

# **On the mechanism of the direct acid catalyzed formation of 2,3-disubstituted imidazo[1,2-a]pyridines from 2-aminopyridines and acetophenones. A concurrence between ketimine and Ortoleva-King type reaction intermediated transformations.**

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## **Supporting Information**

**General:** The NMR spectra were recorded on a Bruker Avance II+ 600 spectrometer (Rheinstetten, Germany) at 25°C; the chemical shifts were quoted in ppm in  $\delta$ -values against tetramethylsilane (TMS) as an internal standard and the coupling constants were calculated in Hz. The assignment of the signals was confirmed by applying 2D techniques. The spectra were recorded as  $10^{-1}$  M solutions in deuteriochloroform except NOESY experiments where  $3 \times 10^{-2}$  M solutions were used in order to avoid transmolecular interactions. The spectra were processed with Topspin 2.1 program.

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I) NMR spectra of 2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (3c)

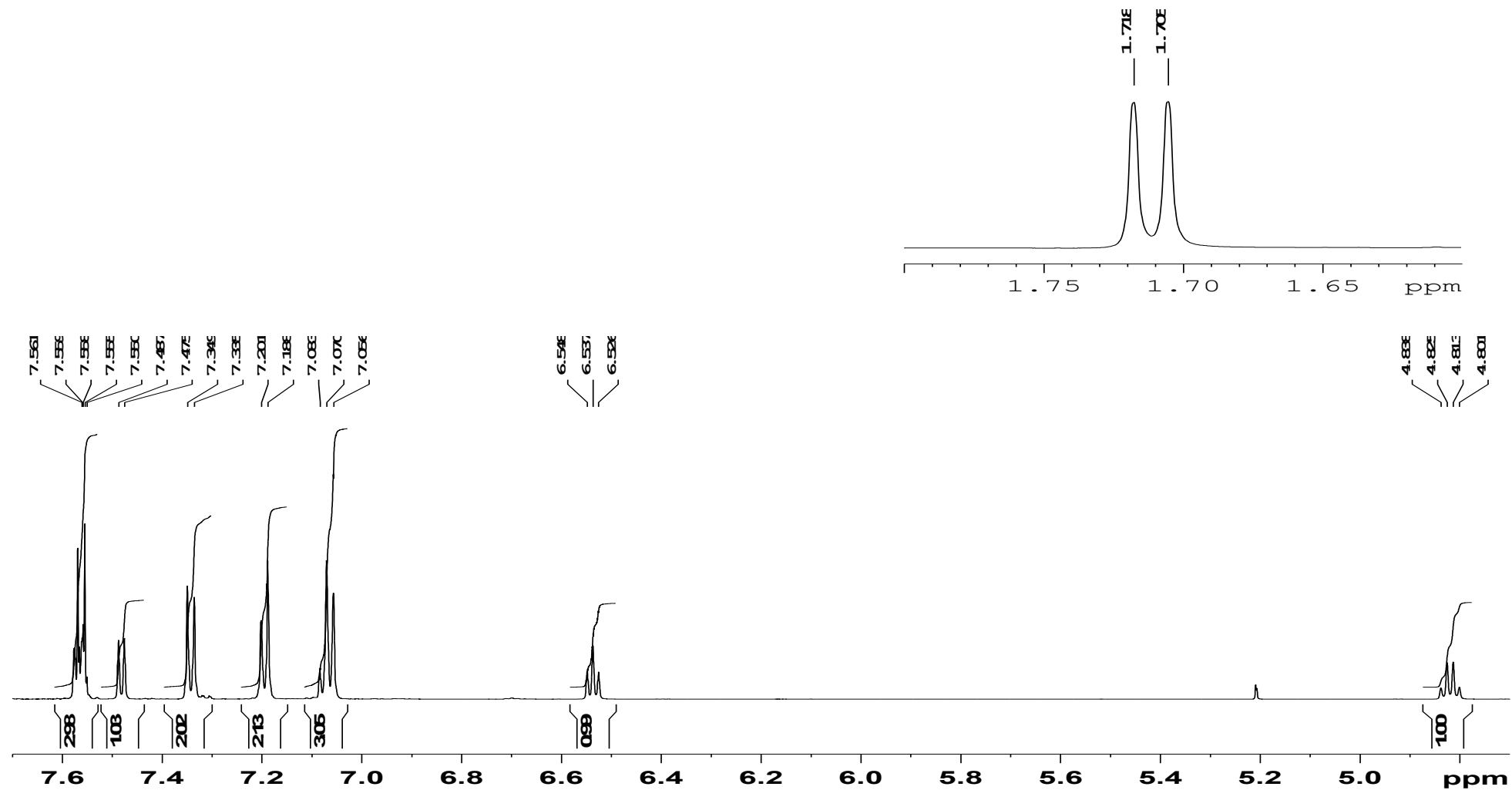
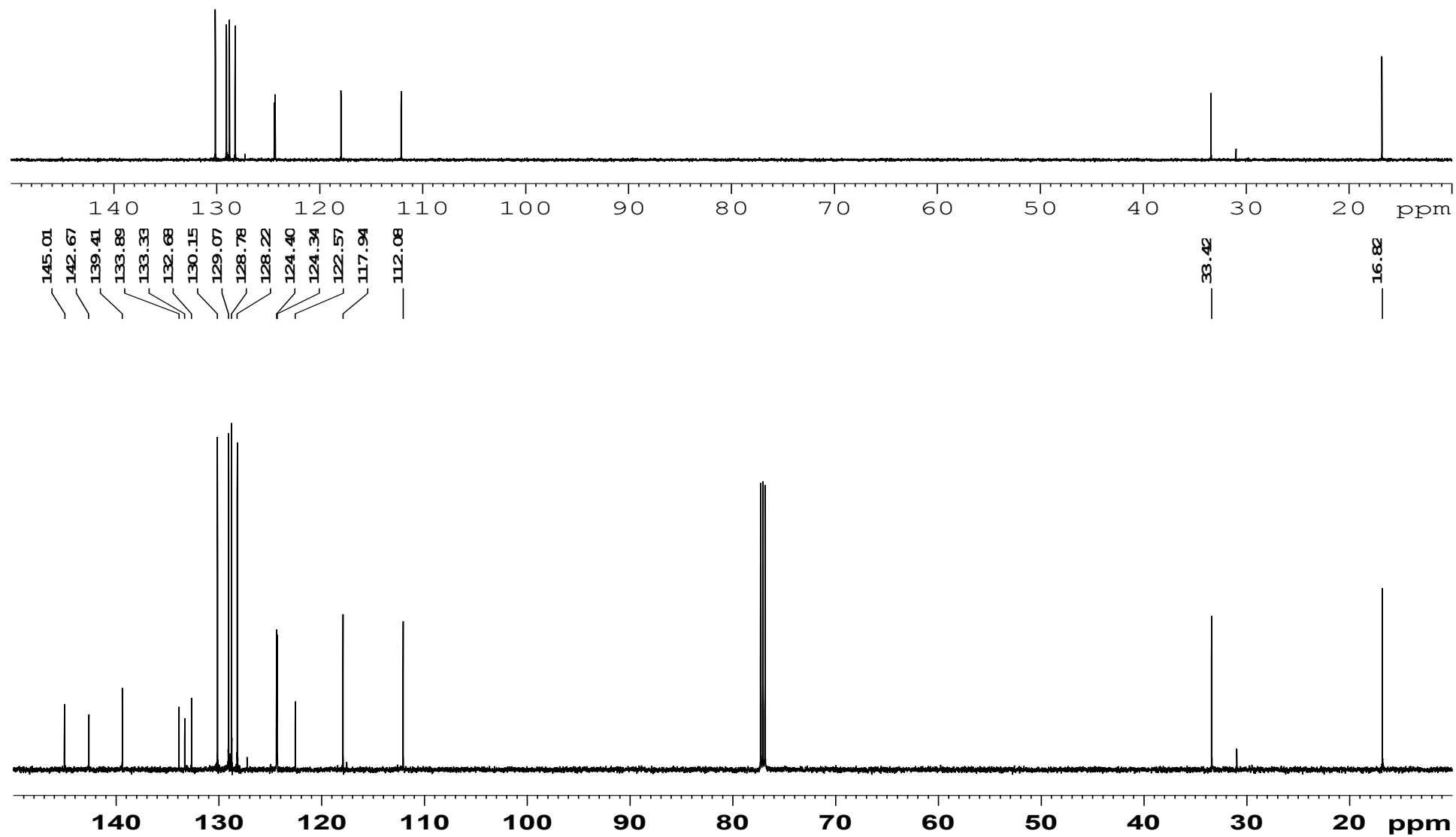
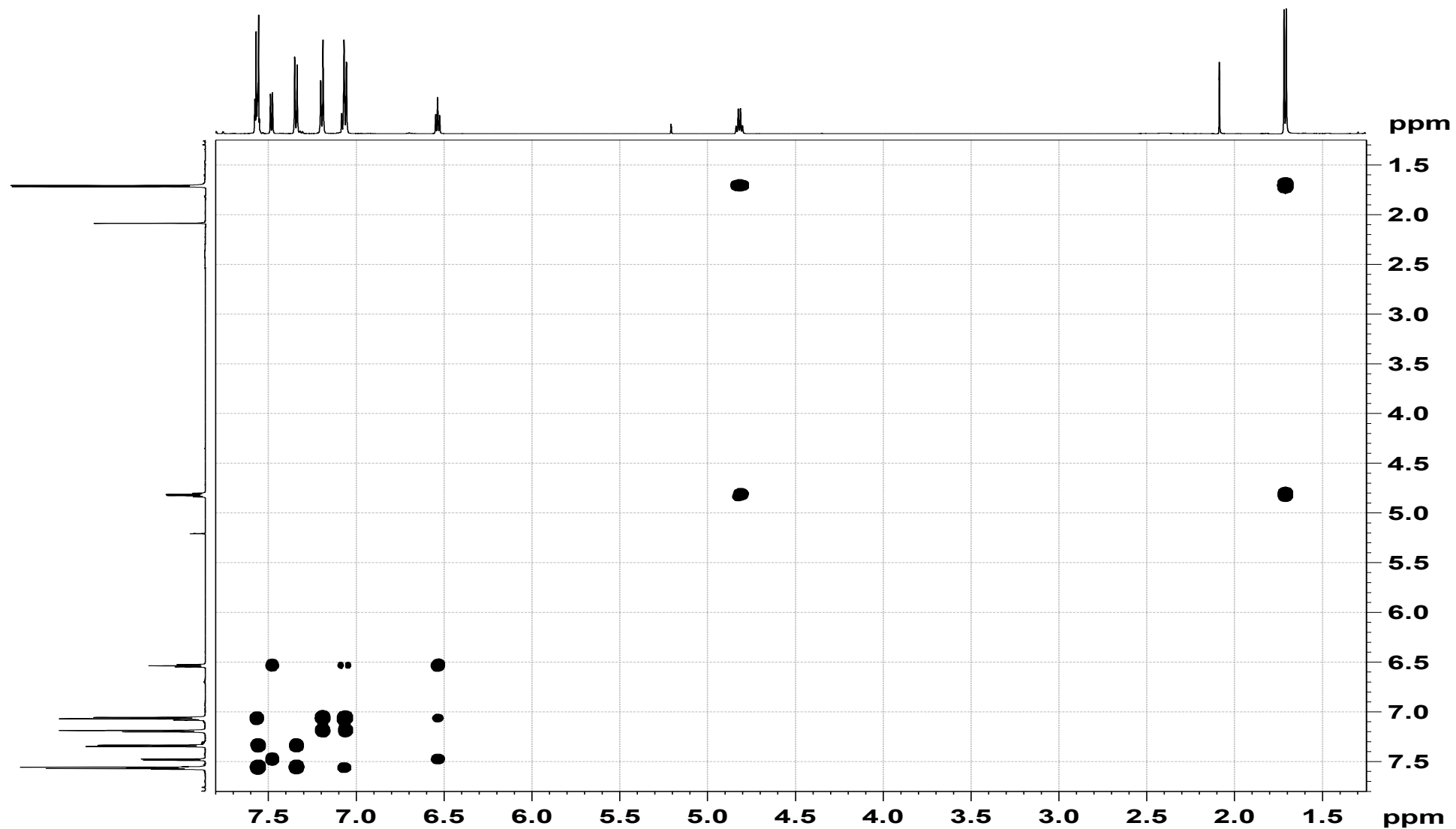


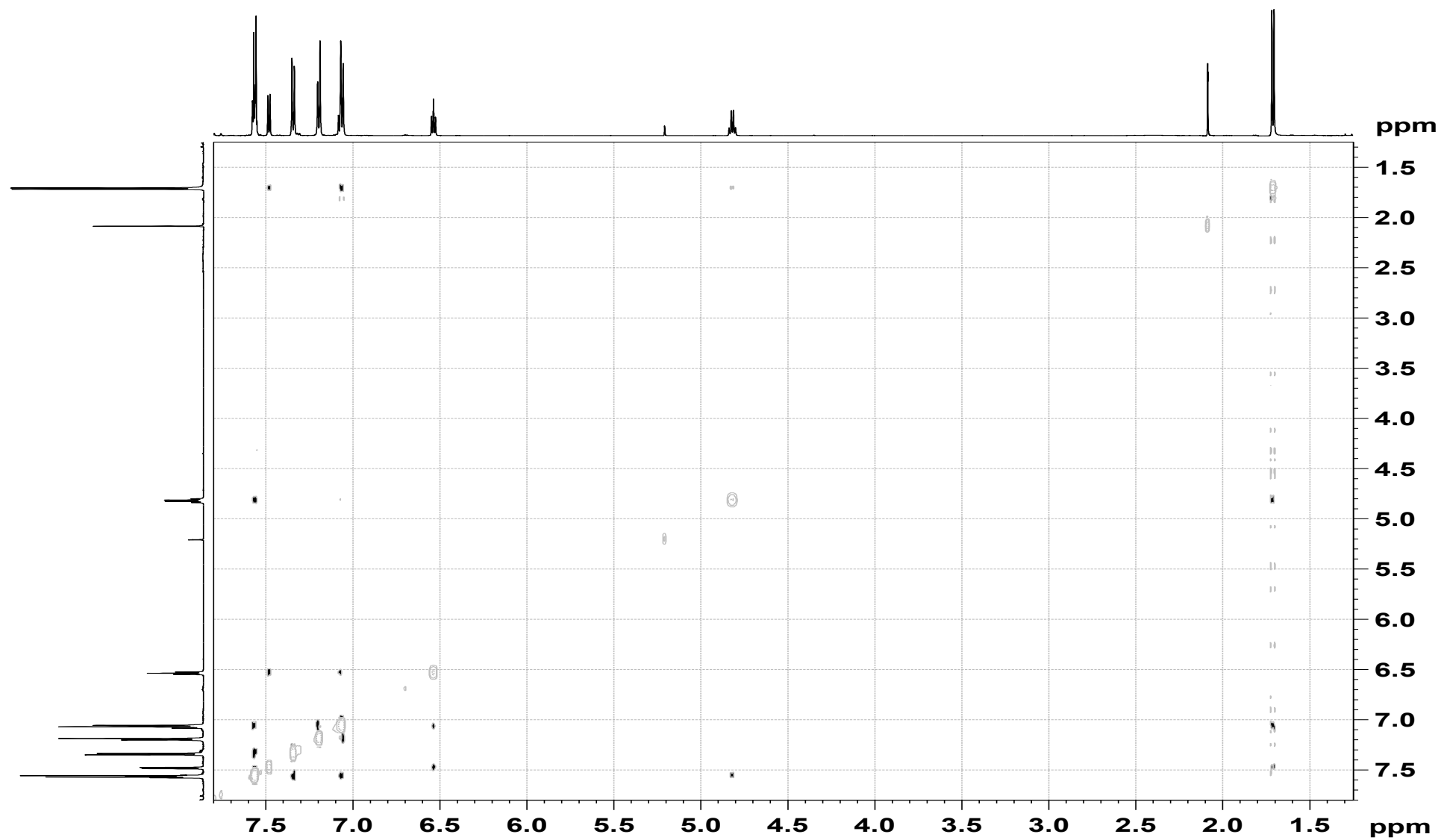
Figure S1. <sup>1</sup>H NMR spectrum of 2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (3c).



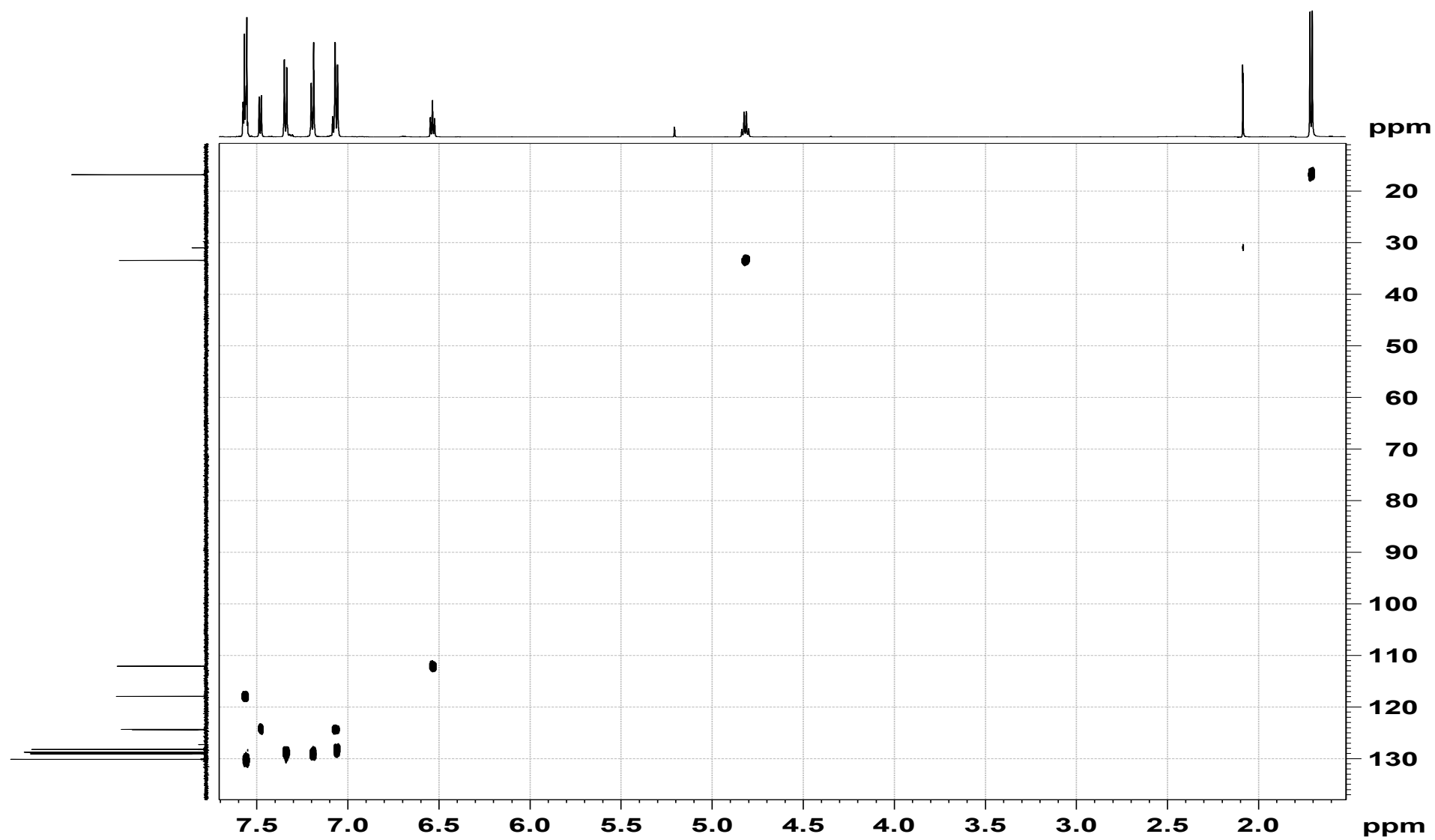
**Figure S2.** <sup>13</sup>C (down) and DEPT (up) NMR spectrum of 2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (**3c**).



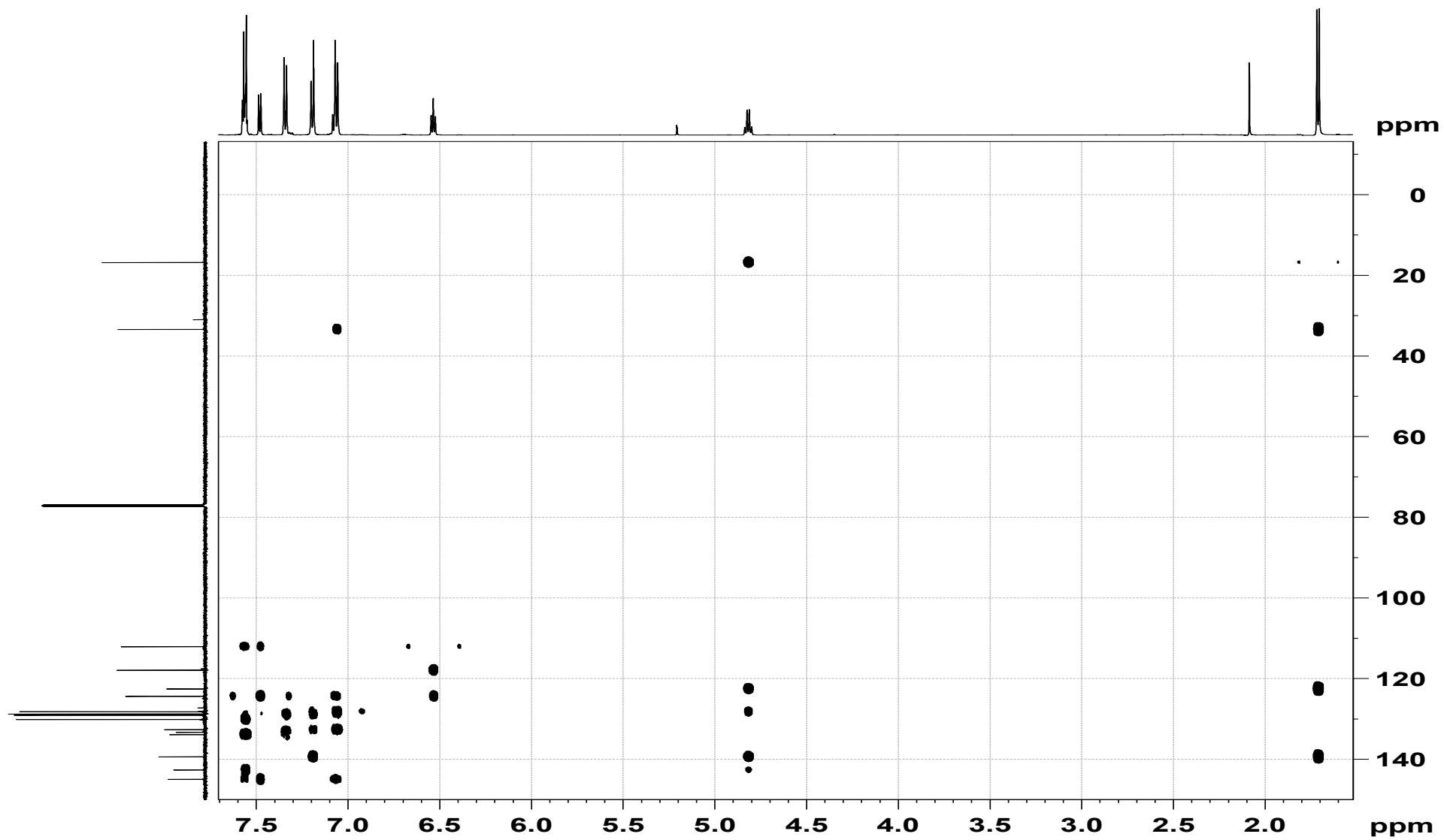
**Figure S3.** <sup>1</sup>H-<sup>1</sup>H COSY NMR spectrum of 2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (**3c**).



**Figure S4.**  $^1\text{H}$ - $^1\text{H}$  NOESY NMR spectrum of 2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (**3c**).



**Figure S5.** <sup>1</sup>H-<sup>13</sup>C HSQC NMR spectrum of 2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (**3c**).



**Figure S6.**  $^1\text{H}$ - $^{13}\text{C}$  HMBC NMR spectrum of 2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (**3c**).



## II) NMR spectra of 6-methyl-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (3d)

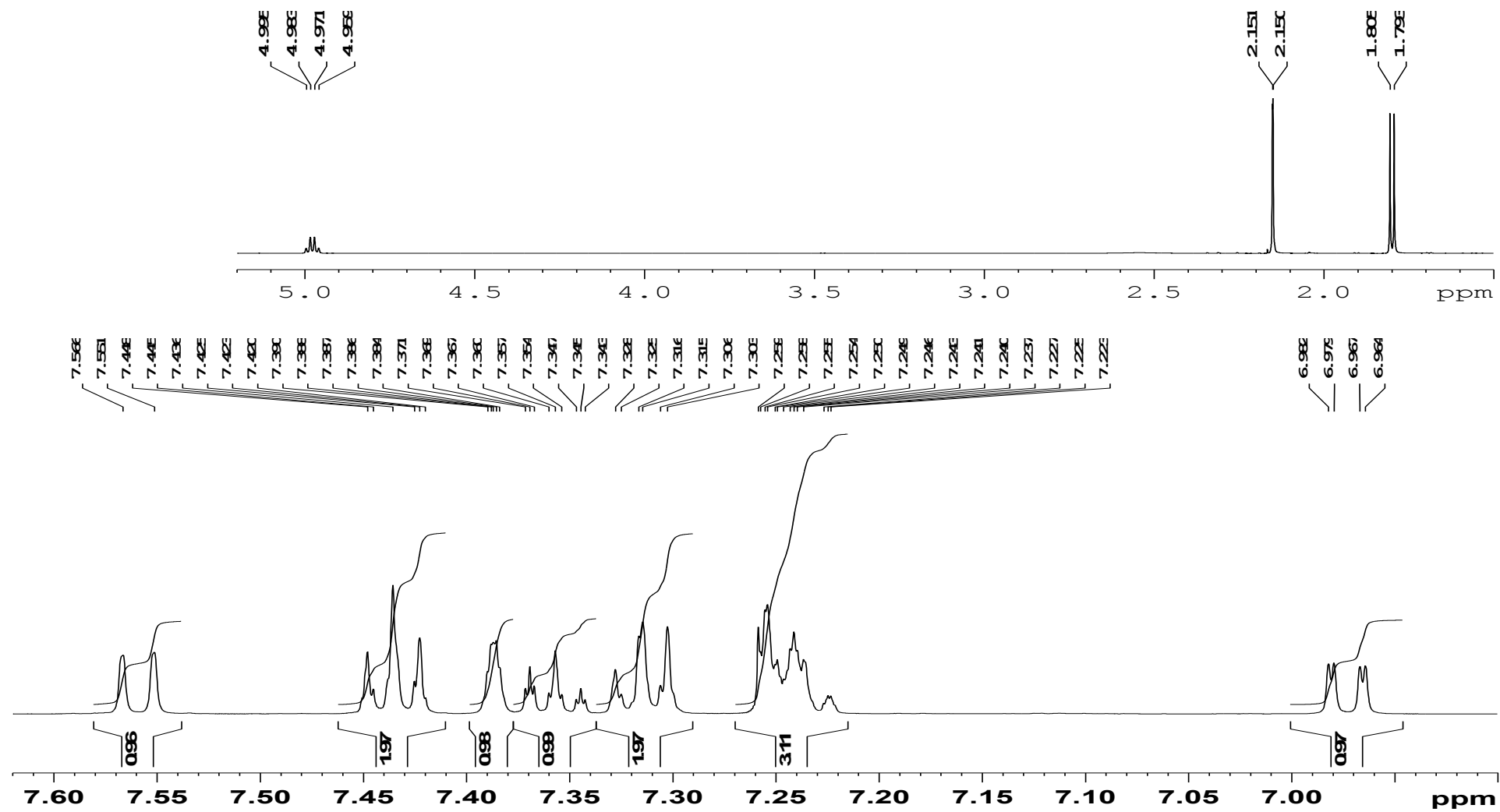
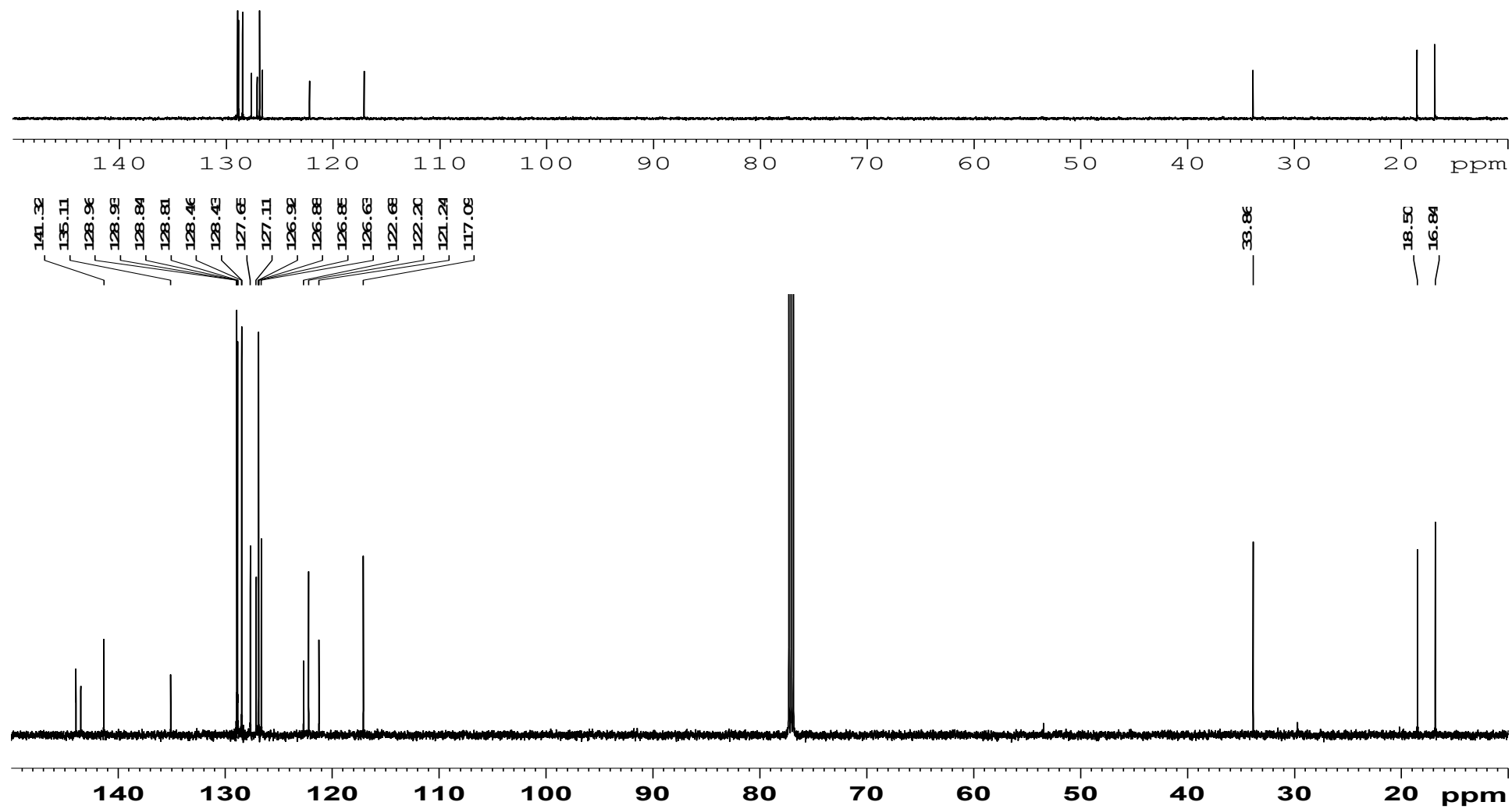
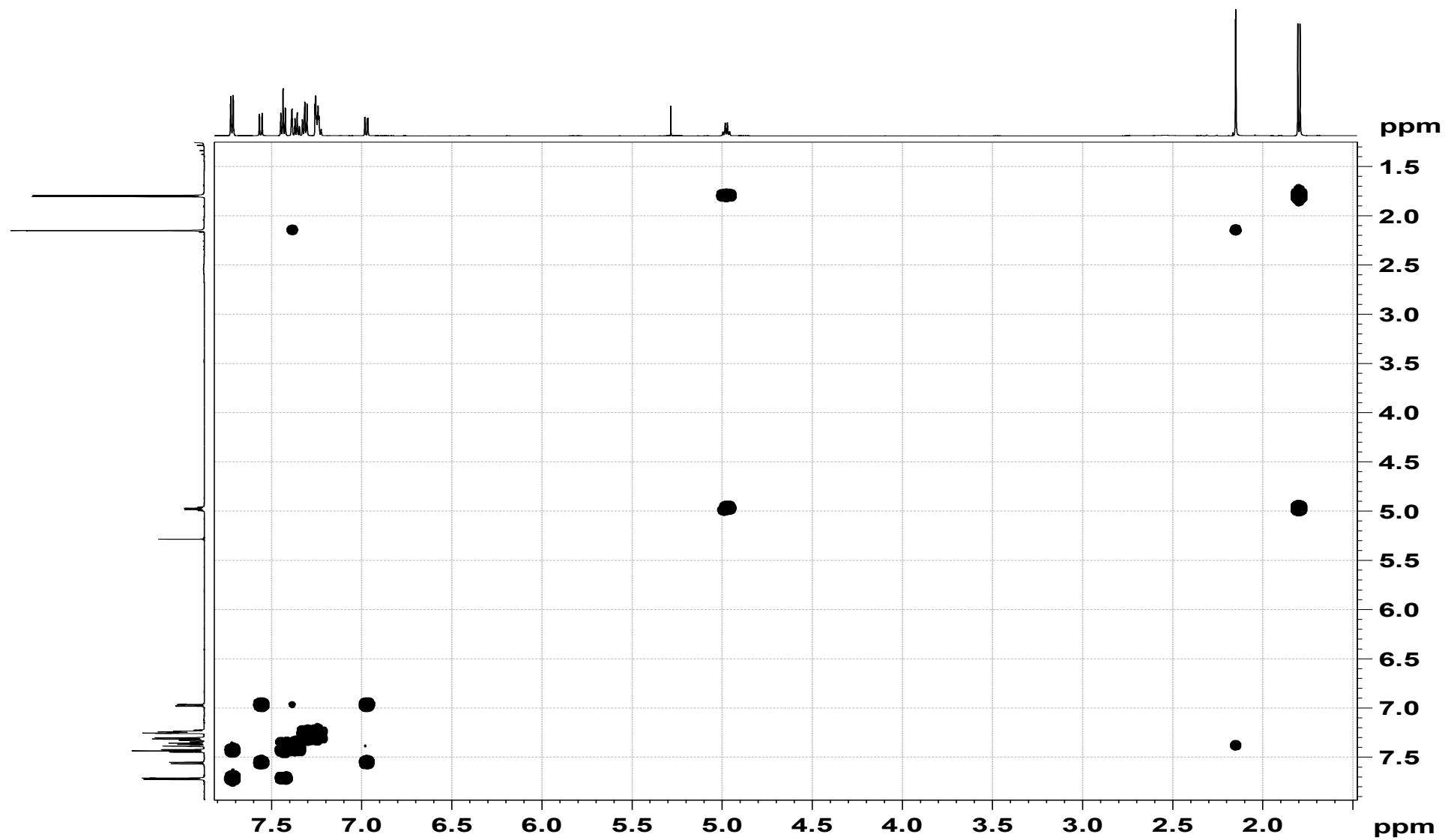


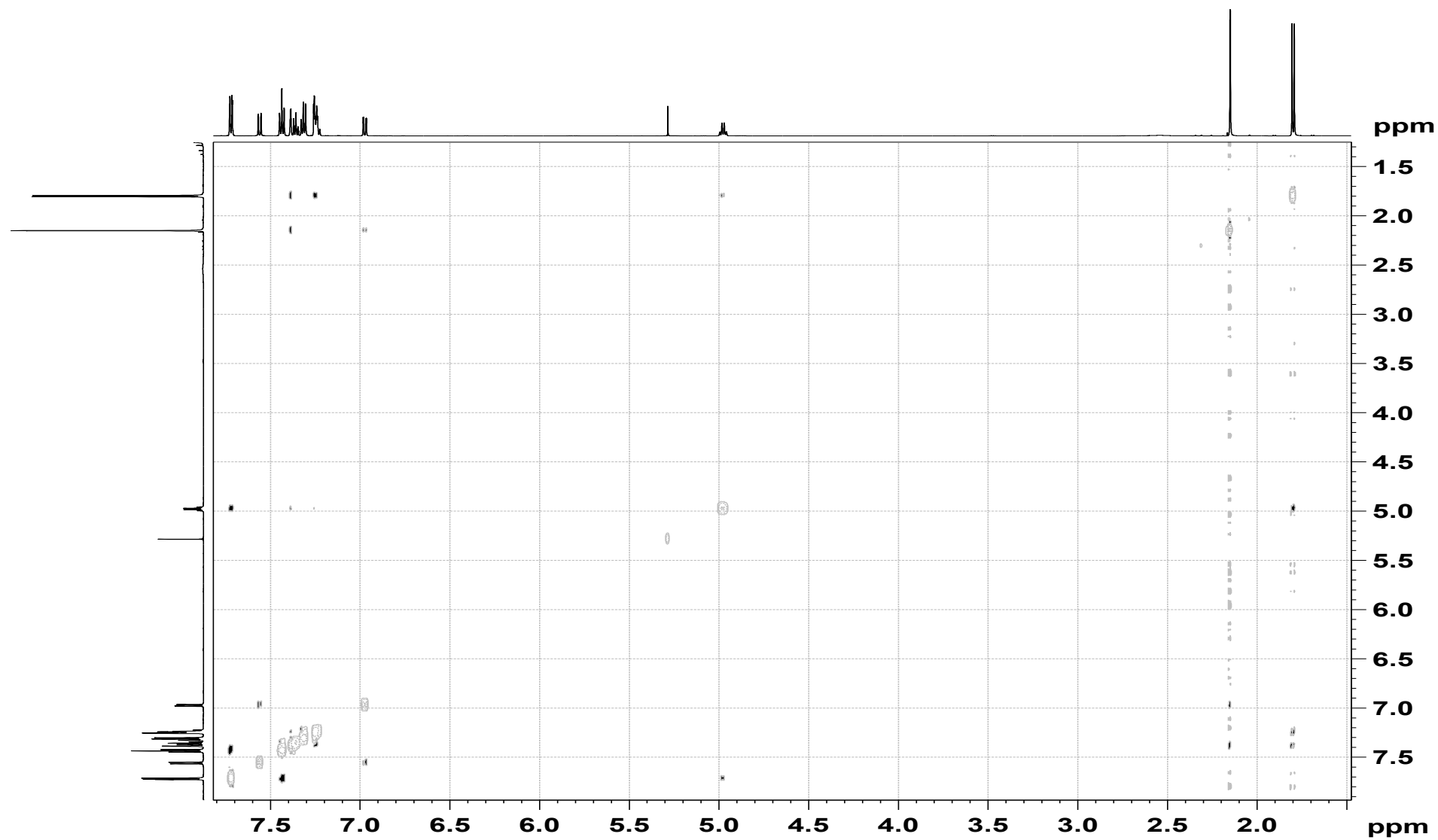
Figure S7. <sup>1</sup>H NMR spectrum of 6-methyl-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (3d).



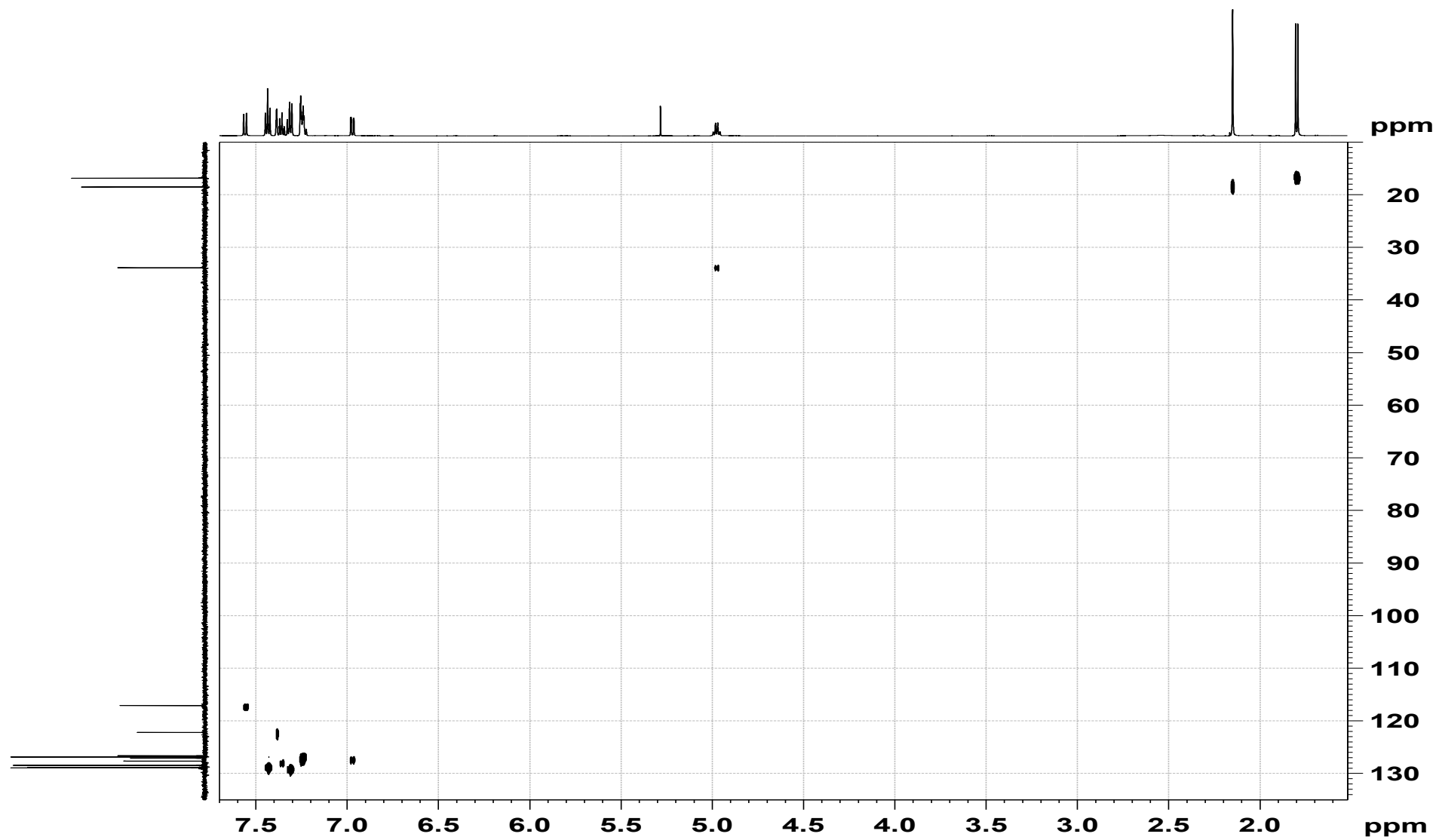
**Figure S8.** <sup>13</sup>C (down) and DEPT (up) NMR spectrum of 6-methyl-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (**3d**).



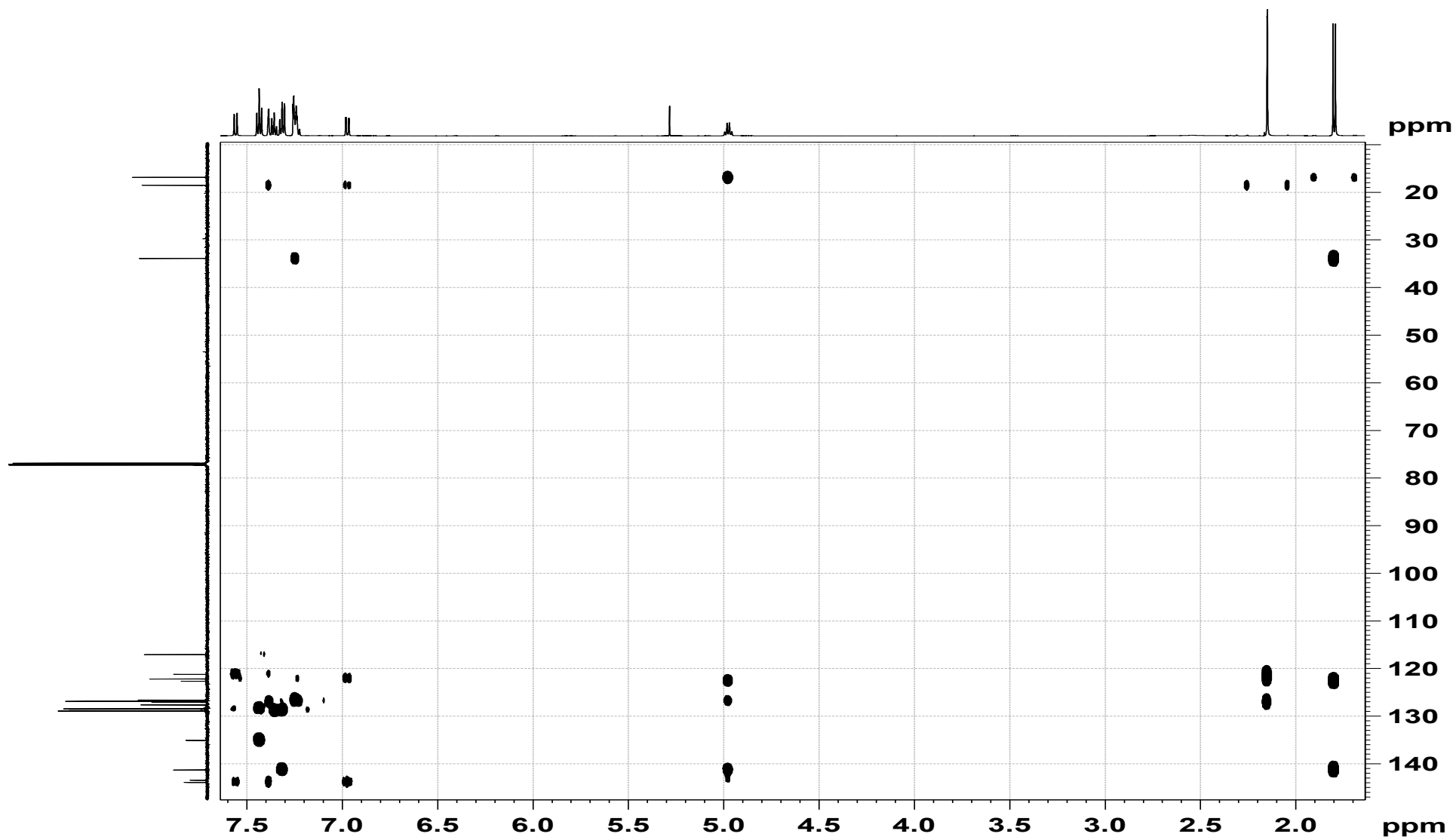
**Figure S9.** <sup>1</sup>H-<sup>1</sup>H COSY NMR spectrum of 6-methyl-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (**3d**).



**Figure S10.** <sup>1</sup>H-<sup>1</sup>H NOESY NMR spectrum of 6-methyl-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (**3d**).



**Figure S11.**  $^1\text{H}$ - $^{13}\text{C}$  HSQC NMR spectrum of 6-methyl-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (**3d**).



**Figure S12.** <sup>1</sup>H-<sup>13</sup>C HMBC NMR spectrum of 6-methyl-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (**3d**).

