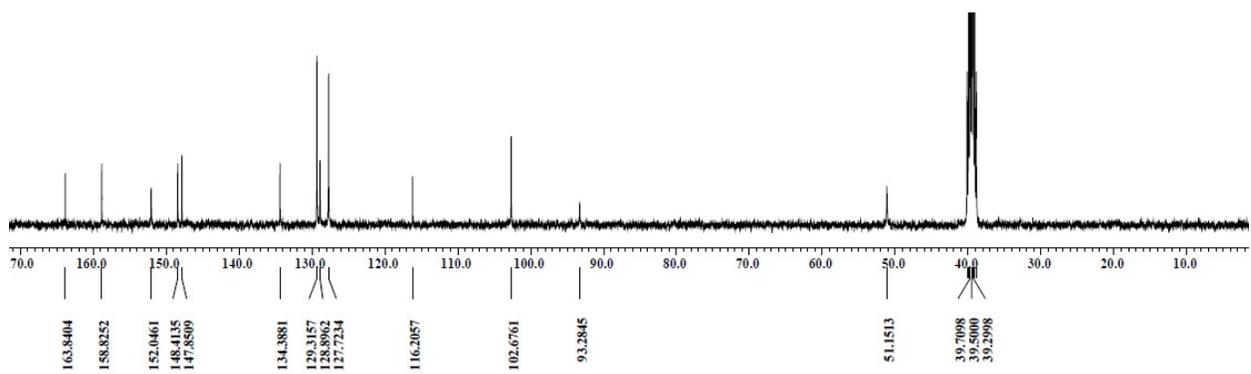
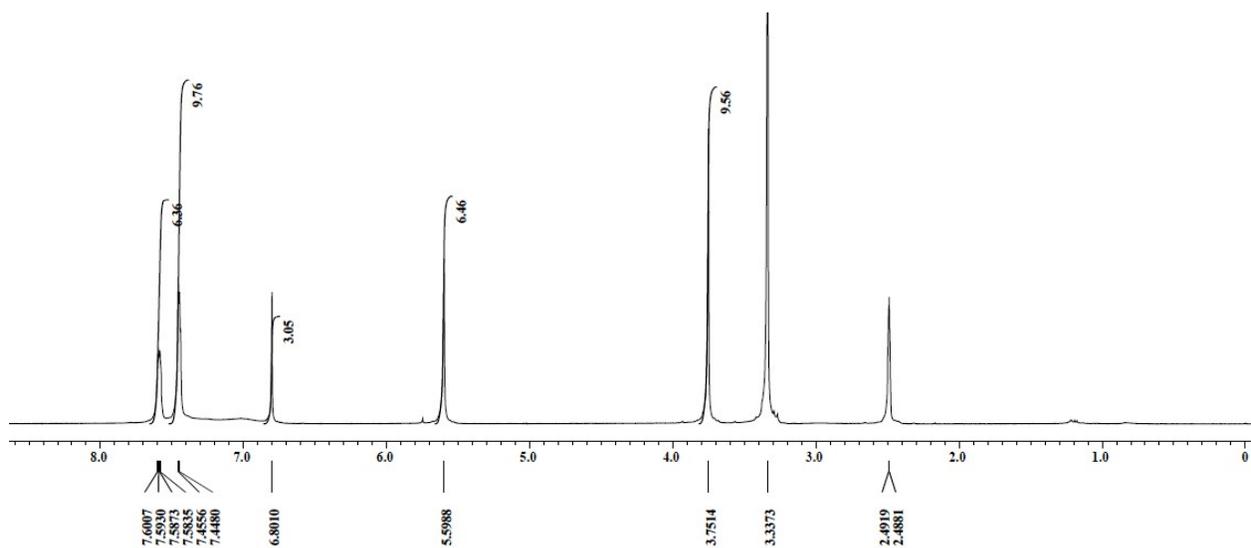
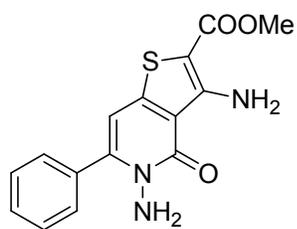


## One-Pot and step-wise synthesis of thieno[3,2-c]pyridin-4-ones

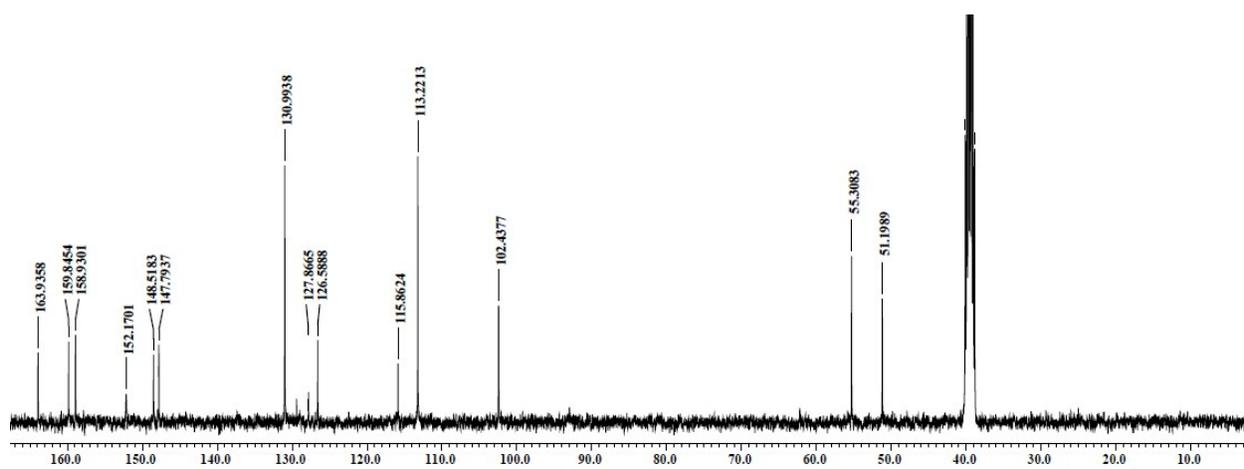
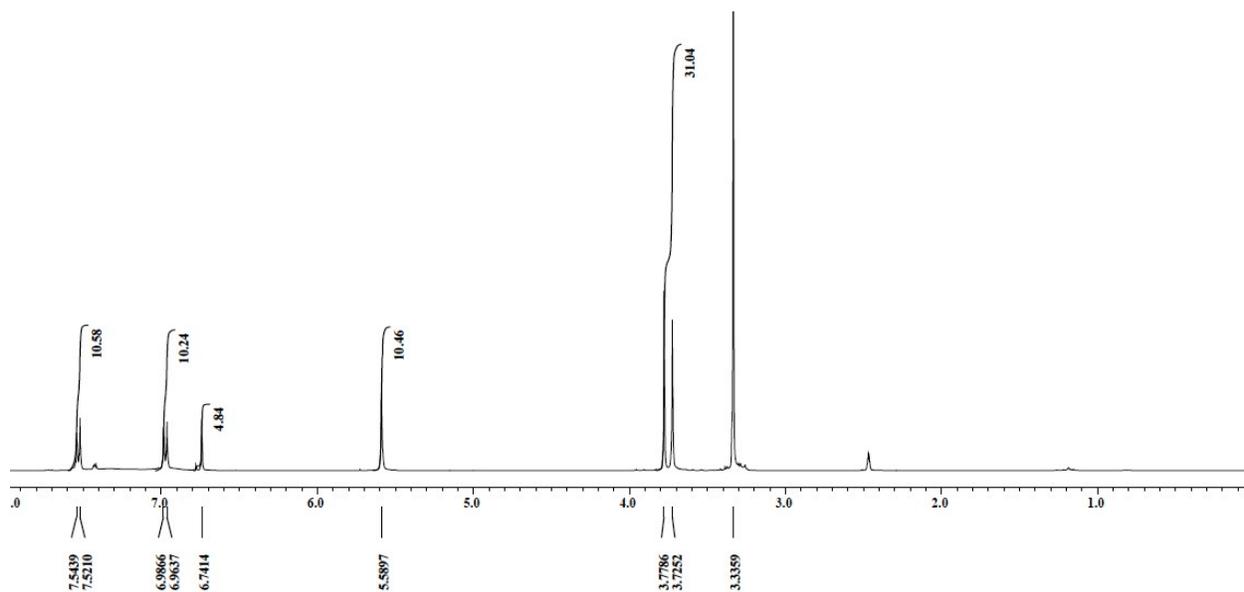
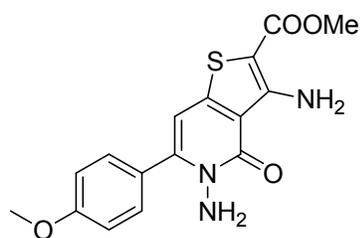
### Supporting information

