Supplementary Information

Biotransformation of 1,8-dihydroxyanthraquinone into peniphenone under the fermentation of *Aleurodiscus mirabilis*

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Microbiological information for *Aleurodiscus mirabilis*

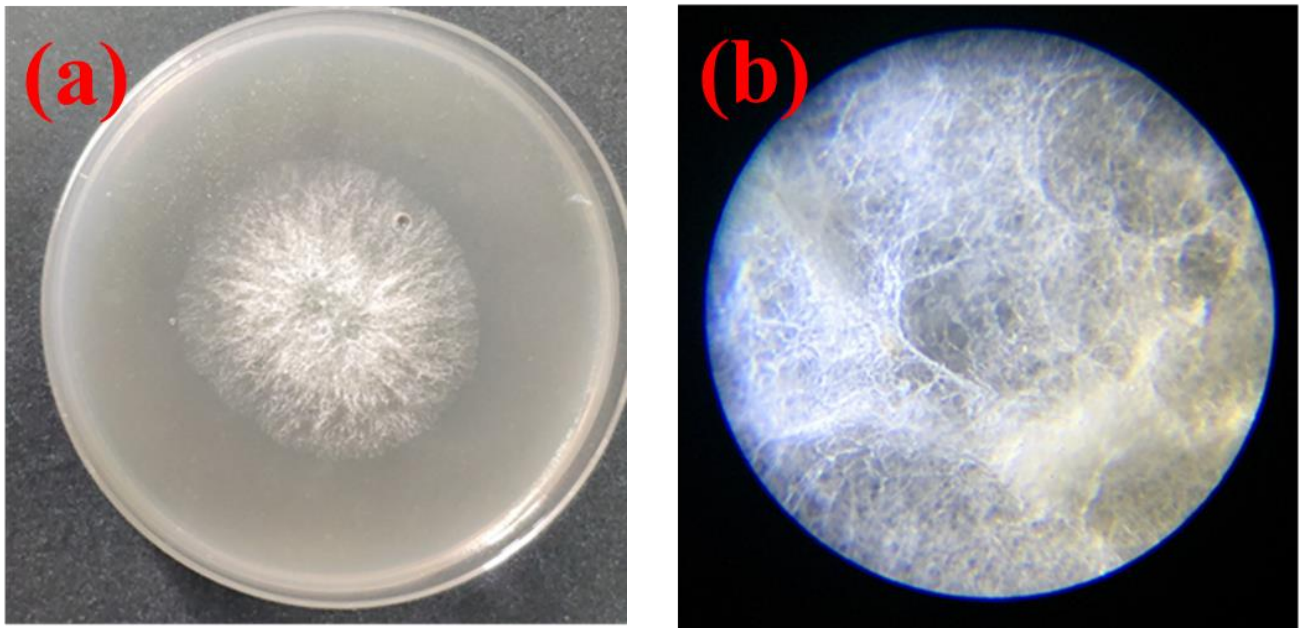

Figure S1. Morphology of *Aleurodiscus mirabilis* (Figure S1a) and under a 20-fold microscope (Figure S1b) (The figures were taken by one of the authors)

ITS1:
GCGGACGCTGTCGCTGGTCGCTCCGGGGGGTGTGCCGCCTCTCCGCCCACCCCAACCCATGCAC
CTGTGGACCTTTGCGTGGGTCTGGACCCTTAAAACGGATCTCCCGCGTCCCTTTACATCAAACCC
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TCGCCCCCTTGTGGCGACAAATCTATGAGACCTGACCTCAGATCATGCGTC

ITS4:
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AATGTATTTGACCGGACCATAGCAAAAGCCCTGCCTTAACCTCCCCGTCCCACCCTTGCCCACCT
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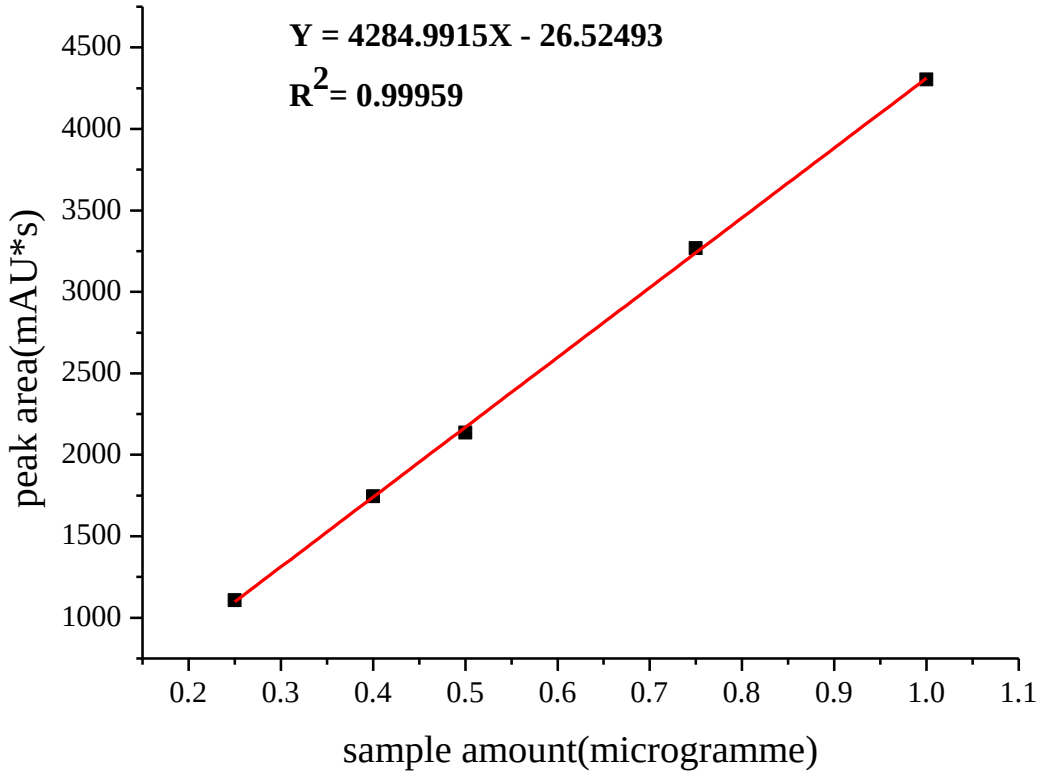

Figure S2. Standard working curve for compound **2**

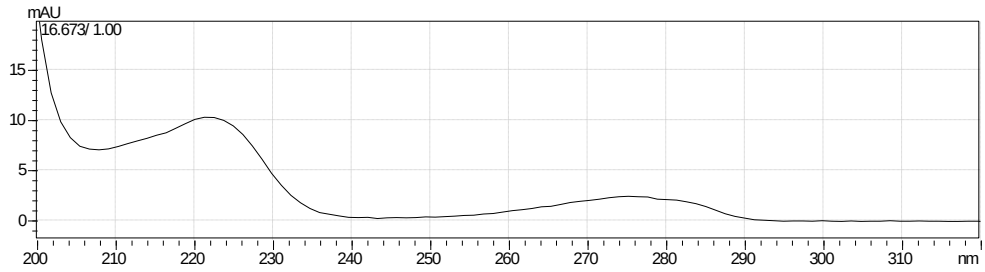

Figure S3. UV-spectrum for compound **2** by PDA detector

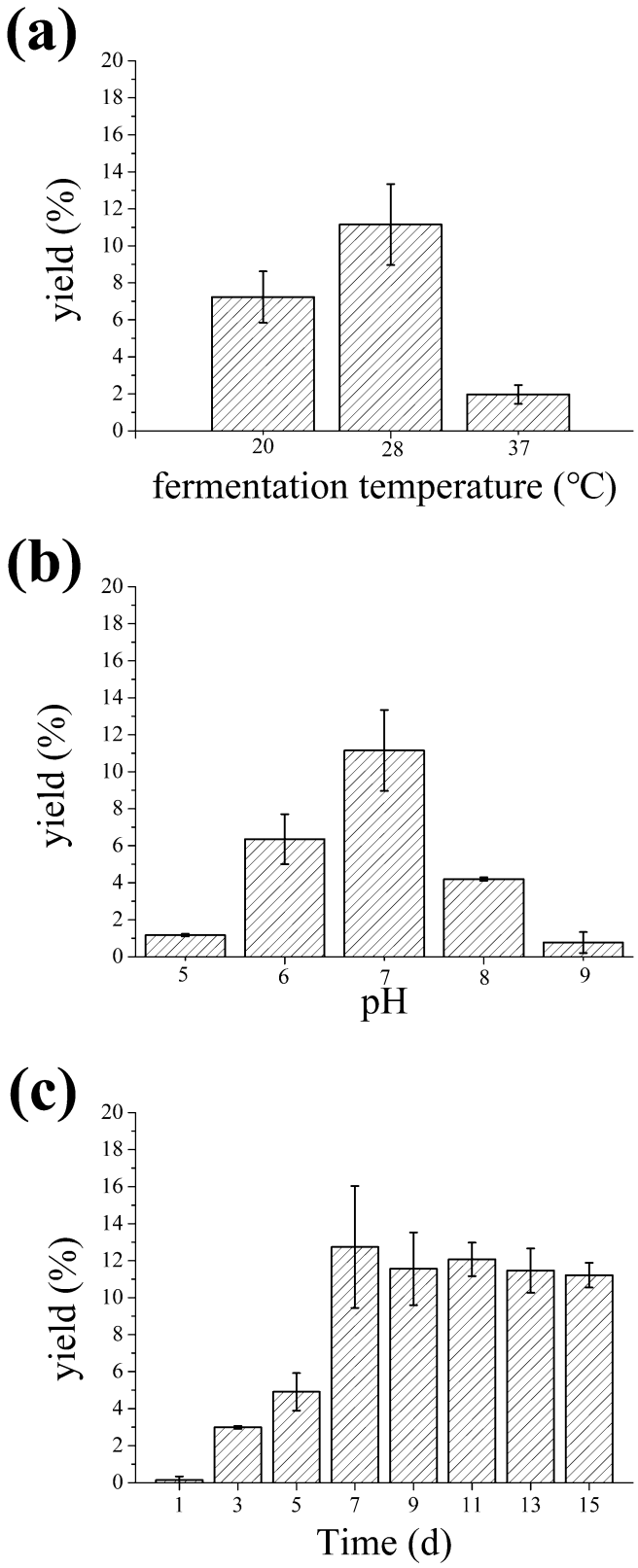

Figure S4. Yields of compound **2** from different fermentation temperature (Figure S4a), fermentation pH (Figure S4b) and fermentation time (Figure S4c).

