

# Synthesis of *N*-substituted iminosugar *C*-glycosides and evaluation as promising $\alpha$ -glucosidase inhibitors

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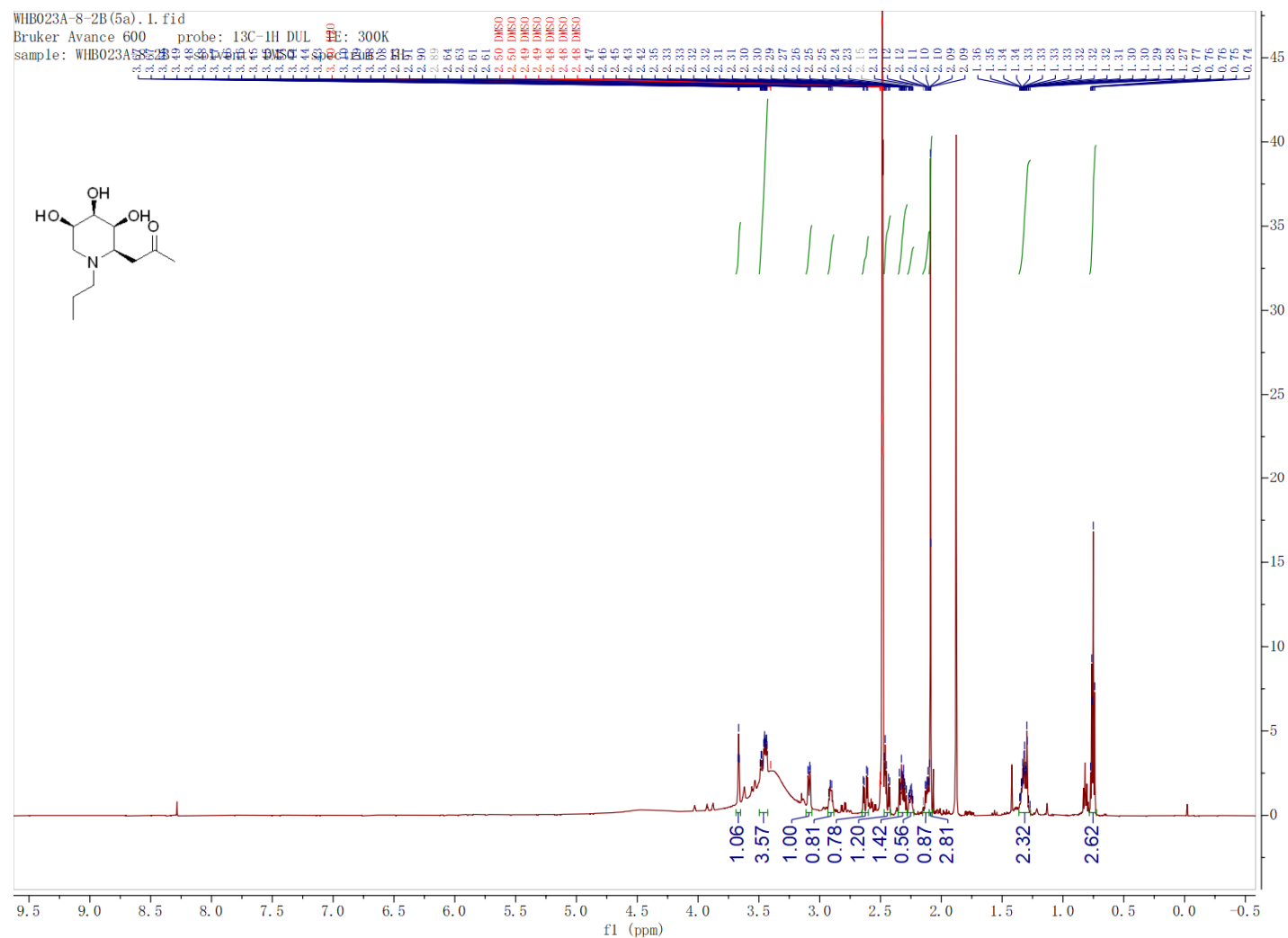


Figure S1. The <sup>1</sup>H NMR of compound 5a.

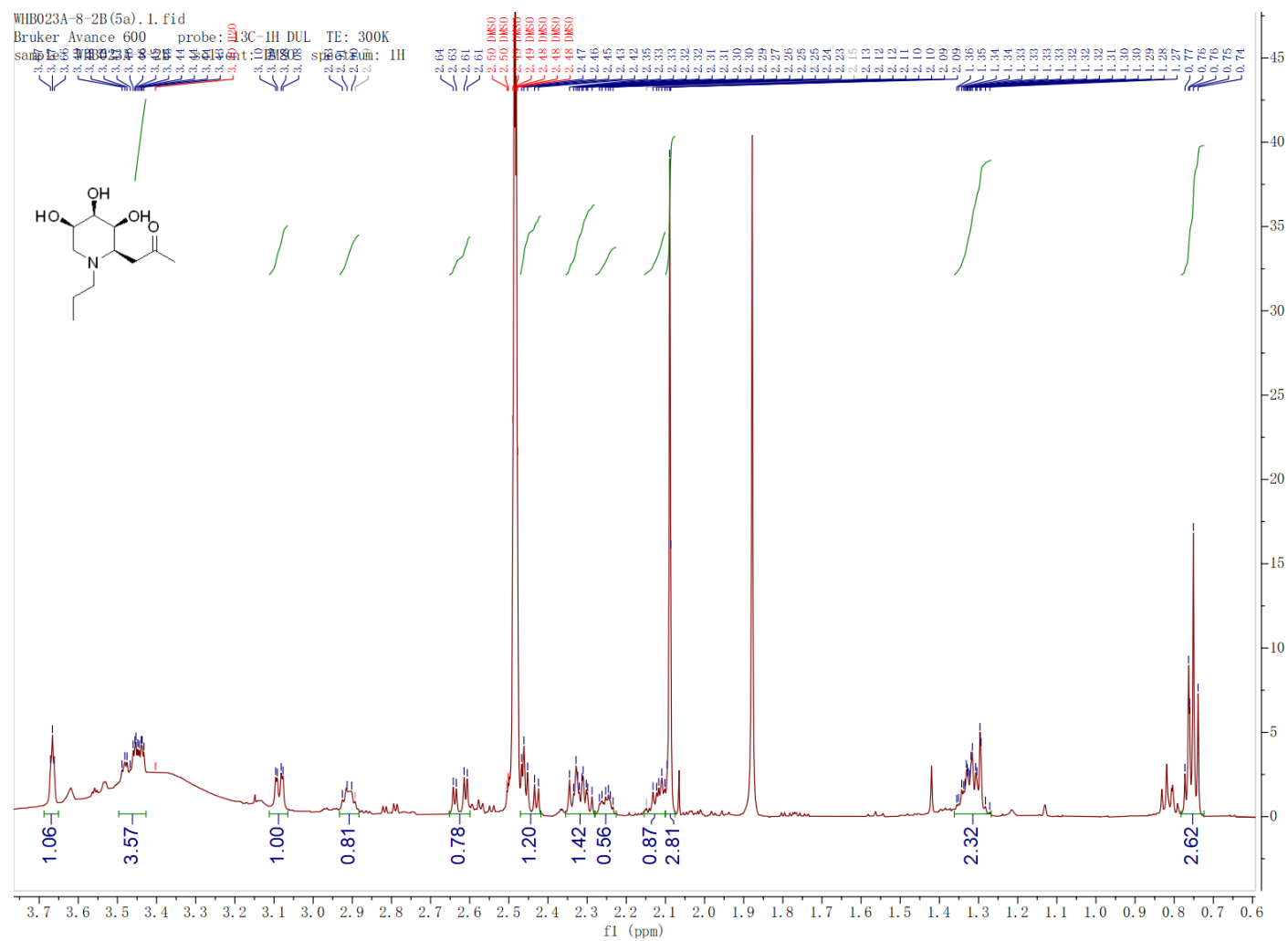


Figure S2. Partial region amplification of the  $^1\text{H}$  NMR of compound 5a.

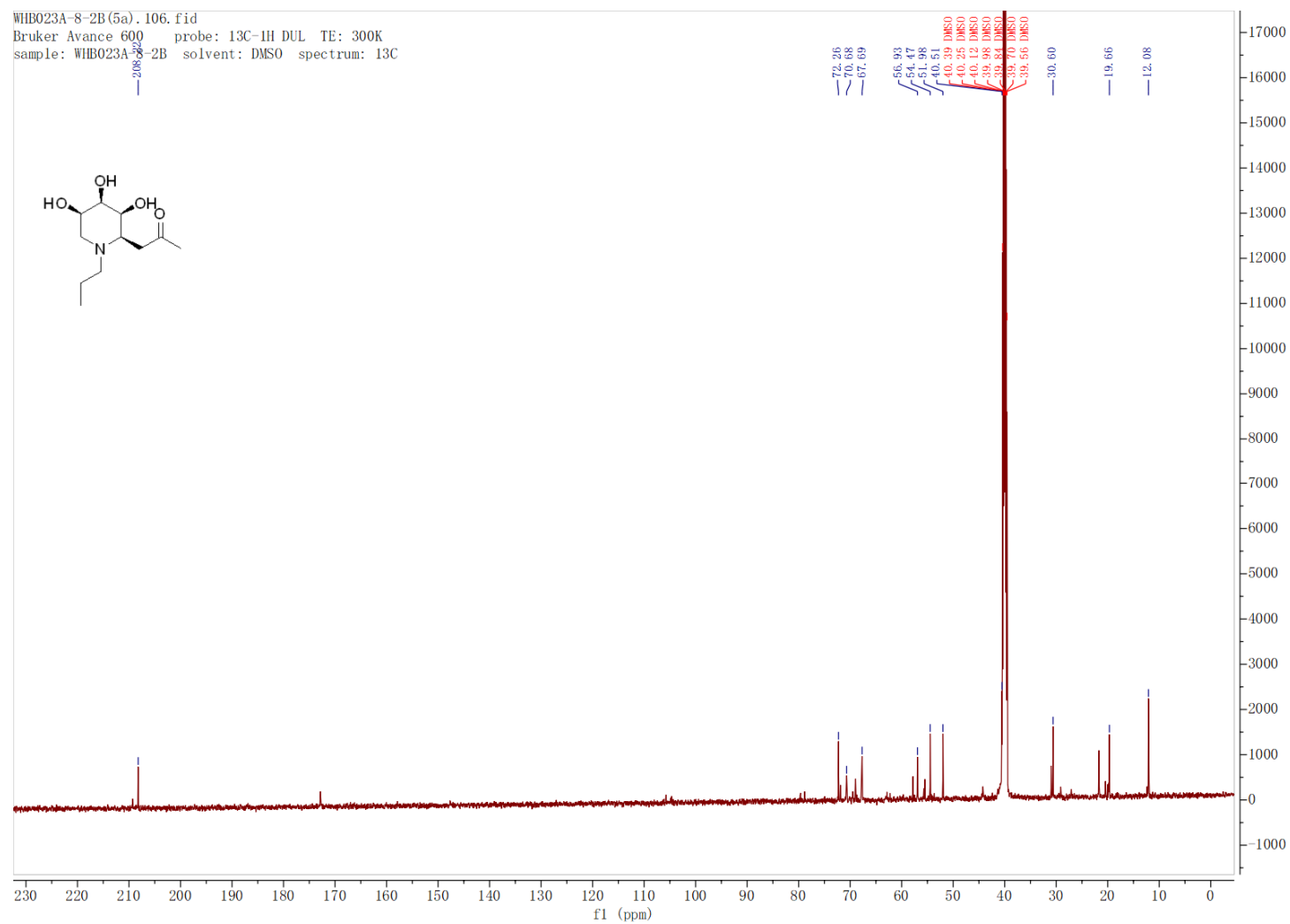
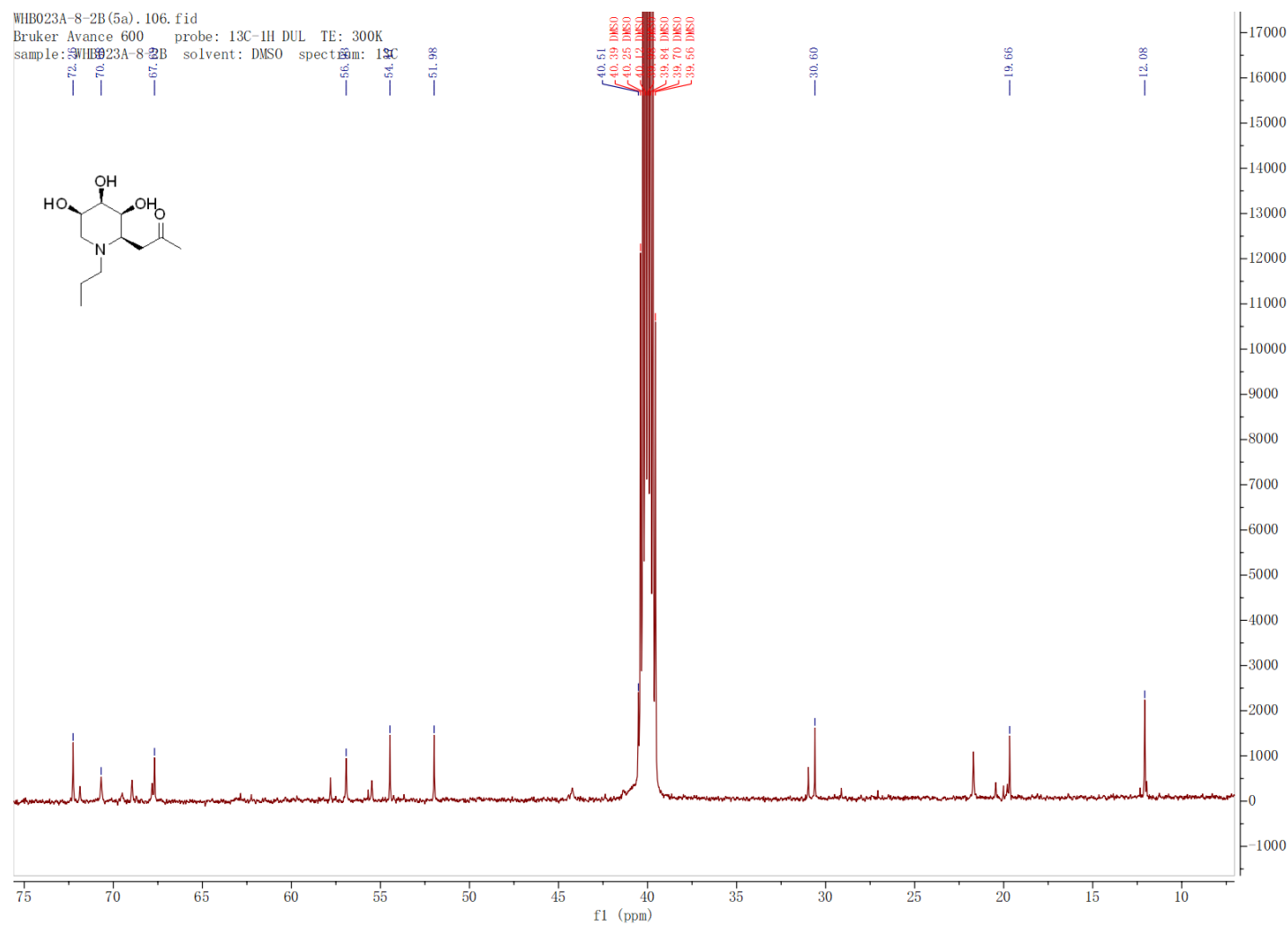


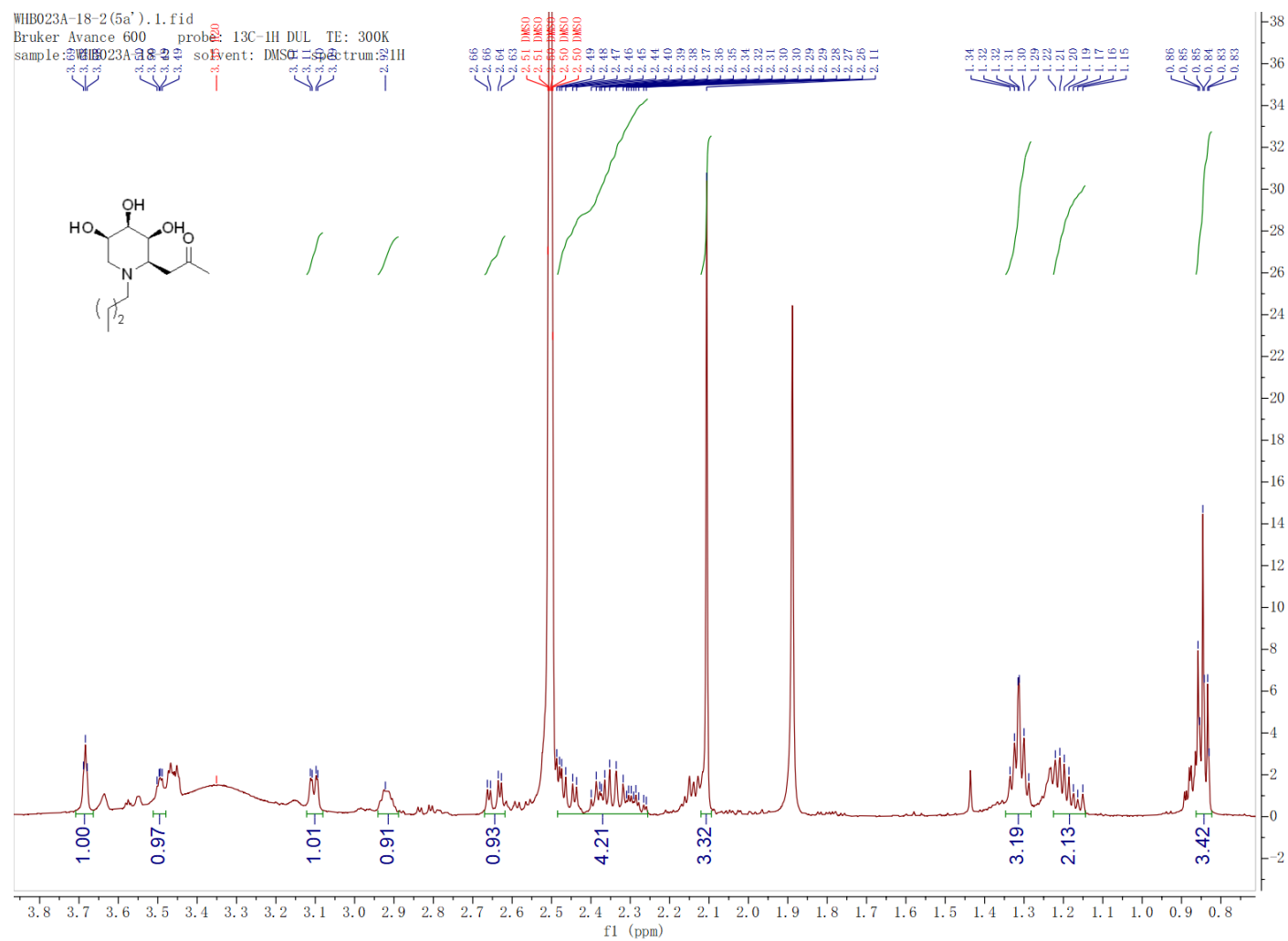
Figure S3. The  $^{13}\text{C}$  NMR of compound 5a.





**Figure S4.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound 5a.





**Figure S6.** Partial region amplification of the  $^1\text{H}$  NMR of compound **5b**.

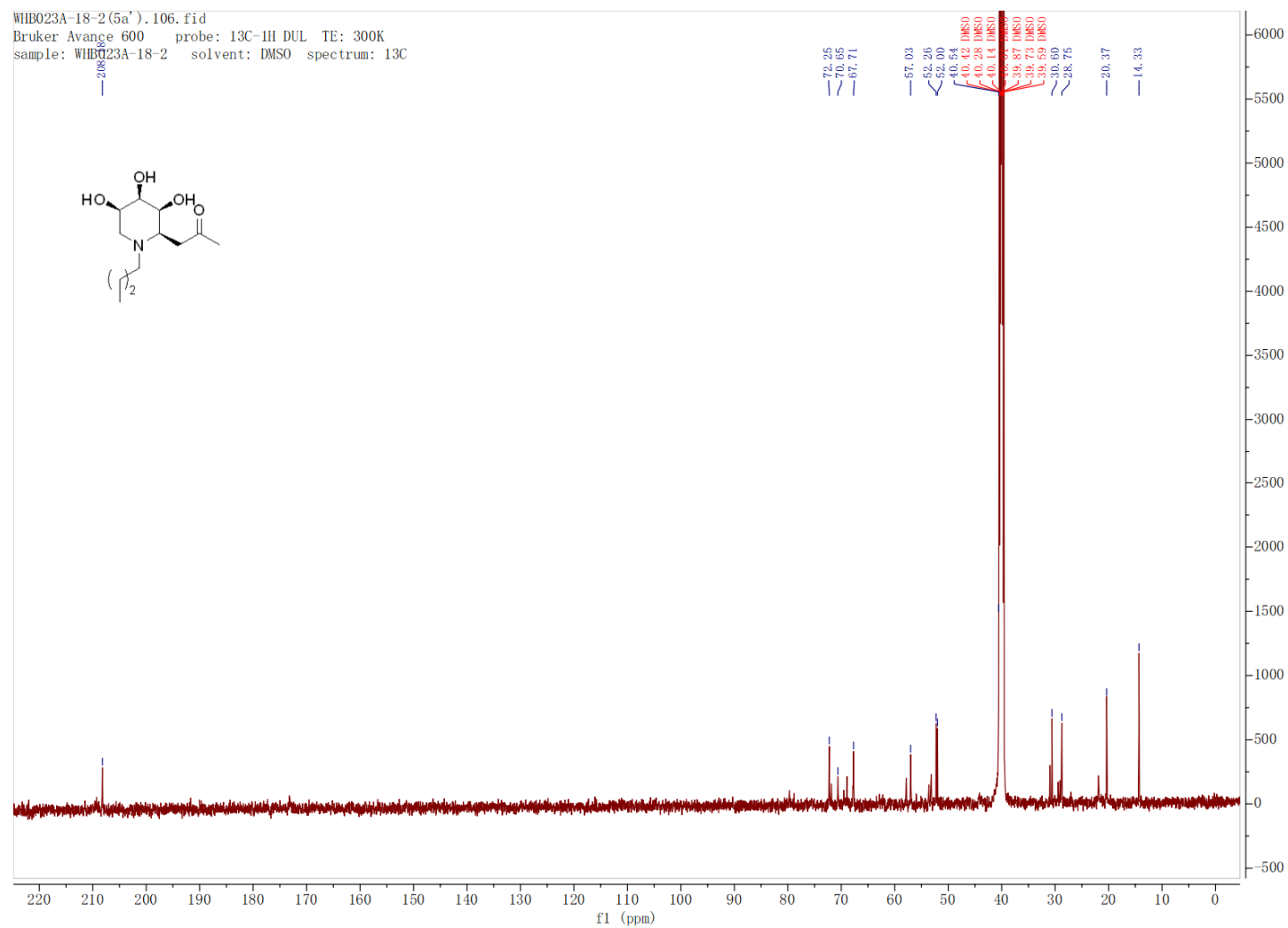
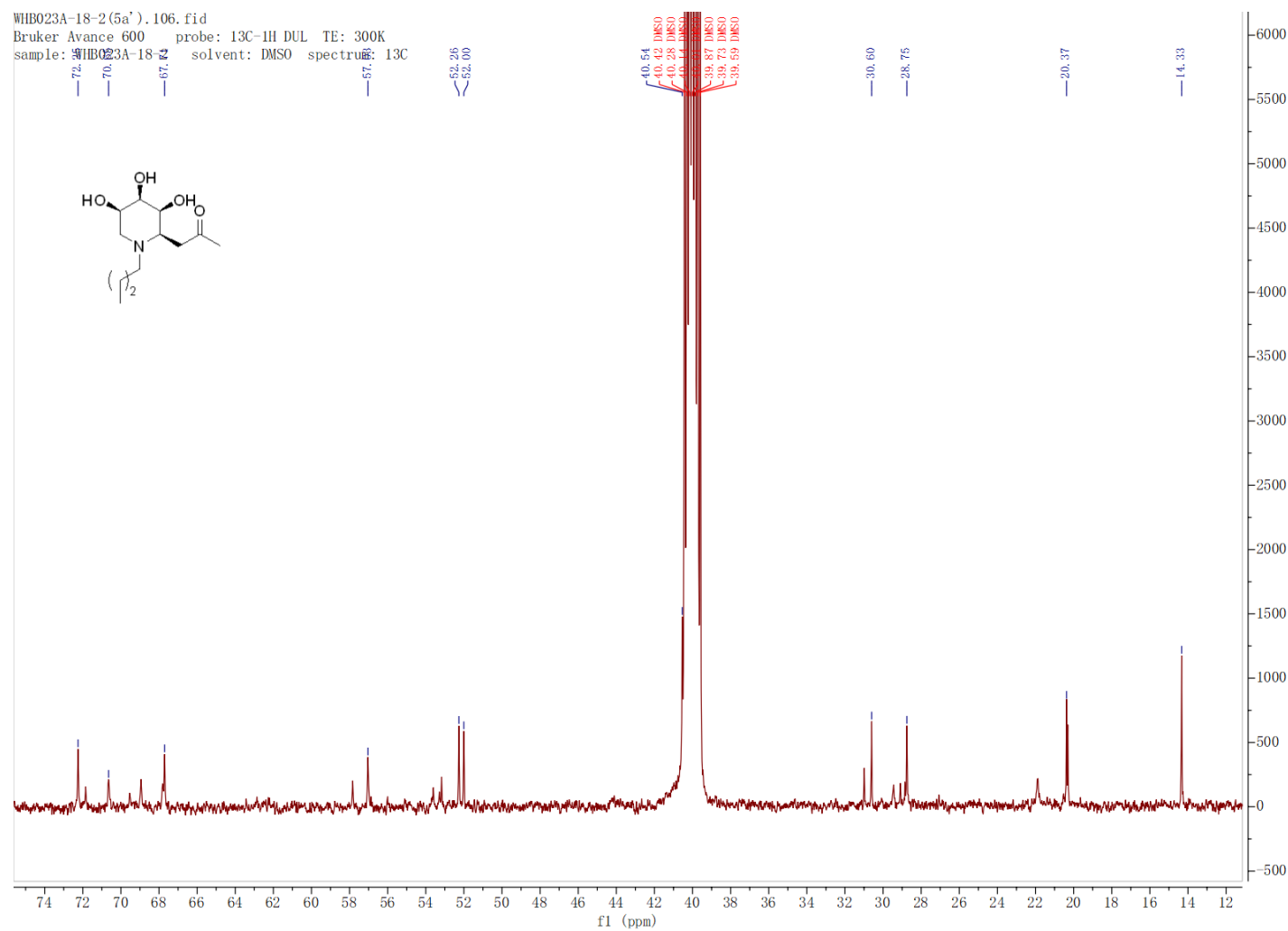


Figure S7. The  $^{13}\text{C}$  NMR of compound 5b.



**Figure S8.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5b**.

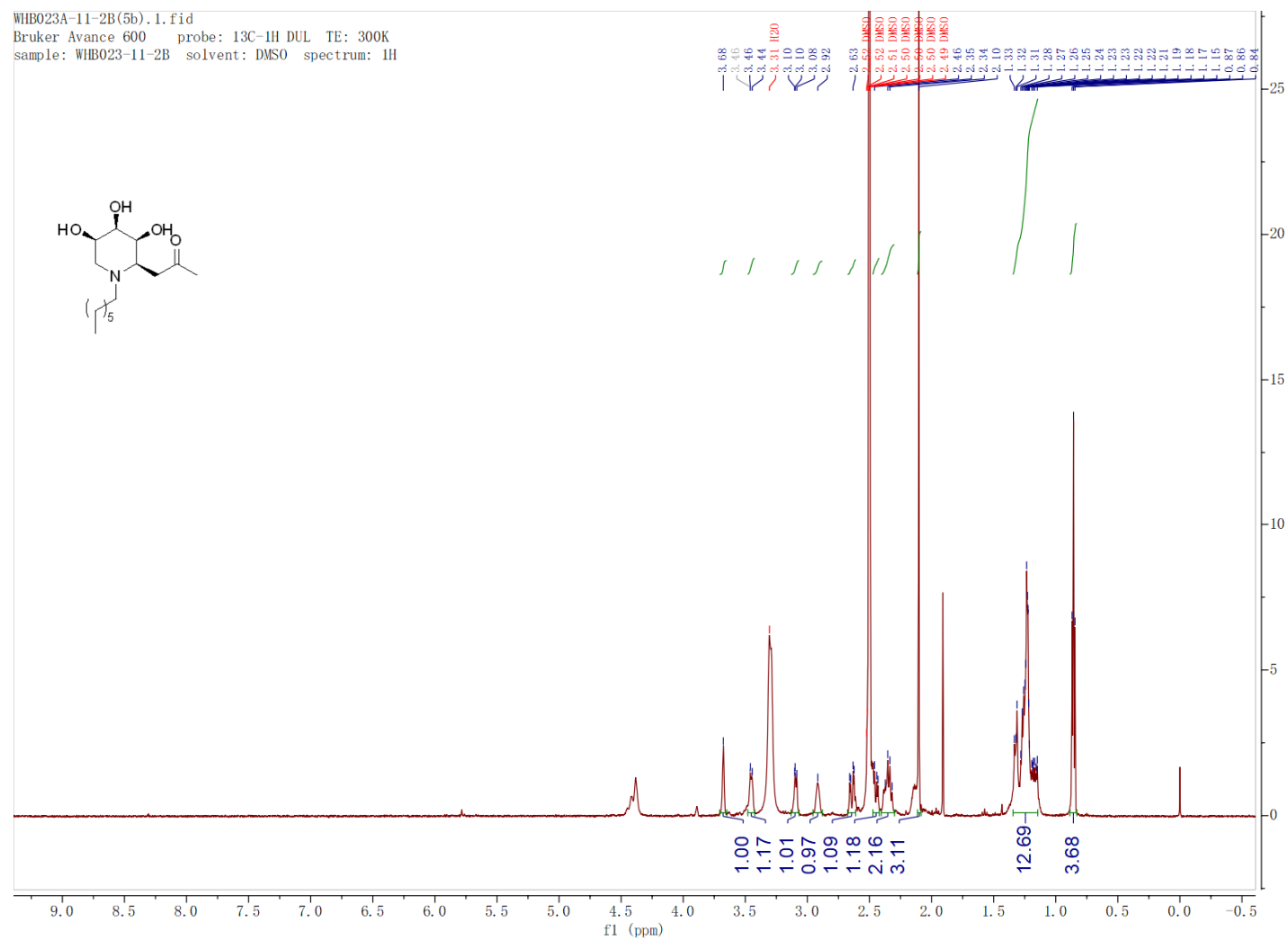
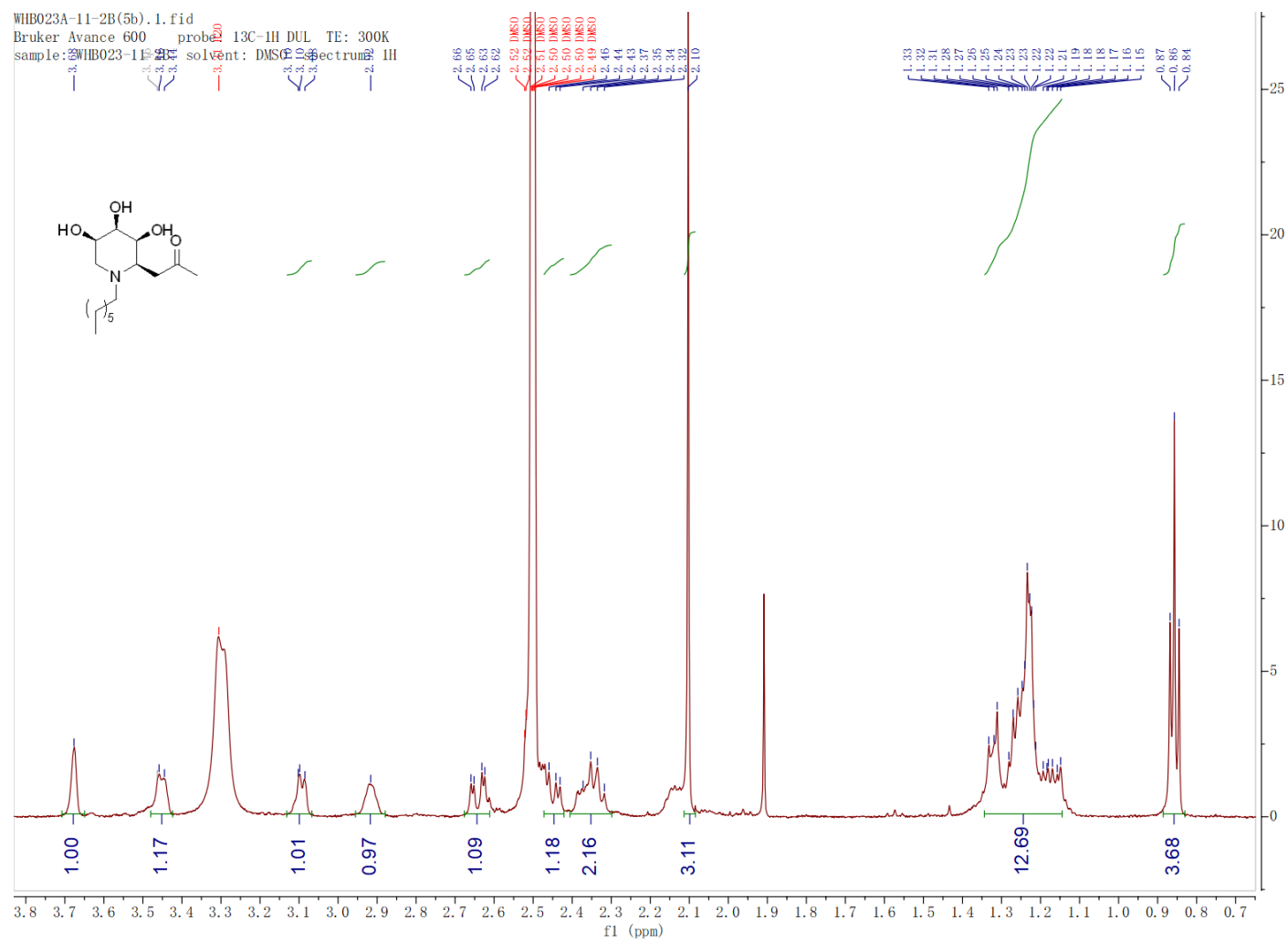


Figure S9. The  $^1\text{H}$  NMR of compound 5c.



**Figure S10.** Partial region amplification of the  $^1\text{H}$  NMR of compound **5c**.

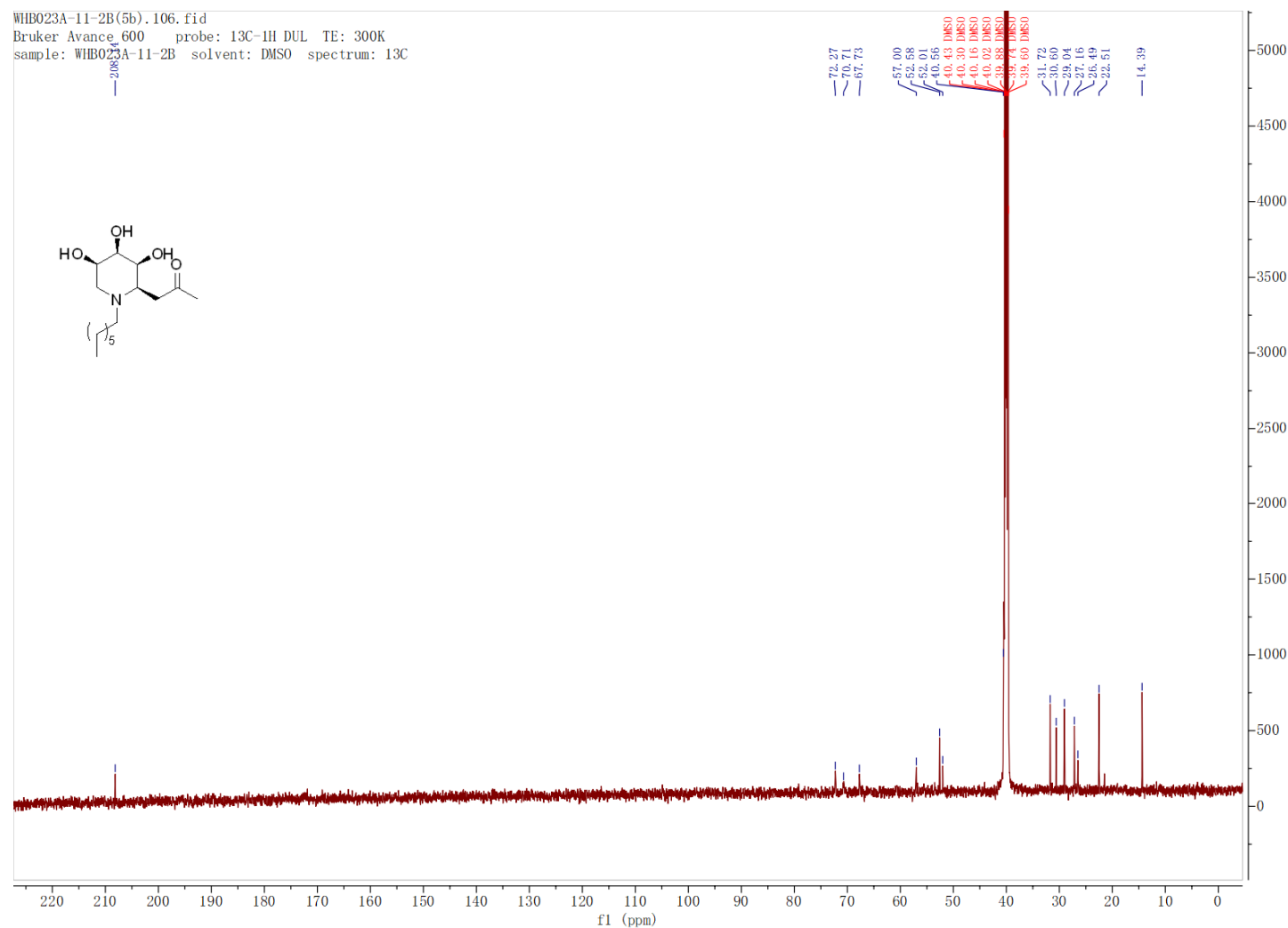


Figure S11. The  $^{13}\text{C}$  NMR of compound 5c.



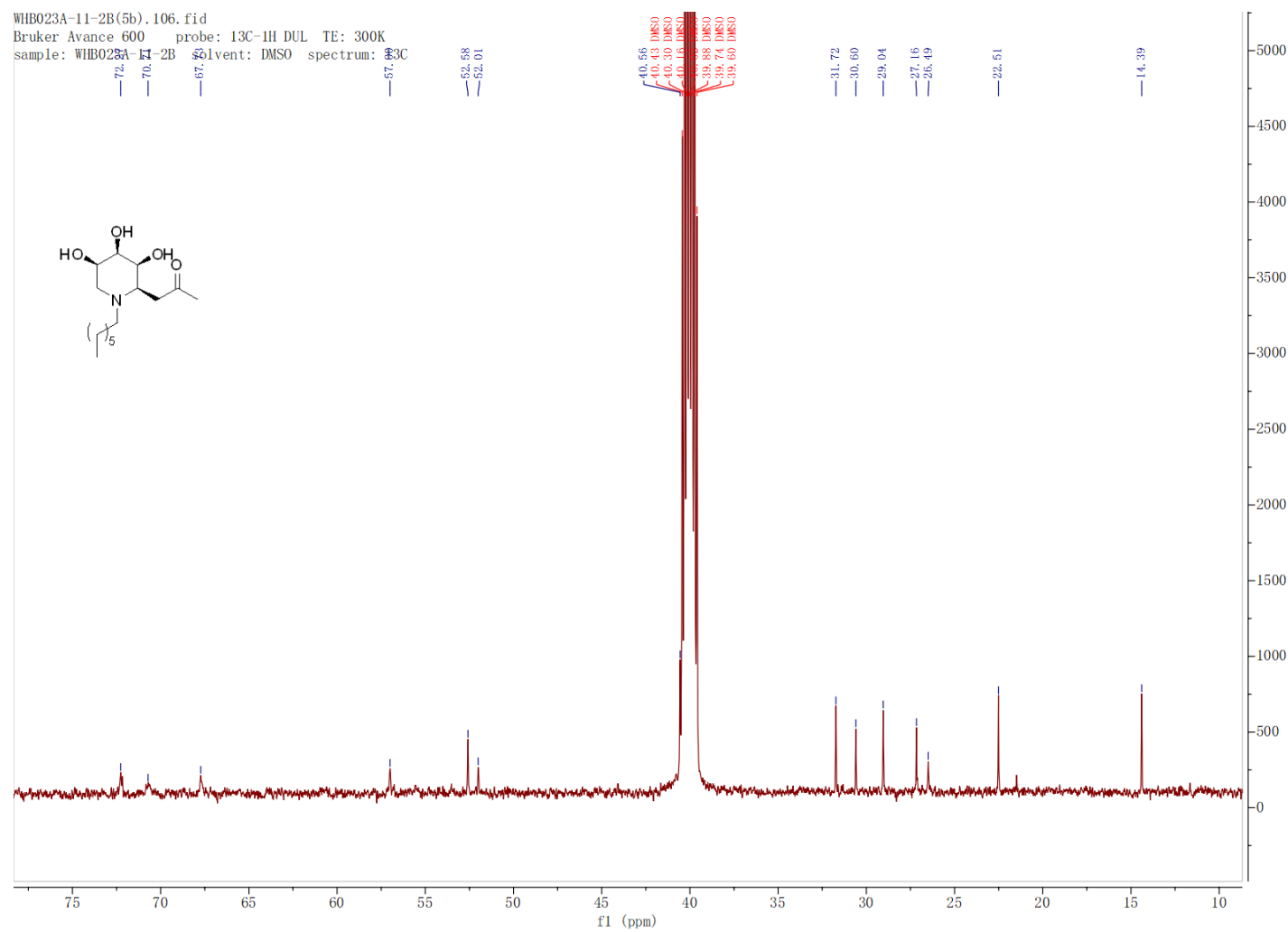
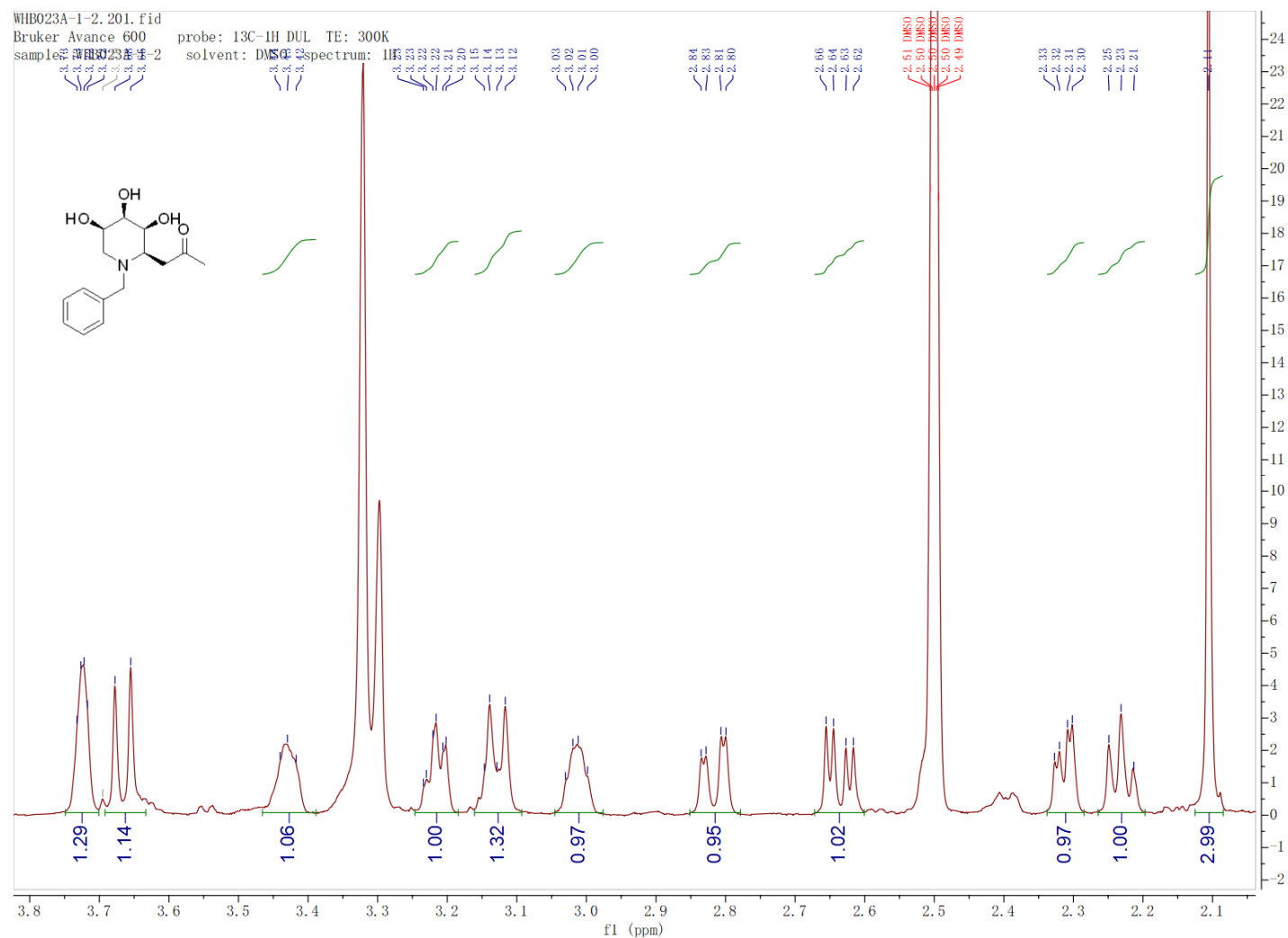


Figure S12. Partial region amplification of the  $^{13}\text{C}$  NMR of compound 5c.





**Figure S14.** Partial region amplification of the  $^1\text{H}$  NMR of compound **5d**.

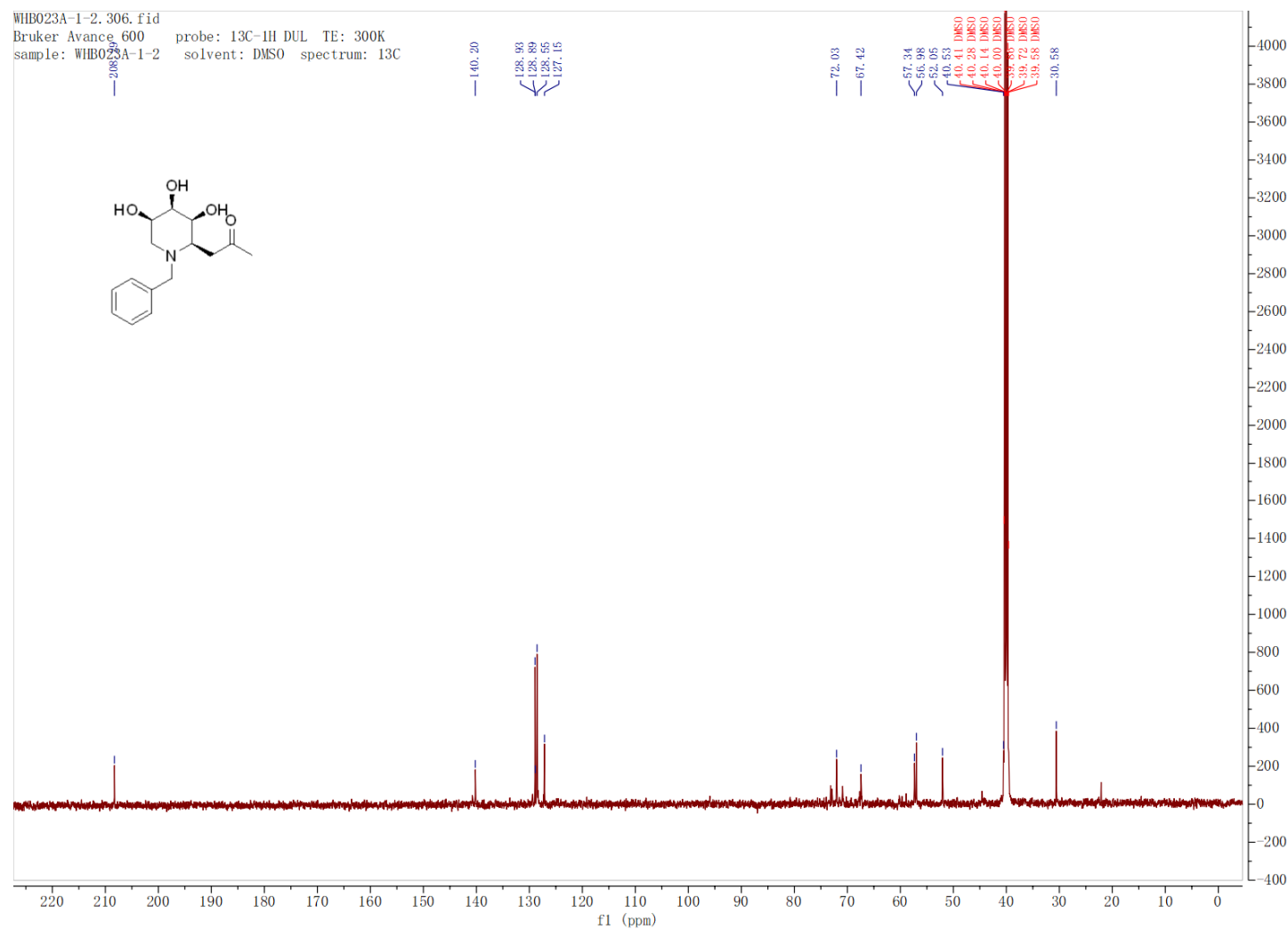
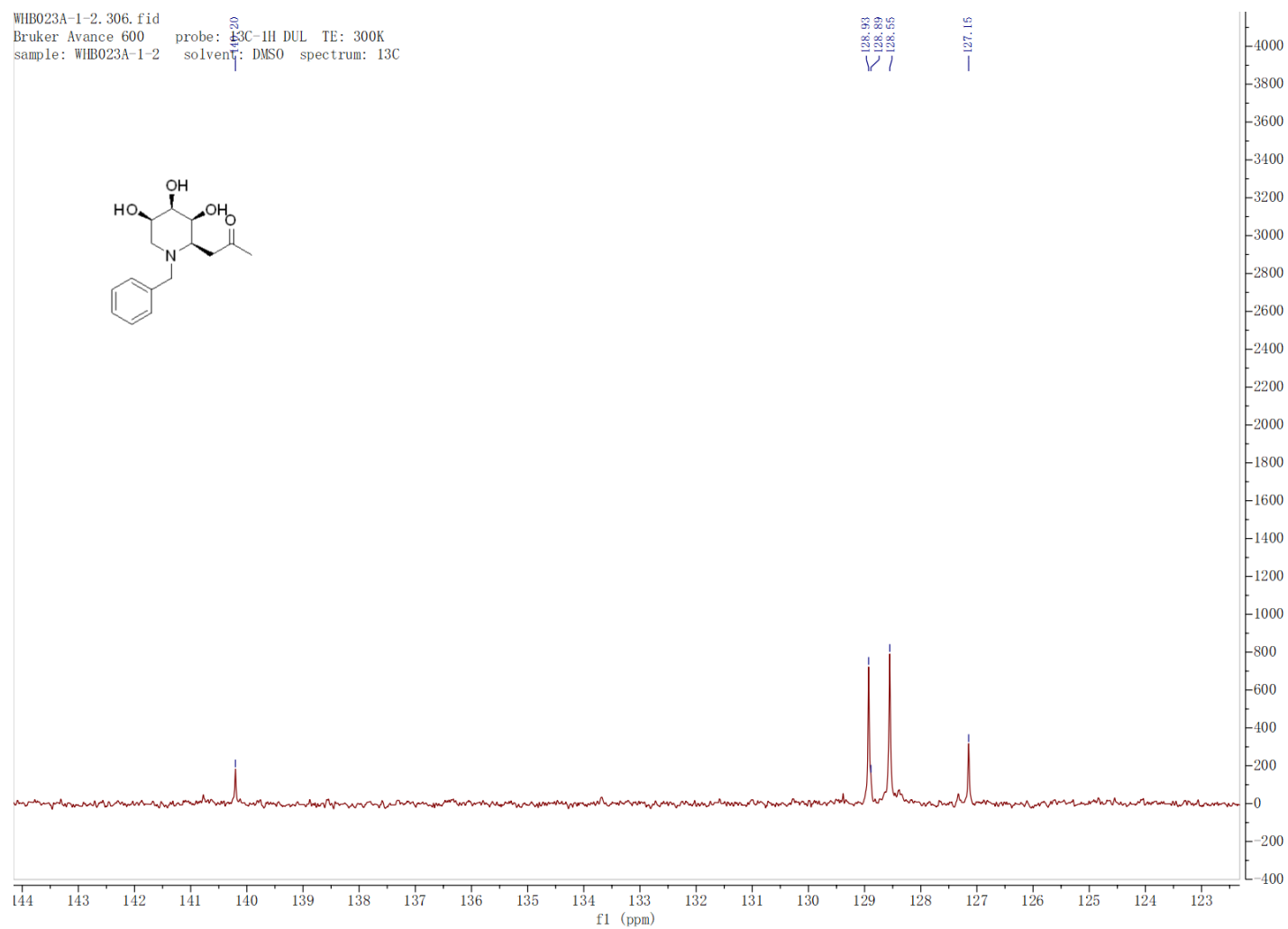


Figure S15. The  $^{13}\text{C}$  NMR of compound 5d.



**Figure S16.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5d**.

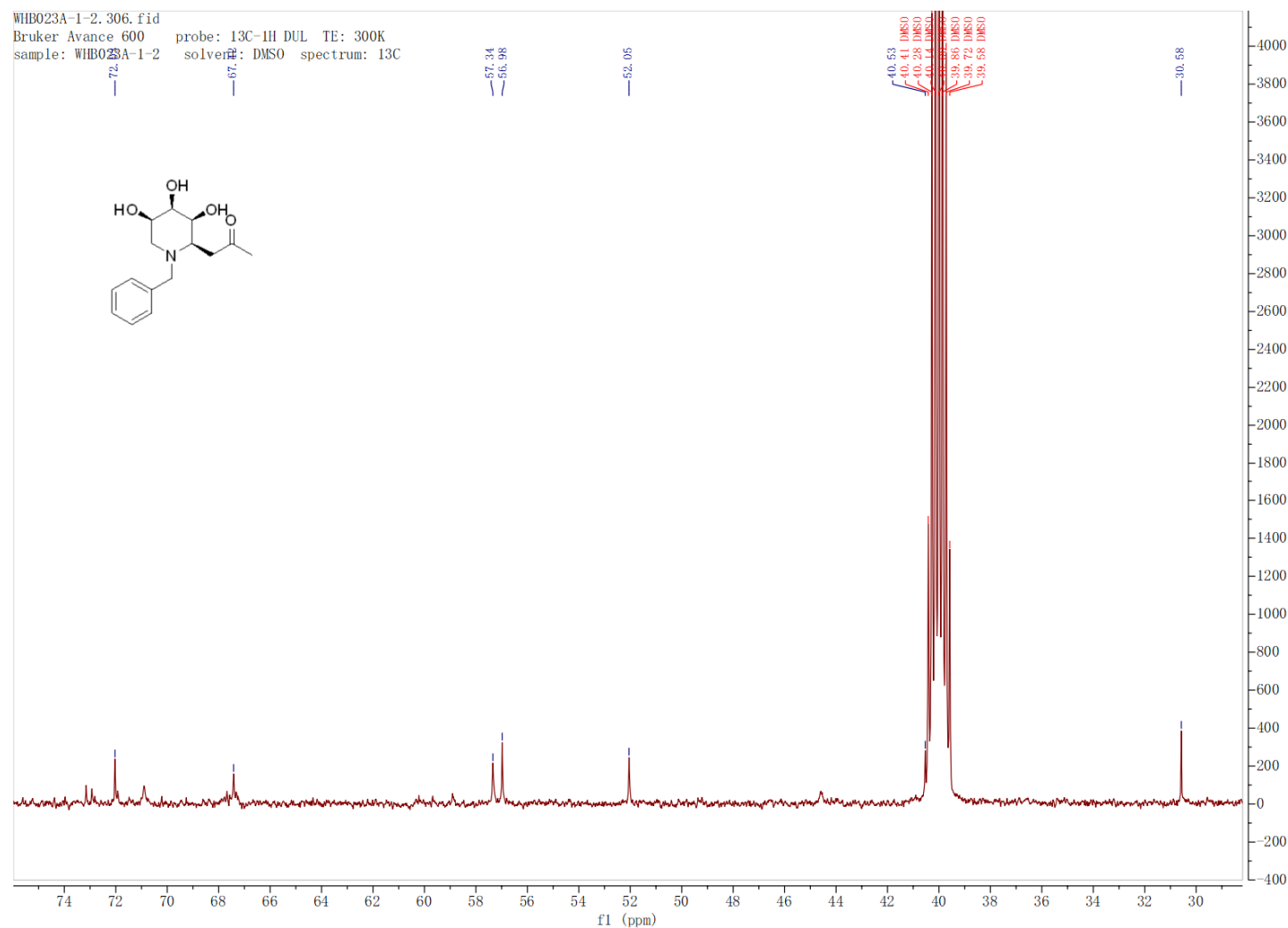


Figure S17. Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5d**.

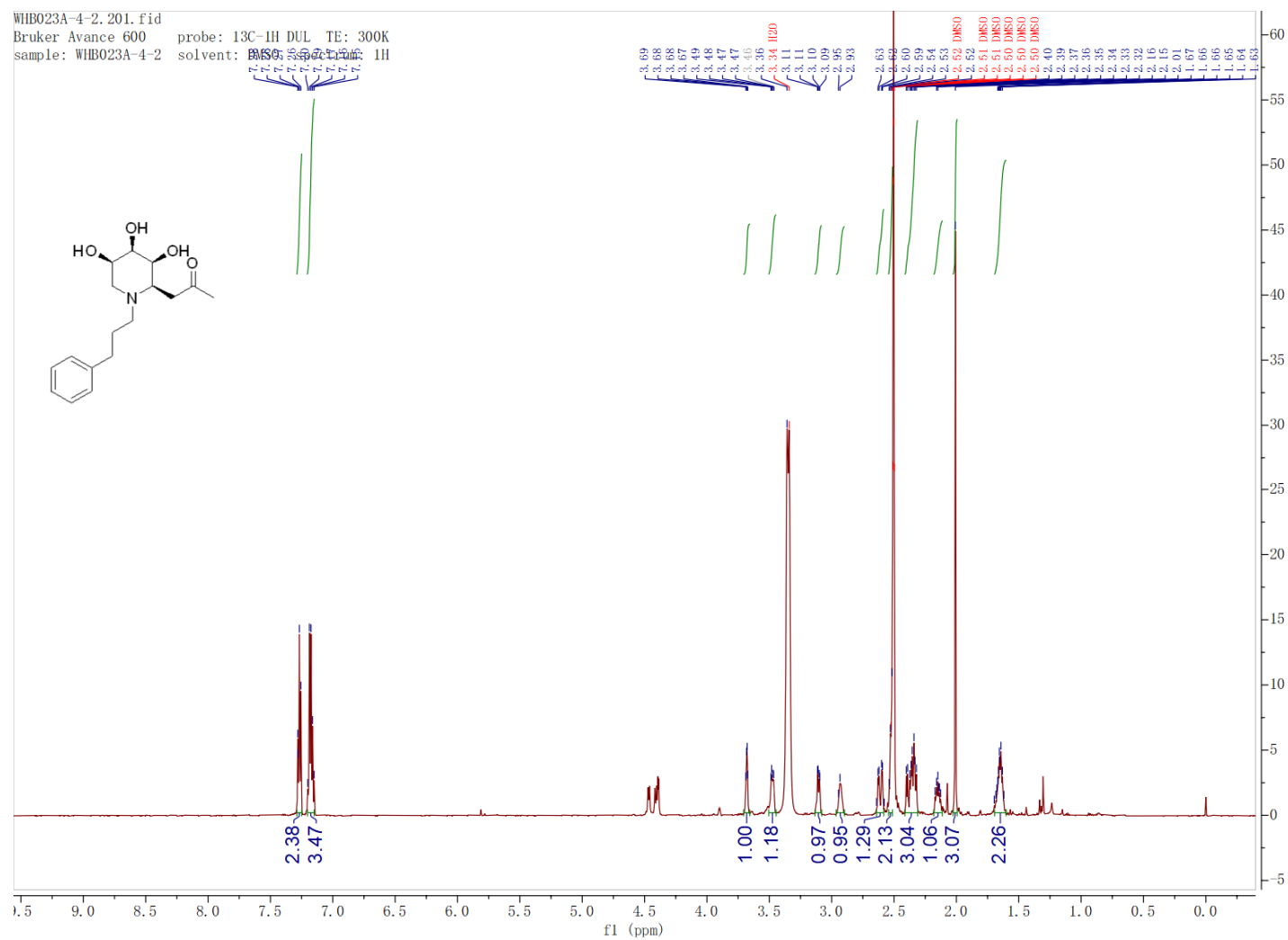
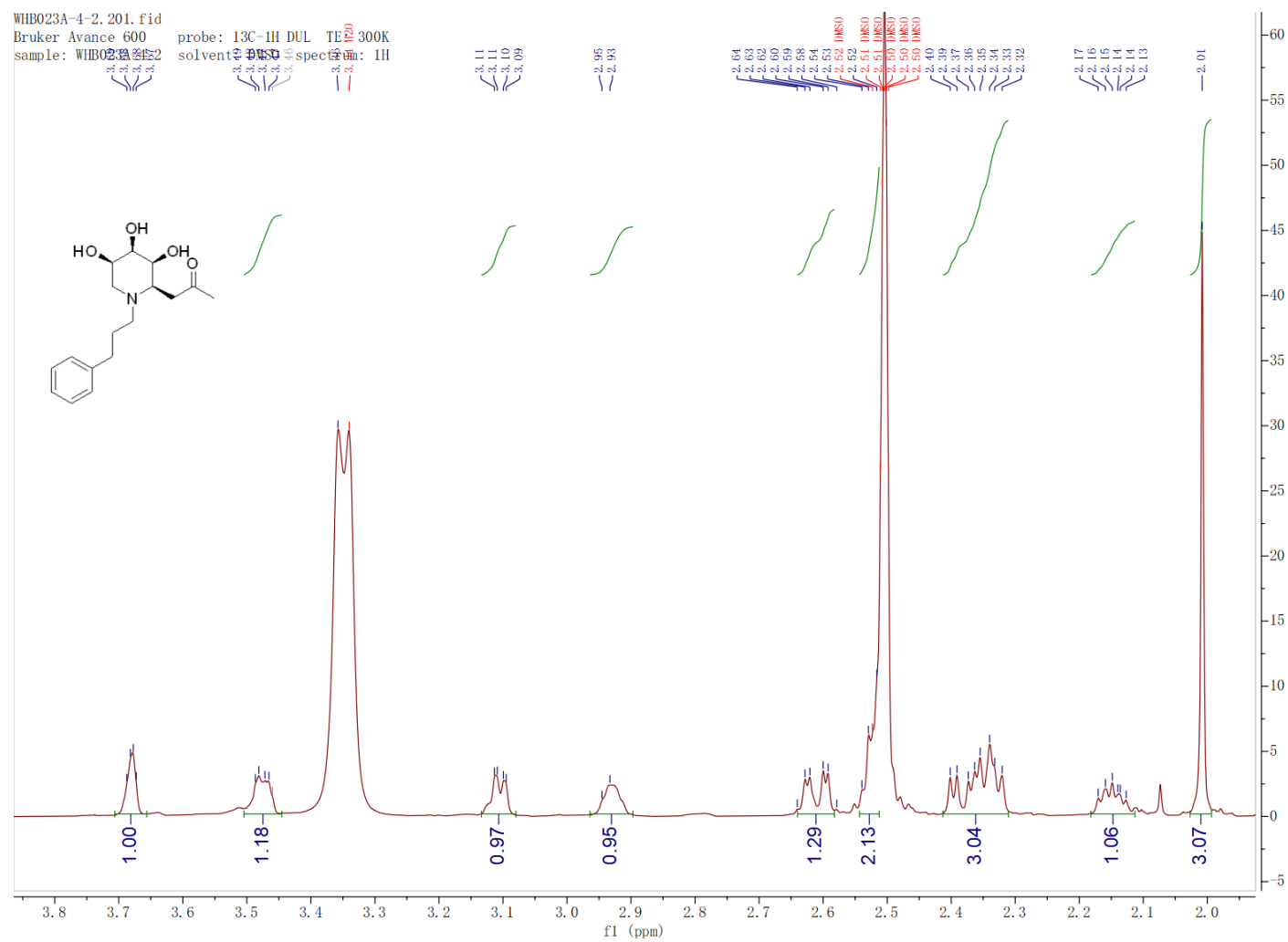


Figure S18. The  $^1\text{H}$  NMR of compound 5e.



**Figure S19.** Partial region amplification of the  $^1\text{H}$  NMR of compound **5e**.



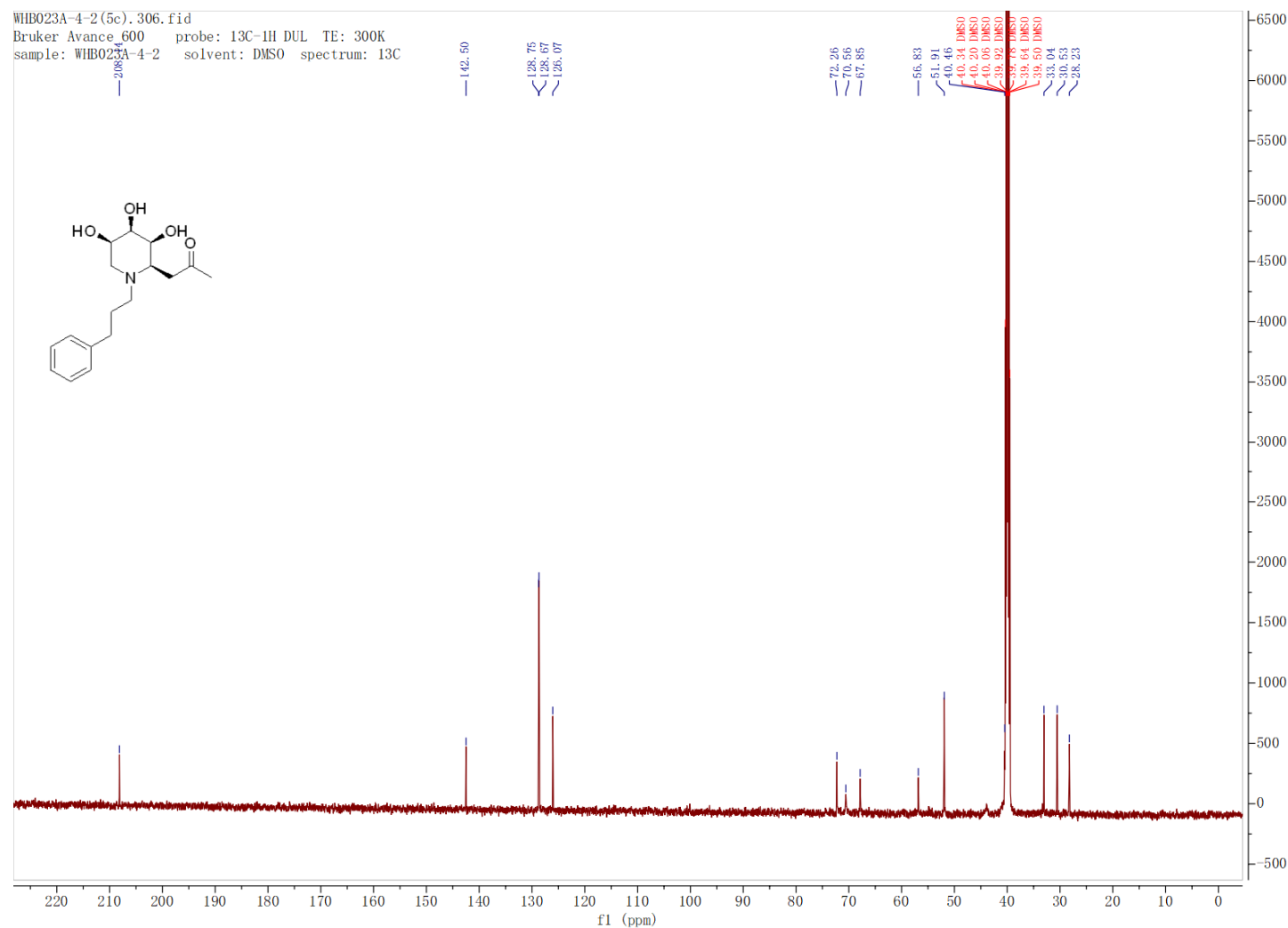
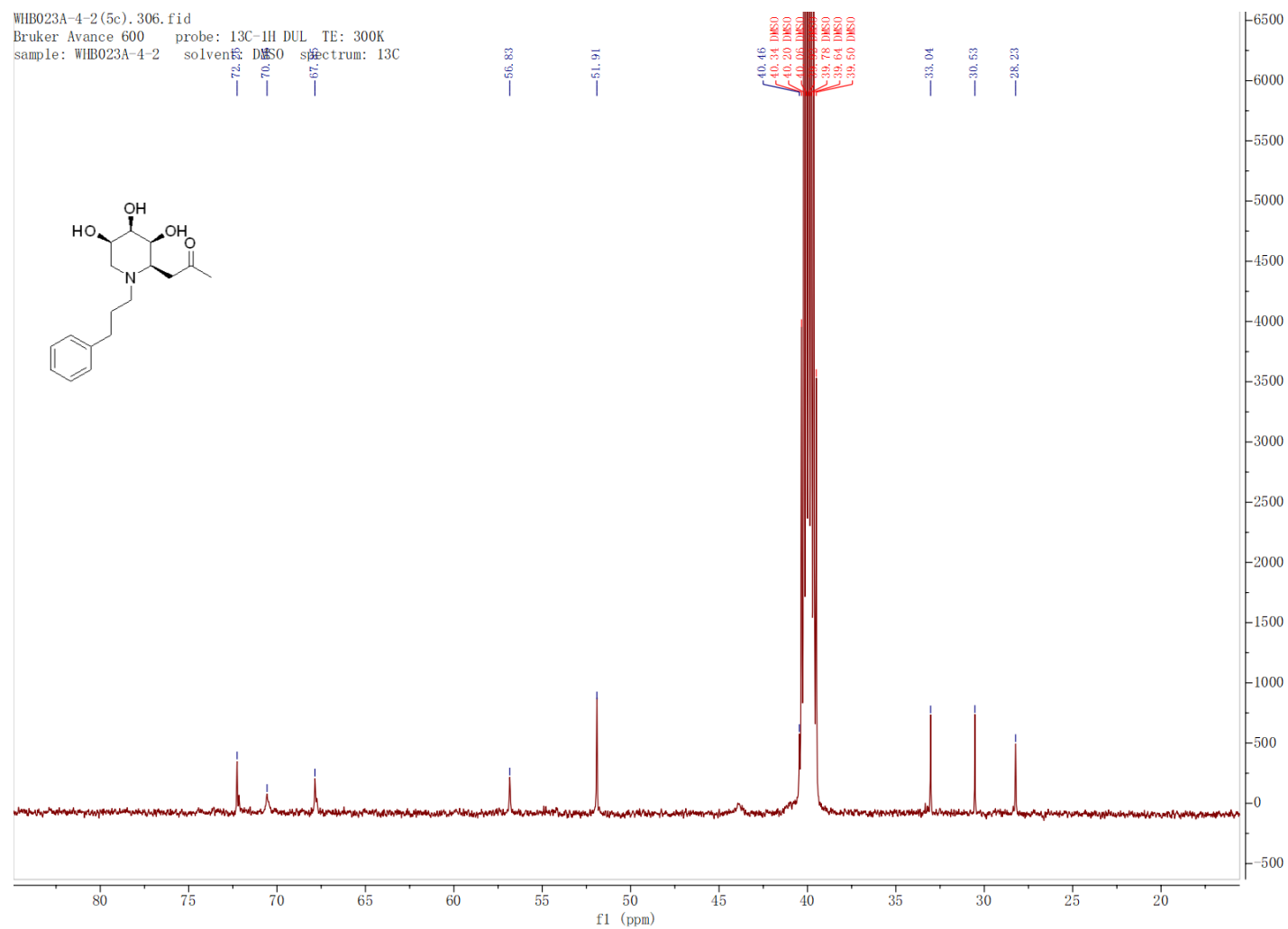


Figure S20. The  $^{13}\text{C}$  NMR of compound 5e.



