Electronic Supplementary Materials

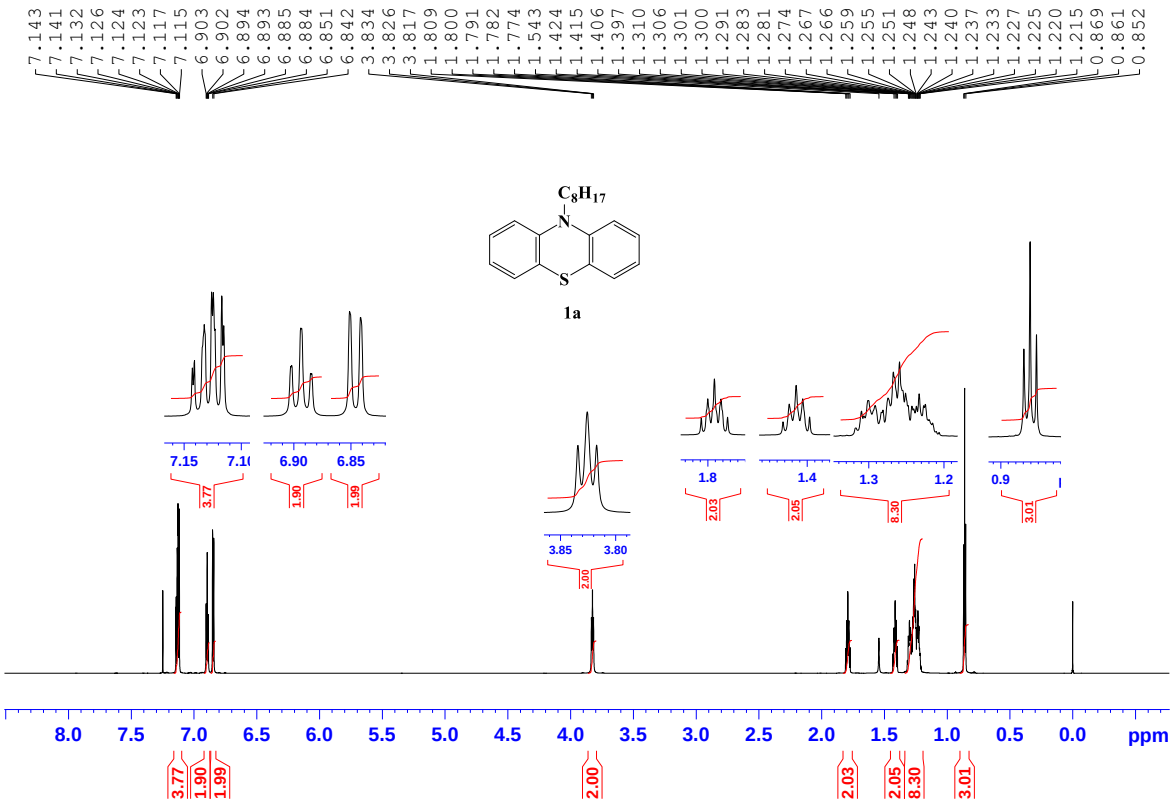


Figure S1. ^{1}H NMR spectrum in $CDCl_3$ of **1a**.

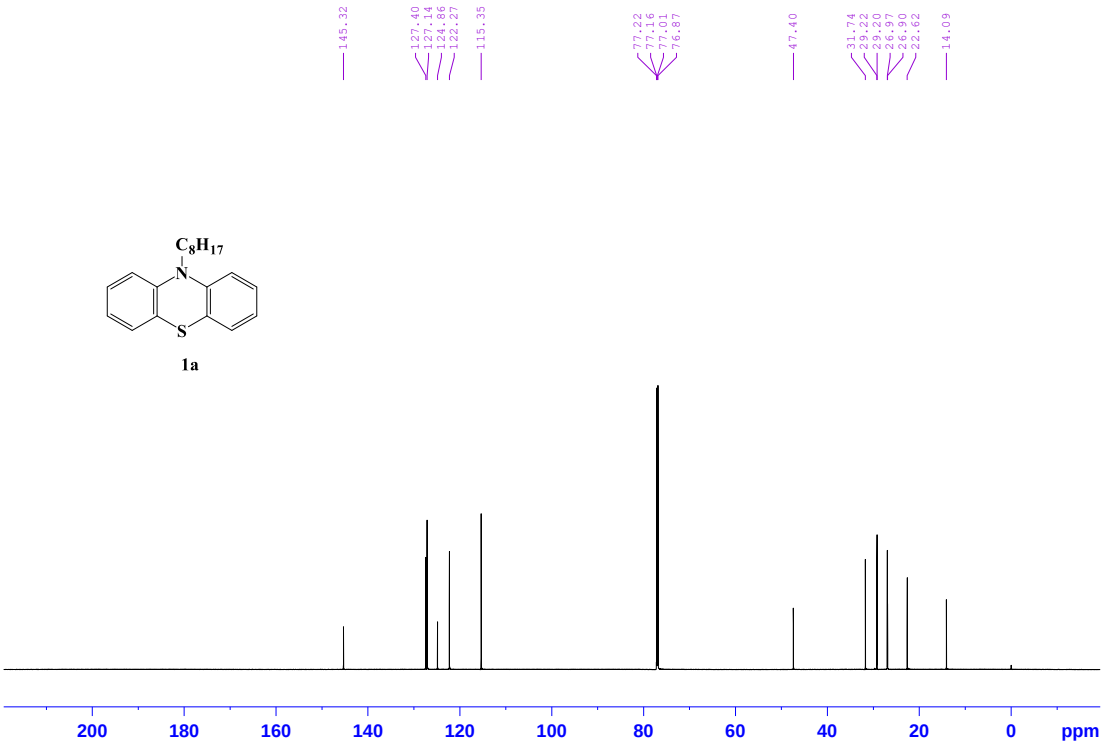


Figure S2. ^{13}C NMR spectrum in $CDCl_3$ of **1a**.

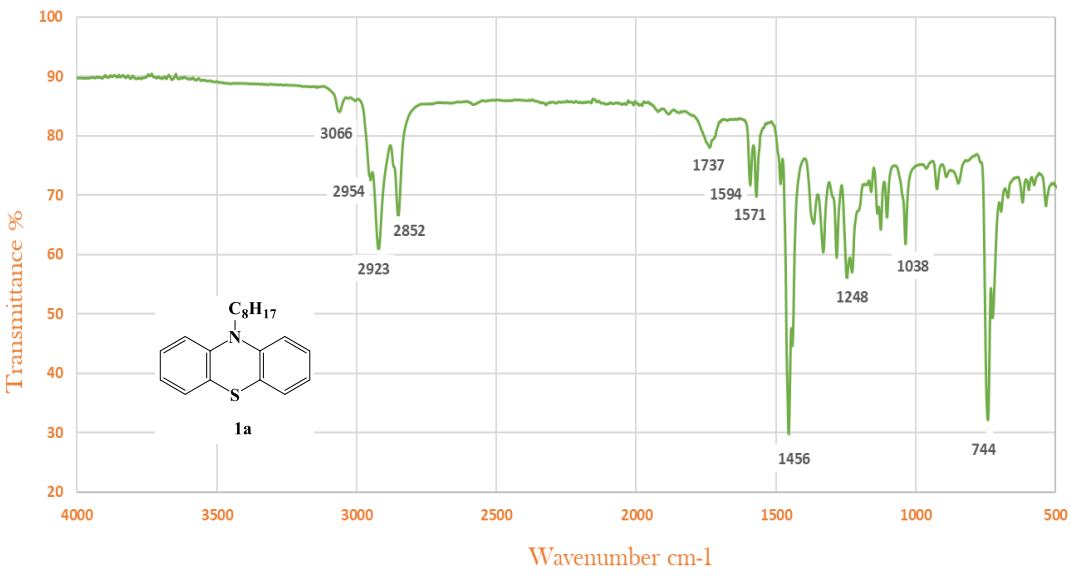


Figure S3. FTIR spectrum of **1a**.

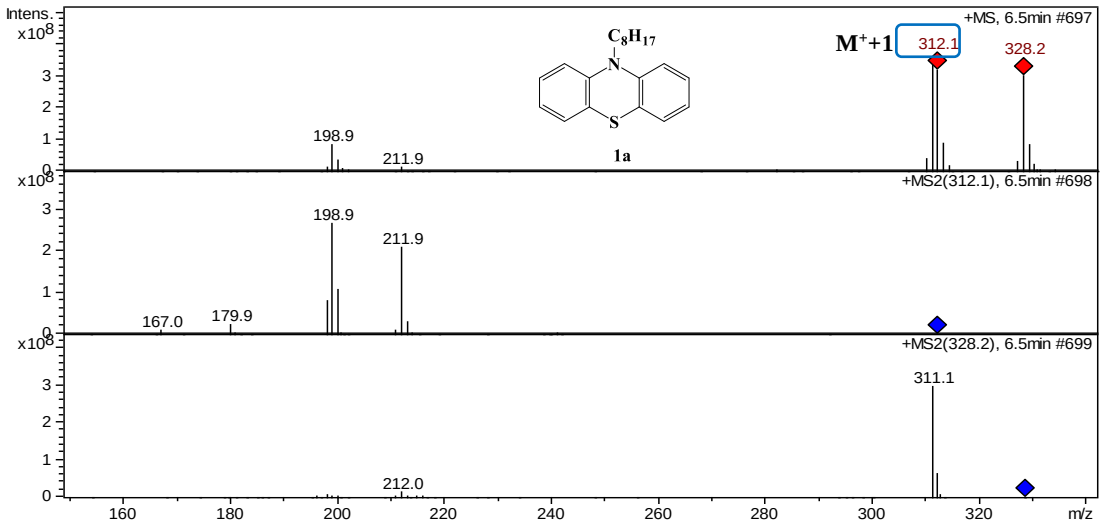


Figure S4. Mass spectrum of **1a**.

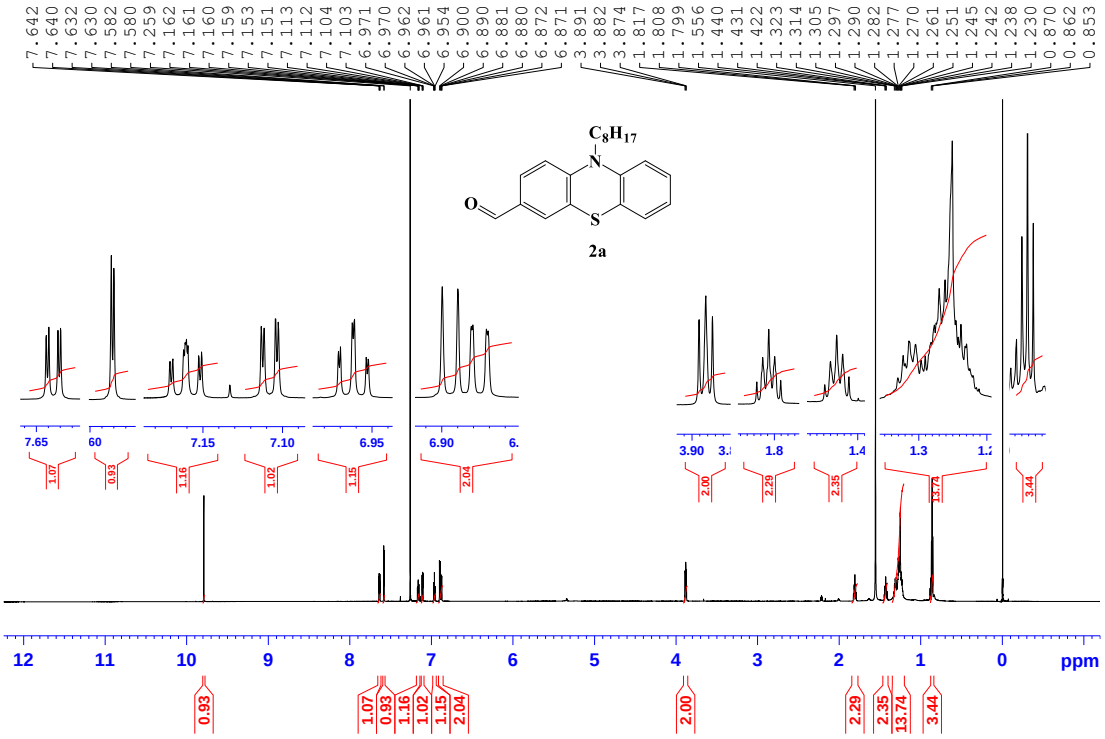


Figure S5. ^{1}H NMR spectrum in $CDCl_3$ of **2a**.

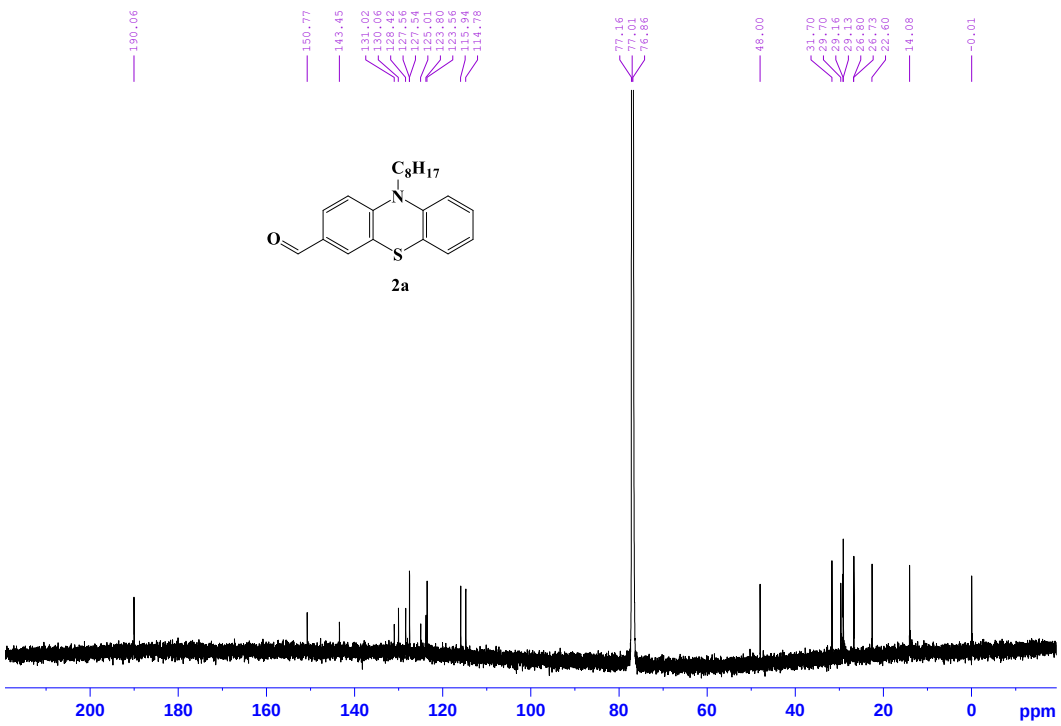


Figure S6. ^{13}C NMR spectrum in $CDCl_3$ of **2a**.

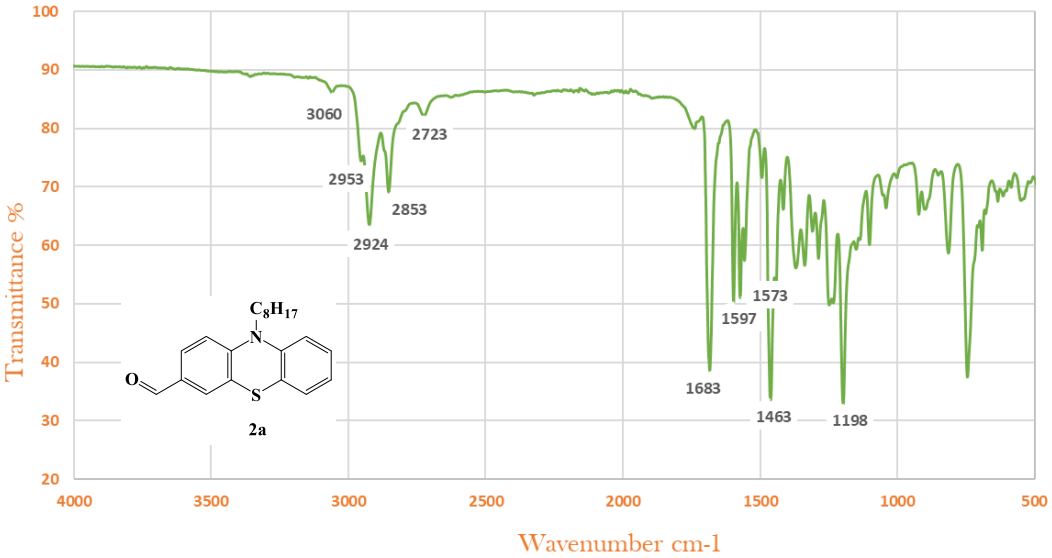


Figure S7. FTIR spectrum of **2a**.

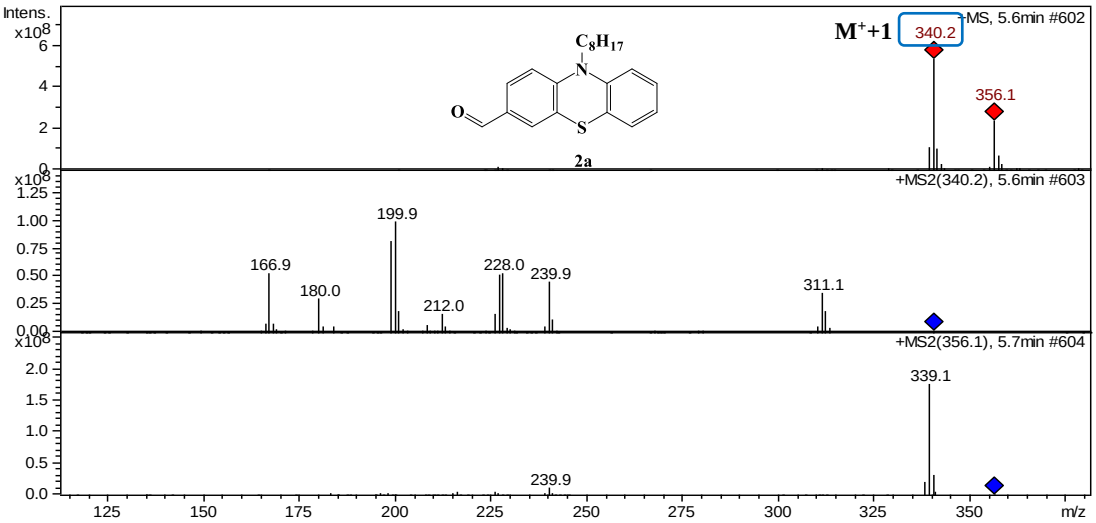


Figure S8. Mass spectrum of **2a**.

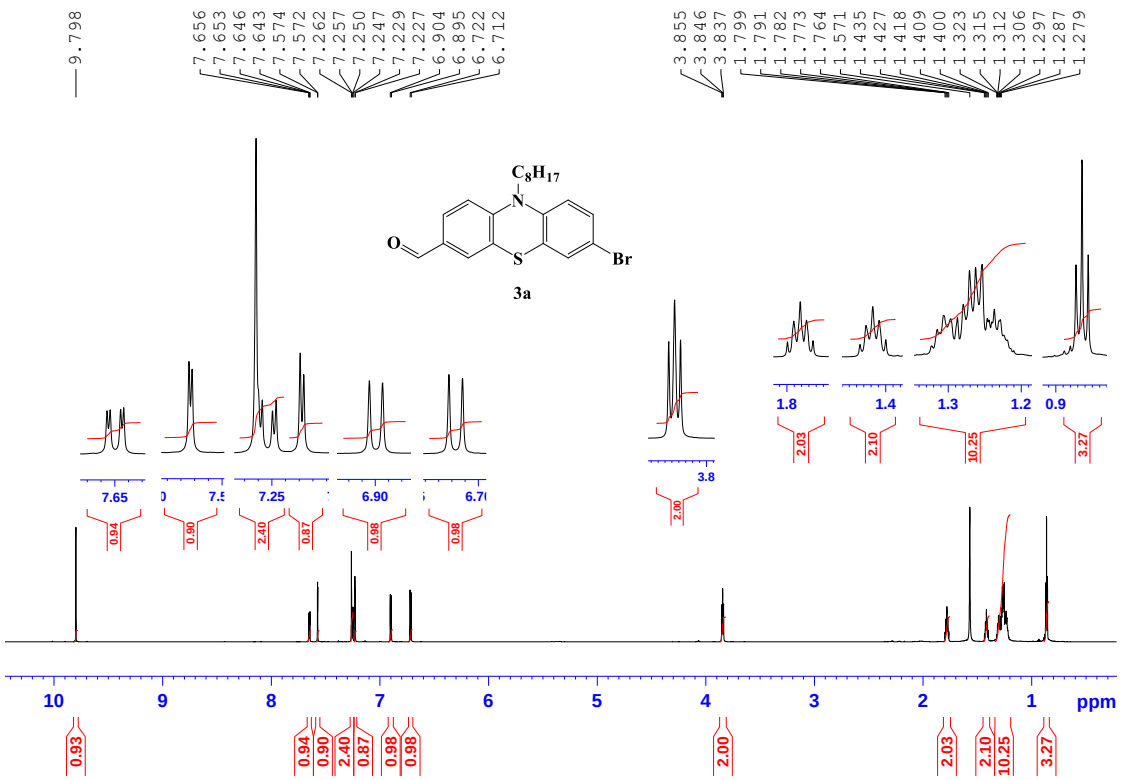


Figure S9. ^{1}H NMR spectrum in $CDCl_3$ of **3a**.

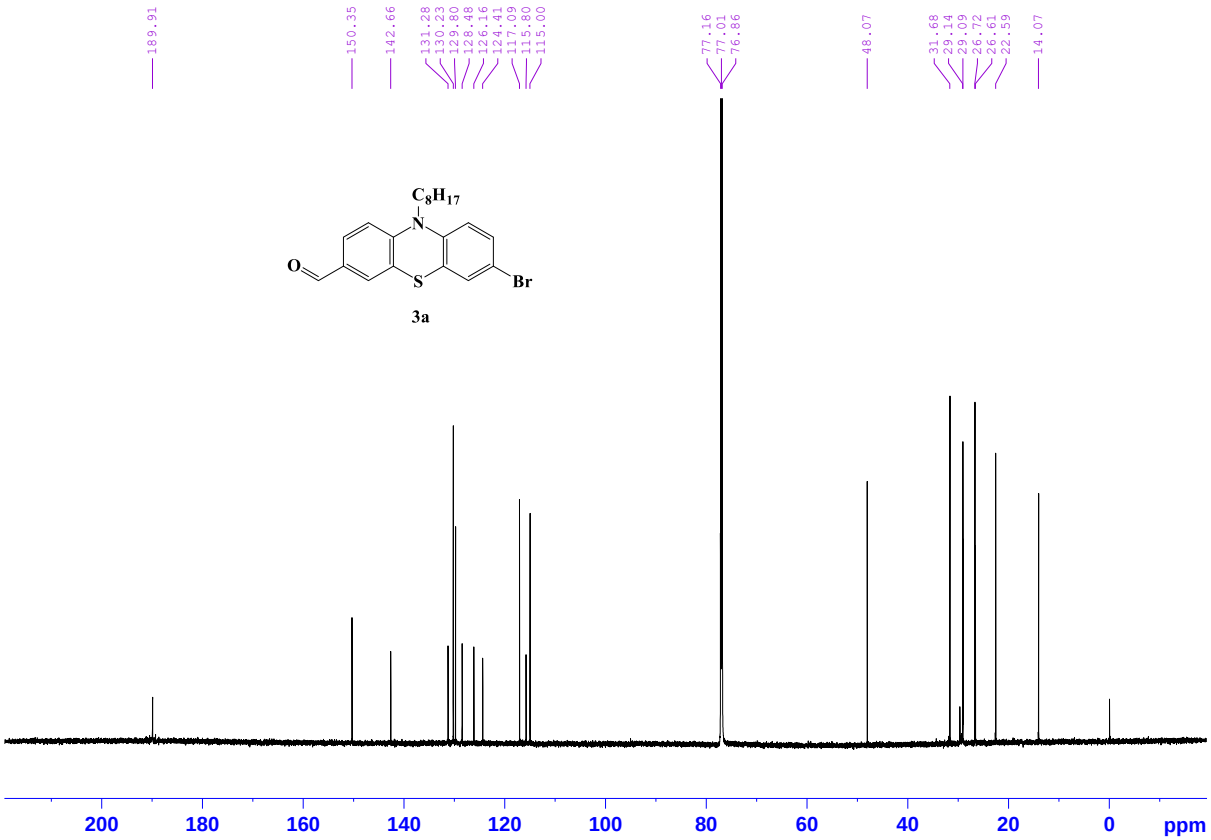


Figure S10. ^{13}C NMR spectrum in $CDCl_3$ of **3a**.

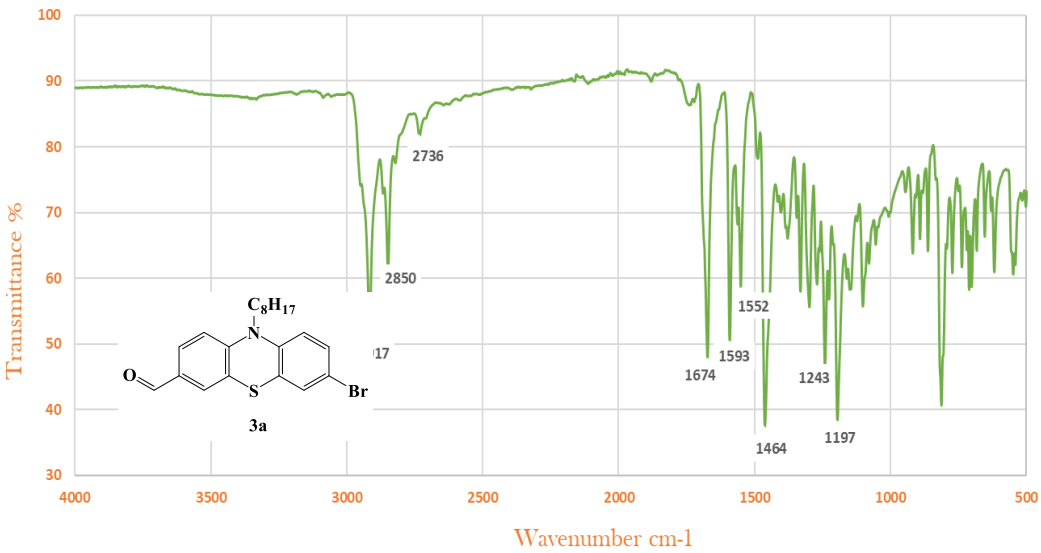


Figure S11. FTIR spectrum of **3a**.

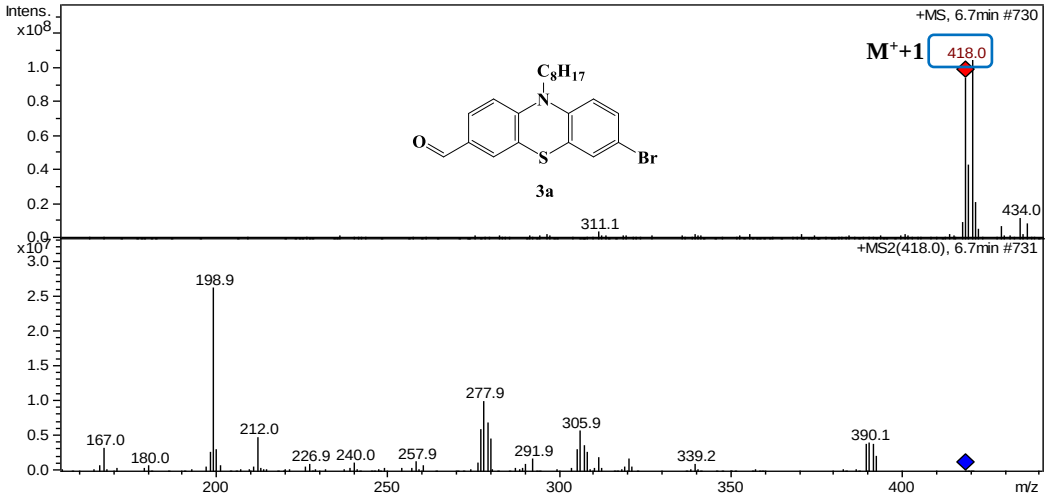


Figure S12. Mass spectrum of **3a**.