#### Contents

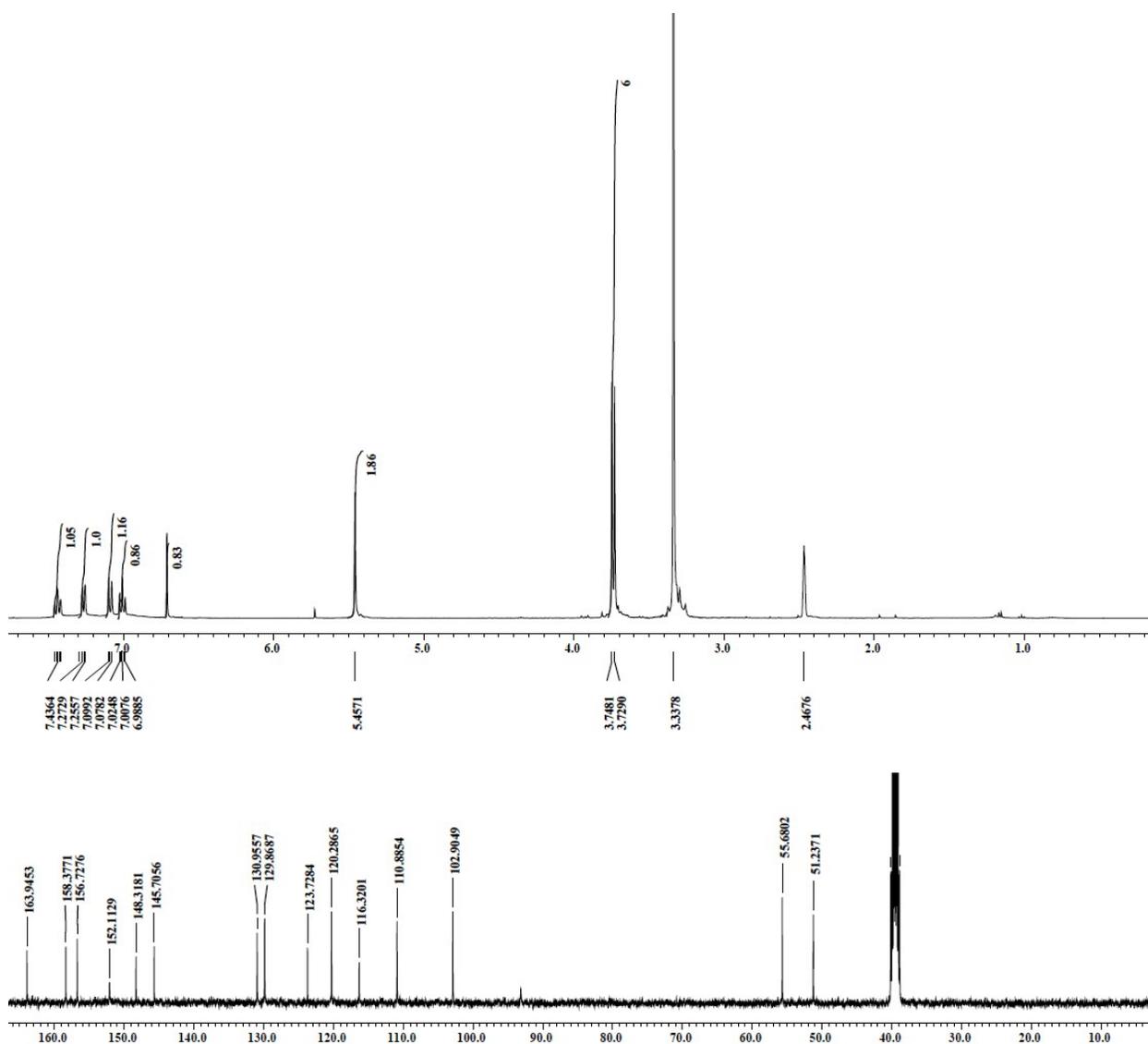
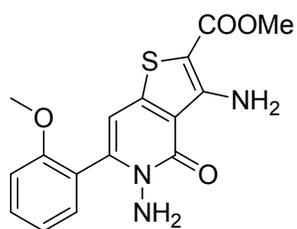
<sup>1</sup> H and <sup>13</sup> C spectra of compound <b>6a-6l</b>	2-13
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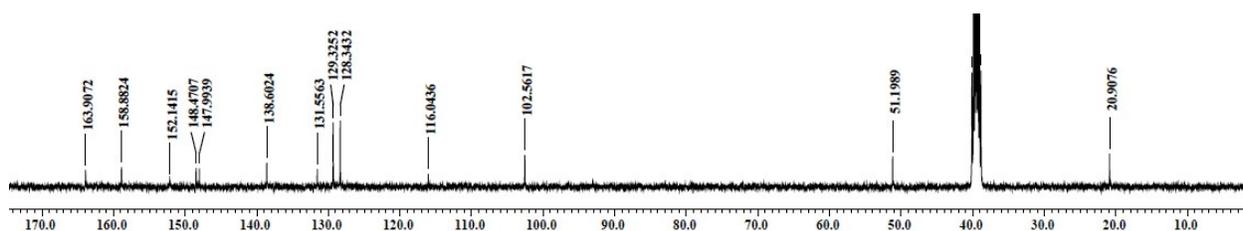
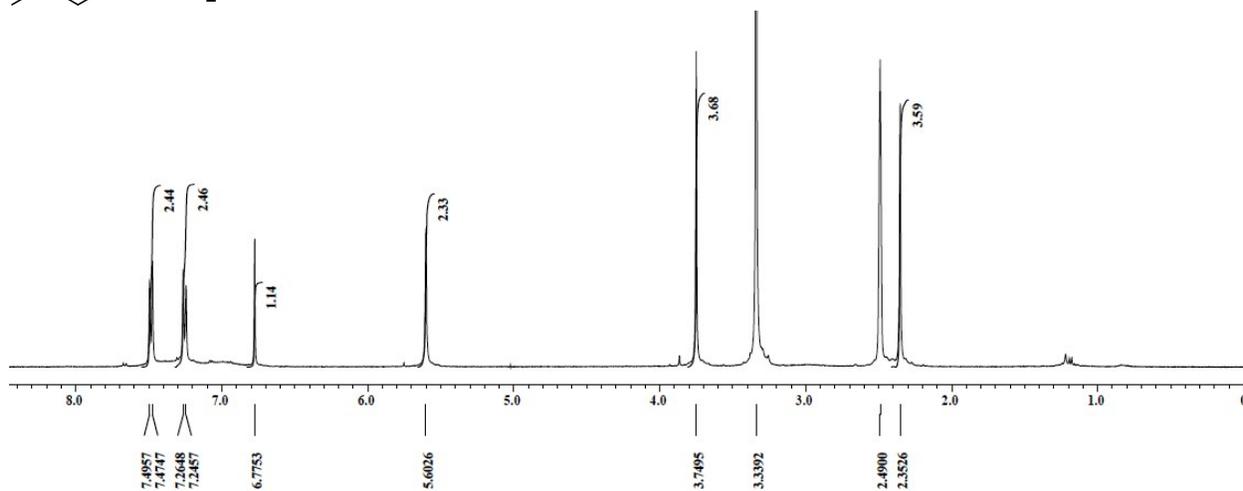
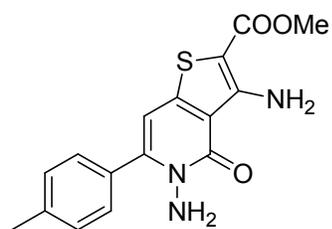
$^1\text{H}$  and  $^{13}\text{C}$  spectra of methyl 3,5-diamino-4-oxo-6-phenyl-4,5-dihydrothieno[3,2-*c*]pyridine-2-carboxylate (**6a**)