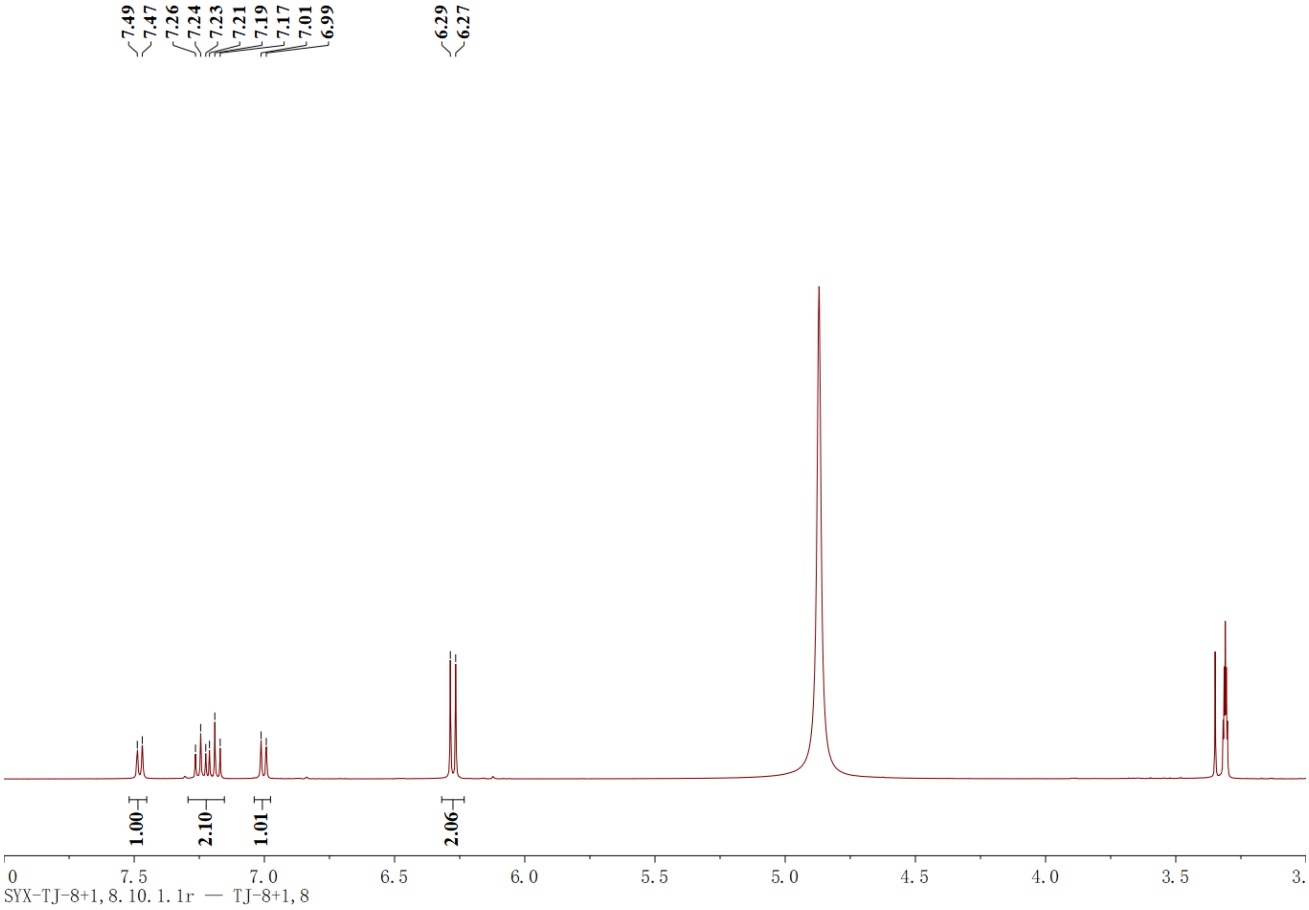

Figure S5. ^{1}H NMR spectrum (400 MHz, MeOD) of compound **2**

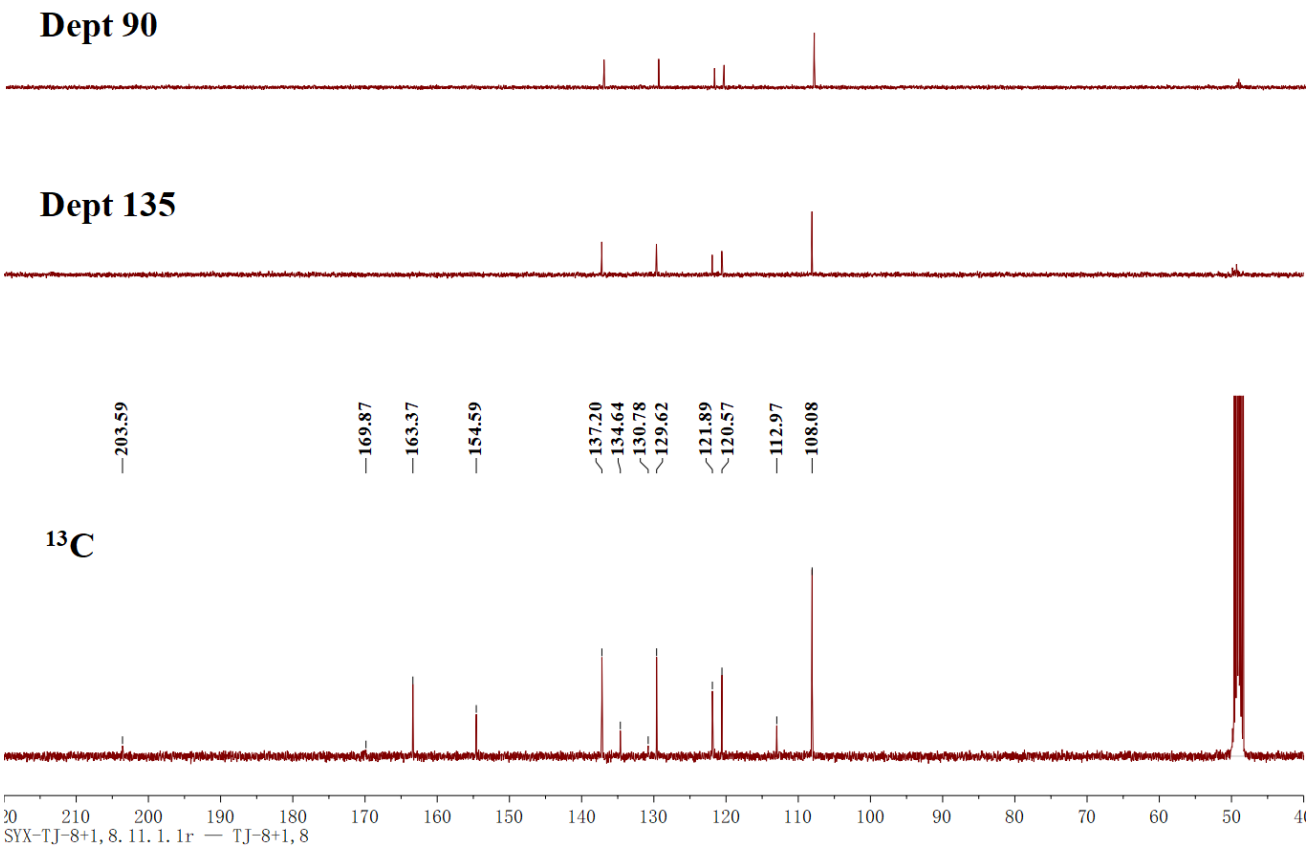

Figure S6. ^{13}C NMR spectrum (100 MHz, MeOD) of compound **2**

