

## Synthesis and Insecticidal Activity of Lactones Derived from Furan-2(5H)-one

Milena G. Teixeira,<sup>a</sup> Elson S. Alvarenga,<sup>\*a</sup> Mirian F. Pimentel<sup>b</sup> and  
 Marcelo C. Picanço<sup>b</sup>

<sup>a</sup>Departamento de Química and <sup>b</sup>Departamento de Entomologia,  
 Universidade Federal de Viçosa, 36570-900 Viçosa-MG, Brazil

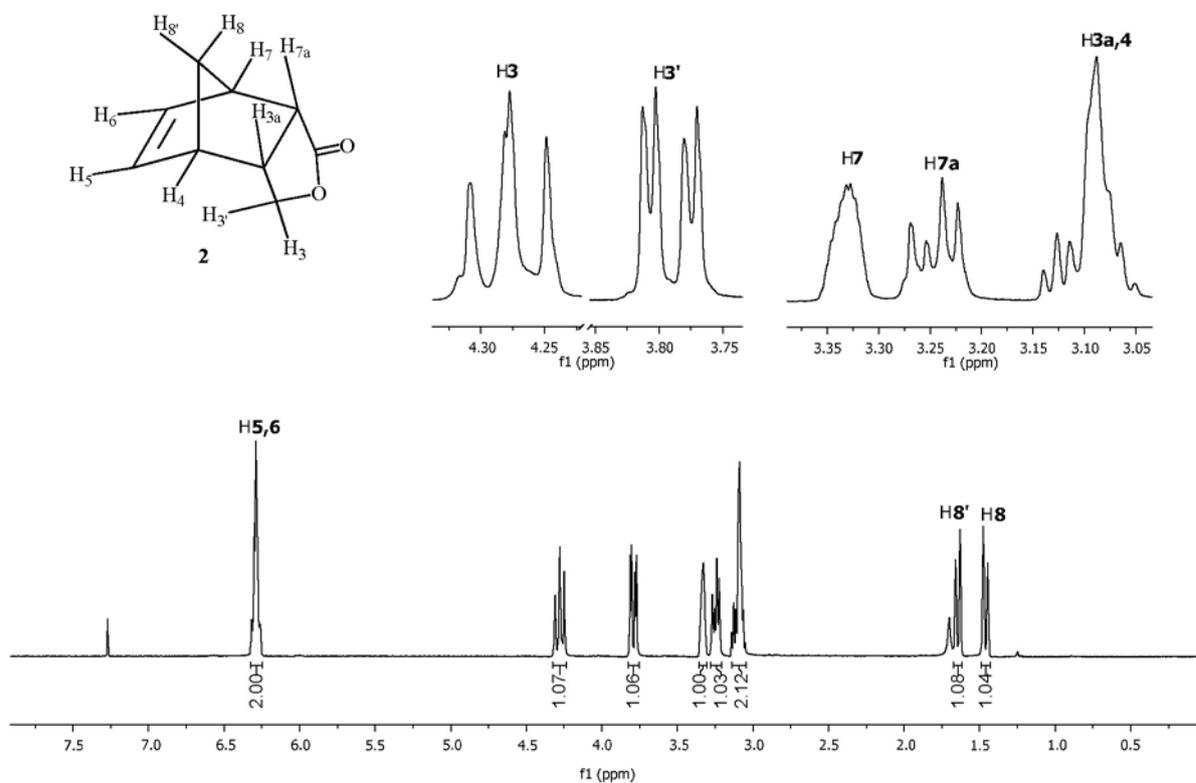


Figure S1. <sup>1</sup>H NMR spectrum (300 MHz, CDCl<sub>3</sub>) of compound 2.

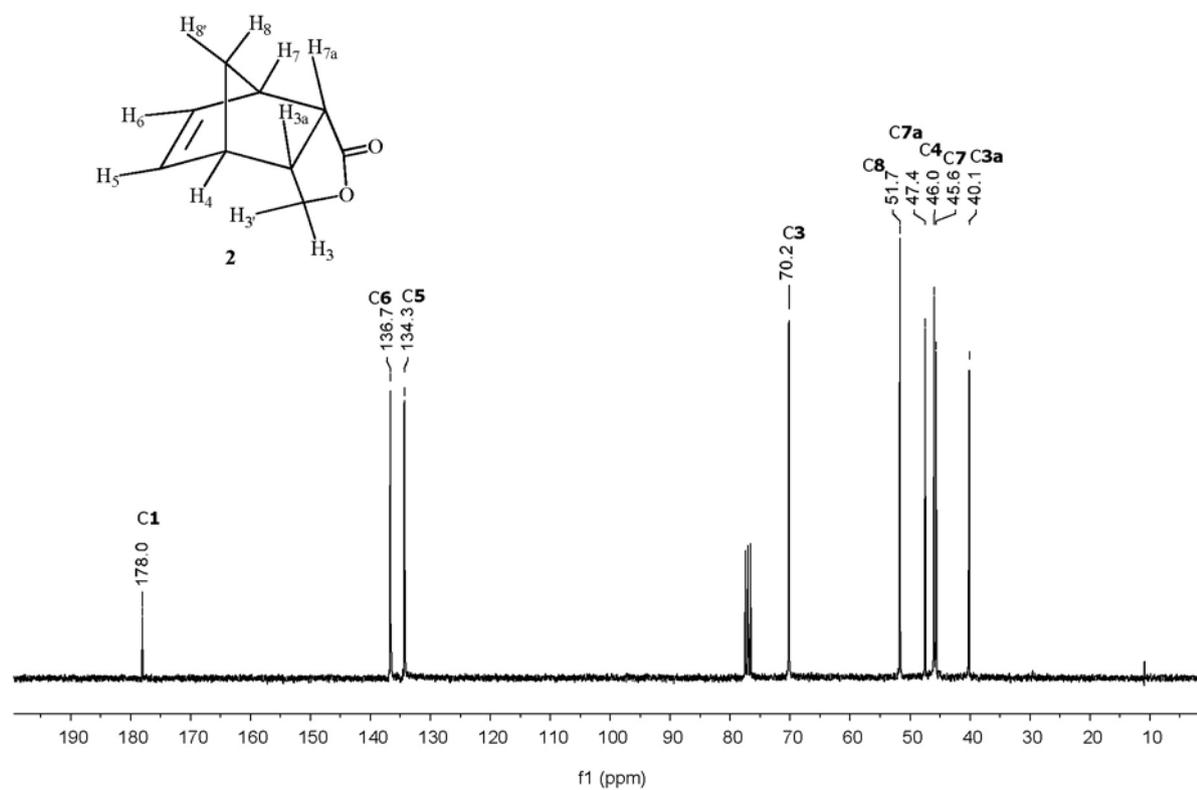


Figure S2.  $^{13}\text{C}$  NMR spectrum (75 MHz,  $\text{CDCl}_3$ ) of compound 2.

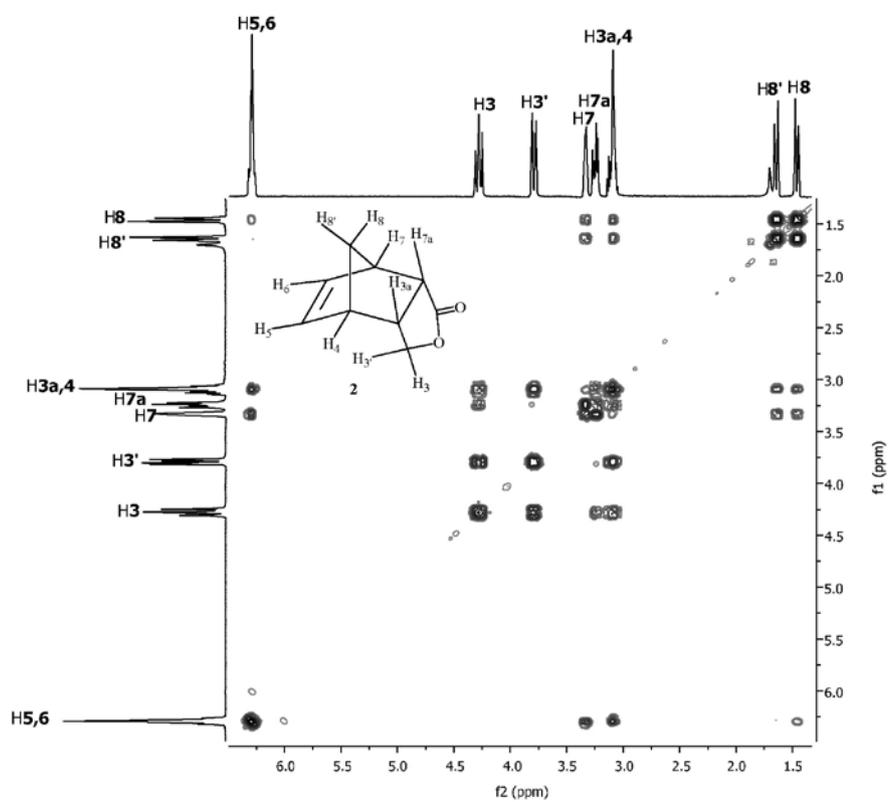


Figure S3. COSY spectrum of compound 2.

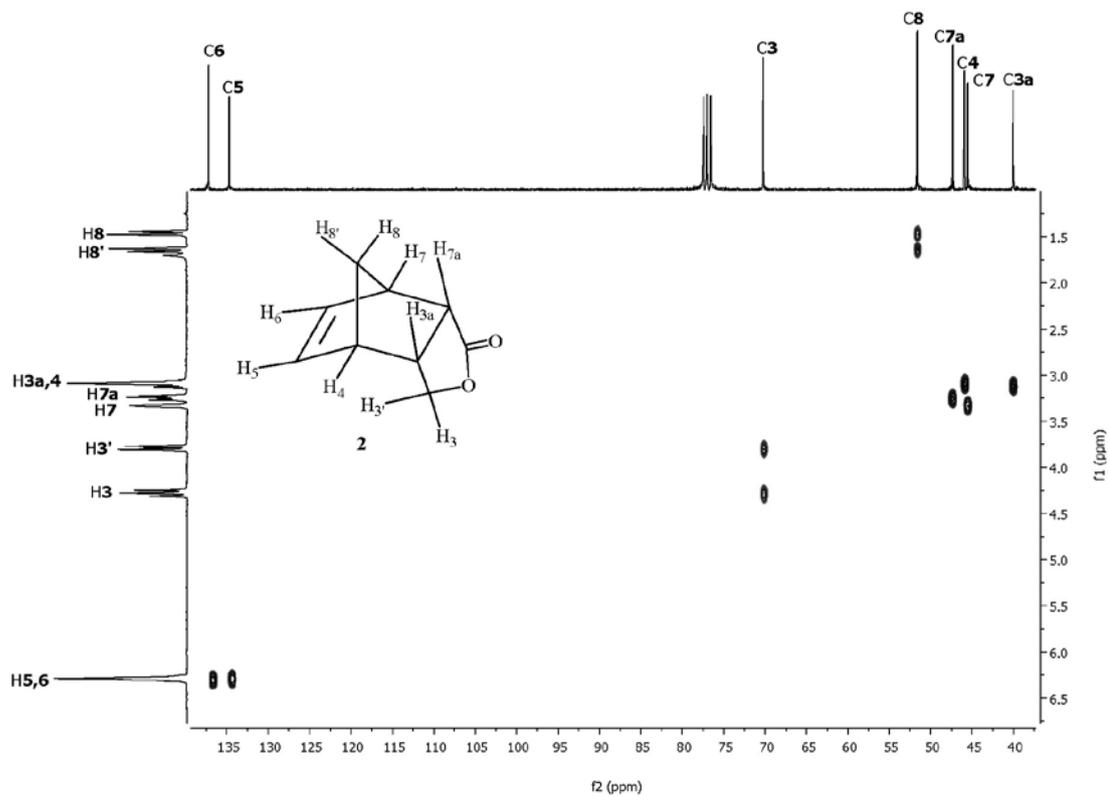


Figure S4. HETCOR spectrum of compound **2**.

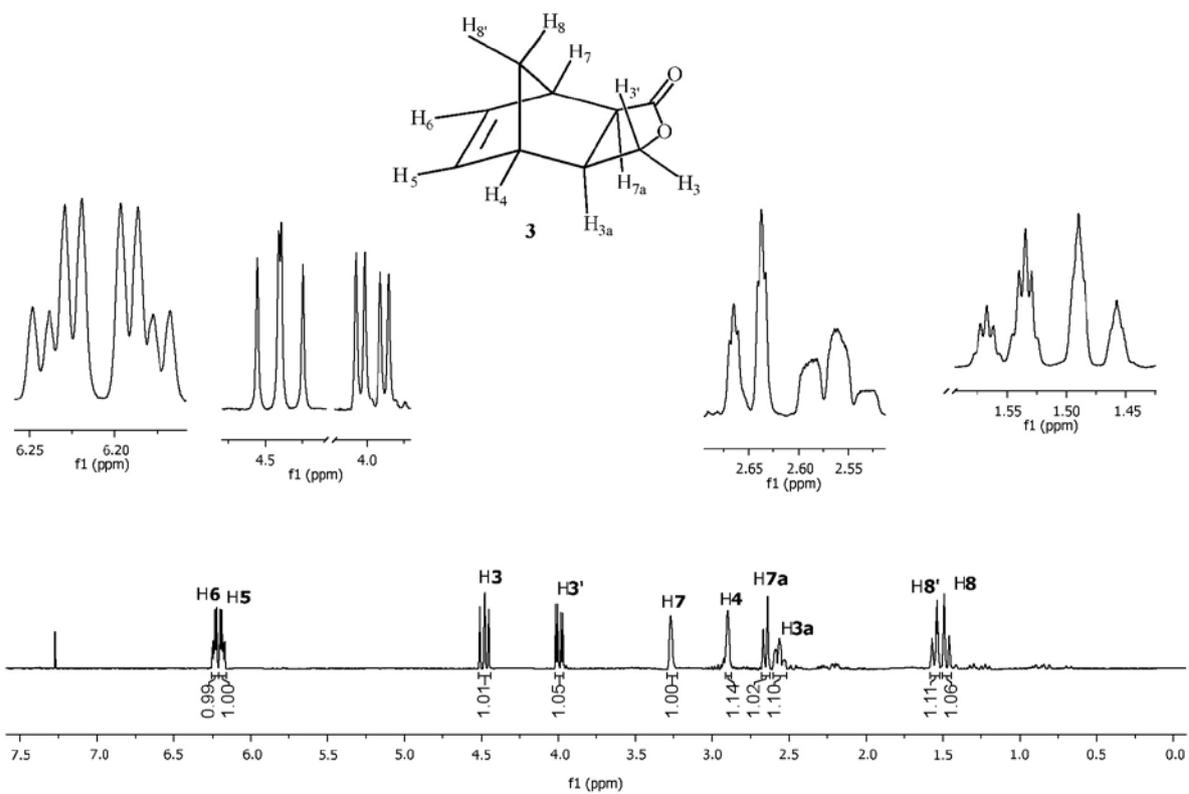


Figure S5.  $^1\text{H}$  NMR spectrum (300 MHz,  $\text{CDCl}_3$ ) of compound **3**.

