

## SUPPORTING INFORMATION

### EXPERIMENTAL SECTION

The reagents employed were of analar grade and the solvents used were purified and dried according to the standard procedure.<sup>S1</sup> Melting points were measured in a RAAGA melting point apparatus. Infrared spectra were measured as KBr pellets on a Jasco FT-IR 400-4000 cm<sup>-1</sup> range. Electronic spectra of the compounds were recorded using JASCO 600 spectrophotometer. <sup>1</sup>H and <sup>13</sup>C NMR spectra were recorded at room temperature with a Bruker 400 MHz instrument, chemical shifts were relative to tetramethylsilane (TMS) and expressed in parts per million (ppm). The metal precursor [Ru(acac)<sub>2</sub>(CH<sub>3</sub>CN)<sub>2</sub>] and the ligands **HL**<sup>1</sup> and **HL**<sup>2</sup> were prepared according to the reported procedure.<sup>S2,S3</sup> Mass spectra were recorded with a Bruker Q-TOF high-resolution mass spectrometer.

### Spectral data of the products

**A1:** <sup>1</sup>H NMR (CDCl<sub>3</sub>, δ ppm): 9.10 (d, *J* = 6.4 Hz, 1H), 8.21 (s, 1H), 8.07 (s, 1H), 7.81 (d, *J* = 5.6 Hz, 2H), 7.71-7.75 (t, *J* = 7.2 Hz, 2H), 7.57-7.63 (m, 5H), 4.88 (s, 1H), 4.70 (d, *J* = 10.4 Hz, 3H), 4.42 (s, 2H), 4.12 (s, 4H), 4.01 (s, 2H), 3.25 (d, *J* = 6.8 Hz, 1H), 3.10-3.14 (t, *J* = 6.8 Hz, 1H), 2.31 (s, 3H). <sup>13</sup>C NMR (CDCl<sub>3</sub>, δ ppm): 190.5, 136.0, 127.8, 127.7, 127.5, 126.2, 125.0, 124.8, 124.6, 124.3, 124.0, 122.0, 85.0, 72.3, 69.8, 69.6, 62.0, 61.4, 29.7. ESI: m/z calcd. for C<sub>34</sub>H<sub>27</sub>NO<sub>2</sub>Fe: 537.4287; Found: 537.1760 [M]<sup>+</sup>.

**A2:** <sup>1</sup>H NMR (CDCl<sub>3</sub>, δ ppm): 9.10 (s, 1H), 8.14 (d, *J* = 48 Hz, 1H), 7.62-7.81 (m, 8H), 4.87 (s, 1H), 4.69-4.76 (t, *J* = 16 Hz, 2H), 4.42 (s, 1H), 4.15 (d, *J* = 20 Hz, 2H), 4.02 (s, 2H), 3.20 (d, *J* = 56 Hz, 1H), 1.47-1.51 (t, *J* = 8 Hz, 3H). <sup>13</sup>C NMR (CDCl<sub>3</sub>, δ ppm): 202.2, 137.3, 128.7, 126.9, 126.8, 125.5, 124.0, 79.2, 72.3, 69.8, 69.6, 53.5, 27.4.

**A3:** <sup>1</sup>H NMR (CDCl<sub>3</sub>, δ ppm): 8.11 (s, 1H), 7.97 (s, 1H), 7.96-7.83 (t, *J* = 7.2 Hz, 1H), 7.63 (d, *J* = 8.4 Hz, 1H), 7.34-7.50 (m, 6H), 4.83 (s, 1H), 4.69 (s, 2H), 4.49 (d, *J* = 6.8 Hz, 1H), 4.42 (s, 1H), 4.13 (s, 2H), 4.01 (s, 2H), 3.08-3.21 (dd, *J* = 8 Hz, 1H), 2.42 (d, *J* = 16 Hz, 3H), 1.17 (s, 3H). <sup>13</sup>C NMR (CDCl<sub>3</sub>, δ ppm): 200.7, 158.0, 142.7, 133.6, 132.1, 129.6, 125.09, 125.03, 123.5, 123.1, 77.7, 70.8, 68.3, 68.1, 60.2, 60.0, 25.9, 19.7.

**A4:**  $^1\text{H}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 7.83 (s, 1H), 7.52-7.58 (m, 4H), 7.13 (d,  $J = 8$  Hz, 3H), 4.69 (s, 3H), 4.48-4.53 (q, 2H), 4.43 (s, 1H), 4.13 (s, 1H), 4.01-4.05 (t,  $J = 12$  Hz, 1H), 2.44 (s, 3H), 2.33 (s, 1H), 1.37-1.41 (t,  $J = 8$  Hz, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 191.3, 160.1, 146.1, 139.4, 135.4, 127.0, 126.3, 126.1, 123.8, 123.0, 72.3, 69.8, 69.6, 61.8, 61.5, 29.7, 21.7.

**A5:**  $^1\text{H}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 8.31 (s, 1H), 8.13 (d,  $J = 8$  Hz, 1H), 7.64 (d,  $J = 8$  Hz, 1H), 7.51-7.56 (m, 2H), 7.34-7.45 (m, 4H), 7.11 (d,  $J = 16$  Hz, 1H), 4.85 (d,  $J = 8$  Hz, 3H), 4.54 (d,  $J = 16$  Hz, 3H), 4.15 (d,  $J = 12$  Hz, 6H), 2.68 (d,  $J = 8$  Hz, 3H), 1.17 (s, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 202.1, 139.4, 135.6, 130.4, 127.8, 126.99, 126.91, 126.5, 124.4, 120.4, 79.2, 72.8, 72.3, 70.1, 69.8, 69.6, 62.3, 27.4, 14.8.

**A6:**  $^1\text{H}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 8.08 (s, 1H), 7.89 (d,  $J = 8$  Hz, 3H), 7.72-7.77 (t,  $J = 12$  Hz, 1H), 7.67-7.70 (t,  $J = 8$  Hz, 1H), 7.56-7.62 (m, 2H), 7.42-7.48 (m, 3H), 7.34-7.37 (t,  $J = 8$  Hz, 3H), 4.47-4.54 (q, 2H), 4.02 (d,  $J = 12$  Hz, 1H), 1.35-1.39 (t,  $J = 8$  Hz, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 198.8, 198.0, 136.9, 136.7, 136.6, 135.6, 135.0, 133.4, 133.1, 130.1, 128.7, 128.6, 128.1, 127.3, 127.1, 126.9, 126.6, 124.2, 124.1, 53.5, 29.72.

**A7:**  $^1\text{H}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 8.08 (s, 1H), 7.97 (d,  $J = 8$  Hz, 4H), 7.86 (d,  $J = 8$  Hz, 1H), 7.53-7.57 (m, 3H), 7.49-7.51 (dd,  $J = 8$  Hz, 1H), 7.43-7.47 (t,  $J = 8$  Hz, 4H), 4.45-4.51 (q, 2H), 3.66 (s, 1H), 2.50 (s, 3H), 1.35-1.38 (t,  $J = 8$  Hz, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 197.8, 197.5, 149.2, 144.1, 136.8, 136.0, 135.9, 135.6, 132.2, 132.0, 131.6, 131.1, 129.8, 127.6, 127.5, 127.1, 127.0, 126.7, 126.5, 125.39, 125.32, 124.9, 124.1, 60.6, 36.9, 20.5. ESI:  $m/z$  calcd. for  $\text{C}_{27}\text{H}_{23}\text{NO}_2$ : 393.4770; Found: 392.2936  $[\text{M}-\text{H}]^+$ .

**A8:**  $^1\text{H}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 8.12 (s, 1H), 7.97 (d,  $J = 8$  Hz, 3H), 7.68 (d,  $J = 8$  Hz, 1H), 7.60 (d,  $J = 8$  Hz, 1H), 7.54-7.58 (t,  $J = 8$  Hz, 3H), 7.51 (d,  $J = 8$  Hz, 1H), 7.43-7.47 (t,  $J = 8$  Hz, 4H), 7.41 (d,  $J = 8$  Hz, 1H), 4.93 (s, 1H), 4.59-4.65 (p, 2H), 2.75 (d,  $J = 8$  Hz, 3H), 1.47-1.50 (t,  $J = 8$  Hz, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 197.0, 148.6, 146.9, 145.1, 144.6, 135.5, 135.3, 135.2, 133.5, 132.3, 131.0, 129.2, 129.0, 127.6, 127.1, 126.2, 125.8, 124.4, 124.2, 68.8, 28.6, 16.8, 16.7. ESI:  $m/z$  calcd. for  $\text{C}_{27}\text{H}_{23}\text{NO}_2$ : 393.4770; Found: 392.1630  $[\text{M}-\text{H}]^+$ .

**A9:**  $^1\text{H}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 9.04-9.13 (dd,  $J = 8$  Hz, 1H), 7.94 (s, 1H), 7.80-7.82 (t,  $J = 4$  Hz, 1H), 7.74 (s, 1H), 7.55-7.62 (m, 5H), 4.76 (s, 1H), 4.65-4.71 (q, 1H), 1.45-1.49 (t,  $J = 8$  Hz, 2H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 197.5, 149.0, 143.9, 137.5, 135.5, 132.5, 132.2, 129.3, 127.6, 127.3,

127.1, 127.0, 126.7, 126.2, 124.5, 123.5, 123.4, 123.3, 61.5, 28.6. ESI: m/z calcd. for  $C_{30}H_{23}NO_2$ : 429.5091; Found: 430.1357  $[M+H]^+$ .

**A10:**  $^1H$  NMR ( $CDCl_3$ ,  $\delta$  ppm): 8.04 (s, 1H), 7.90 (d,  $J = 8$  Hz, 1H), 7.77 (d,  $J = 12$  Hz, 1H), 7.73 (d,  $J = 8$  Hz, 1H), 7.63-7.67 (m, 3H), 7.52-7.57 (dd,  $J = 8$  Hz, 3H), 7.45-7.50 (m, 3H), 7.03-7.05 (t,  $J = 4$  Hz, 1H), 4.71 (s, 1H), 4.50-4.55 (q, 2H), 1.38-1.41 (t,  $J = 8$  Hz, 3H).  $^{13}C$  NMR ( $CDCl_3$ ,  $\delta$  ppm): 196.6, 158.5, 142.6, 135.1, 134.9, 132.7, 132.6, 129.6, 129.3, 127.5, 127.3, 126.7, 126.6, 126.5, 126.2, 125.2, 124.0, 123.8, 123.5, 123.3, 122.9, 120.9, 61.0, 60.4, 28.6.

**A11:**  $^1H$  NMR ( $CDCl_3$ ,  $\delta$  ppm): 8.50 (d,  $J = 8$  Hz, 1H), 7.91 (d,  $J = 8$  Hz, 1H), 7.79-7.82 (t,  $J = 8$  Hz, 2H), 7.72 (s, 1H), 7.52 (d,  $J = 4$  Hz, 1H), 7.43-7.50 (m, 4H), 7.40 (d,  $J = 8$  Hz, 1H), 4.46-4.51 (q, 2H), 3.37 (s, 1H), 2.43 (s, 3H), 1.36-1.40 (t,  $J = 8$  Hz, 3H).  $^{13}C$  NMR ( $CDCl_3$ ,  $\delta$  ppm): 184.9, 147.1, 144.5, 136.2, 134.6, 131.4, 131.1, 126.8, 126.3, 125.4, 61.1, 28.6, 20.5.

**A12:**  $^1H$  NMR ( $CDCl_3$ ,  $\delta$  ppm): 8.64 (s, 1H), 8.13 (s, 1H), 7.93 (s, 1H), 7.80 (d,  $J = 4$  Hz, 2H), 7.76-7.79 (t,  $J = 12$  Hz, 1H), 7.61-7.63 (dd,  $J = 4$  Hz, 1H), 7.58 (d,  $J = 8$  Hz, 2H), 7.40-7.42 (dd,  $J = 8$  Hz, 2H), 7.12-7.17 (m, 2H), 4.55-4.60 (q, 2H), 2.53 (s, 1H), 2.46 (s, 3H), 1.49-1.52 (t,  $J = 8$  Hz, 3H).  $^{13}C$  NMR ( $CDCl_3$ ,  $\delta$  ppm): 181.4, 159.1, 146.0, 144.7, 140.5, 138.7, 138.0, 132.7, 130.7, 128.3, 127.2, 126.6, 125.6, 125.3, 123.3, 121.8, 117.9, 61.2, 20.9, 13.6. ESI: m/z calcd. for  $C_{25}H_{21}NO_2S$ : 399.5047; Found: 397.8281  $[M-2H]^+$ .

**A13:**  $^1H$  NMR ( $CDCl_3$ ,  $\delta$  ppm): 9.05-9.07 (t,  $J = 4$  Hz, 1H), 7.96 (s, 1H), 7.82-7.83 (t,  $J = 4$  Hz, 1H), 7.80 (d,  $J = 4$  Hz, 1H), 7.75-7.78 (m, 1H), 7.65-7.67 (m, 1H), 7.63-7.64 (m, 1H), 7.61 (d,  $J = 4$  Hz, 1H), 7.59 (d,  $J = 4$  Hz, 2H), 7.57 (d,  $J = 4$  Hz, 1H), 7.55-7.56 (m, 1H), 4.77 (s, 1H), 4.66-4.72 (q, 2H), 1.46-1.49 (t,  $J = 8$  Hz, 3H).  $^{13}C$  NMR ( $CDCl_3$ ,  $\delta$  ppm): 183.4, 146.8, 144.3, 134.9, 132.66, 132.62, 131.8, 129.2, 127.4, 127.2, 126.7, 126.2, 124.4, 123.5, 60.9, 28.6.

**A14:**  $^1H$  NMR ( $CDCl_3$ ,  $\delta$  ppm): 8.66 (d,  $J = 8$  Hz, 1H), 7.91 (d,  $J = 8$  Hz, 2H), 7.85 (d,  $J = 8$  Hz, 2H), 7.79 (d,  $J = 8$  Hz, 2H), 7.50-7.54 (dt,  $J = 8$  Hz, 2H), 7.39-7.47 (m, 4H), 4.76 (s, 1H), 4.55-4.61 (q, 2H), 1.43-1.47 (t,  $J = 8$  Hz, 3H).  $^{13}C$  NMR ( $CDCl_3$ ,  $\delta$  ppm): 200.8, 134.4, 132.9, 132.0, 129.1, 127.6, 127.3, 127.0, 125.4, 124.9, 123.2, 60.0, 28.9, 28.6. ESI: m/z calcd. for  $C_{30}H_{23}NO_2$ : 429.5091; Found: 428.4094  $[M-H]^+$ .

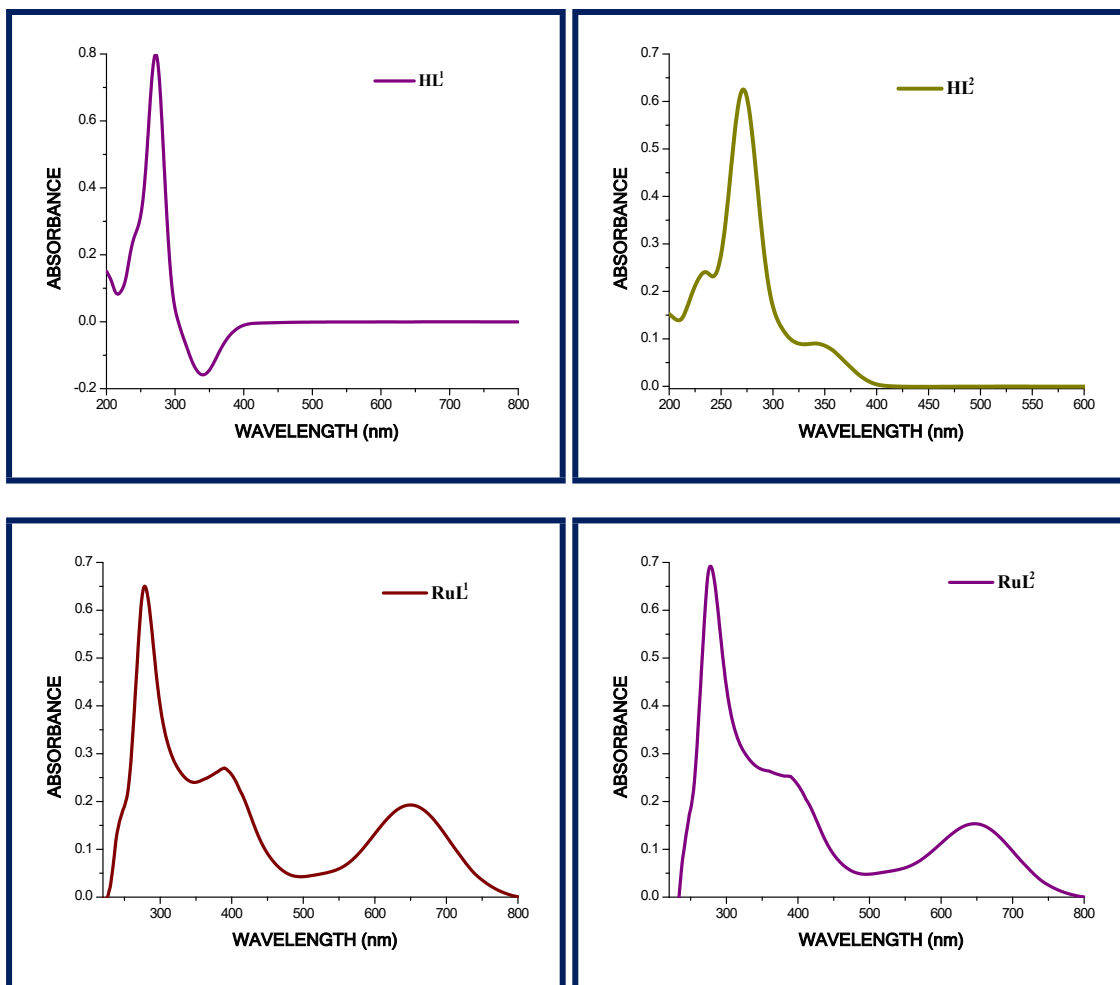
**A15:**  $^1\text{H}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 8.02 (s, 1H), 7.97 (d,  $J = 4$  Hz, 3H), 7.88 (d,  $J = 8$  Hz, 1H), 7.82 (s, 1H), 7.66 (d,  $J = 8$  Hz, 1H), 7.52-7.58 (m, 4H), 7.42-7.48 (m, 4H), 7.37 (d,  $J = 8$  Hz, 1H), 4.53-4.58 (q, 2H), 2.51 (s, 3H), 2.44 (s, 1H), 1.42-1.46 (t,  $J = 8$  Hz, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 161.0, 153.8, 145.8, 143.1, 133.2, 131.3, 131.2, 130.0, 127.3, 125.5, 124.0, 116.9, 115.6, 59.6, 27.3, 19.2. ESI:  $m/z$  calcd. for  $\text{C}_{31}\text{H}_{25}\text{NO}_2$ : 443.5357; Found: 445.1693  $[\text{M}+2\text{H}]^+$ .

**A16:**  $^1\text{H}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 8.19 (s, 1H), 7.98 (d,  $J = 8$  Hz, 3H), 7.87 (d,  $J = 8$  Hz, 1H), 7.79 (d,  $J = 8$  Hz, 2H), 7.67-7.71 (t,  $J = 8$  Hz, 3H), 7.63 (d,  $J = 8$  Hz, 2H), 7.53-7.57 (t,  $J = 8$  Hz, 3H), 7.43-7.47 (t,  $J = 8$  Hz, 4H), 4.76 (s, 1H), 4.55-4.60 (q, 2H), 1.44-1.48 (t,  $J = 8$  Hz, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 202.3, 147.9, 145.4, 136.1, 135.9, 135.4, 133.9, 133.7, 132.9, 132.8, 130.3, 128.5, 128.4, 128.3, 127.8, 127.2, 126.5, 125.5, 124.6, 124.3, 62.0, 29.7. ESI:  $m/z$  calcd. for  $\text{C}_{34}\text{H}_{25}\text{NO}_2$ : 479.5678; Found: 476.1671  $[\text{M}-3\text{H}]^+$ .

**A17:**  $^1\text{H}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 8.06 (s, 1H), 7.97-7.99 (dd,  $J = 8$  Hz, 2H), 7.93 (s, 1H), 7.85 (d,  $J = 20$  Hz, 1H), 7.53-7.57 (t,  $J = 8$  Hz, 3H), 7.41-7.48 (m, 5H), 4.78 (s, 1H), 4.58-4.64 (p, 2H), 2.76 (d,  $J = 8$  Hz, 3H), 2.68 (s, 3H), 1.46-1.50 (q, 3H).

