**Structural elucidation,** **antioxidant and hepatoprotective activities of** **chemical composition from Jinsi Huangju (*Chrysanthemum morifolium*) flowers**

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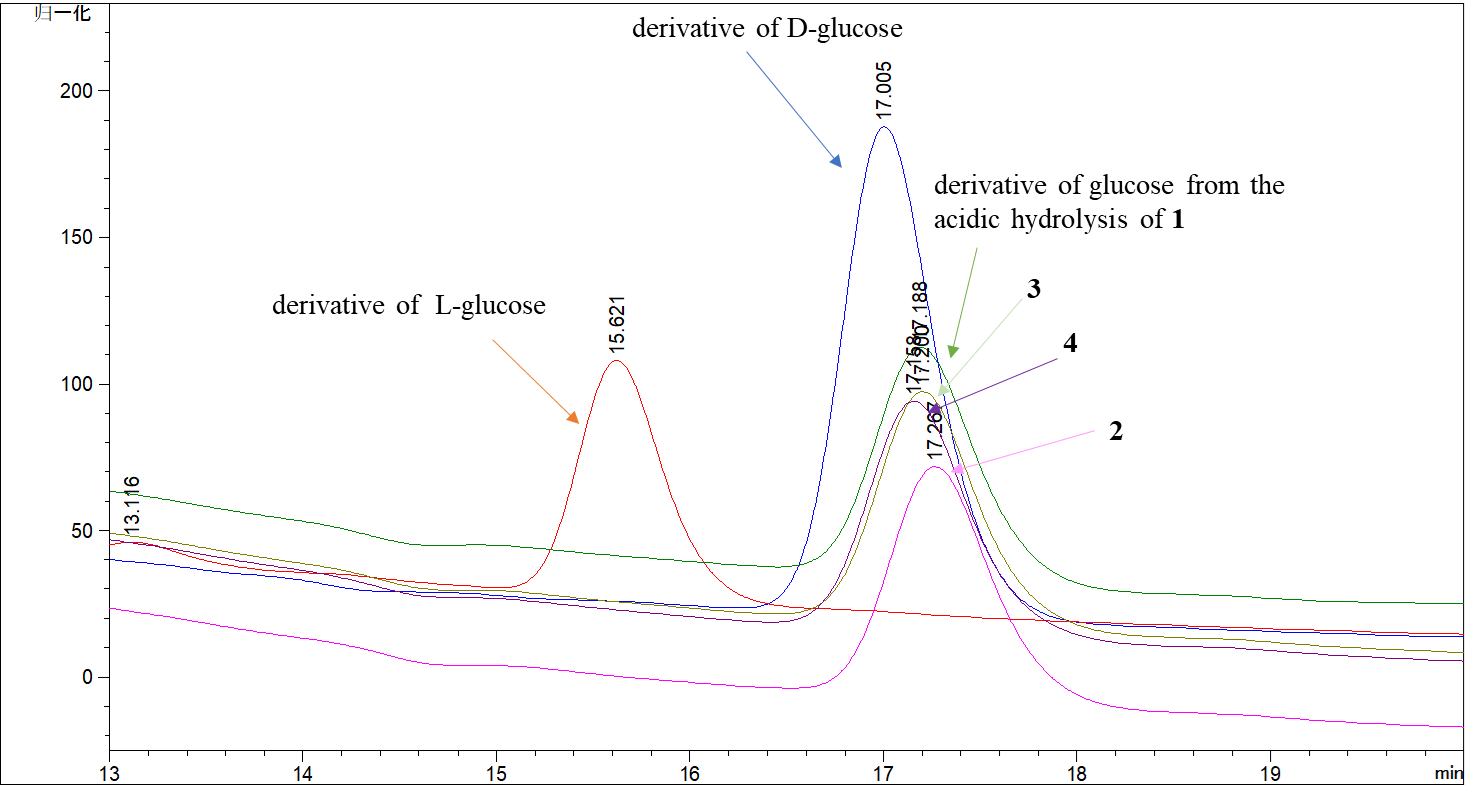
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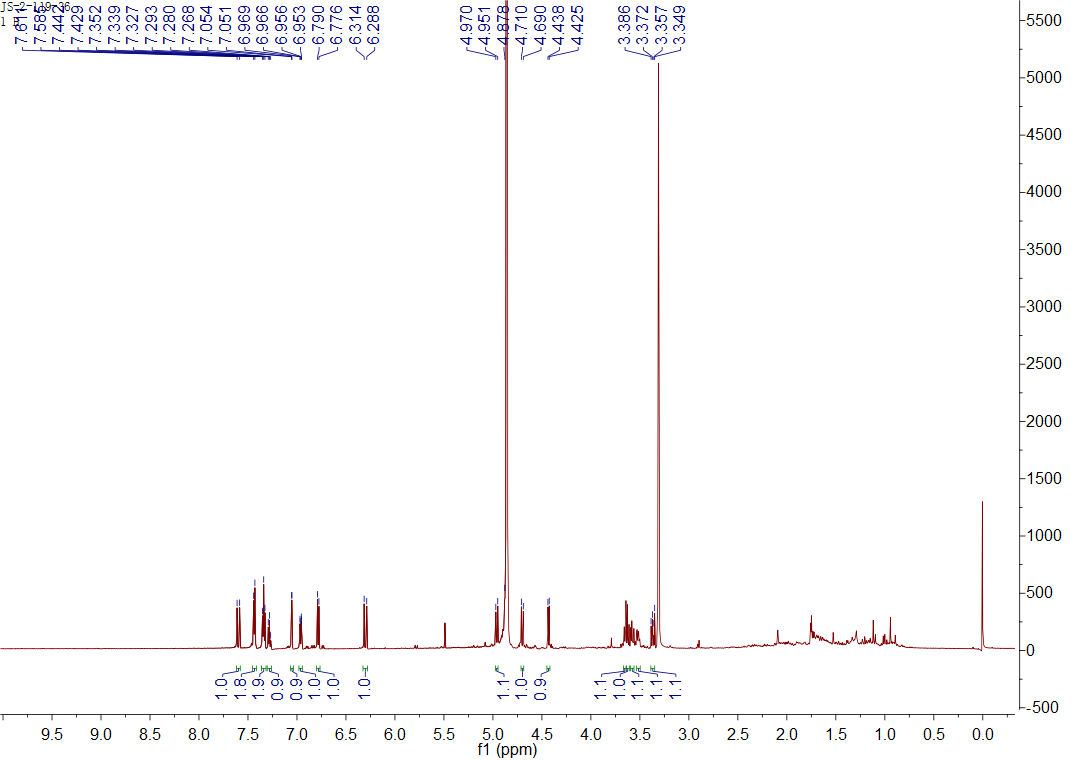
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## Table S1 Antibacterial activities of some compounds.

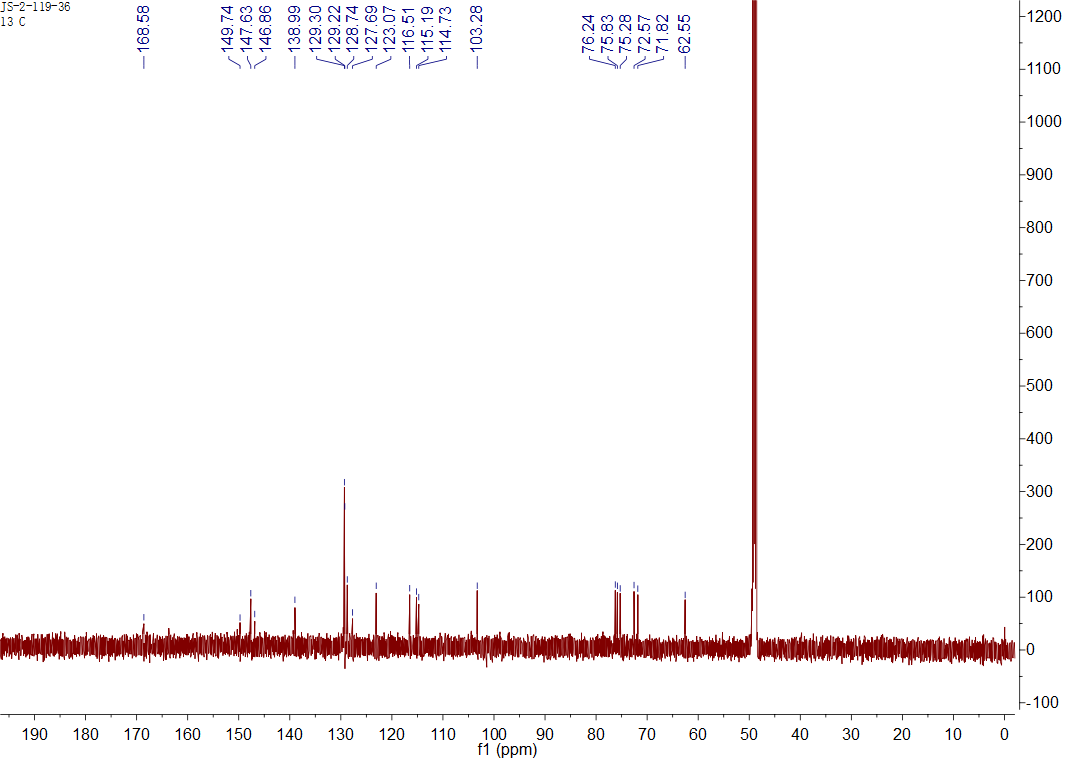
|  |  |  |  |
| --- | --- | --- | --- |
| Compounds | MIC (μg/mL) | | |
| *S. aureus* (ATCC6538) | *E. coli* (ATCC27853) | *P. aeruginosa* (ATCC27853) |
| **1** | - | - | ＞432 |
| **2** | ＞223.0 | - | - |
| **5** | ＞272.5 | 545.0 | 34.0 |
| **6** | 272.5 | 545.0 | 34.1 |
| **7** | - | - | - |
| **8** | 132.5 | ＞530.0 | 66.6 |
| **10** | - | - | - |
| **13** | ＞304 | - | 76.0 |
| **14** | ＞284.0 | - | - |
| **15** | 108.1 | 432.0 | 108.0 |
| **17** | - | - | 180.0 |
| **18** | - | - | 165.0 |
| **19** | 22.5 | - | 180.0 |
| **20** | - | - | 98.0 |
| **21** | - | - | 121.0 |
| **35** | - | - | 81.0 |
| **39** | - | - | 261.0 |
| **44** | - | - | 169.0 |
| ethanol extracts | 250.0 | - | 250.0 |
| PE extracts | 500.0 | - | - |
| EA extracts | - | - | - |
| oxacillin | 0.078 | 137.06 | 102.24 |



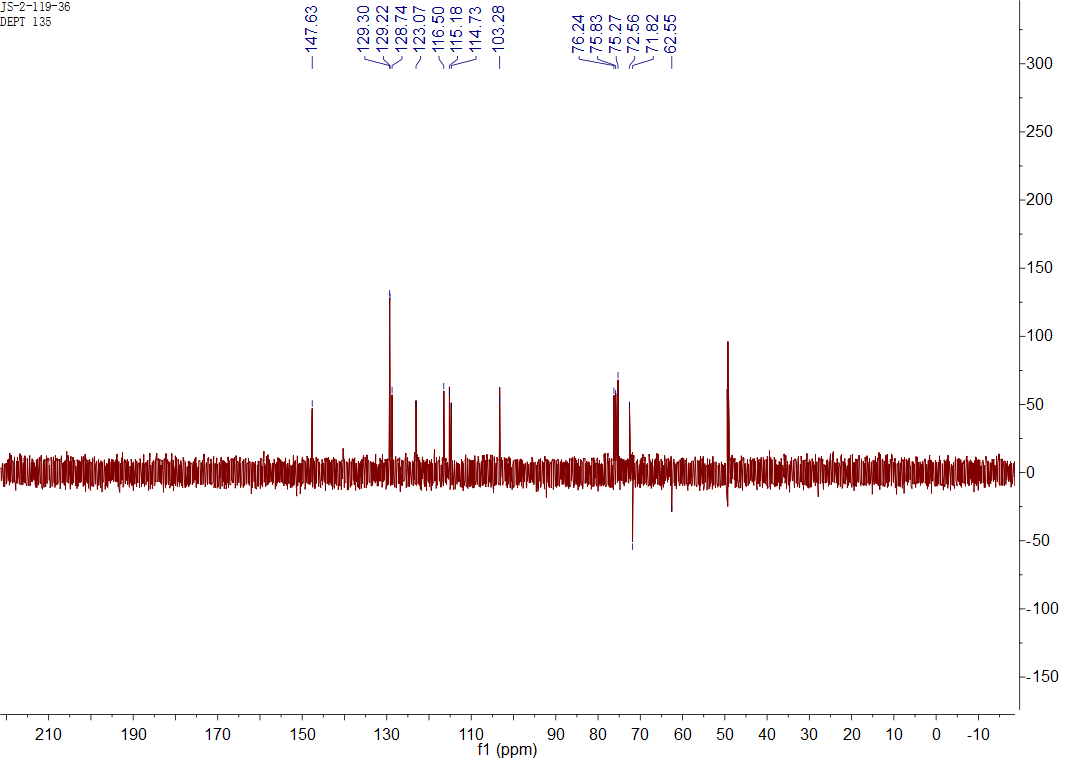
## Figure S1. A comparative HPLC analysis of the derivative of glucose from the acidic hydrolysis of **1**-**4**, L-glucose and D-glucose.



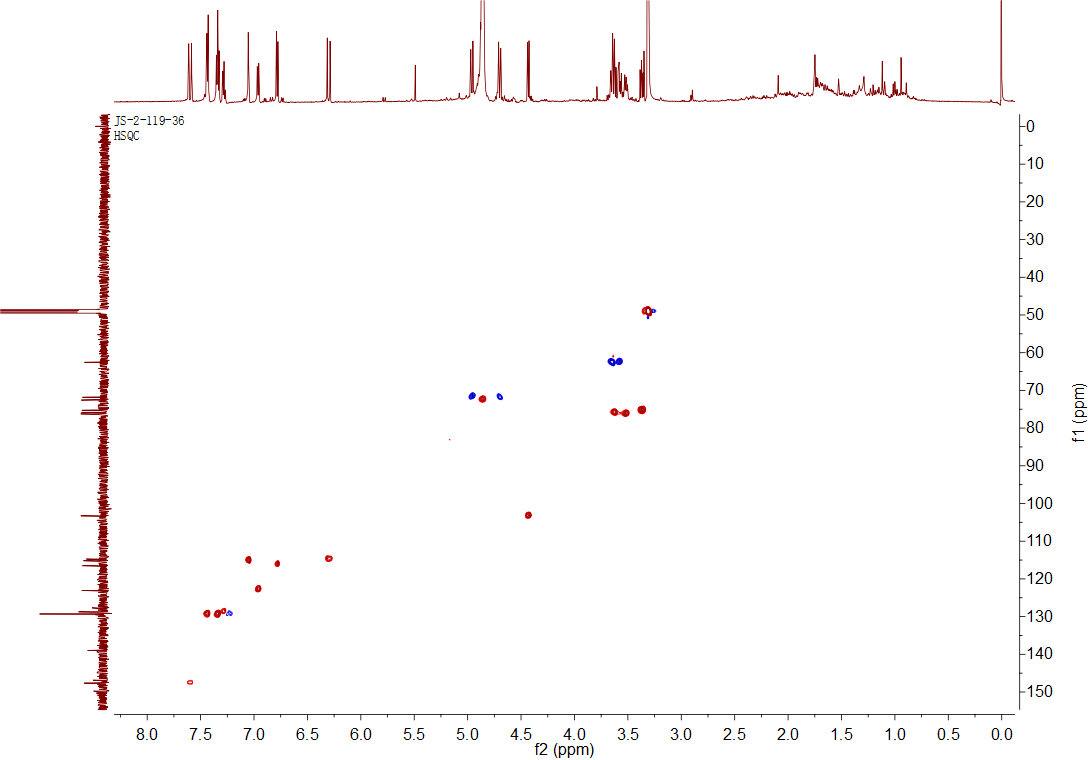
## Figure S2. The 1H NMR spectrum of **1** in CD3OD



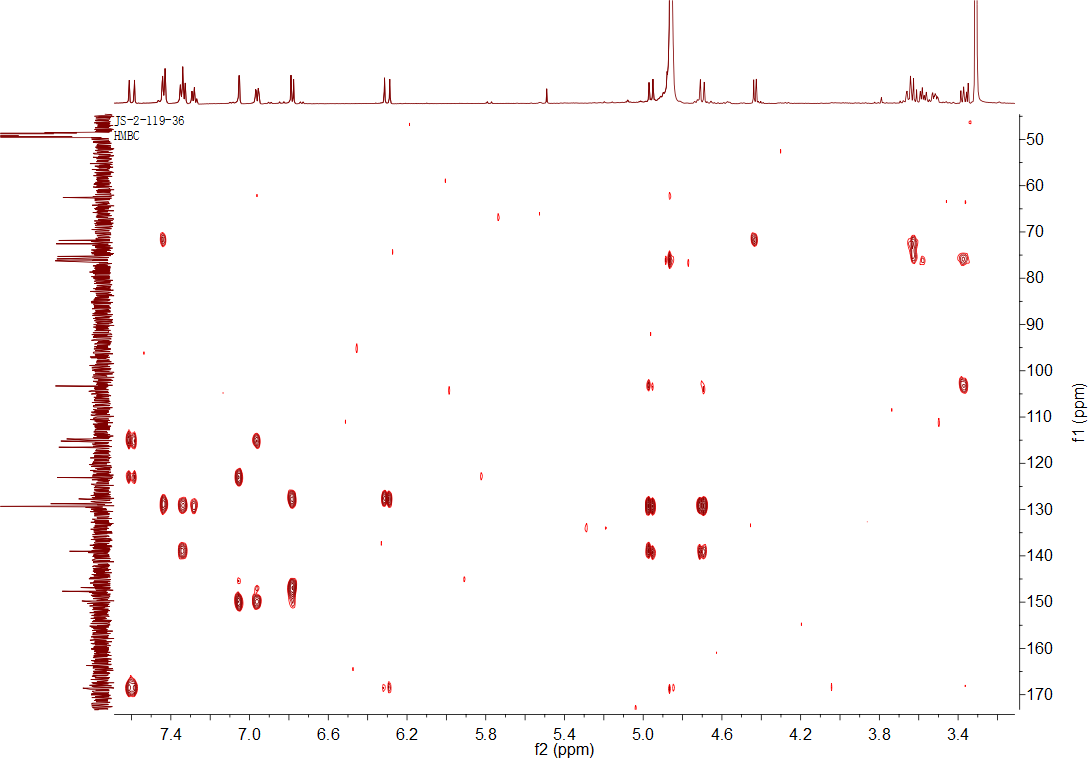
## Figure S3. The 13C NMR spectrum of **1** in CD3OD



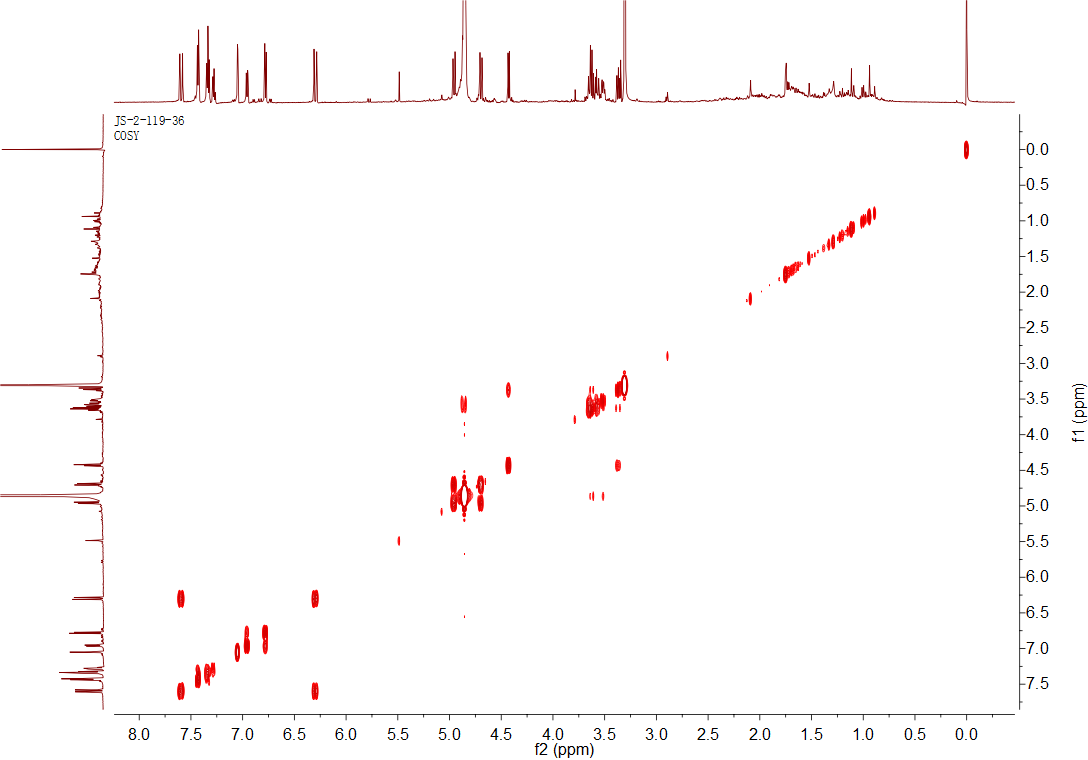
## Figure S4. The Dept spectrum of **1** in CD3OD



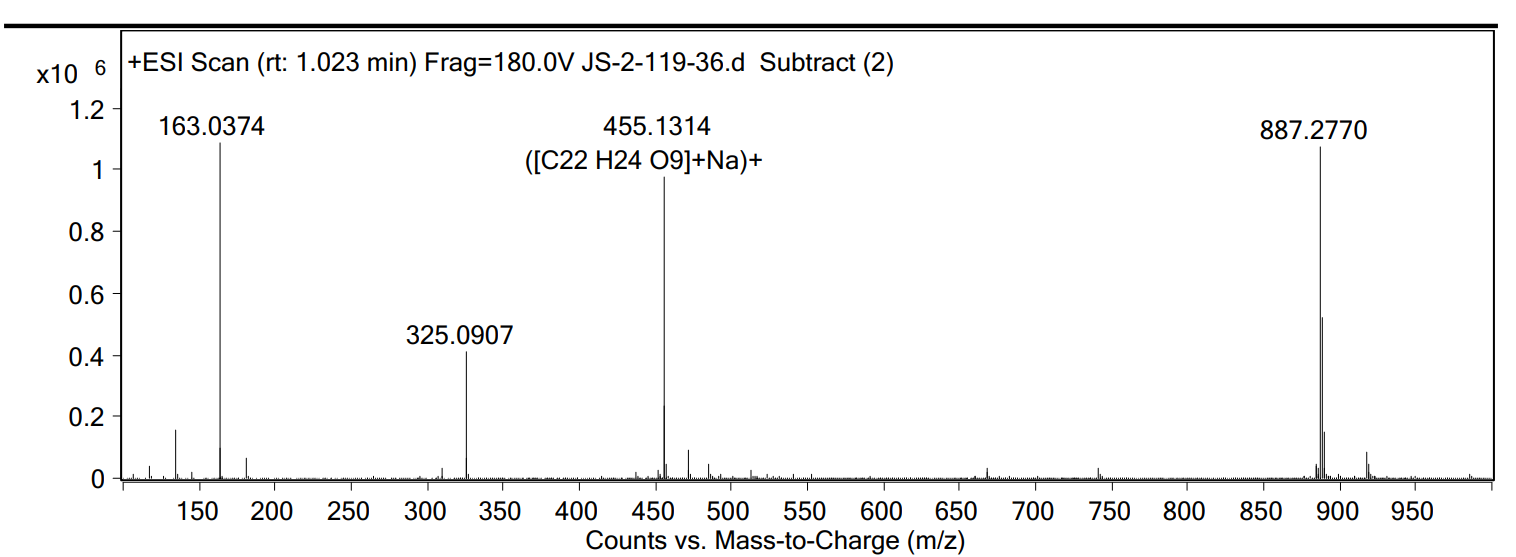
## Figure S5. The HSQC spectrum of **1** in CD3OD



## Figure S6. The HMBC spectrum of **1** in CD3OD



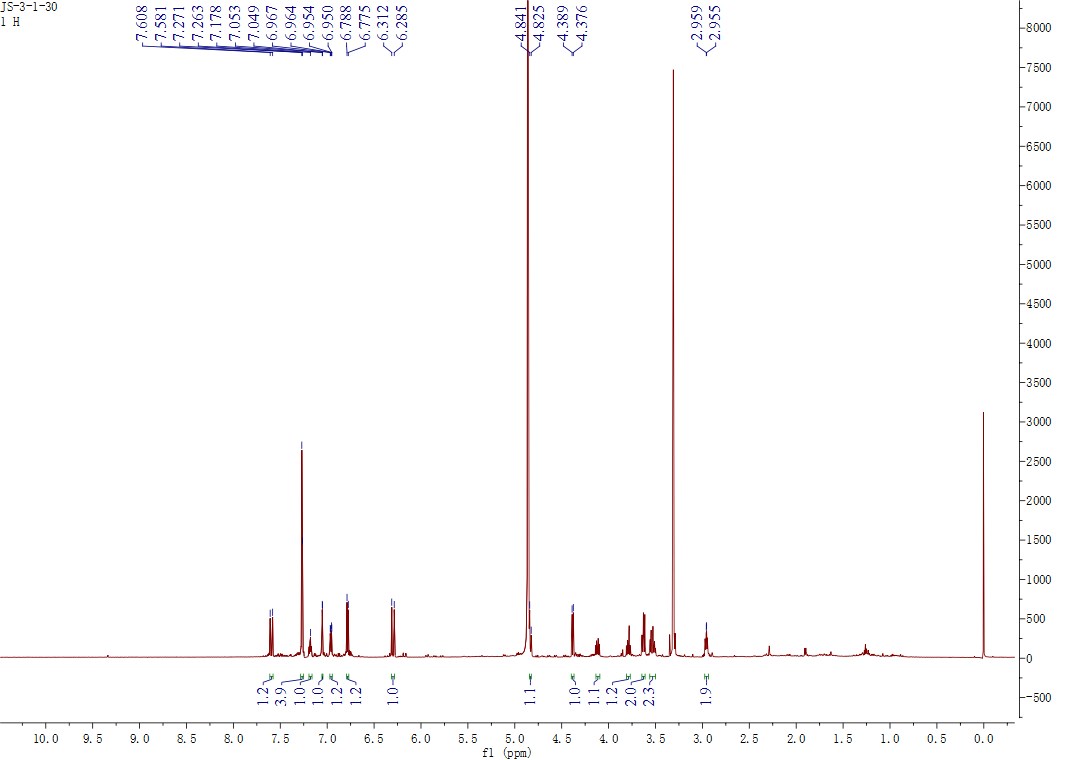
## Figure S7. The 1H-1H COSY spectrum of **1** in CD3OD



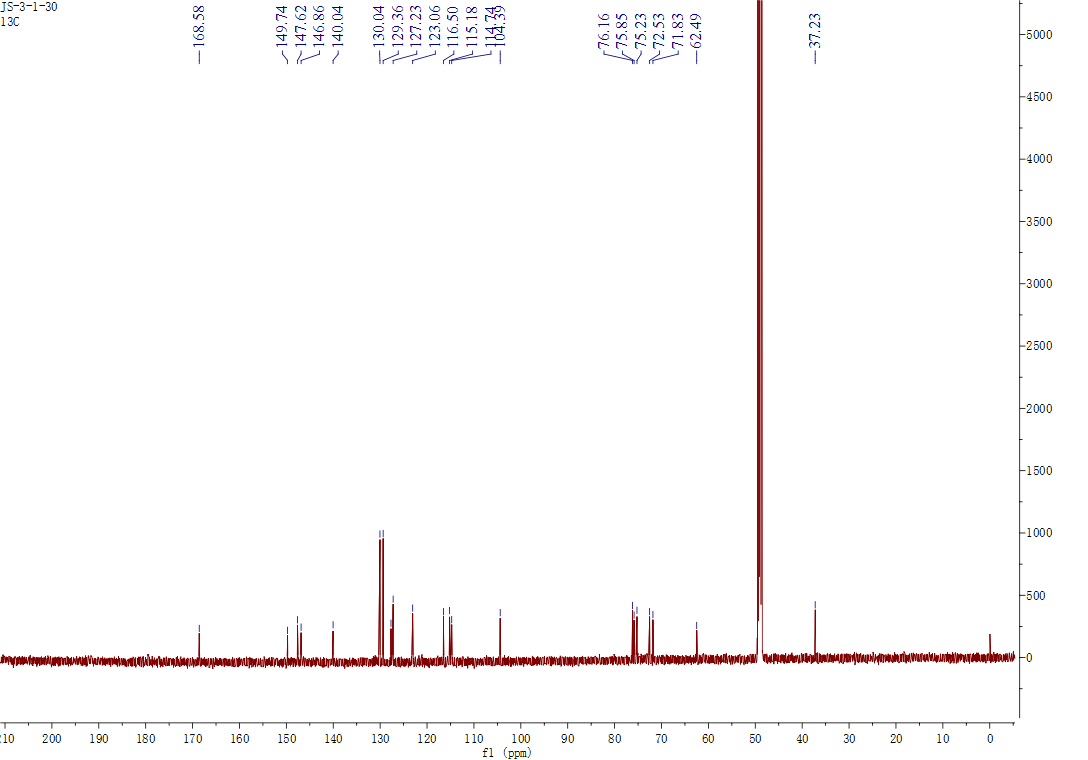
## Figure S8. The HRESIMS data of **1**



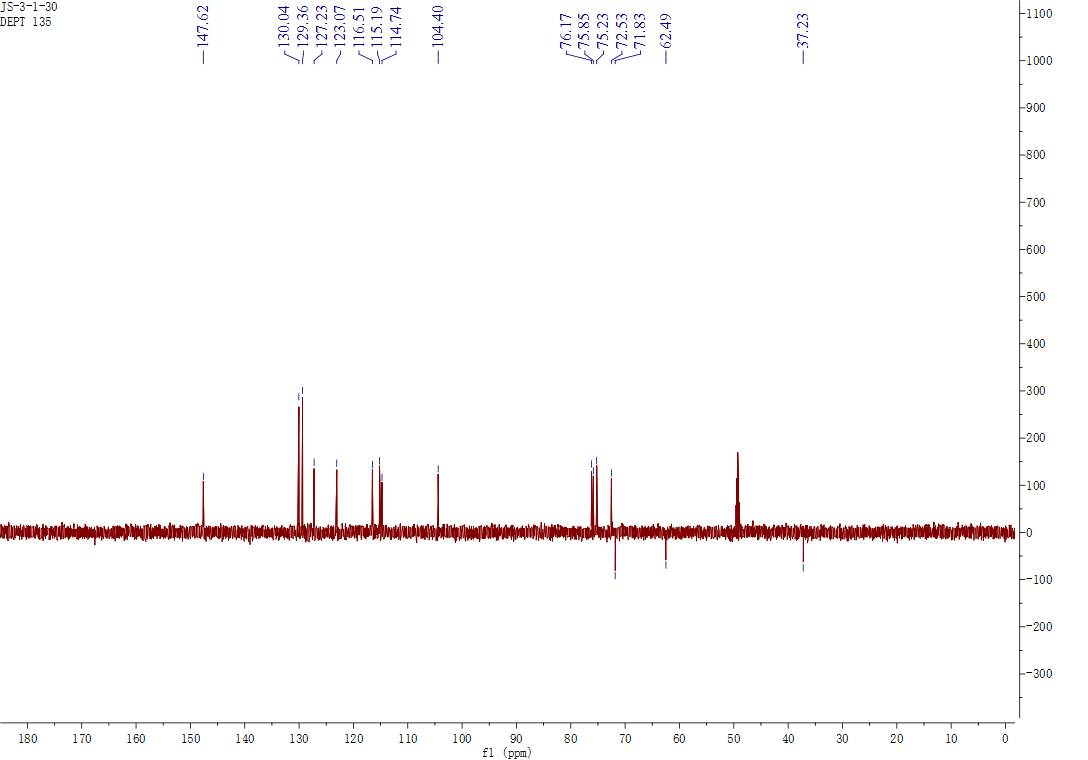
## Figure S9. The IR spectrum of **1**



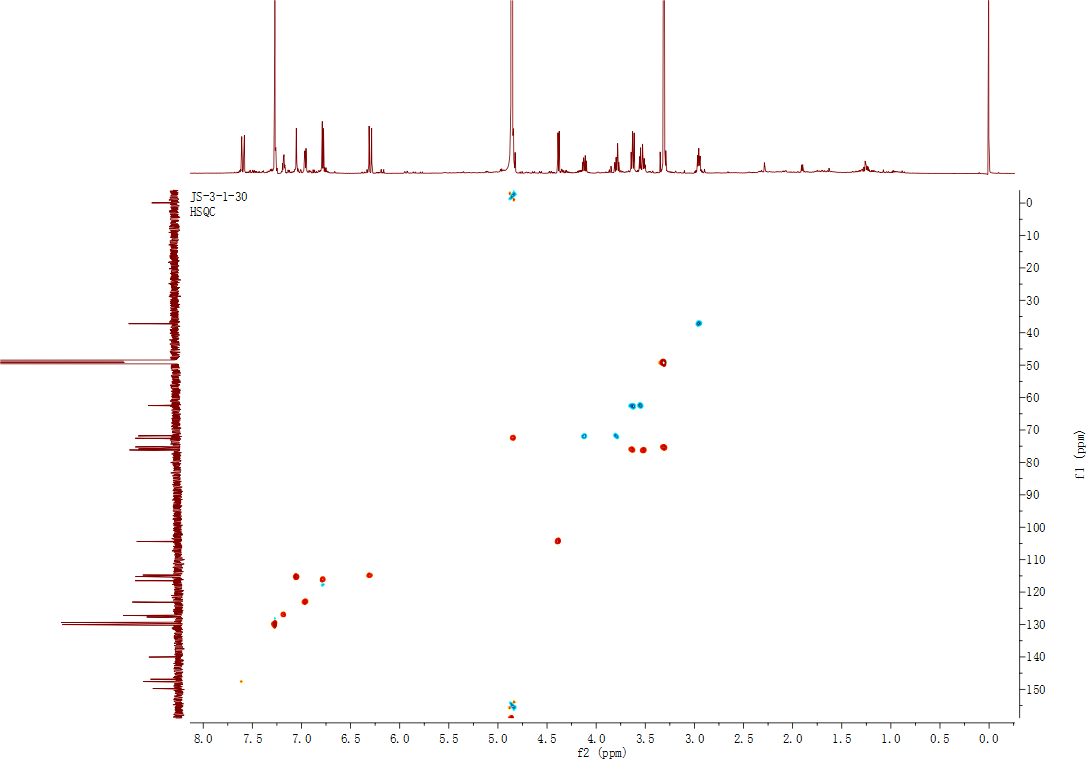
## Figure S10. The 1H NMR spectrum of **2** in CD3OD



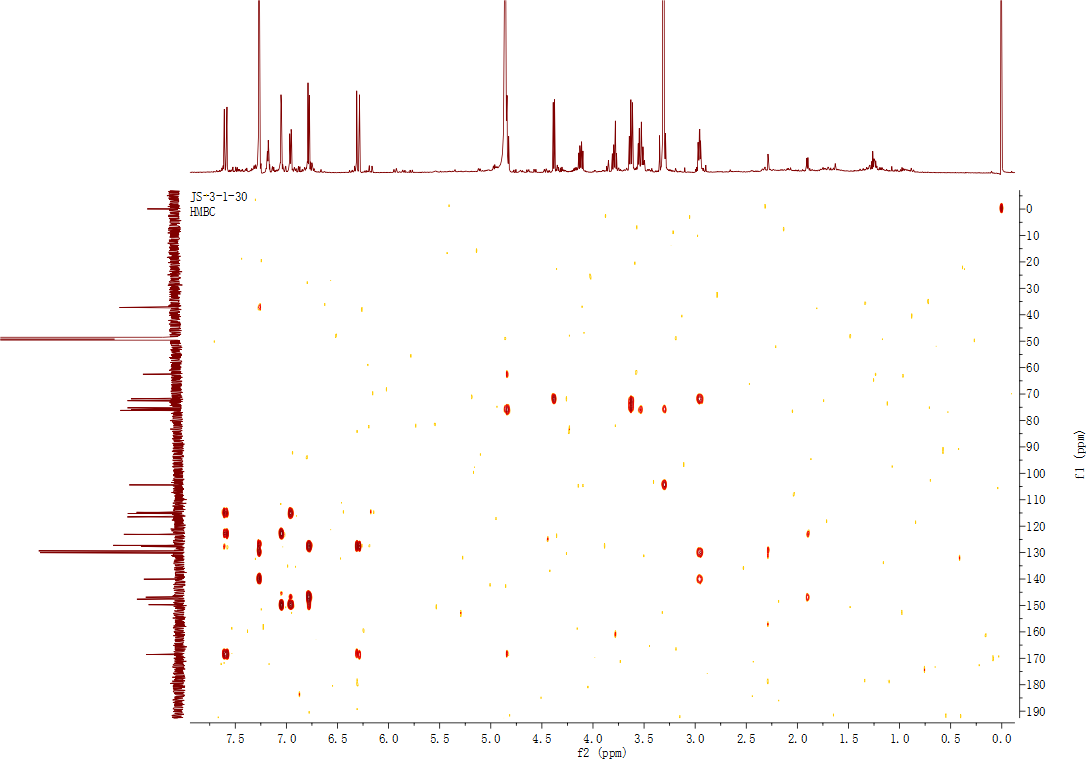
## Figure S11. The 13C NMR spectrum of **2** in CD3OD



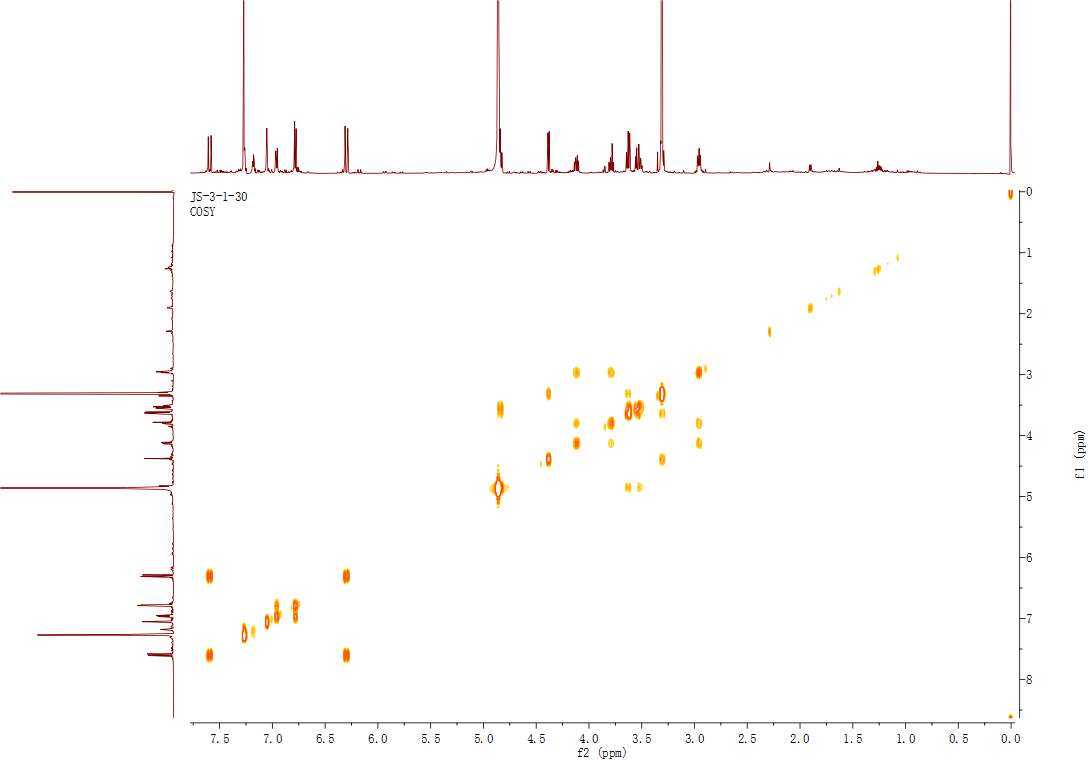
## Figure S12. The Dept spectrum of **2** in CD3OD



