

# **Microwave-assisted C-N and C-S Bond-Forming Reactions: An Efficient Three-component Domino Sequence for the Synthesis of Sulfoether-Decorated Imidazo[1,2-a]pyridines**

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## **Supporting Information**

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## A. General method

All the chemicals were purchased from Alfa Aesar and Acros Chemical, and used without further purification. NMR spectra were recorded using a Bruker Avance 400 MHz NMR spectrometer (100 M Hz for carbon) and respectively referenced to 7.26 and 77.0 ppm for chloroform-d solvent with TMS as internal standard. Mass spectra were recorded on a Shimadzu GCMS-QP5050A at an ionization voltage of 70eV equipped with a DB-WAX capillary column (internal diameter = 0.25 mm, length = 30 m). IR spectra were obtained as potassium bromide pellets or as liquid films between two potassium bromide pellets with a Bruker Vector 22 spectrometer. TLC was performed using commercially prepared 100-400 mesh silica gel plates (GF<sub>254</sub>), and visualization was effected at 254 nm.

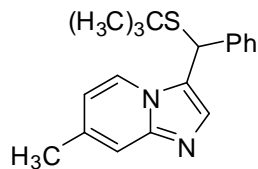
## B. General Procedure

### Synthesis of 4a according to the following procedure:

The mixture of 3-phenylpropionaldehyde (**1a** 0.5 mmol), pyridin-2-amine (**2a** 0.6 mmol), 2-methylpropane-2-thiol (**3a** 1.2 mmol), and F<sub>3</sub>CCO<sub>2</sub>H (2 mol %), was irradiated for 30 min at a preselected temperature of 130°C, with an irradiation power of 500 W. After completion of the reaction (as monitored by TLC), 10 mL water was added. The aqueous solution was extracted with diethyl ether (5×10 mL) and the combined extract was dried with anhydrous MgSO<sub>4</sub>. The solvent was removed and the crude product was separated by column chromatography to give the pure product **4a**.

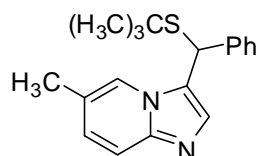
## C. Analytical data

### (4a)3-(tert-butylthio(phenyl)methyl)-7-methylimidazo[1,2-a]pyridine



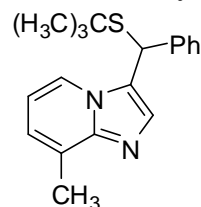
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  7.98 (d,  $J$  = 6.8 Hz, 1H), 7.25-7.44 (m, 7H), 6.63 (d,  $J$  = 6.8 Hz, 1H), 5.42 (s, 1H), 2.37 (s, 3H), 1.29 (s, 9H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  139.8, 135.0, 133.6, 128.7, 128.2, 127.5, 123.6, 116.2, 114.6, 44.8, 42.4, 31.2, 21.2. ESI-MS  $m/z$  (%) 311(100)  $[\text{M}+\text{H}]^+$ ; Anal. Calcd for  $\text{C}_{19}\text{H}_{22}\text{N}_2\text{S}$ : C, 73.51; H, 7.14; N, 9.02; Found: C, 73.21; H, 7.17; N, 9.06;

### (4b)3-(tert-butylthio(phenyl)methyl)-6-methylimidazo[1,2-a]pyridine



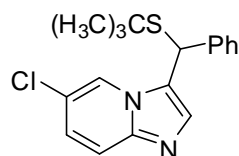
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  7.85(s, 1H), 7.33-7.53 (m, 7H), 7.02 (d,  $J$  = 8.0 Hz, 1H), 5.40 (s, 1H), 2.31 (s, 3H), 1.30 (s, 9H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  145.3, 139.9, 133.8, 128.7, 128.2, 127.5, 127.2, 123.6, 121.9, 121.6, 117.2, 44.8, 42.4, 31.2, 18.5. ESI-MS  $m/z$  (%) 311(100)  $[\text{M}+\text{H}]^+$ ; Anal. Calcd for  $\text{C}_{19}\text{H}_{22}\text{N}_2\text{S}$ : C, 73.51; H, 7.14; N, 9.02; Found: C, 73.16; H, 7.19; N, 9.07;

### (4c)3-(tert-butylthio(phenyl)methyl)-8-methylimidazo[1,2-a]pyridine



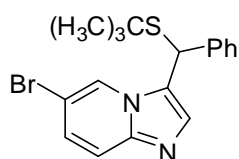
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  7.94 (d,  $J$  = 8.0 Hz, 1H), 7.25-7.46 (m, 6H), 6.98 (d,  $J$  = 6.8 Hz, 1H), 6.72 (d,  $J$  = 6.8 Hz, 1H), 5.41 (s, 1H), 2.31 (s, 3H), 1.30 (s, 9H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  146.6, 139.8, 133.3, 128.7, 128.1, 127.6, 127.5, 124.4, 123.0, 122.1, 112.0, 44.8, 42.4, 31.2, 17.0. ESI-MS  $m/z$  (%) 311(100)  $[\text{M}+\text{H}]^+$ ; Anal. Calcd for  $\text{C}_{19}\text{H}_{22}\text{N}_2\text{S}$ : C, 73.51; H, 7.14; N, 9.02; Found: C, 73.19; H, 7.18; N, 9.07;

### (4d)3-(tert-butylthio(phenyl)methyl)-6-chloroimidazo[1,2-a]pyridine



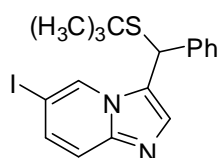
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  8.17 (s, 1H), 7.59 (d,  $J$  = 8.0 Hz, 1H), 7.29-7.45 (m, 6H), 7.15 (d,  $J$  = 8.0 Hz, 1H), 5.38 (s, 1H), 1.31 (s, 9H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  139.3, 135.1, 129.0, 128.9, 128.8, 128.2, 127.8, 125.4, 122.3, 120.3, 118.2, 45.0, 42.3, 31.2. ESI-MS  $m/z$  (%) 331(100)  $[\text{M}+\text{H}]^+$ ; Anal. Calcd for  $\text{C}_{18}\text{H}_{19}\text{ClN}_2\text{S}$ : C, 65.34; H, 5.79; N, 8.47; Found: C, 65.03; H, 5.82; N, 8.51;

**(4e)6-bromo-3-(tert-butylthio(phenyl)methyl)imidazo[1,2-a]pyridine**



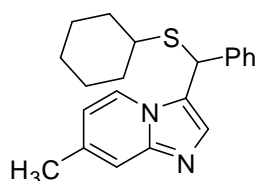
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  8.31 (s, 1H), 7.27-7.54 (m, 8H), 7.15 (d,  $J = 8.0$  Hz, 1H), 5.38 (s, 1H), 1.31 (s, 9H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  139.3, 134.7, 129.0, 128.9, 128.3, 128.2, 127.8, 127.6, 124.7, 118.5, 106.9, 45.0, 42.4, 31.2. ESI-MS  $m/z$  (%)375(100)  $[\text{M}+\text{H}]^+$ ; Anal. Calcd for  $\text{C}_{18}\text{H}_{19}\text{BrN}_2\text{S}$ : C, 57.60; H, 5.10; N, 7.46; Found: C, 57.32; H, 5.13; N, 7.49;

**(4f)3-(tert-butylthio(phenyl)methyl)-6-iodoimidazo[1,2-a]pyridine**



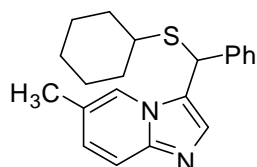
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  8.39 (s, 1H), 7.26-7.46 (m, 8H), 5.35 (s, 1H), 1.31 (s, 9H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  146.6, 139.3, 133.9, 129.5, 128.9, 128.2, 128.1, 127.8, 120.0, 118.8, 75.2, 45.0, 42.3, 31.2. ESI-MS  $m/z$  (%)423 (100)  $[\text{M}+\text{H}]^+$ ; Anal. Calcd for  $\text{C}_{18}\text{H}_{19}\text{IN}_2\text{S}$ : C, 51.19; H, 4.53; N, 6.63; Found: C, 51.43; H, 4.50; N, 6.60;

**(4g)3-(cyclohexylthio(phenyl)methyl)-7-methylimidazo[1,2-a]pyridine**



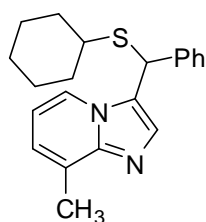
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  7.93 (d,  $J = 8.0$  Hz, 1H), 7.27-7.45 (m, 7H), 6.58 (d,  $J = 8.0$  Hz, 1H), 5.45 (s, 1H), 2.56 (t,  $J = 8.0$  Hz, 1H), 2.37 (s, 3H), 1.22-1.72 (m, 10H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  138.5, 135.2, 133.2, 128.8, 128.7, 128.1, 127.7, 123.7, 122.6, 116.2, 114.6, 43.7, 42.9, 33.4, 33.3, 25.9, 25.8, 25.7, 21.2. ESI-MS  $m/z$  (%)337 (100)  $[\text{M}+\text{H}]^+$ ; Anal. Calcd for  $\text{C}_{21}\text{H}_{24}\text{N}_2\text{S}$ : C, 74.96; H, 7.19; N, 8.33; Found: C, 74.61; H, 7.23; N, 8.37;

**(4h)3-(cyclohexylthio(phenyl)methyl)-6-methylimidazo[1,2-a]pyridine**



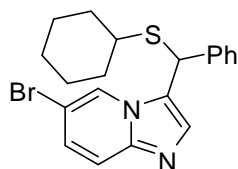
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  7.81 (s, 1H), 7.28-7.57 (m, 7H), 7.03 (d,  $J = 8.4$  Hz, 1H), 5.43 (s, 1H), 2.61 (t,  $J = 10.0$  Hz, 1H), 2.27 (s, 3H), 1.29-1.95 (m, 10H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  138.5, 133.0, 132.0, 128.9, 128.8, 128.2, 128.0, 127.7, 127.6, 122.0, 117.0, 43.7, 42.9, 33.4, 33.3, 25.8, 25.8, 25.7, 18.4. ESI-MS  $m/z$  (%)337 (100)  $[\text{M}+\text{H}]^+$ ; Anal. Calcd for  $\text{C}_{21}\text{H}_{24}\text{N}_2\text{S}$ : C, 74.96; H, 7.19; N, 8.33; Found: C, 74.63; H, 7.25; N, 8.41;

**(4i)3-(cyclohexylthio(phenyl)methyl)-8-methylimidazo[1,2-a]pyridine**



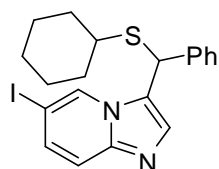
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  7.89 (d,  $J$  = 6.8 Hz, 1H), 7.28-7.54 (m, 6H), 6.98 (d,  $J$  = 6.4 Hz, 1H), 6.69 (d,  $J$  = 6.4 Hz, 1H), 5.44 (s, 1H), 2.53-2.65 (m, 4H), 1.22-1.92 (m, 10H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  146.8, 138.5, 132.9, 128.7, 128.1, 127.7, 127.6, 123.6, 123.0, 122.2, 112.0, 43.7, 43.0, 33.4, 33.3, 25.9, 25.8, 25.7, 17.0. ESI-MS  $m/z$  (%)337 (100)  $[\text{M}+\text{H}]^+$ ; Anal. Calcd for  $\text{C}_{21}\text{H}_{24}\text{N}_2\text{S}$ : C, 74.96; H, 7.19; N, 8.33; Found: C, 74.58; H, 7.29; N, 8.45;

**(4j)6-bromo-3-(cyclohexylthio(phenyl)methyl)imidazo[1,2-a]pyridine**



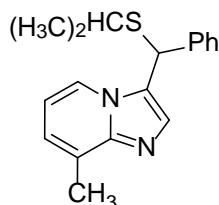
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  8.22 (s, 1H), 7.20-7.52 (m, 8H), 5.42 (s, 1H), 2.55-2.60 (m, 1H), 1.18-1.96 (m, 10H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  138.0, 134.3, 128.9, 128.4, 128.3, 128.1, 127.6, 124.5, 118.5, 106.8, 43.8, 42.8, 33.4, 33.3, 25.8, 25.7. ESI-MS  $m/z$  (%)401 (100)  $[\text{M}+\text{H}]^+$ ; Anal. Calcd for  $\text{C}_{20}\text{H}_{21}\text{Br N}_2\text{S}$ : C, 59.85; H, 5.27; N, 6.98; Found: C, 59.60; H, 5.29; N, 7.01;

**(4k) 3-(cyclohexylthio(phenyl)methyl)-6-iodoimidazo[1,2-a]pyridine**



$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  8.32 (s, 1H), 7.28-7.43 (m, 8H), 5.39 (s, 1H), 2.55-2.60 (m, 1H), 1.19-1.97 (m, 10H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  138.0, 133.8, 132.2, 132.2, 129.5, 128.9, 128.2, 128.0, 118.9, 75.2, 43.9, 42.8, 33.4, 33.3, 25.8, 25.7. ESI-MS  $m/z$  (%)449 (100)  $[\text{M}+\text{H}]^+$ ; Anal. Calcd for  $\text{C}_{20}\text{H}_{21}\text{I N}_2\text{S}$ : C, 59.85; H, 5.27; N, 6.98; Found: C, 59.60; H, 5.29; N, 7.01;

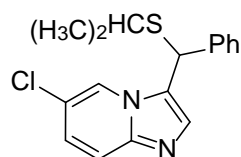
**(4l)3-((isopropylthio)(phenyl)methyl)-8-methylimidazo[1,2-a]pyridine**



$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  7.93(d,  $J$  = 6.8 Hz, 1H), 7.57(s, 1H), 7.25-7.43(m, 5H), 6.99(d,  $J$  = 6.4, 1H), 6.70(t,  $J$  = 6.8, 1H), 5.43(s, 1H), 2.74-2.80(m, 1H), 2.60(s, 1H), 1.25(m, 6H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  146.44, 138.22, 132.29, 128.83, 128.18, 127.83, 127.51, 123.67, 123.53,

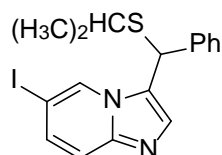
122.33, 112.39, 43.60, 35.33, 23.23, 23.10, 17.02.ESI-MS  $m/z$  (%)337(100)  $[M+H]^+$ ; Anal. Calcd for  $C_{18}H_{20}N_2S$ : C, 72.93; H, 6.80; N, 9.45; Found: C, 72.64; H, 6.83; N, 9.50;

**(4m)6-chloro-3-((isopropylthio)(phenyl)methyl)imidazo[1,2-a]pyridine**



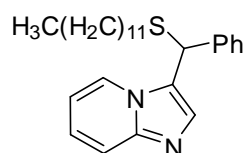
$^1H$  NMR (400 MHz,  $CDCl_3$ ):  $\delta$  8.30(s, 1H), 7.29-7.58(m, 8H), 5.42(s, 1H), 2.76-2.83(m, 1H), 1.26-1.33(m, 6H).  $^{13}C$  NMR (100 MHz,  $CDCl_3$ ):  $\delta$  137.81, 129.05, 128.97, 128.20, 128.09, 127.76, 124.77, 124.73, 118.59, 107.03, 43.55, 35.45, 23.16. ESI-MS  $m/z$  (%)337(100)  $[M+H]^+$ ; Anal. Calcd for  $C_{17}H_{17}ClN_2S$ : C, 64.44; H, 5.41; N, 8.84; Found: C, 64.13; H, 5.44; N, 8.89;

**(4n)6-iodo-3-((isopropylthio)(phenyl)methyl)imidazo[1,2-a]pyridine**



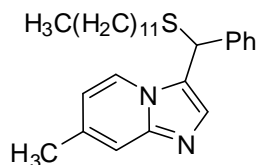
$^1H$  NMR (400 MHz,  $CDCl_3$ ):  $\delta$  8.35(s, 1H), 7.27-7.48(m, 8H), 5.37(s, 1H), 2.75-2.81(m, 1H), 1.24-1.32(m, 6H).  $^{13}C$  NMR (100 MHz,  $CDCl_3$ ):  $\delta$  140.0, 139.4, 137.7, 133.2, 132.6, 129.5, 129.0, 128.2, 128.1, 123.5, 118.7, 115.7, 75.5, 43.4, 35.50, 23.19, 23.17. ESI-MS  $m/z$  (%)337(100)  $[M+H]^+$ ; Anal. Calcd for  $C_{17}H_{17}IN_2S$ : C, 50.01; H, 4.20; N, 6.86; Found: C, 50.23; H, 4.17; N, 6.82;

**(5aa) 3-((dodecylthio)(phenyl)methyl)H-imidazo[1,2-a]pyridine<sup>1</sup>**



$^1H$  NMR (400 MHz,  $CDCl_3$ ):  $\delta$  8.05 (d,  $J = 7.2$  Hz, 1H), 7.67 (d,  $J = 8.8$  Hz, 1H), 7.54 (s, 1H), 7.27-7.42 (m, 5H), 7.20 (t,  $J = 8.0$  Hz, 1H), 6.78 (t,  $J = 6.8$  Hz, 1H), 5.38 (s, 1H), 2.46 (t,  $J = 7.6$  Hz, 2H), 1.57-1.50 (m, 2H), 1.22-1.30 (m, 18H), 0.89 (t,  $J = 6.4$  Hz, 3H).  $^{13}C$  NMR (100 MHz,  $CDCl_3$ )  $\delta$  138.0, 133.4, 128.7, 128.0, 127.8, 124.4, 124.3, 123.8, 117.7, 112.0, 44.5, 31.9, 31.8, 29.5, 29.4, 29.3, 29.2, 29.1, 29.0, 28.7, 22.6, 14.0.

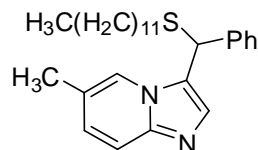
**(5ab) 3-((dodecylthio)(phenyl)methyl)-7-methylH-imidazo[1,2-a]pyridine**



$^1H$  NMR (400 MHz,  $CDCl_3$ ):  $\delta$  7.94 (d,  $J = 7.2$  Hz, 1H), 7.39-7.46 (m, 4H), 7.27-7.34 (m, 3H), 6.62 (d,  $J = 6.4$  Hz, 1H), 5.35 (s, 1H), 2.44 (t,  $J = 7.2$  Hz, 2H), 2.34 (s, 3H), 1.49-1.56 (m, 2H), 1.22-1.29 (m, 18H), 0.89 (t,  $J = 6.8$  Hz, 3H).  $^{13}C$  NMR (100 MHz,  $CDCl_3$ ):  $\delta$  138.1, 135.4, 133.1, 128.7, 128.1, 128.2, 127.8, 123.8, 116.1, 114.7, 44.6, 32.0, 31.9, 29.6, 29.5, 29.4, 29.3, 29.2, 29.1, 28.9, 22.6, 21.2, 14.1. MS (EI)  $m/z$ : 422, 389, 254, 221, 177, 145, 119, 92, 65, 57;

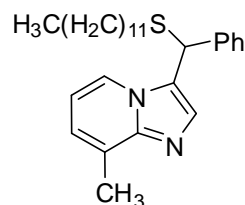
Anal. Calcd for C<sub>27</sub>H<sub>38</sub>N<sub>2</sub>S: C, 76.72; H, 9.06; N, 6.63; Found: C, 76.01; H, 9.15; N, 6.68;

**(5ac) 3-((dodecylthio)(phenyl)methyl)-6-methylH-imidazo[1,2-a]pyridine**



<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ 7.83 (s, 1H), 7.55 (d, *J* = 9.2 Hz, 1H), 7.48 (s, 1H), 7.44 (d, *J* = 7.2 Hz, 2H), 7.27-7.35 (m, 3H), 7.03 (d, *J* = 9.2 Hz, 1H), 5.36 (s, 1H), 2.46 (t, *J* = 7.2 Hz, 2H), 2.27 (s, 3H), 1.54-1.58 (m, 2H), 1.23-1.33 (m, 18H), 0.89 (t, *J* = 6.8 Hz, 3H). <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ 145.5, 138.2, 133.4, 128.7, 128.2, 127.8, 122.1, 121.7, 117.2, 44.6, 32.1, 31.9, 29.7, 29.6, 29.5, 29.4, 29.2, 29.1, 28.9, 22.7, 18.5, 14.1. MS (EI) *m/z*: 422, 254, 221, 145, 91, 77, 57; Anal. Calcd for C<sub>27</sub>H<sub>38</sub>N<sub>2</sub>S: C, 76.72; H, 9.06; N, 6.63; Found: C, 76.07; H, 9.12; N, 6.67;

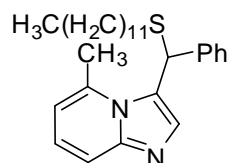
**(5ad) 3-((dodecylthio)(phenyl)methyl)-8-methylH-imidazo[1,2-a]pyridine**



<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ 7.88 (d, *J* = 6.8 Hz, 1H), 7.56 (s, 1H), 7.41 (d, *J* = 8.0 Hz, 2H), 7.33-7.25 (m, 3H), 6.96-6.85 (m, 1H), 6.62 (t, *J* = 6.8 Hz, 1H), 5.38 (s, 1H), 2.6 (s, 3H), 2.46-2.42 (t, *J* = 7.2 Hz, 2H), 1.57-1.54 (m, 2H), 1.22-1.30 (m, 18H), 0.82 (t, *J* = 7.2 Hz, 3H). <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ 146.8, 138.2, 133.0, 128.7, 128.2, 127.8, 127.6, 123.2, 123.1, 122.3, 112.0, 44.7, 32.1, 31.9, 29.7, 29.6, 29.5, 29.4, 29.2, 29.1, 28.8, 22.7, 17.0, 14.1. MS (EI) *m/z*: 422, 345, 254, 221, 91, 65, 57.

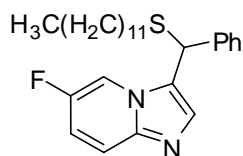
Anal. Calcd for C<sub>27</sub>H<sub>38</sub>N<sub>2</sub>S: C, 76.72; H, 9.06; N, 6.63; Found: C, 77.38; H, 8.97; N, 6.57;

**(5ae) 3-((dodecylthio)(phenyl)methyl)-5-methylH-imidazo[1,2-a]pyridine**



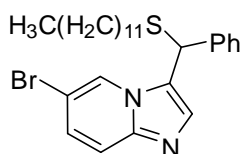
<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ 7.76 (s, 1H), 7.52 (d, *J* = 8.4 Hz, 1H), 7.31-7.35 (m, 4H), 7.23-7.26 (m, 1H), 7.05 (dd, *J* = 7.2, 8.4 Hz, 1H), 6.46 (d, *J* = 6.8 Hz, 1H), 5.87 (s, 1H), 2.86 (s, 3H), 2.54 (t, *J* = 7.2 Hz, 2H), 1.52-1.60 (m, 2H), 1.23-1.32 (m, 18H), 0.89 (t, *J* = 6.8 Hz, 3H). <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ 148.0, 140.6, 136.2, 136.1, 136.0, 128.8, 128.4, 127.6, 125.6, 124.7, 124.6, 116.3, 114.0, 46.4, 33.0, 31.9, 29.6, 29.5, 29.4, 29.3, 29.2, 29.1, 28.9, 22.7, 20.6, 14.1. MS (EI) *m/z*: 422, 254, 221, 145, 77, 57, 43. Anal. Calcd for C<sub>27</sub>H<sub>38</sub>N<sub>2</sub>S: C, 76.72; H, 9.06; N, 6.63; Found: C, 76.05; H, 9.11; N, 6.67;

**(5af) 3-((dodecylthio)(phenyl)methyl)-6-fluoroH-imidazo[1,2-a]pyridine**



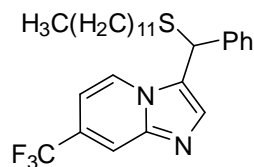
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  8.00-8.01 (m, 1H), 7.65-7.69 (m, 1H), 7.56 (s, 1H), 7.30-7.42 (m, 5H), 7.10-7.15 (m, 1H), 5.32 (s, 1H), 2.46 (t,  $J = 7.6$  Hz, 2H), 1.50-1.58 (m, 2H), 1.23-1.33 (m, 18H), 0.89 (t,  $J = 6.8$  Hz, 3H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  153.9 (d,  $J = 227$  Hz), 137.4, 134.5, 128.8, 128.1, 128.0, 124.4, 118.2 (d,  $J = 9$  Hz), 116.6 (d,  $J = 25$  Hz), 111.5 (d,  $J = 41$  Hz), 44.5, 32.01, 31.8, 29.5, 29.4, 29.3, 29.2, 29.1, 29.0, 28.7, 22.6, 14.0. MS (EI)  $m/z$ : 426, 258, 225, 135, 77, 57; Anal. Calcd for  $\text{C}_{26}\text{H}_{35}\text{FN}_2\text{S}$ : C, 73.20; H, 8.27; N, 6.57; Found: C, 73.90; H, 8.22; N, 6.53;

**(5ag) 6-bromo-3-((dodecylthio)(phenyl)methyl)H-imidazo[1,2-a]pyridine**



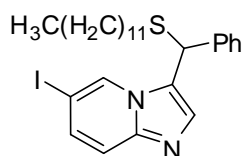
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  8.25 (s, 1H), 7.53 (d,  $J = 9.6$  Hz, 2H), 7.41 (d,  $J = 7.2$  Hz, 2H), 5.34 (s, 1H), 2.39-2.47 (m, 2H), 1.50-1.57 (m, 2H), 1.23-1.33 (m, 18H), 0.89 (t,  $J = 6.8$  Hz, 3H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  137.7, 134.4, 128.9, 128.2, 128.1, 127.6, 124.7, 118.5, 106.9, 44.5, 32.1, 31.9, 29.7, 29.6, 29.5, 29.4, 29.2, 29.0, 28.8, 22.7, 14.2. MS (EI)  $m/z$ : 486, 317, 285, 195, 91, 77, 57, 43; Anal. Calcd for  $\text{C}_{26}\text{H}_{35}\text{BrN}_2\text{S}$ : C, 64.05; H, 7.24; N, 5.75; Found: C, 64.61; H, 7.18; N, 5.71;

**(5ah) 3-((dodecylthio)(phenyl)methyl)-7-(trifluoromethyl)H-imidazo[1,2-a]pyridine<sup>1</sup>**



$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  8.17 (d,  $J = 7.2$  Hz, 1H), 7.95 (s, 1H), 7.68 (s, 1H), 7.30-7.42 (m, 5H), 6.95 (d,  $J = 7.2$  Hz, 1H), 5.41 (s, 1H), 2.46 (t,  $J = 7.6$  Hz, 2H), 1.51-1.59 (m, 2H), 1.23-1.33 (m, 18H), 0.89 (t,  $J = 6.4$  Hz, 3H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  144.6, 137.4, 135.8, 129.0, 128.1, 126.2 (q,  $J = 67$  Hz), 125.3, 124.8 (d,  $J = 21$  Hz), 122.0, 116.1 (q,  $J = 9$  Hz), 107.9 (q,  $J = 5.6$  Hz), 44.5, 32.1, 31.9, 29.6, 29.5, 29.4, 29.3, 29.1, 29.0, 28.8, 22.7, 14.1.

**(5ai) 3-((dodecylthio)(phenyl)methyl)-6-iodoH-imidazo[1,2-a]pyridine**

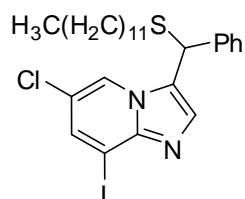


$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  8.36 (s, 1H), 7.41-7.44 (m, 4H), 7.27-7.36 (m, 4H), 5.33 (s, 1H), 2.37-2.48 (m, 2H), 1.50-1.57 (m, 2H), 1.23-1.27 (m, 18H), 0.89 (t,  $J = 6.4$  Hz, 3H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  144.9, 137.7, 133.9, 132.2, 129.6, 128.9, 128.2, 128.1, 123.2, 118.9, 75.4, 44.5,



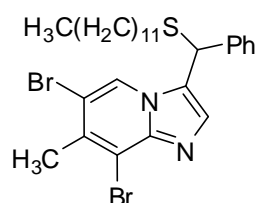
32.1, 31.9, 29.7, 29.6, 29.6, 29.5, 29.4, 29.3, 29.2, 29.1, 28.8, 22.7, 14.2. MS (EI) m/z: 534, 365, 332, 242, 91, 65, 43; Anal. Calcd for C<sub>26</sub>H<sub>35</sub>IN<sub>2</sub>S: C, 58.42; H, 6.60; N, 5.24; Found: C, 57.91; H, 6.55; N, 5.23;

**(5aj) 6-chloro-3-((dodecylthio)(phenyl)methyl)-8-iodoH-imidazo[1,2-a]pyridine**



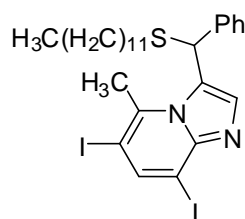
<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ 8.10 (d, *J* = 1.6 Hz, 1H), 7.66 (s, 1H), 7.61 (s, 1H), 7.29-7.39 (m, 5H), 5.31 (s, 1H), 2.45 (t, *J* = 7.2 Hz, 2H), 1.50-1.58 (m, 2H), 1.23-1.33 (m, 18H), 0.89 (t, *J* = 6.8 Hz, 3H). <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ 144.4, 137.2, 135.0, 134.2, 129.0, 128.2, 128.1, 125.8, 122.6, 120.1, 84.7, 44.7, 32.2, 31.9, 29.6, 29.5, 29.4, 29.3, 29.2, 29.0, 28.8, 22.7, 14.2. MS (EI) m/z: 568, 400, 366, 277, 91, 77, 57; Anal. Calcd for C<sub>26</sub>H<sub>34</sub>ClIN<sub>2</sub>S: C, 54.88; H, 6.02; N, 4.92; Found: 54.39; H, 6.06; N, 4.95;

**(5ak) 6,8-dibromo-3-((dodecylthio)(phenyl)methyl)-7-methylH-imidazo[1,2-a]pyridine**



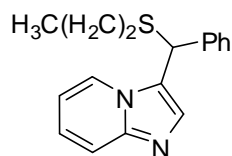
<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ 8.24 (s, 1H), 7.53 (s, 1H), 7.28-7.41 (m, 5H), 5.33 (s, 1H), 2.61 (s, 3H), 2.45 (t, *J* = 7.6 Hz, 2H), 1.50-1.58 (m, 2H), 1.23-1.33 (m, 18H), 0.89 (t, *J* = 6.8 Hz, 3H). <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ 146.7, 137.2, 133.8, 128.8, 127.9, 124.3, 123.6, 112.5, 110.2, 44.3, 31.9, 31.7, 29.5, 29.5, 29.4, 29.3, 29.2, 29.0, 28.8, 28.7, 28.6, 22.6, 22.5, 14.2. MS (EI) m/z: 578, 410, 377, 287, 156, 91, 77, 57; Anal. Calcd for C<sub>27</sub>H<sub>36</sub>IBr<sub>2</sub>N<sub>2</sub>S: C, 55.87; H, 6.25; N, 4.83; Found: C, 56.38; H, 6.21; N, 4.80;

**(5al) 3-((dodecylthio)(phenyl)methyl)-6,8-diiodo-5-methylH-imidazo[1,2-a]pyridine**



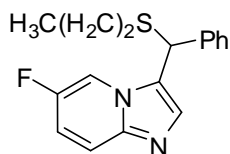
<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ 7.98 (s, 1H), 7.80 (s, 1H), 7.28-7.36 (m, 5H), 5.78 (s, 1H), 3.07 (s, 3H), 2.50-2.56 (m, 2H), 1.53-1.62 (m, 2H), 1.25-1.36 (m, 18H), 0.91 (t, *J* = 6.8 Hz, 3H). <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ 142.4, 149.9, 137.3, 137.2, 129.0, 128.3, 128.3, 128.3, 127.8, 83.0, 82.8, 47.2, 33.1, 31.9, 29.6, 29.5, 29.5, 29.4, 29.3, 29.1, 28.9, 28.9, 28.8, 22.6, 14.0. MS (EI) m/z: 674, 505, 472, 382, 235, 91, 77, 57; Anal. Calcd for C<sub>27</sub>H<sub>36</sub>I<sub>2</sub>N<sub>2</sub>S: C, 48.08; H, 5.38; N, 4.15; Found: C, 48.58; H, 5.34; N, 4.13;

**(5ba) 3-(phenyl(propylthio)methyl)H-imidazo[1,2-a]pyridine**<sup>1</sup>



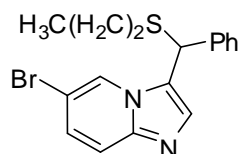
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  8.07 (d,  $J$  = 6.8 Hz, 1H), 7.70 (d,  $J$  = 8.8 Hz, 1H), 7.57 (s, 1H), 7.28-7.44 (m, 5H), 7.18 (t,  $J$  = 7.6 Hz, 1H), 6.78 (t,  $J$  = 6.4 Hz, 1H), 5.40 (s, 1H), 2.45 (t,  $J$  = 7.6 Hz, 2H), 1.52-1.61 (m, 2H), 0.95 (t,  $J$  = 7.2 Hz, 3H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  146.0, 137.7, 133.0, 128.7, 128.0, 124.4, 124.3, 117.4, 112.0, 44.2, 33.8, 22.2, 13.2.