**A18:**  $^1\text{H}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 8.30 (d,  $J = 8$  Hz, 1H), 7.94 (d,  $J = 8$  Hz, 1H), 7.86 (s, 2H), 7.71 (d,  $J = 8$  Hz, 2H), 7.47 (s, 2H), 7.41-7.43 (dd,  $J = 8$  Hz, 2H), 4.76 (s, 1H), 4.55-4.60 (q, 2H), 2.48 (s, 3H), 1.44-1.47 (t,  $J = 8$  Hz, 3H).

**A19:**  $^1\text{H}$  NMR ( $\text{CDCl}_3$ ,  $\delta$  ppm): 7.96-8.01 (m, 1H), 7.85-7.88 (t,  $J = 8$  Hz, 2H), 7.71 (d,  $J = 8$  Hz, 1H), 7.59-7.63 (m, 2H), 7.41-7.50 (m, 6H), 7.36 (d,  $J = 8$  Hz, 1H), 4.76 (s, 1H), 4.55-4.60 (q, 2H), 2.48 (s, 3H), 1.53-1.56 (t,  $J = 8$  Hz, 3H).



**Fig. S1.** Electronic spectra of the ligands **HL<sup>1</sup>**, **HL<sup>2</sup>** and complexes **RuL<sup>1</sup>** and **RuL<sup>2</sup>**

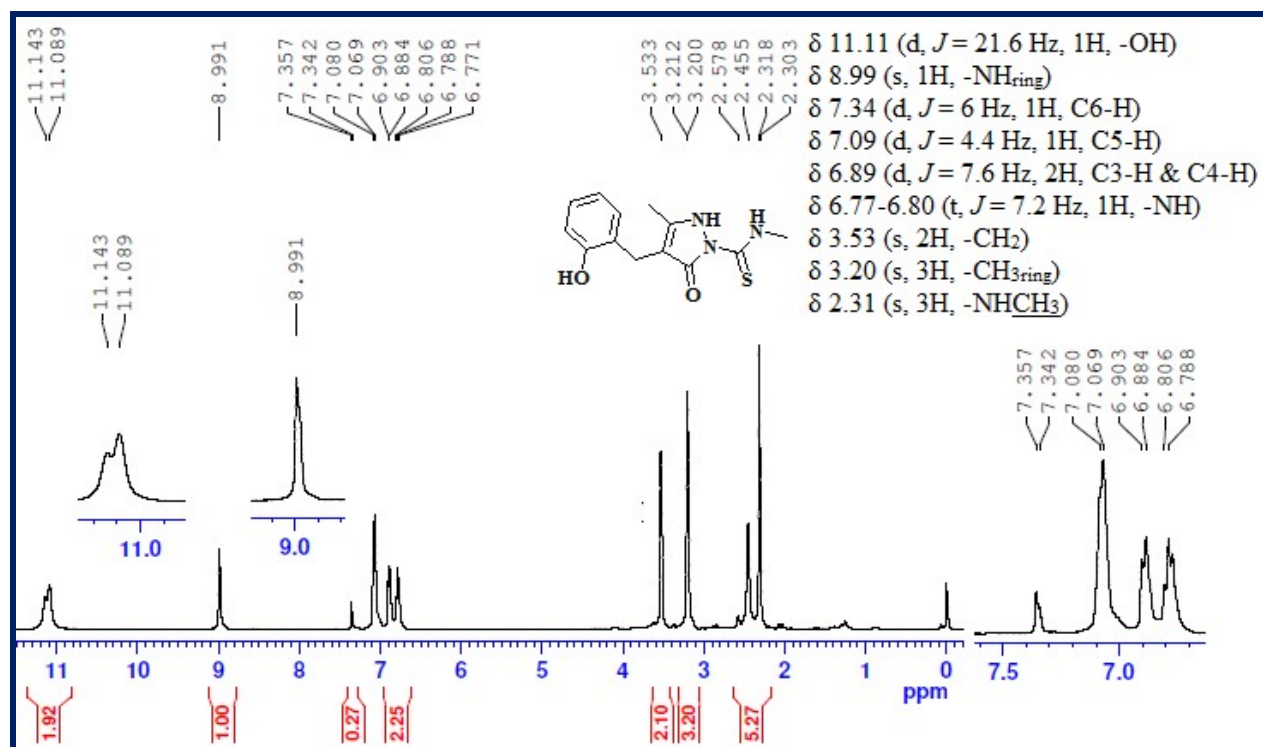


Fig. S2. <sup>1</sup>H NMR spectrum of the ligand **HL<sup>1</sup>**

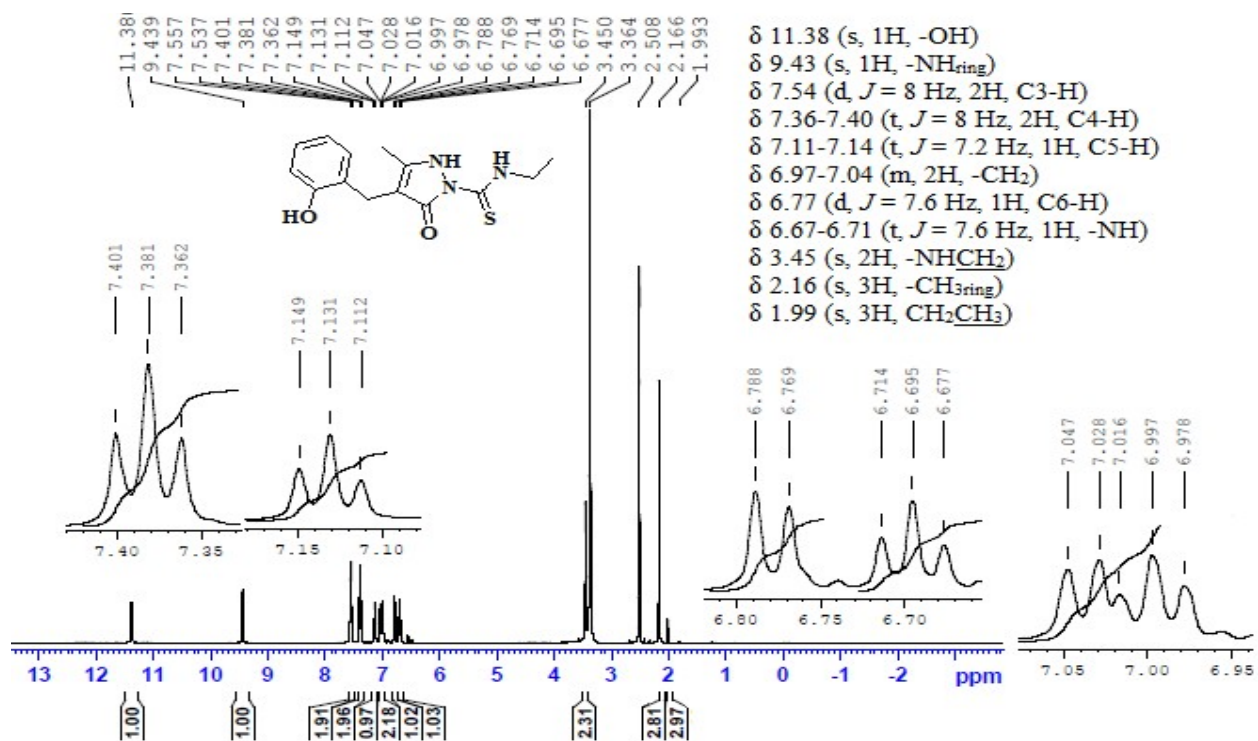
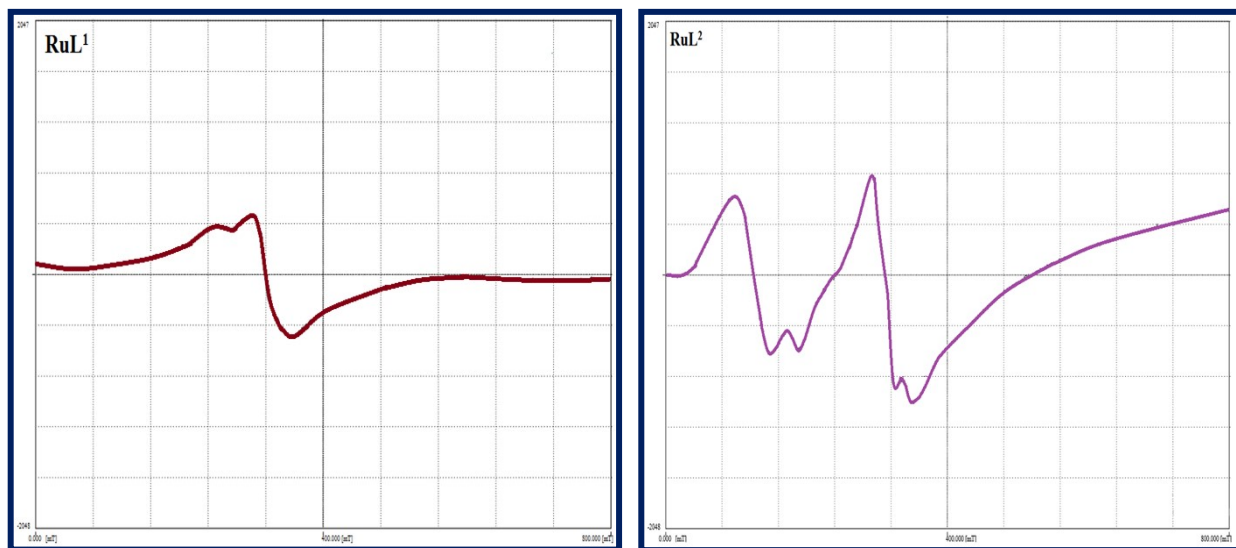
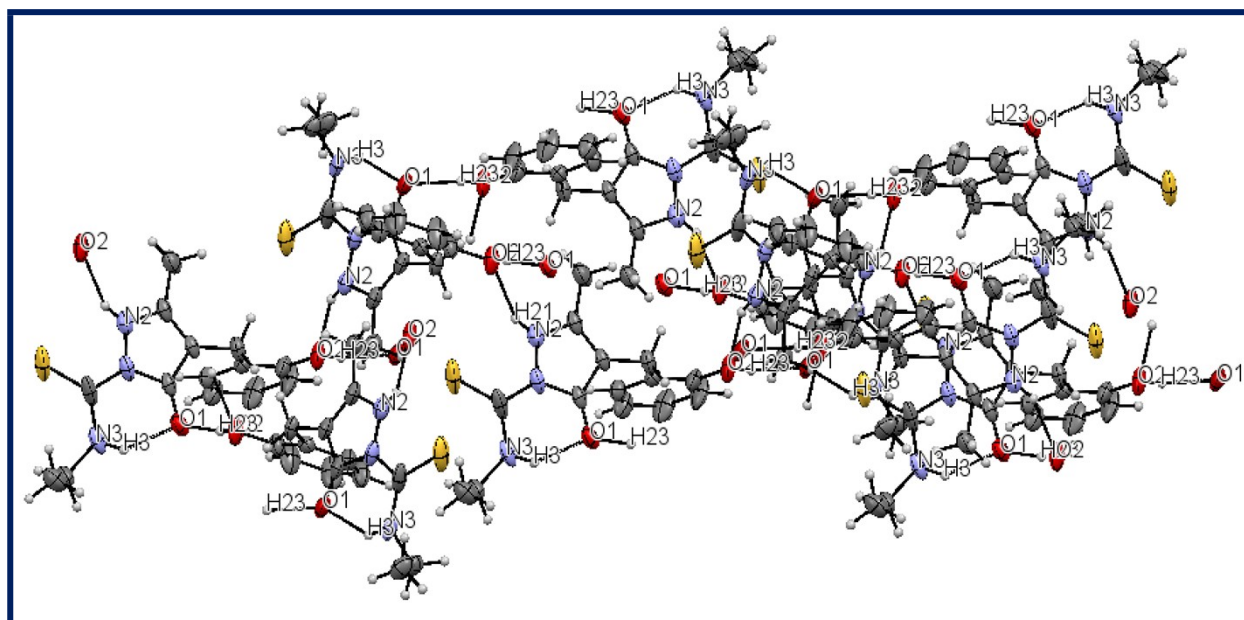


