

## Supporting Information for:

### Recyclable gold(I)-catalyzed hydrophosphoryloxylation of alkynes or 1-haloalkynes with diphenyl phosphate

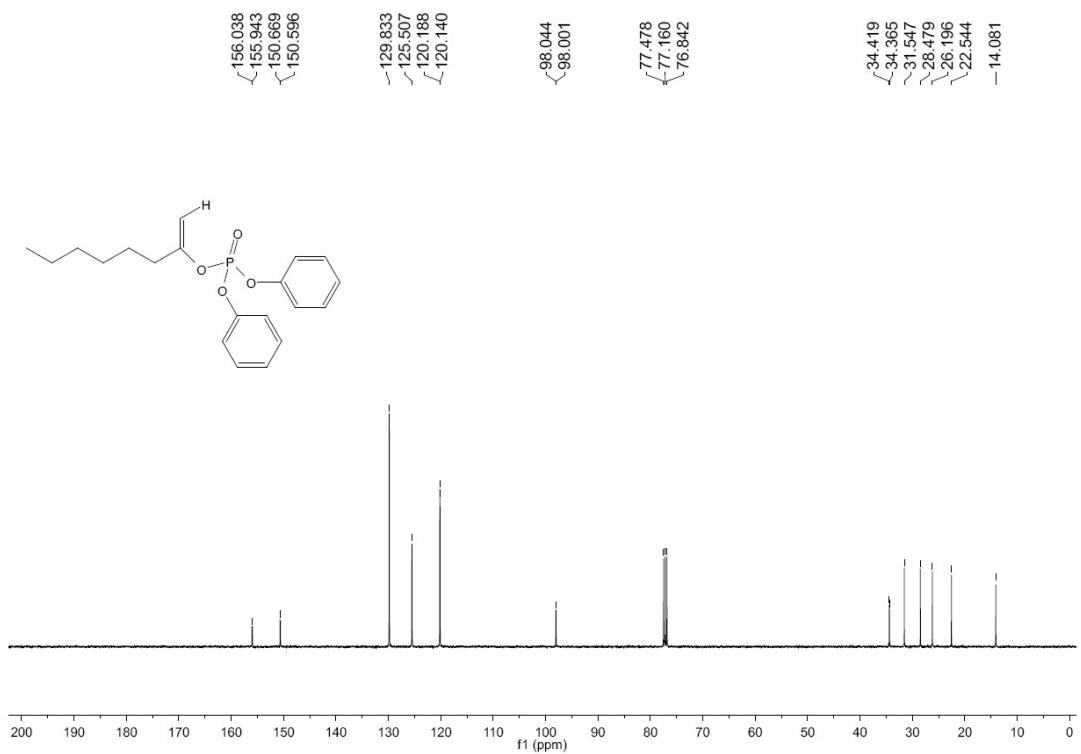
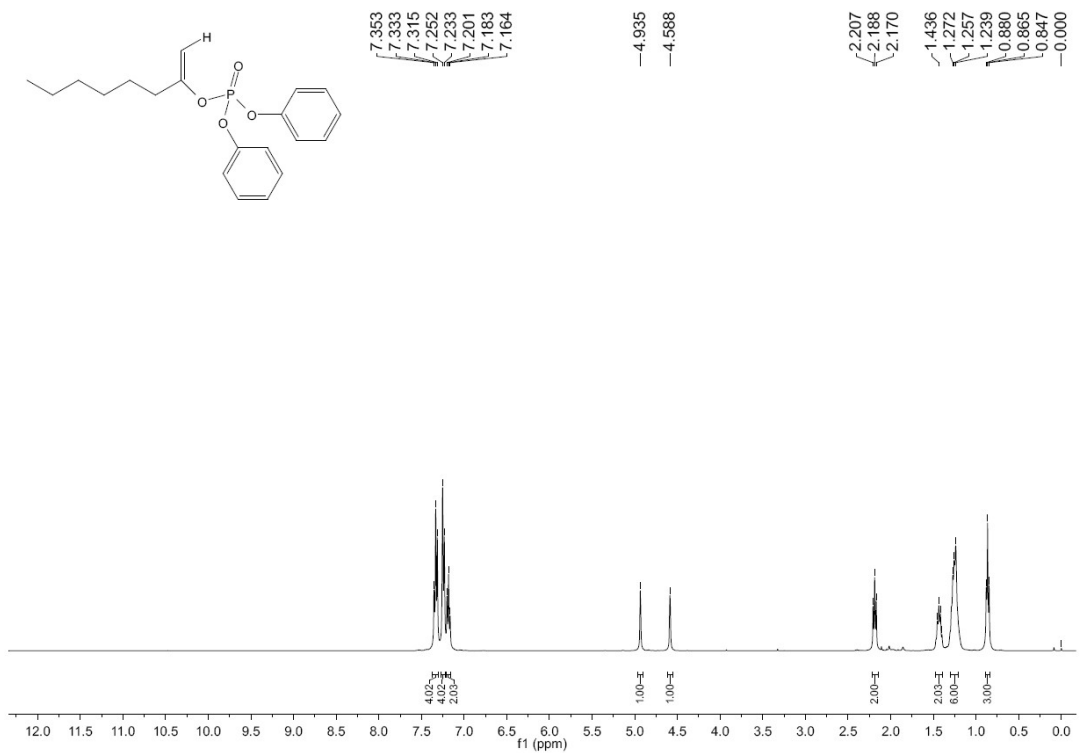
Ling Chen,<sup>a\*</sup> Boling Song<sup>b</sup> and Mingzhong Cai<sup>b\*</sup>

<sup>a</sup> *College of Materials and Chemical Engineering, Pingxiang University, Pingxiang, Jiangxi 337055, China.*

<sup>b</sup> *College of Chemistry and Materials Science, Jiangxi Normal University, Nanchang, Jiangxi 330022, China*

E-mail: c1793742690@163.com; mzcai@jxnu.edu.cn

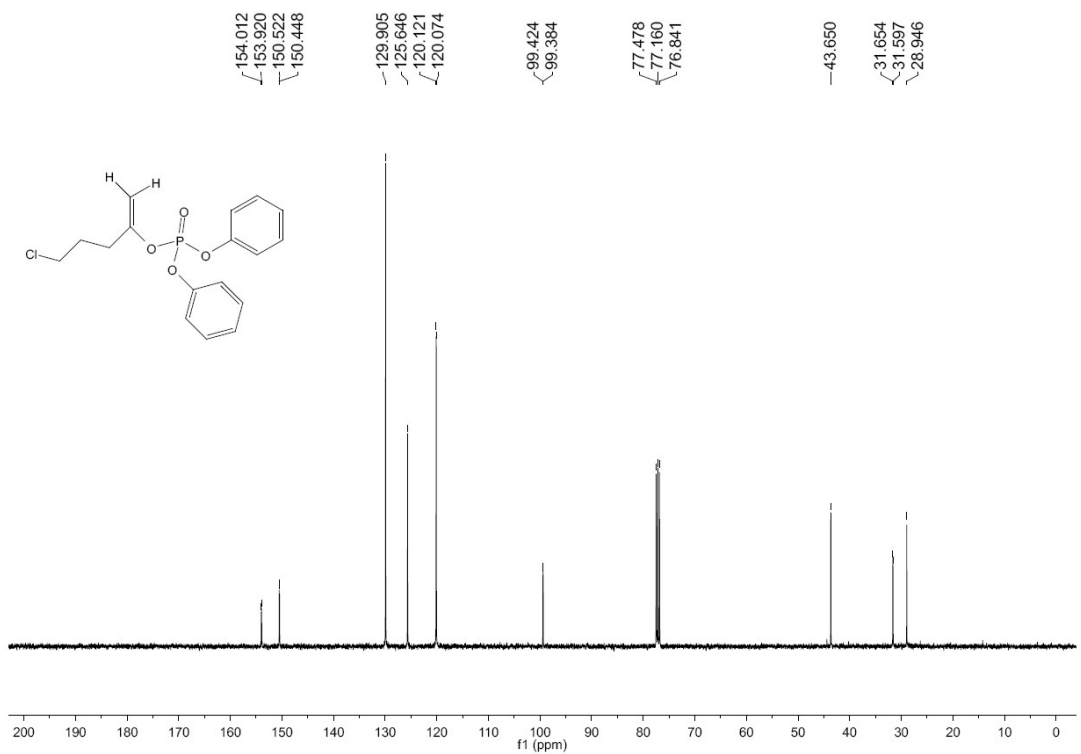
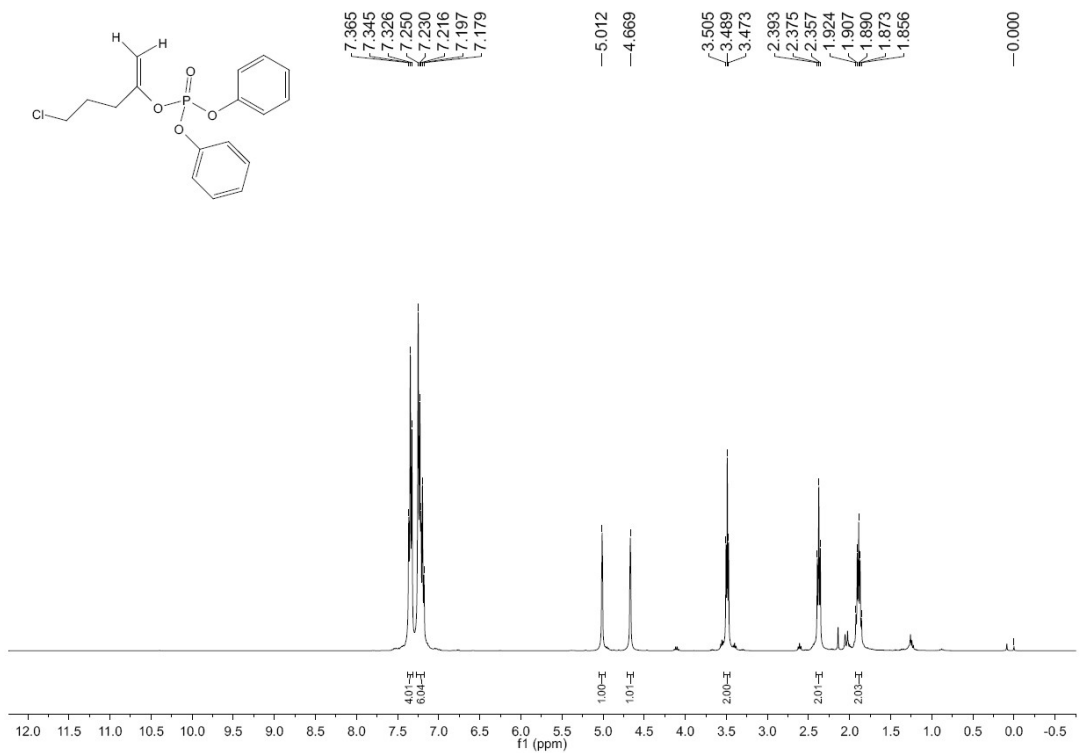
**Copies of NMR Spectra of Compounds 2a-t and 4a-p**