**Figure S21.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5e**.

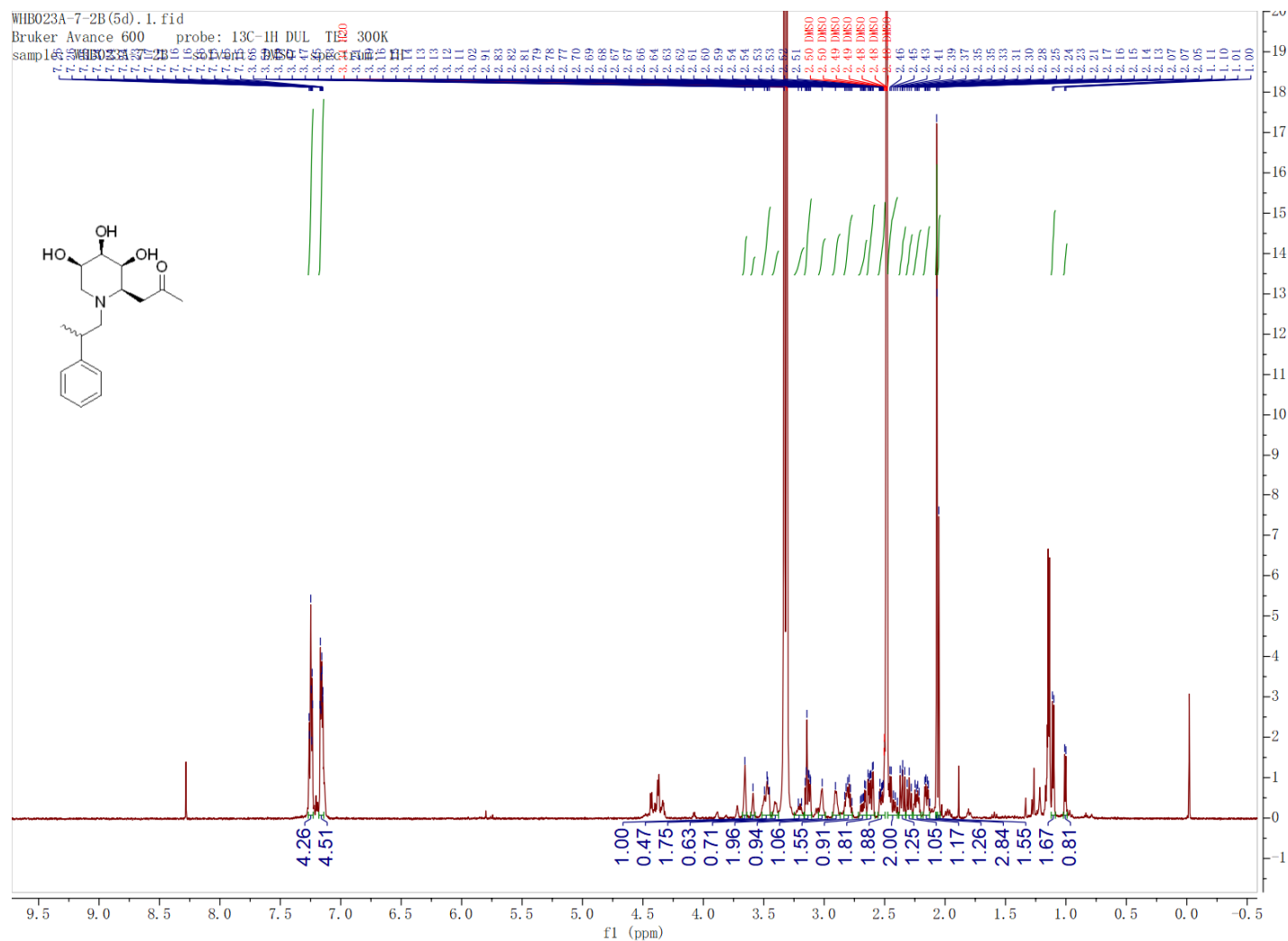


Figure S22. The  $^1\text{H}$  NMR of compound 5f.

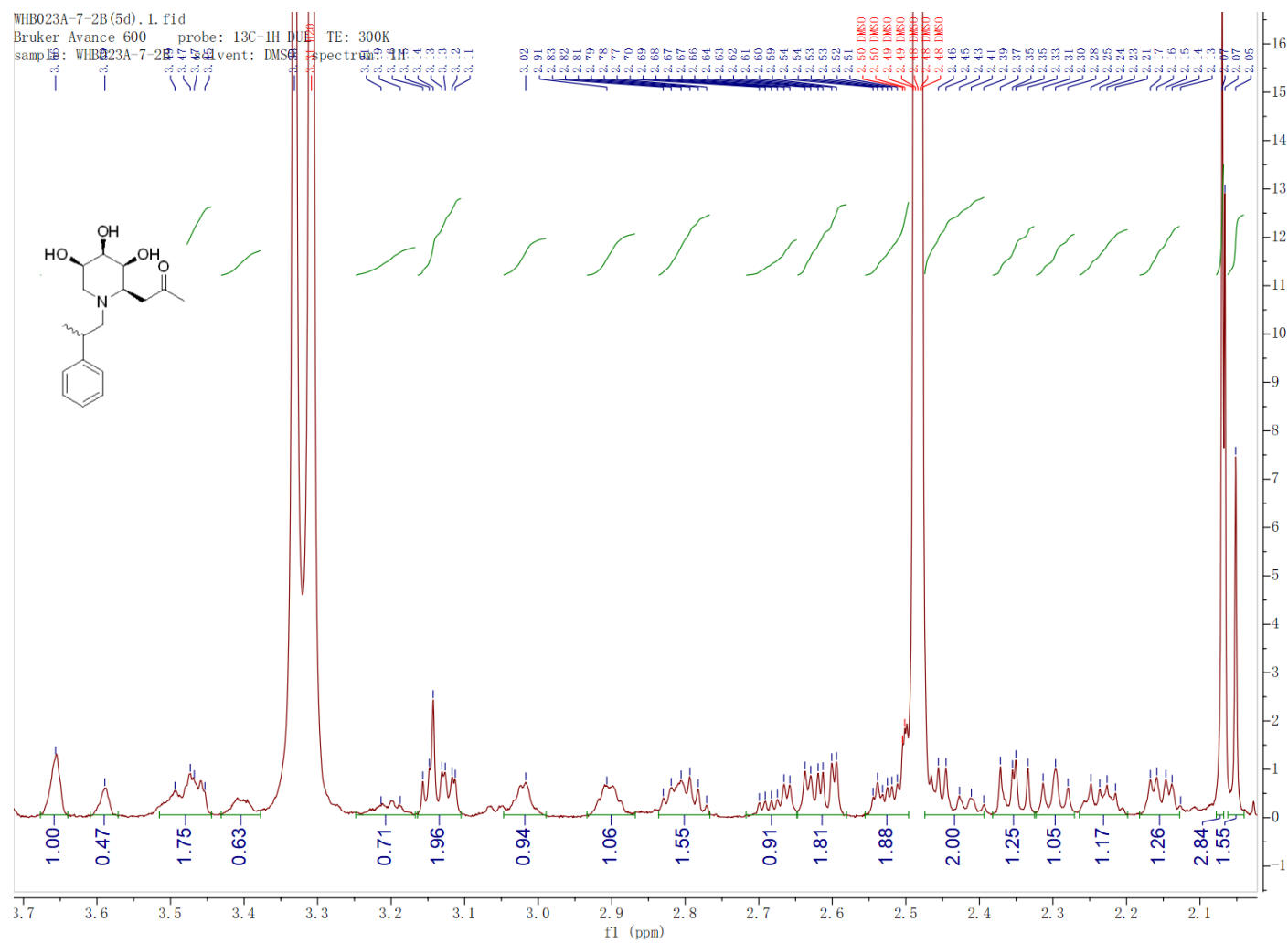


Figure S23. Partial region amplification of the  $^1\text{H}$  NMR of compound 5f.

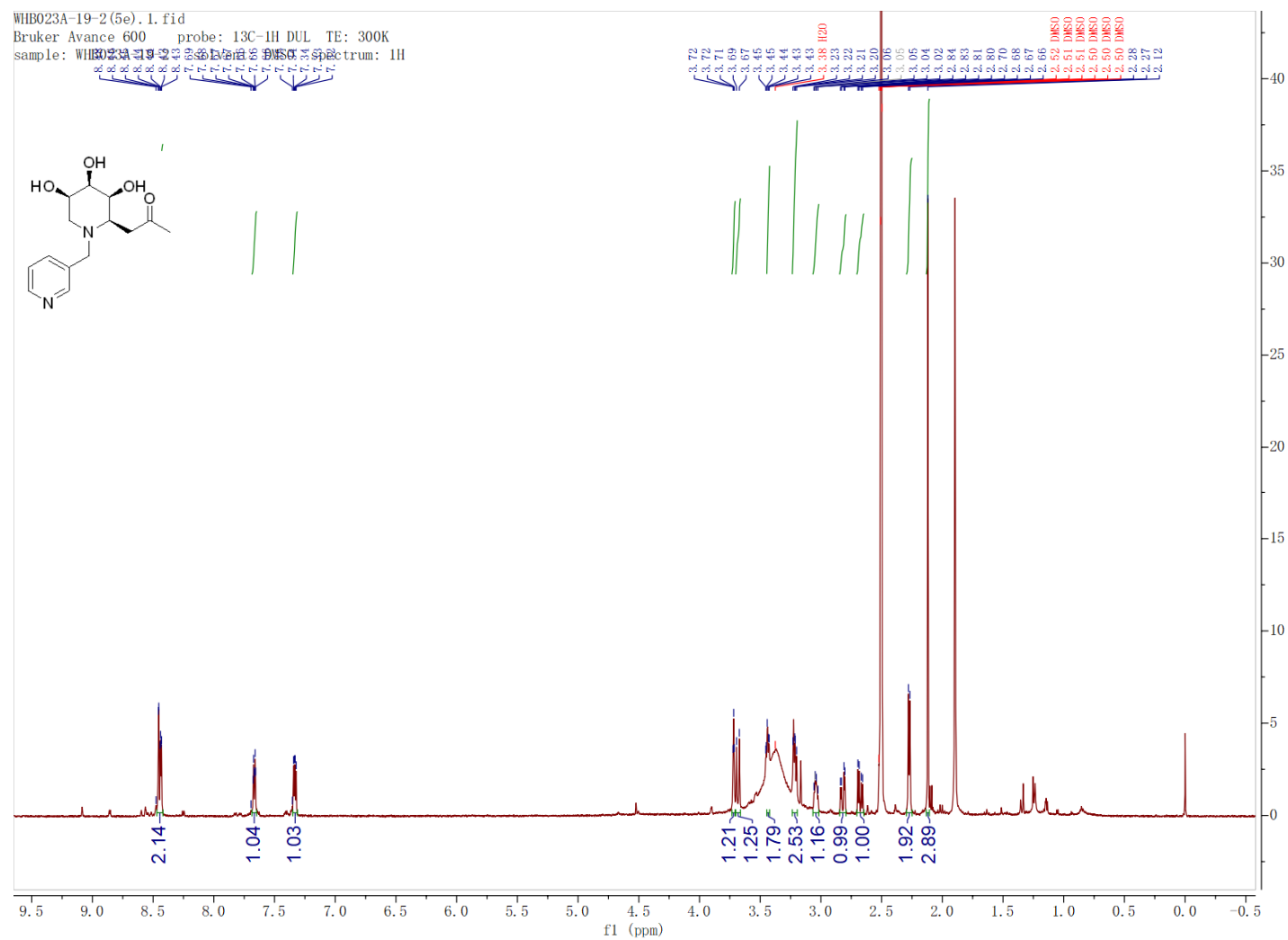


Figure S24. The  $^1\text{H}$  NMR of compound 5g.

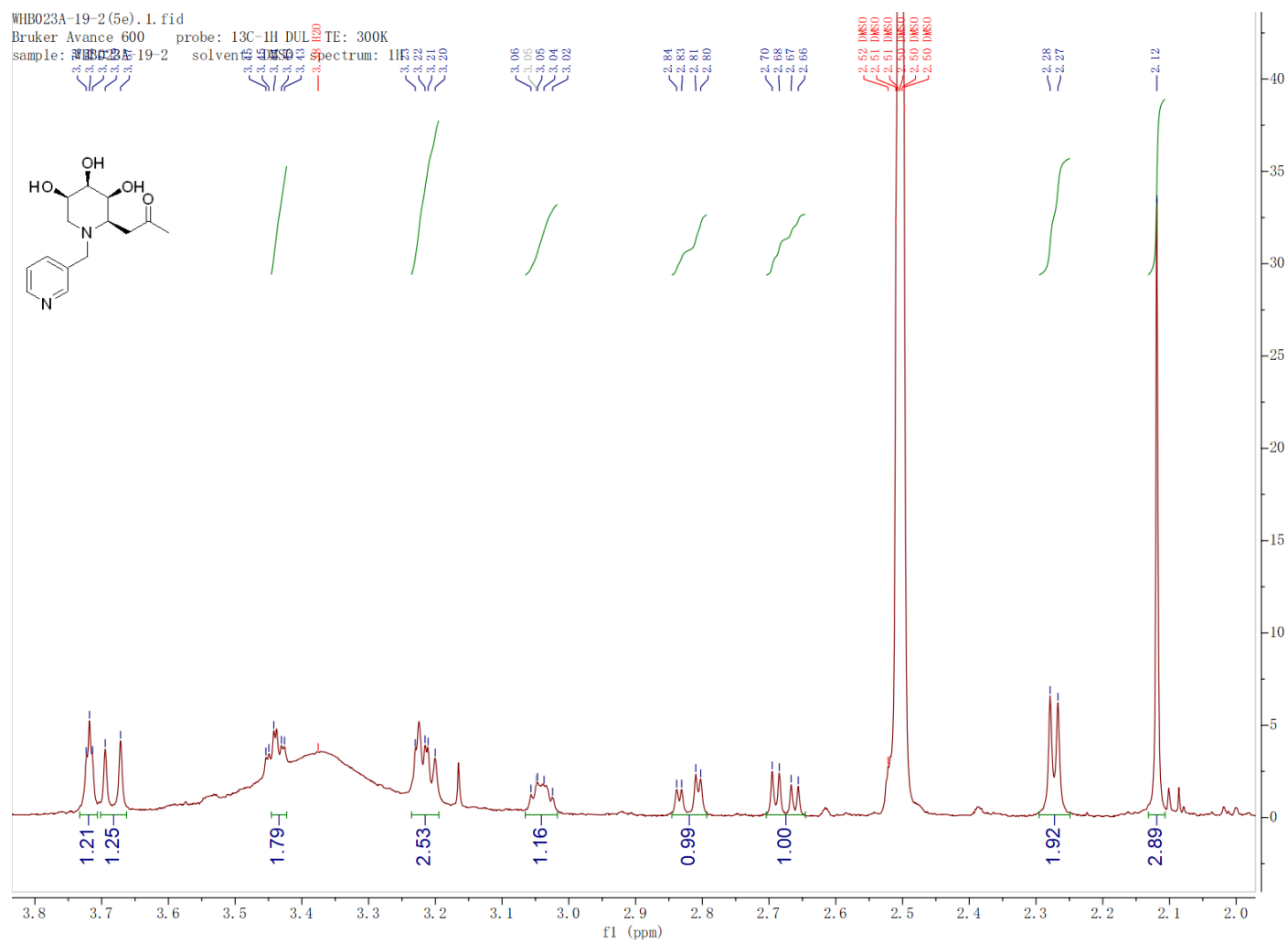


Figure S25. Partial region amplification of the  $^1\text{H}$  NMR of compound **5g**.

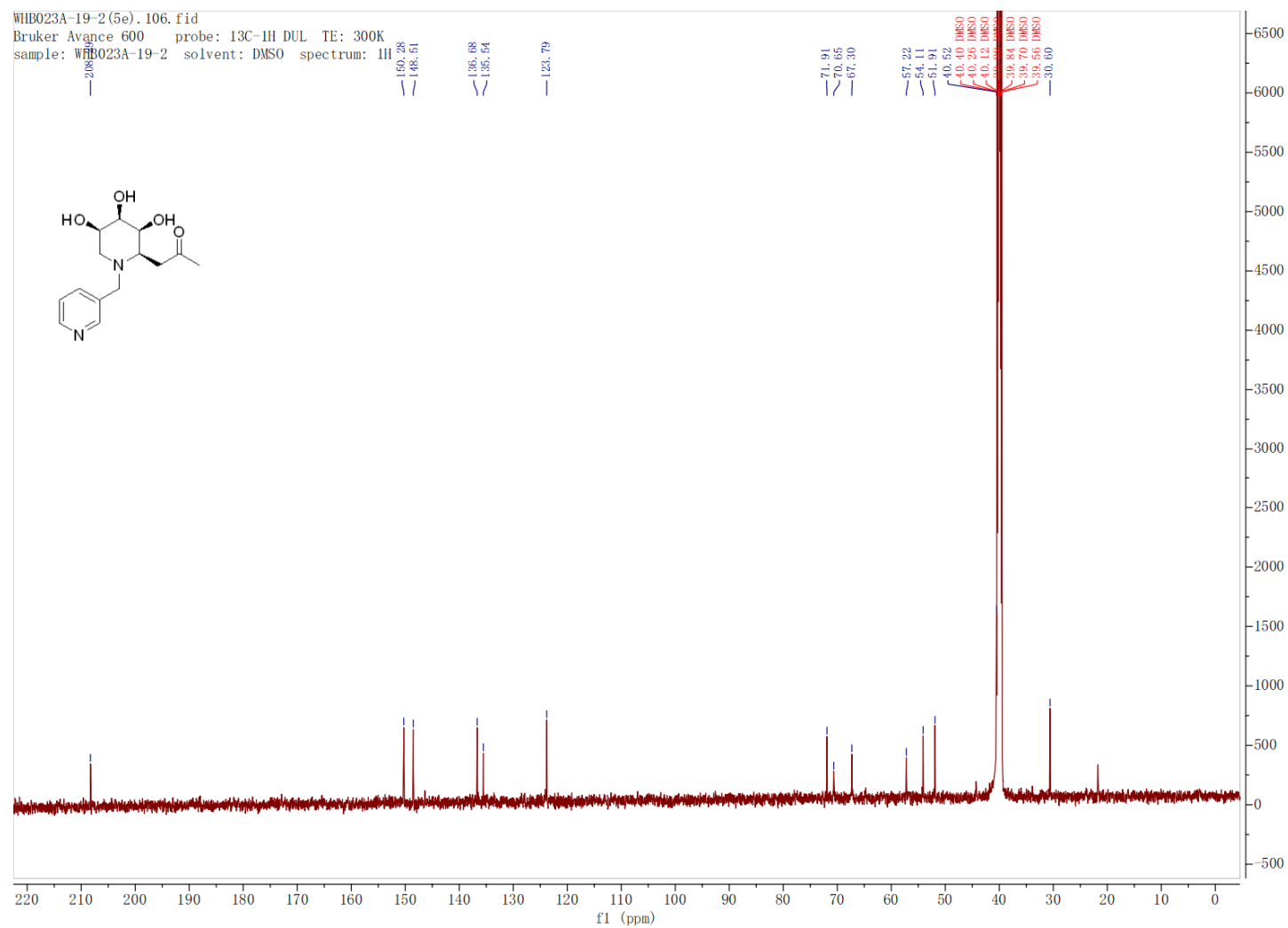
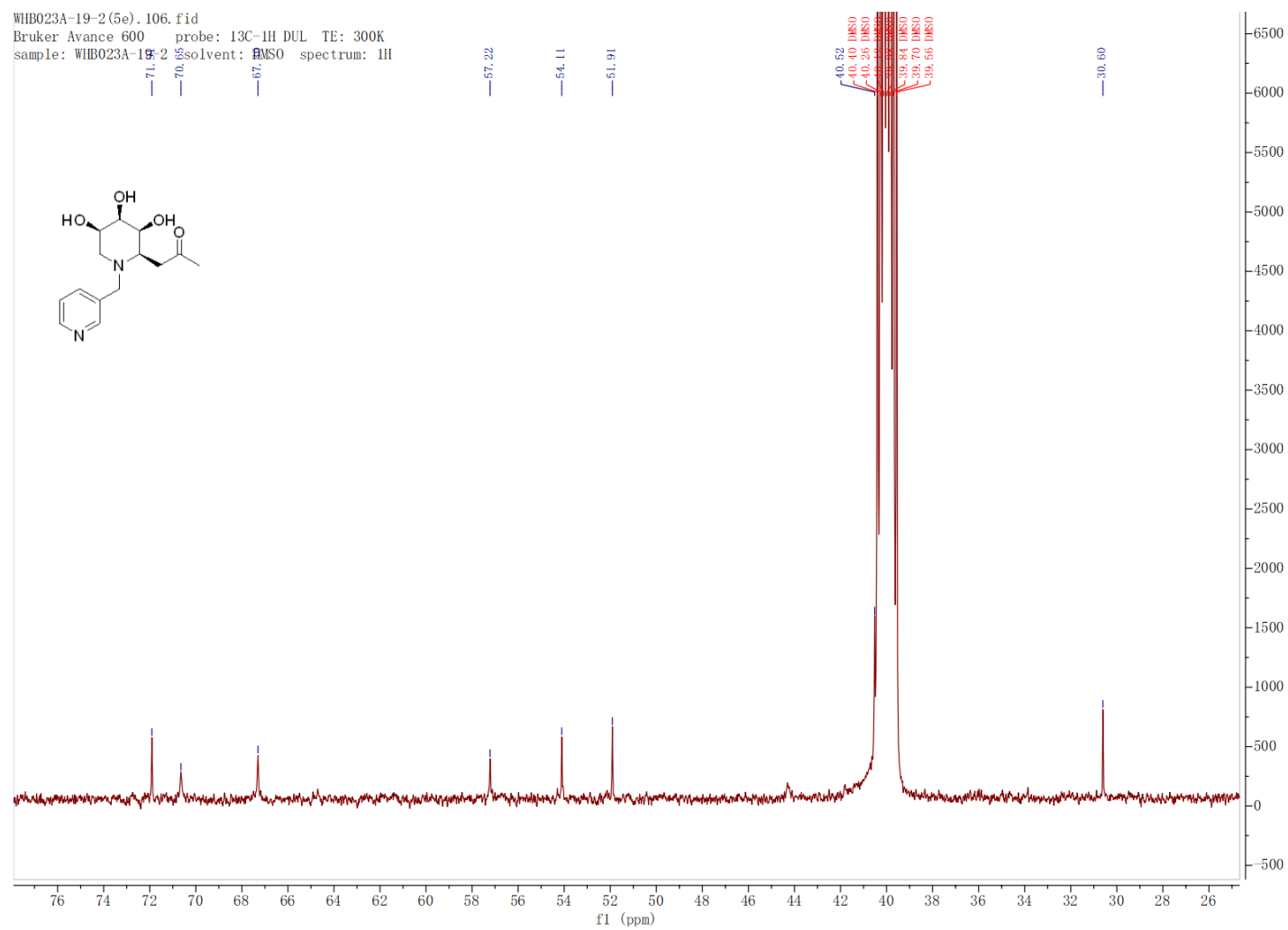


Figure S26. The  $^{13}\text{C}$  NMR of compound 5g.



**Figure S27.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5g**.



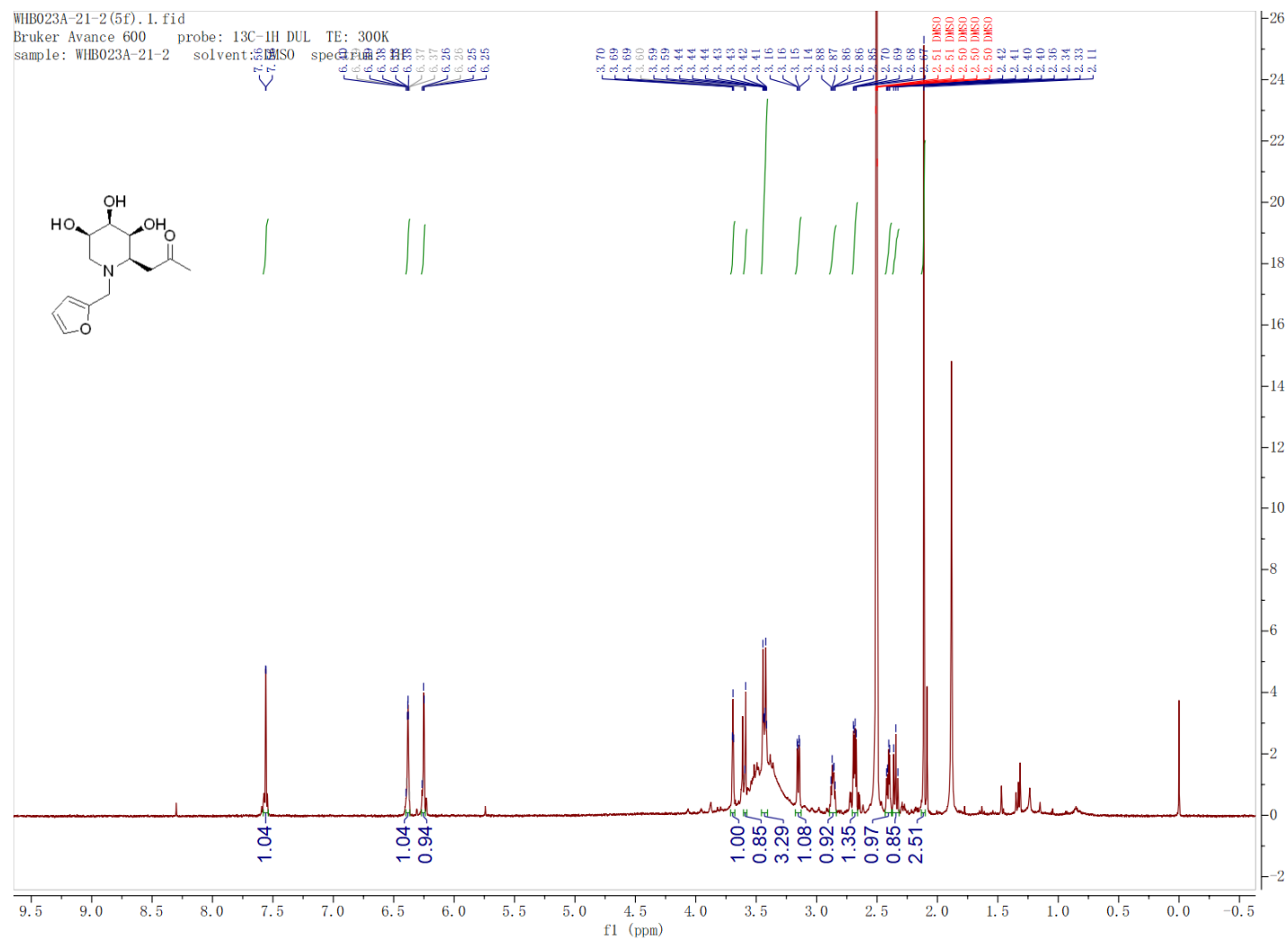
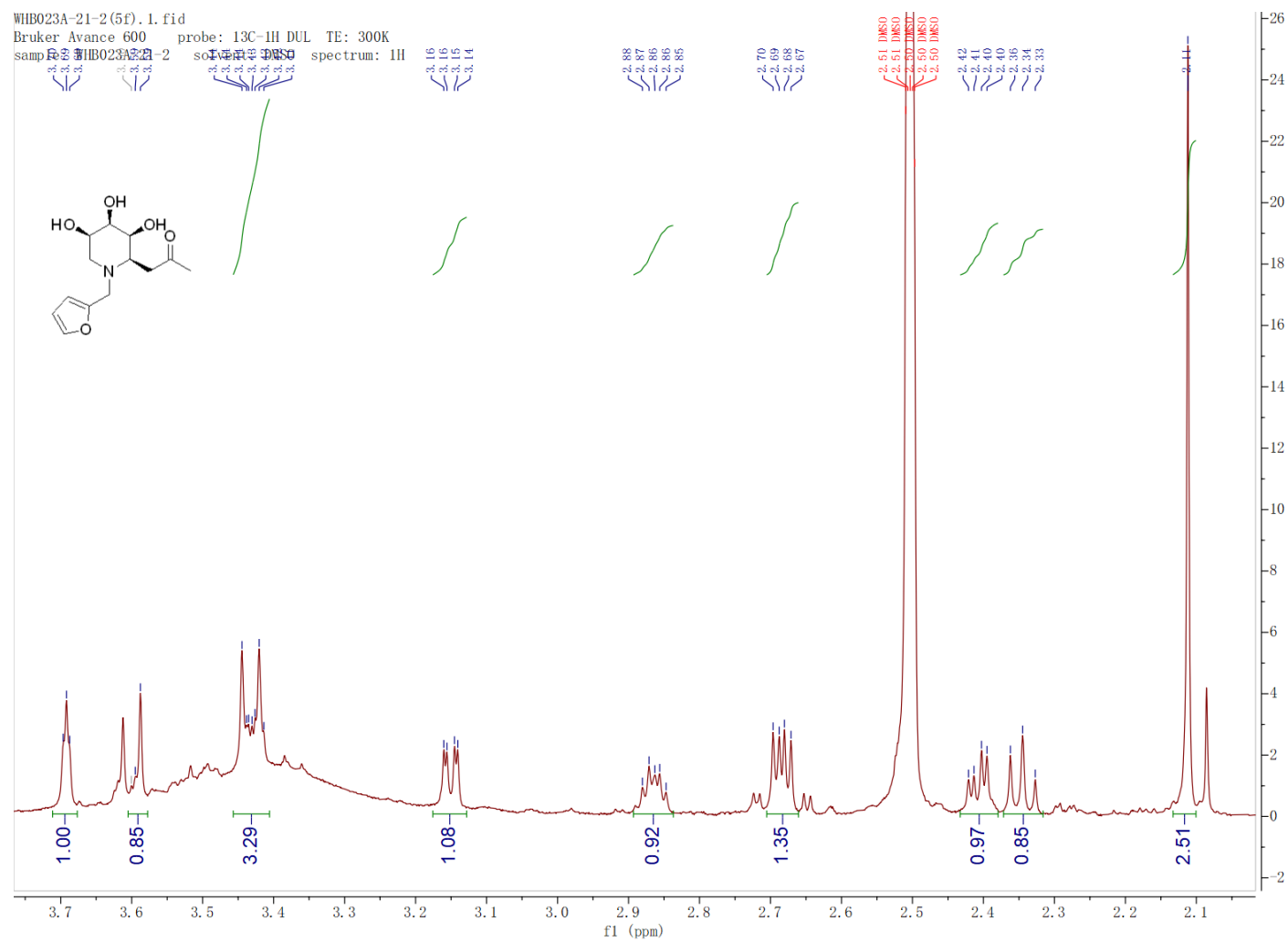


Figure S28. The  $^1\text{H}$  NMR of compound 5h.



**Figure S29.** Partial region amplification of the  $^1\text{H}$  NMR of compound **5h**.

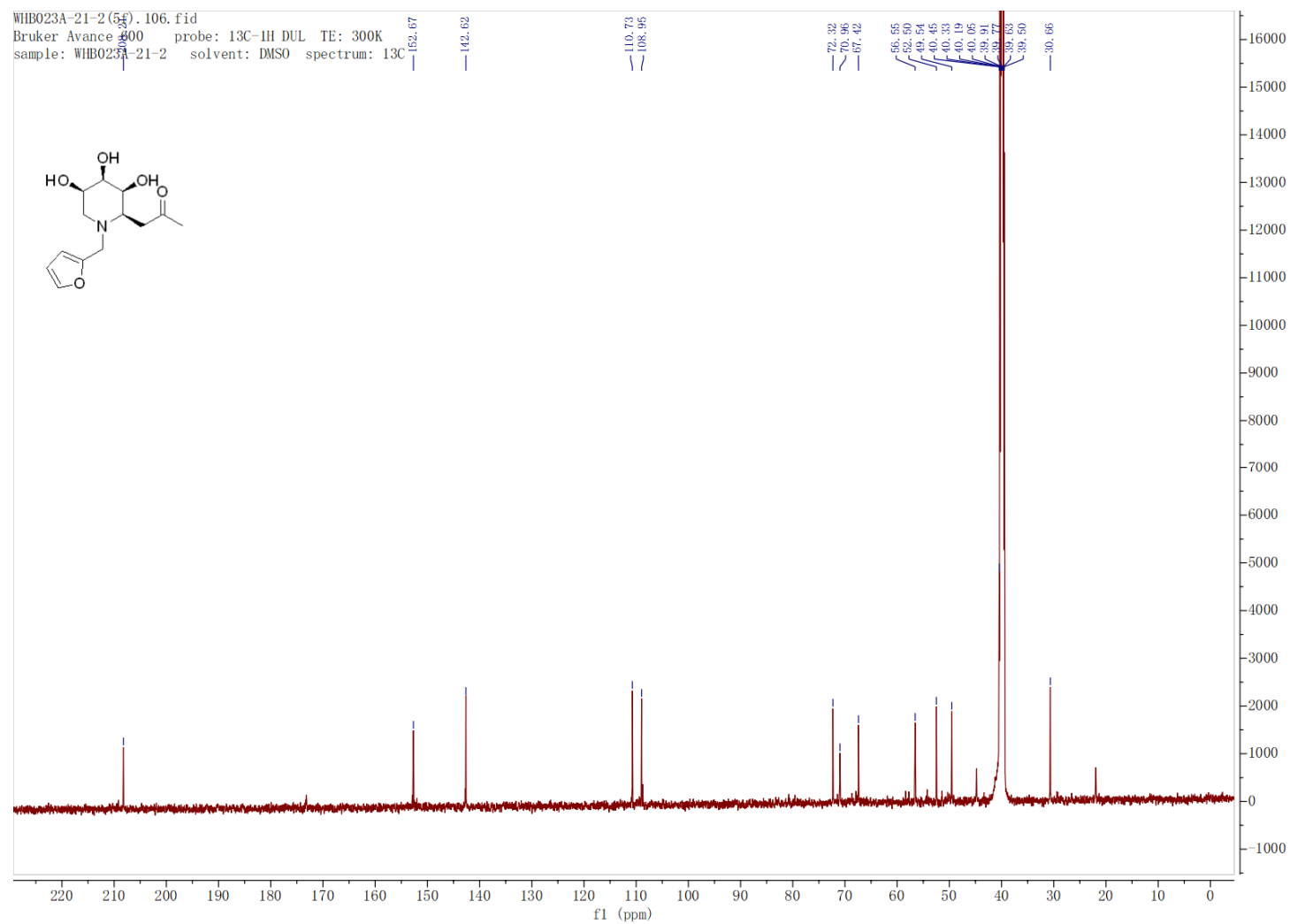
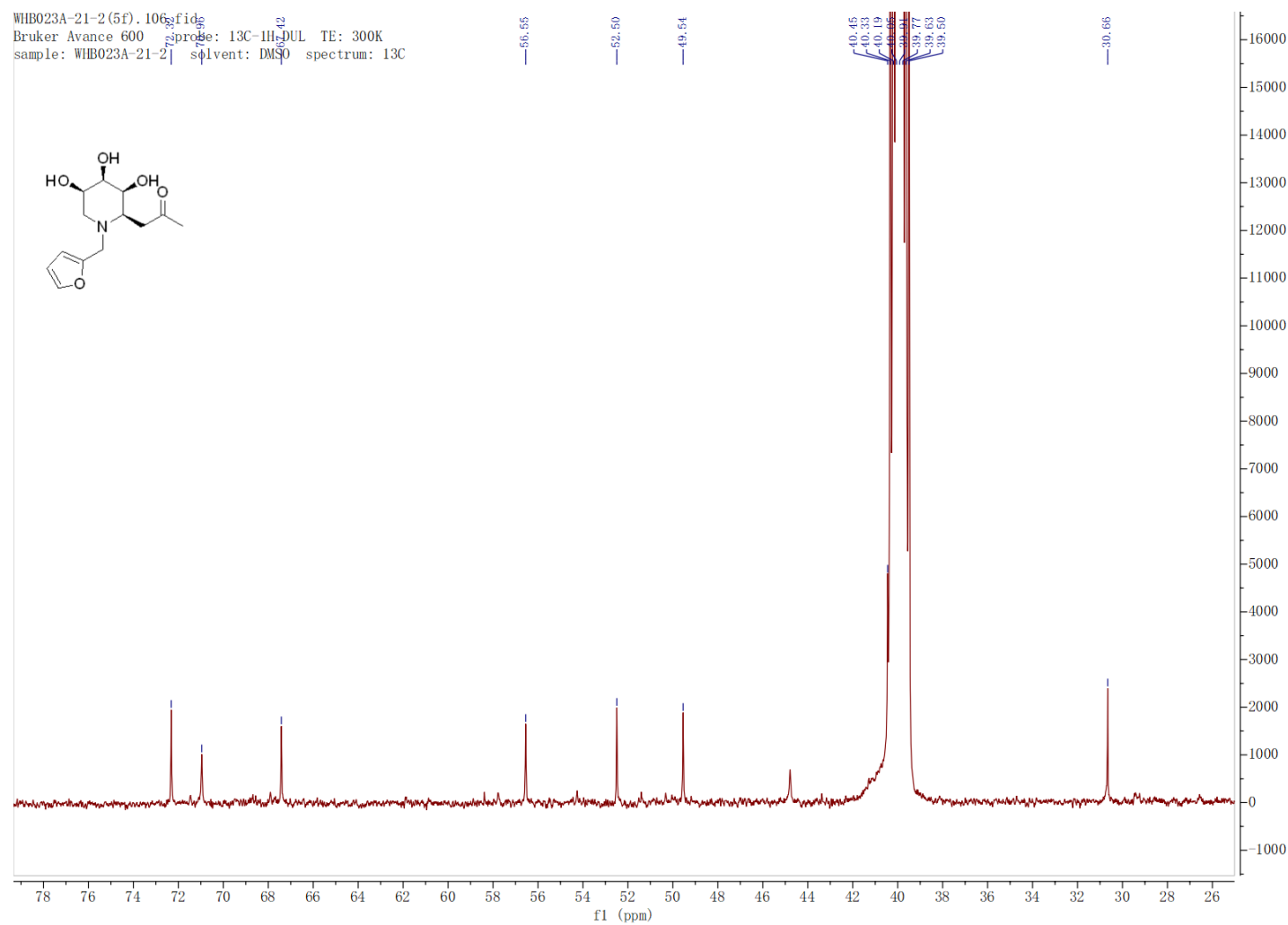


Figure S30. The  $^{13}\text{C}$  NMR of compound 5h.



**Figure S31.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5h**.

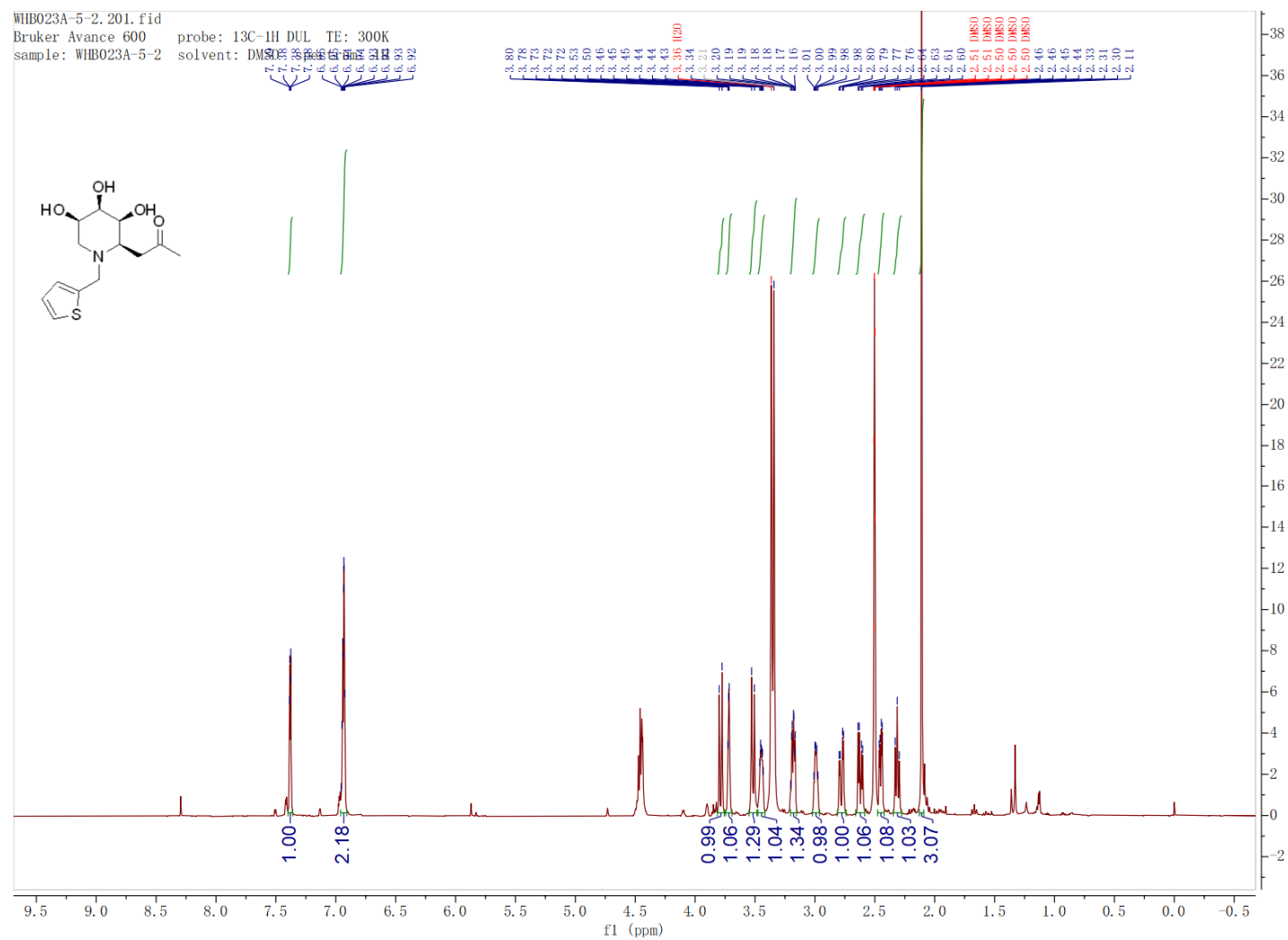
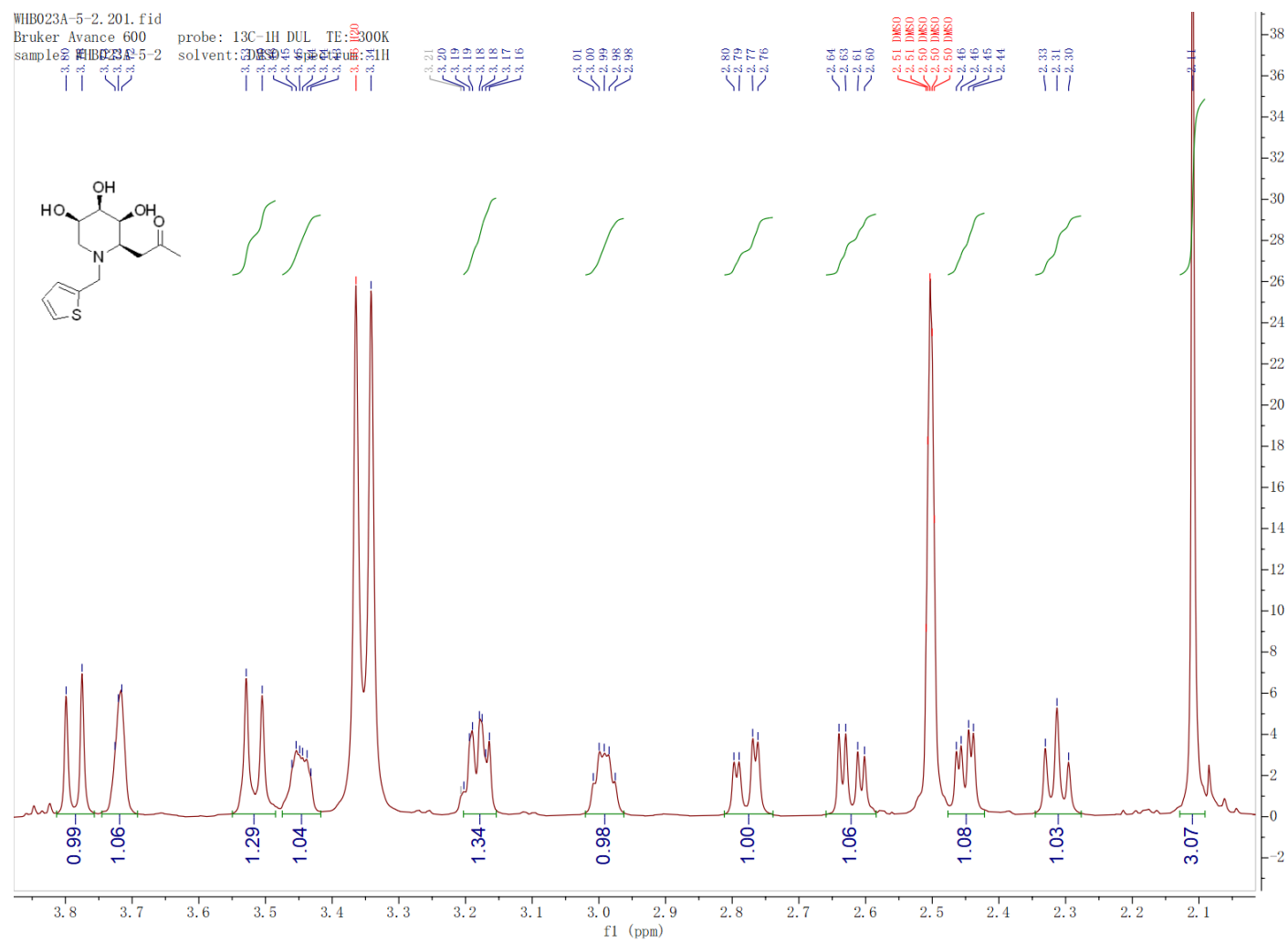


Figure S32. The  $^1\text{H}$  NMR of compound 5i.



**Figure S33.** Partial region amplification of the  $^1\text{H}$  NMR of compound **5i**.

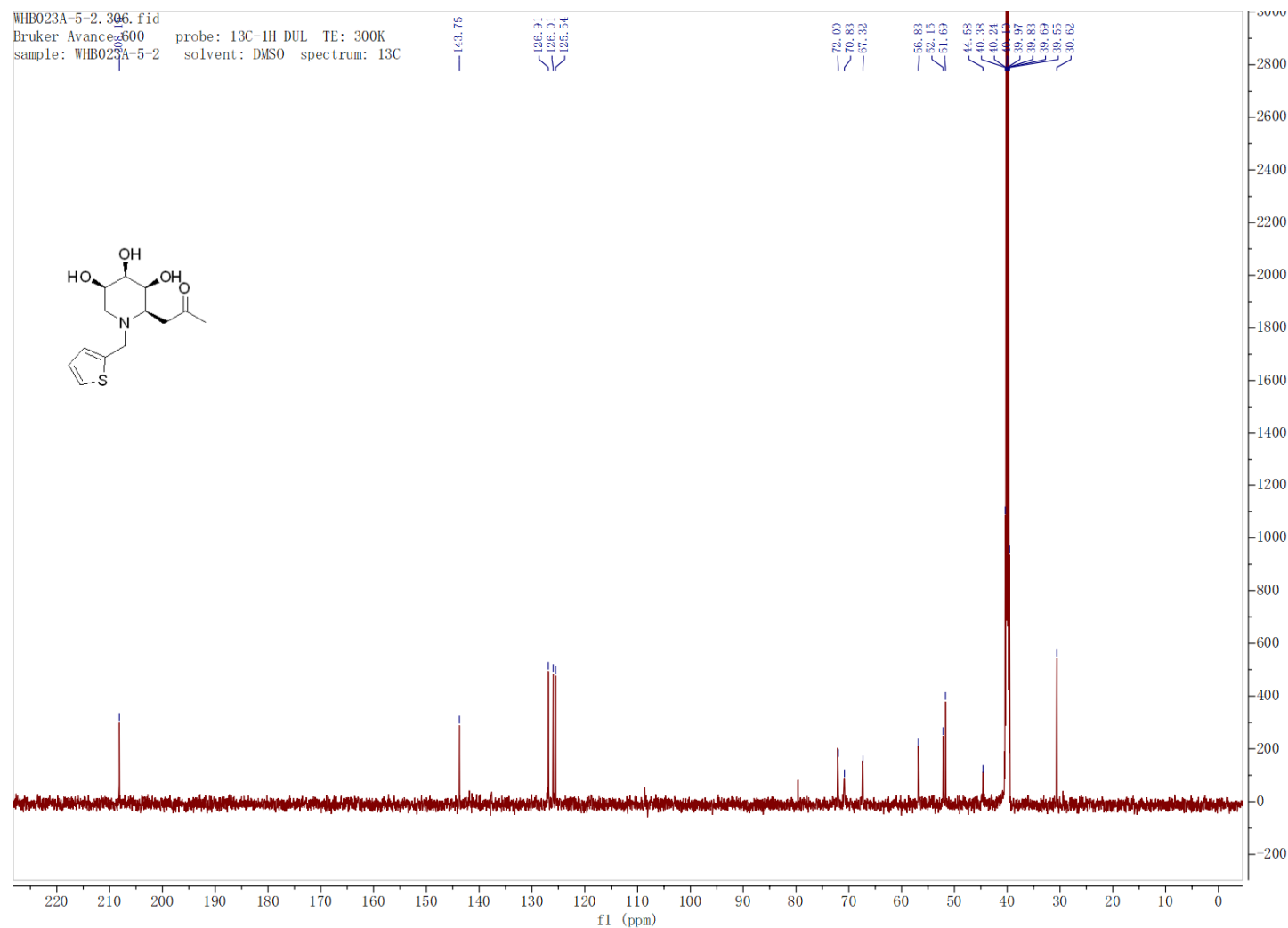


Figure S34. The  $^{13}\text{C}$  NMR of compound **5i**.

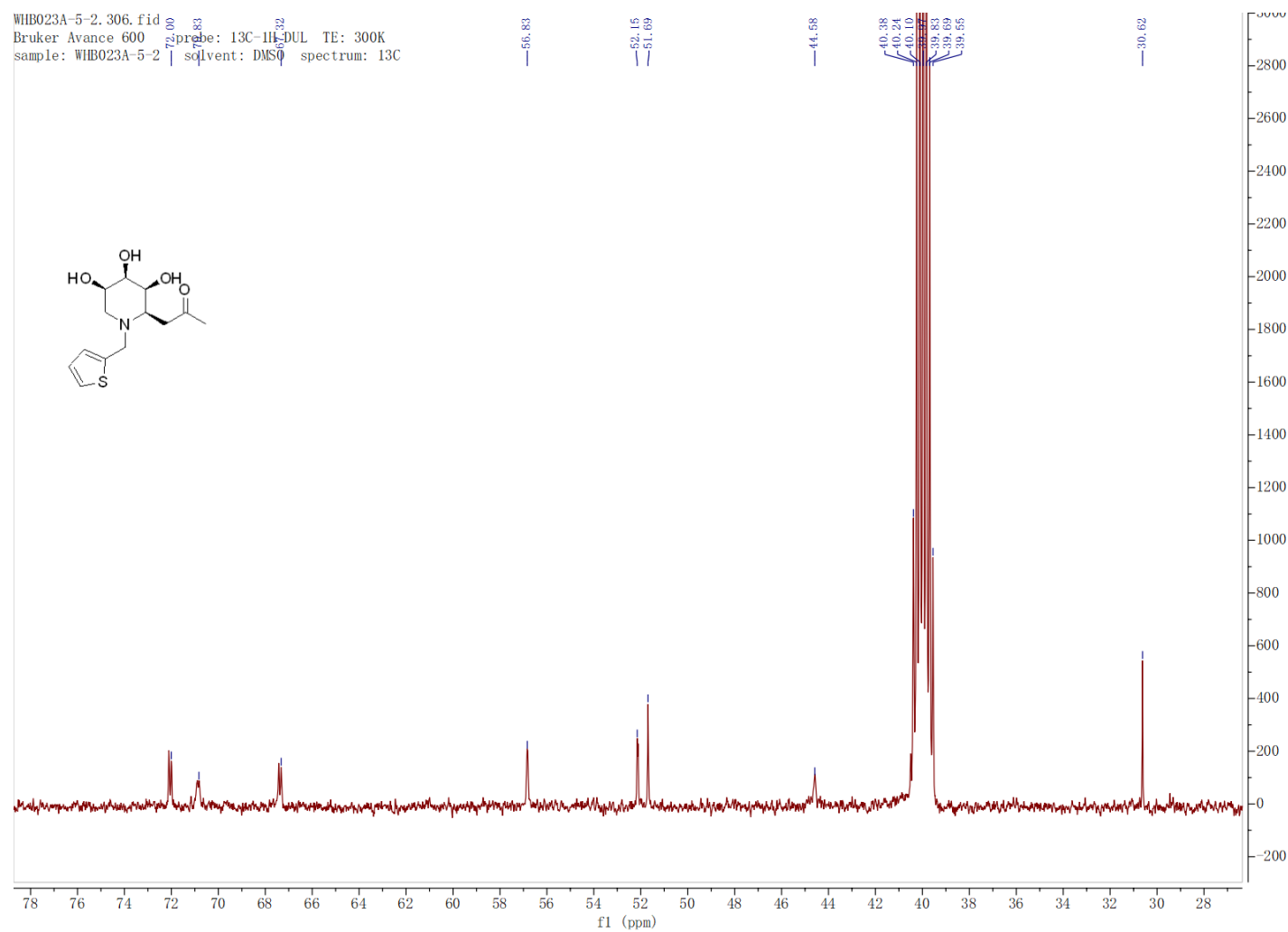


Figure S35. Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5i**.





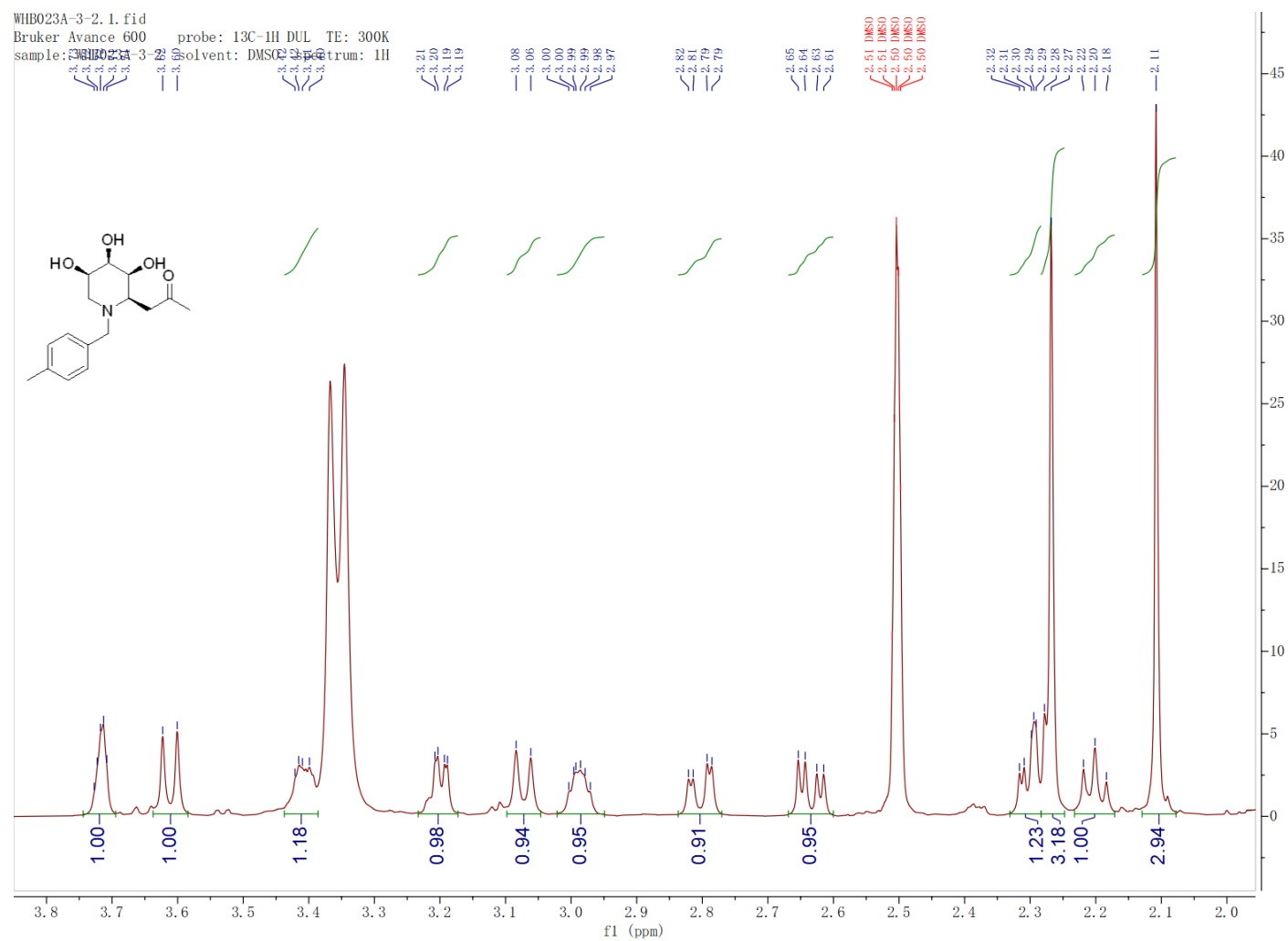


Figure S37. Partial region amplification of the  $^1\text{H}$  NMR of compound 5j.

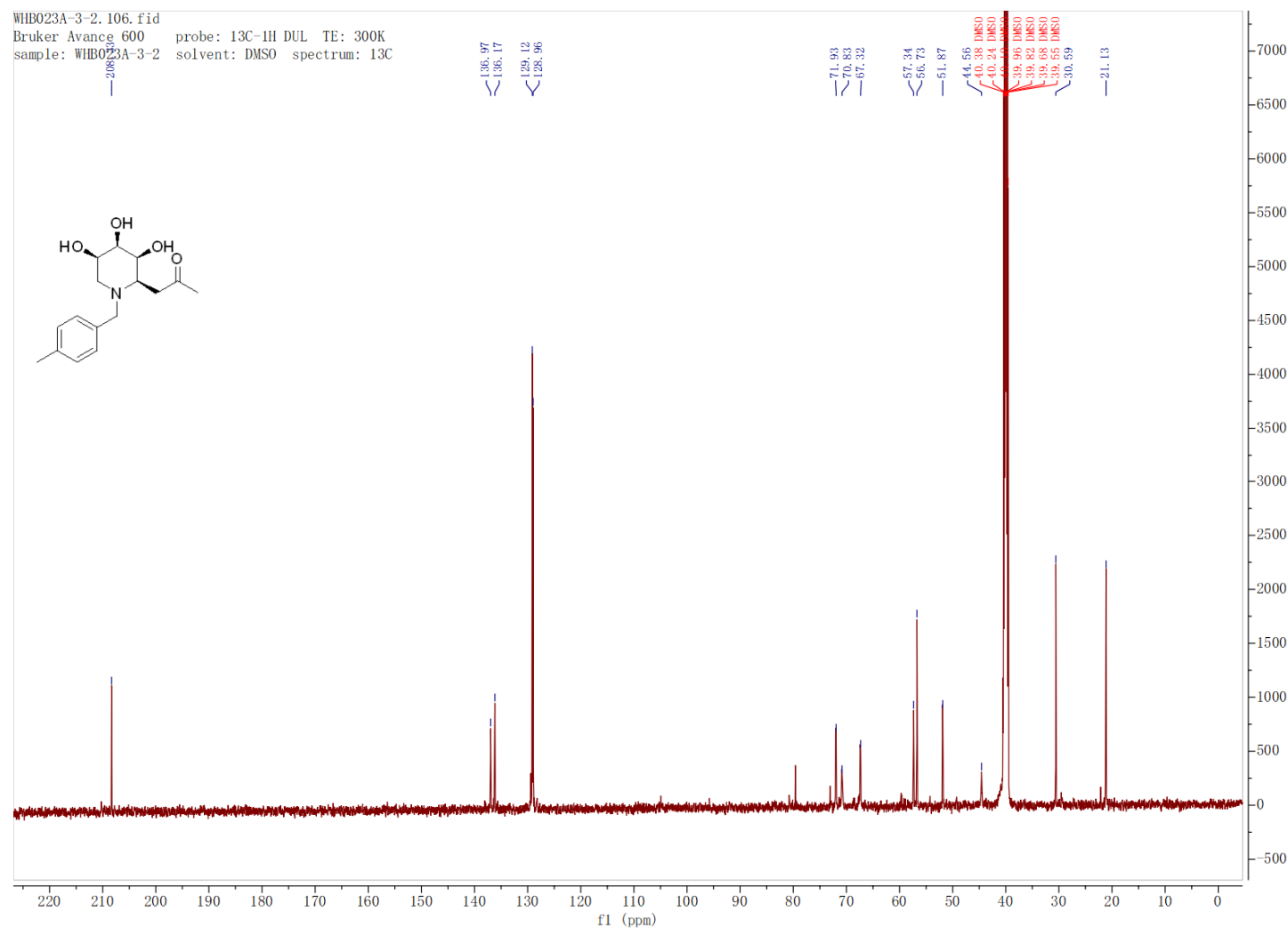


Figure S38. The  $^{13}\text{C}$  NMR of compound 5j.

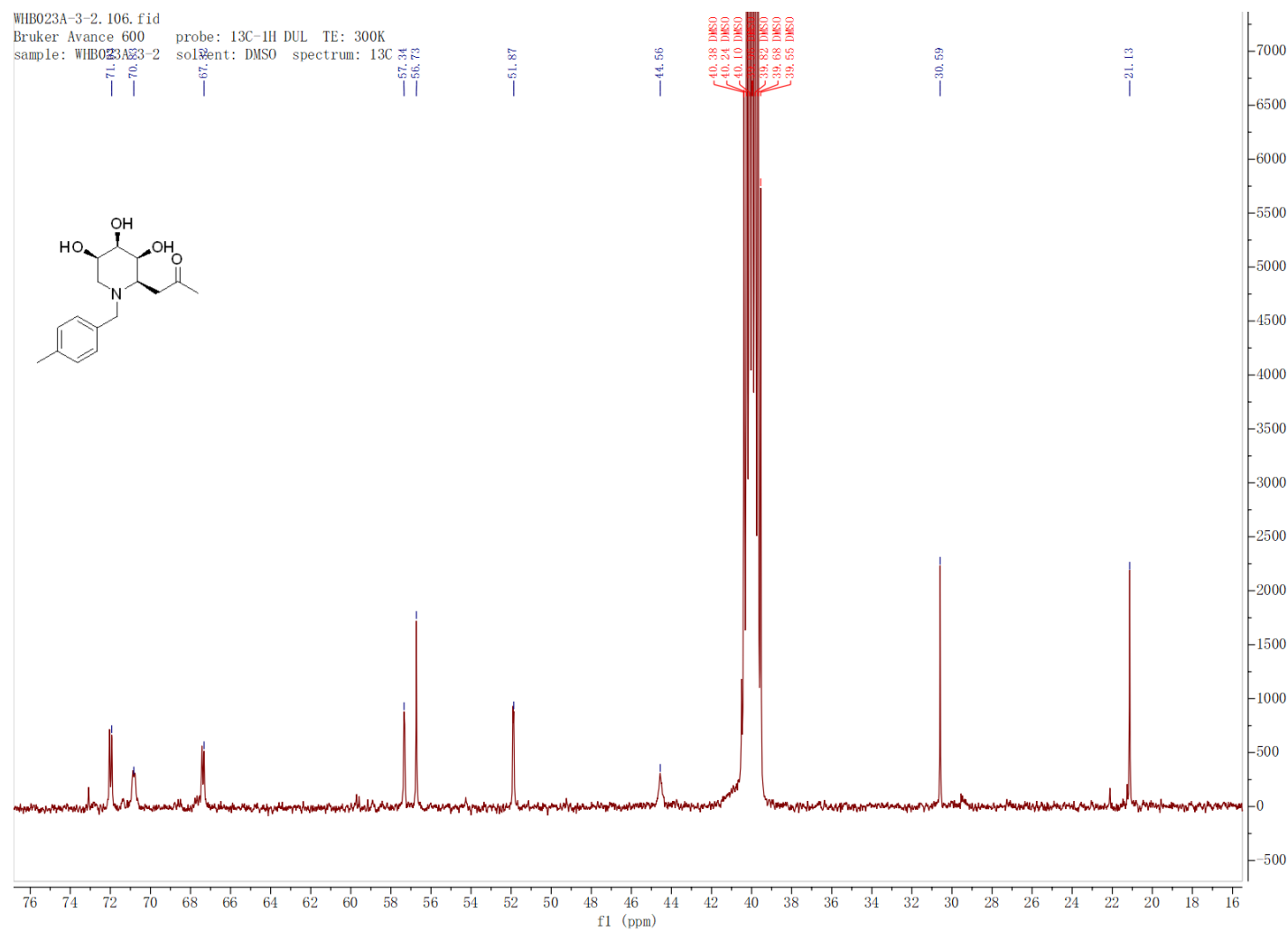


Figure S39. Partial region amplification of the  $^{13}\text{C}$  NMR of compound 5j.

