Supporting Information

Chromatographic purification of 3en, 3ex.

The crude reaction mixture extract (1.4 g) was purified using flash liquid chromatography on a Teledyne CombiFlash Rf system equipped with a 2x24 g normal-phase RediSep Rf Gold silica column. The elution was done with an ACS grade hexanes/ethyl acetate mixture. The sample was dry packed using a minimal amount of Fisher 230-400 mesh normal-phase silica gel. The separation was done using the following parameters. Flow Rate –35 ml/min; Equilibration Volume –5.0 CV (Column Volume); Run length –20 CV; Fraction volume –7 mL; UV wavelength –254 nm & 280 nm. Gradient: 25% ethyl acetate over 2 CV; 25% – 33% over 4 CV; 33% – 66% ethyl acetate over 4 CV; 66% ethyl acetate over 4 CV; 100% ethyl acetate over 8 CV. Diastereomer ***3ex*** was eluted first in fractions 6-10 (480 mg) followed by ***3en*** fractions. 12-17 (900 mg).

Chromatographic purification of 4en, 4ex.

The crude reaction mixture extract (1.1 g) was purified using flash liquid chromatography on a Teledyne CombiFlash Rf system equipped with a 2x24 g normal-phase RediSep Rf Gold silica column. The elution was done with an ACS grade hexanes/ethyl acetate mixture. The sample was dry packed using a minimal amount of Fisher 230-400 mesh normal-phase silica gel. The separation was done using the following parameters: Flow Rate –35 ml/min; Equilibration Volume –5.0 CV (Column Volume); Run length –15 CV; Fraction volume –7 mL; UV wavelength –254 nm & 280 nm. Gradient: 33% ethyl acetate – 33 % over 2 CV; 33% – 42% ethyl acetate over 4 CV; 42% – 45% ethyl acetate over 3 CV; 100% ethyl acetate over 6 CV. Diastereomer ***4ex*** was eluted first in fractions 8-14 (78 mg) followed by ***4en*** fractions. 15-21 (1000 mg).

