

## Supporting Information

# Microwave-Mediated, Catalyst-Free Synthesis of 1,2,4-Triazolo[1,5-*a*]Pyridines from Enaminonitriles

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<sup>†</sup> These authors contributed equally to this work.

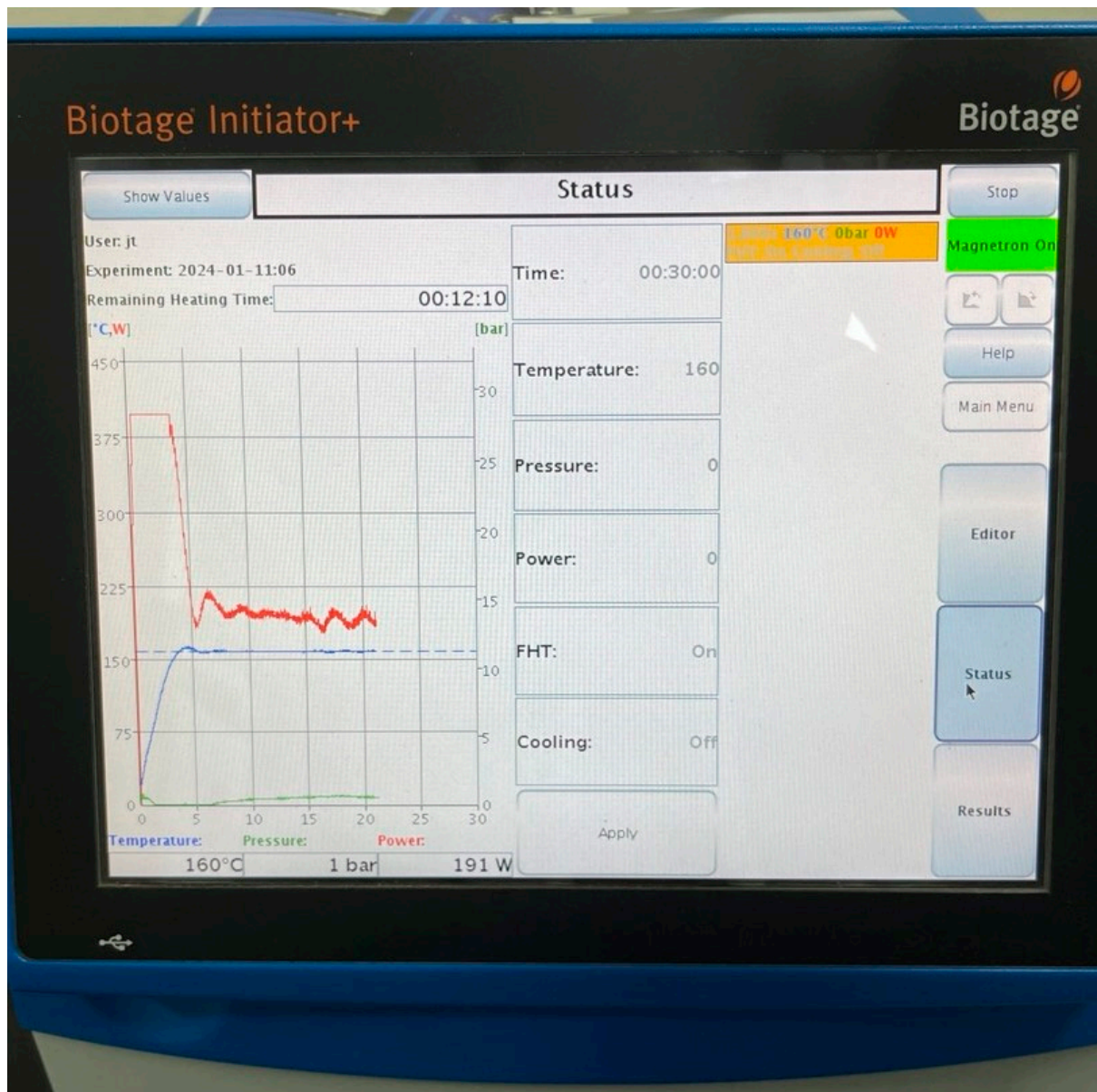
Title	Page no
Microwave experiment parameters	2
NMR spectra of synthesized compounds	6

## Microwave experiment parameters

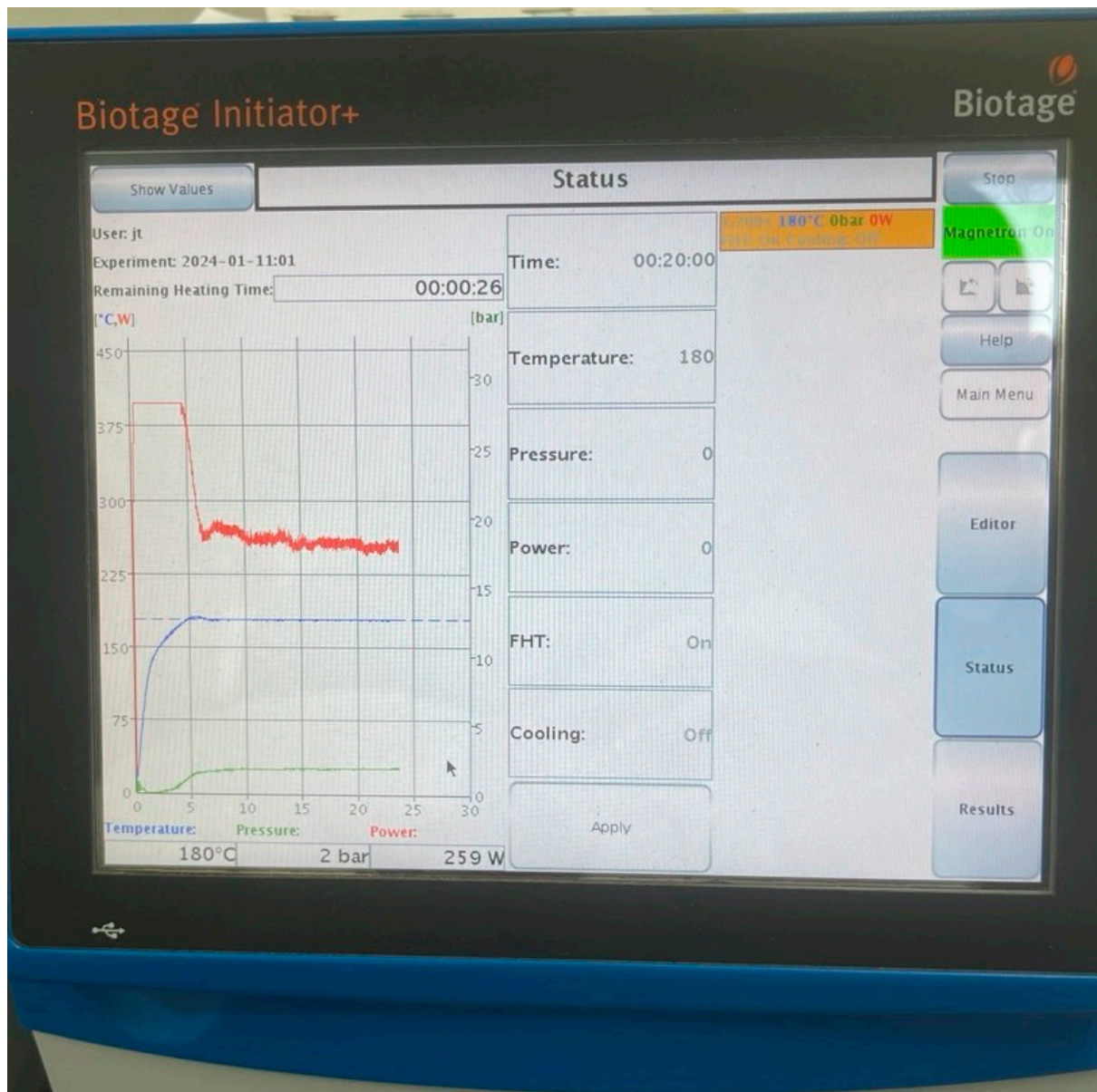
At 140 °C, (pressure 0 bar, power 145-160 W)



At 160 °C, (pressure 1 bar, power 180-200 W)

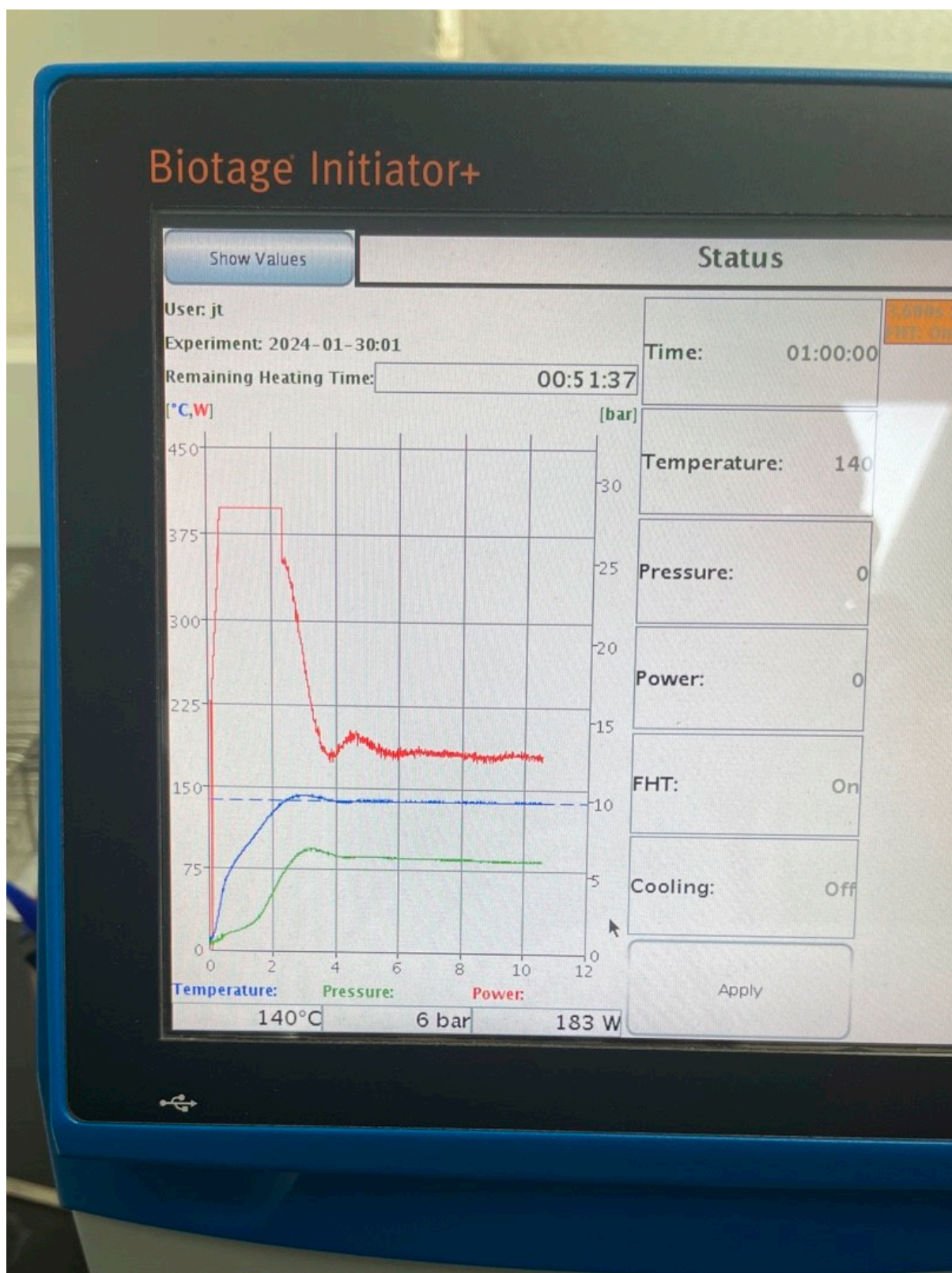


At 180 °C, (pressure 2 bar, power 250-265 W)



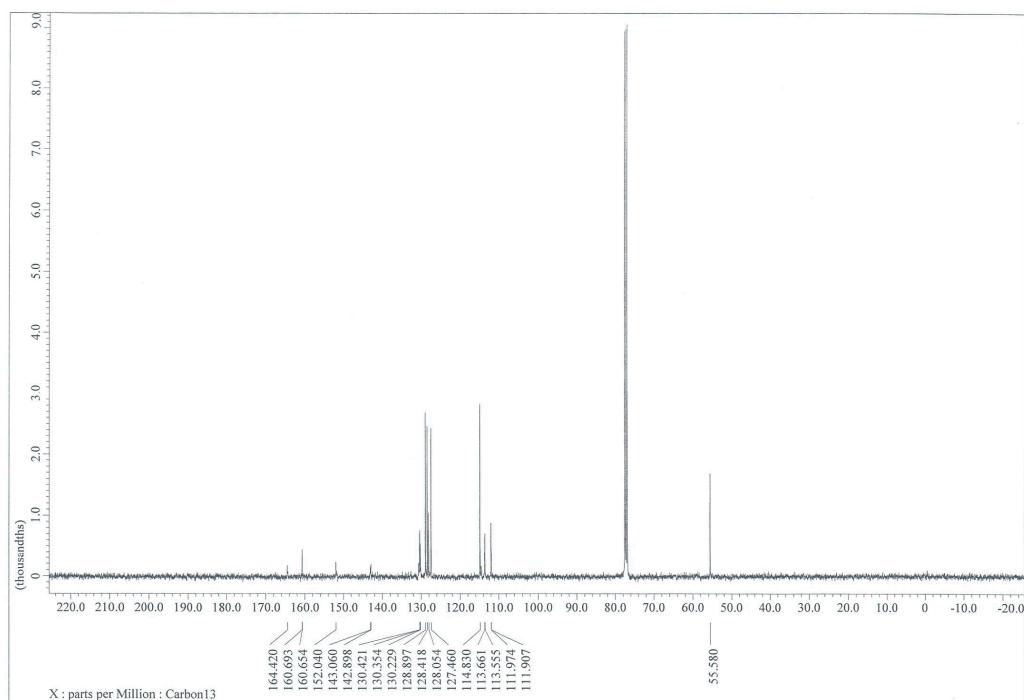
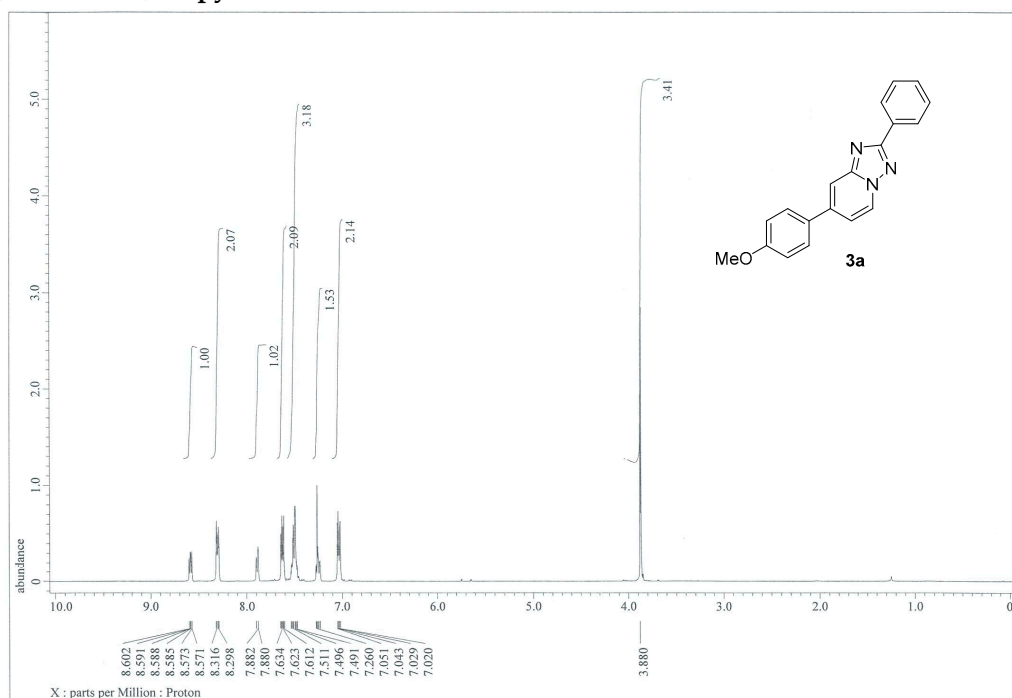


At 140 °C in TBME, (pressure 6 bar, power 175-190 W)