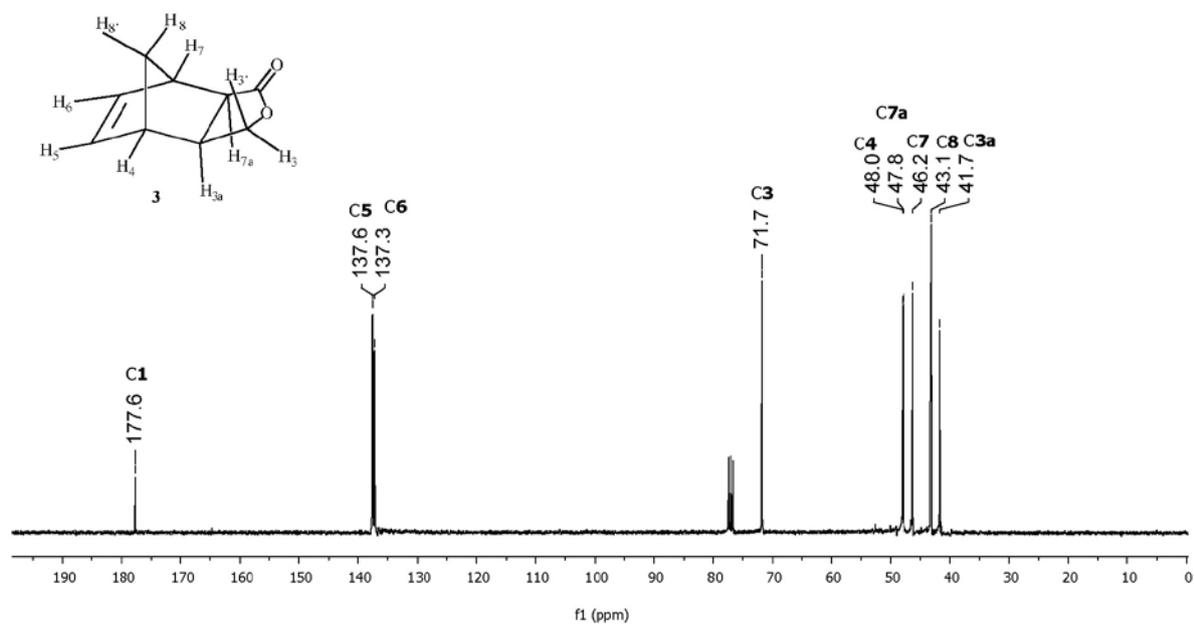


Figure S6. <sup>13</sup>C NMR spectrum (75 MHz, CDCl<sub>3</sub>) of compound 3.

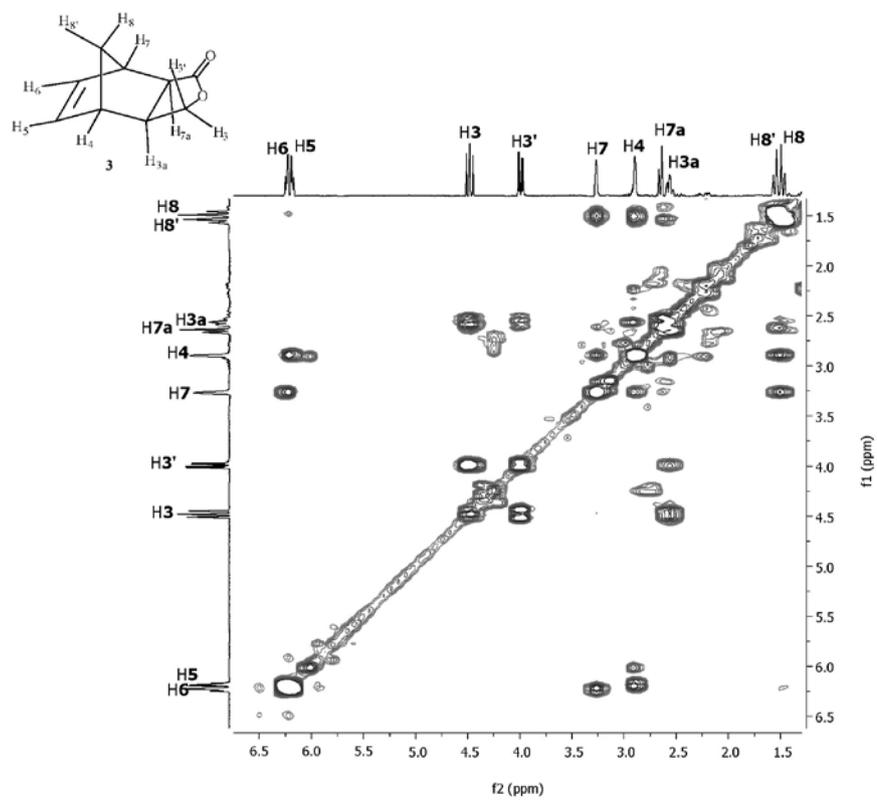
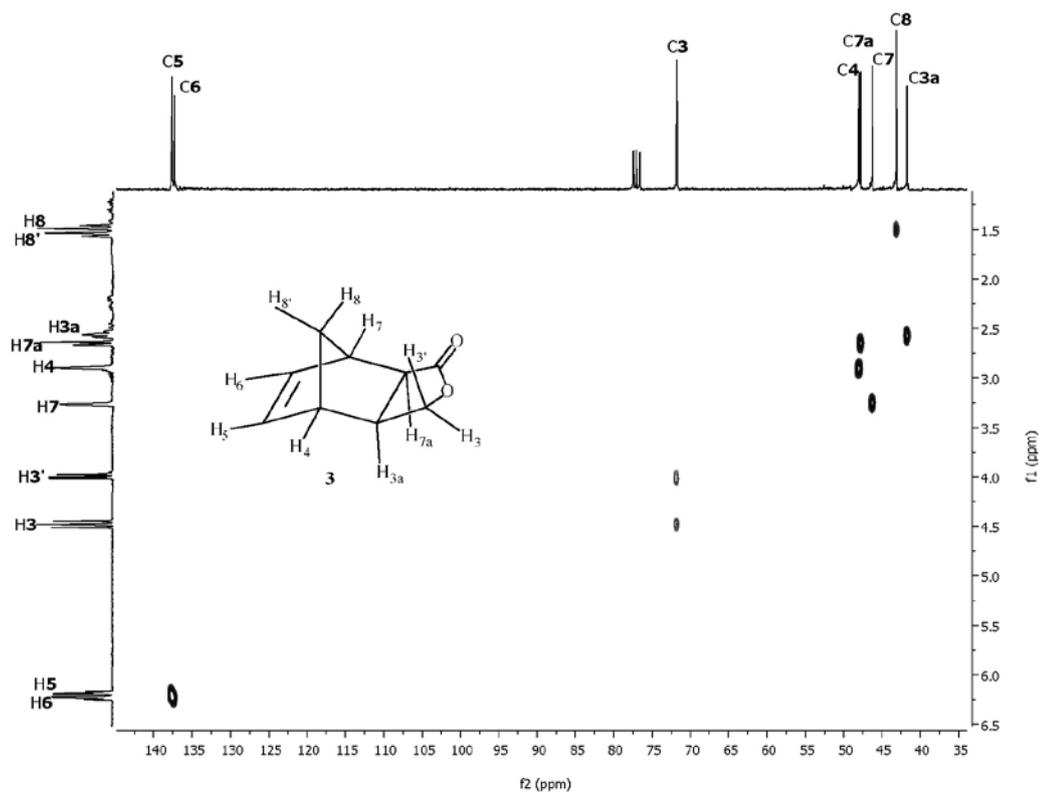
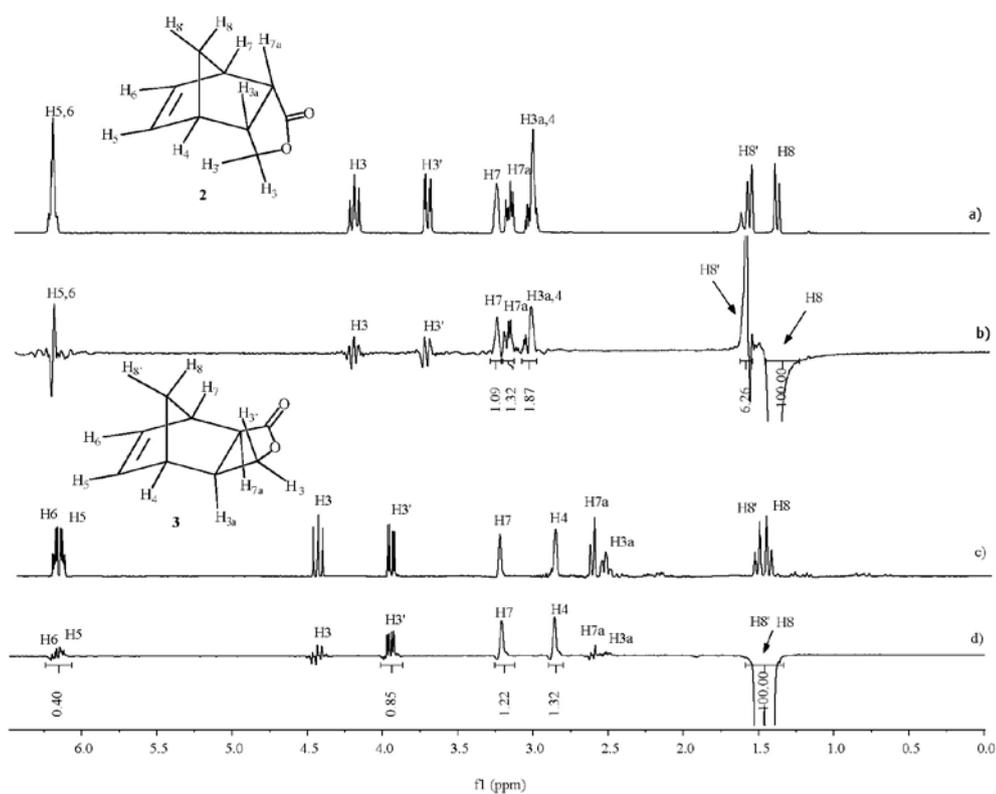


Figure S7. COSY spectrum of compound 3.



**Figure S8.** HETCOR spectrum of compound **3**.



**Figure S9.** (a) Normal  $^1\text{H}$  NMR spectra of adduct **2** as reference; (b) NOEDIFF experiment of adduct **2**, irradiation of H8; (c) normal  $^1\text{H}$  NMR spectra of adduct **3** as reference; and (d) NOEDIFF experiment of adduct **3**, irradiation of H8 and H8'.

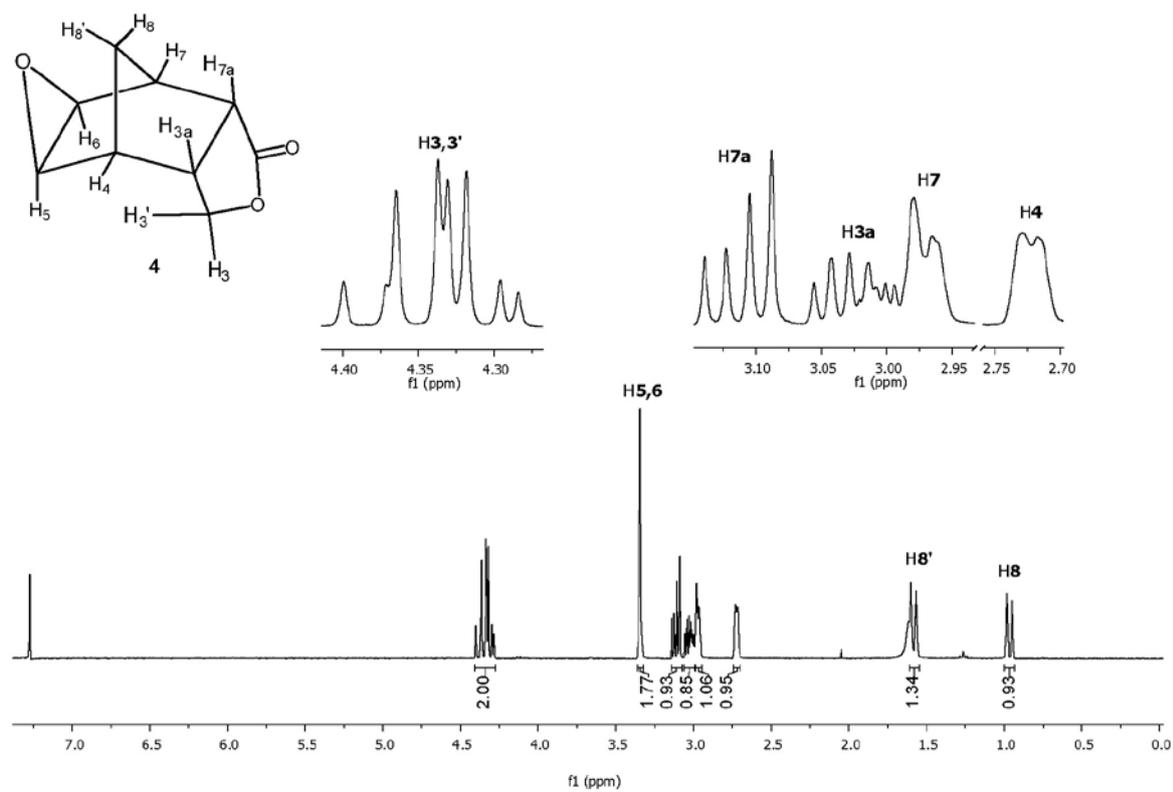


Figure S10.  $^1\text{H}$  NMR spectrum (300 MHz,  $\text{CDCl}_3$ ) of compound 4.

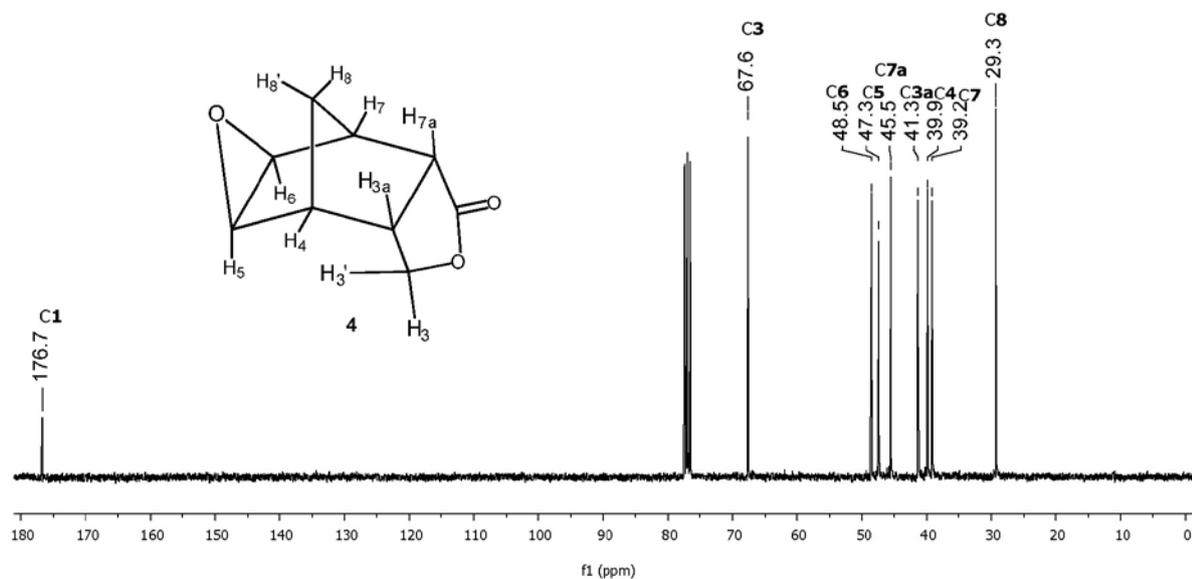


Figure S11.  $^{13}\text{C}$  NMR spectrum (75 MHz,  $\text{CDCl}_3$ ) of compound 4.