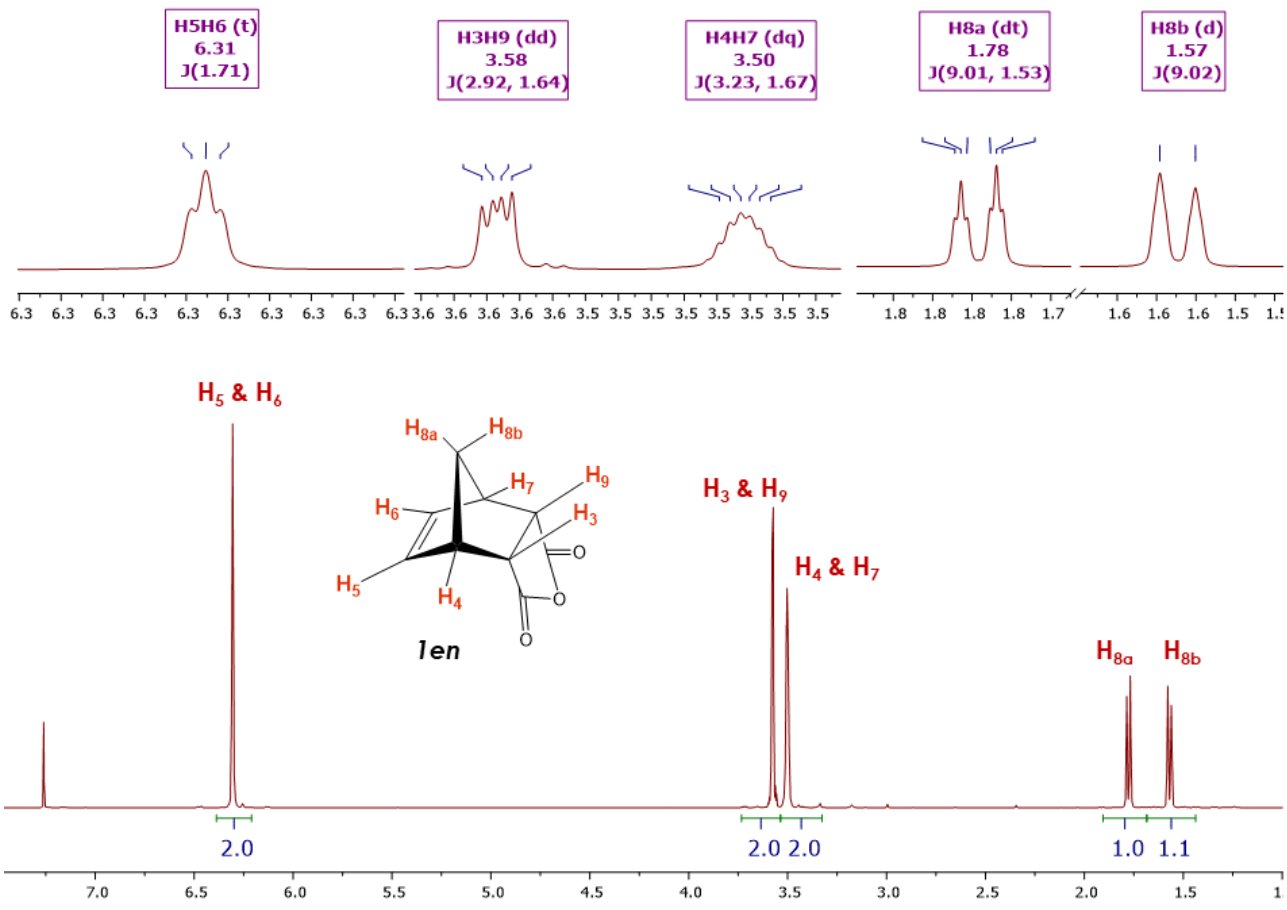

Figure S.1. ^{1}H NMR of ***1en***

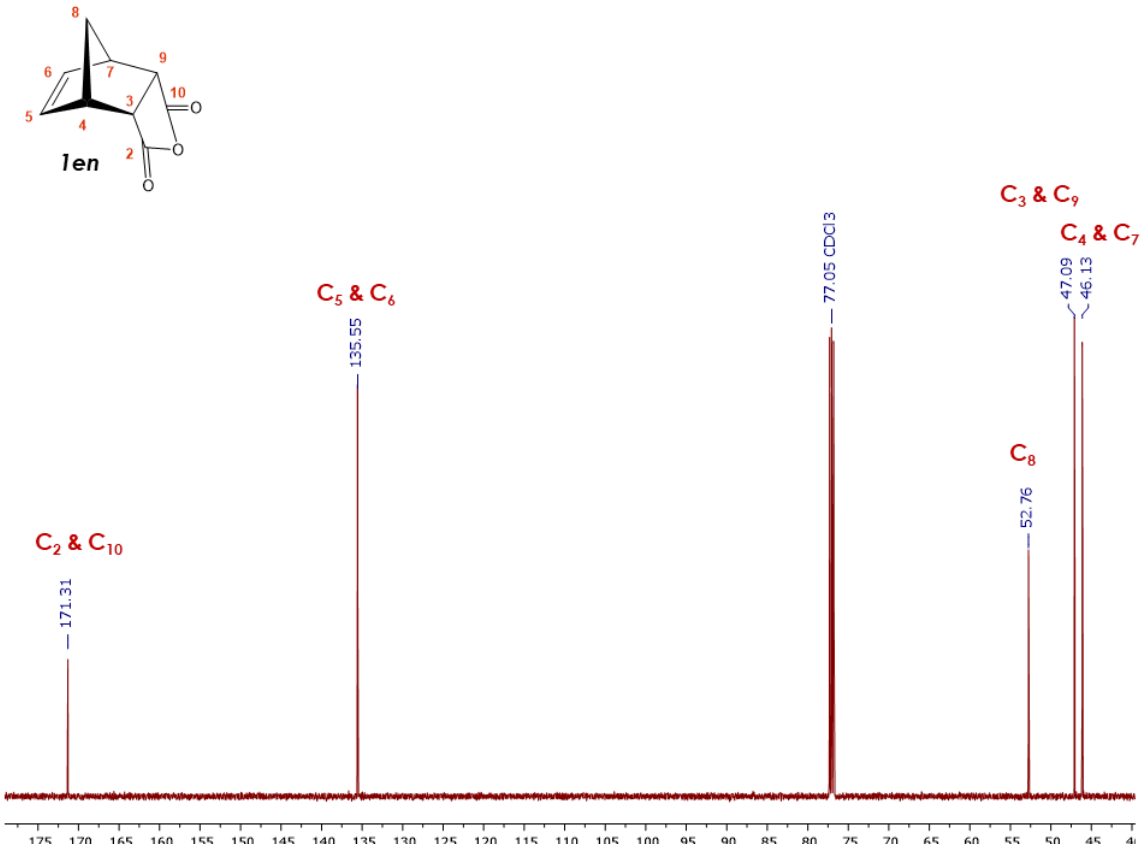

Figure S.2. ^{13}C NMR of ***1en***

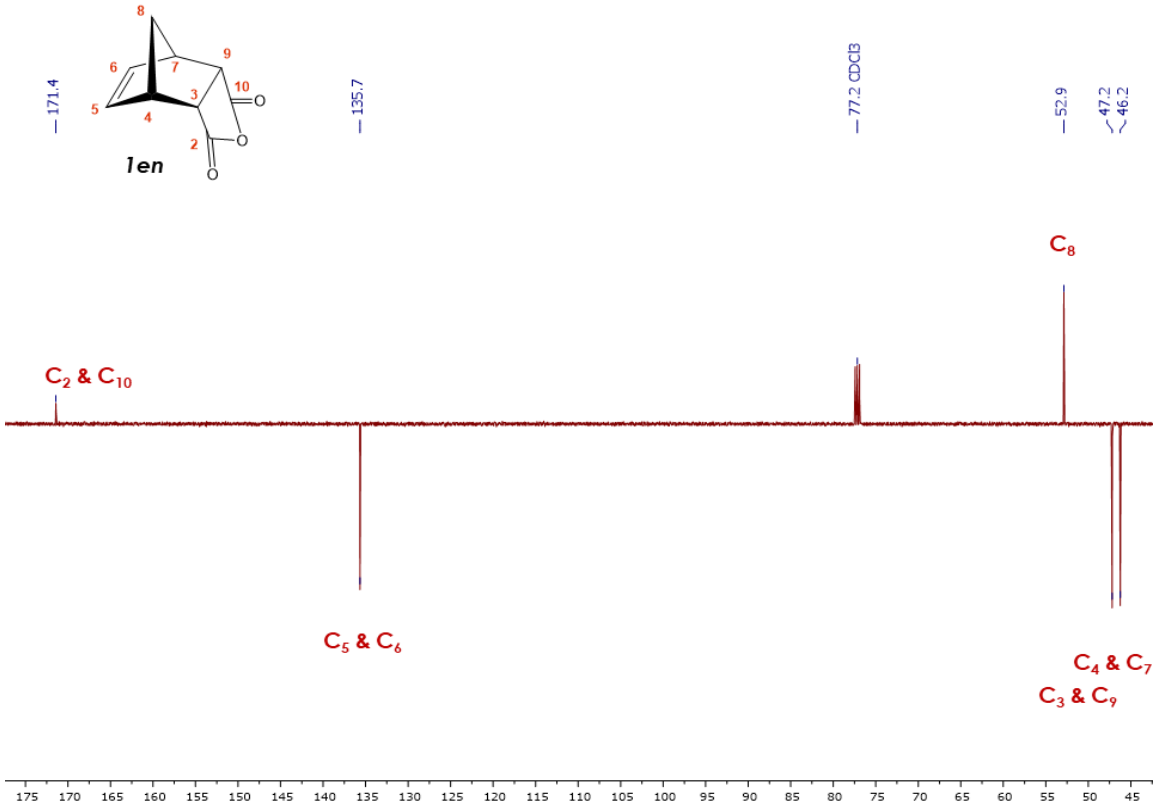

Figure S.3. APT of ***1en***

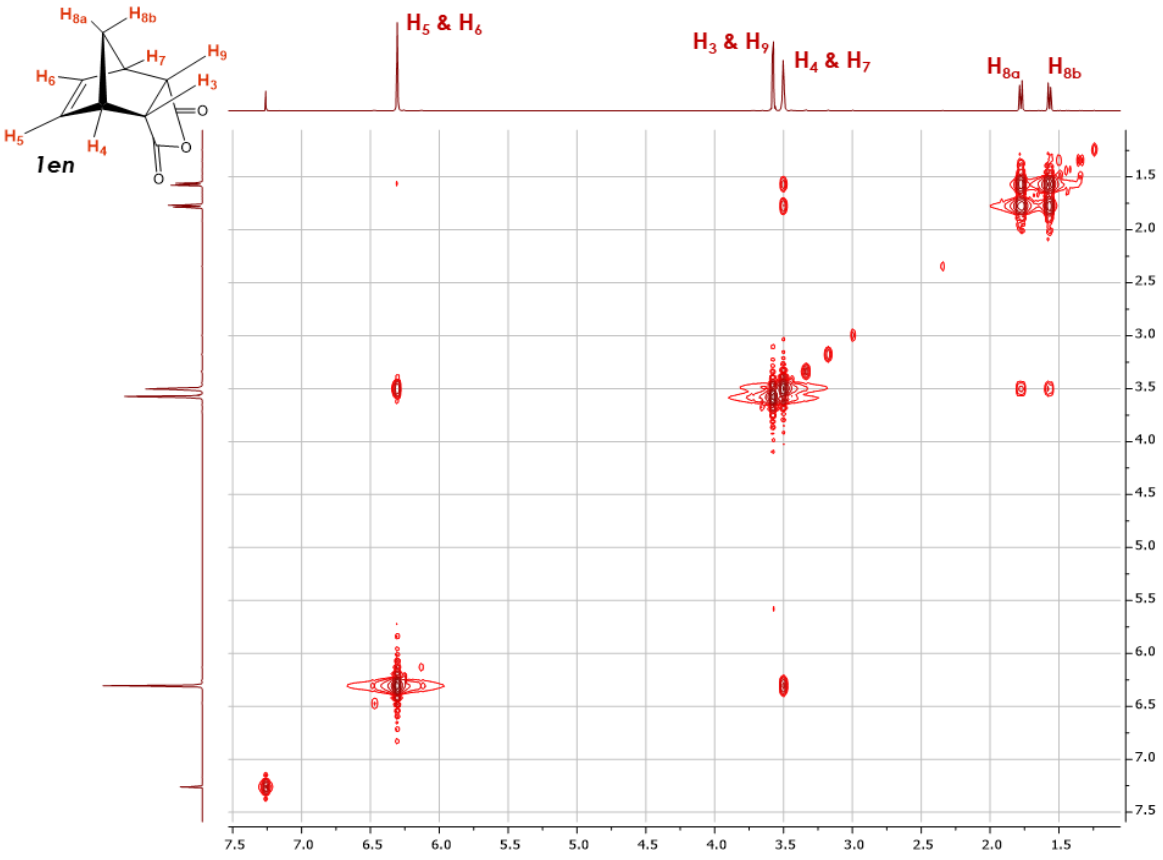

Figure S.4. COSY of ***1en***

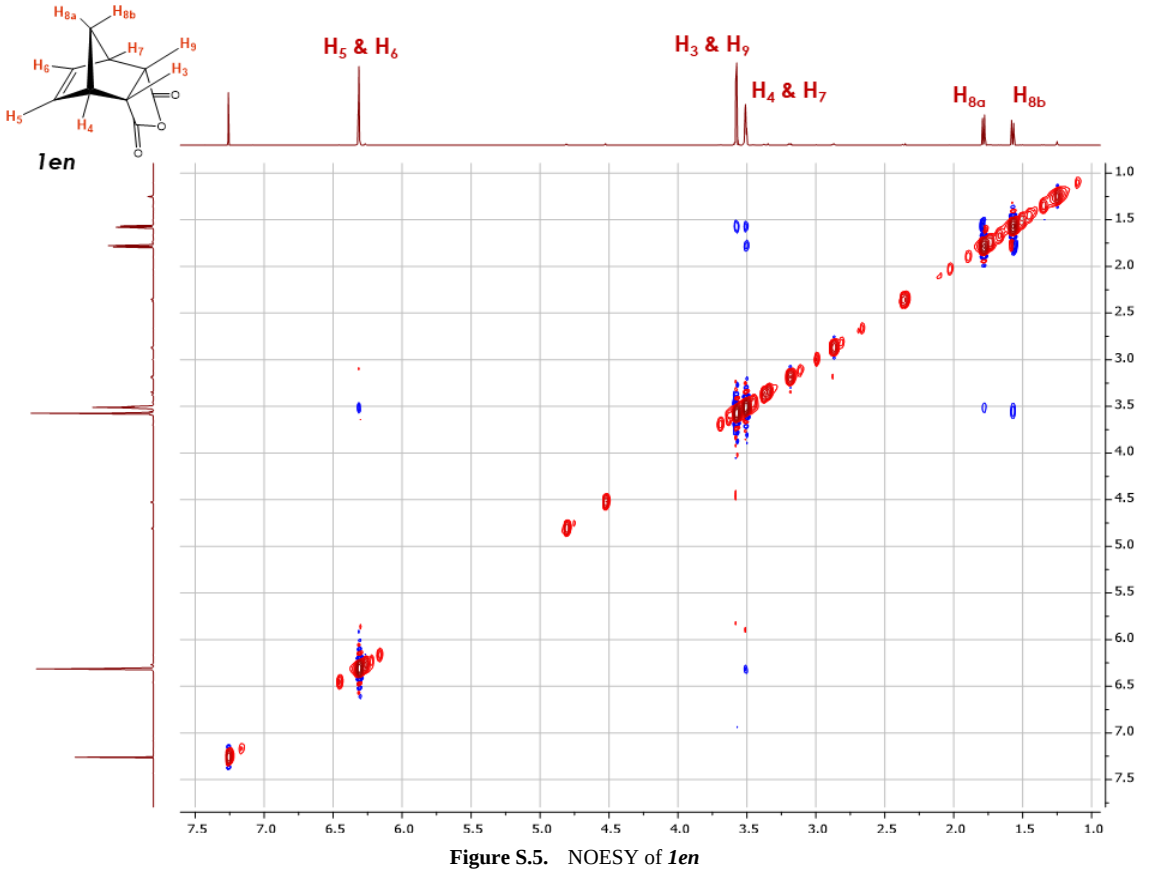

Figure S.5. NOESY of ***1en***

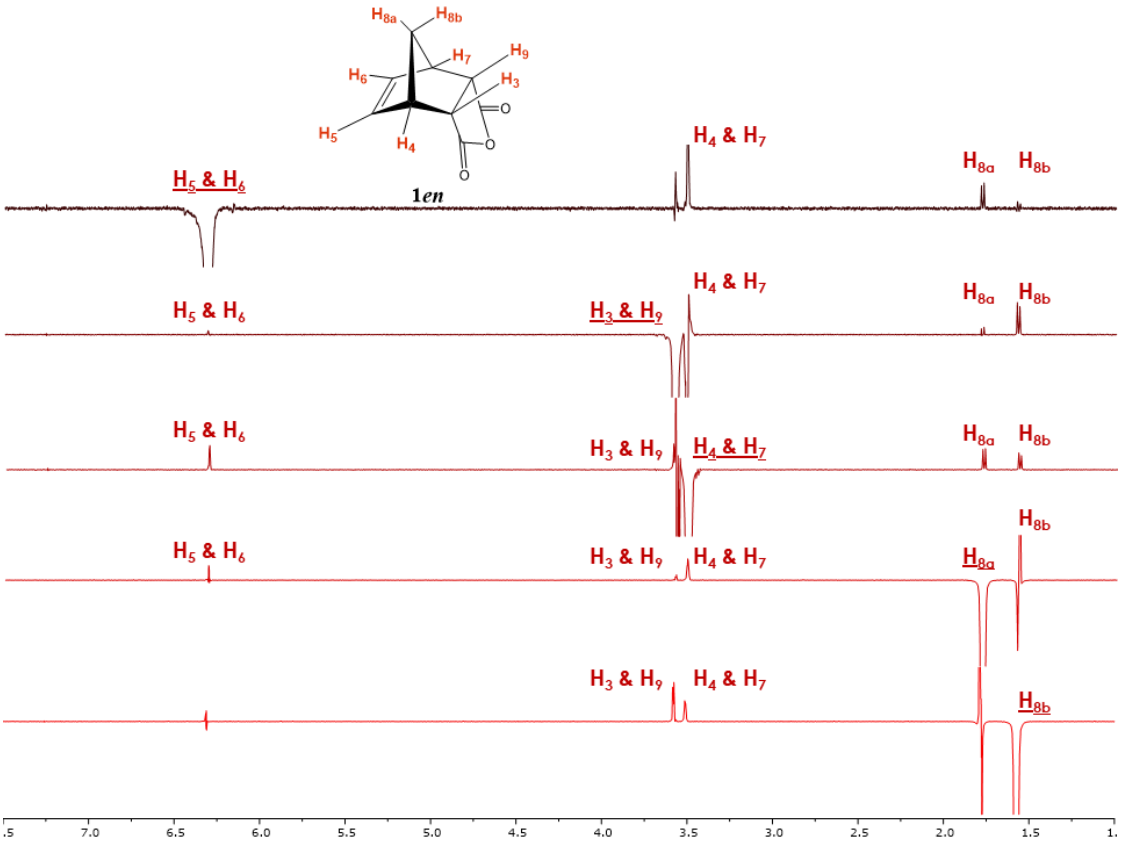

Figure S.6. 1D NOEs of ***1en***

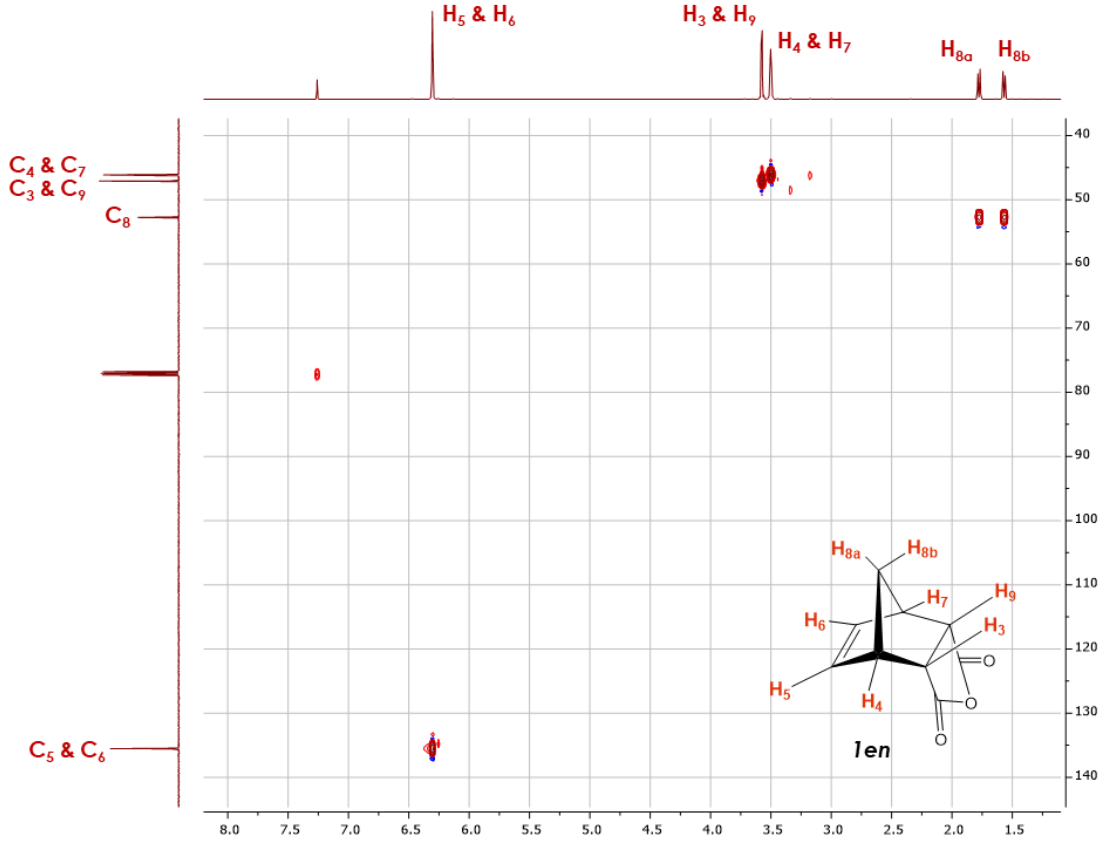

Figure S.7. HSQC of ***1en***

