Cylindrocyclophanes with Proteasome Inhibitory Activity from the Cyanobacterium *Nostoc* sp.

George E. Chlipala[†], Megan Sturdy[†], Aleksej Krunic[†], Daniel D. Lantvit[†], Qi Shen[†], Kyle Porter[‡], Steven M. Swanson[†] and Jimmy Orjala[†]*

Department of Medicinal Chemistry and Pharmacognosy, University of Illinois at Chicago, 833 S. Wood St., Chicago, Illinois, 60612 and Center for Biostatistics, The Ohio State University, Columbus, Ohio, 43221

Supporting Information

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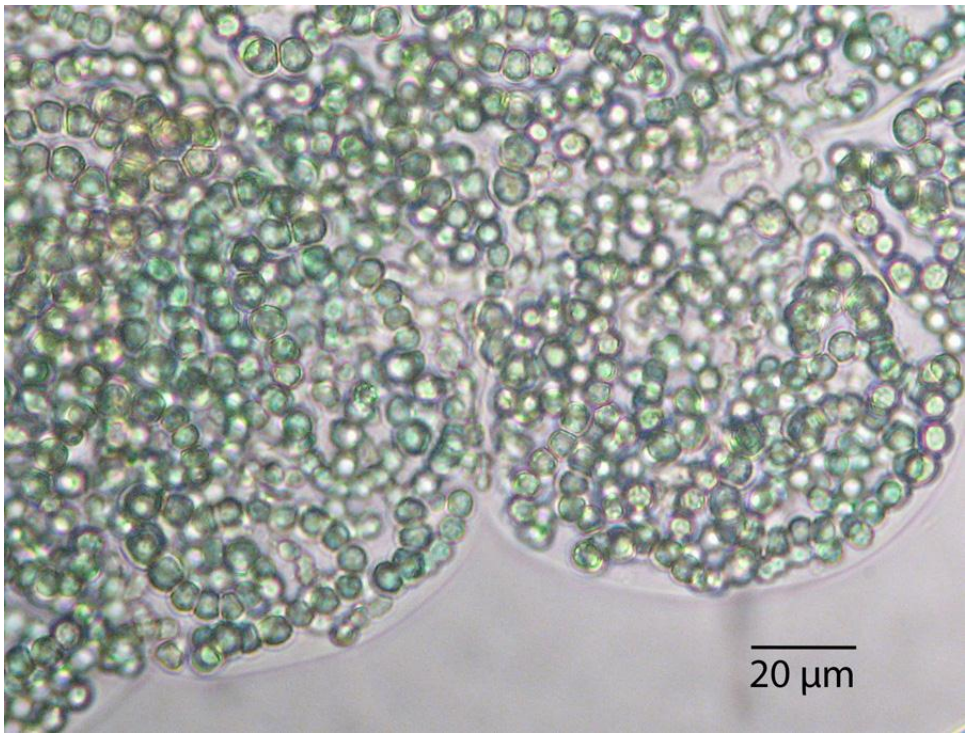
Cyclindrocyclophane A (**11**): white amorphous powder; HR-ESI-TOF-MS (-) *m/z* 583.4073 $[M-H]^-$ (calcd for $C_{36}H_{55}O_6$ 583.4004).

Cyclindrocyclophane C (**12**): white amorphous powder; HR-ESI-TOF-MS (-) *m/z* 567.4100 $[M-H]^-$ (calcd for $C_{36}H_{55}O_5$ 567.4055).

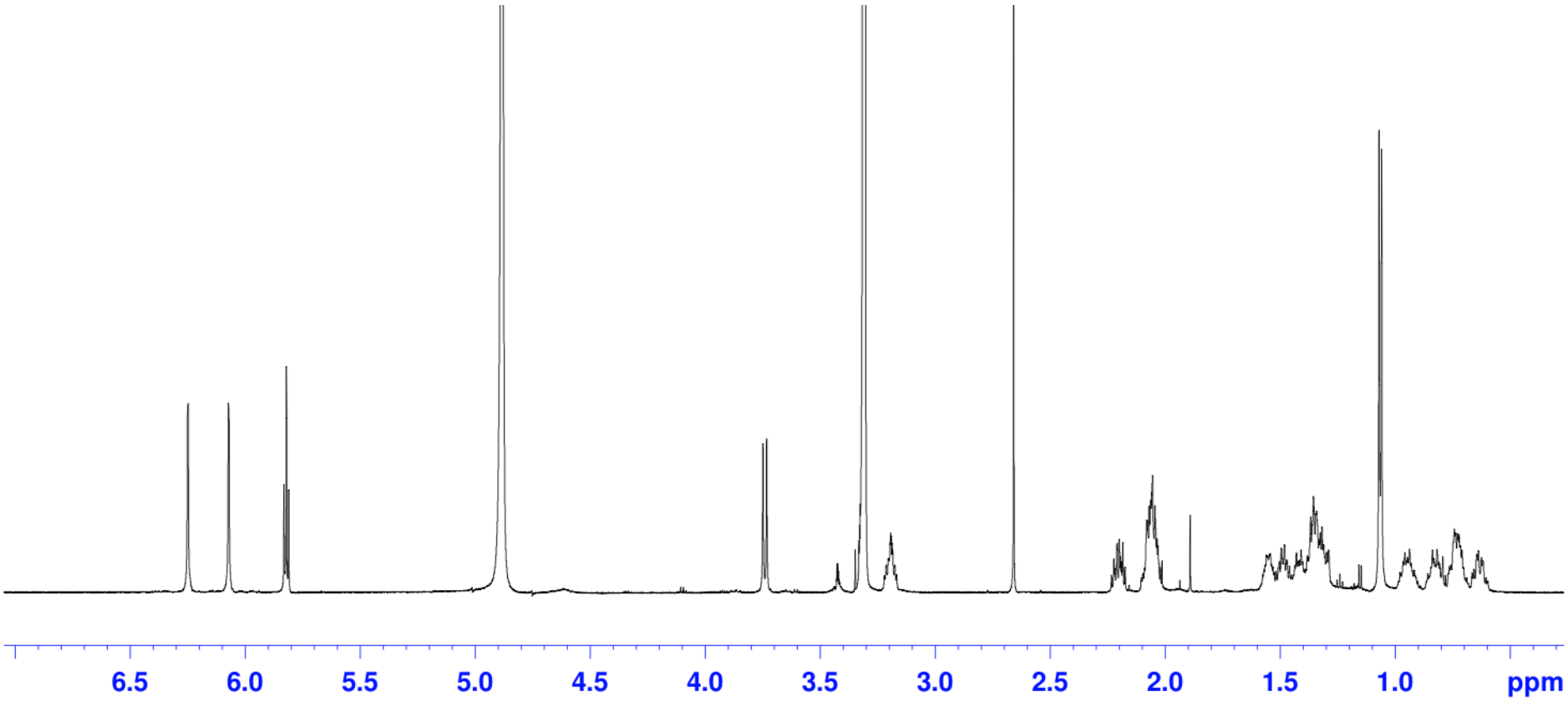
Cylindrocyclophane F (**13**): HR-ESI-TOF-MS (-) *m/z* 551.4153 $[M-H]^-$ (calcd for $C_{36}H_{55}O_5$ 567.4106).

Morphological Description of *Nostoc* sp. UIC 10022A. The thallus was macroscopic forming irregular mats and clusters. Fresh growth appeared light blue-green becoming medium olive with age. Microscopic observations of the cultured material revealed cells that were spherical or barrel-shaped. Filaments were isopolar with solitary, intercalary heterocytes. Groups of young trichomes were contained within a distinct envelope, which was often absent in mature material. Akinetes, which were solitary or in groups, would only occur in mature trichomes. Akinetes could be twice as large as vegetative cells but rarely larger. As the material would age, akinetes would become predominant and typically the trichome would fragment and release individual akinetes. Eventually, an akinete would shed its outer membrane and undergo multiple rounds of binary fission to produce hormogonia. The strain UIC 10022A did exhibit a colonial envelope in young colonies, however over time the colonies would become diffluent.

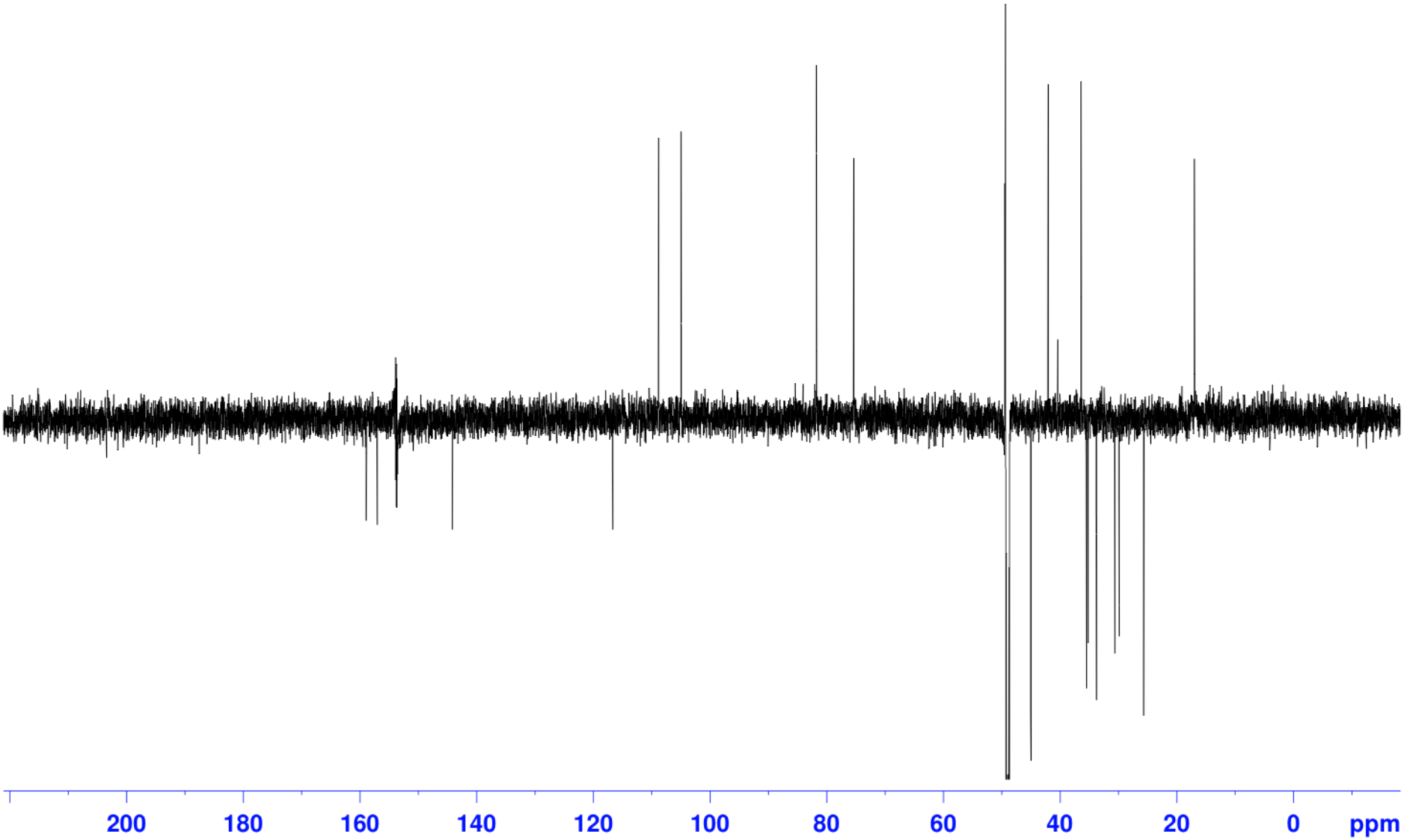
S1. Photomicrogaph (400x, bright field) of *Nostoc* sp. UIC 10022A



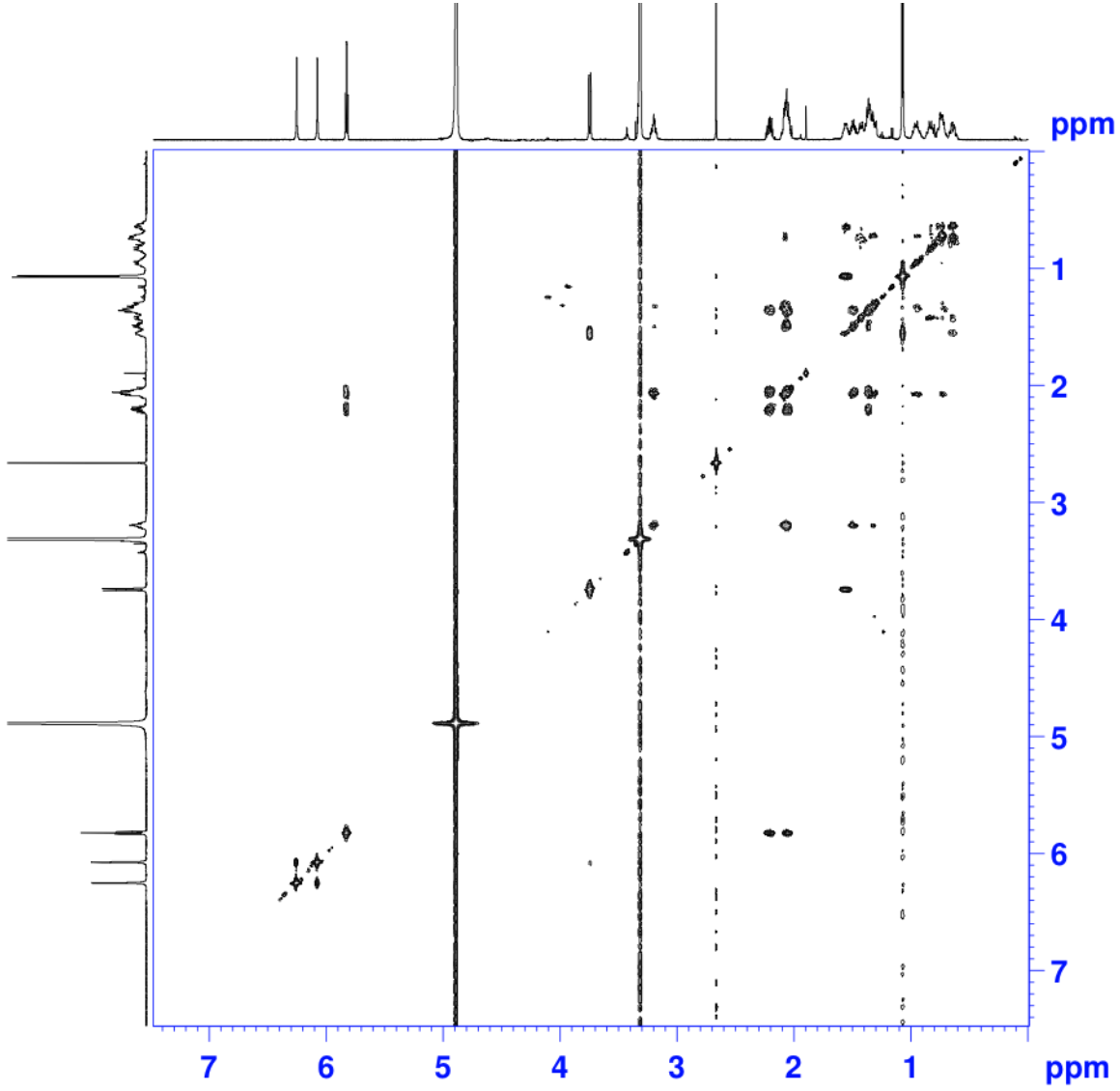
S2. ^{1}H NMR spectrum (600 MHz, MeOH-d_4) of **1**



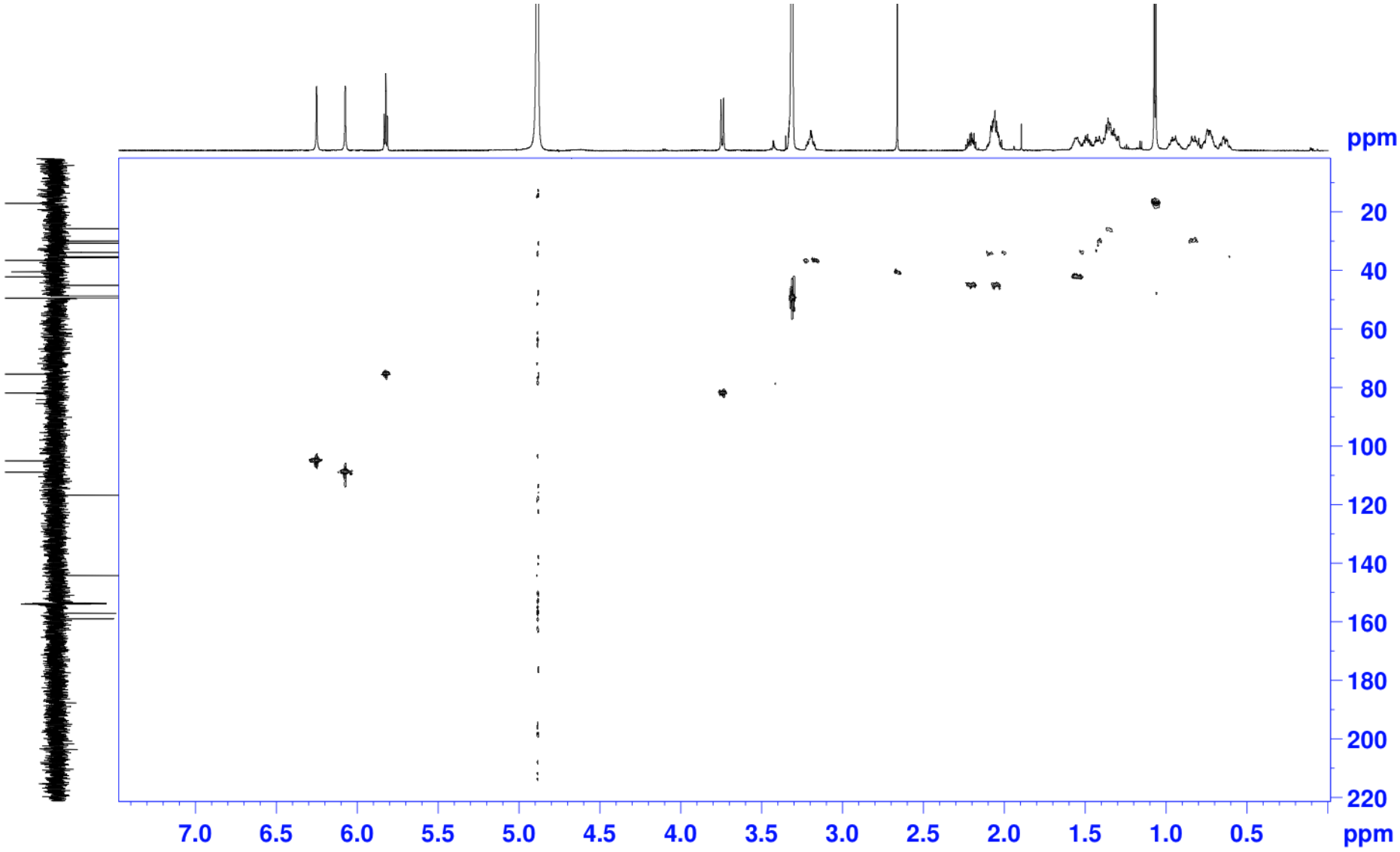
S3. DEPTQ spectrum (226 MHz, MeOH-d_4) of **1**