Fig. S3. <sup>1</sup>H NMR spectrum of the ligand **HL<sup>2</sup>**



**Fig. S4.** EPR spectra of the Ru(III) complexes **RuL<sup>1</sup>** and **RuL<sup>2</sup>**



**Fig. S5.** Hydrogen bonding interactions in the ligand **HL<sup>2</sup>**

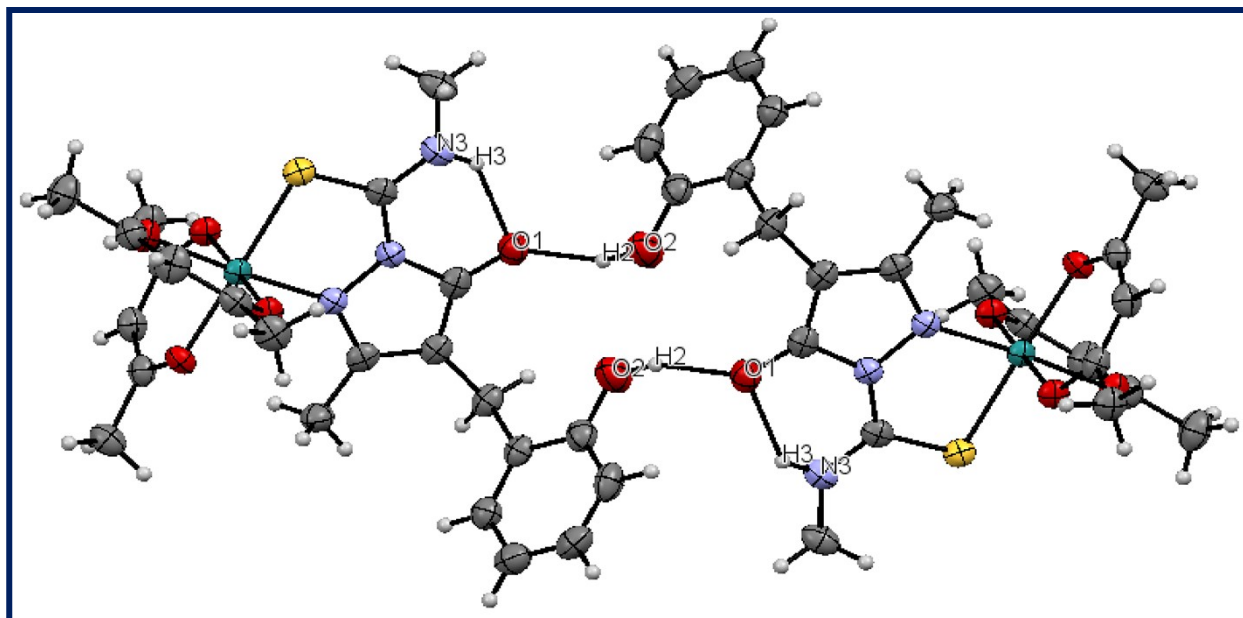


Fig. S6. Hydrogen bonding interaction in the complex **RuL<sup>1</sup>**

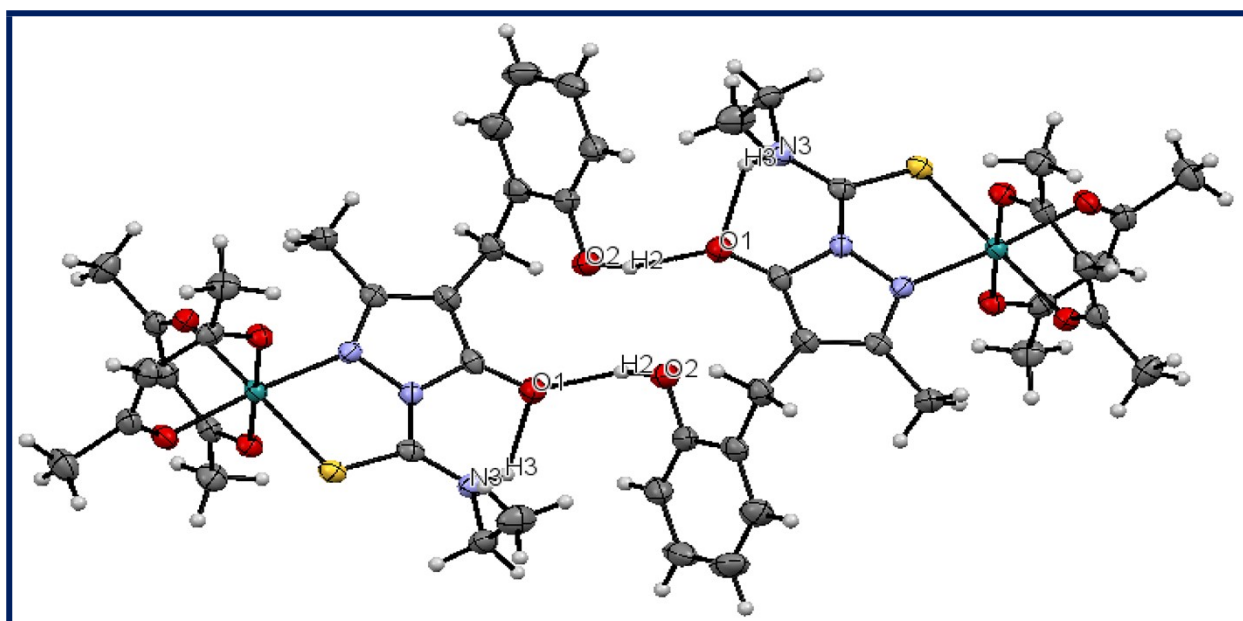


Fig. S7. Hydrogen bonding interaction in the complex **RuL<sup>2</sup>**



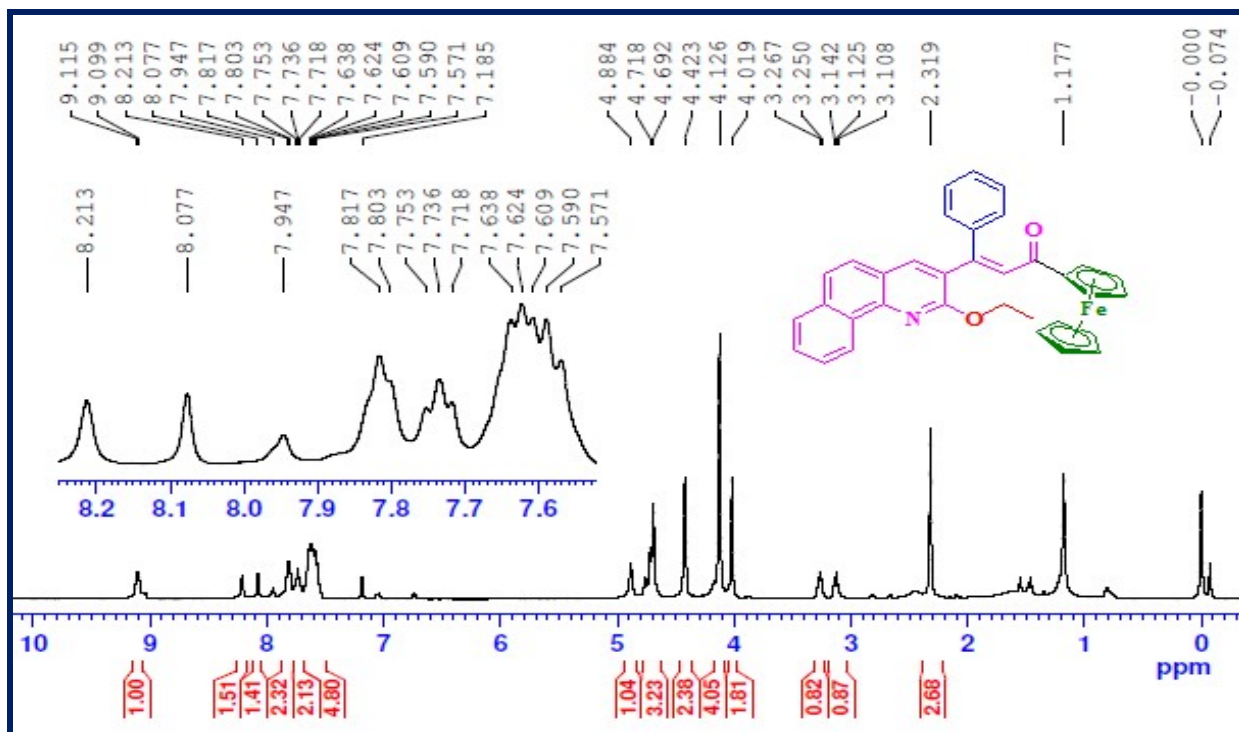


Fig. S8.  $^1\text{H}$  NMR spectrum of A1

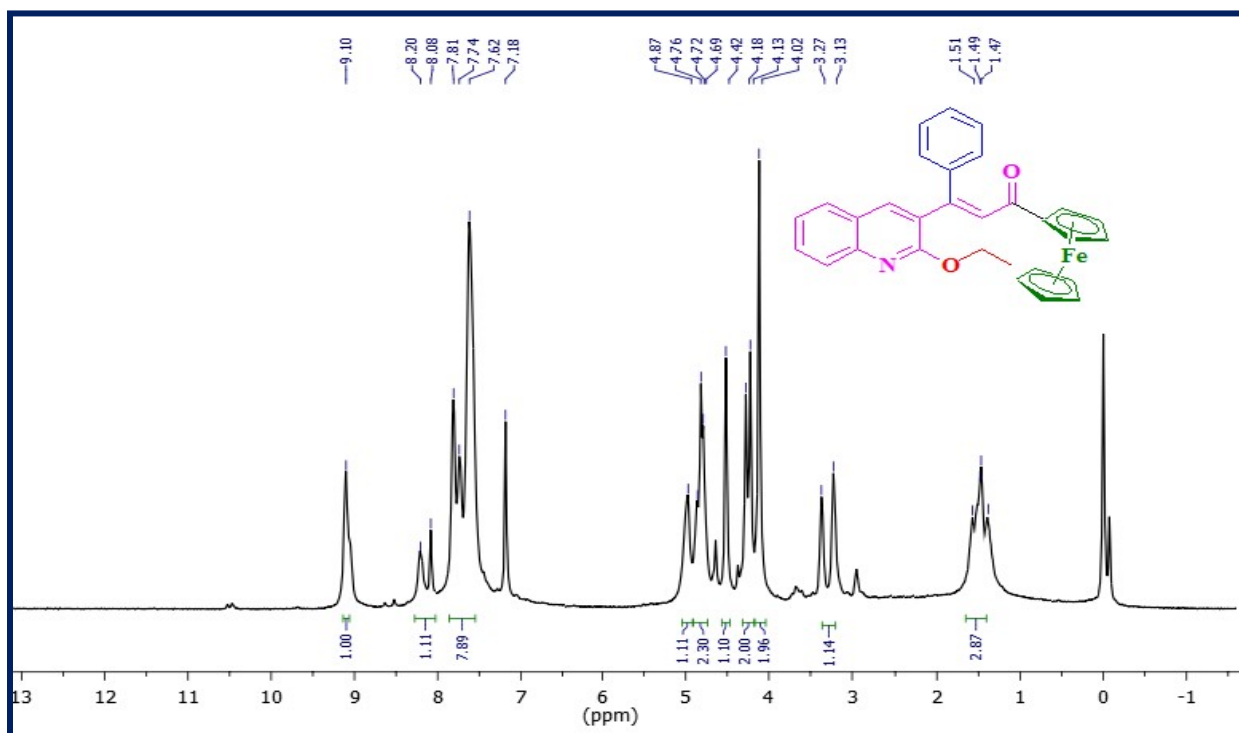


Fig. S9.  $^1\text{H}$  NMR spectrum of A2

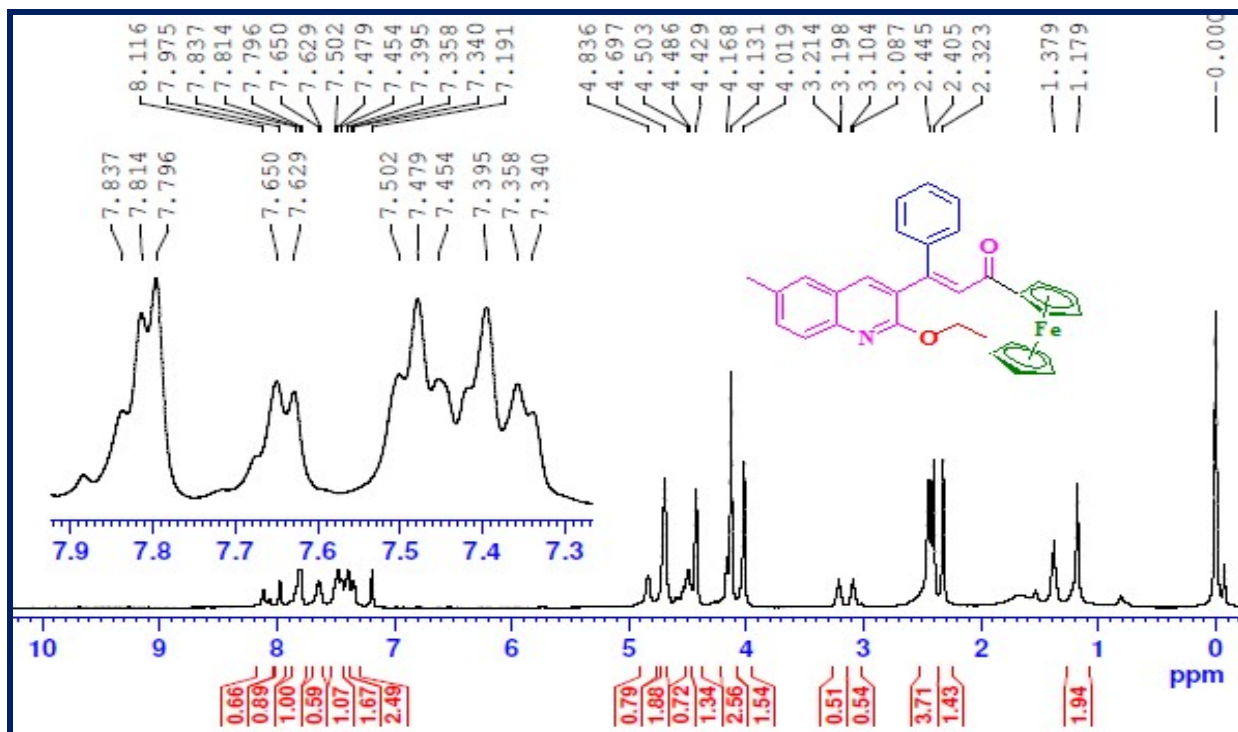


Fig. S10.  $^1\text{H}$  NMR spectrum of A3

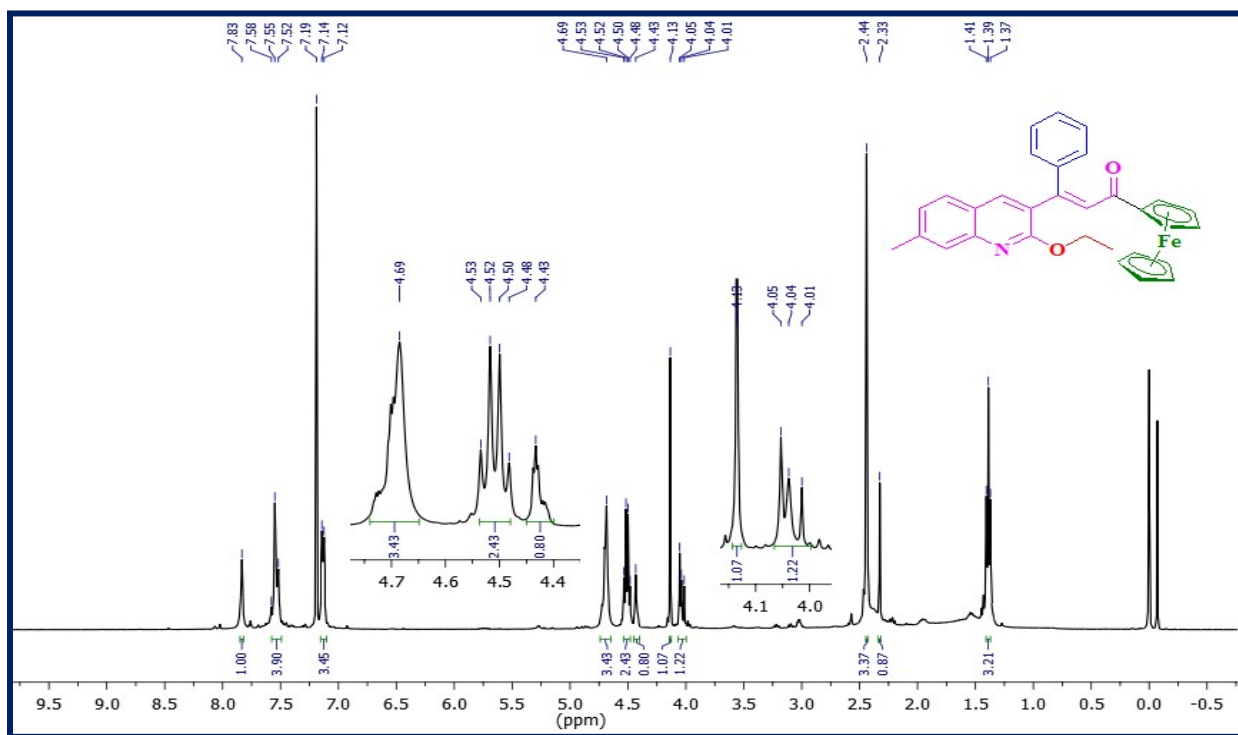


Fig. S11.  $^1\text{H}$  NMR spectrum of A4

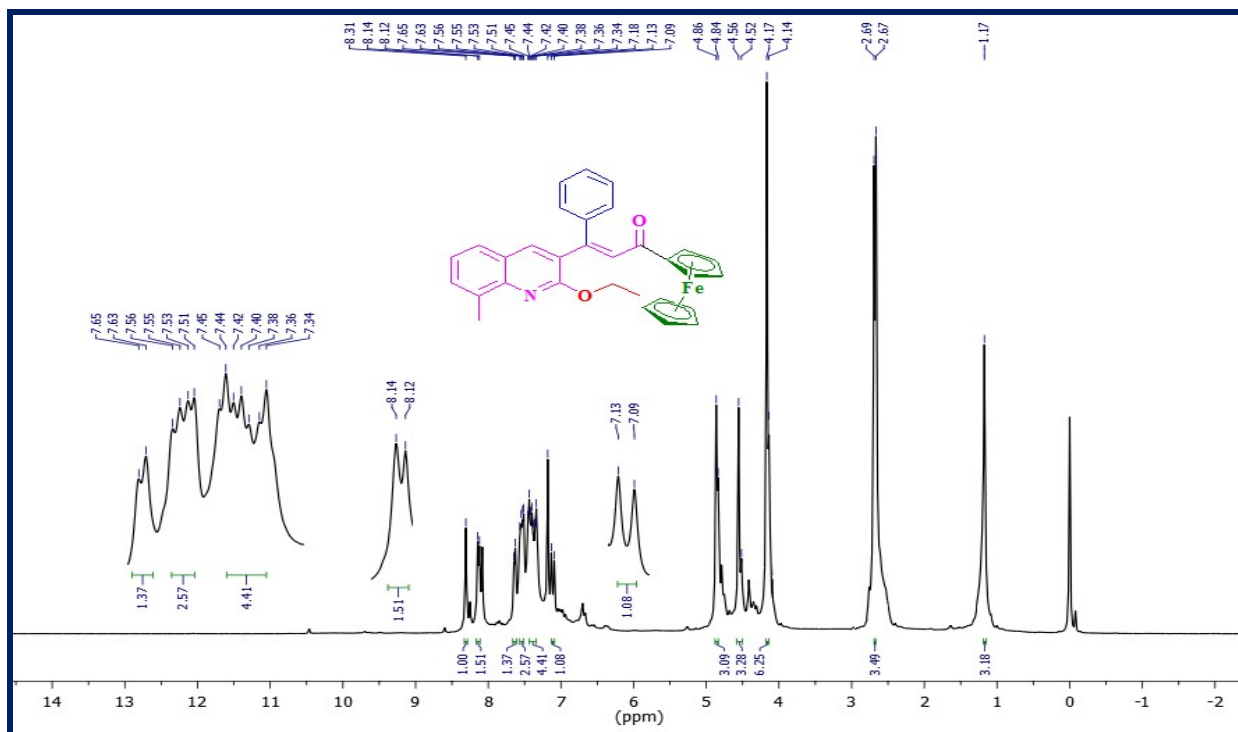


Fig. S12.  $^1\text{H}$  NMR spectrum of A5

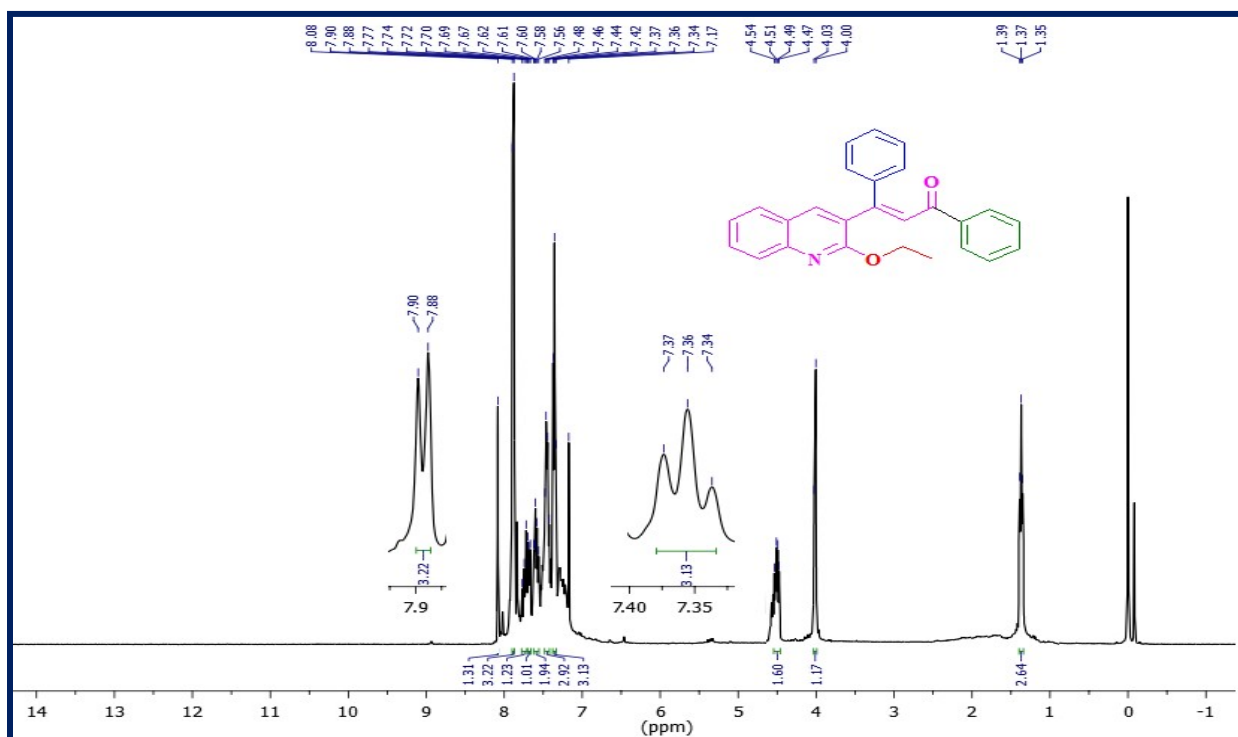


Fig. S13.  $^1\text{H}$  NMR spectrum of A6

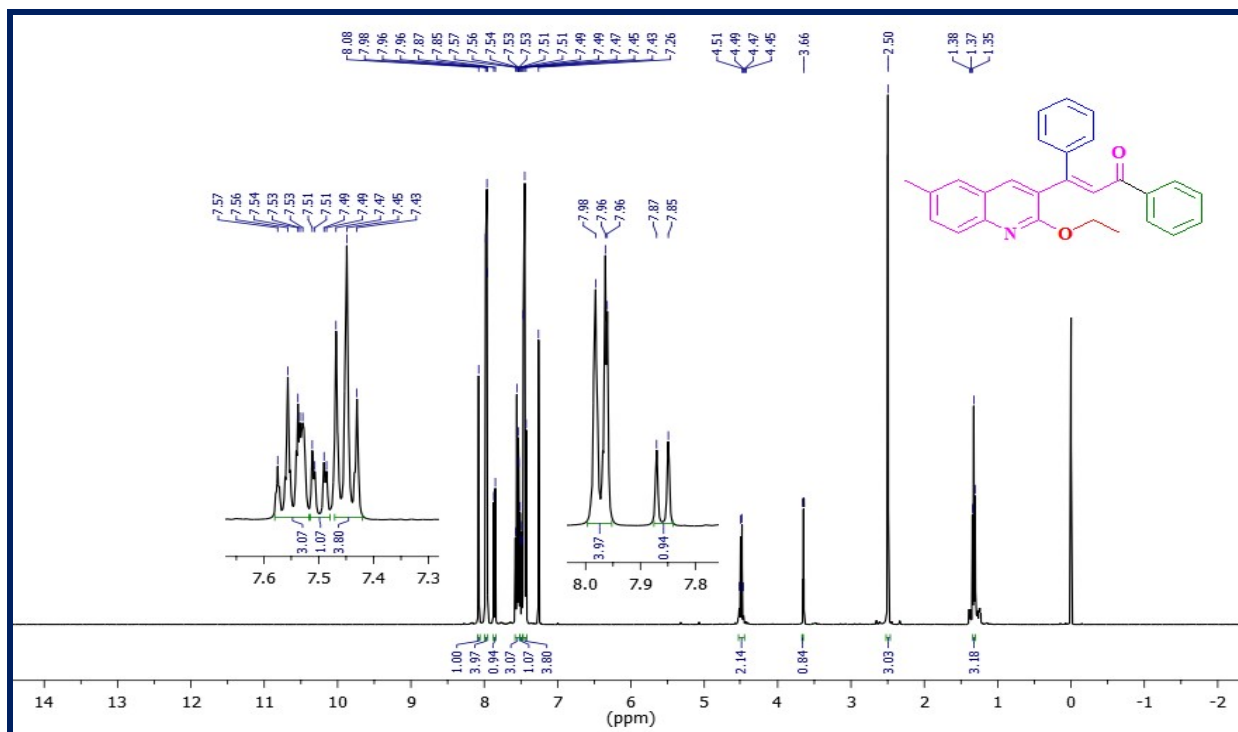


Fig. S14.  $^1\text{H}$  NMR spectrum of A7