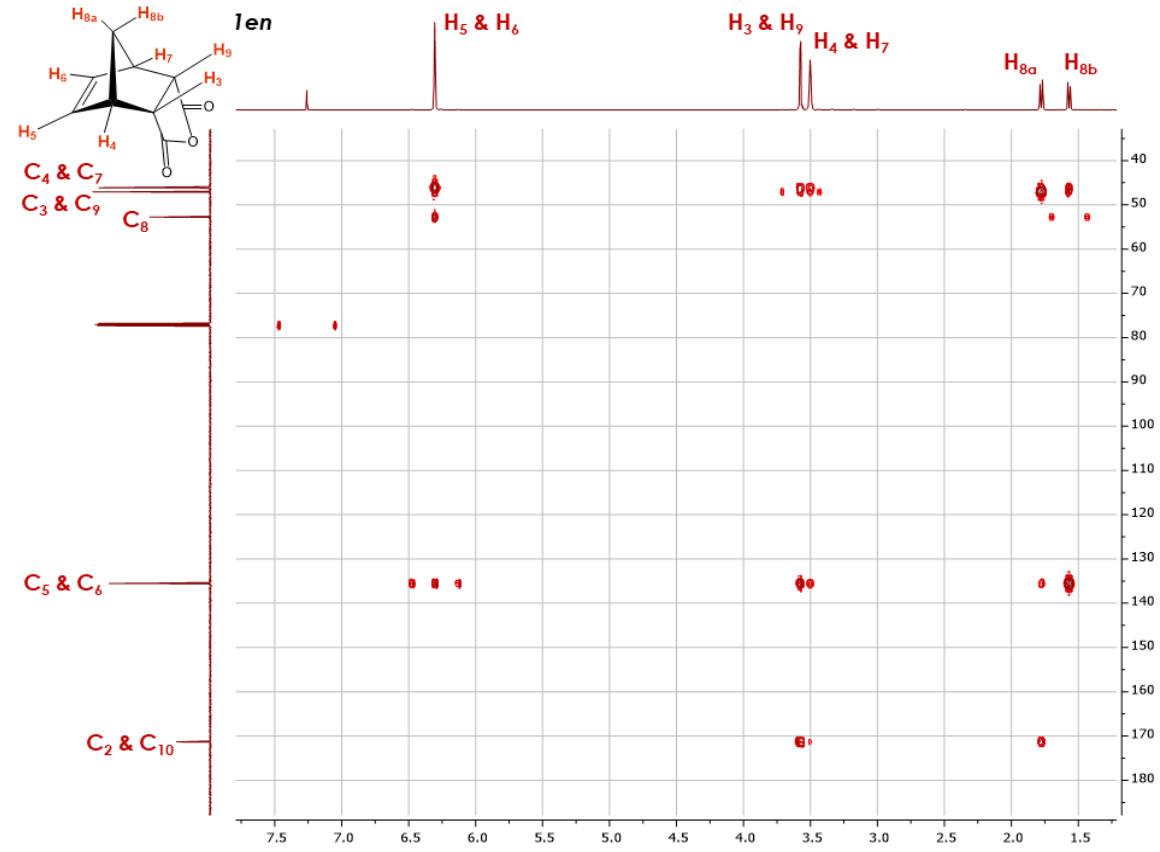

Figure S.8. HMBC of ***1en***

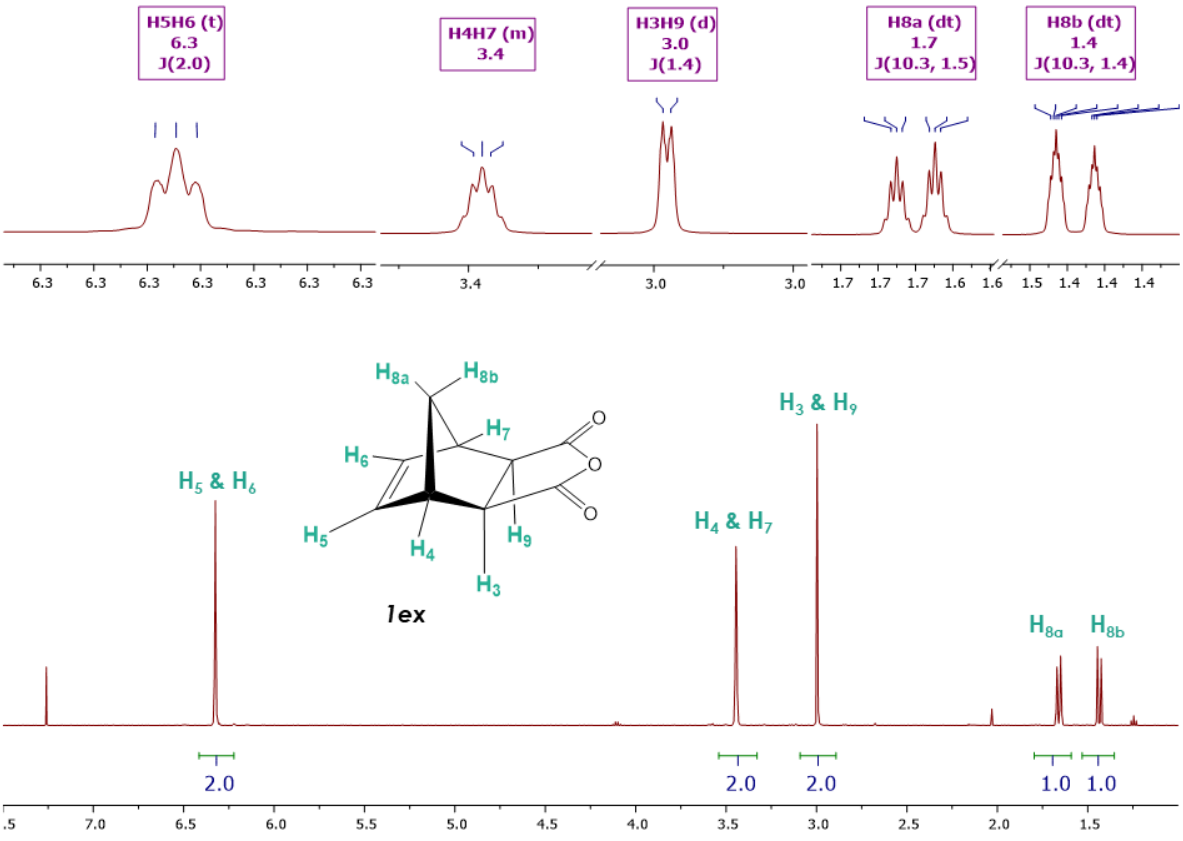

Figure S.9. ^{1}H NMR of ***1ex***

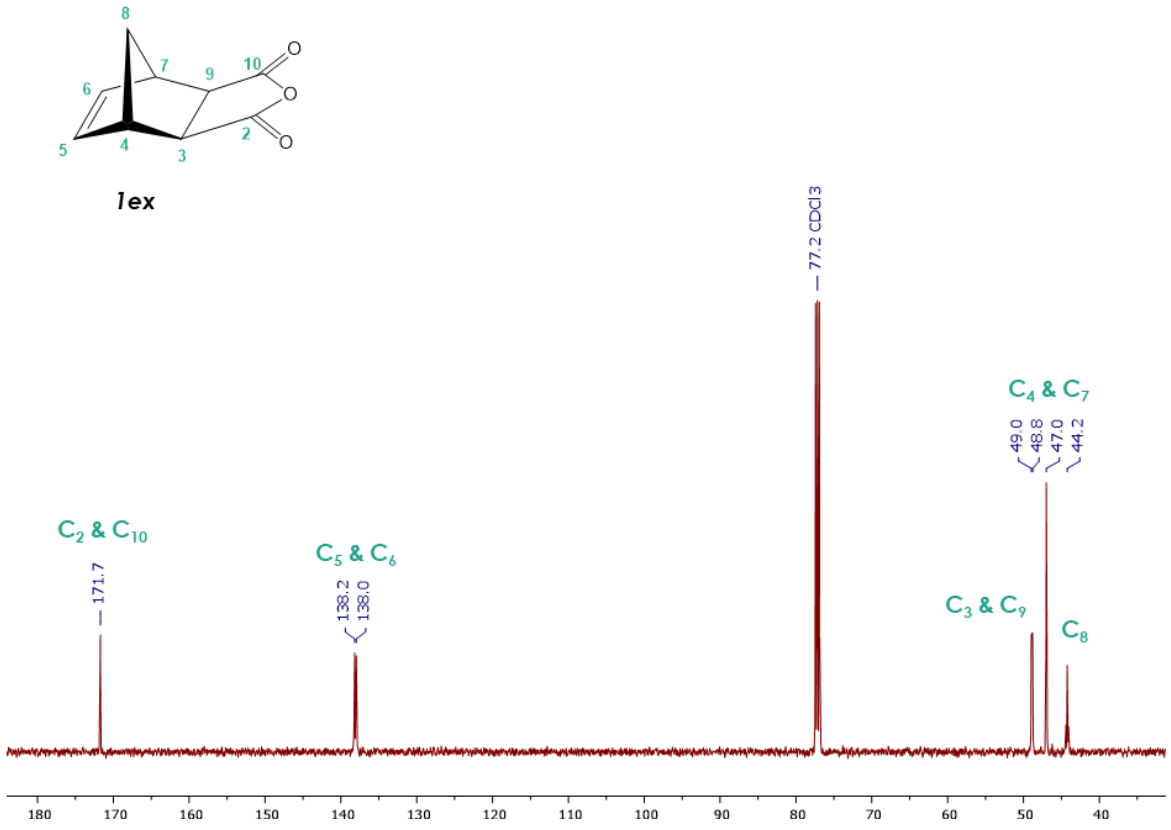

Figure S.10. ^{13}C NMR of ***1ex***

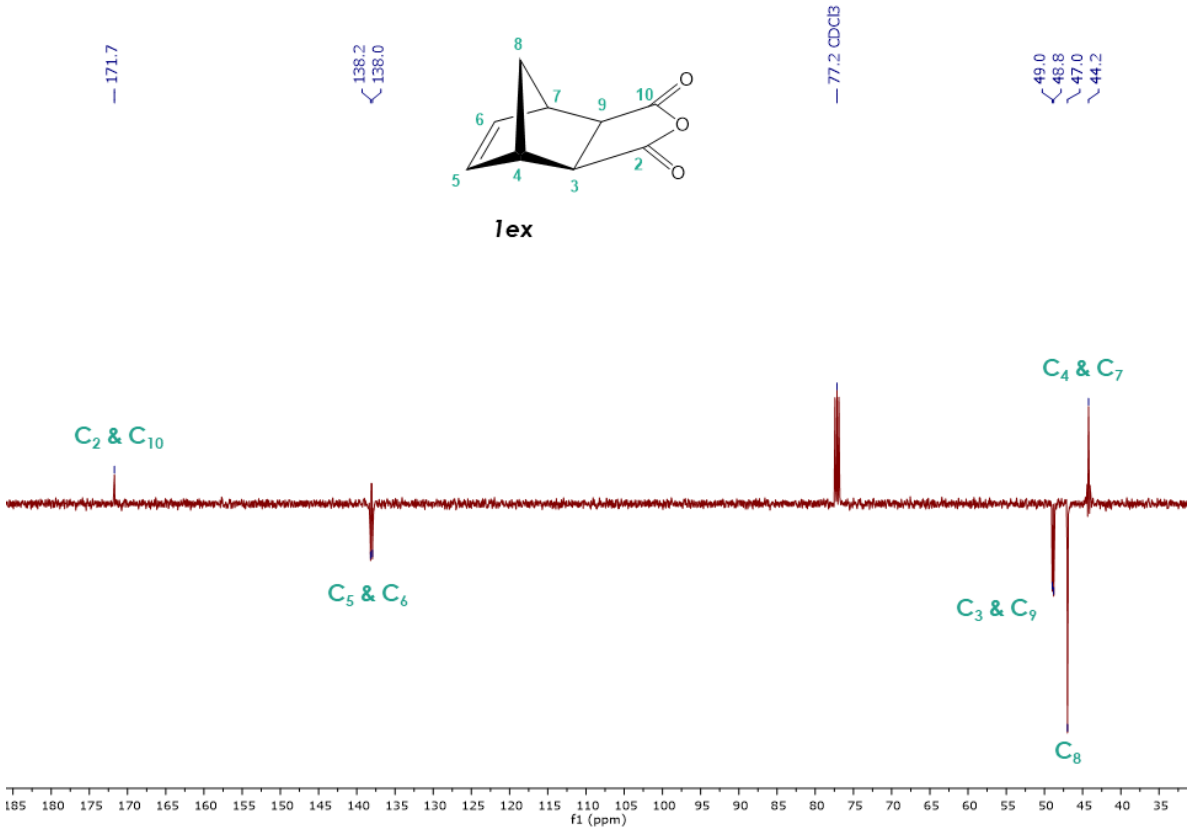

Figure S.11. APT of ***1ex***

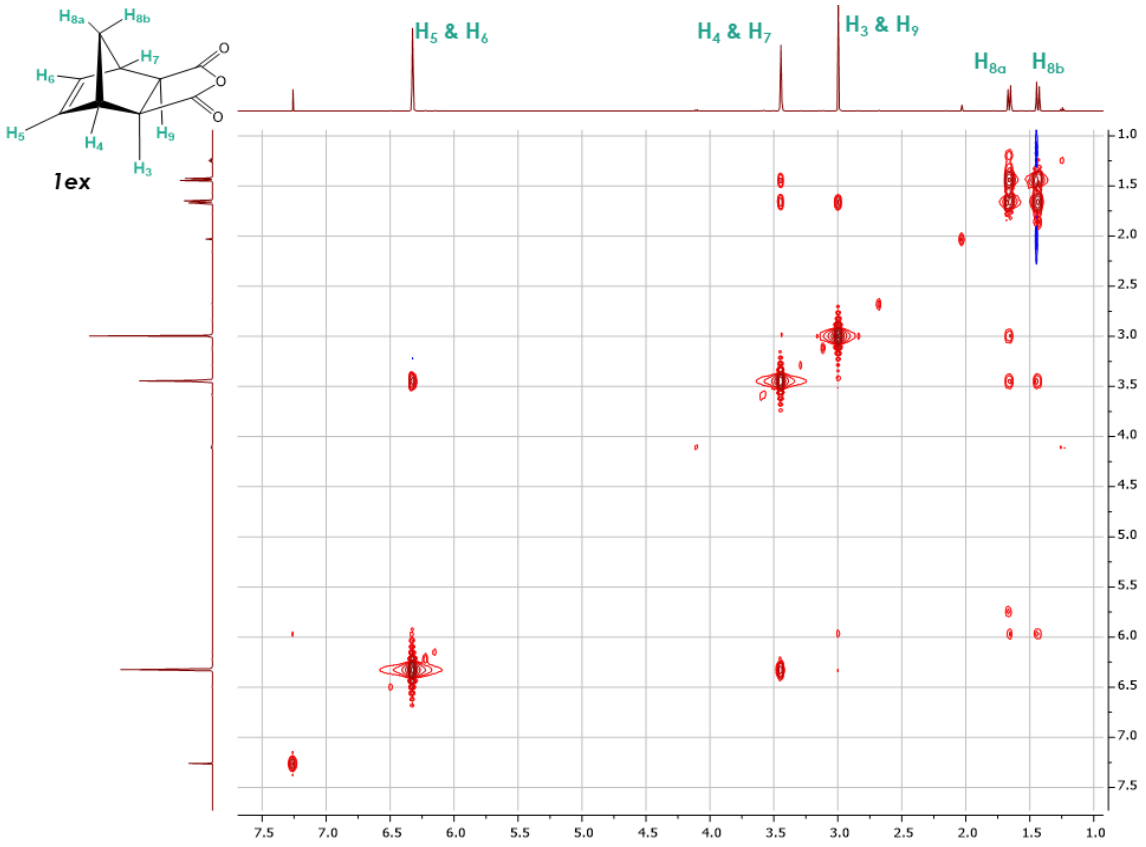

Figure S.12. COSY of ***1ex***

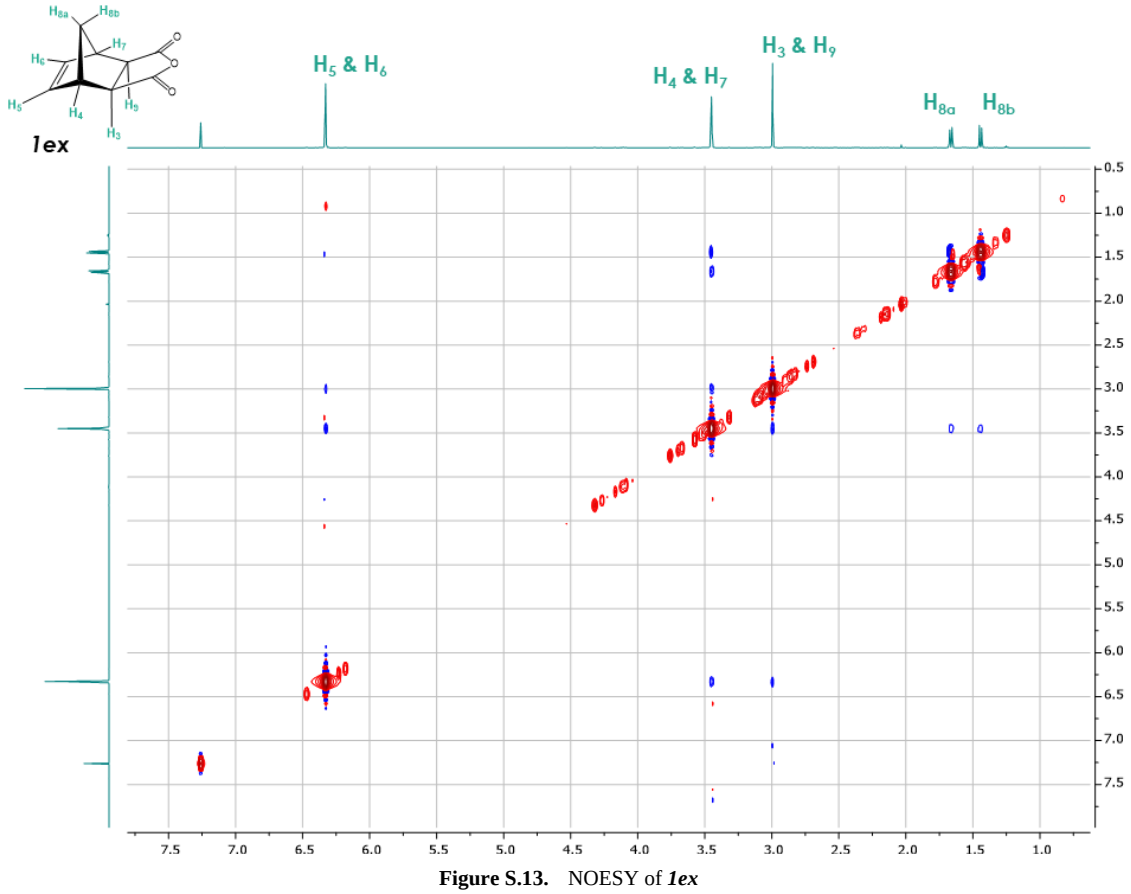

Figure S.13. NOESY of ***1ex***

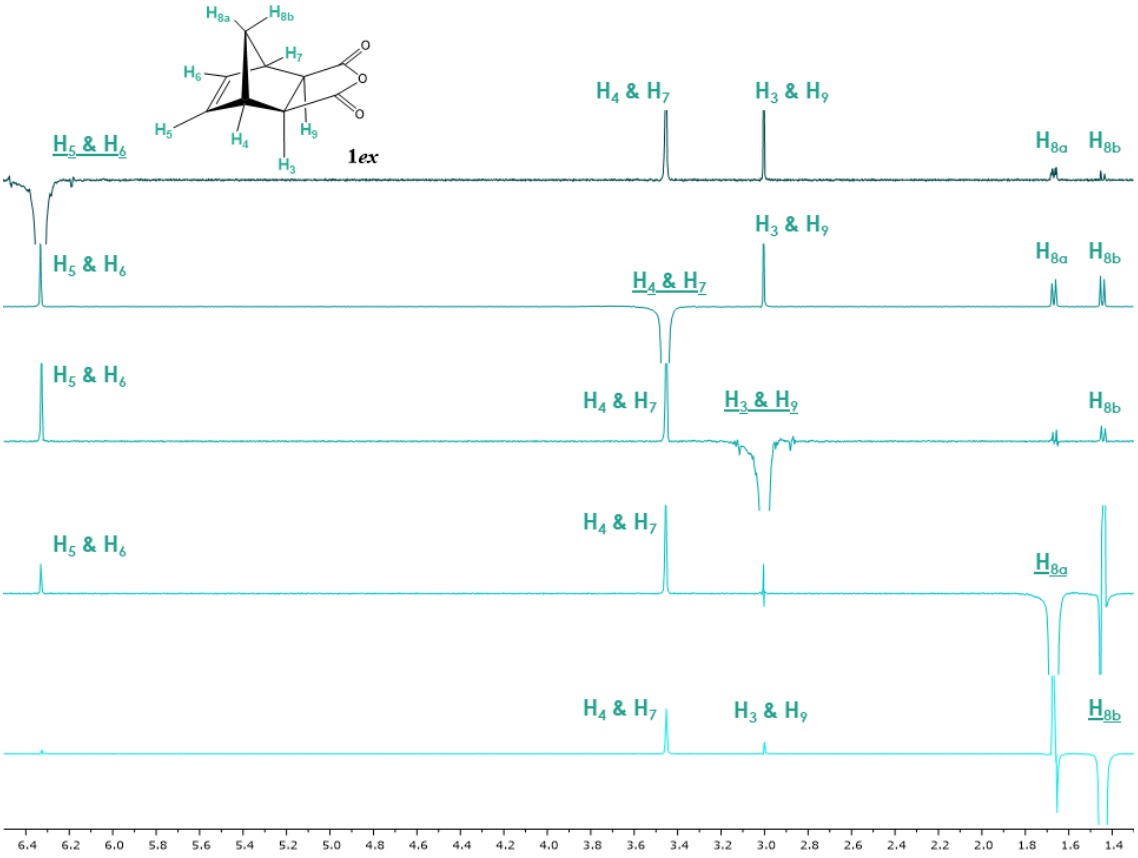

Figure S.14. 1D NOEs of ***1ex***

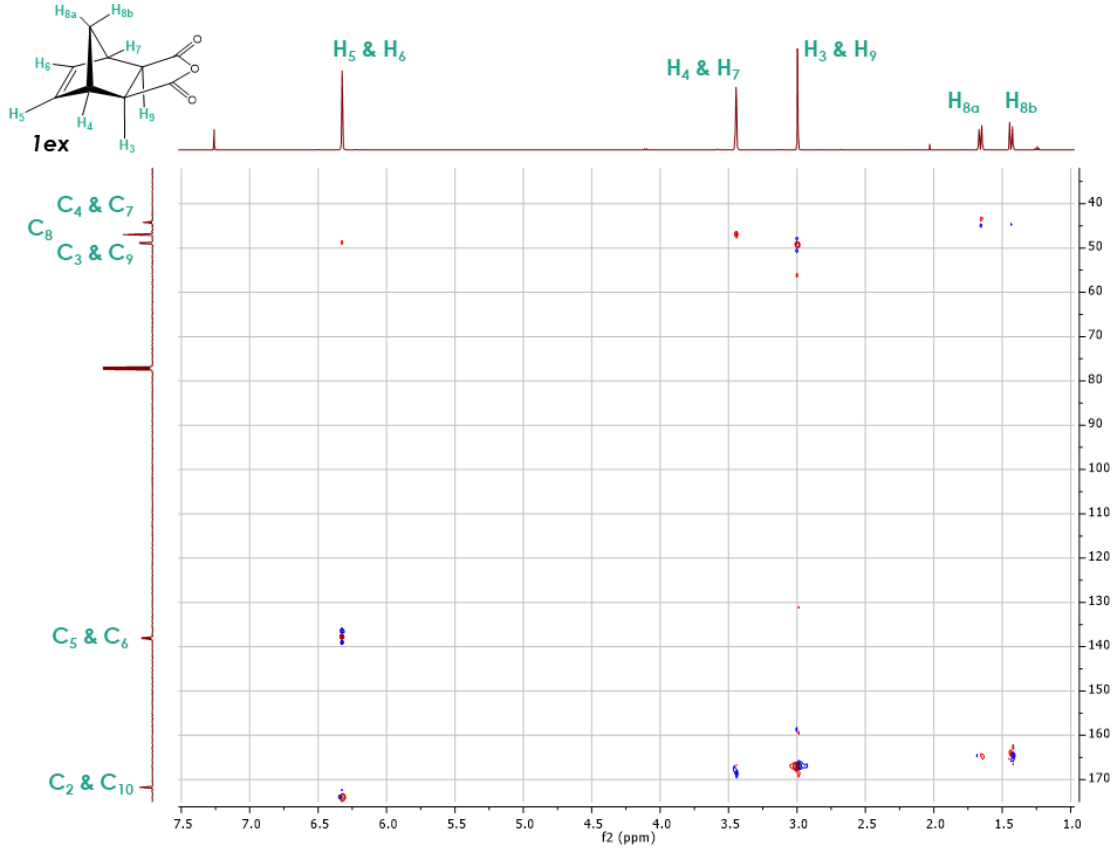