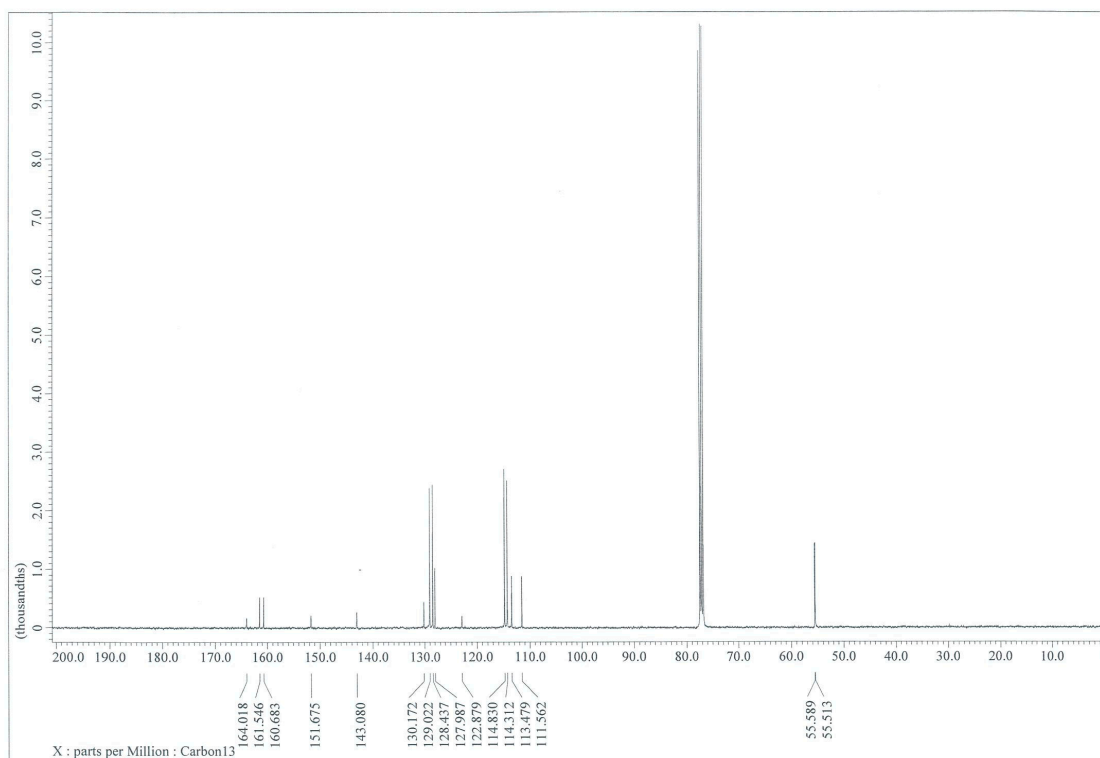
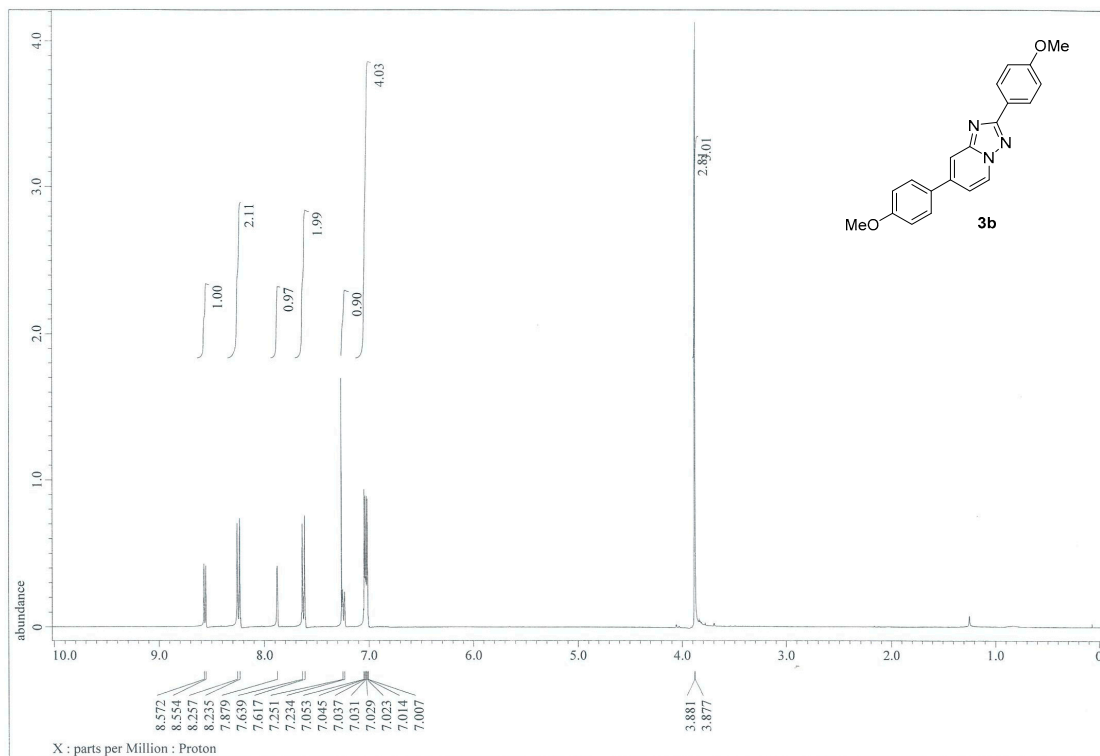


## NMR spectra of synthesized compounds

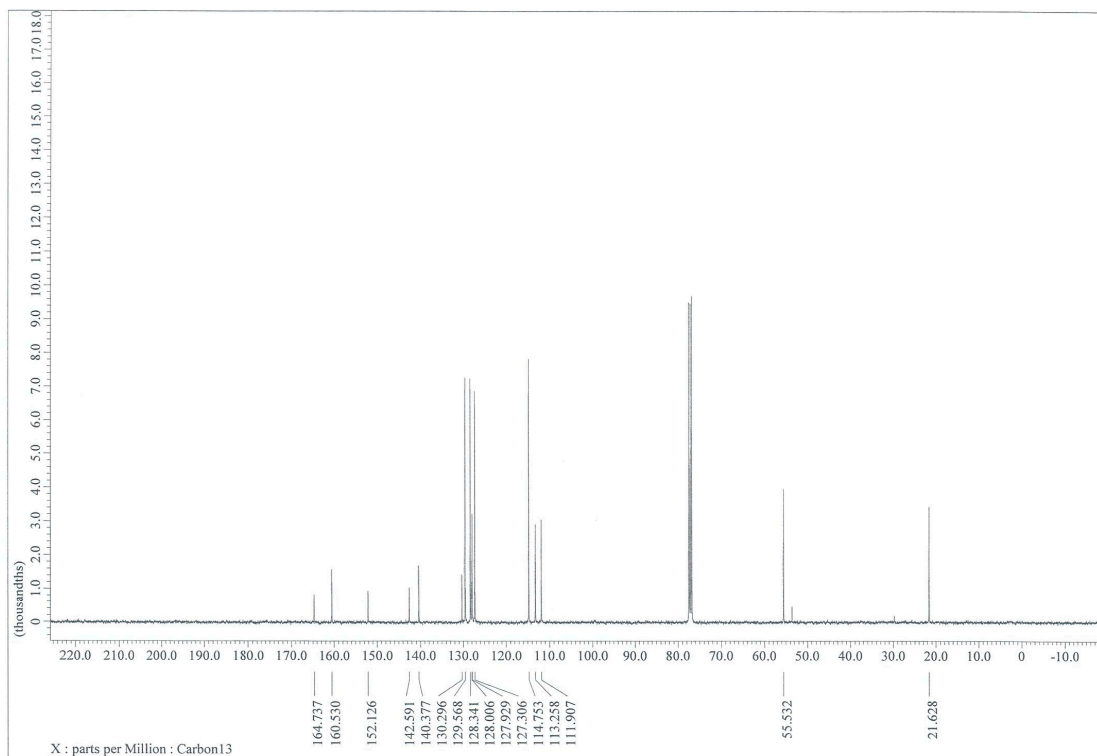
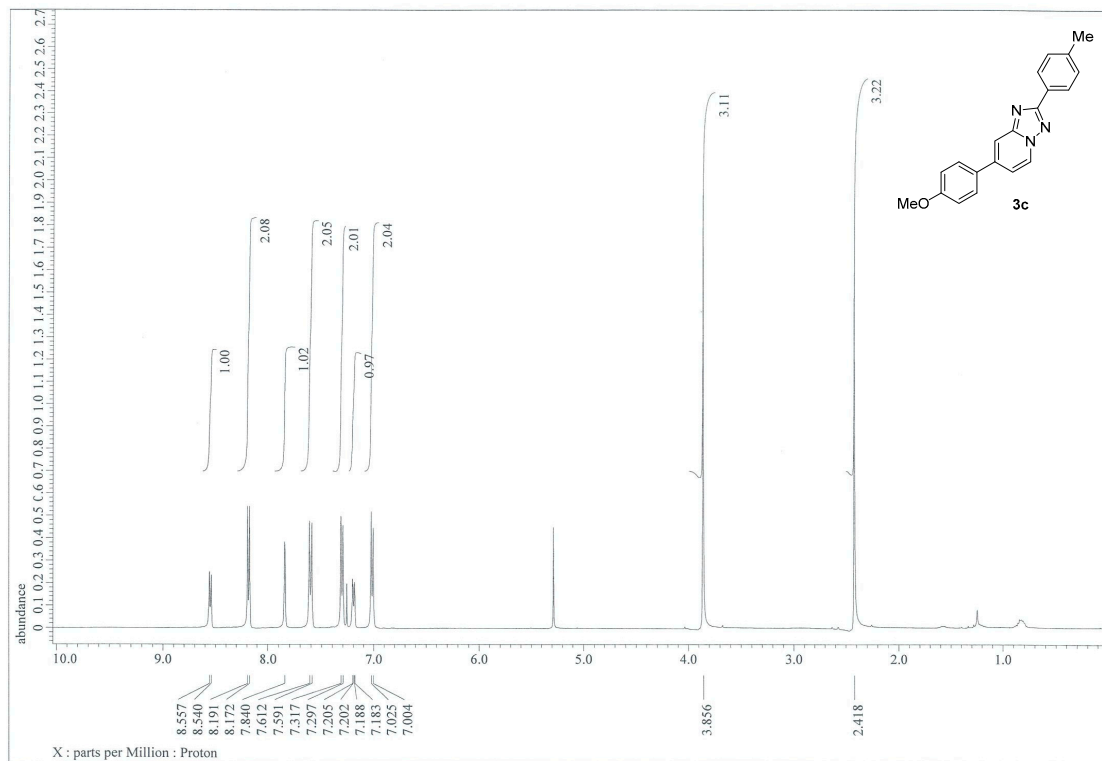
$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) of 7-(4-methoxyphenyl)-2-phenyl-[1,2,4]triazolo[1,5-*a*]pyridine (**3a**)



$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) of 2,7-bis(4-methoxyphenyl)-[1,2,4]triazolo[1,5-*a*]pyridine (**3b**)

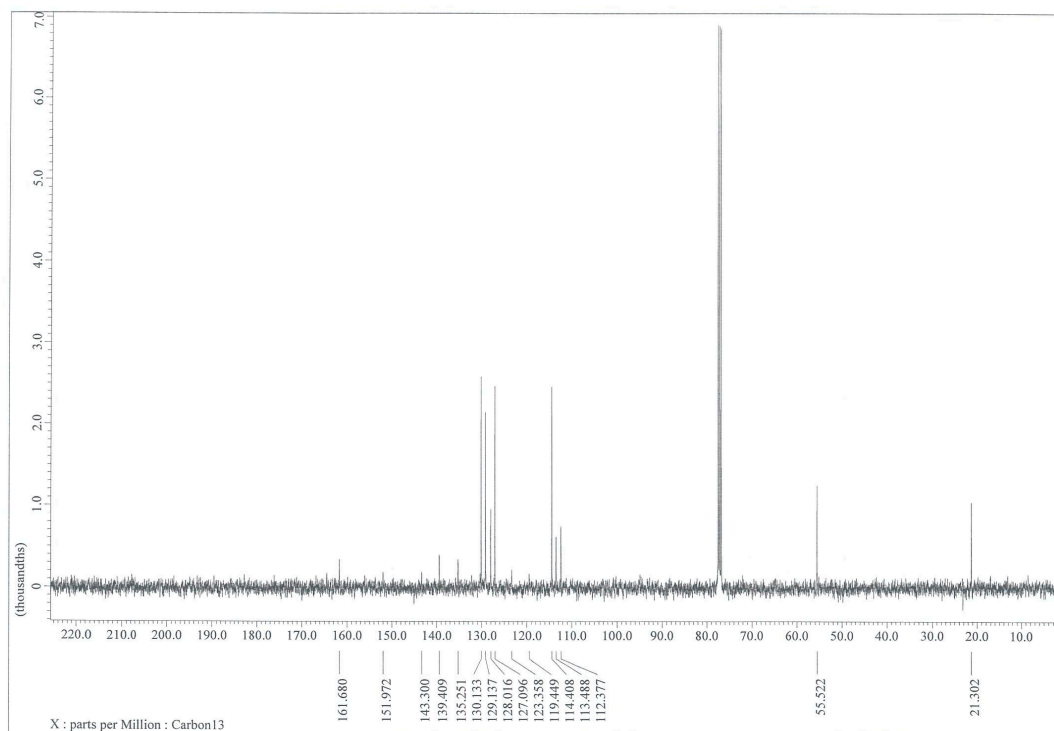
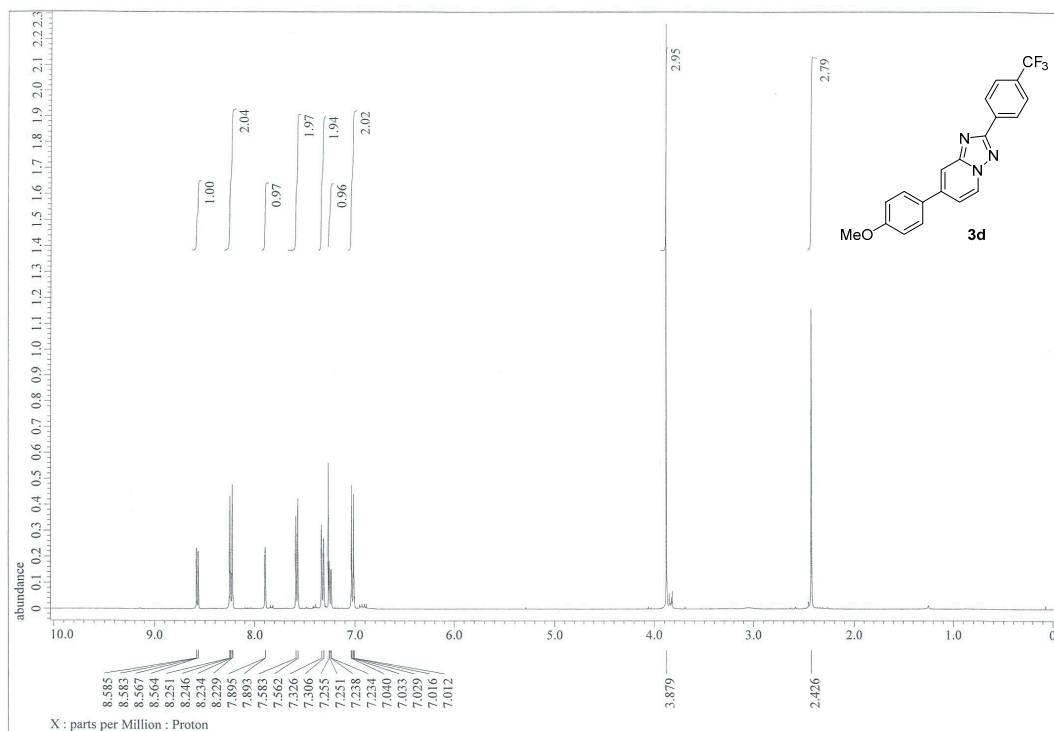


$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) of 7-(4-methoxyphenyl)-2-(p-tolyl)-[1,2,4]triazolo[1,5-*a*]pyridine (**3c**)

