

# **A new phenolic constituent from *Carica papaya* flowers and its tyrosinase inhibitory activity**

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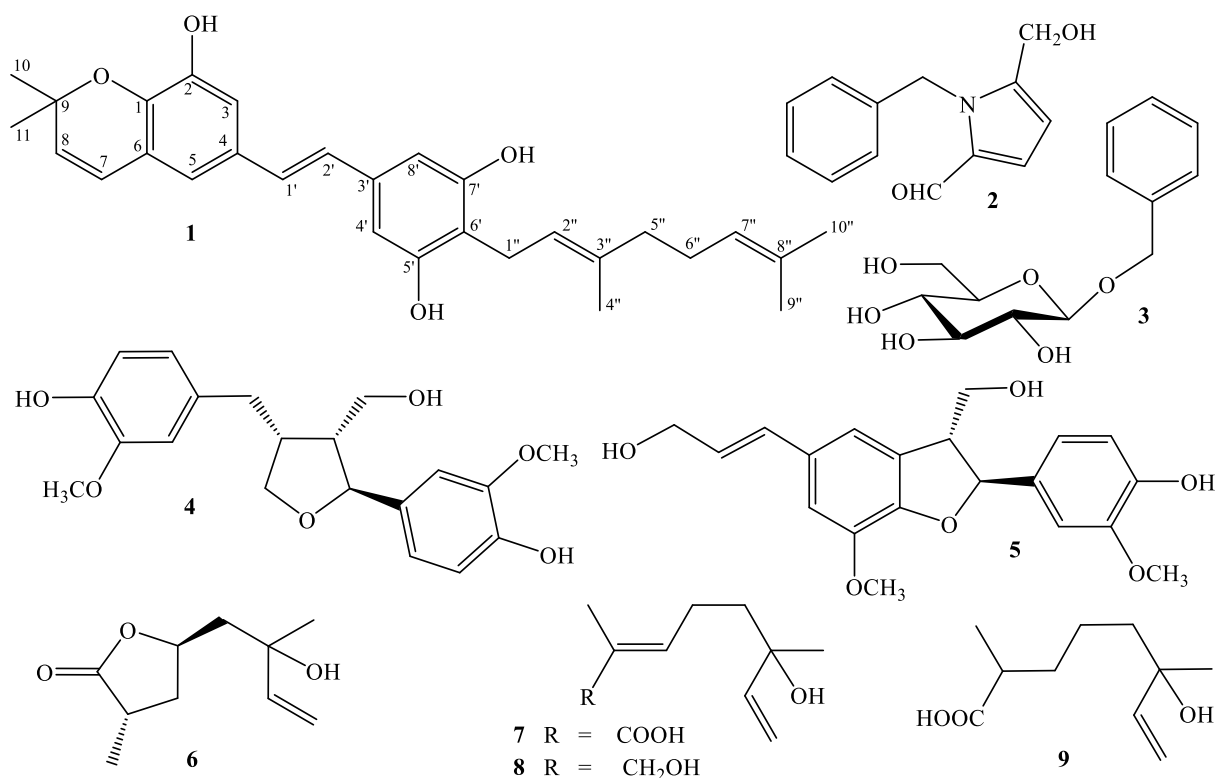
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### Tyrosinase inhibitory assay

Tyrosinase activity assay was evaluated using L-tyrosine as a substrate. In brief, 130  $\mu$ L solution of tyrosinase (113.3 units/mL) in 50 mM phosphate buffer (pH 6.5) was mixed with 20  $\mu$ L of the compounds (0-100  $\mu$ M) in 96-well microplates. After adding 50  $\mu$ L of substrate solution (2.0 mM), reaction mixture was performed at 37°C in an Infinite 200 Pro ELISA reader (TECAN). The enzyme activity was monitored at 475 nm for every 1 min during 20 min. Buffer and kojic acid were used as vehicle and positive control, respectively. The percentage of inhibition of tyrosinase activity was calculated by the difference of absorbance between sample and vehicle wells. Data was expressed as Mean  $\pm$  SD of triplicate experiments. Statistical significance is determined by one-way ANOVA followed by Dunnett's multiple comparison test using GraphPad Prism 6 program,  $P < 0.05$ .



**Figure S1.** Chemical structures of compounds 1-9

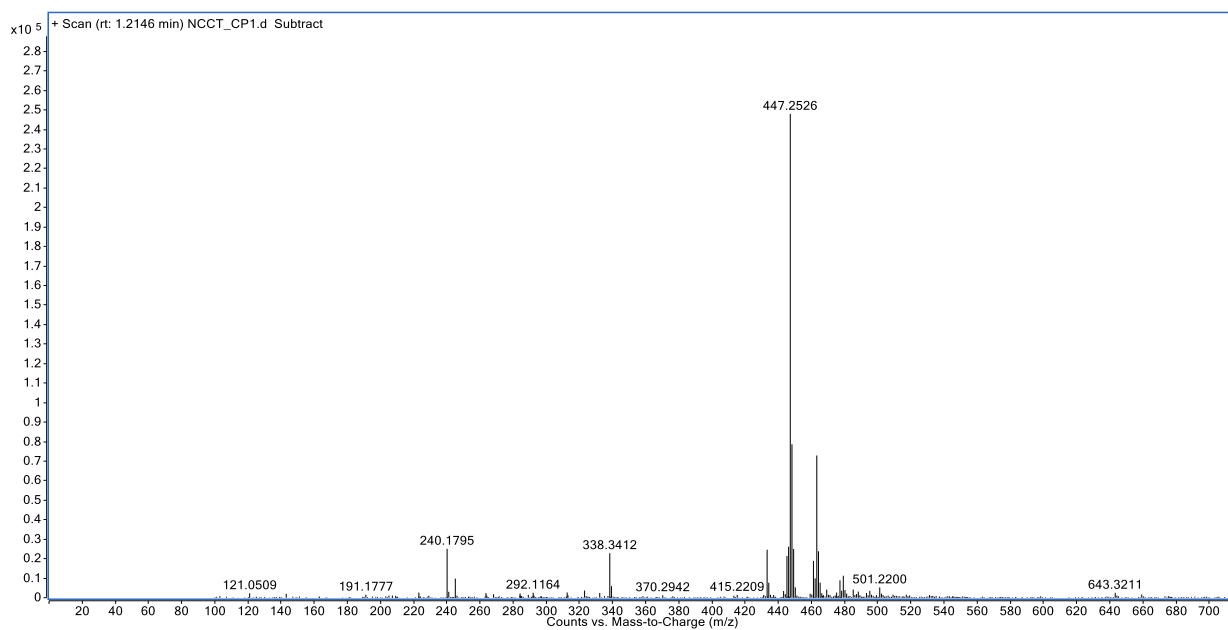


Figure S2. HR-ESI-MS of compound **1**

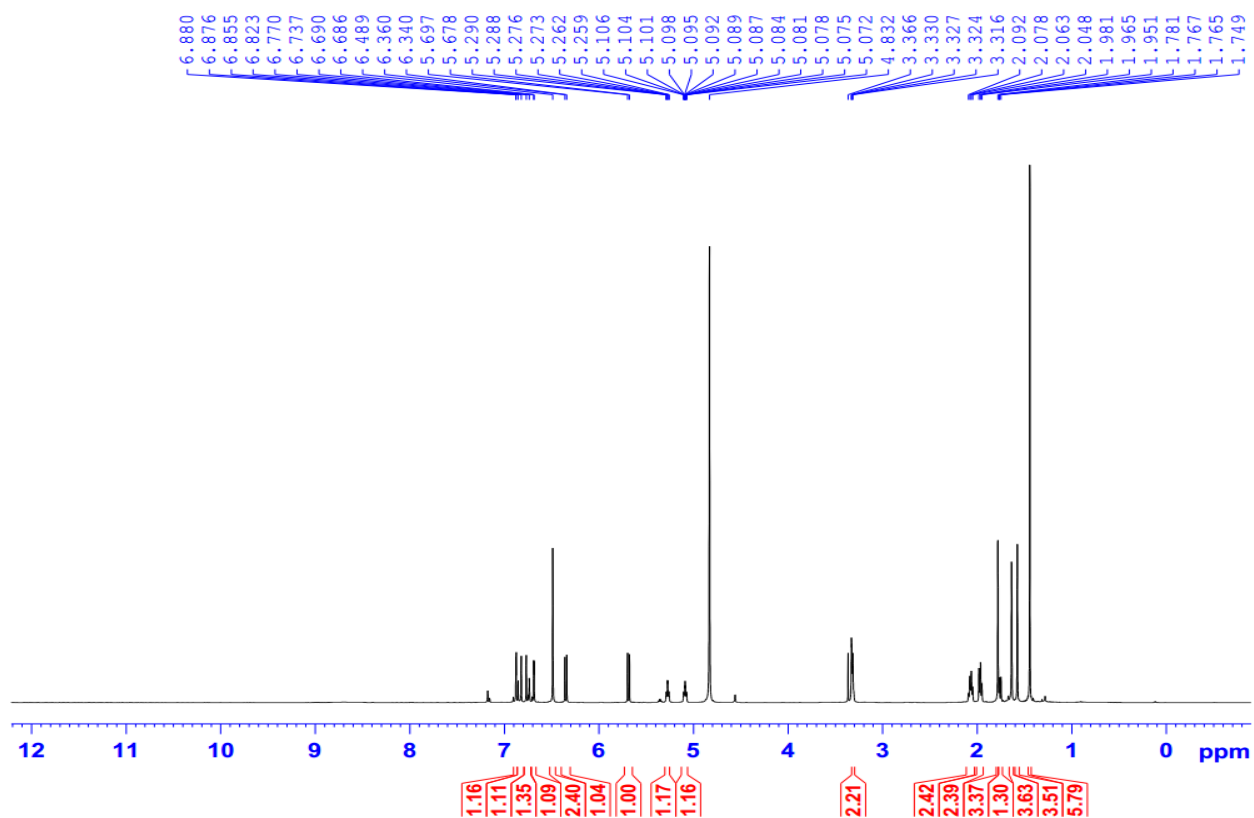


Figure S3.  $^1\text{H}$ -NMR spectrum of compound **1**

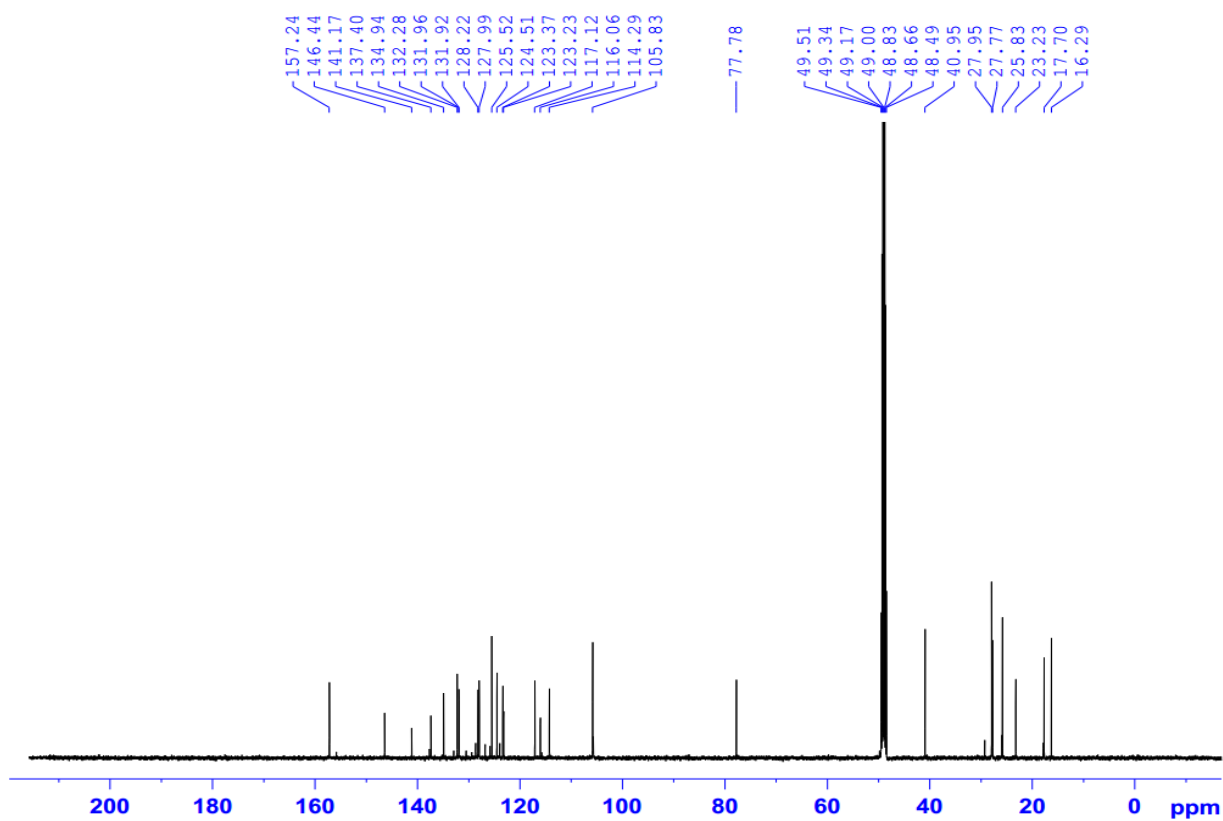
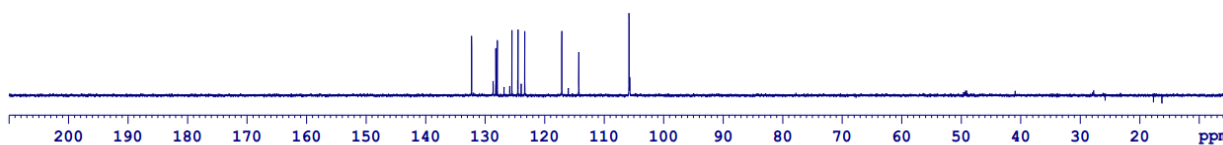
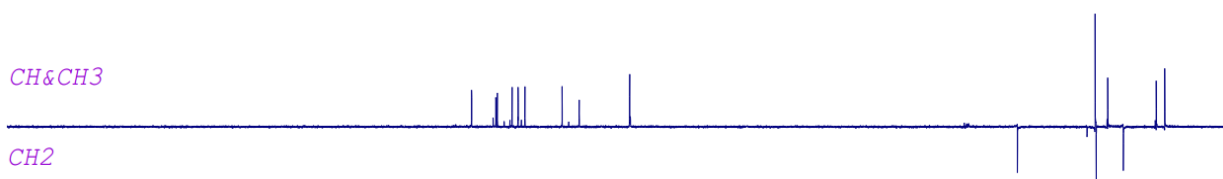