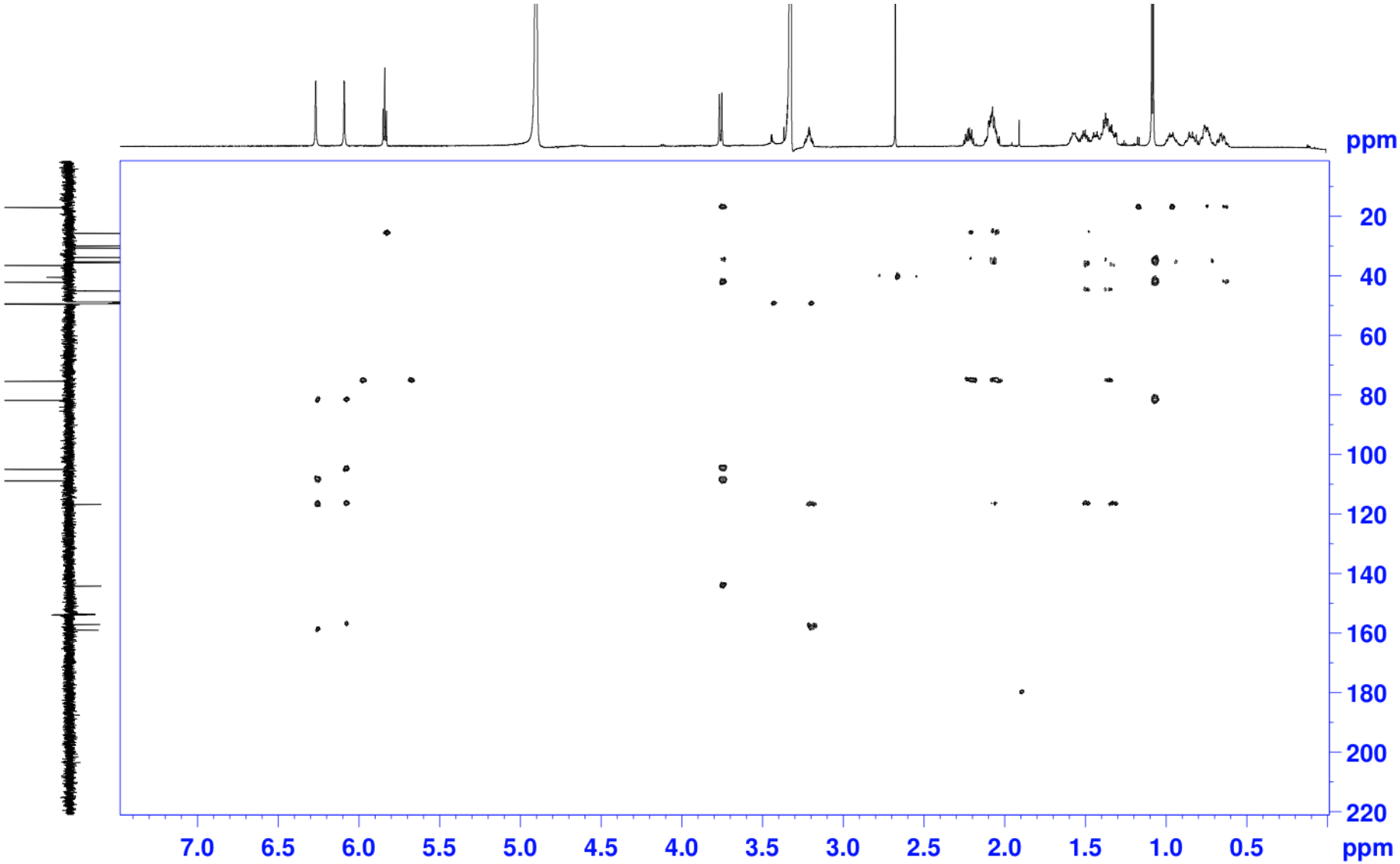
S4. COSY spectrum (600 MHz, MeOH-d_4) of **1**



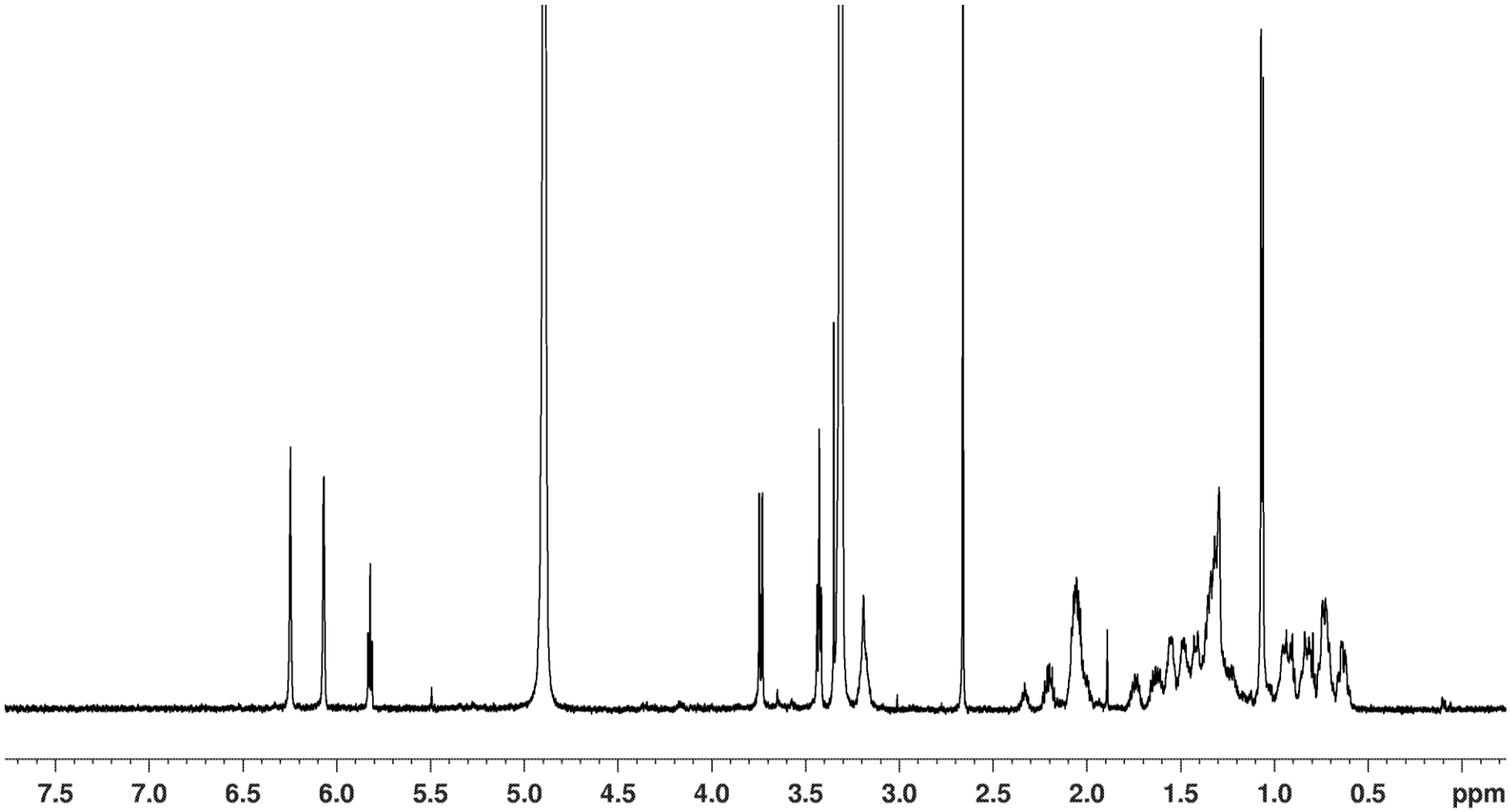
S5. HSQC spectrum (600 MHz, MeOH-d_4) of **1**



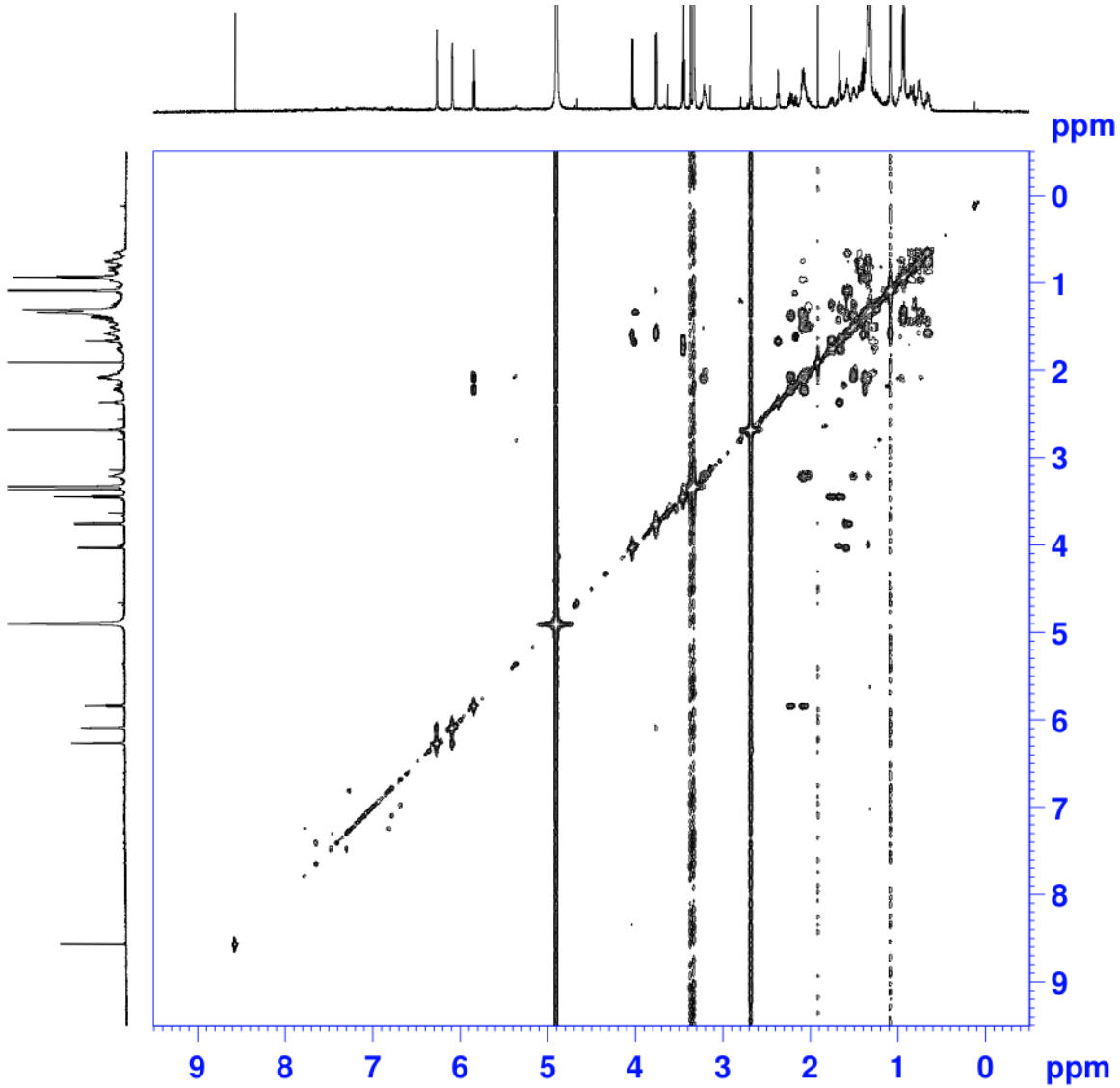
S6. HMBC spectrum (600 MHz, MeOH-d_4) of **1**



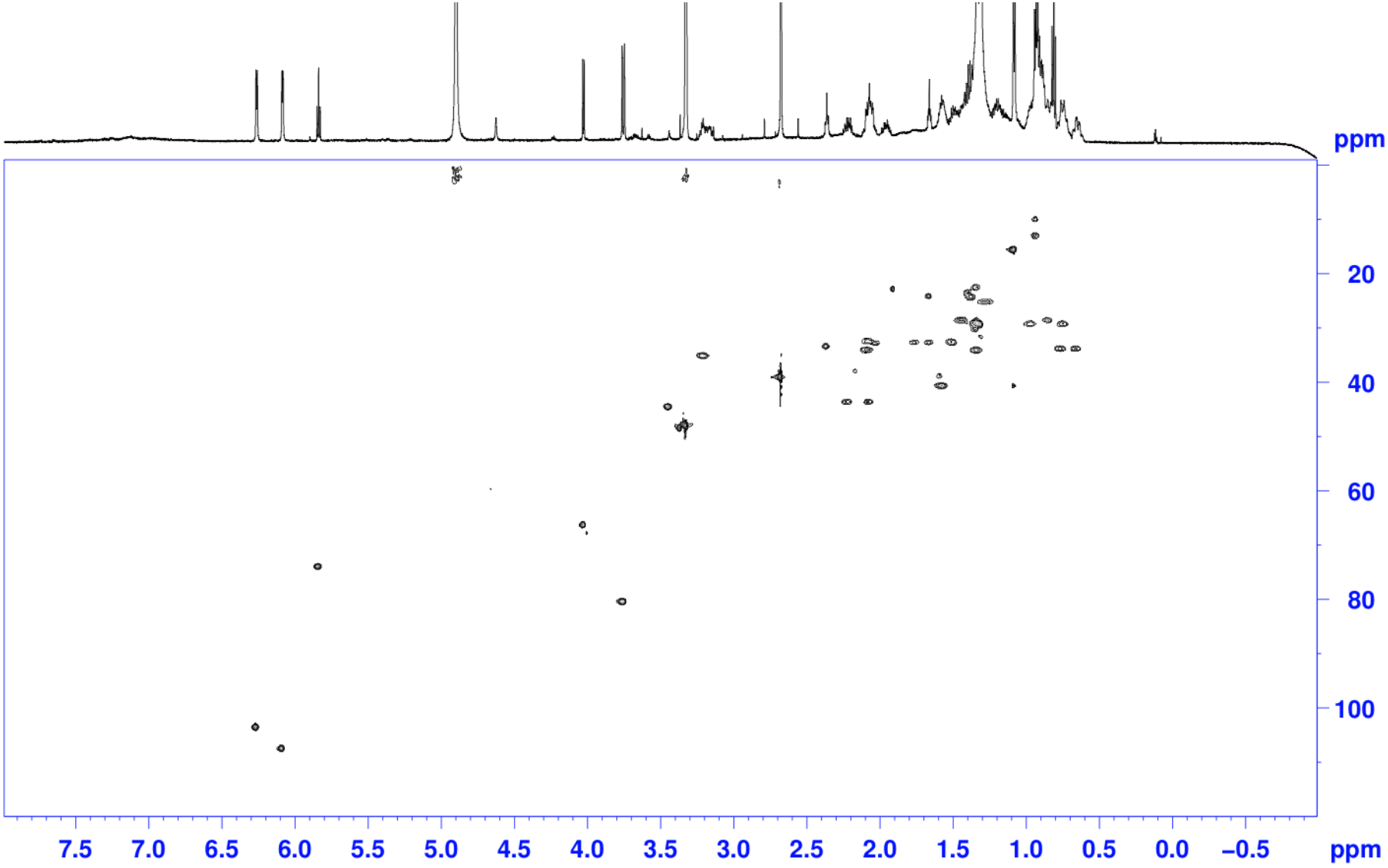
S7. ^{1}H NMR spectrum (600 MHz, MeOH-d_4) of **2**



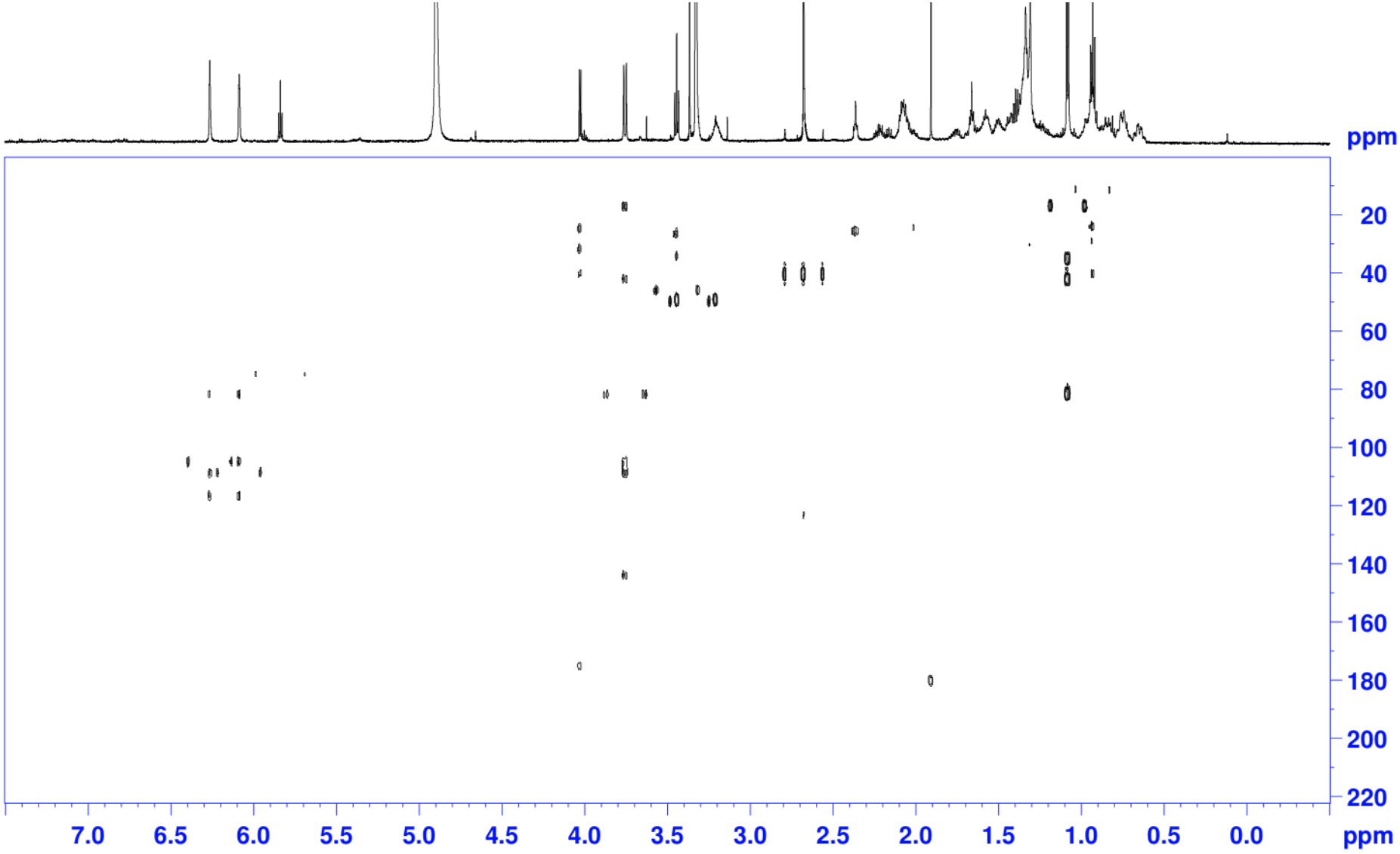
S8. COSY spectrum (600 MHz, MeOH-d_4) of **2**



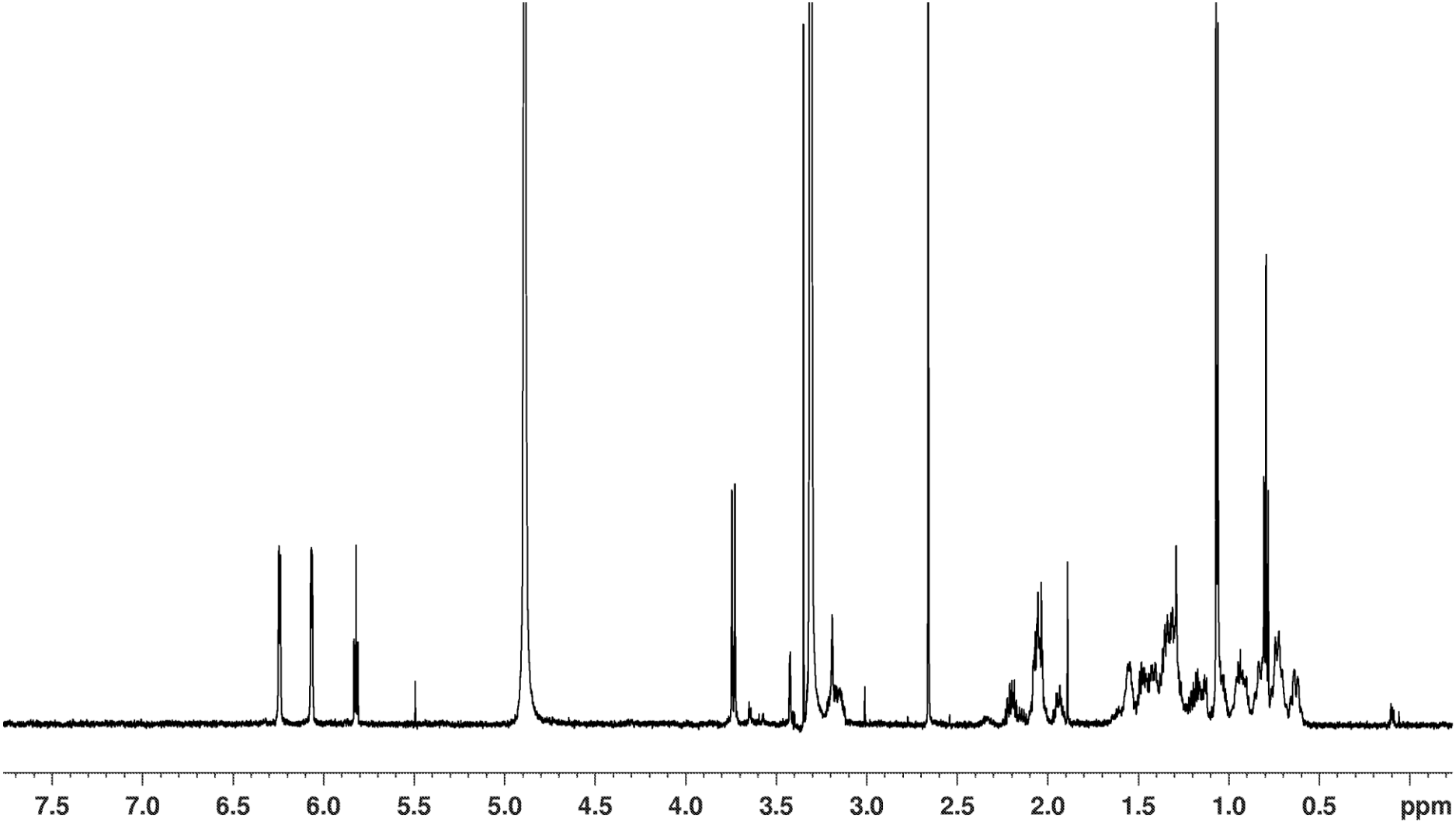
S9. HSQC spectrum (600 MHz, MeOH-d_4) of **2**