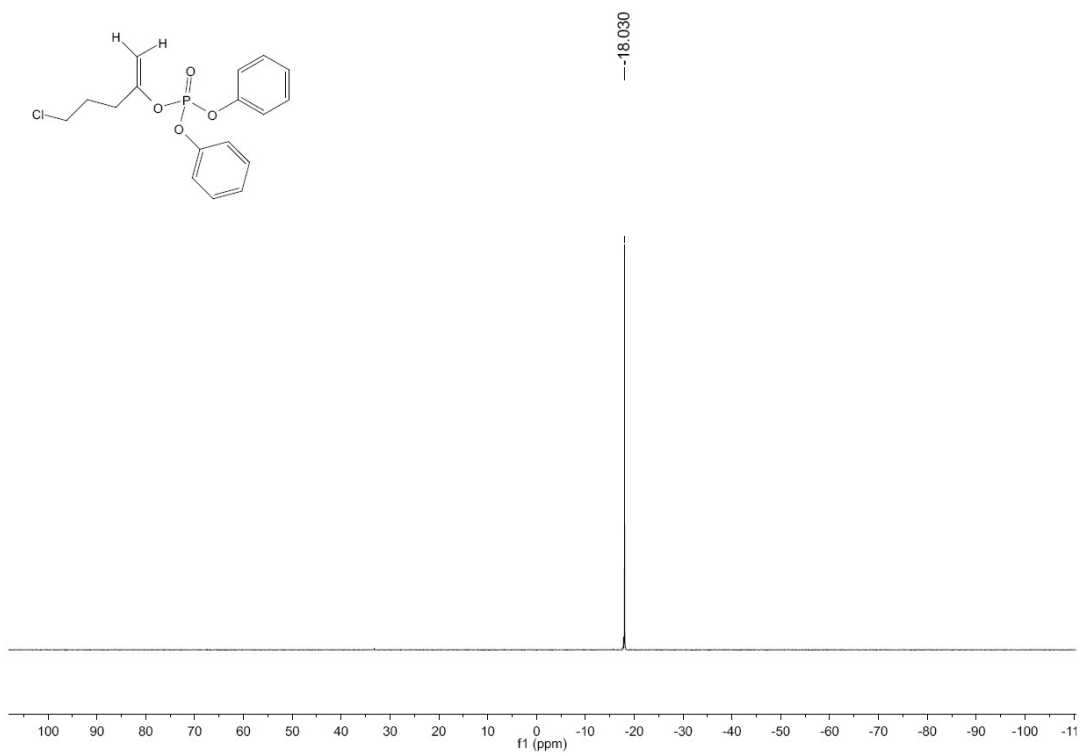
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR of Compound **2a**



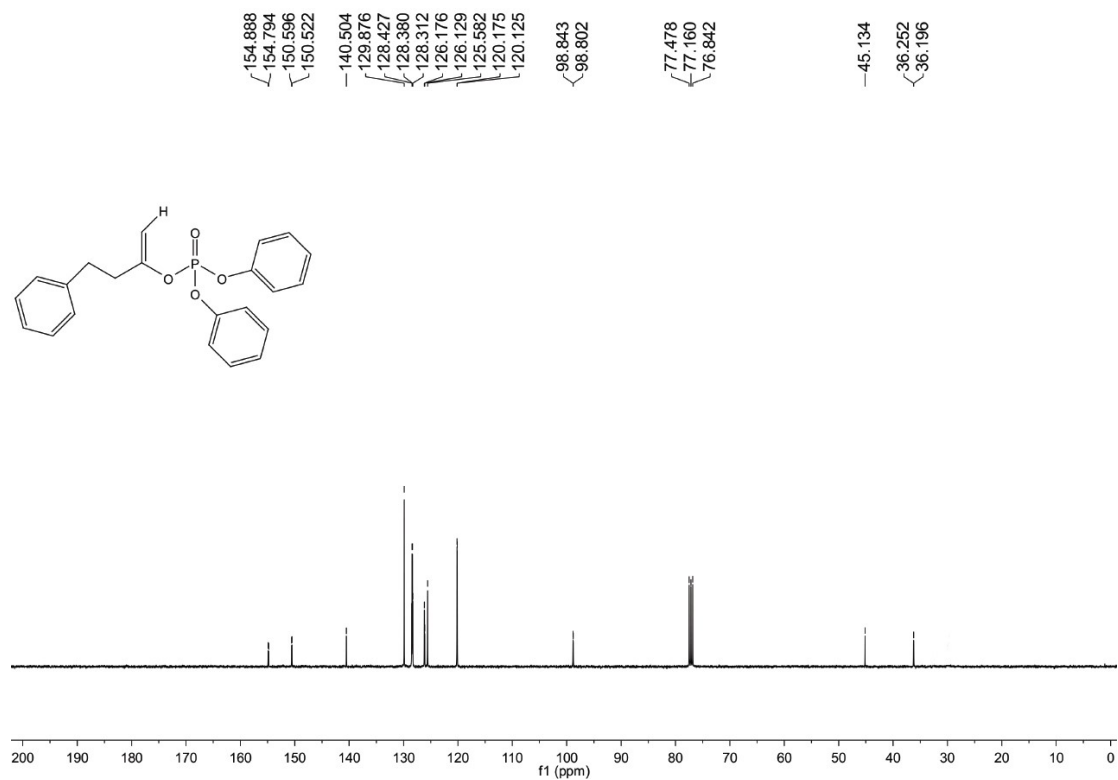
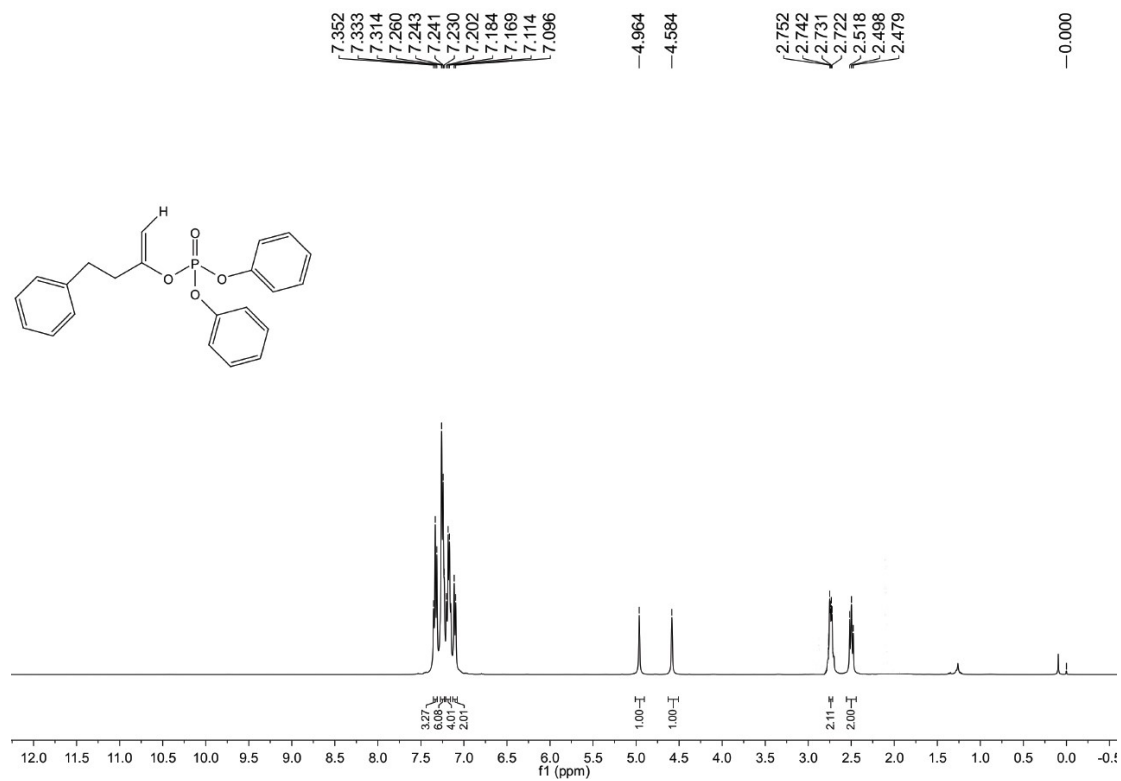
$^{31}\text{P}$  NMR of Compound **2a**