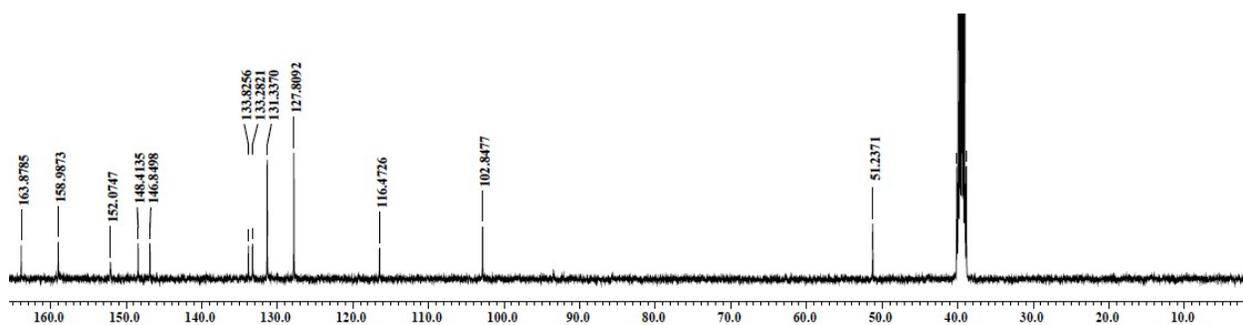
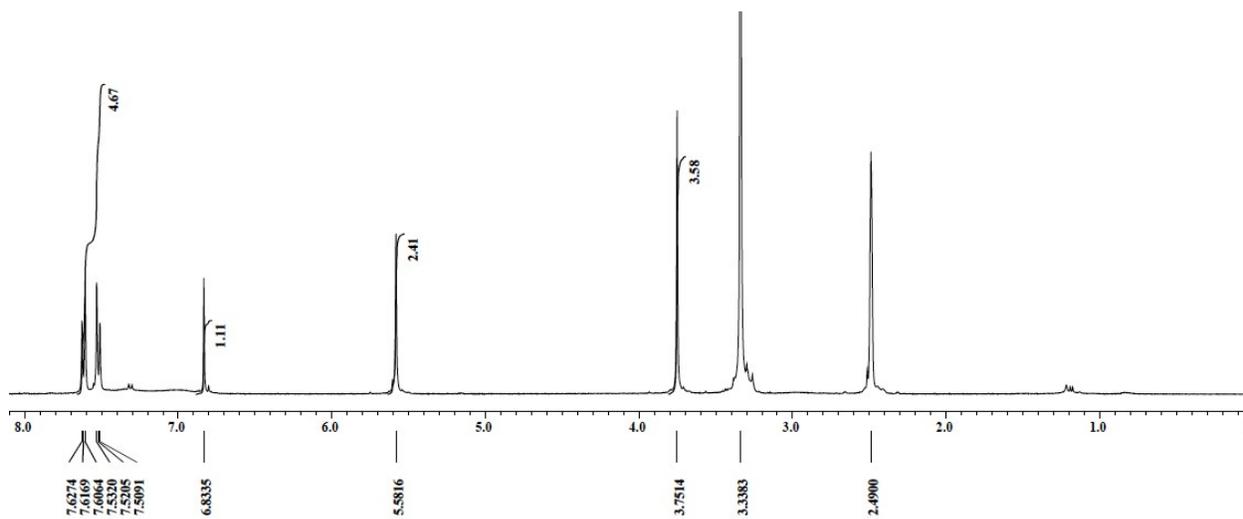
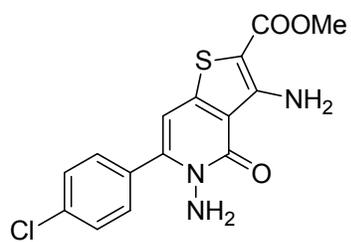
$^1\text{H}$  and  $^{13}\text{C}$  spectra of methyl 3,5-diamino-6-(4-methoxyphenyl)-4-oxo-4,5-dihydrothieno[3,2-*c*]pyridine-2-carboxylate (**6b**)