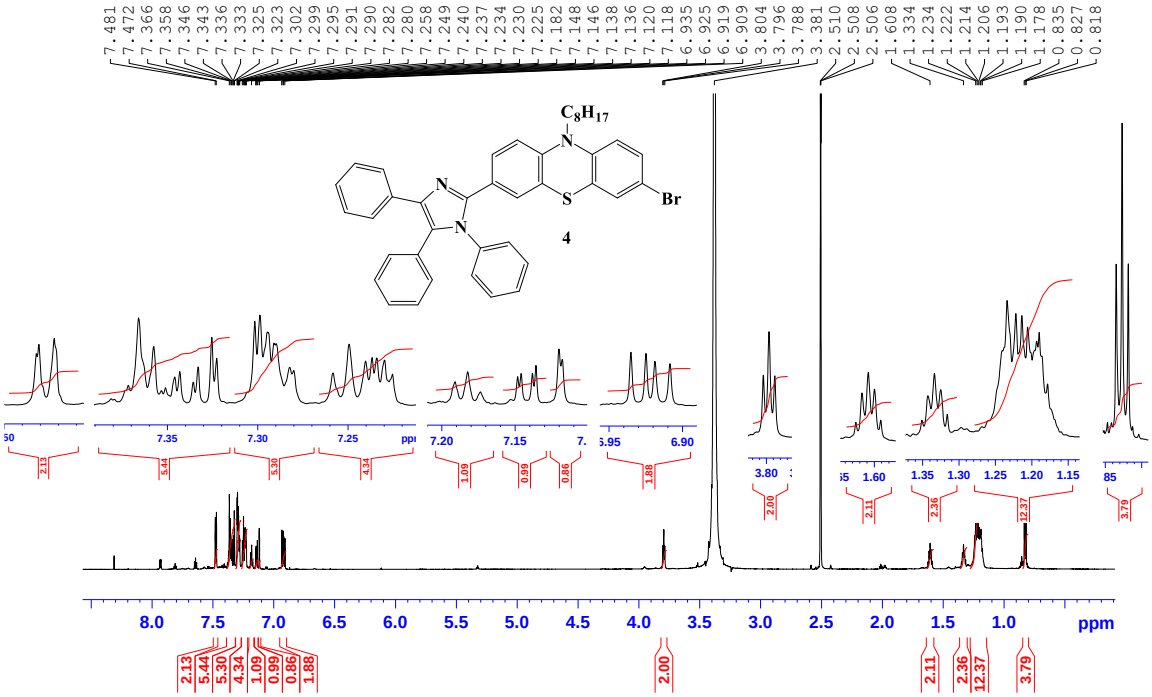


Figure S13. ^{1}H NMR spectrum in DMSO-d$_6$ of **4**.

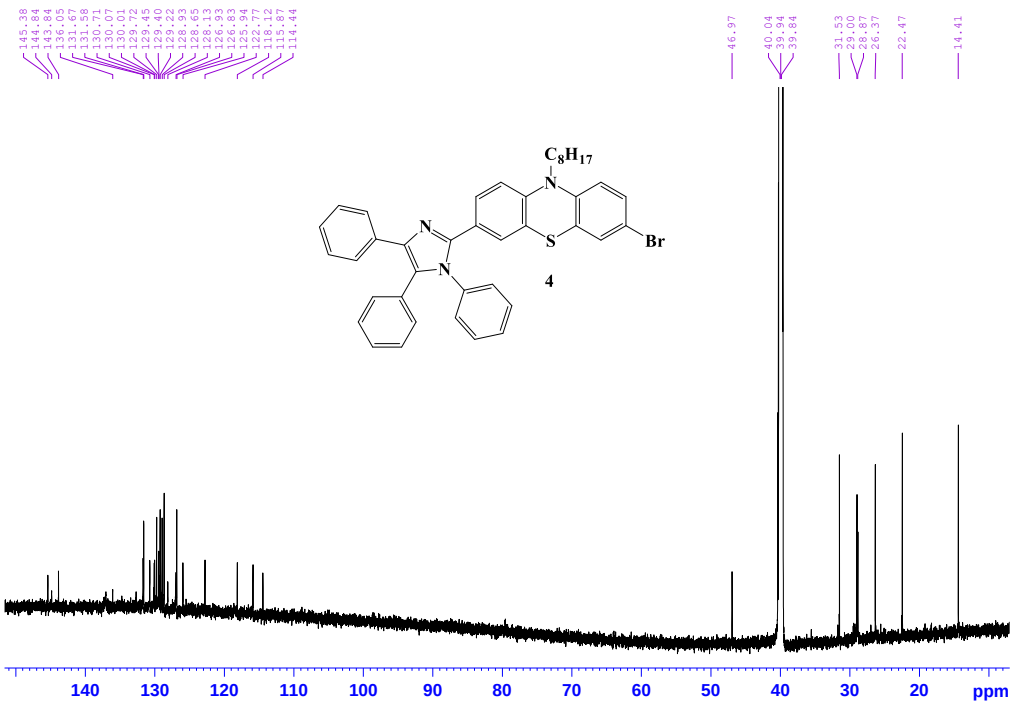


Figure S14. ^{13}C NMR spectrum in DMSO-d$_6$ of **4**.

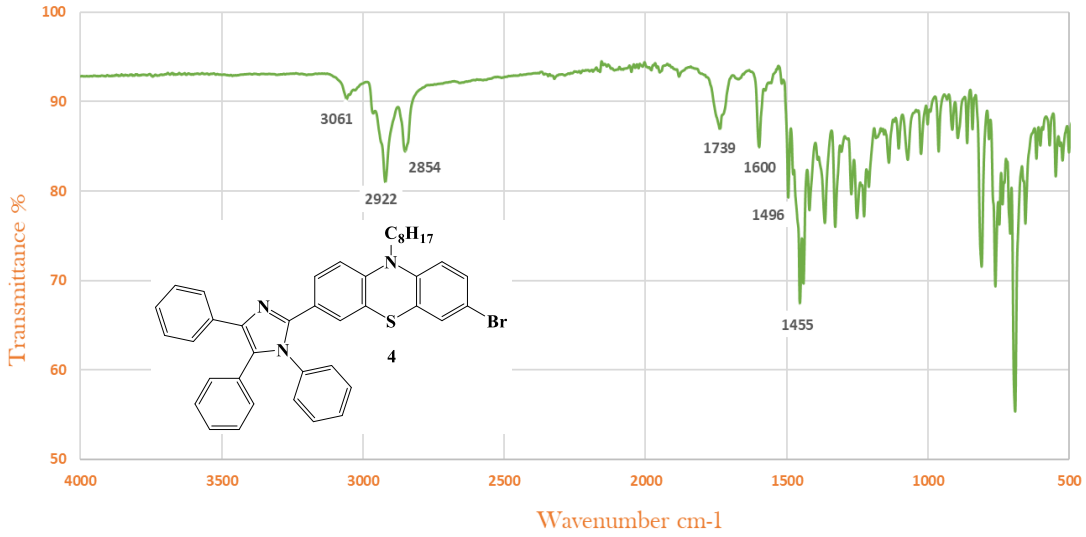


Figure S15. FTIR spectrum of **4**.

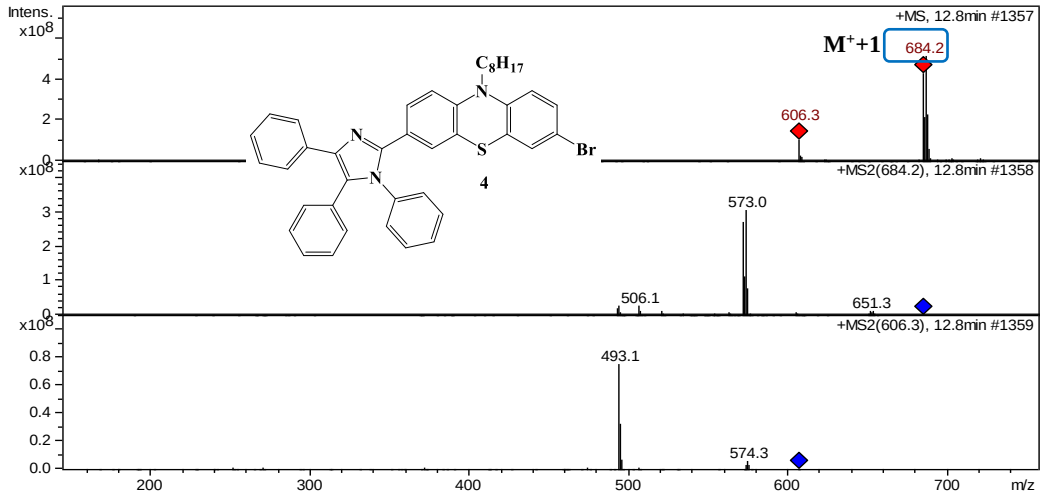


Figure S16. Mass spectrum of **4**.

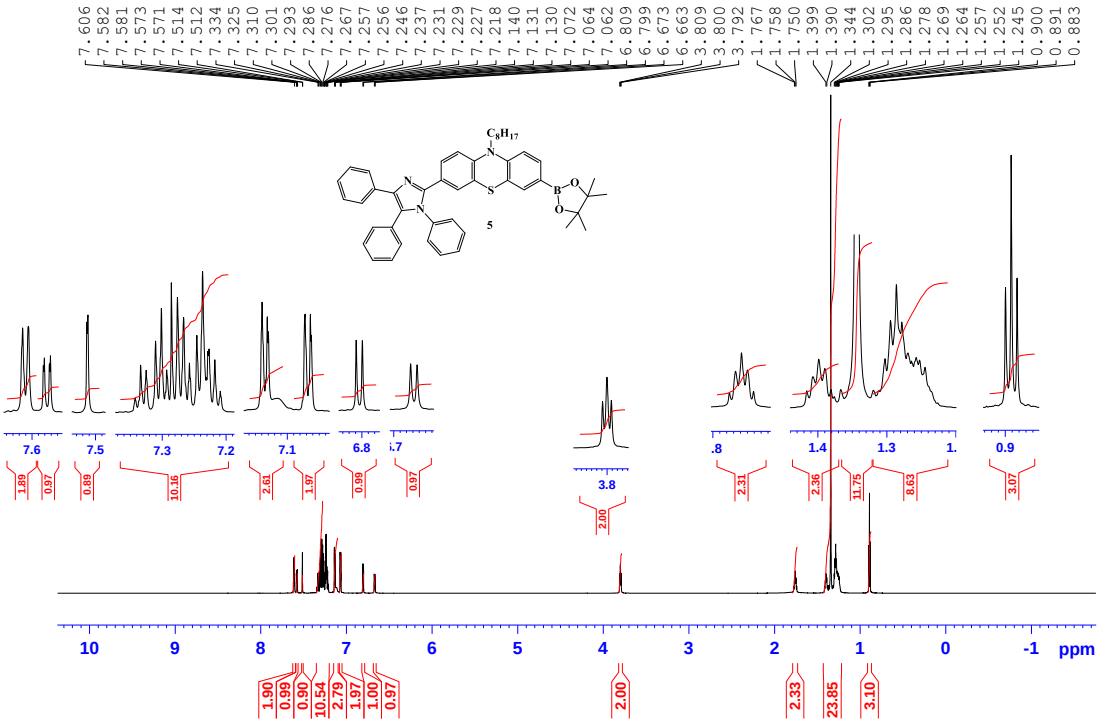


Figure S17. ^{1}H NMR spectrum in $CDCl_3$ of **5**.

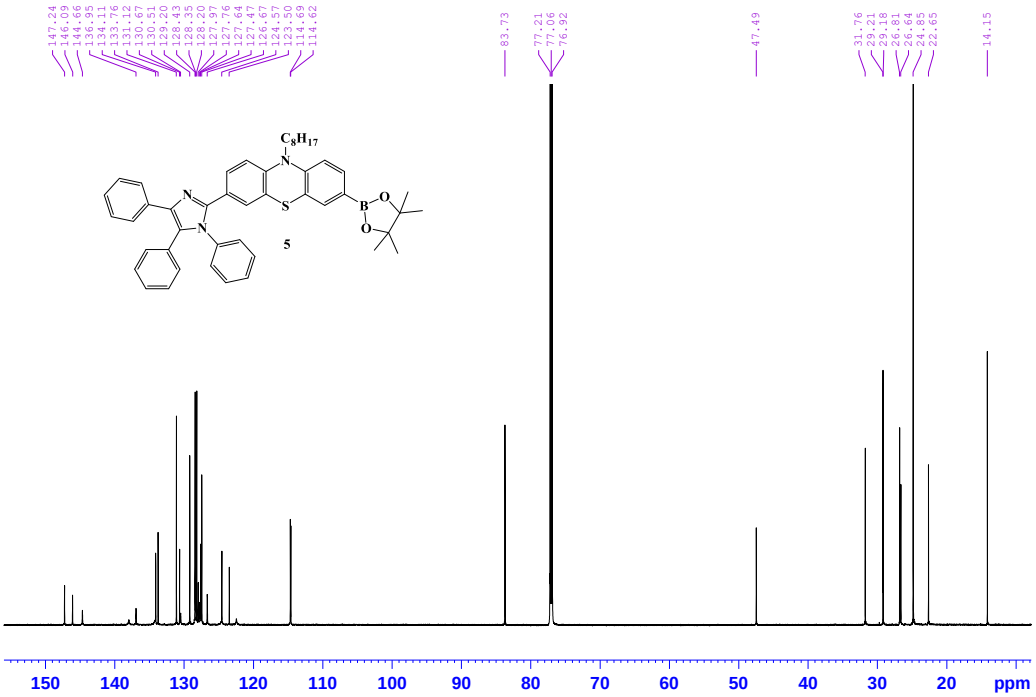


Figure S18. ^{13}C NMRspectrum in $CDCl_3$ of **5**.

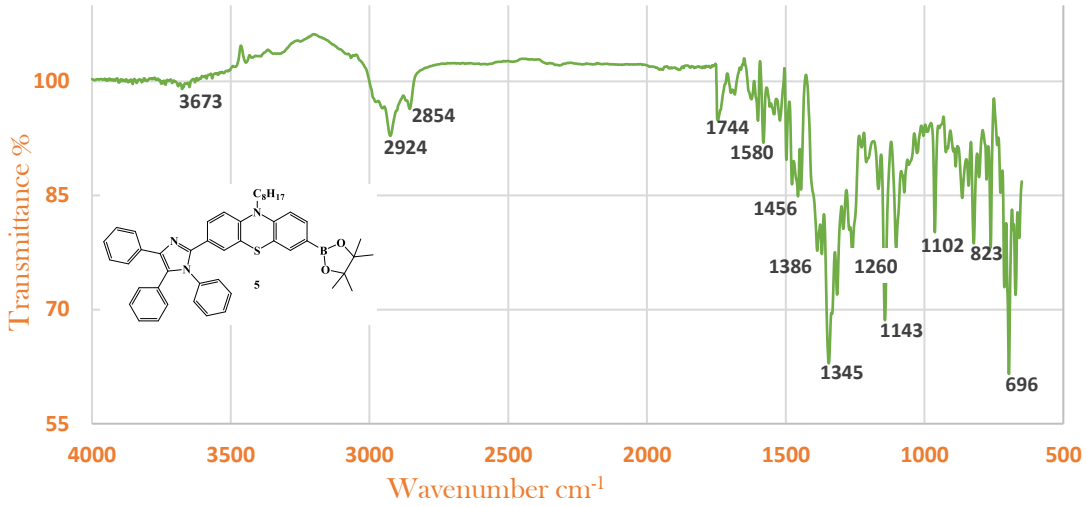


Figure S19. FTIR spectrum of **5**.

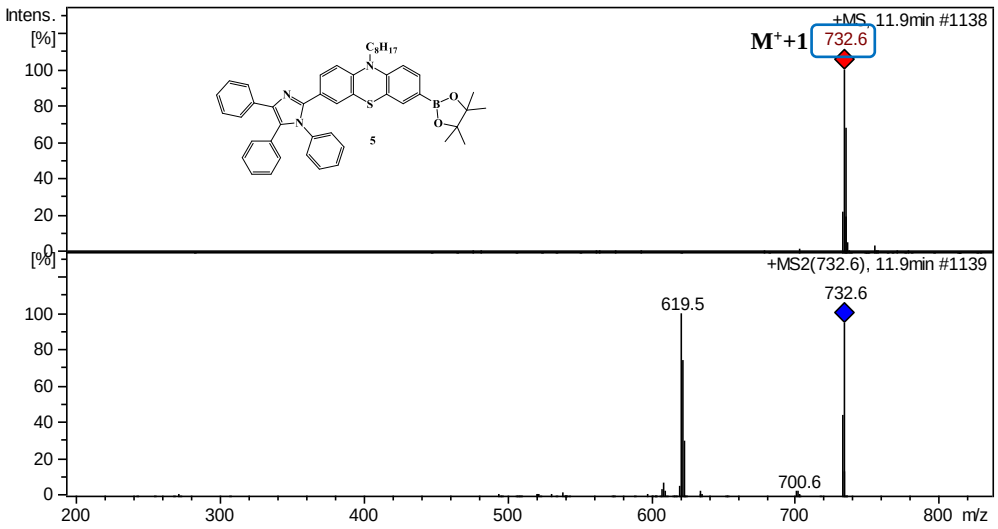


Figure S20. Mass spectrum of **5**.

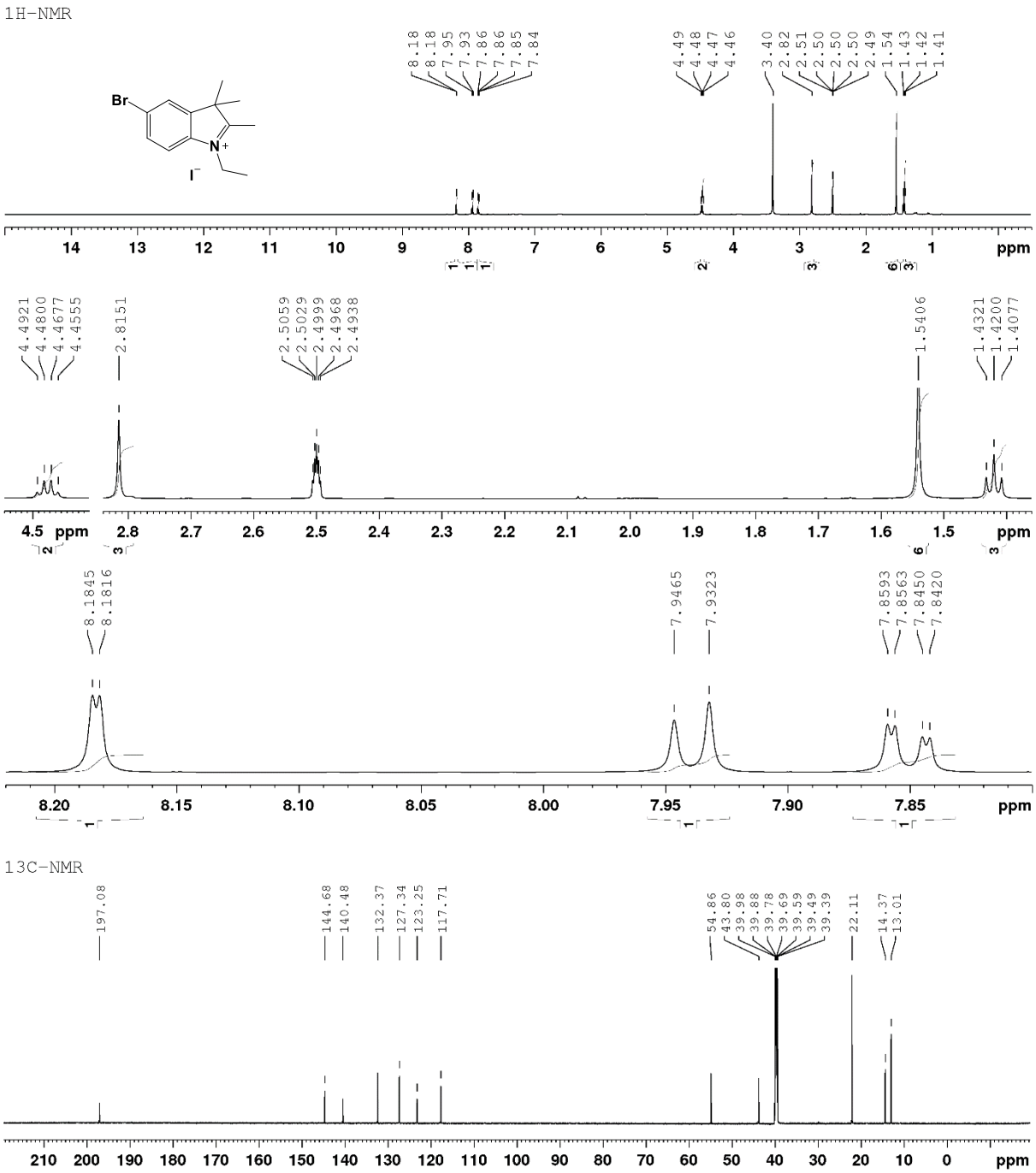


Figure S21. ^{1}H NMR and ^{13}C NMR spectra in DMSO-D_6 of **11**.

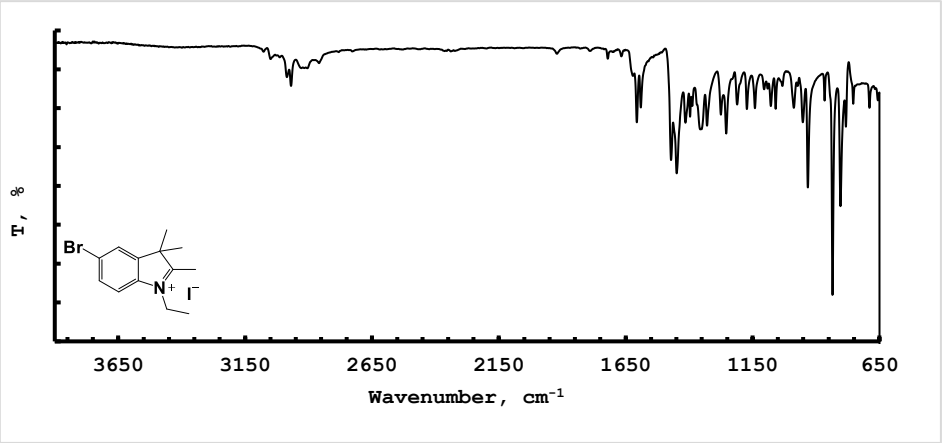


Figure S22. FTIR spectrum of **11**.

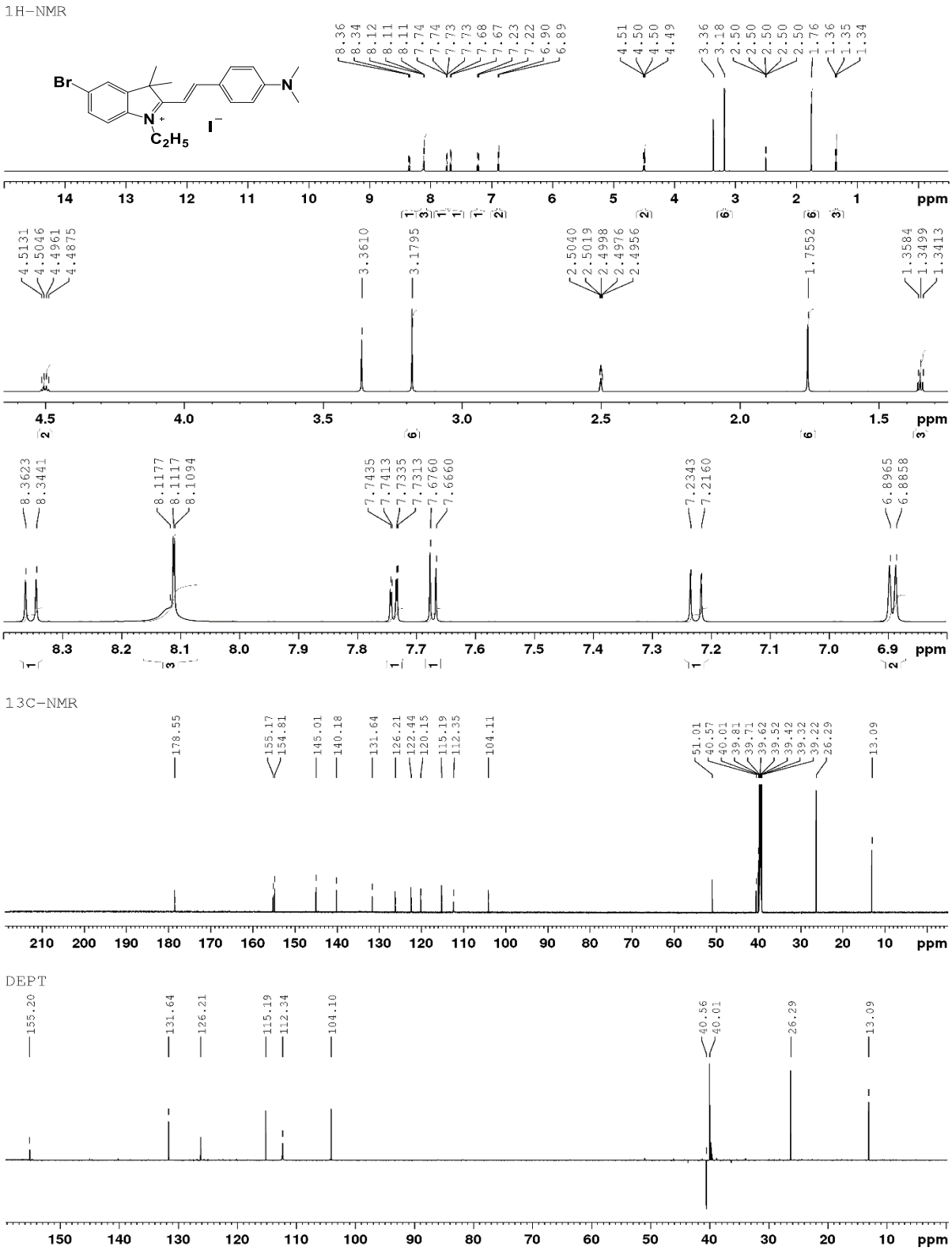


Figure S23. ^{1}H NMR, ^{13}C NMR and DEPT spectra in DMSO-D_6 of **12**.

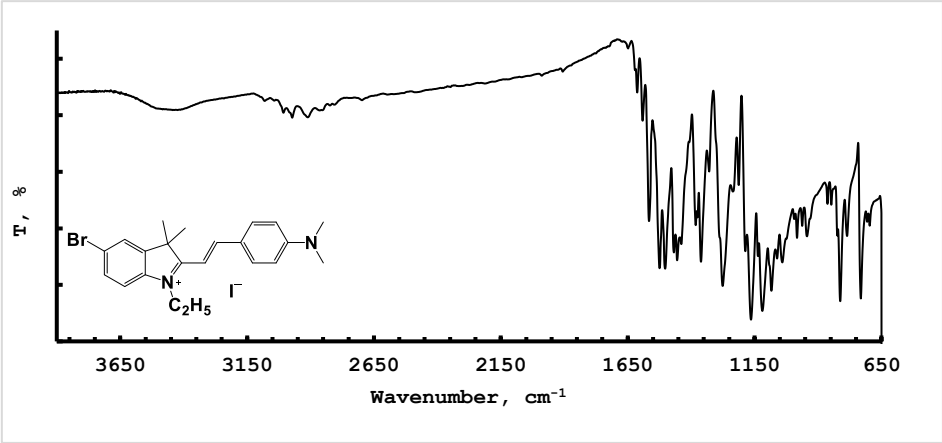


Figure S24. FTIR spectrum of **12**.

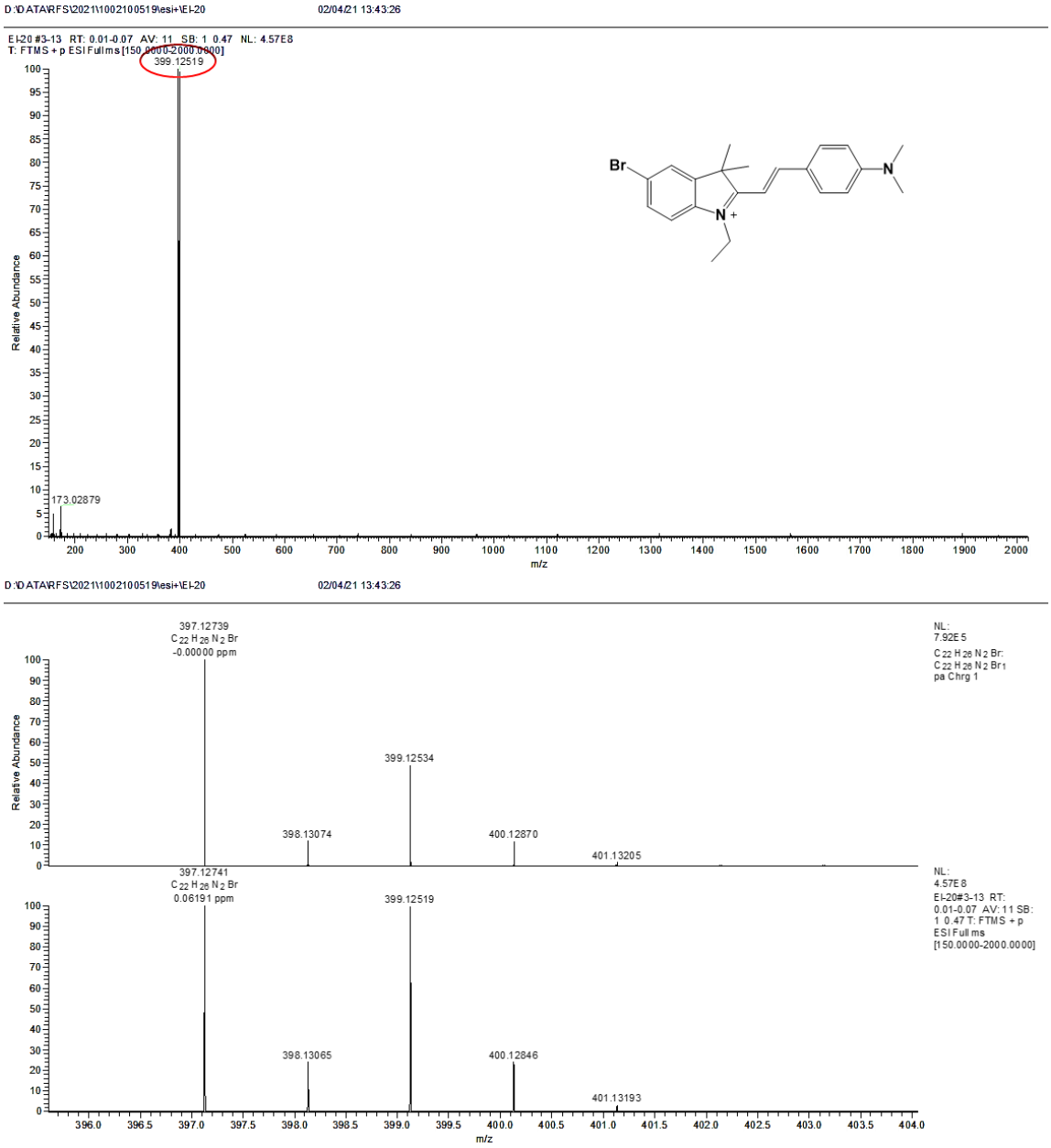


Figure S25. Mass spectrum of **12**.