Figure S.15. HSQC of ***1ex***

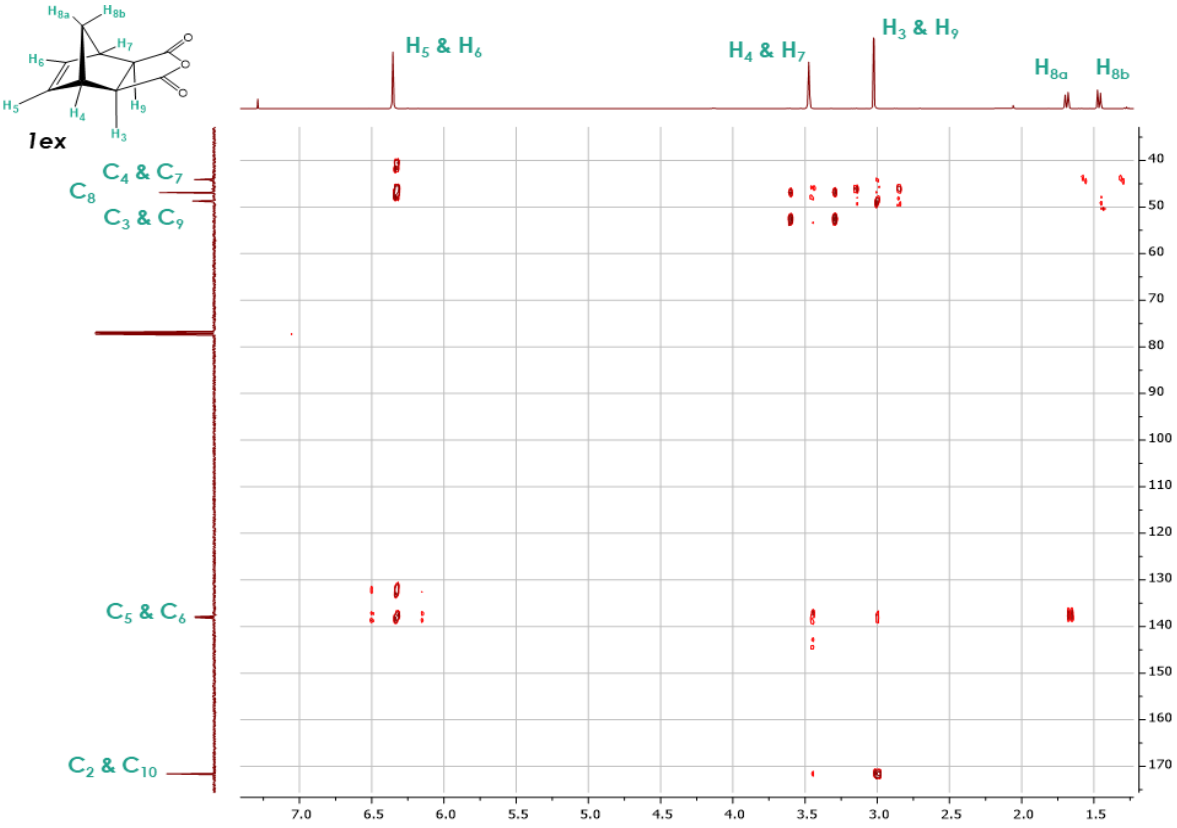

Figure S.16. HMBC of ***1ex***

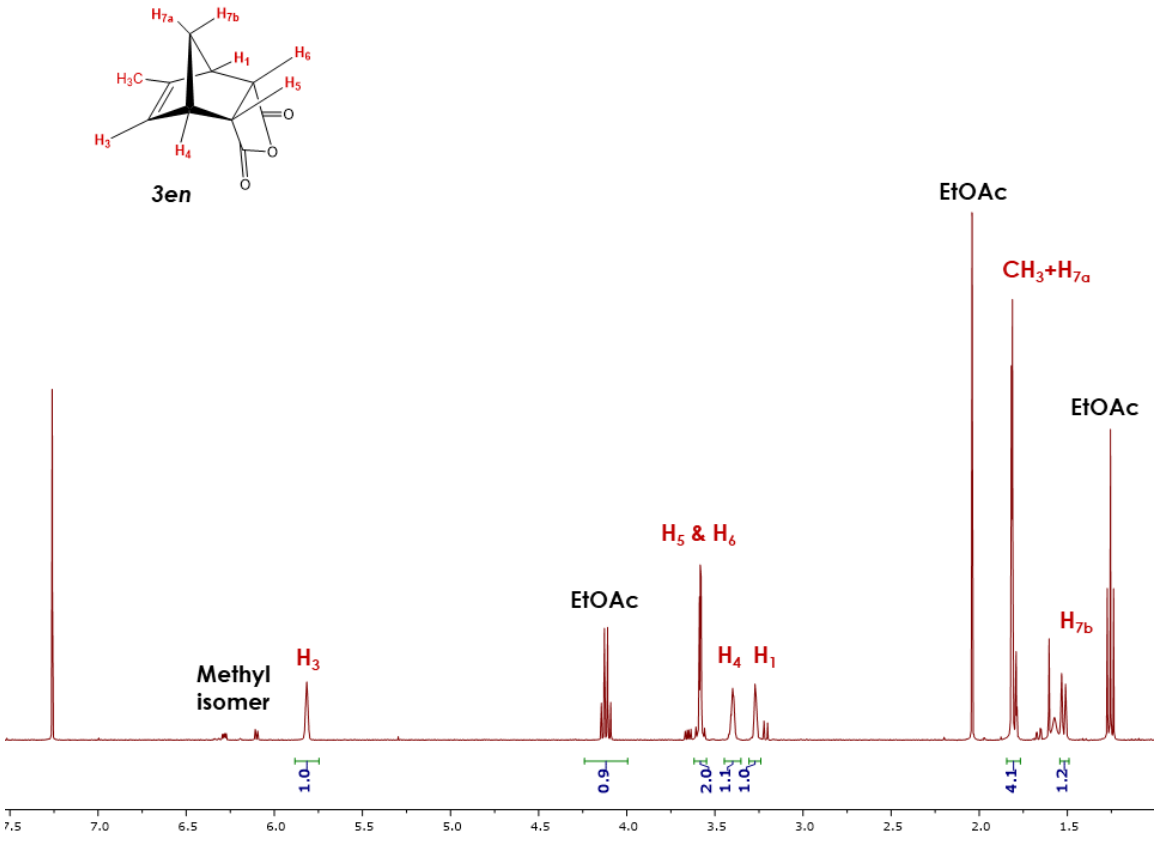

Figure S.17. ^{1}H NMR of ***3en***

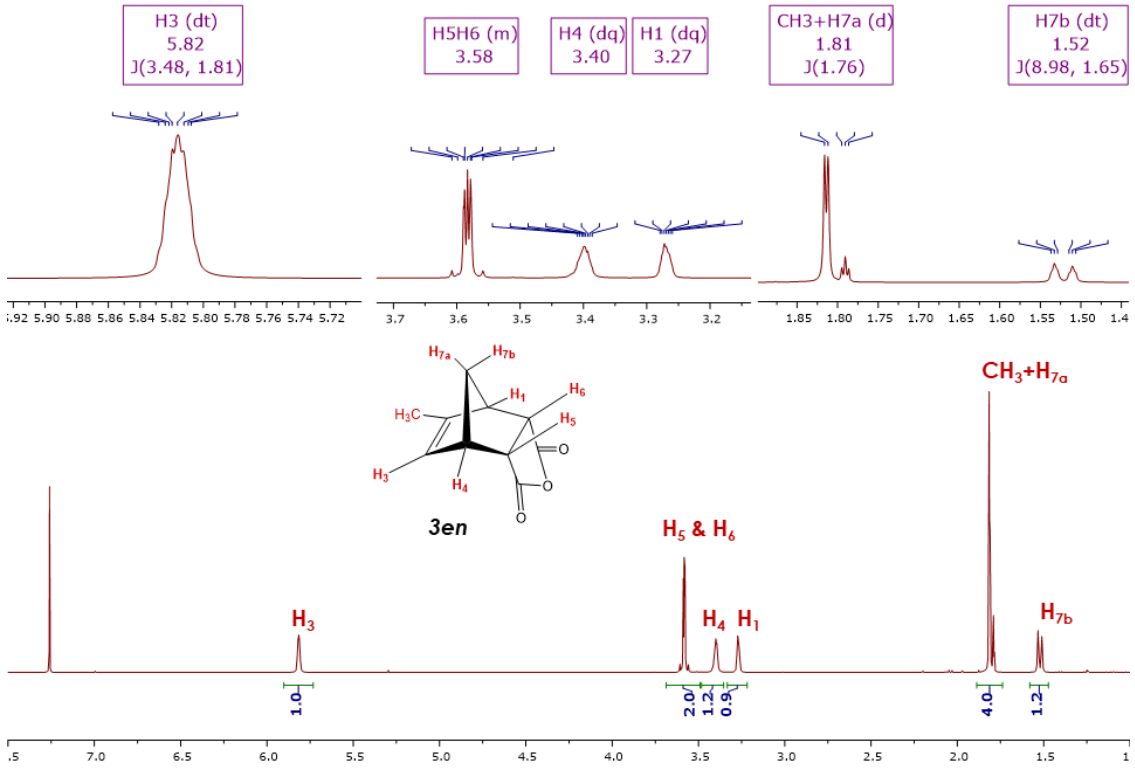

Figure S.18. Deconvoluted 1H NMR of ***3en***

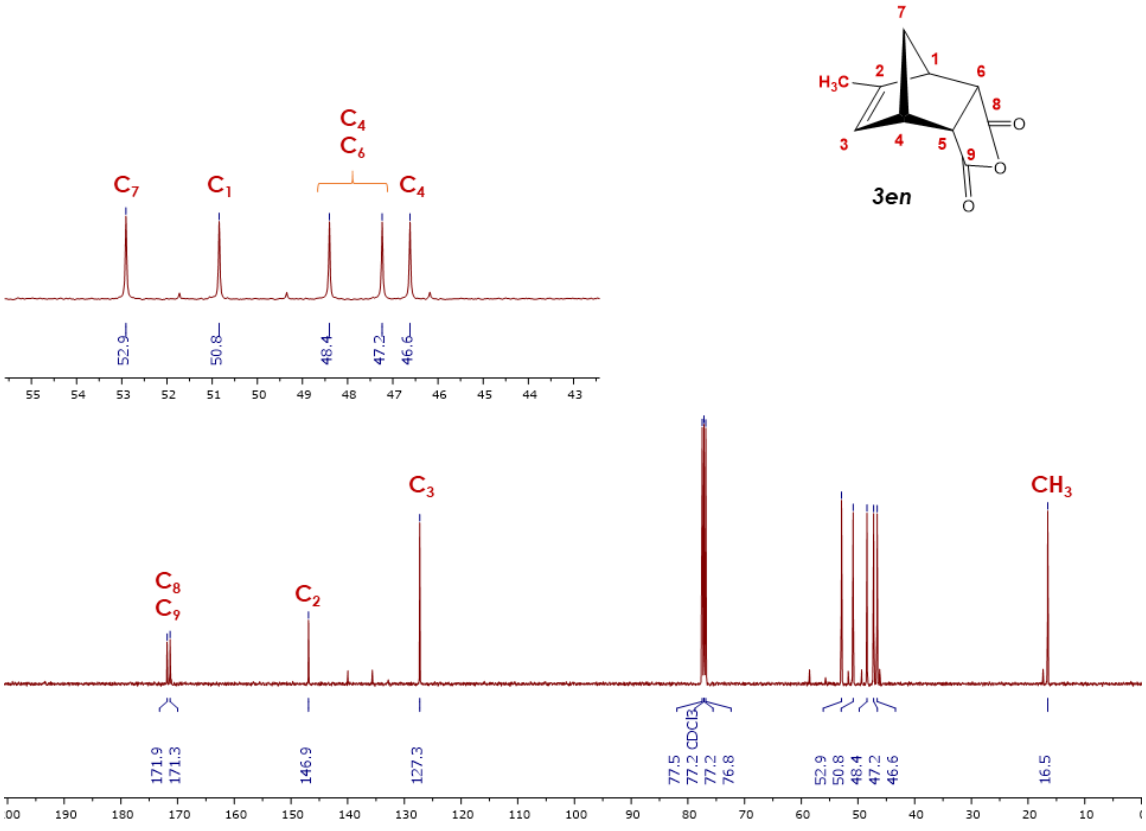

Figure S.19. ^{13}C NMR of ***3en***

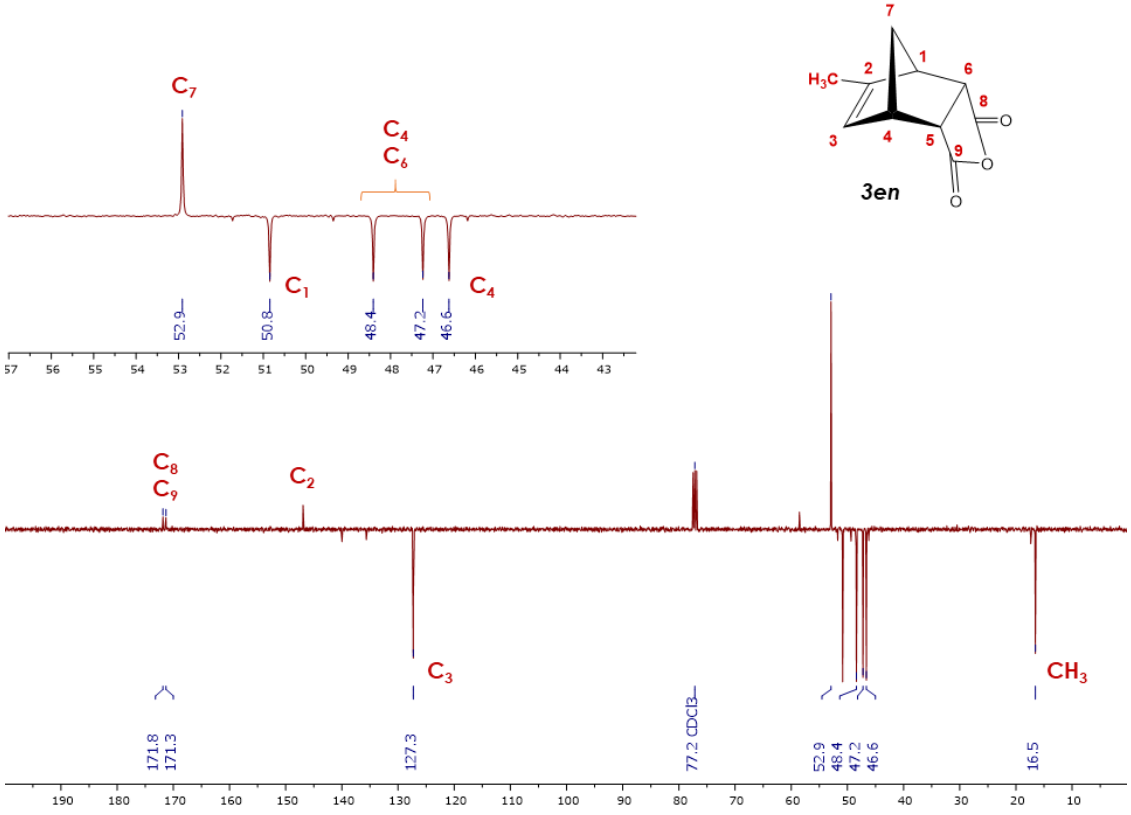

Figure S.20. APT of ***3en***

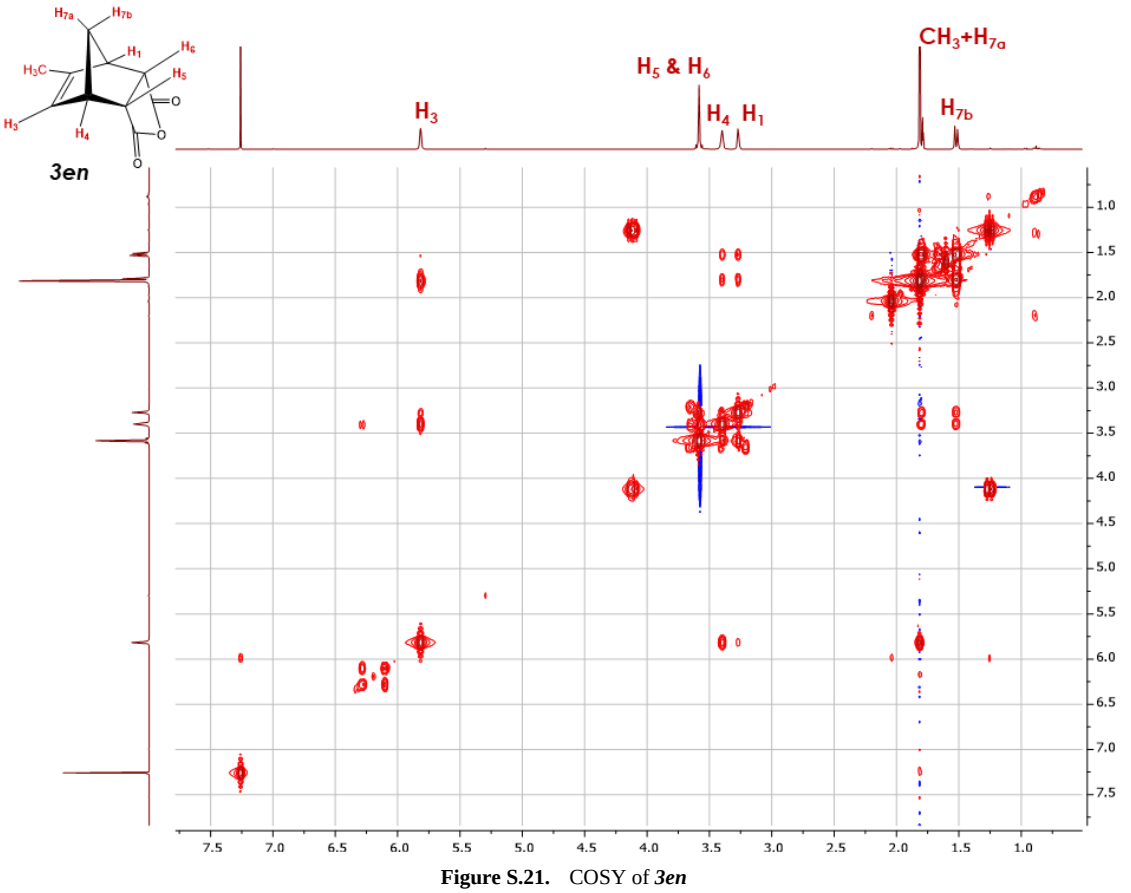

Figure S.21. COSY of ***3en***

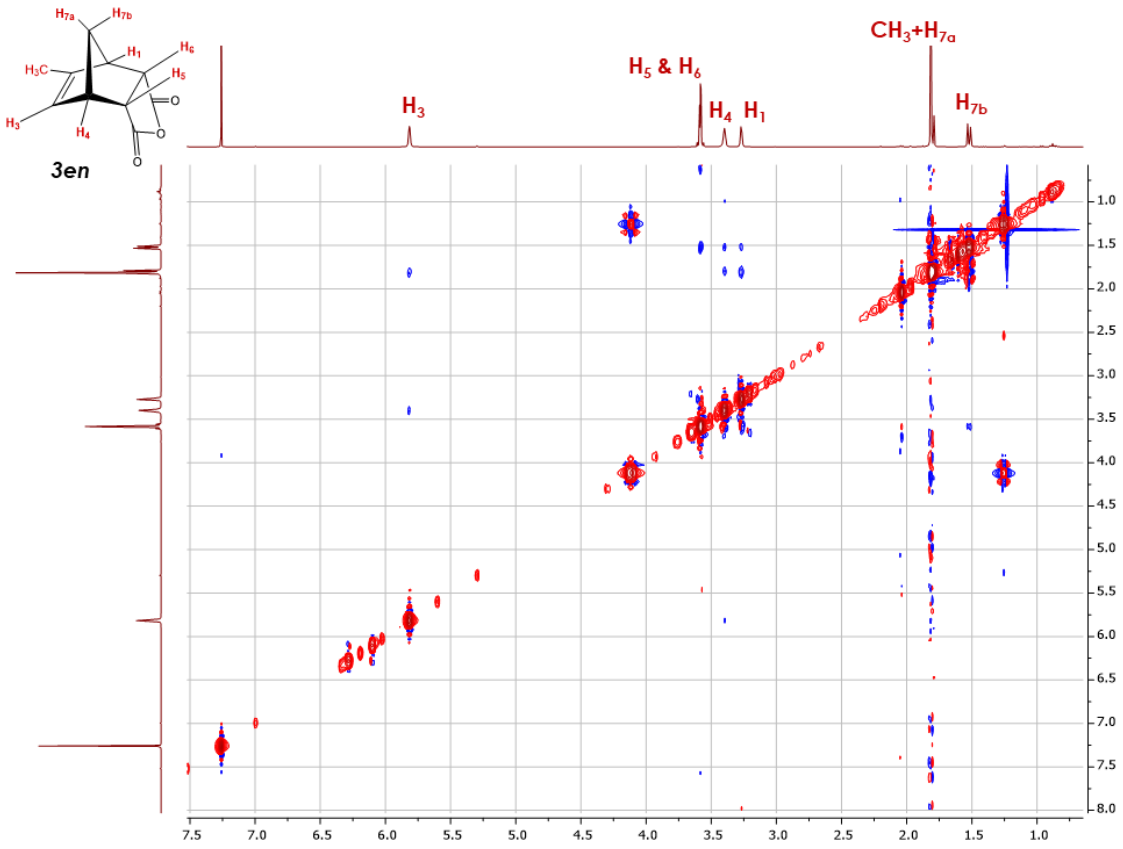