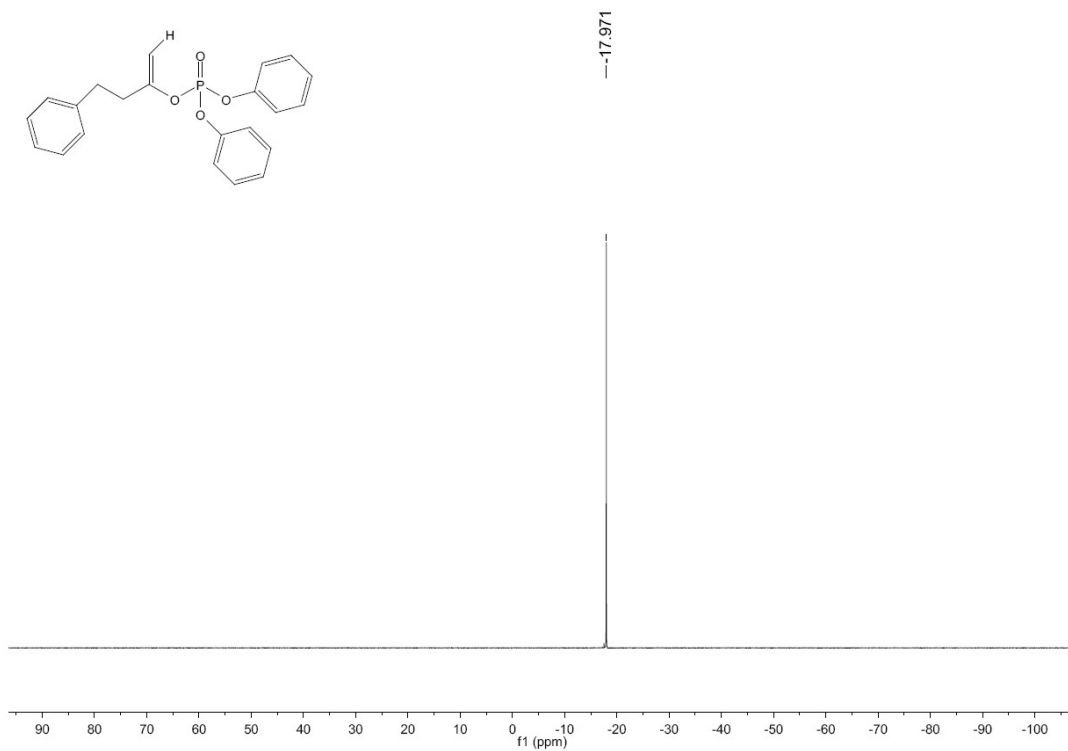
<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound 2b



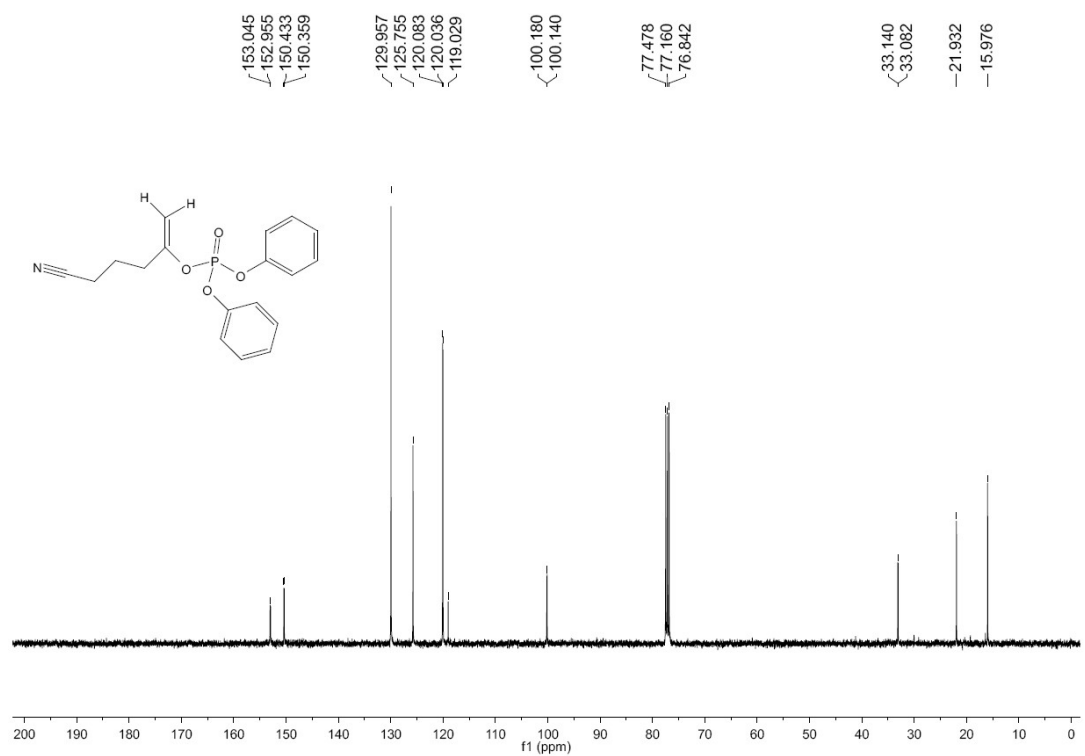
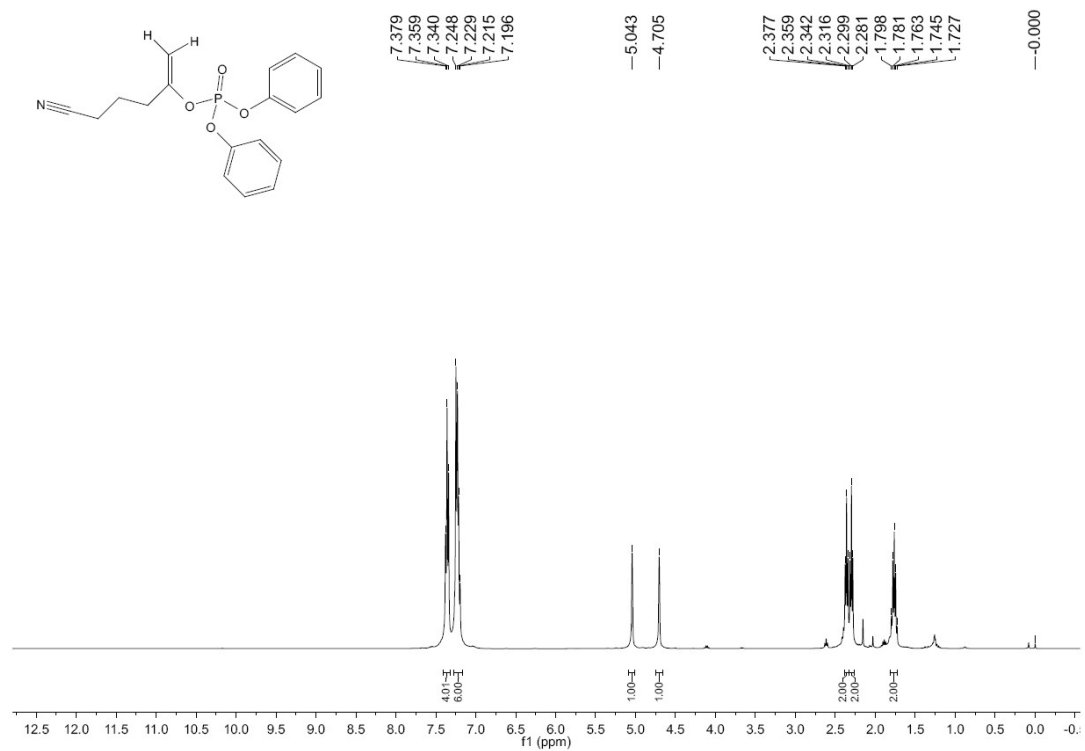
$^{31}\text{P}$  NMR of Compound **2b**



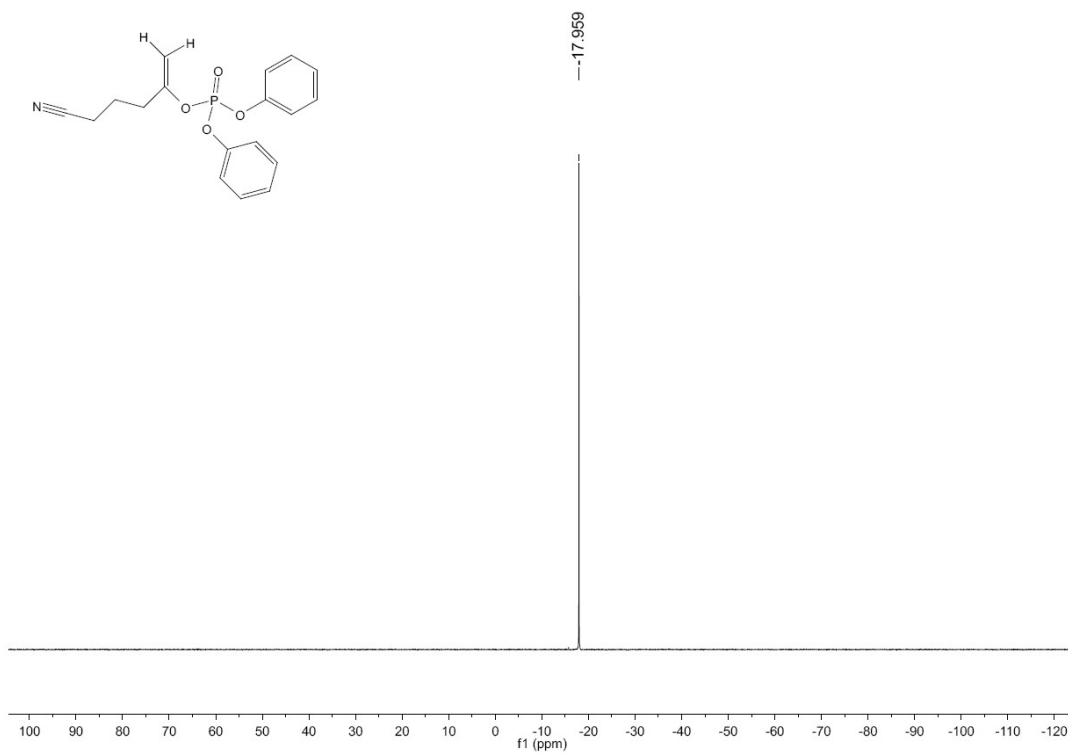
<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound **2c**