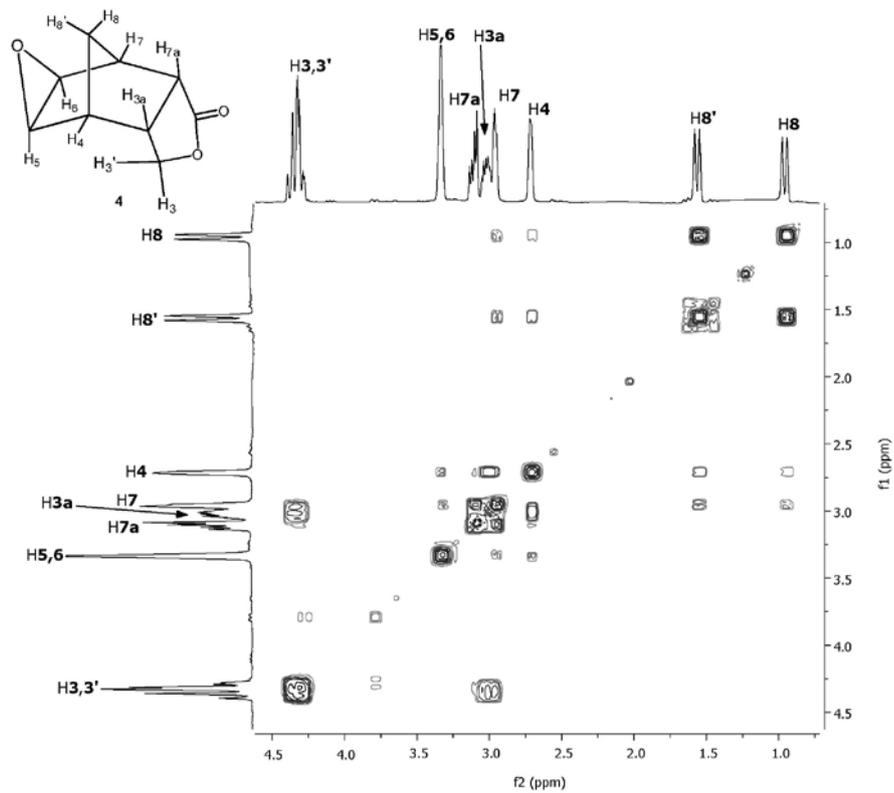


Figure S12. COSY spectrum of compound 4.

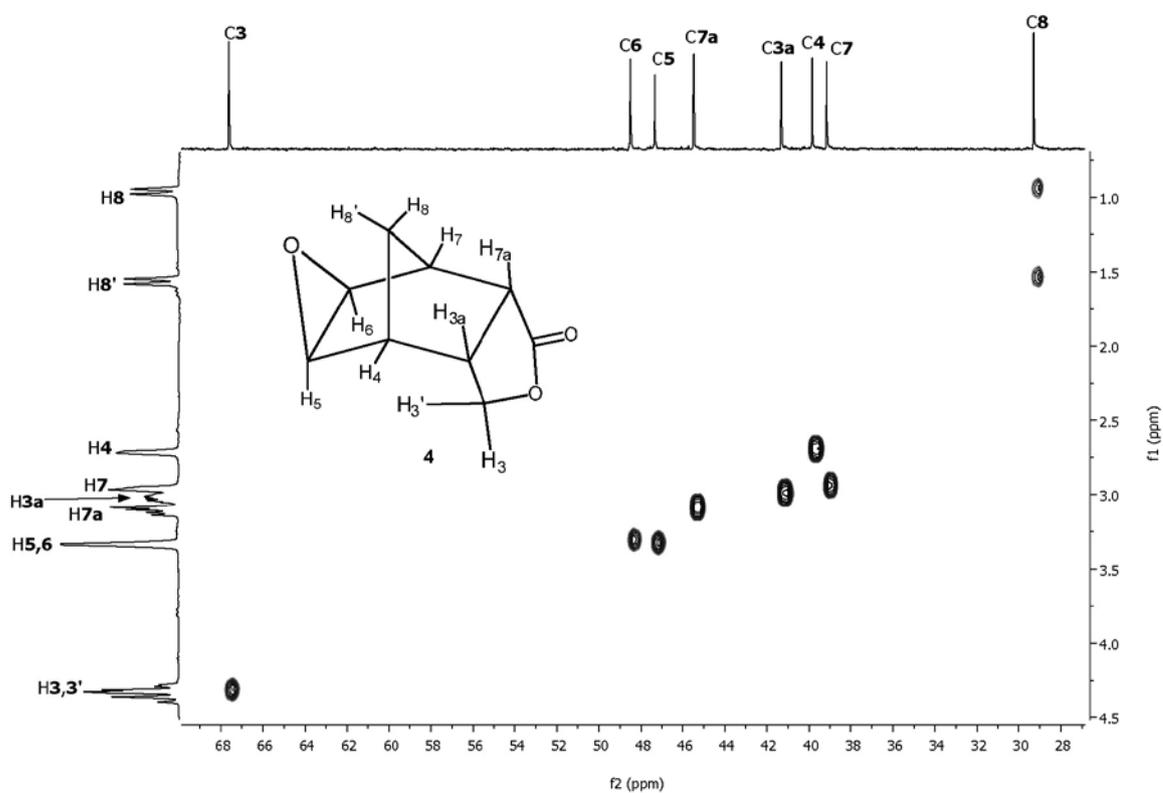


Figure S13. HETCOR spectrum of compound 4.

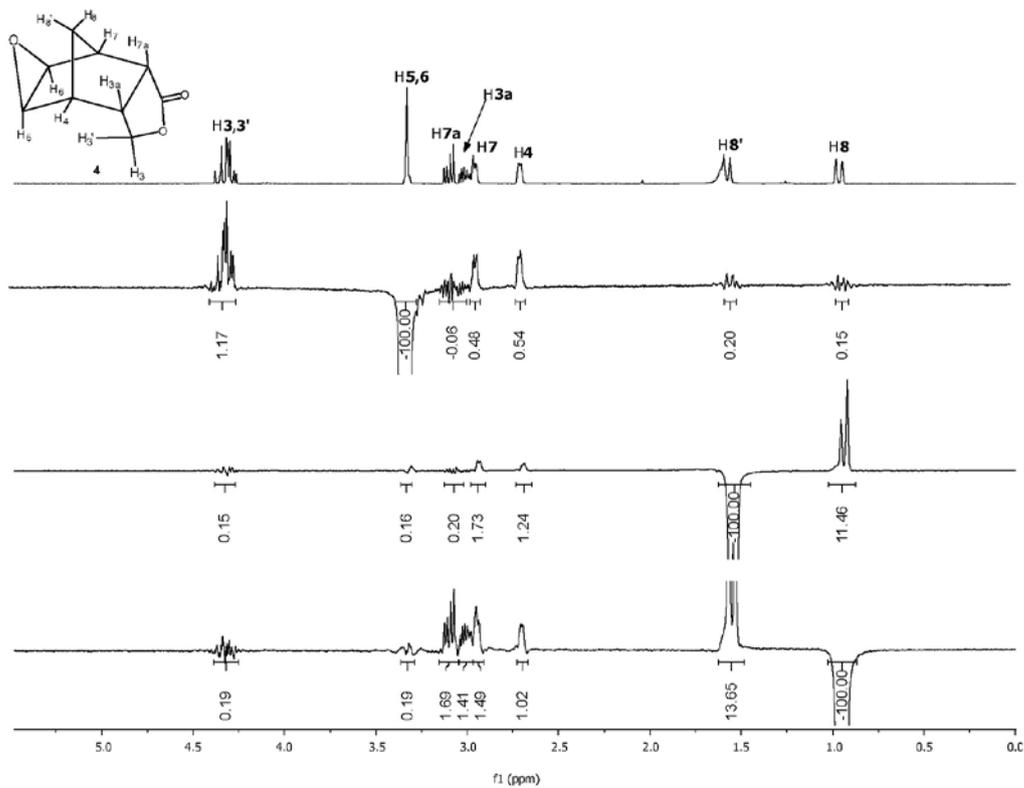
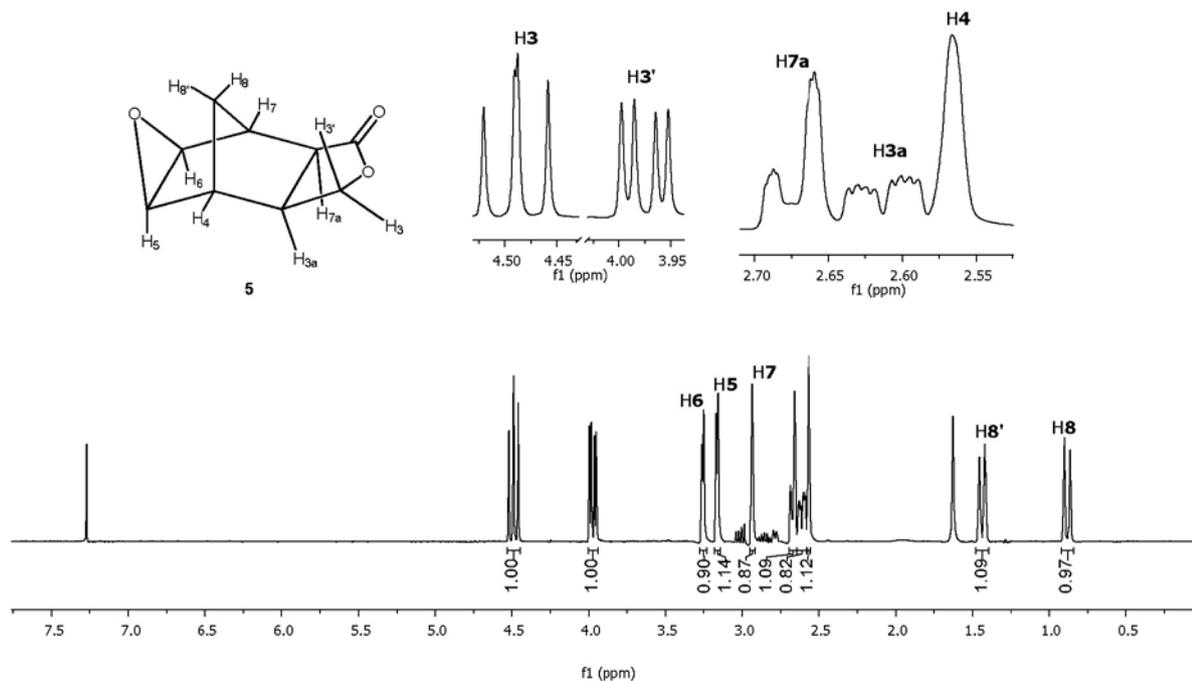


Figure S14. NOEDIFF of compound 4.

Figure S15.  $^1\text{H}$  NMR spectrum (300 MHz,  $\text{CDCl}_3$ ) of compound 5.

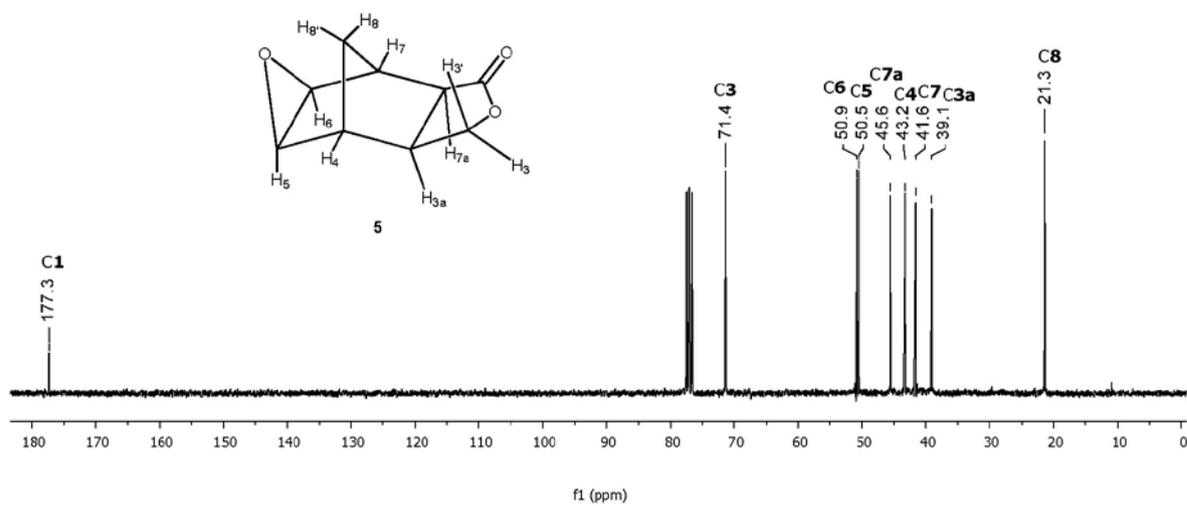


Figure S16.  $^{13}\text{C}$  NMR spectrum (75 MHz,  $\text{CDCl}_3$ ) of compound 5.

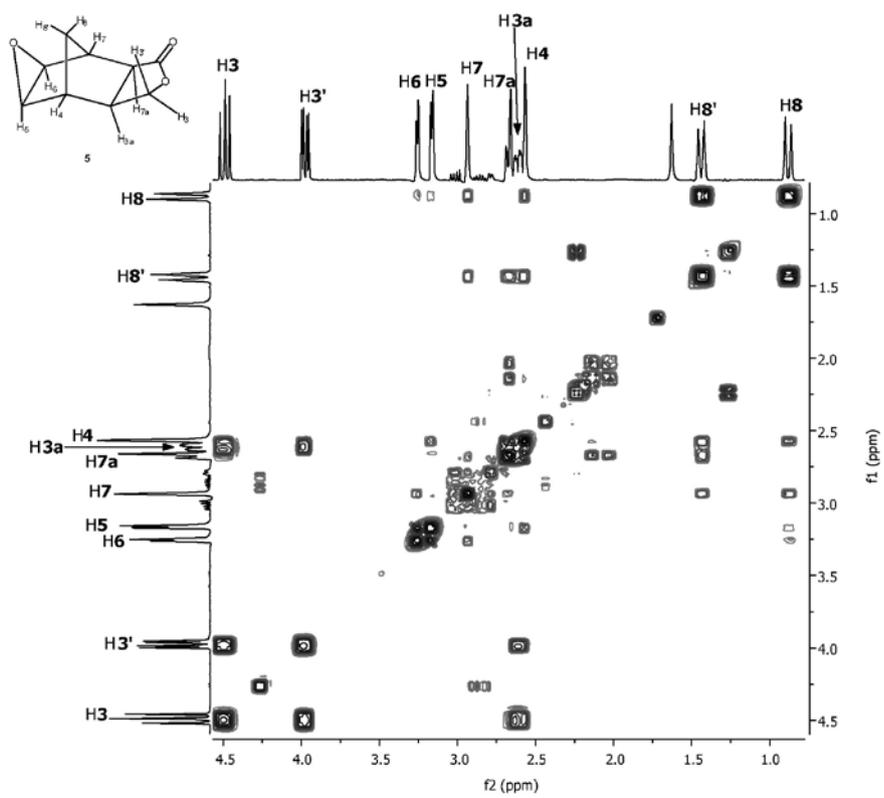


Figure S17. COSY spectrum of compound 5.