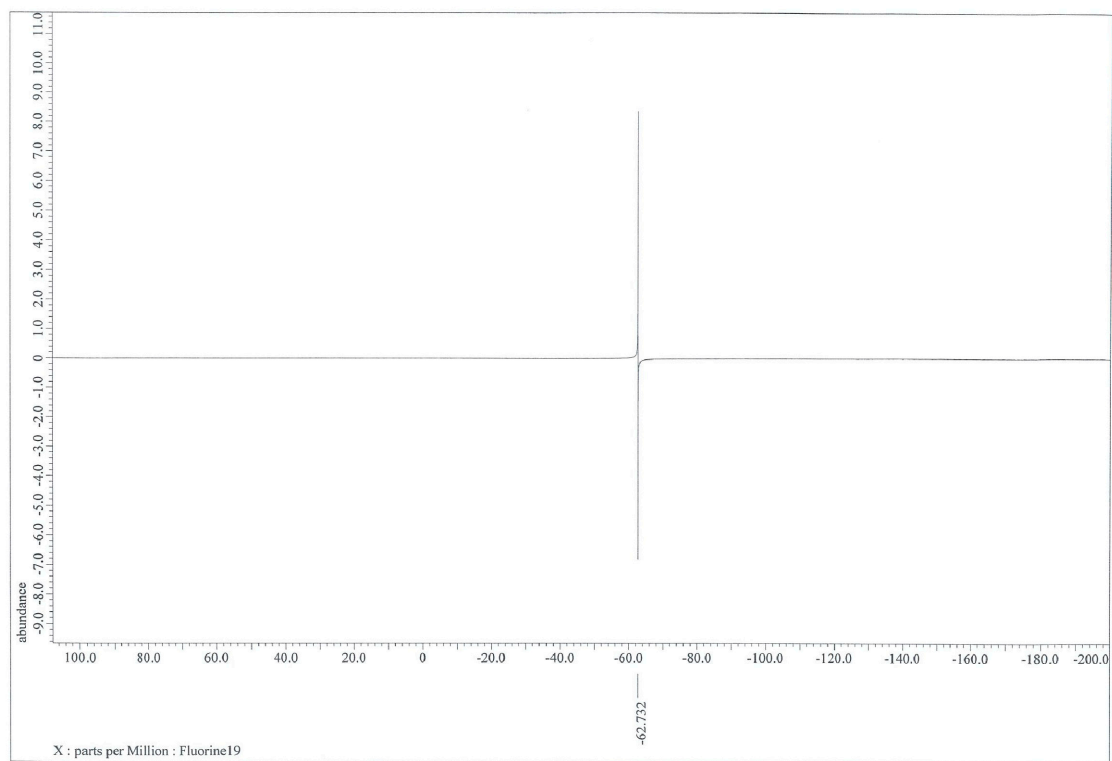




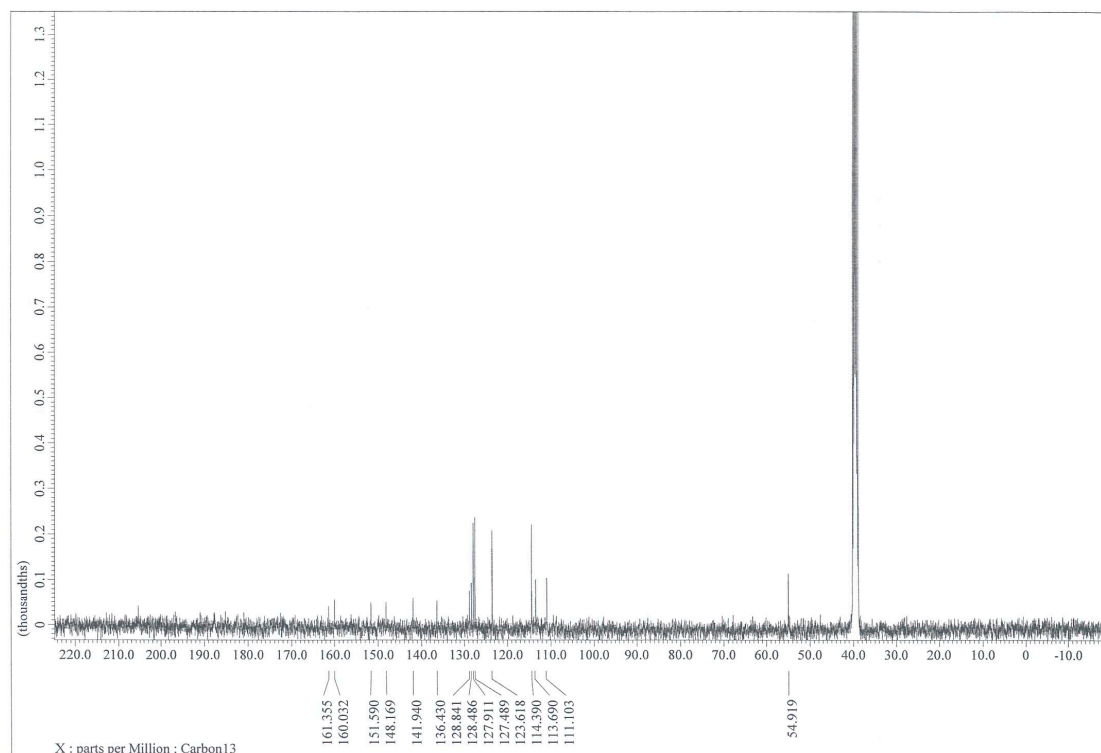
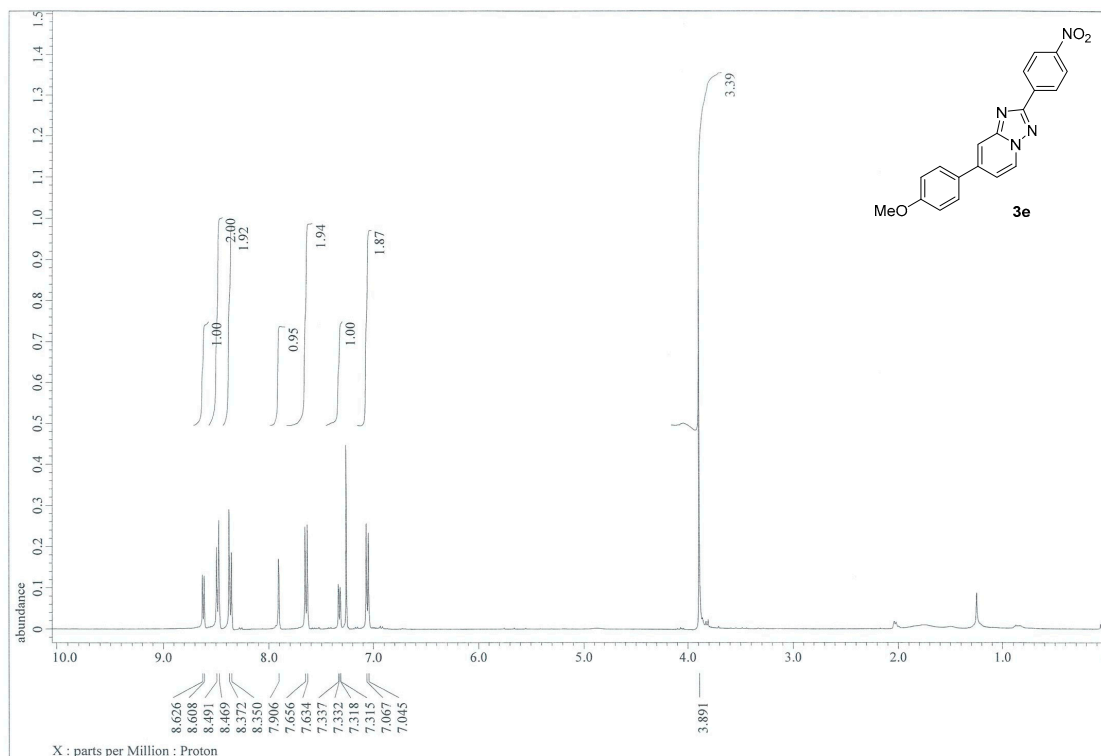
$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) of 7-(4-methoxyphenyl)-2-(4-(trifluoromethyl)phenyl)-[1,2,4]triazolo[1,5-*a*]pyridine (**3d**)



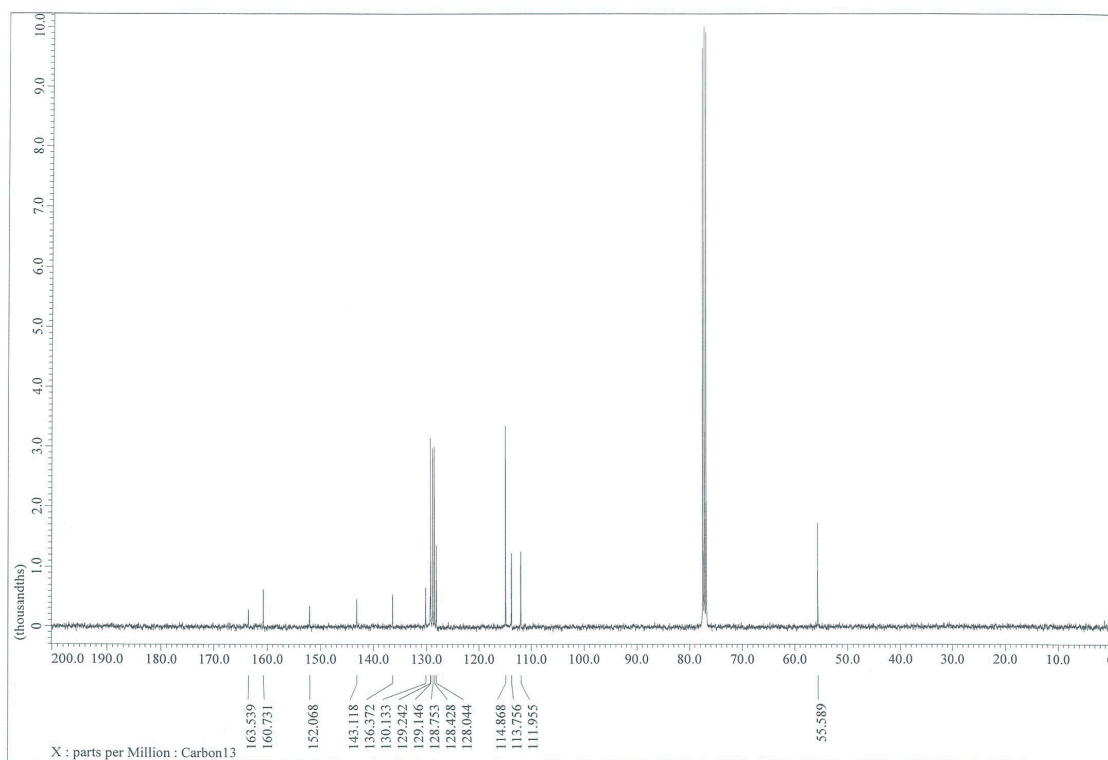
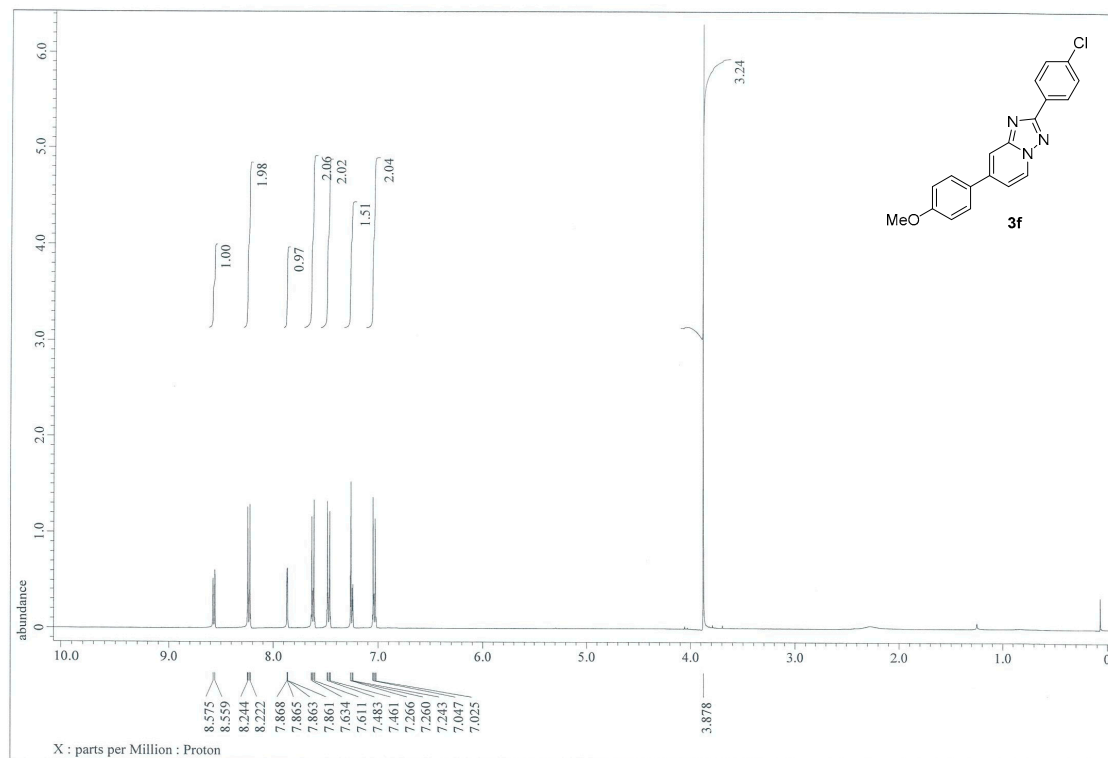
**$^{19}\text{F}$  NMR (376 MHz,  $\text{CDCl}_3$ ) of 7-(4-methoxyphenyl)-2-(4-(trifluoromethyl)phenyl)-[1,2,4]triazolo[1,5-*a*]pyridine (3d)**



$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{DMSO}-d_6$ ) of 7-(4-methoxyphenyl)-2-(4-nitrophenyl)-[1,2,4]triazolo[1,5-*a*]pyridine (**3e**)

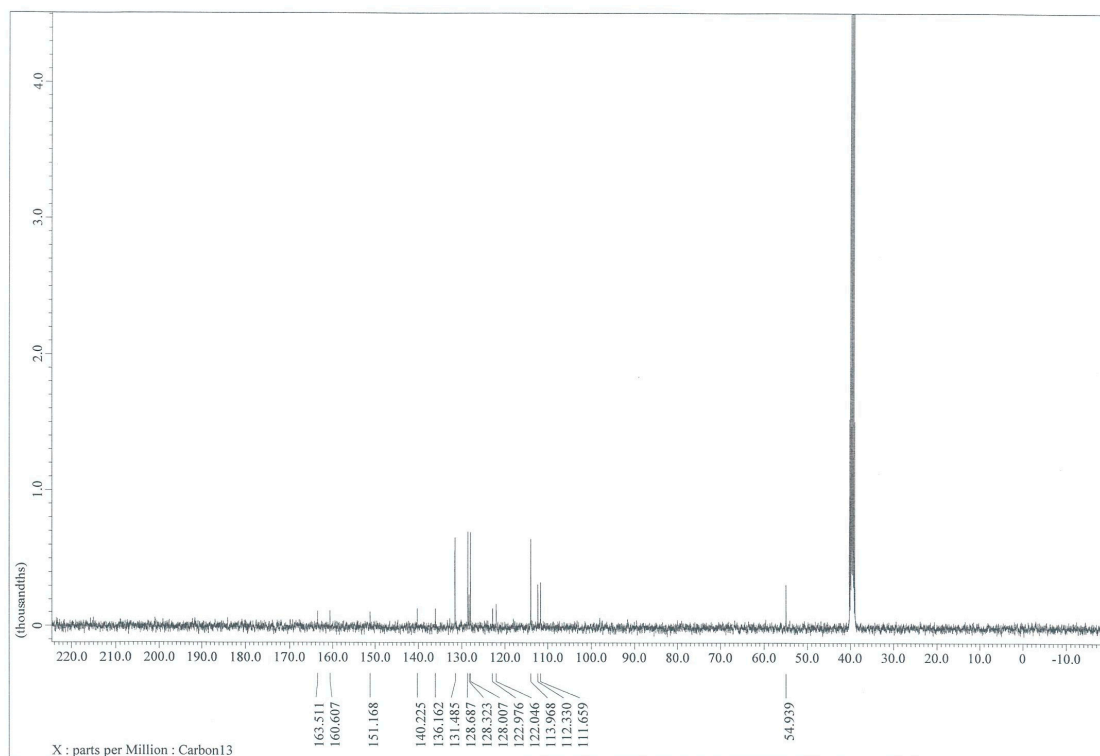
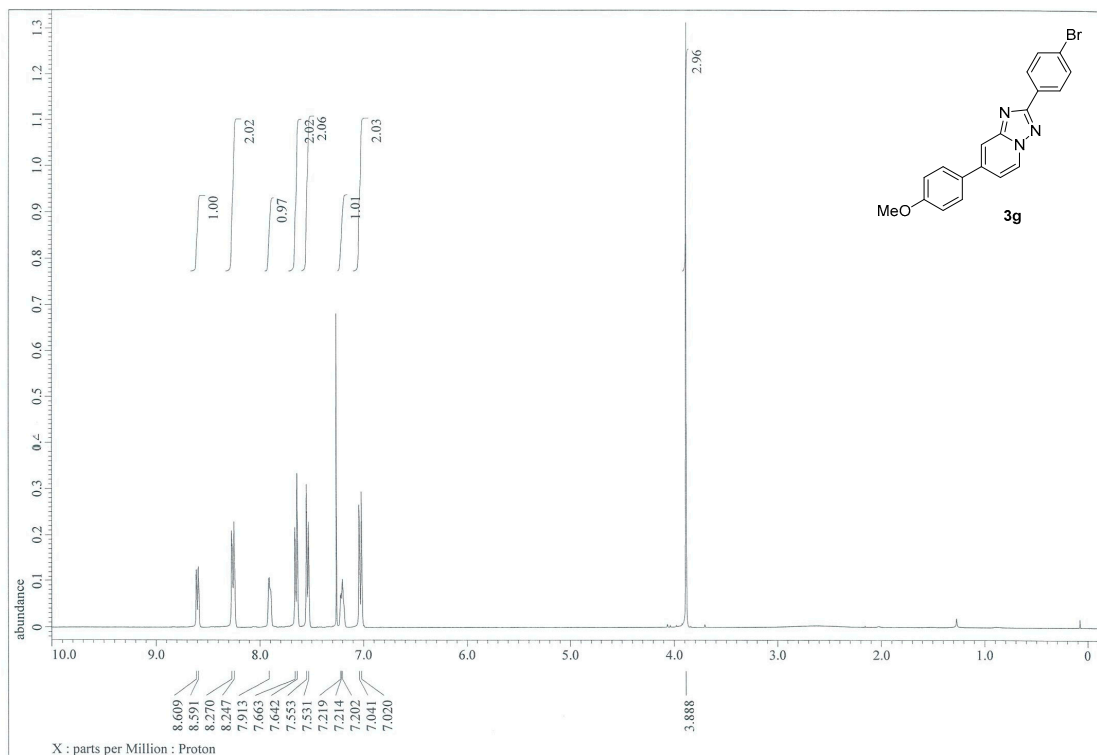


