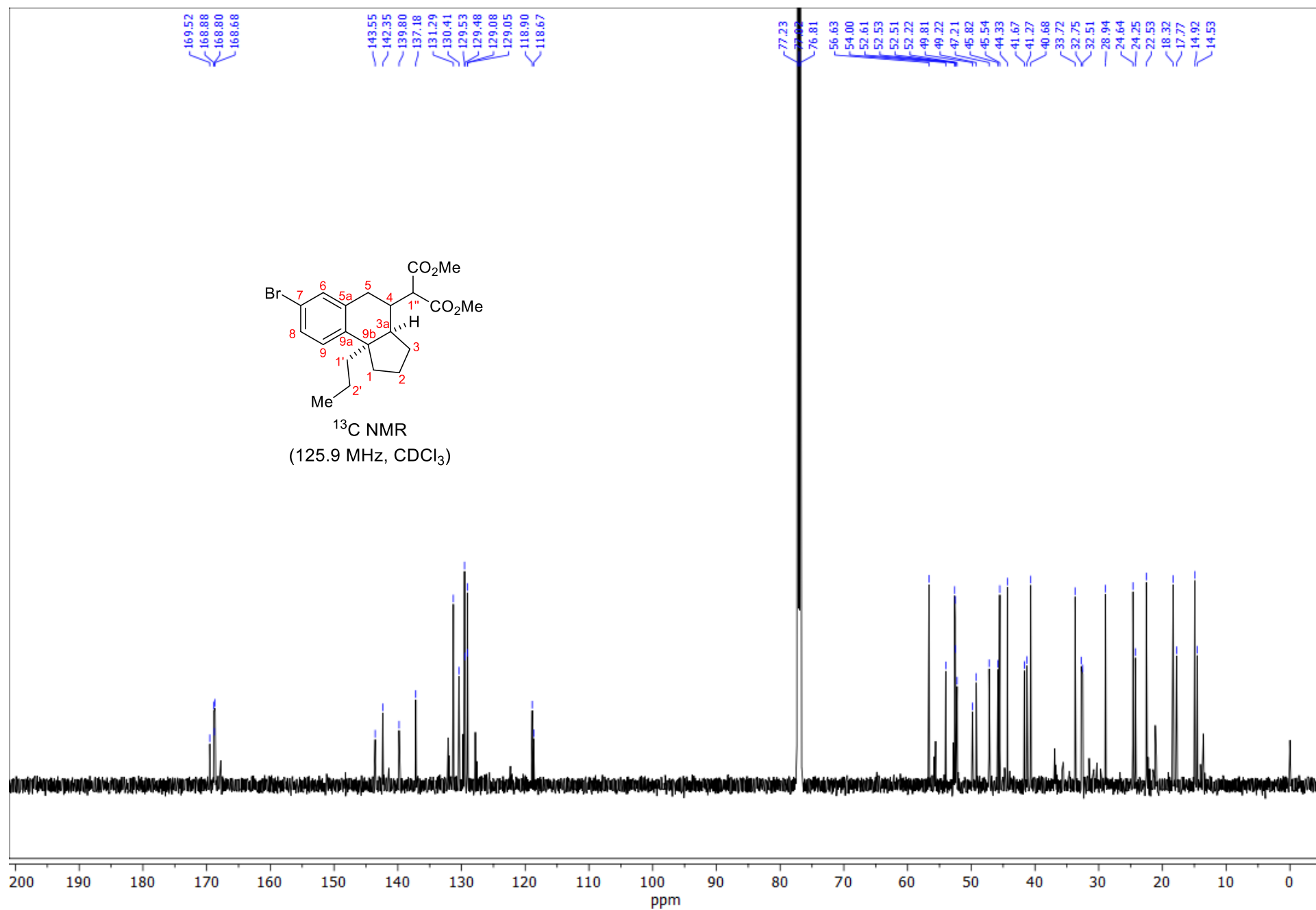


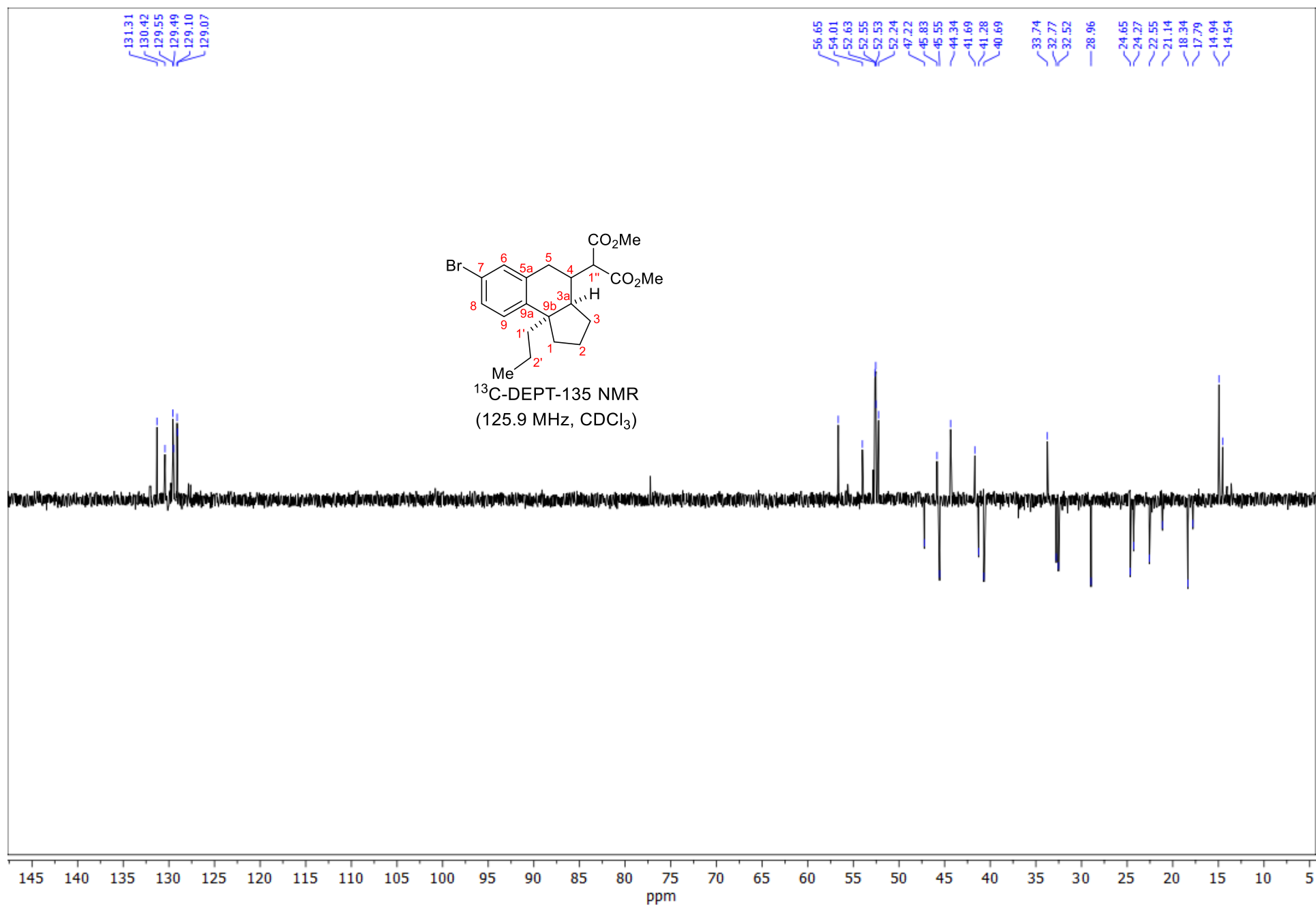