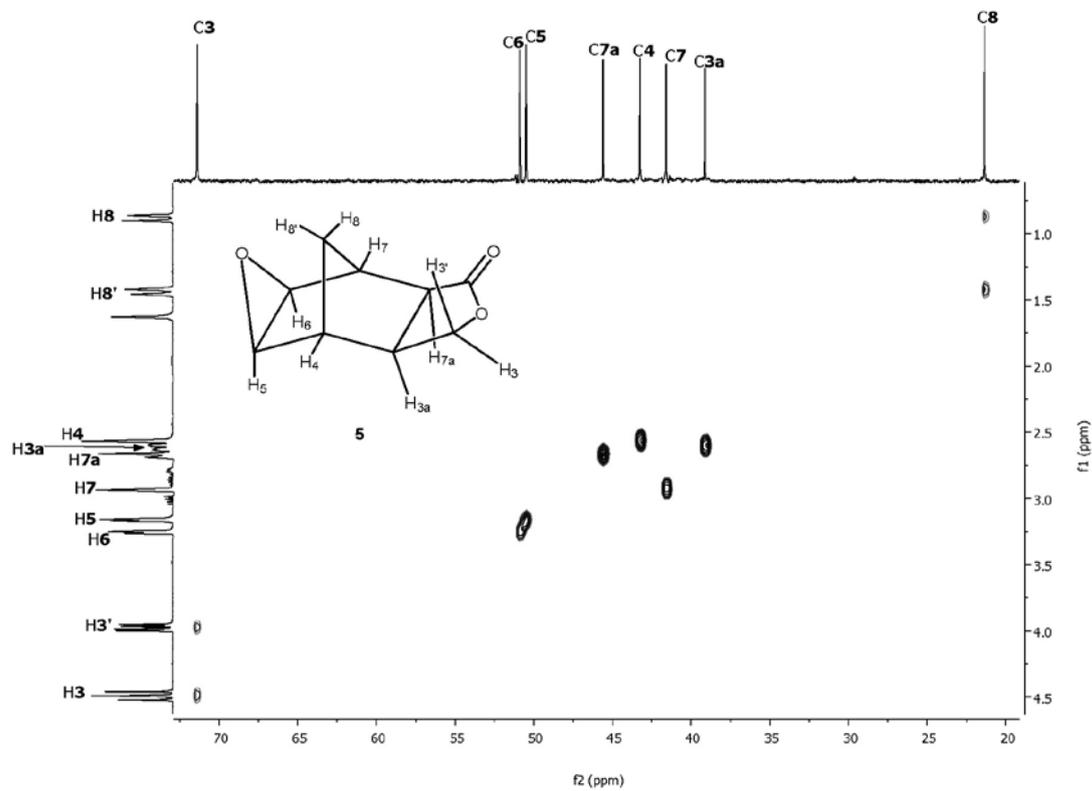


Figure S18. HETCOR spectrum of compound 5.

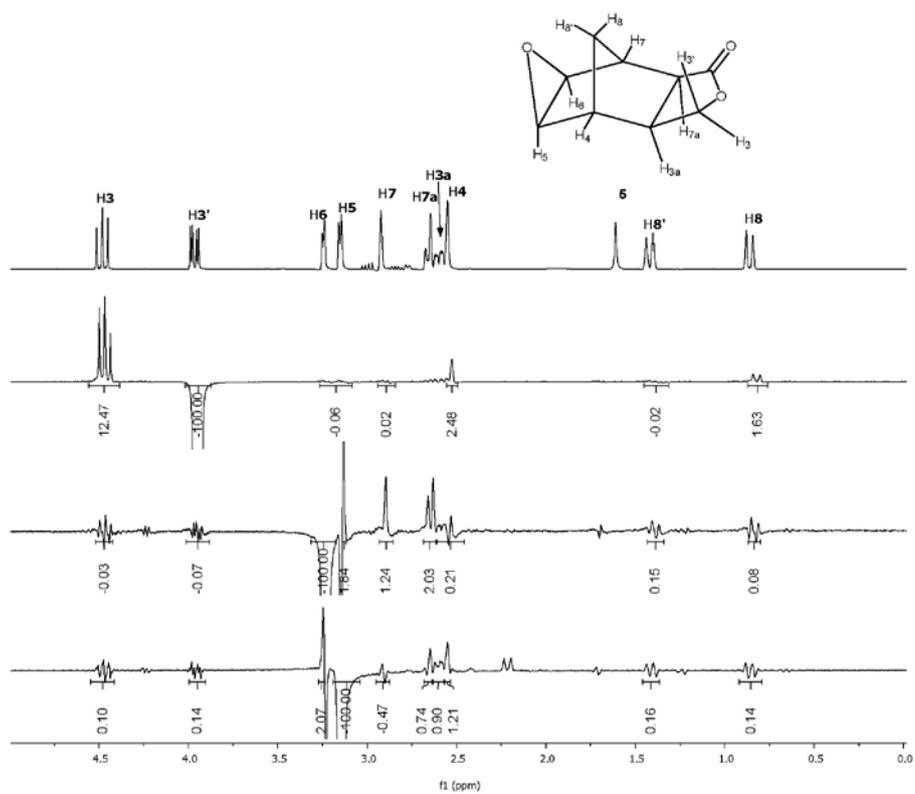


Figure S19. NOEDIFF of compound 5.

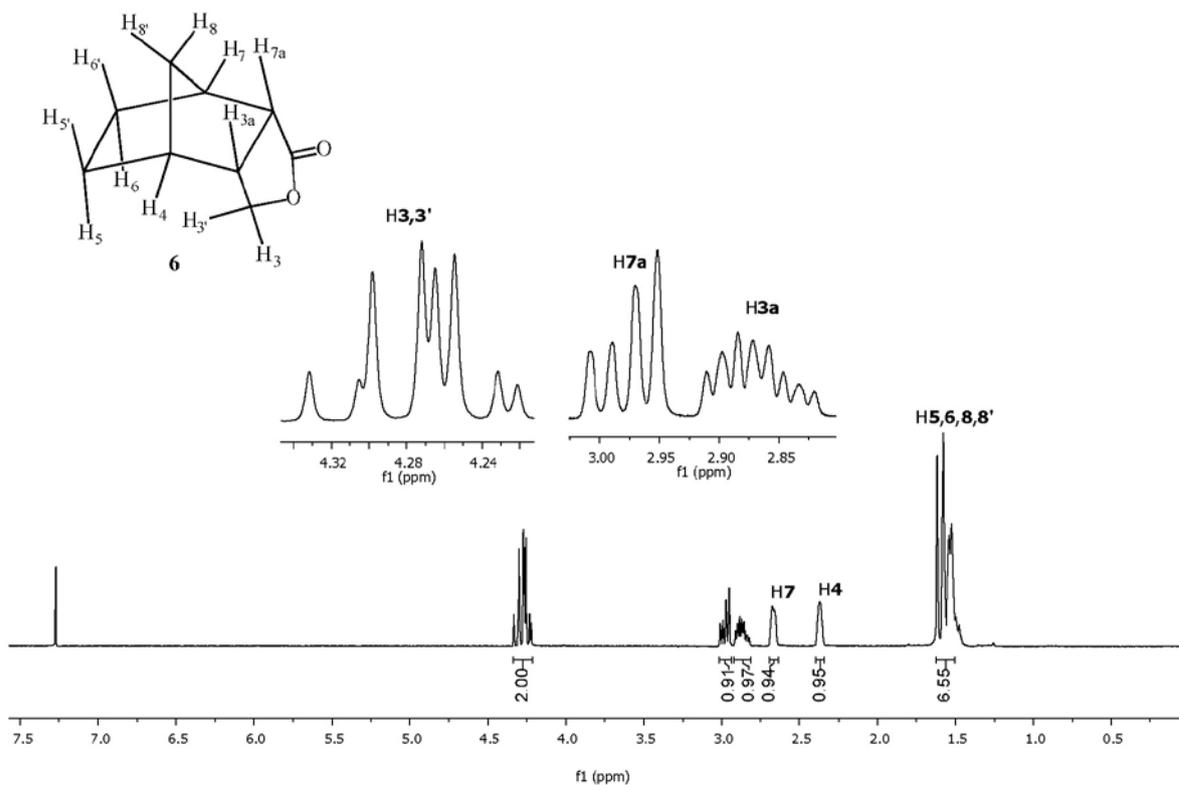


Figure S20.  $^1\text{H}$  NMR spectrum (300 MHz,  $\text{CDCl}_3$ ) of compound **6**.

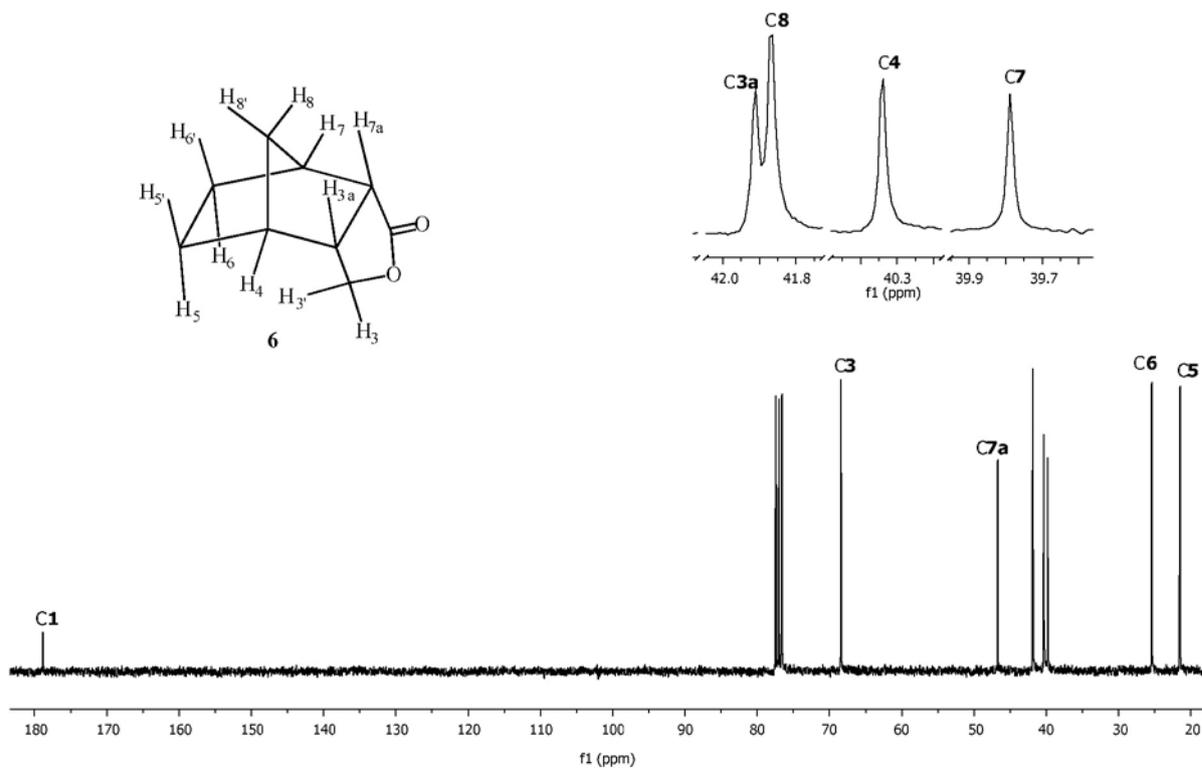


Figure S21.  $^{13}\text{C}$  NMR spectrum (75 MHz,  $\text{CDCl}_3$ ) of compound **6**.

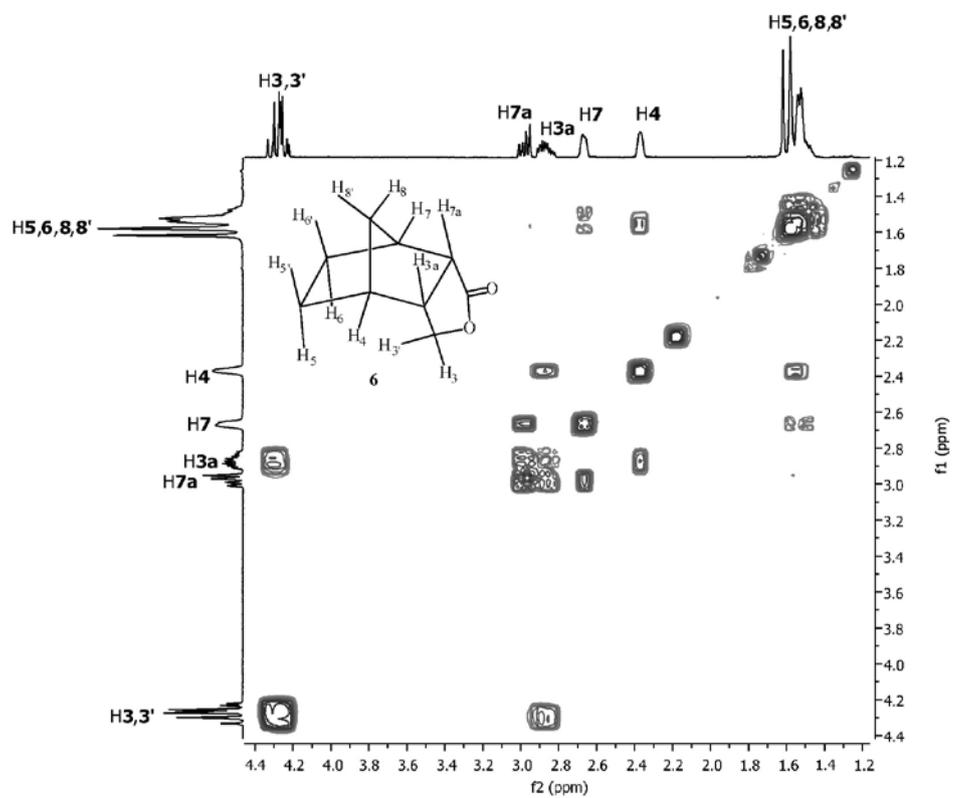


Figure S22. COSY spectrum of compound 6.

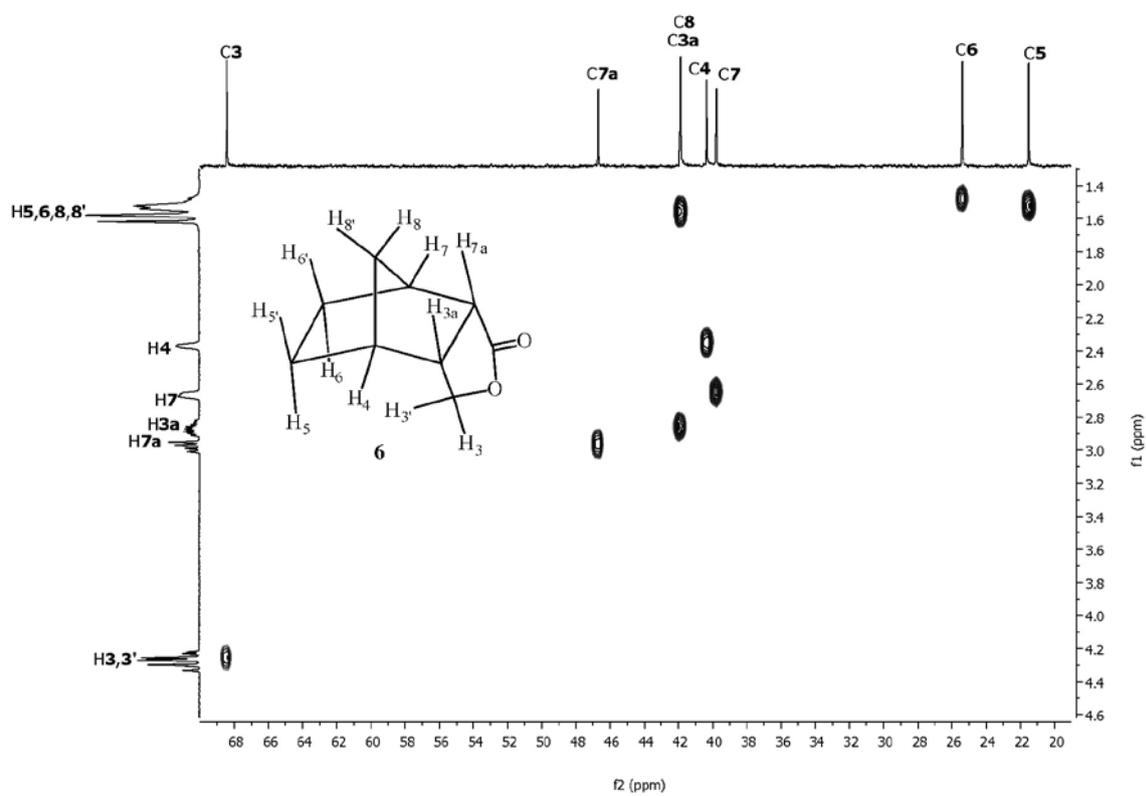


Figure S23. HETCOR spectrum of compound 6.