**(5bb) 6-fluoro-3-(phenyl(propylthio)methyl)H-imidazo[1,2-a]pyridine**



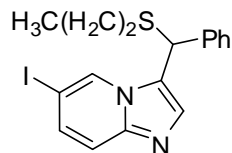
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  8.03 (t,  $J$  = 2.0 Hz, 1H), 7.70-7.74 (m, 1H), 7.59 (s, 1H), 7.29-7.42 (m, 5H), 7.11-7.16 (m, 1H), 5.33 (s, 1H), 2.44 (t,  $J$  = 7.2 Hz, 2H), 1.53-1.62 (m, 2H), 0.94 (t,  $J$  = 7.2 Hz, 3H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  154.1 (d,  $J$  = 236 Hz), 137.4, 134.4, 129.0, 128.2, 128.1, 118.2 (d,  $J$  = 9 Hz), 117.0 (d,  $J$  = 25 Hz), 111.7 (d,  $J$  = 40 Hz), 44.5, 34.0, 22.5, 13.5. MS (EI)  $m/z$ : 300, 258, 225, 164, 77; Anal. Calcd for  $\text{C}_{17}\text{H}_{17}\text{FN}_2\text{S}$ : C, 67.97; H, 5.70; N, 9.33; Found: C, 67.33; H, 5.74; N, 9.40;

**(5bc) 6-bromo-3-(phenyl(propylthio)methyl)H-imidazo[1,2-a]pyridine**



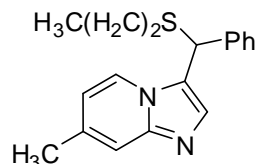
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  8.23 (s, 1H), 7.27-7.57 (m, 8H), 5.35 (s, 1H), 2.39-2.47 (m, 2H), 1.54-1.63 (m, 2H), 0.97 (t,  $J$  = 7.6 Hz, 3H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  137.5, 128.9, 128.1, 128.0, 127.8, 124.6, 118.4, 106.9, 44.3, 34.0, 22.3, 13.4. MS (EI)  $m/z$ : 360, 318, 285, 194, 91, 77; Anal. Calcd for  $\text{C}_{17}\text{H}_{17}\text{BrN}_2\text{S}$ : C, 56.51; H, 4.74; N, 7.75; Found: C, 56.46; H, 4.77; N, 7.79;

**(5bd) 6-iodo-3-(phenyl(propylthio)methyl)H-imidazo[1,2-a]pyridine**



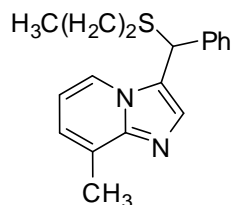
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  8.34 (s, 1H), 7.30-7.44 (m, 8H), 5.32 (s, 1H), 2.37-2.48 (m, 2H), 1.43-1.63 (m, 2H), 0.98 (t,  $J$  = 7.2 Hz, 3H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  137.7, 134.0, 132.2, 129.6, 129.0, 128.1, 119.0, 75.3, 44.4, 34.1, 22.5, 13.5; MS (EI)  $m/z$ : 408, 332, 91, 77; Anal. Calcd for  $\text{C}_{17}\text{H}_{17}\text{IN}_2\text{S}$ : C, 50.01; H, 4.20; N, 6.86; Found: C, 50.43; H, 4.17; N, 6.84;

**(5be) 7-methyl-3-(phenyl(propylthio)methyl)H-imidazo[1,2-a]pyridine**



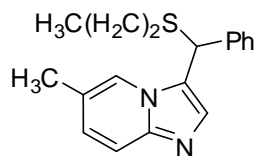
<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ 7.98 (d, *J* = 7.2 Hz, 1H), 7.58 (s, 1H), 7.48 (s, 1H), 7.40 (d, *J* = 7.2 Hz, 2H), 7.24-7.33 (m, 3H), 6.67 (d, *J* = 6.8 Hz, 1H), 5.36 (s, 1H), 2.43 (t, *J* = 7.2 Hz, 2H), 2.34 (s, 3H), 1.51-1.60 (m, 2H), 0.94 (t, *J* = 7.2 Hz, 3H). <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ 146.3, 137.6, 131.6, 128.8, 128.1, 127.9, 124.0, 122.8, 115.6, 44.3, 34.0, 22.5, 21.5, 13.5. MS (EI) *m/z*: 296, 221, 131, 91; Anal. Calcd for C<sub>18</sub>H<sub>20</sub>N<sub>2</sub>S: C, 72.93; H, 6.80; N, 9.45; Found: C, 72.32; H, 6.85; N, 9.52;

**(5bf) 8-methyl-3-(phenyl(propylthio)methyl)H-imidazo[1,2-a]pyridine**



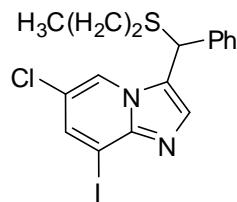
<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ 7.92 (d, *J* = 6.8 Hz, 1H), 7.61 (s, 1H), 7.42 (d, *J* = 7.2 Hz, 2H), 7.27-7.35 (m, 3H), 7.04 (d, *J* = 6.8 Hz, 1H), 6.74 (t, *J* = 6.8 Hz, 1H), 5.36 (s, 1H), 2.61 (s, 3H), 2.45 (t, *J* = 7.2 Hz, 2H), 1.53-1.63 (m, 2H), 0.96 (t, *J* = 7.6 Hz, 3H). <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ 146.2, 137.9, 131.7, 128.8, 128.1, 127.9, 127.4, 124.2, 123.5, 122.4, 112.6, 44.6, 34.1, 22.5, 17.0, 13.5. MS (EI) *m/z*: 296, 254, 221, 91, 77; Anal. Calcd for C<sub>18</sub>H<sub>20</sub>N<sub>2</sub>S: C, 72.93; H, 6.80; N, 9.45; Found: C, 72.30; H, 6.86; N, 9.52;

**(5bg) 6-methyl-3-((propylthio)methyl)H-imidazo[1,2-a]pyridine**



<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ 7.83 (s, 1H), 7.57 (d, *J* = 9.2 Hz, 1H), 7.49 (s, 1H), 7.45 (d, *J* = 7.2 Hz, 2H), 7.28-7.33 (m, 3H), 7.03 (dd, *J* = 1.2, 8.8 Hz, 1H), 5.37 (s, 1H), 2.43 (t, *J* = 6.8 Hz, 2H), 2.30 (s, 3H), 1.55-1.64 (m, 2H), 0.94 (t, *J* = 7.2 Hz, 3H). <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ 138.2, 133.4, 128.7, 128.2, 127.8, 127.4, 122.5, 122.1, 121.7, 117.2, 44.5, 34.0, 22.5, 22.5, 18.4, 13.5. MS (EI) *m/z*: 296, 221, 131, 91, 77; Anal. Calcd for C<sub>18</sub>H<sub>20</sub>N<sub>2</sub>S: C, 72.93; H, 6.80; N, 9.45; Found: C, 73.52; H, 6.74; N, 9.37;

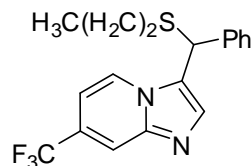
**(5bh) 6-chloro-8-iodo-3-(phenyl(propylthio)methyl)H-imidazo[1,2-a]pyridine**



<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ 8.09 (d, *J* = 2.0 Hz, 1H), 7.68 (s, 1H), 7.61 (s, 1H), 7.29-7.40 (m, 5H), 5.30 (s, 1H), 2.44 (t, *J* = 7.2 Hz, 2H), 1.54-1.63 (m, 2H), 0.97 (t, *J* = 7.6 Hz, 3H). <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ 144.5, 137.2, 135.0, 134.2, 129.0, 128.2, 128.1, 125.8, 122.6, 120.1, 84.6,

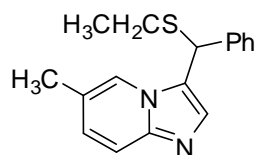
44.6, 34.2, 22.4, 13.5. MS (EI) m/z: 442, 441, 367, 277, 91, 77; Anal. Calcd for C<sub>17</sub>H<sub>16</sub>ClIN<sub>2</sub>S: C, 46.12; H, 3.64; N, 6.33; Found: C, 46.71; H, 3.67; N, 6.37;

**(5bi) 7-(trifluoromethyl)-3-(phenyl(propylthio)methyl)H-imidazo[1,2-a]pyridine**



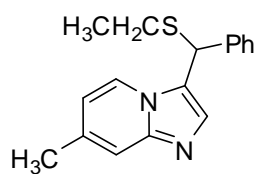
<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ 8.17 (d, *J* = 7.2 Hz, 7.96 (s, 1H), 7.69 (s, 1H), 7.29-7.42 (m, 5H), 6.96 (dd, *J* = 1.6, 7.2 Hz, 1H), 5.41 (s, 1H), 2.43 (t, *J* = 7.2 Hz, 2H), 1.54-1.64 (m, 2H), 0.97 (t, *J* = 7.2 Hz, 3H). <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ 144.6, 137.4, 135.7, 129.0, 128.2, 128.2, 126.6 (d, *J* = 32 Hz), 125.3, 124.8 (d, *J* = 9 Hz), 122.0, 116.1 (d, *J* = 9 Hz), 107.9 (d, *J* = 5 Hz), 44.4, 34.0, 22.5, 13.5; MS (EI) m/z: 350, 275, 91, 77; Anal. Calcd for C<sub>18</sub>H<sub>17</sub>F<sub>3</sub>N<sub>2</sub>S: C, 61.70; H, 4.89; N, 7.99; Found: C, 62.23; H, 4.84; N, 7.92;

**(5ca) 3-((ethylthio)(phenyl)methyl)-6-methylH-imidazo[1,2-a]pyridine**



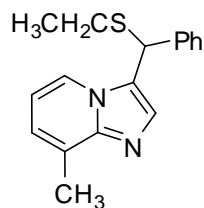
<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ 7.82 (s, 1H), 7.55 (d, *J* = 7.6 Hz, 1H), 7.48 (s, 1H), 7.29-7.44 (m, 5H), 7.06 (d, *J* = 8.4 Hz, 1H), 5.39 (s, 1H), 2.49 (q, *J* = 7.6 Hz, 2H), 2.30 (s, 3H), 1.25 (t, *J* = 7.6 Hz, 3H). <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ 146.0, 138.1, 131.9, 128.8, 128.6, 128.2, 127.9, 127.6, 122.1, 117.2, 44.3, 26.0, 18.5, 14.3; MS (EI) m/z: 282, 254, 221, 91; Anal. Calcd for C<sub>17</sub>H<sub>18</sub>N<sub>2</sub>S: C, 72.30; H, 6.42; N, 9.92; Found: C, 72.99; H, 6.47; N, 10.01;

**(5cb) 3-((ethylthio)(phenyl)methyl)-7-methylH-imidazo[1,2-a]pyridine**



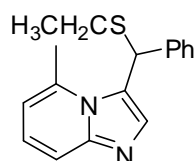
<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ 7.99 (d, *J* = 6.8 Hz, 1H), 7.54 (s, 1H), 7.48 (s, 1H), 7.41 (d, *J* = 7.2 Hz, 2H), 7.23-7.32 (m, 3H), 6.65 (d, *J* = 7.2 Hz, 1H), 2.47 (q, *J* = 7.2 Hz, 2H), 2.32 (s, 3H), 1.21 (t, *J* = 7.6 Hz, 3H). <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ 146.2, 137.8, 131.9, 131.8, 128.8, 128.1, 127.9, 124.0, 115.6, 115.5, 44.0, 26.0, 21.2, 14.3. MS (EI) m/z: 282, 254, 221, 91; Anal. Calcd for C<sub>17</sub>H<sub>18</sub>N<sub>2</sub>S: C, 72.30; H, 6.42; N, 9.92; Found: C, 71.68; H, 6.36; N, 9.84;

**(5cc) 3-((ethylthio)(phenyl)methyl)-8-methylH-imidazo[1,2-a]pyridine**



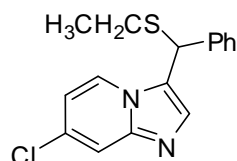
<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ 7.93 (d, *J* = 7.2 Hz, 1H), 7.60 (s, 1H), 7.41 (d, *J* = 7.2 Hz, 2H), 7.28-7.35 (m, 3H), 7.02 (d, *J* = 6.8 Hz, 1H), 6.72 (t, *J* = 6.8 Hz, 1H), 5.39 (s, 1H), 2.61 (s, 3H), 2.48 (q, *J* = 7.2 Hz, 2H), 1.23 (t, *J* = 8.0 Hz, 3H). <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ 146.2, 137.9, 132.0, 128.9, 128.2, 127.8, 127.3, 123.9, 123.4, 122.4, 112.5, 44.2, 26.0, 17.0, 14.3. MS (EI) *m/z*: 282, 254, 221, 91, 77; Anal. Calcd for C<sub>17</sub>H<sub>18</sub>N<sub>2</sub>S: C, 72.30; H, 6.42; N, 9.92; Found: C, 71.73; H, 6.47; N, 9.99;

**(5cd) 3-((ethylthio)(phenyl)methyl)-5-methylimidazo[1,2-a]pyridine**



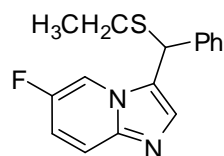
<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ 7.76 (s, 1H), 7.62 (d, *J* = 8.4 Hz, 1H), 7.22-7.34 (m, 5H), 7.07 (t, *J* = 6.8 Hz, 1H), 6.49 (d, *J* = 6.8 Hz, 1H), 5.89 (s, 1H), 2.87 (s, 3H), 2.56 (q, *J* = 7.6 Hz, 2H), 1.24 (t, *J* = 7.6 Hz, 3H). <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ 148.1, 140.2, 136.4, 135.3, 128.9, 128.4, 127.7, 125.7, 125.6, 125.4, 115.9, 114.4, 45.9, 26.8, 20.6, 14.2. MS (EI) *m/z*: 282, 254, 221, 131, 91; Anal. Calcd for C<sub>17</sub>H<sub>18</sub>N<sub>2</sub>S: C, 72.30; H, 6.42; N, 9.92; Found: C, 72.94; H, 6.37; N, 9.81;

**(5ce) 7-chloro-3-((ethylthio)(phenyl)methyl)imidazo[1,2-a]pyridine<sup>1</sup>**



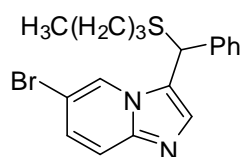
<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ 7.97 (d, *J* = 7.2 Hz, 1H), 7.62 (s, 1H), 7.50 (s, 1H), 7.28-7.40 (m, 5H), 6.75 (d, *J* = 7.2 Hz, 1H), 5.38 (s, 1H), 2.47 (q, *J* = 7.2 Hz, 2H), 1.22 (t, *J* = 7.6 Hz, 3H). <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ 146.1, 137.5, 134.3, 131.0, 128.8, 128.0, 128.0, 124.8, 123.1, 116.7, 113.6, 44.0, 25.9, 14.2.

**(5cf) 3-((ethylthio)(phenyl)methyl)-6-fluoroimidazo[1,2-a]pyridine**



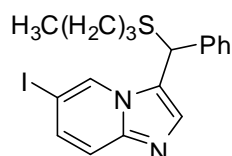
<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ 8.02-8.04 (m, 1H), 7.81-7.87 (m, 1H), 7.58 (s, 1H), 7.29-7.42 (m, 5H), 7.15-7.20 (m, 1H), 5.36 (s, 1H), 2.49 (q, *J* = 7.6 Hz, 2H), 1.25 (t, *J* = 7.2 Hz, 3H). <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ 154.2 (d, *J* = 236 Hz), 137.2, 133.9, 129.0, 128.2, 128.1, 118.2 (d, *J* = 9 Hz), 117.5 (d, *J* = 9 Hz), 111.8 (d, *J* = 41 Hz), 44.1, 26.2, 21.0, 14.2. MS (EI) *m/z*: 286, 258, 225, 136, 91; Anal. Calcd for C<sub>16</sub>H<sub>15</sub>FN<sub>2</sub>S: C, 67.11; H, 5.28; N, 9.78; Found: C, 67.76; H, 5.24; N, 9.69;

**(5da)6-bromo-3-(butylthio(phenyl)methyl)imidazo[1,2-a]pyridine**



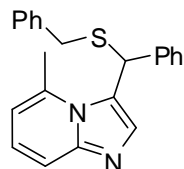
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  8.19 (s, 1H), 7.14-7.59 (m, 8H), 5.33 (s, 1H), 2.42-2.47 (m, 2H), 1.33-1.58(m, 4H), 0.84 (t,  $J = 7.6$  Hz, 3H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  137.6, 134.5, 129.0, 128.9, 128.2, 128.1, 125.6, 123.7, 122.4, 120.4, 118.2, 44.5, 31.7, 31.1, 21.9, 13.6. ESI-MS  $m/z$  (%)375(100)  $[\text{M}+\text{H}]^+$ ; Anal. Calcd for  $\text{C}_{18}\text{H}_{19}\text{BrN}_2\text{S}$ : C, 57.60; H, 5.10; N, 7.46; Found; C, 57.34; H, 5.13; N, 7.49;

**(5db)3-(butylthio(phenyl)methyl)-6-iodoimidazo[1,2-a]pyridine**



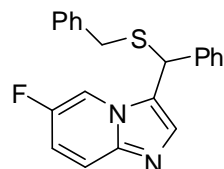
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  8.34 (s, 1H), 7.27-7.43 (m, 8H), 5.34 (s, 1H), 2.38-2.52 (m, 2H), 1.31-1.57(m, 4H), 0.84 (t,  $J = 7.6$  Hz, 3H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  144.9, 137.7, 134.0, 133.9, 132.2, 129.6, 129.5, 128.9, 128.3, 128.2, 128.0, 123.4, 118.9, 75.3, 44.5, 31.7, 31.1, 21.9, 13.6. ESI-MS  $m/z$  (%)423(100)  $[\text{M}+\text{H}]^+$ ; Anal. Calcd for  $\text{C}_{18}\text{H}_{19}\text{IN}_2\text{S}$ : C, 51.19; H, 4.53; N, 6.63; Found; C, 51.43; H, 4.50; N, 6.59;

**(5ea) 3-((benzylthio)(phenyl)methyl)-5-methylH-imidazo[1,2-a]pyridine**



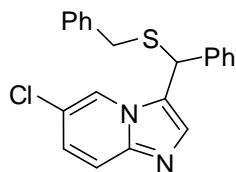
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  7.84 (s, 1H), 7.50 (d,  $J = 8.8$  Hz, 1H), 7.11-7.33 (m, 10H), 6.98-7.13 (m, 1H), 6.36 (d,  $J = 6.8$  Hz, 1H), 5.52 (s, 1H), 3.74 (q,  $J = 13.6$  Hz, 2H), 2.33 (s, 3H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  146.3, 134.0, 137.6, 136.6, 136.2, 130.1, 129.0, 128.9, 128.6, 128.5, 127.6, 127.2, 124.5, 116.2, 113.8, 44.4, 37.1, 20.0. MS (EI)  $m/z$ : 344, 253, 221, 91, 77, 65; Anal. Calcd for  $\text{C}_{22}\text{H}_{20}\text{N}_2\text{S}$ : C, 76.71; H, 5.85; N, 8.13; Found: C, 76.00; H, 5.90; N, 8.20;

**(5eb) 3-((benzylthio)(phenyl)methyl)-6-fluoroH-imidazo[1,2-a]pyridine**



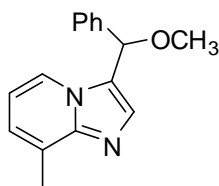
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  7.53-7.61 (m, 2H), 7.24-7.43 (m, 11H), 7.03-7.08 (m, 1H), 4.99 (s, 1H), 3.68 (dd,  $J = 14.0, 37.6$  Hz, 2H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  154.0 (d,  $J = 235$  Hz), 144.0, 137.5, 137.3, 135.1, 135.1, 129.0, 128.9, 128.7, 128.5, 128.2, 127.5, 124.0, 118.2(d,  $J = 9$  Hz), 116.4(d,  $J = 25$  Hz), 111.3(d,  $J = 42$ Hz), 43.2, 36.1. MS (EI)  $m/z$ : 348, 258, 225, 91, 77, 65; Anal. Calcd for  $\text{C}_{21}\text{H}_{17}\text{N}_2\text{FS}$ : C, 72.39; H, 4.92; N, 8.04; Found: C, 73.01; H, 4.88; N, 7.97;

**(5ec) 3-((benzylthio)(phenyl)methyl)-6-chloroH-imidazo[1,2-a]pyridine**



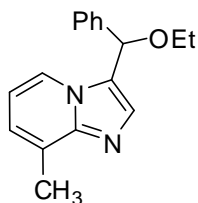
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  7.70 (s, 1H), 7.54 (d,  $J = 9.6$  Hz, 1H), 7.26-7.45 (m, 11H), 7.13 (d,  $J = 8.4$  Hz, 1H), 4.96 (s, 1H), 3.68 (d,  $J = 14.0$  Hz, 1H), 3.56 (d,  $J = 14.0$  Hz, 1H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  137.5, 137.3, 134.6, 129.0, 128.9, 128.8, 128.3, 127.6, 125.8, 123.4, 122.3, 120.4, 118.1, 43.0, 36.0. MS (EI)  $m/z$ : 364, 254, 241, 91, 77, 65; Anal. Calcd for  $\text{C}_{21}\text{H}_{17}\text{N}_2\text{ClS}$ : C, 69.12; H, 4.70; N, 7.68; Found: C, 69.68; H, 4.66; N, 7.75;

**(6a) 3-(methoxy(phenyl)methyl)H-imidazo[1,2-a]pyridine**<sup>1</sup>



$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  7.94 (d,  $J = 6.8$  Hz, 1H), 7.25-7.40 (m, 6H), 6.91 (t,  $J = 6.0$  Hz, 1H), 6.60 (t,  $J = 6.8$  Hz, 1H), 5.61 (s, 1H), 3.35 (s, 3H), 2.57 (s, 3H).  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  146.7, 137.7, 133.2, 128.2, 127.9, 127.1, 126.5, 123.5, 123.2, 122.6, 111.8, 76.7, 56.1, 16.6.

**(6b) 3-(ethoxy(phenyl)methyl)-8-methylimidazo[1,2-a]pyridine**<sup>1</sup>

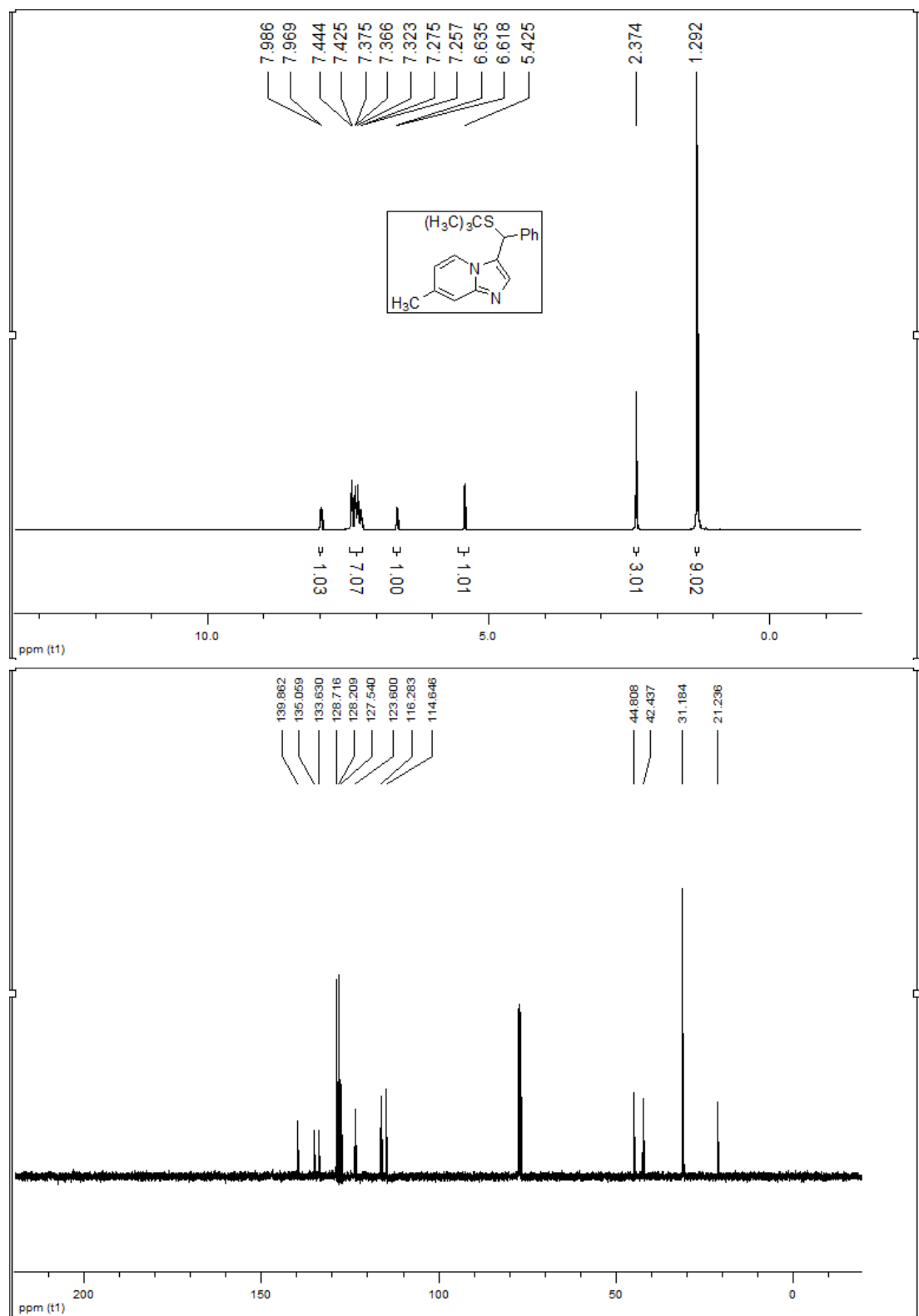


$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  7.98 (d,  $J = 6.8$  Hz, 1H), 7.29-7.42 (m, 6H), 6.97 (d,  $J = 7.2$  Hz, 1H), 6.66 (t,  $J = 7.2$  Hz, 1H), 5.74 (s, 1H), 3.48-3.61 (m, 2H), 2.59 (s, 3H), 1.27 (t,  $J = 6.8$  Hz, 3H);  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  147.0, 138.4, 133.3, 128.5, 128.5, 128.0, 127.5, 126.8, 124.0, 123.4, 122.9, 75.2, 64.2, 17.0, 15.2;

1. H. Cao, X. H. Liu, L. Zhao, J. H. Cen, J. X. Lin, Q. X. Zhu, M. L. Fu, *Org. Lett.* **2014**, *16*, 146-149;

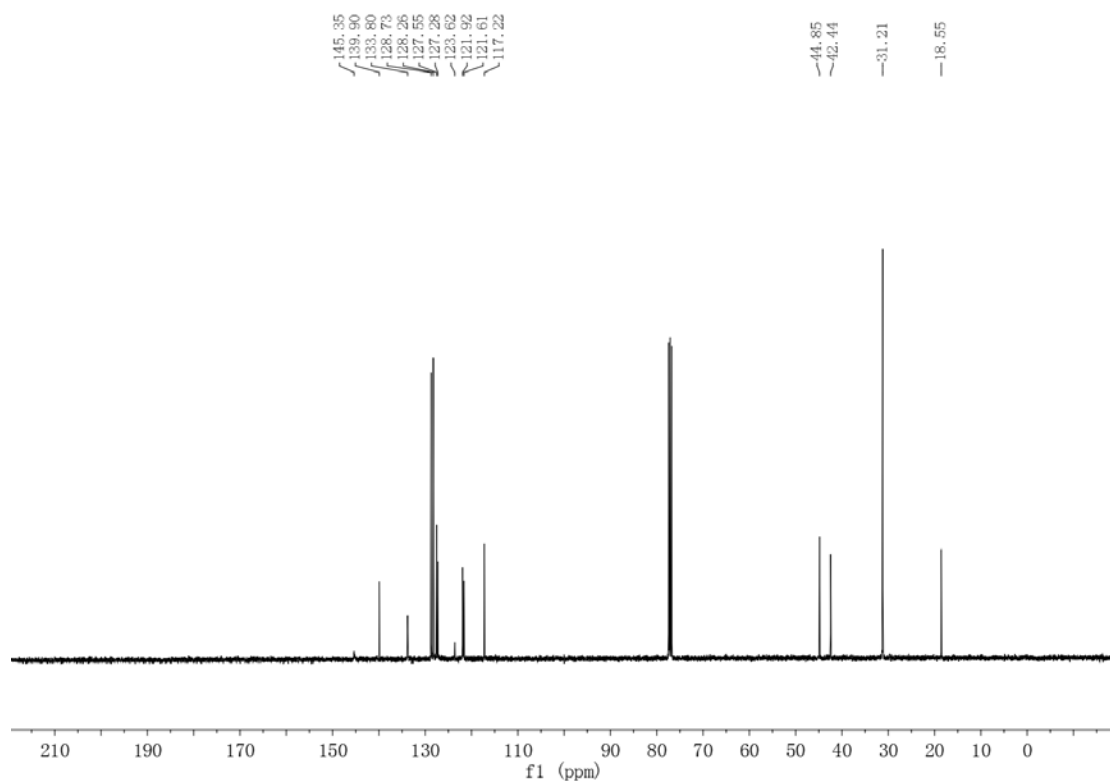
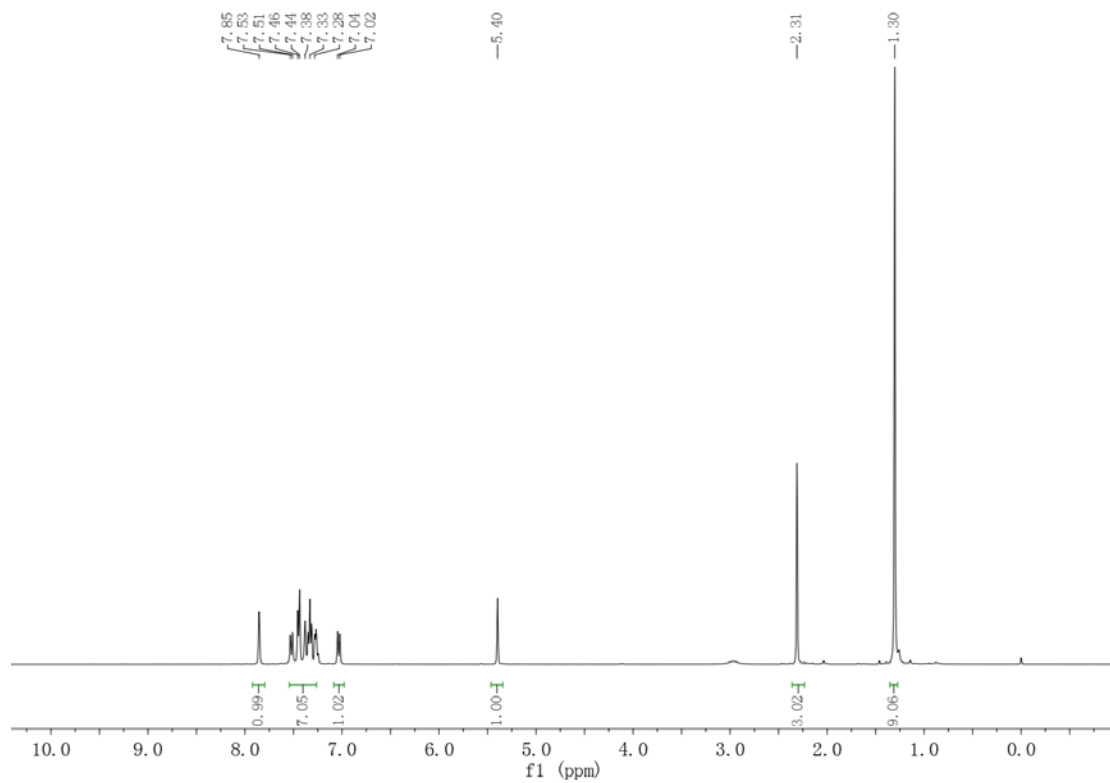
## D. NMR Spectra