Figure S4.  $^{13}\text{C}$ -NMR spectrum of compound 1

DEPT90

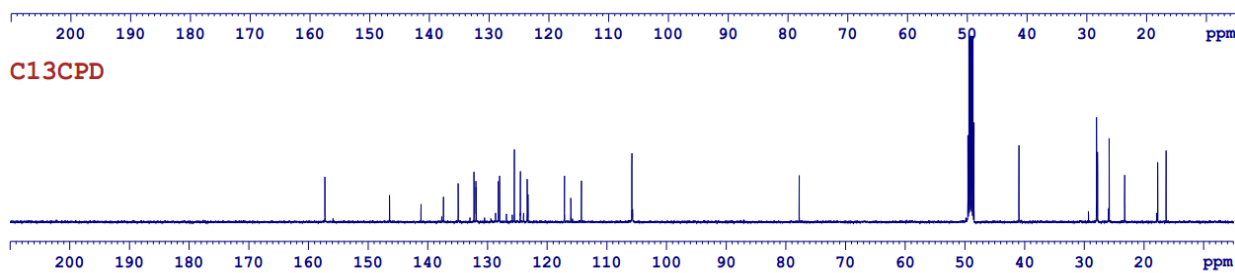


DEPT135



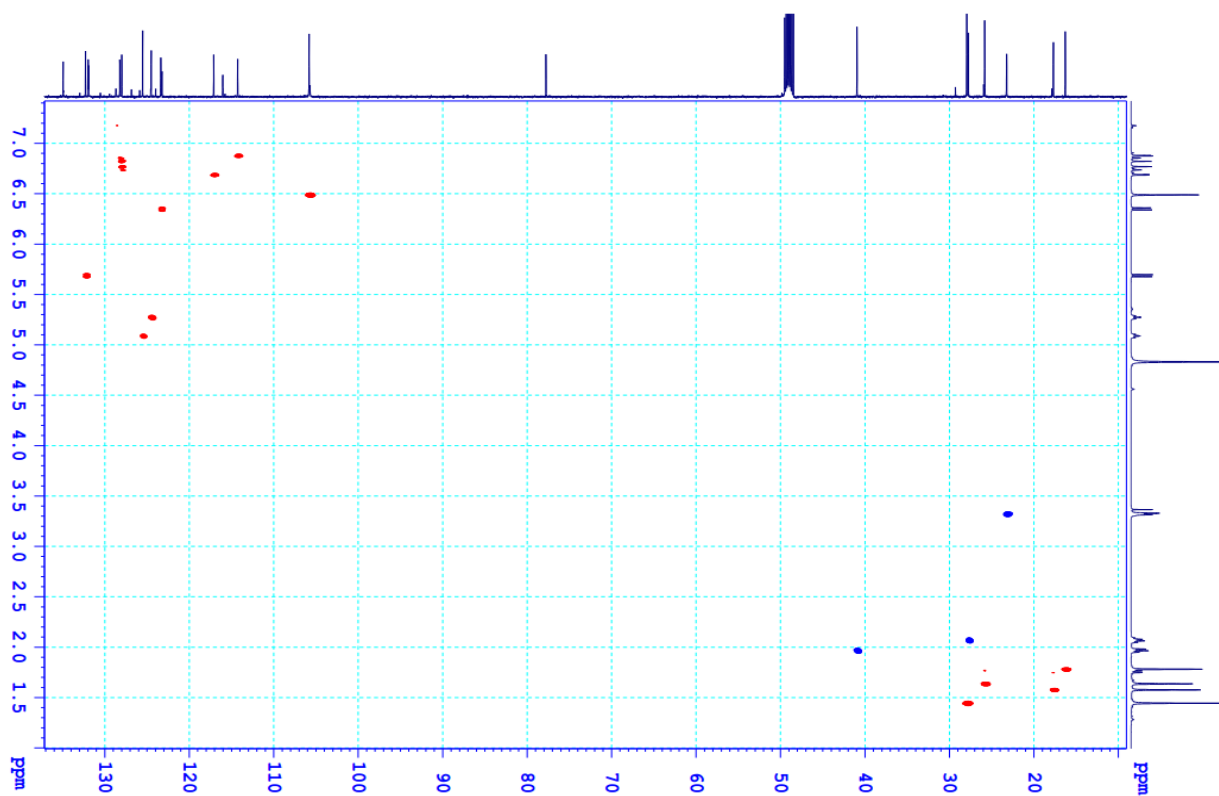
CH&CH3

CH2

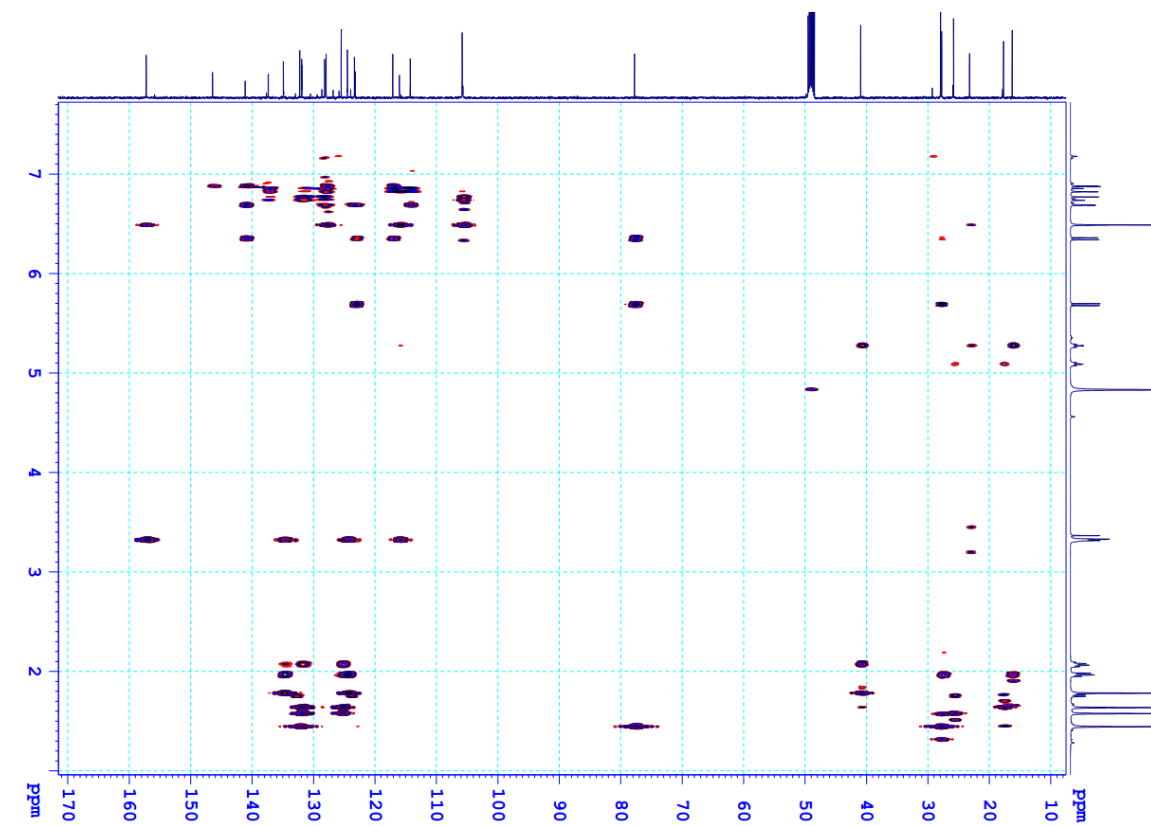


C13CPD

Figure S5. DEPT spectrum of compound 1



**Figure S6.** HSQC spectrum of compound **1**



**Figure S7.** HMBC spectrum of compound **1**

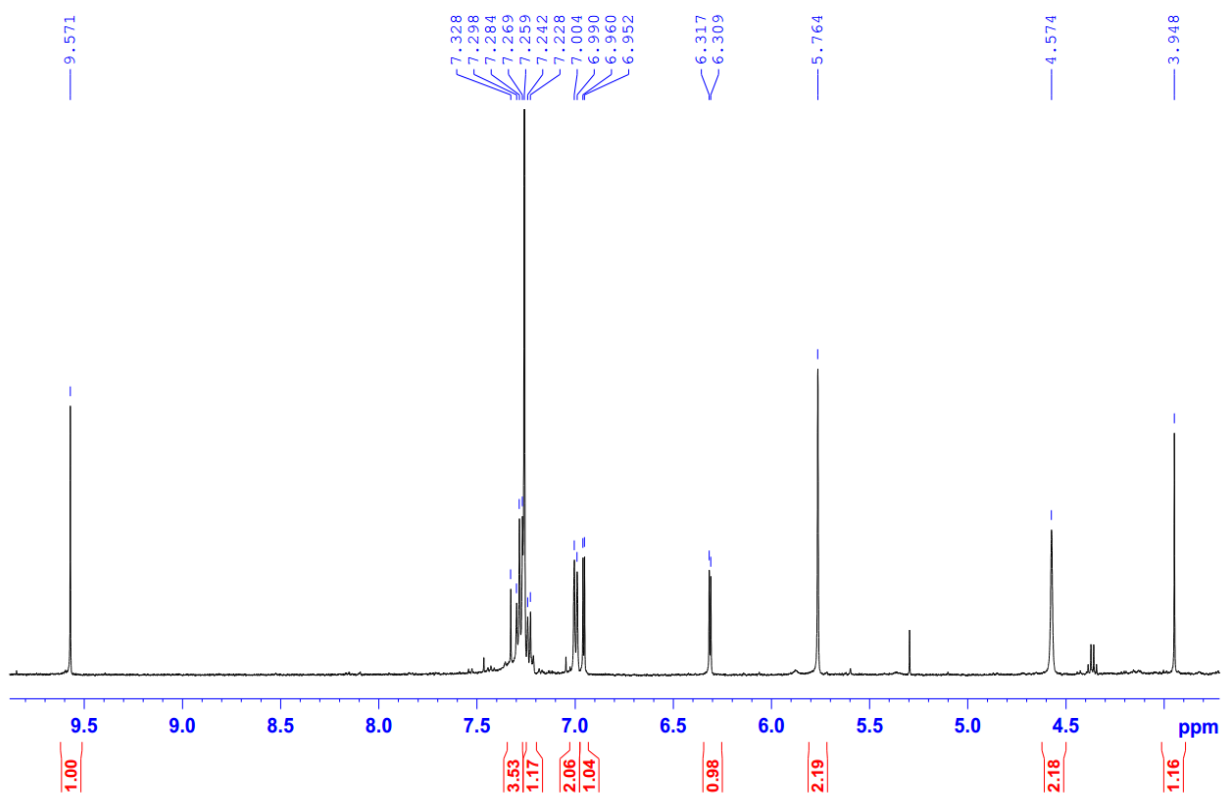


Figure S8. <sup>1</sup>H-NMR spectrum of compound 2

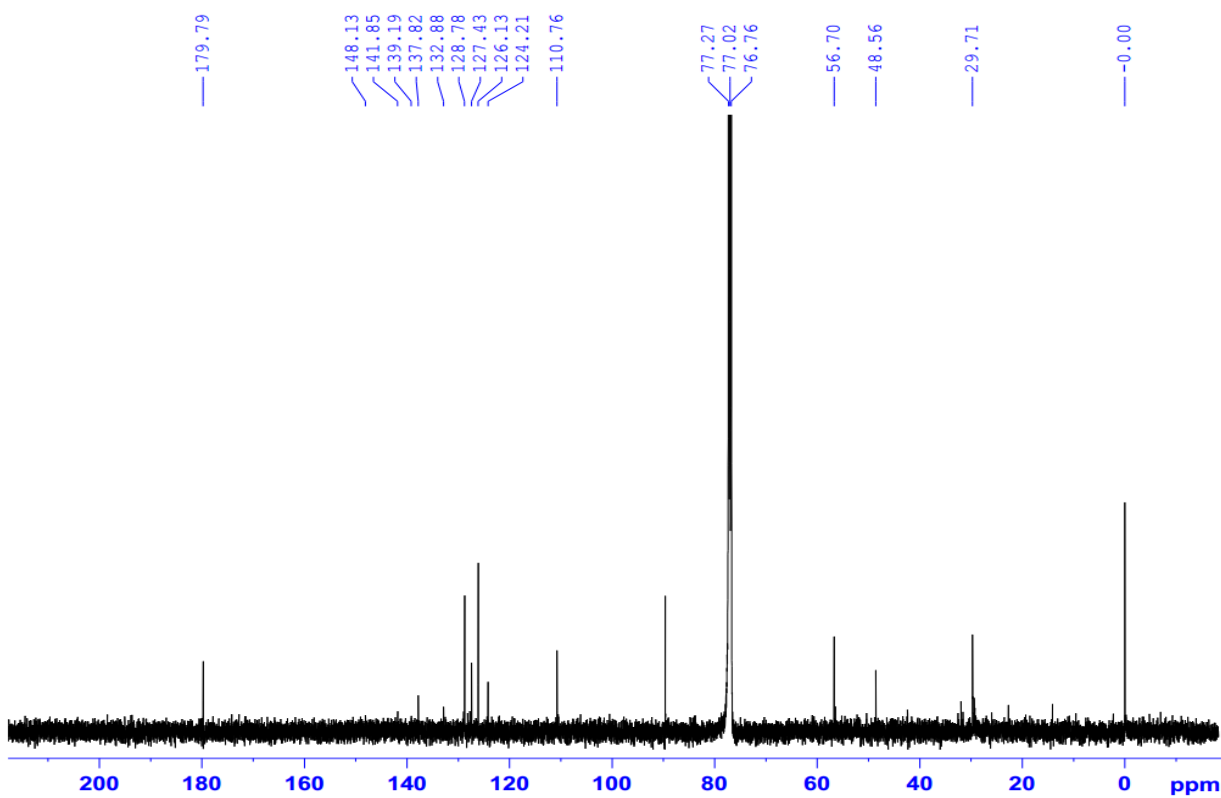
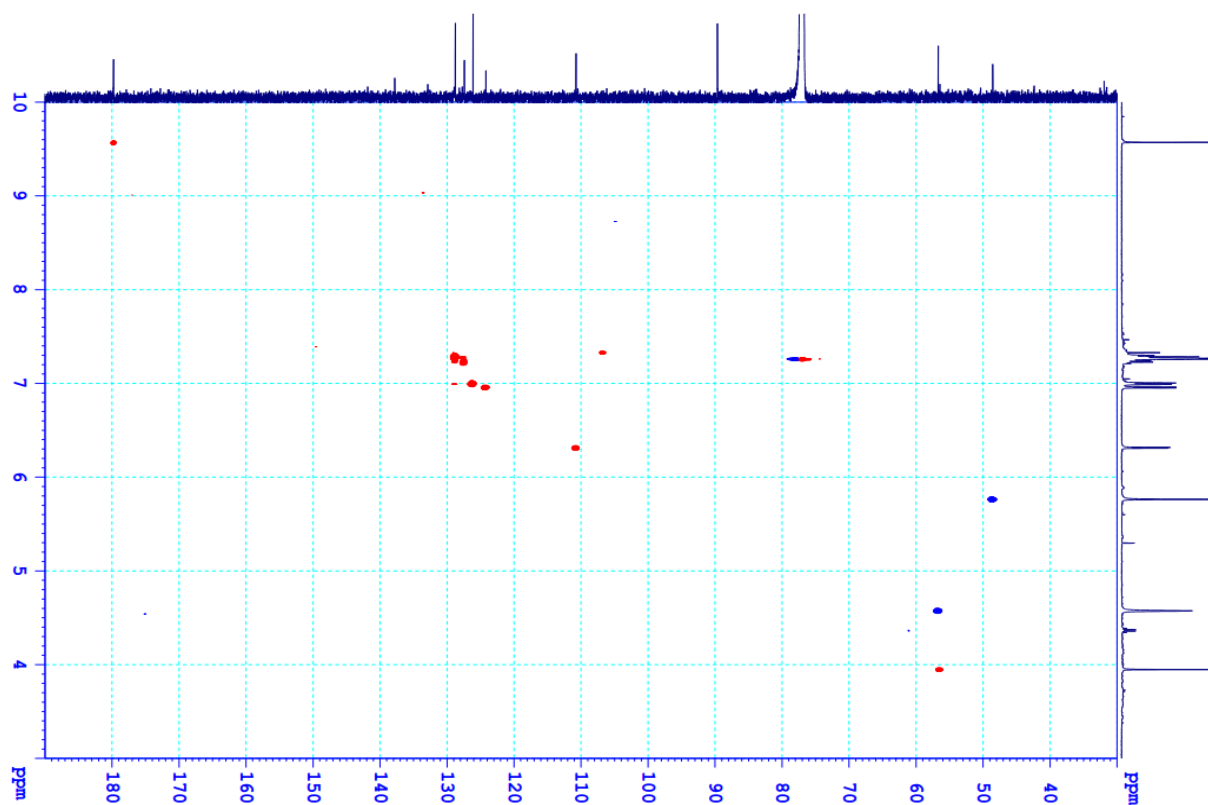
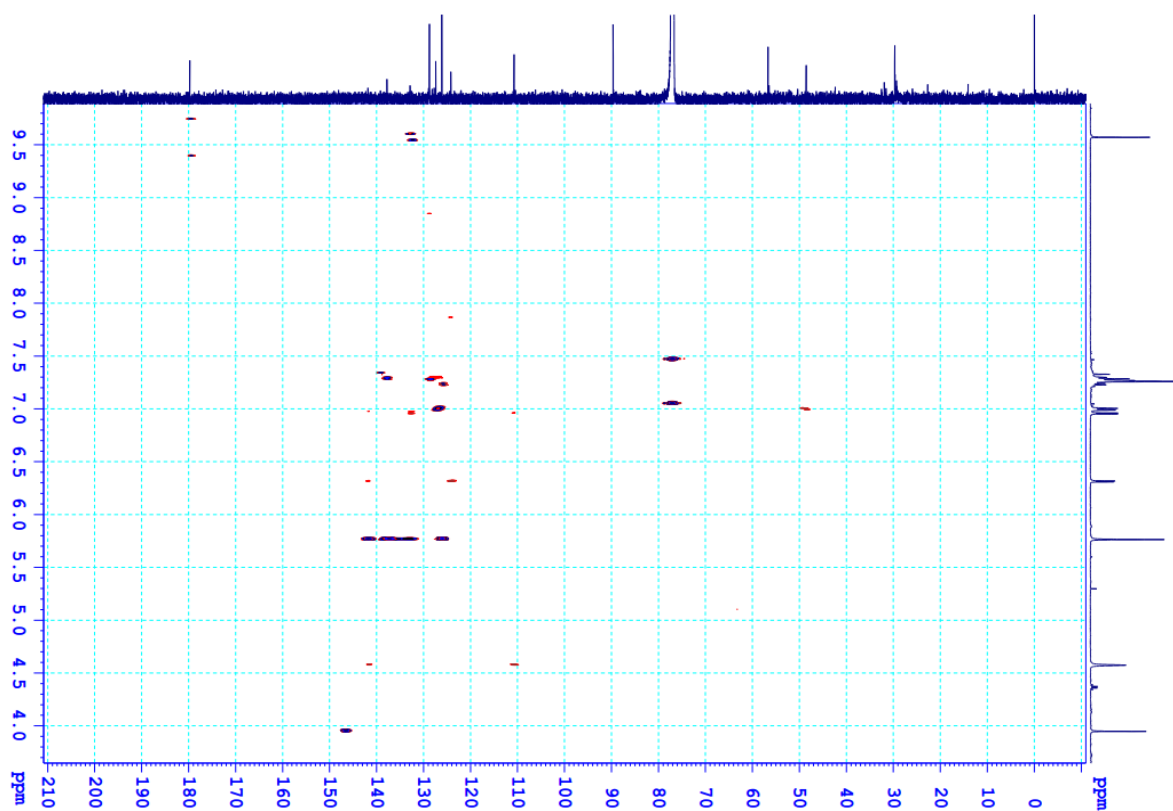


