

Supplementary Material

Synthesis of novel oxa-carbocycle annulated flavones and bis-flavones by ring closing/cross metathesis

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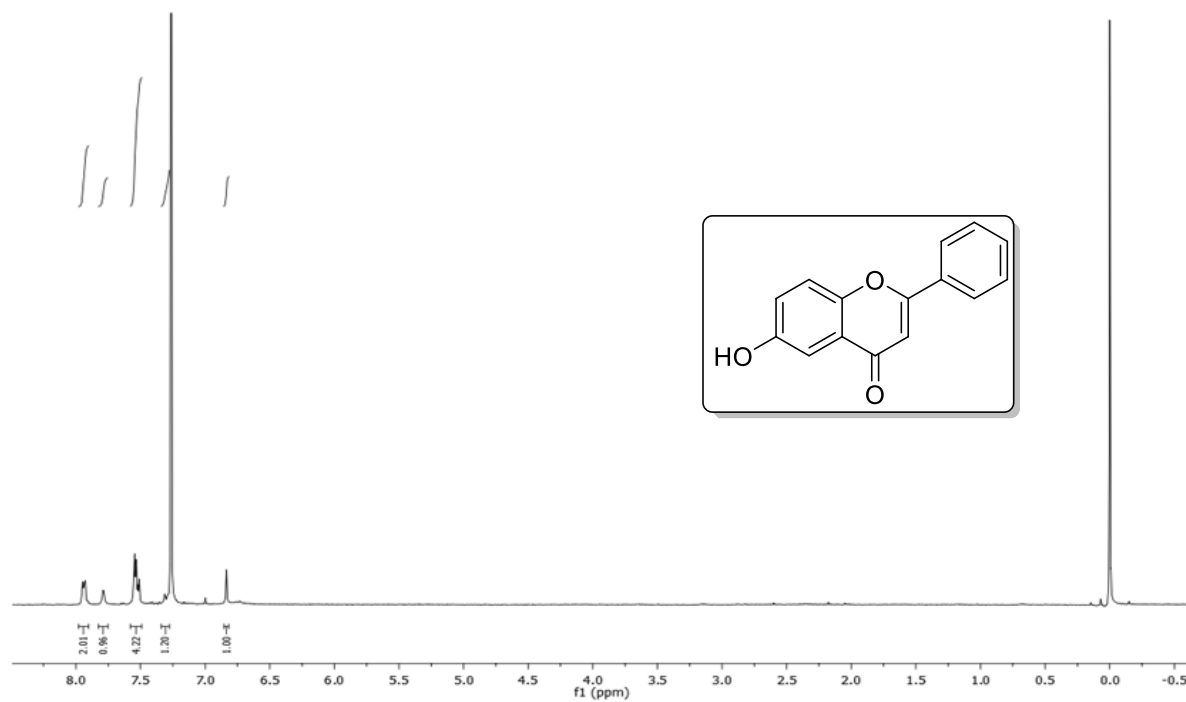