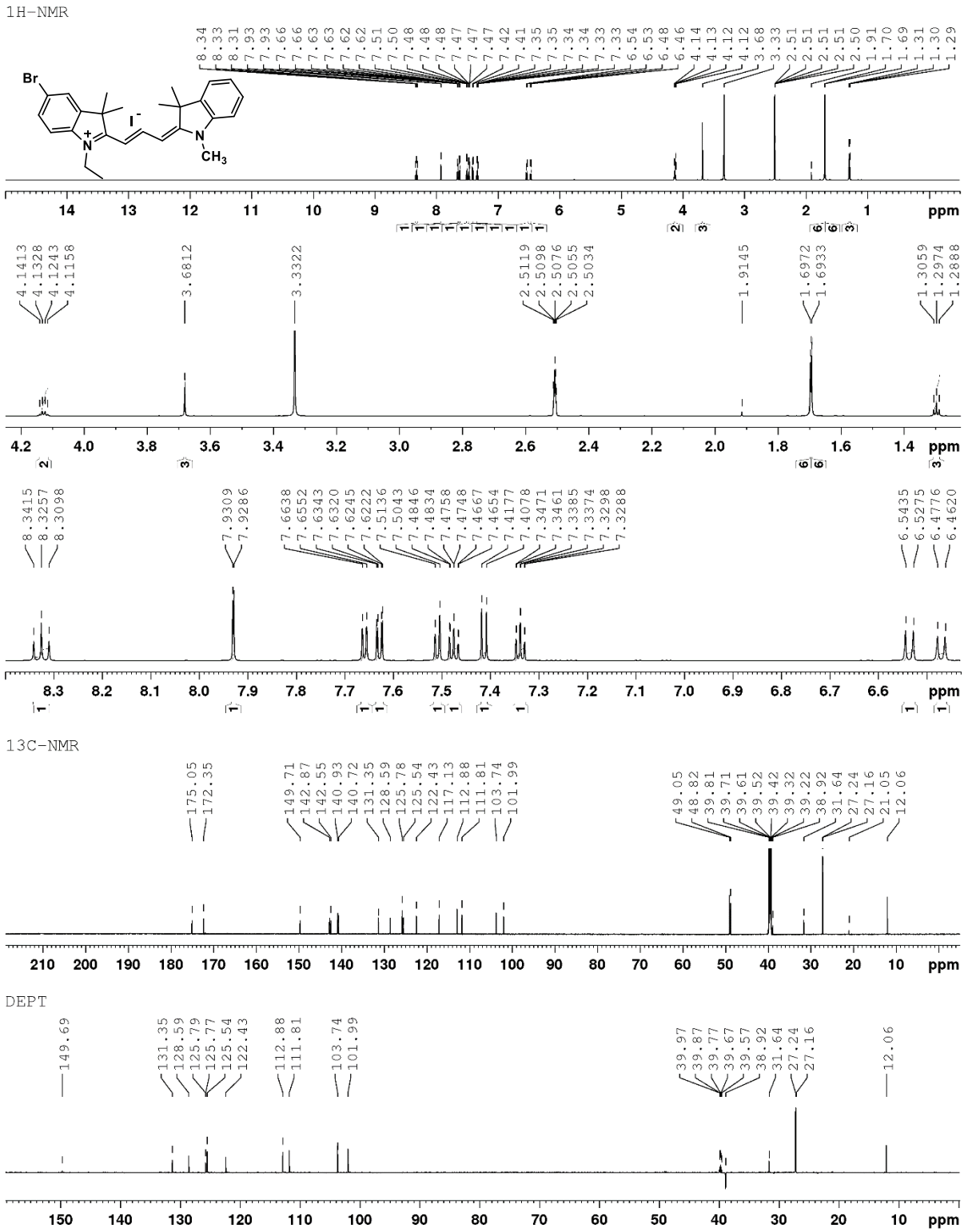


Figure S26. ^{1}H NMR, ^{13}C NMR and DEPT spectra in DMSO-D_6 of **13**.

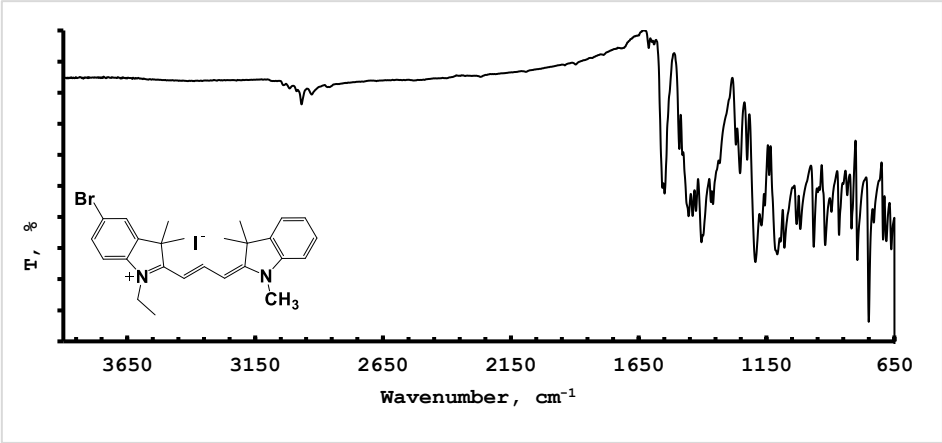


Figure S27. FTIR spectrum of **13**.

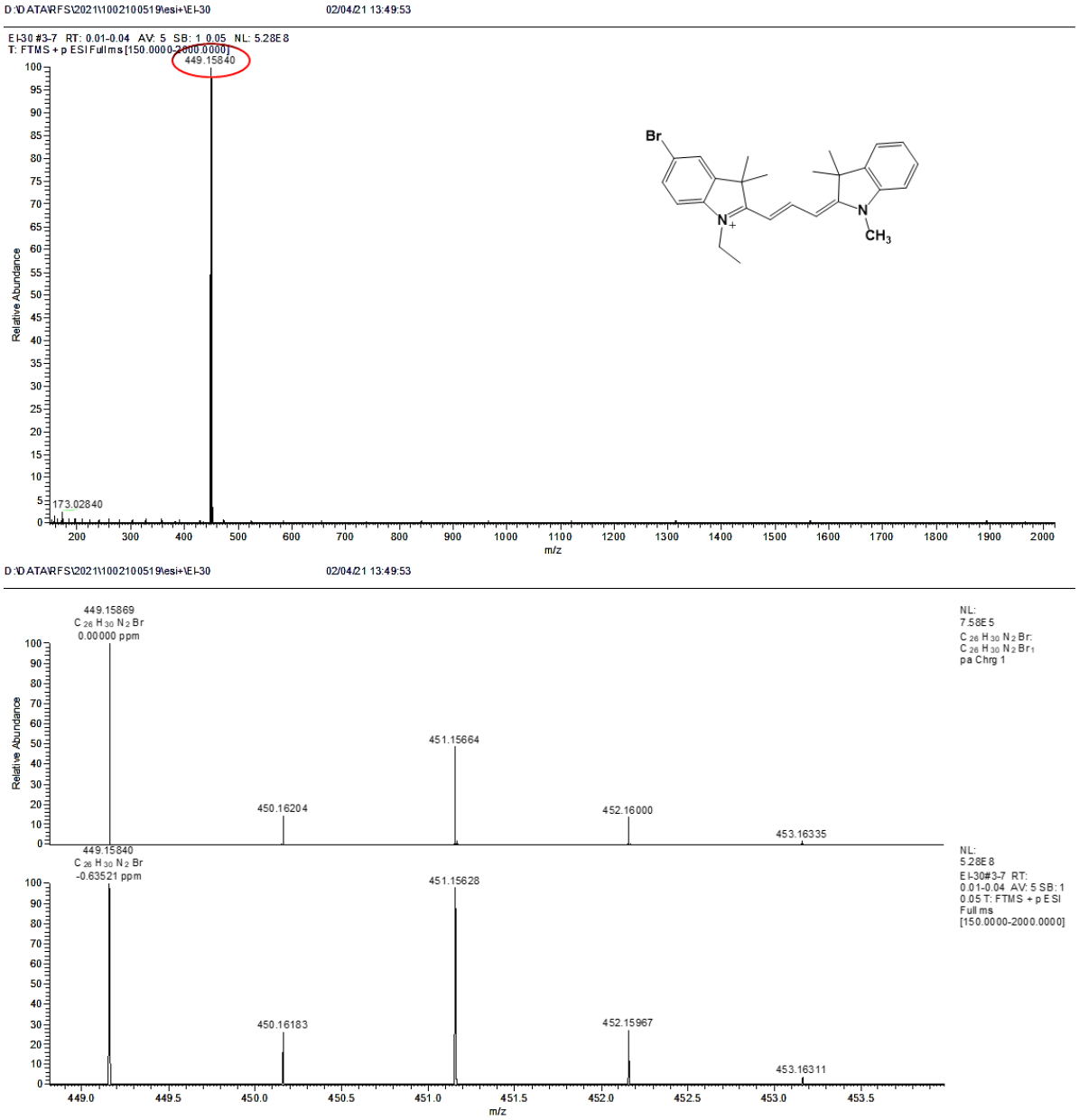


Figure S28. Mass spectrum of **13**.

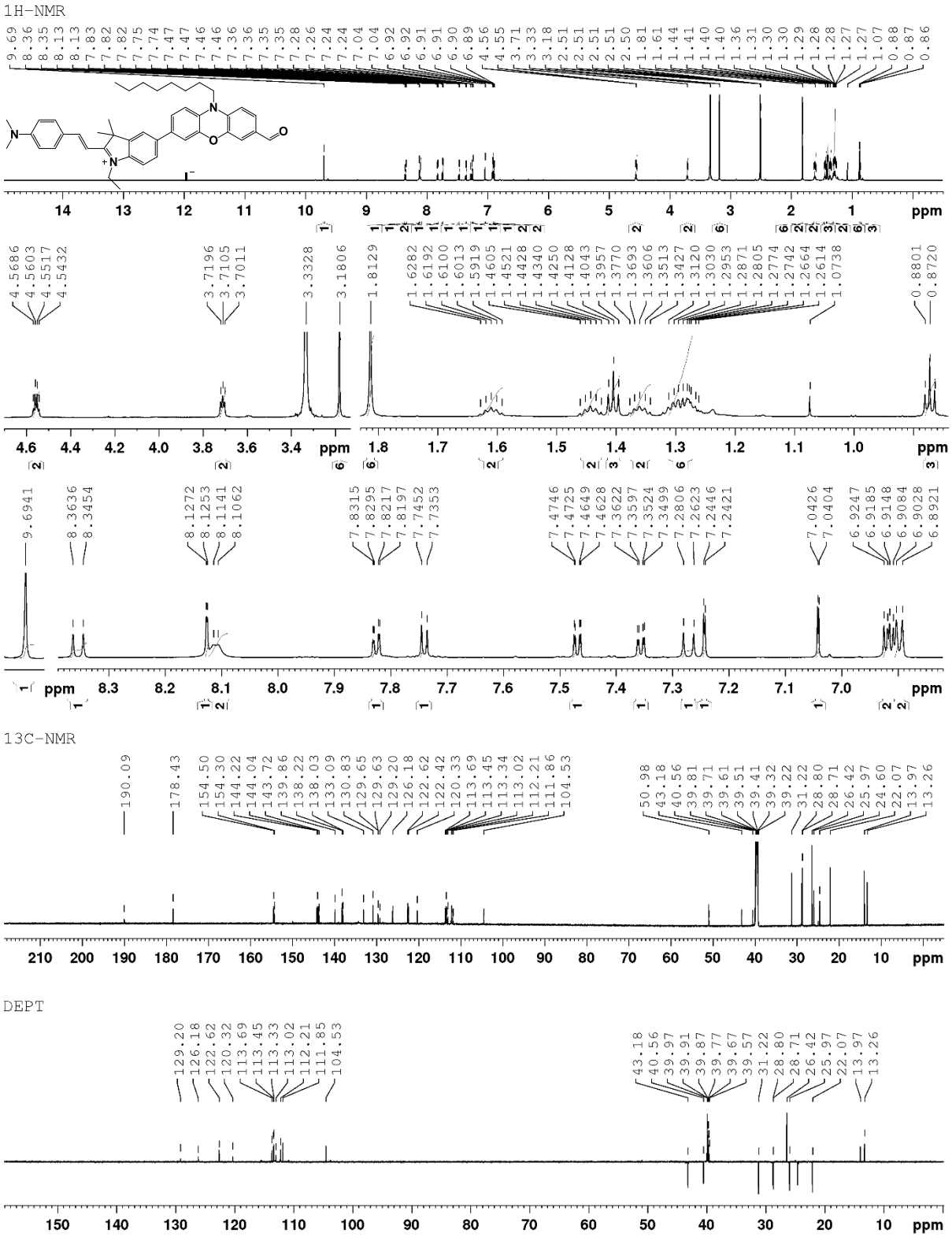


Figure S29. ^{1}H NMR, ^{13}C NMR and DEPT spectra in DMSO-D_6 of **14**.

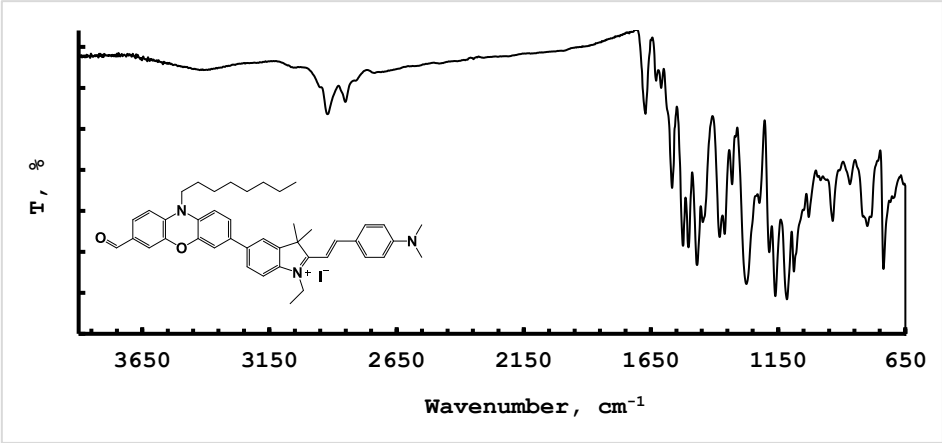


Figure S30. FTIR spectrum of **14**.

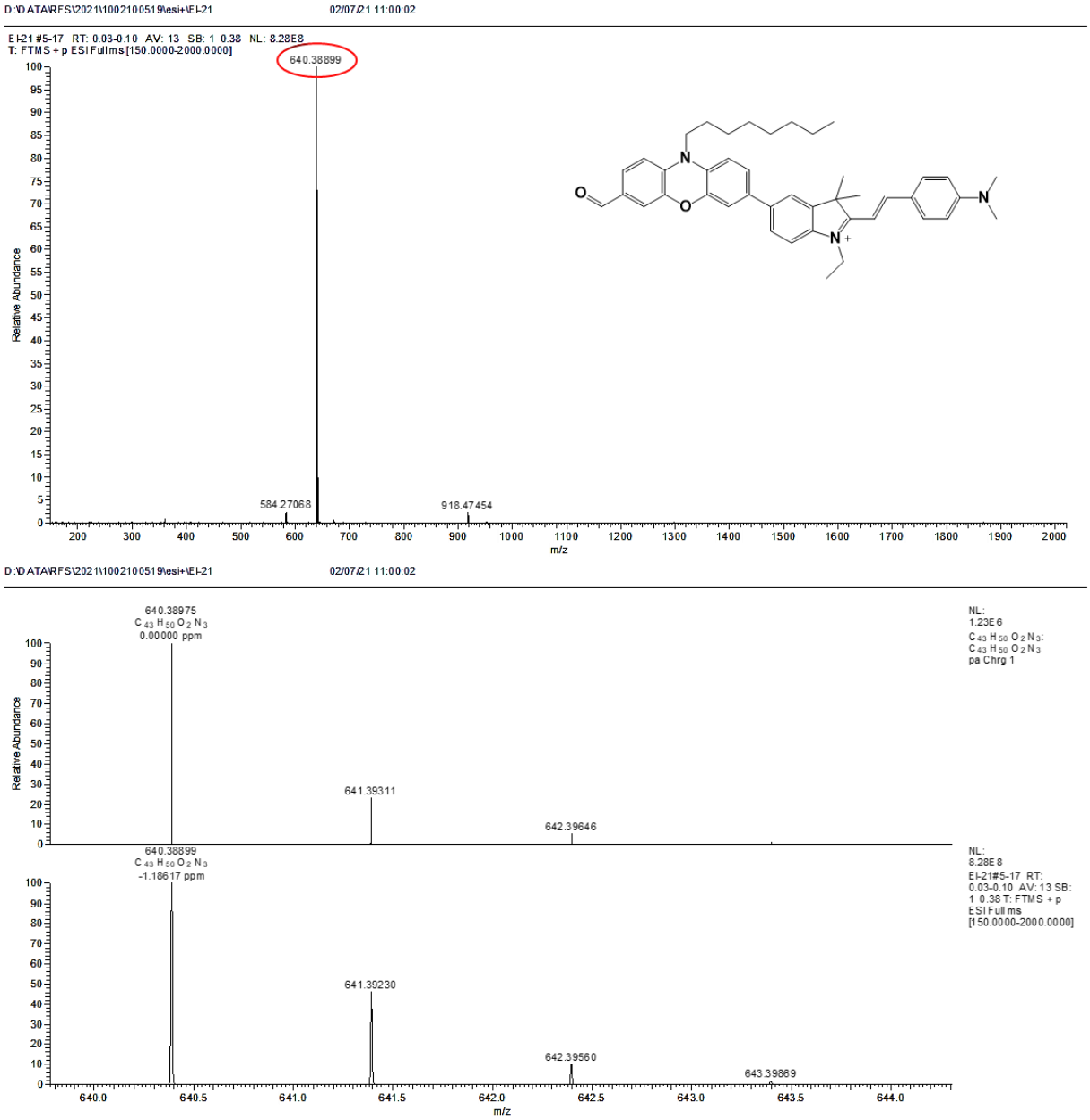


Figure S31. Mass spectrum of **14**.

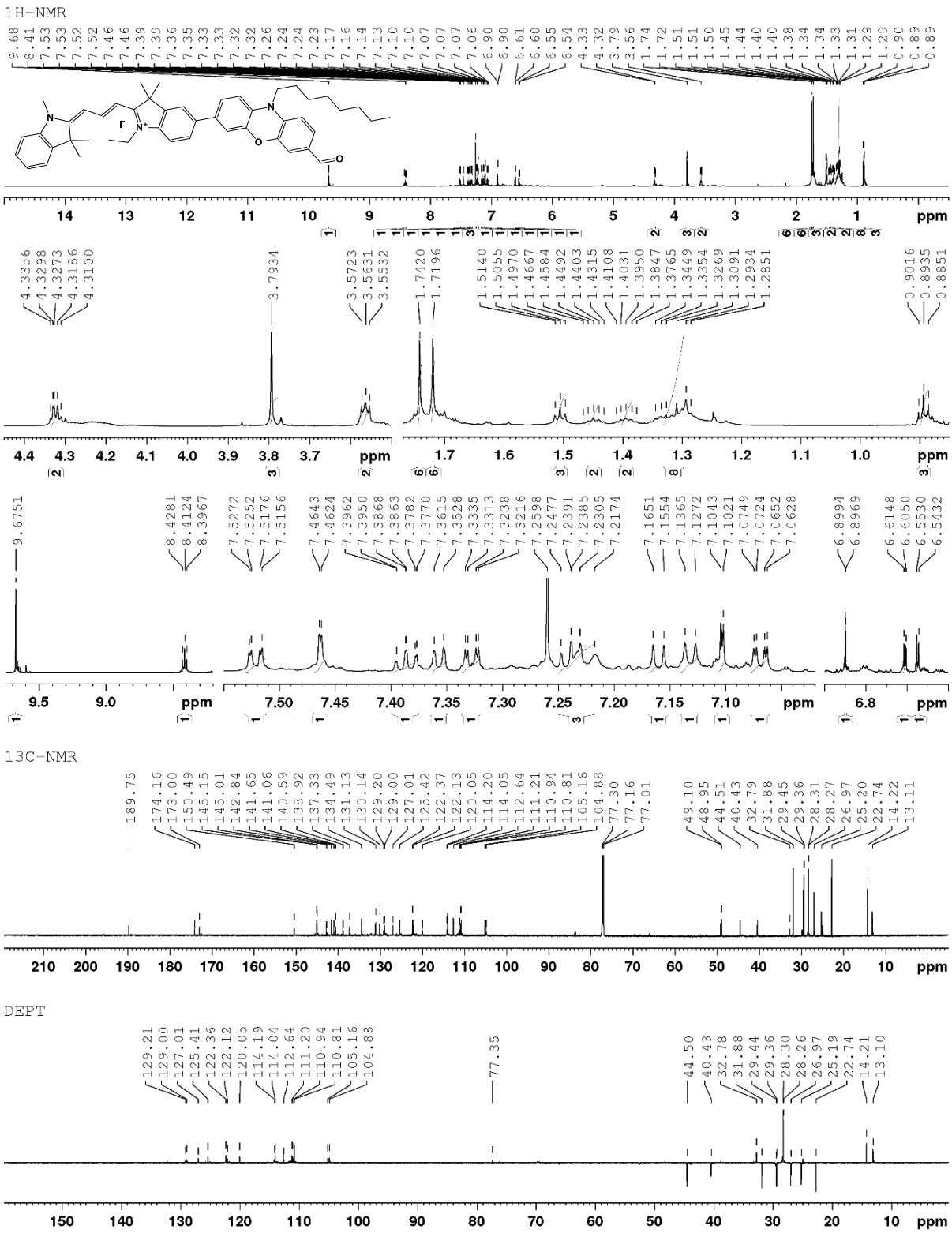


Figure S32. ^{1}H NMR, ^{13}C NMR and DEPT spectra in DMSO-D_6 of **15a**.

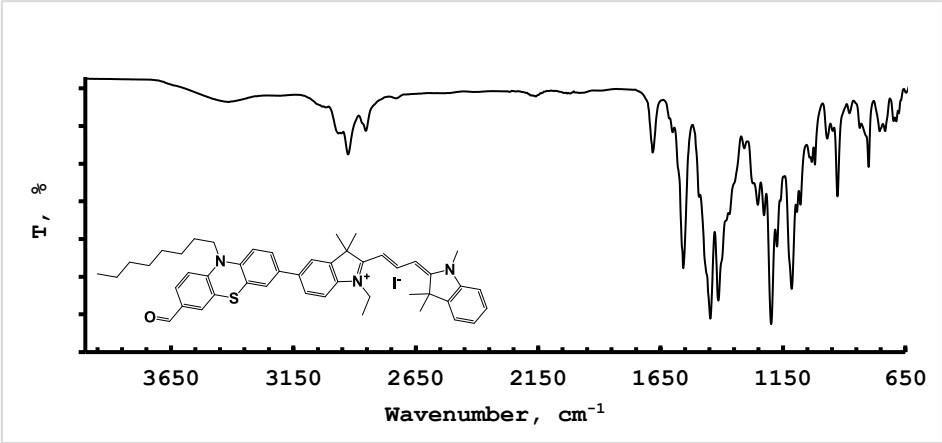


Figure S33. FTIR spectrum of **15a**.

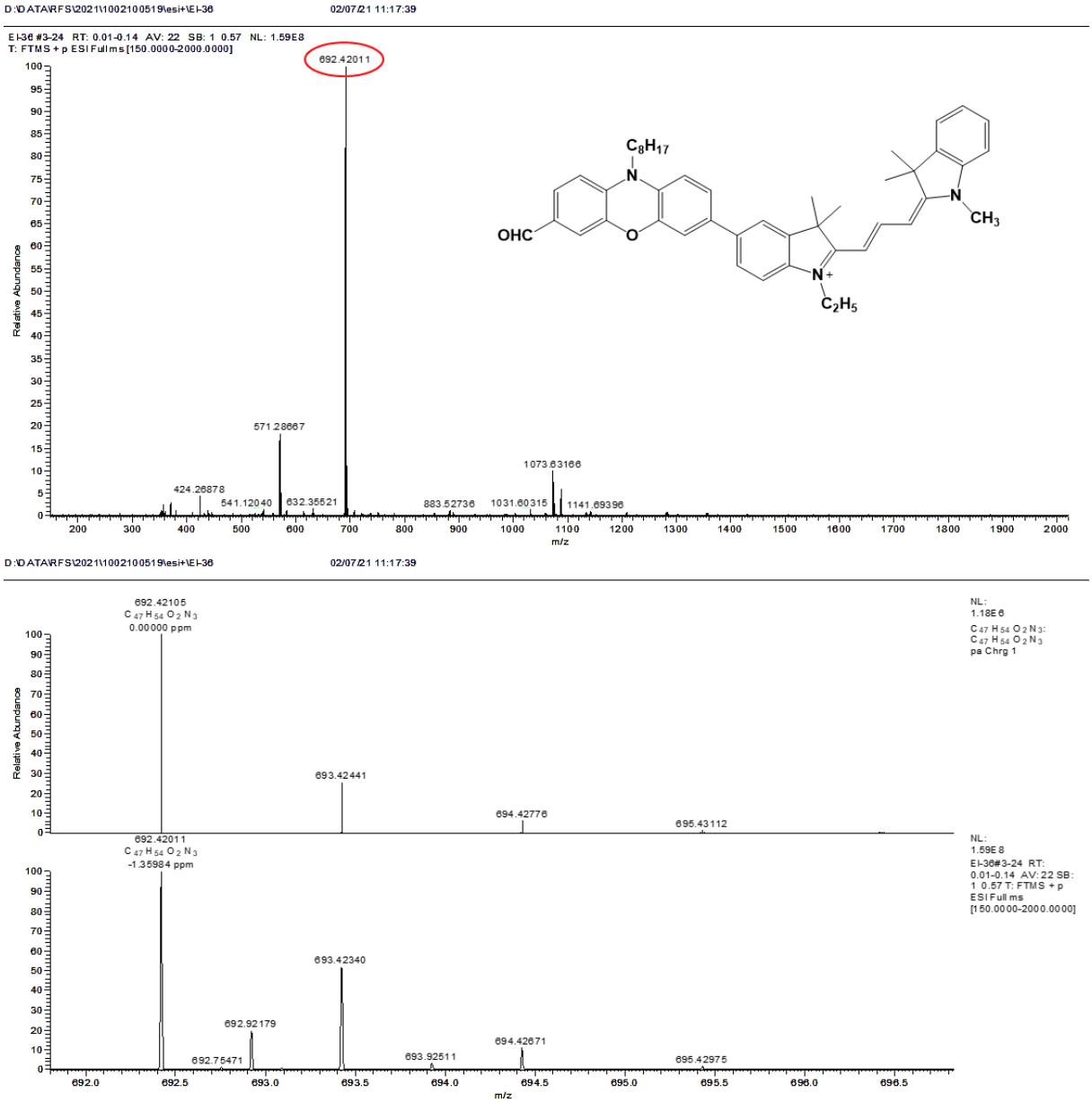


Figure S34. Mass spectrum of **15a**.

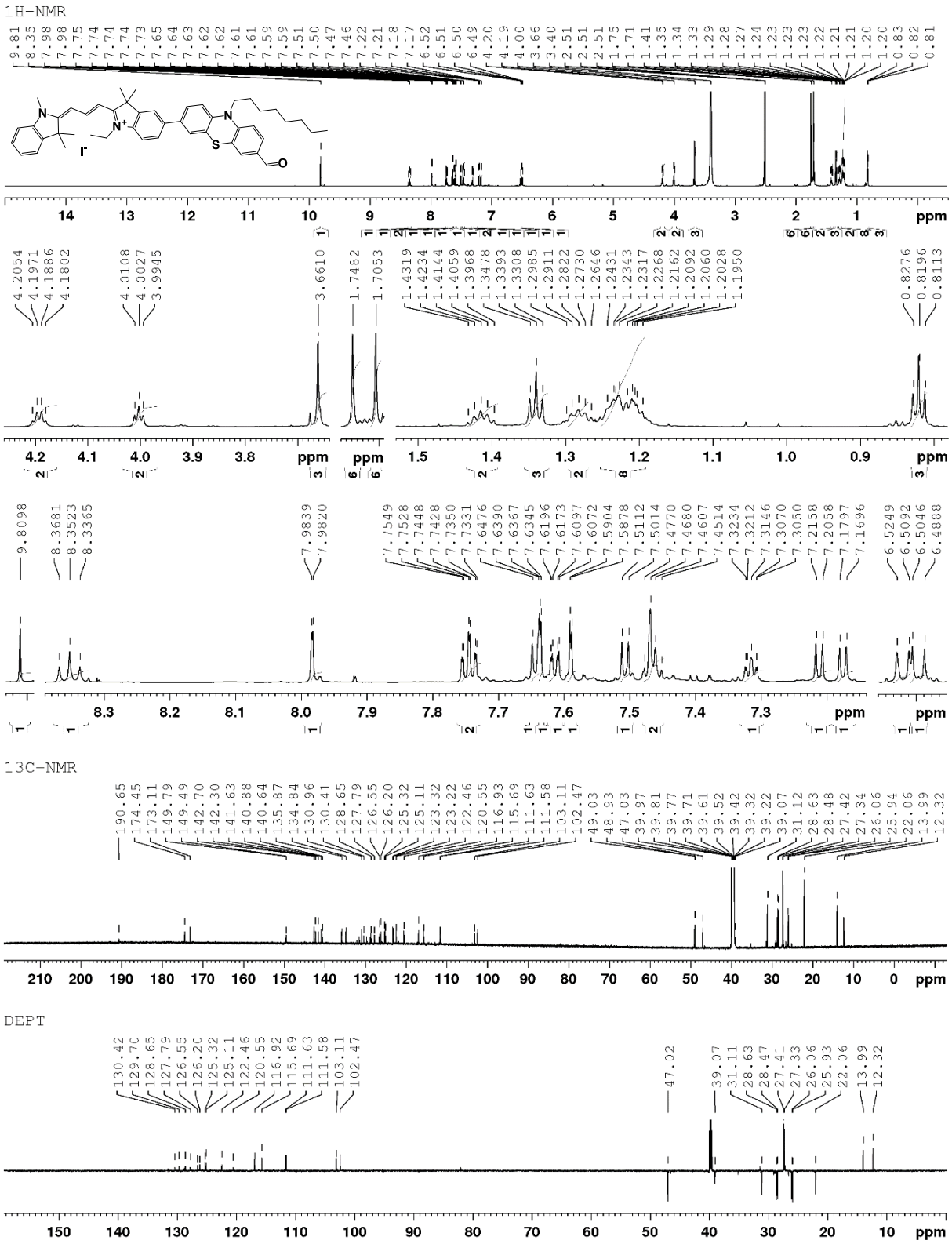


Figure S35. ^{1}H NMR, ^{13}C NMR and DEPT spectra in DMSO-D_6 of **15b**.