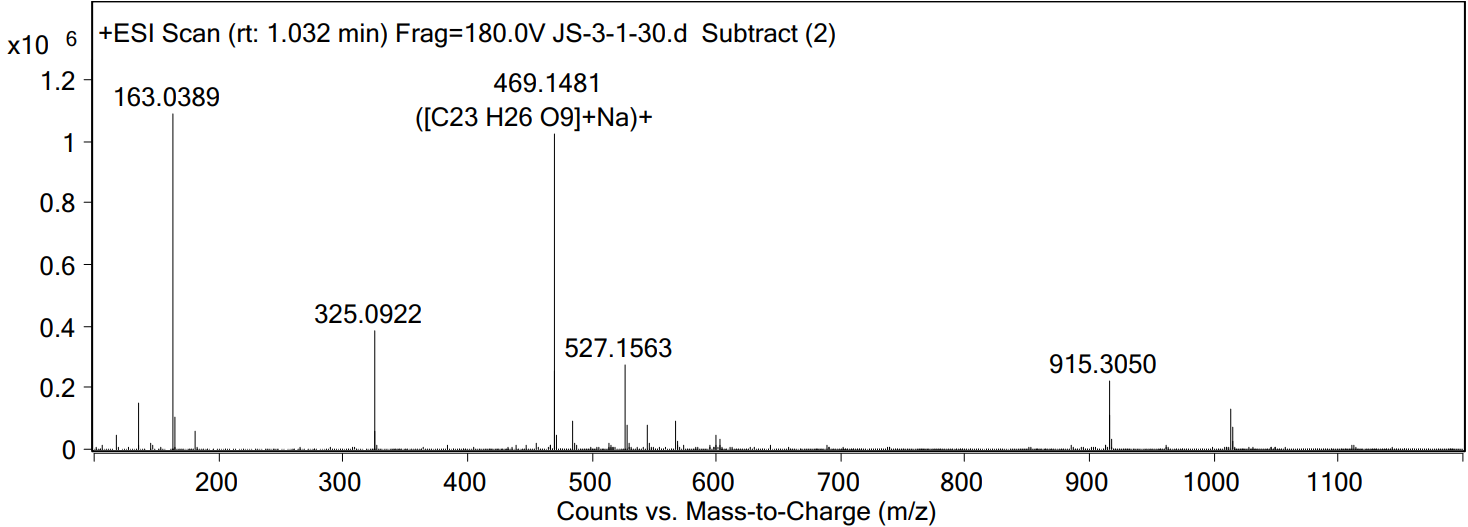
## Figure S13. The HSQC spectrum of **2** in CD3OD



## Figure S14. The HMBC spectrum of **2** in CD3OD



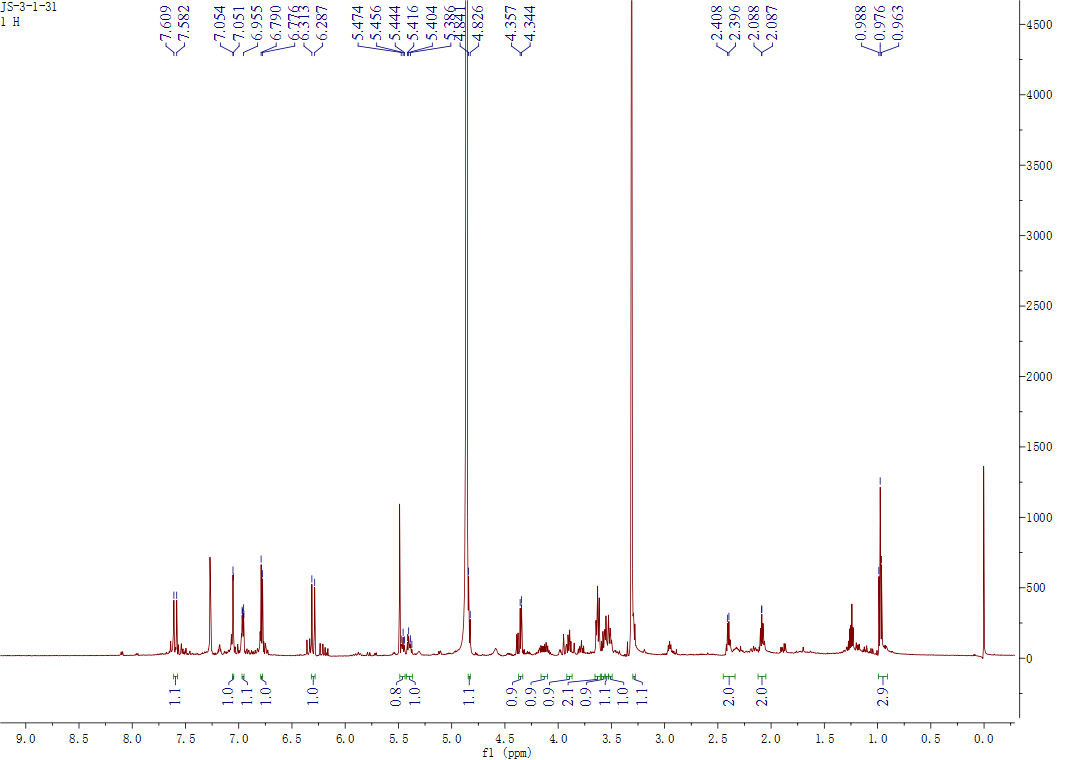
## Figure S15. The 1H-1H COSYspectrum of **2** in CD3OD



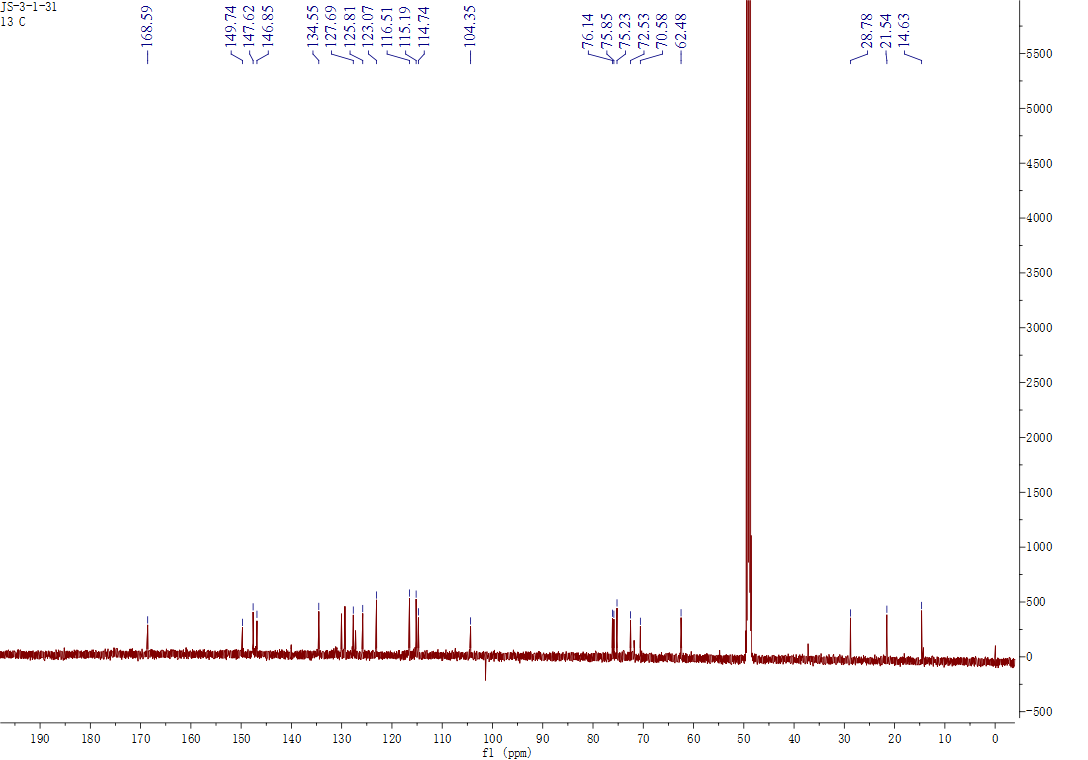
## Figure S16. The HRESIMS data of **2**



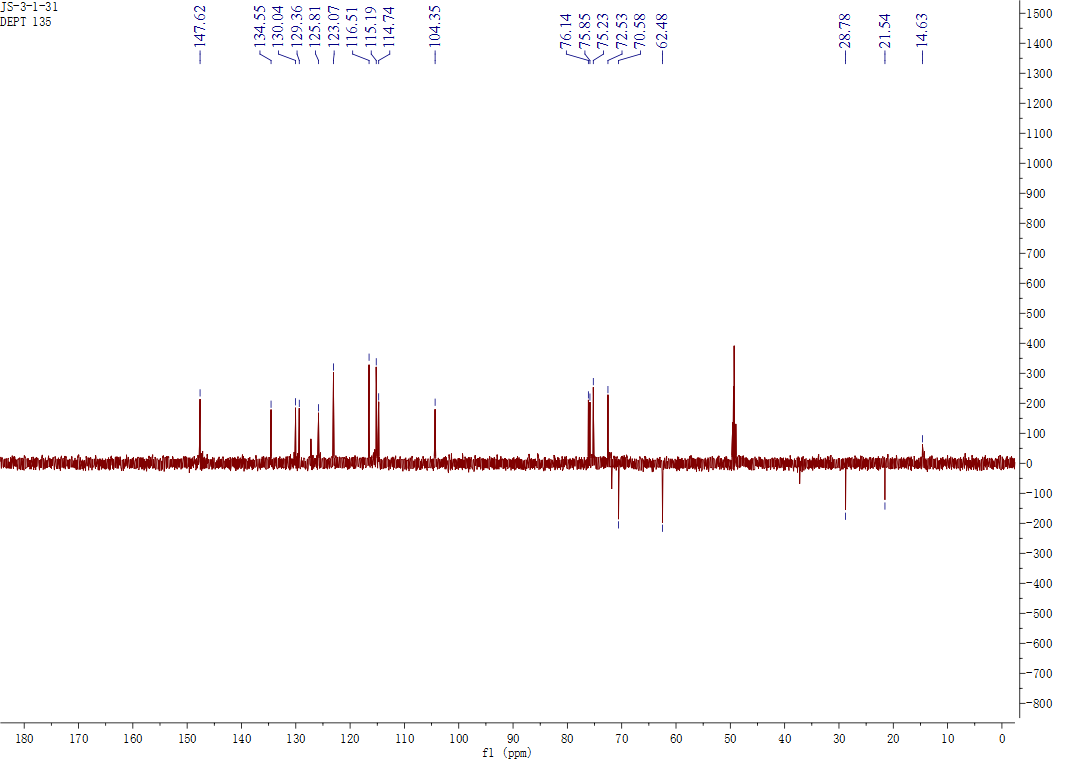
## Figure S17. The IR spectrum of **2**



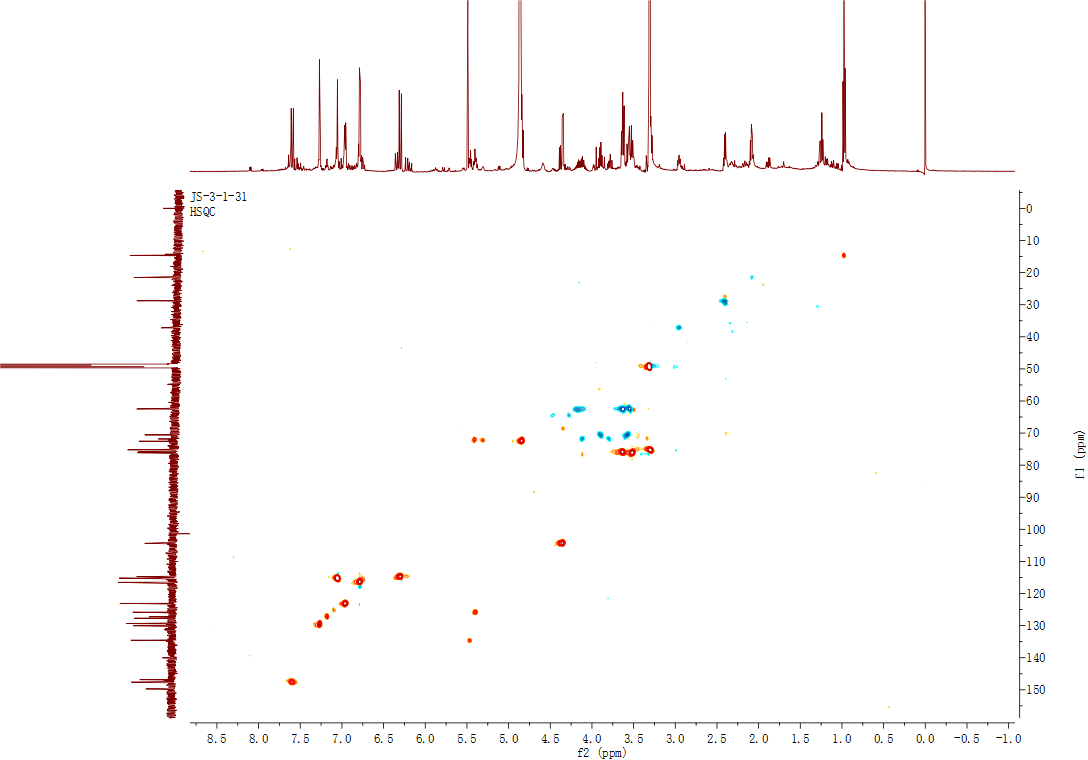
## Figure S18 The 1H NMR spectrum of **3** in CD3OD



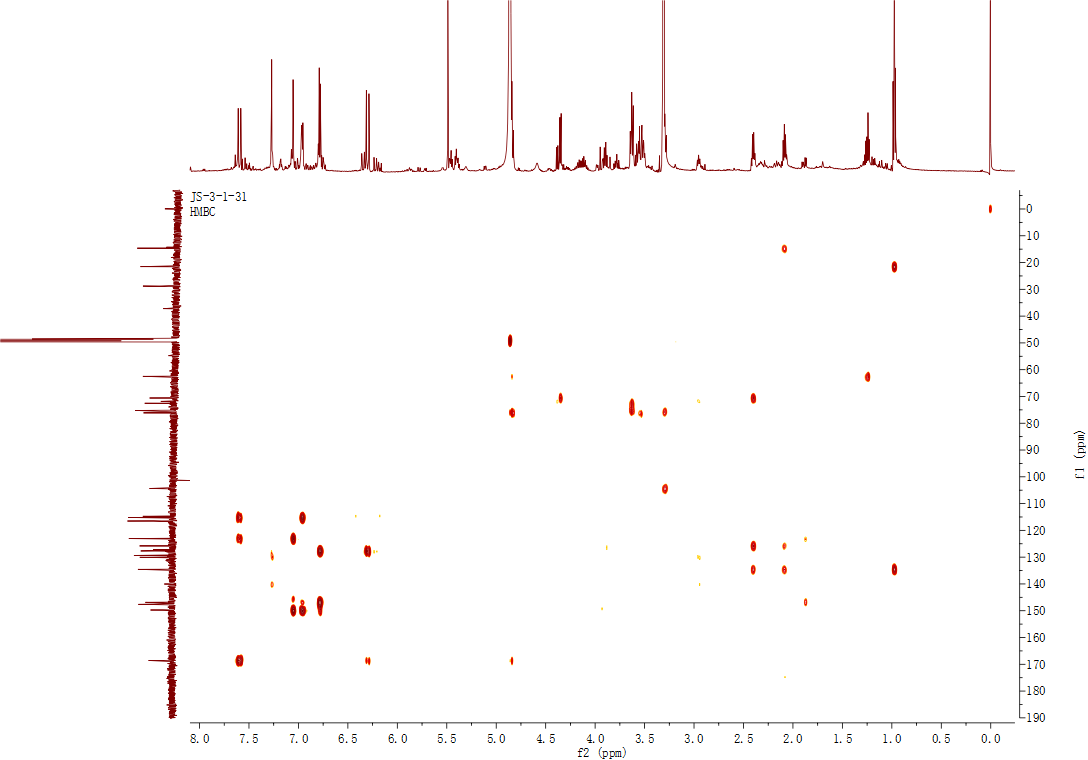
## Figure S19 The 1C NMR spectrum of **3** in CD3OD



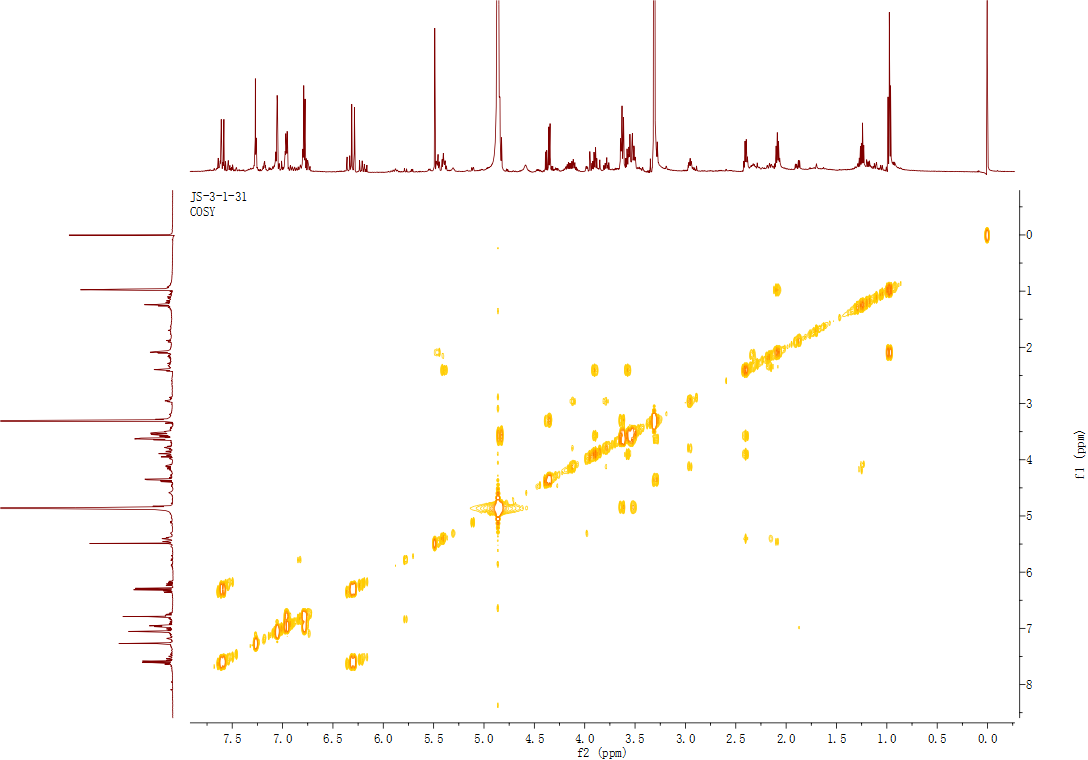
## Figure S20 The Dept spectrum of **3** in CD3OD



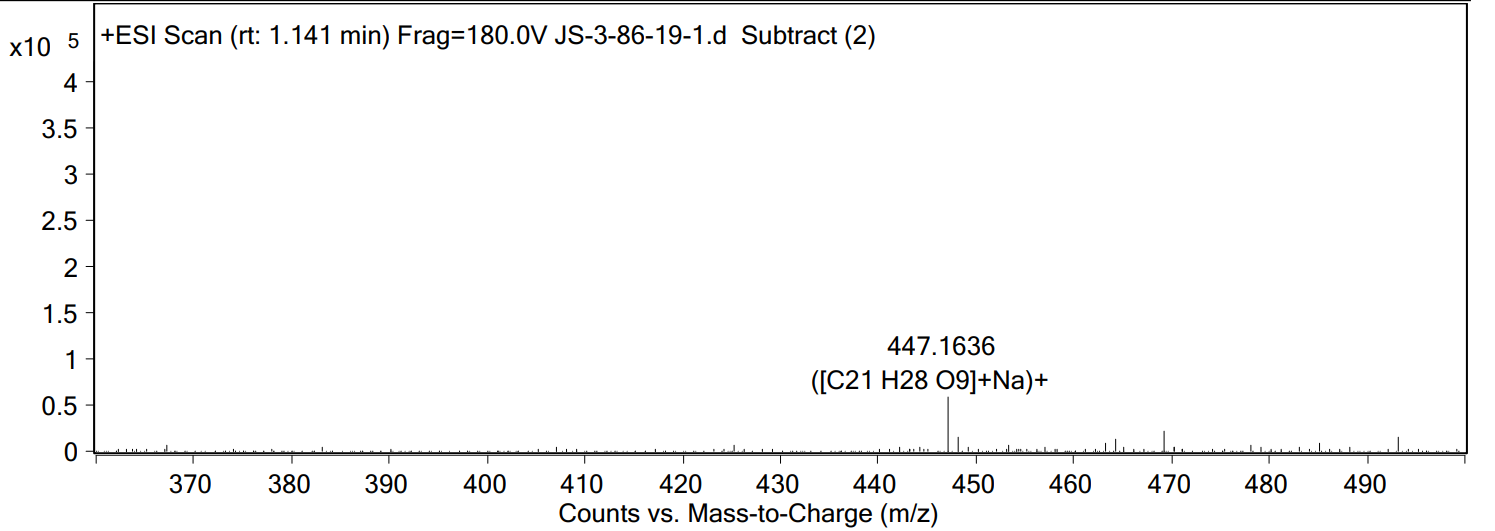
## Figure S21 The HSQC spectrum of **3** in CD3OD



## Figure S22 The HMBC spectrum of **3** in CD3OD



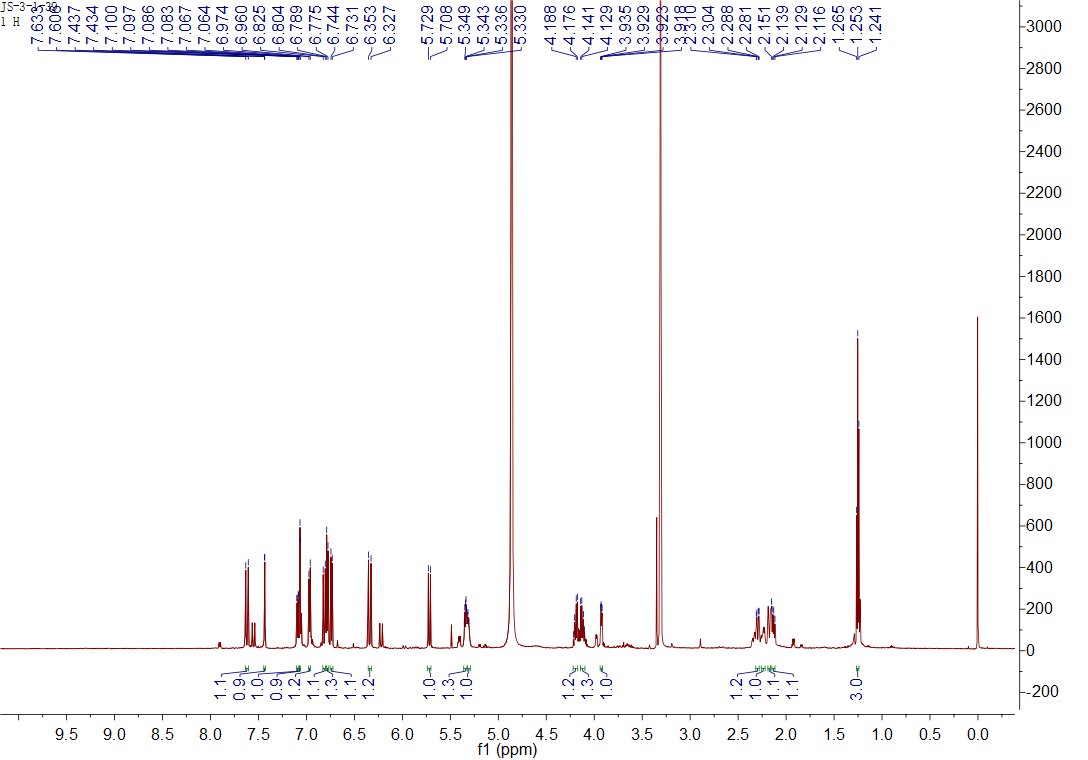
## Figure S23 The 1H-1H COSY spectrum of **3** in CD3OD



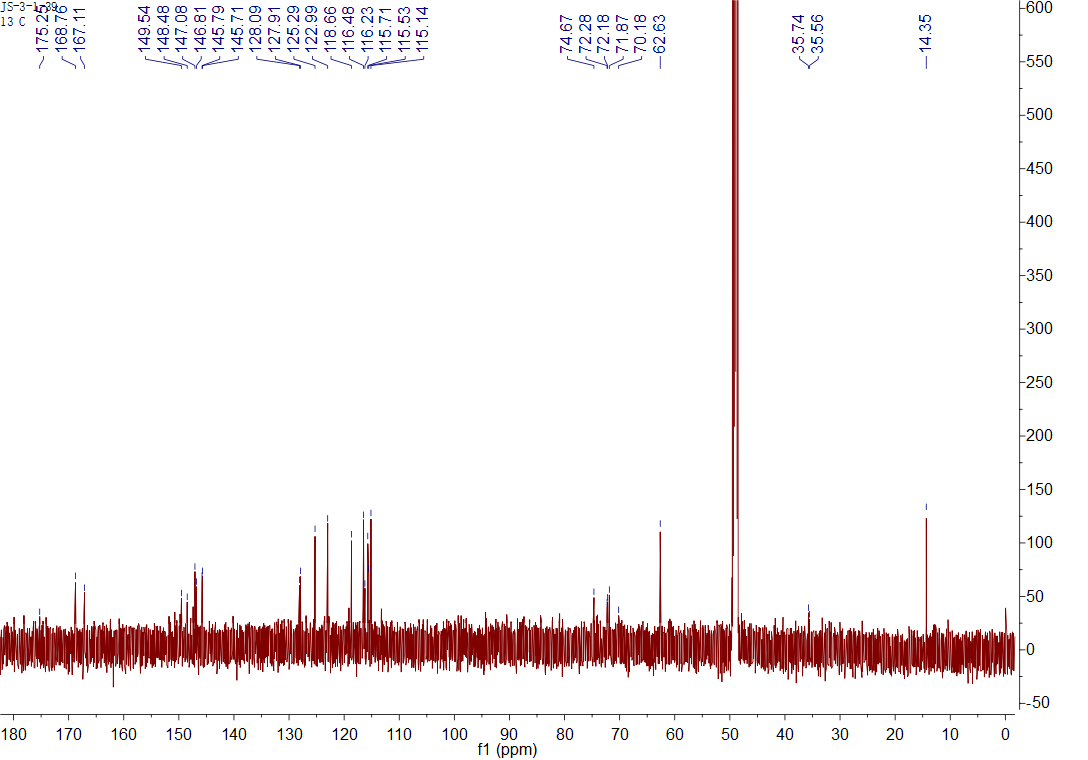
## Figure S24 The HRESIMS data of **3** in CD3OD



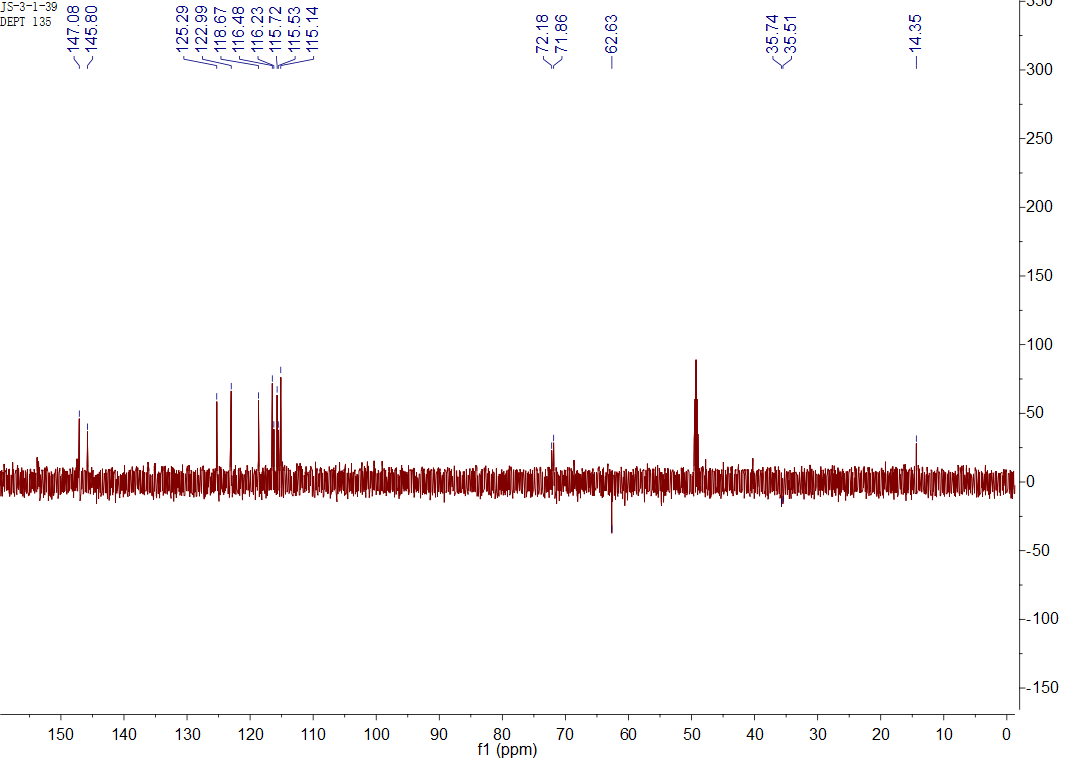
## Figure S25 The IR spectrum of **3** in CD3OD



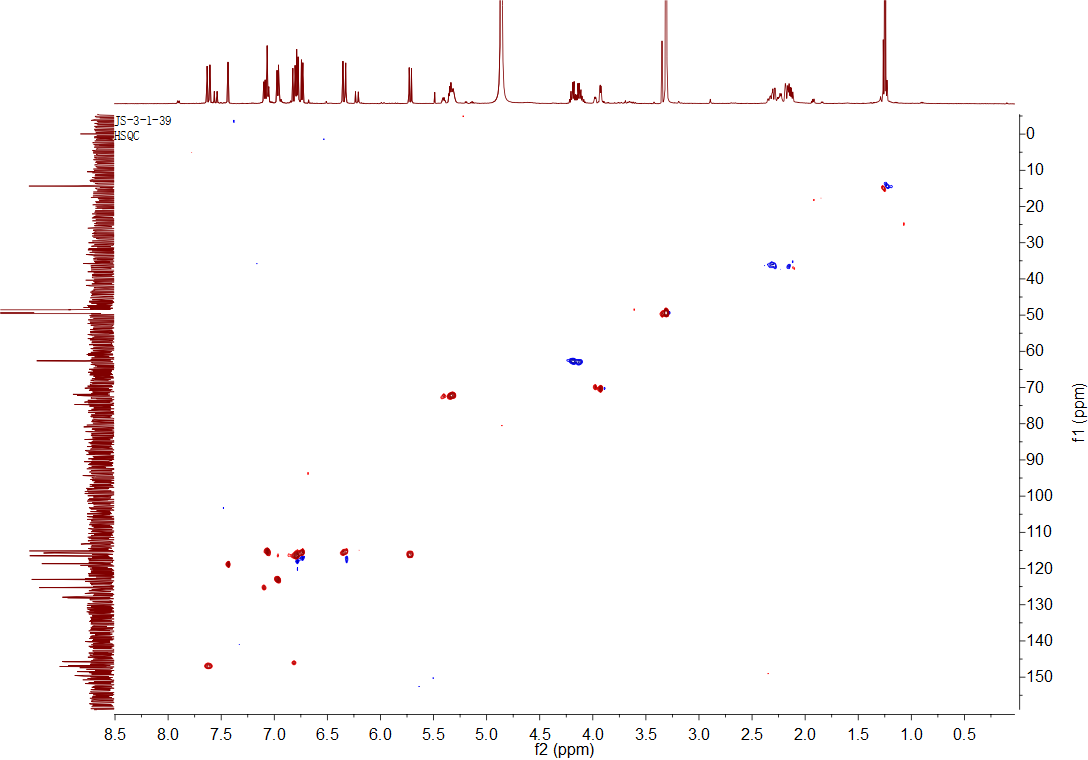
## Figure S26 The 1H NMR spectrum of **4** in CD3OD



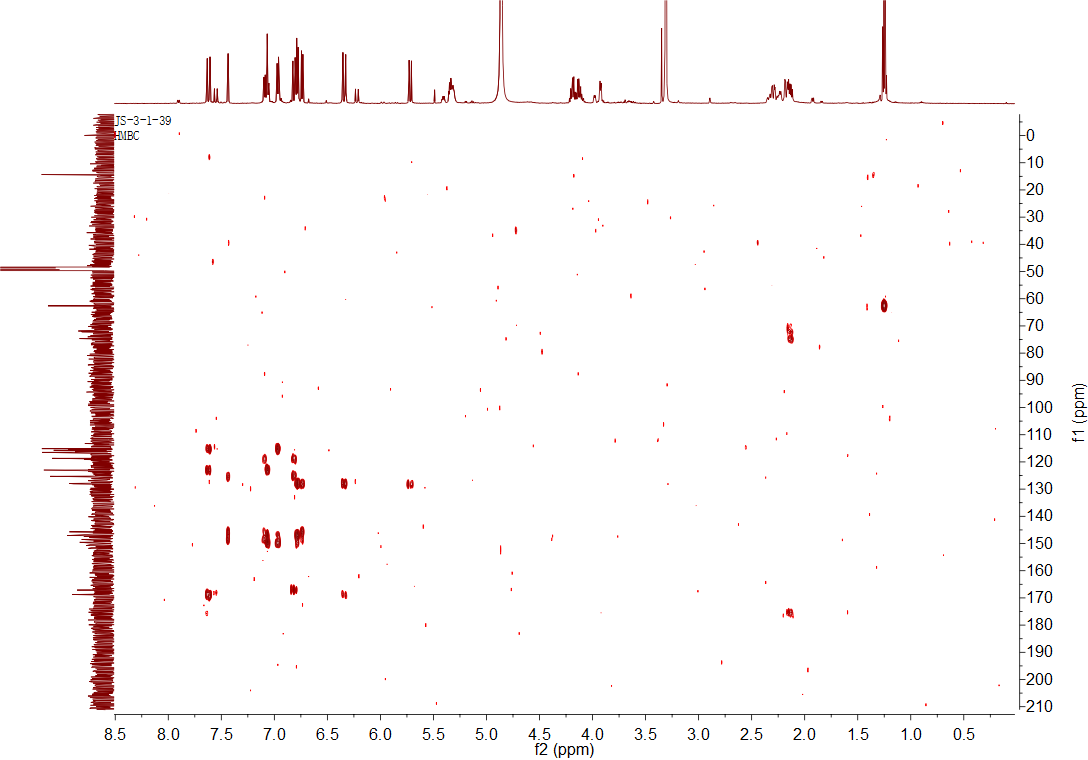
## Figure S27 The 1C NMR spectrum of **4** in CD3OD



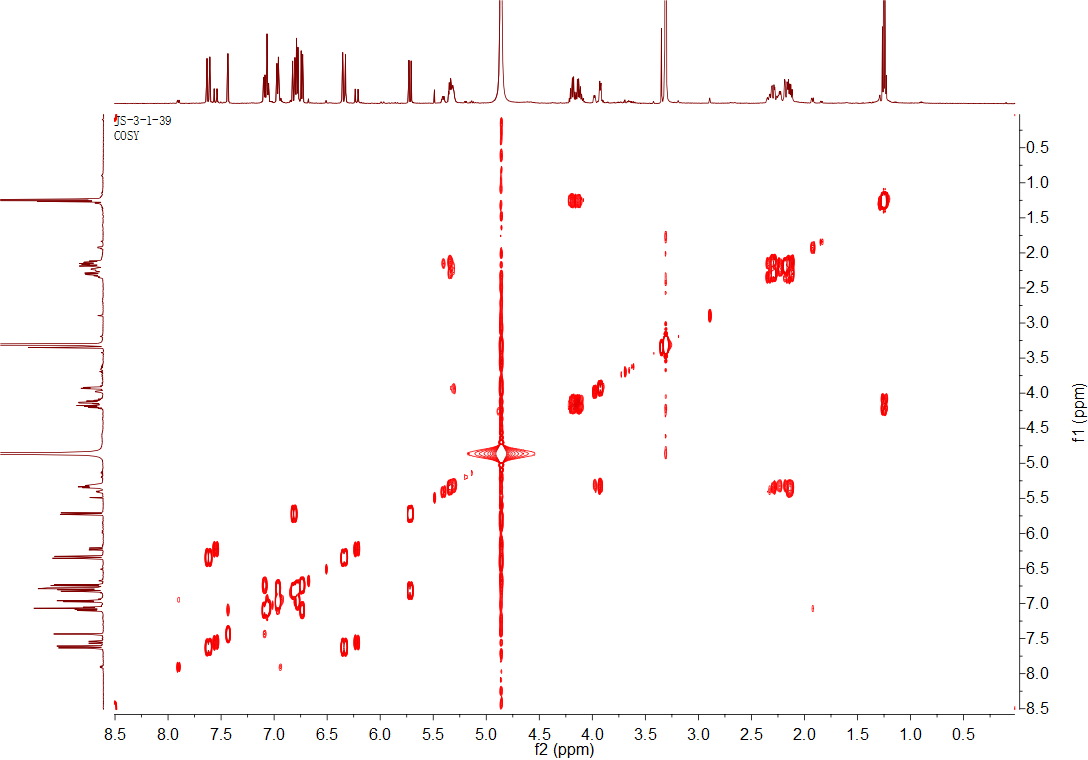
## Figure S28 The Dept spectrum of **4** in CD3OD



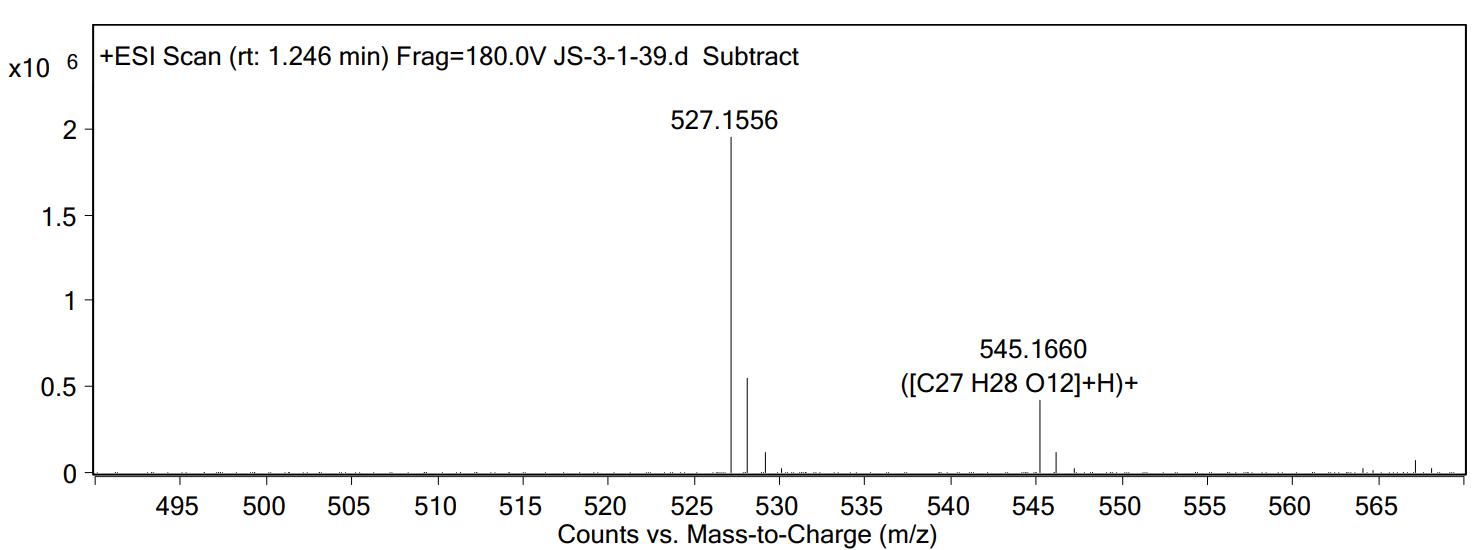
## Figure S29 The HSQC spectrum of **4** in CD3OD