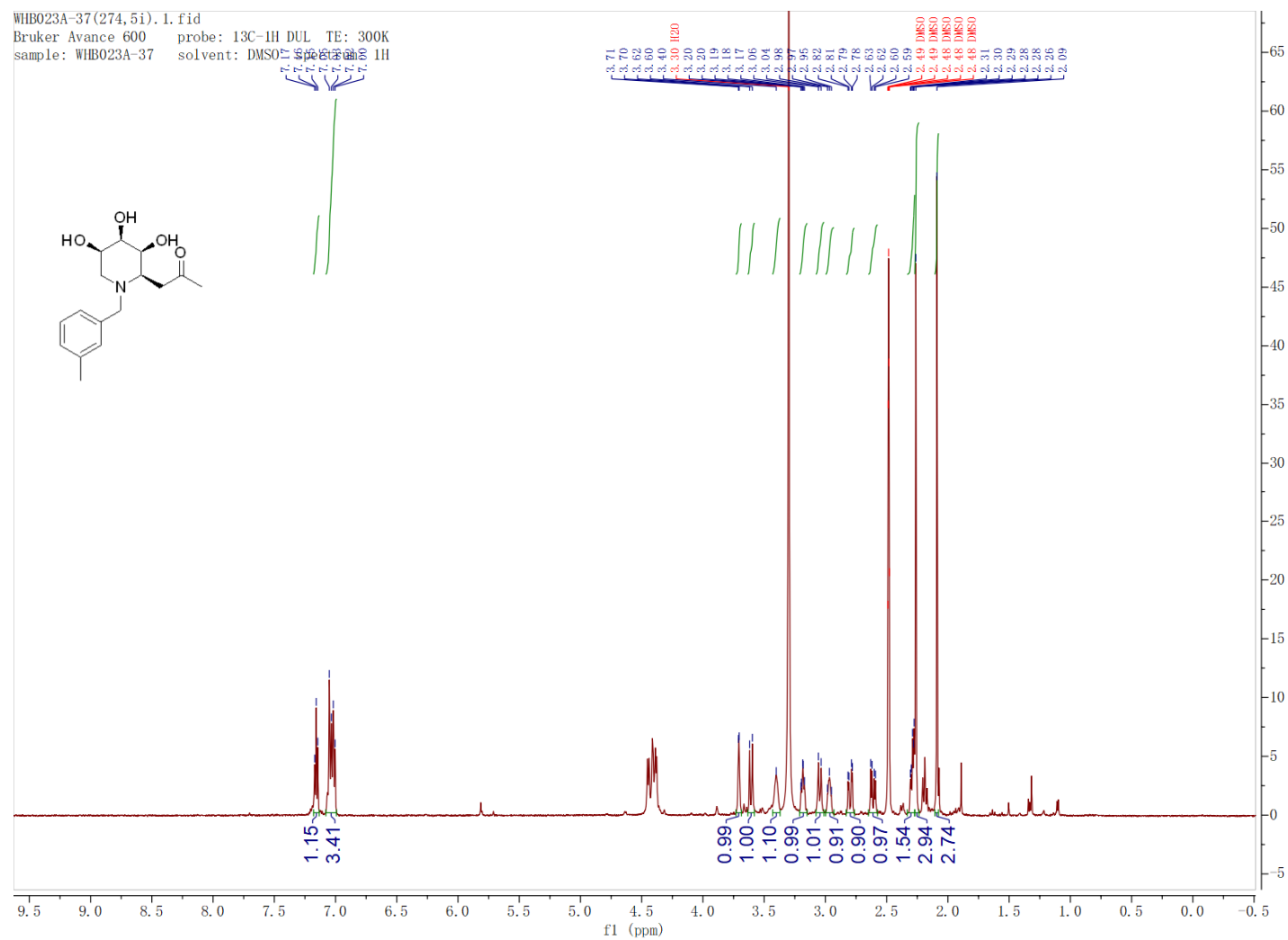
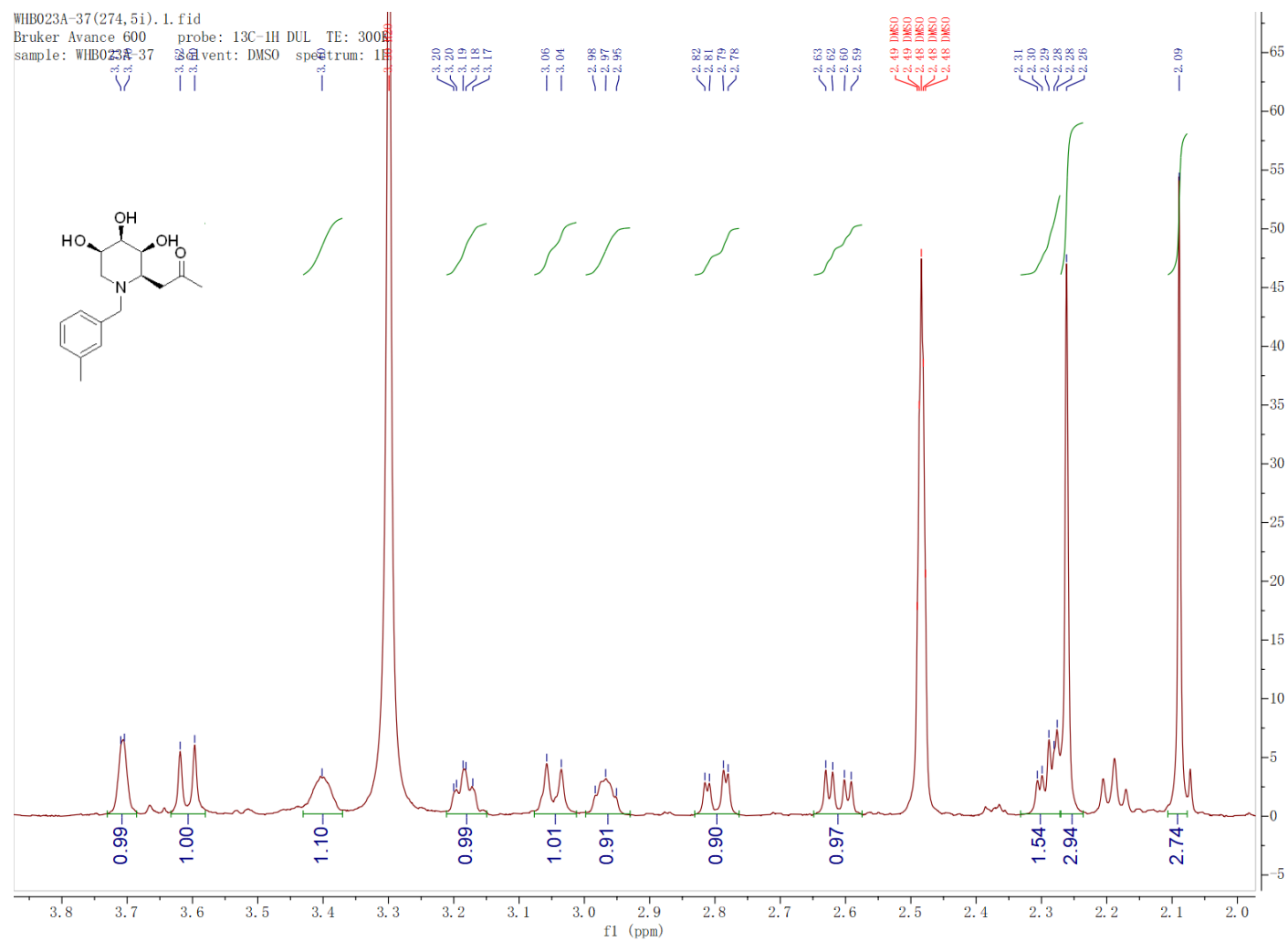


Figure S40. The  $^1\text{H}$  NMR of compound 5k.



**Figure S41.** Partial region amplification of the  $^1\text{H}$  NMR of compound **5k**.

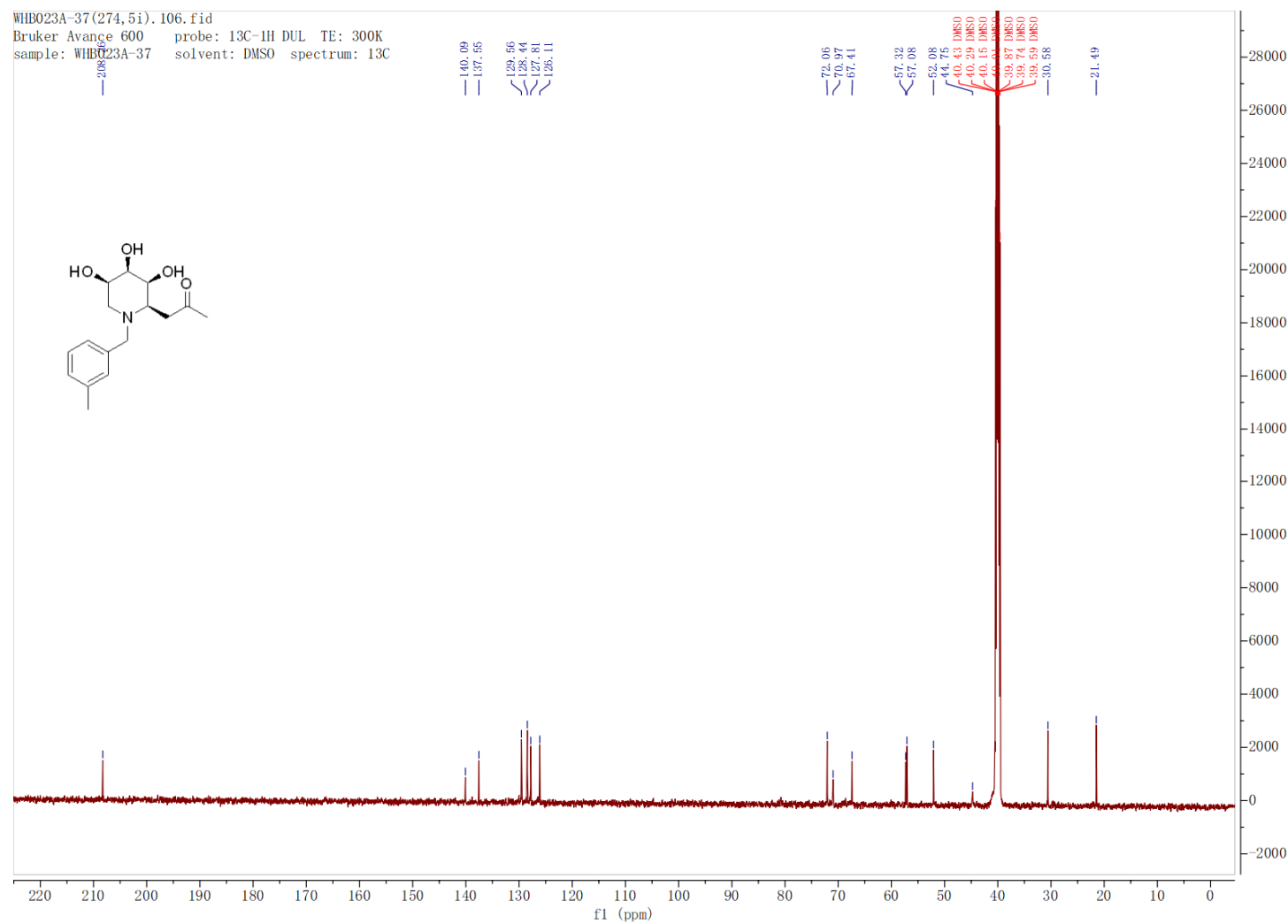


Figure S42. The  $^{13}\text{C}$  NMR of compound 5k.

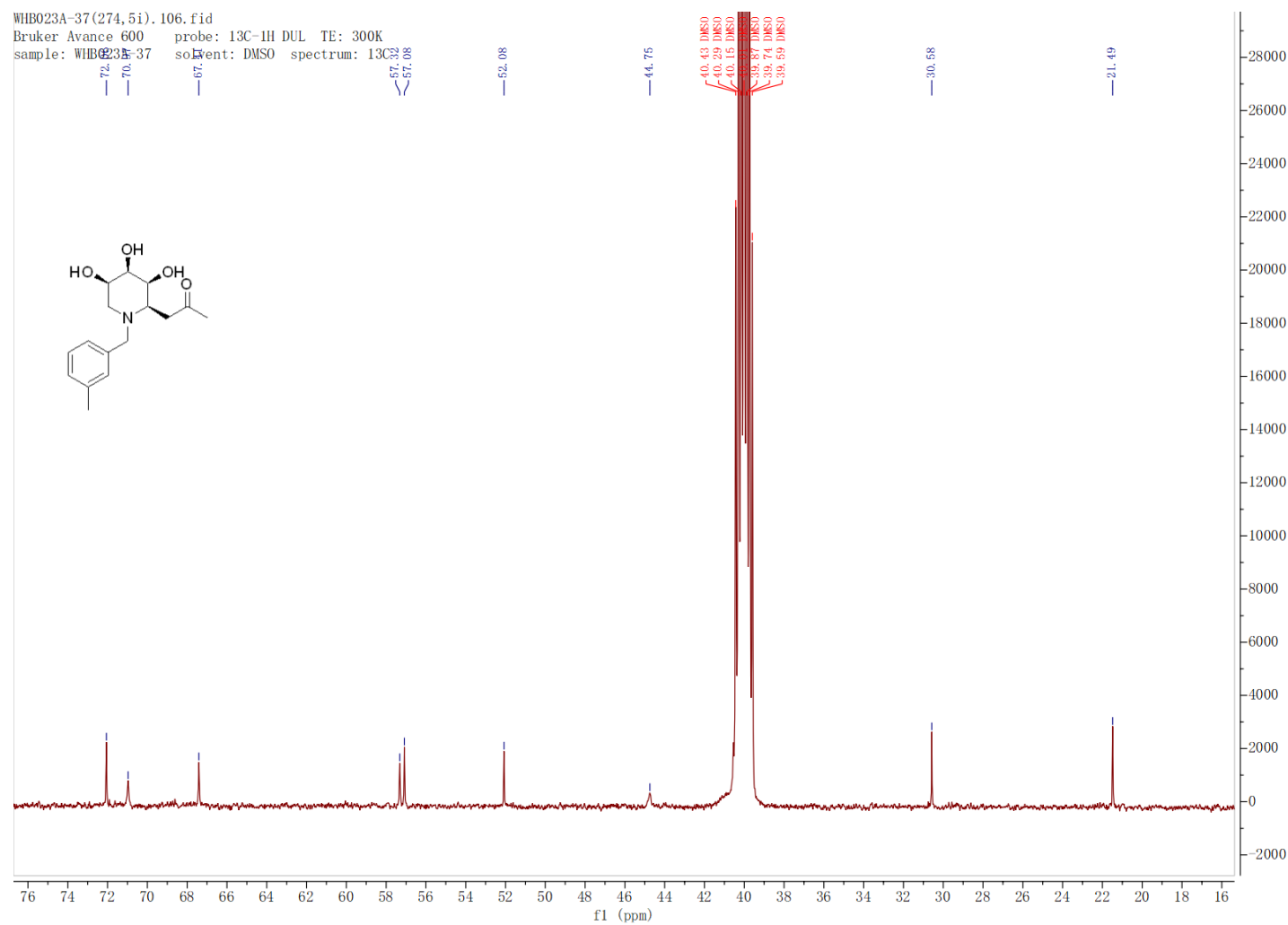


Figure S43. Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5k**.



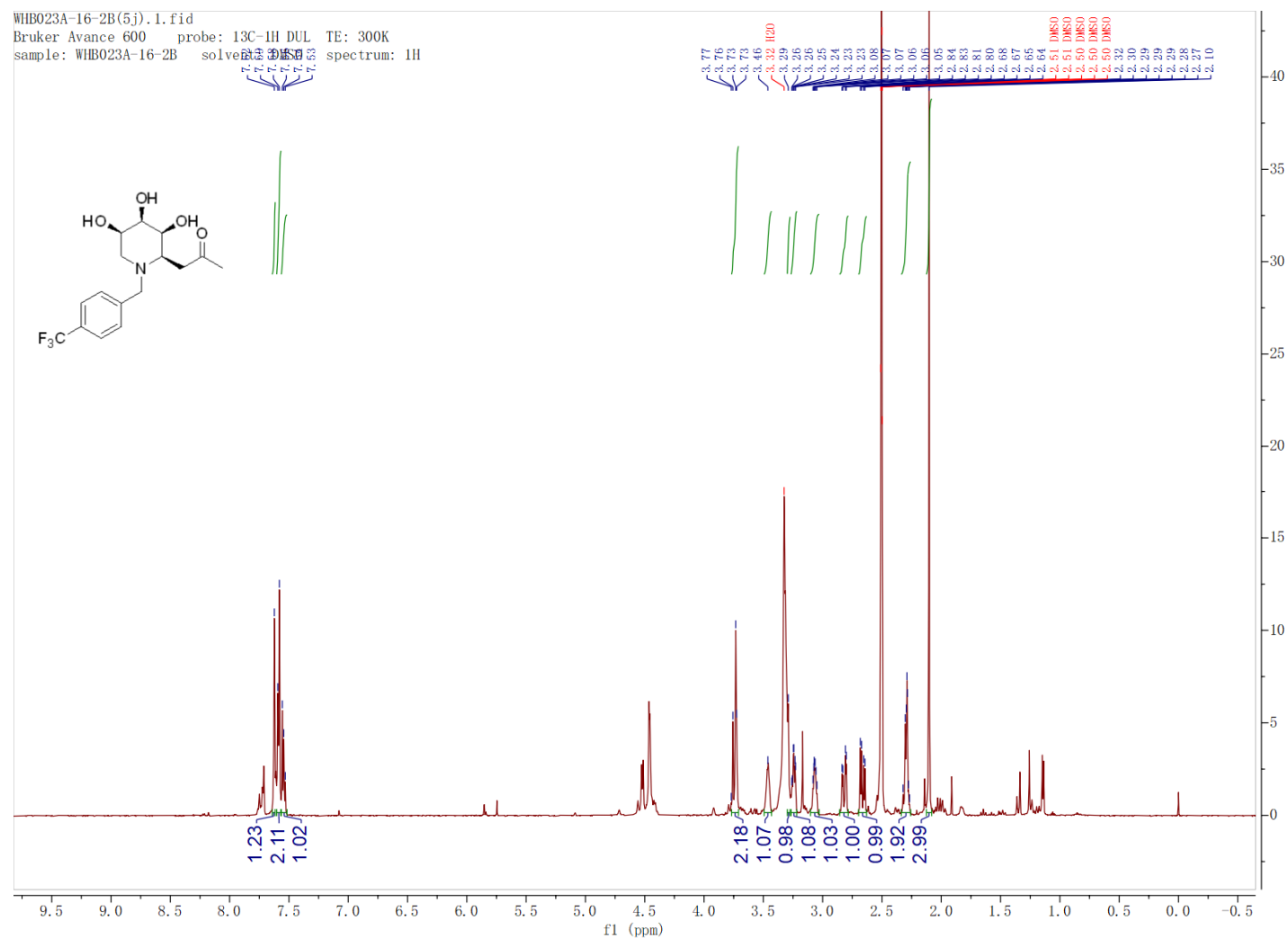
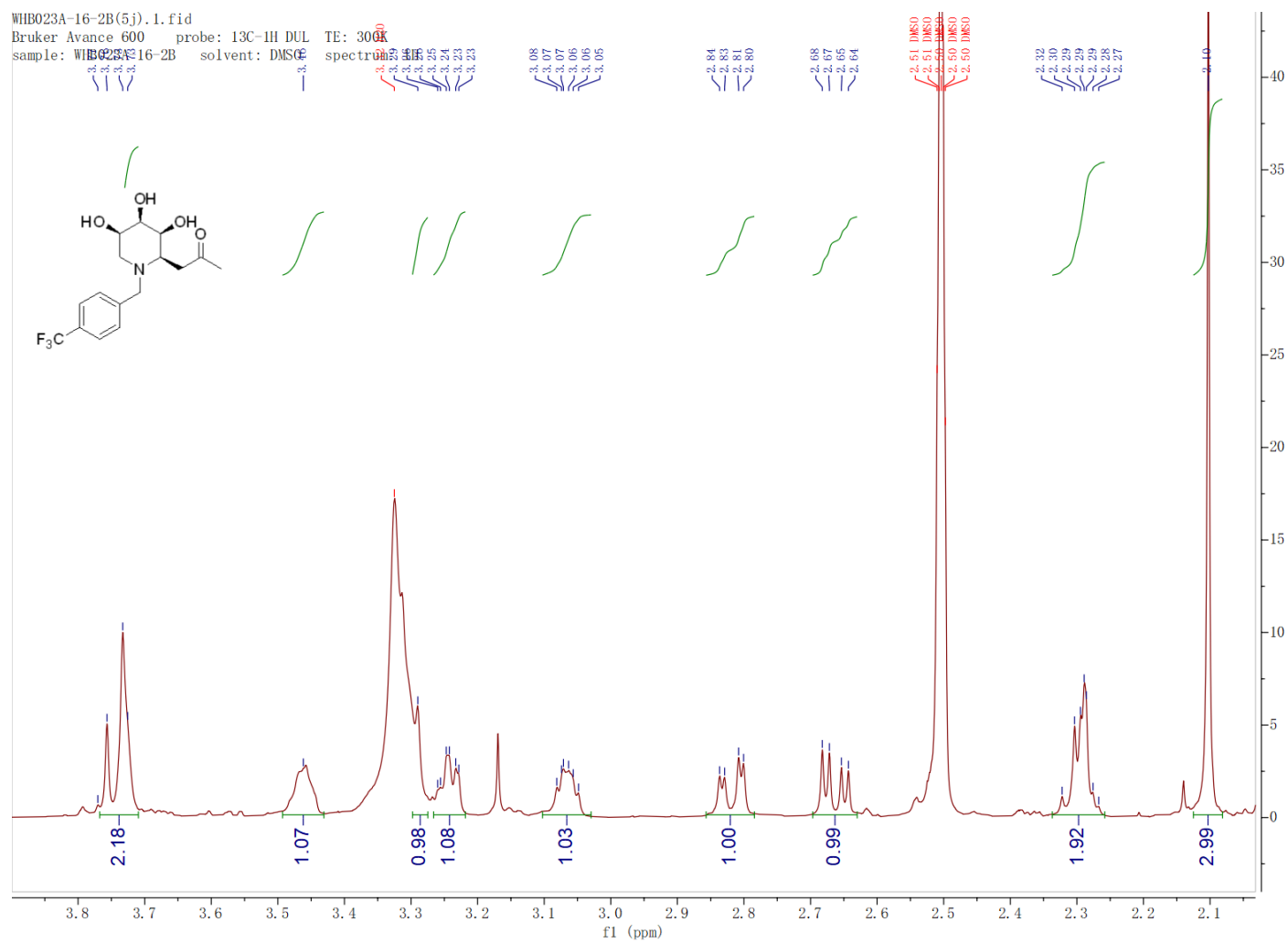


Figure S44. The  $^1\text{H}$  NMR of compound 51.



**Figure S45.** Partial region amplification of the  $^1\text{H}$  NMR of compound **51**.

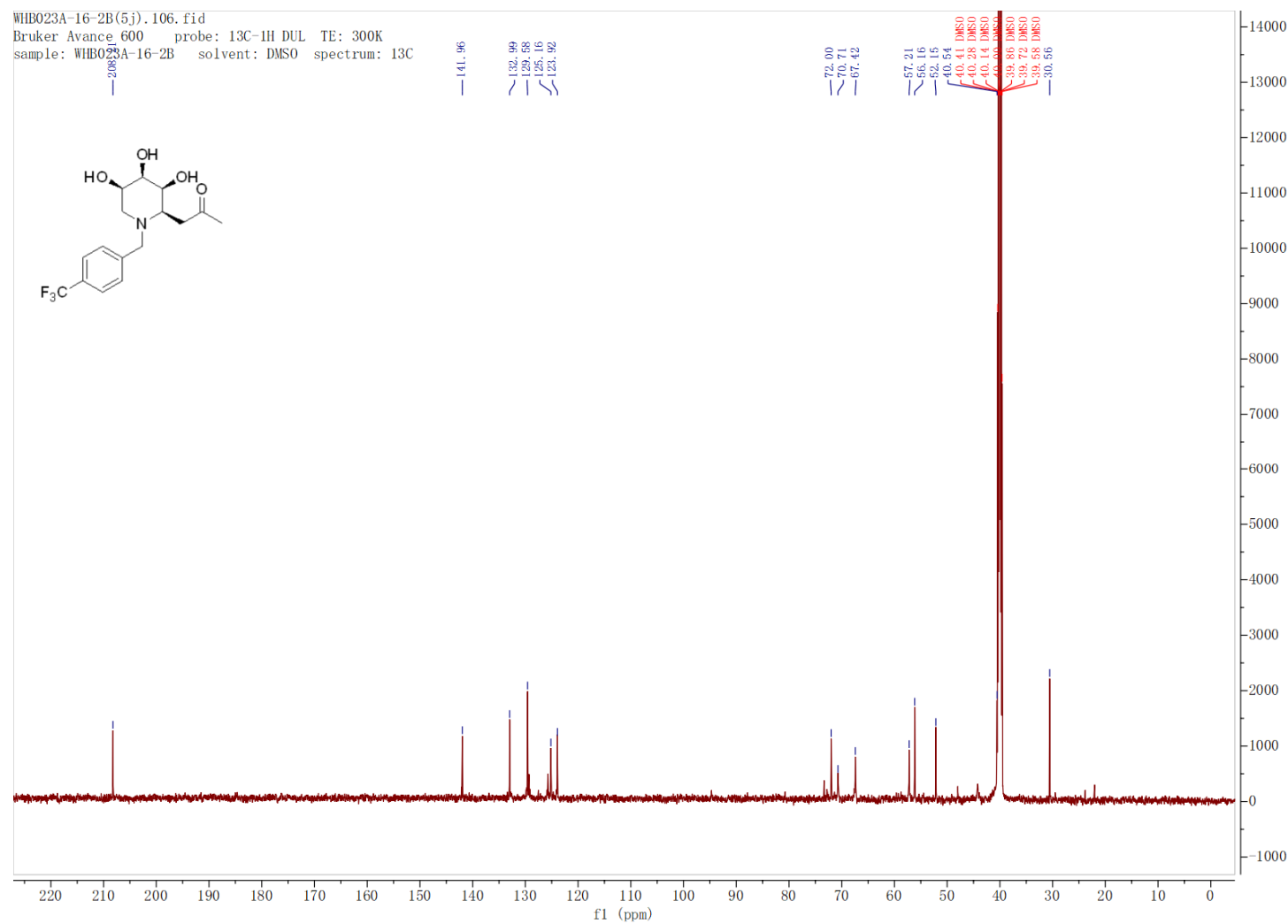
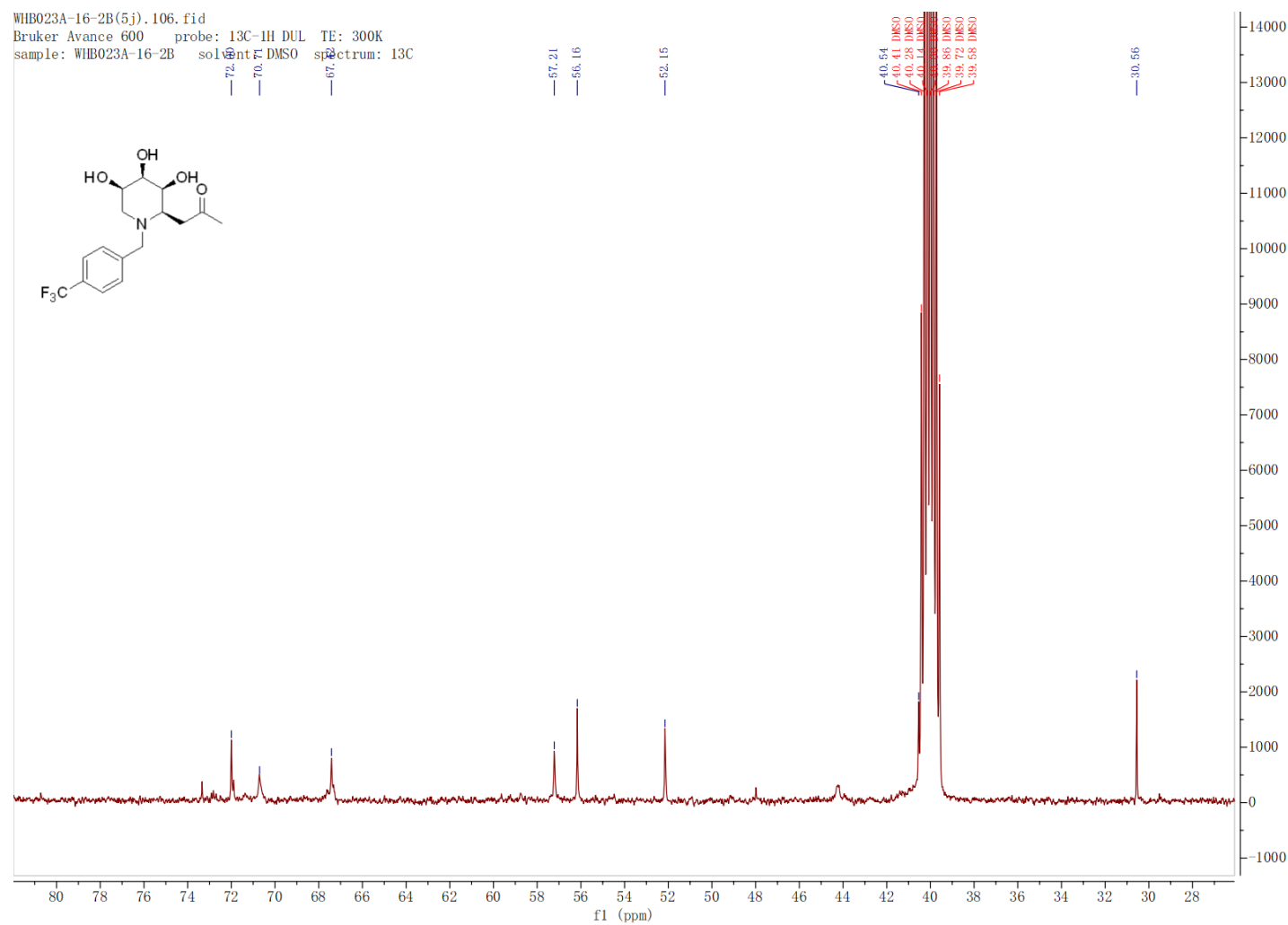


Figure S46. The  $^{13}\text{C}$  NMR of compound 51.



**Figure S47.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **51**.

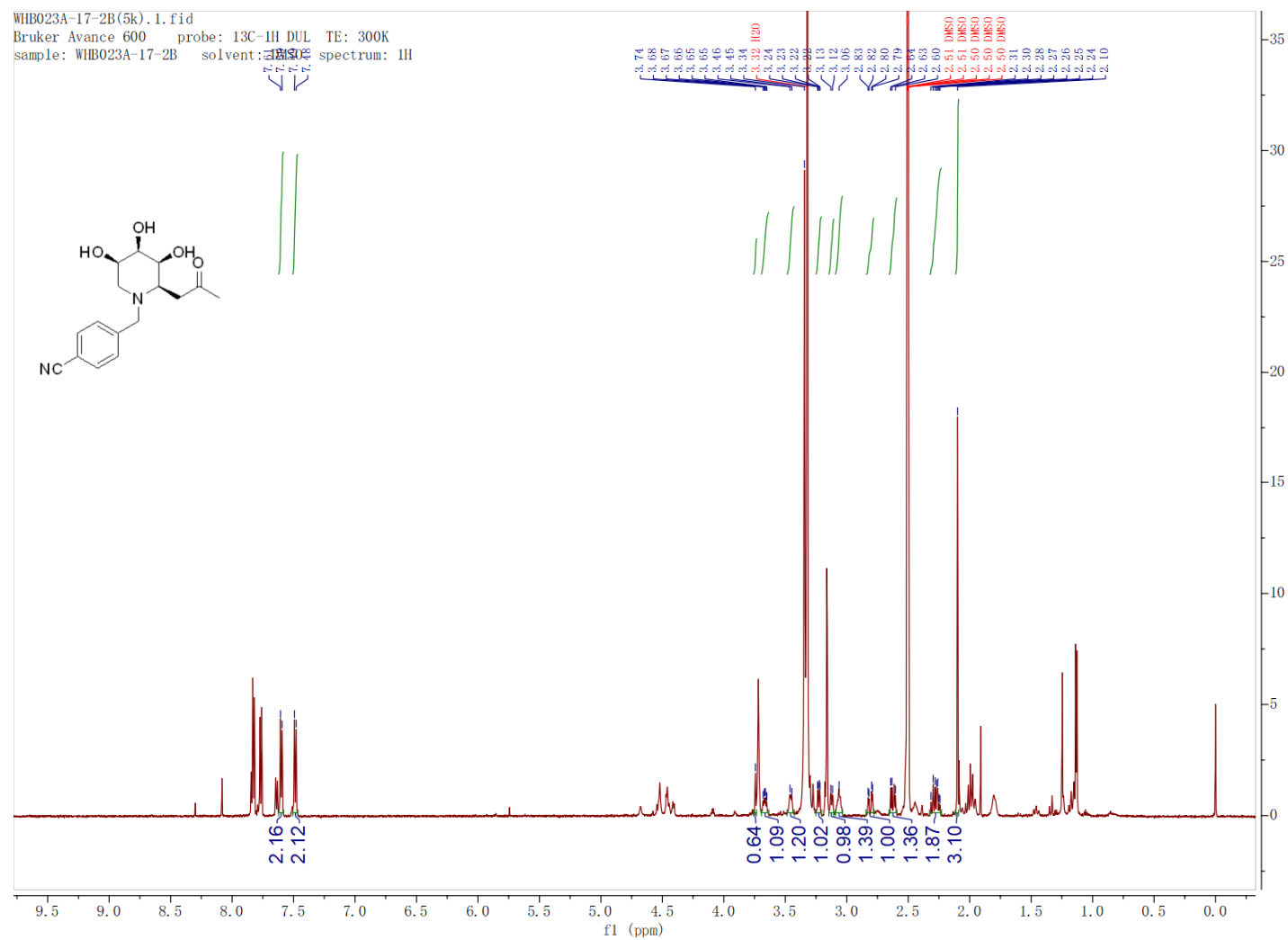
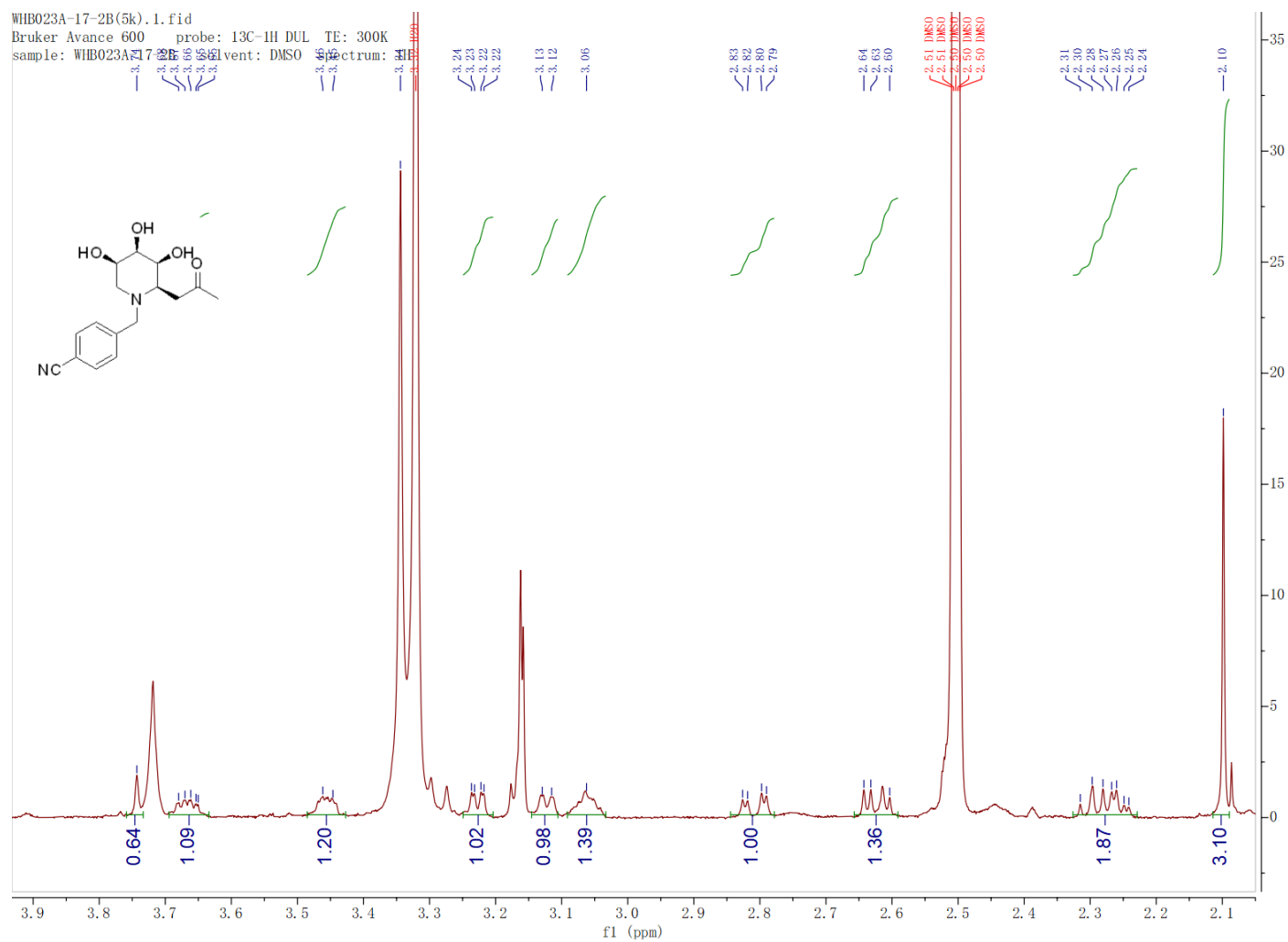


Figure S48. The  $^1\text{H}$  NMR of compound 5m.



**Figure S49.** Partial region amplification of the  $^1\text{H}$  NMR of compound **5m**.

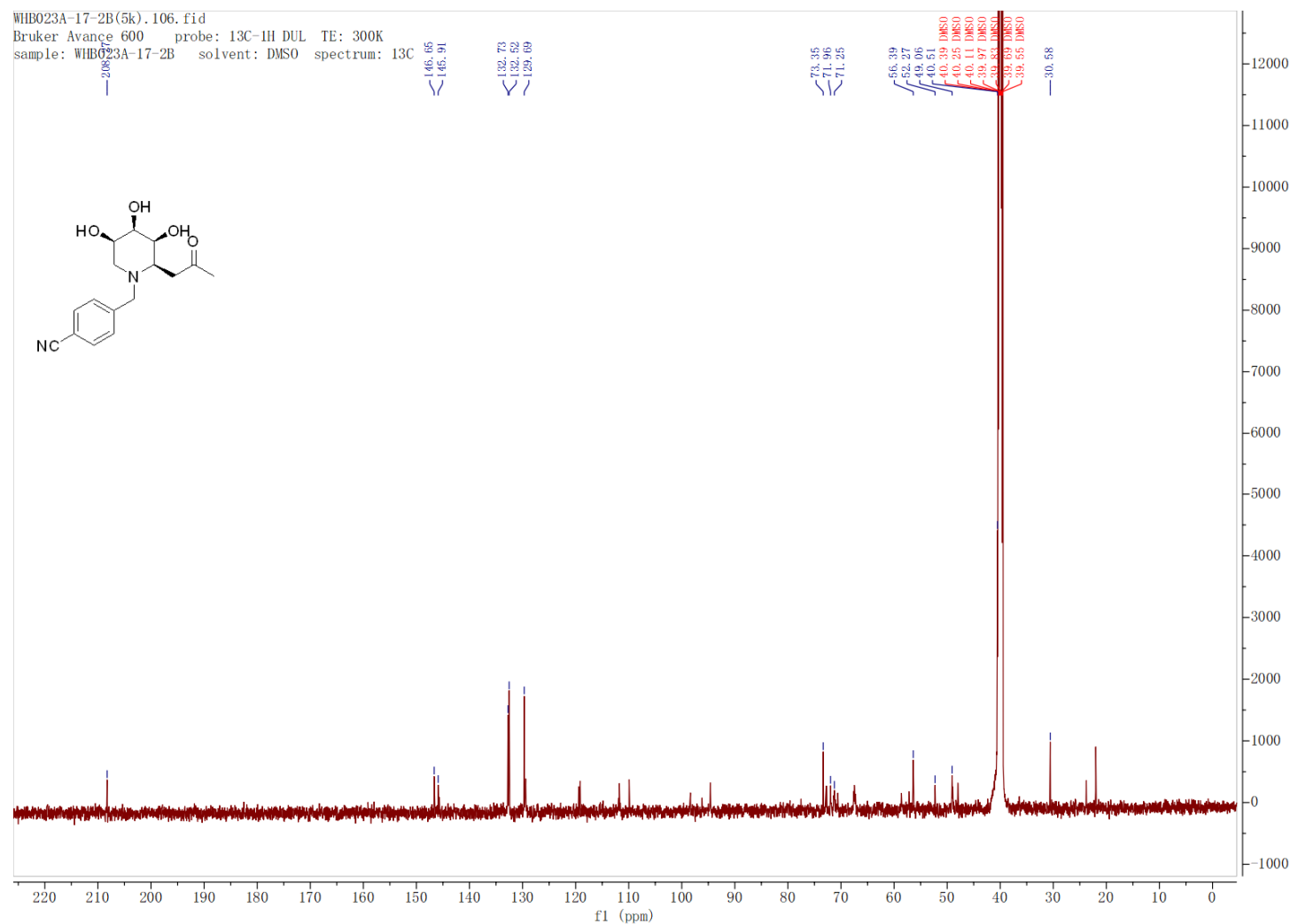
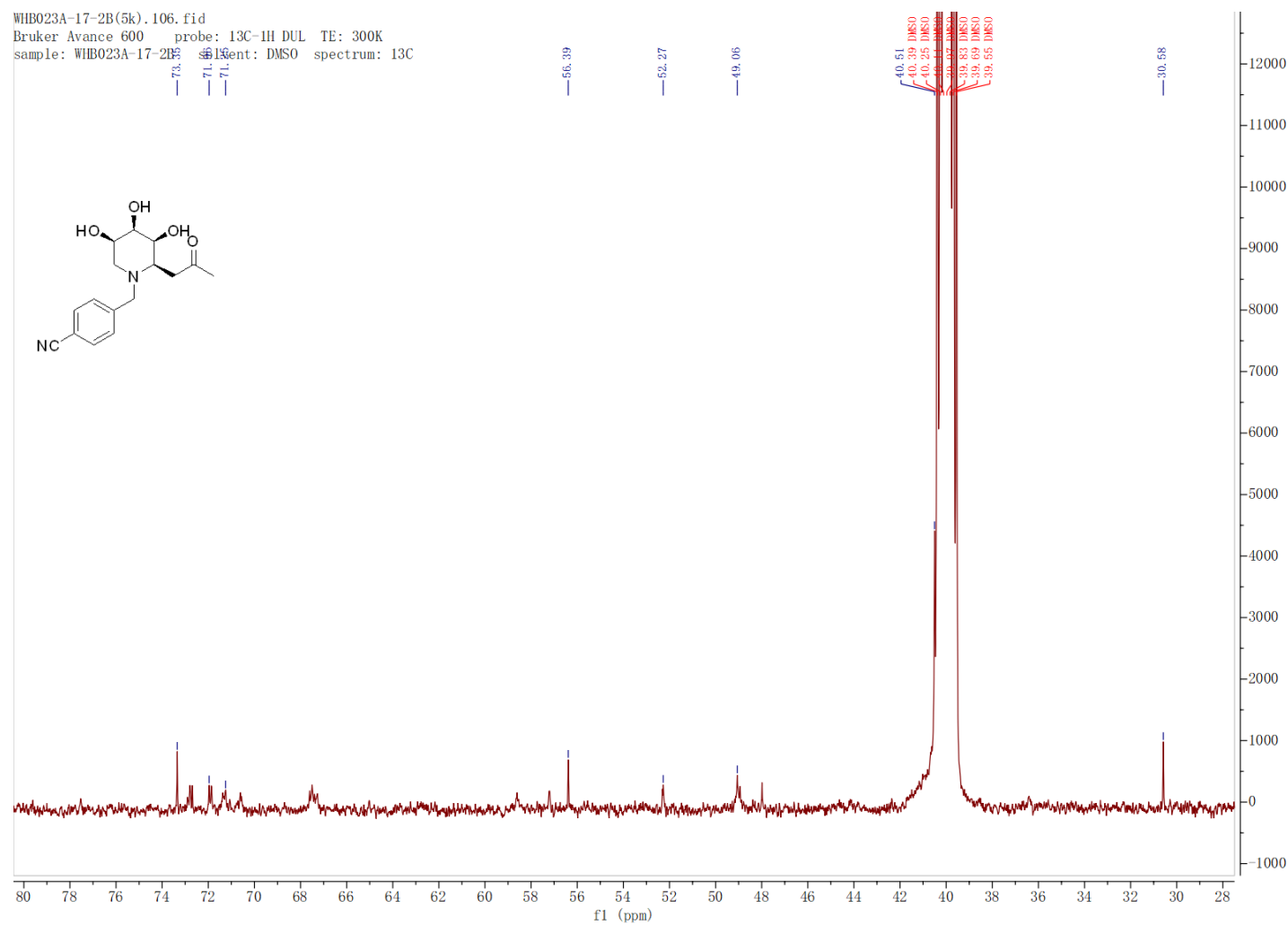


Figure S50. The  $^{13}\text{C}$  NMR of compound **5m**.



**Figure S51.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5m**.



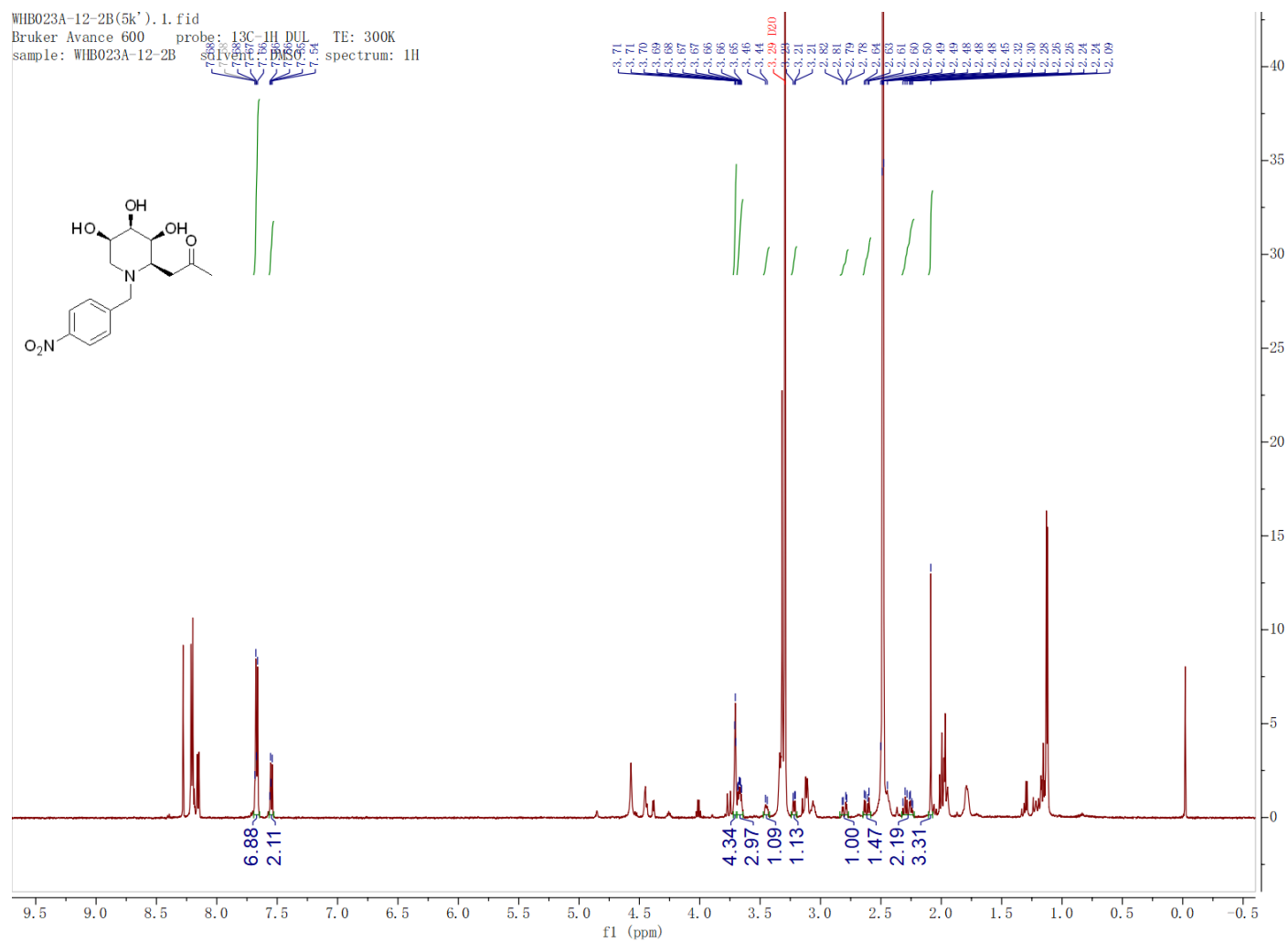


Figure S52. The  $^1\text{H}$  NMR of compound 5n.

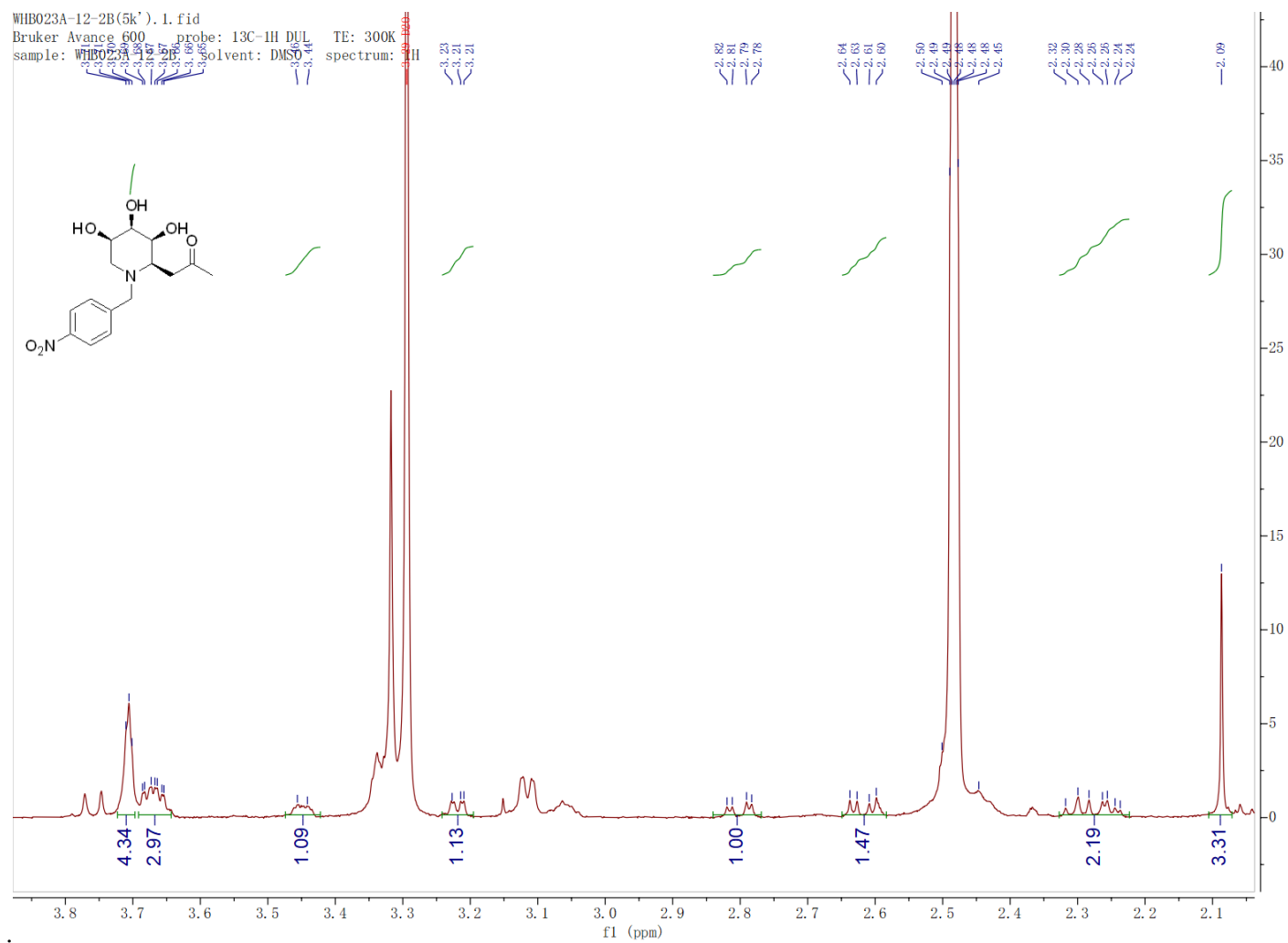


Figure S53. Partial region amplification of the  $^1\text{H}$  NMR of compound **5n**.

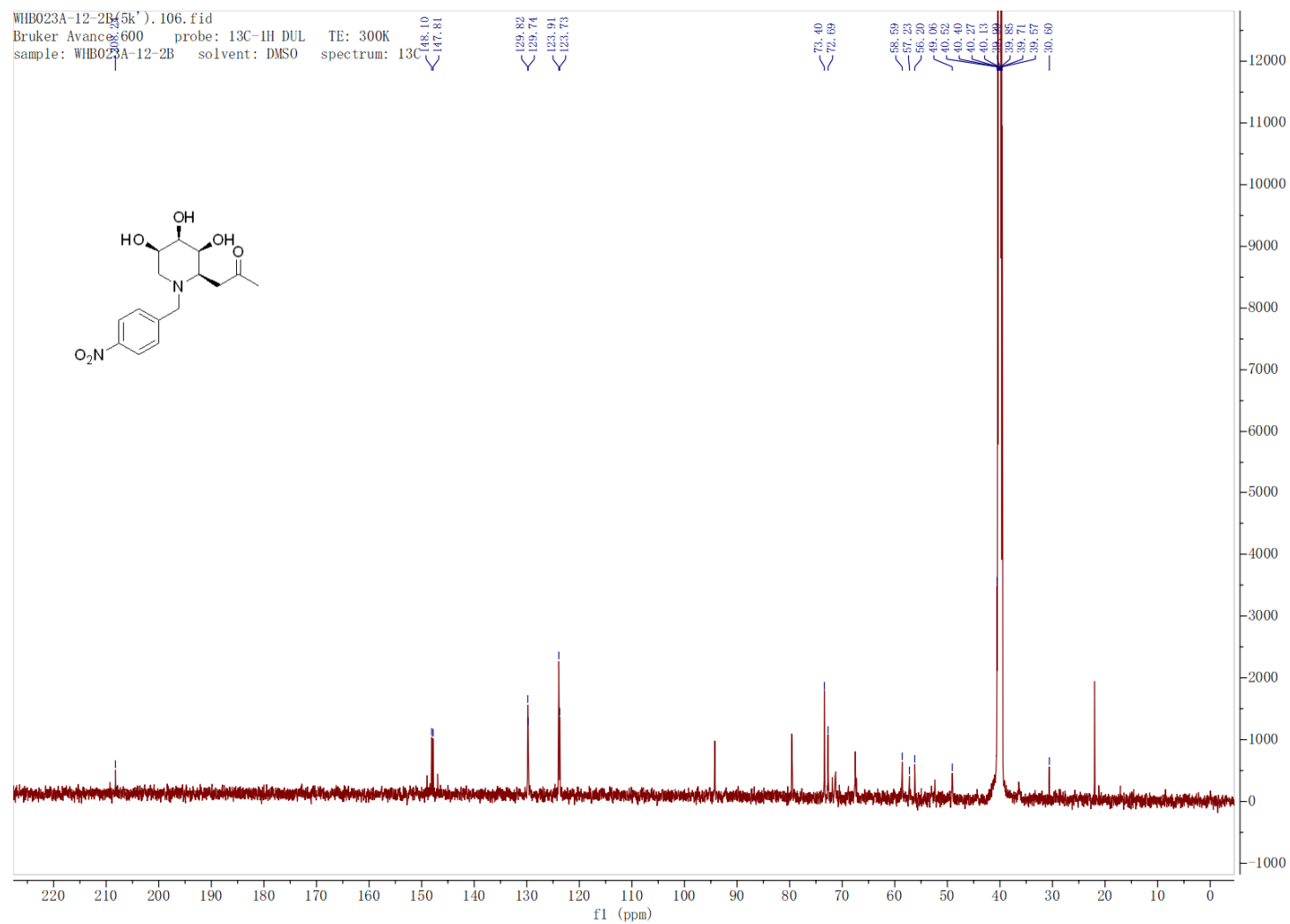


Figure S54. The  $^{13}\text{C}$  NMR of compound 5n.

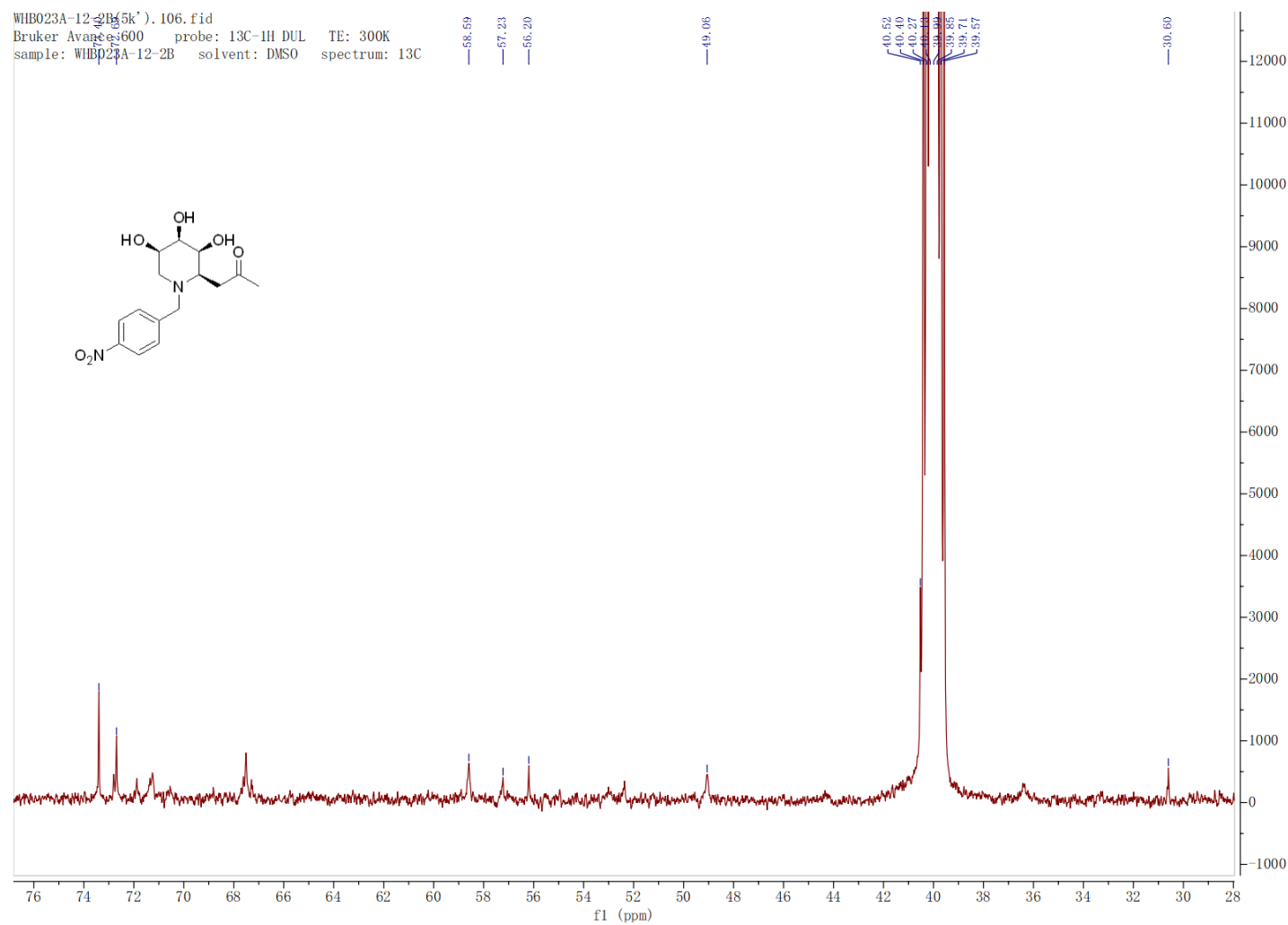
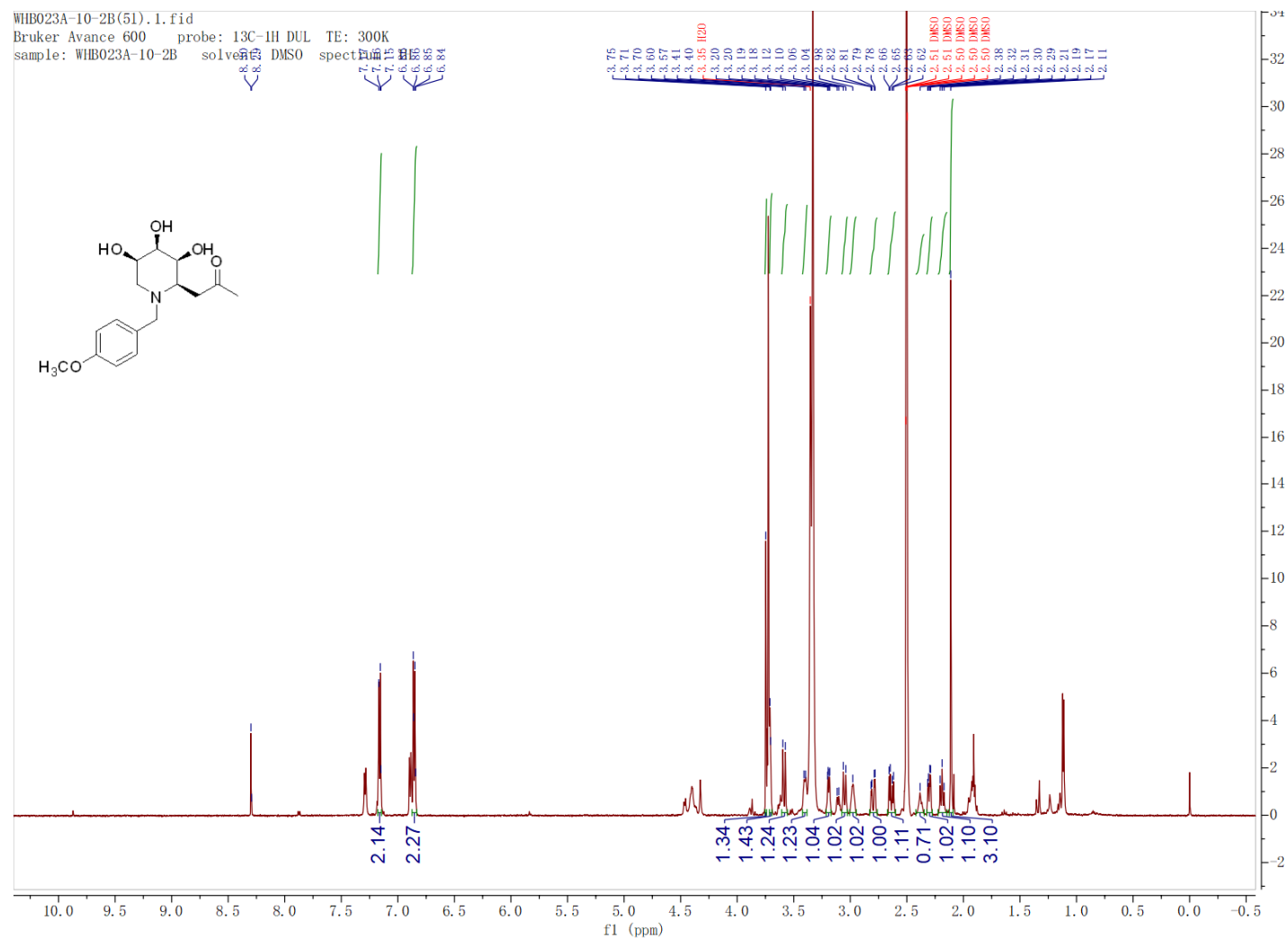


Figure S55. Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5n**.



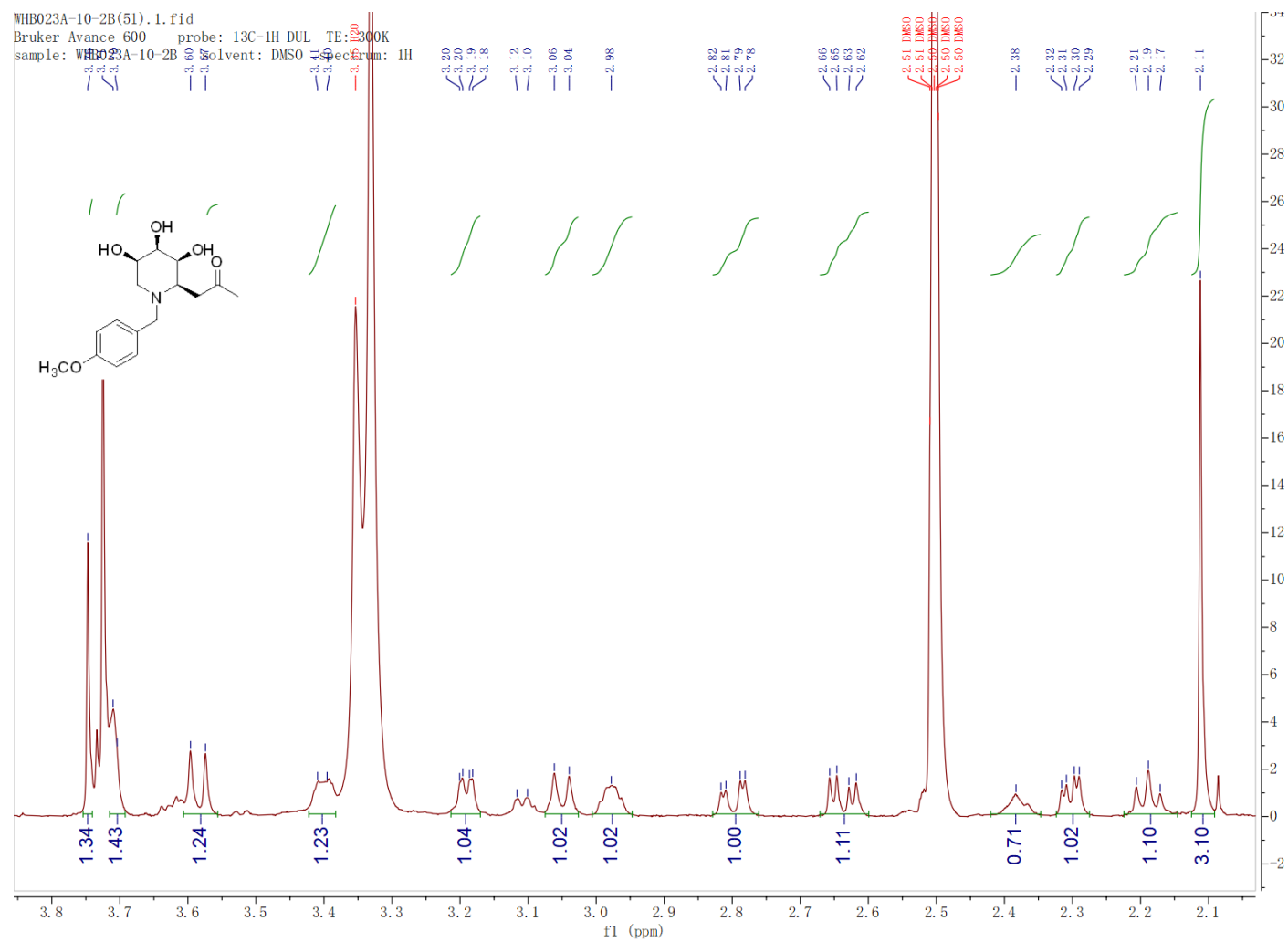


Figure S57. Partial region amplification of the  $^1\text{H}$  NMR of compound 5o.