### III) NMR spectra of 6-chloro-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (3e)

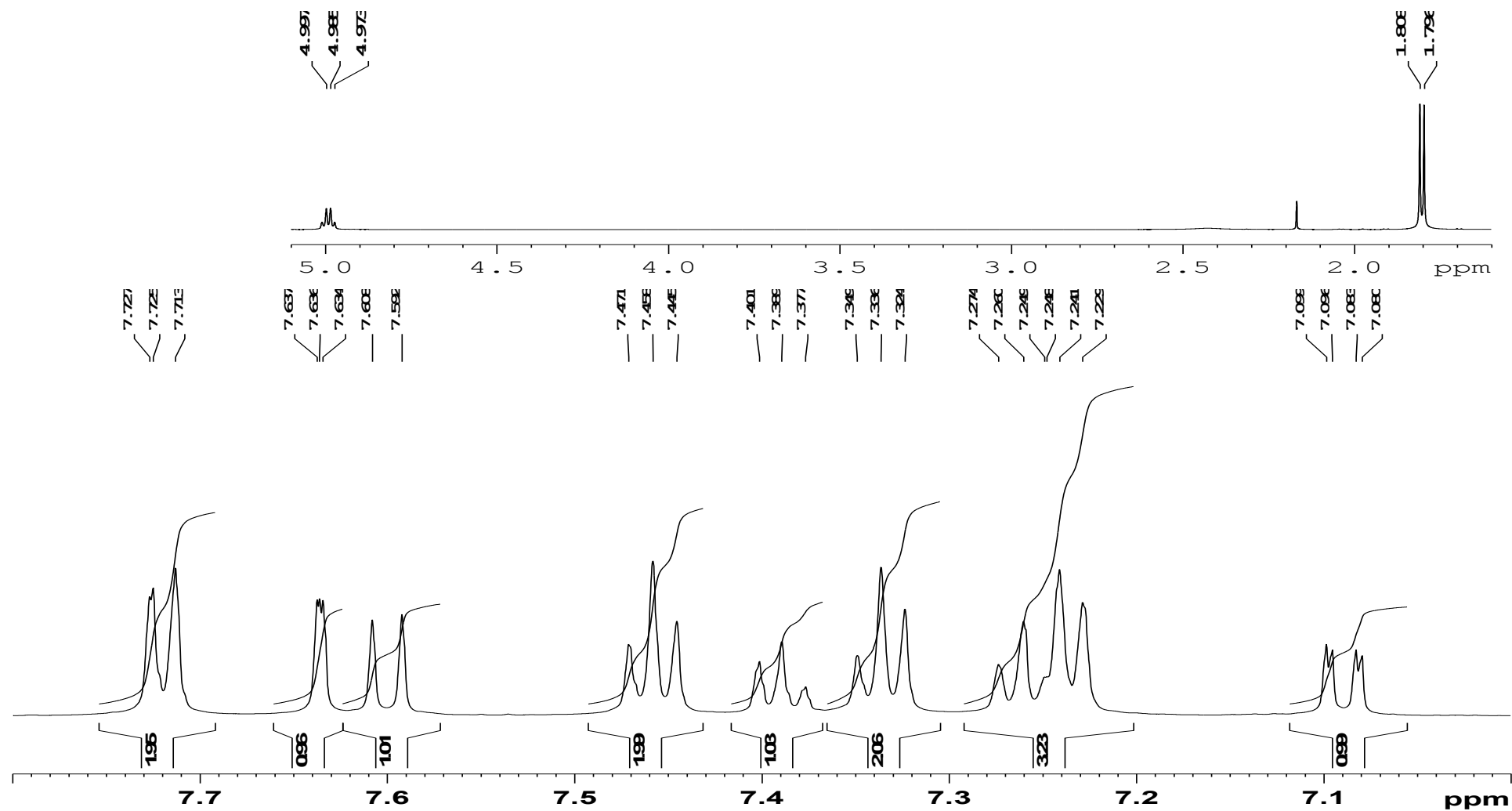
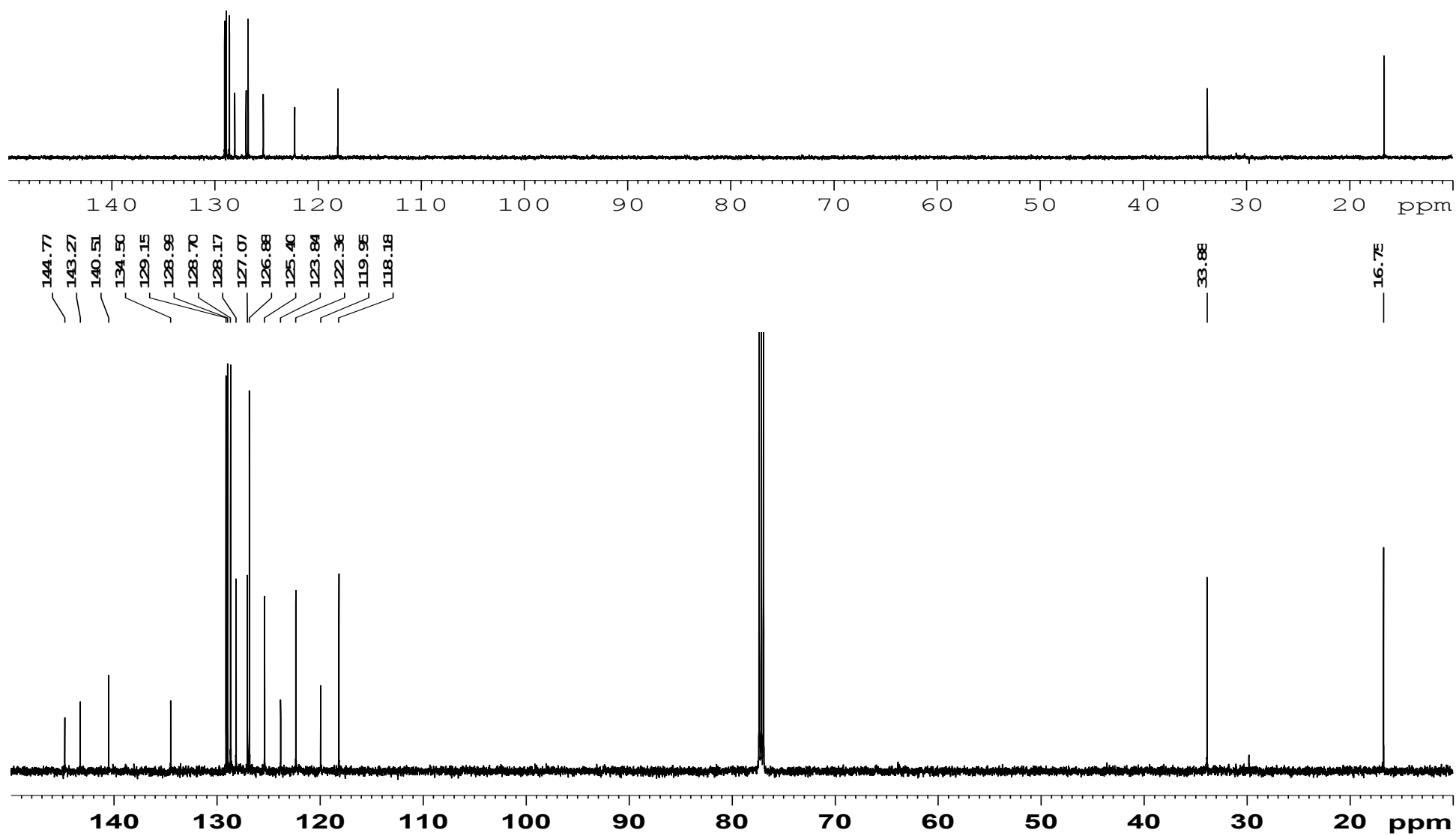
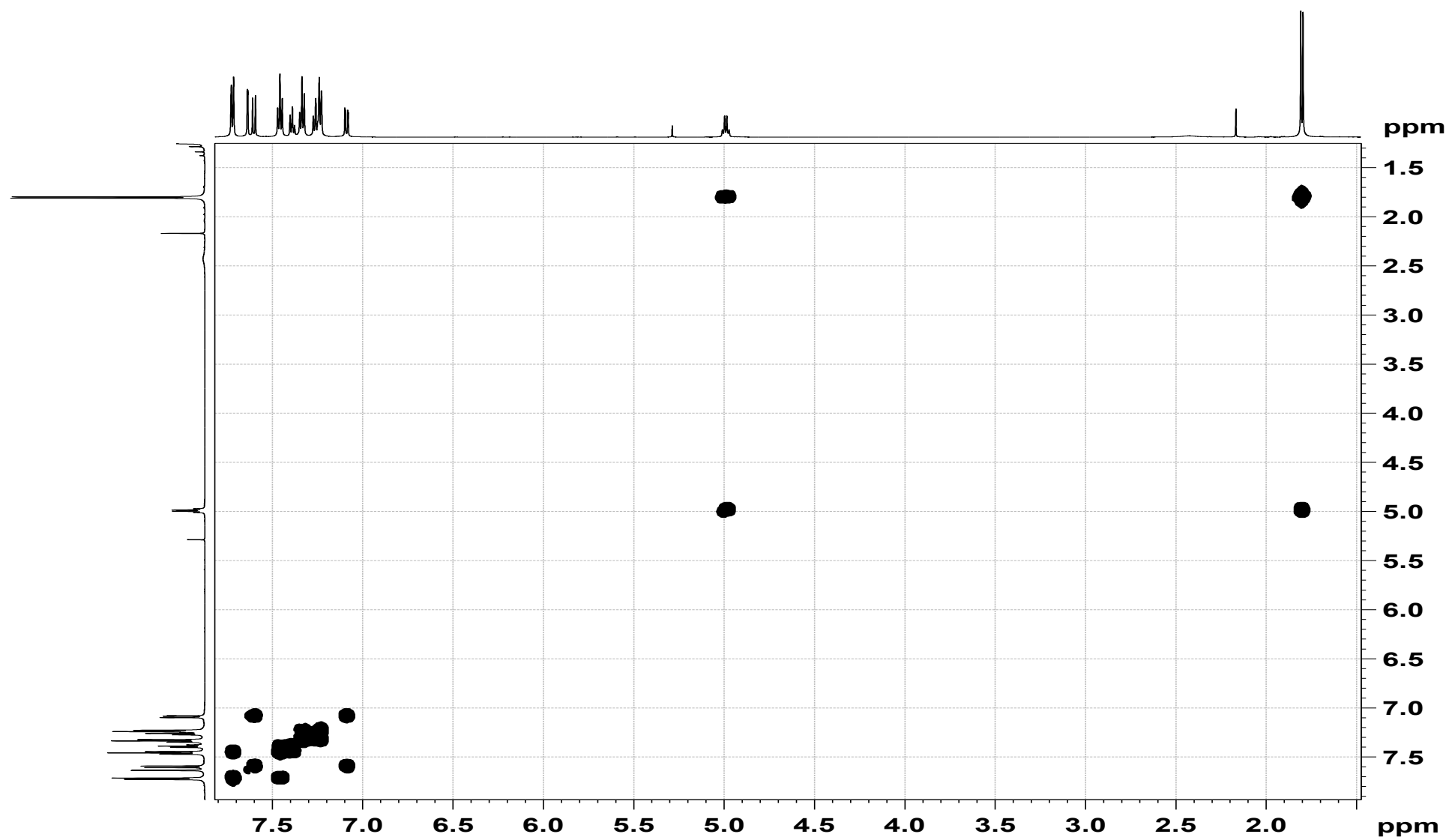


Figure S13. <sup>1</sup>H NMR spectrum of 6-chloro-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (3e).

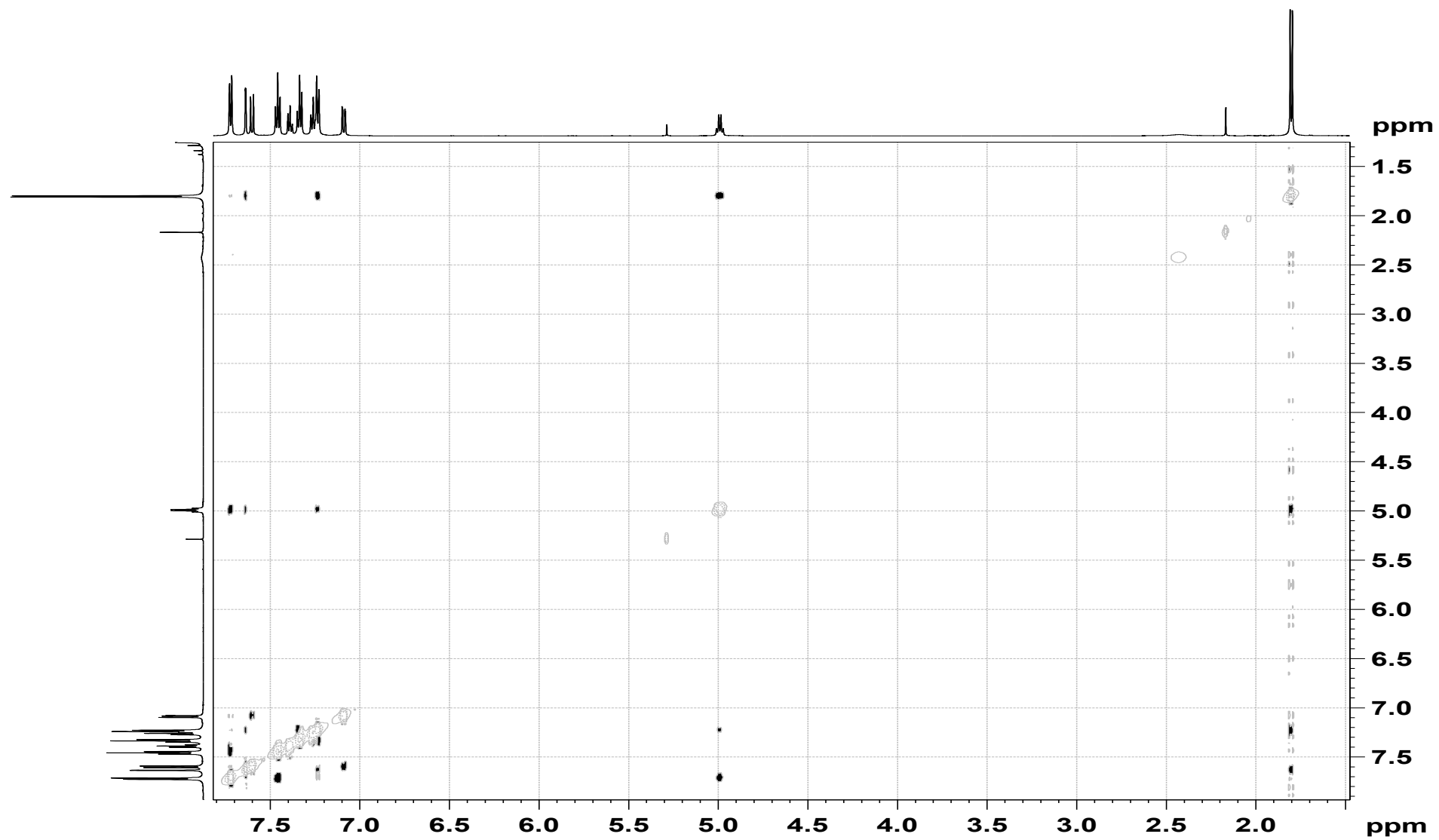


**Figure S14.** <sup>13</sup>C (down) and DEPT (up) NMR spectrum of 6-chloro-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (**3e**).

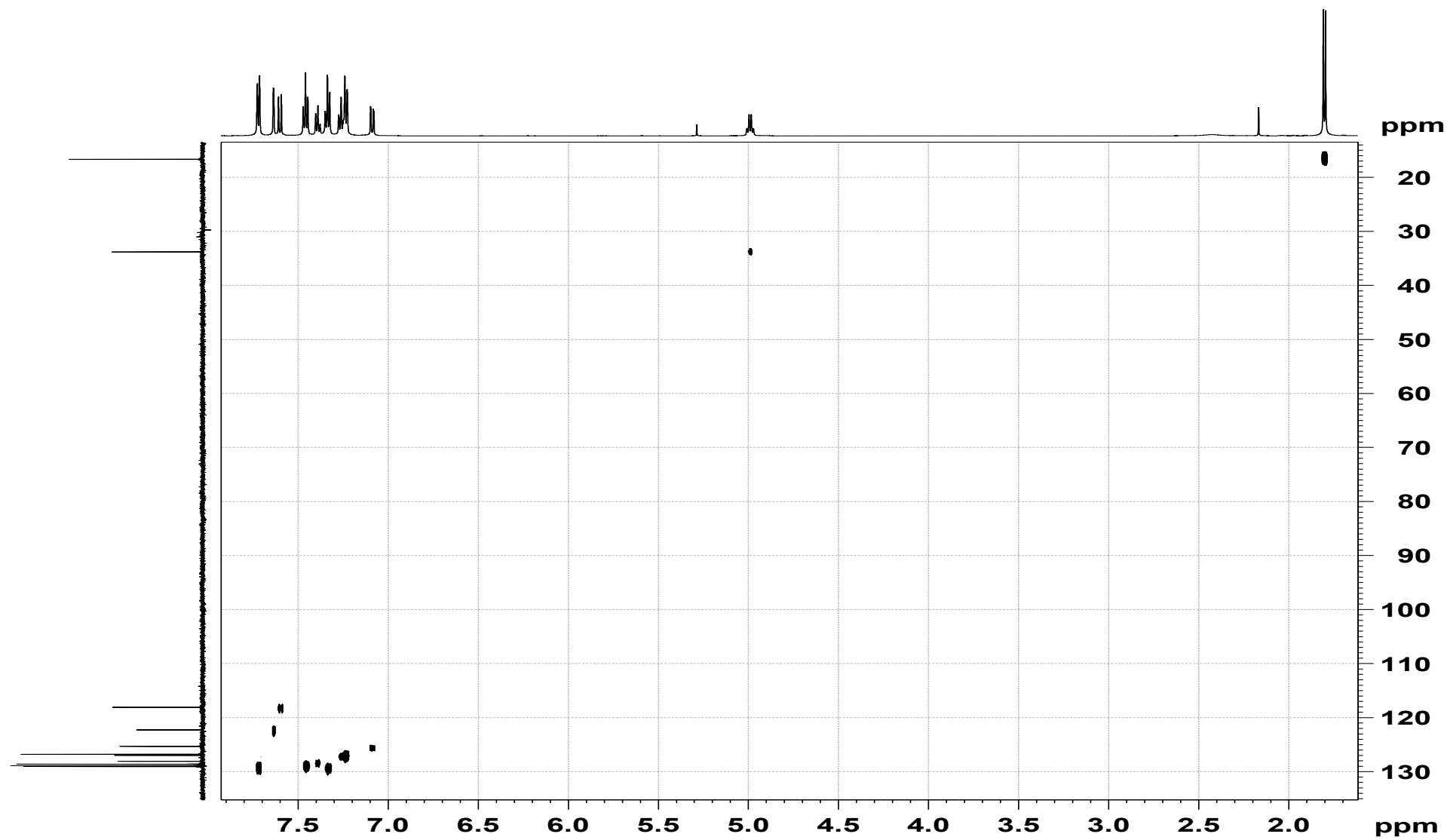




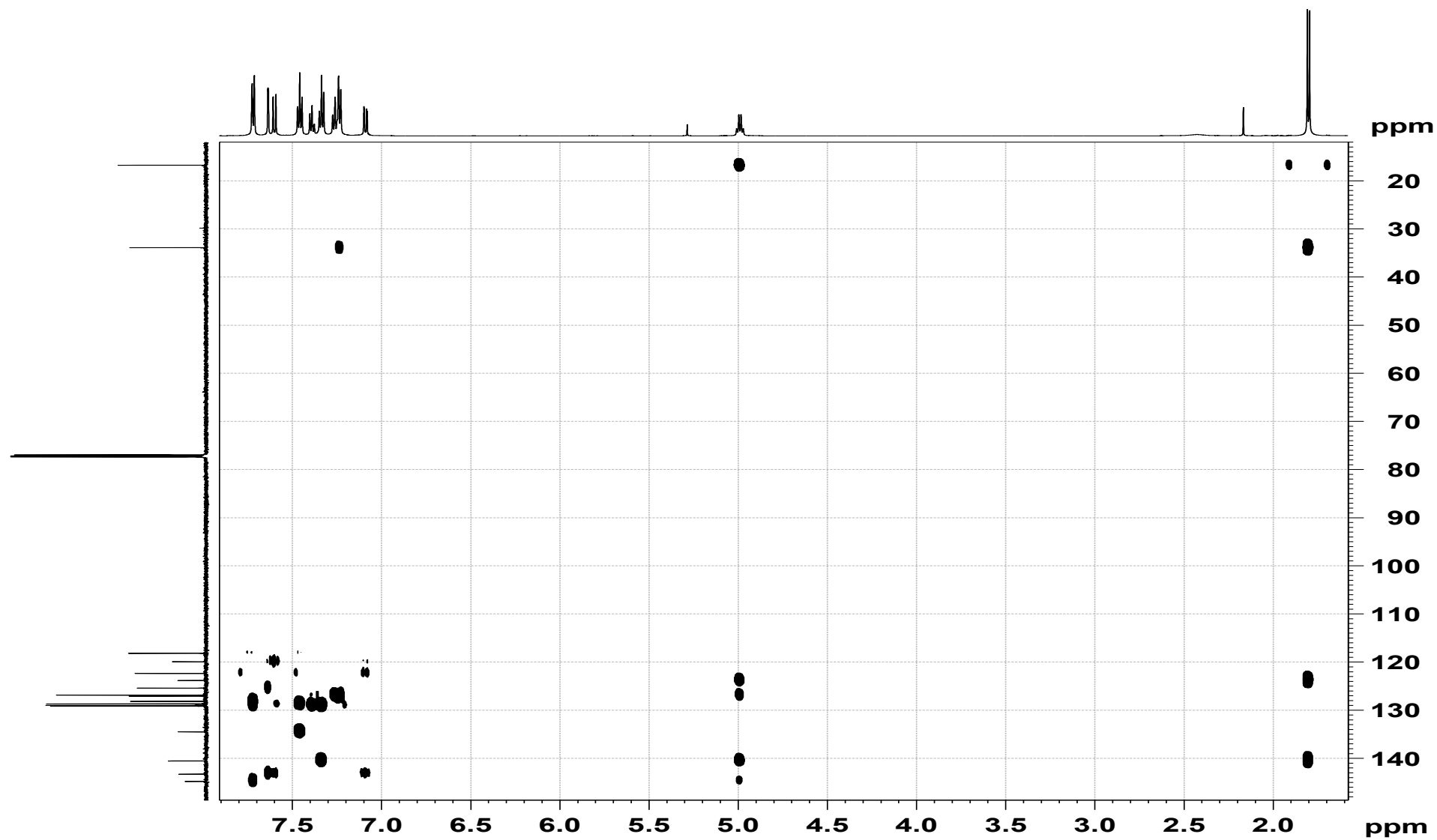
**Figure S15.** <sup>1</sup>H-<sup>1</sup>H COSY NMR spectrum of 6-chloro-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (**3e**).



**Figure S16.**  $^1\text{H}$ - $^1\text{H}$  NOESY NMR spectrum of 6-chloro-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (**3e**).



**Figure S17.**  $^1\text{H}$ - $^{13}\text{C}$  HSQC NMR spectrum of 6-chloro-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (**3e**).



**Figure S18.**  $^1\text{H}$ - $^{13}\text{C}$  HMBC NMR spectrum of 6-chloro-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (**3e**).

#### IV) NMR spectra of 6-bromo-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (3f)

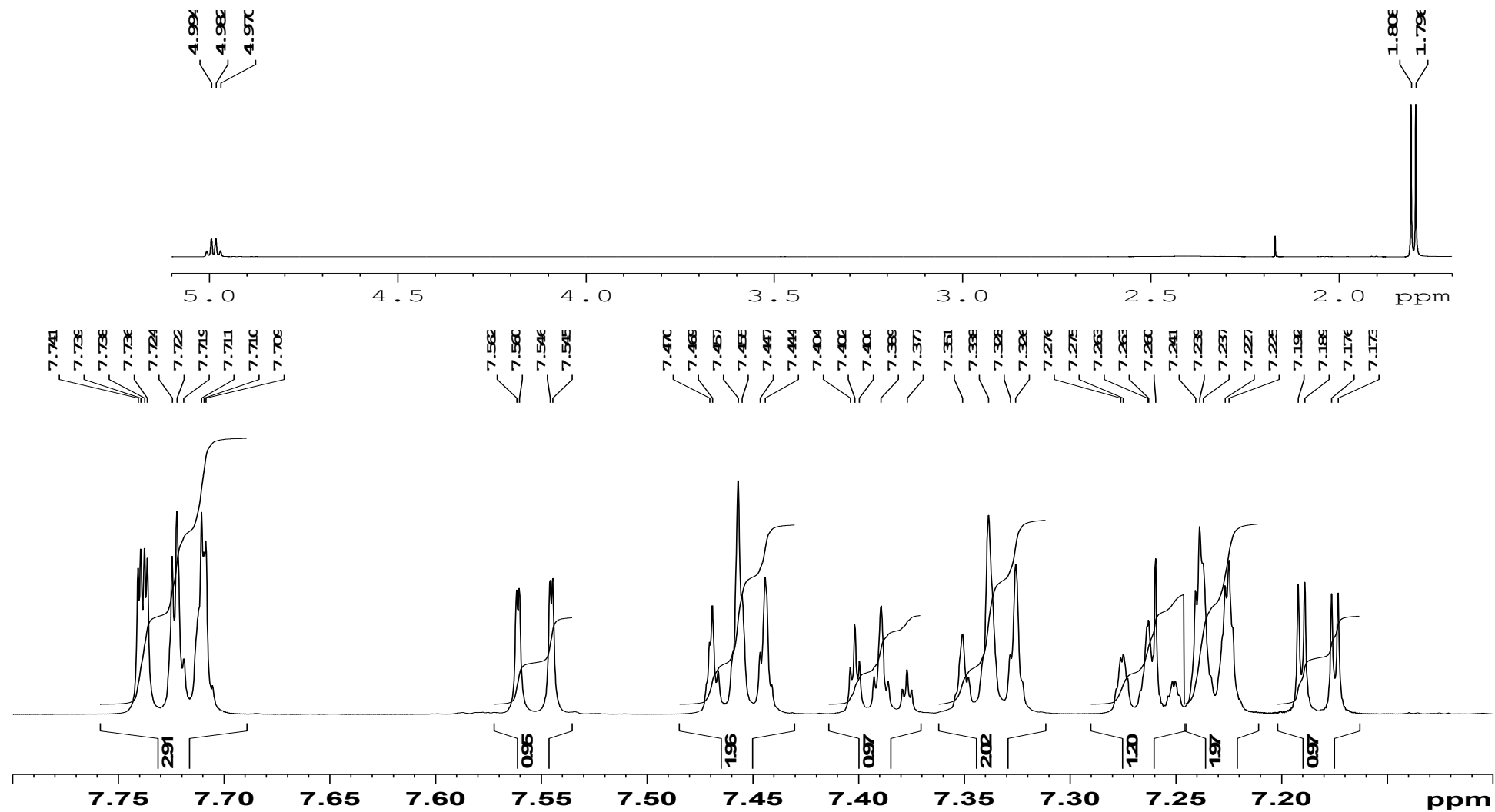
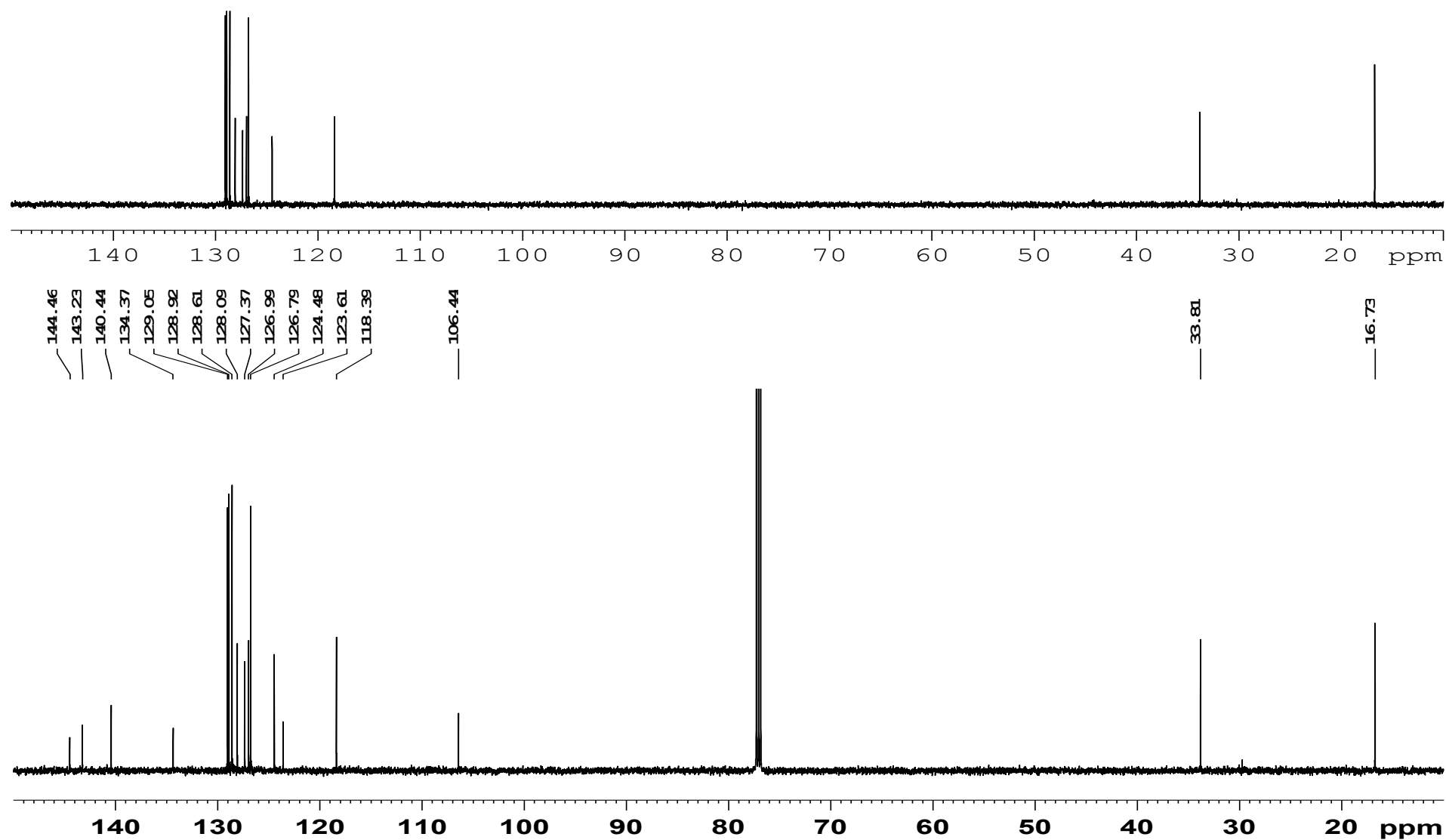
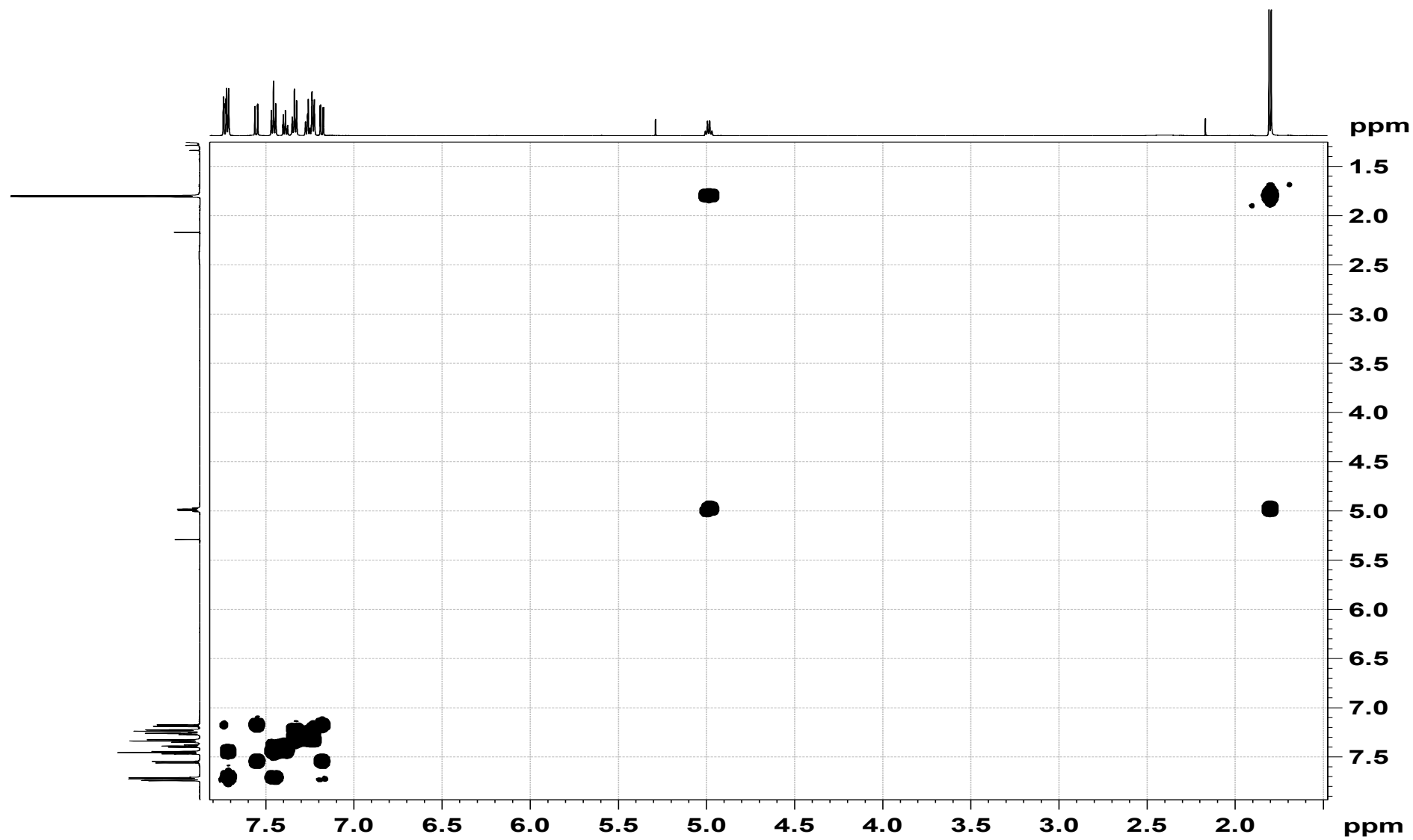


Figure S19. <sup>1</sup>H NMR spectrum of 6-bromo-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (3f).



**Figure S20.** <sup>13</sup>C (down) and DEPT (up) NMR spectrum of 6-bromo-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (**3f**).



**Figure S21.** <sup>1</sup>H-<sup>1</sup>H COSY NMR spectrum of 6-bromo-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (**3f**).

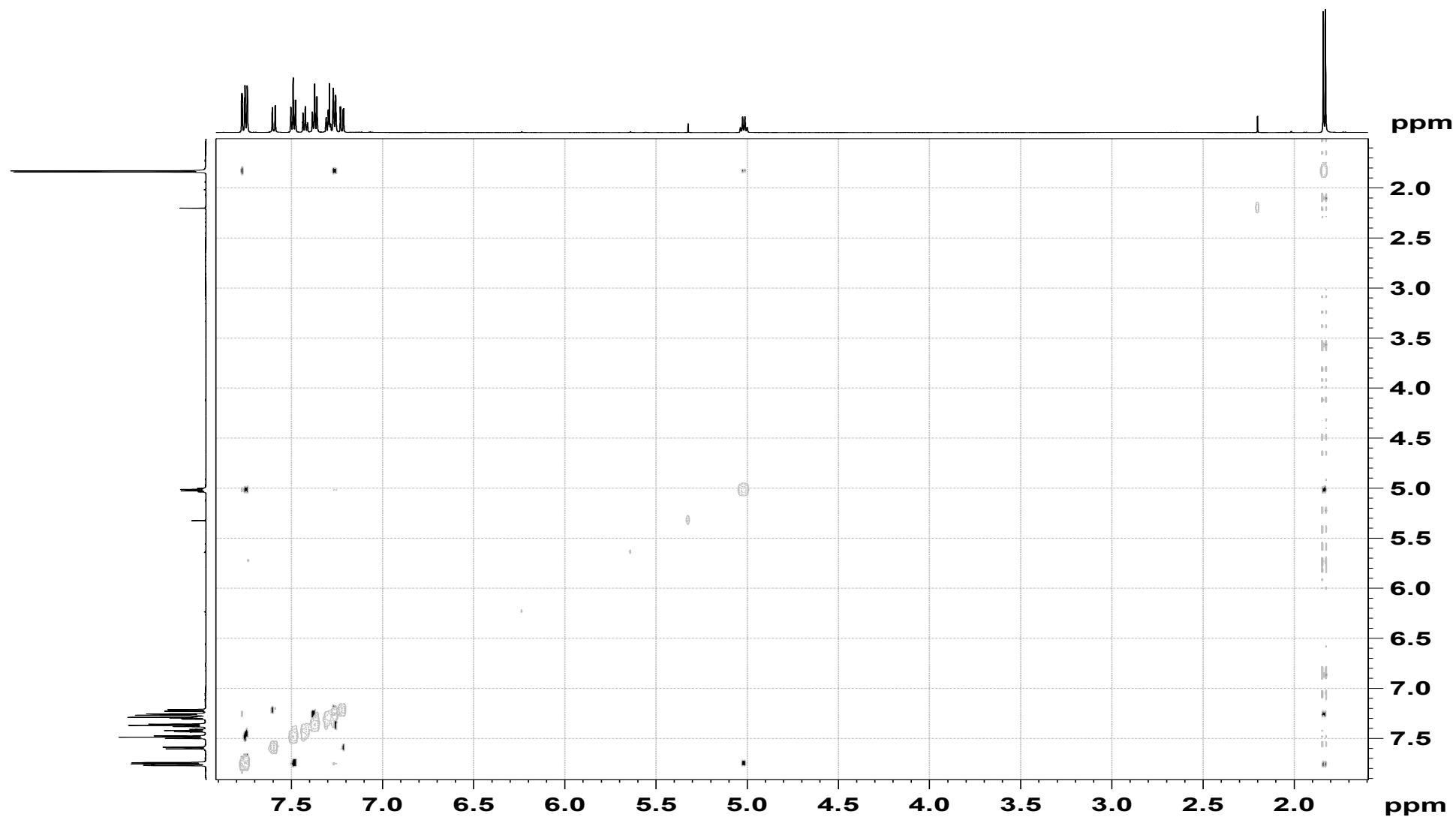
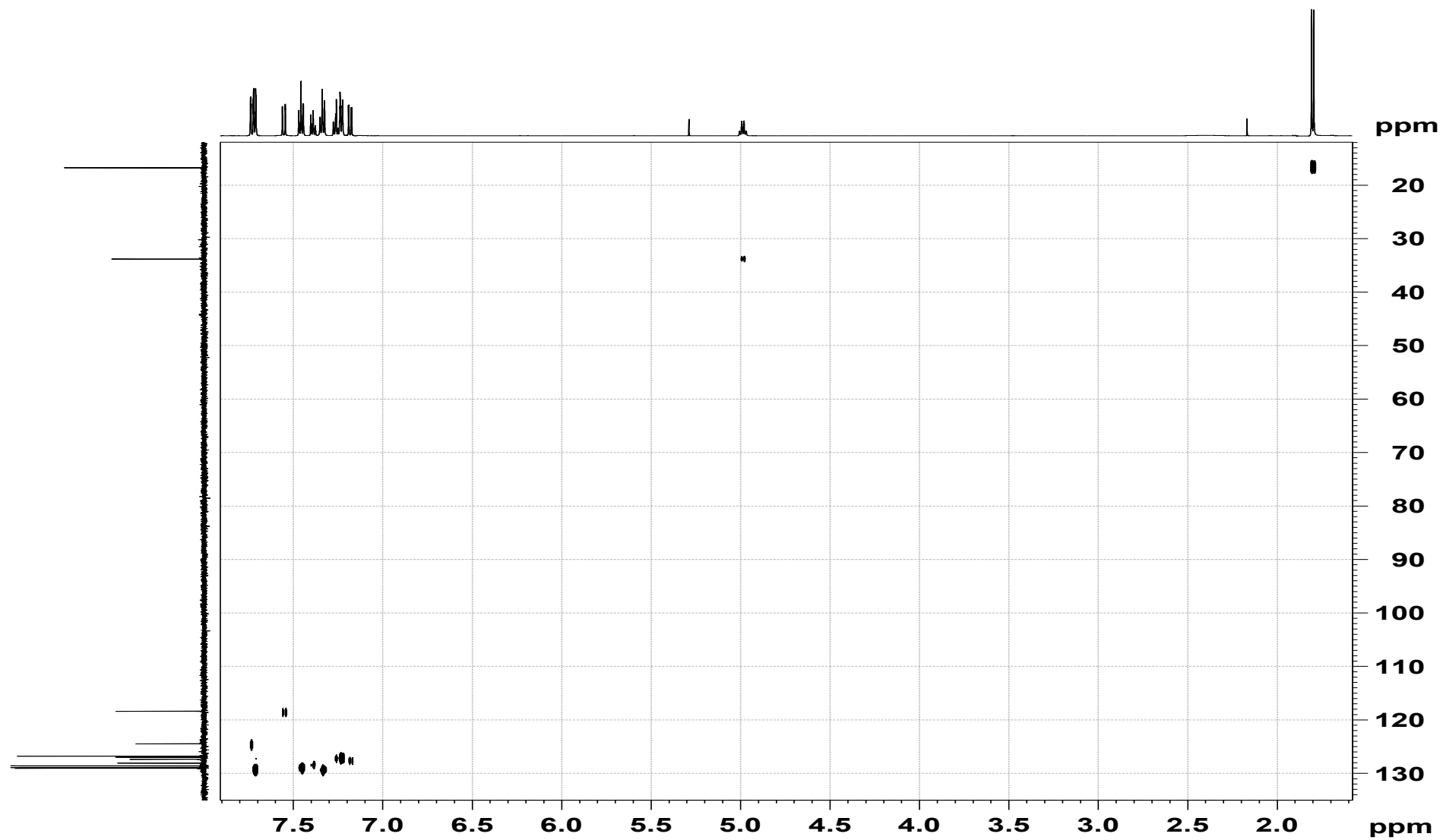
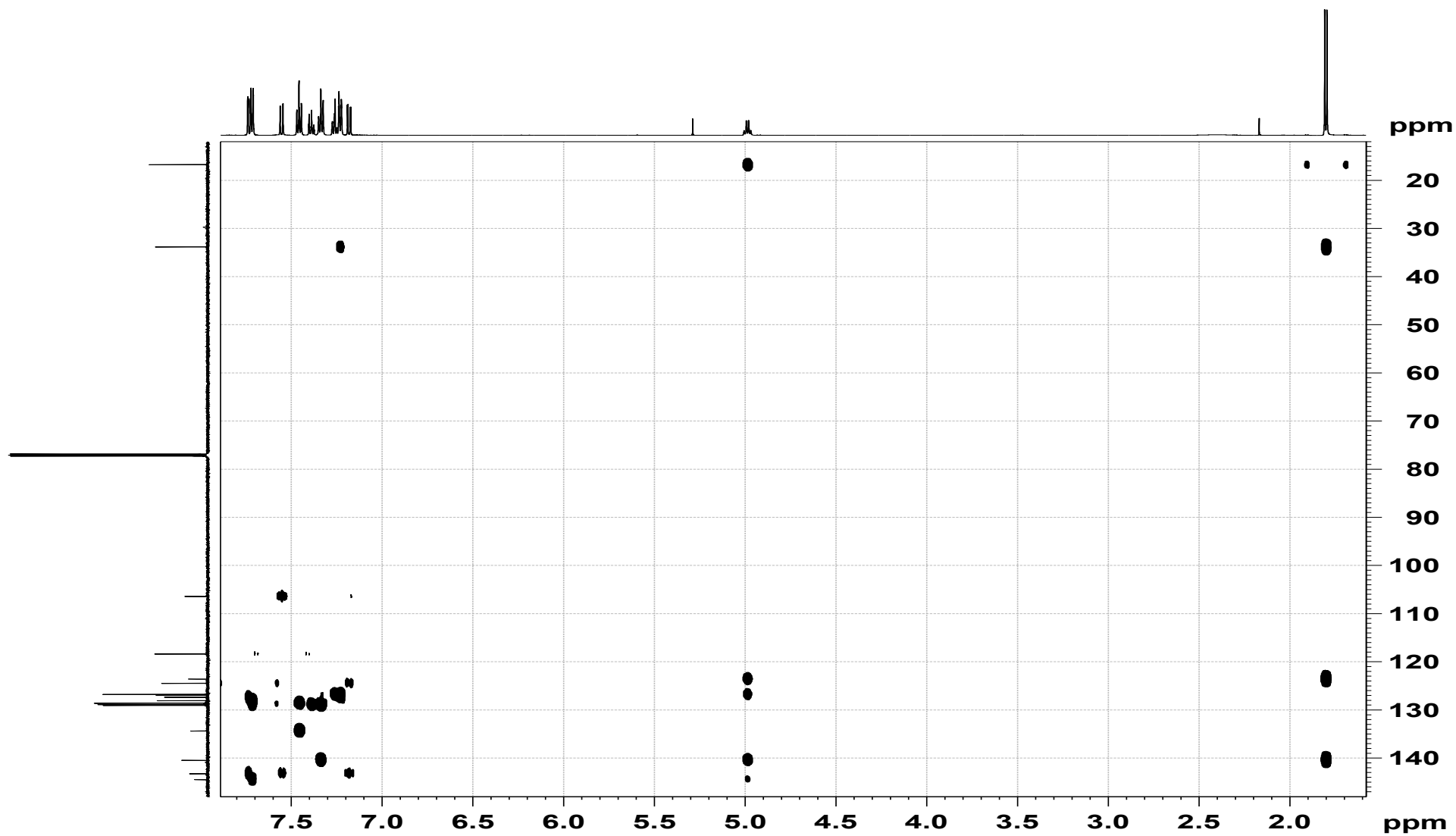


Figure S22. <sup>1</sup>H-<sup>1</sup>H NOESY NMR spectrum of 6-bromo-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (**3f**).





**Figure S23.**  $^1\text{H}$ - $^{13}\text{C}$  HSQC NMR spectrum of 6-bromo-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (**3f**).



**Figure S24.**  $^1\text{H}$ - $^{13}\text{C}$  HMBC NMR spectrum of 6-bromo-2-phenyl-3-(1-phenylethyl)imidazo[1,2-a]pyridine (**3f**).

V) NMR spectra of 6-methyl-2-(4-methylphenyl)-3-(1-(4-methylphenyl)ethyl)imidazo[1,2-a]pyridine (3g)

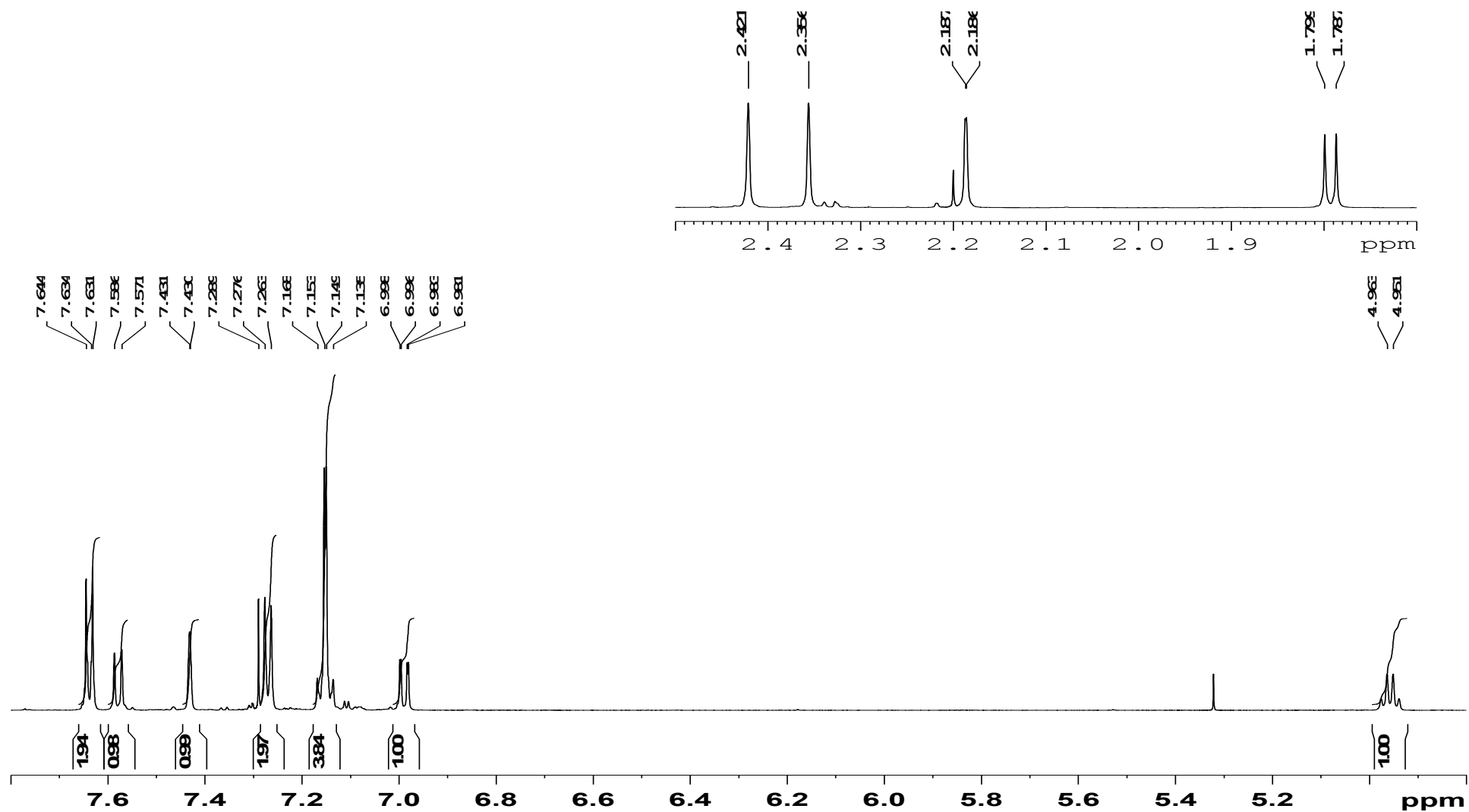
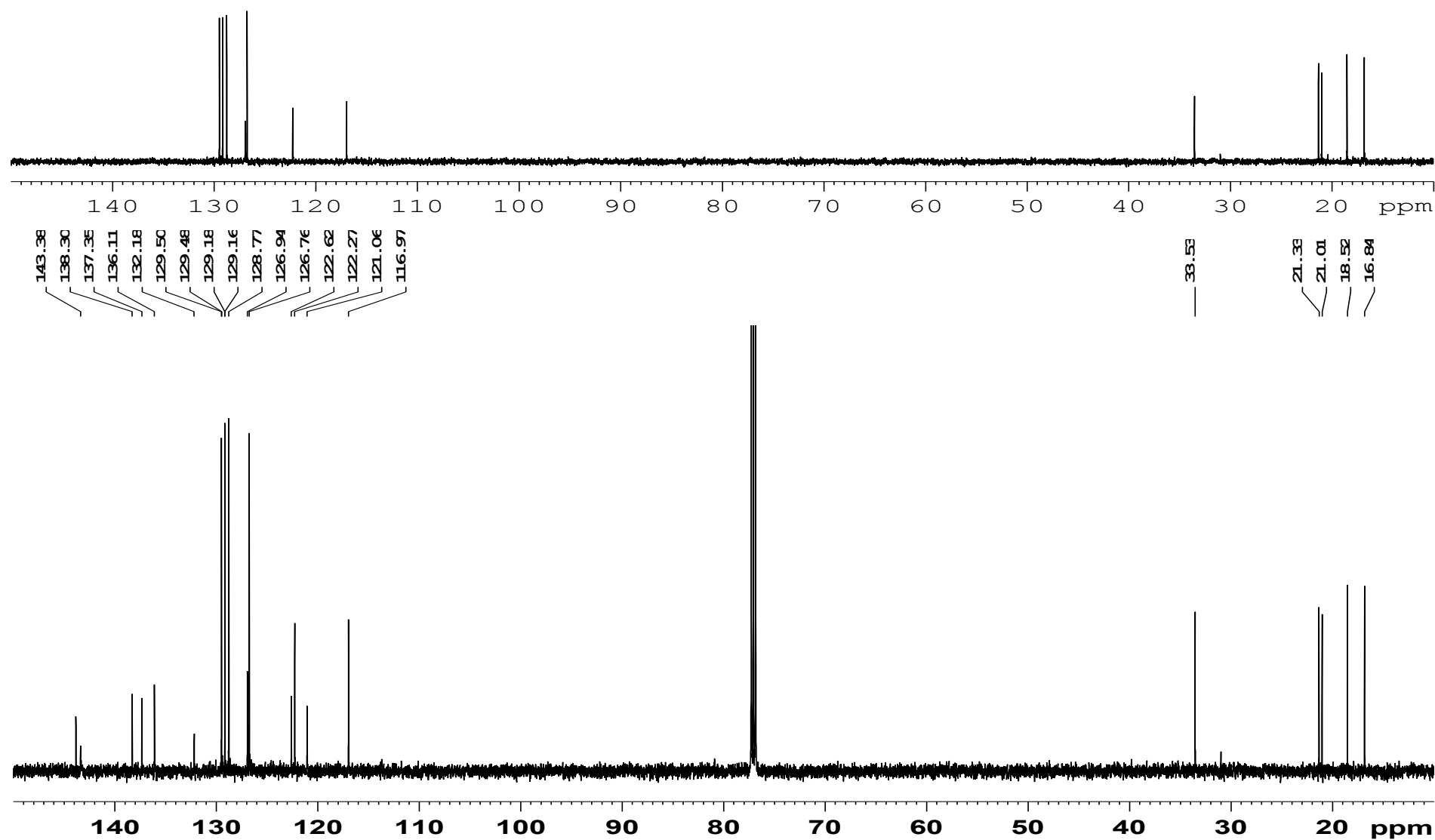
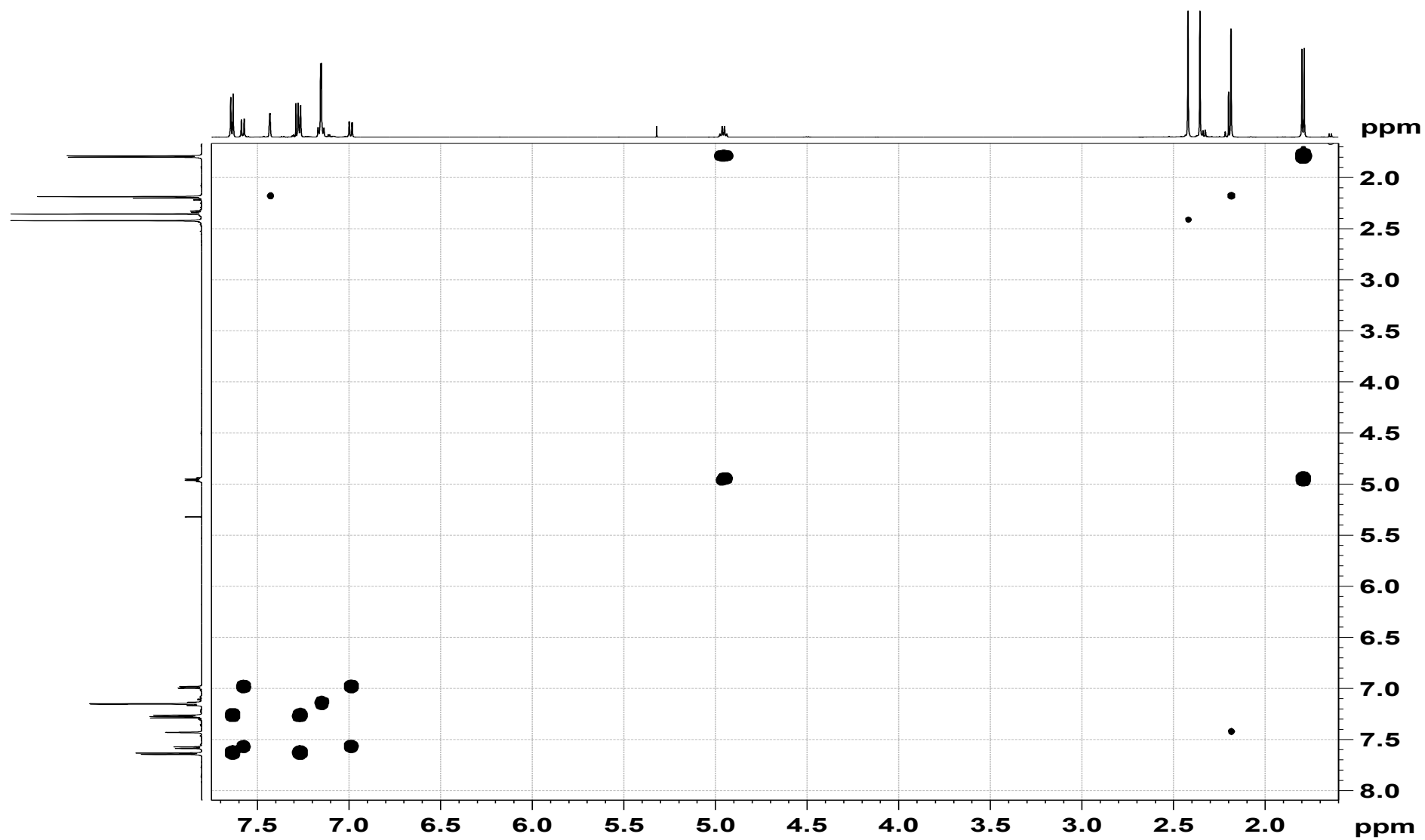


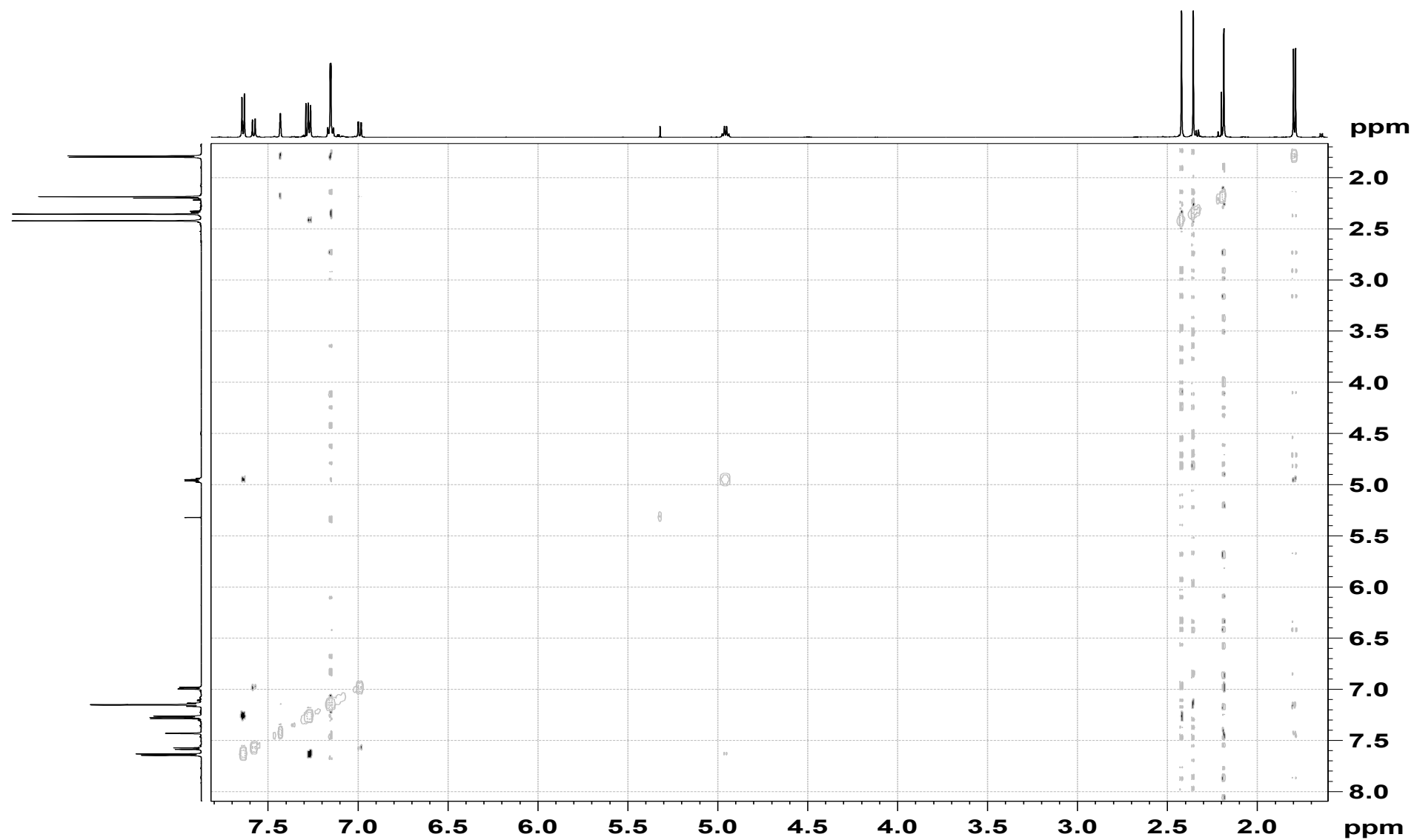
Figure S25. <sup>1</sup>H NMR spectrum of 6-methyl-2-(4-methylphenyl)-3-(1-(4-methylphenyl)ethyl)imidazo[1,2-a]pyridine (3g).



