

## Supporting Information

### **Potent carbonic anhydrase I, II, IX and XII inhibition activity of novel primary benzenesulfonamides incorporating bis-ureido moieties**

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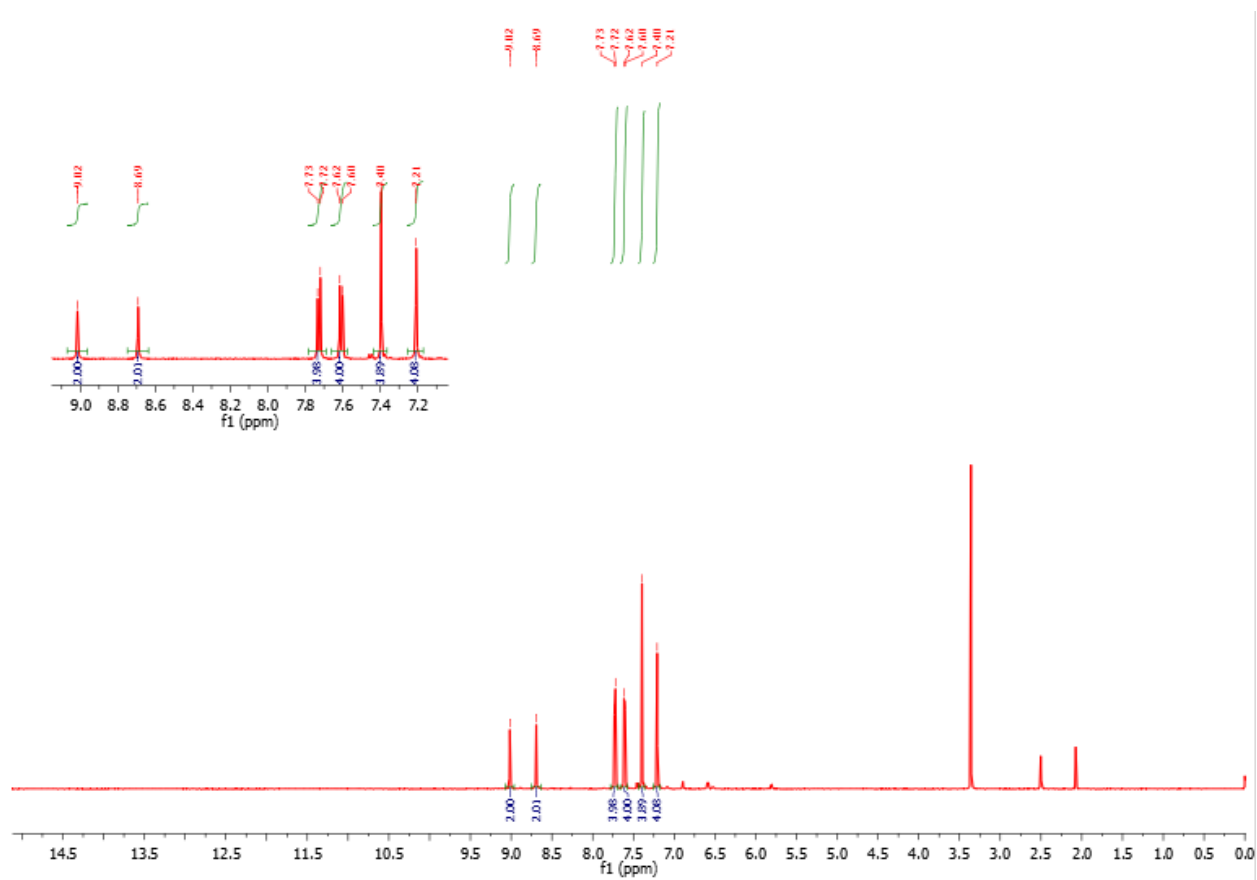
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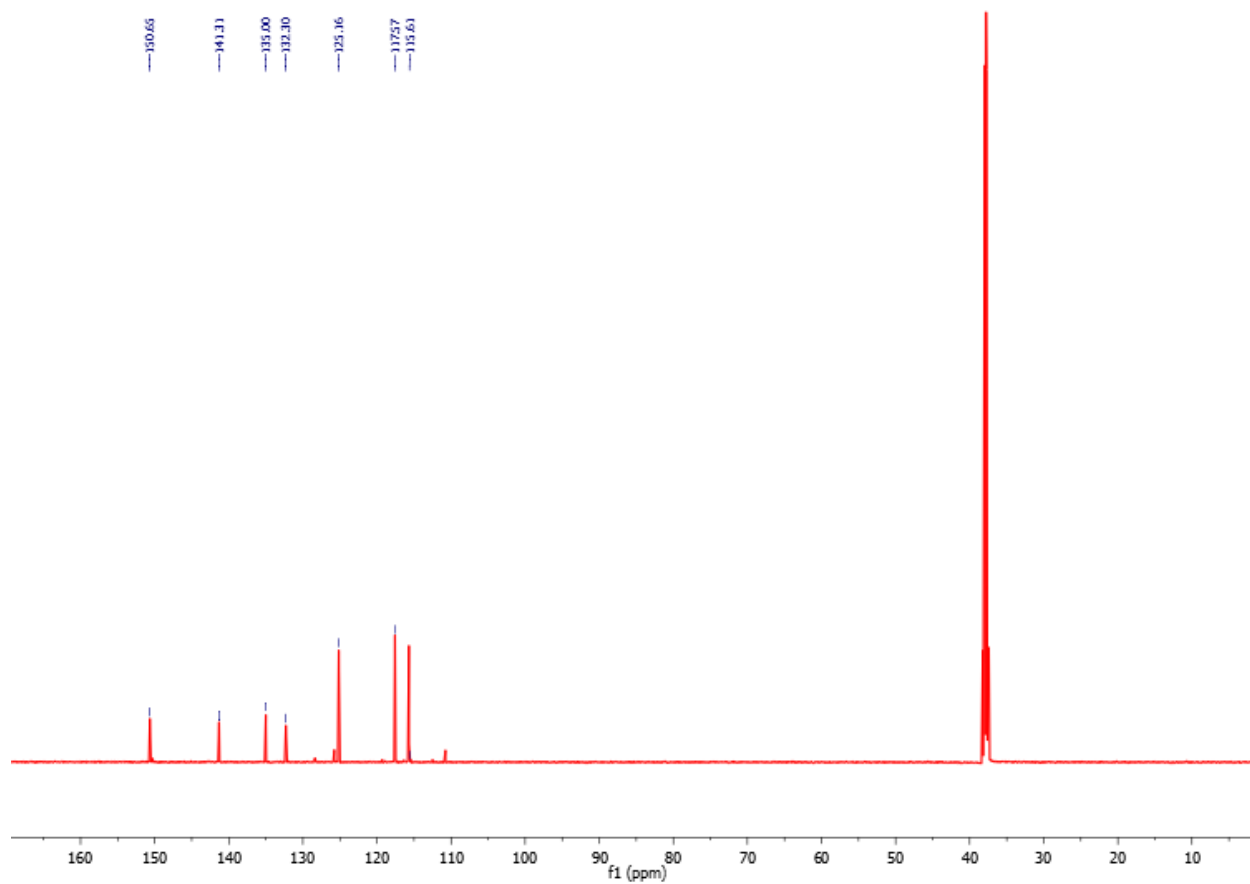
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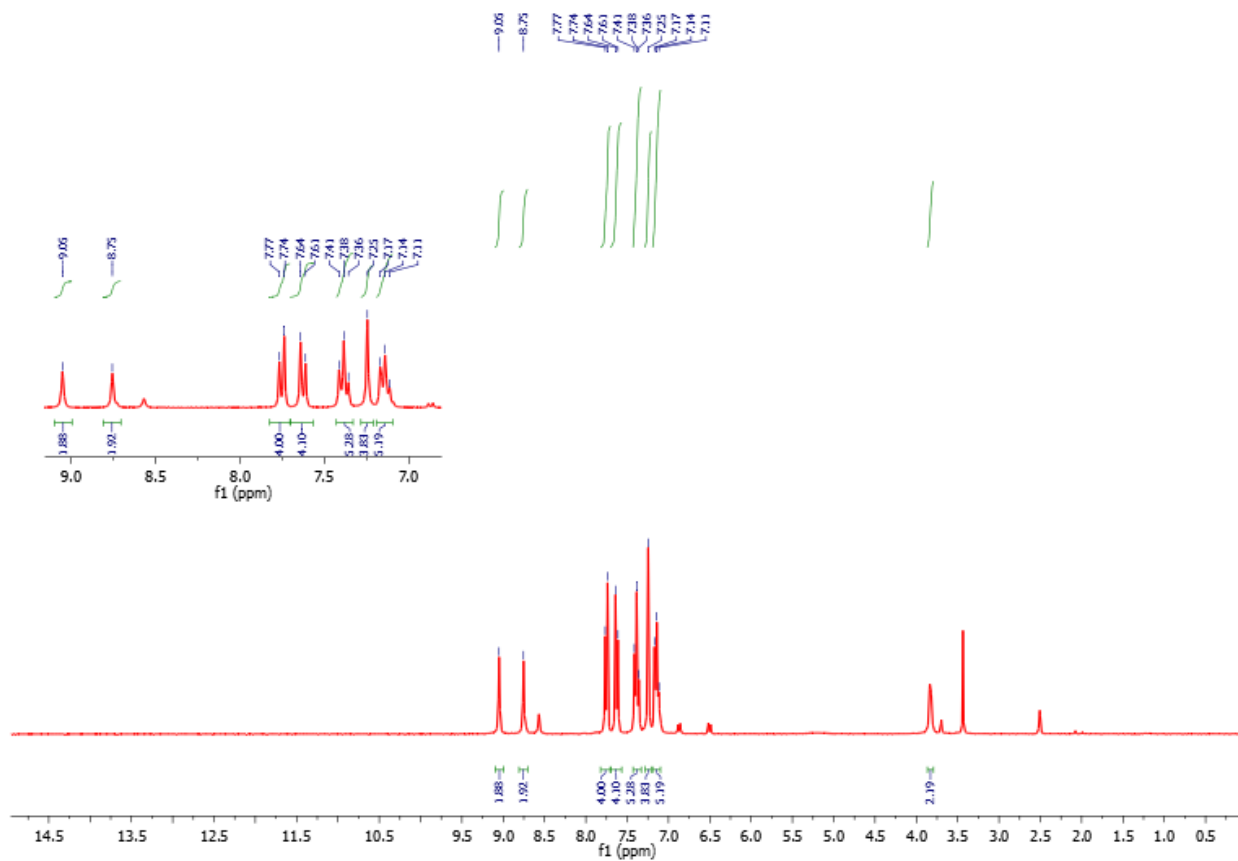
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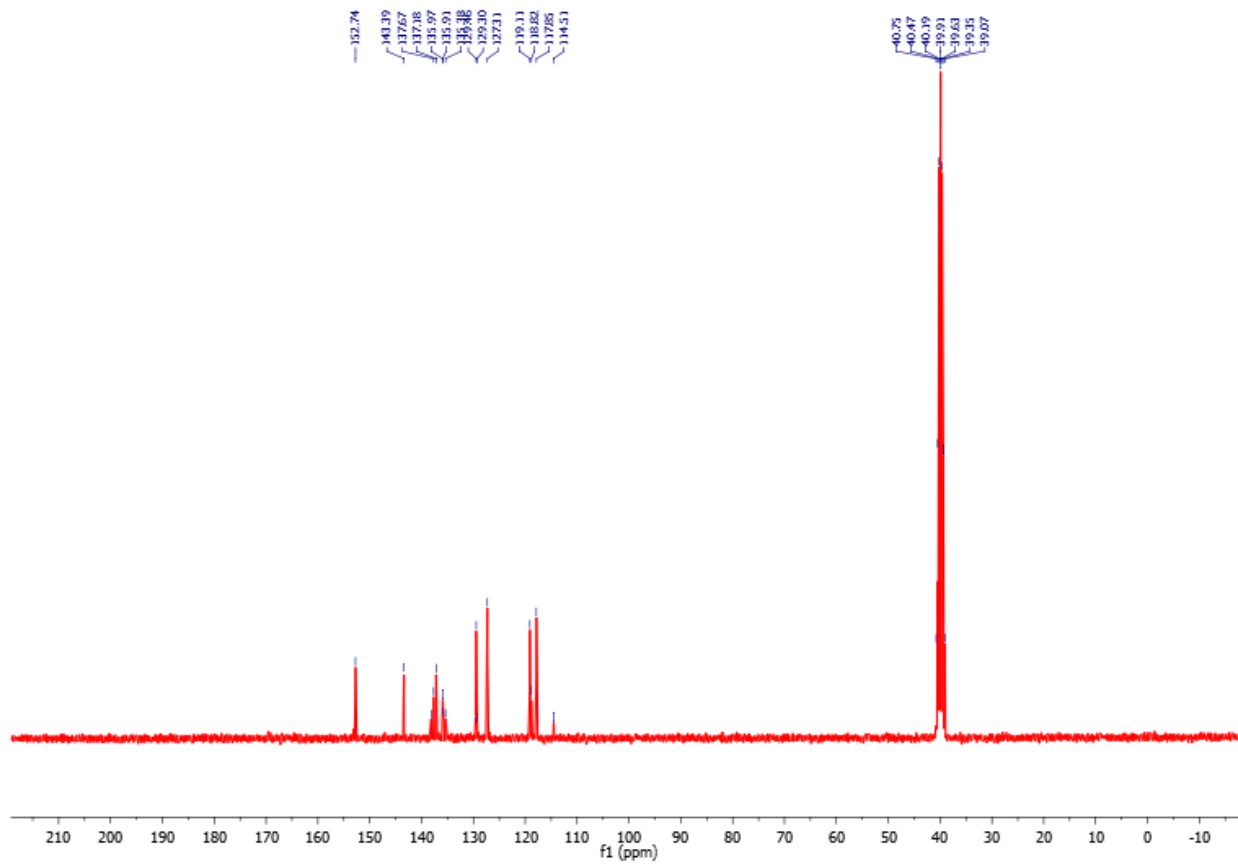
**Figure S1:** <sup>1</sup>H NMR spectrum of compound **8** (X1Y1) (500 MHz, in DMSO-d<sub>6</sub>).