Figure S1. ¹H NMR Spectrum (400 MHz, CDCl₃) of compound-1a

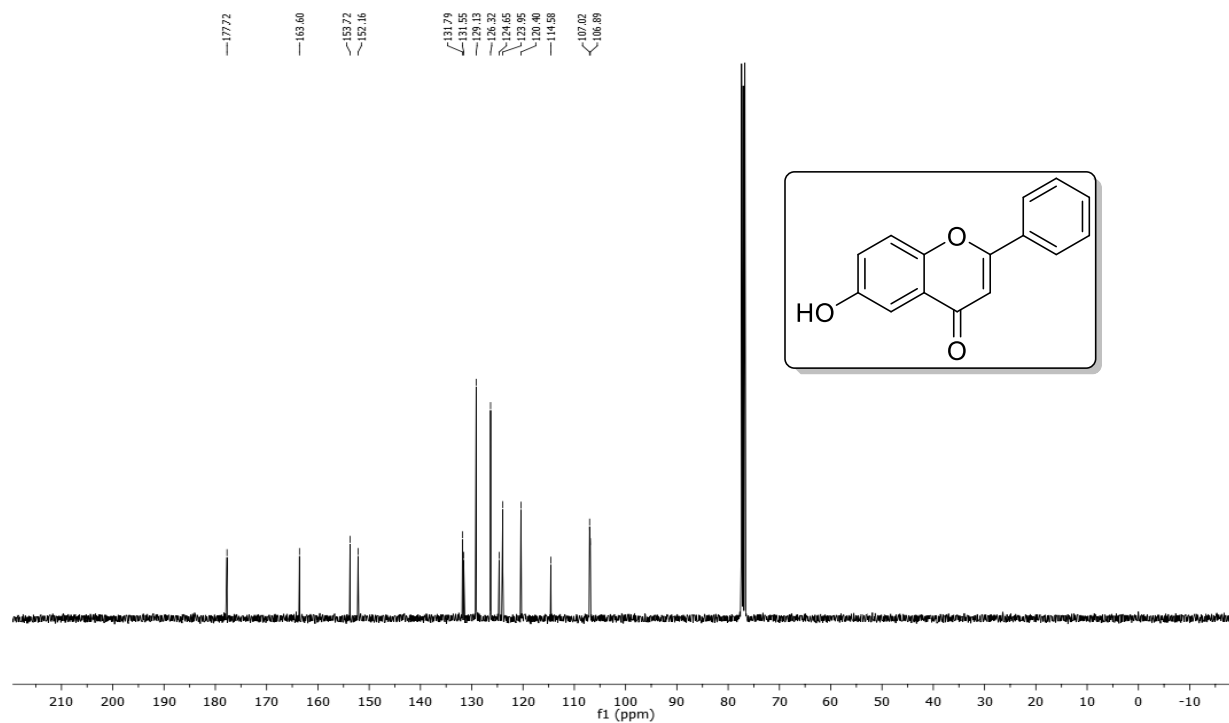


Figure S2. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound-1a

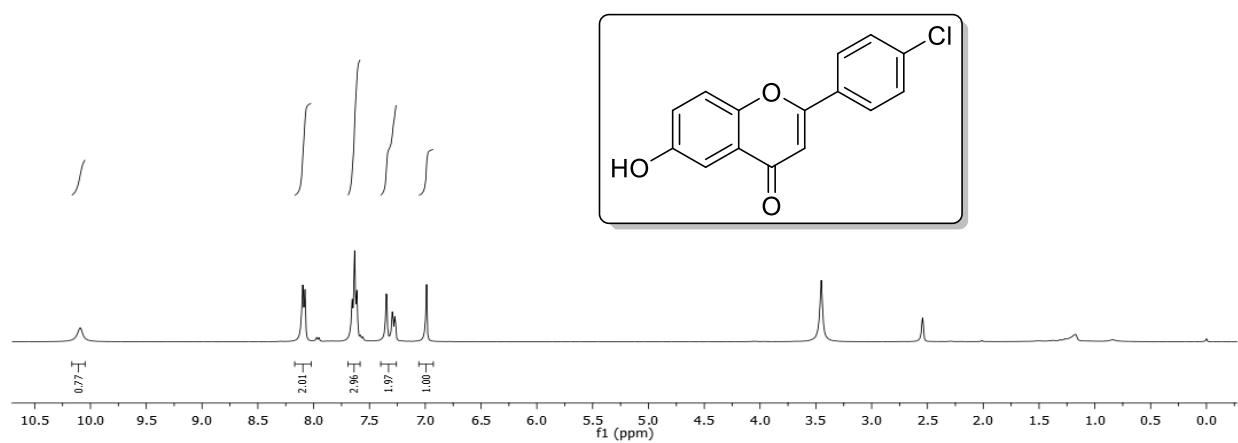


Figure S3. ¹H NMR Spectrum (400 MHz, DMSO) of compound-**1b**

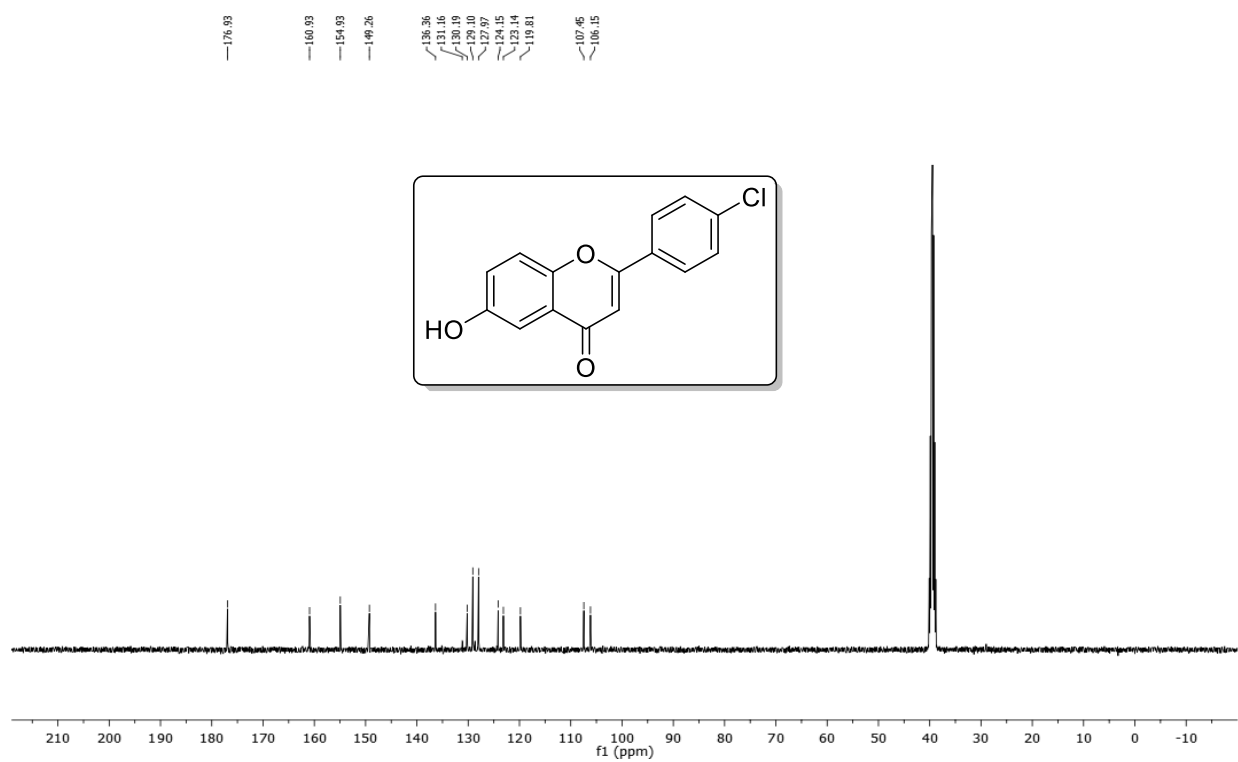


Figure S4. ¹³C NMR Spectrum (101 MHz, DMSO) of compound-**1b**

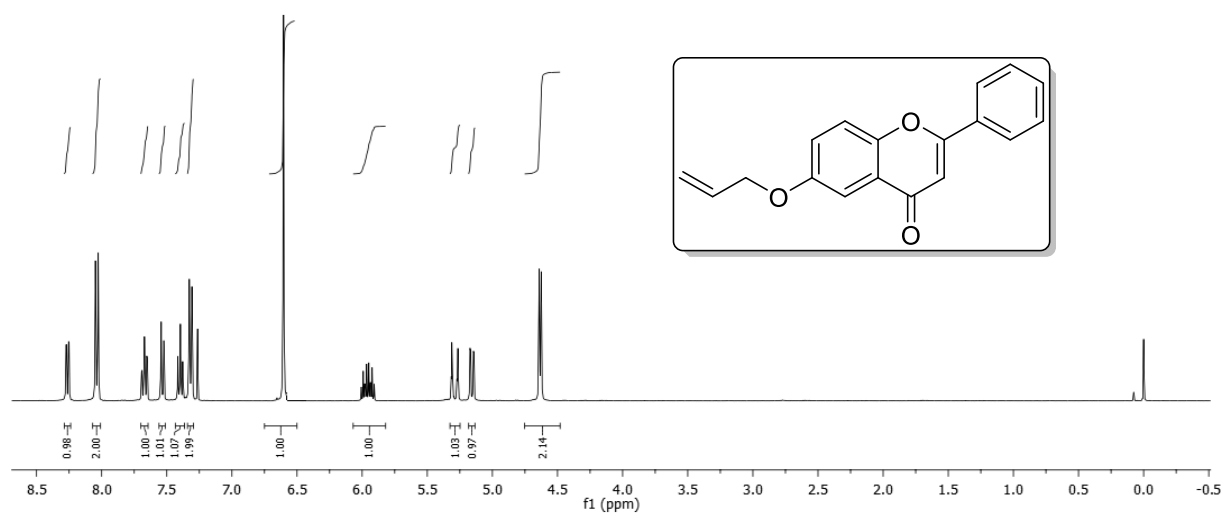


Figure S5. ¹H NMR Spectrum (400 MHz, CDCl₃) of compound-2a

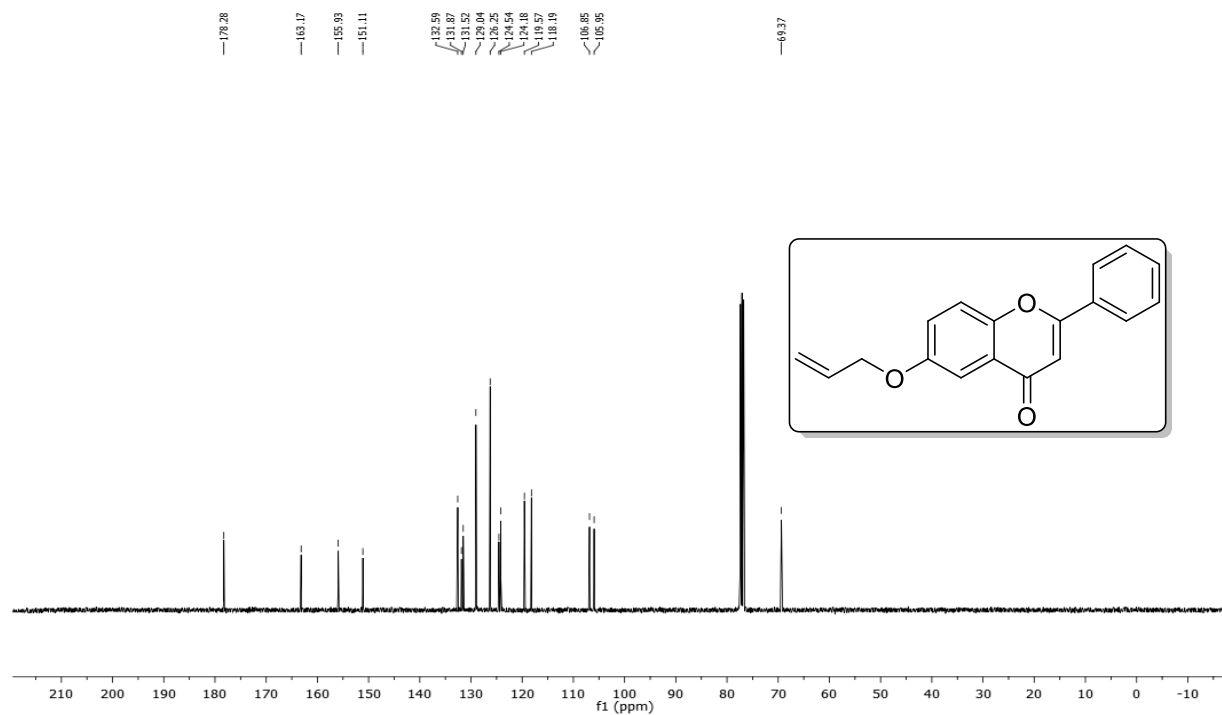


Figure S6. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound-2a

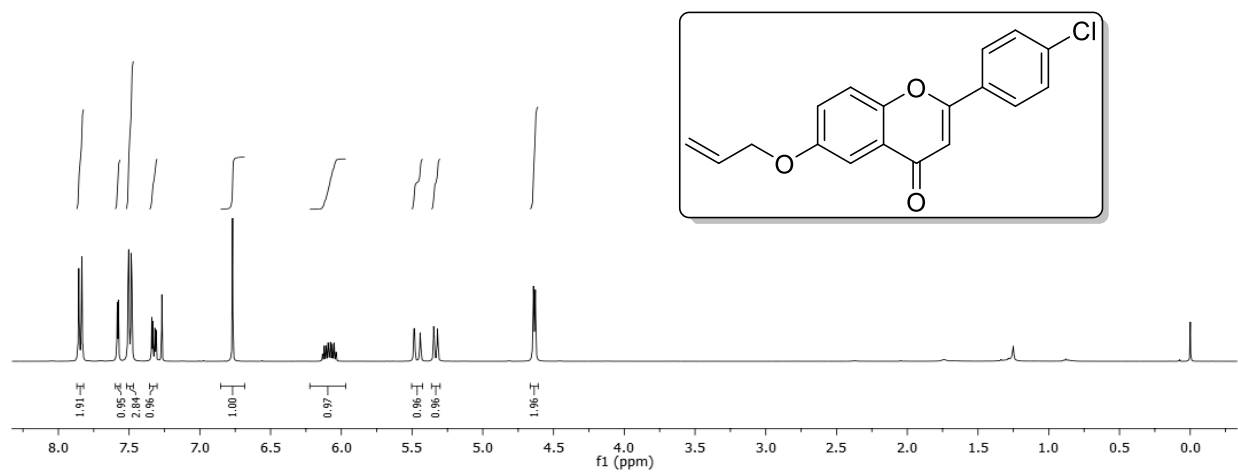


Figure S7. ¹H NMR Spectrum (400 MHz, CDCl₃) of compound-2b

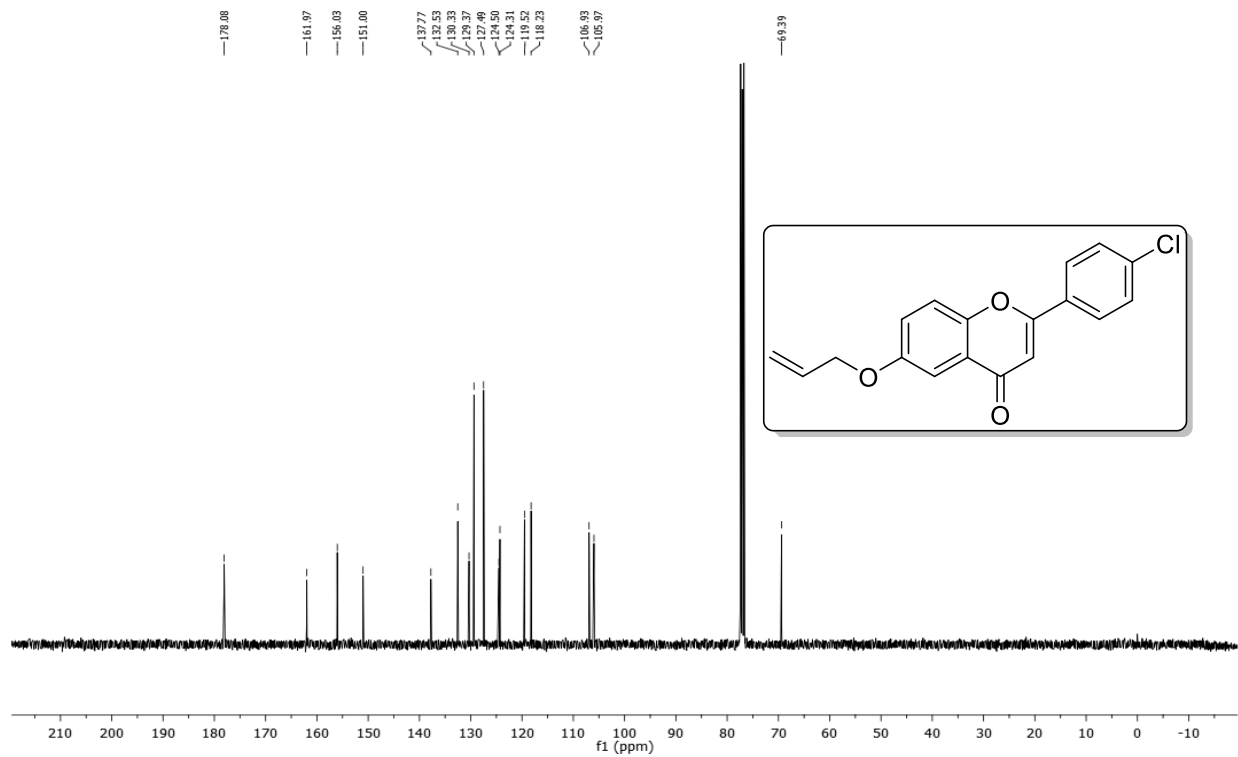


Figure S8. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound-2b

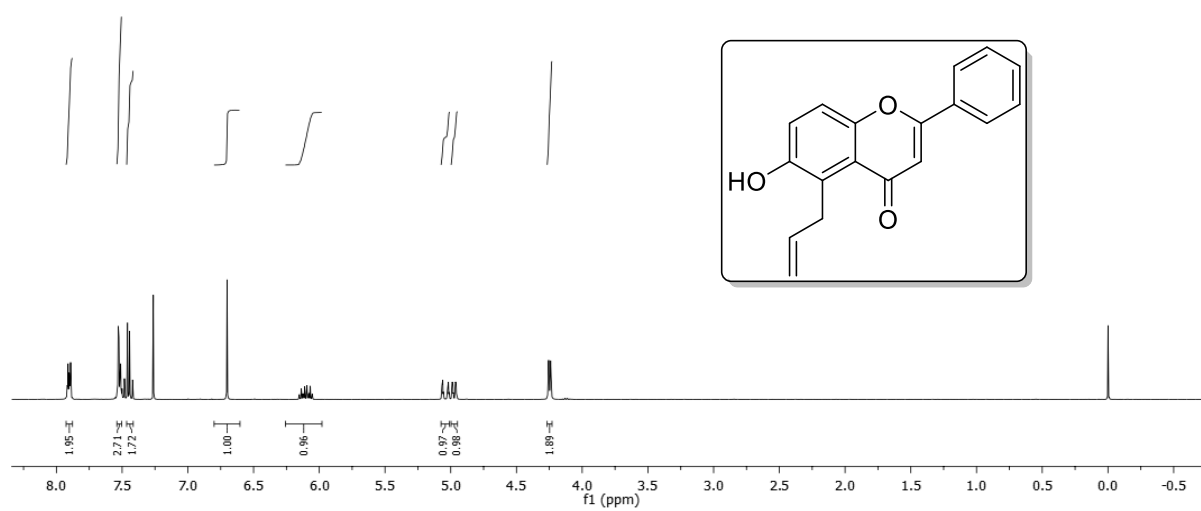


Figure 9. ^1H NMR Spectrum (400 MHz, CDCl_3) of compound-**3a**

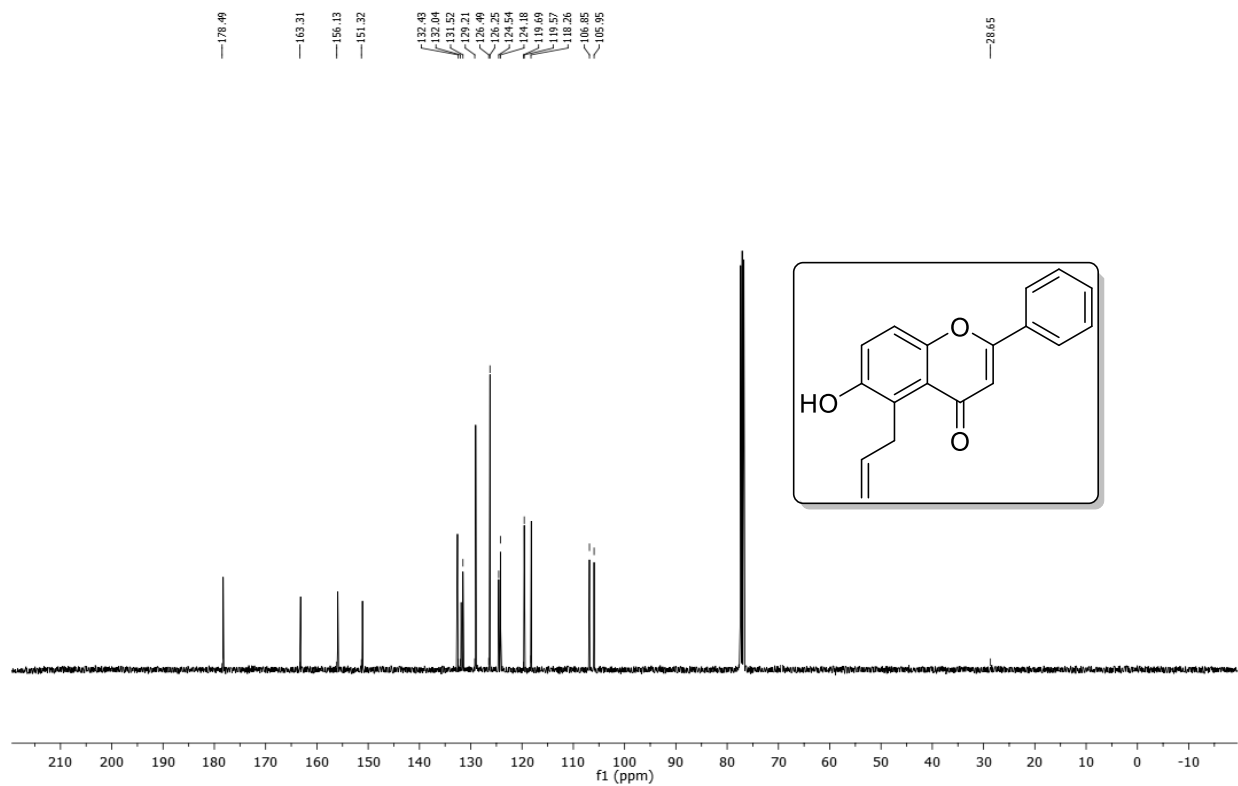


Figure S10. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound **3a**