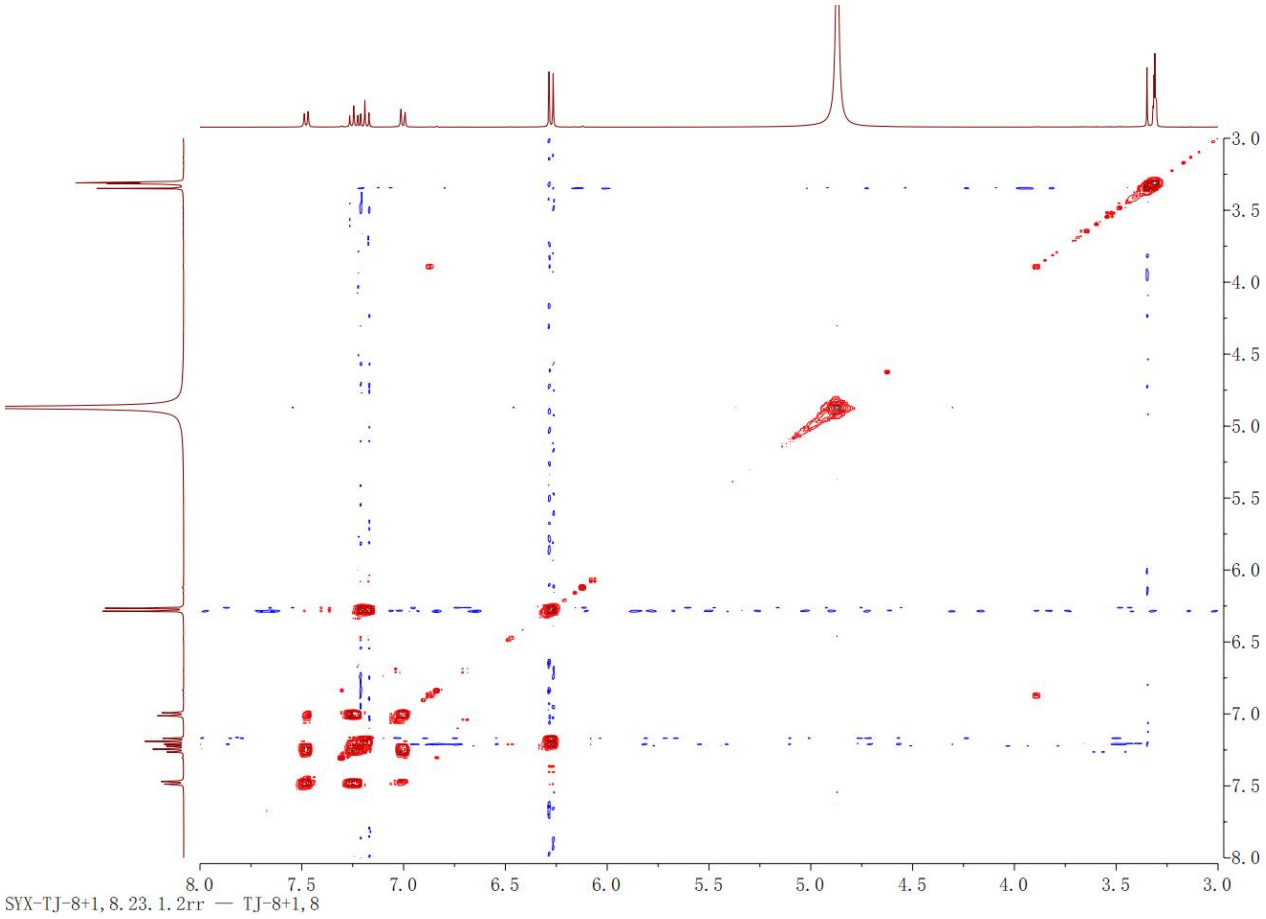

Figure S7. H-H COSY spectrum of compound **2**

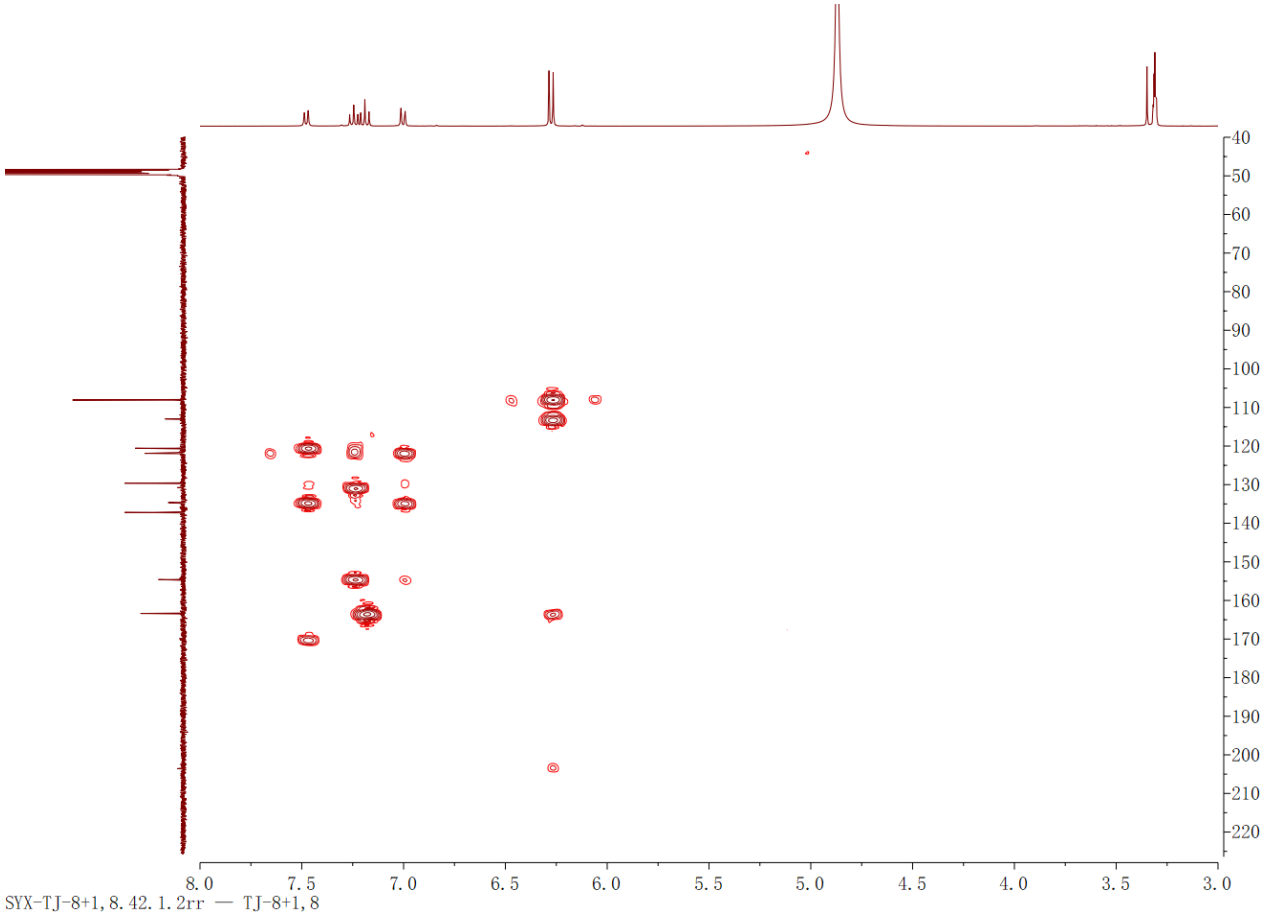

Figure S8. HMBC spectrum of compound **2**

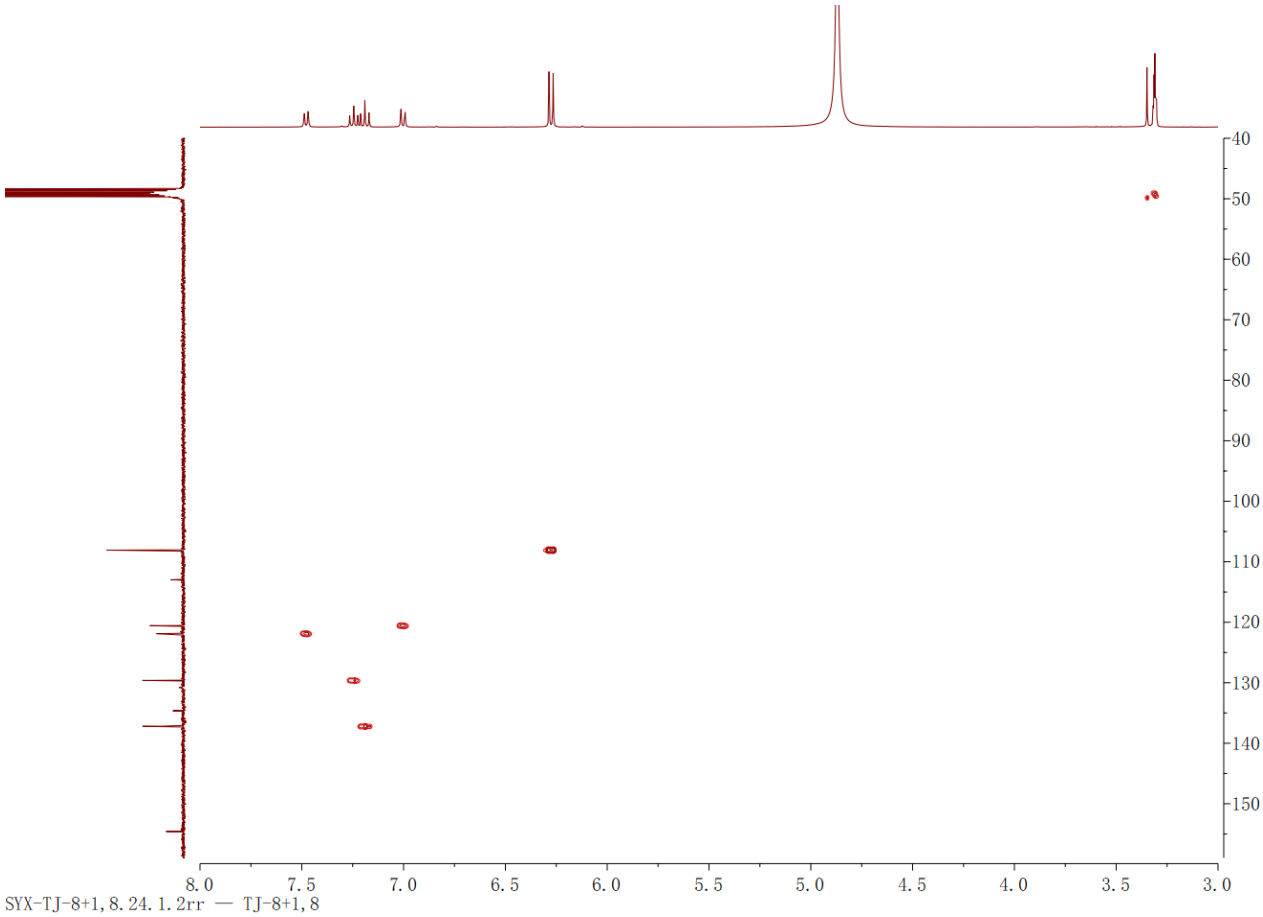