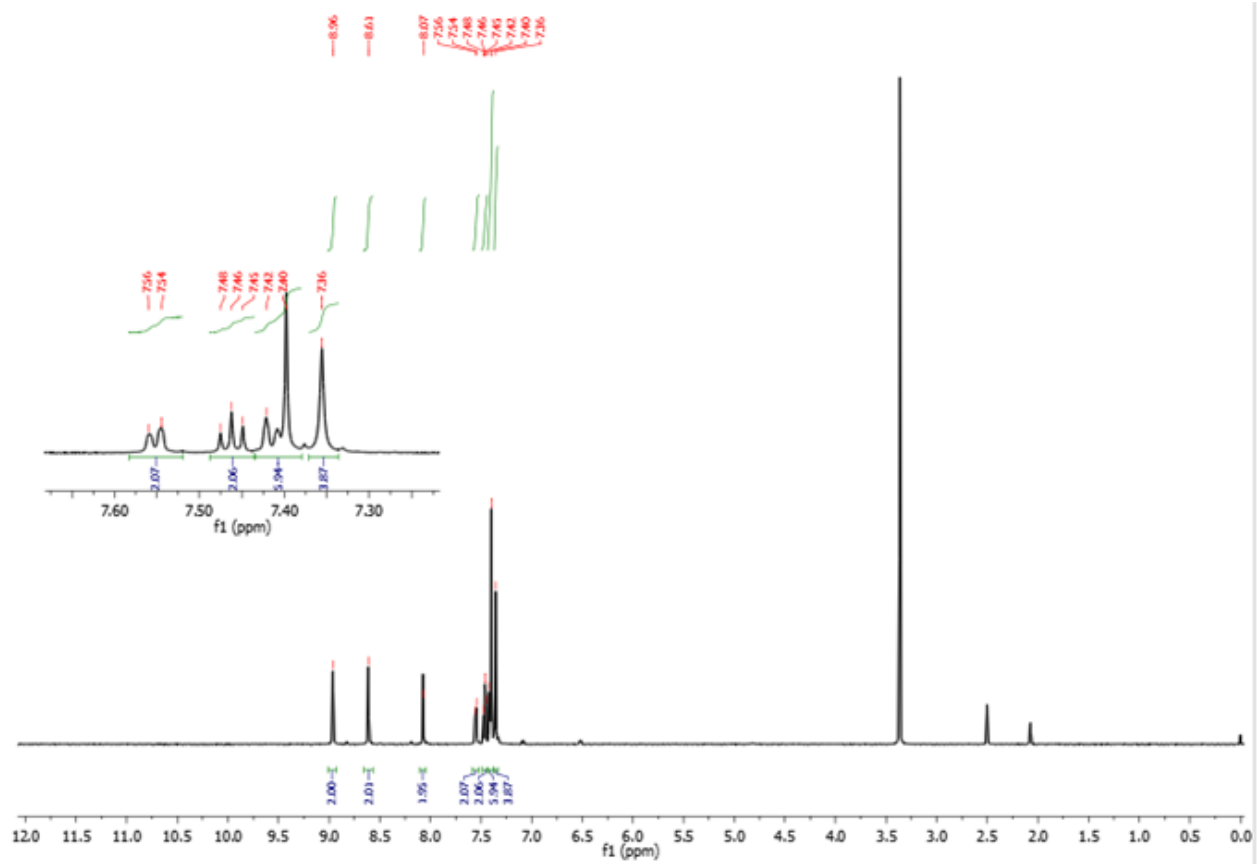
**Figure S2:** <sup>13</sup>C NMR spectrum of compound **8 (X1Y1)** (125 MHz, in DMSO-d<sub>6</sub>).



