

Supplementary Materials

Synthesis and Biological Evaluation of Novel Synthetic Indolone Derivatives as Anti-Tumor Agents Targeting p53-MDM2 and p53-MDMX

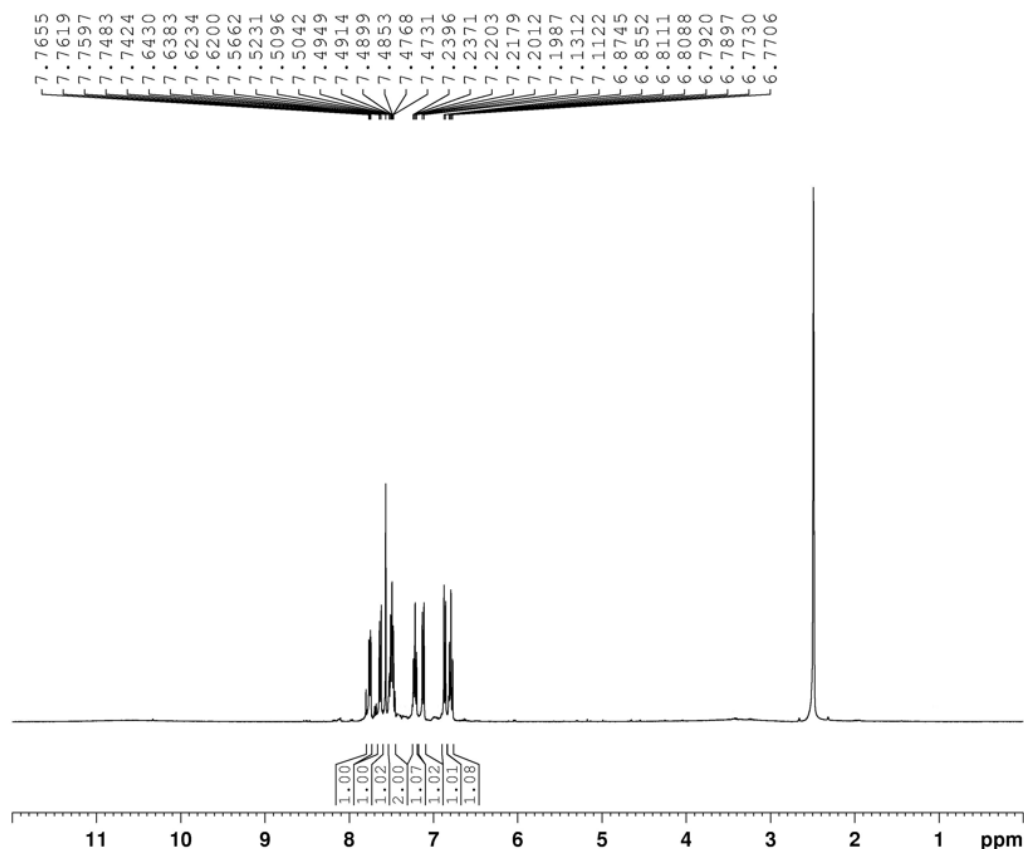


Figure S1. ¹H NMR spectrum of compound 1 (400 MHz, DMSO).

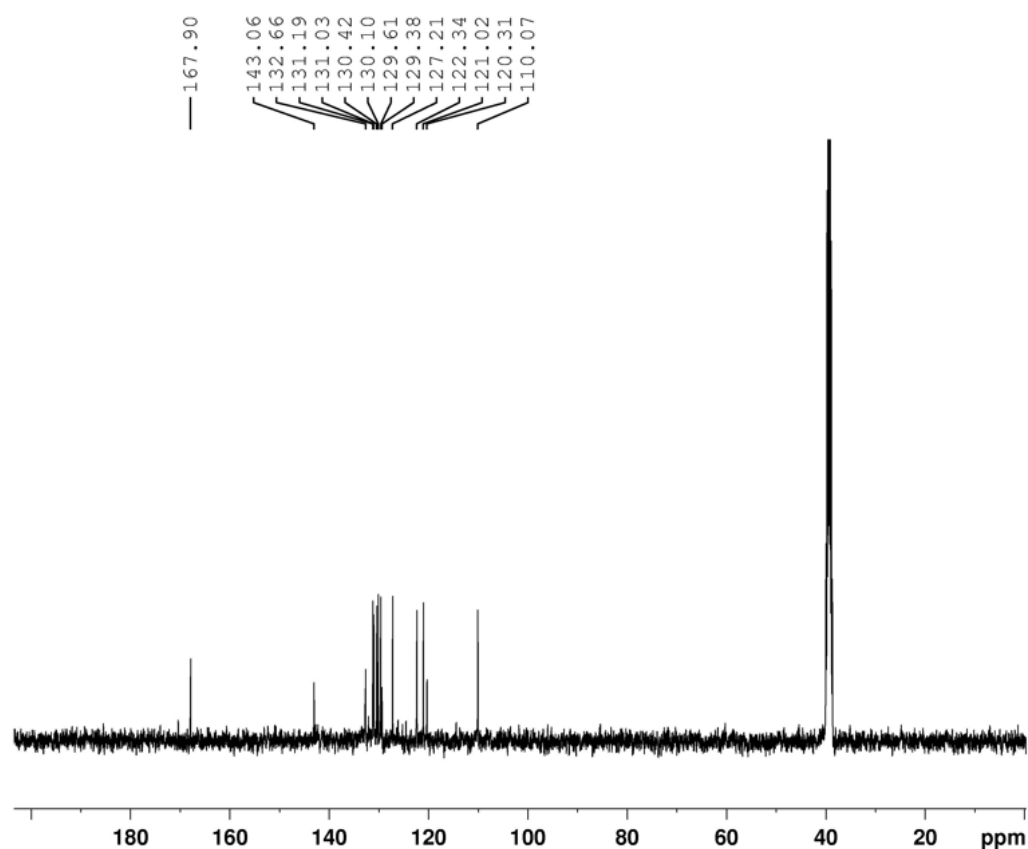


Figure S2. ^{13}C NMR spectrum of compound 1 (101 MHz, DMSO).

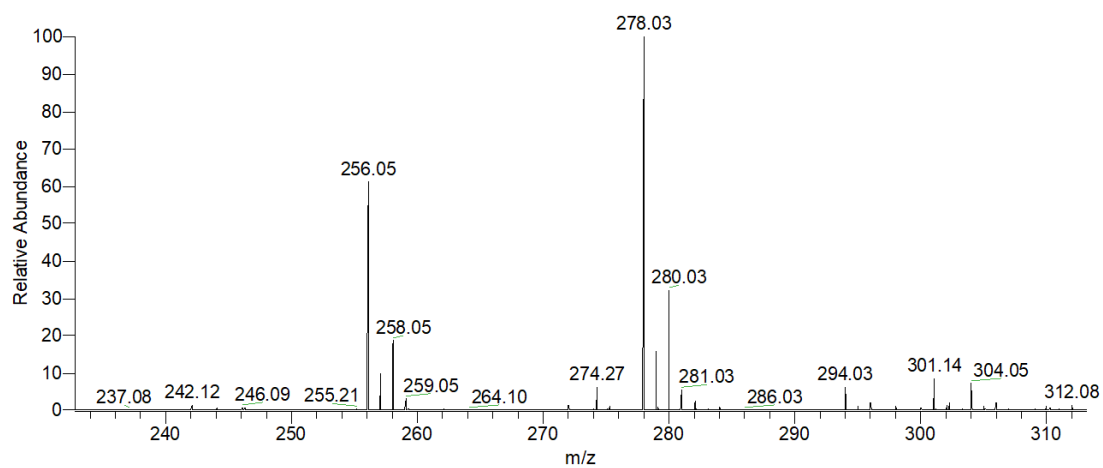


Figure S3. High resolution mass spectrum of compound 1.

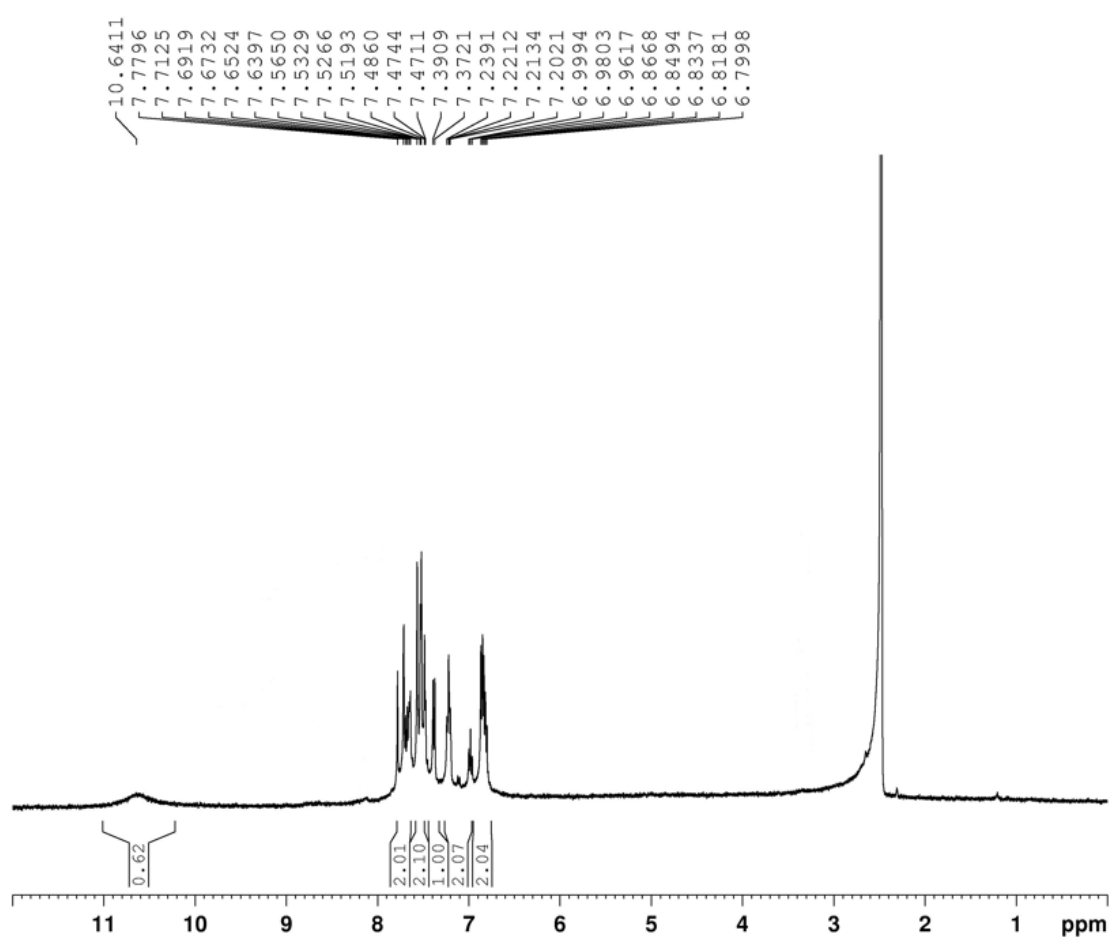


Figure S4: ¹H NMR spectrum of compound 2 (400 MHz, DMSO).

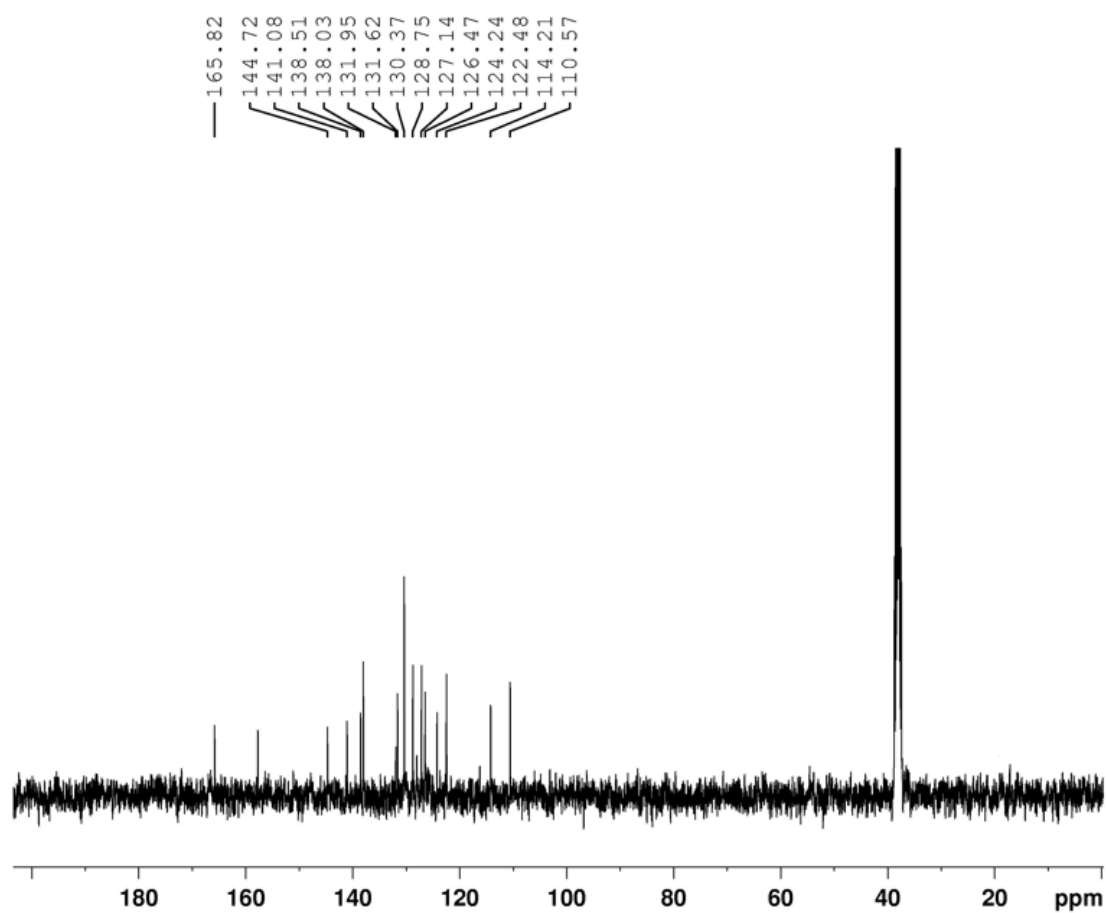


Figure S5. ^{13}C NMR spectrum of compound 2 (101 MHz, DMSO).

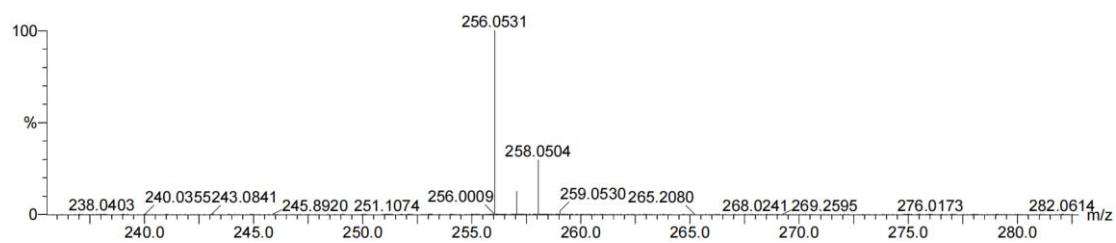


Figure S6. High resolution mass spectrum of compound 2.

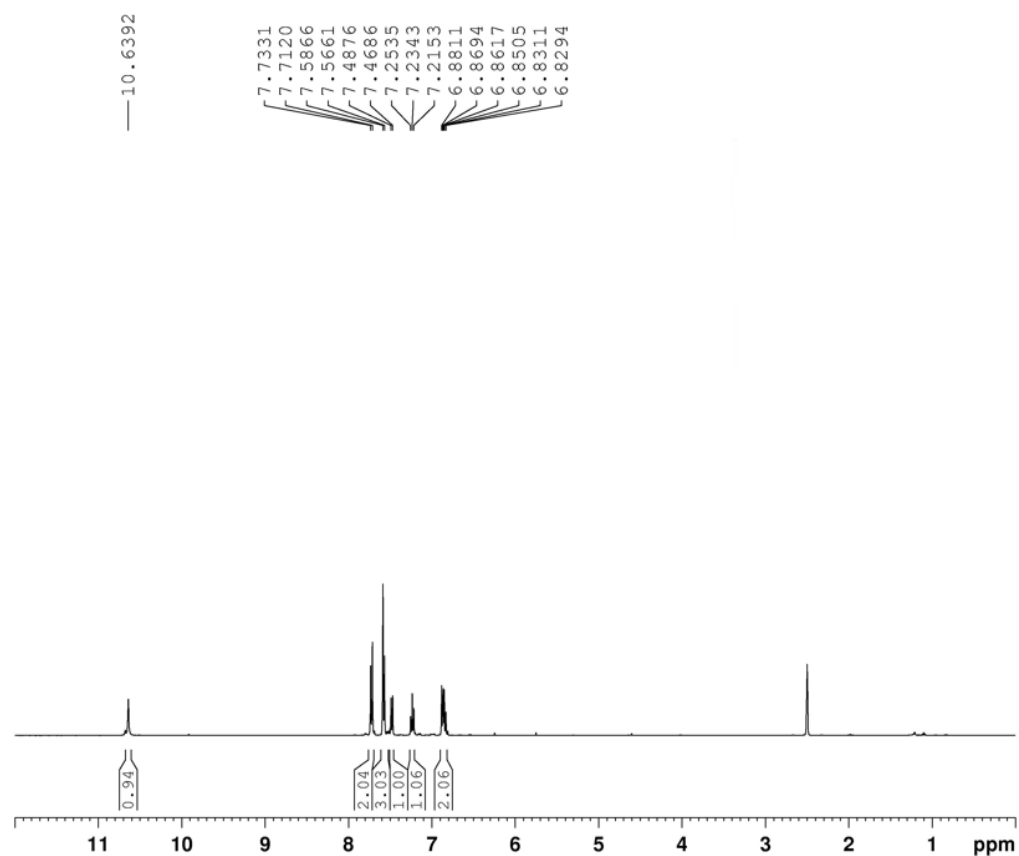


Figure S7. ¹H NMR spectrum of compound 3 (400 MHz, DMSO).

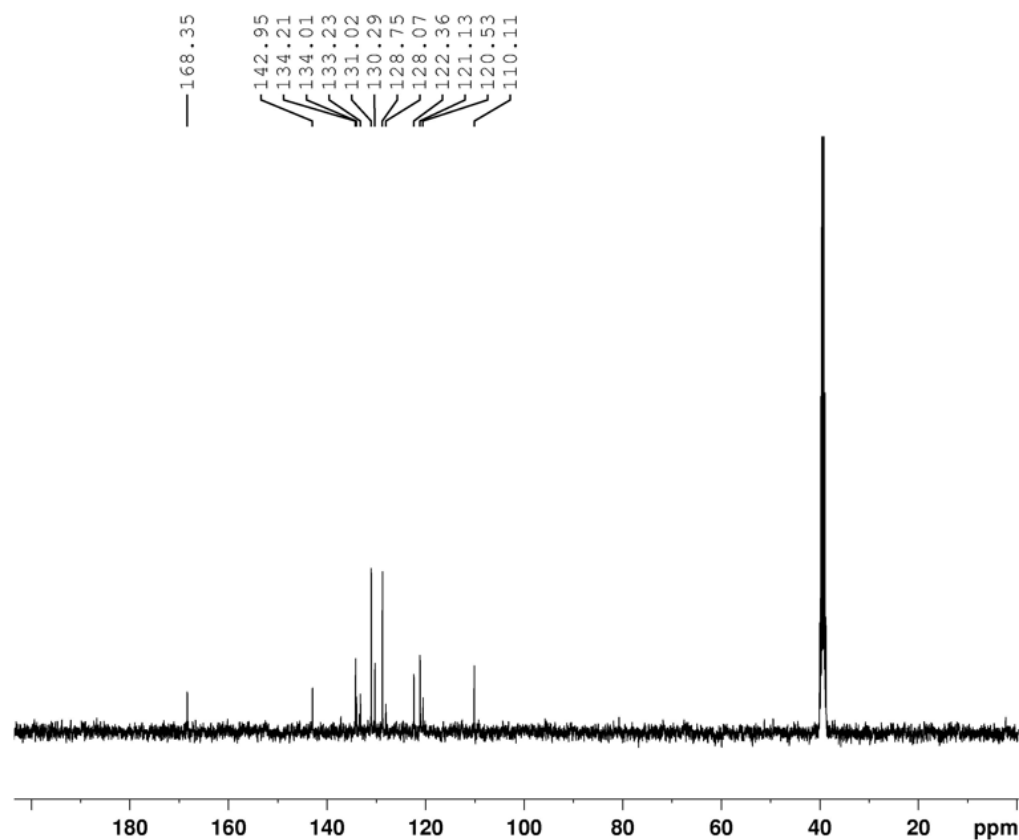


Figure S8. ¹³C NMR spectrum of compound 3 (101 MHz, DMSO).

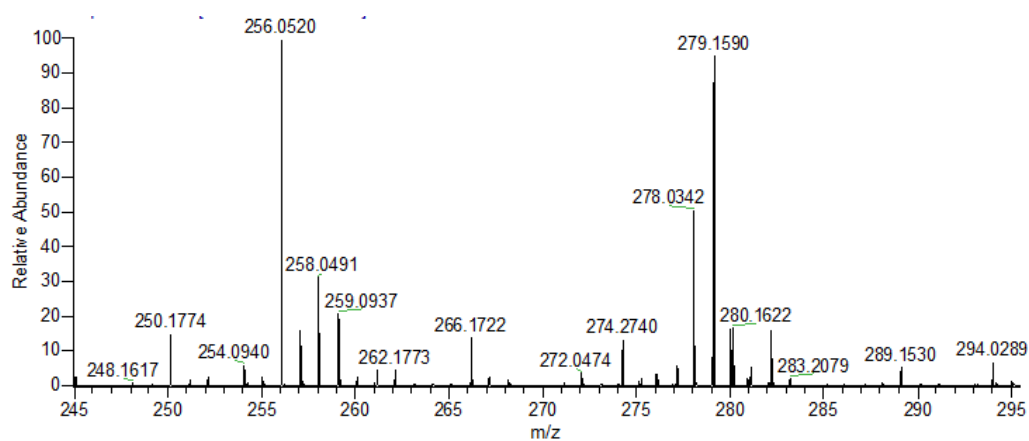


Figure S9. High resolution mass spectrum of compound 3.

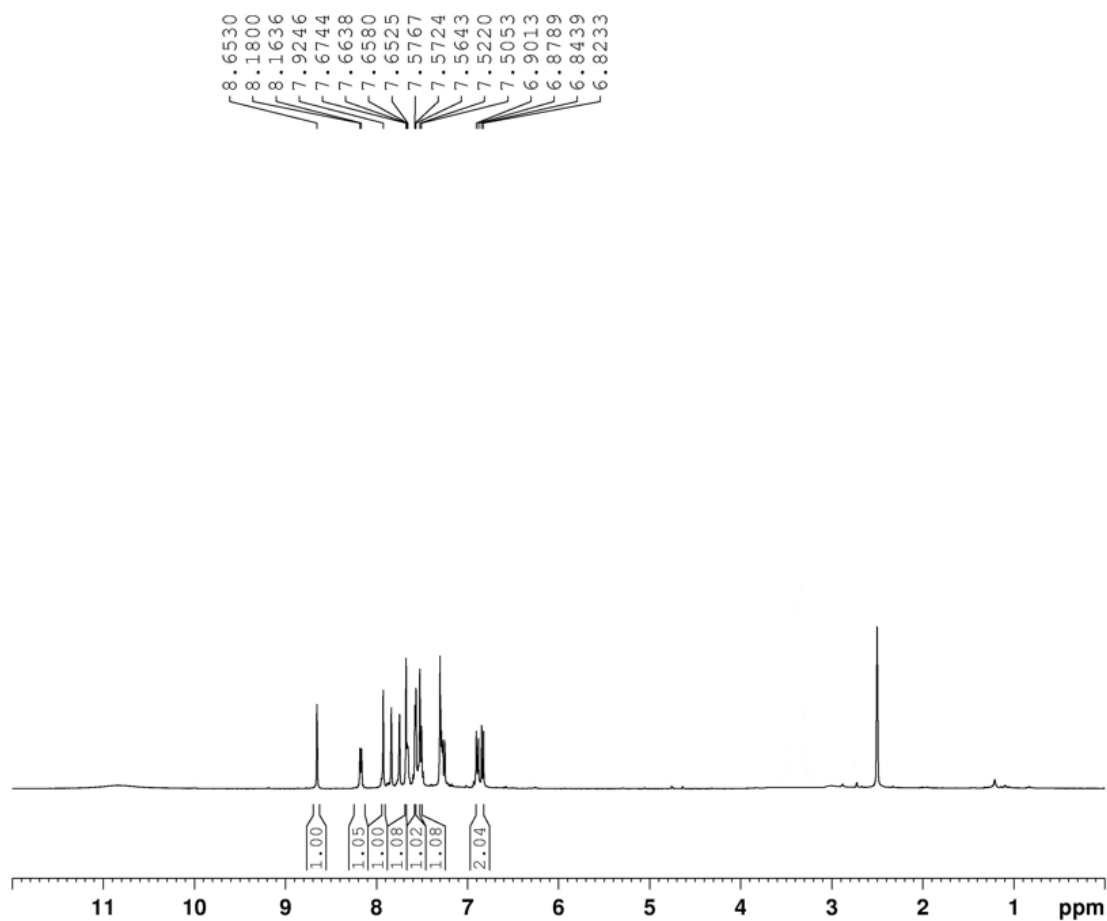


Figure S10. ¹H NMR spectrum of compound 4 (400 MHz, DMSO).

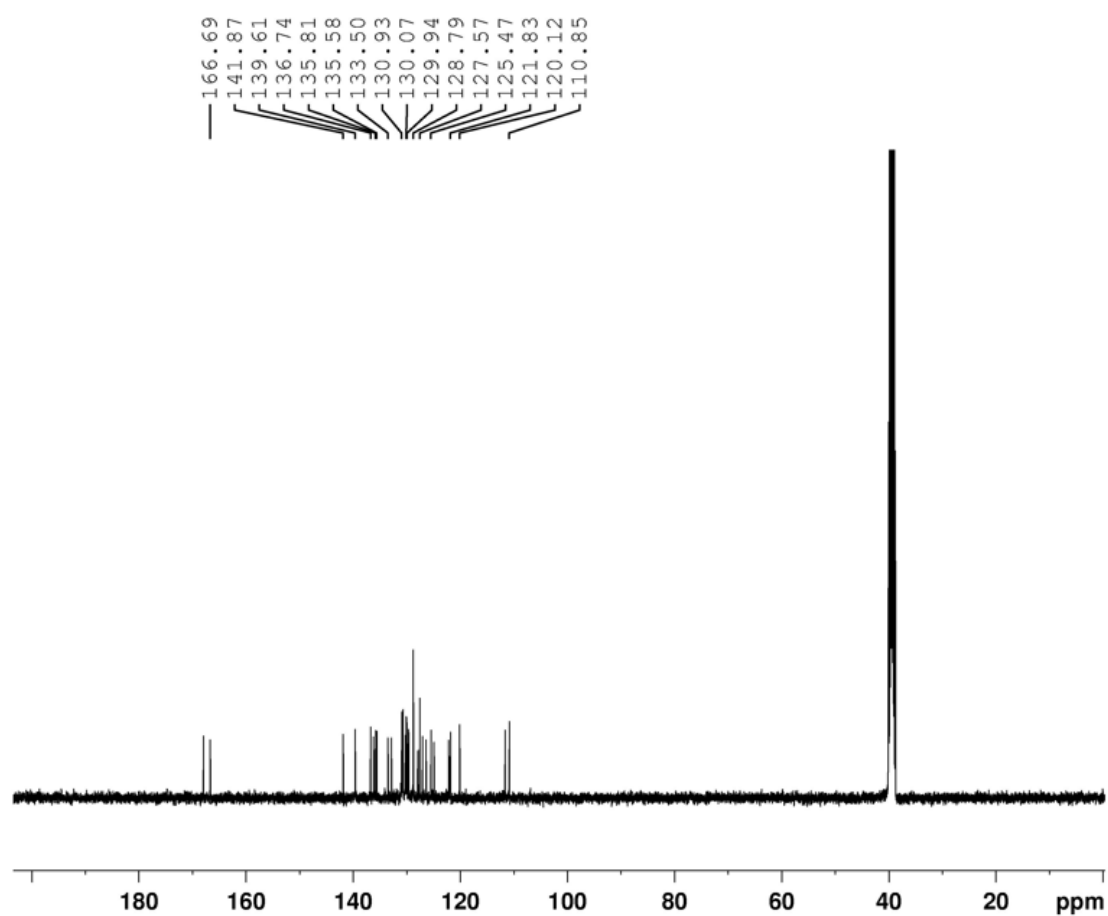


Figure S11. ^{13}C NMR spectrum of compound 4 (101 MHz, DMSO).

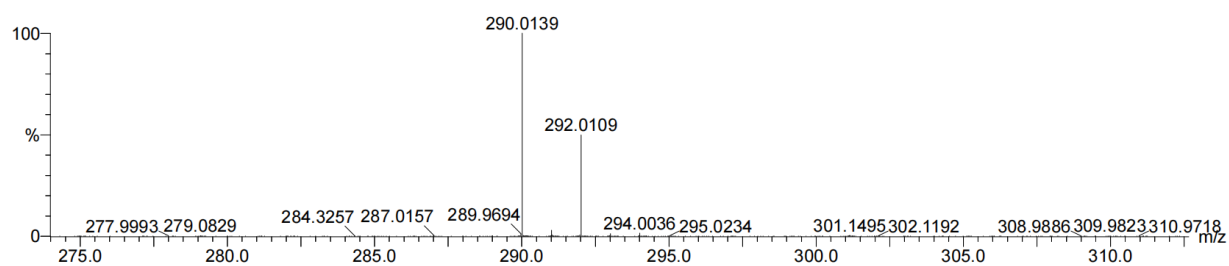


Figure S12. High resolution mass spectrum of compound 4.

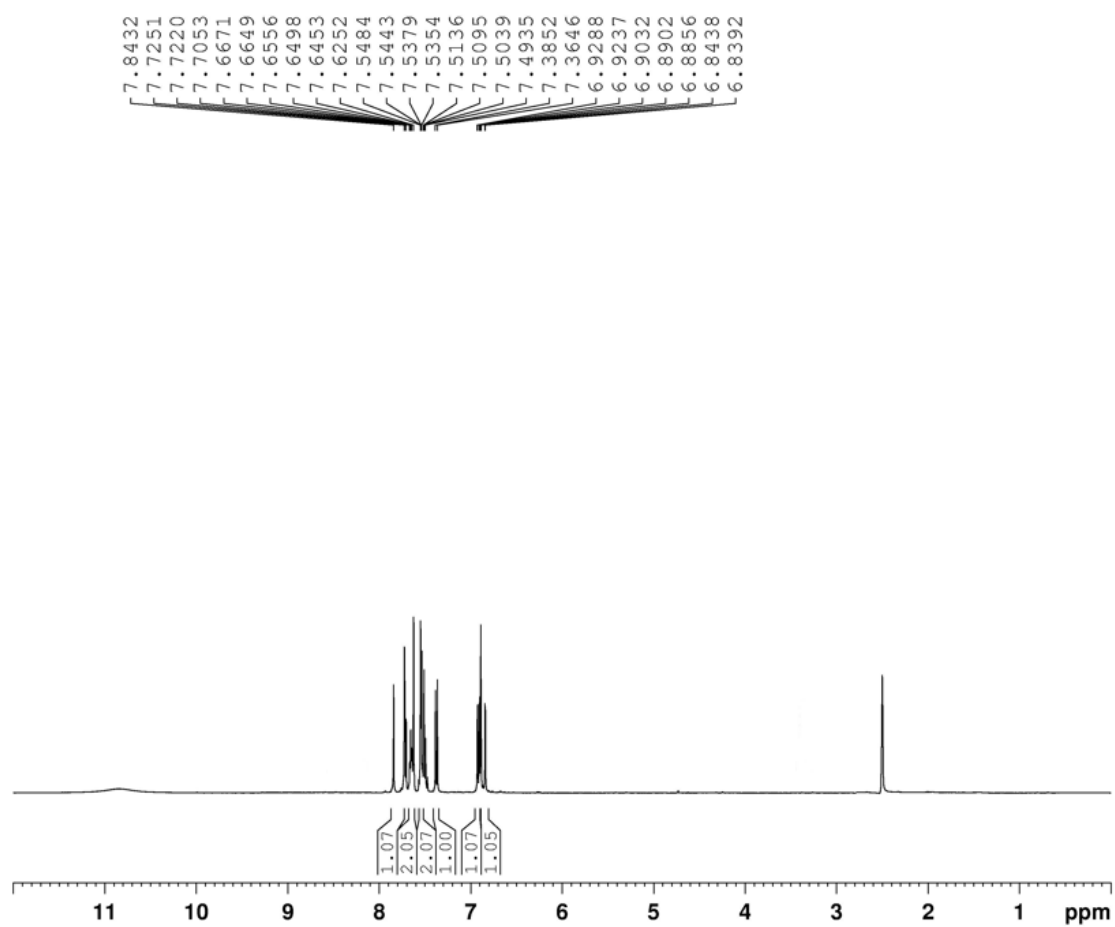


Figure S13. ^1H NMR spectrum of compound 5 (400 MHz, DMSO).

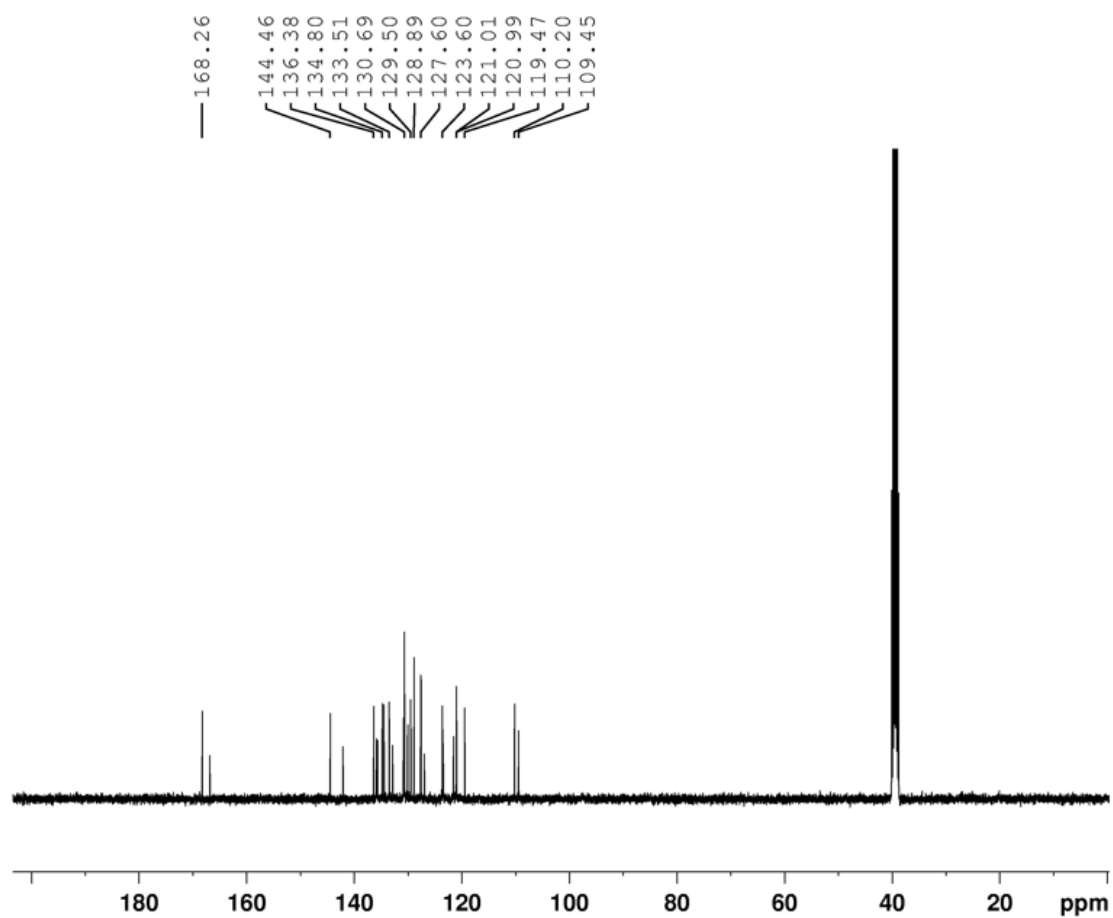


Figure S14. ^{13}C NMR spectrum of compound 5 (101 MHz, DMSO).

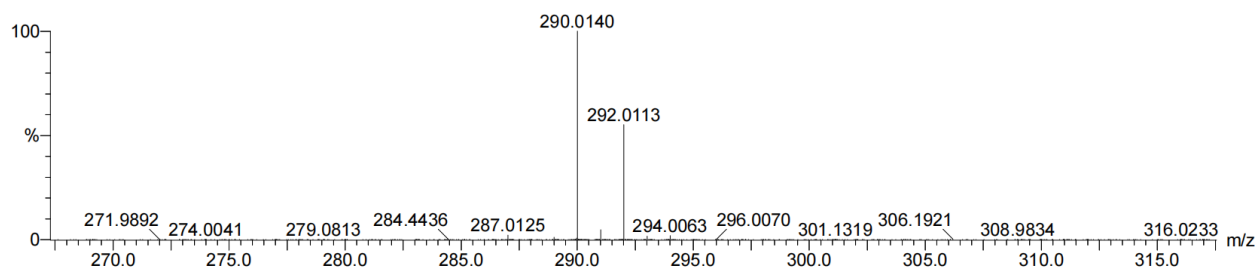


Figure S15. High resolution mass spectrum of compound 5.

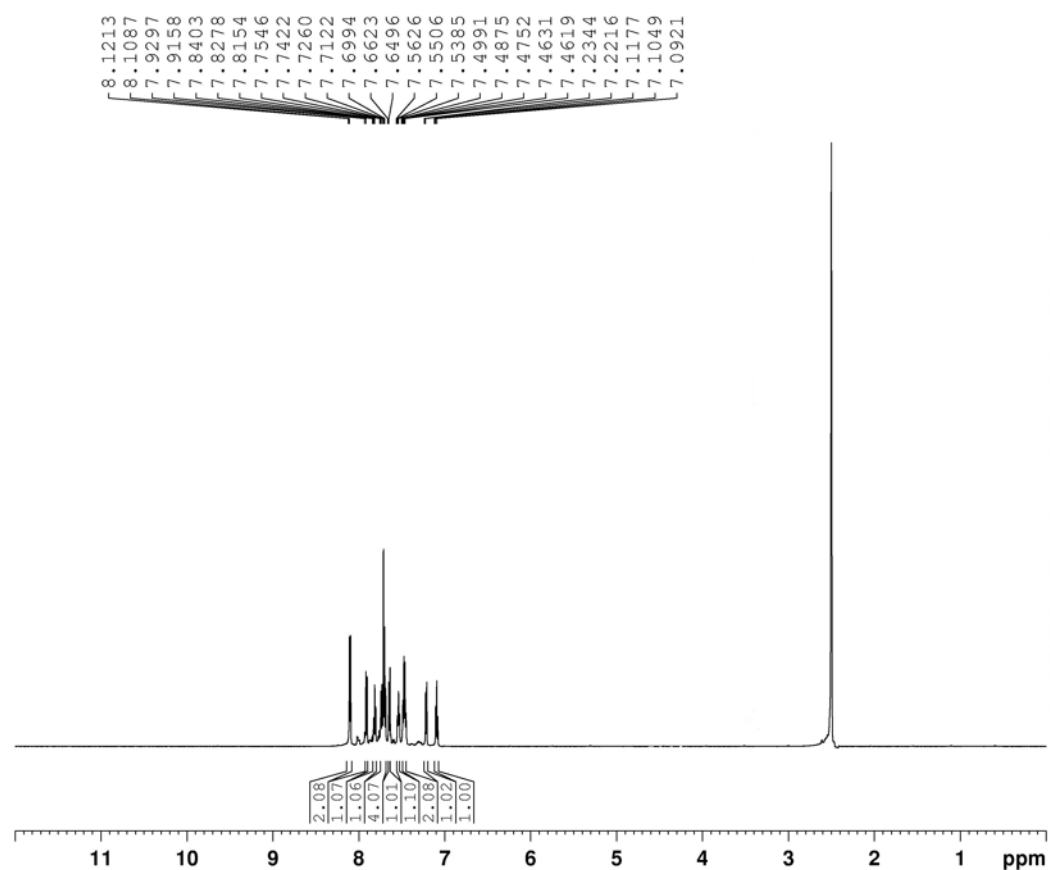


Figure S16. ¹H NMR spectrum of compound A1 (600 MHz, DMSO).

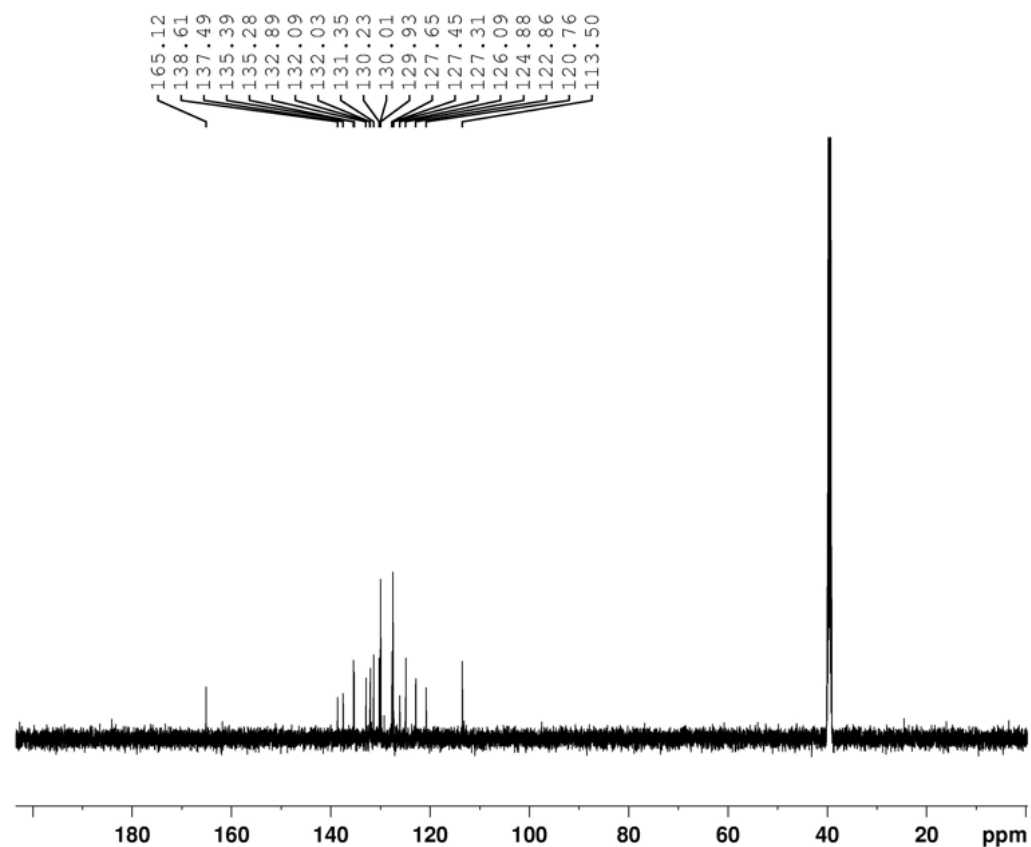


Figure S17. ¹³C NMR spectrum of compound A1 (151 MHz, DMSO).