$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) of 2-(4-chlorophenyl)-7-(4-methoxyphenyl)-[1,2,4]triazolo[1,5-*a*]pyridine (**3f**)

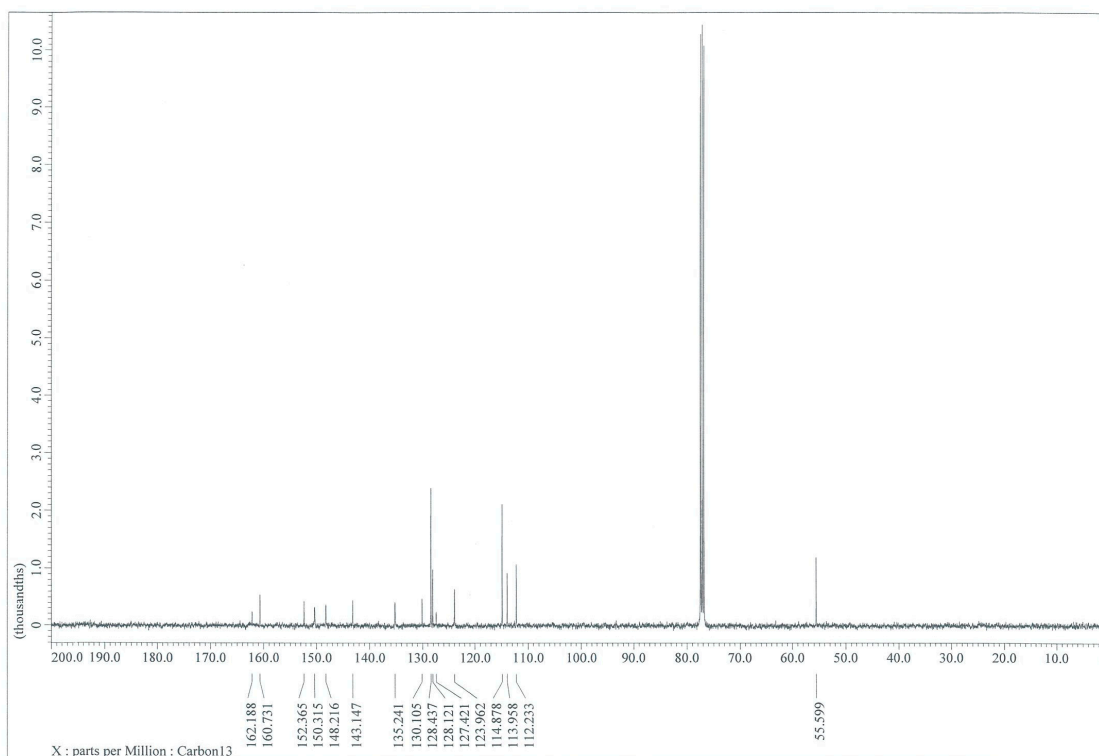
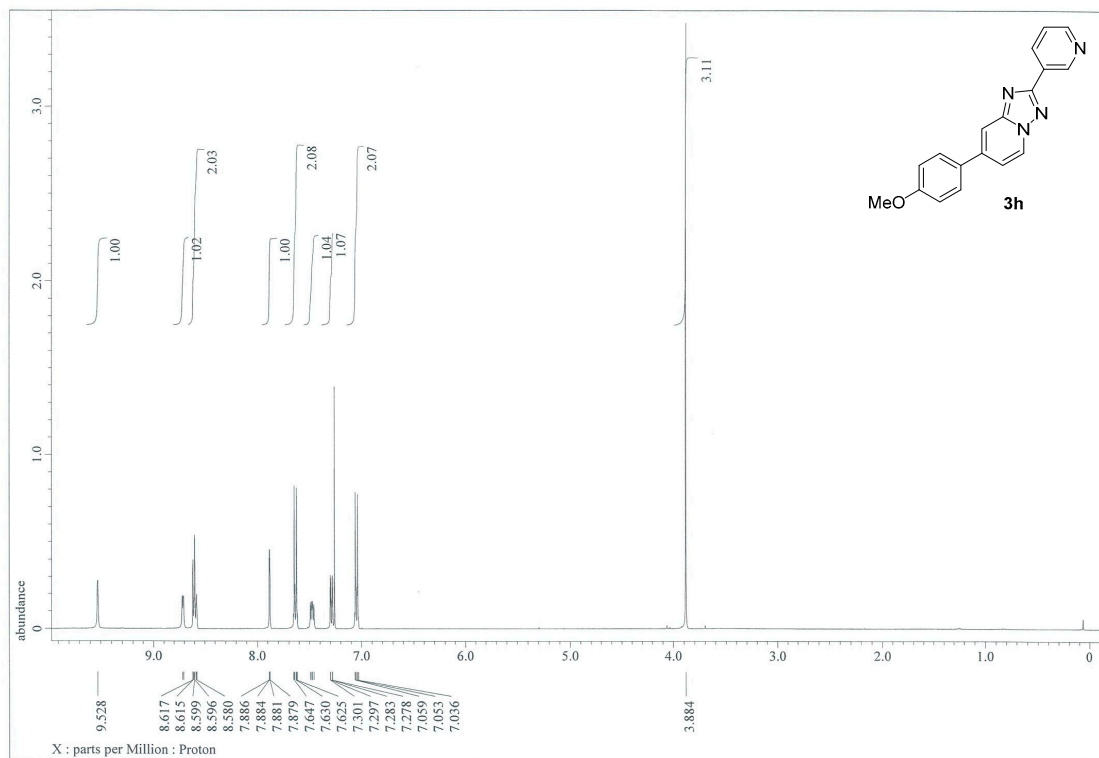




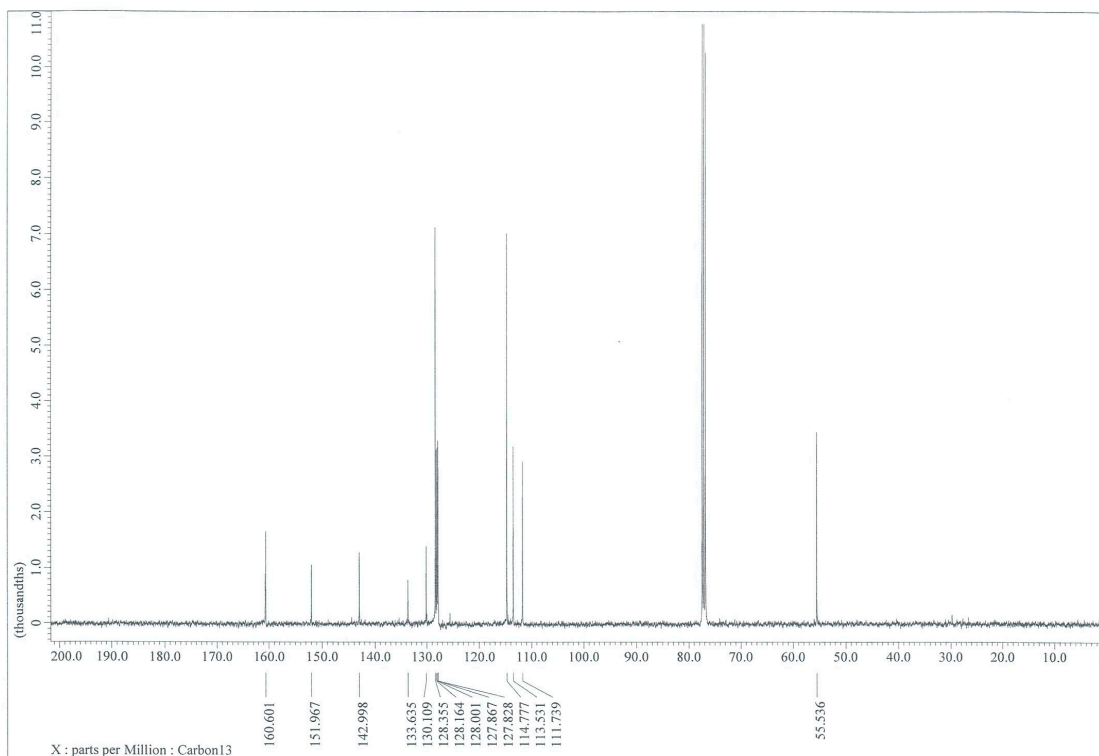
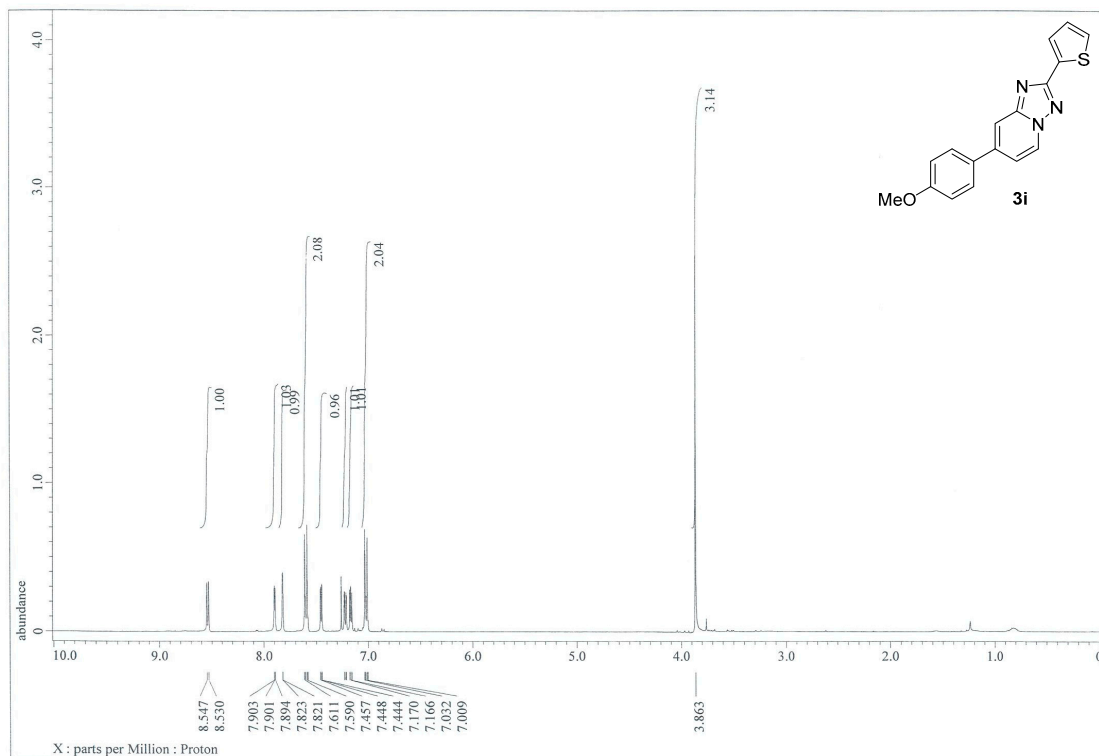
$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{DMSO}-d_6$ ) of 2-(4-bromophenyl)-7-(4-methoxyphenyl)-[1,2,4]triazolo[1,5-*a*]pyridine (**3g**)



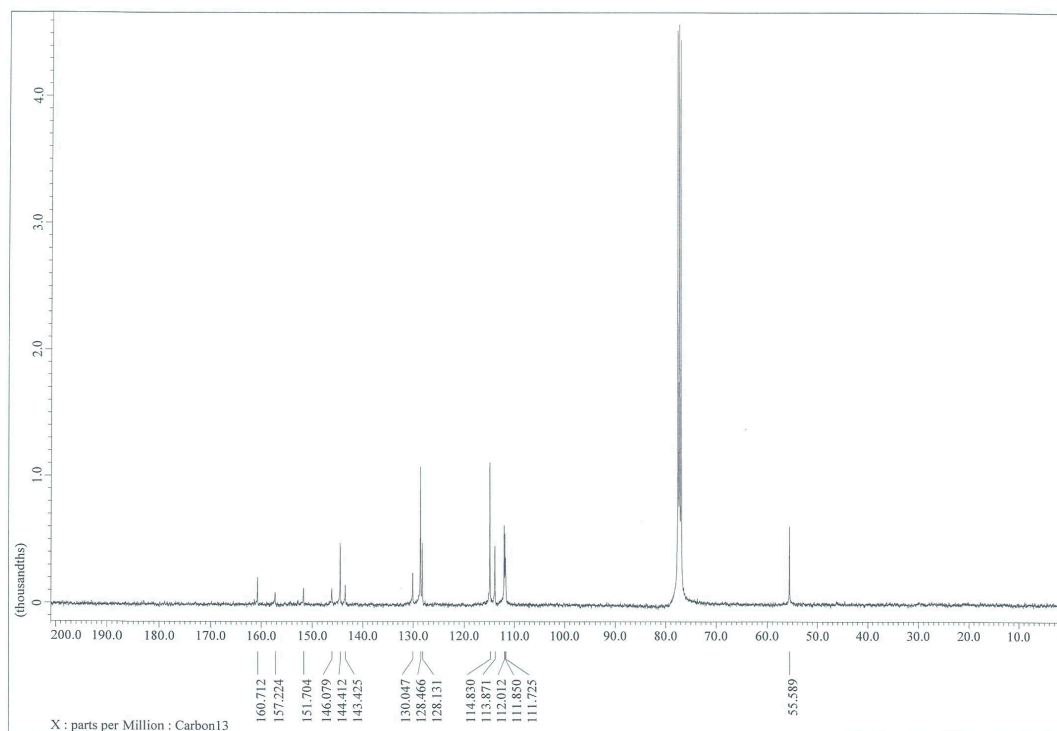
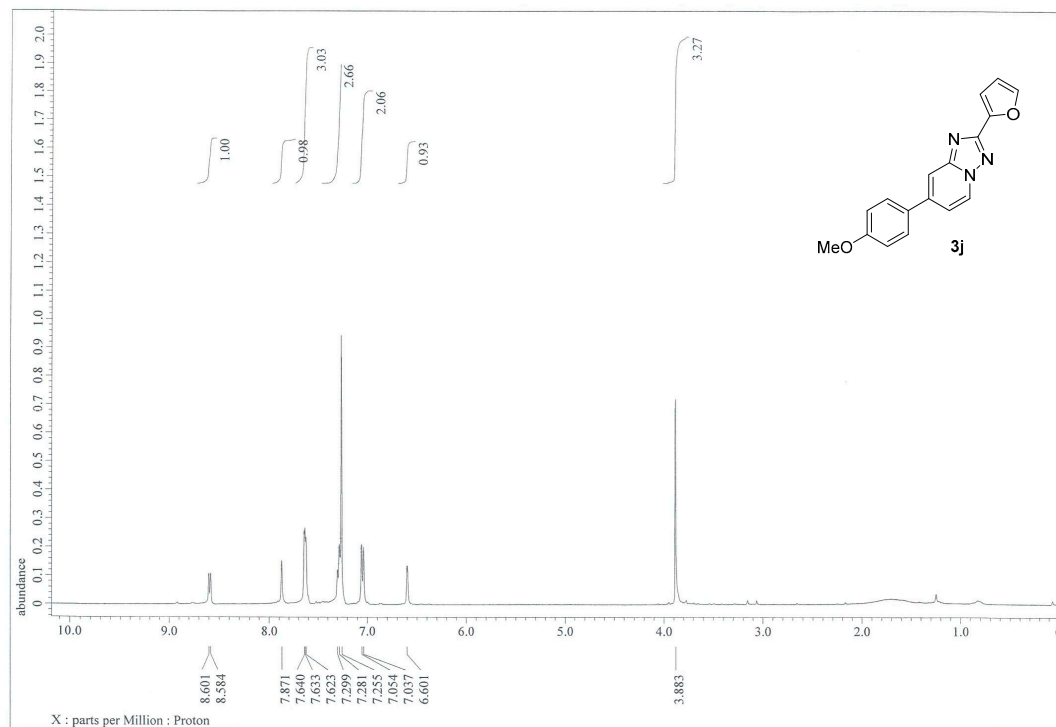
$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) of 7-(4-methoxyphenyl)-2-(pyridin-3-yl)-[1,2,4]triazolo[1,5-*a*]pyridine (**3h**)



$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) of 7-(4-methoxyphenyl)-2-(thiophen-2-yl)-[1,2,4]triazolo[1,5-*a*]pyridine (**3i**)