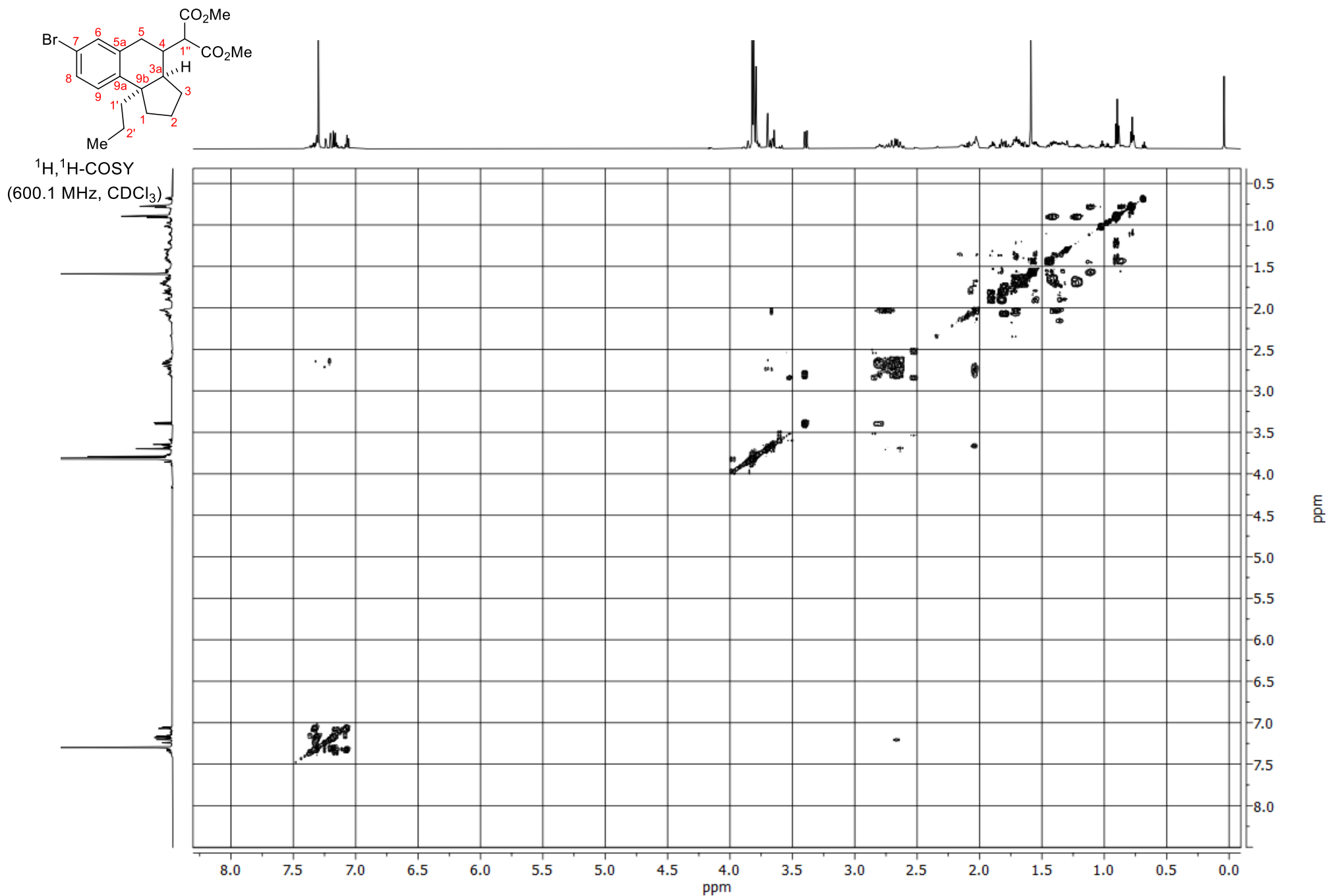
¹H, ¹³C-HSQC
(¹H: 600.1 MHz,