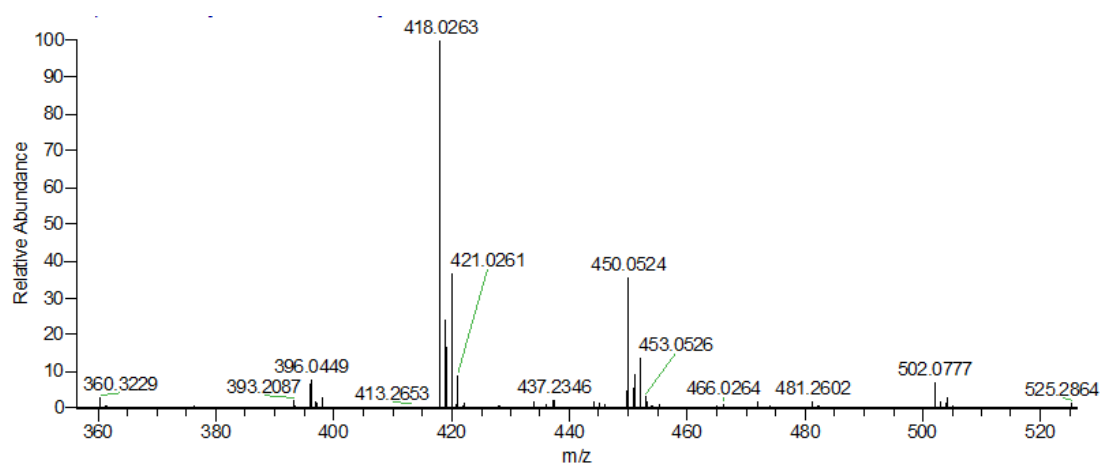


Figure S18. High resolution mass spectrum of compound A1.

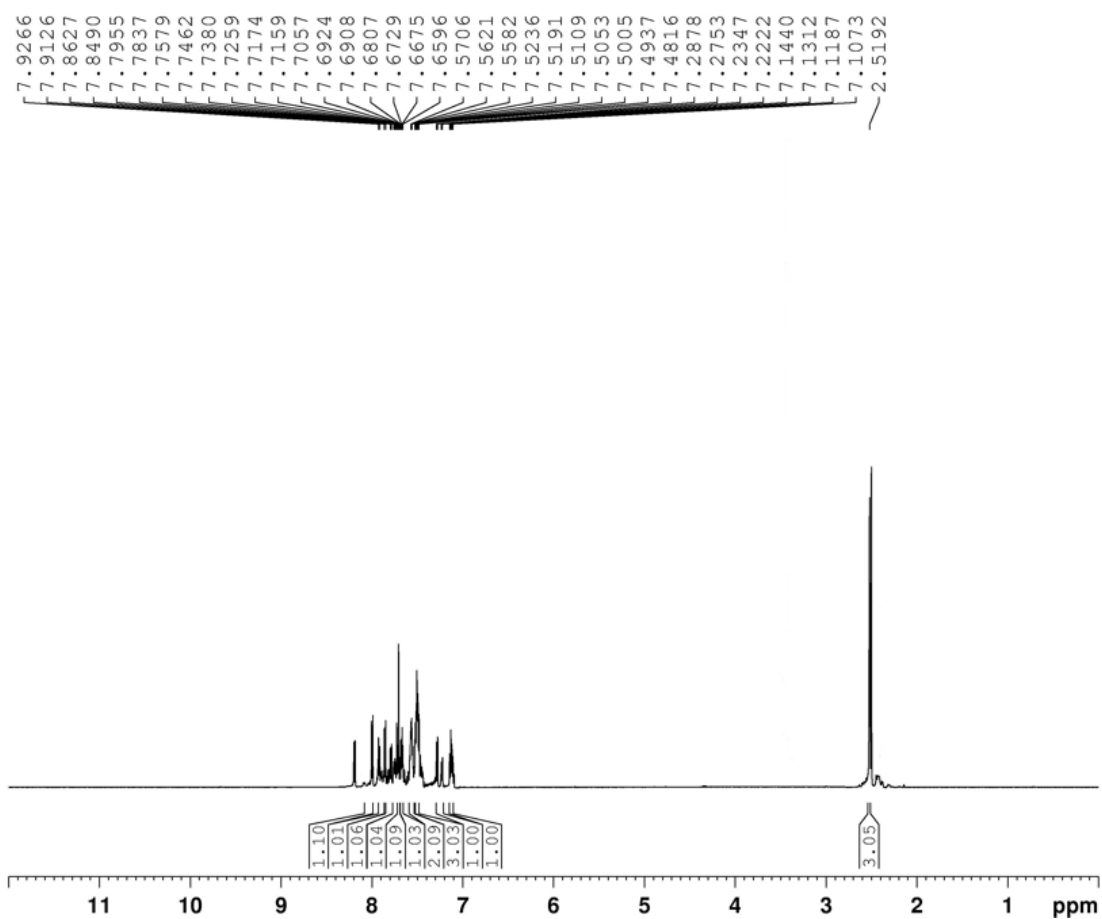


Figure S19. ¹H NMR spectrum of compound A2 (600 MHz, DMSO).

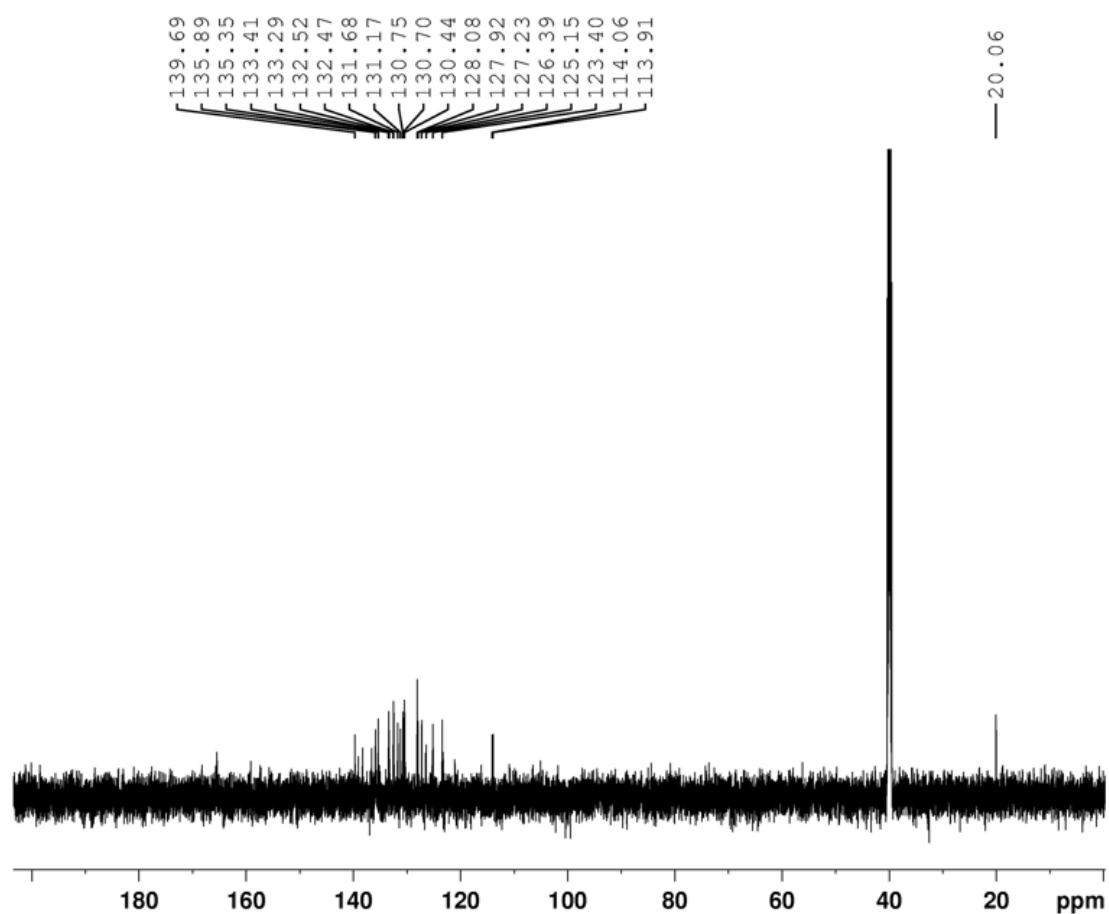


Figure S20. ¹³C NMR spectrum of compound A2 (151 MHz, DMSO).

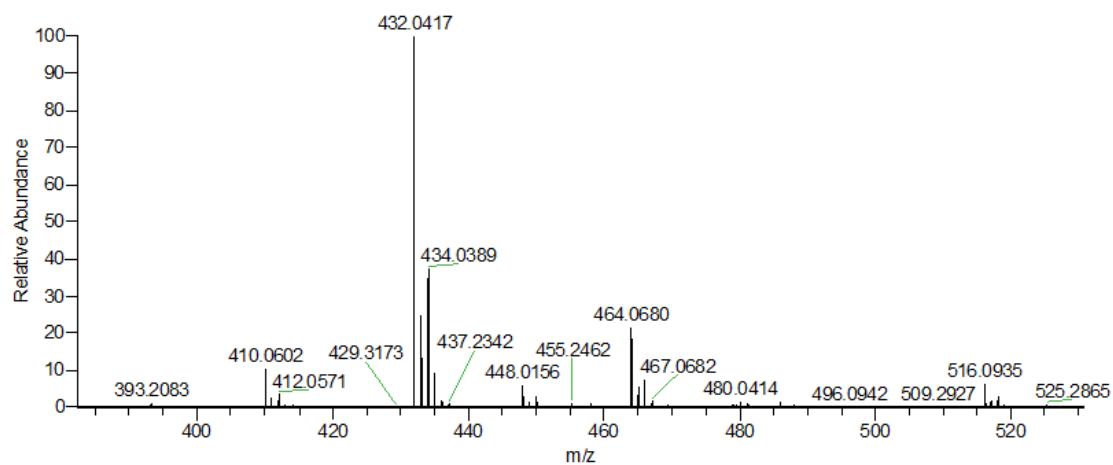


Figure S21. High resolution mass spectrum of compound A2.

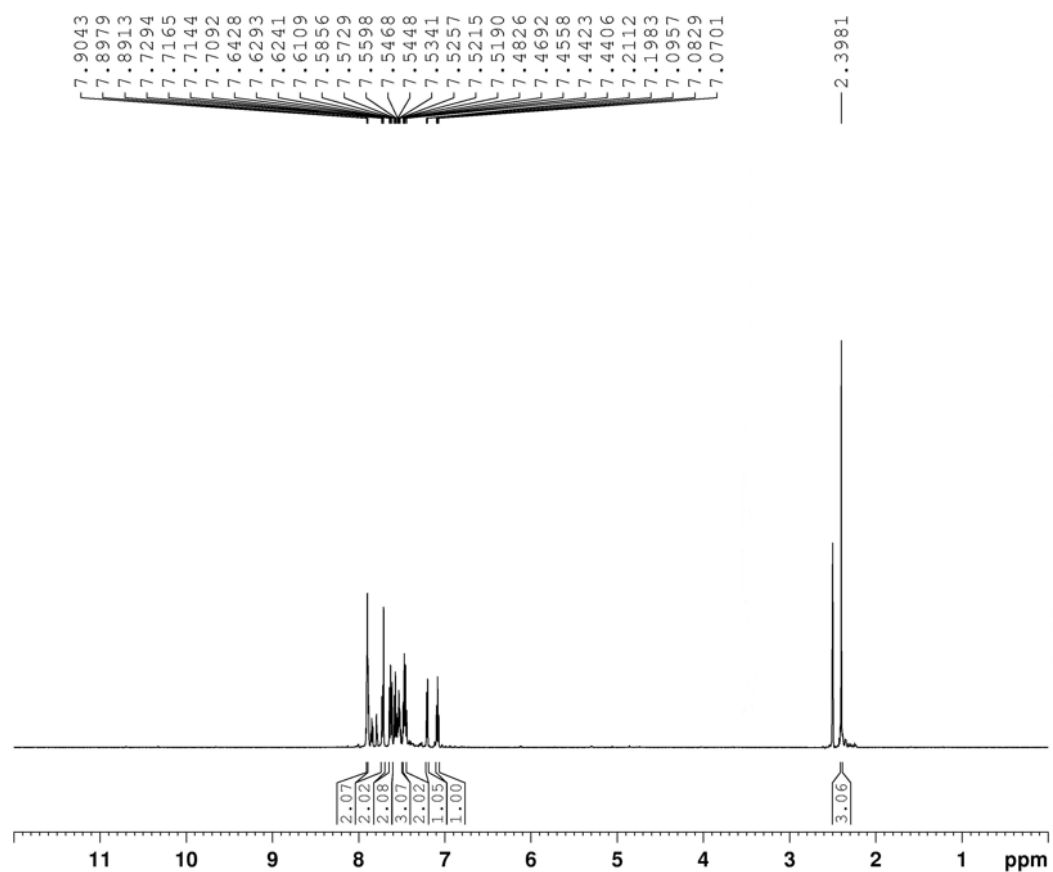


Figure S22. ¹H NMR spectrum of compound A3 (600 MHz, DMSO).

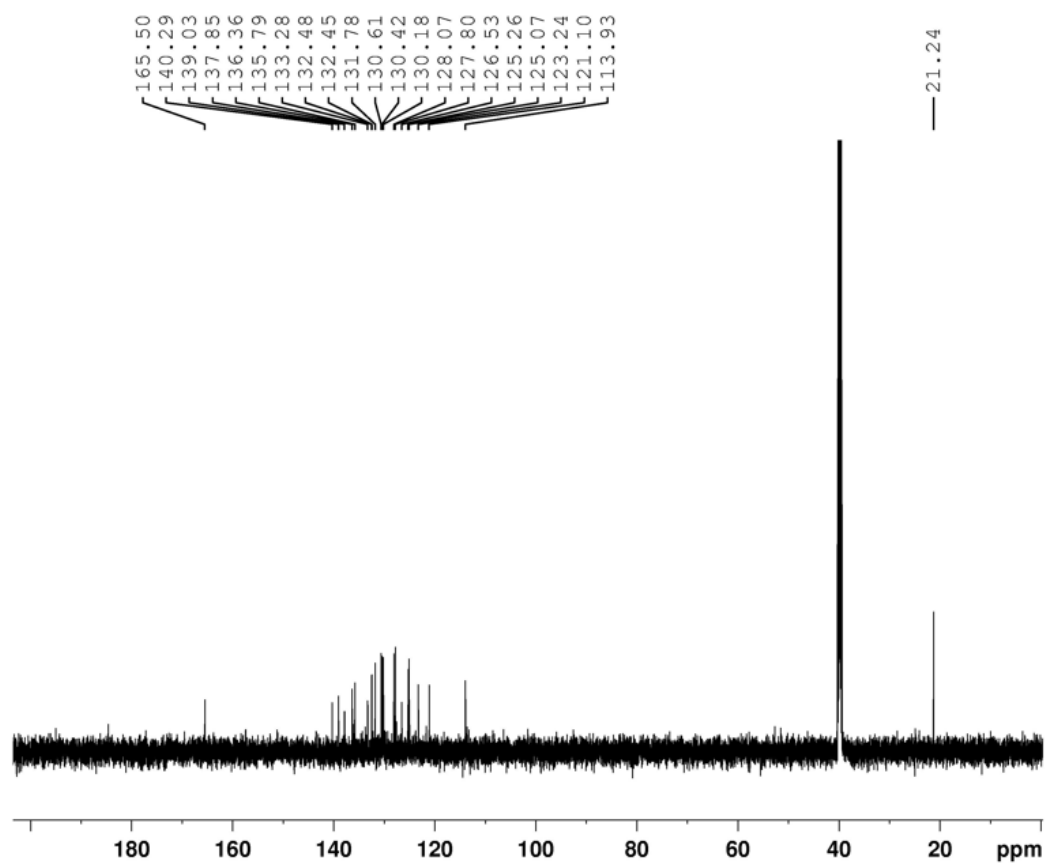


Figure S23. ¹³C NMR spectrum of compound A3 (151 MHz, DMSO).

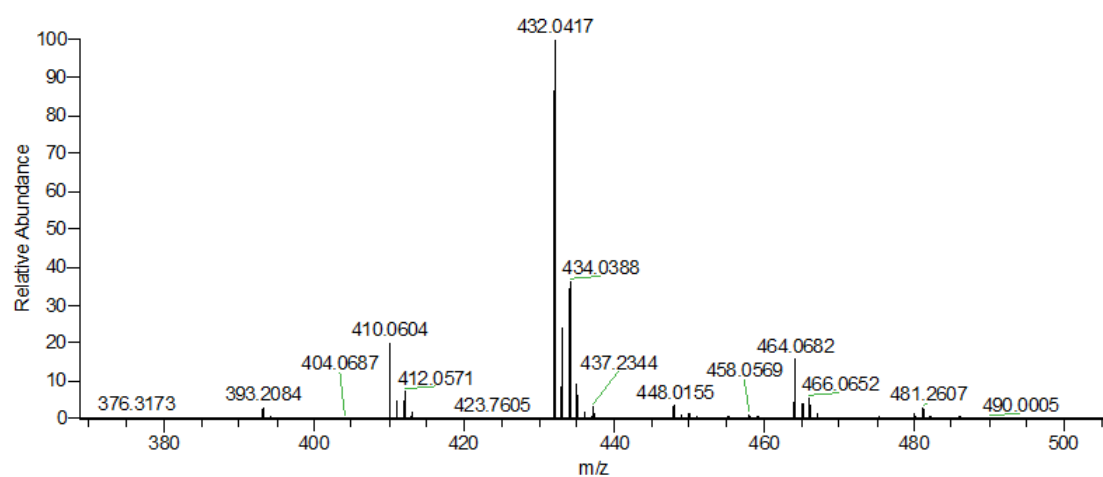


Figure S24. High resolution mass spectrum of compound A3.

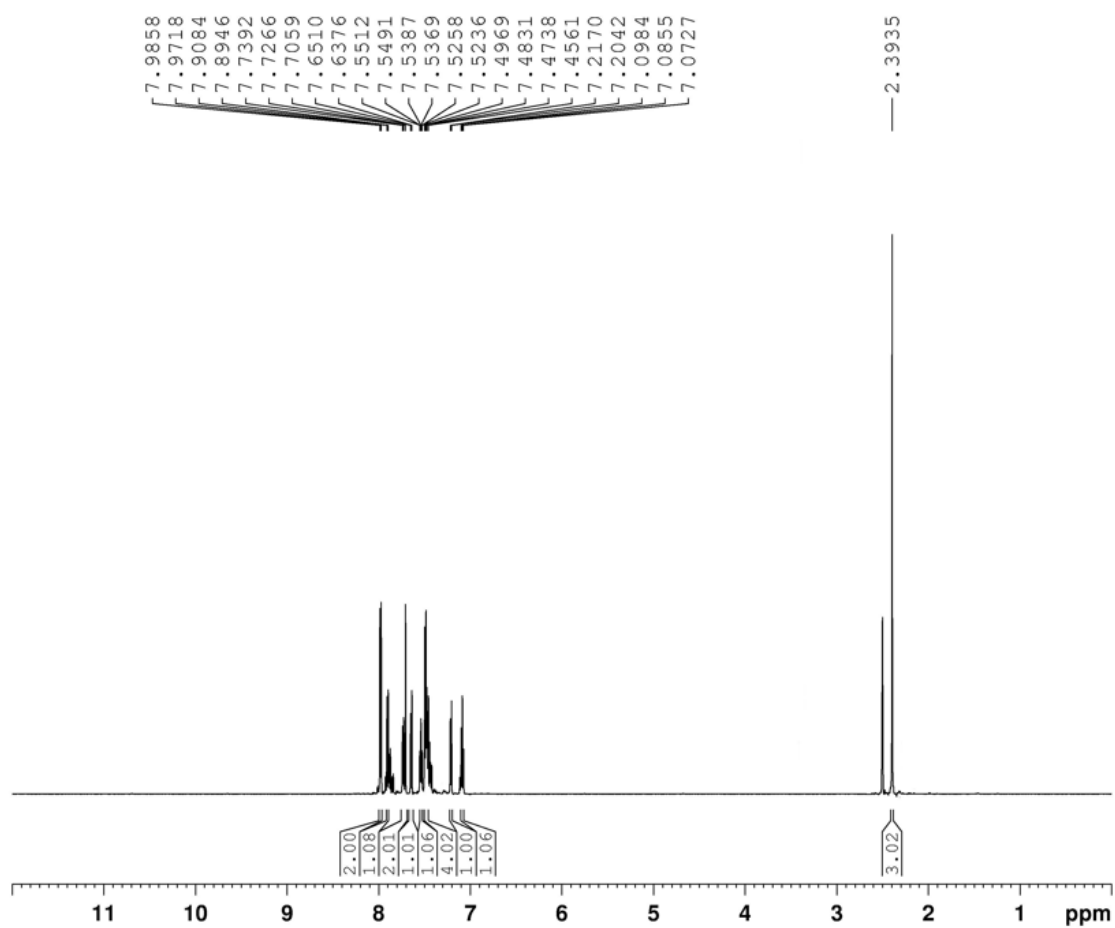


Figure S25. ¹H NMR spectrum of compound A4 (600 MHz, DMSO).

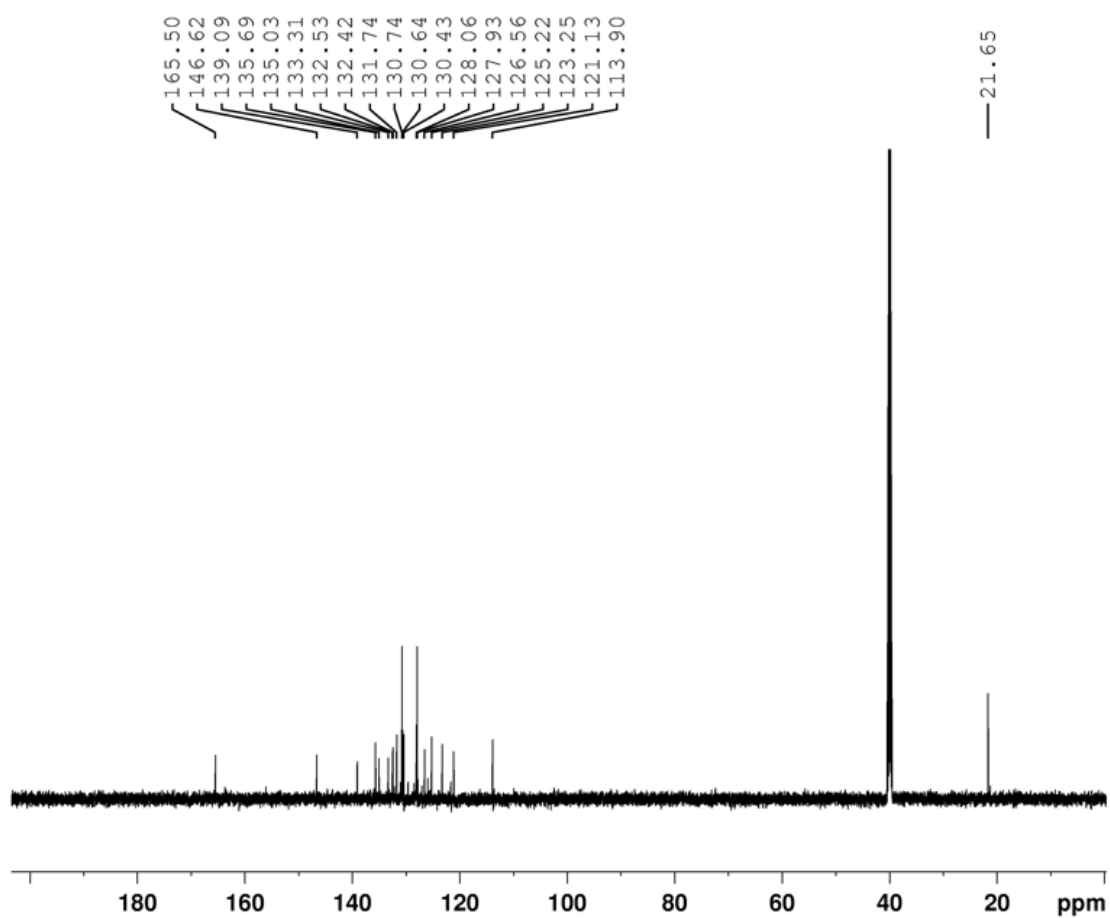


Figure S26. ¹³C NMR spectrum of compound A4 (151 MHz, DMSO).

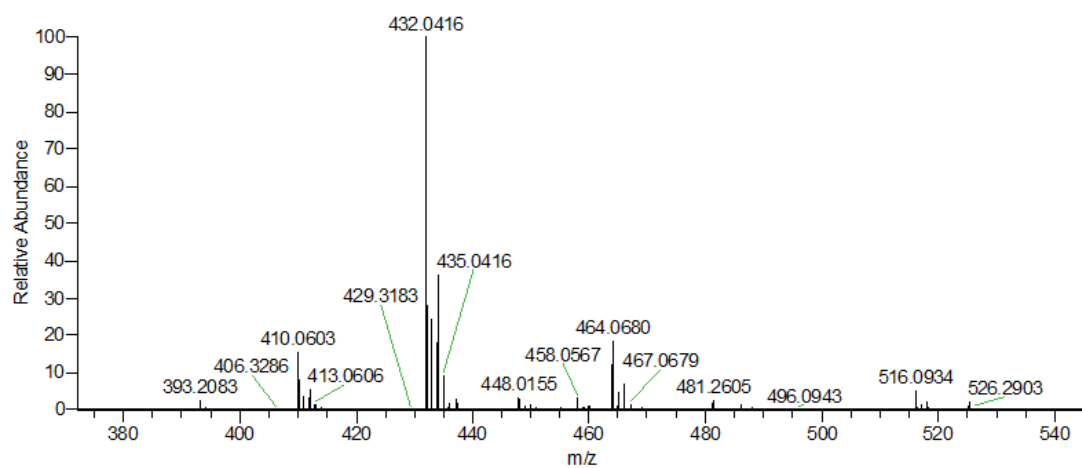


Figure S27. High resolution mass spectrum of compound A4.

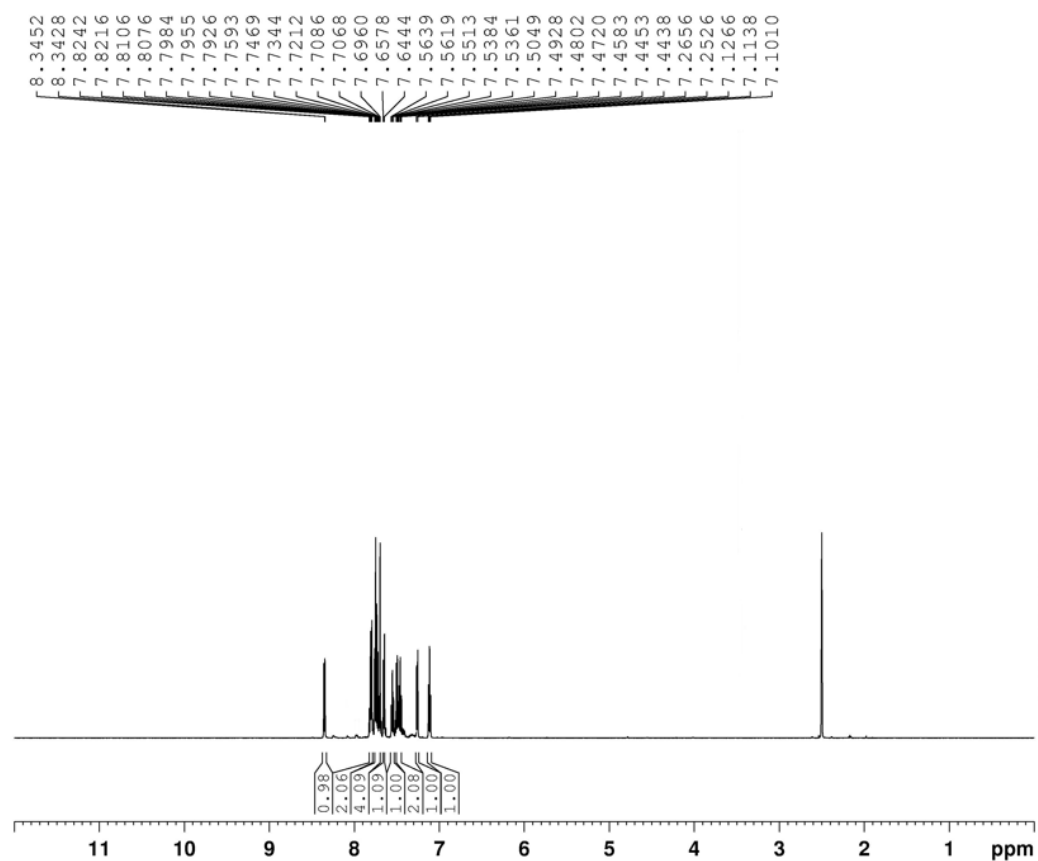


Figure S28. ¹H NMR spectrum of compound A5 (600 MHz, DMSO).

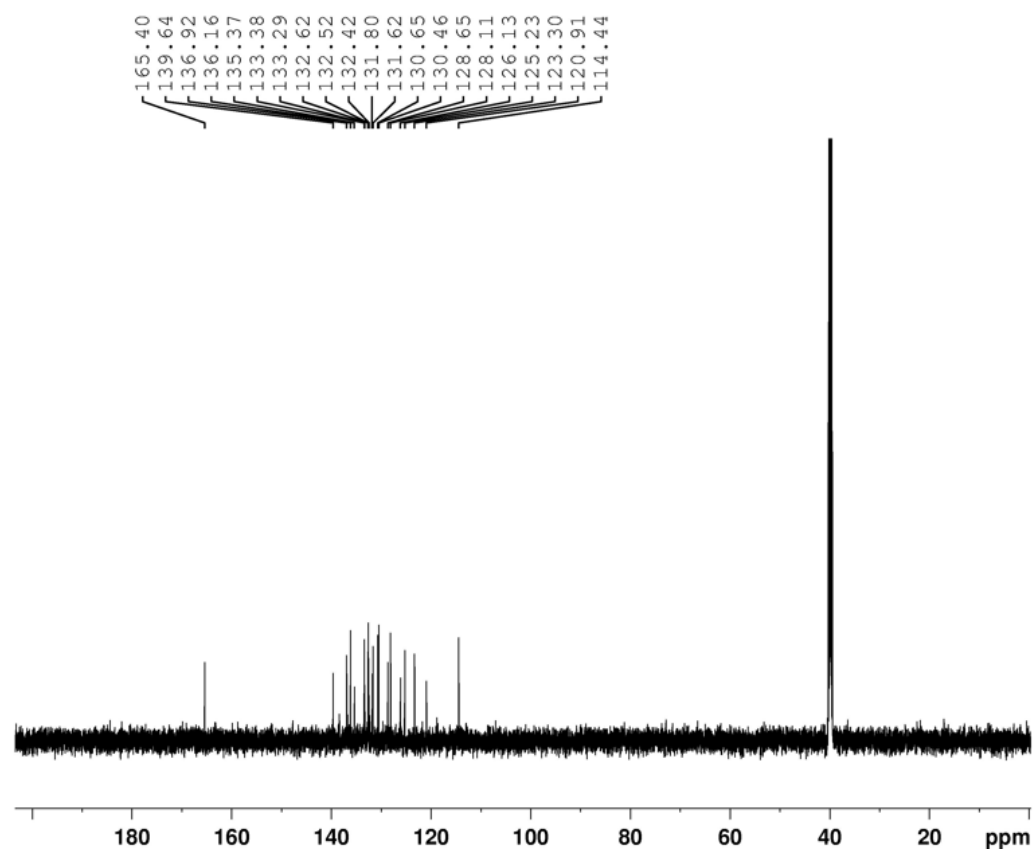


Figure S29. ¹³C NMR spectrum of compound A5 (151 MHz, DMSO).

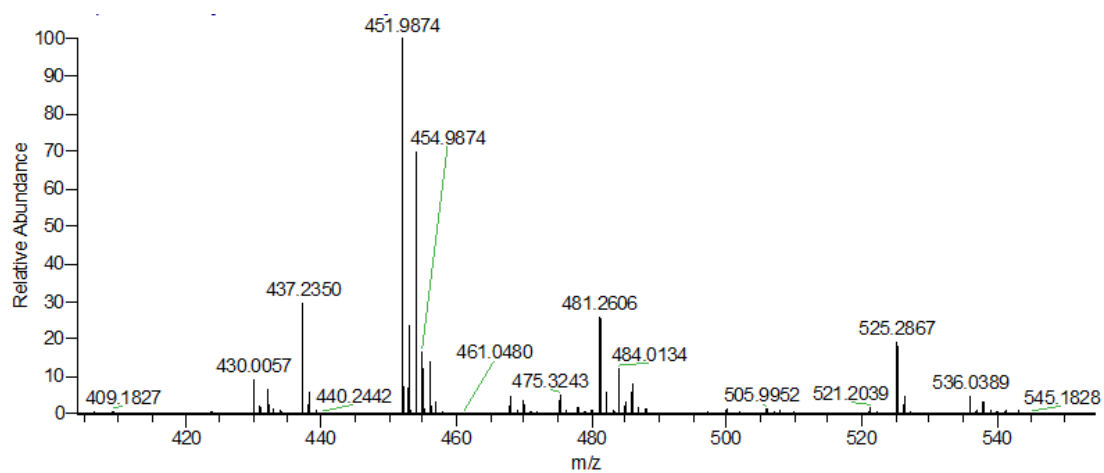


Figure S30. High resolution mass spectrum of compound A5.

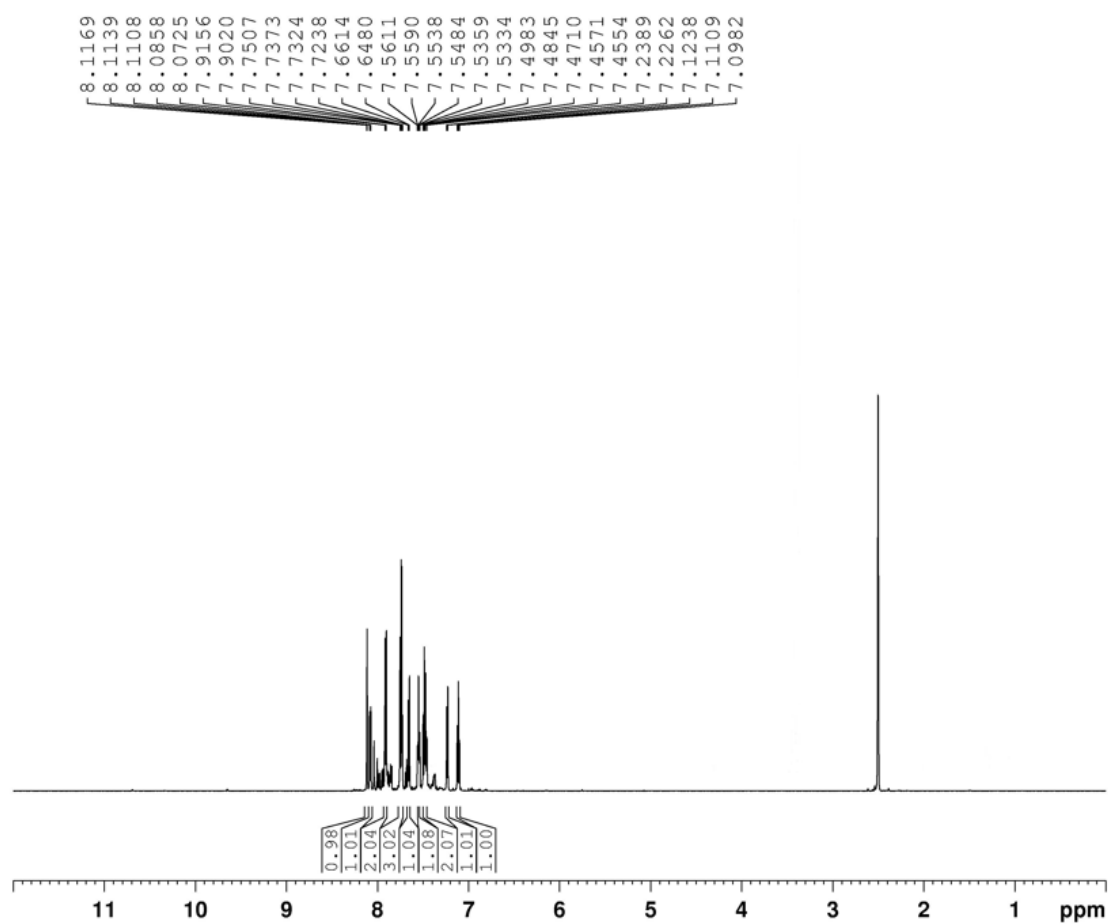


Figure S31. ¹H NMR spectrum of compound A6 (600 MHz, DMSO).

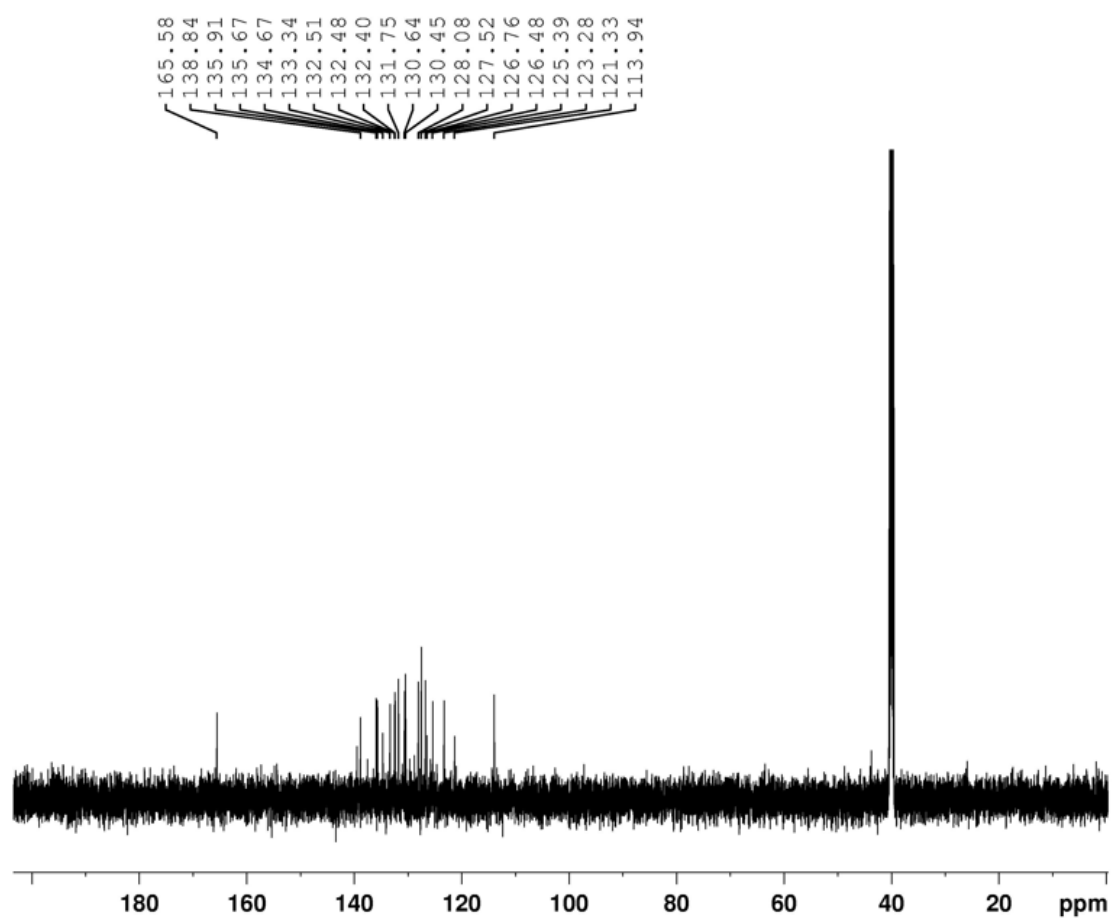


Figure S32. ¹³C NMR spectrum of compound A6 (151 MHz, DMSO).

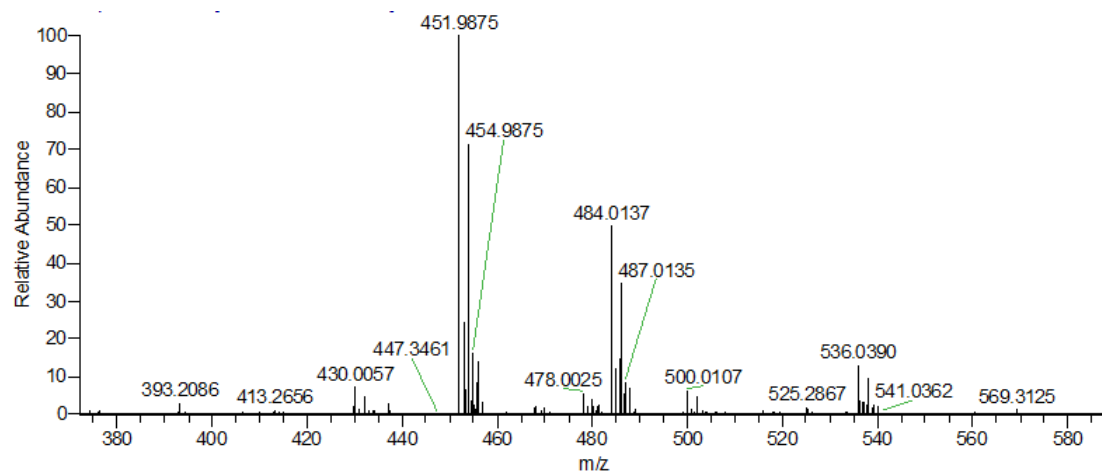


Figure S33. High resolution mass spectrum of compound A6.