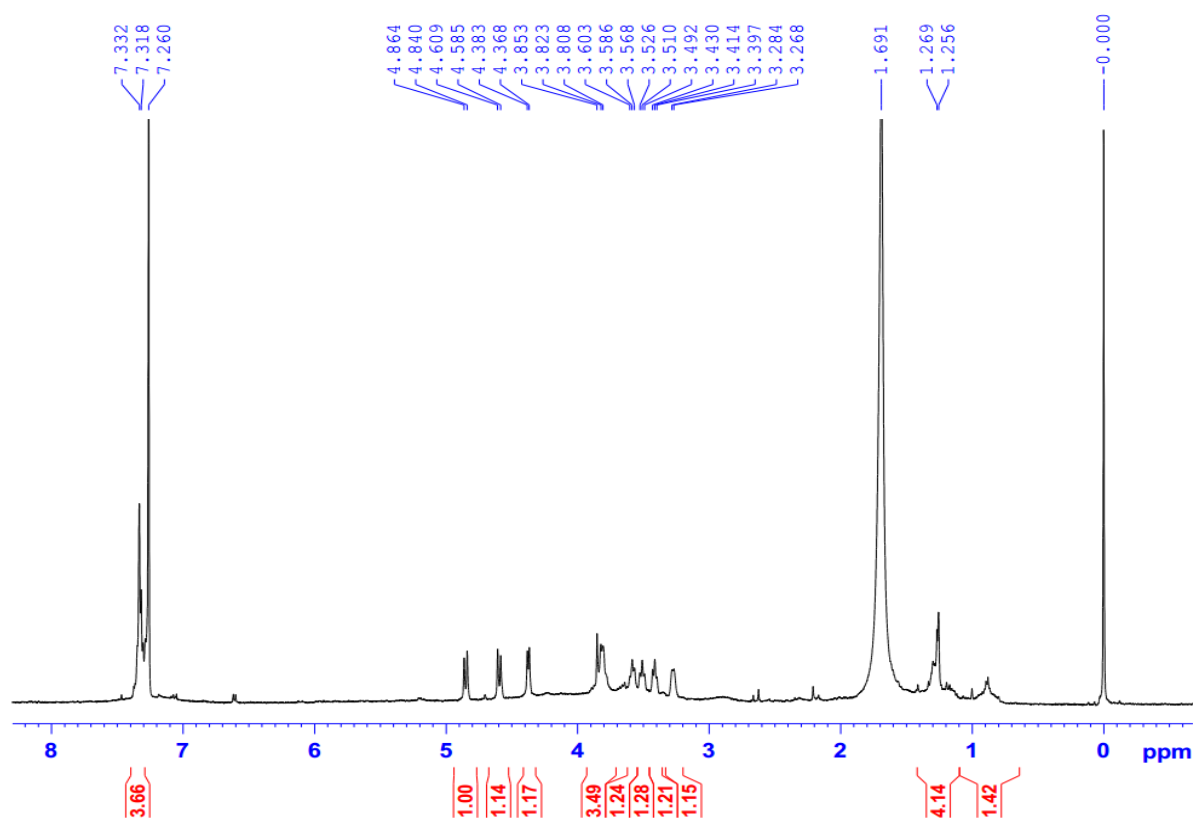
Figure S9. <sup>13</sup>C-NMR spectrum of compound 2



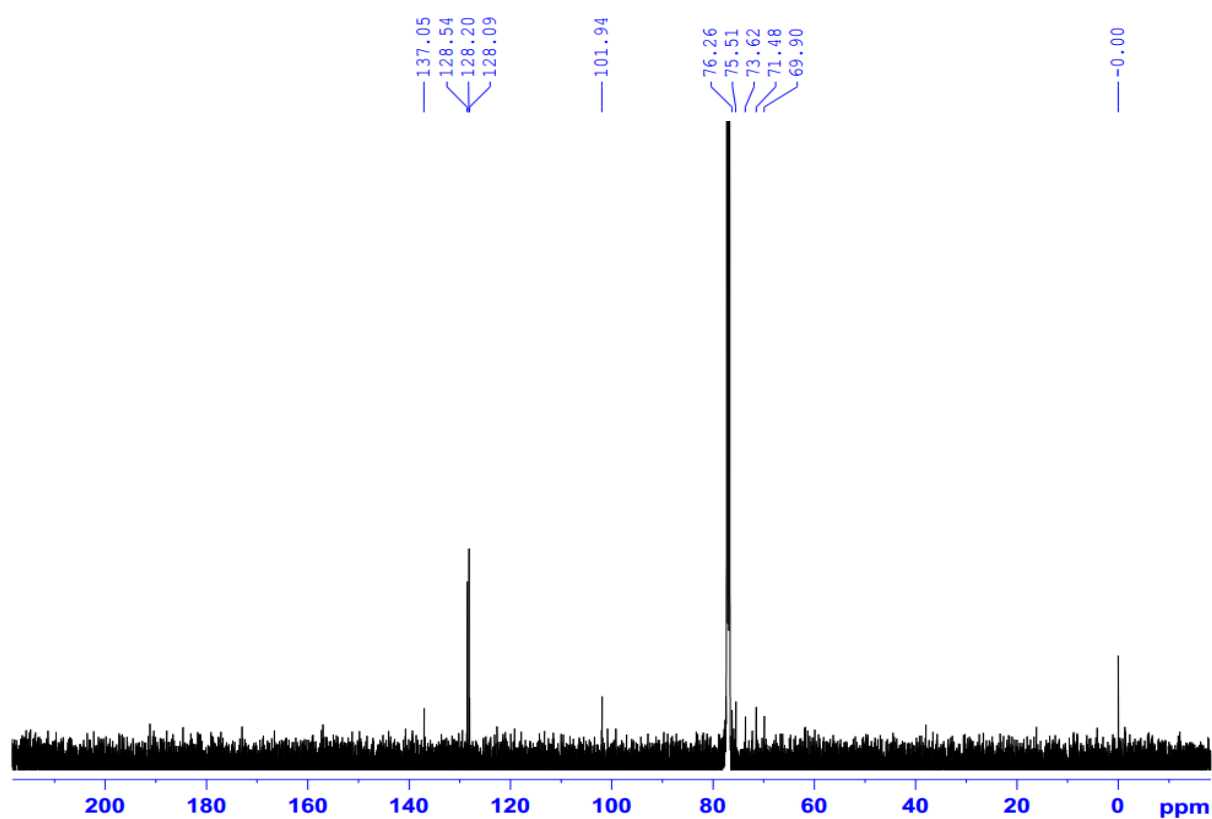
**Figure S10.** HSQC spectrum of compound 2



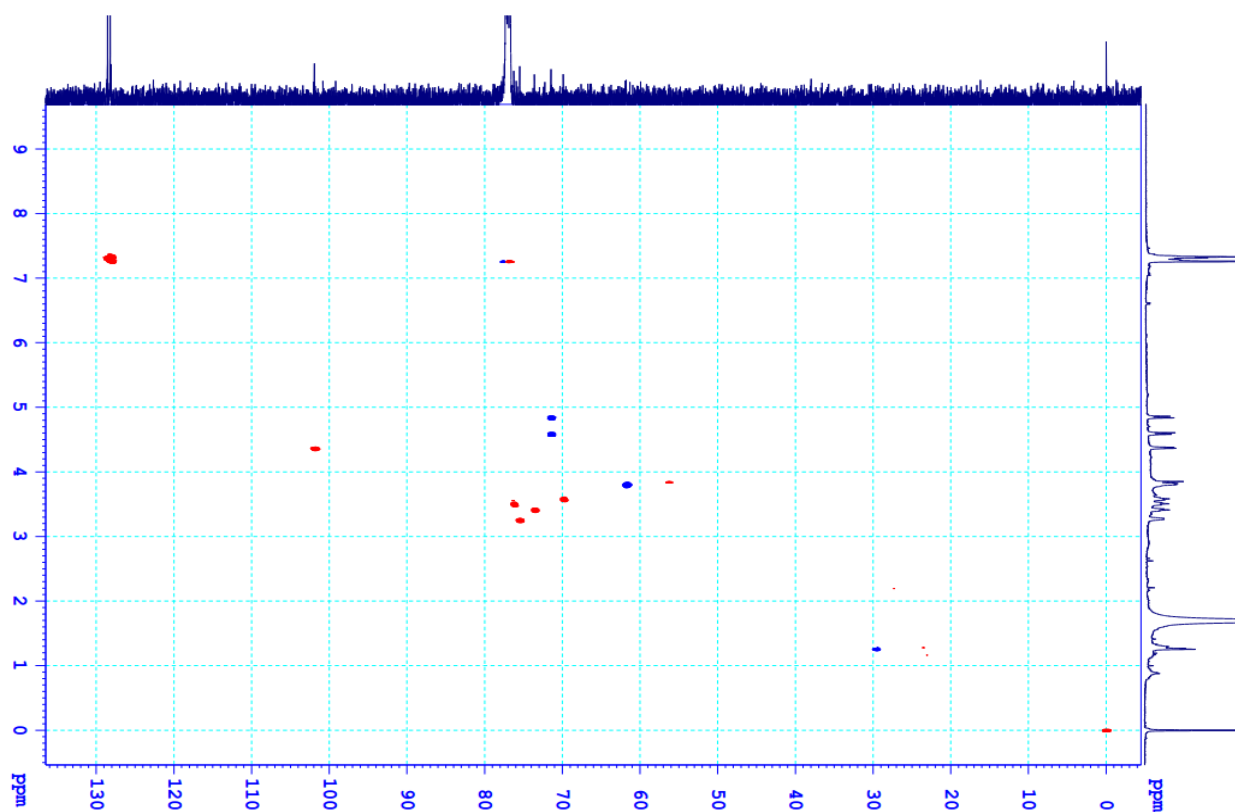
**Figure S11.** HMBC spectrum of compound 2



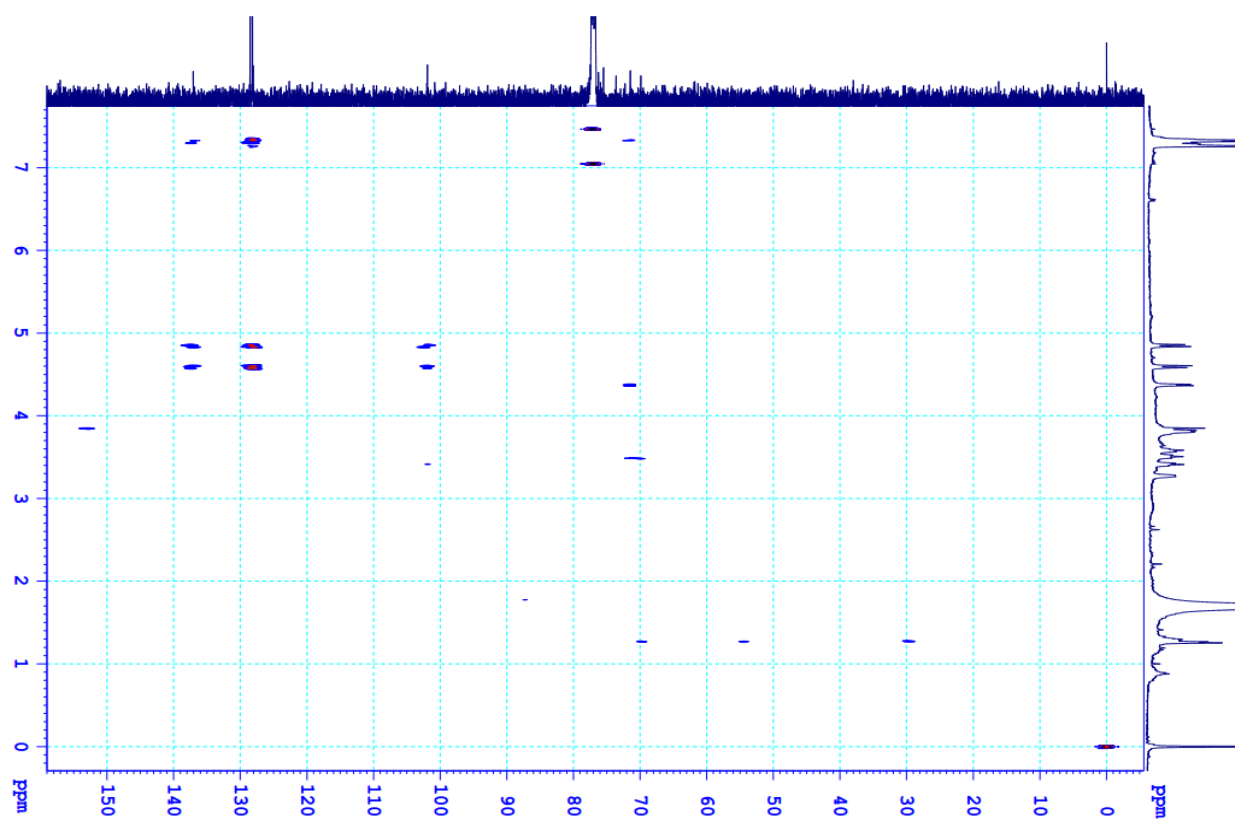
**Figure S12.**  $^1\text{H}$ -NMR spectrum of compound 3



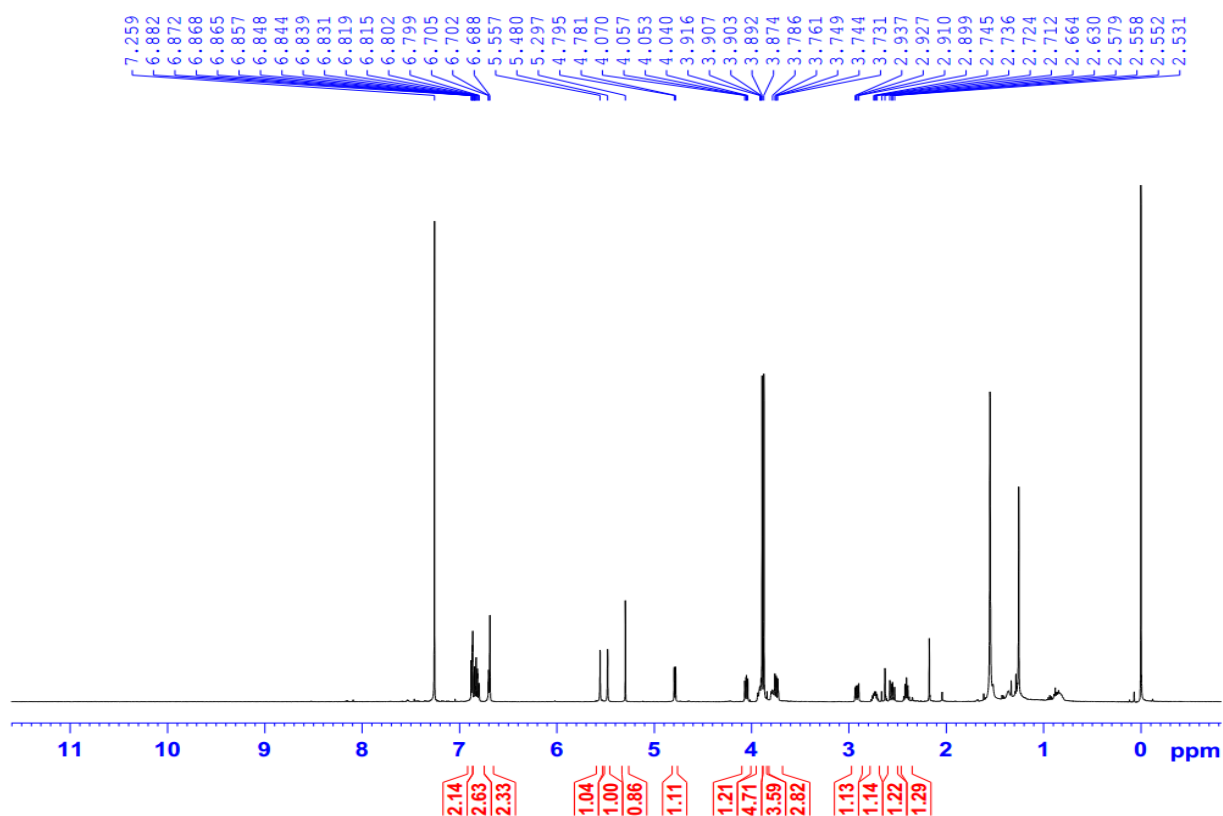
**Figure S13.**  $^{13}\text{C}$ -NMR spectrum of compound 3