¹³C: 125.9 MHz
CDCl₃)

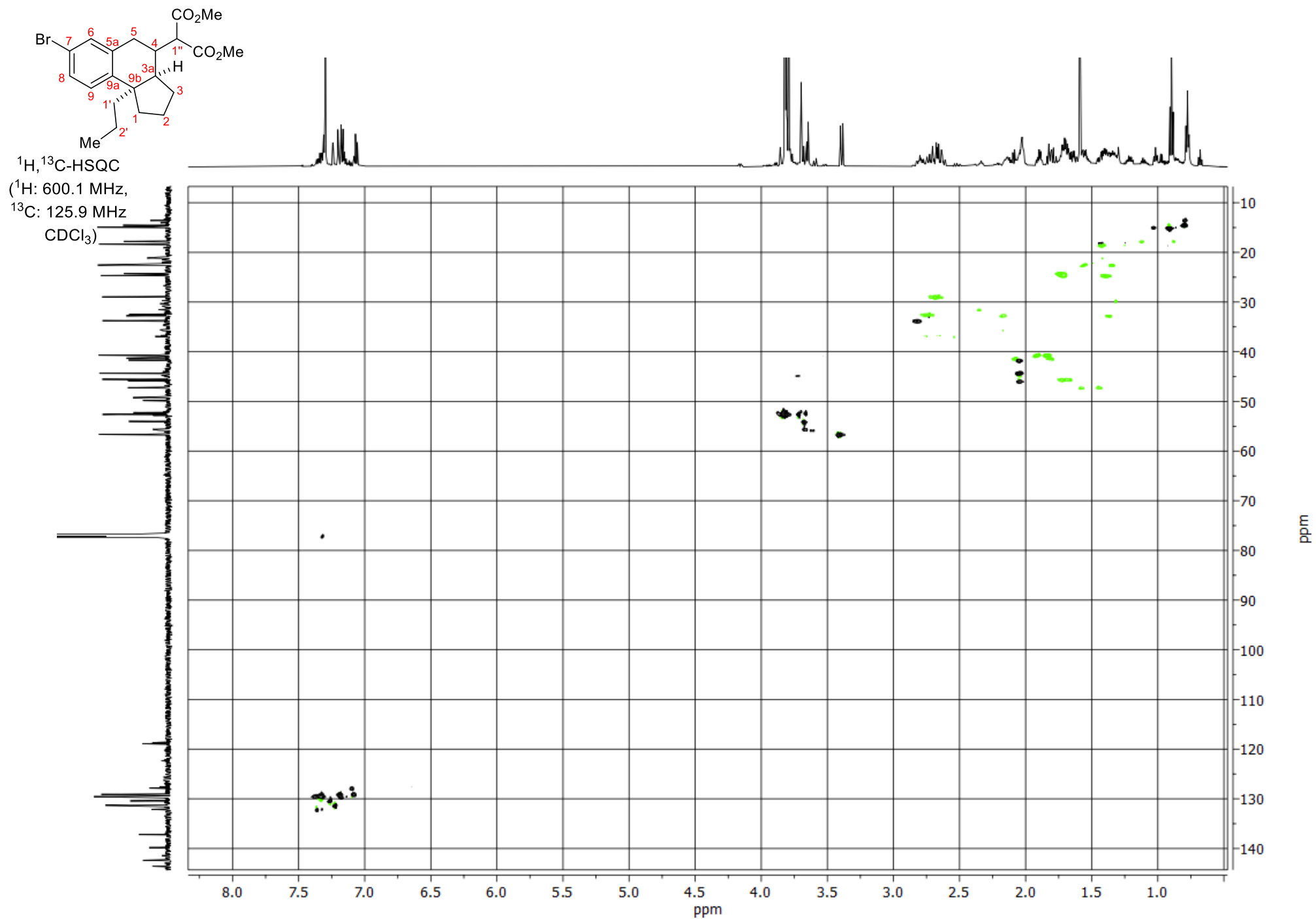


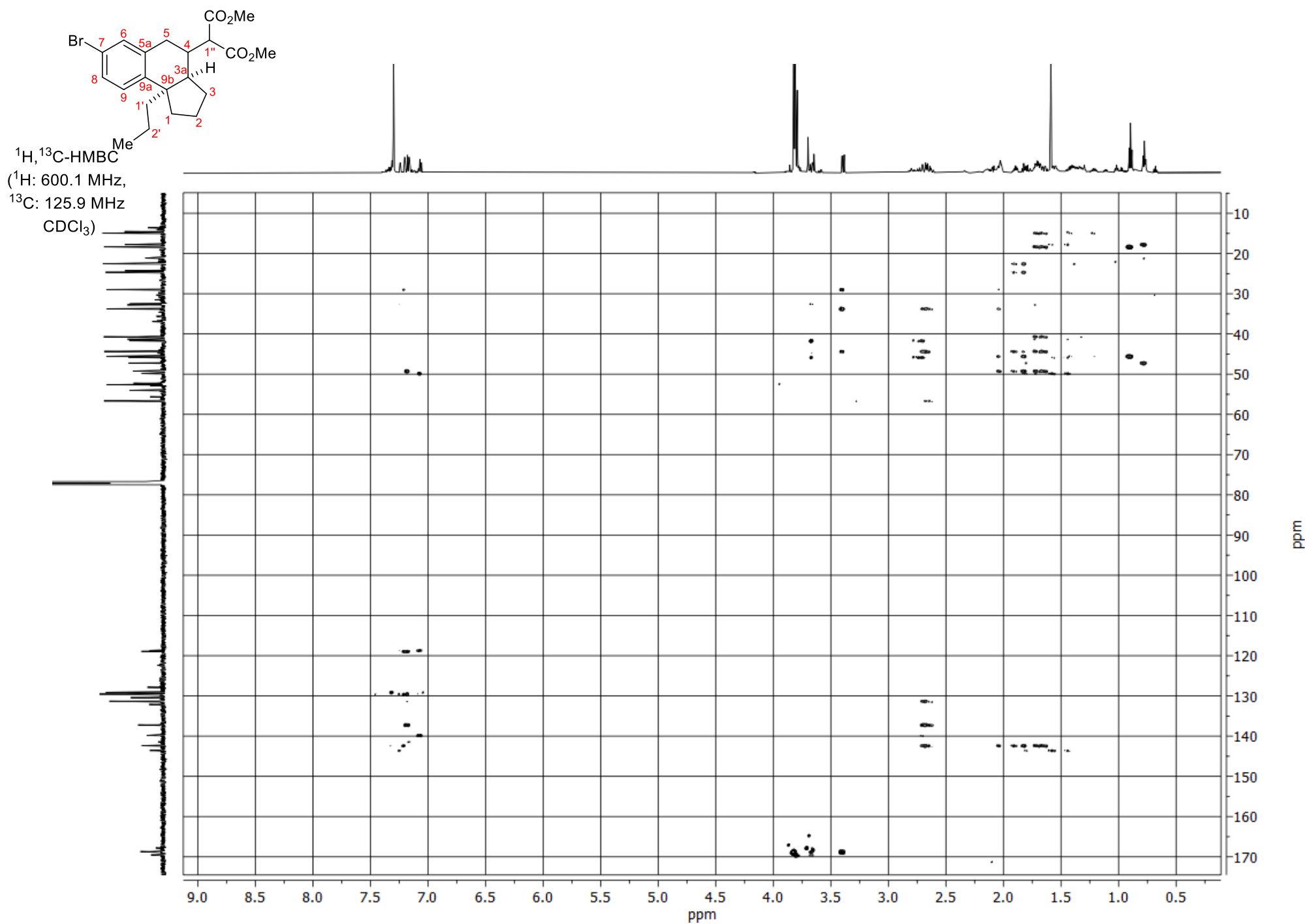