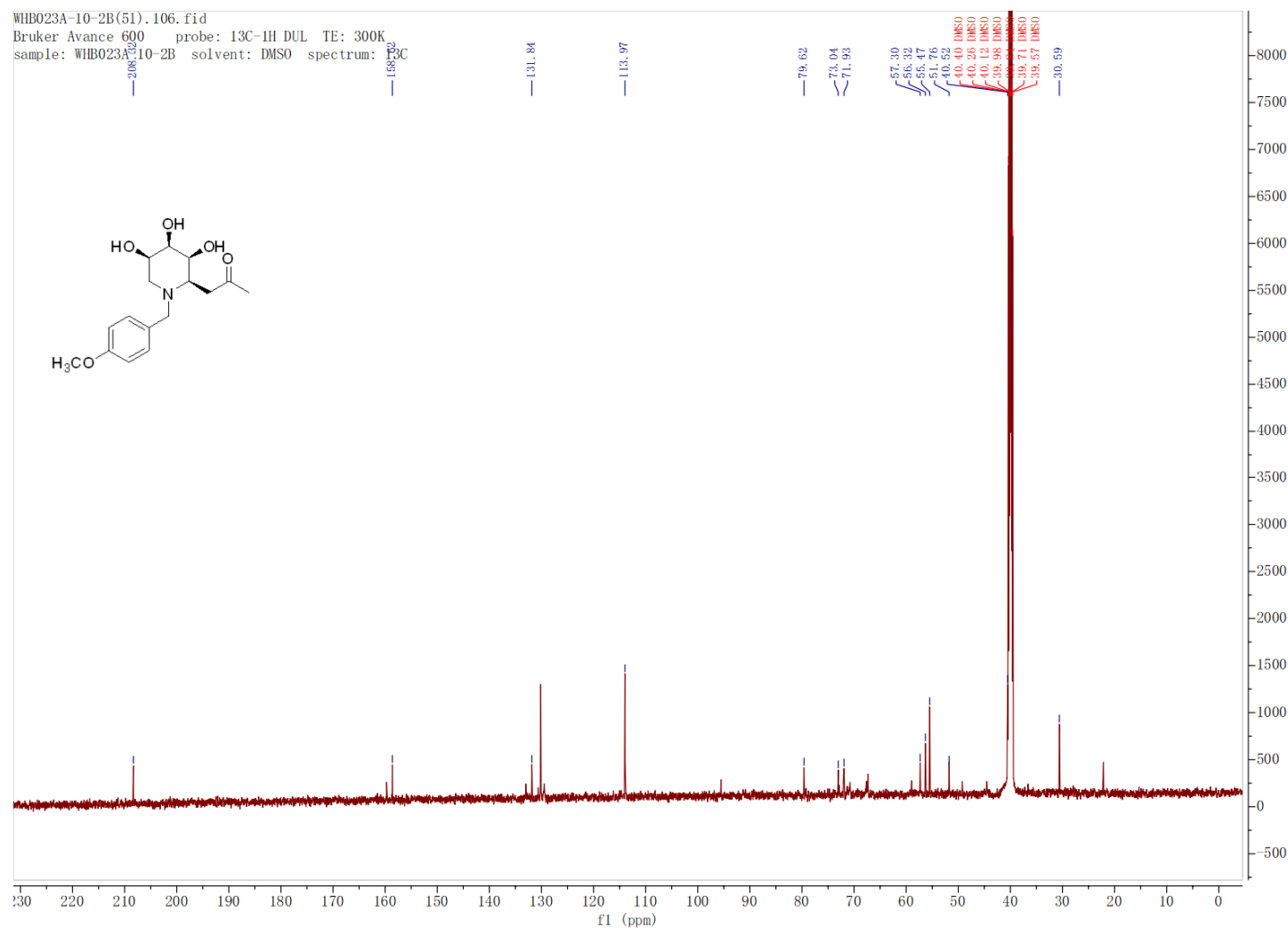
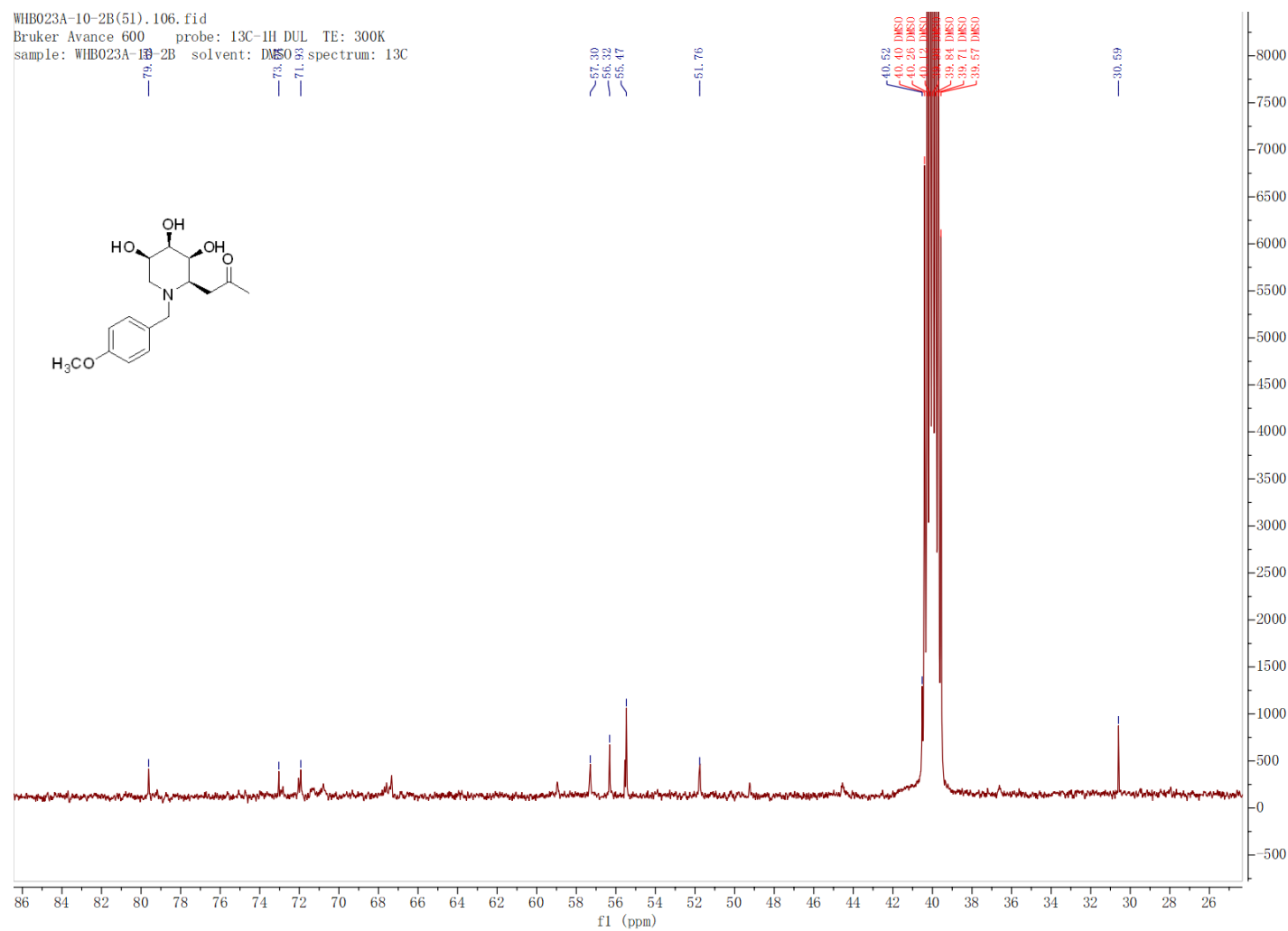


Figure S58. The  $^{13}\text{C}$  NMR of compound **5o**.



**Figure S59.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5o**.



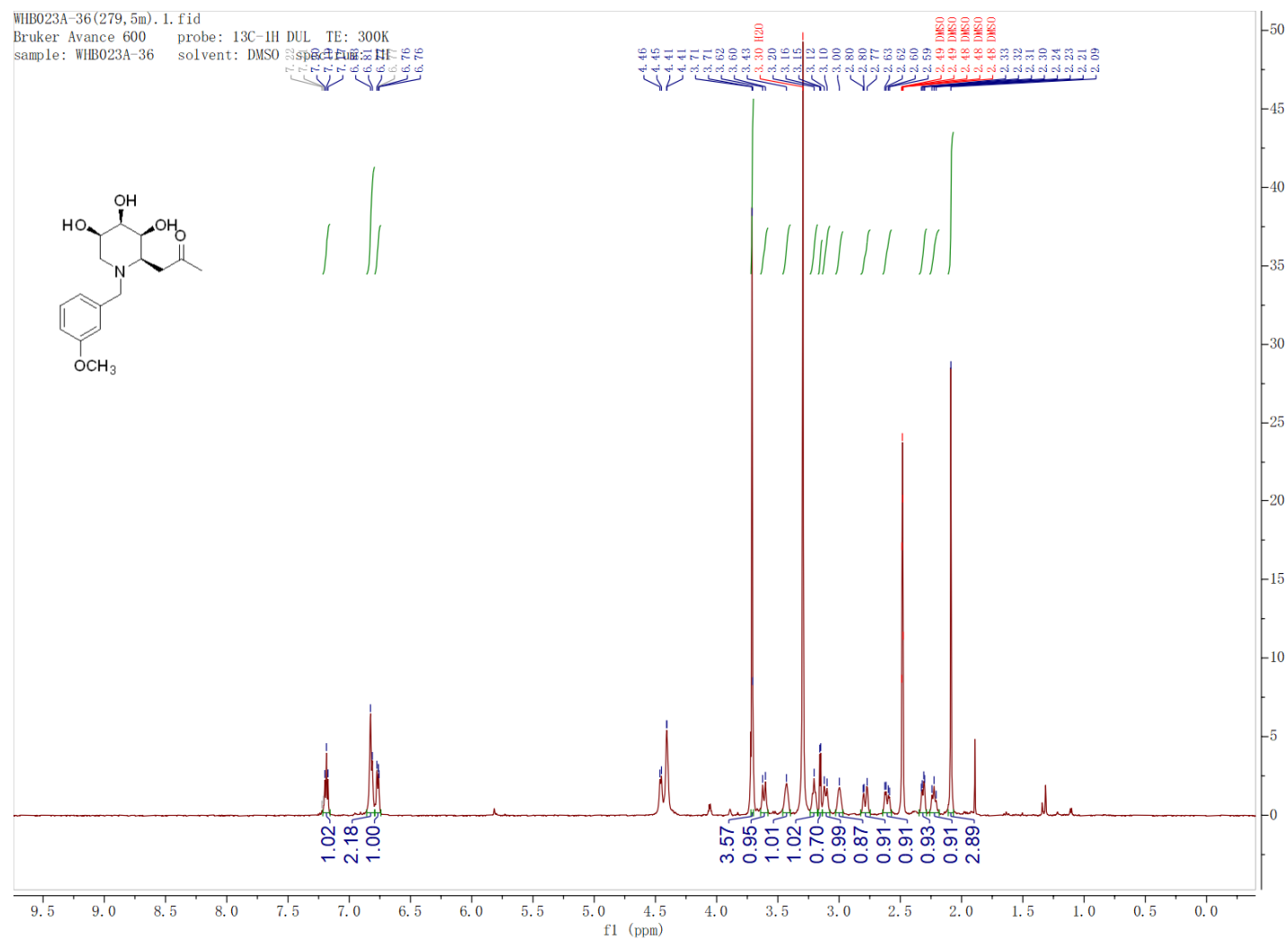
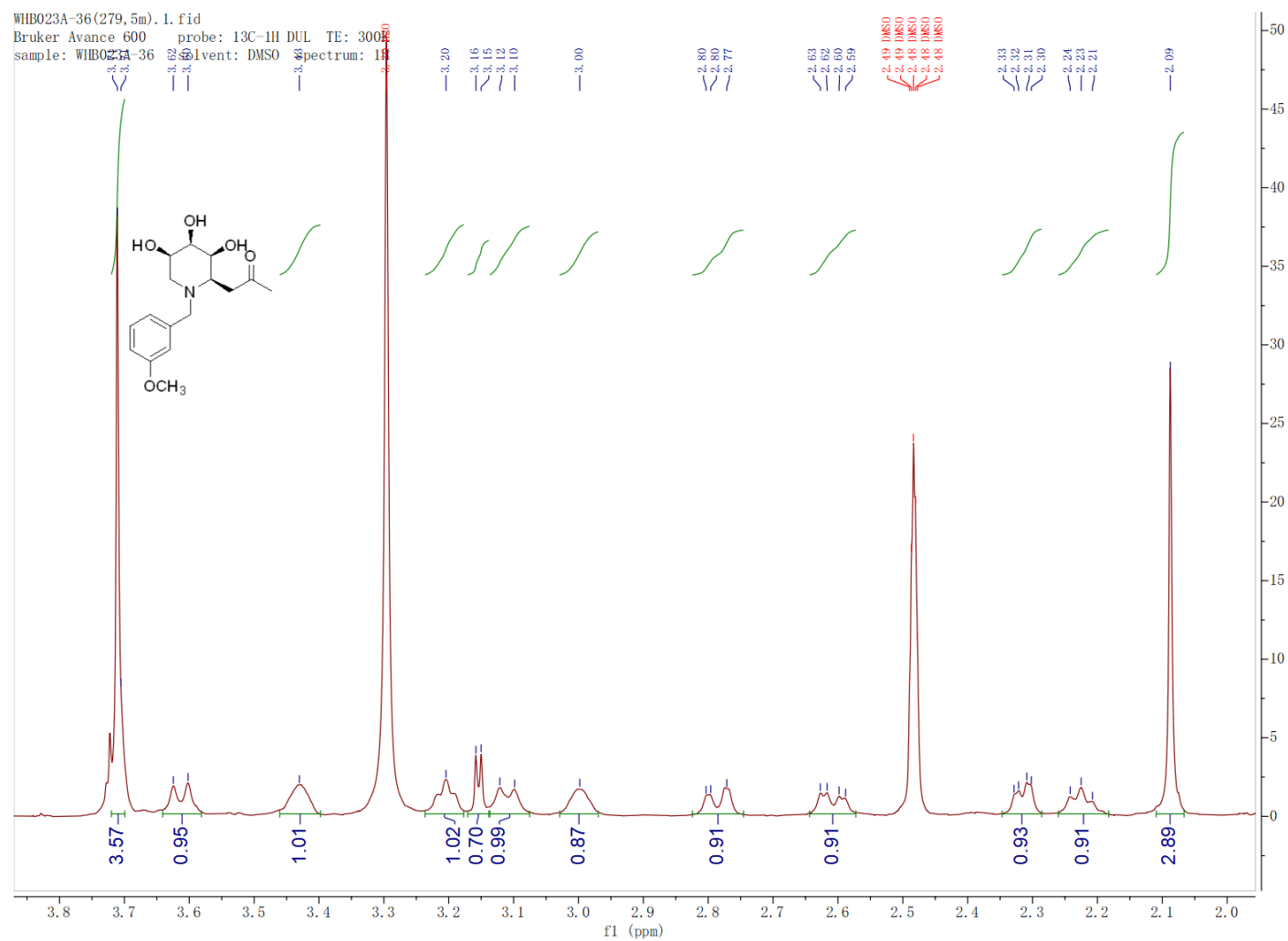


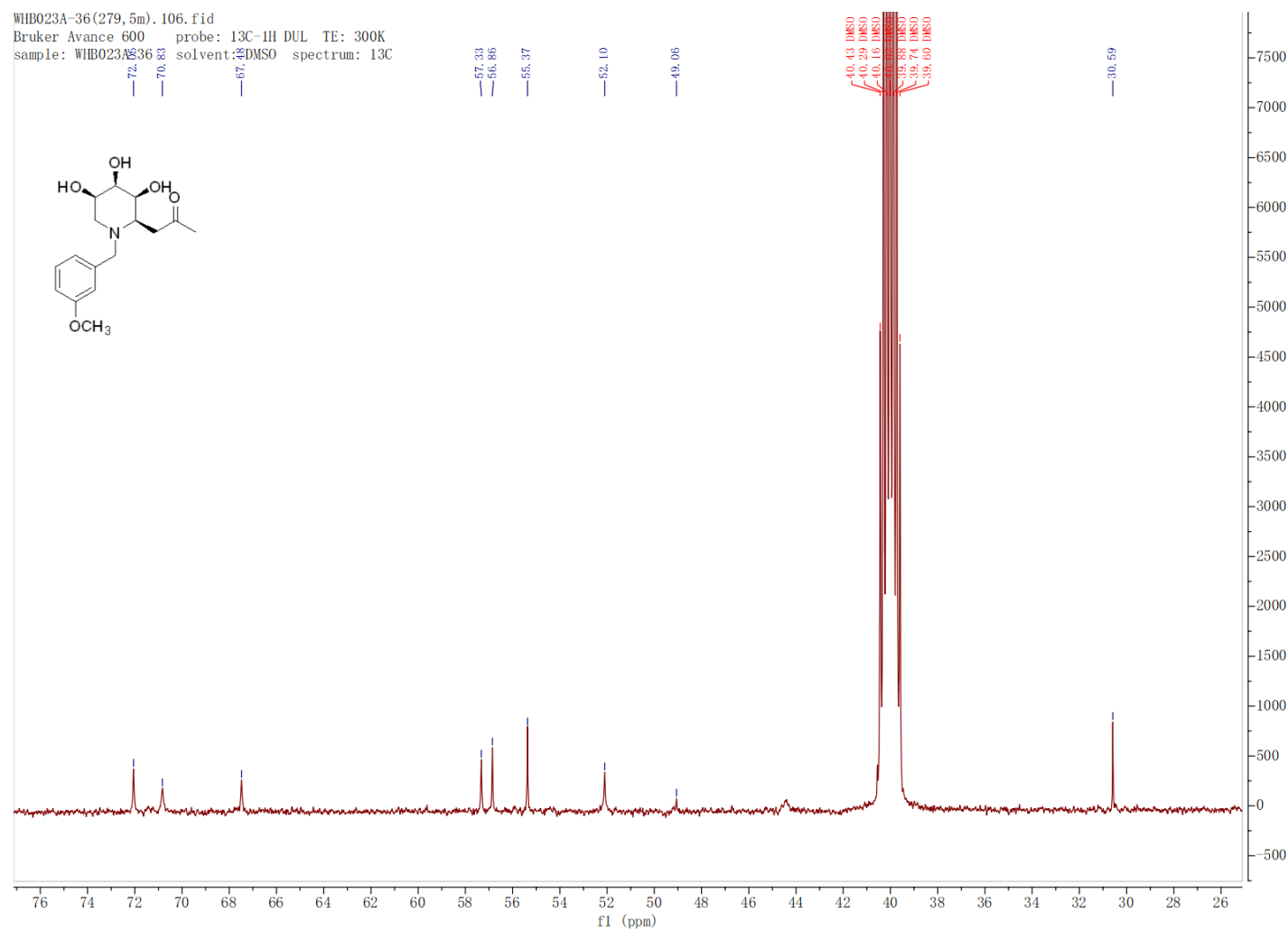
Figure S60. The  $^1\text{H}$  NMR of compound 5p.



**Figure S61.** Partial region amplification of the  $^1\text{H}$  NMR of compound **5p**.



Figure S62. The  $^{13}\text{C}$  NMR of compound 5p.



**Figure S63.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5p**.

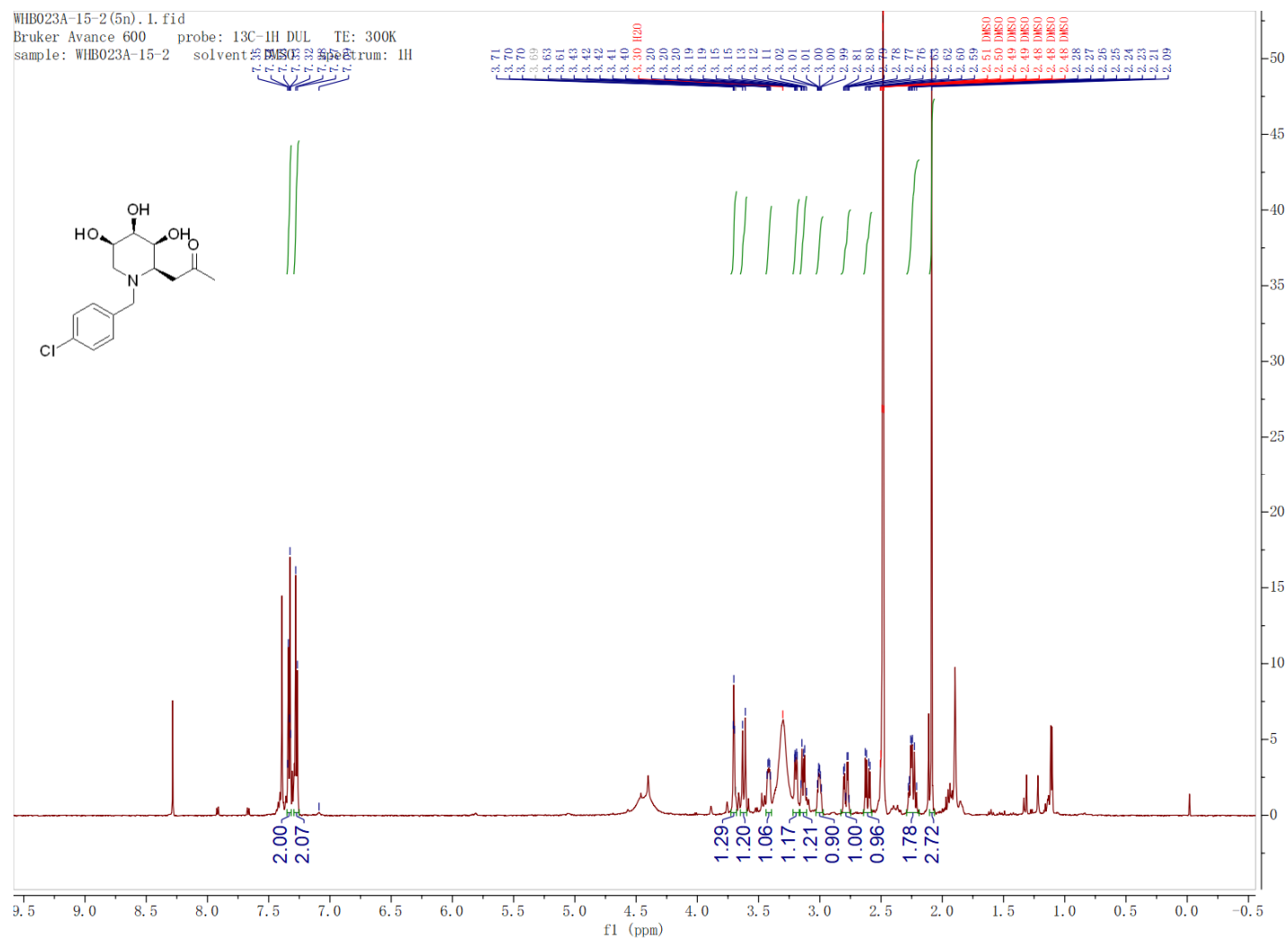


Figure S64. The  $^1\text{H}$  NMR of compound 5q.

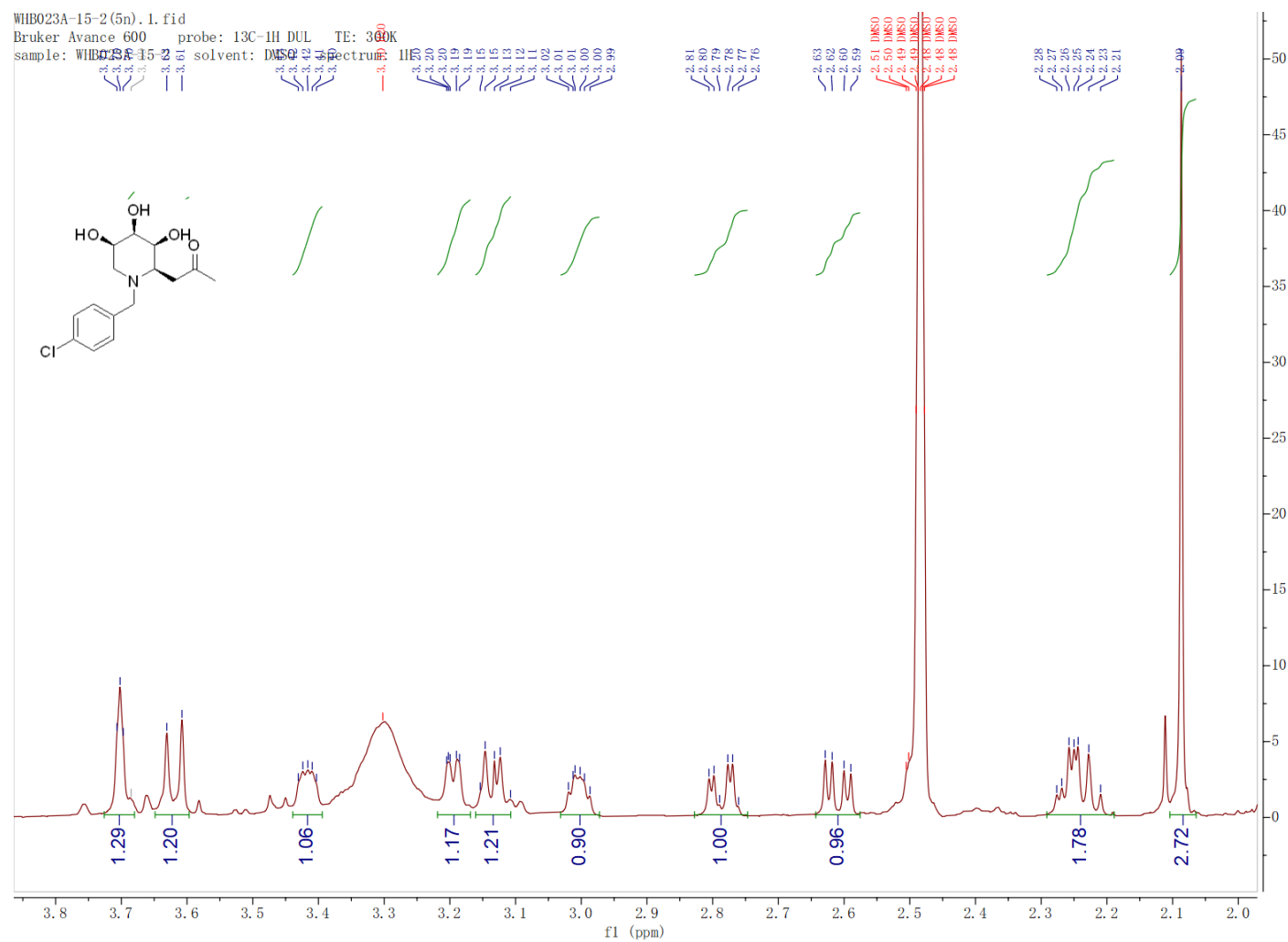


Figure S65. Partial region amplification of the <sup>1</sup>H NMR of compound 5q.

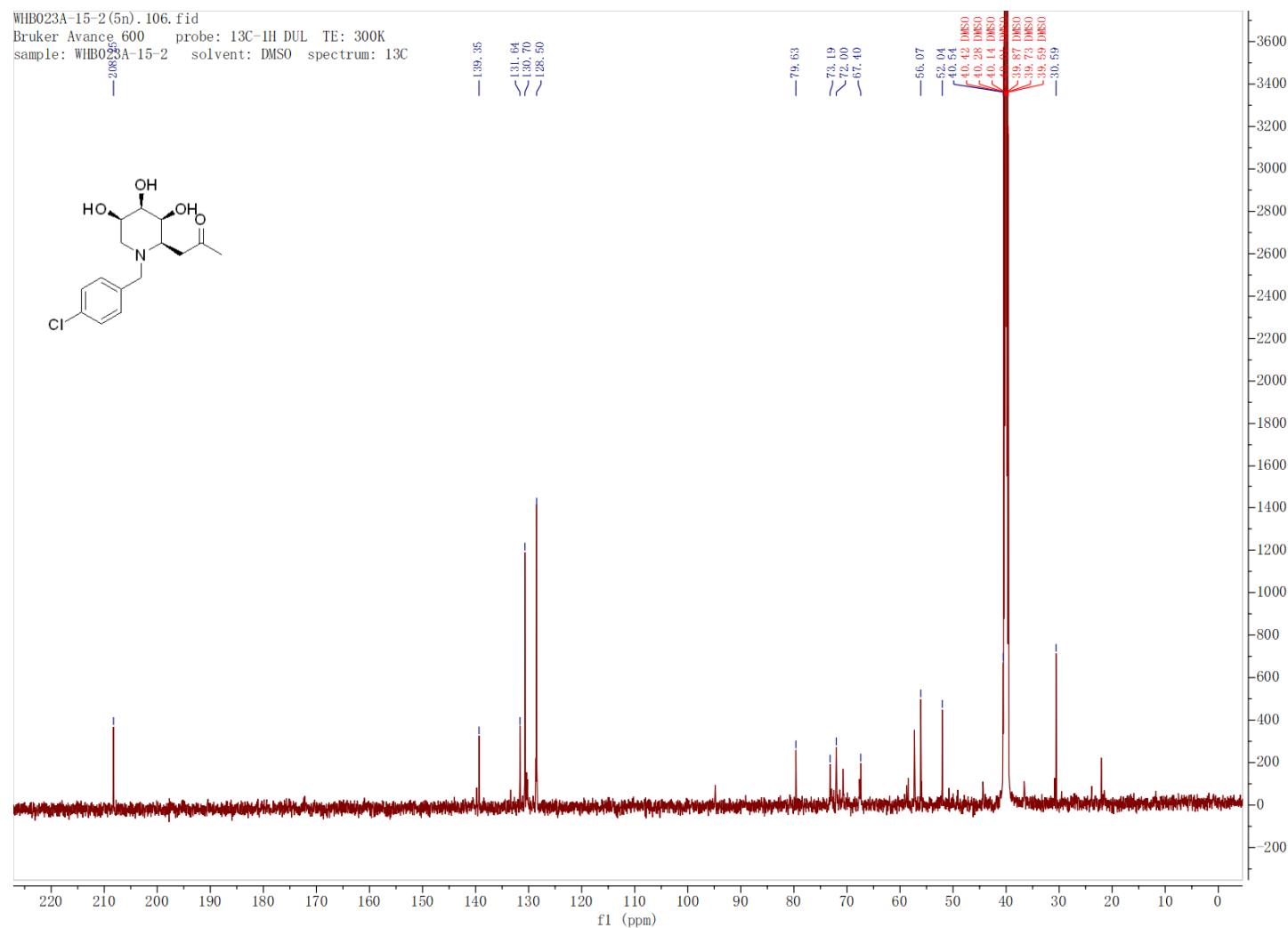


Figure S66. The  $^{13}\text{C}$  NMR of compound 5q.

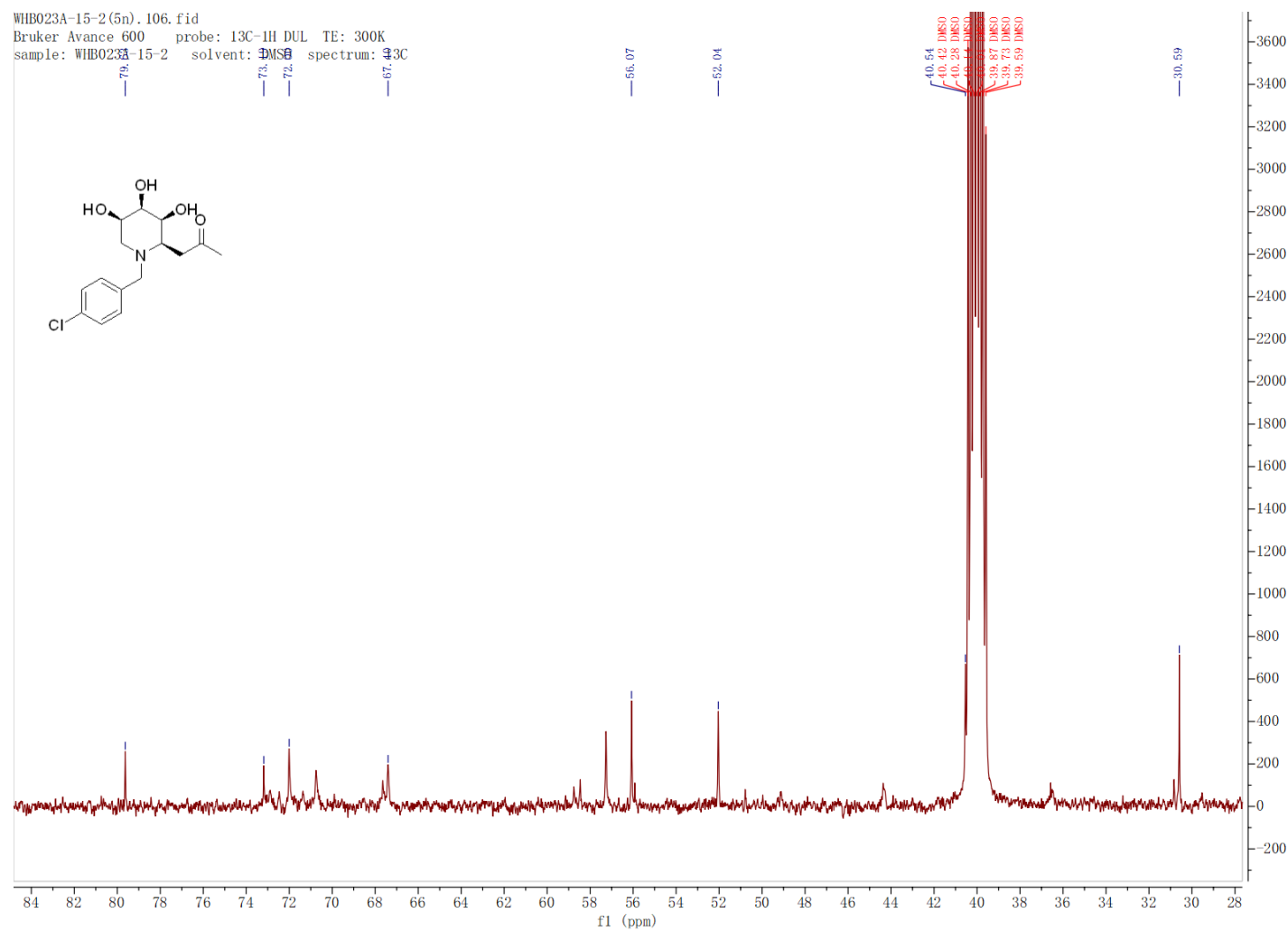


Figure S67. Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5q**.



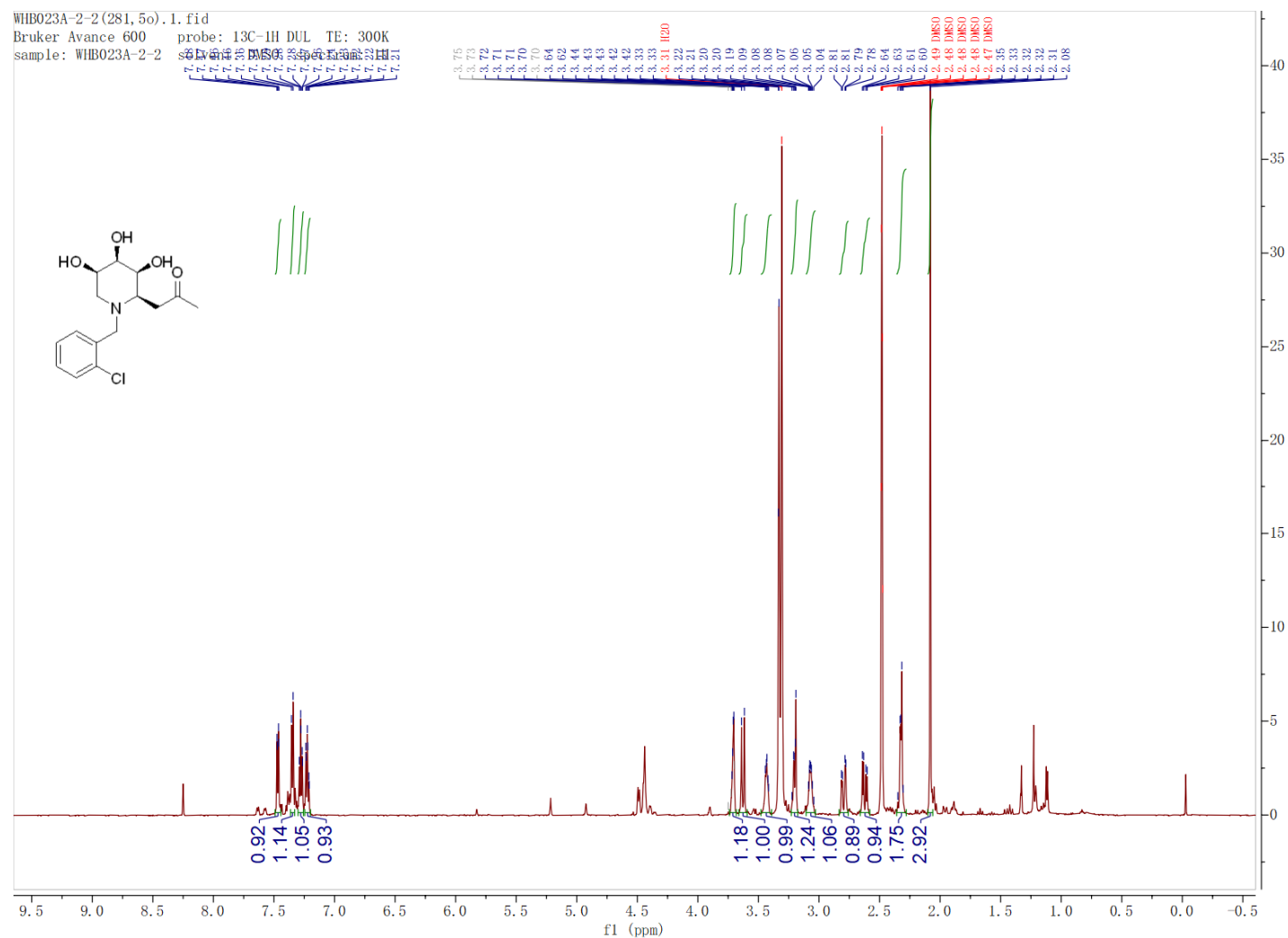
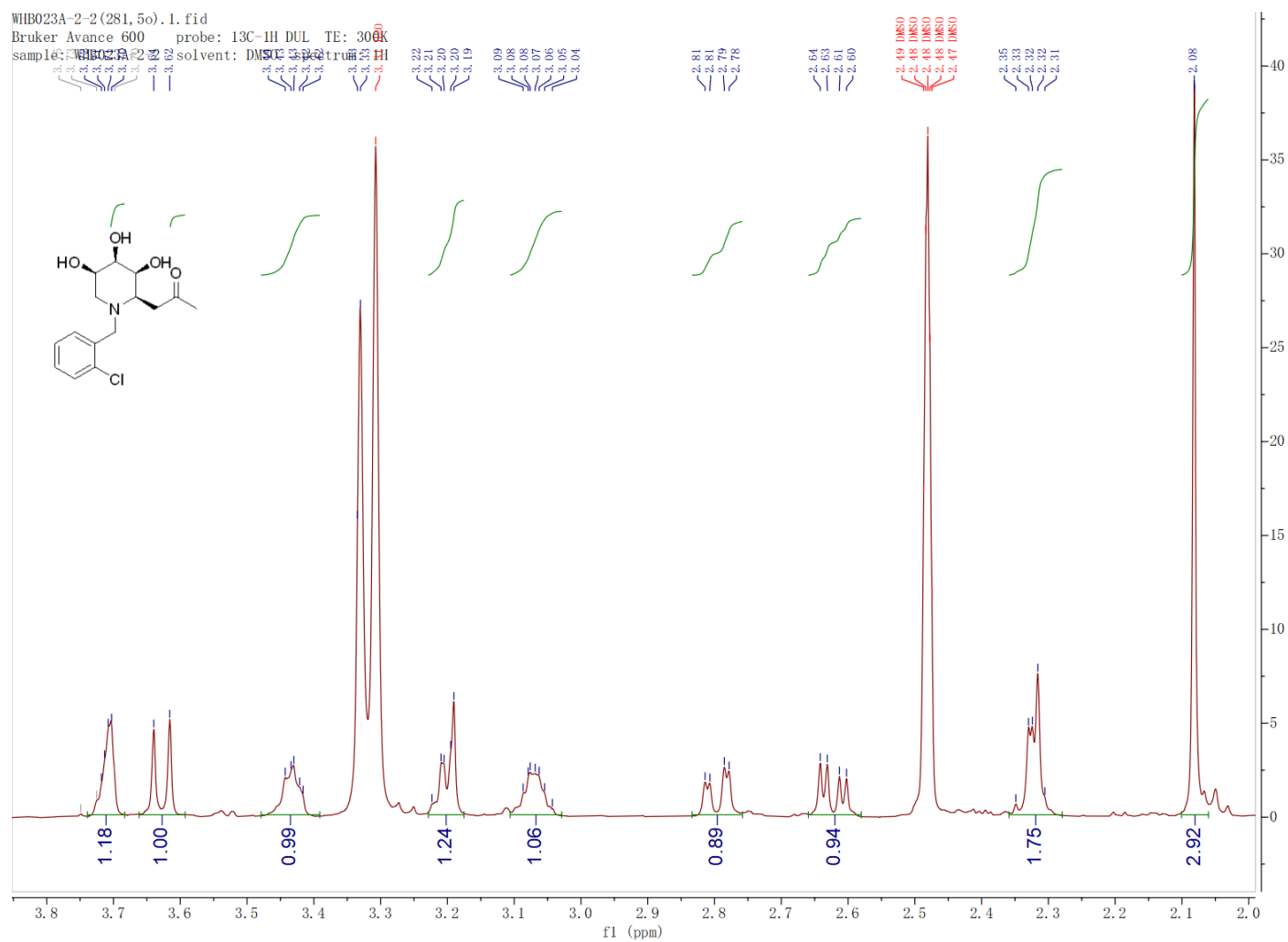
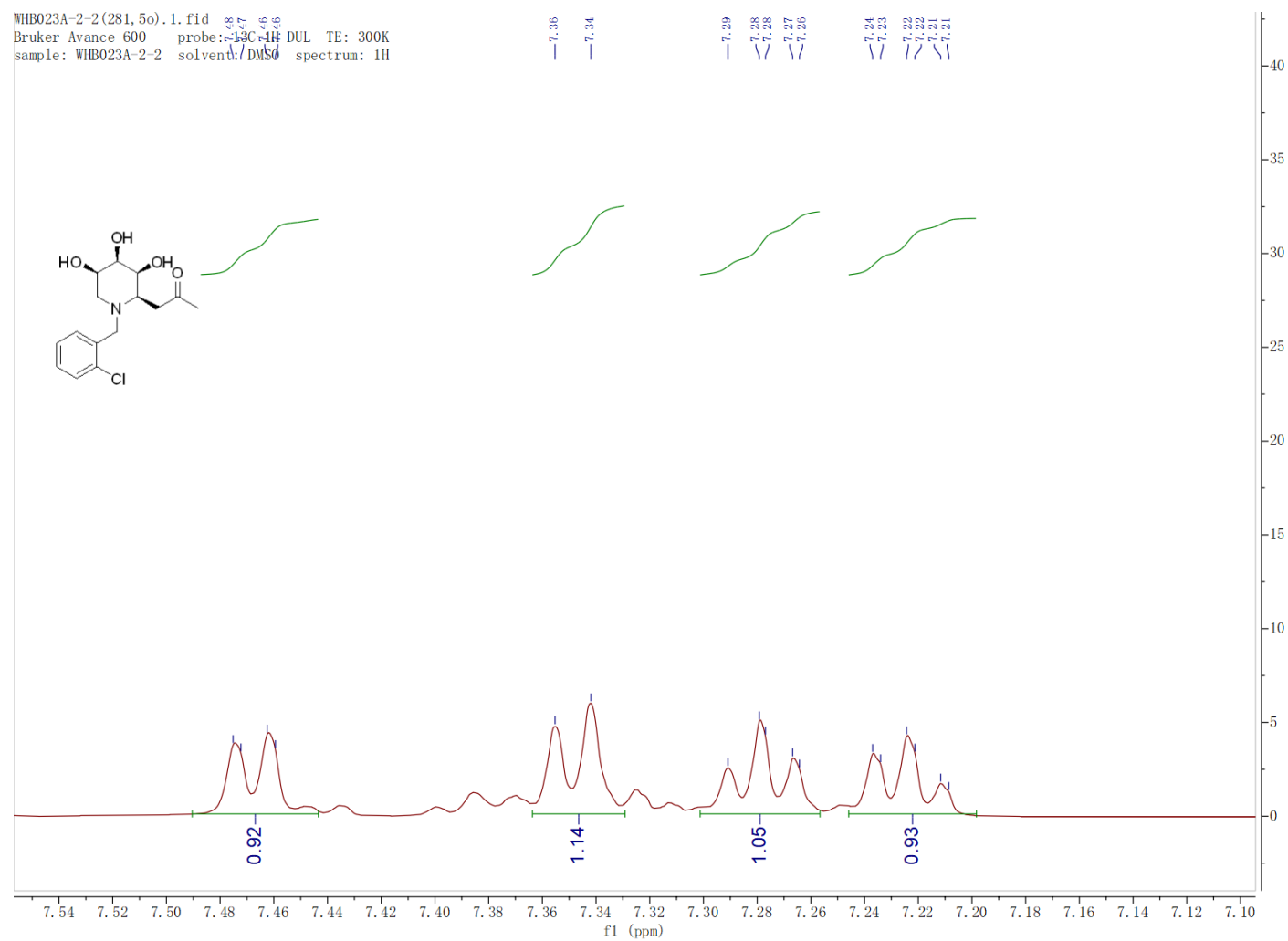


Figure S68. The <sup>1</sup>H NMR of compound 5r.



**Figure S69.** Partial region amplification of the  $^1\text{H}$  NMR of compound **5r**.



**Figure S70.** Partial region amplification of the  $^1\text{H}$  NMR of compound **5r**.

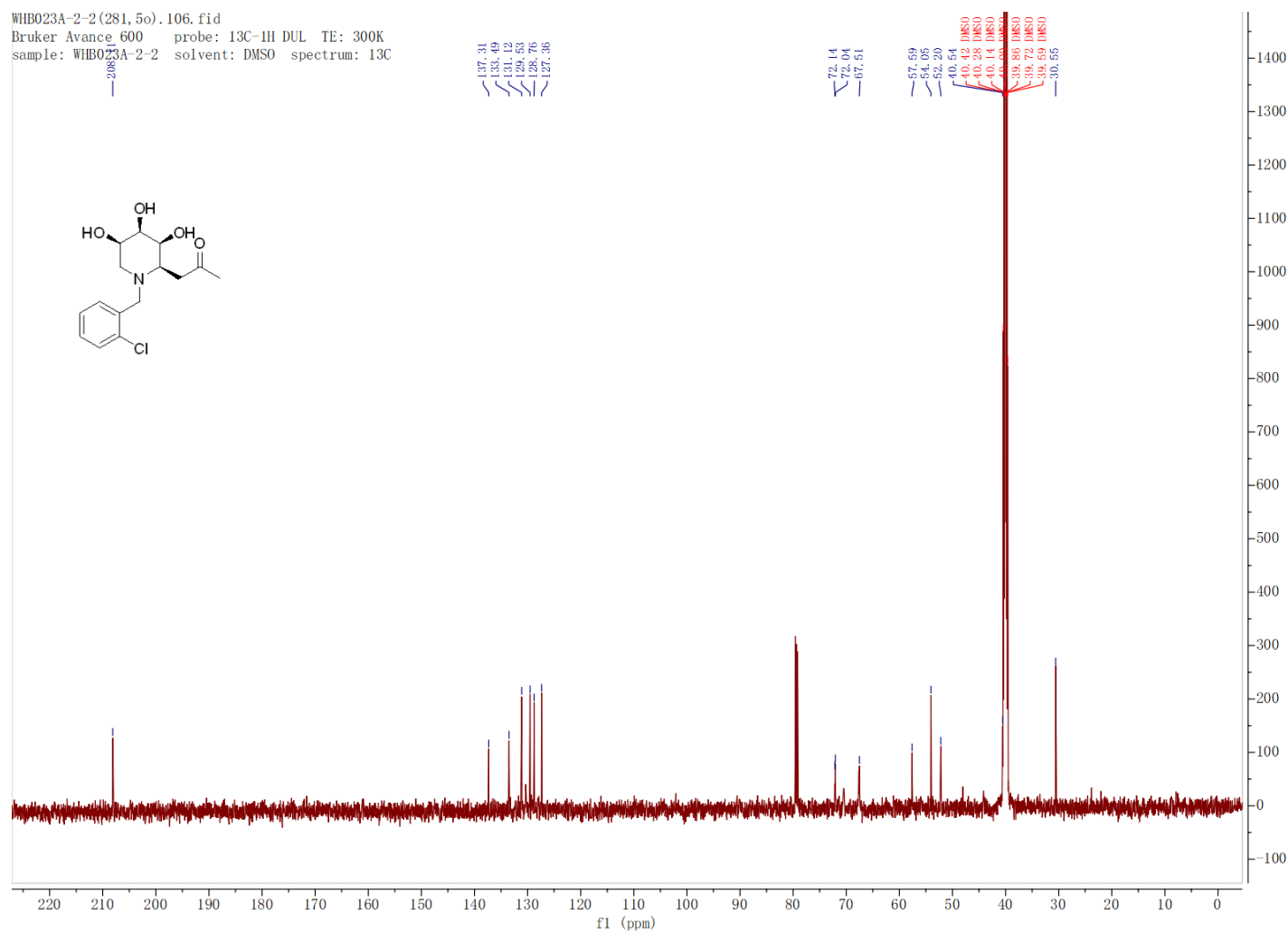
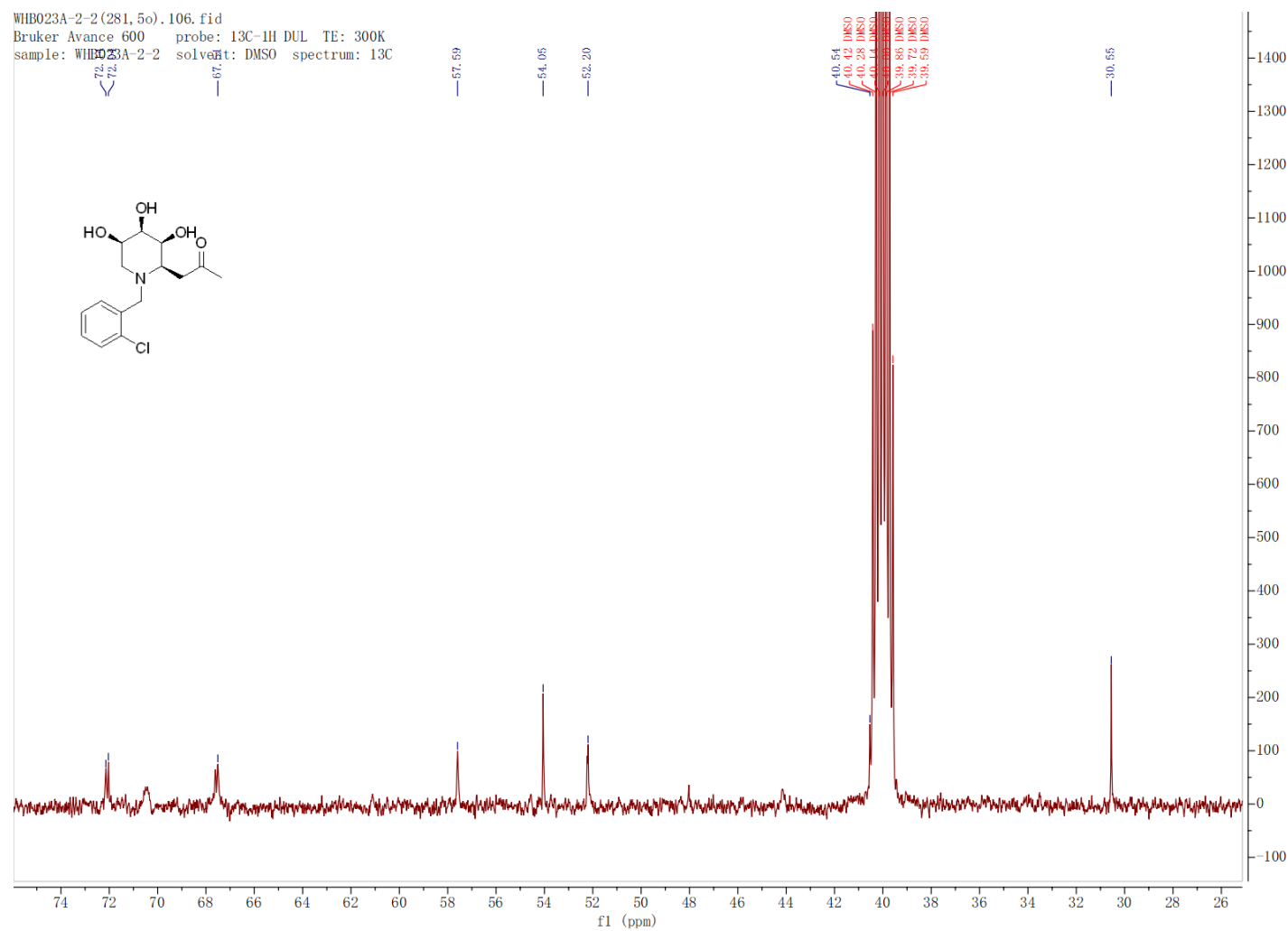
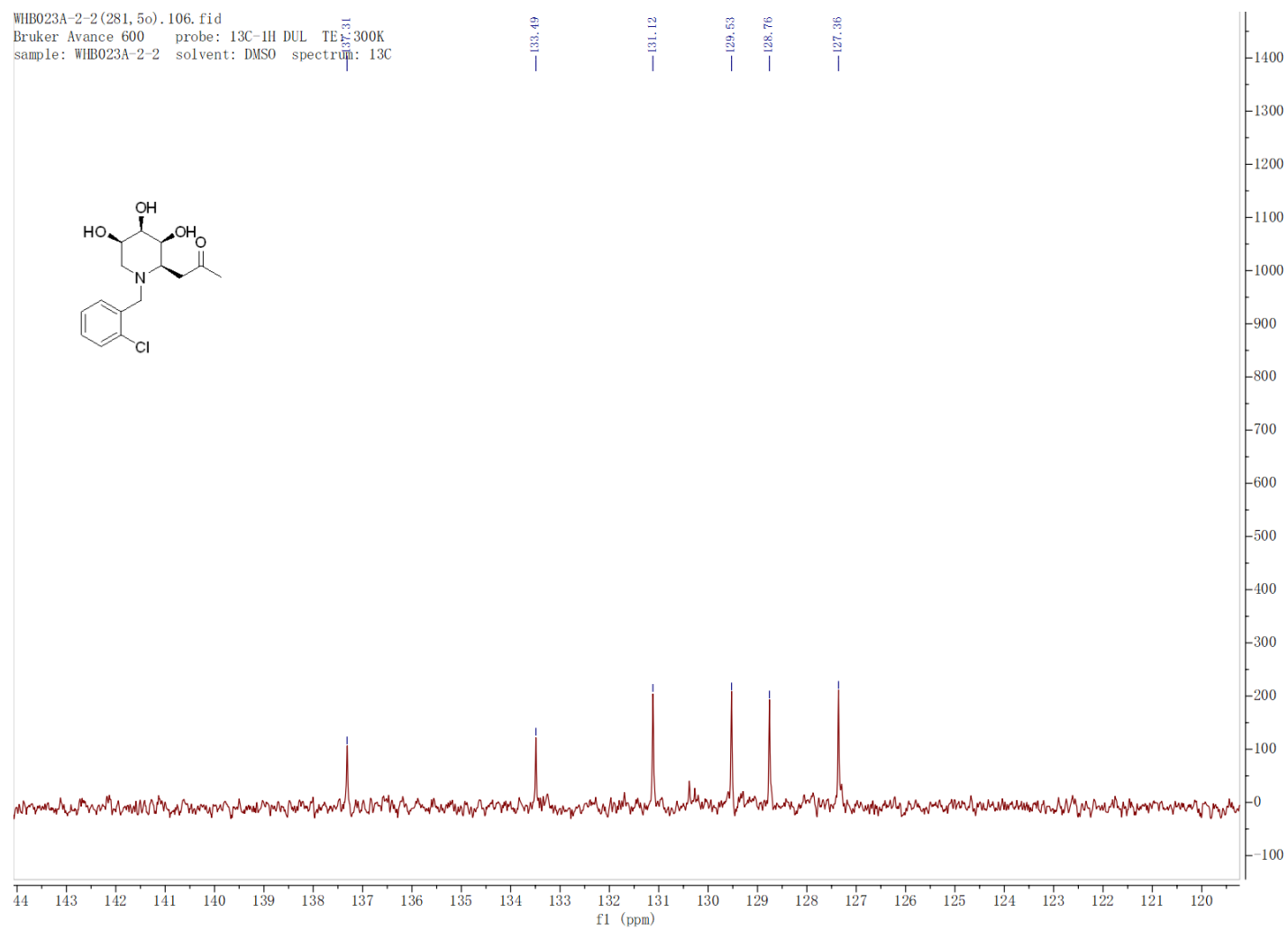


Figure S71. The  $^{13}\text{C}$  NMR of compound 5r.



**Figure S72.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5r**.



**Figure S73.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5r**.

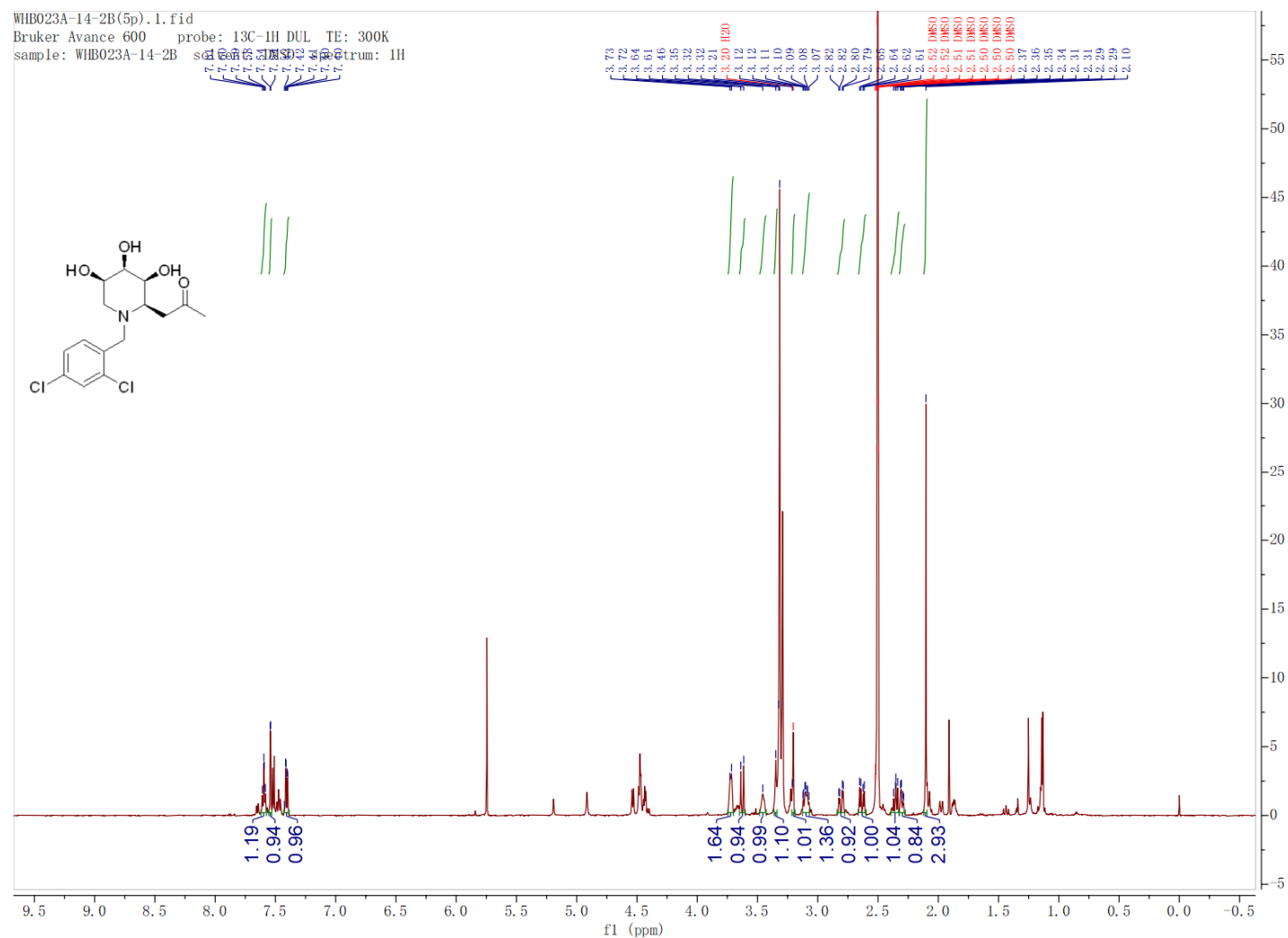


Figure S74. The  $^1\text{H}$  NMR of compound 5s.

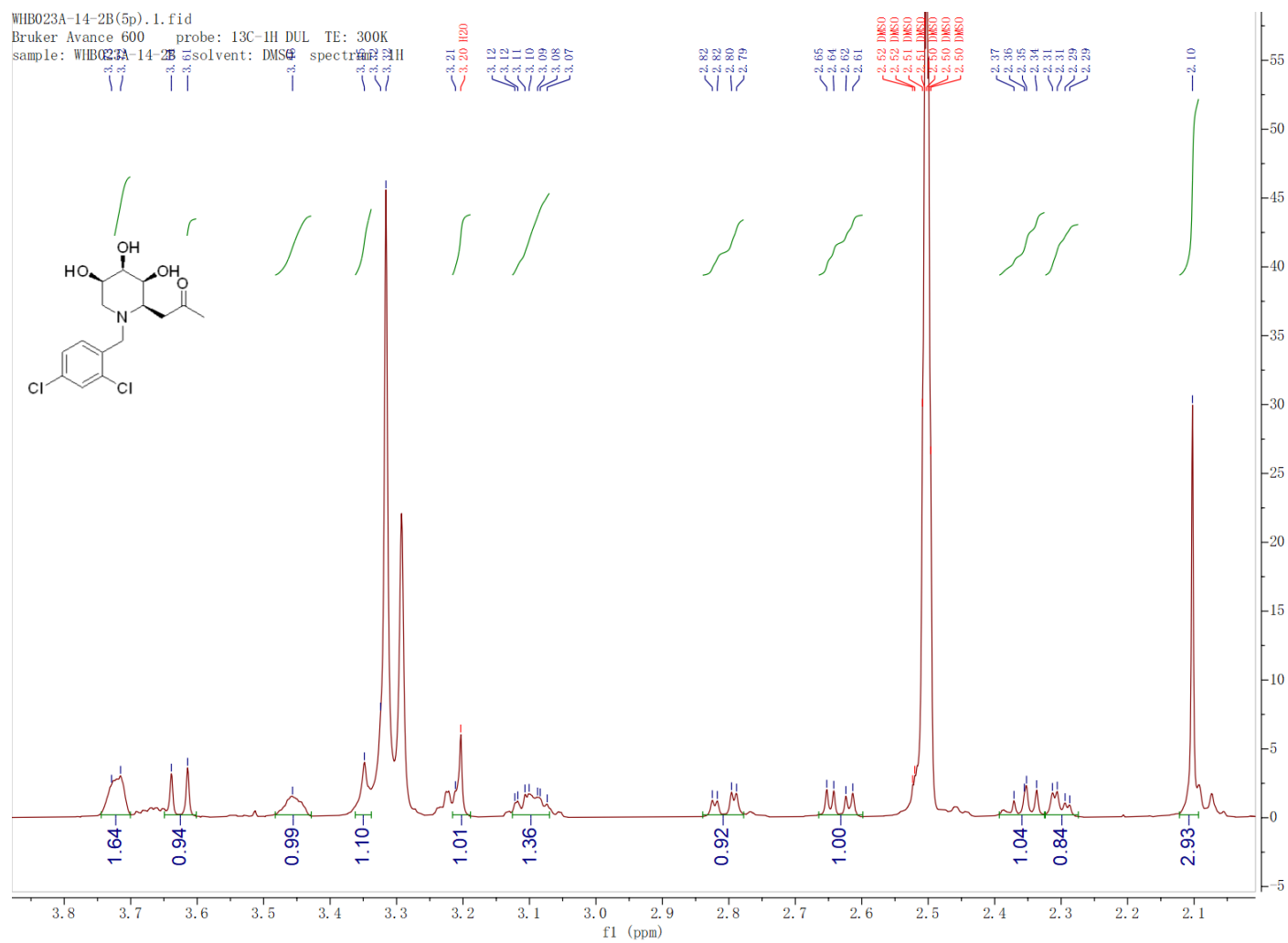


Figure S75. Partial region amplification of the  $^1\text{H}$  NMR of compound 5s.



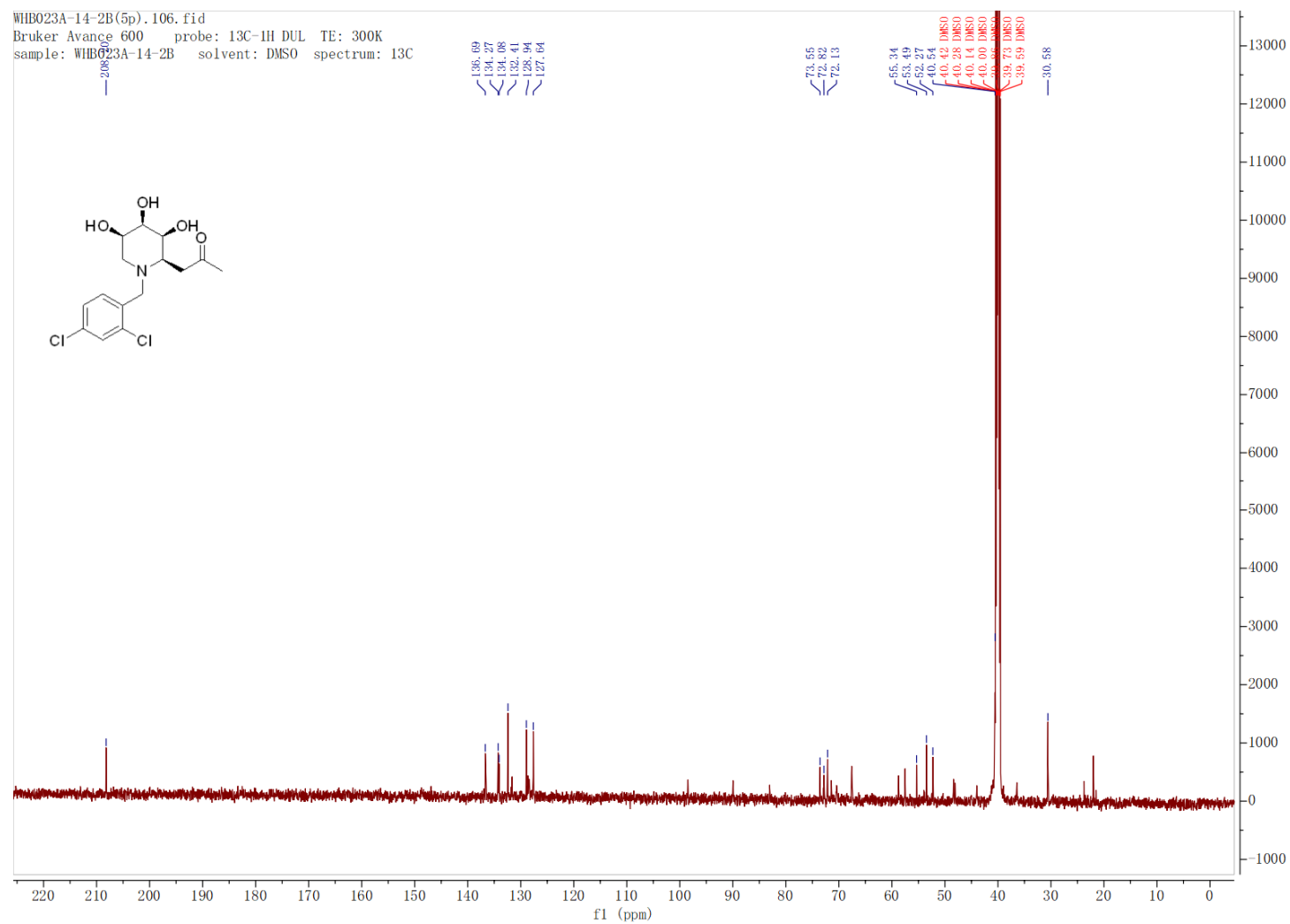
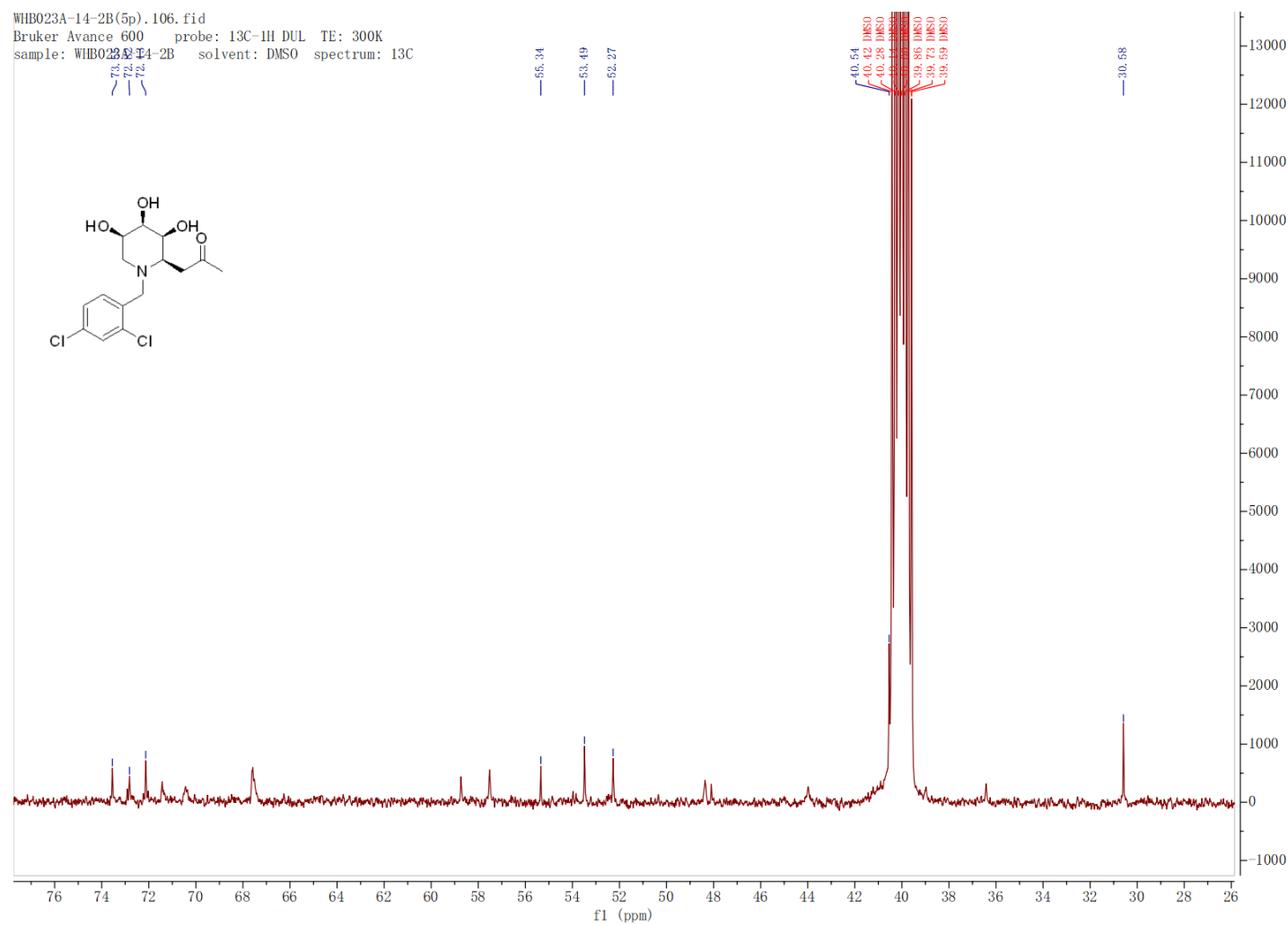


Figure S76. The  $^{13}\text{C}$  NMR of compound 5s.