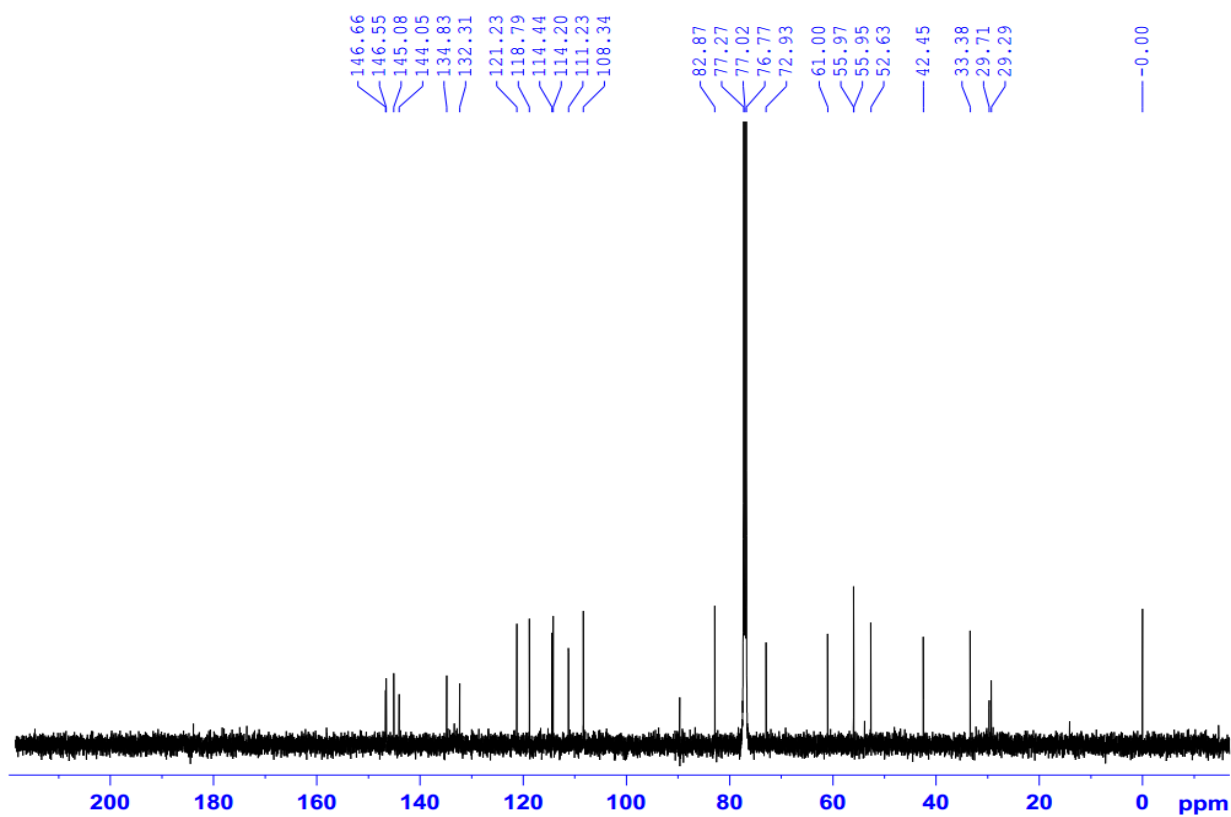
**Figure S14.** HSQC spectrum of compound **3**



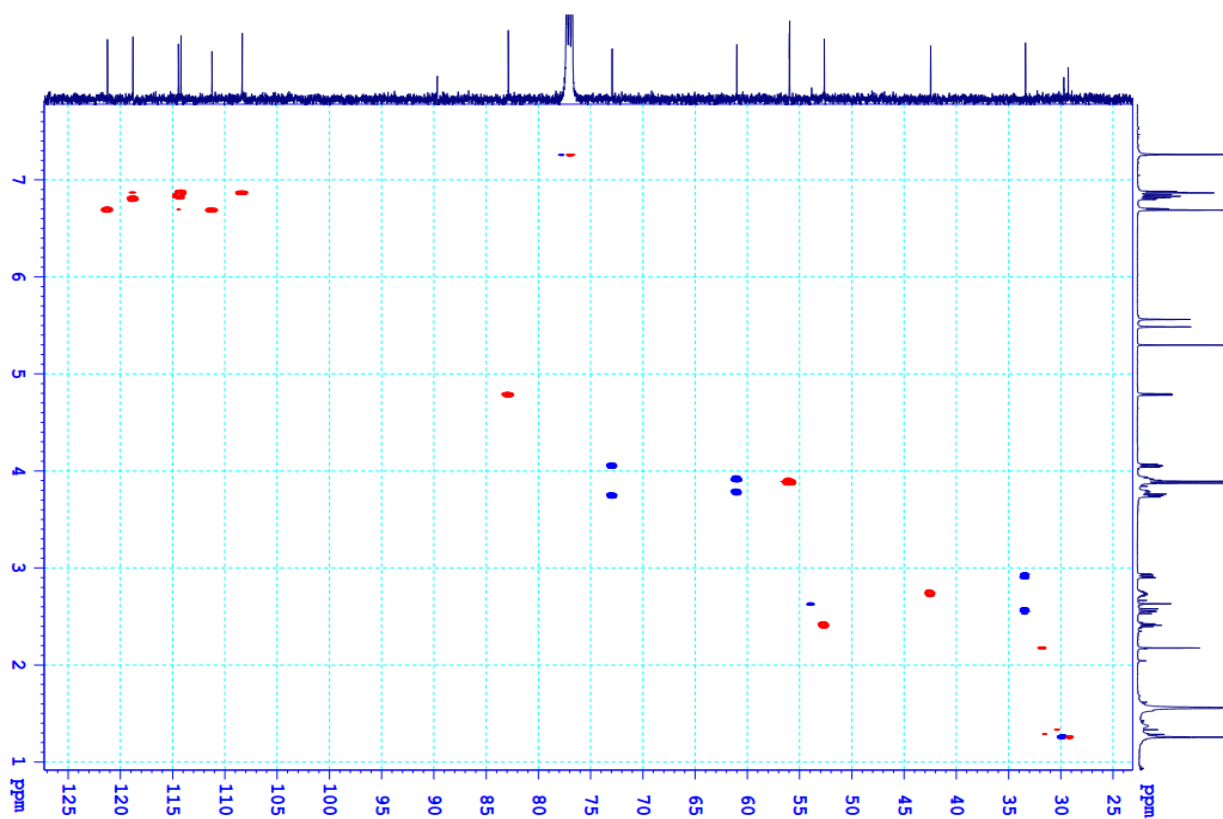
**Figure S15.** HMBC spectrum of compound **3**



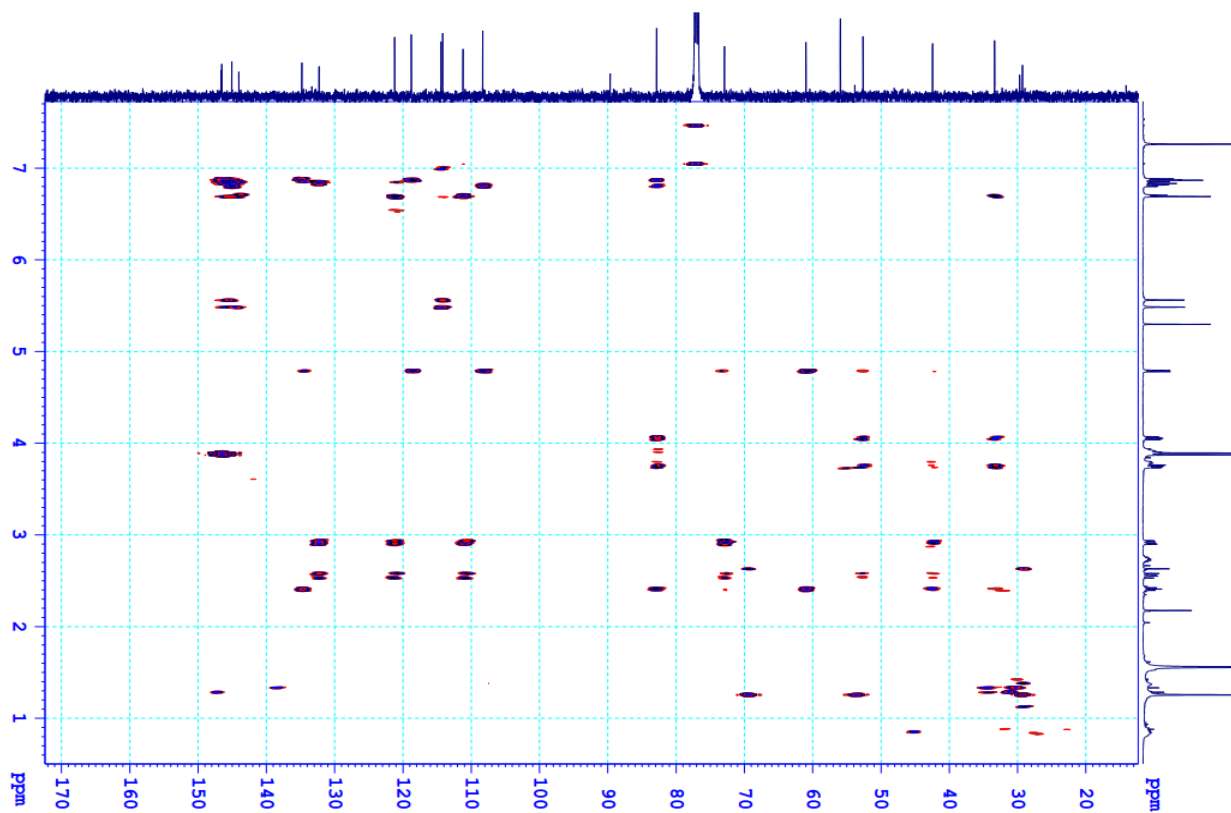
**Figure S16.**  $^1\text{H}$ -NMR spectrum of compound **4**