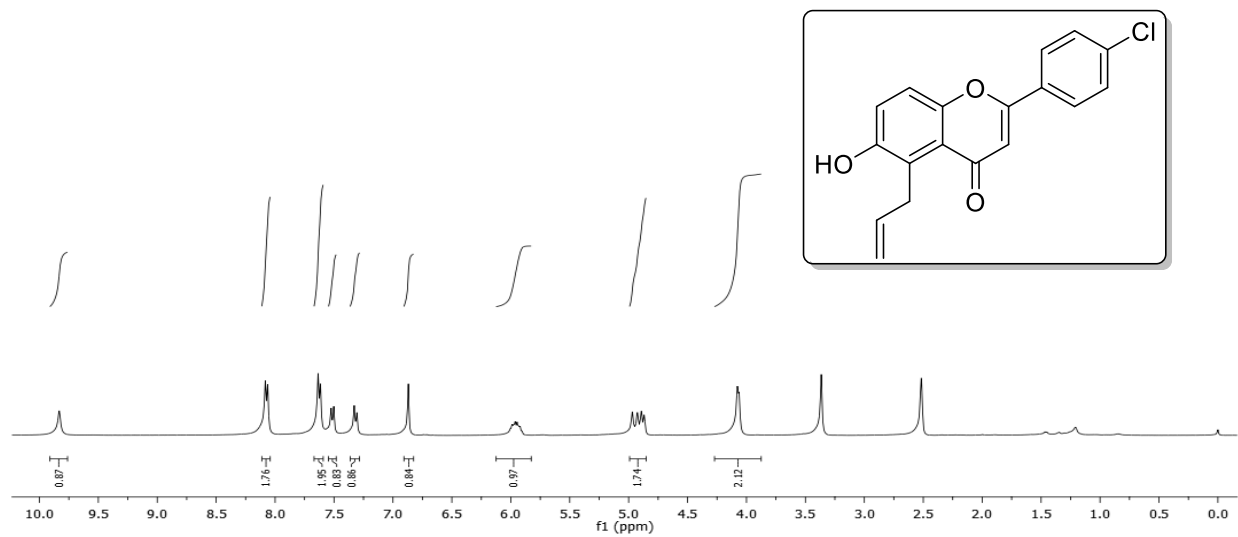


Figure S11. ¹H NMR Spectrum (400 MHz, DMSO) of compound **3b**

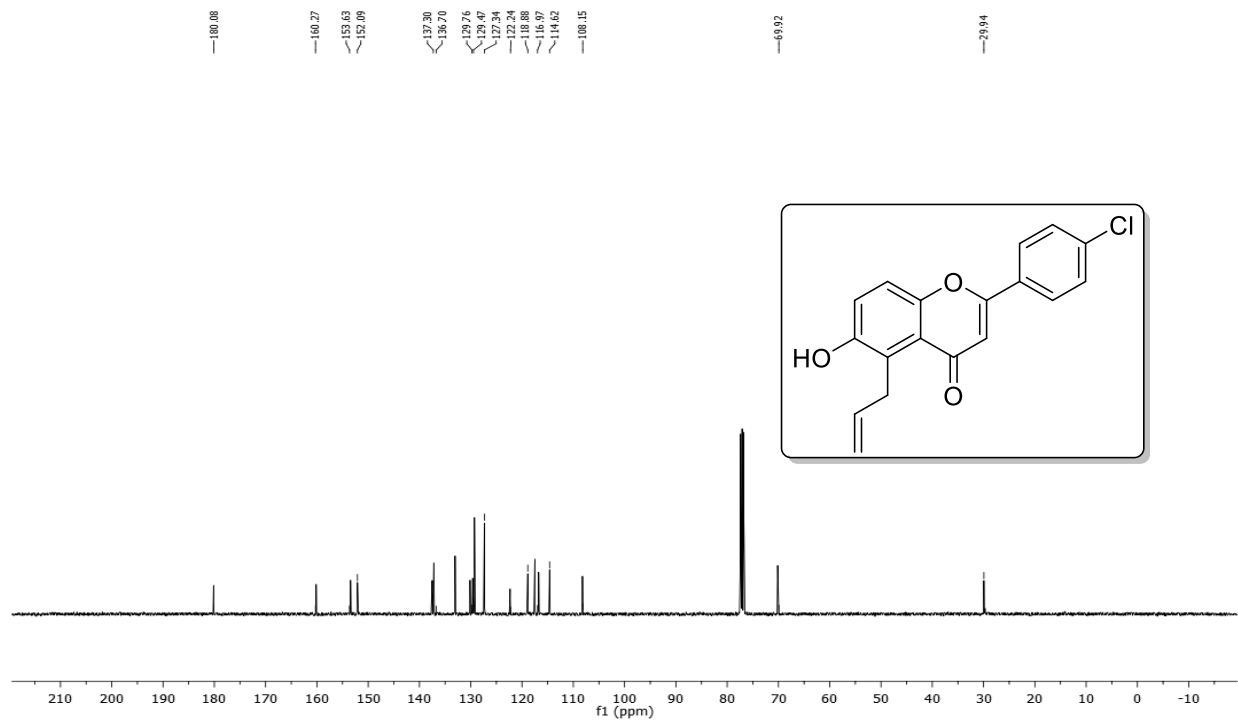


Figure S12. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound **3b**

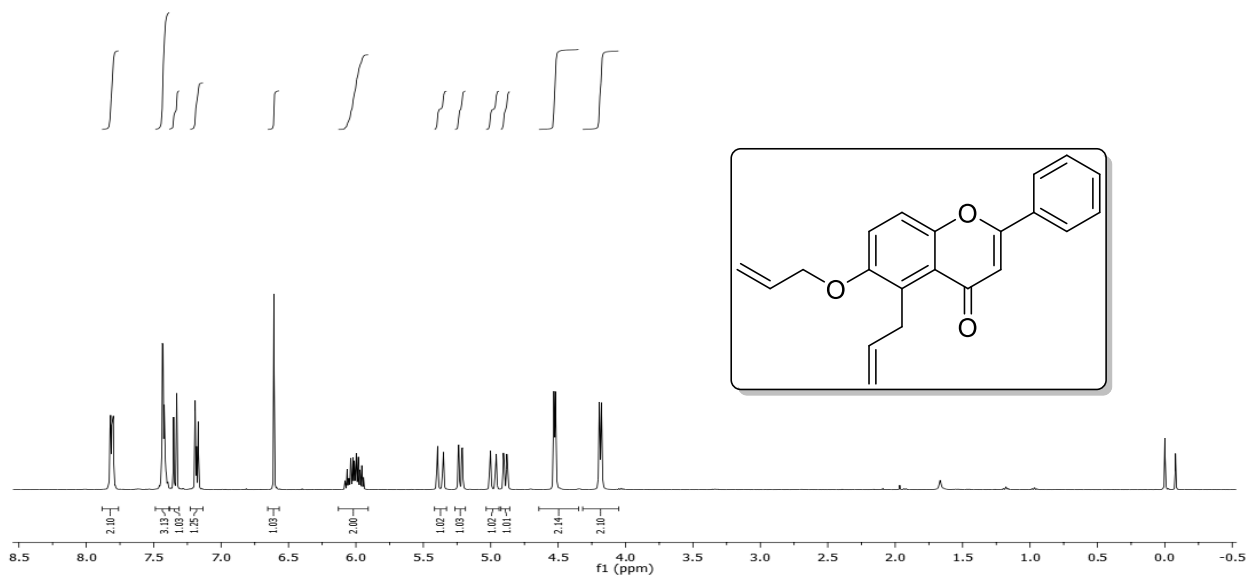


Figure S13. ¹H NMR Spectrum (400 MHz, CDCl₃) of compound **4a**

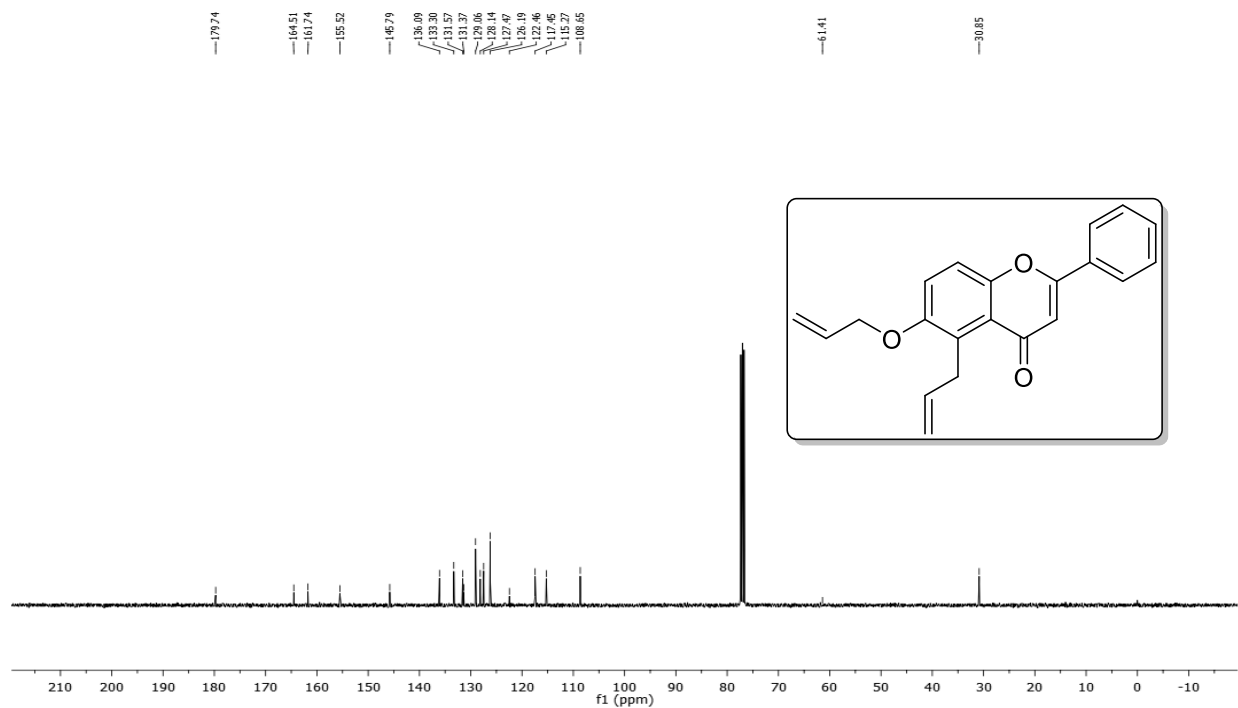


Figure S14. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound-4a

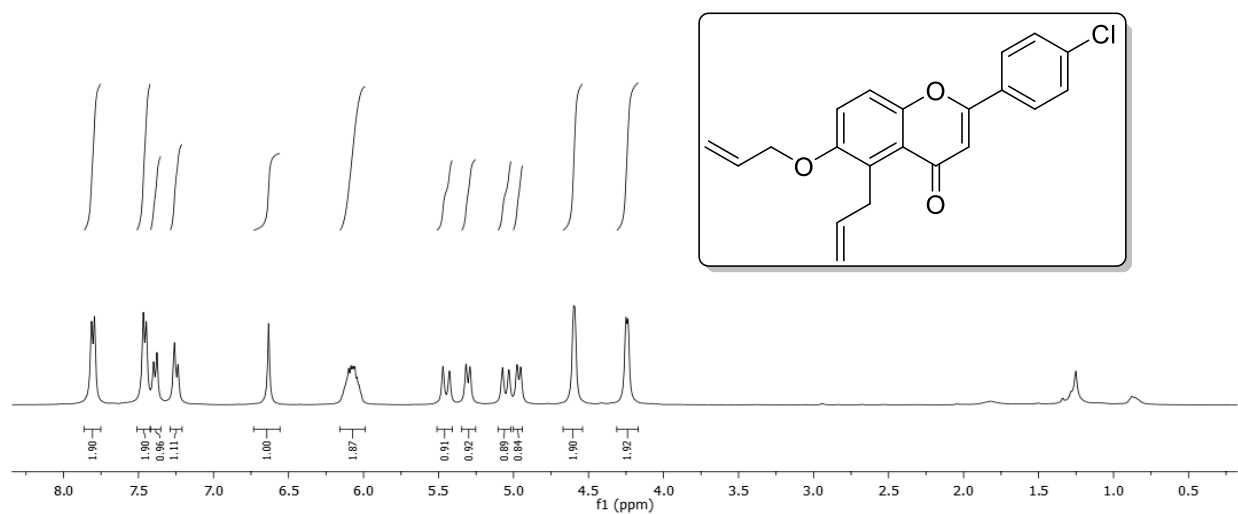


Figure S15. ¹H NMR Spectrum (400 MHz, CDCl₃) of compound-4b

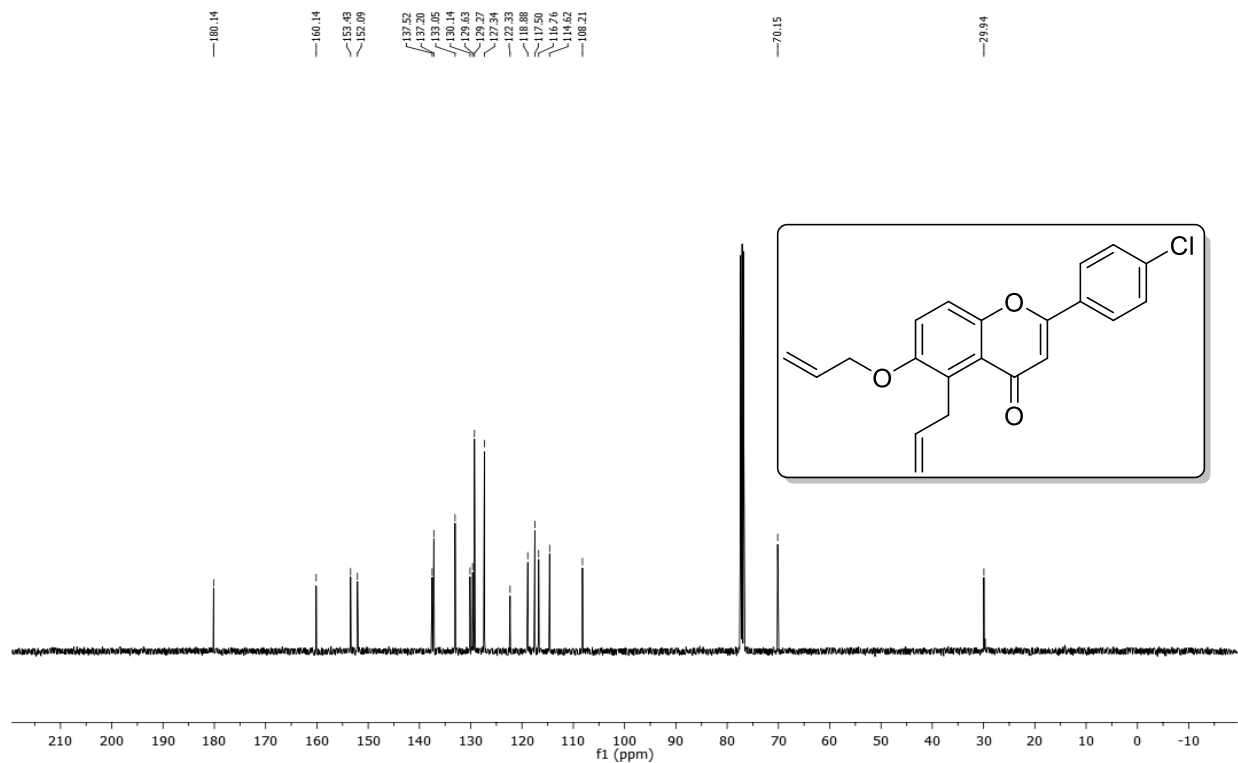


Figure S16. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound-**4b**

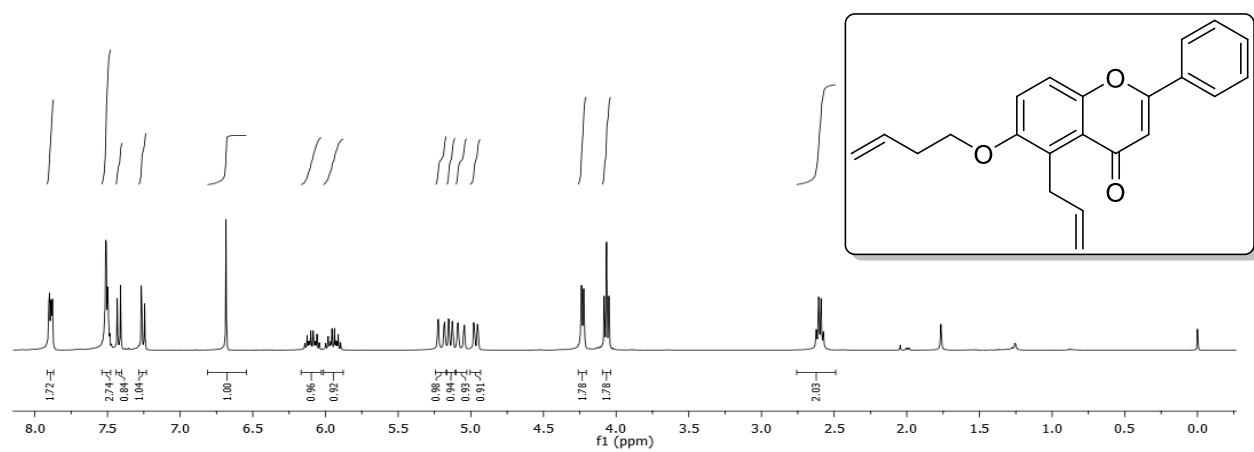


Figure S17. ¹H NMR Spectrum (400 MHz, CDCl₃) of compound-**4c**

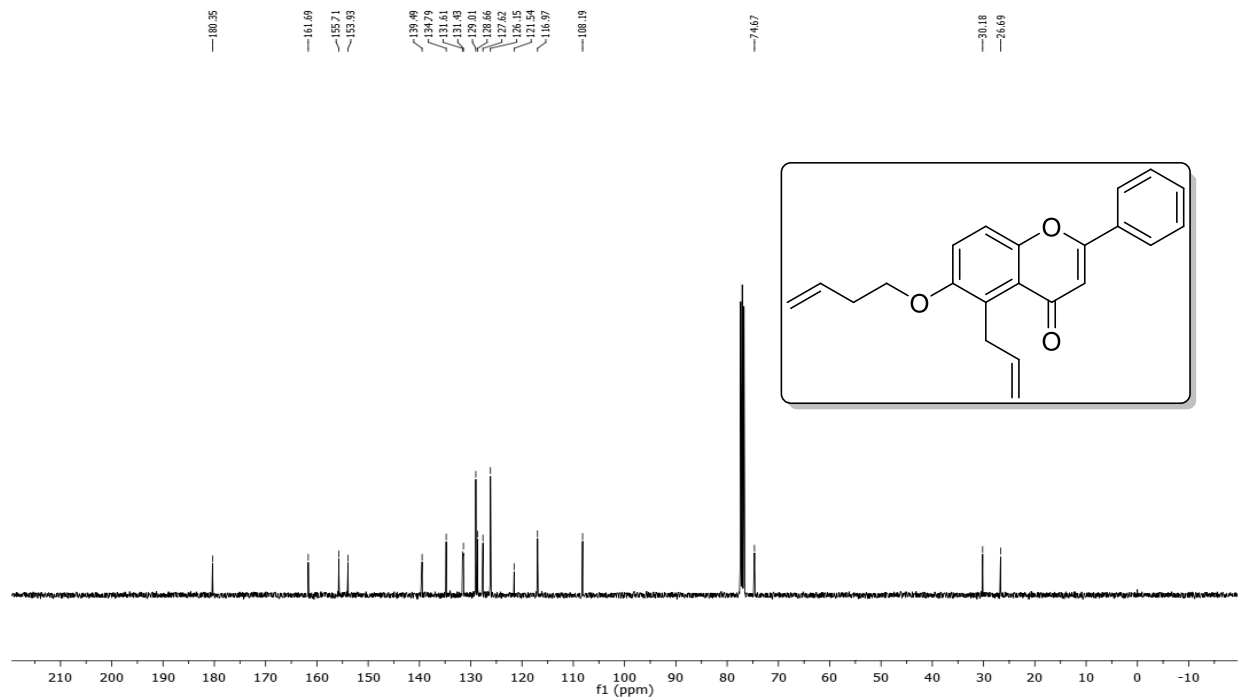


Figure S18. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound-**4c**

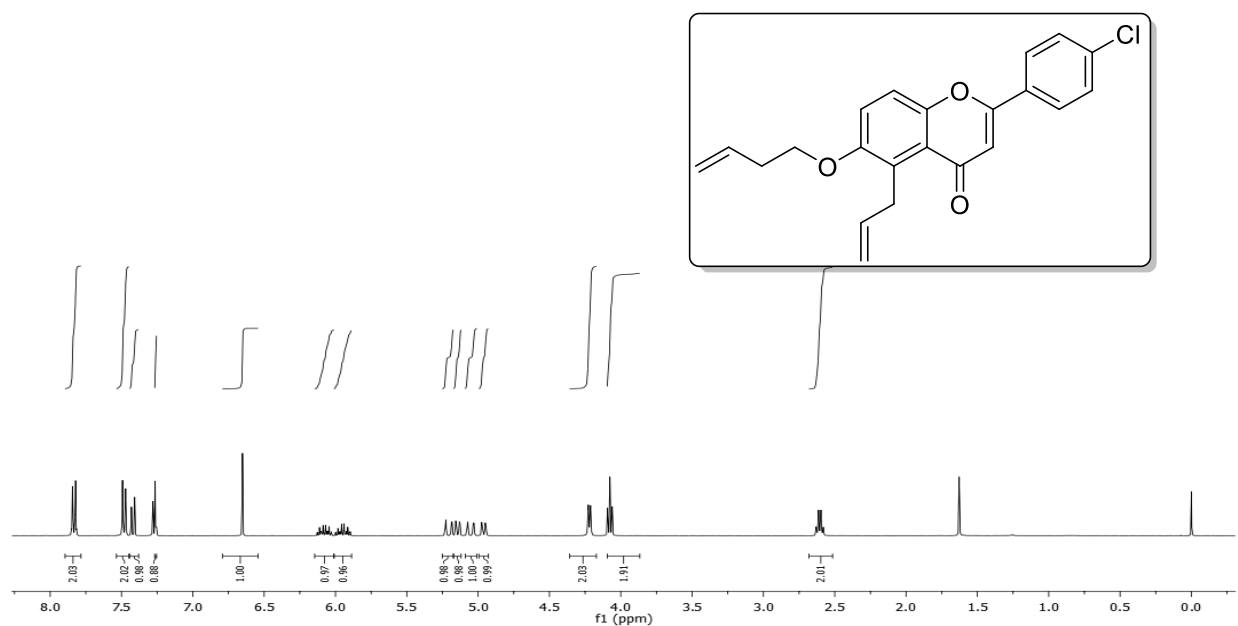


Figure S19. ¹H NMR Spectrum (400 MHz, CDCl₃) of compound-**4d**