## Figure S30 The HMBC spectrum of **4** in CD3OD



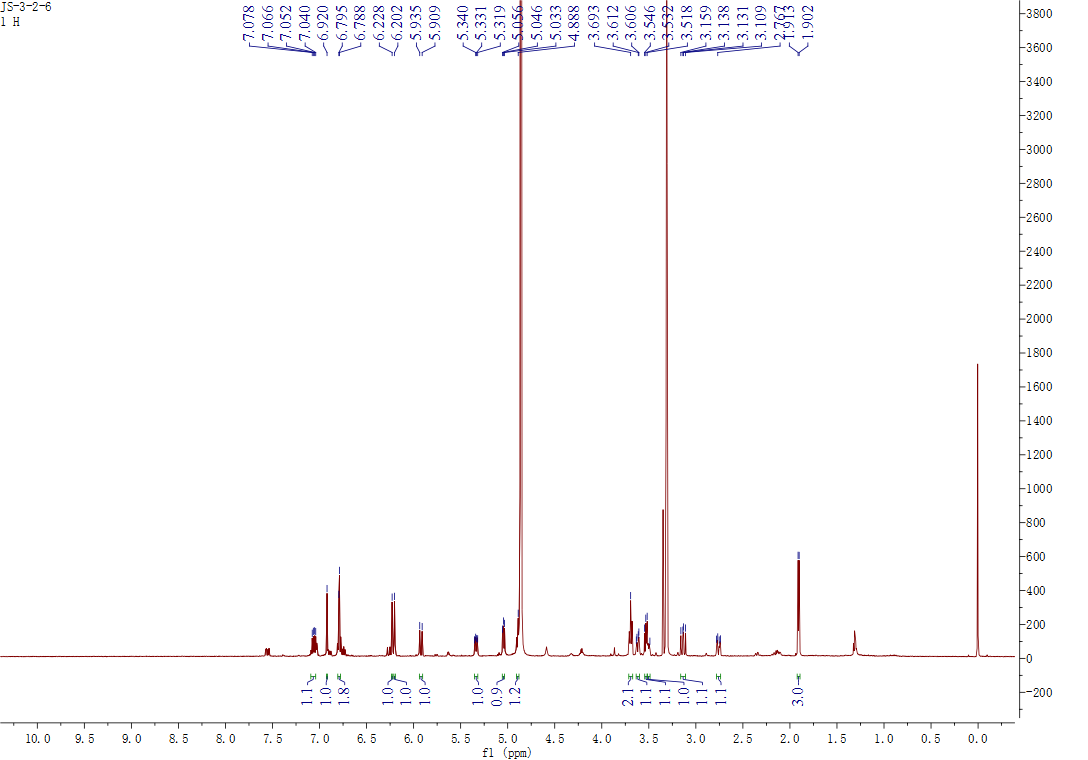
## Figure S31 The 1H-1H COSY spectrum of **4** in CD3OD



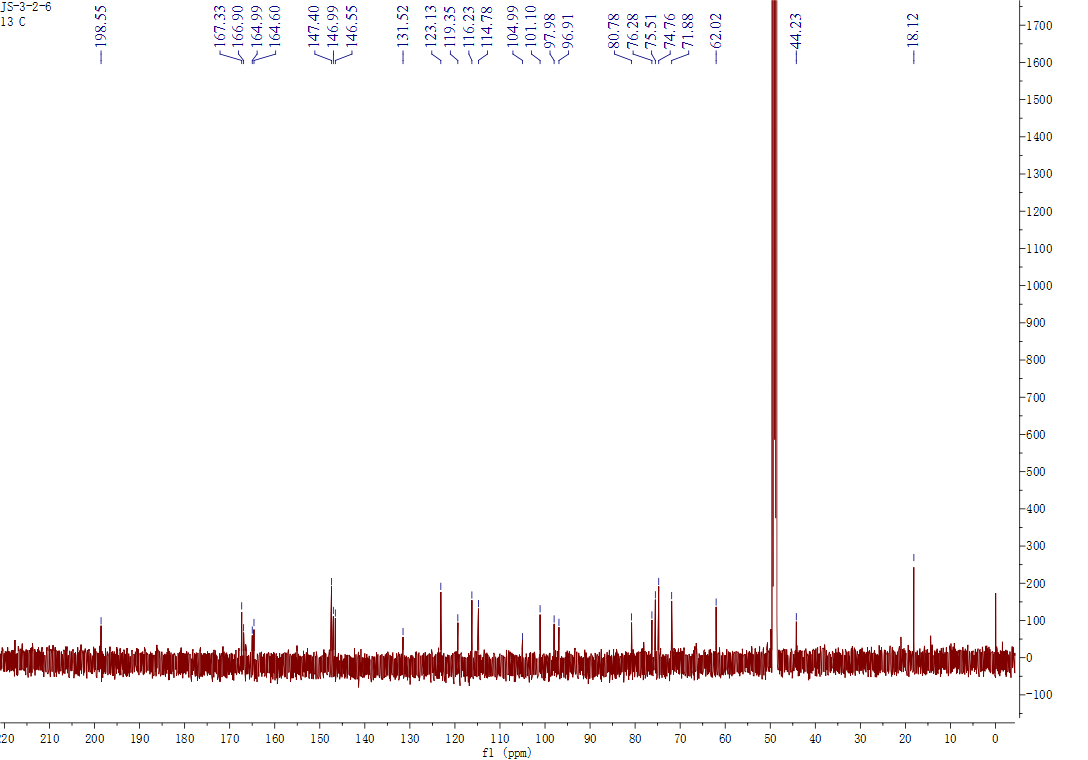
## Figure S32 The HRESIMS data of **4** in CD3OD



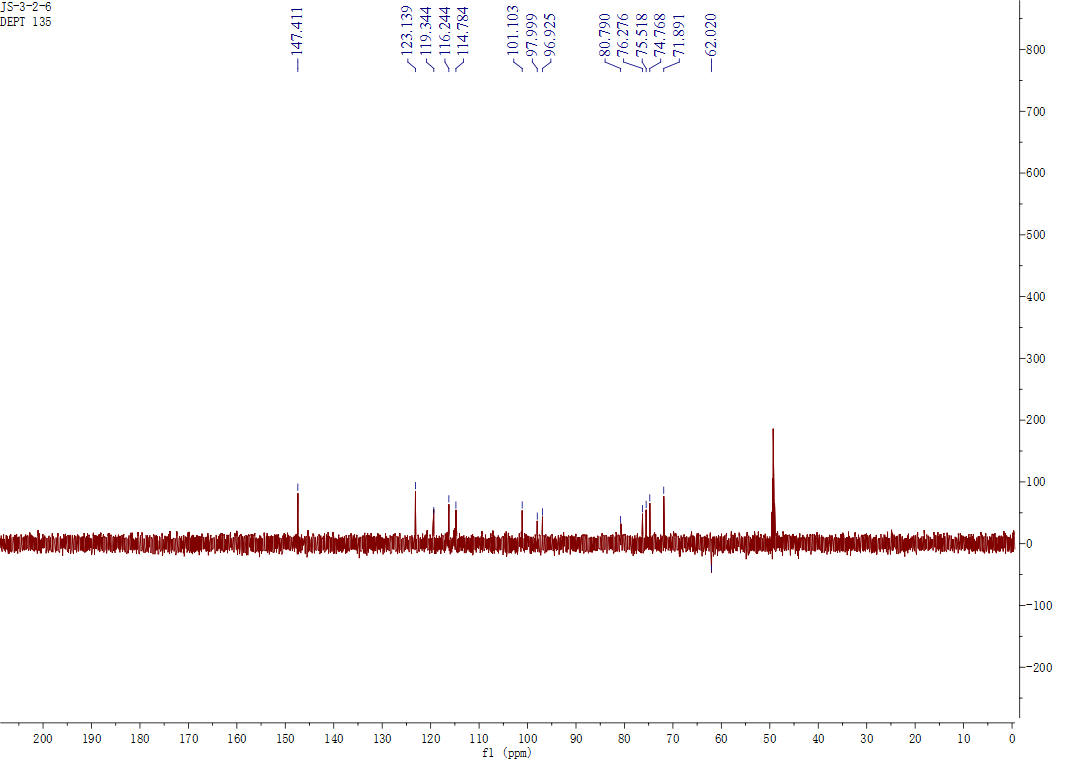
## Figure S33 The IR spectrum of **4** in CD3OD



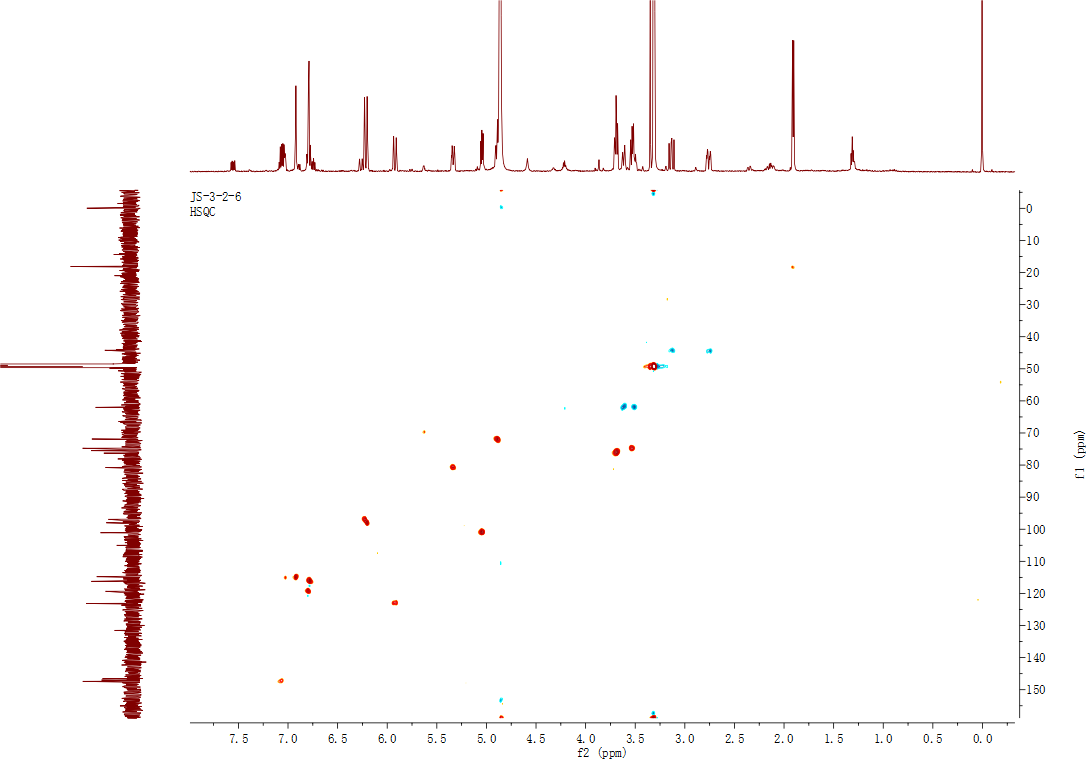
## Figure S34. The 1H NMR spectrum of **11** in CD3OD



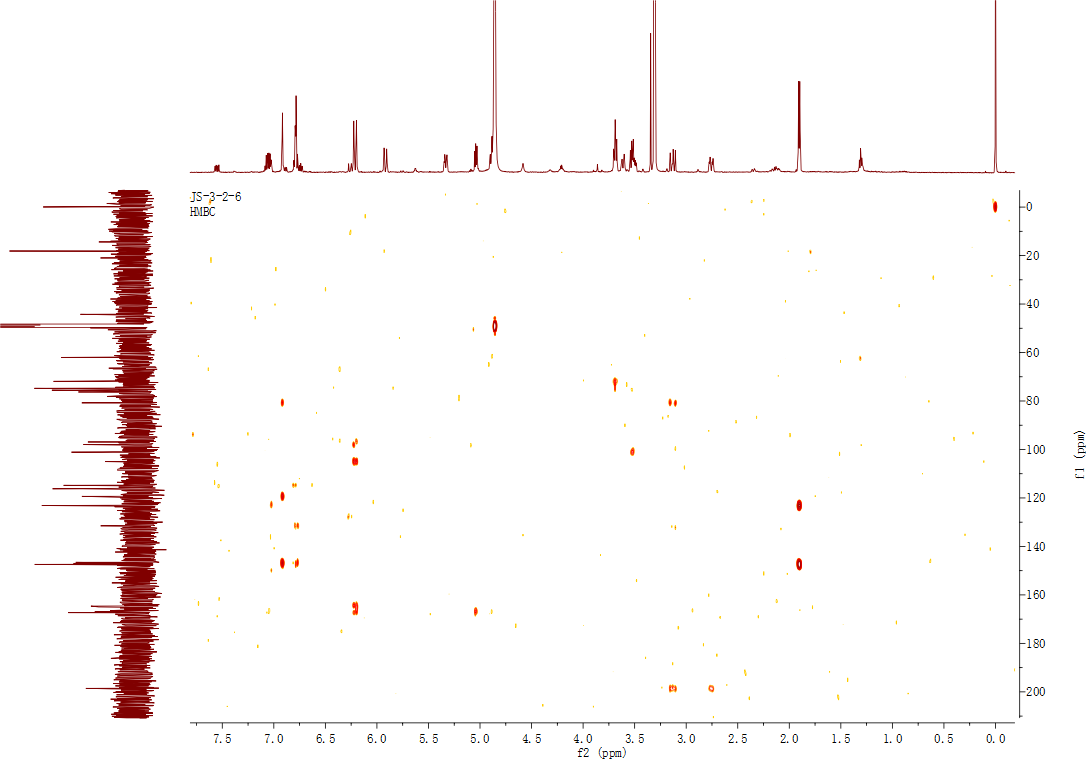
## Figure S35. The 13C NMR spectrum of **11** in CD3OD



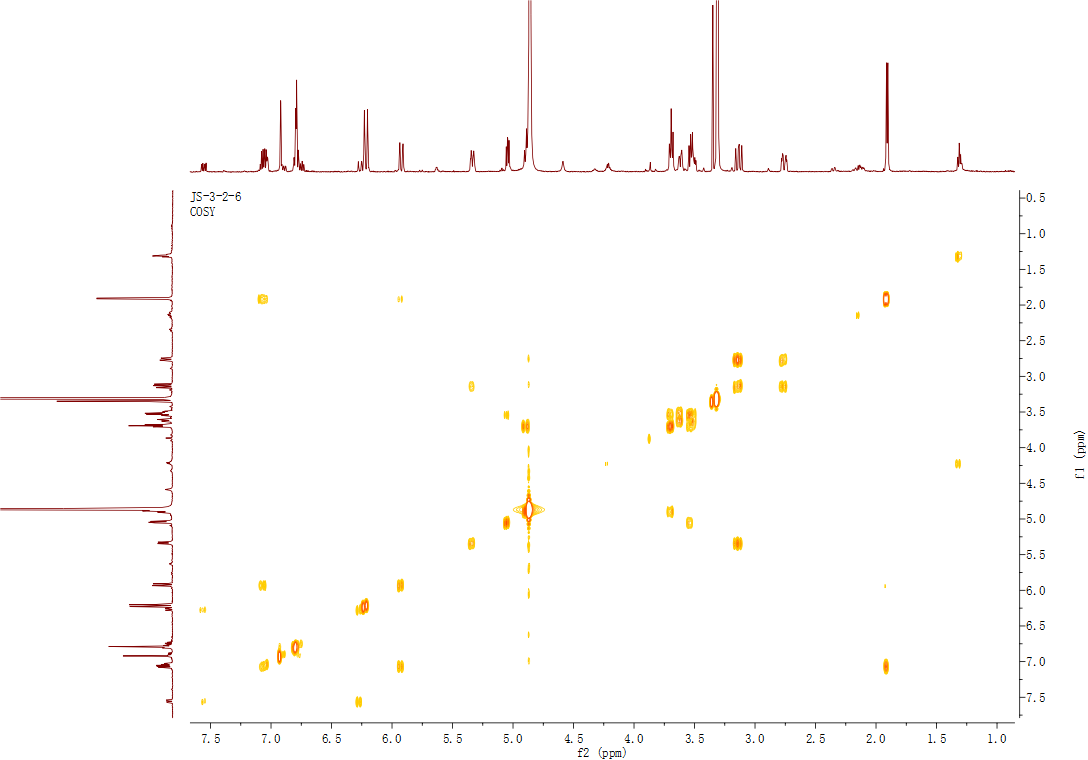
## Figure S36. The Dept spectrum of **11** in CD3OD



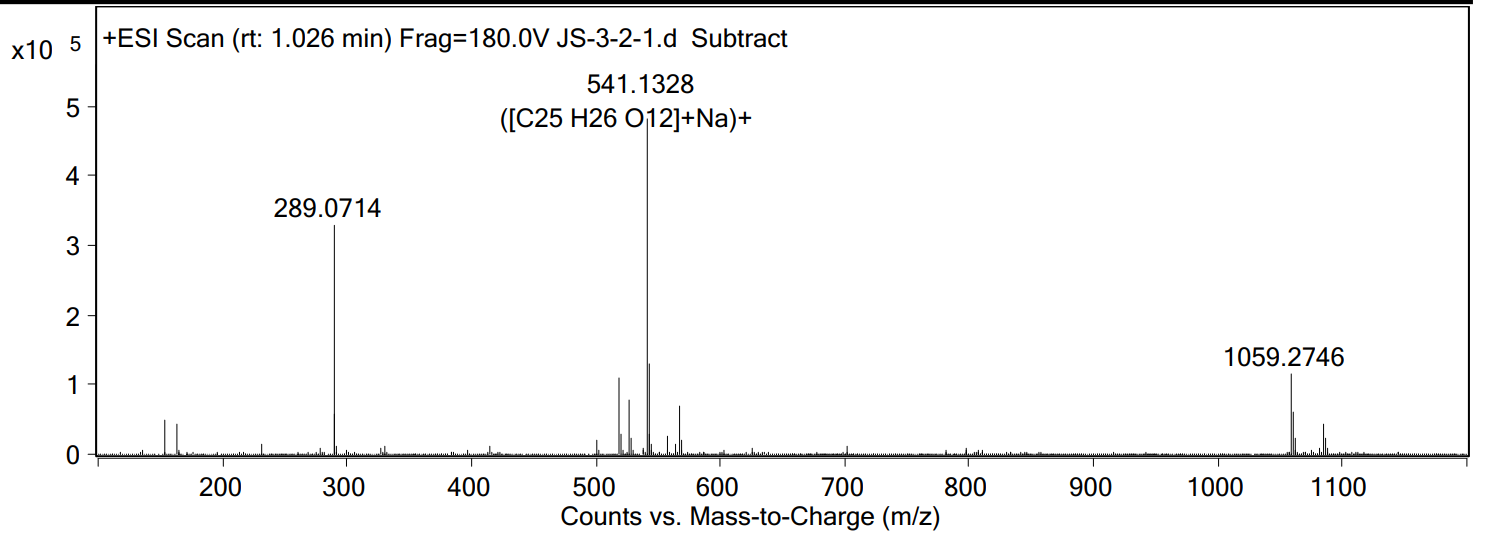
## Figure S37. The HSQC spectrum of **11** in CD3OD



## Figure S38. The HMBC spectrum of **11** in CD3OD



## Figure S39. The 1H-1H COSY spectrum of **11** in CD3OD



## Figure S40. The HRESIMS data of **11**



## Figure S41. The IR spectrum of **11**

## Figure S42. The experimental ECD spectra of **11**

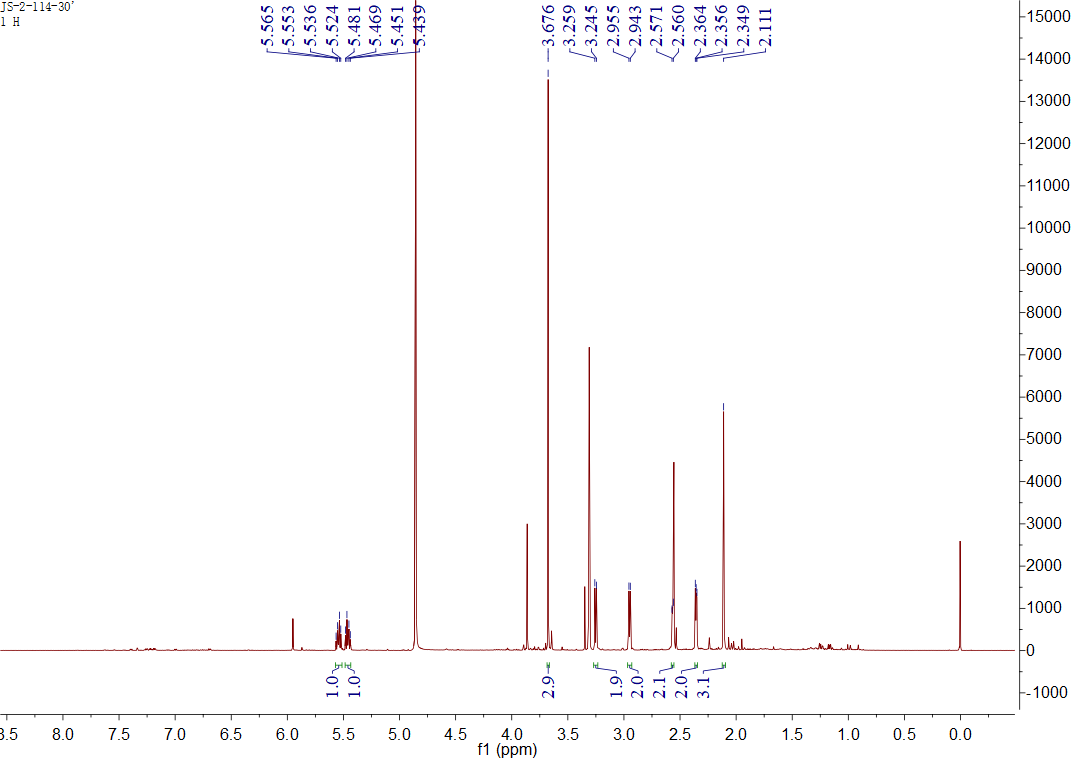
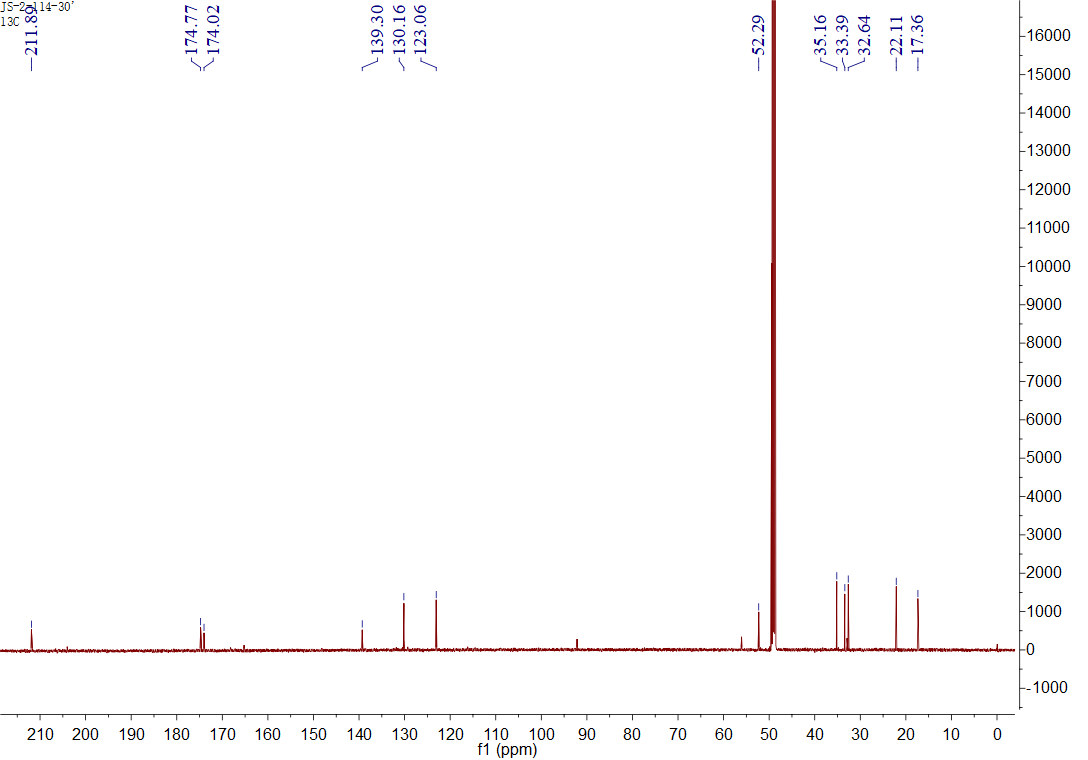
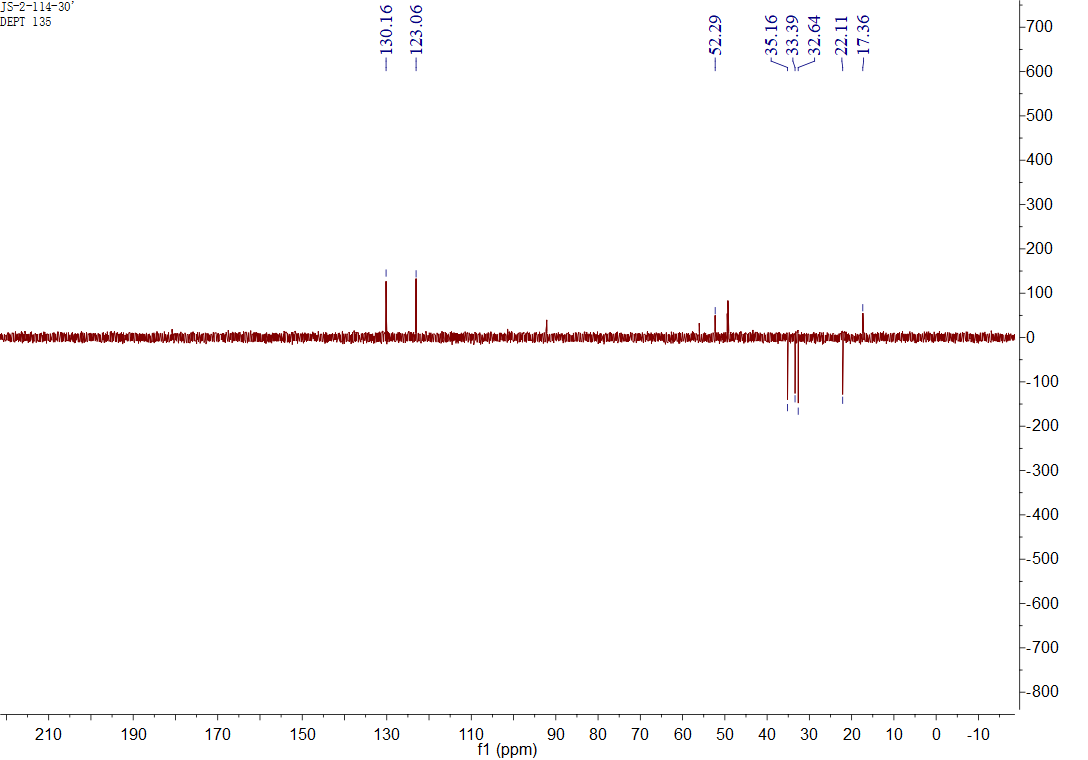


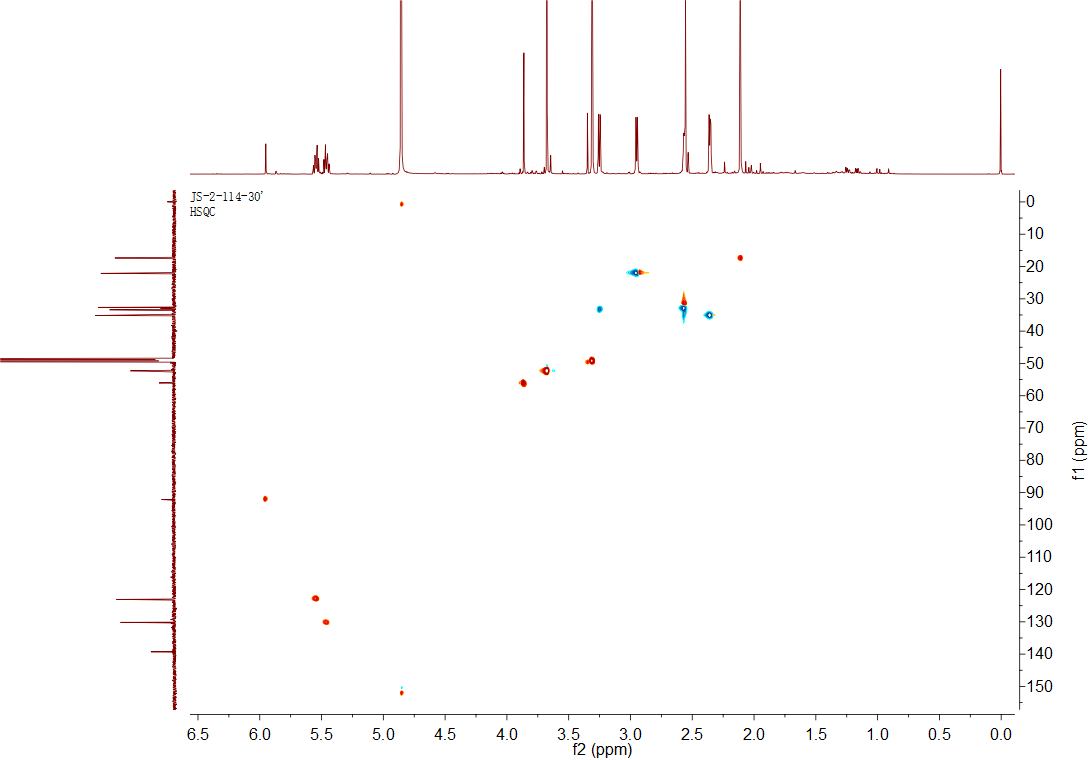
Figure S43. The 1H NMR spectrum of **31** in CD3OD



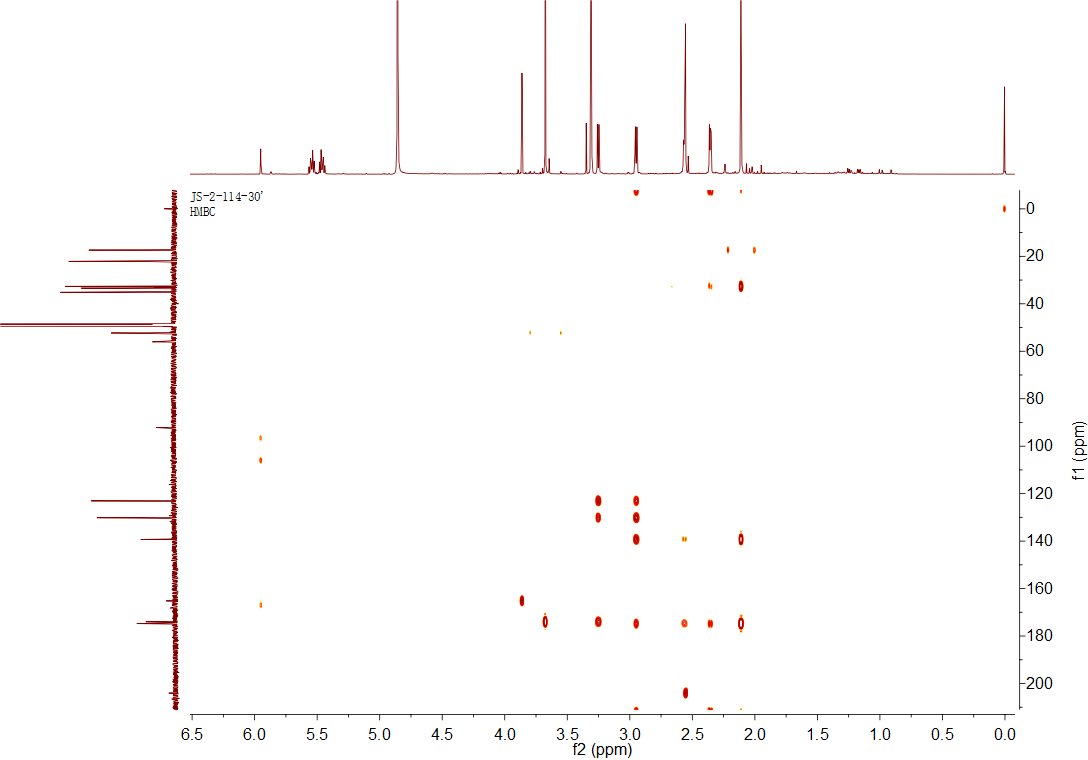
## Figure S44. The 13C NMR spectrum of **31** in CD3OD



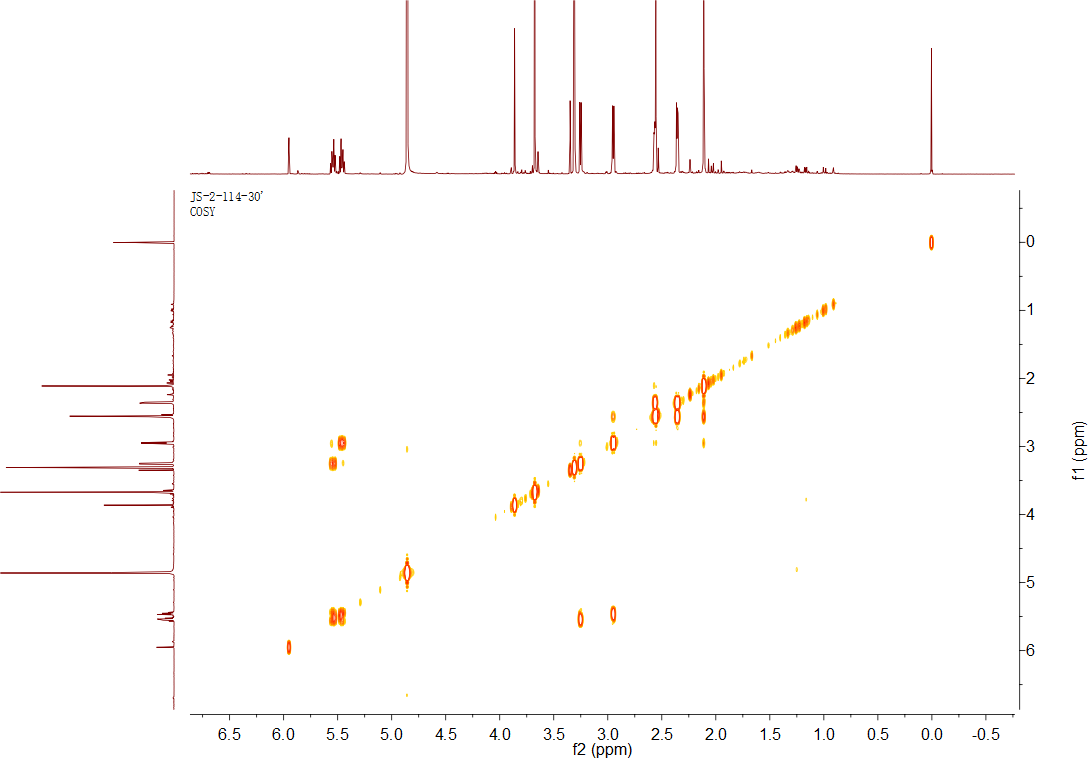
## Figure S45. The Dept spectrum of **31** in CD3OD



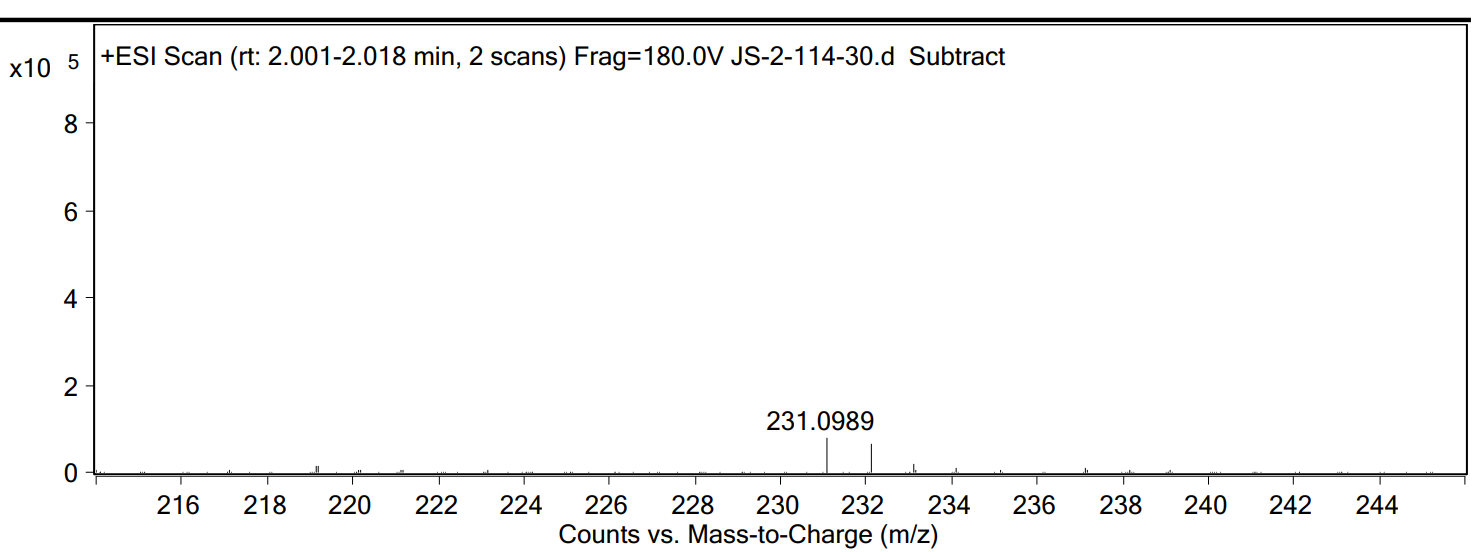
## Figure S46. The HSQC spectrum of **31** in CD3OD



## Figure S47. The HMBC spectrum of **31** in CD3OD



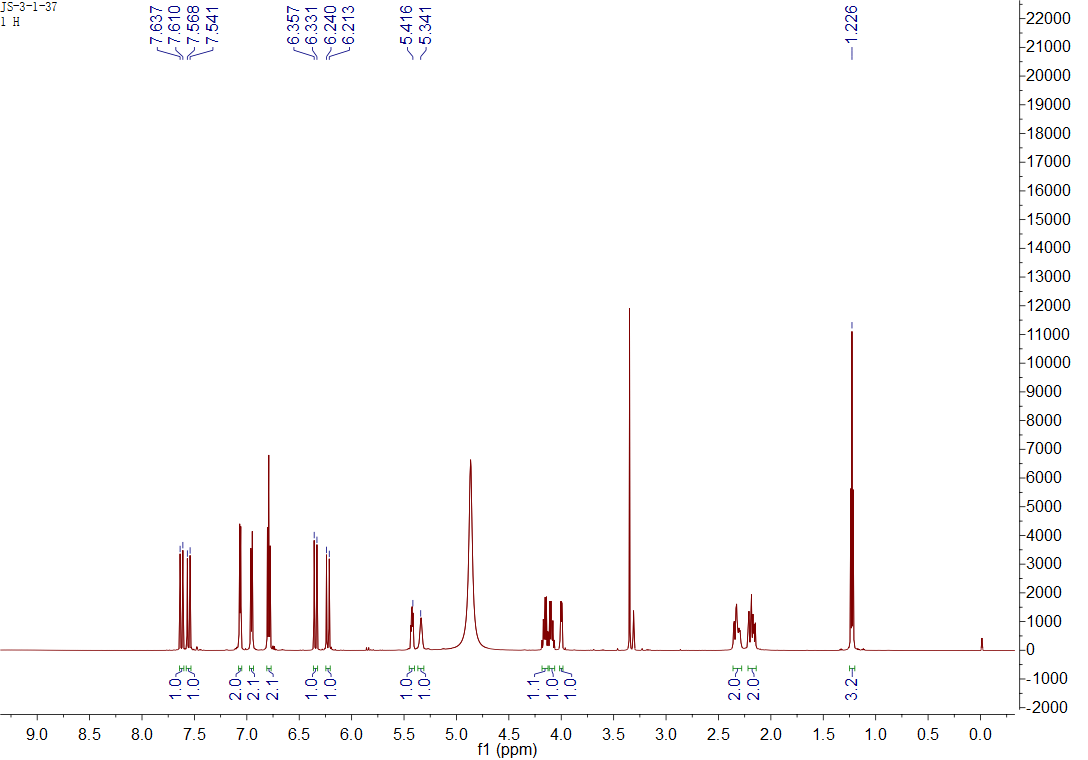
## Figure S48. The 1H-1H COSY spectrum of **31** in CD3OD