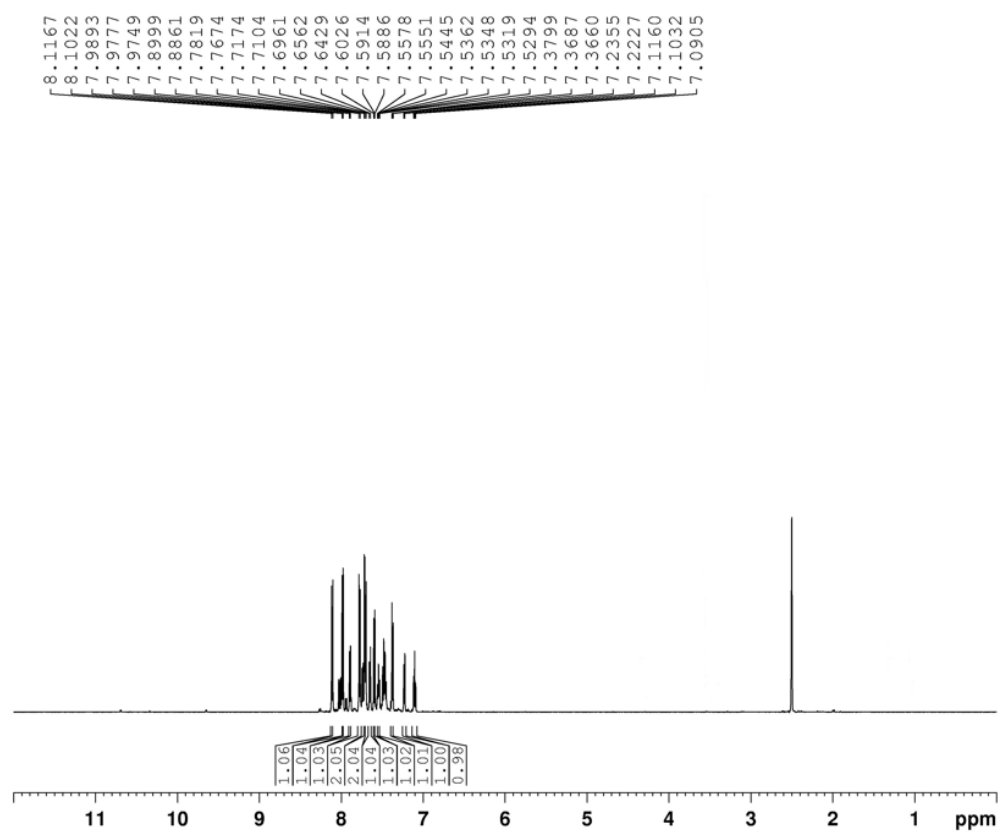


Figure S34. ¹H NMR spectrum of compound A7 (600 MHz, DMSO).

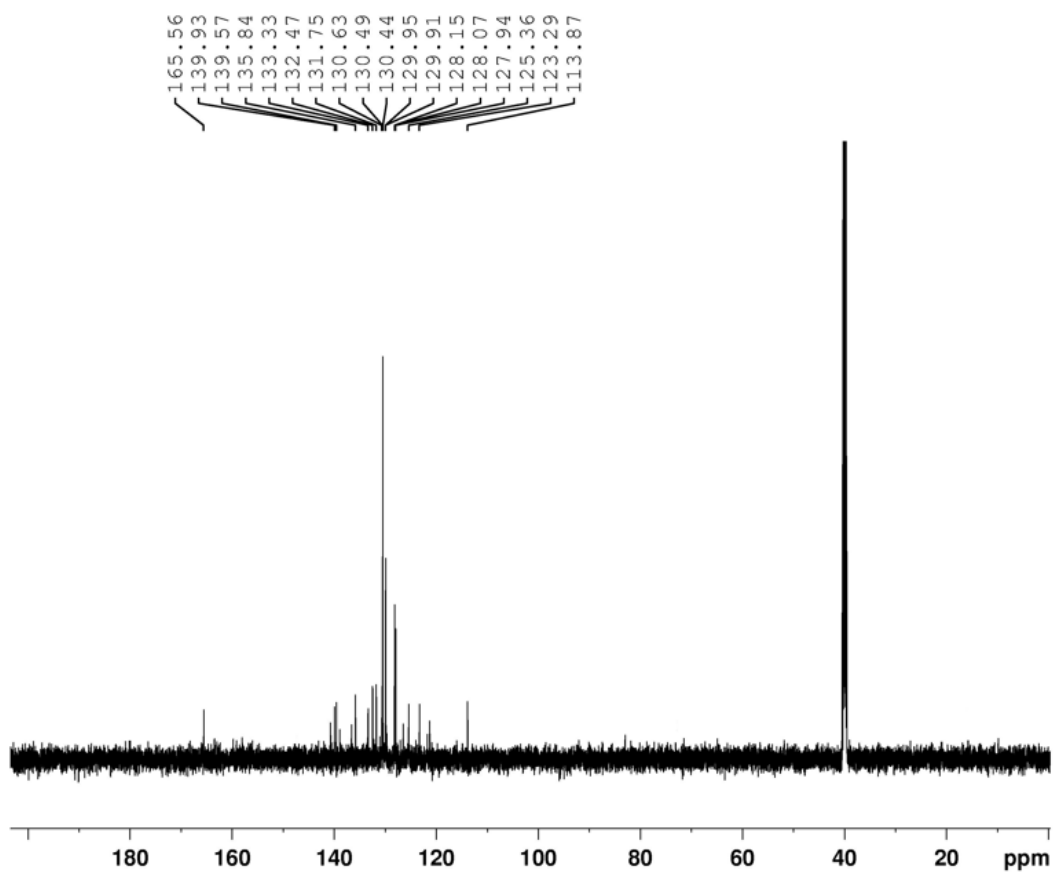


Figure S35. ¹³C NMR spectrum of compound A7 (151 MHz, DMSO).

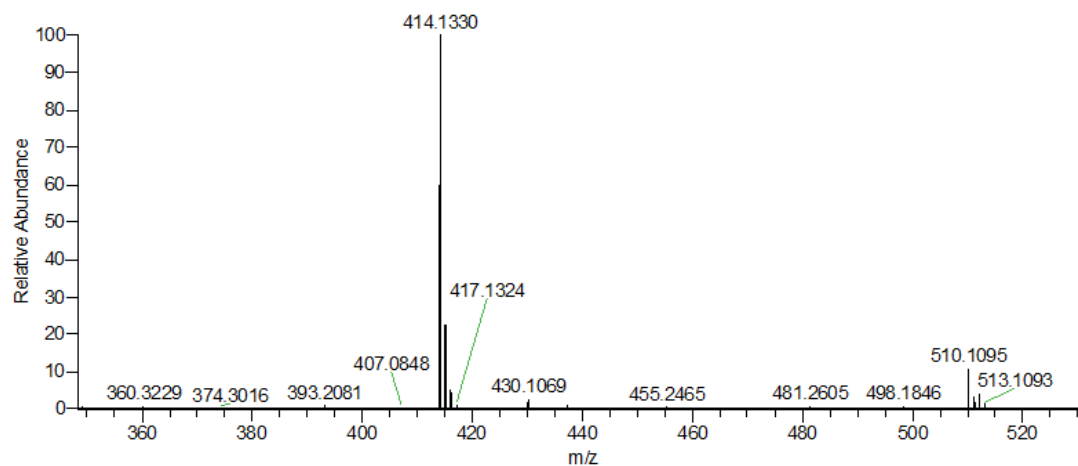


Figure S36. High resolution mass spectrum of compound A7.

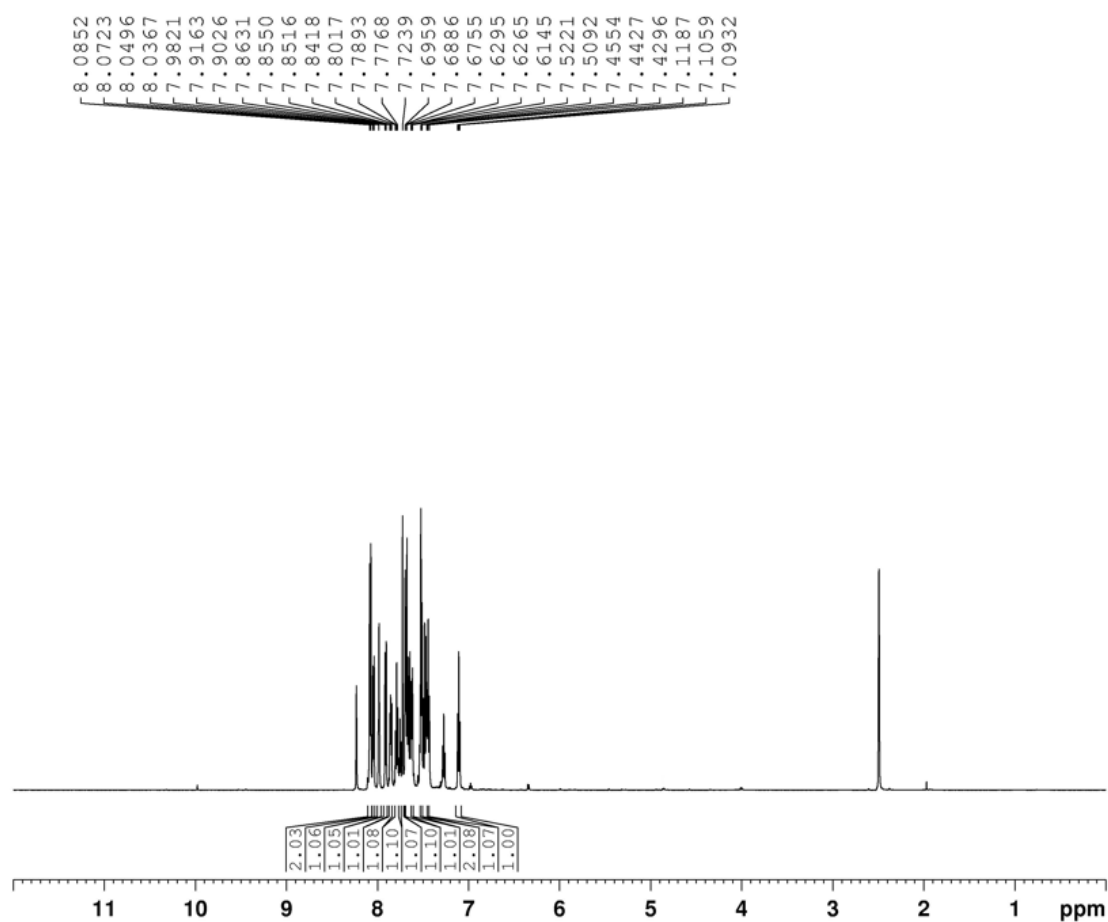


Figure S37. ^1H NMR spectrum of compound A8 (600 MHz, DMSO).

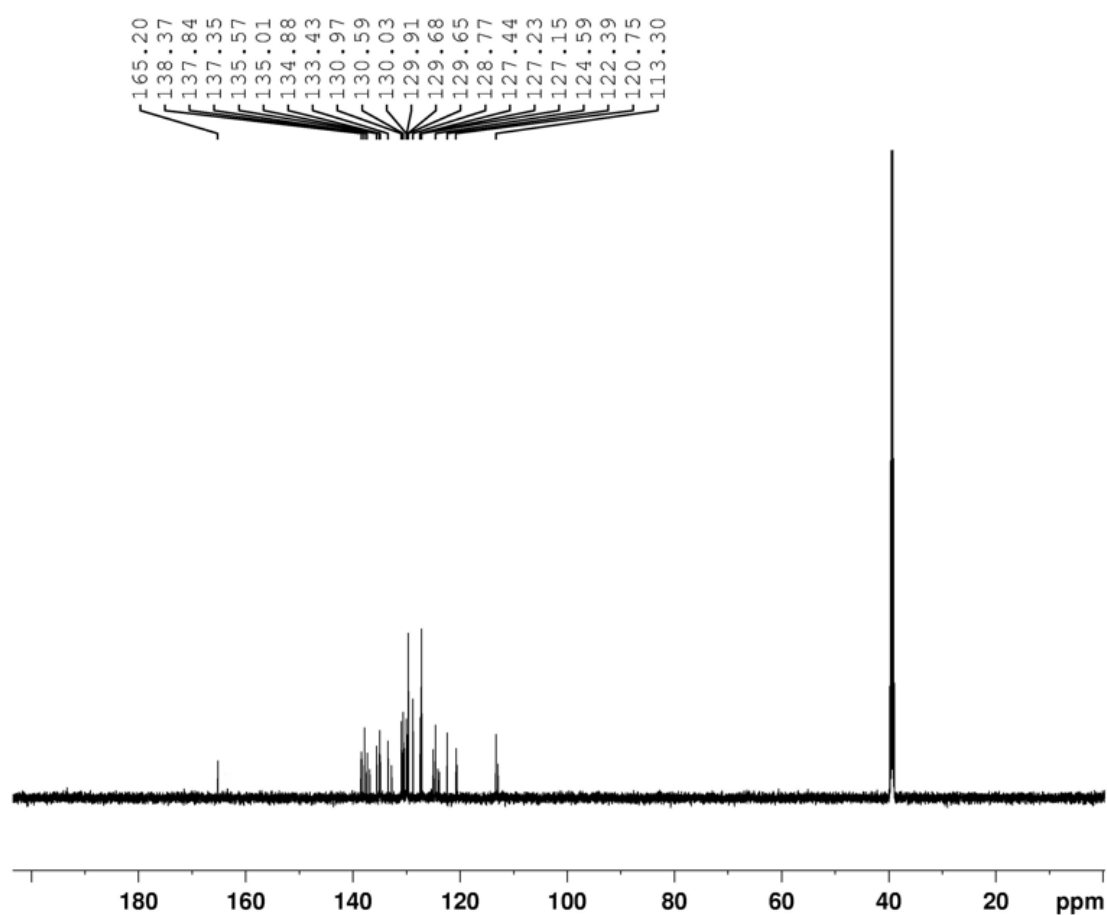


Figure S38. ¹³C NMR spectrum of compound A8 (151 MHz, DMSO).

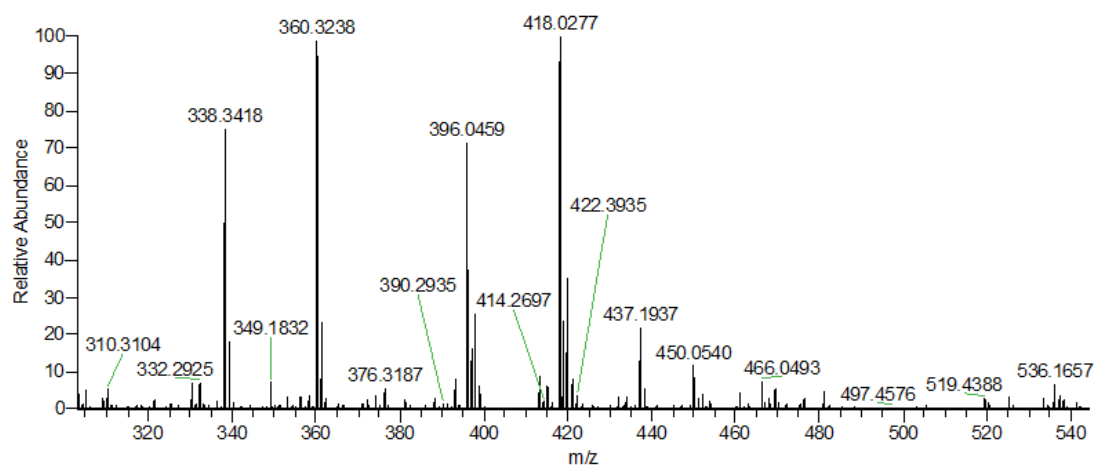


Figure S39. High resolution mass spectrum of compound A8.

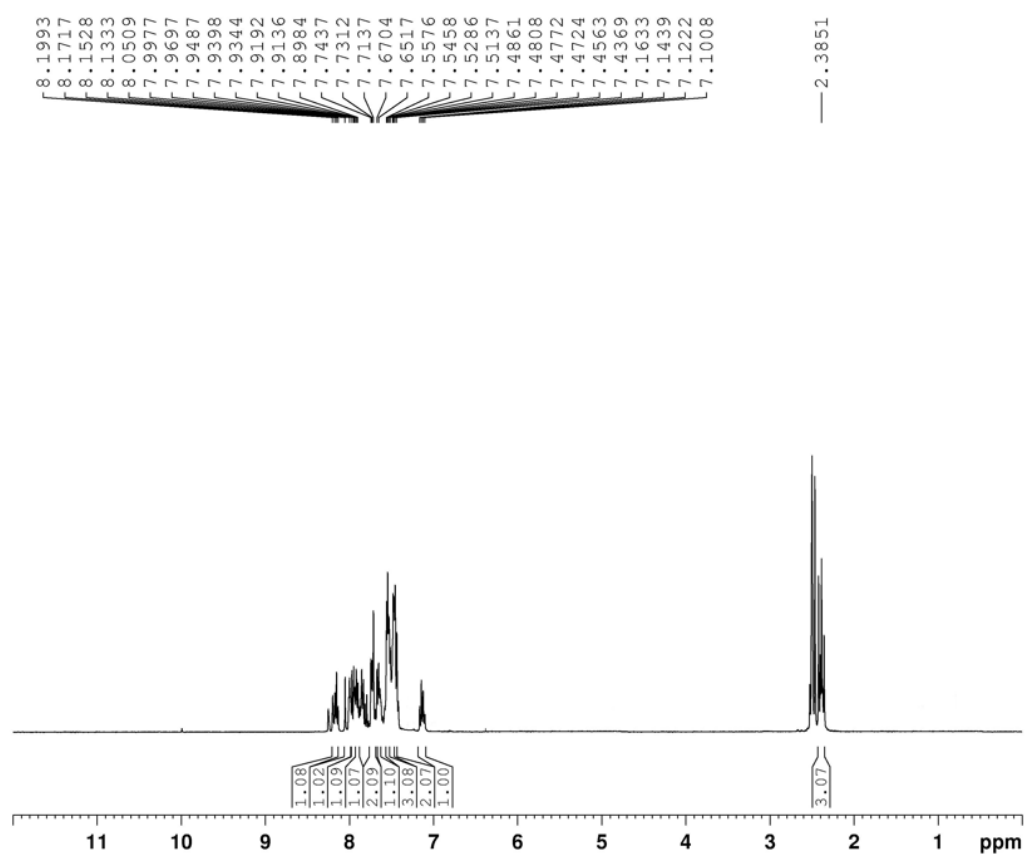


Figure S40. ¹H NMR spectrum of compound A9 (400 MHz, DMSO).

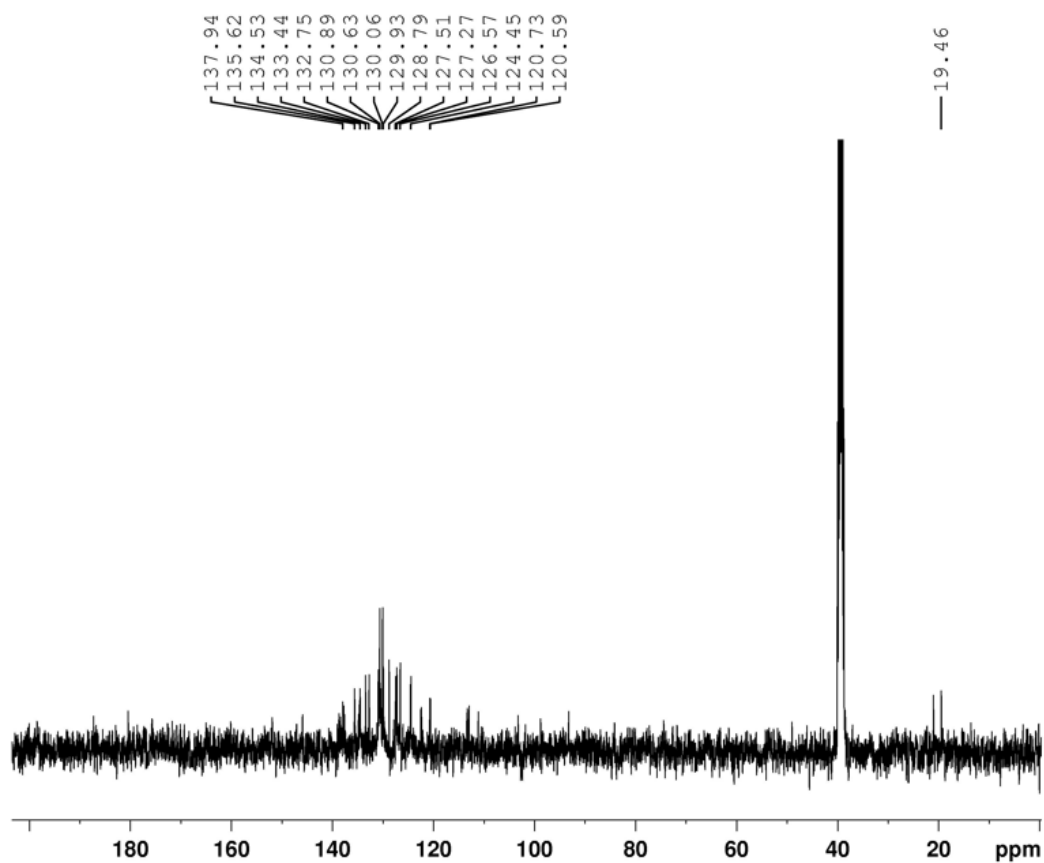


Figure S41. ¹³C NMR spectrum of compound A9 (101 MHz, DMSO).

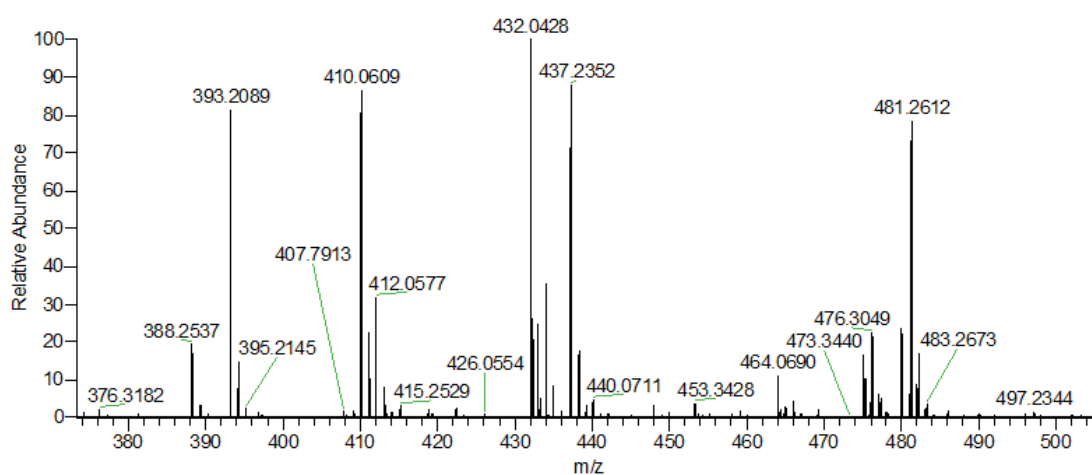


Figure S42. High resolution mass spectrum of compound A9.

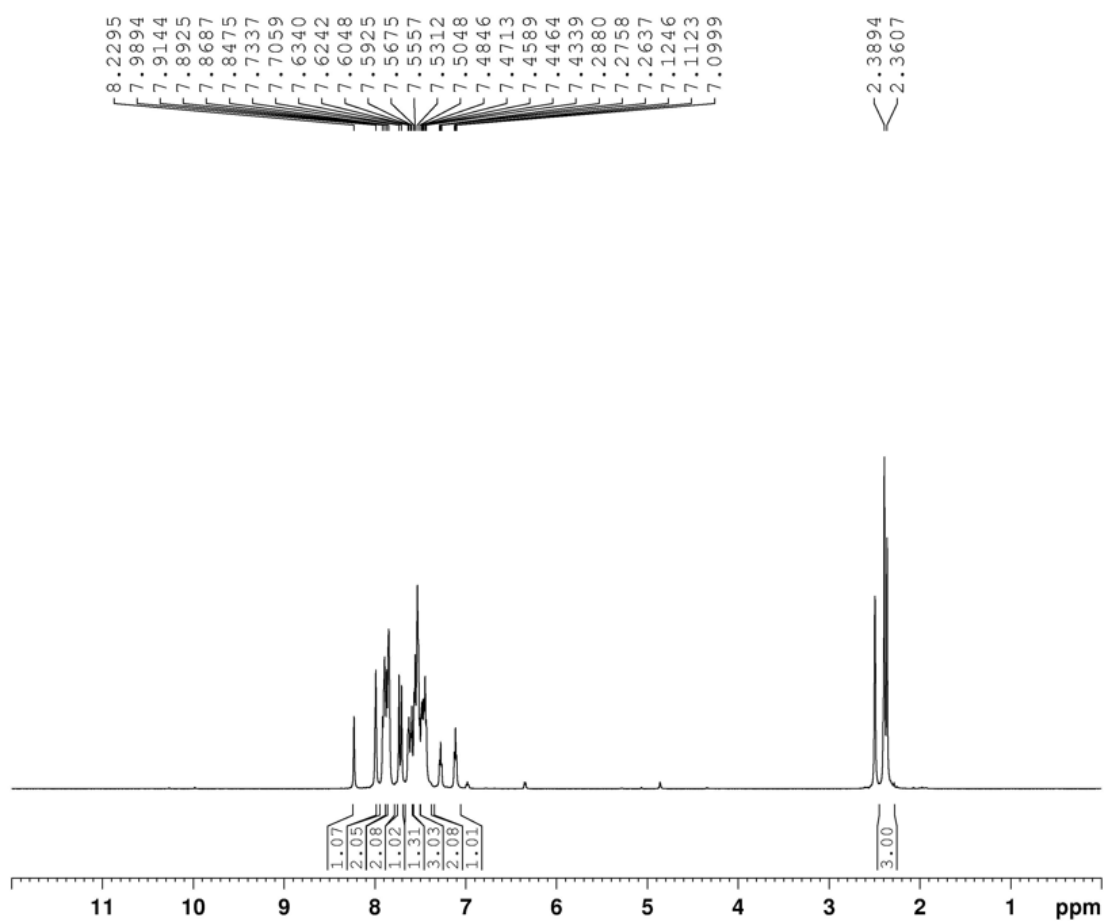


Figure S43. ¹H NMR spectrum of compound A10 (600 MHz, DMSO).

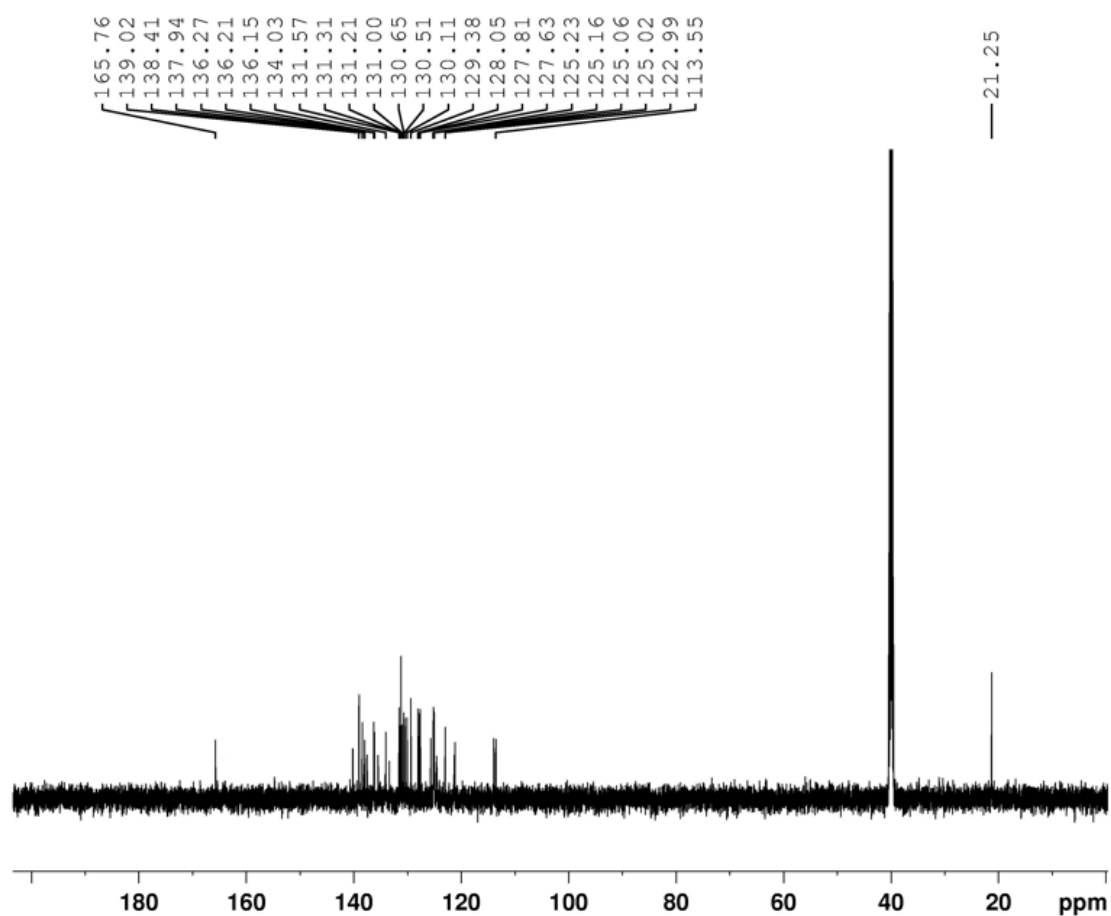


Figure S44. ^{13}C NMR spectrum of compound A10 (151 MHz, DMSO).

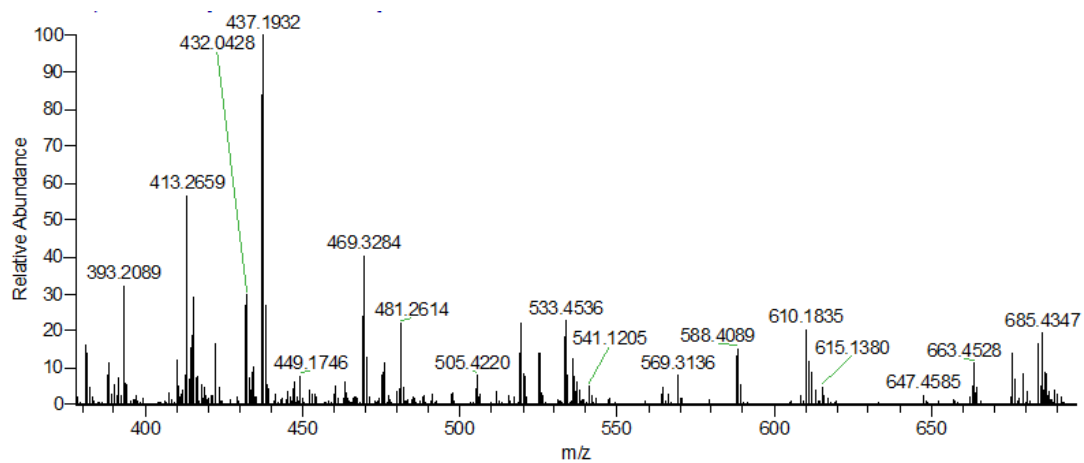


Figure S45. High resolution mass spectrum of compound A10.

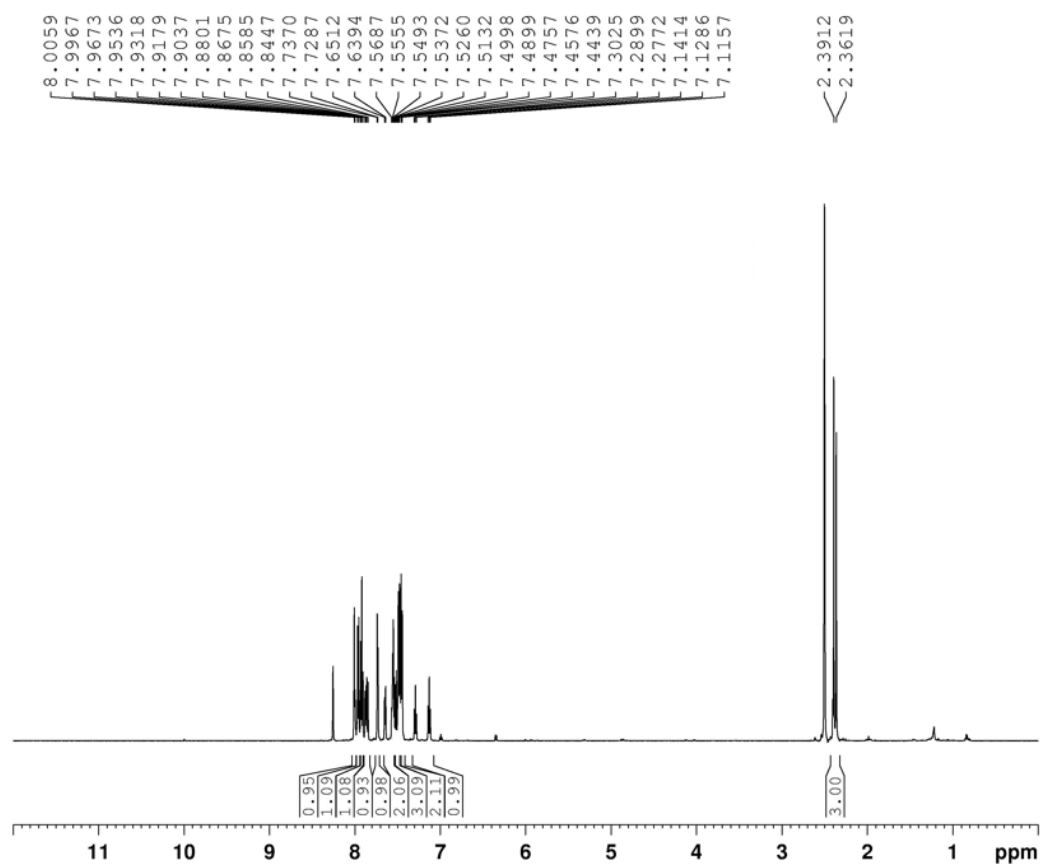


Figure S46. ¹H NMR spectrum of compound A11 (600 MHz, DMSO).

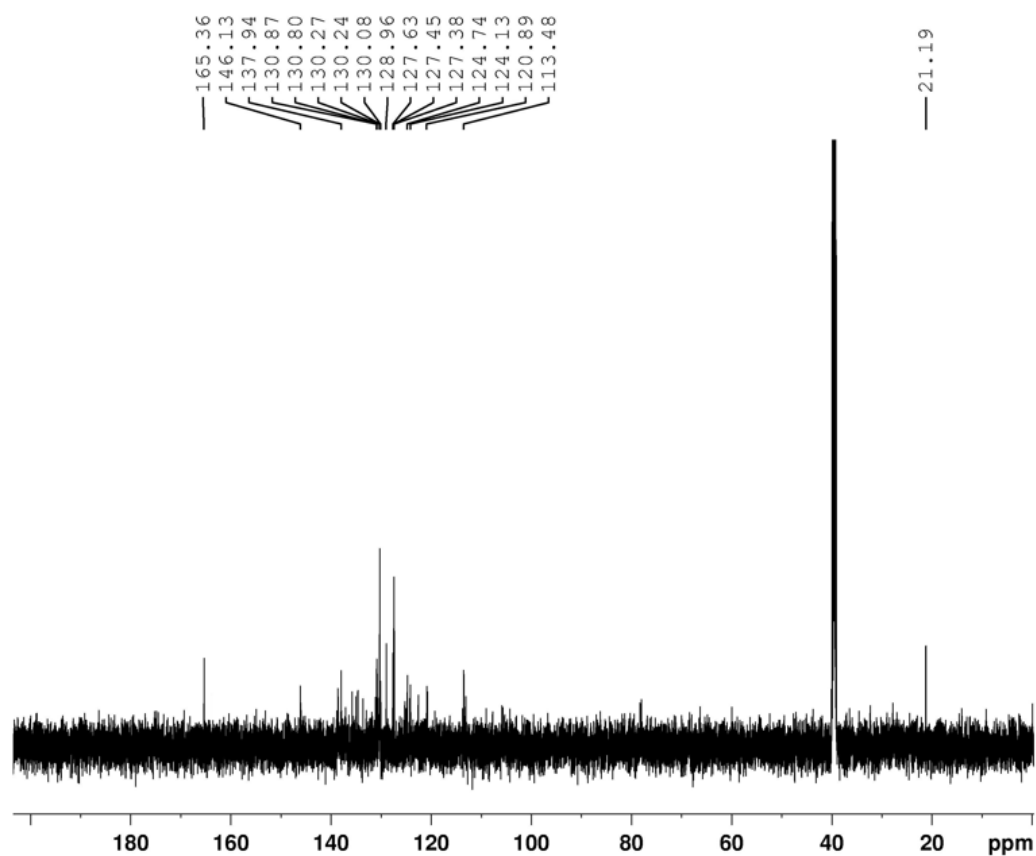


Figure S47. ¹³C NMR spectrum of compound A11 (151 MHz, DMSO).

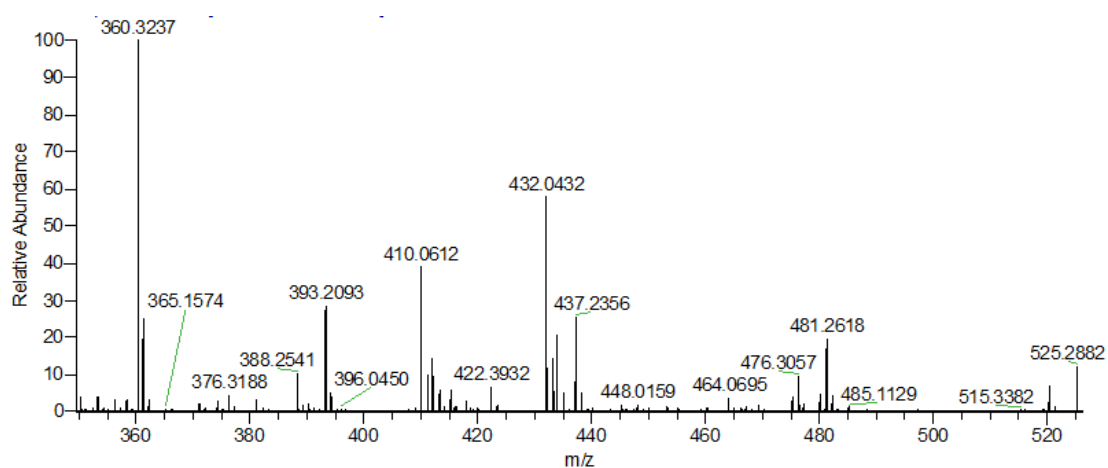


Figure S48. High resolution mass spectrum of compound A11.

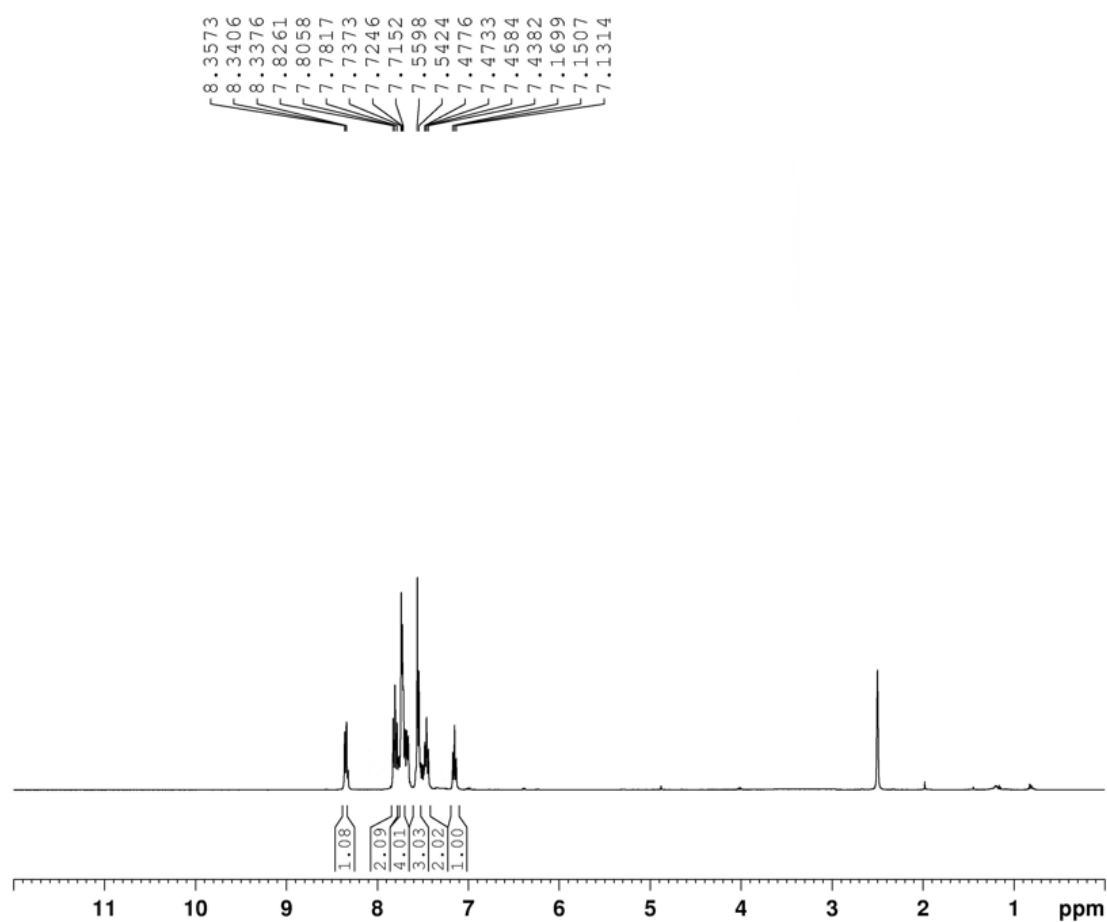


Figure S49. ¹H NMR spectrum of compound A12 (400 MHz, DMSO).