### (4a)3-(tert-butylthio(phenyl)methyl)-7-methylimidazo[1,2-a]pyridine

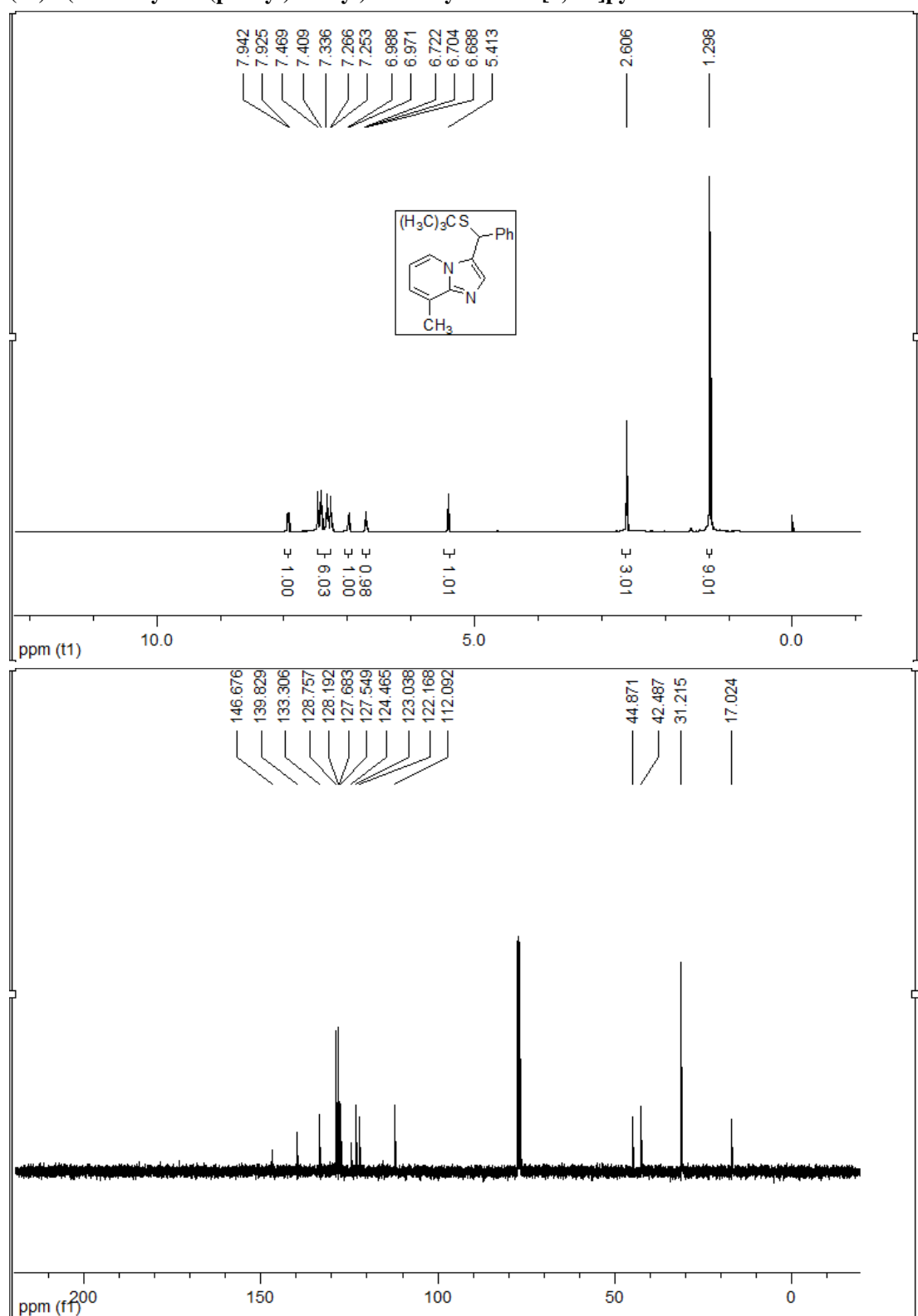




**(4b)3-(tert-butylthio(phenyl)methyl)-6-methylimidazo[1,2-a]pyridine**

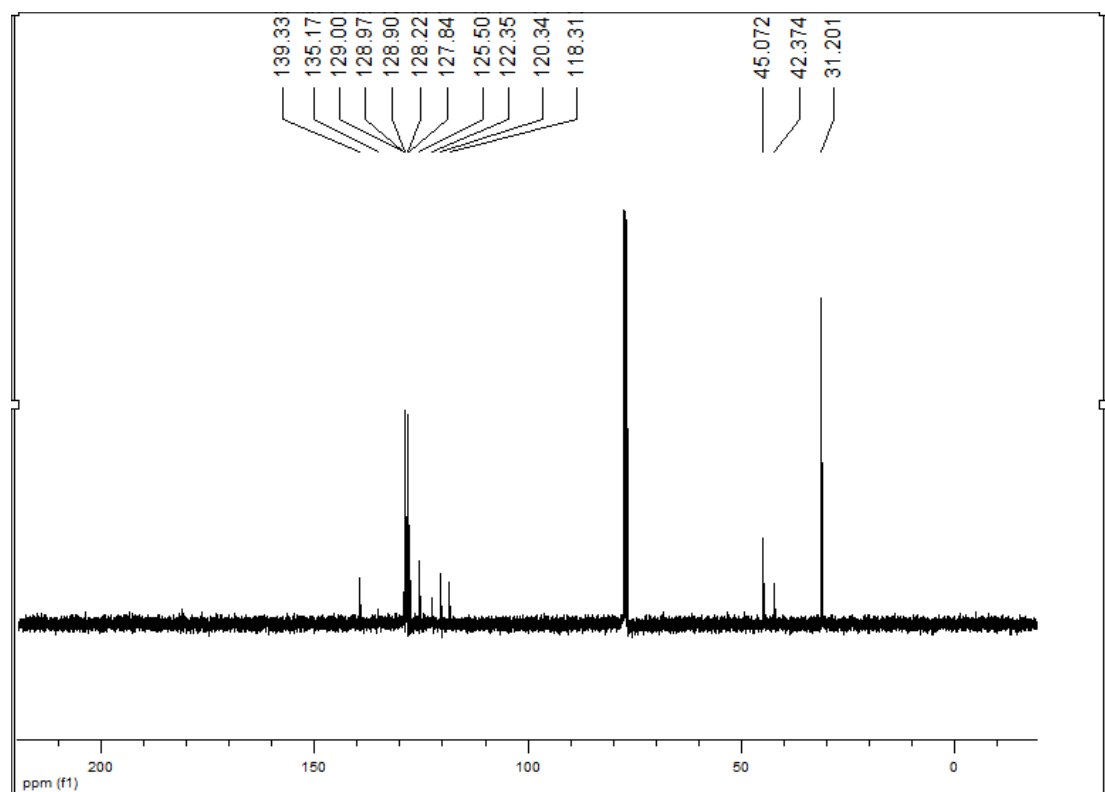
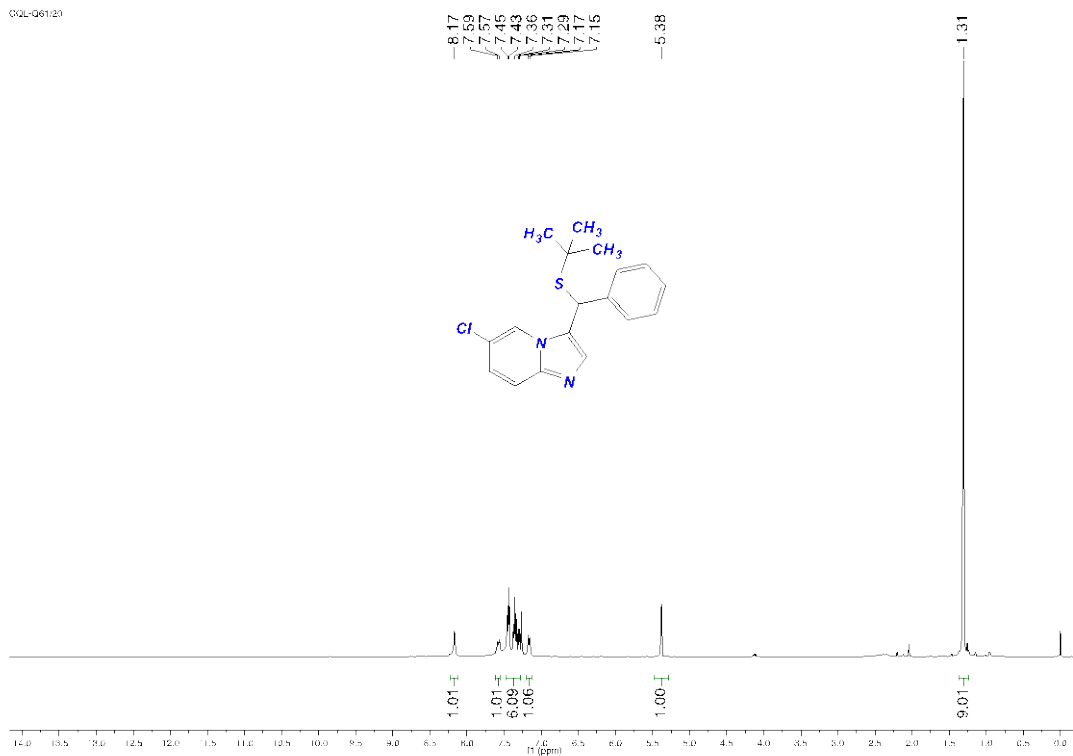


**(4c)3-(tert-butylthio(phenyl)methyl)-8-methylimidazo[1,2-a]pyridine**



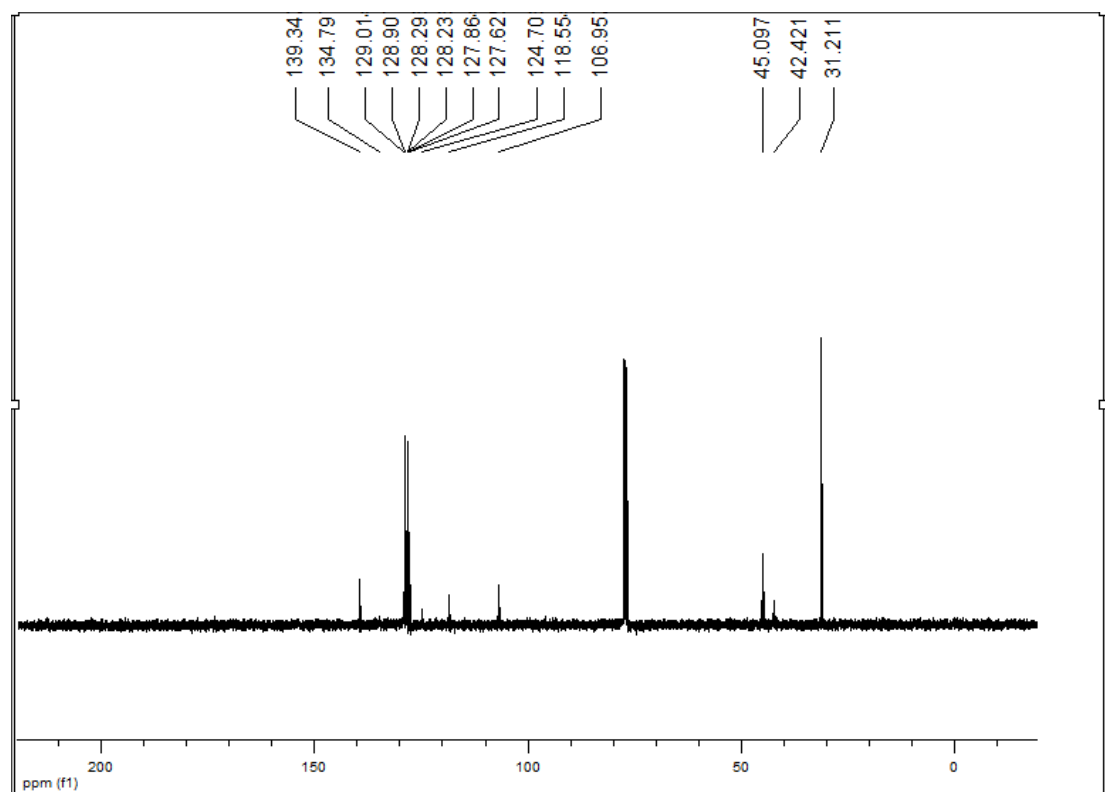
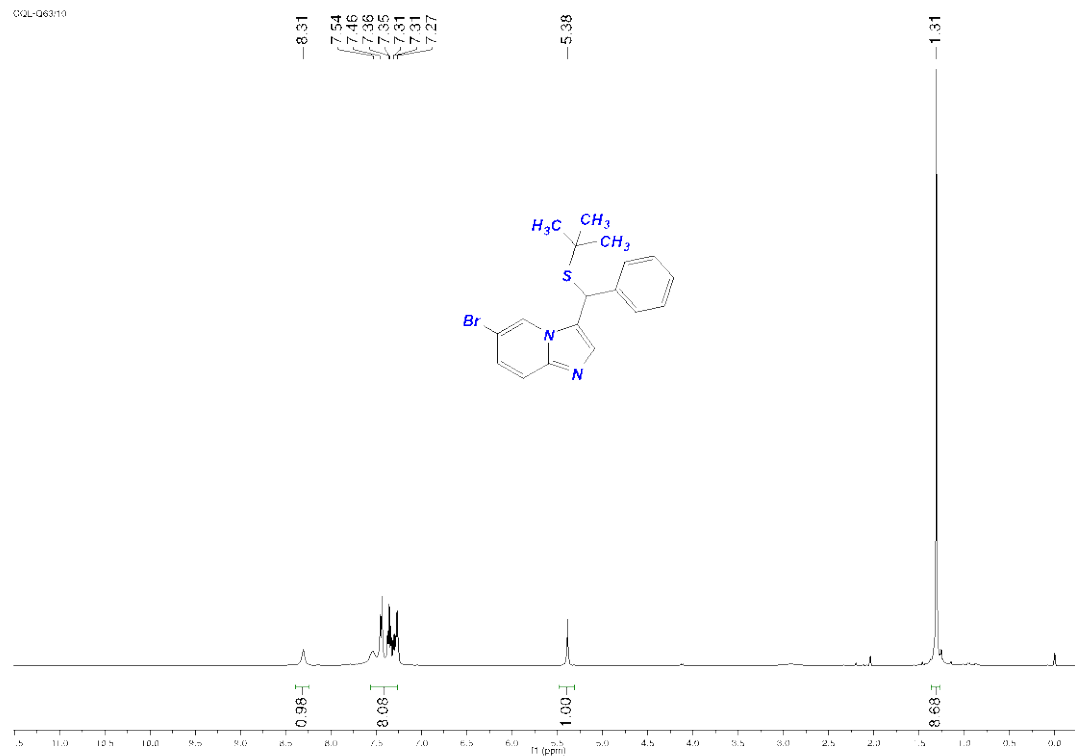
(4d)3-(tert-butylthio(phenyl)methyl)-6-chloroimidazo[1,2-a]pyridine

02L-Q6120

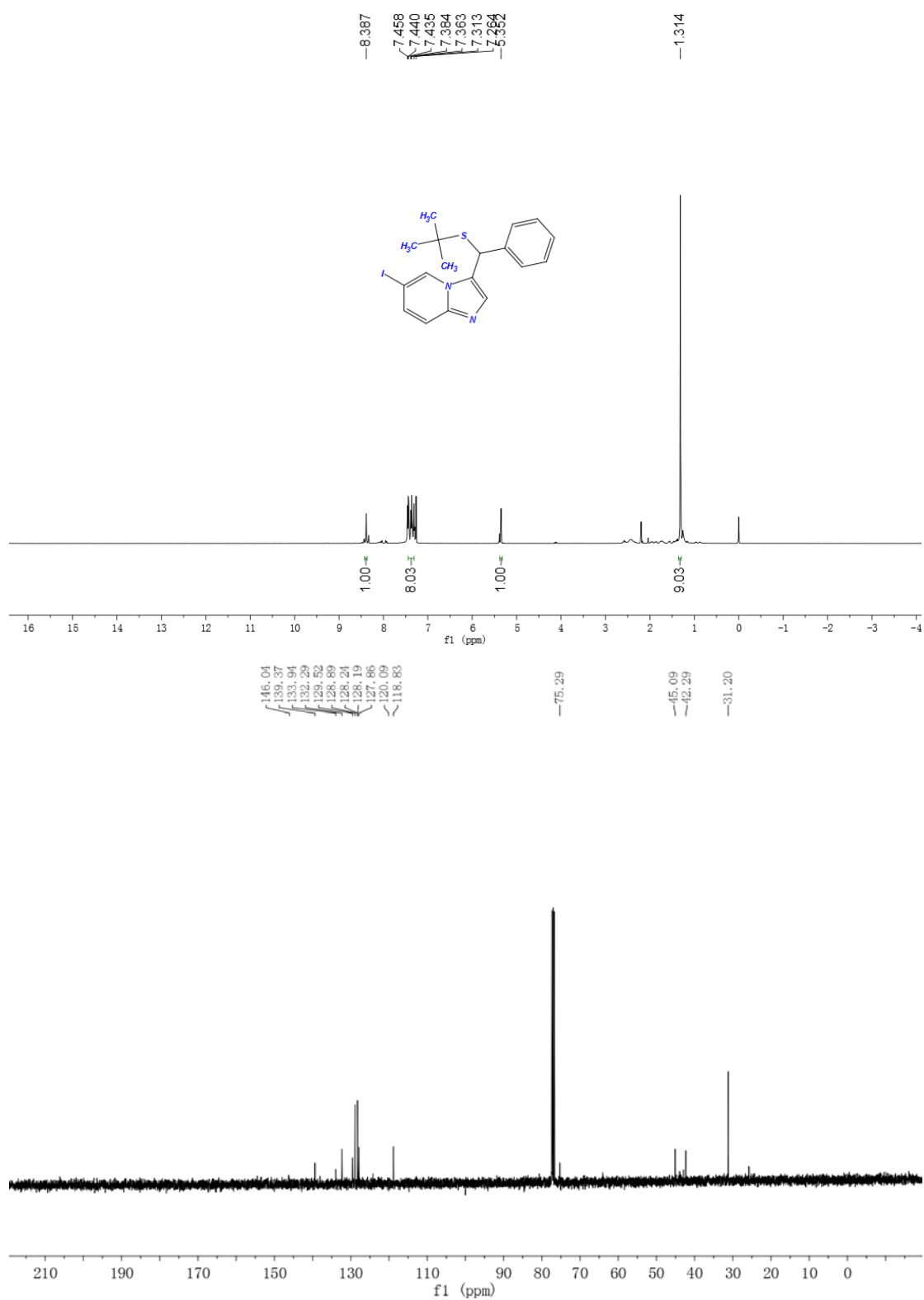


**(4e)6-bromo-3-(tert-butylthio(phenyl)methyl)imidazo[1,2-a]pyridine**

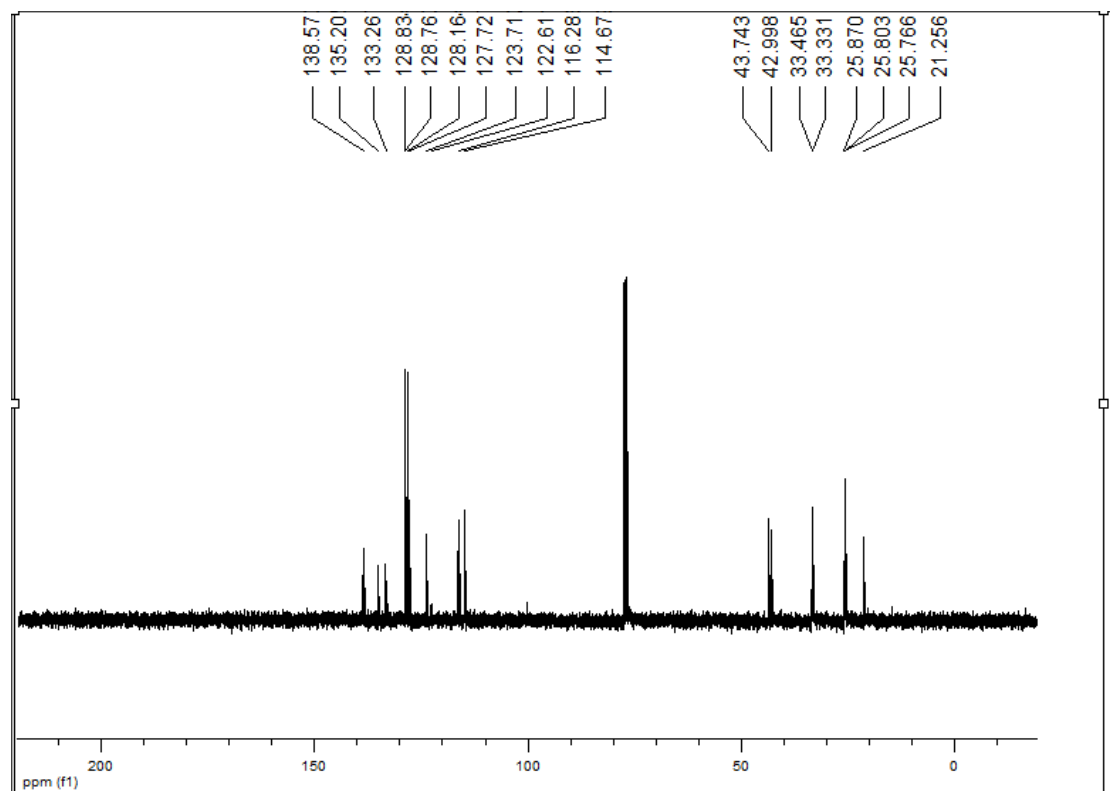
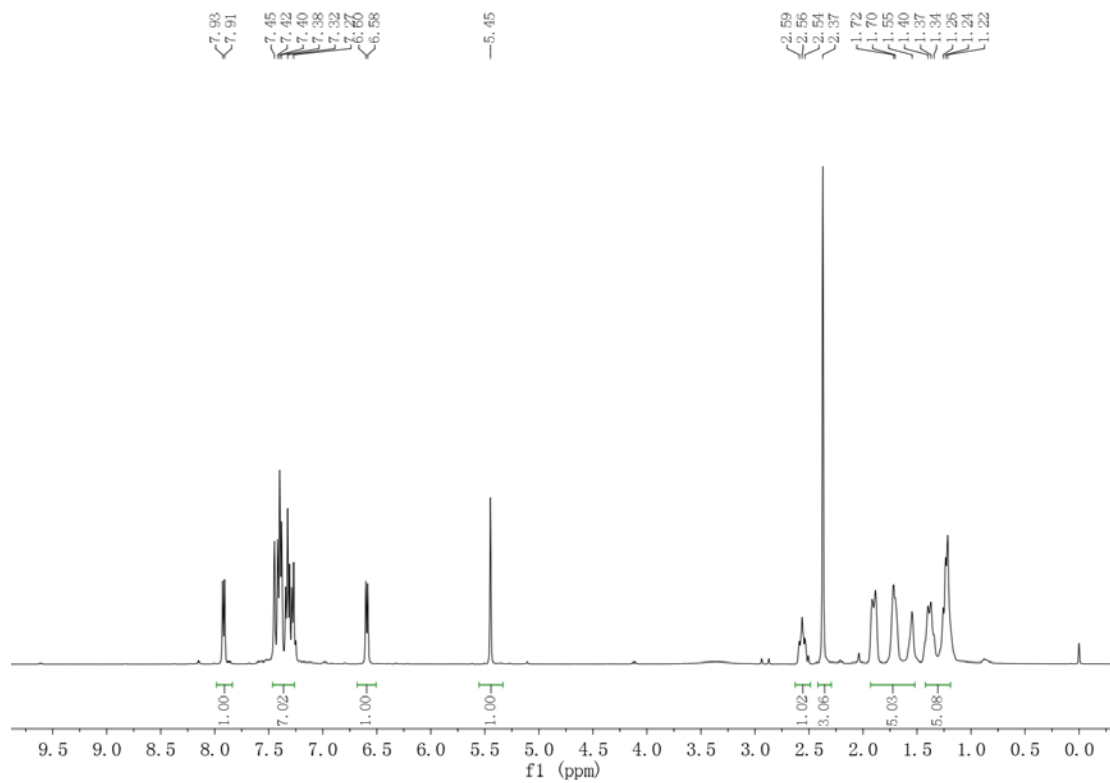
02L-06310



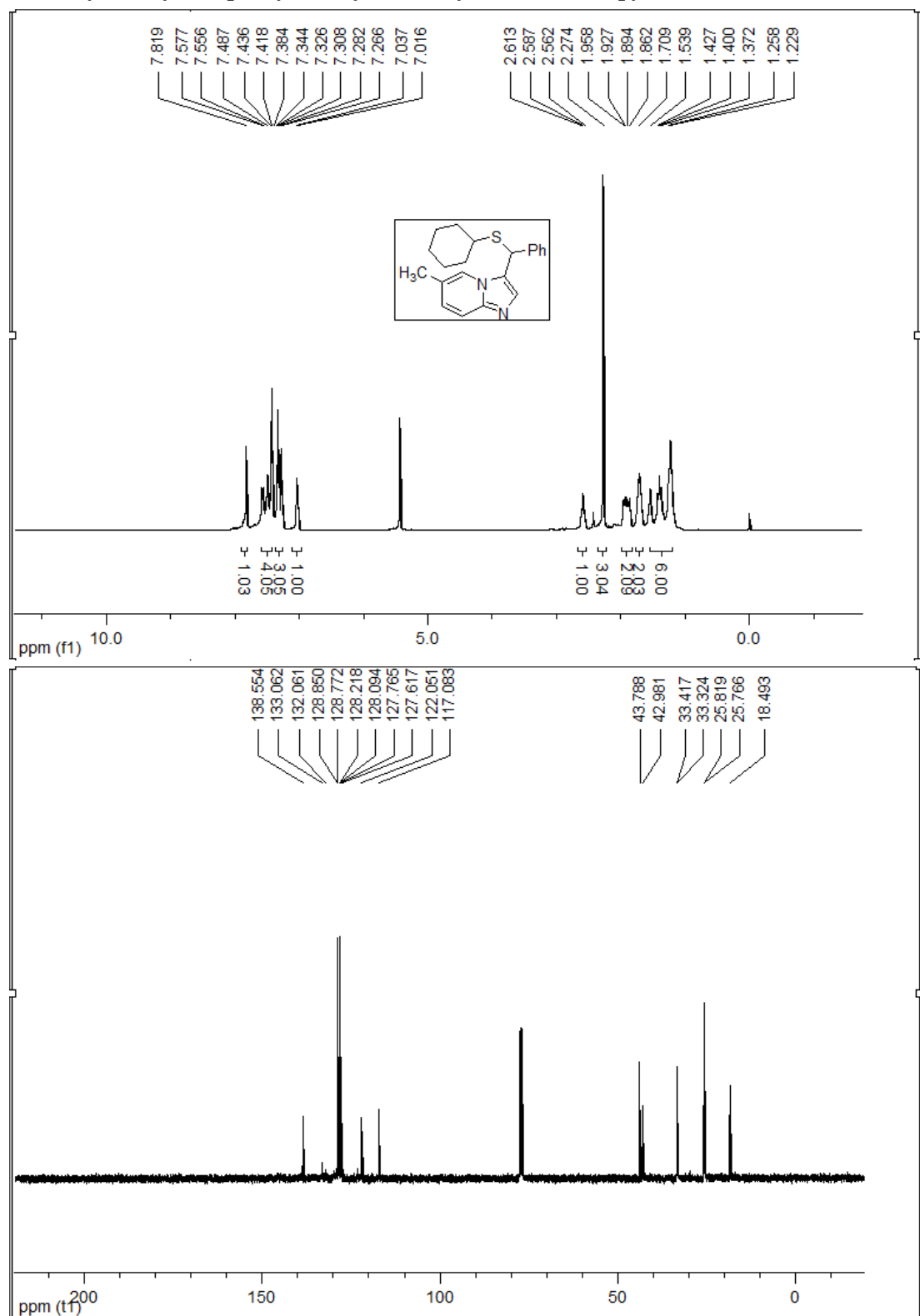
**(4f)3-(tert-butylthio(phenyl)methyl)-6-iodoimidazo[1,2-a]pyridine**



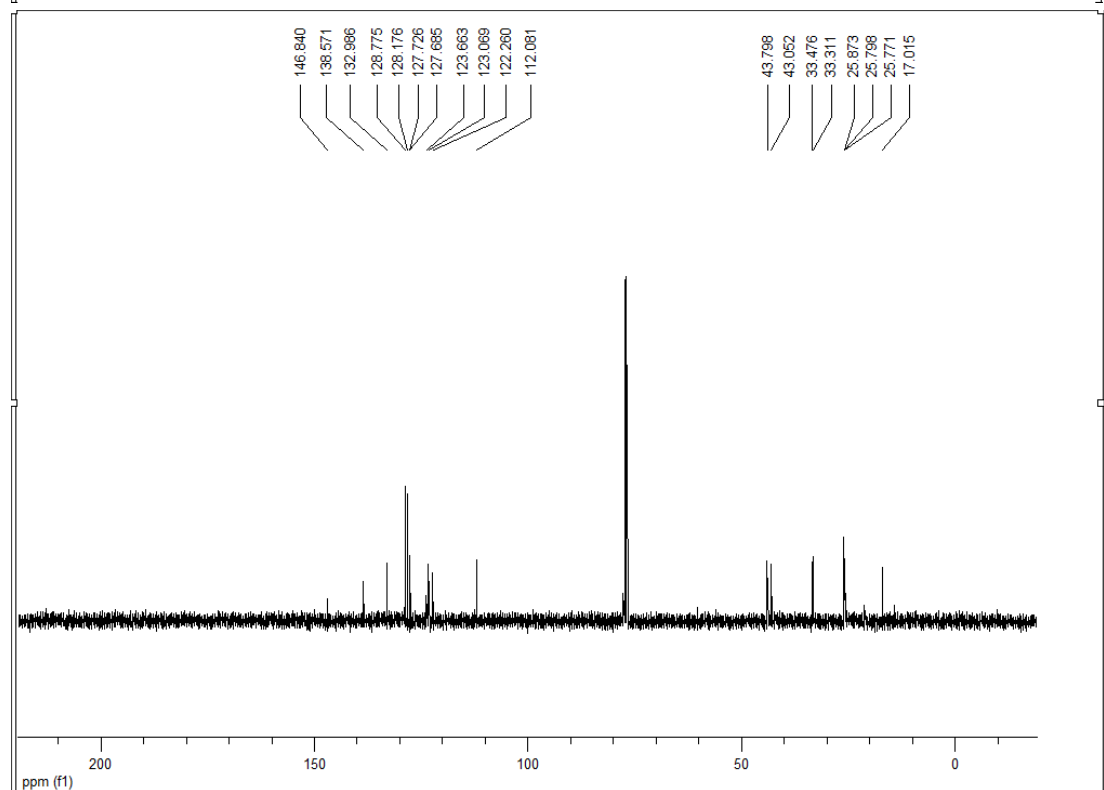
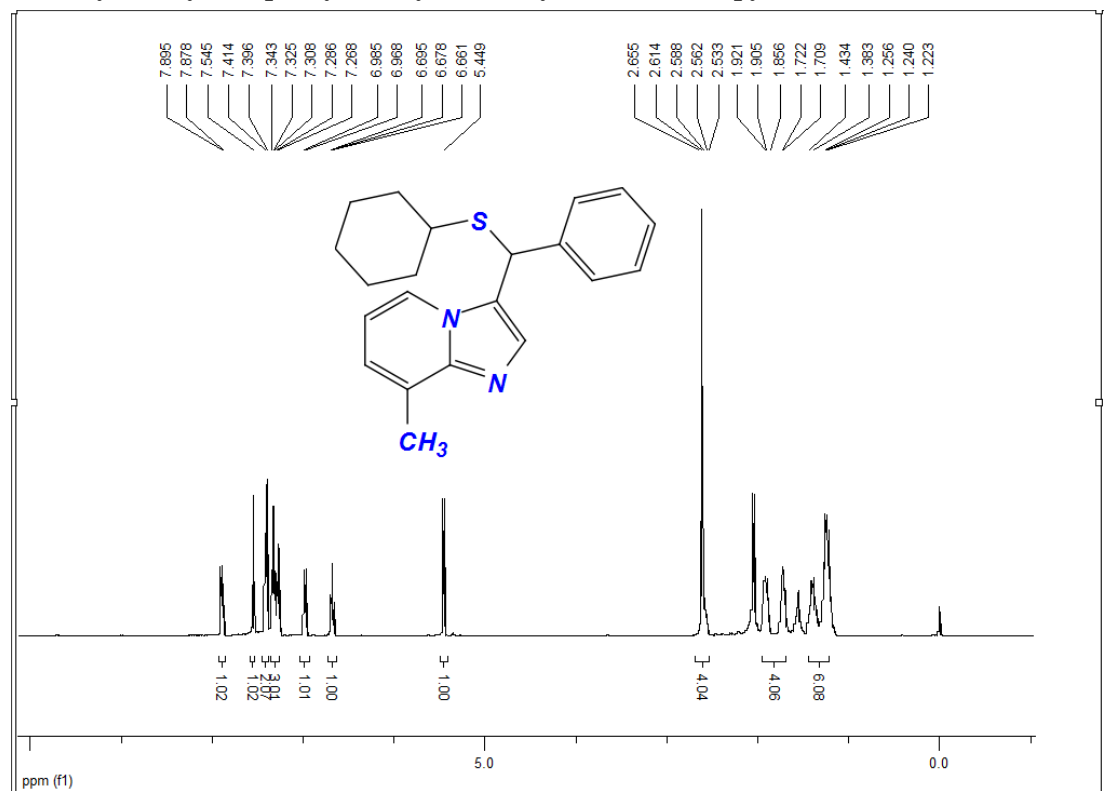
**(4g)3-(cyclohexylthio(phenyl)methyl)-7-methylimidazo[1,2-a]pyridine**