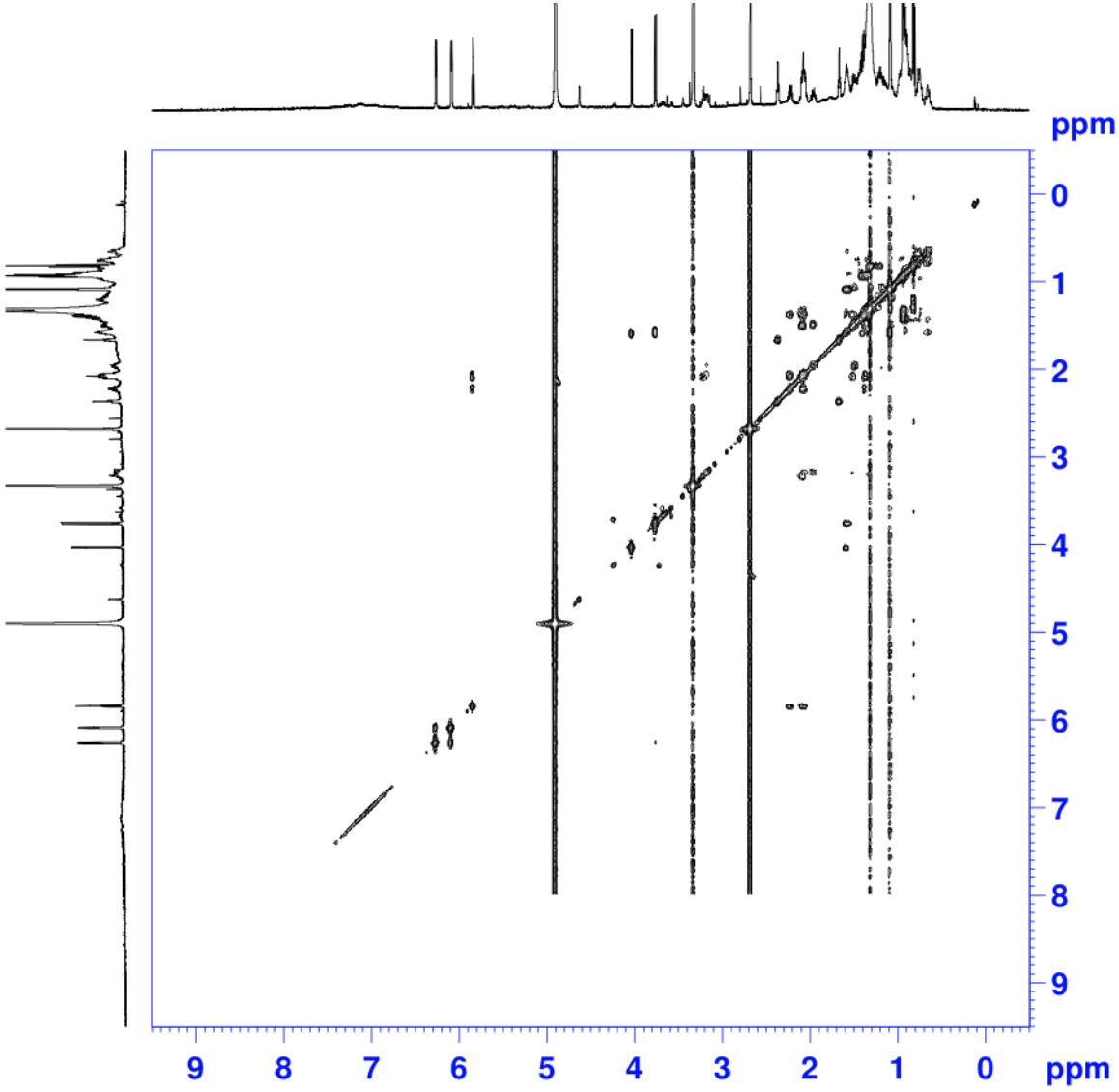
S10. HMBC spectrum (600 MHz, MeOH-d_4) of **2**



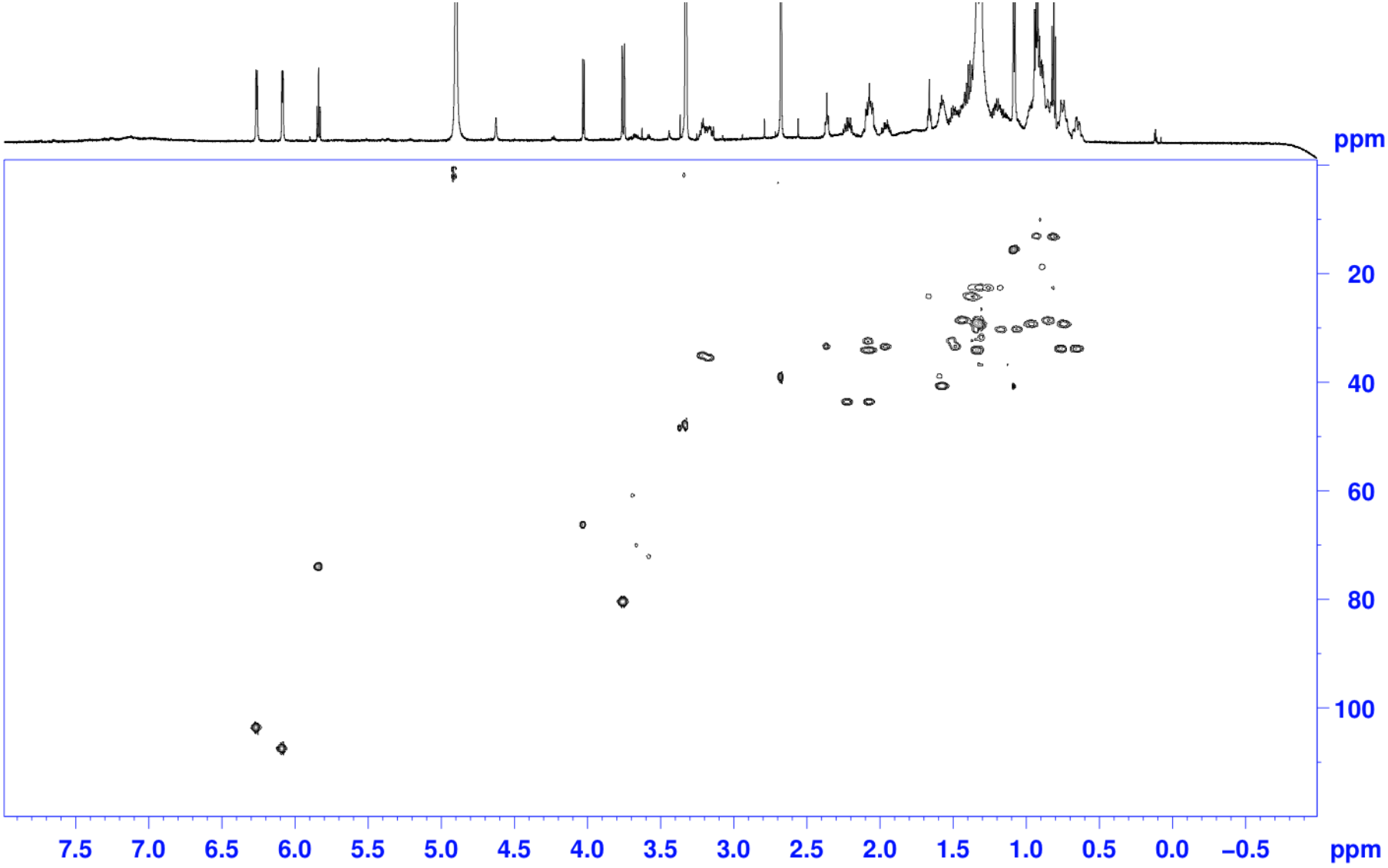
S11. ^{1}H NMR spectrum (600 MHz, MeOH-d_4) of **3**



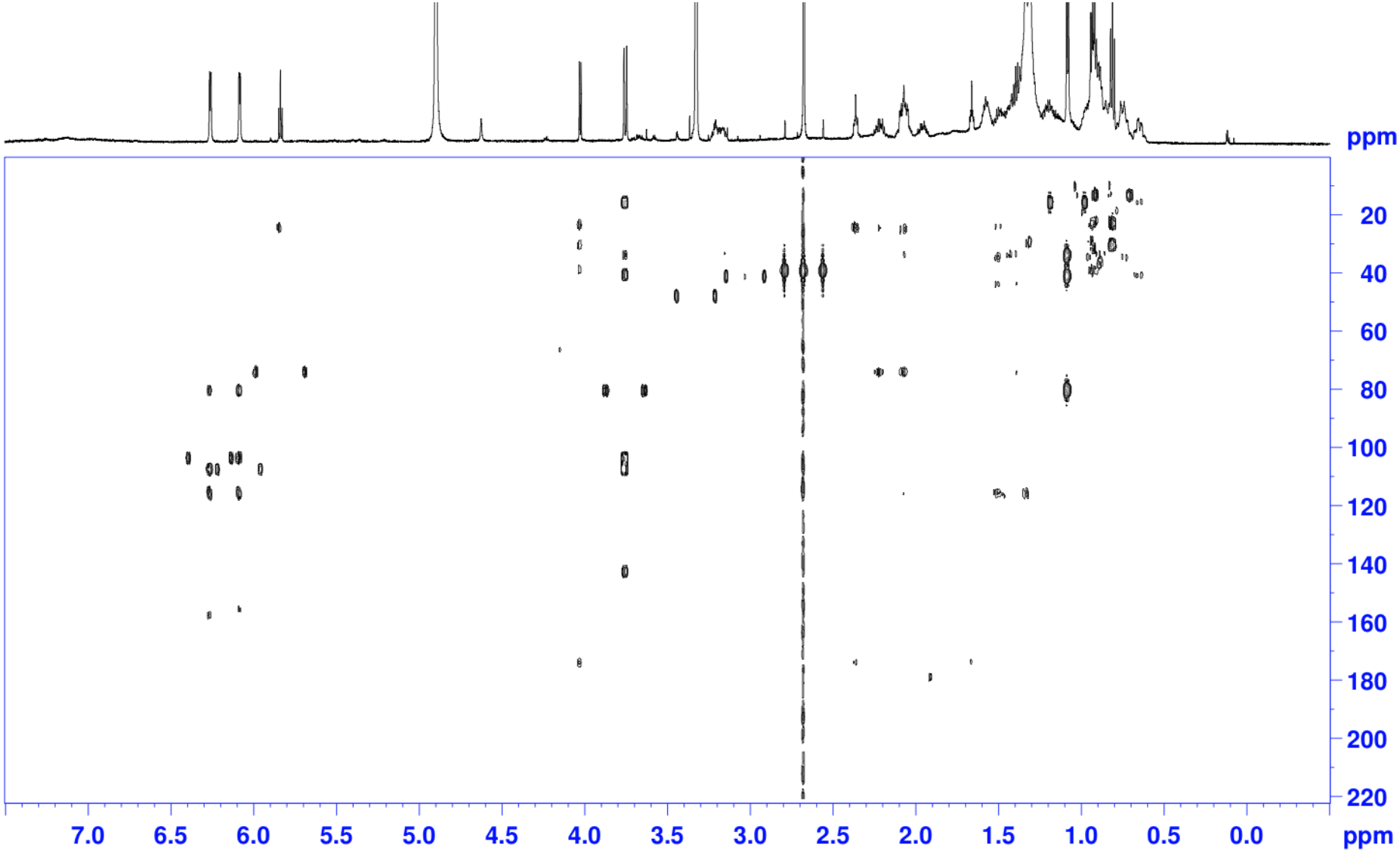
S12. COSY spectrum (600 MHz, MeOH-d_4) of **3**



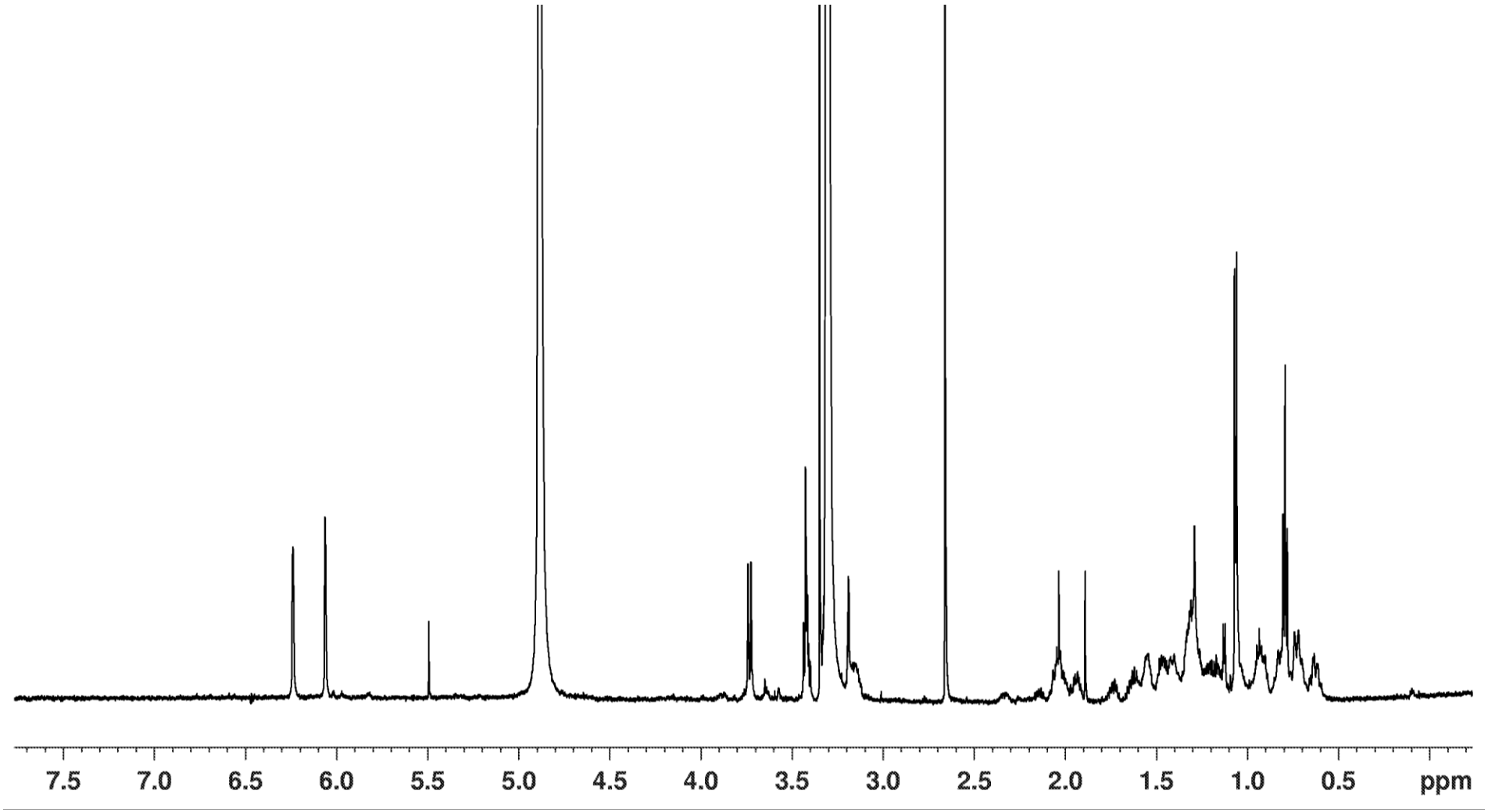
S13. HSQC spectrum (600 MHz, MeOH-d_4) of **3**



S14. HMBC spectrum (600 MHz, MeOH-d_4) of **3**



S15. ^{1}H NMR spectrum (600 MHz, MeOH-d_4) of **4**



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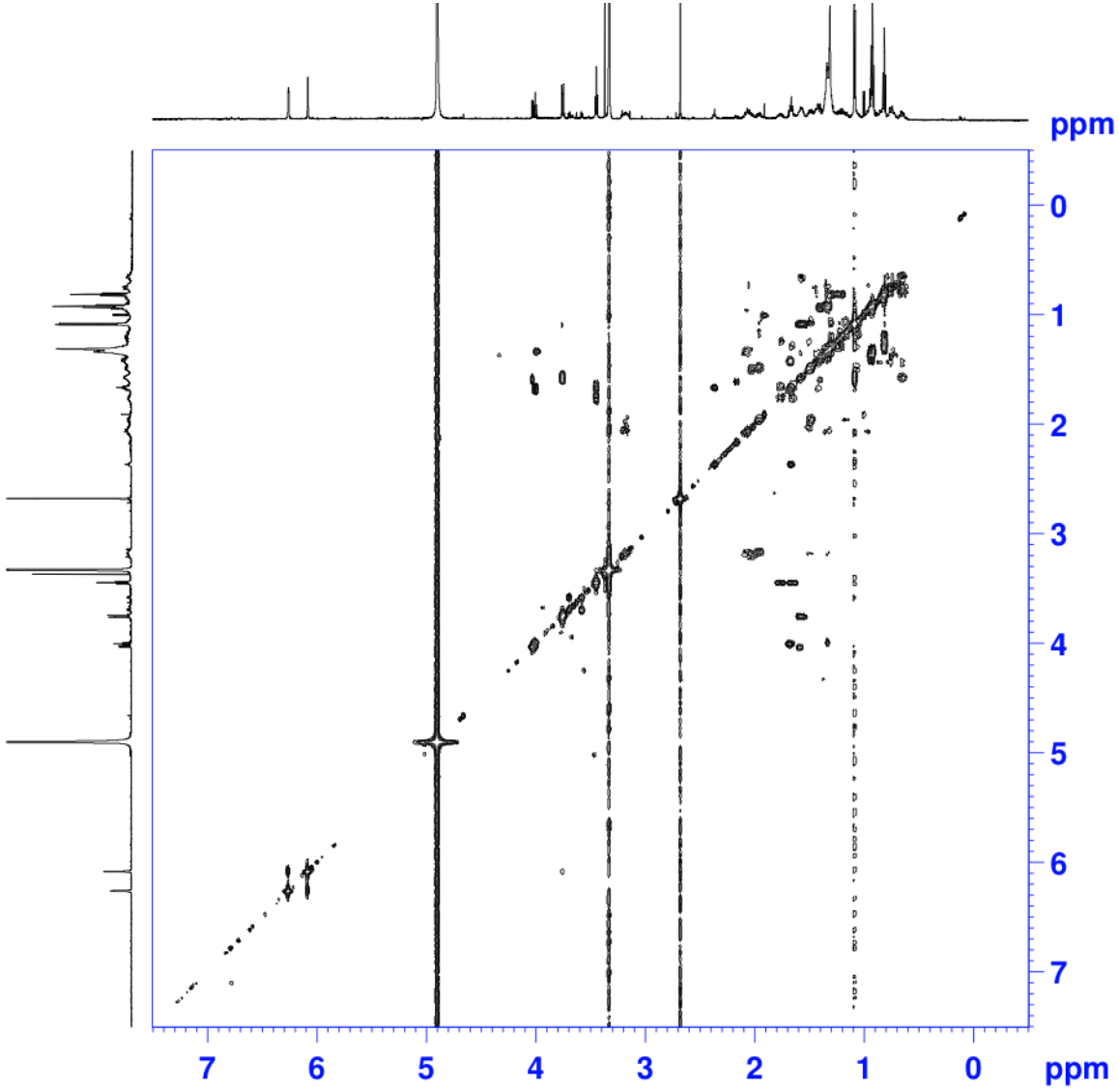