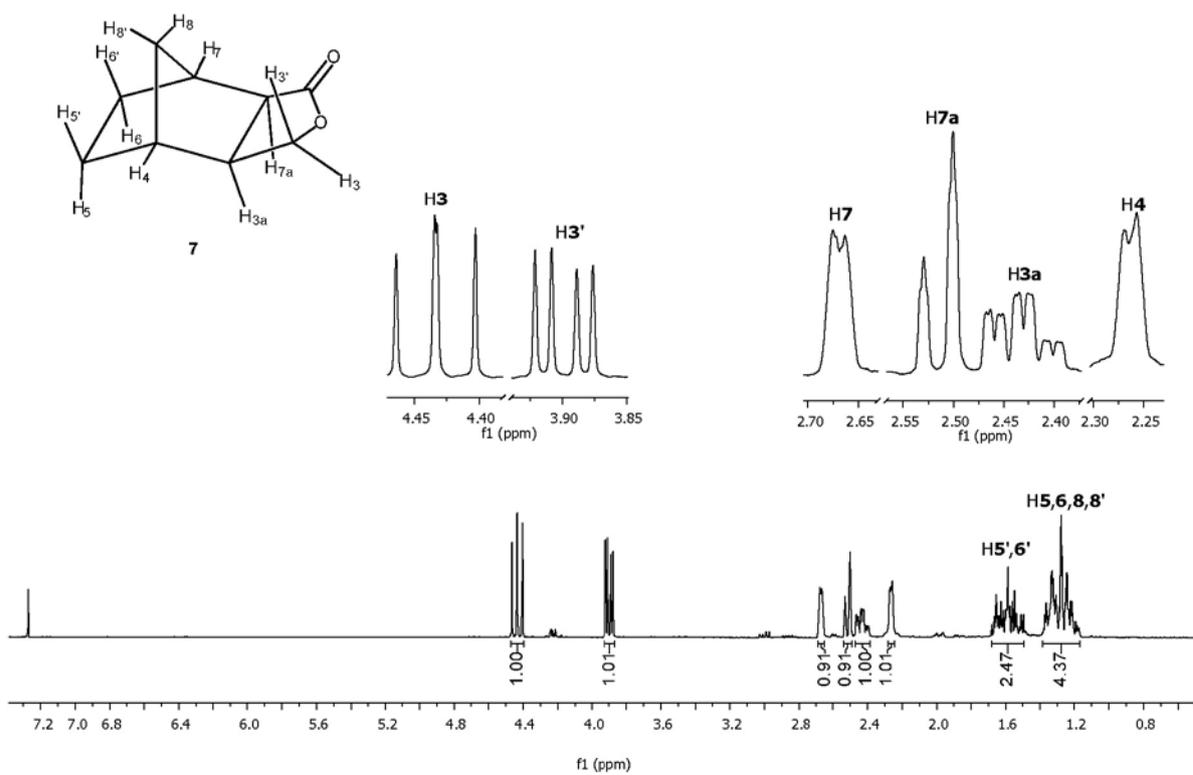


Figure S24.  $^1\text{H}$  NMR spectrum (300 MHz,  $\text{CDCl}_3$ ) of compound 7.

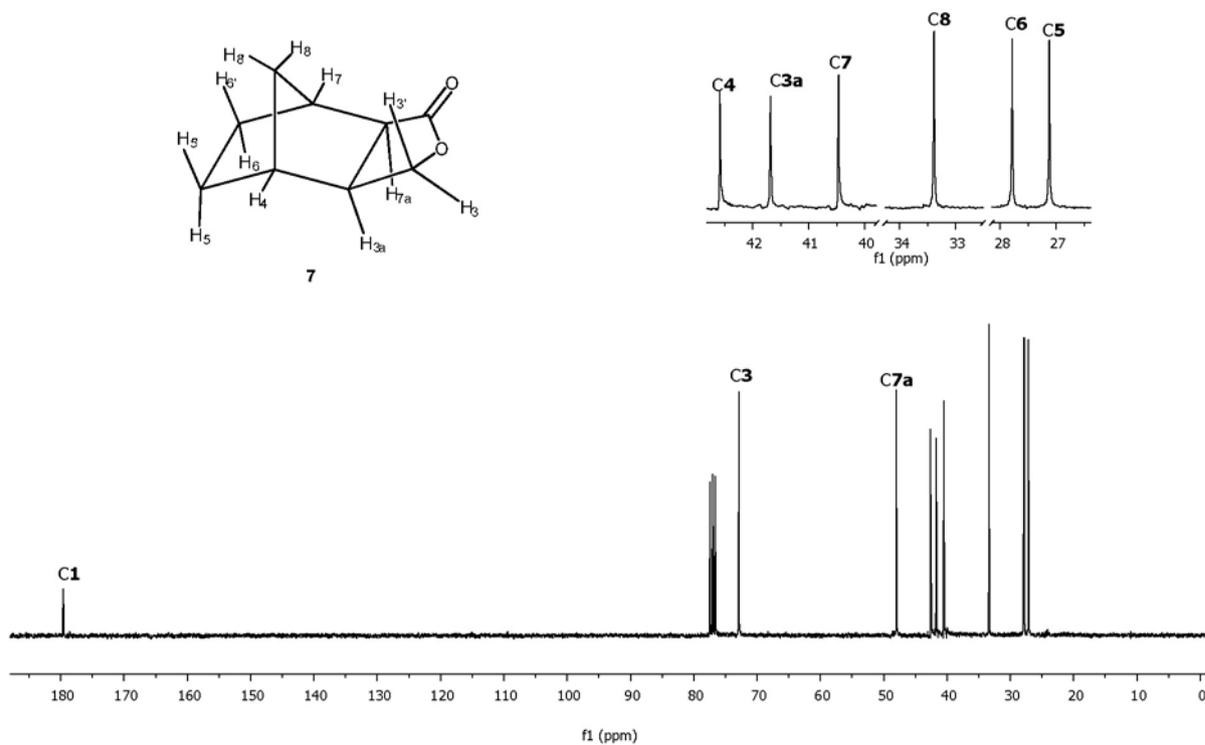


Figure S25.  $^{13}\text{C}$  NMR spectrum (75 MHz,  $\text{CDCl}_3$ ) of compound 7.



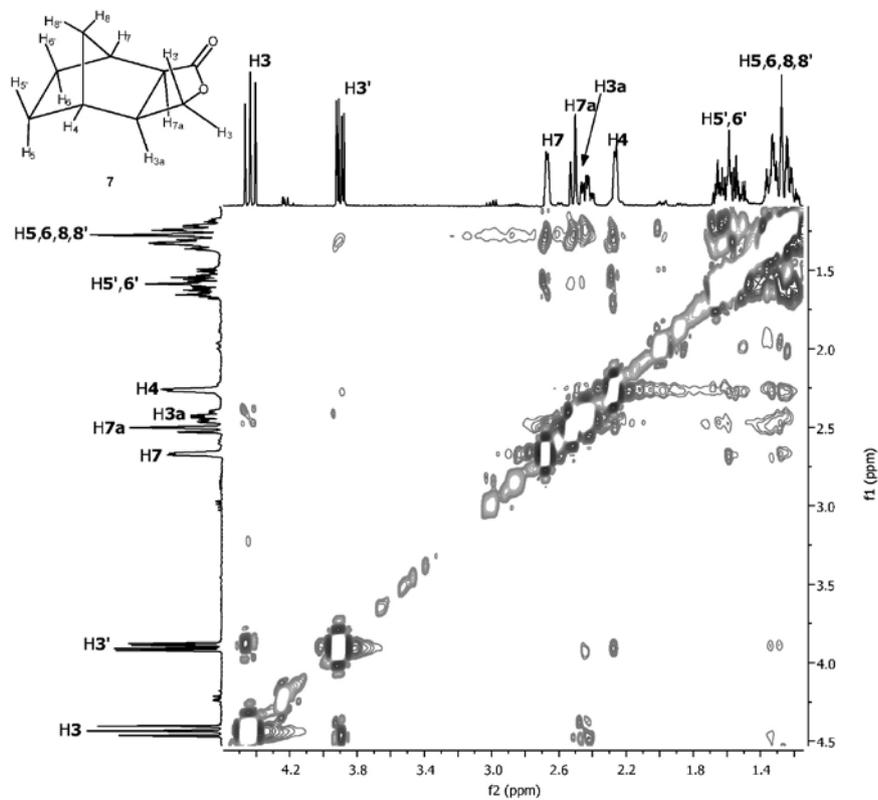
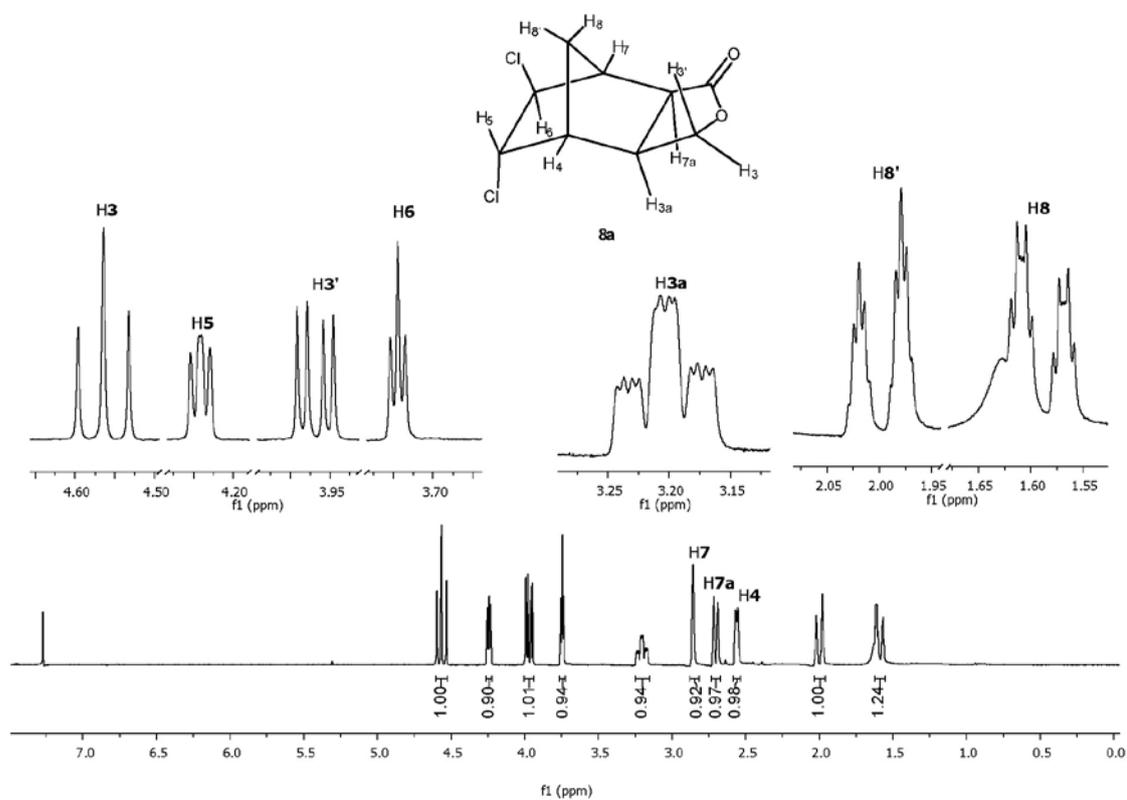


Figure S28. NOESY of compound 7.

Figure S29.  $^1\text{H}$  NMR spectrum (300 MHz,  $\text{CDCl}_3$ ) of compound 8a.

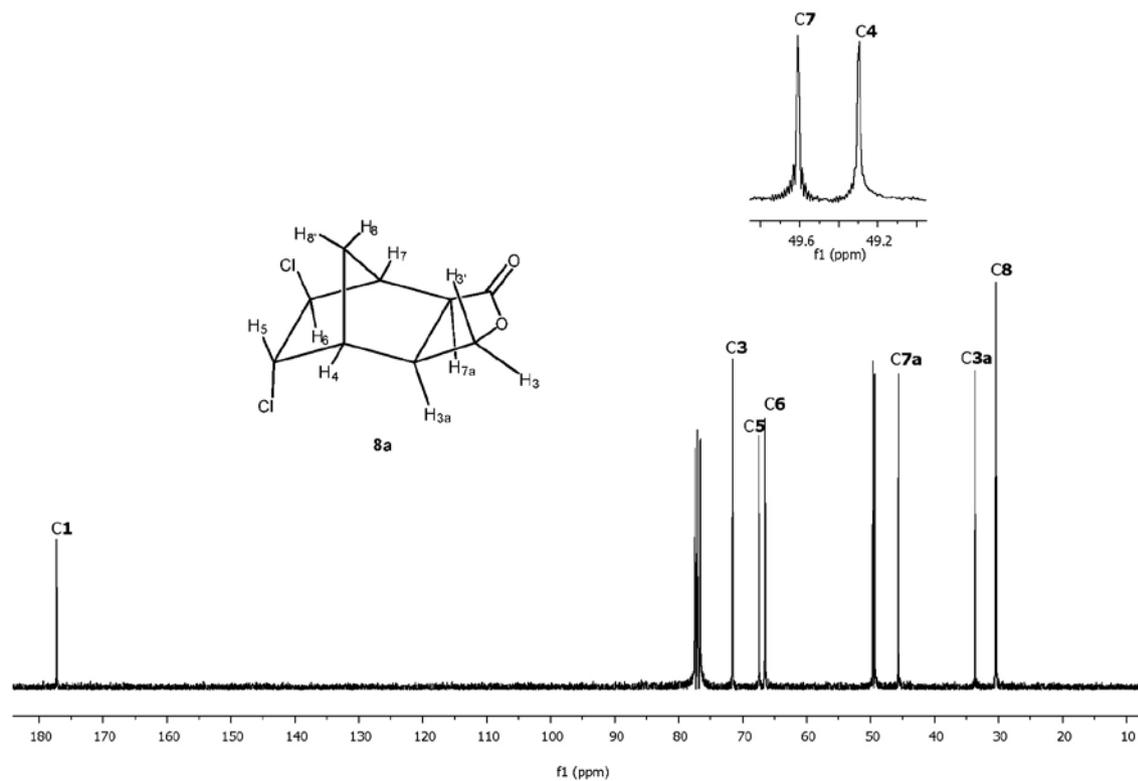


Figure S30.  $^{13}\text{C}$  NMR spectrum (75 MHz,  $\text{CDCl}_3$ ) of compound **8a**.