Figure S.22. NOESY of ***3en***

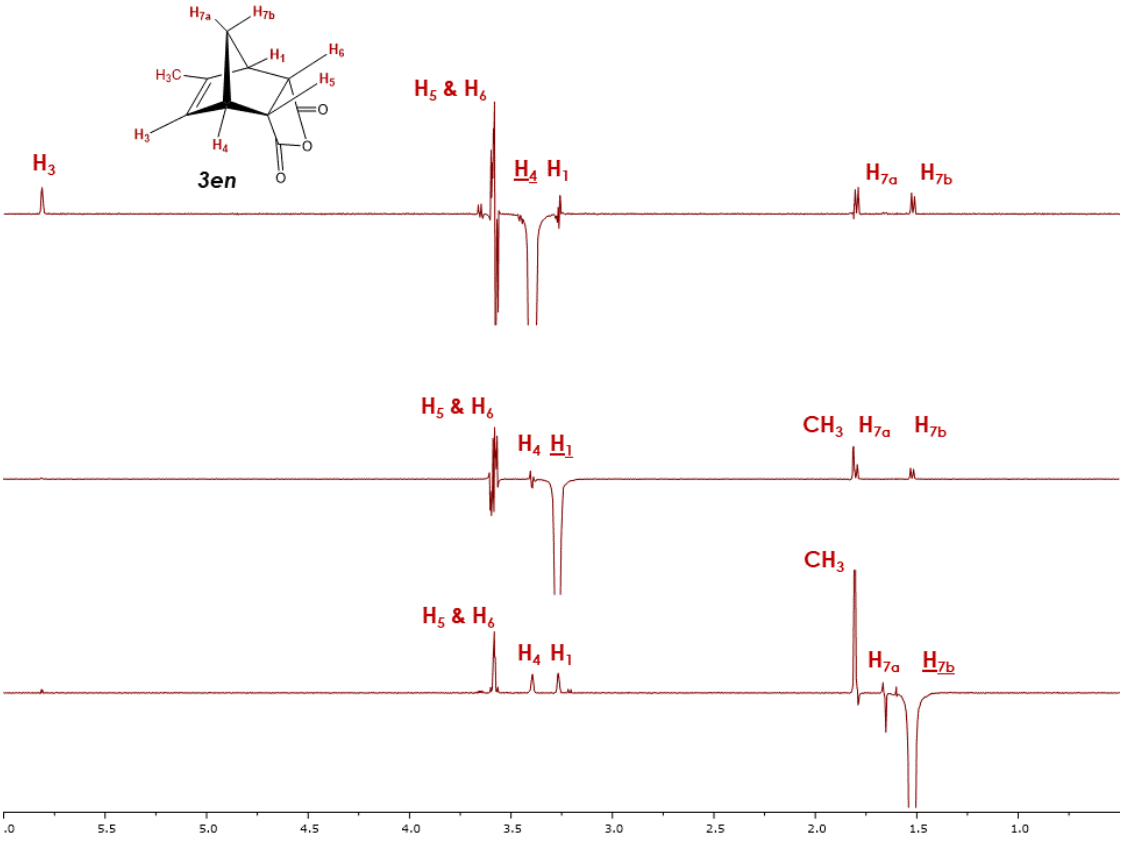

Figure S.23. 1D NOE of ***3en***

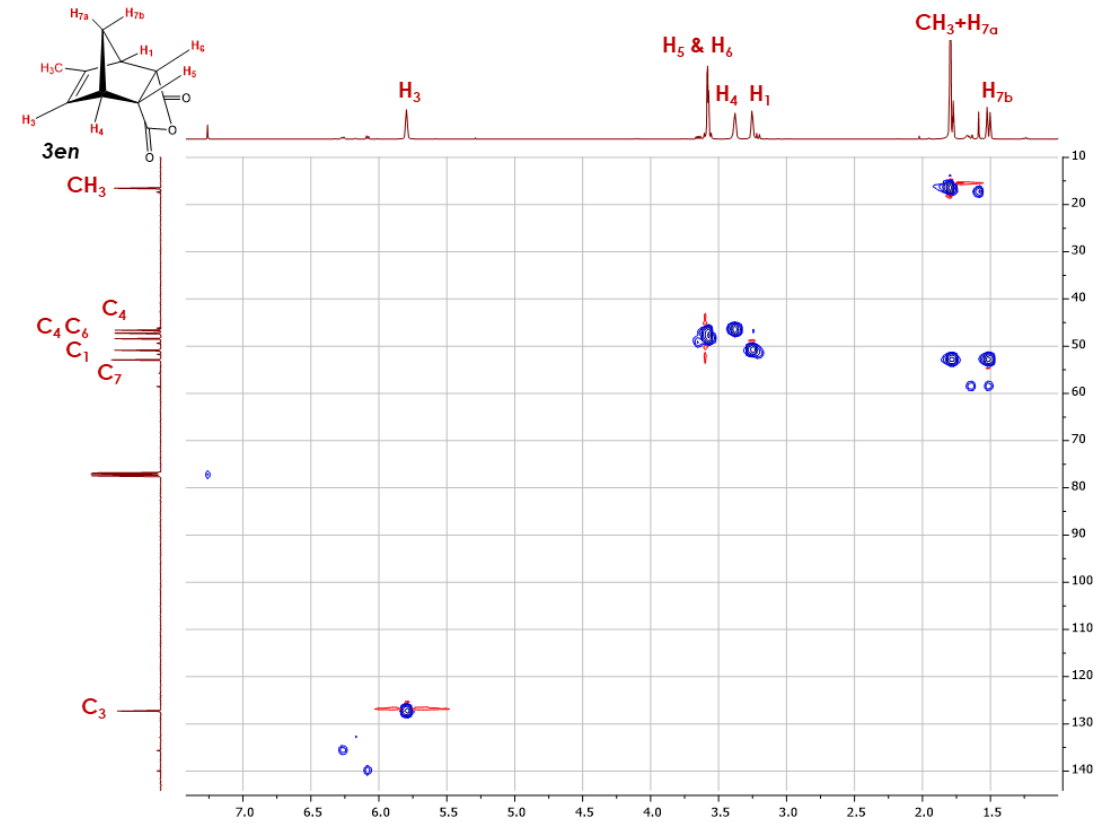

Figure S.24. HSQC of ***3en***

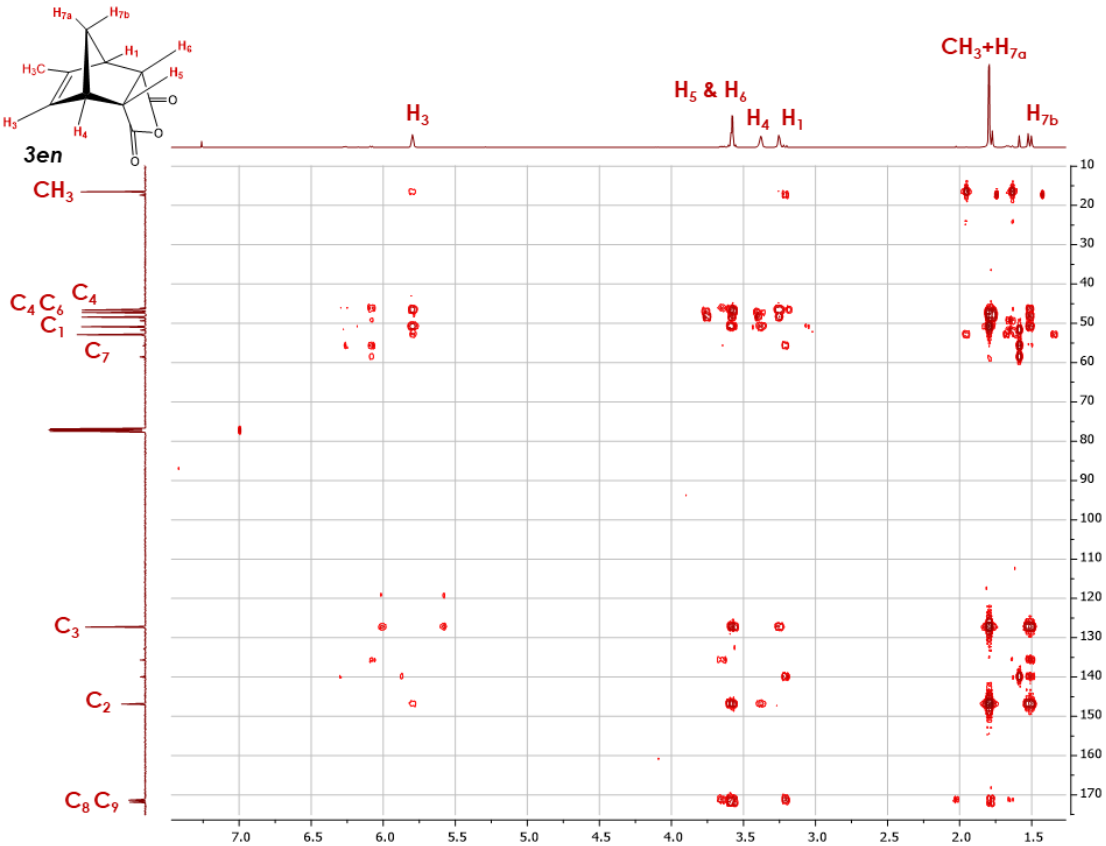

Figure S.25. HMBC of ***3en***

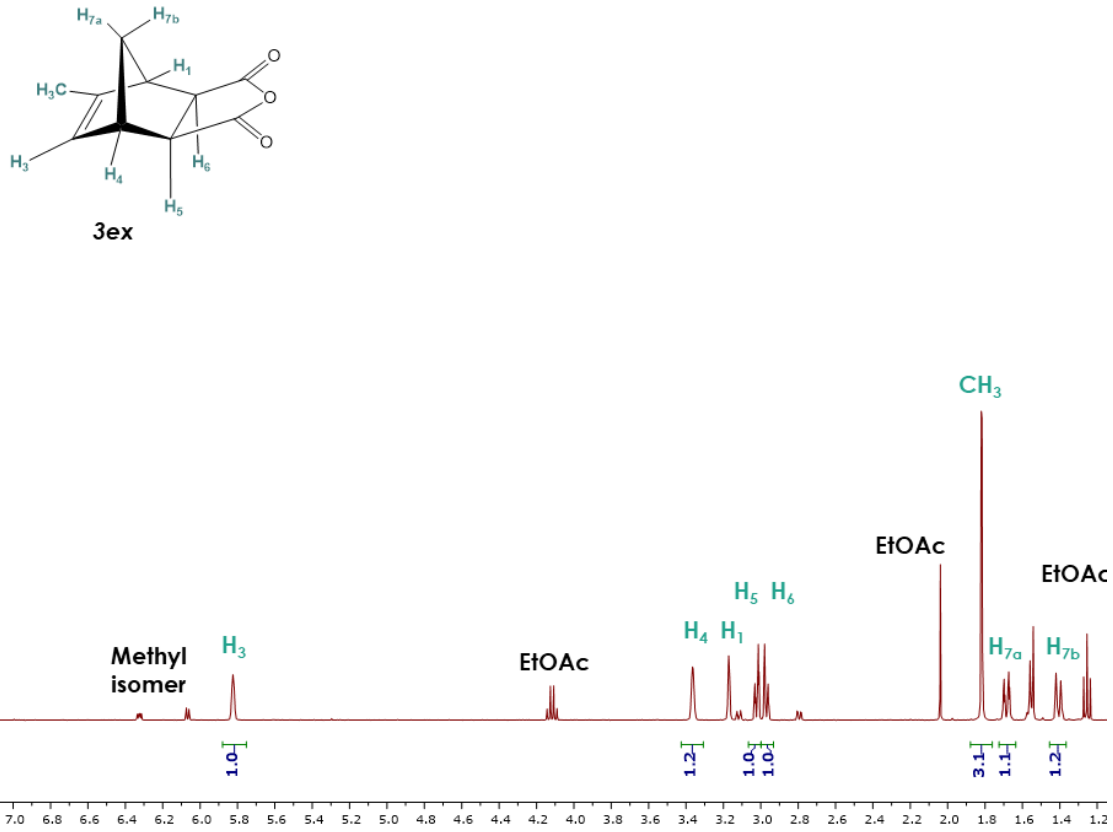

Figure S.26. ^{1}H NMR of ***3ex***

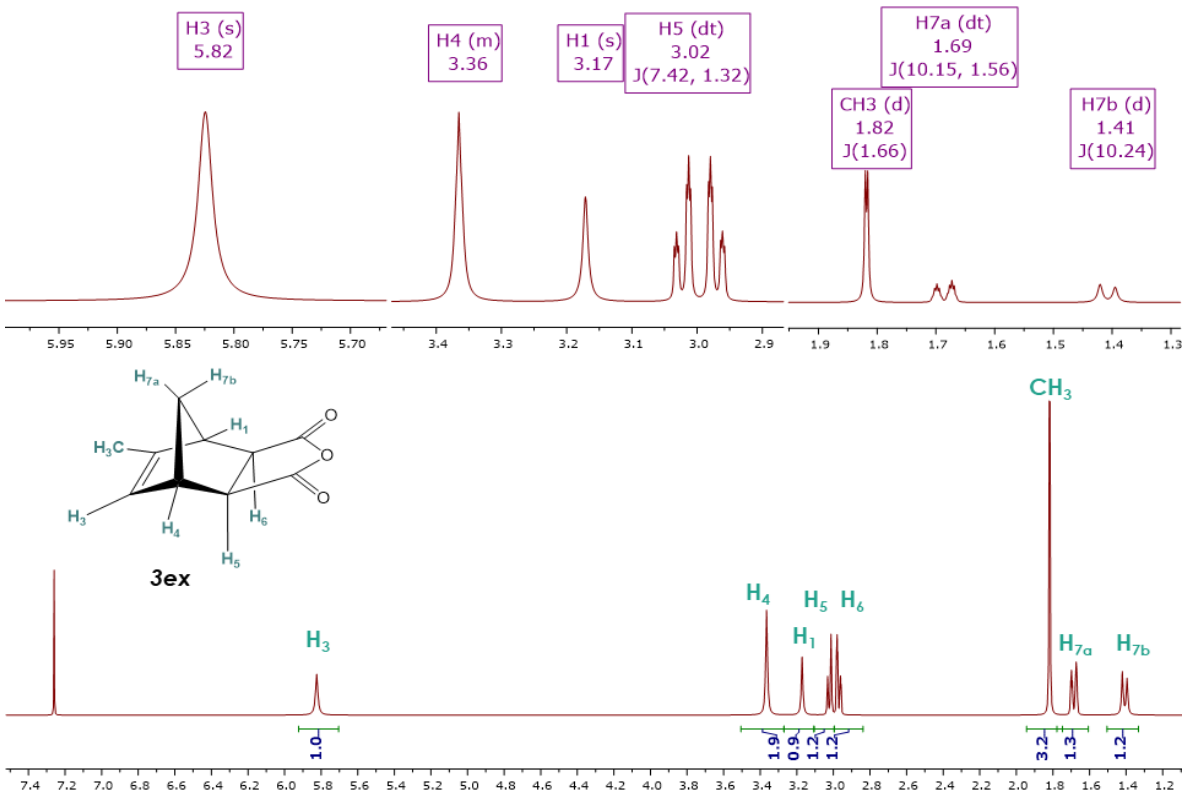

Figure S.27. Deconvoluted 1H NMR of ***3ex***

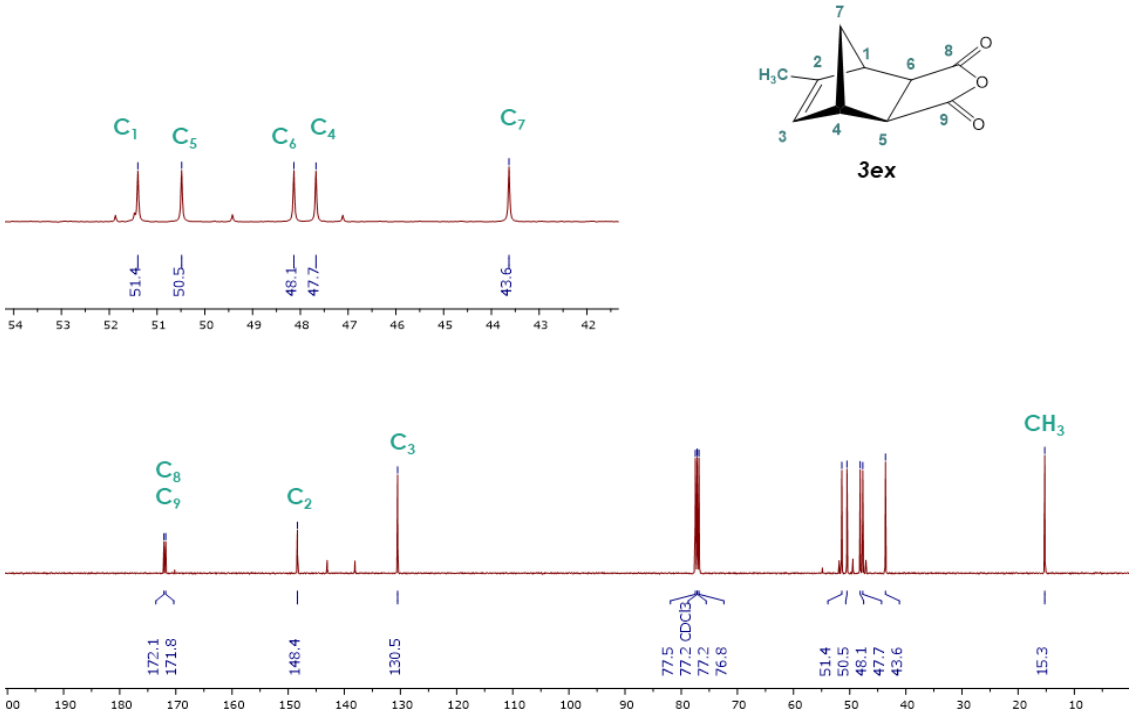

Figure S.28. ^{13}C NMR of ***3ex***

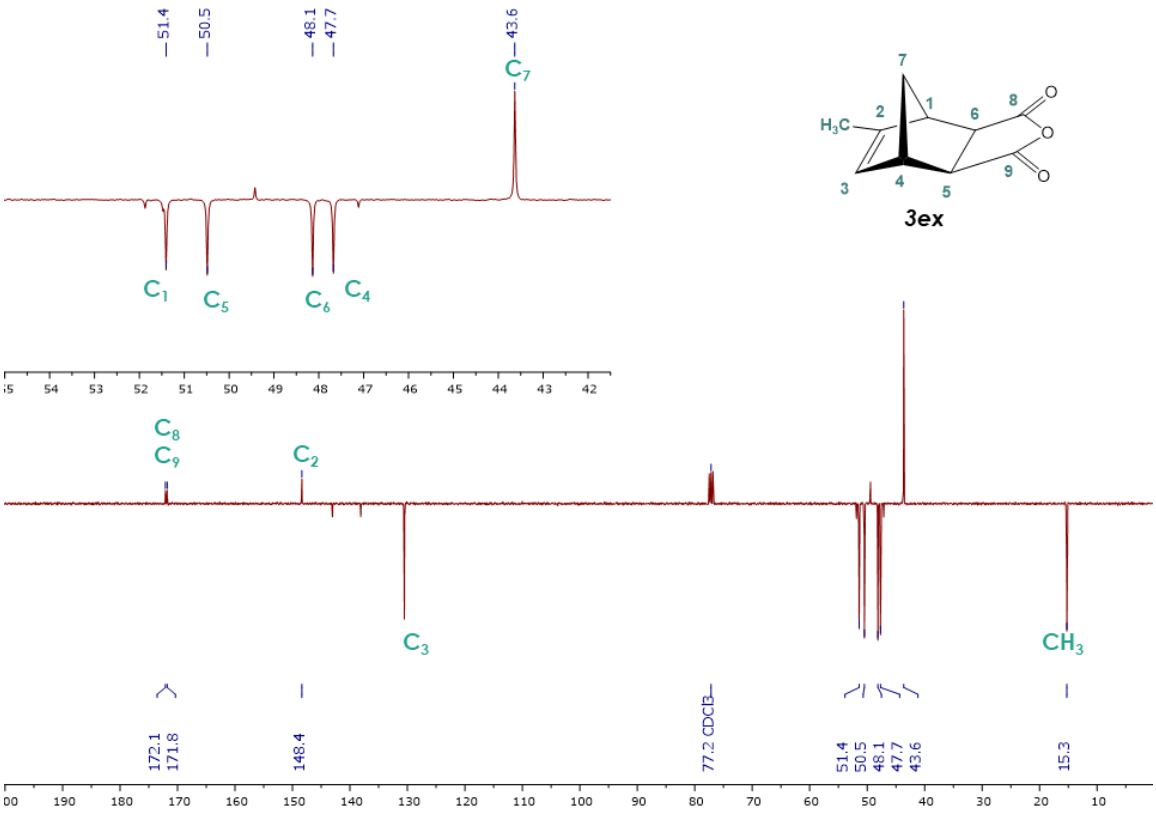