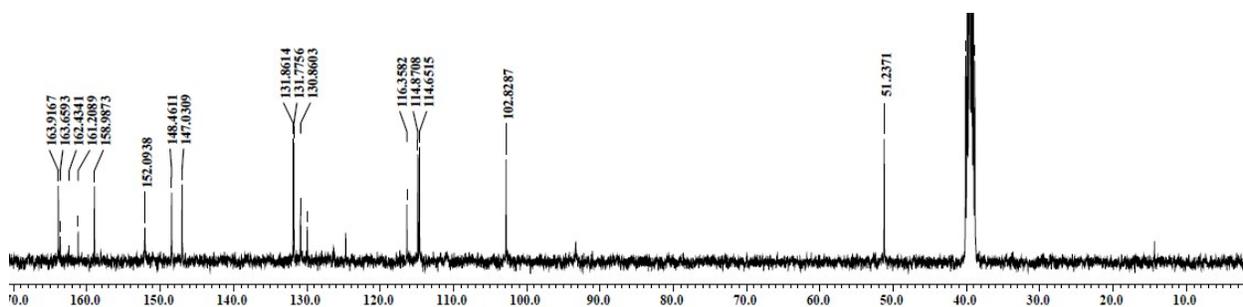
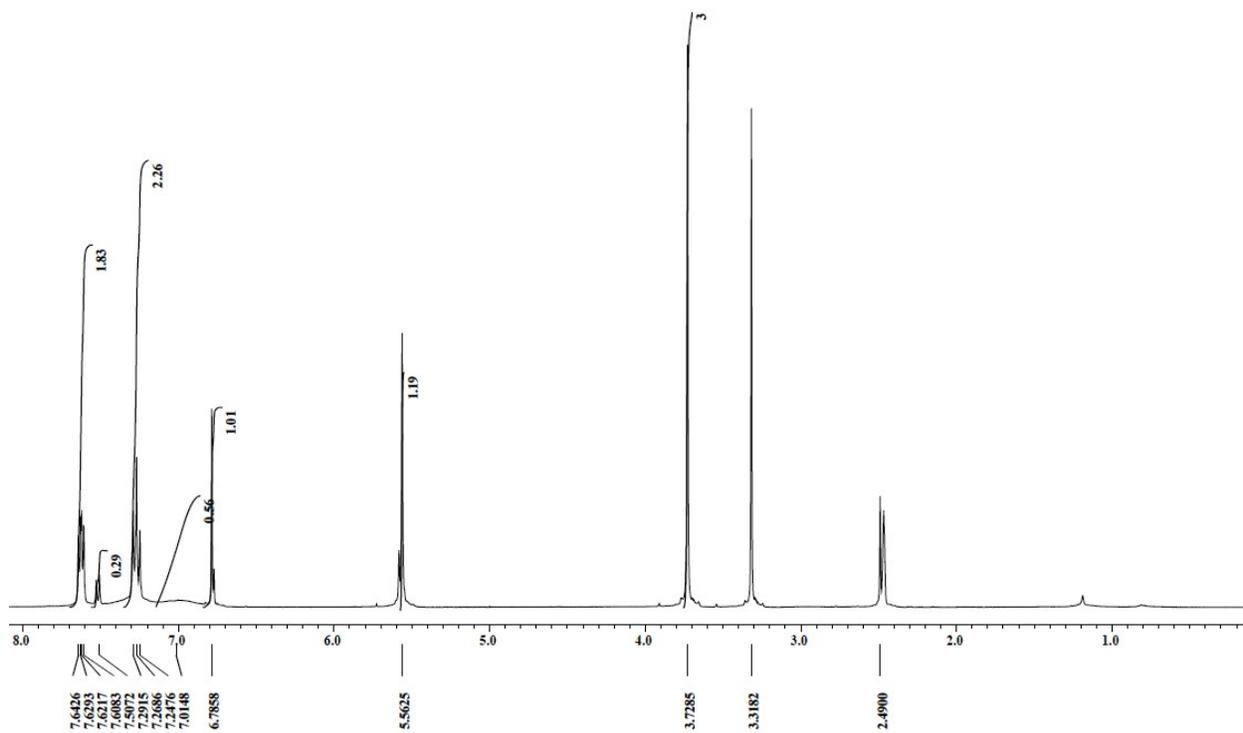
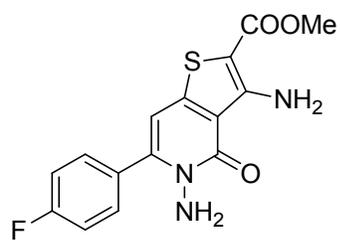
<sup>1</sup>H and <sup>13</sup>C spectra of methyl 3,5-diamino-6-(2-methoxyphenyl)-4-oxo-4,5-dihydrothieno[3,2-*c*]pyridine-2-carboxylate (**6c**)