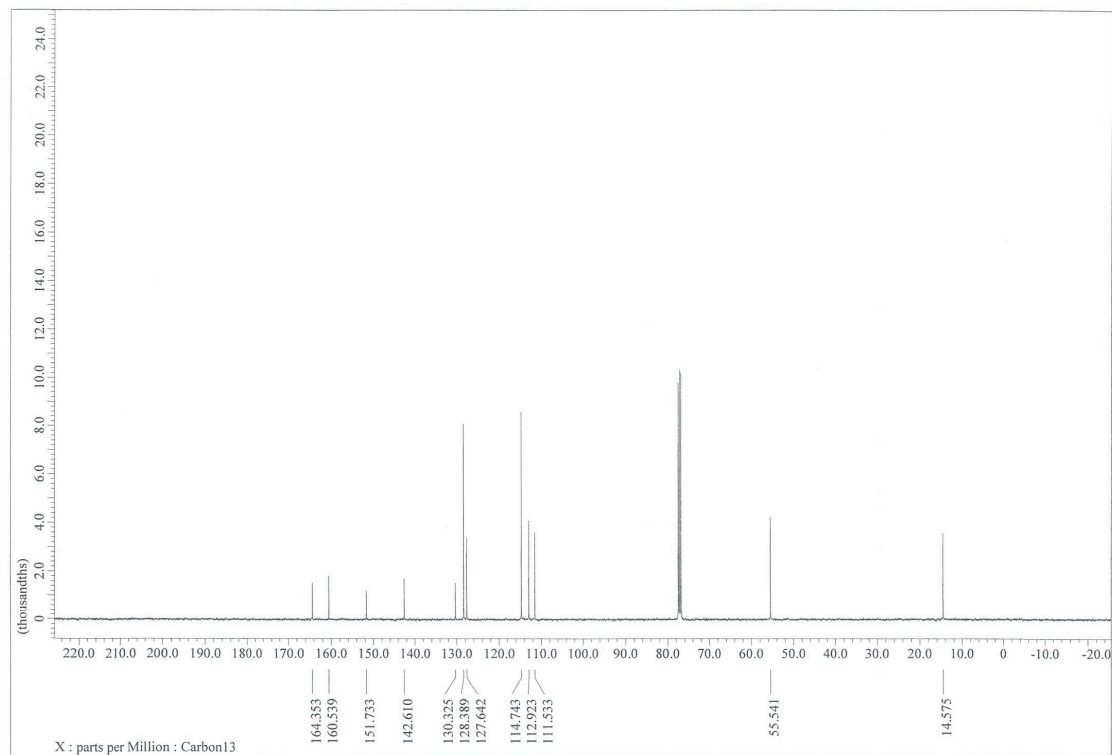
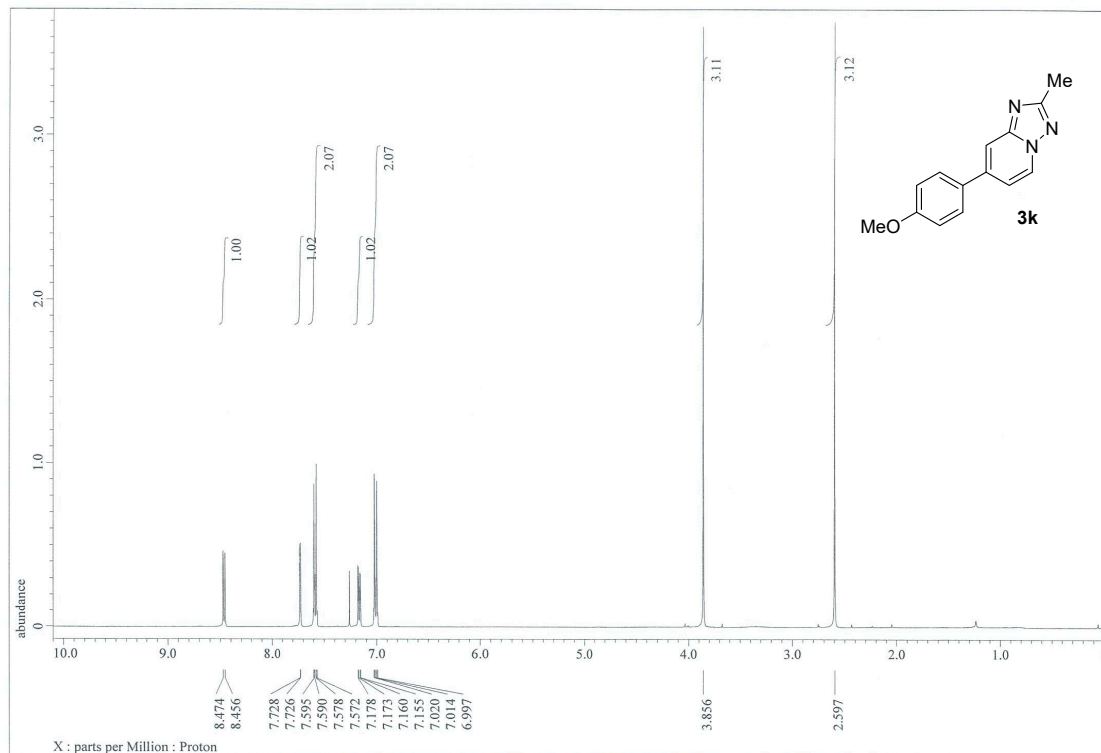


$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) of 2-(furan-2-yl)-7-(4-methoxyphenyl)-[1,2,4]triazolo[1,5-*a*]pyridine (**3j**)

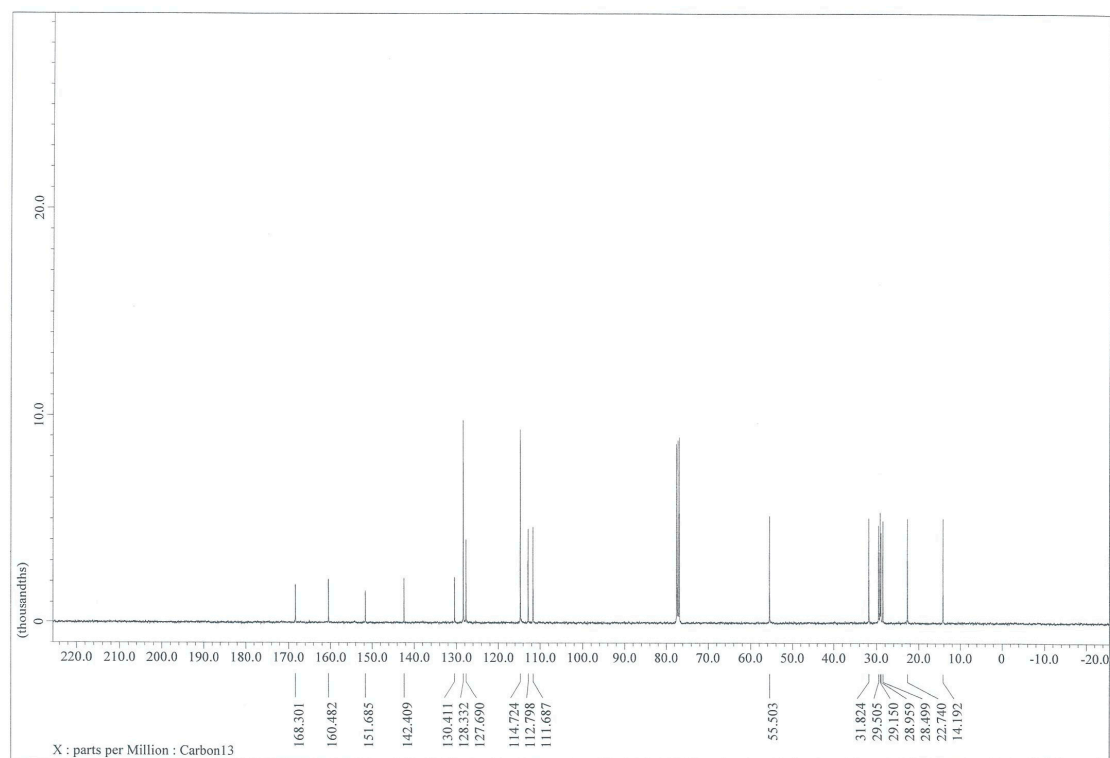
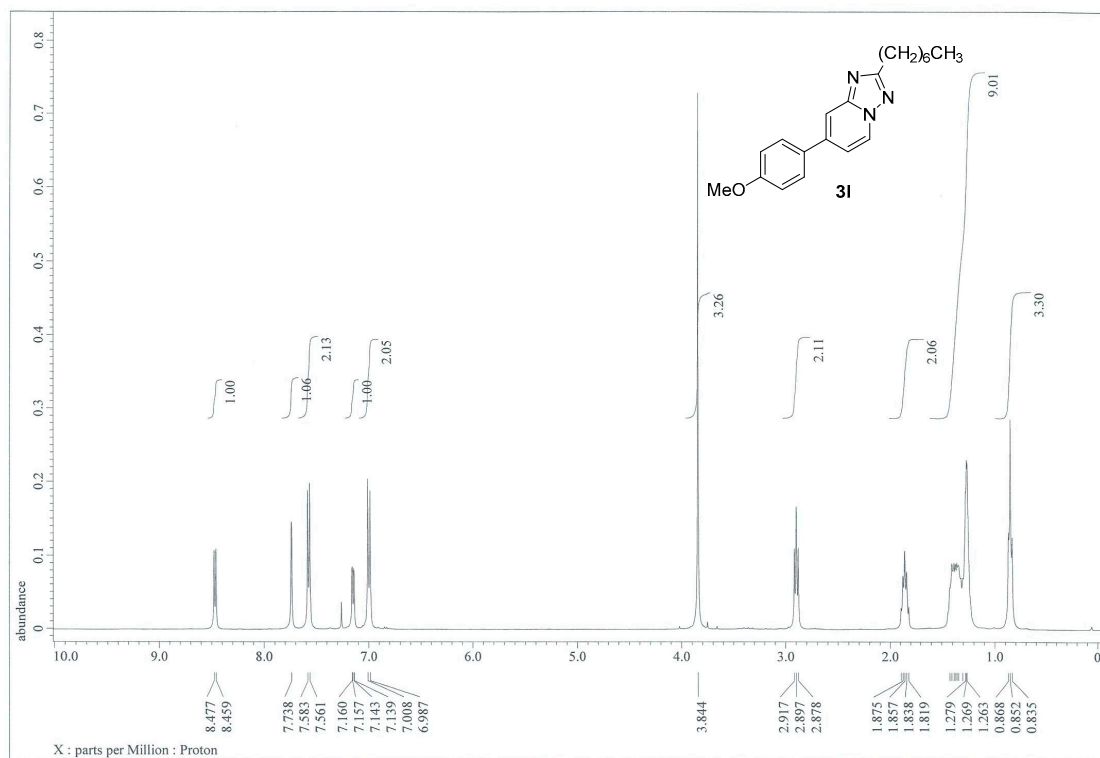




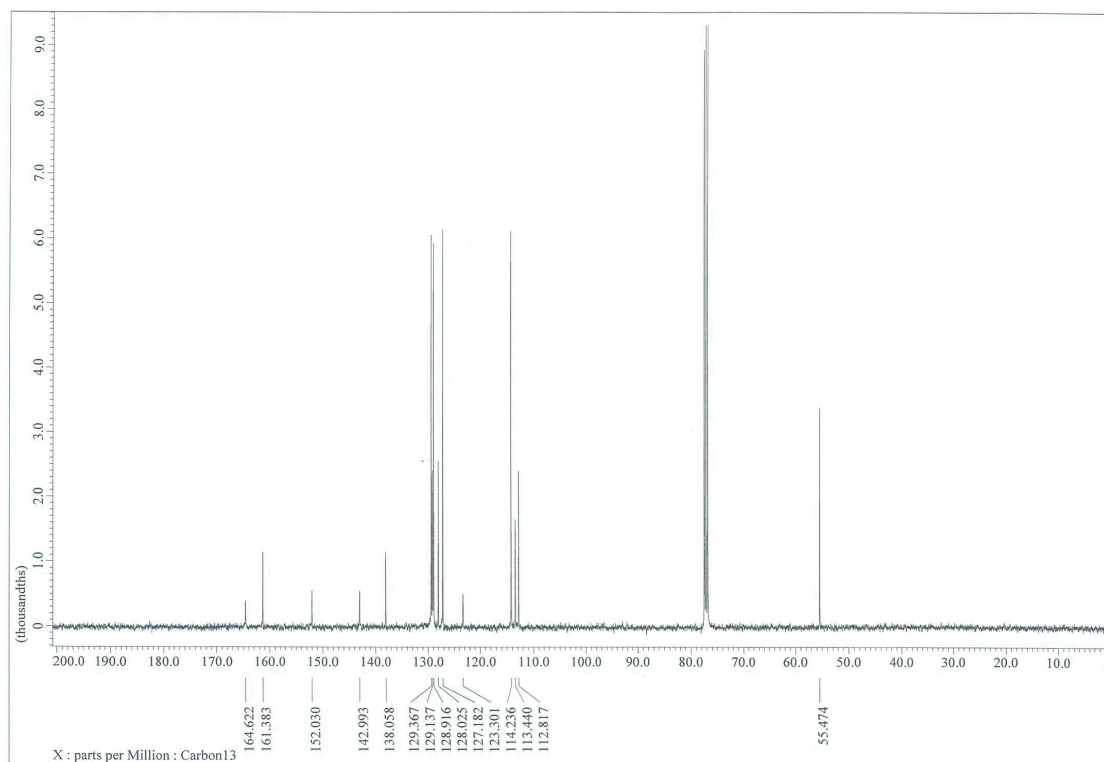
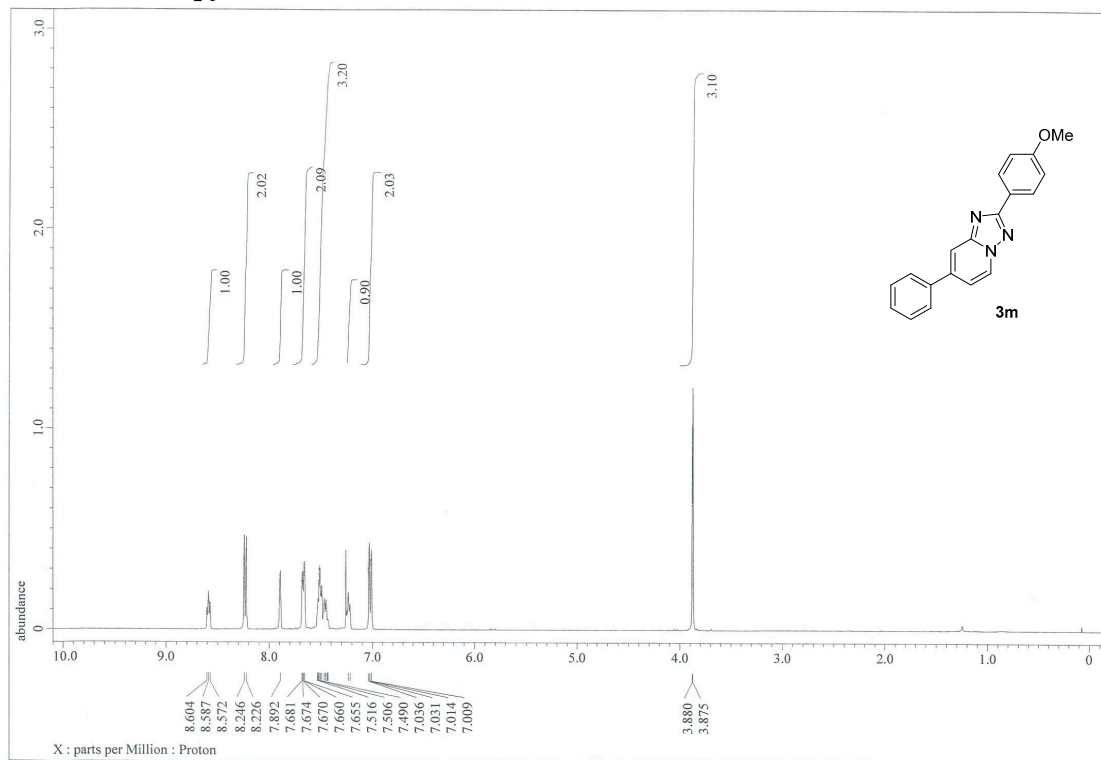
$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) of 7-(4-methoxyphenyl)-2-methyl-[1,2,4]triazolo[1,5-*a*]pyridine (**3k**)