**(4h)3-(cyclohexylthio(phenyl)methyl)-6-methylimidazo[1,2-a]pyridine**

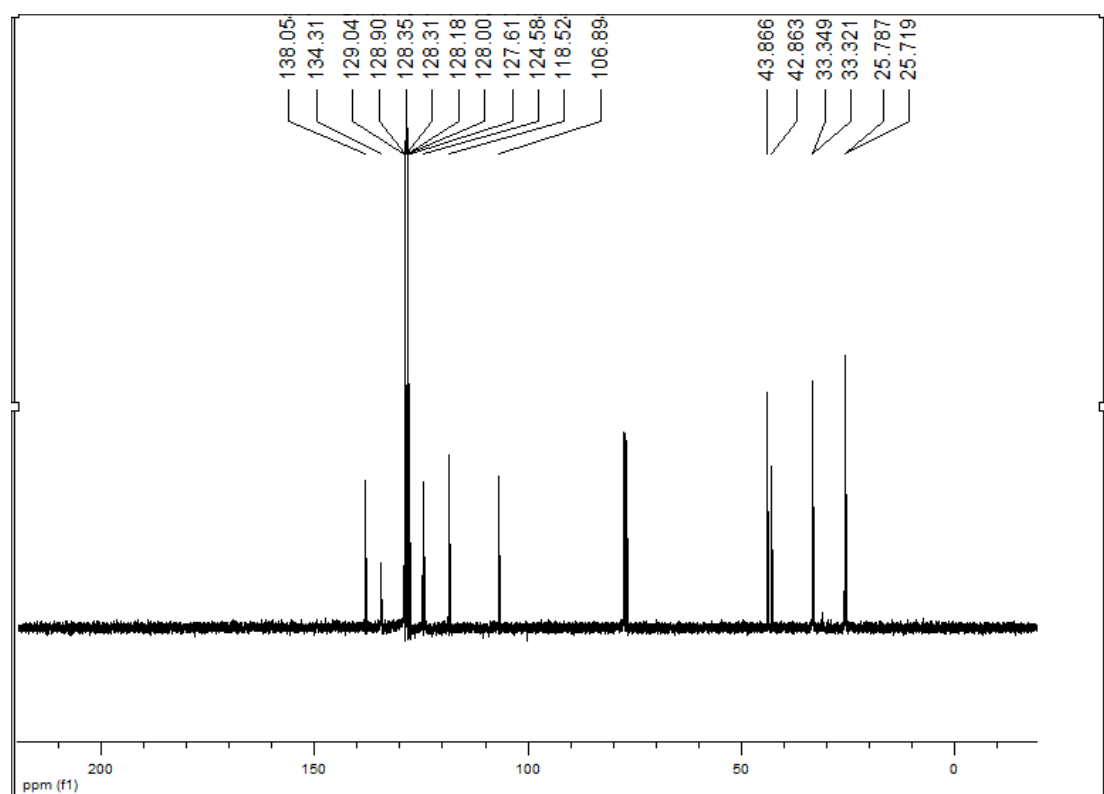
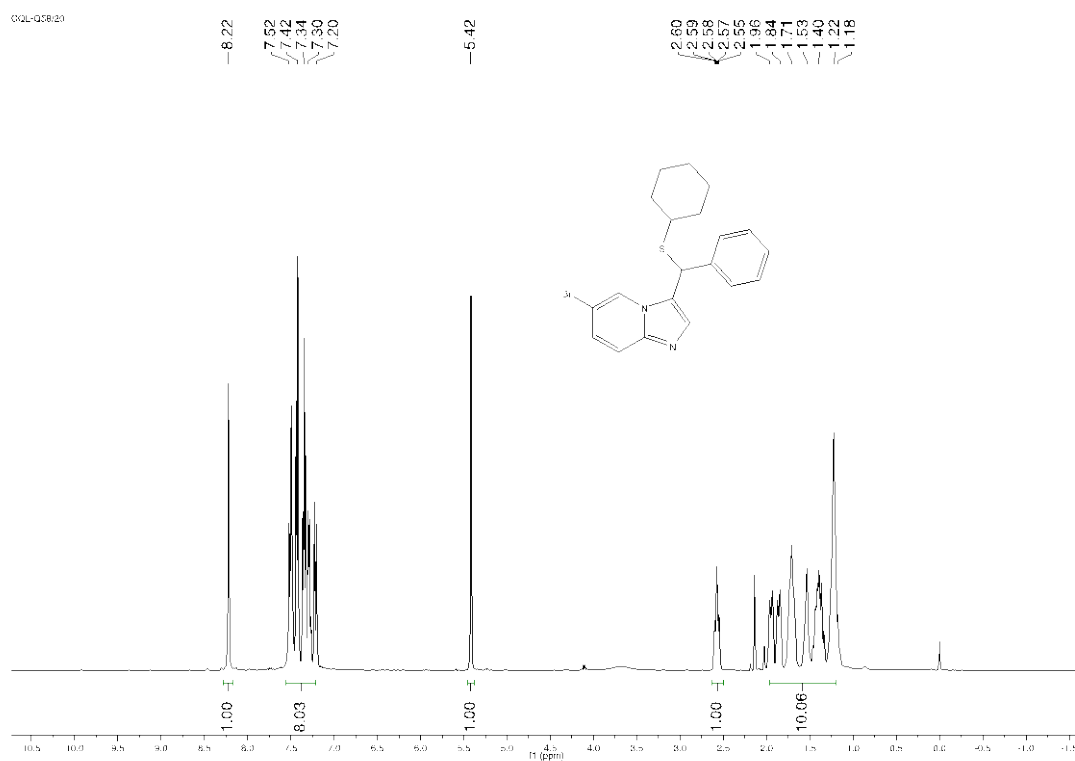


**(4i)3-(cyclohexylthio(phenyl)methyl)-8-methylimidazo[1,2-a]pyridine**

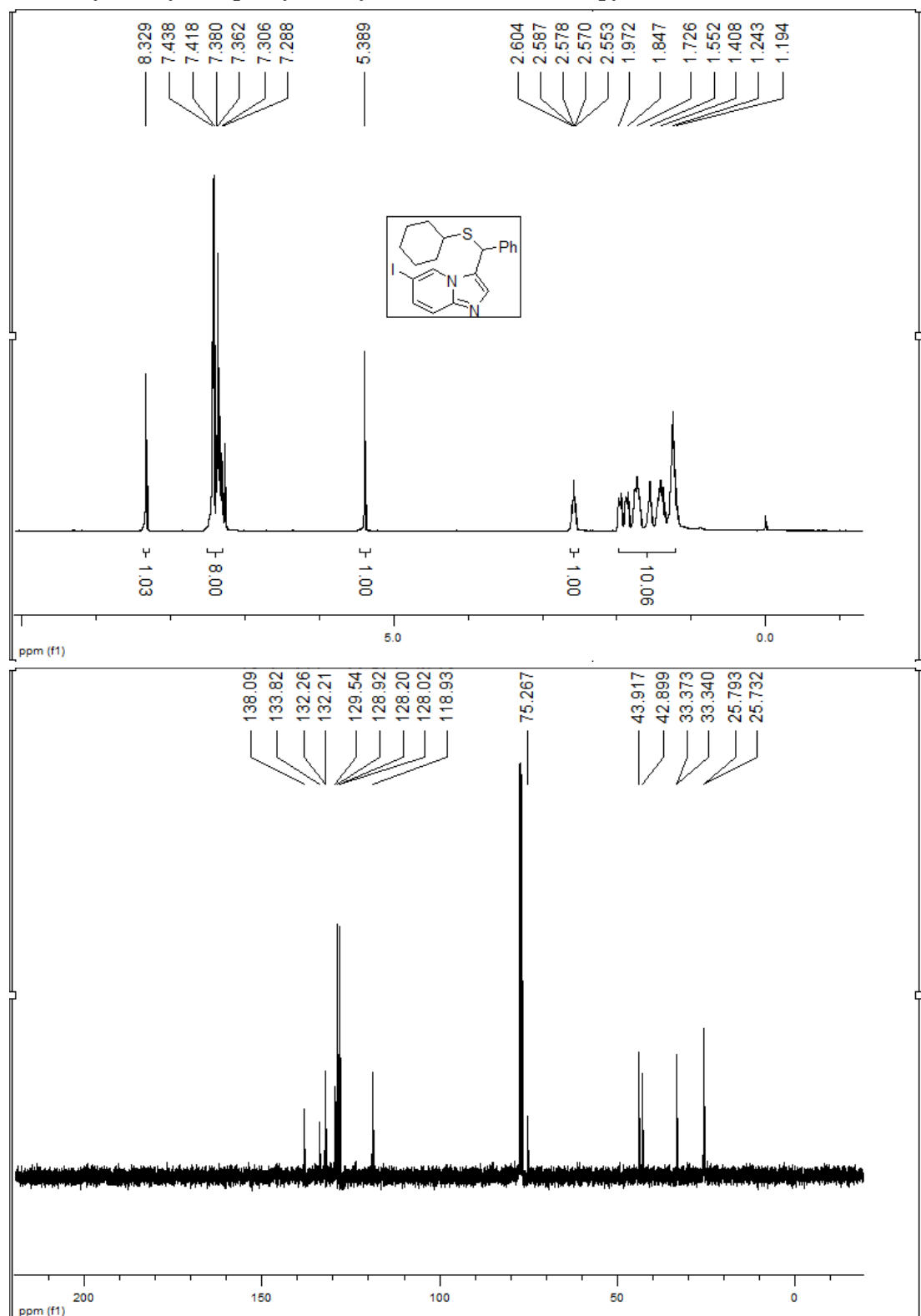




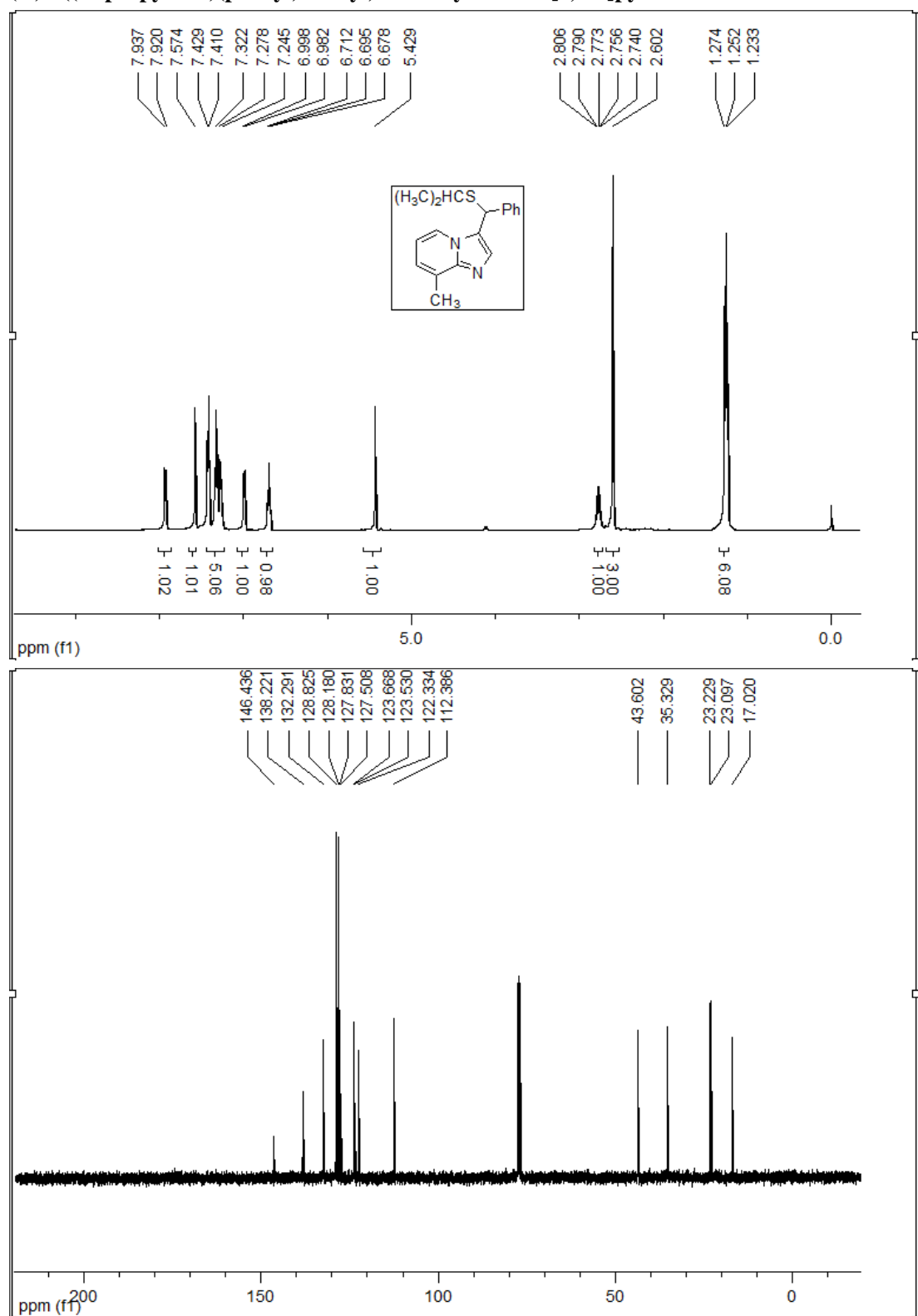
**(4j)6-bromo-3-(cyclohexylthio(phenyl)methyl)imidazo[1,2-a]pyridine**



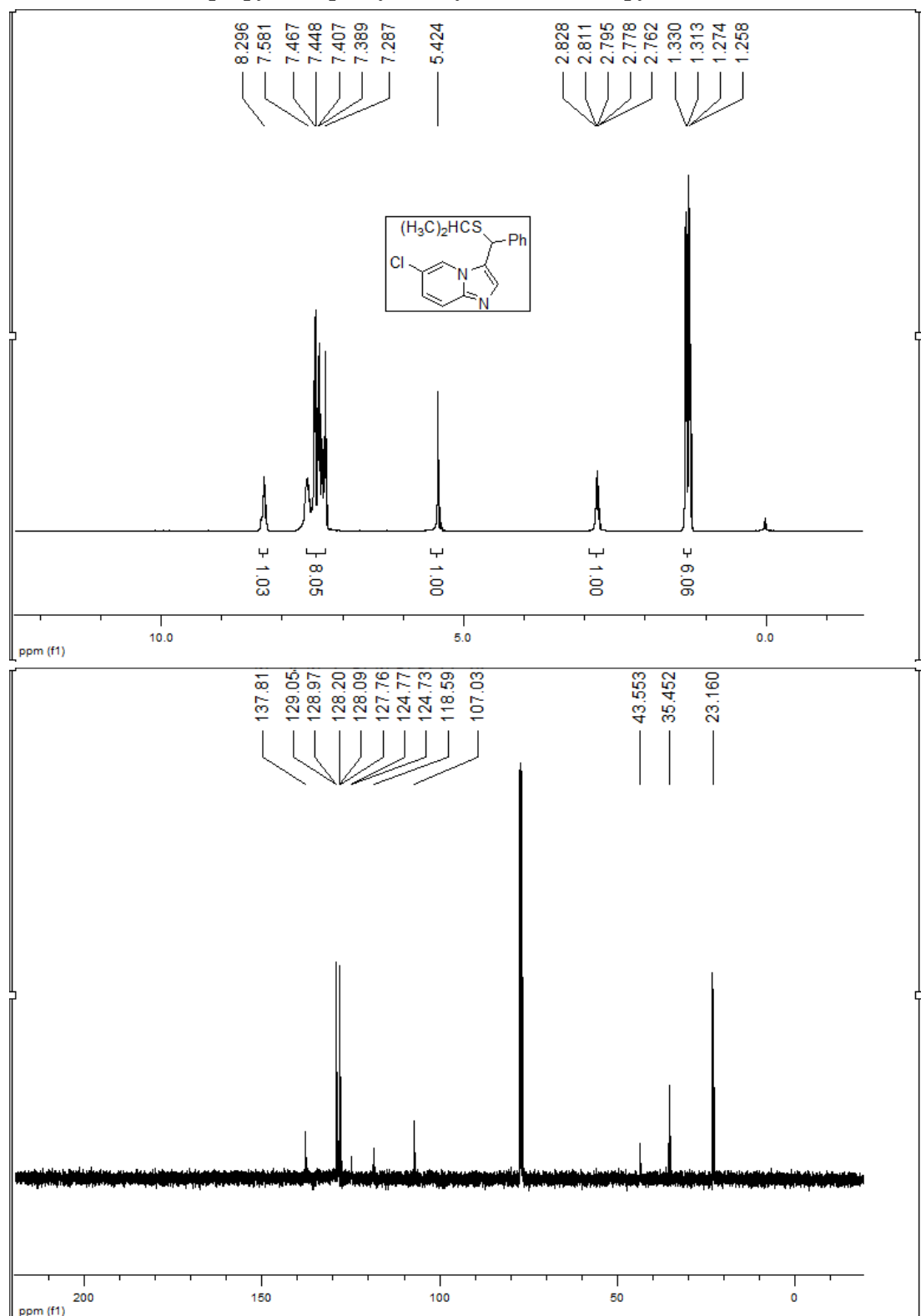
**(4k) 3-(cyclohexylthio(phenyl)methyl)-6-iodoimidazo[1,2-a]pyridine**



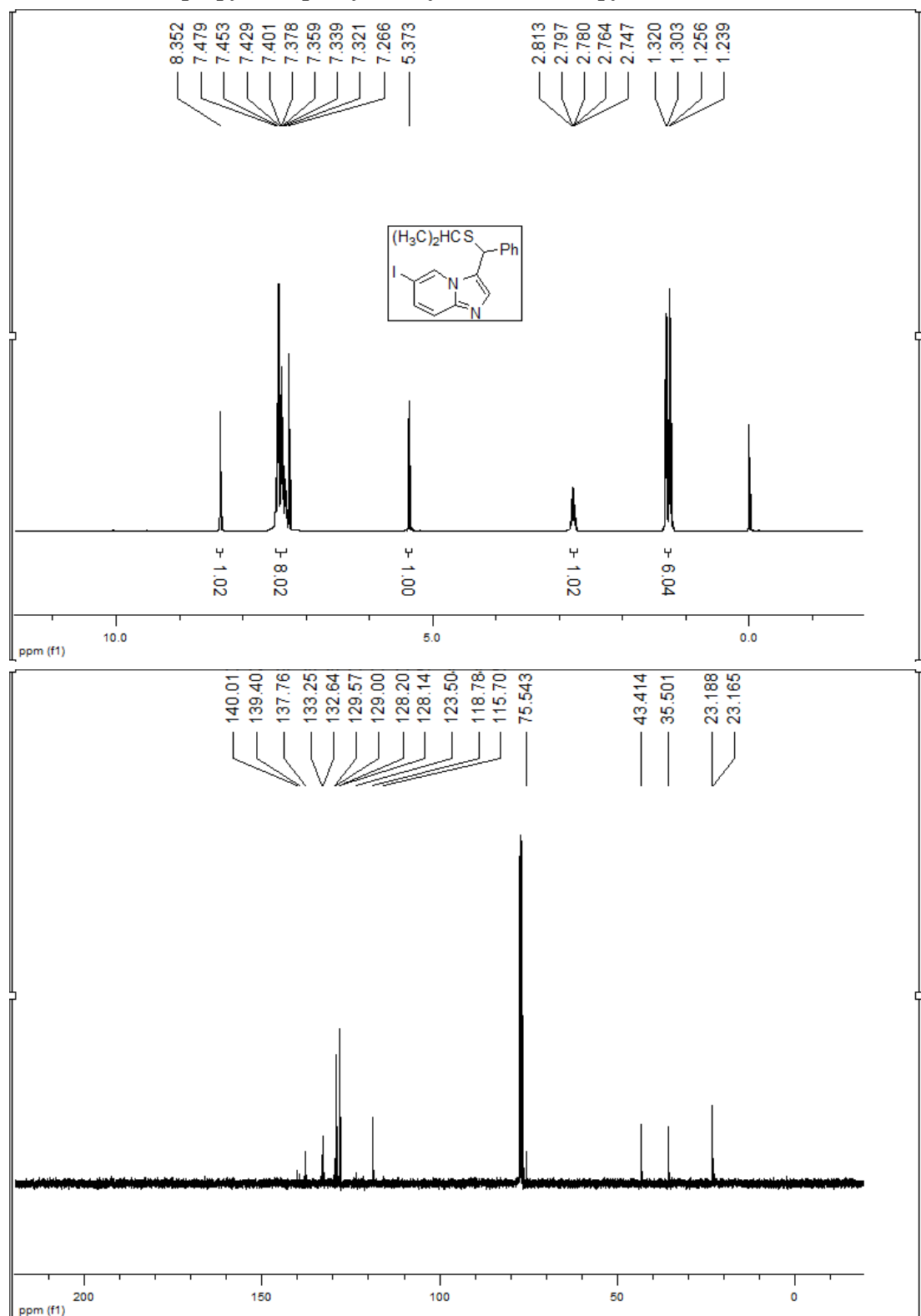
**(4)3-((isopropylthio)(phenyl)methyl)-8-methylimidazo[1,2-a]pyridine**



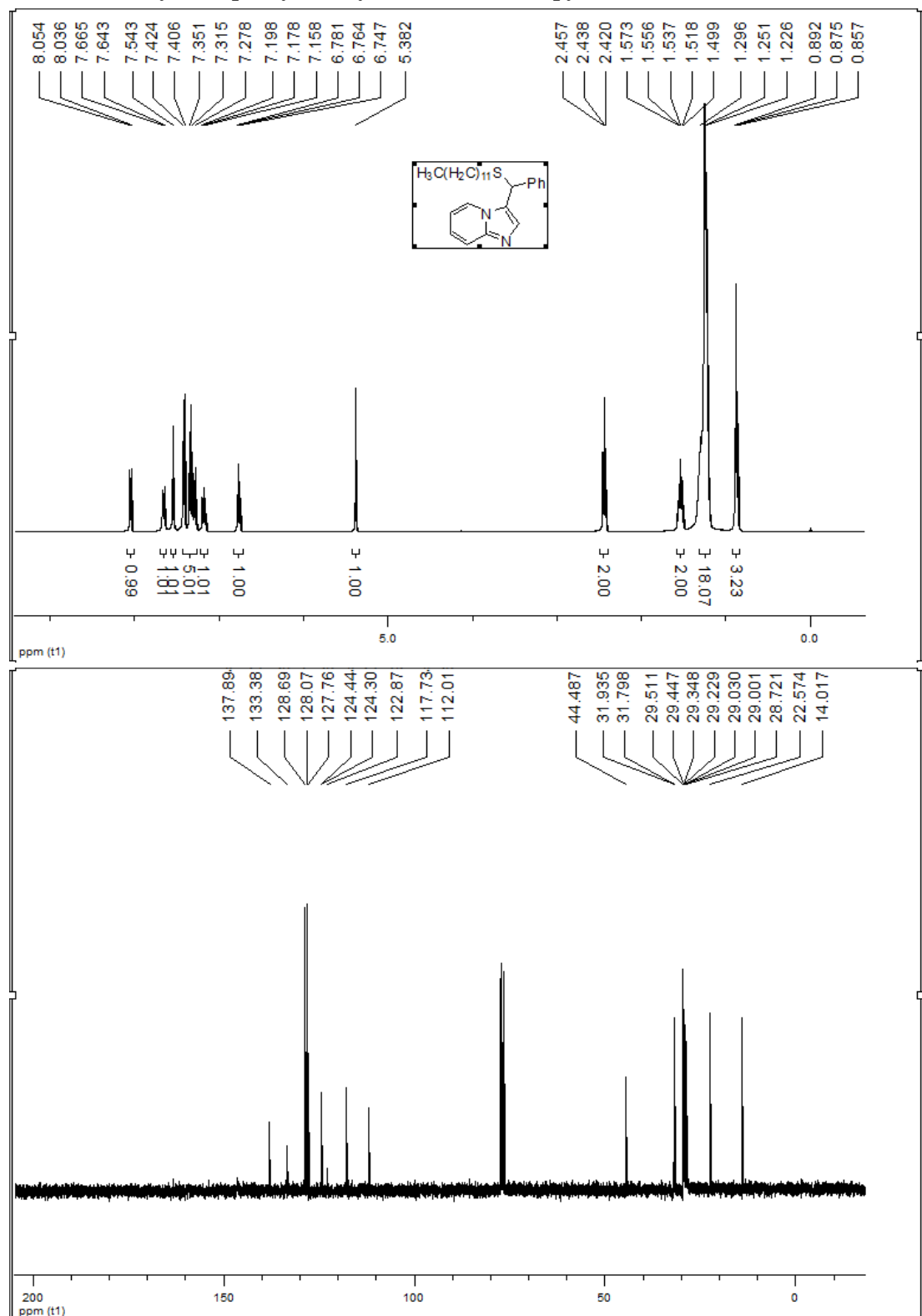
**(4m)6-chloro-3-((isopropylthio)(phenyl)methyl)imidazo[1,2-a]pyridine**



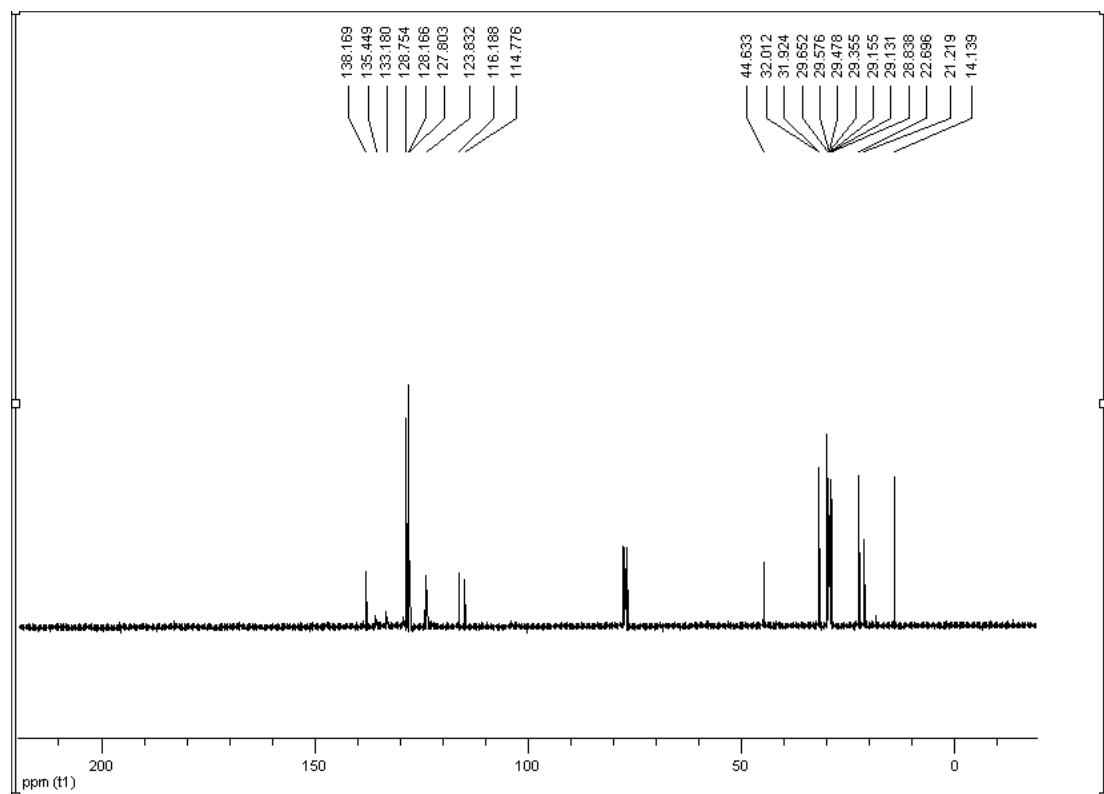
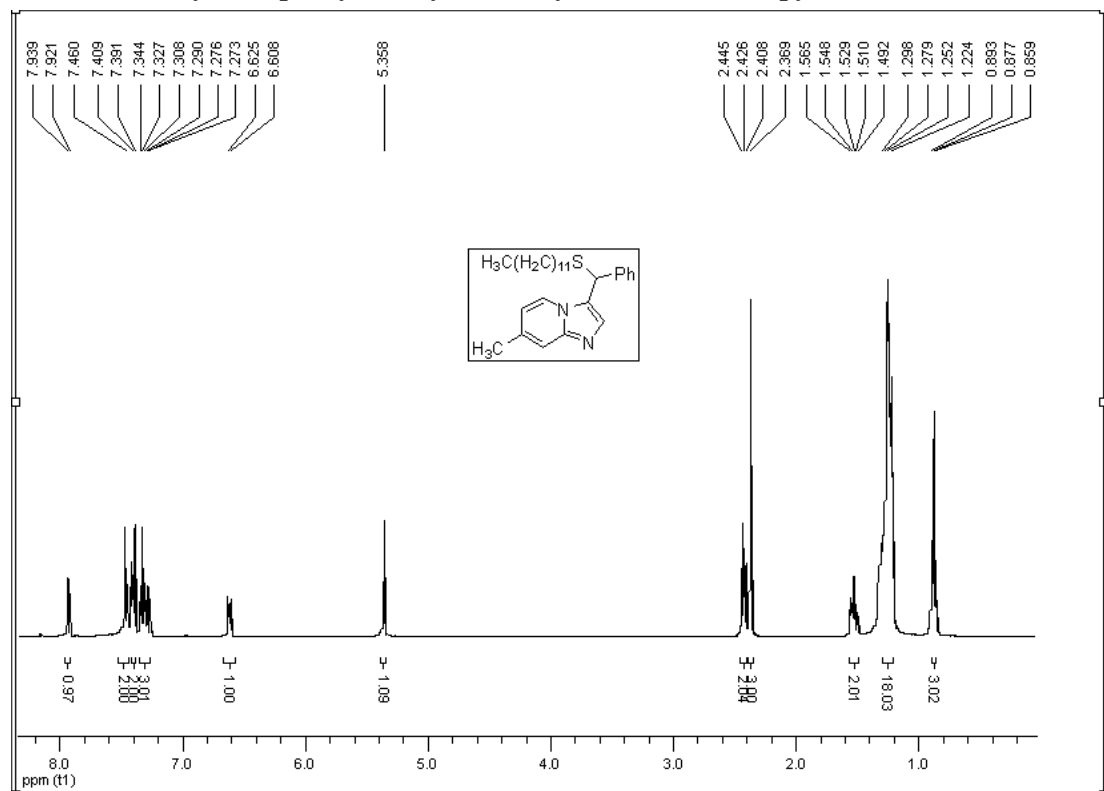
**(4n)6-iodo-3-((isopropylthio)(phenyl)methyl)imidazo[1,2-a]pyridine**



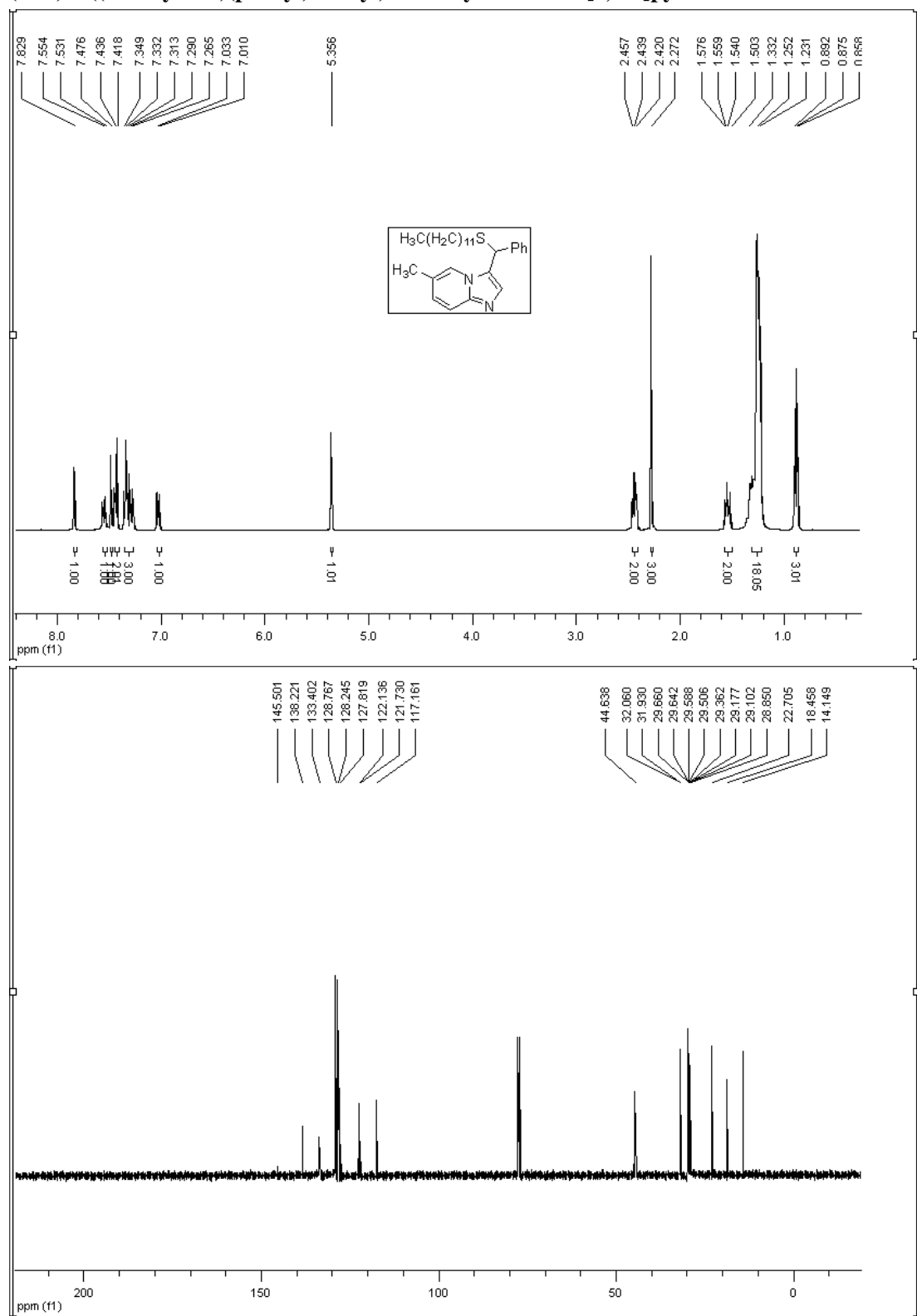
**(5aa) 3-((dodecylthio)(phenyl)methyl)H-imidazo[1,2-a]pyridine**