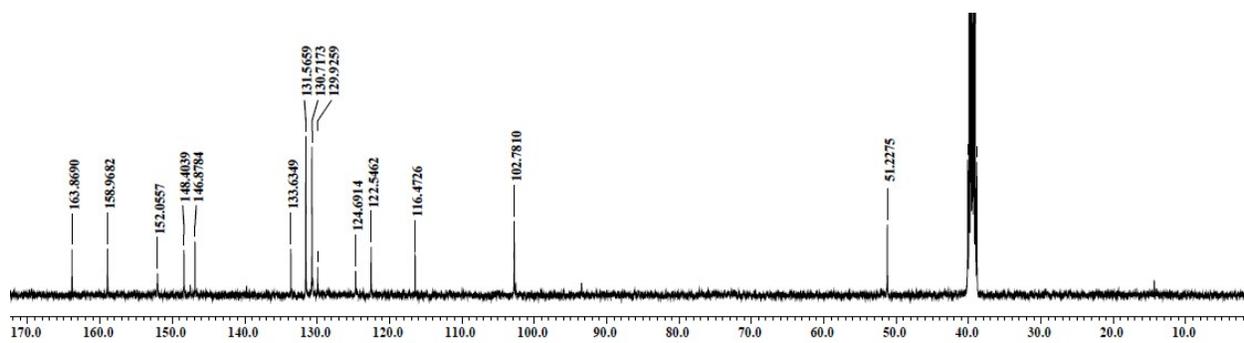
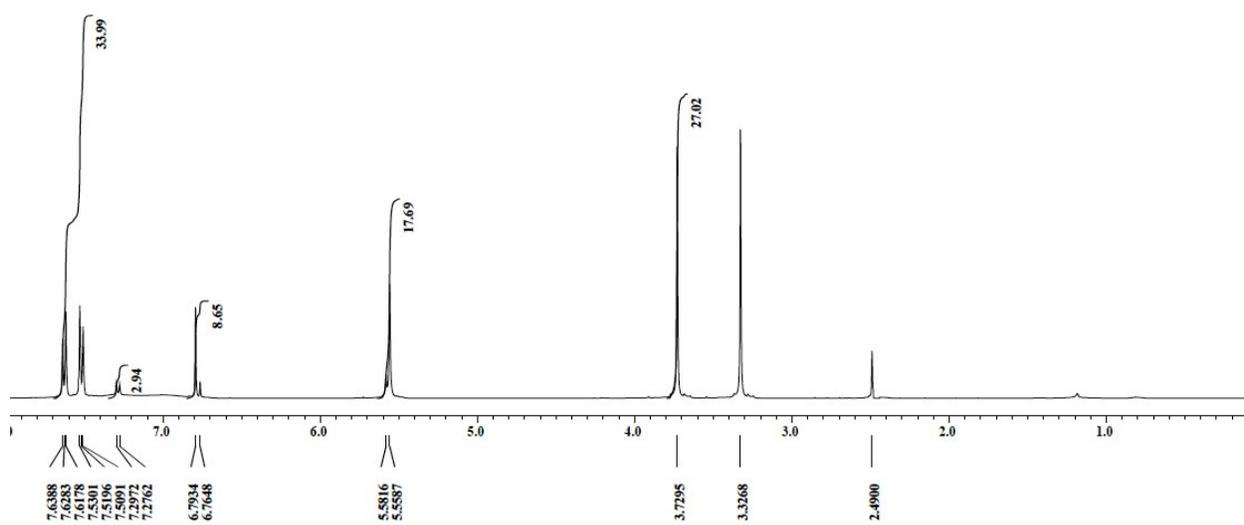
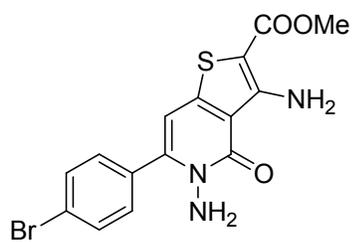
$^1\text{H}$  and  $^{13}\text{C}$  spectra of methyl 3,5-diamino-4-oxo-6-(*p*-tolyl)-4,5-dihydrothieno[3,2-*c*]pyridine-2-carboxylate (**6d**)



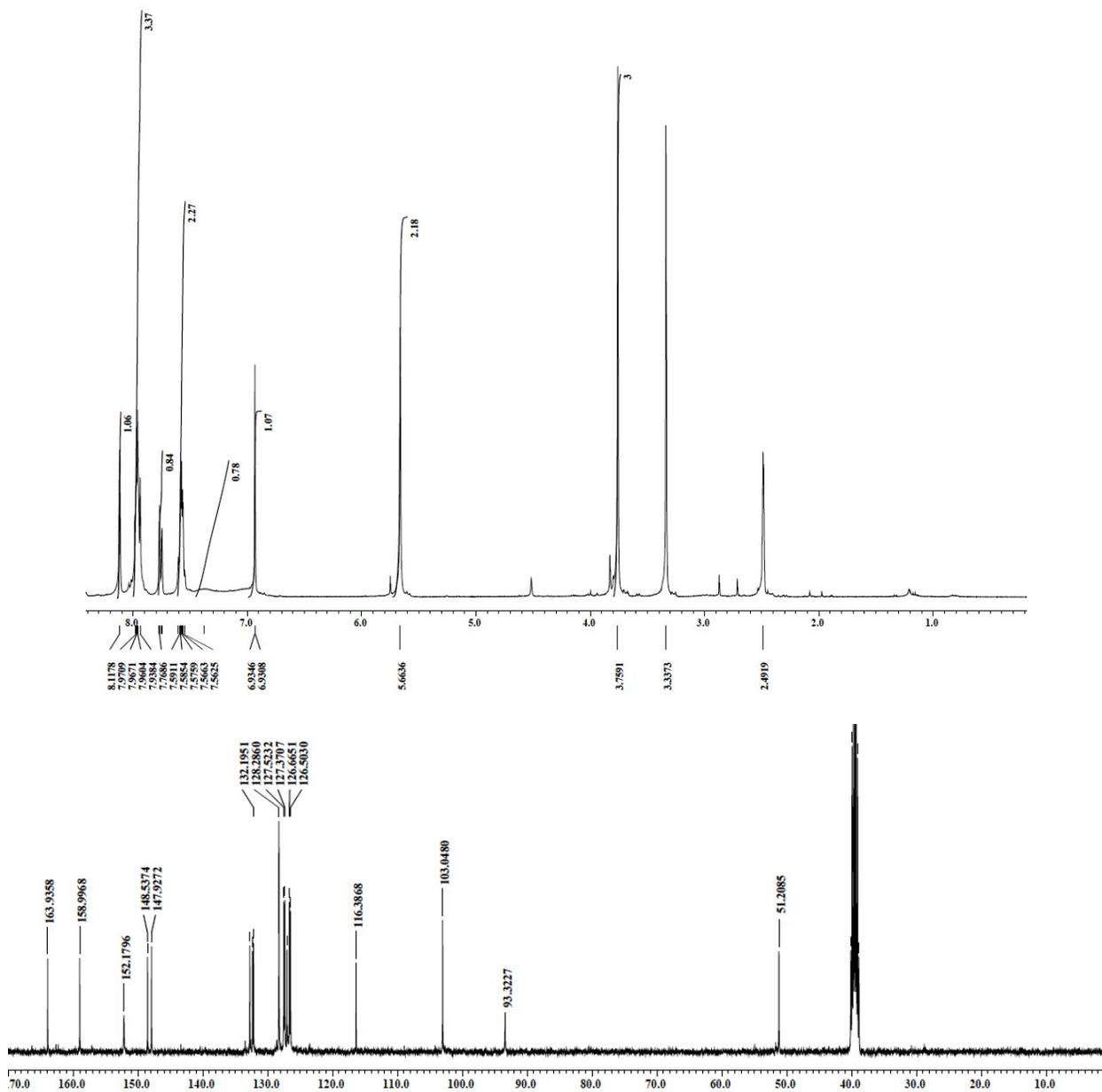
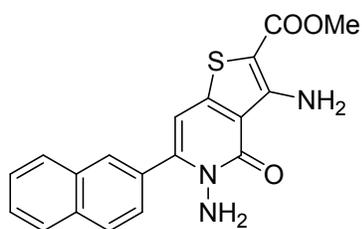
$^1\text{H}$  and  $^{13}\text{C}$  spectra of methyl 3,5-diamino-6-(4-chlorophenyl)-4-oxo-4,5-dihydrothieno[3,2-*c*]pyridine-2-carboxylate (**6e**)