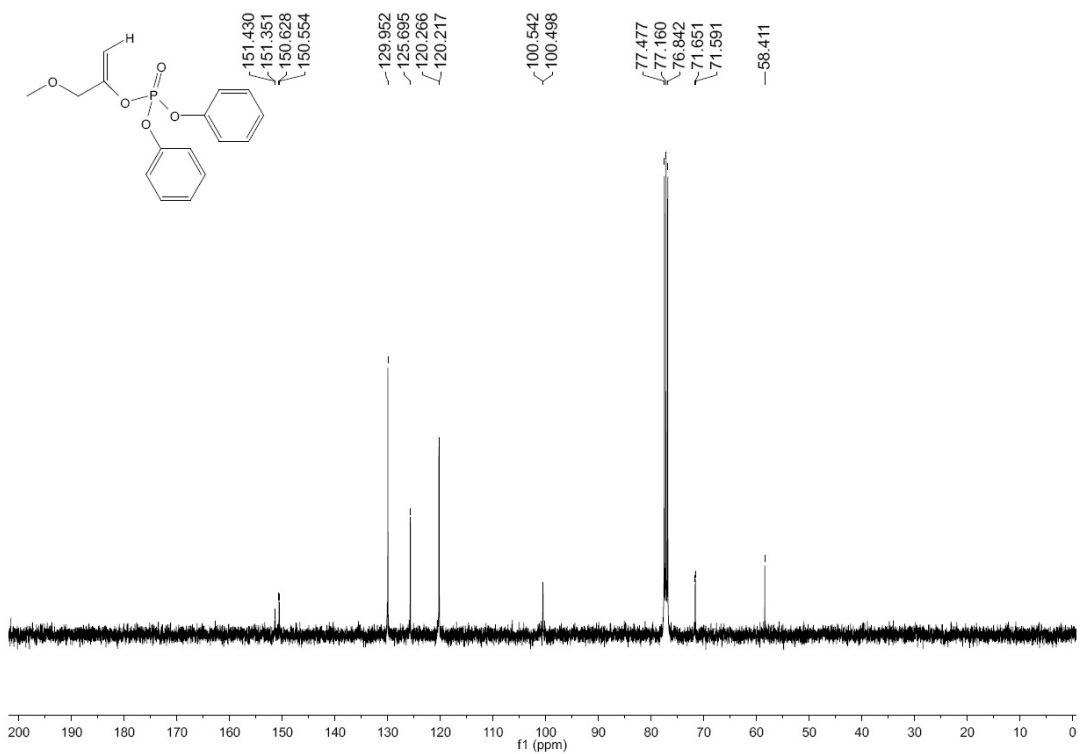
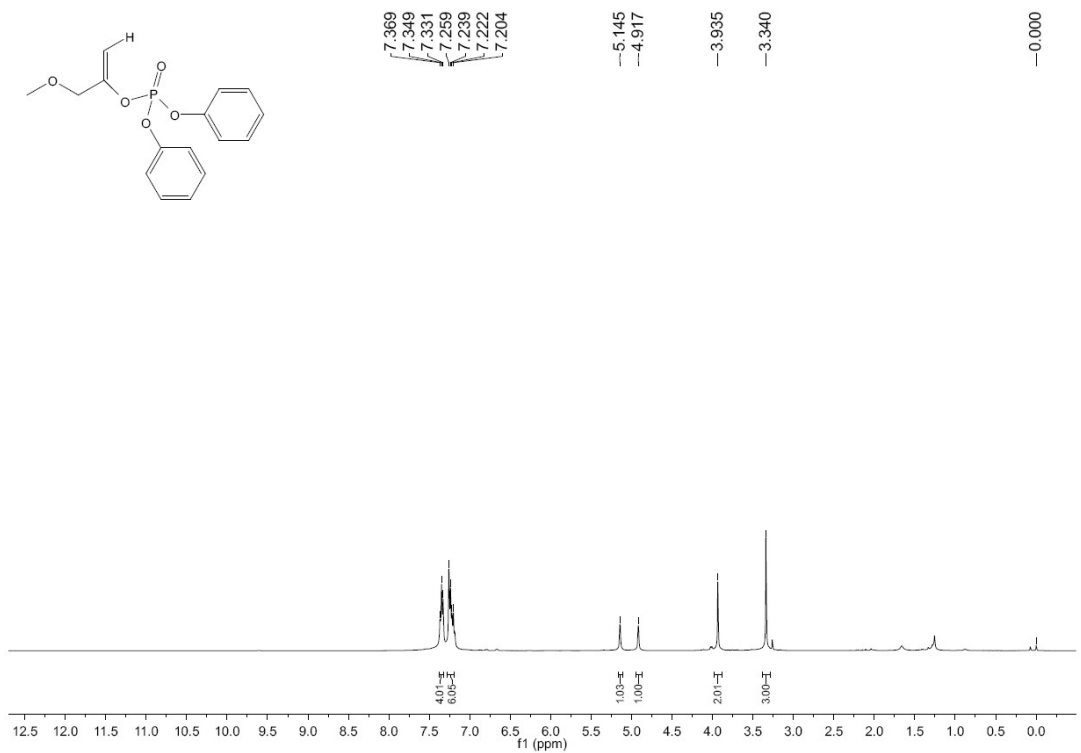
$^{31}\text{P}$  NMR of Compound **2c**



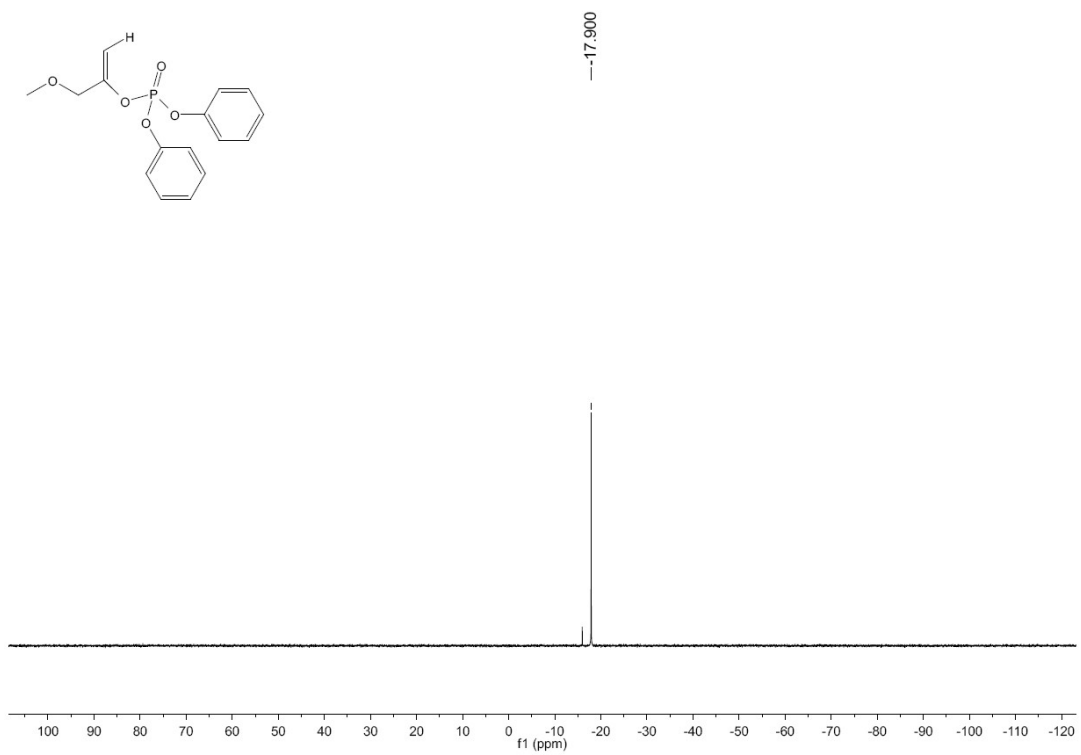
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR of Compound **2d**