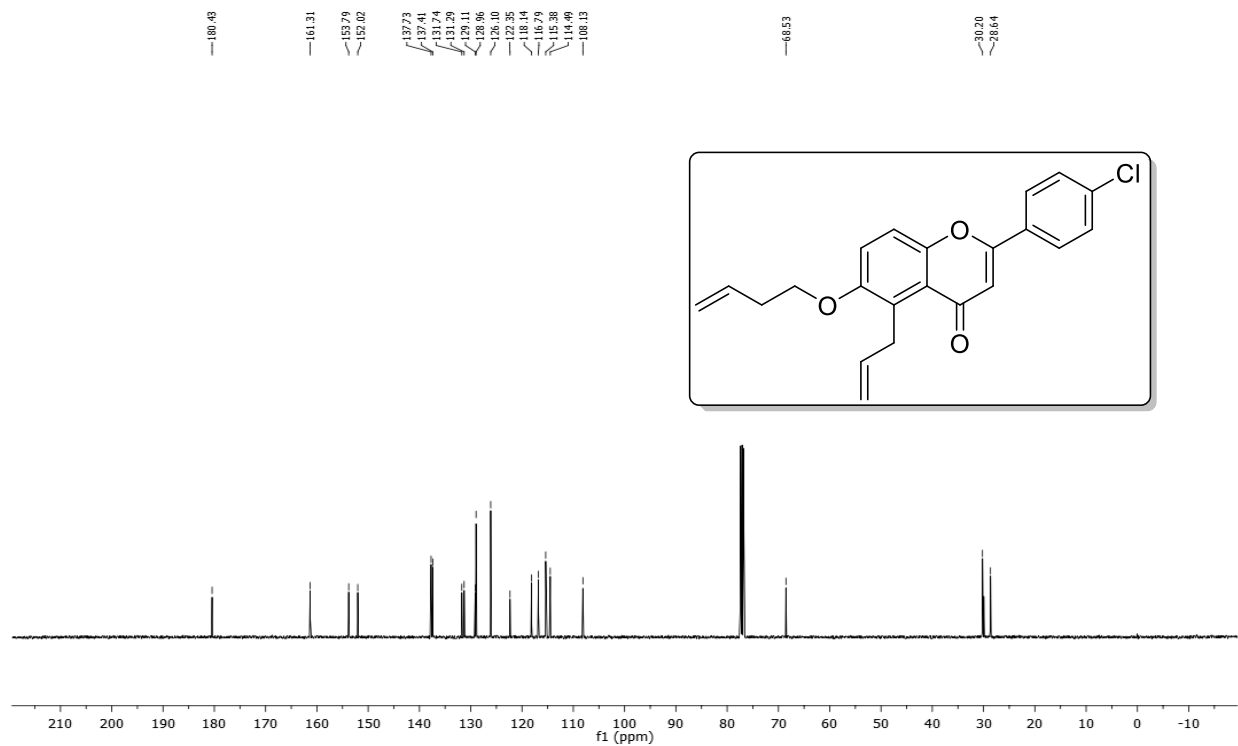


Figure S20. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound **4d**

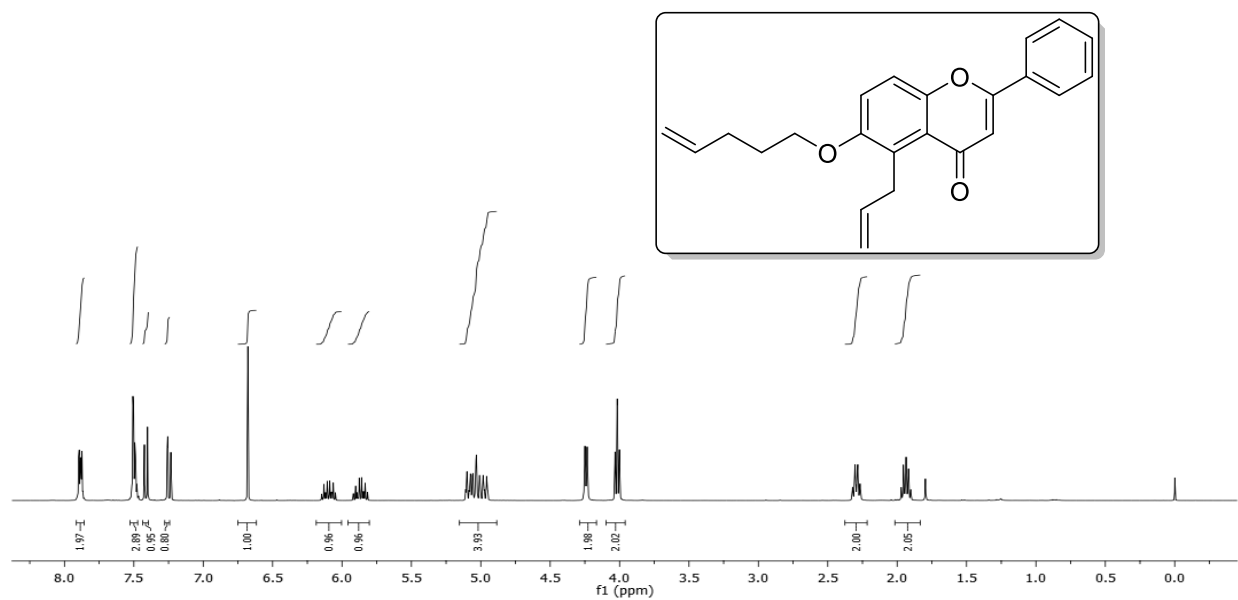


Figure S21. ¹H NMR Spectrum (400 MHz, CDCl₃) of compound **4e**

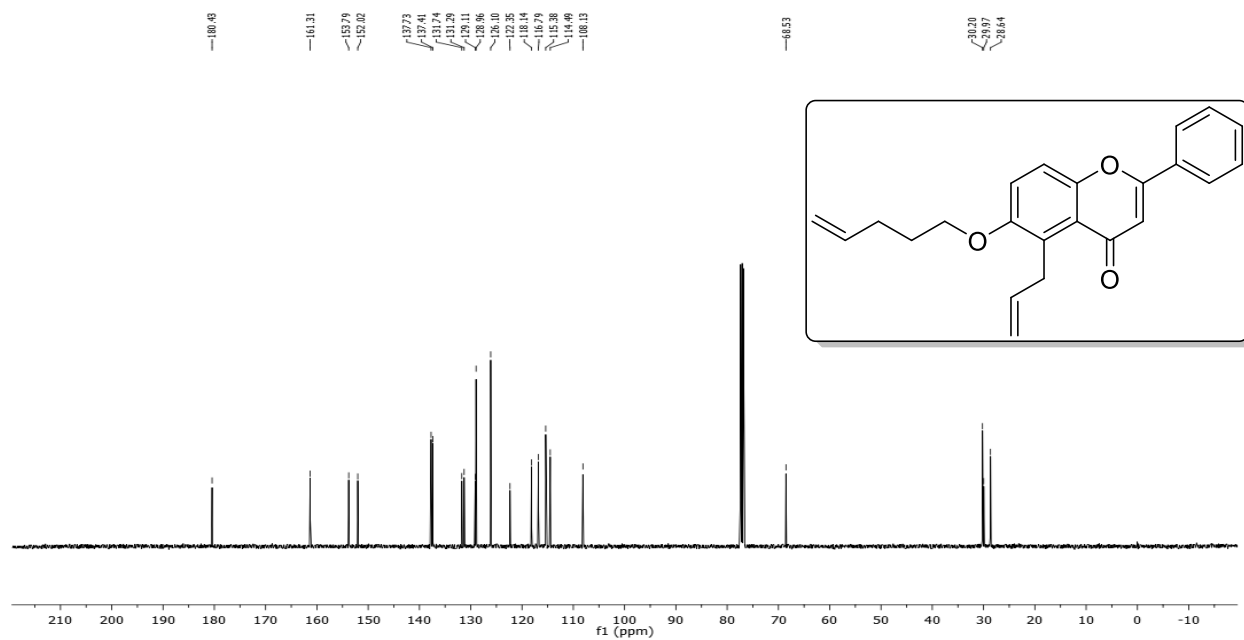


Figure S22. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound-**4e**

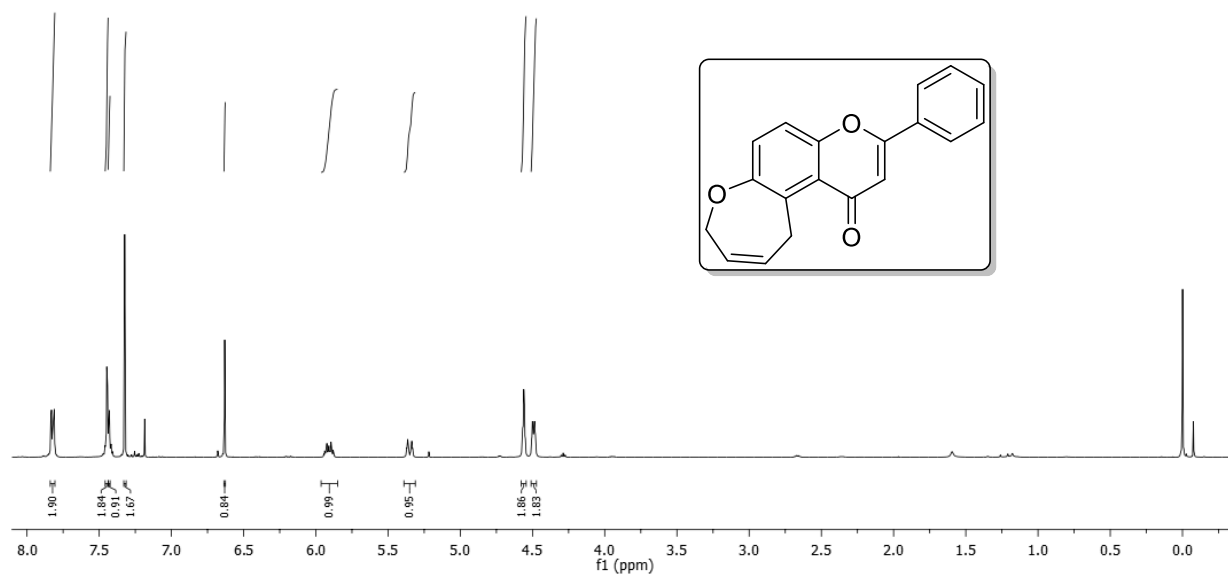


Figure S23. ¹H NMR Spectrum (400 MHz, CDCl₃) of compound-**5a**

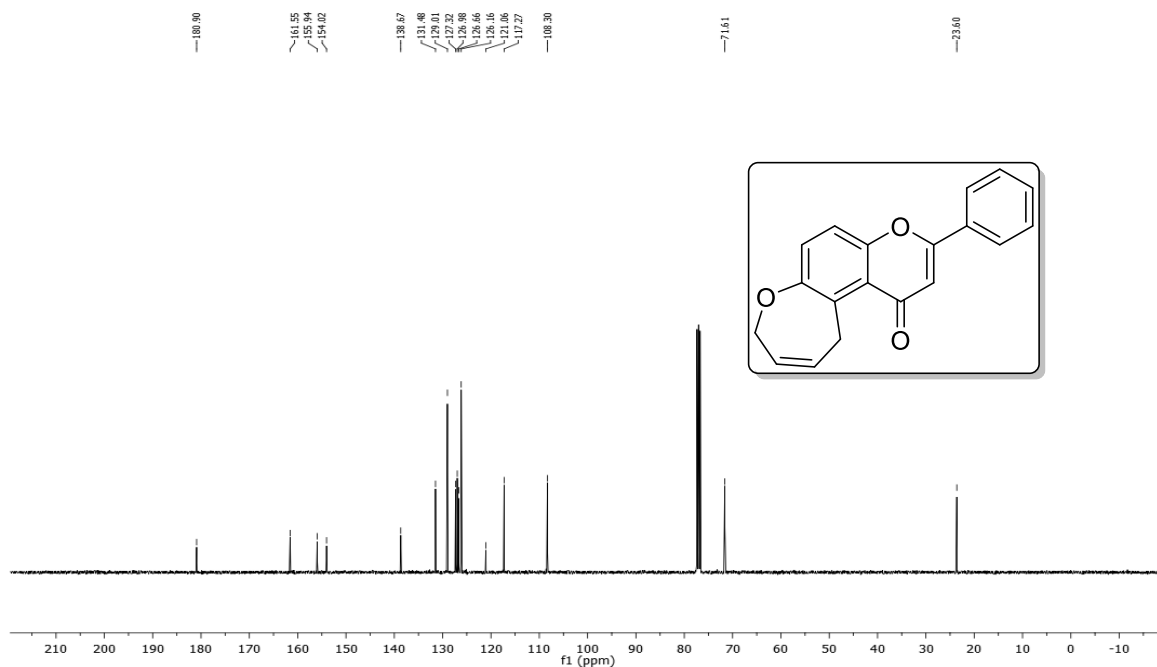


Figure S24. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound **5a**

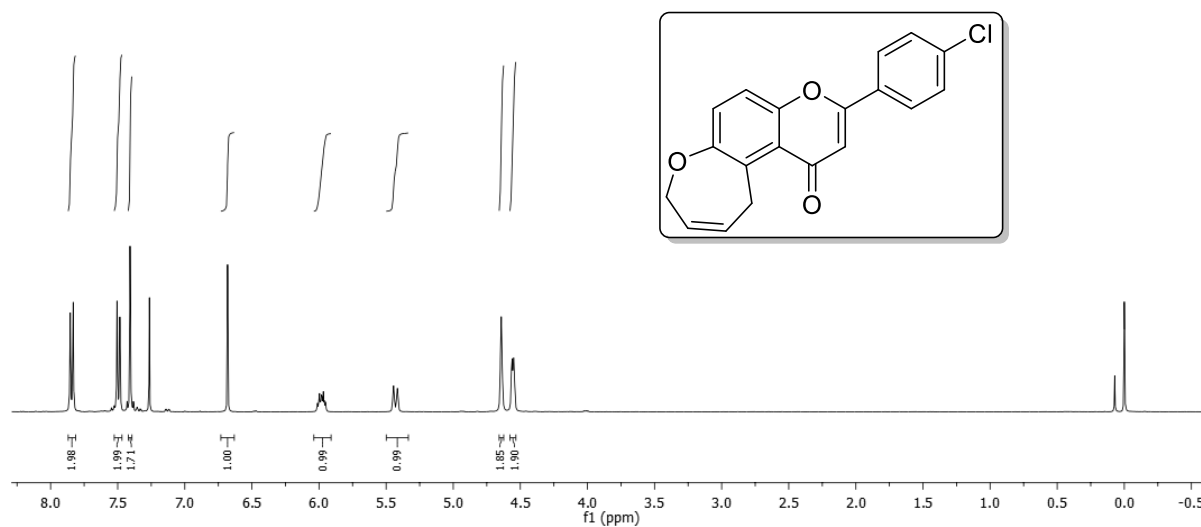


Figure S25. ¹H NMR Spectrum (400 MHz, CDCl₃) of compound **5b**

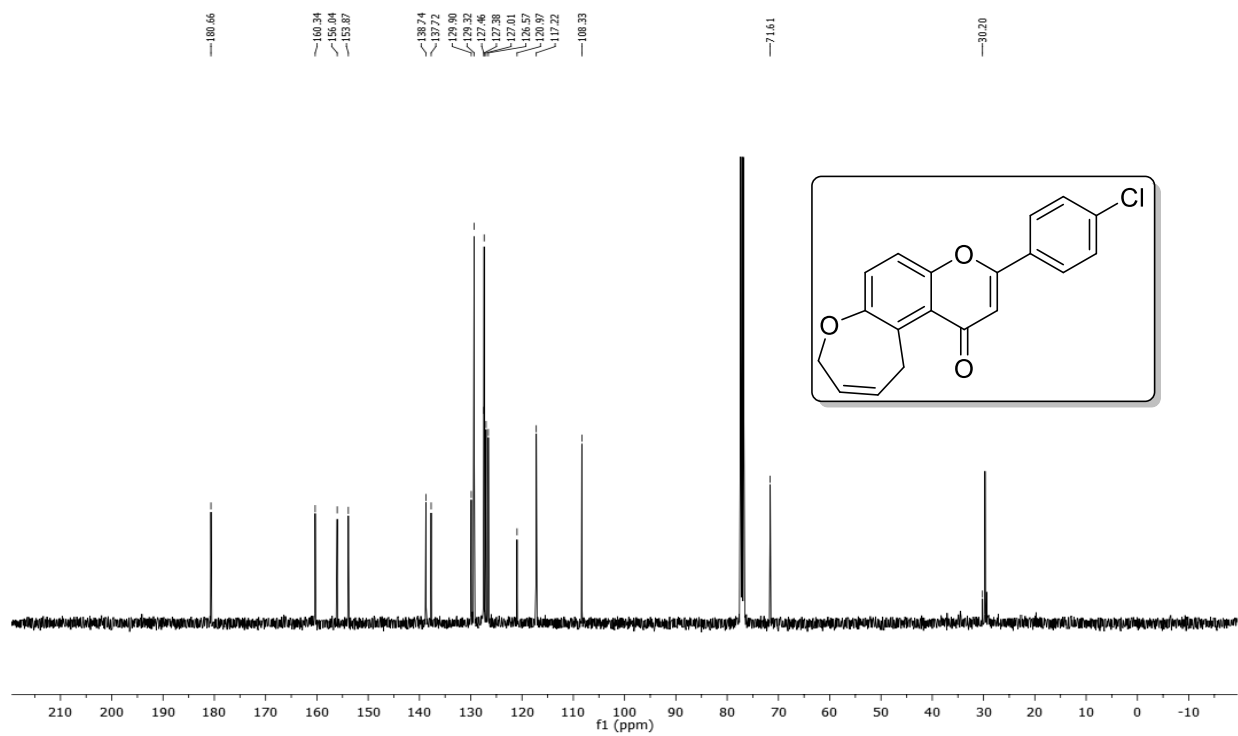


Figure S26. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound-**5b**

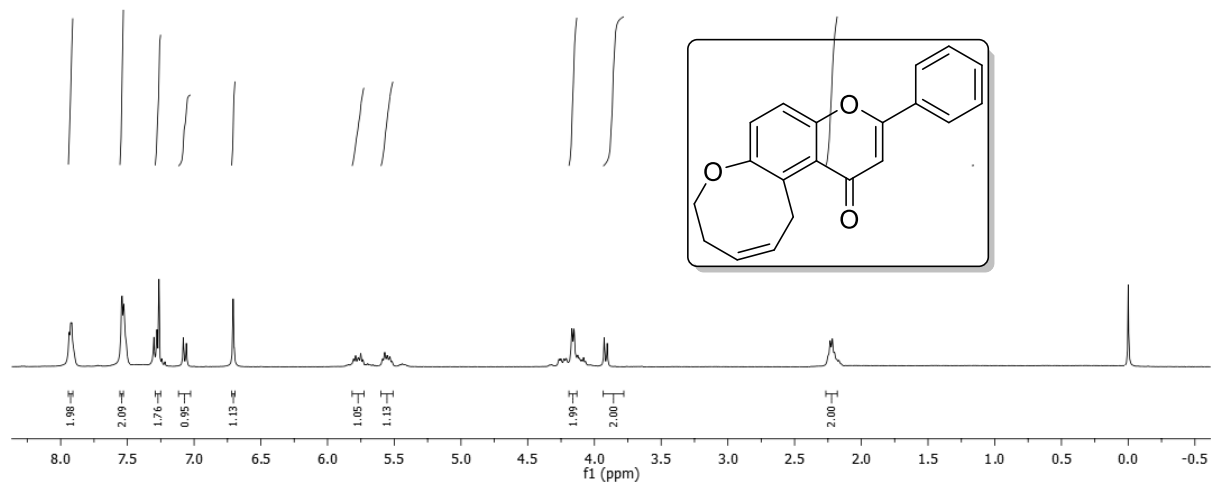


Figure S27. ¹H NMR Spectrum (400 MHz, CDCl₃) of compound-5c

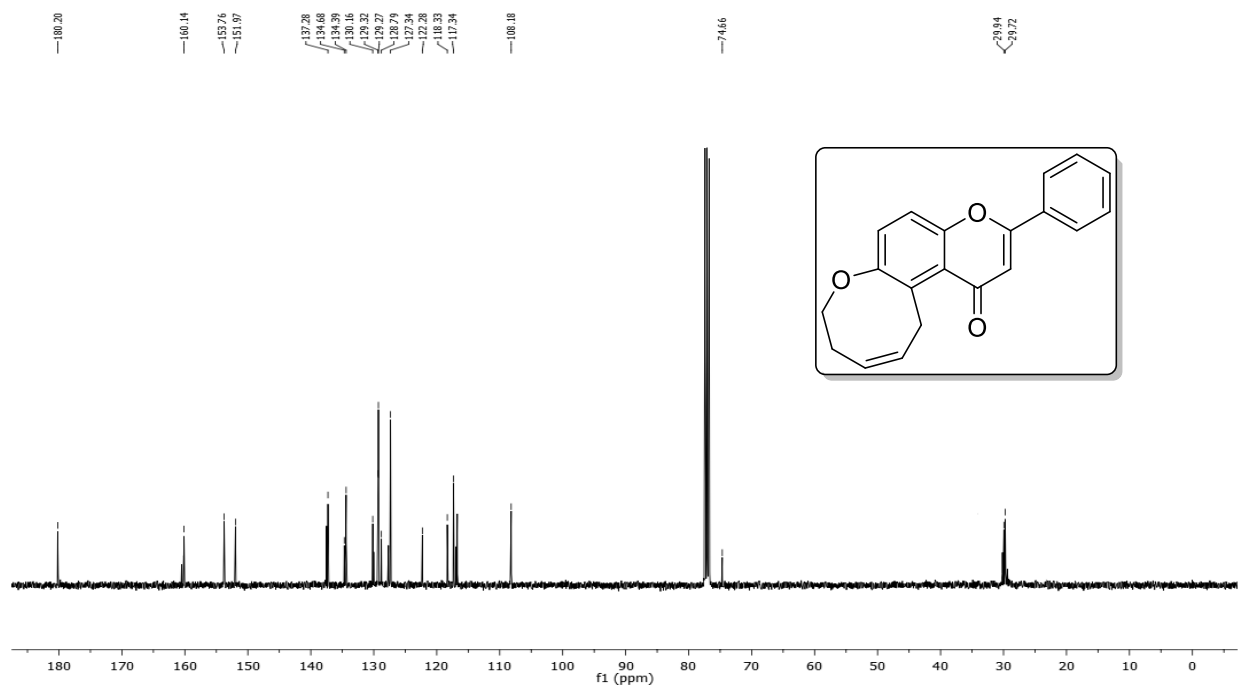


Figure S28. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound-5c