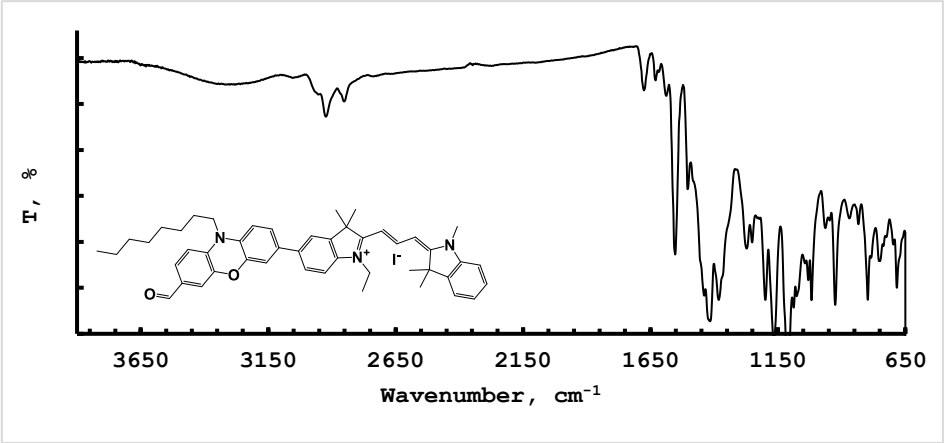


Figure S36. FTIR spectrum of **15b**.

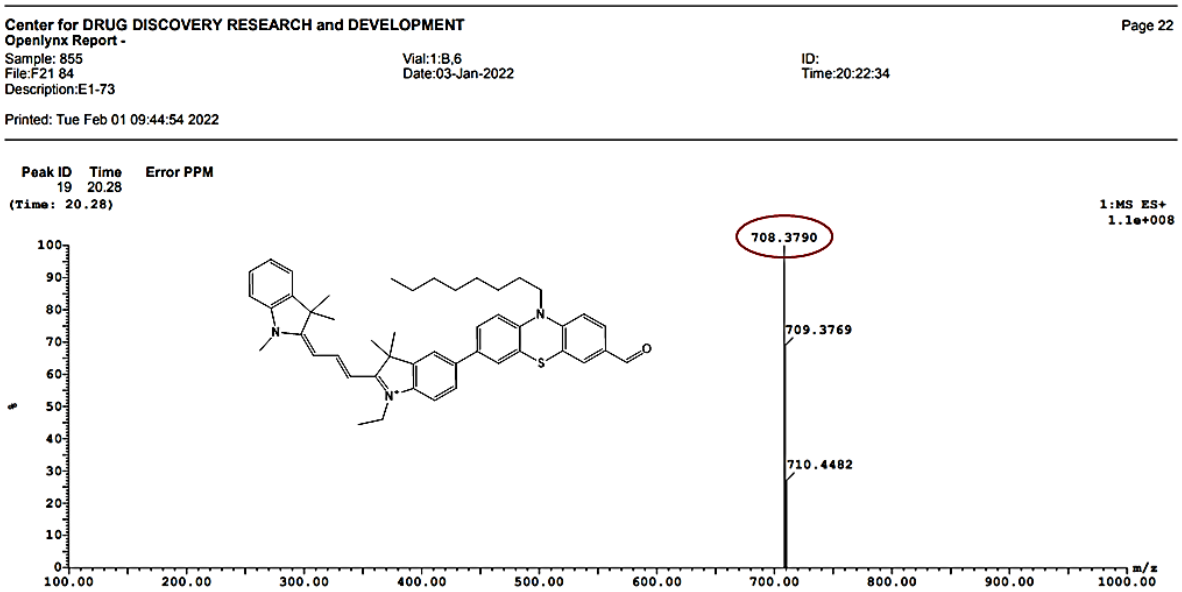


Figure S37. Mass spectrum of **15b**.

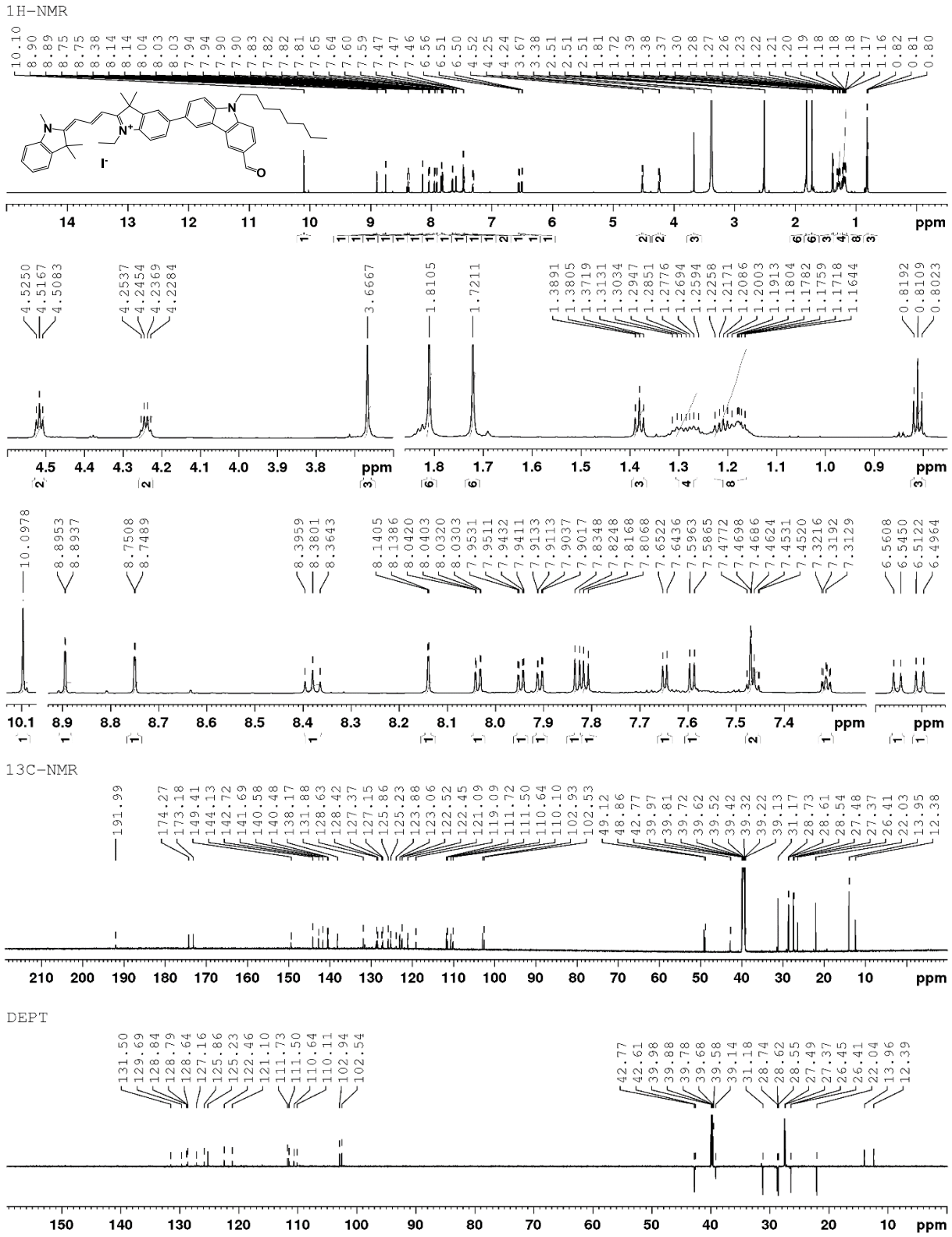


Figure S38. ^{1}H NMR, ^{13}C NMR and DEPT spectra in DMSO-D_6 of **15c**.

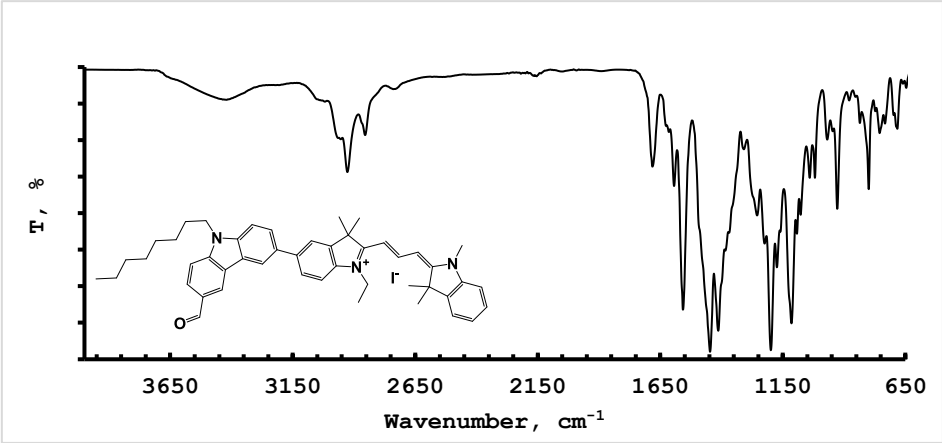


Figure S39. FTIR spectrum of **15c**.

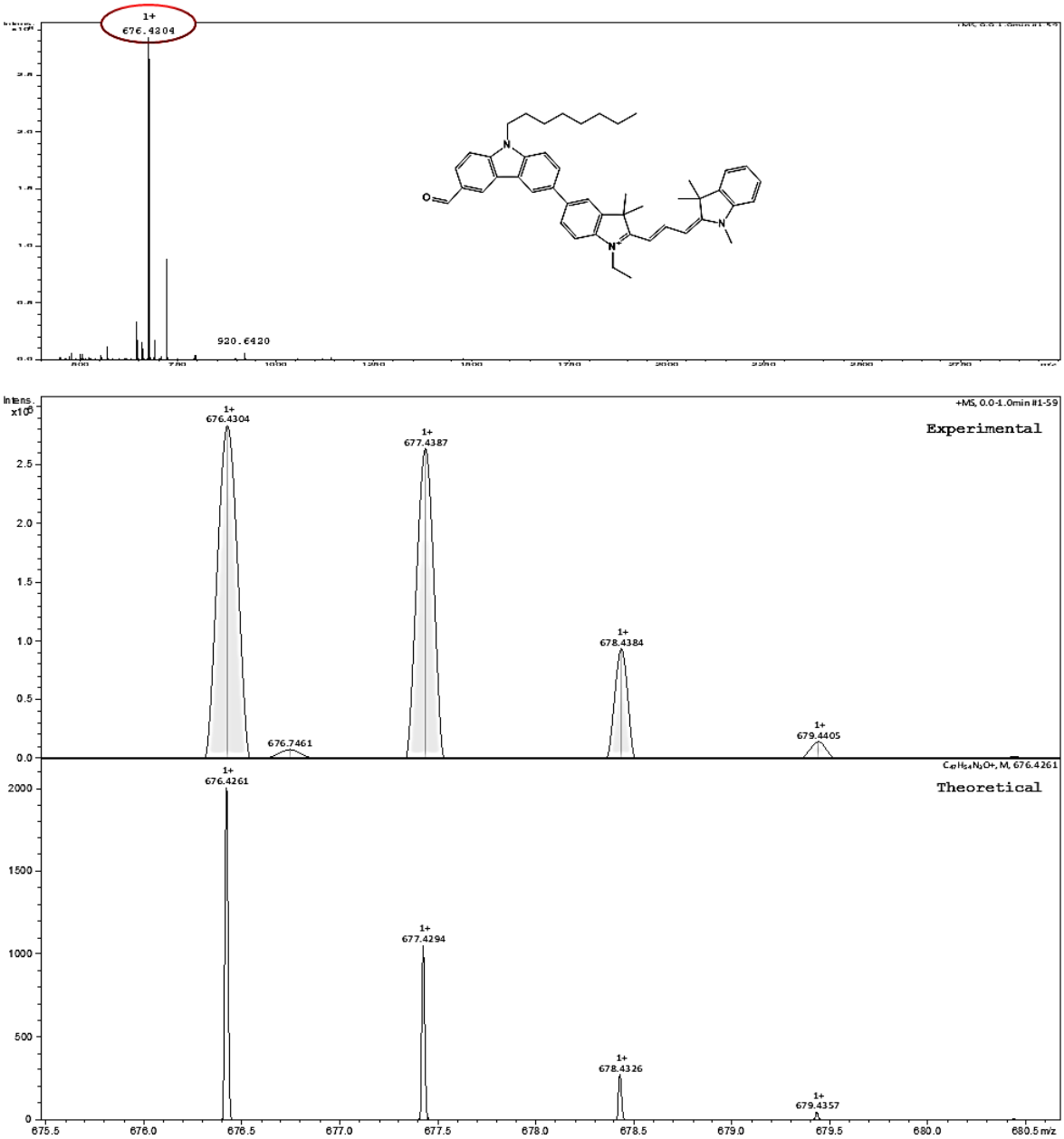


Figure S40. Mass spectrum of **15c**.

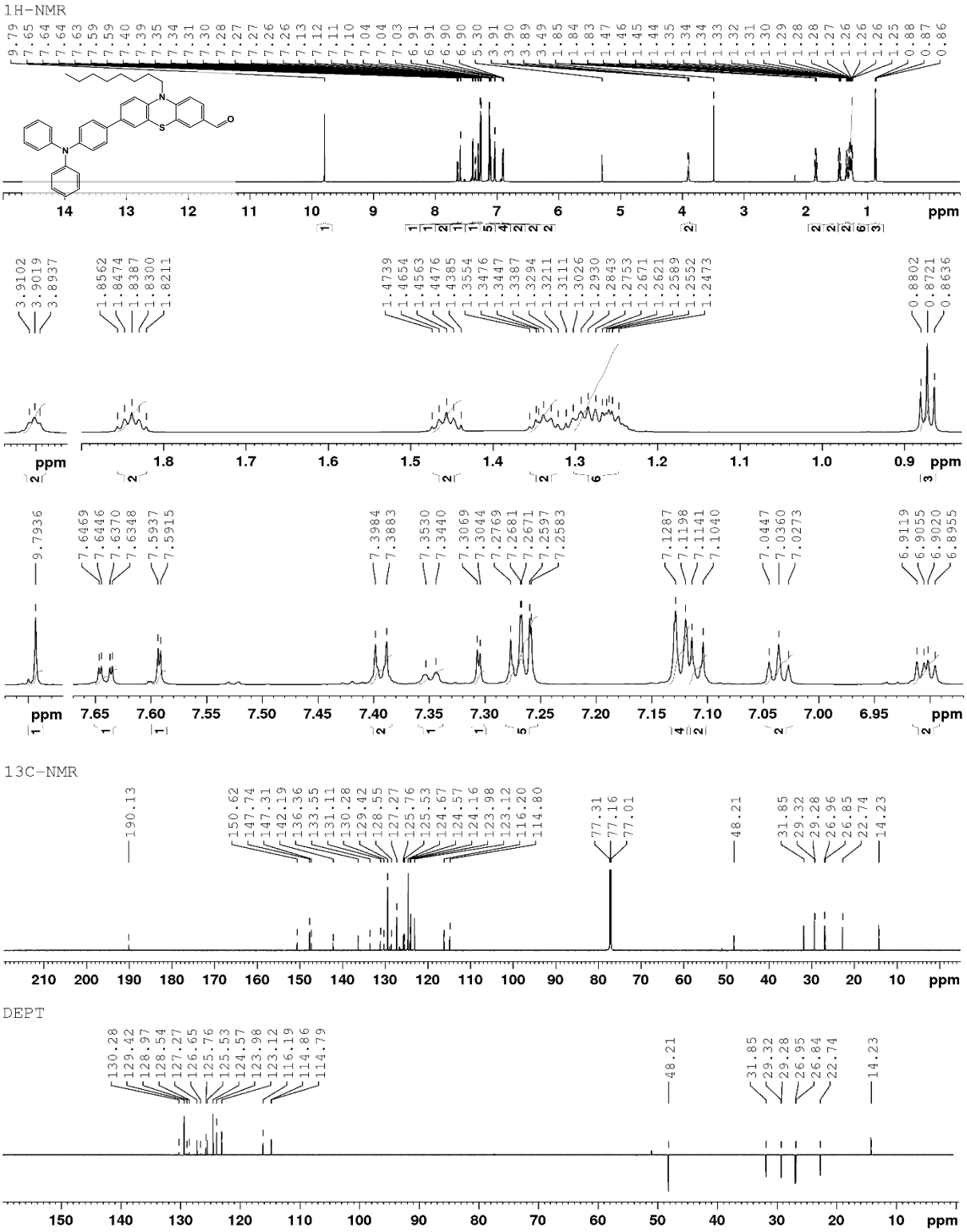


Figure S41. ^{1}H NMR, ^{13}C NMR and DEPT spectra in DMSO-D_6 of **16**.

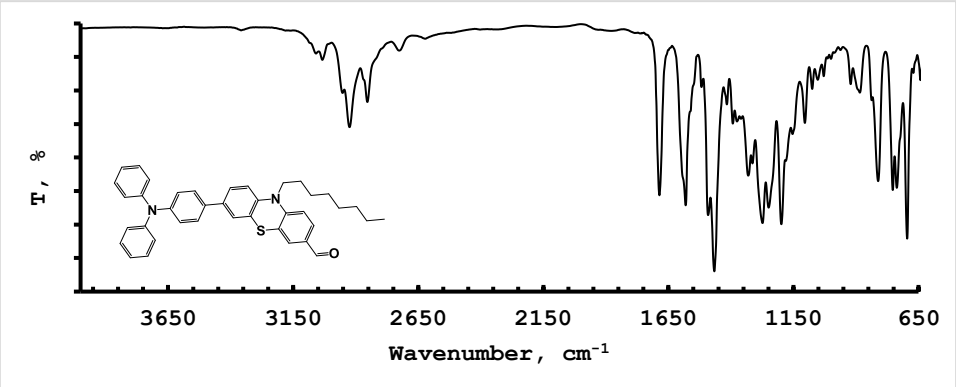


Figure S42. FTIR spectrum of **16**.

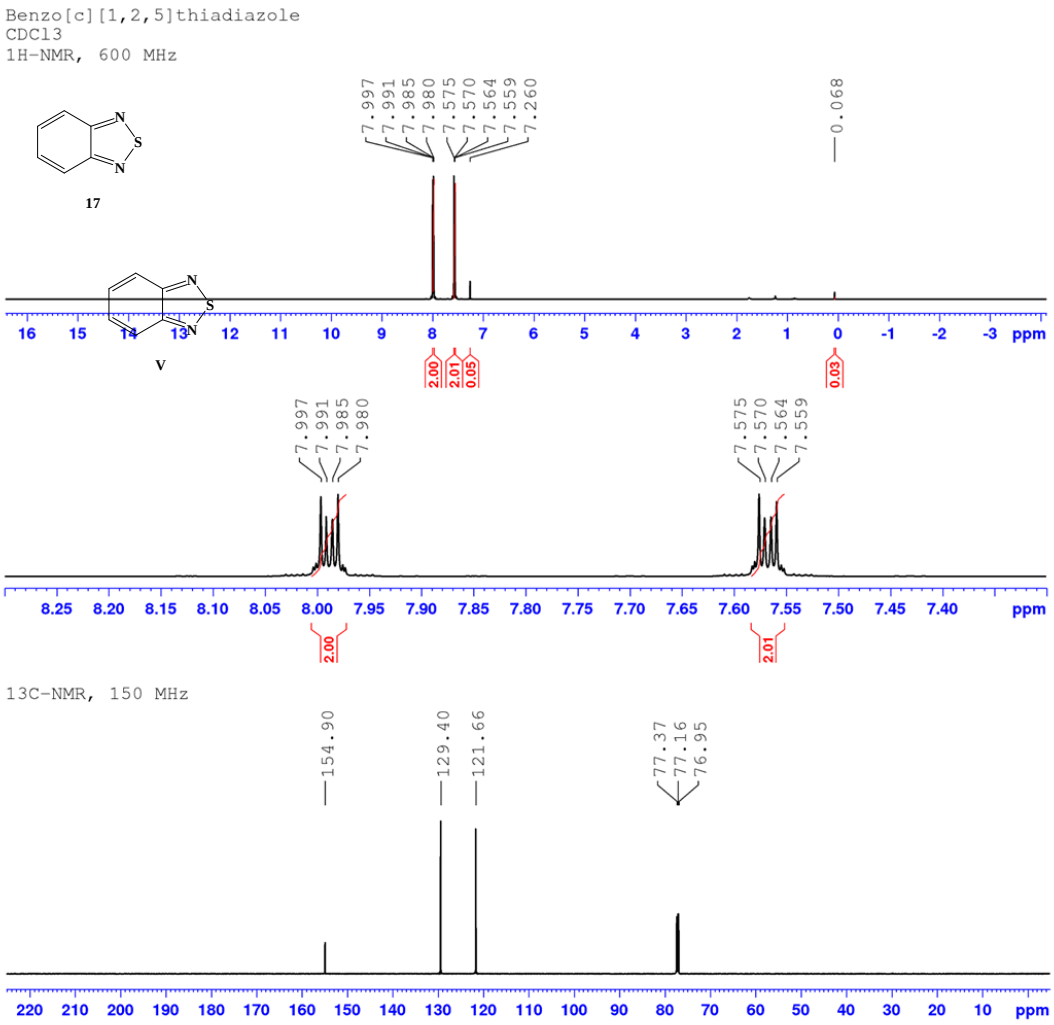


Figure S44. ^{1}H-NMR and ^{13}C-NMR spectra in $CDCl_3$ of **17**.

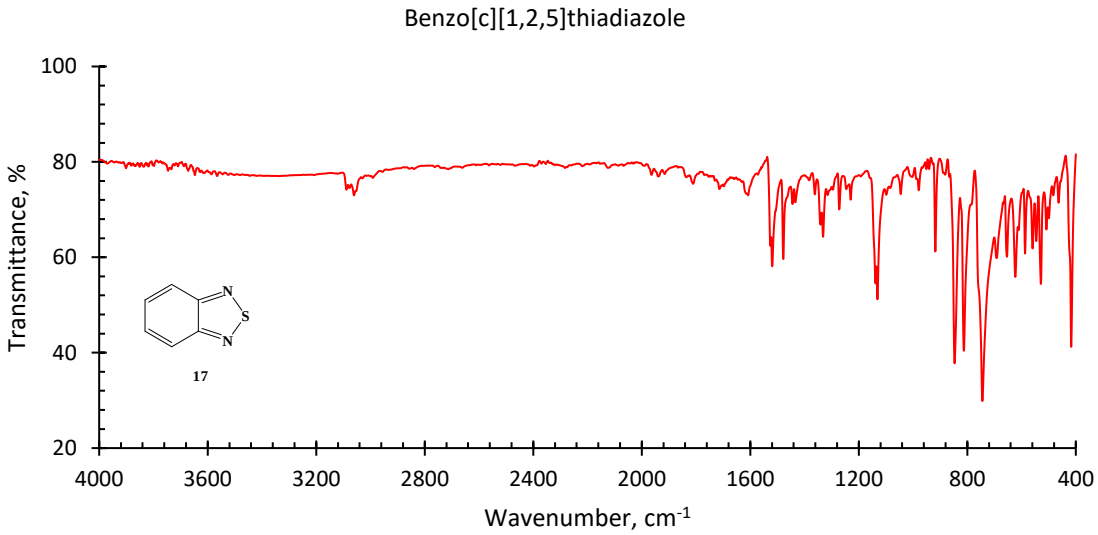


Figure S45. FTIR spectrum of **17**.

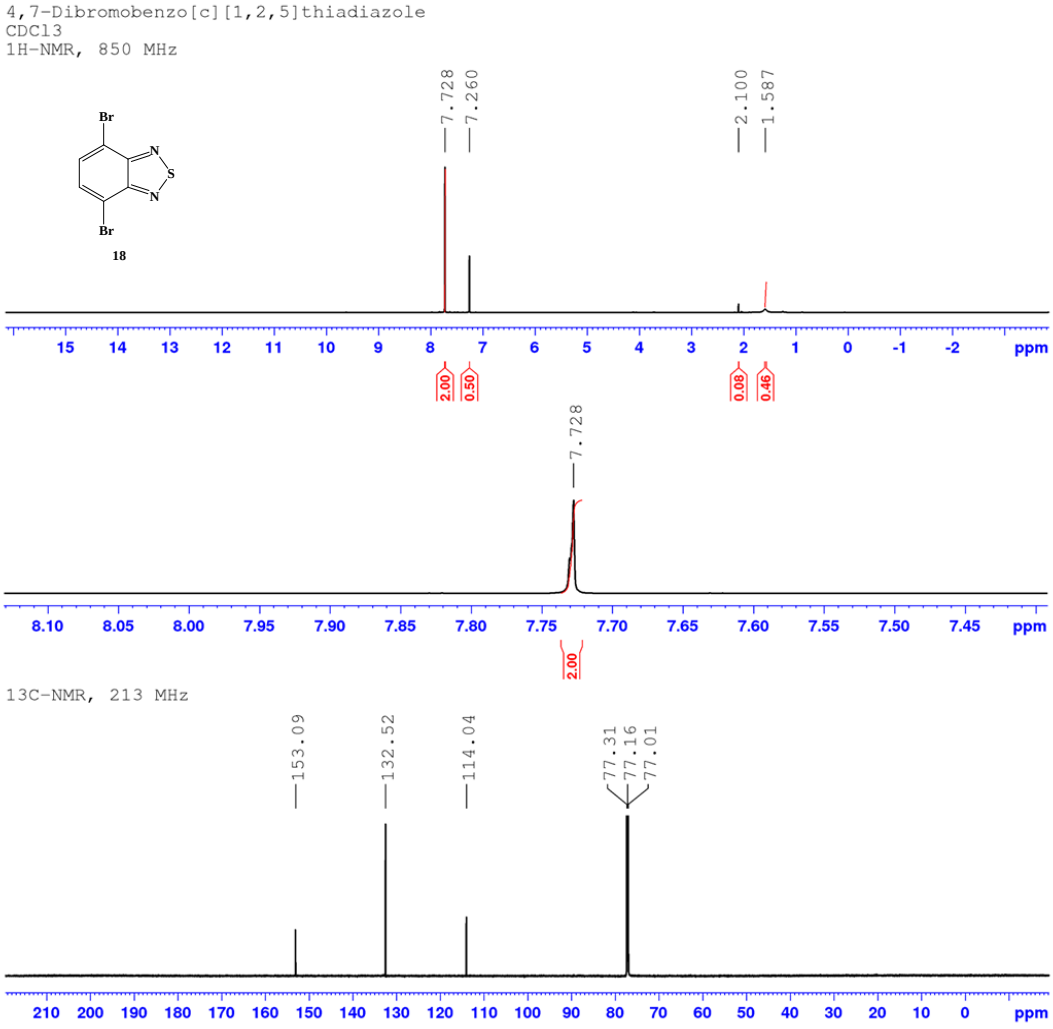


Figure S46. ^{1}H-NMR and ^{13}C-NMR spectra in $CDCl_3$ of **18**.