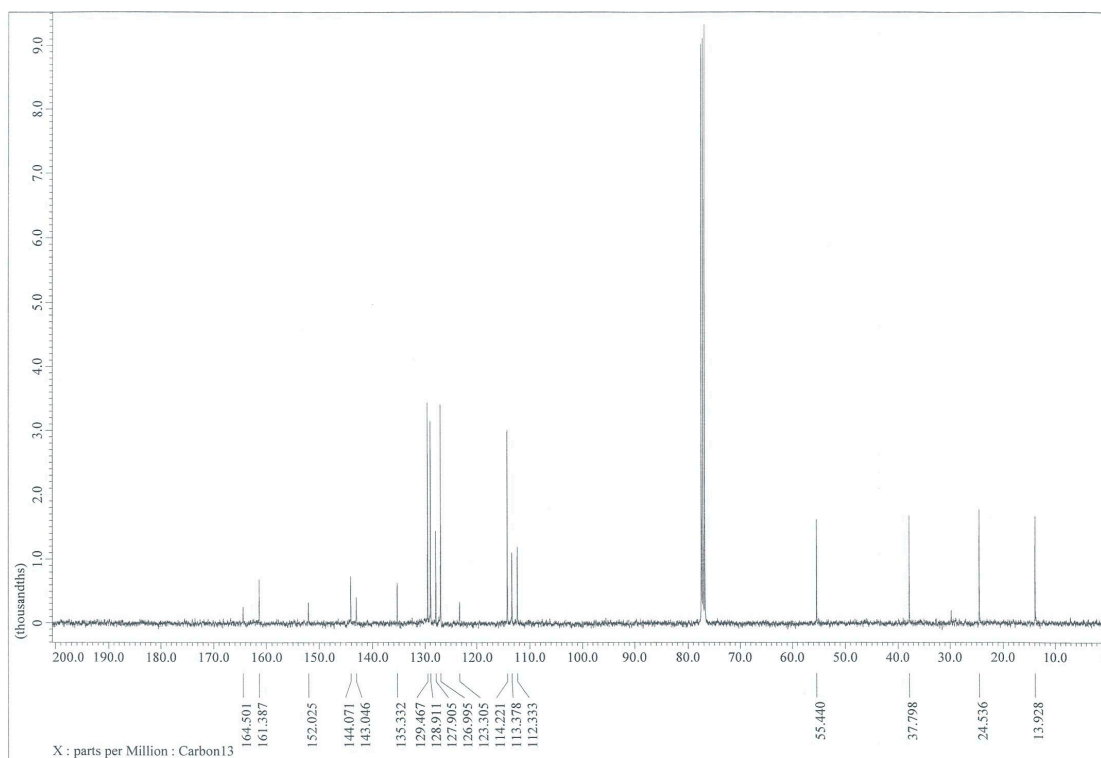
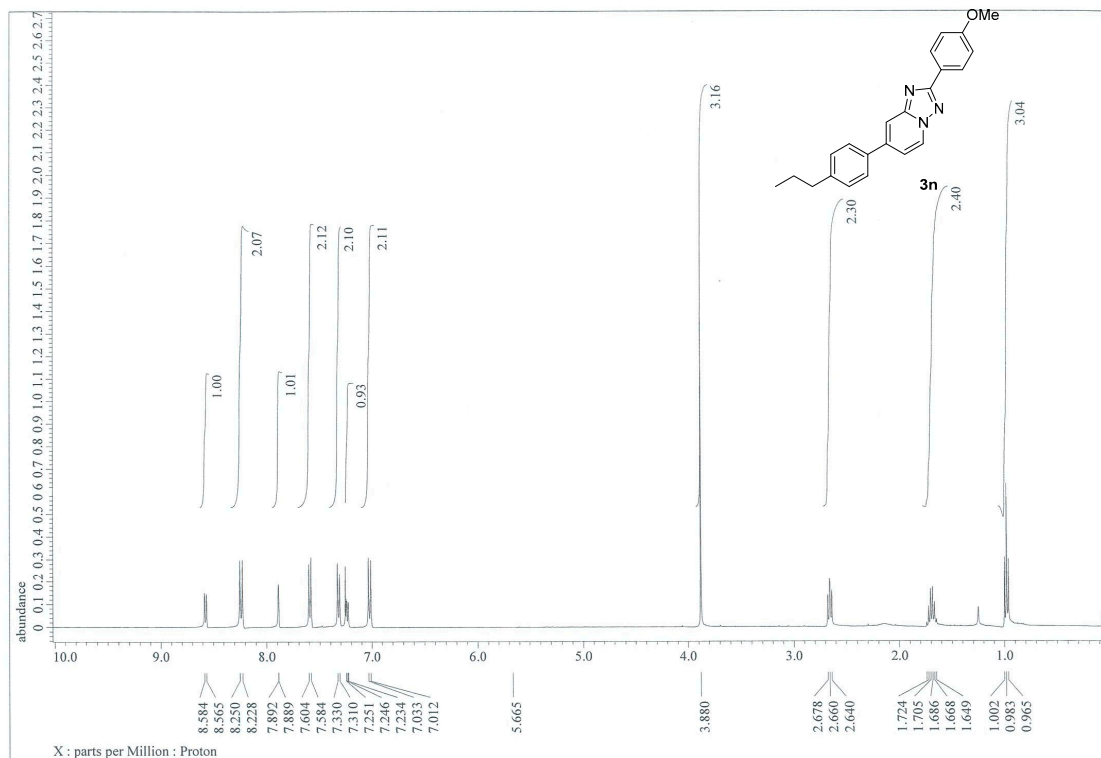
$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) of 2-heptyl-7-(4-methoxyphenyl)-[1,2,4]triazolo[1,5-*a*]pyridine (**31**)



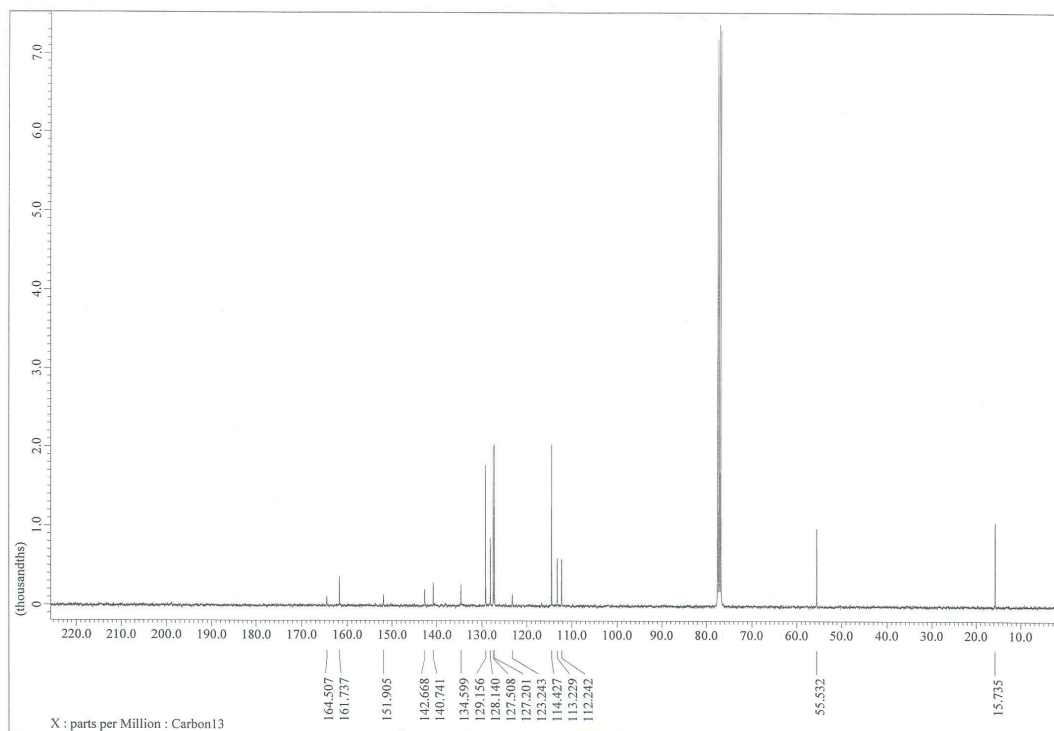
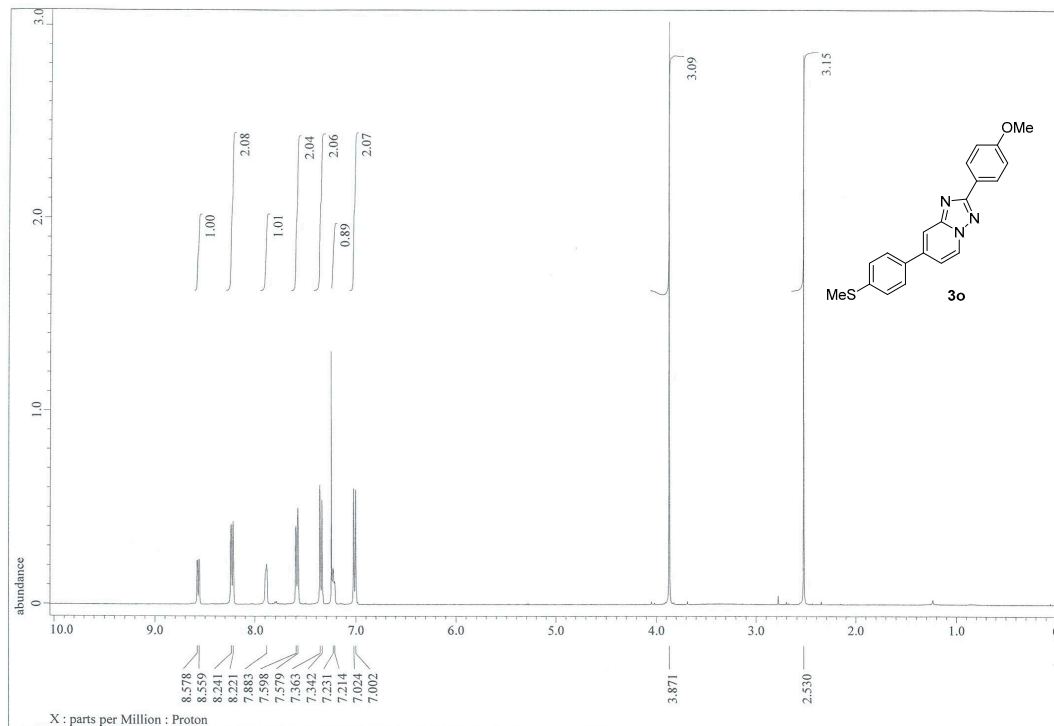
$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) of 2-(4-methoxyphenyl)-7-phenyl-[1,2,4]triazolo[1,5-*a*]pyridine (**3m**)



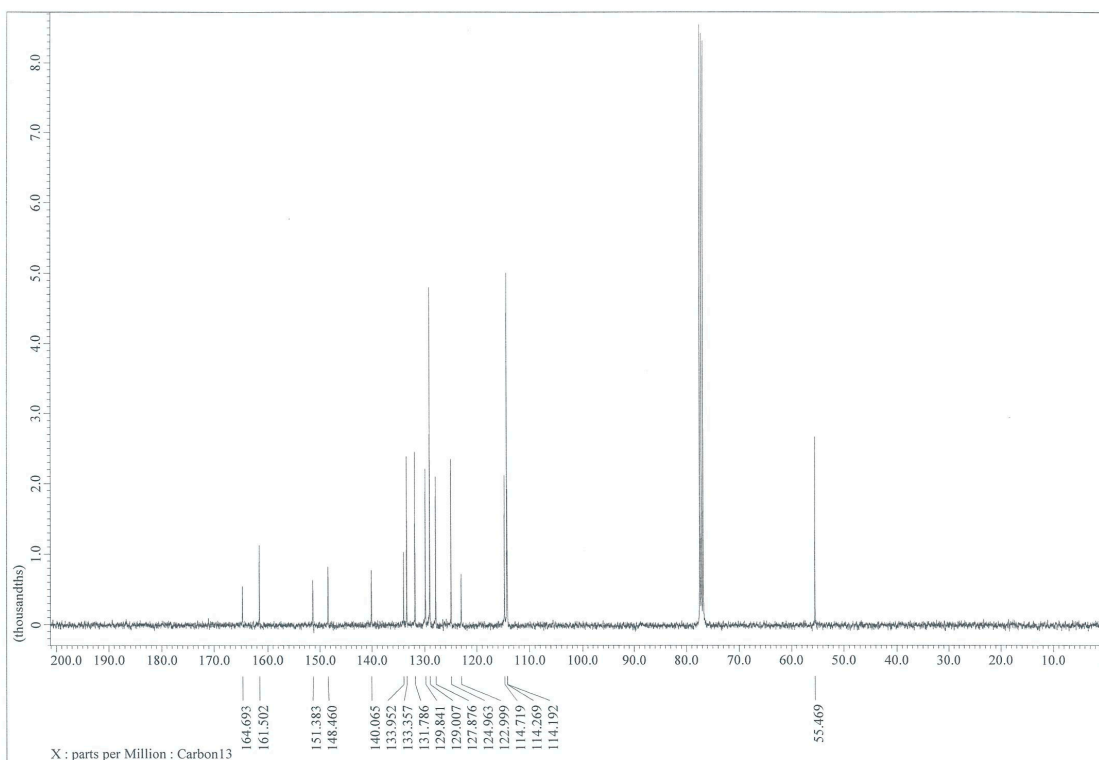
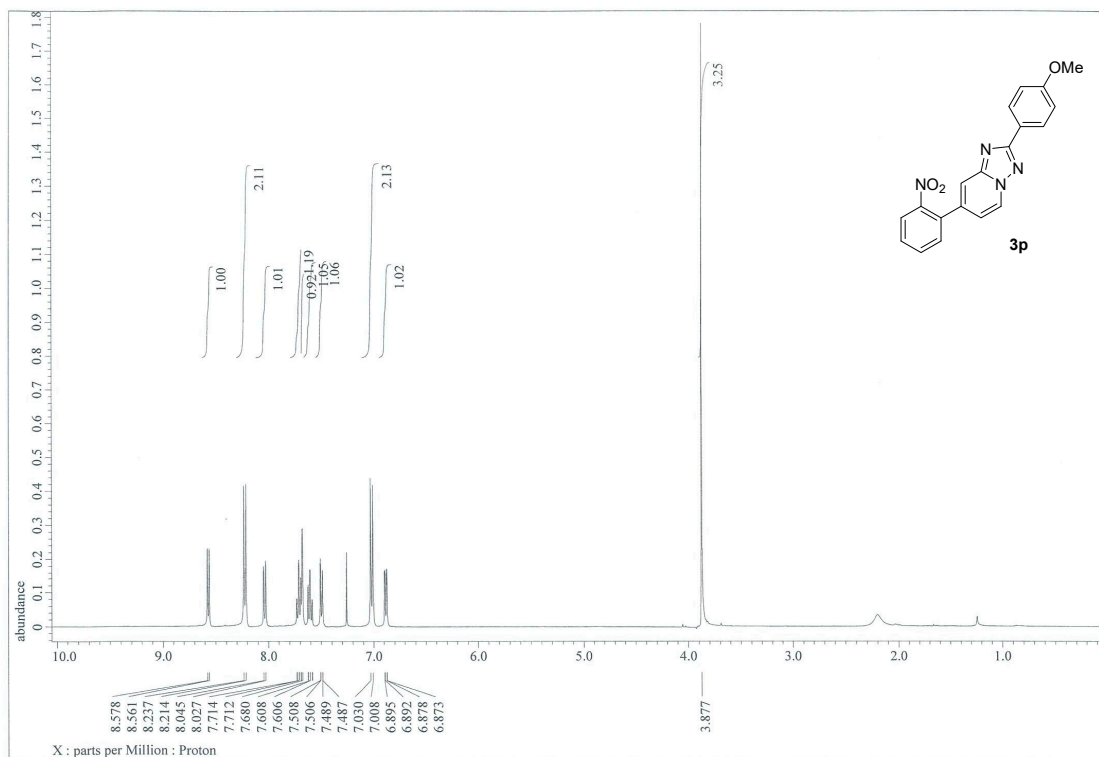
$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) of 2-(4-methoxyphenyl)-7-(4-propylphenyl)-[1,2,4]triazolo[1,5-*a*]pyridine (**3n**)



$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) of 2-(4-methoxyphenyl)-7-(4-(methylthio)phenyl)-[1,2,4]triazolo[1,5-*a*]pyridine (**3o**)