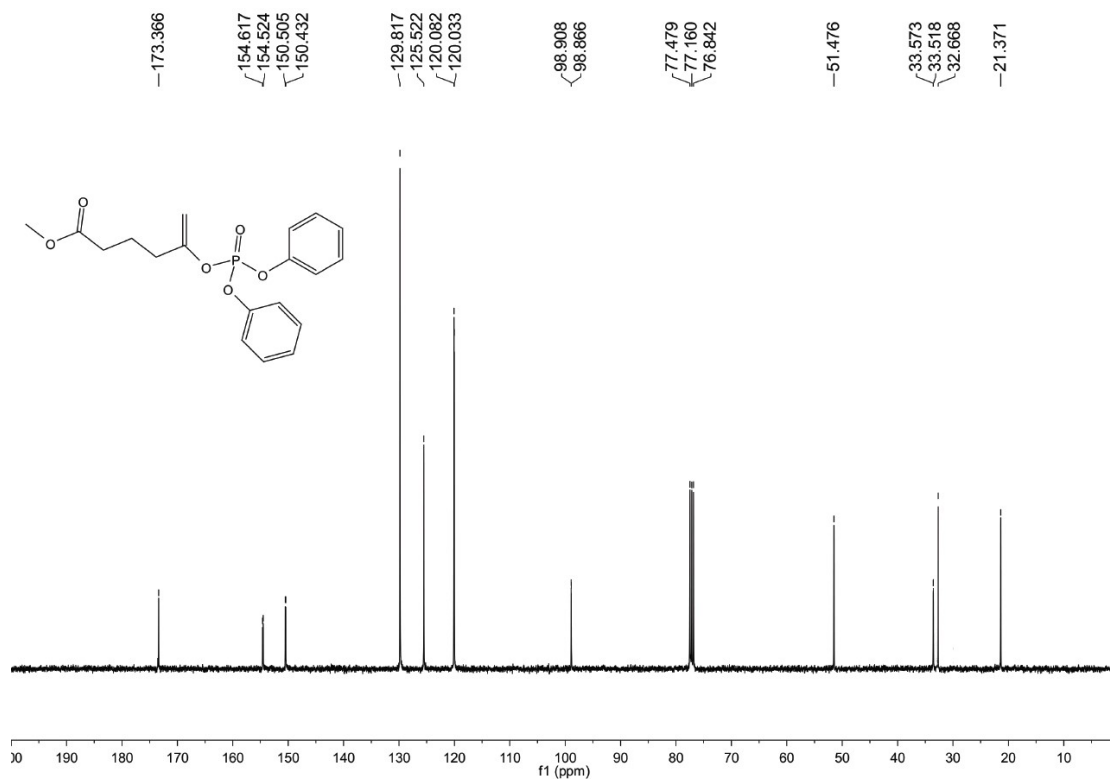
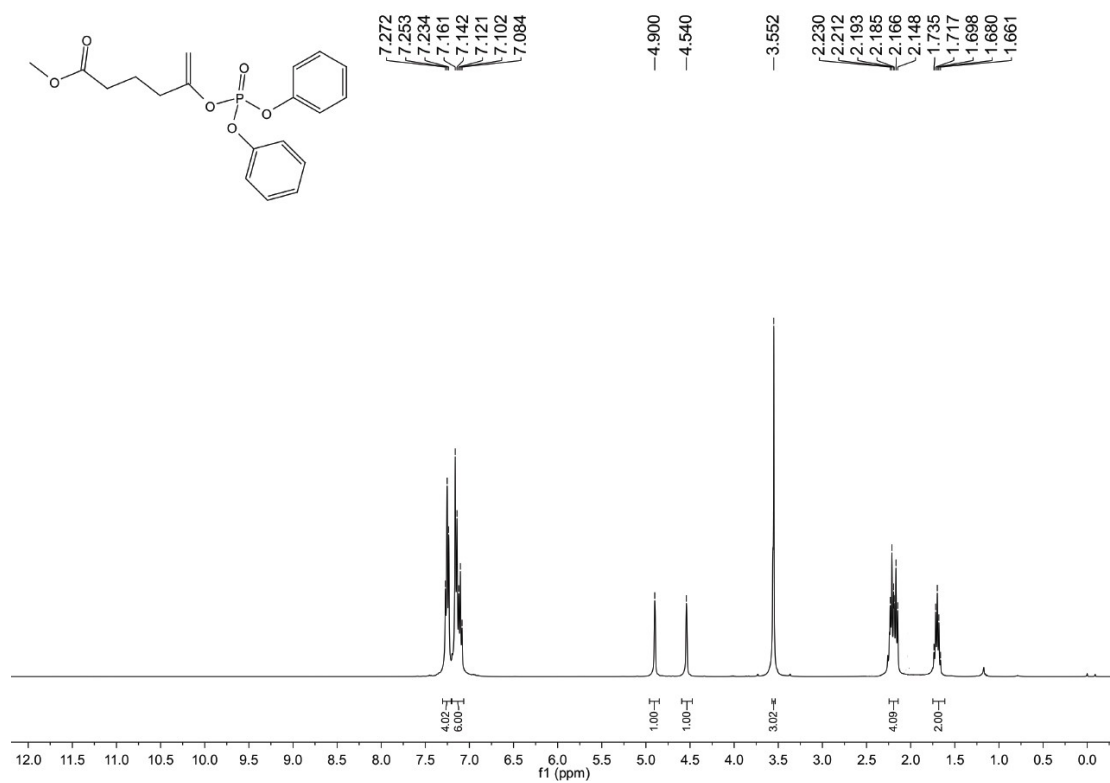
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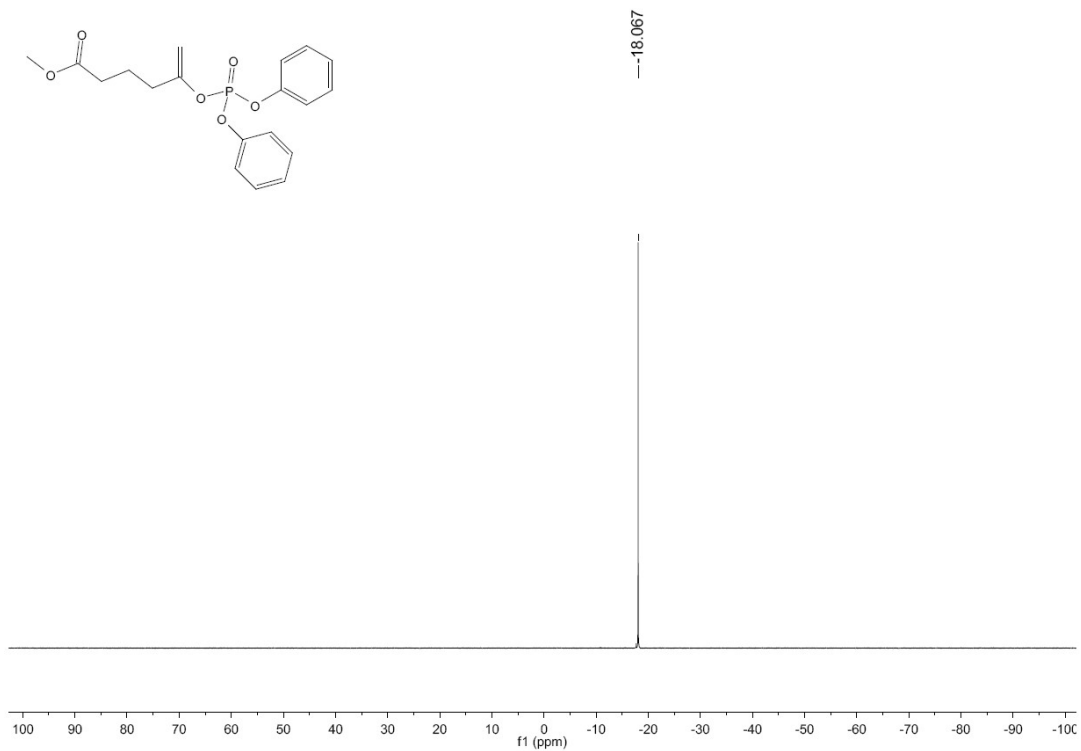
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR of Compound **2e**



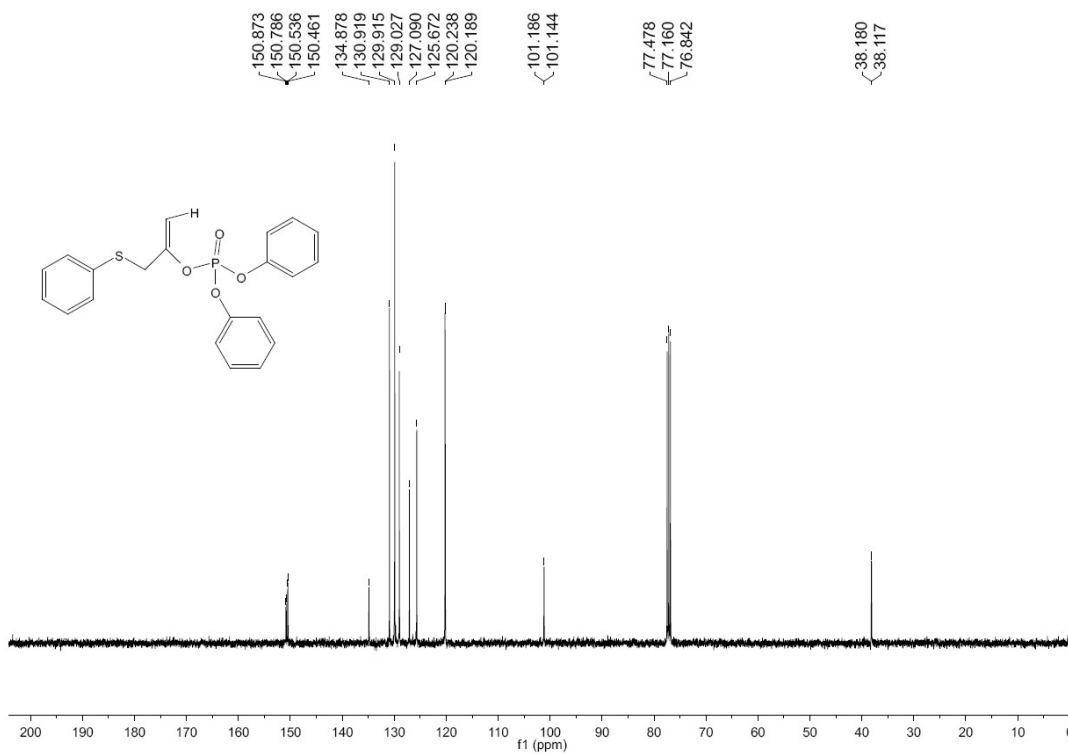
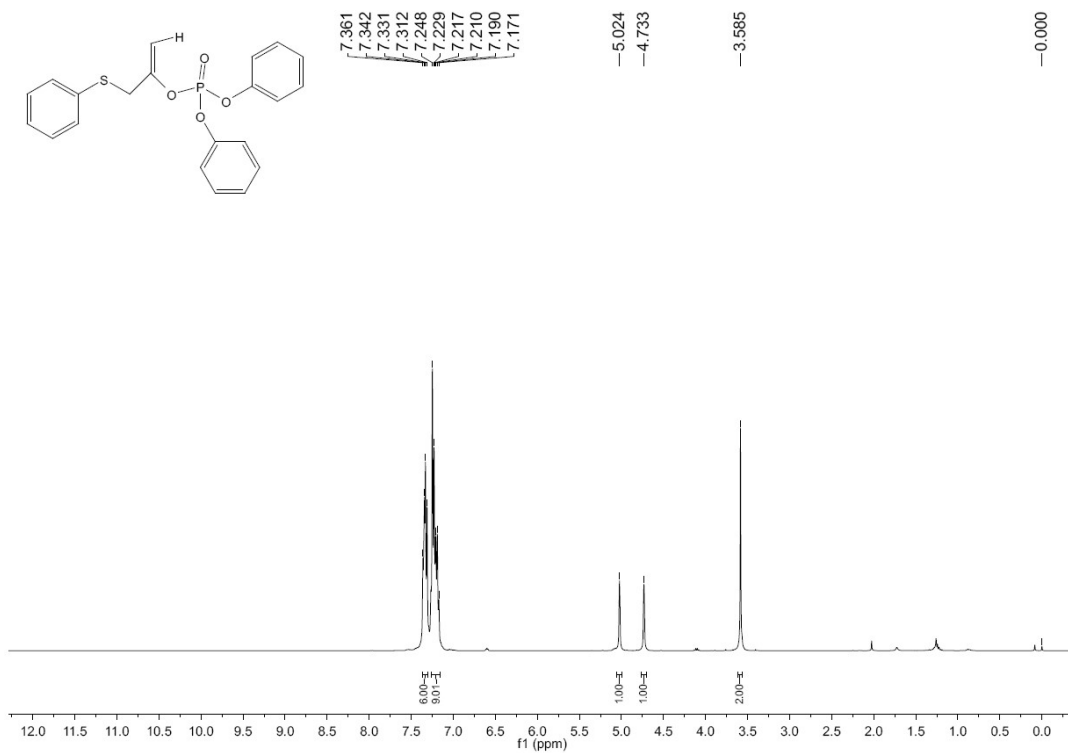
$^{31}\text{P}$  NMR of Compound 2e