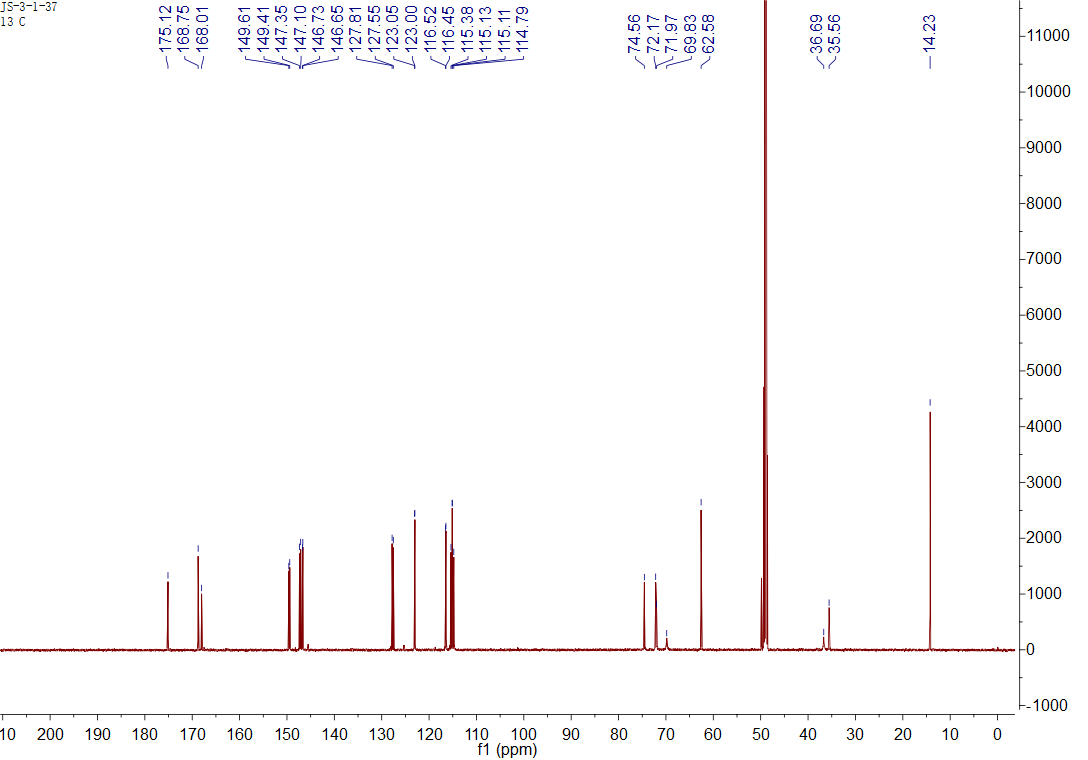
## Figure S49. The HRESIMS data of **31**



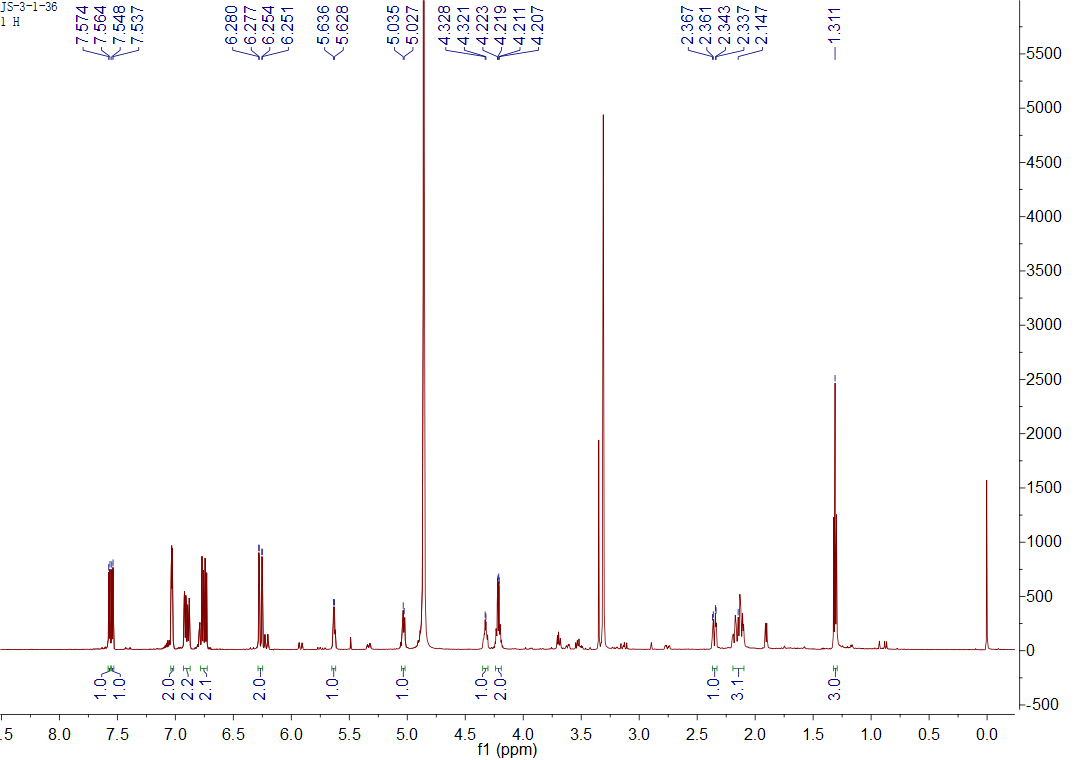
## Figure S50. The IR spectrum of **31**



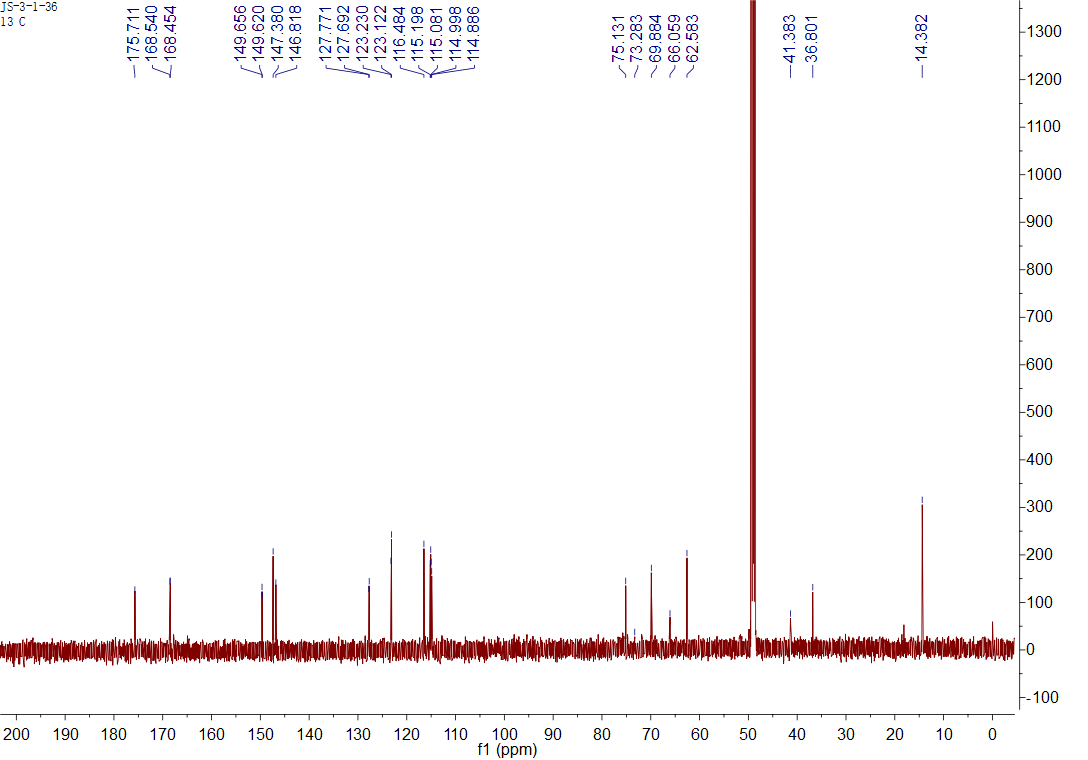
## Figure S51. The 1H NMR spectrum of **5** in CD3OD



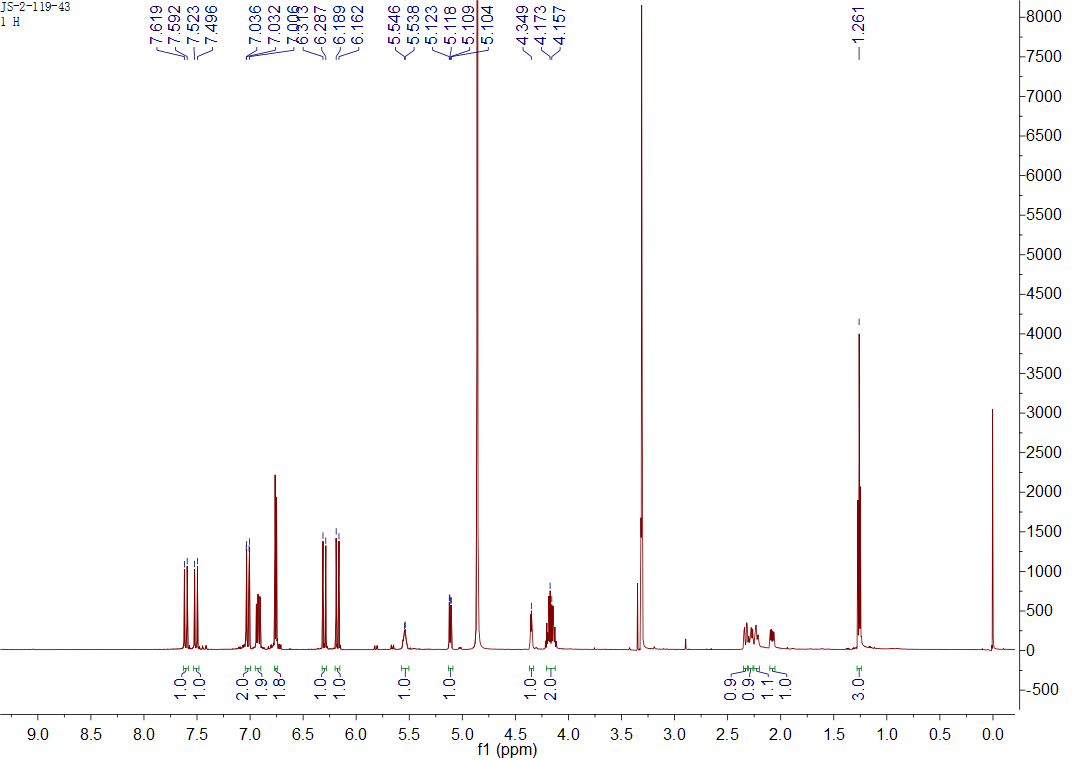
## Figure S52. The 13C NMR spectrum of **5** in CD3OD



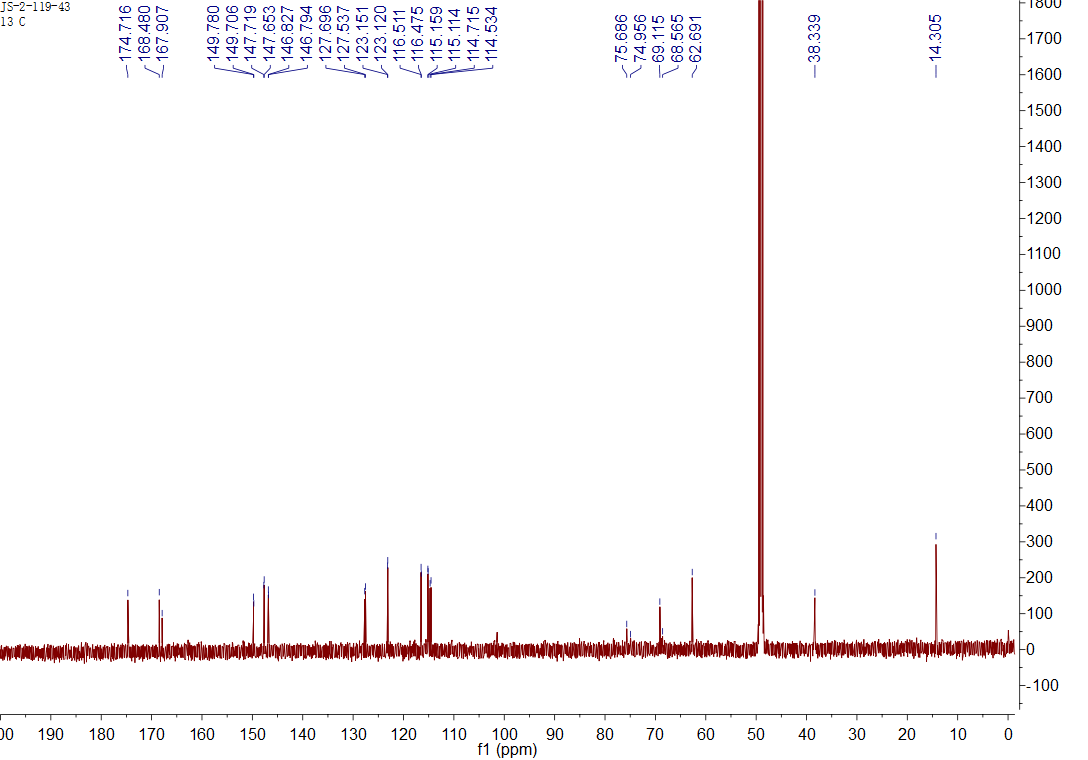
## Figure S53. The 1H NMR spectrum of **6** in CD3OD



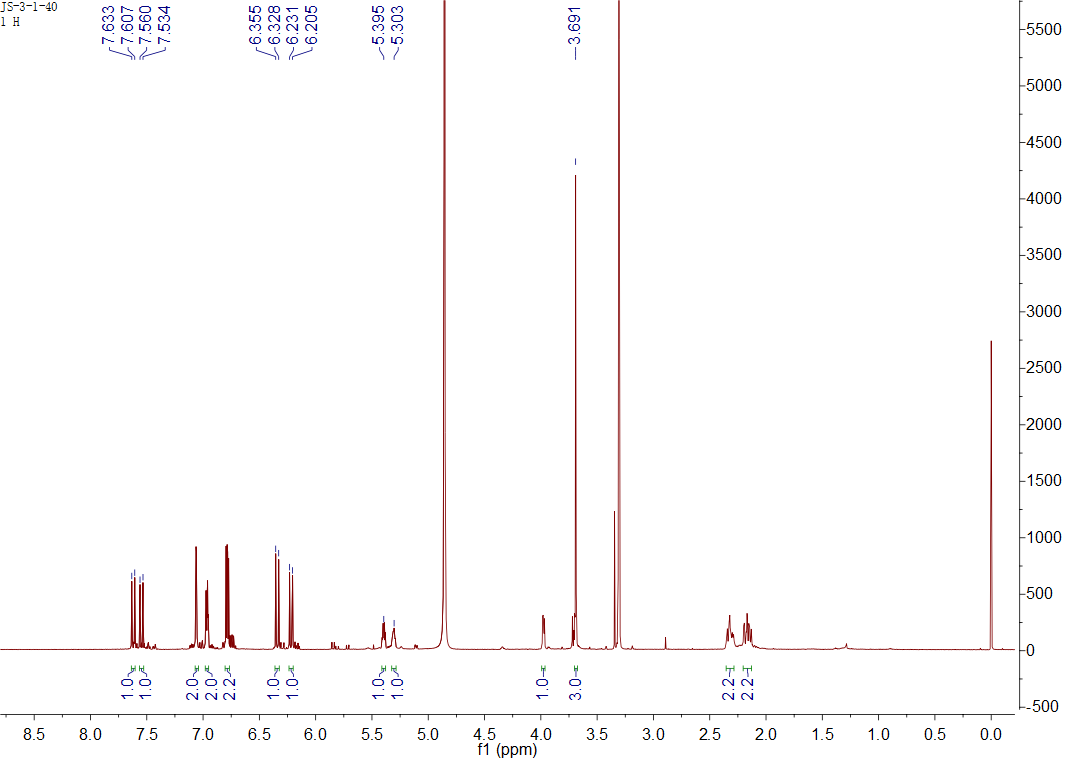
## Figure S54. The 13C NMR spectrum of **6** in CD3OD



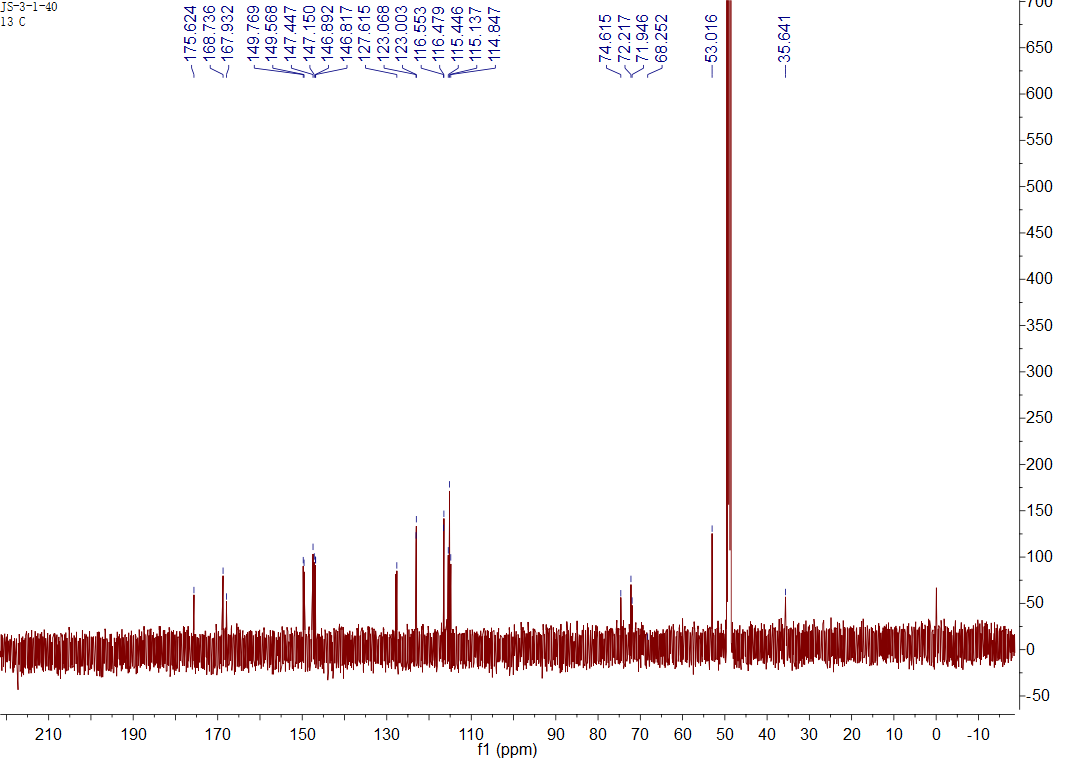
## Figure S55. The 1H NMR spectrum of **7** in CD3OD



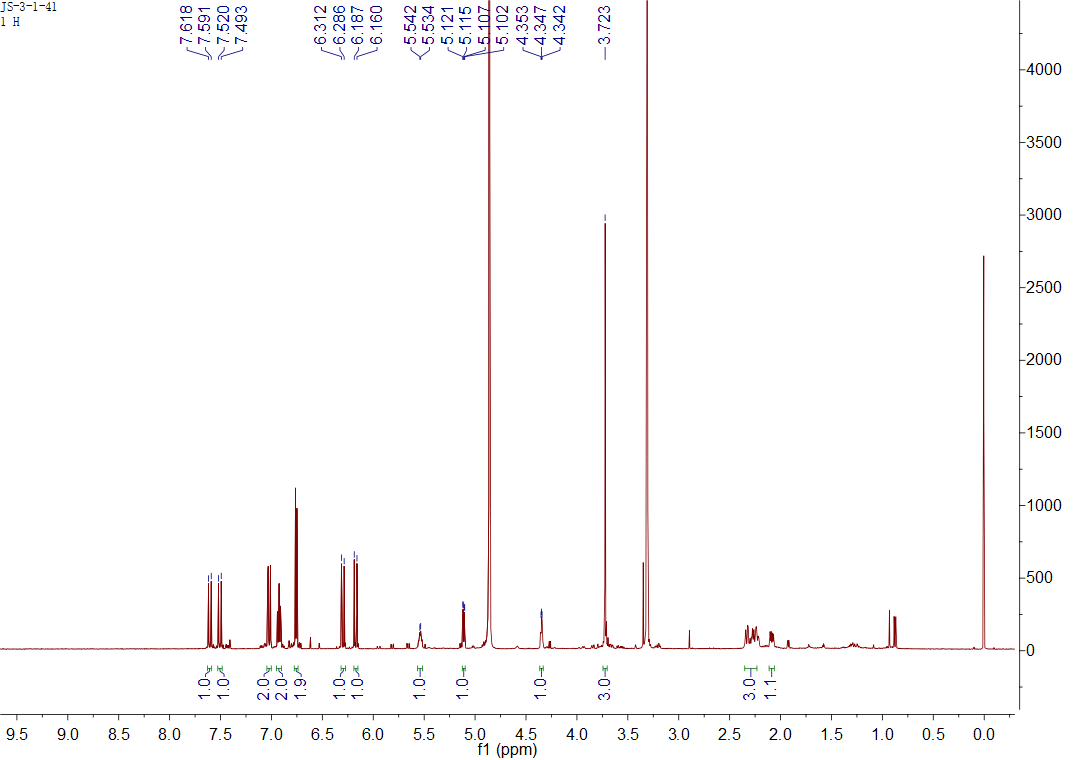
## Figure S56. The 13C NMR spectrum of **7** in CD3OD



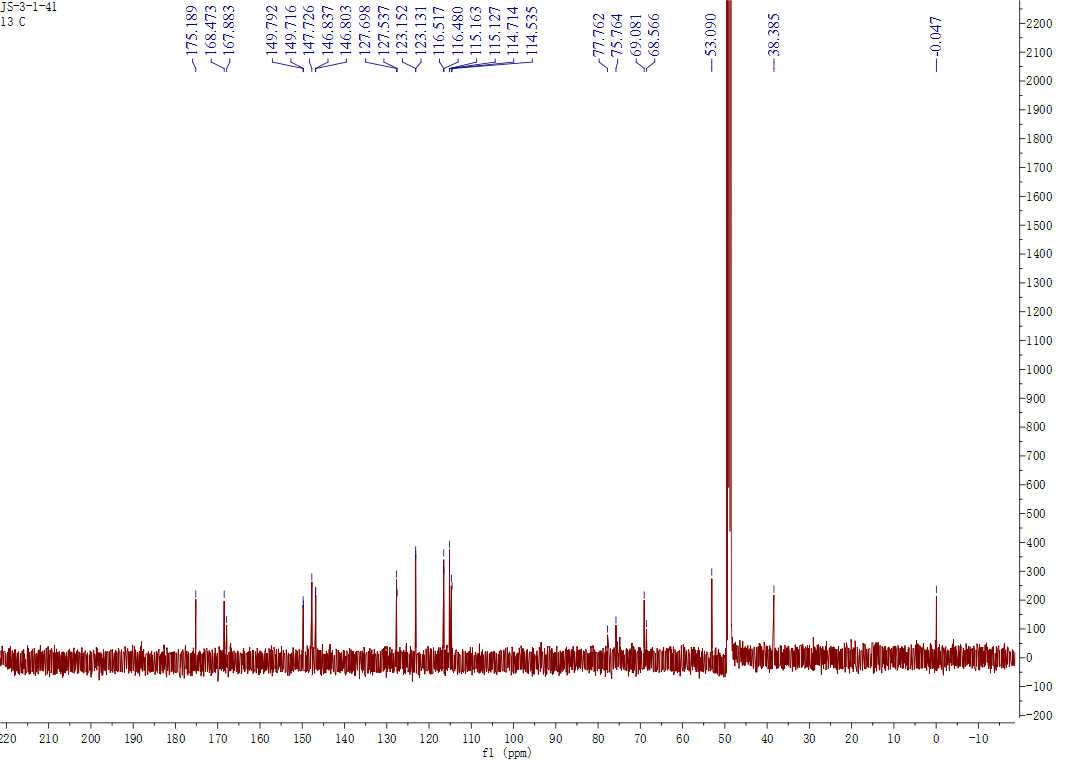
## Figure S57. The 1H NMR spectrum of **8** in CD3OD



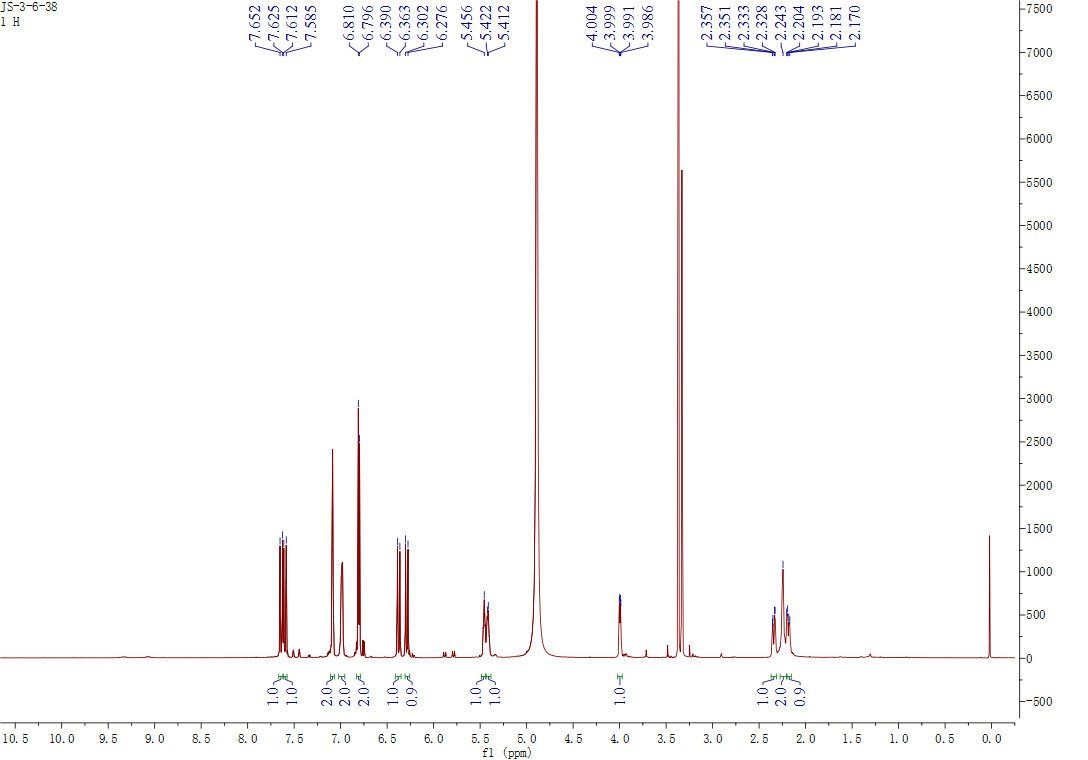
## Figure S58. The 13C NMR spectrum of **8** in CD3OD



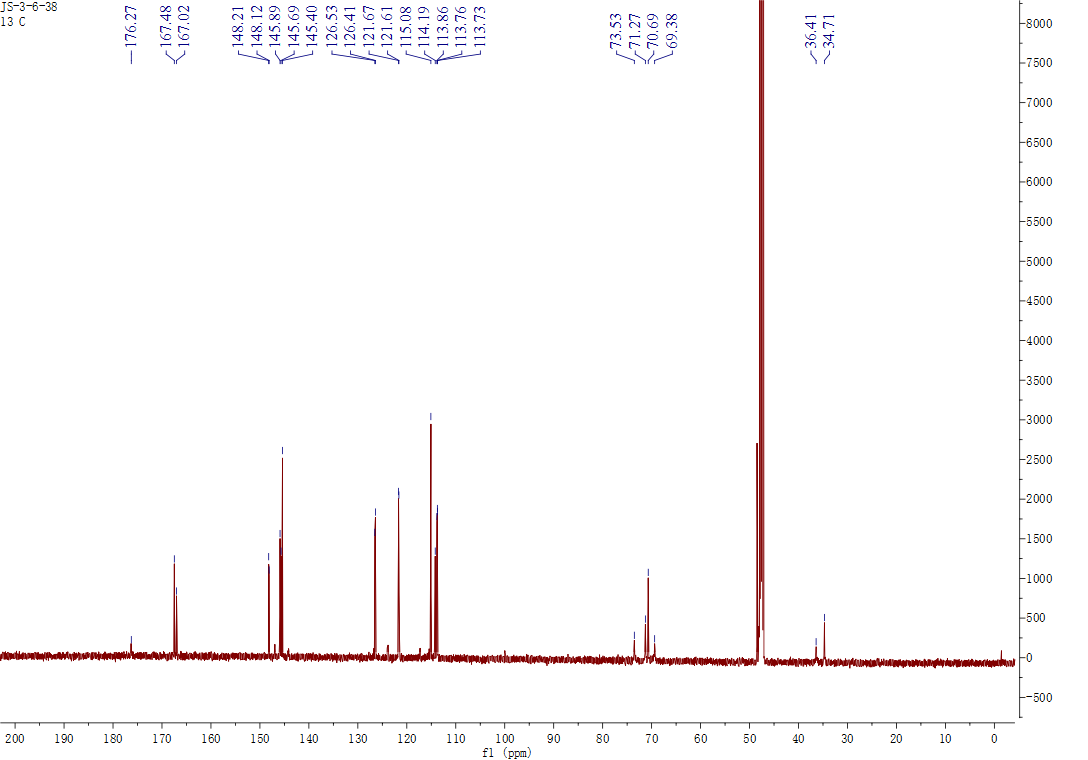
## Figure S59. The 1H NMR spectrum of **9** in CD3OD



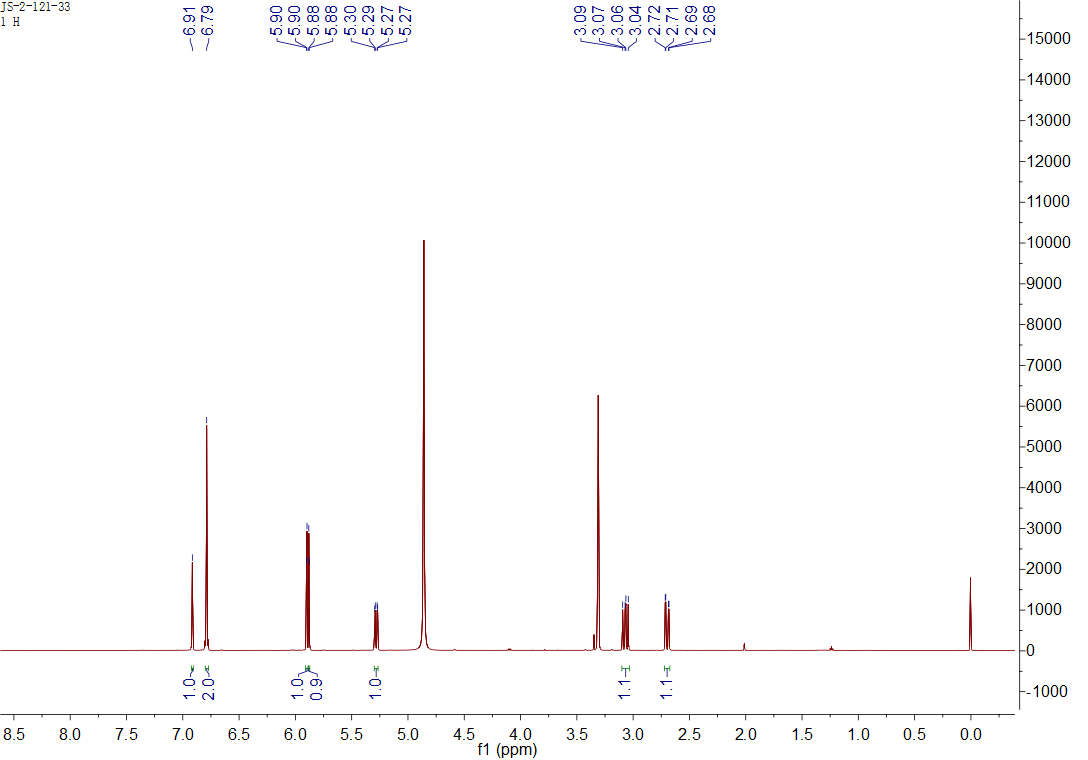
## Figure S60. The 13C NMR spectrum of **9** in CD3OD



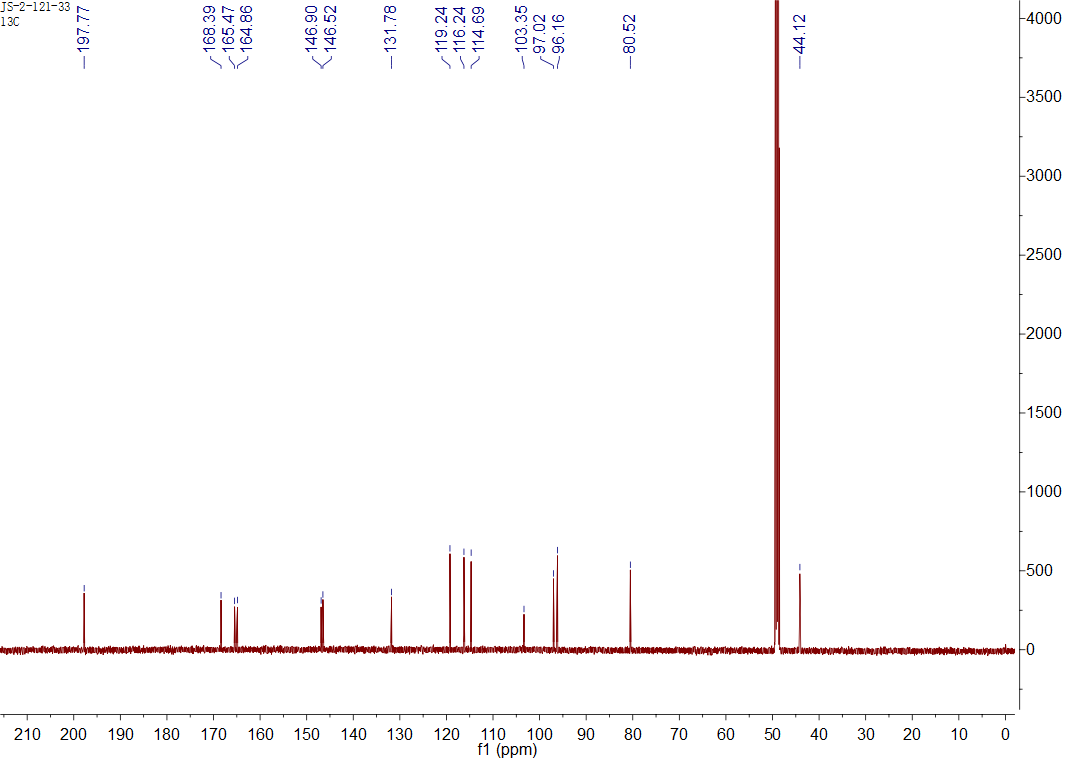
## Figure S61. The 1H NMR spectrum of **10** in CD3OD



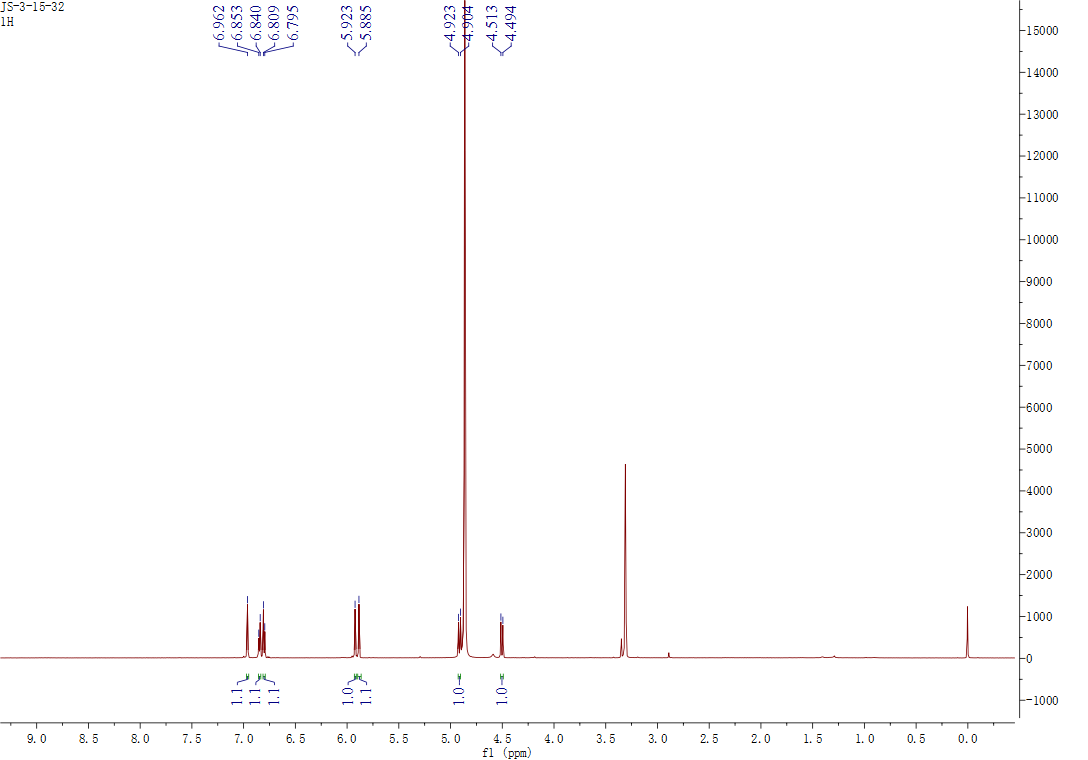
## Figure S62. The 13C NMR spectrum of **10** in CD3OD



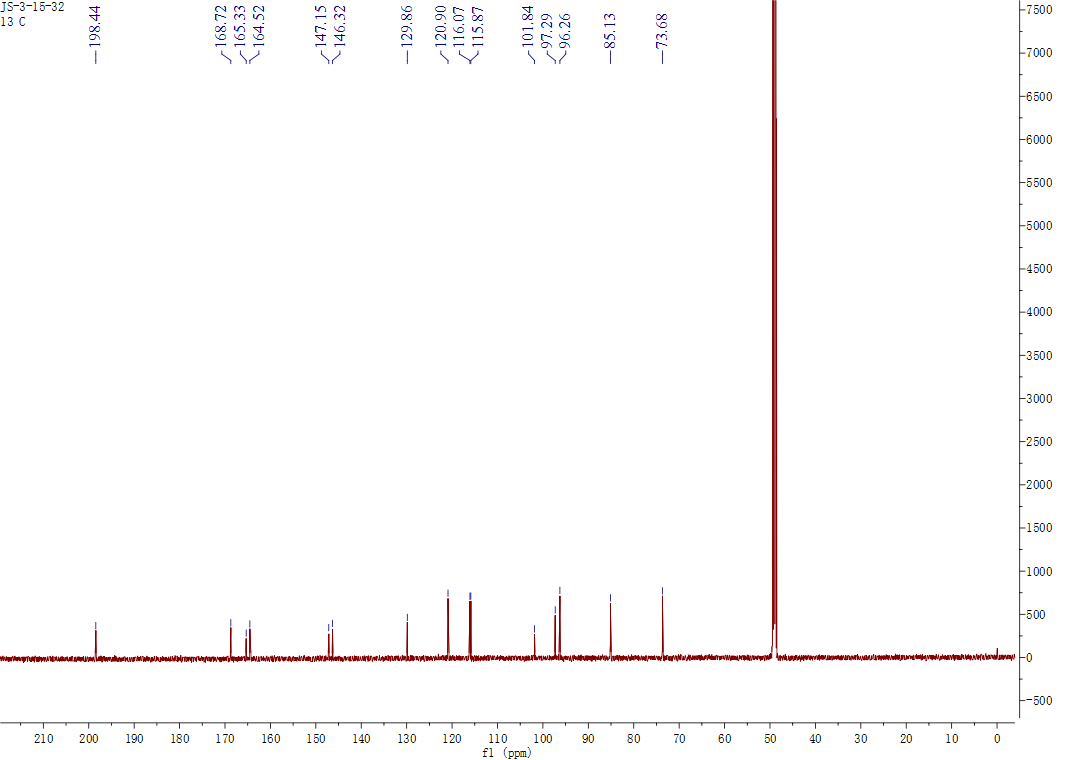
## Figure S63. The 1H NMR spectrum of **12** in CD3OD