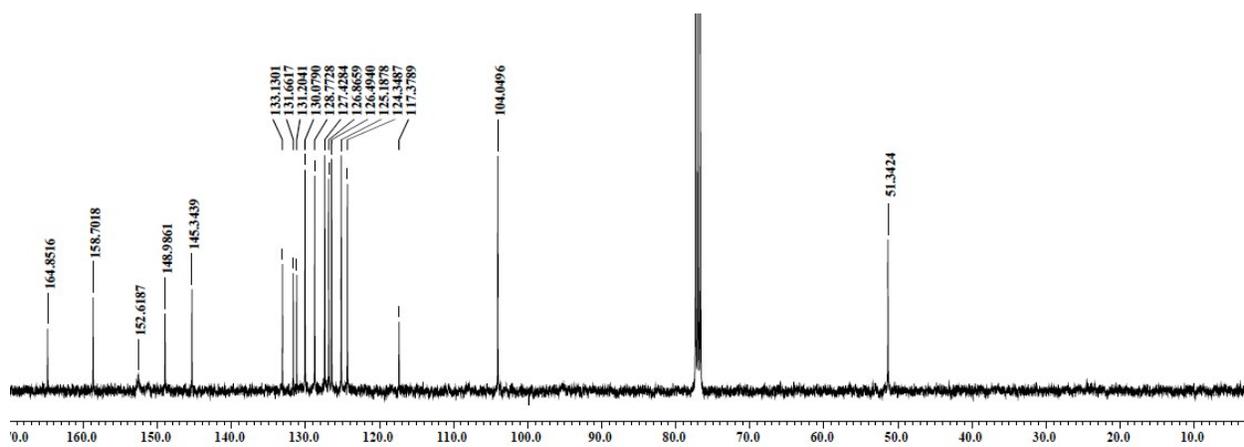
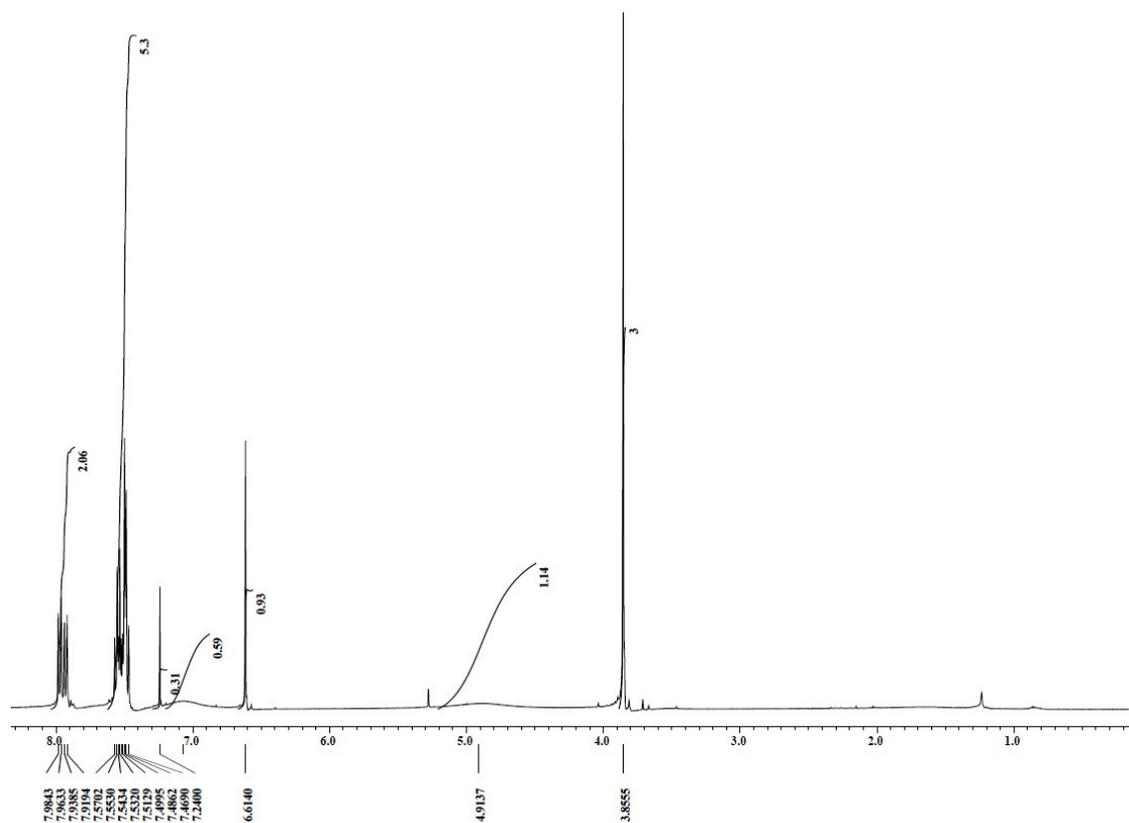
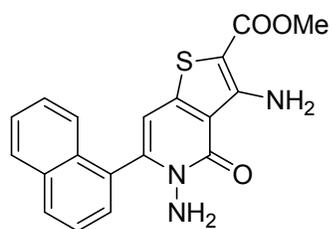
$^1\text{H}$  and  $^{13}\text{C}$  spectra of methyl 3,5-diamino-6-(4-fluorophenyl)-4-oxo-4,5-dihydrothieno[3,2-*c*]pyridine-2-carboxylate (**6f**)