**(5ab) 3-((dodecylthio)(phenyl)methyl)-7-methylH-imidazo[1,2-a]pyridine**

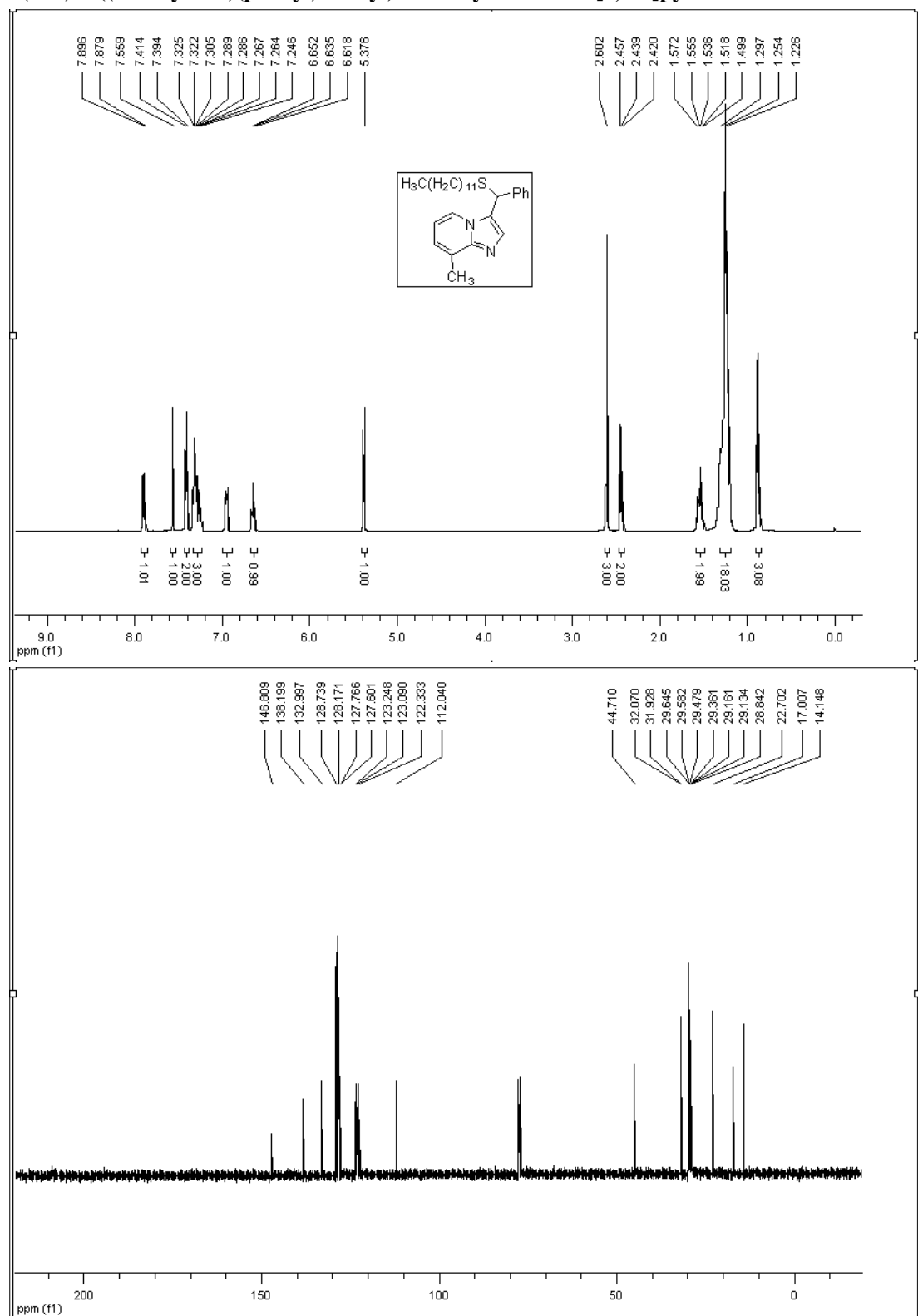


**(5a c) 3-((dodecylthio)(phenyl)methyl)-6-methylH-imidazo[1,2-a]pyridine**

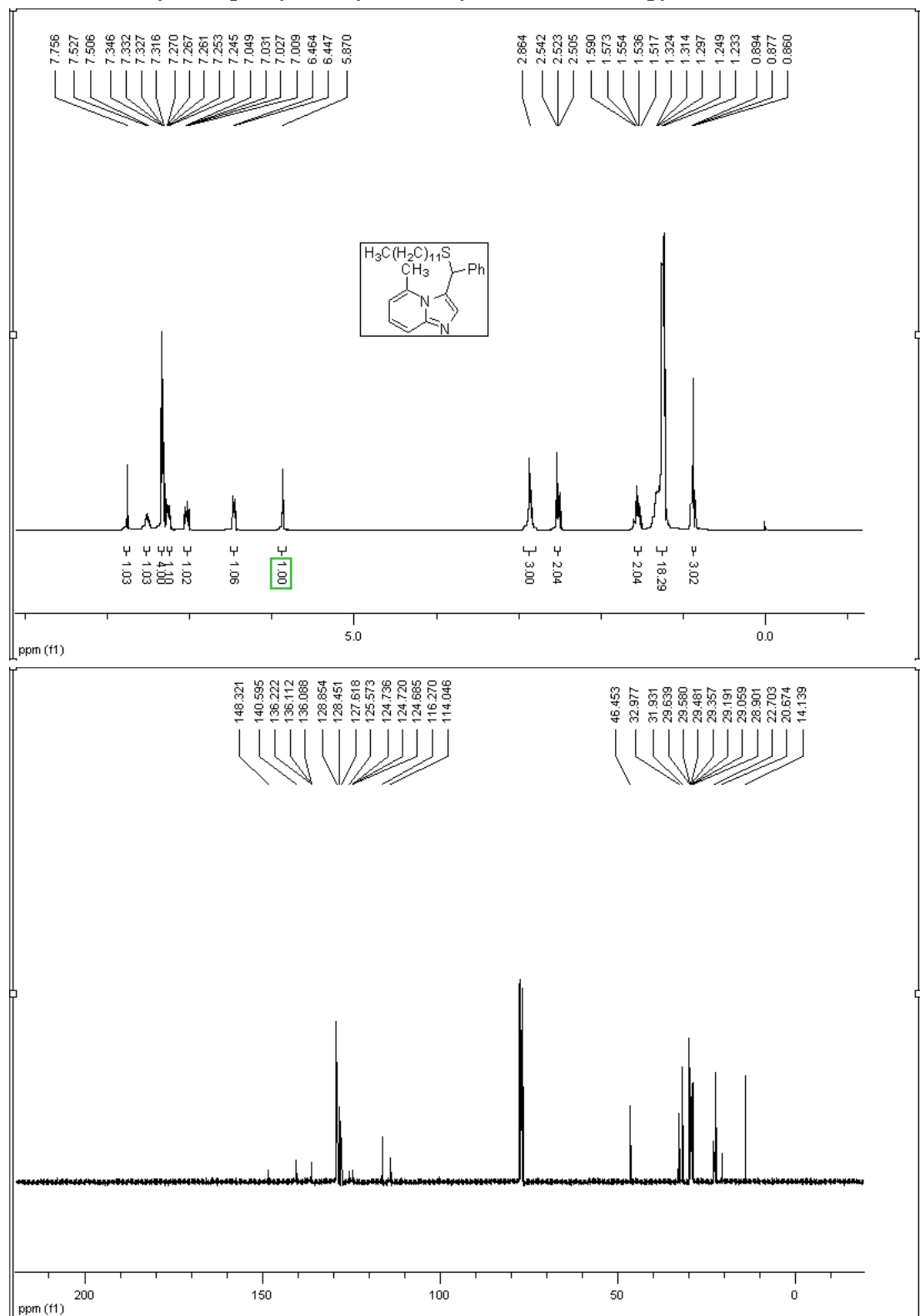




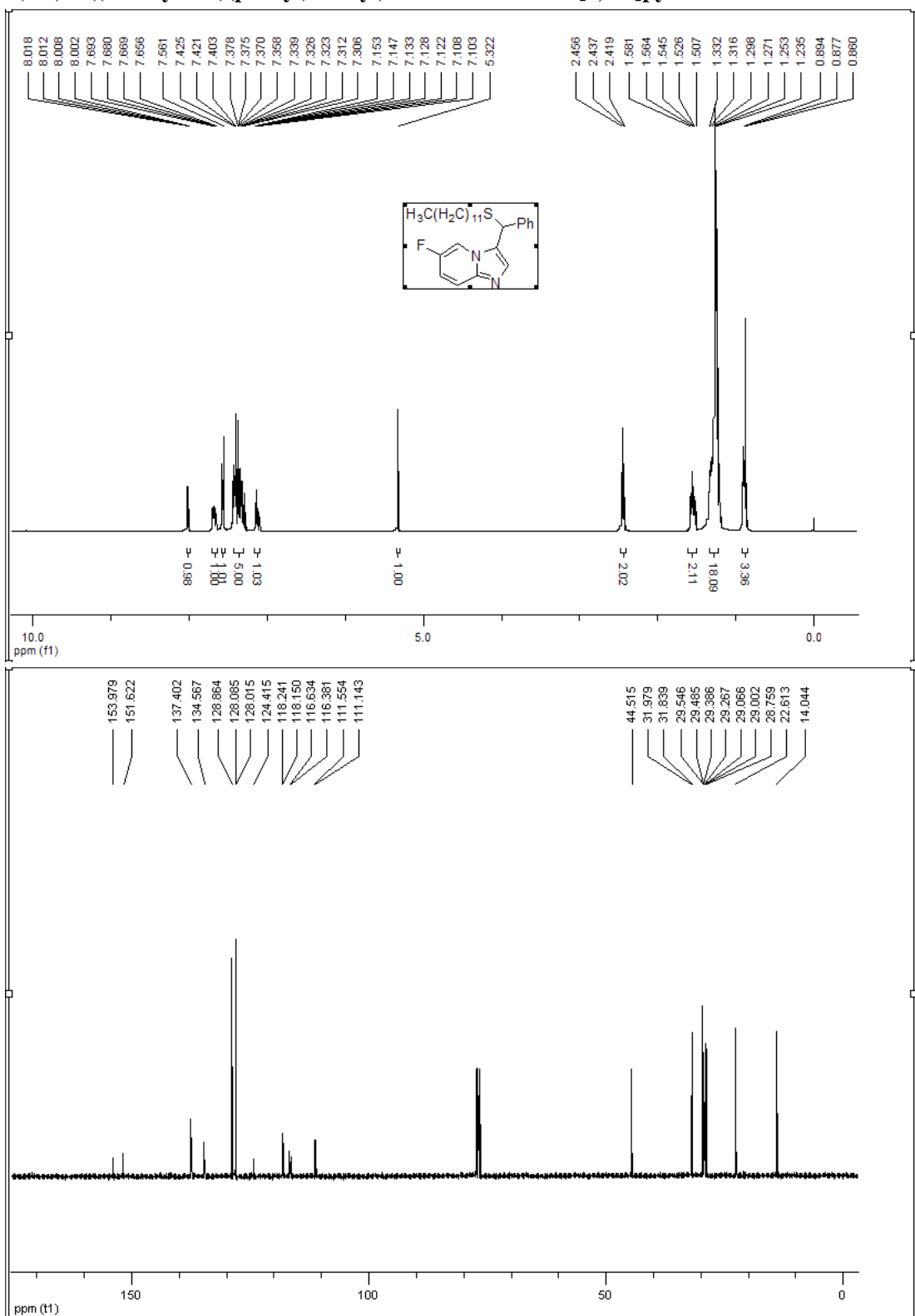
**(5ad) 3-((dodecylthio)(phenyl)methyl)-8-methylH-imidazo[1,2-a]pyridine**



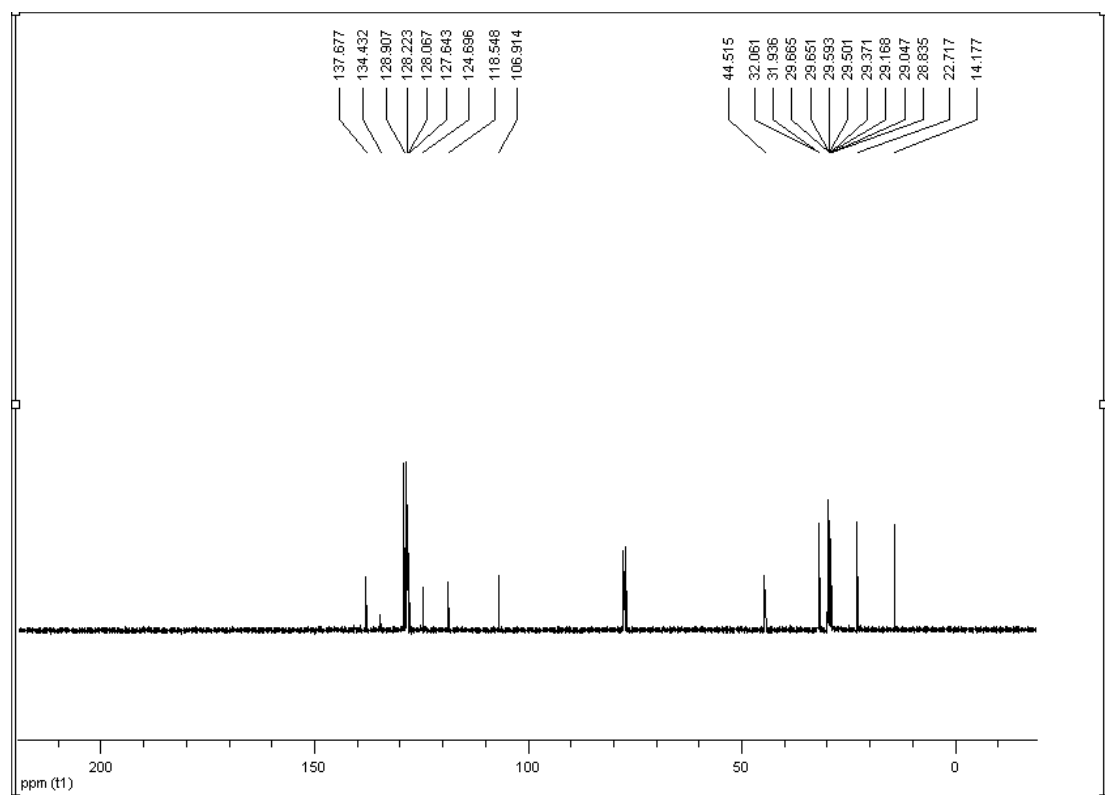
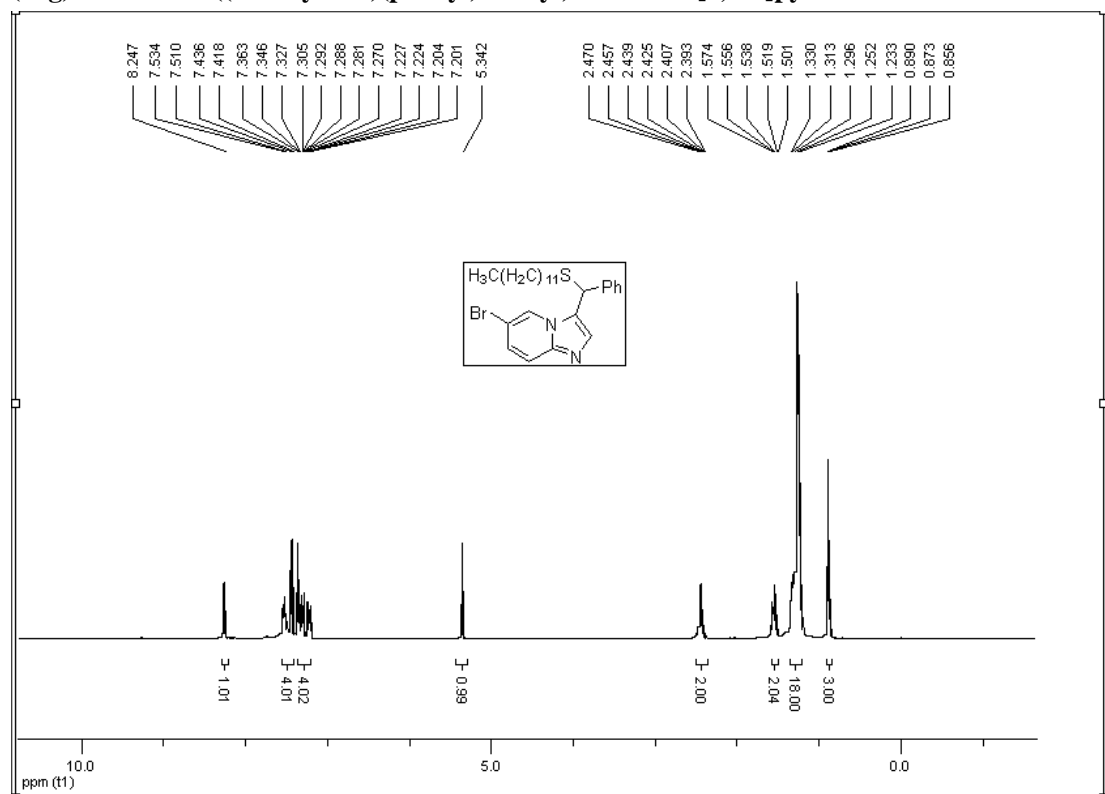
**(5ae) 3-((dodecylthio)(phenyl)methyl)-5-methylH-imidazo[1,2-a]pyridine**



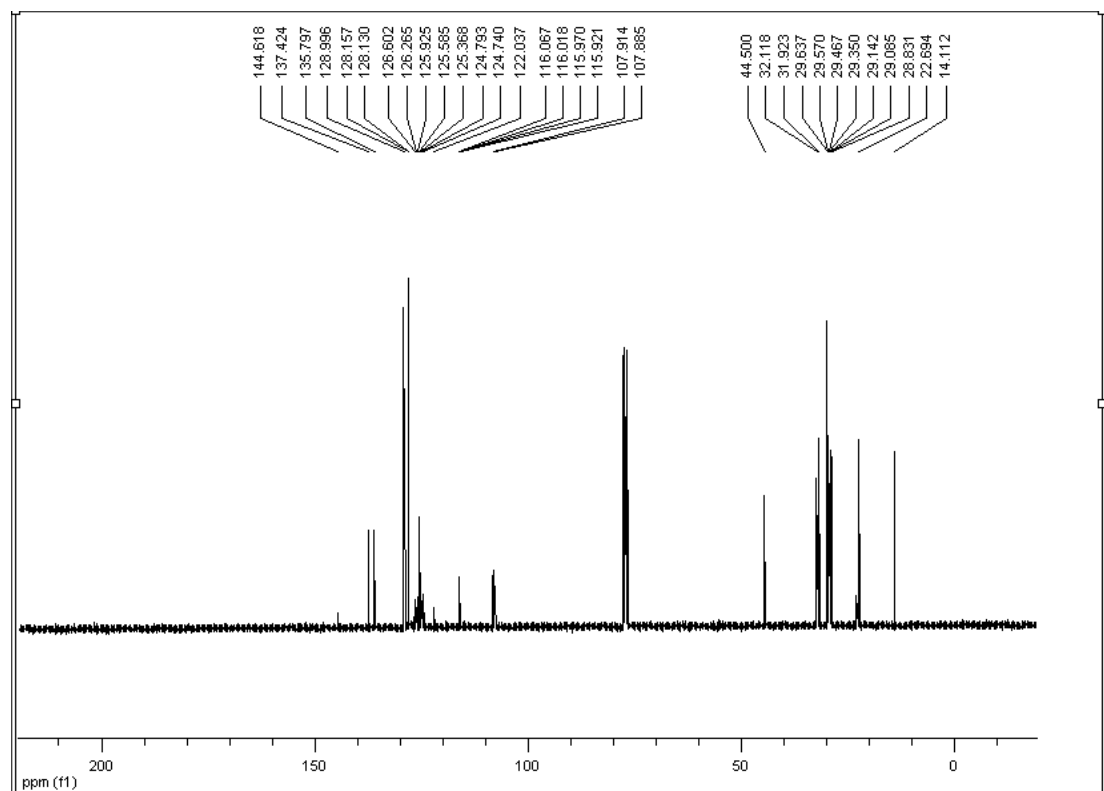
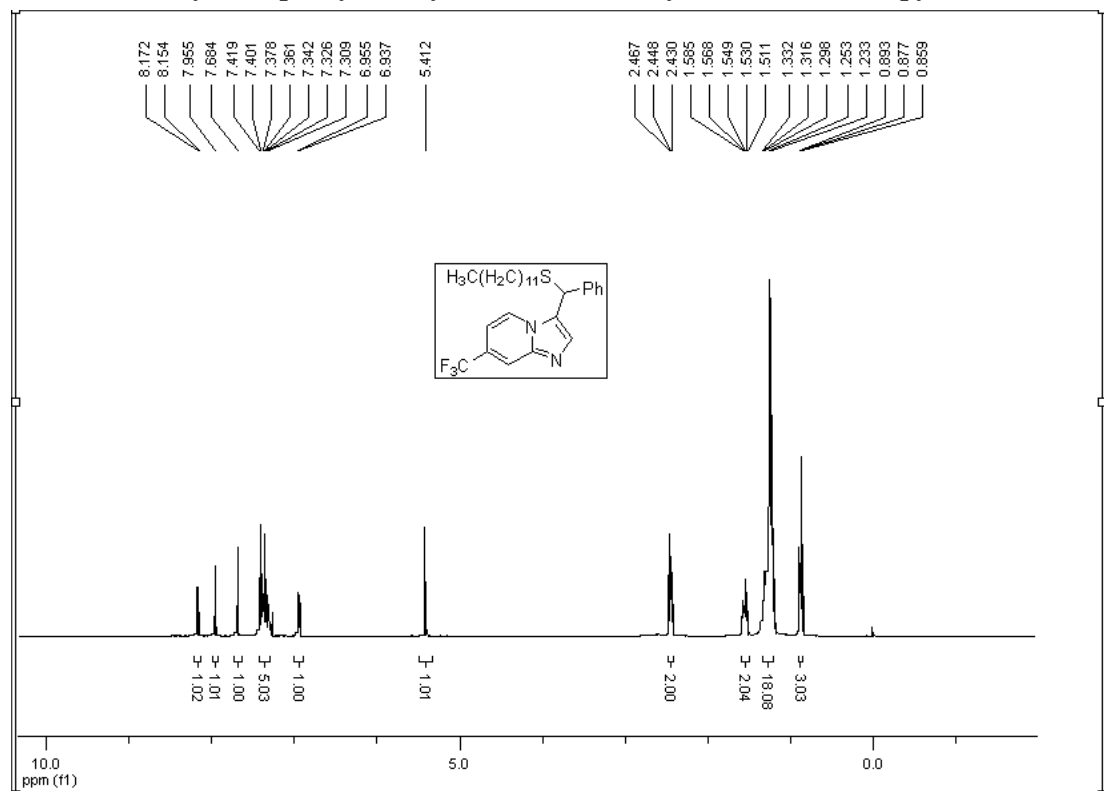
(5af) 3-((dodecylthio)(phenyl)methyl)-6-fluoroH-imidazo[1,2-a]pyridine



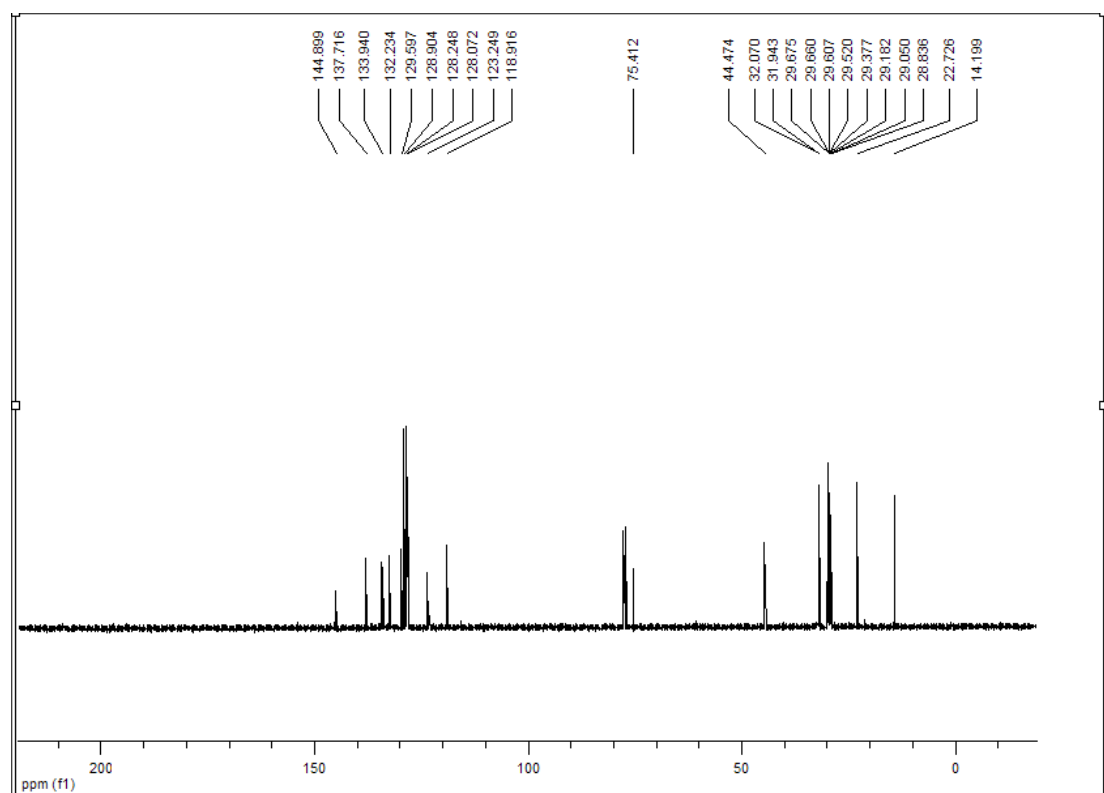
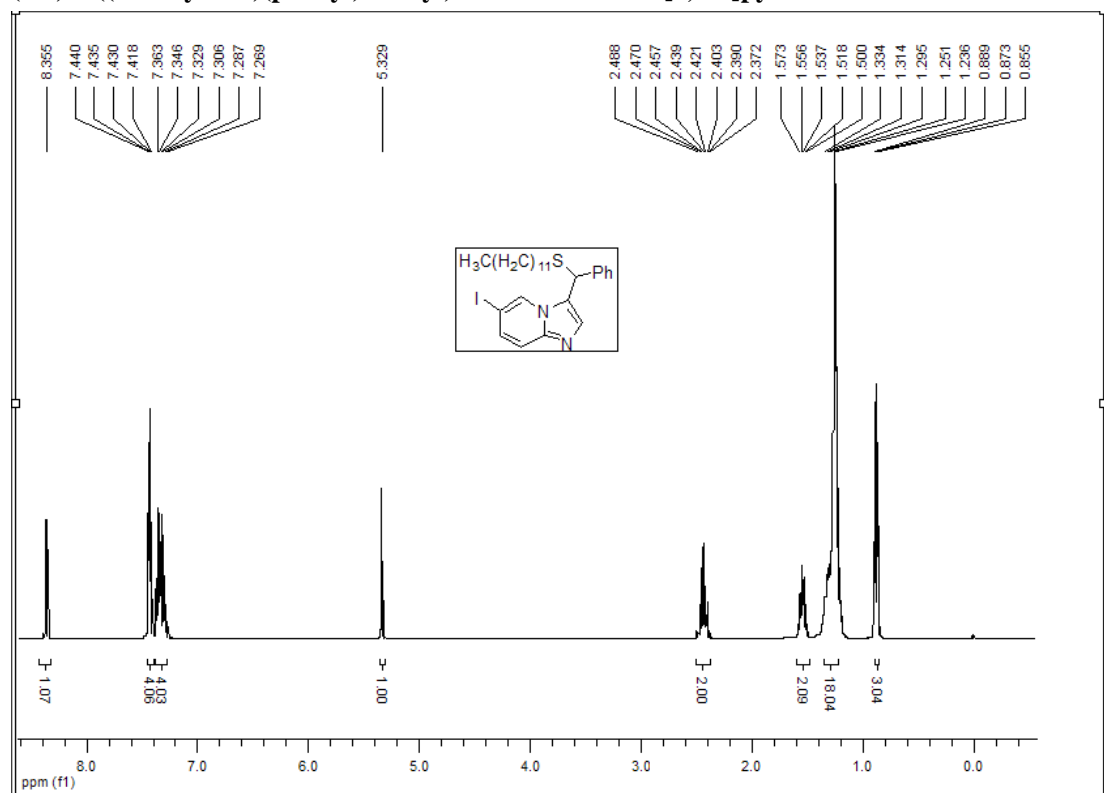
**(5ag) 6-bromo-3-((dodecylthio)(phenyl)methyl)H-imidazo[1,2-a]pyridine**



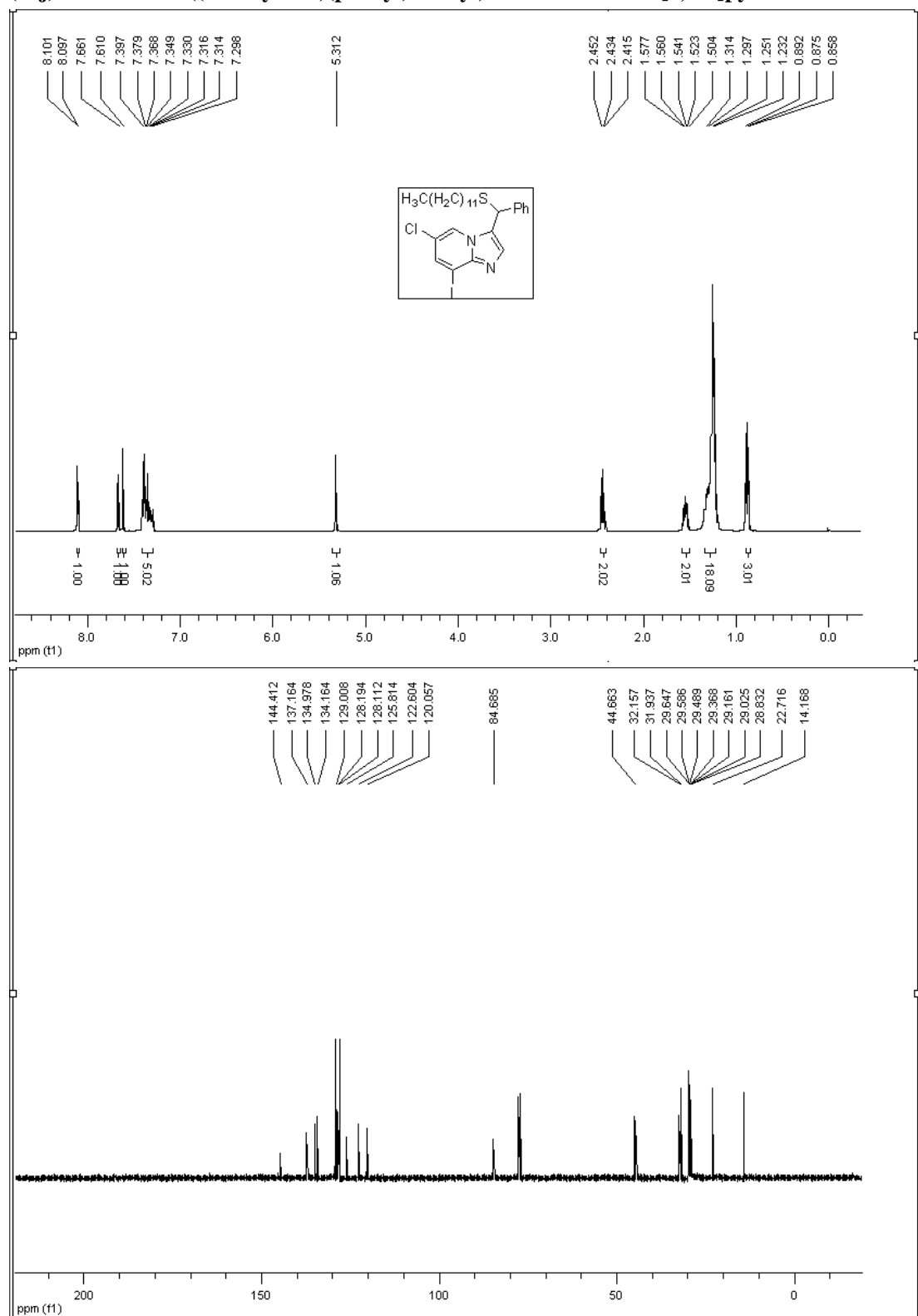
**(5ah) 3-((dodecylthio)(phenyl)methyl)-7-(trifluoromethyl)H-imidazo[1,2-a]pyridine**