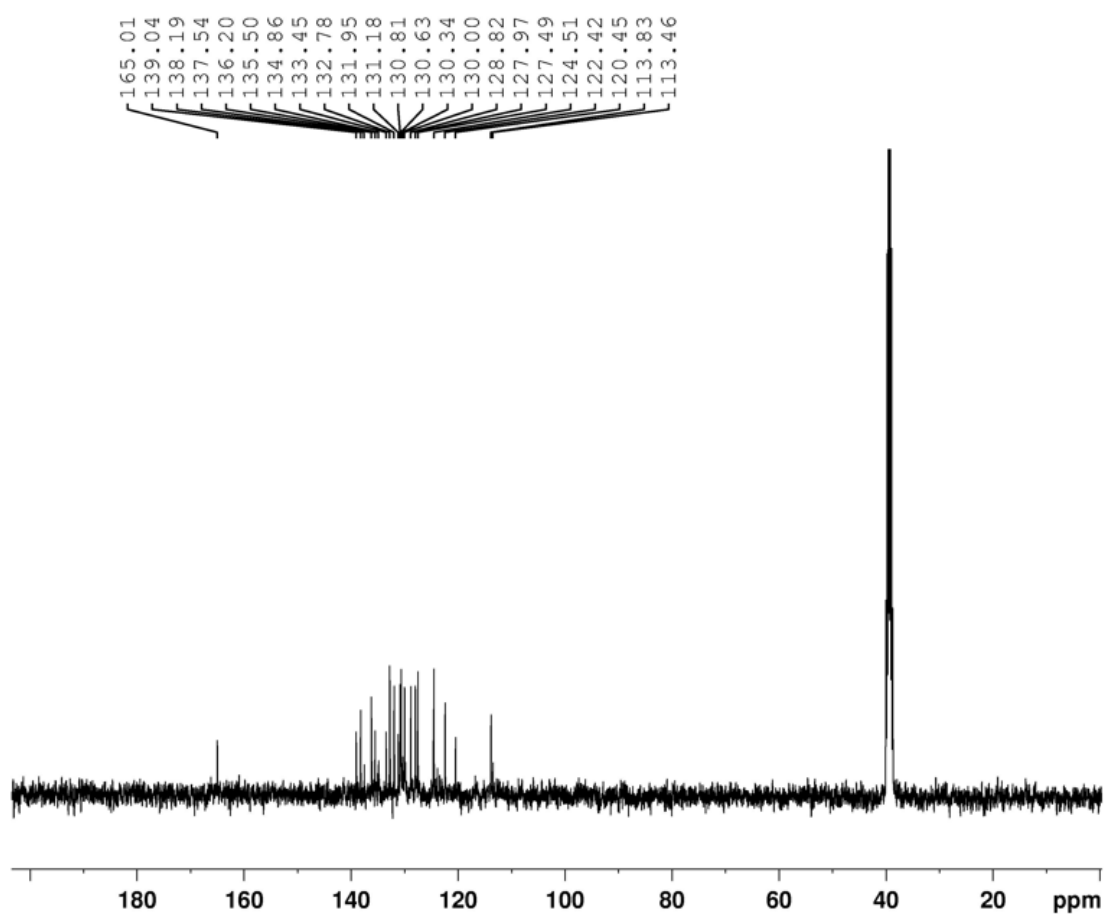


Figure S50. ¹³C NMR spectrum of compound A12 (101 MHz, DMSO).

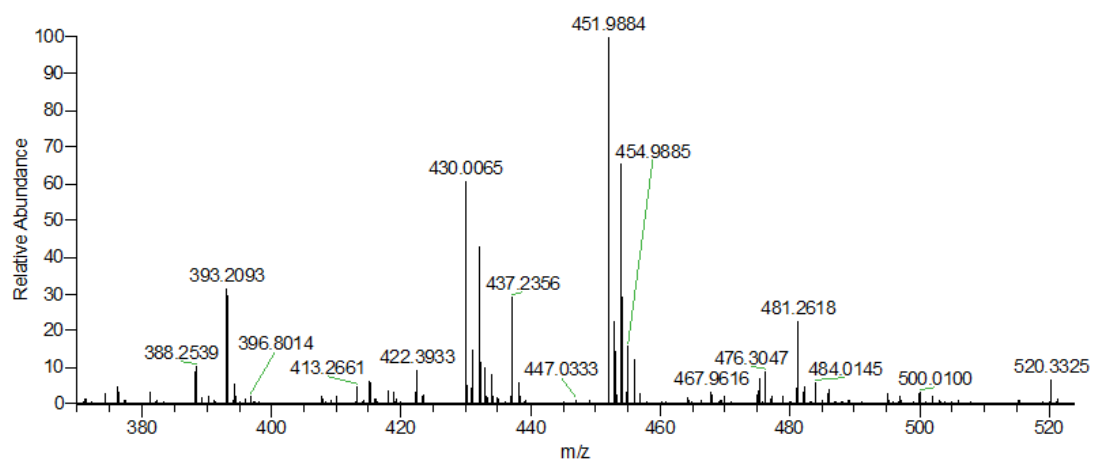


Figure S51. High resolution mass spectrum of compound A12.

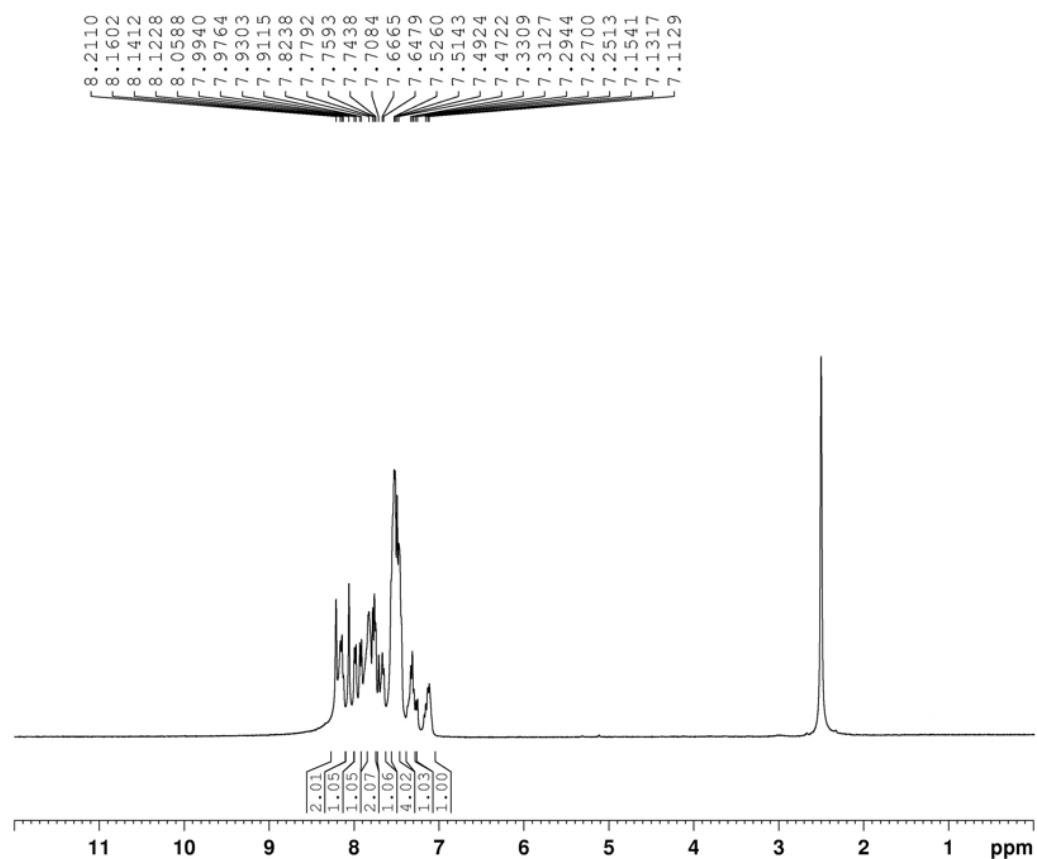


Figure S52. ¹H NMR spectrum of compound A13 (400 MHz, DMSO).

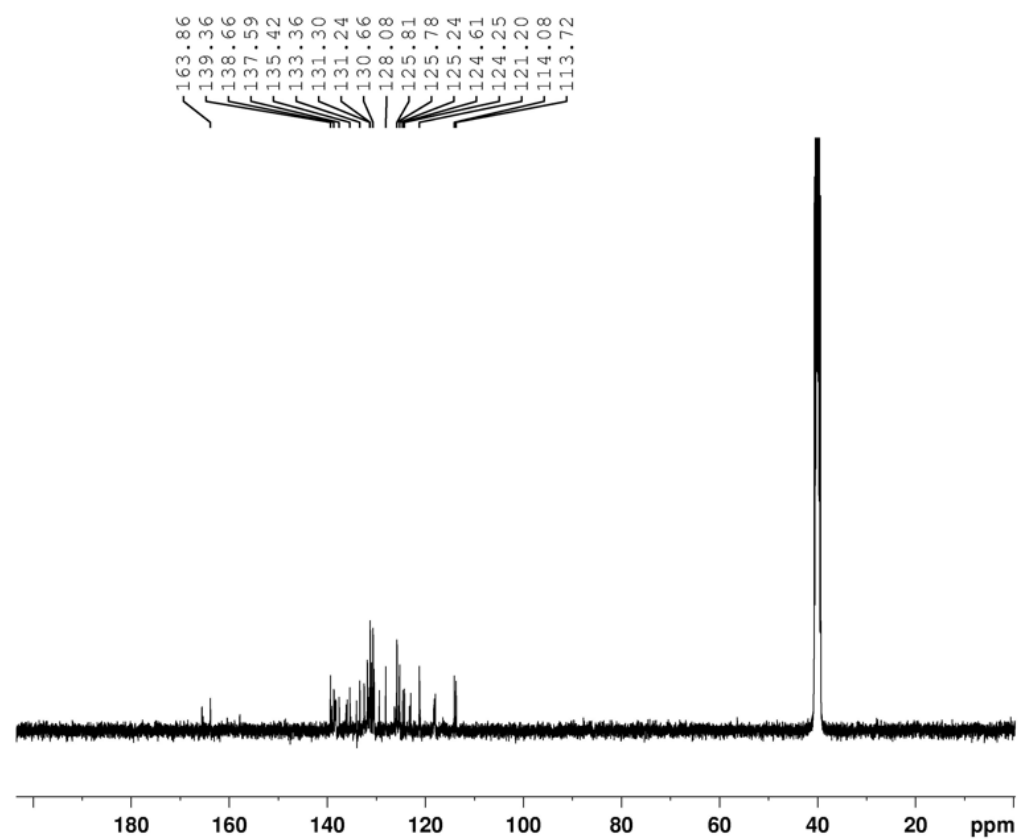


Figure S53. ¹³C NMR spectrum of compound A13 (101 MHz, DMSO).

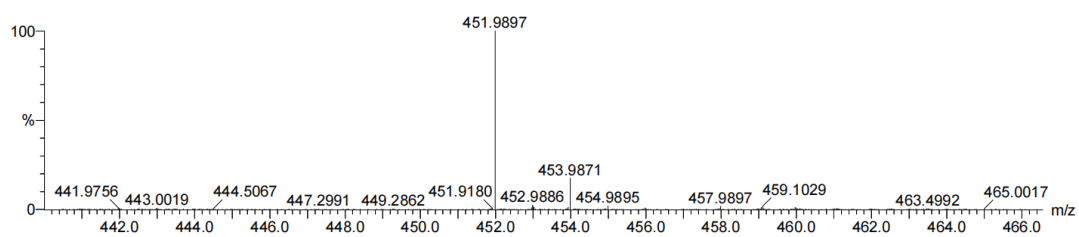


Figure S54. High resolution mass spectrum of compound A13.

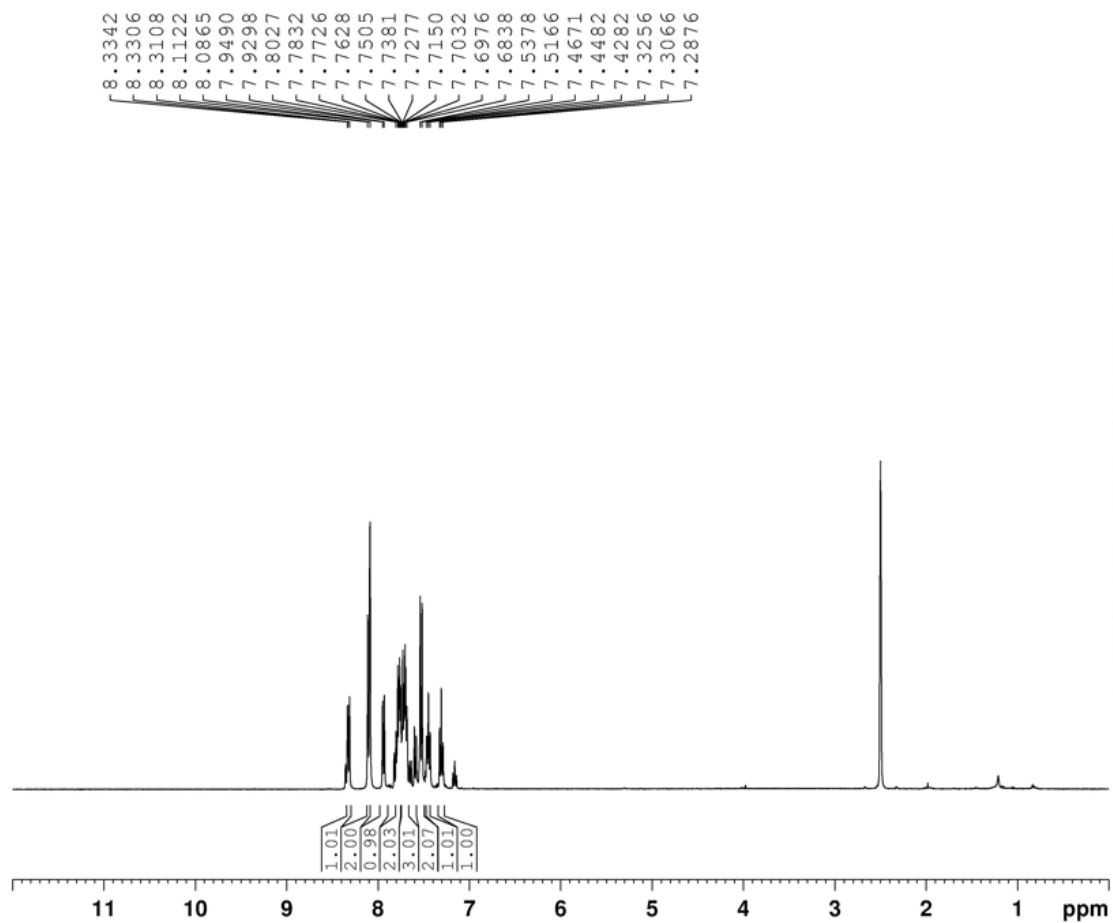


Figure S55. ¹H NMR spectrum of compound A14 (400 MHz, DMSO).

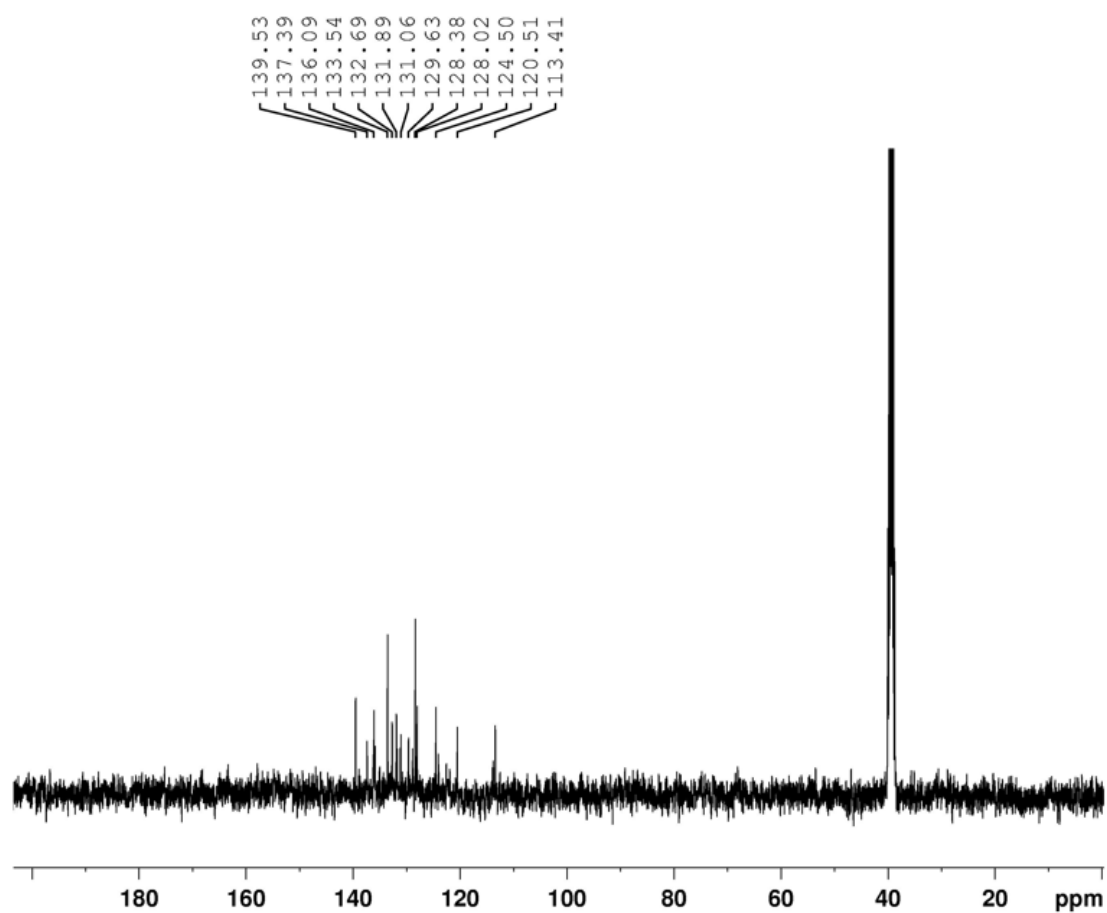


Figure S56. ^{13}C NMR spectrum of compound A14 (101 MHz, DMSO).

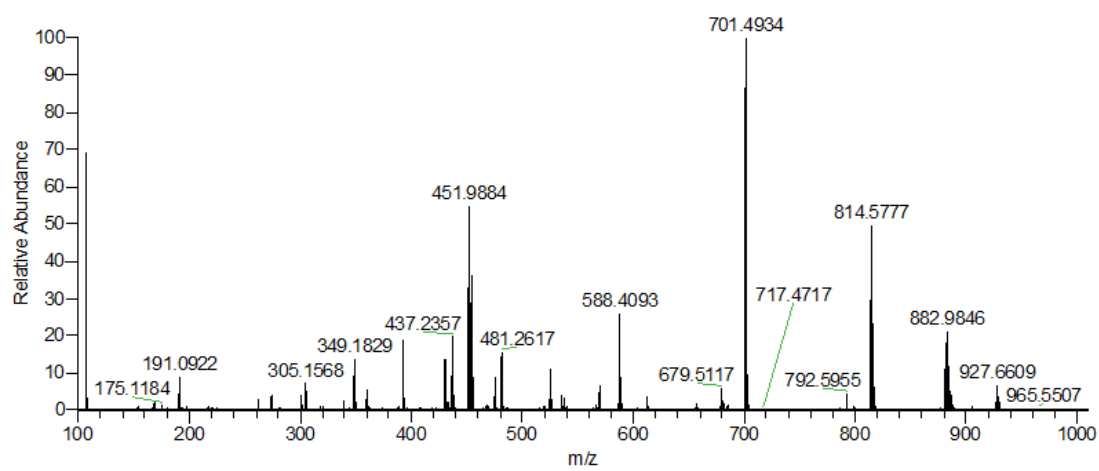


Figure S57. High resolution mass spectrum of compound A14.

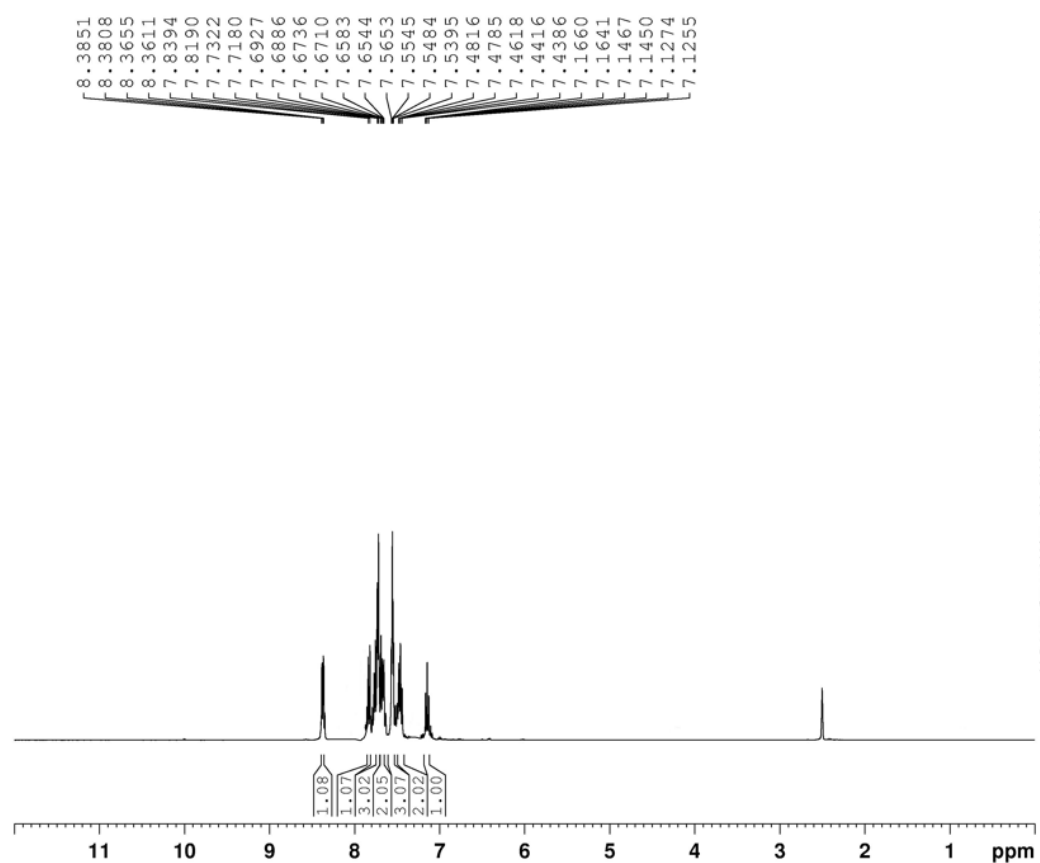


Figure S58. ¹H NMR spectrum of compound A15 (400 MHz, DMSO).

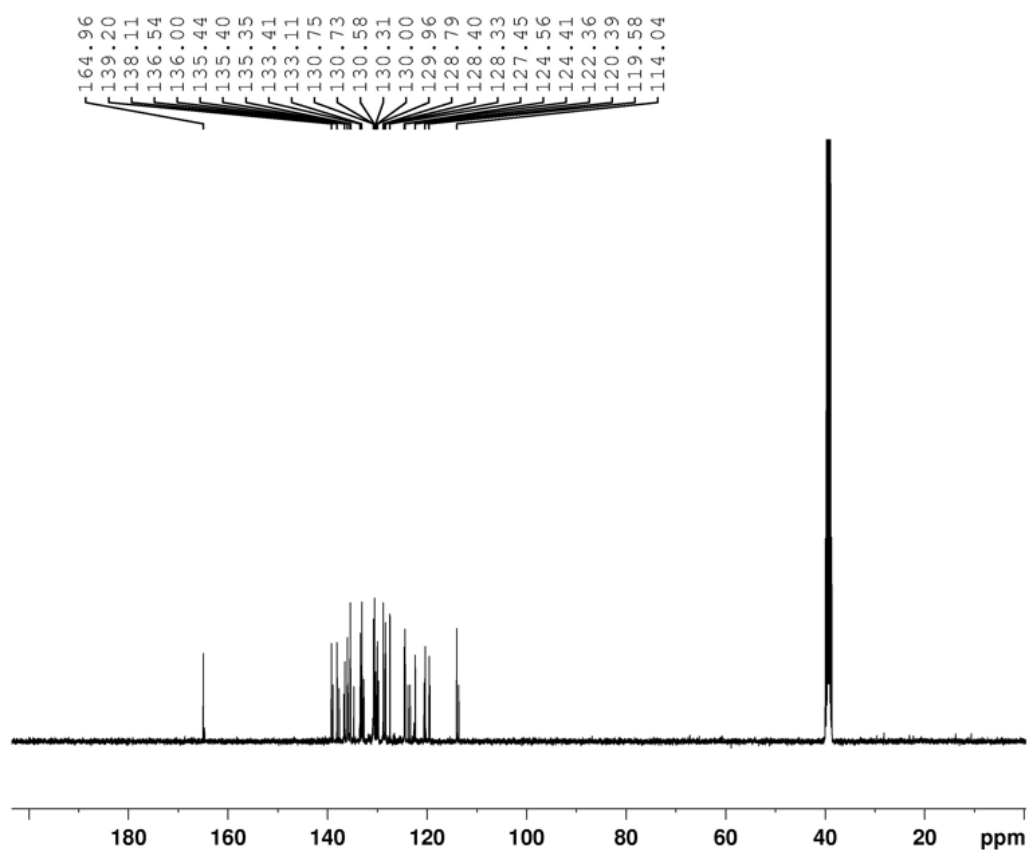


Figure S59. ¹³C NMR spectrum of compound A15 (101 MHz, DMSO).

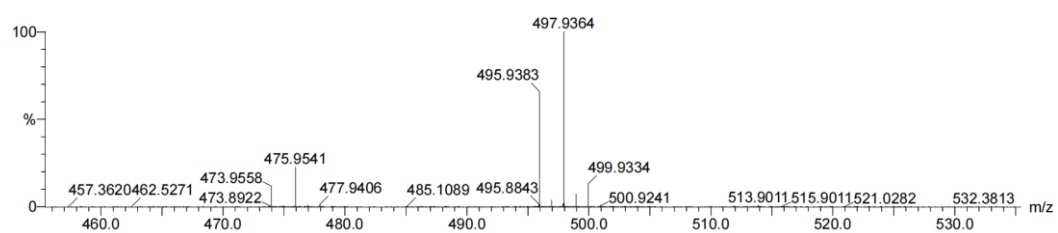


Figure S60. High resolution mass spectrum of compound A15.

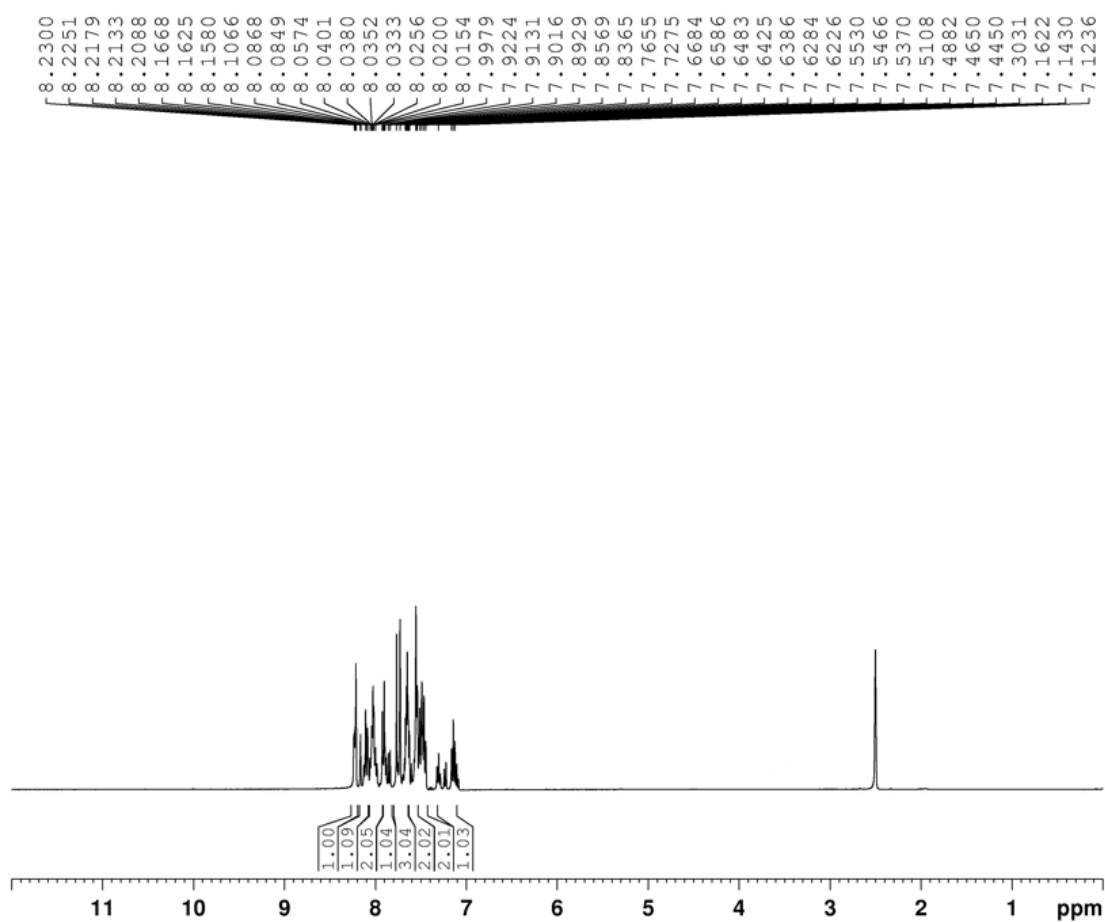


Figure S61. ¹H NMR spectrum of compound A16 (400 MHz, DMSO).

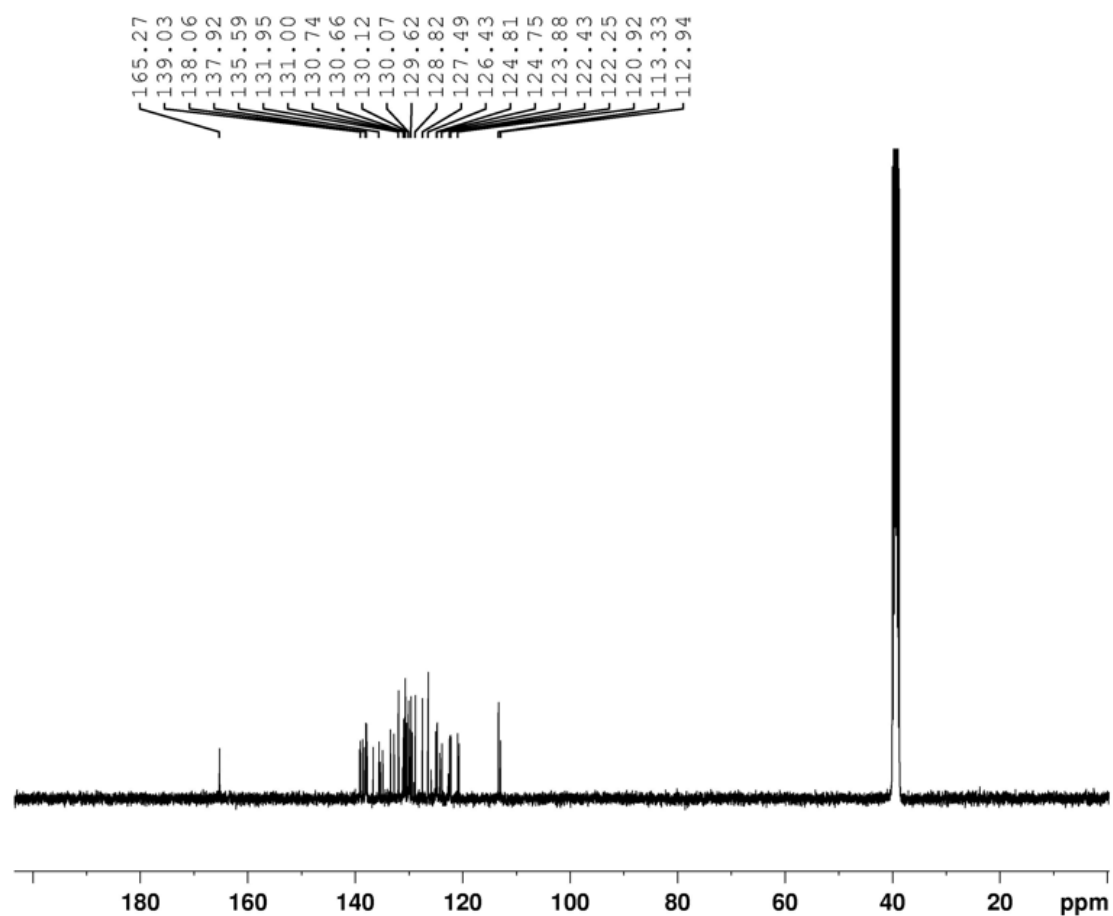


Figure S62. ¹³C NMR spectrum of compound A16 (101 MHz, DMSO).

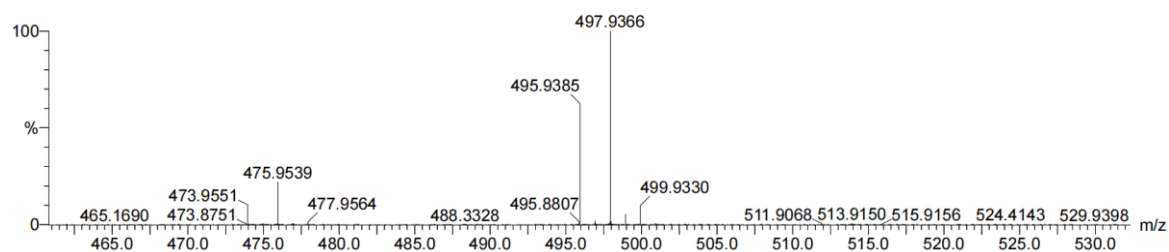


Figure S63. High resolution mass spectrum of compound A16.

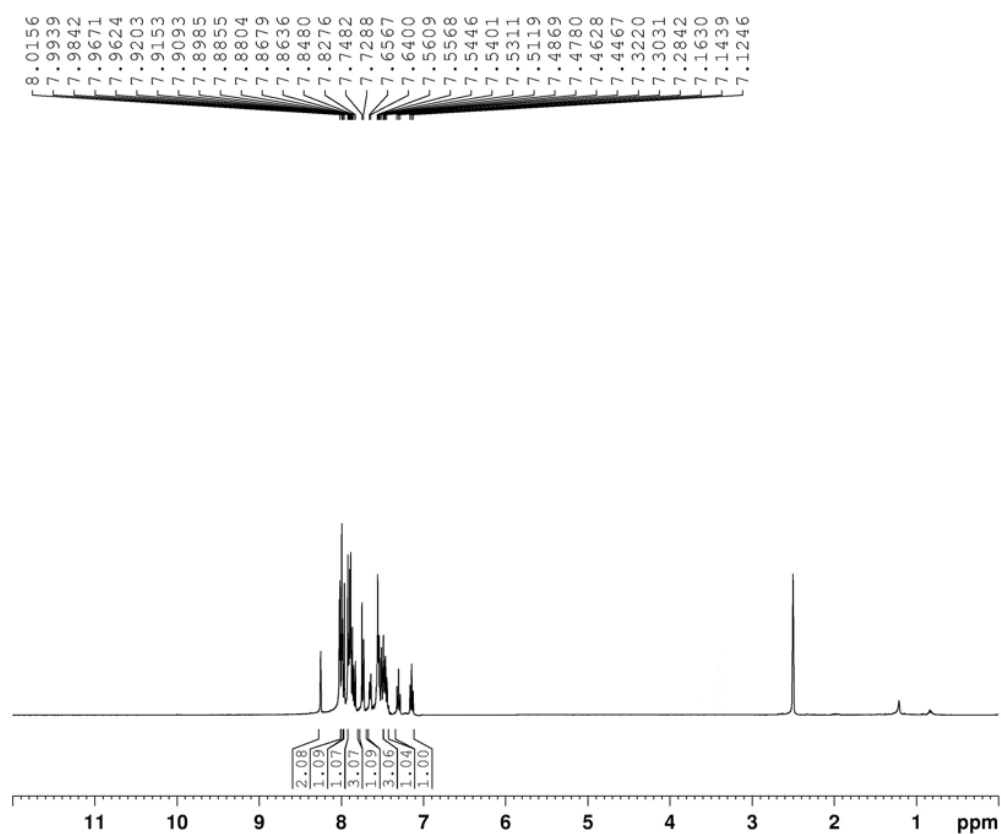


Figure S64. ¹H NMR spectrum of compound A17 (400 MHz, DMSO).

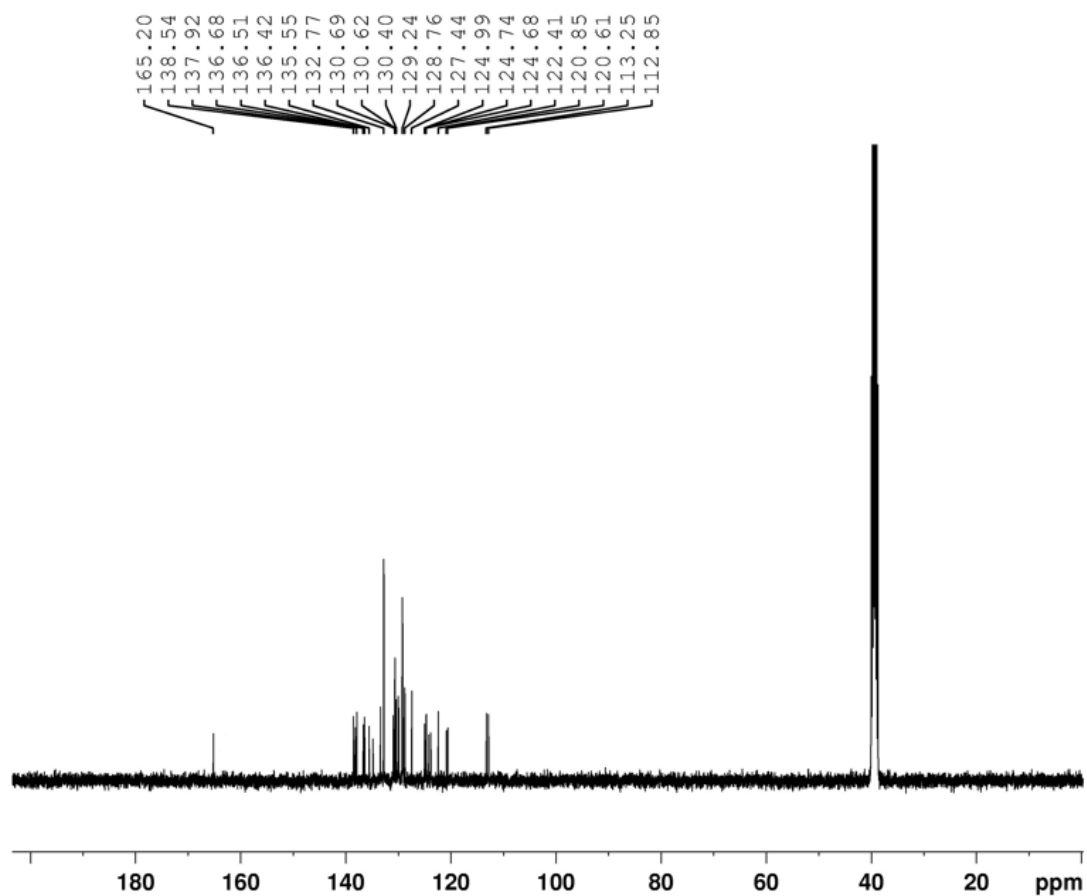


Figure S65. ¹³C NMR spectrum of compound A17 (101 MHz, DMSO).

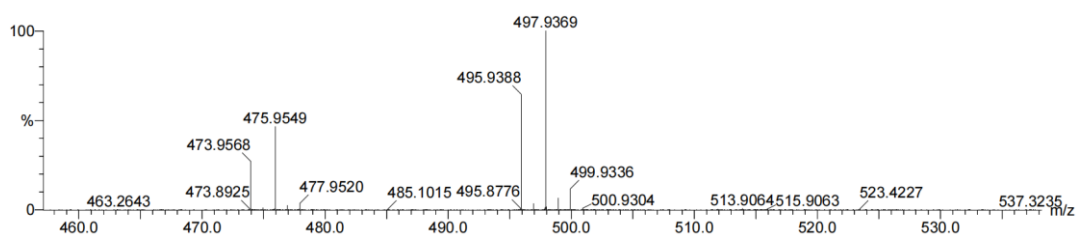


Figure S66. High resolution mass spectrum of compound A17.