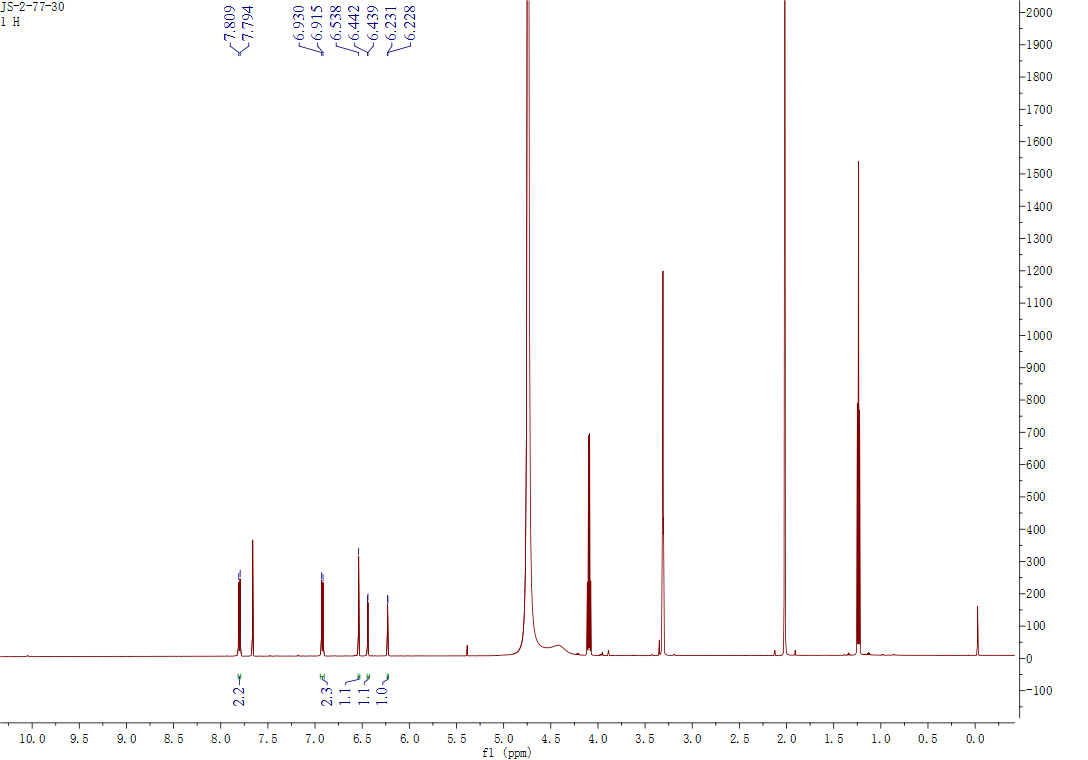
## Figure S64. The 13C NMR spectrum of **12** in CD3OD



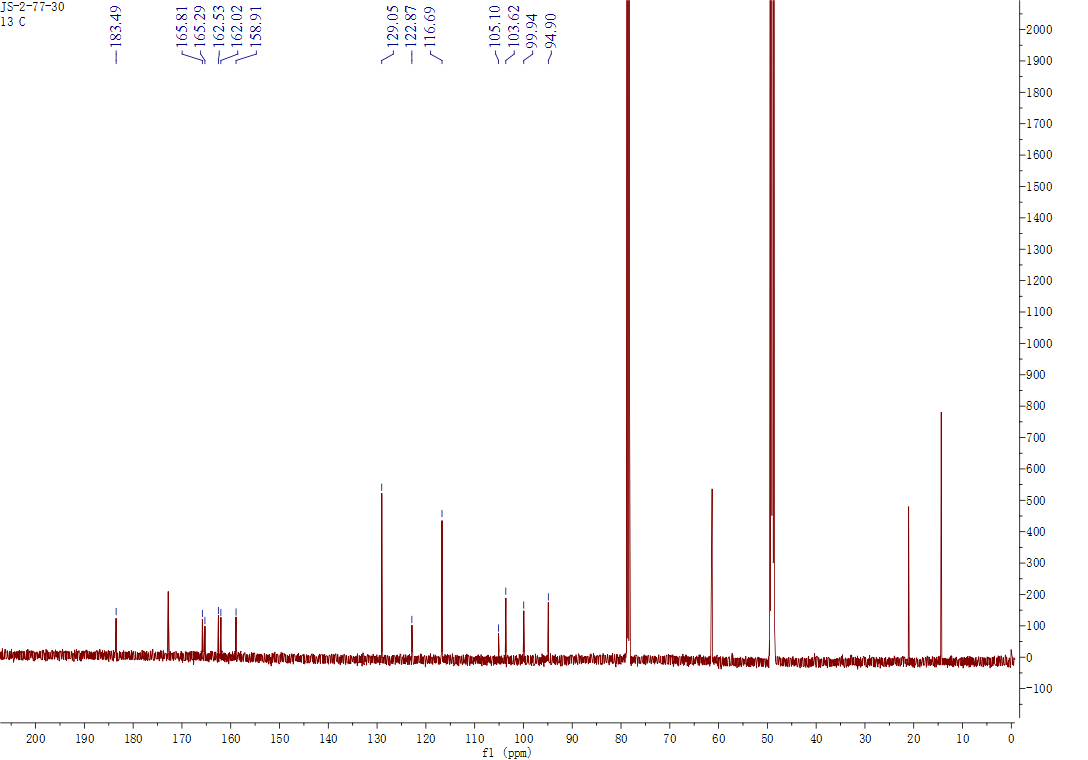
## Figure S65. The 1H NMR spectrum of **13** in CD3OD



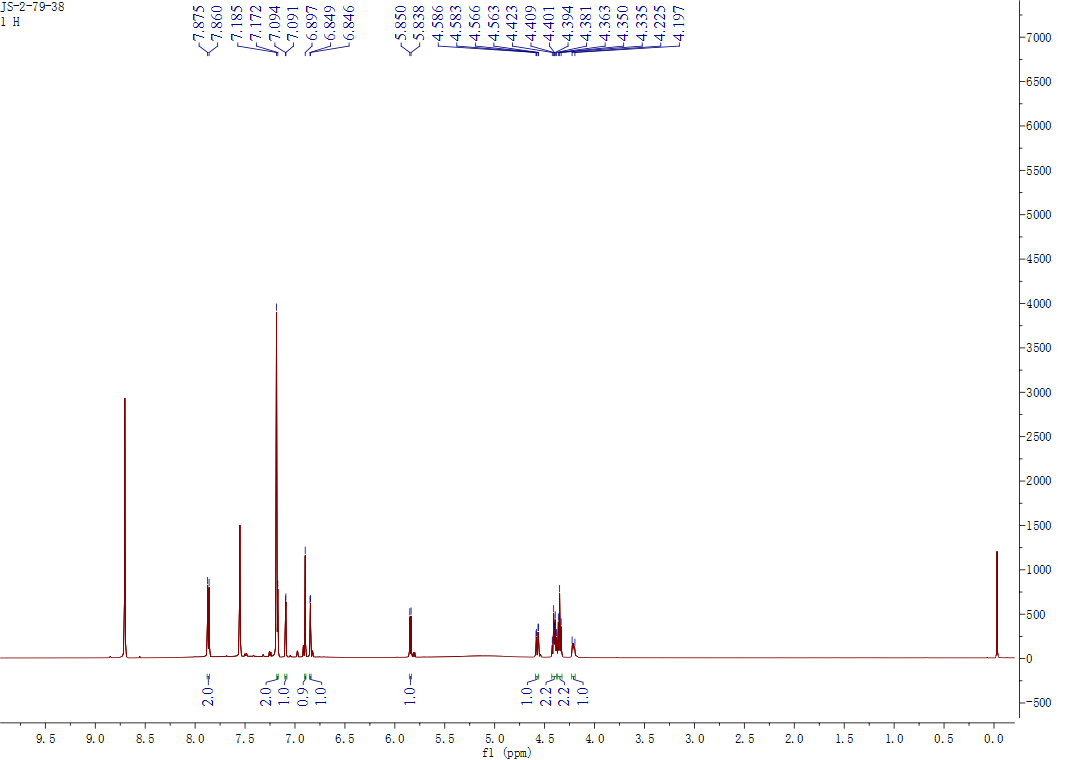
## Figure S66. The 13C NMR spectrum of **13** in CD3OD



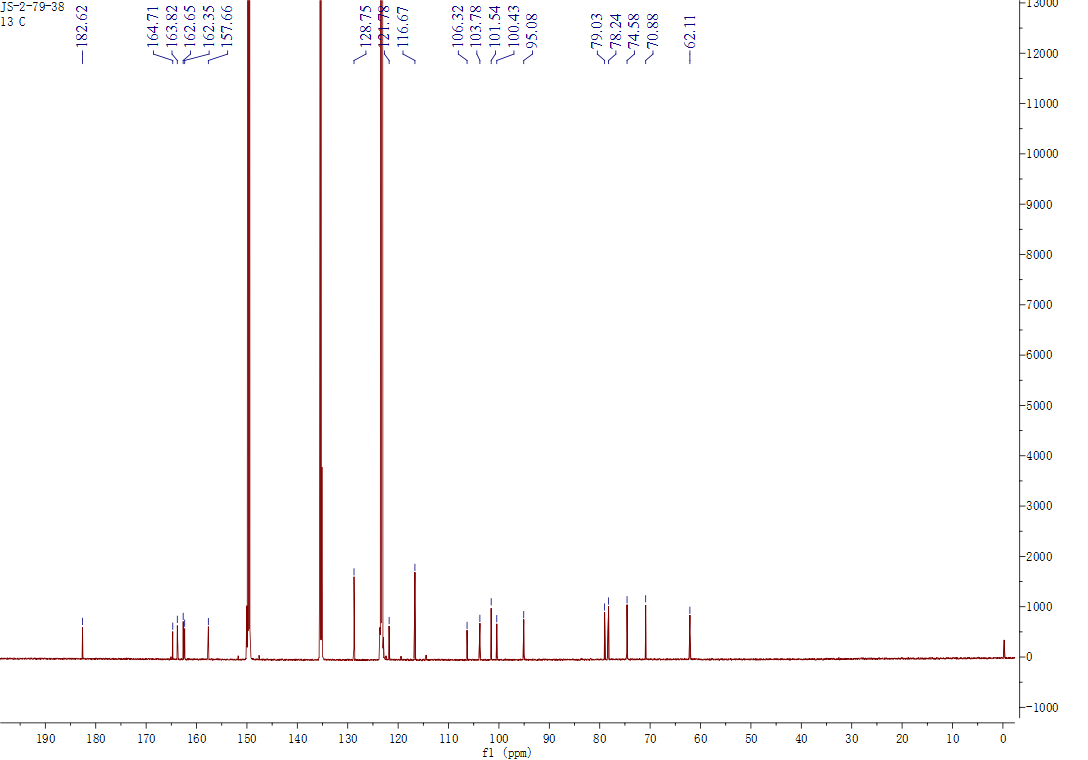
## Figure S67. The 1H NMR spectrum of **14** in CD3OD + CDCl3



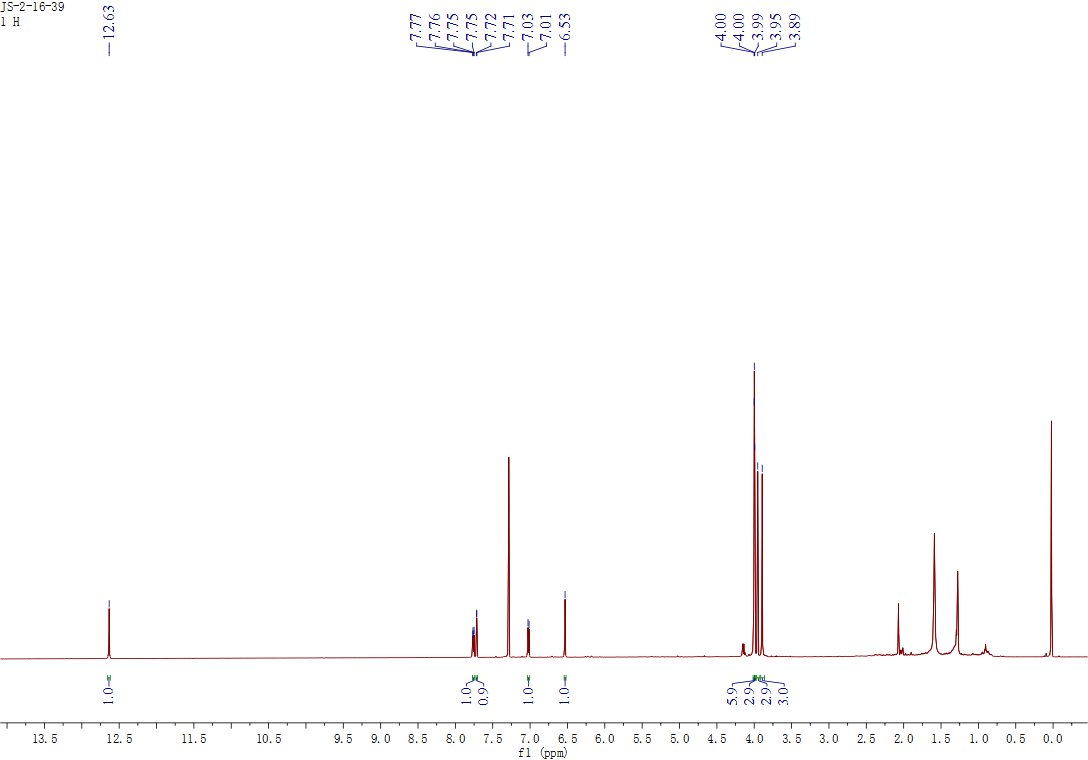
## Figure S68. The 13C NMR spectrum of **14** in CD3OD + CDCl3



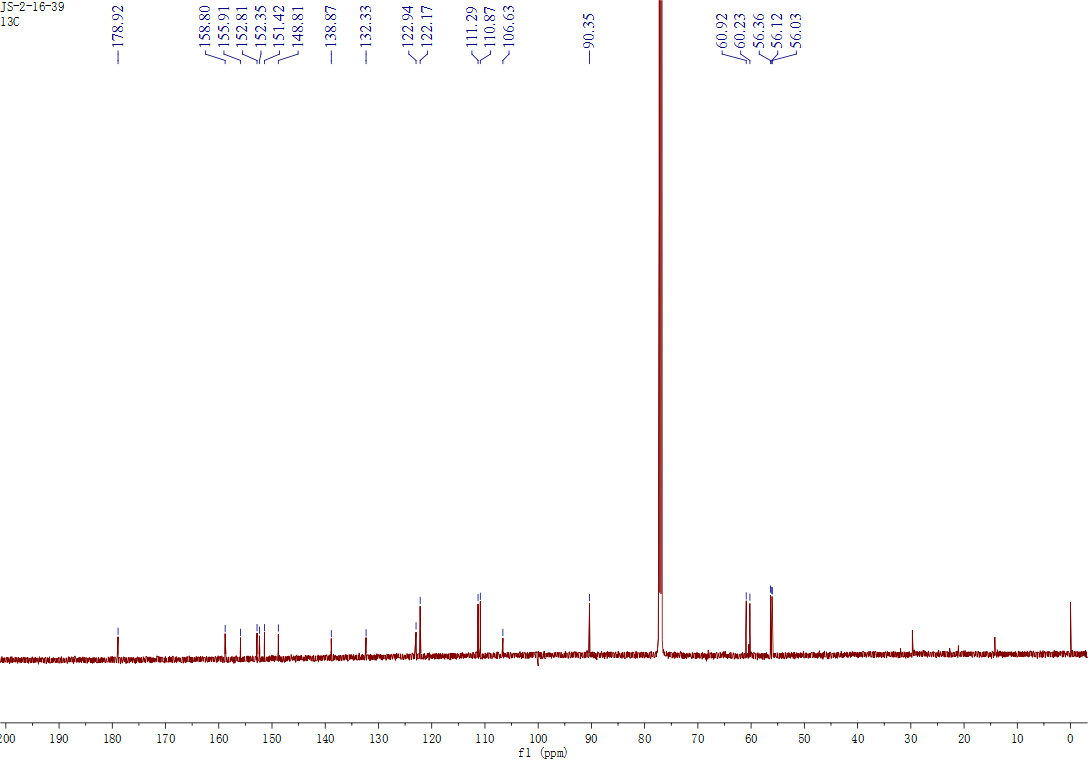
## Figure S69. The 1H NMR spectrum of **15** in pyridin-*d*5



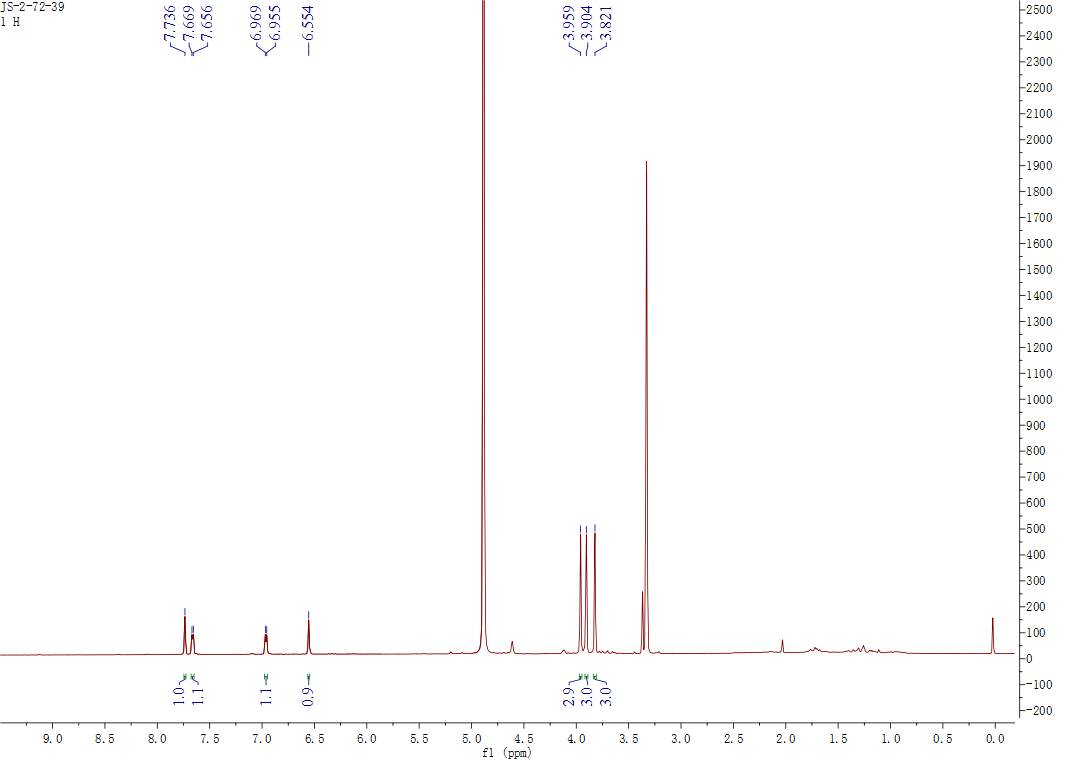
## Figure S70. The 13C NMR spectrum of **15** in pyridin-*d*5



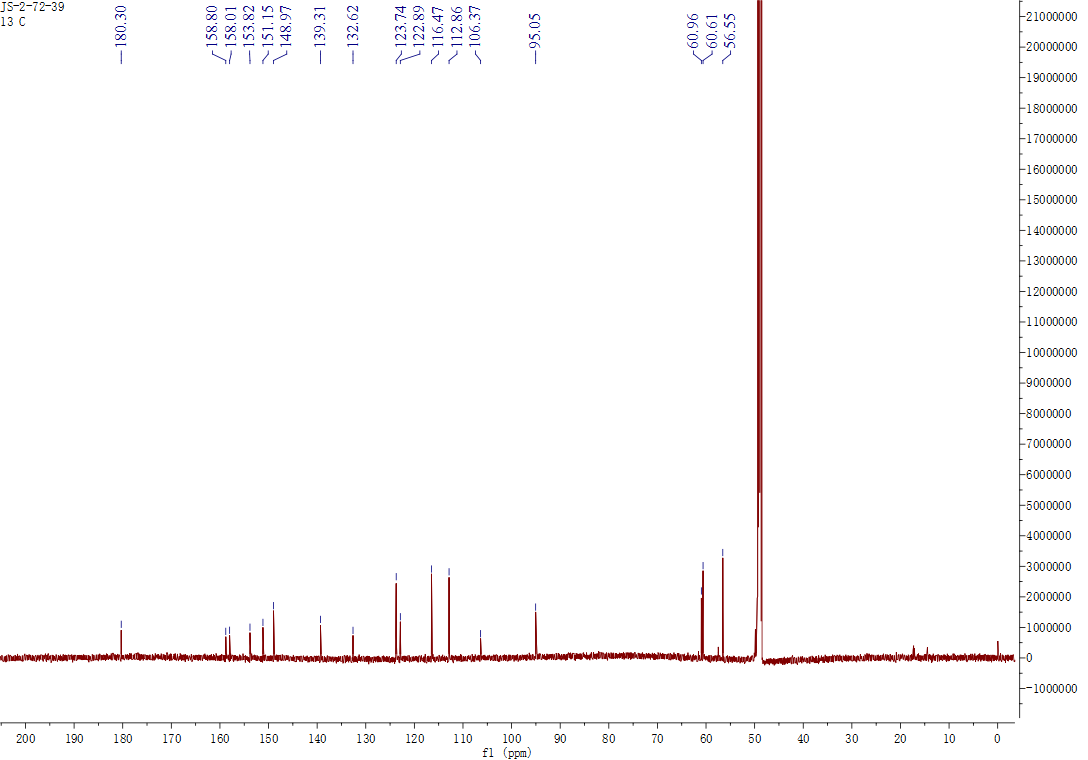
## Figure S71. The 1H NMR NMR spectrum of **16** in CDCl3



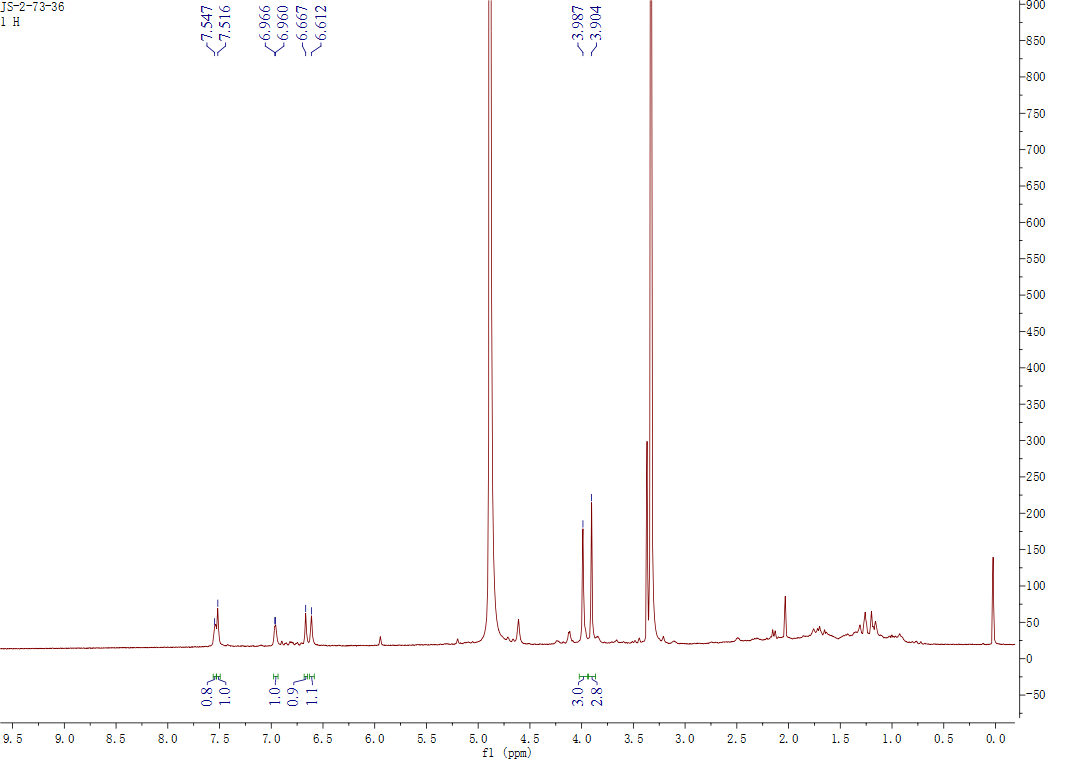
## Figure S72. The 13C NMR spectrum of **16** in CDCl3



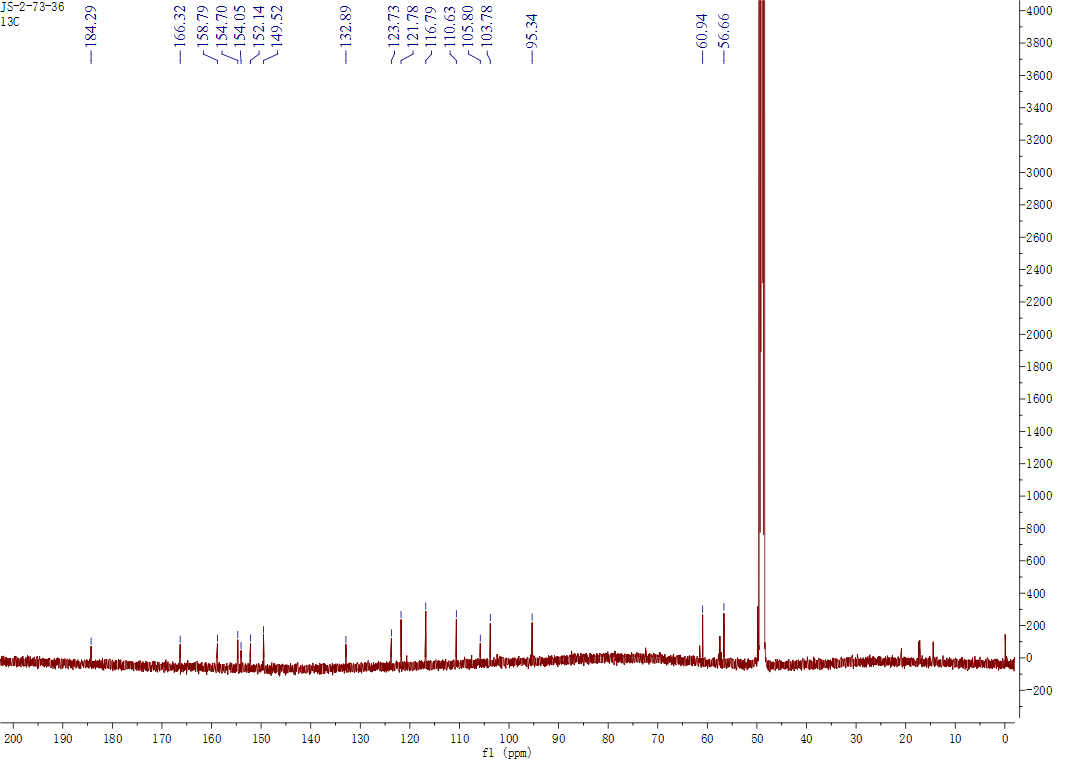
## Figure S73. The 1H NMR spectrum of **17** in CD3OD



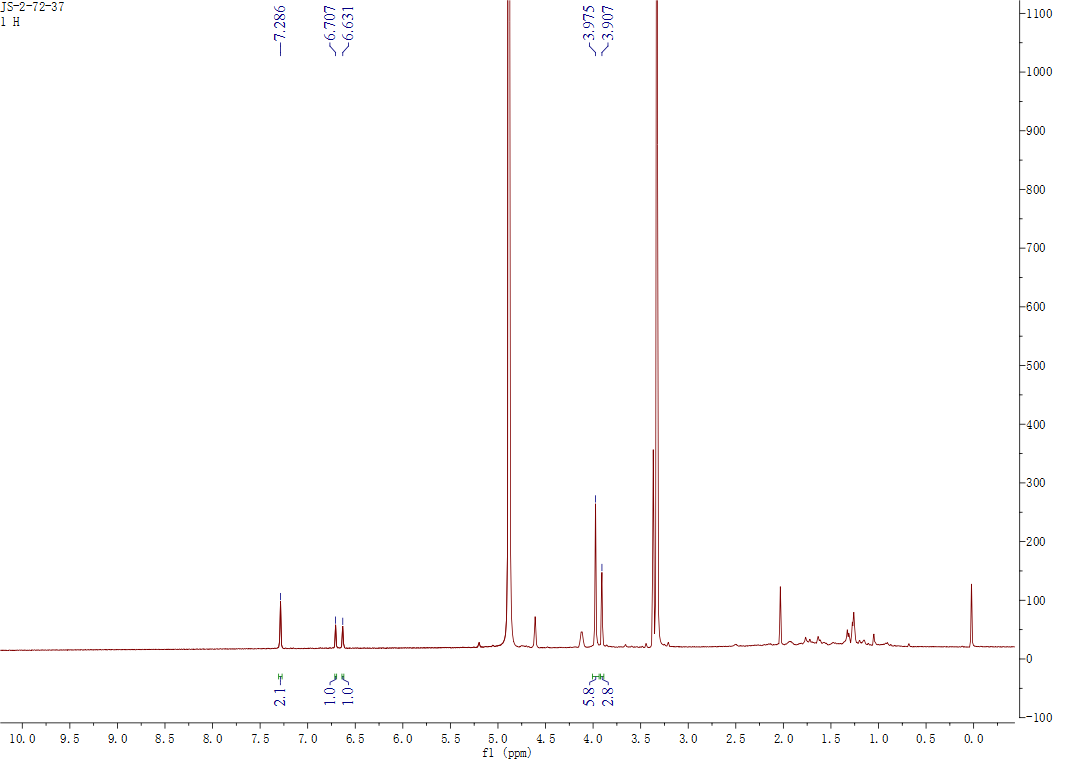
## Figure S74. The 13C NMR spectrum of **17** in CD3OD



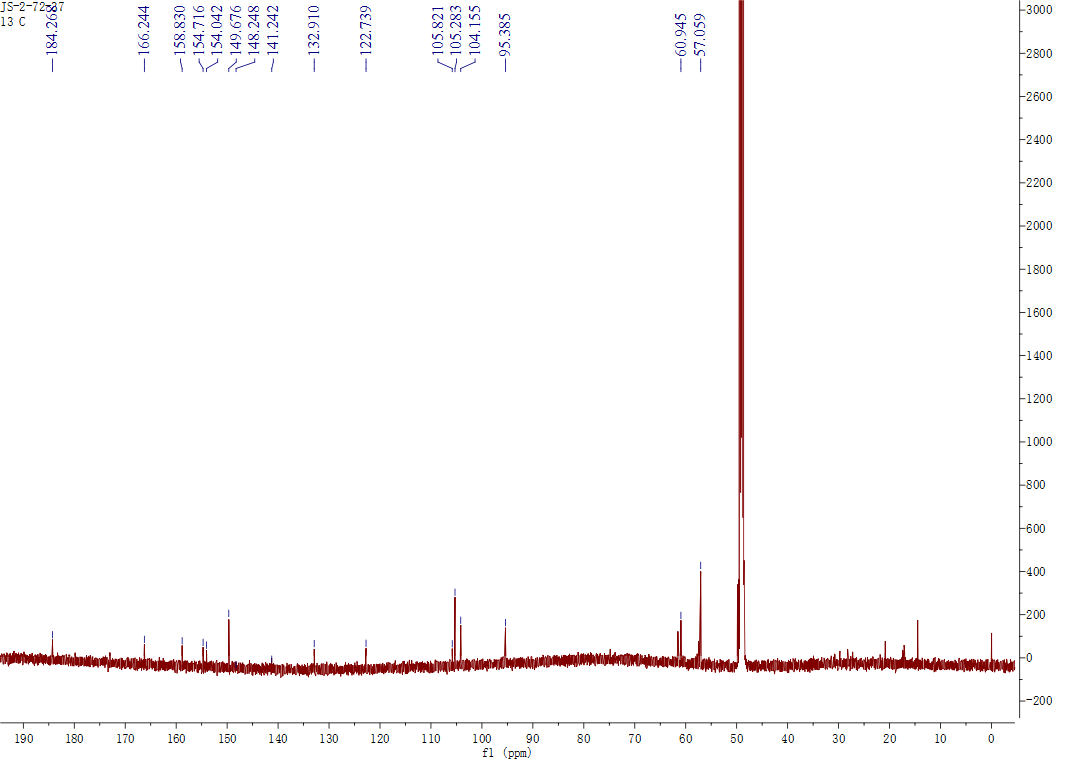
## Figure S75. The 1H NMR spectrum of **18** in CD3OD



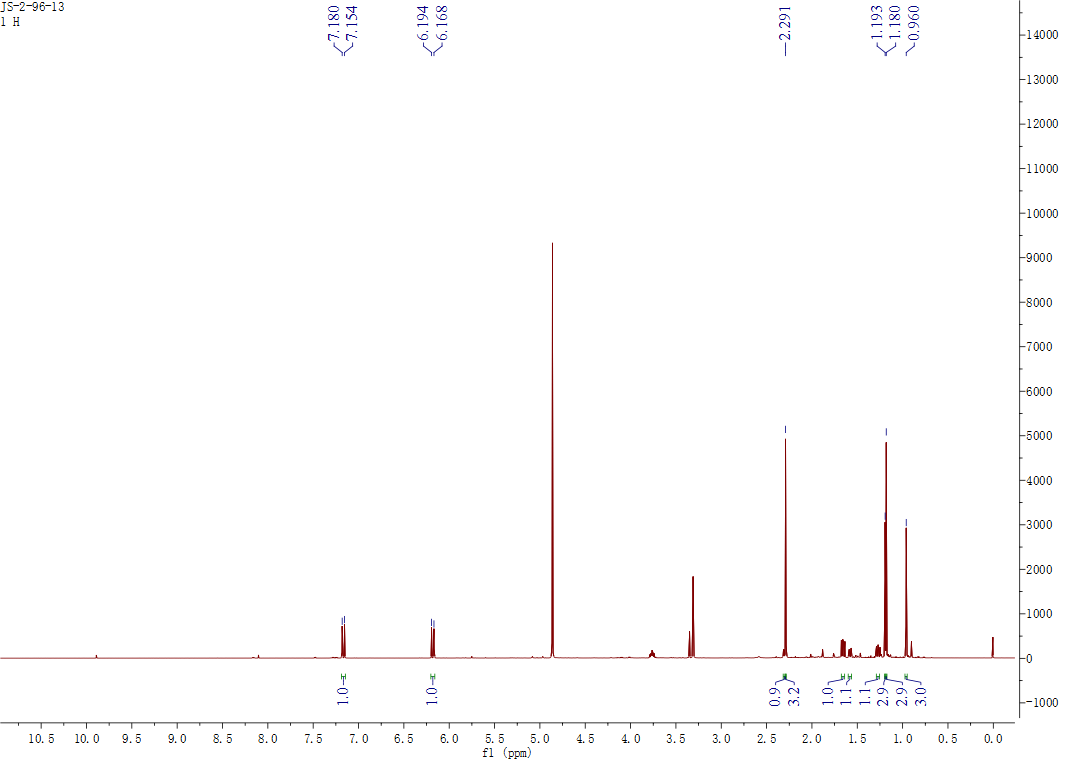
## Figure S76. The 13C NMR spectrum of **18** in CD3OD



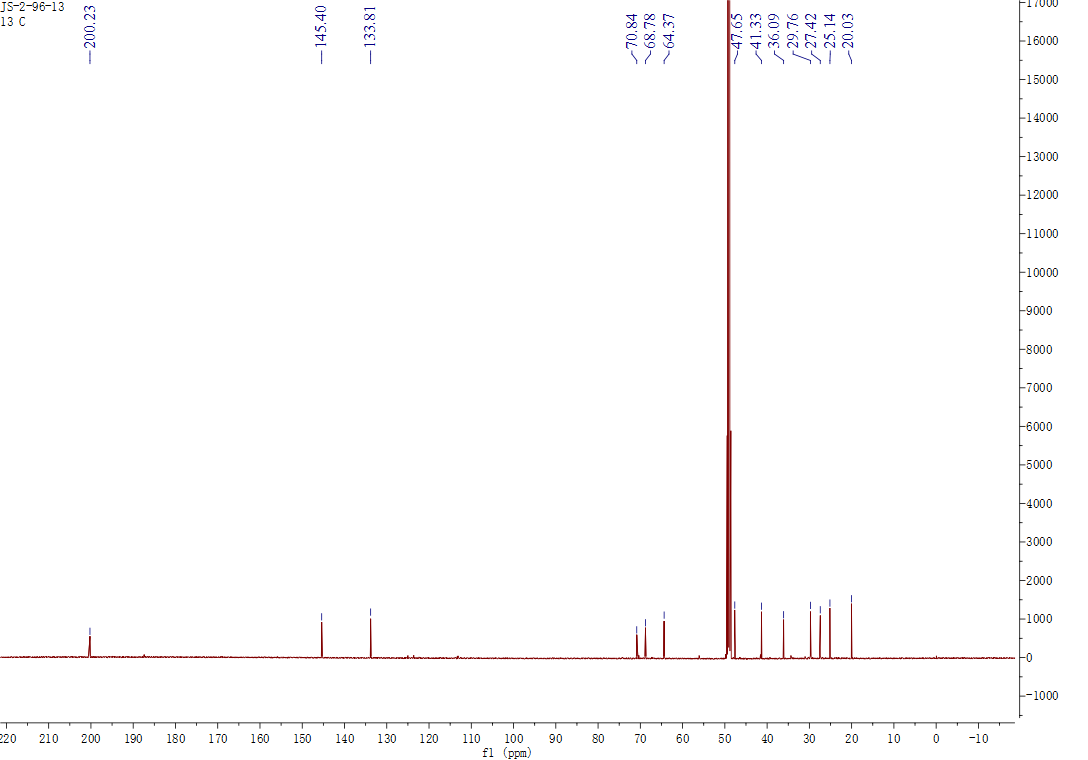
## Figure S77. The 1H NMR spectrum of **19** in CD3OD



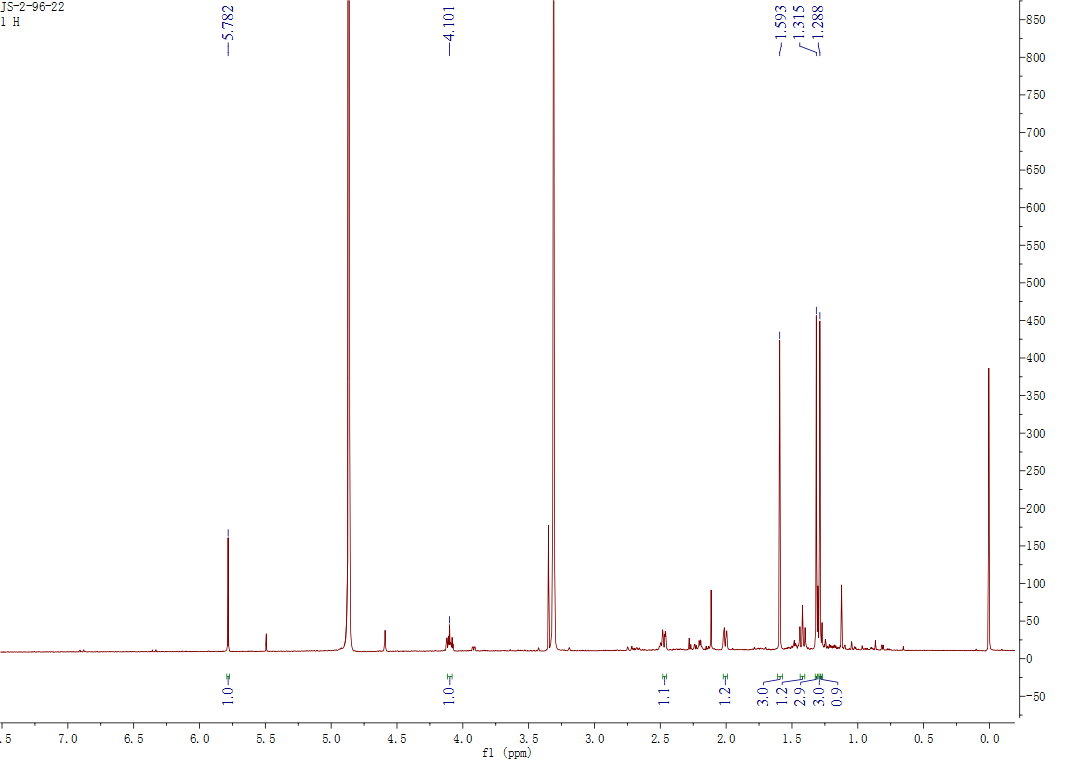
## Figure S78. The 13C NMR spectrum of **19** in CD3OD