Figure S9. HSQC spectrum of compound **2**

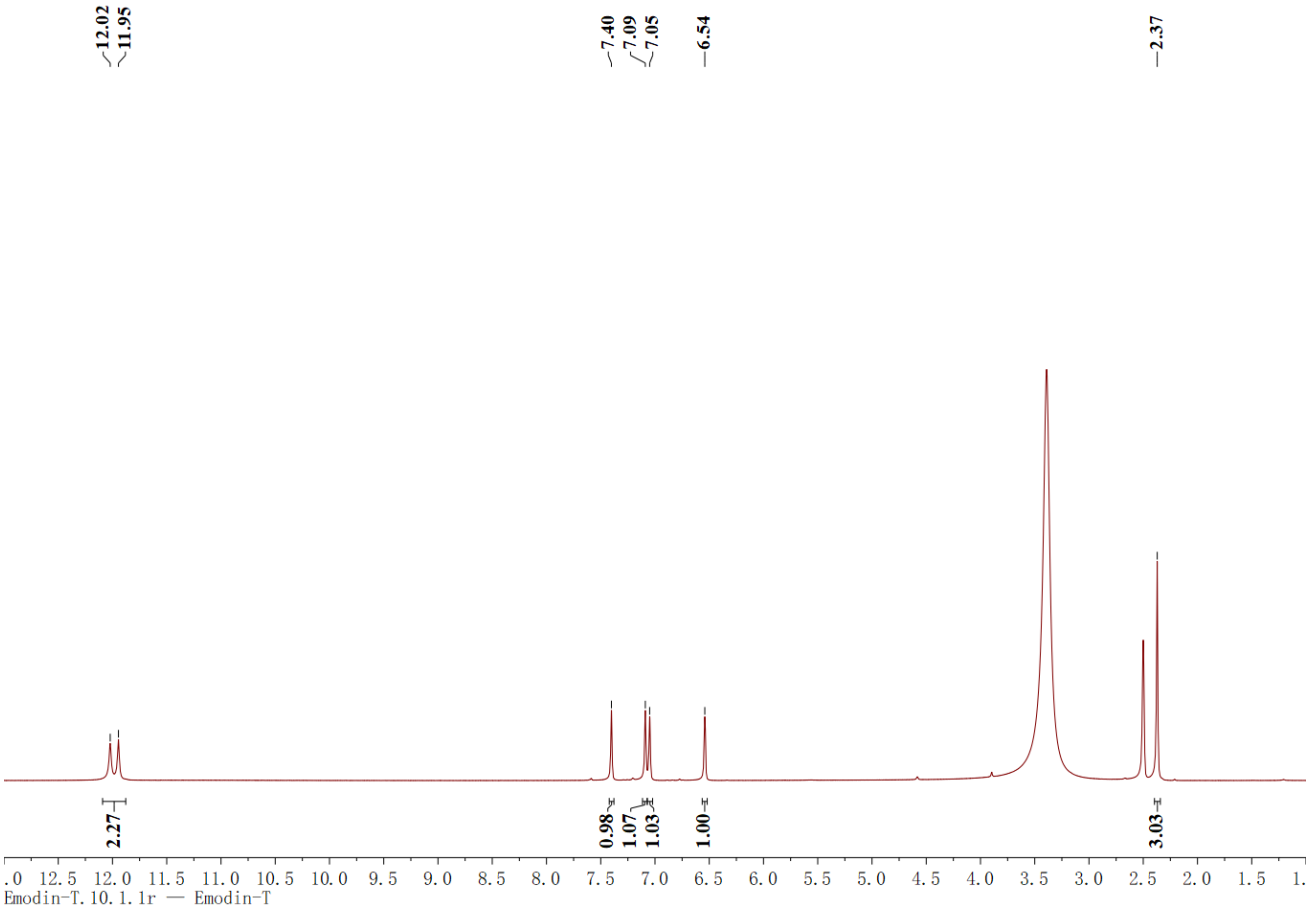

Figure S10. ^{1}H NMR spectrum (400 MHz, DMSO-d_6) of compound **3**

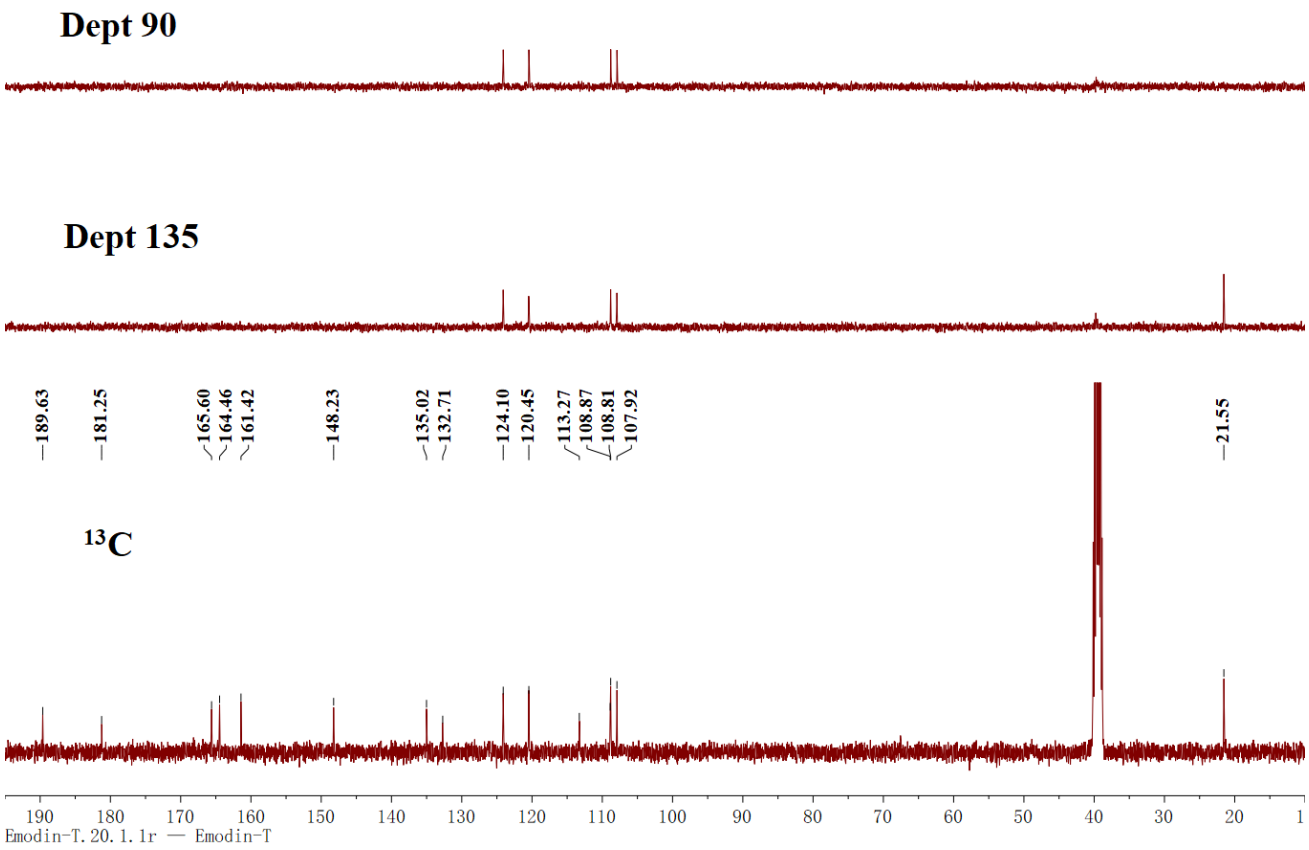

Figure S11. ^{13}C NMR spectrum (100 MHz, DMSO-d_6) of compound **3**