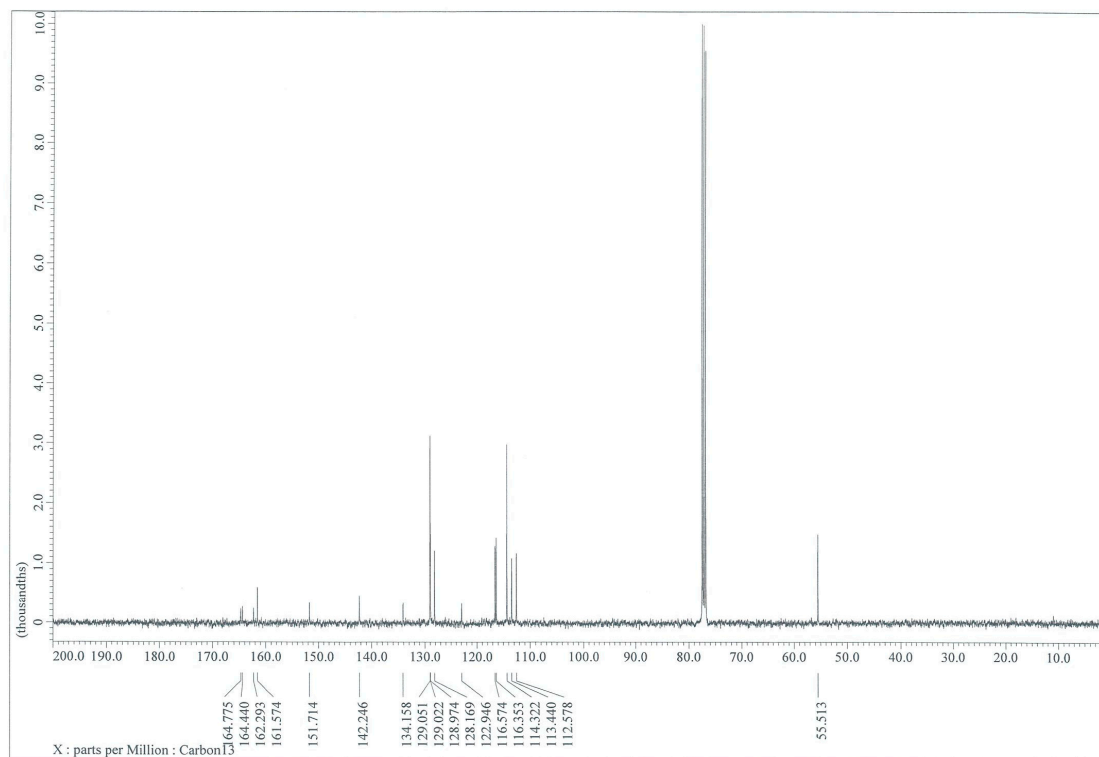
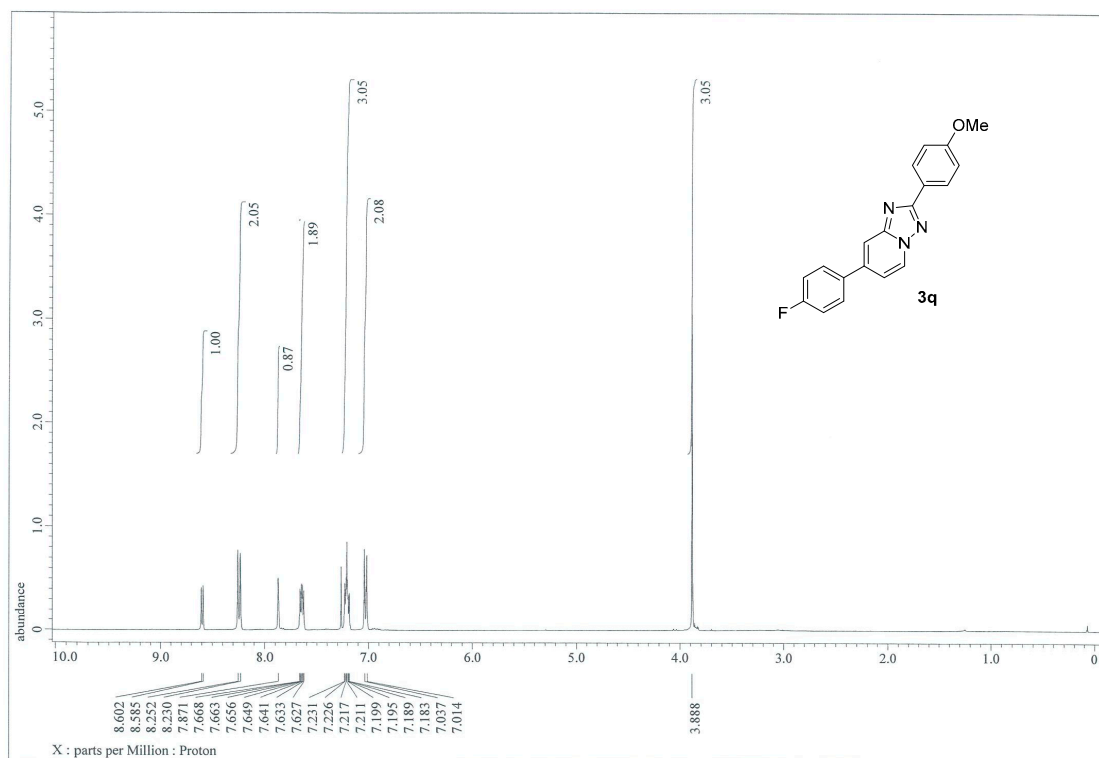


$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) of 2-(4-methoxyphenyl)-7-(2-nitrophenyl)-[1,2,4]triazolo[1,5-*a*]pyridine (**3p**)

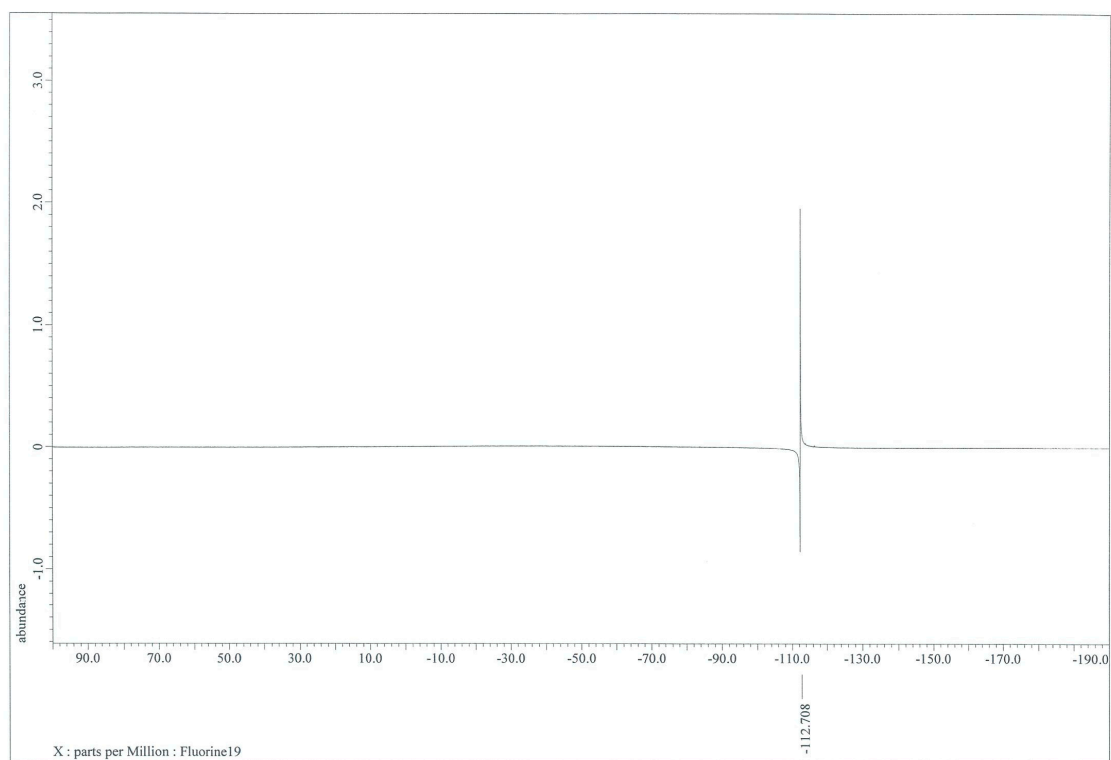




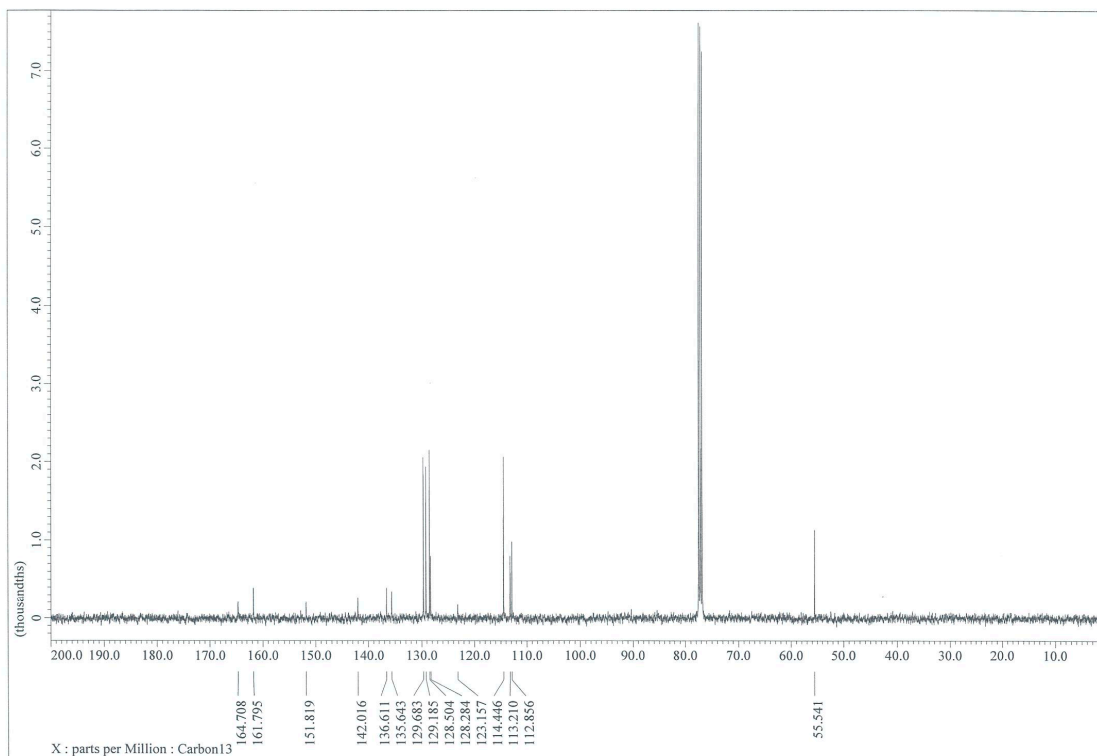
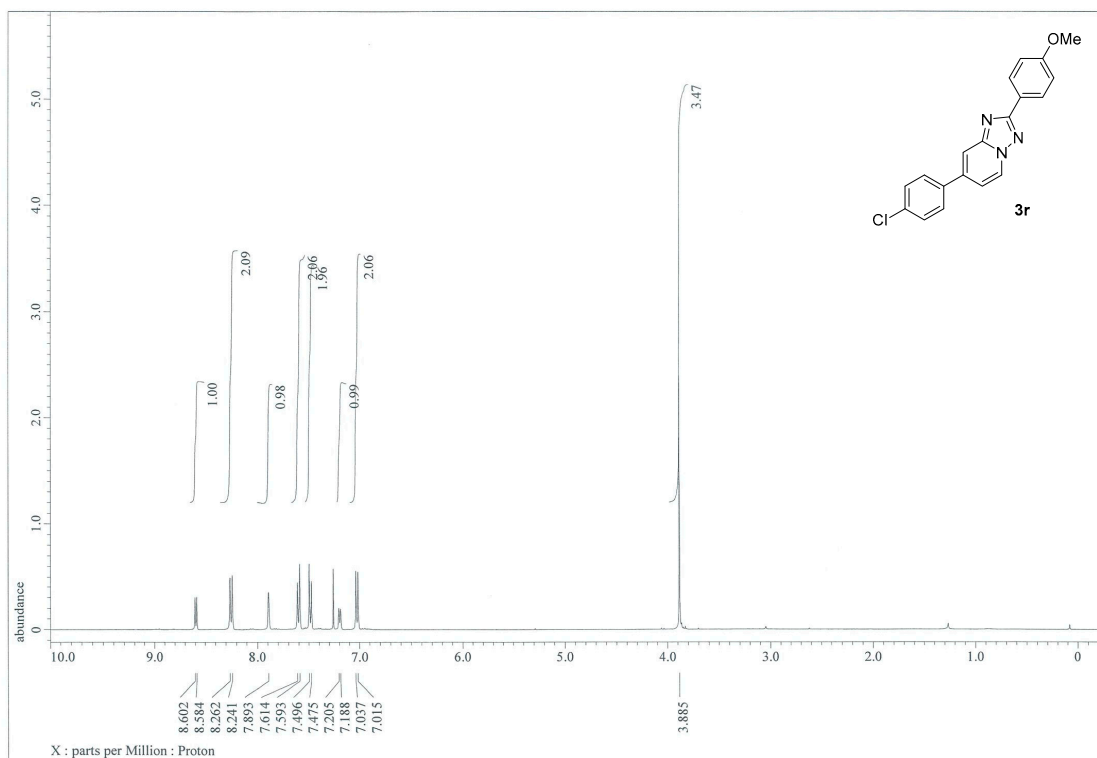
$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) of 7-(4-fluorophenyl)-2-(4-methoxyphenyl)-[1,2,4]triazolo[1,5-*a*]pyridine (3q)



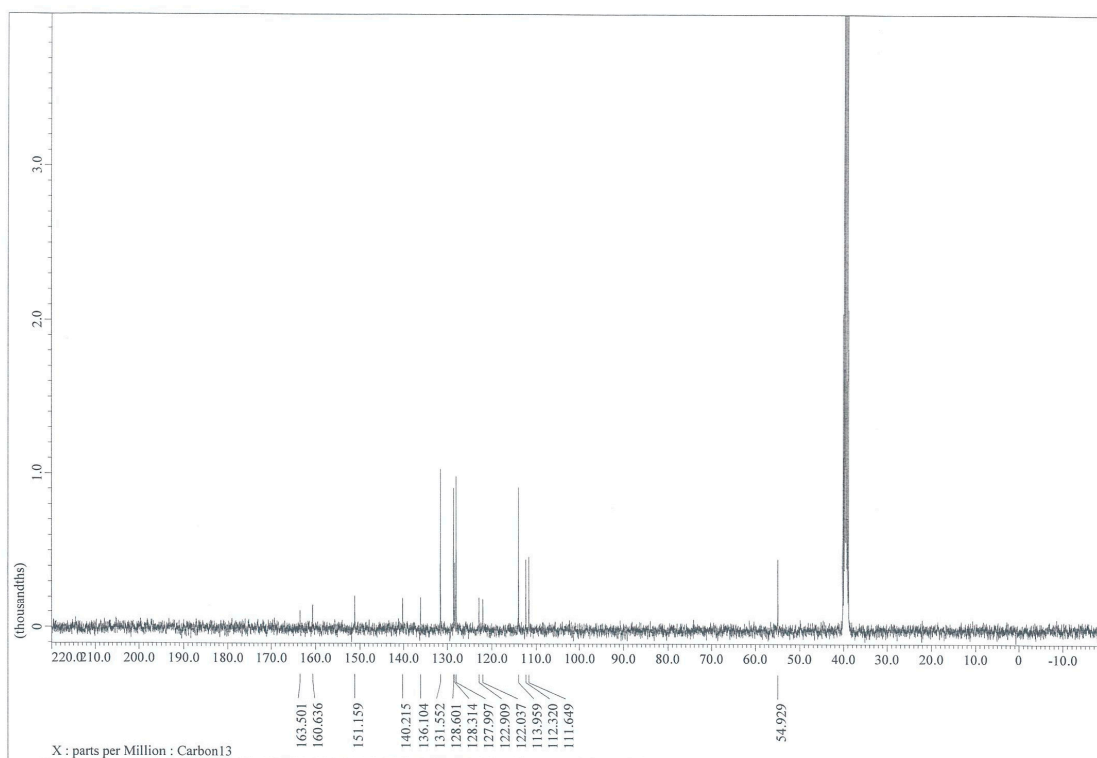
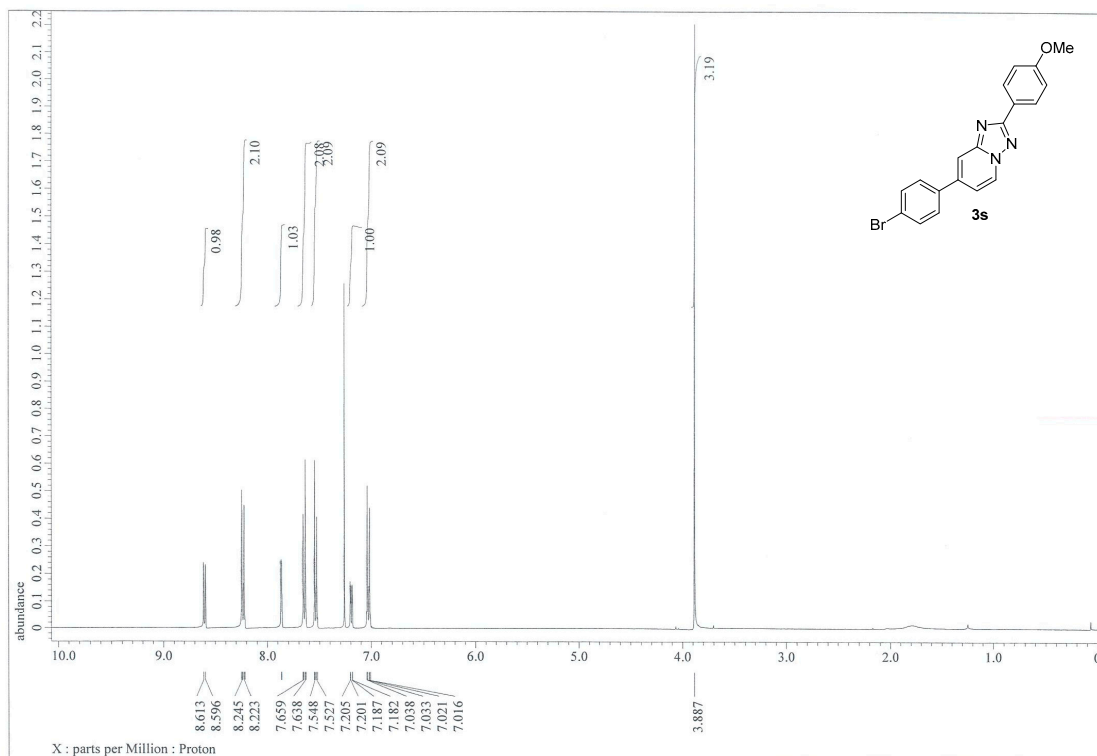
<sup>19</sup>F NMR (376 MHz, CDCl<sub>3</sub>) of 7-(4-fluorophenyl)-2-(4-methoxyphenyl)-[1,2,4]triazolo[1,5-*a*]pyridine(3q)