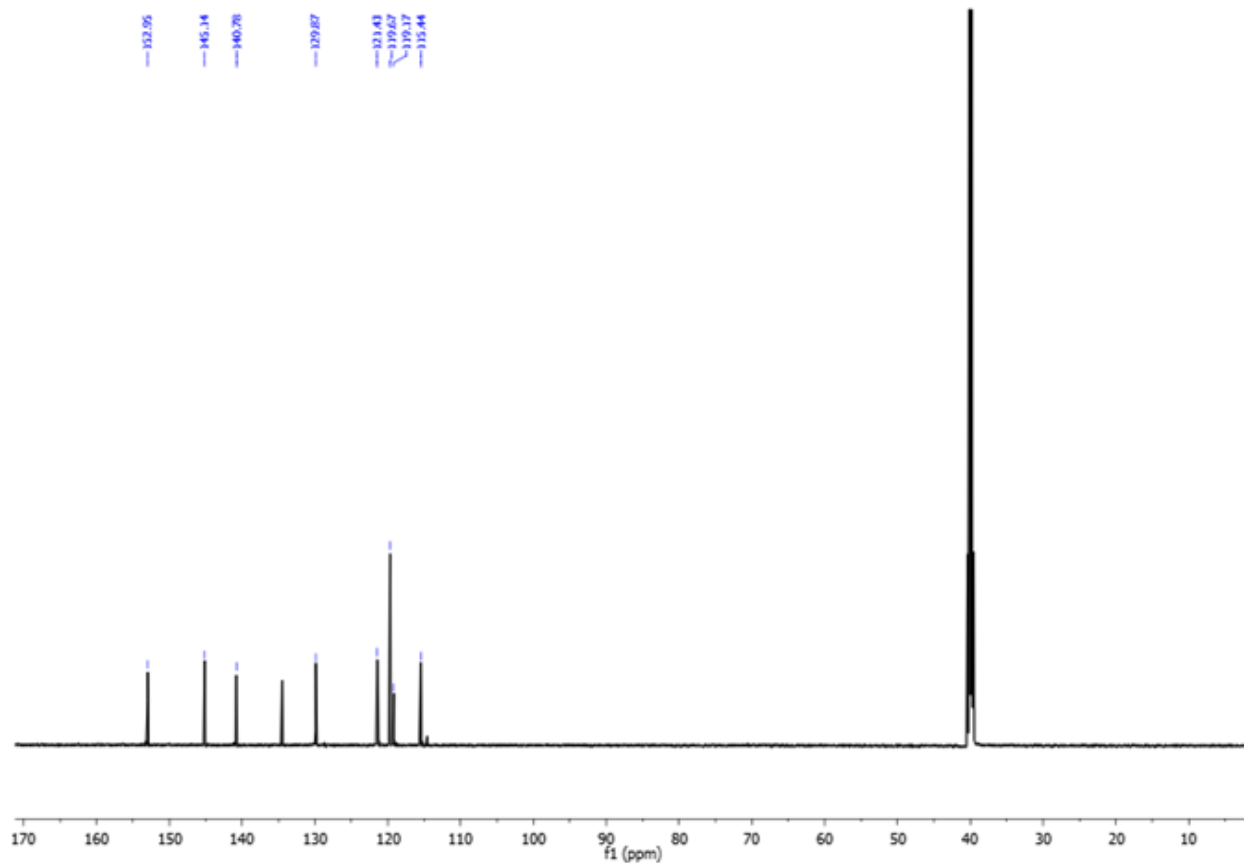
**Figure S3:** <sup>1</sup>H NMR spectrum of compound **9 (X1Y2)** (500 MHz, in DMSO-d<sub>6</sub>).



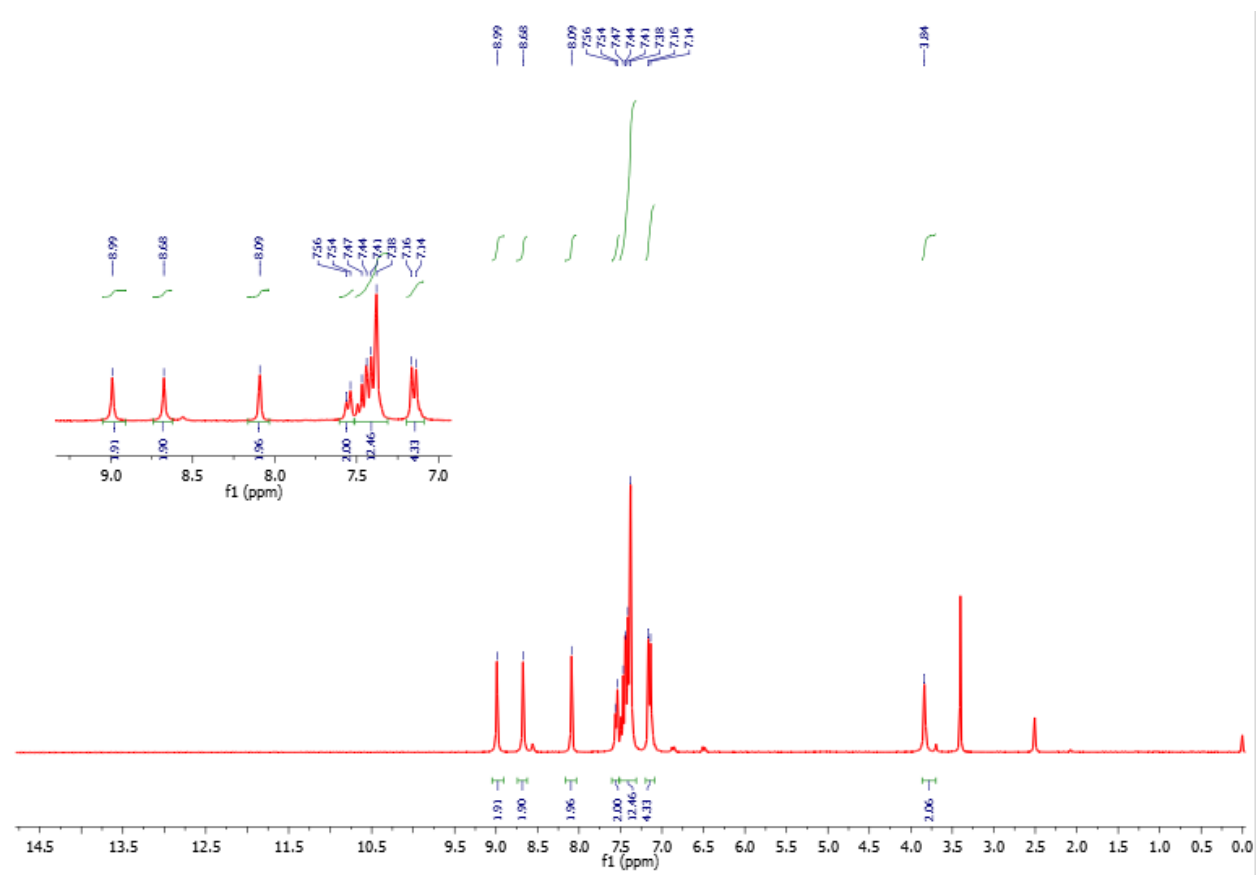
**Figure S4:** <sup>13</sup>C NMR spectrum of compound 9 (X1Y2) (125 MHz, in DMSO-d<sub>6</sub>).