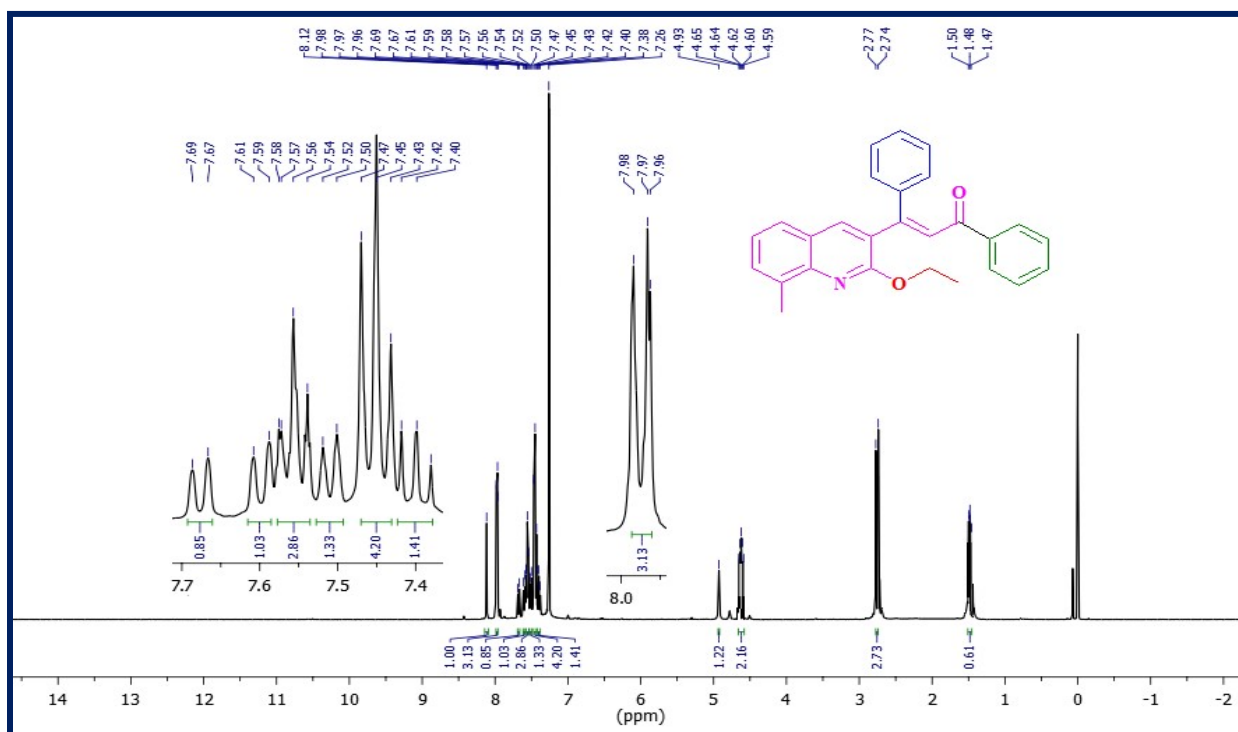


Fig. S15.  $^1\text{H}$  NMR spectrum of A8

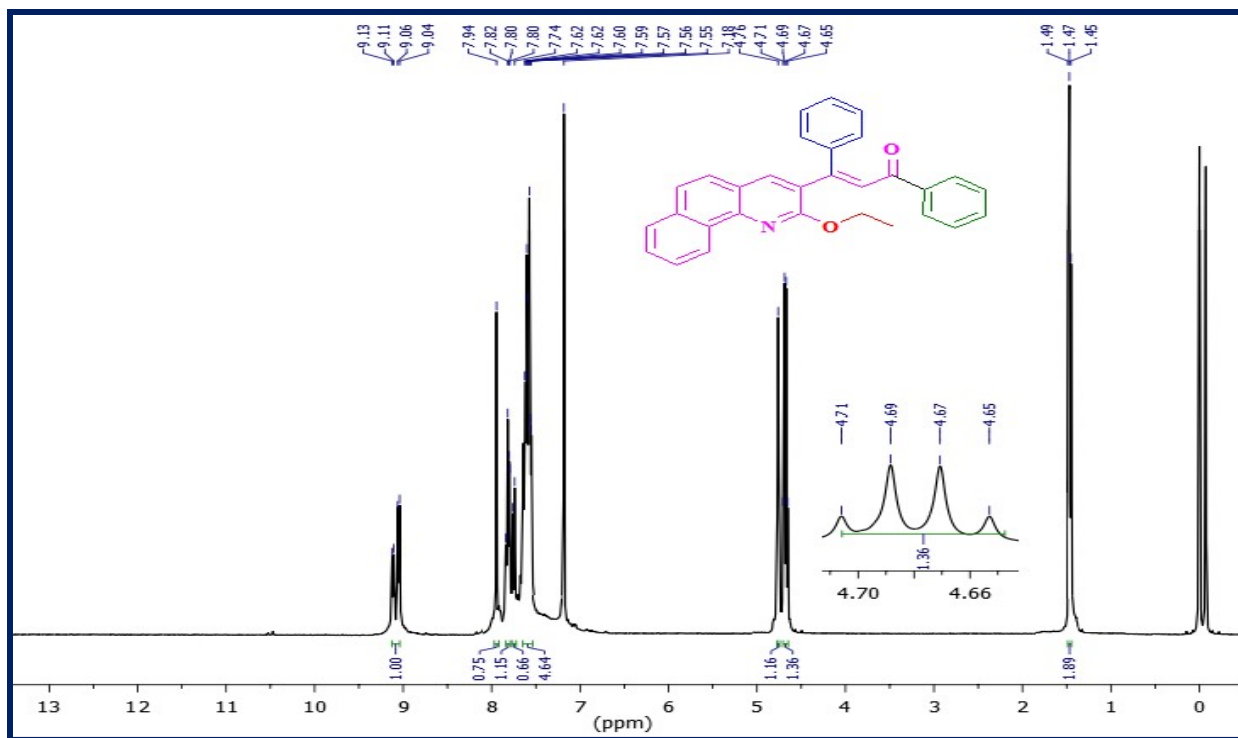


Fig. S16.  $^1\text{H}$  NMR spectrum of A9

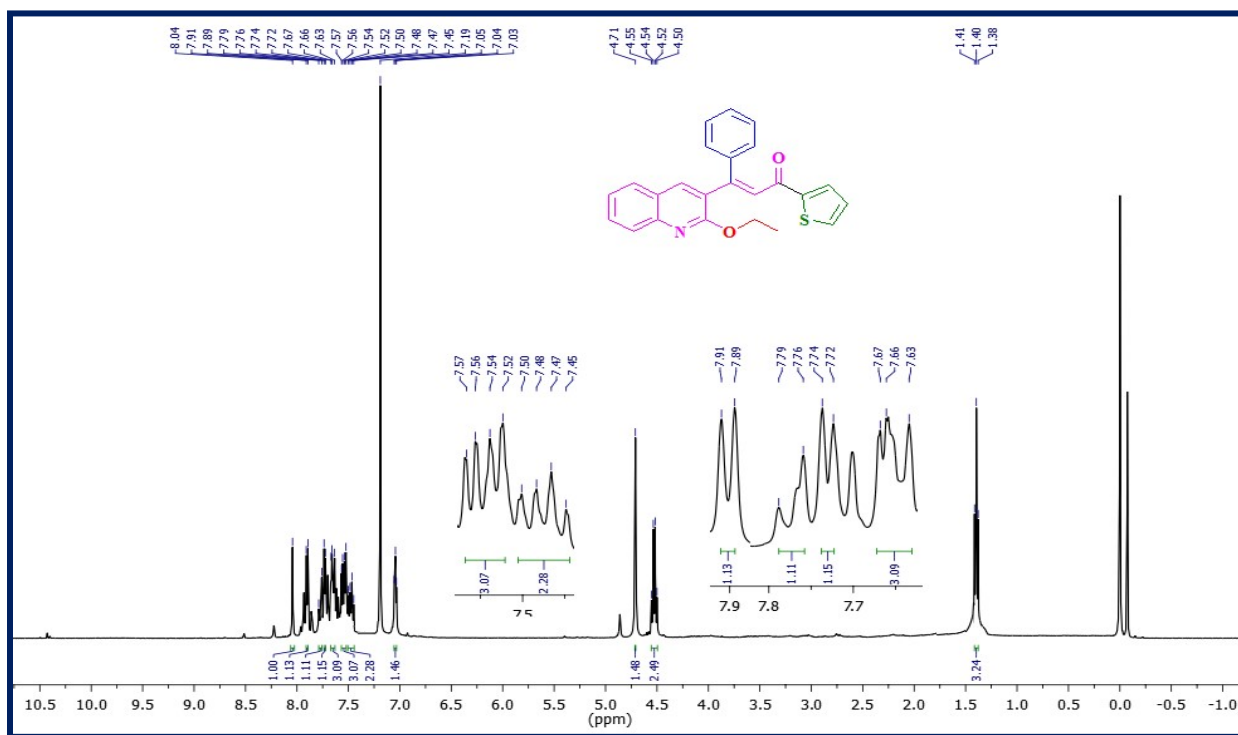


Fig. S17.  $^1\text{H}$  NMR spectrum of A10

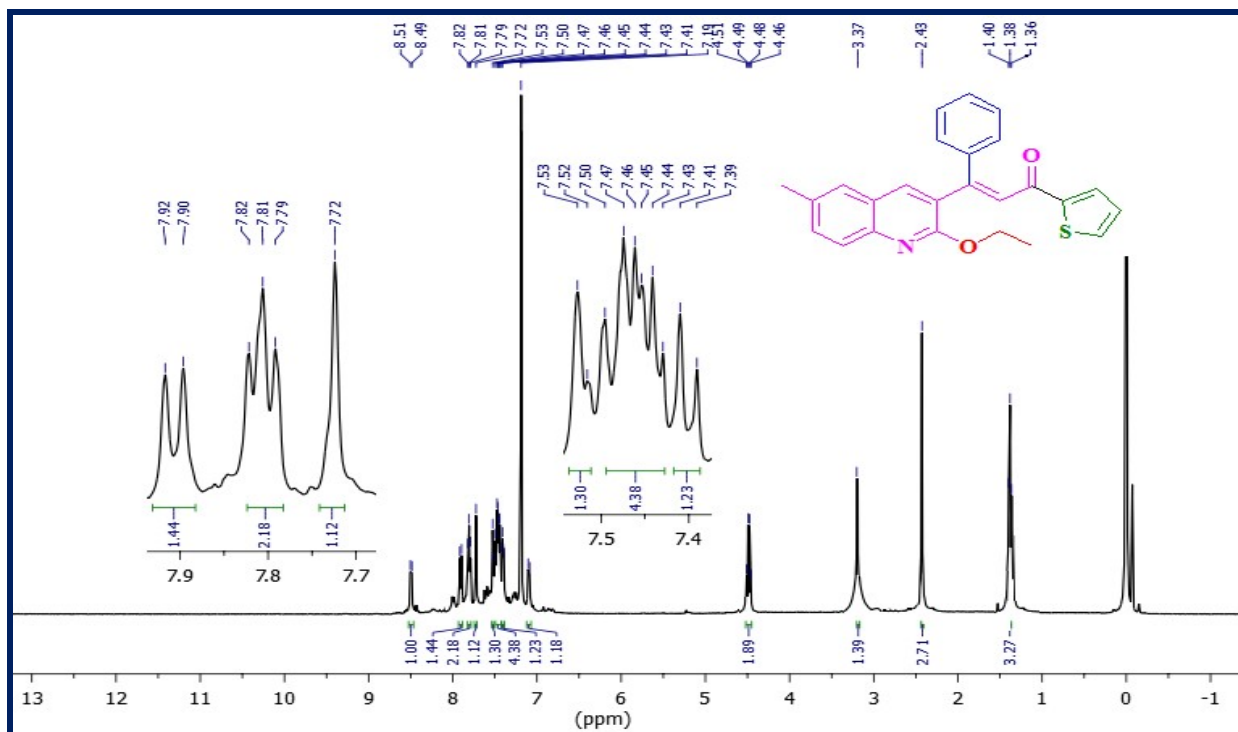


Fig. S18.  $^1\text{H}$  NMR spectrum of A11

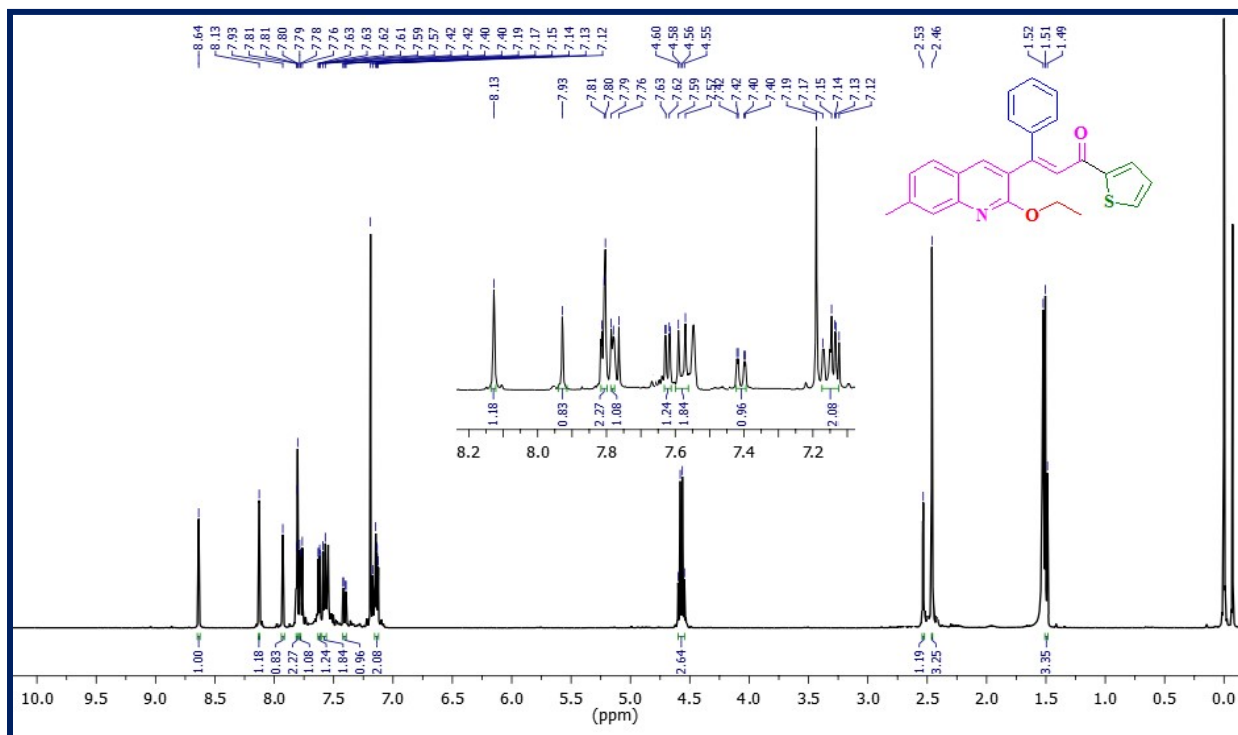


Fig. S19.  $^1\text{H}$  NMR spectrum of A12

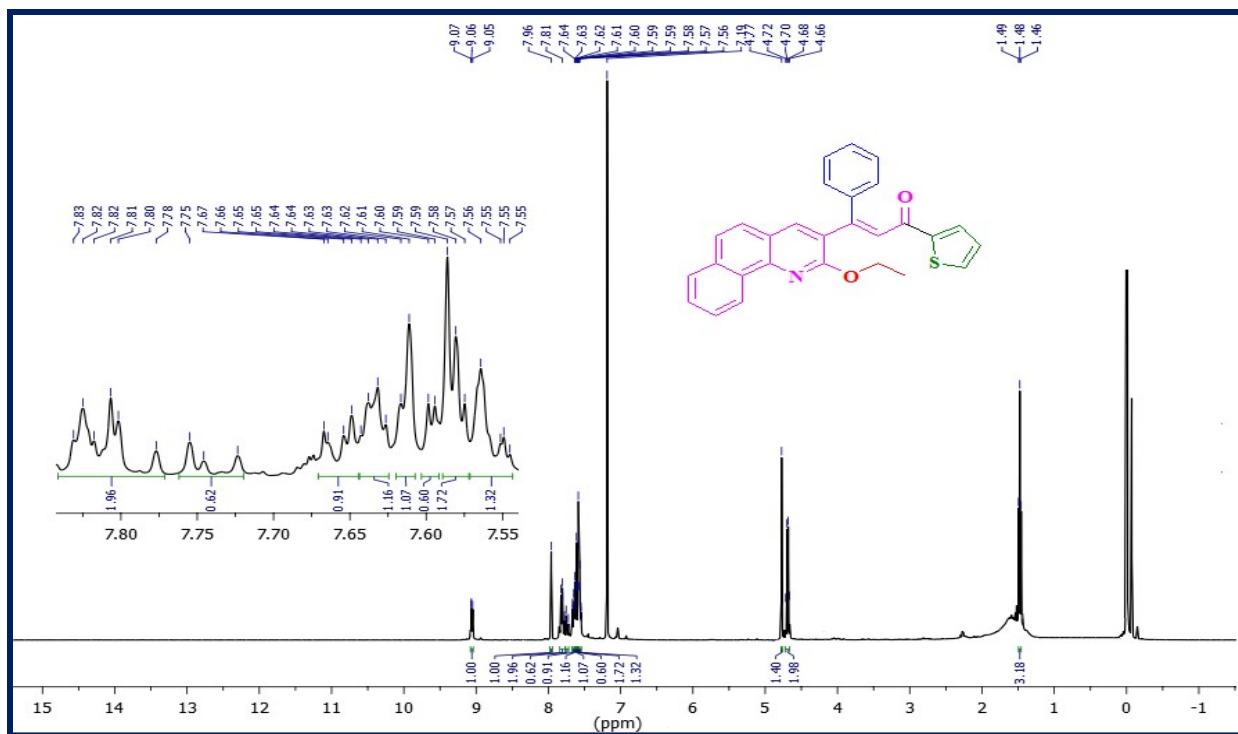


Fig. S20. <sup>1</sup>H NMR spectrum of A13

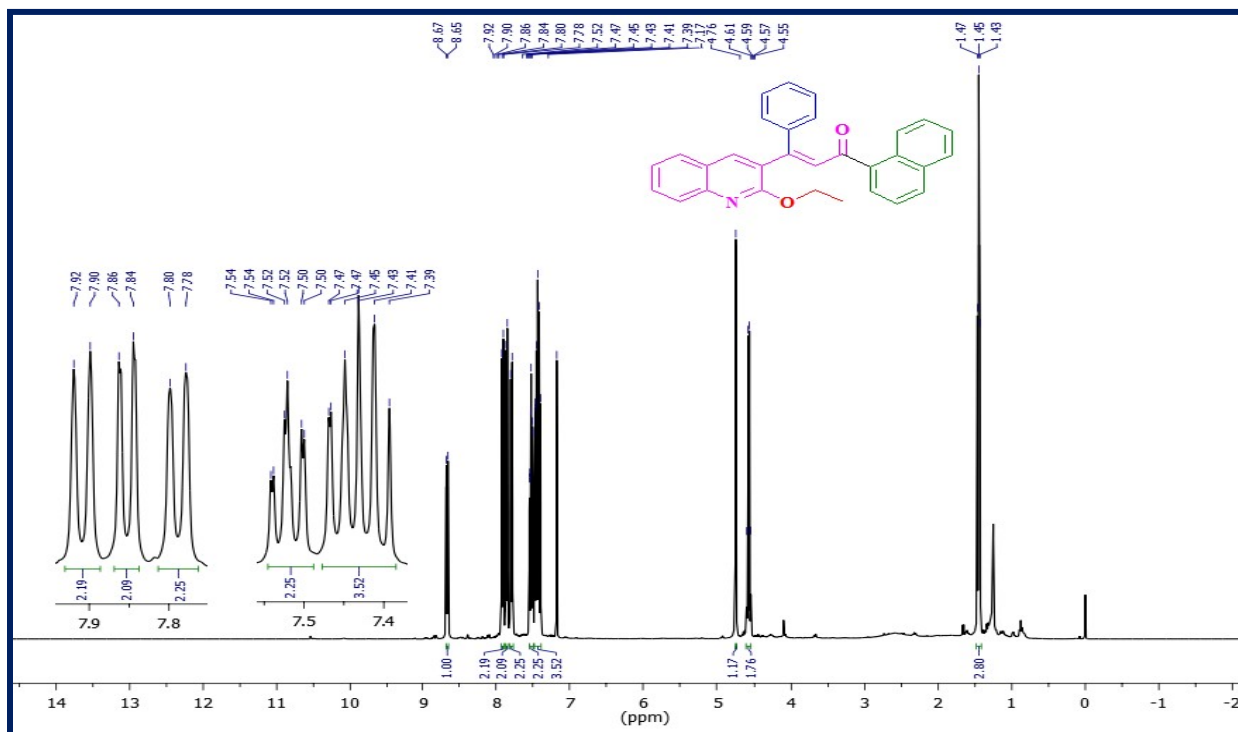


Fig. S21. <sup>1</sup>H NMR spectrum of A14

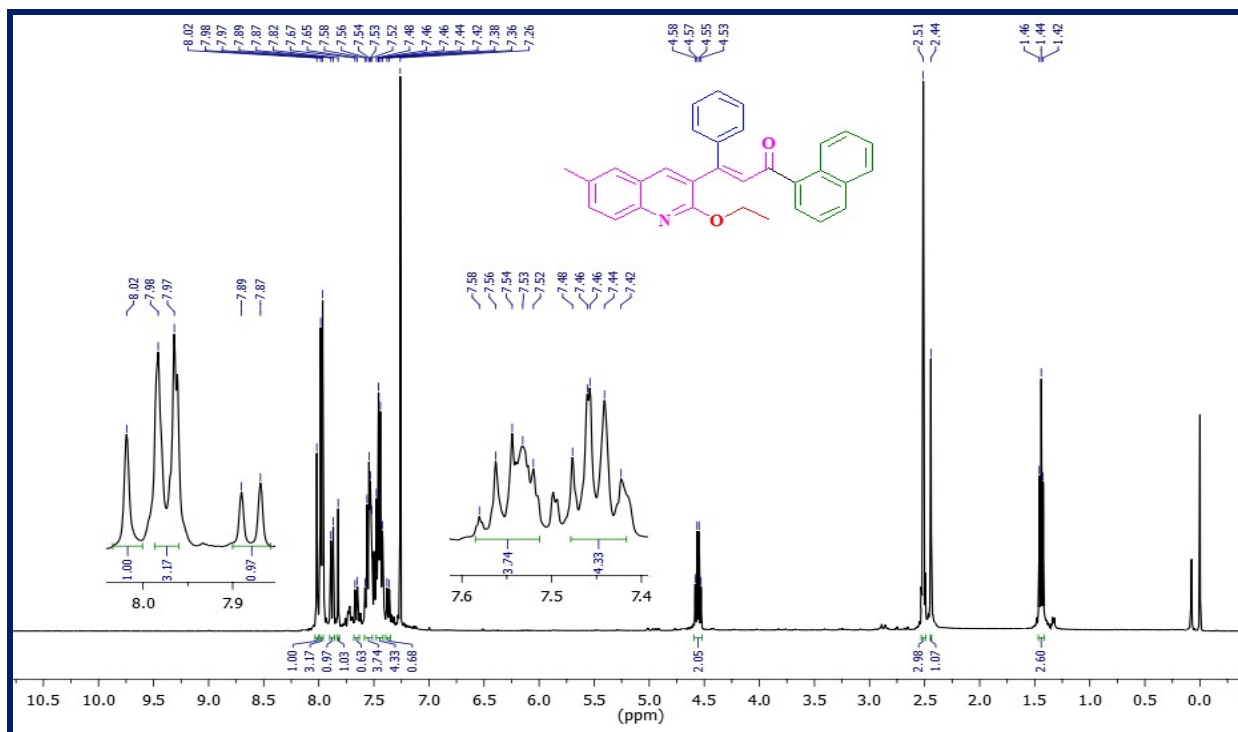


Fig. S22. <sup>1</sup>H NMR spectrum of A15

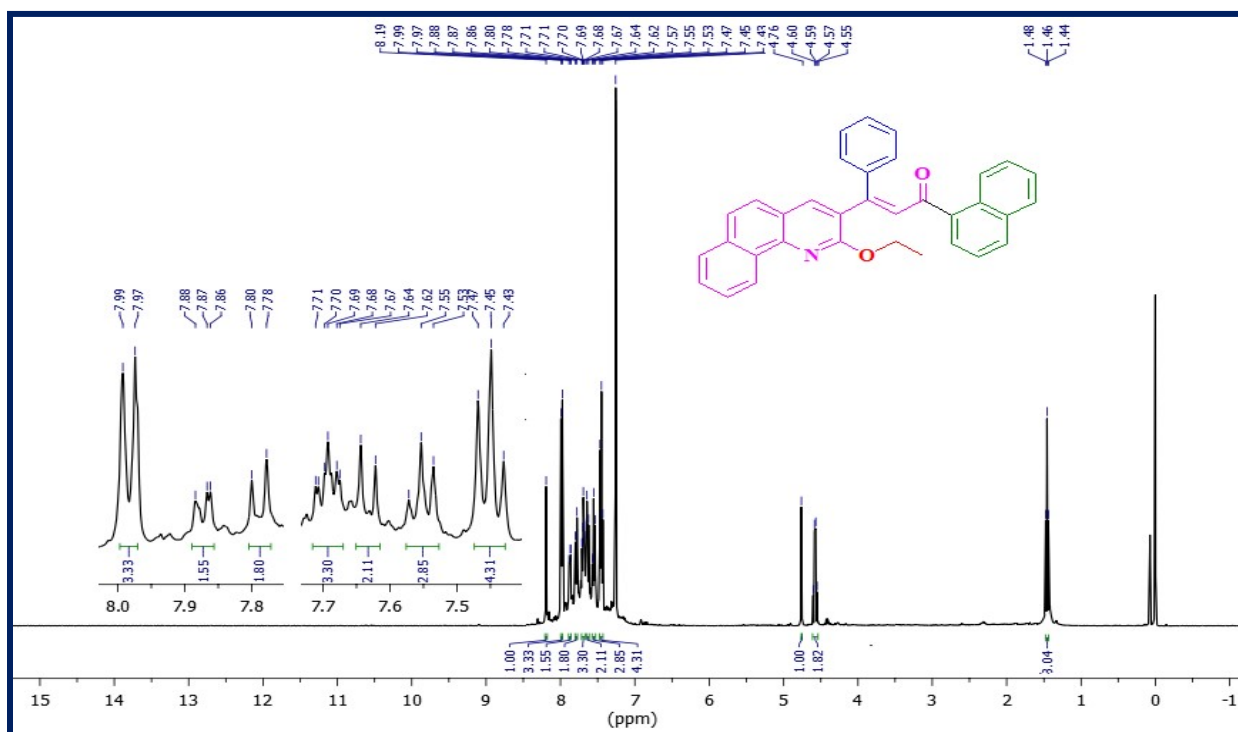


Fig. S23. <sup>1</sup>H NMR spectrum of A16



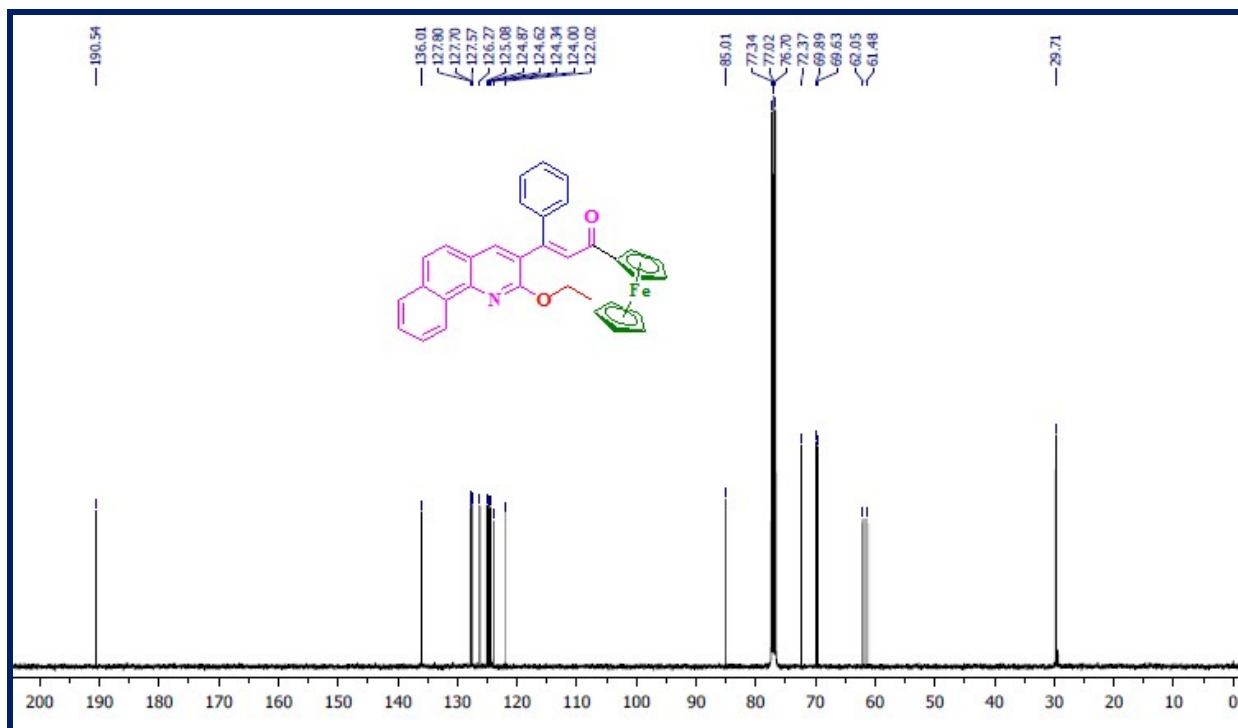


Fig. S24.  $^{13}\text{C}$  NMR spectrum of A1

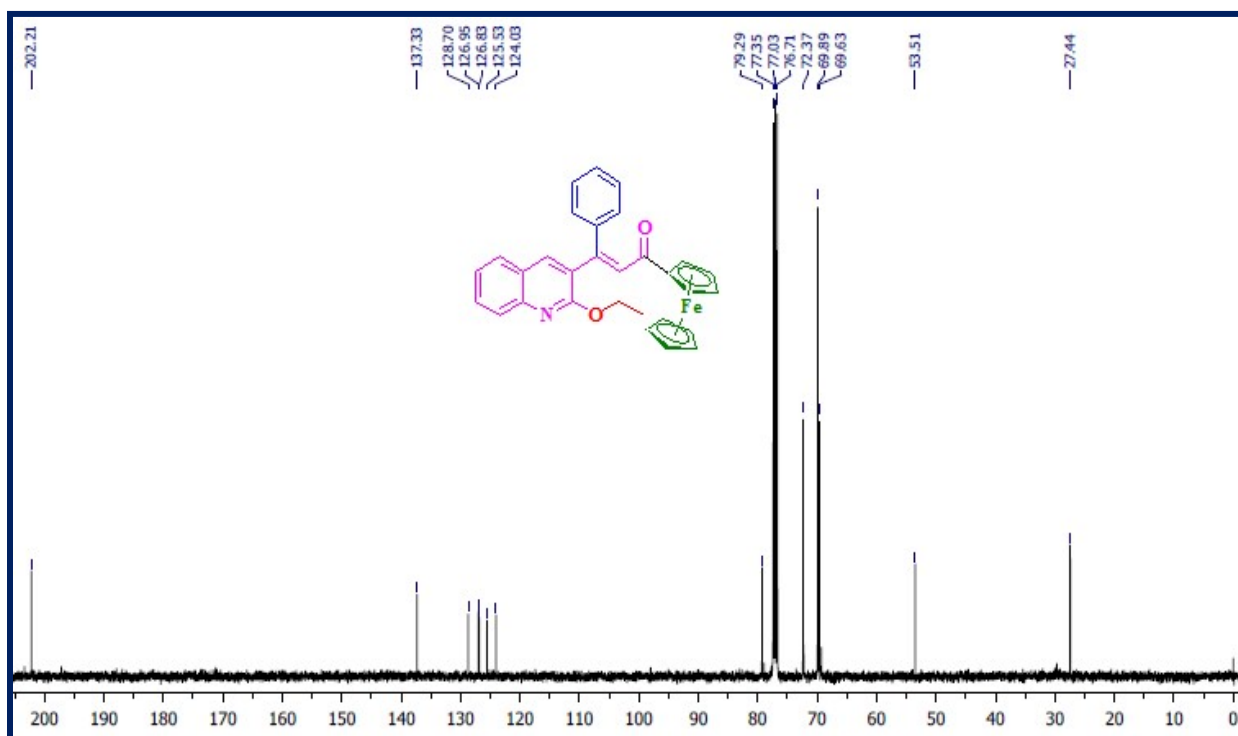


Fig. S25.  $^{13}\text{C}$  NMR spectrum of A2

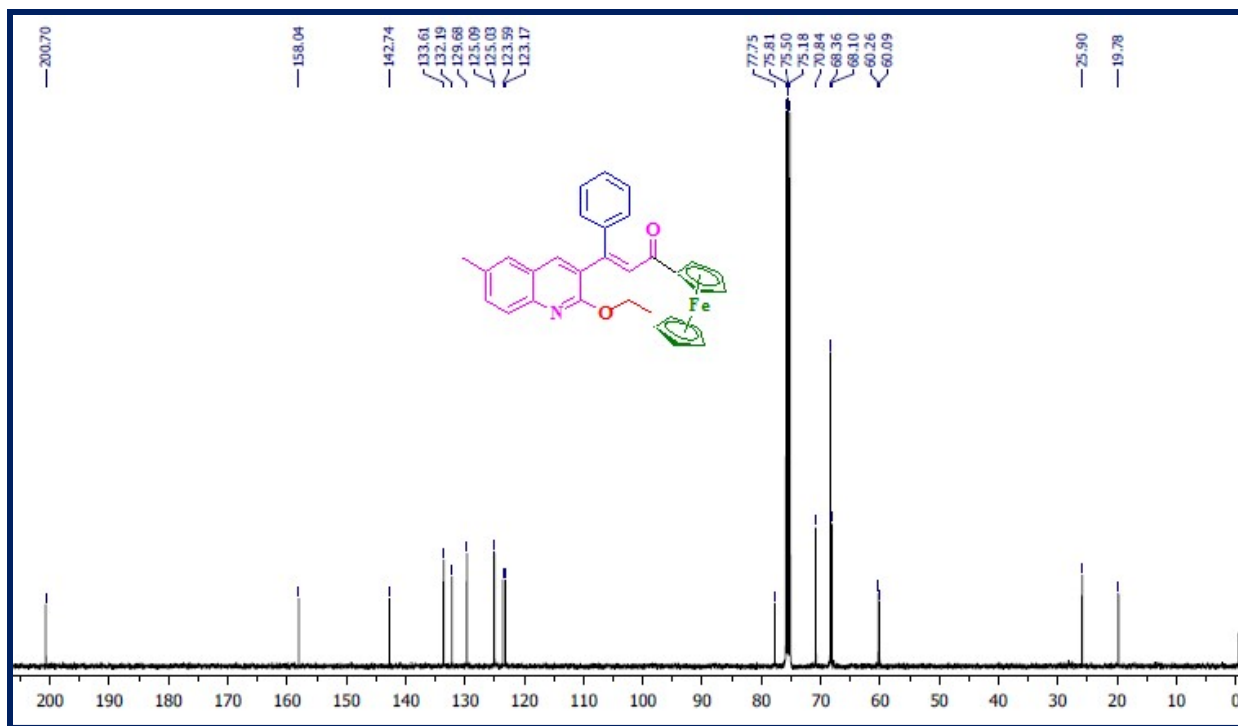


Fig. S26.  $^{13}\text{C}$  NMR spectrum of A3