Figure S.29. APT of ***3ex***

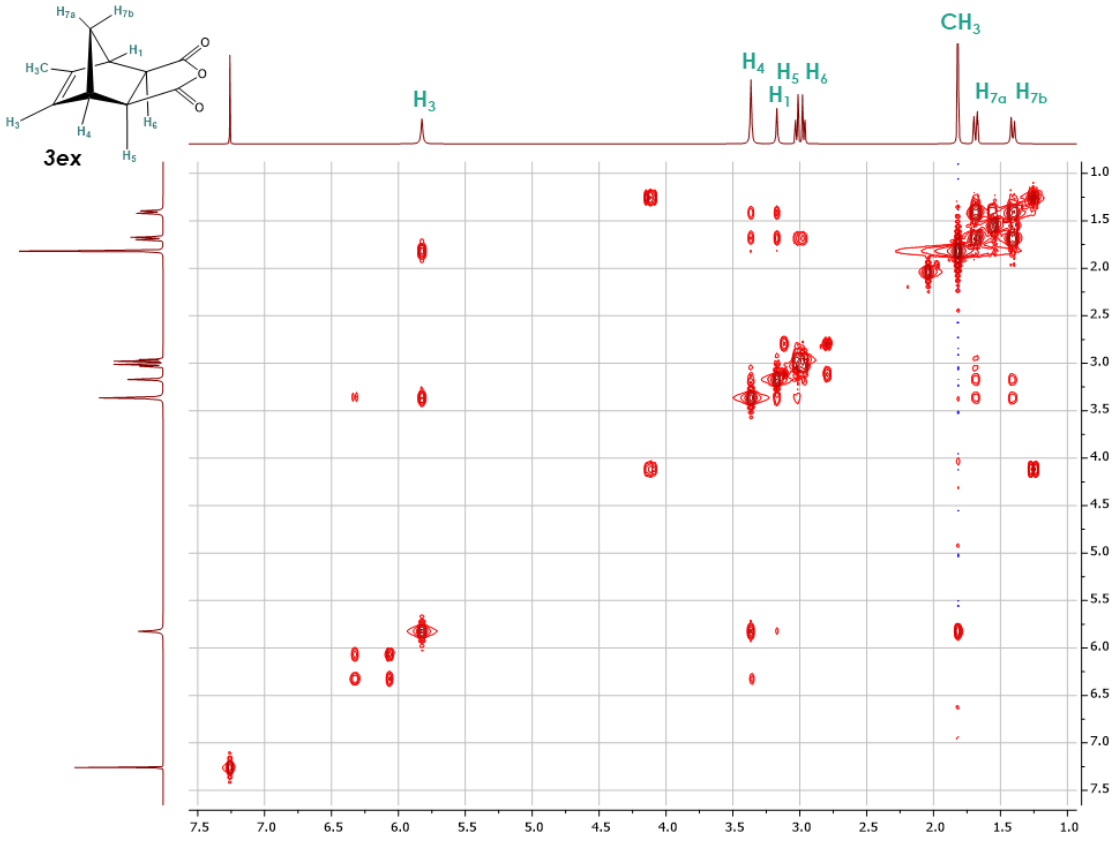

Figure S.30. COSY of ***3ex***

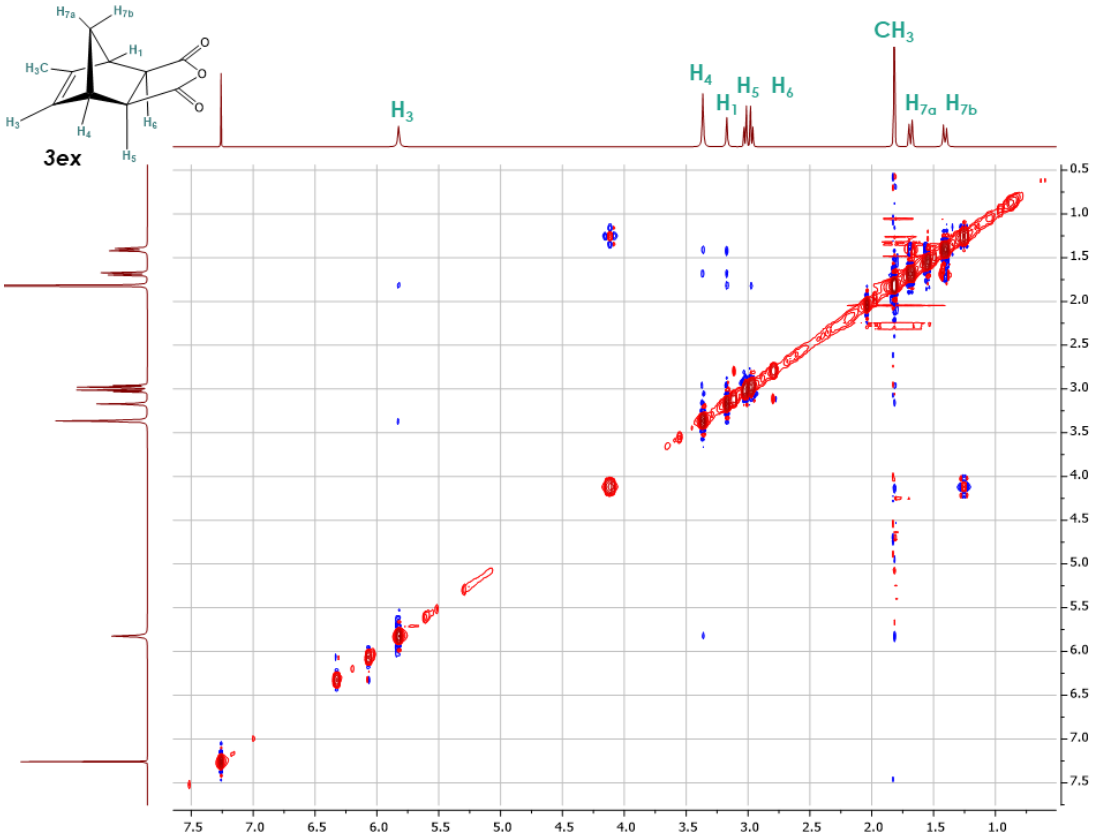

Figure S.31. NOESY of ***3ex***

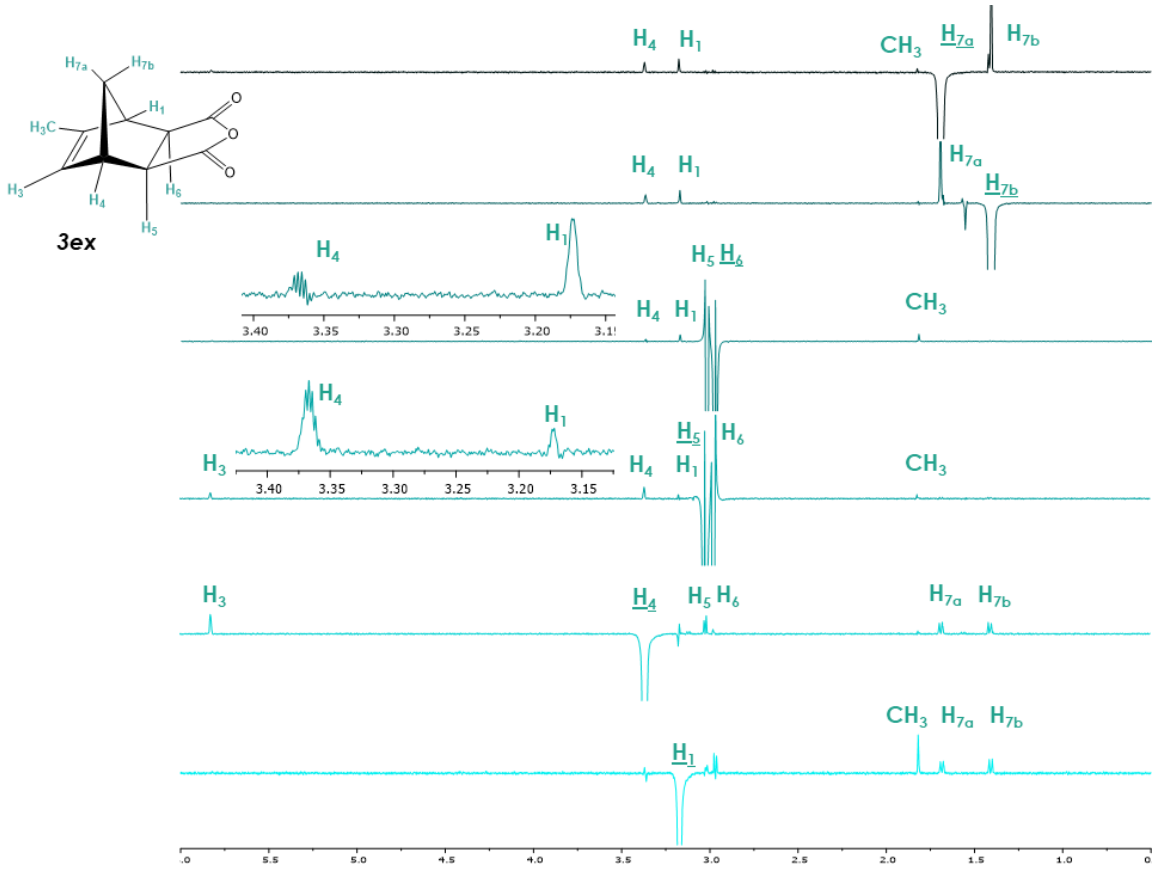

Figure S.32. 1D NOE of ***3ex***

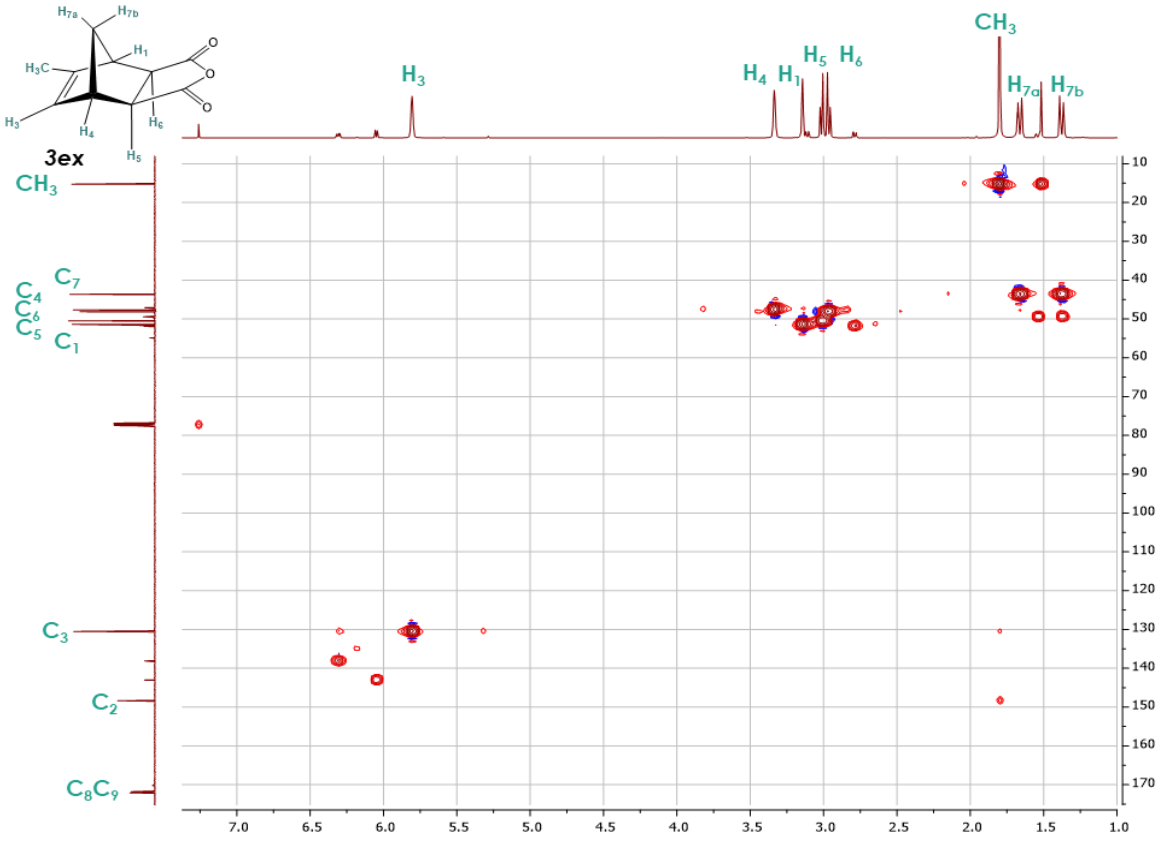

Figure S.33. HSQC of ***3ex***

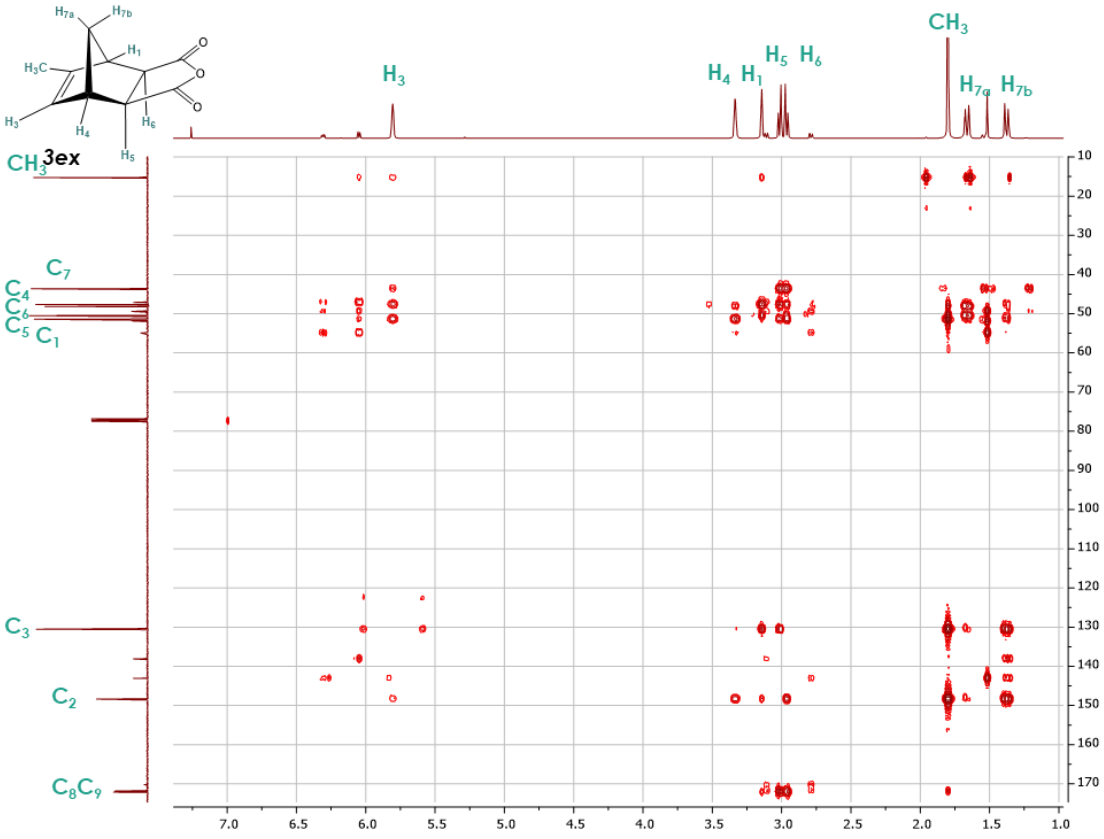

Figure S.34. HSQC of ***3ex***

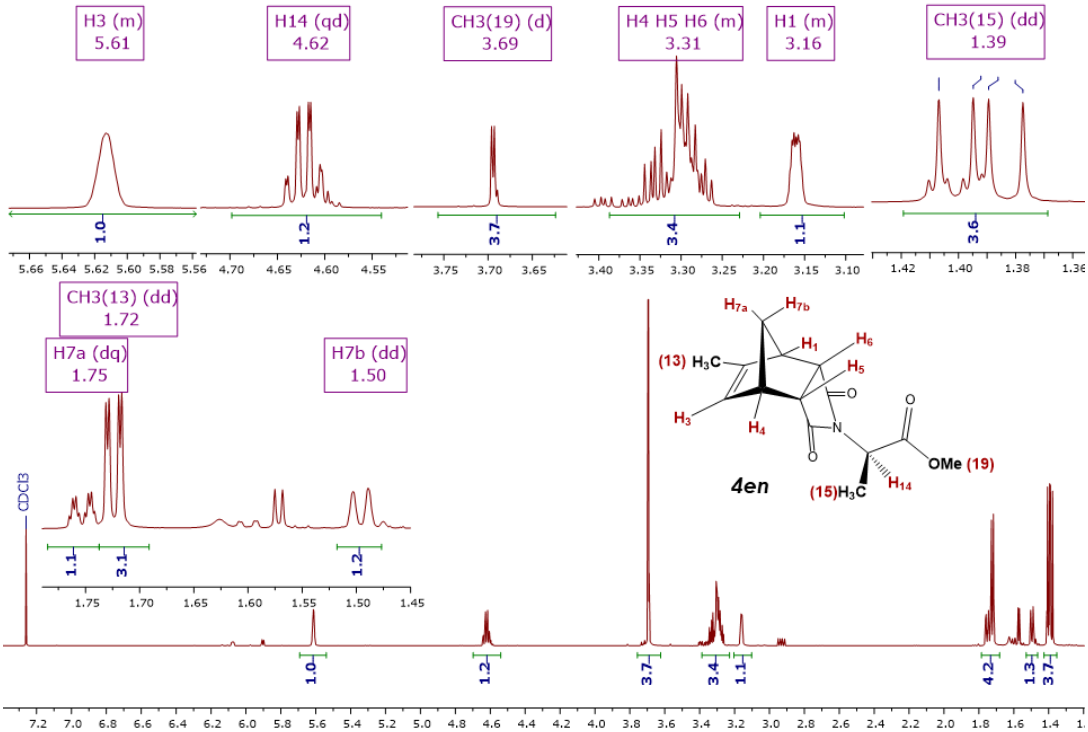

Figure S.35. ^{1}H NMR of ***4en***

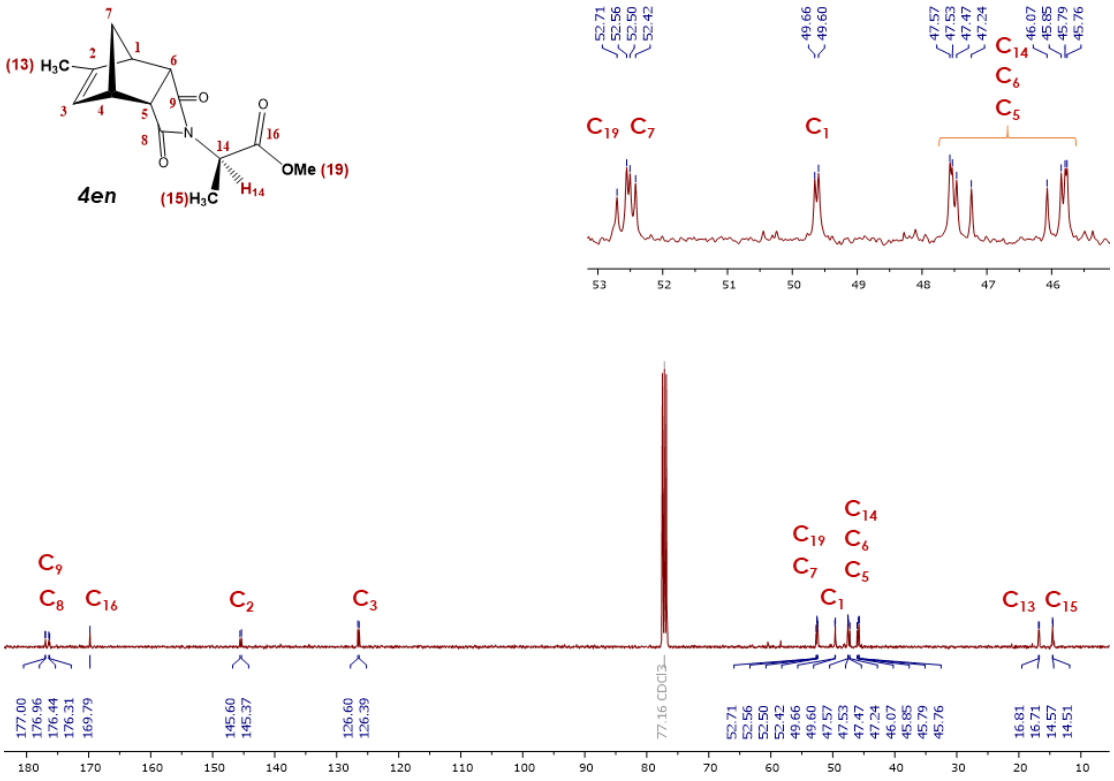