**Figure S5:** <sup>1</sup>H NMR spectrum of compound 12 (X2Y1) (500 MHz, in DMSO-d<sub>6</sub>).

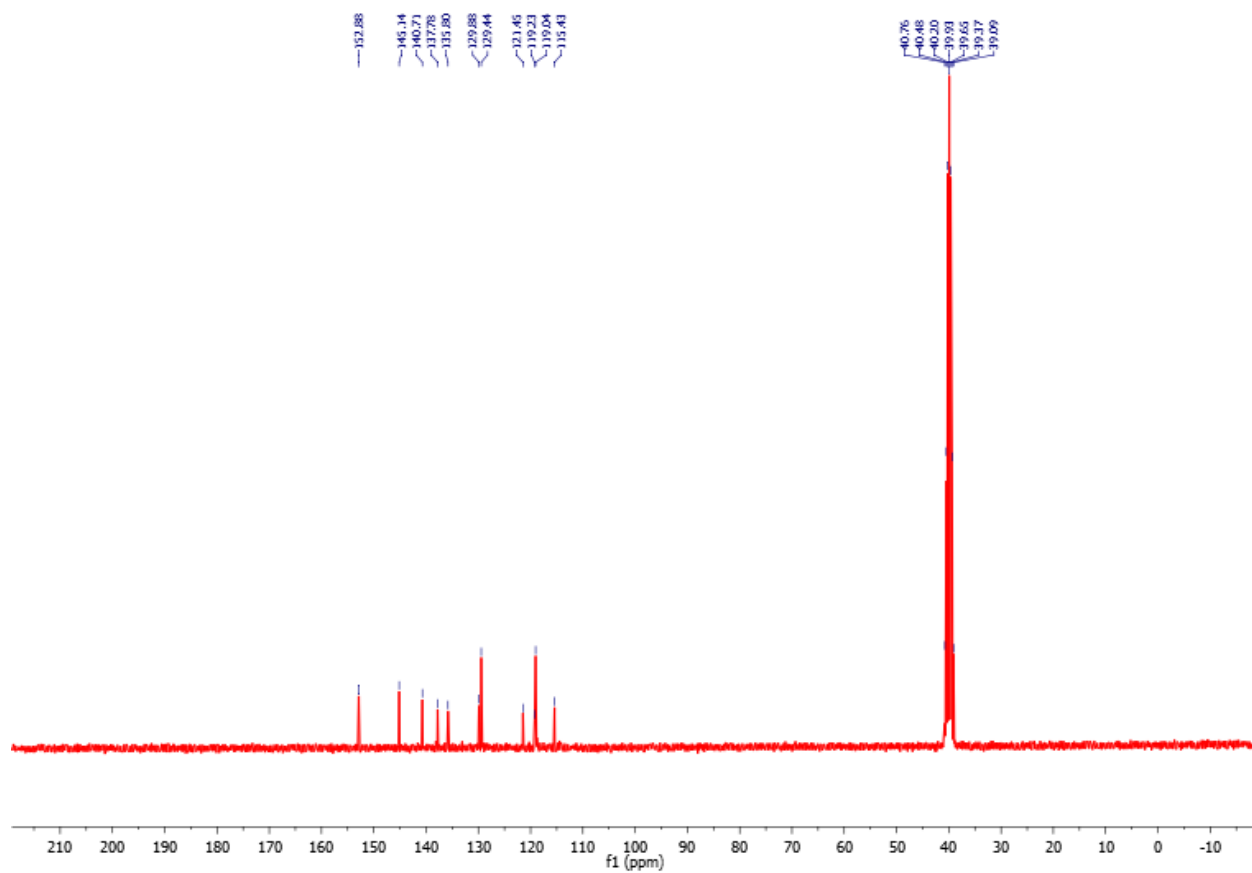


**Figure S6:** <sup>13</sup>C NMR spectrum of compound **12 (X2Y1)** (125 MHz, in DMSO-d<sub>6</sub>).

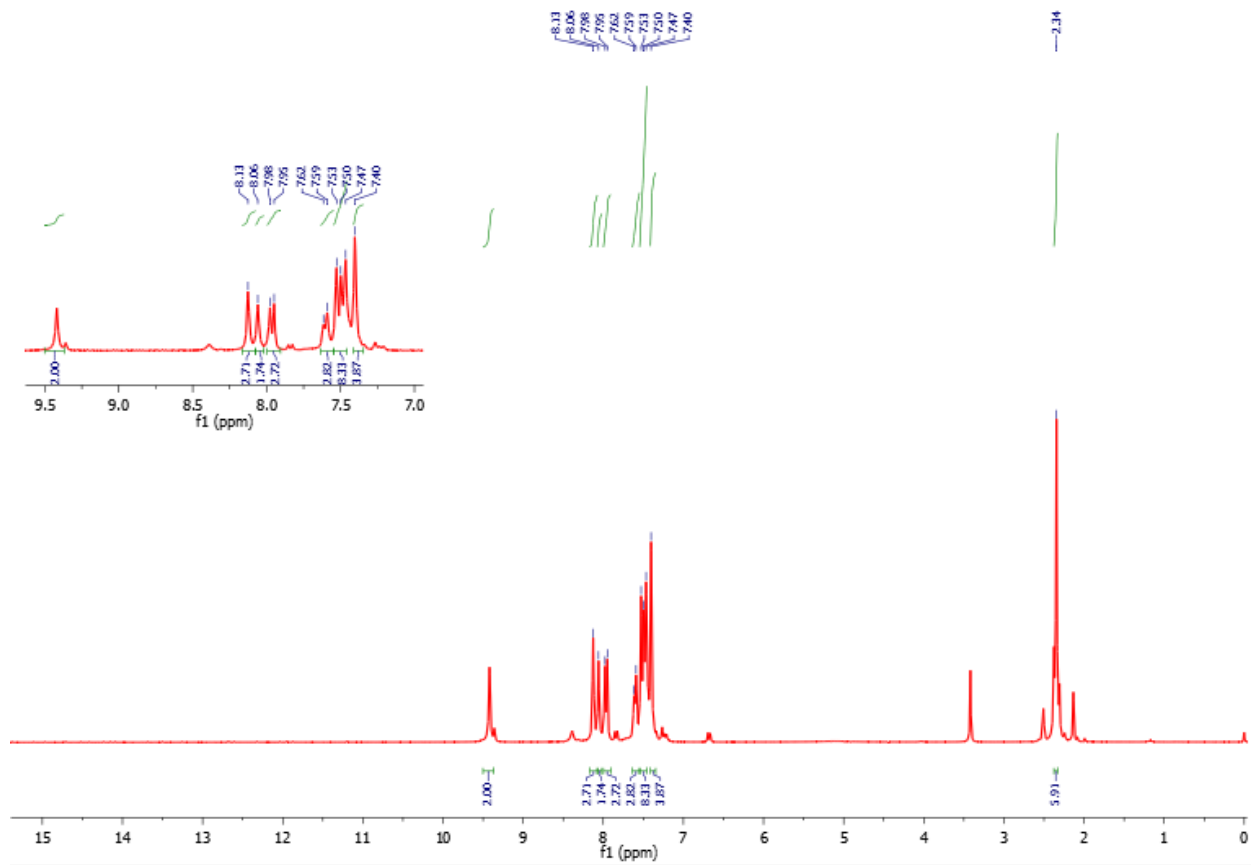


**Figure S7:** <sup>1</sup>H NMR spectrum of compound 13 (X<sub>2</sub>Y<sub>2</sub>) (500 MHz, in DMSO-d<sub>6</sub>).

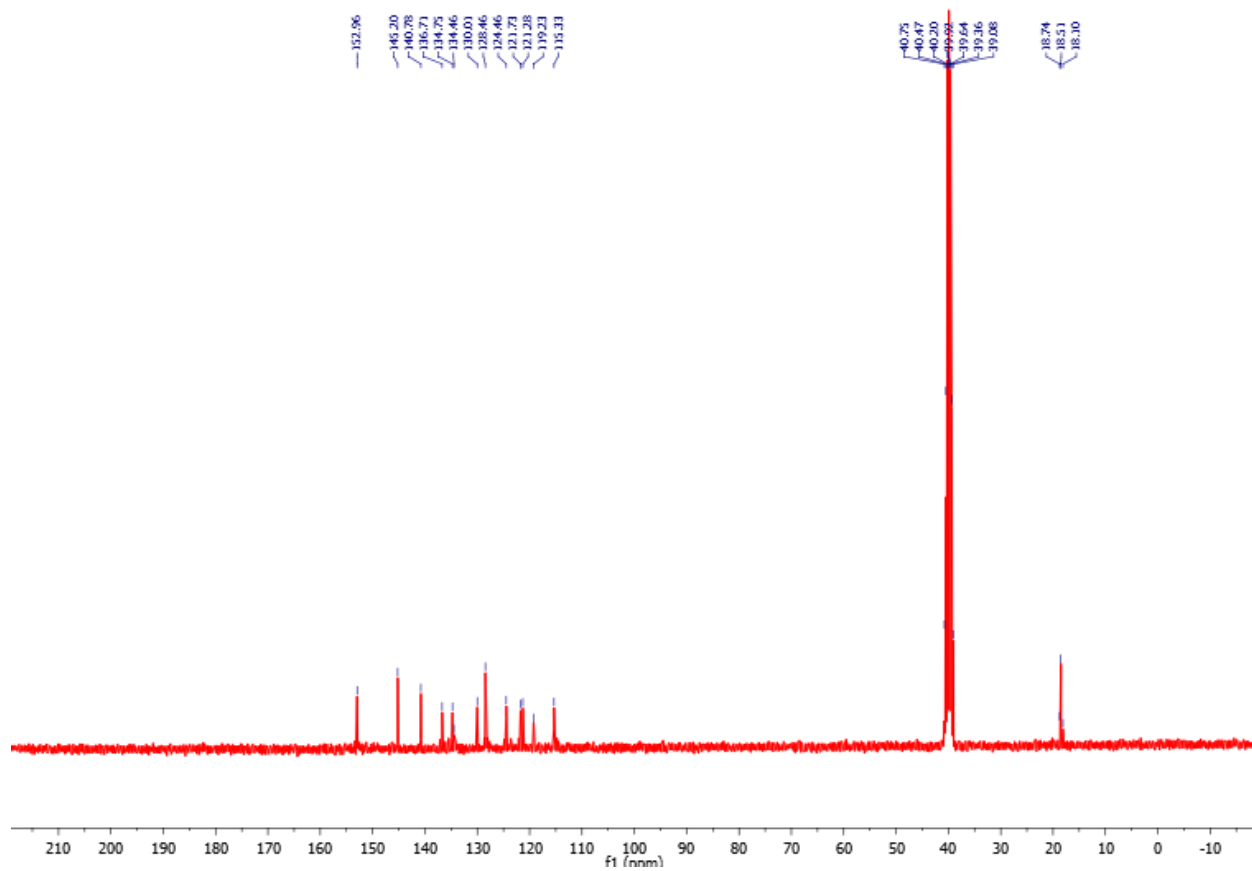