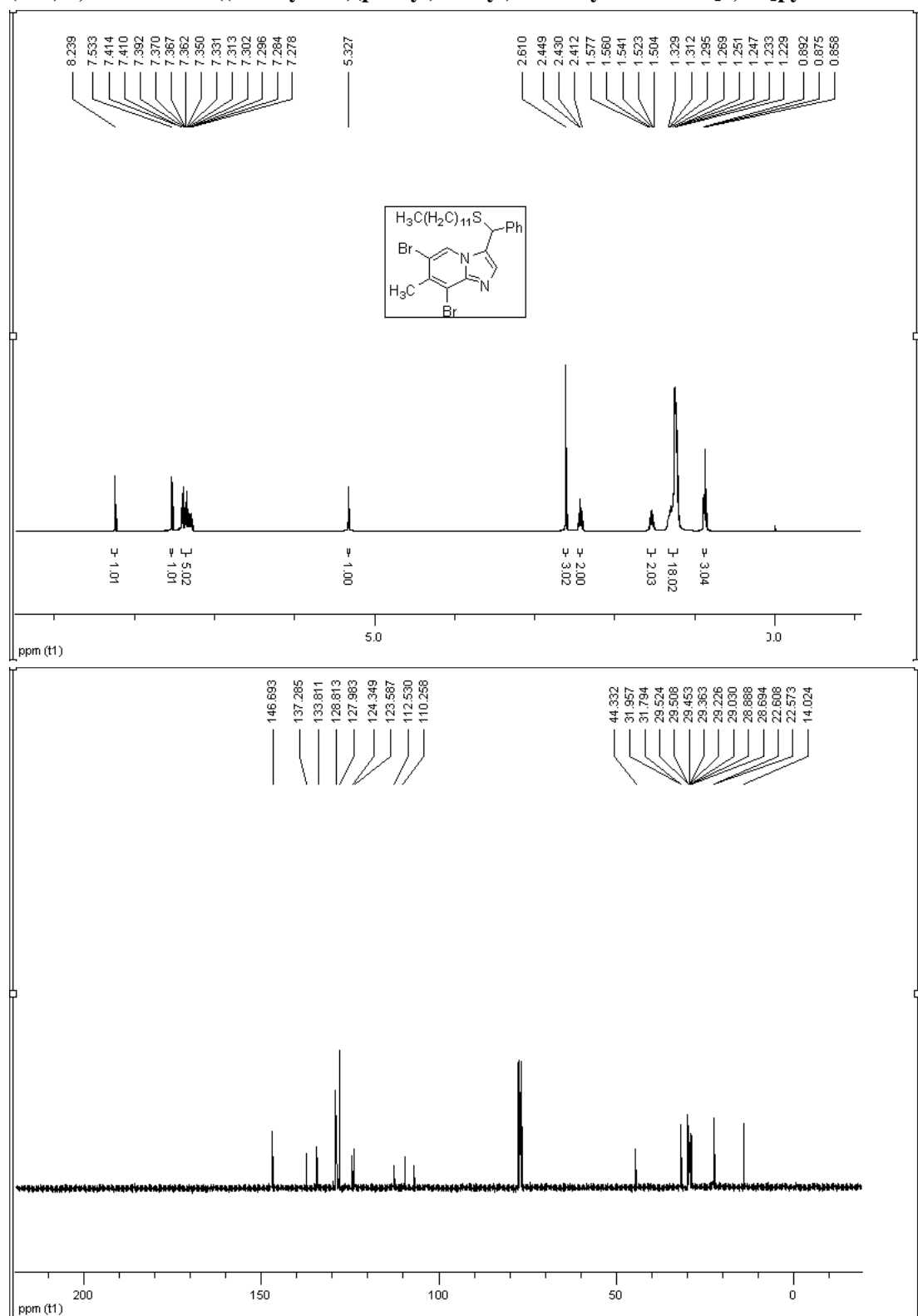
**(5ai) 3-((dodecylthio)(phenyl)methyl)-6-iodoH-imidazo[1,2-a]pyridine**



**(5aj) 6-chloro-3-((dodecylthio)(phenyl)methyl)-8-iodoH-imidazo[1,2-a]pyridine**

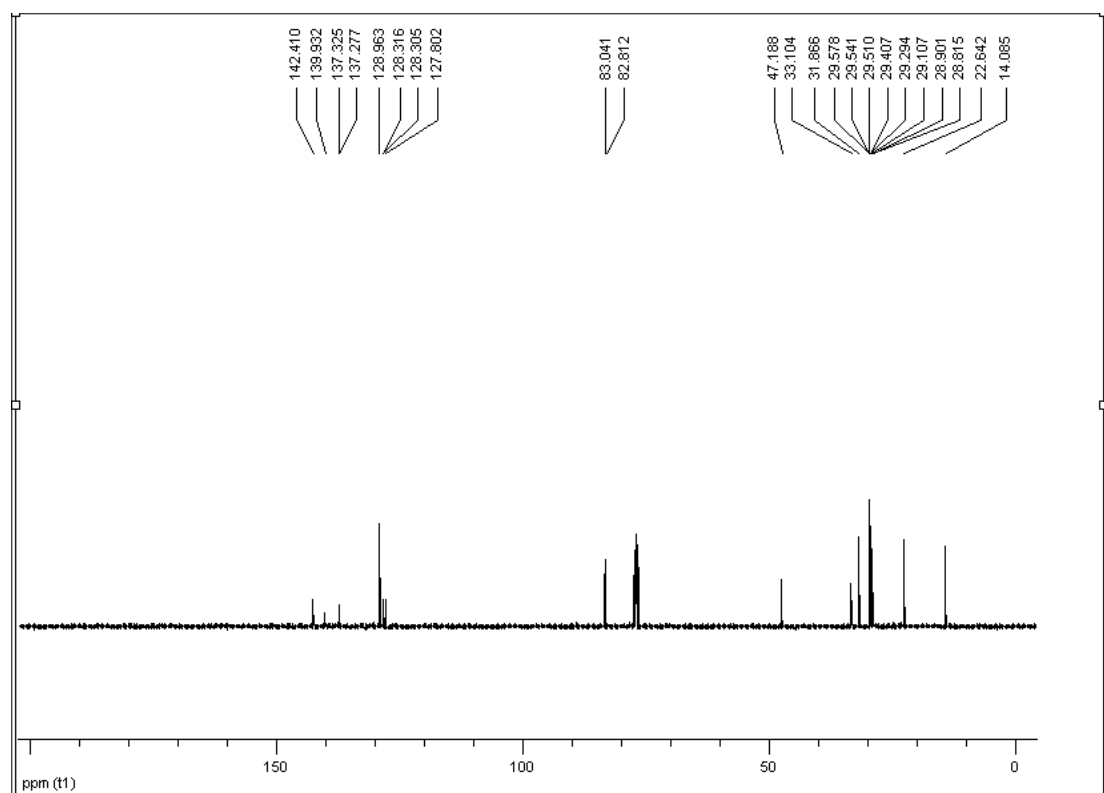
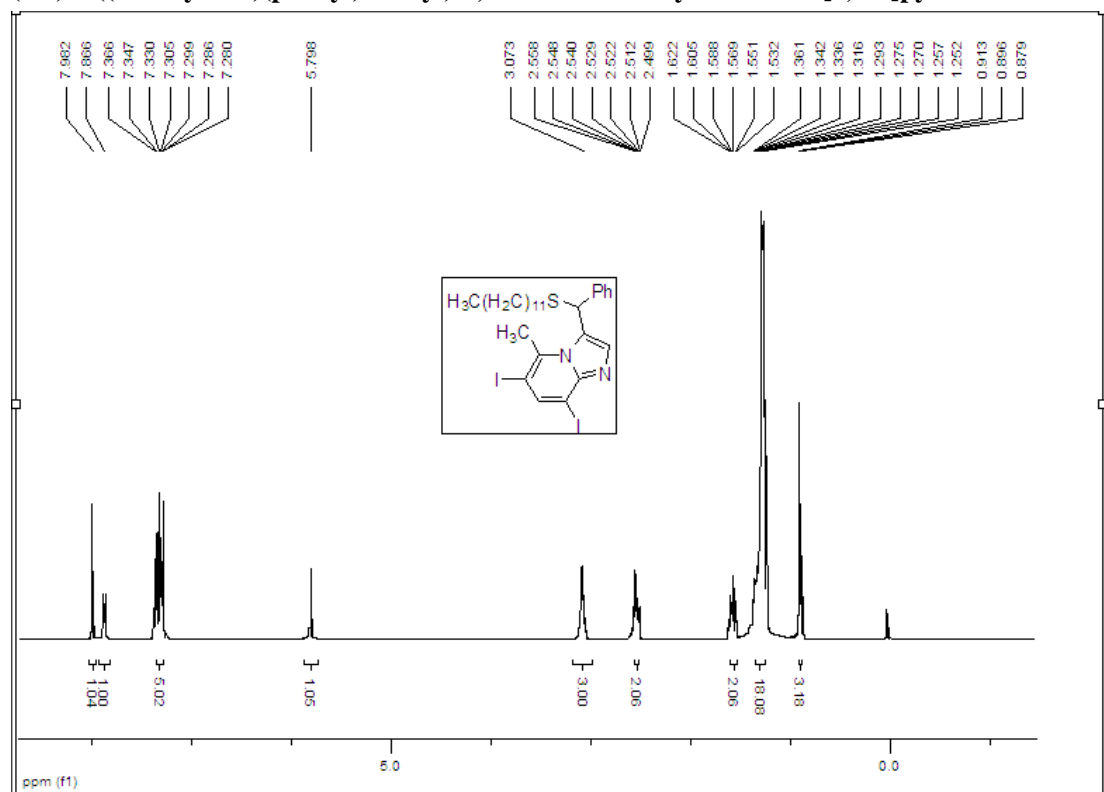


**(5ak) 6,8-dibromo-3-((dodecylthio)(phenyl)methyl)-7-methylH-imidazo[1,2-a]pyridine**

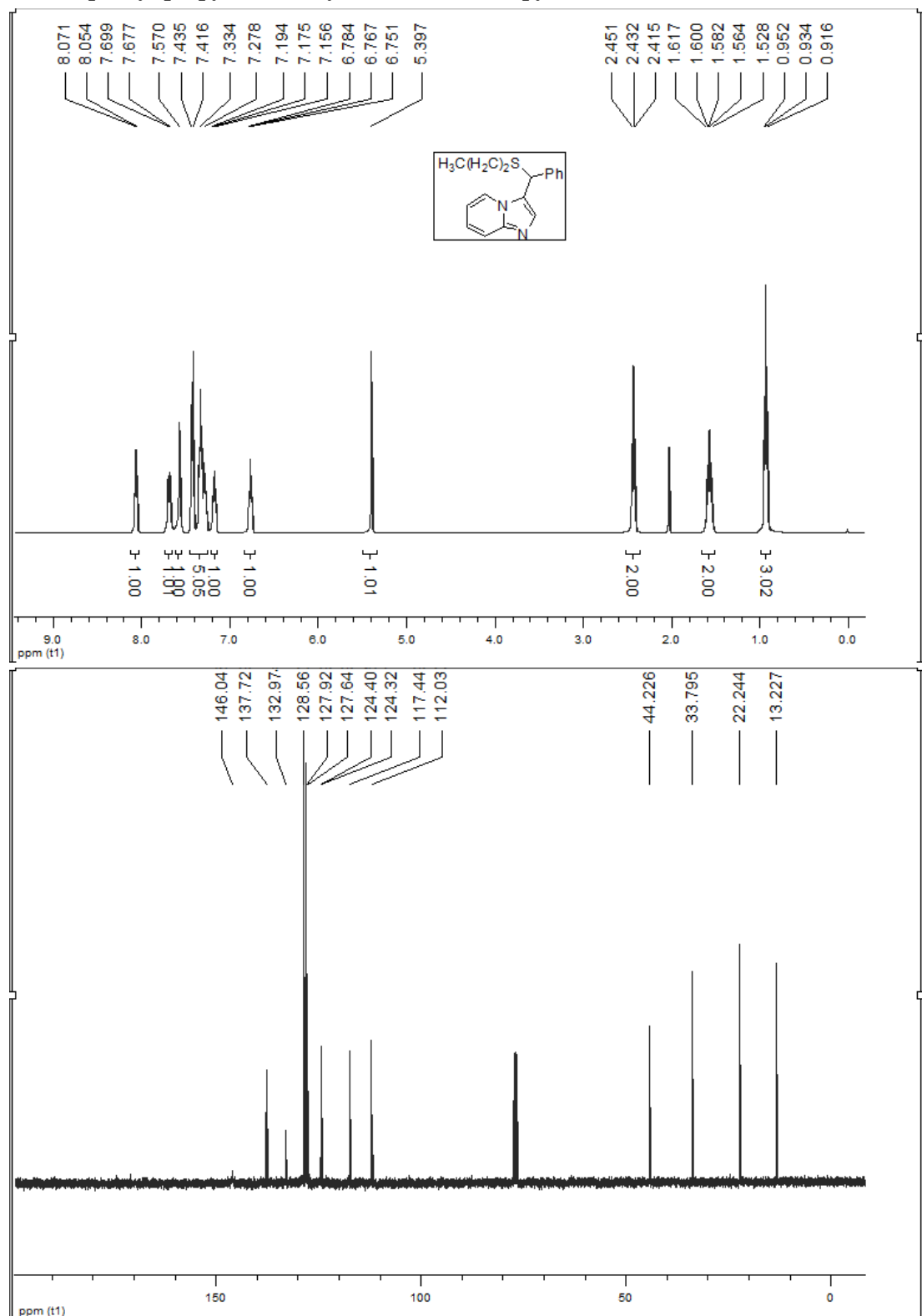




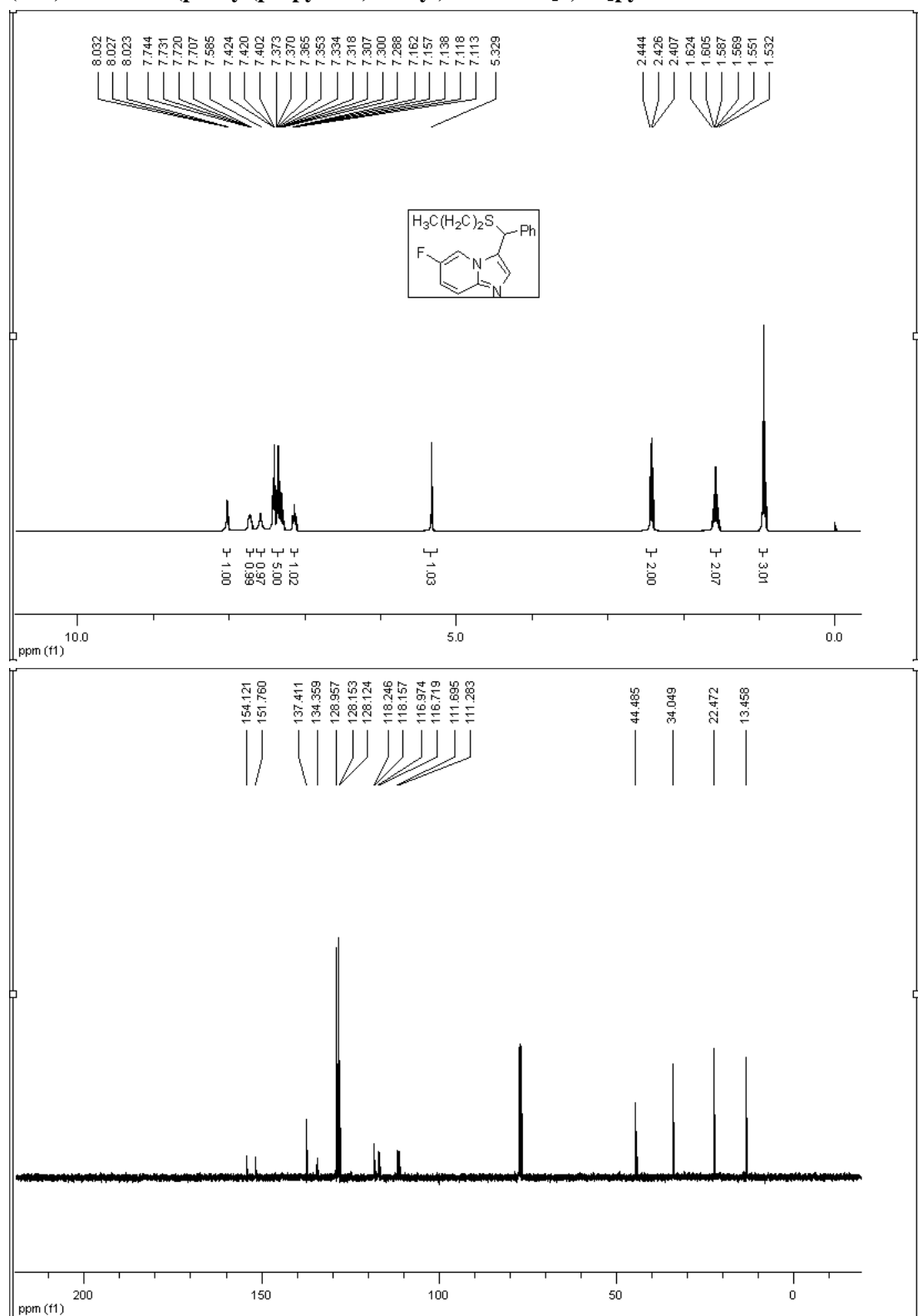
**(5a) 3-((dodecylthio)(phenyl)methyl)-6,8-diiodo-5-methylH-imidazo[1,2-a]pyridine**



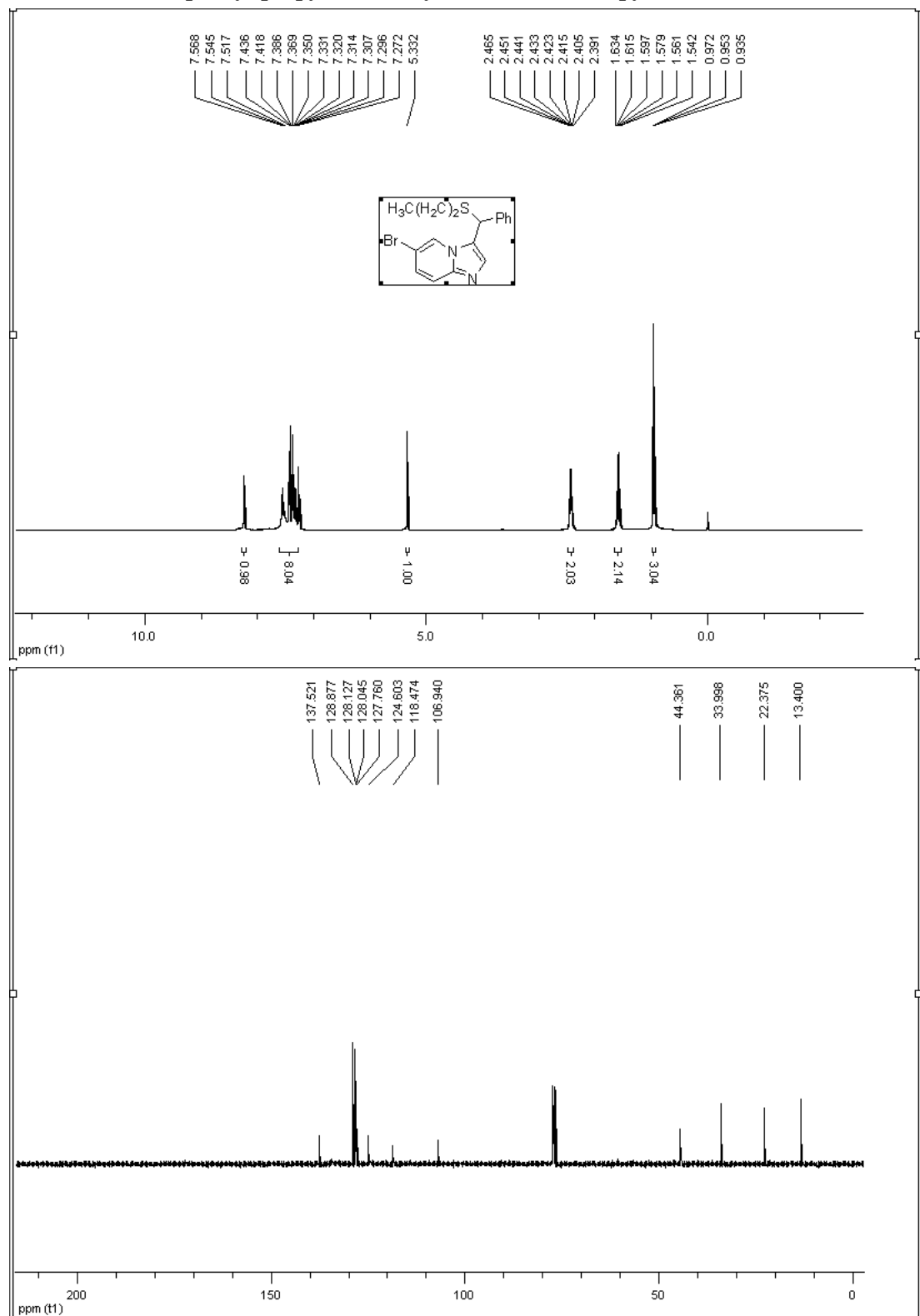
**(5ba)3-(phenyl(propylthio)methyl)H-imidazo[1,2-a]pyridine**



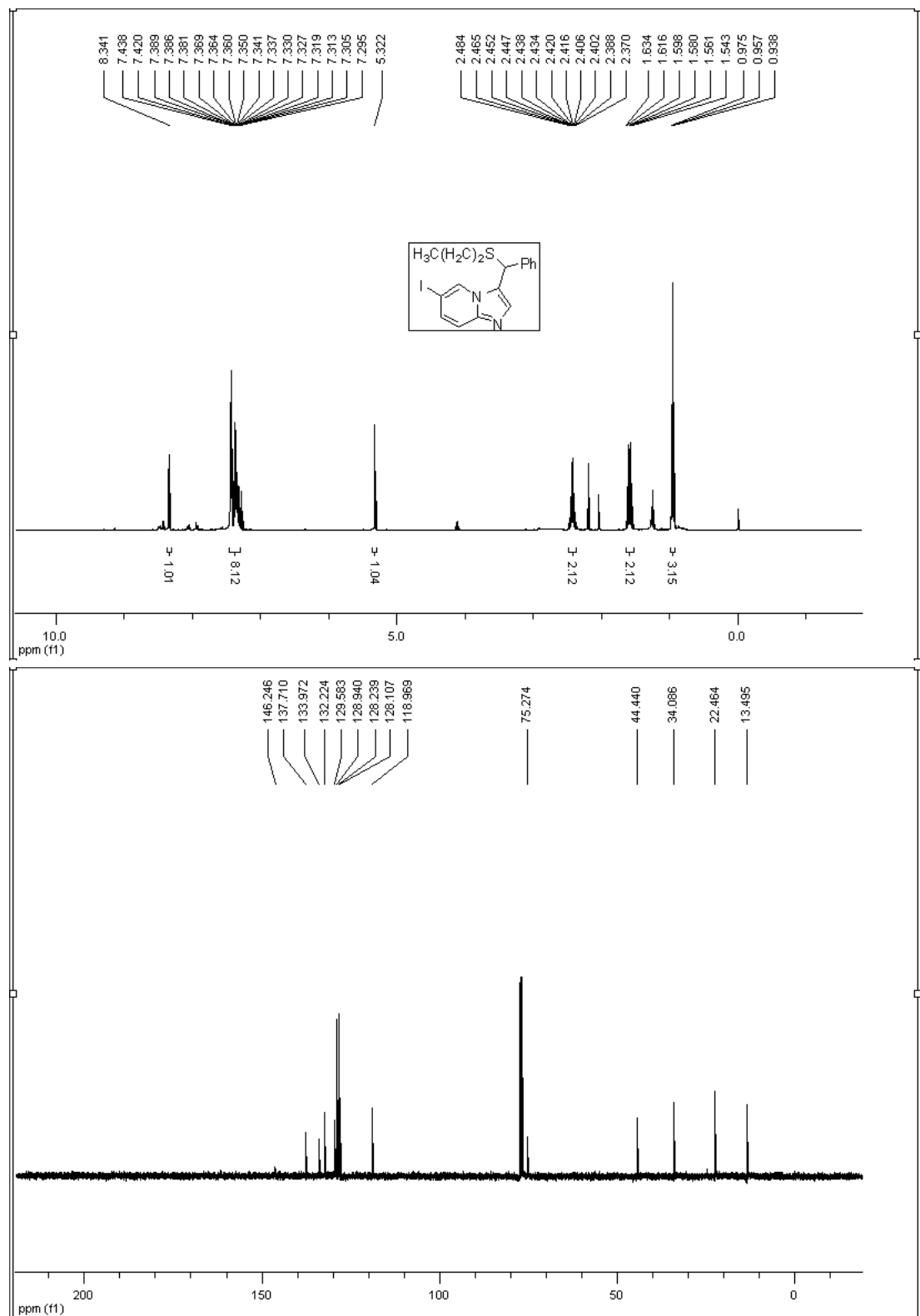
**(5bb) 6-fluoro-3-(phenyl(propylthio)methyl)H-imidazo[1,2-a]pyridine**



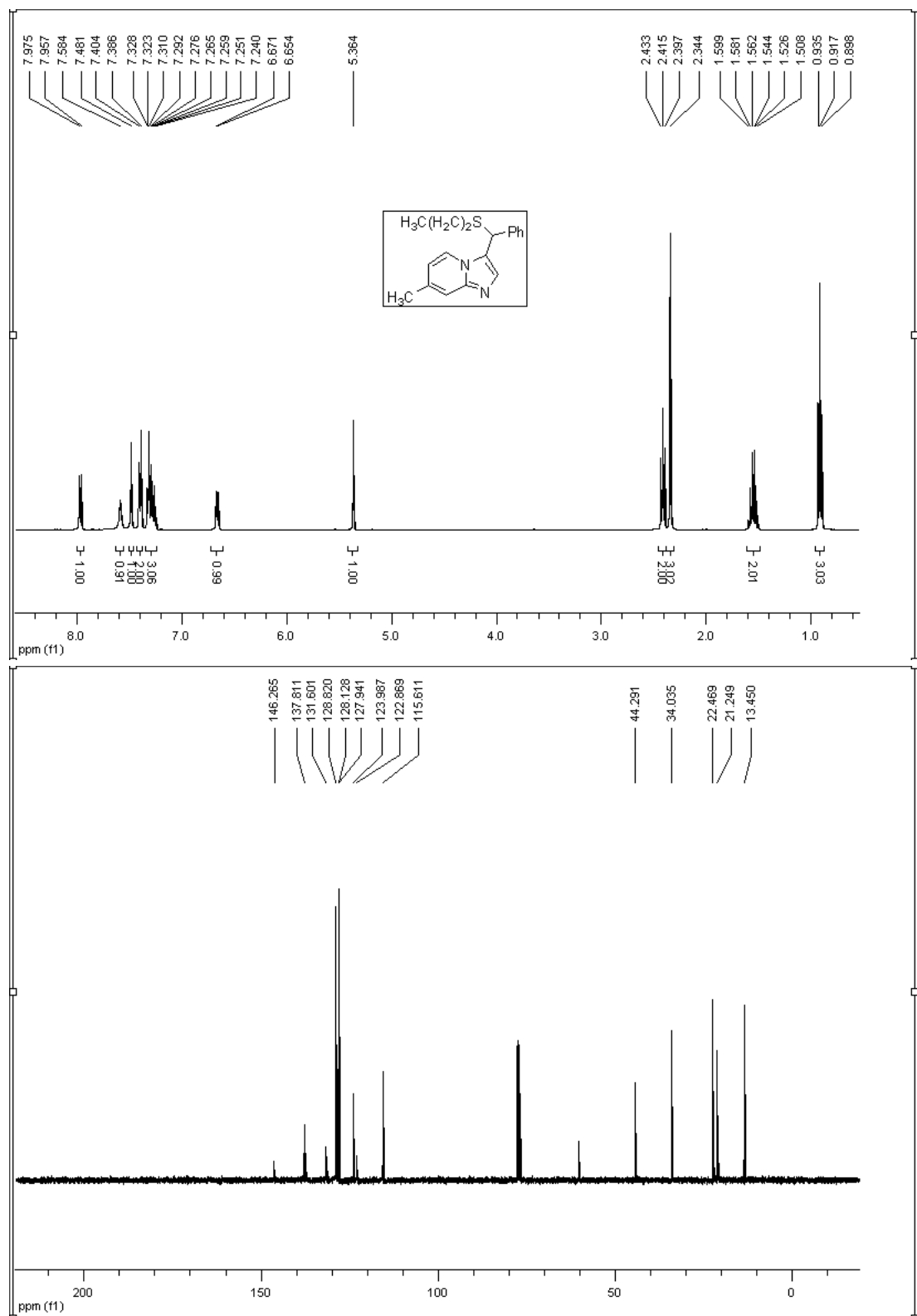
**(5bc) 6-bromo-3-(phenyl(propylthio)methyl)H-imidazo[1,2-a]pyridine**



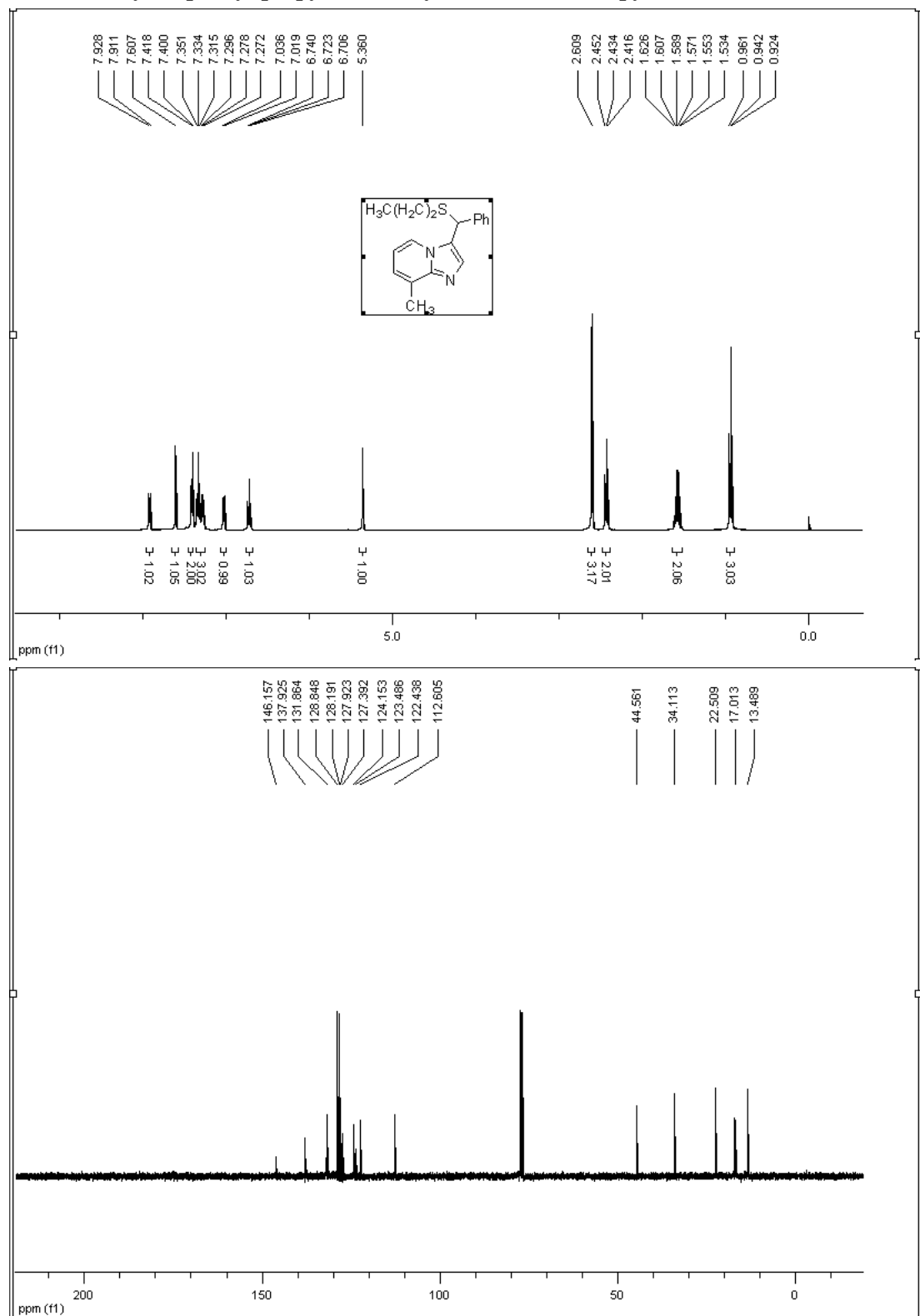
**(5bd) 6-iodo-3-(phenyl(propylthio)methyl)H-imidazo[1,2-a]pyridine**