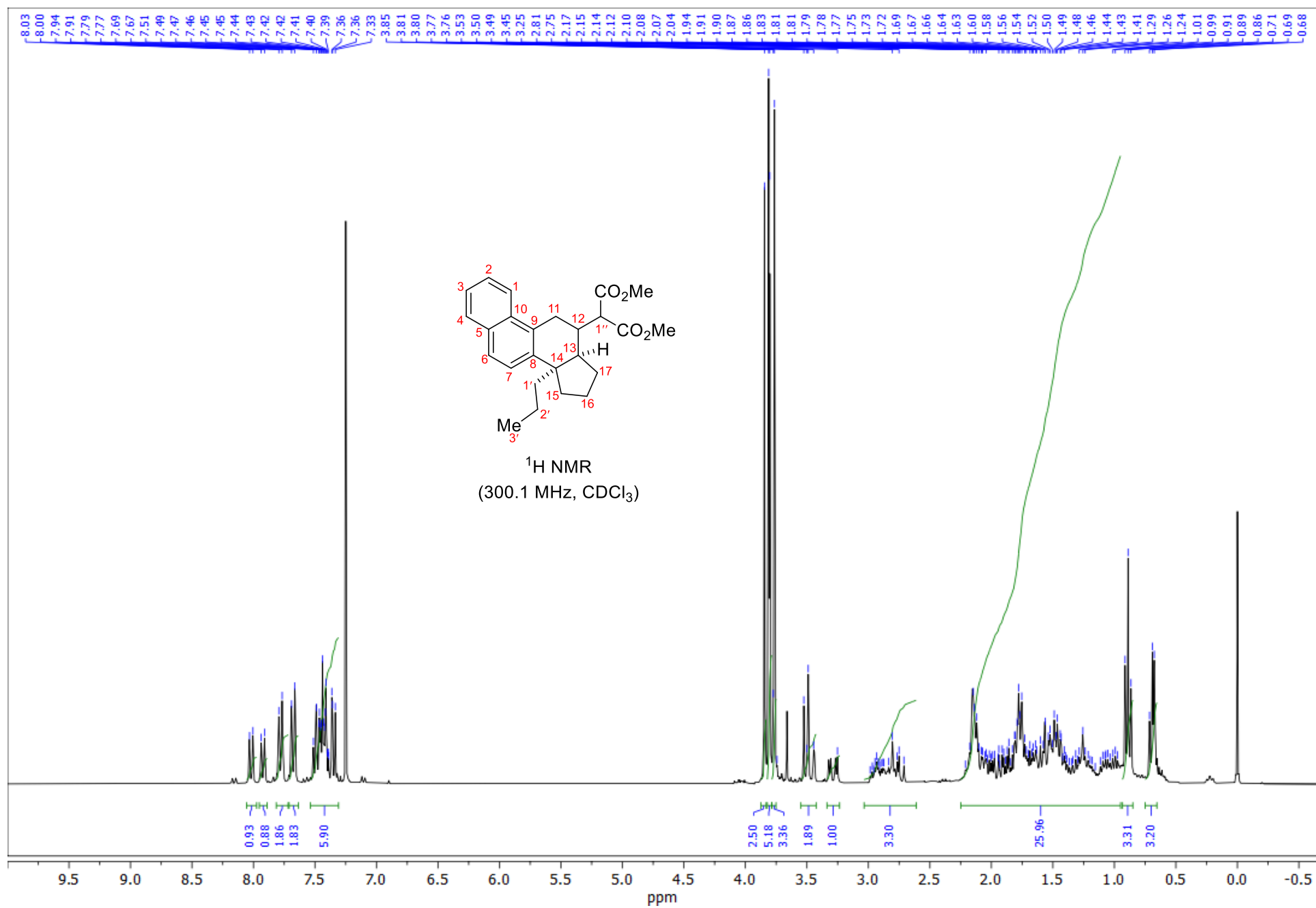