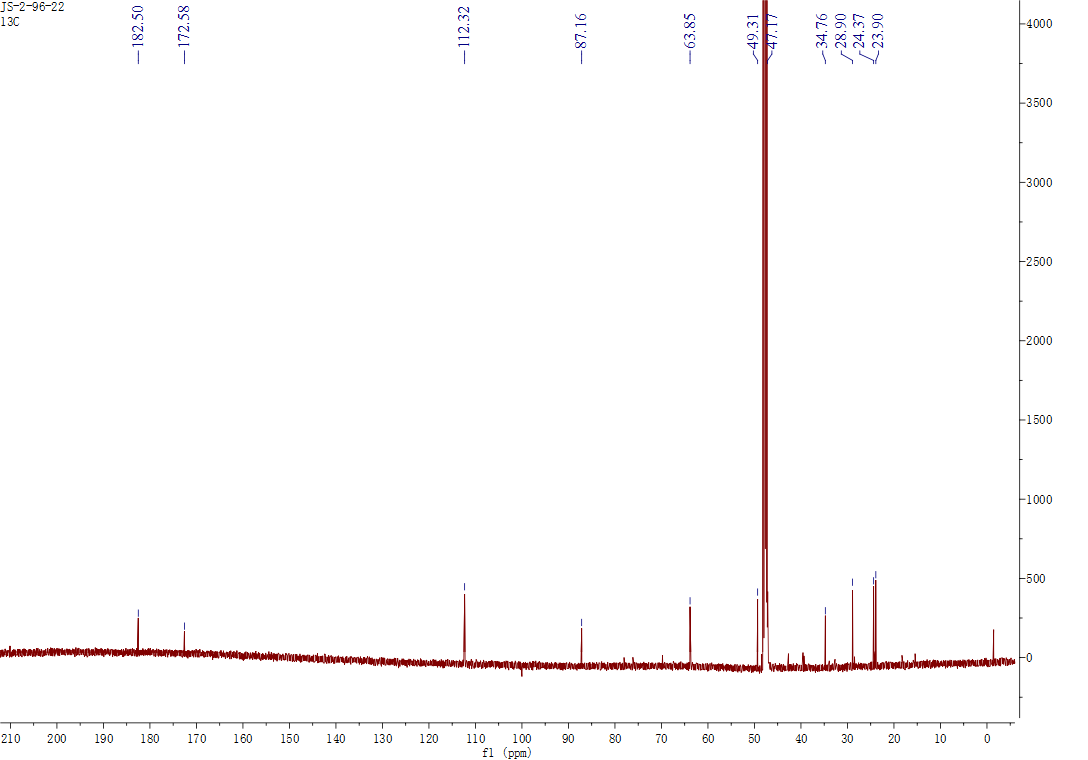
## Figure S79. The 1H NMR spectrum of **20** in CD3OD



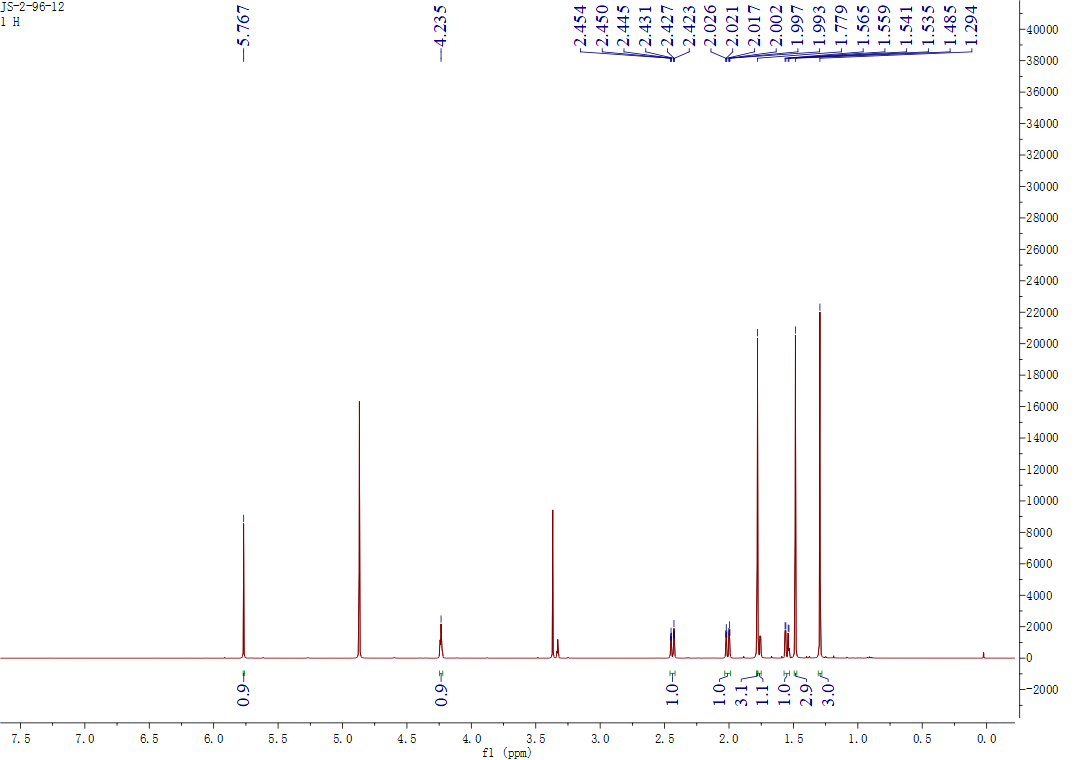
## Figure S80. The 13C NMR spectrum of **20** in CD3OD



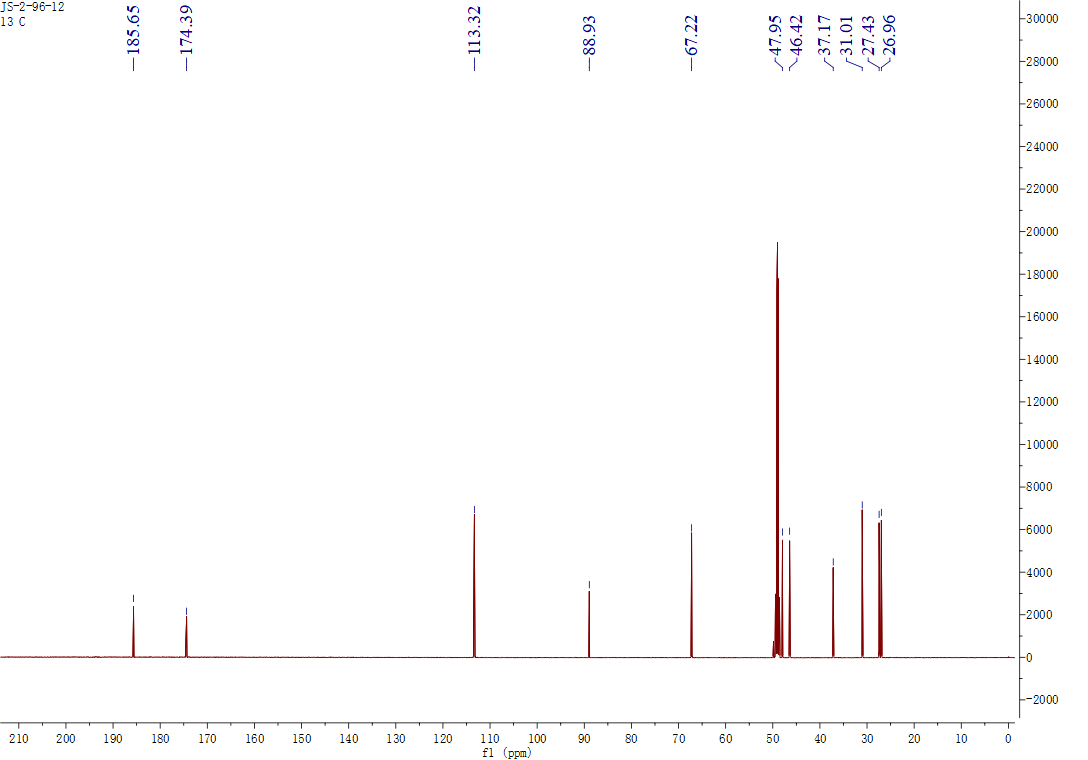
## Figure S81. The 1H NMR spectrum of **21** in CD3OD



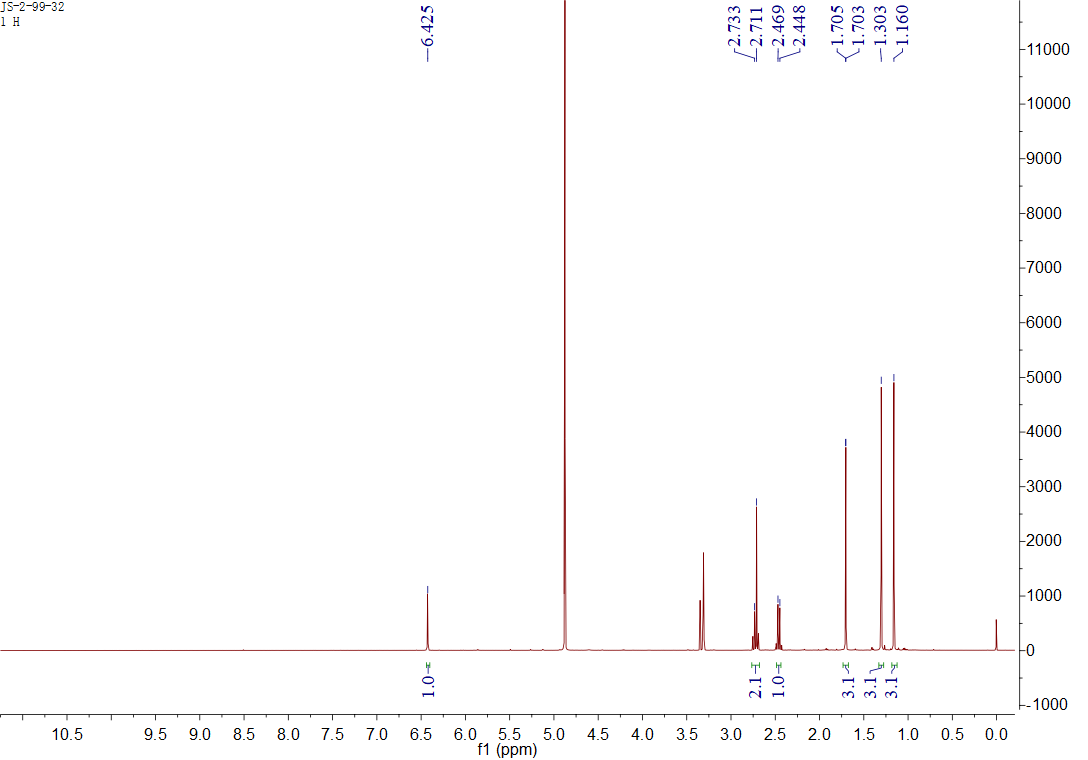
## Figure S82. The 13C NMR spectrum of **21** in CD3OD



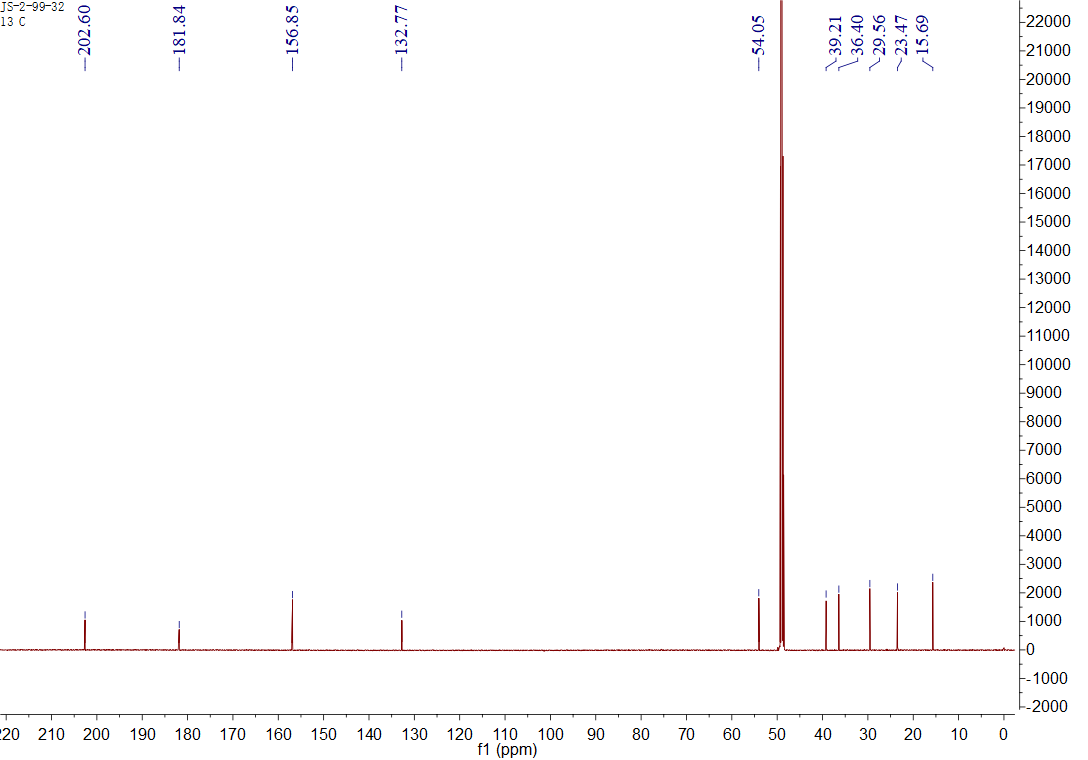
## Figure S83. The 1H NMR spectrum of **22** in CD3OD



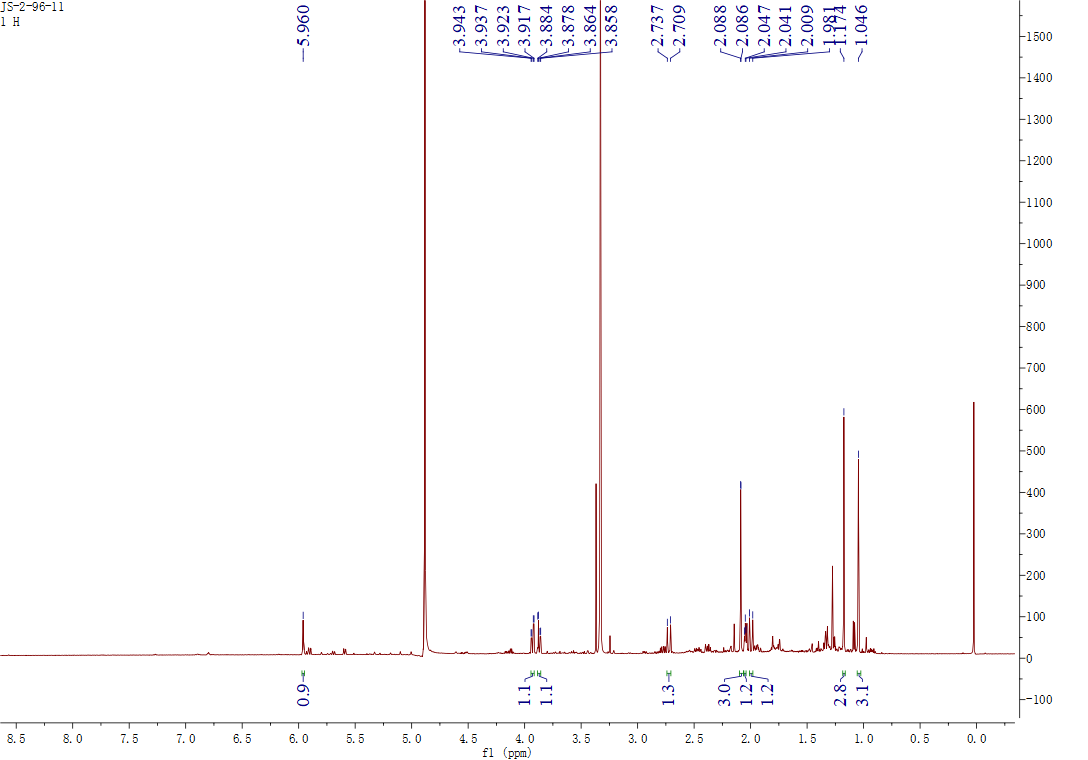
## Figure S84. The 13C NMR spectrum of **22** in CD3OD



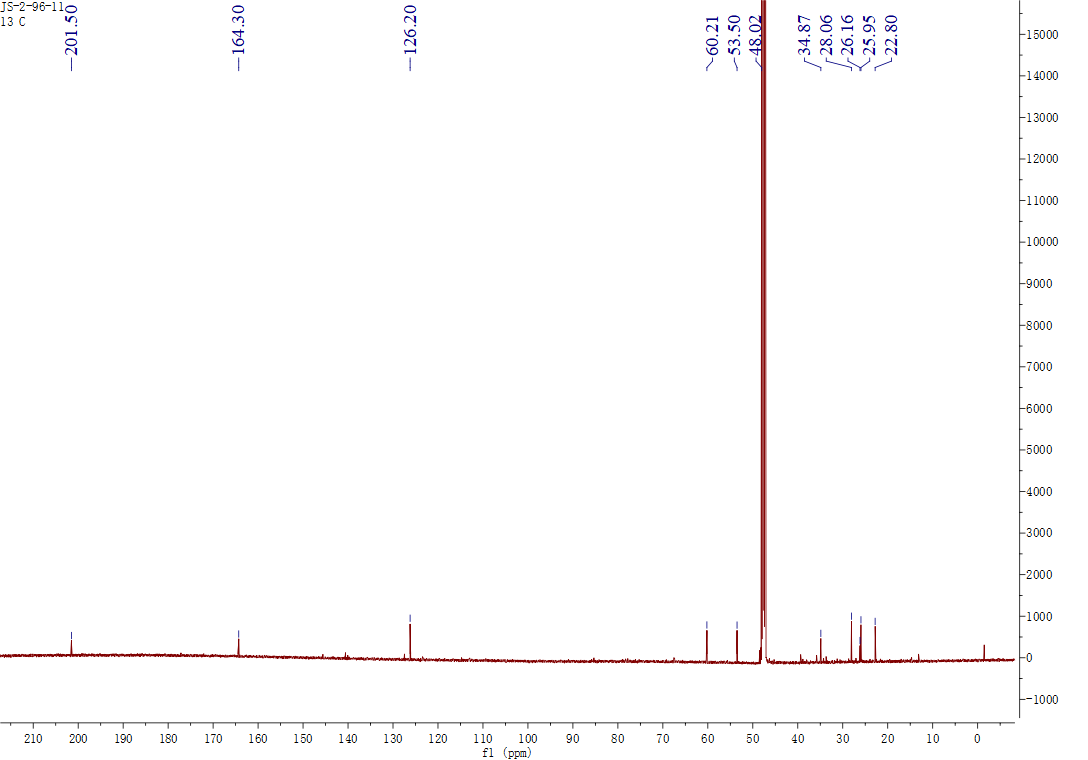
## Figure S85. The 1H NMR spectrum of **23** in CD3OD



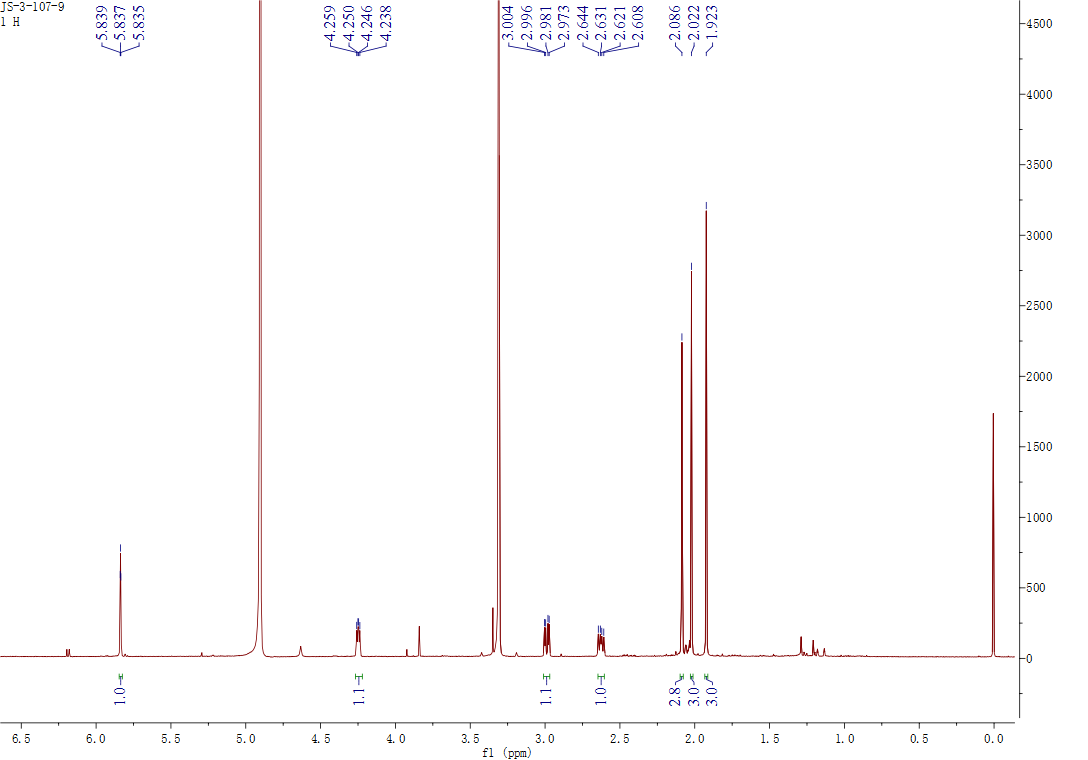
## Figure S86. The 13C NMR spectrum of **23** in CD3OD



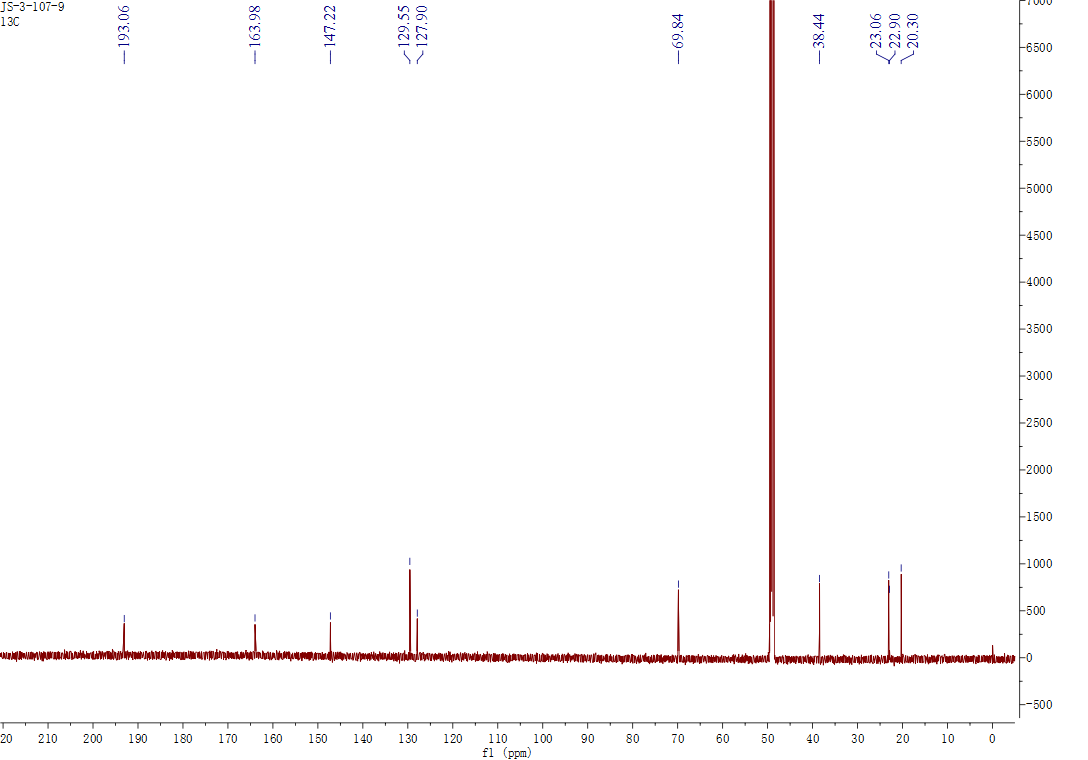
## Figure S87. The 1H NMR spectrum of **24** in CD3OD



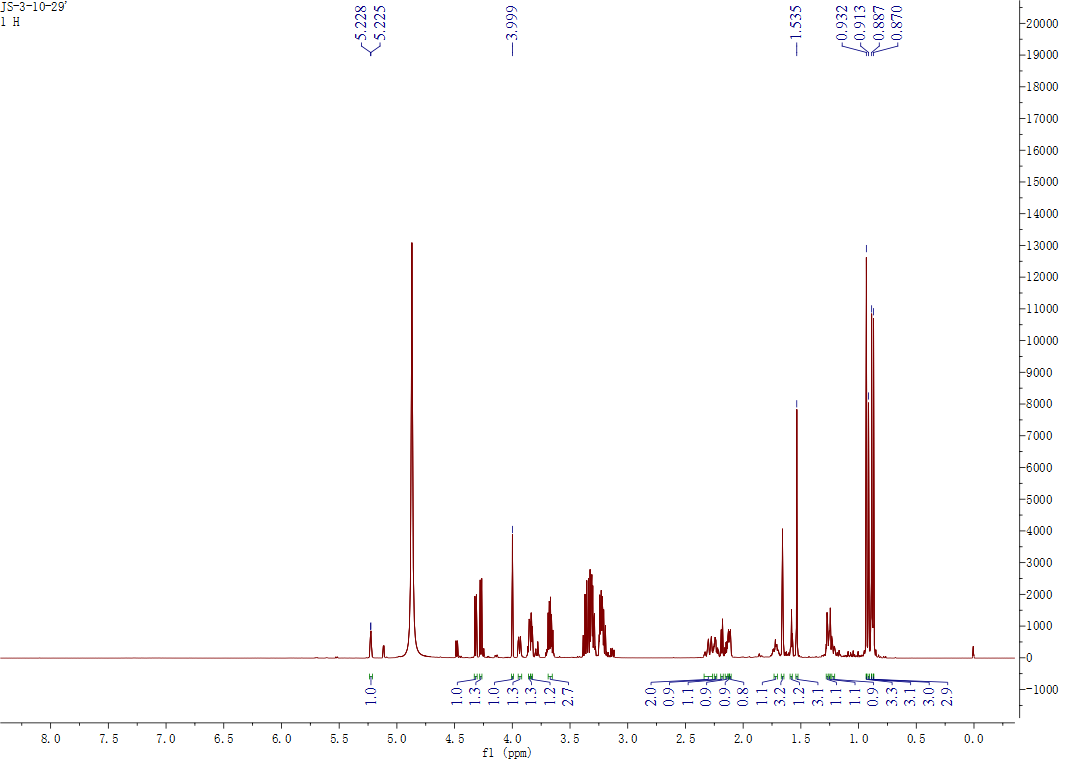
## Figure S88. The 13C NMR spectrum of **24** in CD3OD



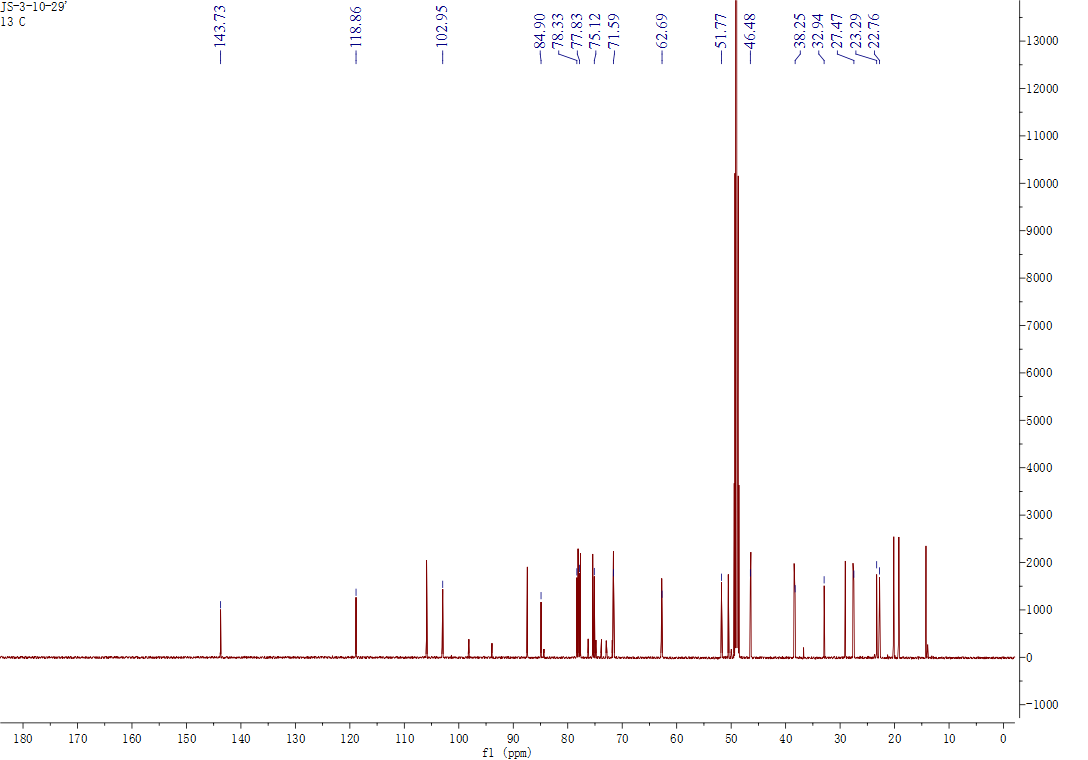
## Figure S89. The 1H NMR spectrum of **25** in CD3OD



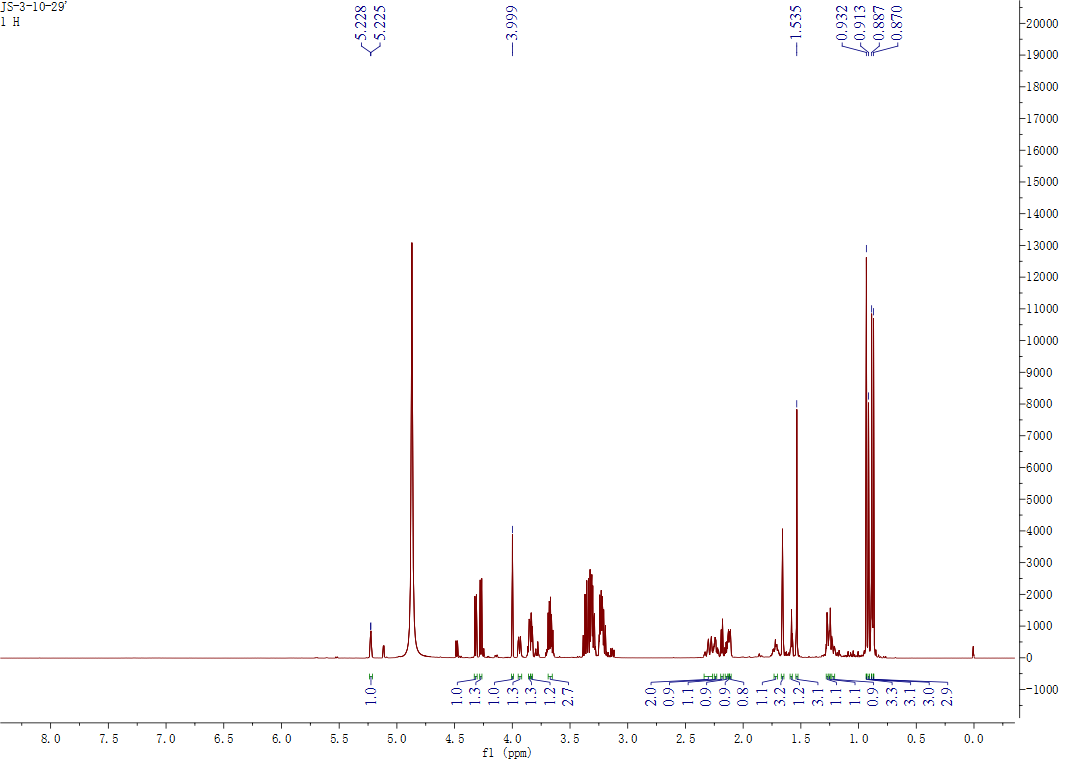
## Figure S90. The 13C NMR spectrum of **25** in CD3OD



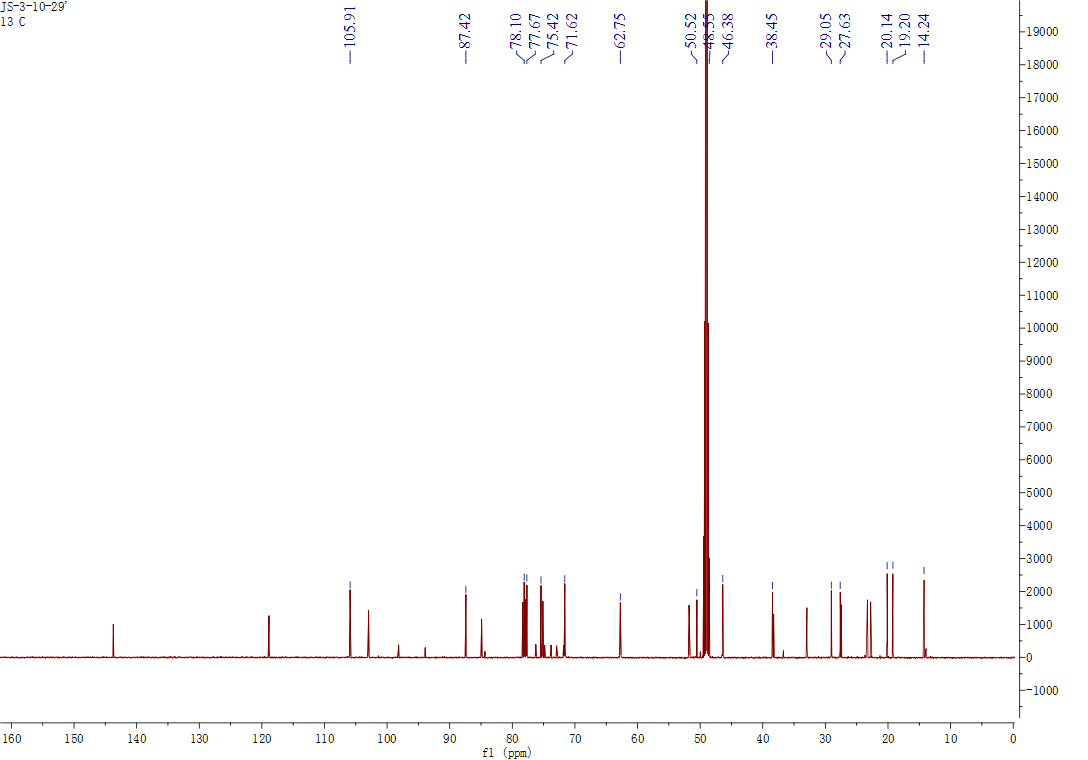
## Figure S91. The 1H NMR spectrum of **26** in CD3OD



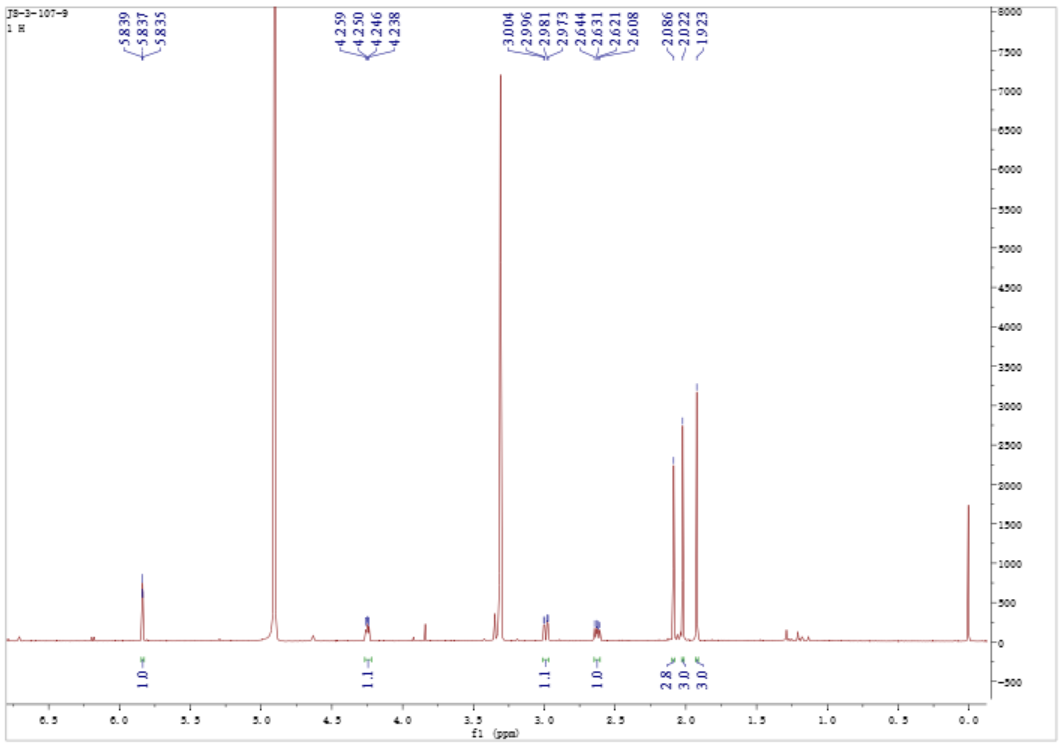
## Figure S92. The 13C NMR spectrum of **26** in CD3OD



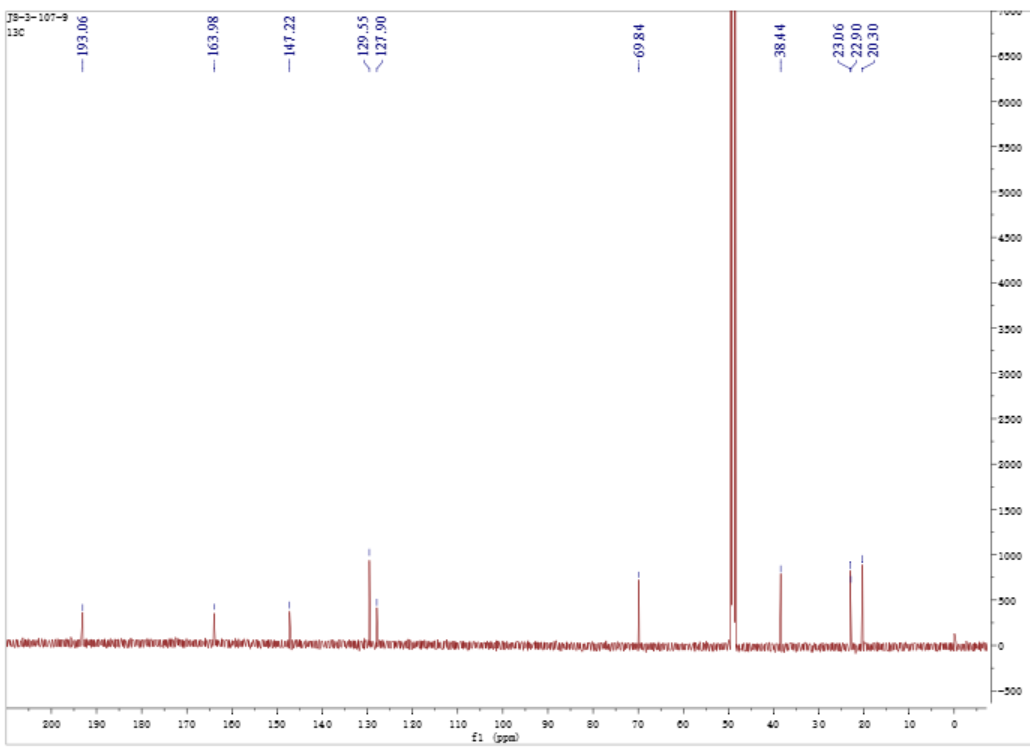
## Figure S93. The 1H NMR spectrum of **27** in CD3OD