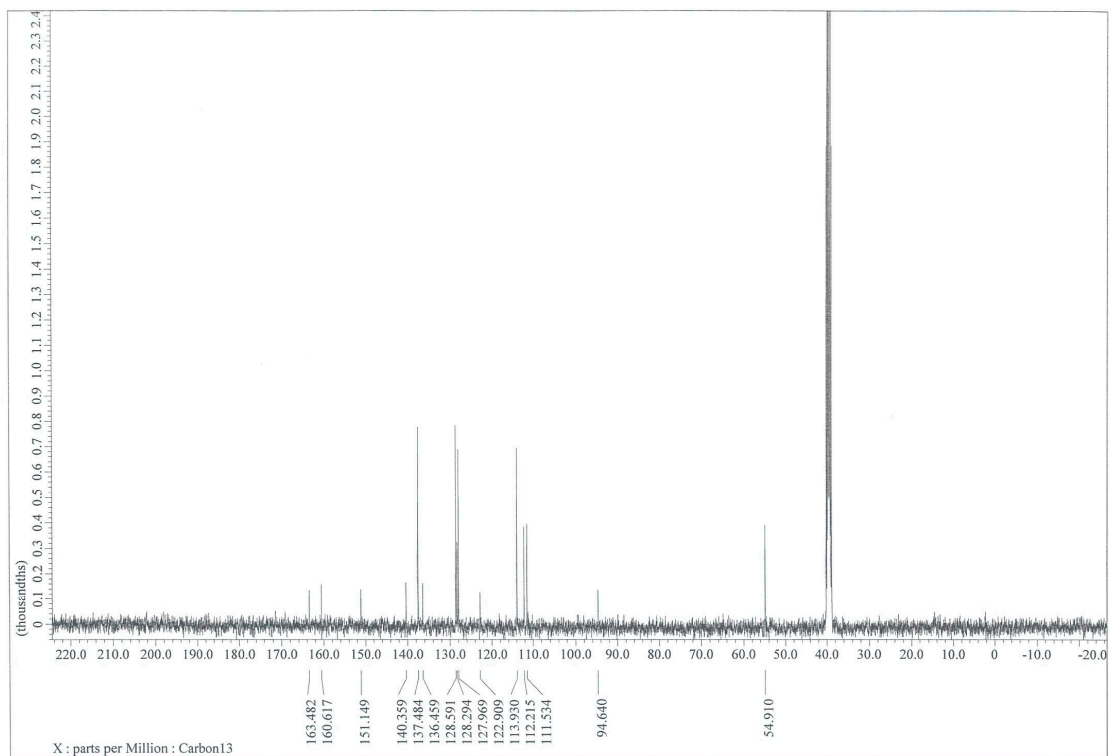
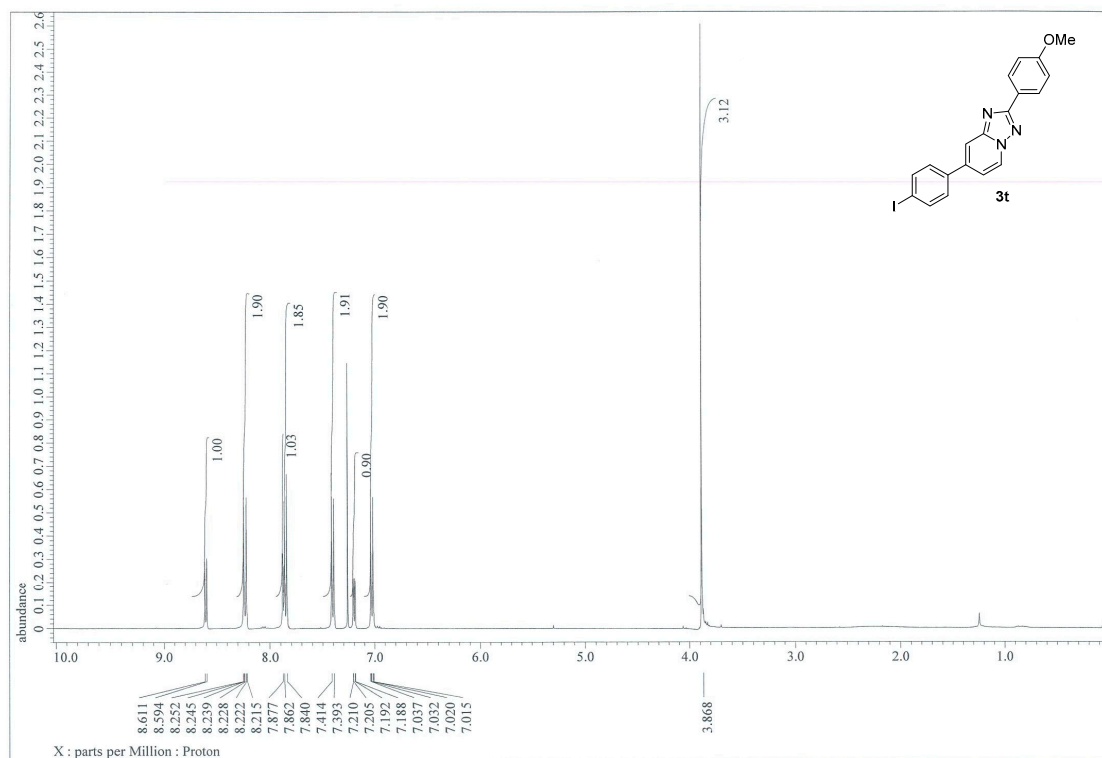
$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) of 7-(4-chlorophenyl)-2-(4-methoxyphenyl)-[1,2,4]triazolo[1,5-*a*]pyridine (**3r**)



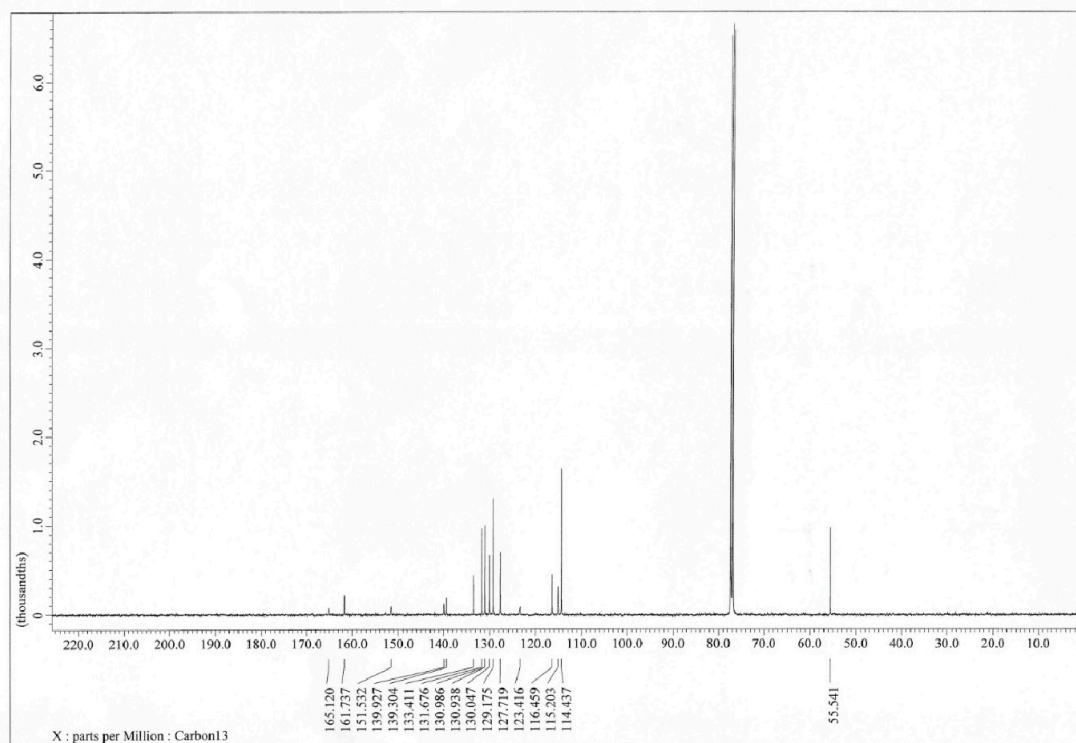
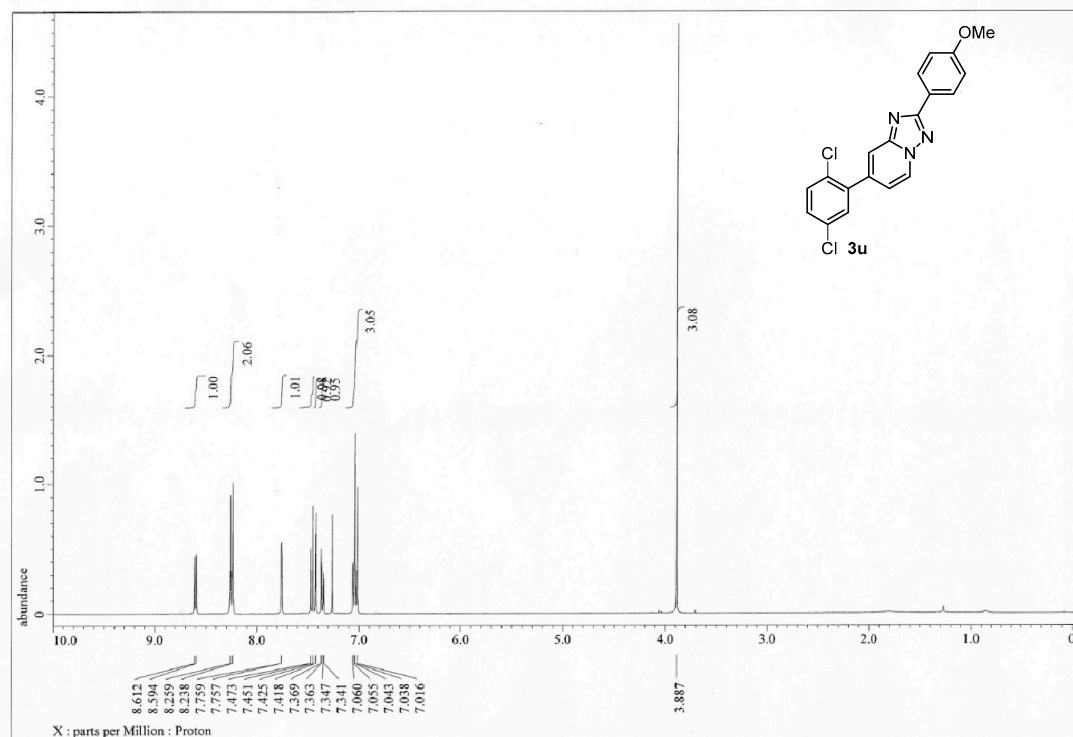
$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{DMSO}-d_6$ ) of 7-(4-bromophenyl)-2-(4-methoxyphenyl)-[1,2,4]triazolo[1,5-*a*]pyridine (**3s**)



<sup>1</sup>H (400 MHz, CDCl<sub>3</sub>) and <sup>13</sup>C NMR (100 MHz, DMSO-*d*<sub>6</sub>) of 7-(4-iodophenyl)-2-(4-methoxyphenyl)-[1,2,4]triazolo[1,5-*a*]pyridine (3t)

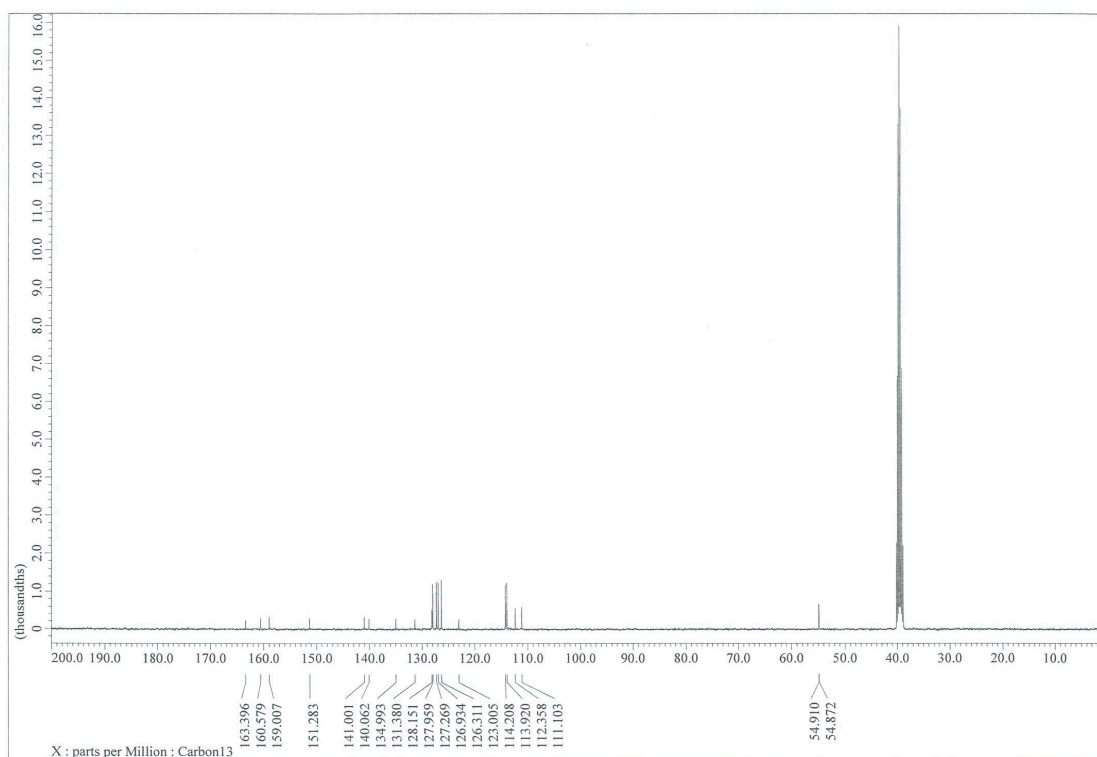
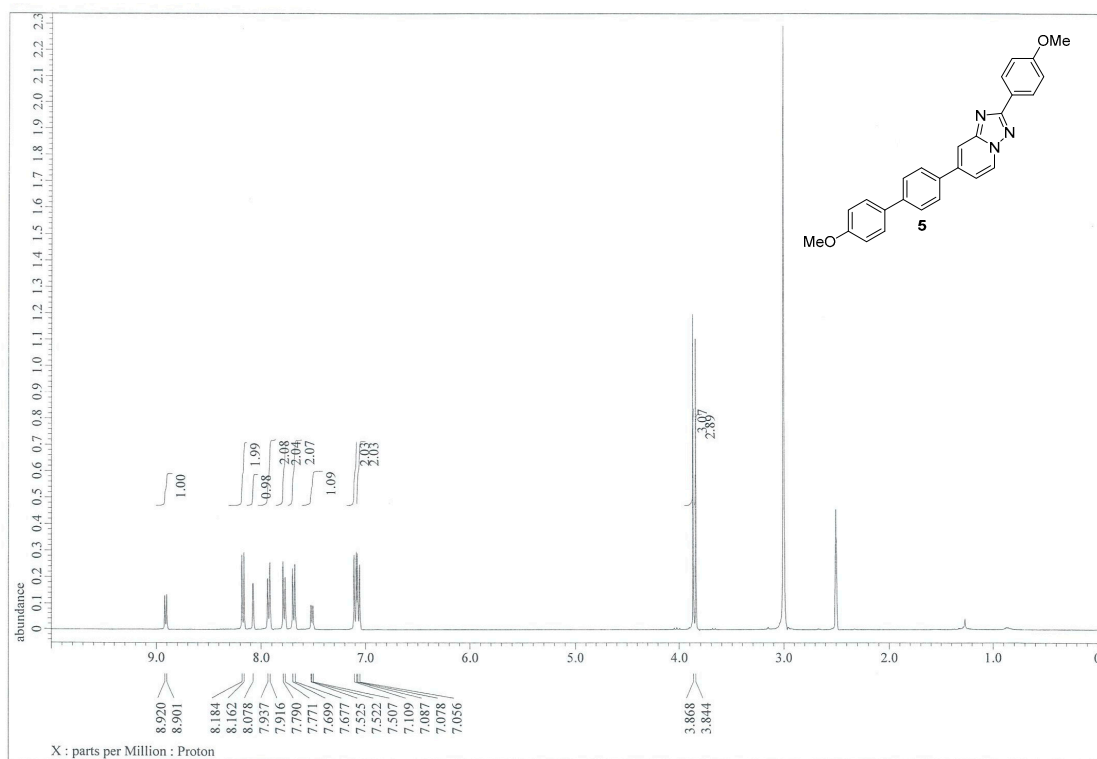


$^1\text{H}$  (400 MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) of 7-(2,5-dichlorophenyl)-2-(4-methoxyphenyl)-[1,2,4]triazolo[1,5-*a*]pyridine (**3u**)





$^1\text{H}$  (400 MHz,  $\text{DMSO-}d_6$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{DMSO-}d_6$ ) of 7-(4'-methoxy-[1,1'-biphenyl]-4-yl)-2-(4-methoxyphenyl)-[1,2,4]triazolo[1,5-a]pyridine (5), (both the NMR experiments were conducted at 413 K due to the of poor solubility of the 5).



$^1\text{H}$  (400 MHz,  $\text{DMSO}-d_6$ ) and  $^{13}\text{C}$  NMR (100 MHz,  $\text{DMSO}-d_6$ ) of 2-(4-methoxyphenyl)-7-((4-methoxyphenyl)ethynyl)phenyl-[1,2,4]triazolo[1,5-*a*]pyridine (7), (both the NMR experiments were conducted at 413 K due to the of poor solubility of the 7).