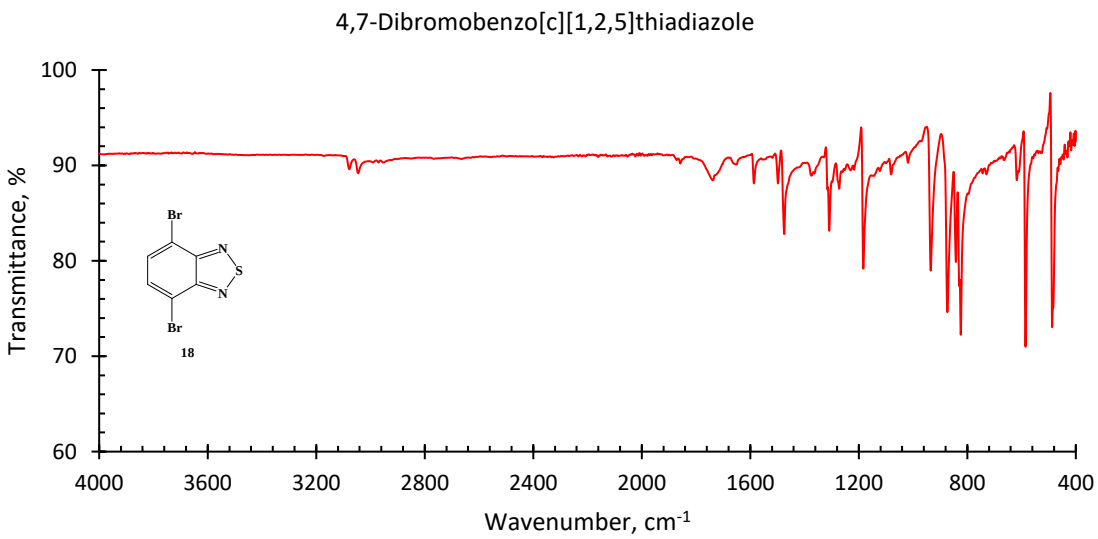


Figure S47. FTIR spectrum of **18**.

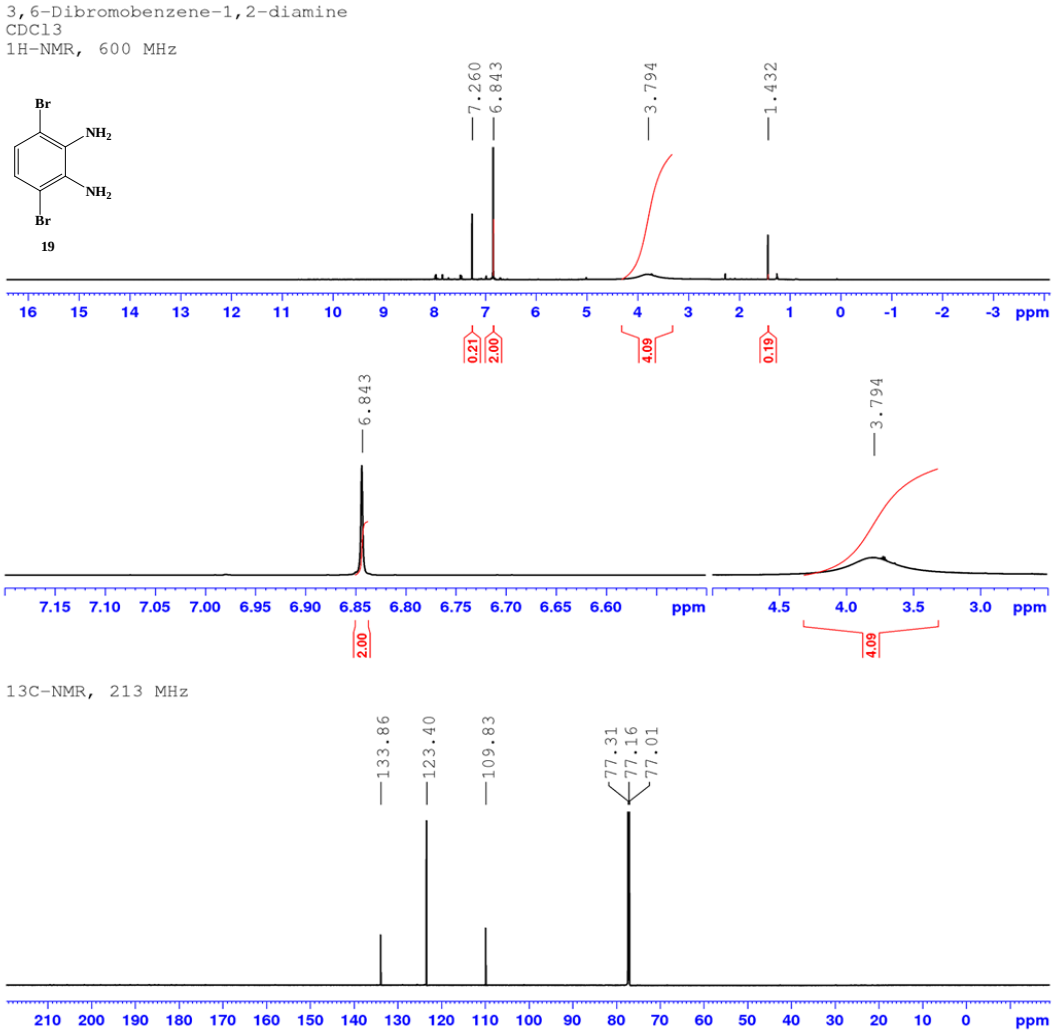


Figure S48. ^{1}H-NMR and ^{13}C-NMR spectra in $CDCl_3$ of **19**.

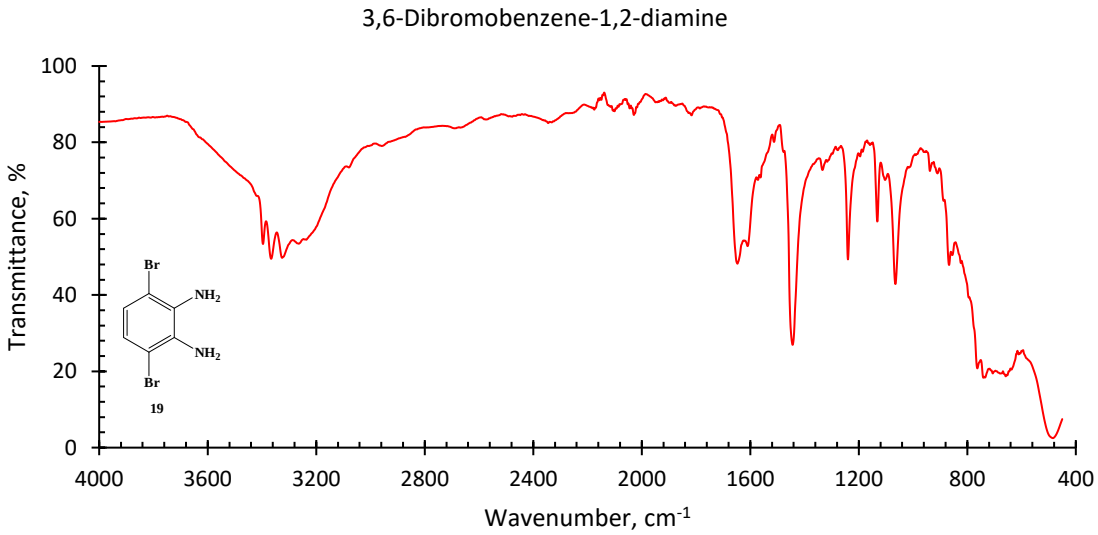


Figure S49. FTIR spectrum of **19**.

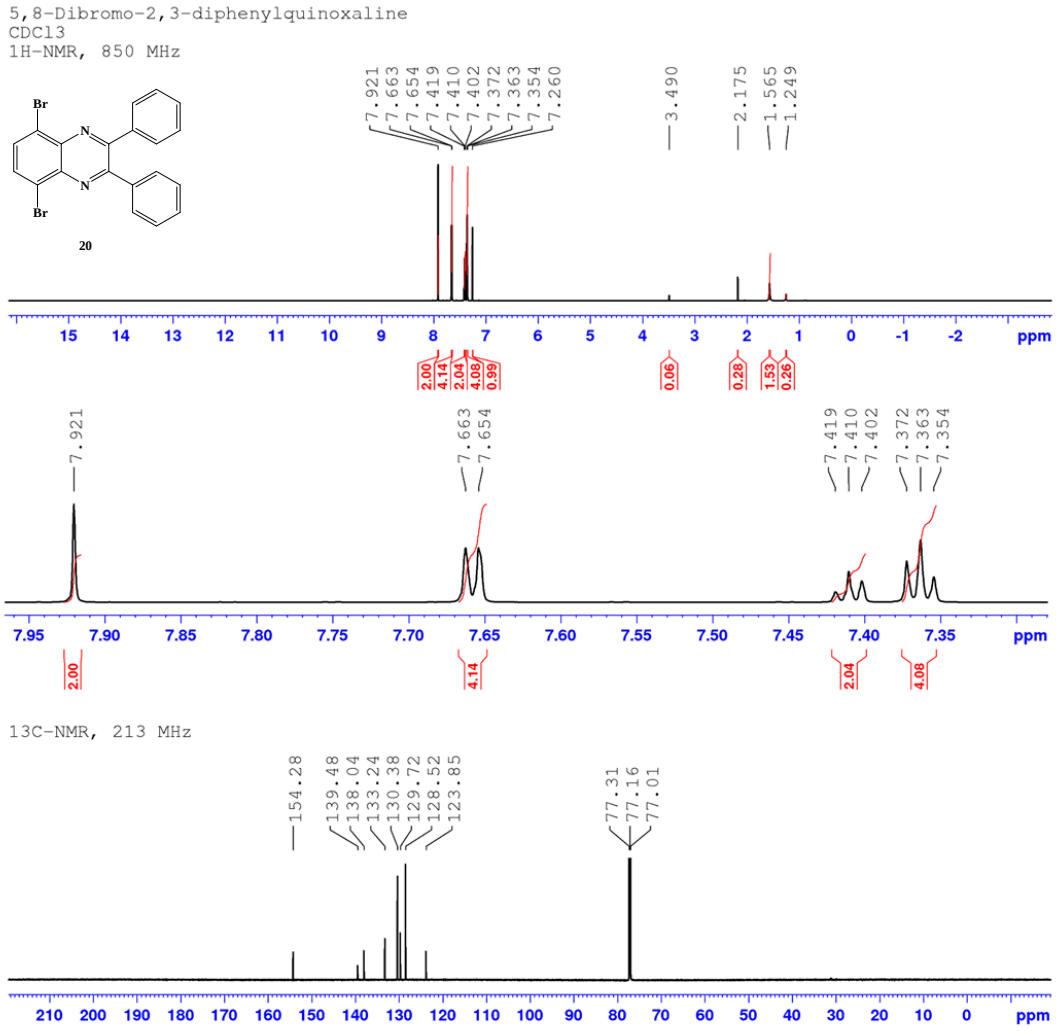


Figure S50. ^{1}H-NMR and ^{13}C-NMR spectra in $CDCl_3$ of **20**.

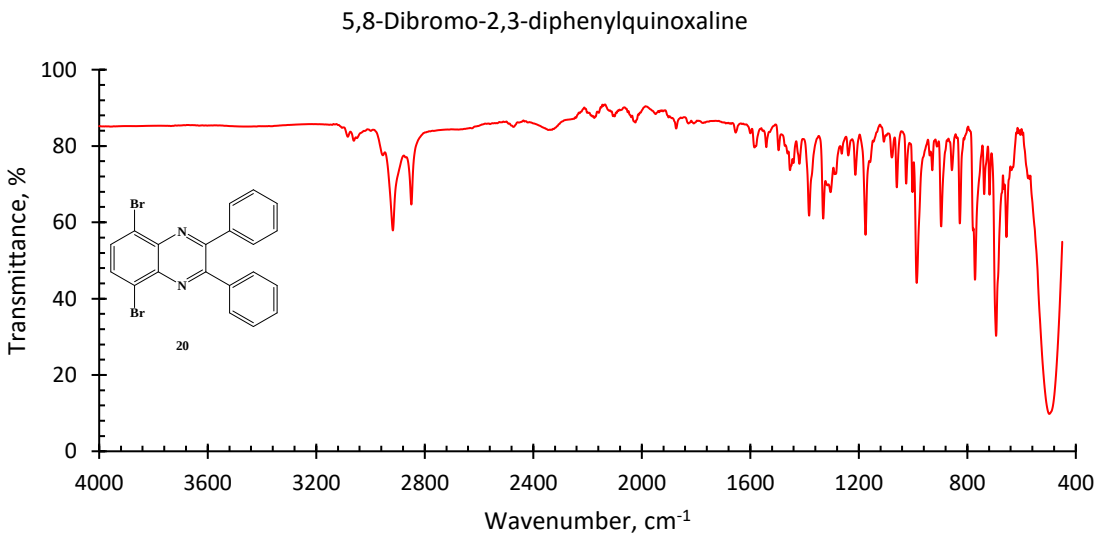


Figure S51. FTIR spectrum of **20**.

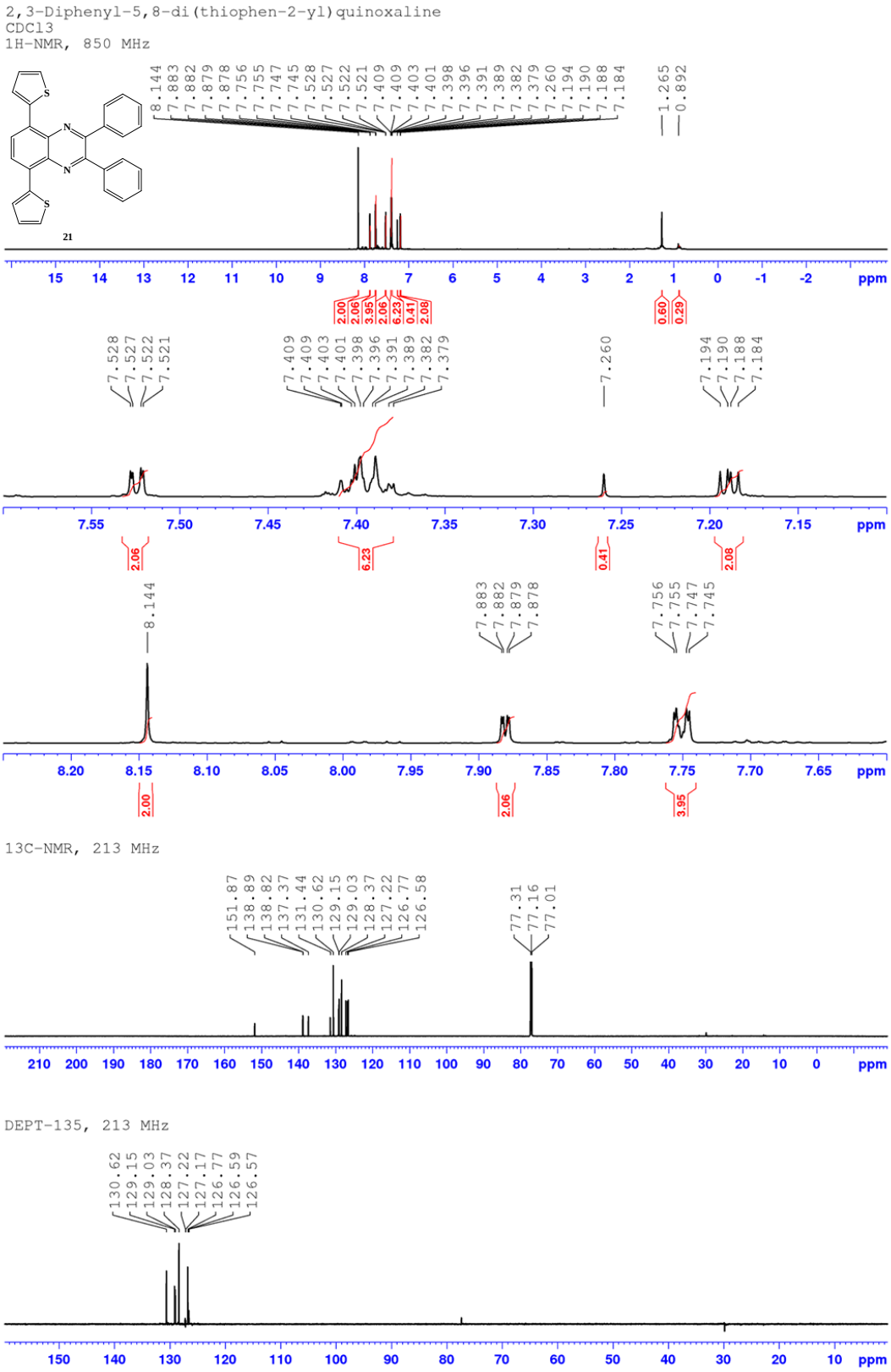


Figure S52. ^{1}H-NMR, ^{13}C-NMR and DEPT-135 spectra in $CDCl_3$ of **21**.

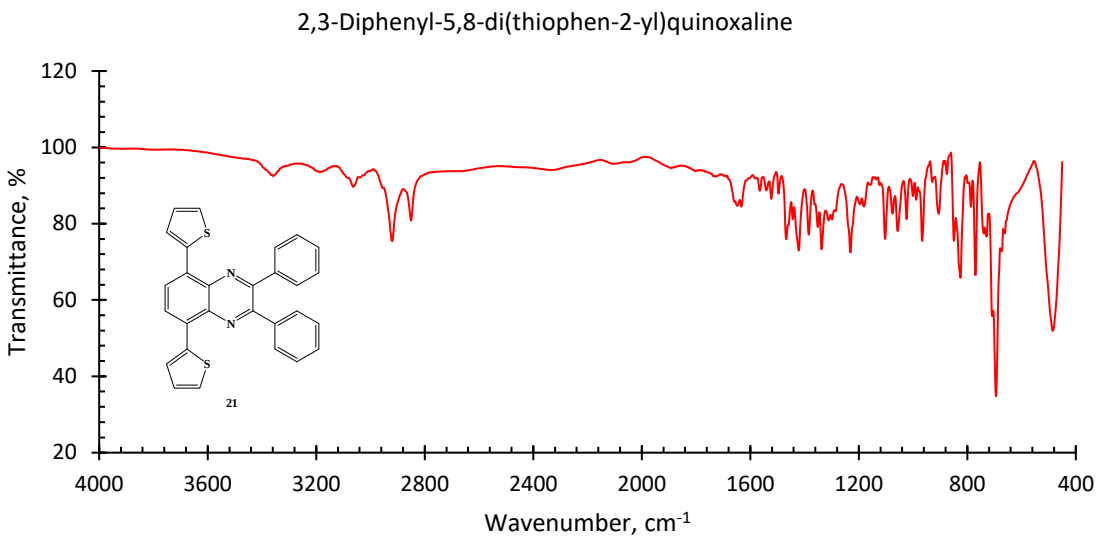


Figure S53. FTIR spectrum of **21**.

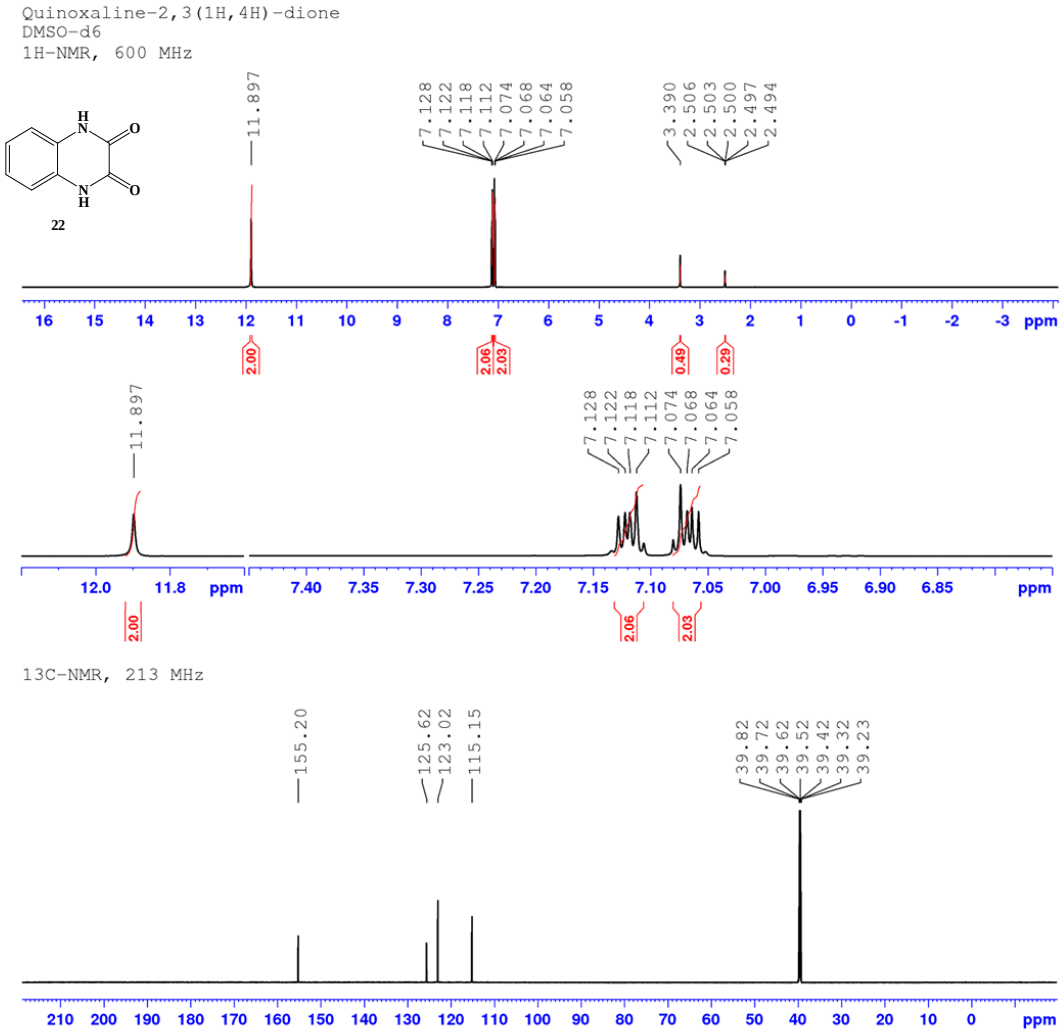


Figure S54. ^{1}H-NMR and ^{13}C-NMR spectra in DMSO-d_6 of **22**.

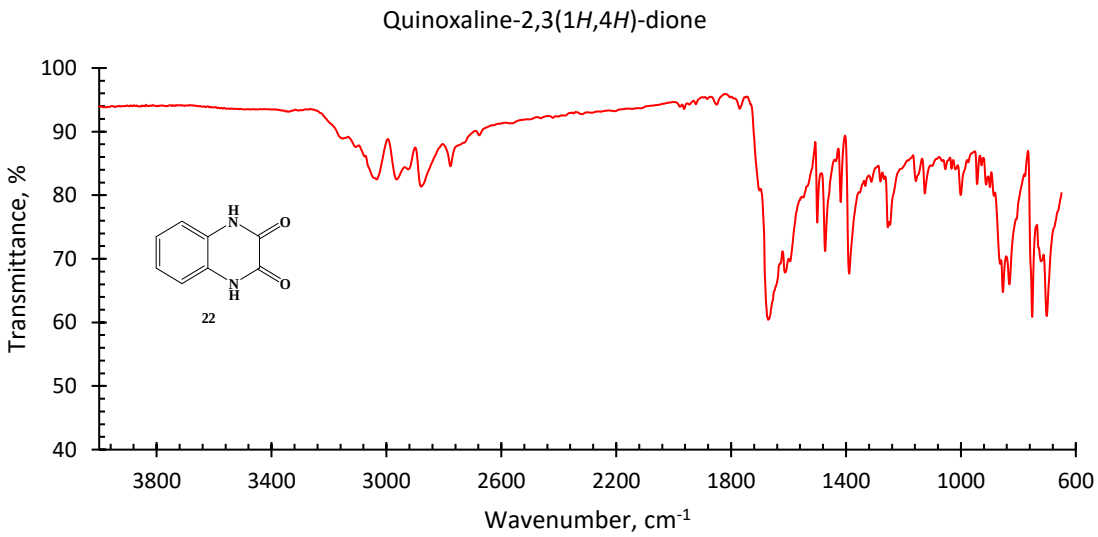


Figure S55. FTIR spectrum of **22**.

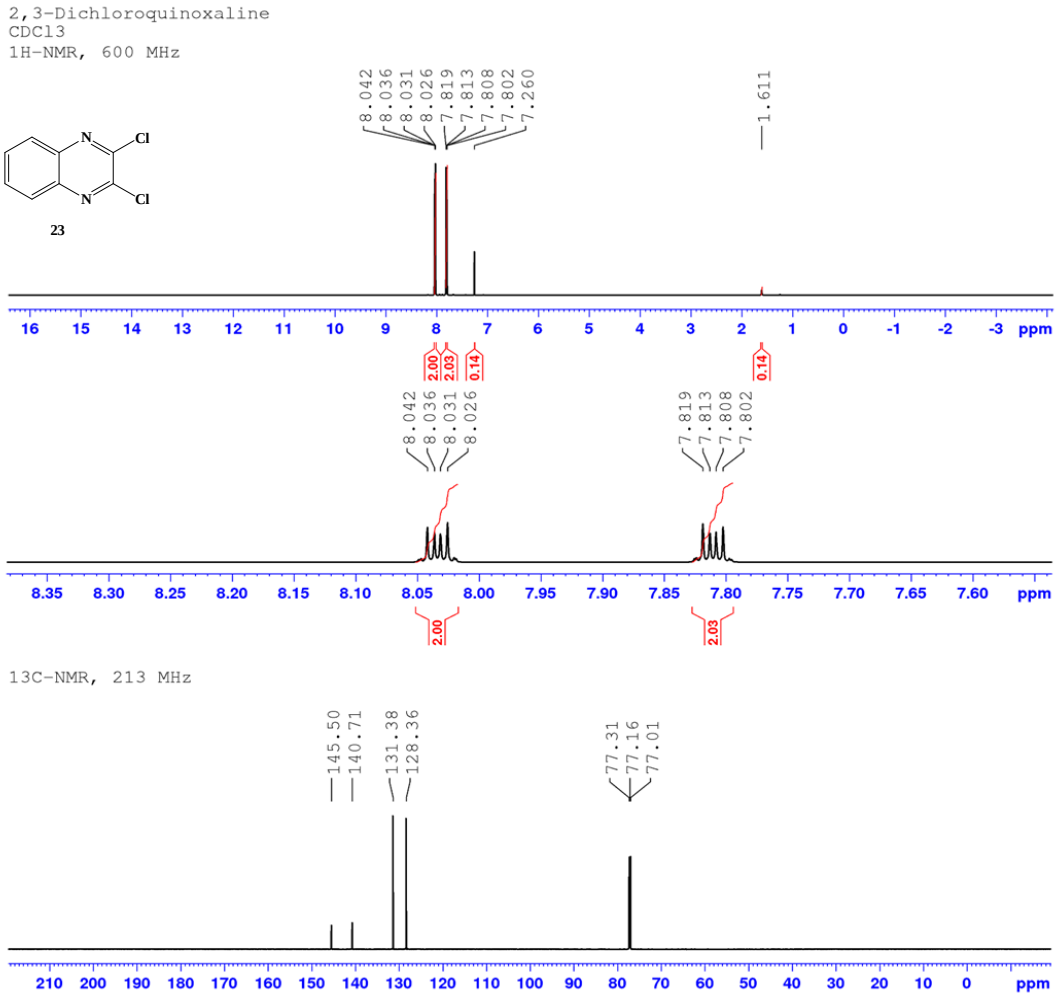


Figure S56. ^{1}H-NMR and ^{13}C-NMR spectra in $CDCl_3$ of **23**.

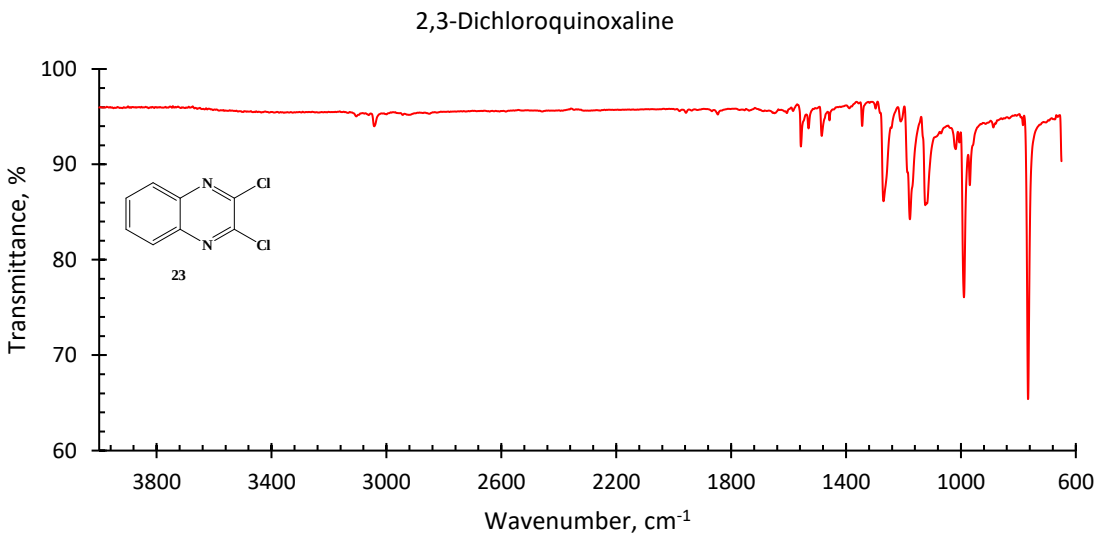


Figure S57. FTIR spectrum of **23**.