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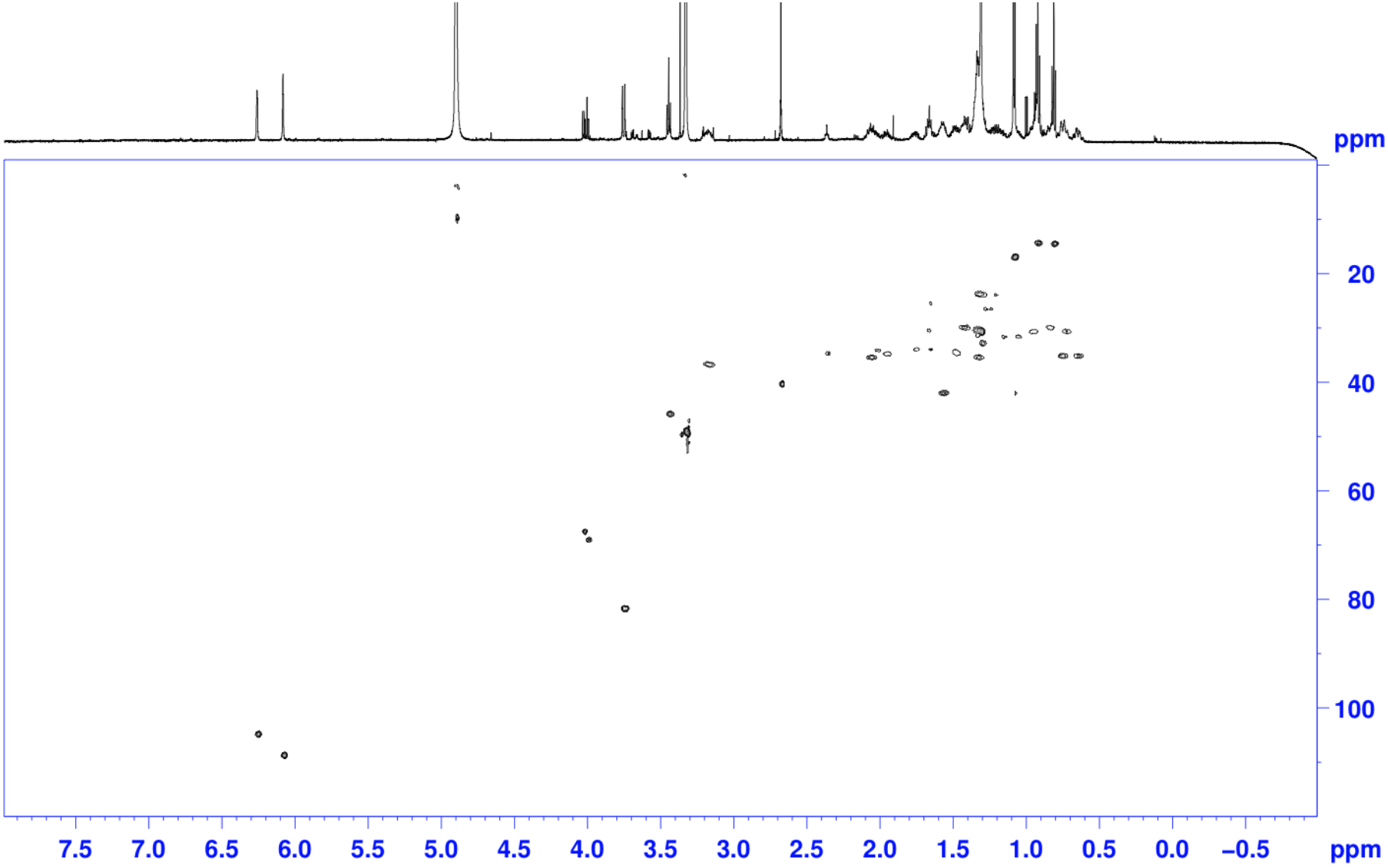
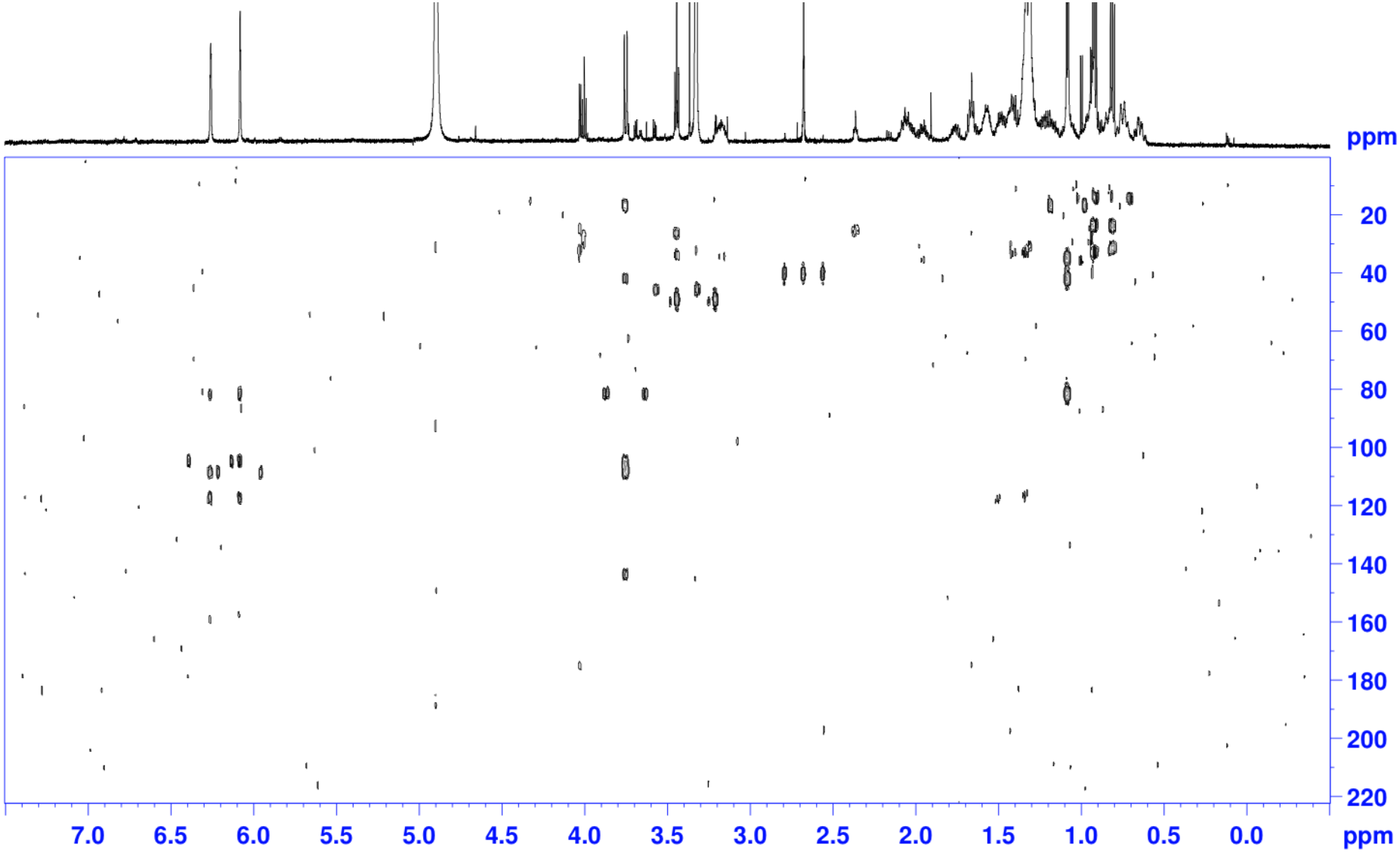
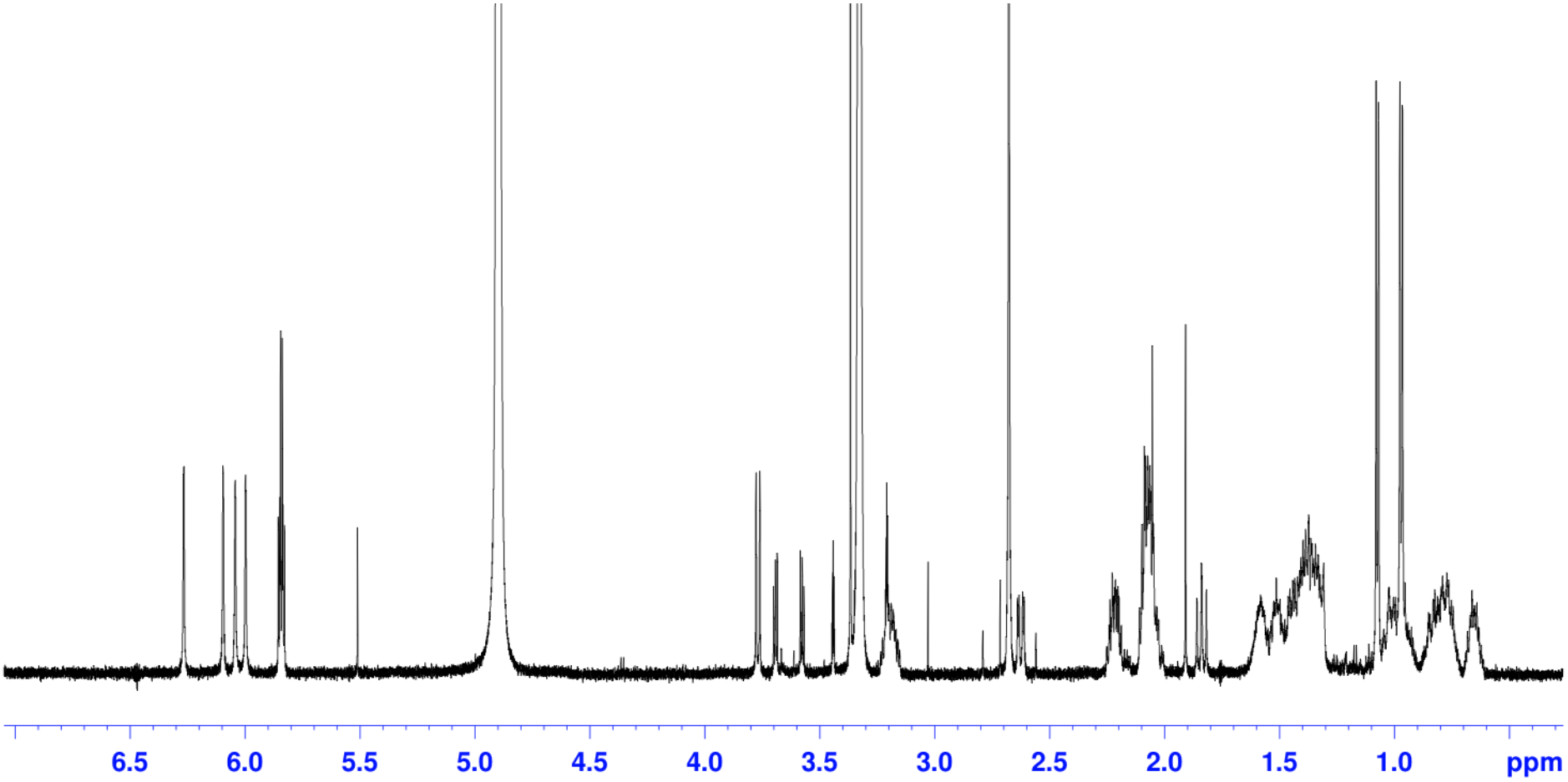


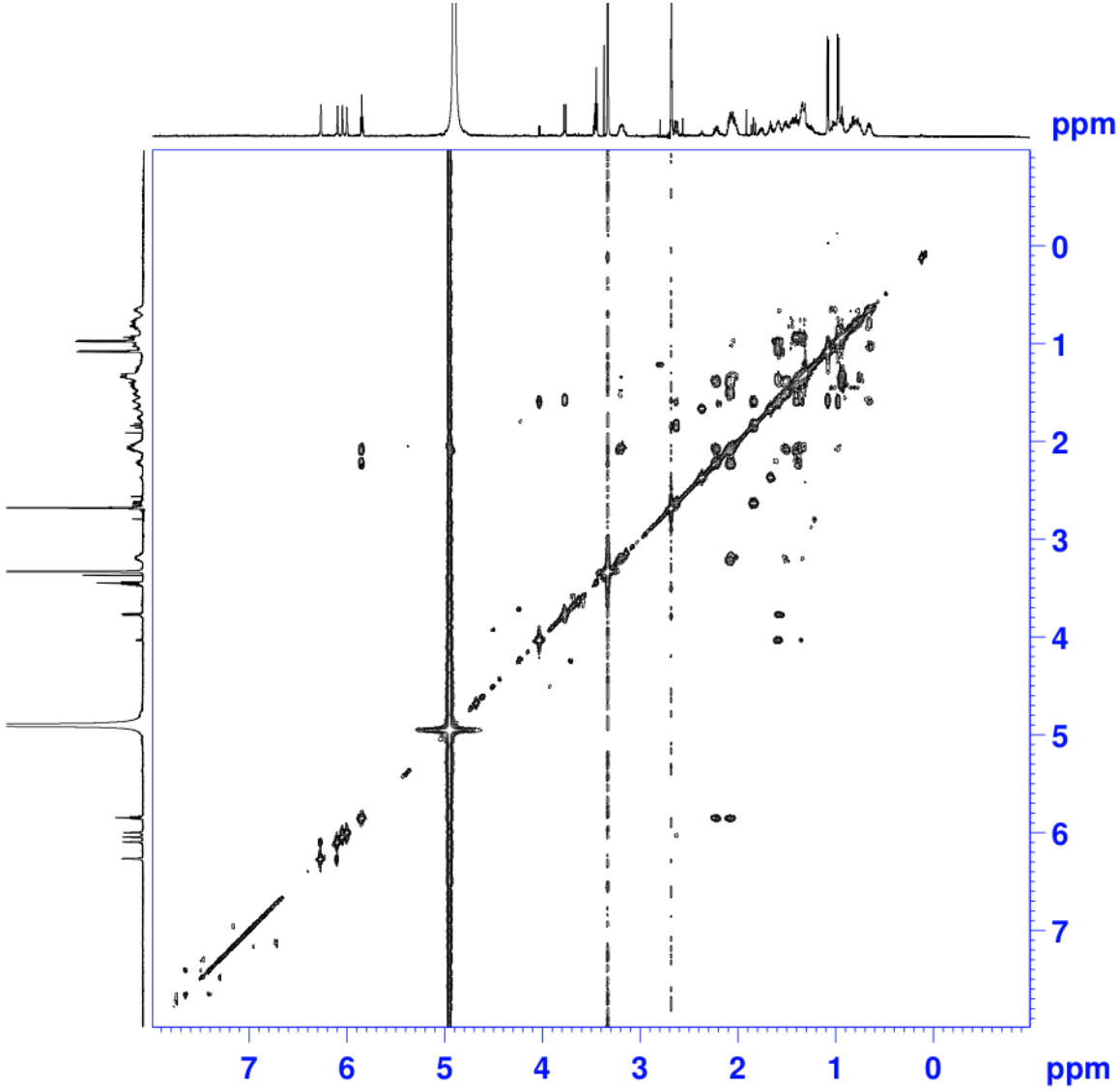
S18. HMBC spectrum (600 MHz, MeOH-d_4) of **4**



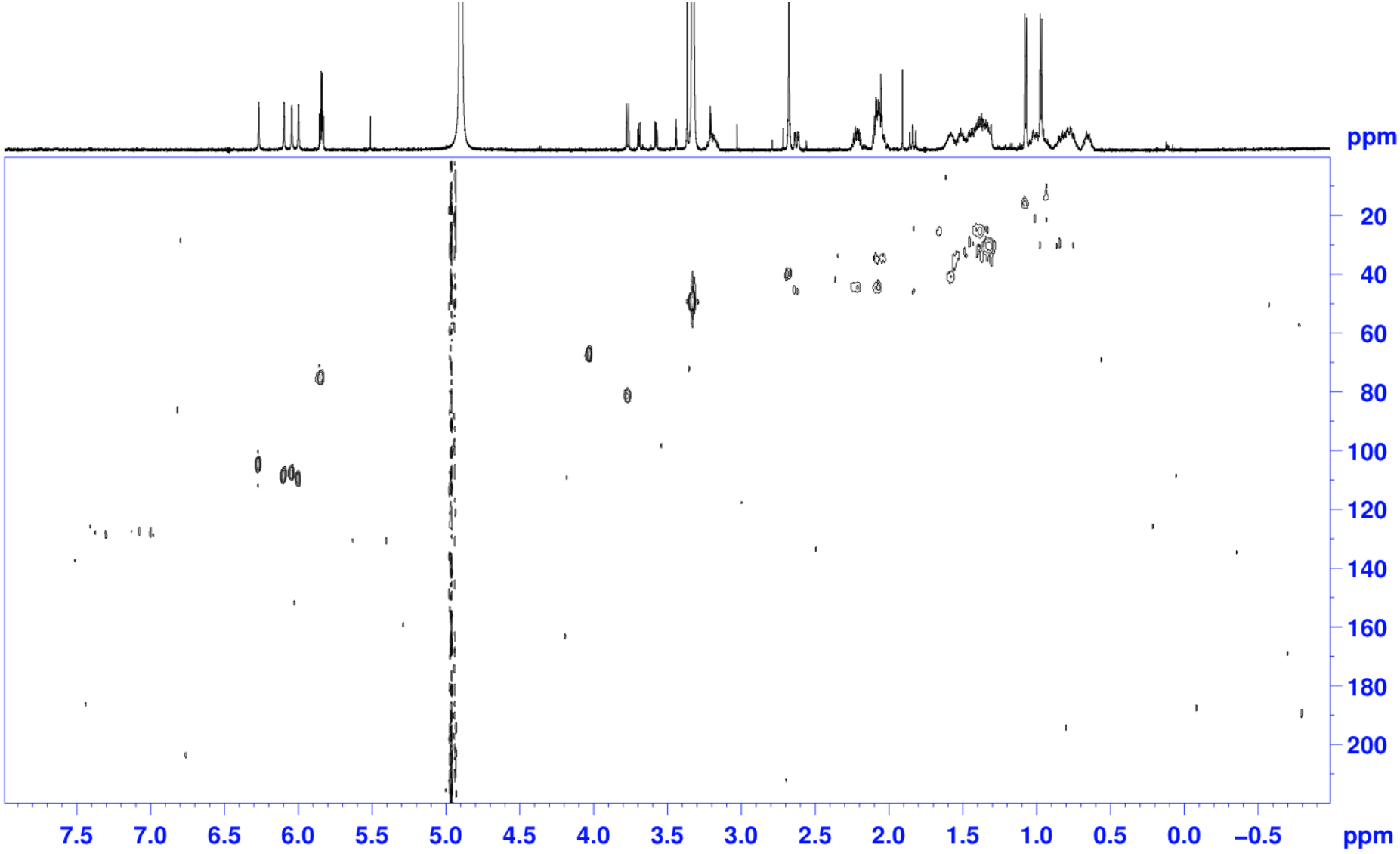
S19. ^{1}H NMR spectrum (600 MHz, MeOH-d_4) of **5**



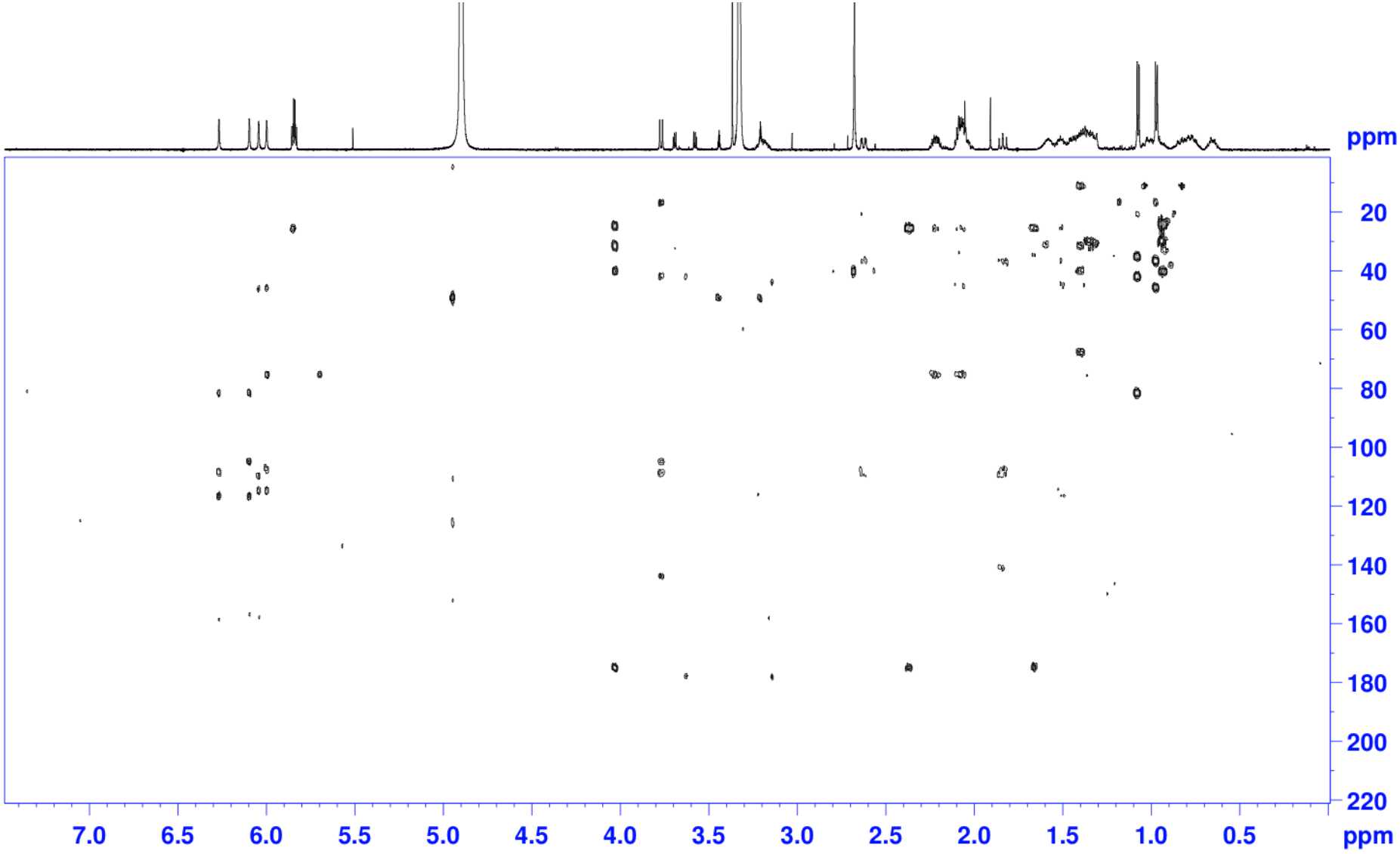
S20. COSY spectrum (600 MHz, MeOH-d_4) of **5**