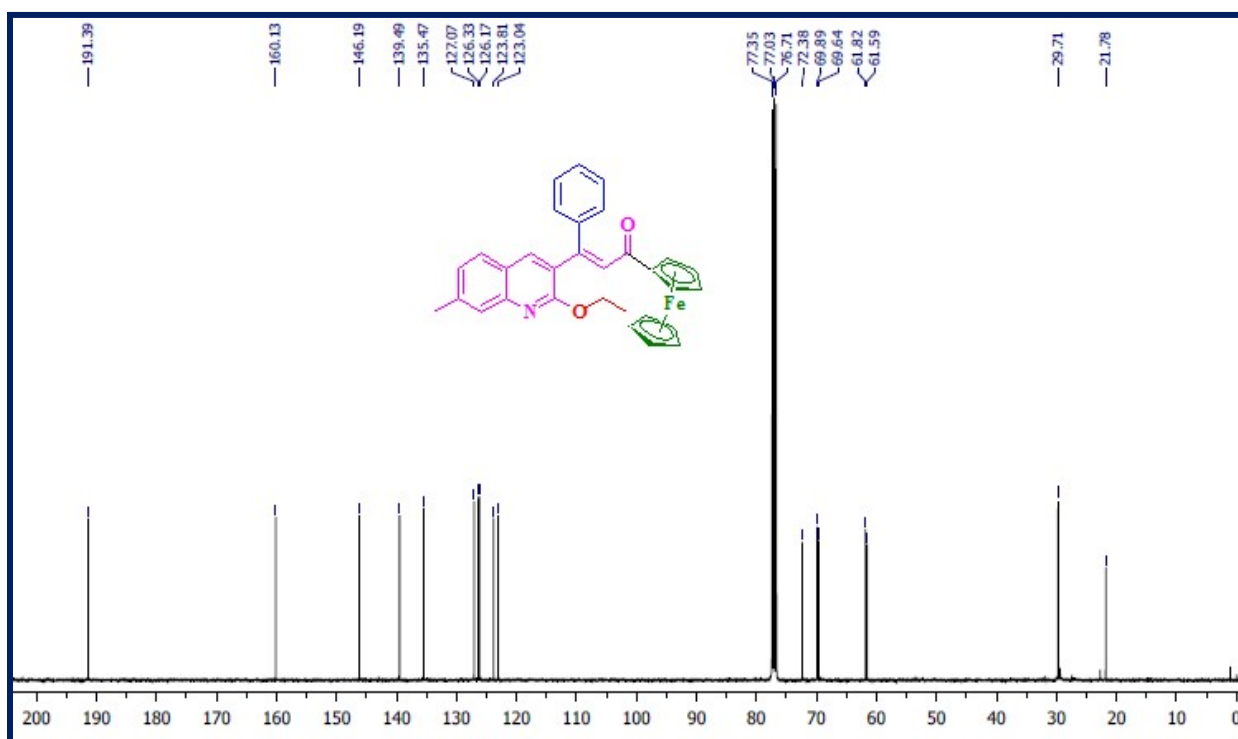


Fig. S27.  $^{13}\text{C}$  NMR spectrum of A4

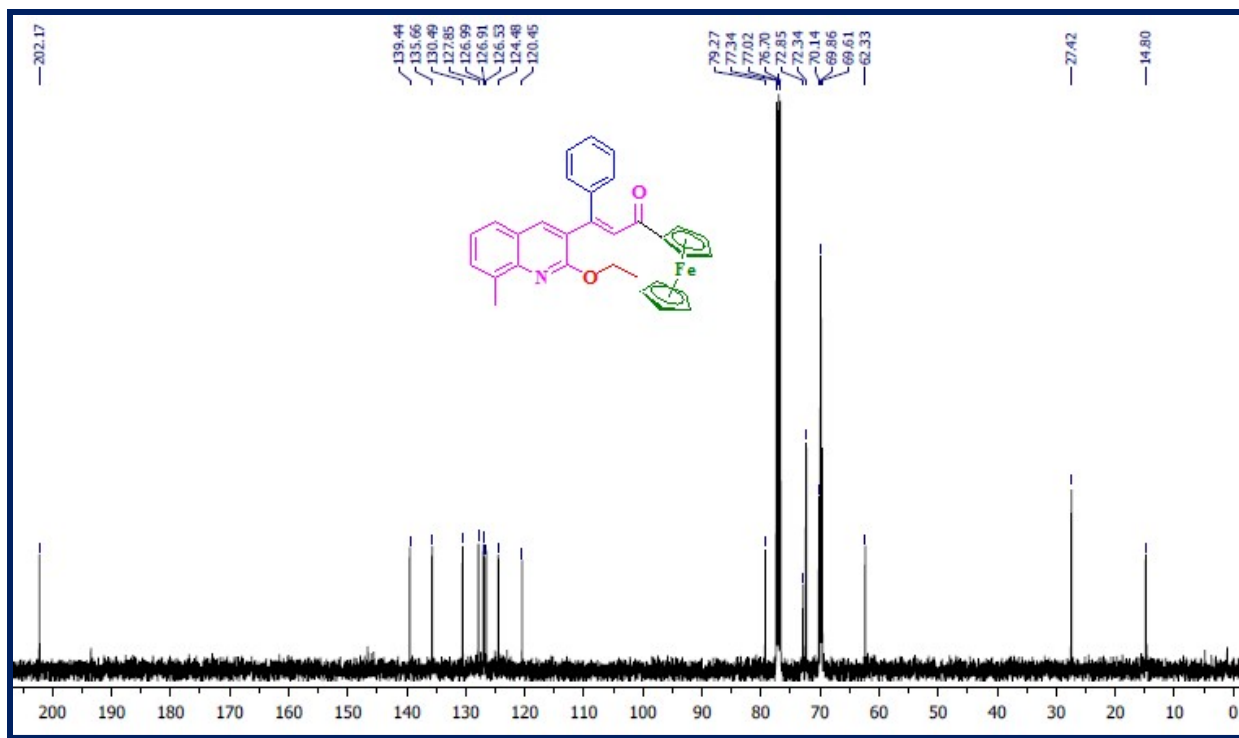


Fig. S28. <sup>13</sup>C NMR spectrum of A5

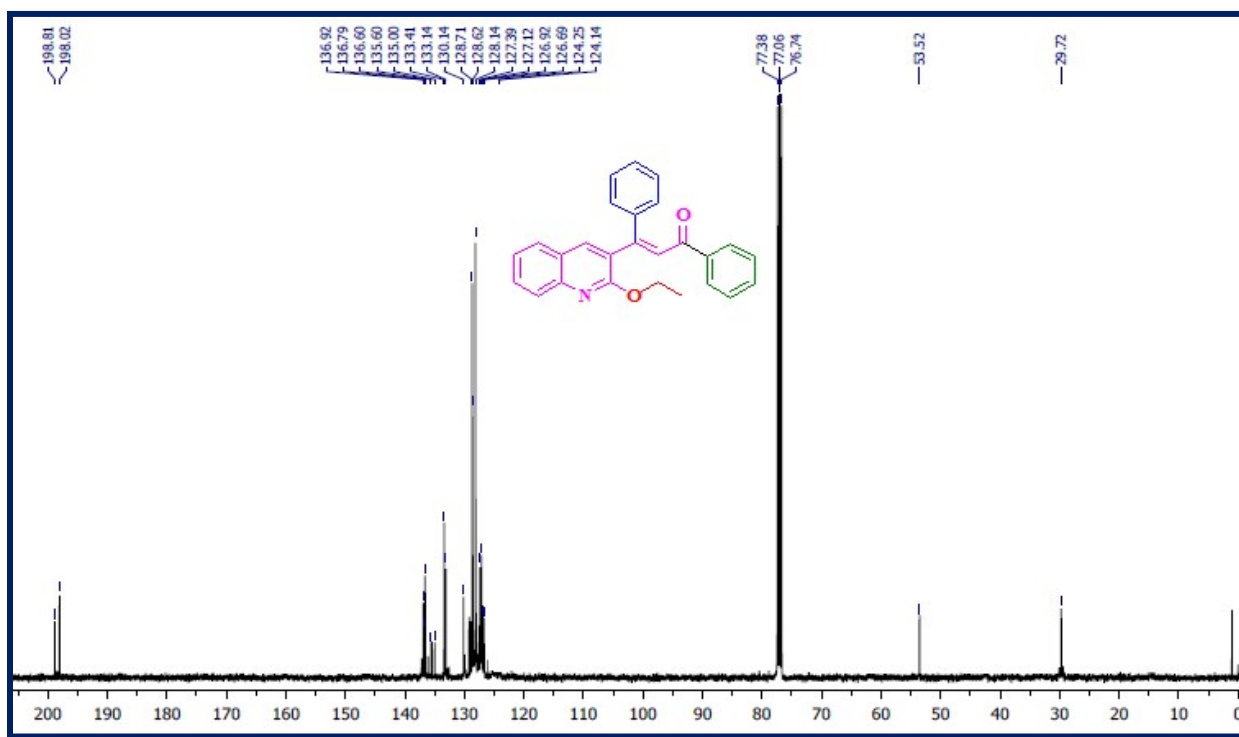


Fig. S29. <sup>13</sup>C NMR spectrum of A6

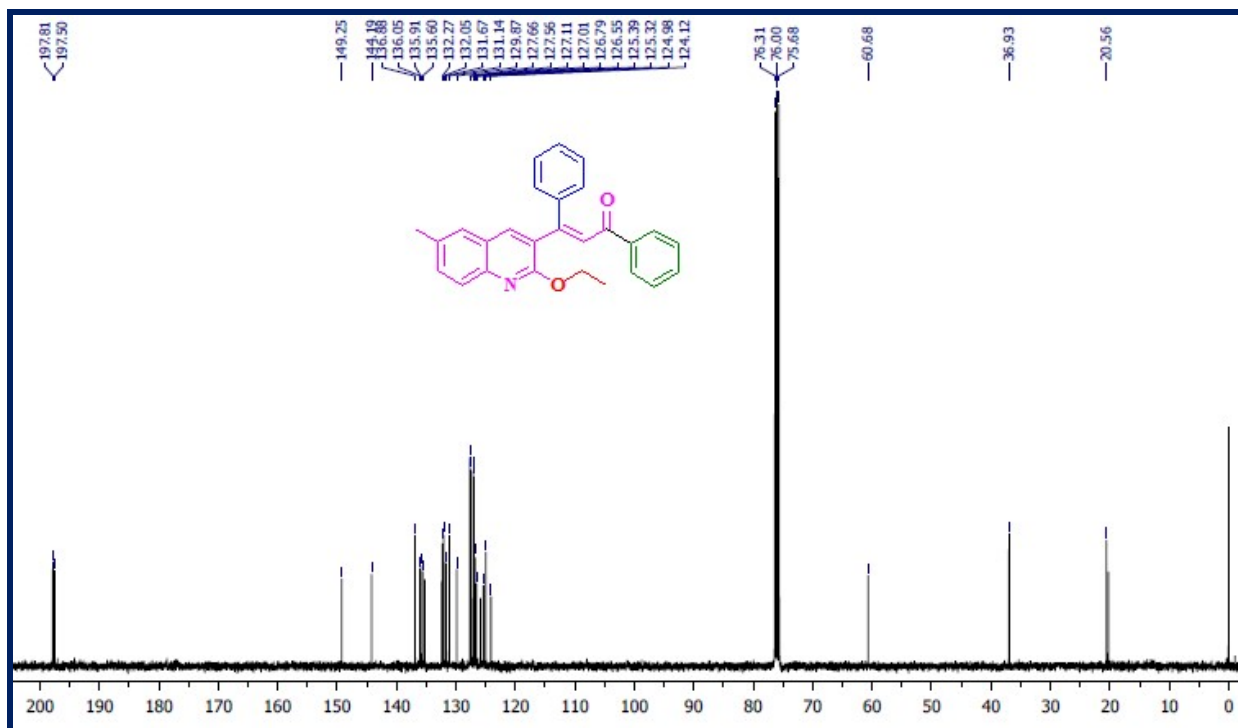


Fig. S30.  $^{13}\text{C}$  NMR spectrum of A7

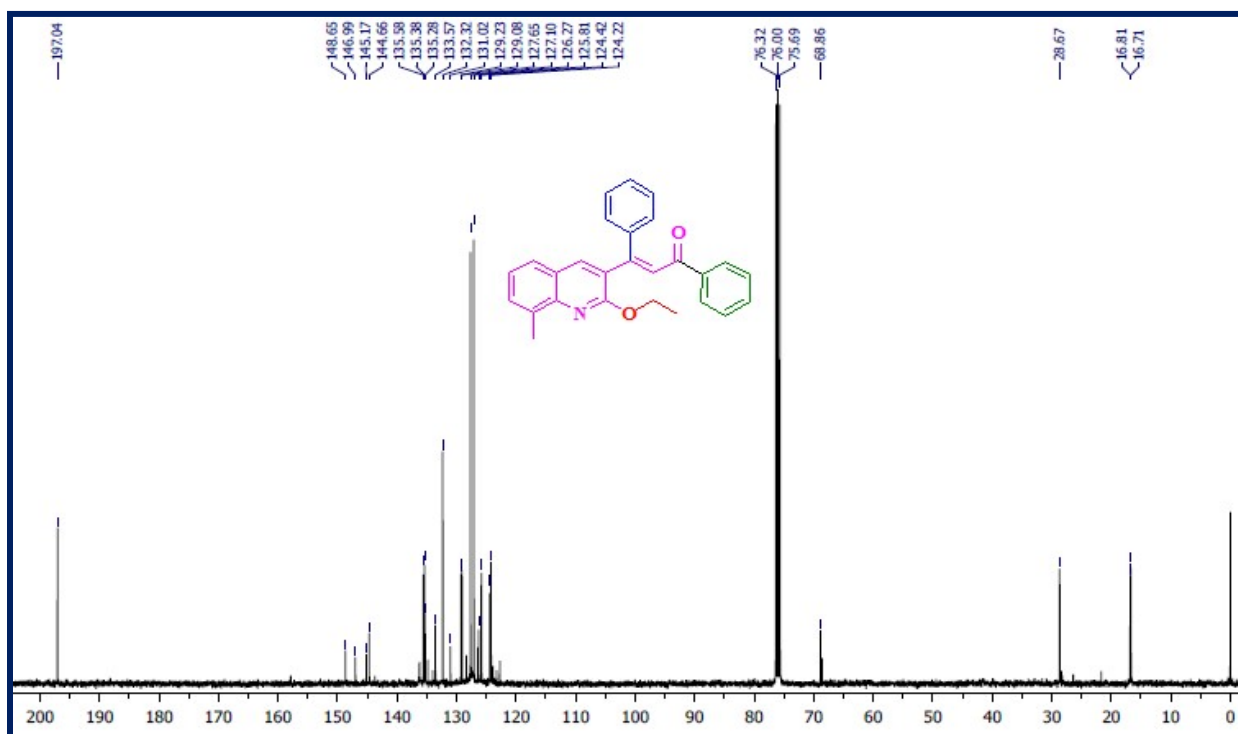


Fig. S31.  $^{13}\text{C}$  NMR spectrum of A8

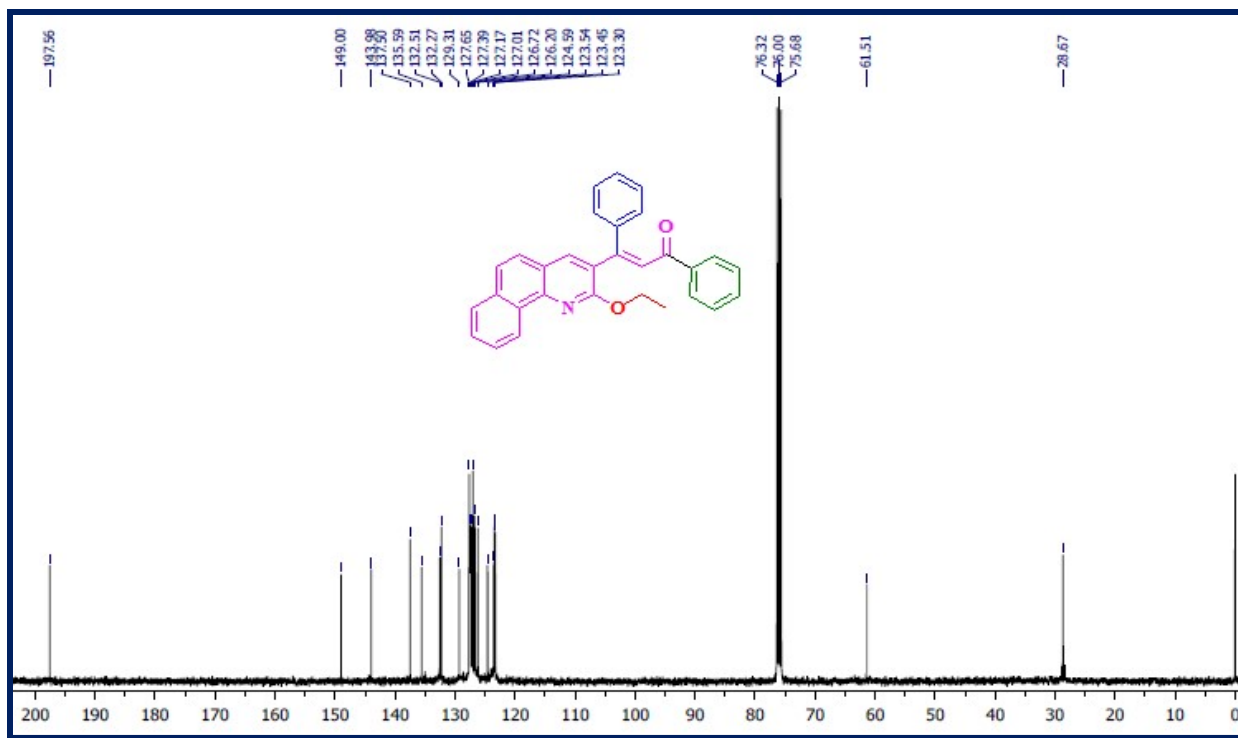


Fig. S32. <sup>13</sup>C NMR spectrum of A9

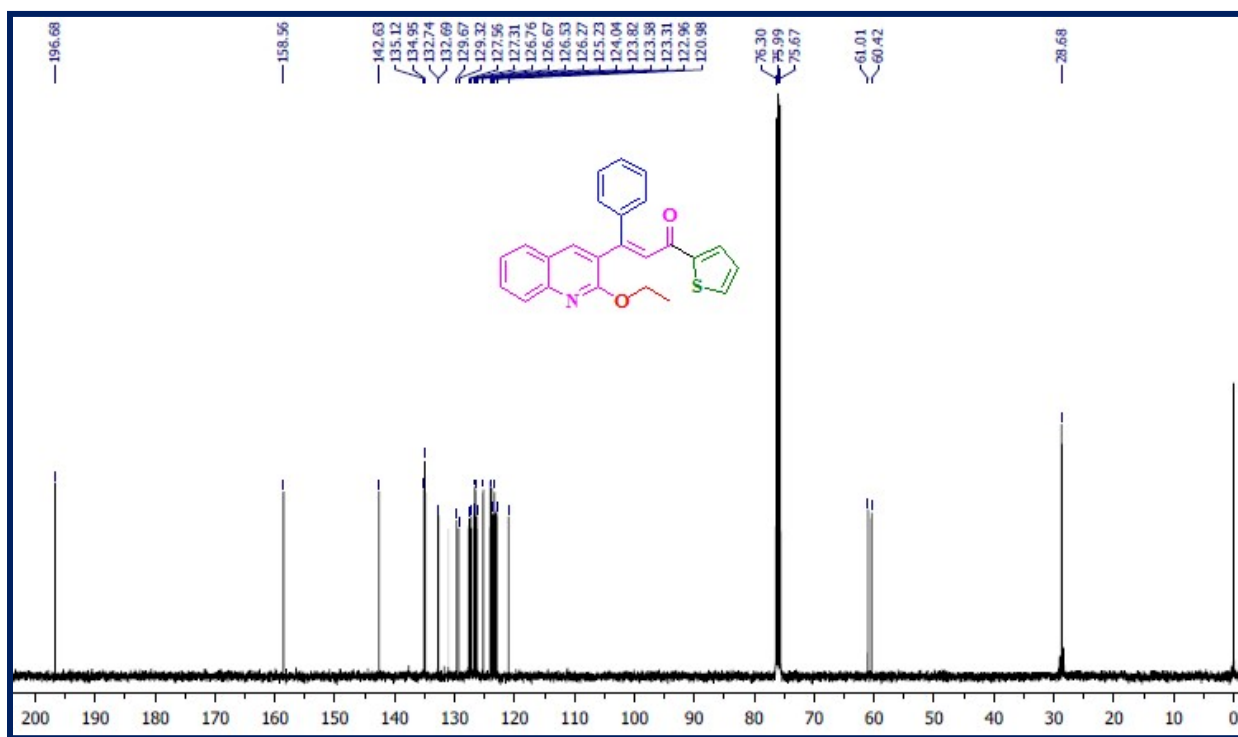


Fig. S33. <sup>13</sup>C NMR spectrum of A10

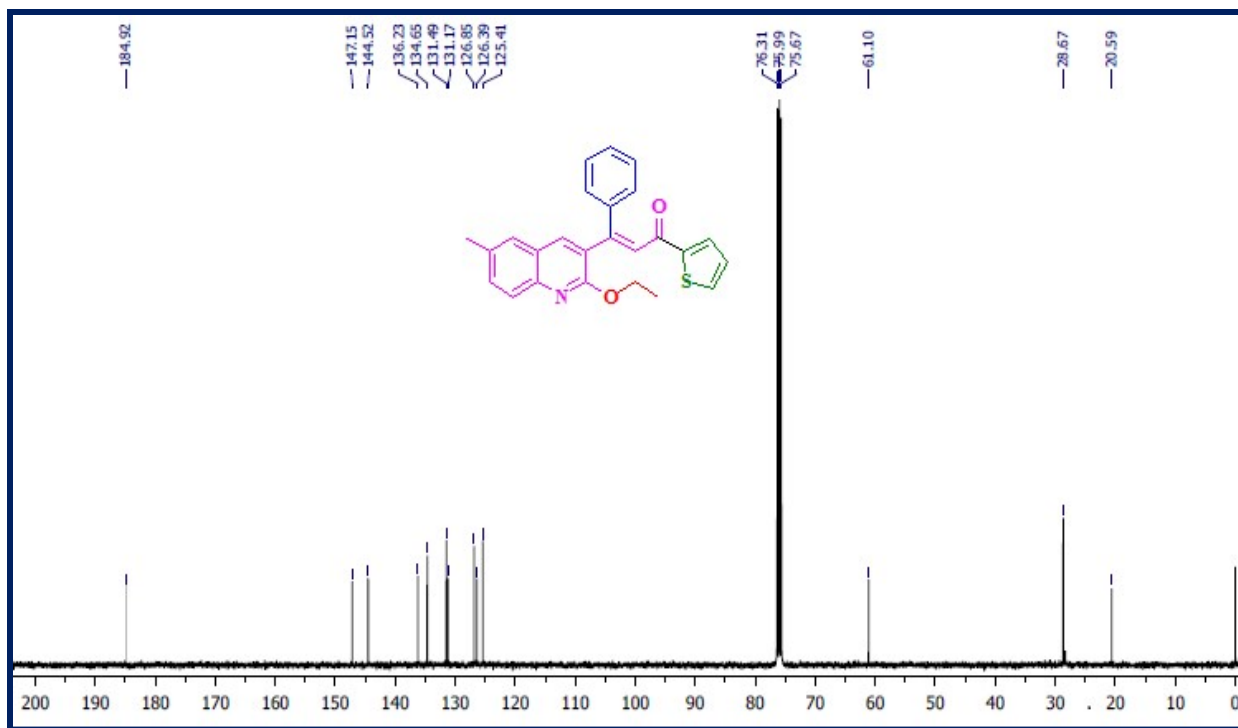


Fig. S34.  $^{13}\text{C}$  NMR spectrum of A11

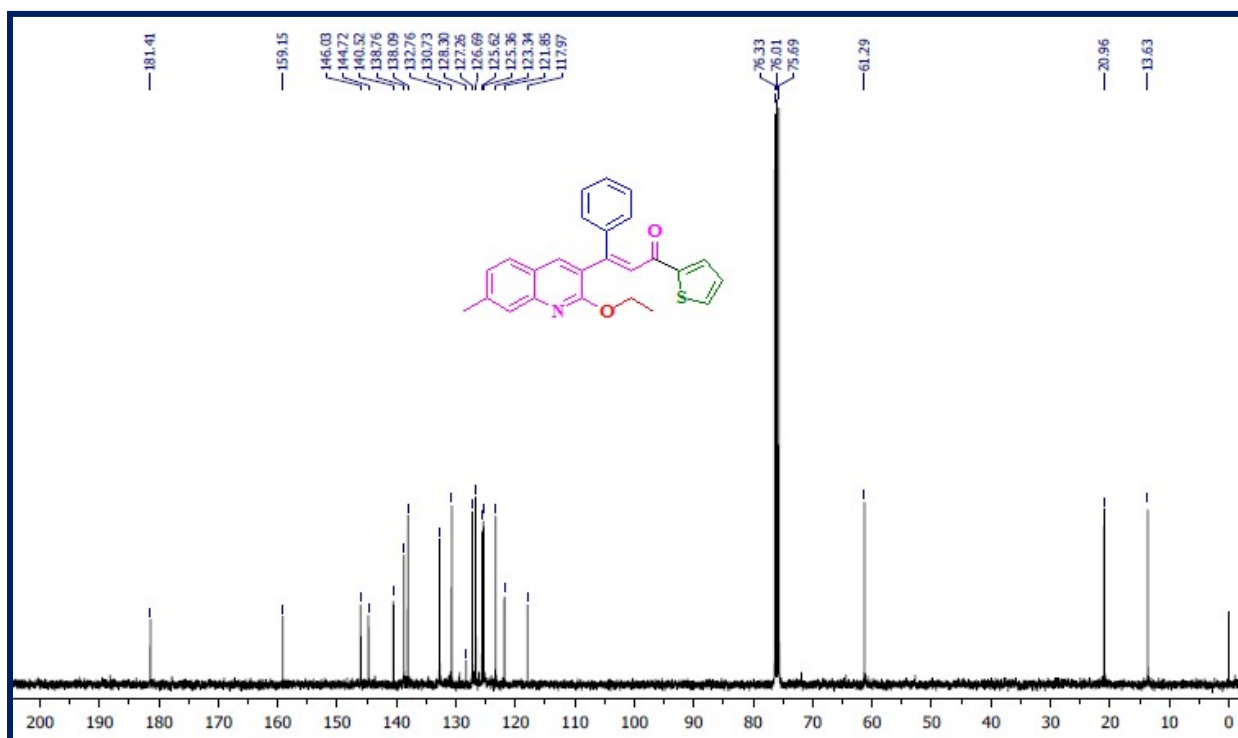


Fig. S35.  $^{13}\text{C}$  NMR spectrum of A12

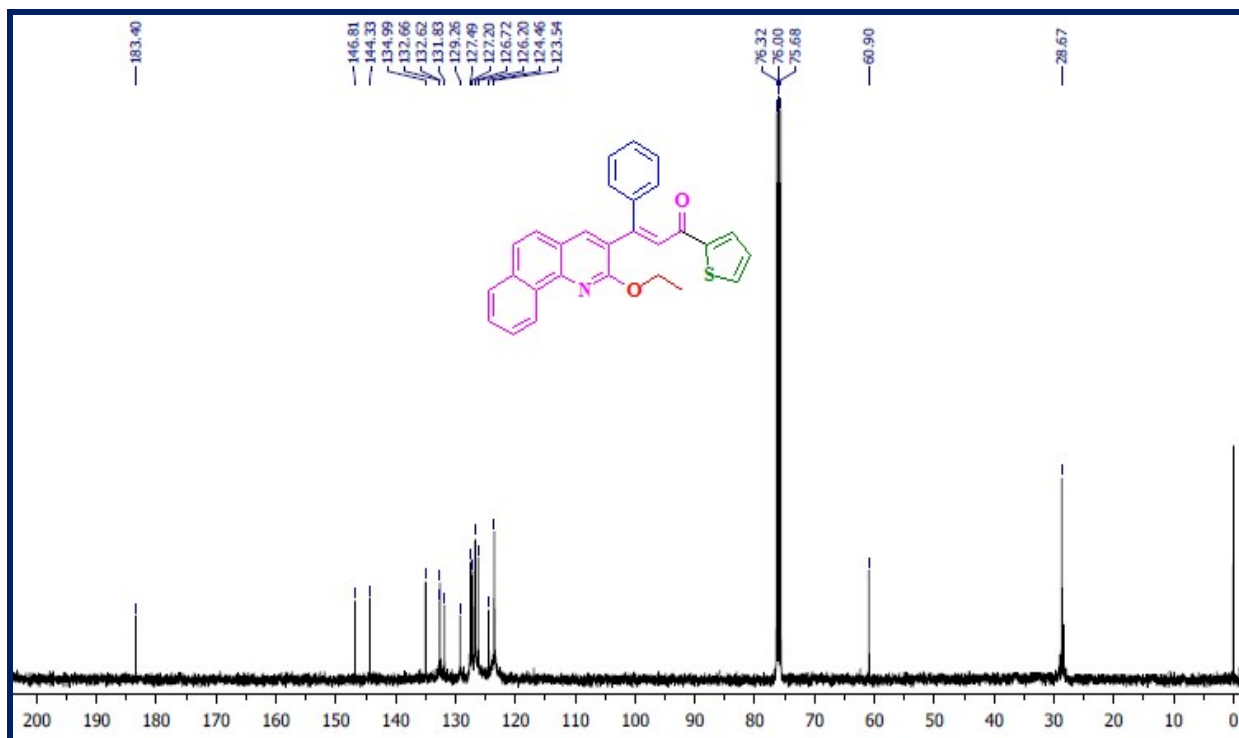


Fig. S36. <sup>13</sup>C NMR spectrum of A13

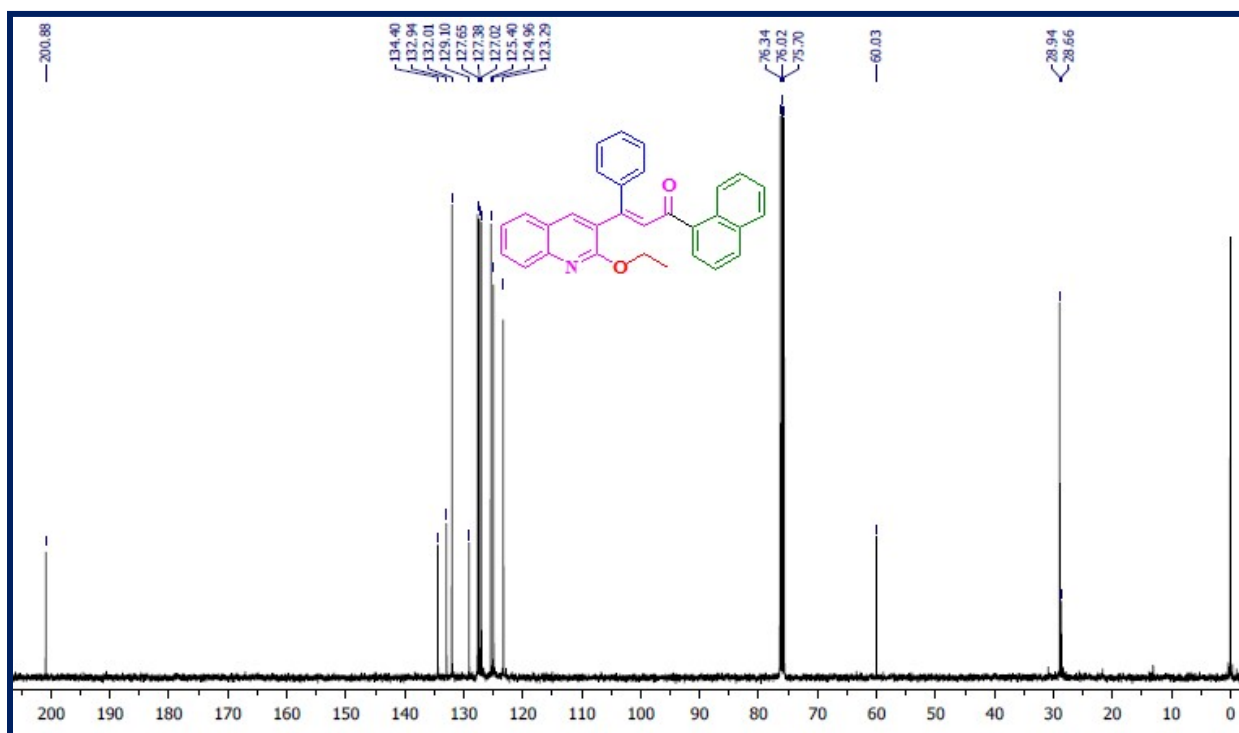


Fig. S37. <sup>13</sup>C NMR spectrum of A14

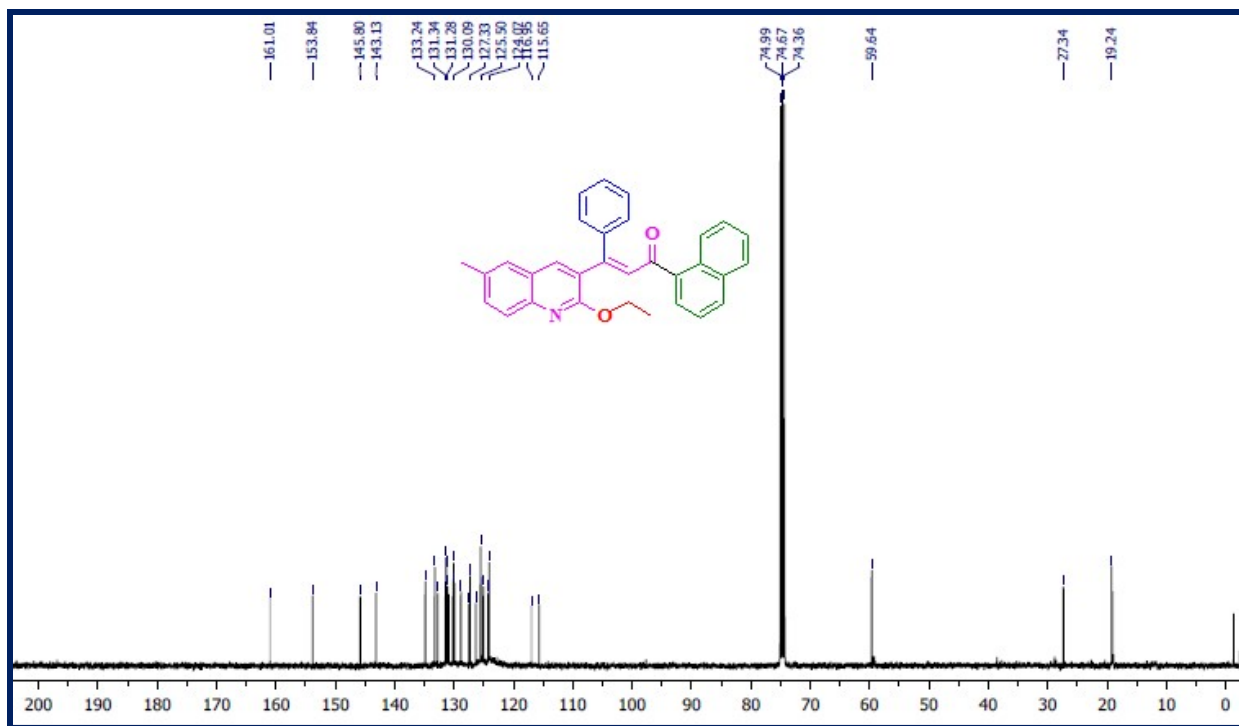


Fig. S38. <sup>13</sup>C NMR spectrum of A15