**Figure S17.**  $^{13}\text{C}$ -NMR spectrum of compound **4**



**Figure S18.** HSQC spectrum of compound 4



**Figure S19.** HMBC spectrum of compound 4

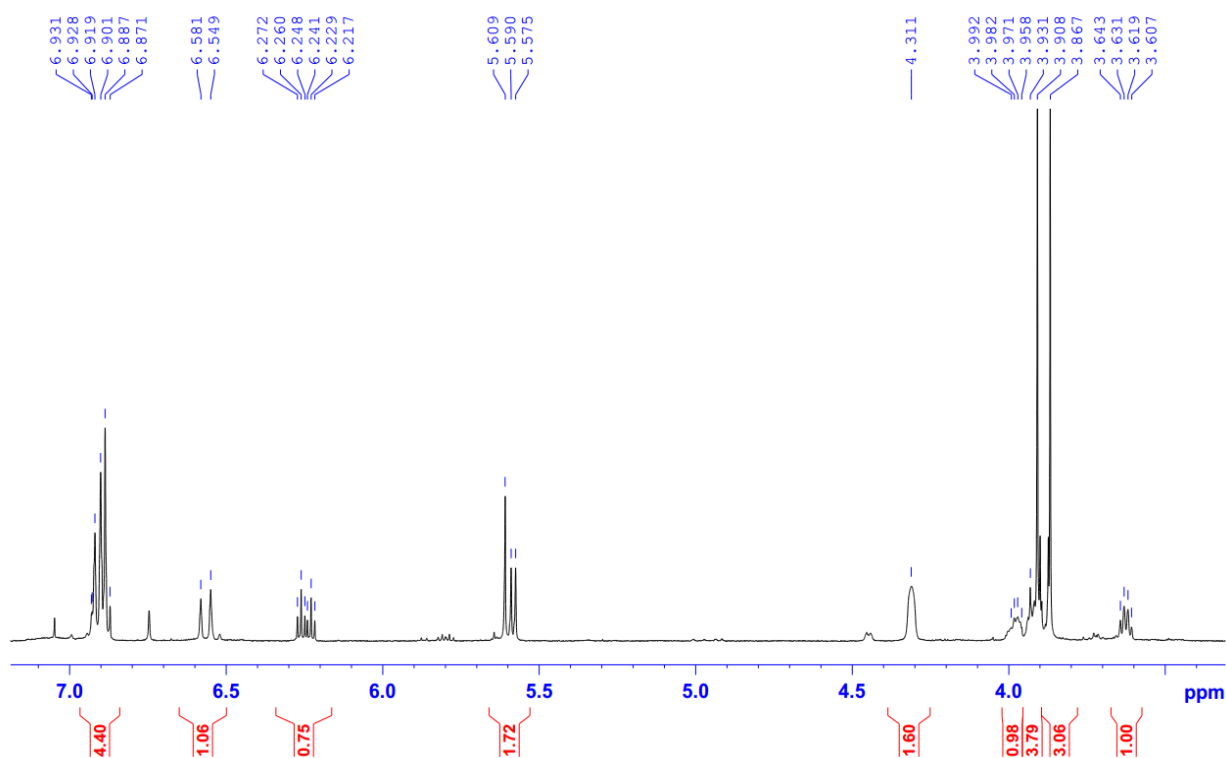


Figure S20.  $^1\text{H}$ -NMR spectrum of compound 5

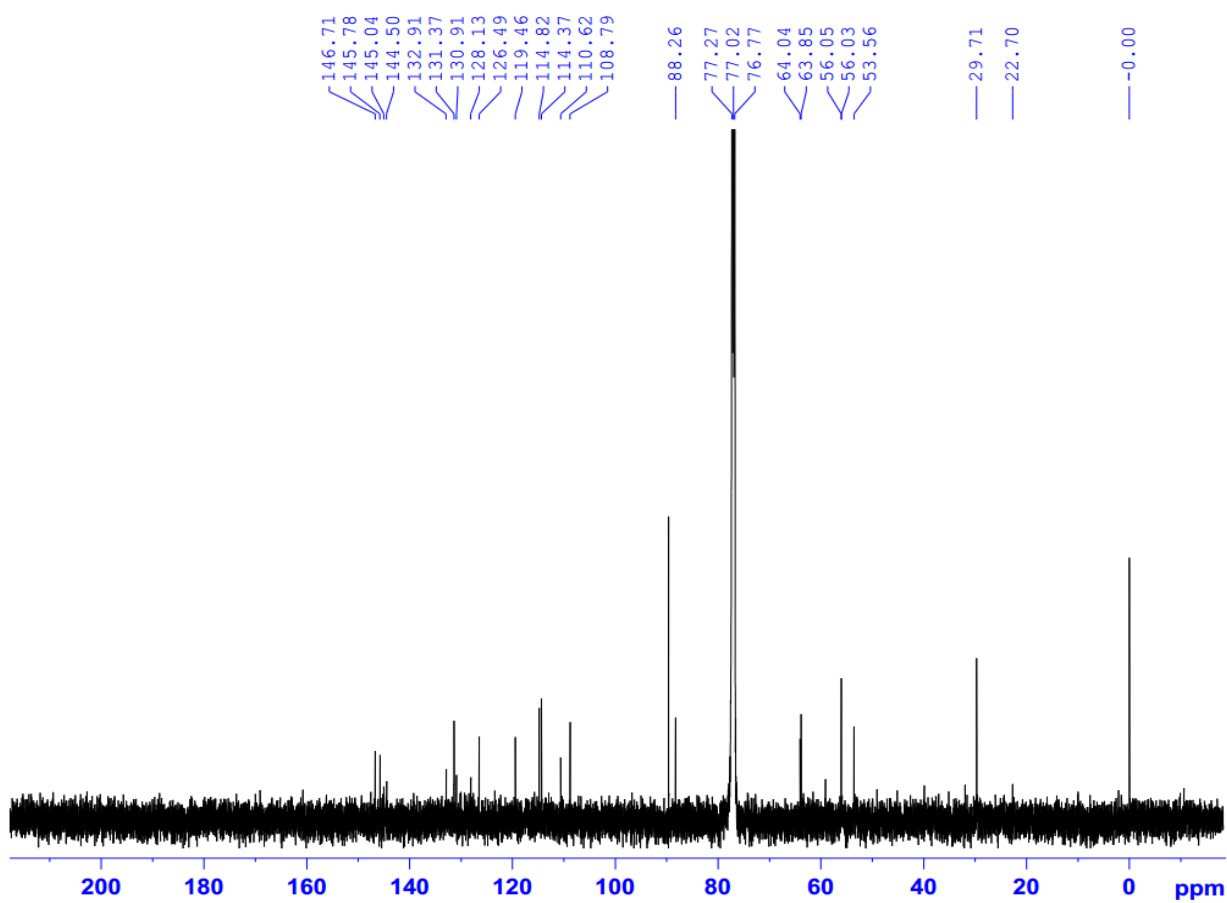


Figure S21.  $^{13}\text{C}$ -NMR spectrum of compound 5

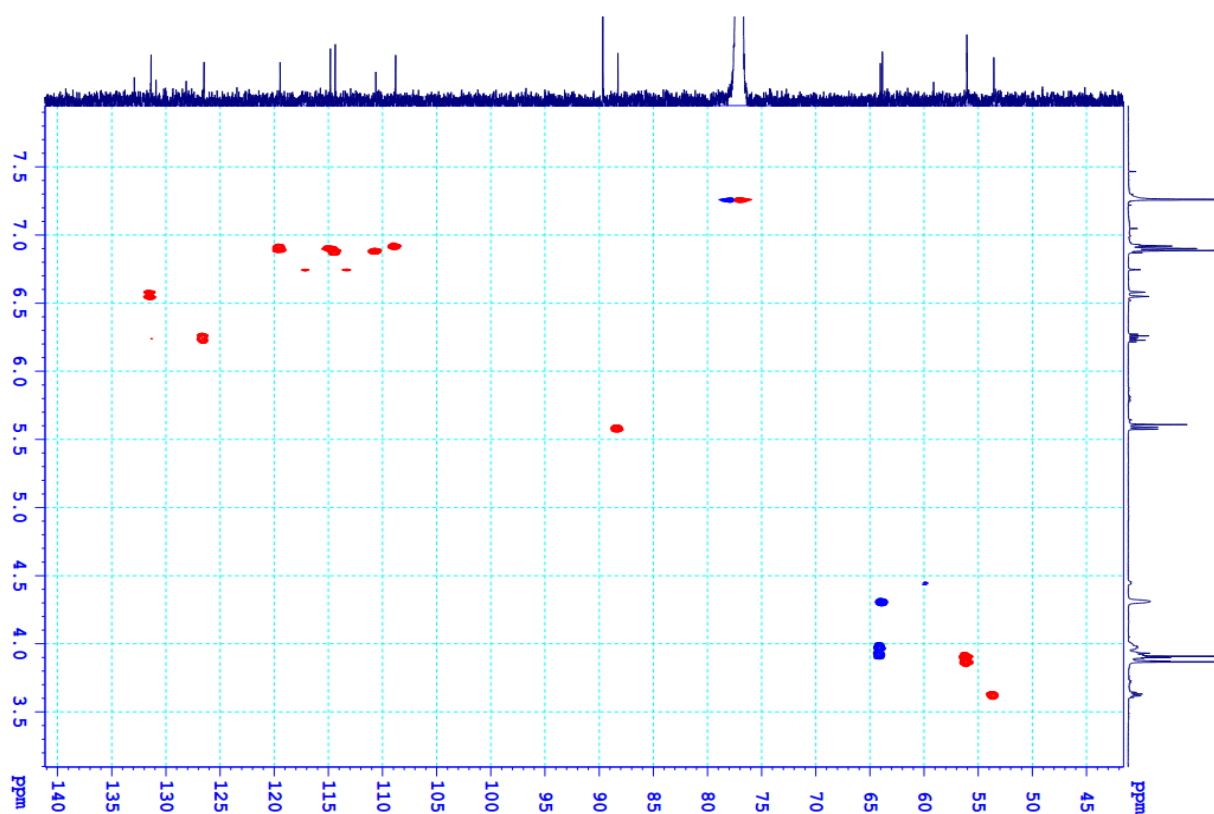


Figure S22. HSQC spectrum of compound 5

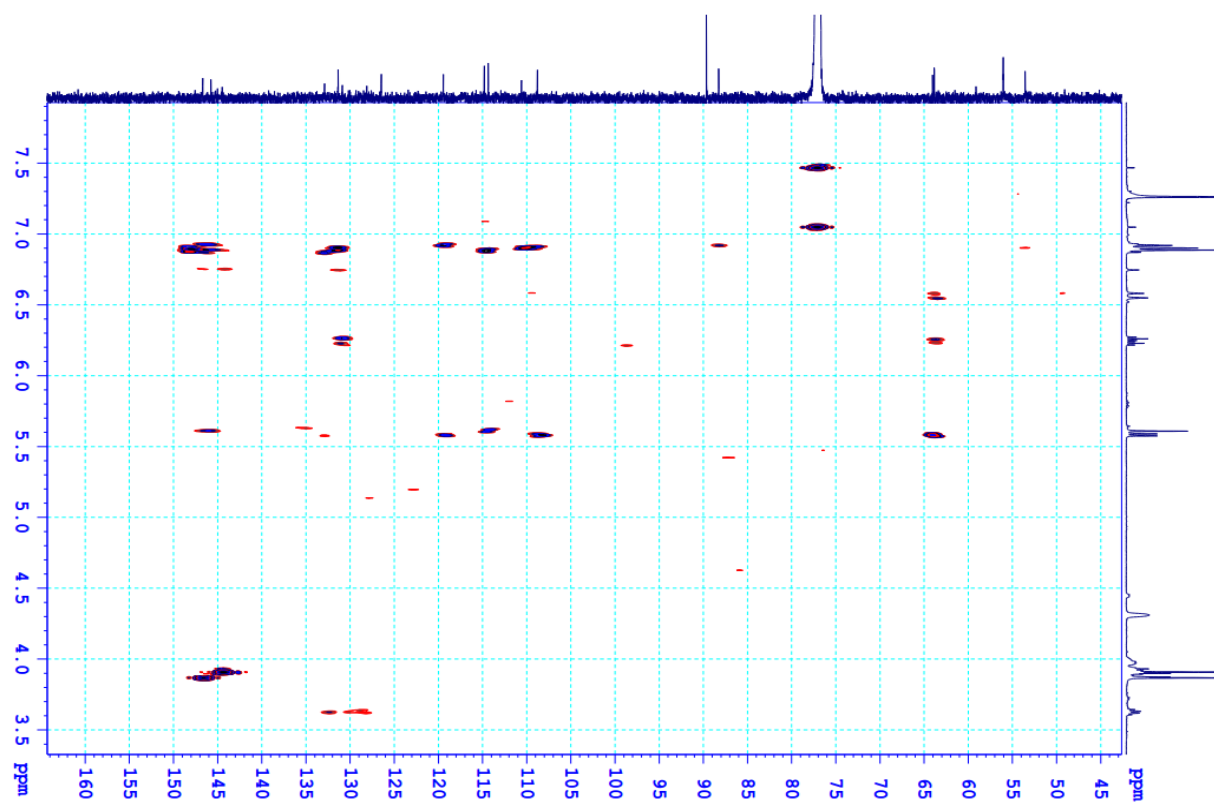


Figure S23. HMBC spectrum of compound 5

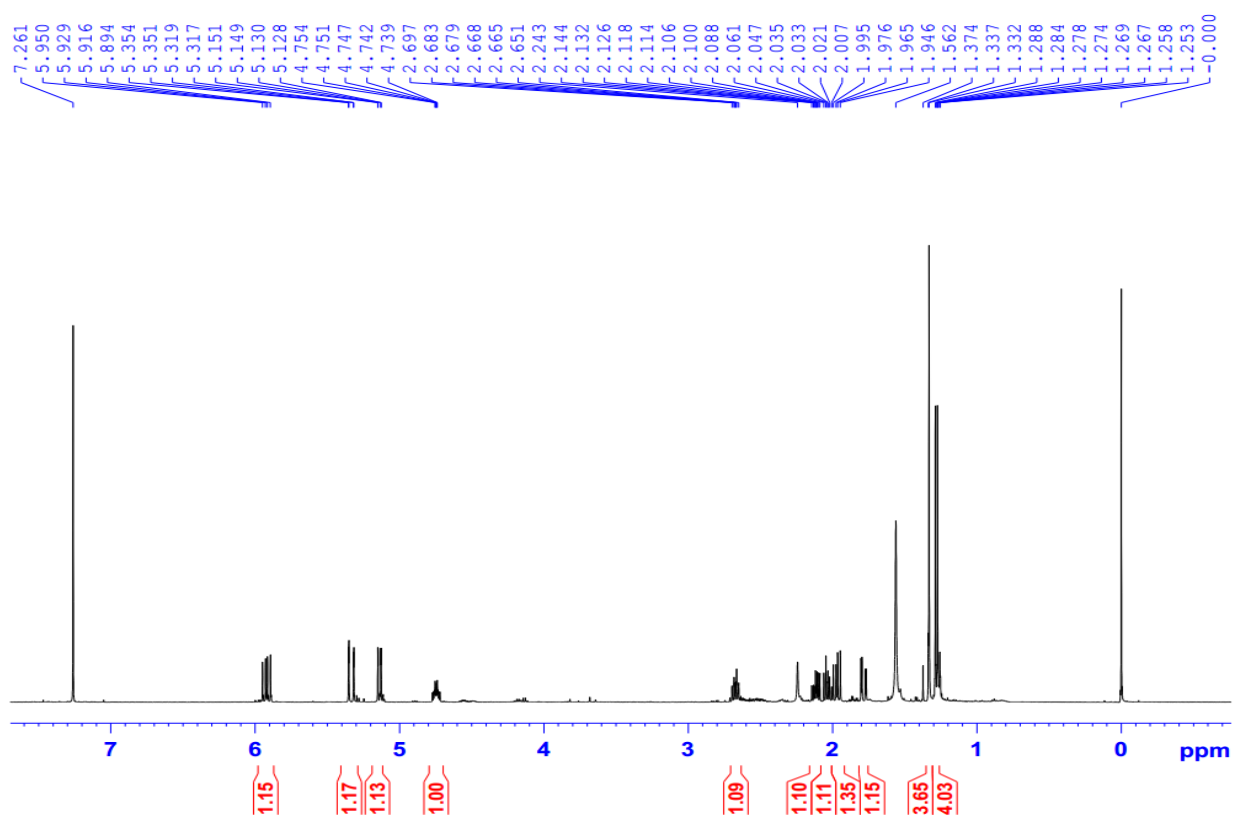


Figure S24.  $^1\text{H}$ -NMR spectrum of compound **6**

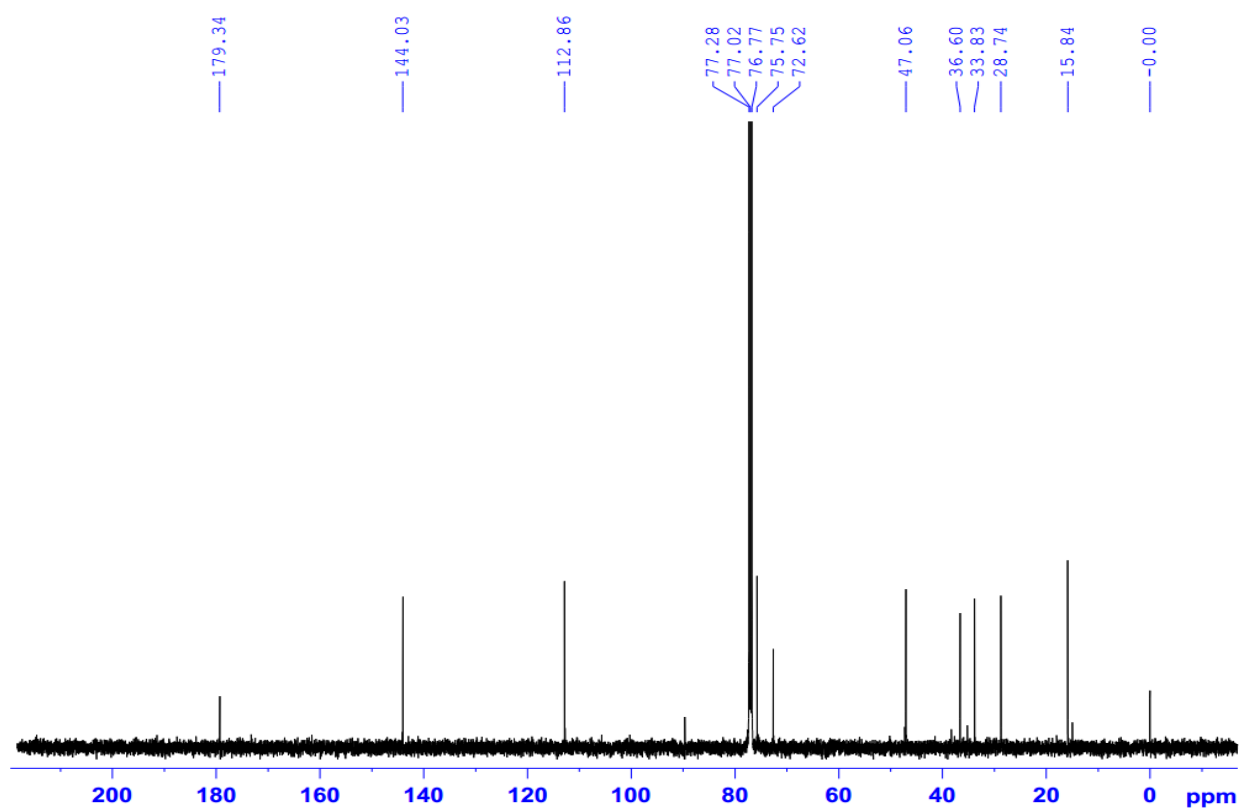
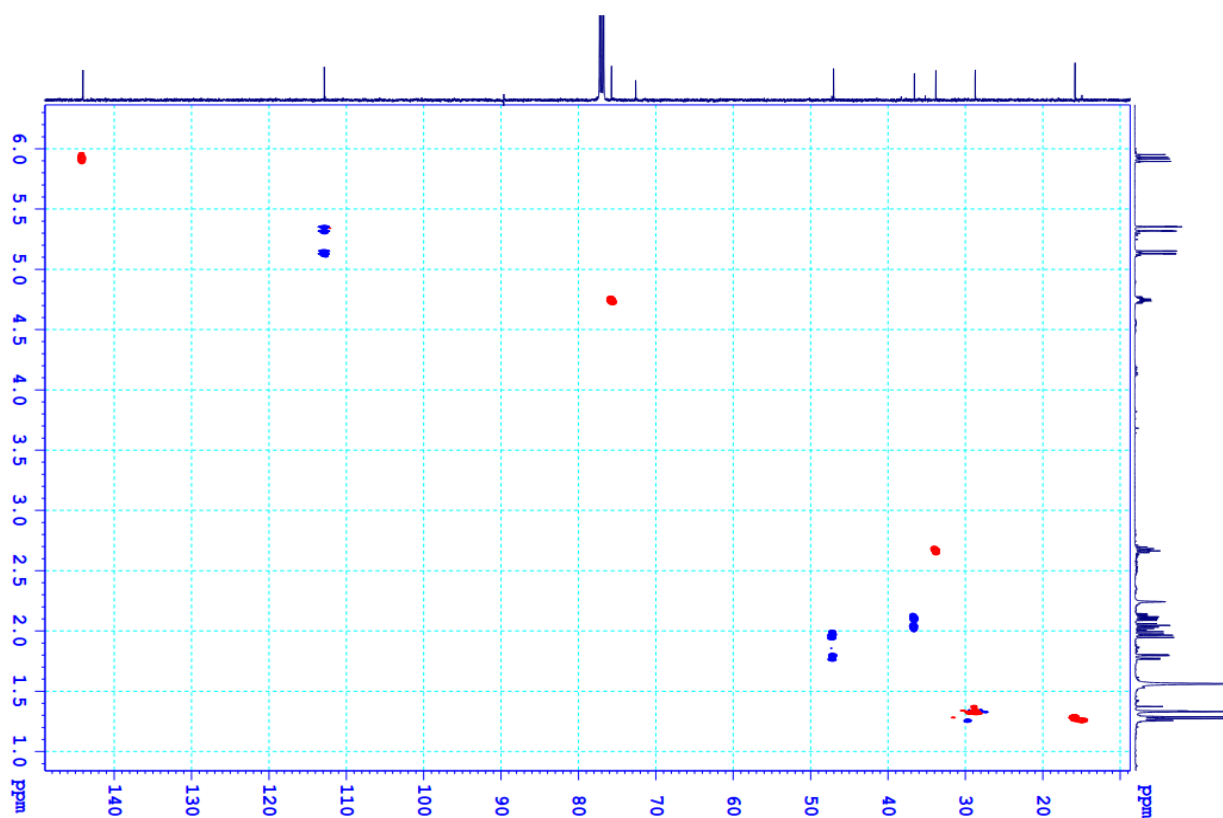
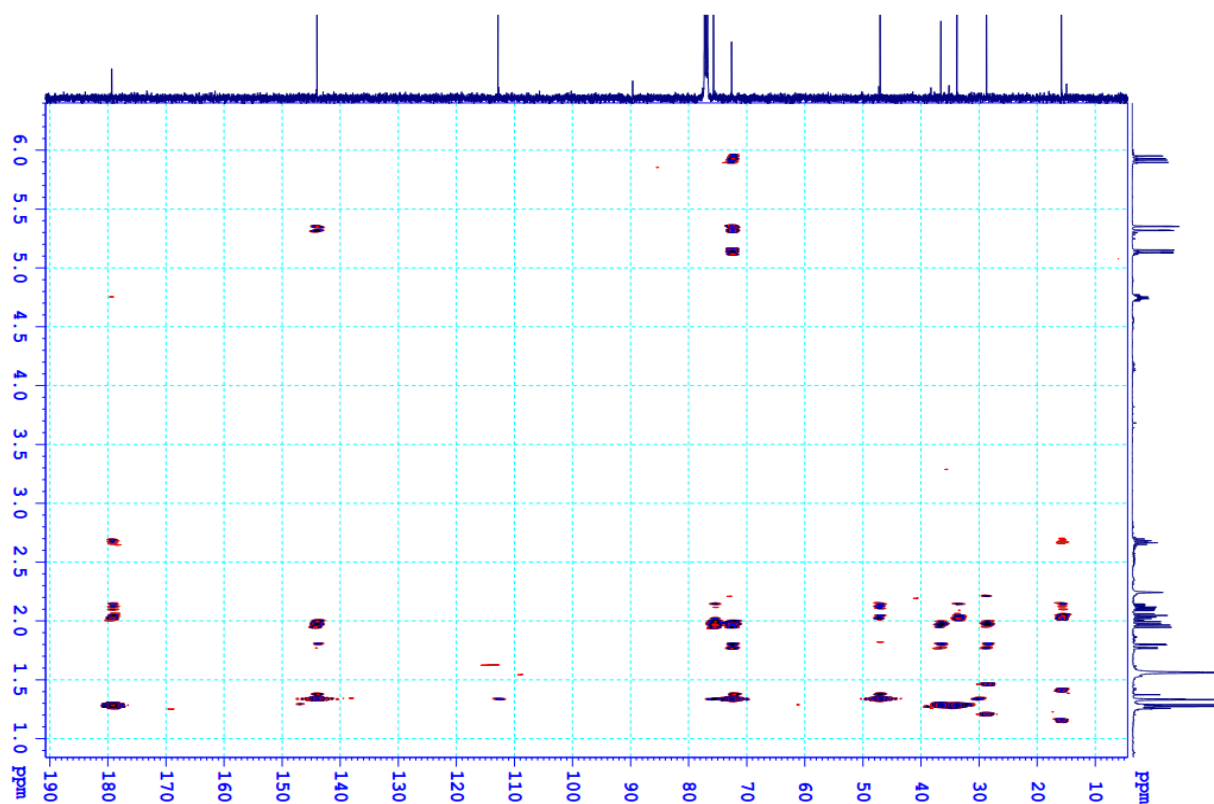