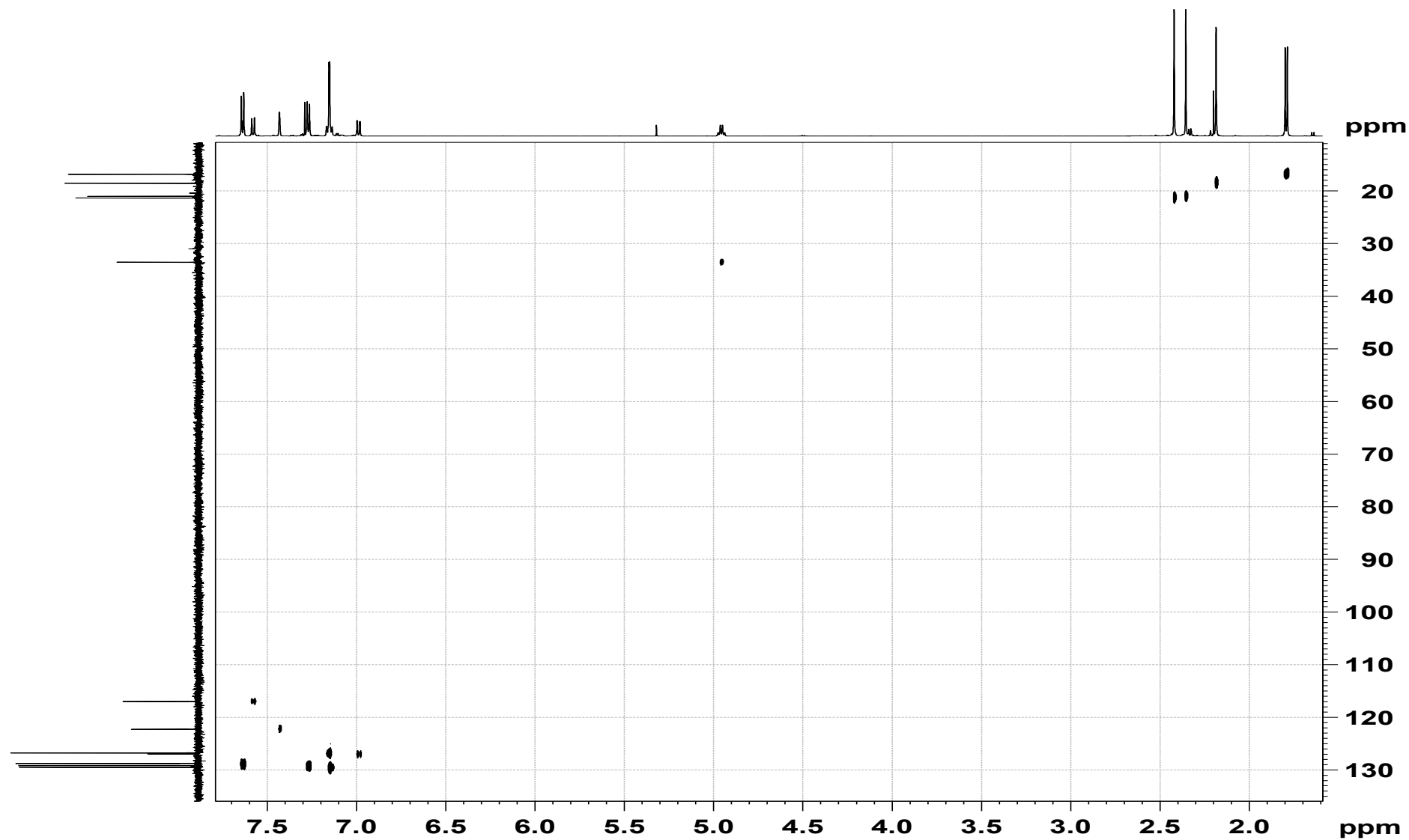
**Figure S26.** <sup>13</sup>C (down) and DEPT (up) NMR spectrum of 6-methyl-2-(4-methylphenyl)-3-(1-(4-methylphenyl)ethyl)imidazo[1,2-a]pyridine (**3g**).



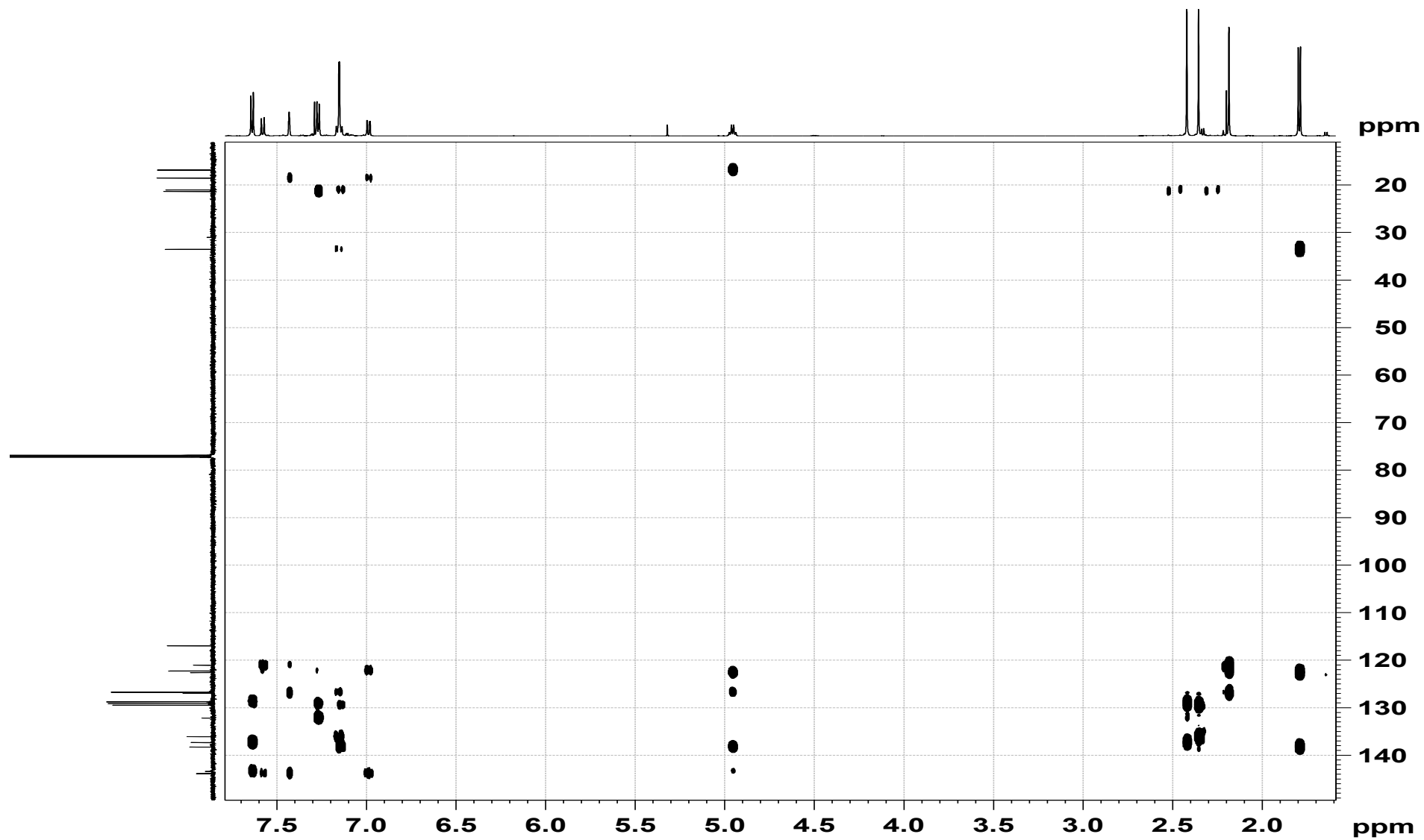
**Figure S27.**  $^1\text{H}$ - $^1\text{H}$  COSY NMR spectrum of 6-methyl-2-(4-methylphenyl)-3-(1-(4-methylphenyl)ethyl)imidazo[1,2-a]pyridine (**3g**).



**Figure S28.** <sup>1</sup>H-<sup>1</sup>H NOESY NMR spectrum of 6-methyl-2-(4-methylphenyl)-3-(1-(4-methylphenyl)ethyl)imidazo[1,2-a]pyridine (3g).

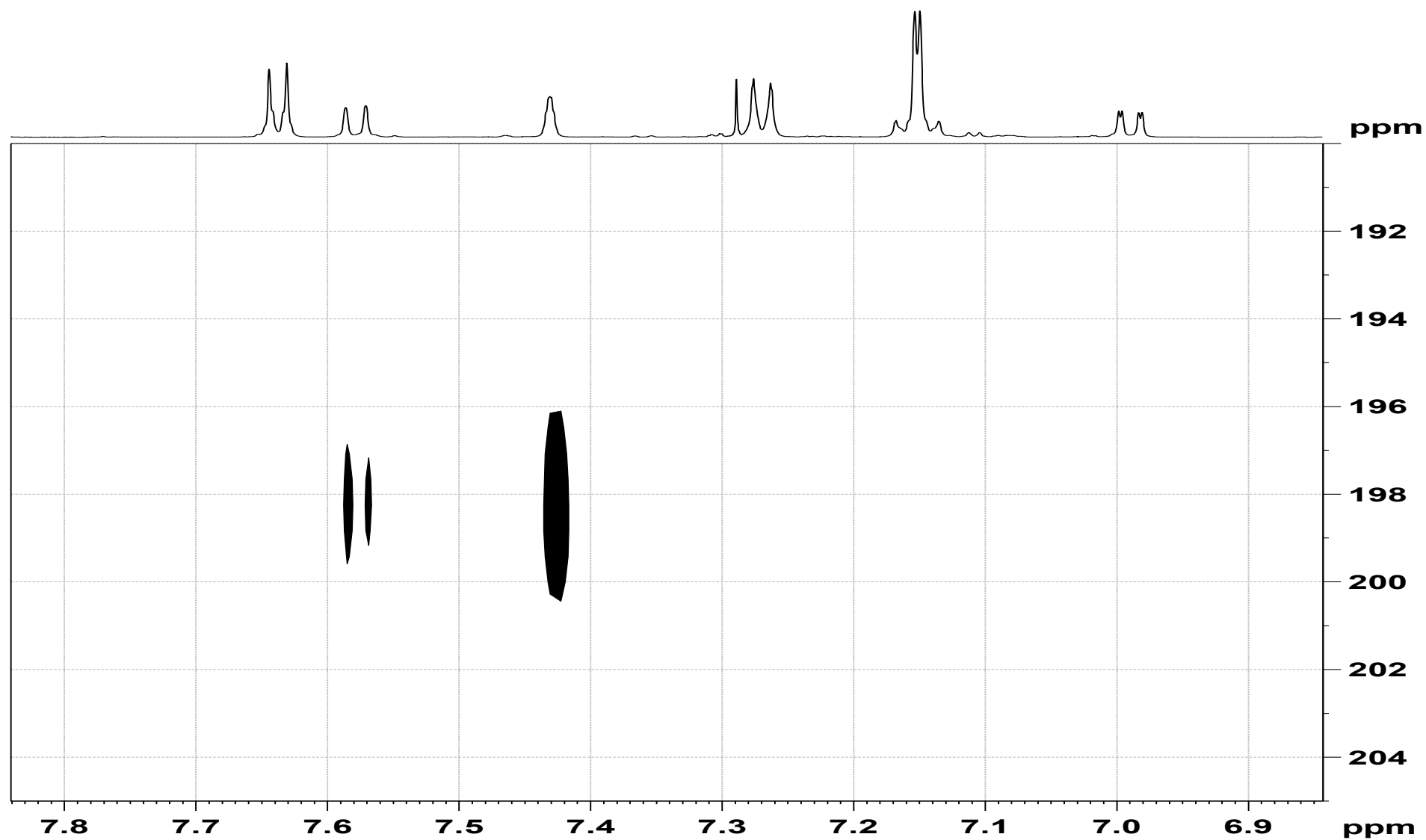


**Figure S29.**  $^1\text{H}$ - $^{13}\text{C}$  HSQC NMR spectrum of 6-methyl-2-(4-methylphenyl)-3-(1-(4-methylphenyl)ethyl)imidazo[1,2-a]pyridine (**3g**).  
S31



**Figure S30.**  $^1\text{H}$ - $^{13}\text{C}$  HMBC NMR spectrum of 6-methyl-2-(4-methylphenyl)-3-(1-(4-methylphenyl)ethyl)imidazo[1,2-a]pyridine (**3g**).  
S32





**Figure S31.**  $^1\text{H}$ - $^{15}\text{N}$  HMBC NMR spectrum of 6-methyl-2-(4-methylphenyl)-3-(1-(4-methylphenyl)ethyl)imidazo[1,2-a]pyridine (**3g**).  
S33

VI) NMR spectra of 6-chloro-2-(4-methylphenyl)-3-(1-(4-methylphenyl)ethyl)imidazo[1,2-a]pyridine (3h)

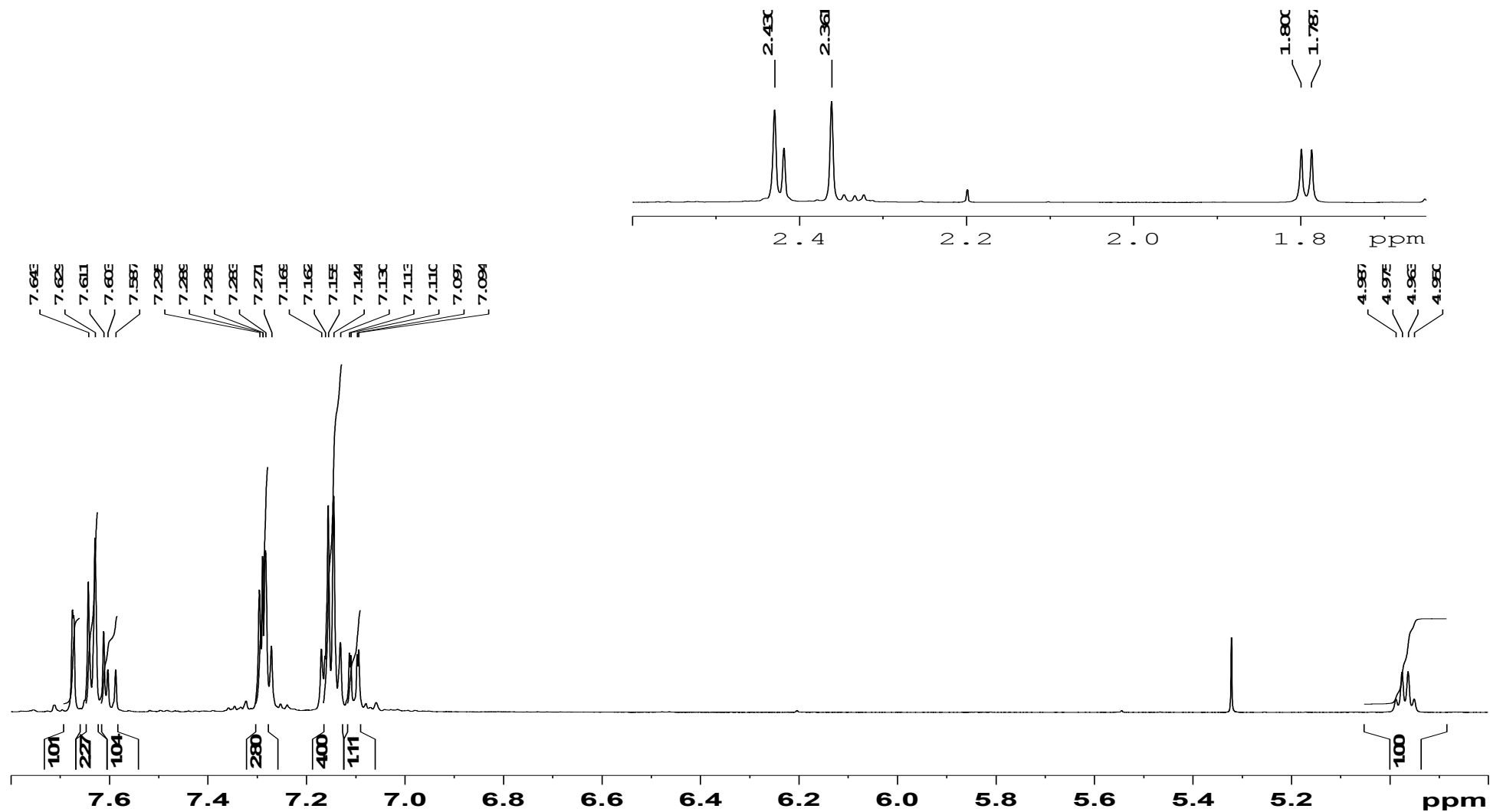
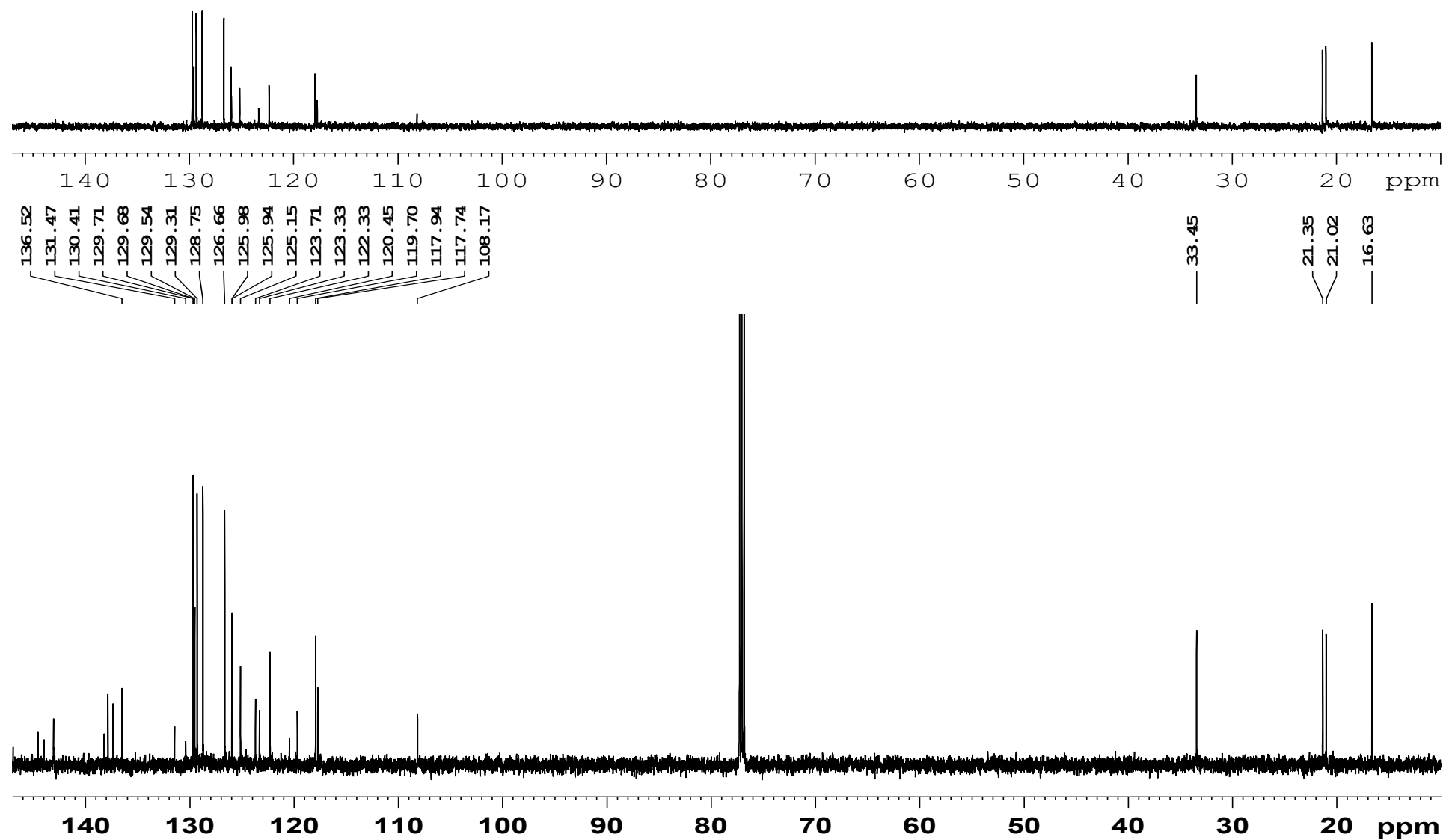
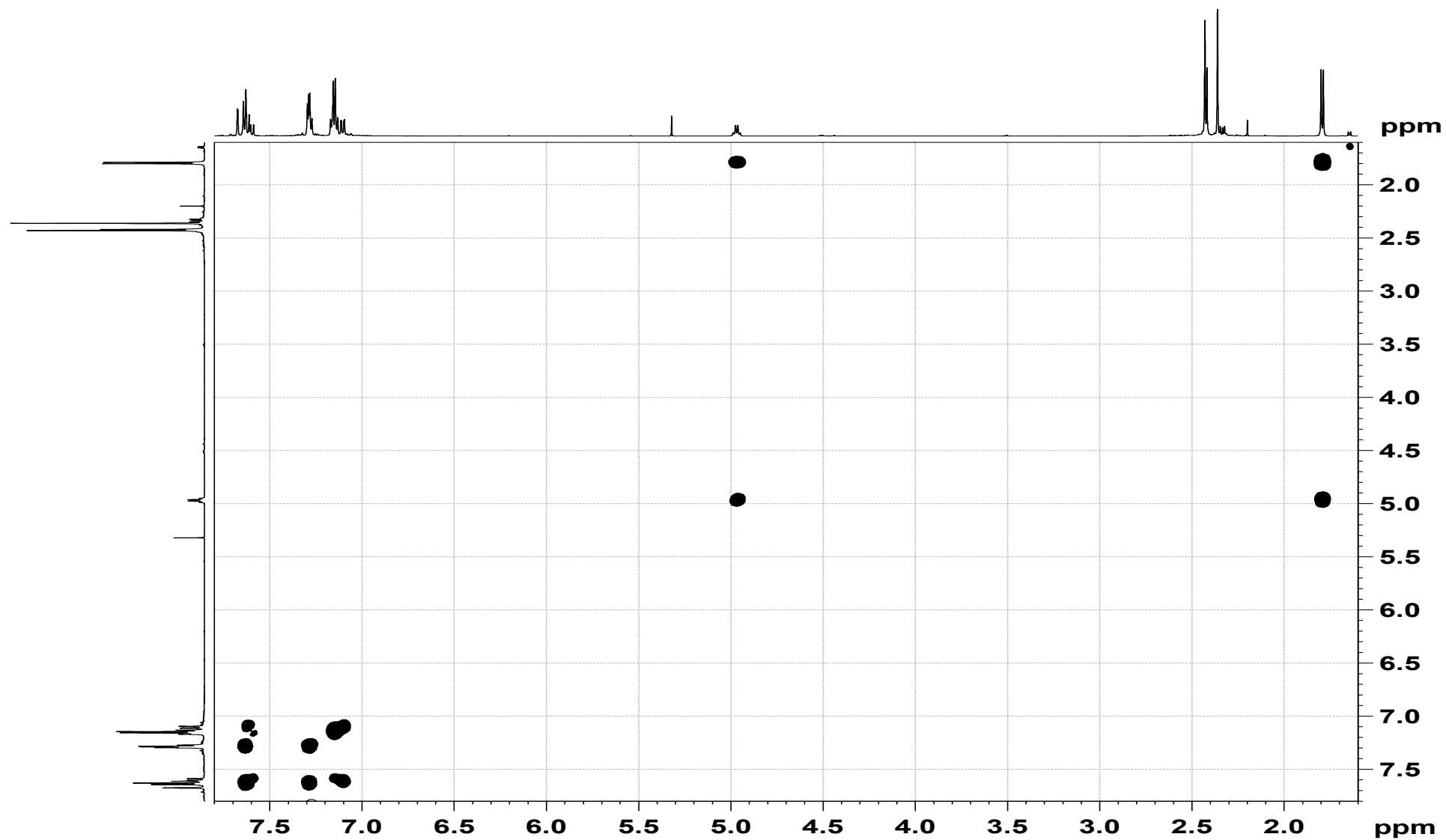


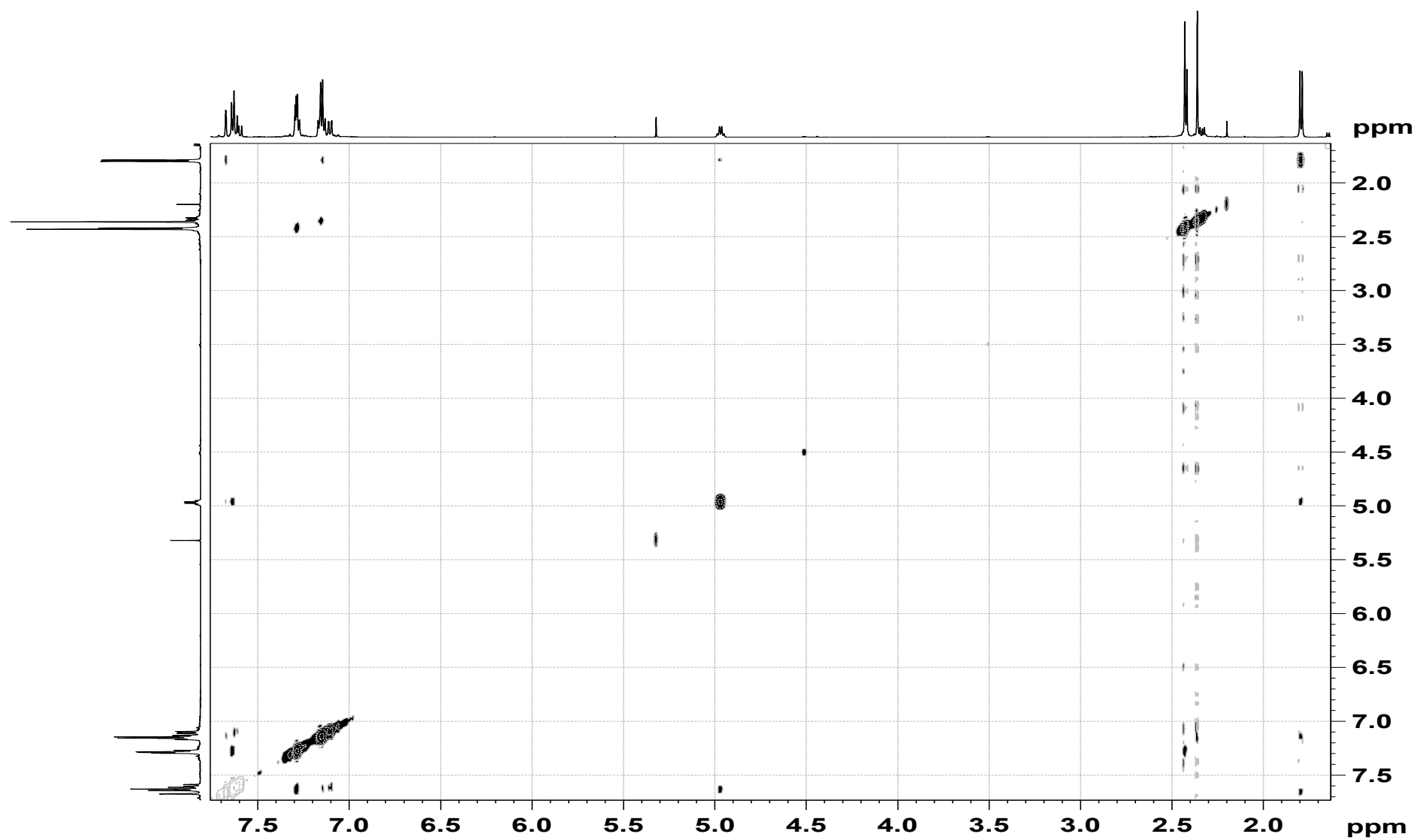
Figure S32. <sup>1</sup>H NMR spectrum of 6-chloro-2-(4-methylphenyl)-3-(1-(4-methylphenyl)ethyl)imidazo[1,2-a]pyridine (3h).



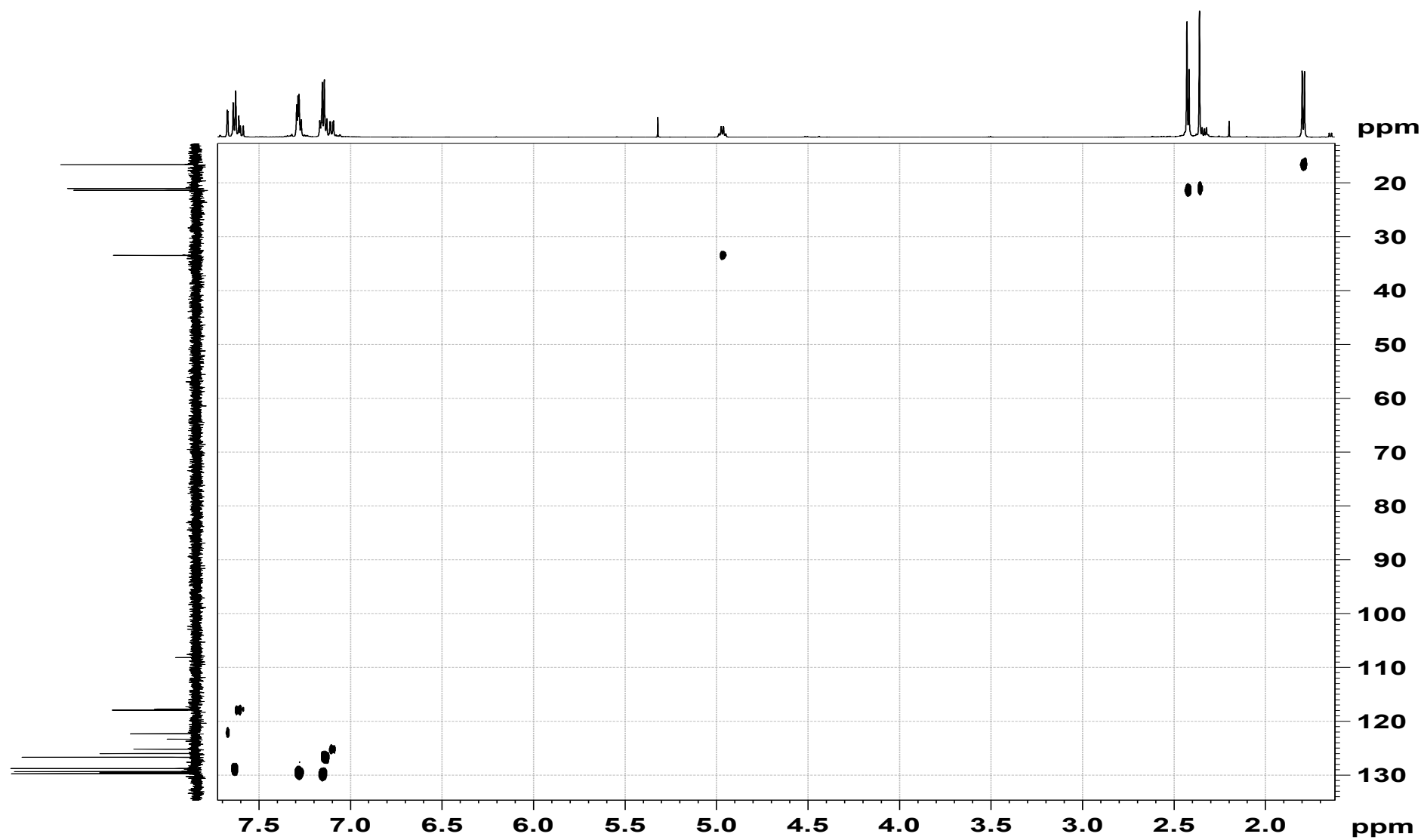
**Figure S33.** <sup>13</sup>C (down) and DEPT (up) NMR spectrum of 6-chloro-2-(4-methylphenyl)-3-(1-(4-methylphenyl)ethyl)imidazo[1,2-a]pyridine (**3h**).  
S35



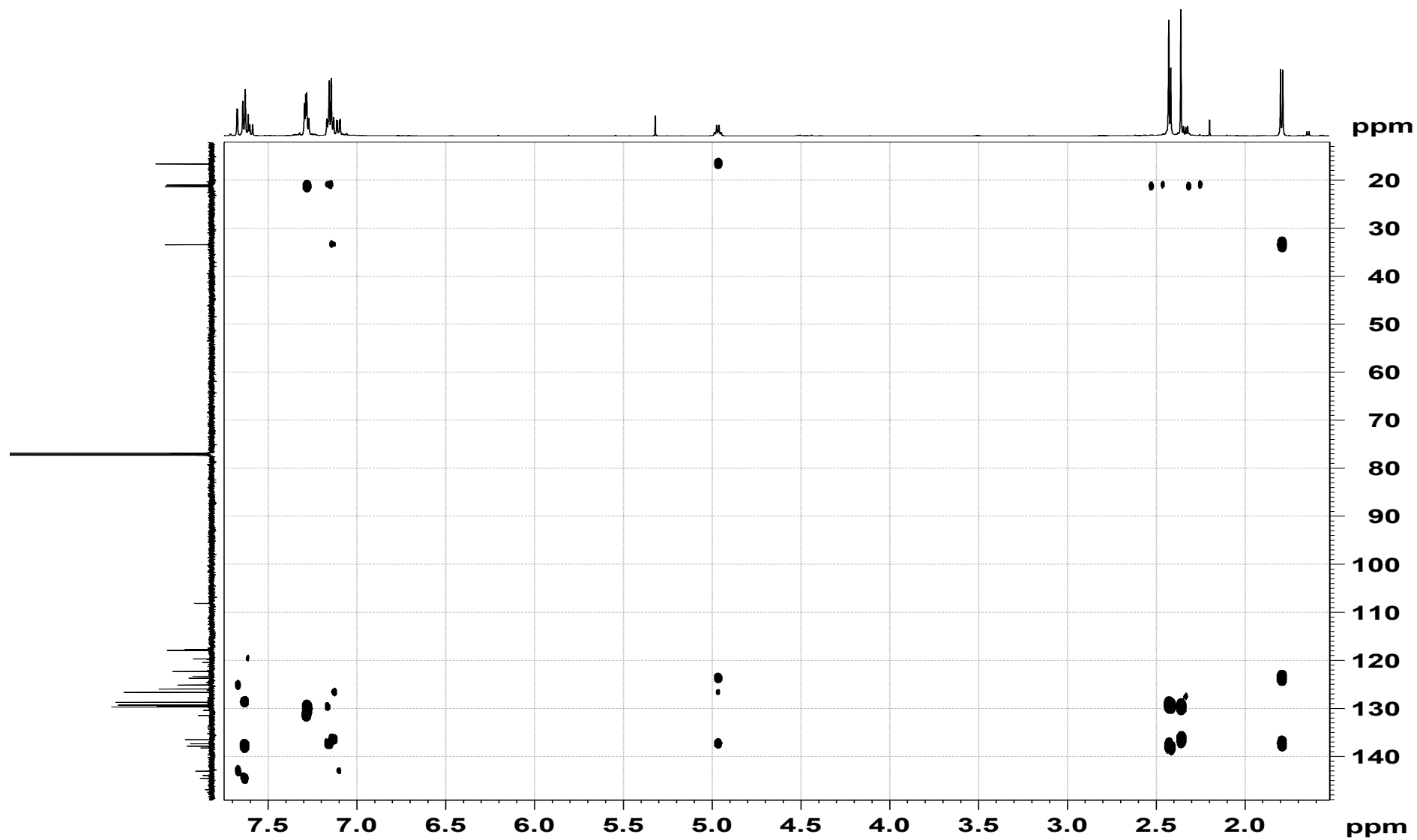
**Figure S34.** <sup>1</sup>H-<sup>1</sup>H COSY NMR spectrum of 6-chloro-2-(4-methylphenyl)-3-(1-(4-methylphenyl)ethyl)imidazo[1,2-a]pyridine (**3h**).  
S36



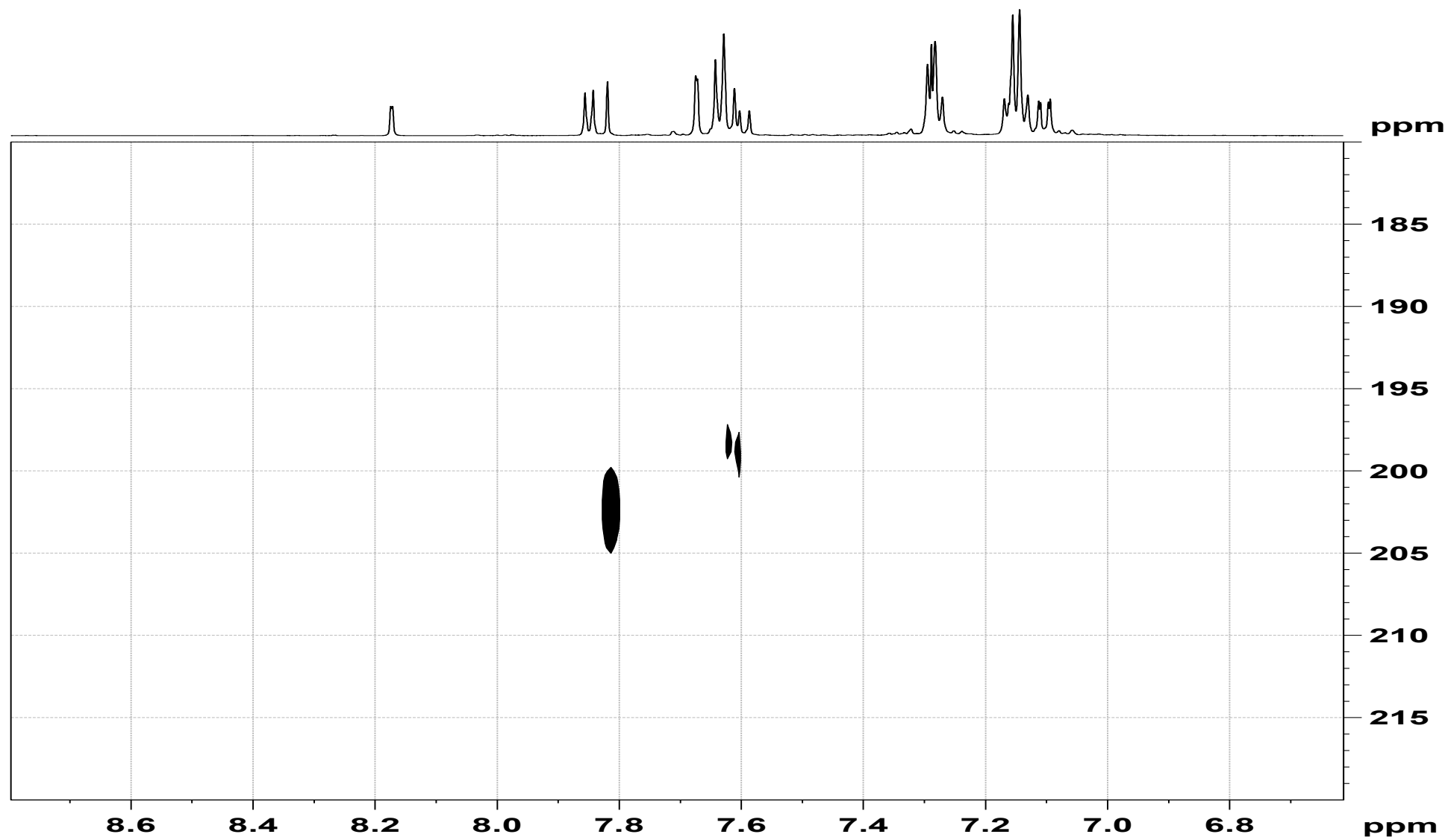
**Figure S35.** <sup>1</sup>H-<sup>1</sup>H NOESY NMR spectrum of 6-chloro-2-(4-methylphenyl)-3-(1-(4-methylphenyl)ethyl)imidazo[1,2-a]pyridine (**3h**).



**Figure S36.** <sup>1</sup>H-<sup>13</sup>C HSQC NMR spectrum 6-chloro-2-(4-methylphenyl)-3-(1-(4-methylphenyl)ethyl)imidazo[1,2-a]pyridine (**3h**).