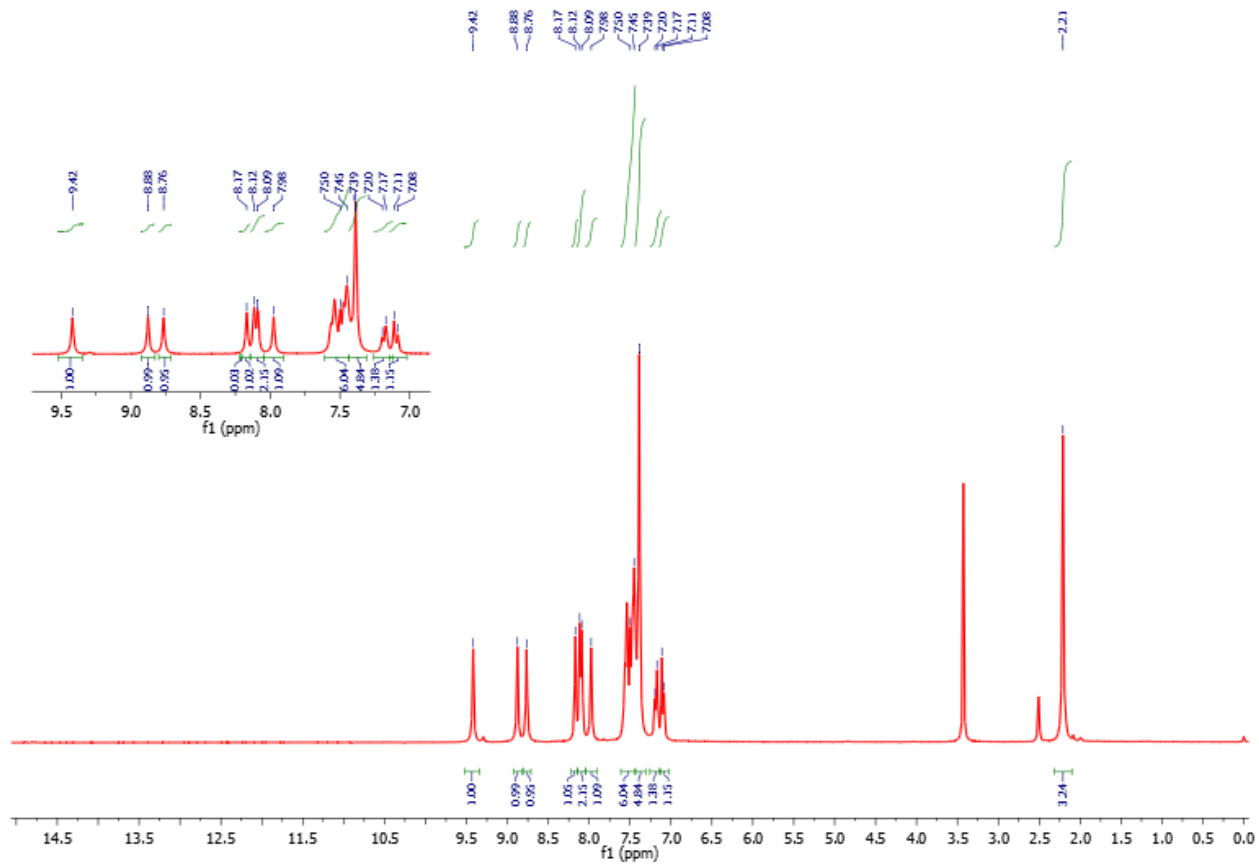
**Figure S8:**  $^{13}\text{C}$  NMR spectrum of compound **13** (X2Y2) (125 MHz, in  $\text{DMSO-d}_6$ ).



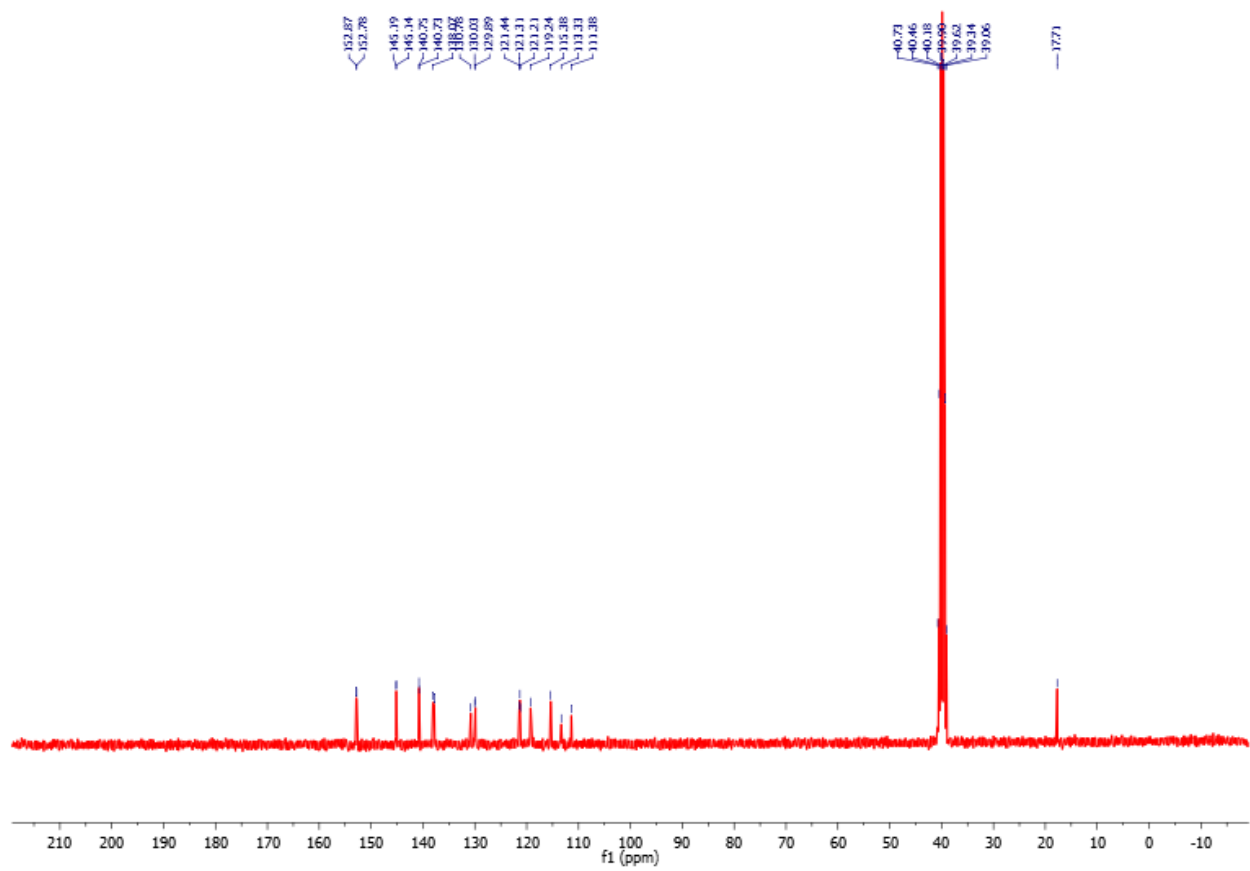
**Figure S9:** <sup>1</sup>H NMR spectrum of compound **14 (X<sub>2</sub>Y<sub>3</sub>)** (500 MHz, in DMSO-d<sub>6</sub>).



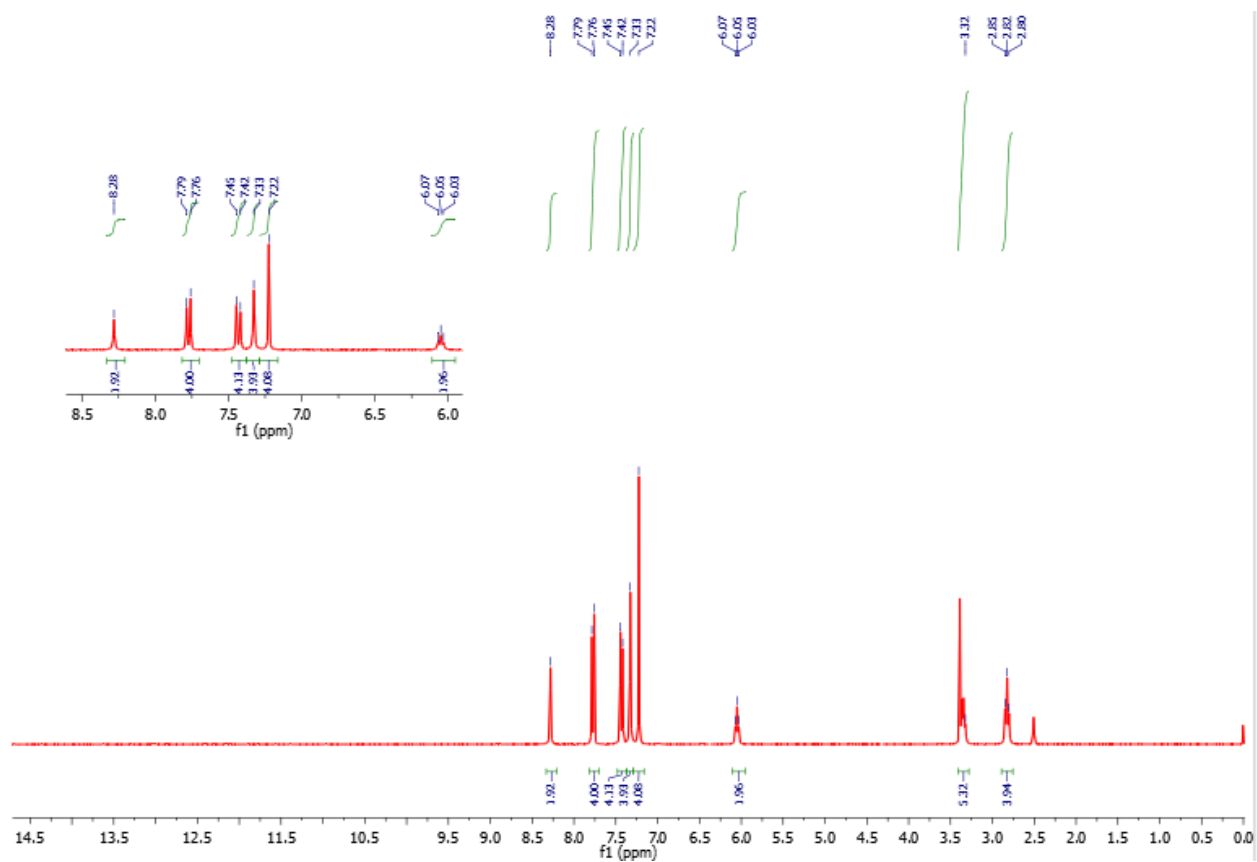
**Figure S10:**  $^{13}\text{C}$  NMR spectrum of compound **14** (X<sub>2</sub>Y<sub>3</sub>) (125 MHz, in DMSO-d<sub>6</sub>).