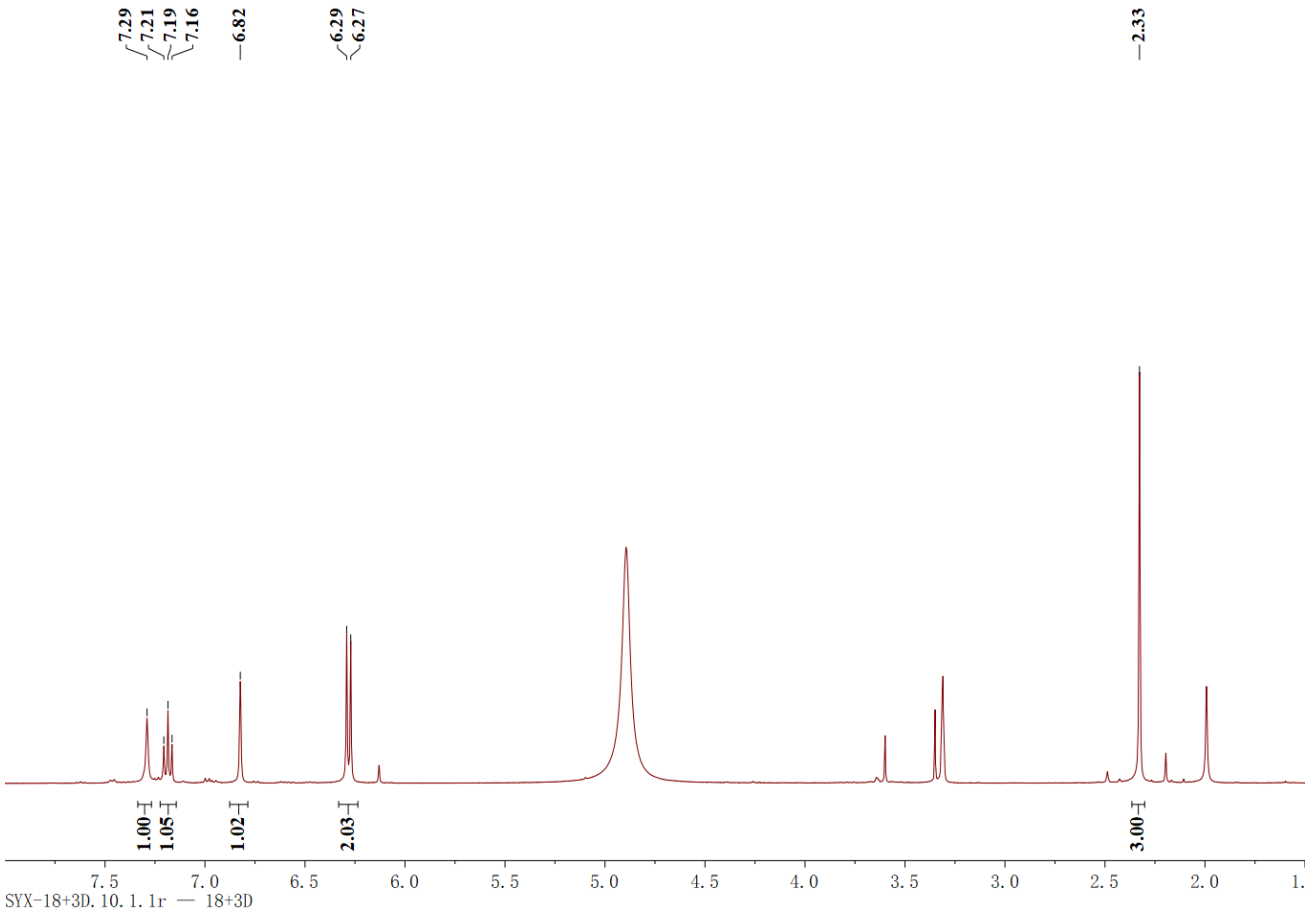

Figure S12. ^{1}H NMR spectrum (400 MHz, MeOD) of compound **4**

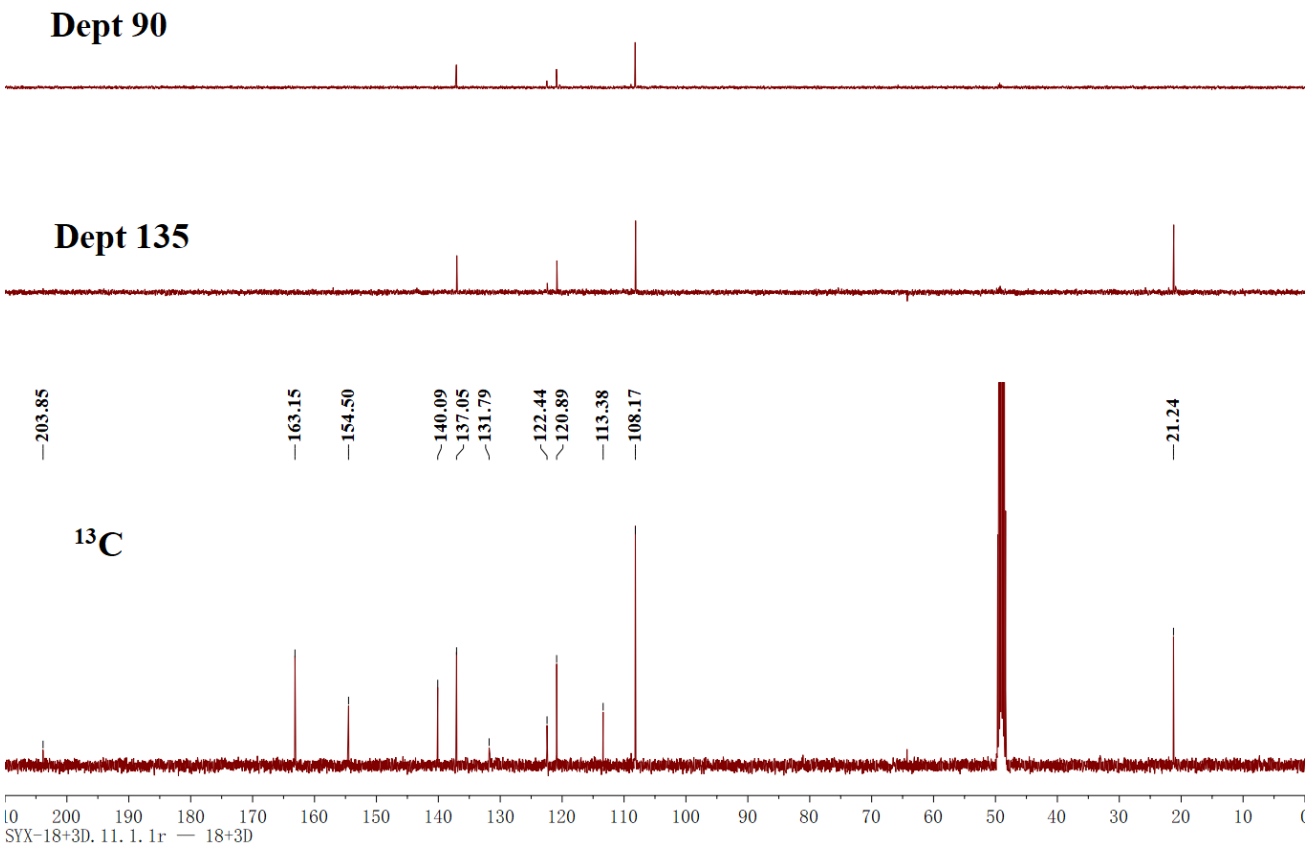

Figure S13. ^{13}C NMR spectrum (100 MHz, MeOD) of compound **4**