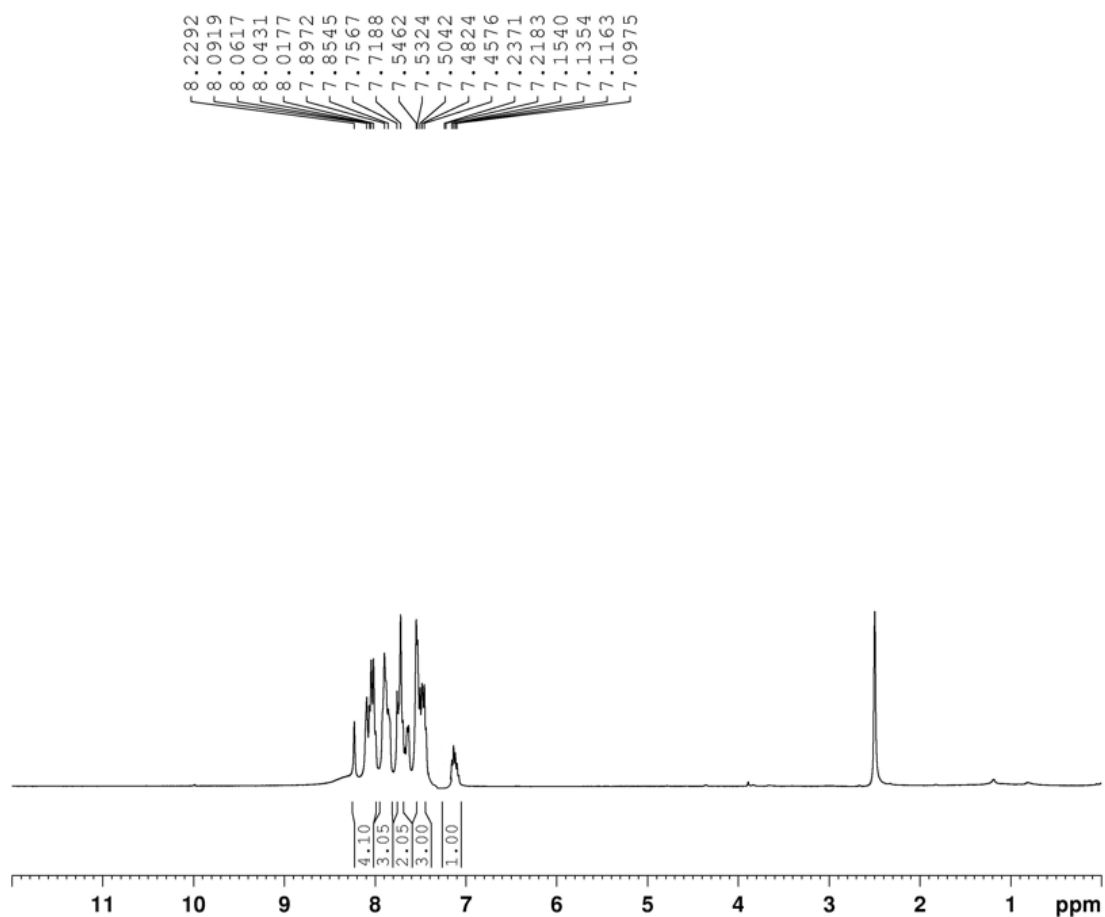


Figure S67. ¹H NMR spectrum of compound A18 (400 MHz, DMSO).

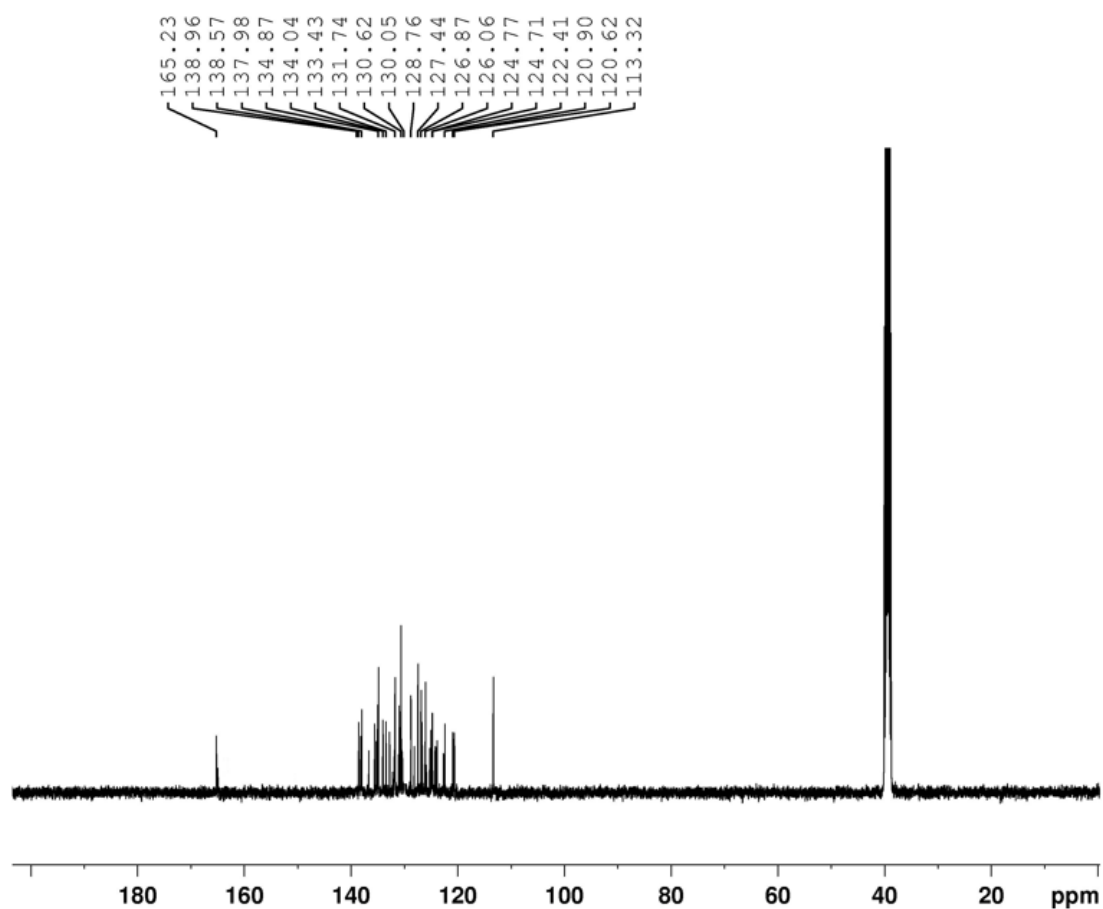


Figure S68. ¹³C NMR spectrum of compound A18 (101 MHz, DMSO).

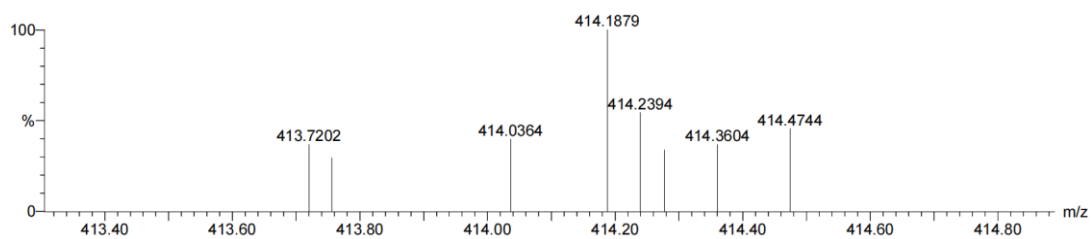


Figure S69. High resolution mass spectrum of compound A18.

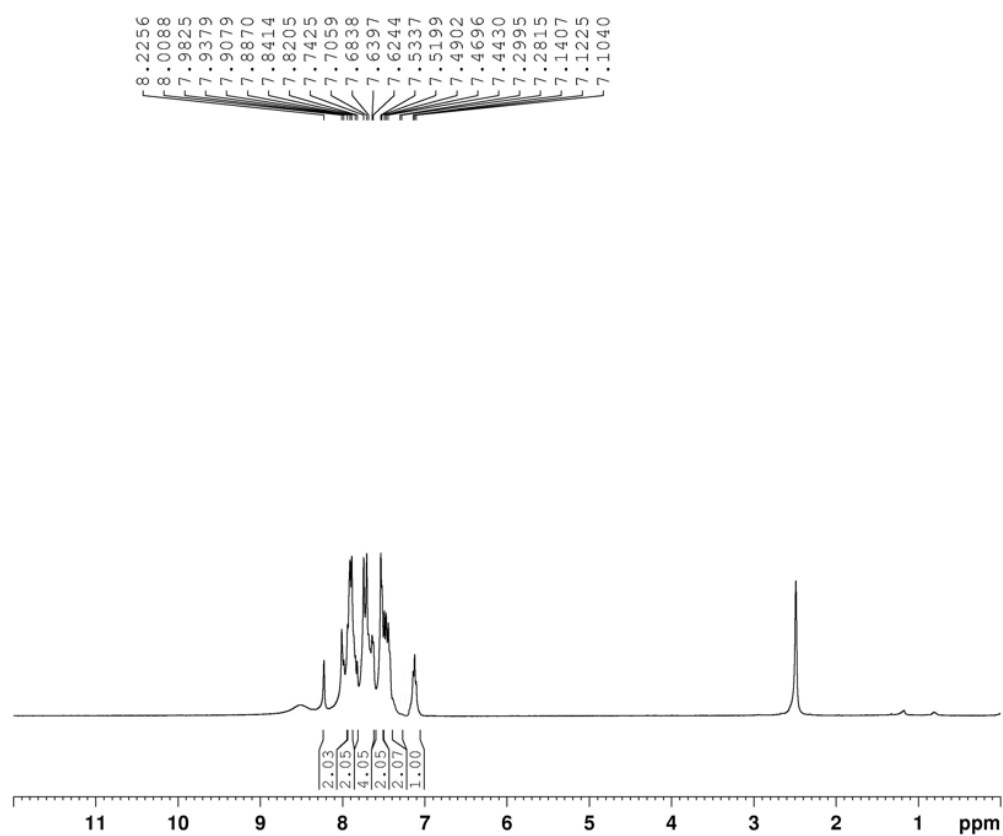


Figure S70. ¹H NMR spectrum of compound A19 (400 MHz, DMSO).

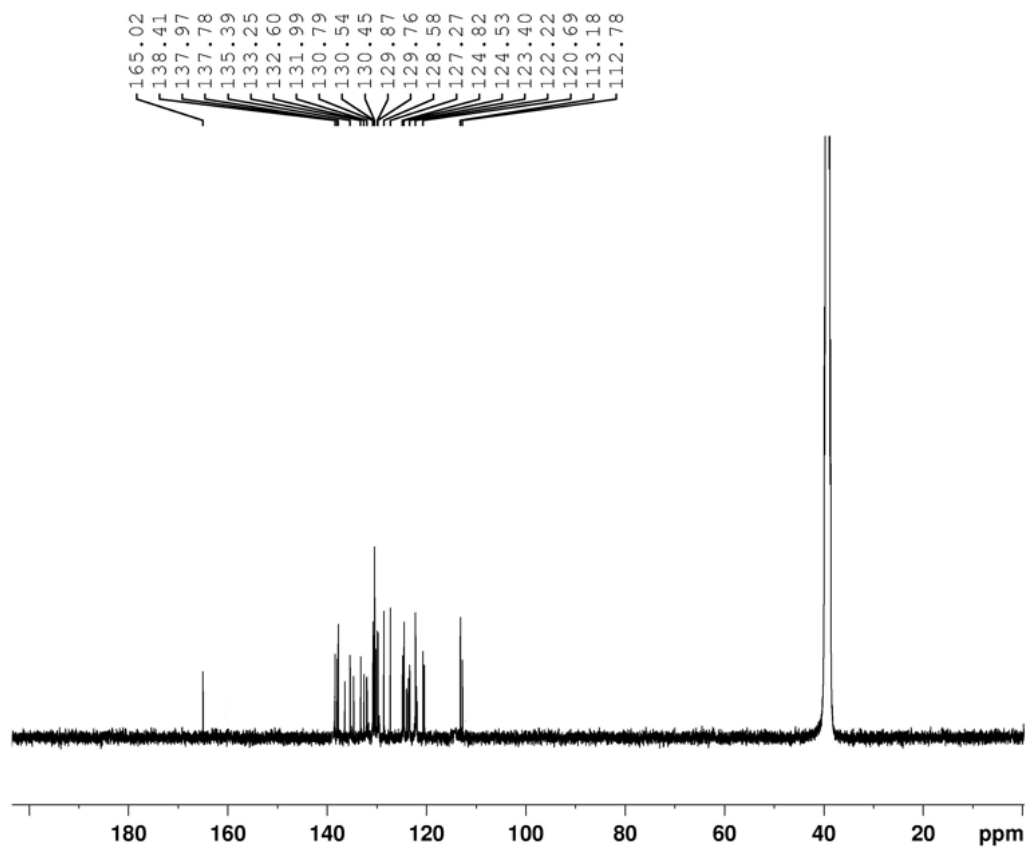


Figure S71. ¹³C NMR spectrum of compound A19 (101 MHz, DMSO).

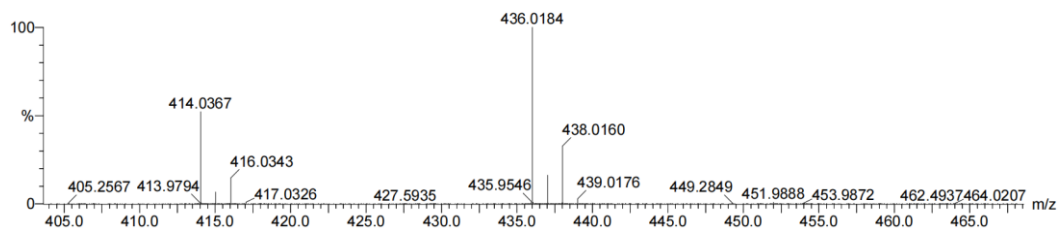


Figure S72. High resolution mass spectrum of compound A19.

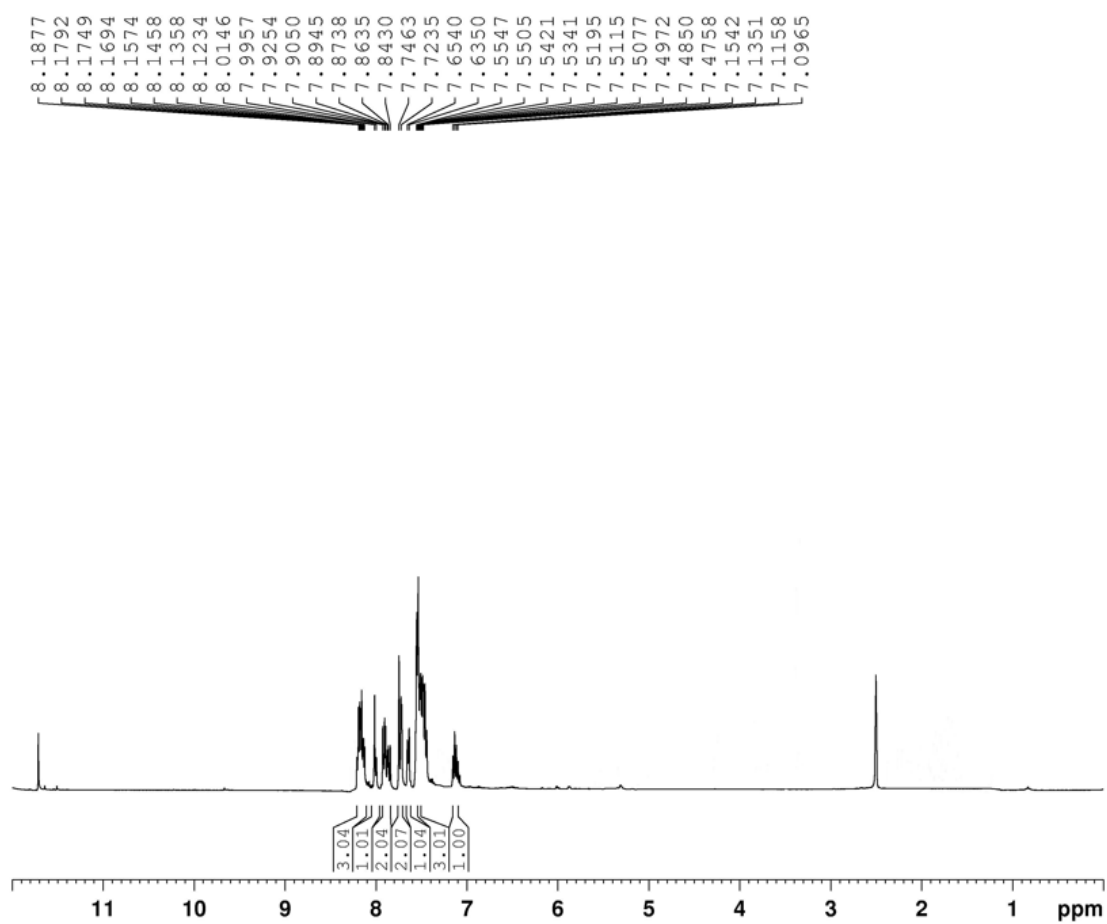


Figure S73. ¹H NMR spectrum of compound A20 (400 MHz, DMSO).

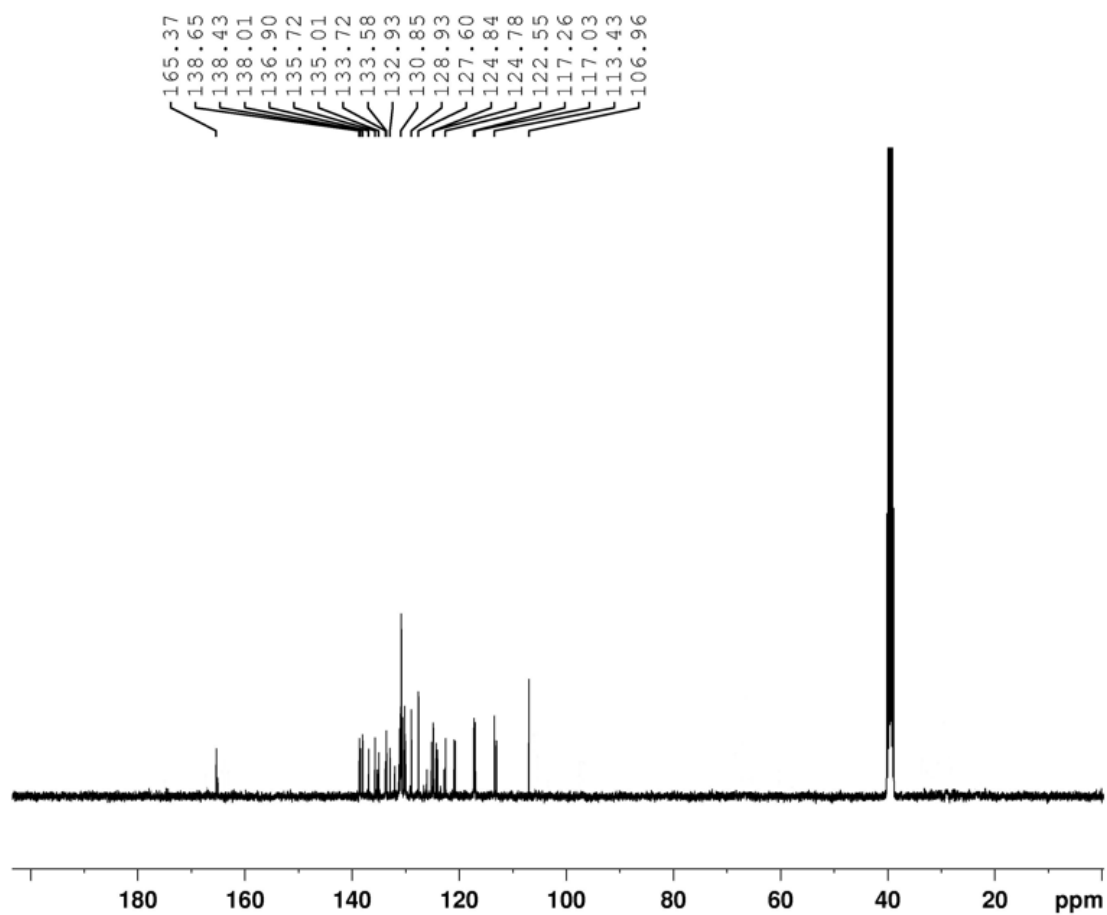


Figure S74. ^{13}C NMR spectrum of compound A20 (101 MHz, DMSO).

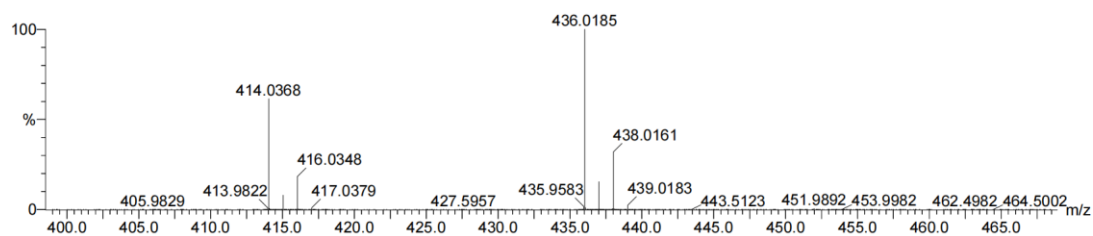


Figure S75. High resolution mass spectrum of compound A20.

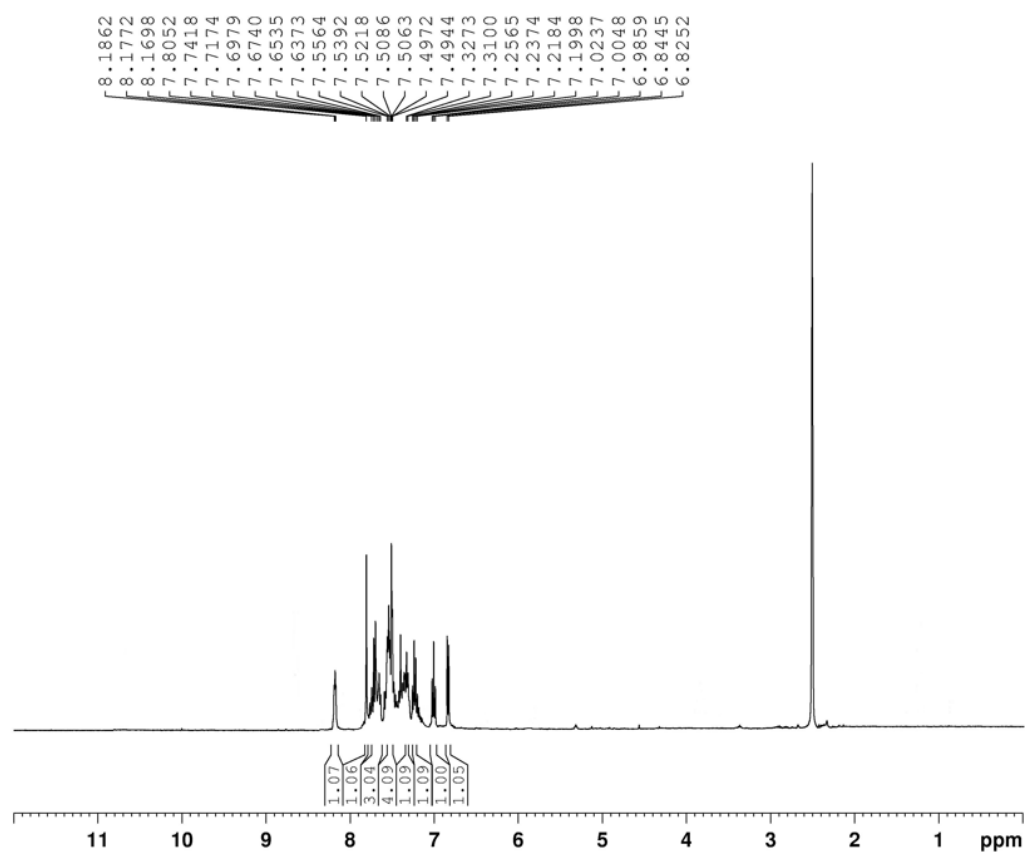


Figure S76. ¹H NMR spectrum of compound A21 (400 MHz, DMSO).

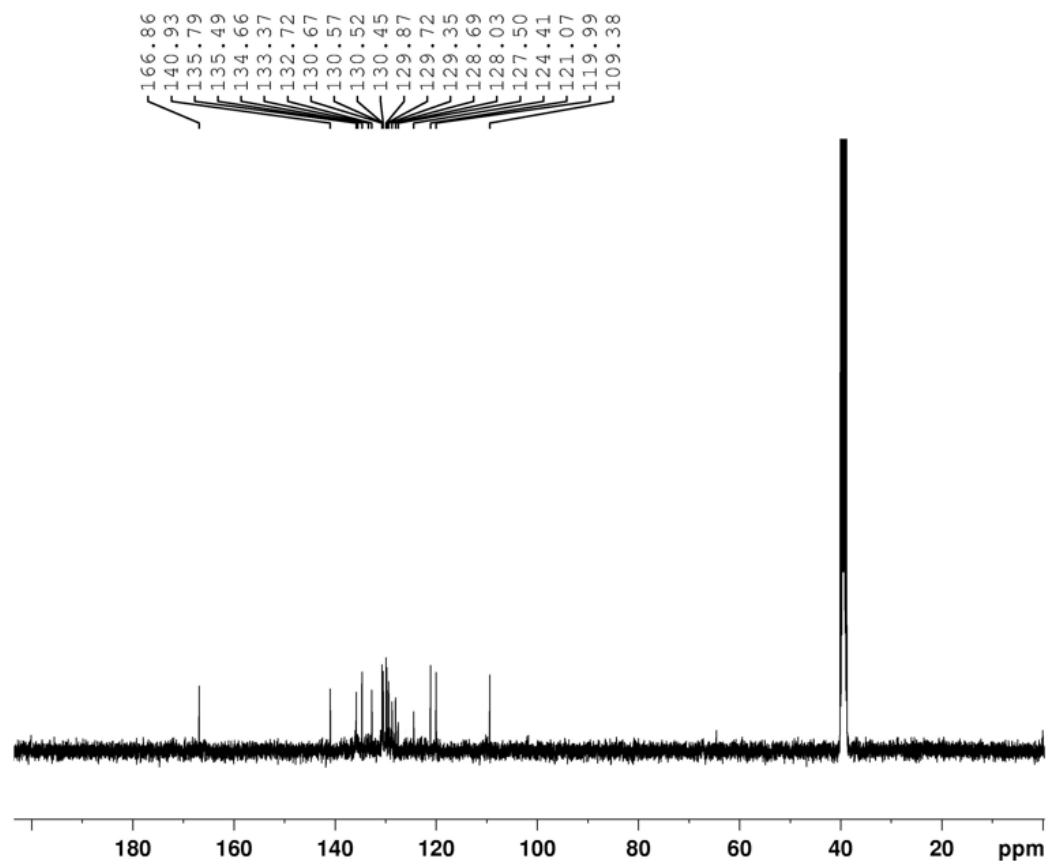


Figure S77. ¹³C NMR spectrum of compound A21 (101 MHz, DMSO).

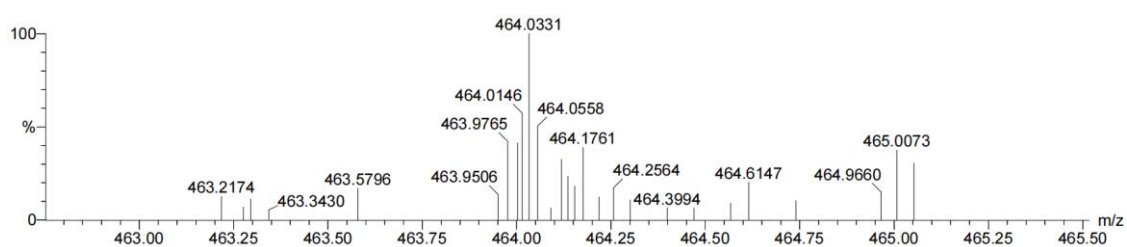


Figure S78. High resolution mass spectrum of compound A21.

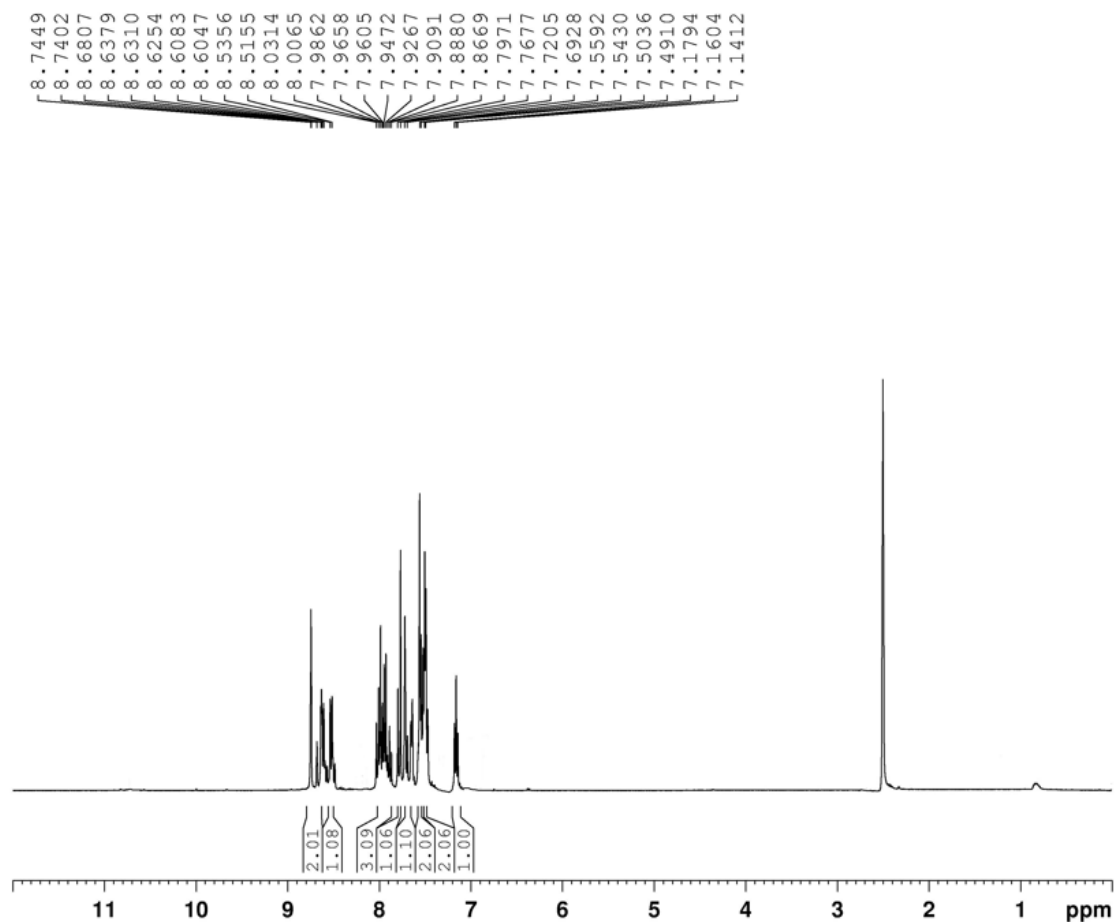


Figure S79. ¹H NMR spectrum of compound A22 (400 MHz, DMSO).

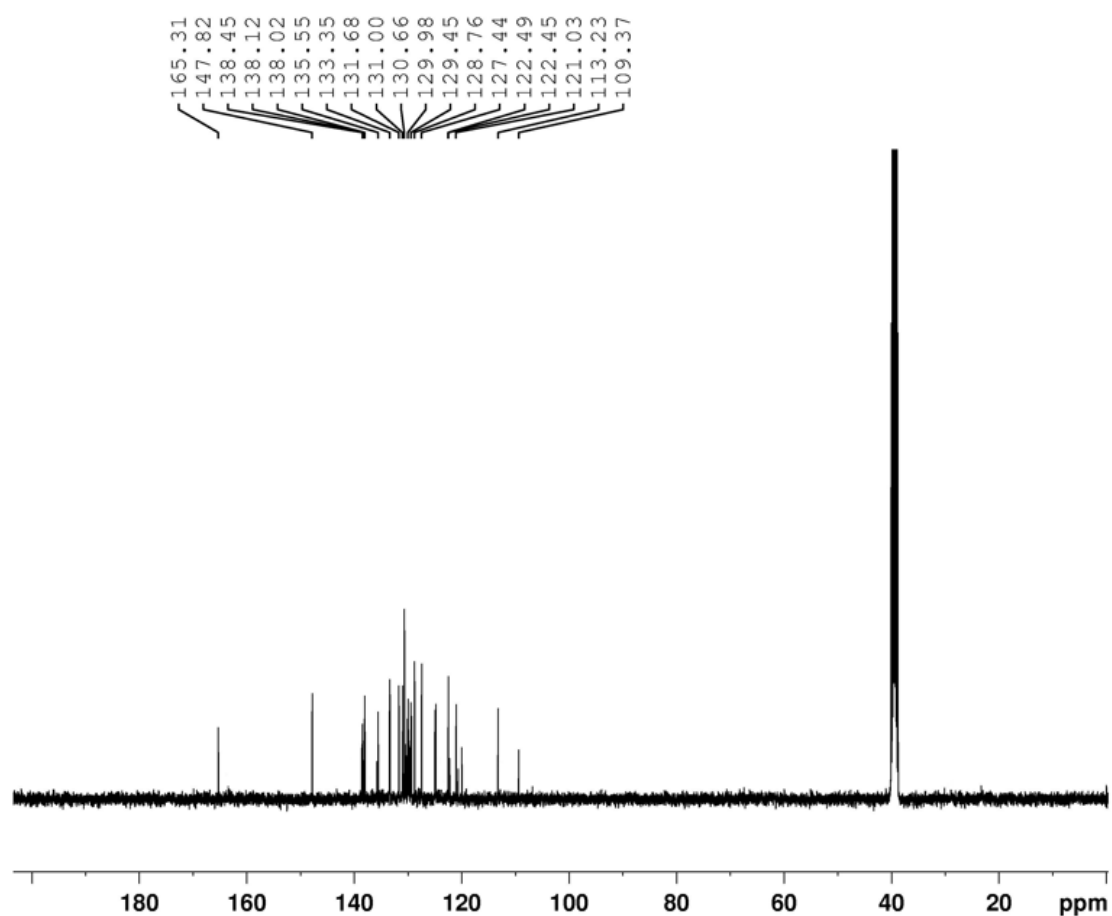


Figure S80. ^{13}C NMR spectrum of compound A22 (101 MHz, DMSO).

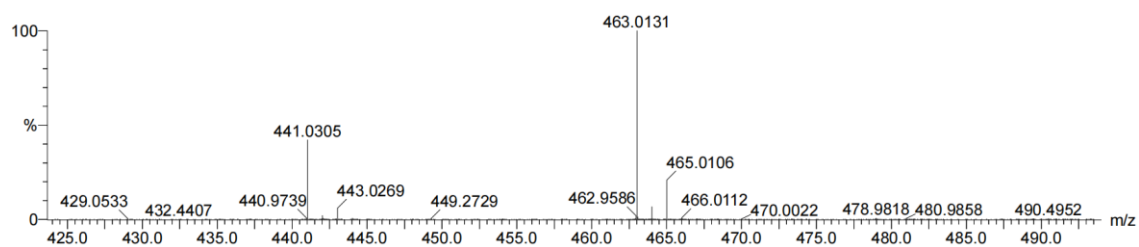


Figure S81. High resolution mass spectrum of compound A22.

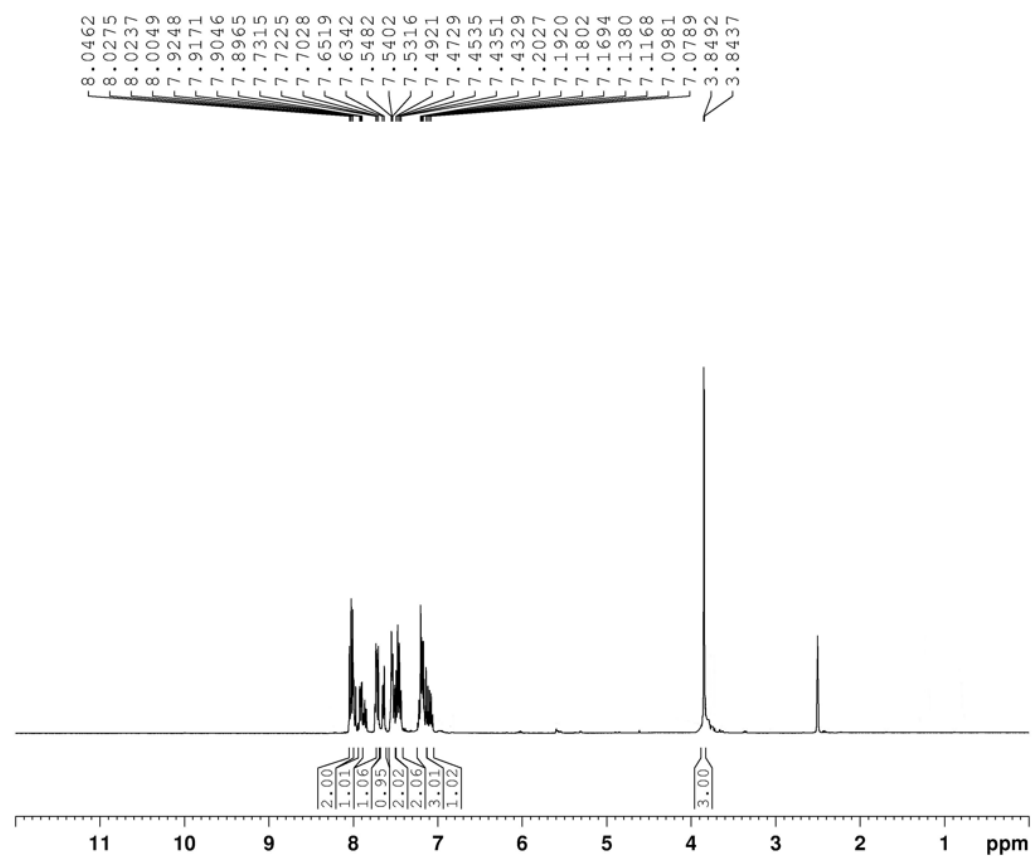


Figure S82. ¹H NMR spectrum of compound A23 (400 MHz, DMSO).

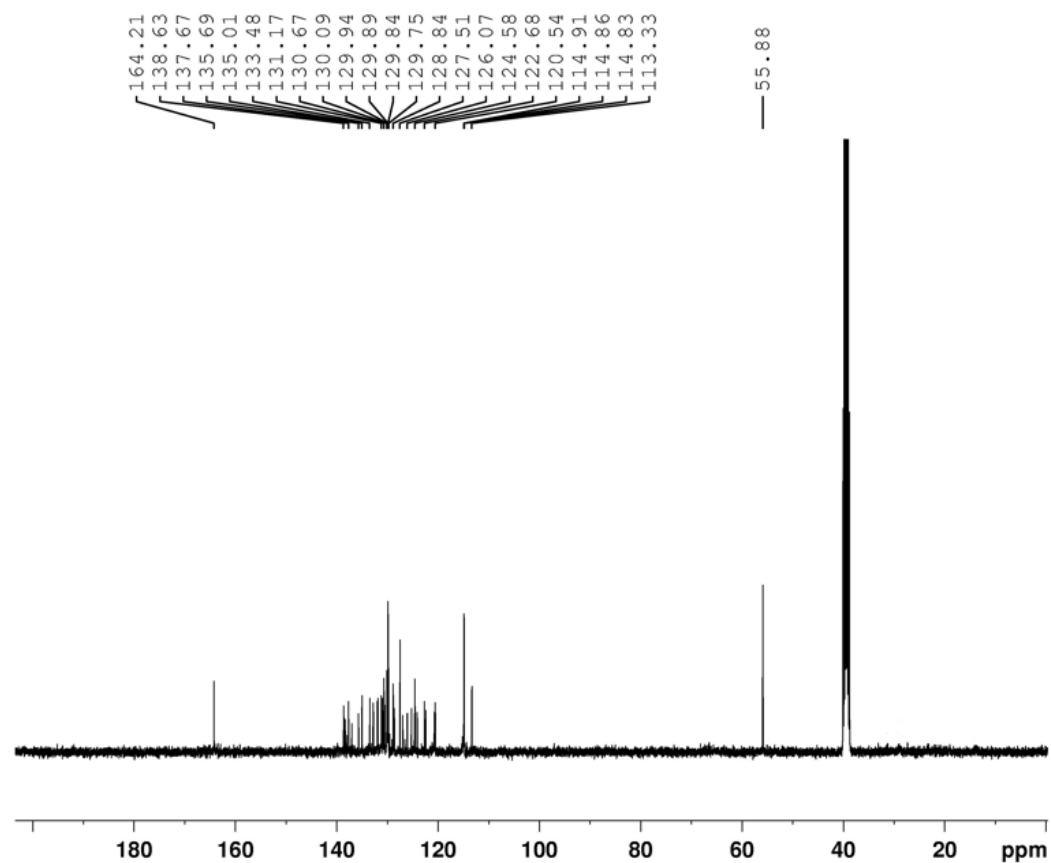


Figure S83. ¹³C NMR spectrum of compound A23 (101 MHz, DMSO).

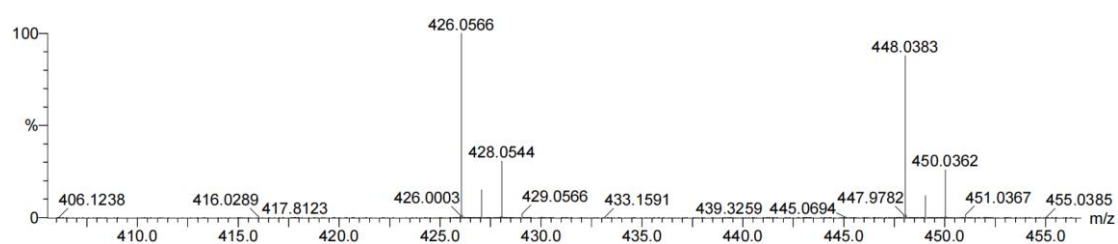


Figure S84. High resolution mass spectrum of compound A23.