**Figure S37.**  $^1\text{H}$ - $^{13}\text{C}$  HMBC NMR spectrum of 6-chloro-2-(4-methylphenyl)-3-(1-(4-methylphenyl)ethyl)imidazo[1,2-a]pyridine (**3h**).  
S39



**Figure S38.**  $^1\text{H}$ - $^{15}\text{N}$  HMBC NMR spectrum of 6-chloro-2-(4-methylphenyl)-3-(1-(4-methylphenyl)ethyl)imidazo[1,2-a]pyridine (**3h**).  
S40



VII) NMR spectra of 6-methyl-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (3i)

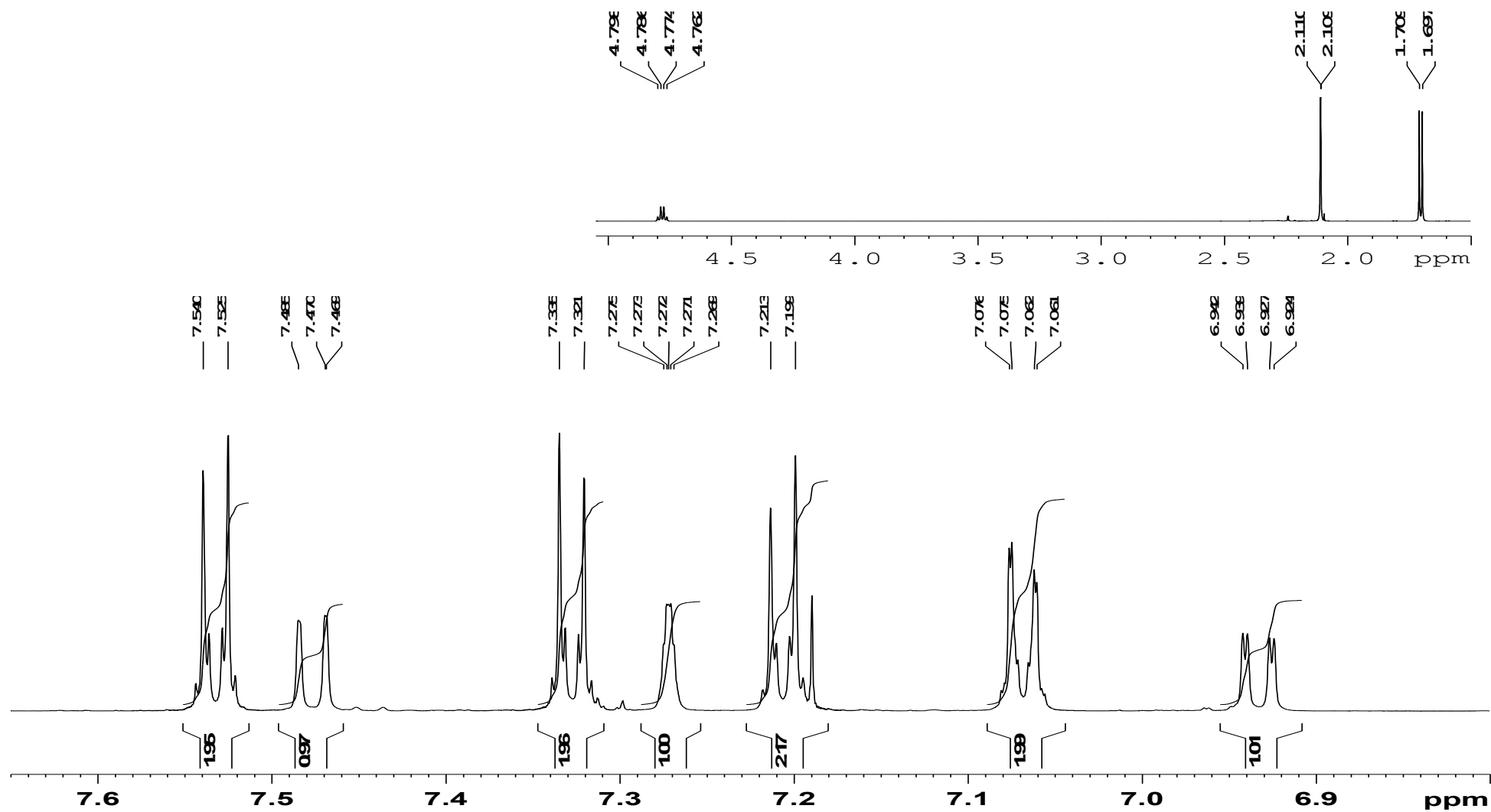
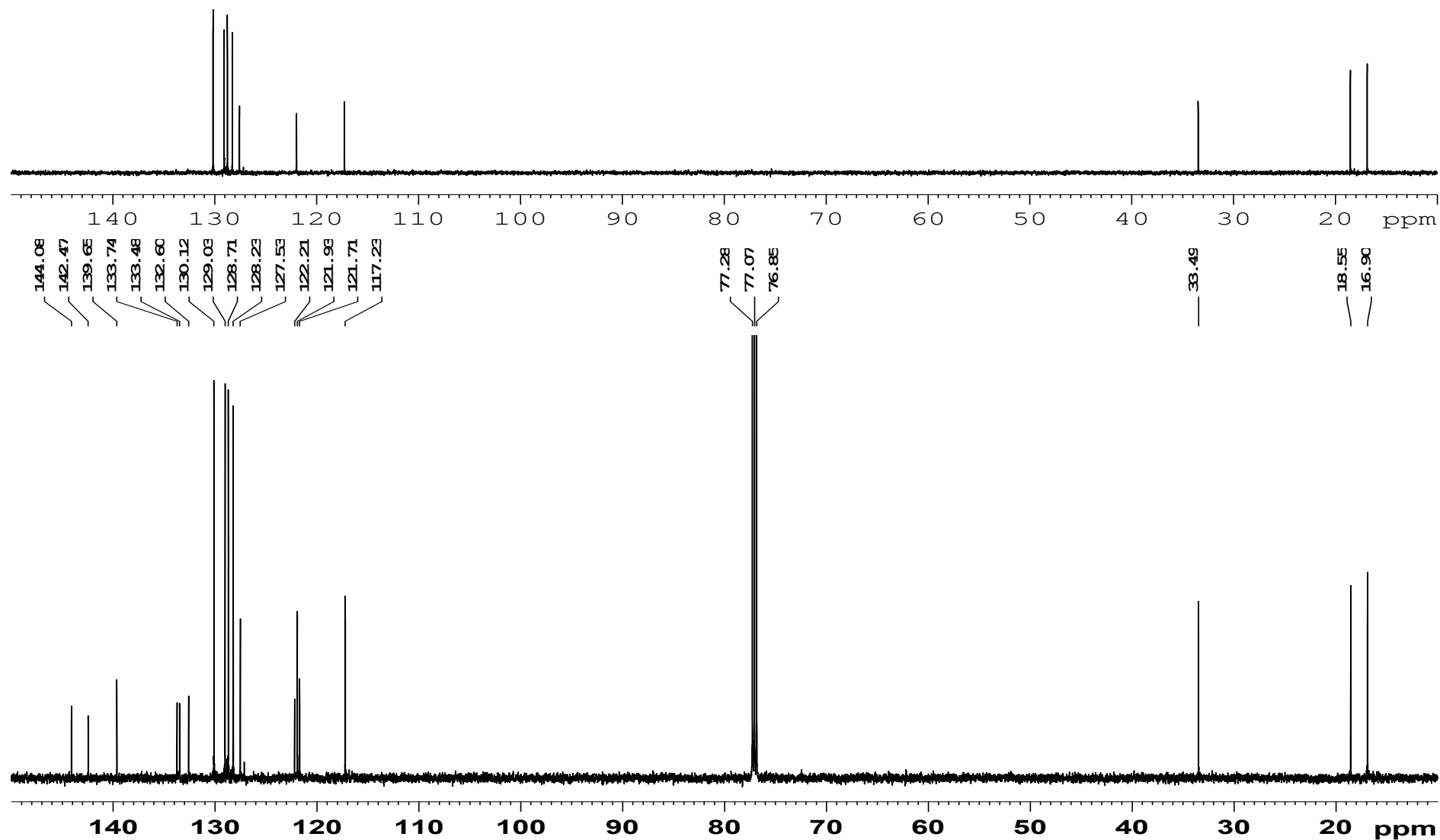
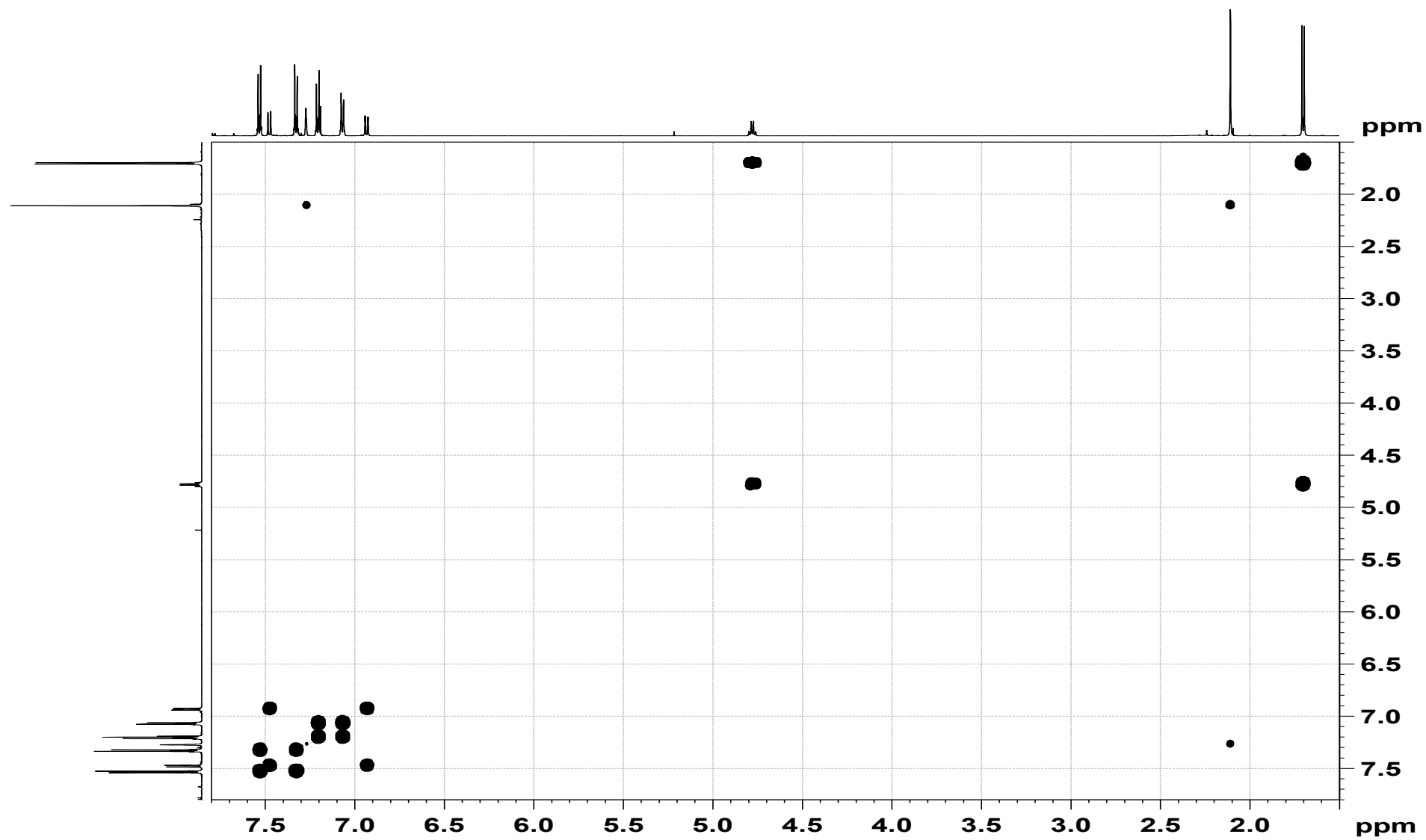


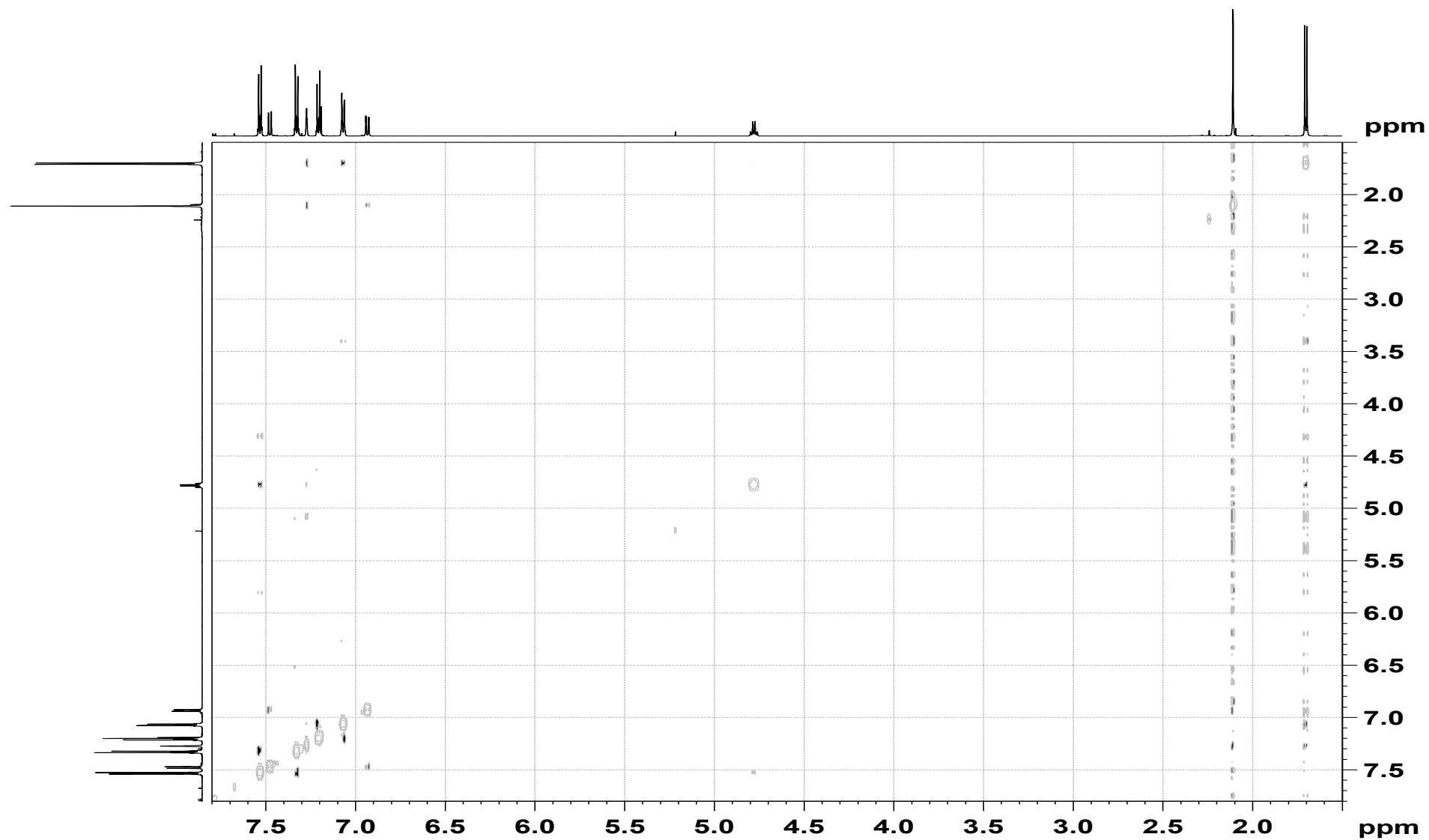
Figure S39. <sup>1</sup>H NMR spectrum of 6-methyl-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (3i).



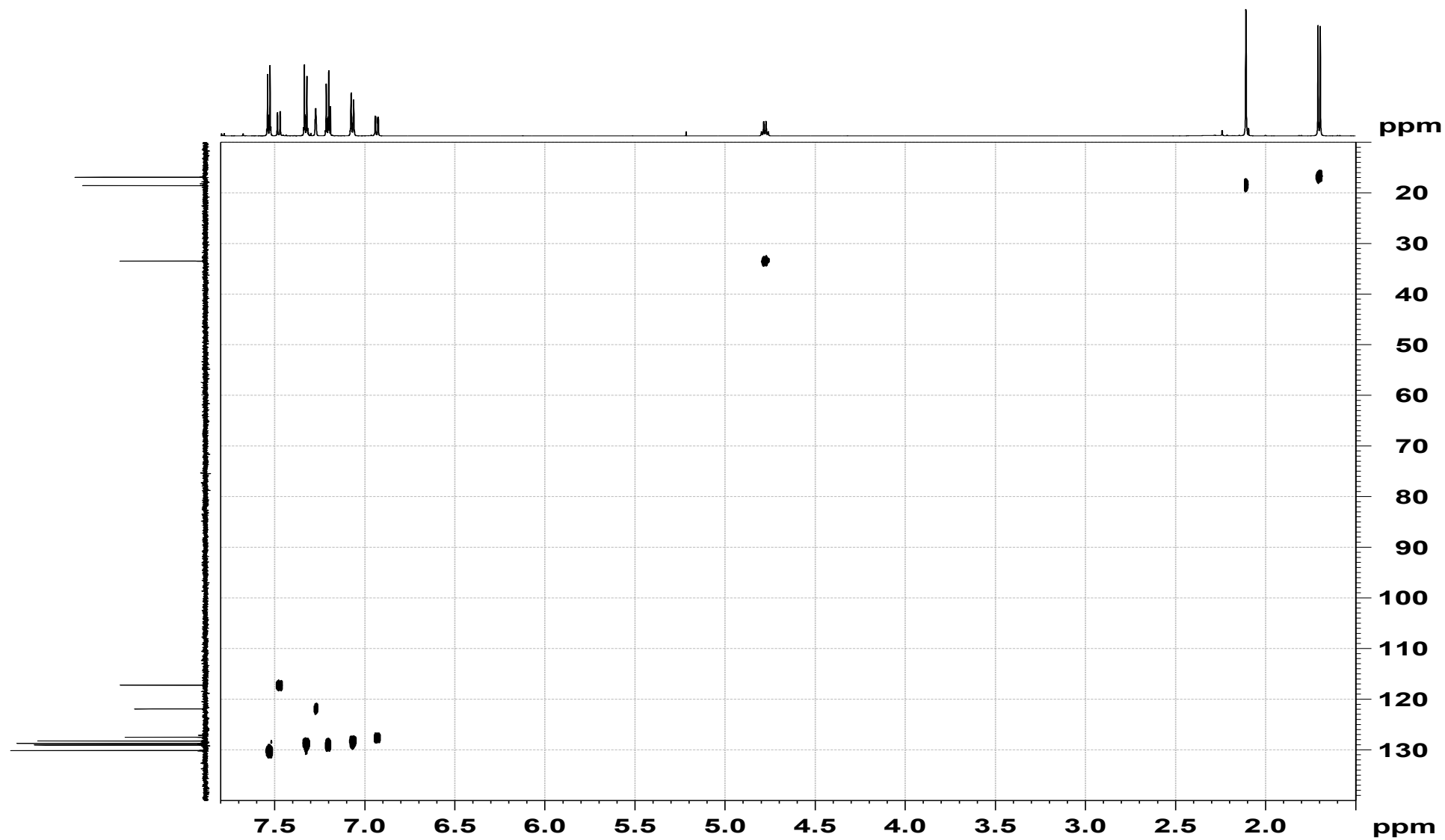
**Figure S40.** <sup>13</sup>C (down) and DEPT (up) NMR spectrum of 6-methyl-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (**3i**).



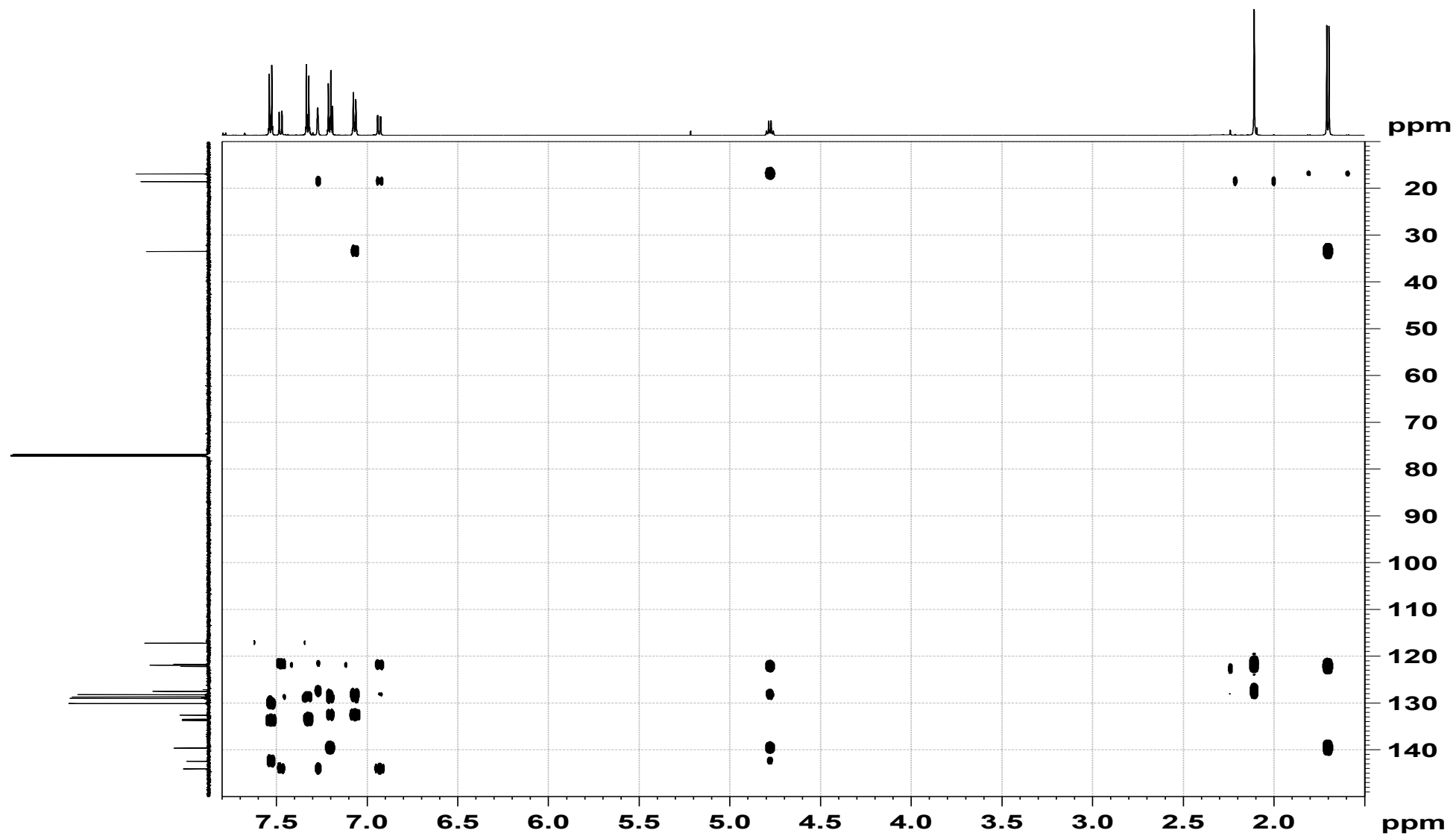
**Figure S41.** <sup>1</sup>H-<sup>1</sup>H COSY NMR spectrum of 6-methyl-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (**3i**).  
S43



**Figure S42.** <sup>1</sup>H-<sup>1</sup>H NOESY NMR spectrum of 6-methyl-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (**3i**).



**Figure S43.**  $^1\text{H}$ - $^{13}\text{C}$  HSQC NMR spectrum 6-methyl-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (**3i**).  
S45



**Figure S44.**  $^1\text{H}$ - $^{13}\text{C}$  HMBC NMR spectrum of 6-methyl-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (**3i**).  
S46

VIII) NMR spectra of 6-chloro-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (**3j**)

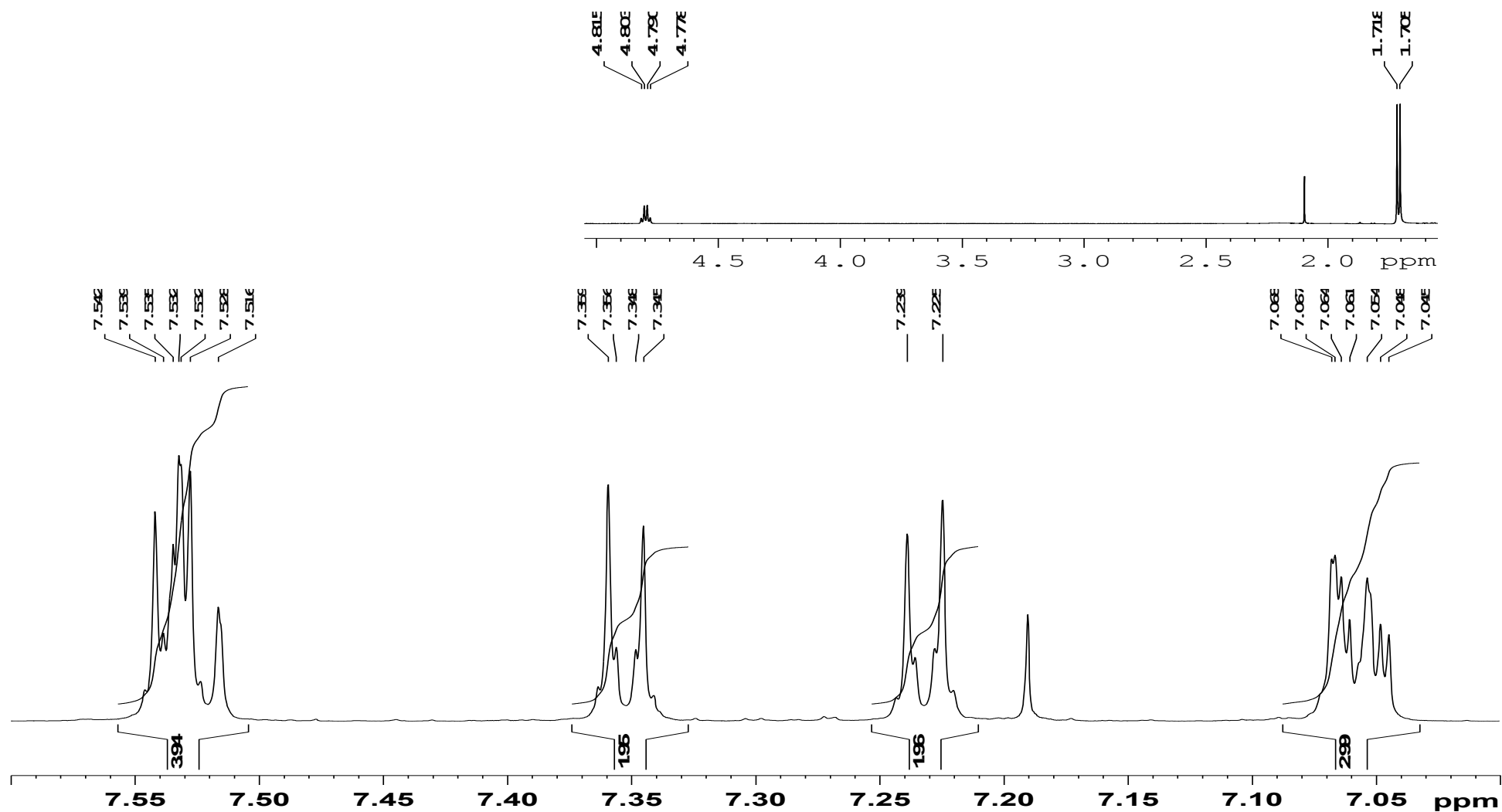
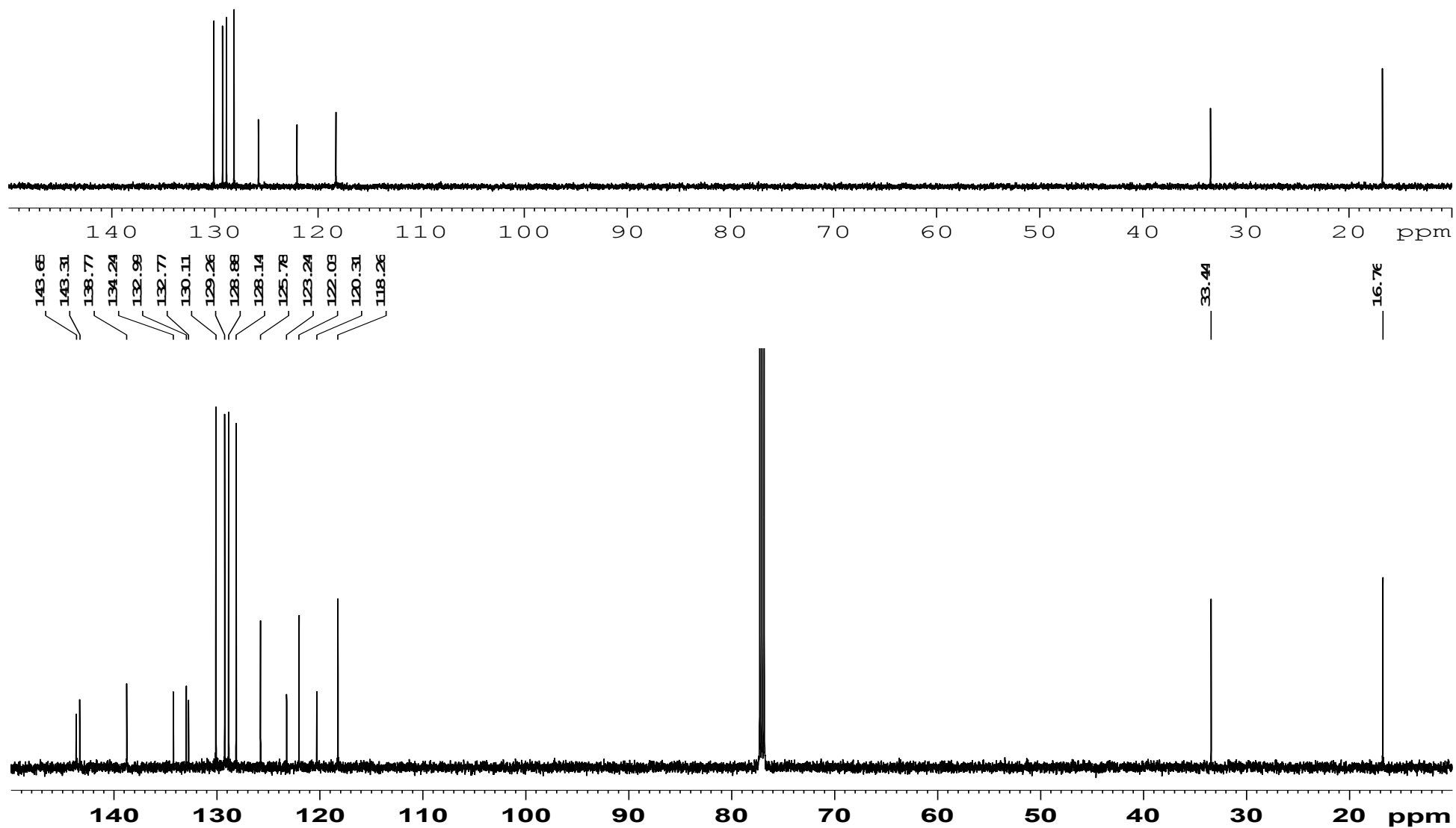
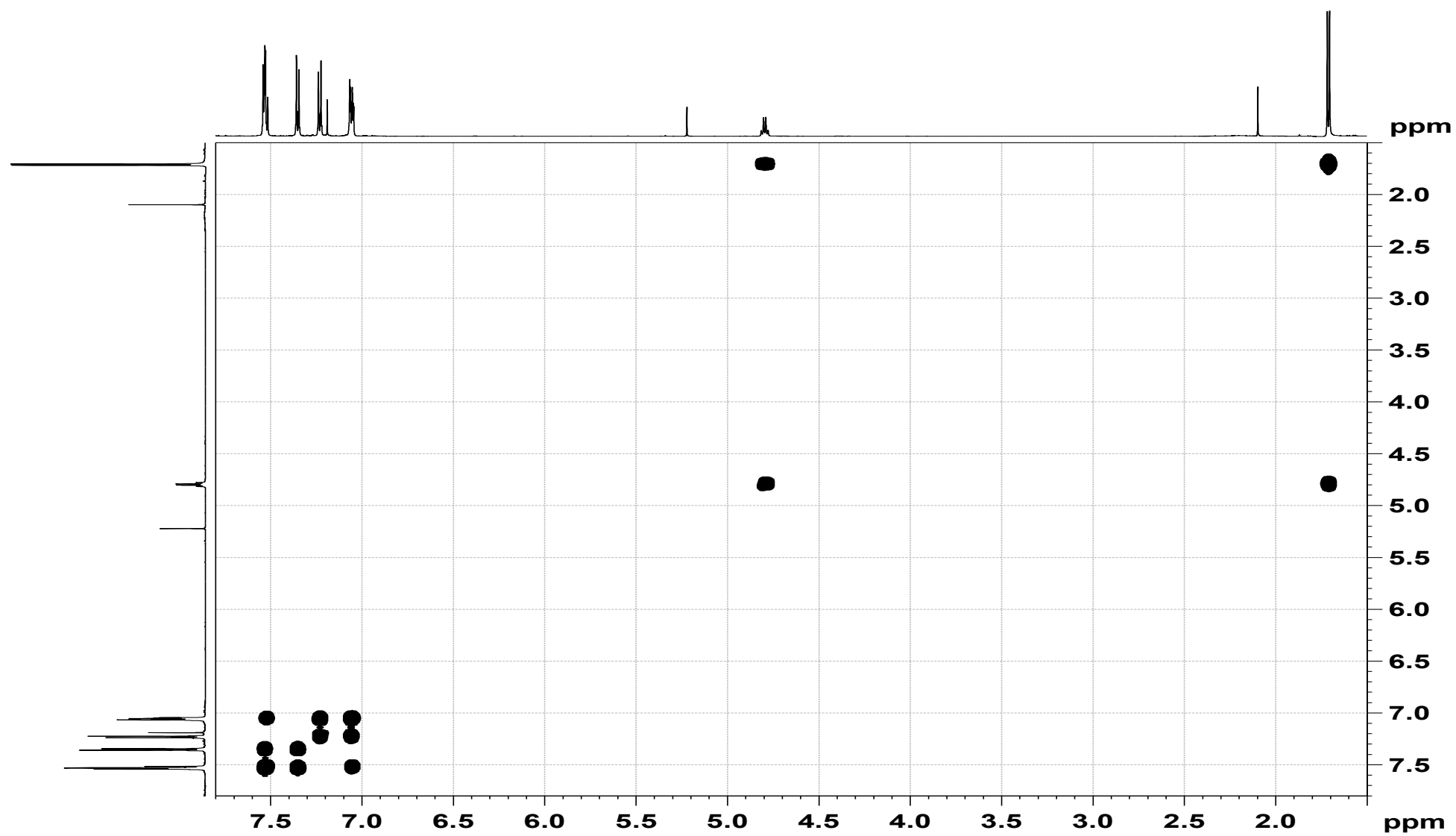


Figure S45. <sup>1</sup>H NMR spectrum of 6-chloro-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (**3j**).

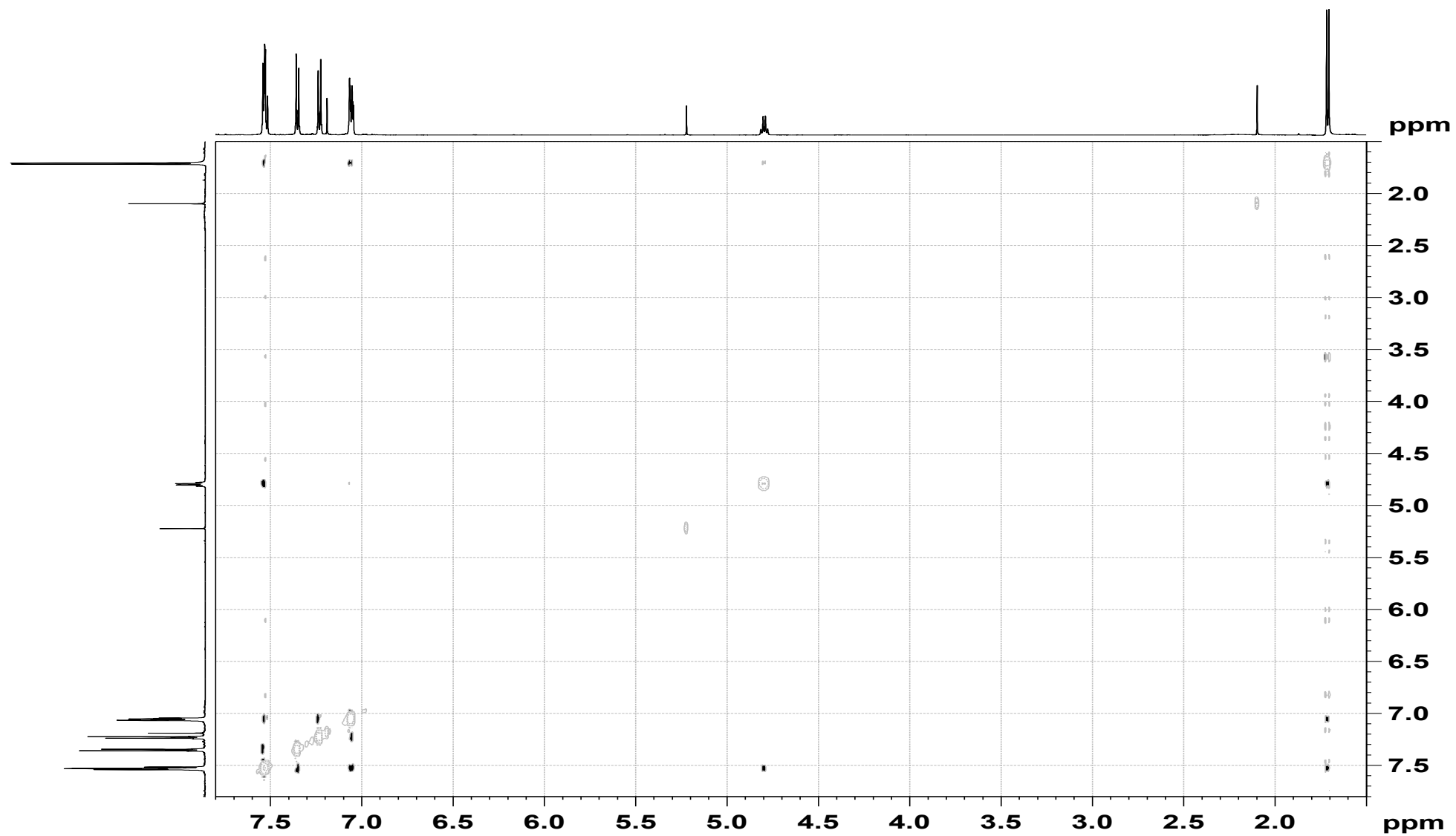


**Figure S46.** <sup>13</sup>C (down) and DEPT (up) NMR spectrum of 6-chloro-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (**3j**).

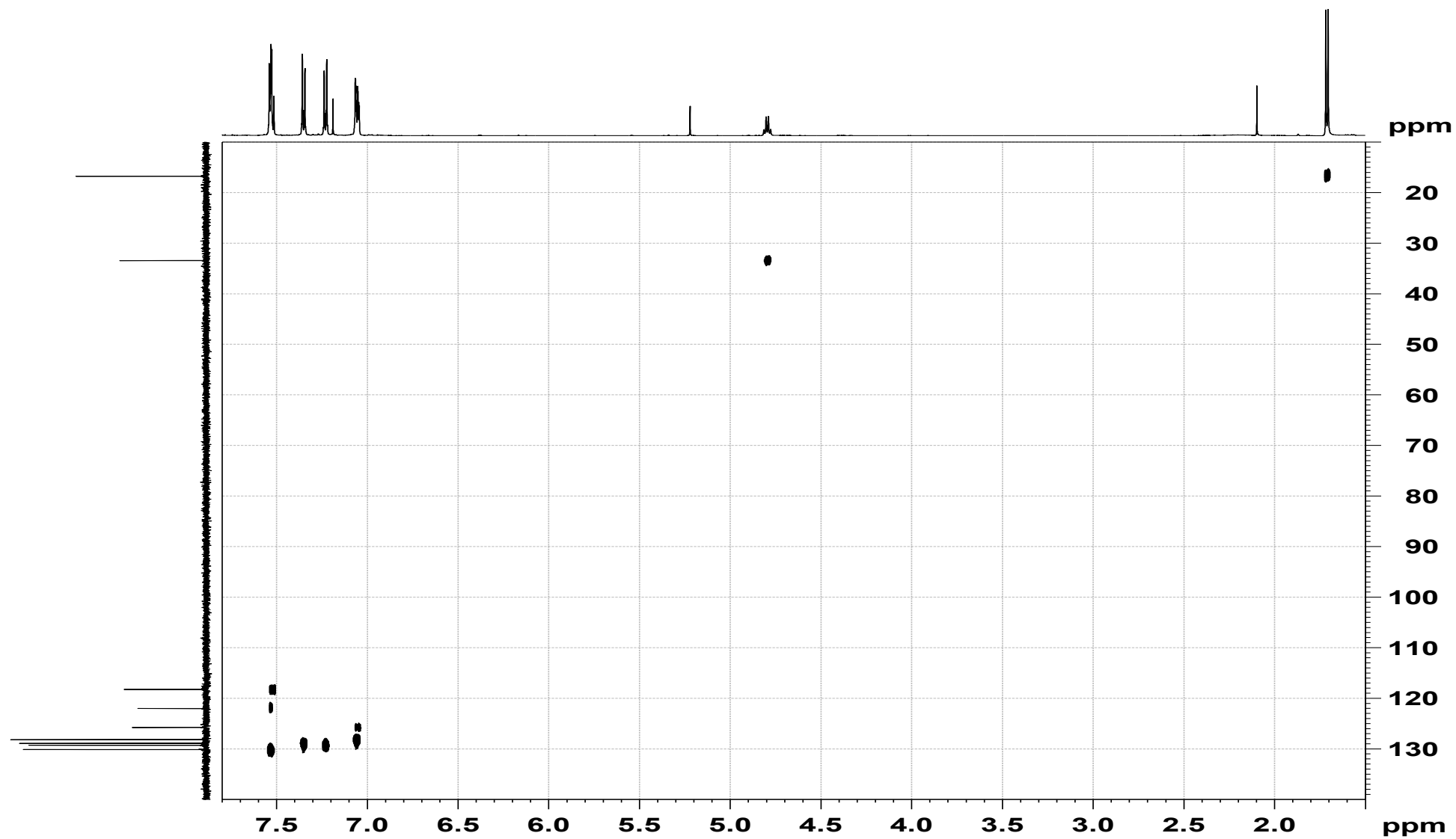




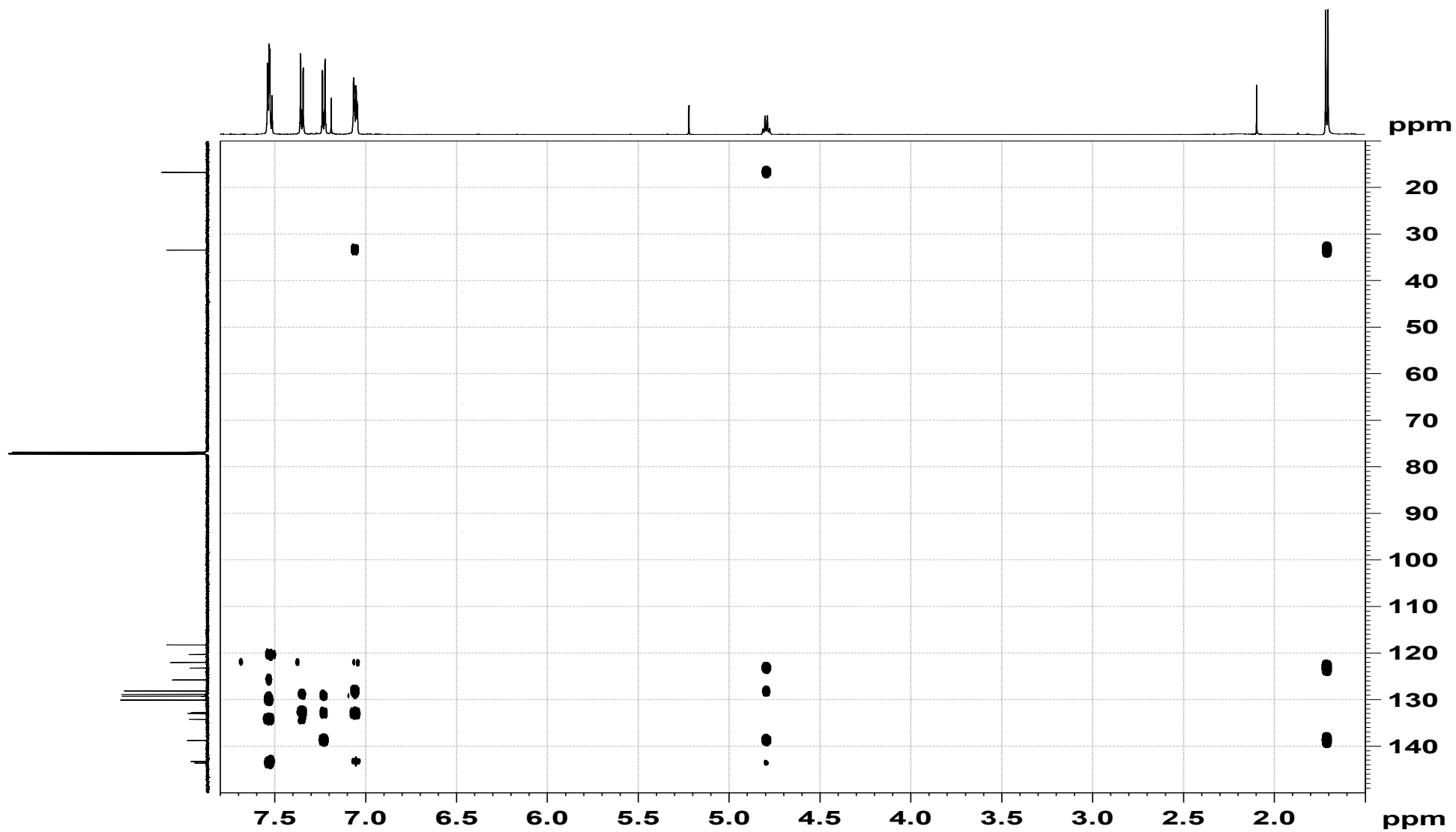
**Figure S47.** <sup>1</sup>H-<sup>1</sup>H COSY NMR spectrum of 6-chloro-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (**3j**).



**Figure S48.** <sup>1</sup>H-<sup>1</sup>H NOESY NMR spectrum of 6-chloro-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (**3j**).



**Figure S49.**  $^1\text{H}$ - $^{13}\text{C}$  HSQC NMR spectrum 6-chloro-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (**3j**).  
S51



**Figure S50.**  $^1\text{H}$ - $^{13}\text{C}$  HMBC NMR spectrum of 6-chloro-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)ethyl)imidazo[1,2-a]pyridine (**3j**).

### IX) NMR spectra of 6-methyl-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridin (4b)

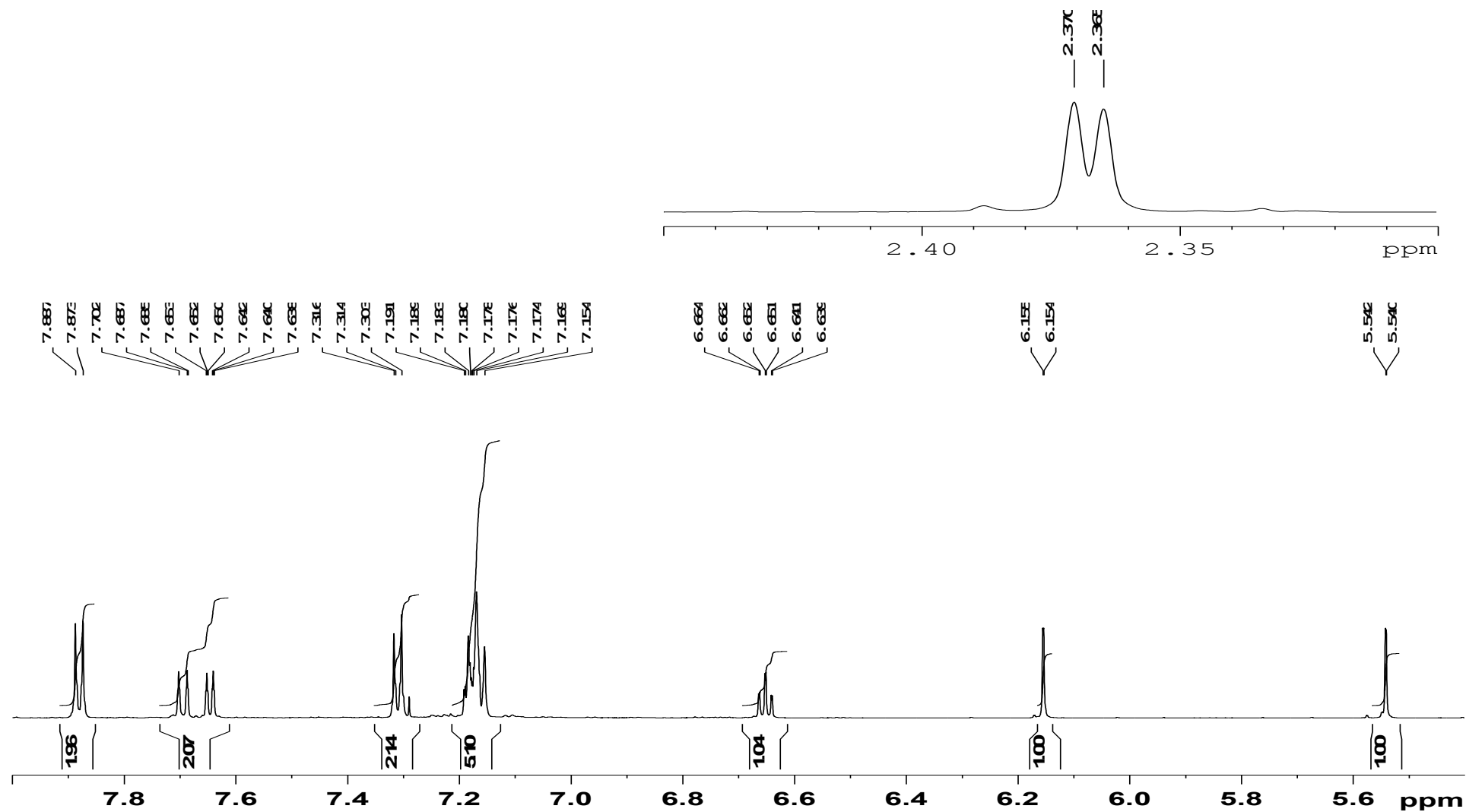


Figure S51. <sup>1</sup>H NMR spectrum of 6-methyl-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (4b).

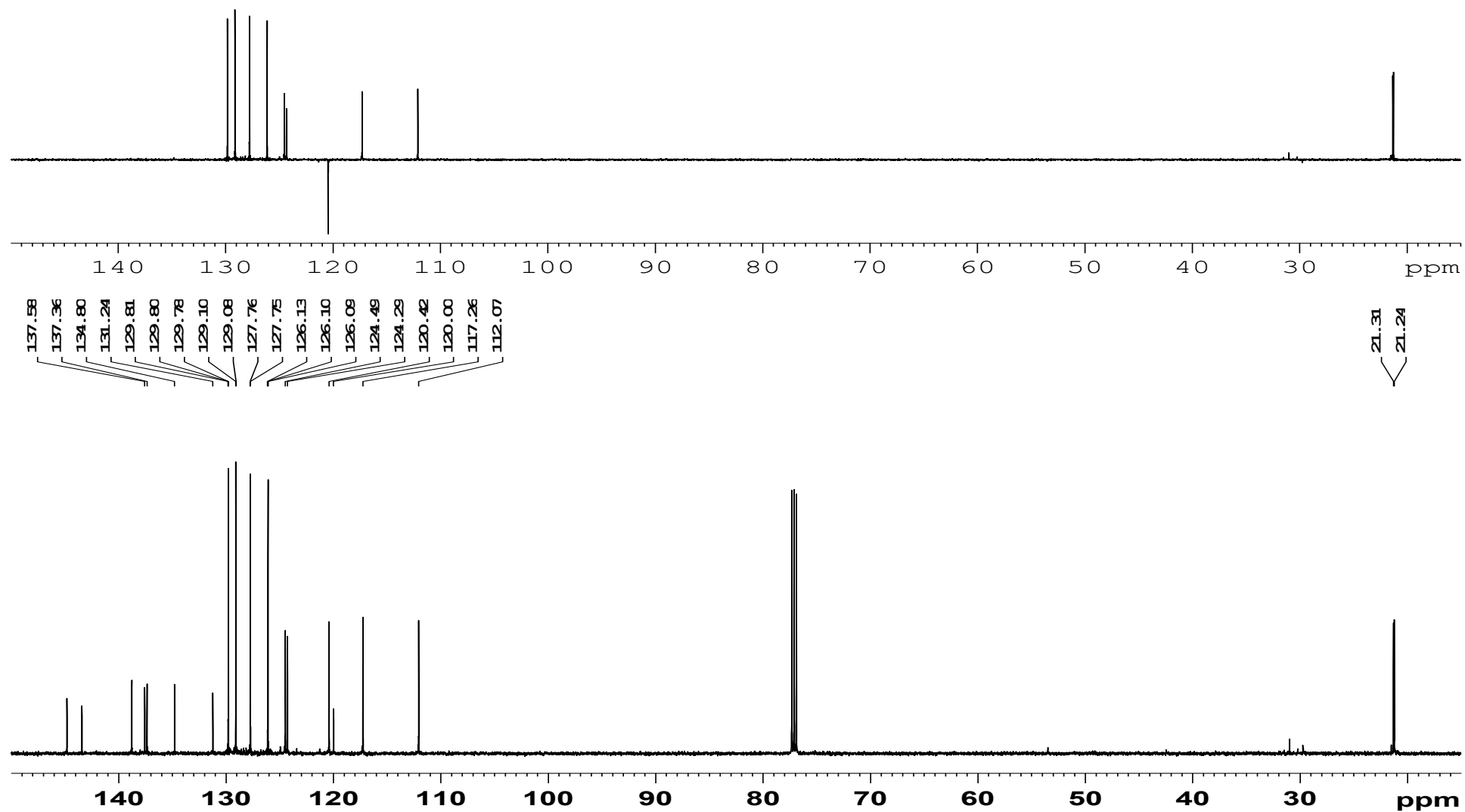
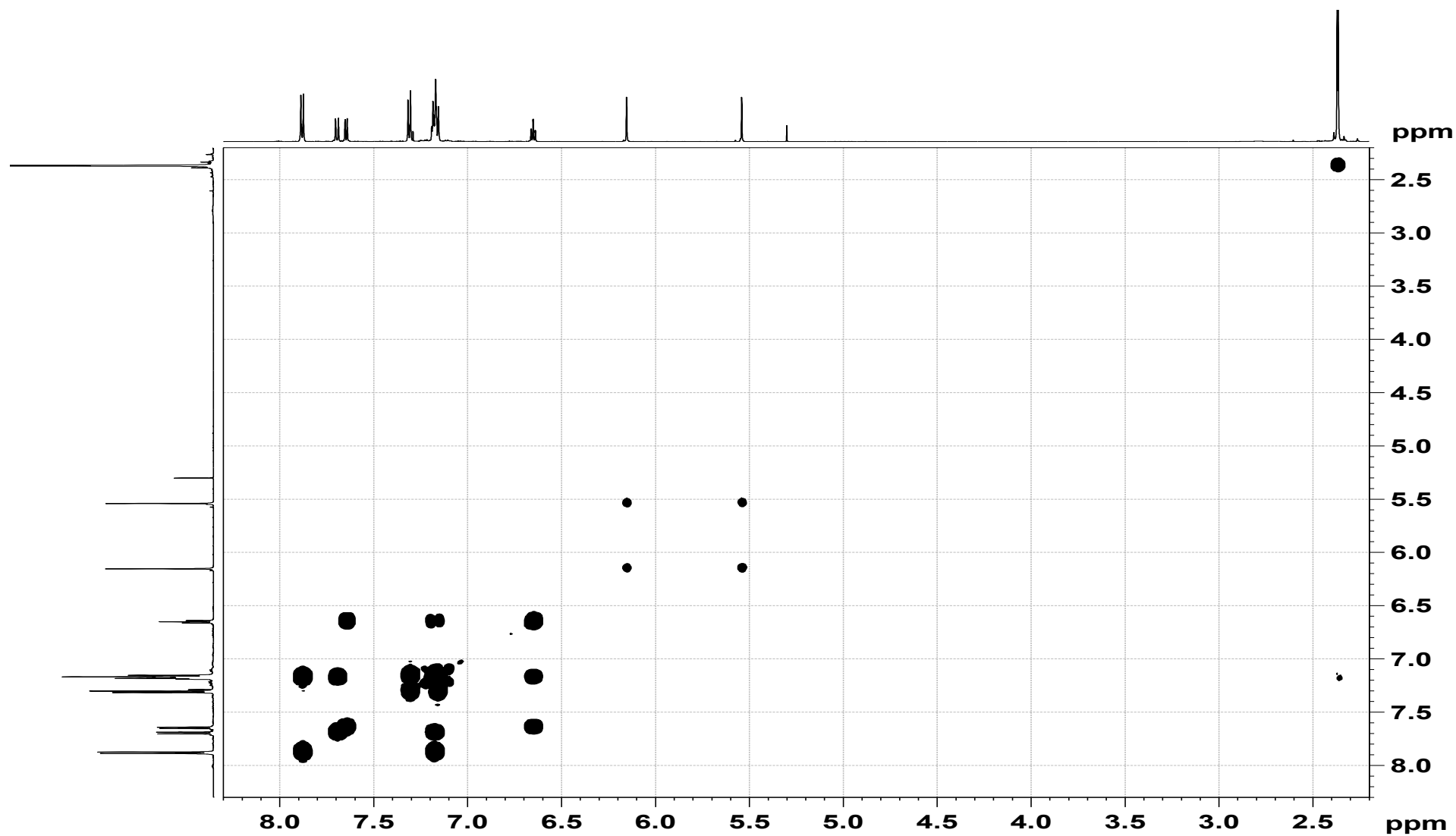
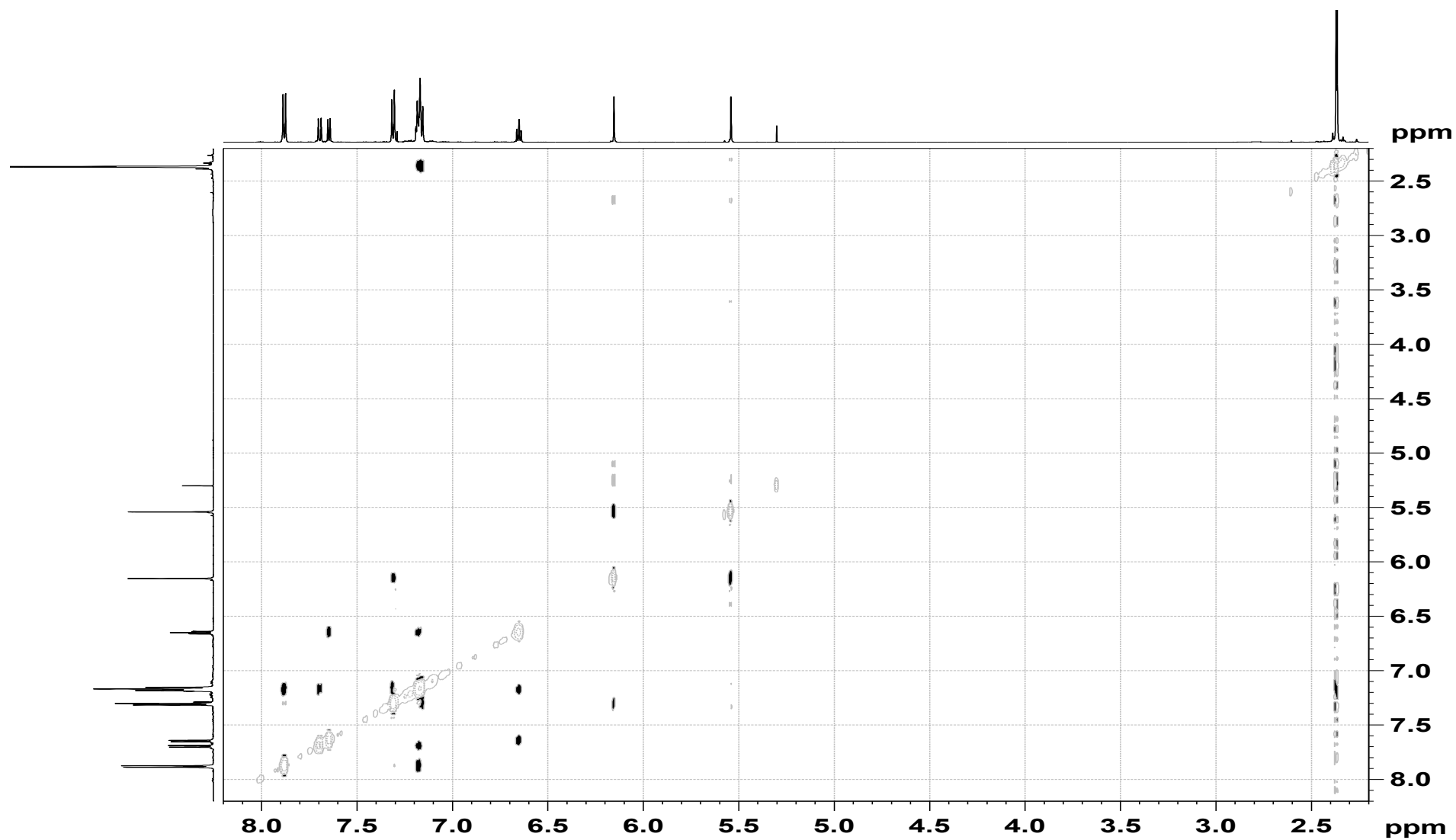


Figure S52. <sup>13</sup>C (down) and DEPT (up) NMR spectra of 6-methyl-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4b**).