**Figure S77.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5s**.

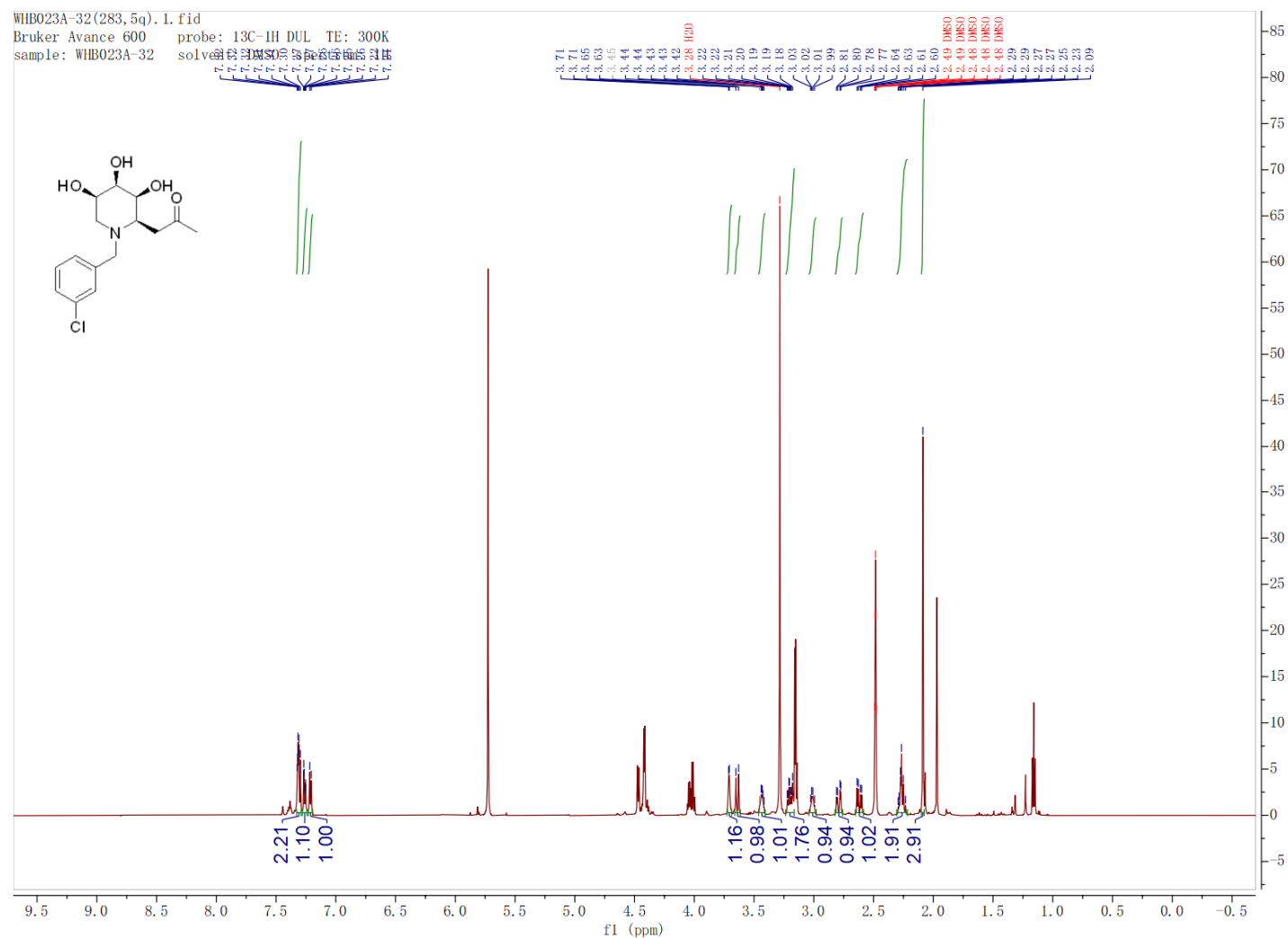


Figure S78. The <sup>1</sup>H NMR of compound 5t.

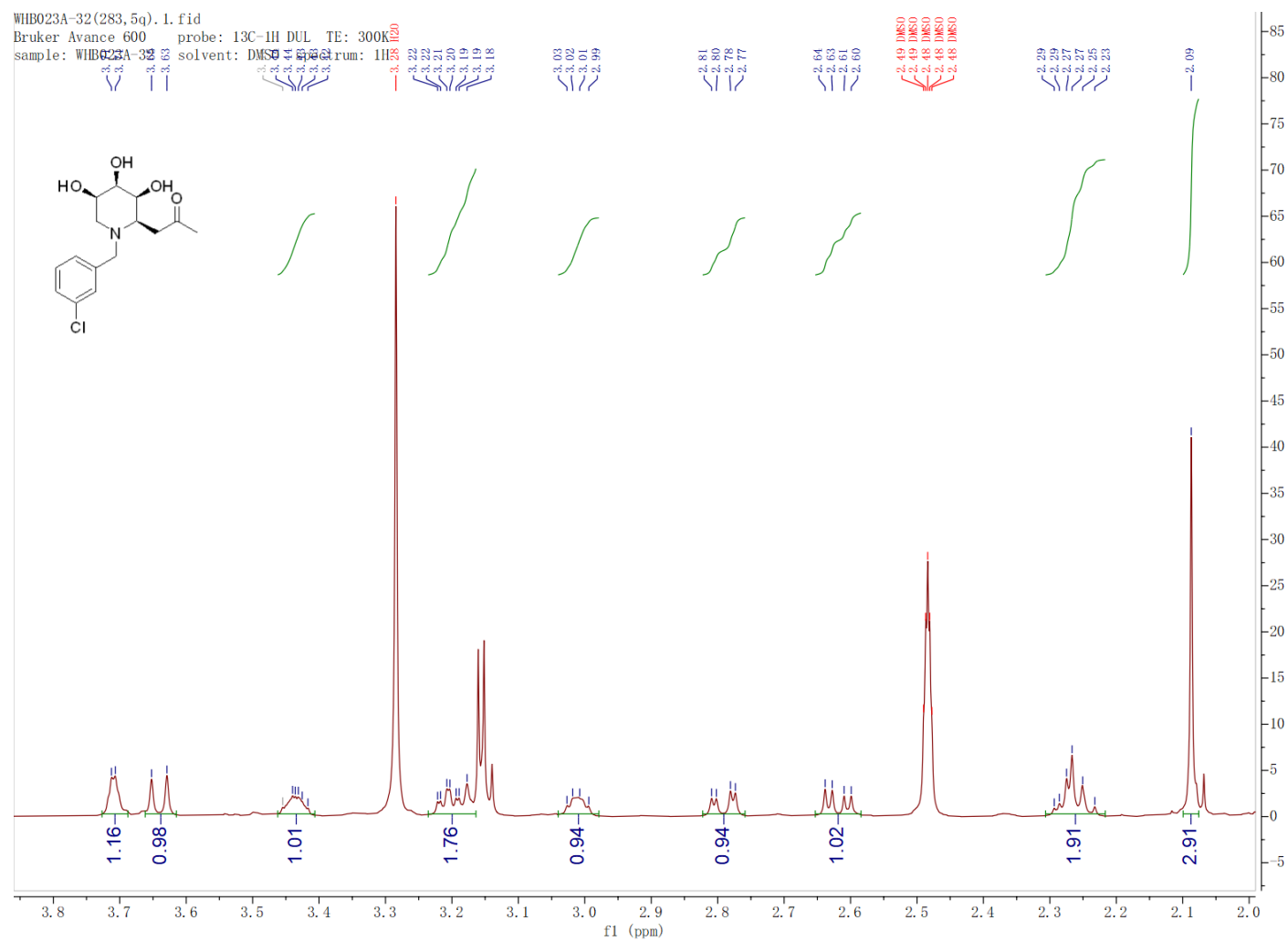


Figure S79. Partial region amplification of the  $^1\text{H}$  NMR of compound 5t.

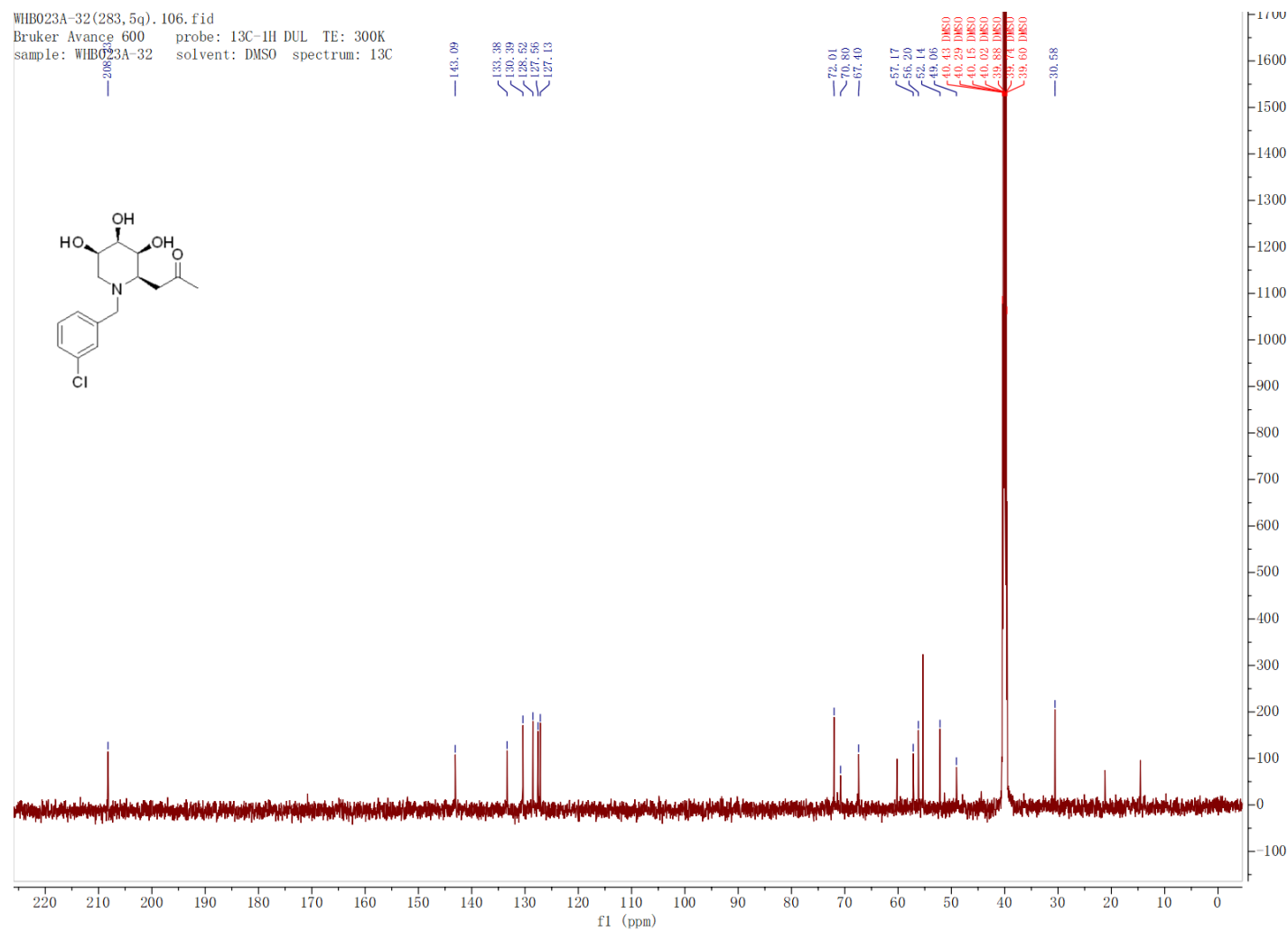
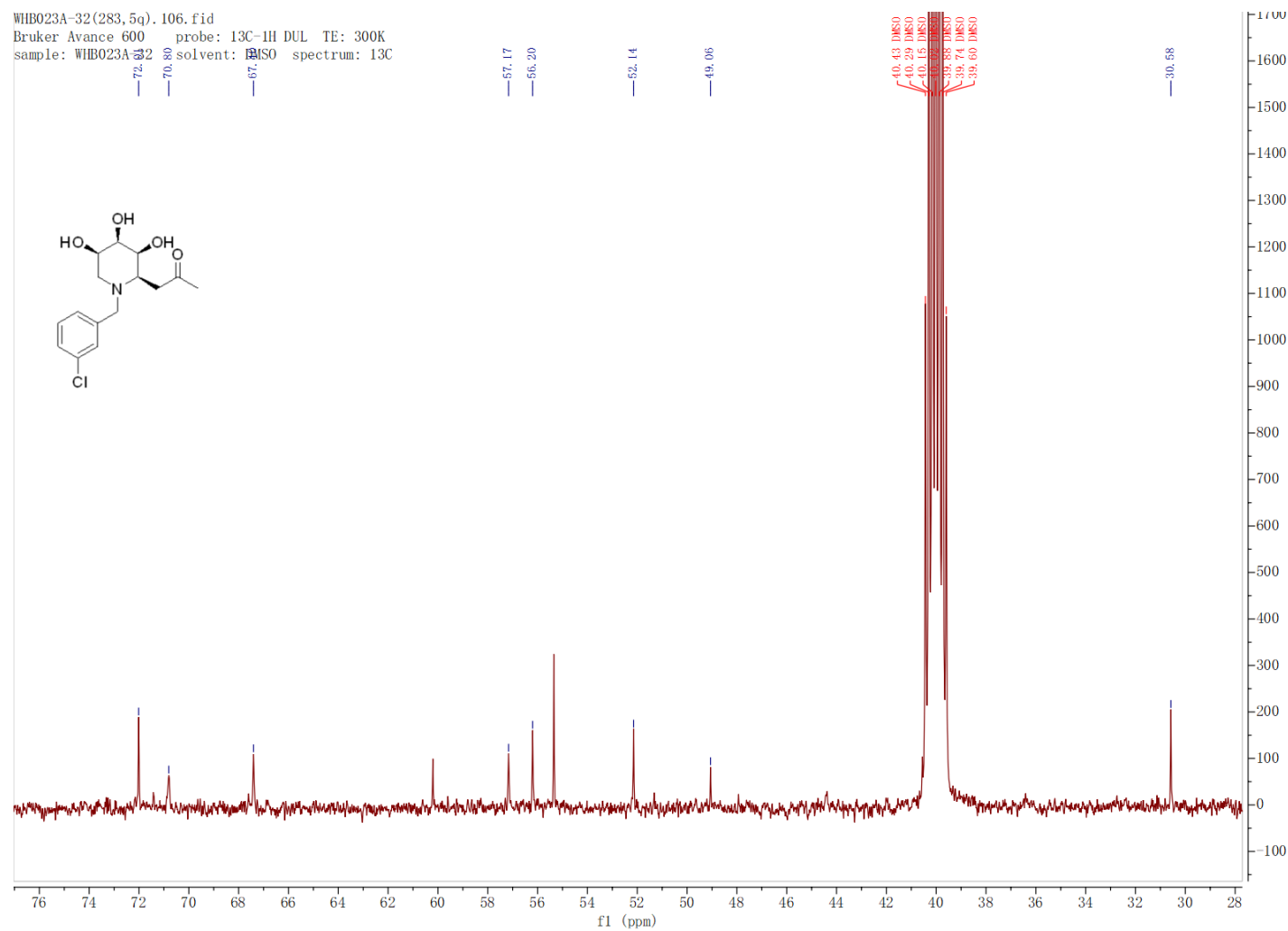


Figure S80. The  $^{13}\text{C}$  NMR of compound 5t.



**Figure S81.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5t**.

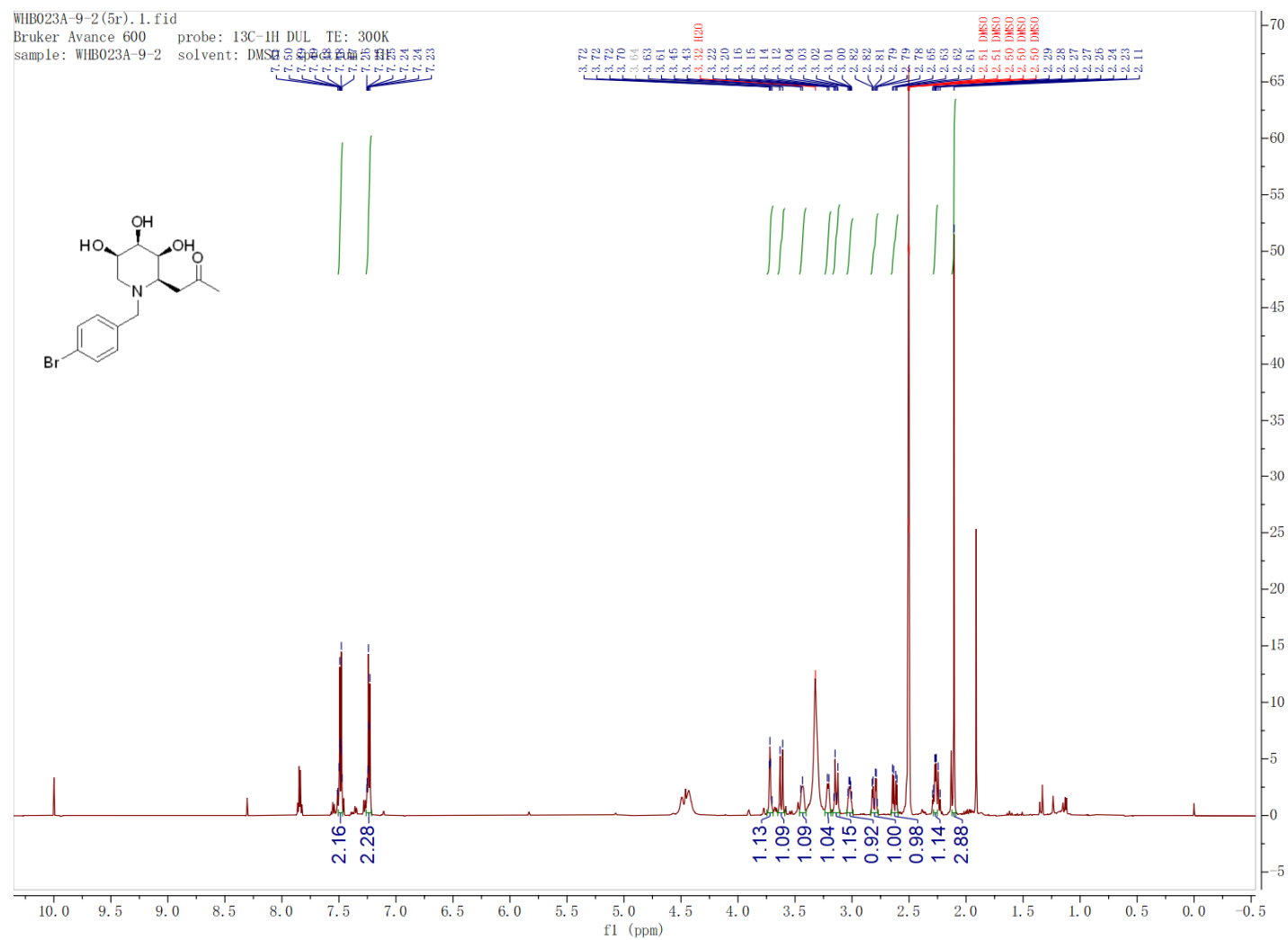


Figure S82. The  $^1\text{H}$  NMR of compound 5u.

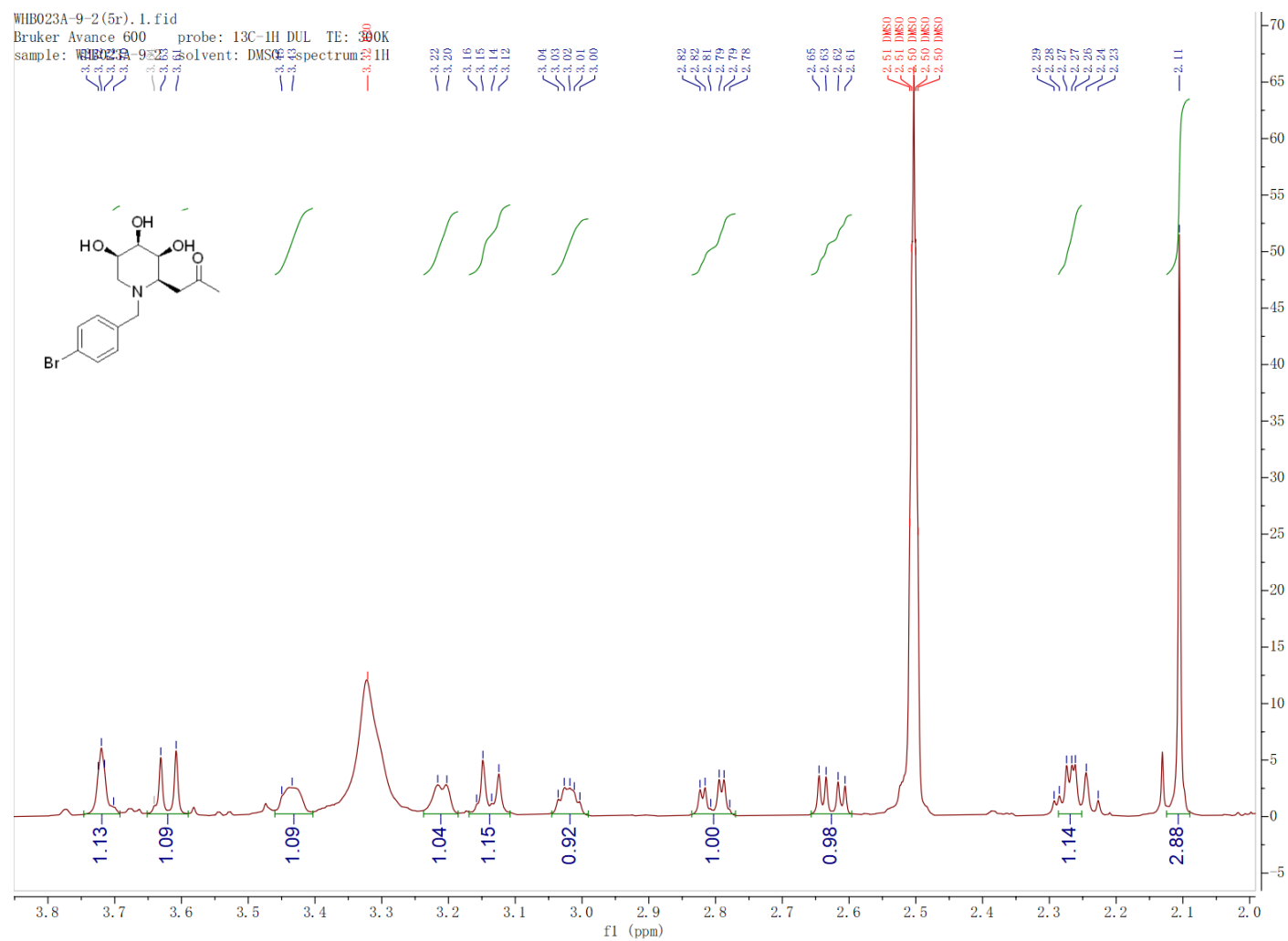


Figure S83. Partial region amplification of the  $^1\text{H}$  NMR of compound 5u.



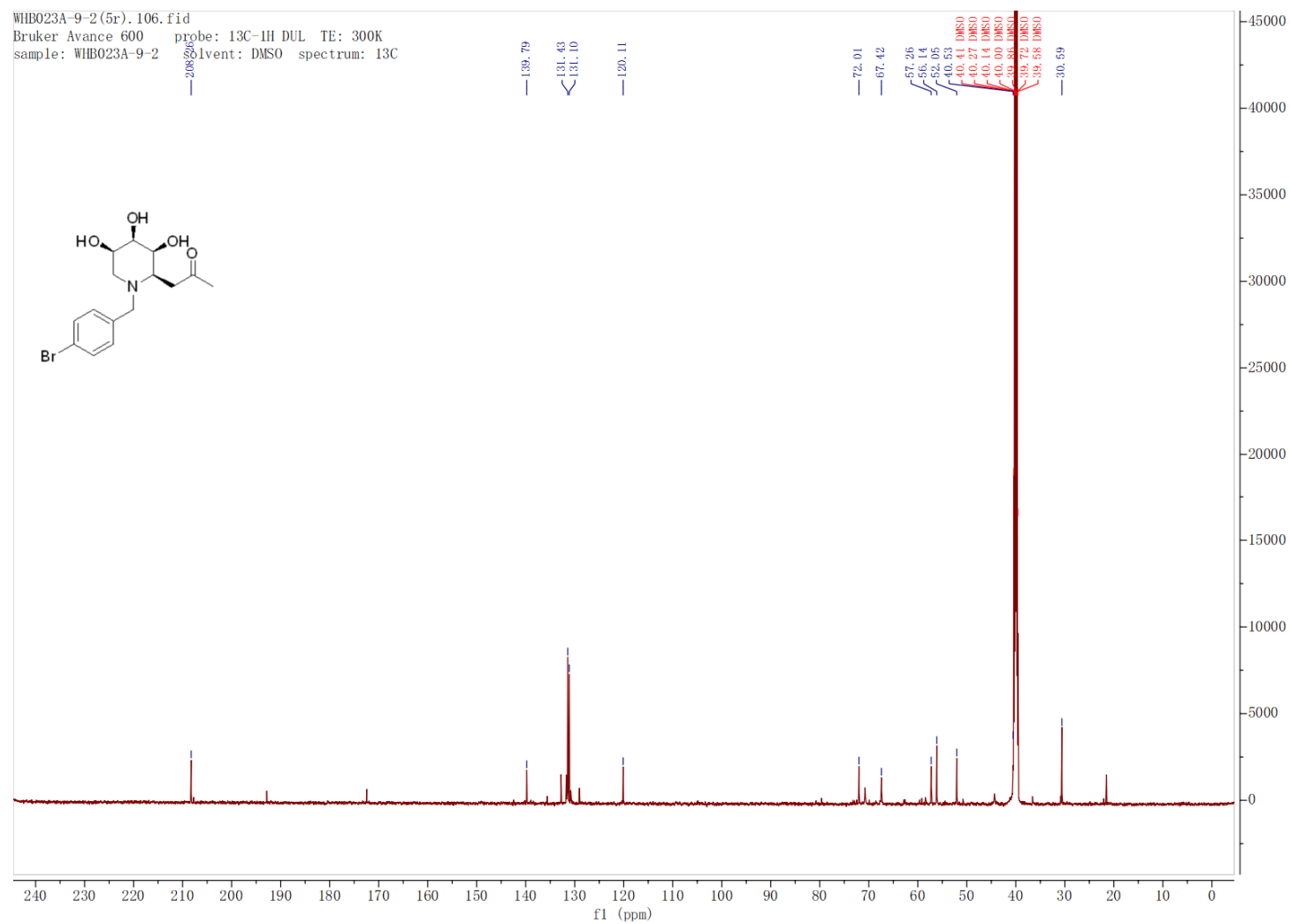
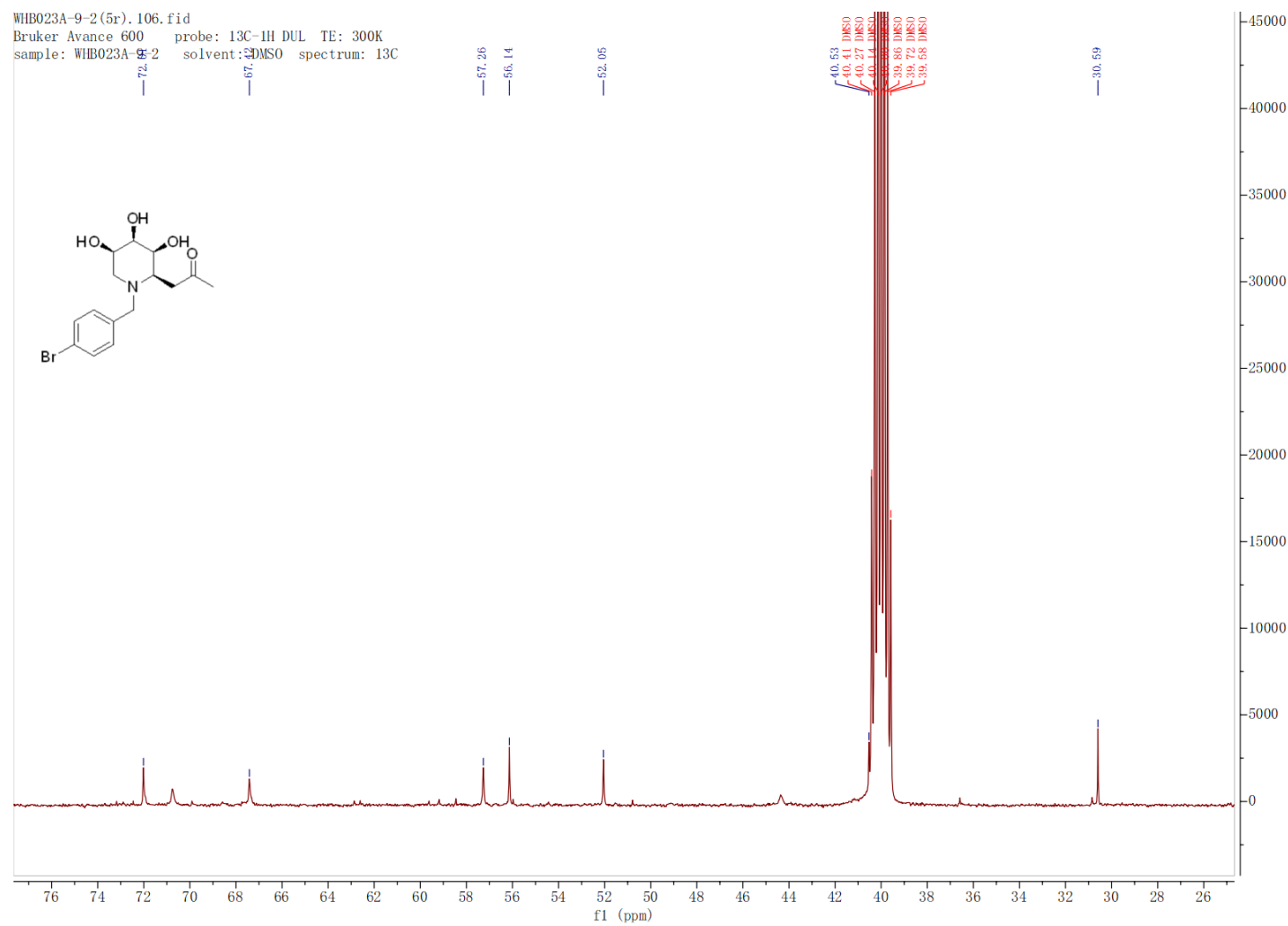


Figure S84. The  $^{13}\text{C}$  NMR of compound 5u.



**Figure S85.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5u**.



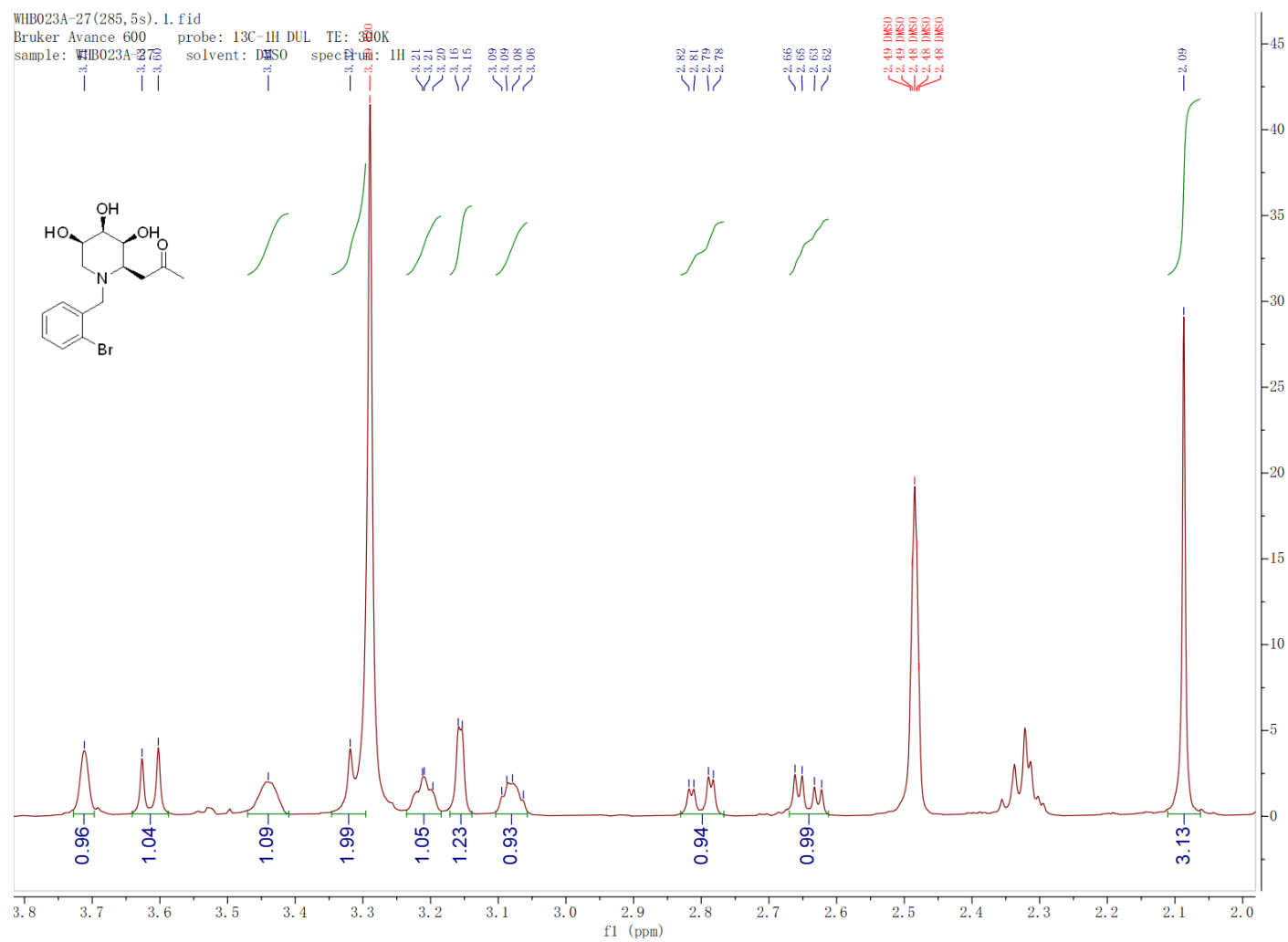


Figure S87. Partial region amplification of the  $^1\text{H}$  NMR of compound **5v**.

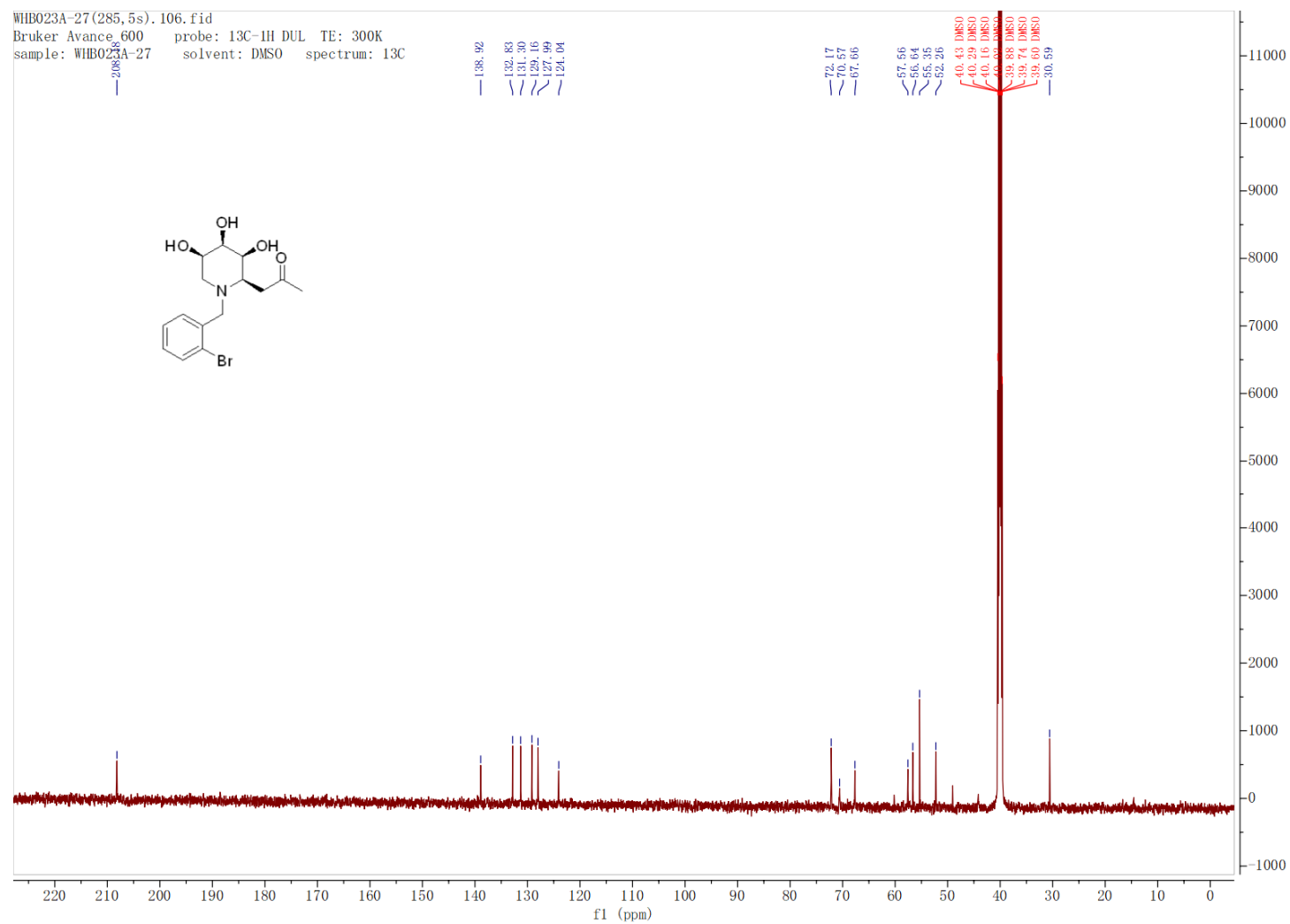


Figure S88. The  $^{13}\text{C}$  NMR of compound 5v.

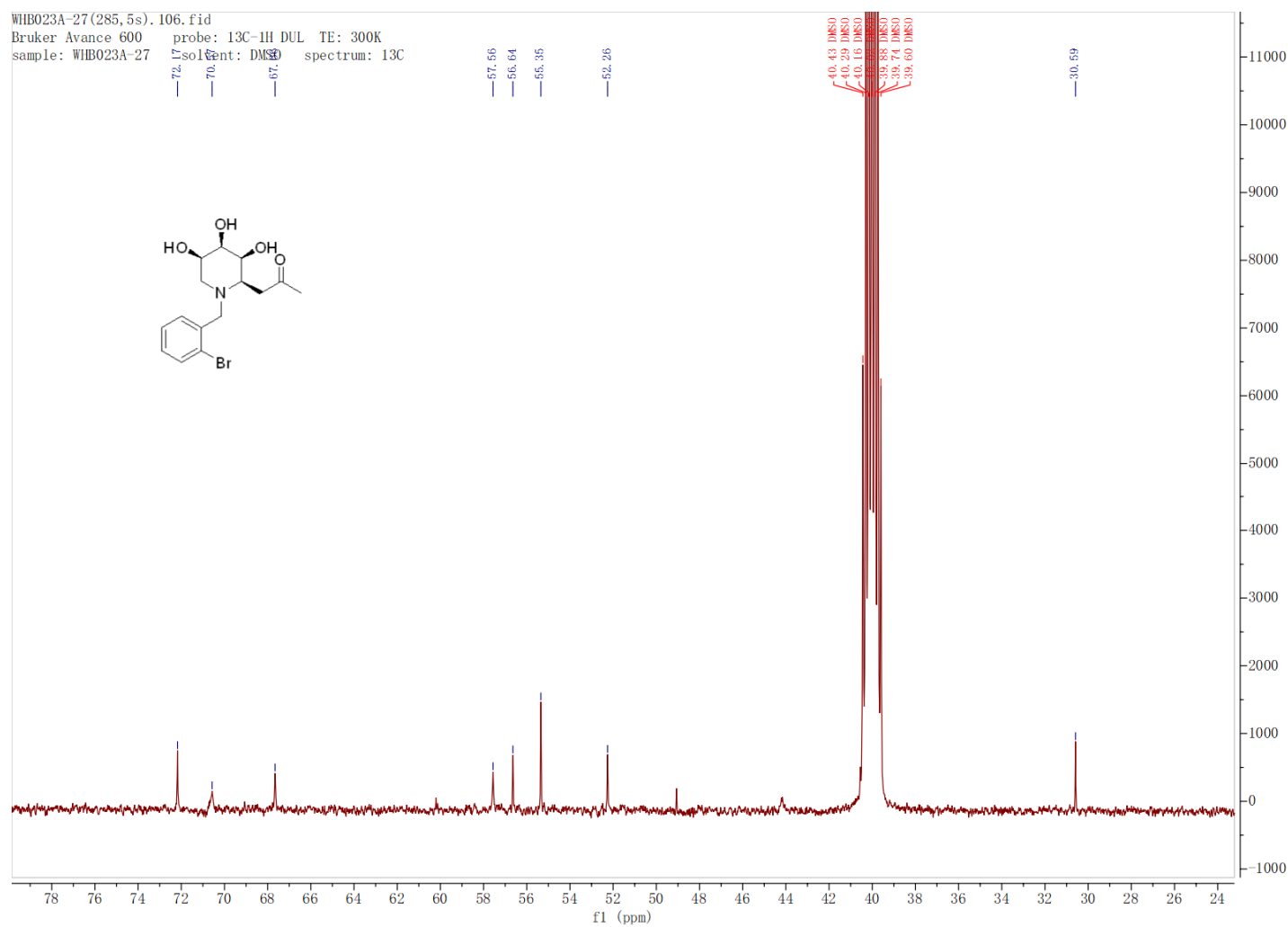


Figure S89. Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5v**.

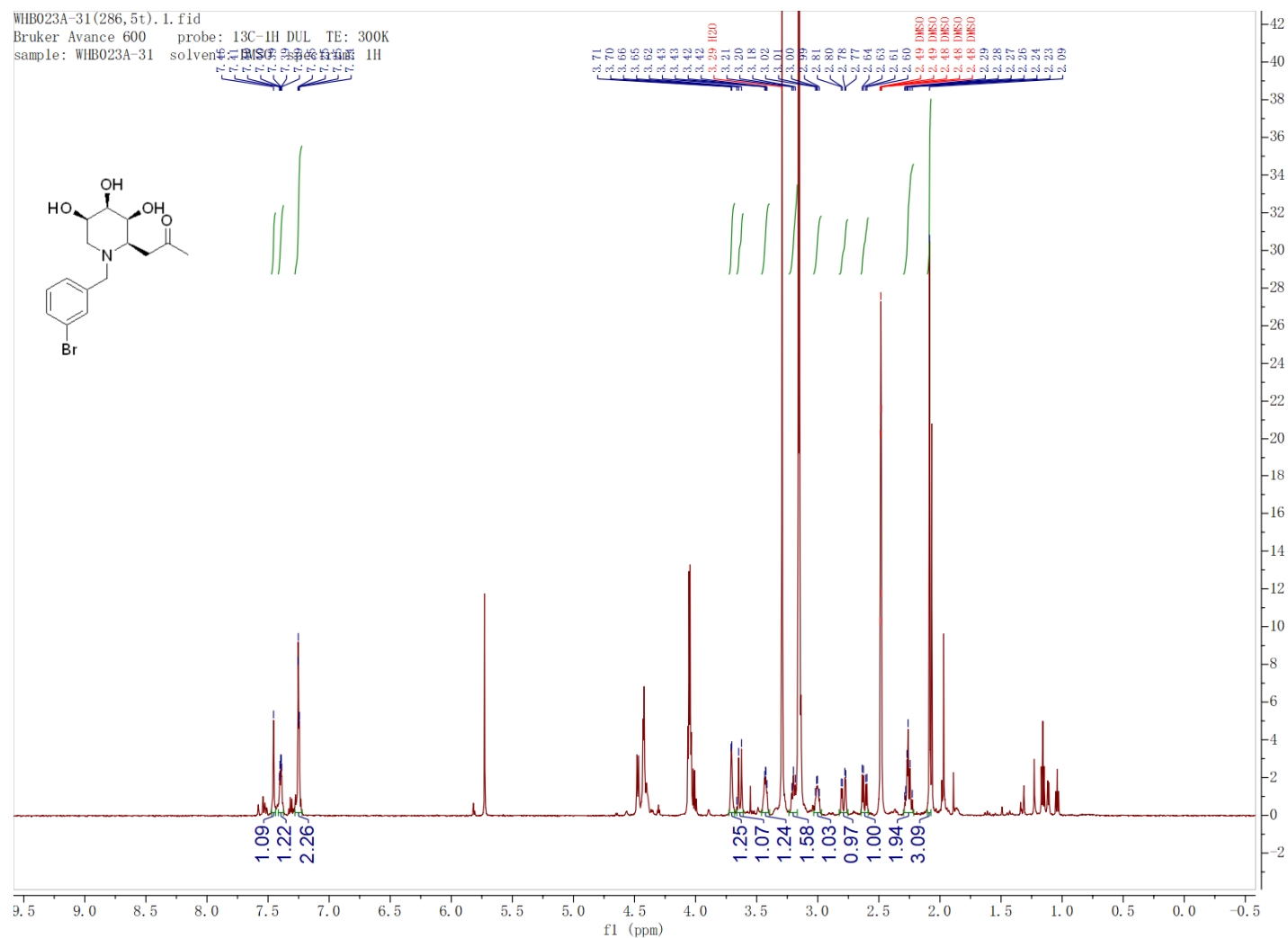


Figure S90. The  $^1\text{H}$  NMR of compound 5w.

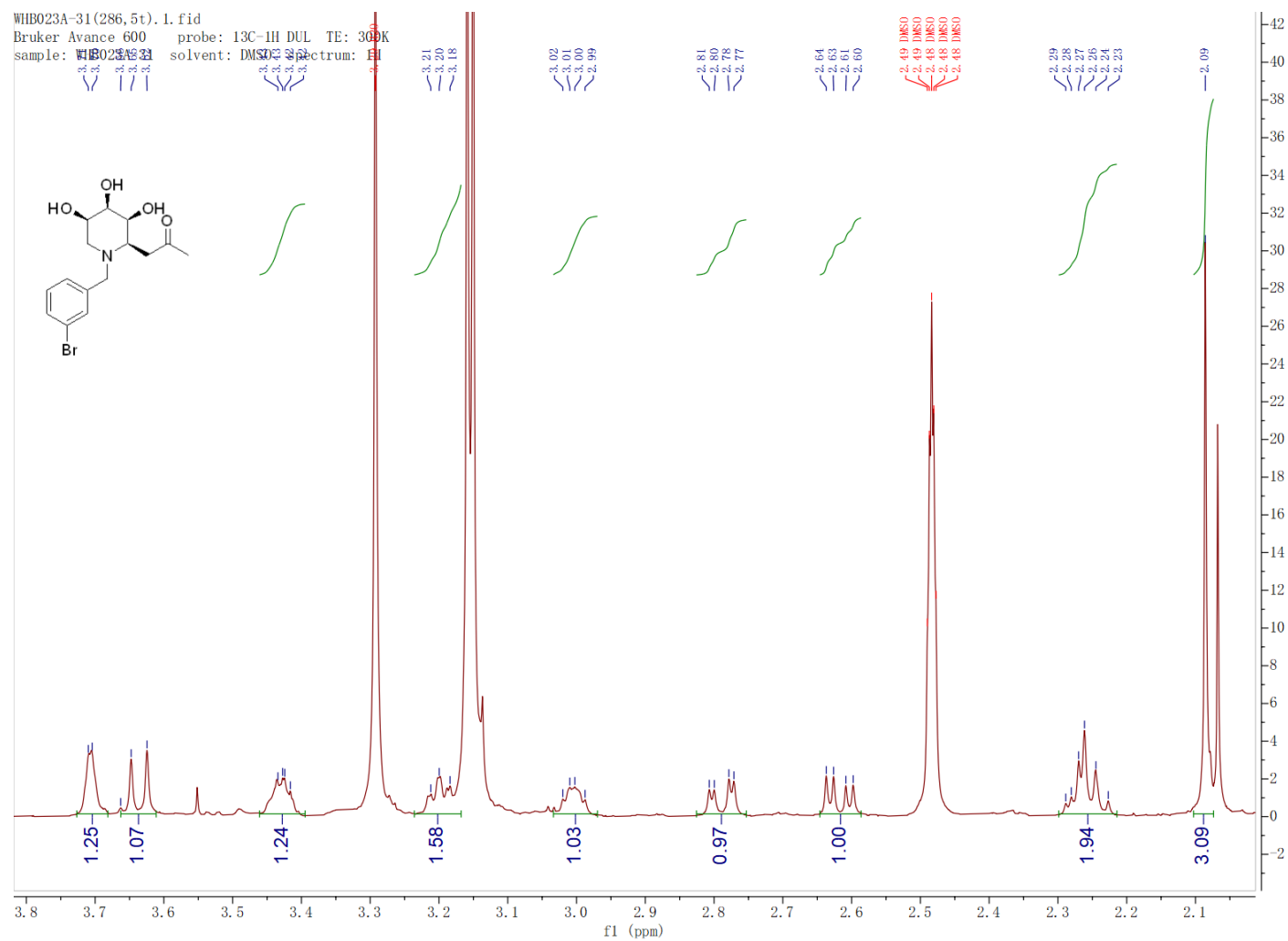


Figure S91. Partial region amplification of the  $^1\text{H}$  NMR of compound 5w.



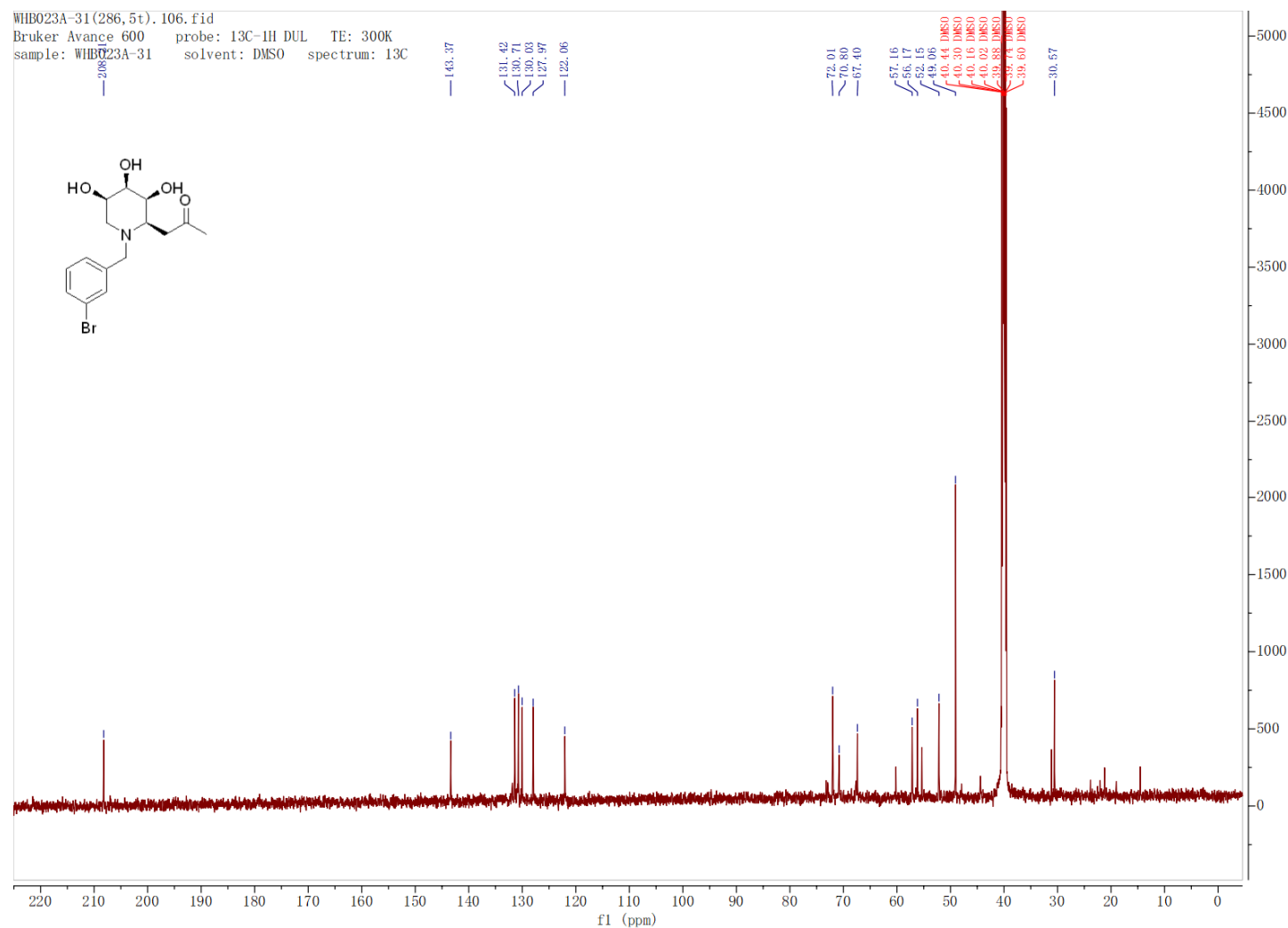


Figure S92. The  $^{13}\text{C}$  NMR of compound 5w.

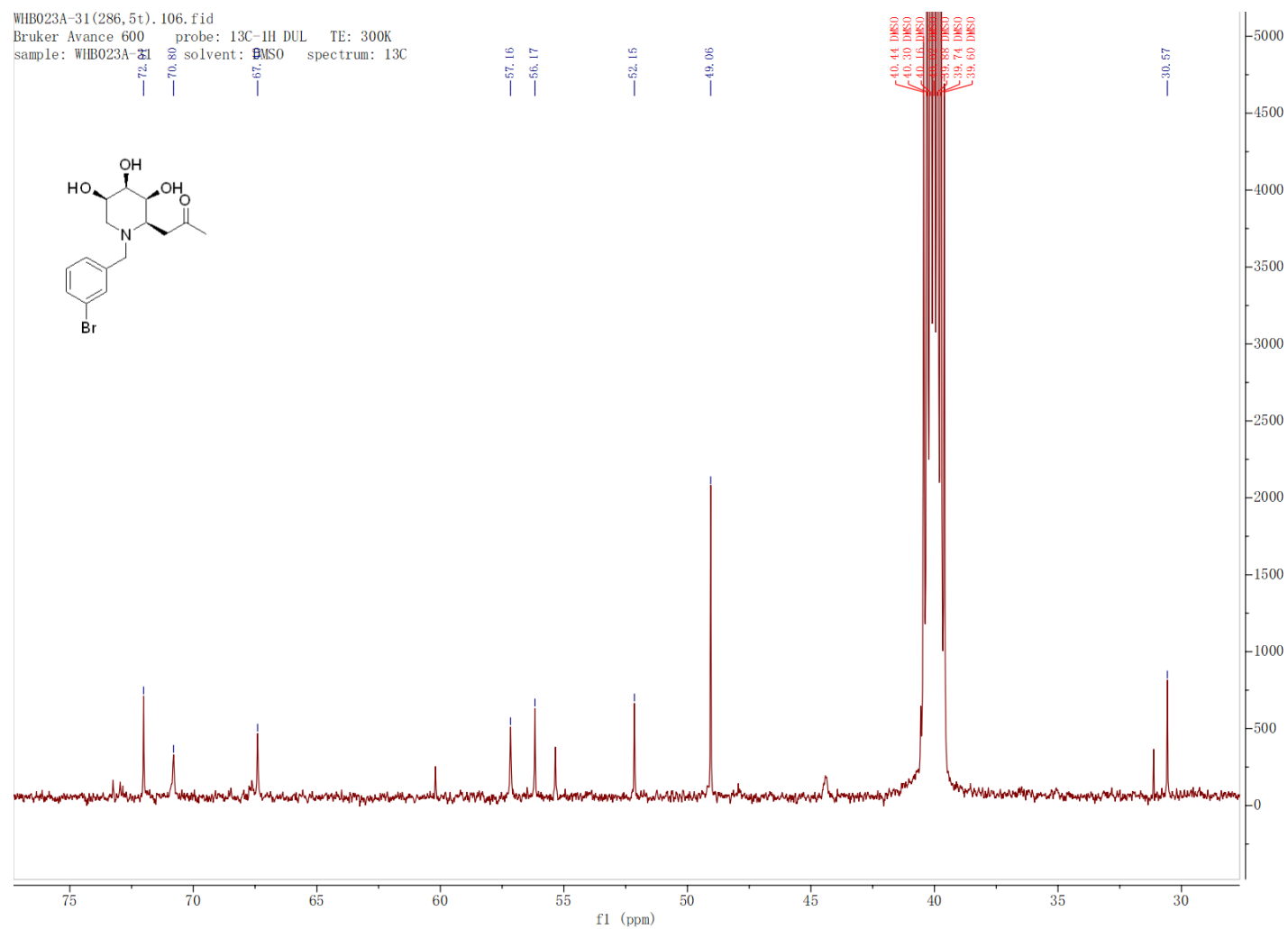


Figure S93. Partial region amplification of the  $^{13}\text{C}$  NMR of compound 5w.

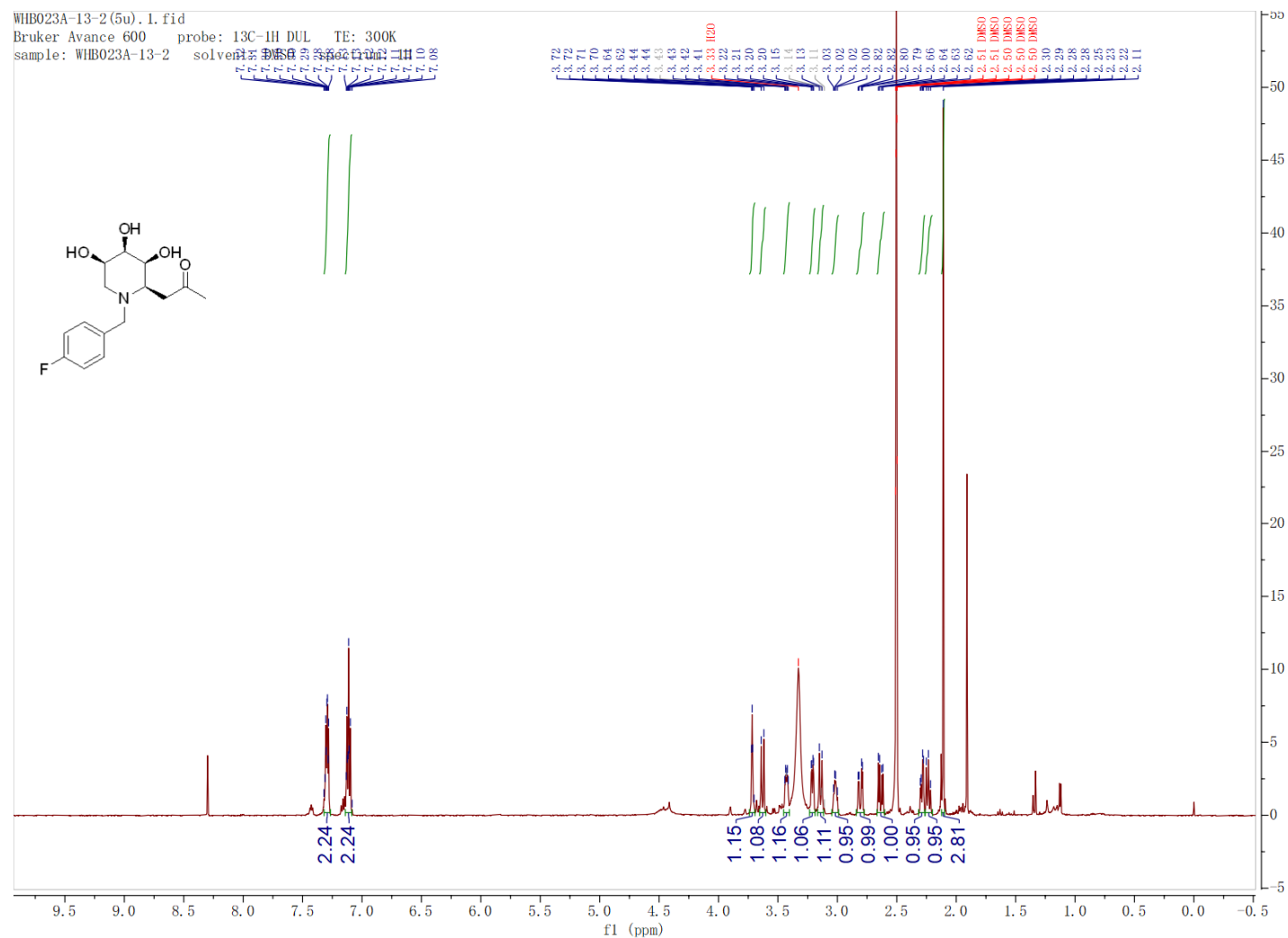


Figure S94. The  $^1\text{H}$  NMR of compound 5x.

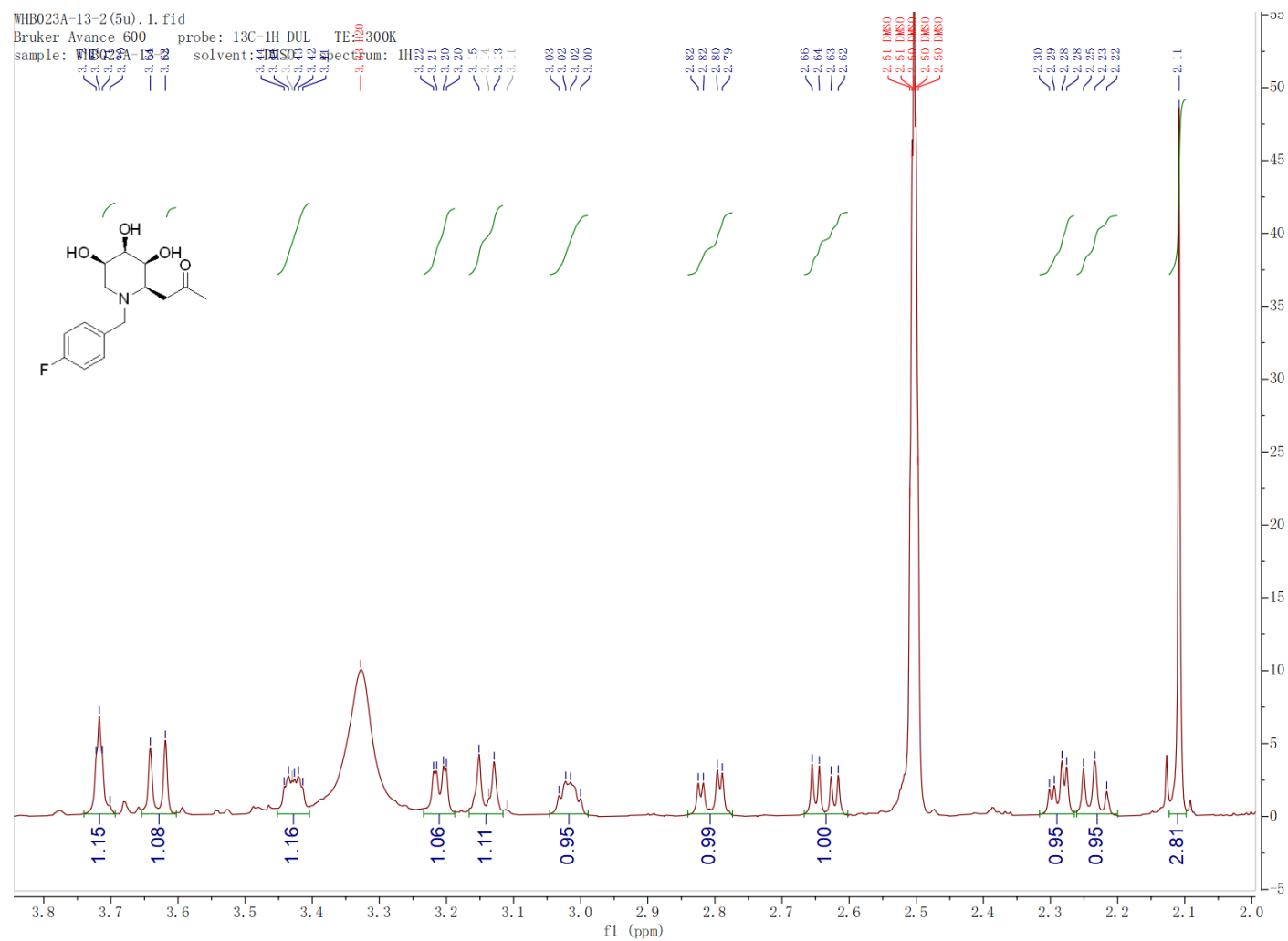


Figure S95. Partial region amplification of the <sup>1</sup>H NMR of compound 5x.

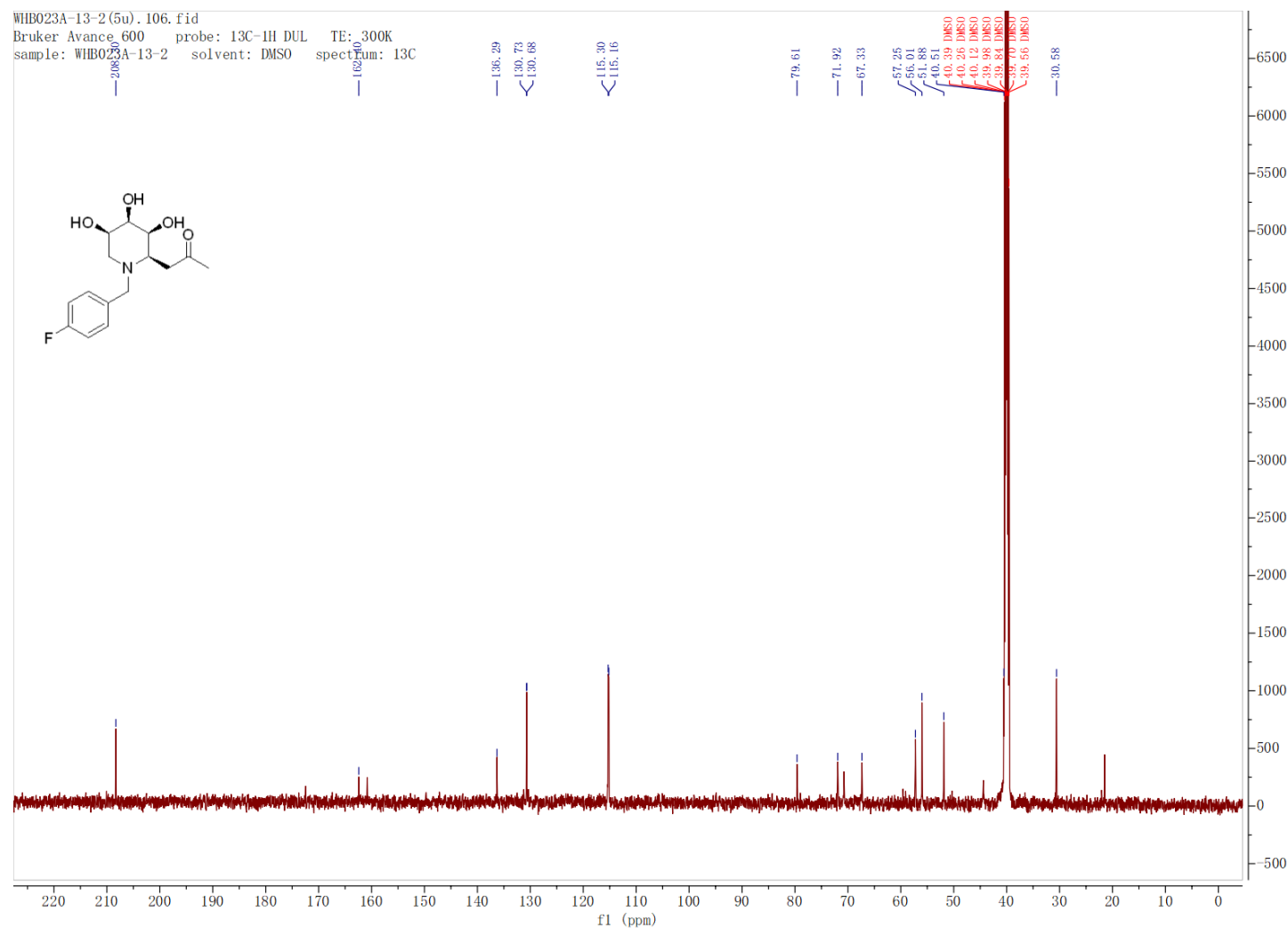


Figure S96. The  $^{13}\text{C}$  NMR of compound 5x.