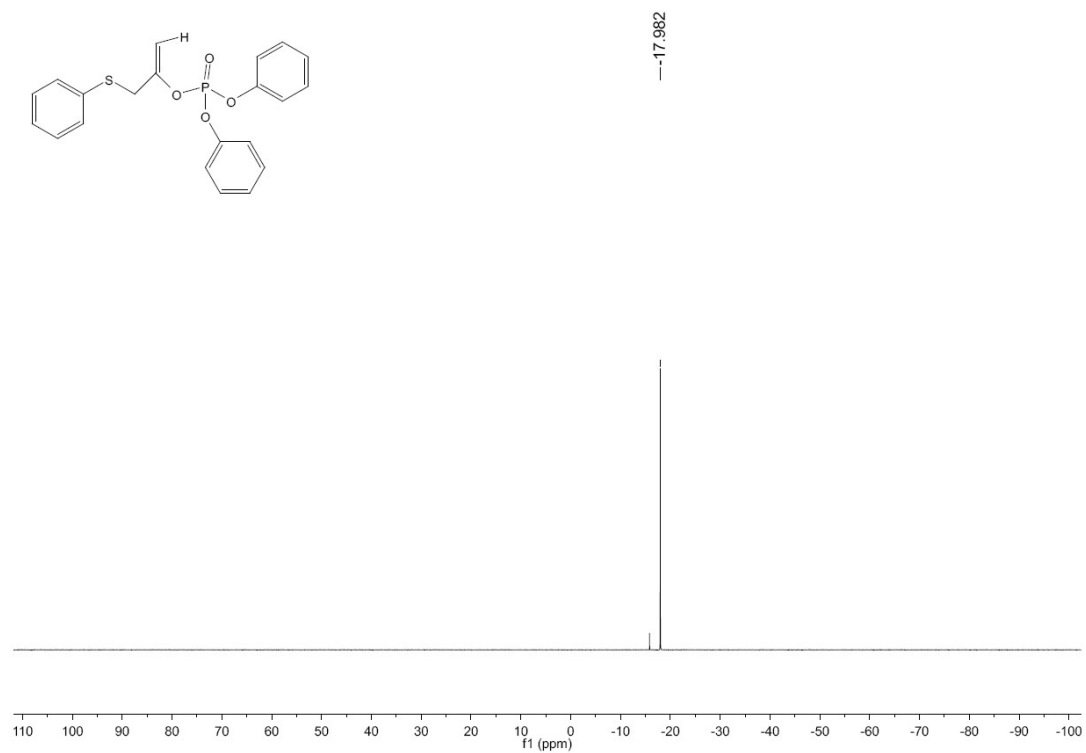
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR of Compound **2f**



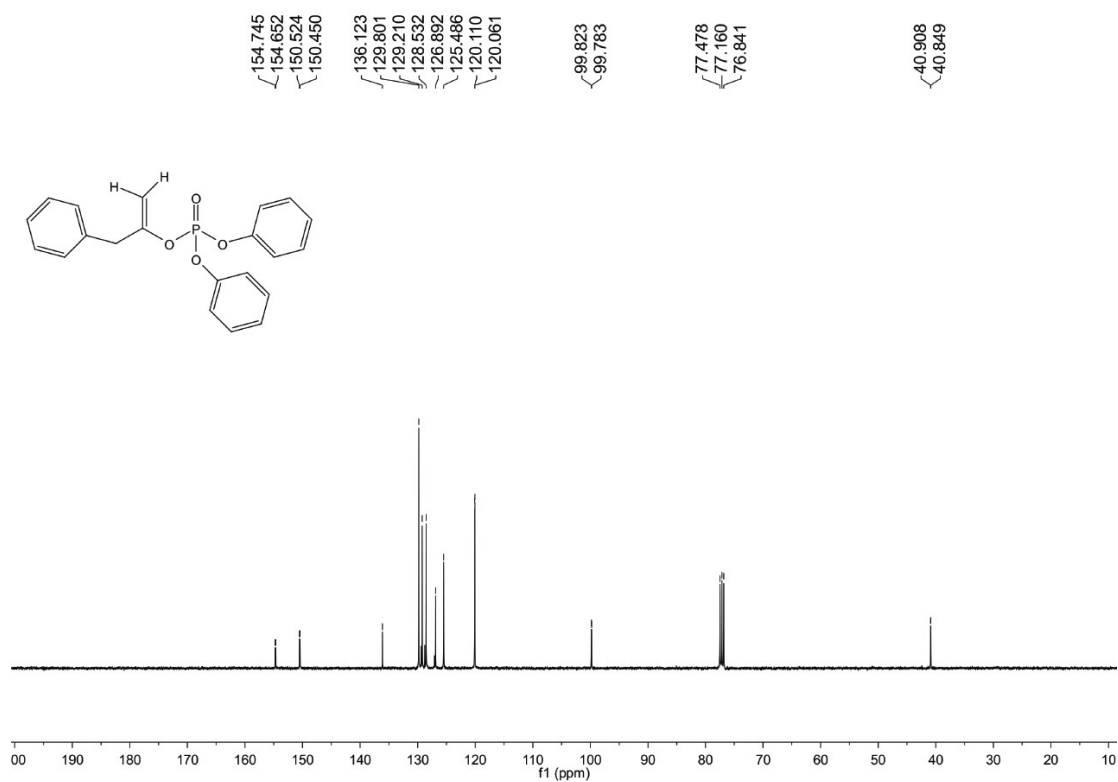
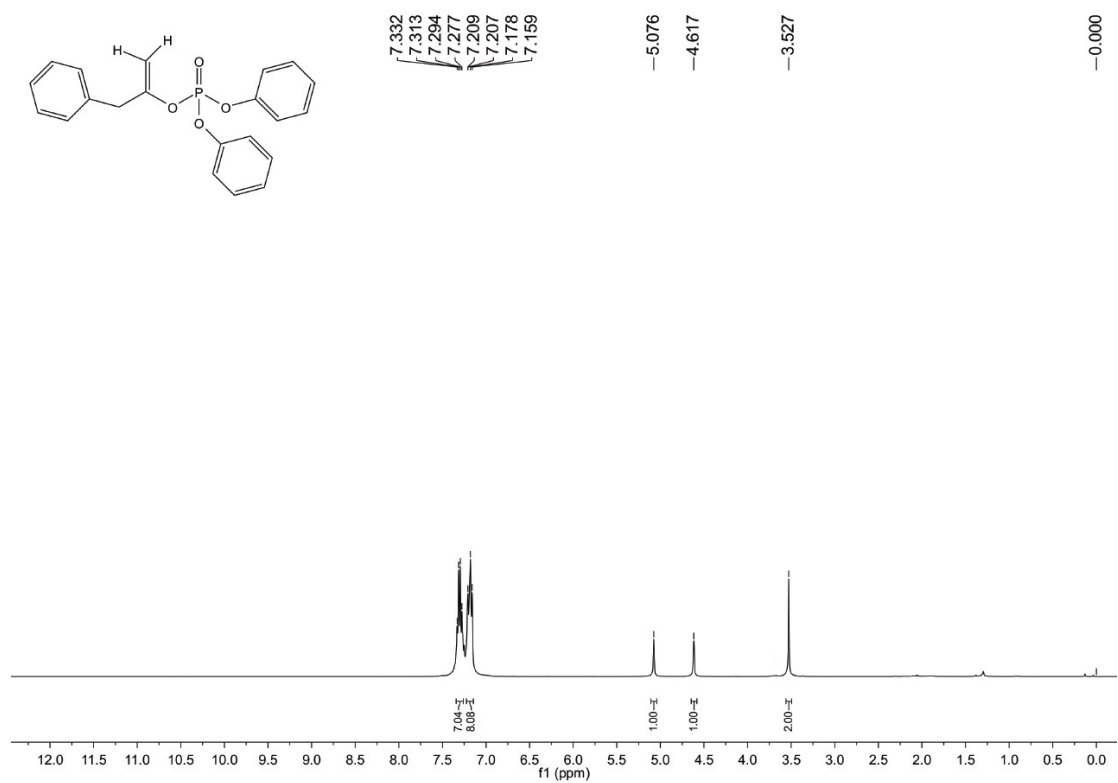
$^{31}\text{P}$  NMR of Compound **2f**