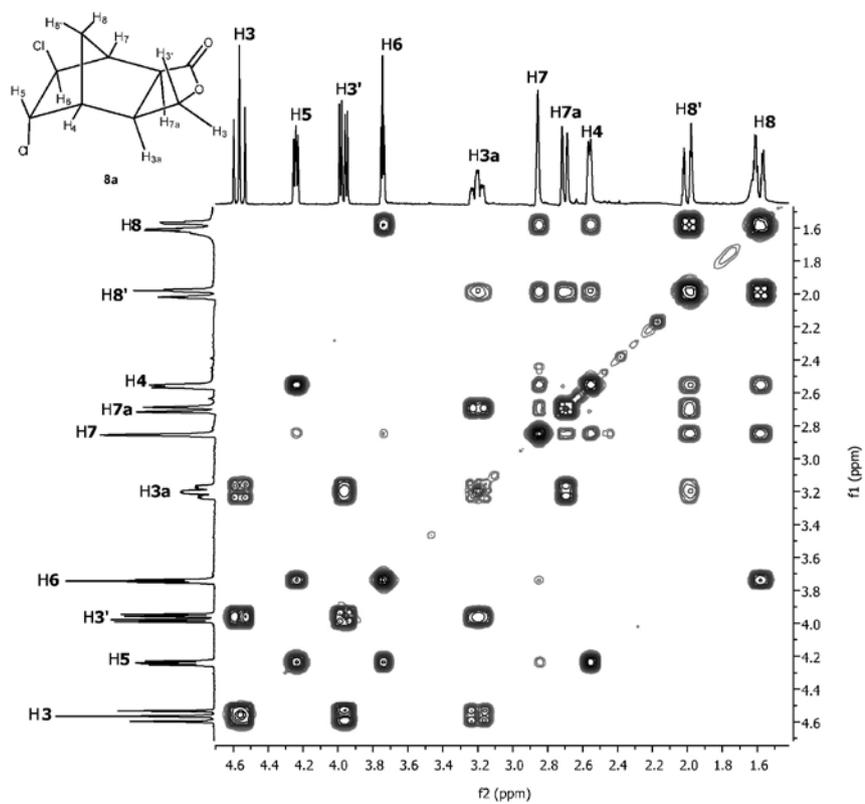


Figure S31. COSY spectrum of compound **8a**.

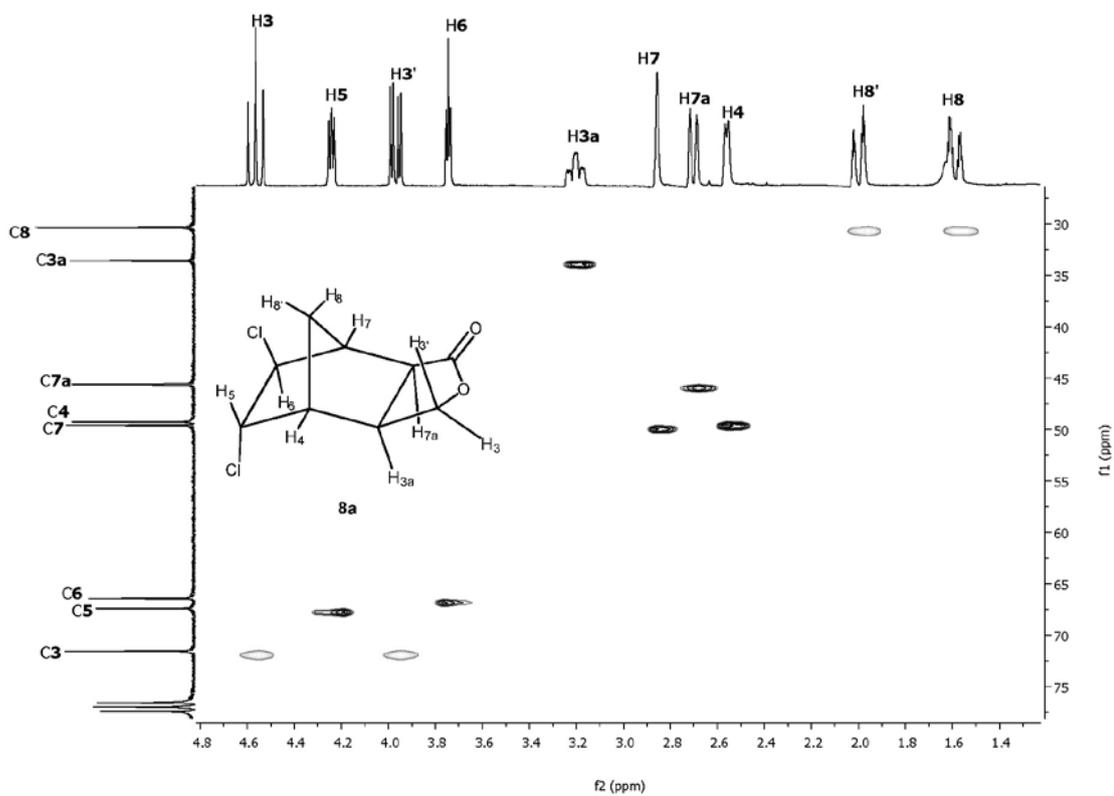


Figure S32. HSQC spectrum of compound 8a.

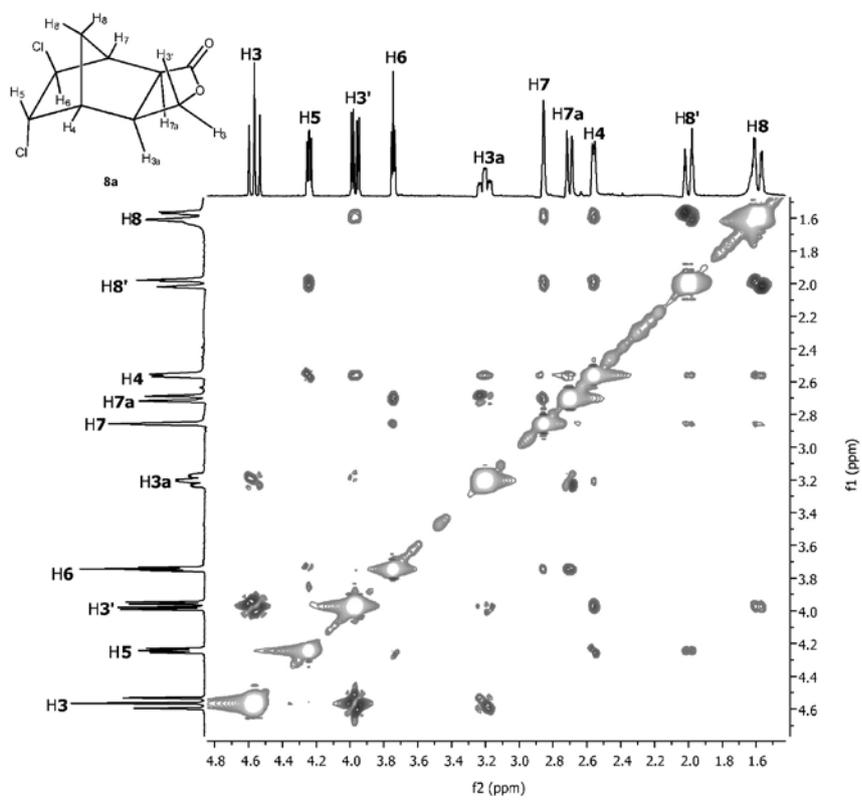


Figure S33. NOESY spectrum of compound 8a.

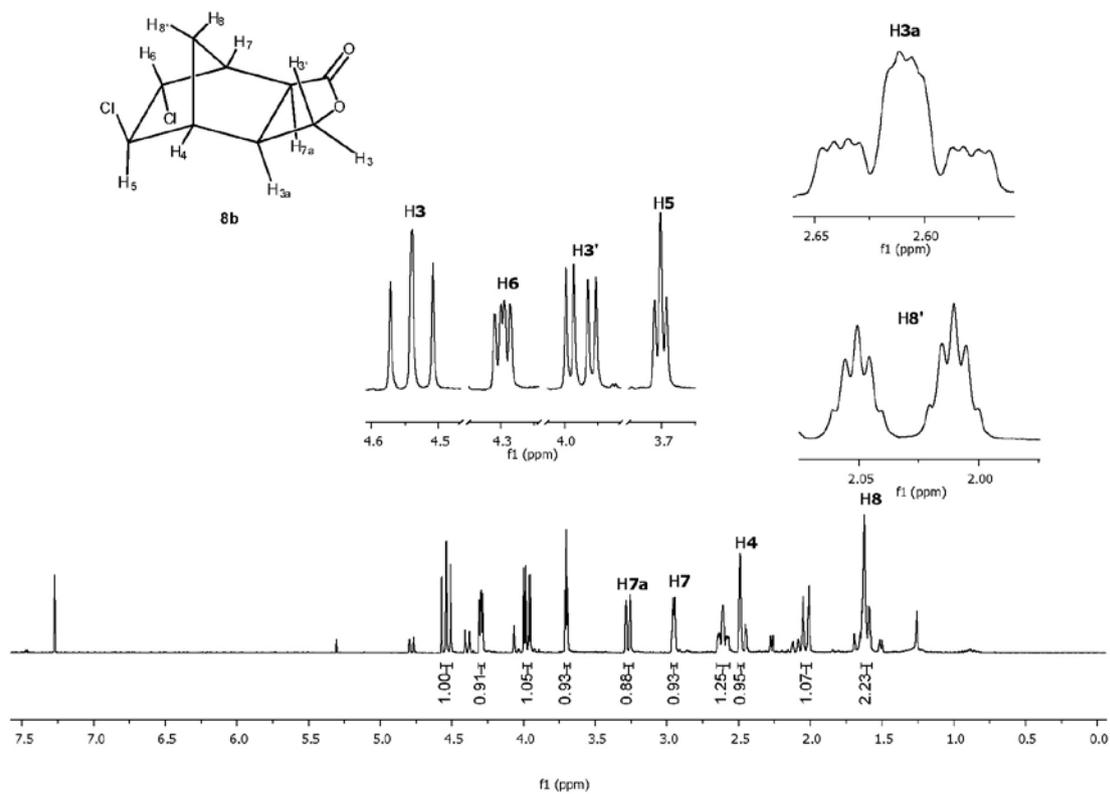


Figure S34.  $^1\text{H}$  NMR spectrum (300 MHz,  $\text{CDCl}_3$ ) of compound **8b**.

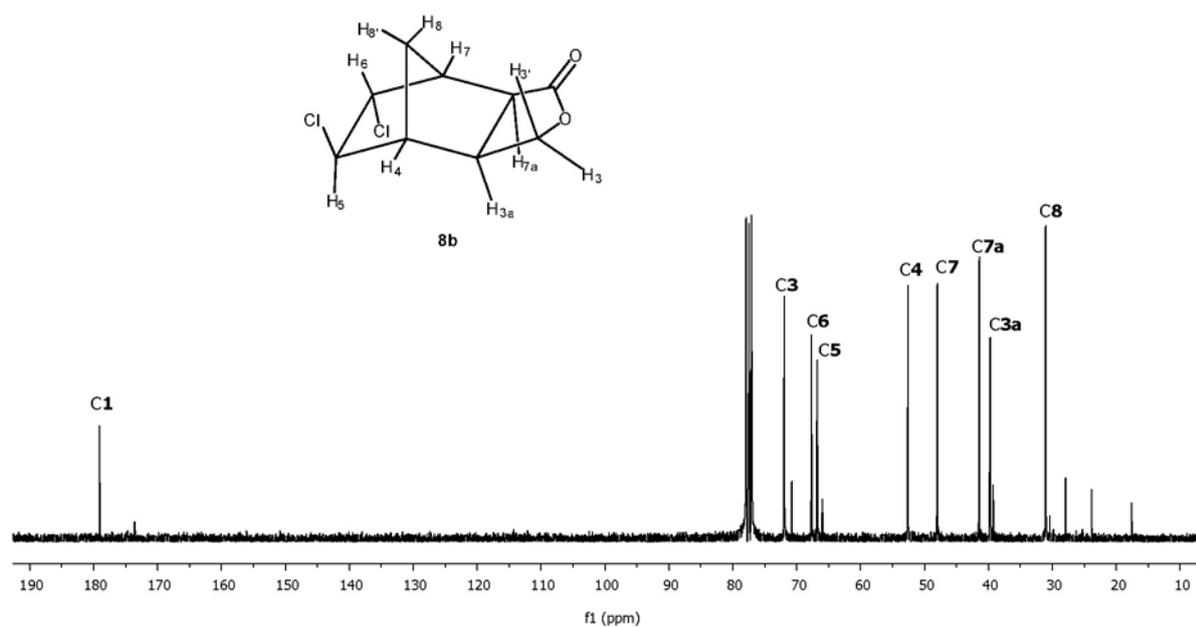


Figure S35.  $^{13}\text{C}$  NMR spectrum (75 MHz,  $\text{CDCl}_3$ ) of compound **8b**.

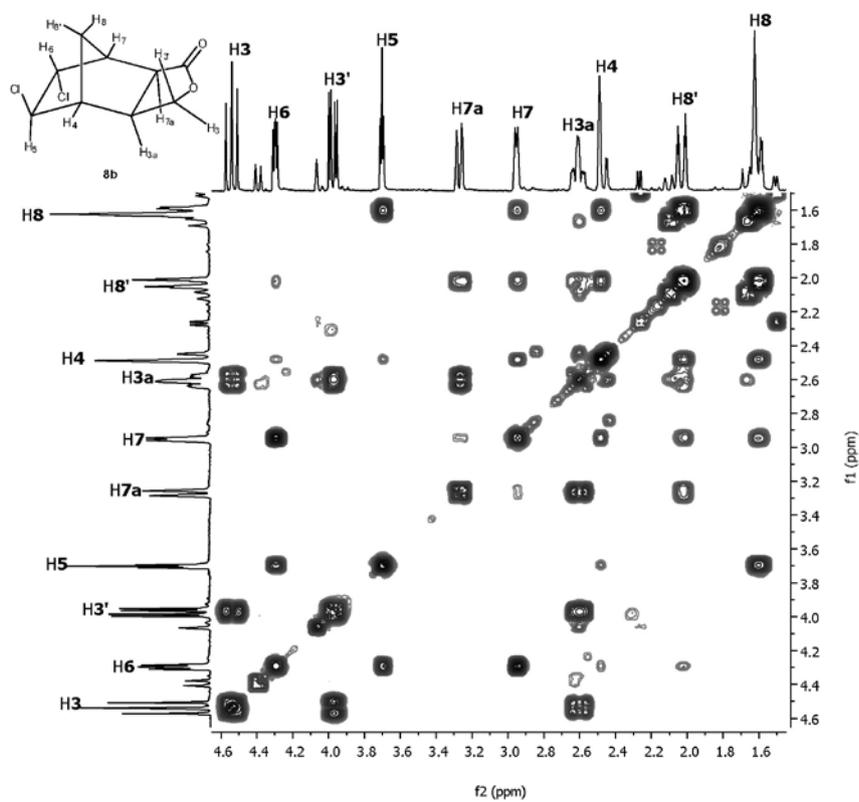


Figure S36. COSY spectrum of compound 8b.