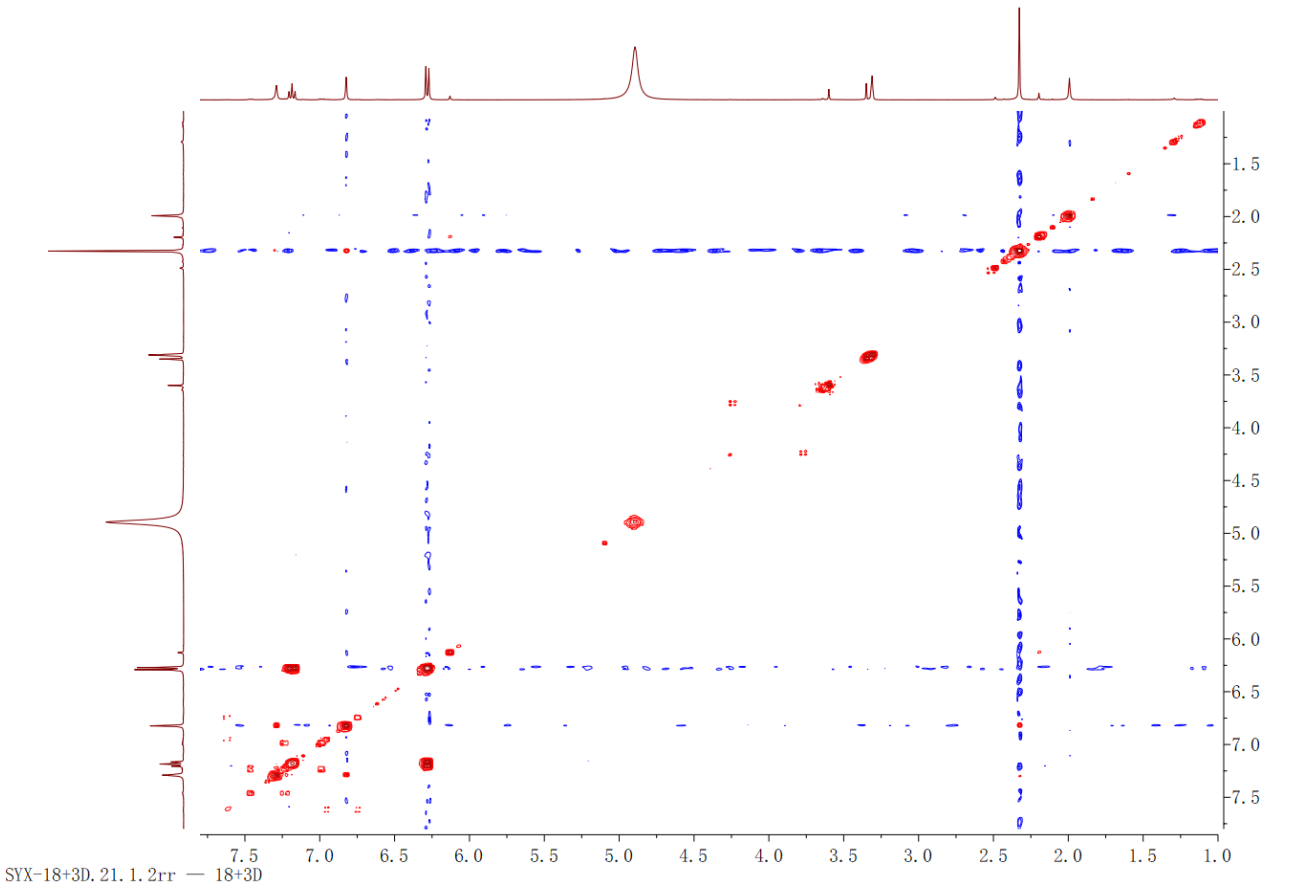

Figure S14. H-H COSY spectrum of compound **4**

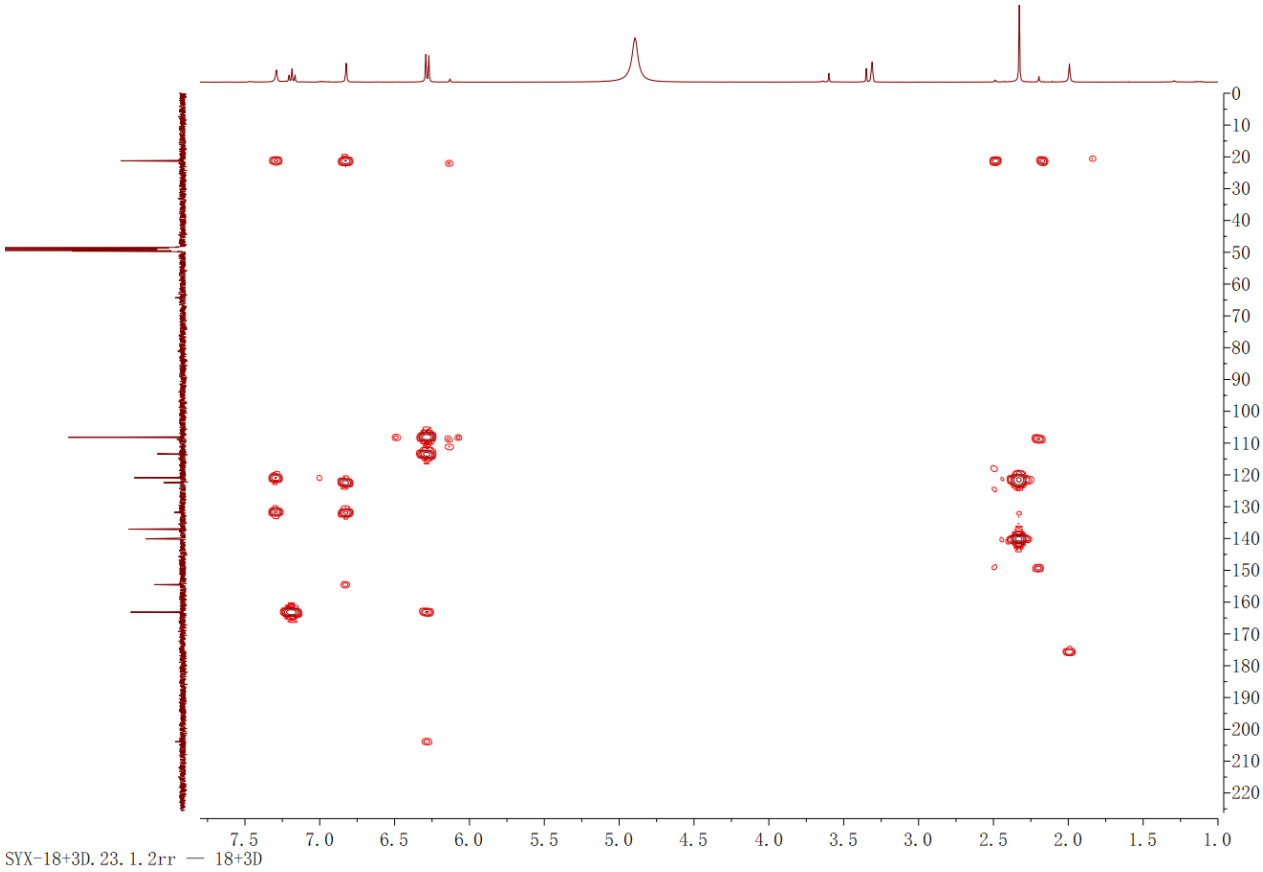

Figure S15. HMBC spectrum of compound **4**

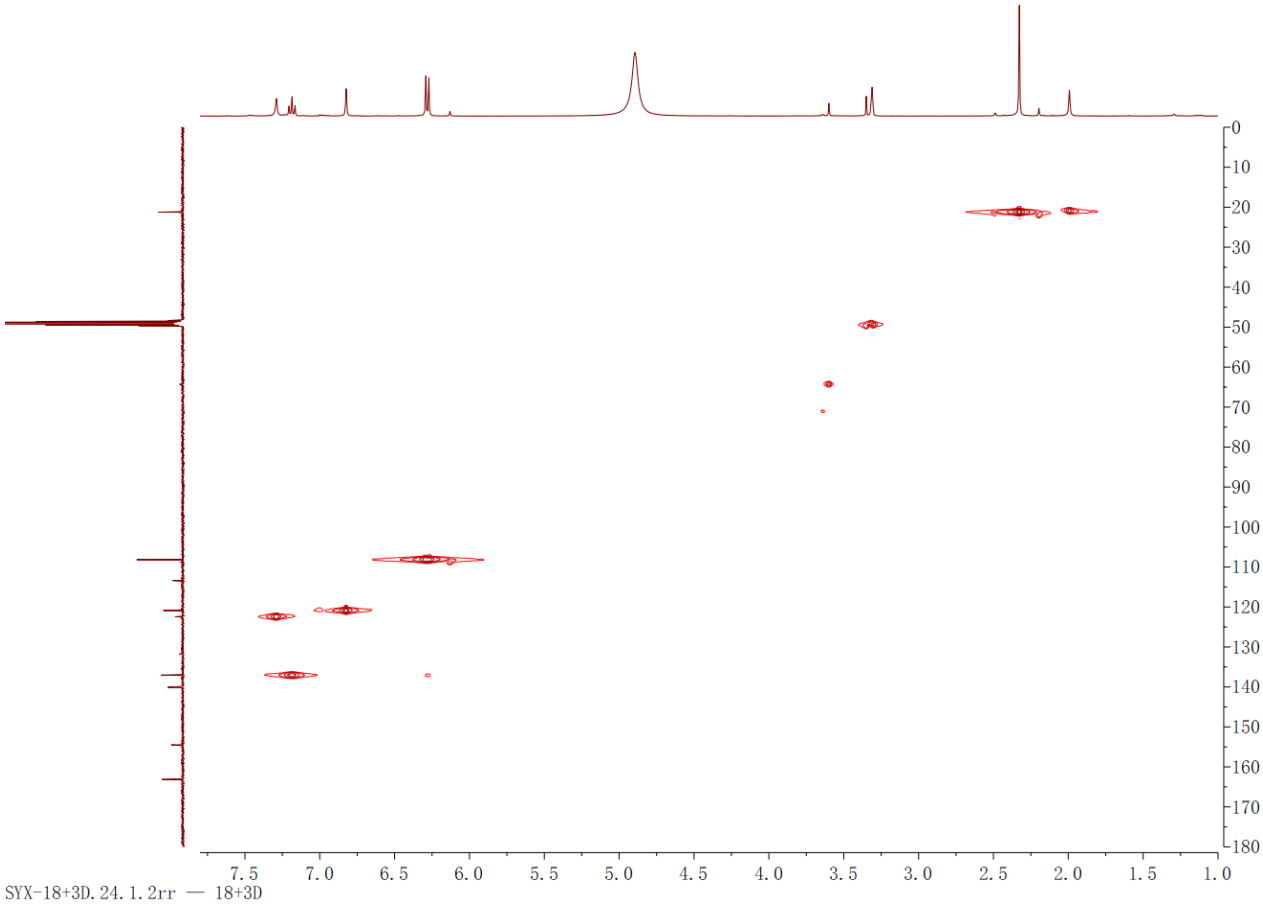