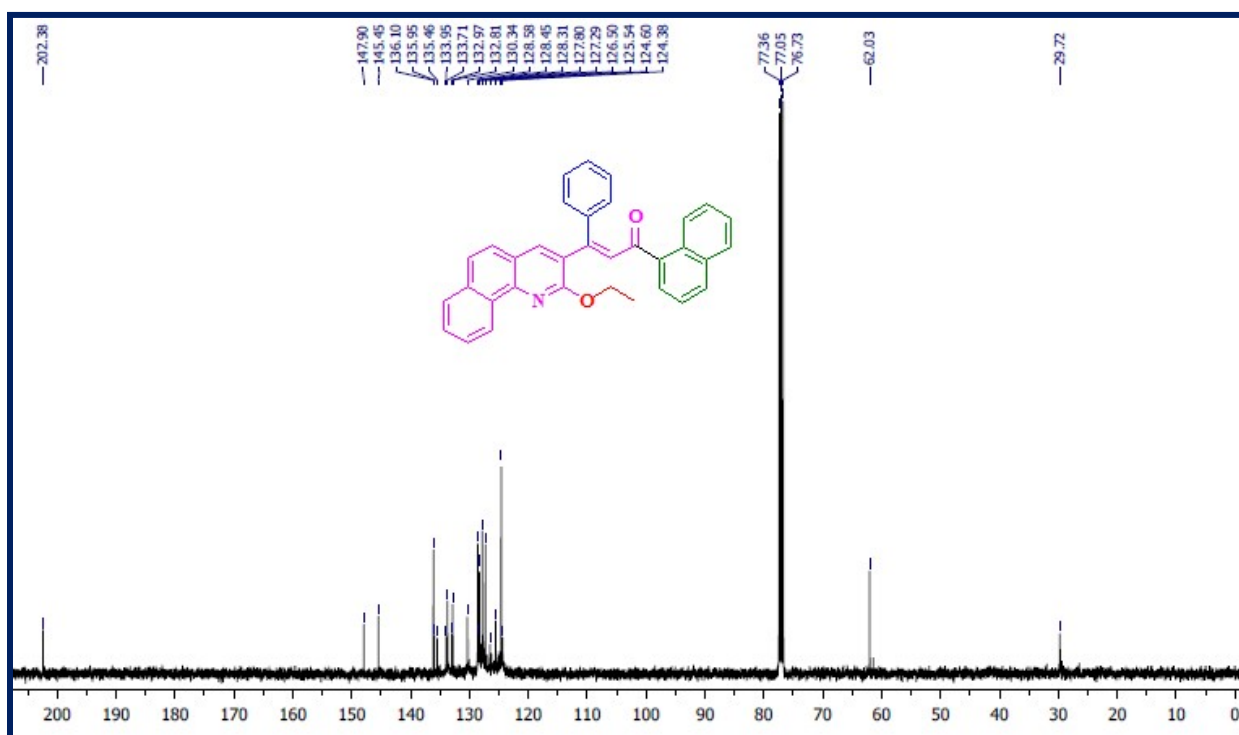


Fig. S39. <sup>13</sup>C NMR spectrum of A16



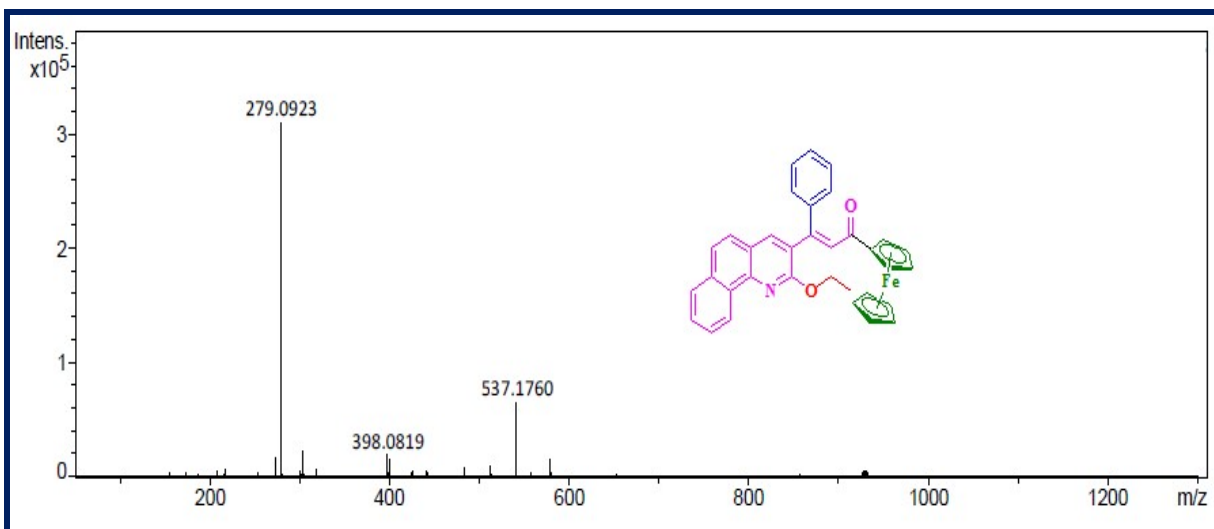


Fig. S40. Mass spectrum of A1

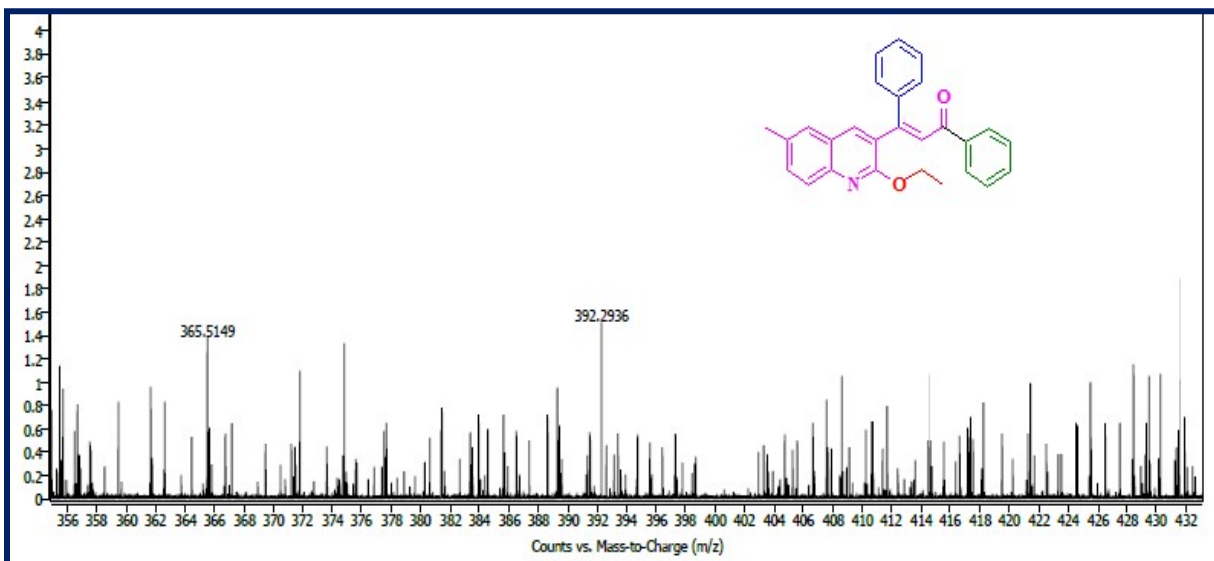


Fig. S41. Mass spectrum of A7

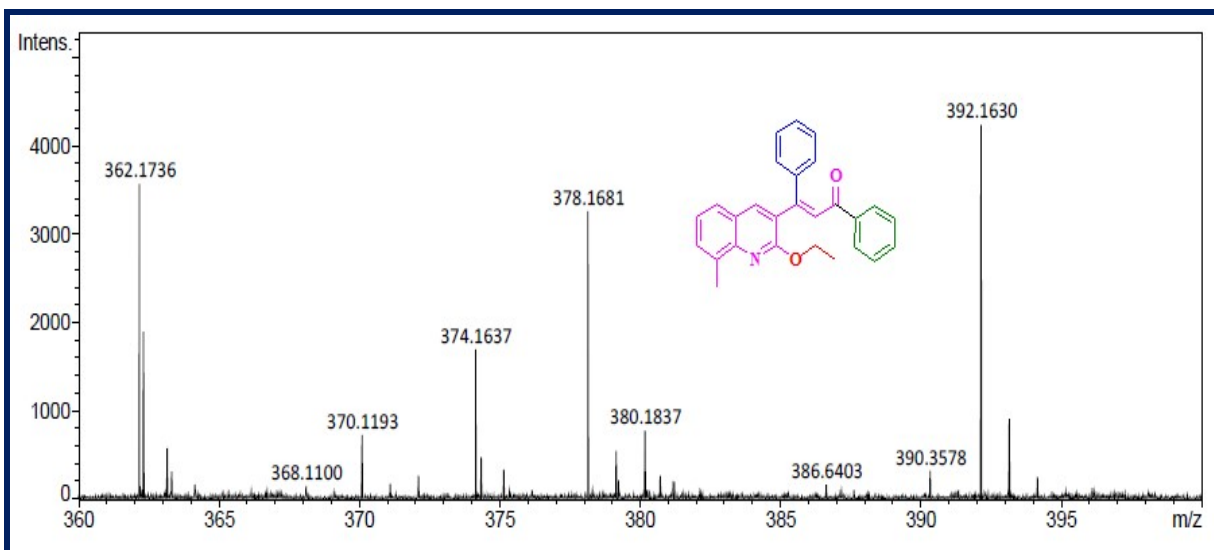


Fig. S42. Mass spectrum of A8

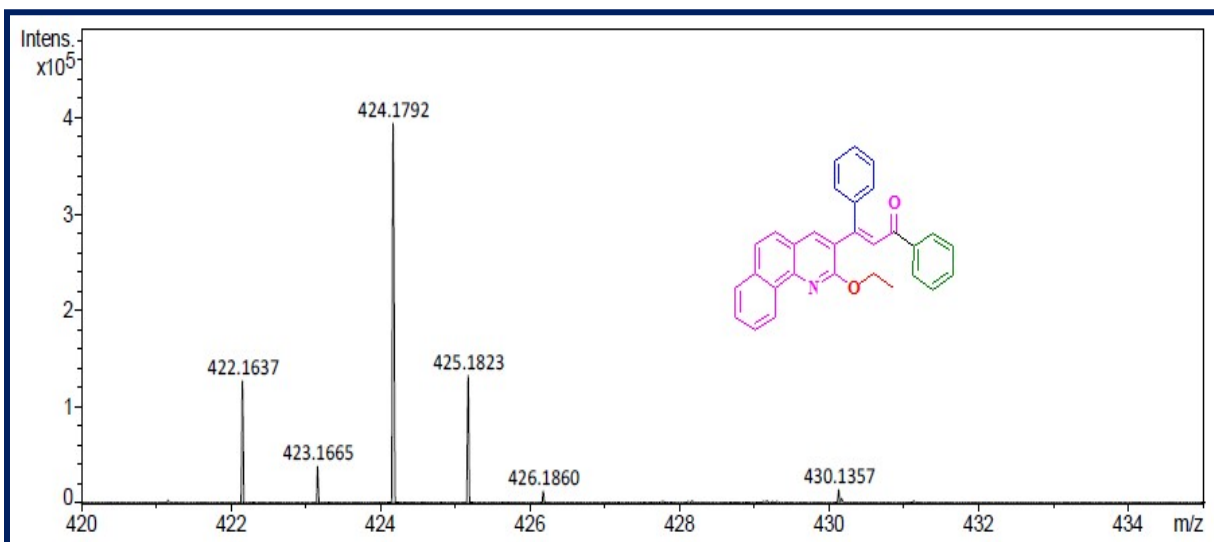


Fig. S43. Mass spectrum of A9

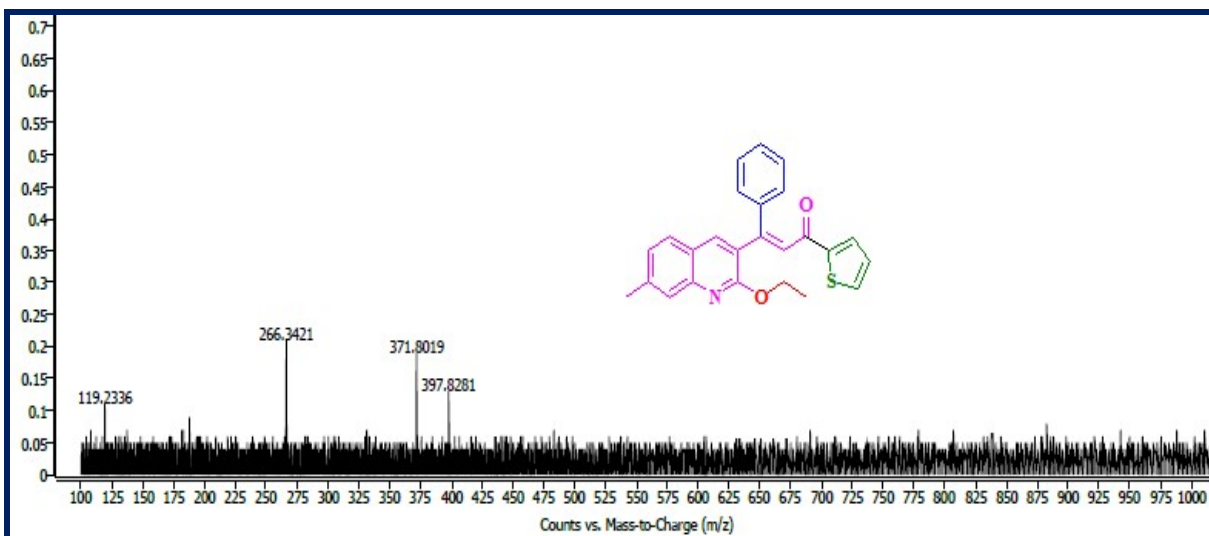


Fig. S44. Mass spectrum of A12

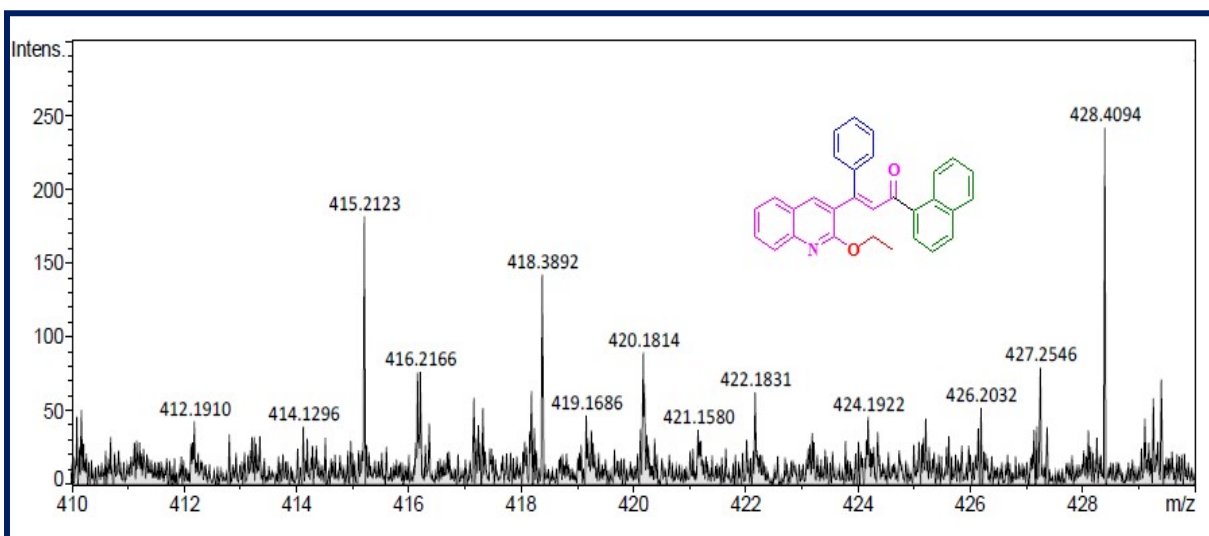
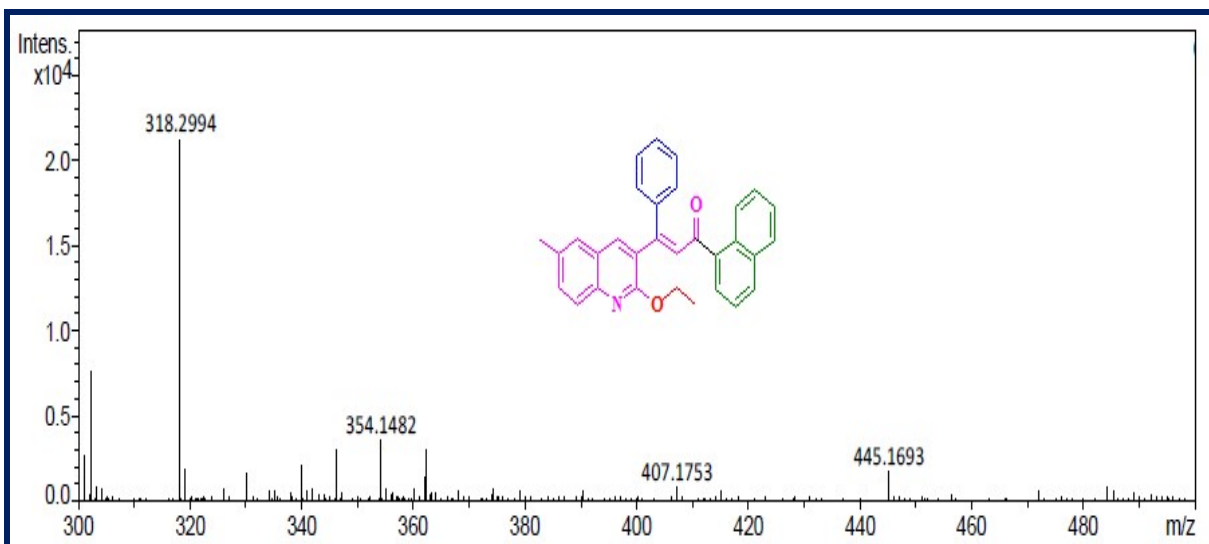
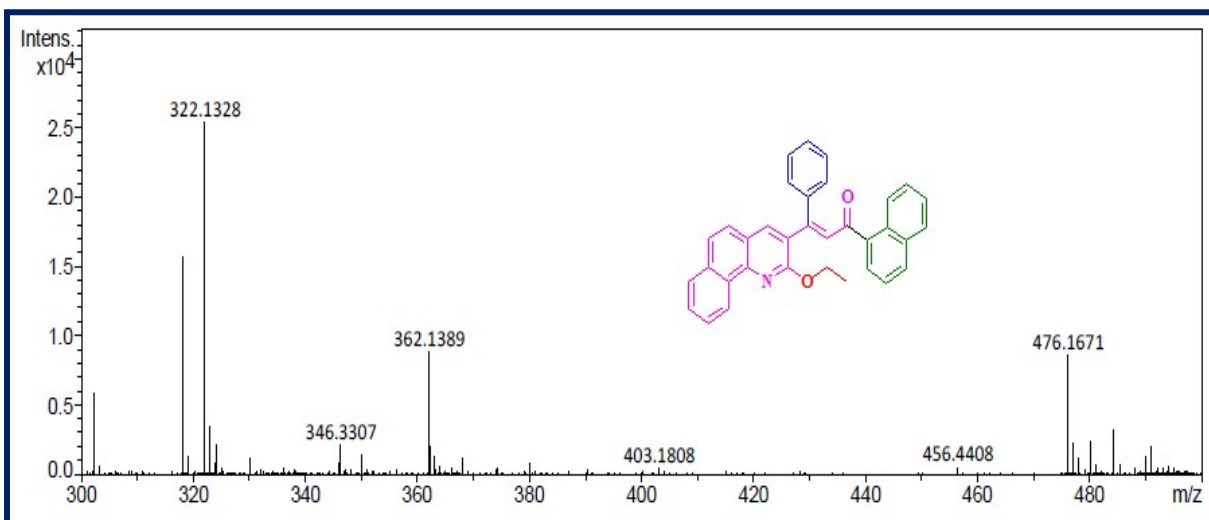


Fig. S45. Mass spectrum of A14



**Fig. S46.** Mass spectrum of A15



**Fig. S47.** Mass spectrum of A16

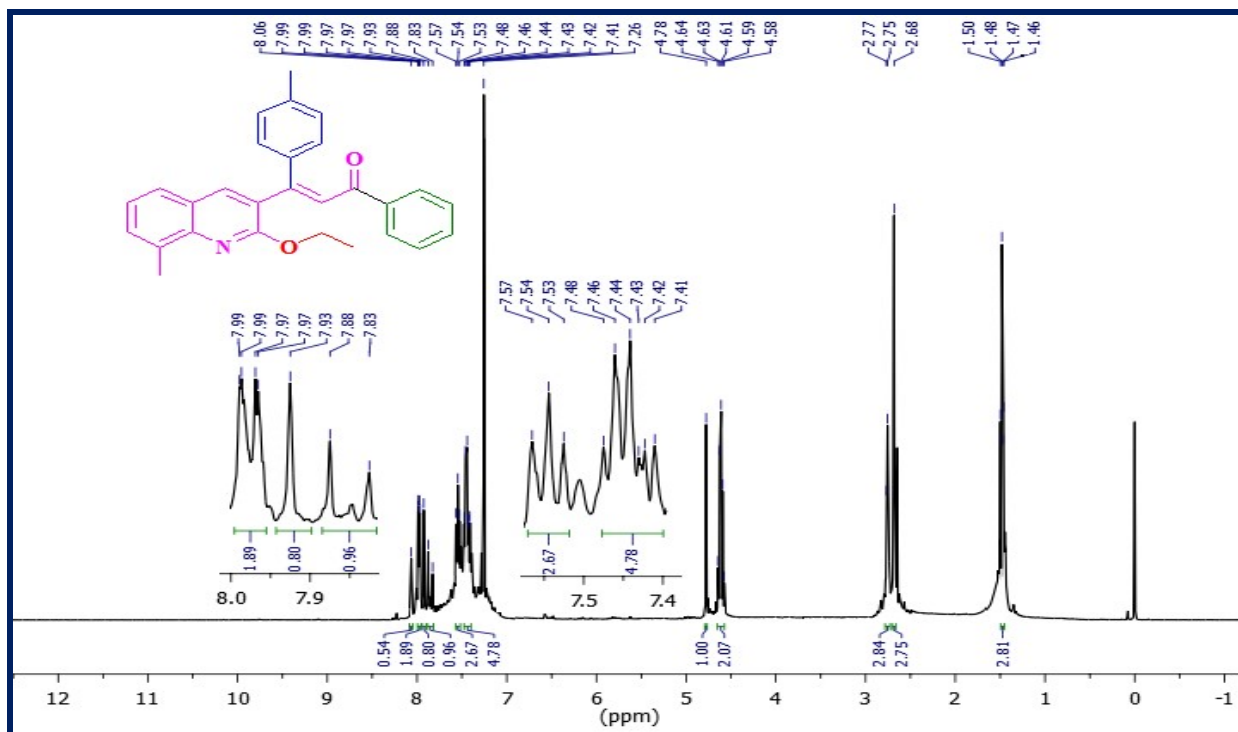


Fig. S48. <sup>1</sup>H NMR spectrum of A17

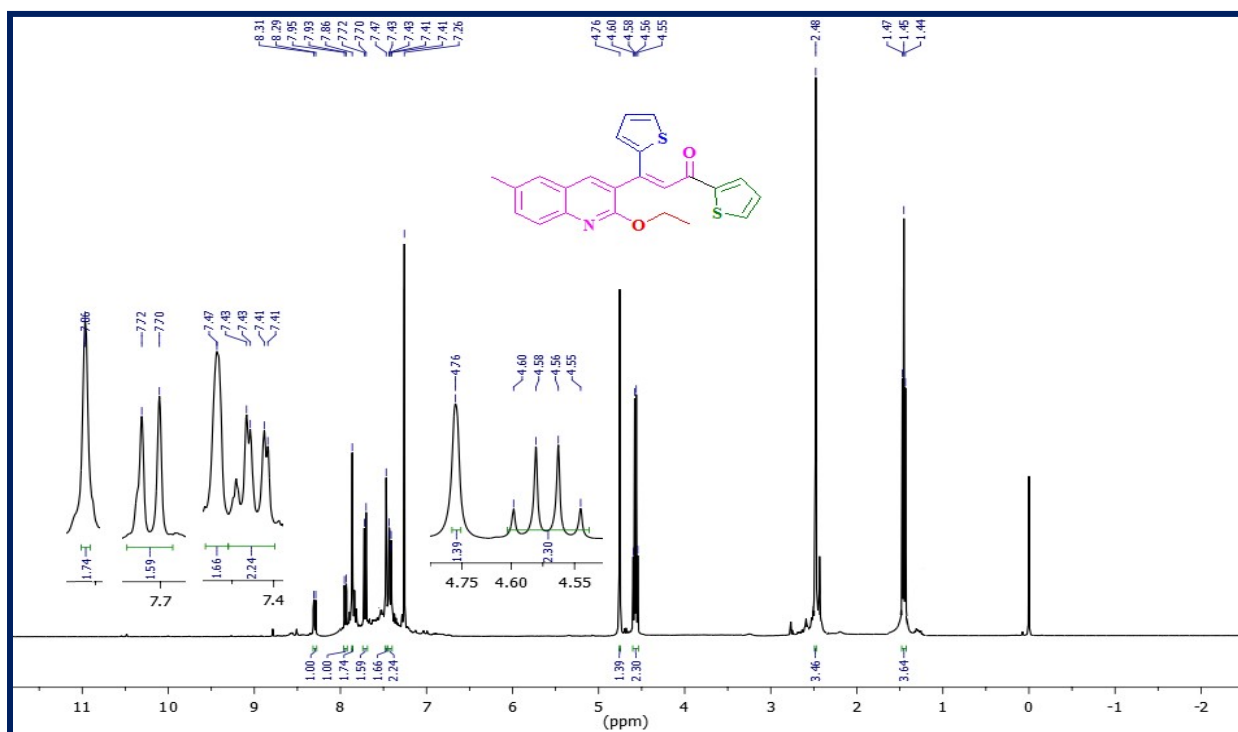


Fig. S49. <sup>1</sup>H NMR spectrum of A18

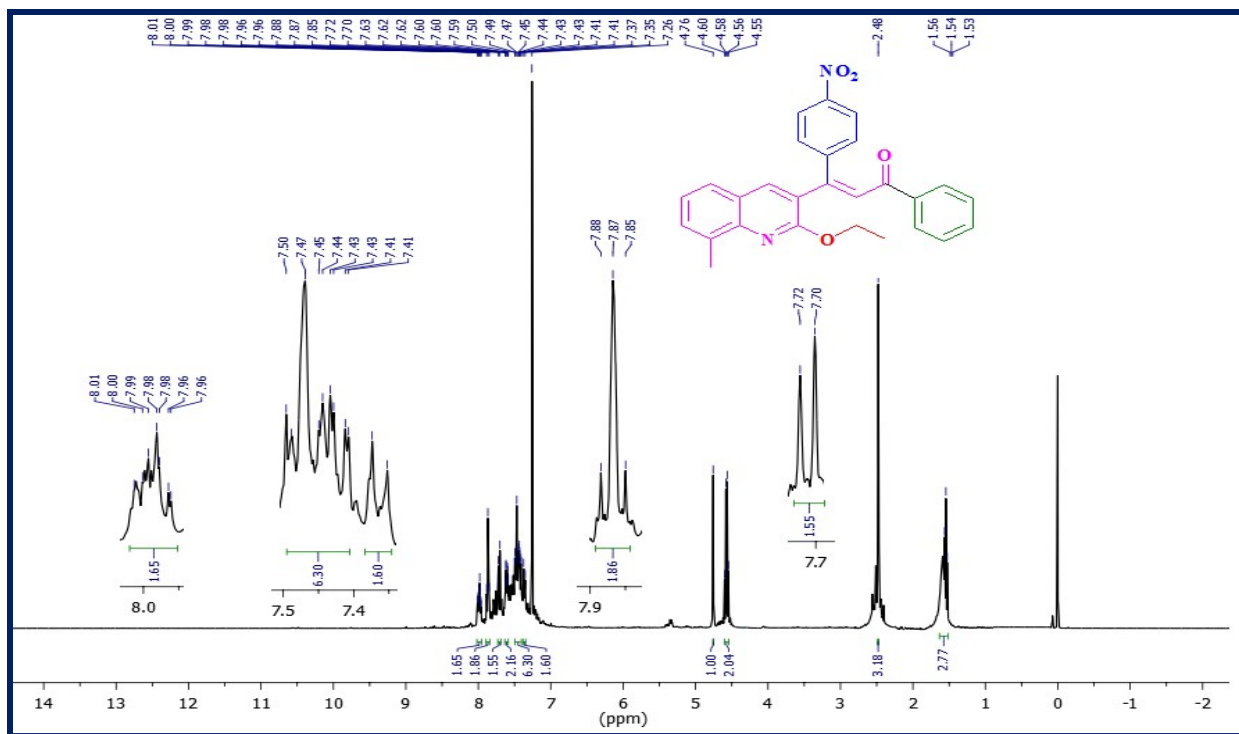


Fig. S50.  $^1\text{H}$  NMR spectrum of A19

Table S1. EPR spectral data of the complexes

Complex	$g_{\parallel}$	$g_{\perp}$	$g_{av}$