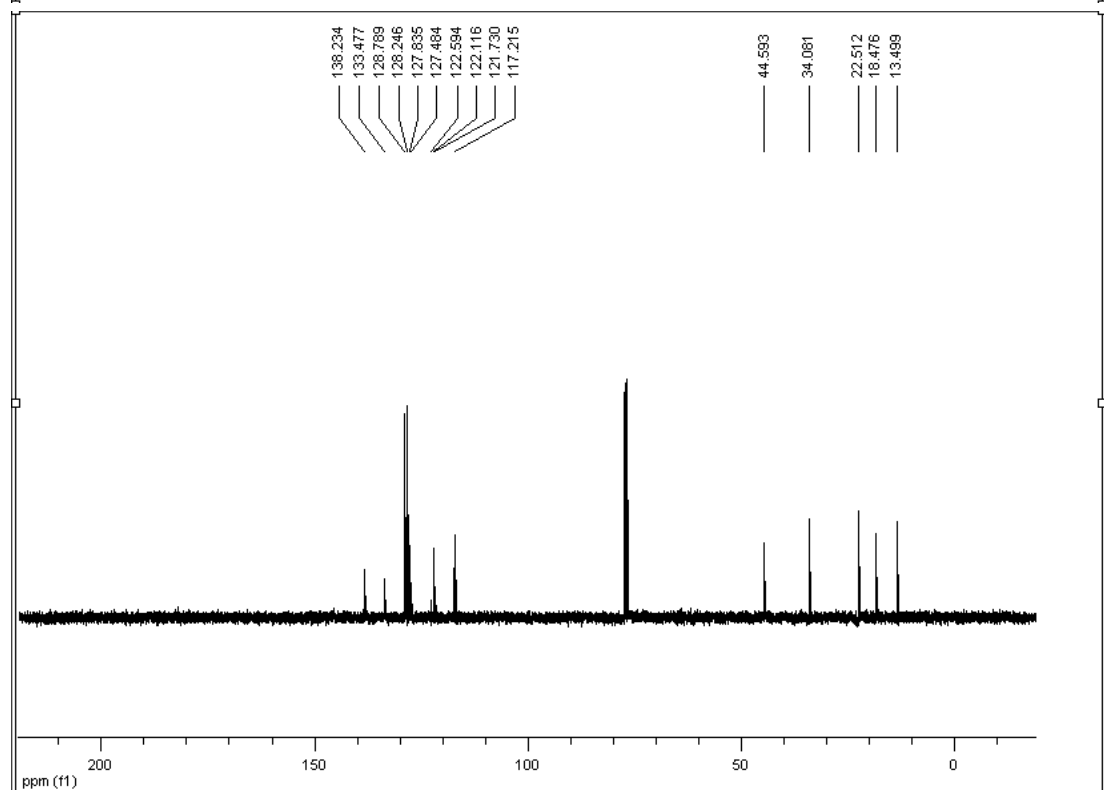
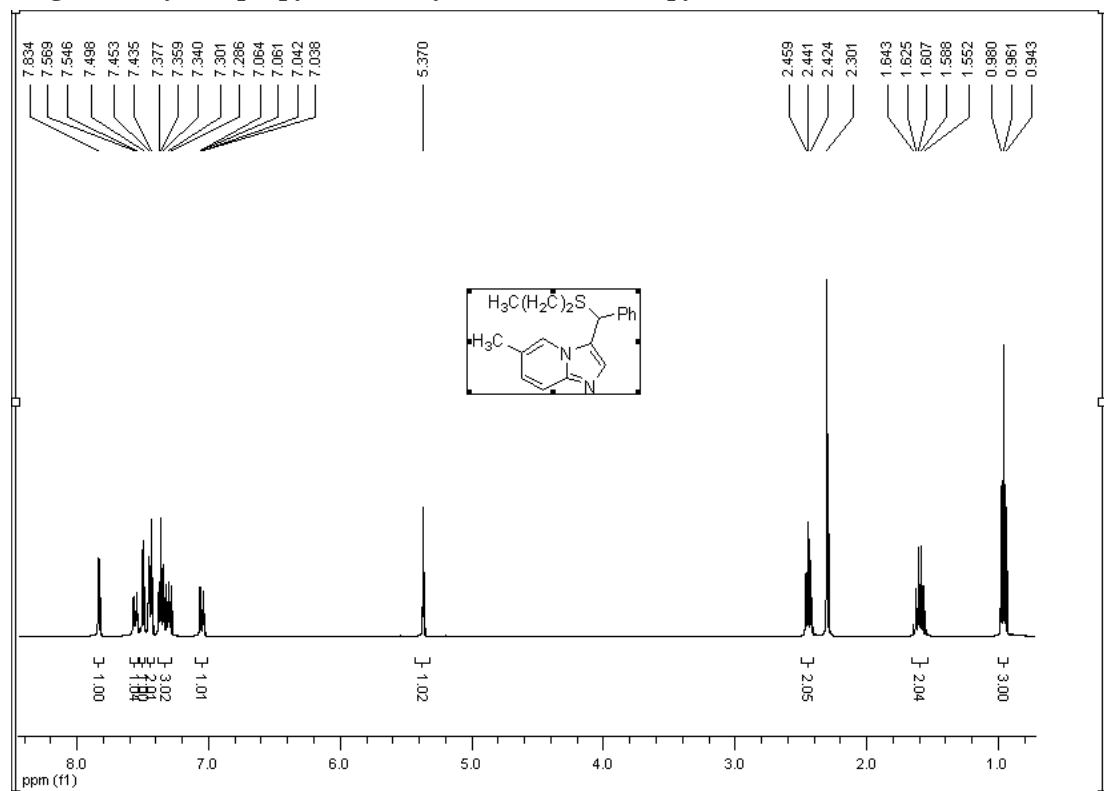
**(5be) 7-methyl-3-(phenyl(propylthio)methyl)H-imidazo[1,2-a]pyridine**



**(5bf) 8-methyl-3-(phenyl(propylthio)methyl)H-imidazo[1,2-a]pyridine**

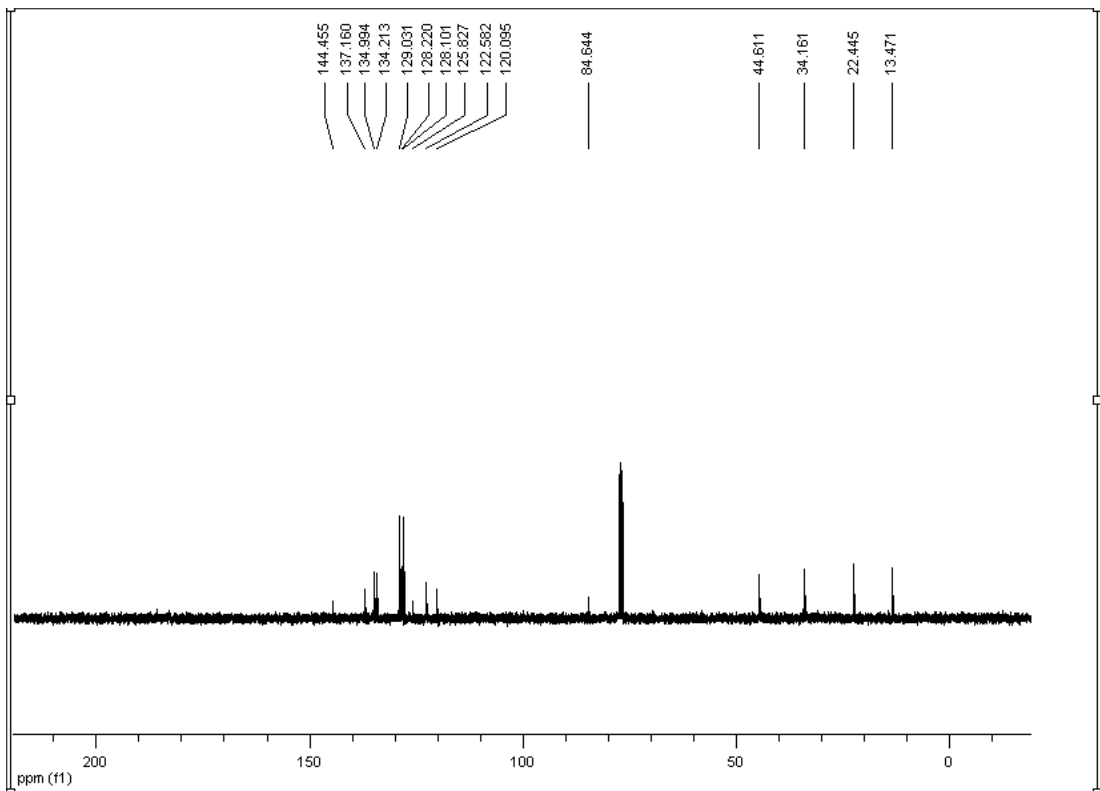
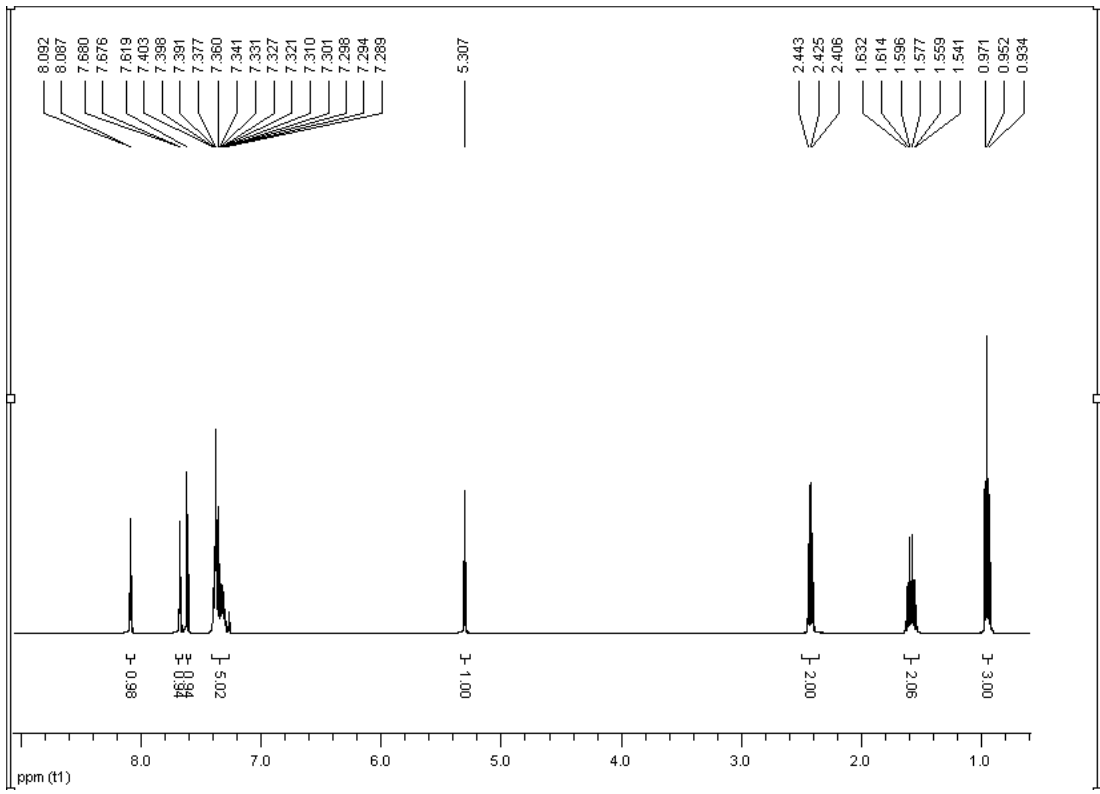


**(5bg) 6-methyl-3-((propylthio)methyl)H-imidazo[1,2-a]pyridine**

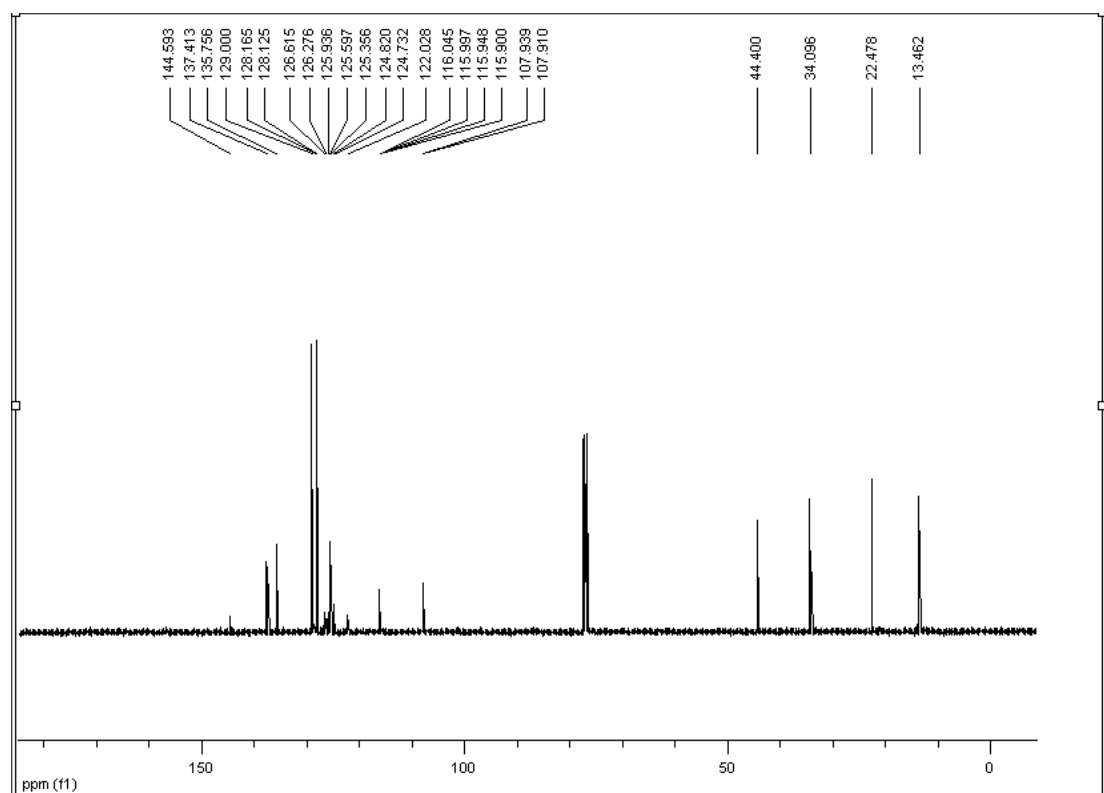
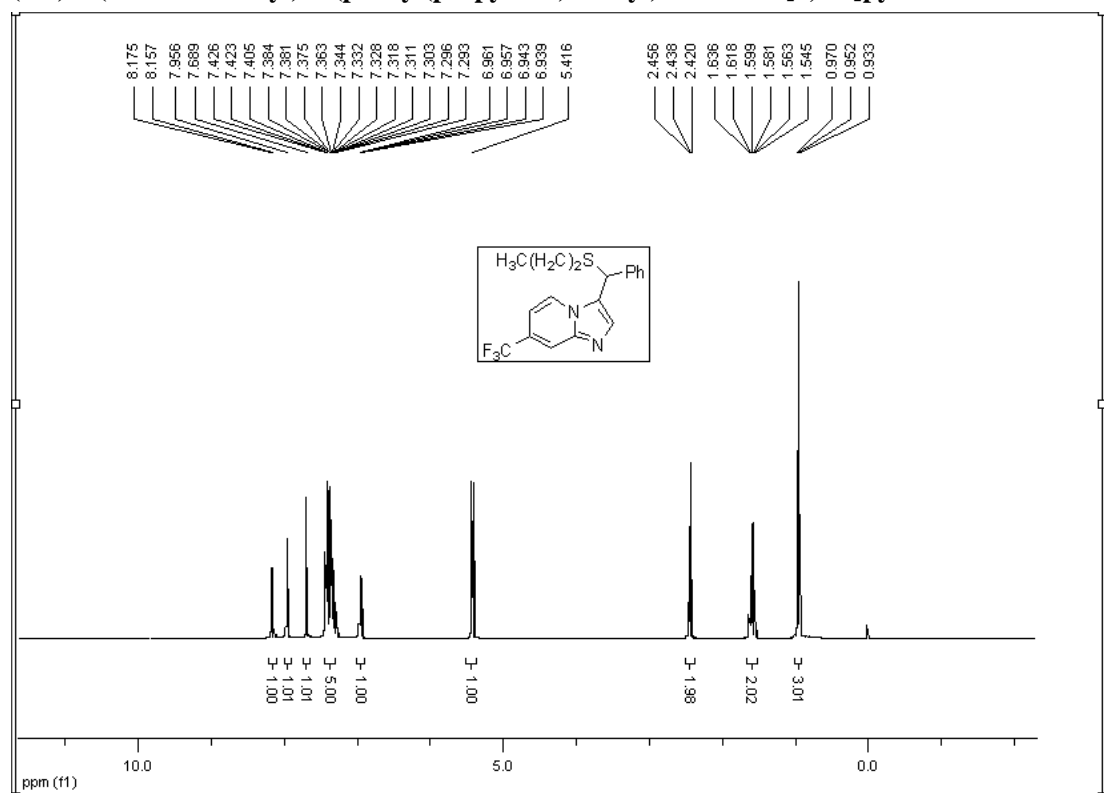


**(5bh) 6-chloro-8-iodo-3-(phenyl(propylthio)methyl)H-imidazo[1,2-a]pyridine**

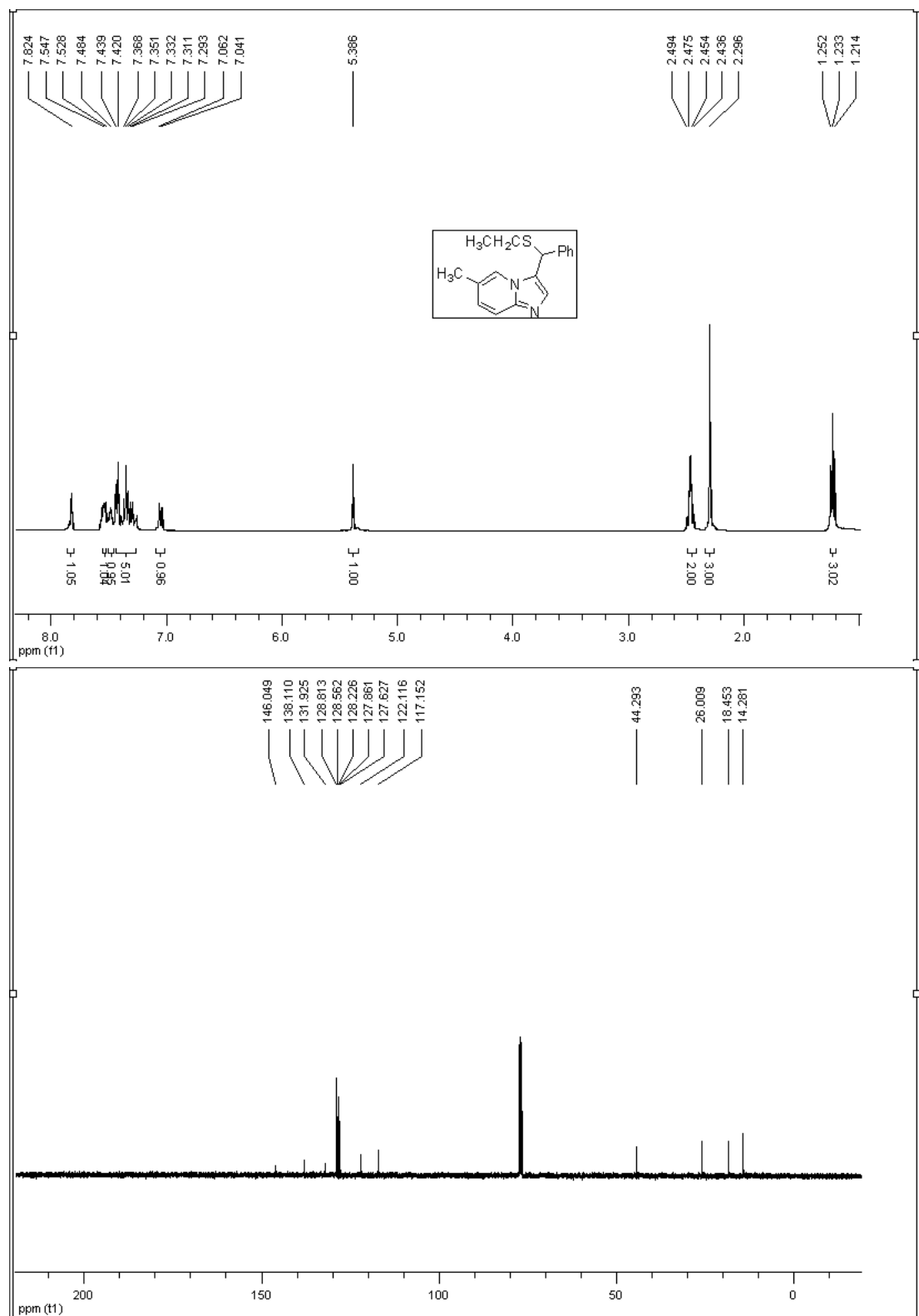




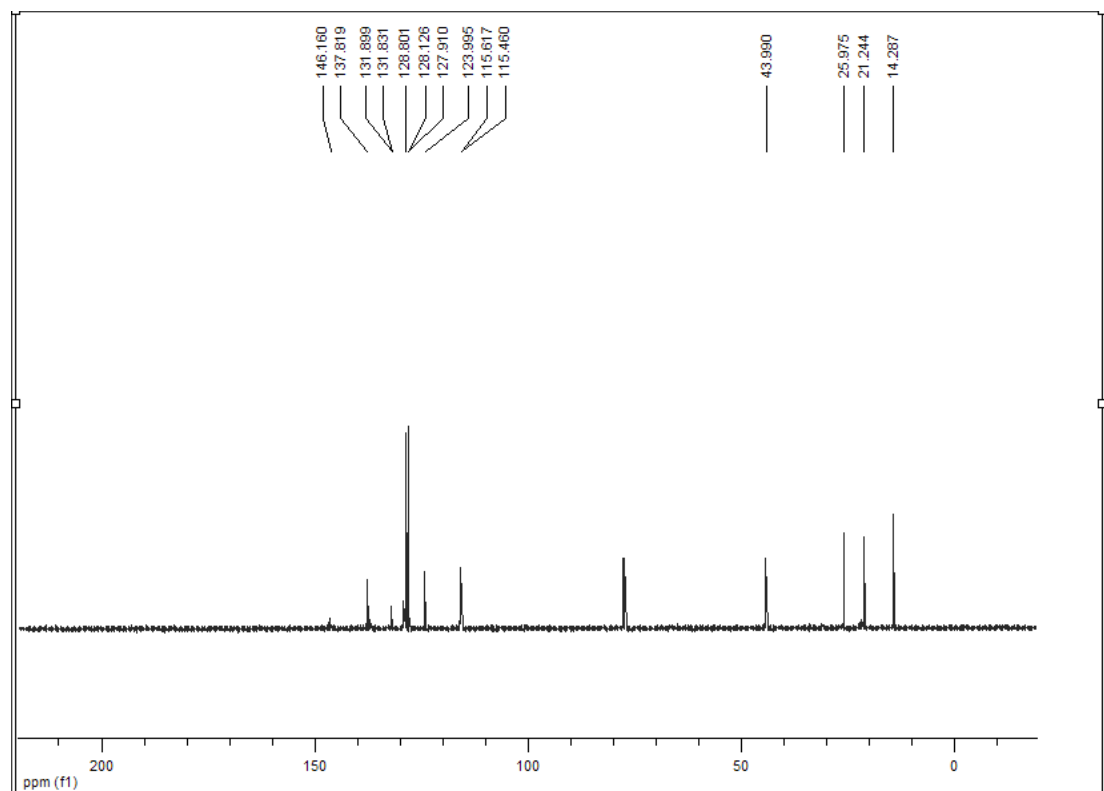
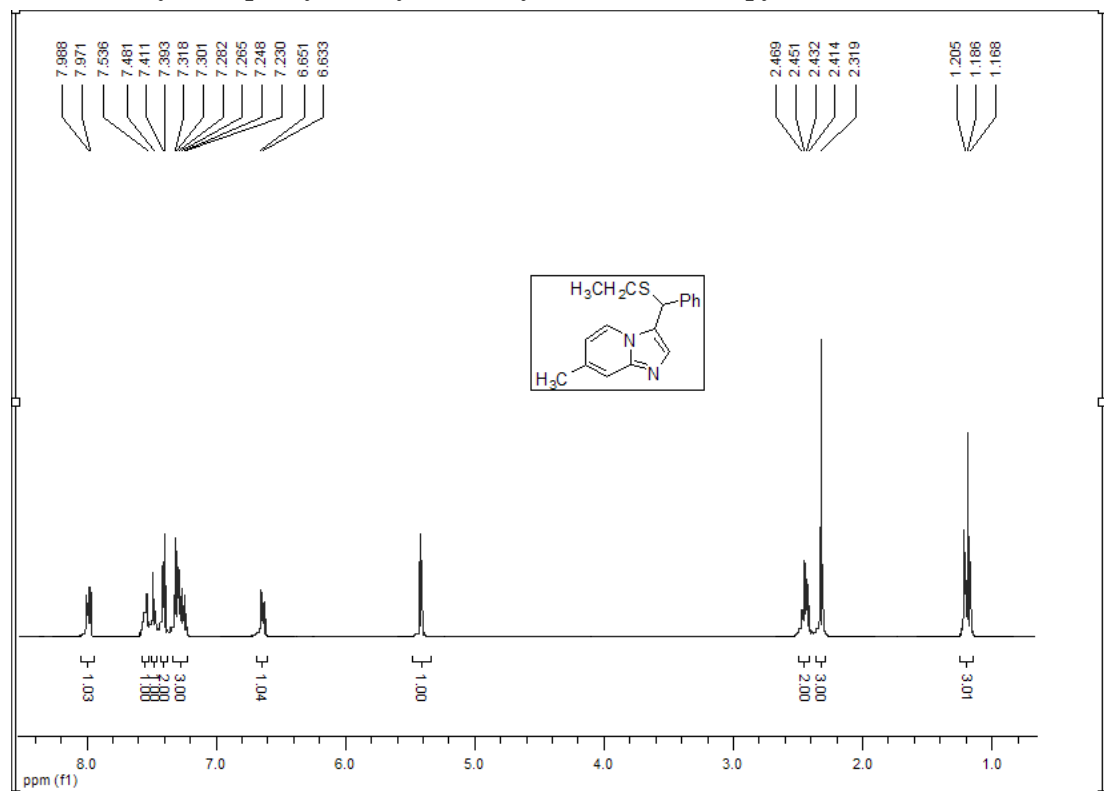
**(5bi) 7-(trifluoromethyl)-3-(phenyl(propylthio)methyl)H-imidazo[1,2-a]pyridine**



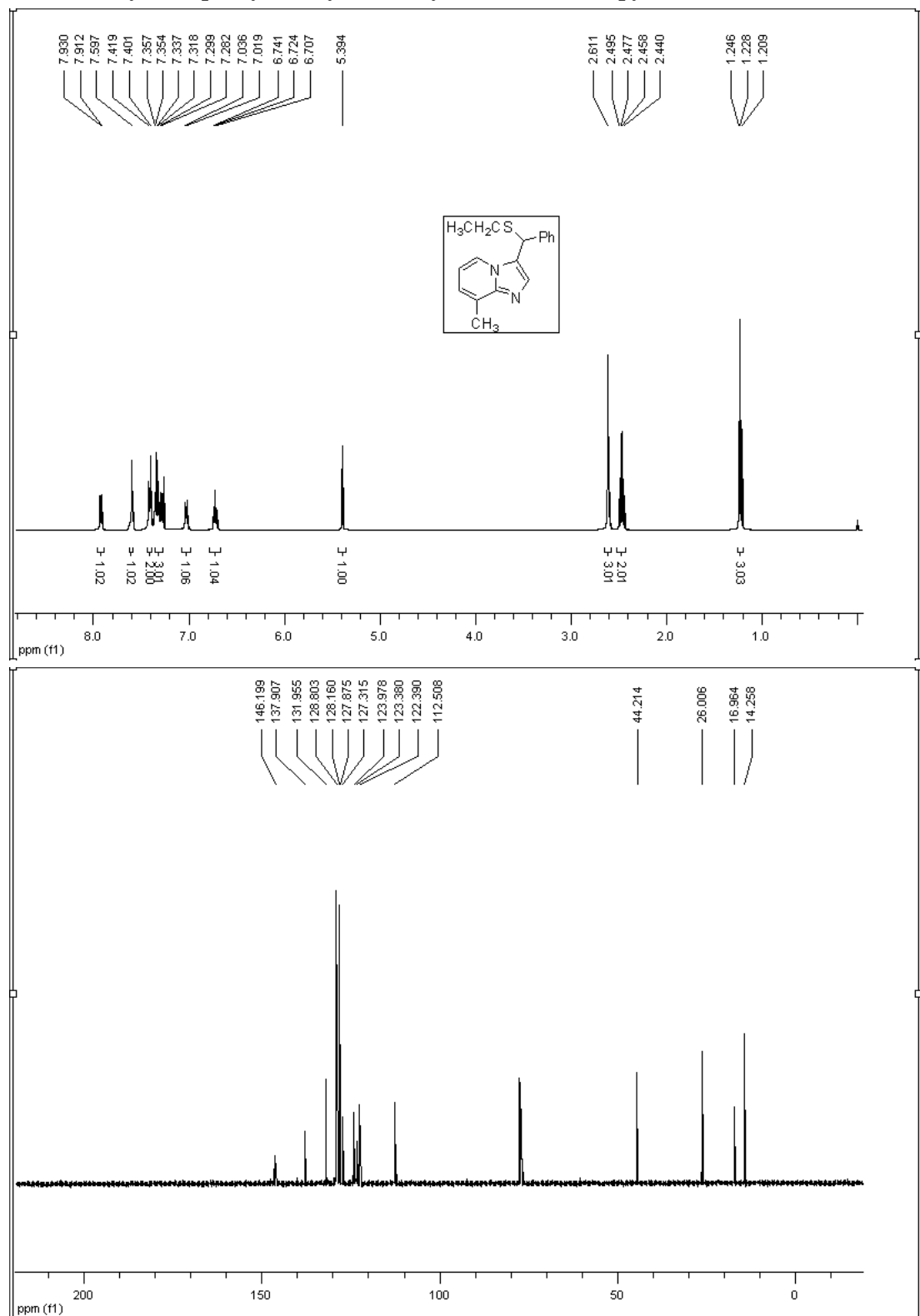
**(5ca) 3-((ethylthio)(phenyl)methyl)-6-methylH-imidazo[1,2-a]pyridine**



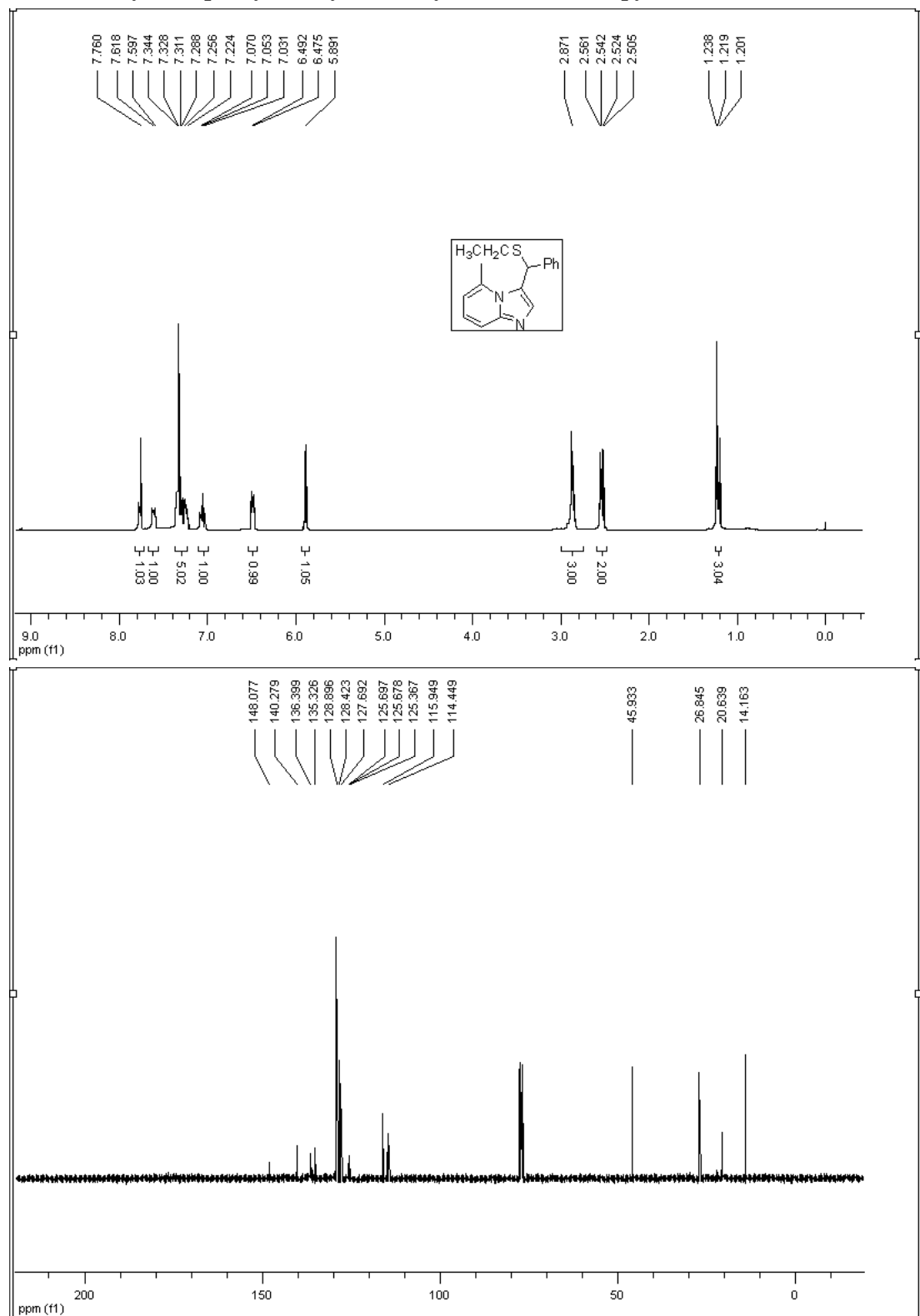
**(5cb) 3-((ethylthio)(phenyl)methyl)-7-methylH-imidazo[1,2-a]pyridine**