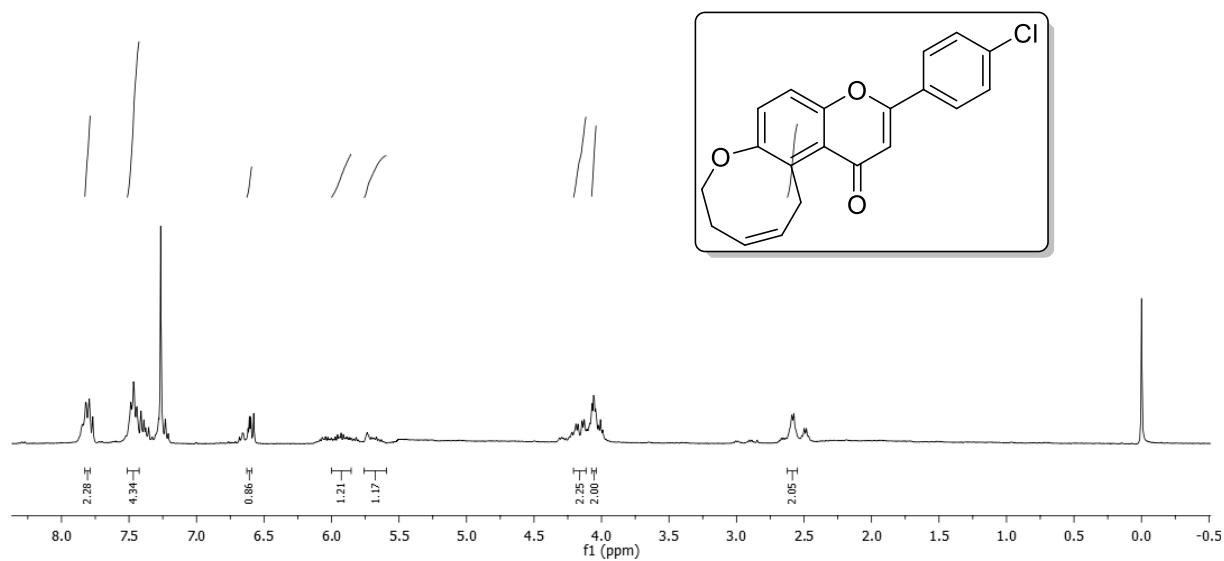


Figure S29. ¹H NMR Spectrum (400 MHz, CDCl₃) of compound-5d

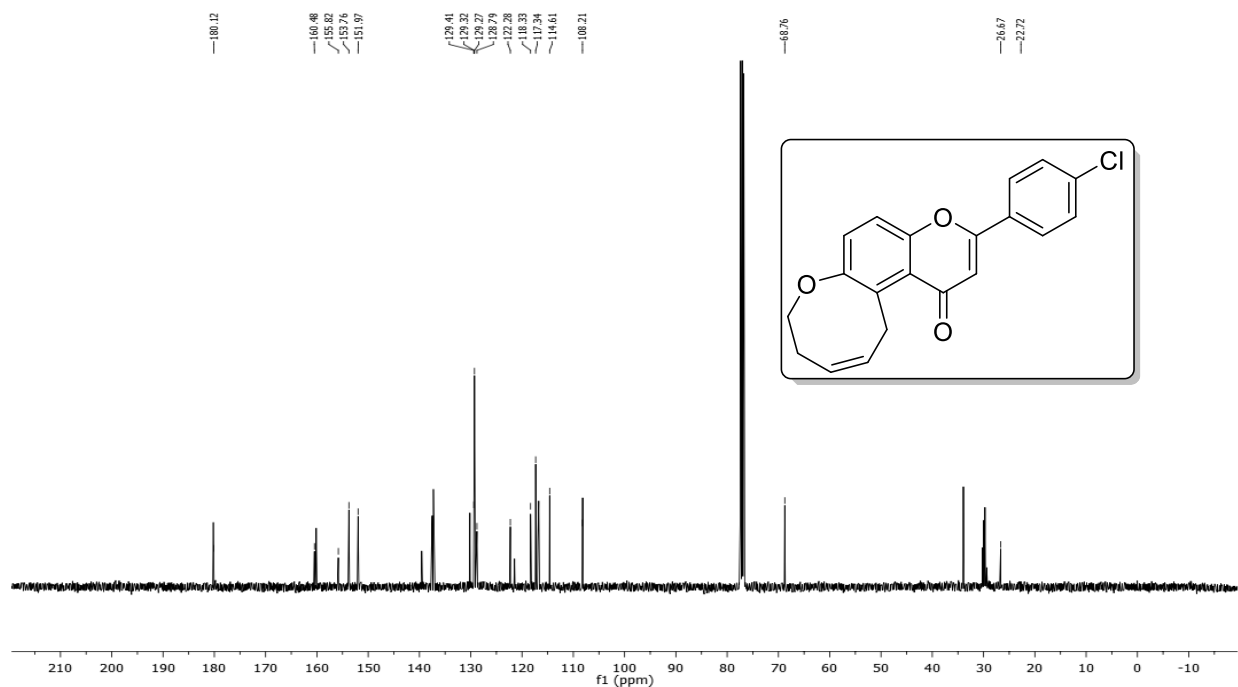


Figure S30. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound-5d

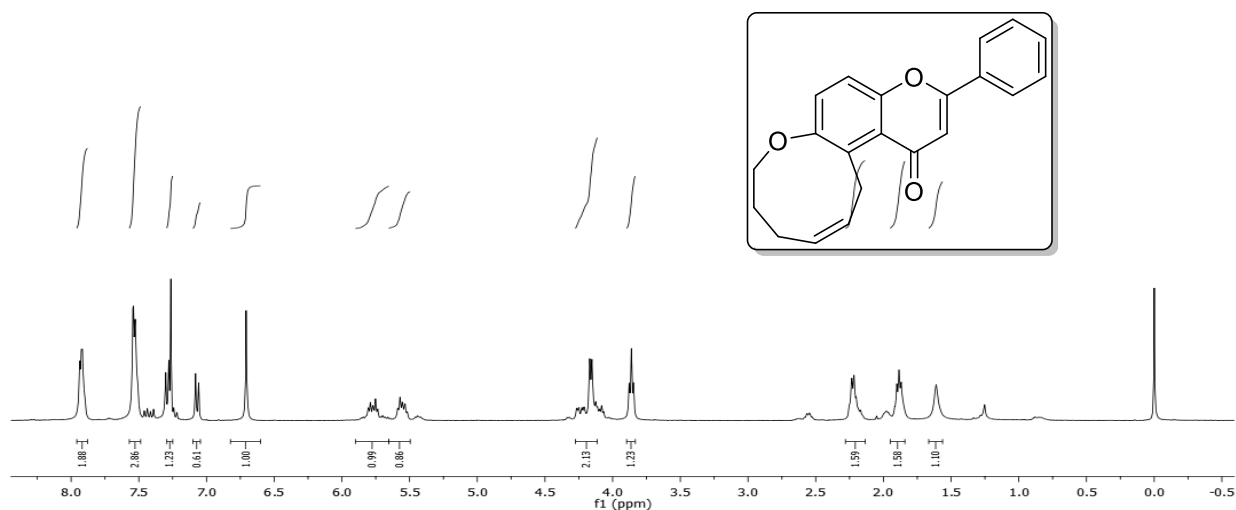


Figure S31. ¹H NMR Spectrum (400 MHz, CDCl₃) of compound-5e

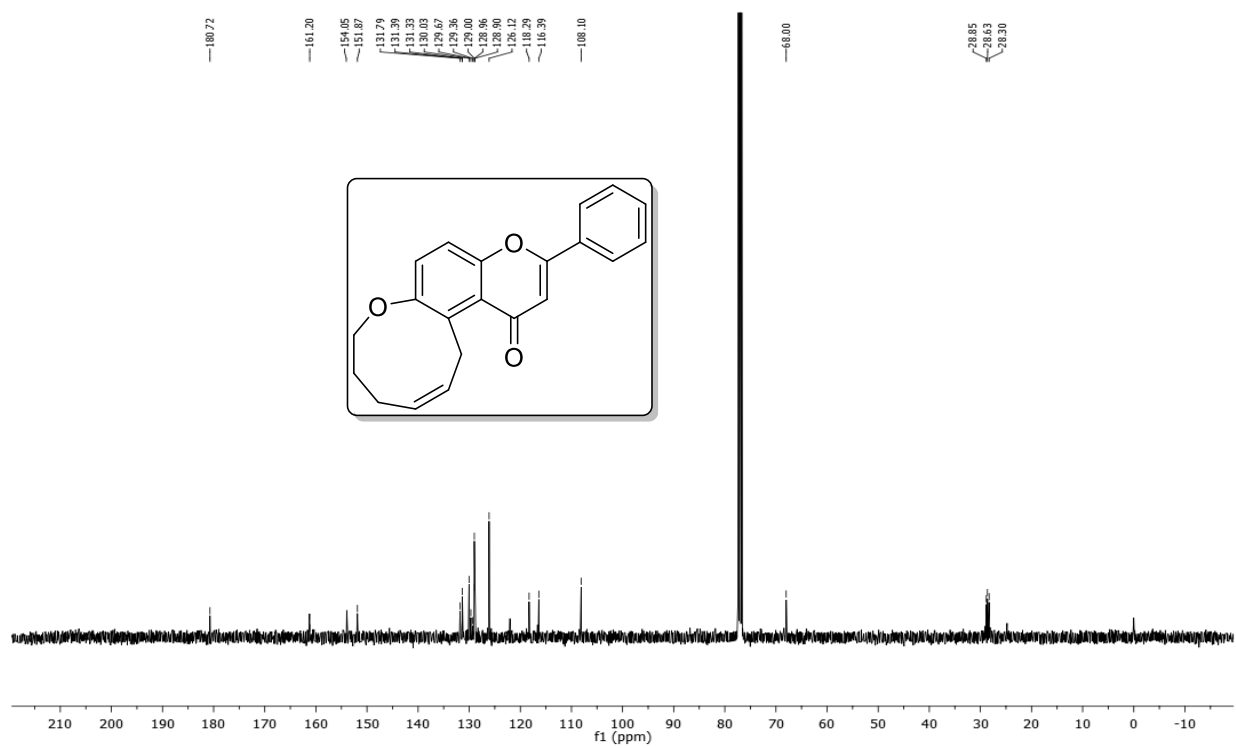


Figure S32. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound-5e

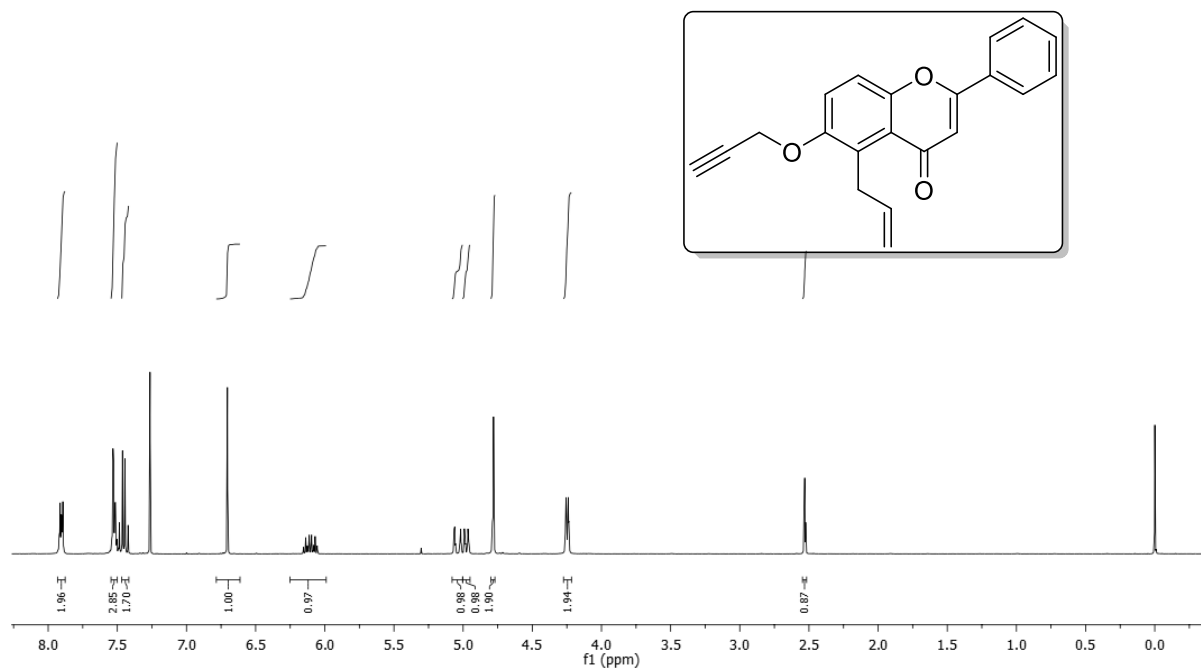


Figure S33. ^1H NMR Spectrum (400 MHz, CDCl_3) of compound-6a

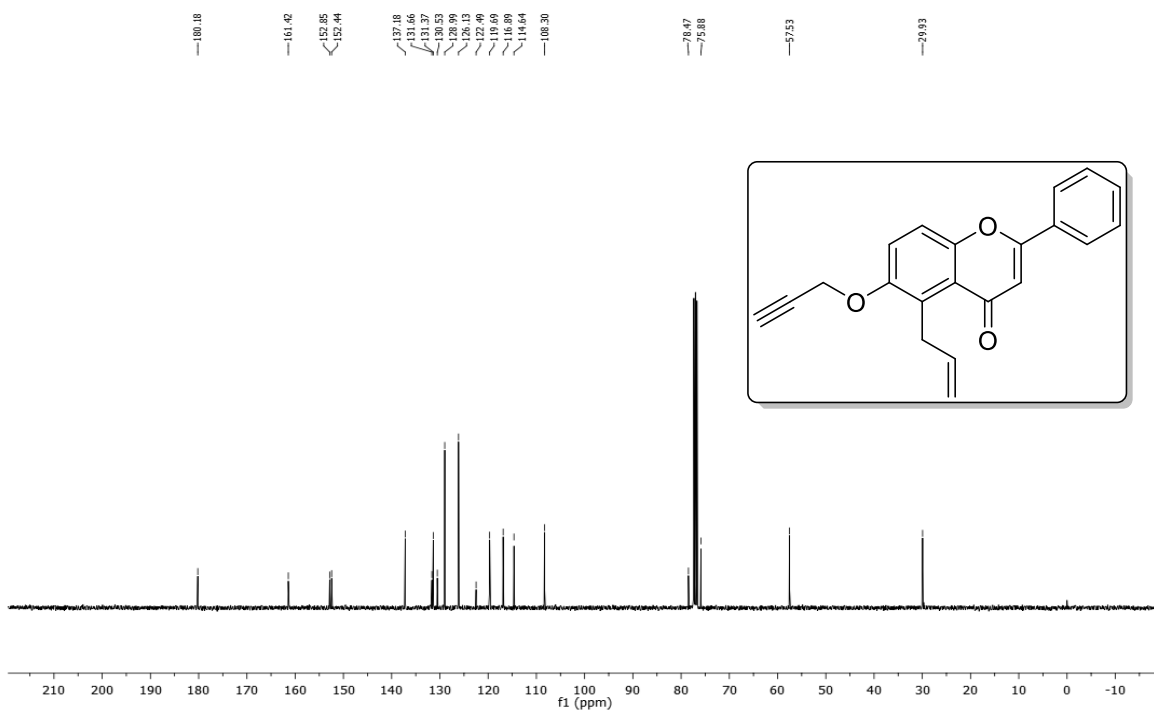


Figure S34. ^{13}C NMR Spectrum (101 MHz, CDCl_3) of compound-6a

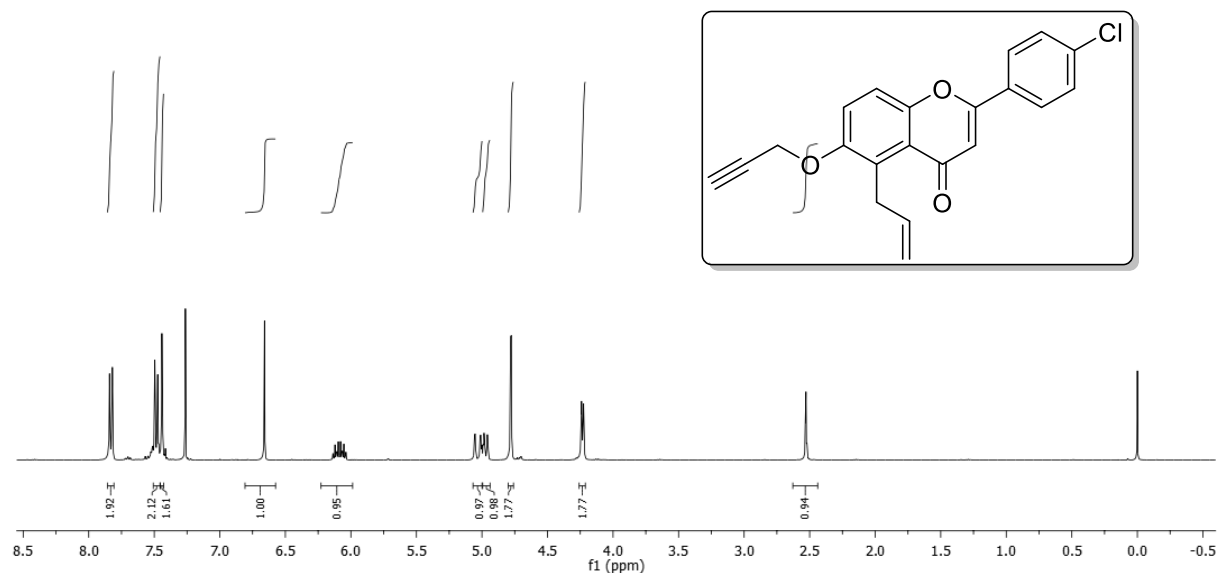


Figure S35. ^1H NMR Spectrum (400 MHz, CDCl_3) of compound-**6b**

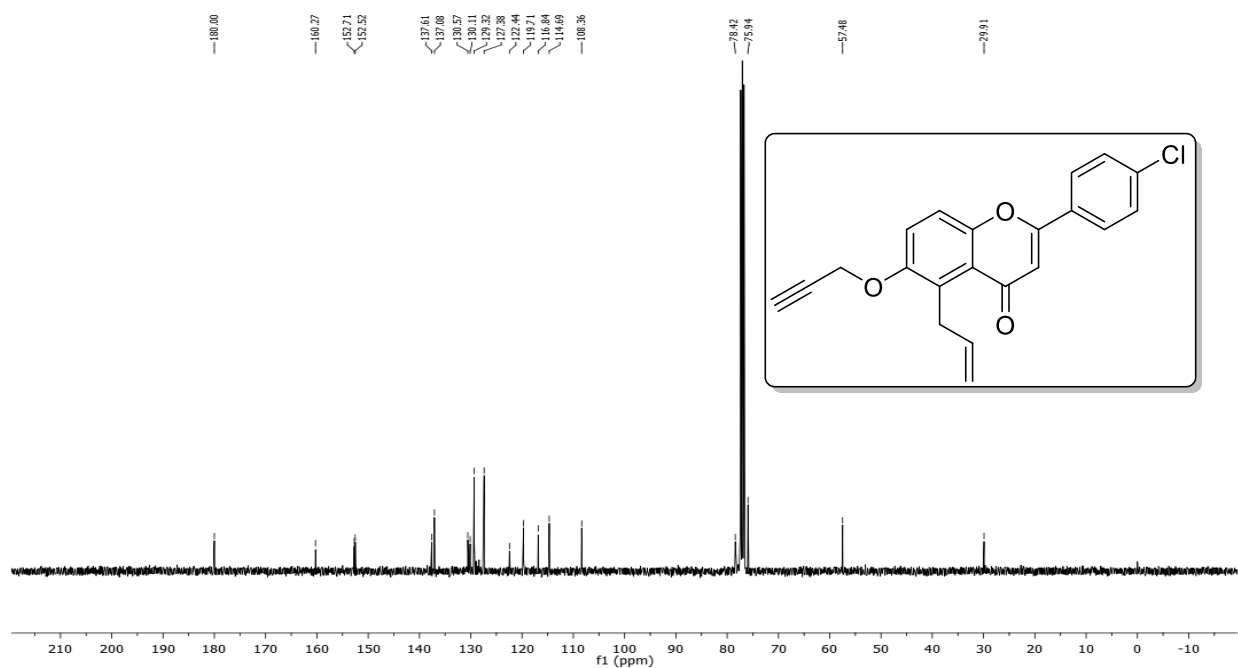


Figure S36. ^{13}C NMR Spectrum (101 MHz, CDCl_3) of compound-**6b**

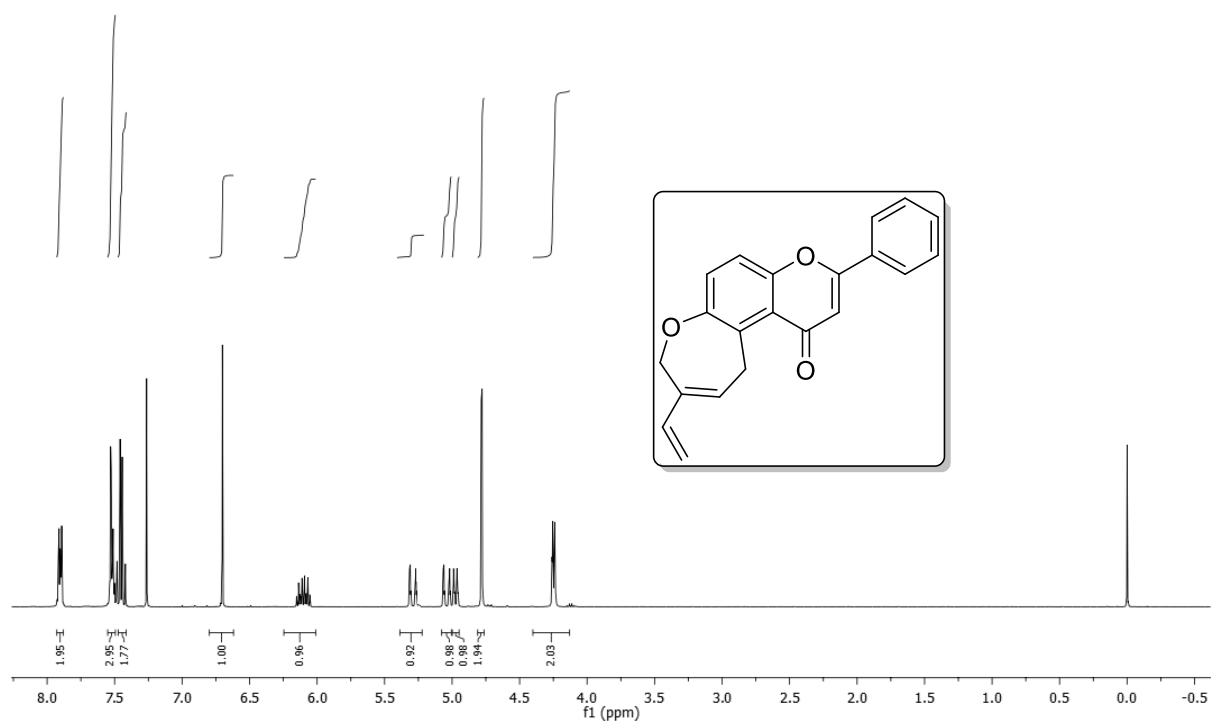
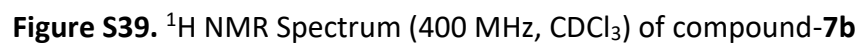
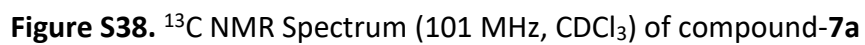