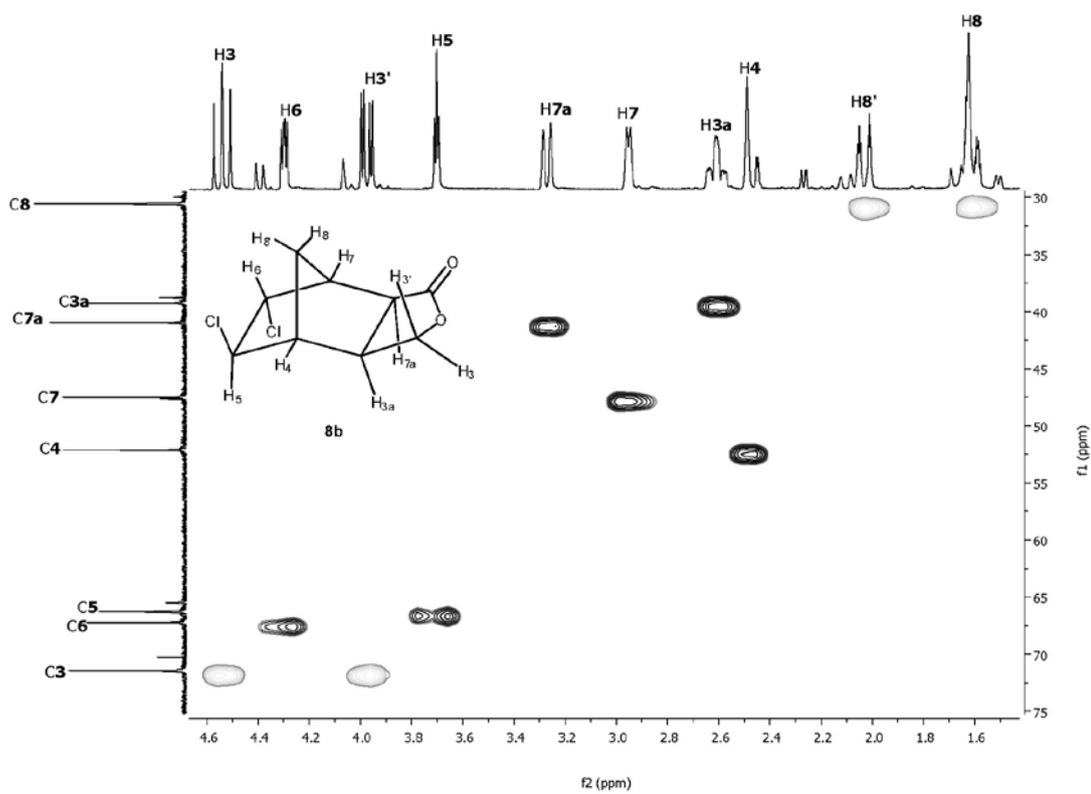


Figure S37. HSQC spectrum of compound 8b.

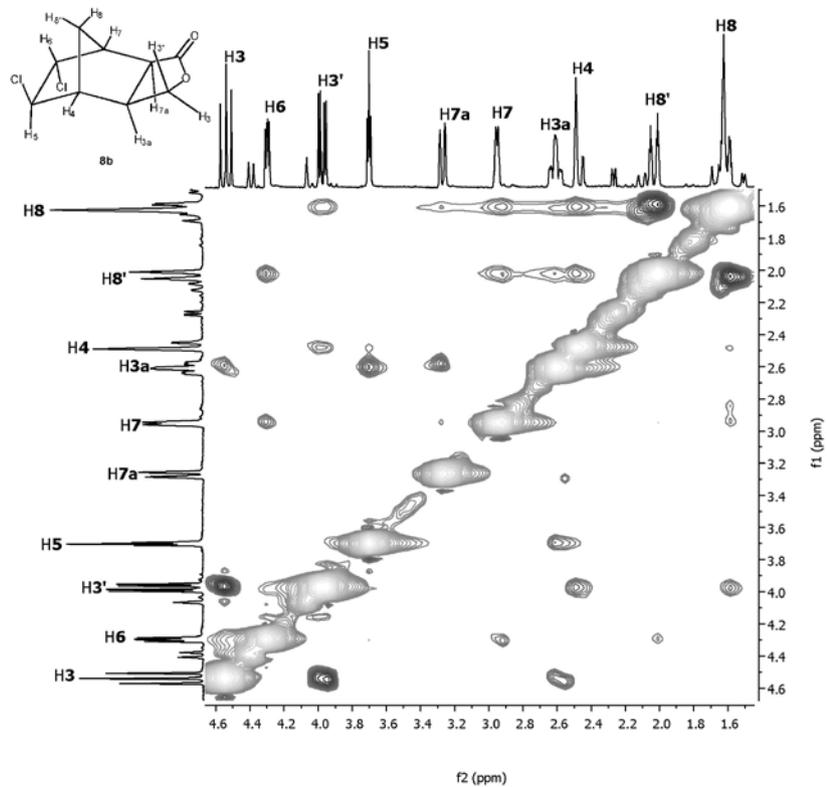


Figure S38. NOESY spectrum of compound 8b.

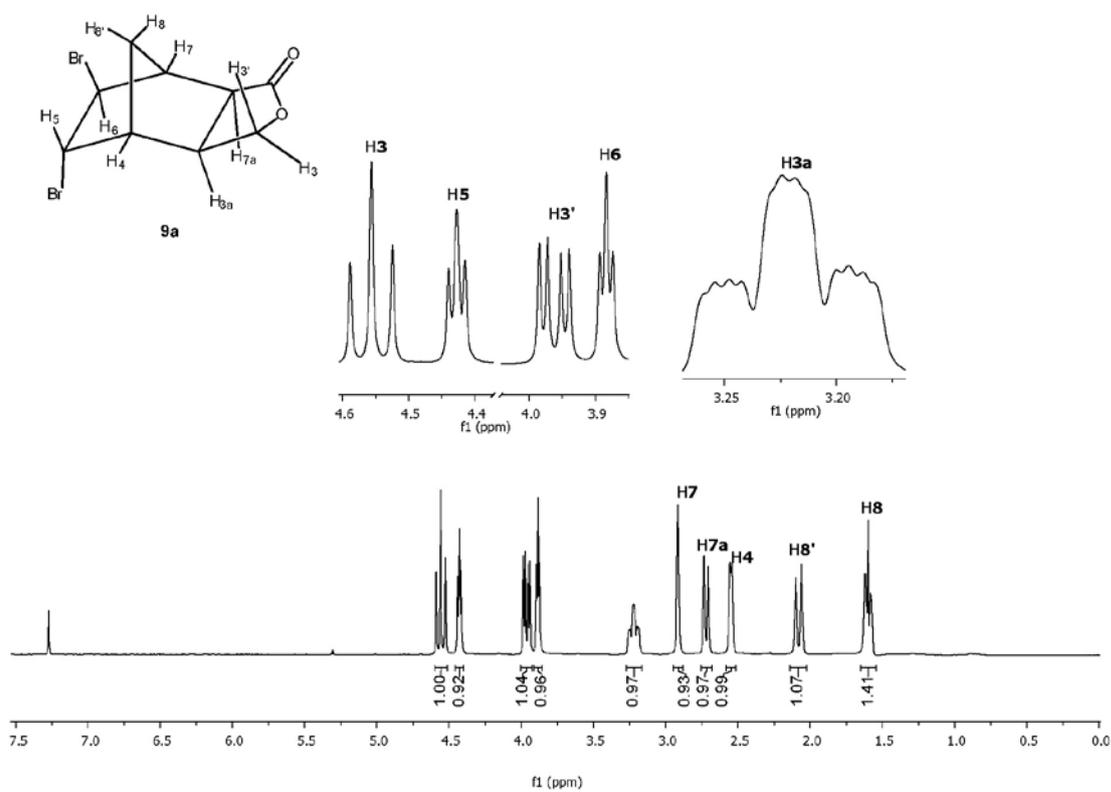


Figure S39. <sup>1</sup>H NMR spectrum (300 MHz, CDCl<sub>3</sub>) of compound 9a.

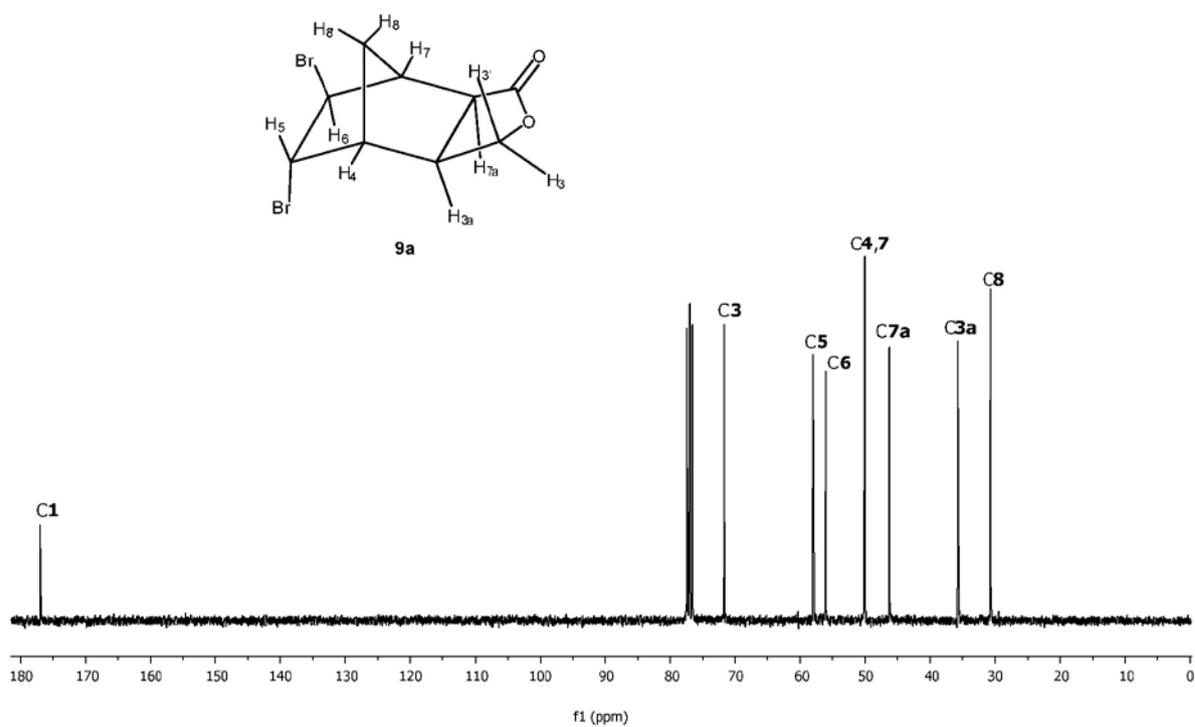


Figure S40. <sup>13</sup>C NMR spectrum (75 MHz, CDCl<sub>3</sub>) of compound **9a**.

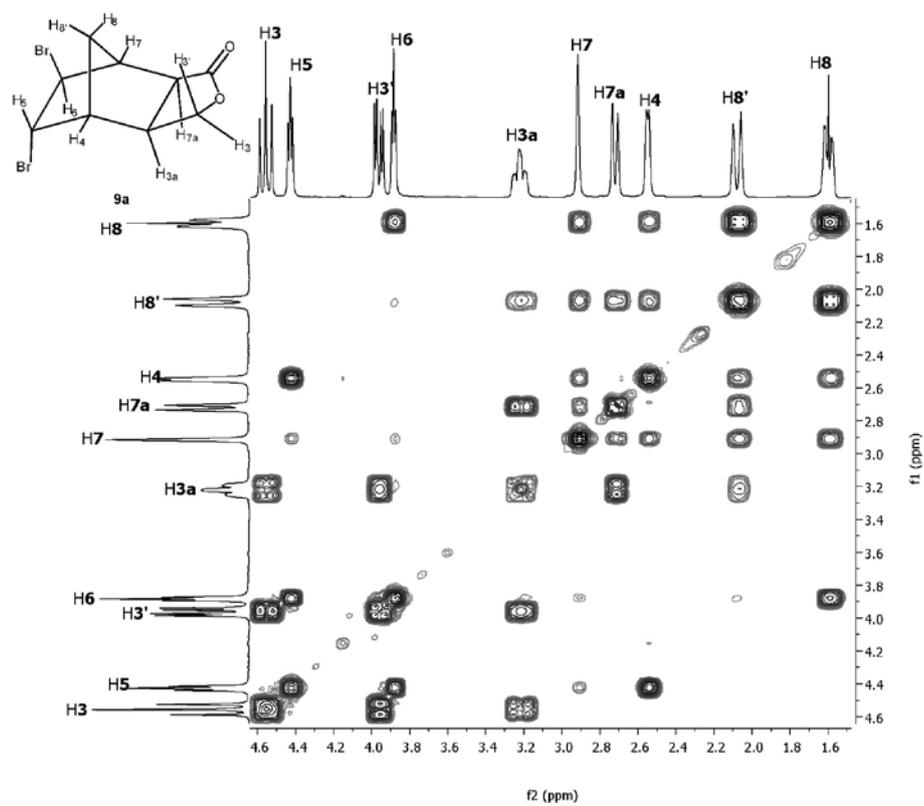


Figure S41. COSY spectrum of compound **9a**.

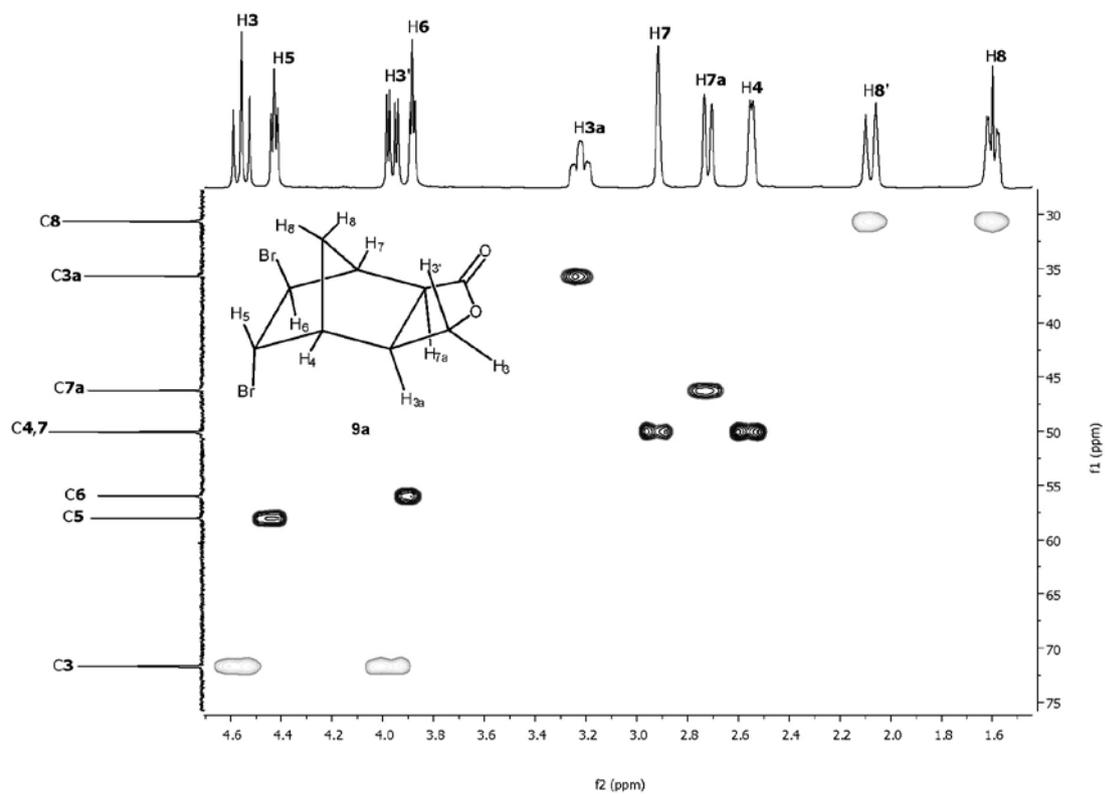


Figure S42. HSQC spectrum of compound 9a.