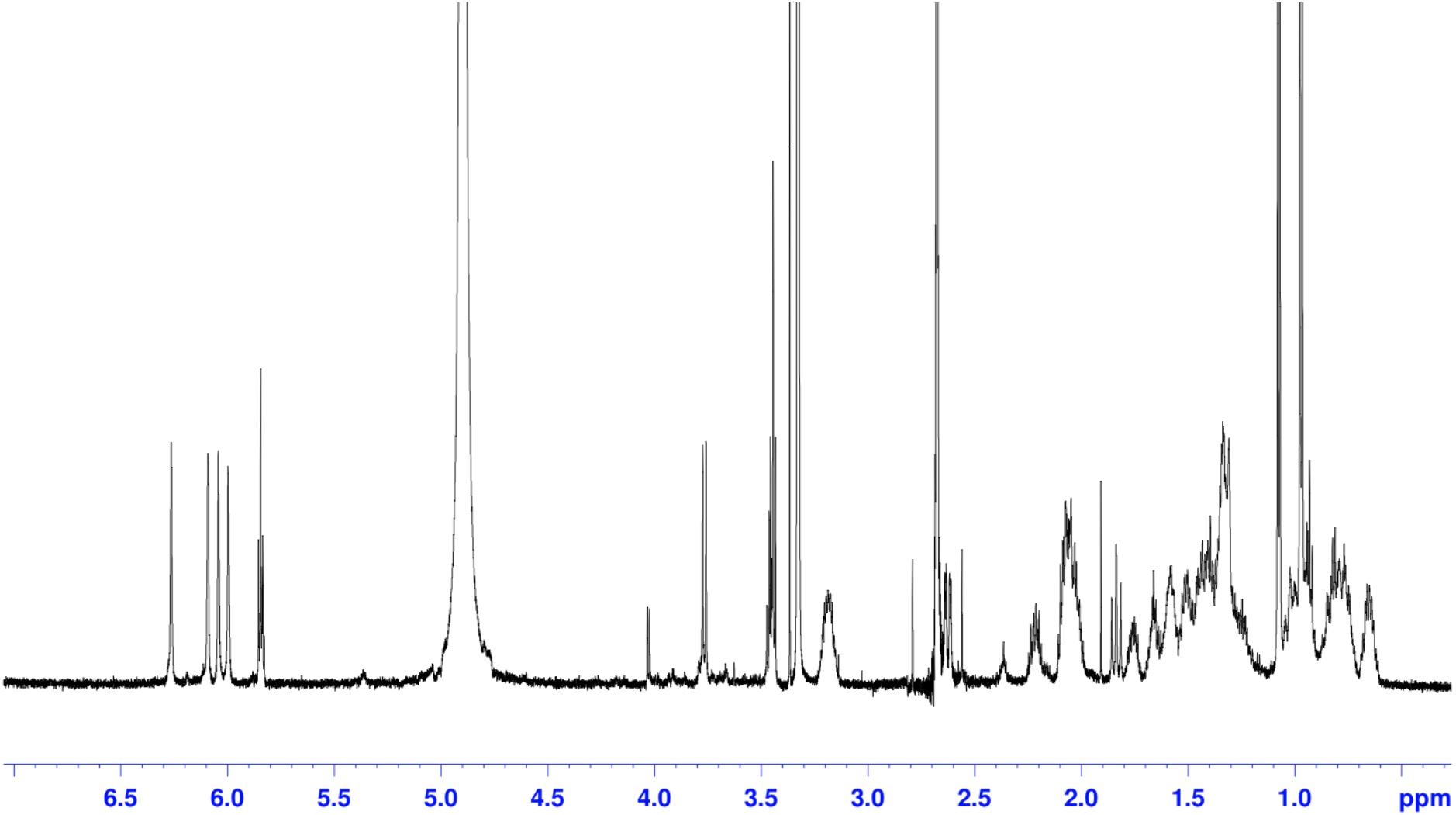
S21. HSQC spectrum (600 MHz, MeOH-d_4) of **5**



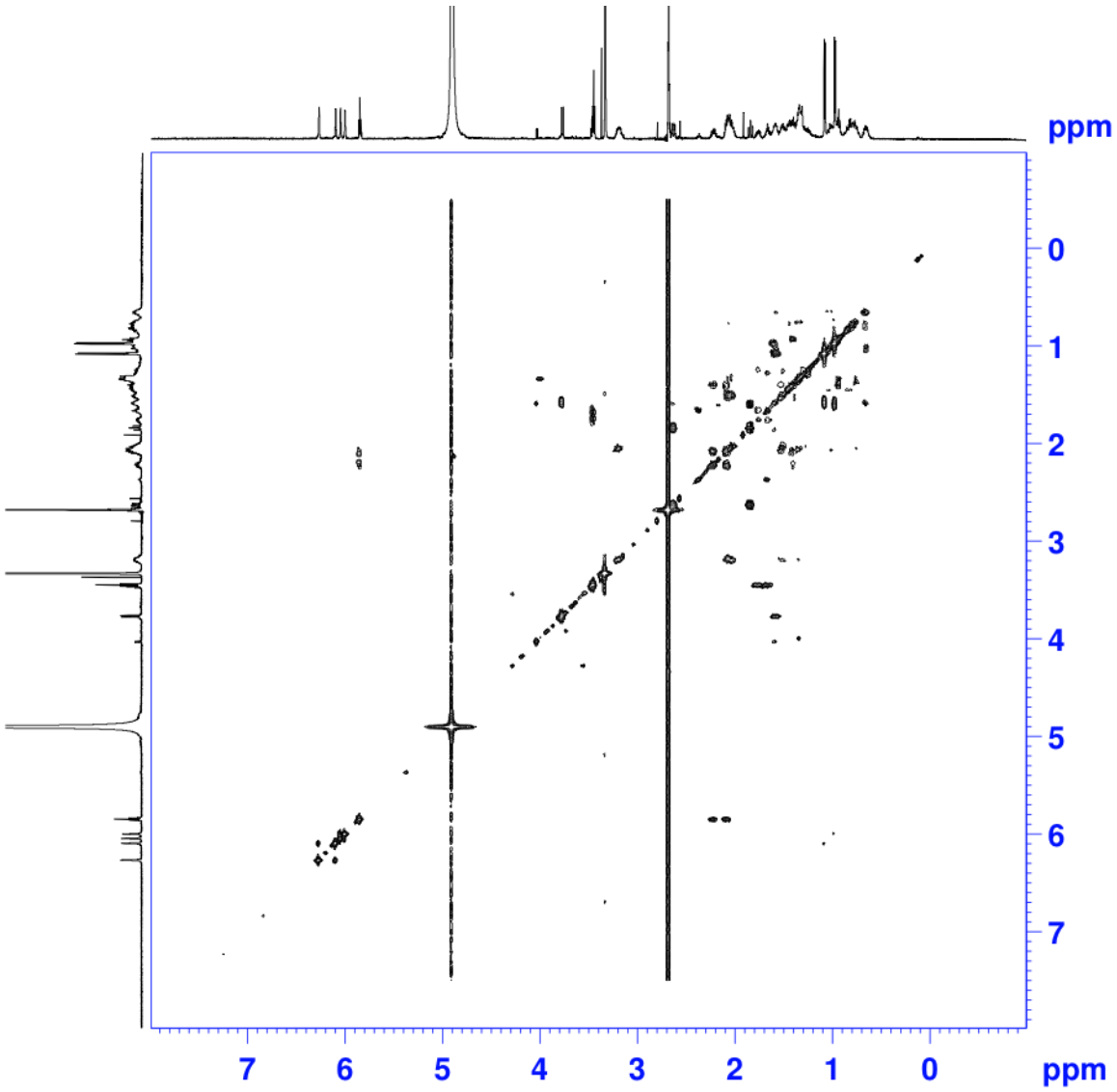
S22. HMBC spectrum (600 MHz, MeOH-d_4) of **5**



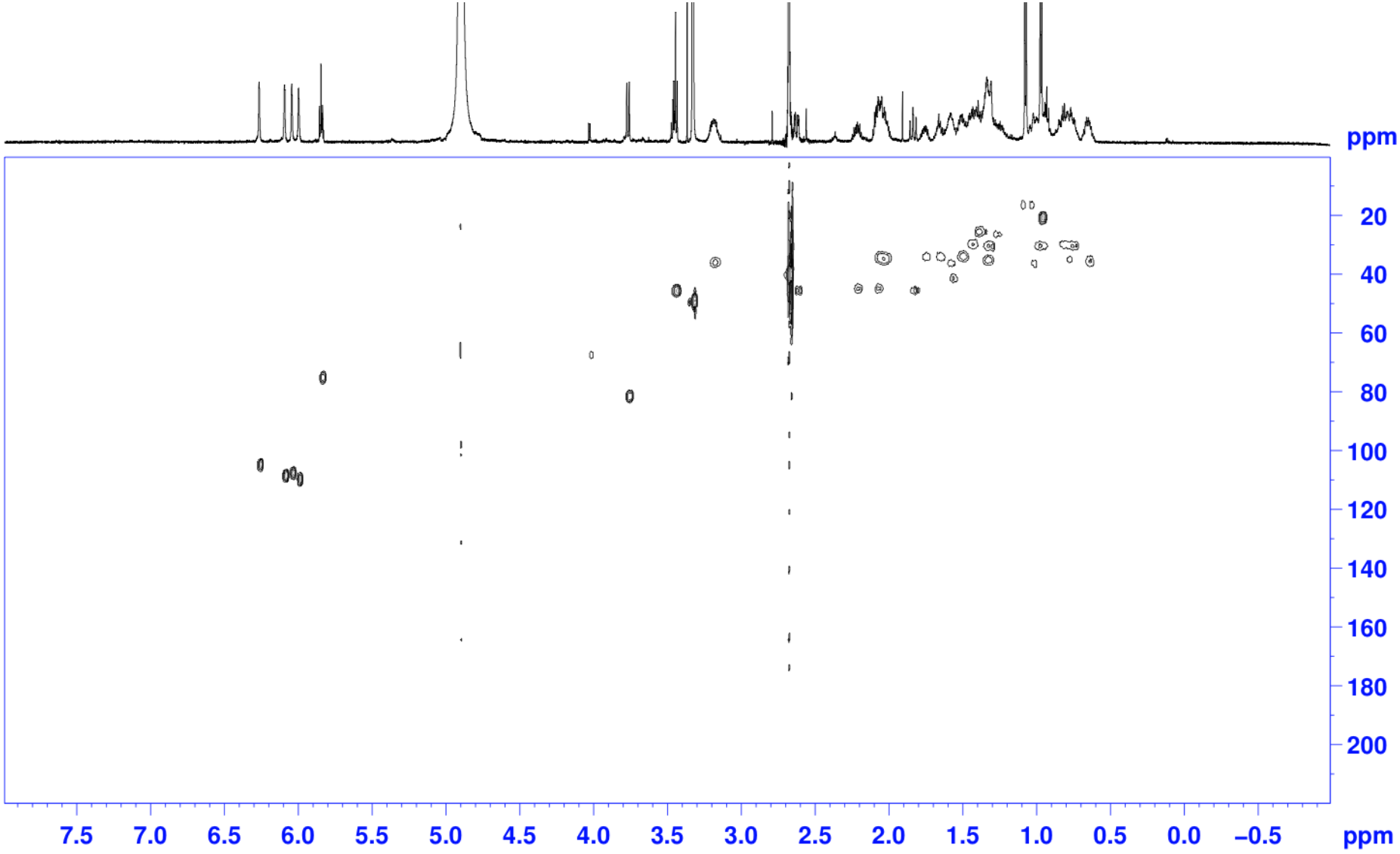
S 23. ^{1}H NMR spectrum (600 MHz, MeOH-d_4) of **6**



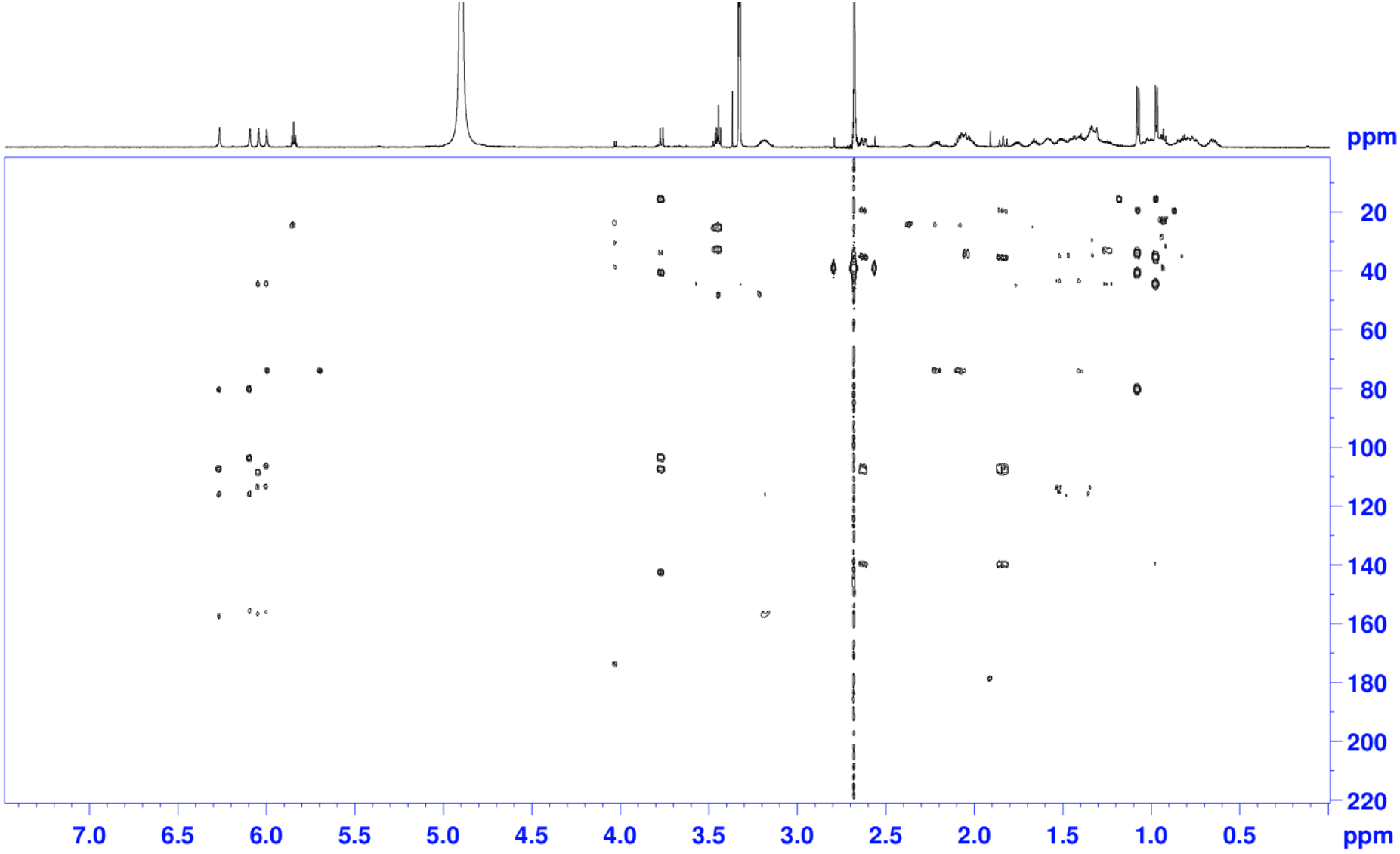
S24. COSY spectrum (600 MHz, MeOH-d_4) of **6**



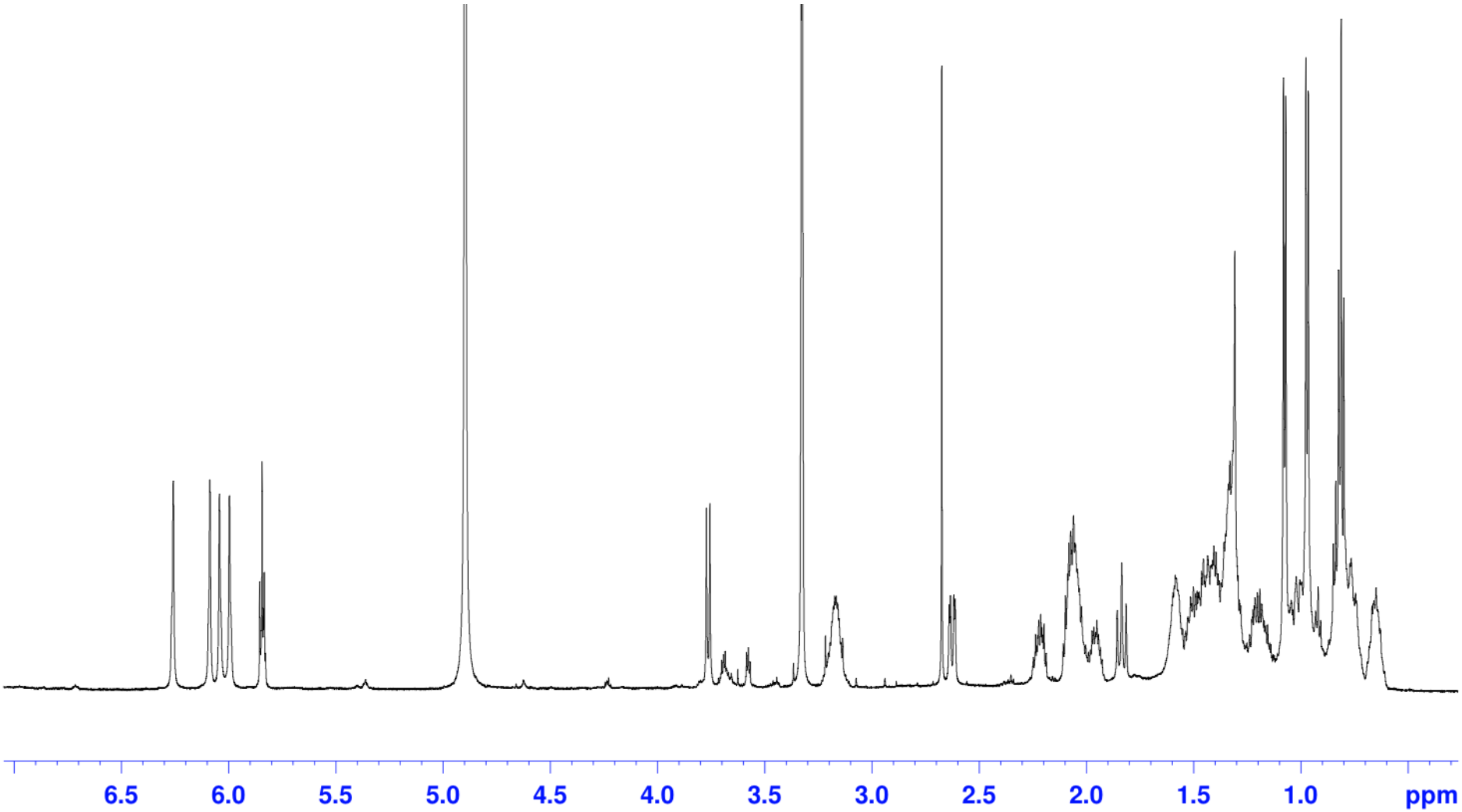
S25. HSQC spectrum (600 MHz, MeOH-d_4) of **6**



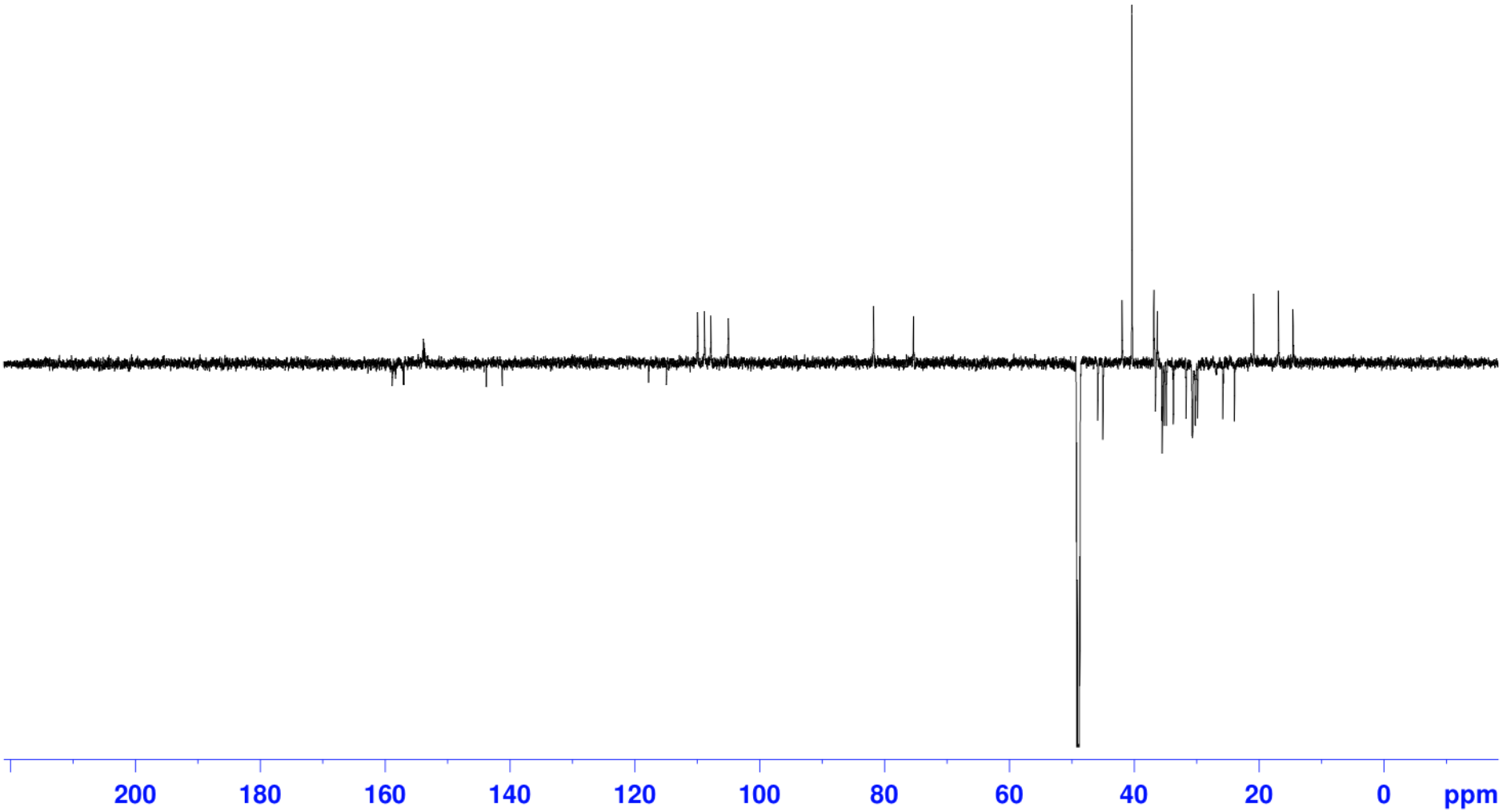
S26. HMBC spectrum (600 MHz, MeOH-d_4) of **6**