Figure S37. ^1H NMR Spectrum (400 MHz, CDCl_3) of compound-**7a**



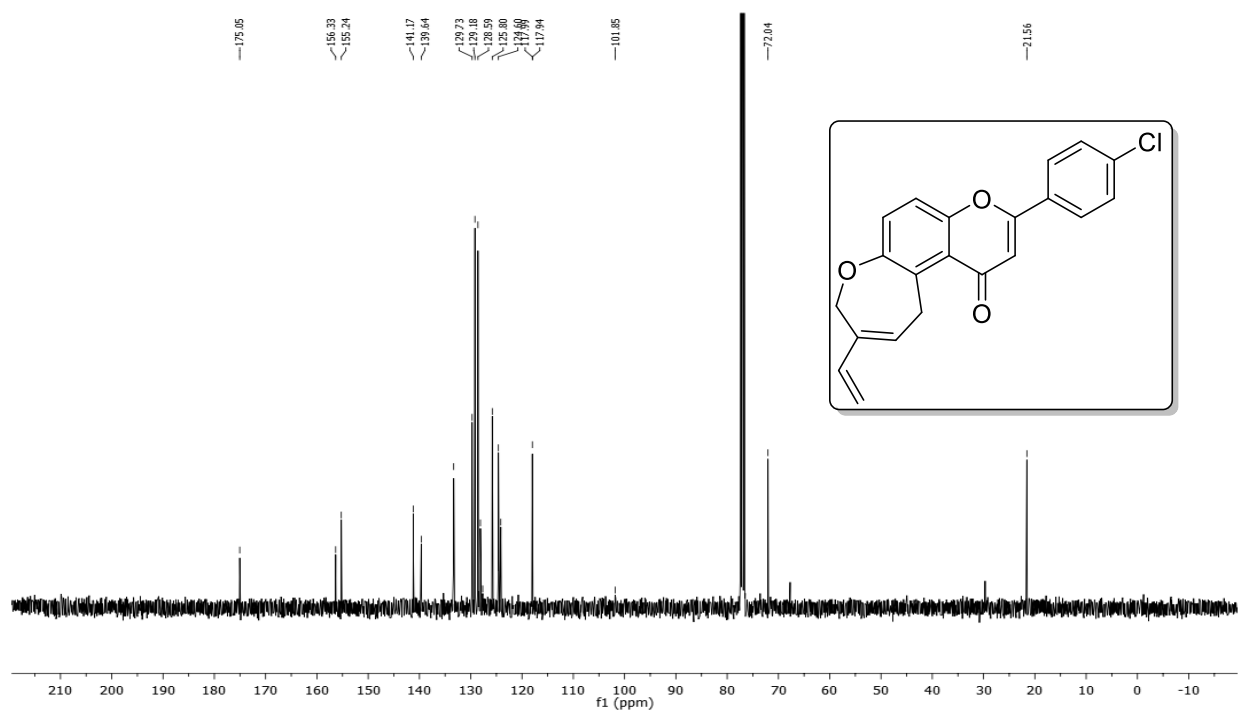


Figure S40. ^{13}C NMR Spectrum (101 MHz, CDCl_3) of compound-**7b**

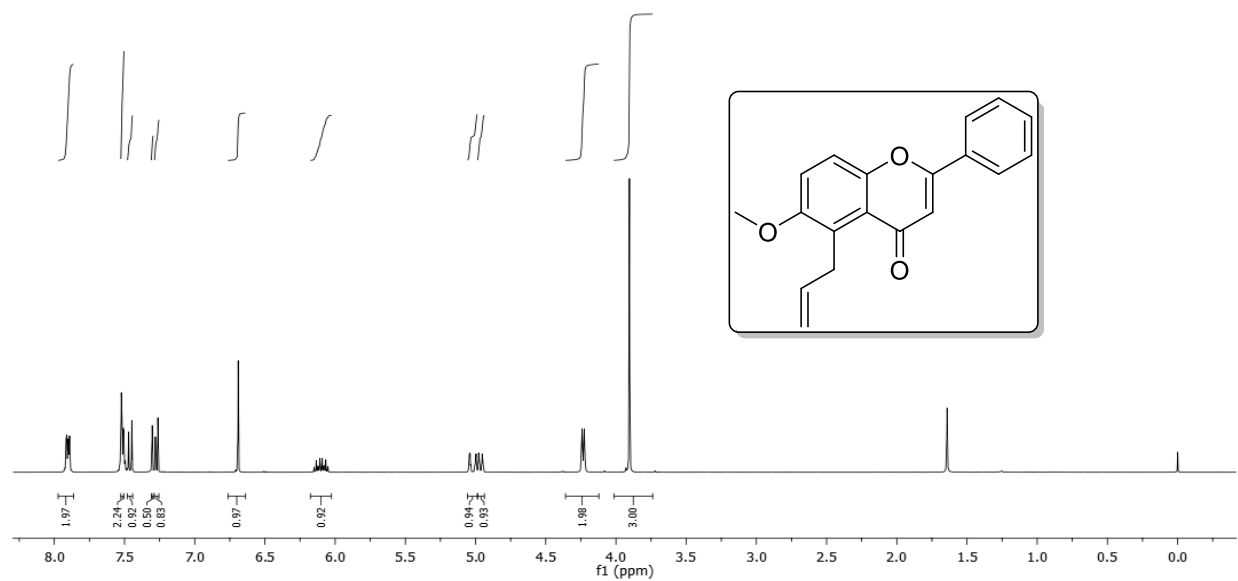


Figure S41. ^1H NMR Spectrum (400 MHz, CDCl_3) of compound-**8a**

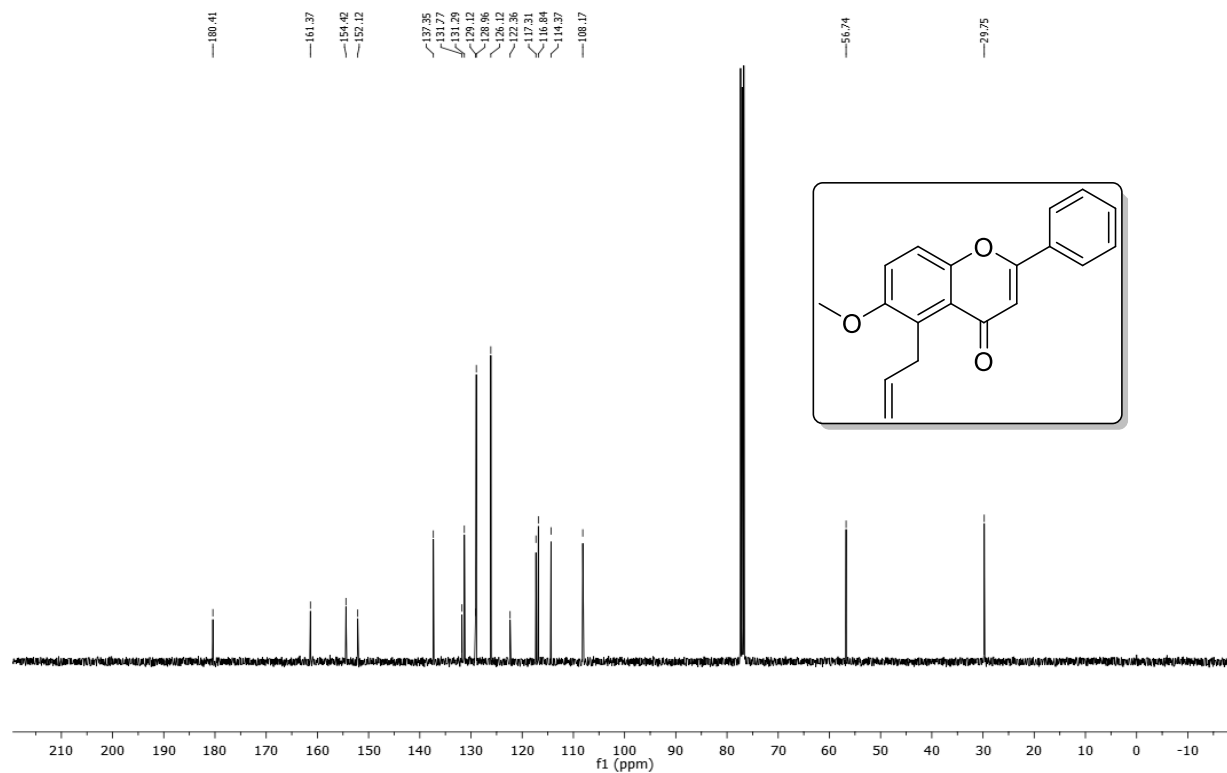


Figure S42. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound-8a

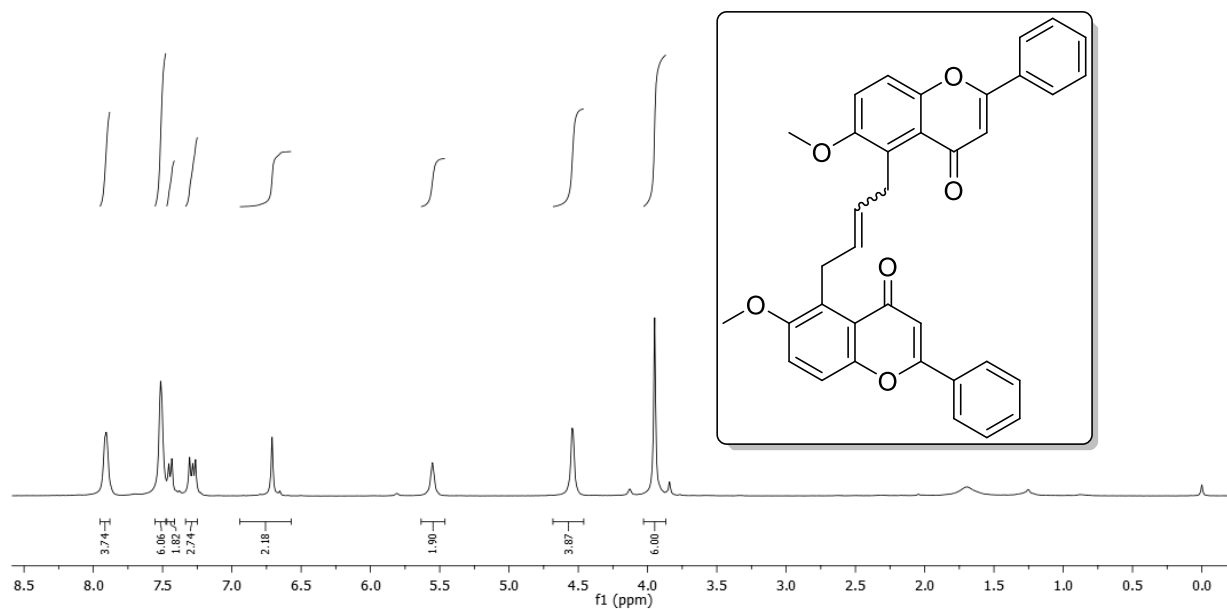


Figure S43. ¹H NMR Spectrum (400 MHz, CDCl₃) of compound **9a**

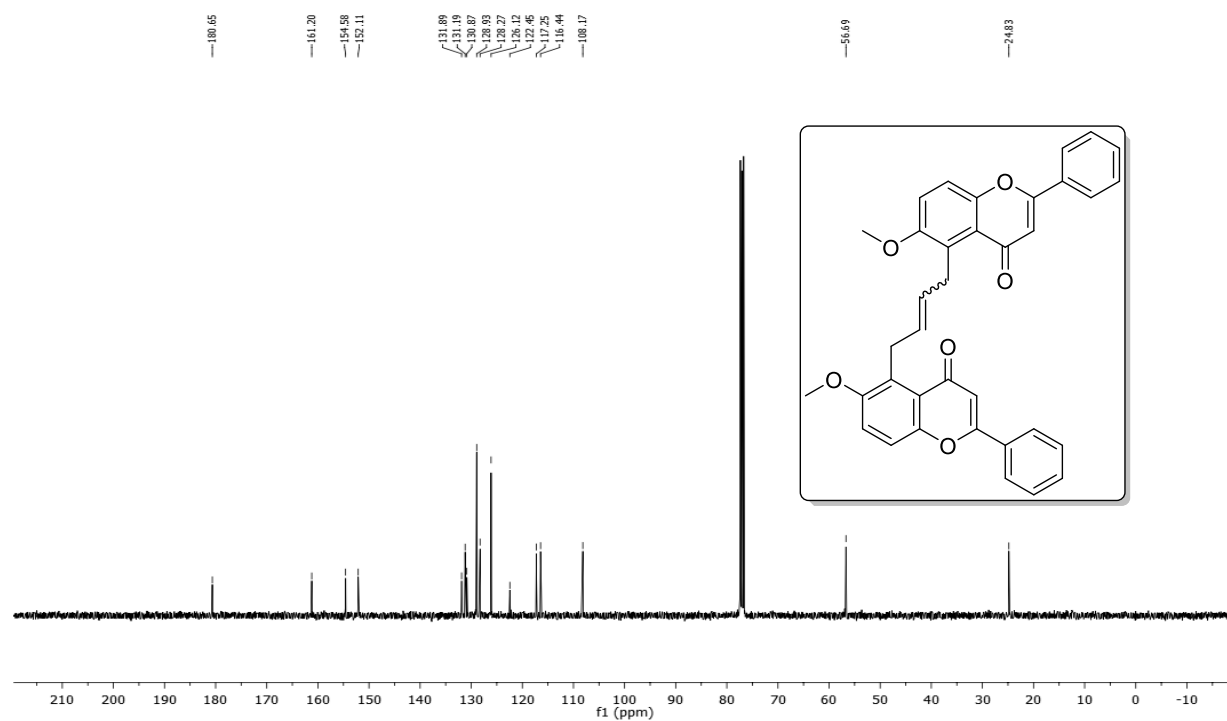


Figure S44. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound **9a**

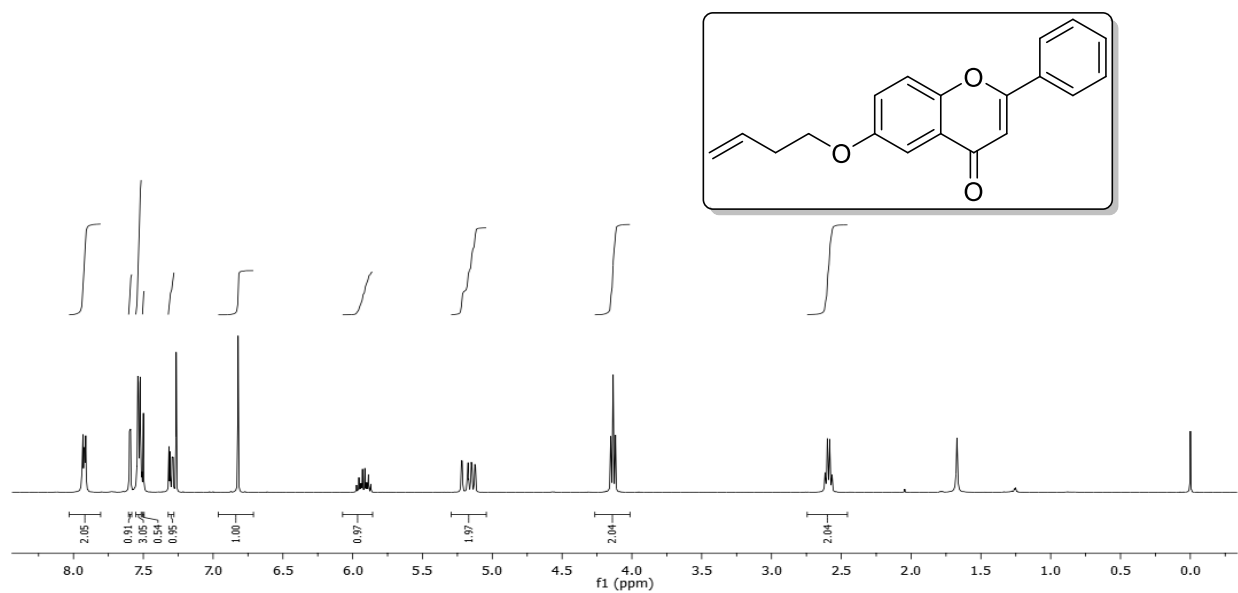


Figure S45. ^1H NMR Spectrum (400 MHz, CDCl_3) of compound-2c

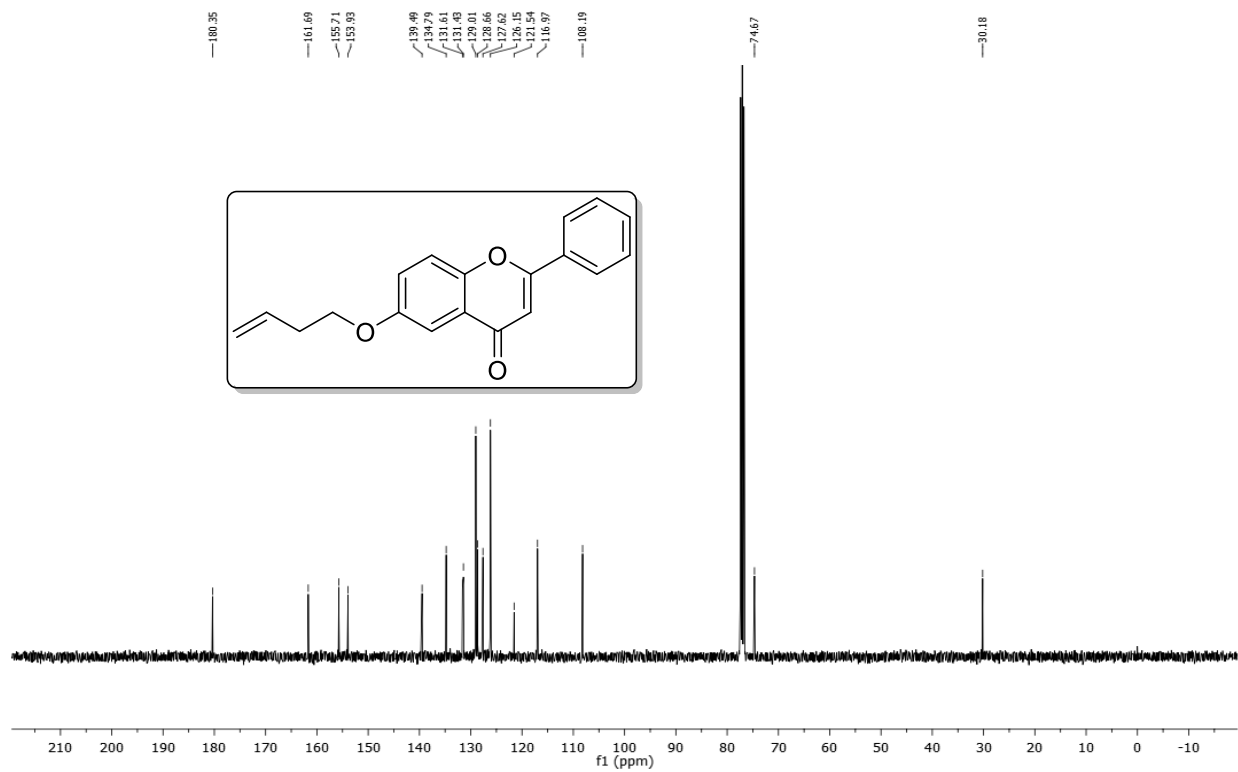


Figure S46. ^{13}C NMR Spectrum (101 MHz, CDCl_3) of compound-2c

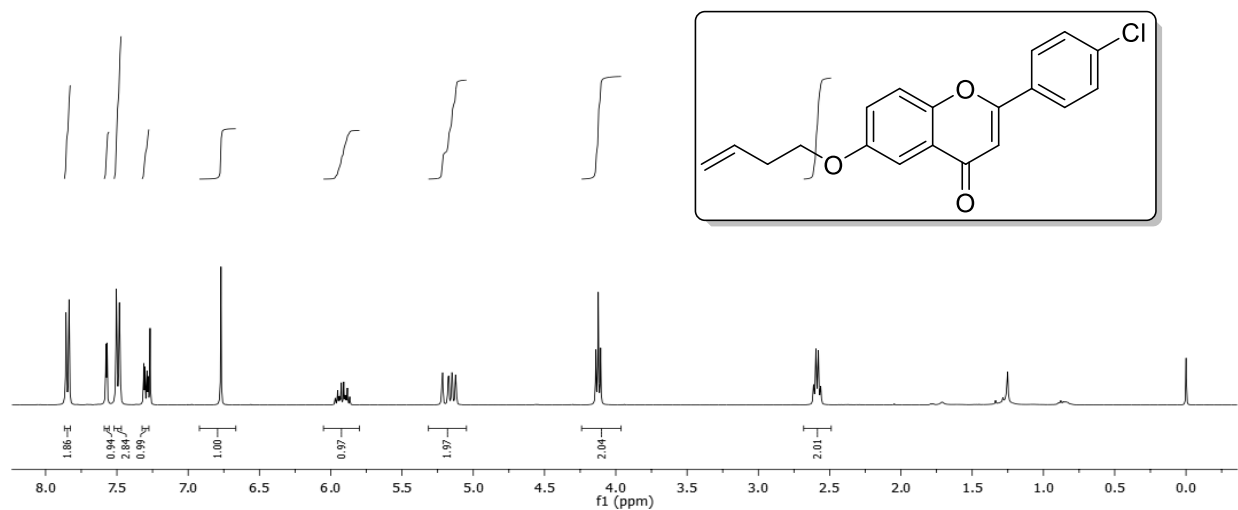


Figure S47. ^1H NMR Spectrum (400 MHz, CDCl_3) of compound **2d**

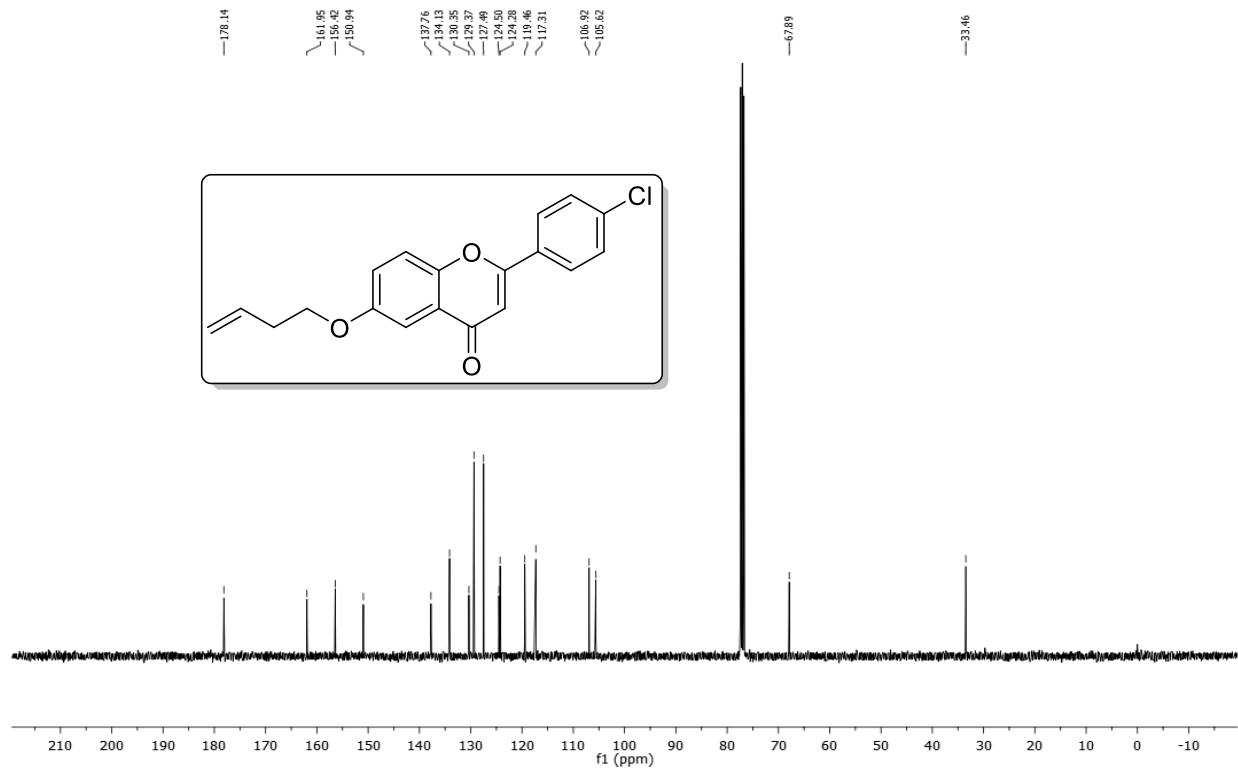


Figure S48. ^{13}C NMR Spectrum (101 MHz, CDCl_3) of compound **2d**

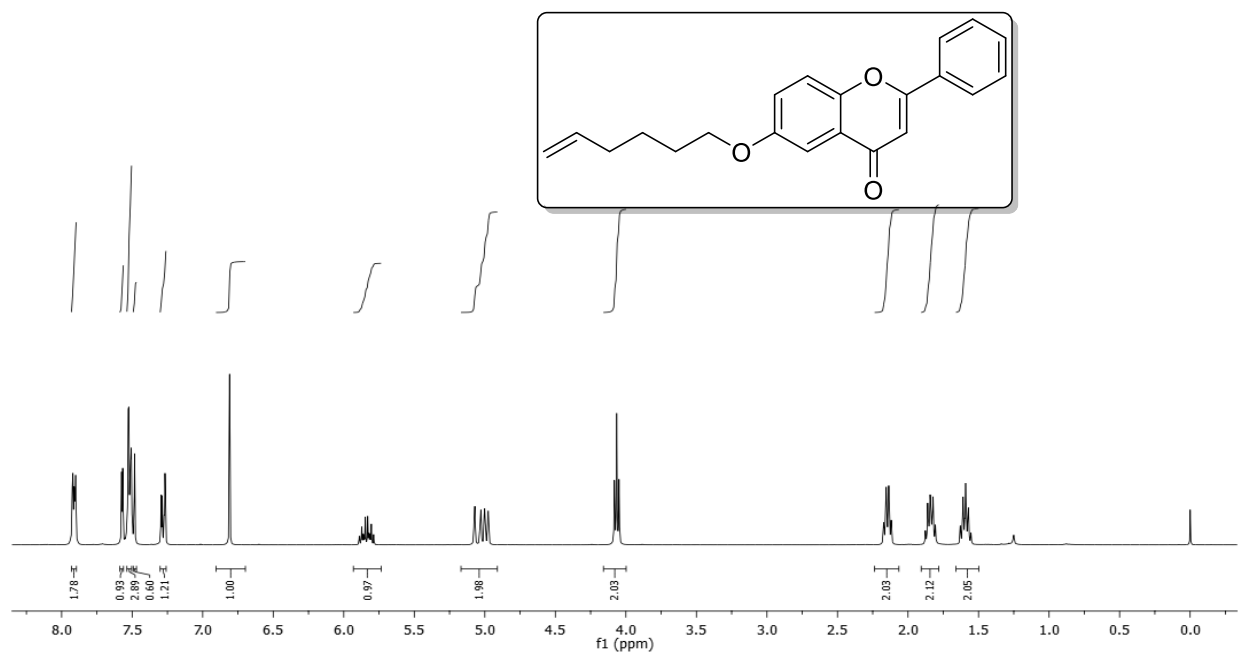


Figure S49. ^1H NMR Spectrum (400 MHz, CDCl_3) of compound-2e

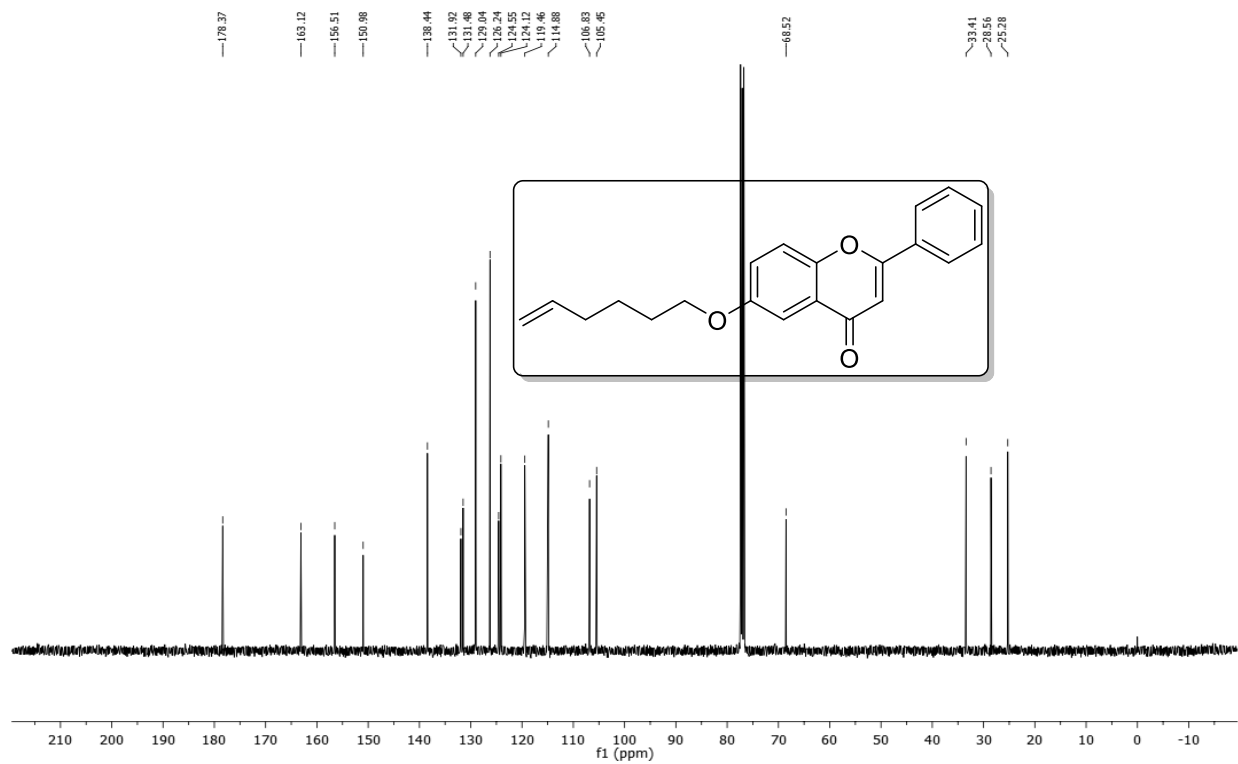


Figure S50. ^{13}C NMR Spectrum (101 MHz, CDCl_3) of compound-2e



Figure S51. ^1H NMR Spectrum (400 MHz, CDCl_3) of compound-**2f**

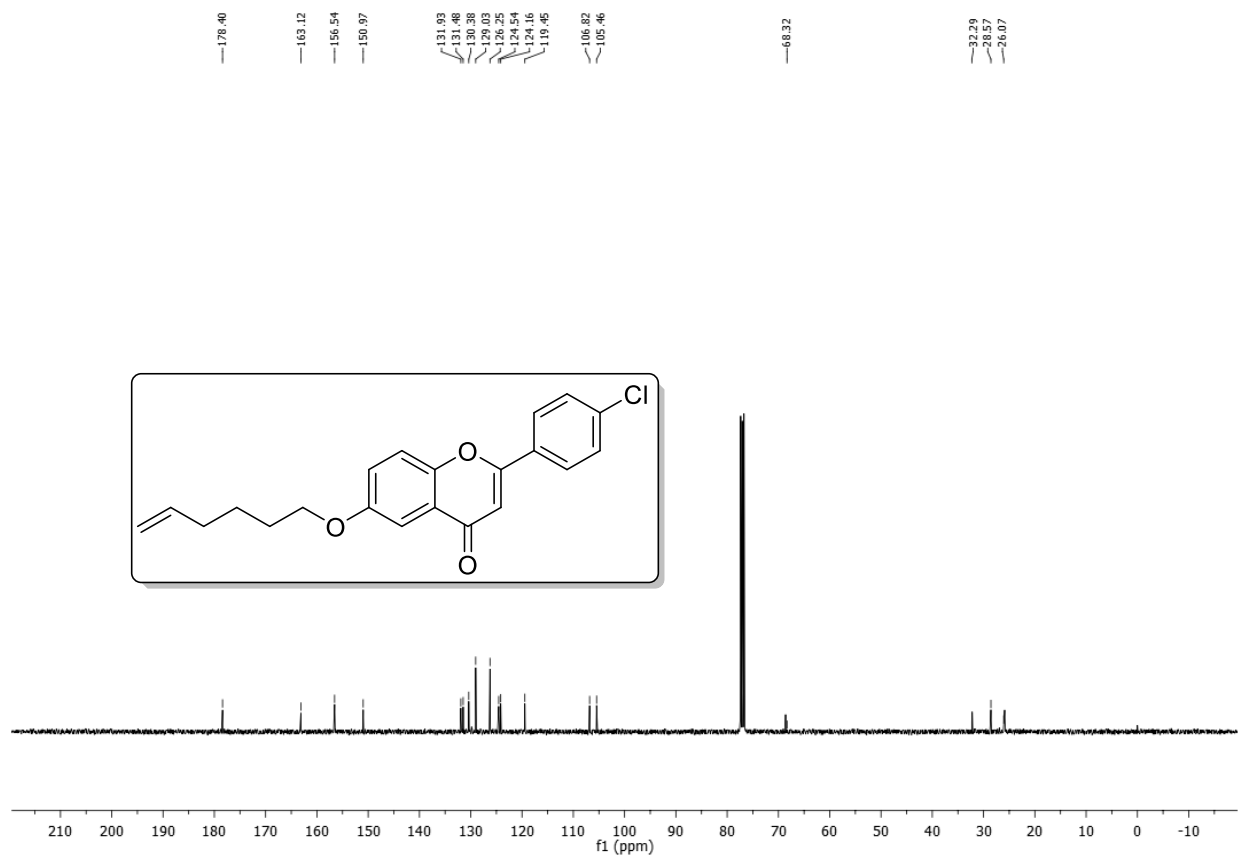


Figure S52. ^{13}C NMR Spectrum (101 MHz, CDCl_3) of compound-**2f**

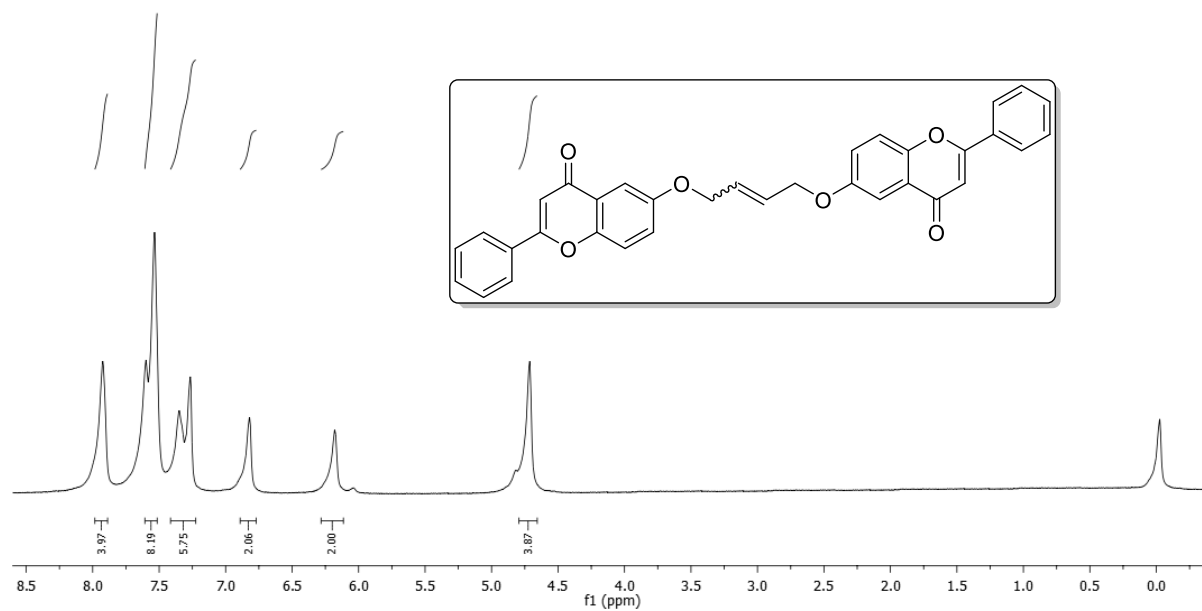
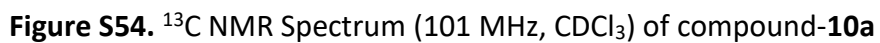