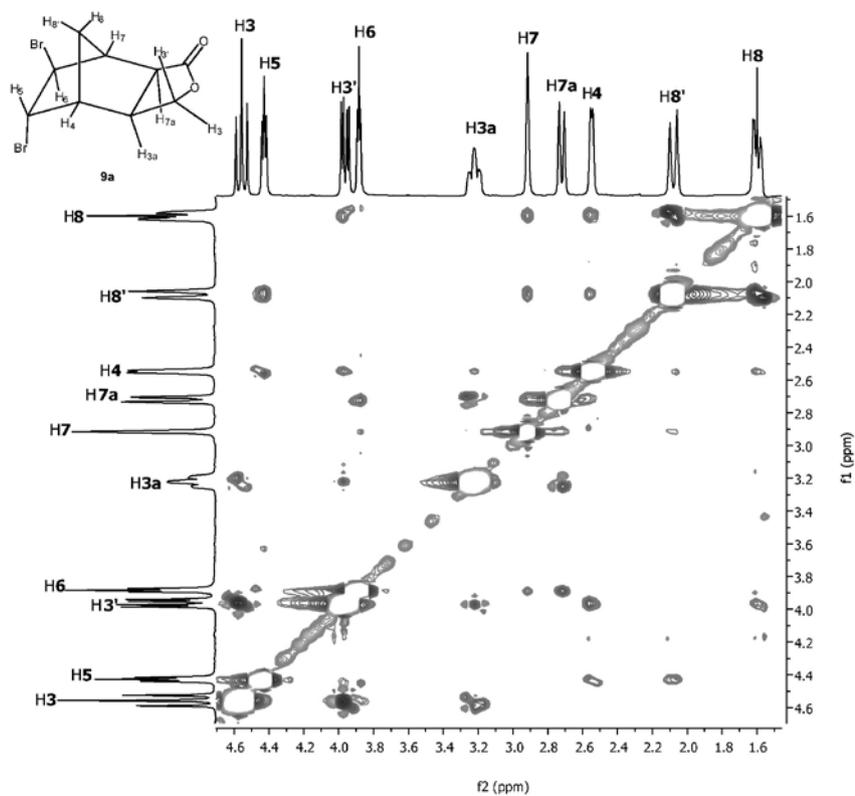
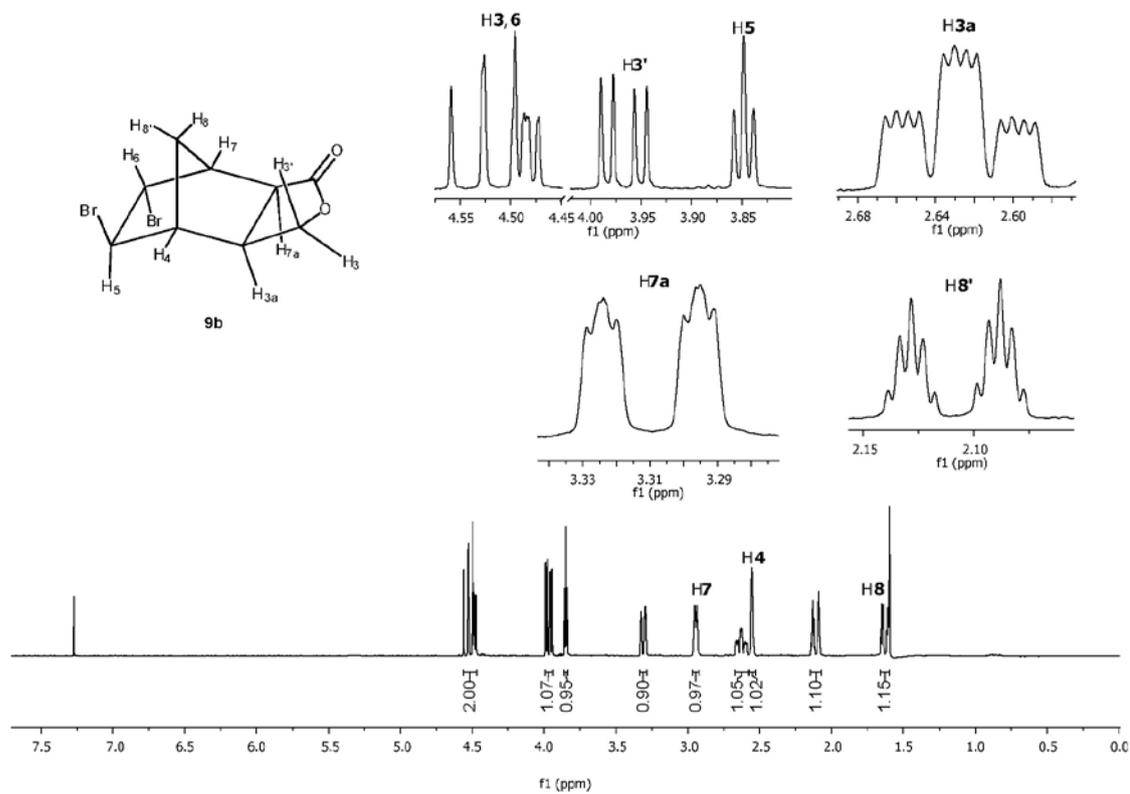
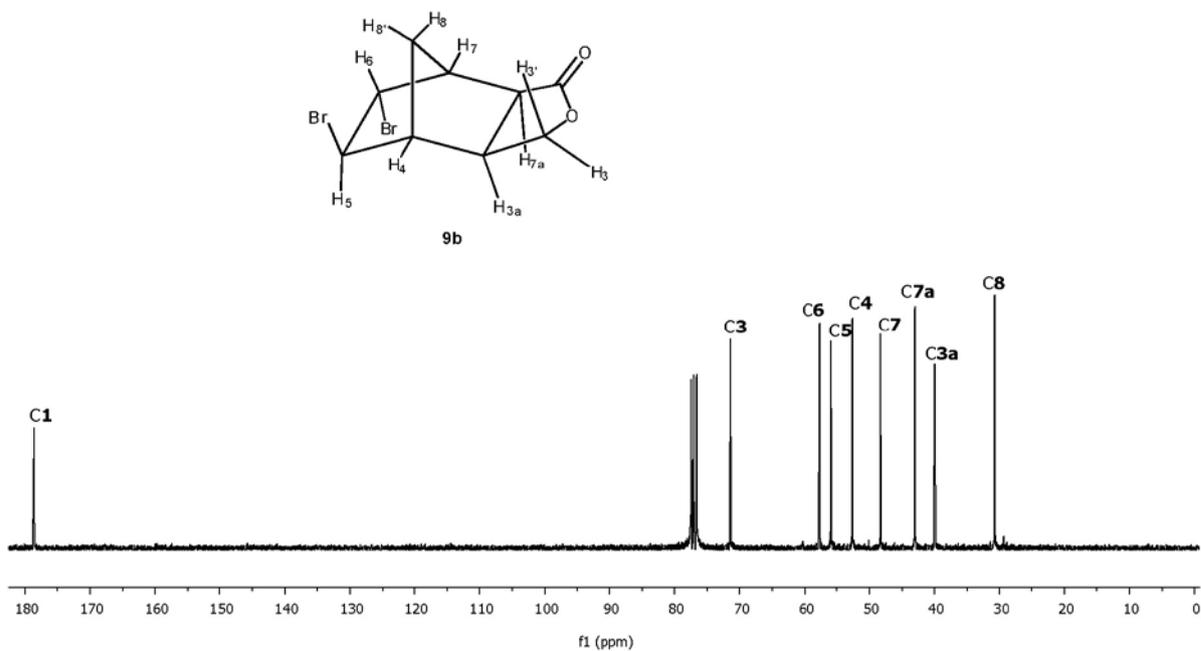


Figure S43. NOESY spectrum of compound 9a.



**Figure S44.**  $^1\text{H}$  NMR spectrum (300 MHz,  $\text{CDCl}_3$ ) of compound **9b**.



**Figure S45.**  $^{13}\text{C}$  NMR spectrum (75 MHz,  $\text{CDCl}_3$ ) of compound **9b**.

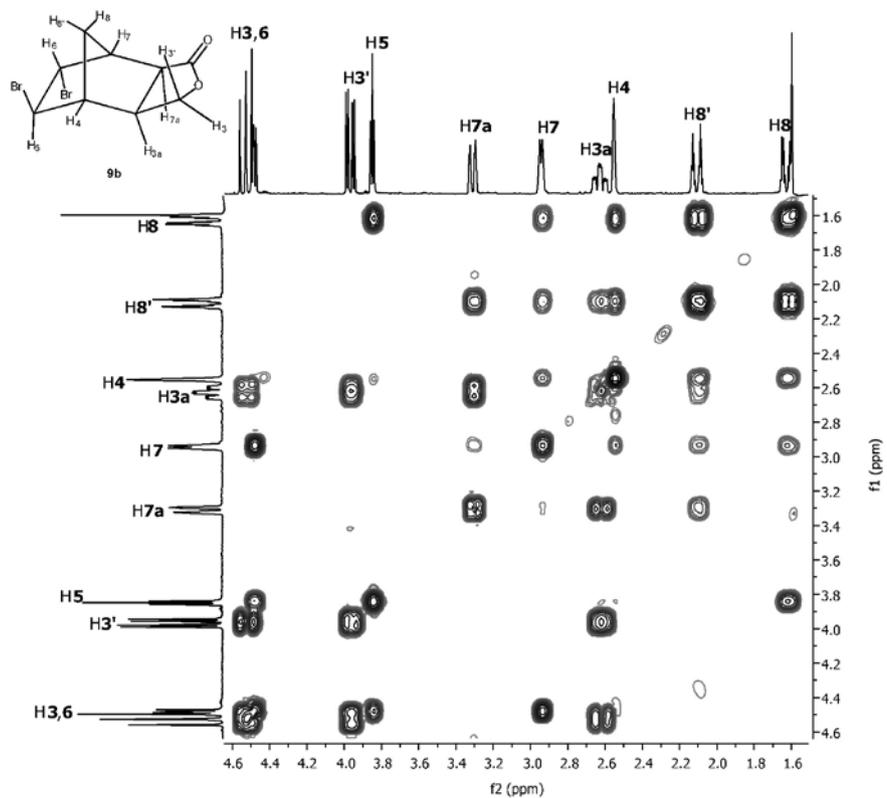


Figure S46. COSY spectrum of compound 9b.

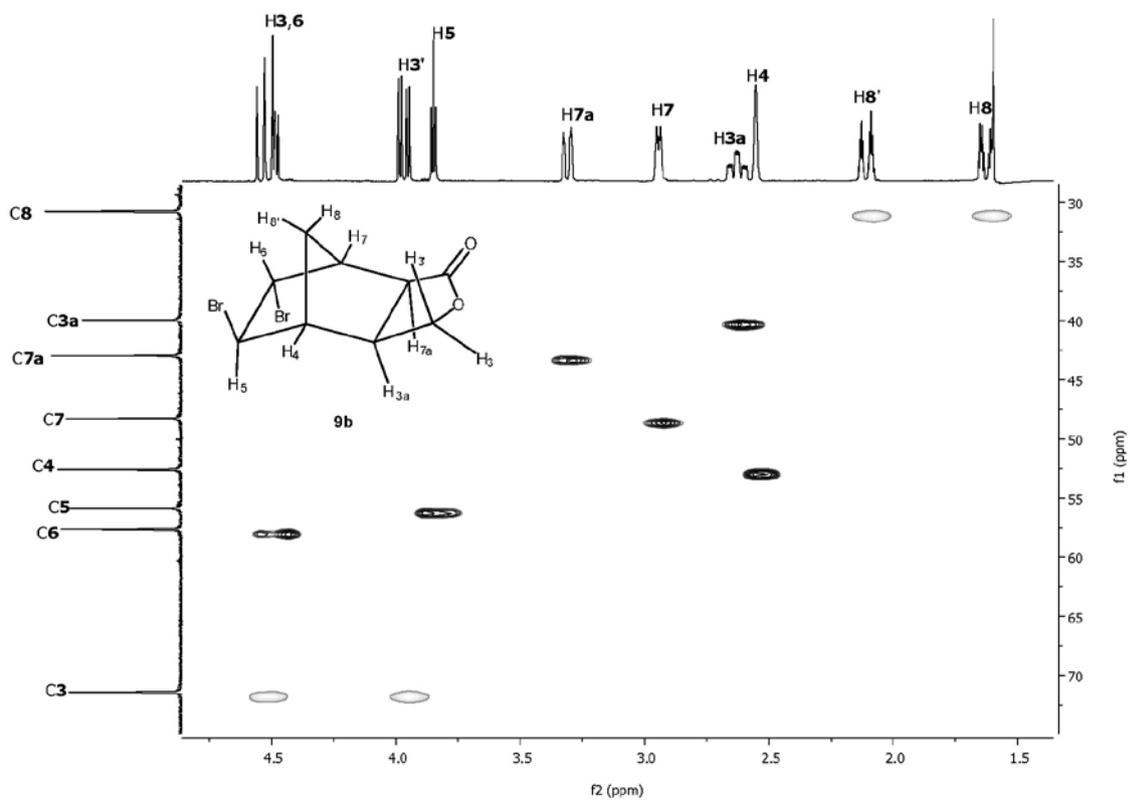
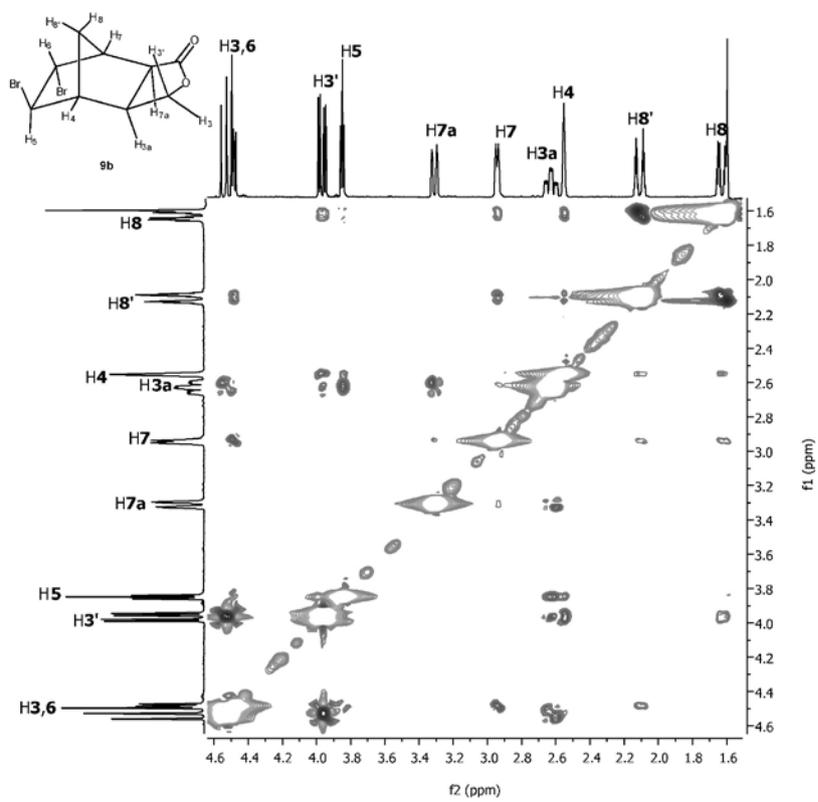


Figure S47. HSQC spectrum of compound 9b.



**Figure S48.** NOESY spectrum of compound **9b**.