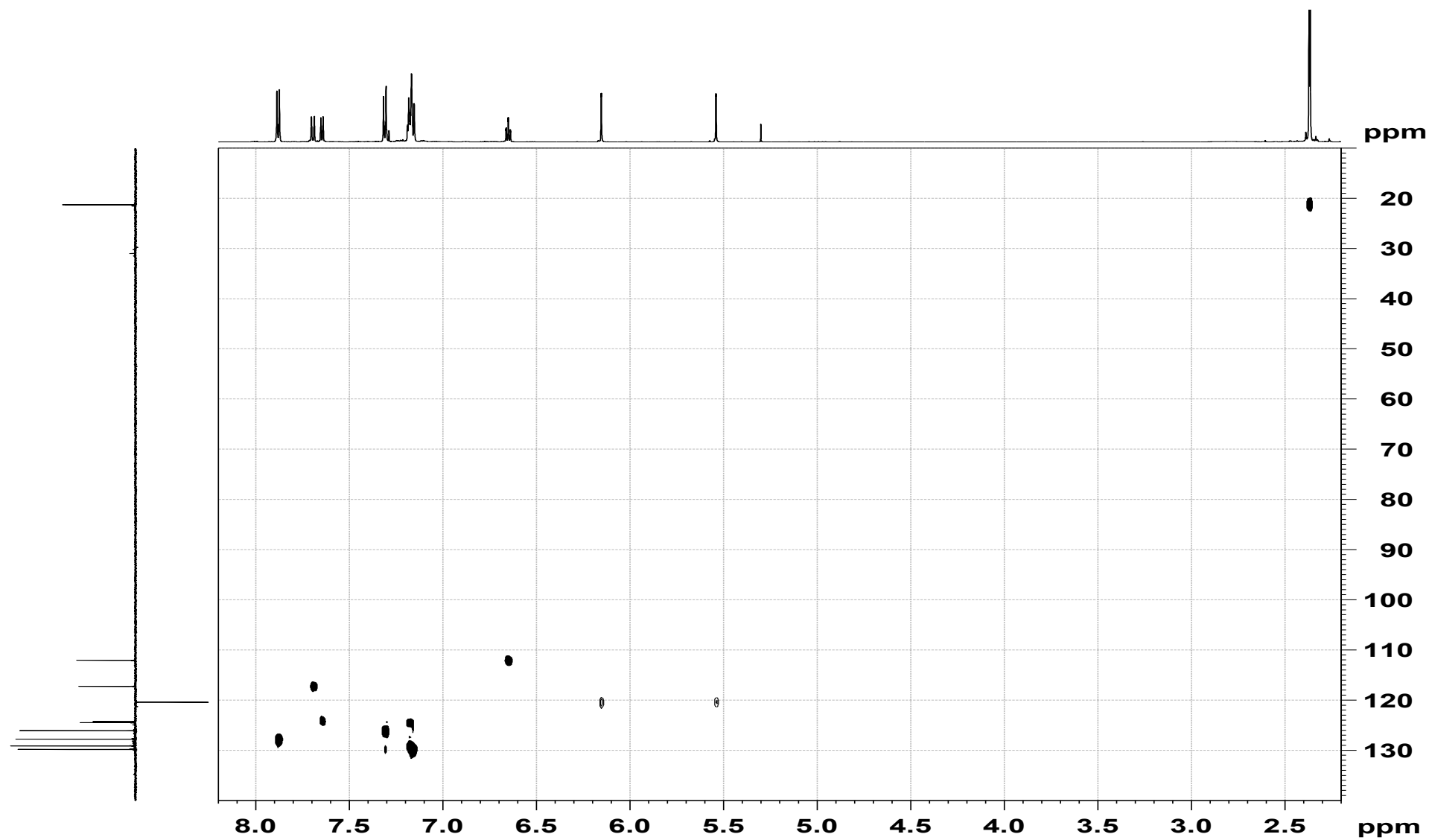


**Figure S53.** <sup>1</sup>H-<sup>1</sup>H COSY NMR spectrum of 6-methyl-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4b**).

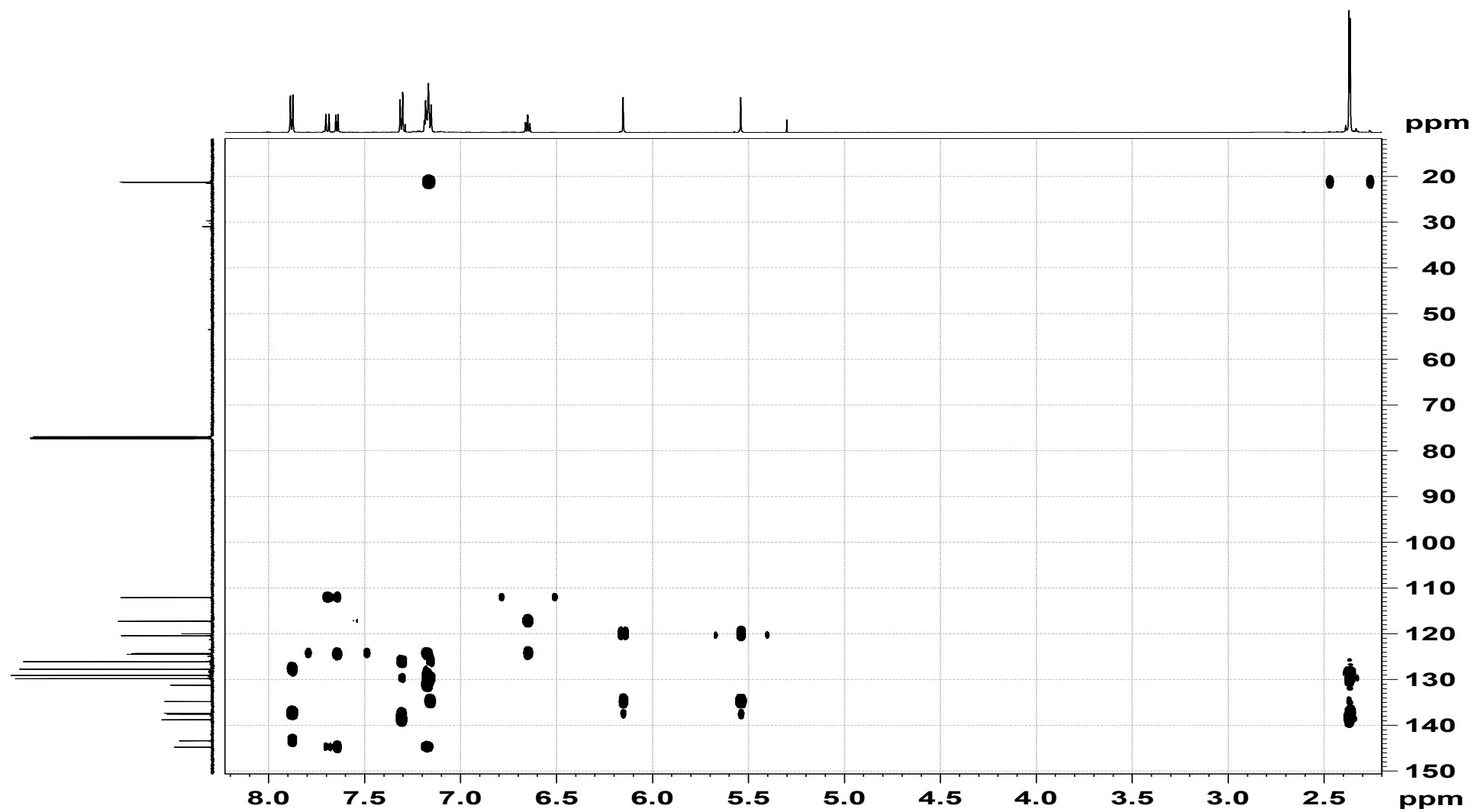


**Figure S54.**  $^1\text{H}$ - $^1\text{H}$  NOESY NMR spectrum of 6-methyl-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4b**).





**Figure S55.**  $^1\text{H}$ - $^{13}\text{C}$  HSQC NMR spectrum of 6-methyl-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4b**).



**Figure S56.**  $^1\text{H}$ - $^{13}\text{C}$  HMBC NMR spectrum of 6-methyl-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4b**).

X) NMR spectra of 2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (4c)

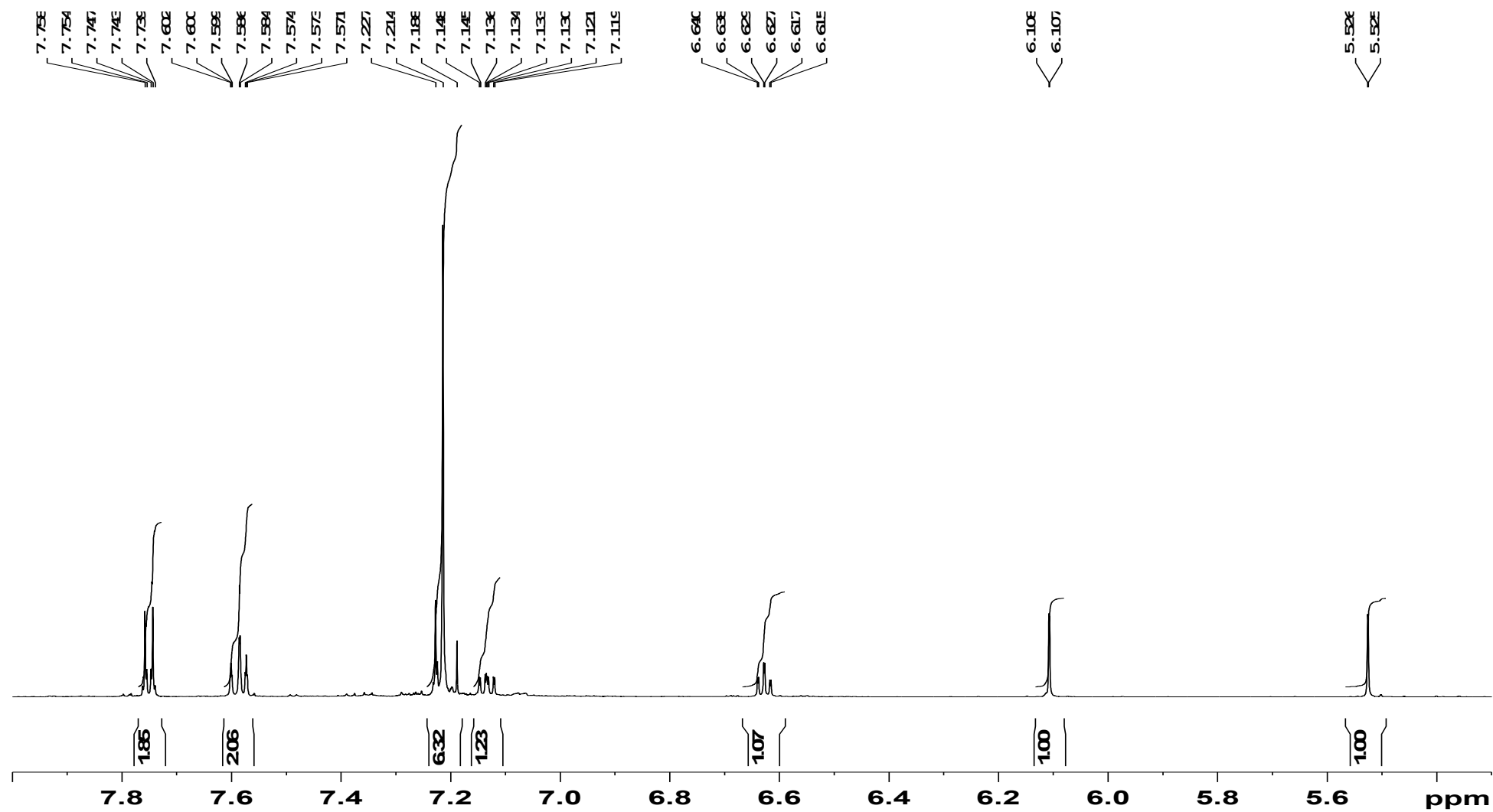
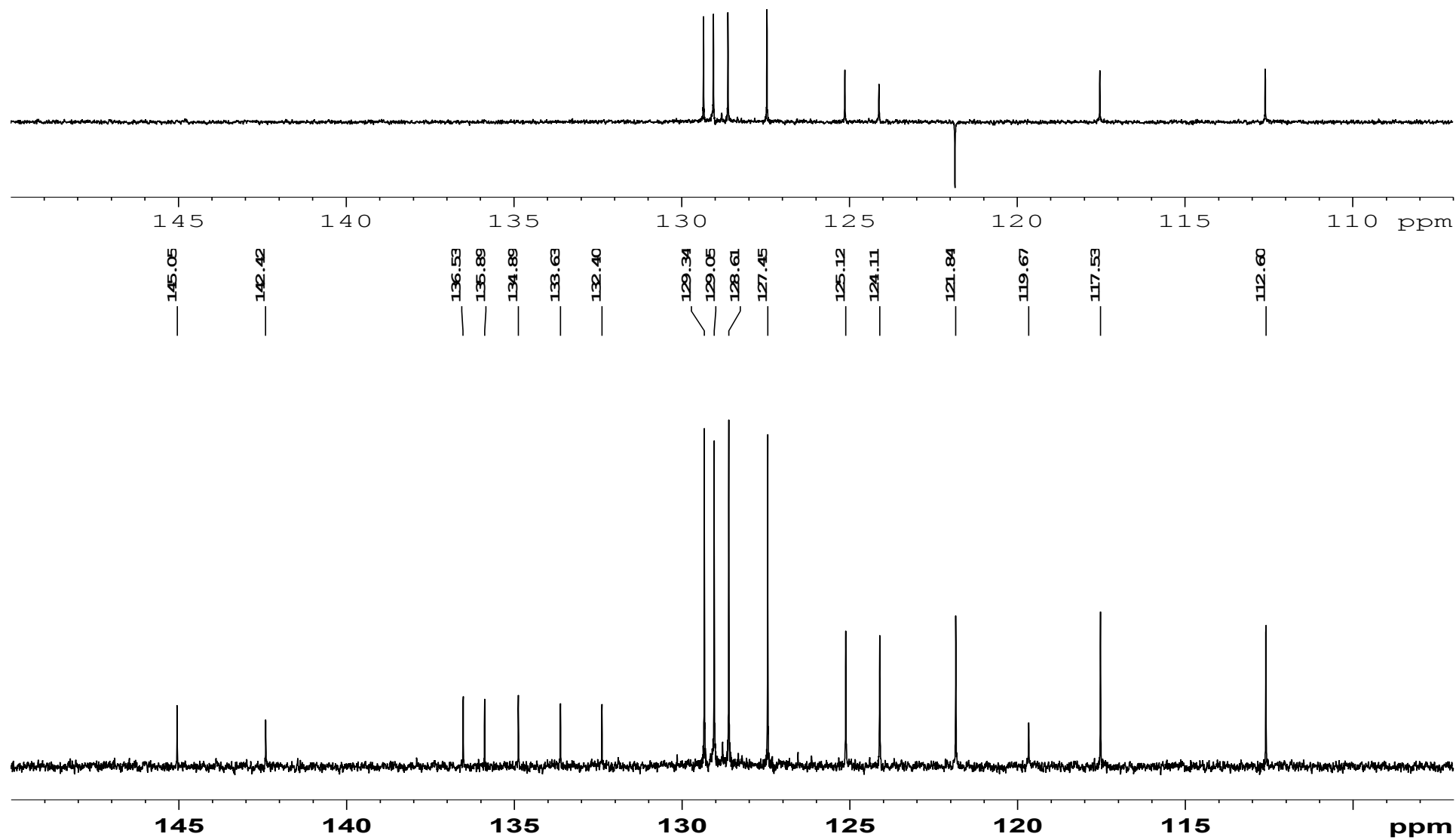
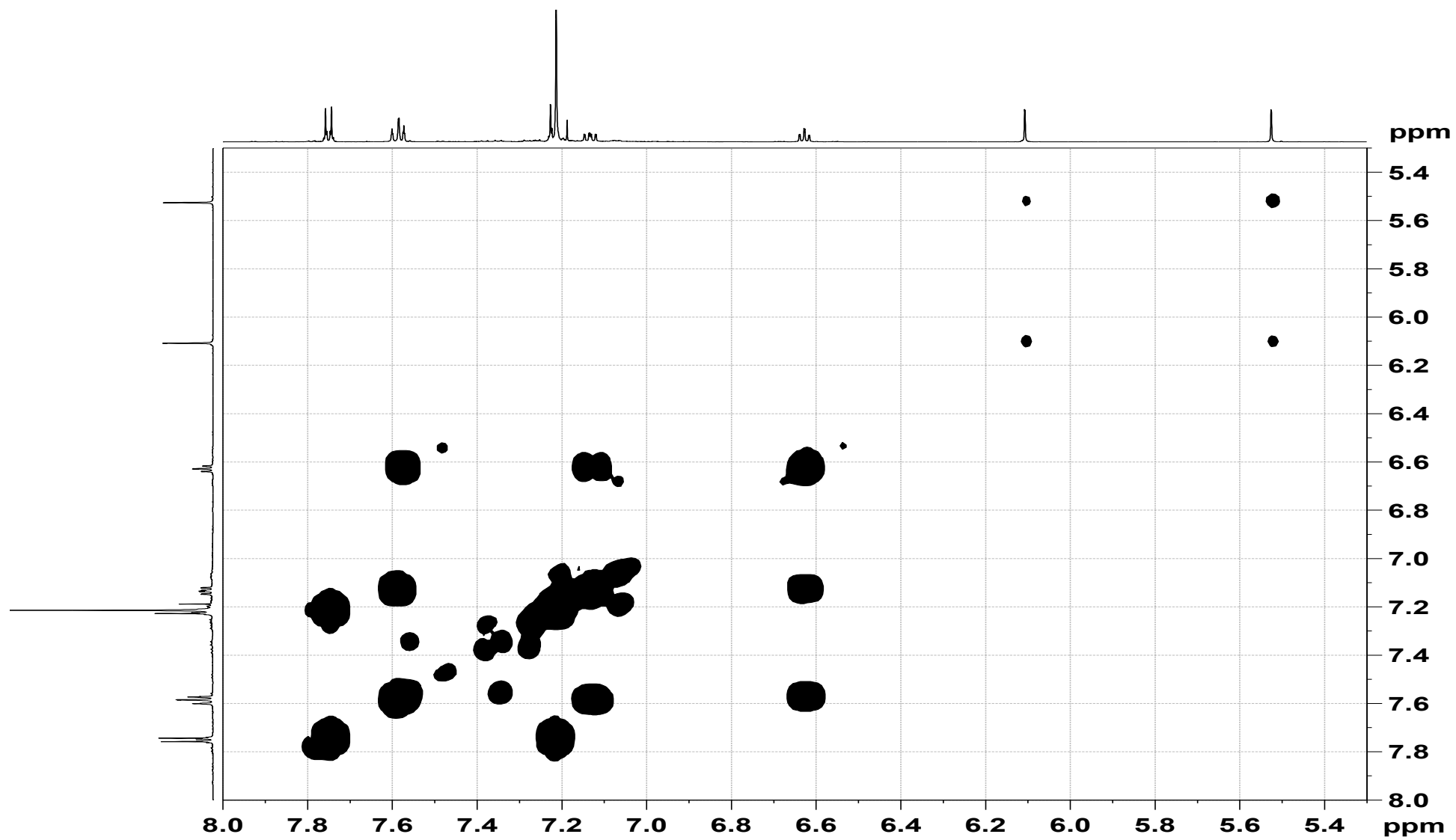


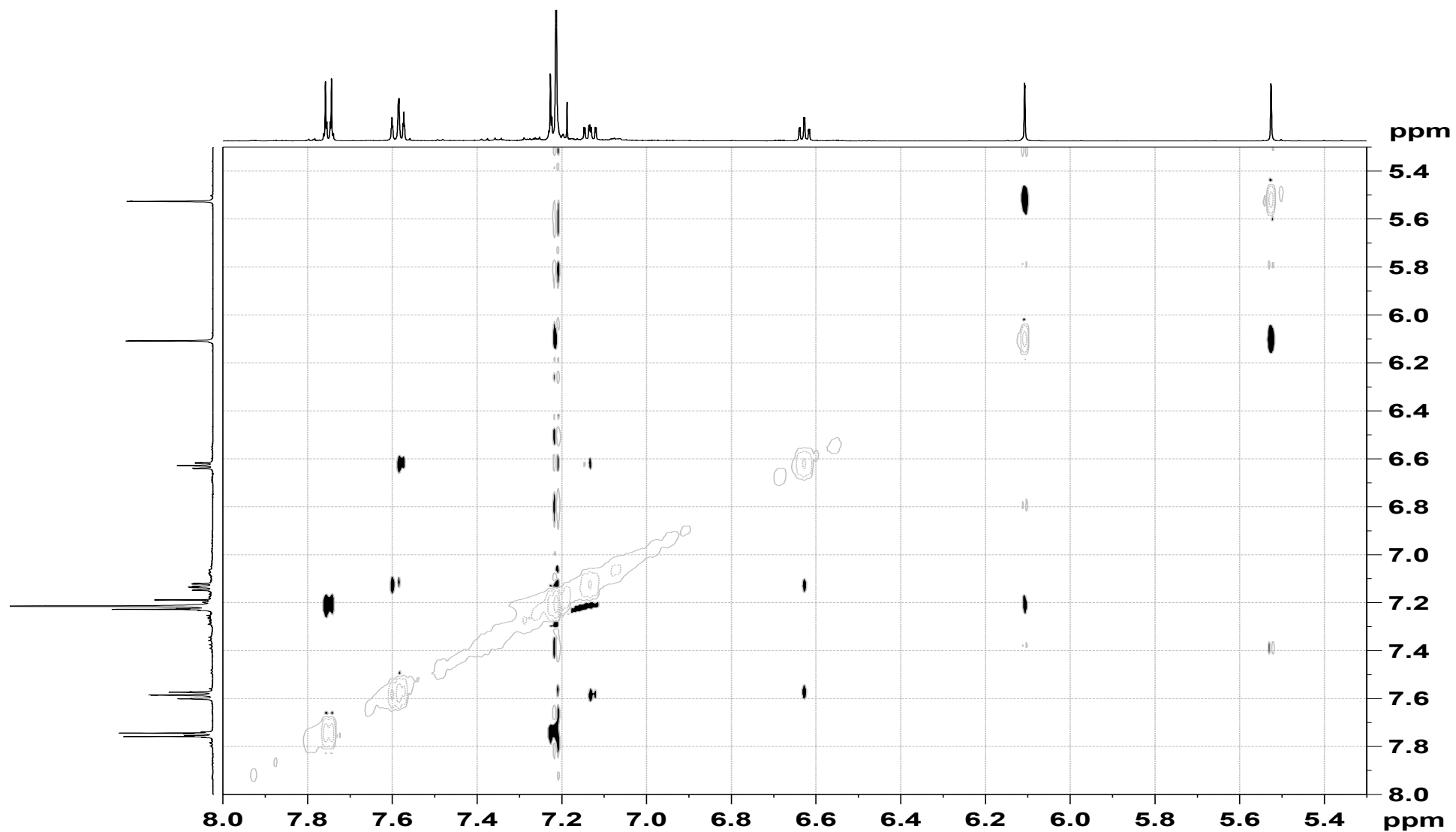
Figure S57. <sup>1</sup>H NMR spectrum of 2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (4c).



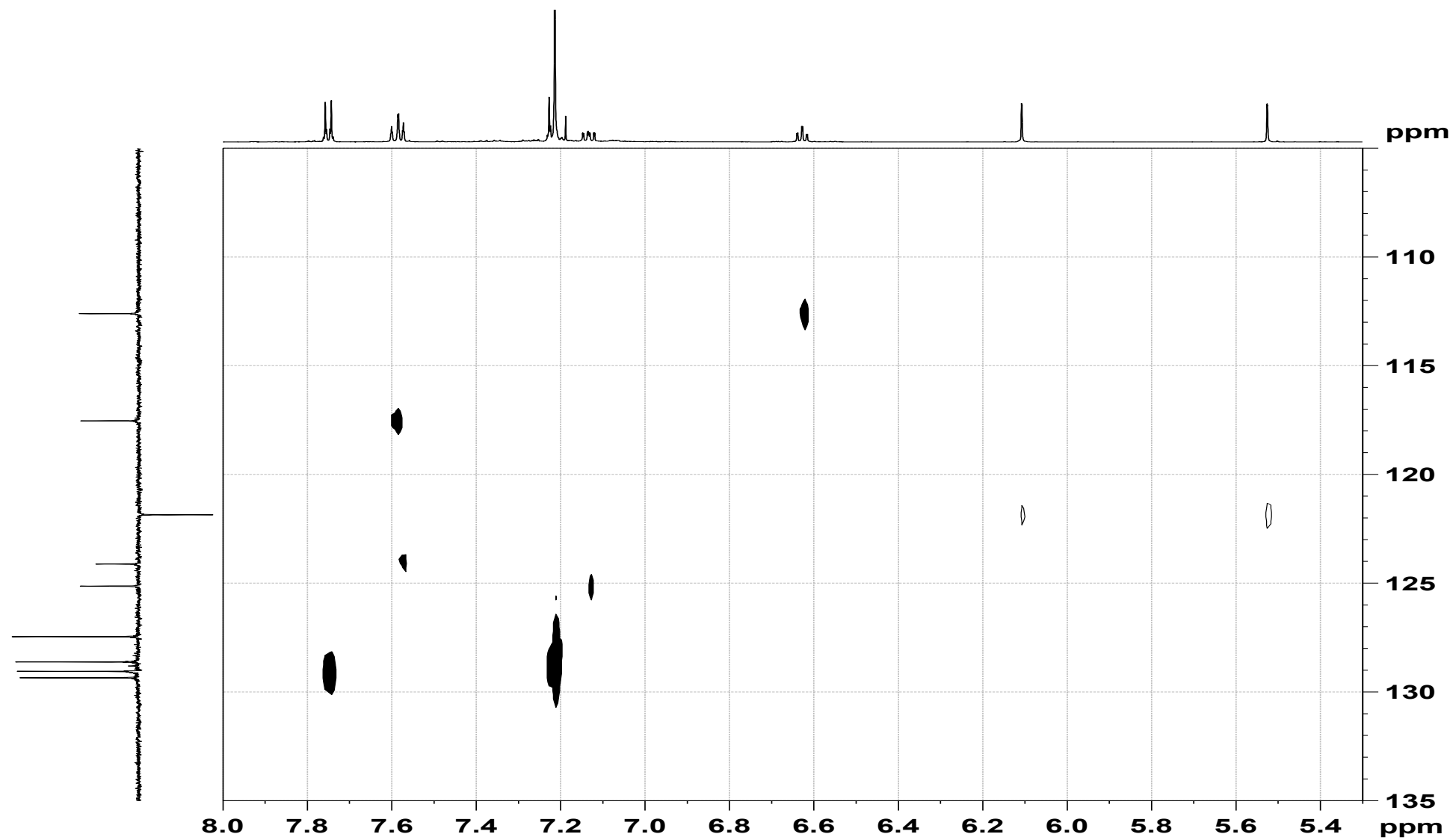
**Figure S58.** <sup>13</sup>C (down) and DEPT (up) NMR spectrum of 2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (**4c**).



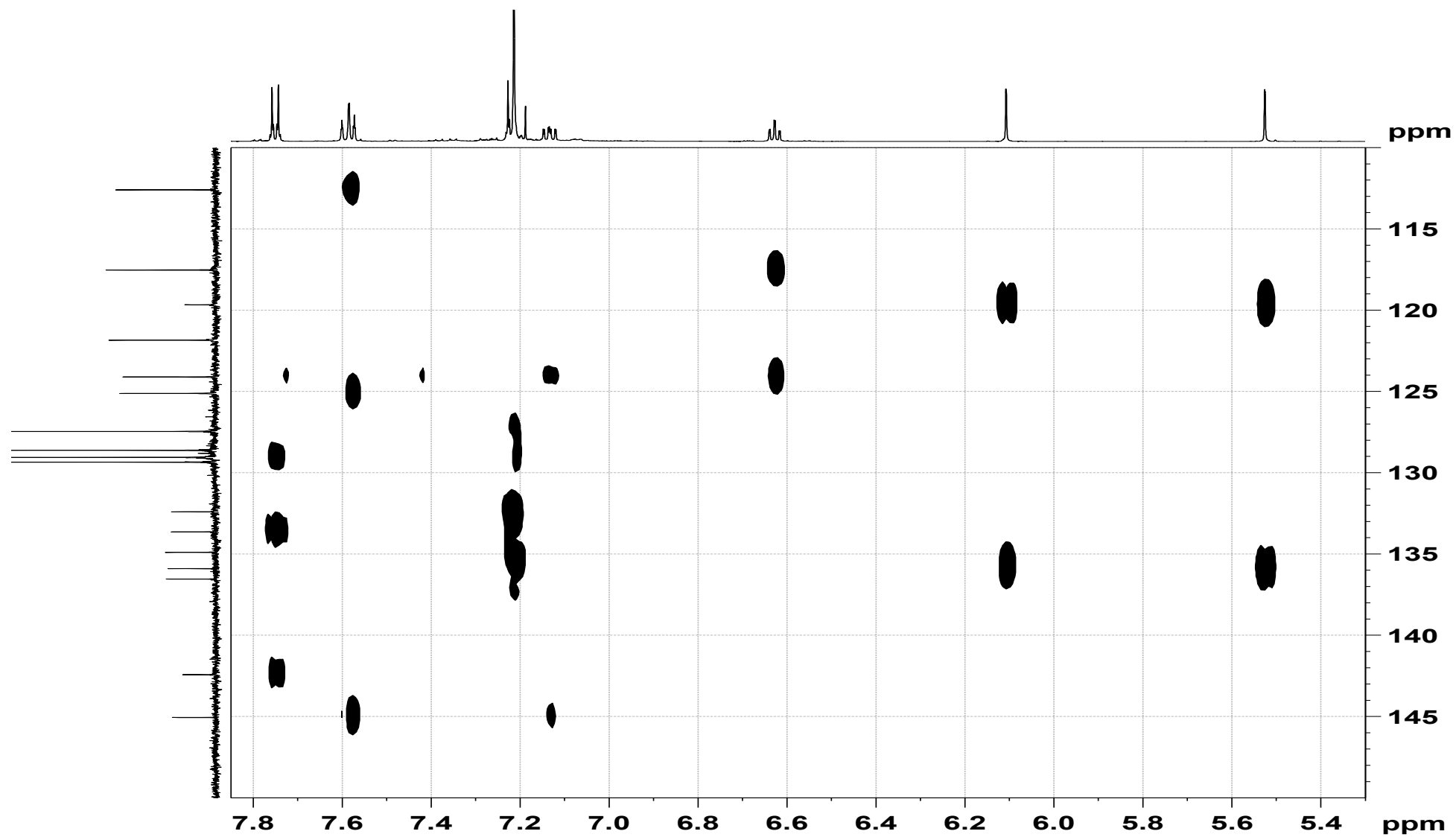
**Figure S59.** <sup>1</sup>H-<sup>1</sup>H COSY NMR spectrum of 2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (**4c**).



**Figure S60.** <sup>1</sup>H-<sup>1</sup>H NOESY NMR spectrum of 2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (**4c**).



**Figure S61.**  $^1\text{H}$ - $^{13}\text{C}$  HSQC NMR spectrum 2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (**4c**).  
S63



**Figure S62.**  $^1\text{H}$ - $^{13}\text{C}$  HMBC NMR spectrum of 2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (**4c**).  
S64



XI) NMR spectra of 6-methyl-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (4d)

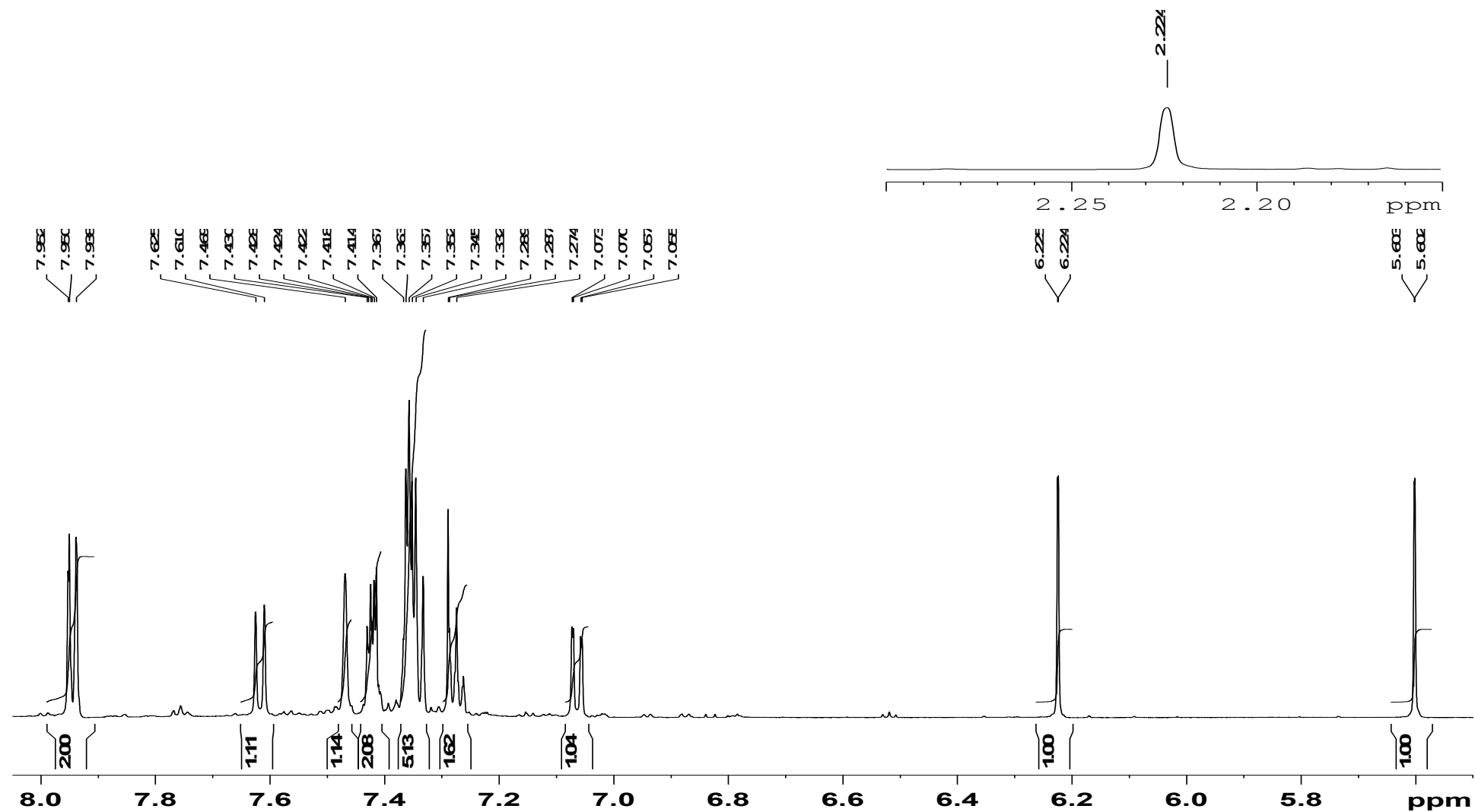
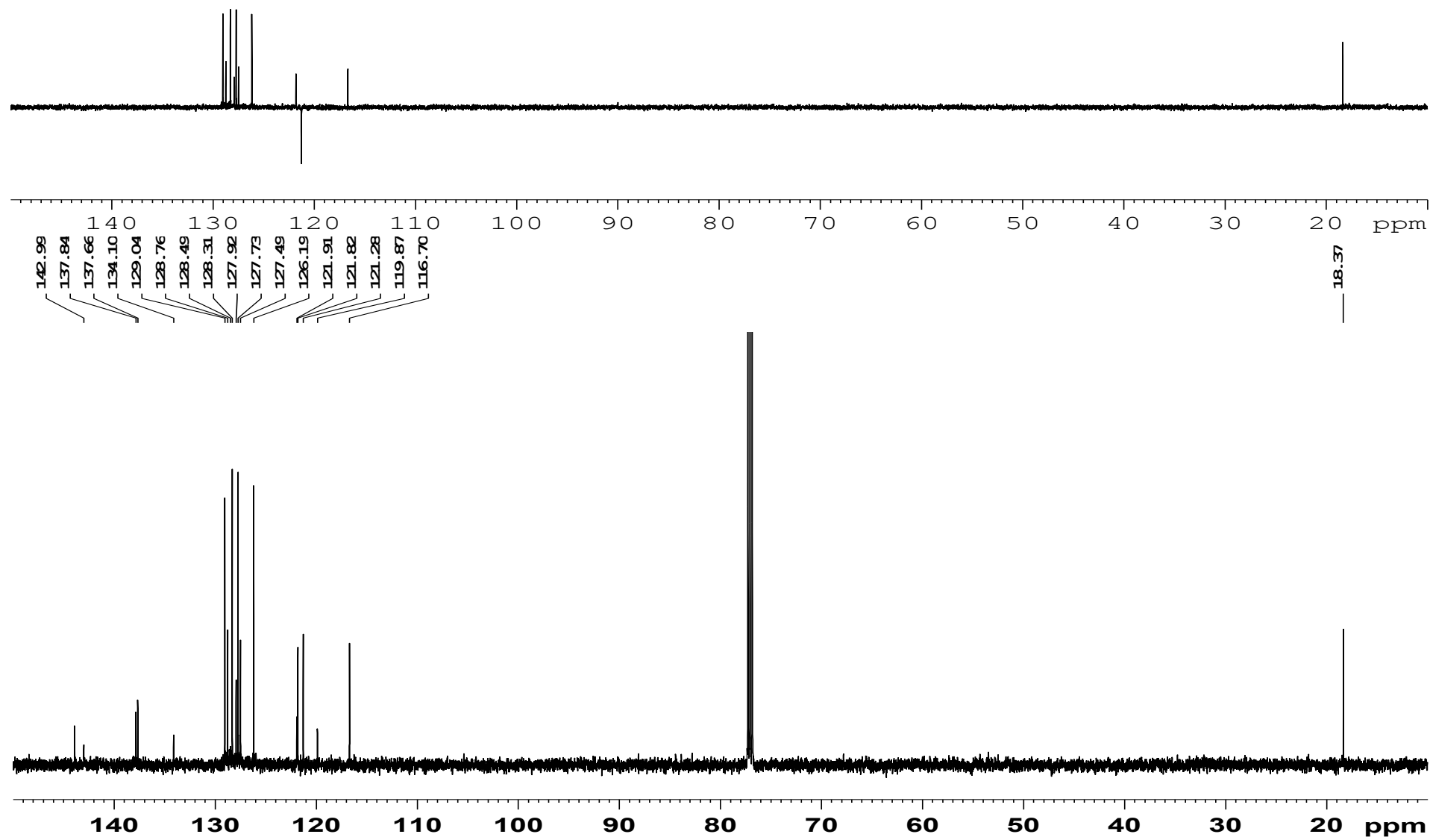
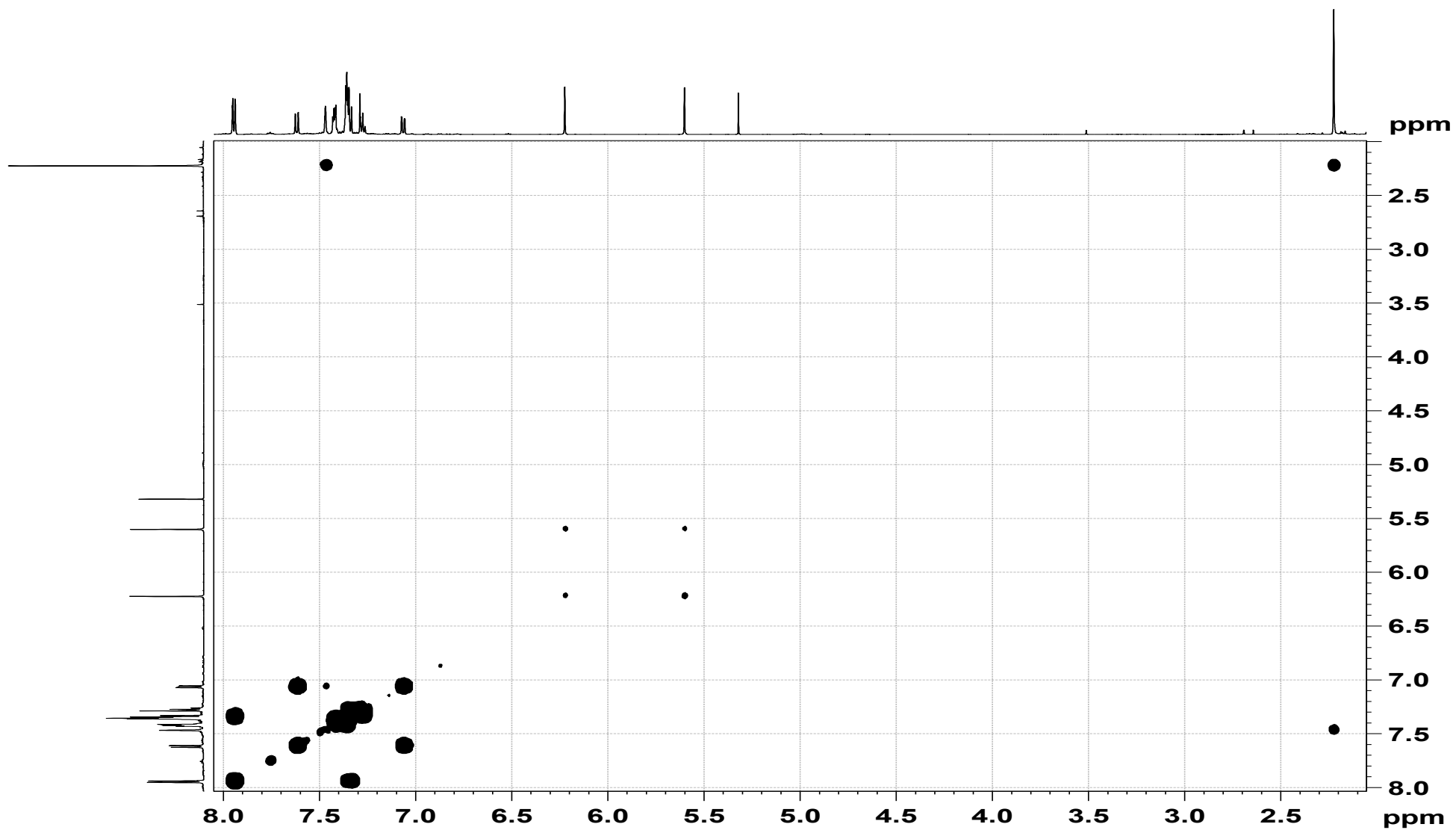


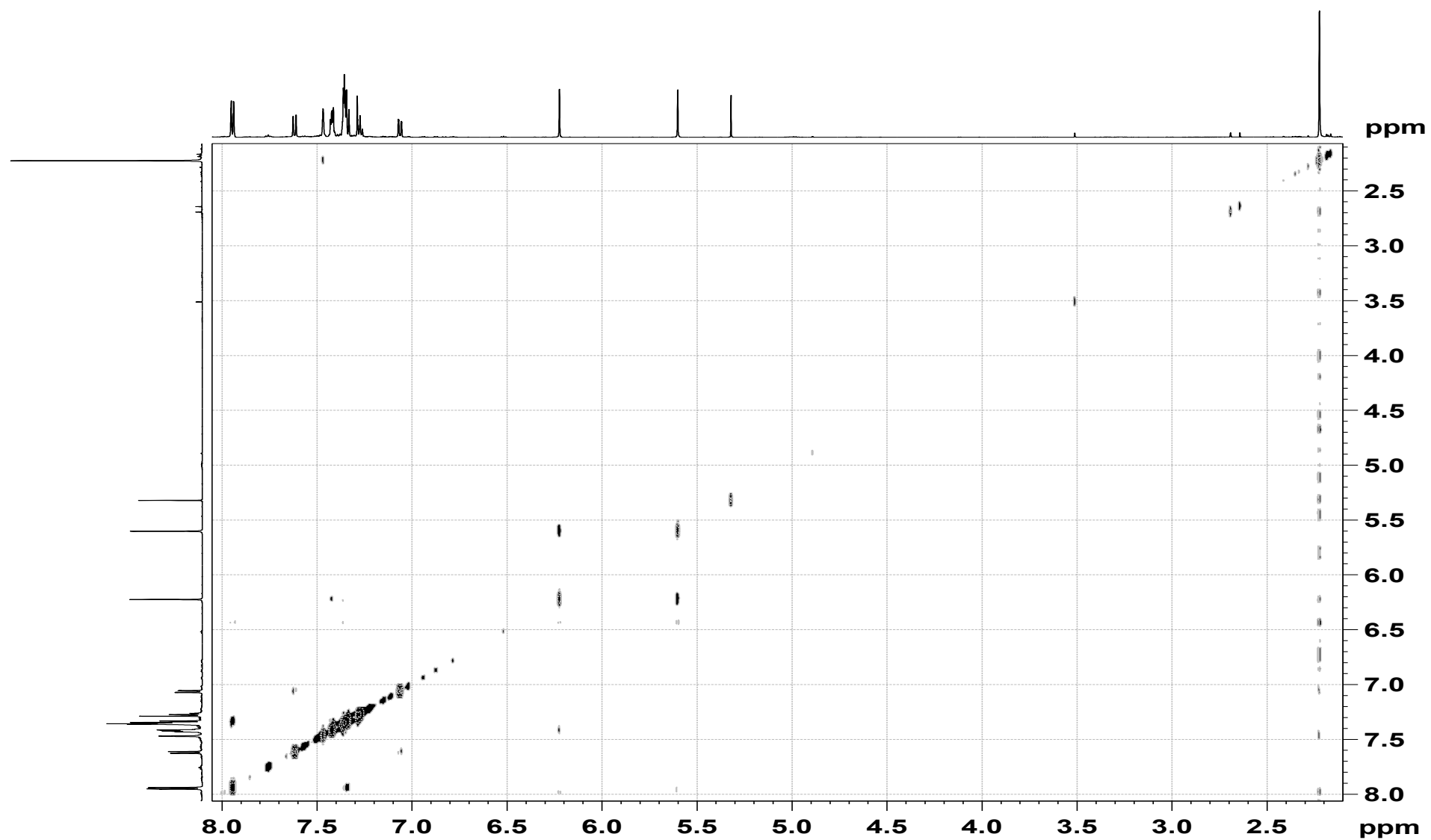
Figure S63. <sup>1</sup>H NMR spectrum of 6-methyl-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (4d).