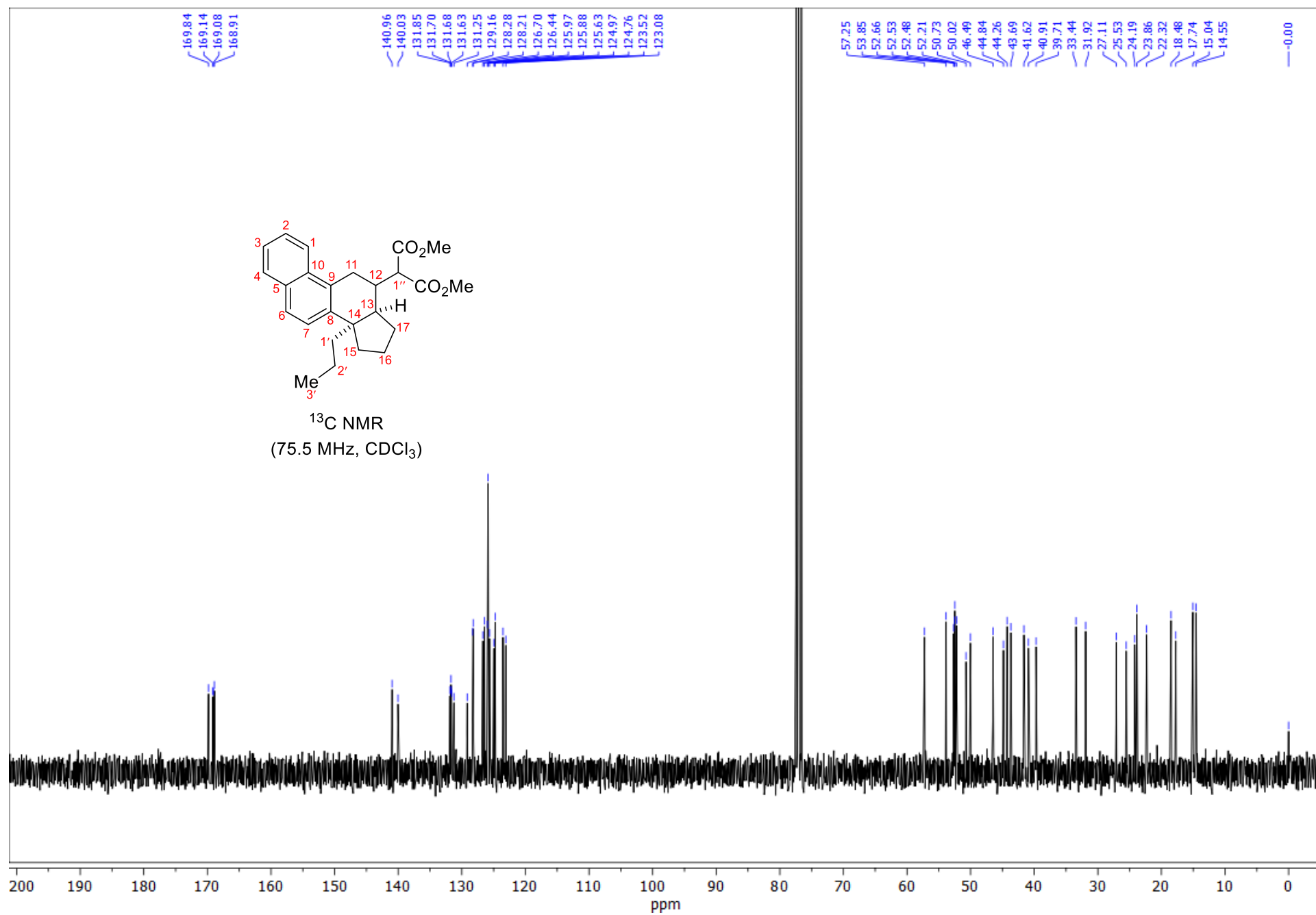


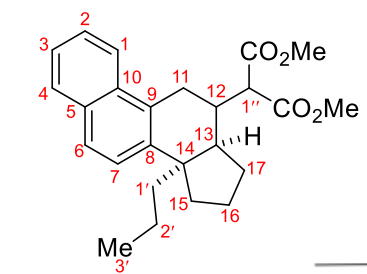