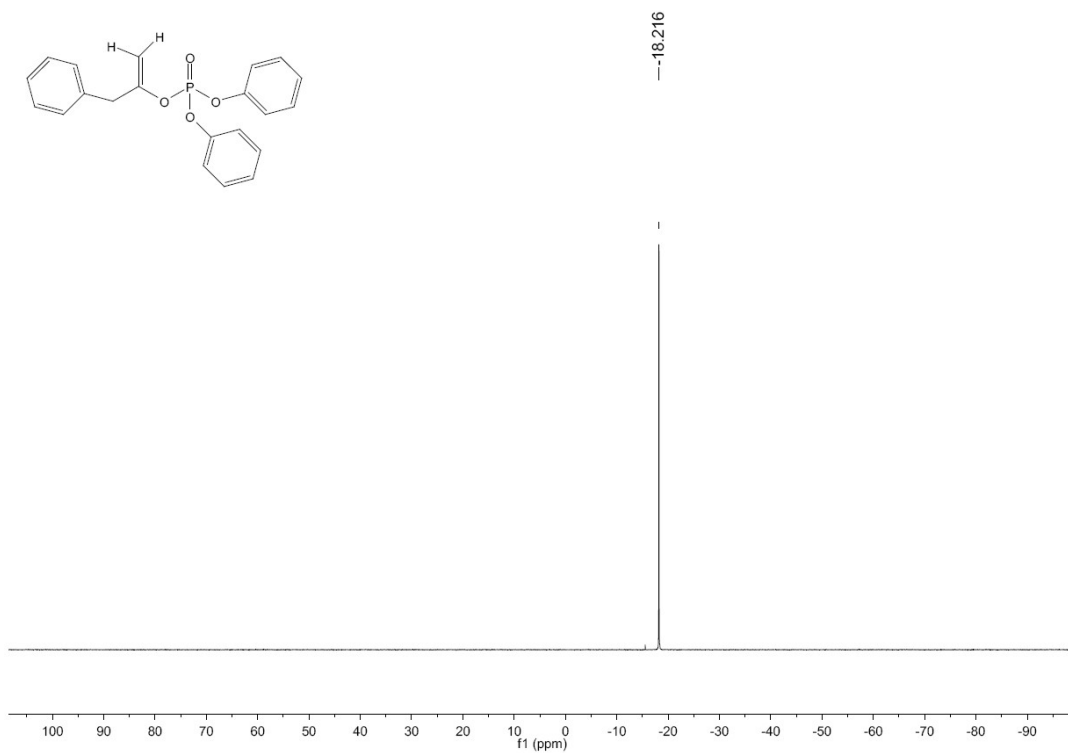
<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound 2g



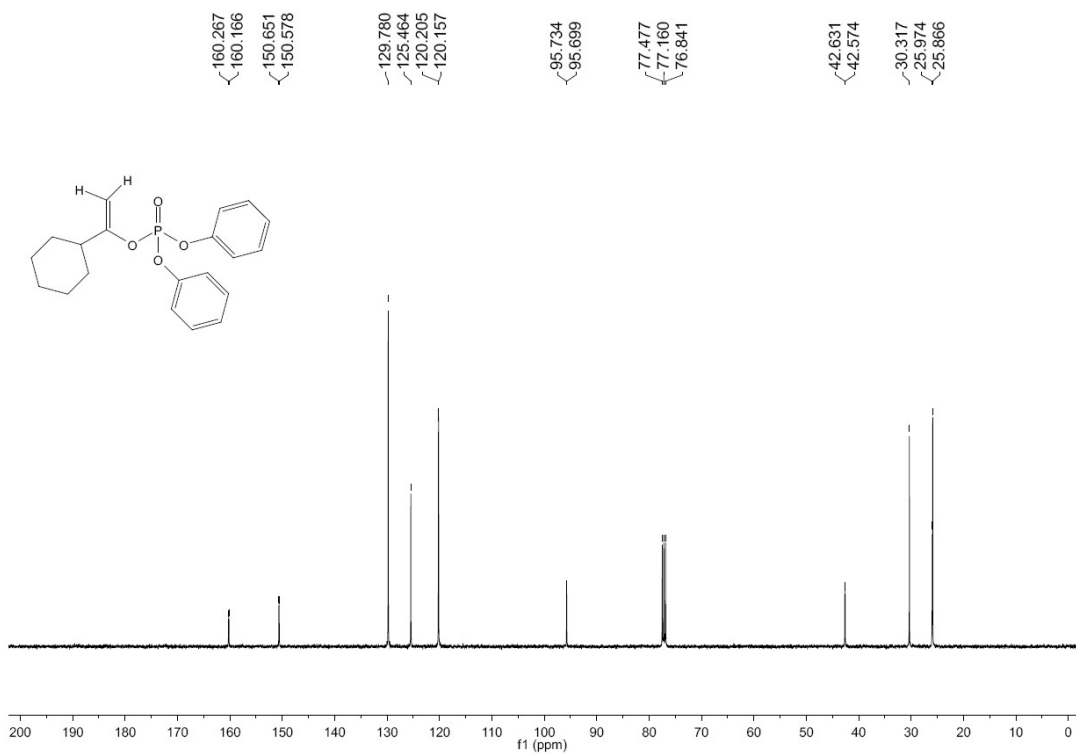
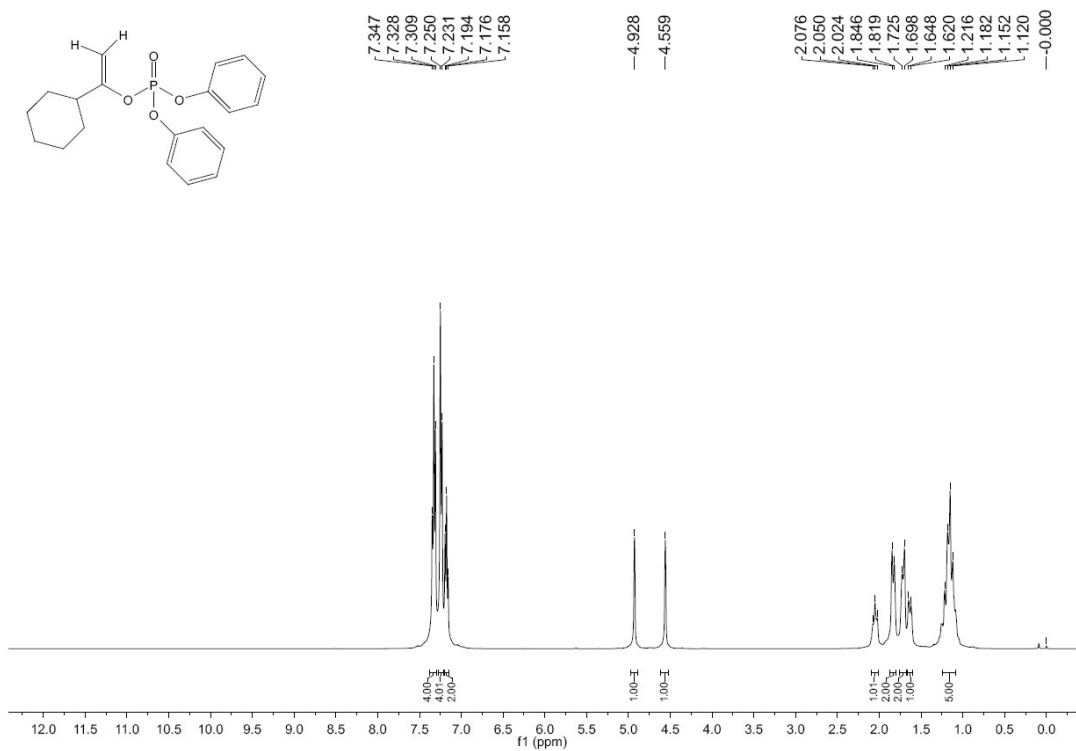
$^{31}\text{P}$  NMR of Compound **2g**