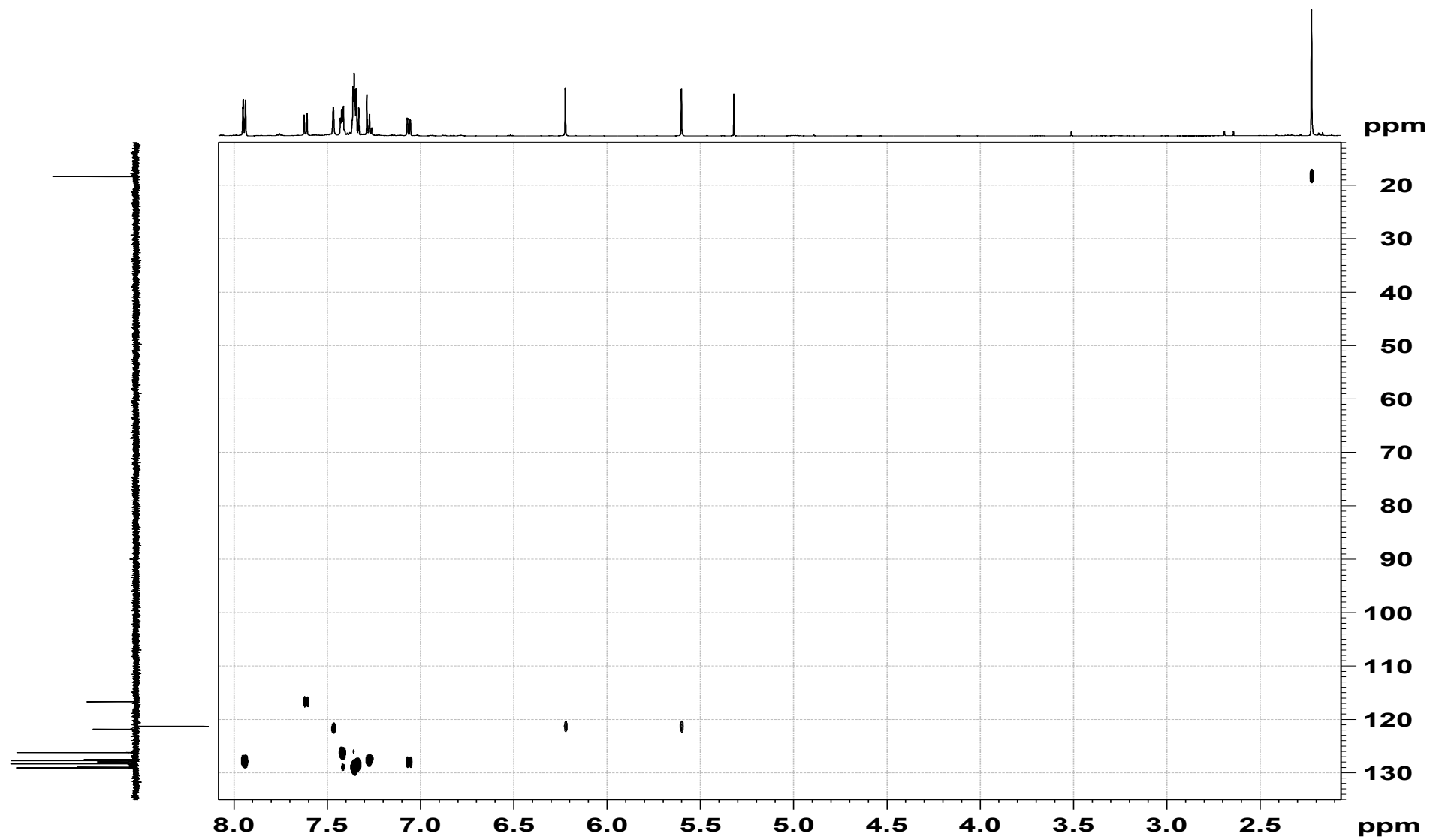
**Figure S64.** <sup>13</sup>C (down) and DEPT (up) NMR spectrum of 6-methyl-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4d**).  
S66



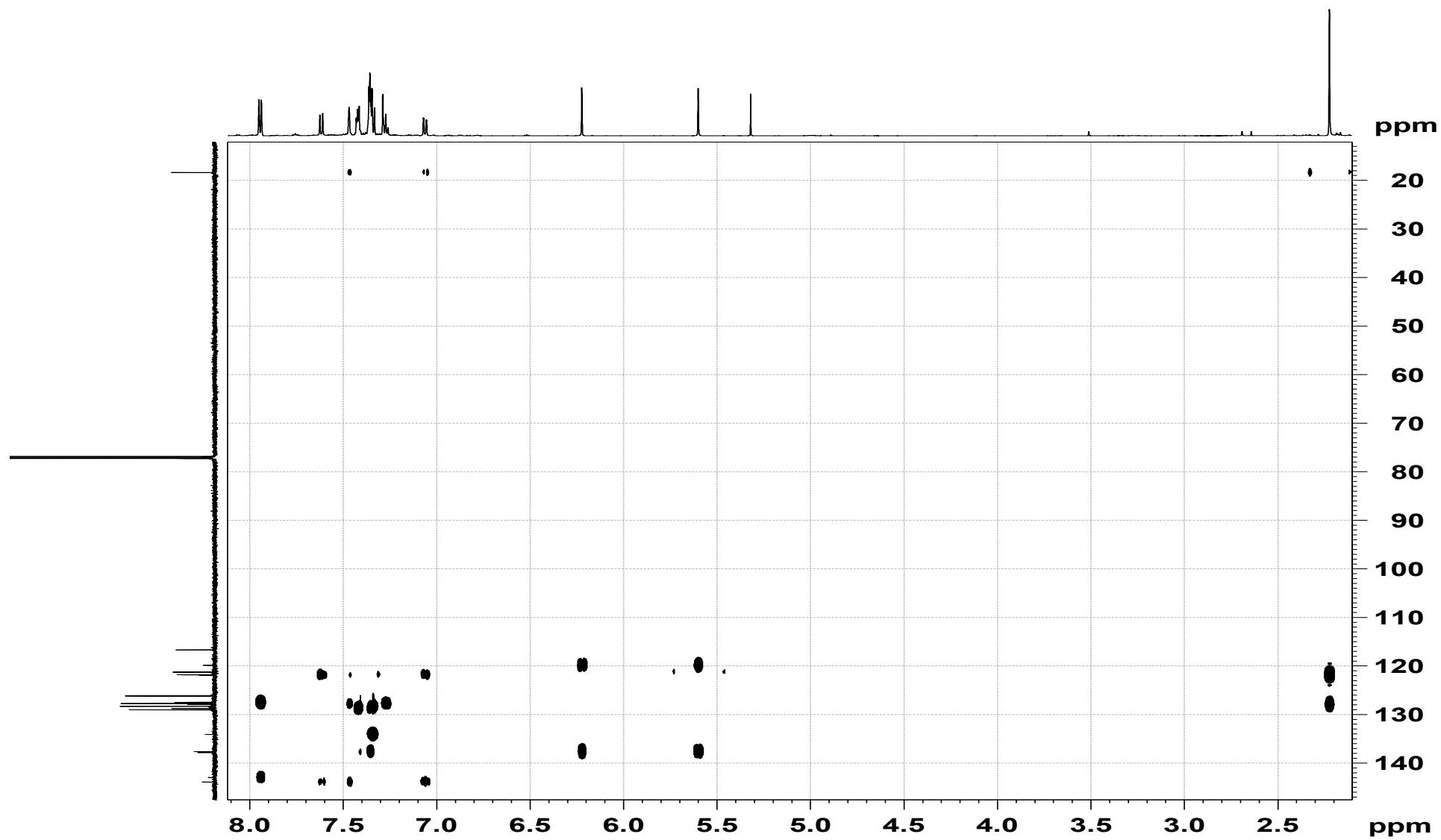
**Figure S65.** <sup>1</sup>H-<sup>1</sup>H COSY NMR spectrum of 6-methyl-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4d**).



**Figure S66.** <sup>1</sup>H-<sup>1</sup>H NOESY NMR spectrum of 6-methyl-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4d**).

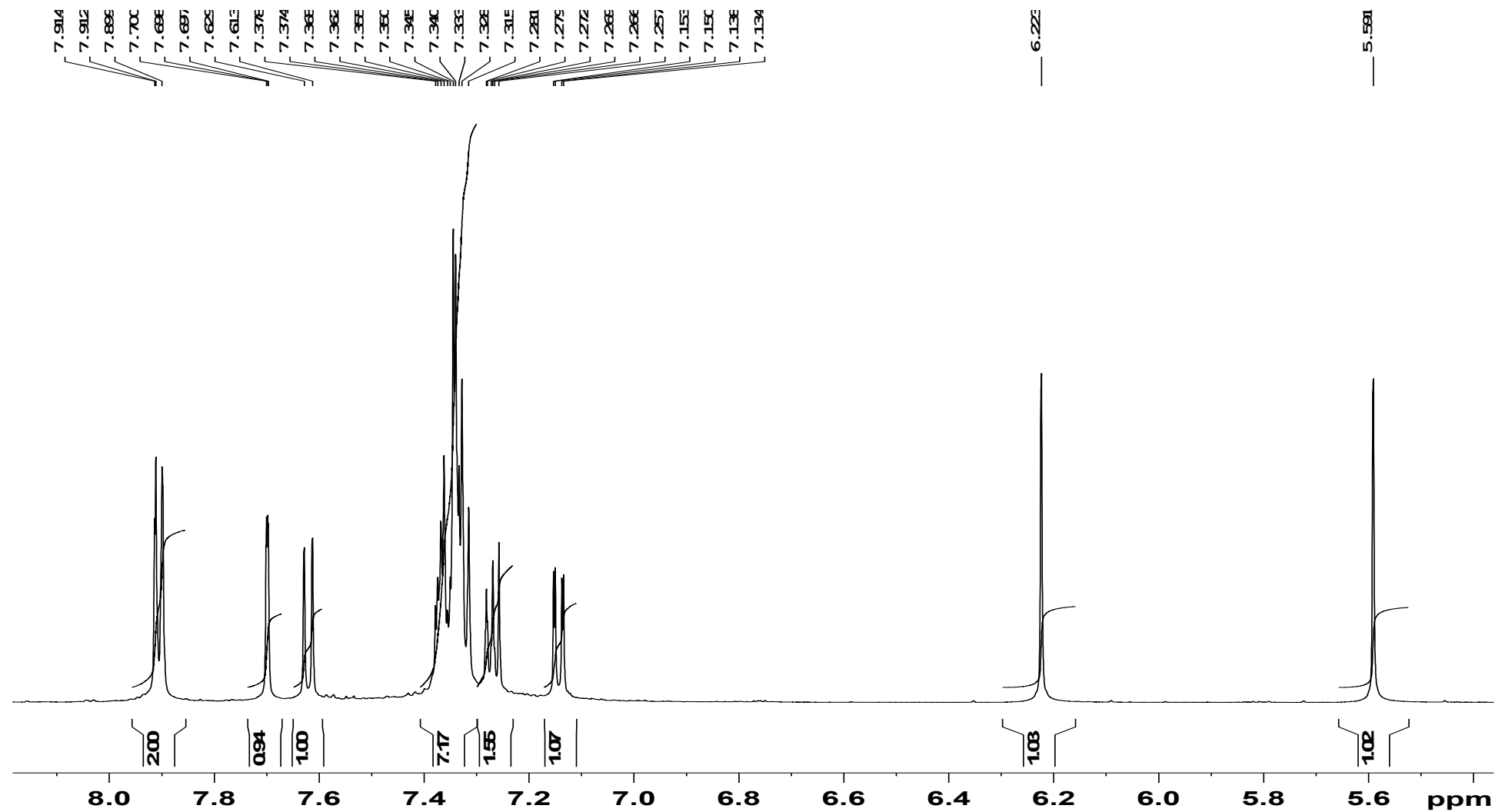


**Figure S67.** <sup>1</sup>H-<sup>13</sup>C HSQC NMR spectrum 6-methyl-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4d**).

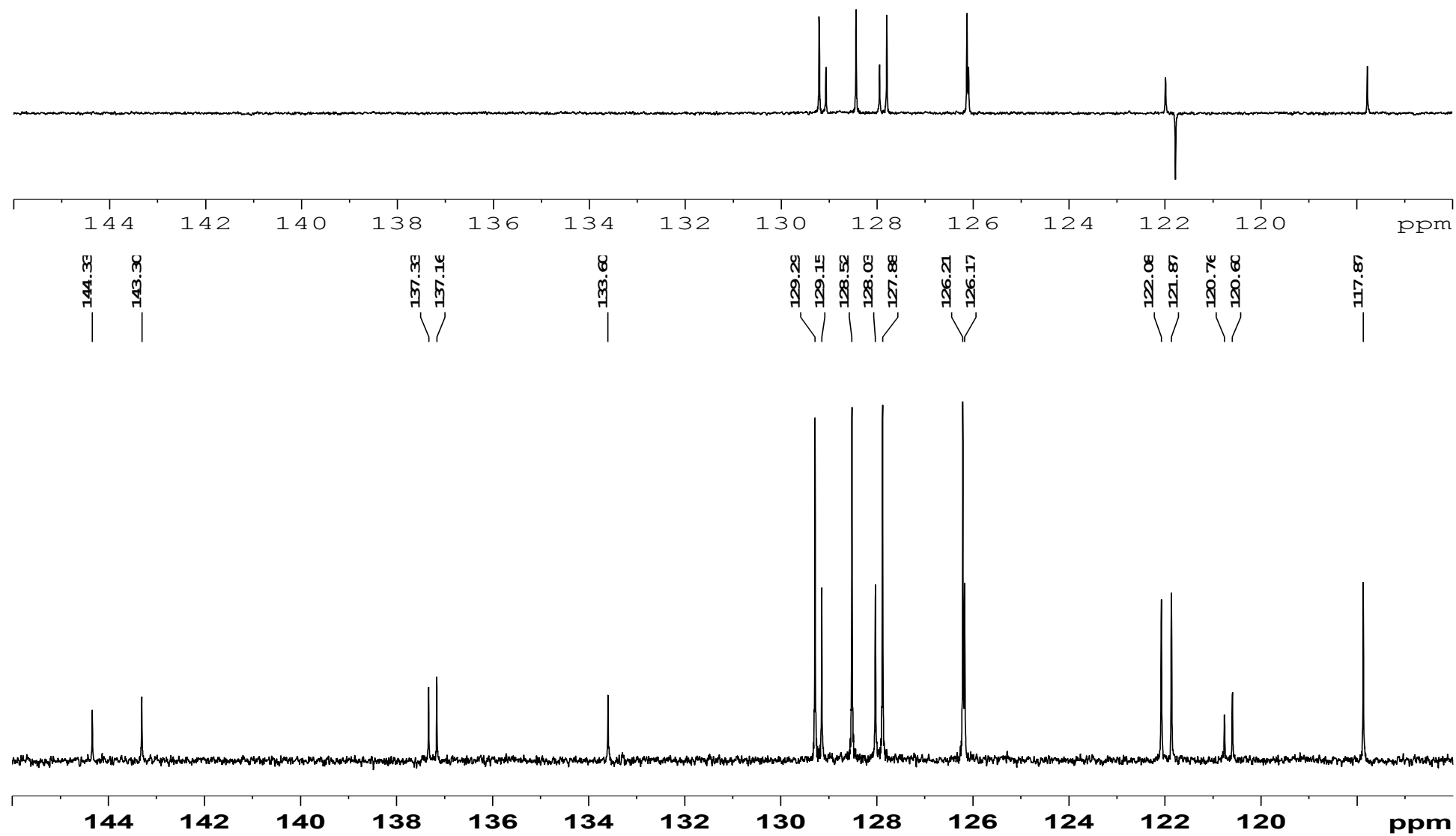


**Figure S68.**  $^1\text{H}$ - $^{13}\text{C}$  HMBC NMR spectrum of 6-methyl-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4d**).

**XII) NMR spectra of 6-chloro-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (4e)**

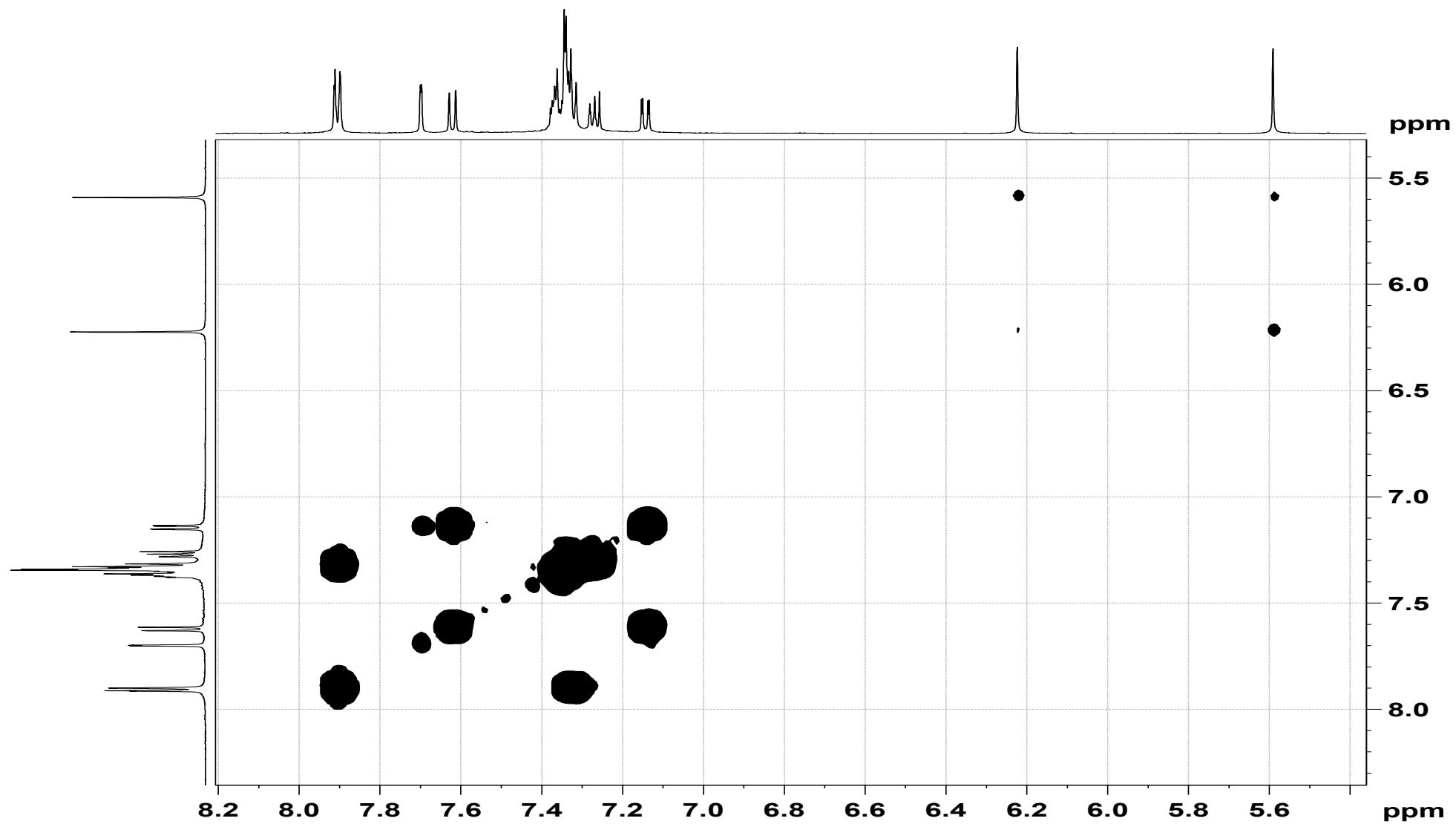


**Figure S69.** <sup>1</sup>H NMR spectrum of 6-chloro-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (4e).

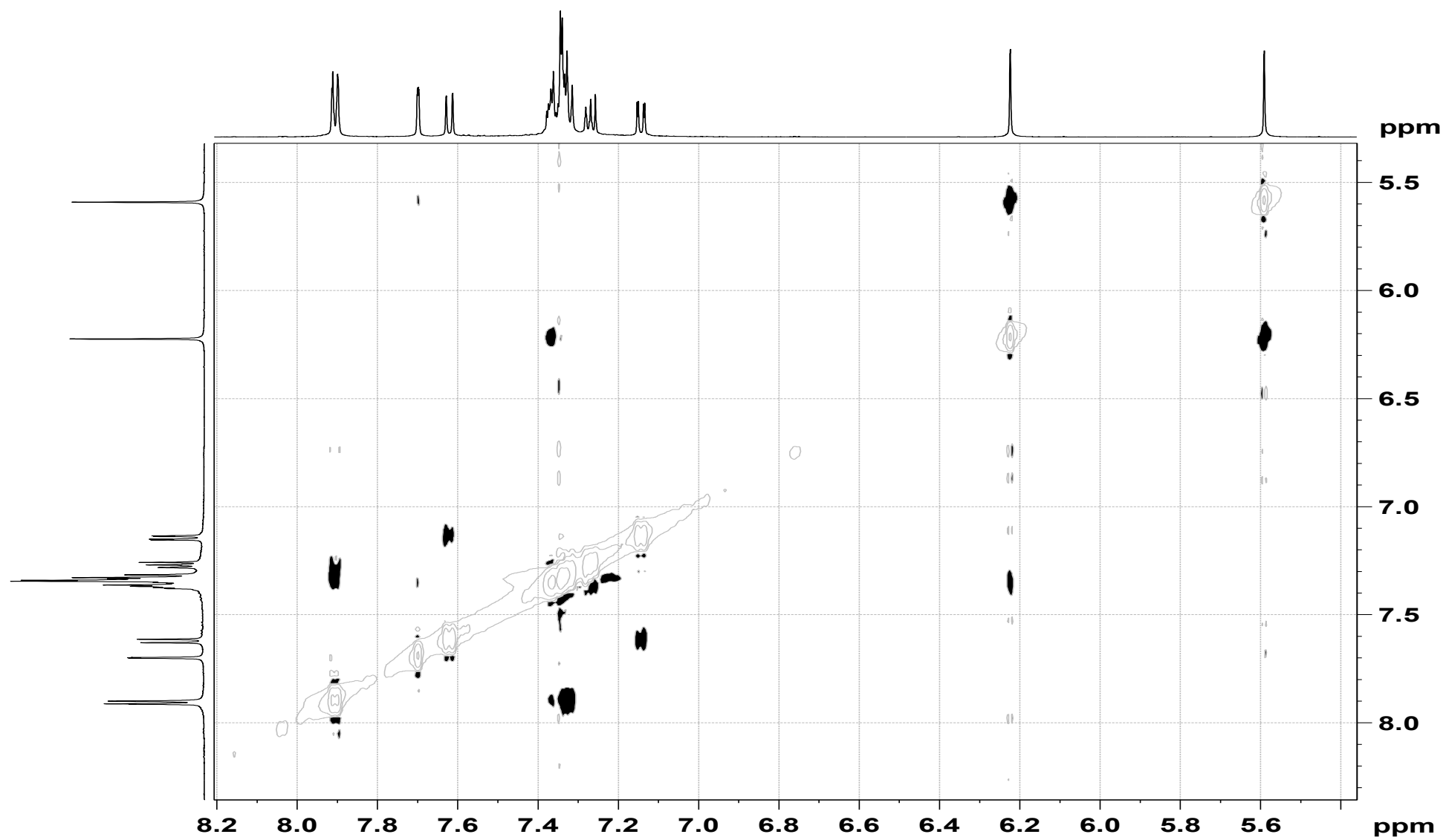


**Figure S70.** <sup>13</sup>C (down) and DEPT (up) NMR spectrum of 6-chloro-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (4e).

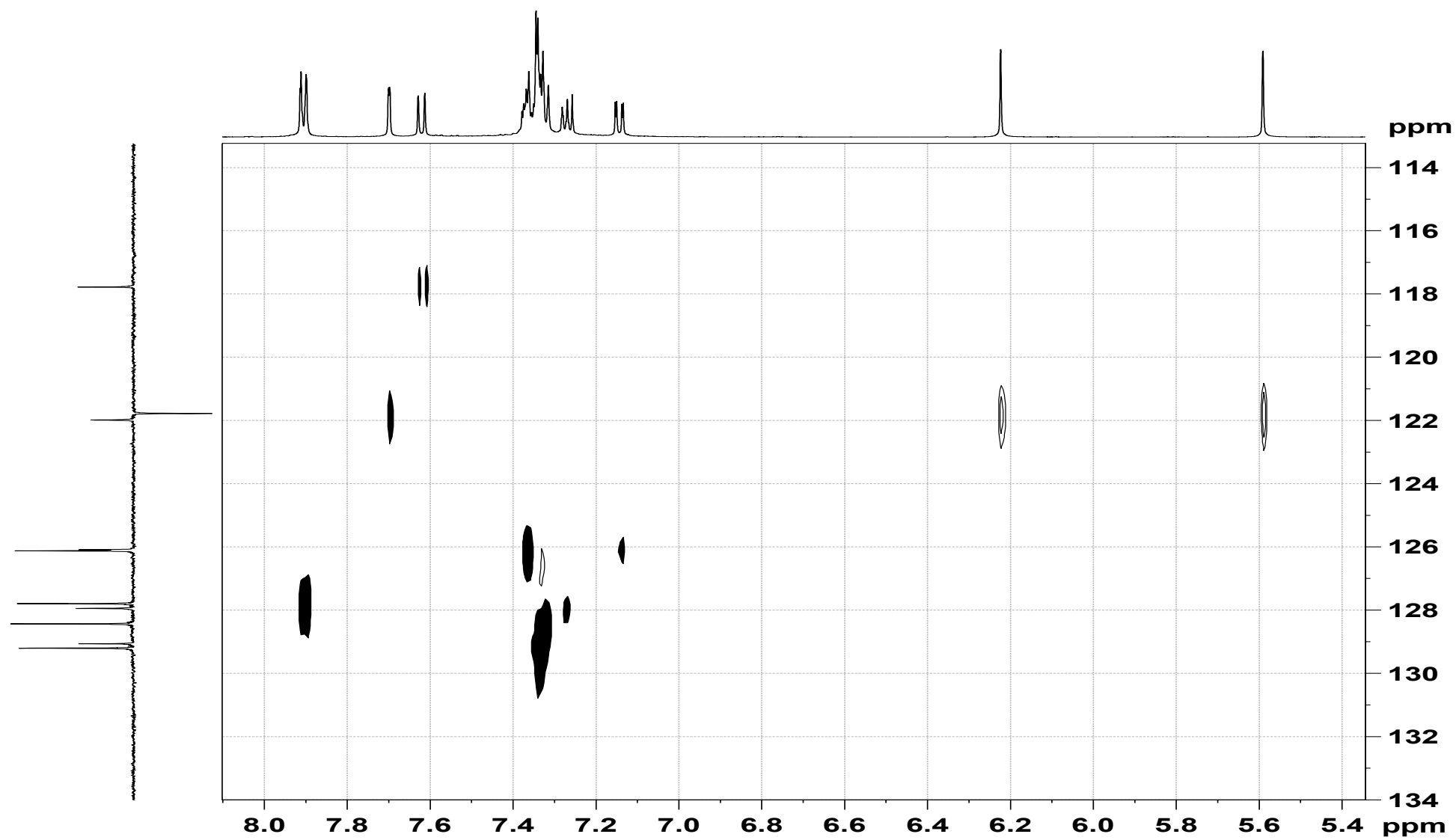




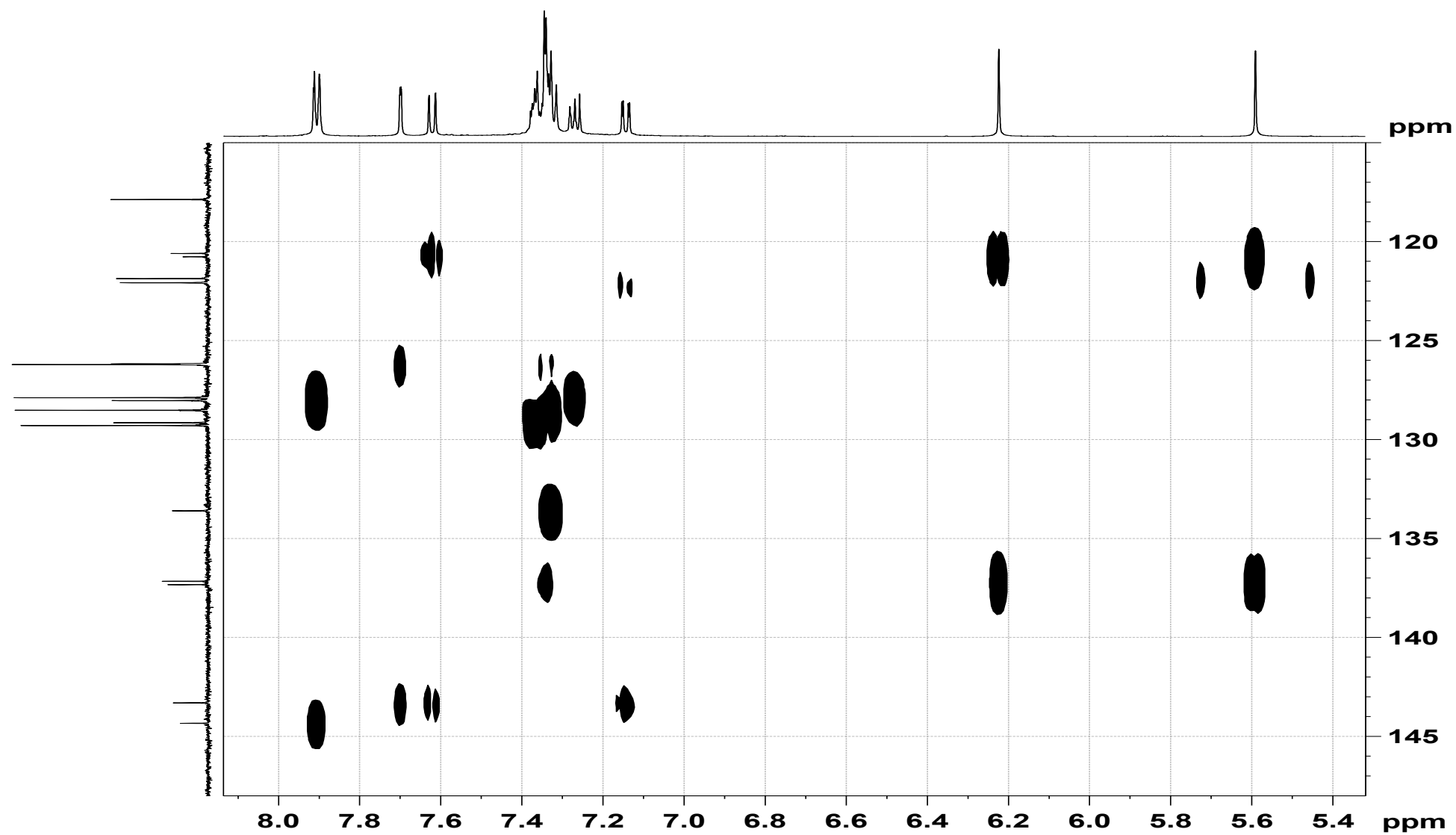
**Figure S71.** <sup>1</sup>H-<sup>1</sup>H COSY NMR spectrum of 6-chloro-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4e**).



**Figure S72.** <sup>1</sup>H-<sup>1</sup>H NOESY NMR spectrum of 6-chloro-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4e**).



**Figure S73.**  $^1\text{H}$ - $^{13}\text{C}$  HSQC NMR spectrum 6-chloro-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4e**).



**Figure S74.**  $^1\text{H}$ - $^{13}\text{C}$  HMBC NMR spectrum of 6-chloro-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4e**).

XIII) NMR spectra of 6-bromo-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (4f)

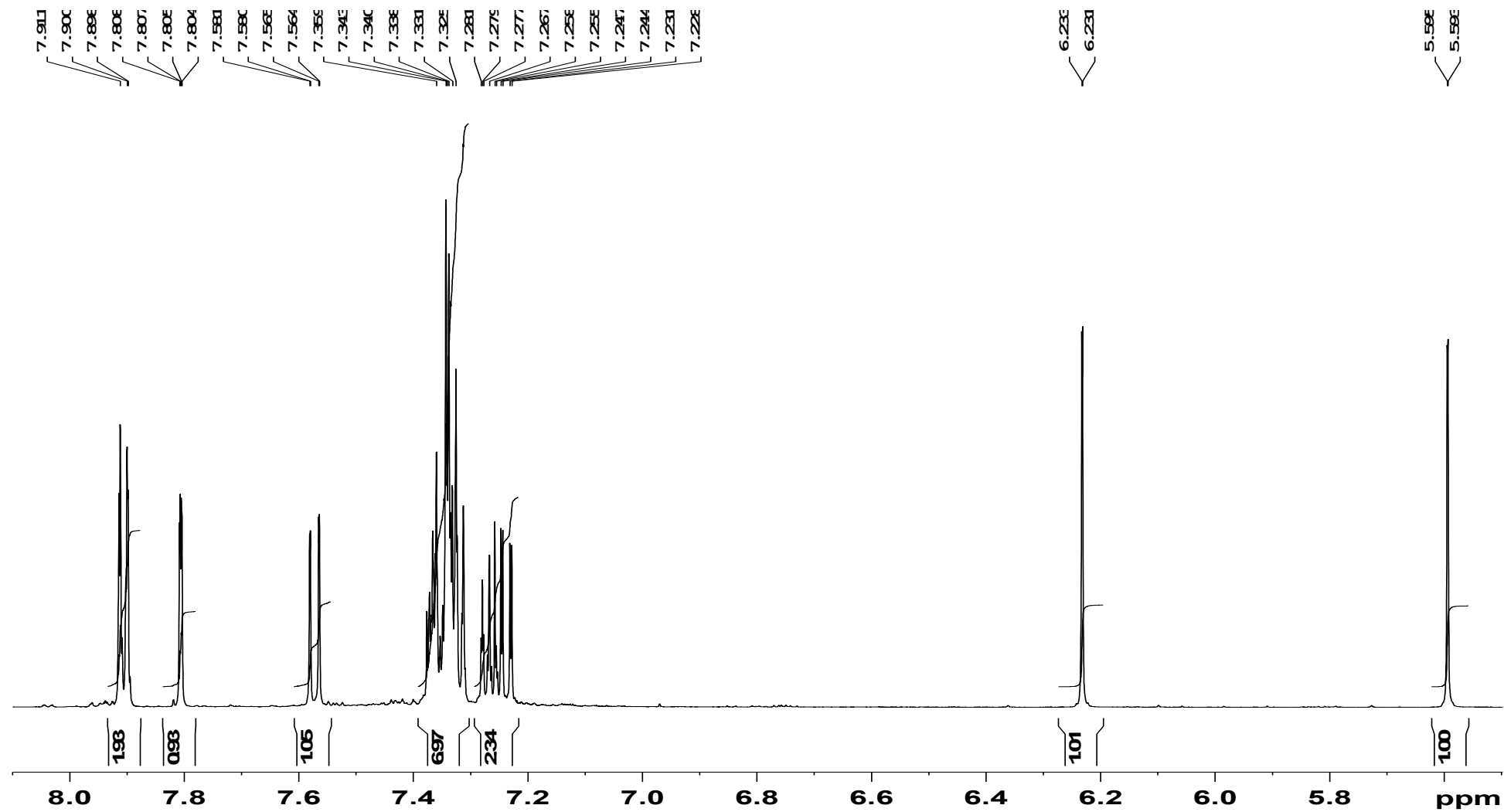
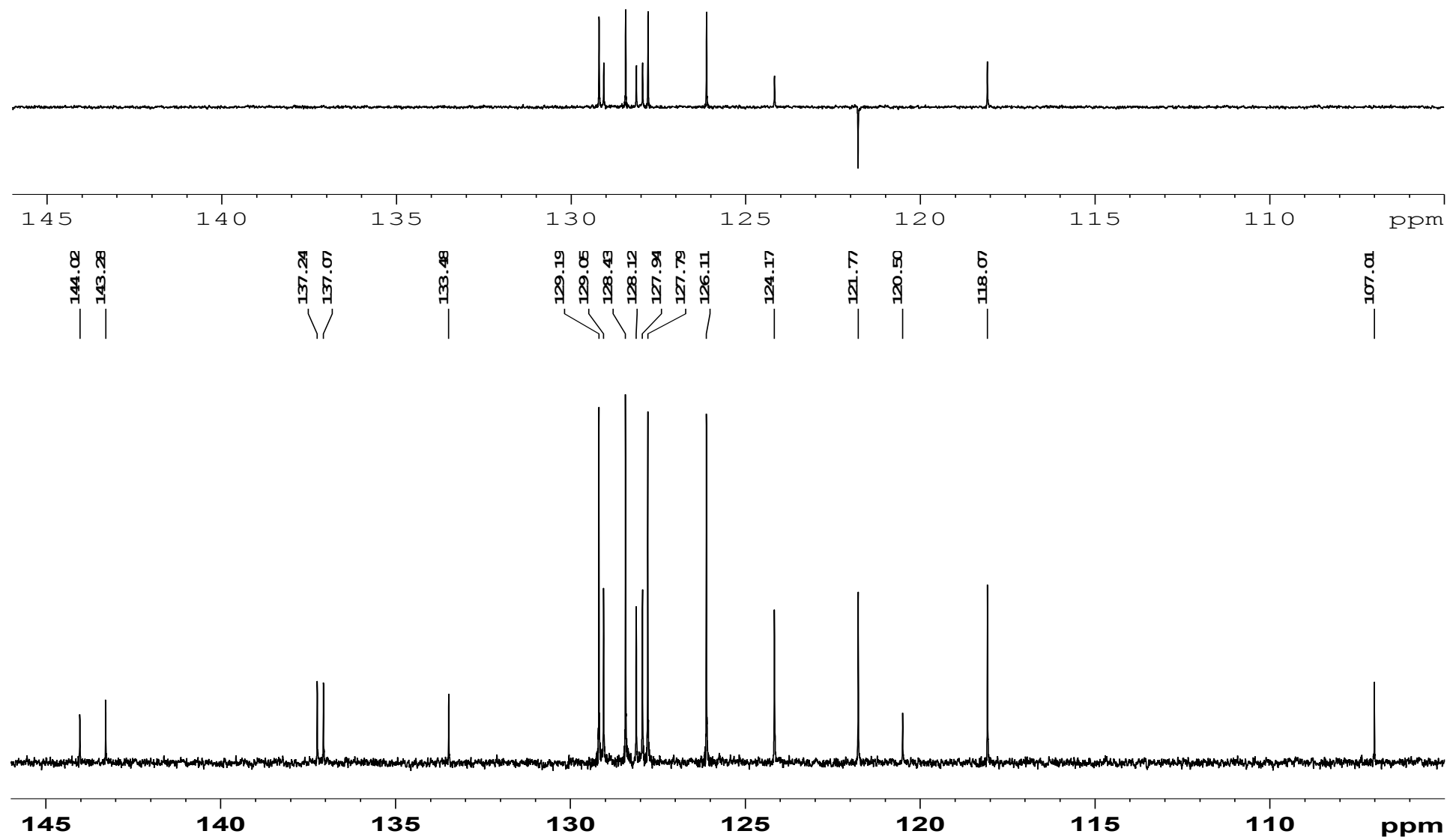
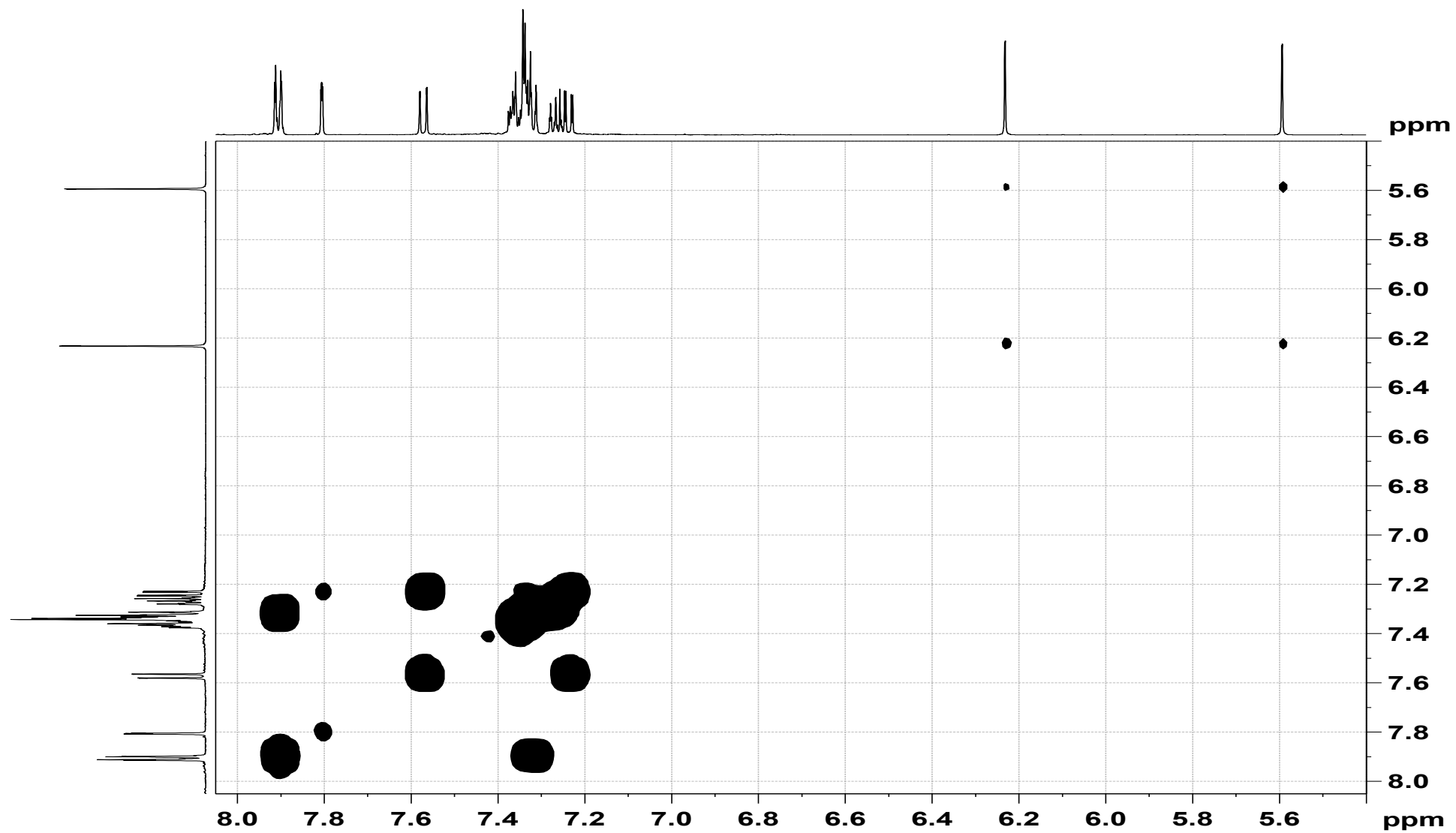


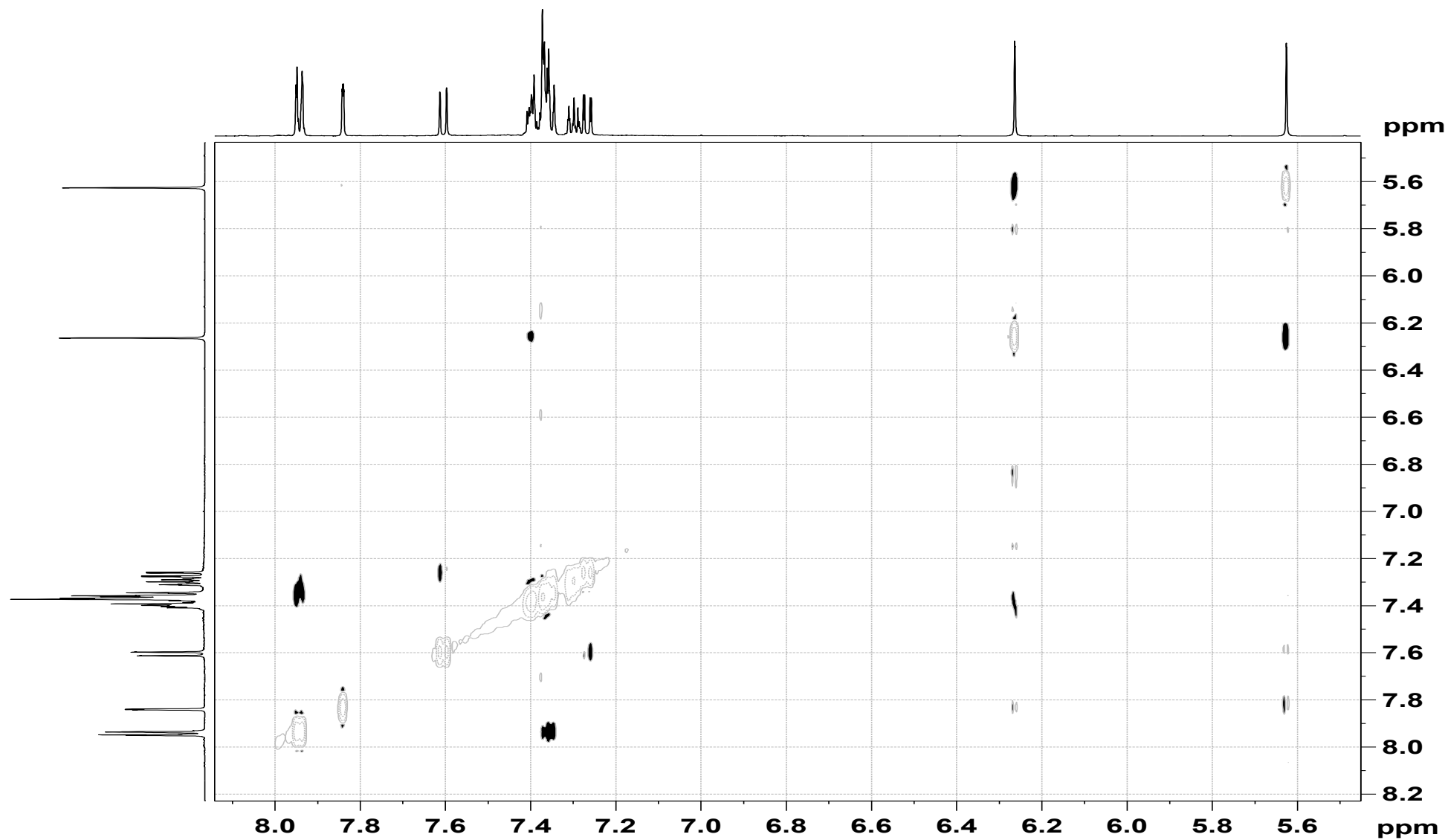
Figure S75. <sup>1</sup>H NMR spectrum of 6-bromo-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (4f).



**Figure S76.** <sup>13</sup>C (down) and DEPT (up) NMR spectrum of 6-bromo-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4f**).

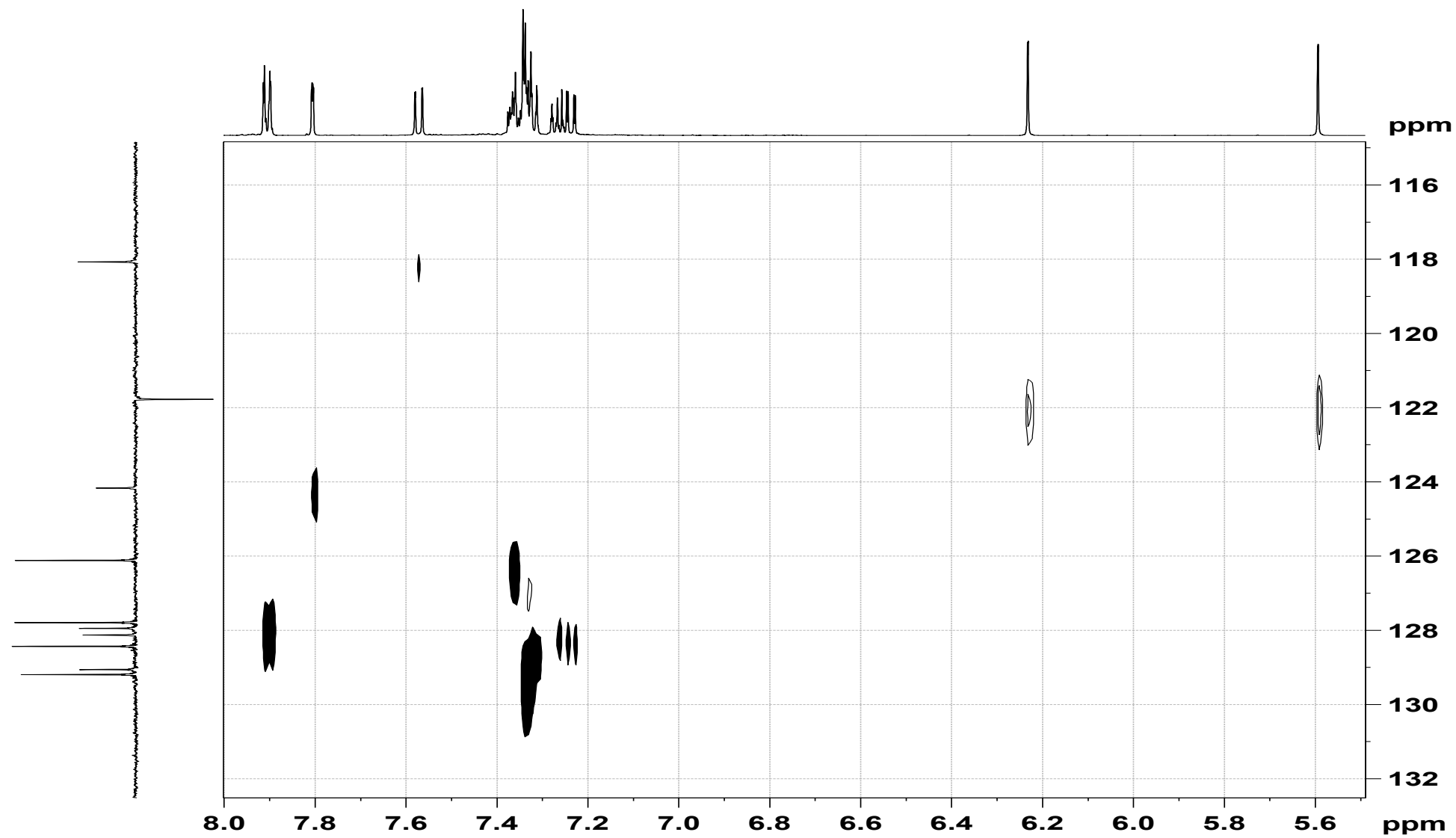


**Figure S77.** <sup>1</sup>H-<sup>1</sup>H COSY NMR spectrum of 6-bromo-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4f**).

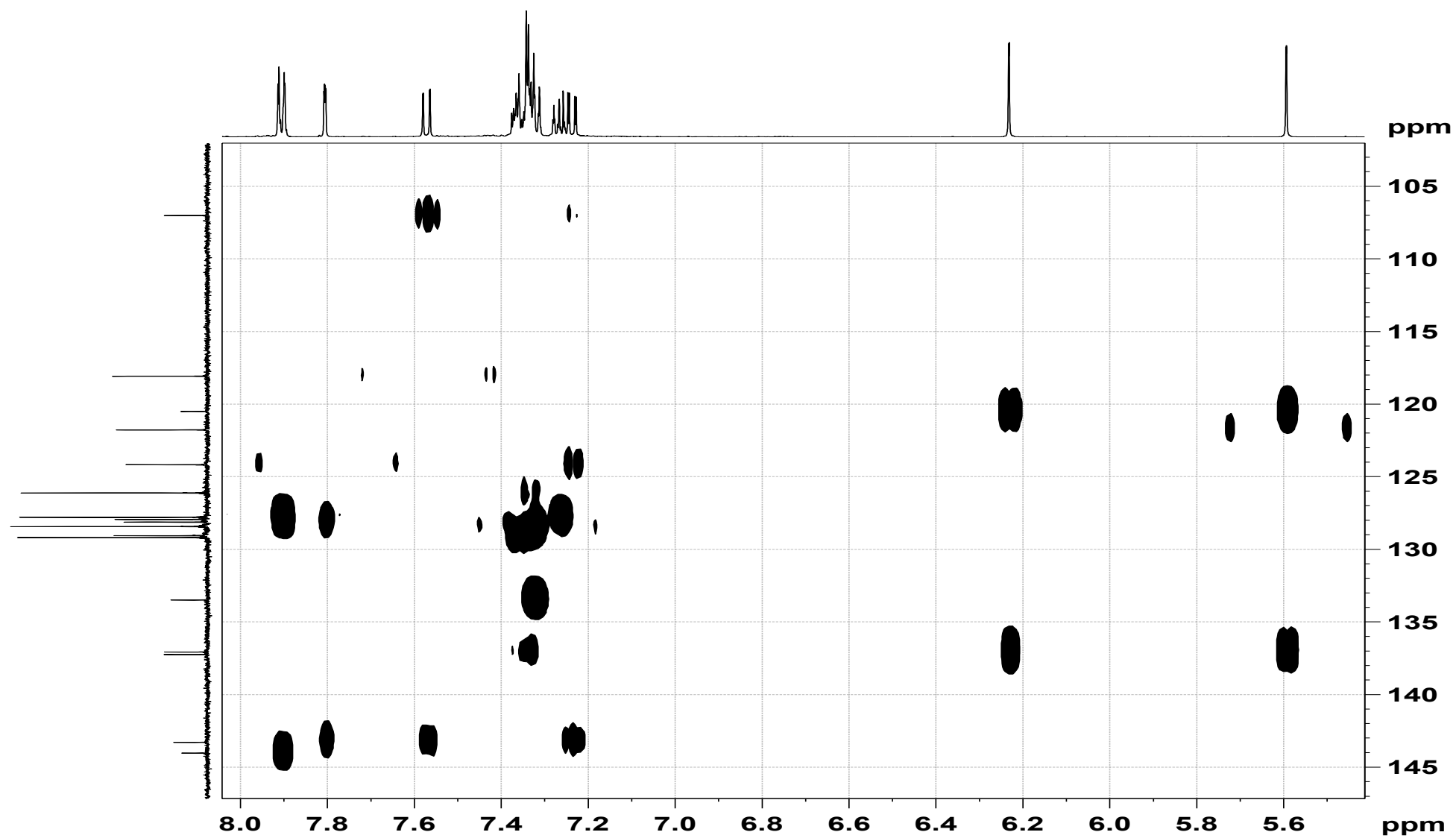


**Figure S78.** <sup>1</sup>H-<sup>1</sup>H NOESY NMR spectrum of 6-bromo-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4f**).