Figure S25.  $^{13}\text{C}$ -NMR spectrum of compound **6**



**Figure S26.** HSQC spectrum of compound **6**



**Figure S27.** HMBC spectrum of compound **6**

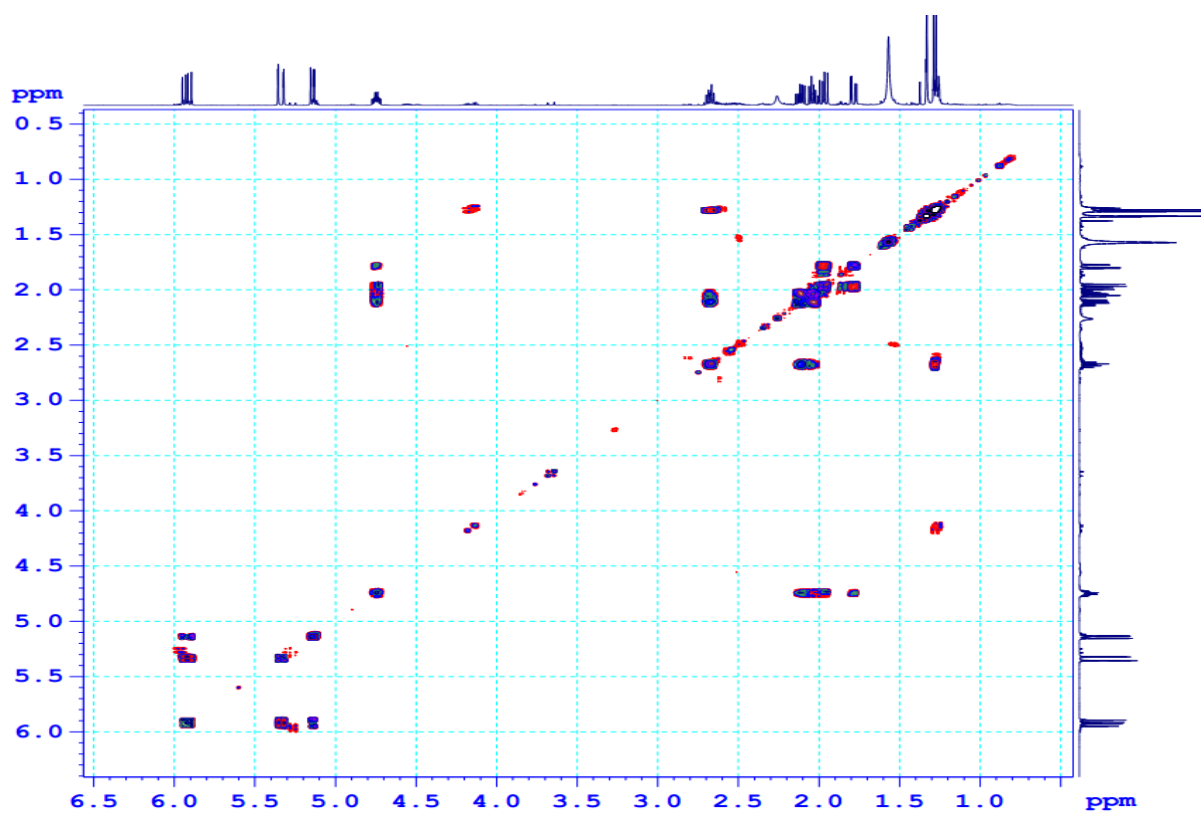


Figure S28. COSY spectrum of compound 6

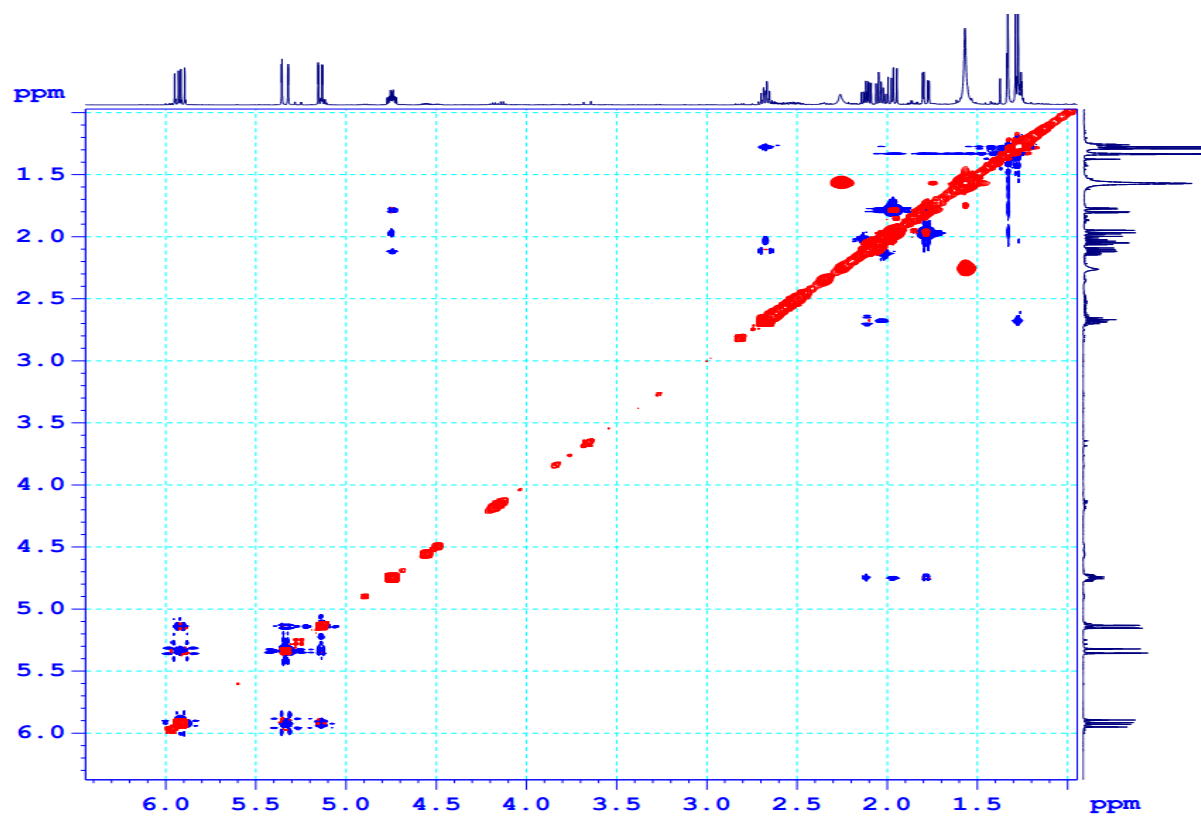


Figure S29. NOESY spectrum of compound 6

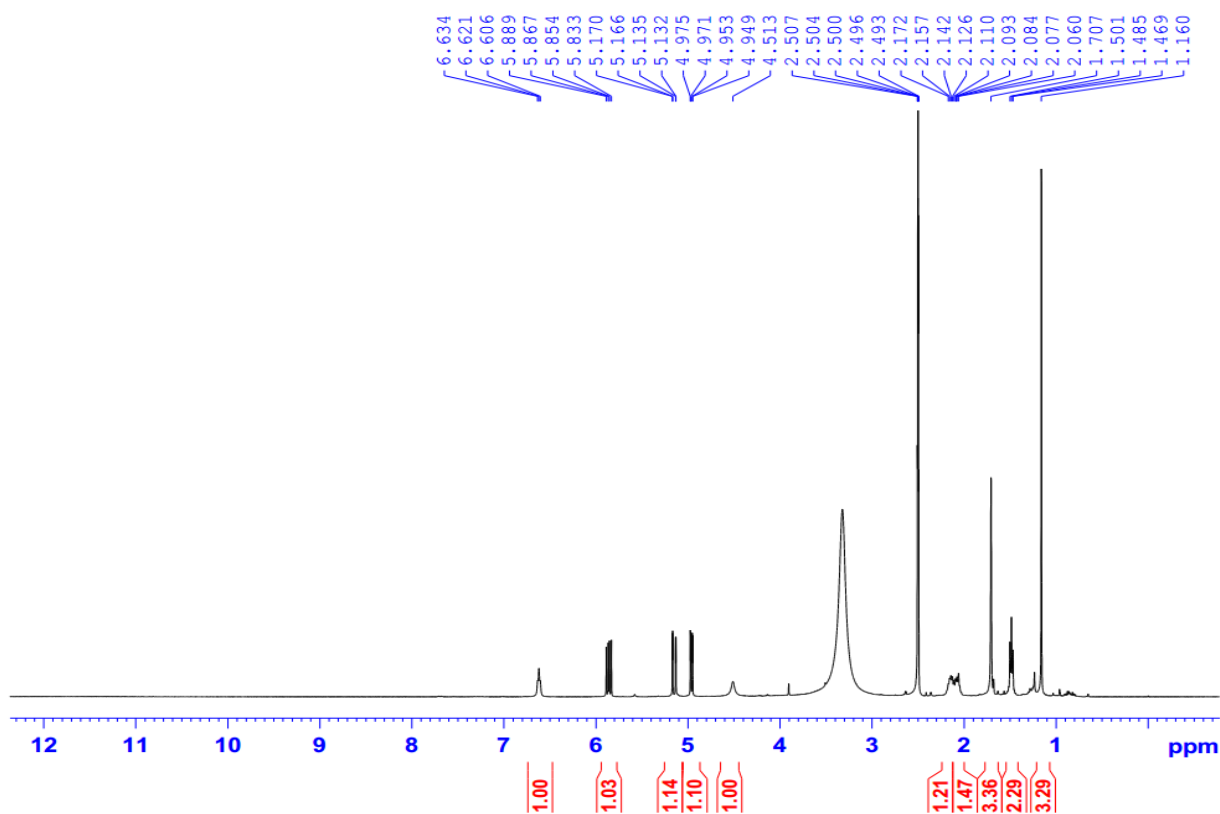


Figure S30.  $^1\text{H}$ -NMR spectrum of compound 7

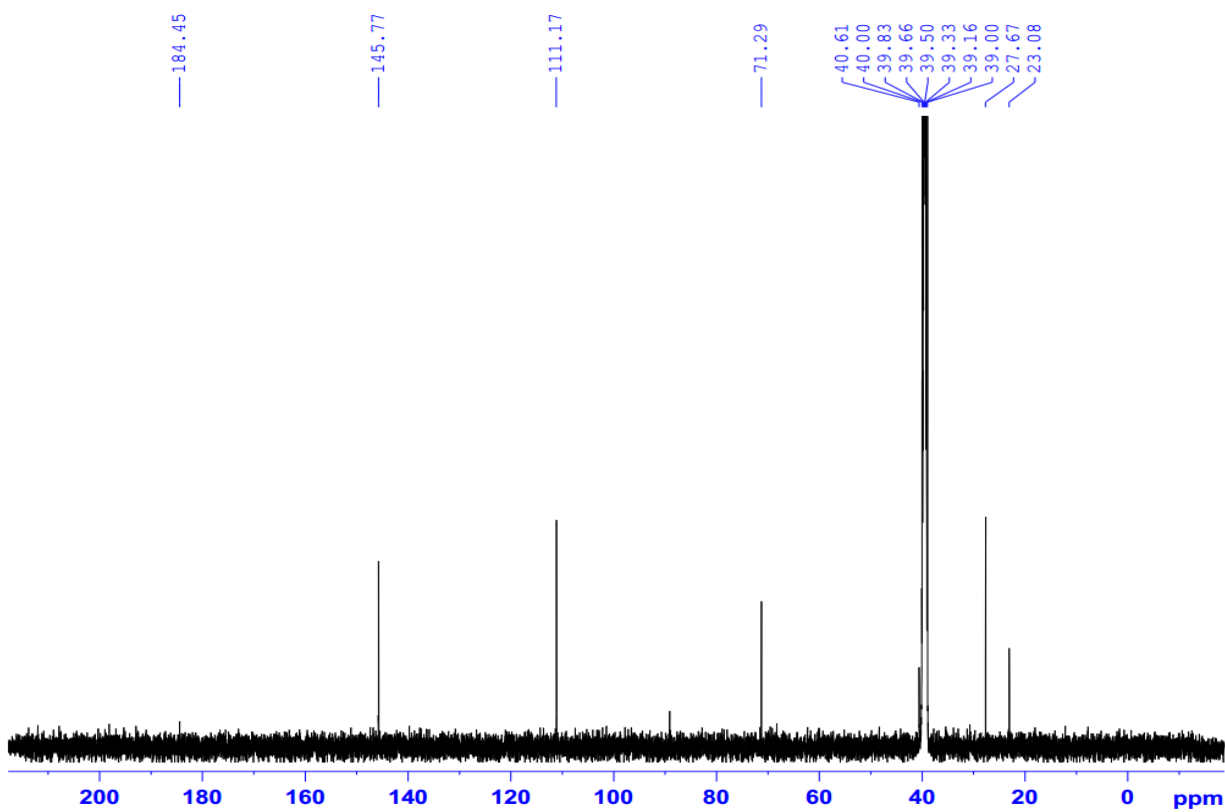