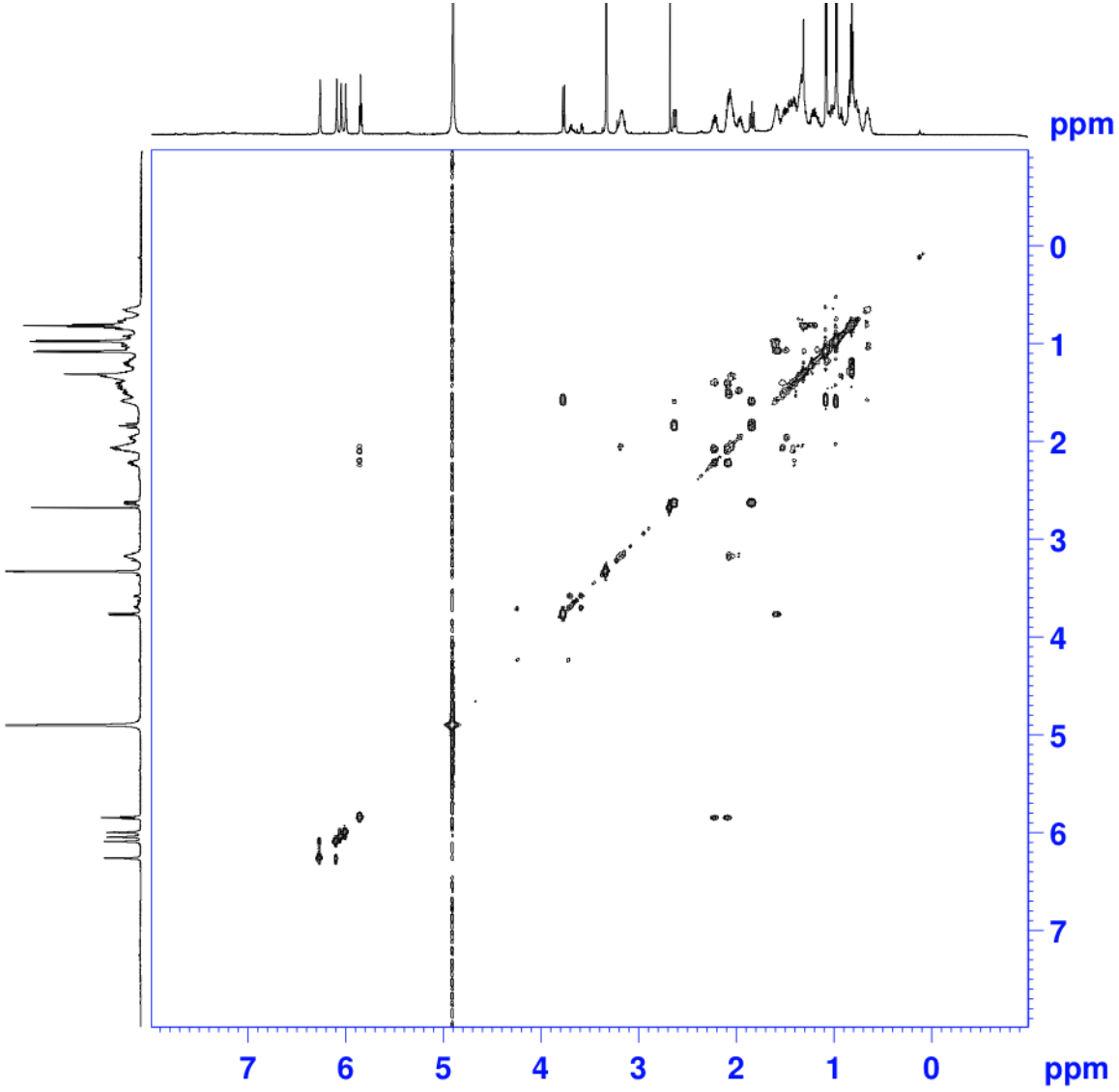
S27. ^{1}H NMR spectrum (600 MHz, MeOH-d_4) of **7**



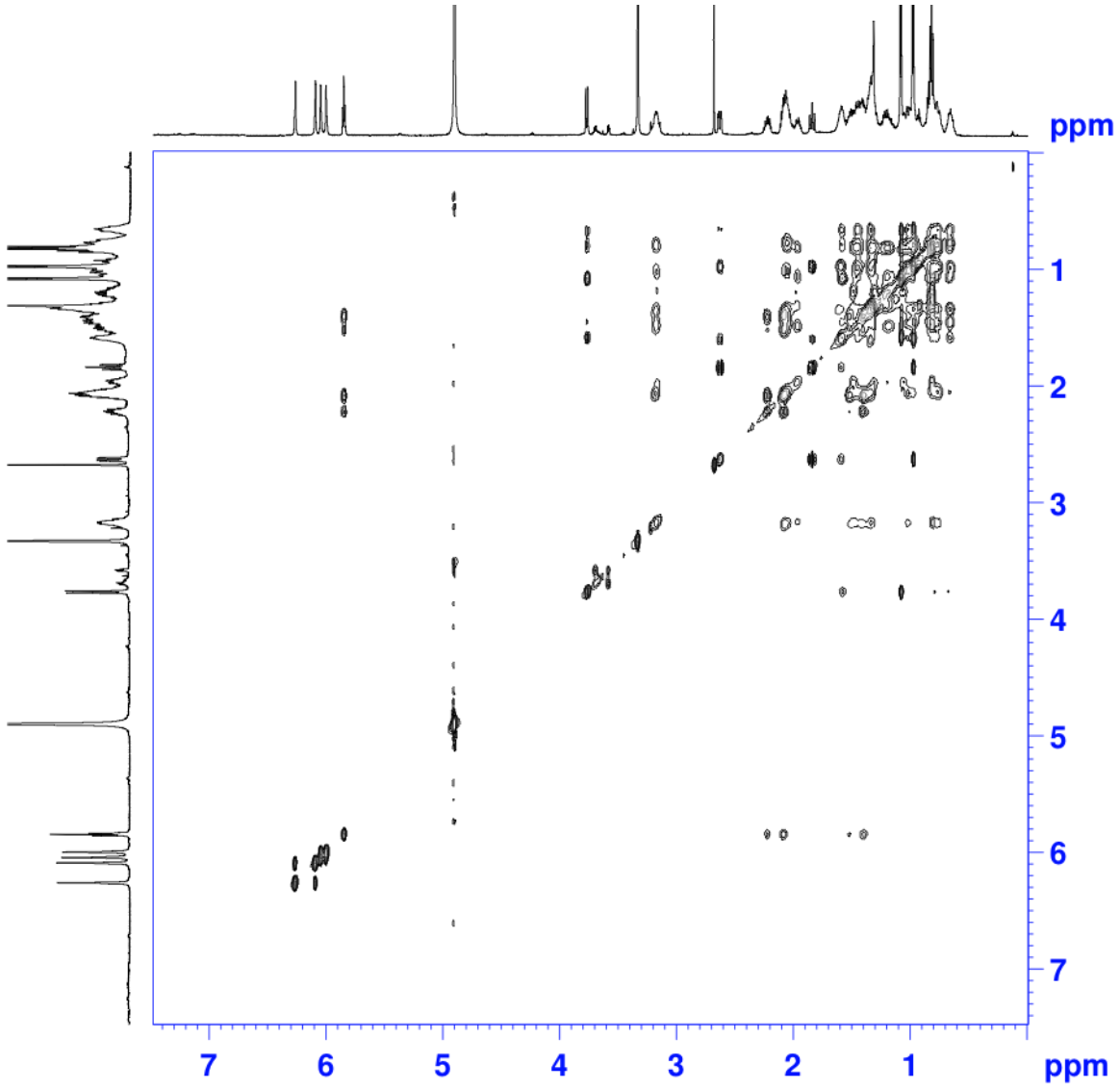
S28. DEPTQ spectrum (226 MHz, MeOH-d_4) of **7**



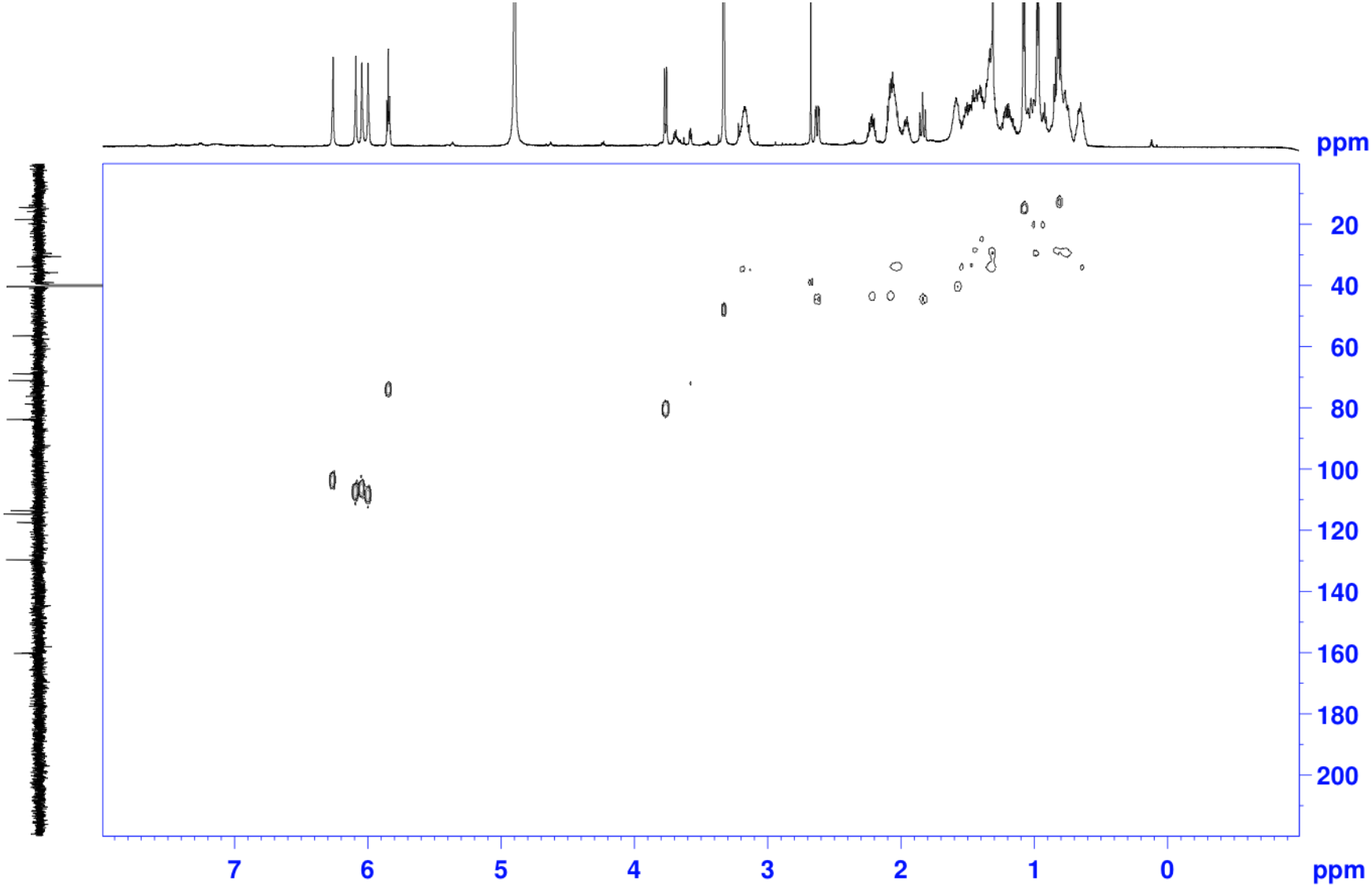
S29.COSY spectrum (600 MHz, MeOH-d_4) of **7**



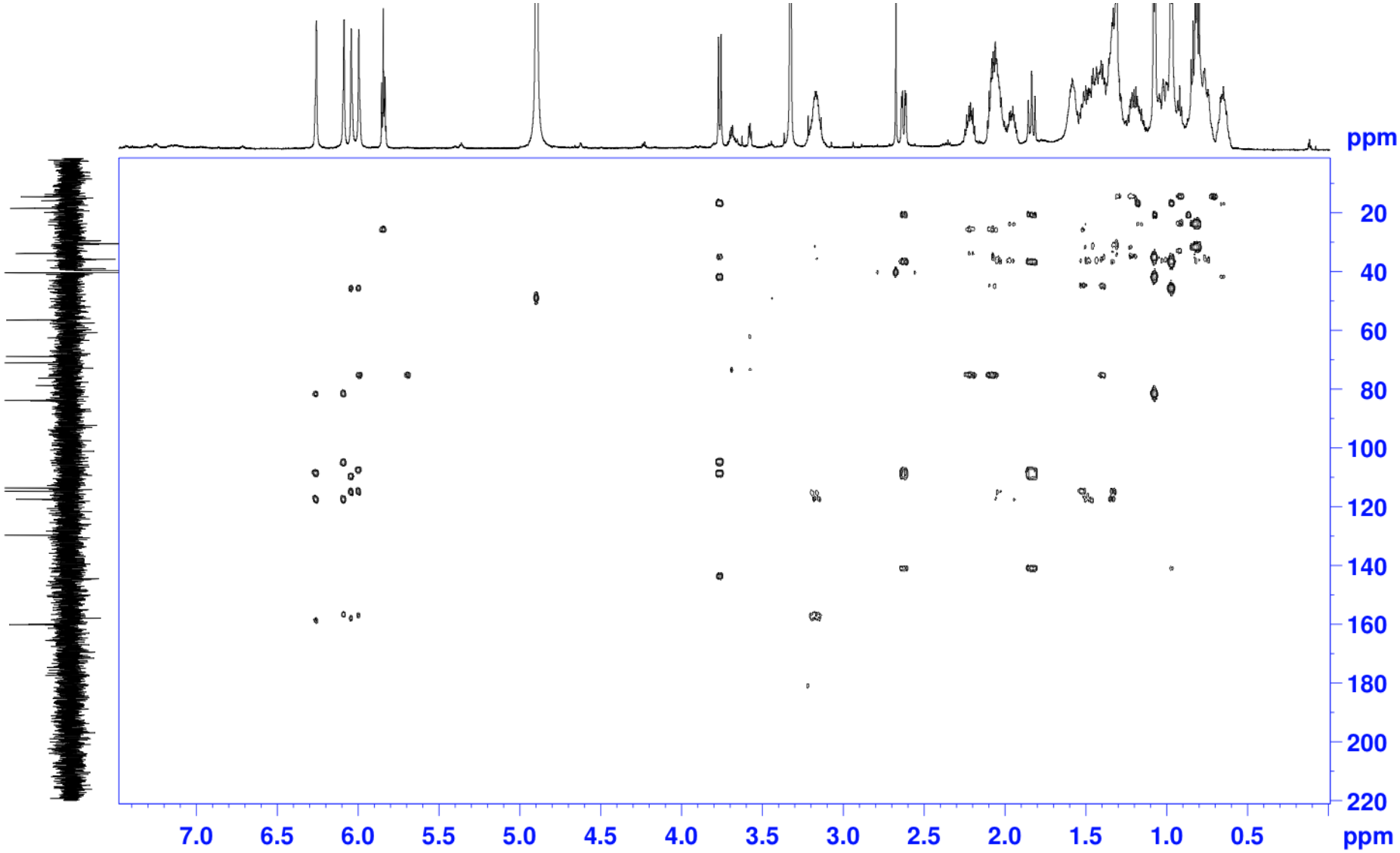
S30. TOCSY spectrum (600 MHz, MeOH-d_4) of **7**



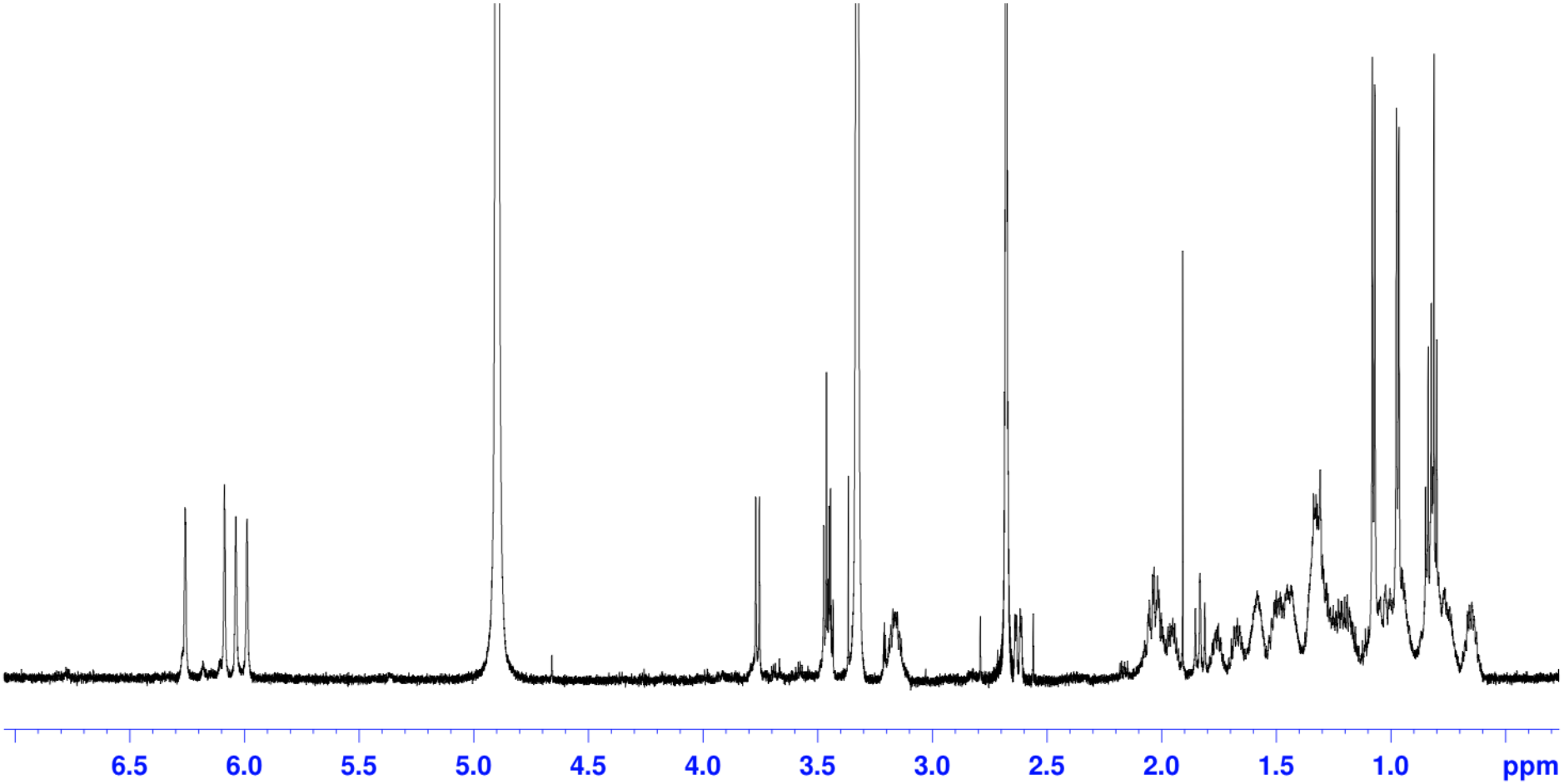
S 31. HSQC spectrum (600 MHz, MeOH-d_4) of **7**