**Figure S79.**  $^1\text{H}$ - $^{13}\text{C}$  HSQC NMR spectrum 6-bromo-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4f**).



**Figure S80.**  $^1\text{H}$ - $^{13}\text{C}$  HMBC NMR spectrum of 6-bromo-2-phenyl-3-(1-phenylvinyl)imidazo[1,2-a]pyridine (**4f**).

XIV) NMR spectra of 6-methyl-2-(4-methylphenyl)-3-(1-(4-methylphenyl)vinyl)imidazo[1,2-a]pyridine (4g)

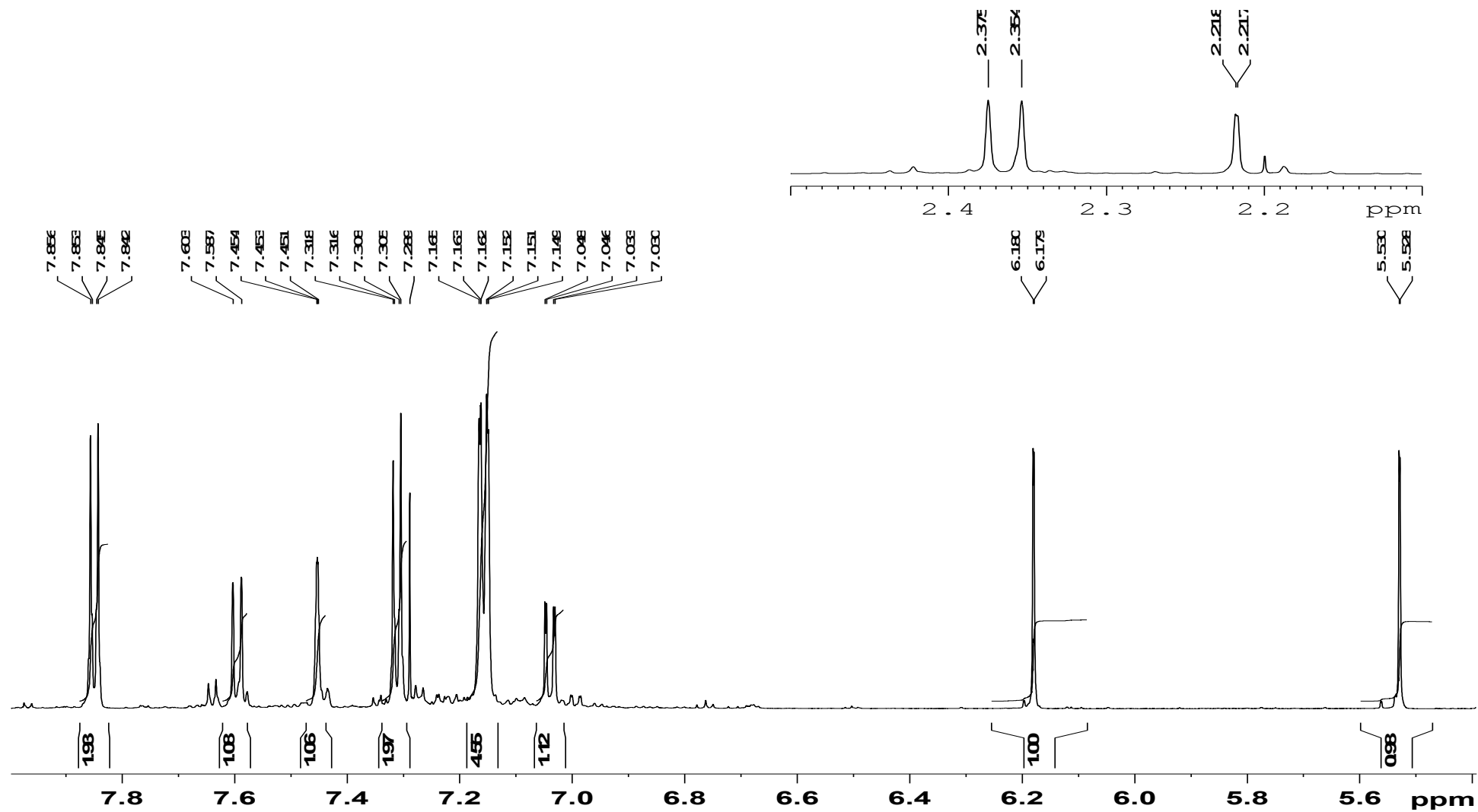
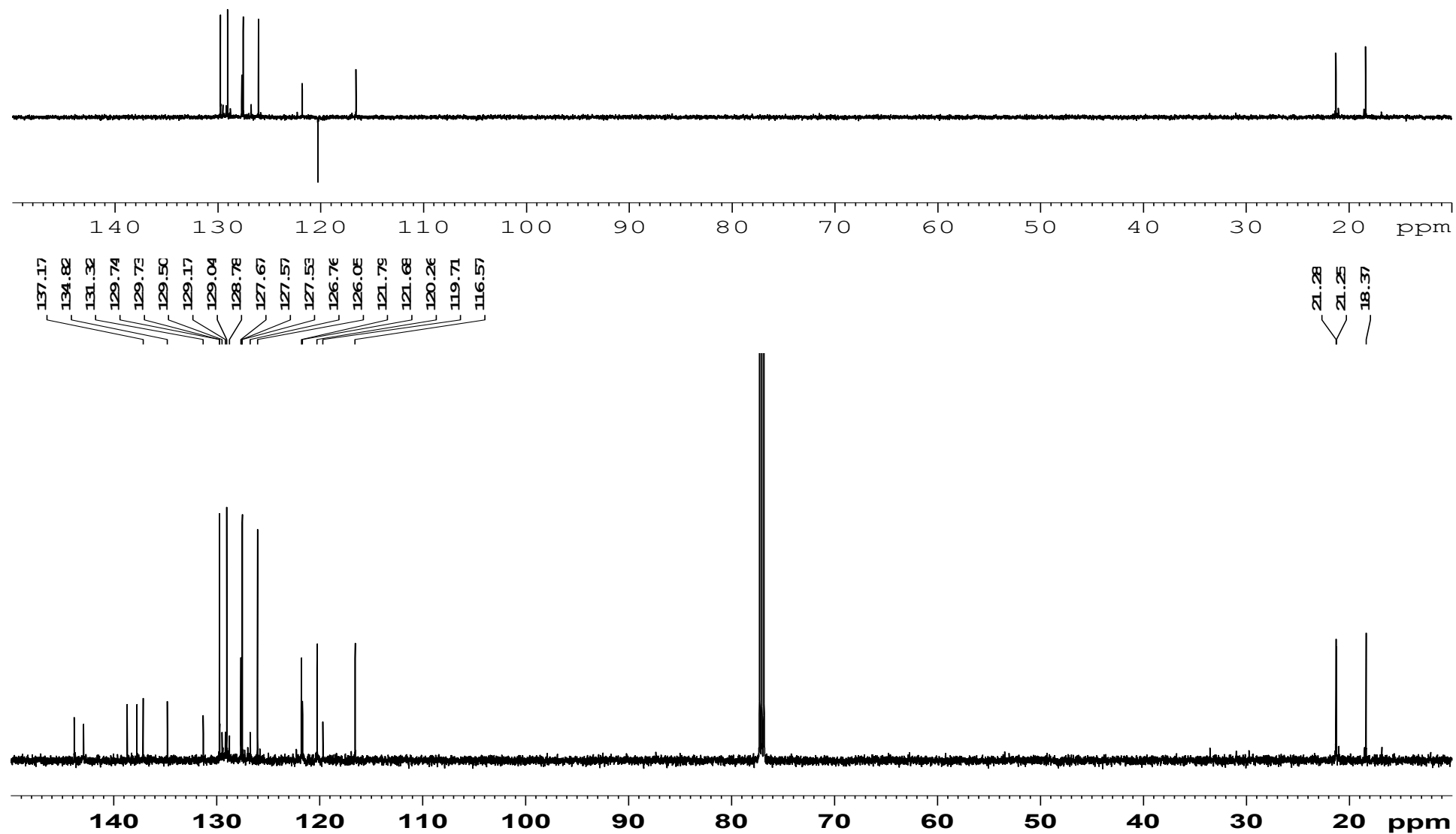
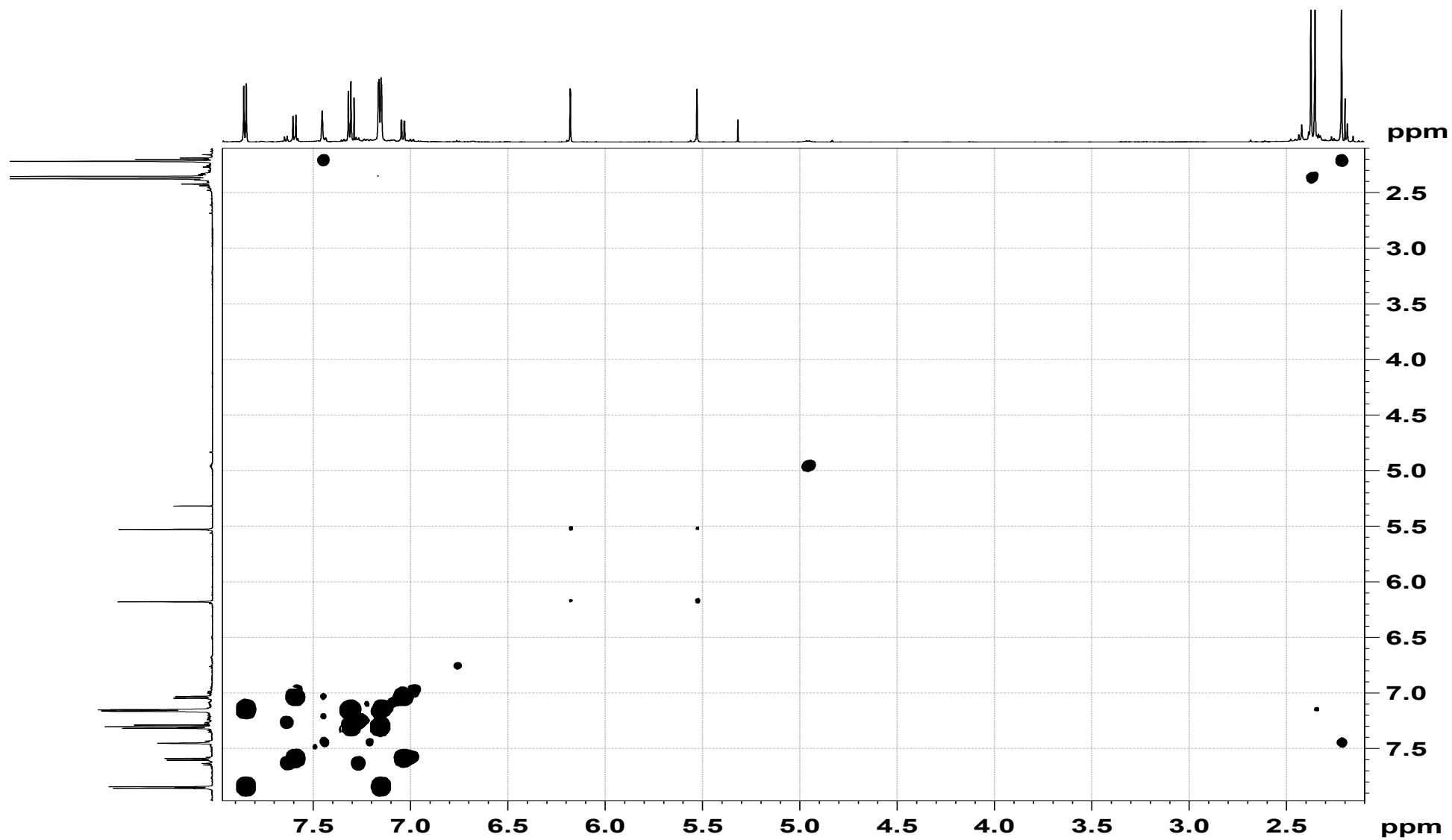


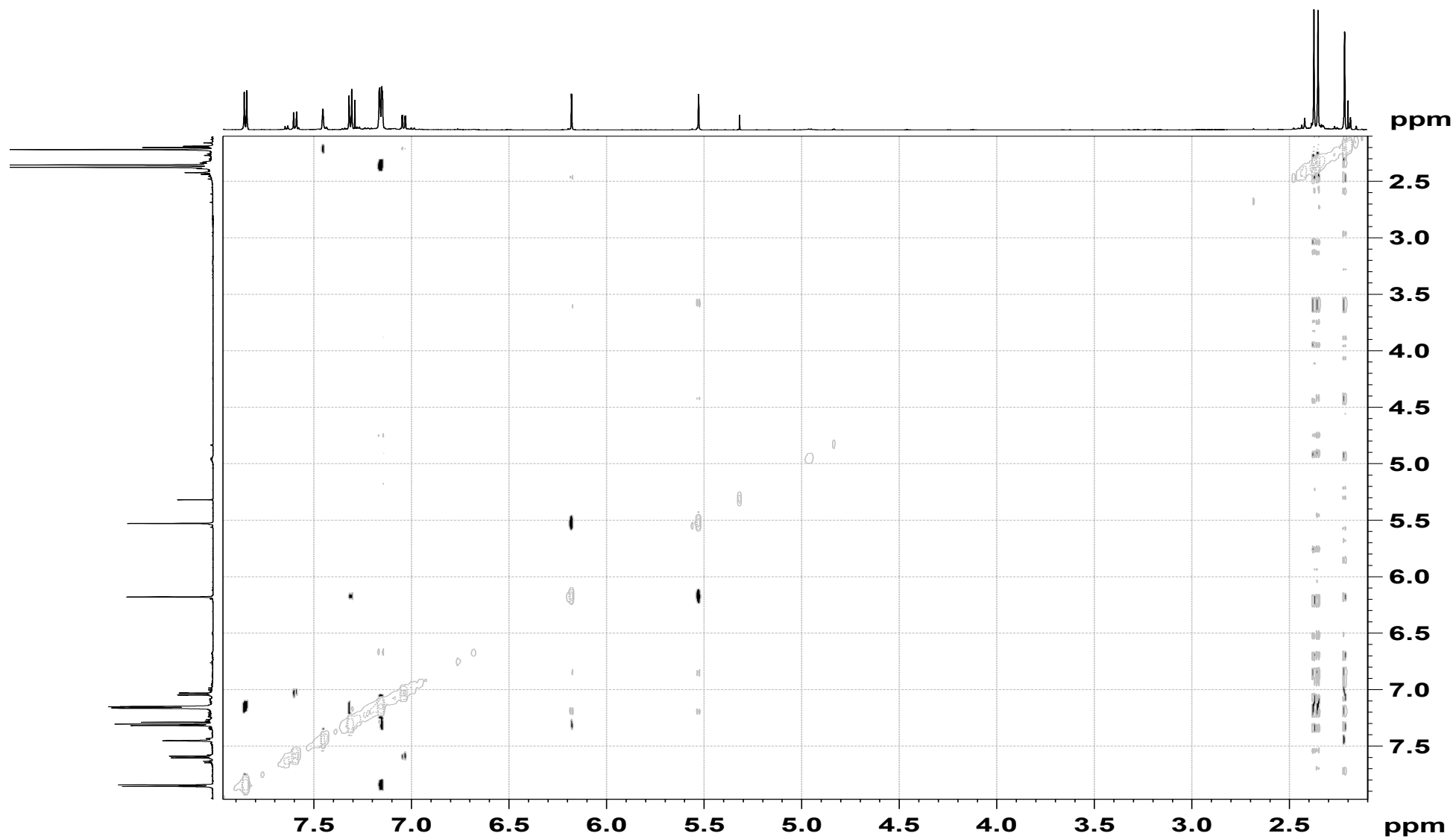
Figure S81. <sup>1</sup>H NMR spectrum of 6-methyl-2-(4-methylphenyl)-3-(1-(4-methylphenyl)vinyl)imidazo[1,2-a]pyridine (4g).



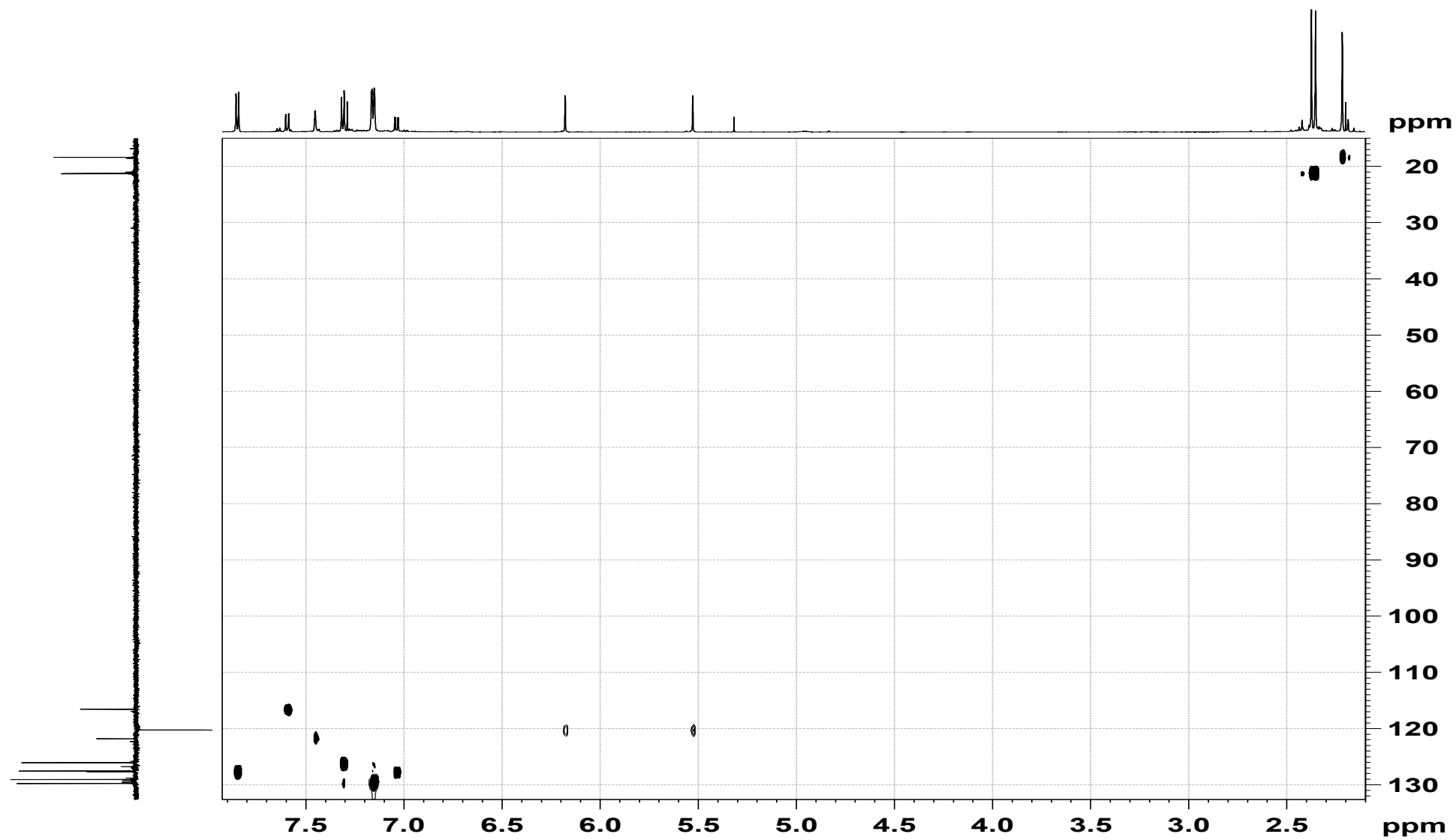
**Figure S82.** <sup>13</sup>C (down) and DEPT (up) NMR spectrum of 6-methyl-2-(4-methylphenyl)-3-(1-(4-methylphenyl)vinyl)imidazo[1,2-a]pyridine (**4g**).



**Figure S83.** <sup>1</sup>H-<sup>1</sup>H COSY NMR spectrum of 6-methyl-2-(4-methylphenyl)-3-(1-(4-methylphenyl)vinyl)imidazo[1,2-a]pyridine (**4g**).  
S85

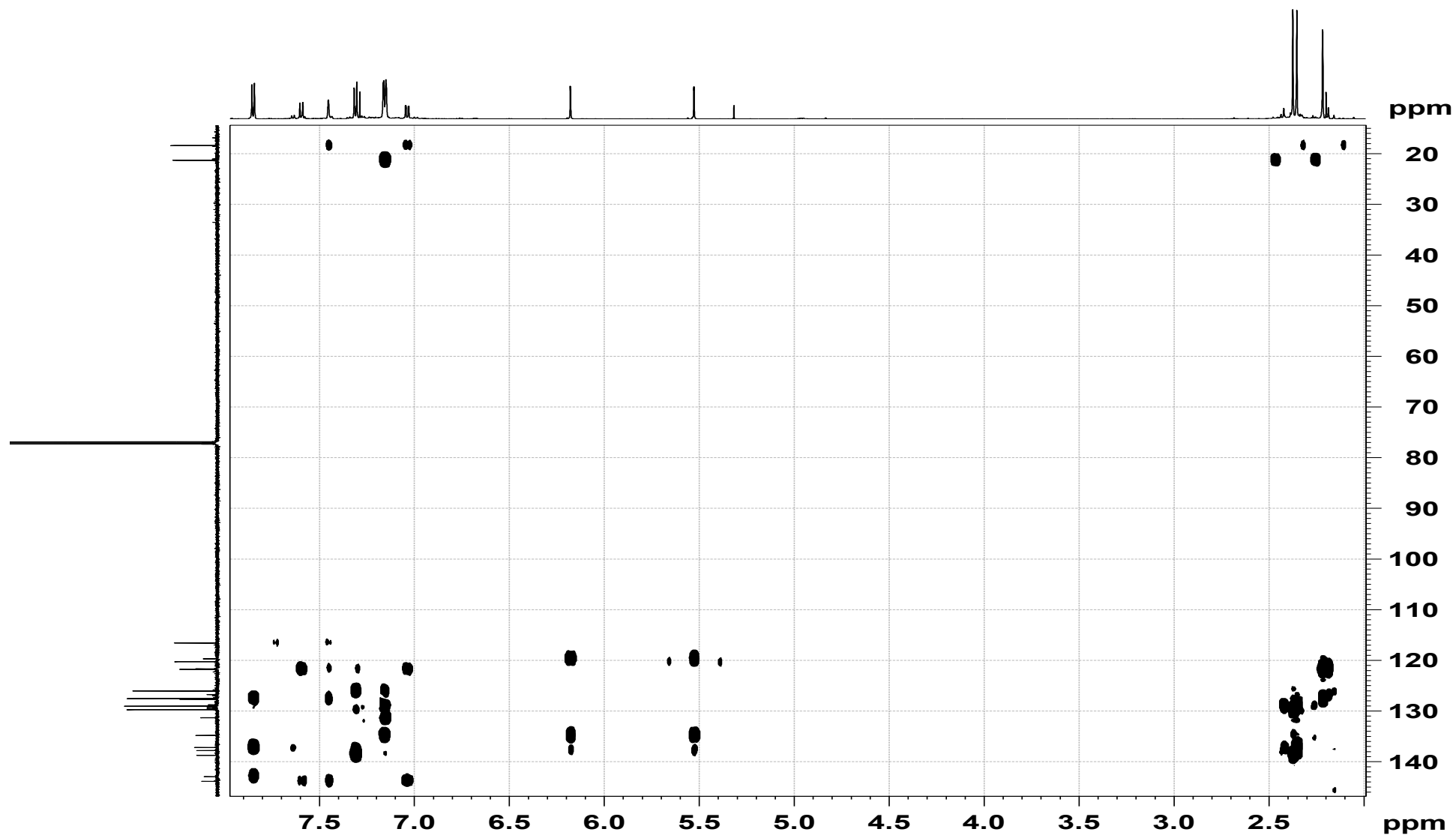


**Figure S84.** <sup>1</sup>H-<sup>1</sup>H NOESY NMR spectrum of 6-methyl-2-(4-methylphenyl)-3-(1-(4-methylphenyl)vinyl)imidazo[1,2-a]pyridine (**4g**).



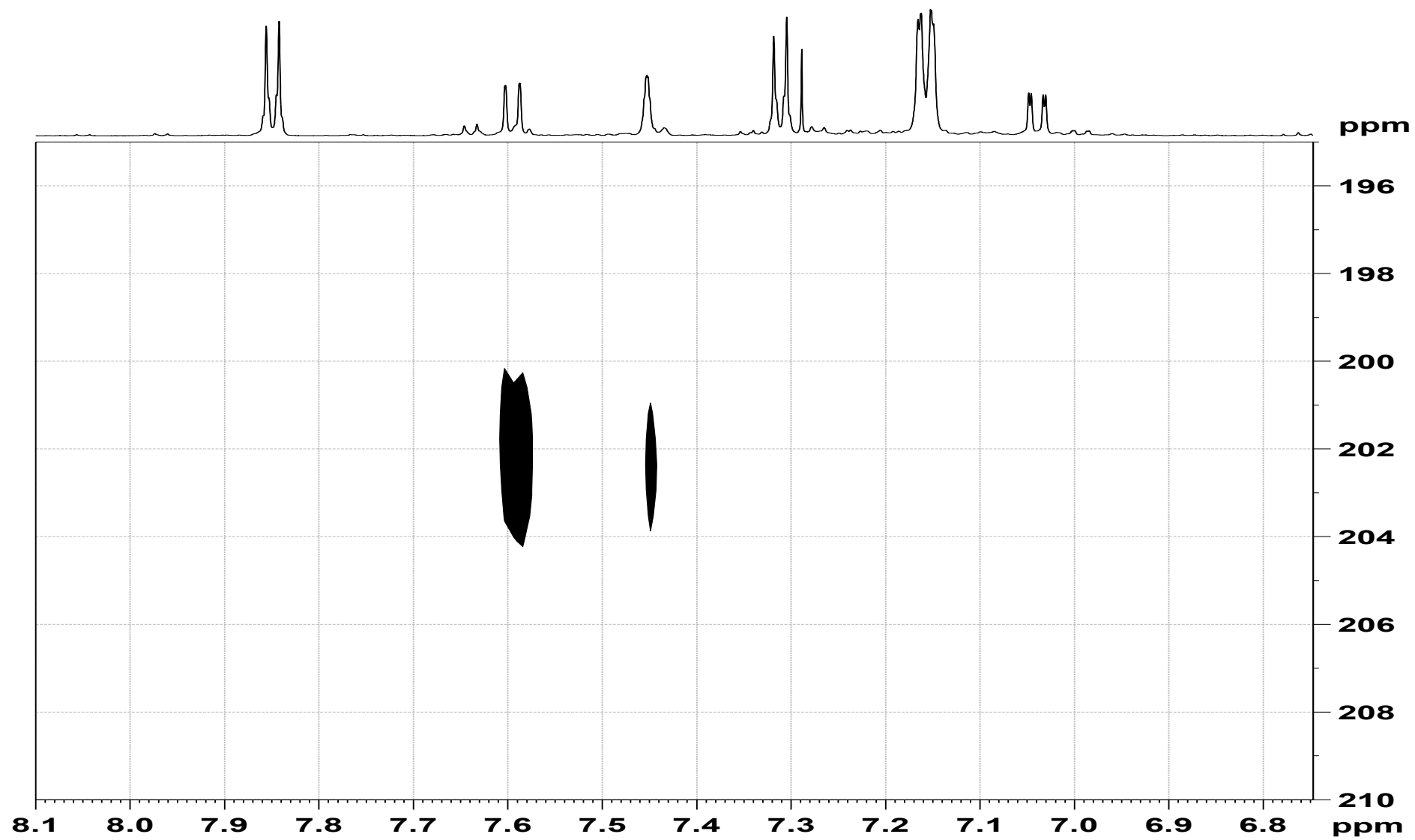
**Figure S85.**  $^1\text{H}$ - $^{13}\text{C}$  HSQC NMR spectrum 6-methyl-2-(4-methylphenyl)-3-(1-(4-methylphenyl)vinyl)imidazo[1,2-a]pyridine (**4g**).

S87



**Figure S86.**  $^1\text{H}$ - $^{13}\text{C}$  HMBC NMR spectrum of 6-methyl-2-(4-methylphenyl)-3-(1-(4-methylphenyl)vinyl)imidazo[1,2-a]pyridine (4g).





**Figure S87.**  $^1\text{H}$ - $^{15}\text{N}$  HMBC NMR spectrum of 6-methyl-2-(4-methylphenyl)-3-(1-(4-methylphenyl)vinyl)imidazo[1,2-a]pyridine (**4g**).  
S89

XV) NMR spectra of 6-chloro-2-(4-methylphenyl)-3-(1-(4-methylphenyl)vinyl)imidazo[1,2-a]pyridine (4h)

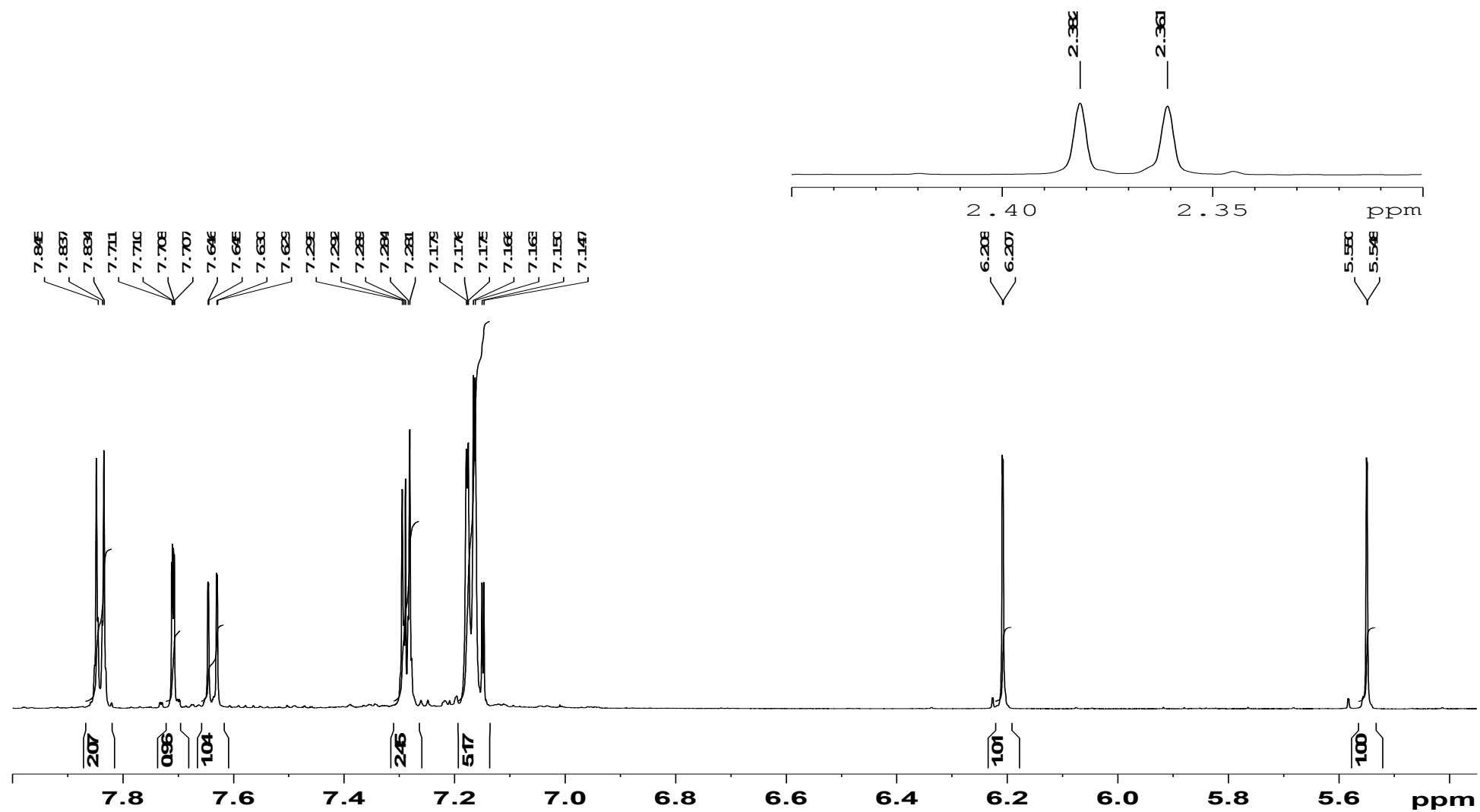
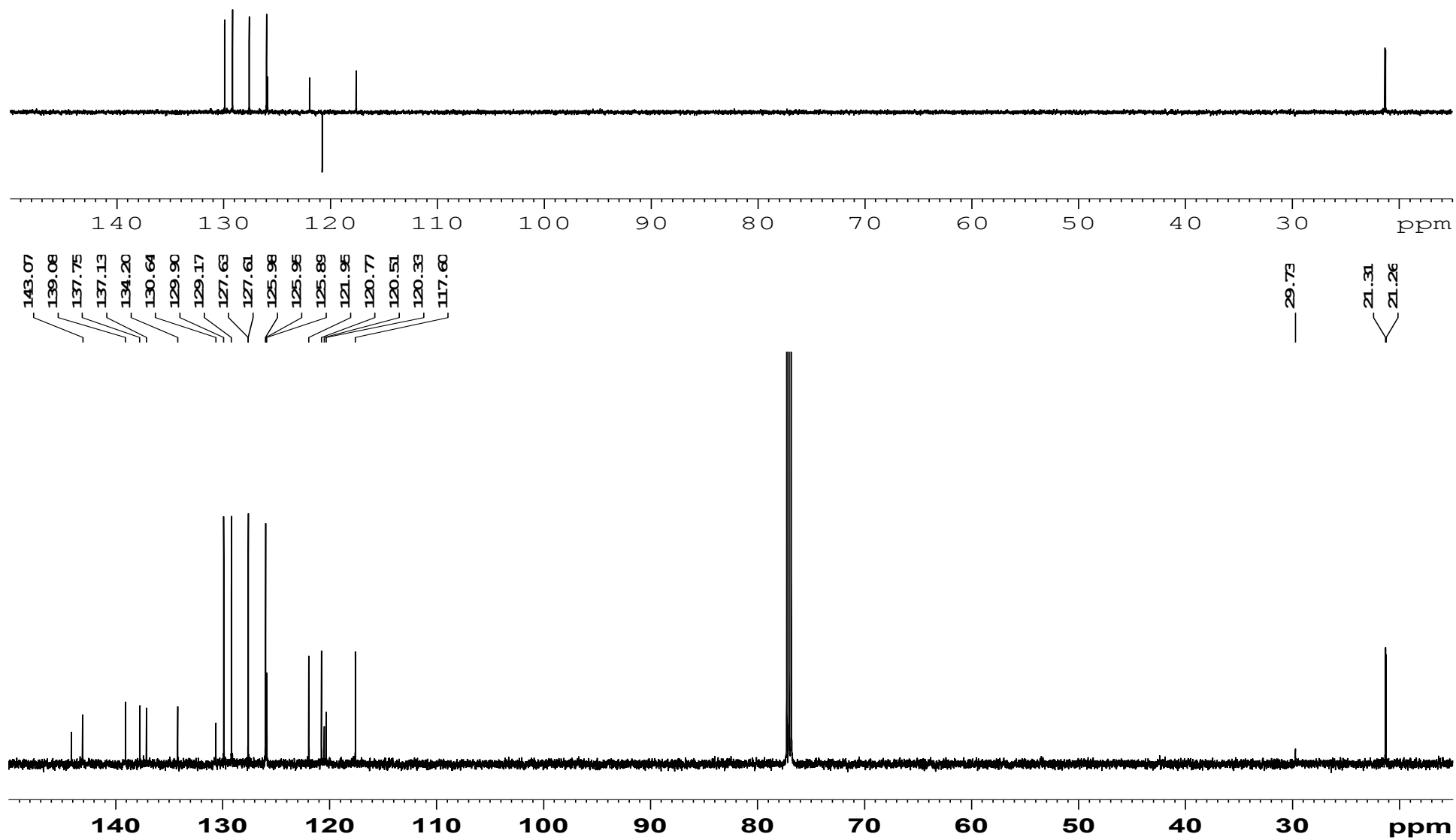
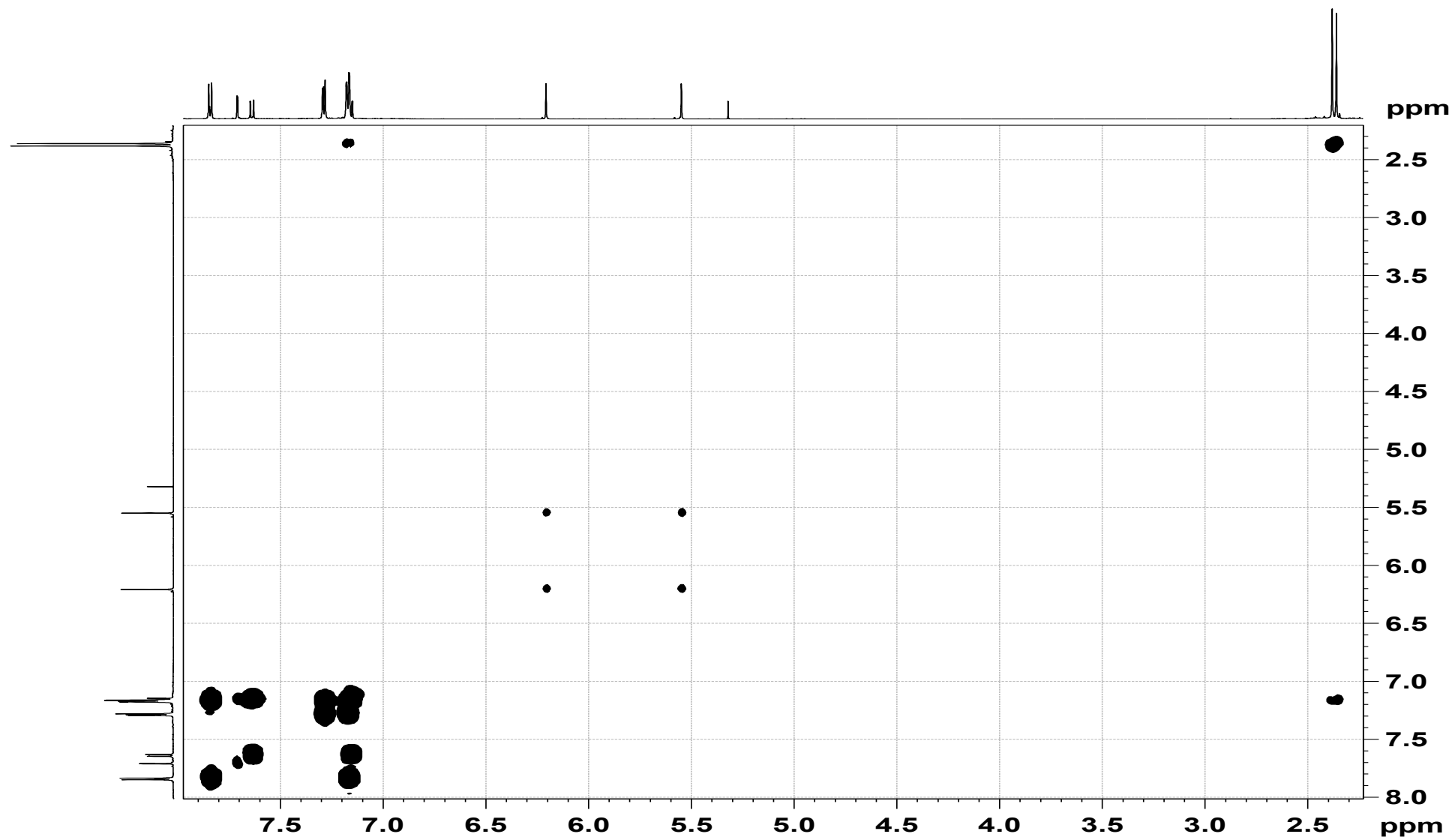


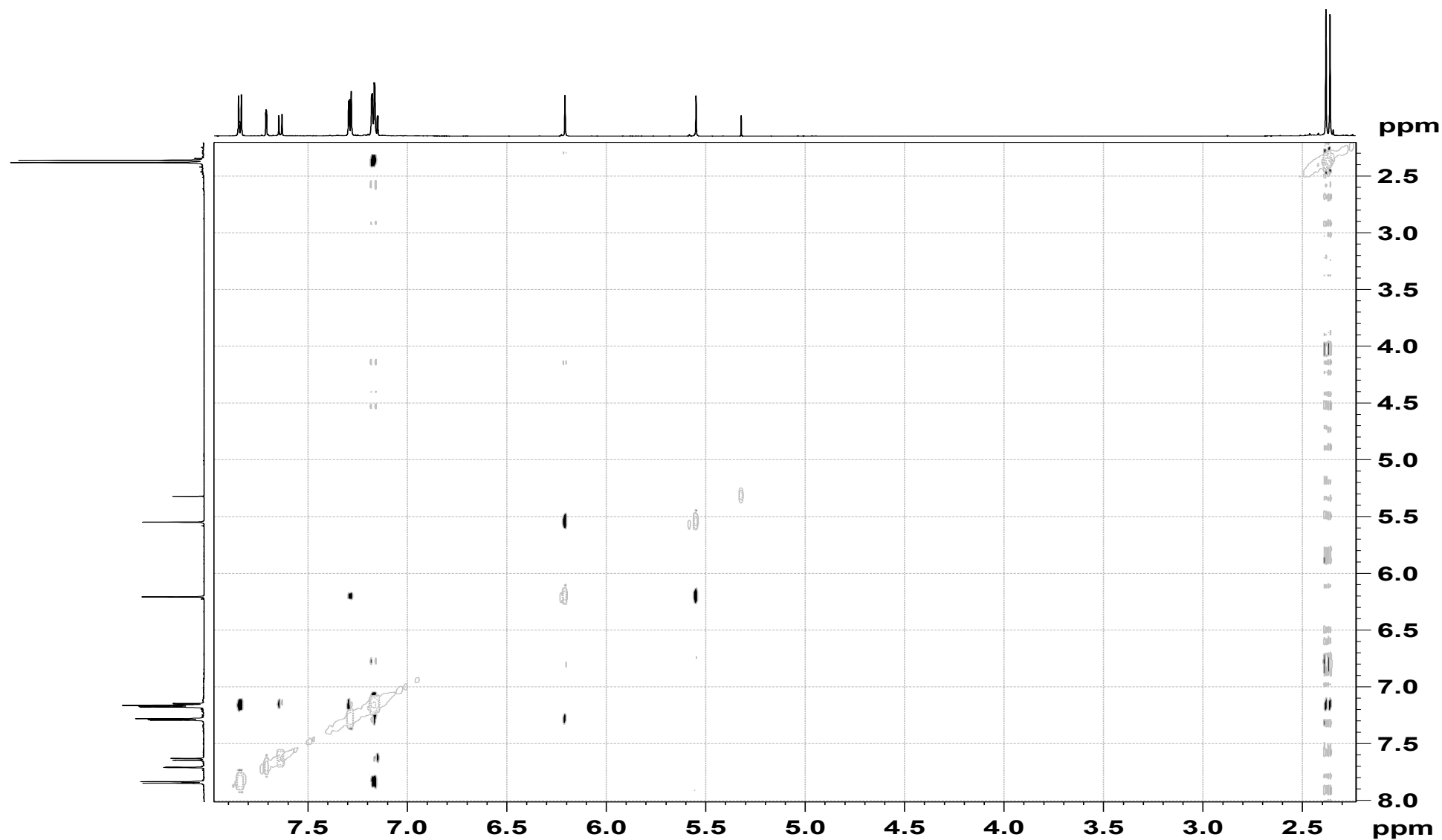
Figure S88. <sup>1</sup>H NMR spectrum of 6-chloro-2-(4-methylphenyl)-3-(1-(4-methylphenyl)vinyl)imidazo[1,2-a]pyridine (4h).



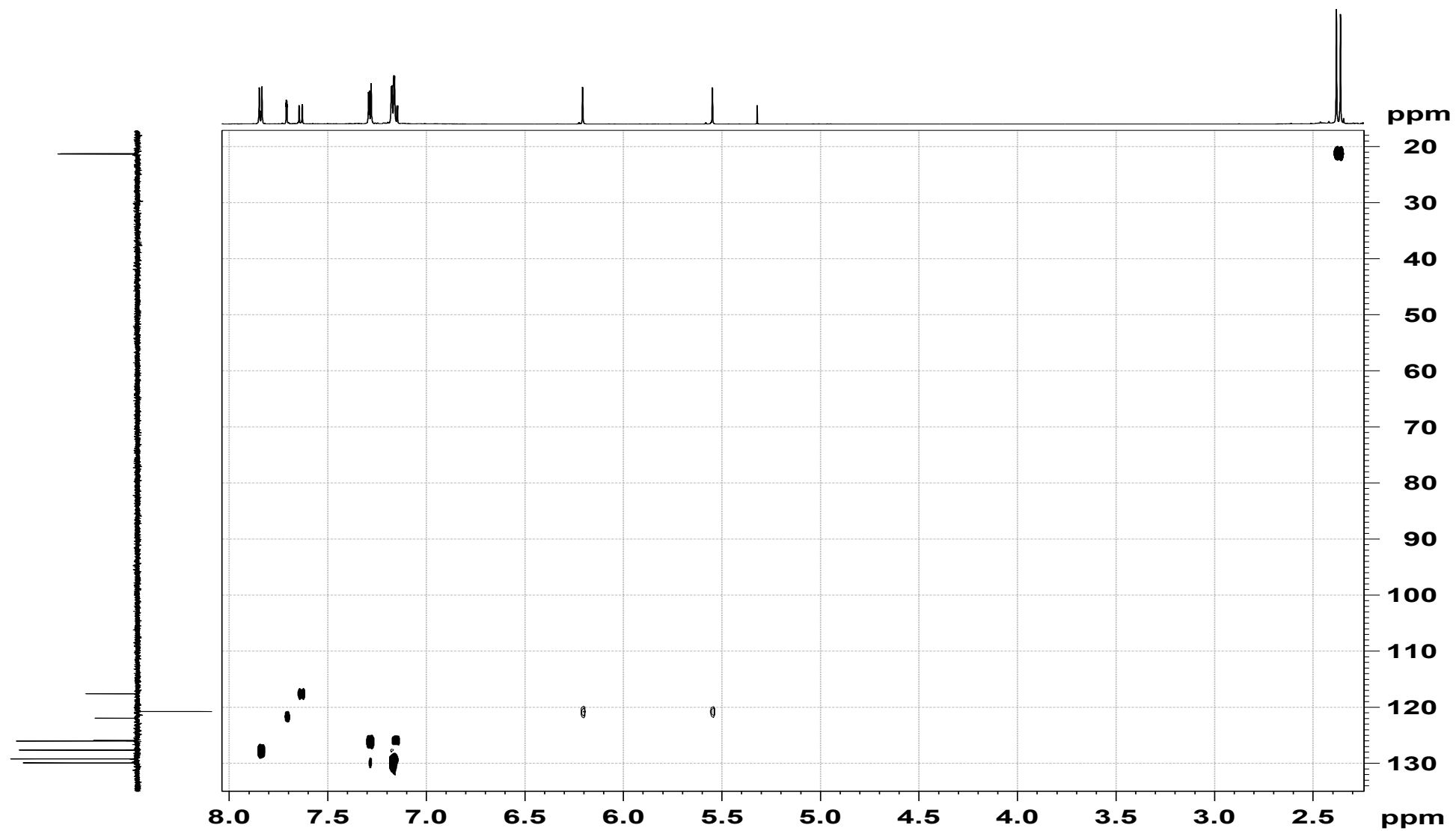
**Figure S89.** <sup>13</sup>C (down) and DEPT (up) NMR spectrum of 6-chloro-2-(4-methylphenyl)-3-(1-(4-methylphenyl)vinyl)imidazo[1,2-a]pyridine (**4h**).  
S91



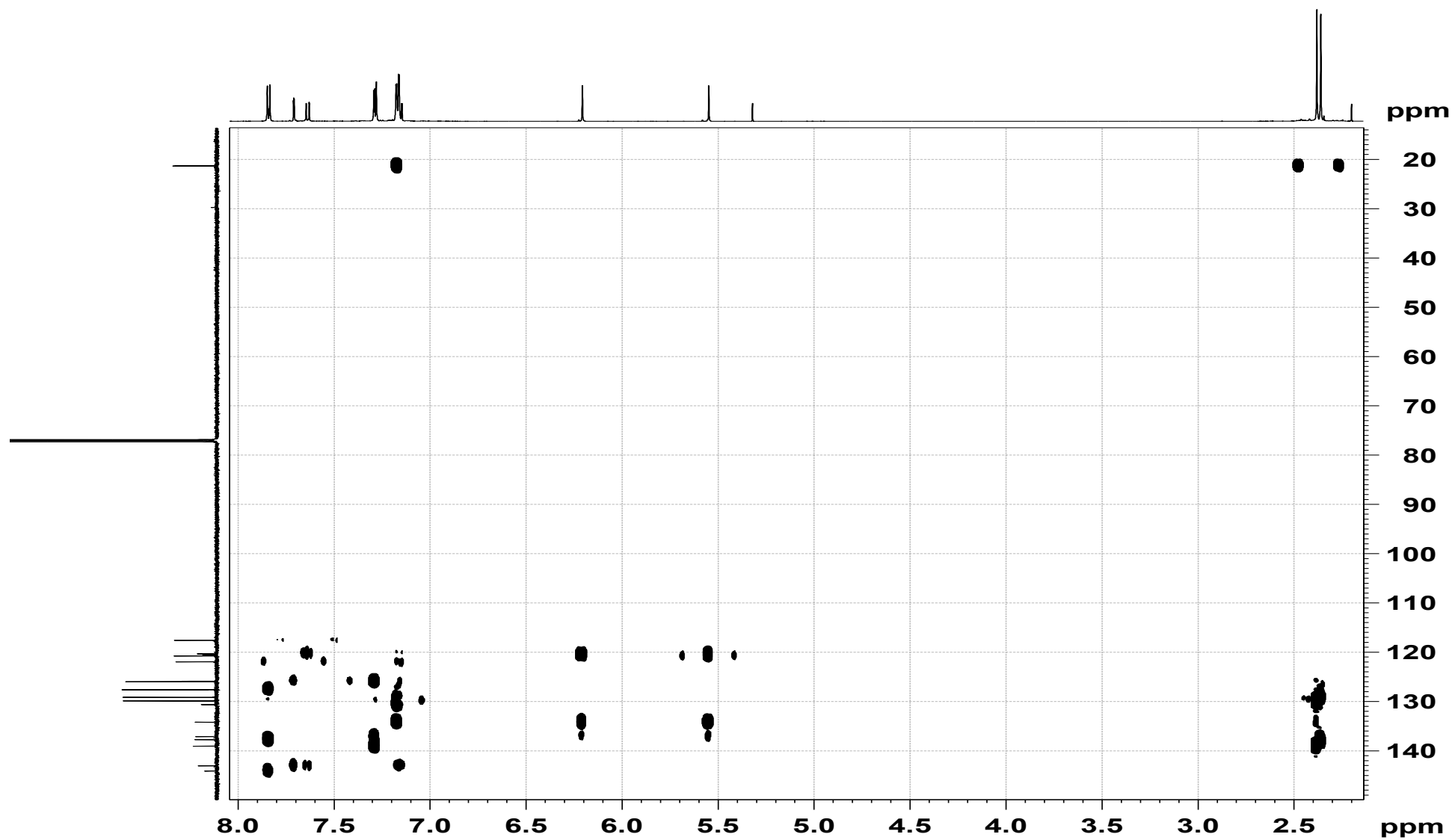
**Figure S90.** <sup>1</sup>H-<sup>1</sup>H COSY NMR spectrum of 6-chloro-2-(4-methylphenyl)-3-(1-(4-methylphenyl)vinyl)imidazo[1,2-a]pyridine (**4h**).