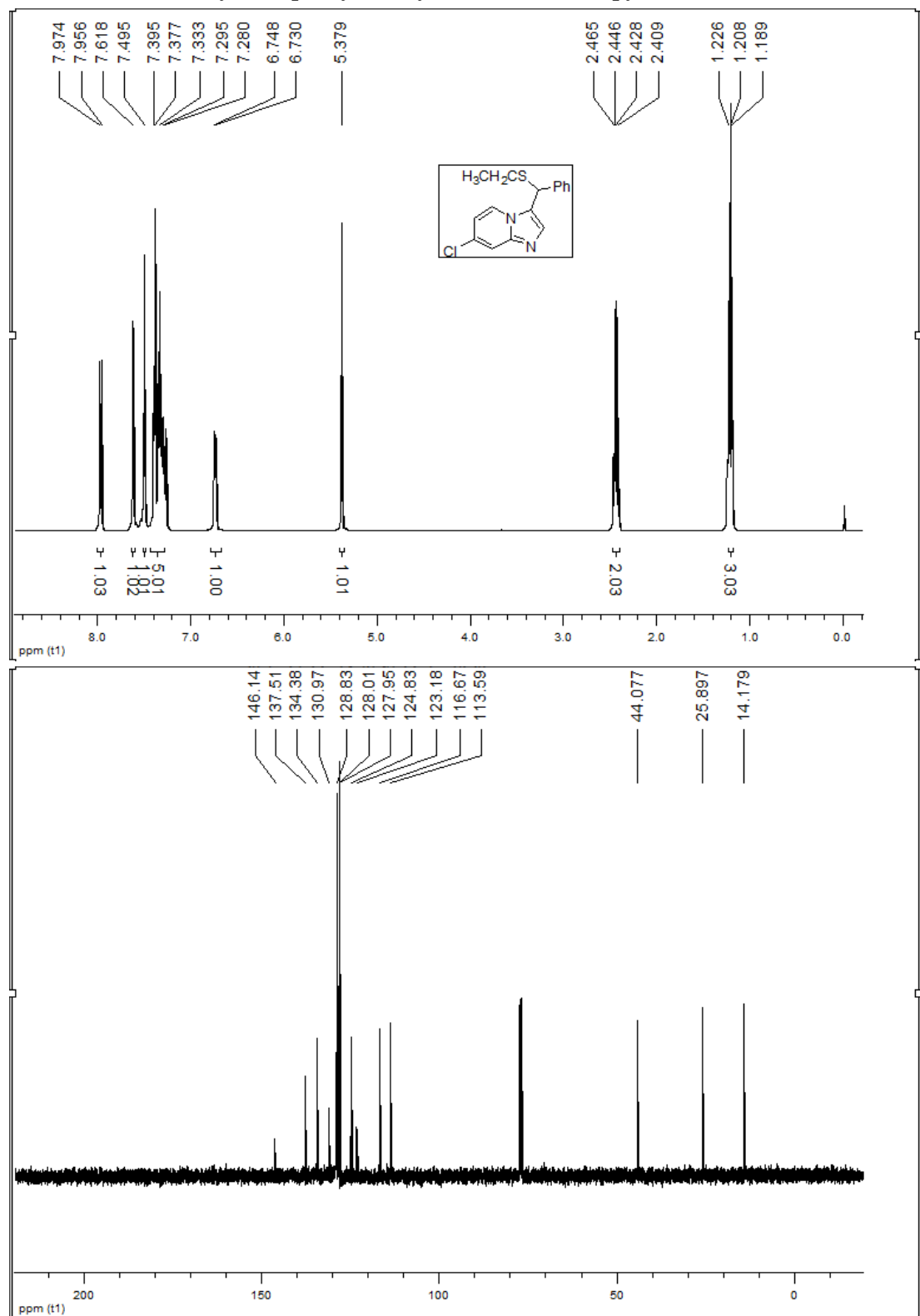
**(5cc) 3-((ethylthio)(phenyl)methyl)-8-methylH-imidazo[1,2-a]pyridine**



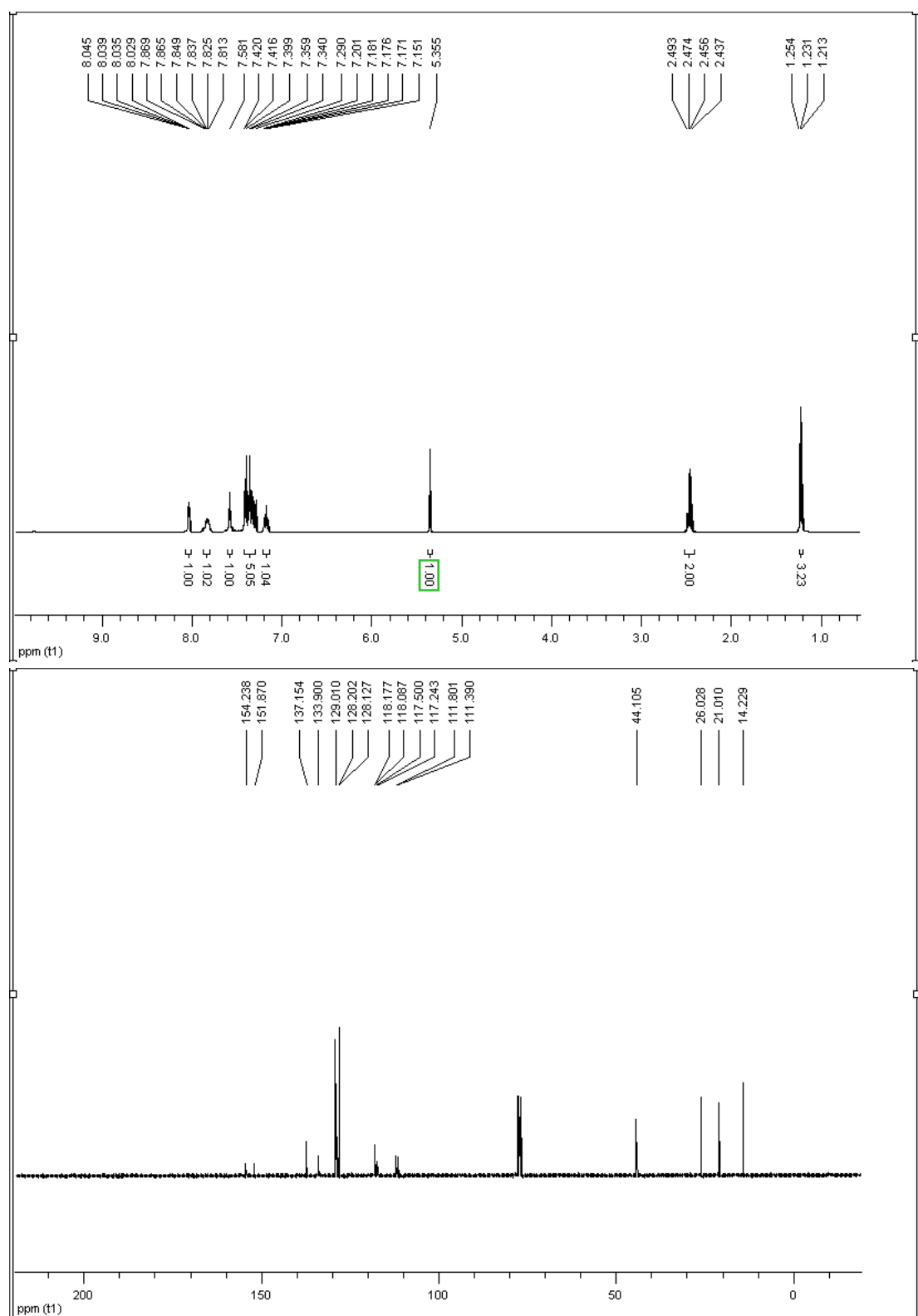
**(5cd) 3-((ethylthio)(phenyl)methyl)-5-methylH-imidazo[1,2-a]pyridine**



**(5c) 7-chloro-3-((ethylthio)(phenyl)methyl)H-imidazo[1,2-a]pyridine**

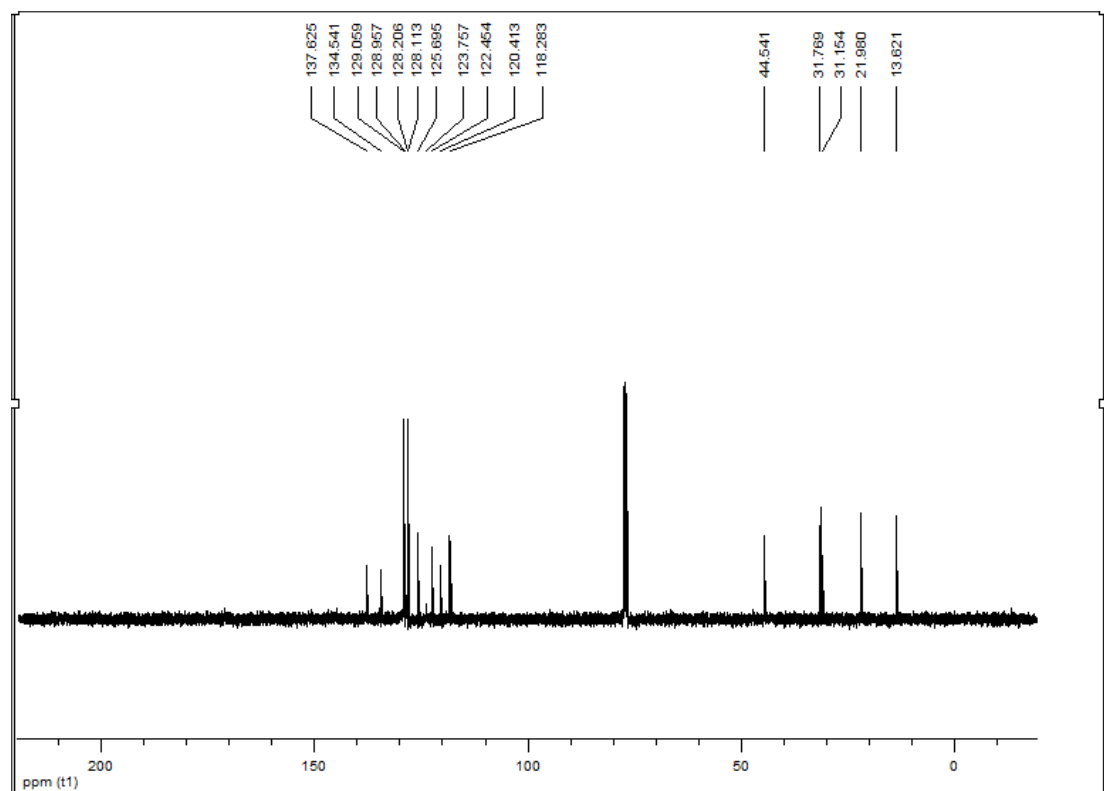
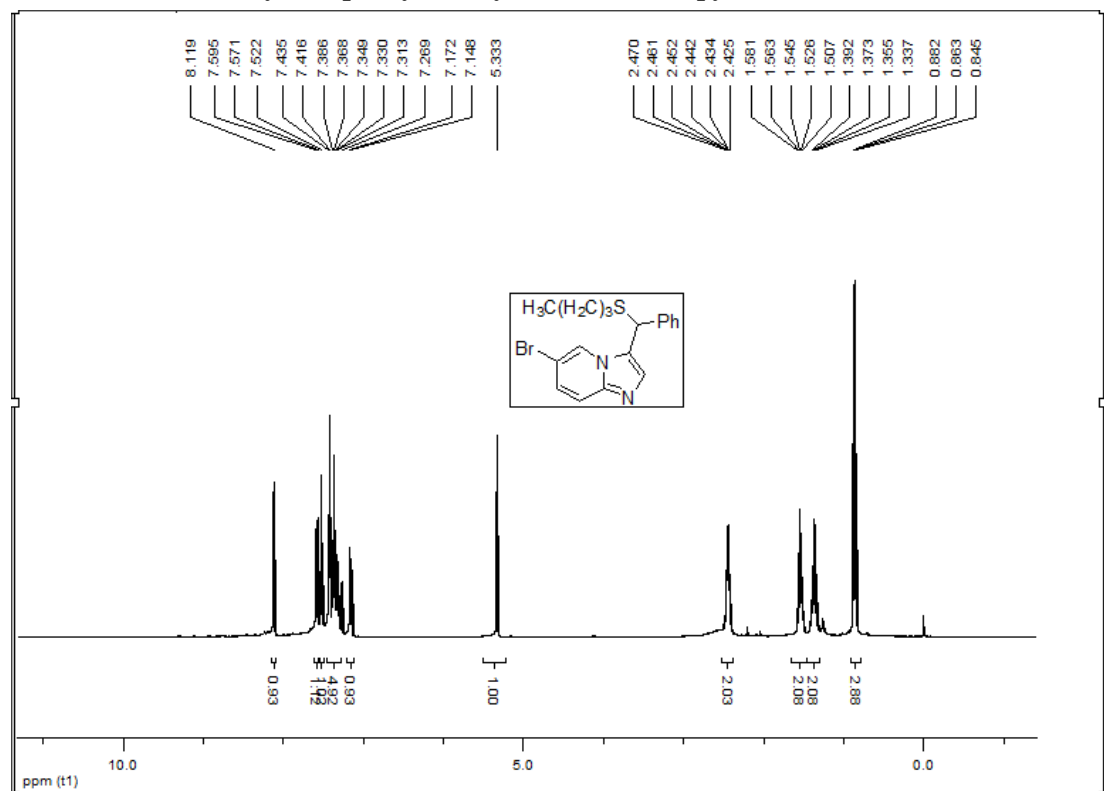


**(5cf) 3-((ethylthio)(phenyl)methyl)-6-fluoroH-imidazo[1,2-a]pyridine**

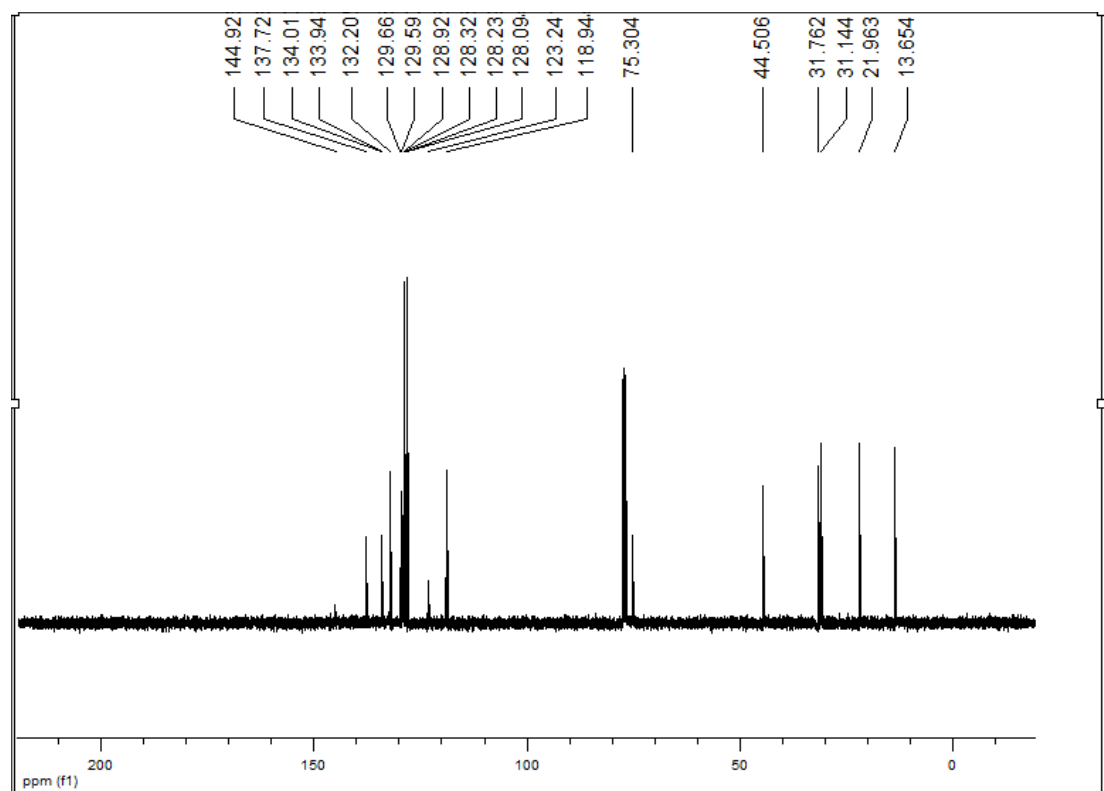
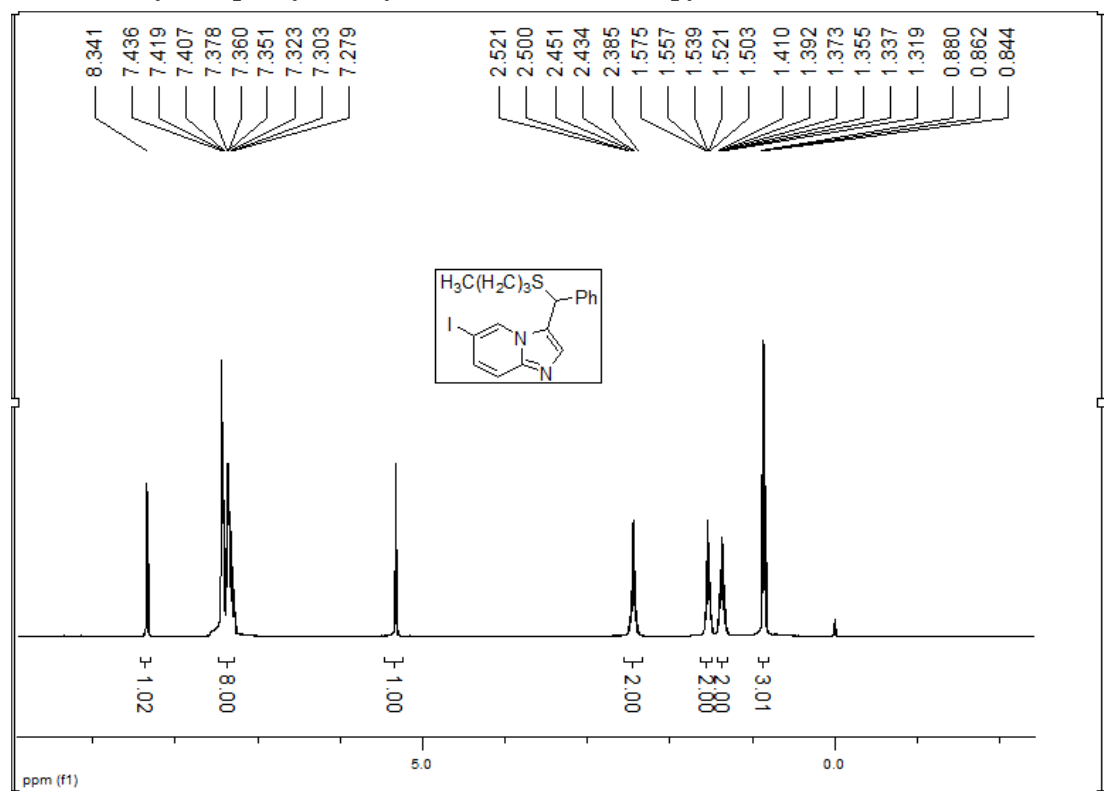




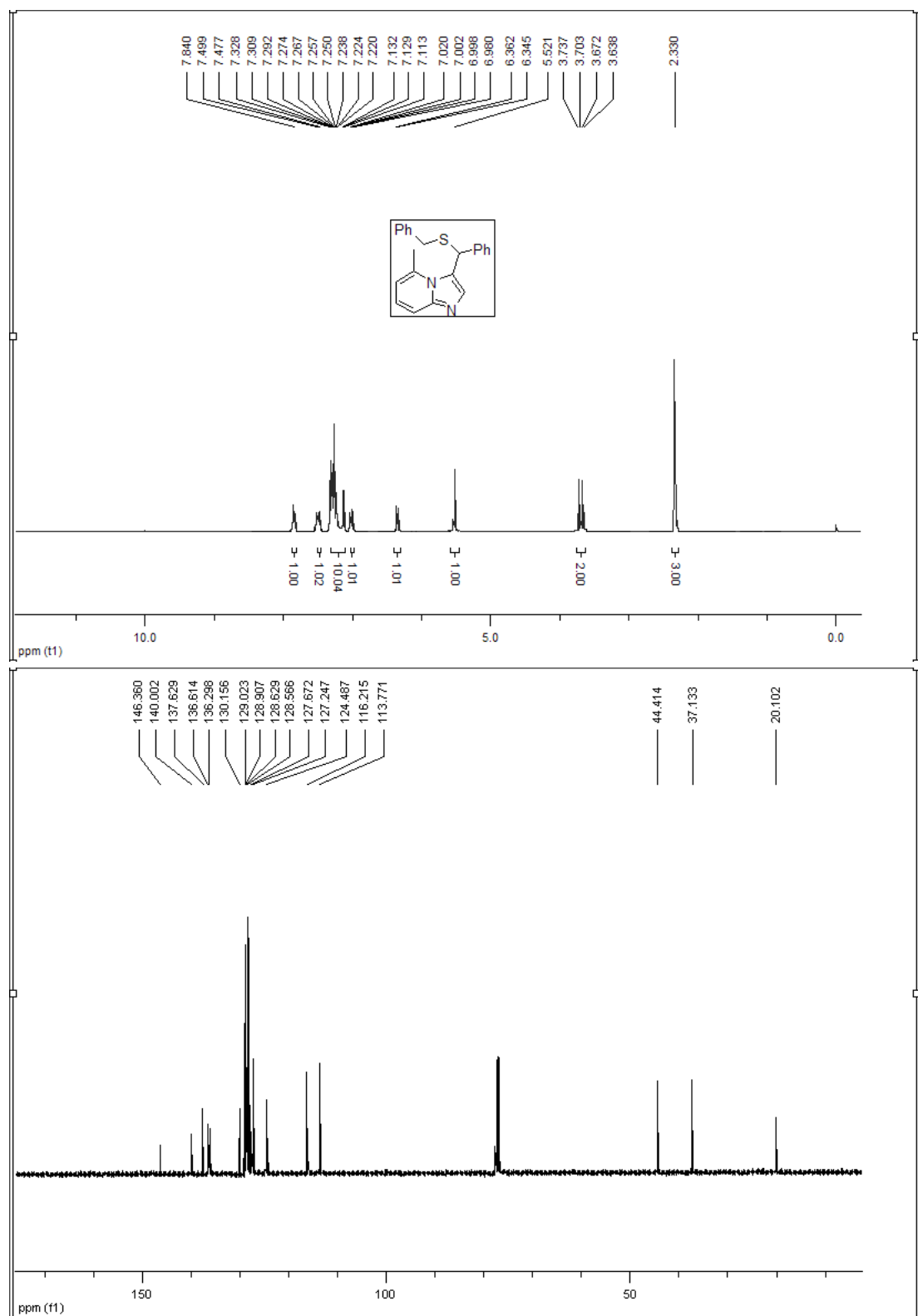
**(5da) 6-bromo-3-(butylthio(phenyl)methyl)imidazo[1,2-a]pyridine**



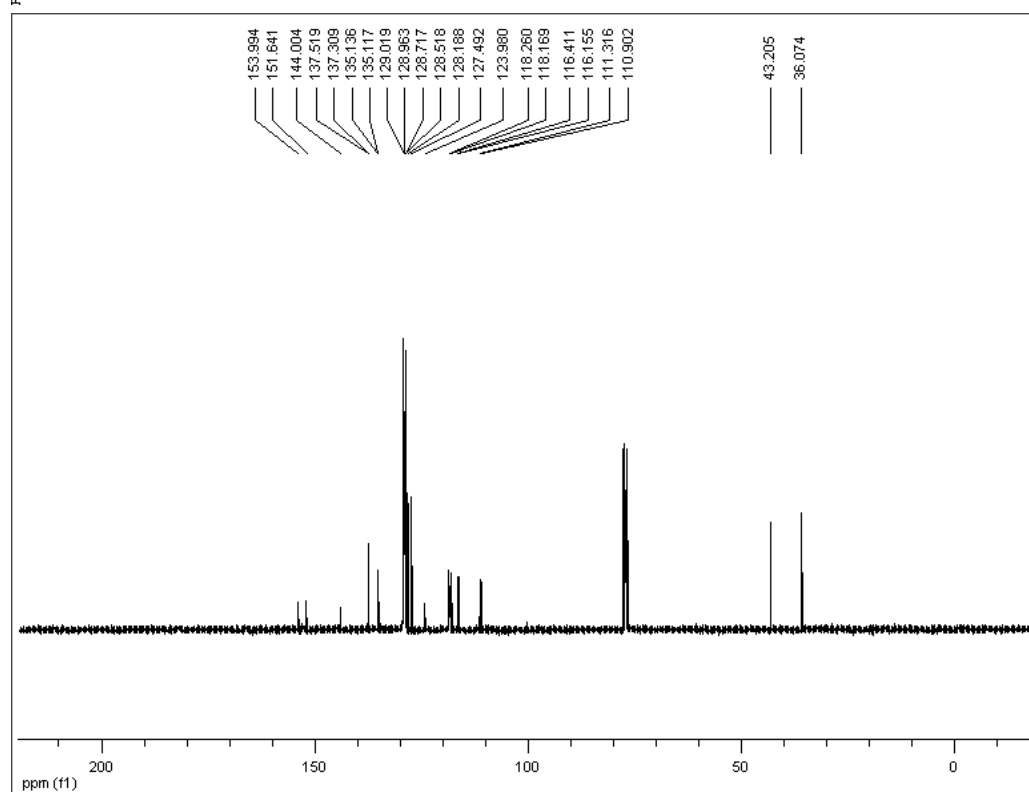
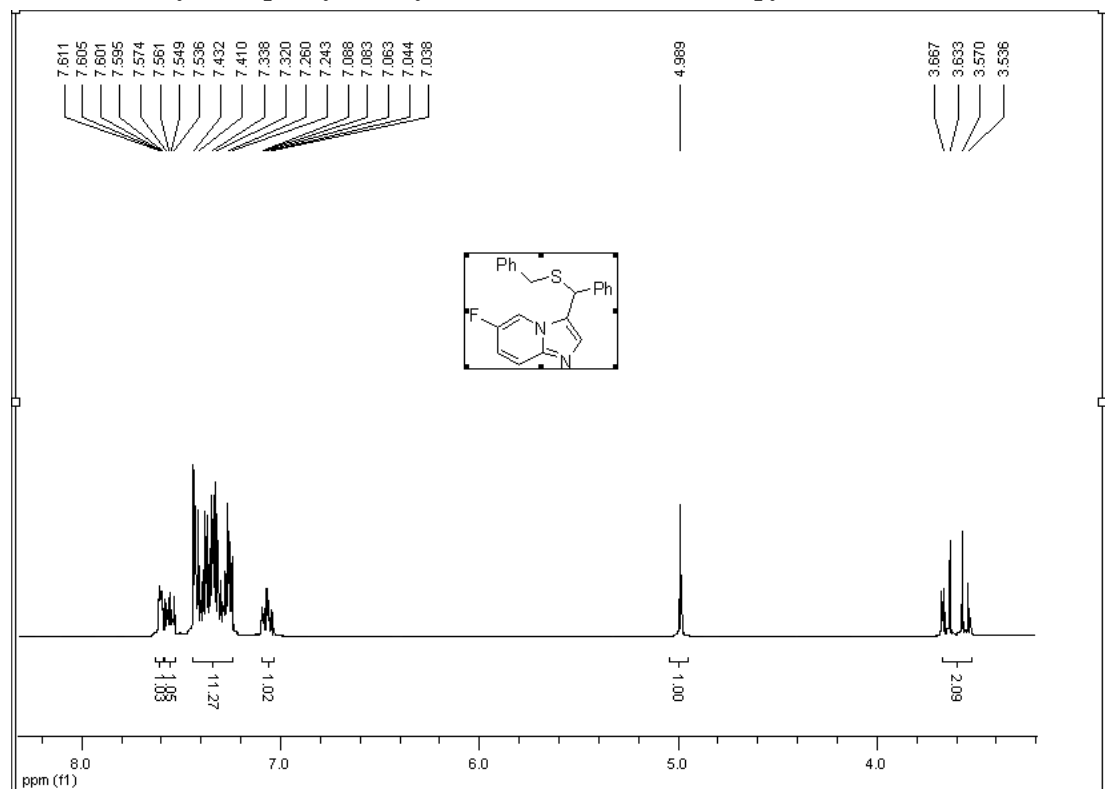
**(5db) 3-(butylthio(phenyl)methyl)-6-iodoimidazo[1,2-a]pyridine**



(5e) 3-((benzylthio)(phenyl)methyl)-5-methylH-imidazo[1,2-a]pyridine

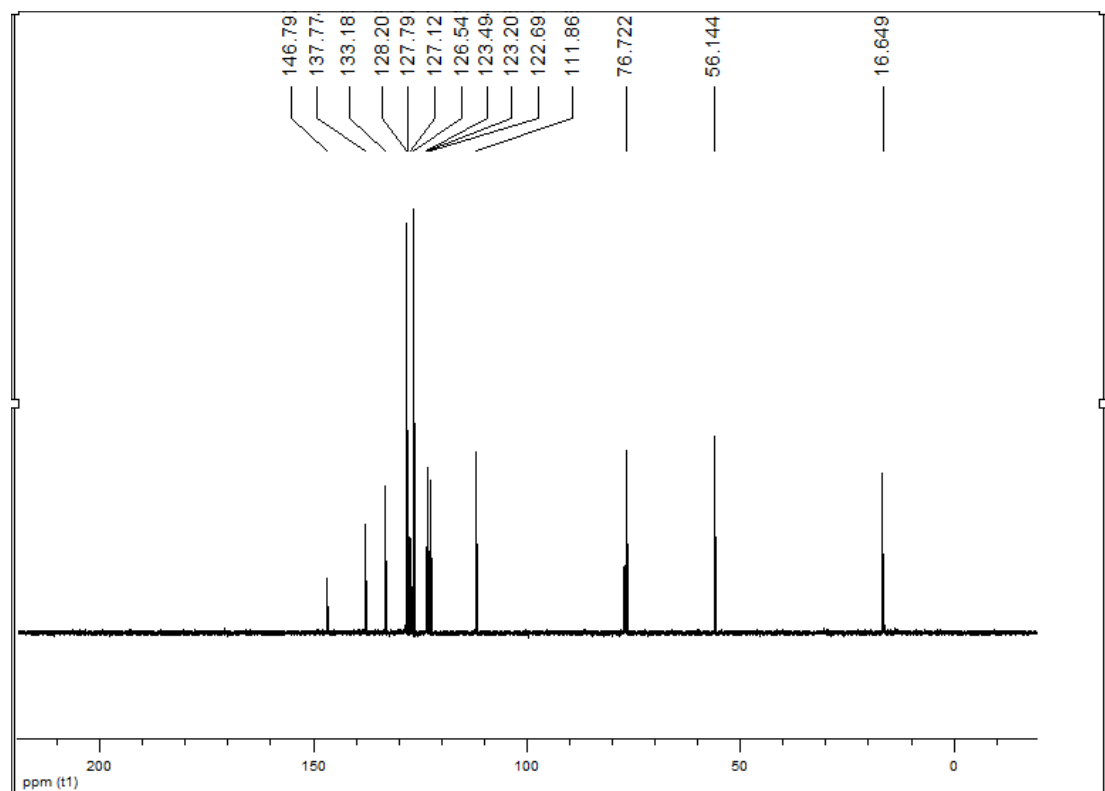
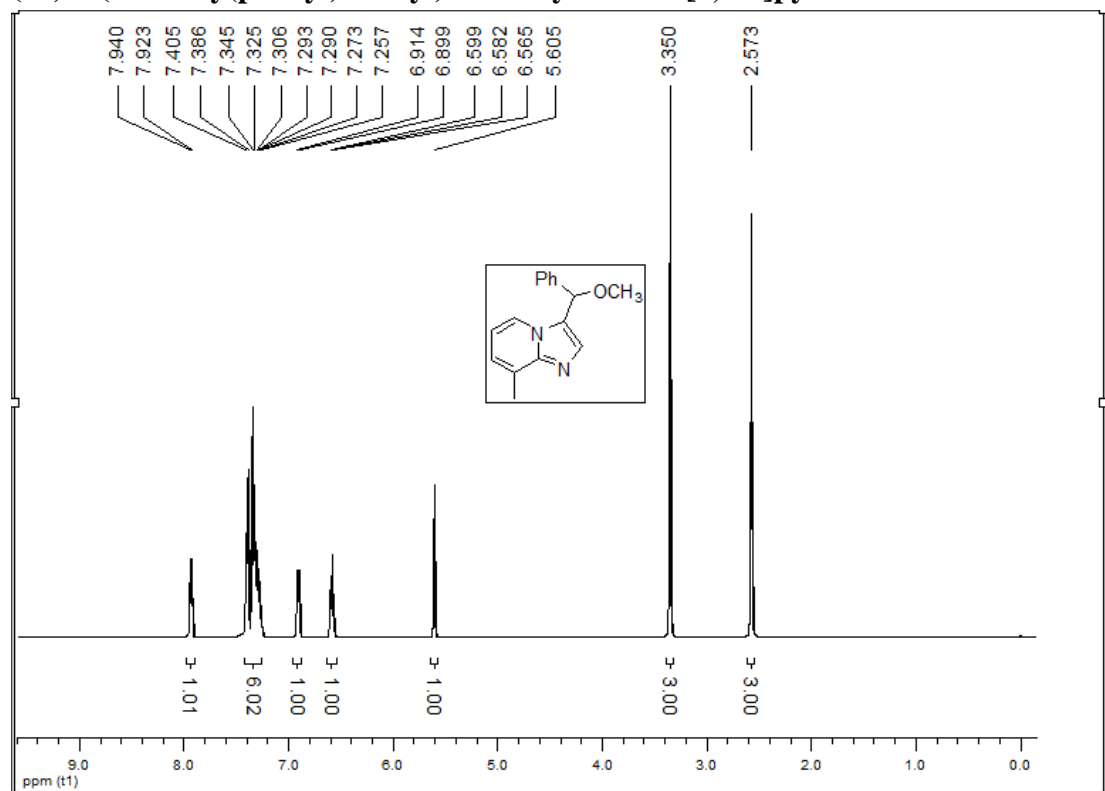


**(5eb) 3-((benzylthio)(phenyl)methyl)-6-fluoroH-imidazo[1,2-a]pyridine**





**(6a) 3-(methoxy(phenyl)methyl)-8-methylimidazo[1,2-a]pyridine**



**(6b) 3-(ethoxy(phenyl)methyl)-8-methylimidazo[1,2-a]pyridine**