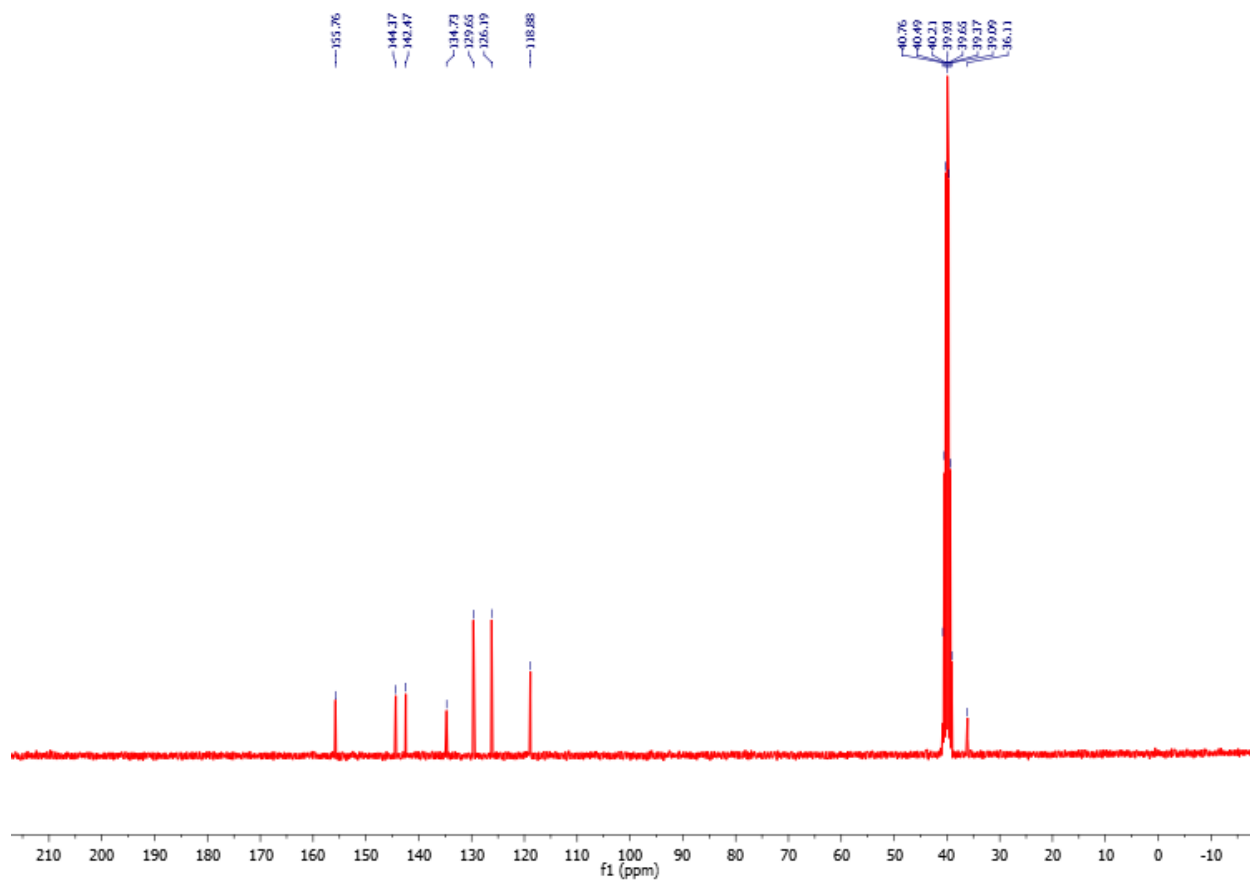
**Figure S11:** <sup>1</sup>H NMR spectrum of compound **15 (X<sub>2</sub>Y<sub>4</sub>)** (500 MHz, in DMSO-d<sub>6</sub>).



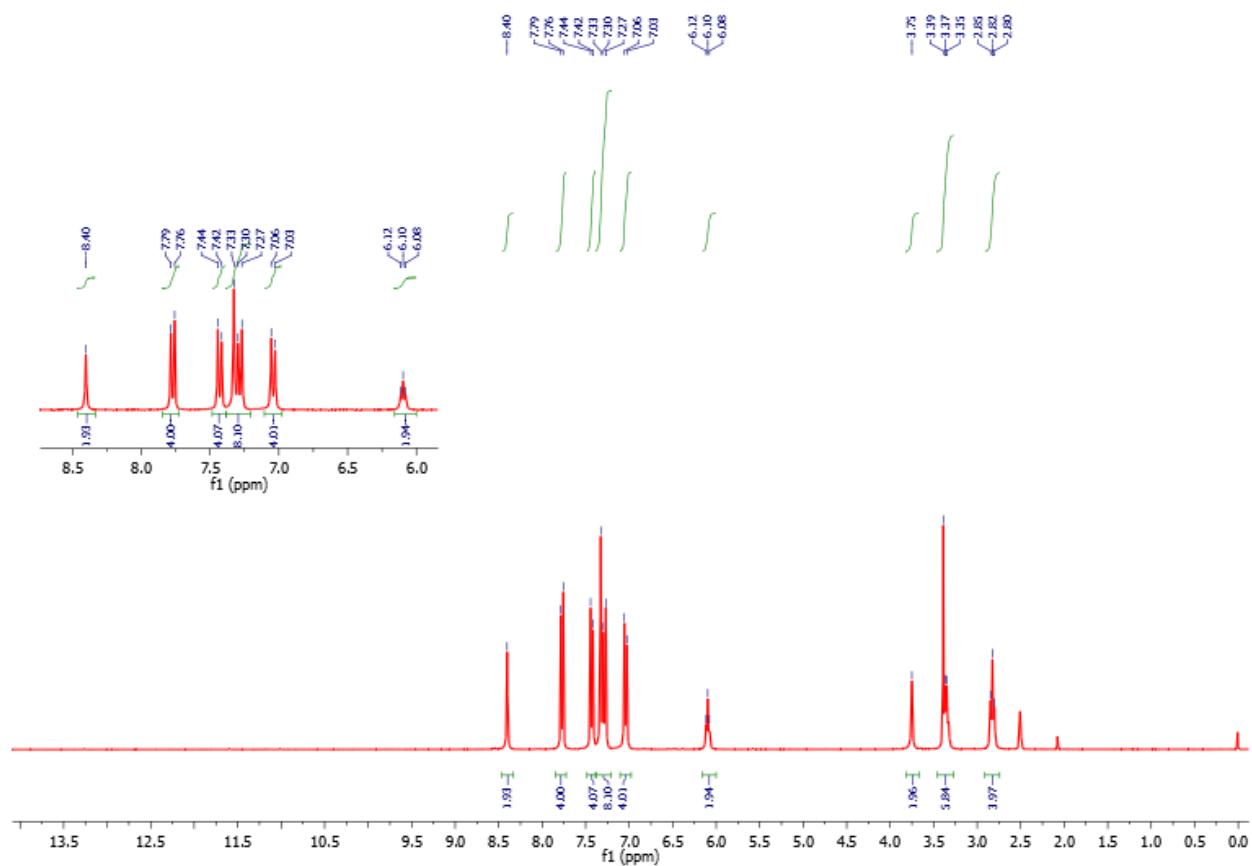
**Figure S12:**  $^{13}\text{C}$  NMR spectrum of compound 15 (X2Y4) (125 MHz, in DMSO- $d_6$ ).