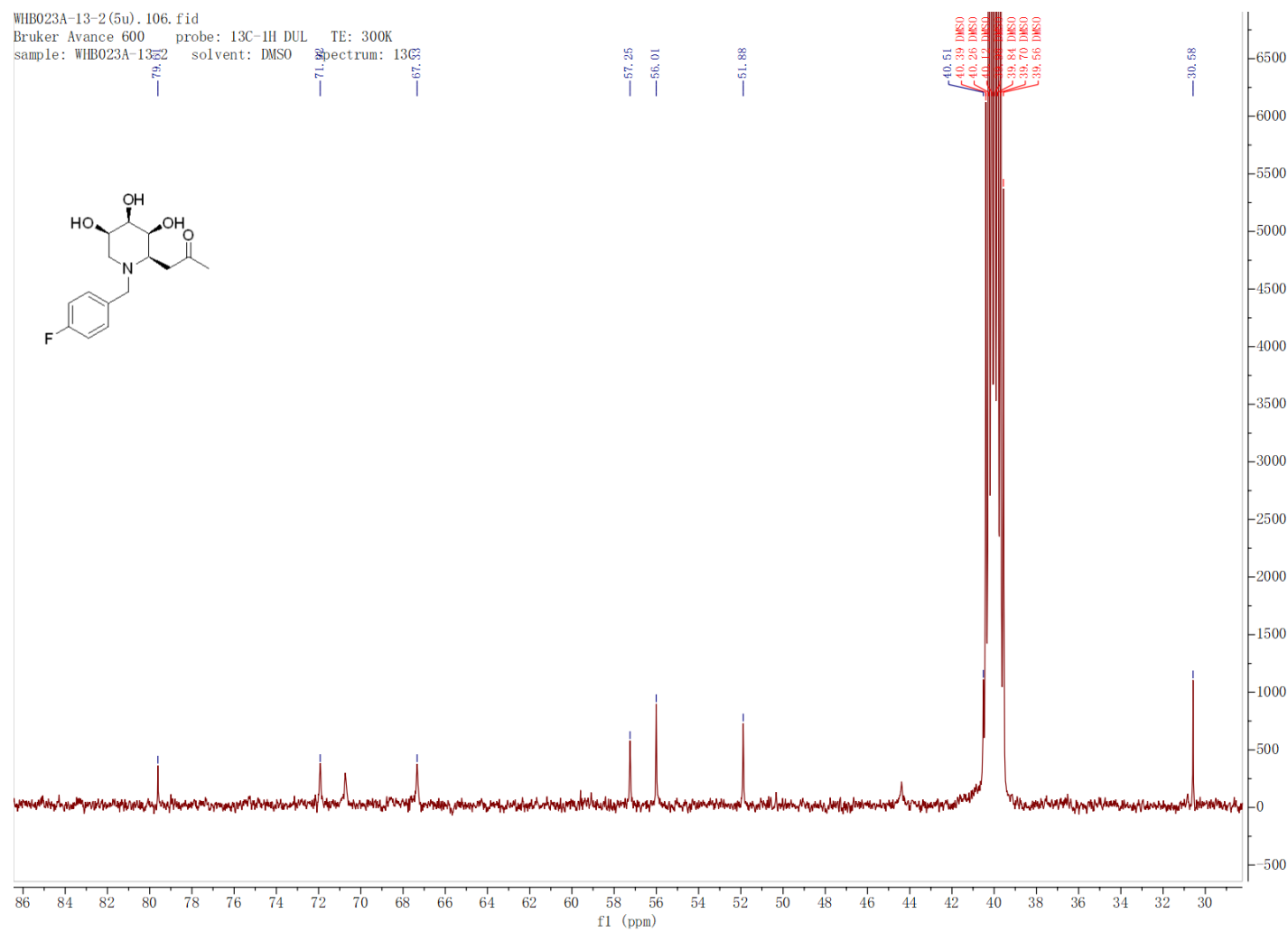


Figure S97. Partial region amplification of the  $^{13}\text{C}$  NMR of compound 5x.

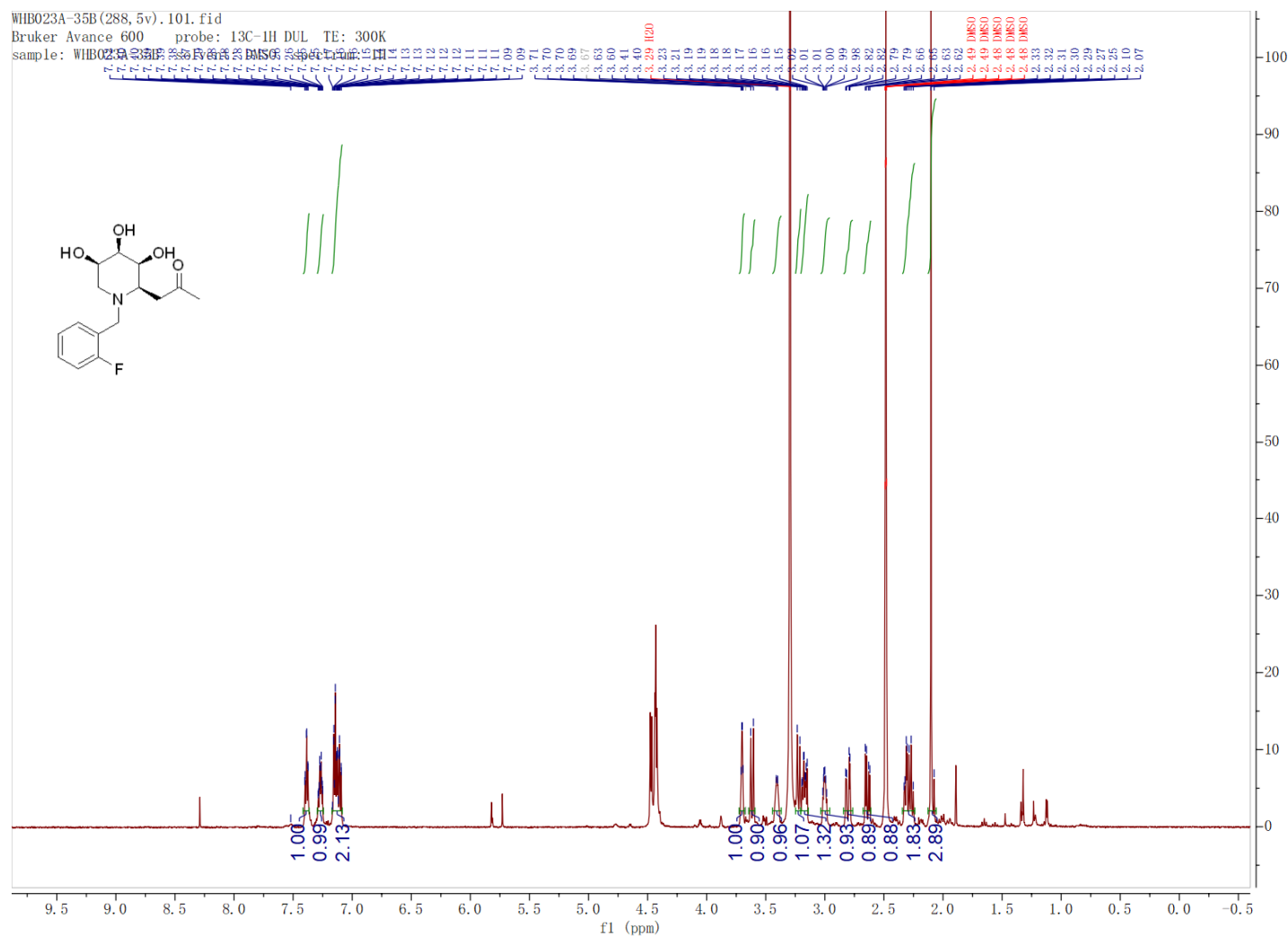


Figure S98. The  $^1\text{H}$  NMR of compound 5y.

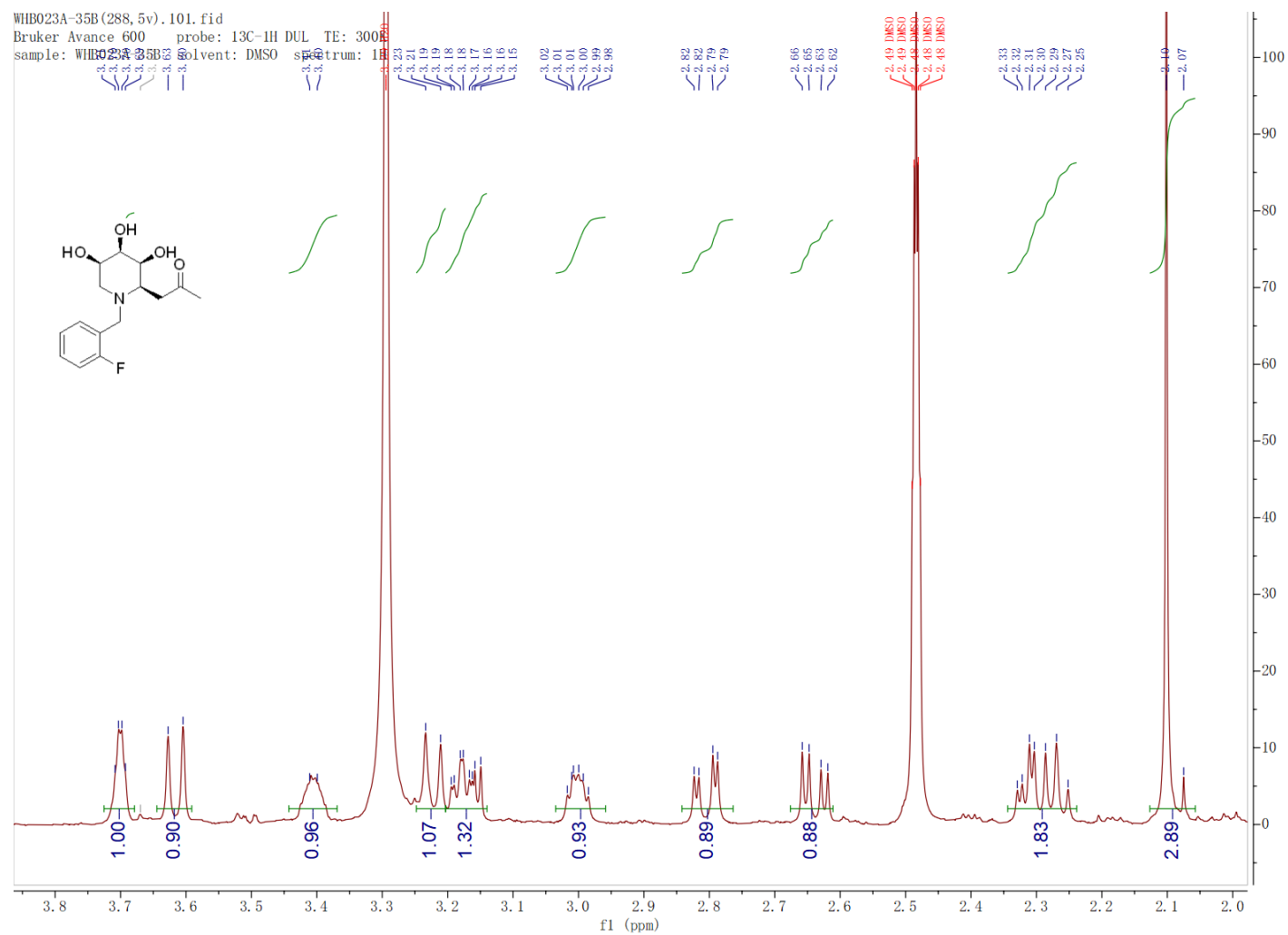


Figure S99. Partial region amplification of the  $^1\text{H}$  NMR of compound **5y**.



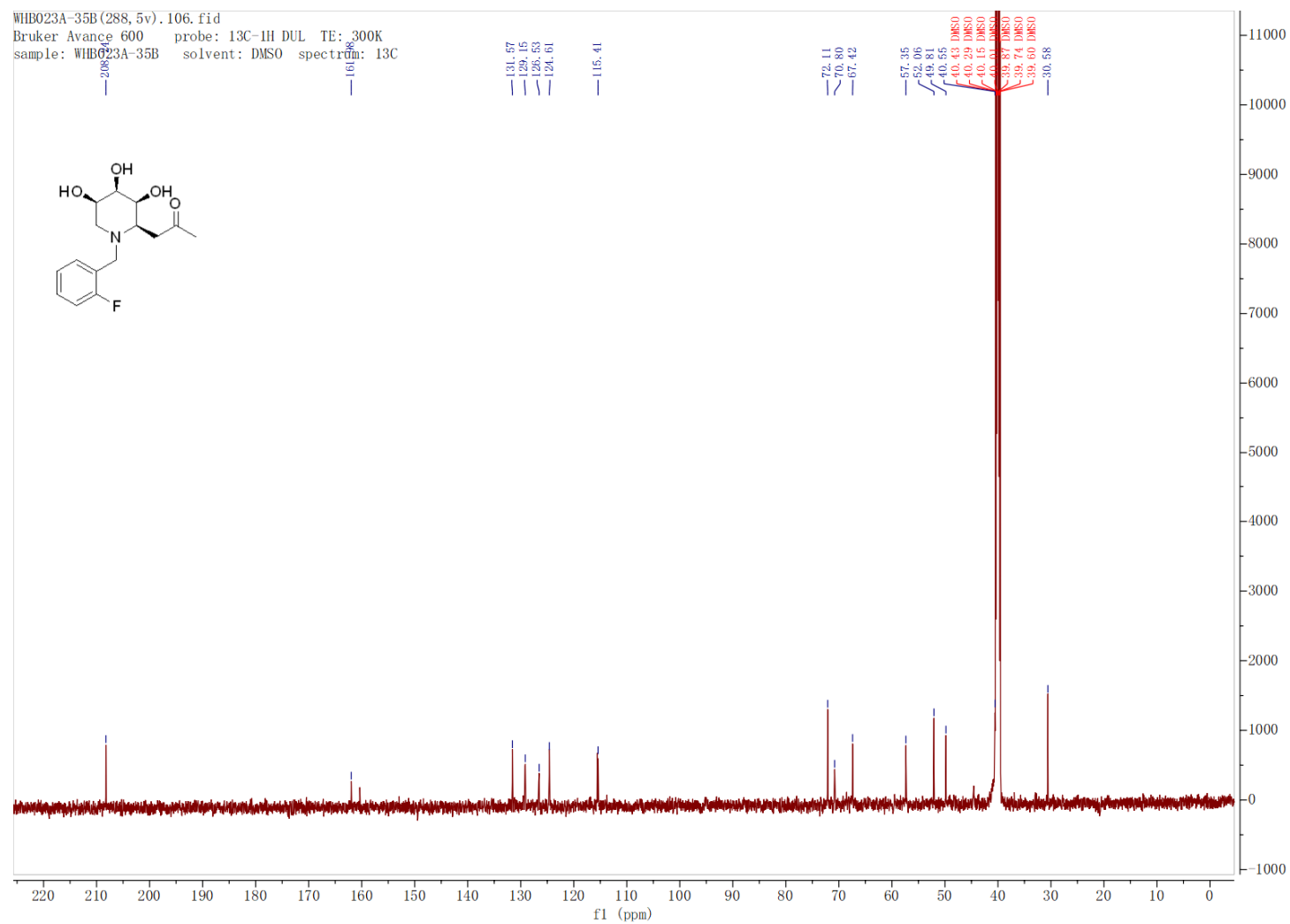
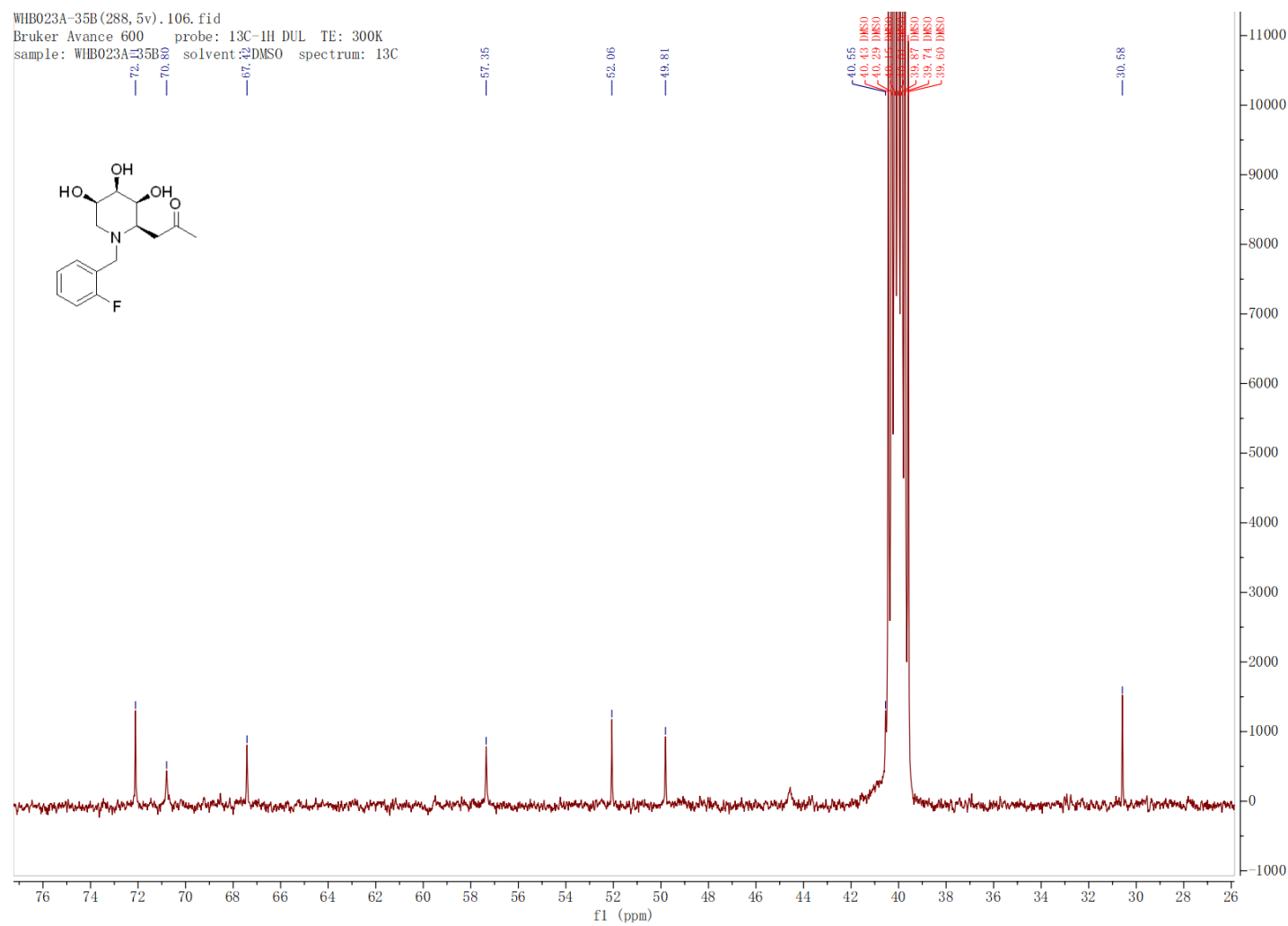


Figure S100. The  $^{13}\text{C}$  NMR of compound **5y**.



**Figure S101.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound 5y.

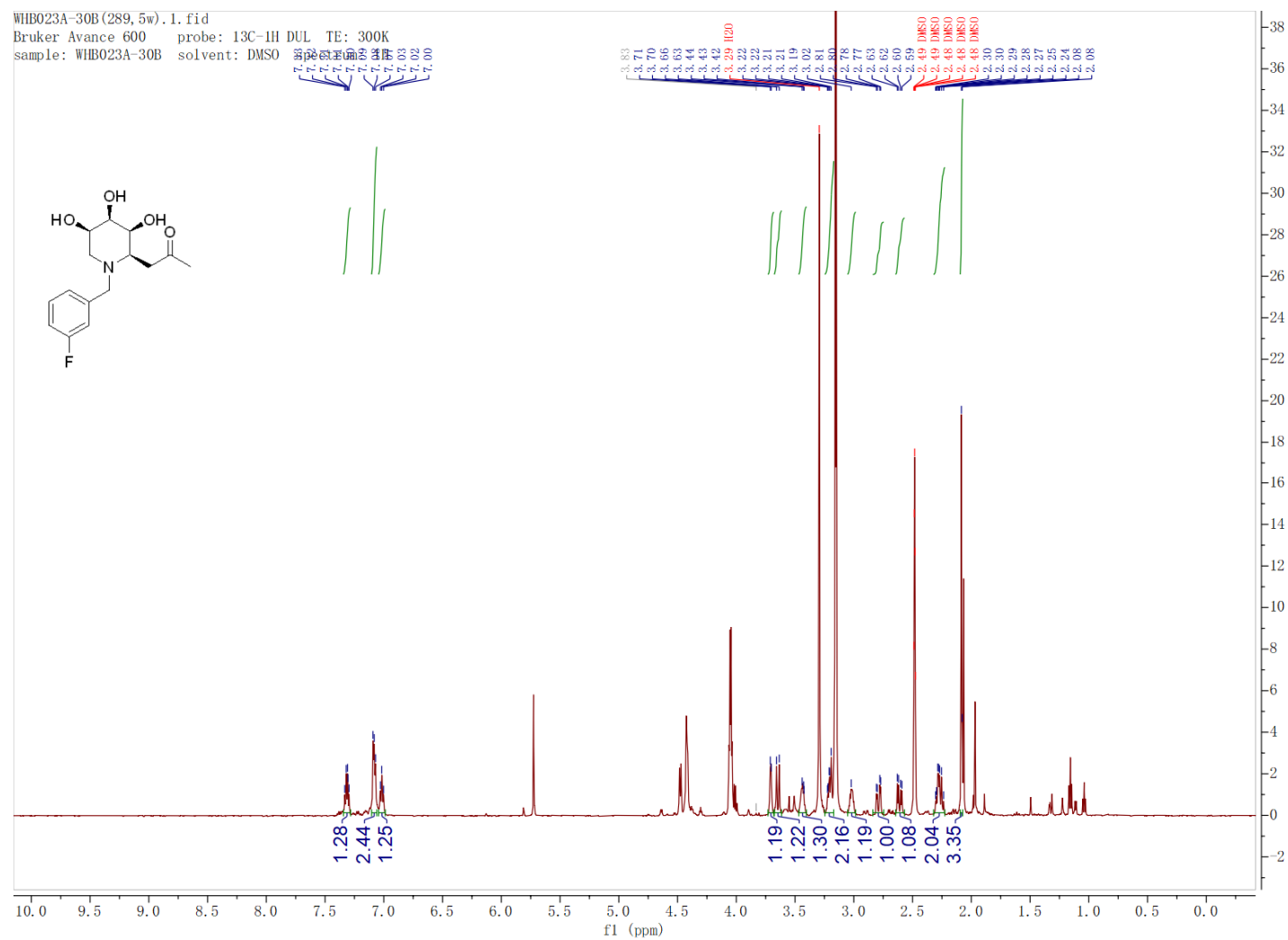
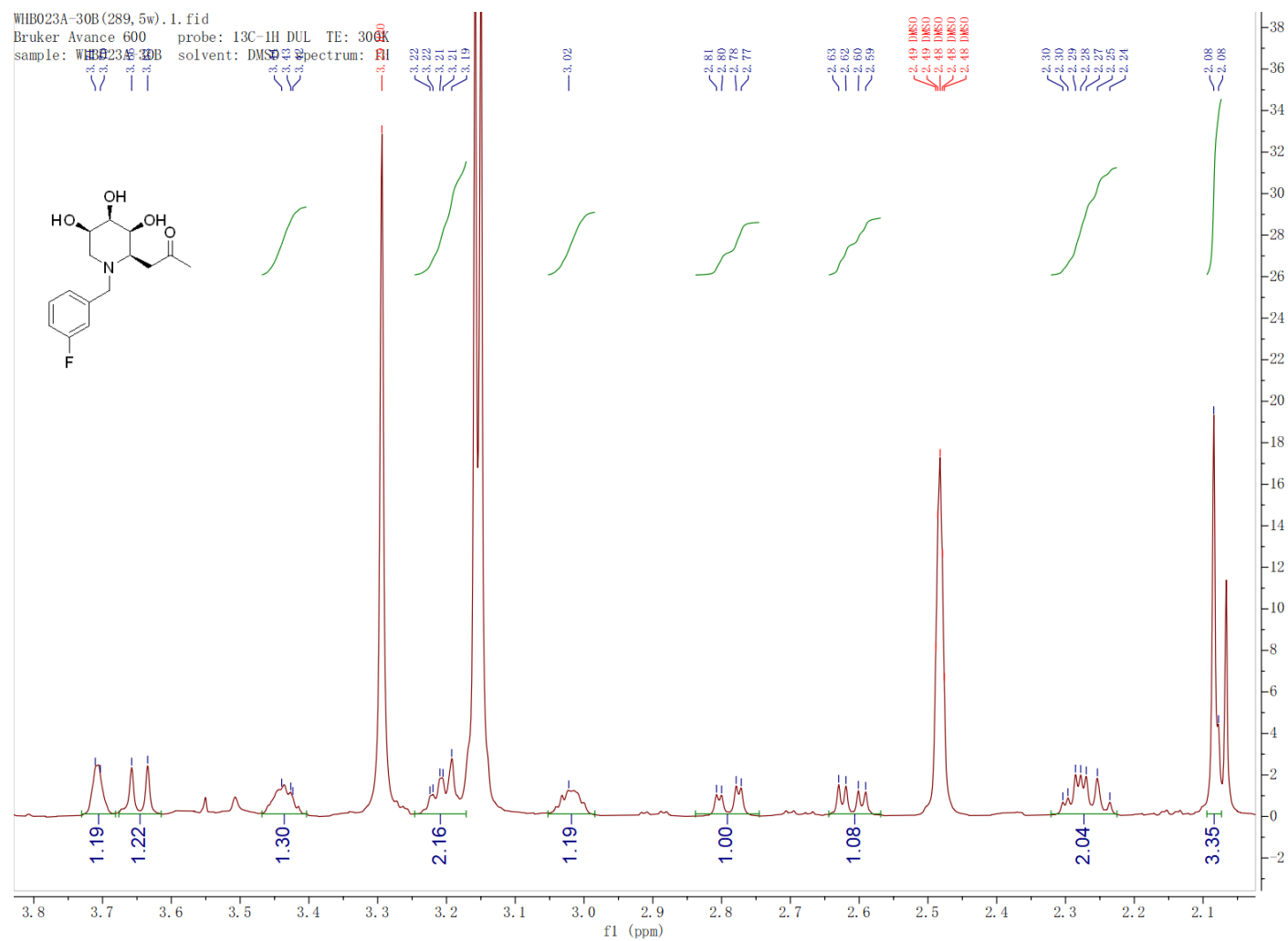


Figure S102. The  $^1\text{H}$  NMR of compound 5z.



**Figure S103.** Partial region amplification of the  $^1\text{H}$  NMR of compound 5z.

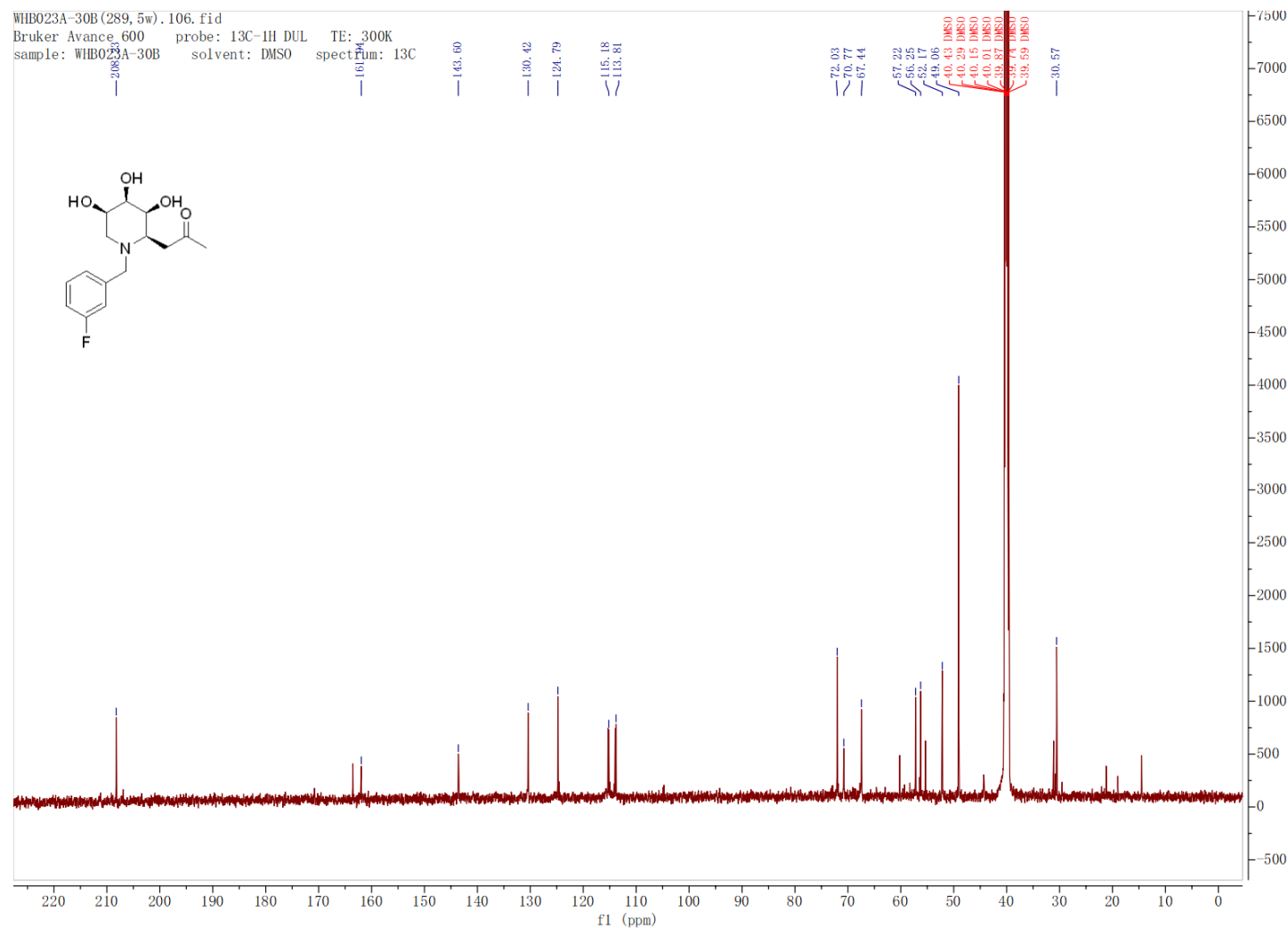
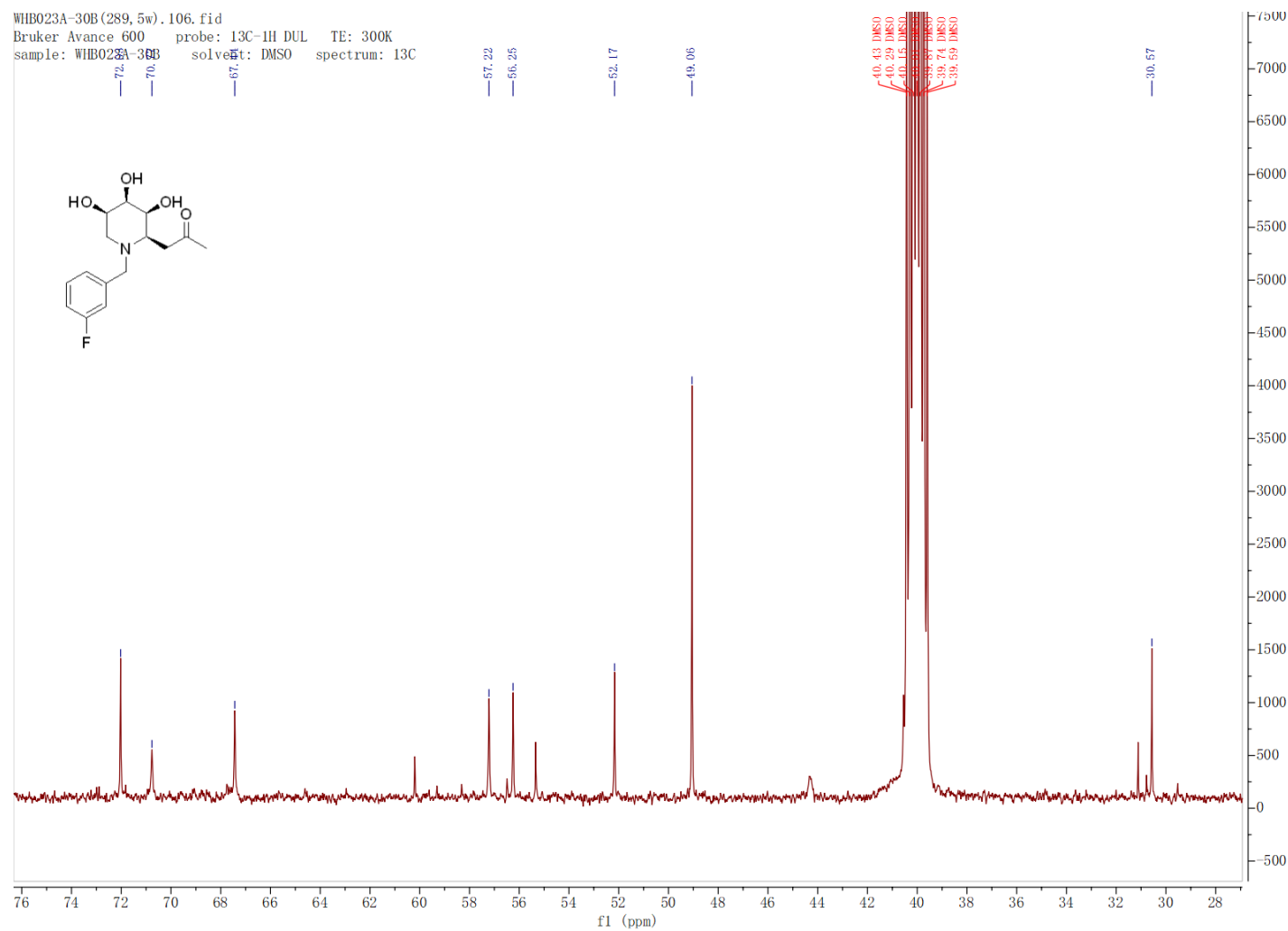


Figure S104. The  $^{13}\text{C}$  NMR of compound 5z.



**Figure S105.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound 5z.

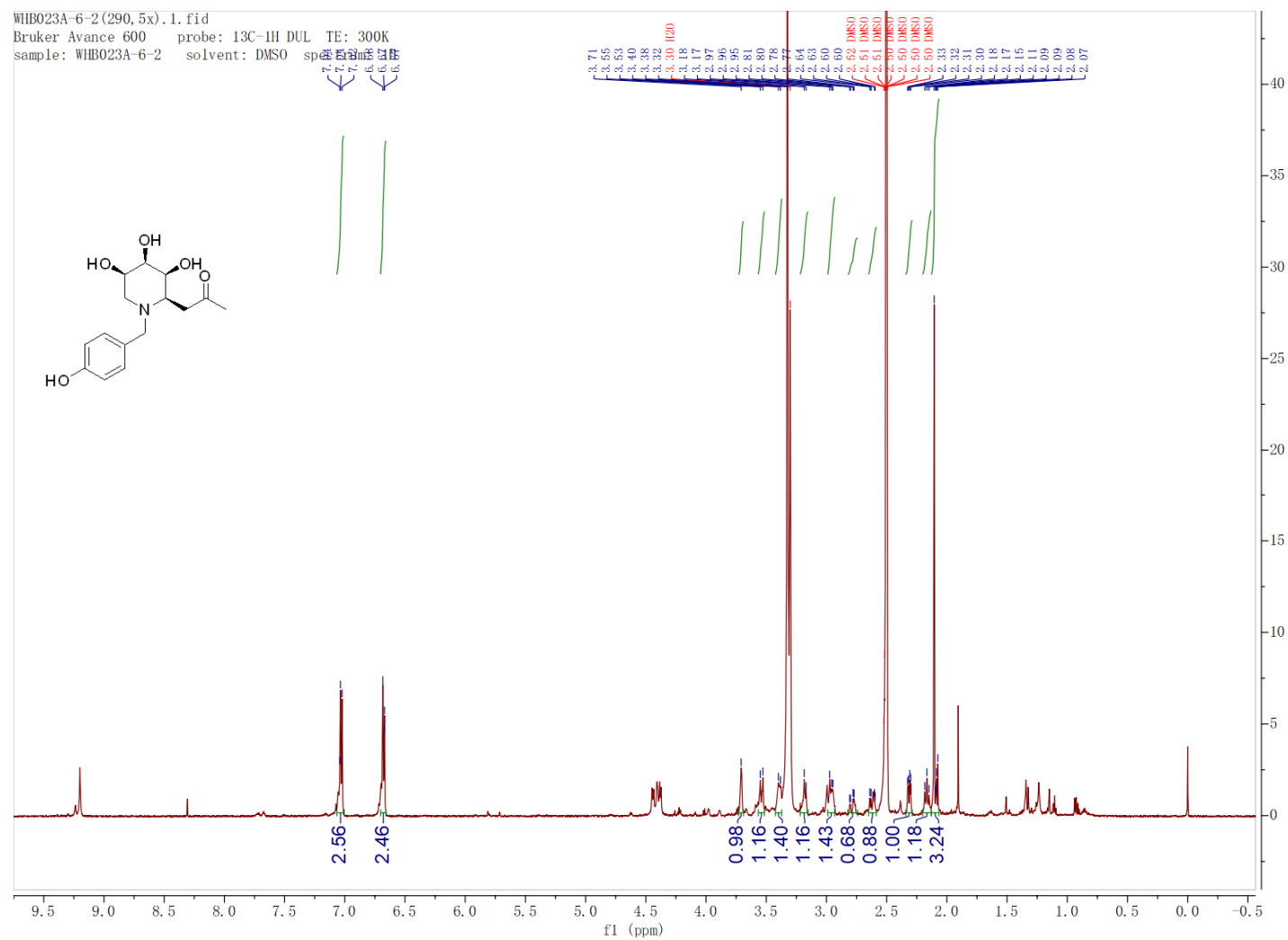


Figure S106. The  $^1\text{H}$  NMR of compound 5λ.

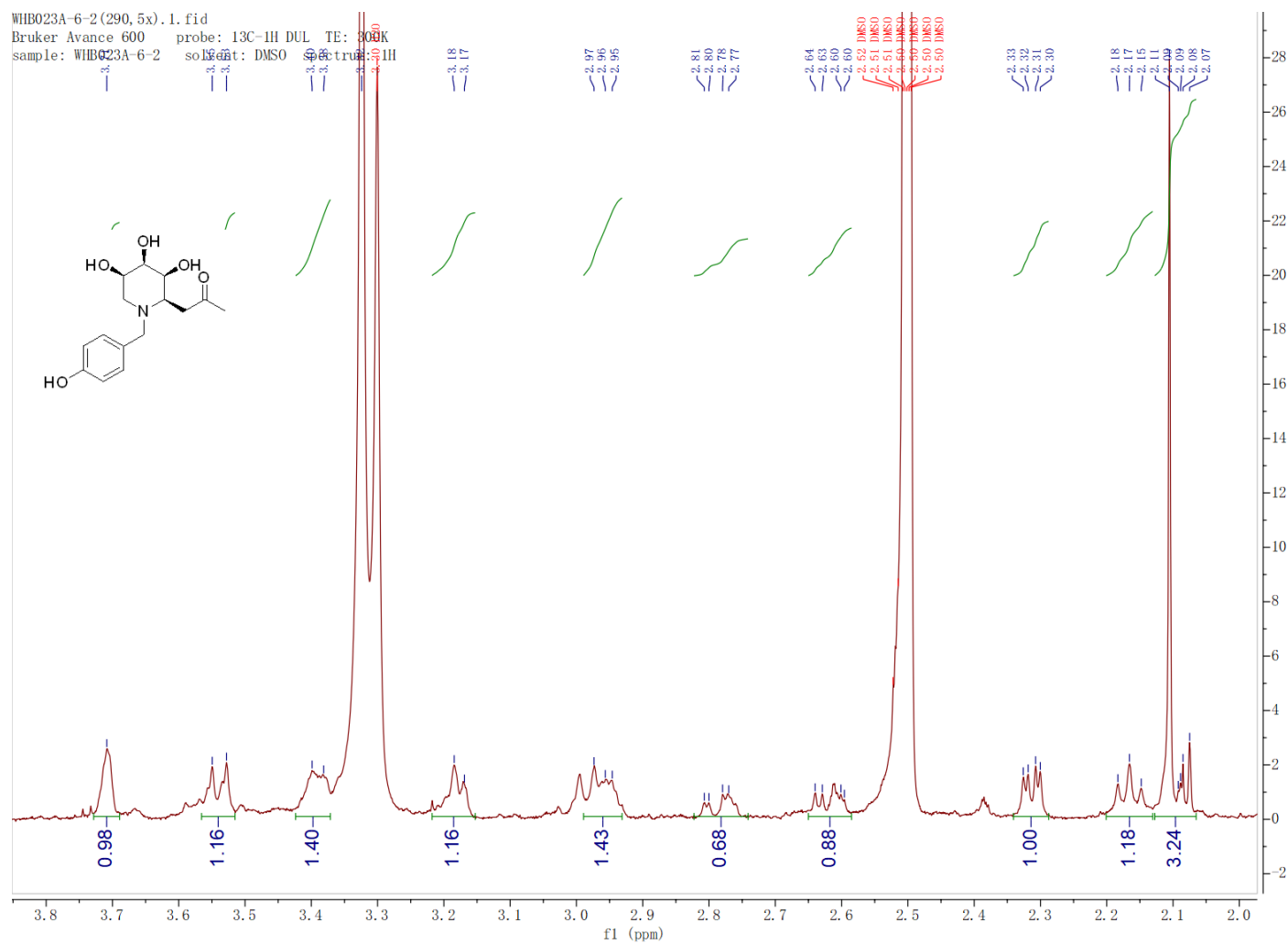


Figure S107. Partial region amplification of the  $^1\text{H}$  NMR of compound 5λ.



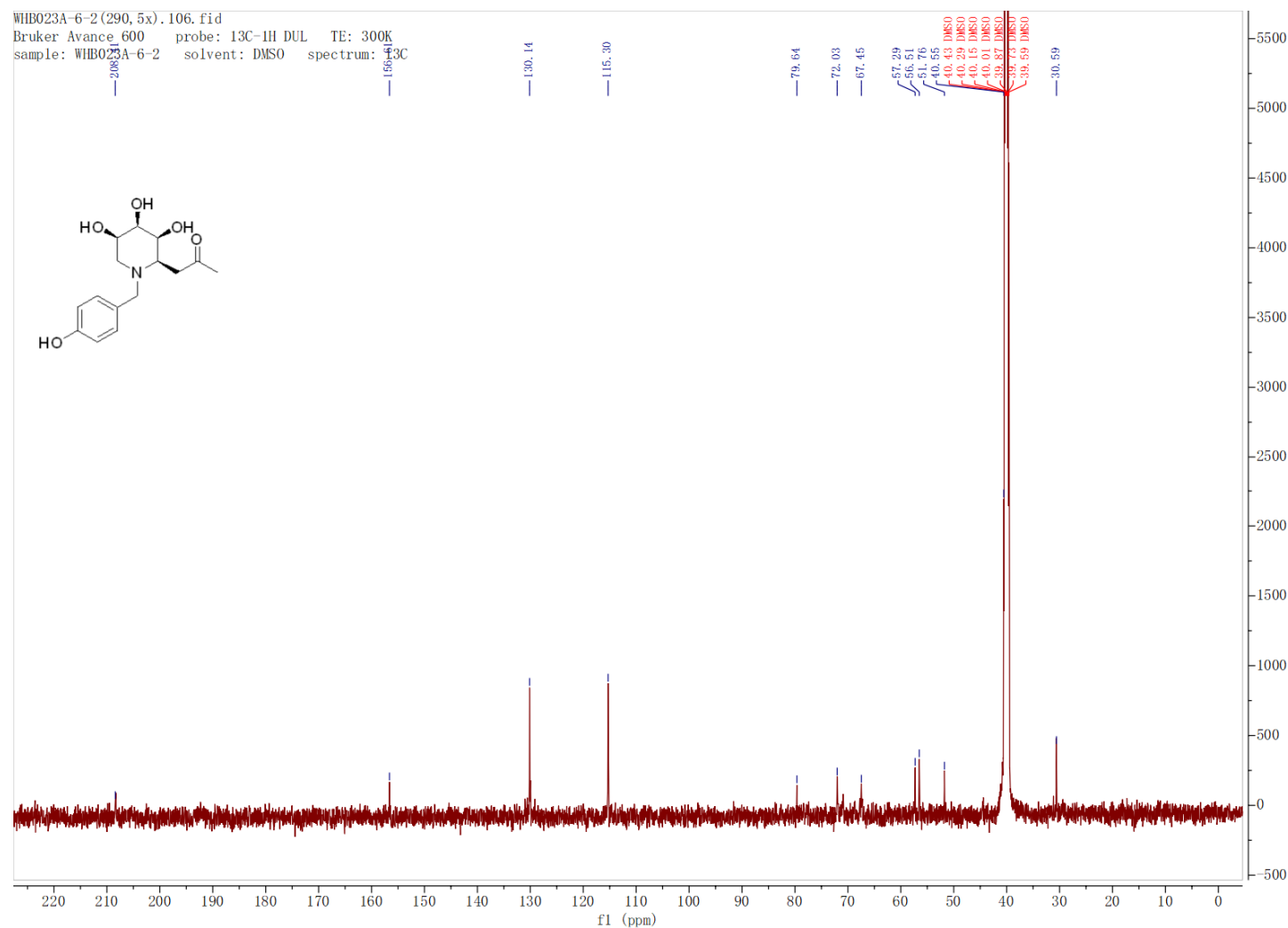


Figure S108. The  $^{13}\text{C}$  NMR of compound 5A.

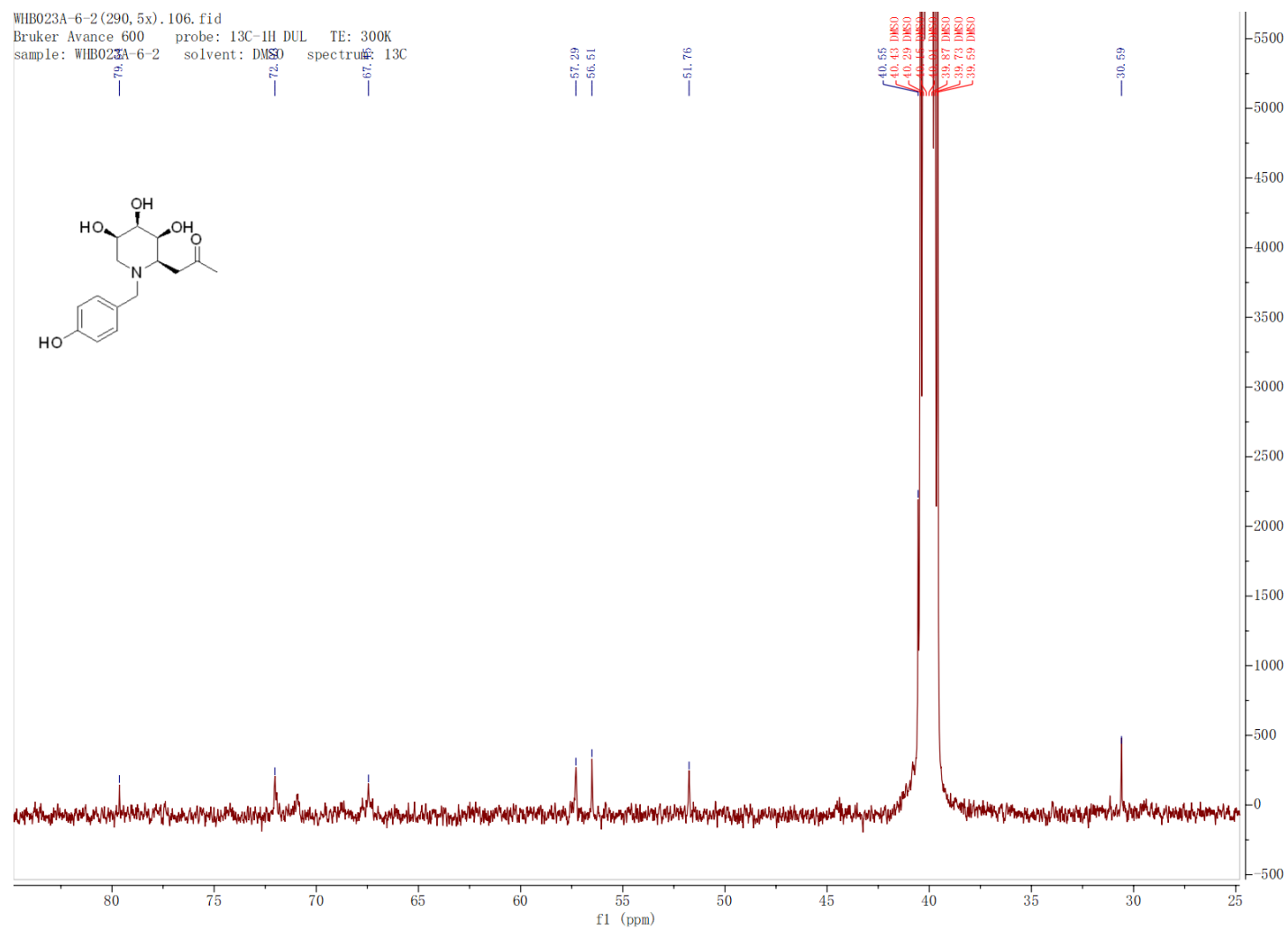
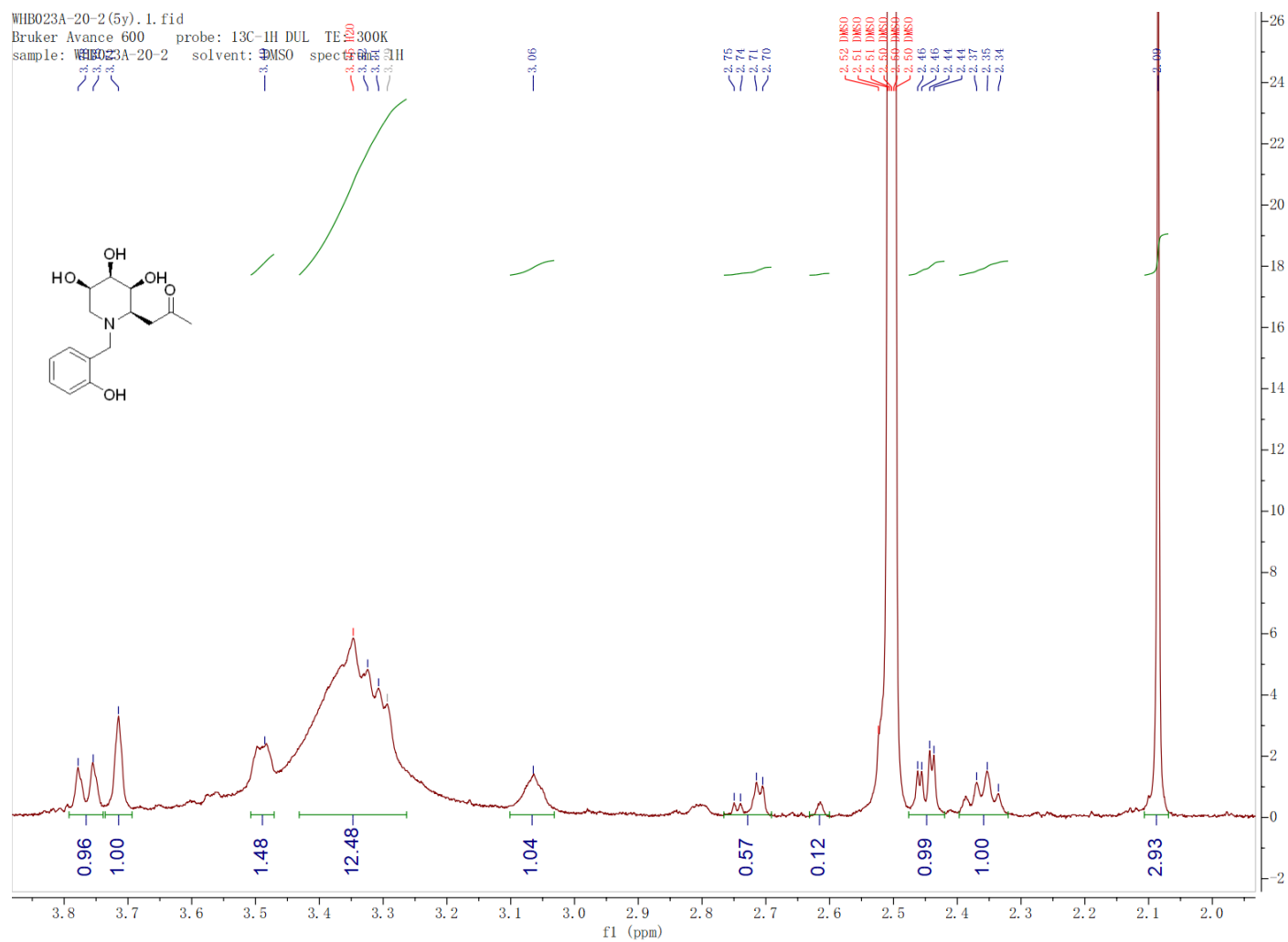


Figure S109. Partial region amplification of the  $^{13}\text{C}$  NMR of compound 5λ.





**Figure S111.** Partial region amplification of the  $^1\text{H}$  NMR of compound **50**.

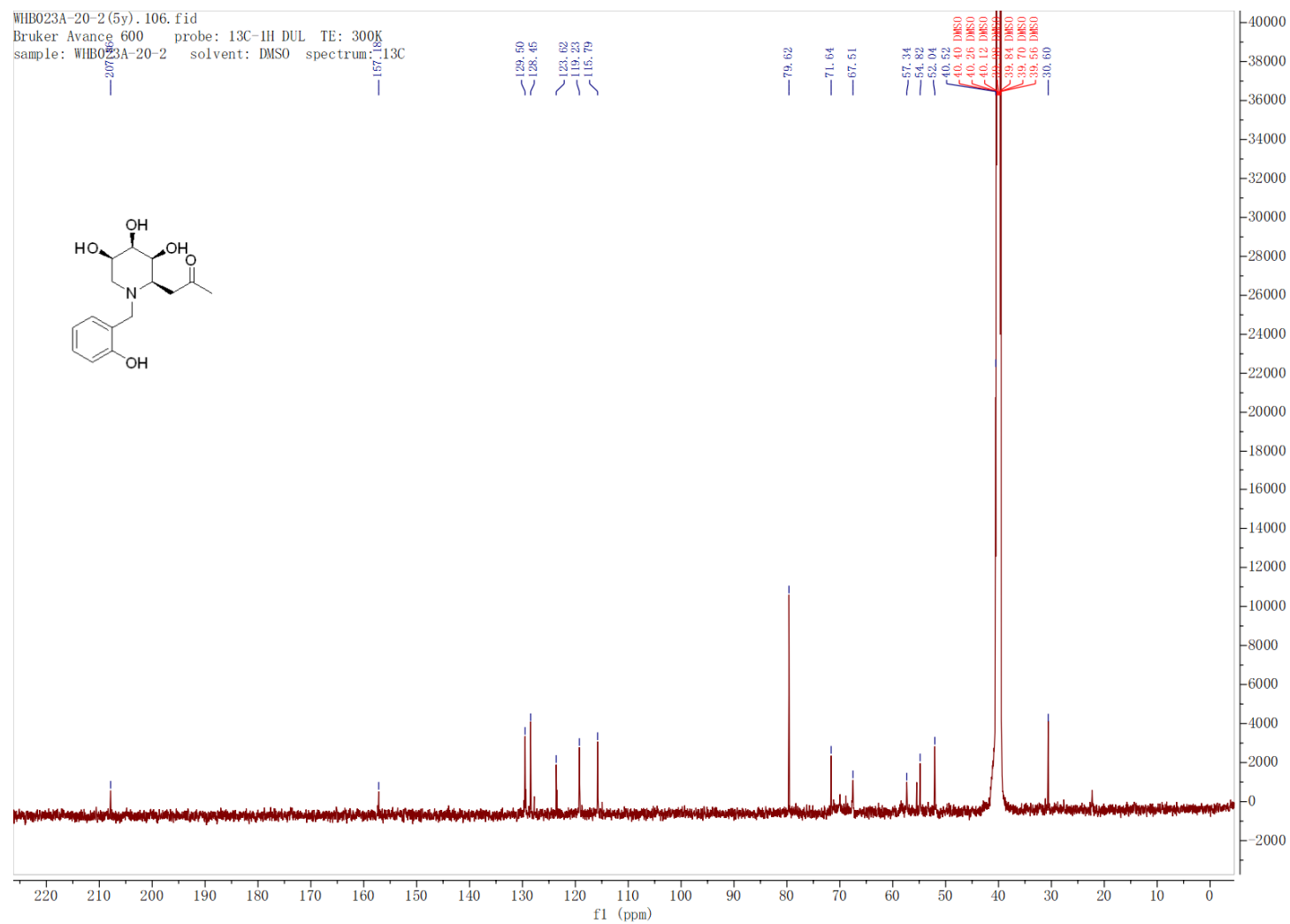
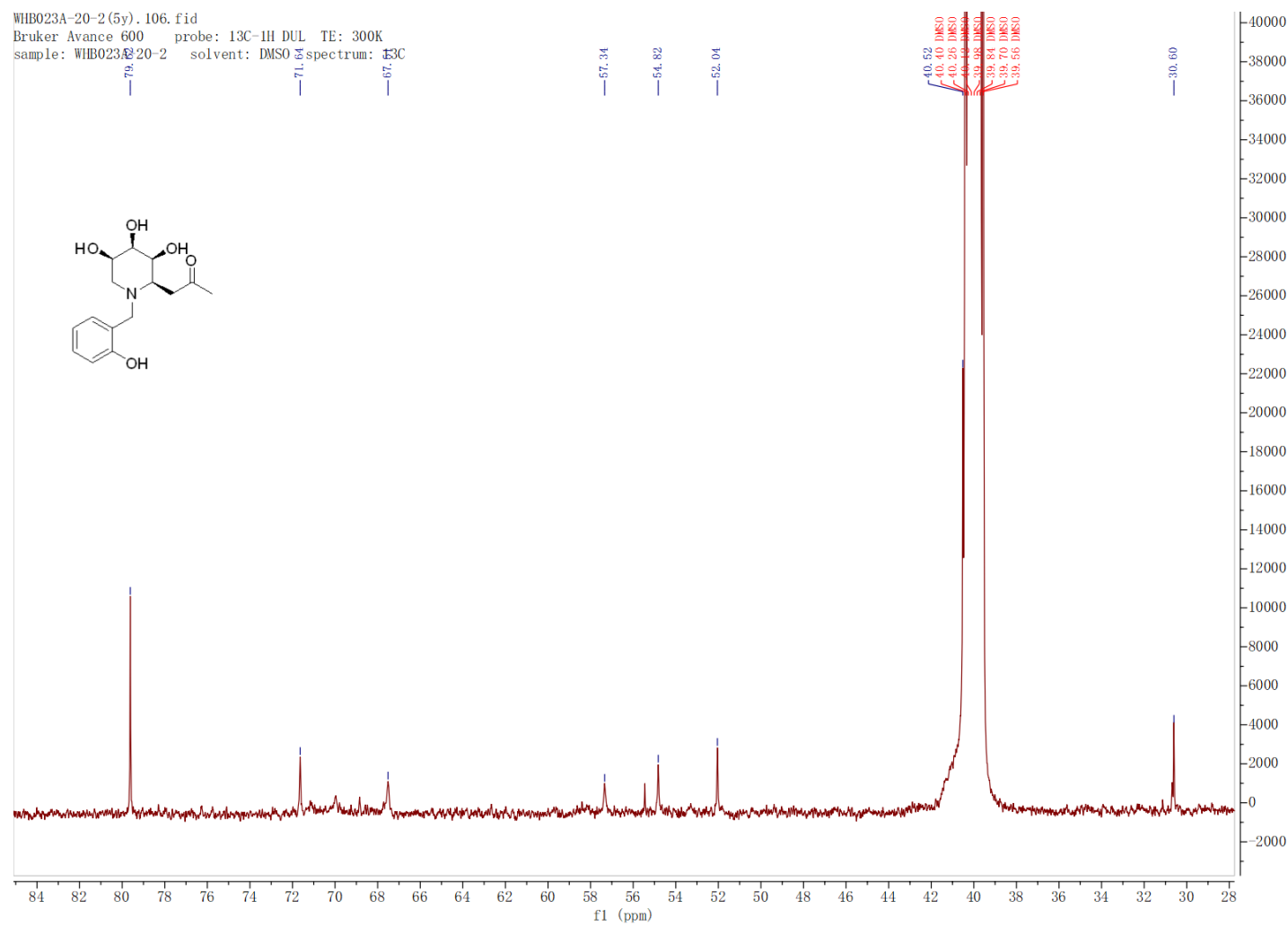


Figure S112. The  $^{13}\text{C}$  NMR of compound 50.



**Figure S113.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **50**.

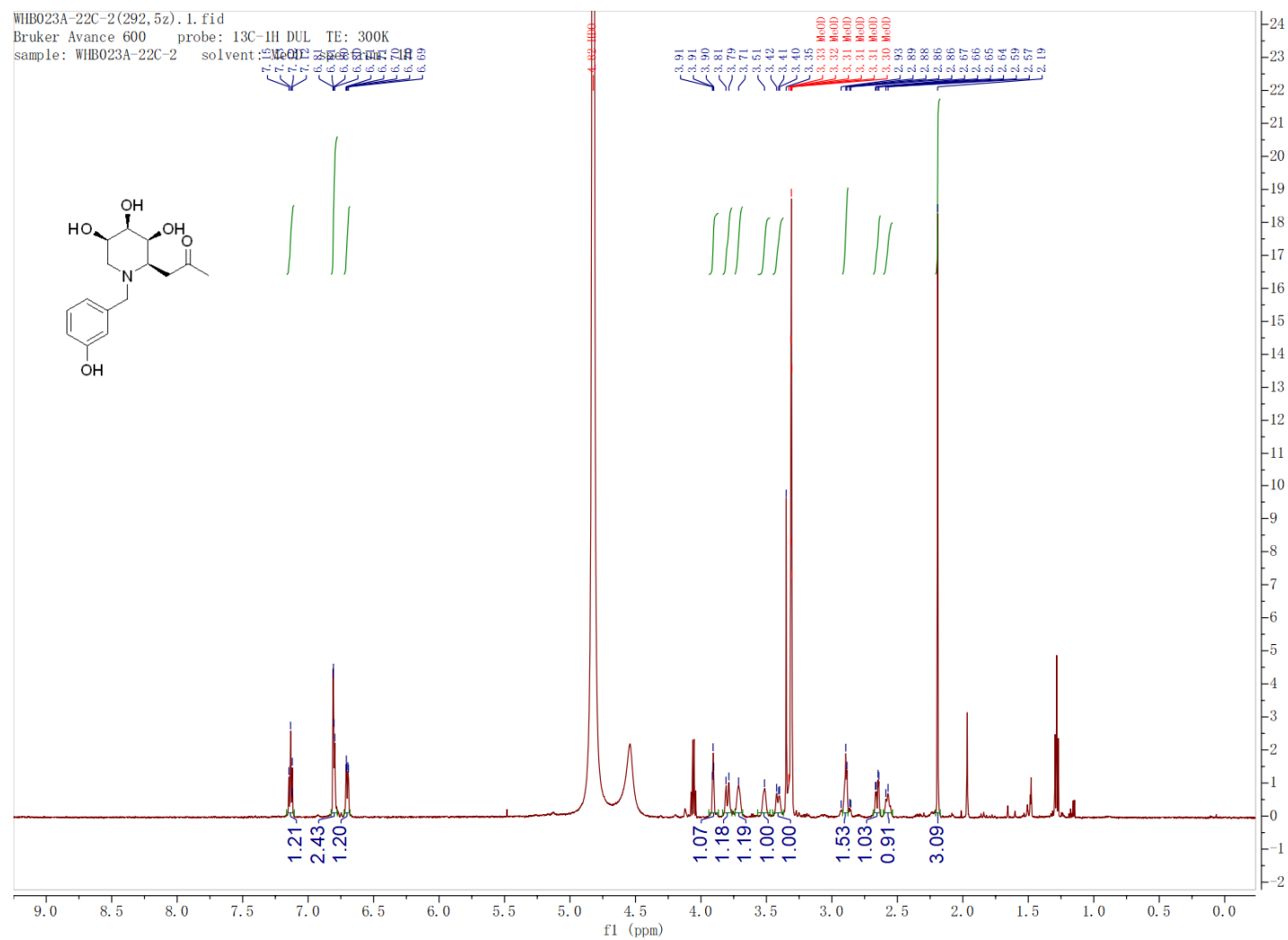
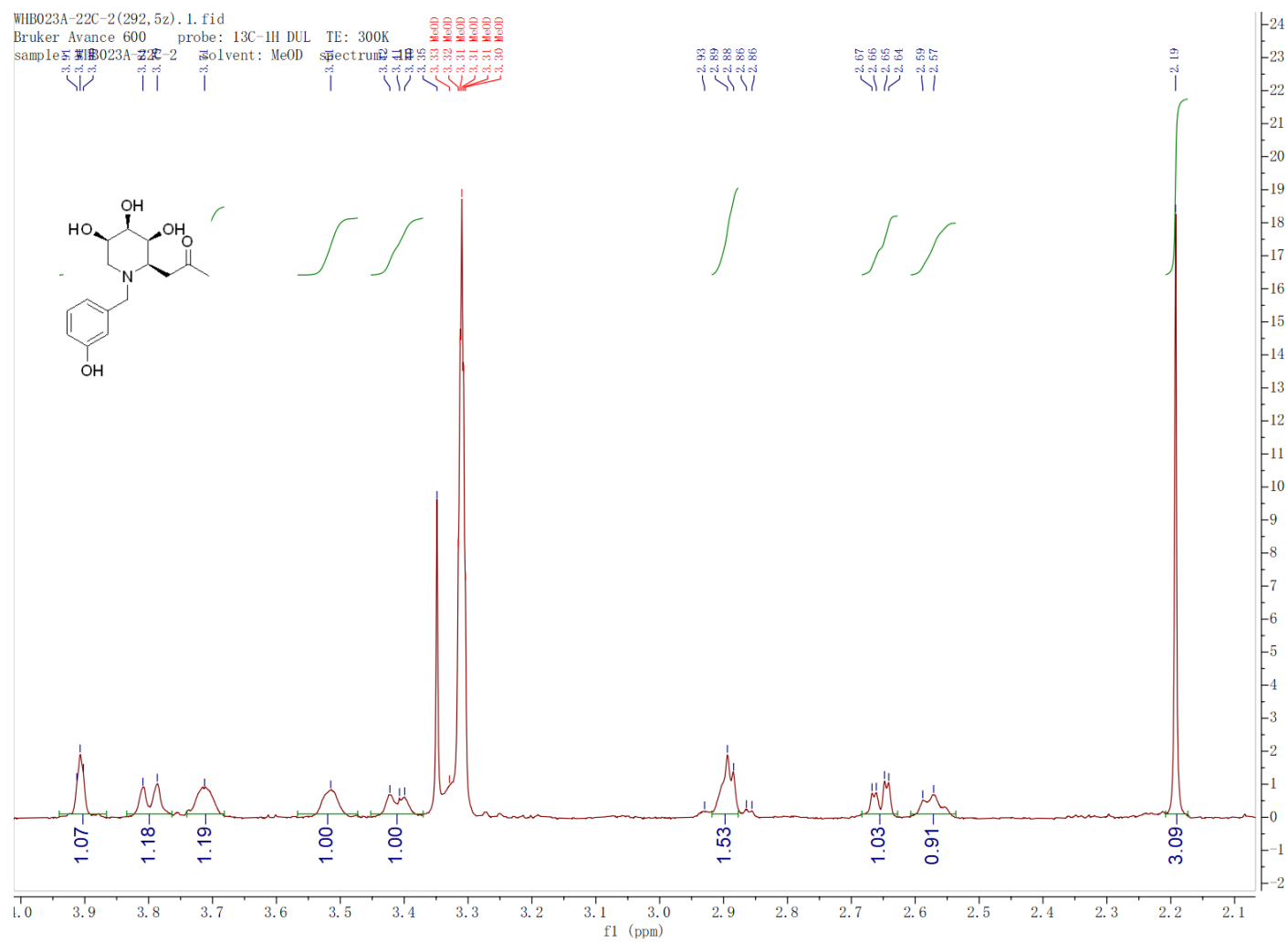


Figure S114. The  $^1\text{H}$  NMR of compound 5π.