Figure S31.  $^{13}\text{C}$ -NMR spectrum of compound 7

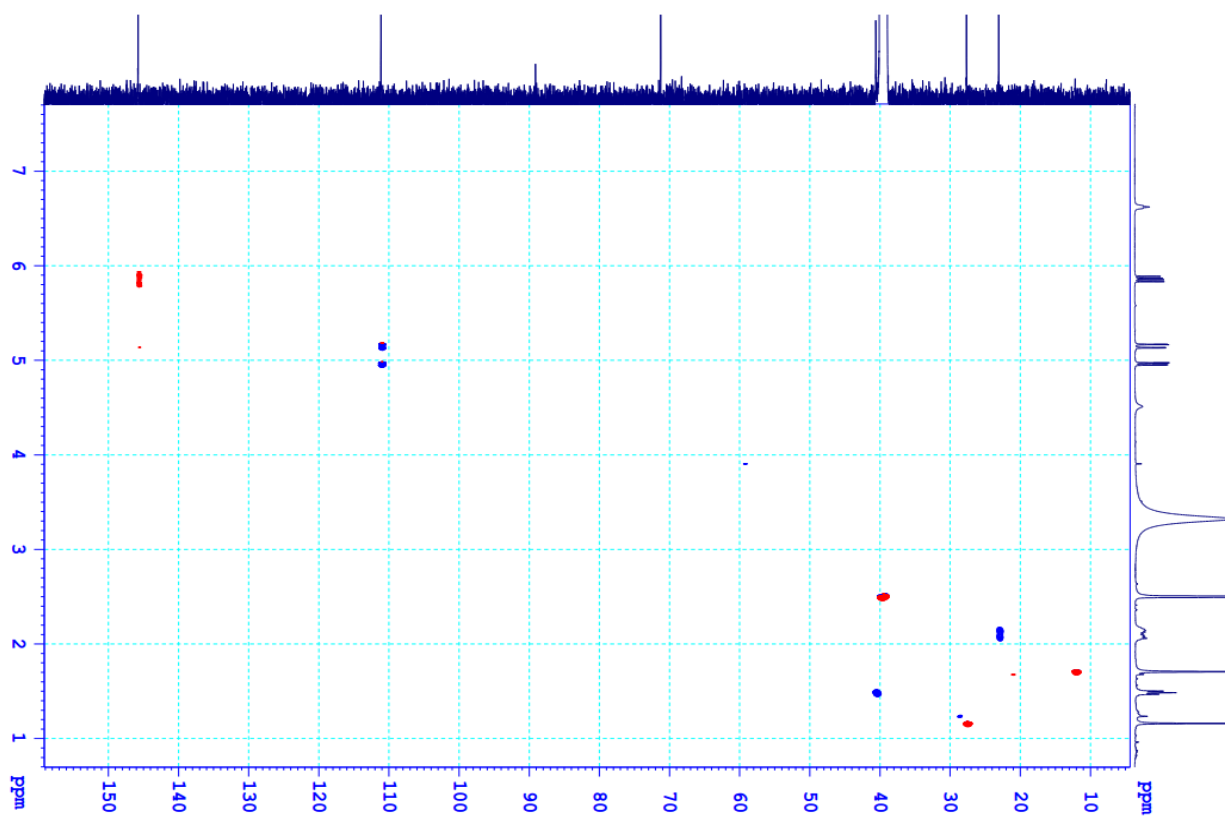


Figure S32. HSQC spectrum of compound 7

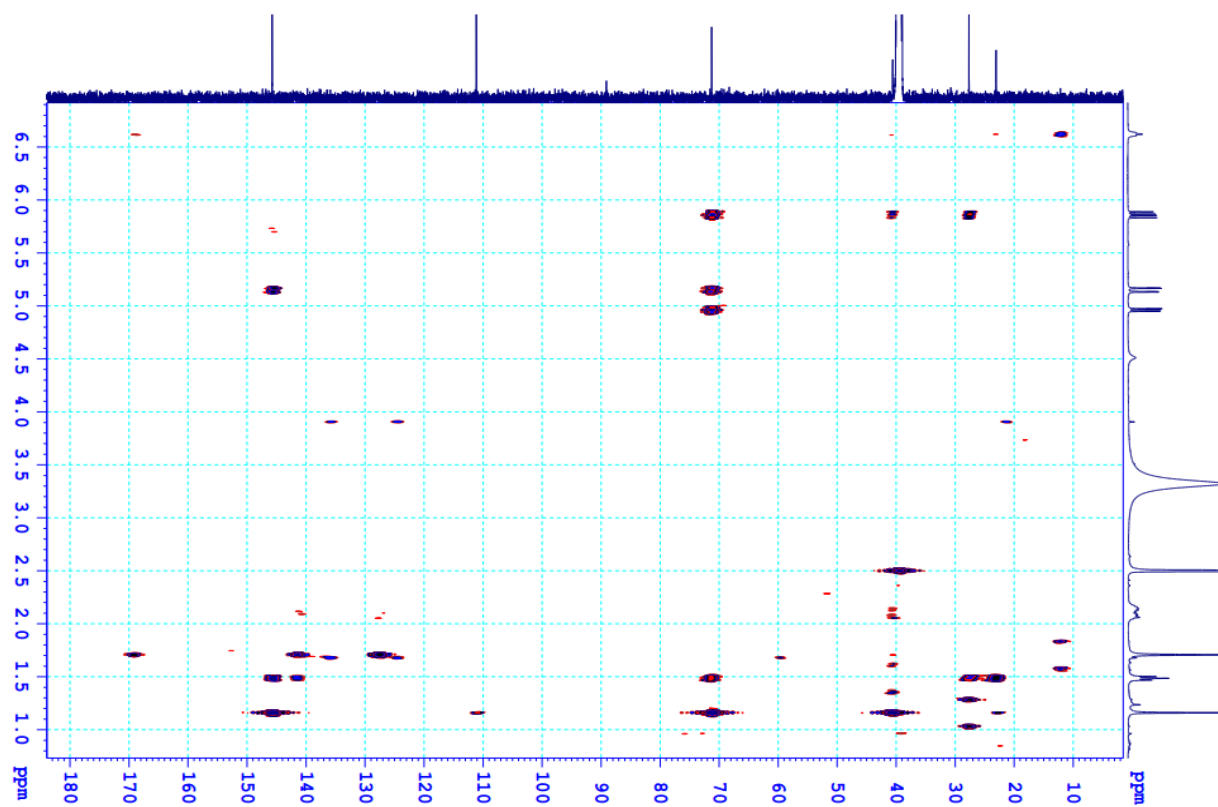


Figure S33. HMBC spectrum of compound 7

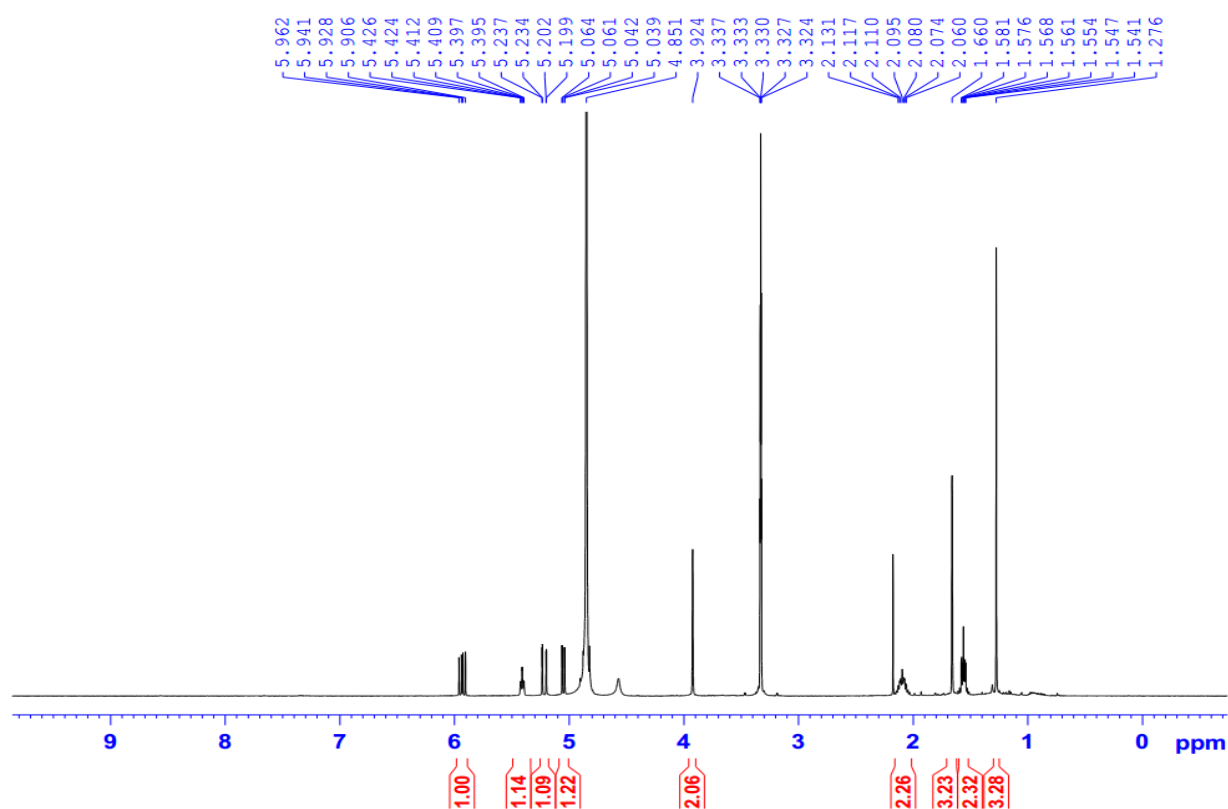


Figure S34. <sup>1</sup>H-NMR spectrum of compound **8**

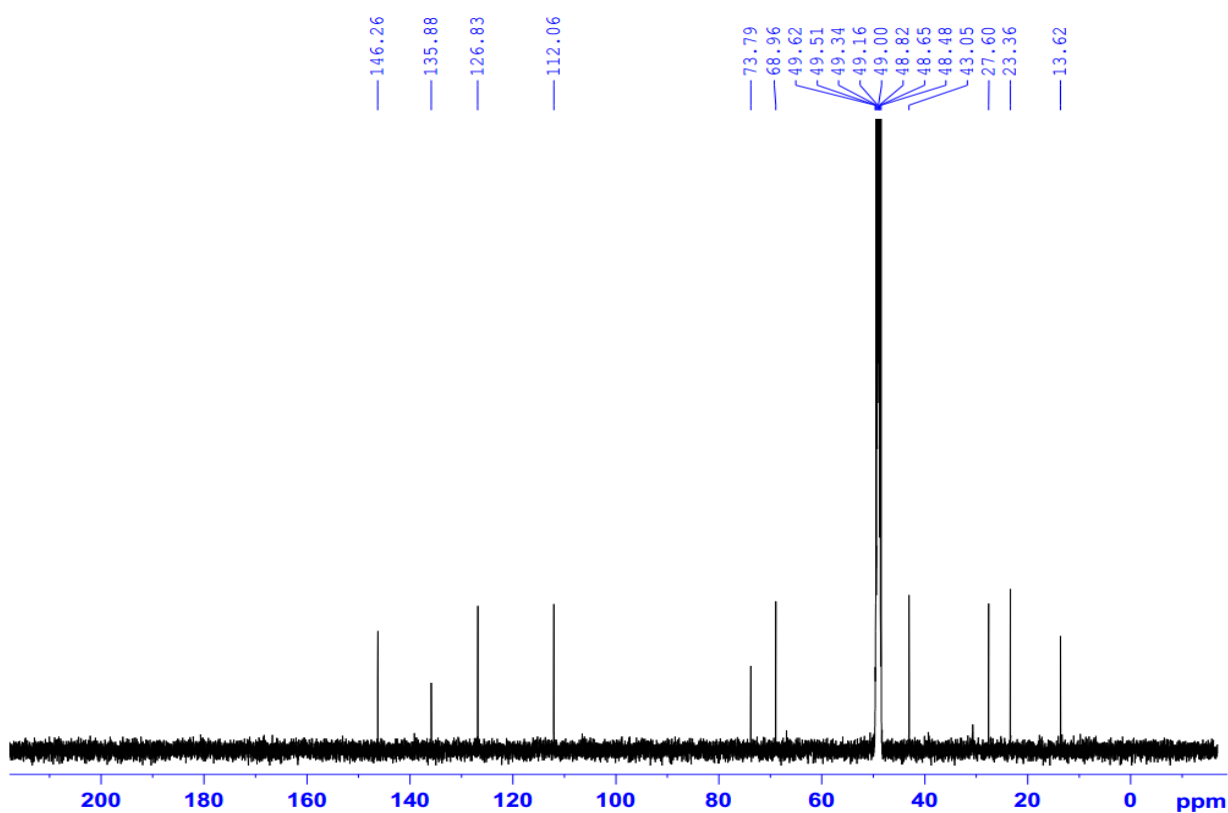
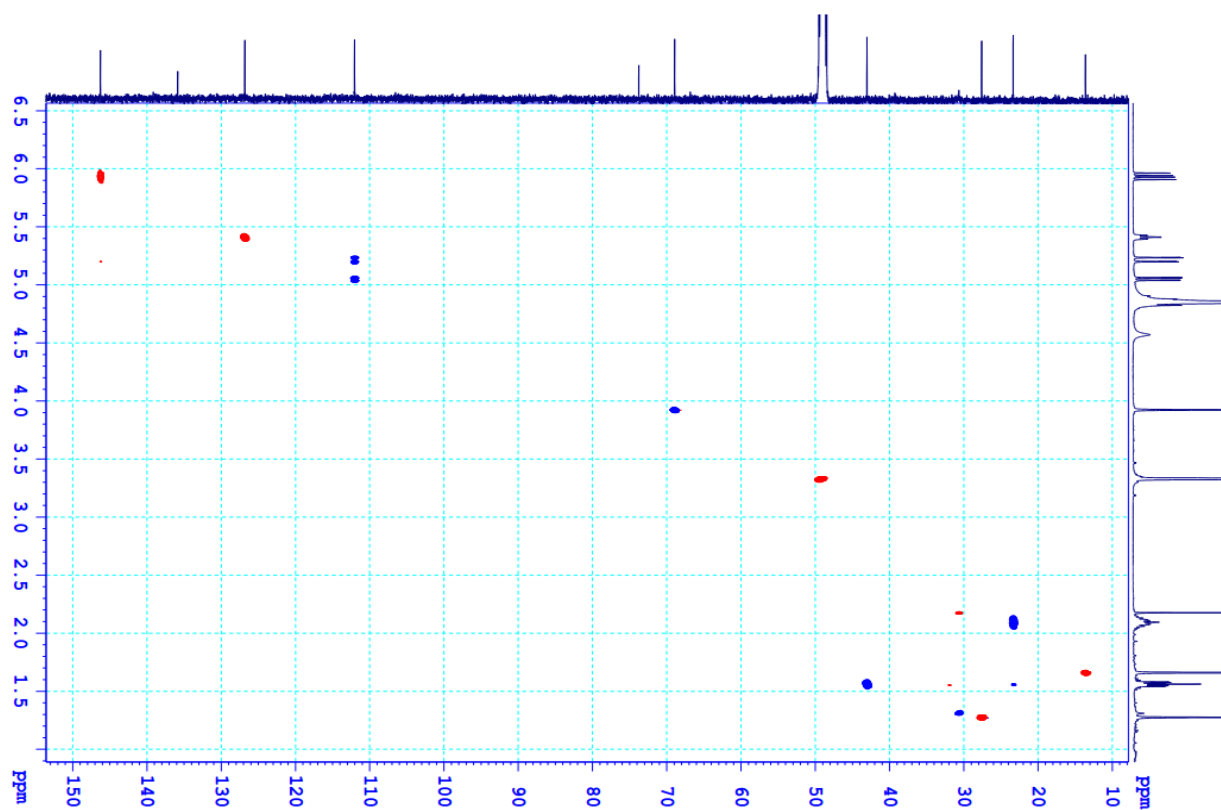
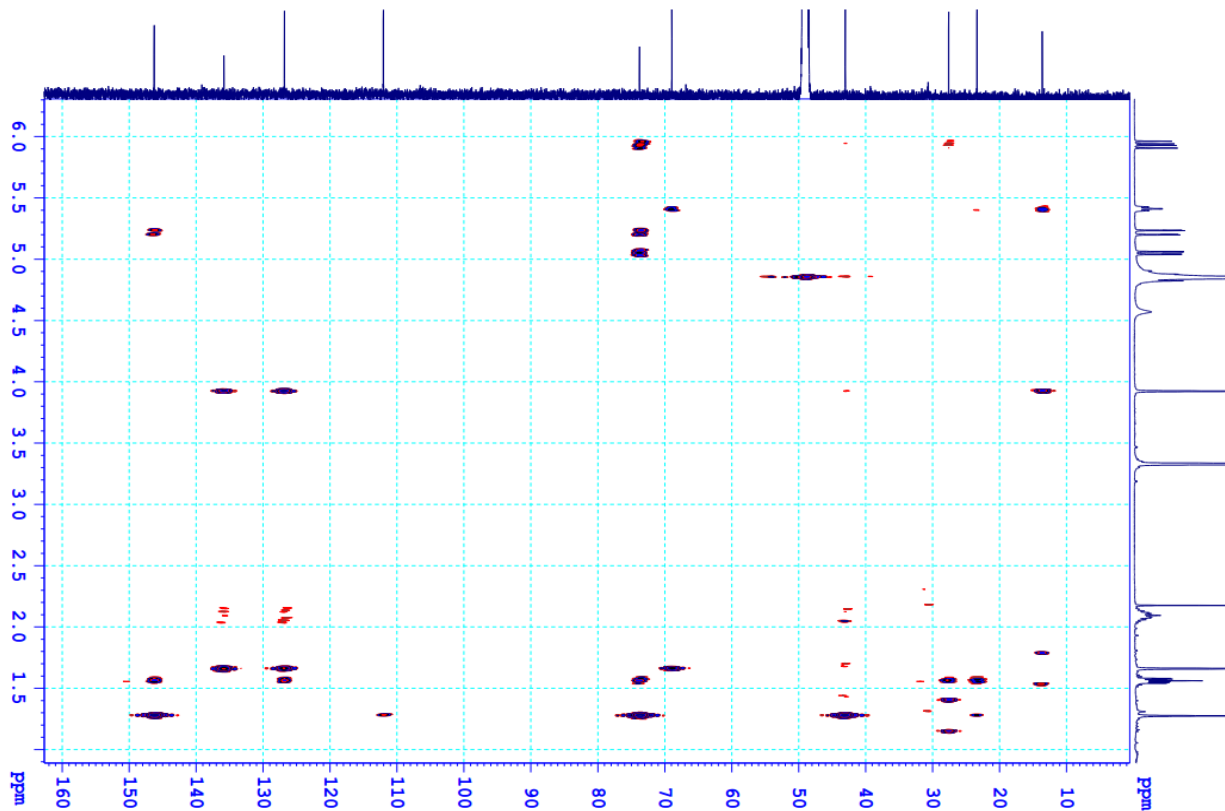