**Figure S13:** <sup>1</sup>H NMR spectrum of compound 16 (X3Y1) (500 MHz, in DMSO-d<sub>6</sub>).

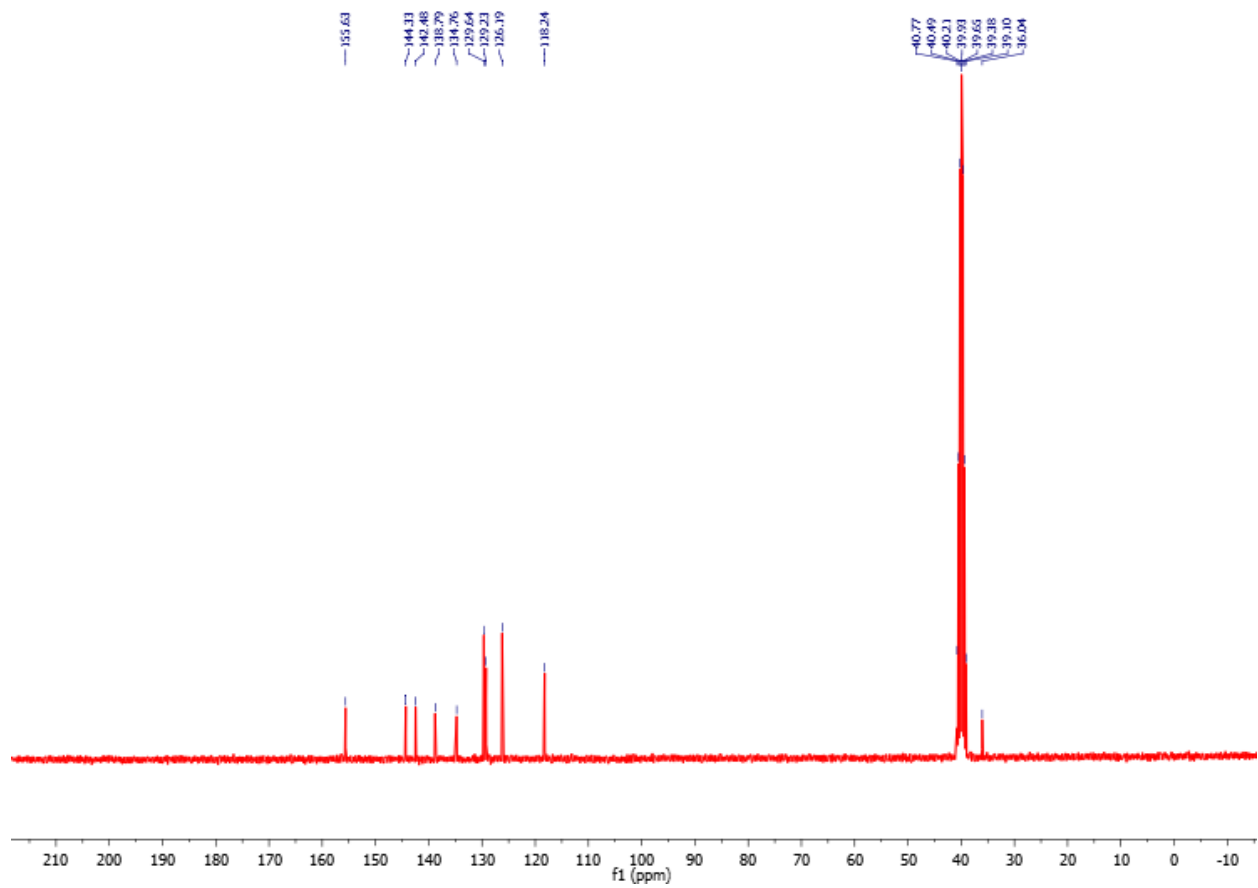


**Figure S14:**  $^{13}\text{C}$  NMR spectrum of compound 16 (X3Y1) (125 MHz, in  $\text{DMSO-d}_6$ ).

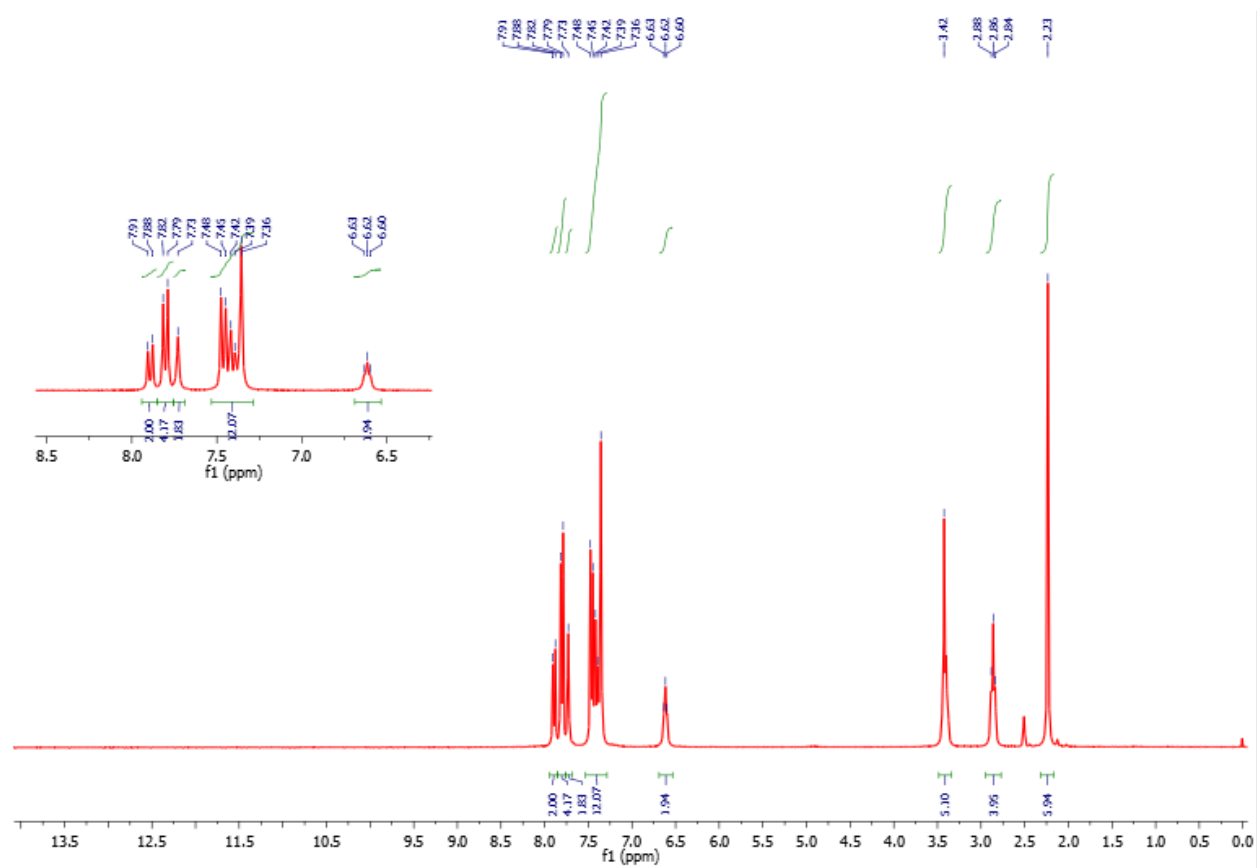


**Figure S15:** <sup>1</sup>H NMR spectrum of compound **17** (X3Y2) (500 MHz, in DMSO-d<sub>6</sub>).

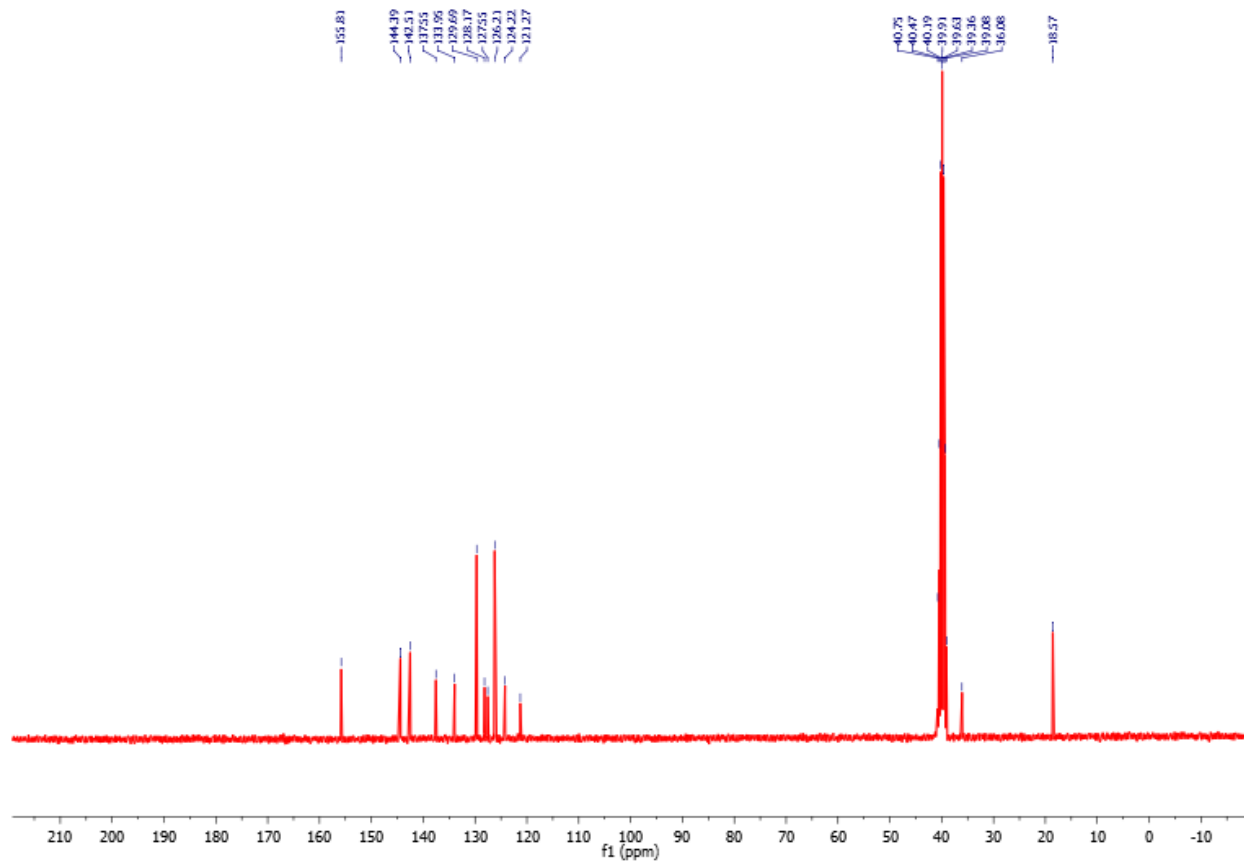




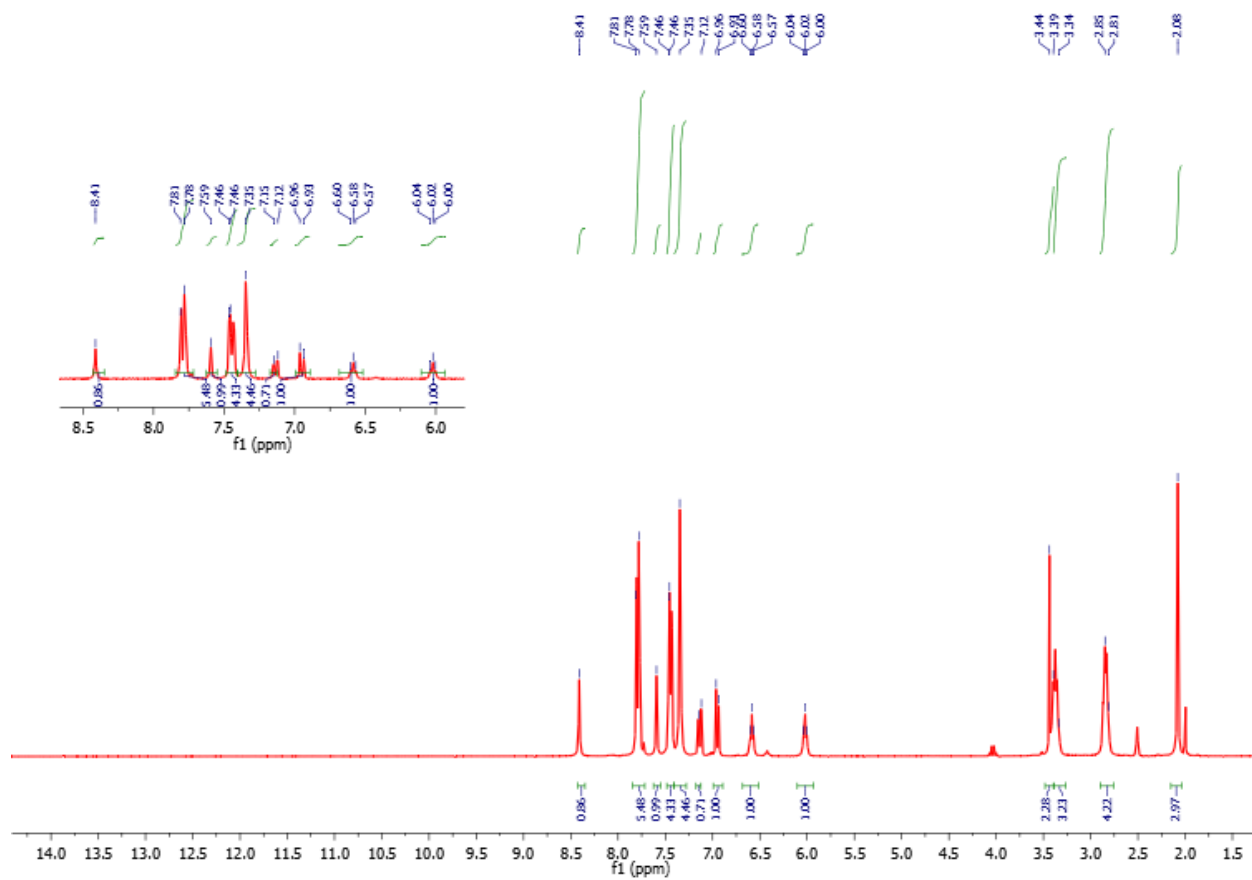