**Figure S115.** Partial region amplification of the  $^1\text{H}$  NMR of compound **5π**.



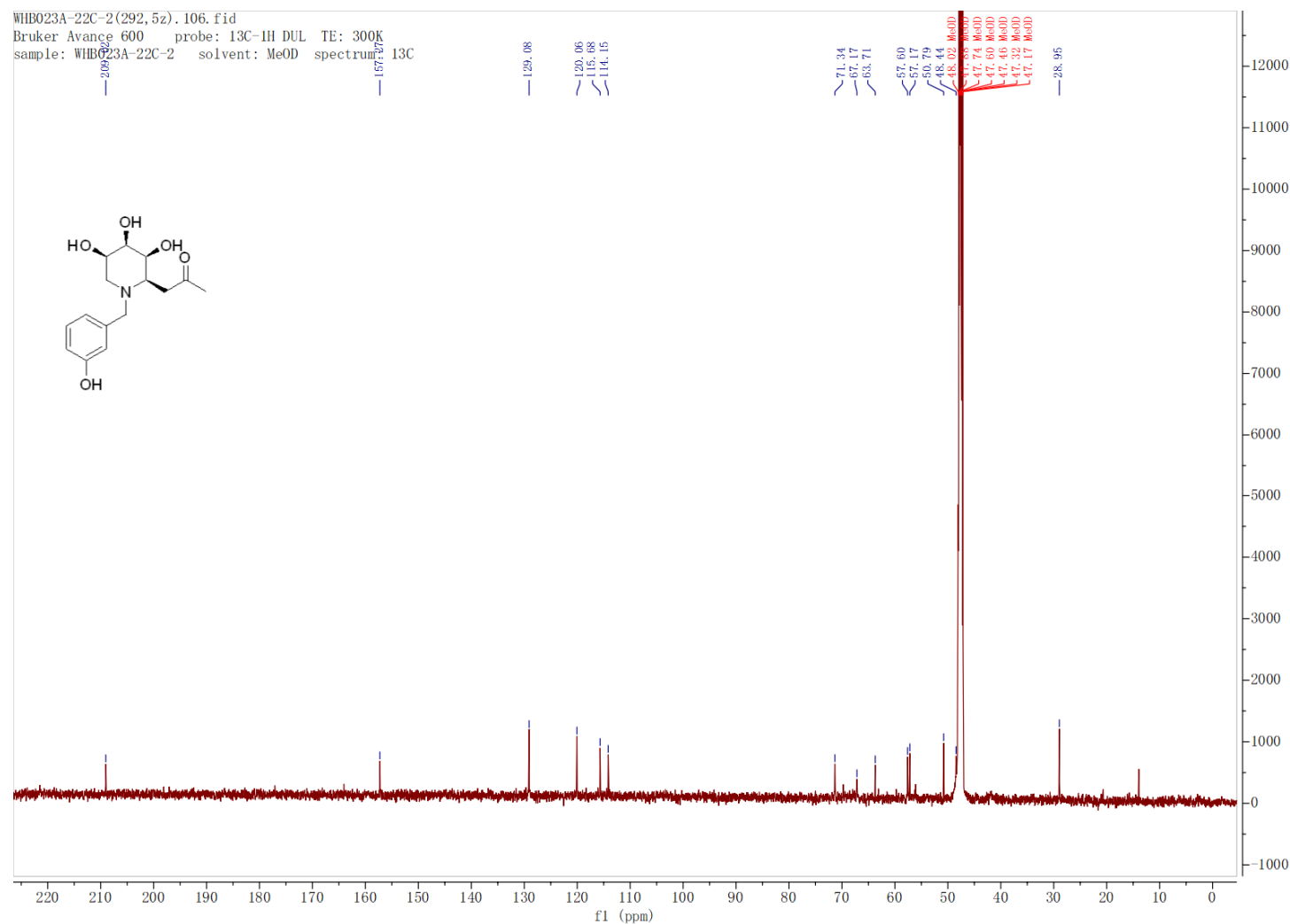
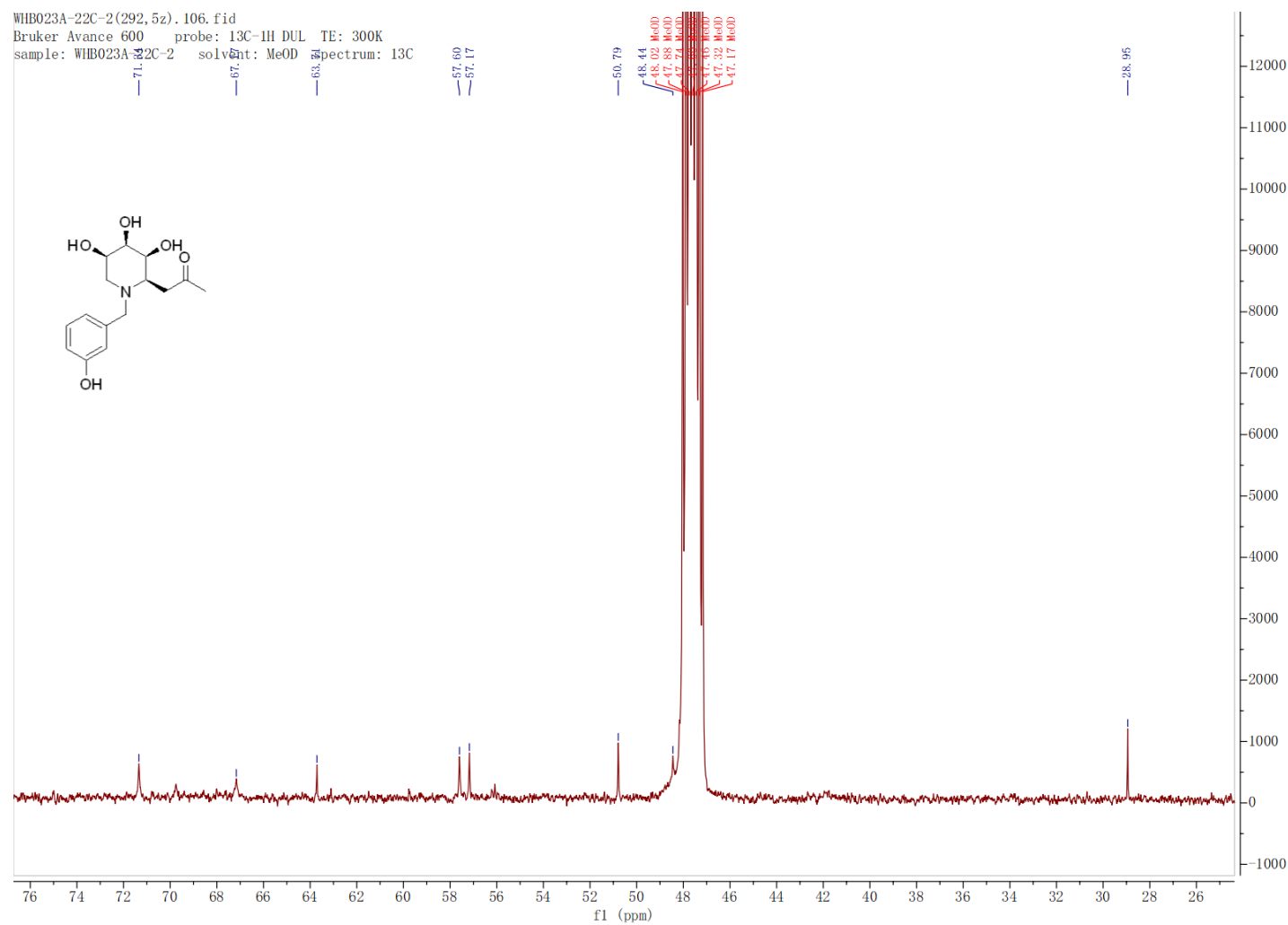


Figure S116. The  $^{13}\text{C}$  NMR of compound **5π**.



**Figure S117.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **5π**.

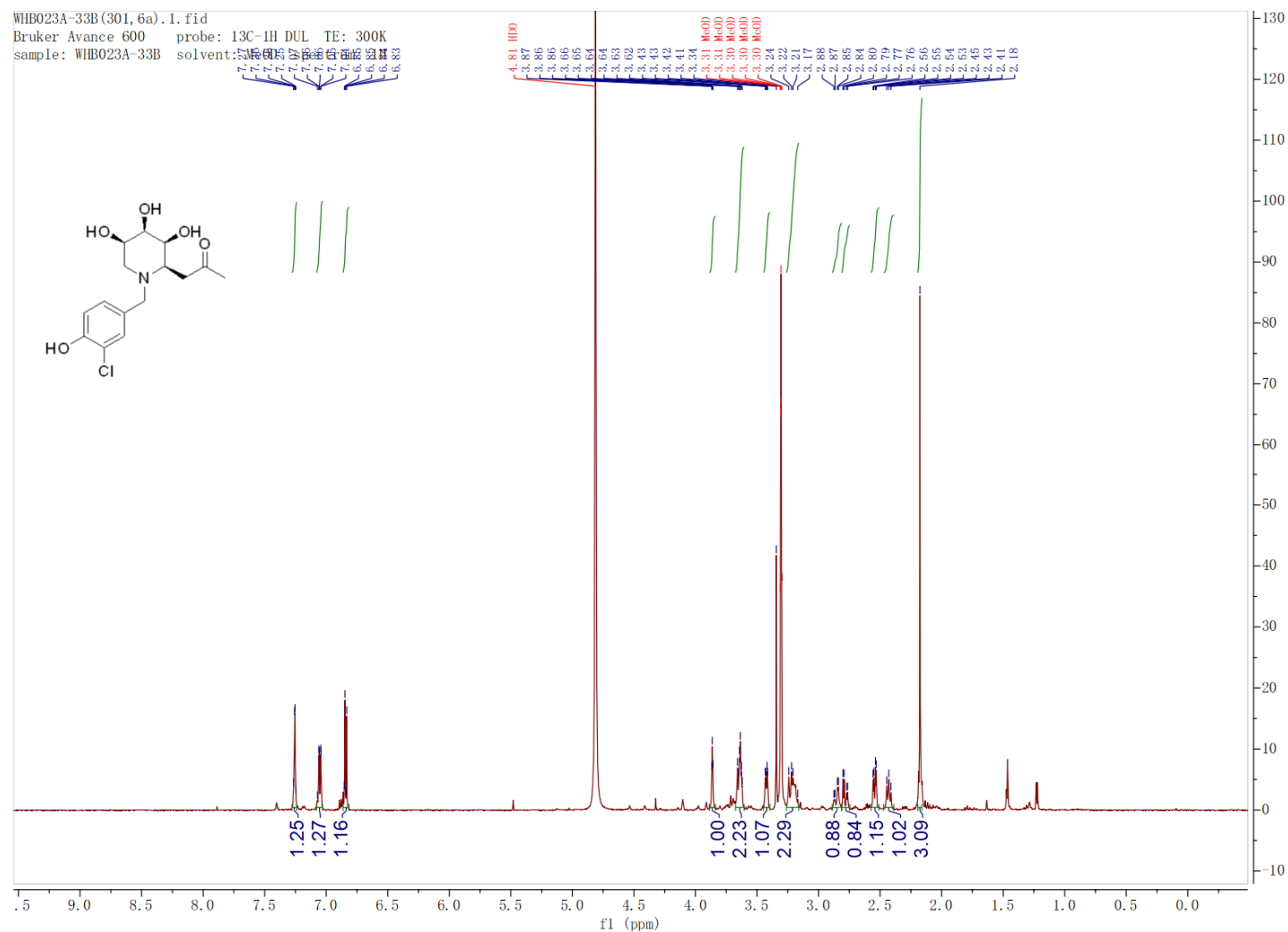
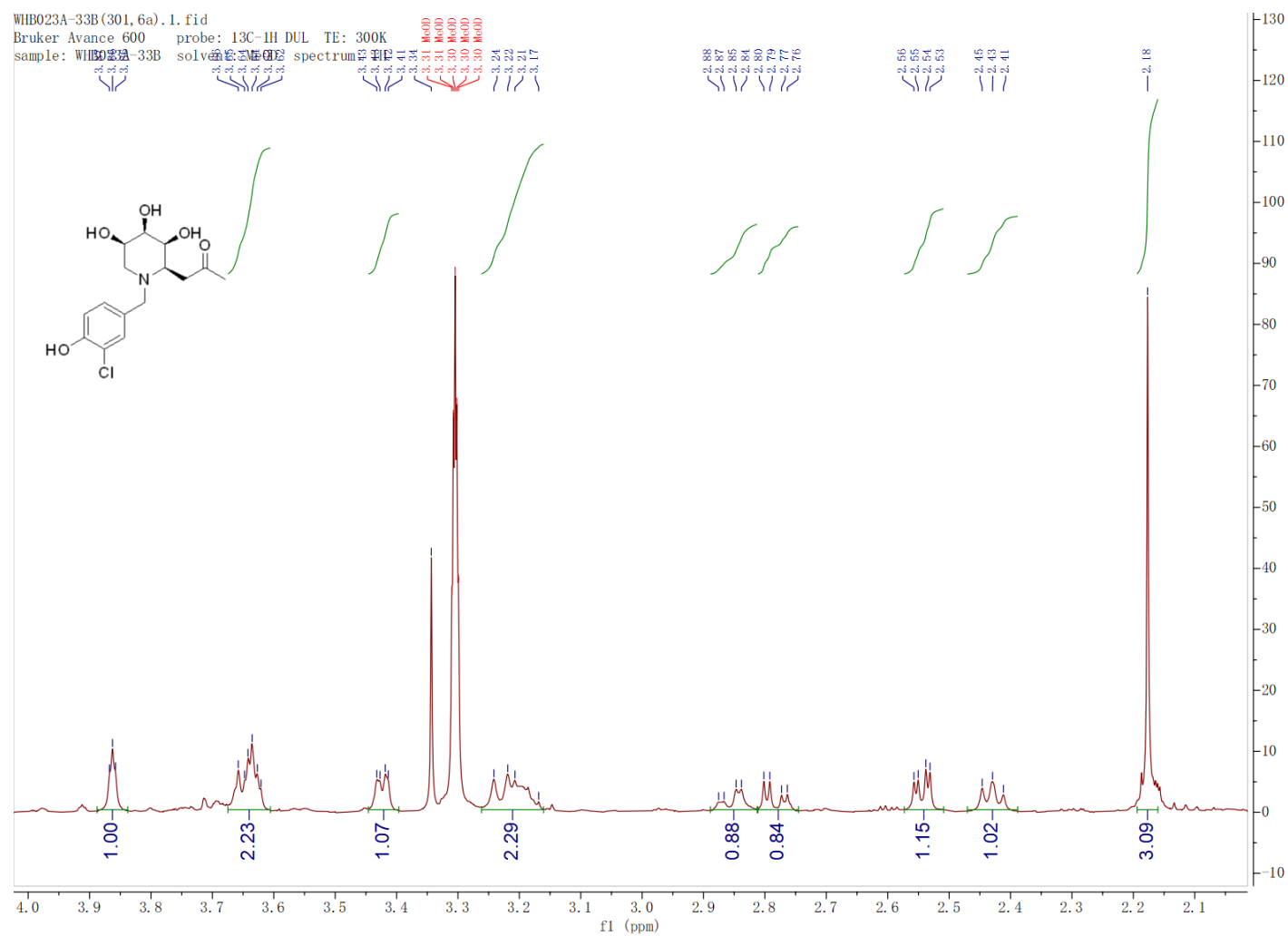


Figure S118. The <sup>1</sup>H NMR of compound 6a.



**Figure S119.** Partial region amplification of the  $^1\text{H}$  NMR of compound **6a**.

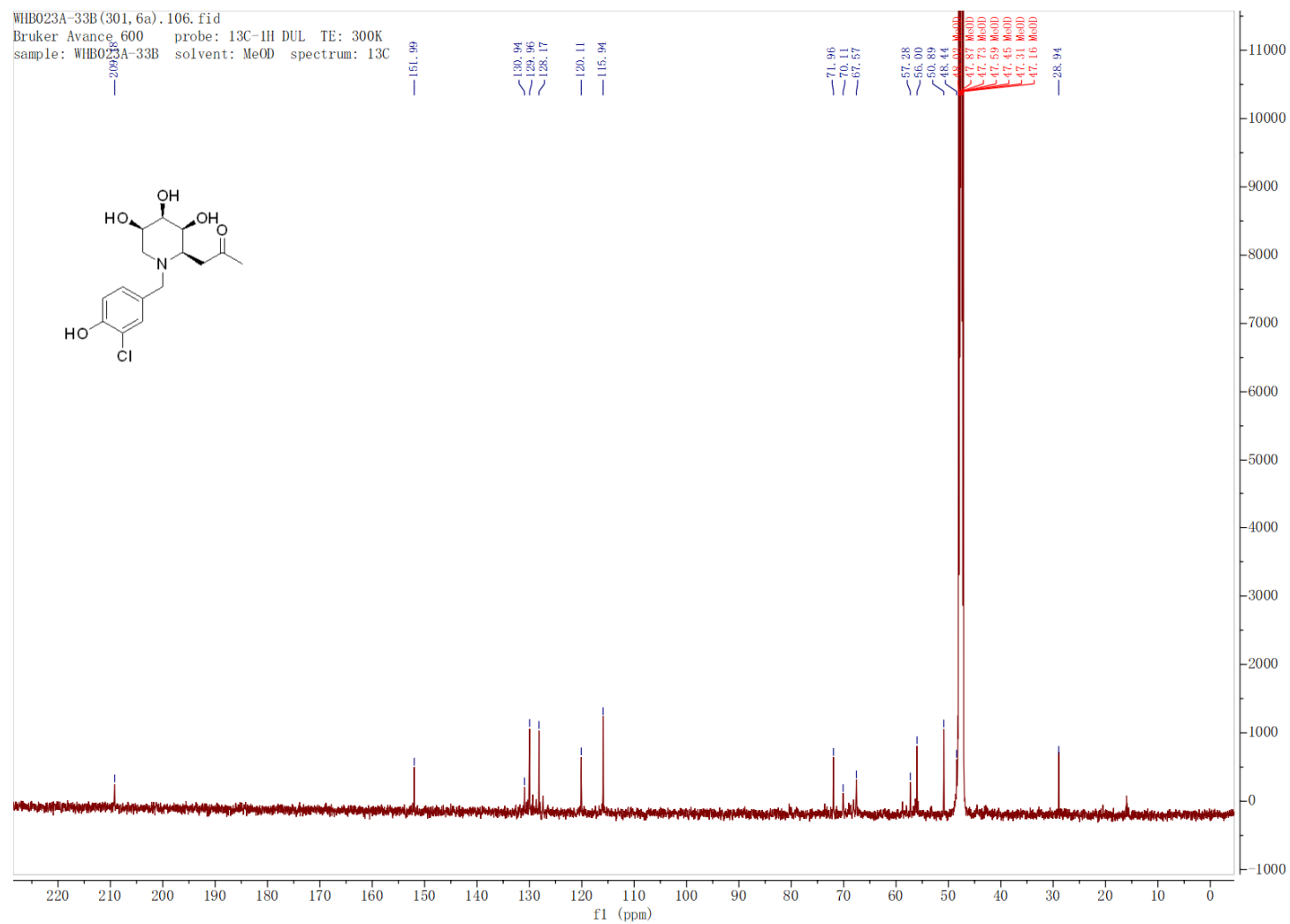
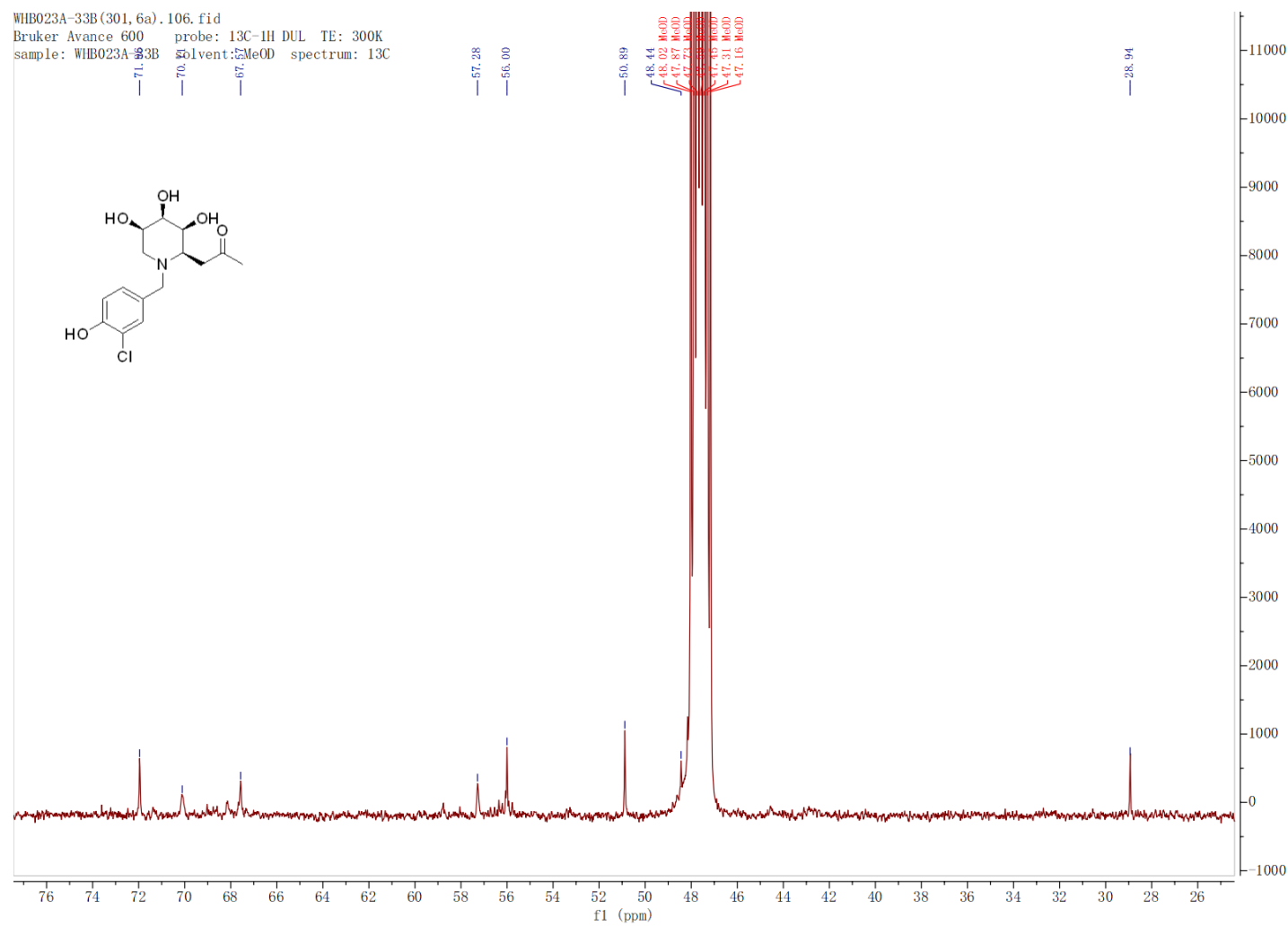
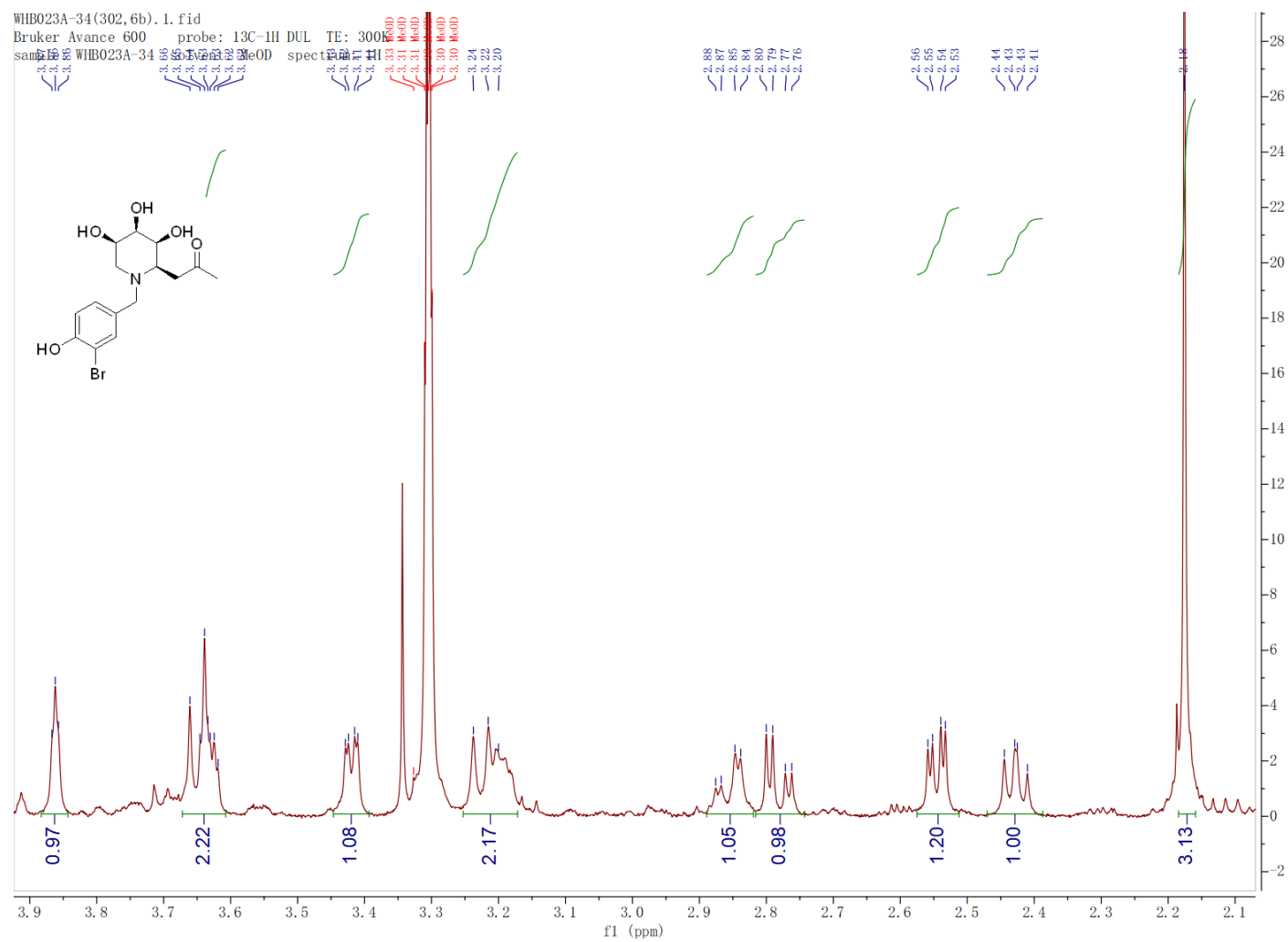


Figure S120. The  $^{13}\text{C}$  NMR of compound 6a.



**Figure S121.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **6a**.





**Figure S123.** Partial region amplification of the <sup>1</sup>H NMR of compound **6b**.



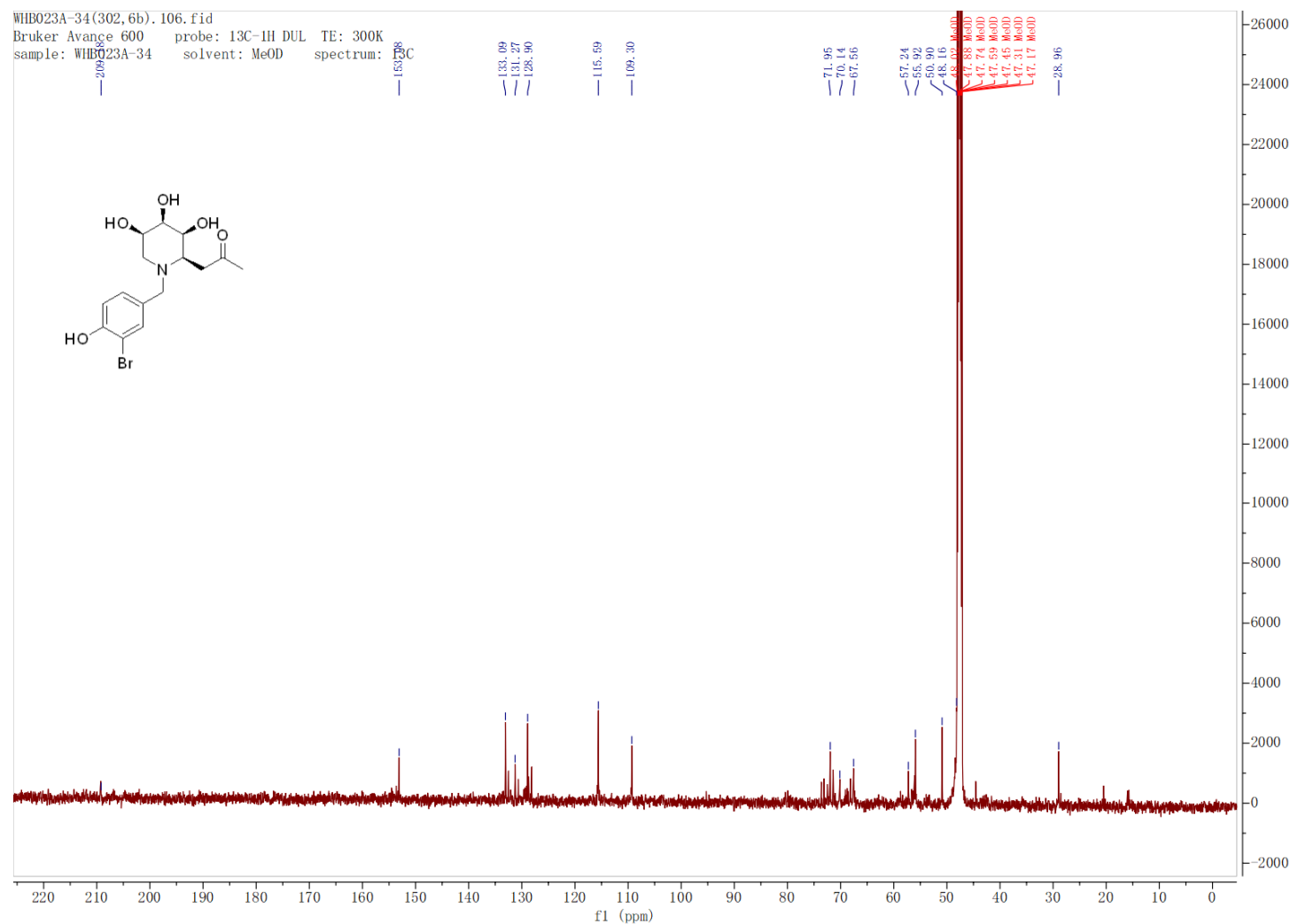
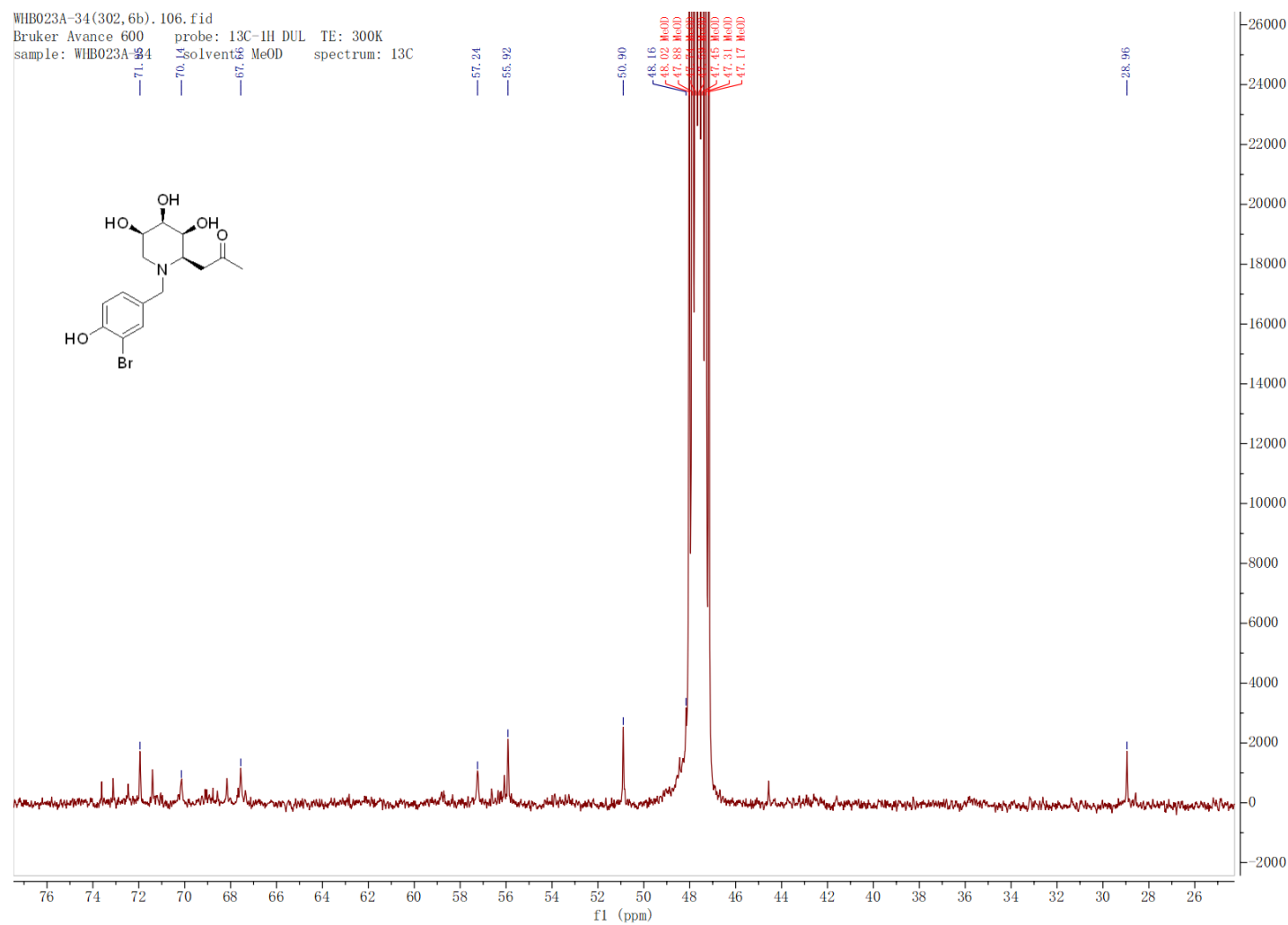


Figure S124. The  $^{13}\text{C}$  NMR of compound **6b**.



**Figure S125.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **6b**.

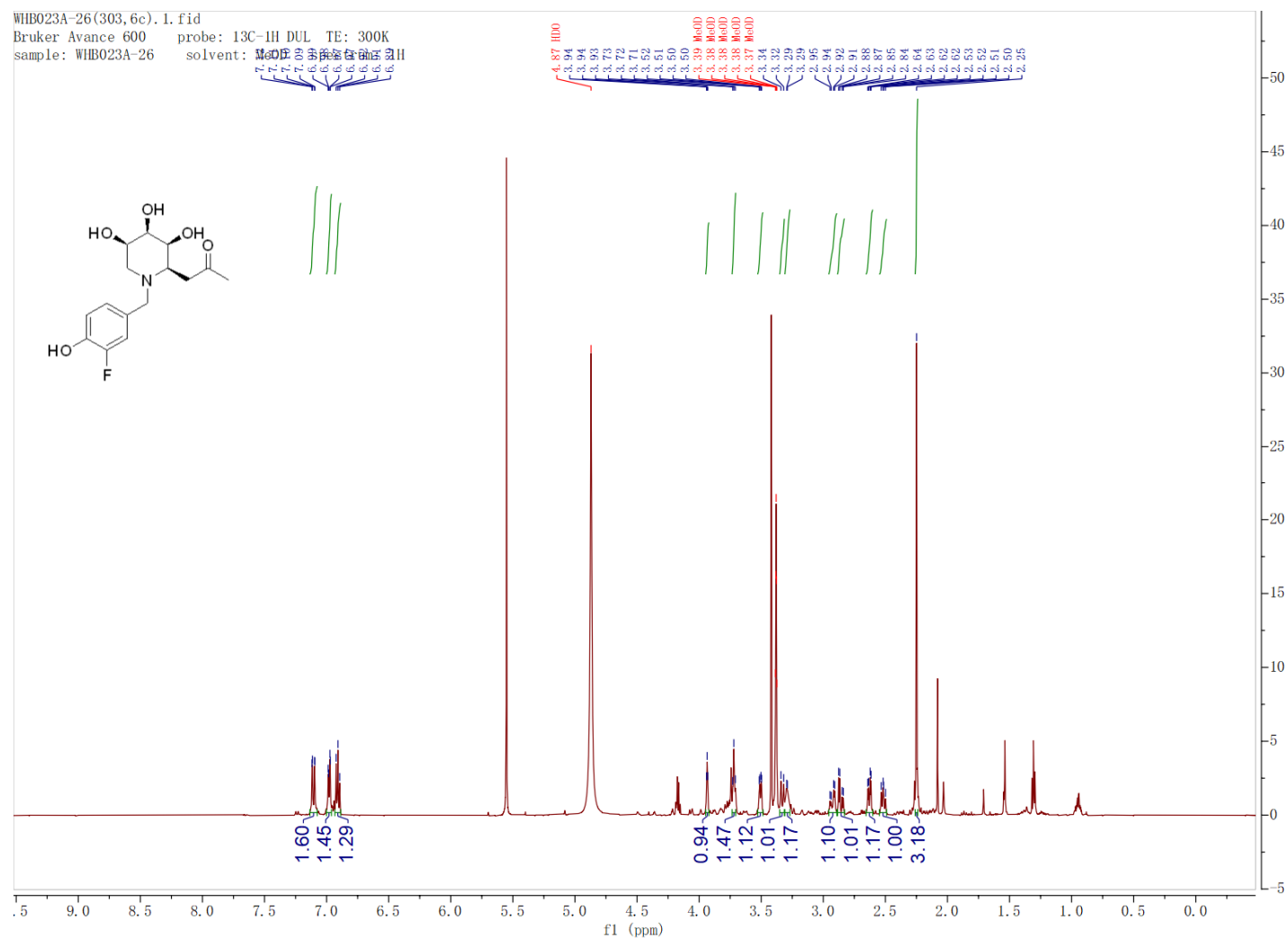


Figure S126. The  $^1\text{H}$  NMR of compound 6c.

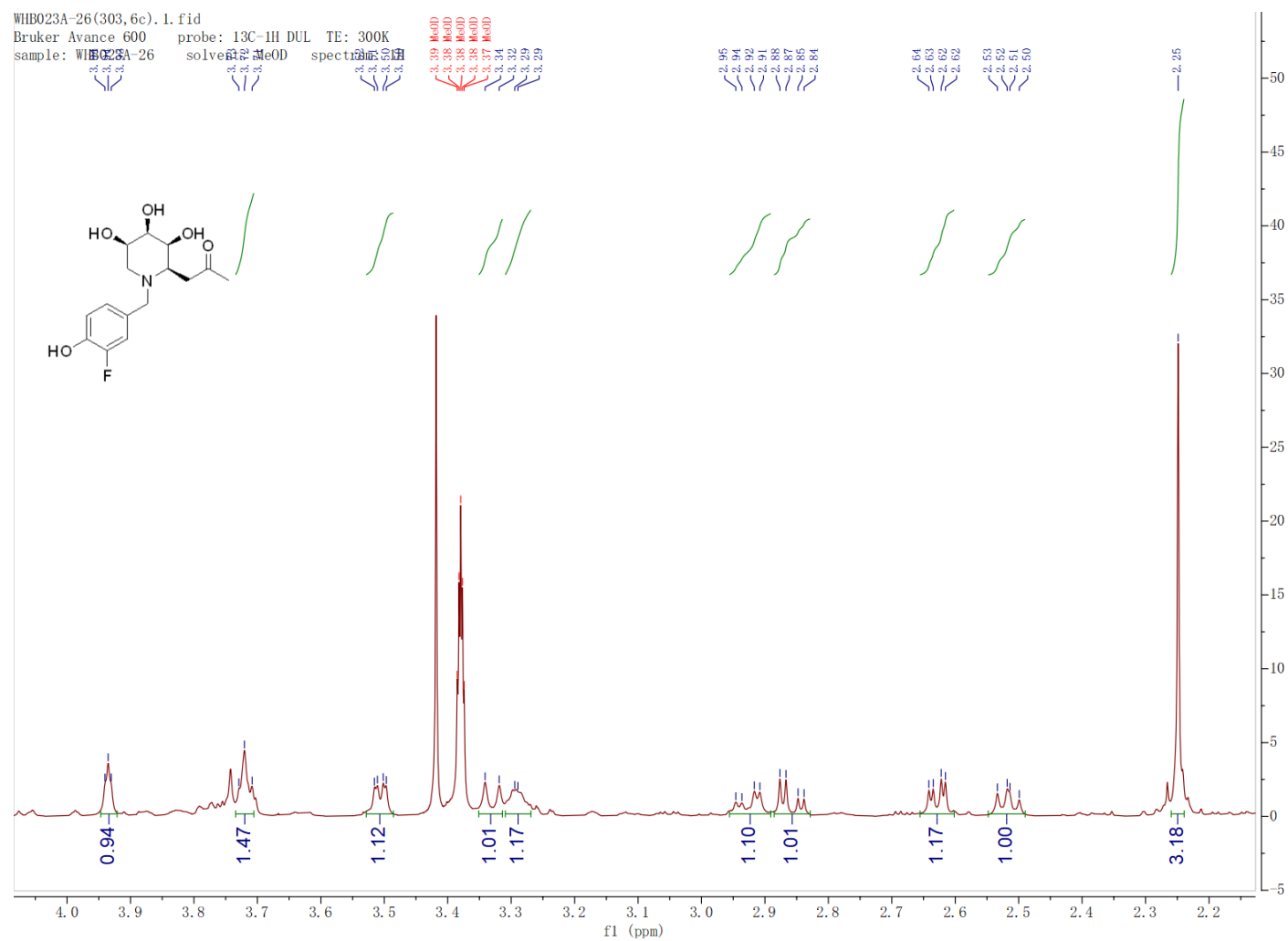


Figure S127. Partial region amplification of the  $^1\text{H}$  NMR of compound 6c.

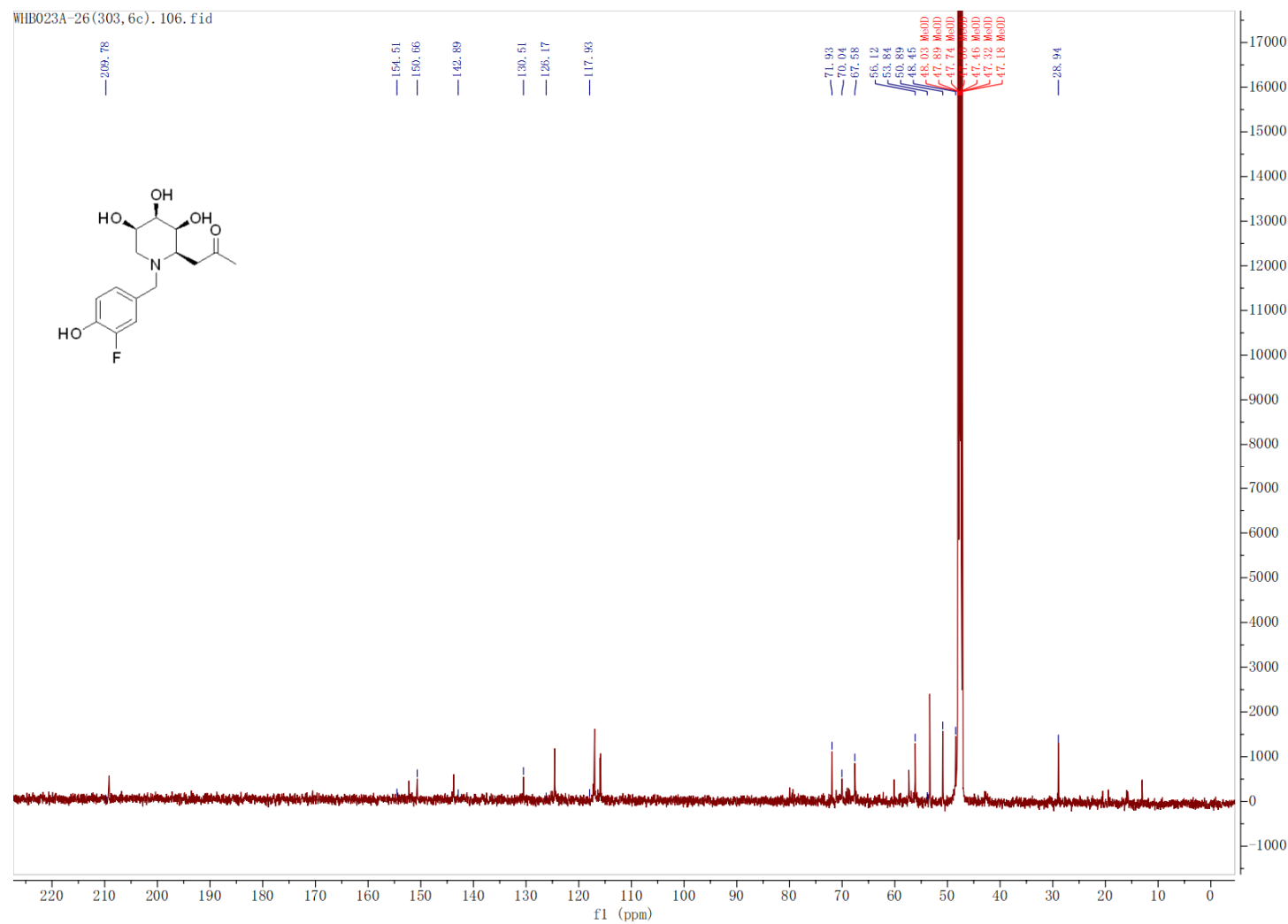
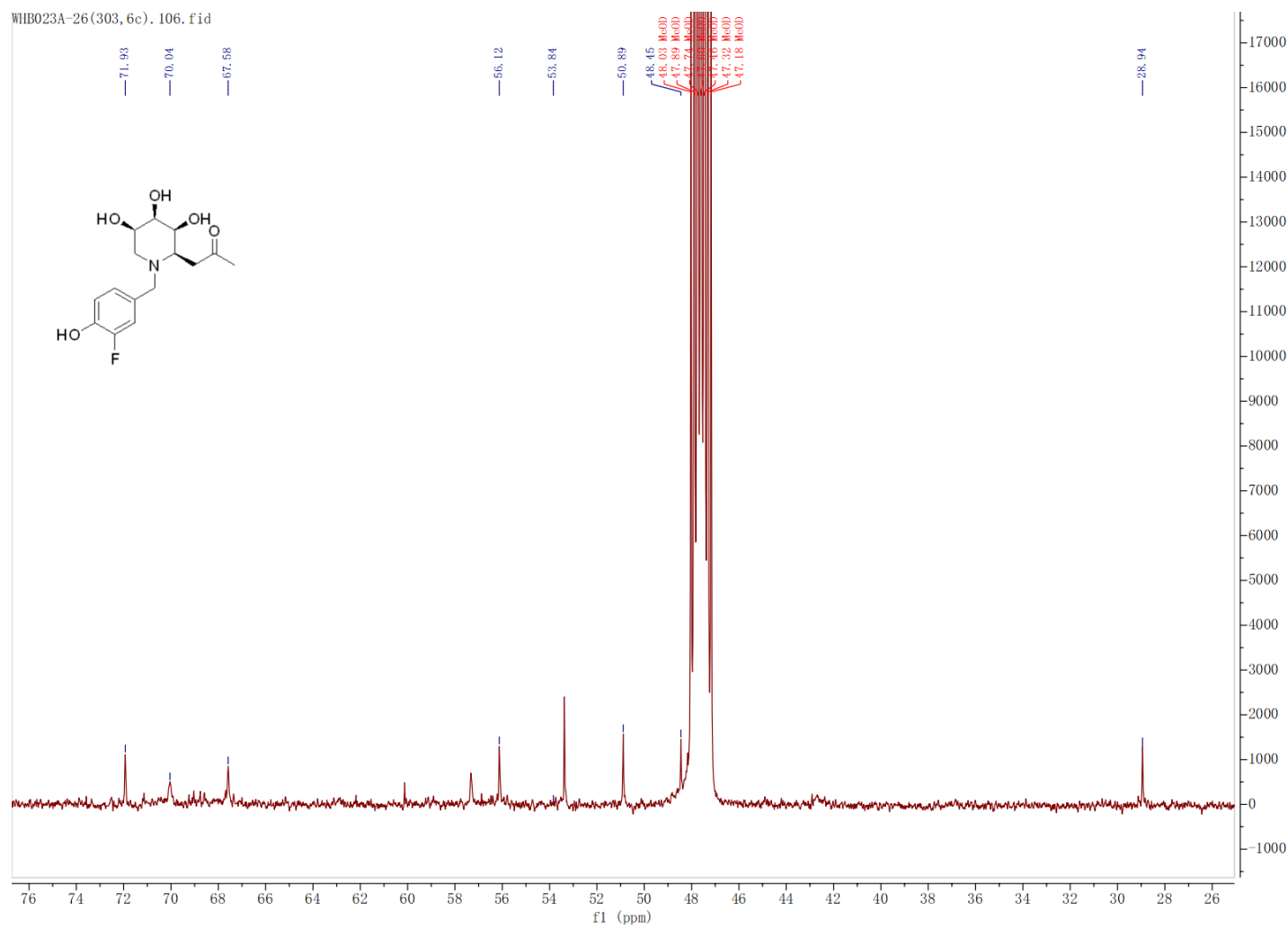


Figure S128. The  $^{13}\text{C}$  NMR of compound 6c.



**Figure S129.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **6c**.

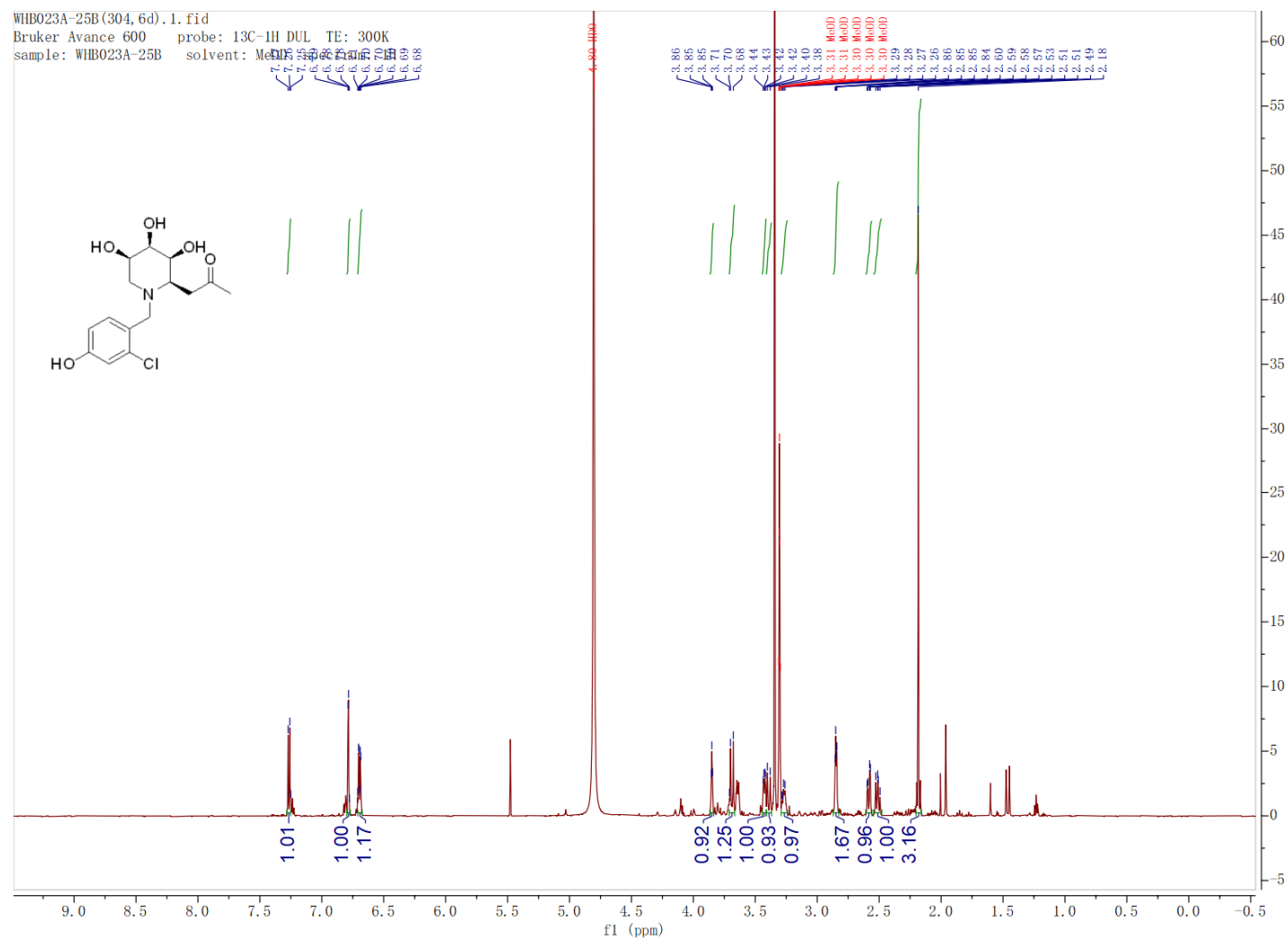
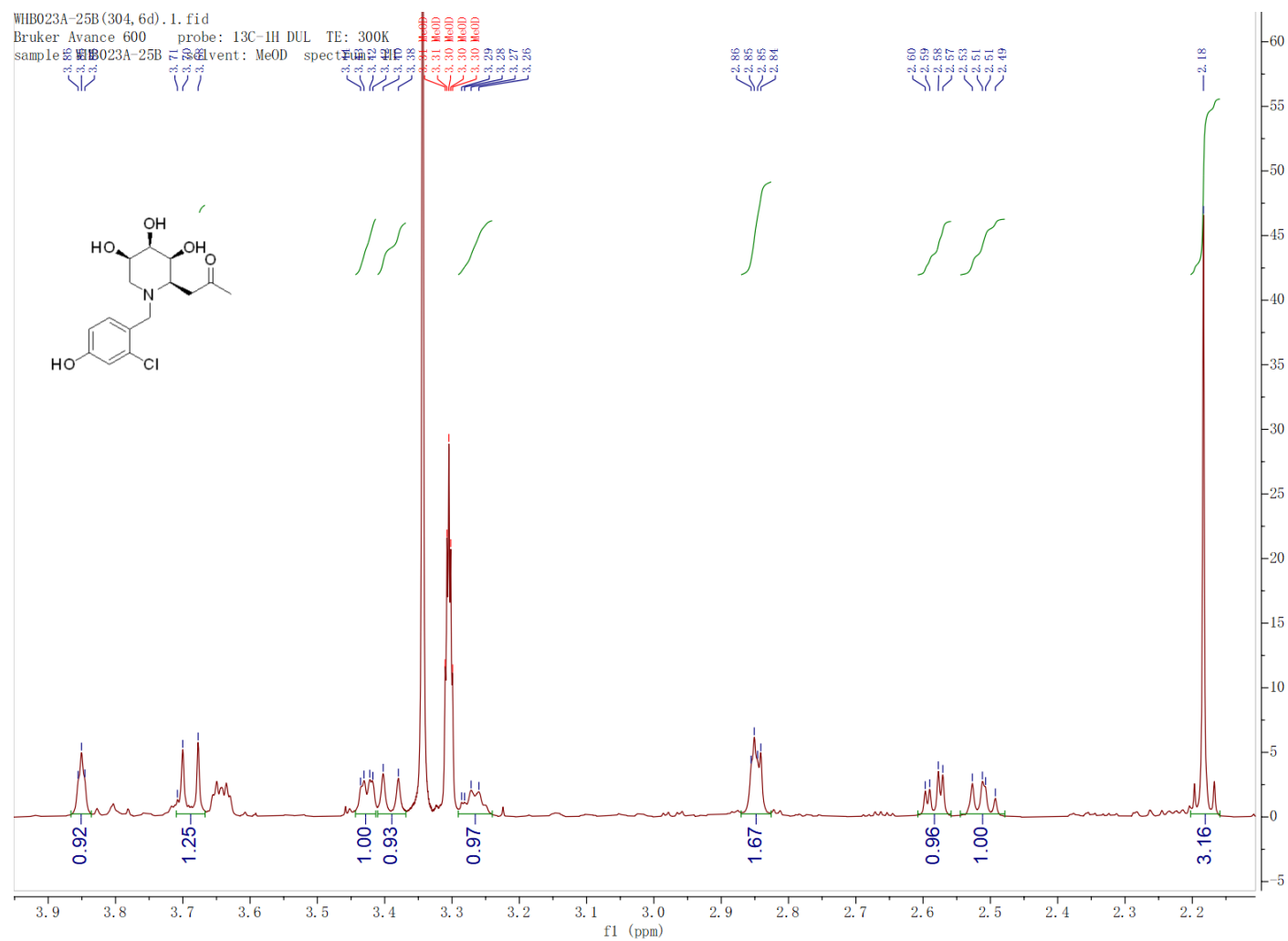


Figure S130. The  $^1\text{H}$  NMR of compound 6d.



**Figure S131.** Partial region amplification of the  $^1\text{H}$  NMR of compound **6d**.



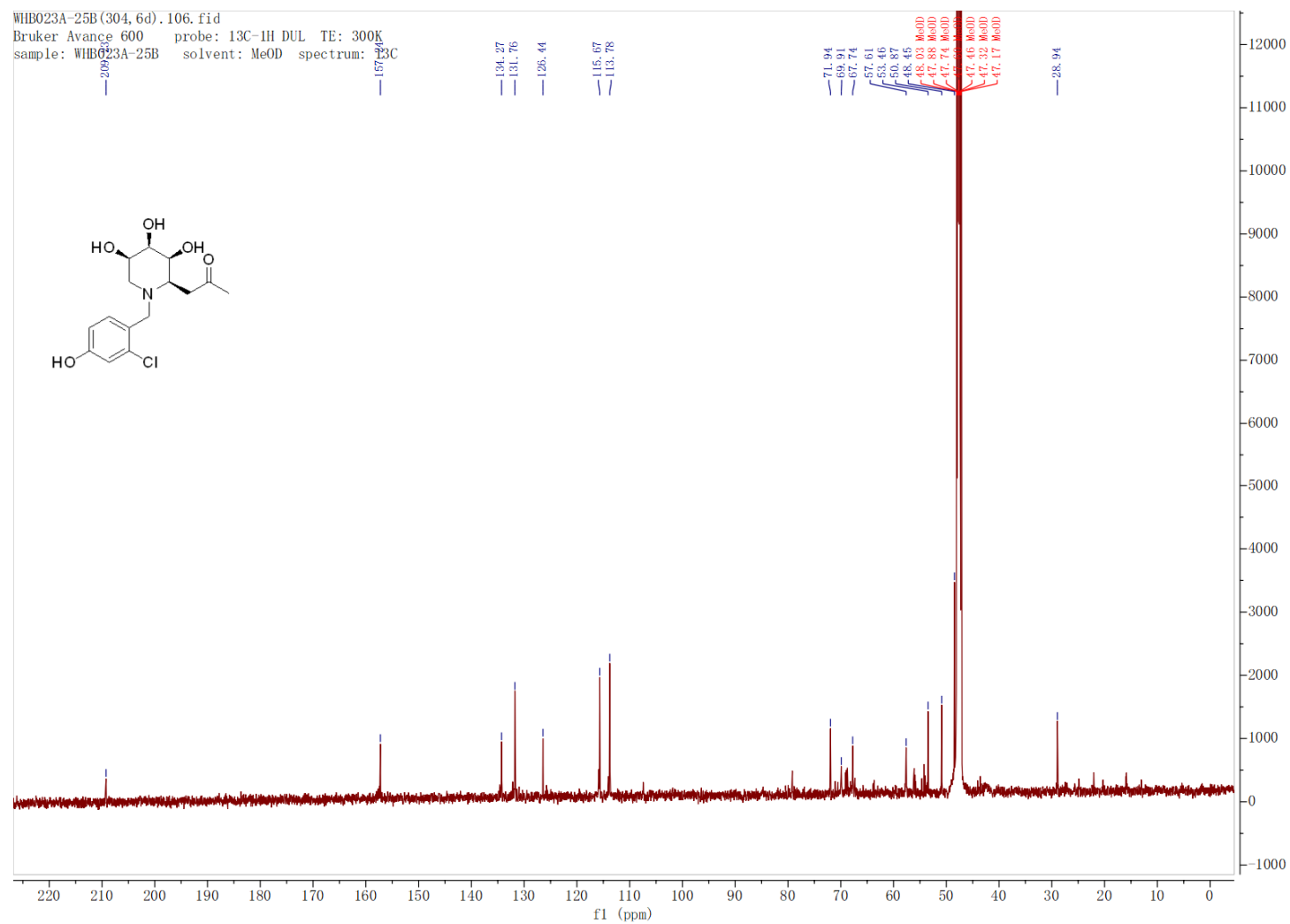
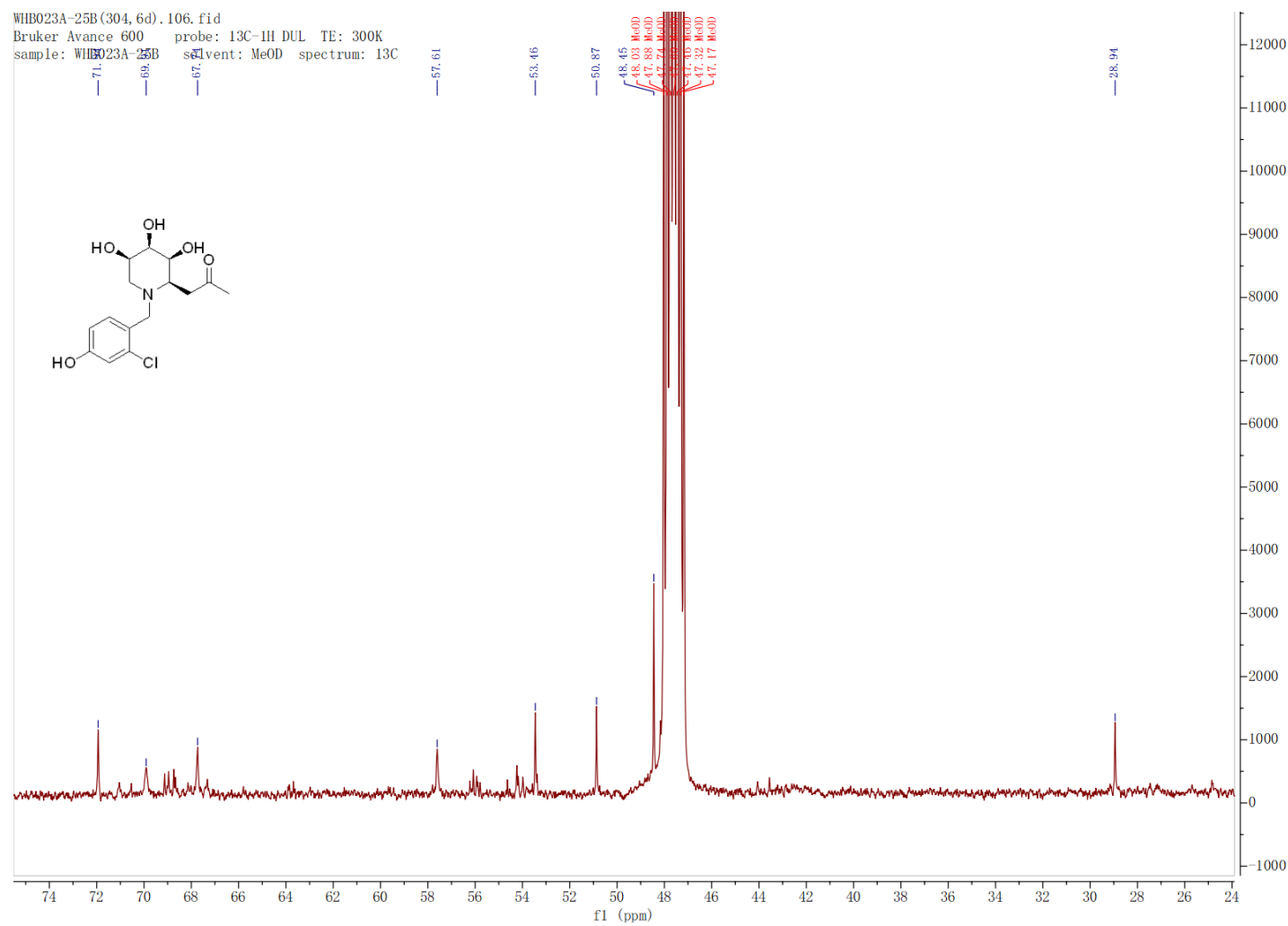


Figure S132. The  $^{13}\text{C}$  NMR of compound 6d.



**Figure S133.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **6d**.

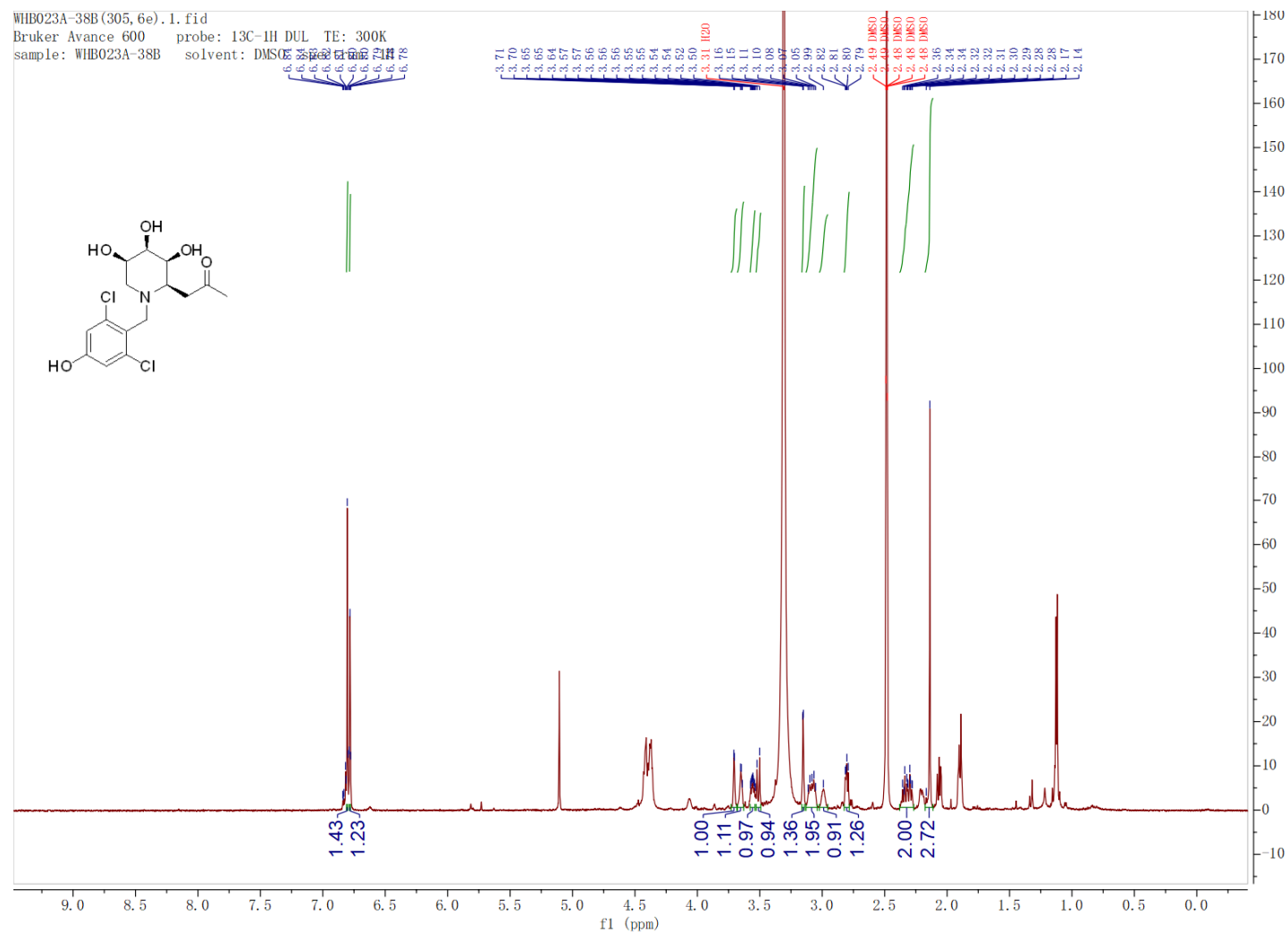


Figure S134. The  $^1\text{H}$  NMR of compound 6e.

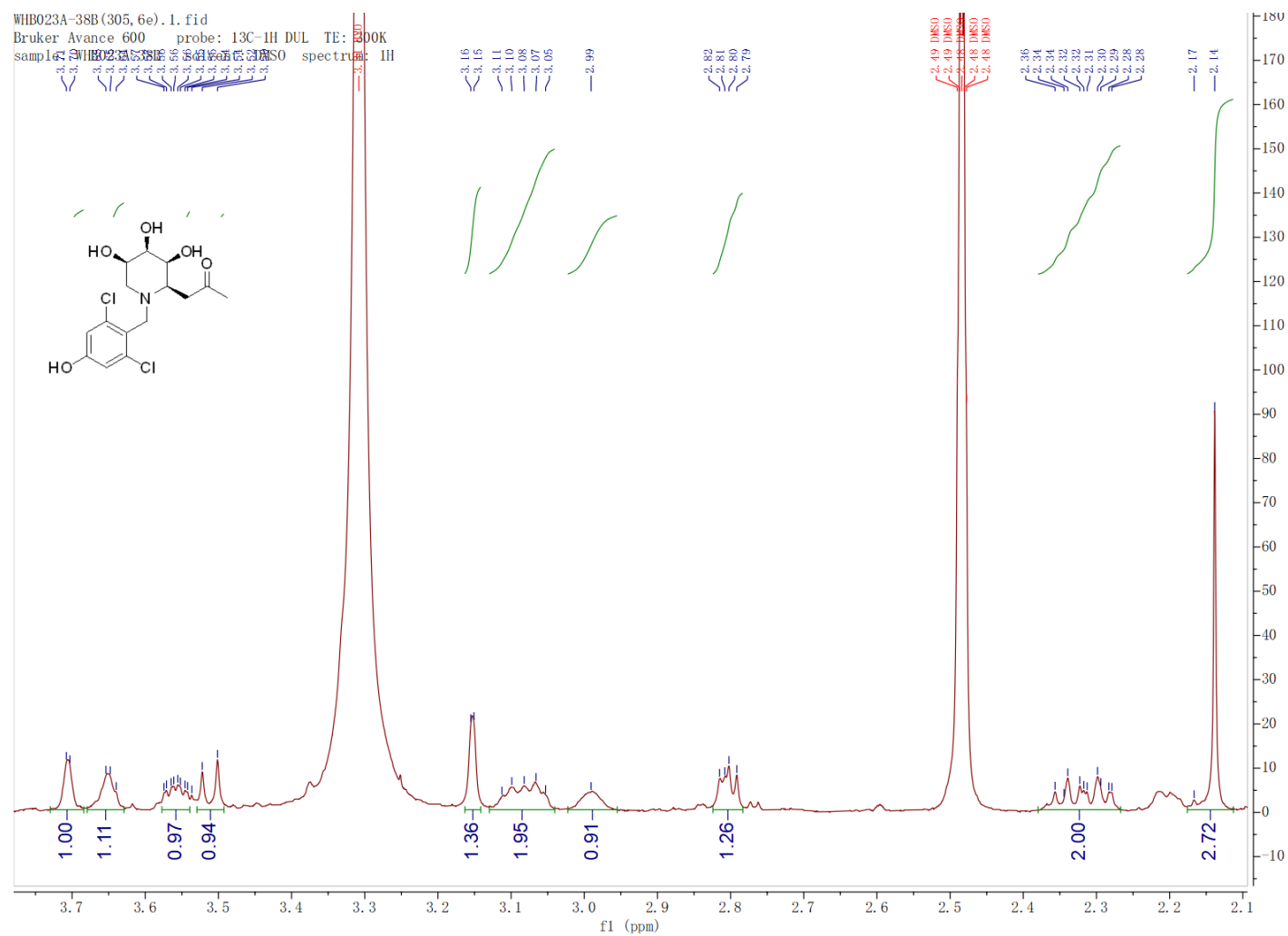


Figure S135. Partial region amplification of the  $^1\text{H}$  NMR of compound 6e.