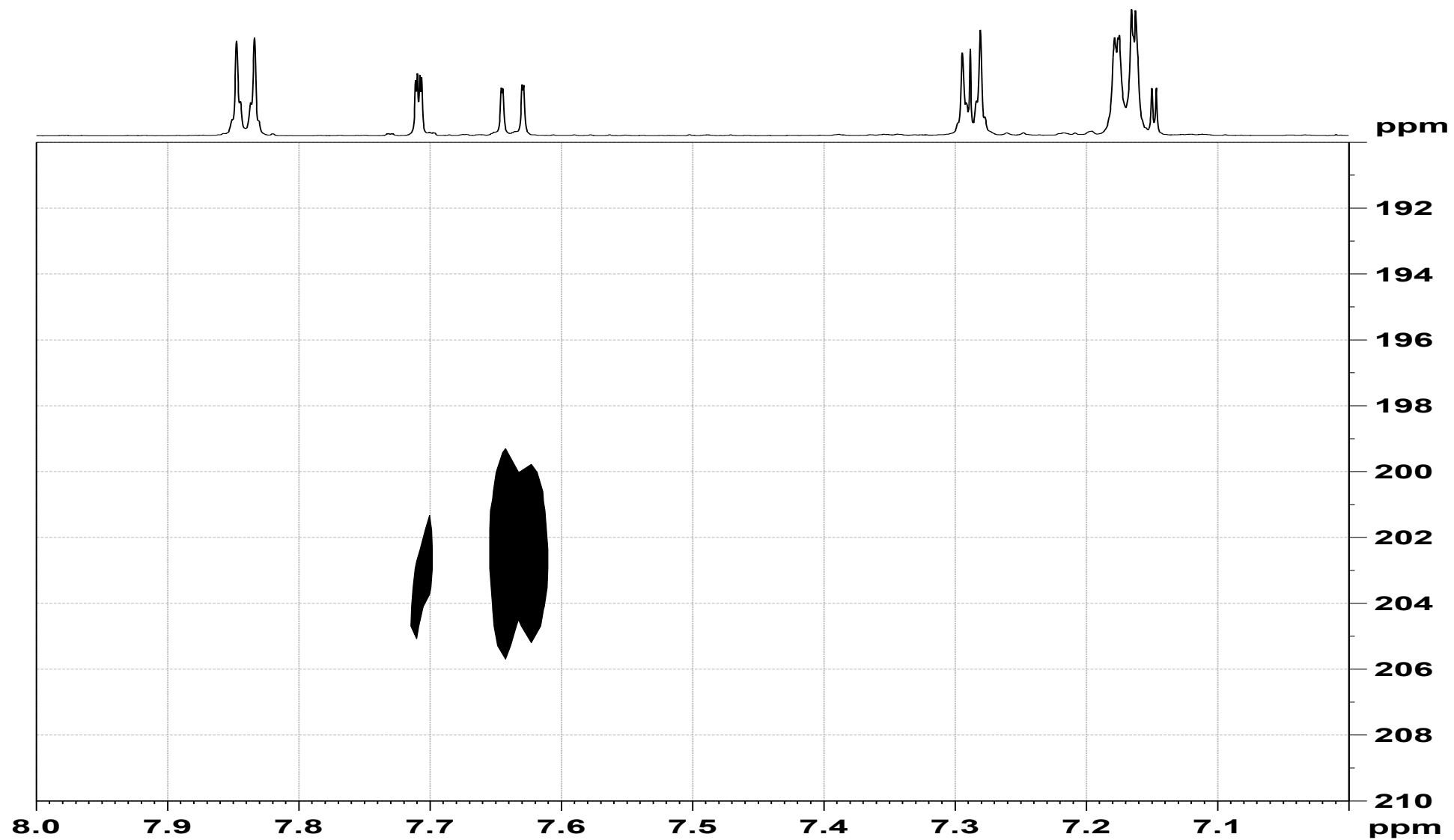
**Figure S91.** <sup>1</sup>H-<sup>1</sup>H NOESY NMR spectrum of 6-chloro-2-(4-methylphenyl)-3-(1-(4-methylphenyl)vinyl)imidazo[1,2-a]pyridine (**4h**).



**Figure S92.**  $^1\text{H}$ - $^{13}\text{C}$  HSQC NMR spectrum 6-chloro-2-(4-methylphenyl)-3-(1-(4-methylphenyl)vinyl)imidazo[1,2-a]pyridine (**4h**).



**Figure S93.**  $^1\text{H}$ - $^{13}\text{C}$  HMBC NMR spectrum of 6-chloro-2-(4-methylphenyl)-3-(1-(4-methylphenyl)vinyl)imidazo[1,2-a]pyridine (**4h**).  
S95



**Figure S94.**  $^1\text{H}$ - $^{15}\text{N}$  HMBC NMR spectrum of 6-chloro-2-(4-methylphenyl)-3-(1-(4-methylphenyl)vinyl)imidazo[1,2-a]pyridine (**4h**).  
S96



XVI) NMR spectra of 6-methyl-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (**4i**)

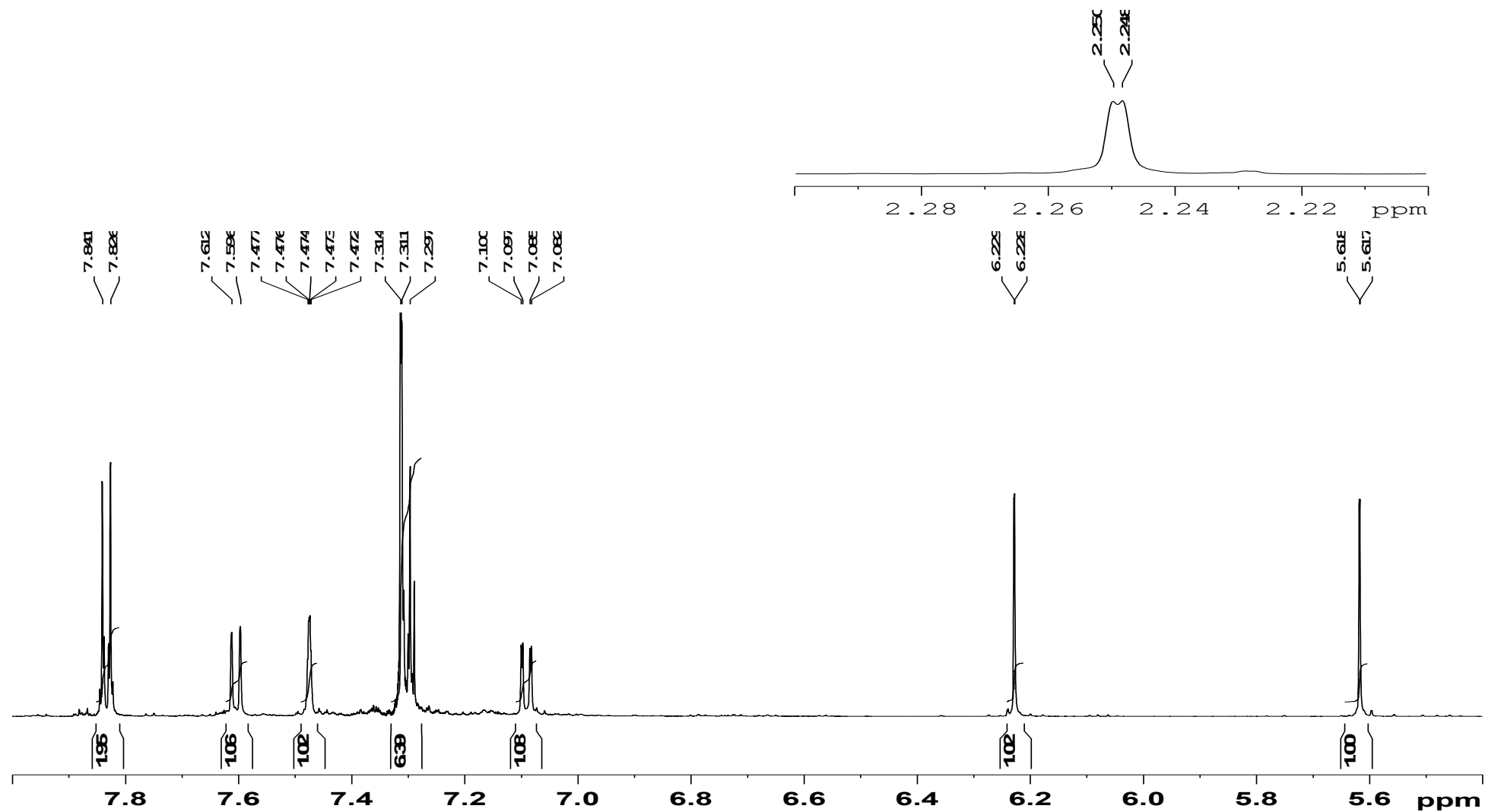
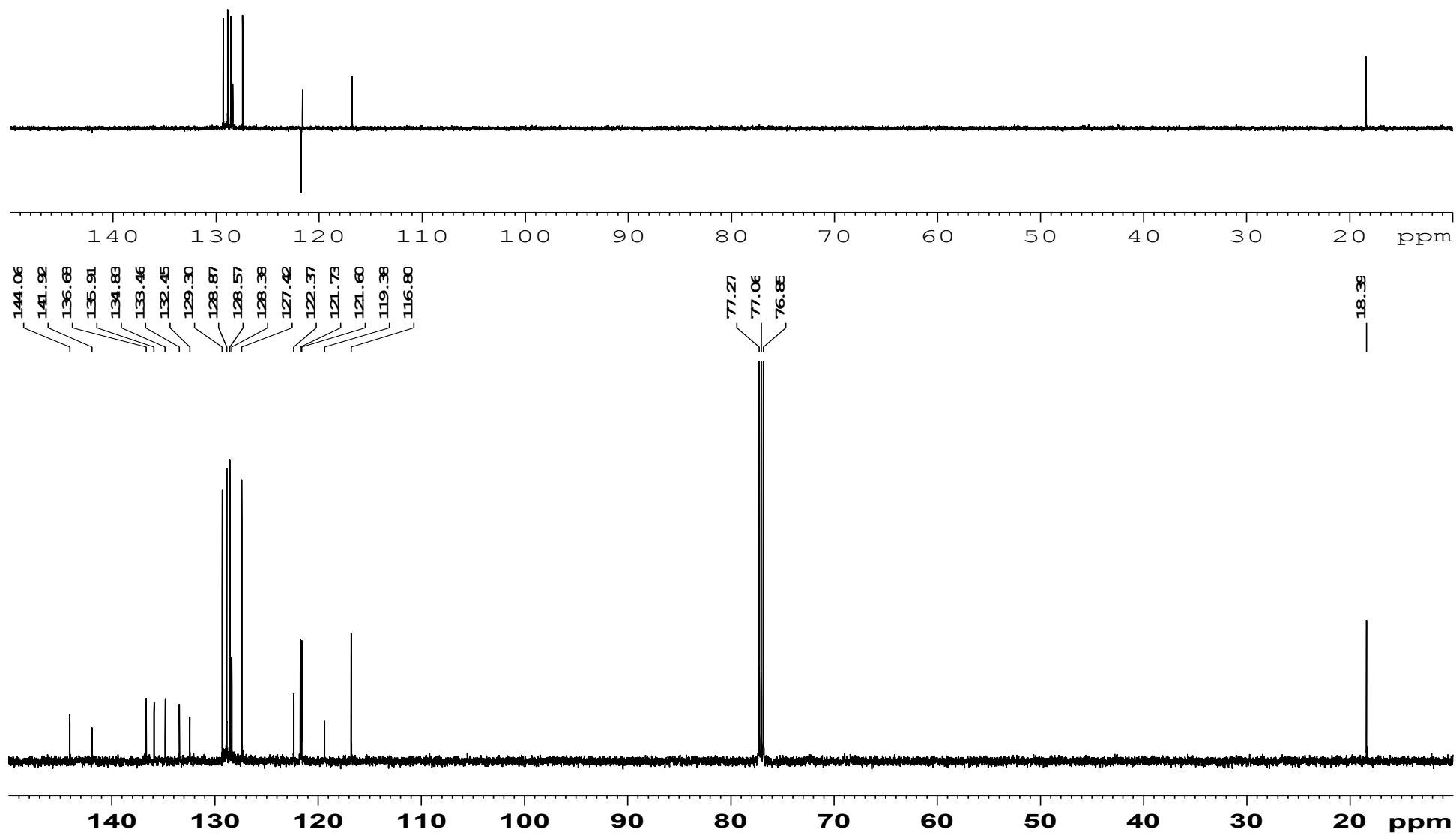
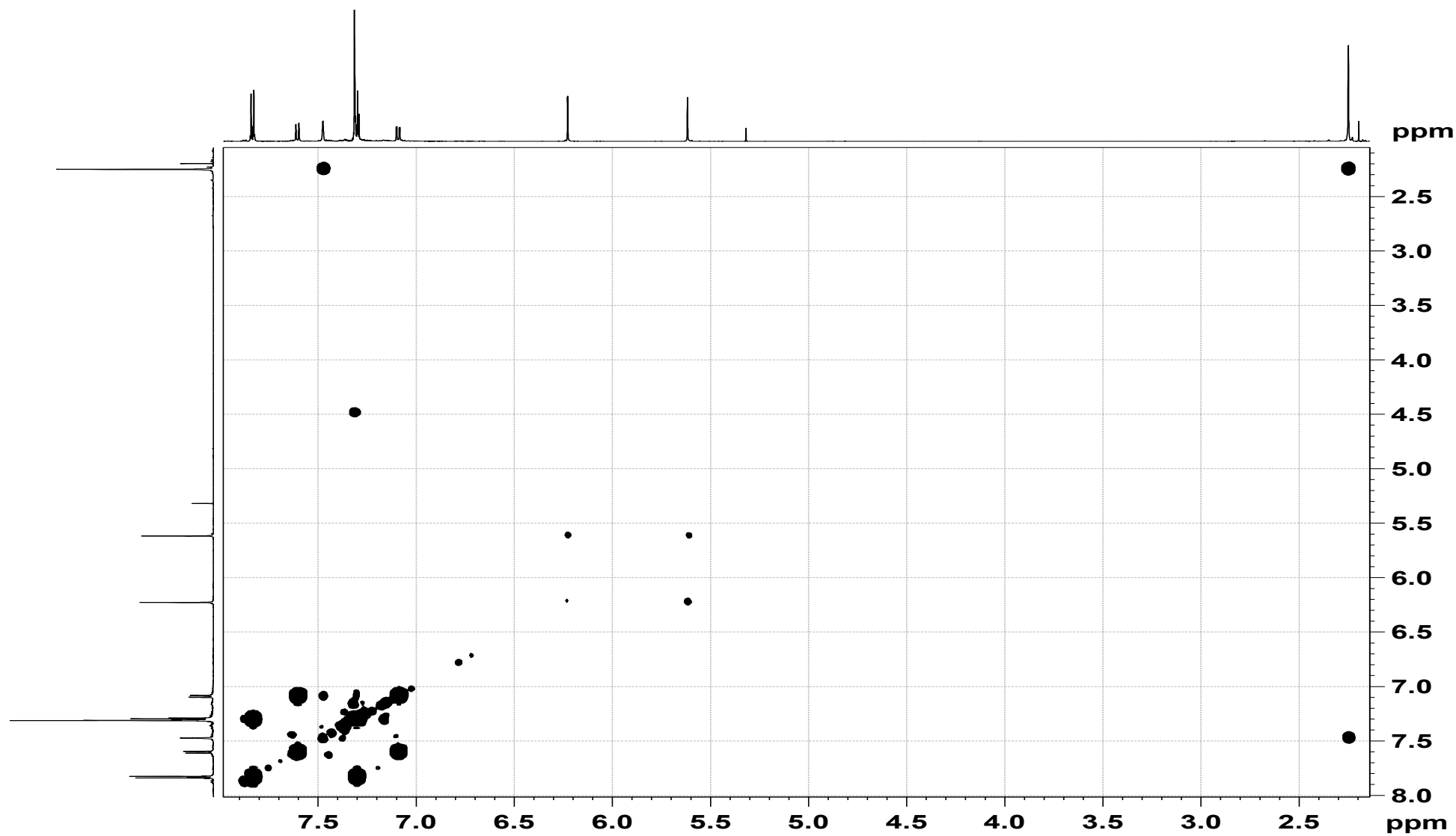


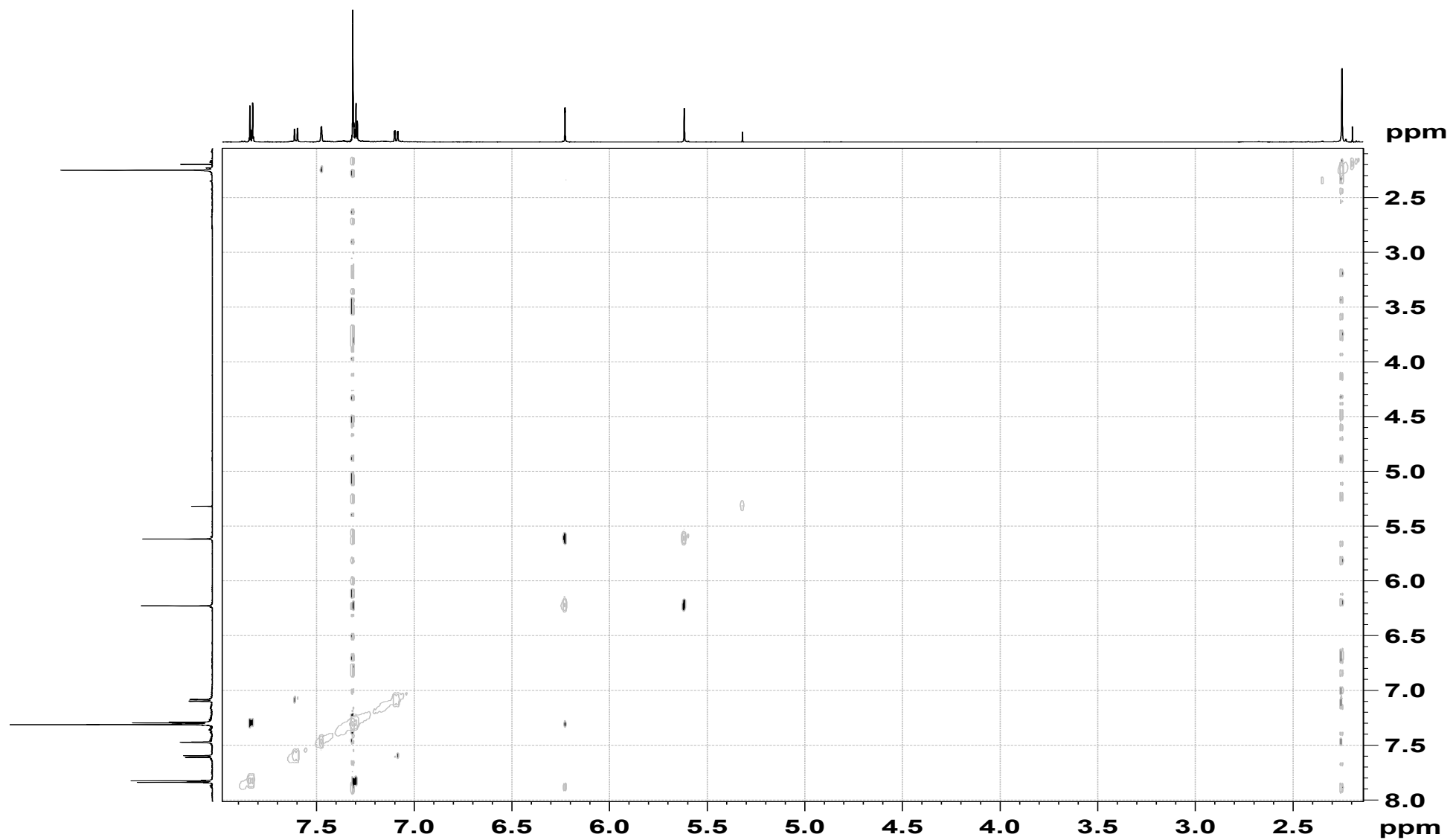
Figure S95. <sup>1</sup>H NMR spectrum of 6-methyl-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (**4i**).



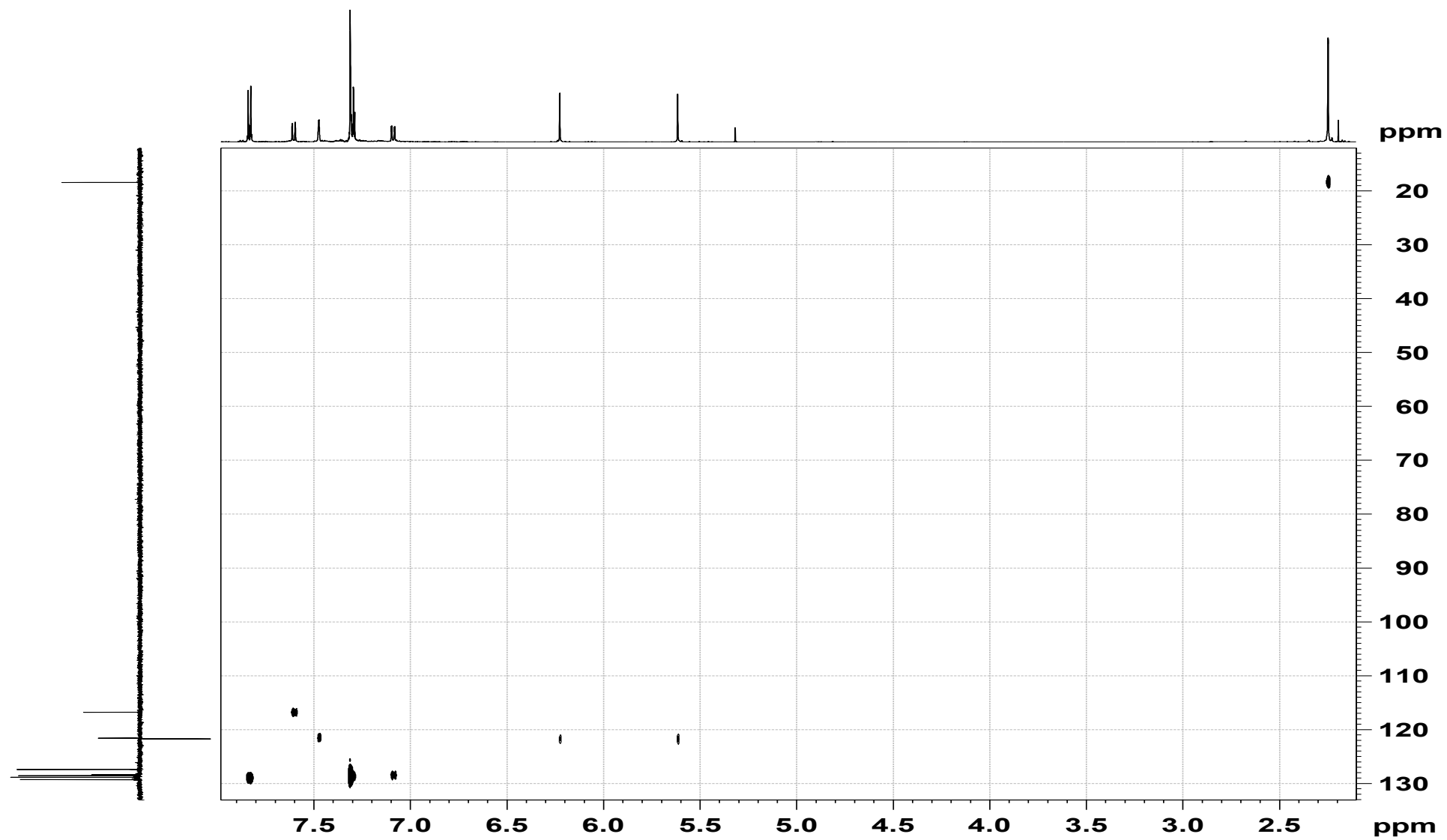
**Figure S96.** <sup>13</sup>C (down) and DEPT (up) NMR spectrum of 6-methyl-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (**4i**).



**Figure S97.** <sup>1</sup>H-<sup>1</sup>H COSY NMR spectrum of 6-methyl-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (**4i**).

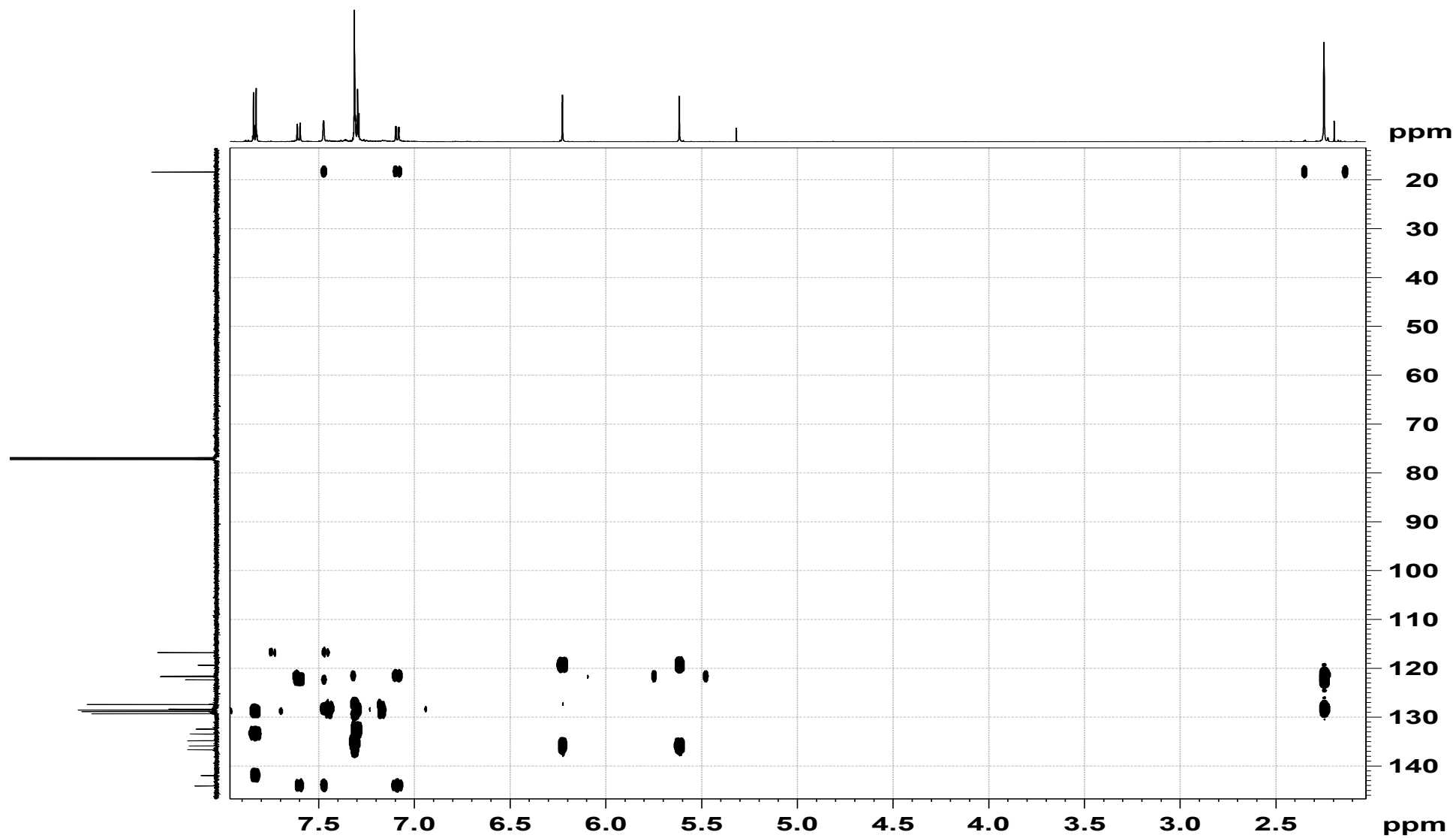


**Figure S98.** <sup>1</sup>H-<sup>1</sup>H NOESY NMR spectrum of 6-methyl-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (**4i**).



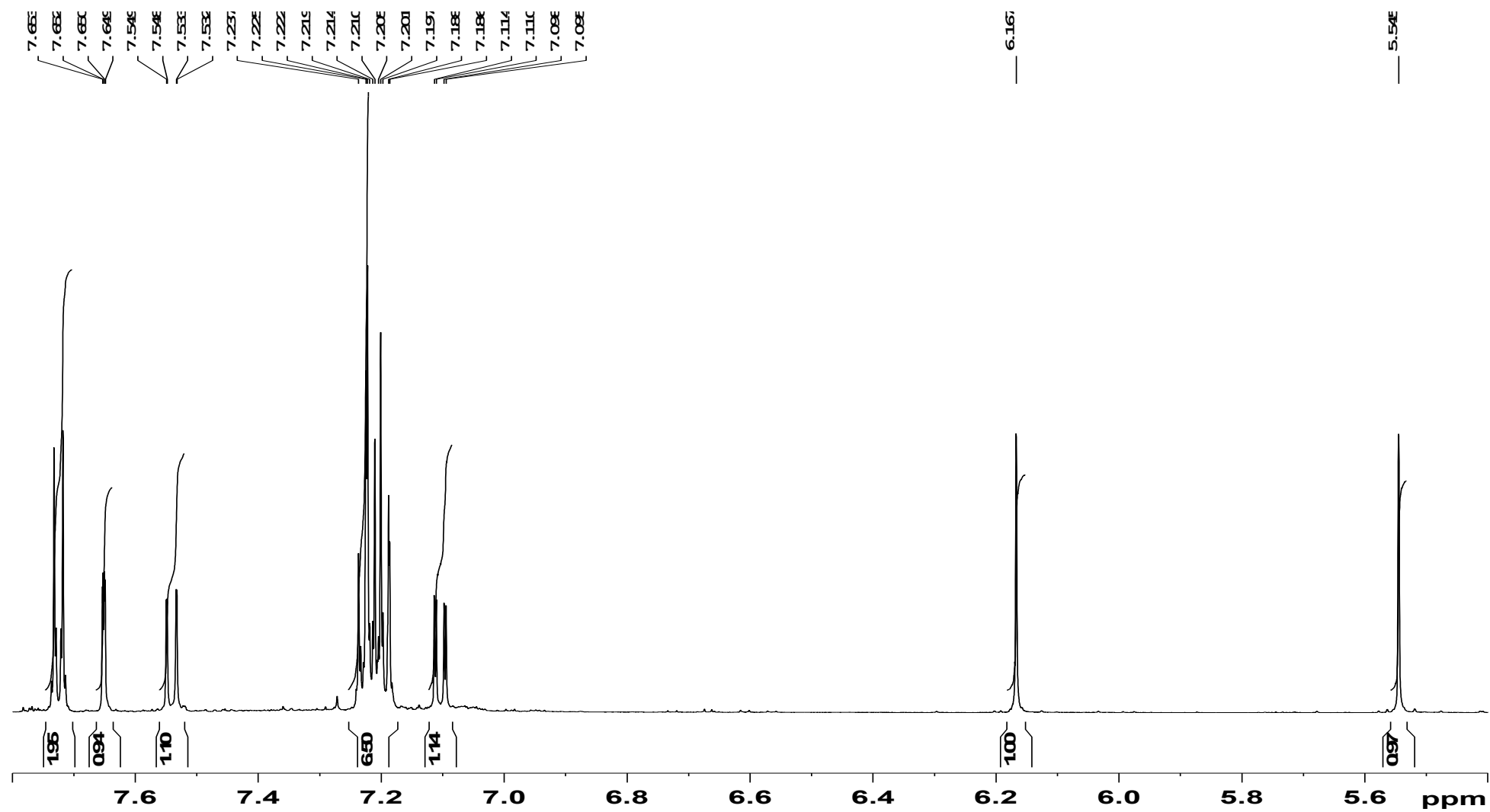
**Figure S99.**  $^1\text{H}$ - $^{13}\text{C}$  HSQC NMR spectrum 6-methyl-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (**4i**).

S101

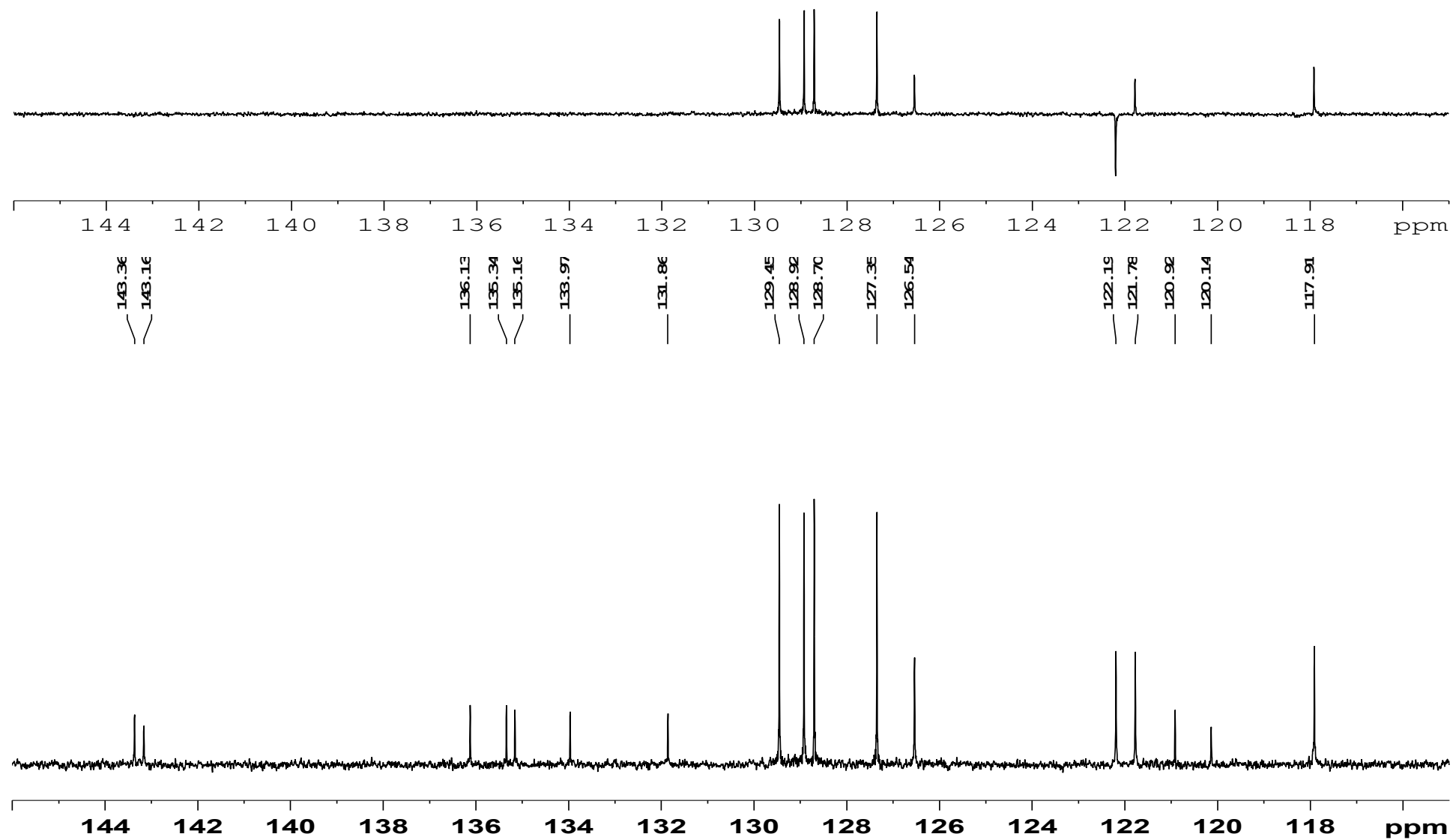


**Figure S100.**  $^1\text{H}$ - $^{13}\text{C}$  HMBC NMR spectrum of 6-methyl-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (**4i**).

**XVII) NMR spectra of 6-chloro-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (4j)**

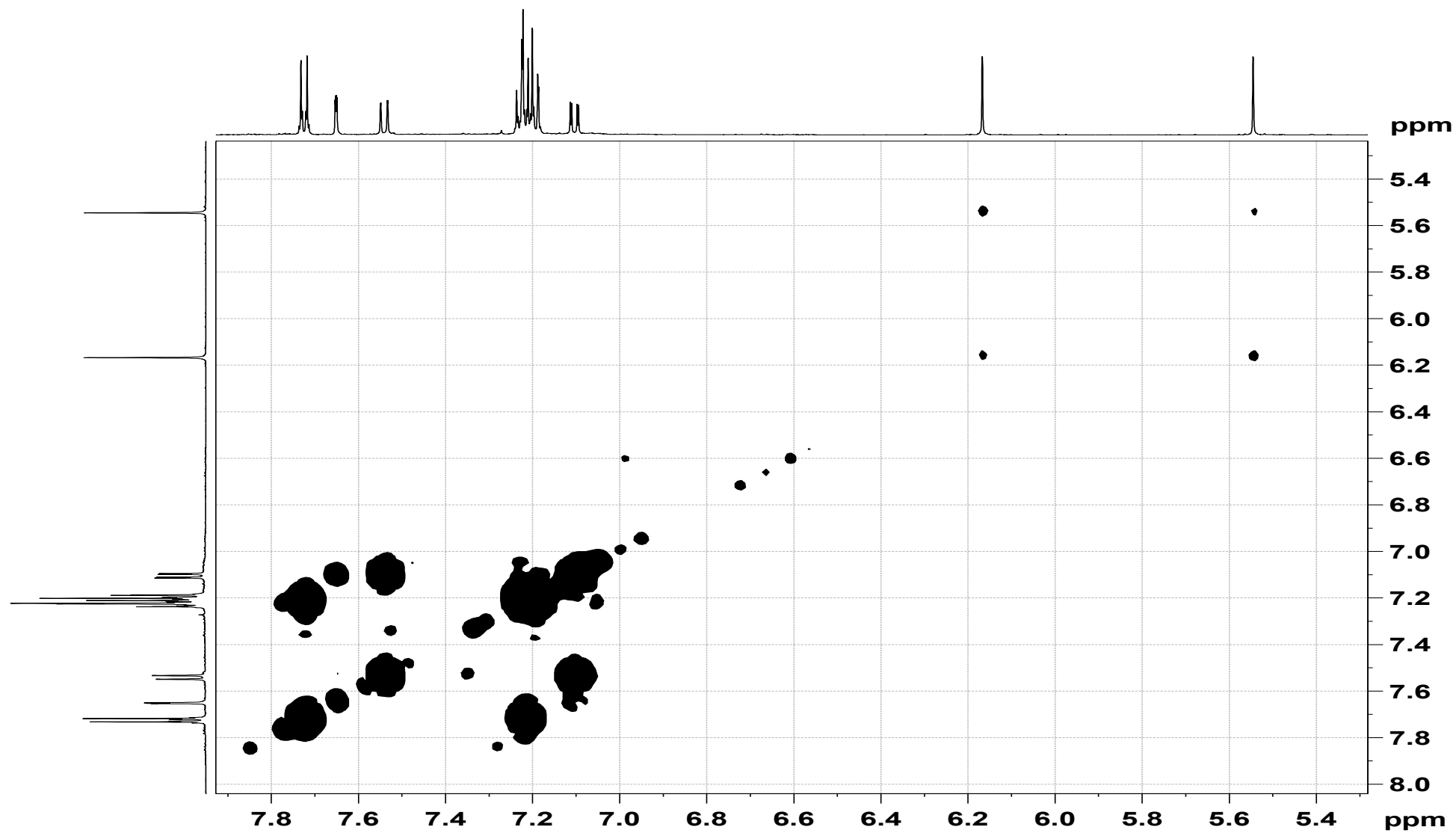


**Figure S101.** <sup>1</sup>H NMR spectrum of 6-chloro-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (4j).

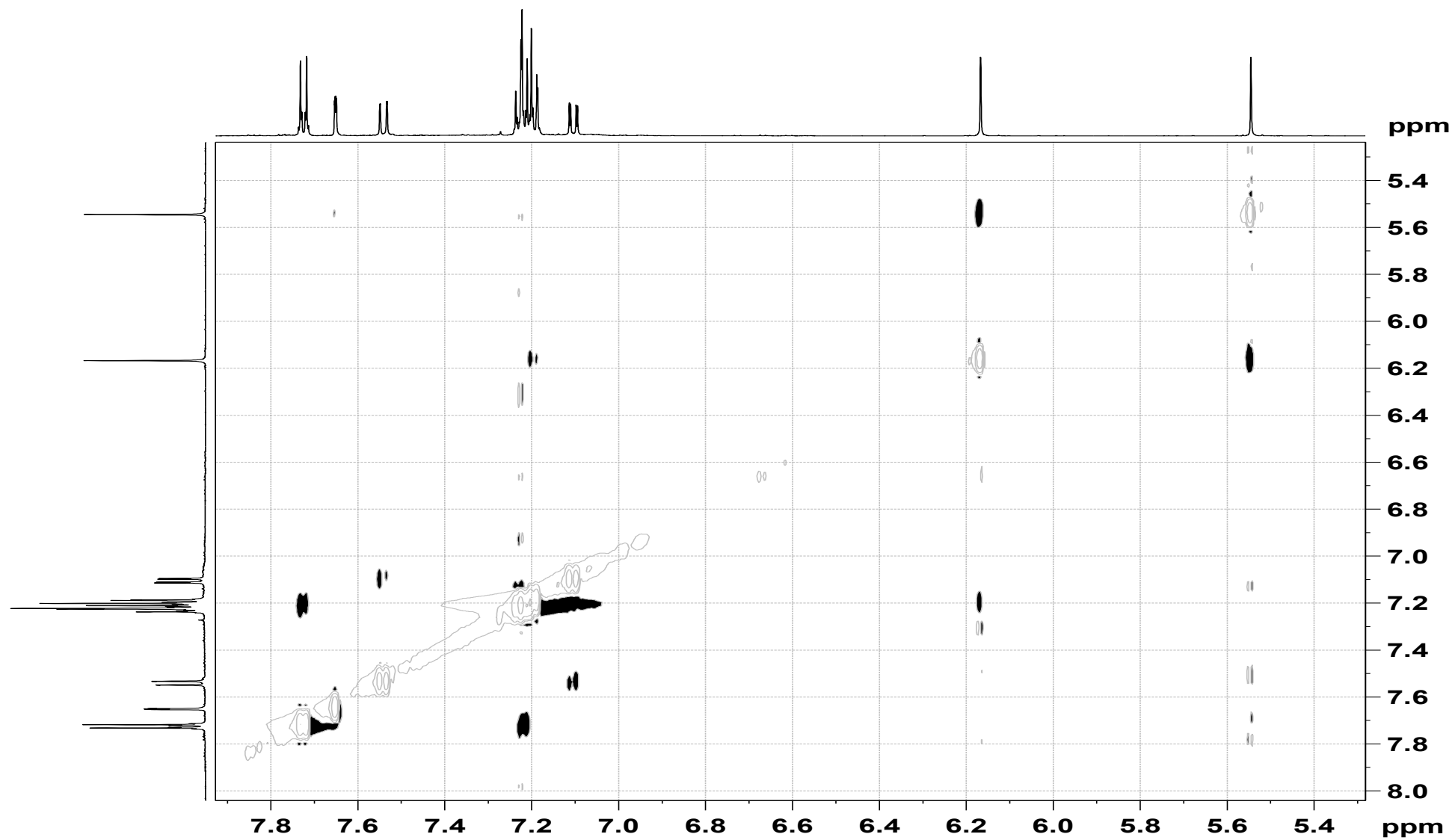


**Figure S102.** <sup>13</sup>C (down) and DEPT (up) NMR spectrum of 6-chloro-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (**4j**).  
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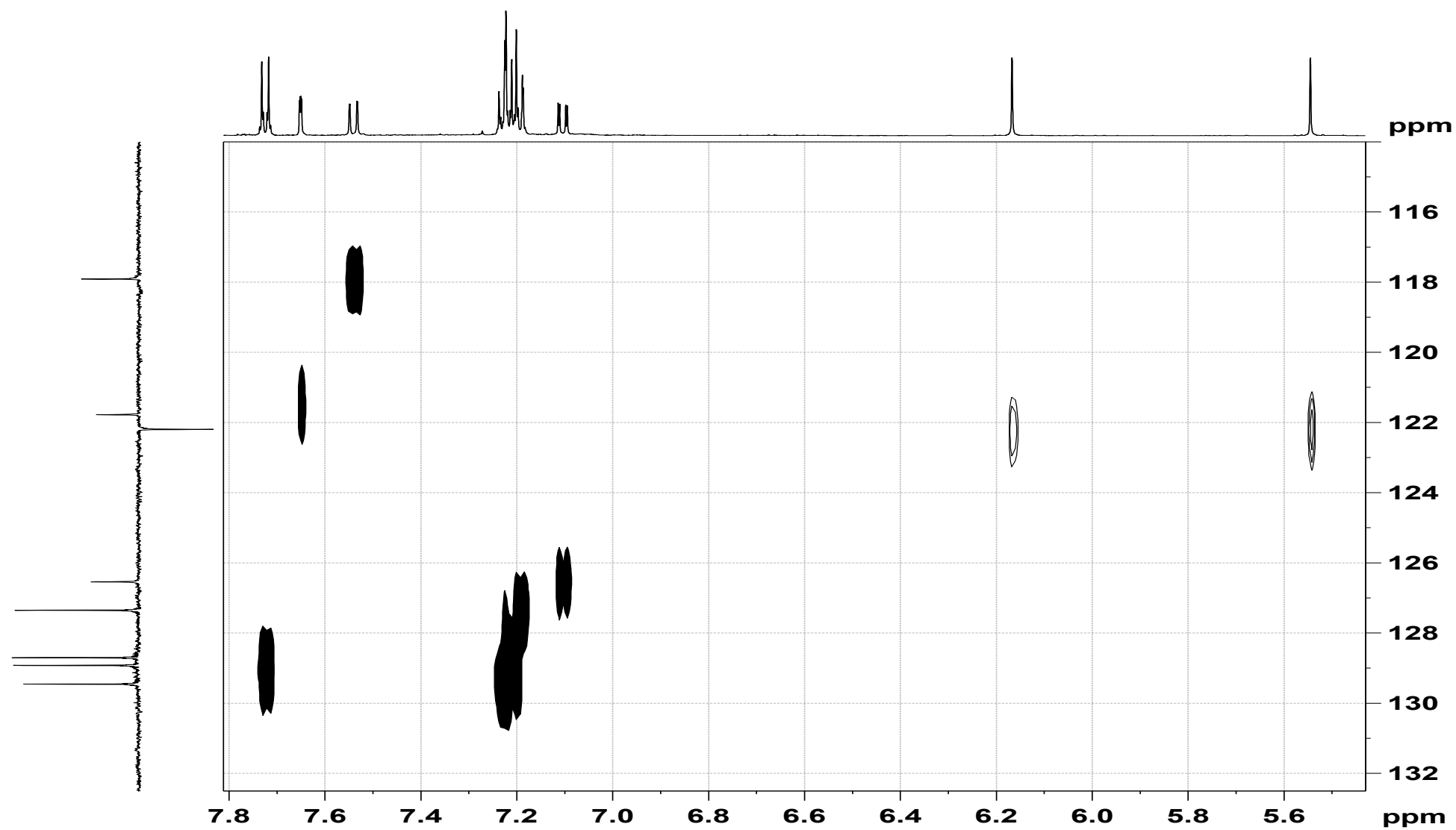




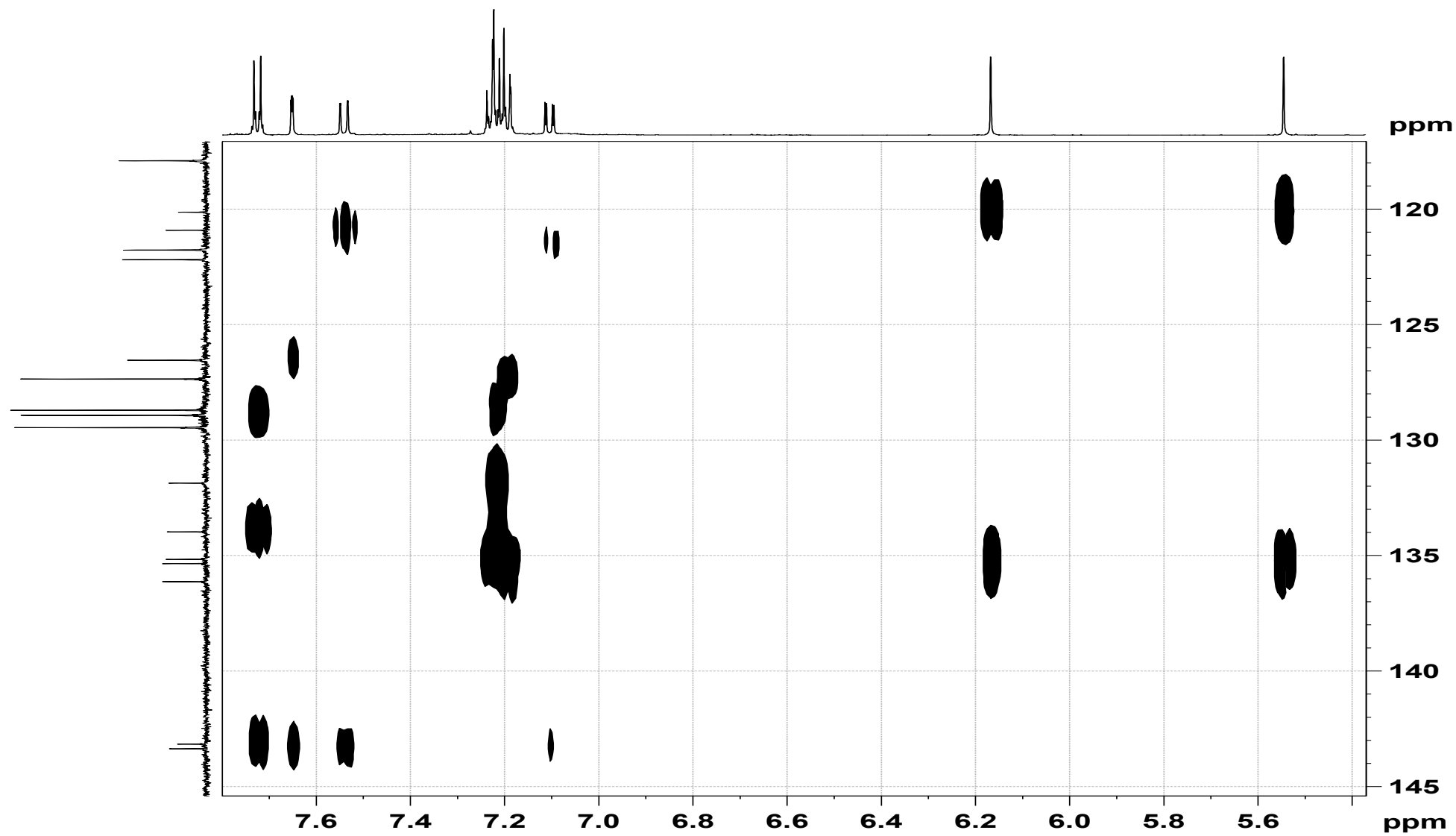
**Figure S103.**  $^1\text{H}$ - $^1\text{H}$  COSY NMR spectrum of 6-chloro-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (**4j**).



**Figure S104.**  $^1\text{H}$ - $^1\text{H}$  NOESY NMR spectrum of 6-chloro-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (**4j**).



**Figure S105.**  $^1\text{H}$ - $^{13}\text{C}$  HSQC NMR spectrum 6-chloro-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (**4j**).



**Figure S106.**  $^1\text{H}$ - $^{13}\text{C}$  HMBC NMR spectrum of 6-chloro-2-(4-chlorophenyl)-3-(1-(4-chlorophenyl)vinyl)imidazo[1,2-a]pyridine (**4j**).  
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