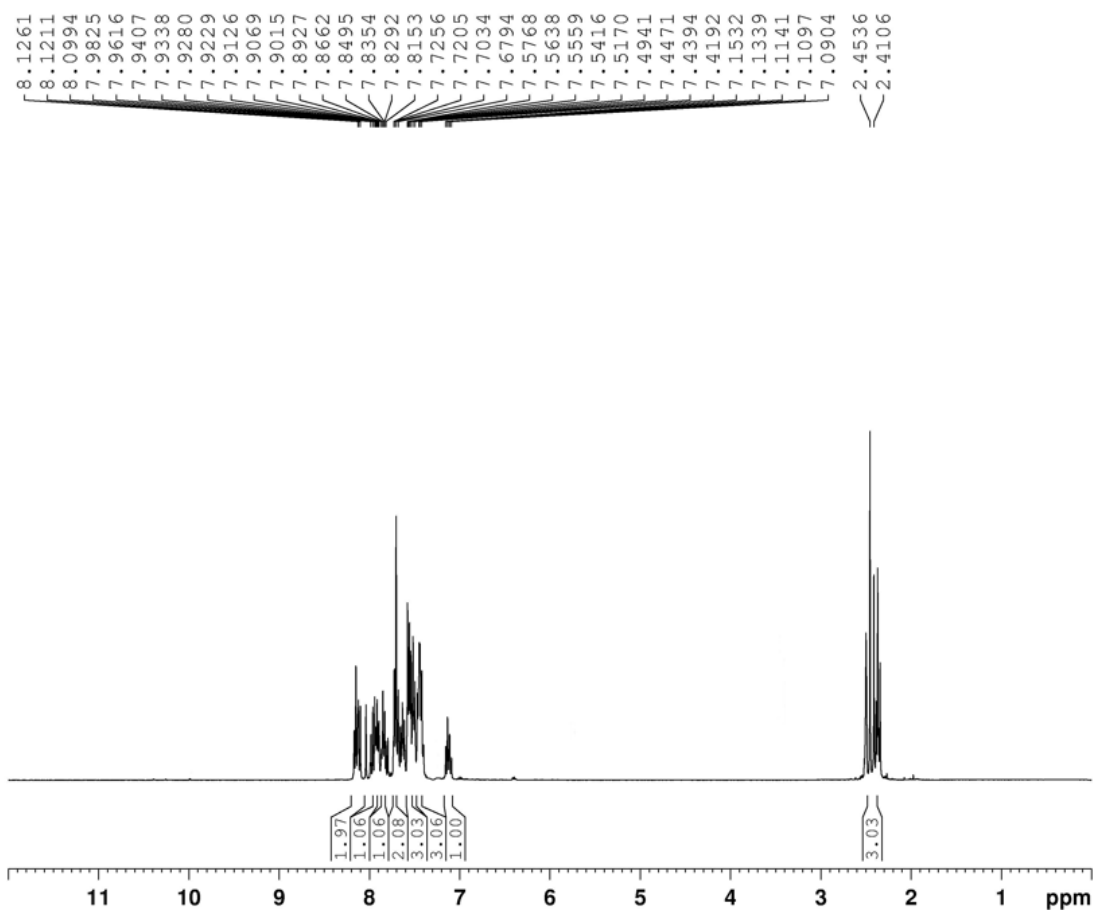


Figure S85. ¹H NMR spectrum of compound A24 (400 MHz, DMSO).

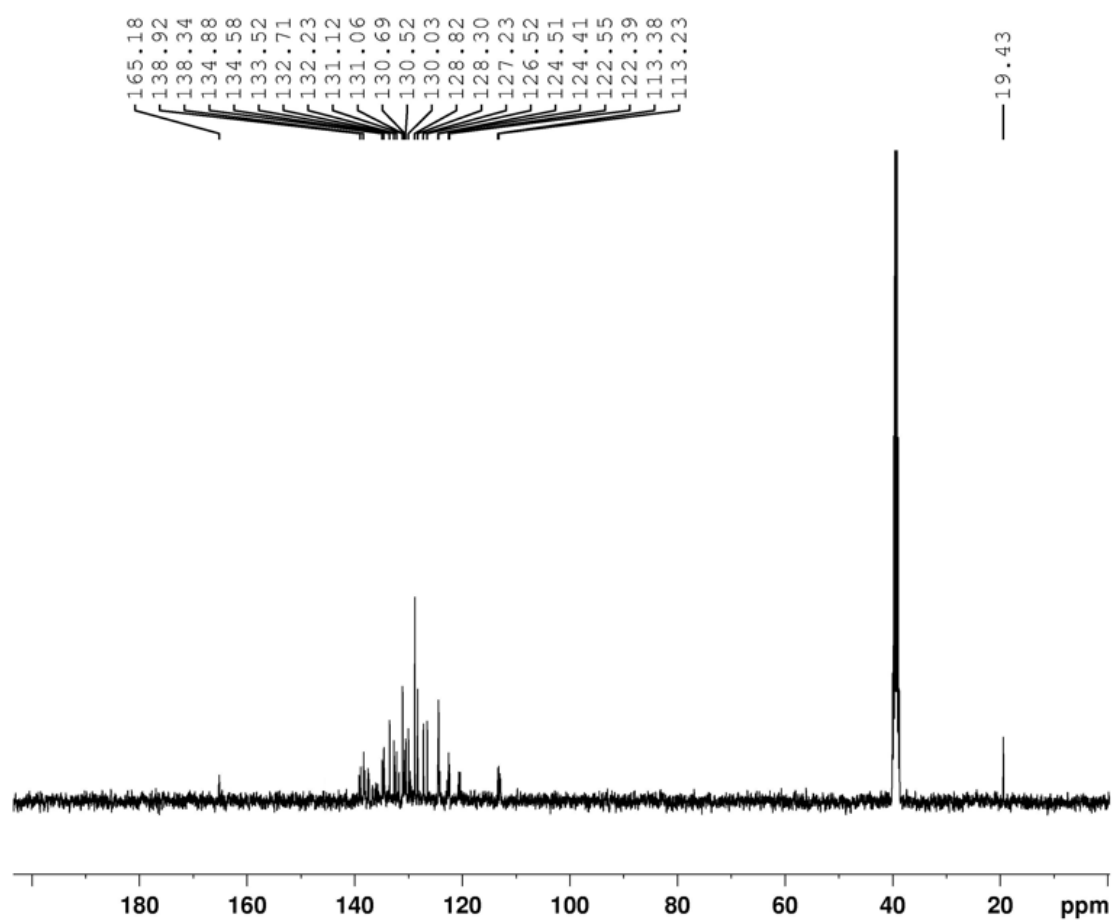


Figure S86. ¹³C NMR spectrum of compound A24 (101 MHz, DMSO).

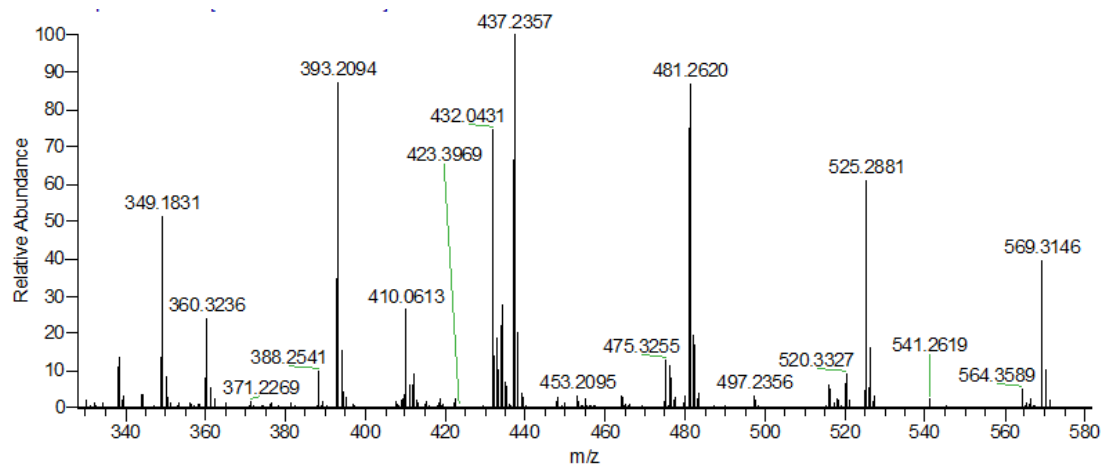


Figure S87. High resolution mass spectrum of compound A24.

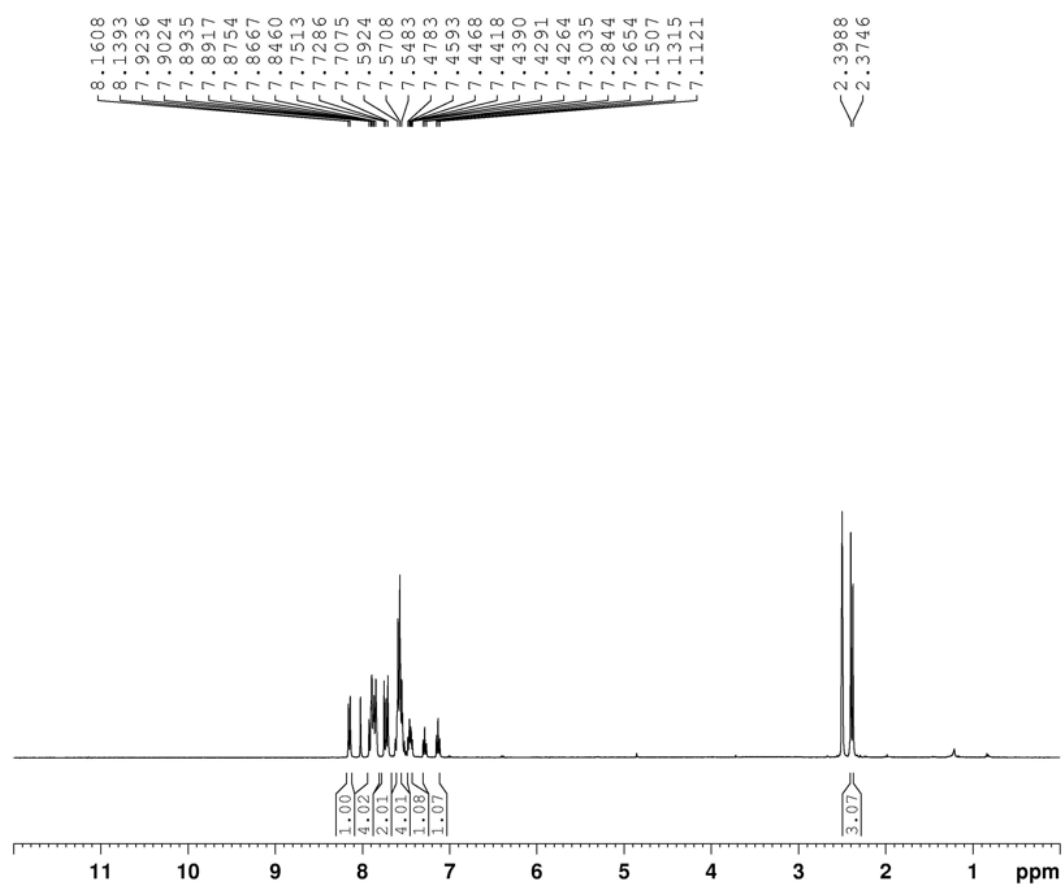


Figure S88. ¹H NMR spectrum of compound A25 (400 MHz, DMSO).

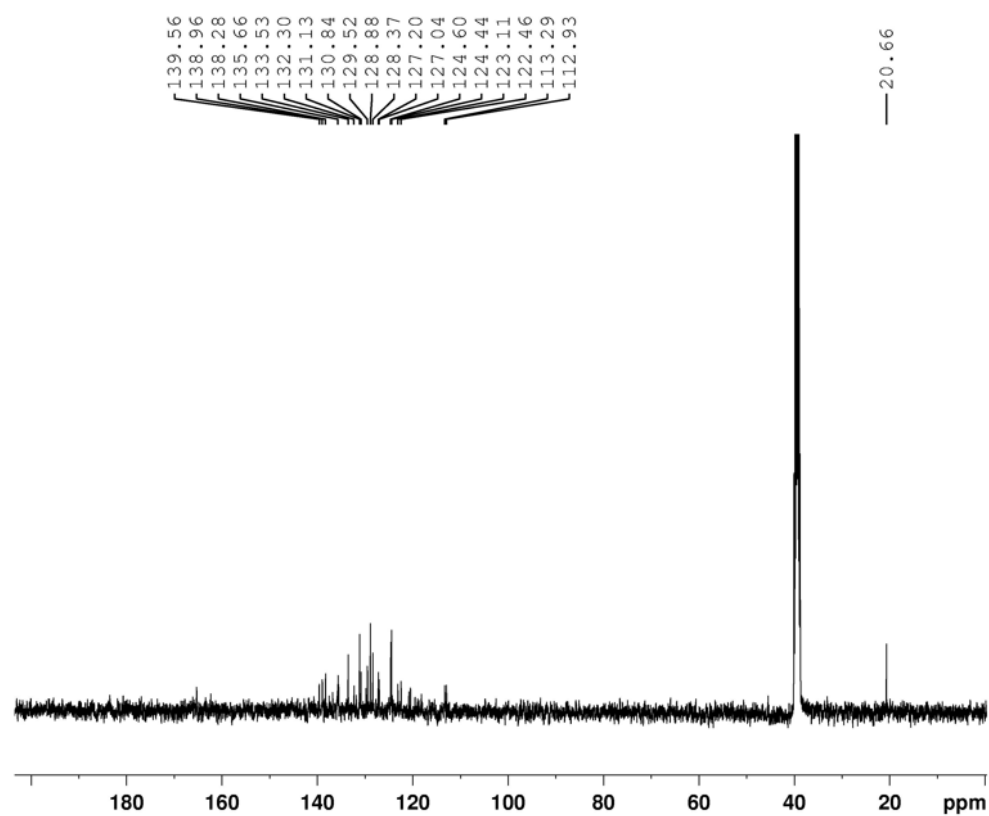


Figure S89. ¹³C NMR spectrum of compound A25 (101 MHz, DMSO).

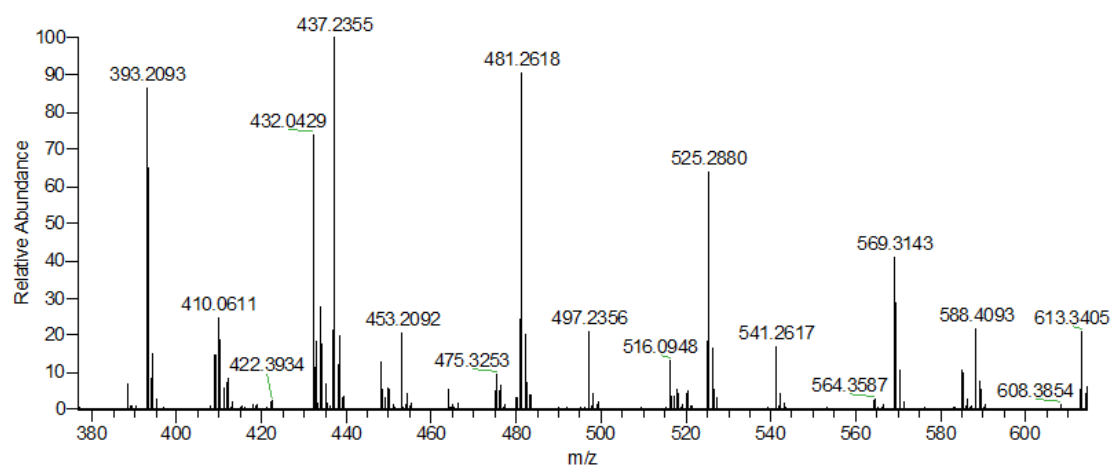


Figure S90. High resolution mass spectrum of compound A25.

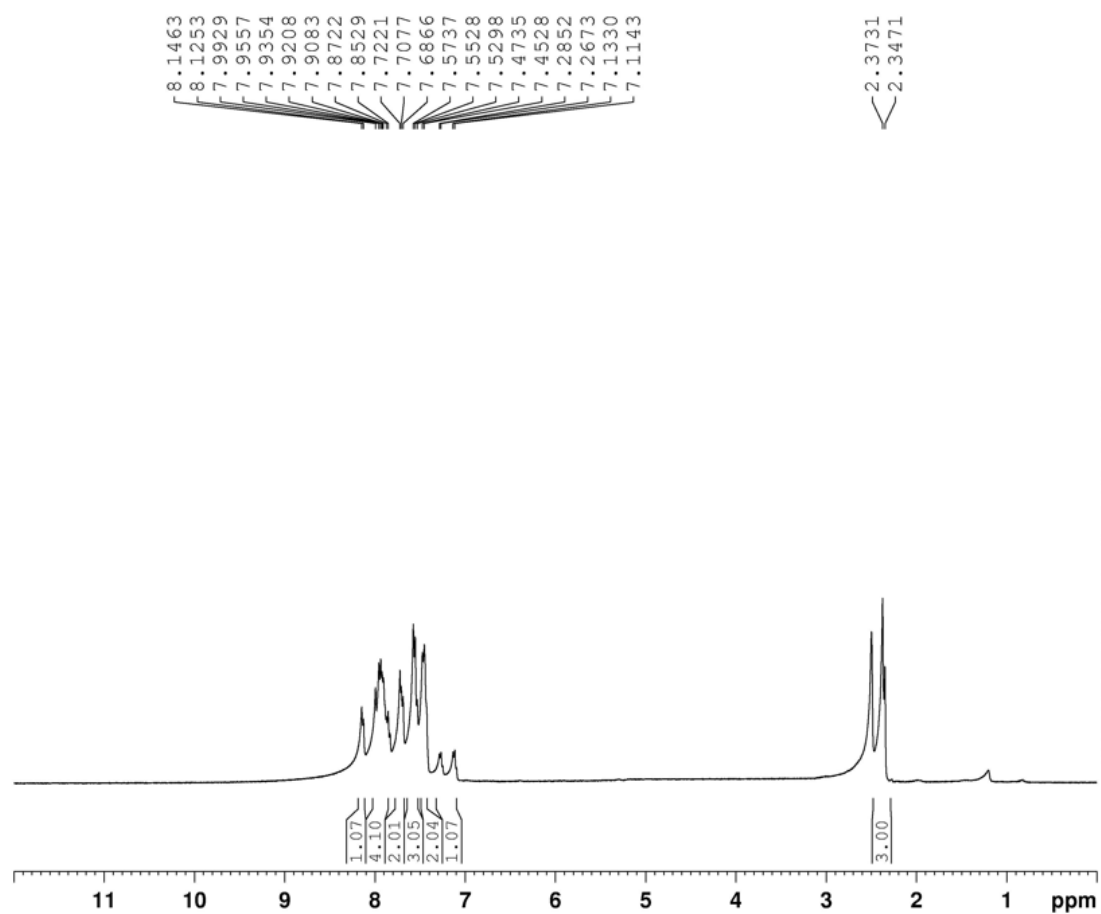


Figure S91. ¹H NMR spectrum of compound A26 (400 MHz, DMSO).

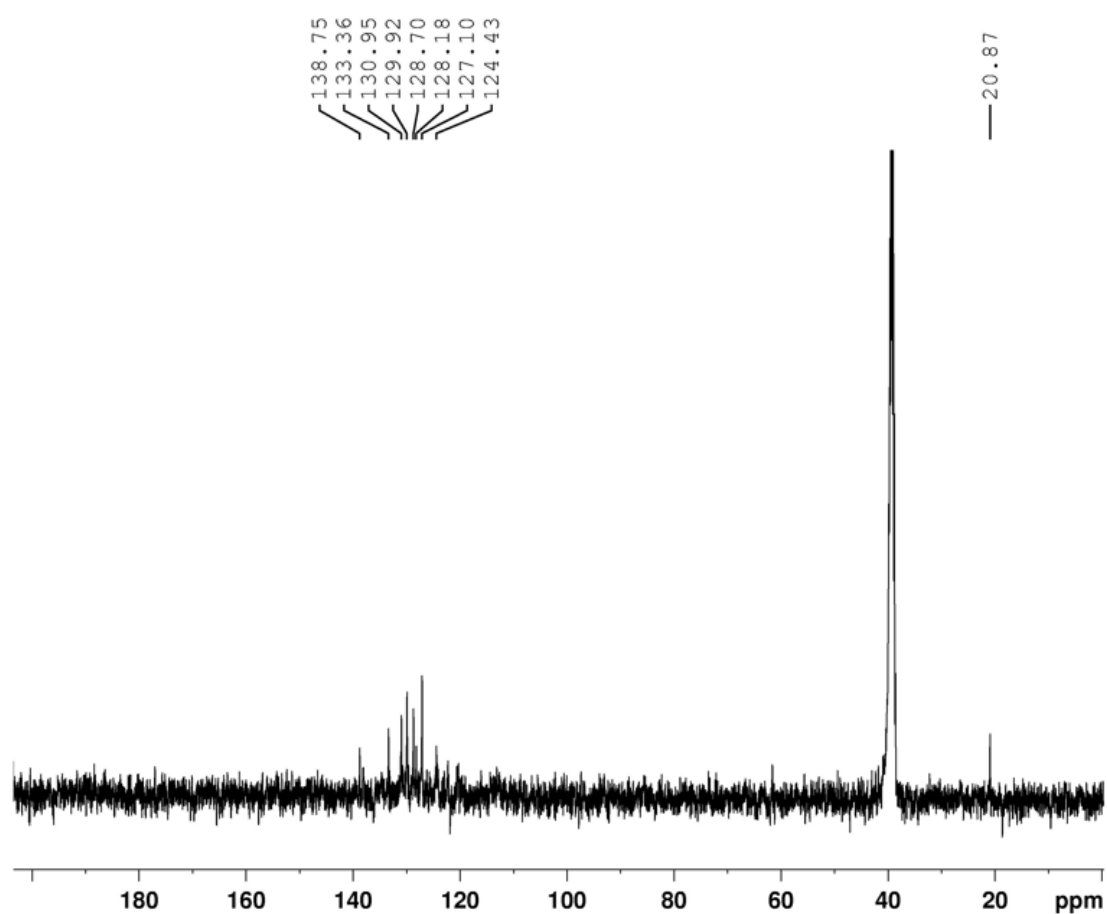


Figure S92. ^{13}C NMR spectrum of compound A26 (101 MHz, DMSO).

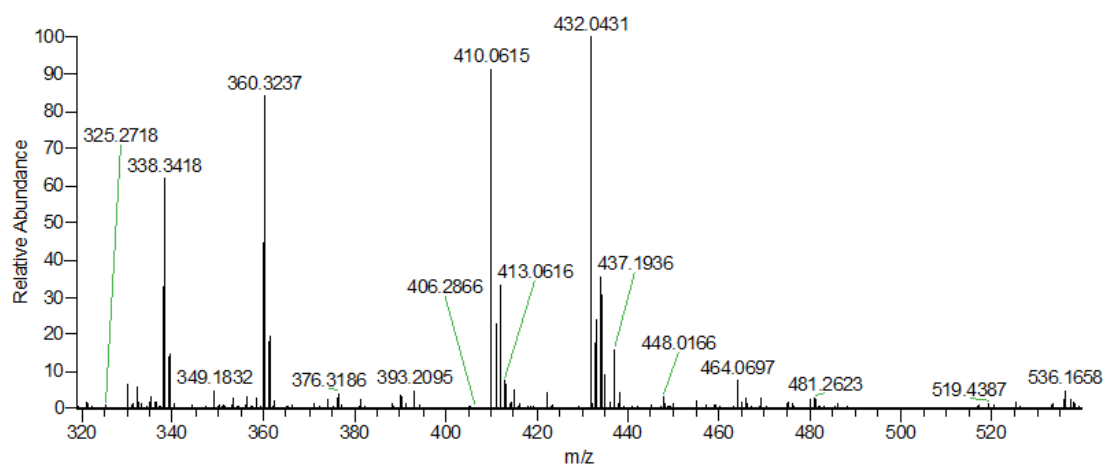


Figure S93. High resolution mass spectrum of compound A26.

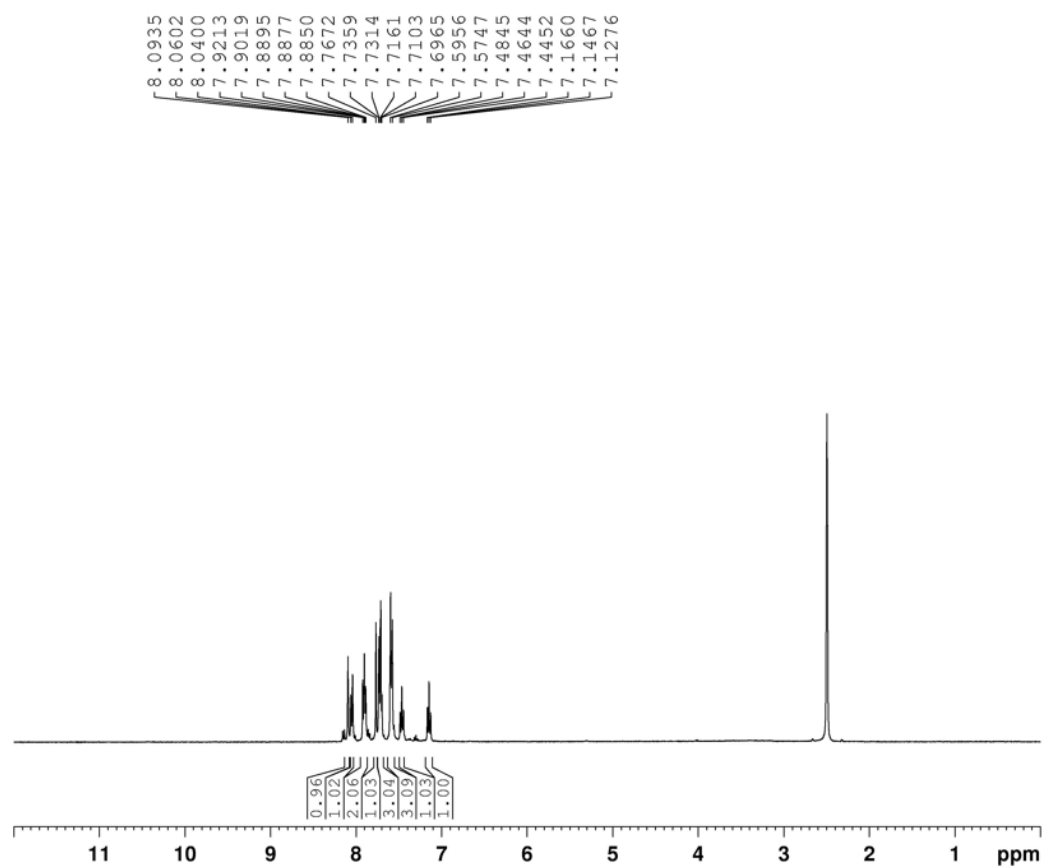


Figure S94. ¹H NMR spectrum of compound A27 (400 MHz, DMSO).

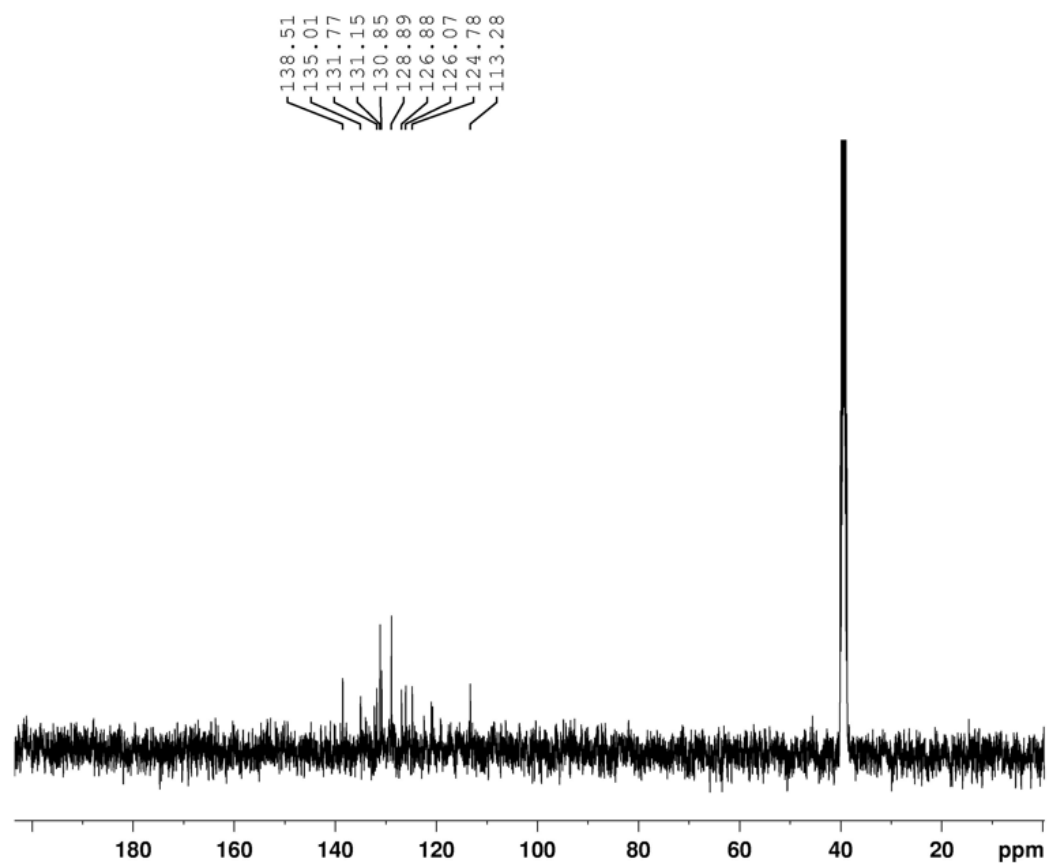


Figure S95. ¹³C NMR spectrum of compound A27 (101 MHz, DMSO).

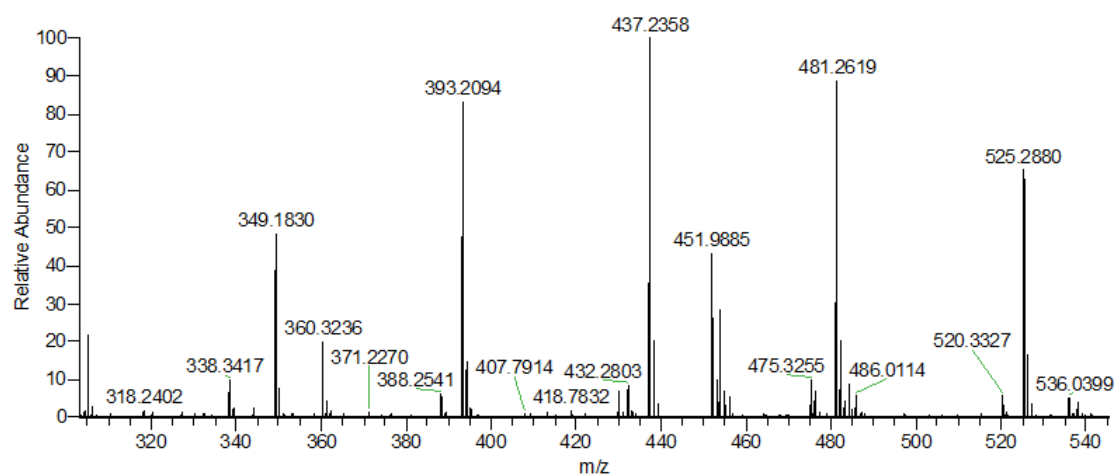


Figure S96. High resolution mass spectrum of compound A27.

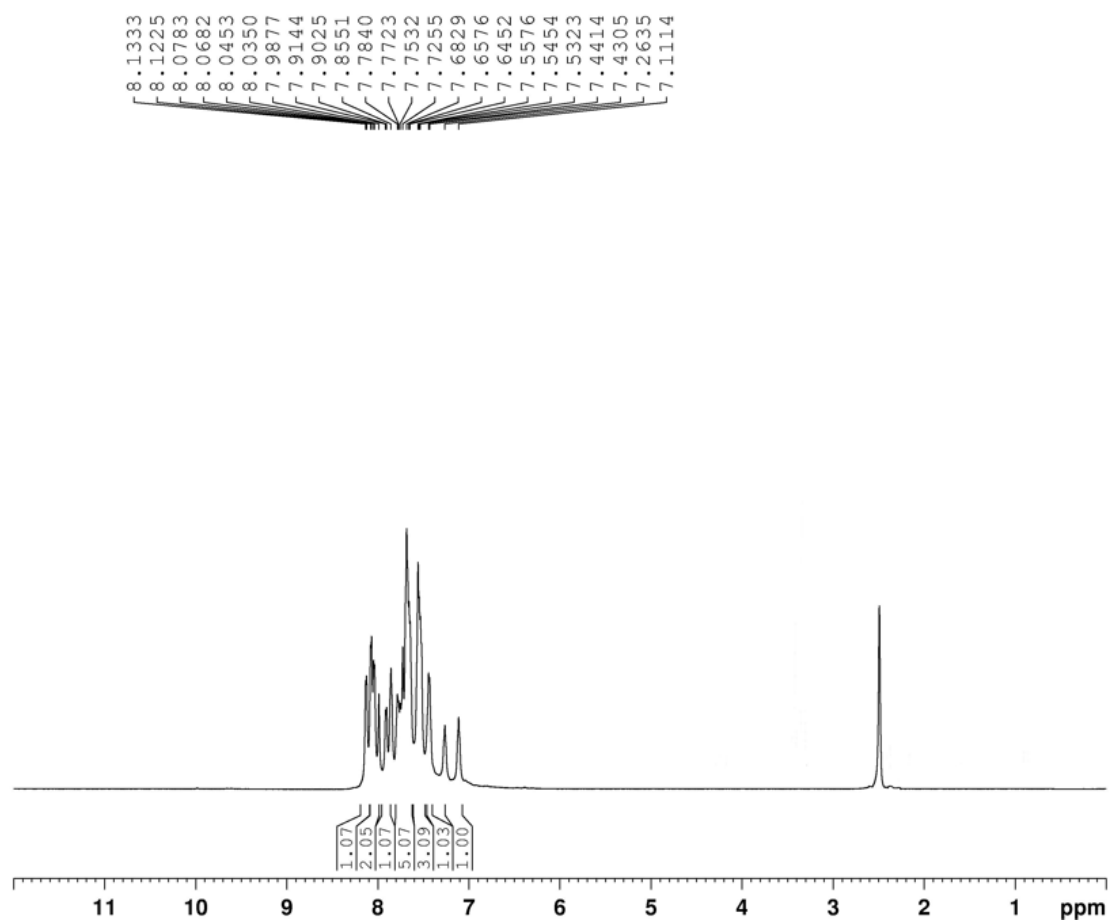


Figure S97. ¹H NMR spectrum of compound A28 (600 MHz, DMSO).

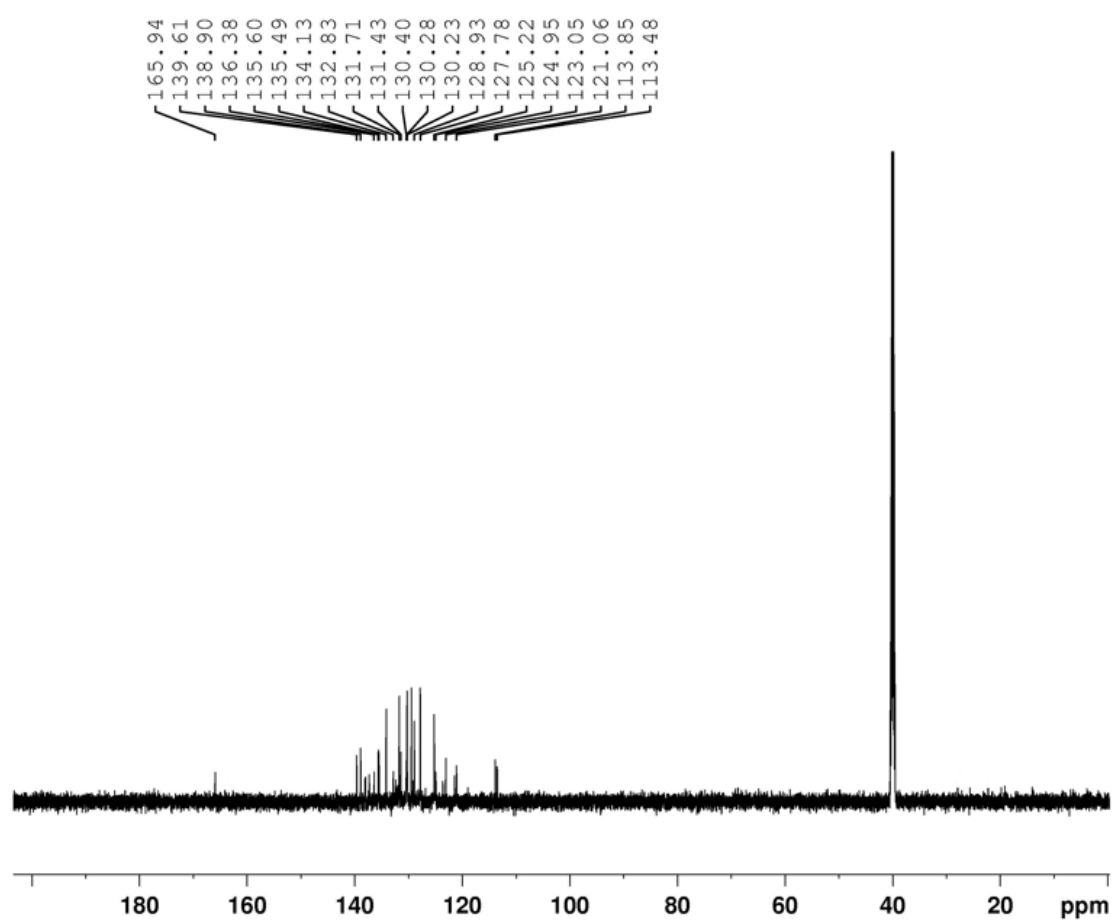


Figure S98. ¹³C NMR spectrum of compound A28 (151 MHz, DMSO).

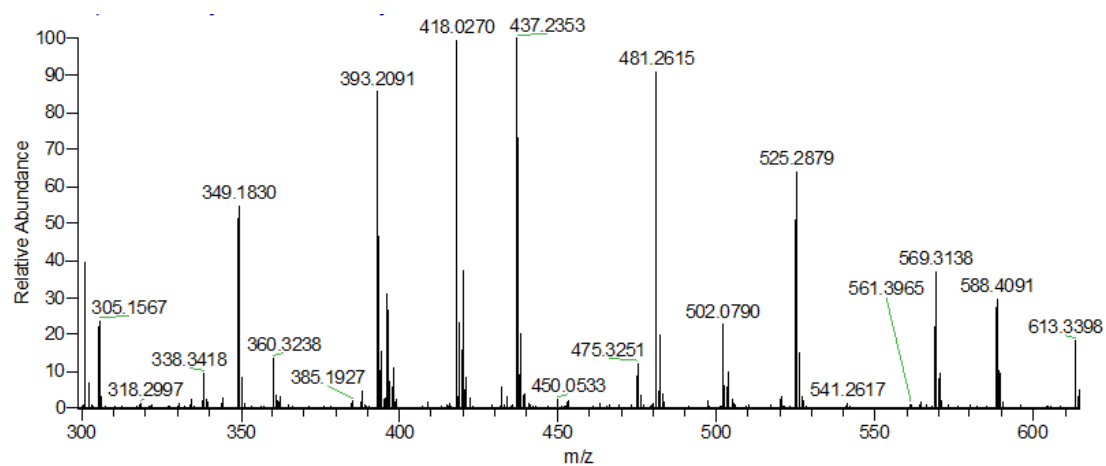


Figure S99. High resolution mass spectrum of compound A28.

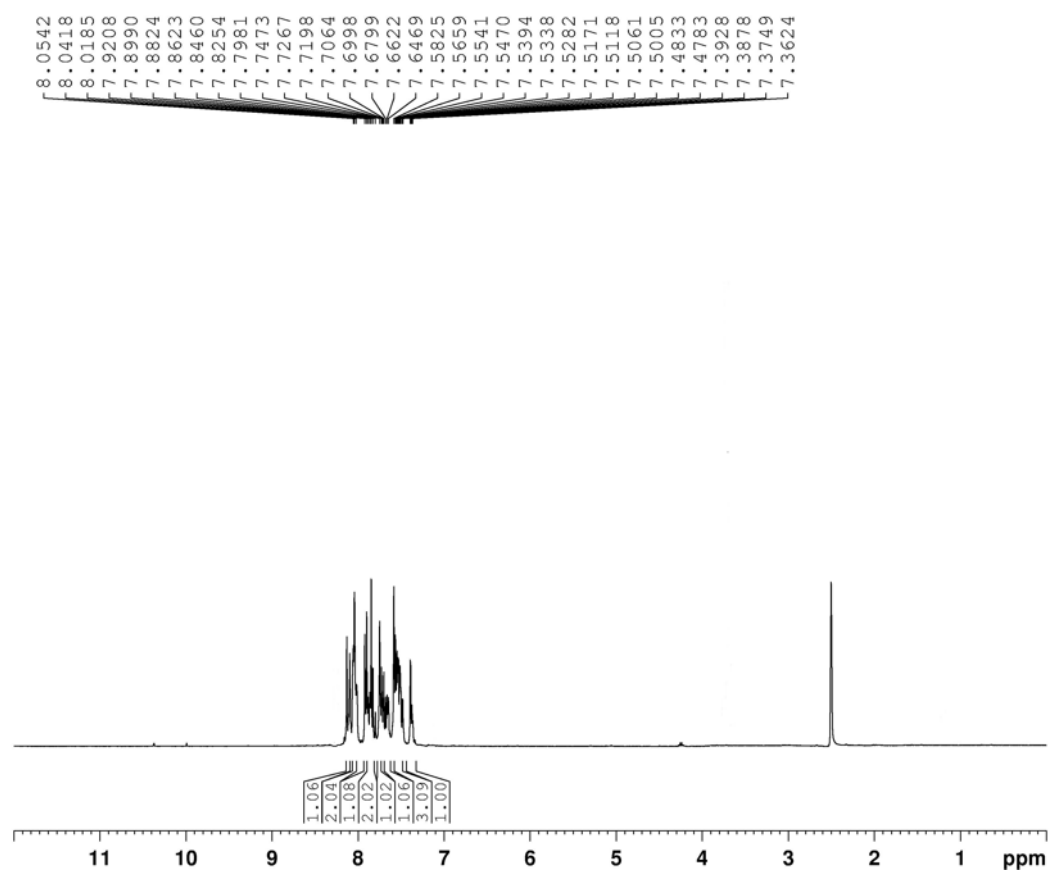


Figure S100. ¹H NMR spectrum of compound A29 (400 MHz, DMSO).