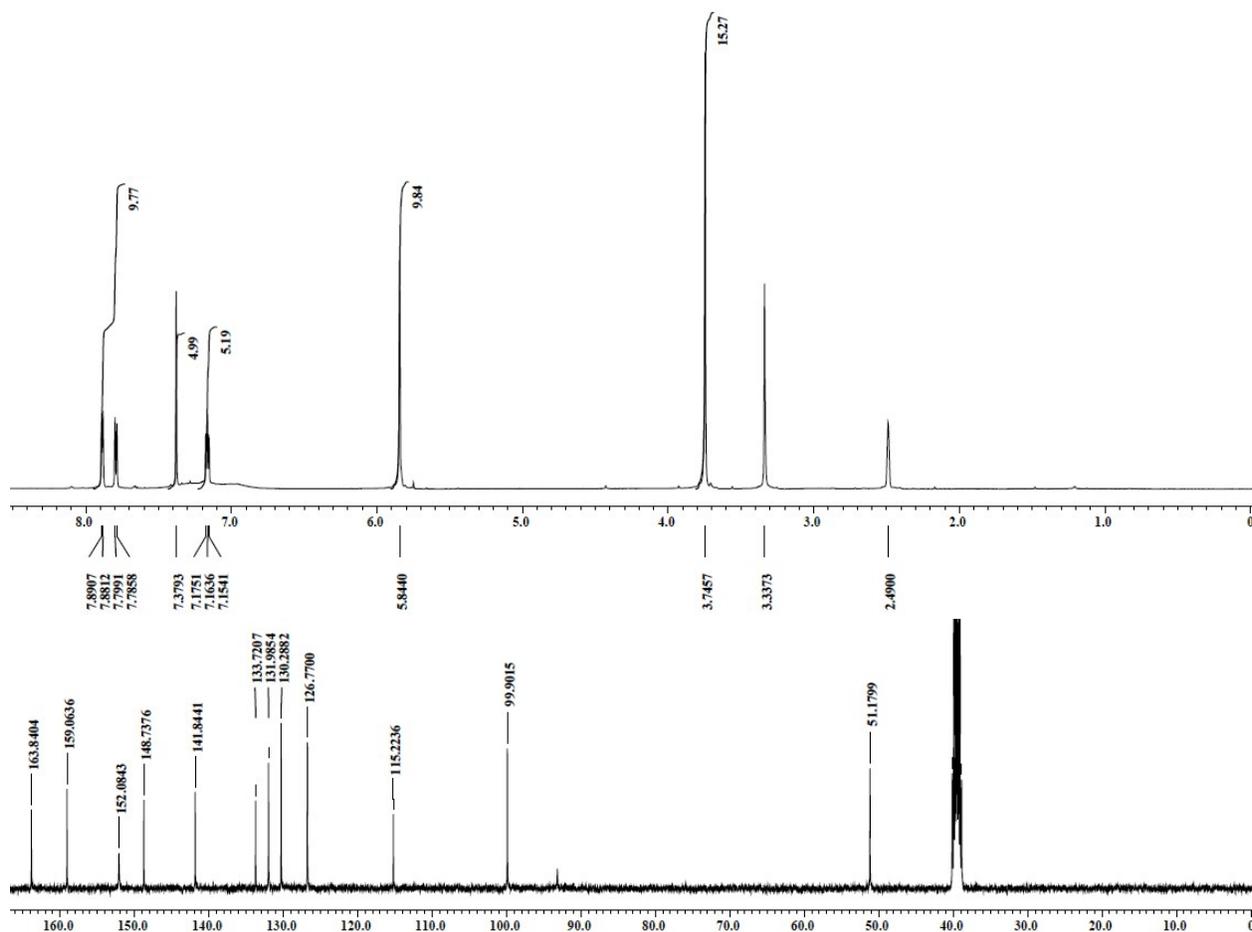
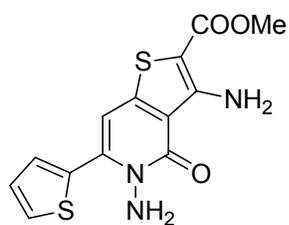
<sup>1</sup>H and <sup>13</sup>C spectra of methyl 3,5-diamino-6-(4-bromophenyl)-4-oxo-4,5-dihydrothieno[3,2-*c*]pyridine-2-carboxylate (**6g**)



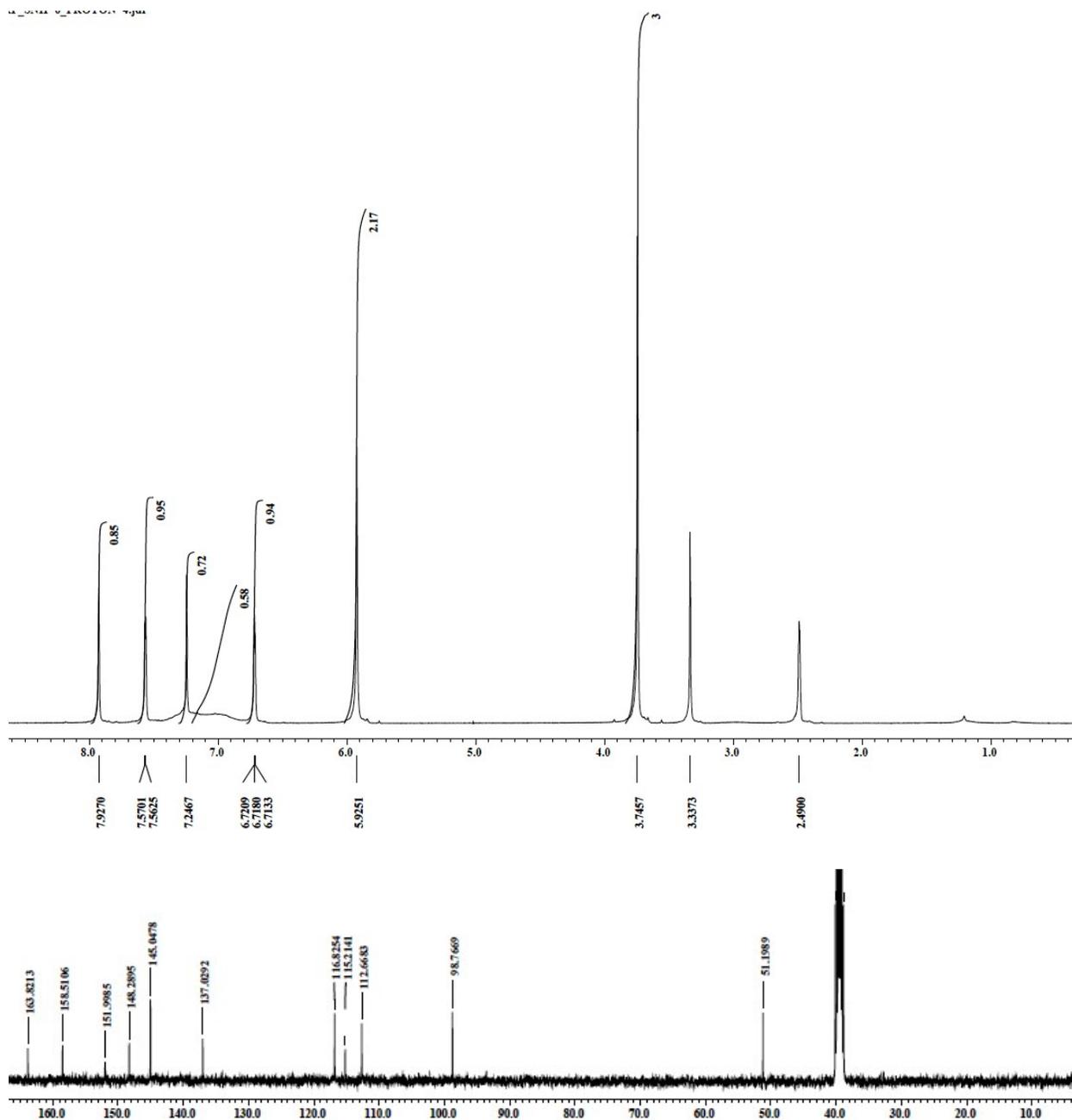
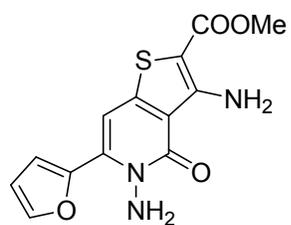
<sup>1</sup>H and <sup>13</sup>C spectra of methyl 3,5-diamino-6-(naphthalen-2-yl)-4-oxo-4,5-dihydrothieno[3,2-*c*]pyridine-2-carboxylate (**6h**)