Figure S.36. ^{13}C NMR of ***4en***

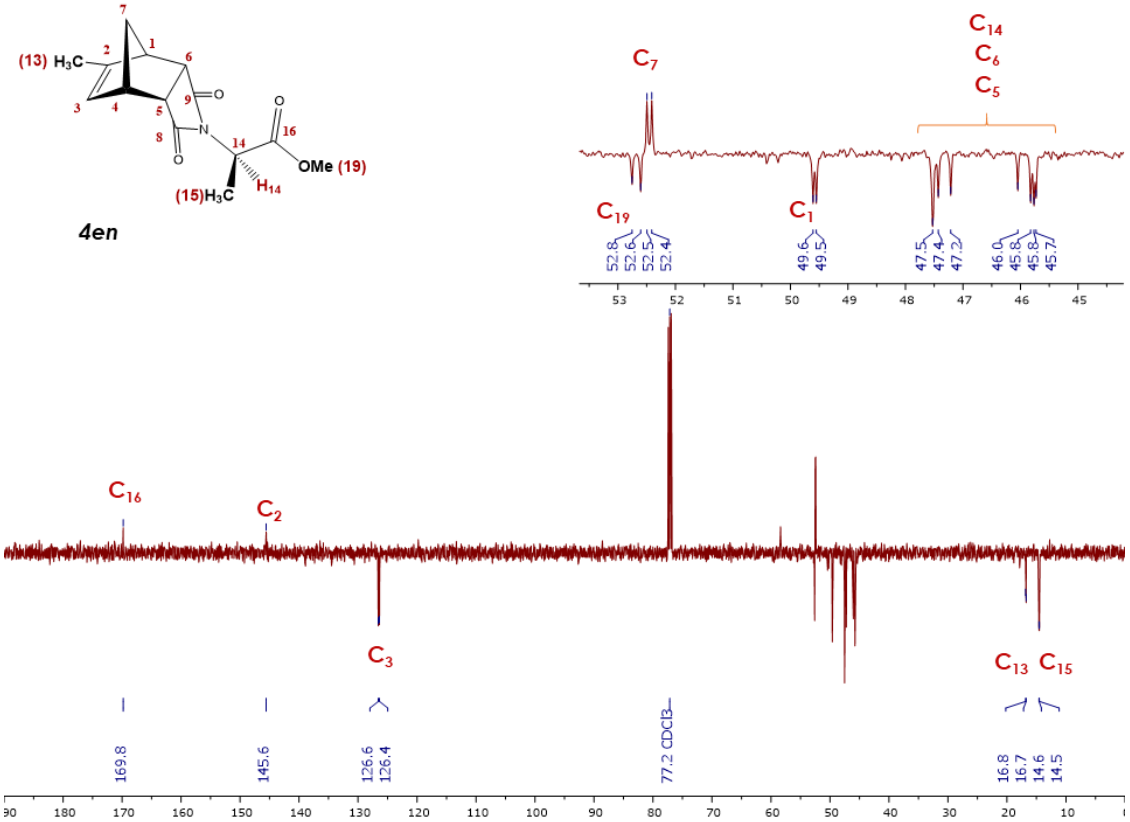

Figure S.37. APT of ***4en***

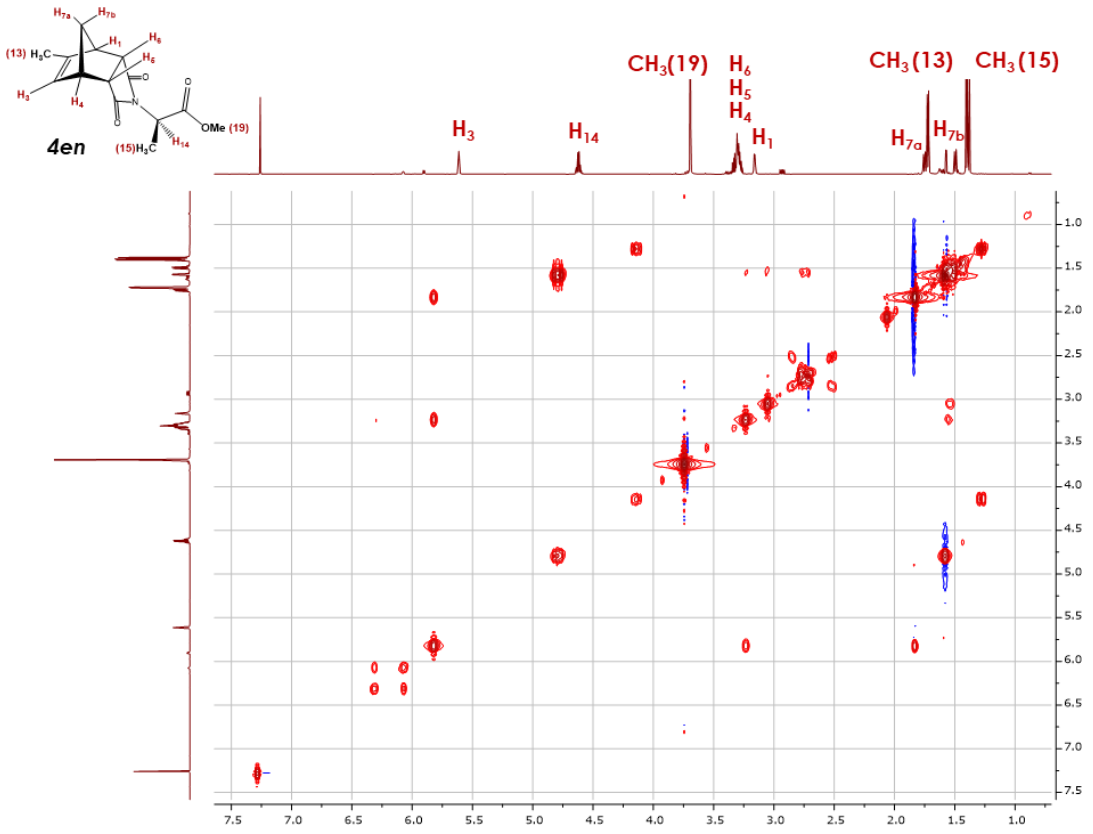

Figure S.38. COSY of ***4en***

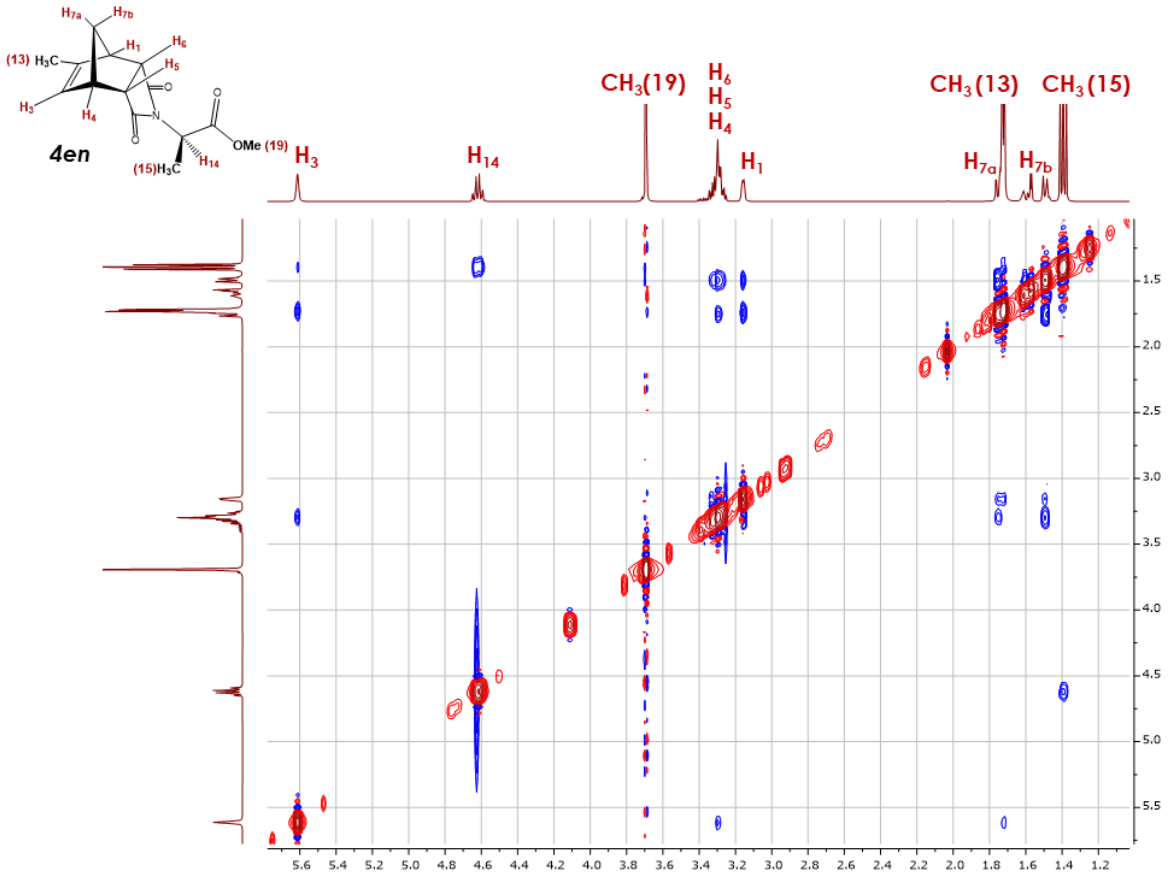

Figure S.39. NOESY of ***4en***

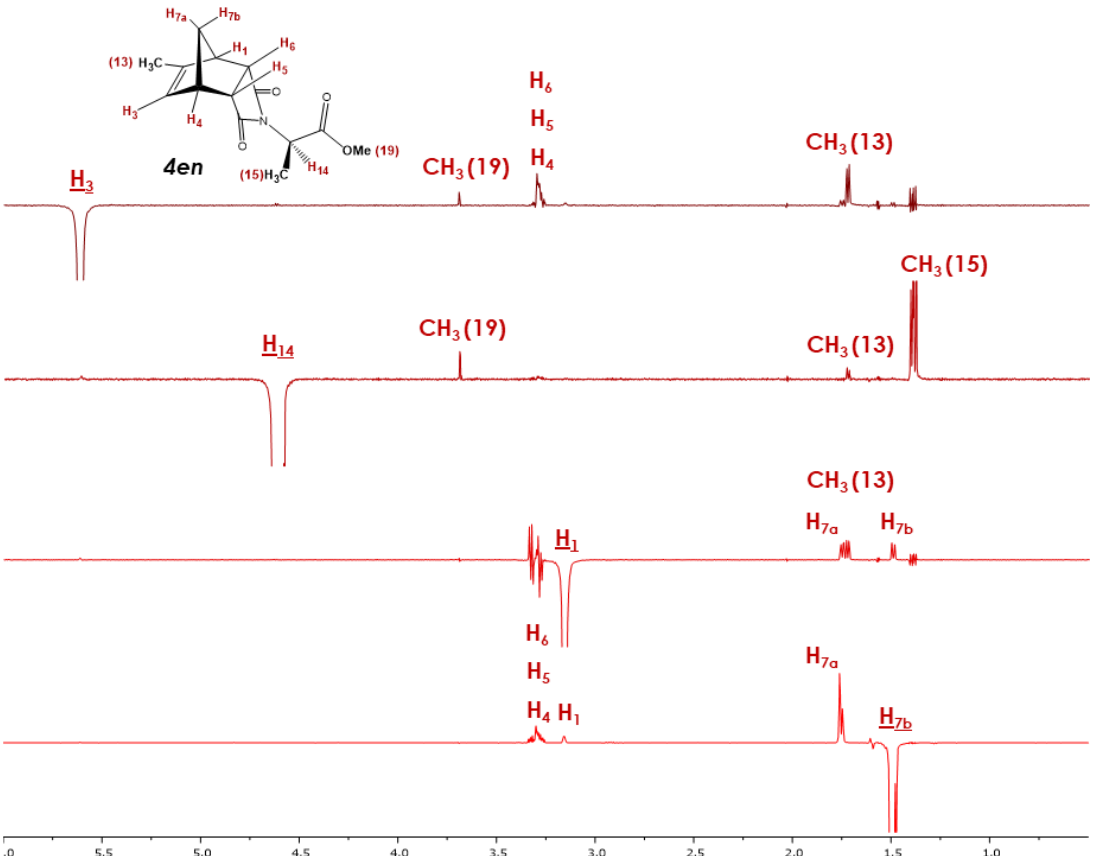

Figure S.40. 1D NOEs of ***4en***

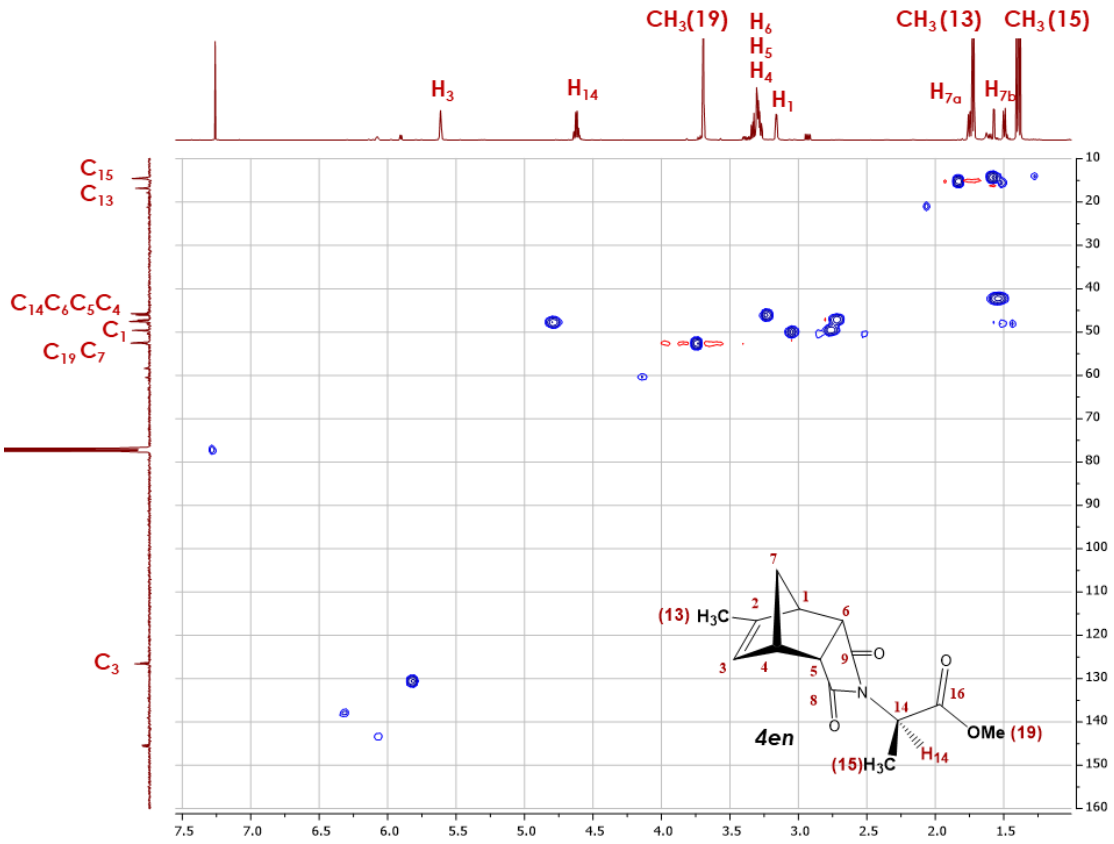

Figure S.41. HSQC of ***4en***

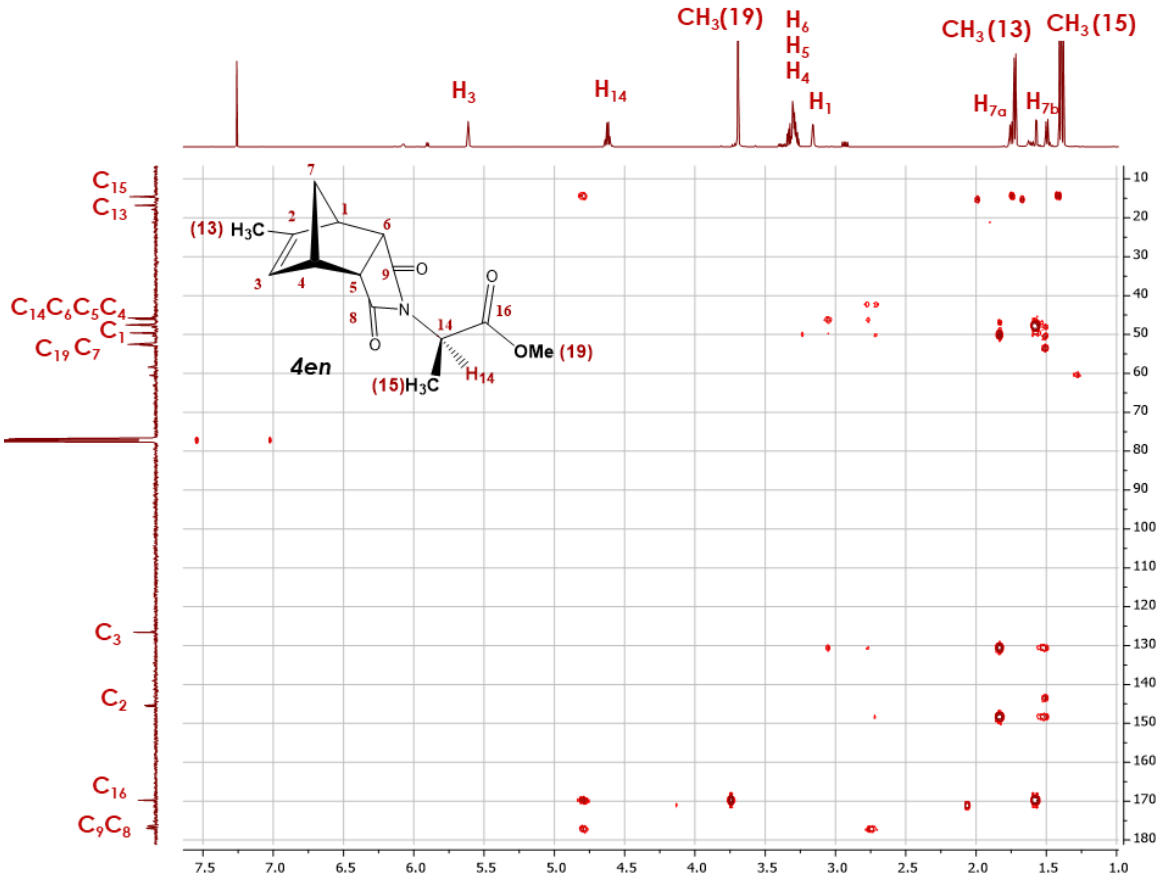

Figure S.42. HMBC of ***4en***

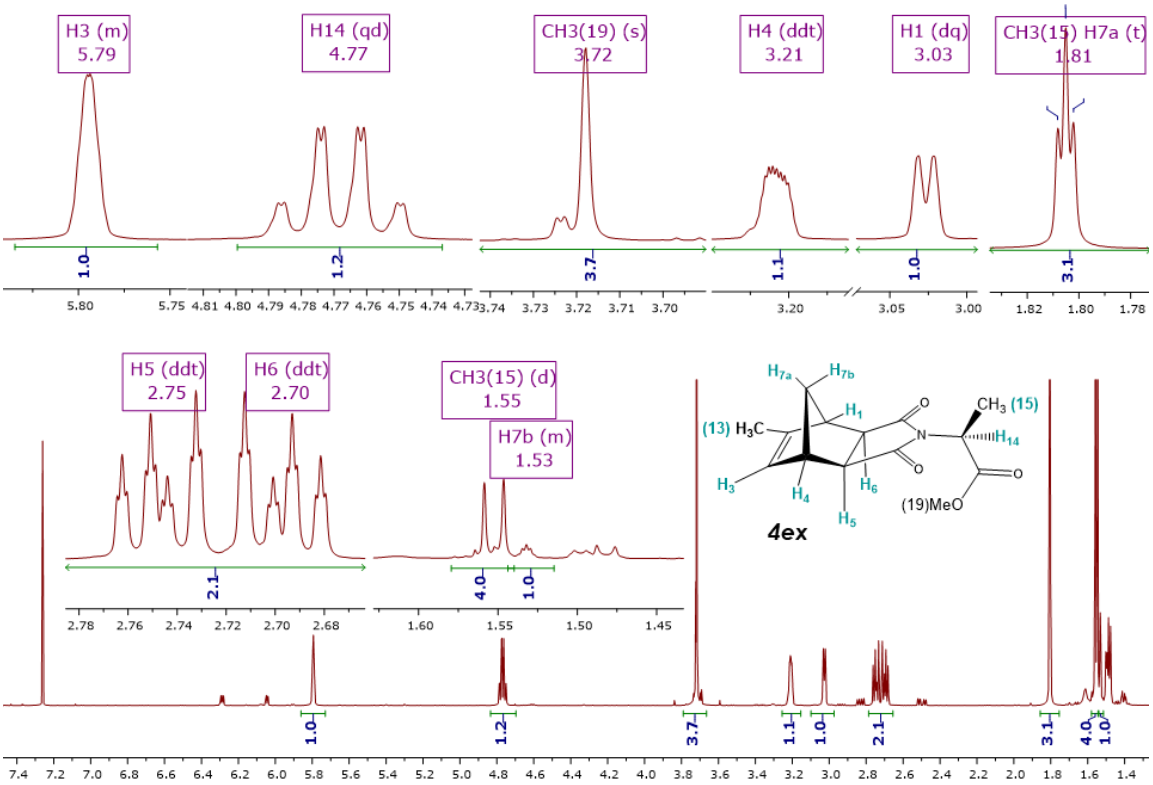