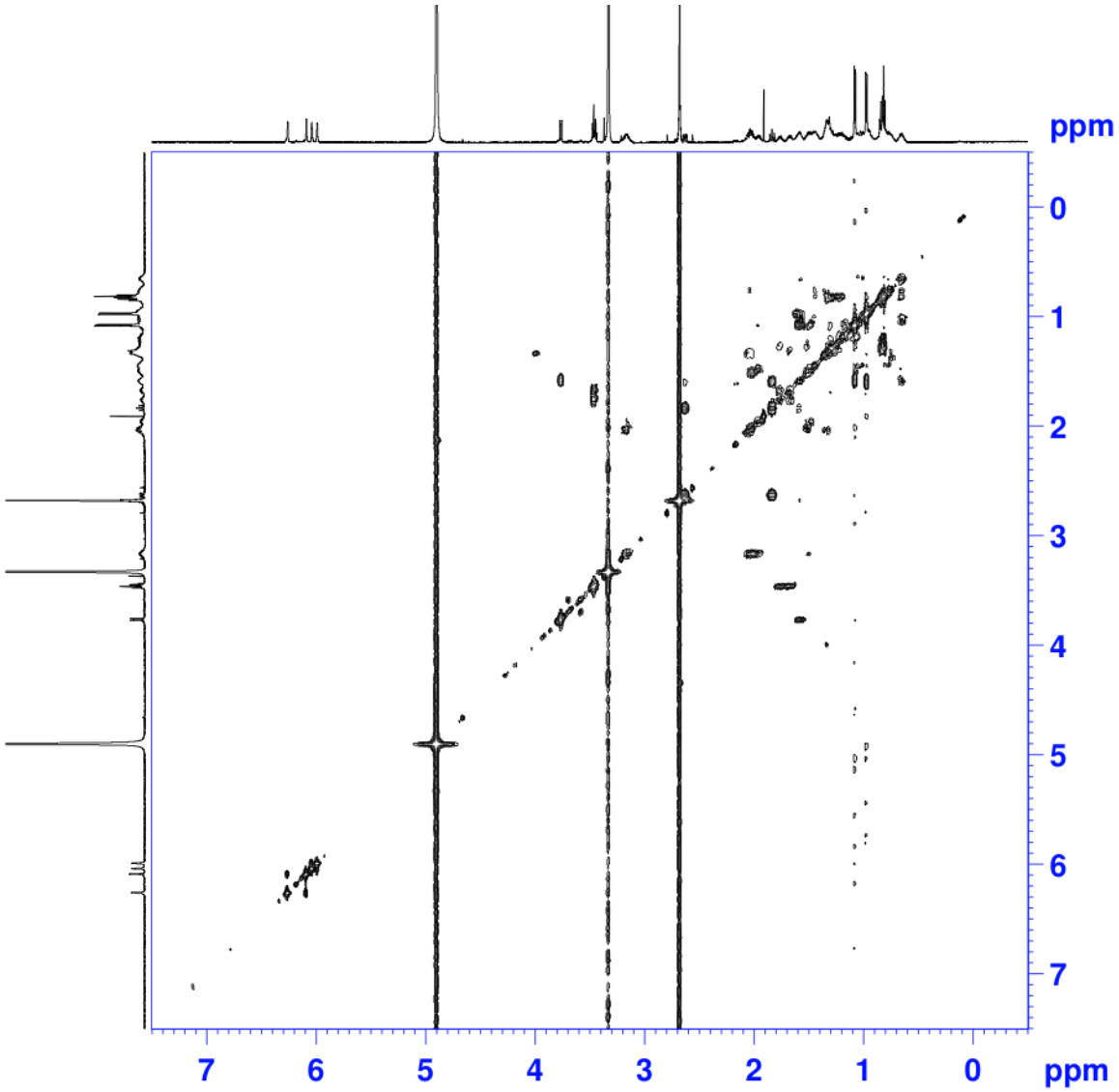
S 32. HMBC spectrum (600 MHz, MeOH-d_4) of **7**



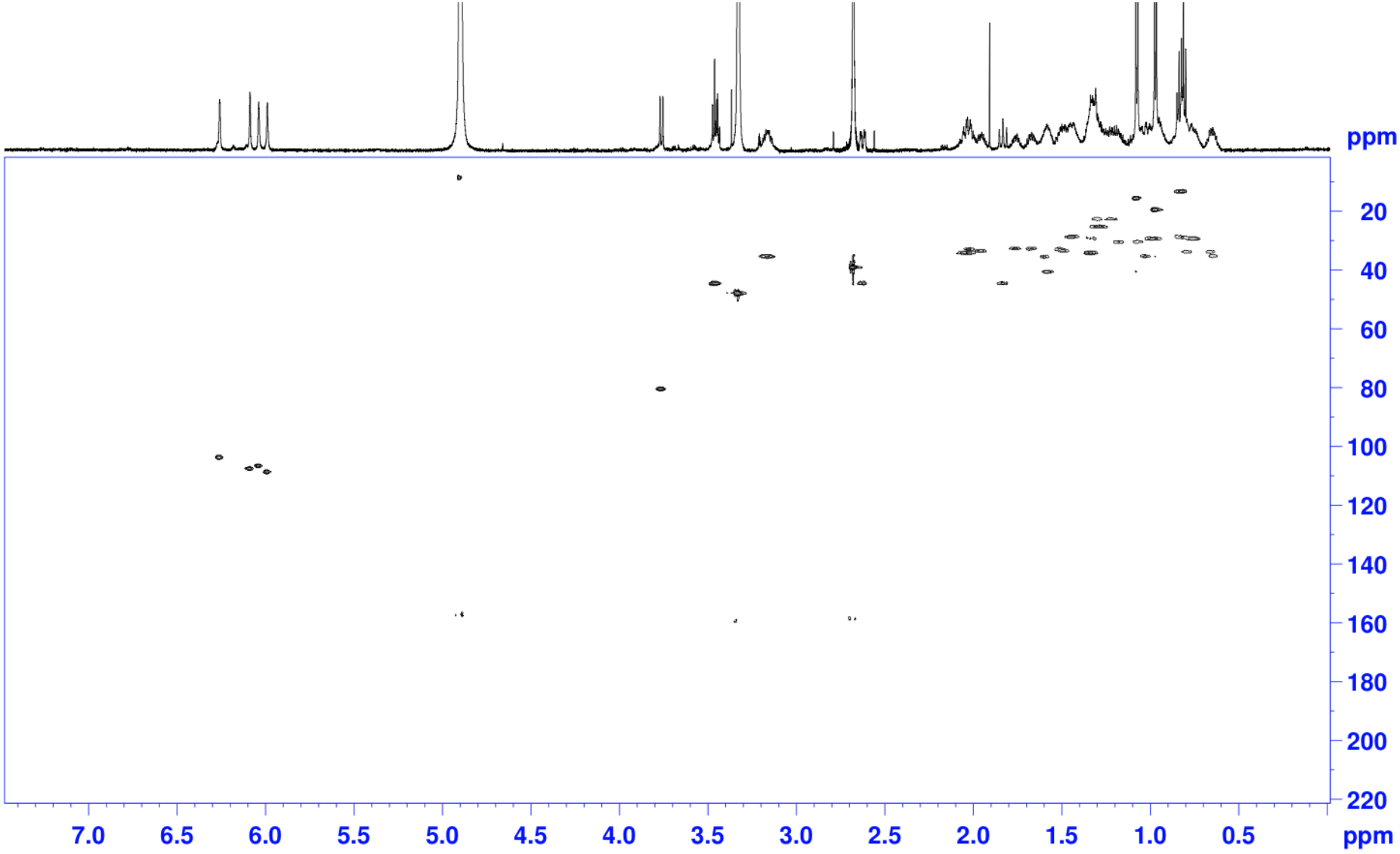
S33. ^{1}H NMR spectrum (600 MHz, MeOH-d_4) of **8**



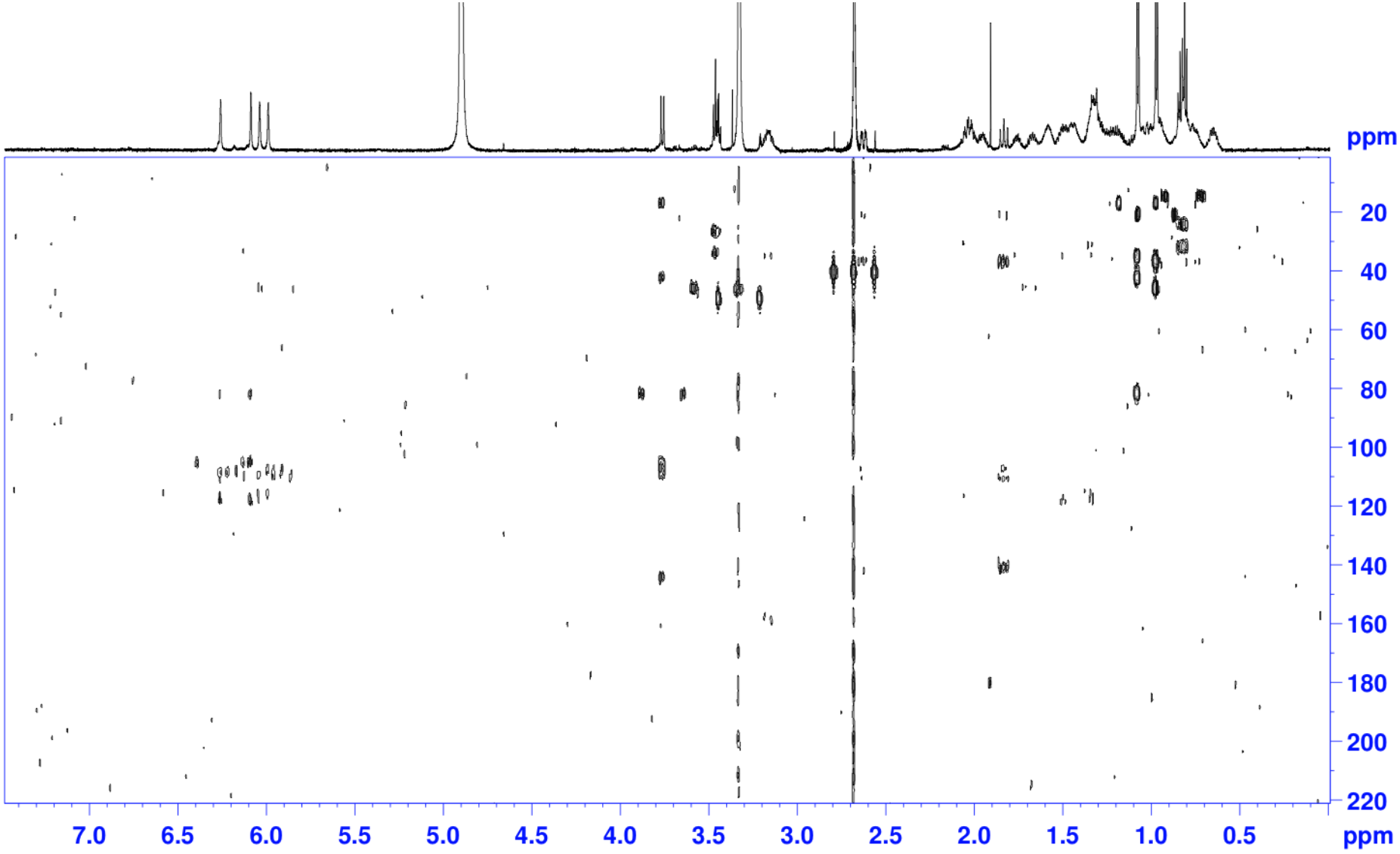
S34. COSY spectrum (600 MHz, MeOH-d_4) of **8**



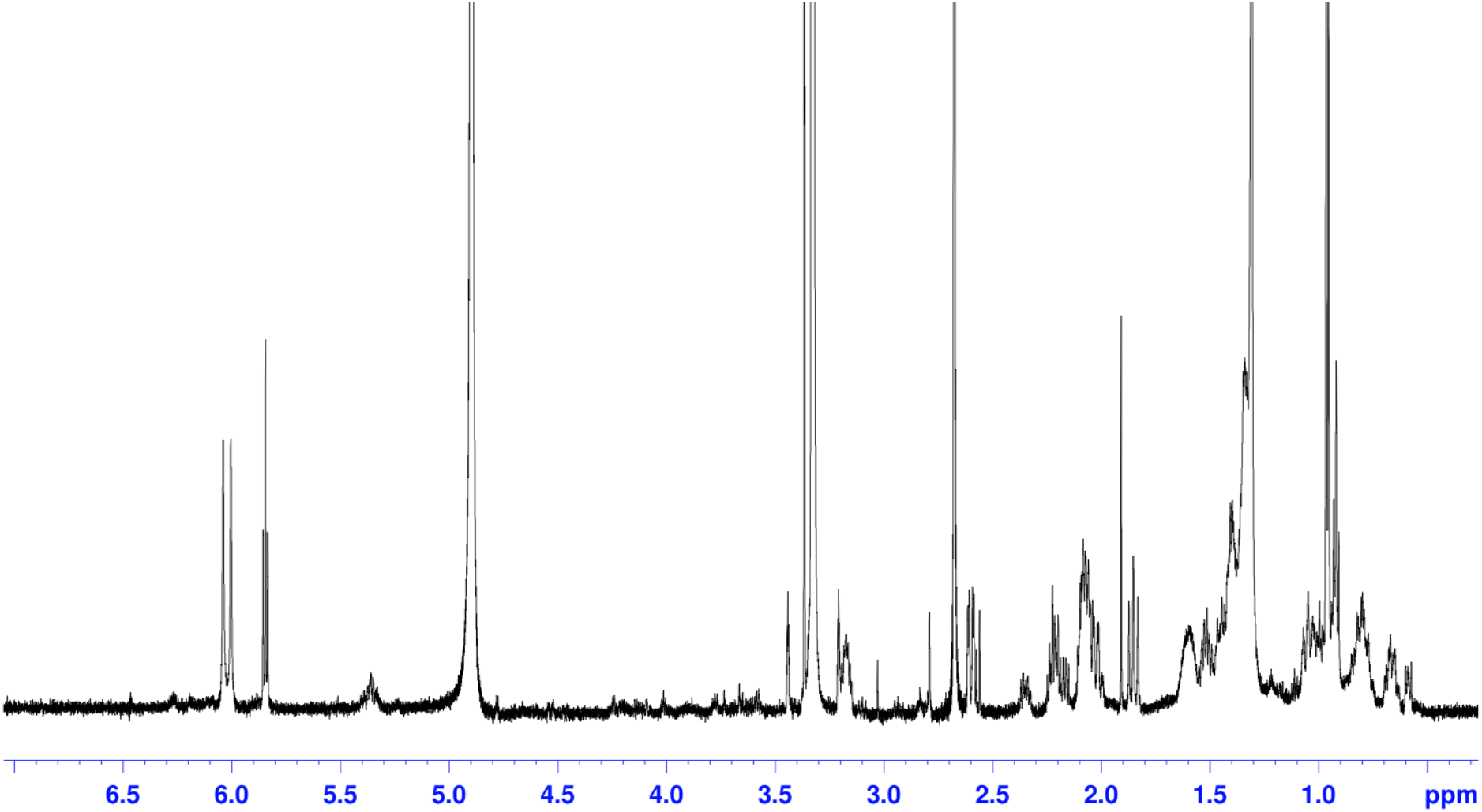
S35. HSQC spectrum (600 MHz, MeOH-d_4) of **8**



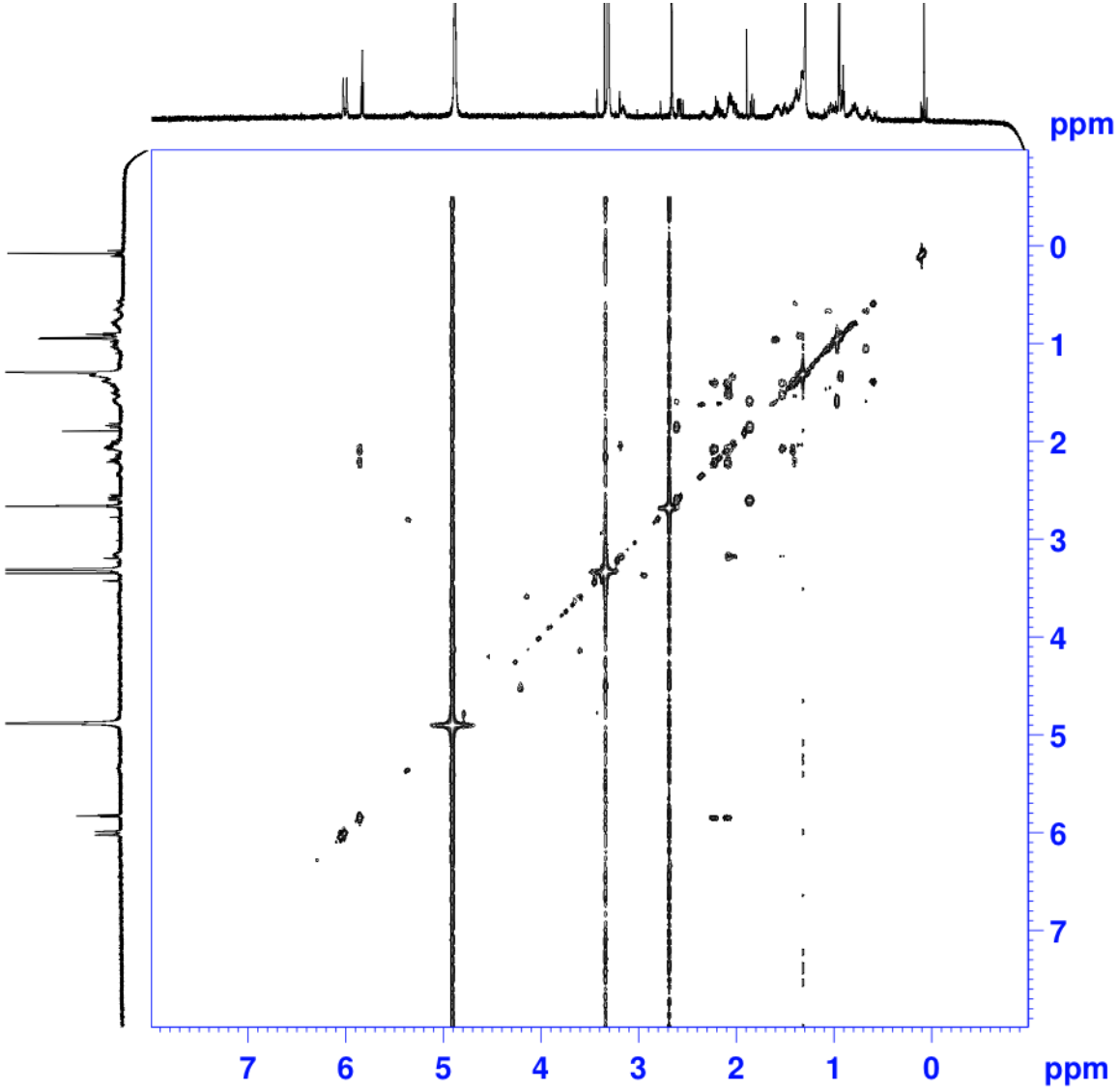
S36. HMBC spectrum (600 MHz, MeOH-d_4) of **8**



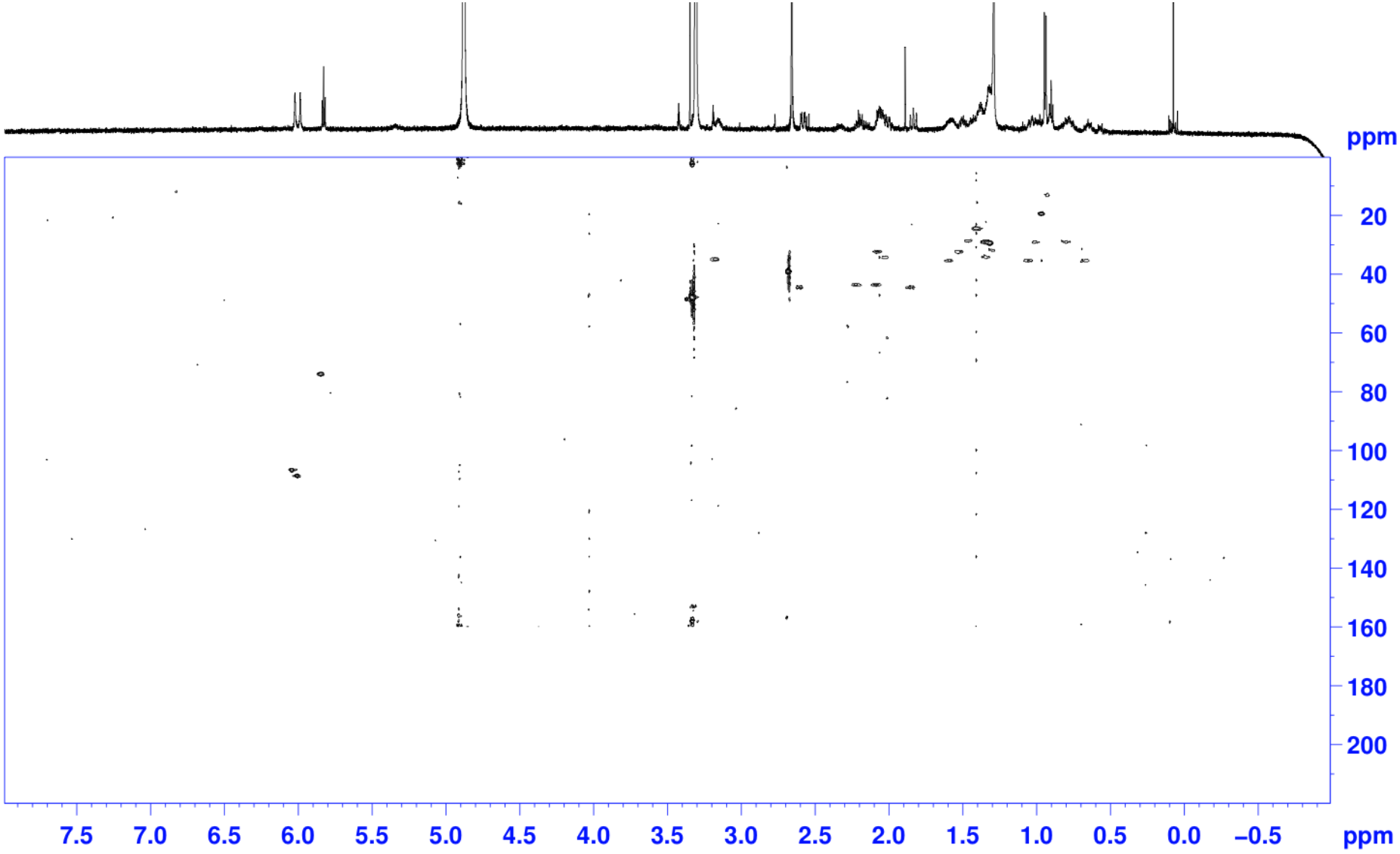
S37. ^{1}H NMR spectrum (600 MHz, MeOH-d_4) of **9**