6A	2.644	2.131	2.302
6B	2.181	1.996	2.057

$$g_{av} = (g_{\parallel} + 2g_{\perp}) / 3$$

**Table S2.** Hydrogen bonds for the ligand **HL<sup>2</sup>** and the Ru(III) complexes **RuL<sup>1</sup>** and **RuL<sup>2</sup>** [Å and °]

D–H···A	d(D–H)	d(H···A)	d(D···A)	<(DHA)
<b>HL<sup>2</sup></b>				
N(3)-H(3)...O(1)	0.879	1.888	2.623	139.90
O(2)-H(23)...O(1)	0.805	1.857	2.657	172.11
N(2)- H(21)...O(2)	0.858	2.017	2.817	154.71
Symmetry operation: (x, y, z); (1/2-x,-y,1/2+z); (-x,1/2+y,1/2-z); (1/2+x,1/2-y,-z); (-x,-y,-z); (1/2+x,y,1/2-z); (x,1/2-y,1/2+z); (1/2-x,1/2+y,z)				
<b>RuL<sup>1</sup></b>				
N(3)-H(3)...O(1)	0.860	1.963	2.652	136.29
O(2)-H(2)...O(1)	1.002	1.853	2.805	157.51
Symmetry operation: (x, y, z); (-x,-y,-z)				
<b>RuL<sup>2</sup></b>				
N(3)-H(3)...O(1)	0.880	2.001	2.680	132.98
O(2)-H(2)...O(1)	0.921	1.818	2.708	161.79
Symmetry operation: (x, y, z); (-x,-y,-z)				

**Table S3.** Crystallographic data of the isolated ethoxy intermediate of **A12**

	<b>A12</b> ethoxy intermediate
Empirical formula	C <sub>19</sub> H <sub>14</sub> NO <sub>2</sub> S