Figure S16. HSQC spectrum of compound **4**

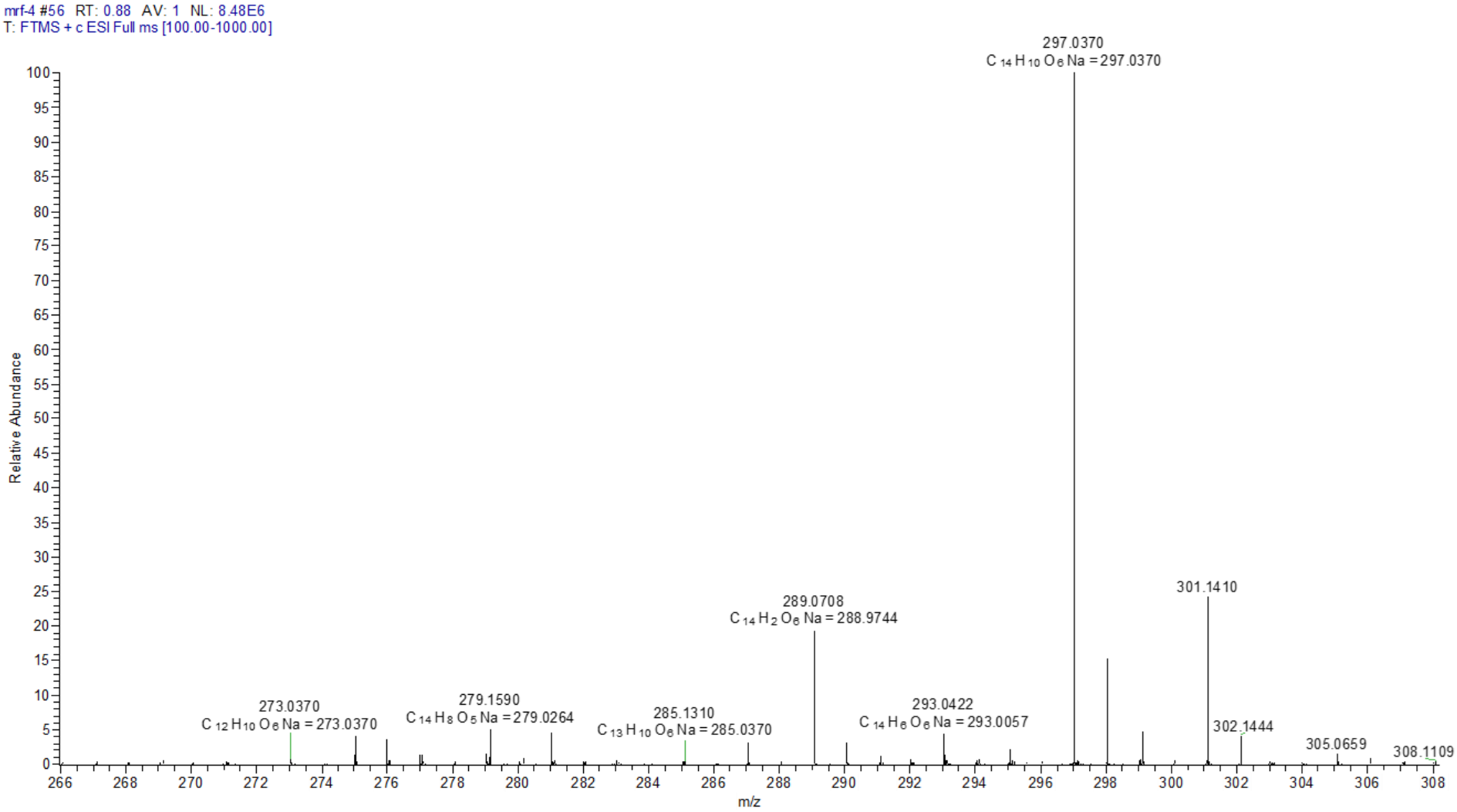

Figure S17. ESI-MS of compound **2**

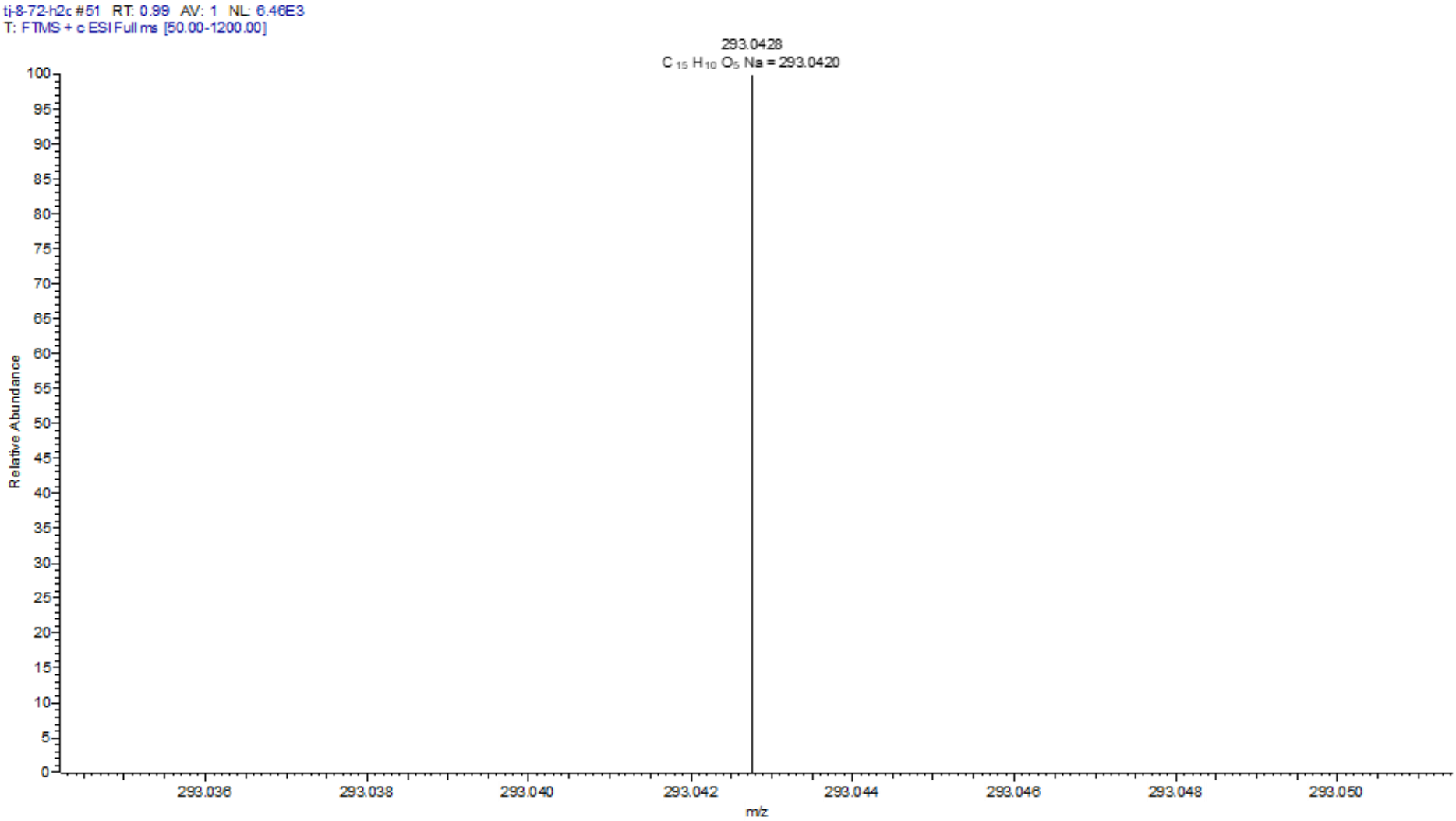

Figure S18. ESI-MS of compound **3**