Figure S.43. ^{1}H NMR of ***4ex***

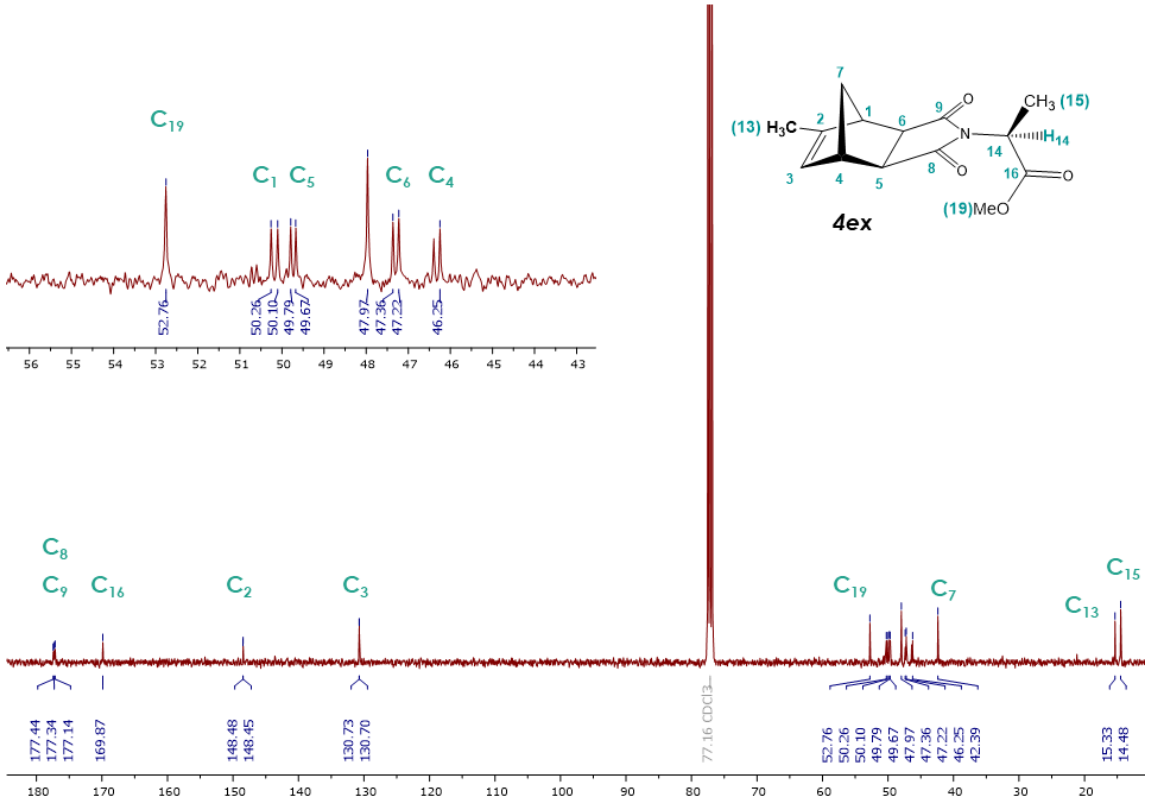

Figure S.44. ^{13}C NMR of ***4ex***

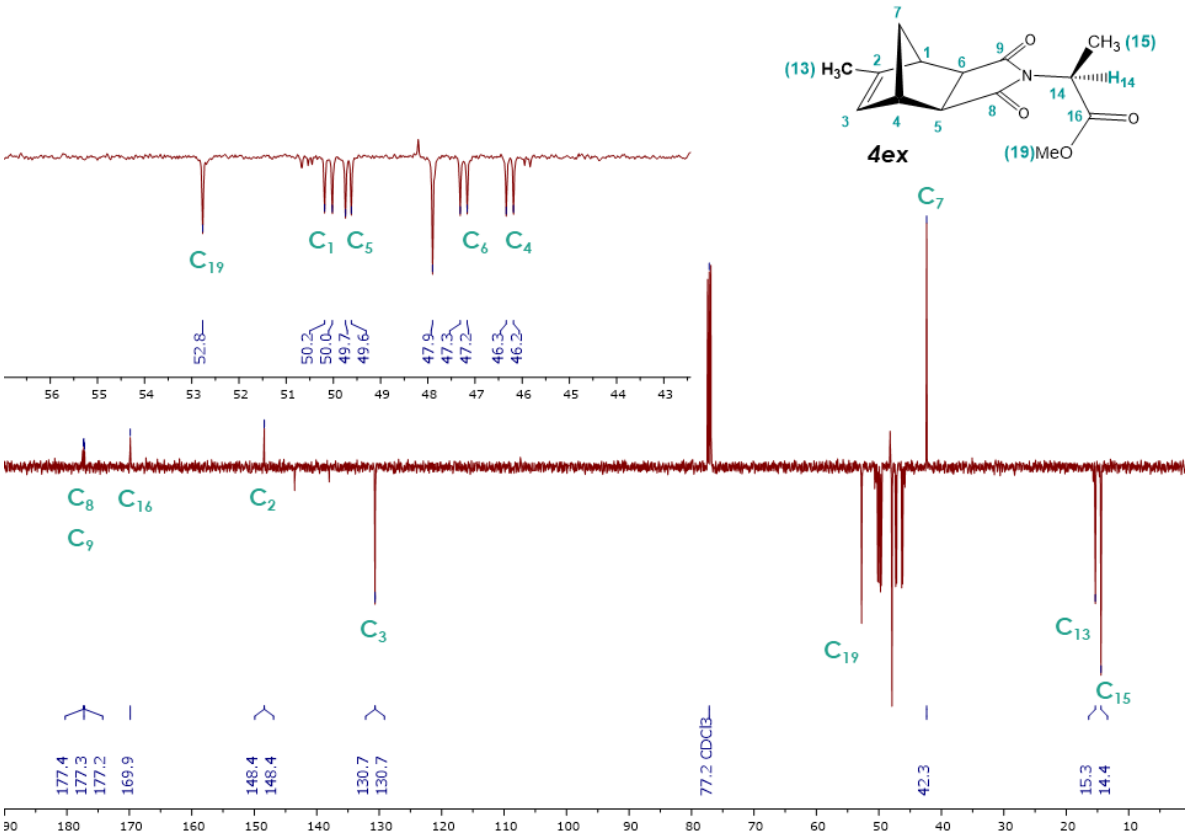

Figure S.45. APT of ***4ex***

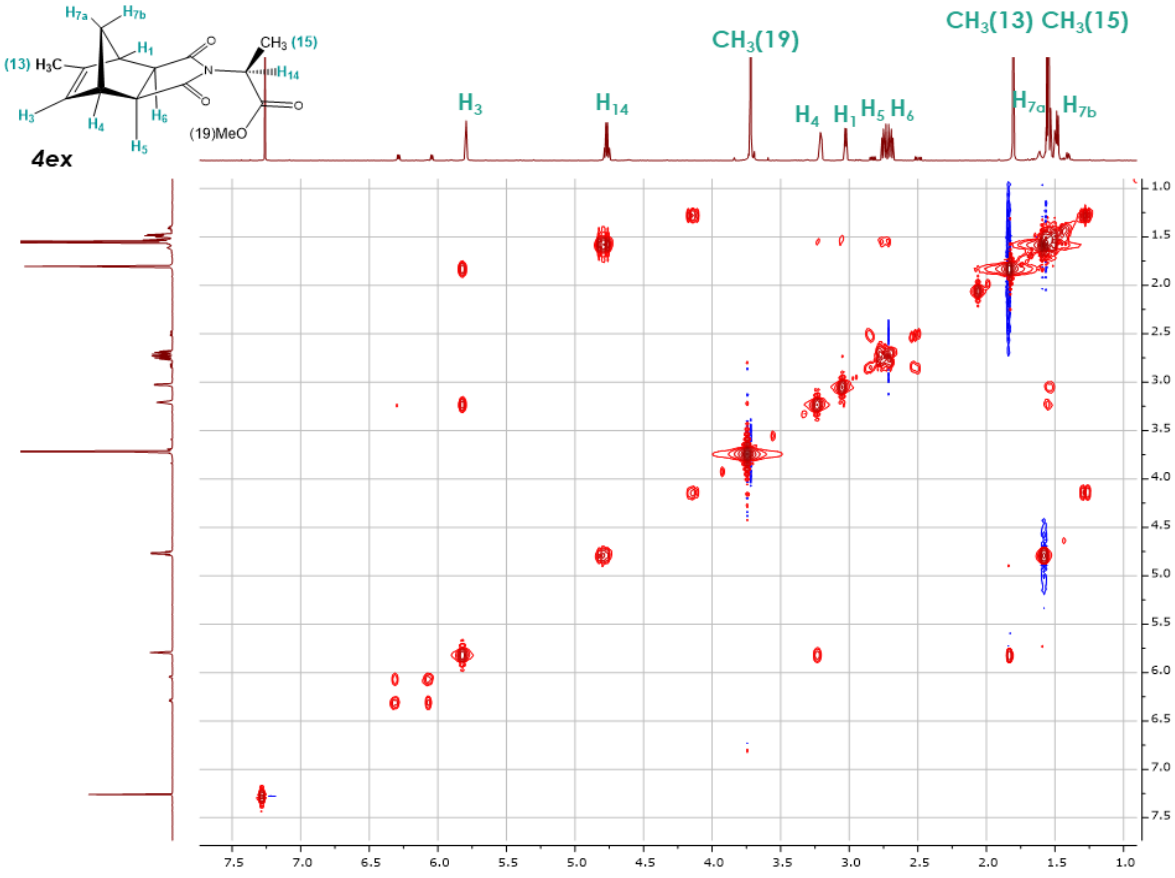

Figure S.46. COSY of ***4ex***

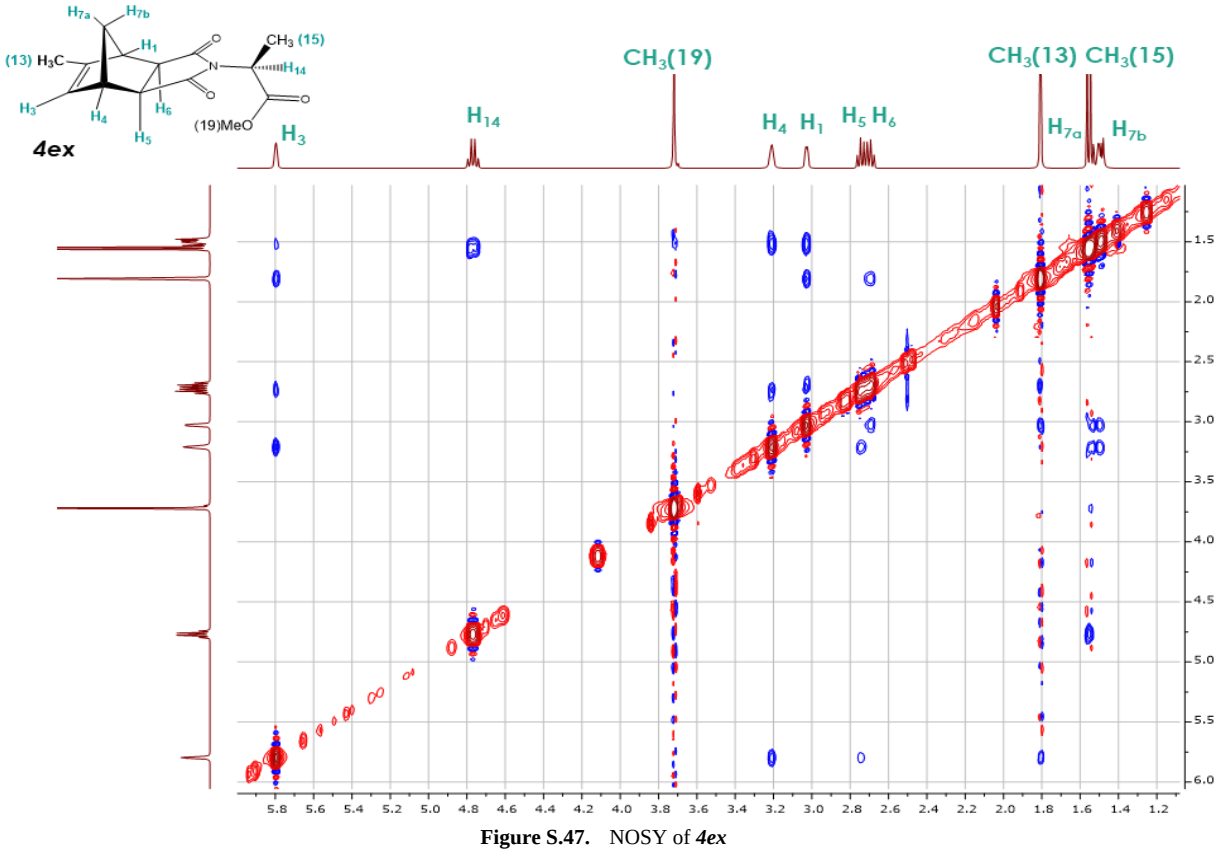

Figure S.47. NOSY of ***4ex***

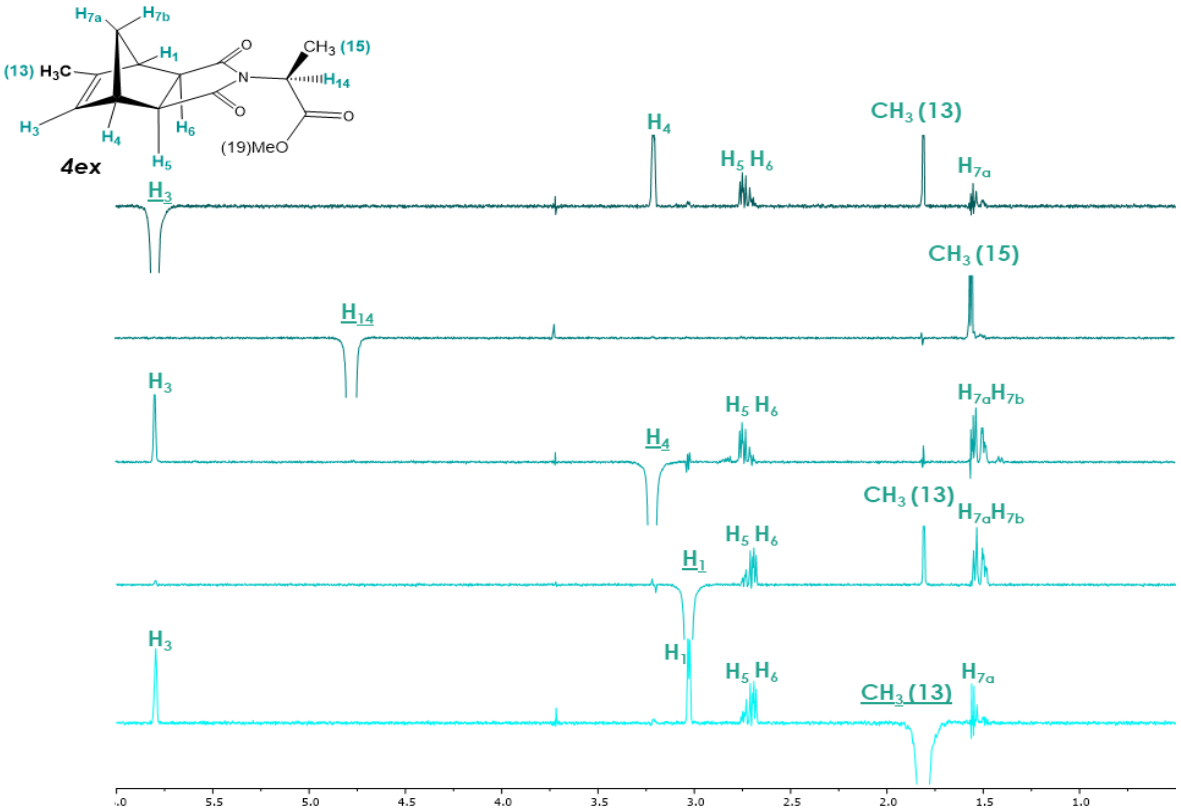

Figure S.48. 1D NOEs of ***4ex***

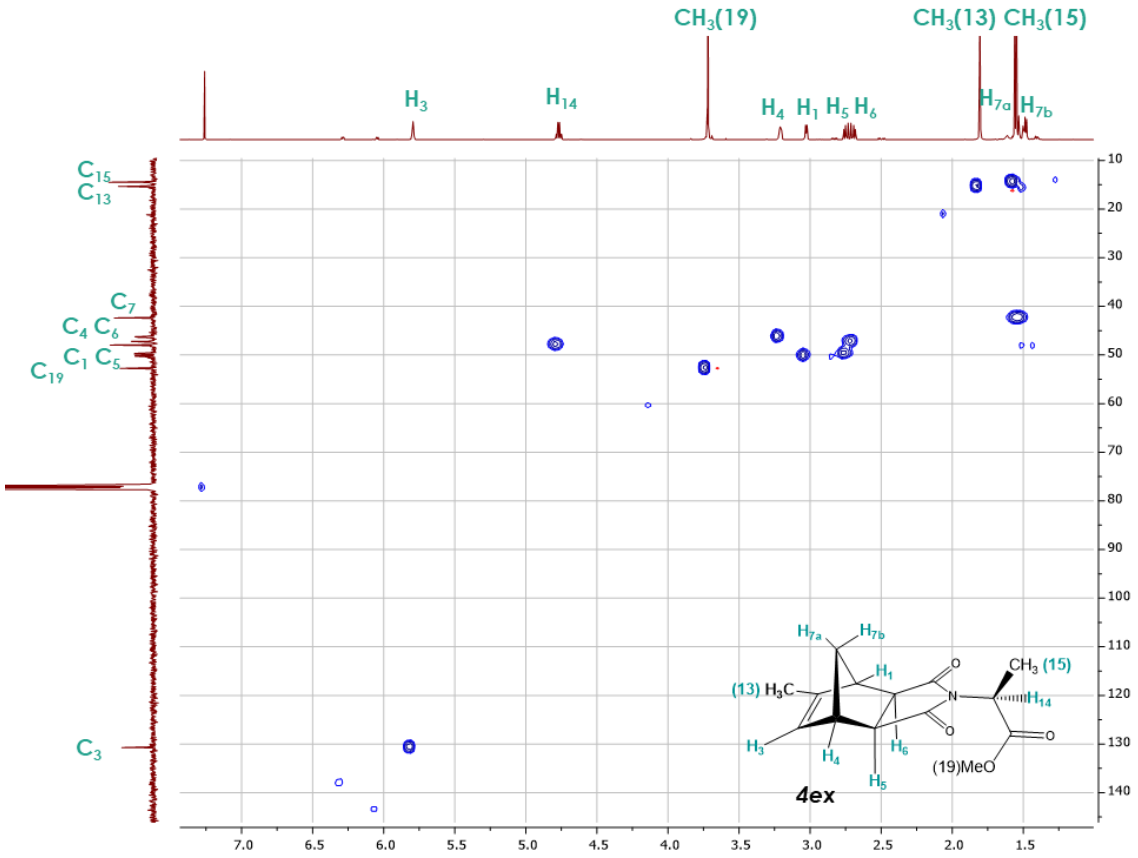

Figure S.49. HSQC of ***4ex***

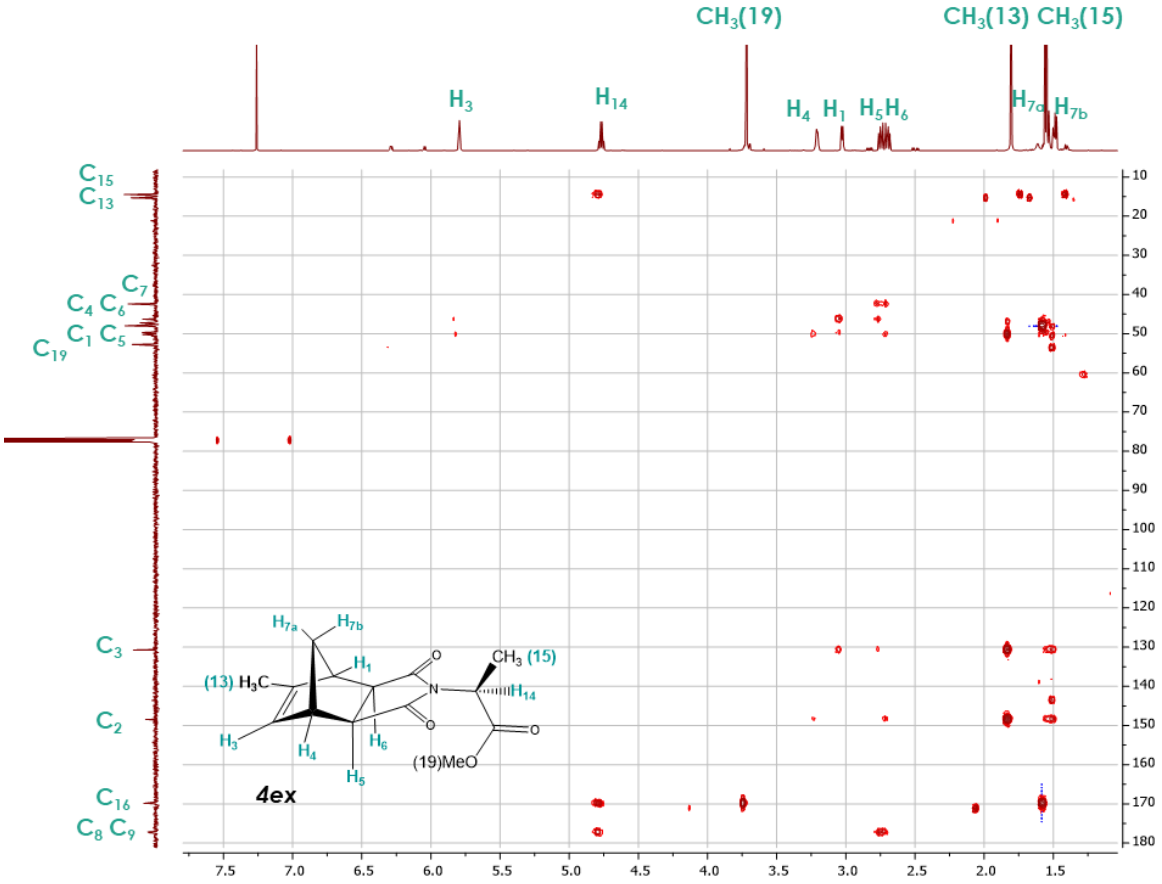

Figure S.50. HMBC of ***4ex***