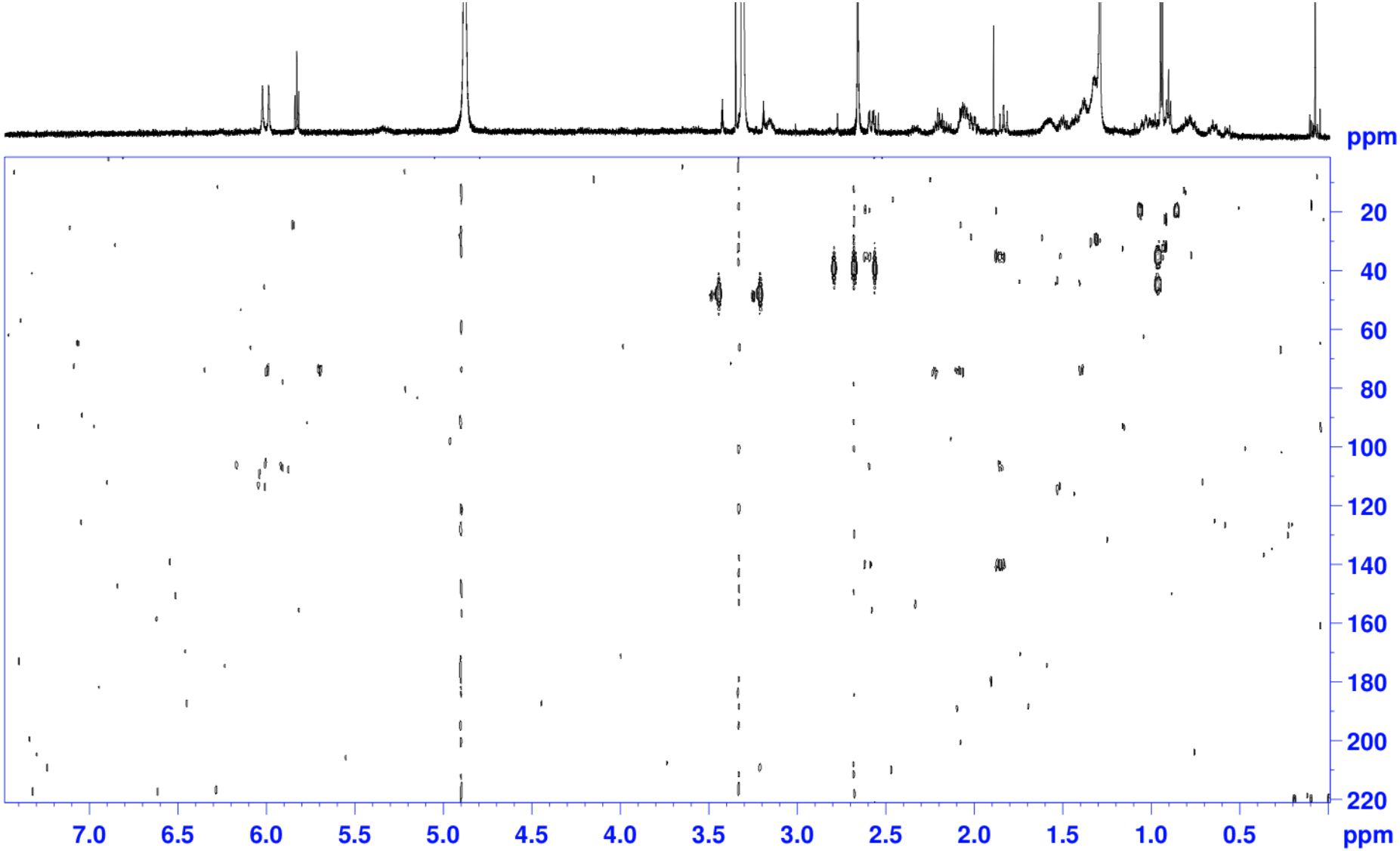
S38. COSY spectrum (600 MHz, MeOH-d_4) of **9**



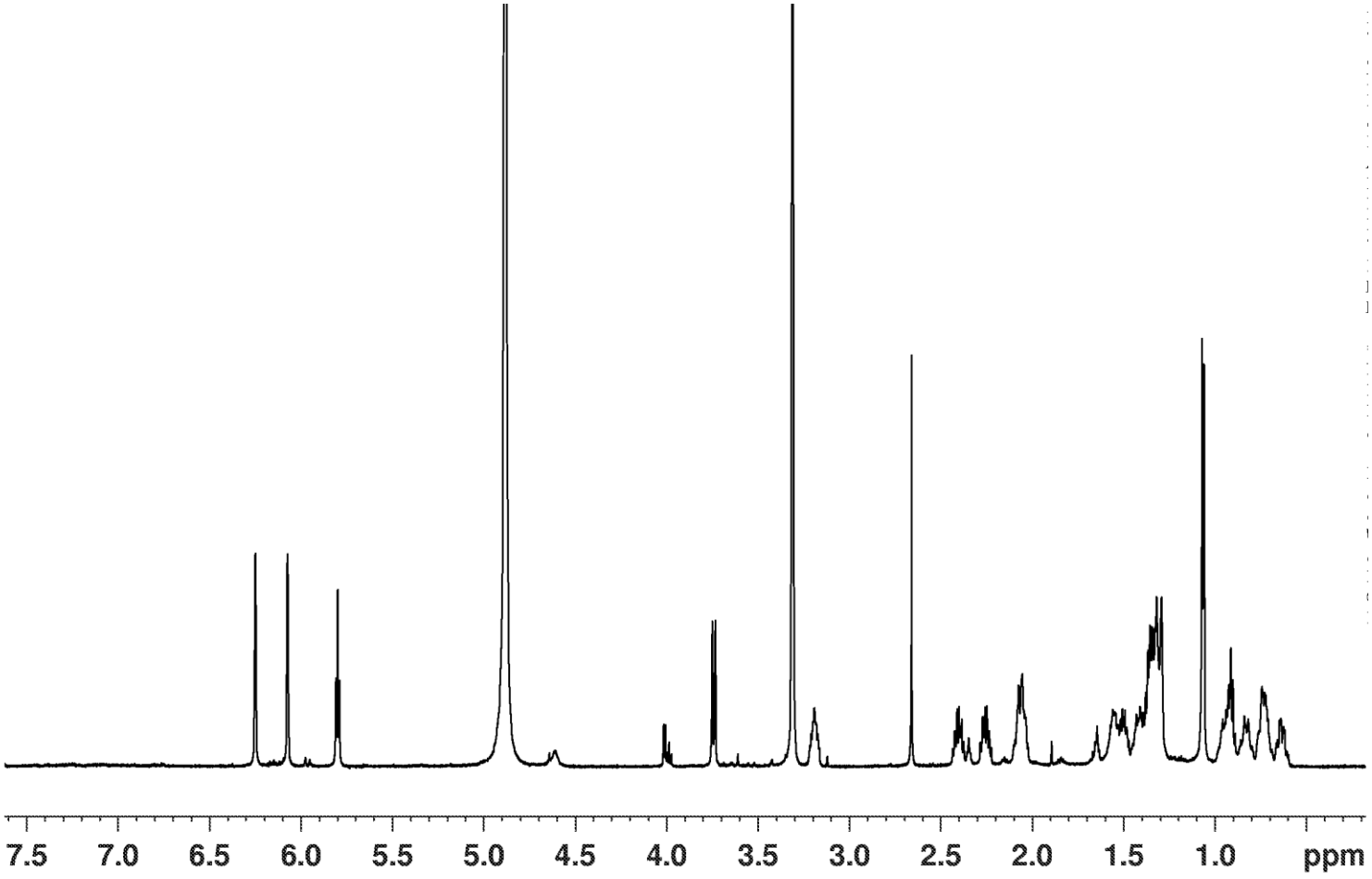
S39. HSQC spectrum (600 MHz, MeOH-d_4) of **9**



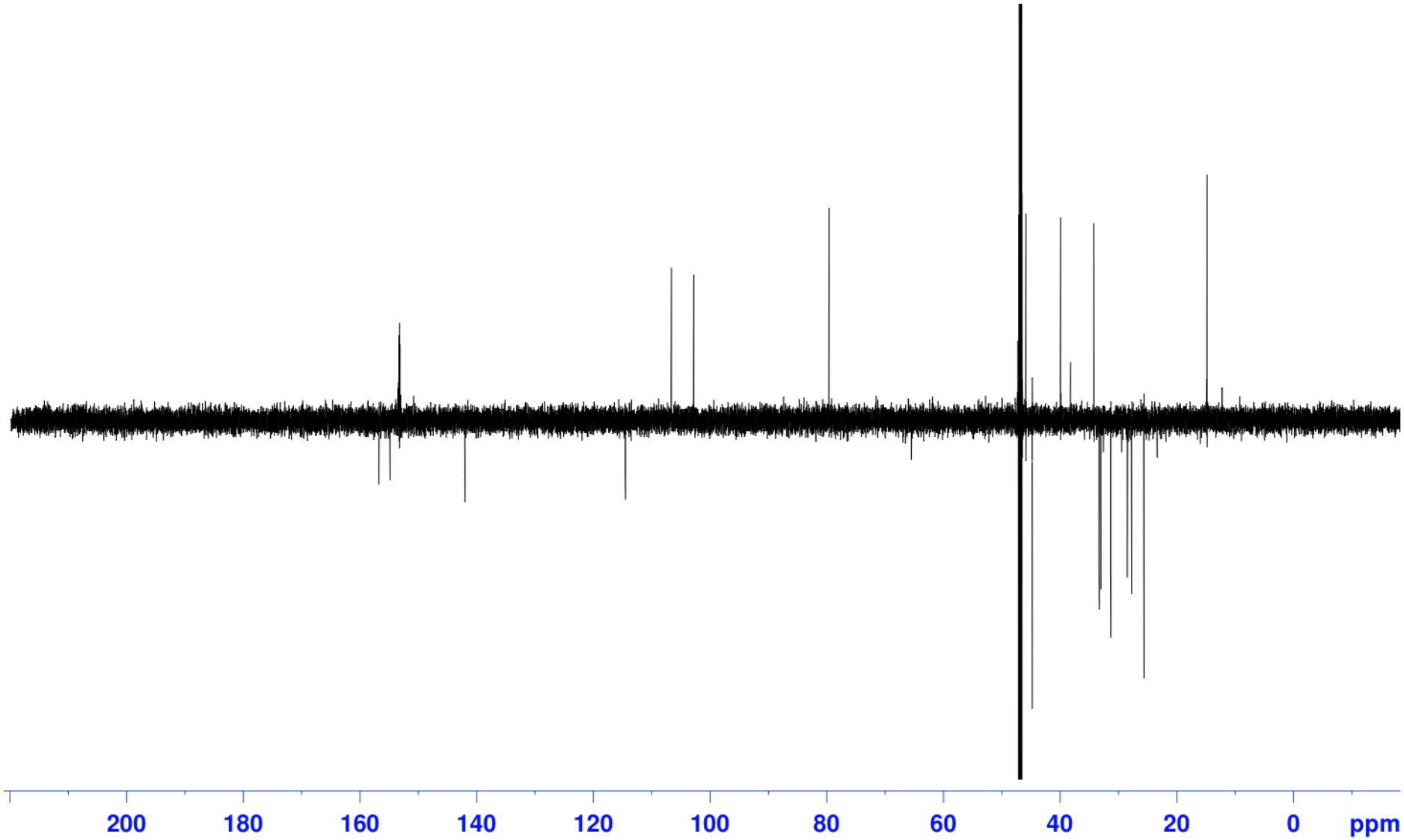
S40. HMBC spectrum (600 MHz, MeOH-d_4) of **9**



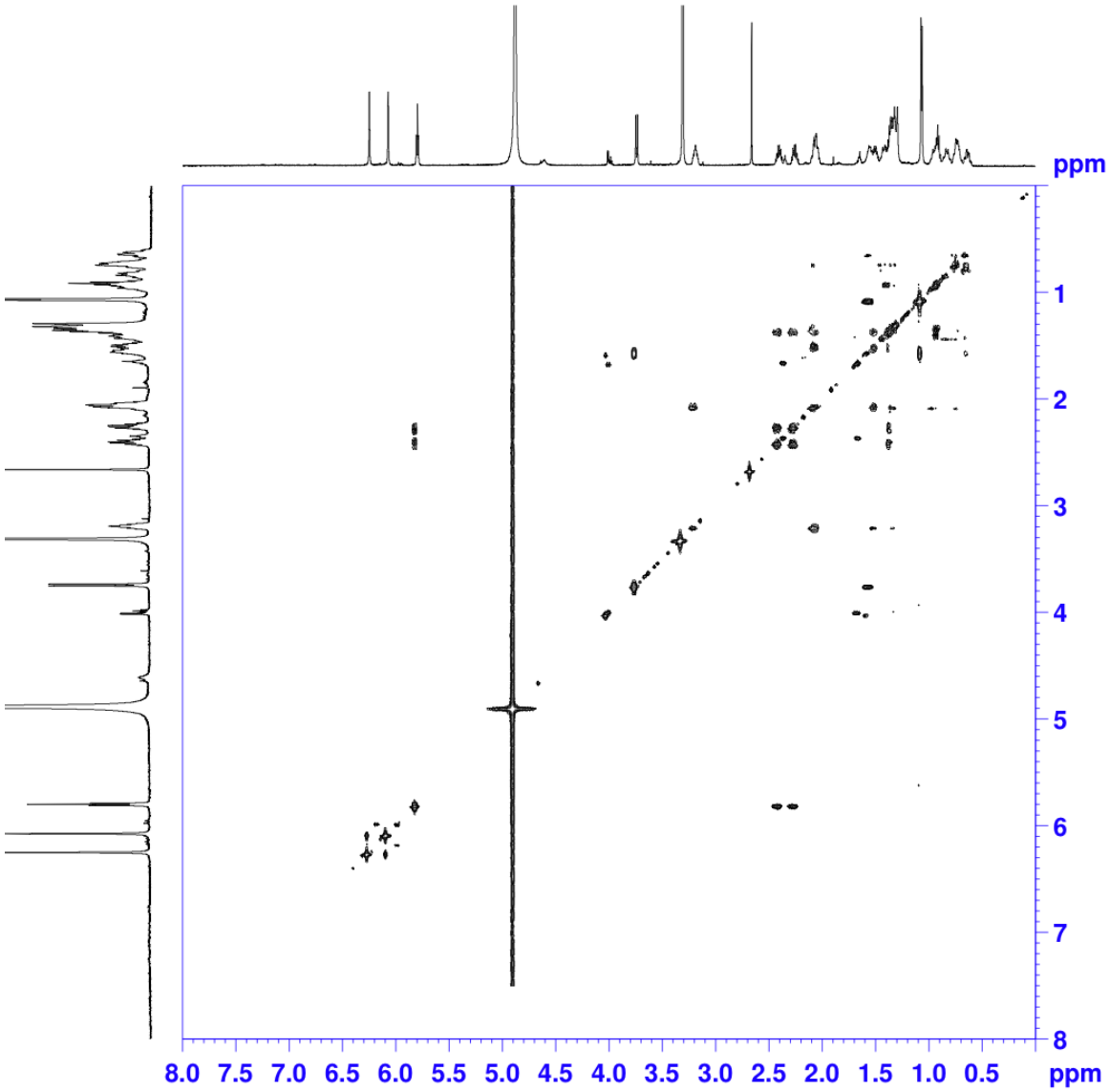
S41. ^{1}H NMR spectrum (600 MHz, MeOH-d_4) of **10**



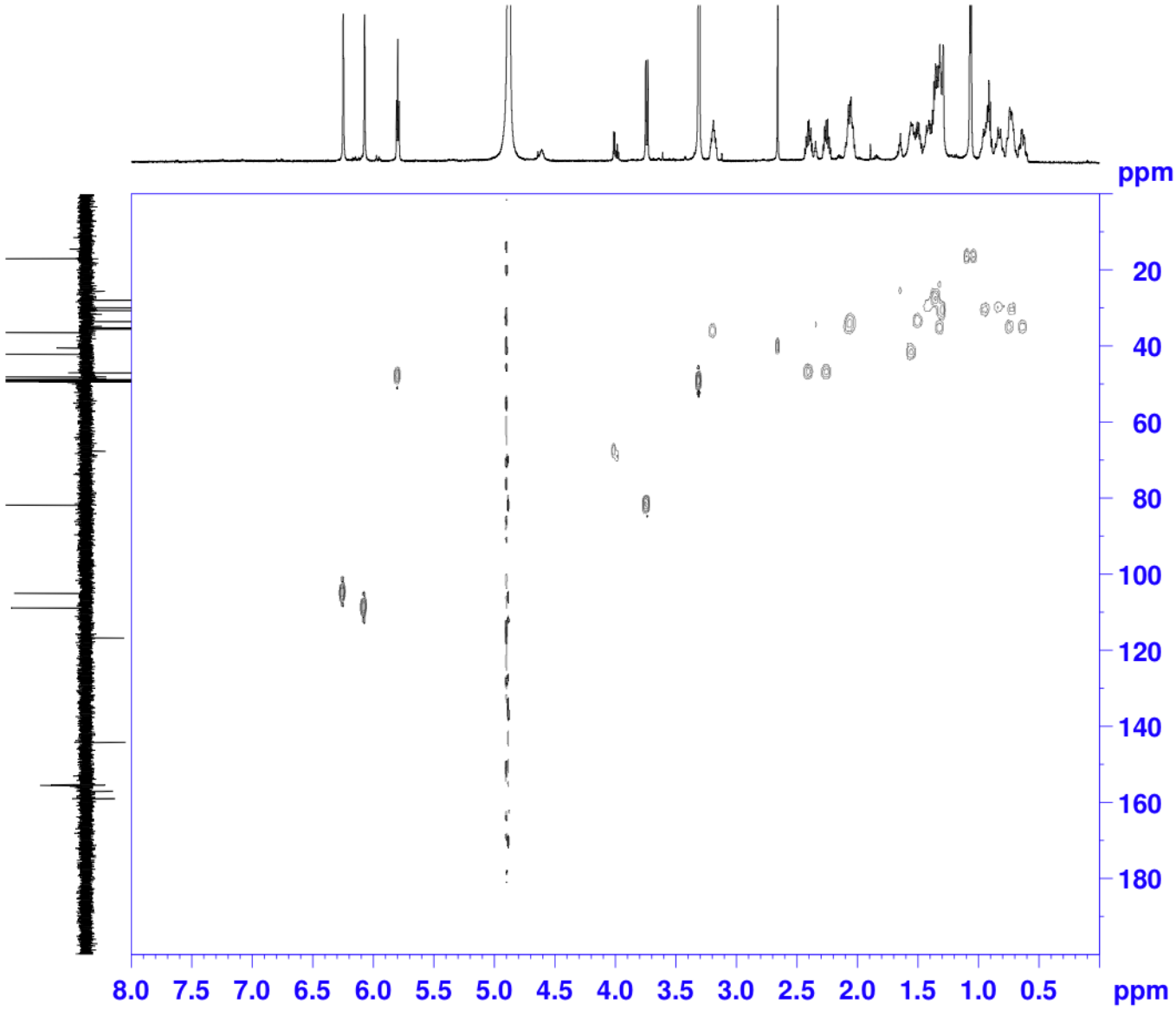
S42. DEPTQ spectrum (226 MHz, MeOH-d_4) of **10**



S43. COSY spectrum (600 MHz, MeOH-d_4) of **10**



S44. HSQC spectrum (600 MHz, MeOH-d_4) of **10**



S45. HMBC spectrum (600 MHz, MeOH-d_4) of **10**