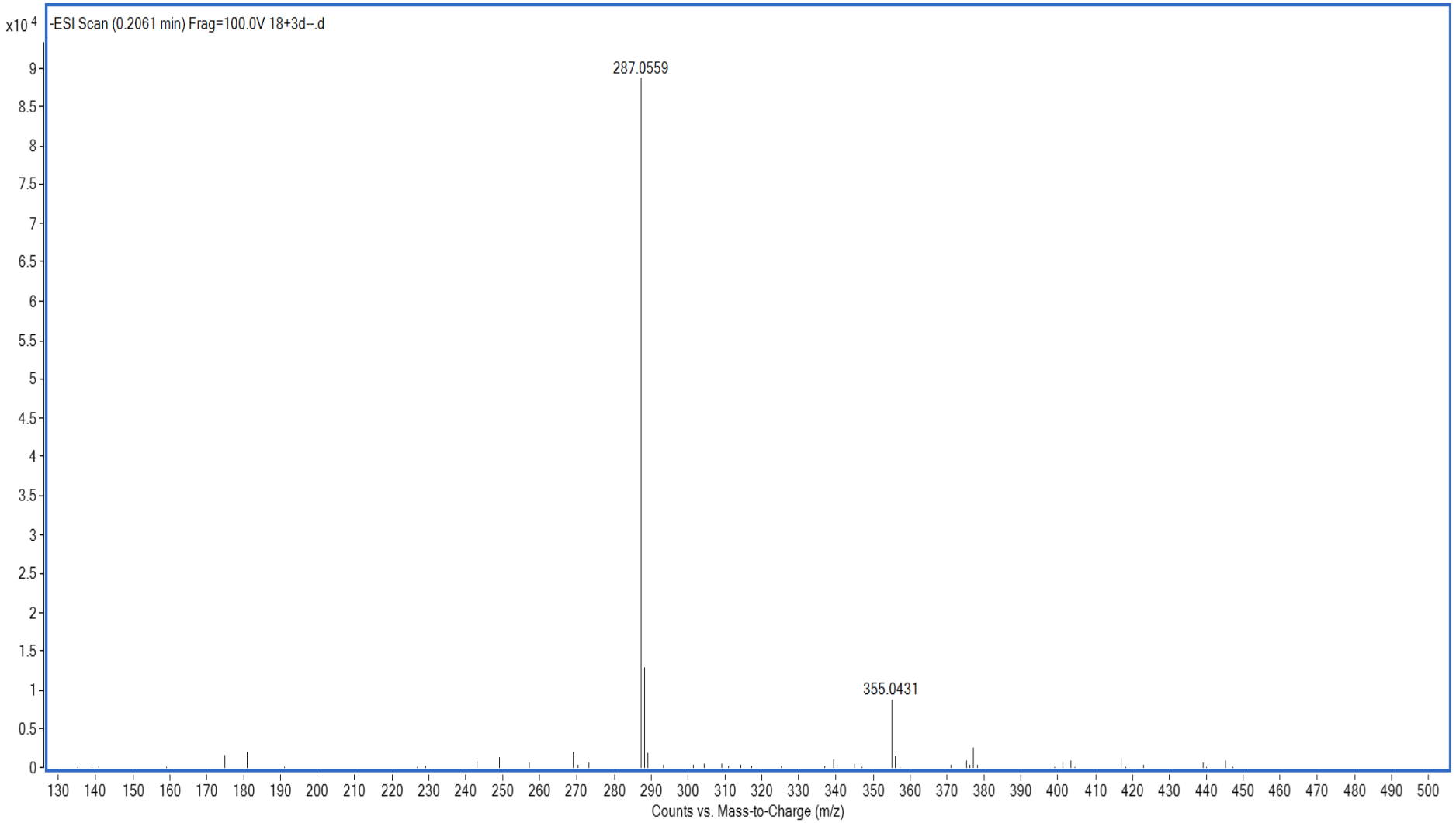

Figure S19. ESI-MS of compound **4**

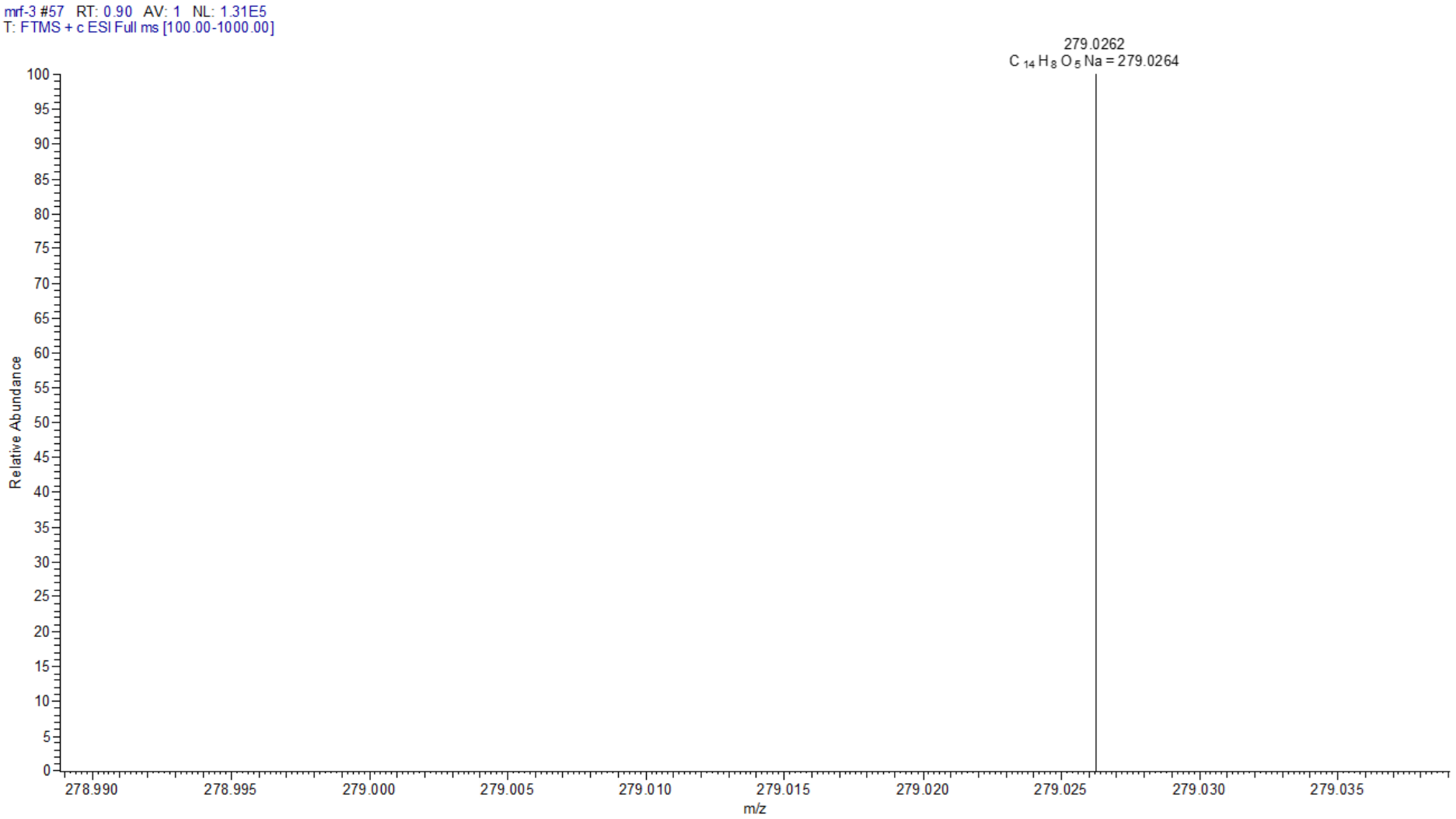

Figure S20. ESI-MS of compound **5**

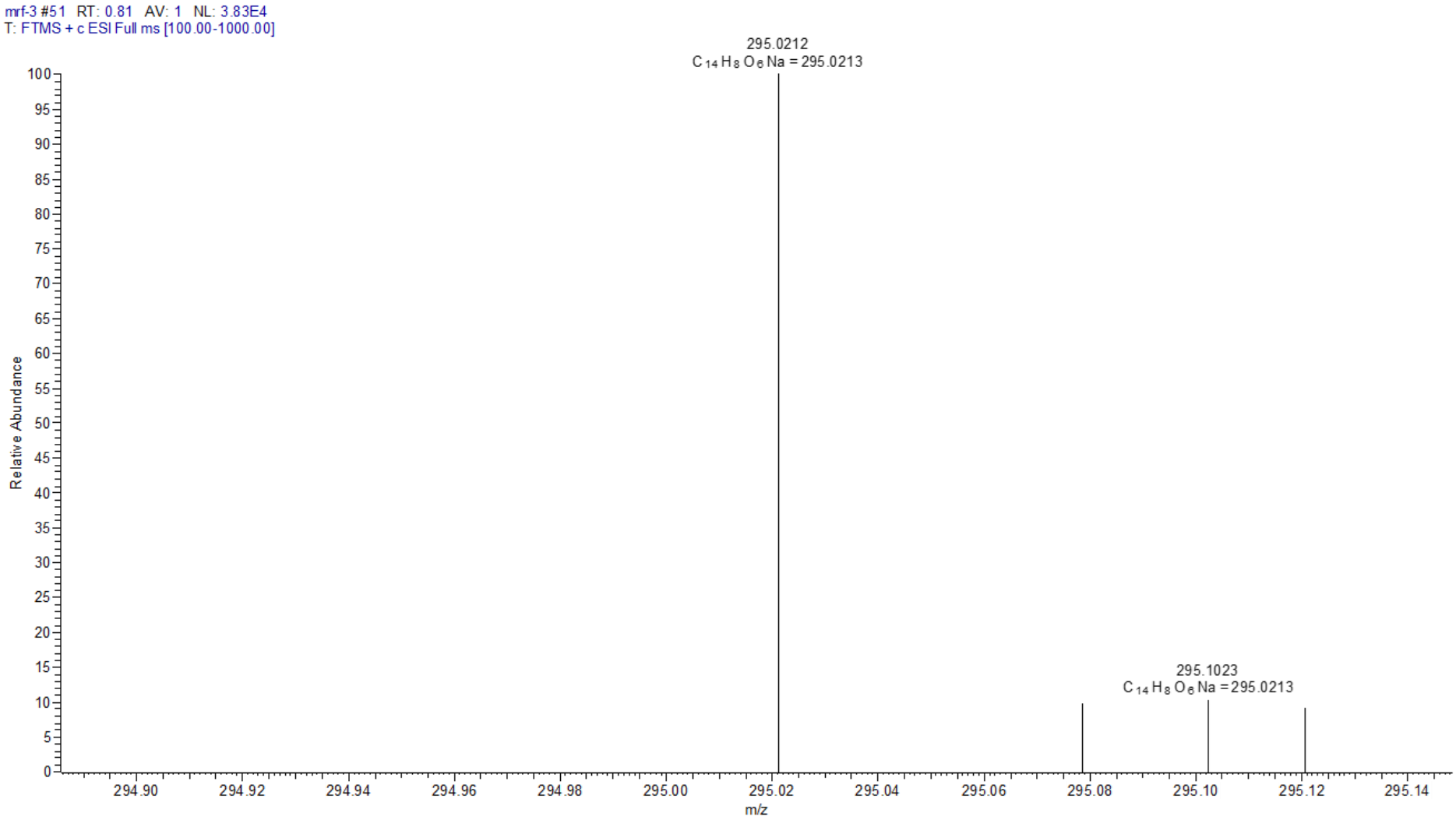

Figure S21. ESI-MS of compound **6**