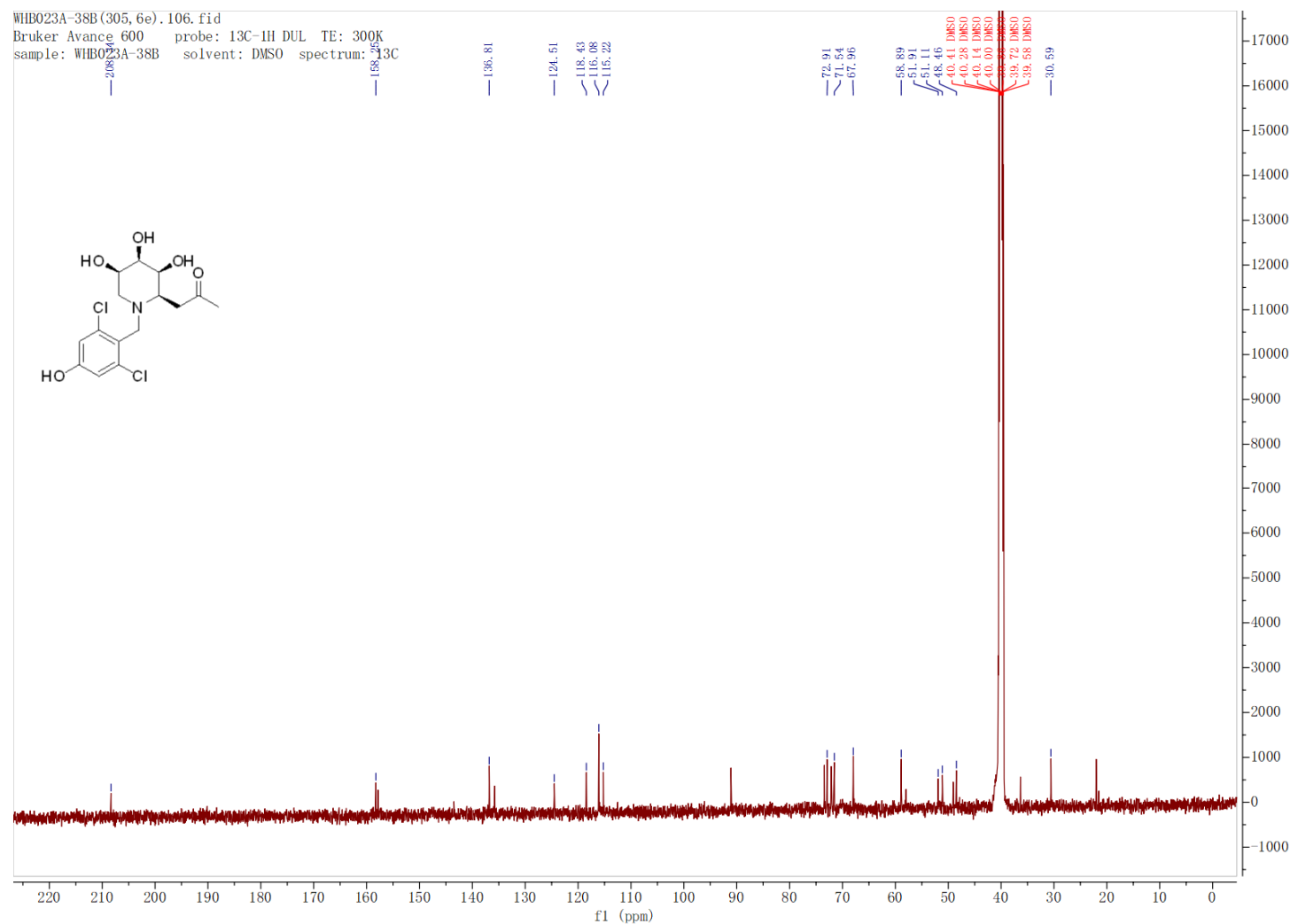
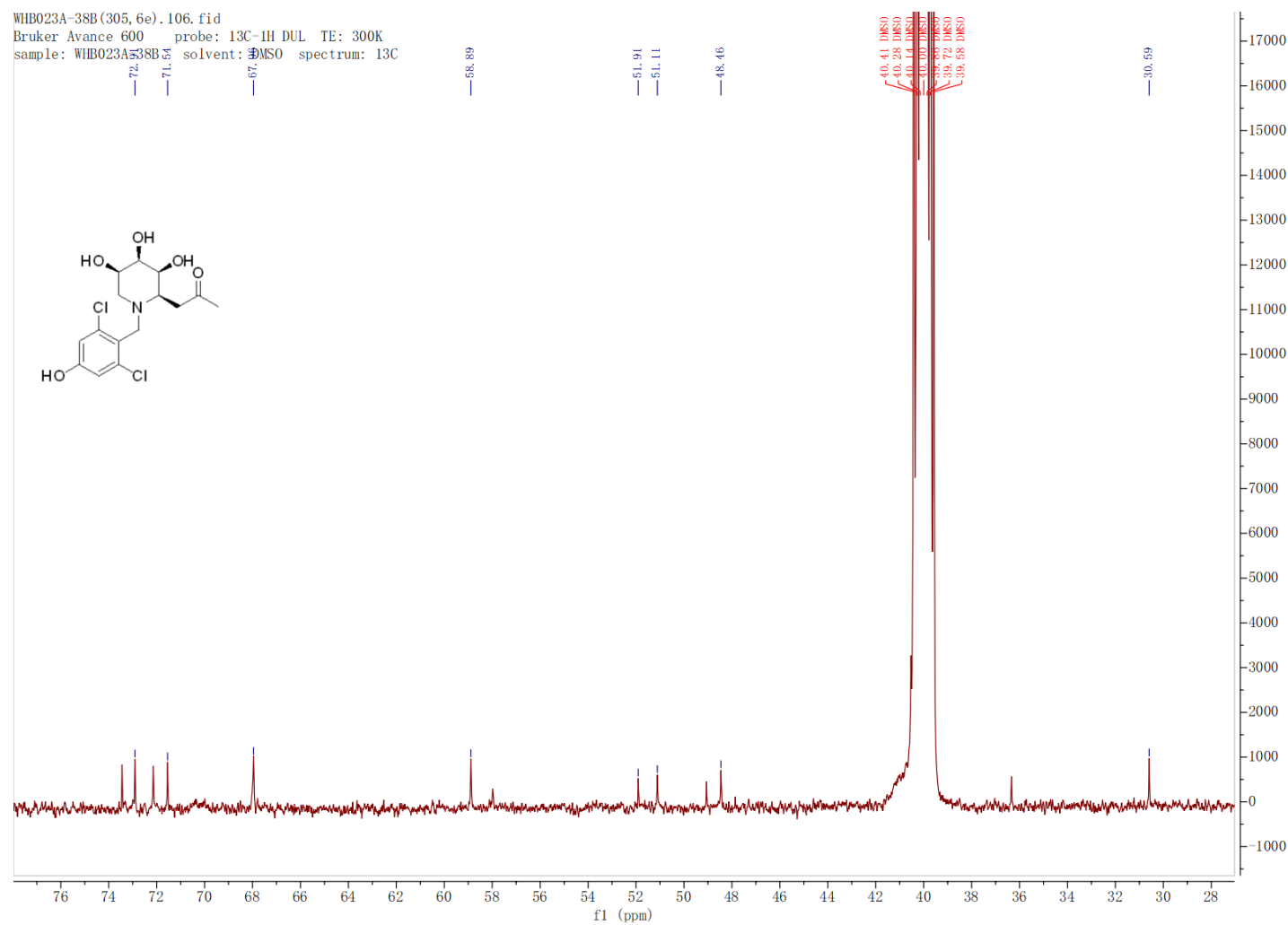


Figure S136. The  $^{13}\text{C}$  NMR of compound 6e.



**Figure S137.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **6e**.

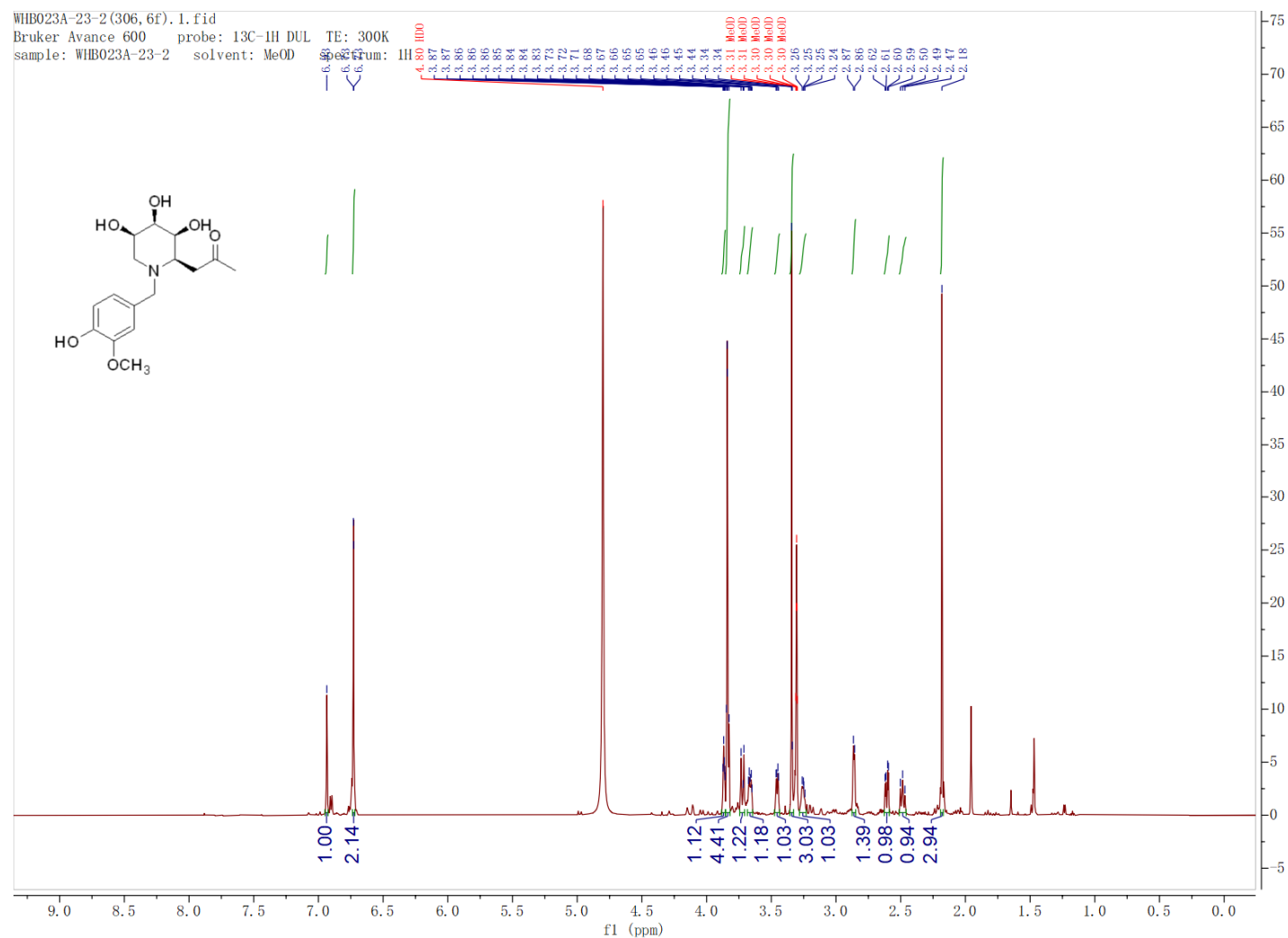


Figure S138. The  $^1\text{H}$  NMR of compound 6f.

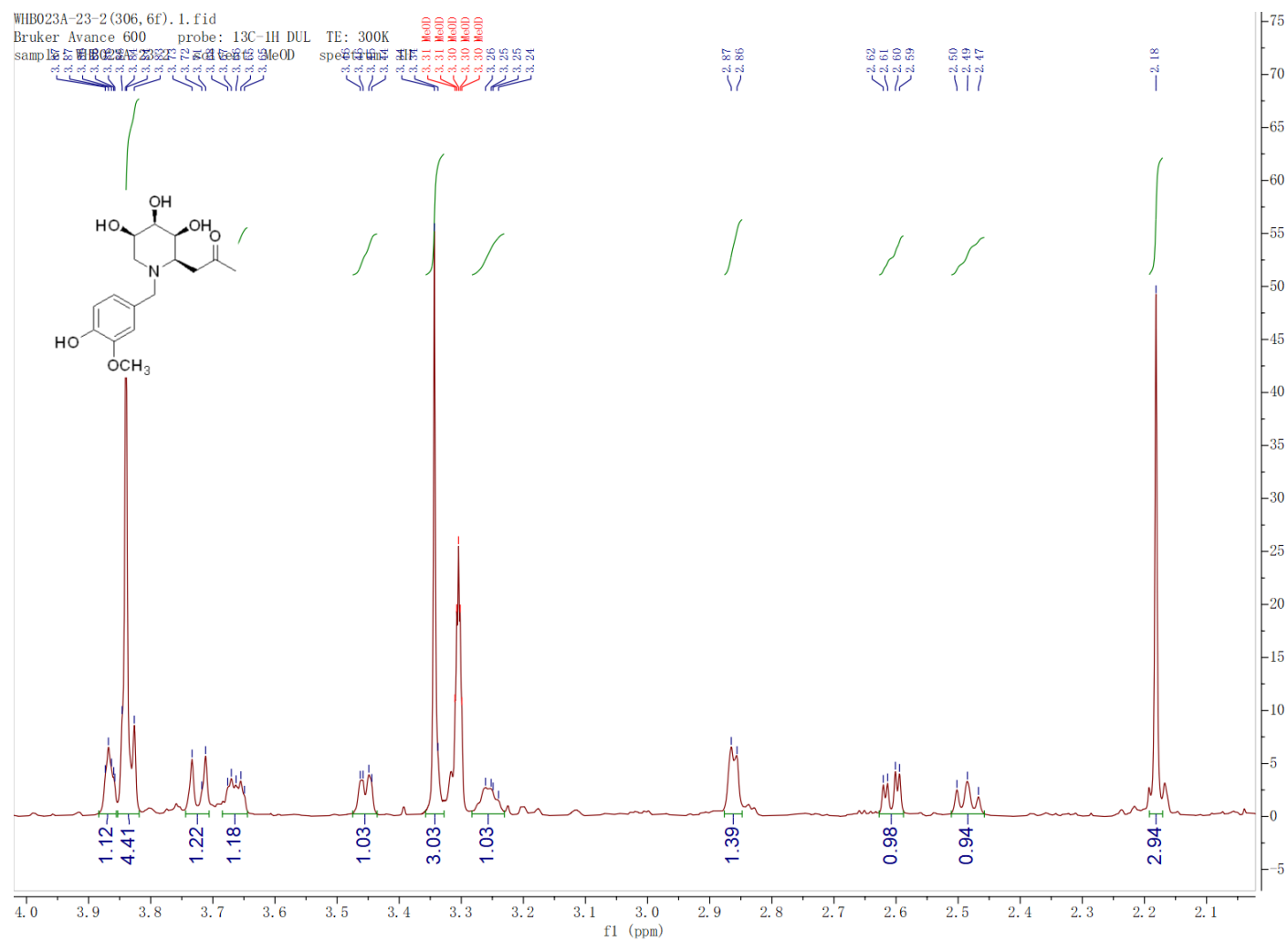


Figure S139. Partial region amplification of the  $^1\text{H}$  NMR of compound 6f.



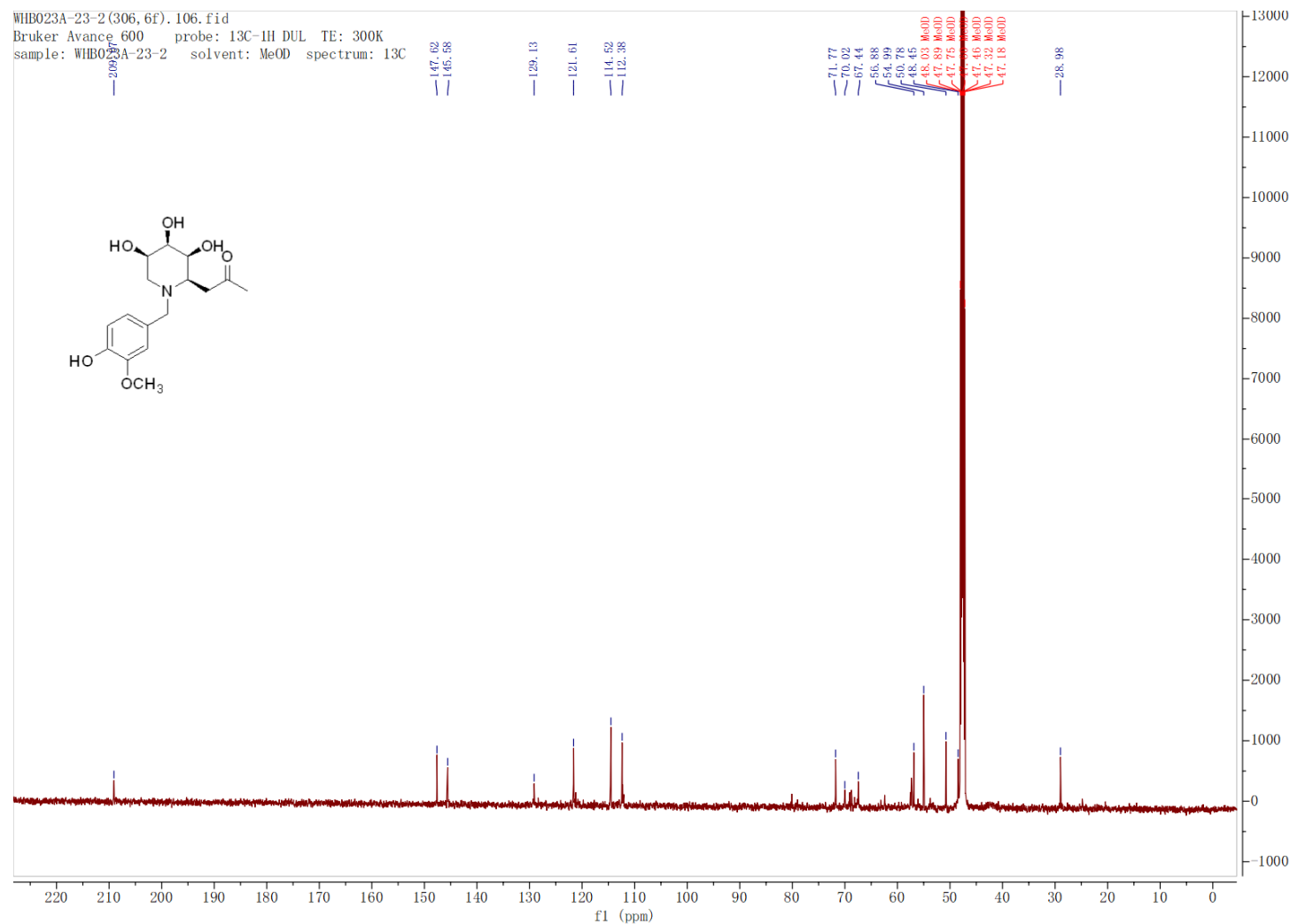
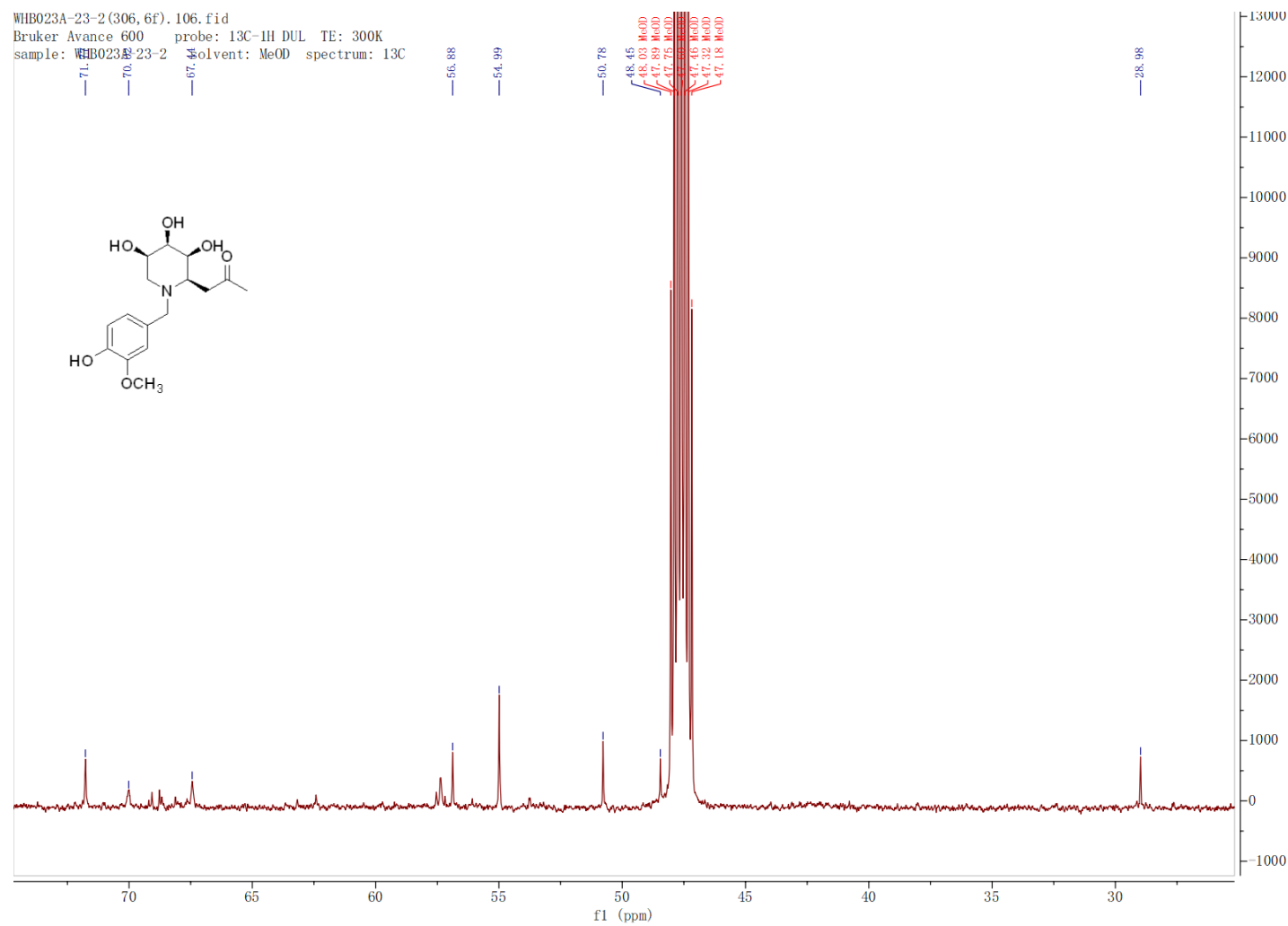


Figure S140. The  $^{13}\text{C}$  NMR of compound 6f.



**Figure S141.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **6f**.

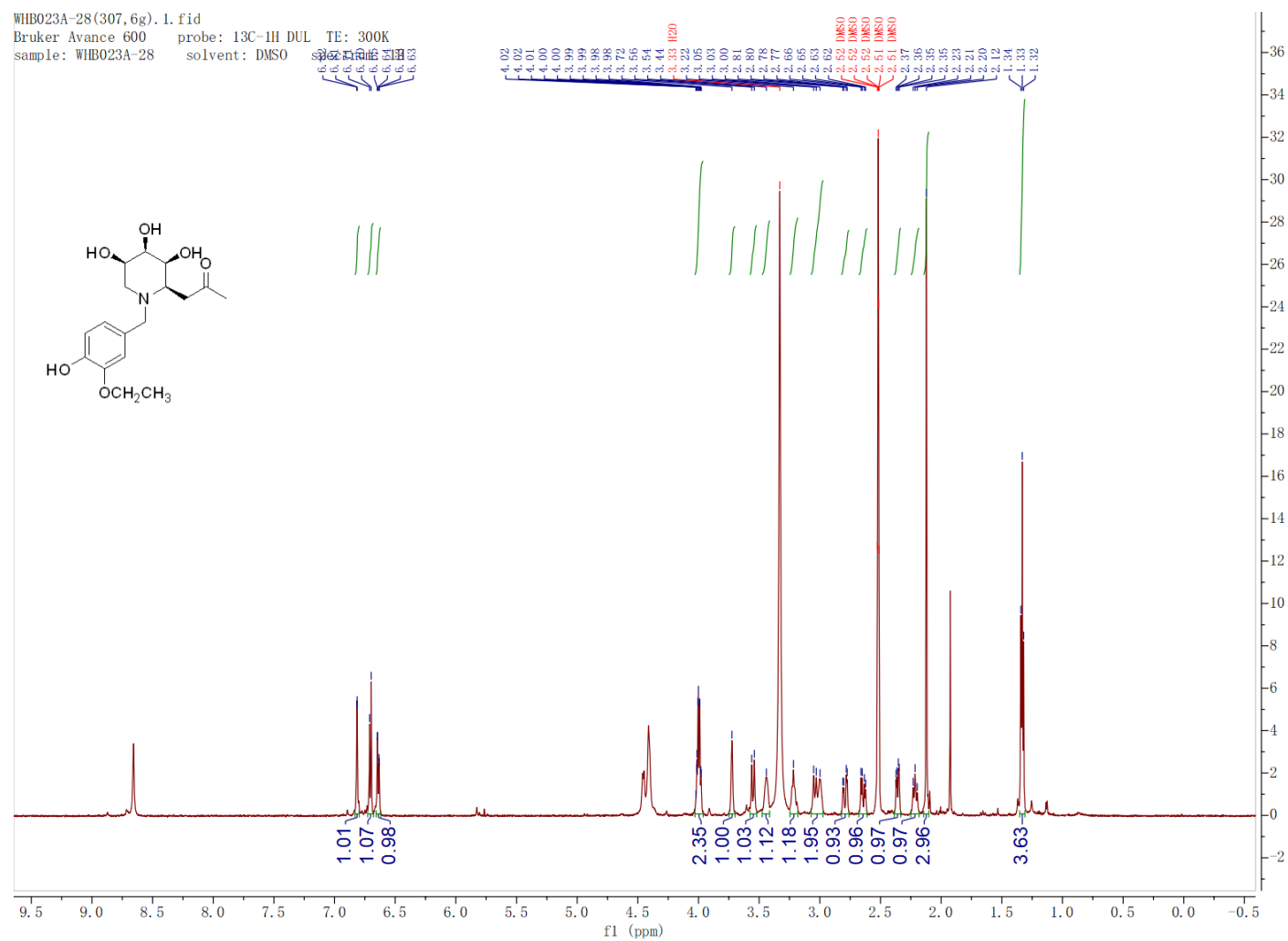


Figure S142. The  $^1\text{H}$  NMR of compound 6g.

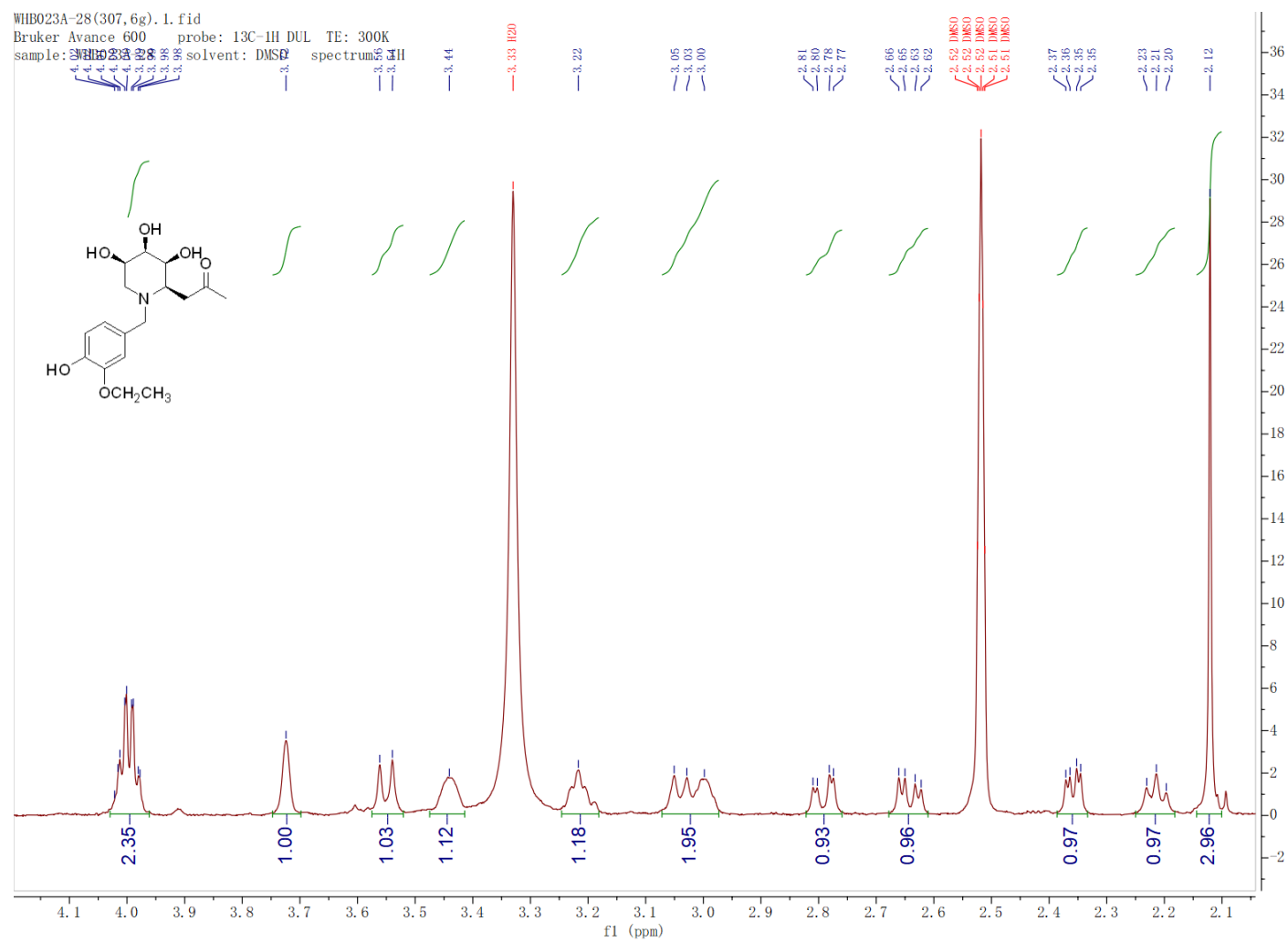


Figure S143. Partial region amplification of the  $^1\text{H}$  NMR of compound 6g.

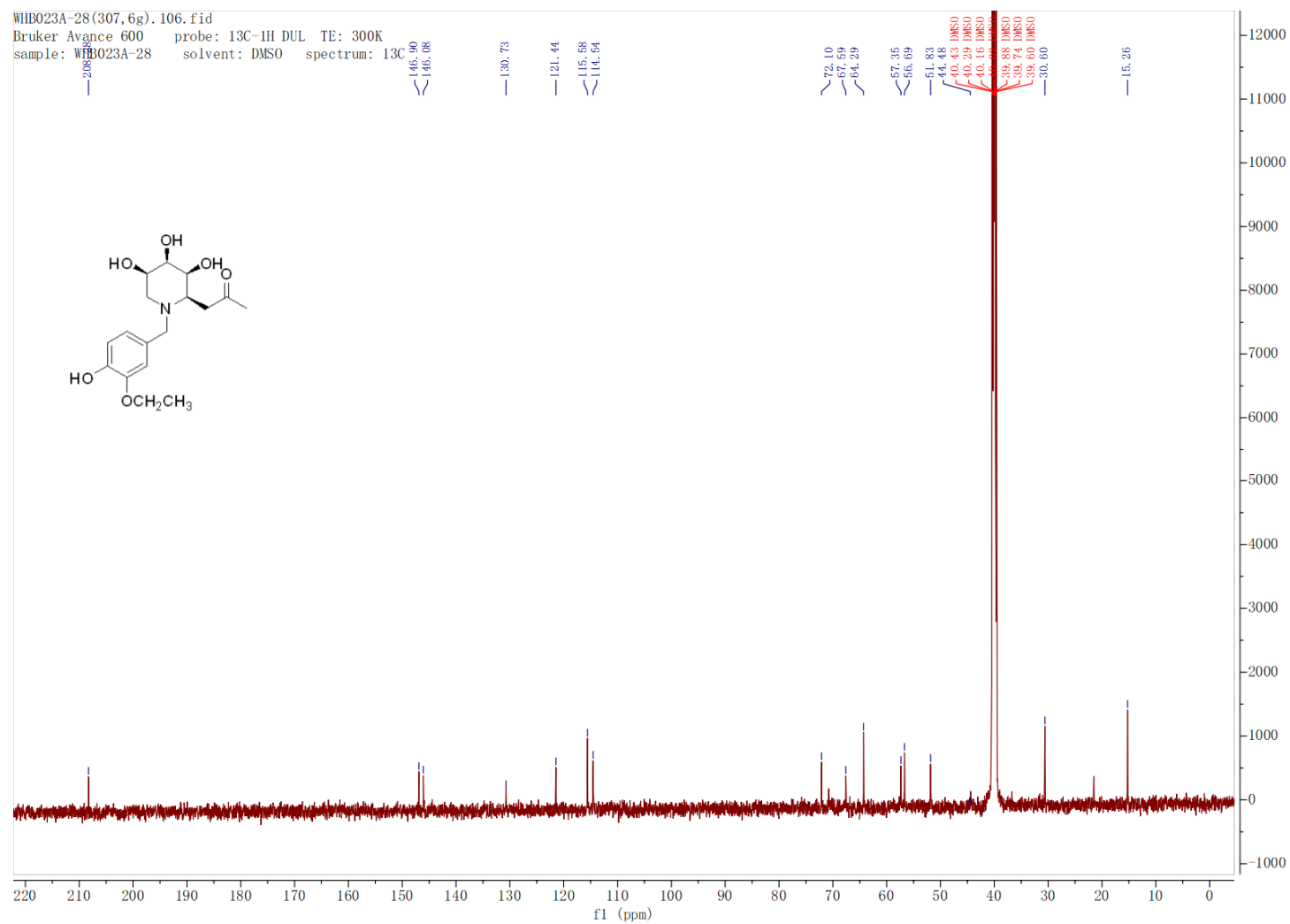
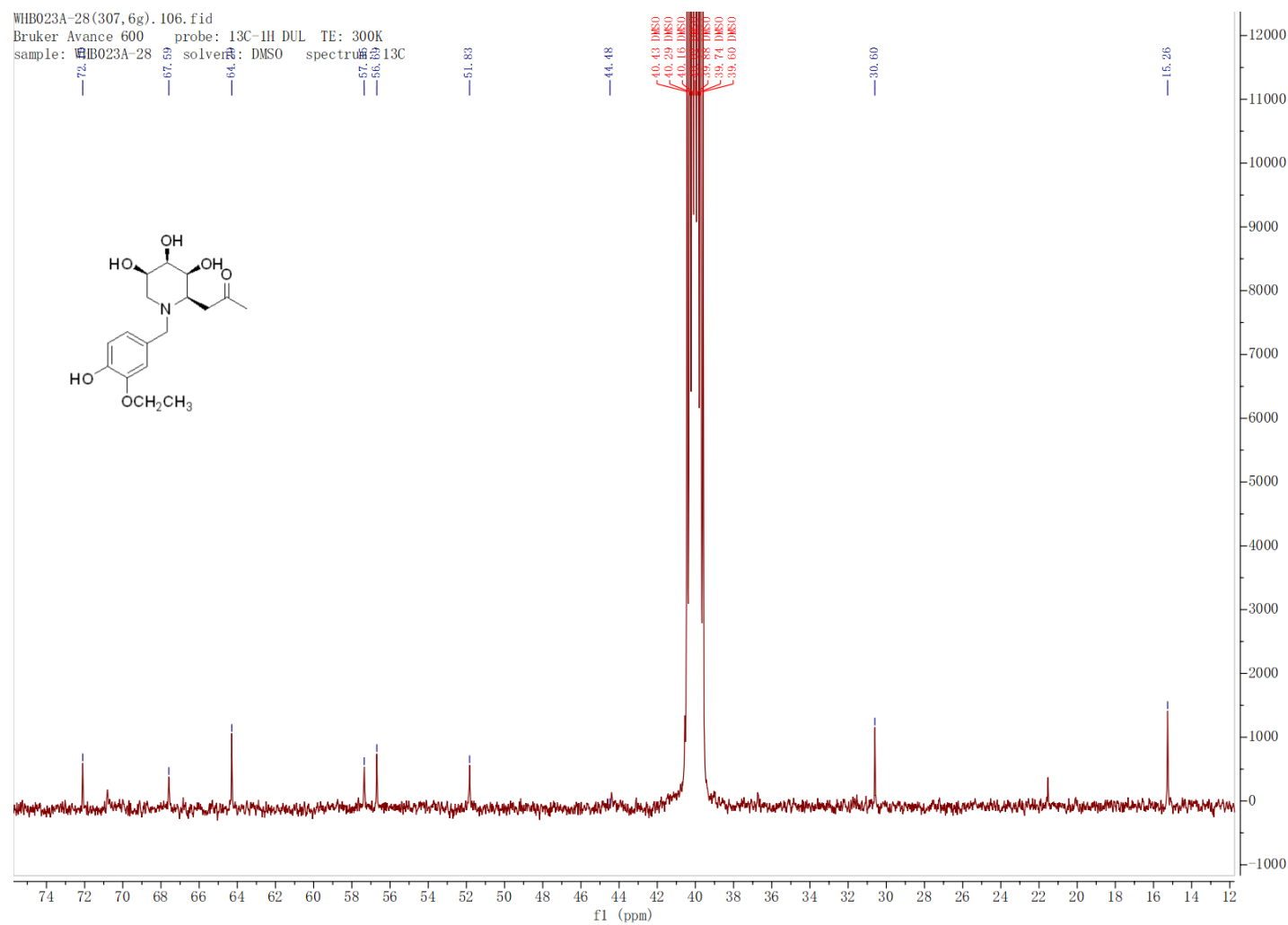


Figure S144. The  $^{13}\text{C}$  NMR of compound 6g.



**Figure S145.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **6g**.

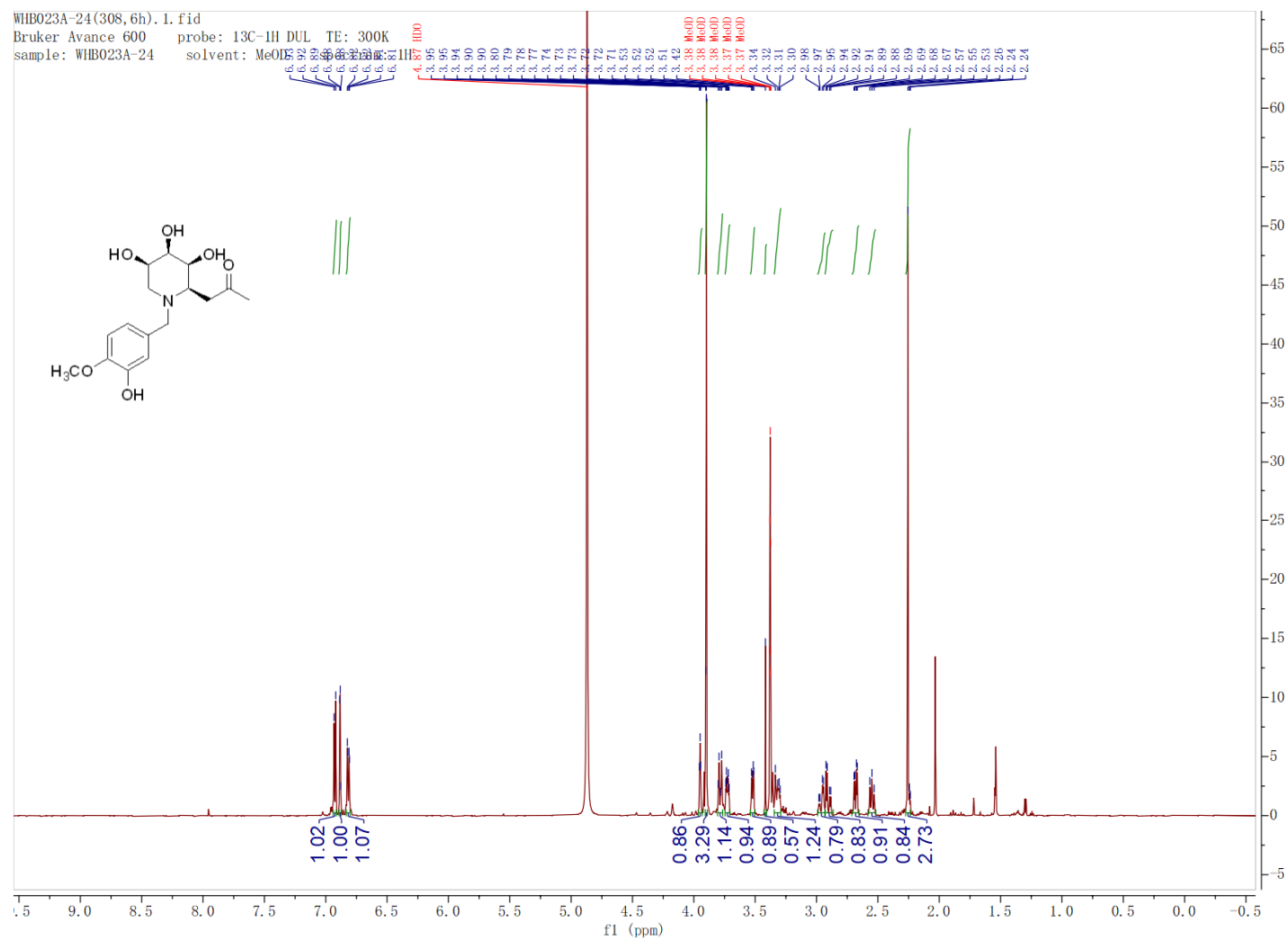


Figure S146. The  $^1\text{H}$  NMR of compound 6h.

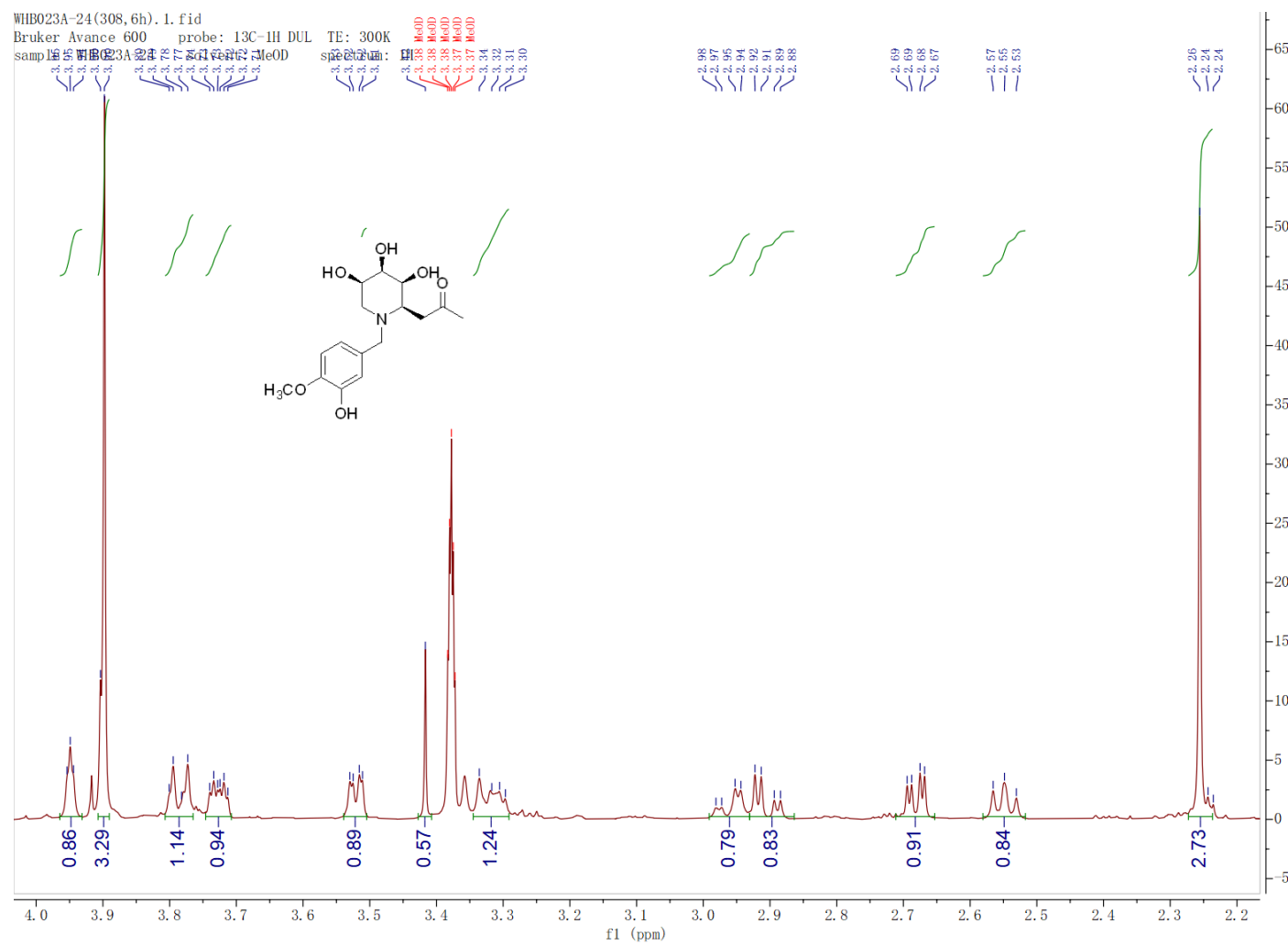


Figure S147. Partial region amplification of the  $^1\text{H}$  NMR of compound 6h.



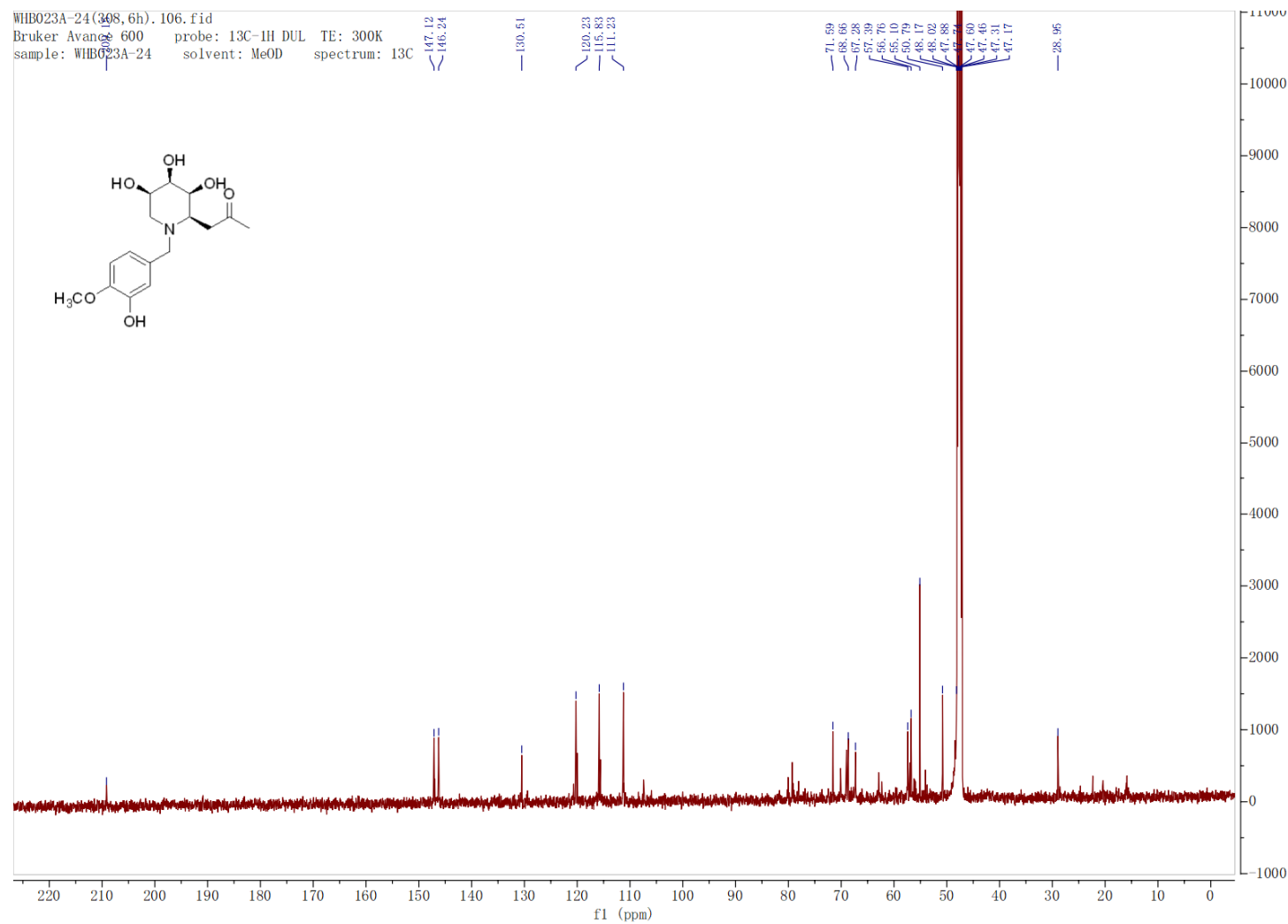
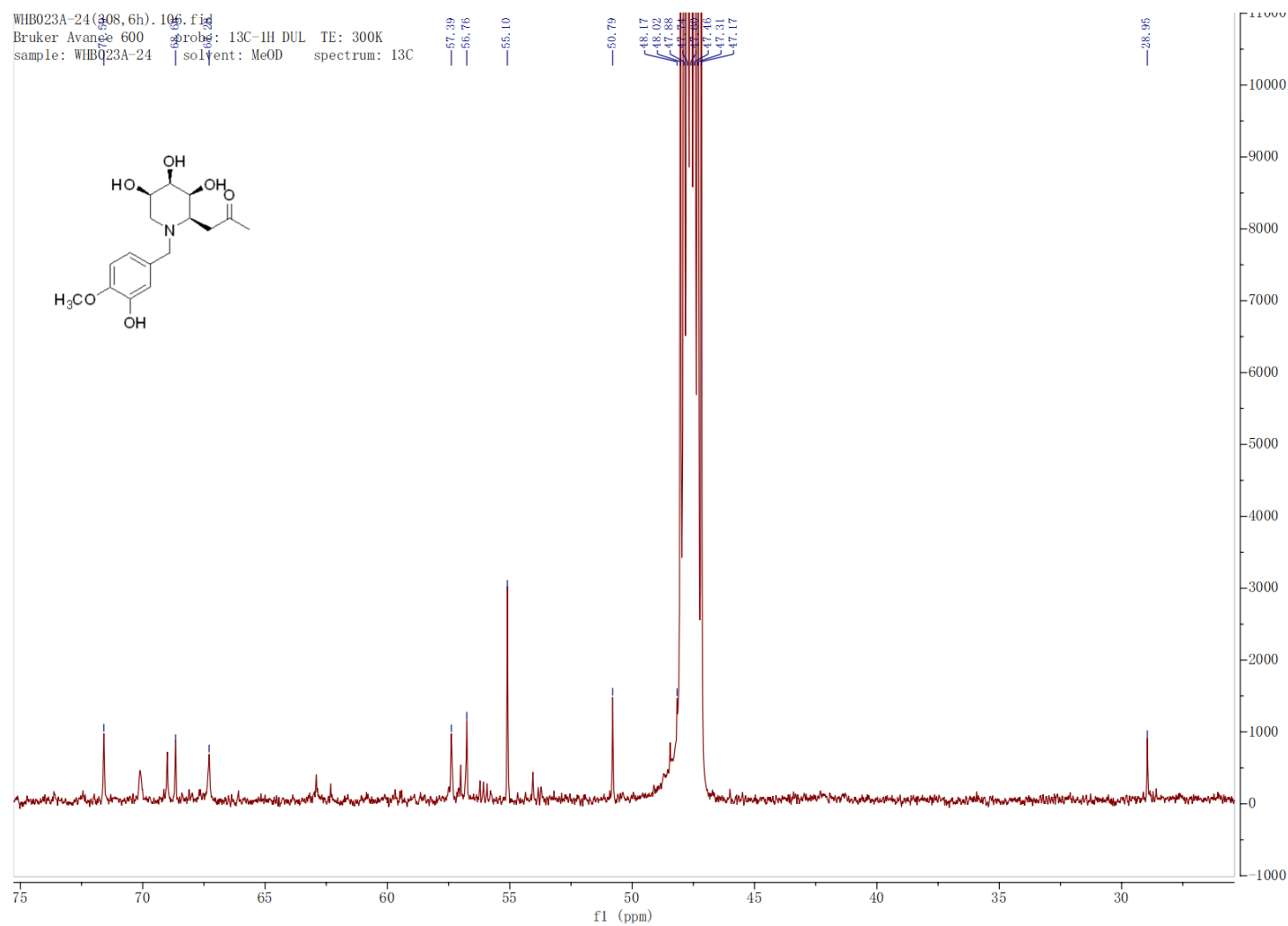


Figure S148. The  $^{13}\text{C}$  NMR of compound **6h**.



**Figure S149.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **6h**.

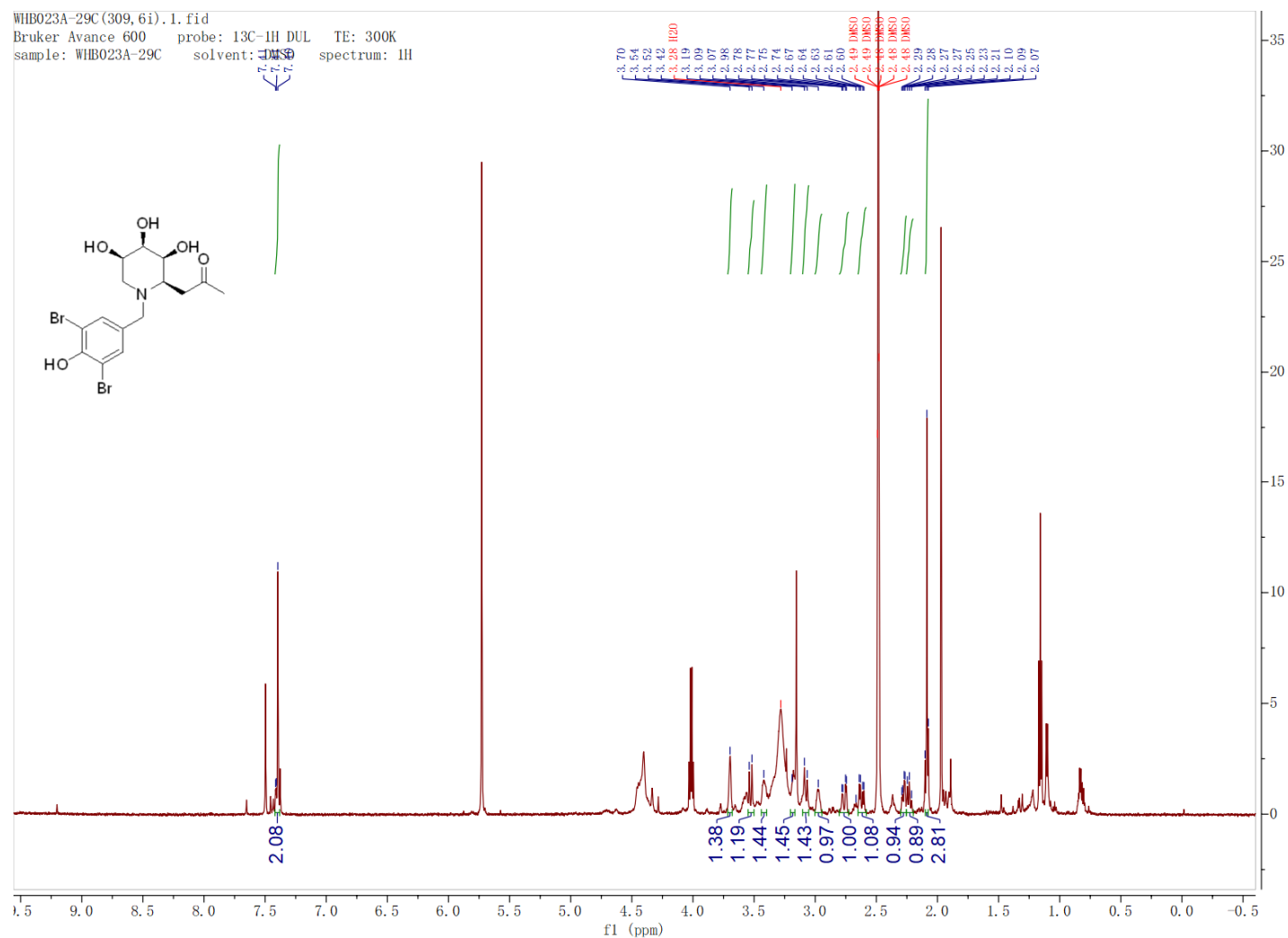
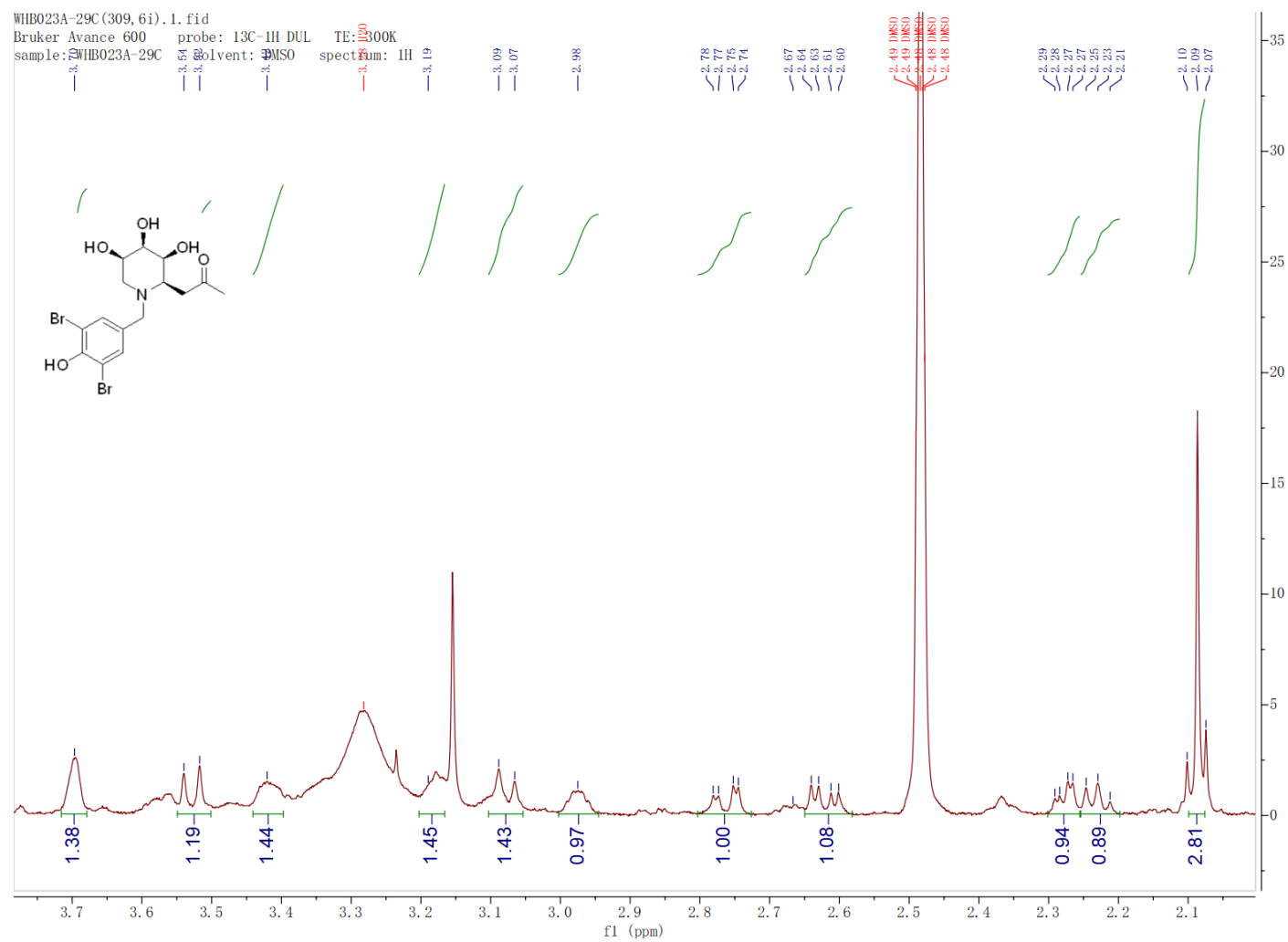


Figure S150. The  $^1\text{H}$  NMR of compound 6i.



**Figure S151.** Partial region amplification of the  $^1\text{H}$  NMR of compound **6i**.

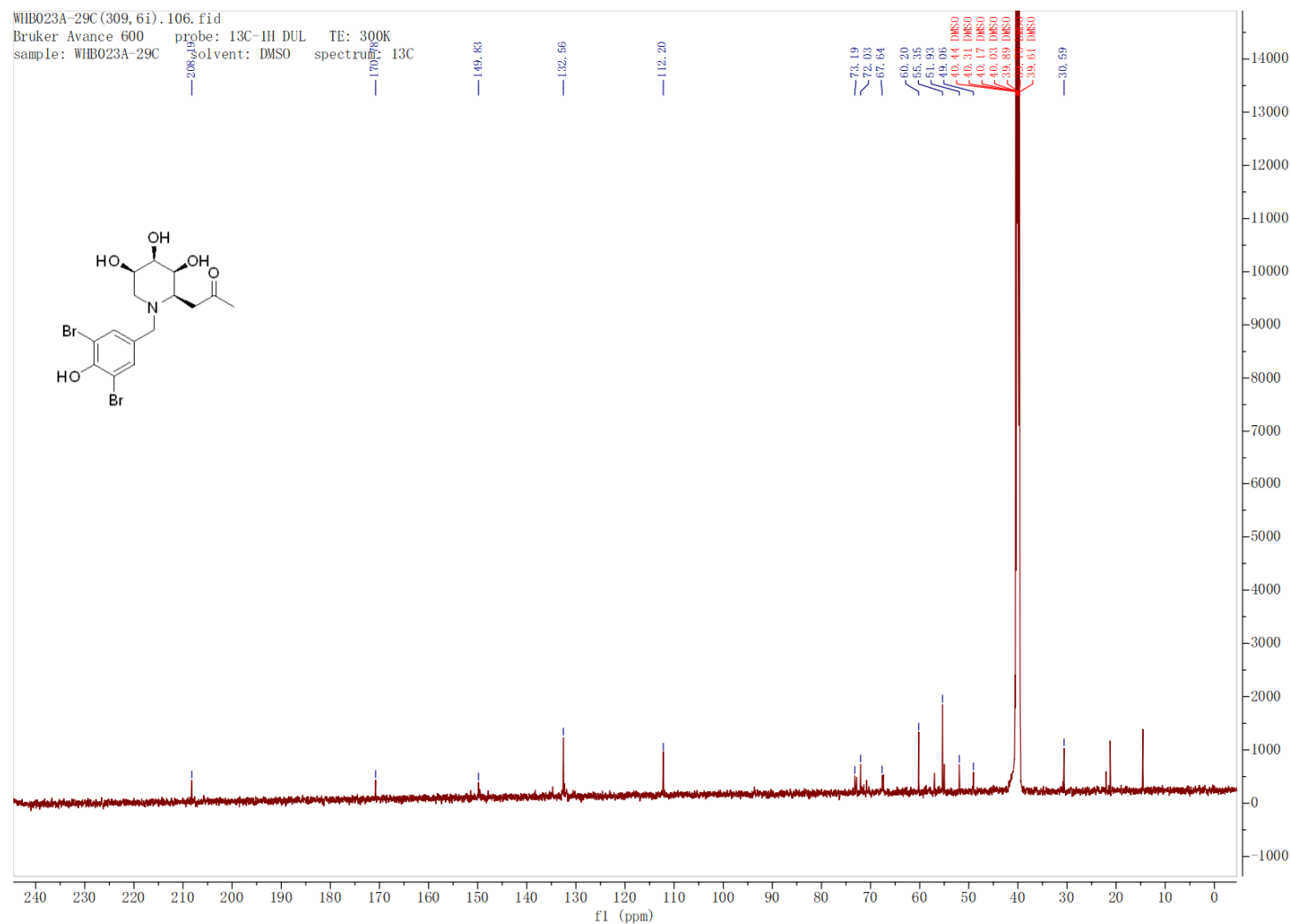
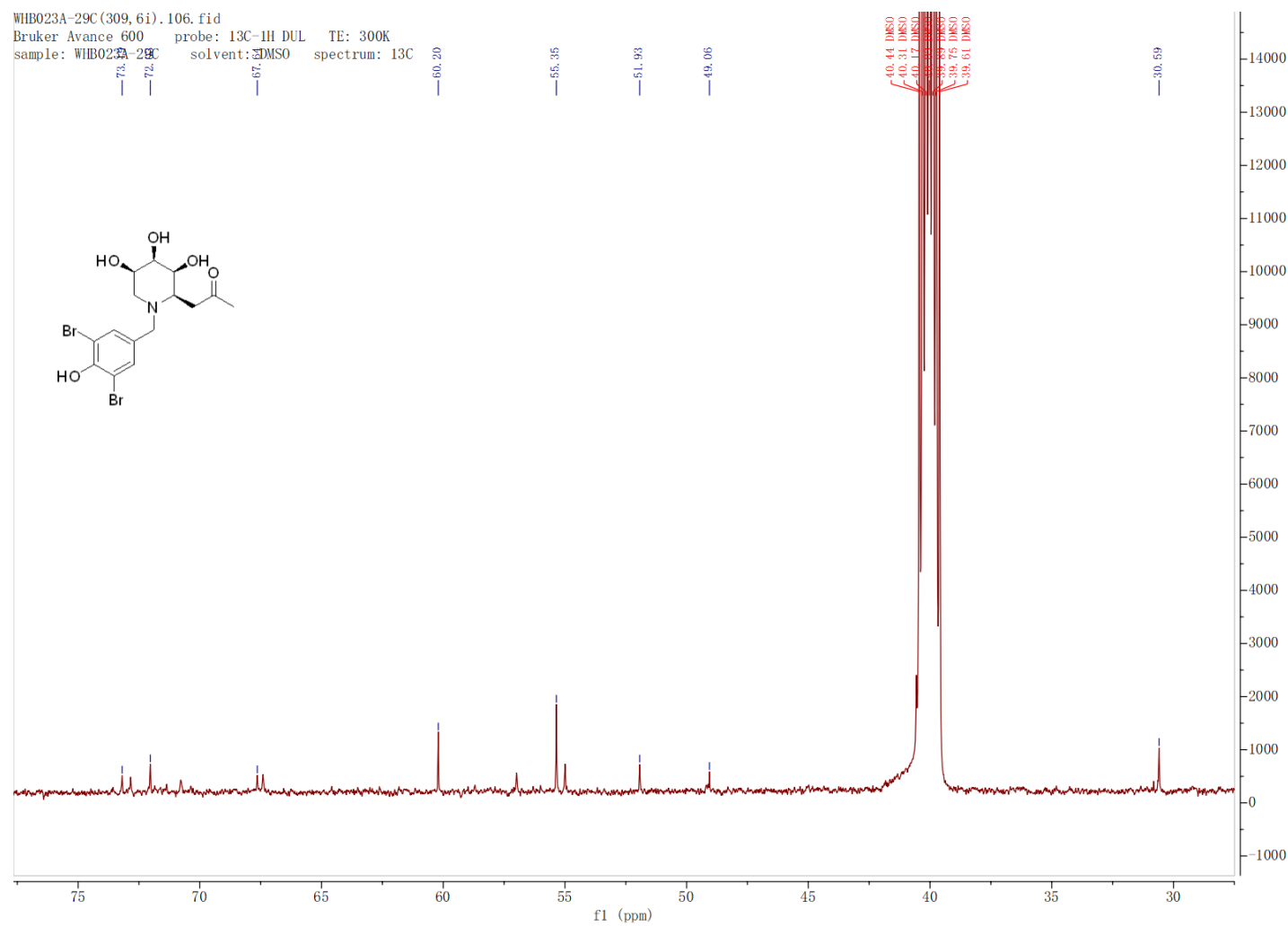


Figure S152. The  $^{13}\text{C}$  NMR of compound **6i**.



**Figure S153.** Partial region amplification of the  $^{13}\text{C}$  NMR of compound **6i**.