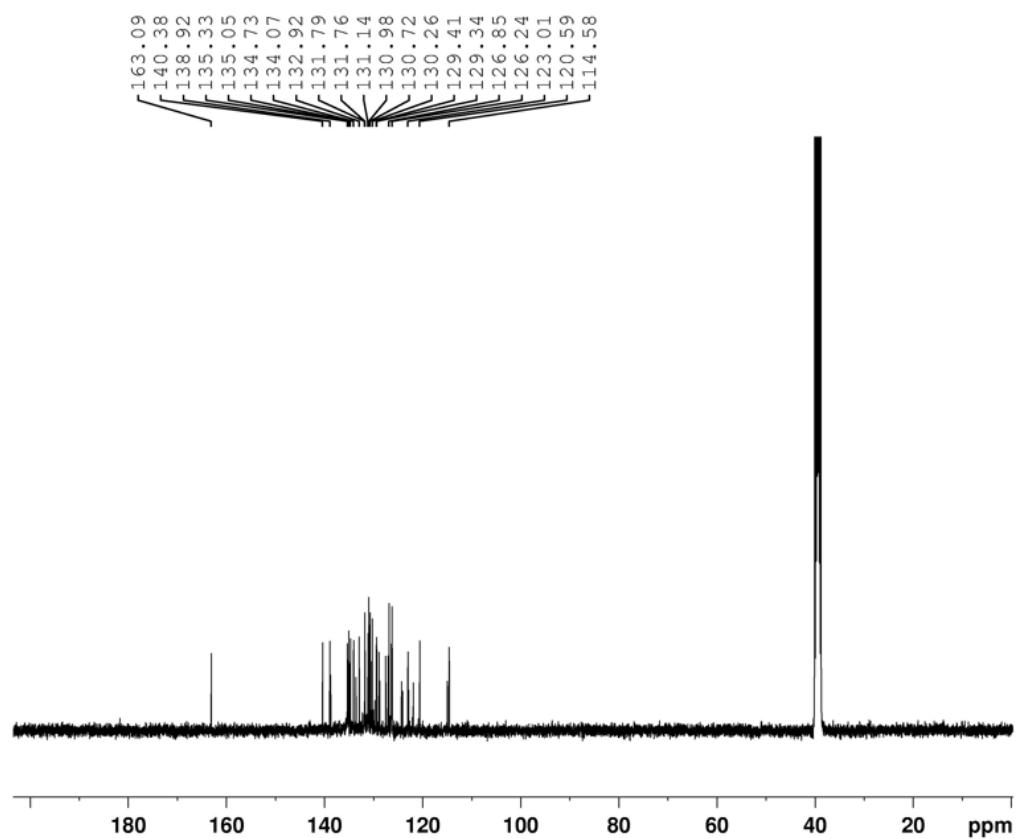


Figure S101. ¹³C NMR spectrum of compound A29 (101 MHz, DMSO).

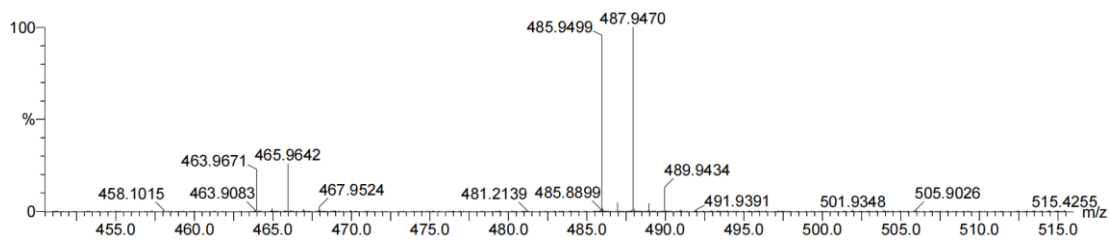


Figure S102. High resolution mass spectrum of compound A29.

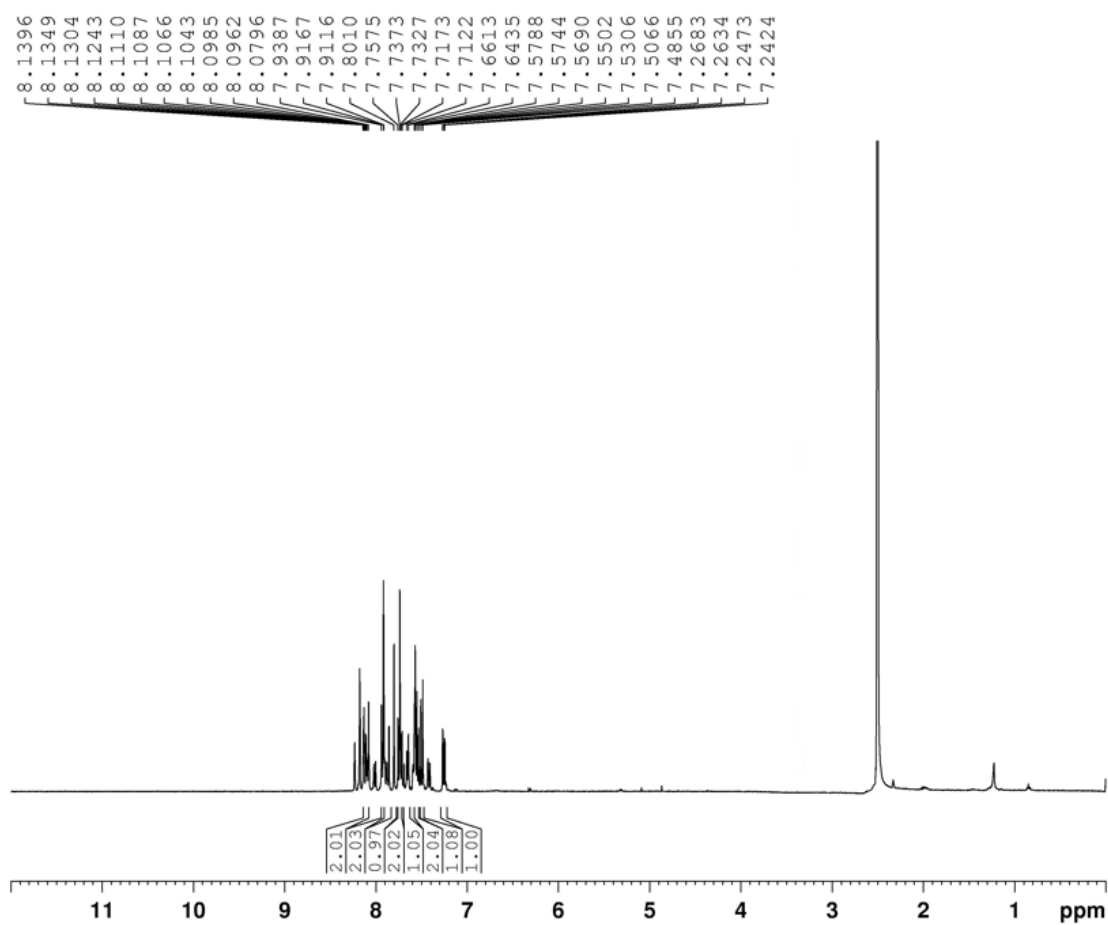


Figure S103. ¹H NMR spectrum of compound A30 (400 MHz, DMSO).

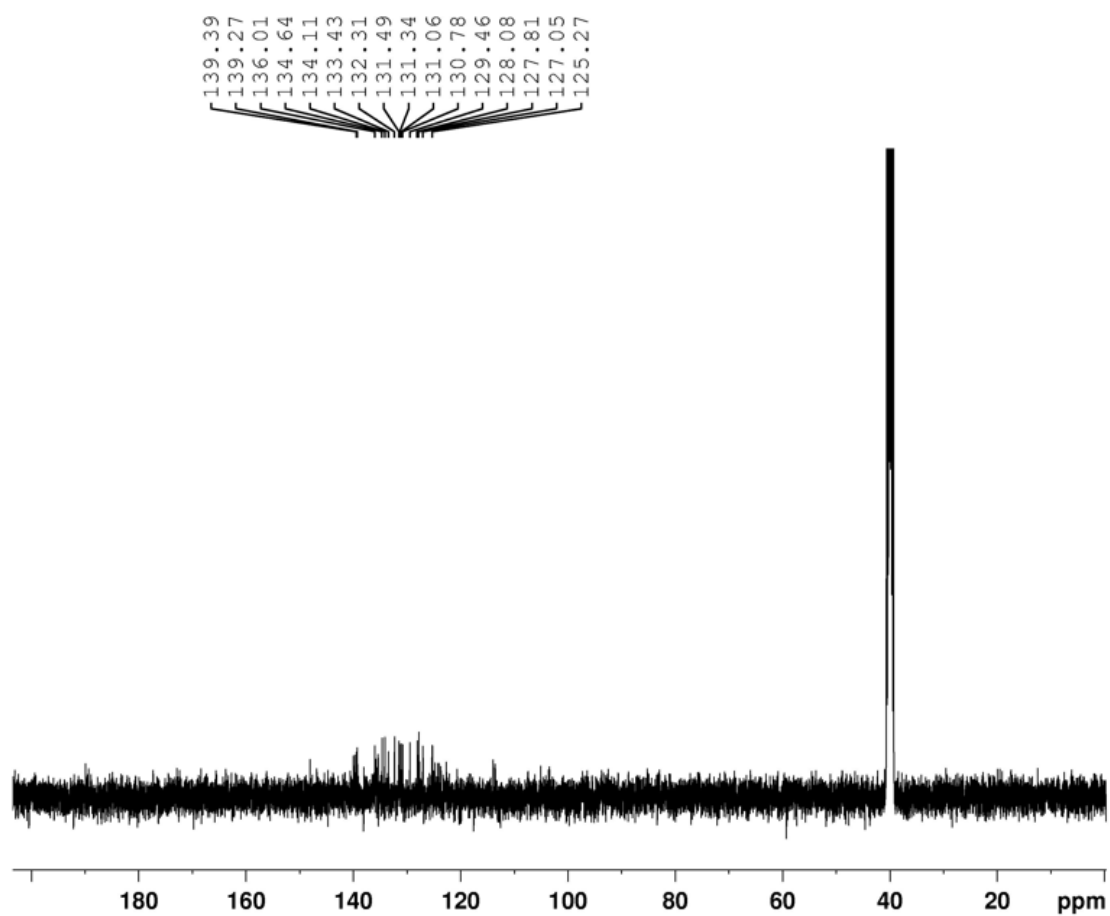


Figure S104. ¹³C NMR spectrum of compound A30 (101 MHz, DMSO).

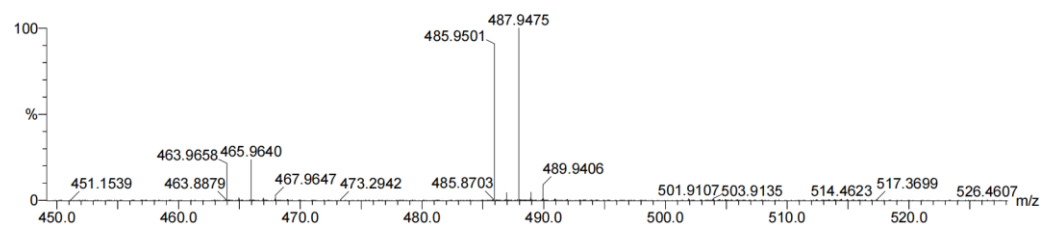


Figure S105. High resolution mass spectrum of compound A30.

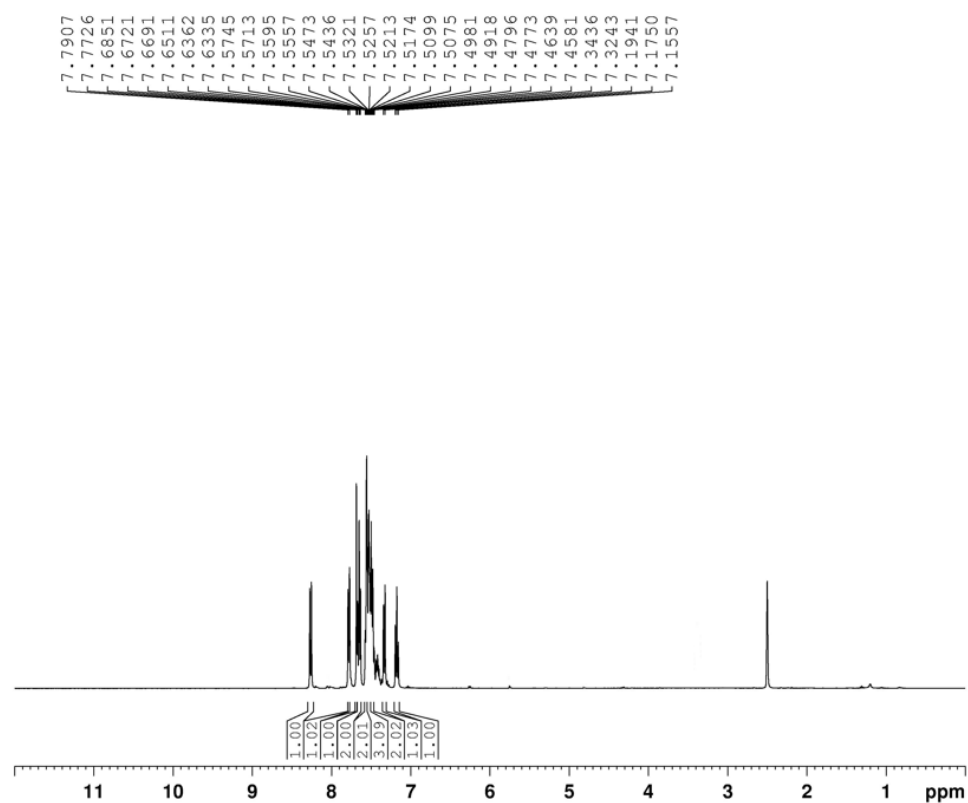


Figure S106. ¹H NMR spectrum of compound B1 (400 MHz, DMSO).

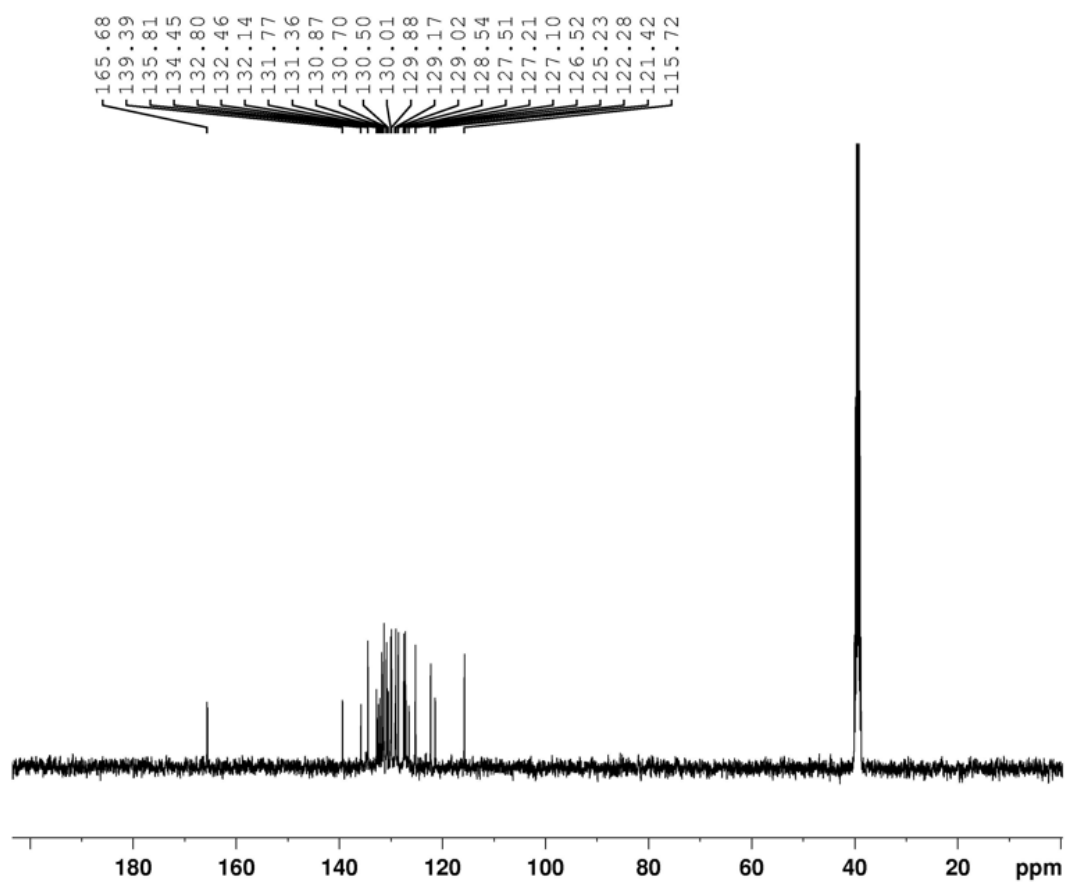


Figure S107. ¹³C NMR spectrum of compound B1 (101 MHz, DMSO).

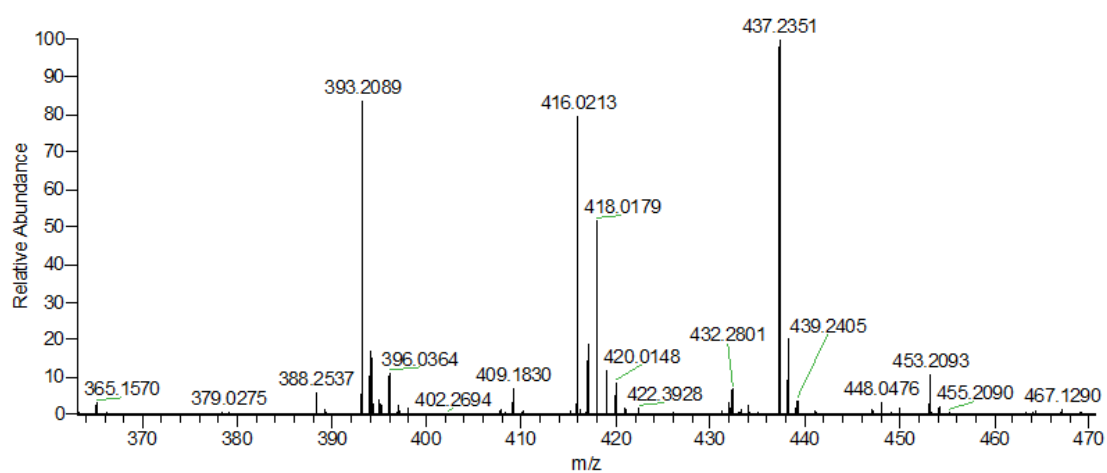


Figure S108. High resolution mass spectrum of compound B1.

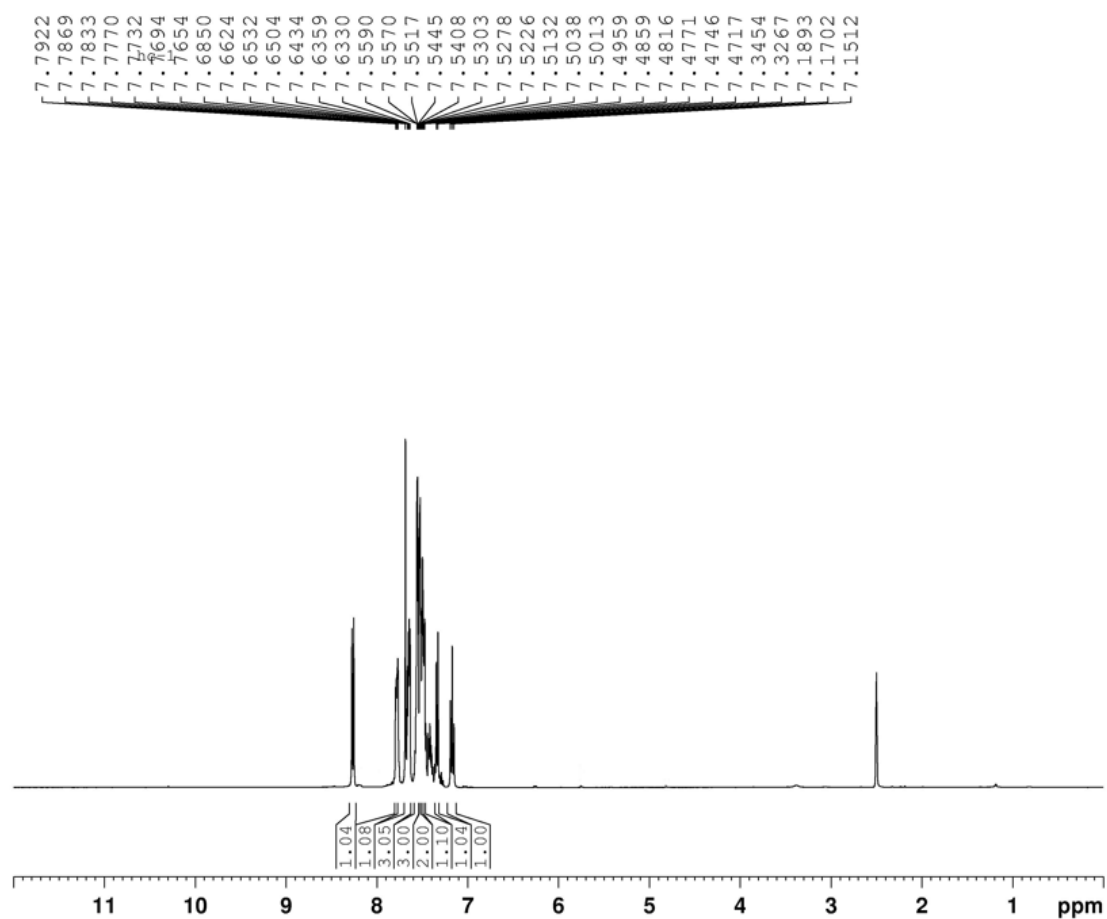


Figure S109. ^1H NMR spectrum of compound B2 (400 MHz, DMSO).

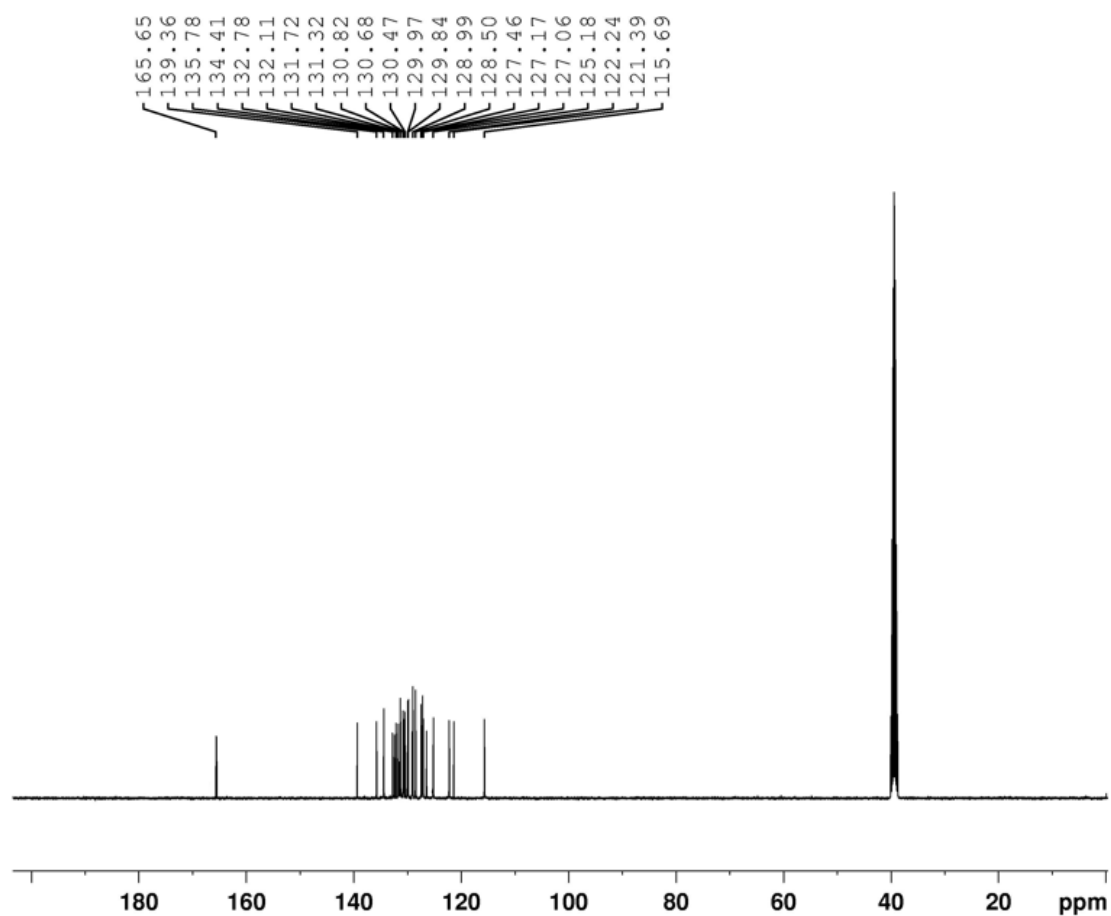


Figure S110. ¹³C NMR spectrum of compound B2 (101 MHz, DMSO).

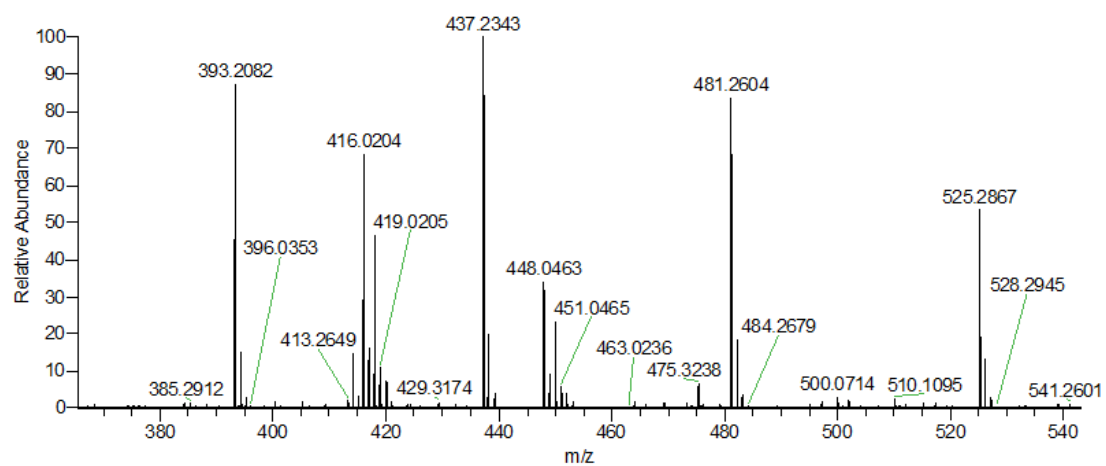


Figure S111. High resolution mass spectrum of compound B2.

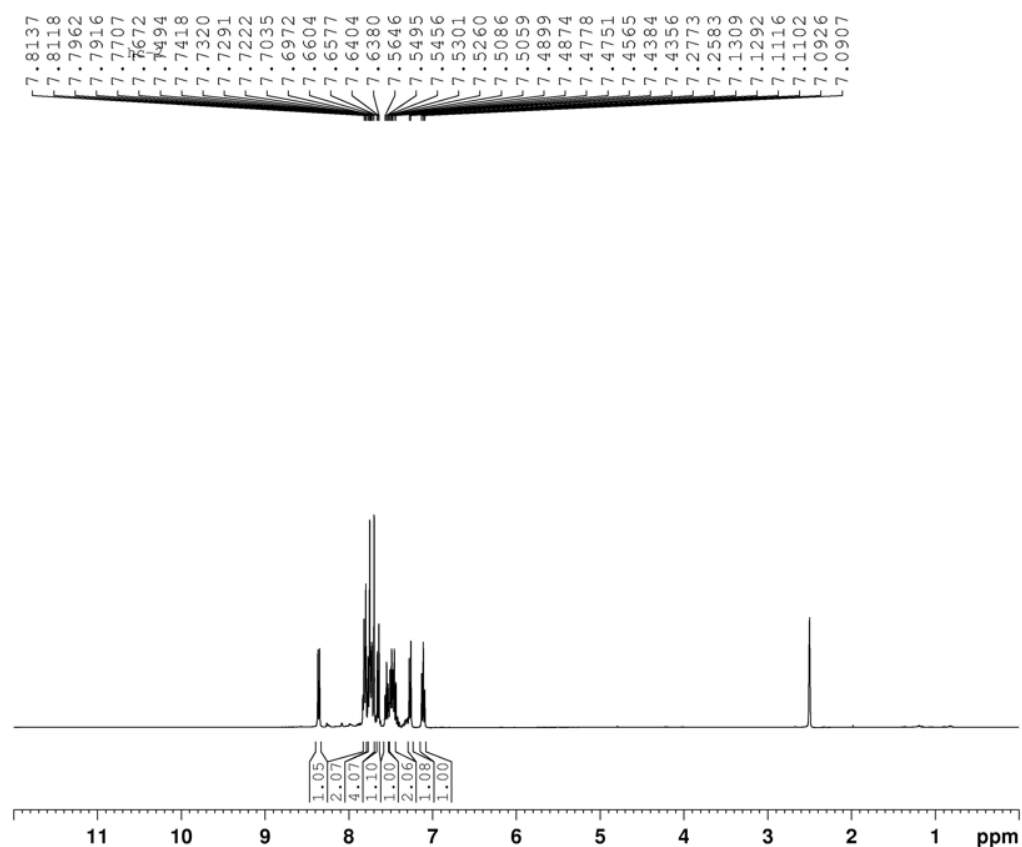


Figure S112. ¹H NMR spectrum of compound B3 (400 MHz, DMSO).

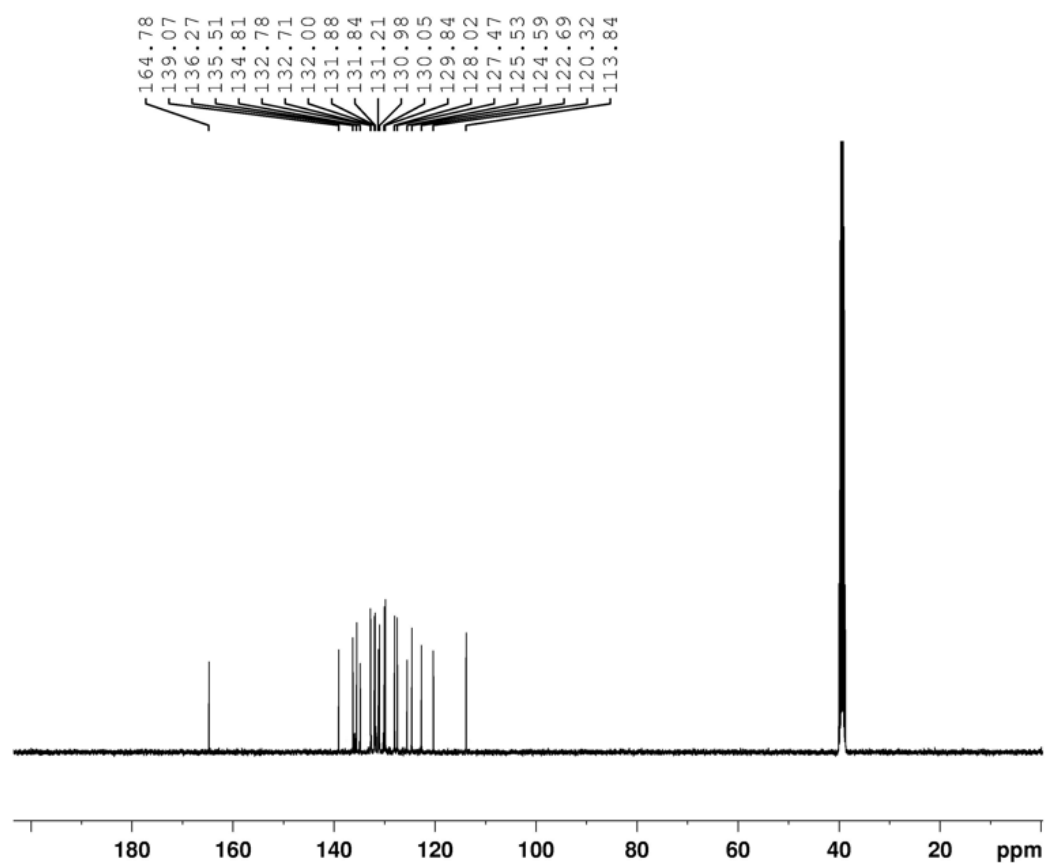


Figure S113. ¹³C NMR spectrum of compound B3 (101 MHz, DMSO).

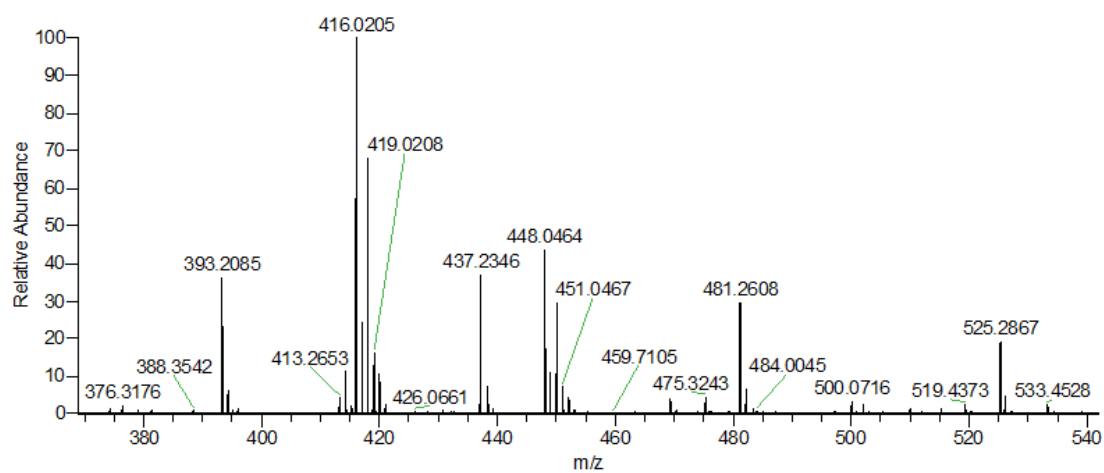


Figure S114. High resolution mass spectrum of compound B3.

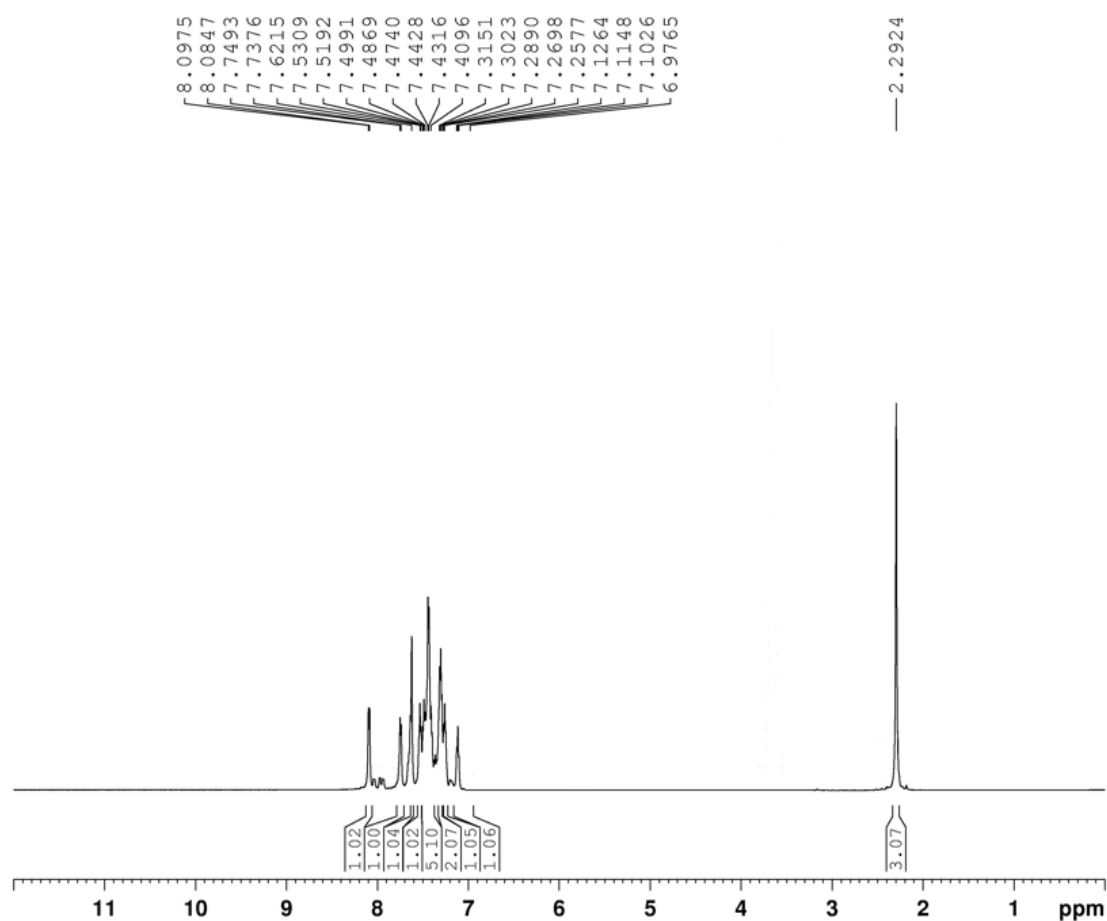


Figure S115. ¹H NMR spectrum of compound B4 (600 MHz, DMSO).

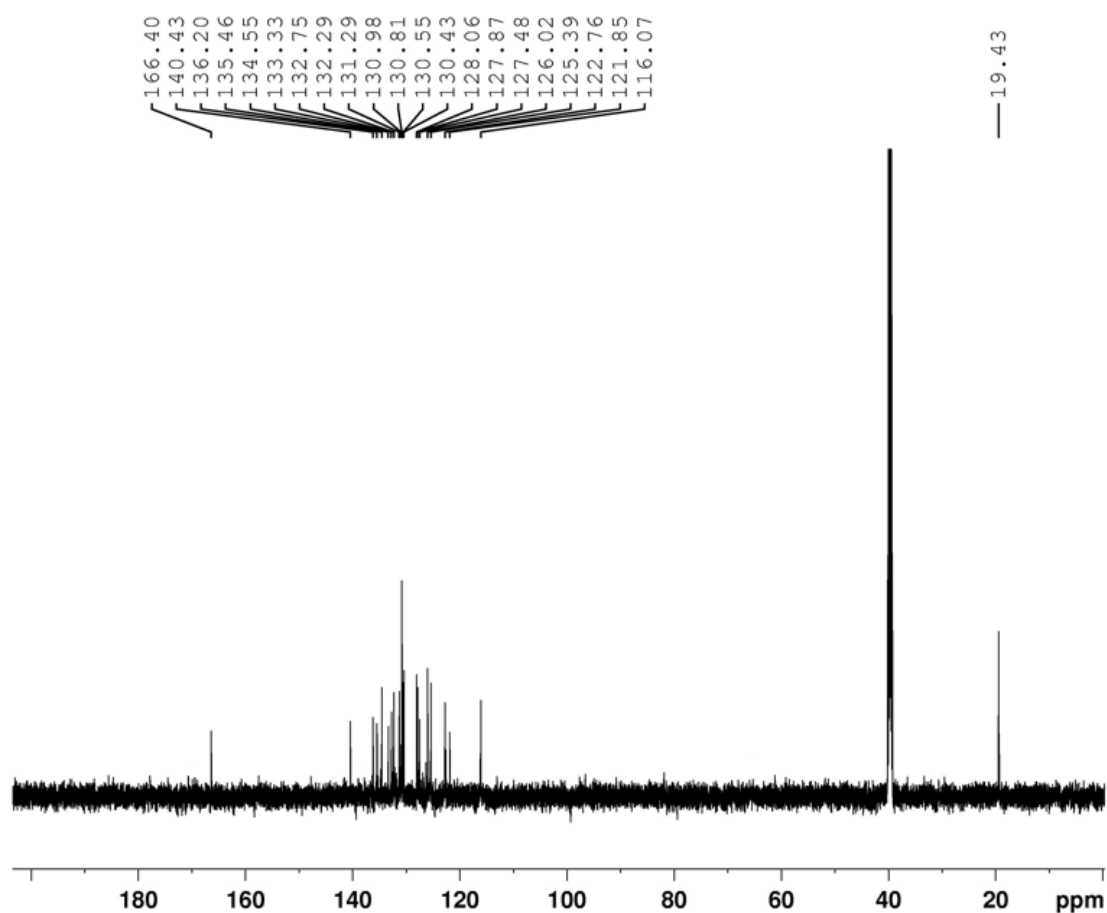


Figure S116. ¹³C NMR spectrum of compound B4 (151 MHz, DMSO).

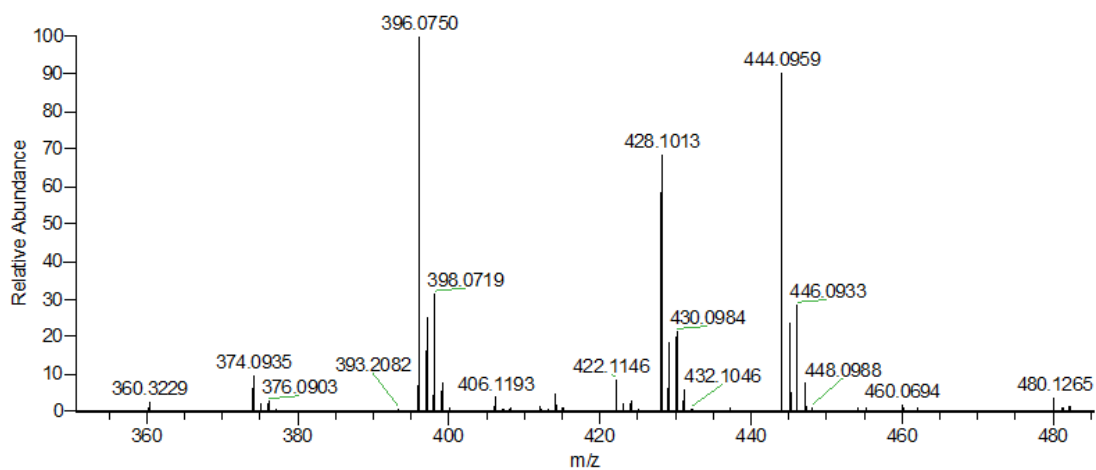


Figure S117. High resolution mass spectrum of compound B4.