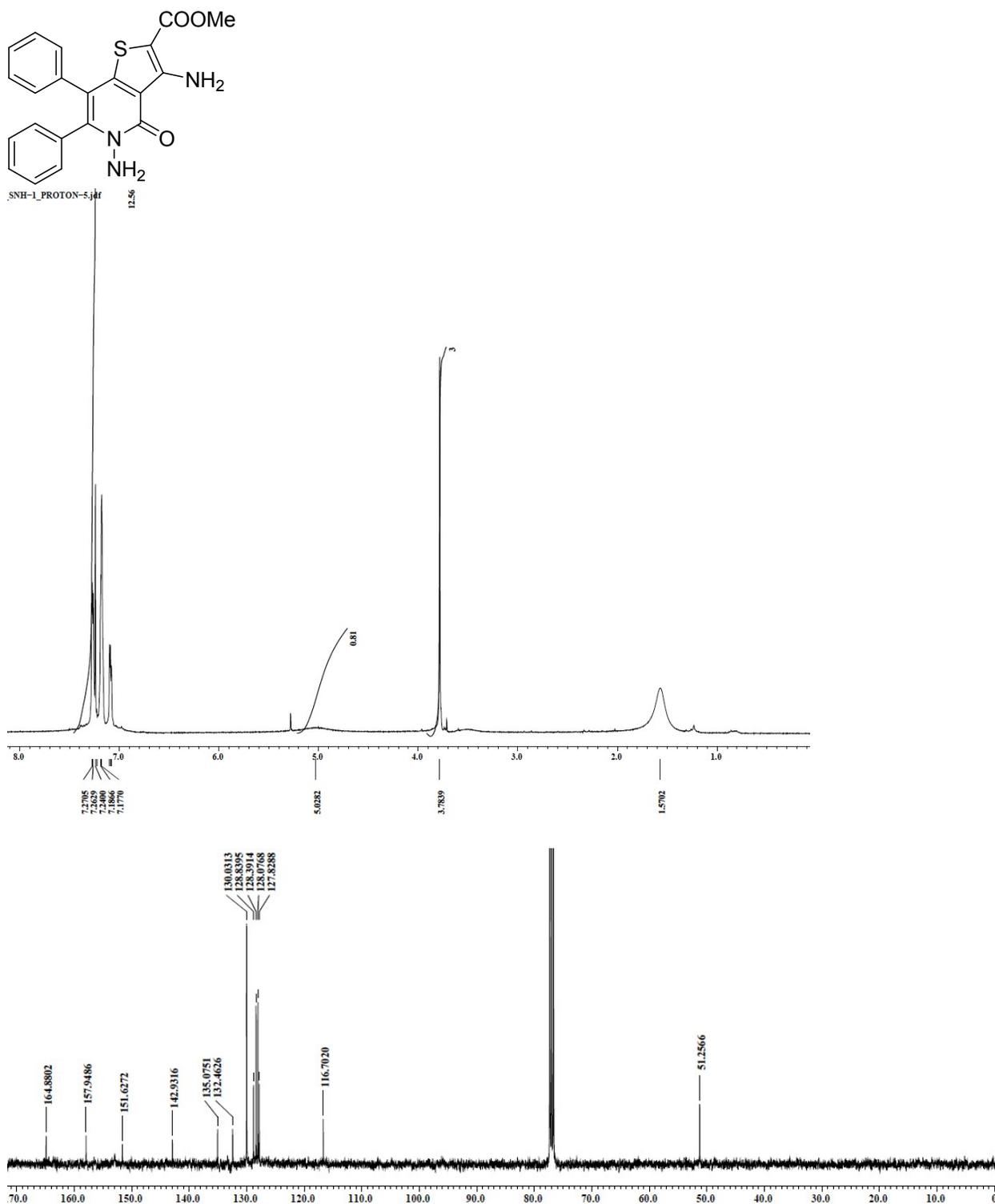
$^1\text{H}$  and  $^{13}\text{C}$  spectra of methyl 3,5-diamino-6-(naphthalen-1-yl)-4-oxo-4,5-dihydrothieno[3,2-*c*]pyridine-2-carboxylate (**6i**)



<sup>1</sup>H and <sup>13</sup>C spectra of methyl 3,5-diamino-4-oxo-6-(thiophen-2-yl)-4,5-dihydrothieno[3,2-c]pyridine-2-carboxylate (**6j**)



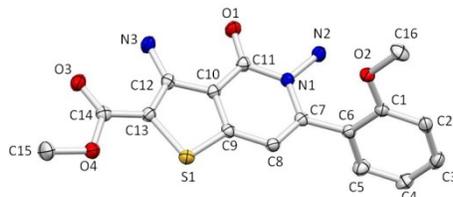
<sup>1</sup>H and <sup>13</sup>C spectra of methyl 3,5-diamino-6-(furan-2-yl)-4-oxo-4,5-dihydrothieno[3,2-*c*]pyridine-2-carboxylate (**6k**)



<sup>1</sup>H and <sup>13</sup>C spectra of methyl 3,5-diamino-4-oxo-6,7-diphenyl-4,5-dihydrothieno[3,2-c]pyridine-2-carboxylate (**6l**)

### X-ray structural analysis of **6c**

The compound was crystallized in mixture of chloroform and methanol. The **6c** shows H-bonding interactions in the solid state structure of the compound. The distance between N2-H2A $\cdots$ O2 & N2-H2B $\cdots$ O1 H-interactions is 2.8187(16), 2.4007(16) Å and bond angle 101.153(144)°, 99.792(147)°, respectively. Similarly, the distance between N3-H3A $\cdots$ O3 & N3-H3B $\cdots$ O1 is 2.2416(19), 2.2219(15) Å and bond angle is 124.869(149), 129.154(148)°, respectively.



**Figure. 1:** ORTEP diagram of **6c** at 30% probability with atom numbering scheme.