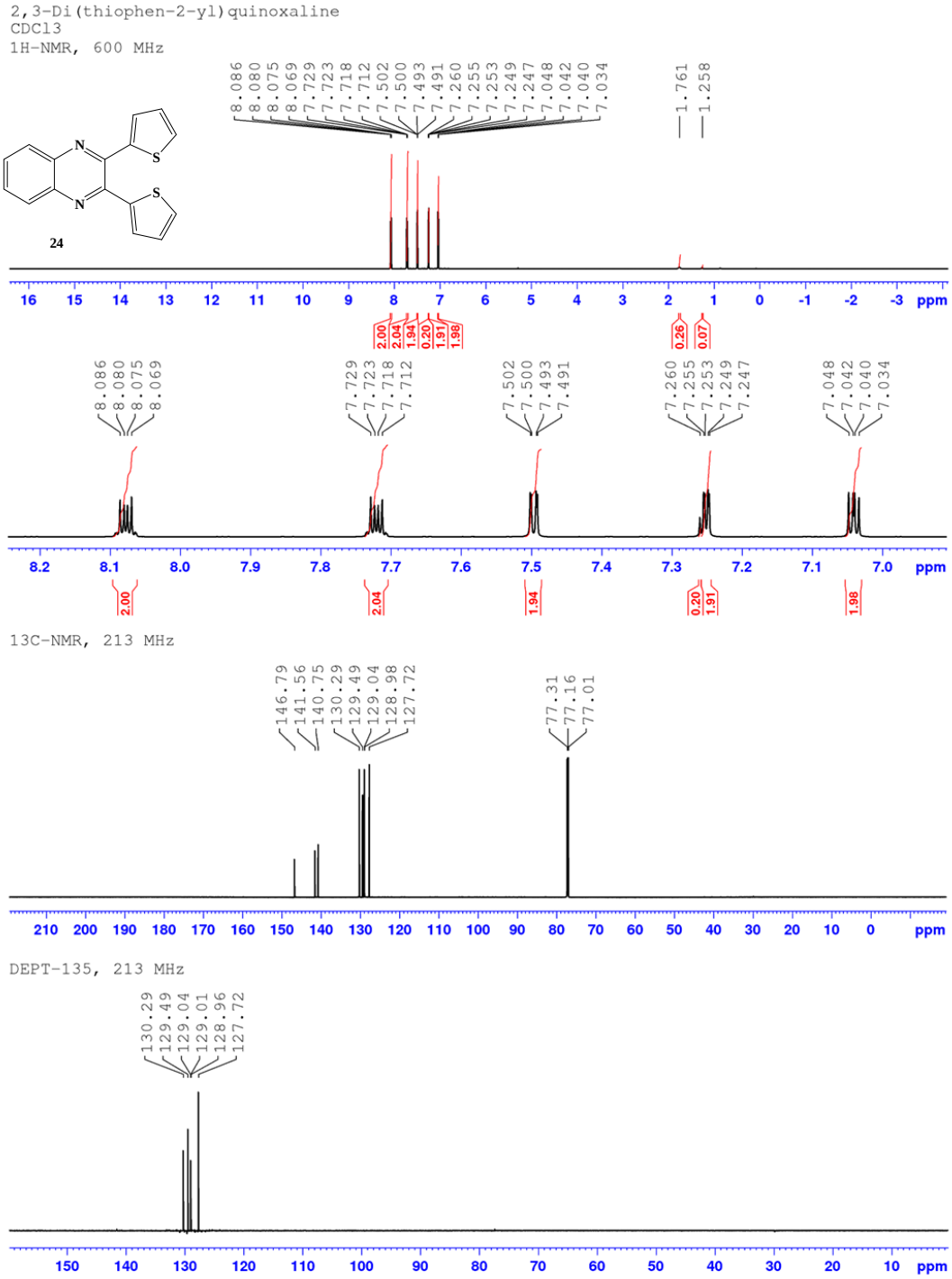


Figure S58. ^{1}H-NMR, ^{13}C-NMR and DEPT-135 spectra in $CDCl_3$ of **24**.

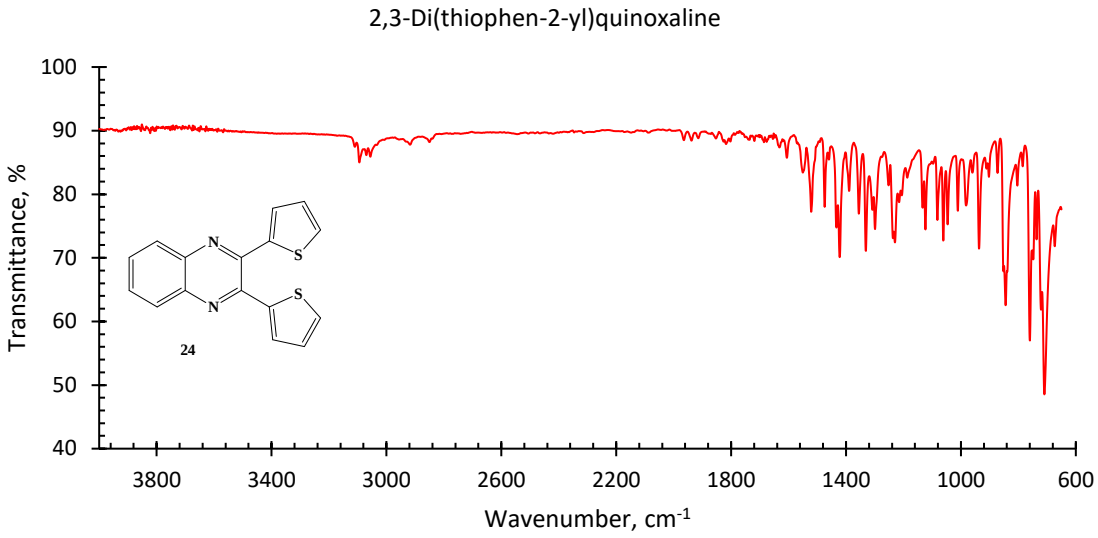


Figure S59. FTIR spectrum of **24**.

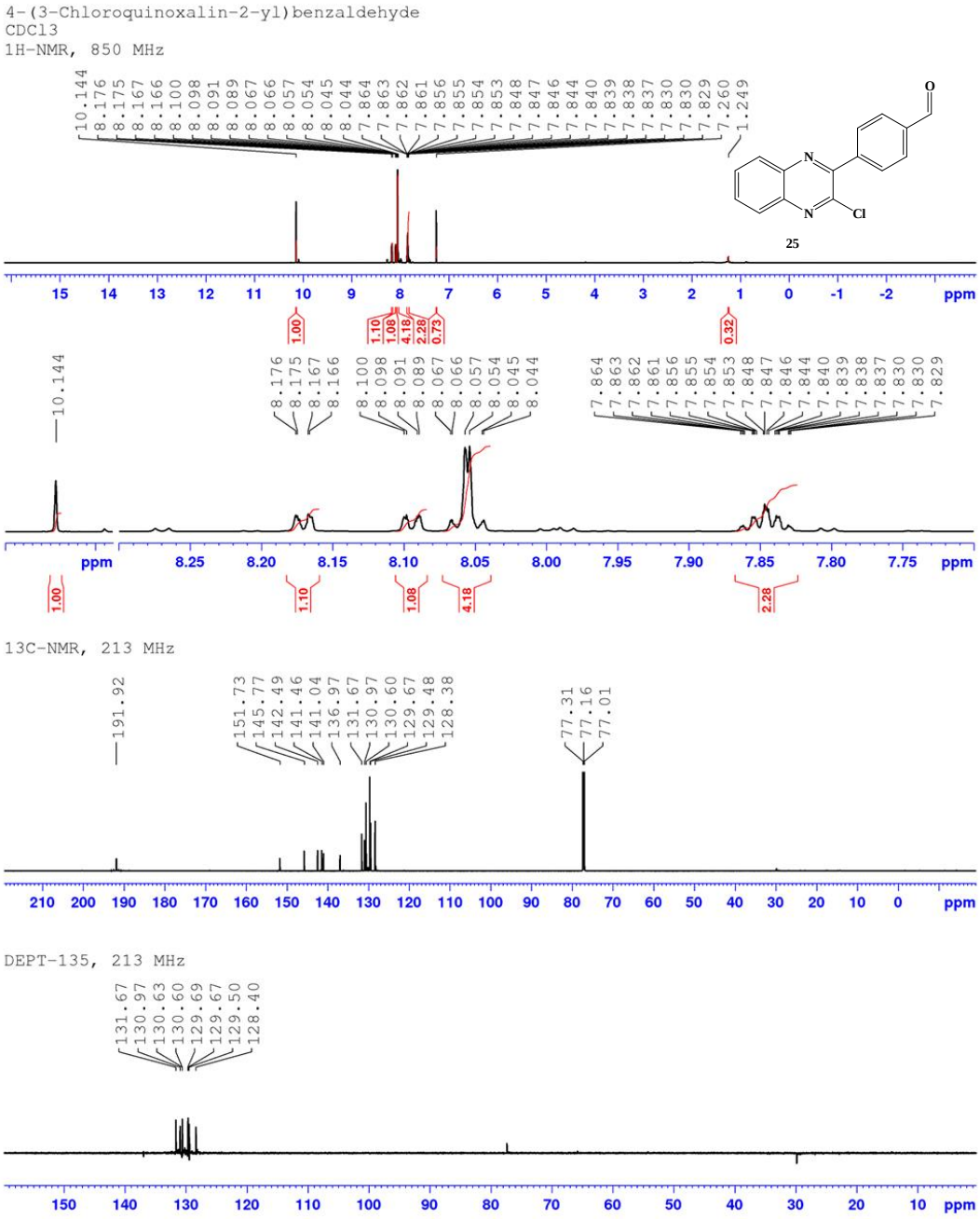


Figure S60. ^{1}H-NMR, ^{13}C-NMR and DEPT-135 spectra in $CDCl_3$ of **25**.

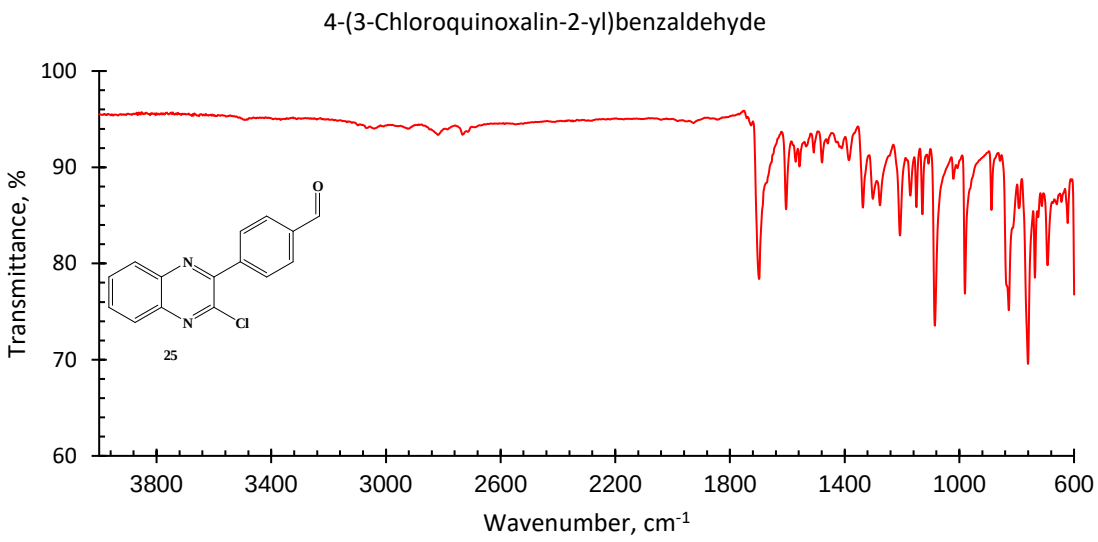


Figure S61. FTIR spectrum of **25**.

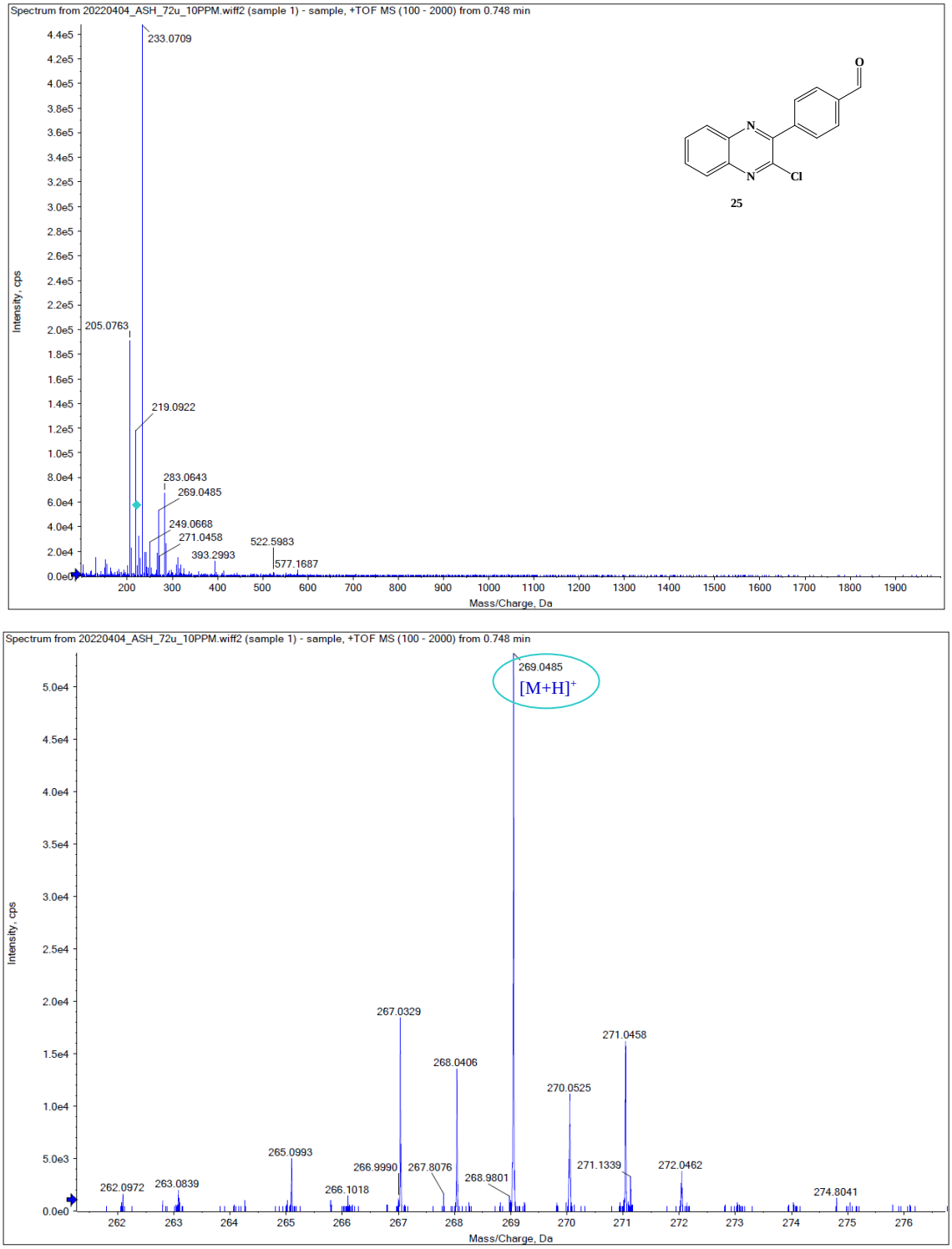


Figure S62. HRMS spectrum of **25**.

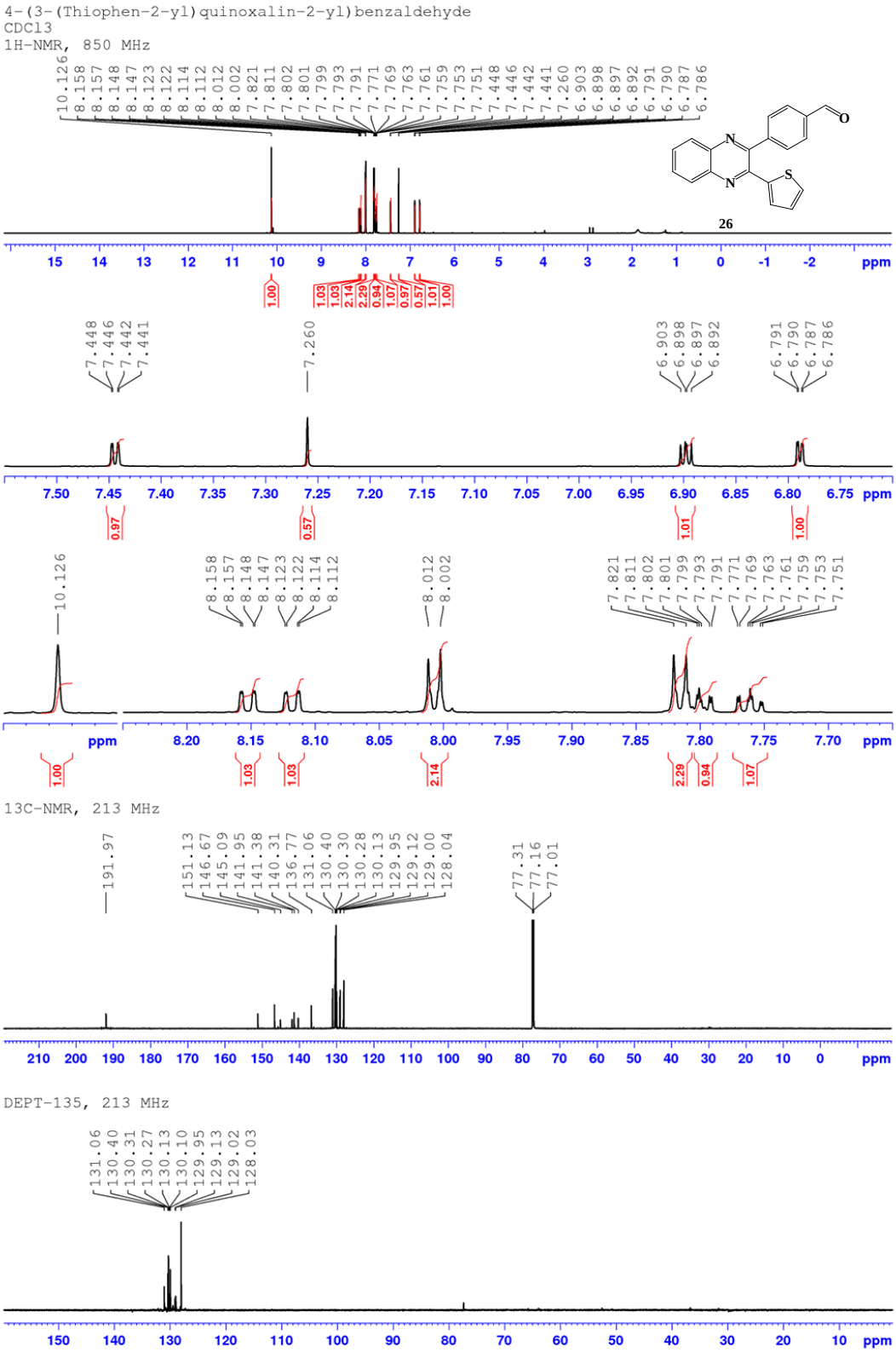


Figure S63. ^{1}H-NMR, ^{13}C-NMR and DEPT-135 spectra in $CDCl_3$ of **26**.

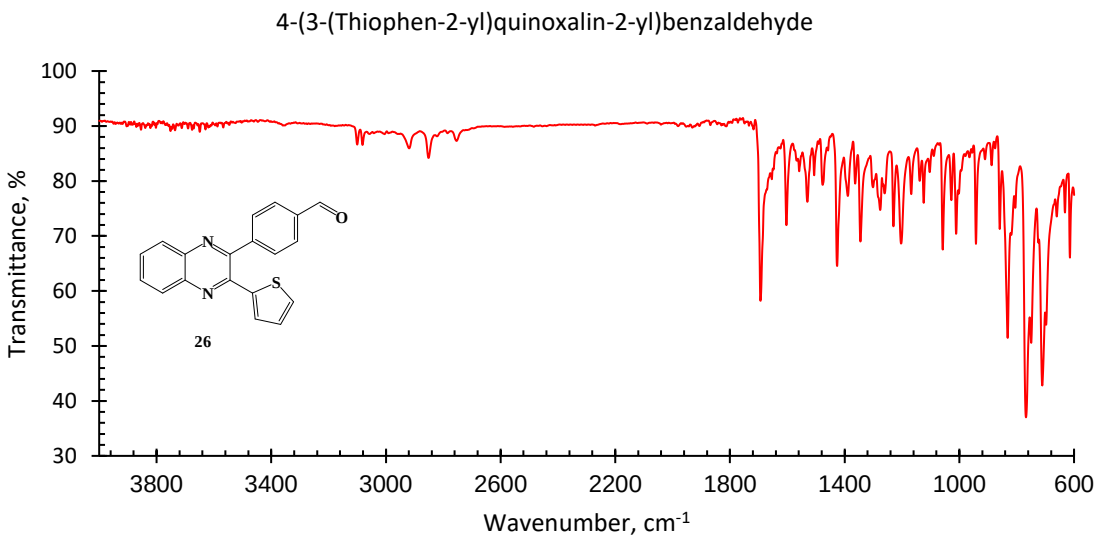
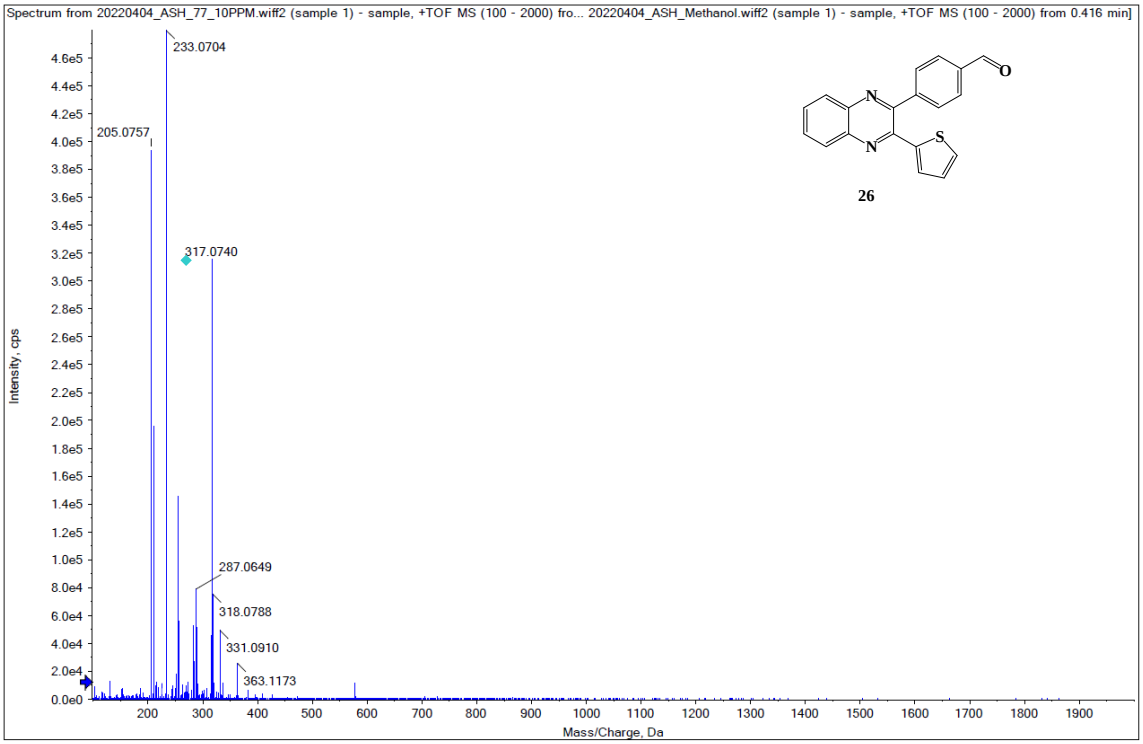


Figure S64. FTIR spectrum of **26**.



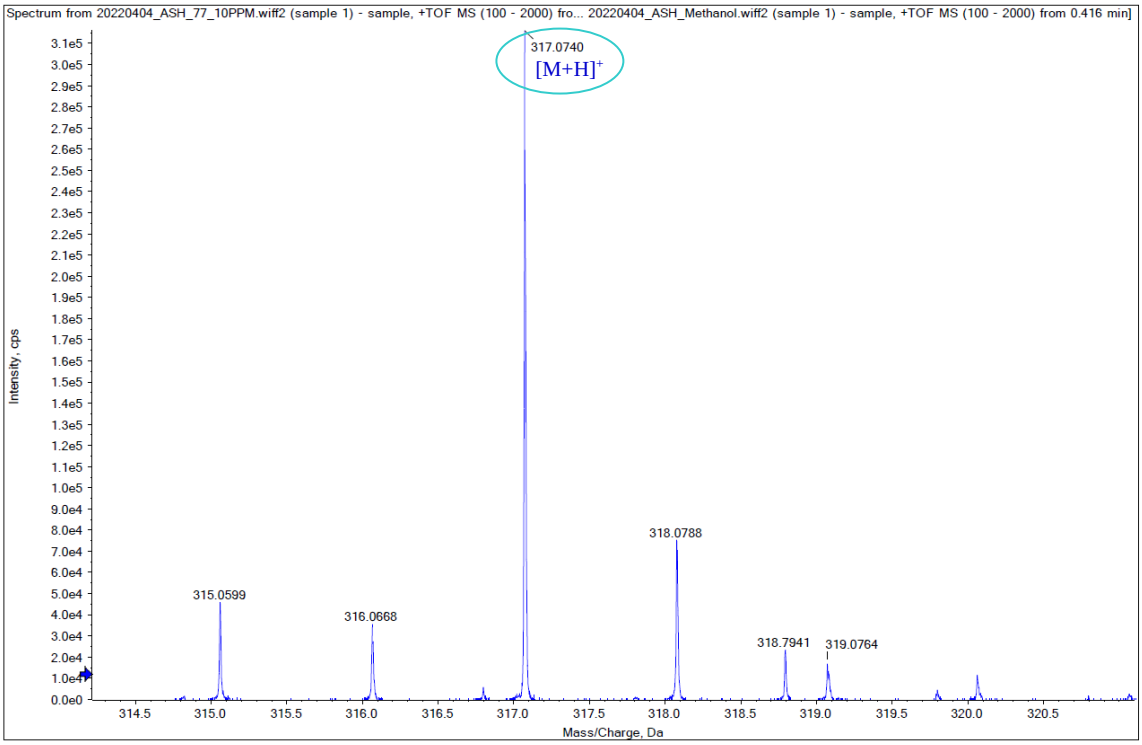


Figure S65. HRMS spectrum of **26**.

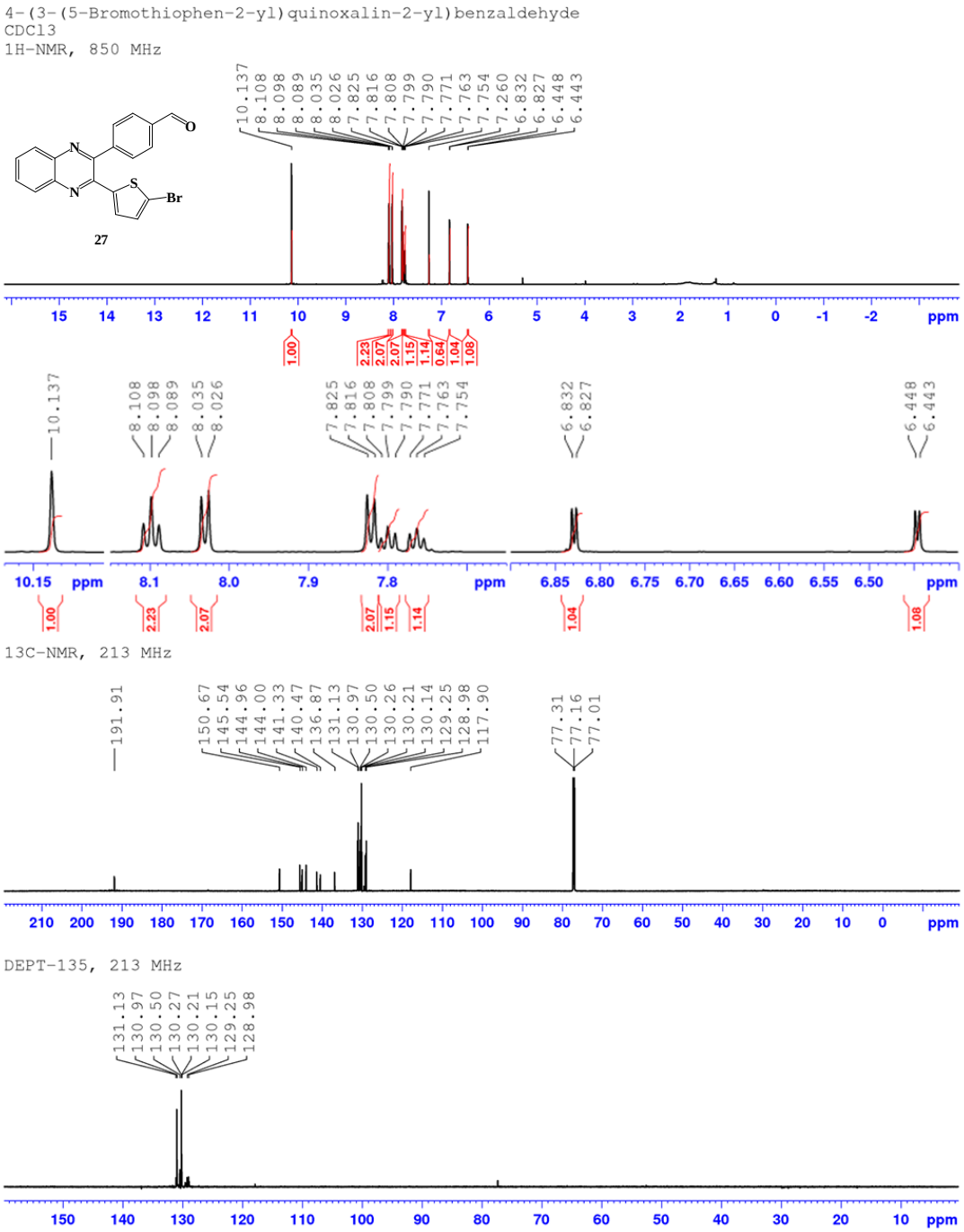


Figure S66. ^{1}H-NMR, ^{13}C-NMR and DEPT-135 spectra in $CDCl_3$ of **27**.