Formula weight	320.37
Temperature	296(2) K
Wavelength	0.71073 Å
Crystal system	Triclinic
Space group	P -1
Unit cell dimensions	
a	8.757(3) Å
b	12.951(4) Å
c	15.309(5) Å
α	107.153(7) °
β	94.363(7) °
γ	94.516(7) °
Volume	1644.8(9)
Z	4
Density	1.294 Mg/m <sup>3</sup>
Absorption coefficient	0.205 mm <sup>-1</sup>
<i>F</i> (000)	668
θ range for data collection	2.47 to 27.21 °
Limiting indices	-11 ≤ <i>h</i> ≤ 11, -16 ≤ <i>k</i> ≤ 16, -19 ≤ <i>l</i> ≤ 19
Reflections collected	72175
Independent reflections	7318 [R(int) = 0.4964]
Absorption correction	Multi-scan
Refinement method	Full-matrix least-squares on <i>F</i> <sup>2</sup>
Data/restraints/ parameters	7318/0/419
Goodness-of-fit on <i>F</i> <sup>2</sup>	0.957
Final <i>R</i> indices [ <i>I</i> > 2σ( <i>I</i> )]	R1 = 0.1009, wR2 = 0.1901
<i>R</i> indices (all data)	R1 = 0.3167, wR2 = 0.2581



## REFERENCES

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- S2. T. Kobayashi, Y. Nishina, K. Shimizu and G. P. Sato, *Chem. Lett.*, 1988, 1137.
- S3. R. Prabhakaran and S. Dharani, Indian Patent No. 202241023805 Filed.