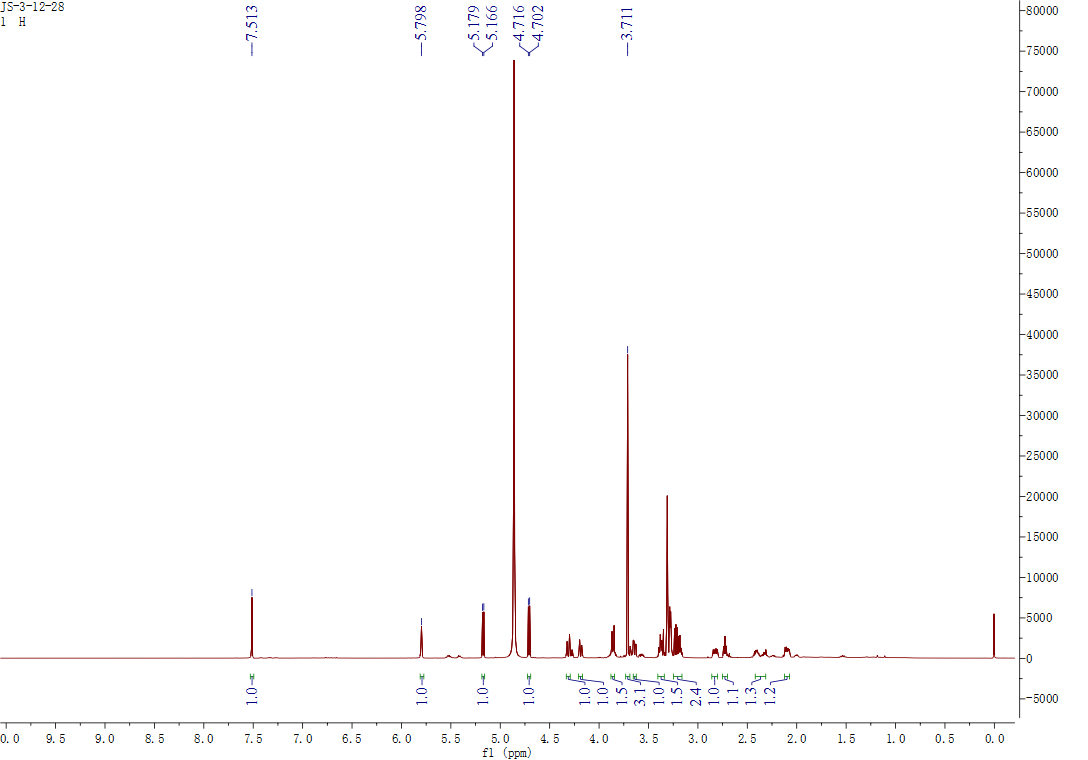
## Figure S94. The 13C NMR spectrum of **27** in CD3OD



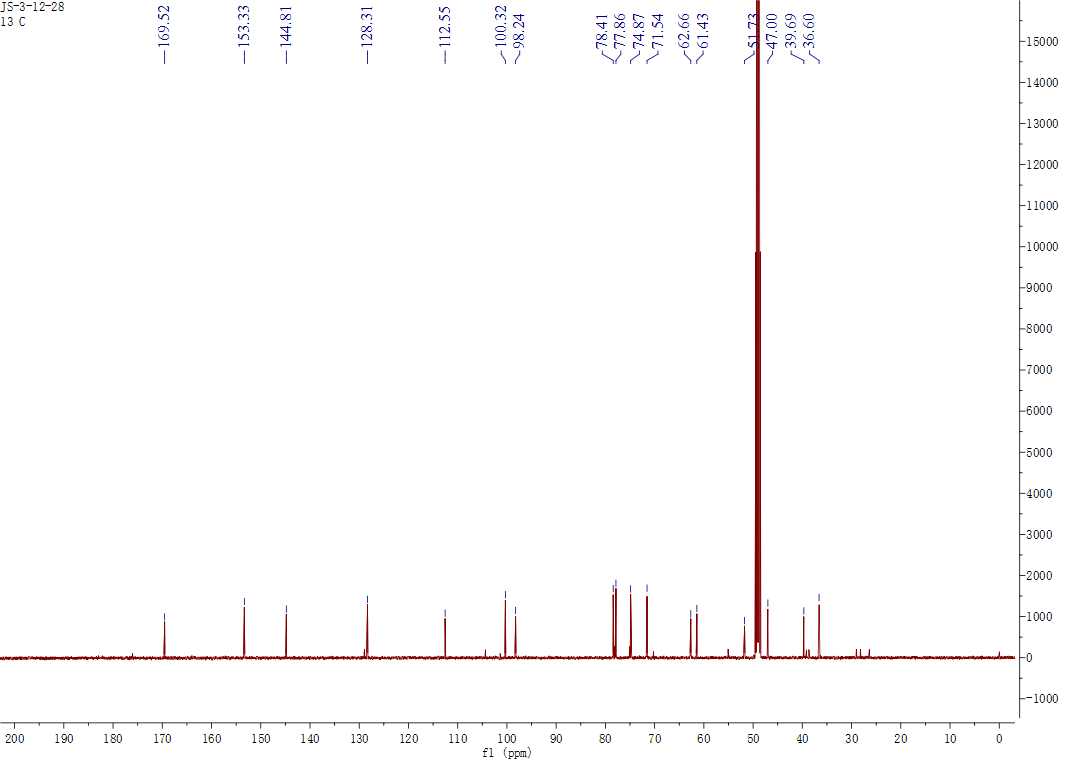
## Figure S95. The 1H NMR spectrum of **28** in CD3OD



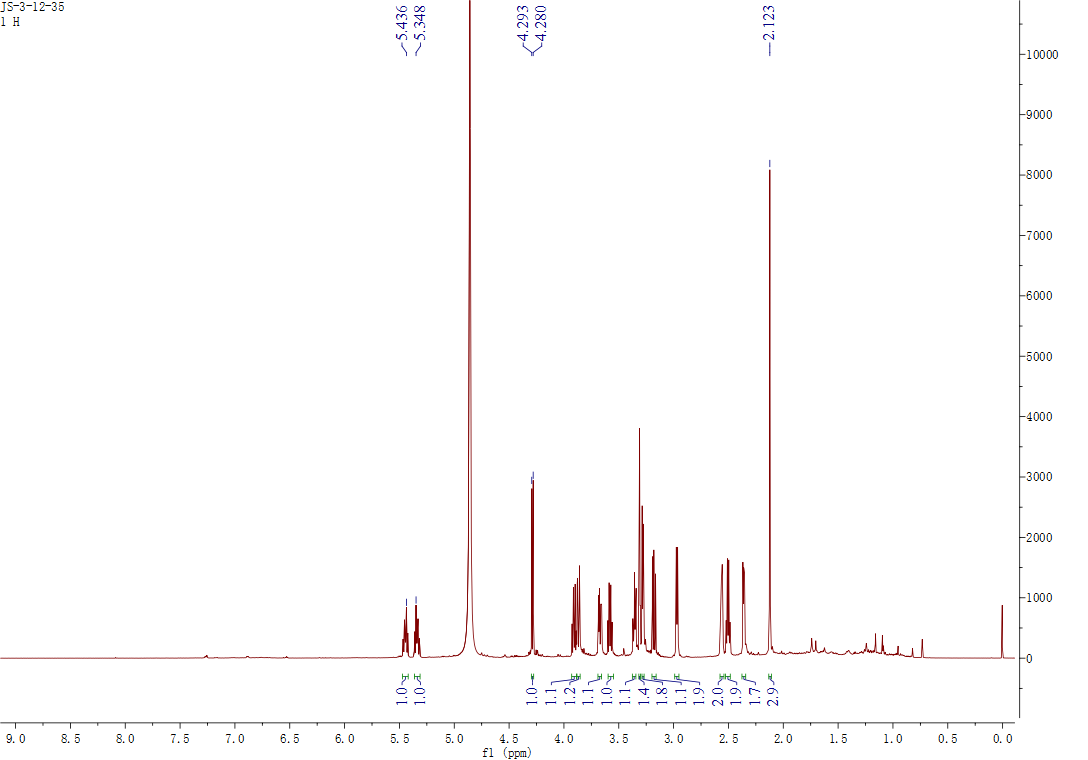
## Figure S96. The 13C NMR spectrum of **28** in CD3OD



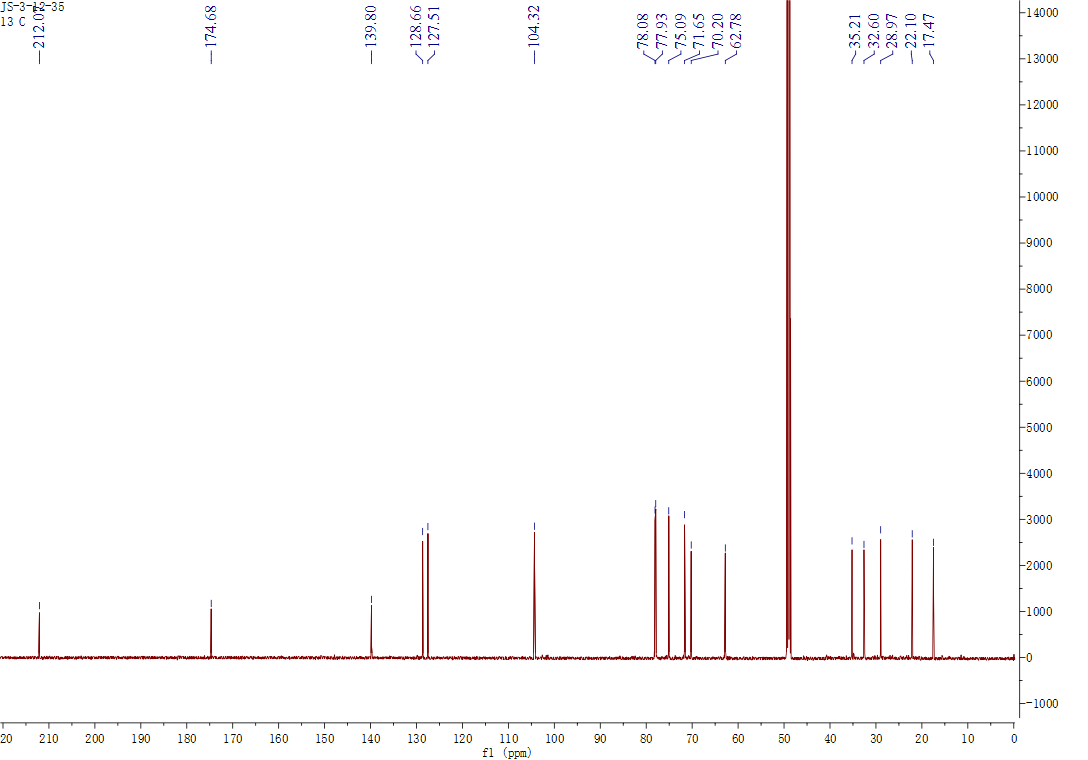
## Figure S97. The 1H NMR spectrum of **29** in CD3OD



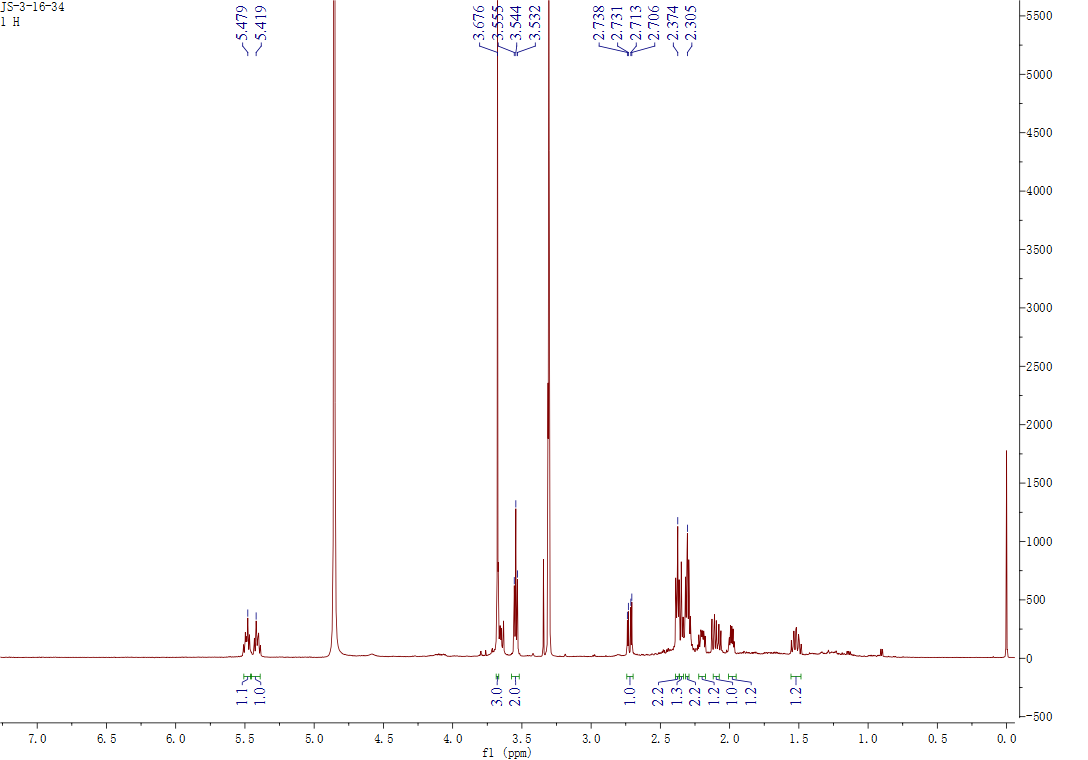
## Figure S98. The 13C NMR spectrum of **29** in CD3OD



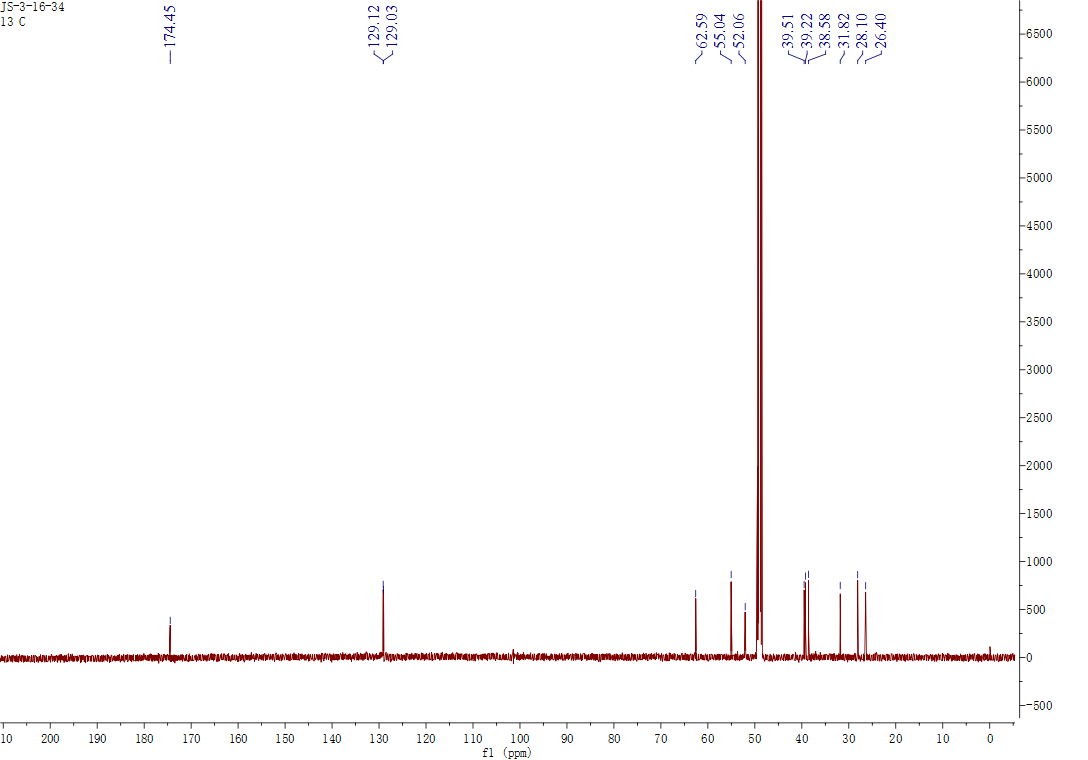
## Figure S99. The 1H NMR spectrum of **30** in CD3OD



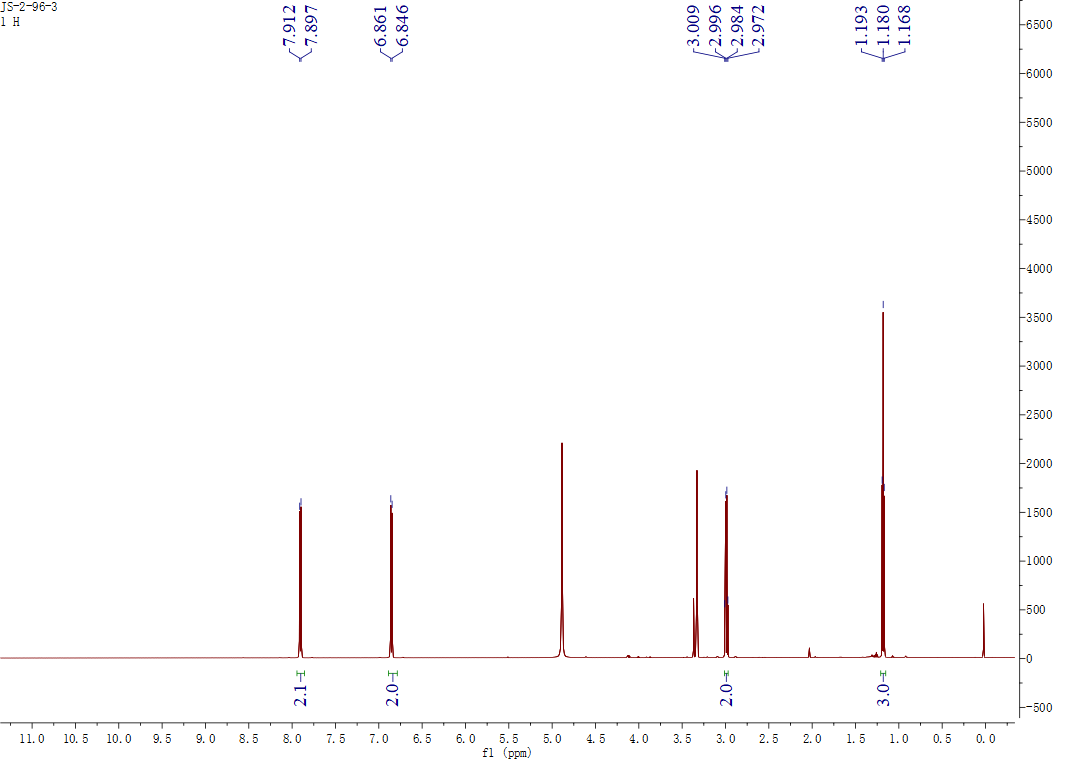
## Figure S100. The 13C NMR spectrum of **30** in CD3OD



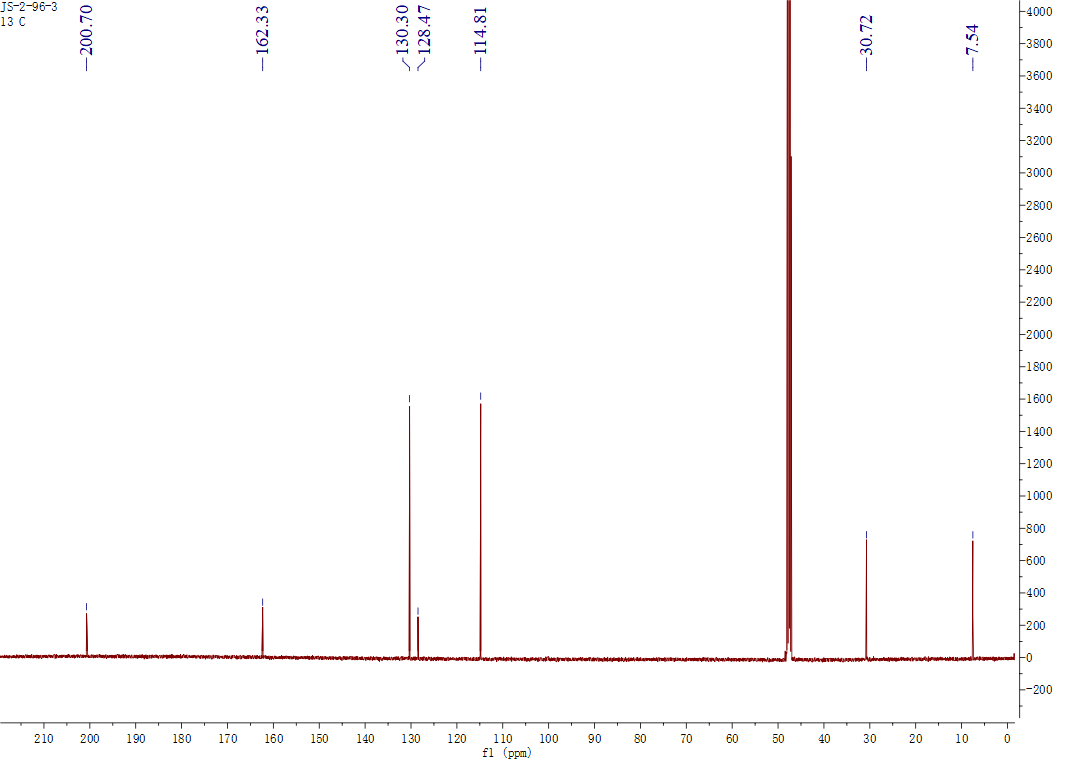
## Figure S101. The 1H NMR spectrum of **32** in CD3OD



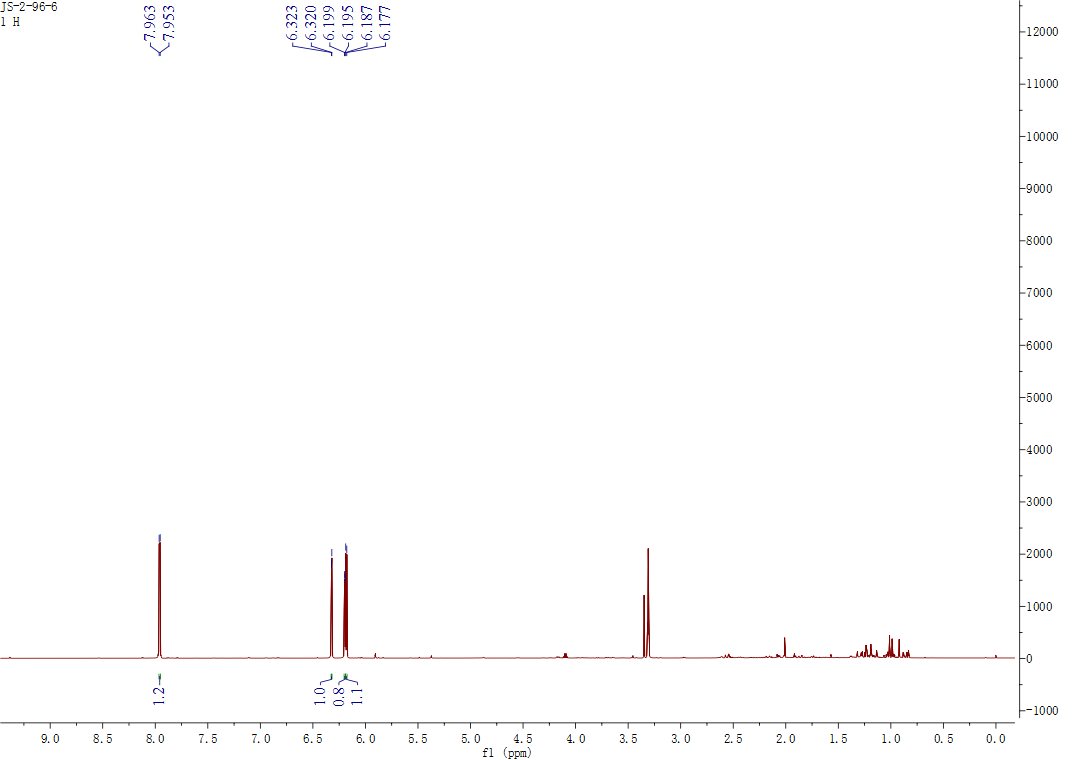
## Figure S102. The 13C NMR spectrum of **32** in CD3OD



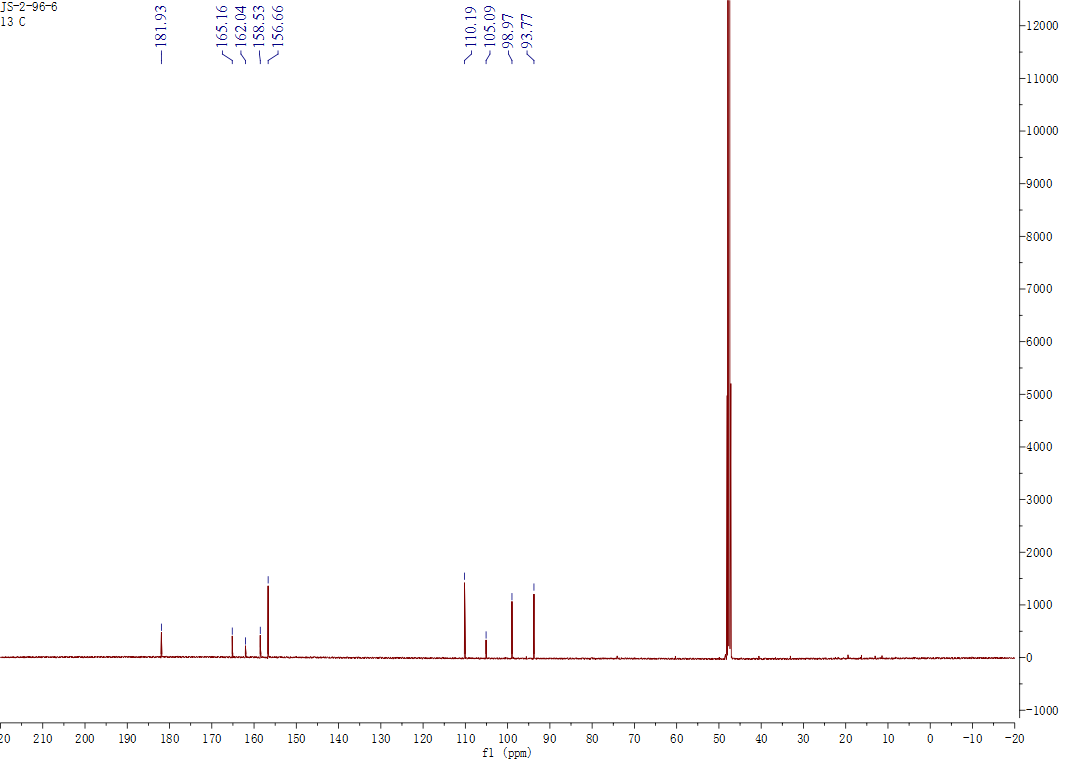
## Figure S103. The 1H NMR spectrum of **33** in CD3OD



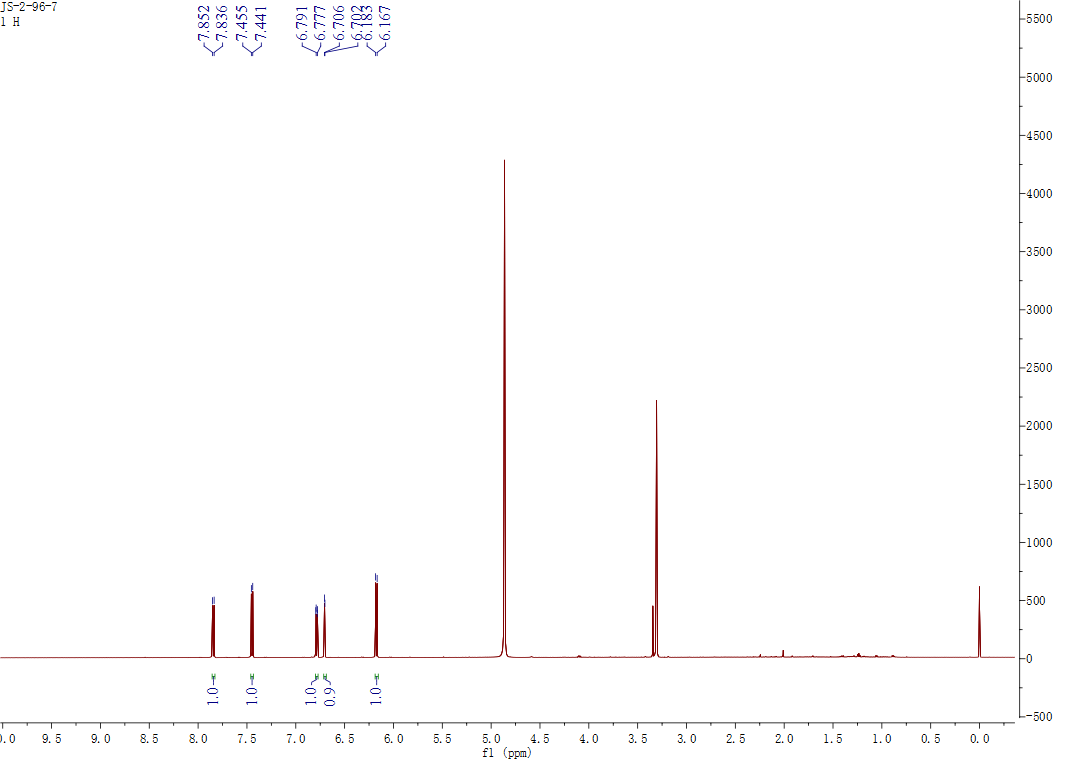
## Figure S104. The 13C NMR spectrum of **33** in CD3OD



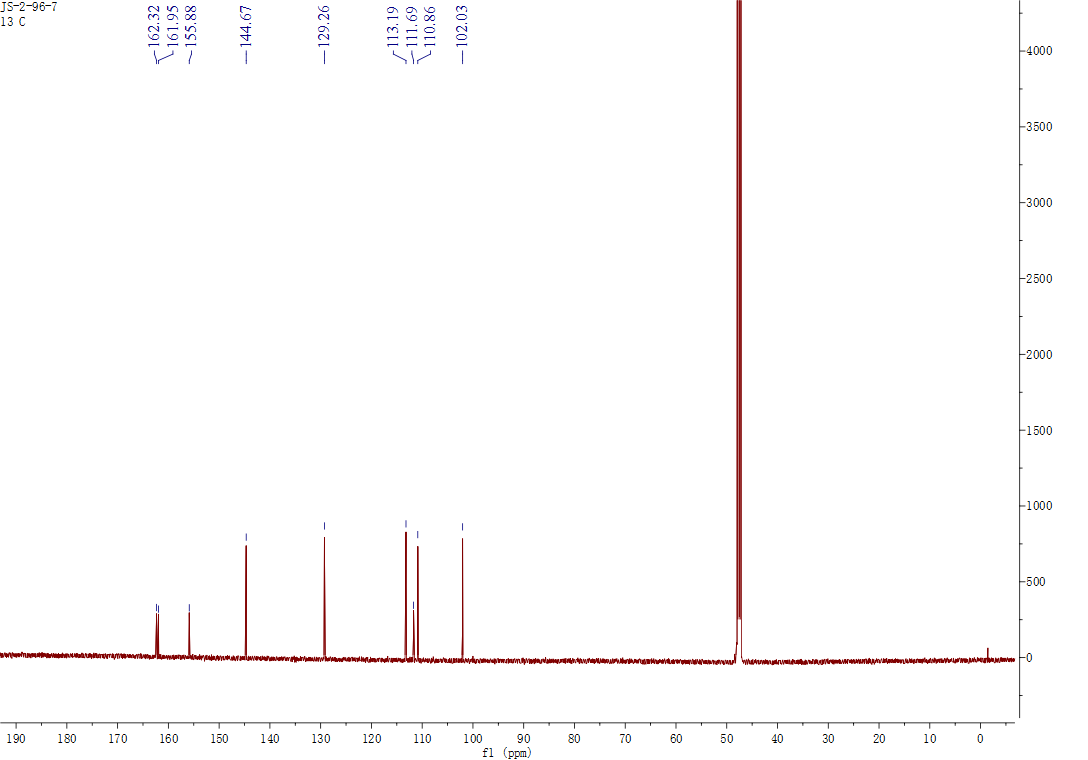
## Figure S105. The 1H NMR spectrum of **34** in CD3OD



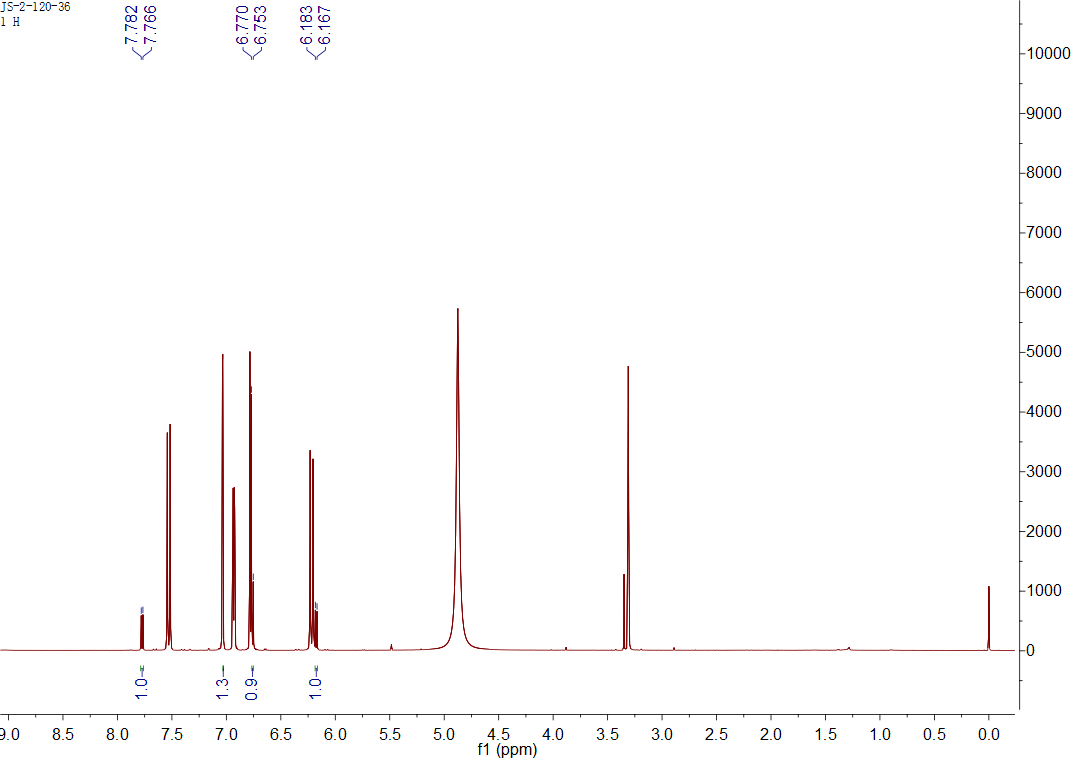
## Figure S106. The 13C NMR spectrum of **34** in CD3OD



## Figure S107. The 1H NMR spectrum of **35** in CD3OD



## Figure S108. The 13C NMR spectrum of **35** in CD3OD



## Figure S109. The 1H NMR spectrum of **36** in CD3OD

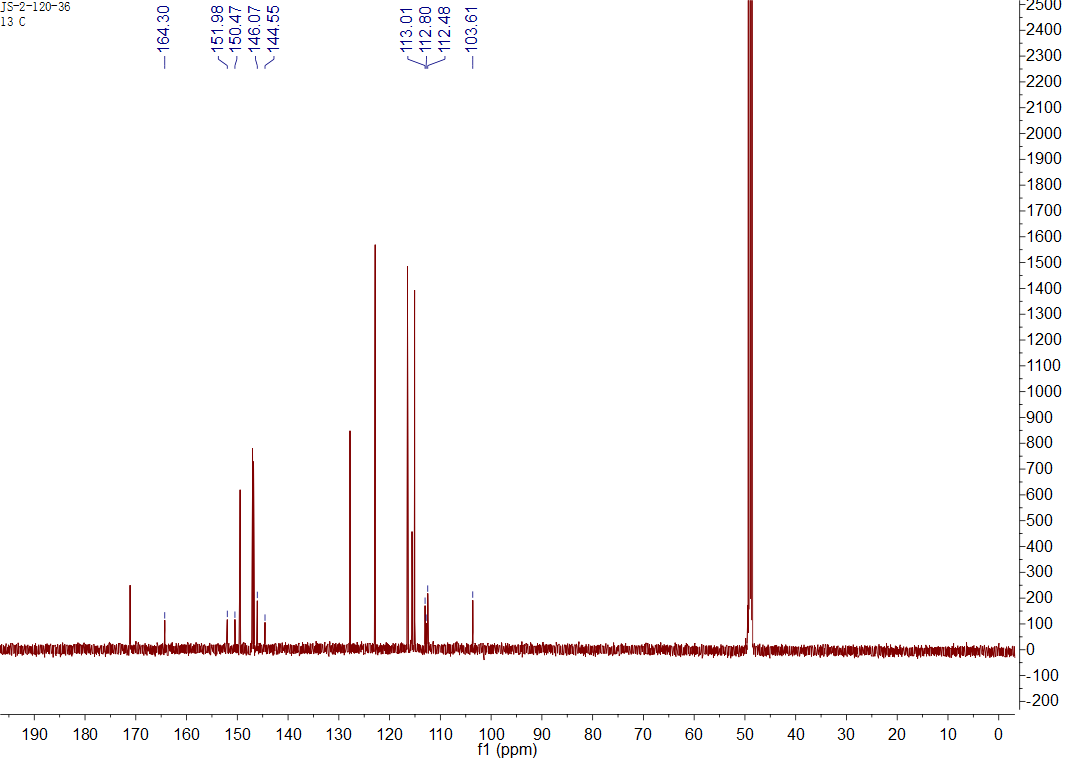
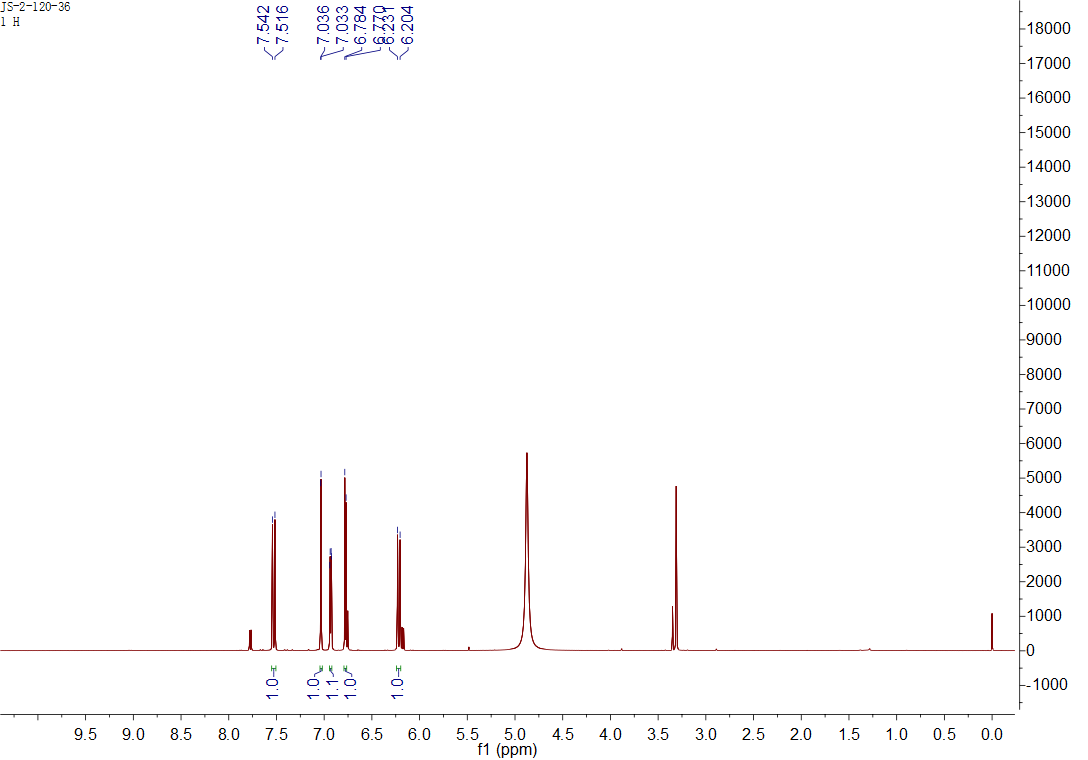
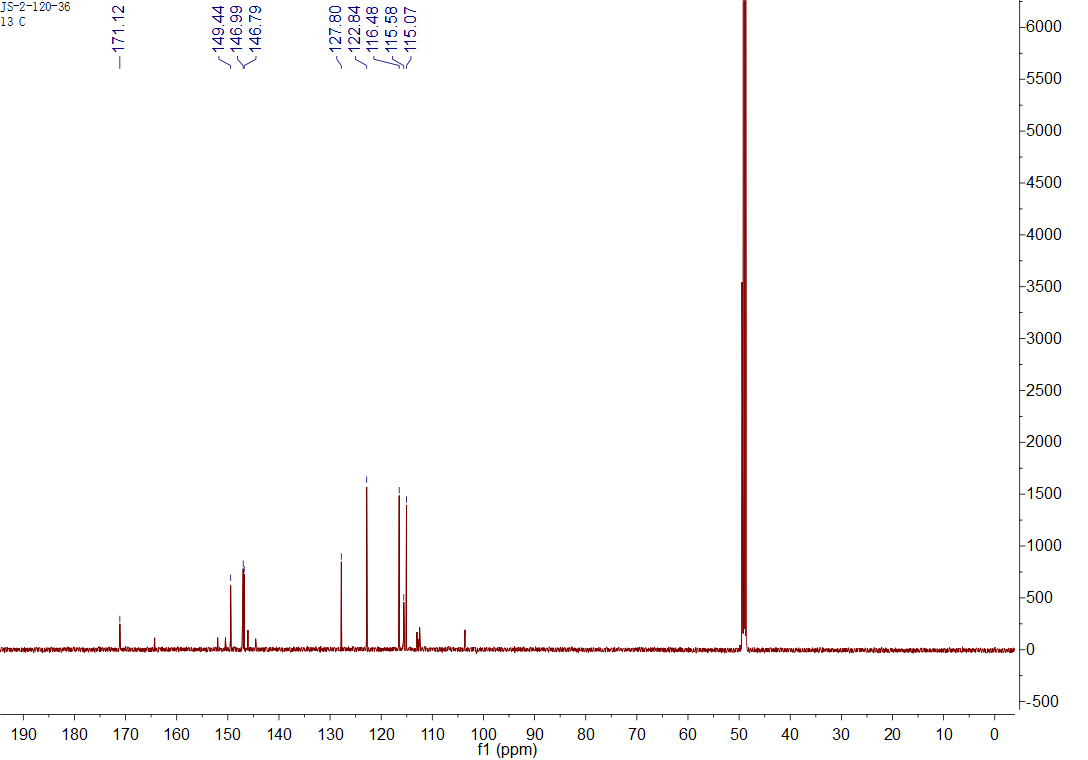