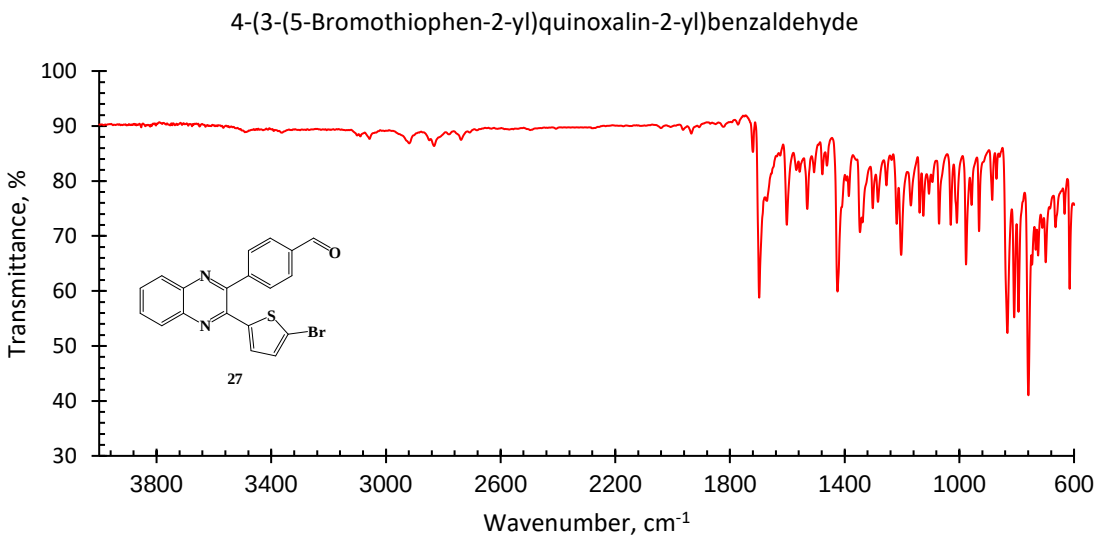
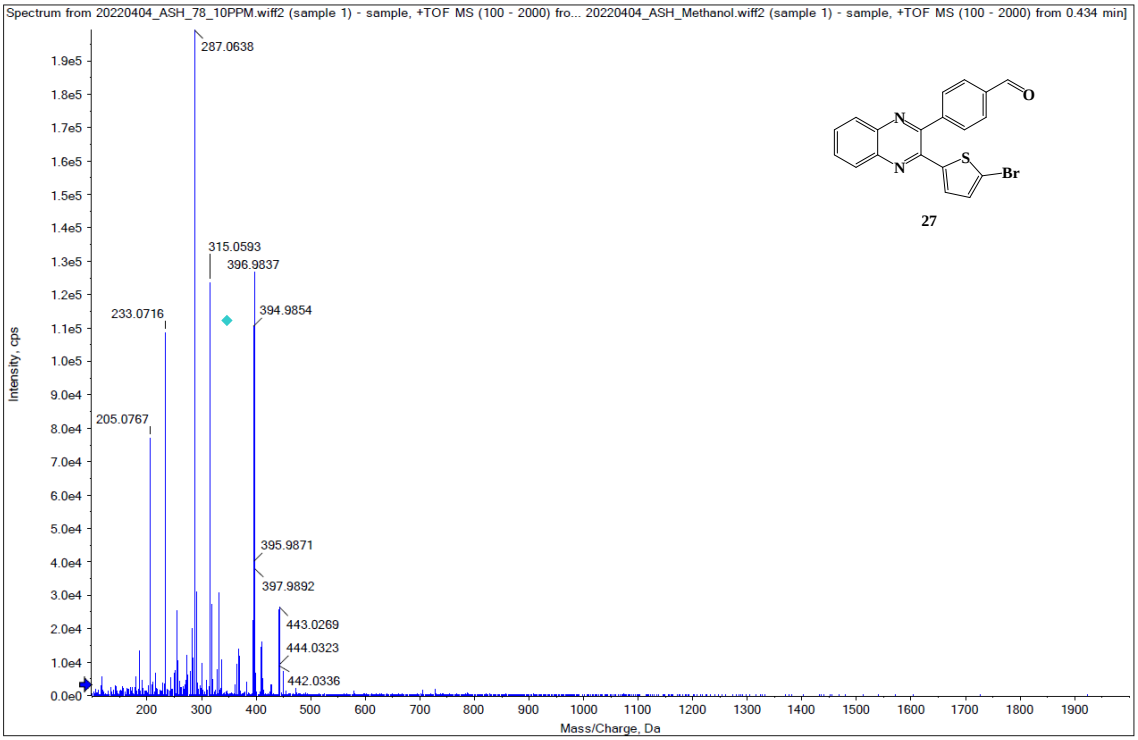


Figure S67. FTIR spectrum of **27**.



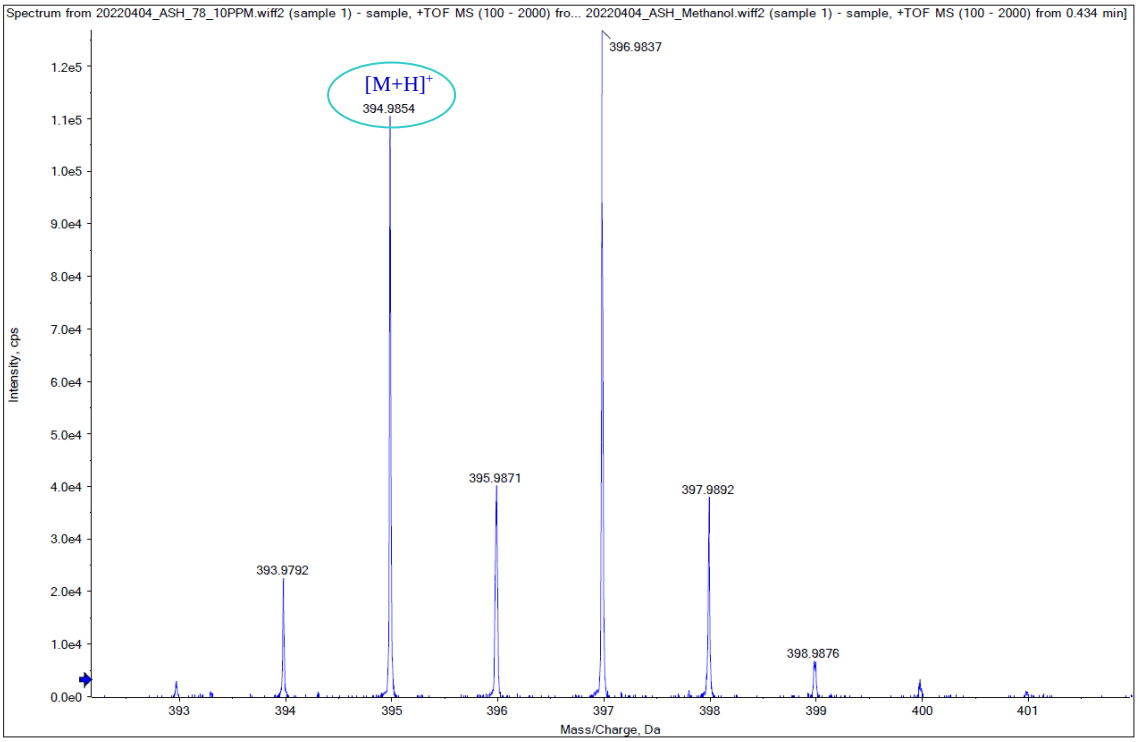


Figure S68. HRMS spectrum of **27**.

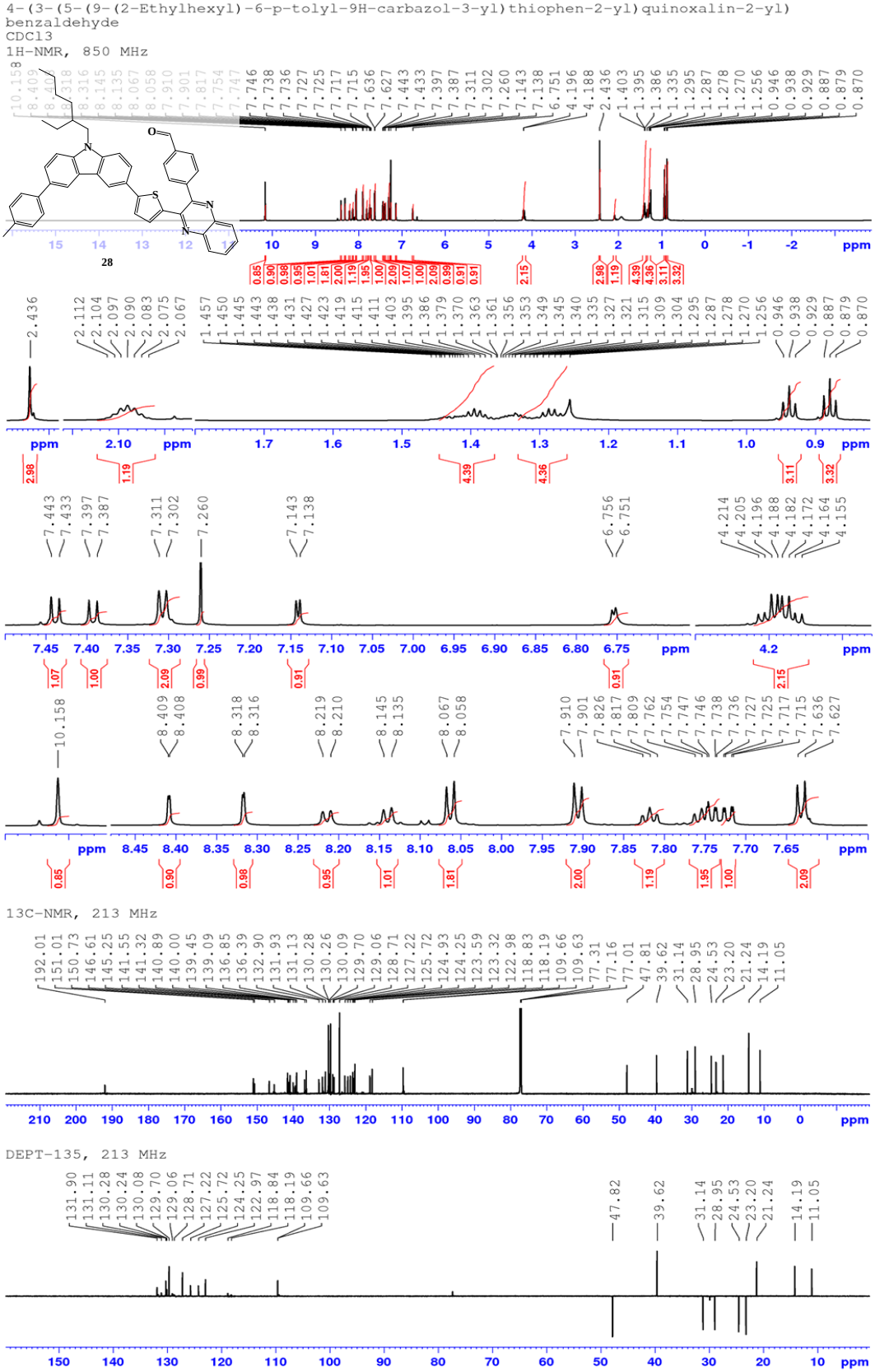


Figure S69. ^{1}H-NMR, ^{13}C-NMR and DEPT-135 spectra in $CDCl_3$ of **28**.

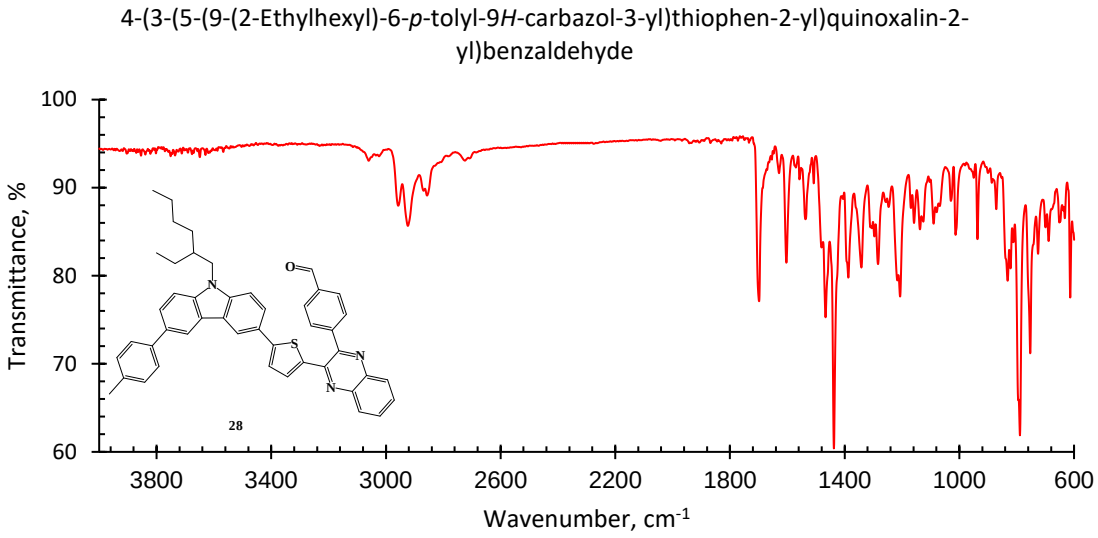


Figure S70. FTIR spectrum of **28**.

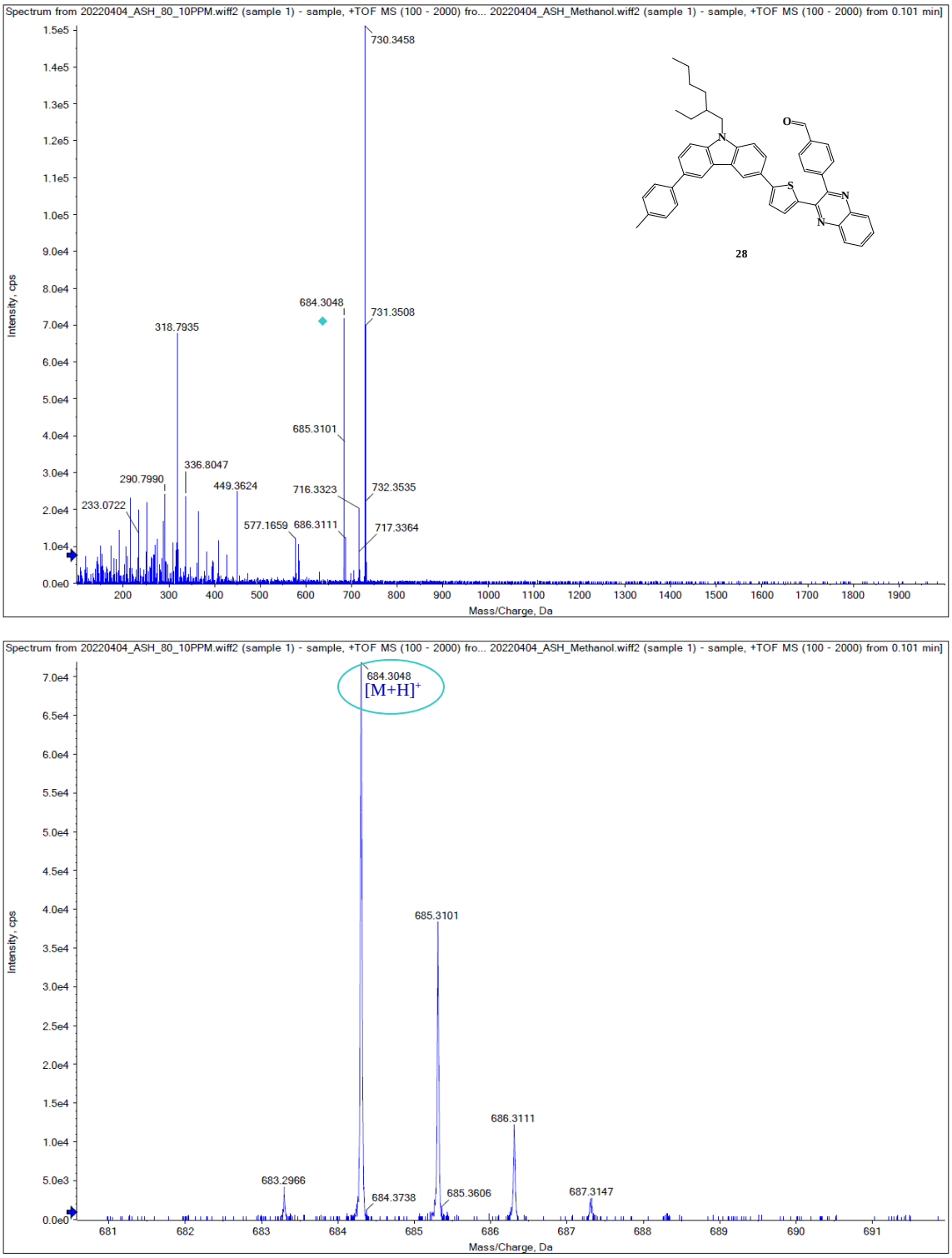


Figure S71. HRMS spectrum of **28**.

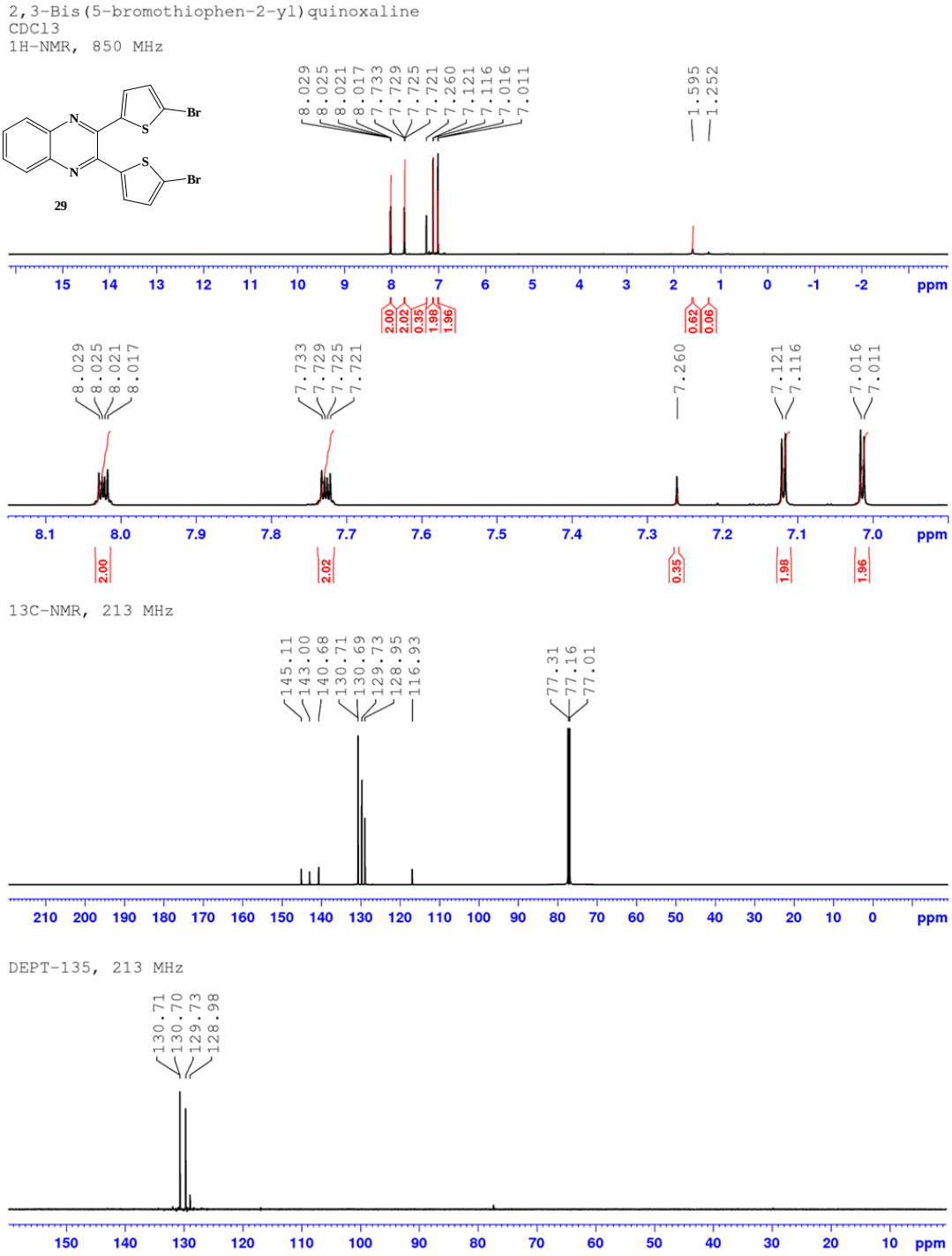


Figure S72. ^{1}H-NMR, ^{13}C-NMR and DEPT-135 spectra in $CDCl_3$ of **29**.

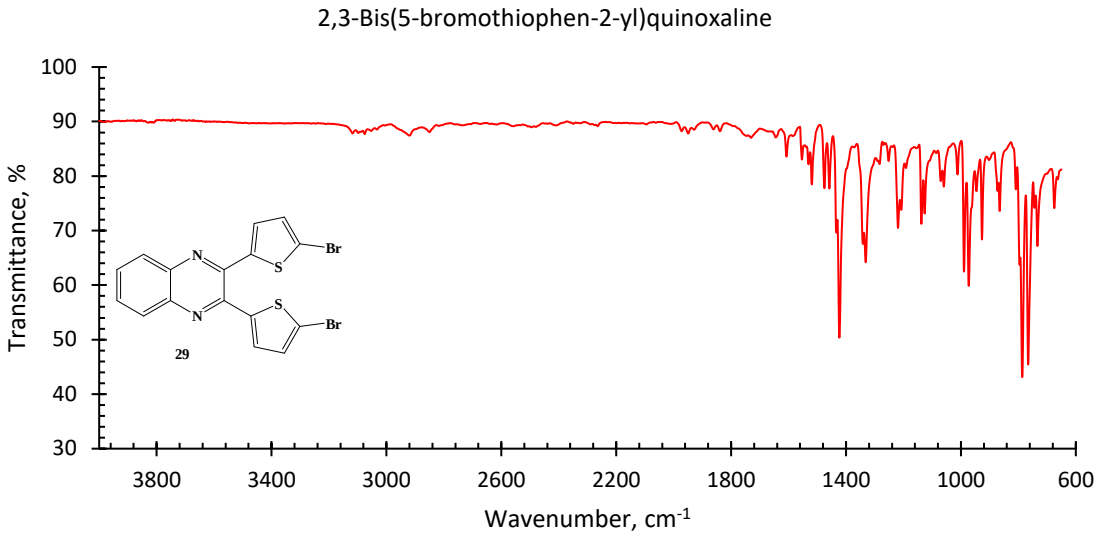


Figure S73. FTIR spectrum of **29**.

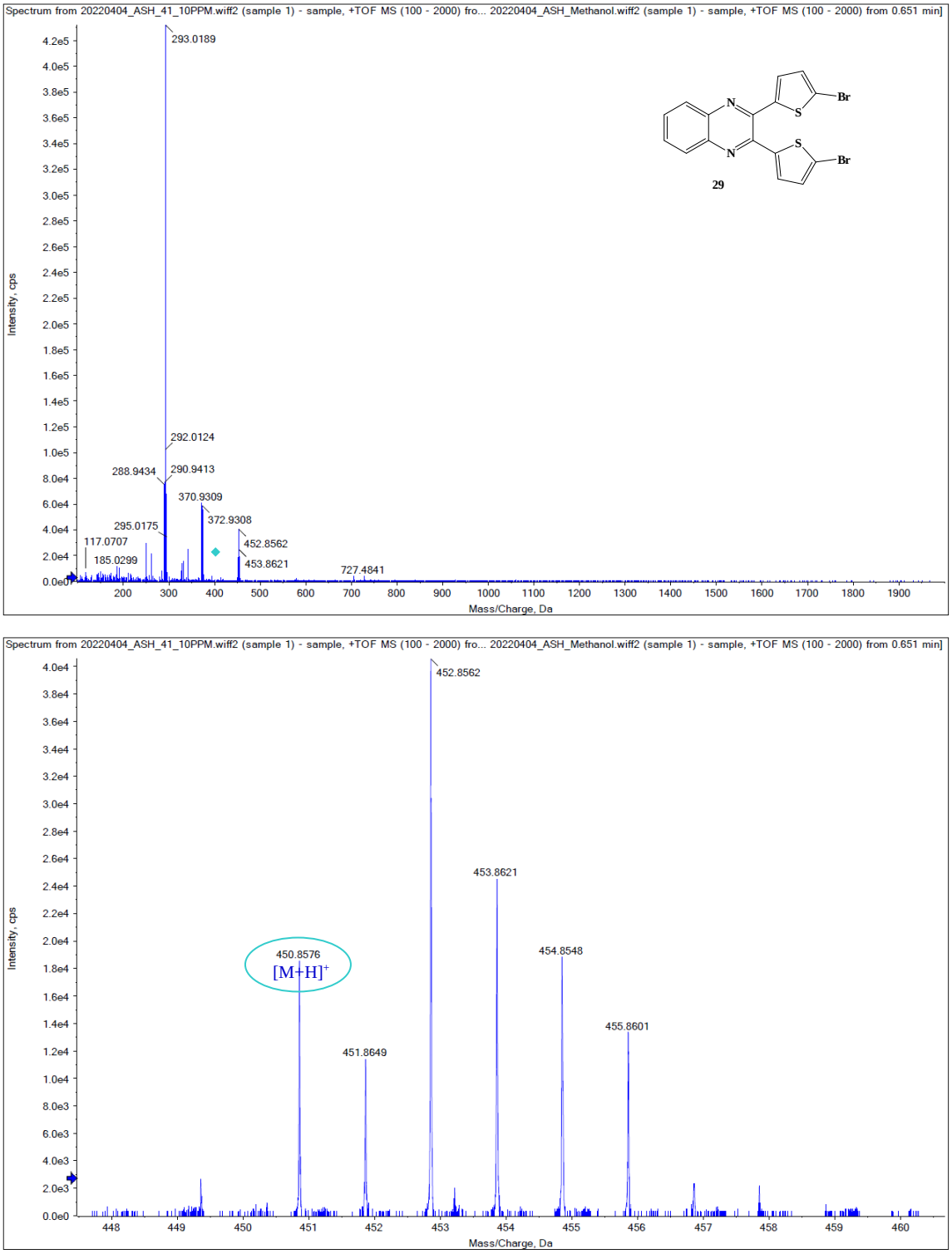


Figure S74. HRMS spectrum of **29**.

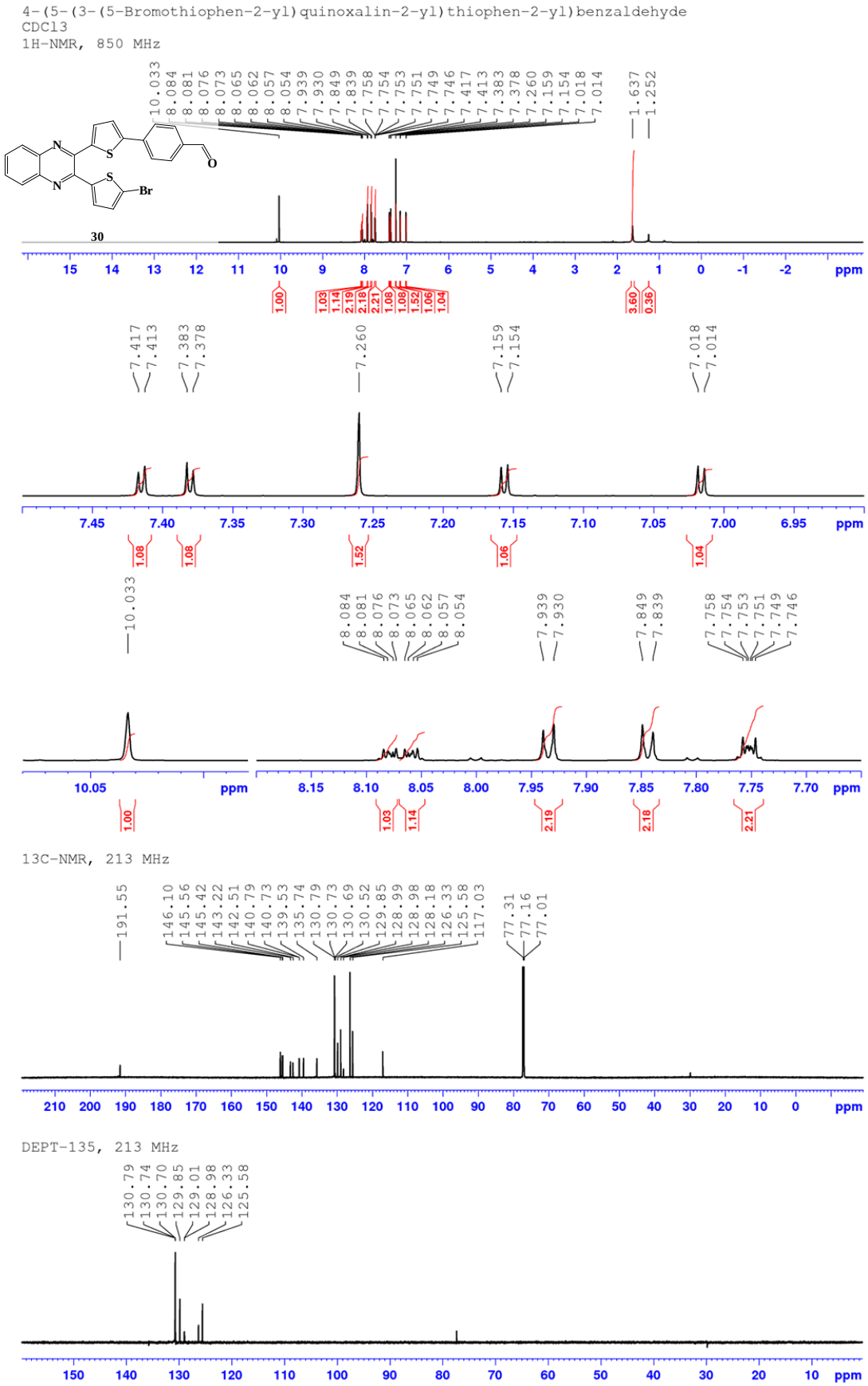


Figure S75. ^{1}H-NMR, ^{13}C-NMR and DEPT-135 spectra in $CDCl_3$ of **30**.