Figure S53. ^1H NMR Spectrum (400 MHz, CDCl_3) of compound-**10a**



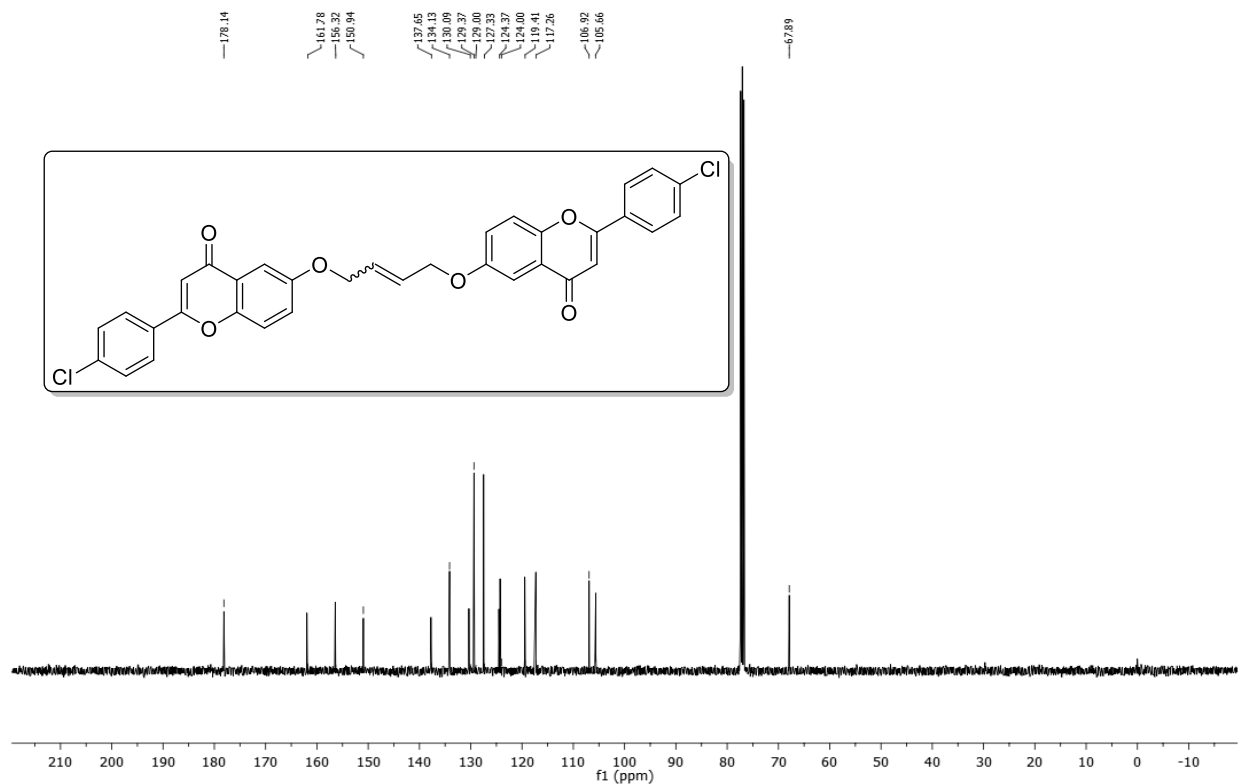


Figure S56. ^{13}C NMR Spectrum (101 MHz, CDCl_3) of compound-**10b**

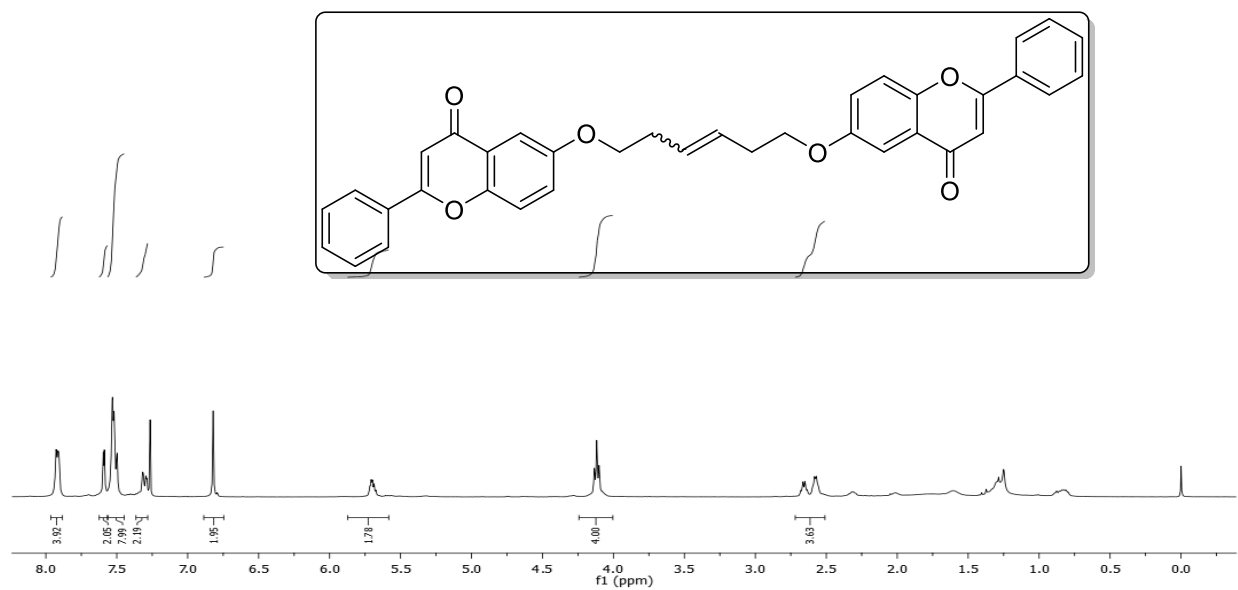


Figure S57. ^1H NMR Spectrum (400 MHz, CDCl_3) of compound-**10c**

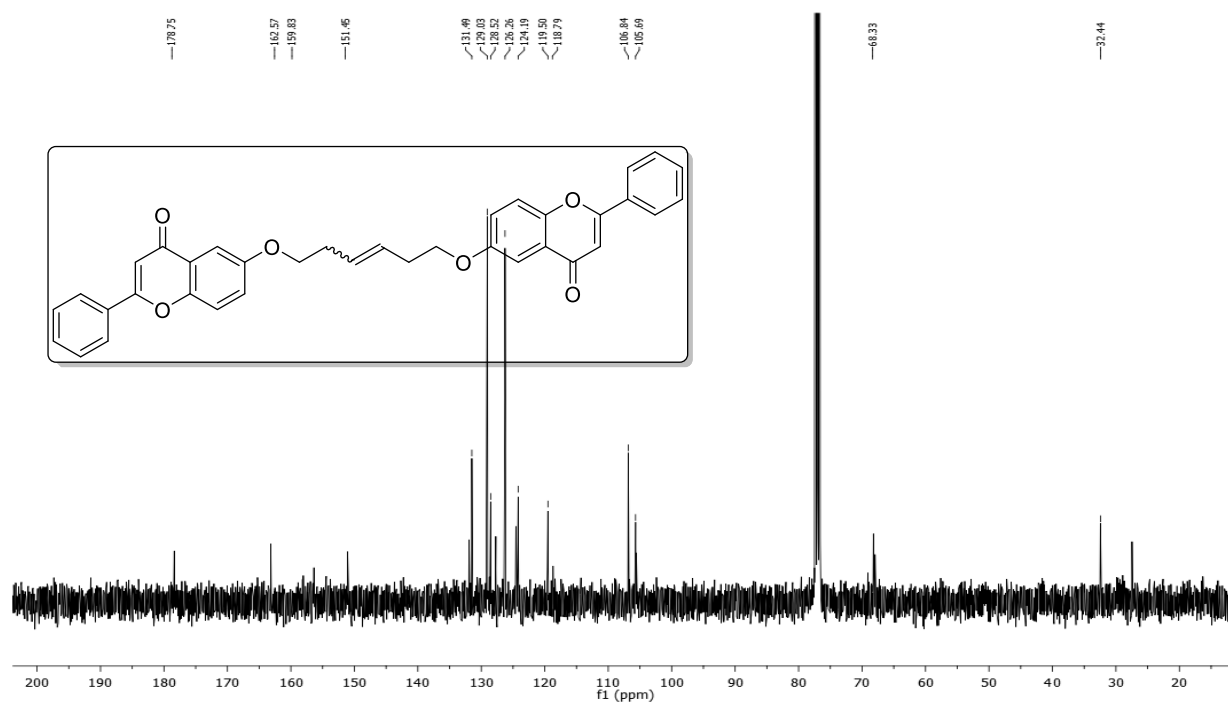


Figure S58. ^{13}C NMR Spectrum (101 MHz, CDCl_3) of compound-**10c**

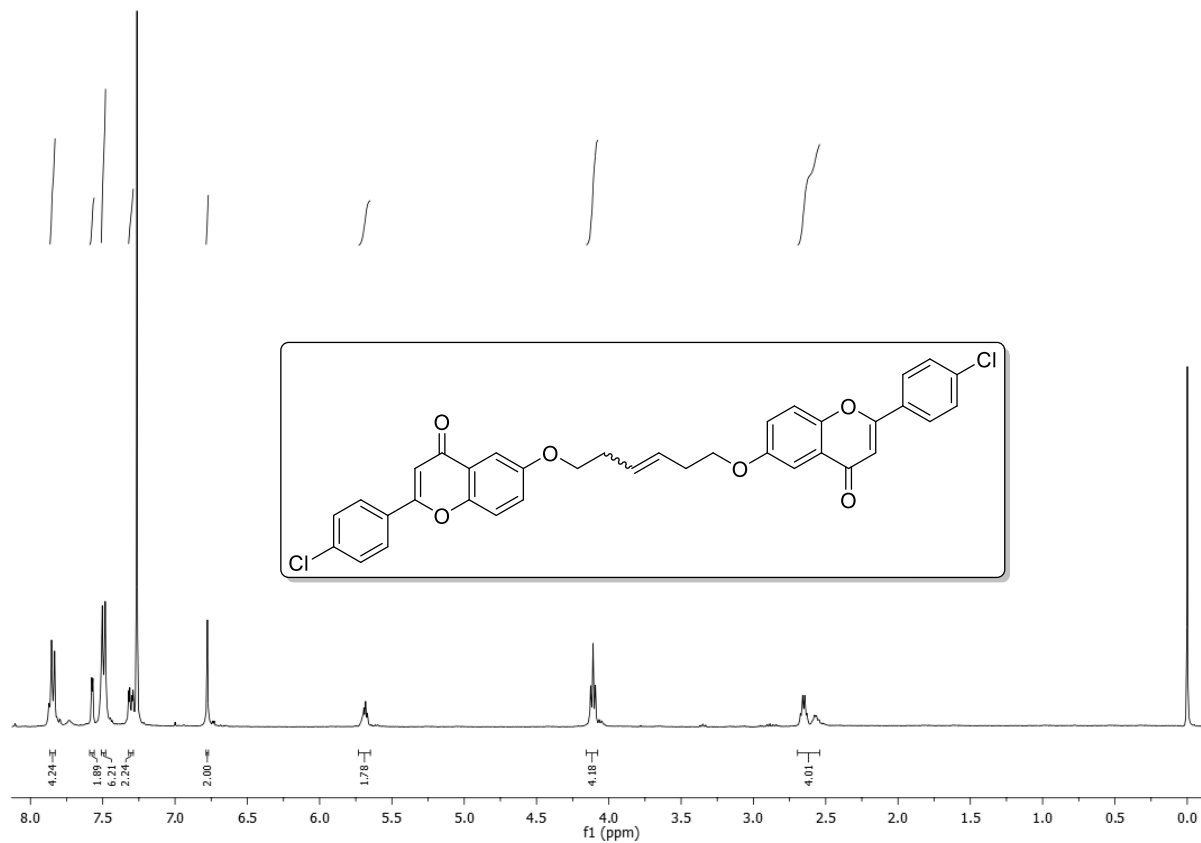


Figure S59. ^1H NMR Spectrum (400 MHz, CDCl_3) of compound-10d

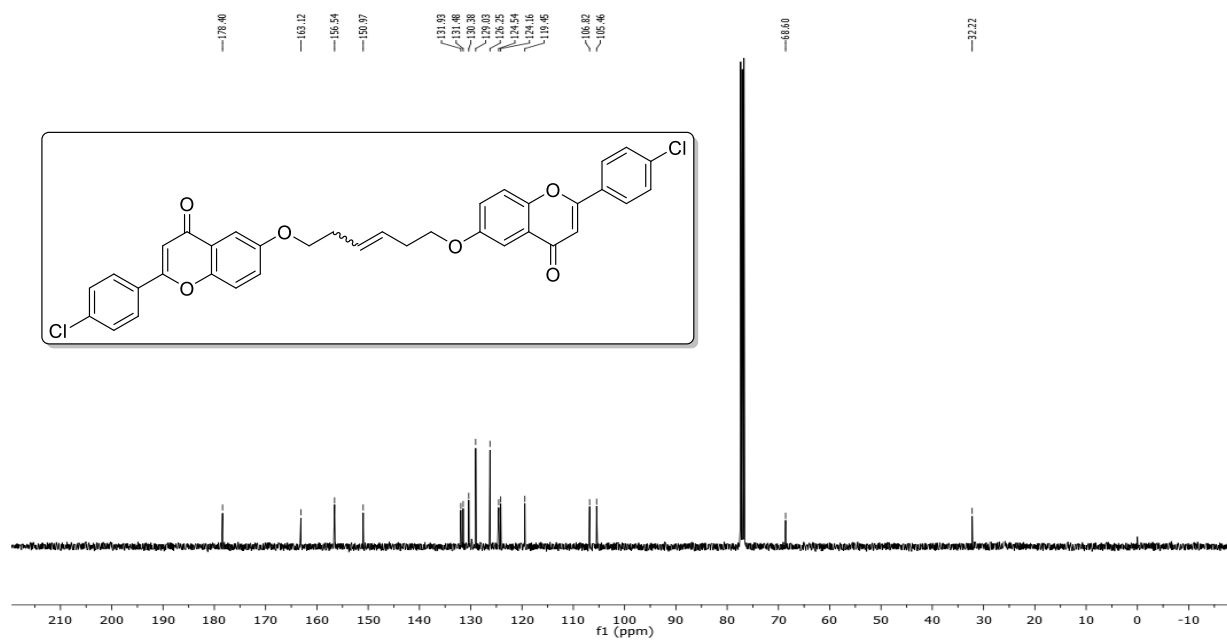


Figure S60. ^{13}C NMR Spectrum (101 MHz, CDCl_3) of compound-10d

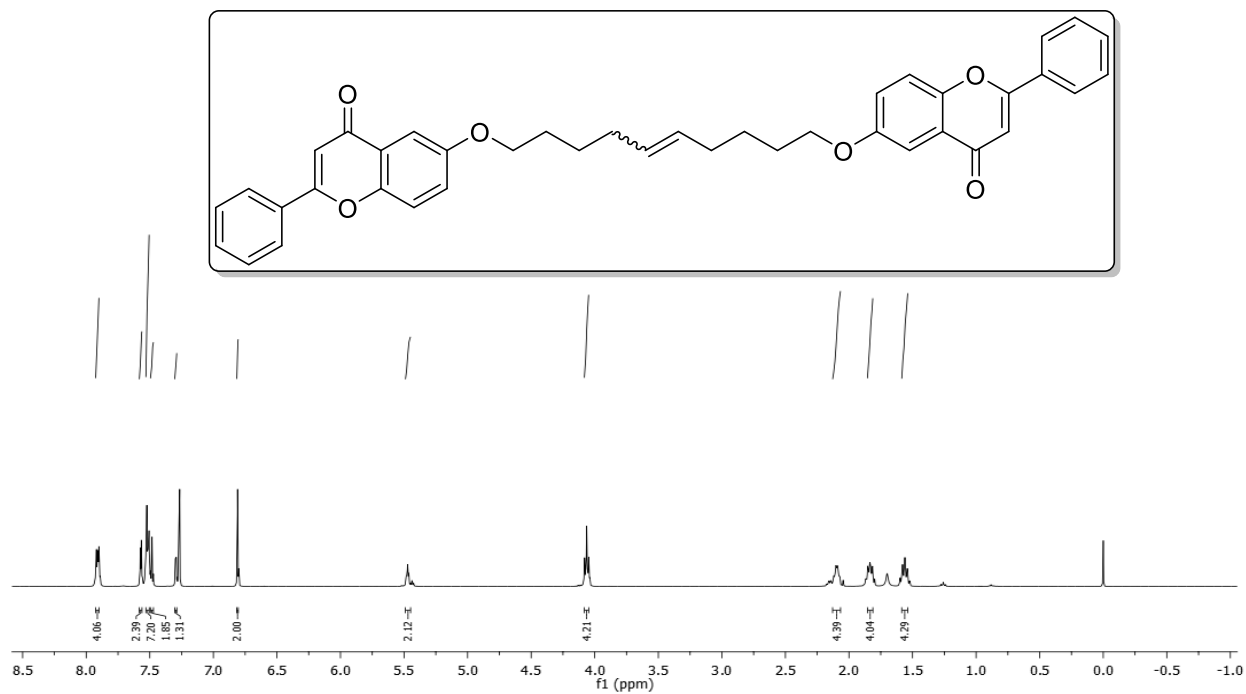


Figure S61. ¹H NMR Spectrum (400 MHz, CDCl₃) of compound-10e

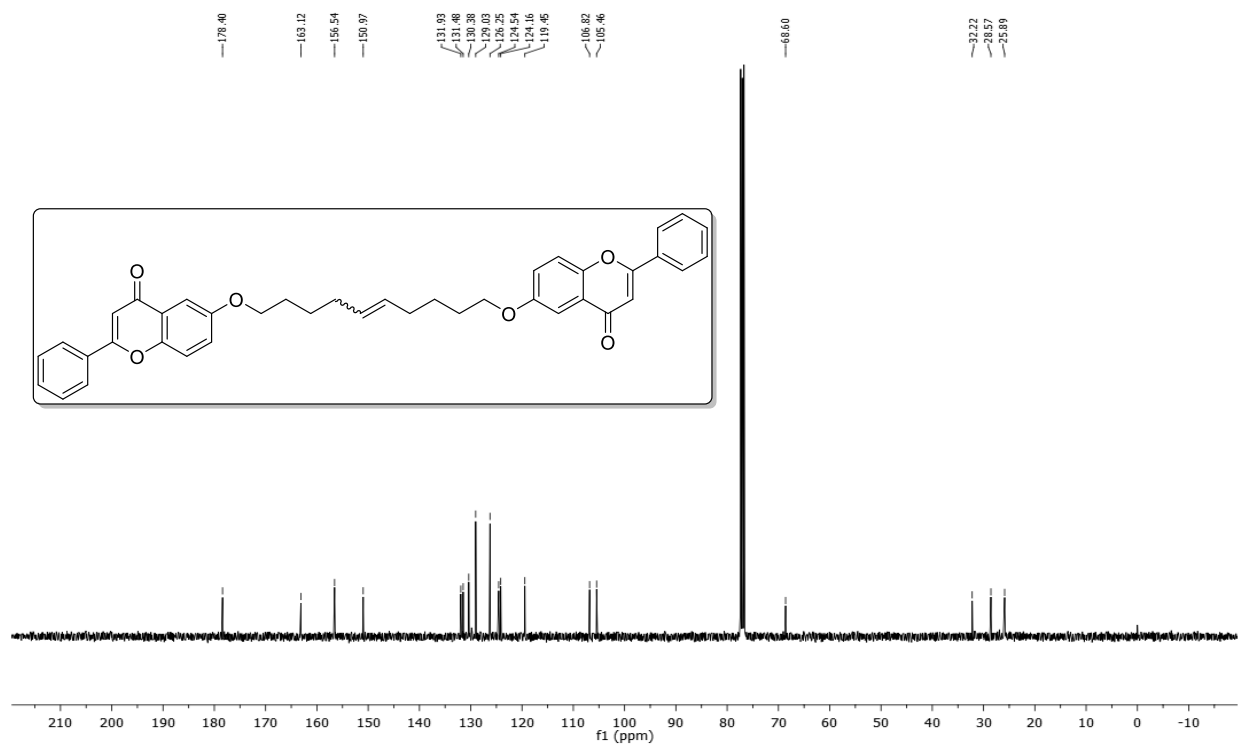


Figure S62. ¹³C NMR Spectrum (101 MHz, CDCl₃) of compound-10e

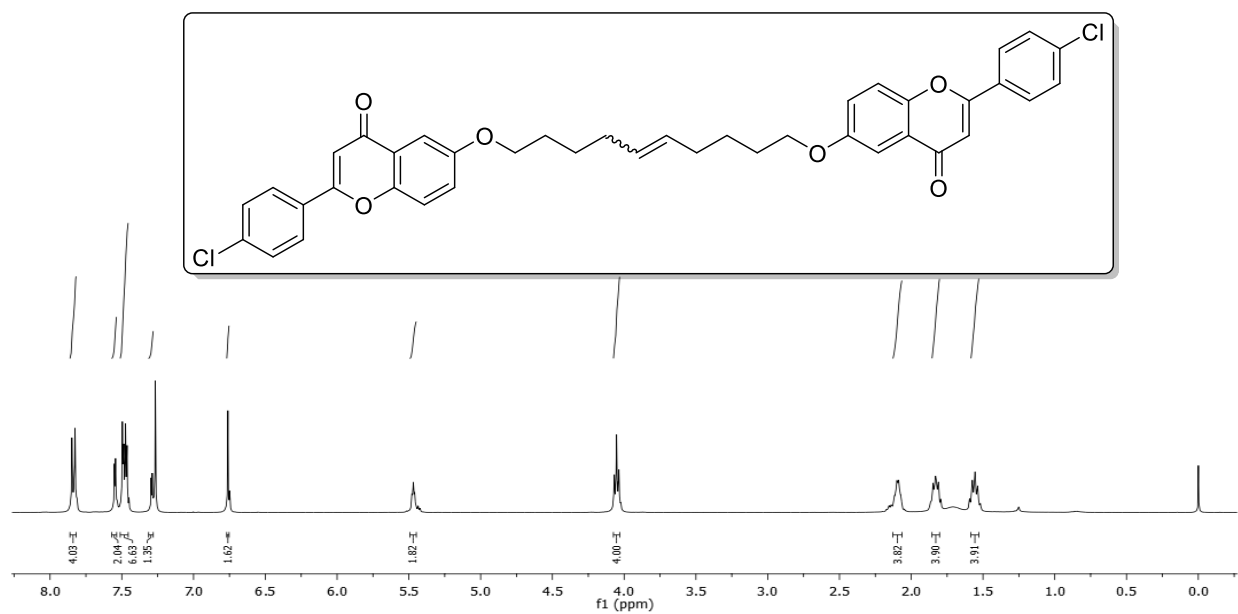


Figure S63. ^1H NMR Spectrum (400 MHz, CDCl_3) of compound-**10f**

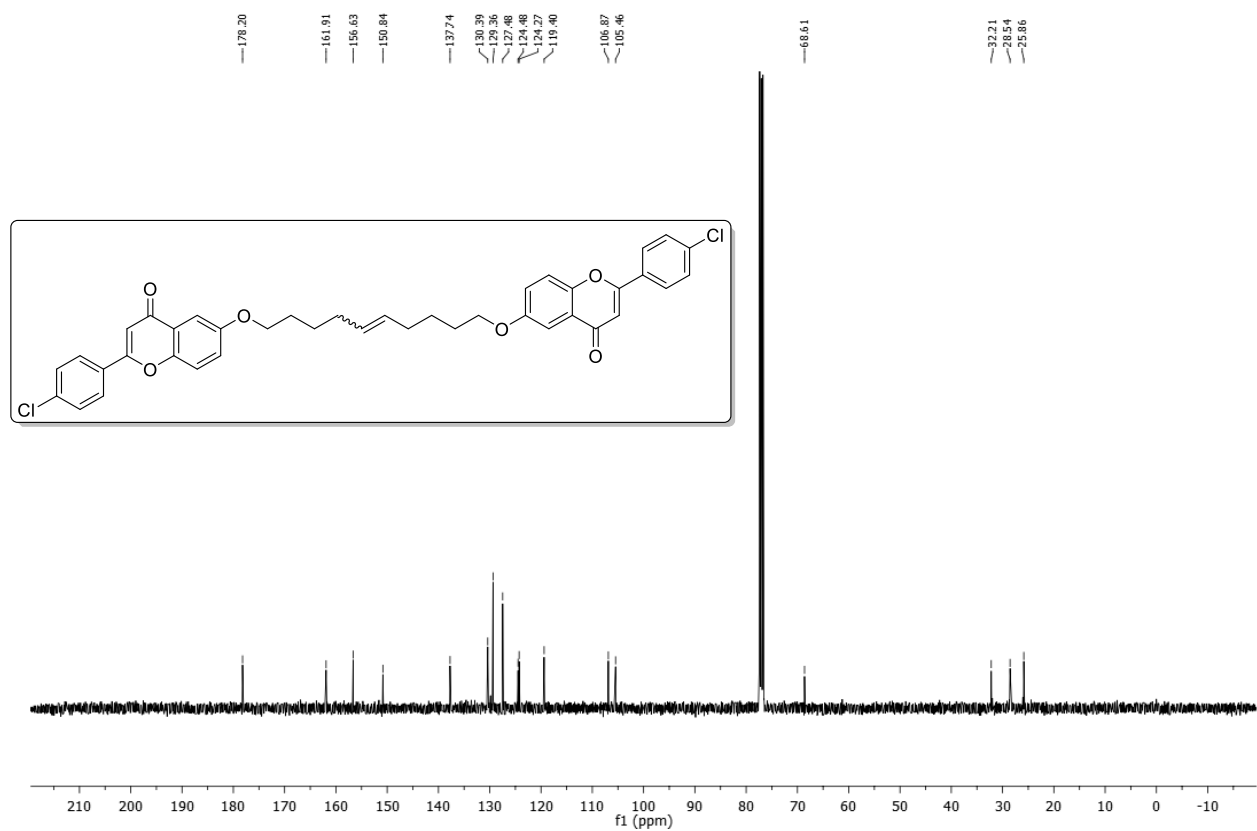


Figure S64. ^{13}C NMR Spectrum (101 MHz, CDCl_3) of compound-**10f**

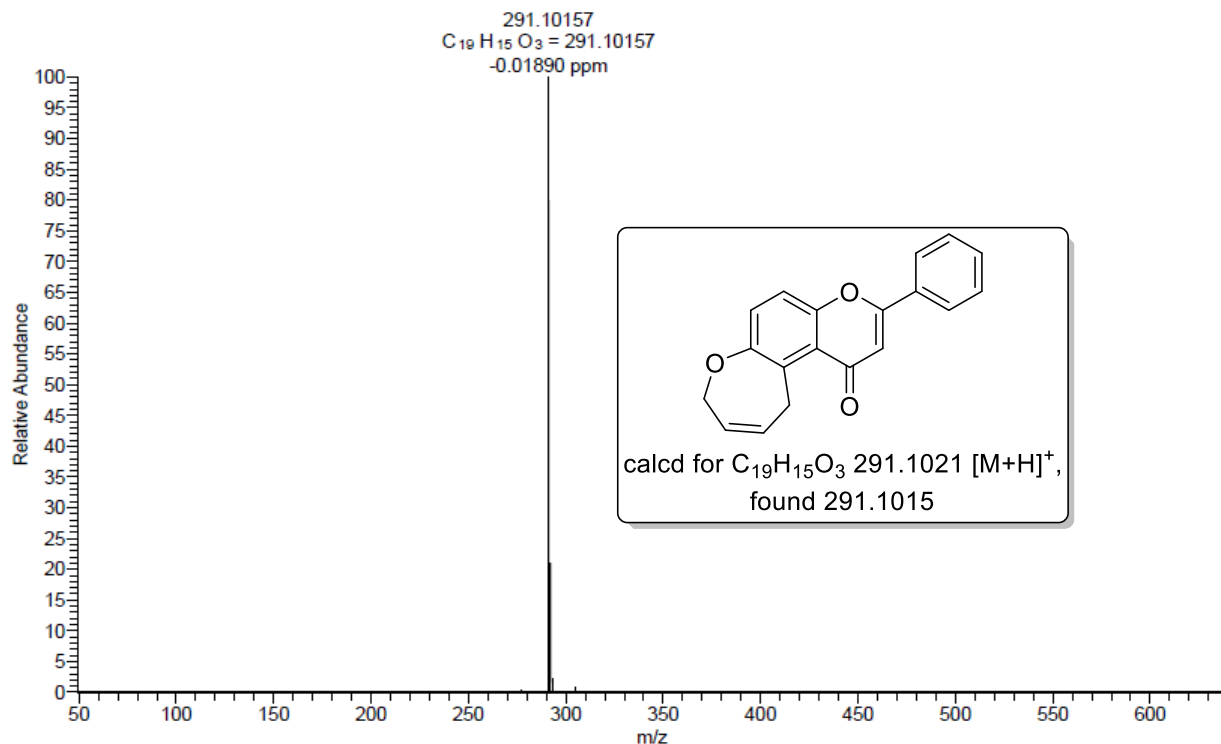


Figure S65. ESI-HRMS spectrum of 3-phenyl-8,11-dihydro-1H-oxepino [3,2-f]chromen-1-one (5a)

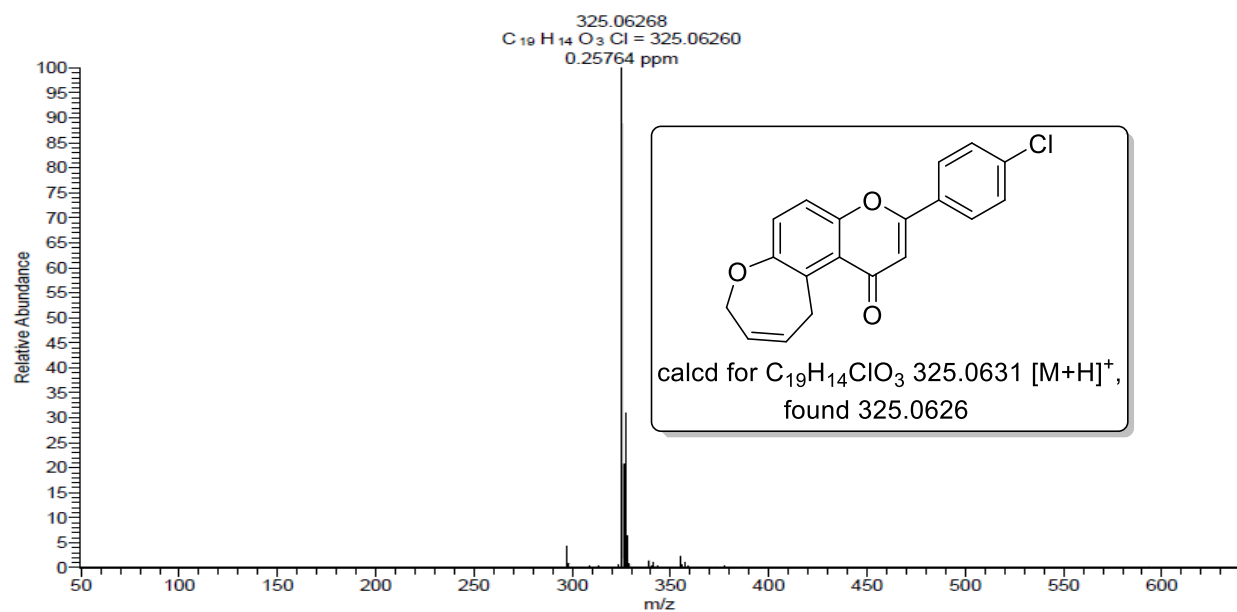


Figure S66. ESI-HRMS spectrum of 3-(4-chlorophenyl)-8,11-dihydro-1H-oxepino[3,2-f]chromen-1-one (5b)

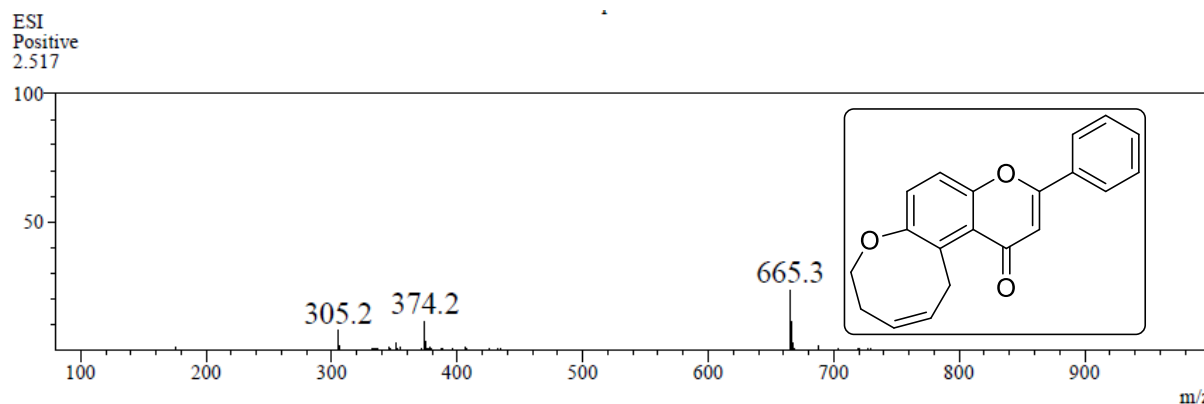


Figure S67. ESI-MS spectrum of (Z)-3-phenyl-9,12-dihydrooxocino [3,2-f]chromen-1(8H)-one (5c)

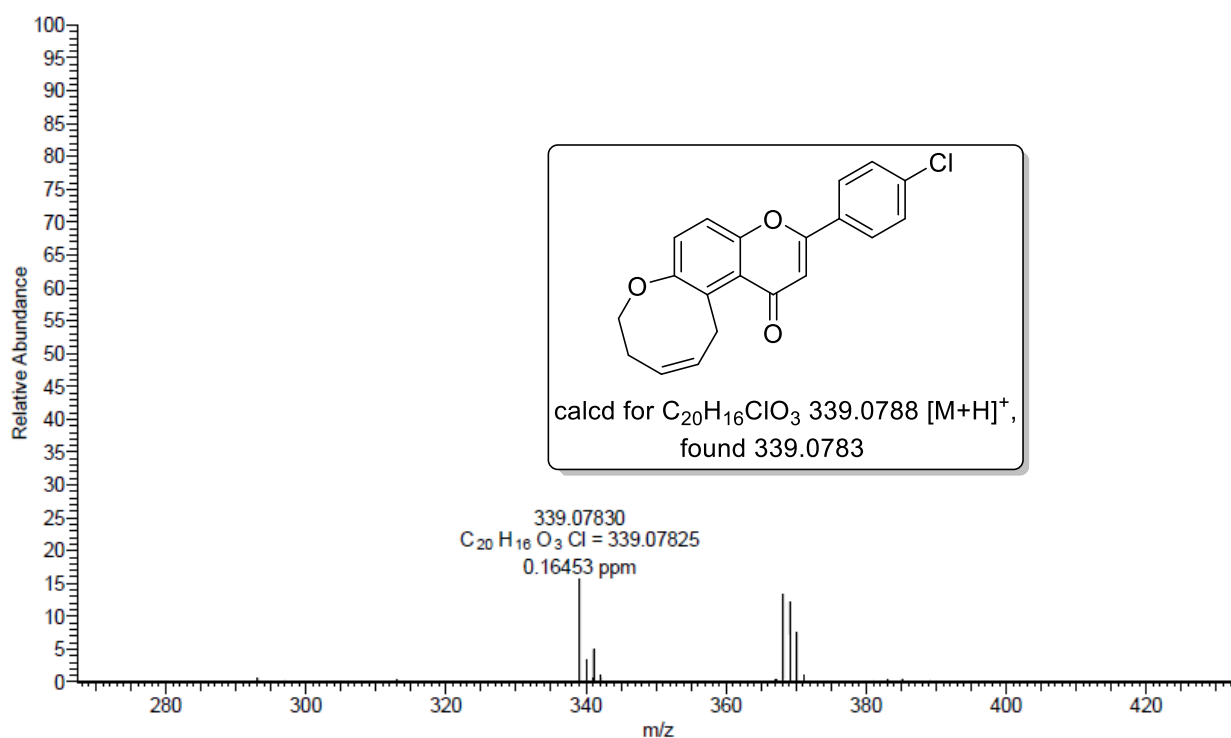
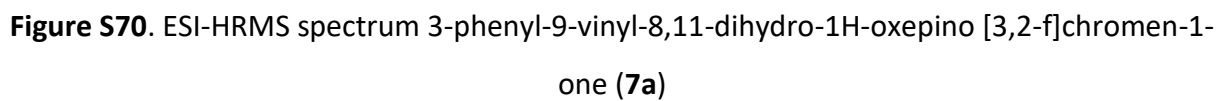
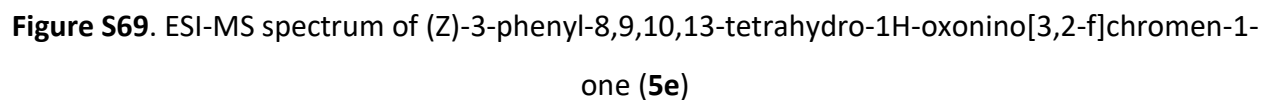