**Figure S16:** <sup>13</sup>C NMR spectrum of compound **17** (X3Y2) (125 MHz, in DMSO-d<sub>6</sub>).



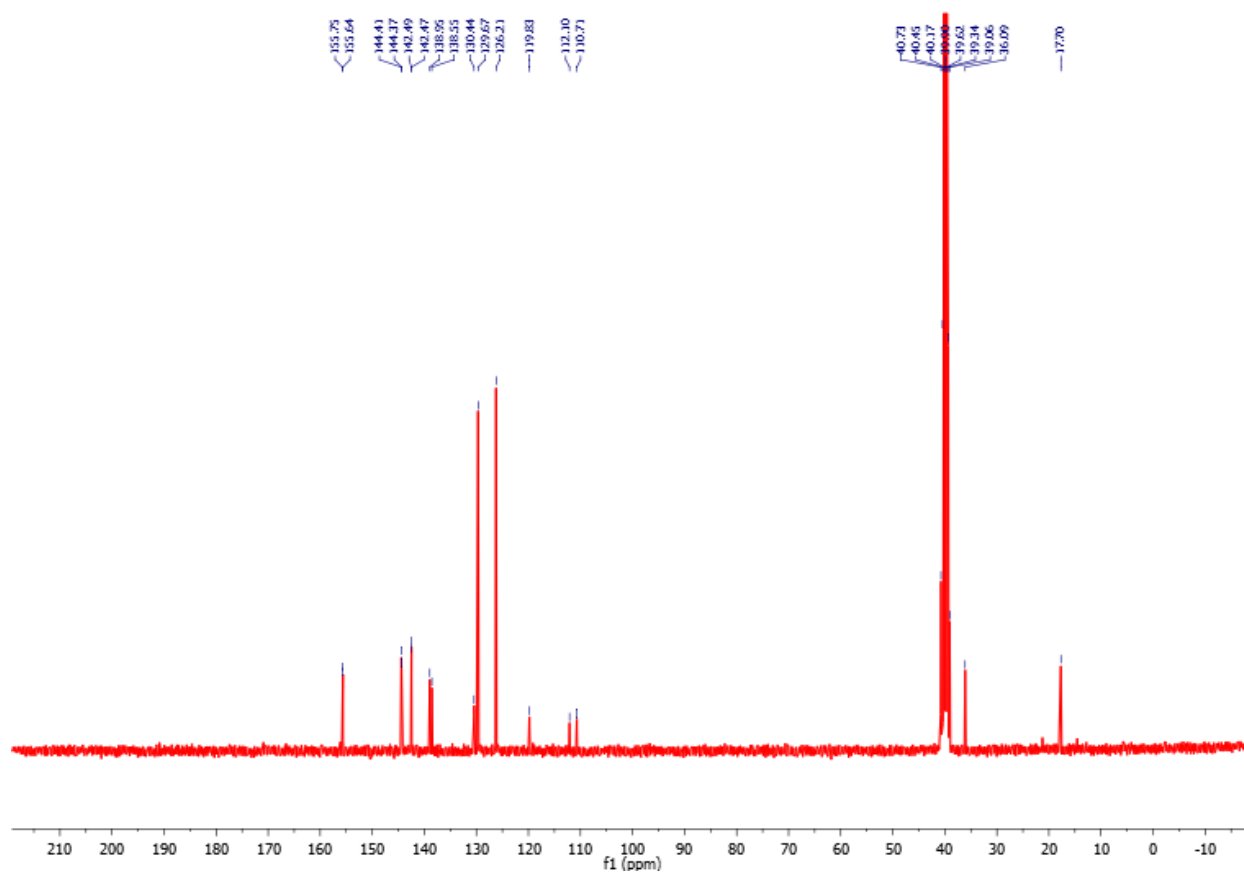
**Figure S17:**  $^1\text{H}$  NMR spectrum of compound **18** ( $\text{X}_3\text{Y}_3$ ) (500 MHz, in  $\text{DMSO-d}_6$ ).



**Figure S18:**  $^{13}\text{C}$  NMR spectrum of compound **18 (X3Y3)** (125 MHz, in  $\text{DMSO-d}_6$ ).



**Figure S19:** <sup>1</sup>H NMR spectrum of compound **19 (X3Y4)** (500 MHz, in DMSO-d<sub>6</sub>).



**Figure S20:**  $^{13}\text{C}$  NMR spectrum of compound **19** (X3Y4) (125 MHz, in DMSO- $d_6$ ).