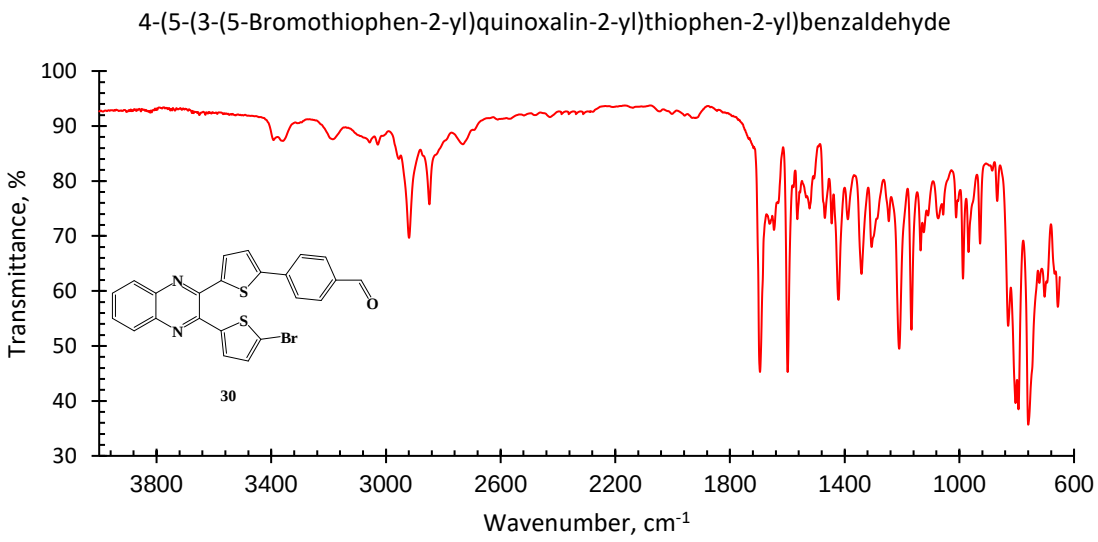
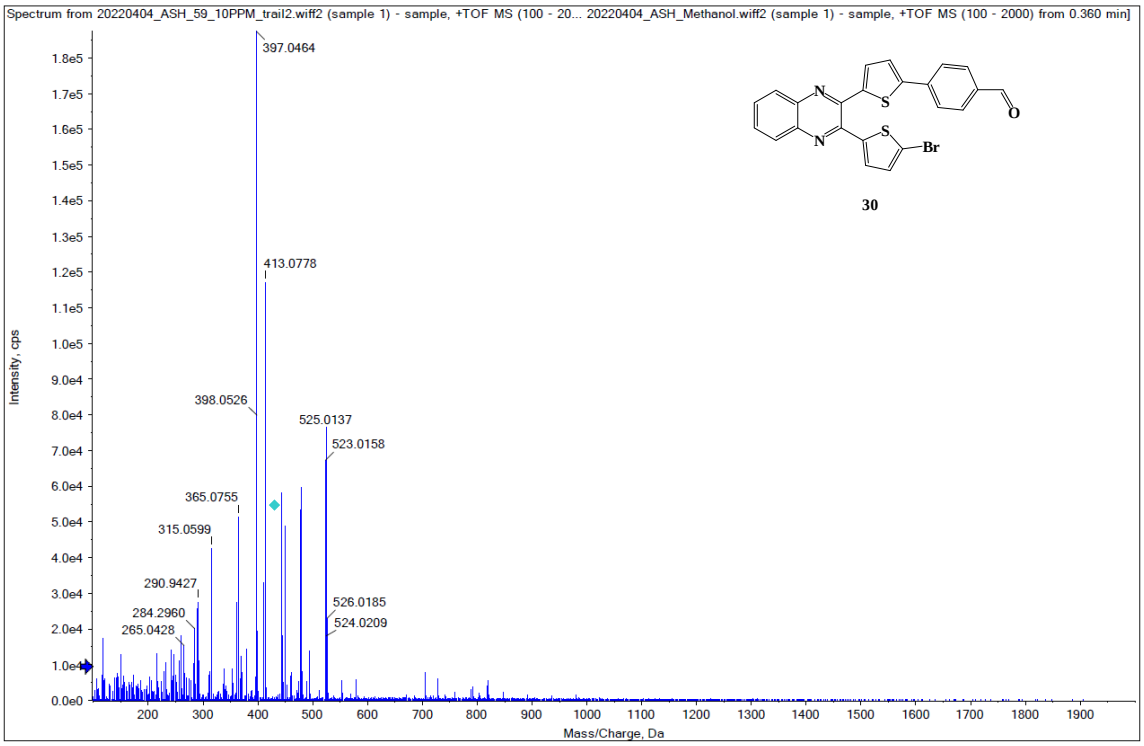


Figure 76. FTIR spectrum of **30**.



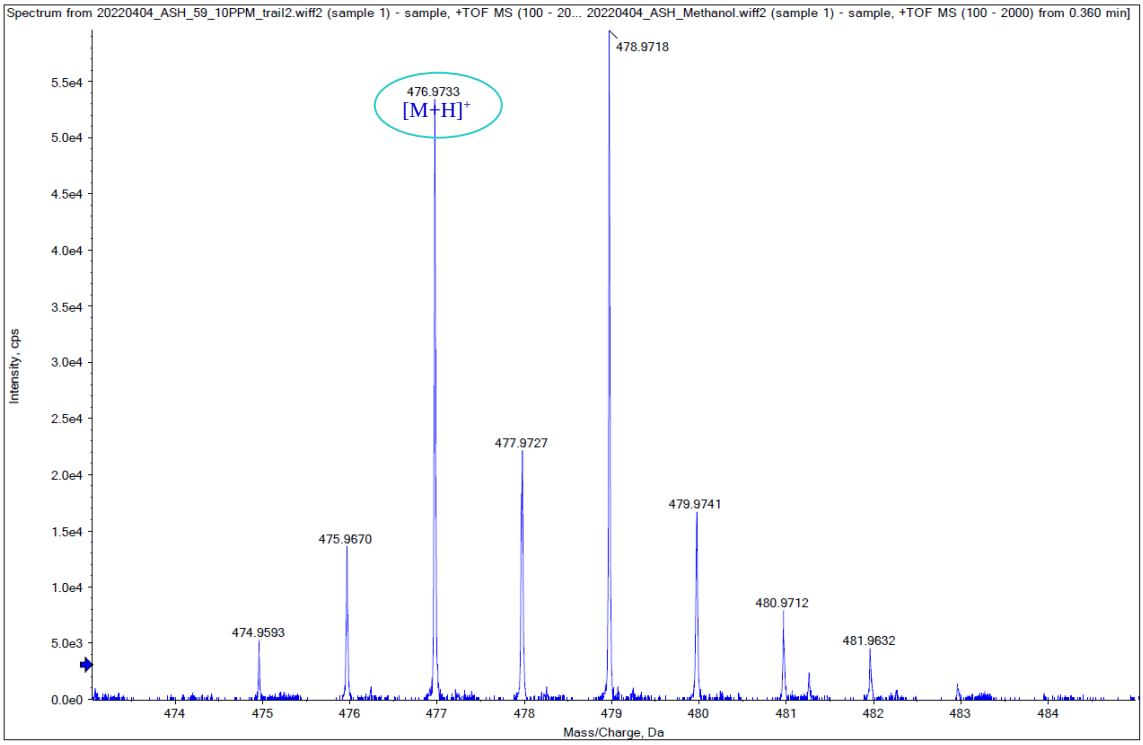


Figure S77. HRMS spectrum of **30**.

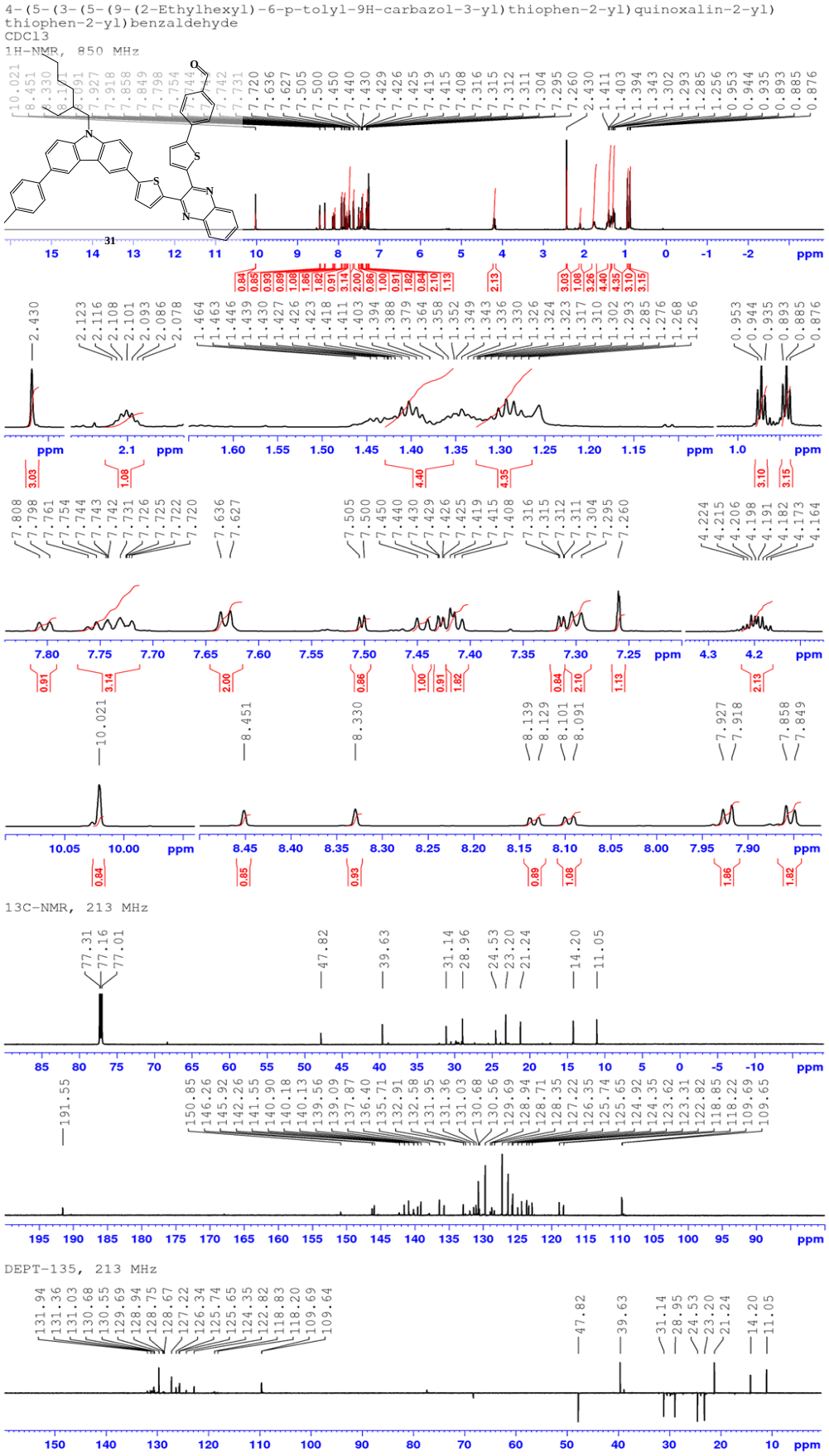


Figure S78. ^{1}H-NMR, ^{13}C-NMR and DEPT-135 spectra in $CDCl_3$ of **31**.

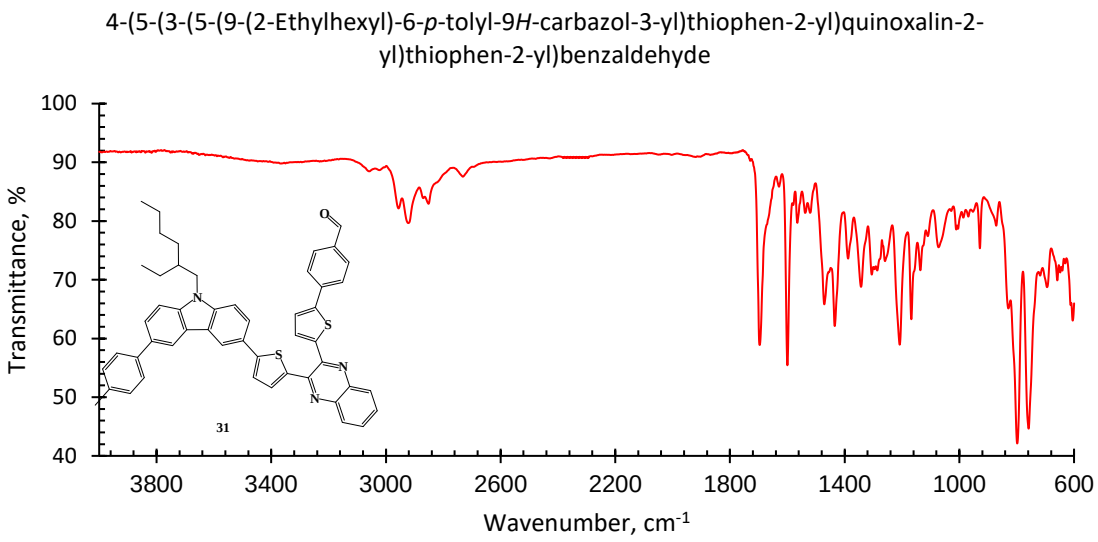
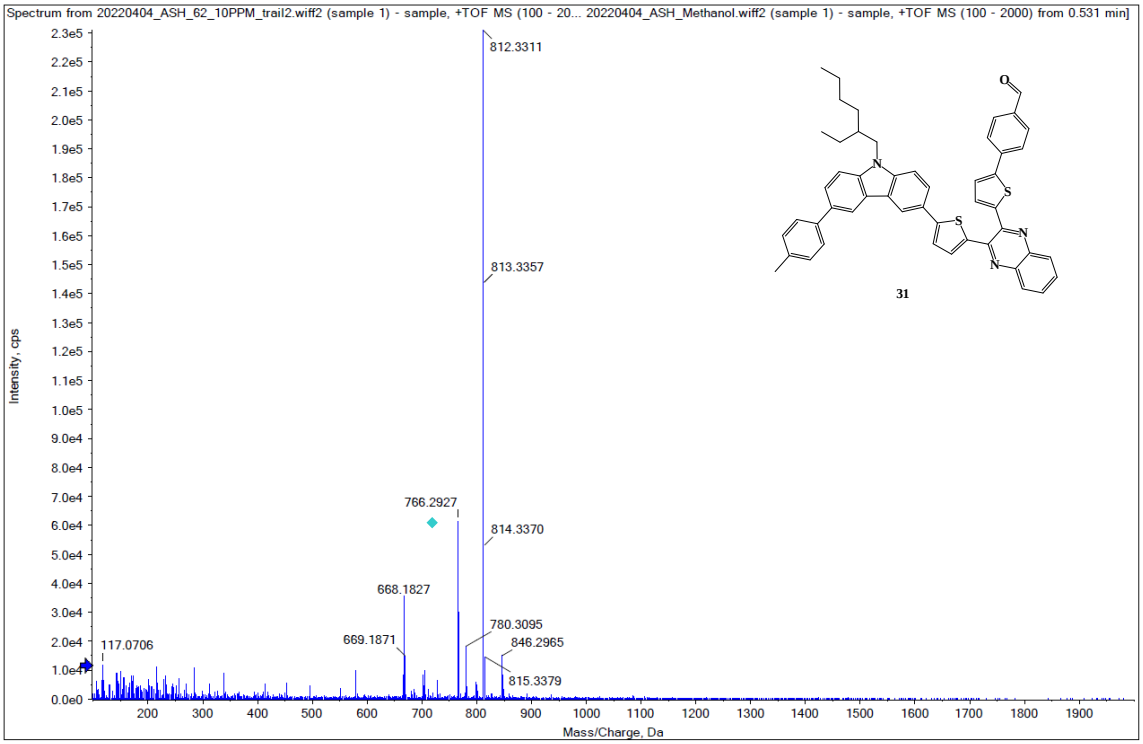


Figure S79. FTIR spectrum of **31**.



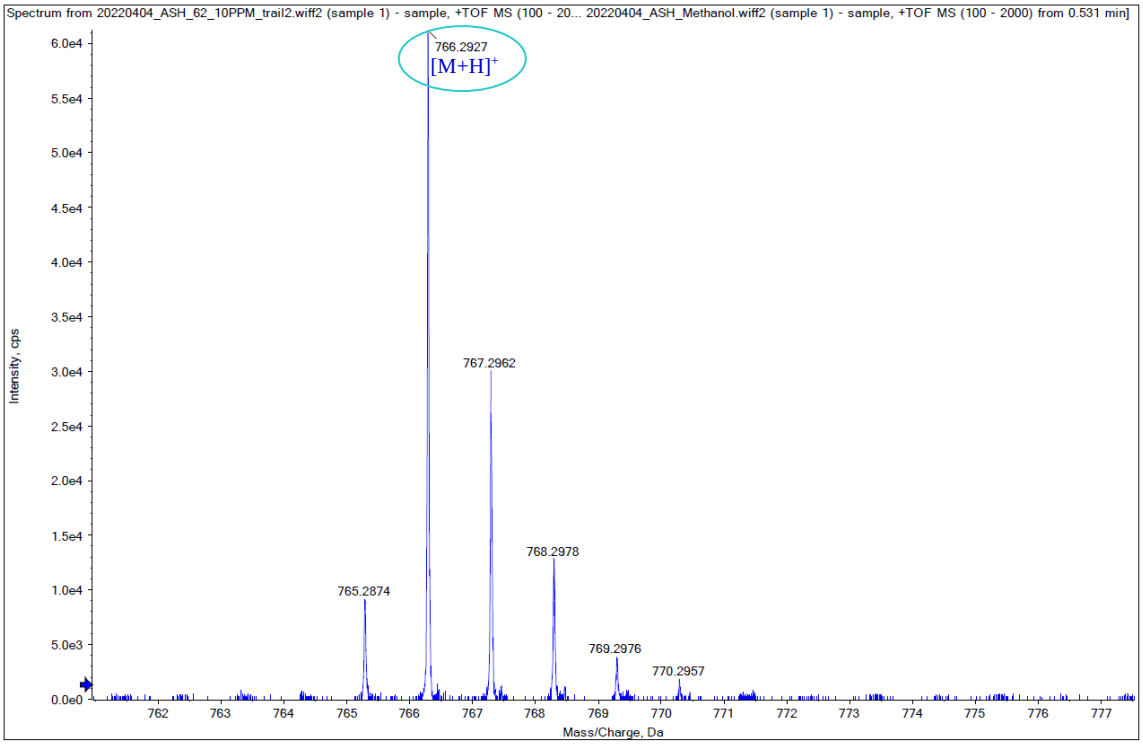


Figure S80. HRMS spectrum of **31**.

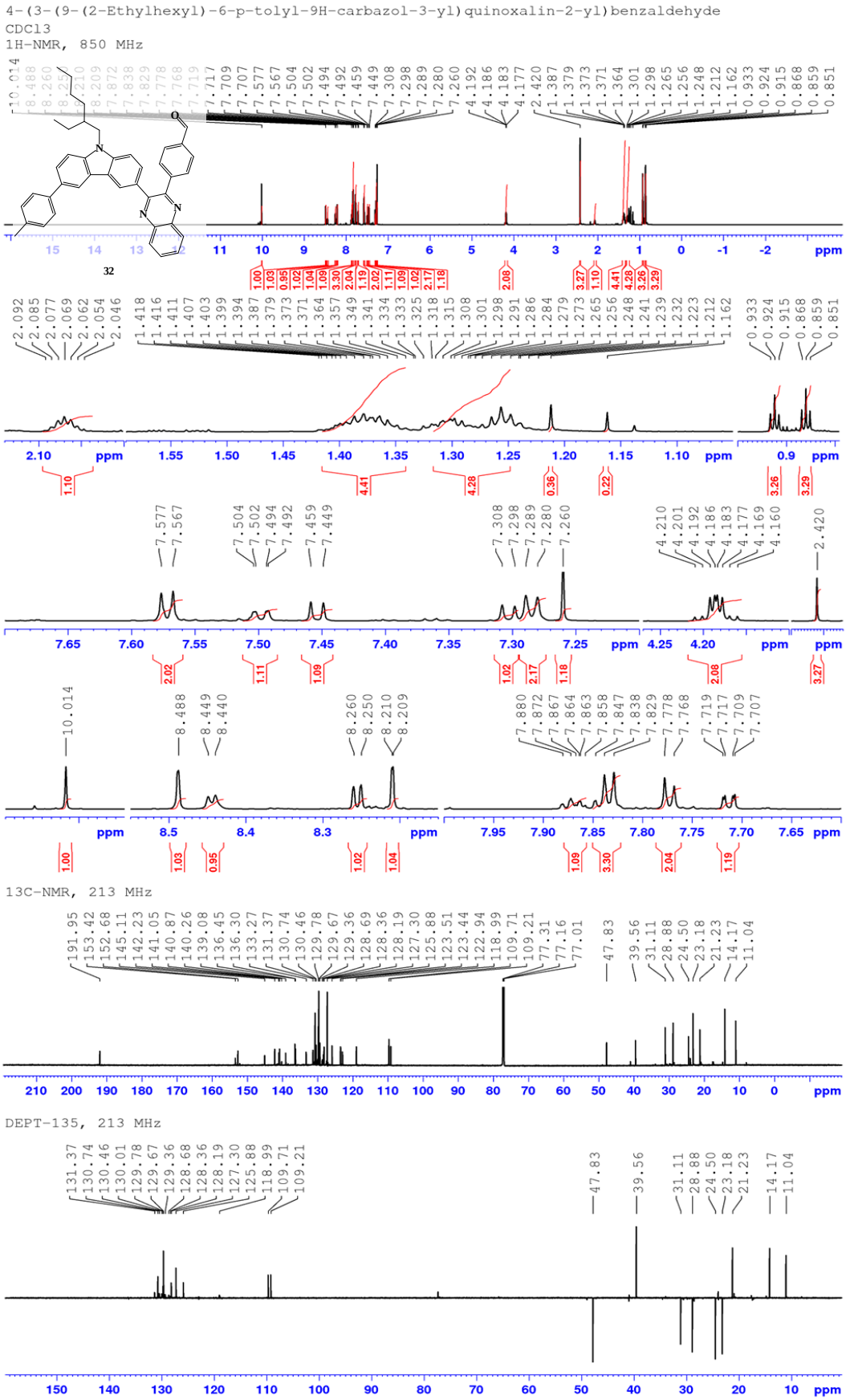


Figure S81. ^{1}H-NMR, ^{13}C-NMR and DEPT-135 spectra in $CDCl_3$ of **32**.

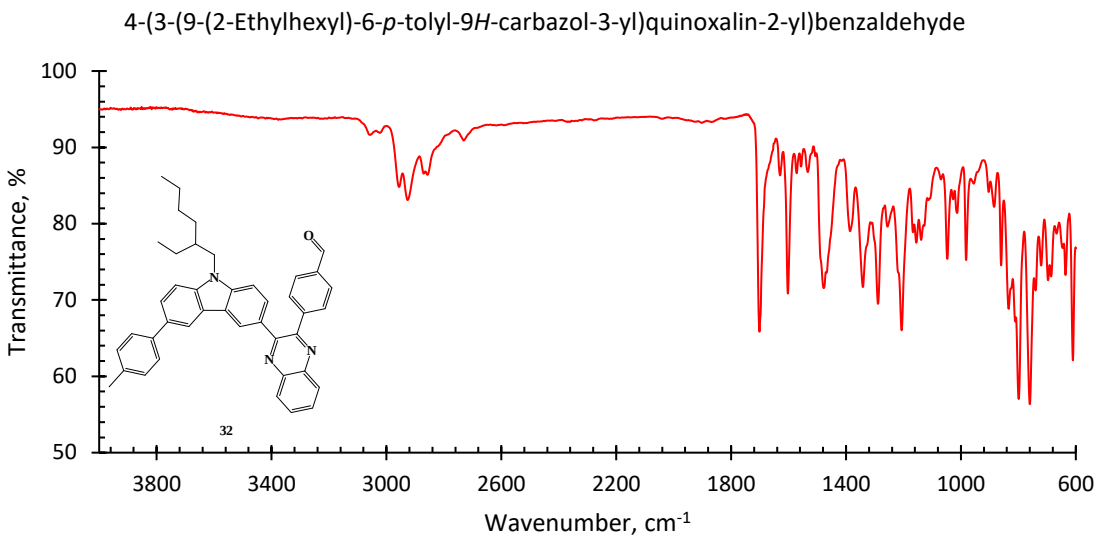


Figure S82. FTIR spectrum of **32**.

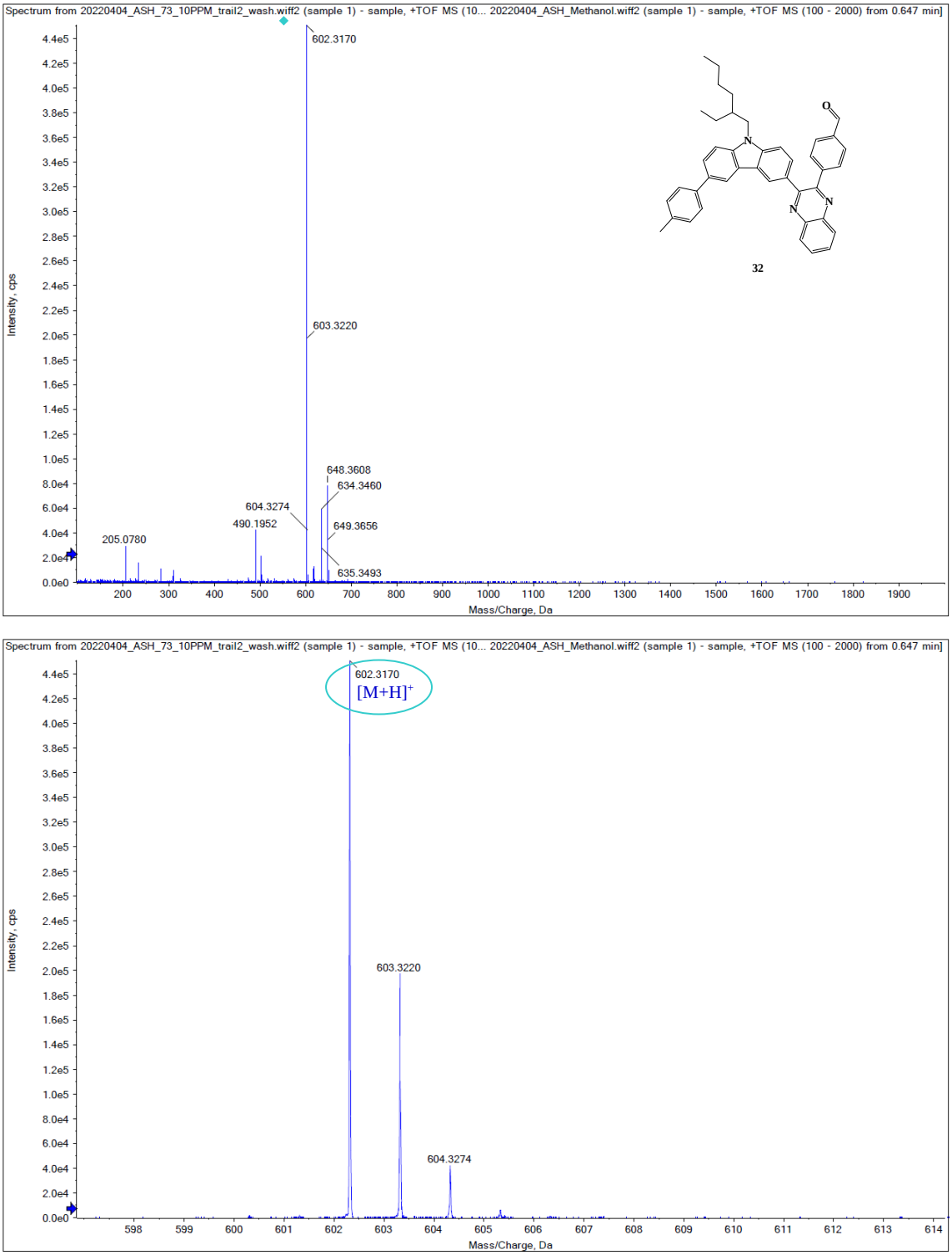


Figure S83. HRMS spectrum of **32**.