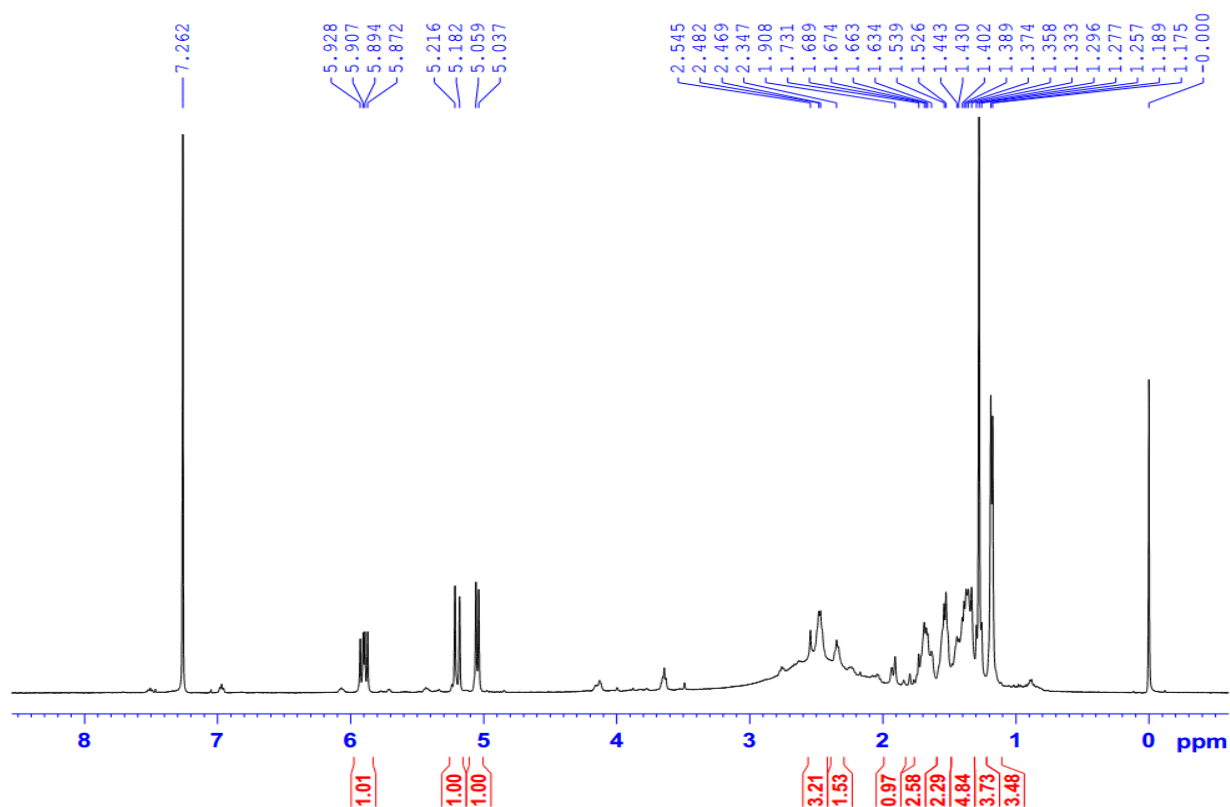
Figure S35. <sup>13</sup>C-NMR spectrum of compound **8**



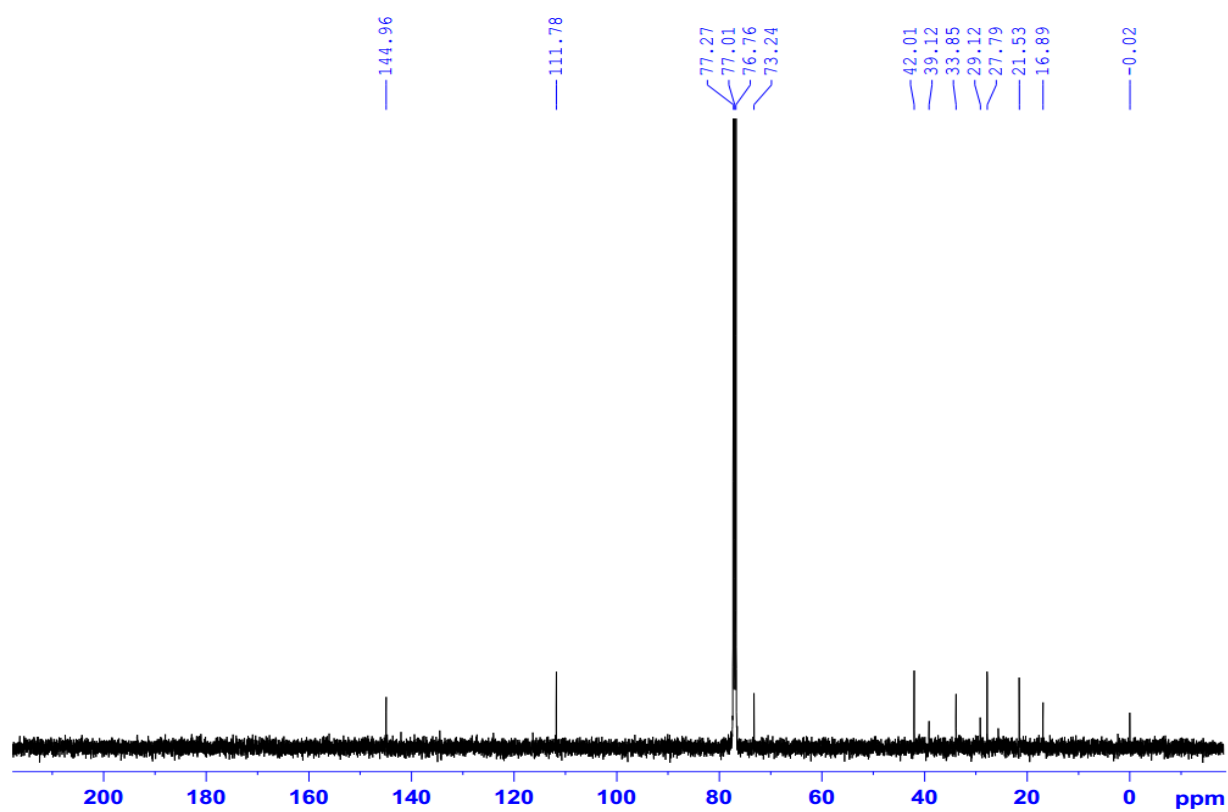
**Figure S36.** HSQC spectrum of compound **8**



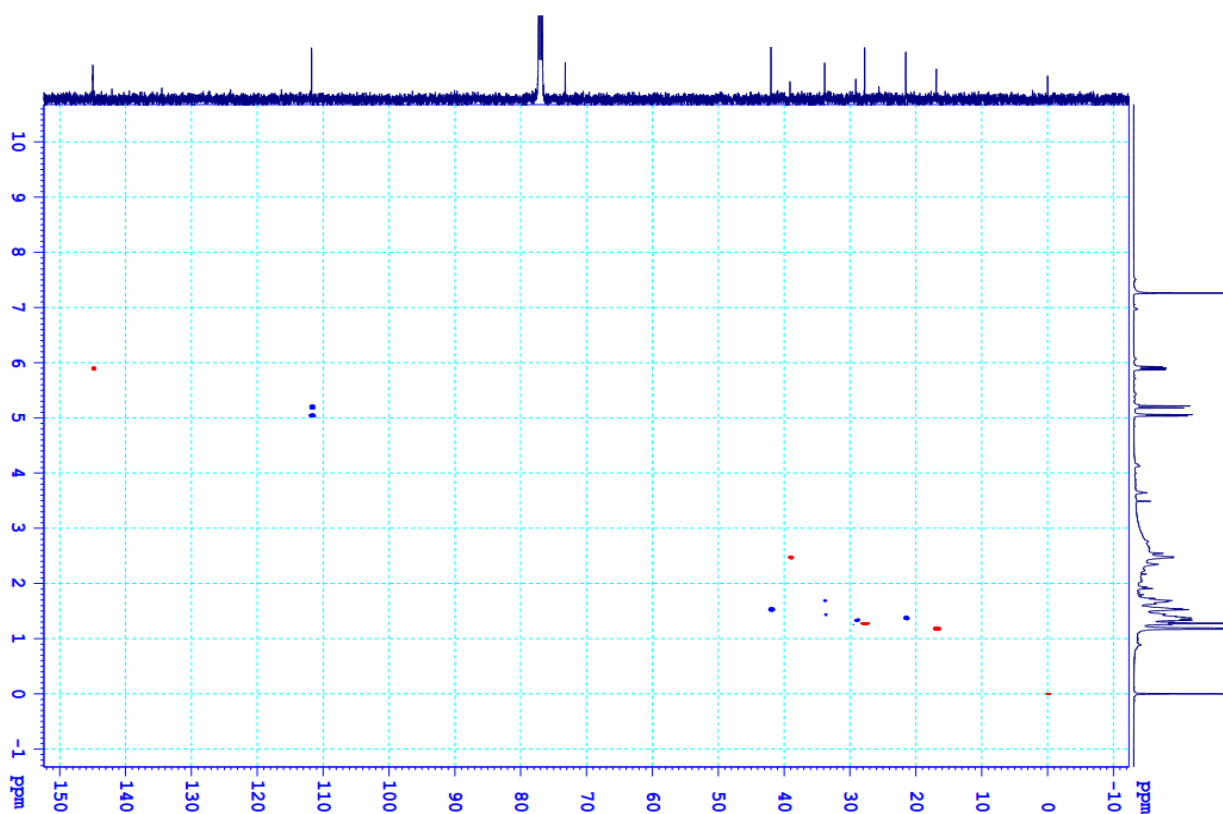
**Figure S37.** HMBC spectrum of compound **8**



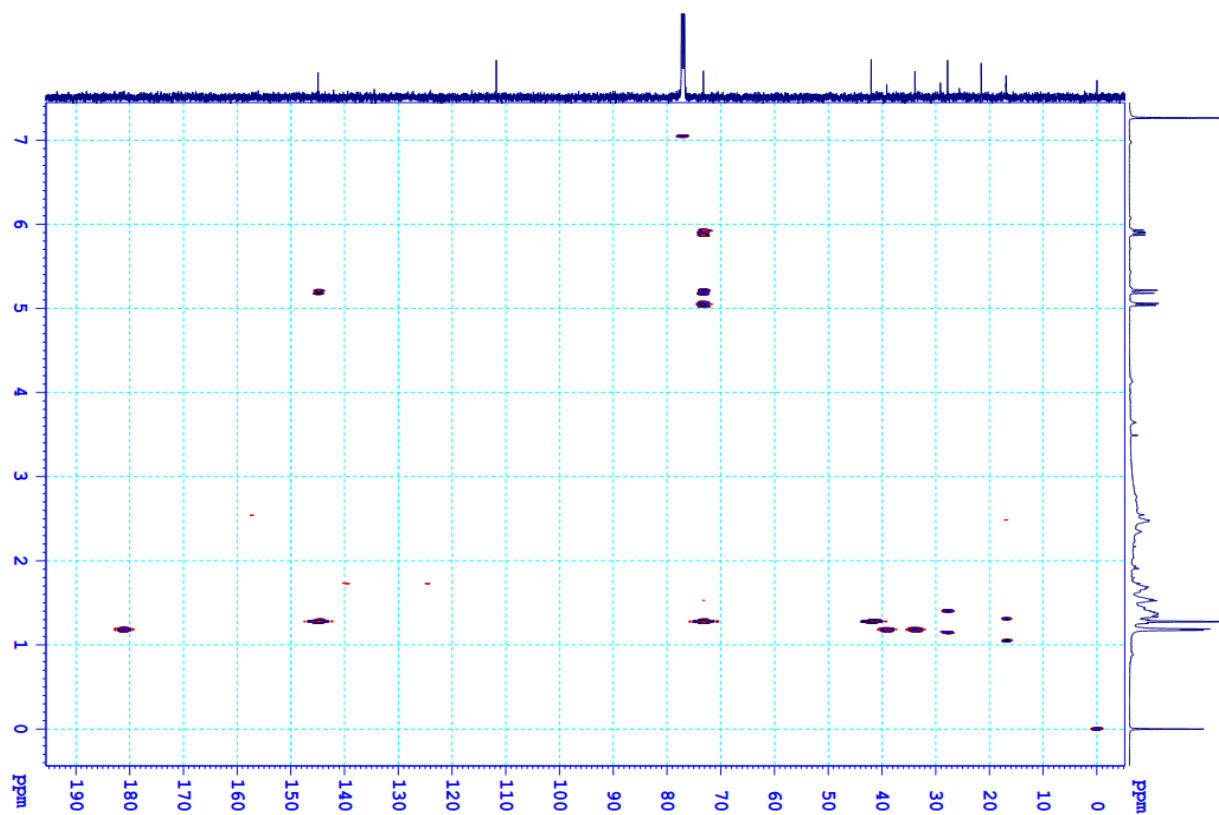
**Figure S38.** <sup>1</sup>H-NMR spectrum of compound **9**



**Figure S39.** <sup>13</sup>C-NMR spectrum of compound **9**



**Figure S40.** HSQC spectrum of compound **9**



**Figure S41.** HMBC spectrum of compound **9**