Figure S68. ESI-HRMS spectrum (Z)-3-(4-chlorophenyl)-9,12-dihydrooxocino[3,2-f]chromen-1(8H)-one (5d)



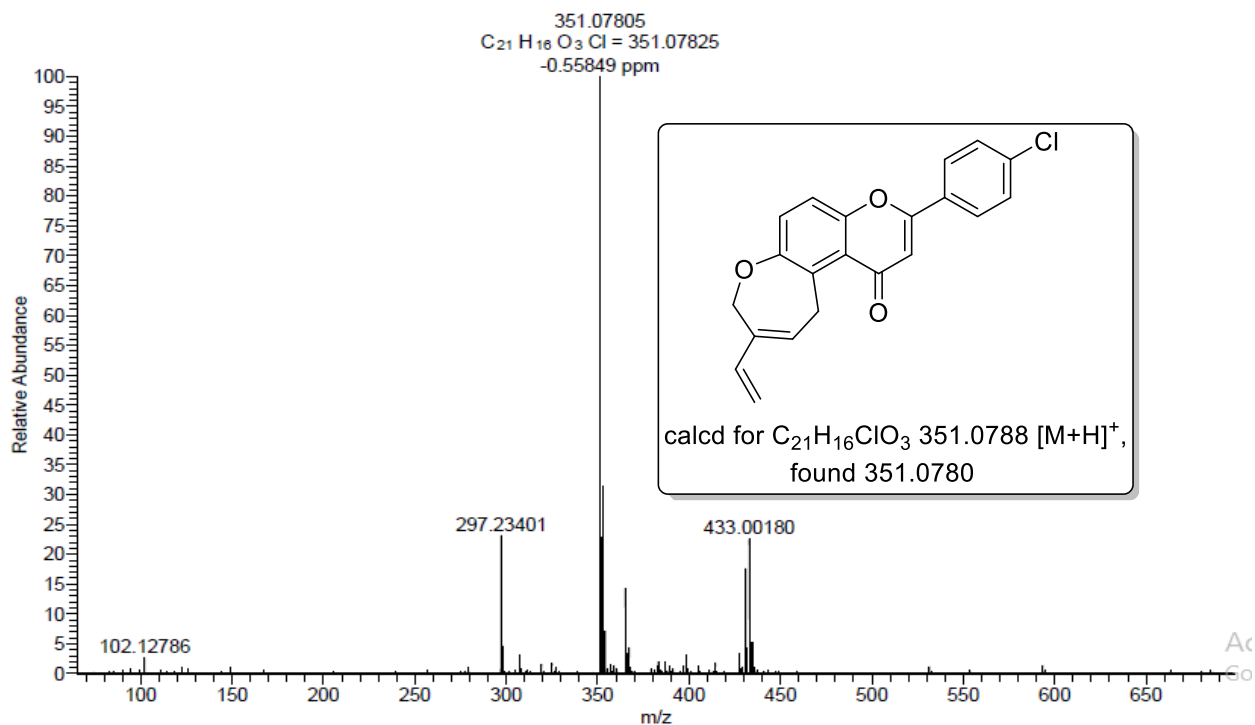


Figure S71. ESI-HRMS spectrum 3-(4-chlorophenyl)-9-vinyl-8,11-dihydro-1H-oxepino[3,2-f]chromen-1-one (**7b**)

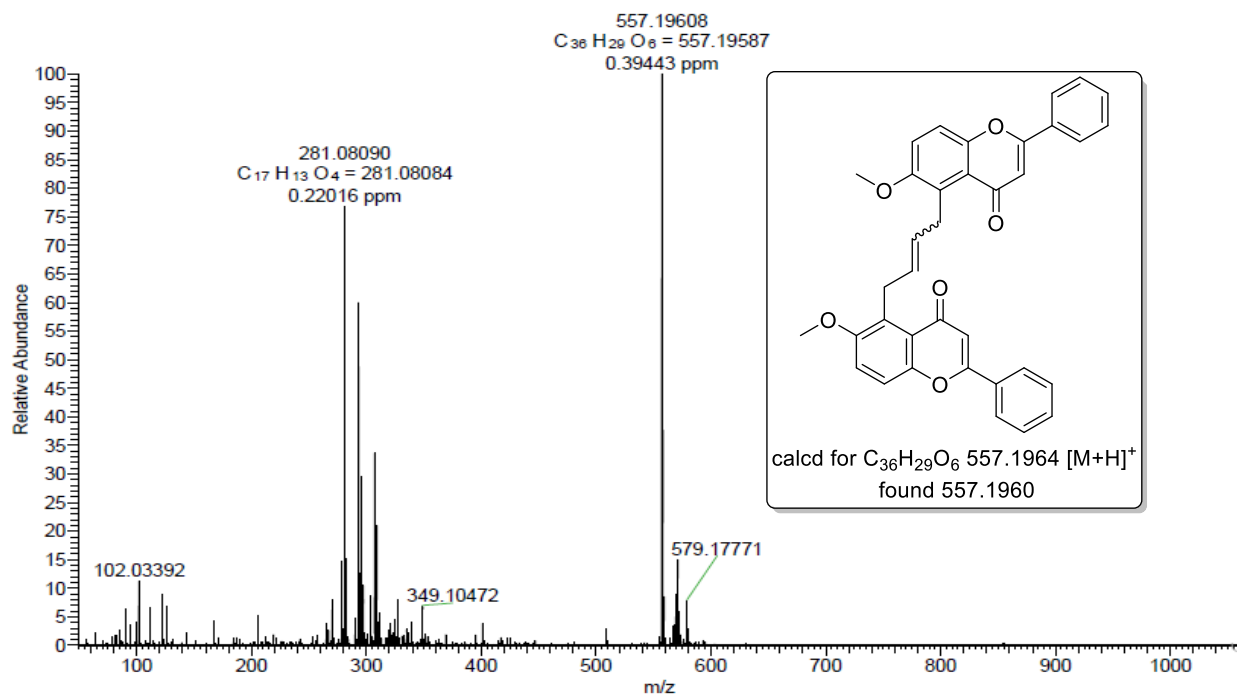


Figure S72. ESI-HRMS spectrum (E)-5,5'-(but-2-ene-1,4-diyl)bis(6-methoxy-2-phenyl-4H-chromen-4-one) (**9a**)

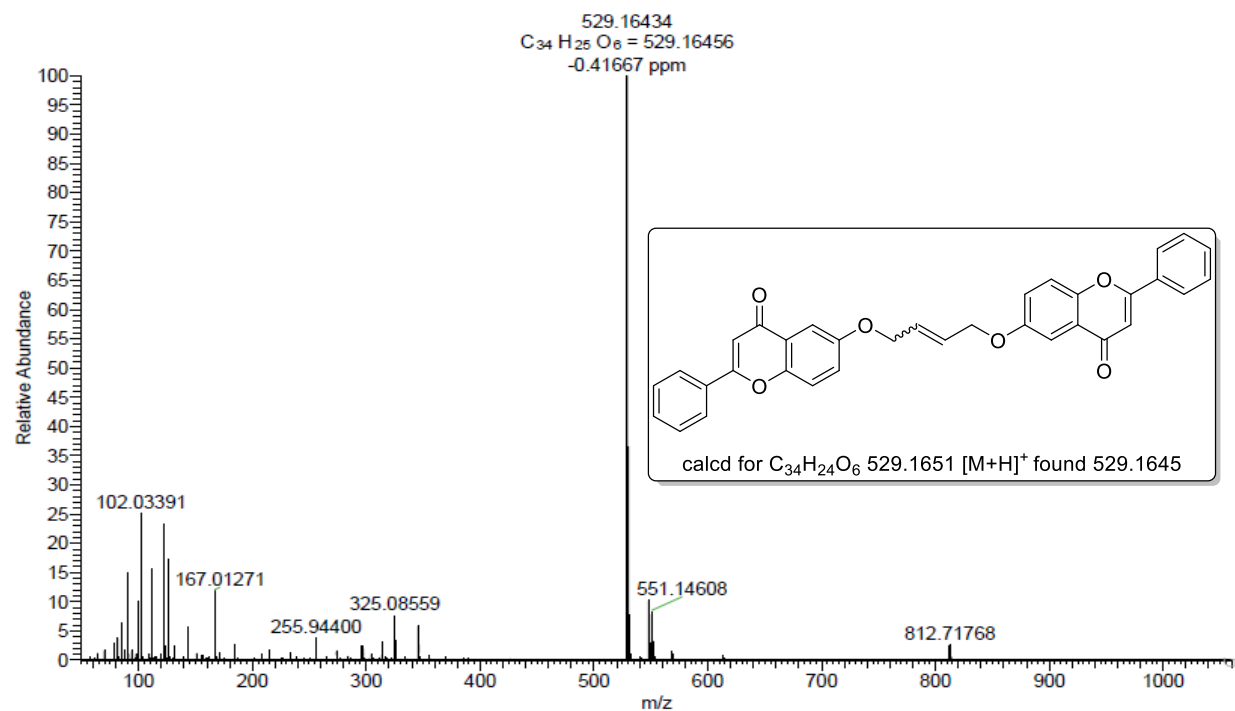


Figure S73. ESI-HRMS spectrum (E)-6,6'-(but-2-ene-1,4-diylbis(oxy))bis(2-phenyl-4H-chromen-4-one) (**10a**)

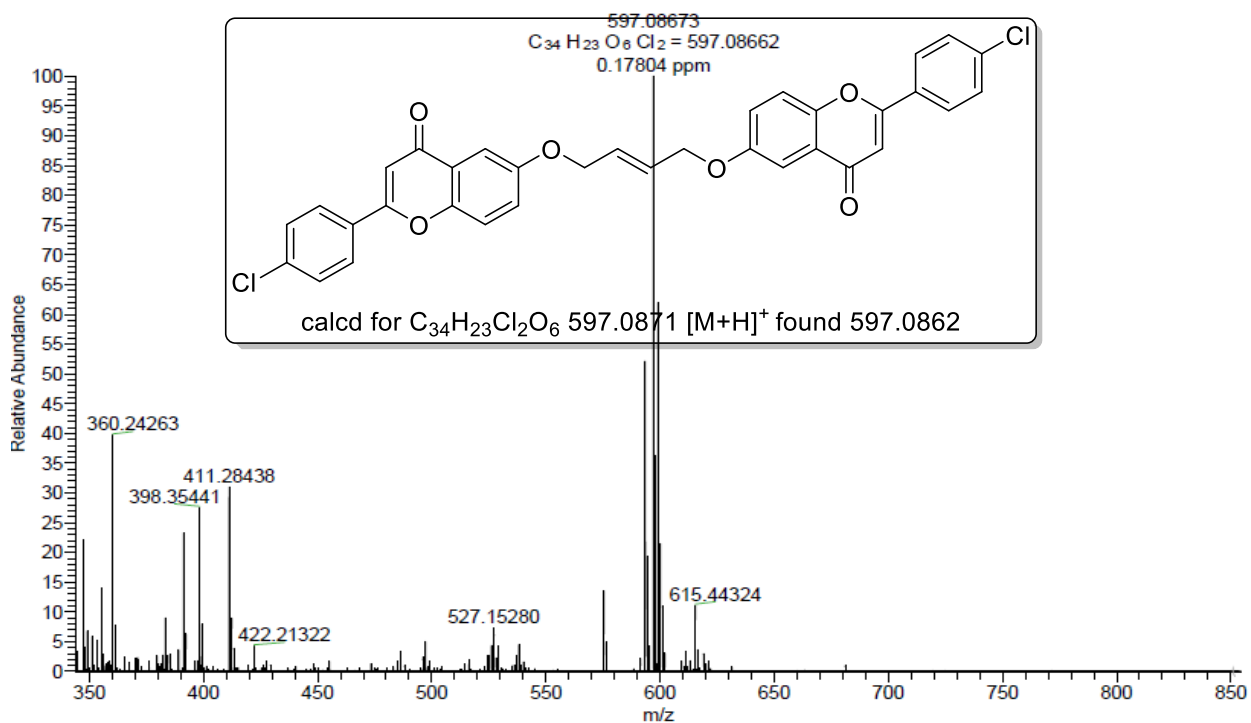


Figure S74. ESI-HRMS spectrum (E)-6,6'-(but-2-ene-1,4-diylbis(oxy))bis(2-(4-chlorophenyl)-4H-chromen-4-one) (**10b**)

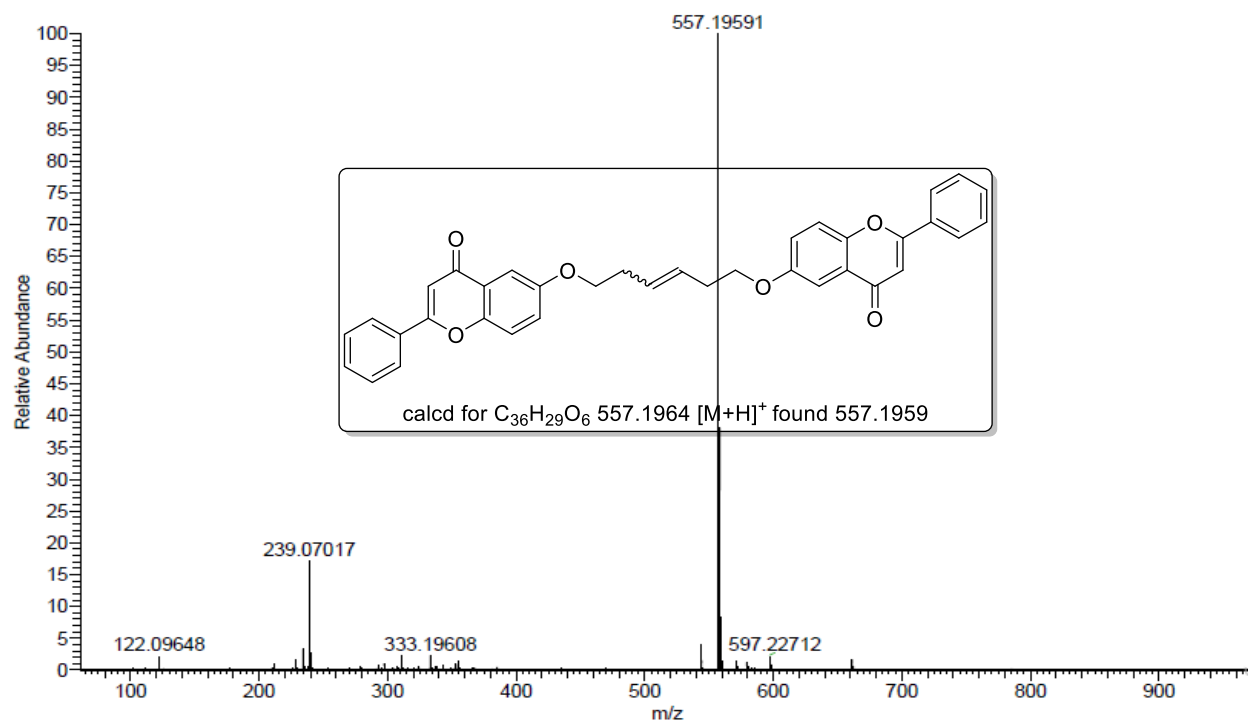


Figure S75. ESI-HRMS spectrum of (E)-6,6'-(hex-3-ene-1,6-diylbis(oxy))bis(2-phenyl-4H-chromen-4-one) (**10c**)

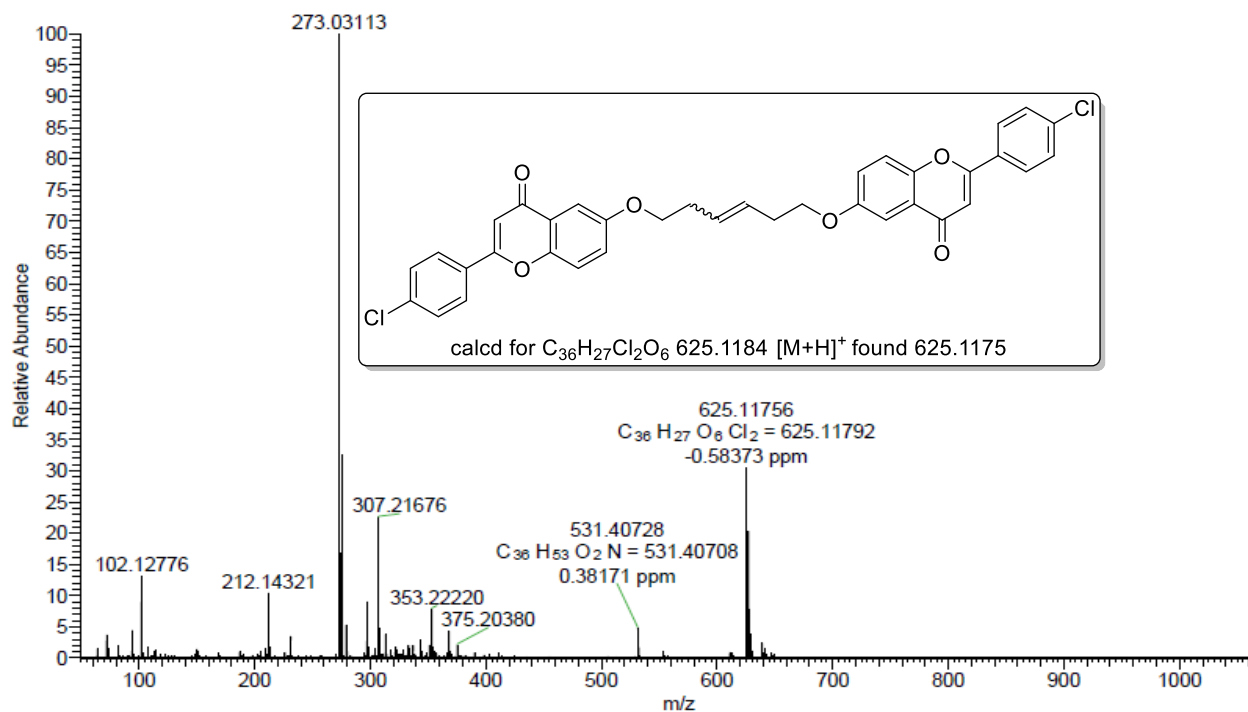


Figure S76. ESI-HRMS spectrum of (E)-6,6'-(hex-3-ene-1,6-diylbis(oxy))bis(2-(4-chlorophenyl)-4H-chromen-4-one) (**10d**)

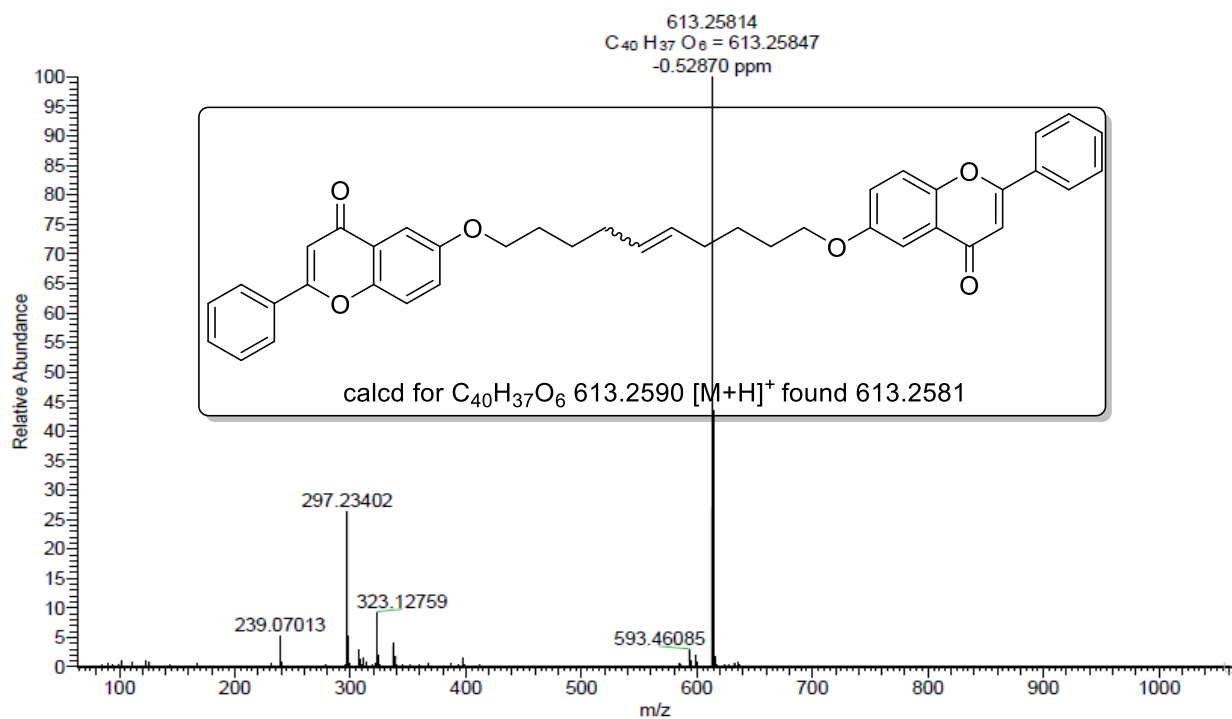


Figure S77. ESI-HRMS spectrum (E)-6,6'-(dec-5-ene-1,10-diylbis(oxy))bis(2-phenyl-4H-chromen-4-one) (**10e**)

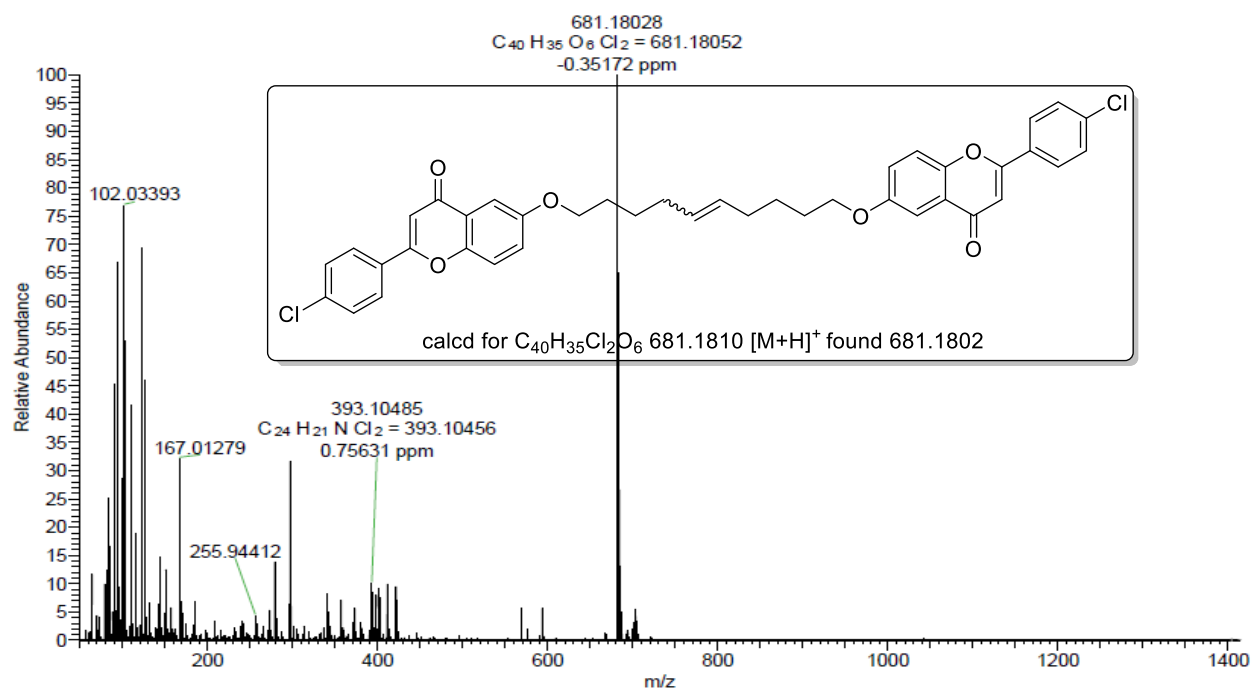


Figure S78. ESI-HRMS spectrum (E)-6,6'-(dec-5-ene-1,10-diylbis(oxy))bis(2-(4-chlorophenyl)-4H-chromen-4-one) (**10f**)