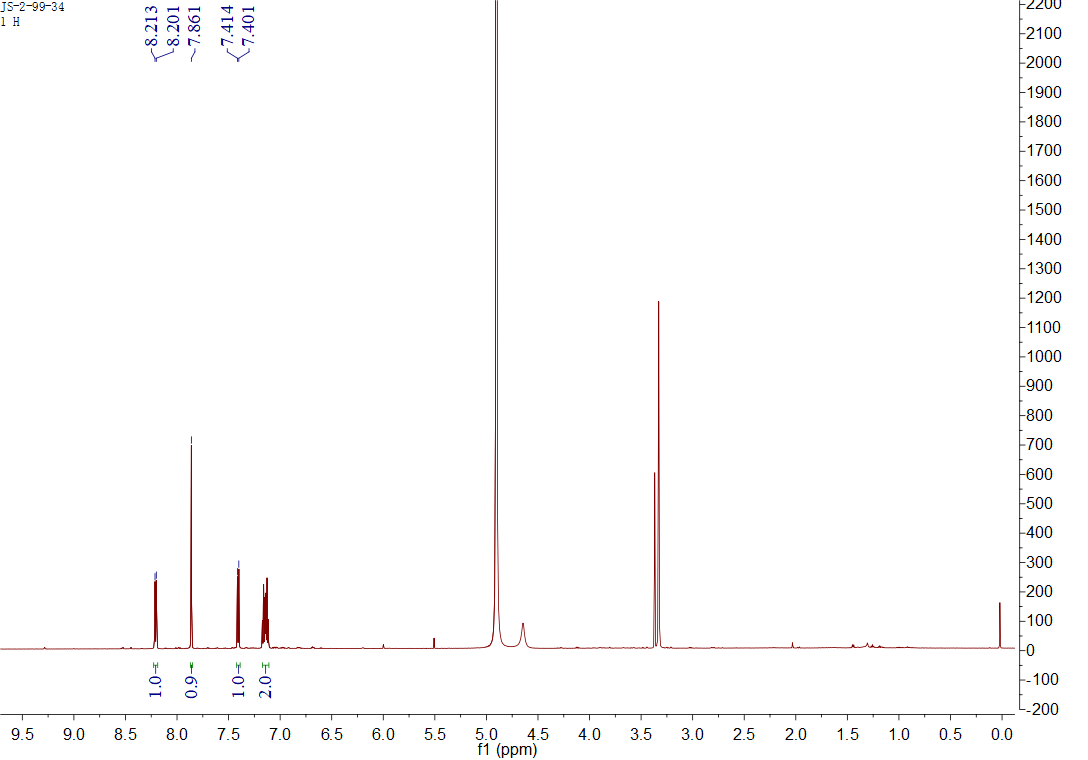
Figure S110. The 13C NMR spectrum of **36** in CD3OD



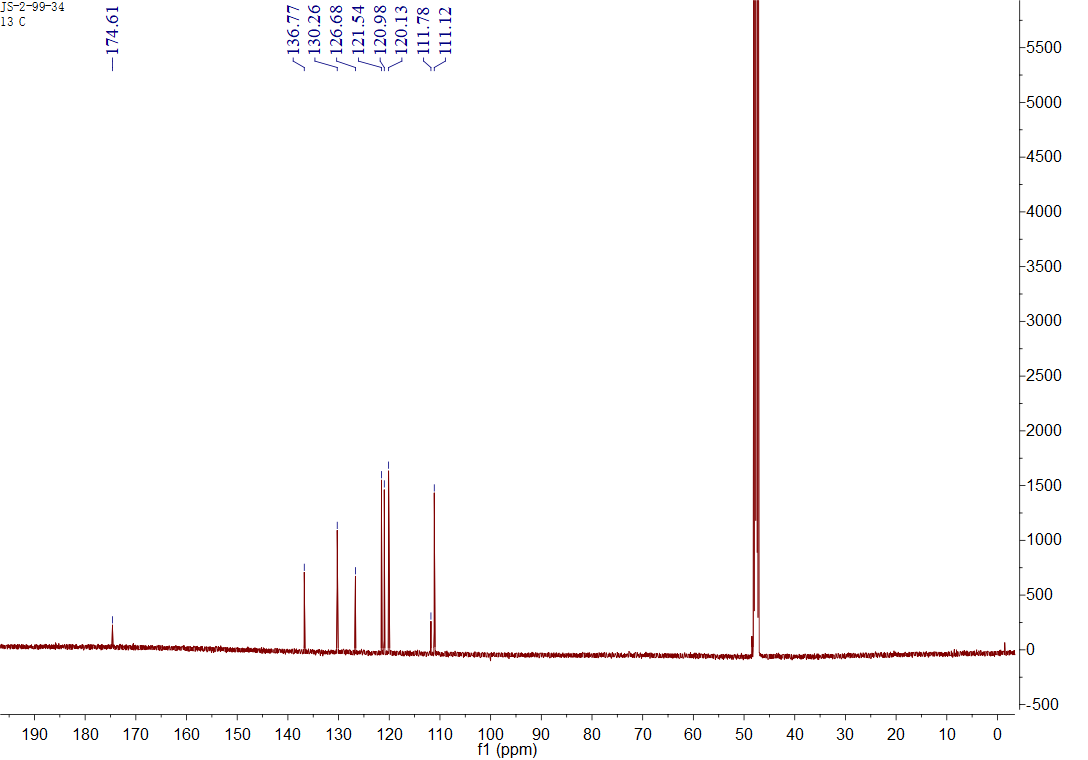
## Figure S111. The 1H NMR spectrum of **37** in CD3OD



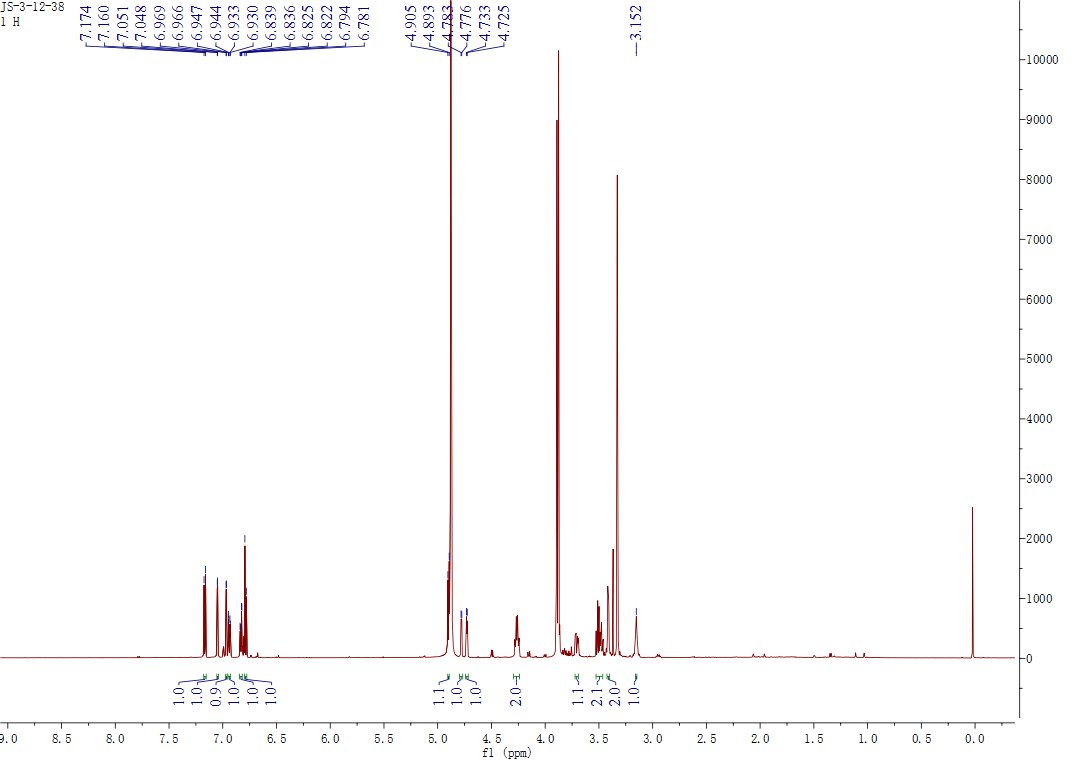
## Figure S112. The 13C NMR spectrum of **37** in CD3OD



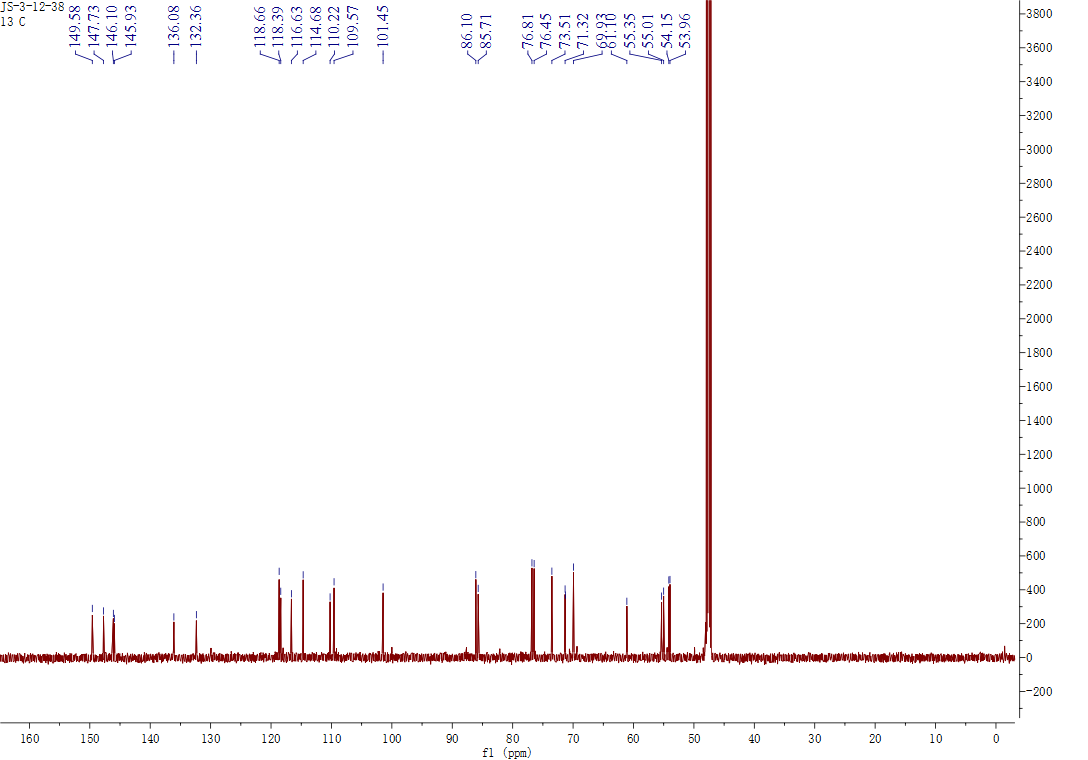
## Figure S113. The 1H NMR spectrum of **38** in CD3OD



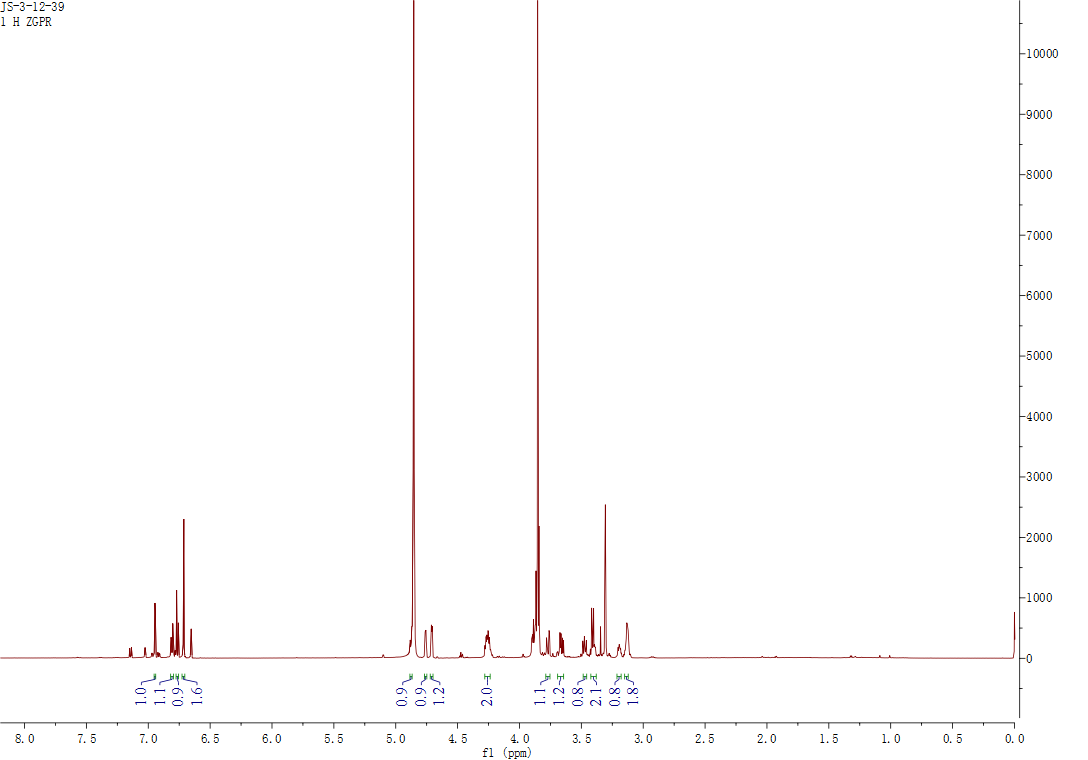
## Figure S114. The 13C NMR spectrum of **38** in CD3OD



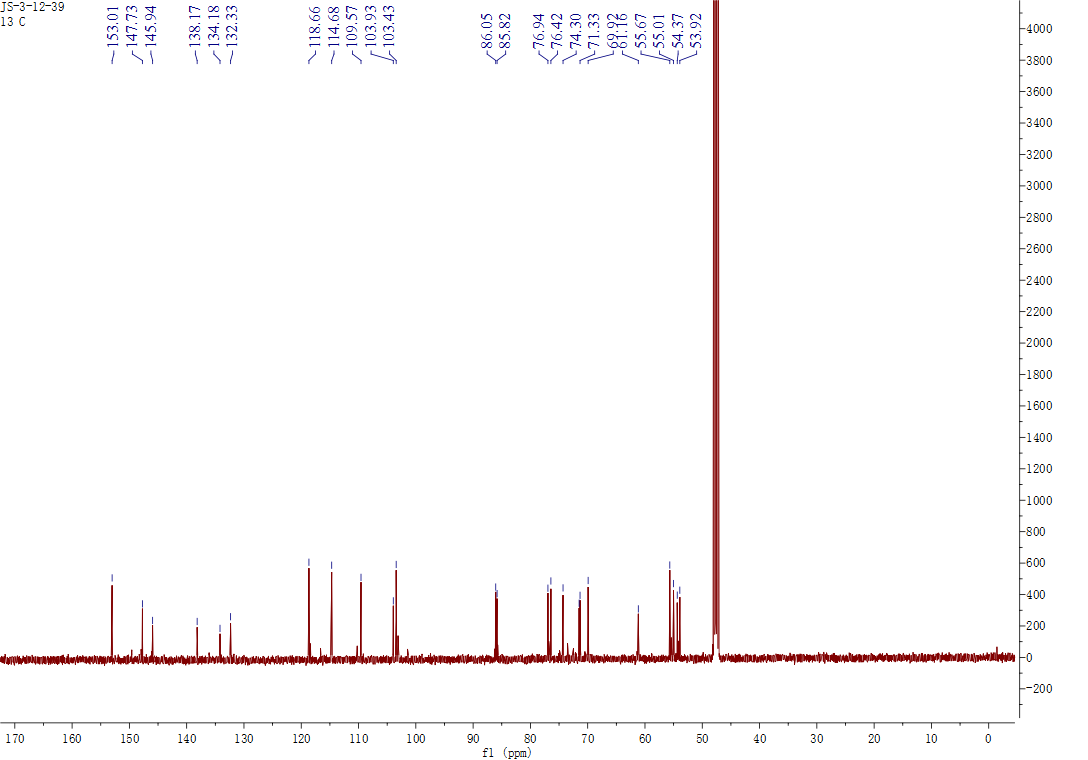
## Figure S115. The 1H NMR spectrum of **39** in CD3OD



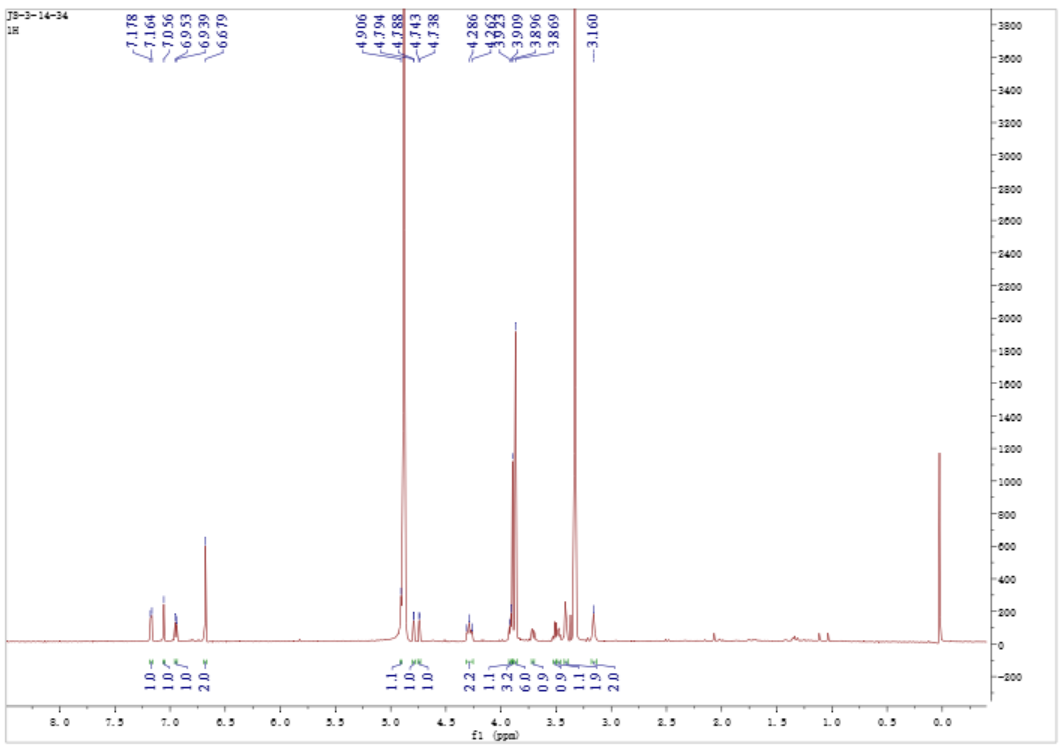
## Figure S116. The 13C NMR spectrum of **39** in CD3OD



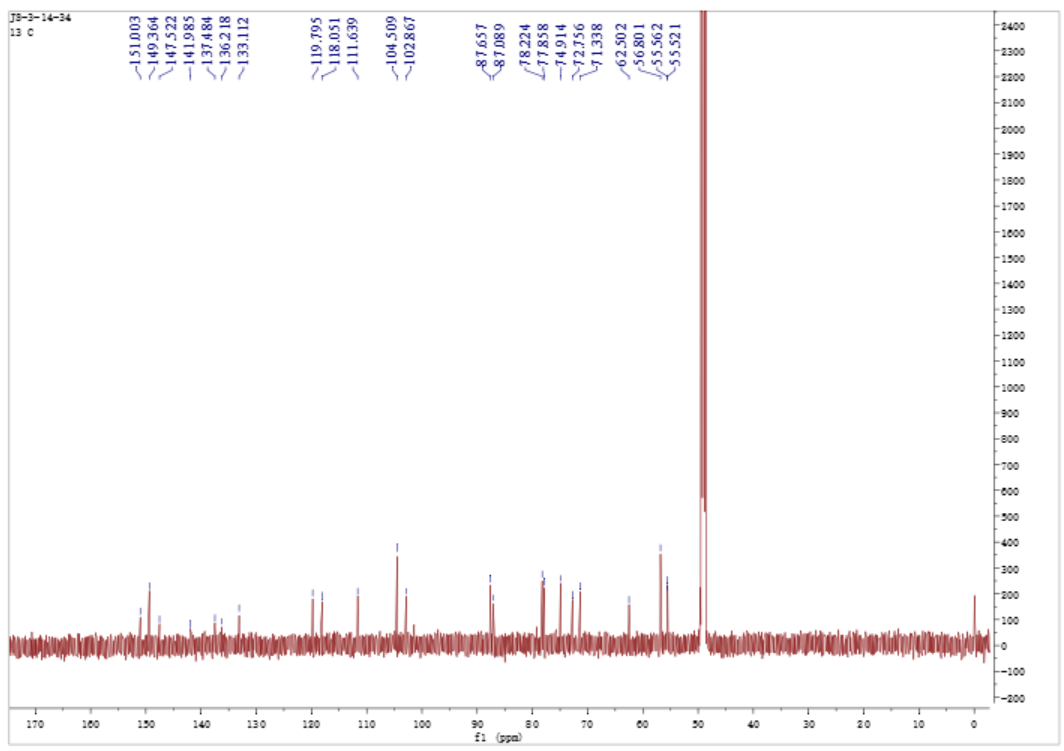
## Figure S117. The 1H NMR spectrum of **40** in CD3OD



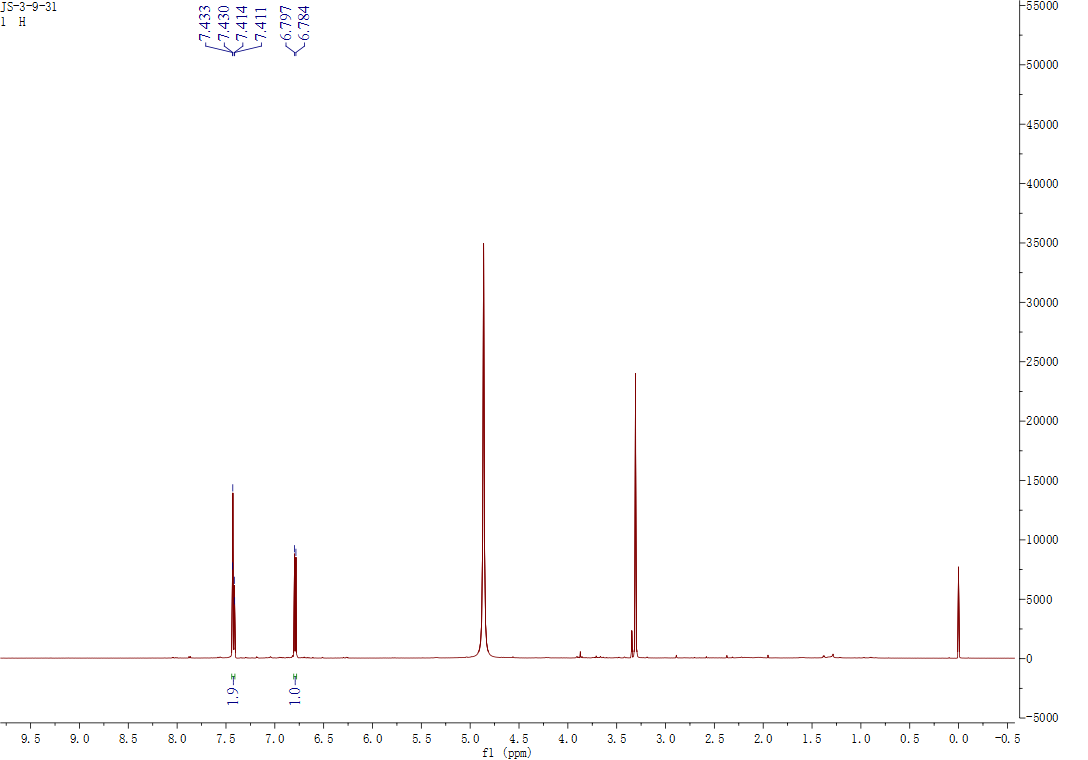
## Figure S118. The 13C NMR spectrum of **40** in CD3OD



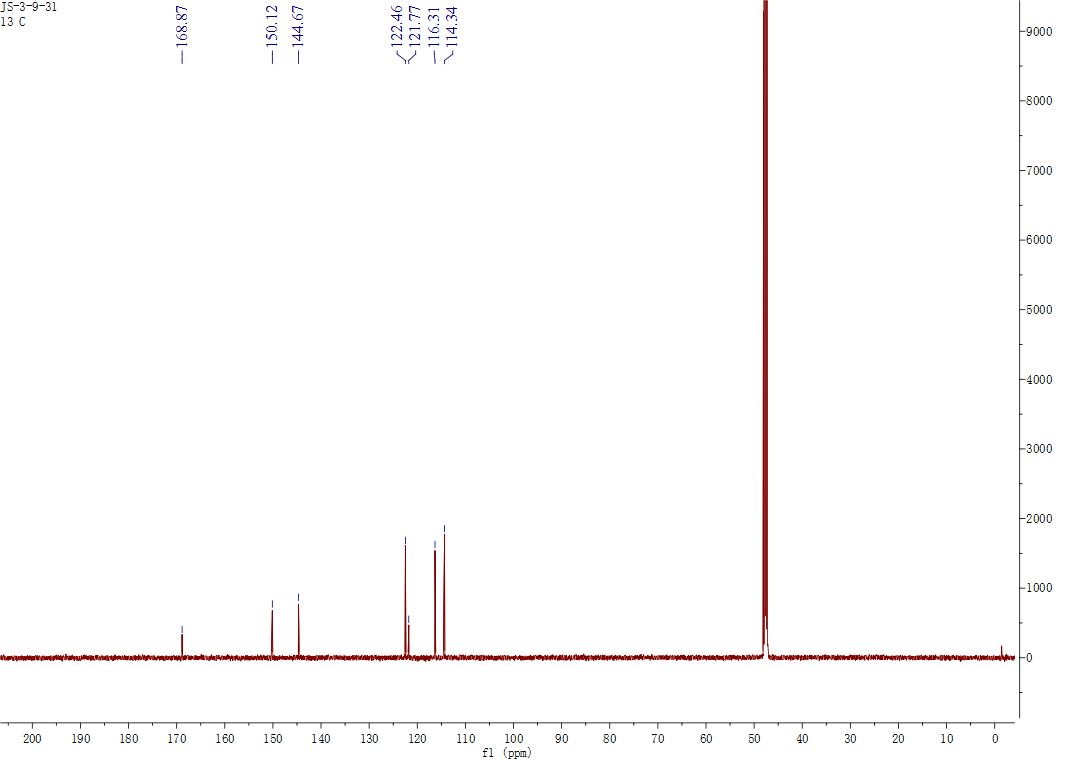
## Figure S119. The 1H NMR spectrum of **41** in CD3OD



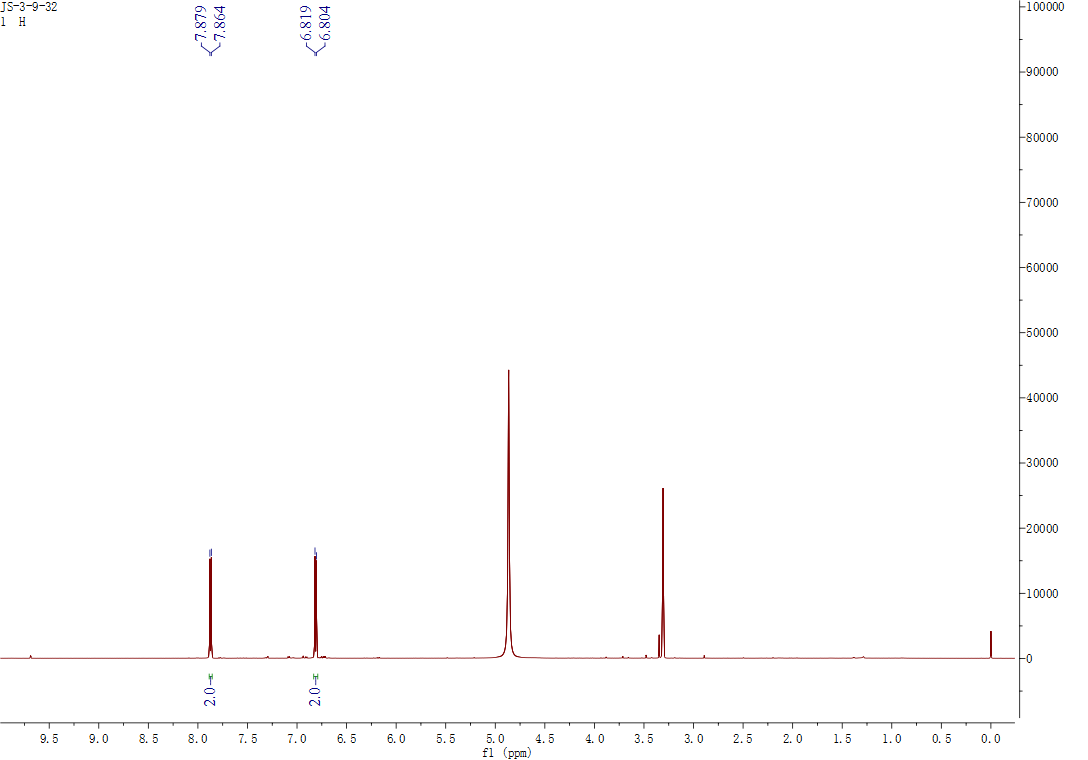
## Figure S120. The 13C NMR spectrum of **41** in CD3OD



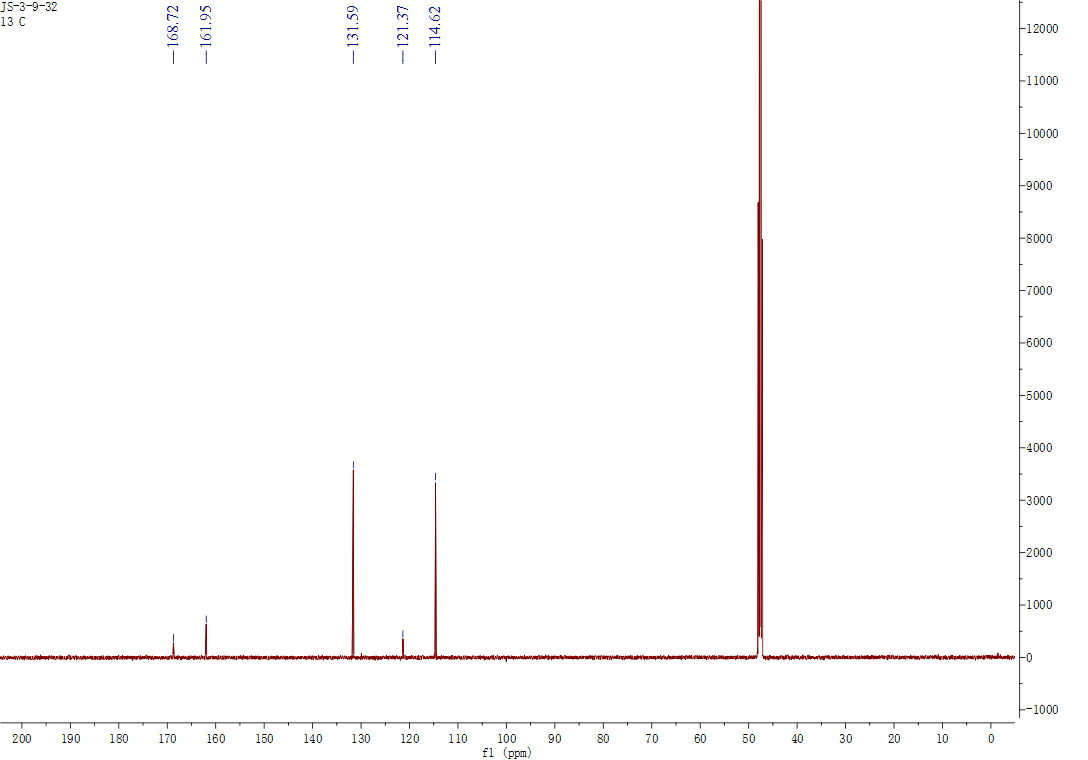
## Figure S121. The 1H NMR spectrum of **42** in CD3OD



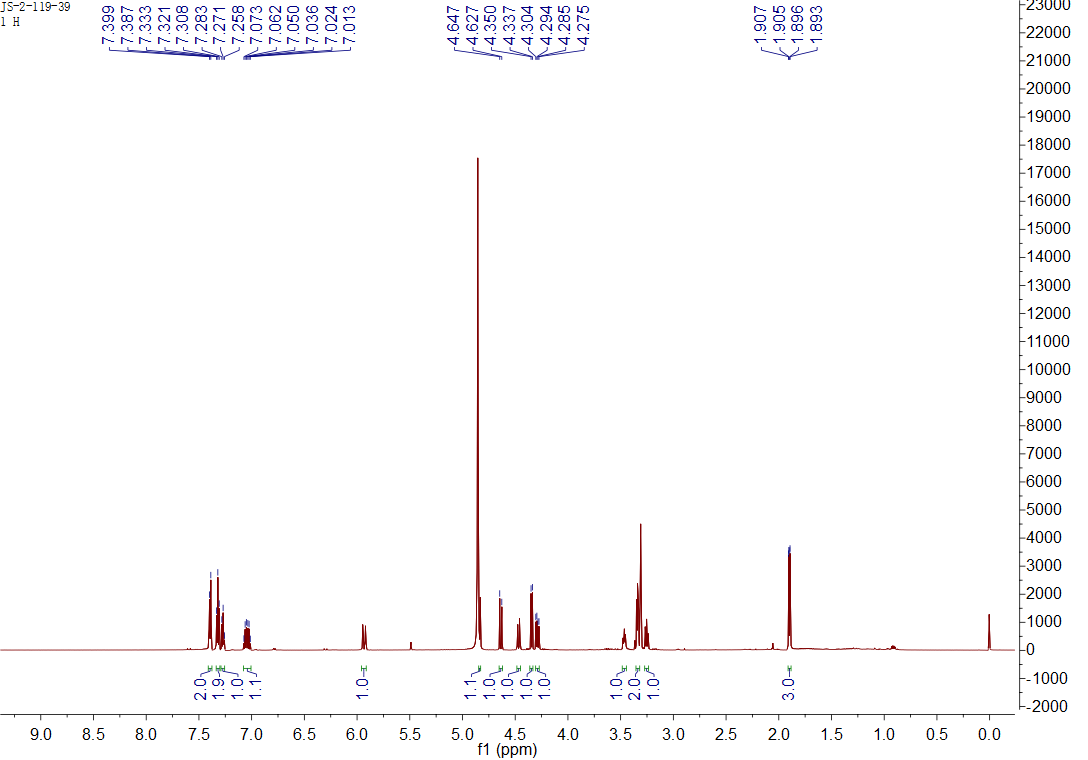
## Figure S122. The 13C NMR spectrum of **42** in CD3OD



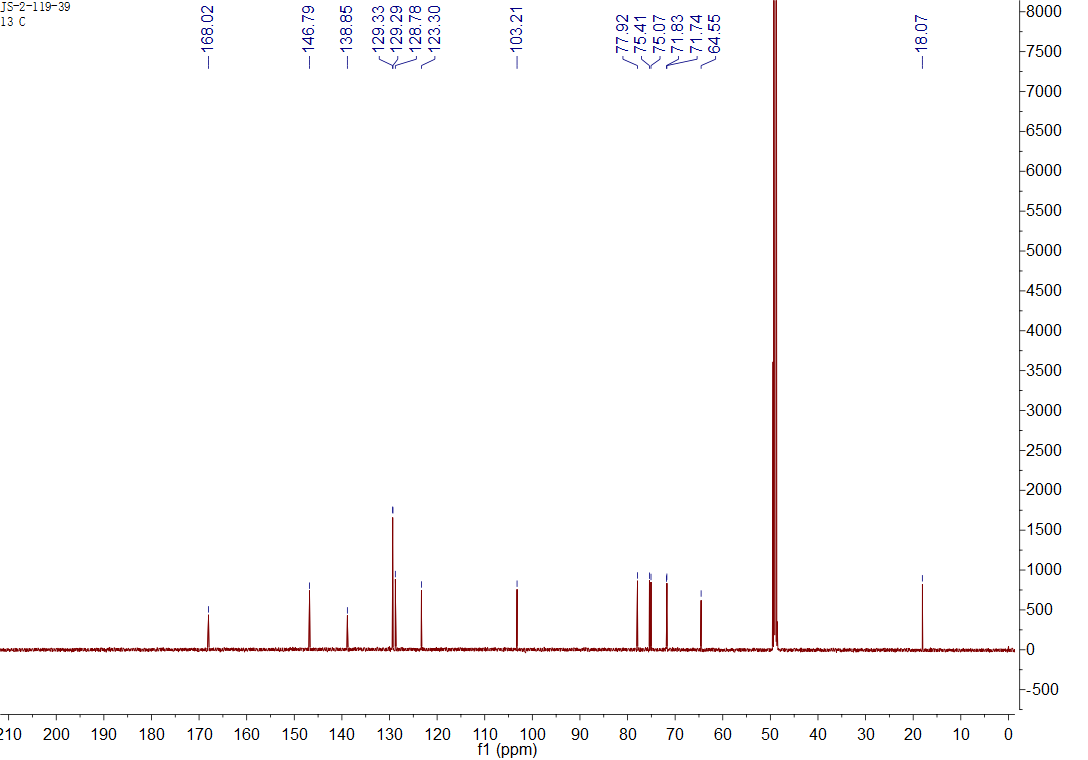
## Figure S123. The 1H NMR spectrum of **43** in CD3OD



## Figure S124. The 13C NMR spectrum of **43** in CD3OD



## Figure S125. The 1H NMR spectrum of **44** in CD3OD



## Figure S126. The 13C NMR spectrum of **44** in CD3OD