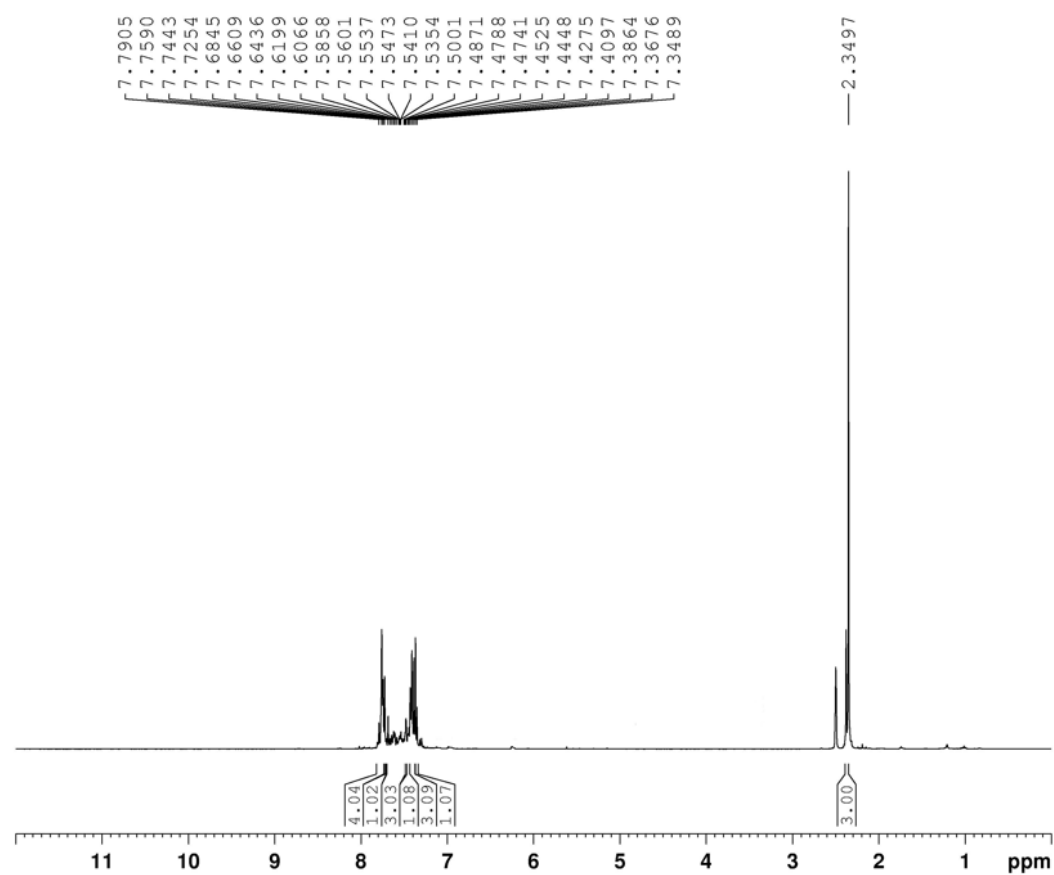


Figure S118. ¹H NMR spectrum of compound B5 (400 MHz, DMSO).

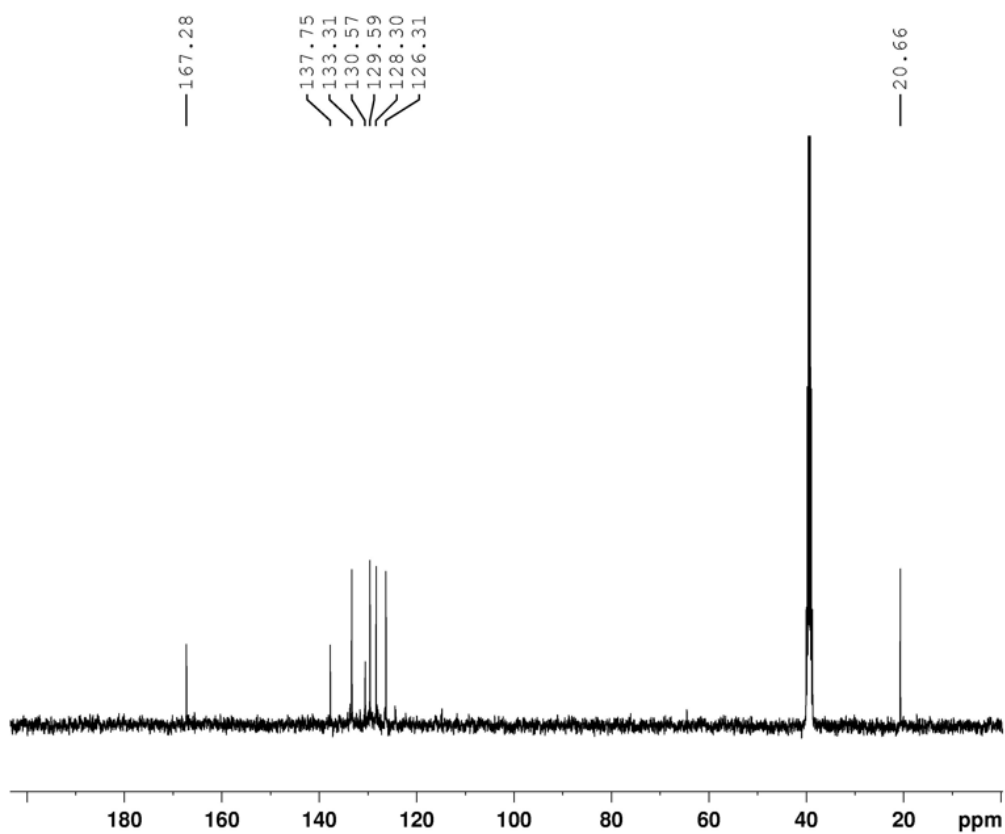


Figure S119. ¹³C NMR spectrum of compound B5 (101 MHz, DMSO).

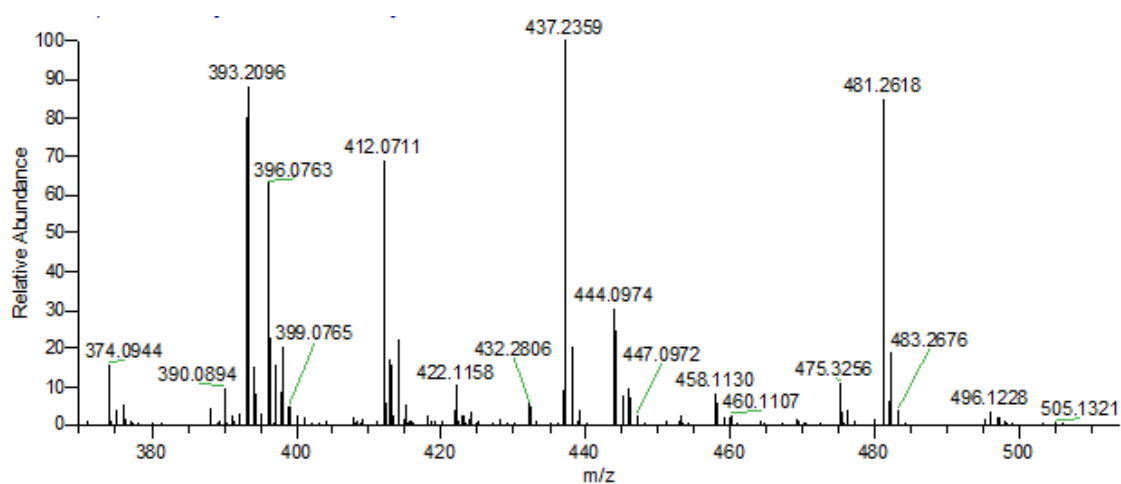


Figure S120. High resolution mass spectrum of compound B5.

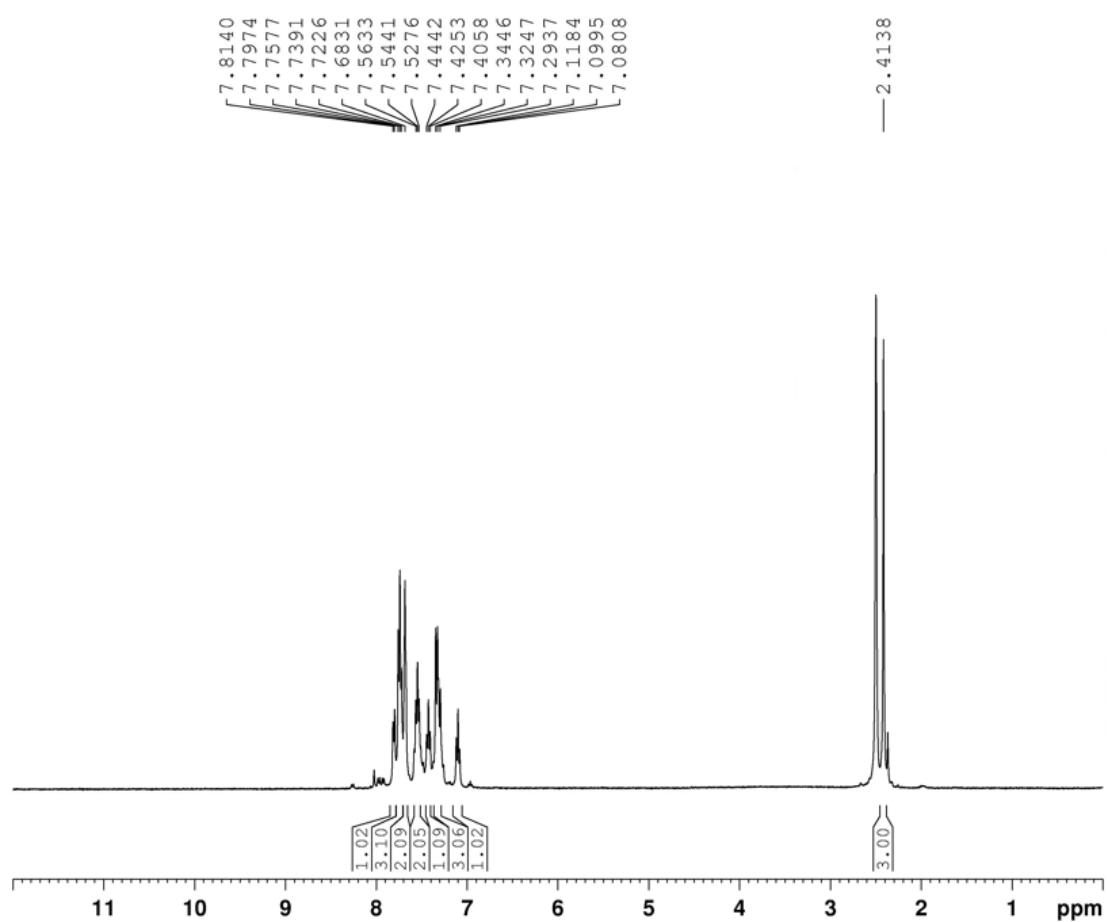


Figure S121. ^1H NMR spectrum of compound B6 (400 MHz, DMSO).

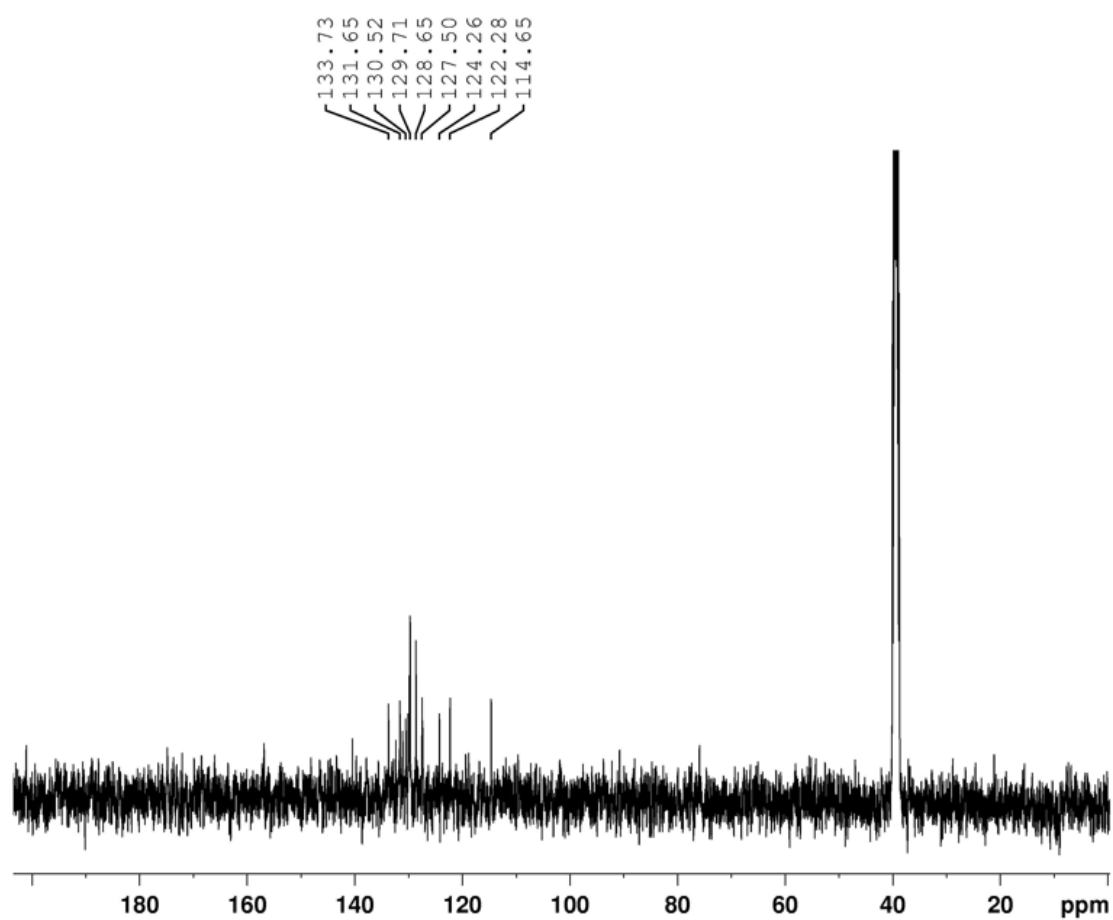


Figure S122. ^{13}C NMR spectrum of compound B6 (101 MHz, DMSO).

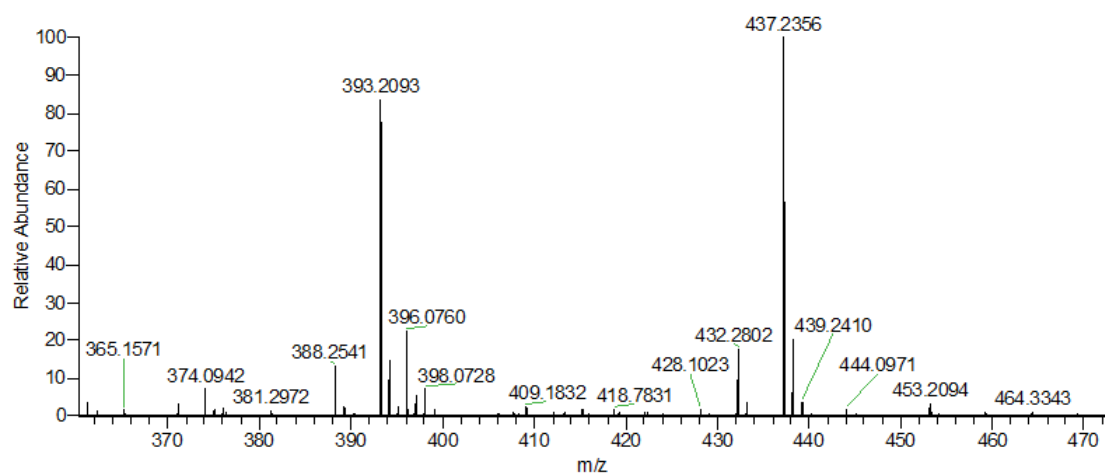


Figure S123. High resolution mass spectrum of compound B6.

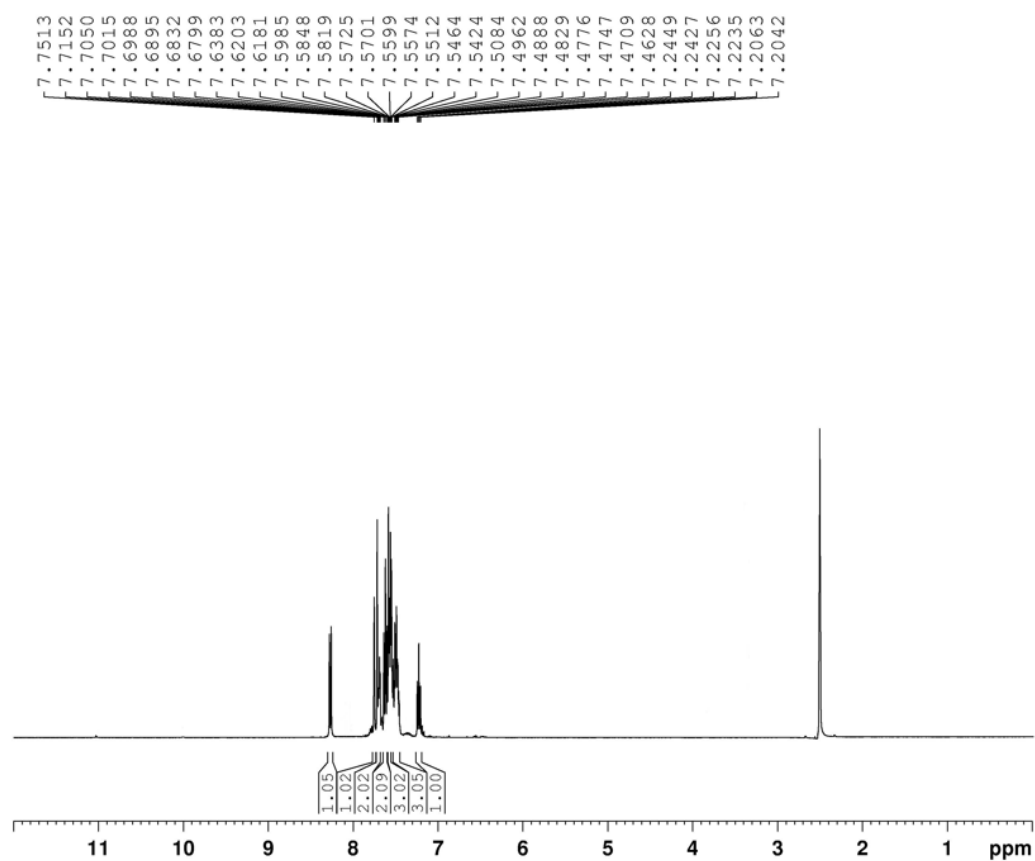


Figure S124. ¹H NMR spectrum of compound B7 (400 MHz, DMSO).

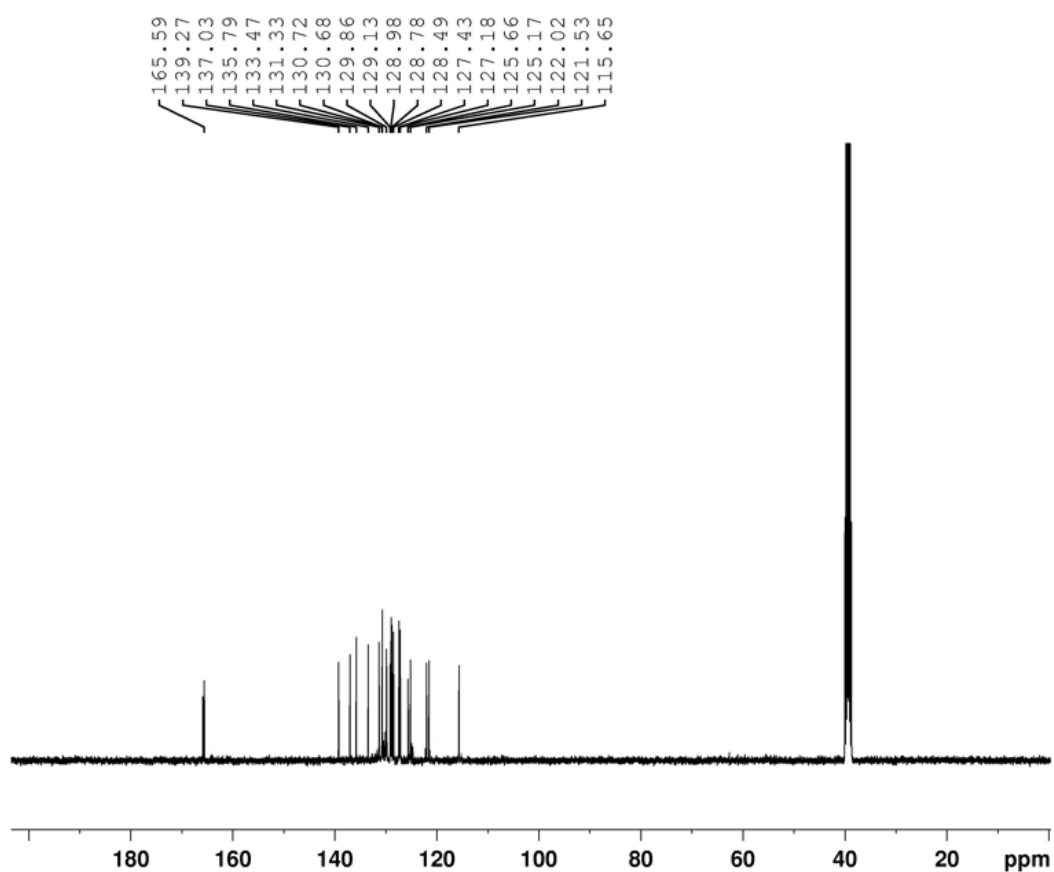


Figure S125. ¹³C NMR spectrum of compound B7 (101 MHz, DMSO).

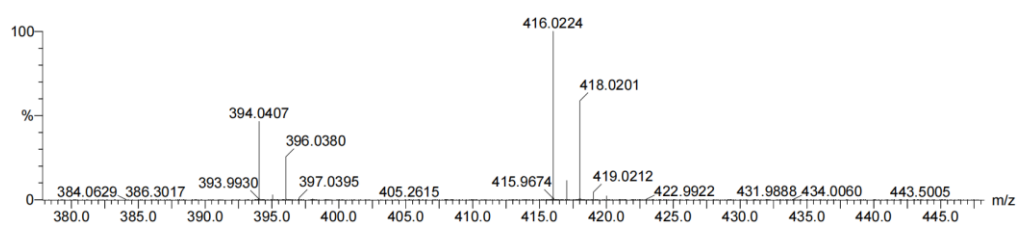


Figure S126. High resolution mass spectrum of compound B7.

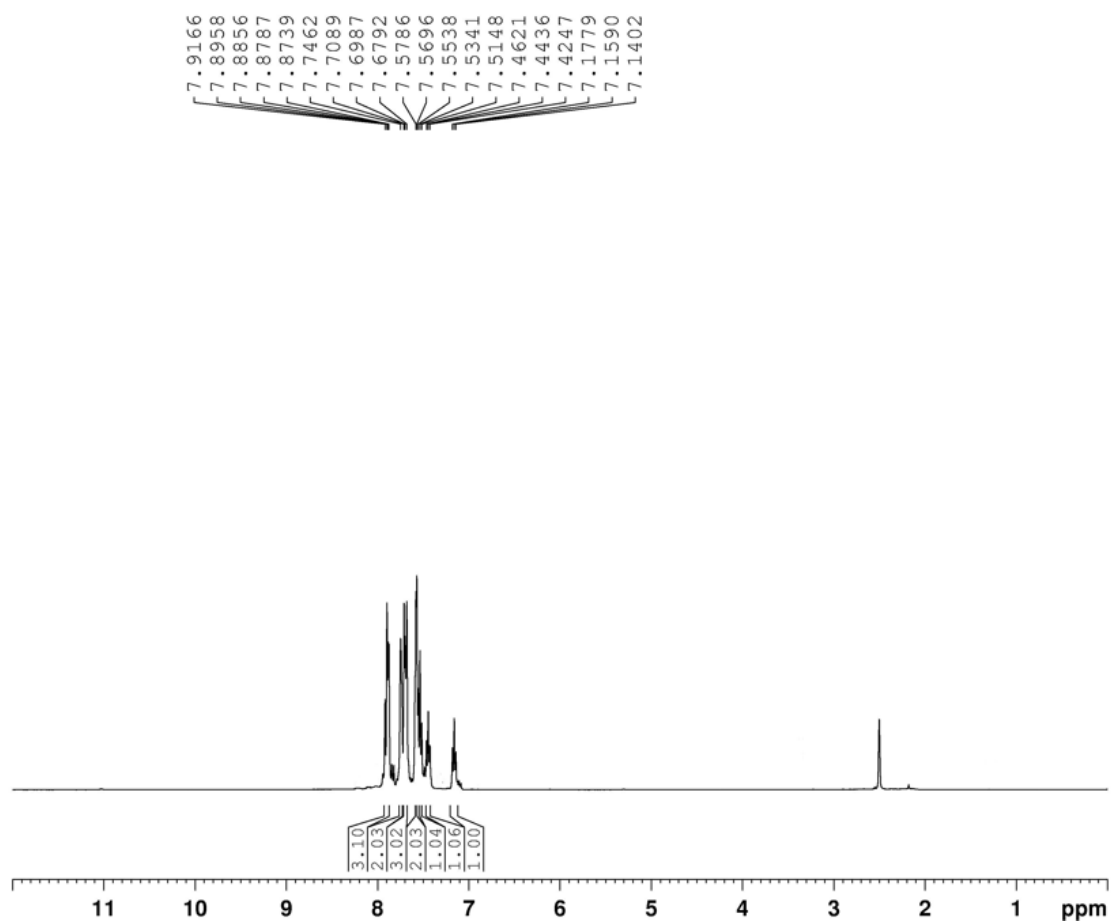


Figure S127. ^1H NMR spectrum of compound B8 (400 MHz, DMSO).

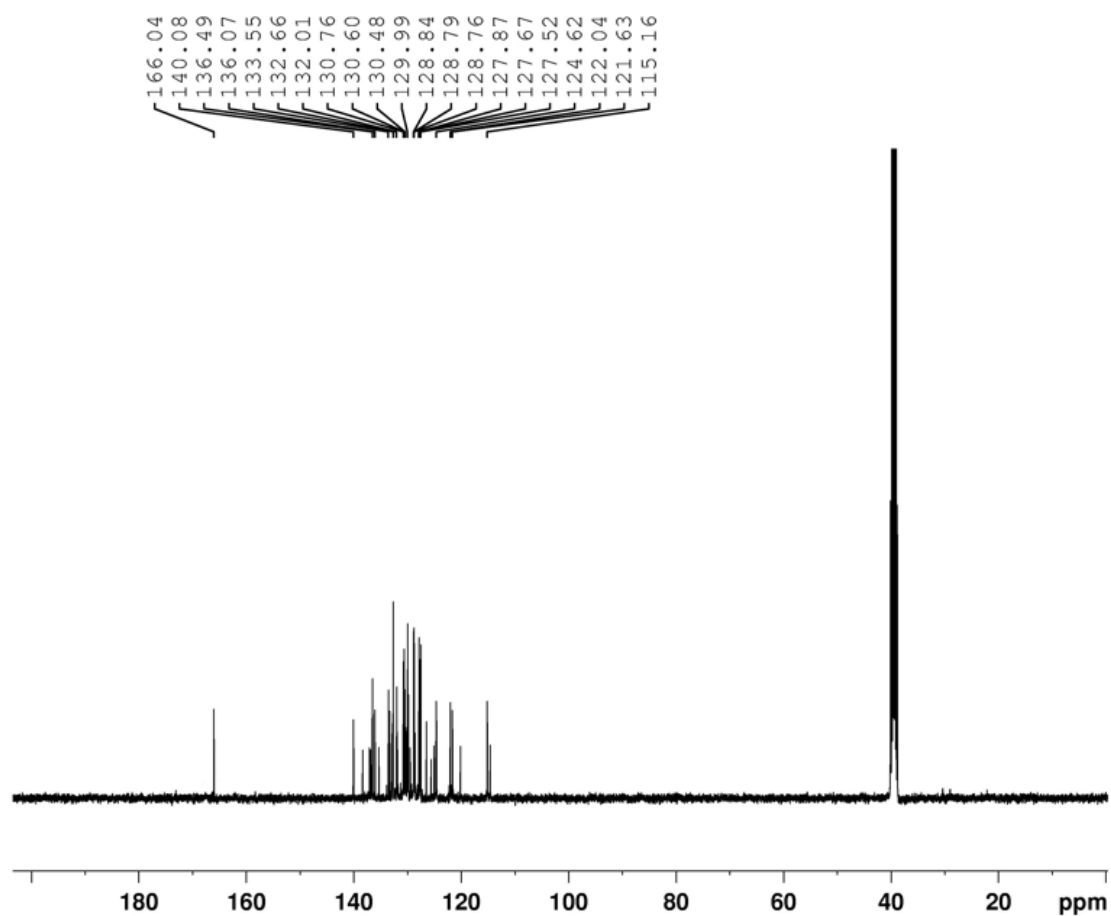


Figure S128. ¹³C NMR spectrum of compound B8 (101 MHz, DMSO).

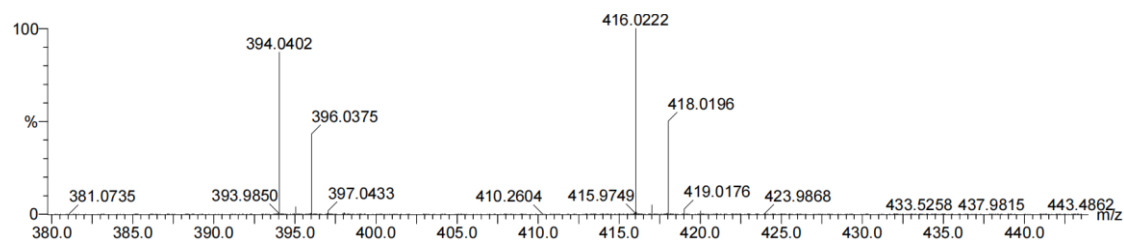


Figure S129. High resolution mass spectrum of compound B8.

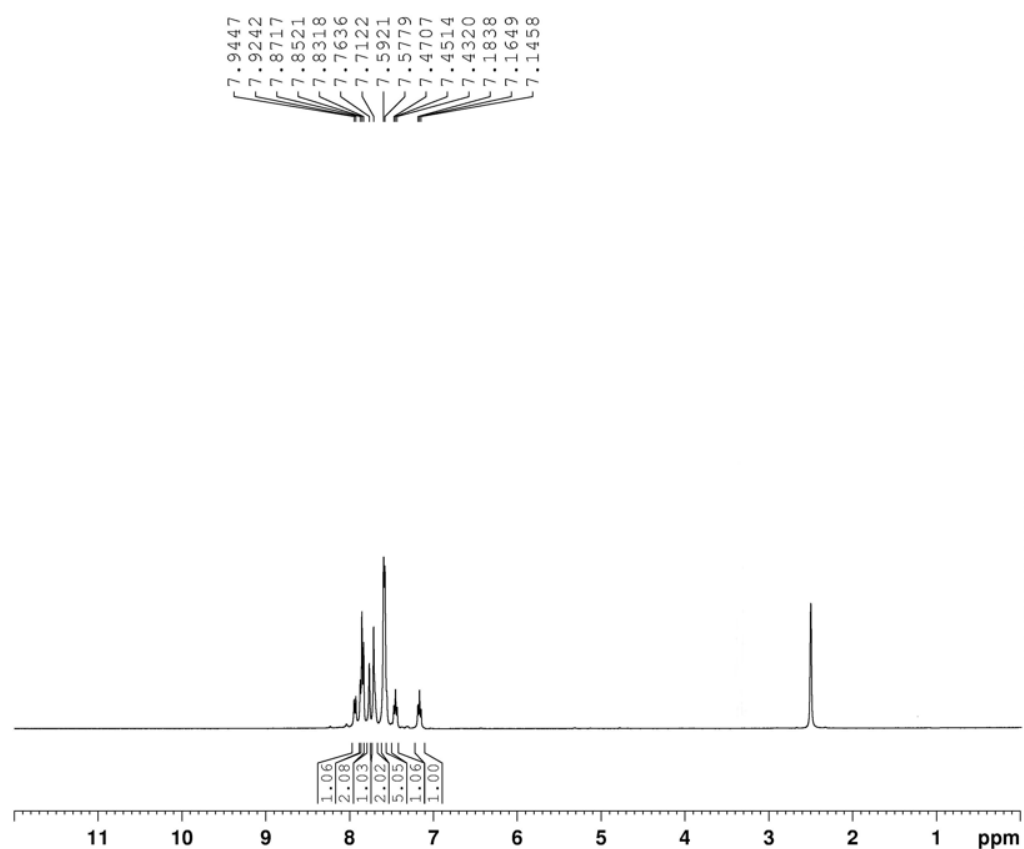


Figure S130. ¹H NMR spectrum of compound B9 (400 MHz, DMSO).

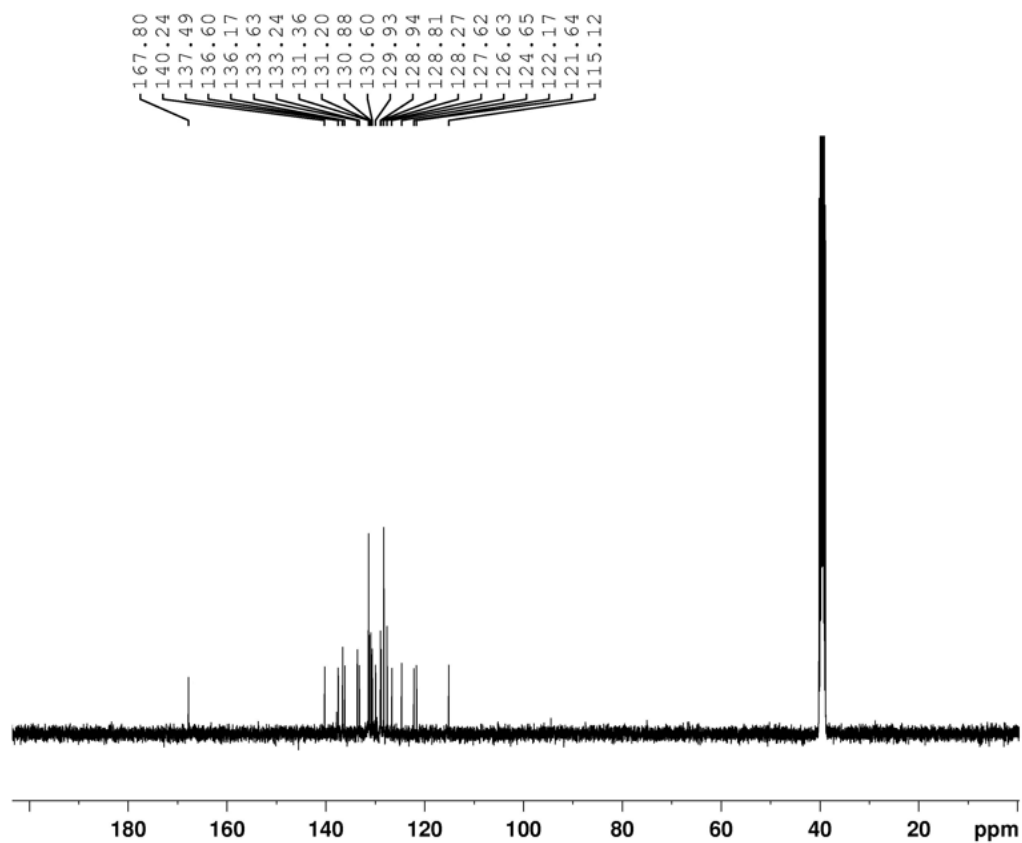


Figure S131. ¹³C NMR spectrum of compound B9 (101 MHz, DMSO).

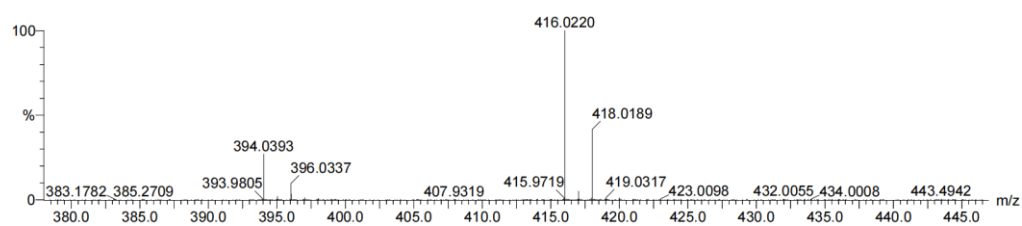


Figure S132. High resolution mass spectrum of compound B9.

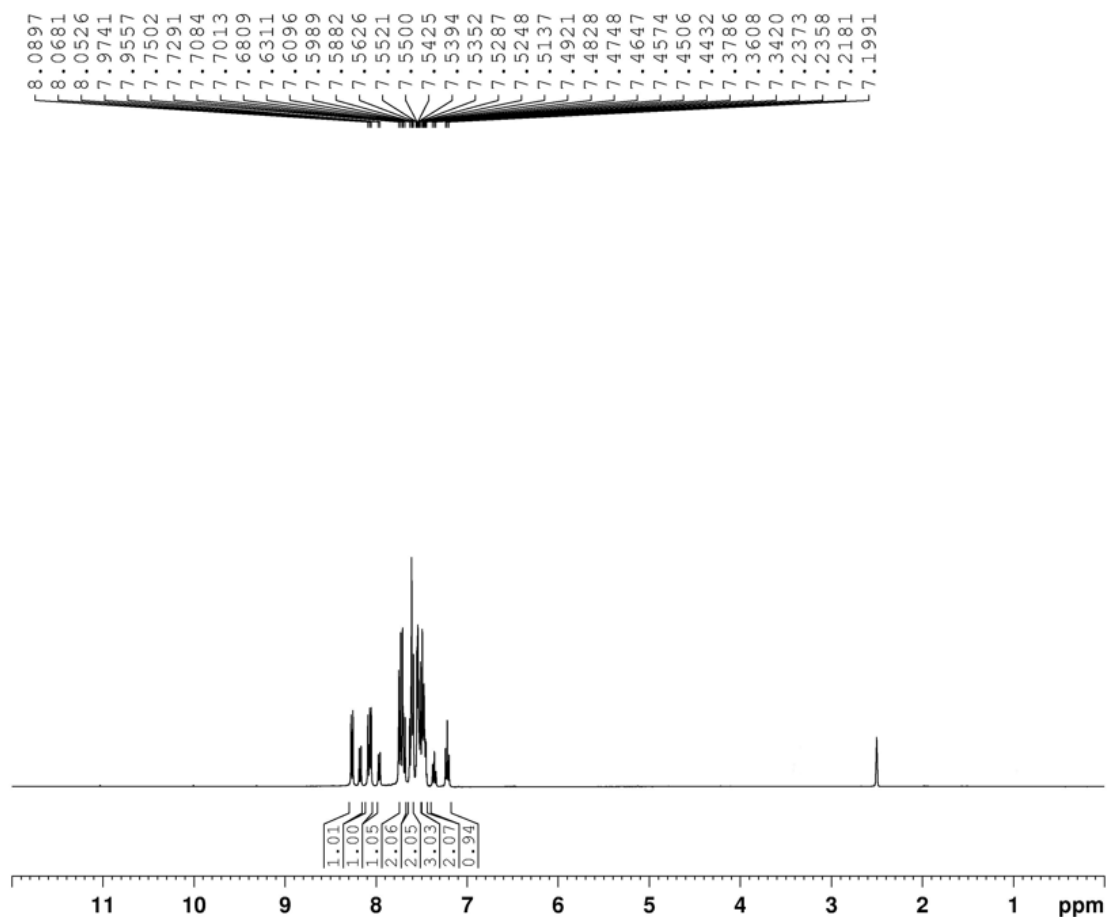


Figure S133. ¹H NMR spectrum of compound B10 (400 MHz, DMSO).

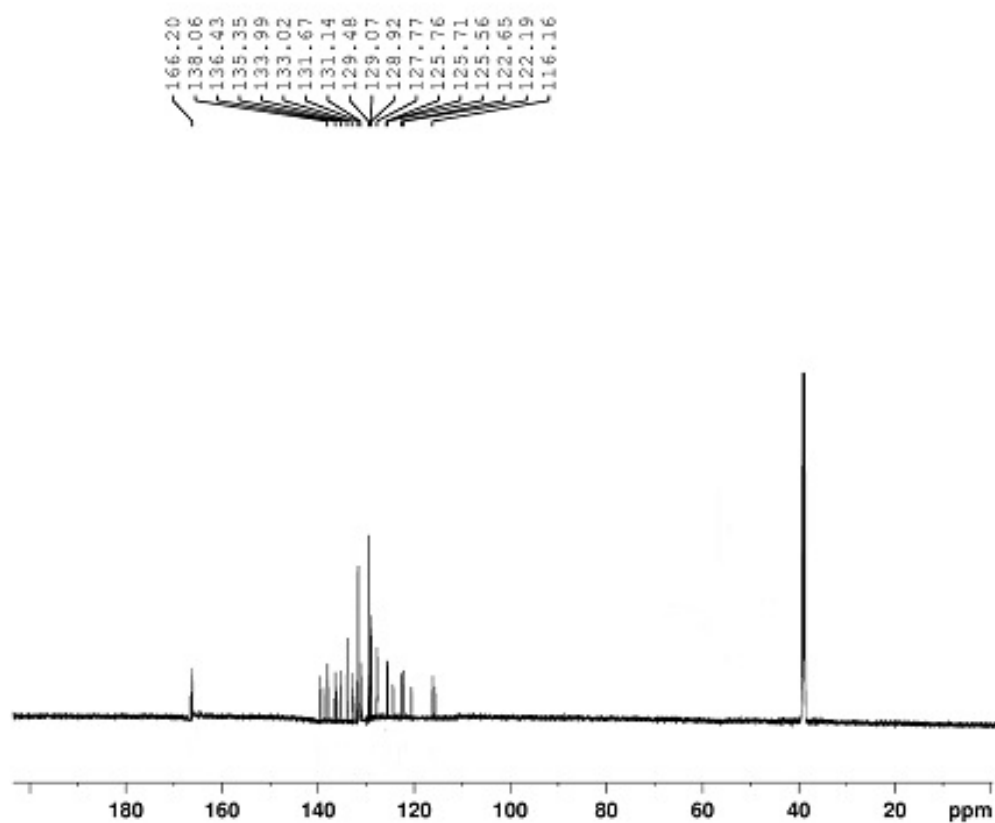


Figure S134. ¹³C NMR spectrum of compound B10 (101 MHz, DMSO).

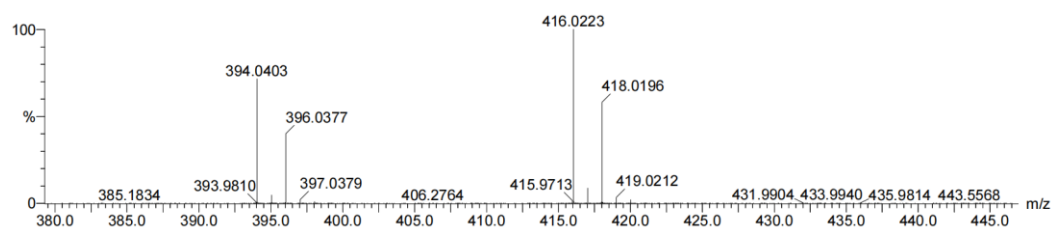


Figure S135: High resolution mass spectrum of compound B10.