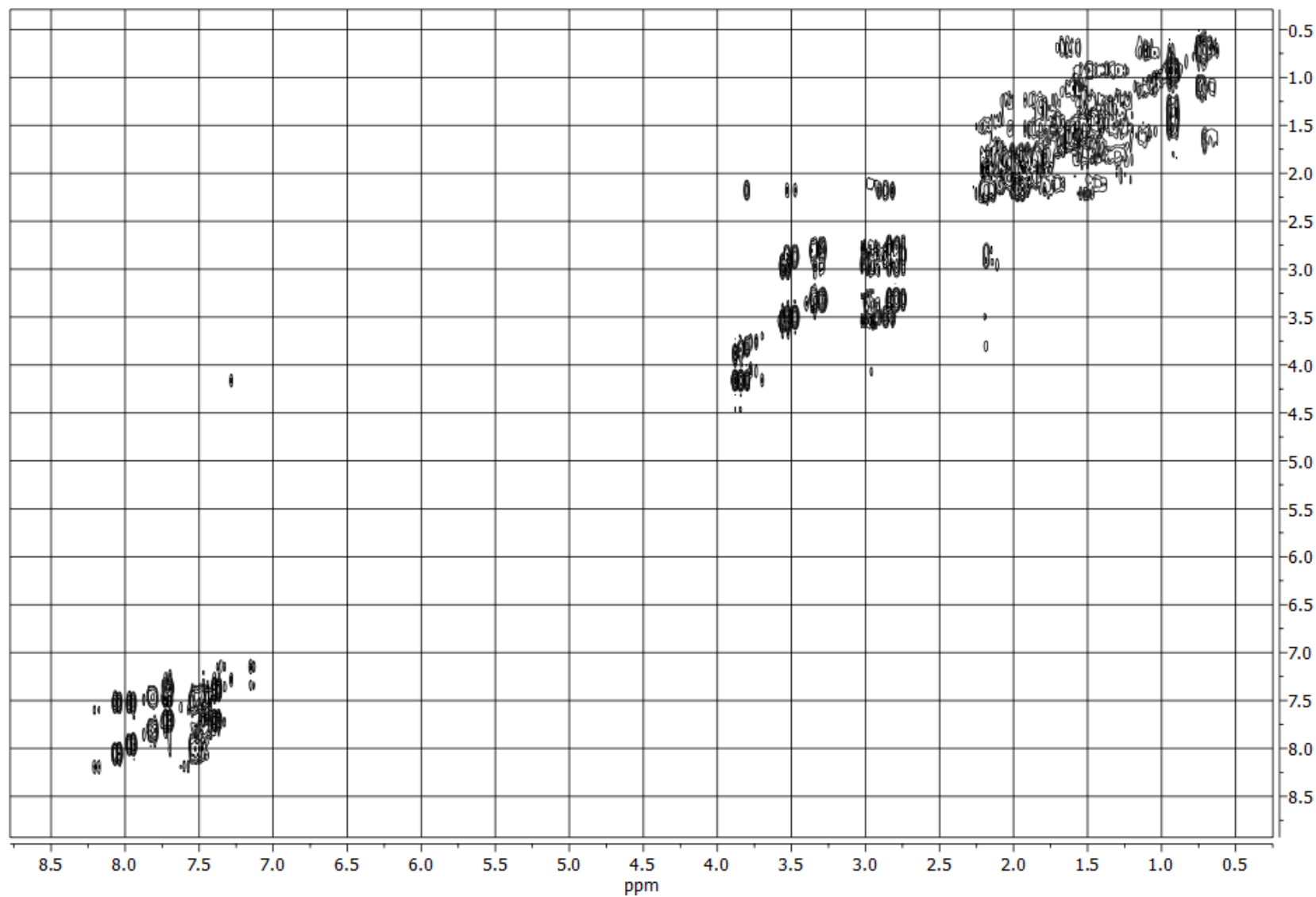


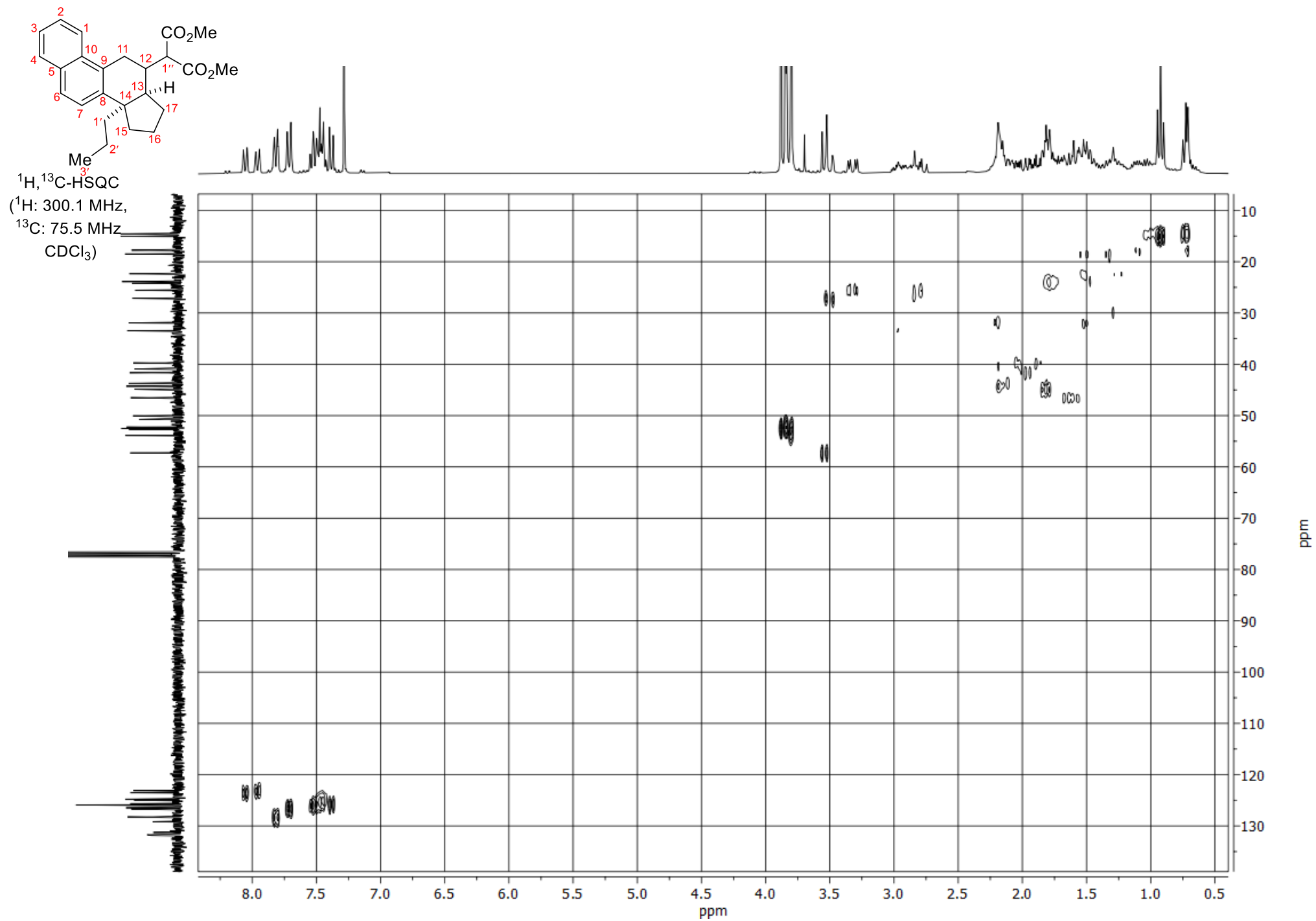


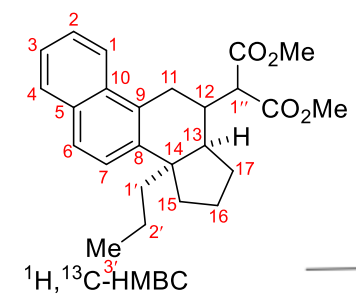




$^1\text{H}, ^1\text{H}$ -COSY
(300.1 MHz, CDCl_3)







^1H , ^{13}C -HMBC
 (^1H : 300.1 MHz,
 ^{13}C : 75.5 MHz
 CDCl_3)