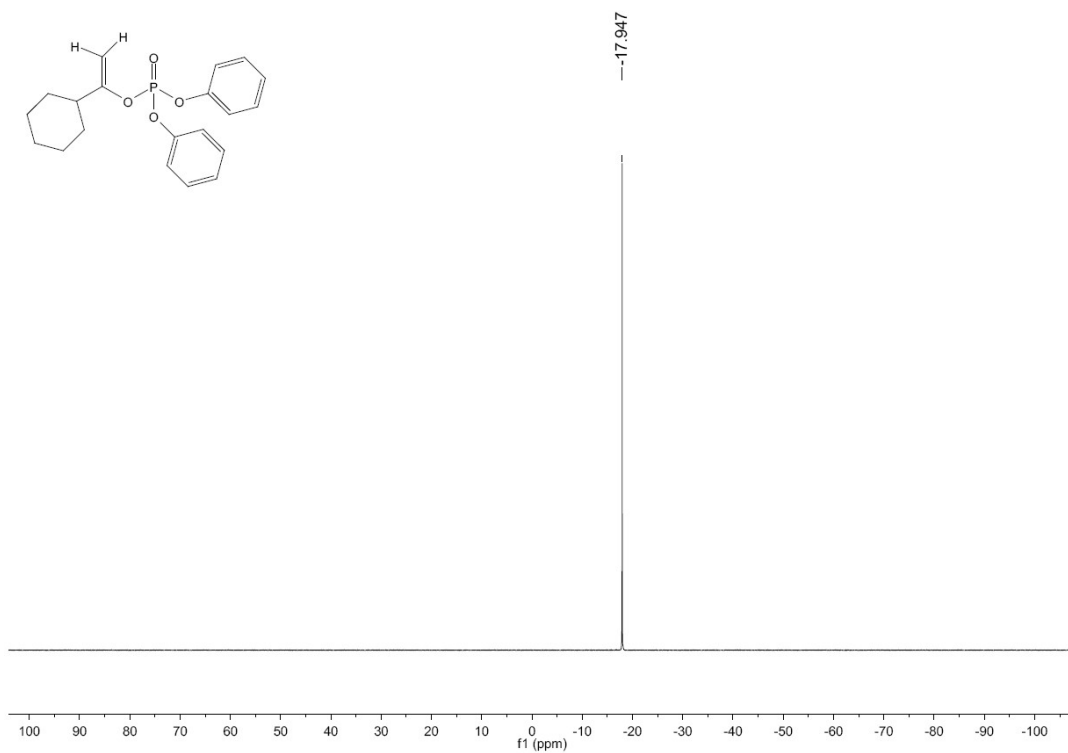
<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound 2h



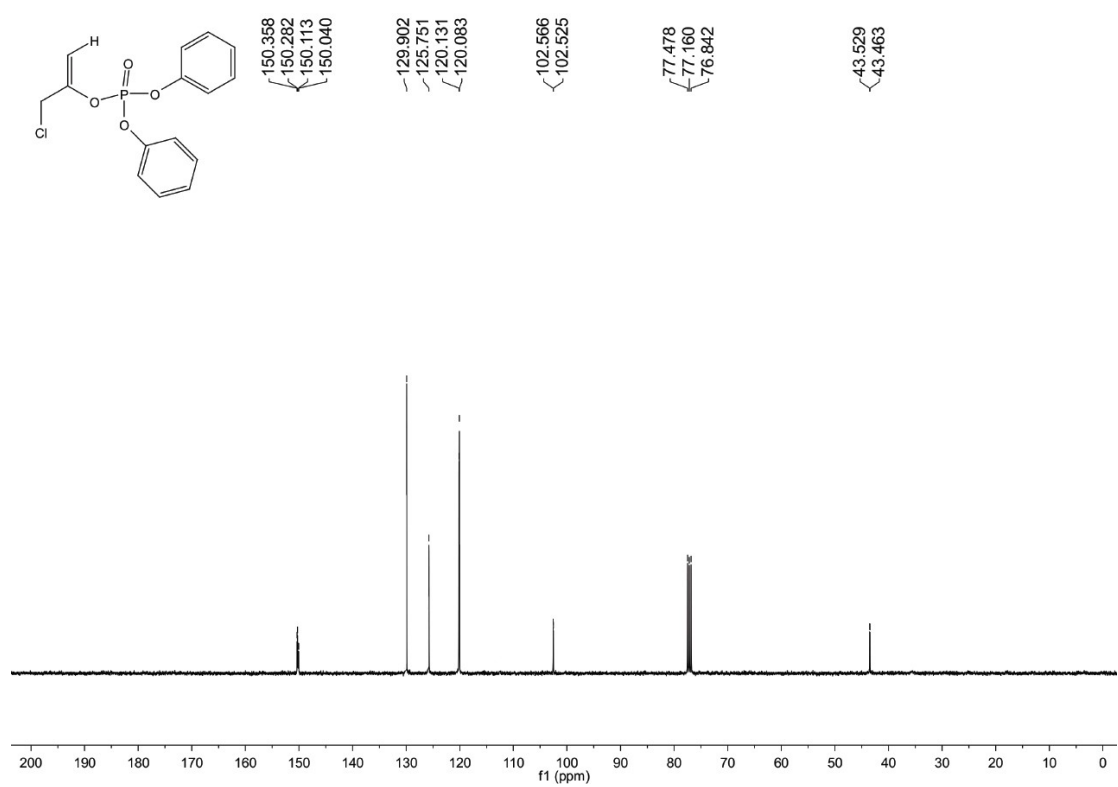
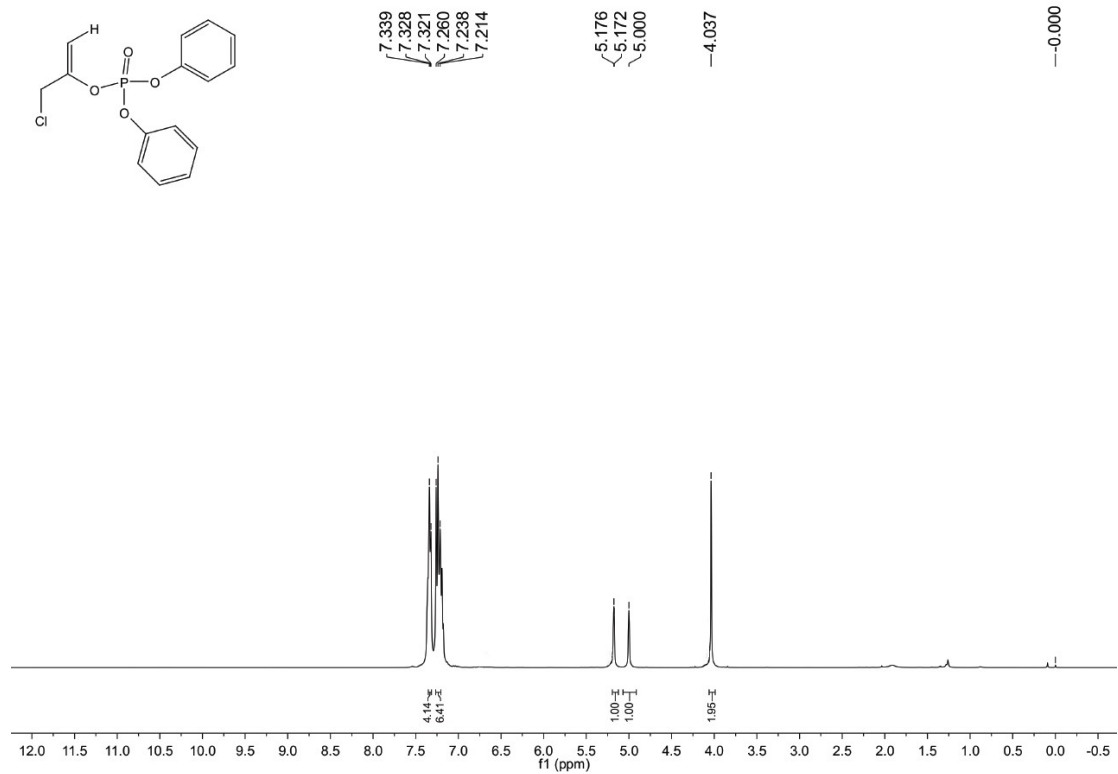
$^{31}\text{P}$  NMR of Compound **2h**



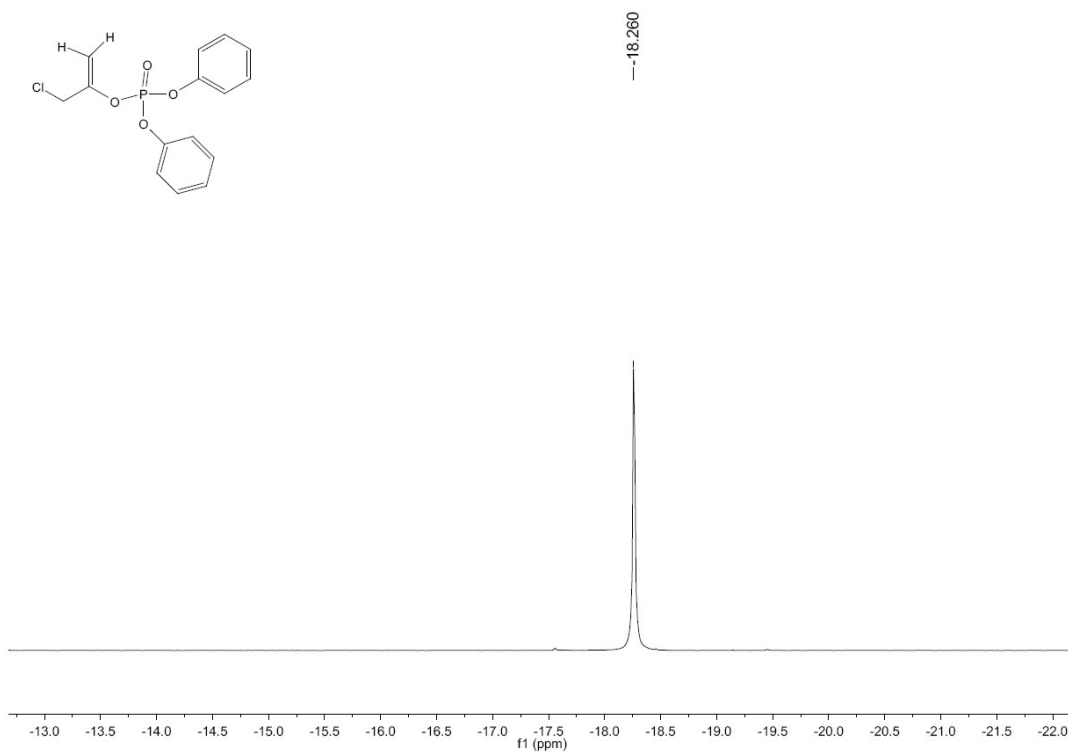
<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound **2i**



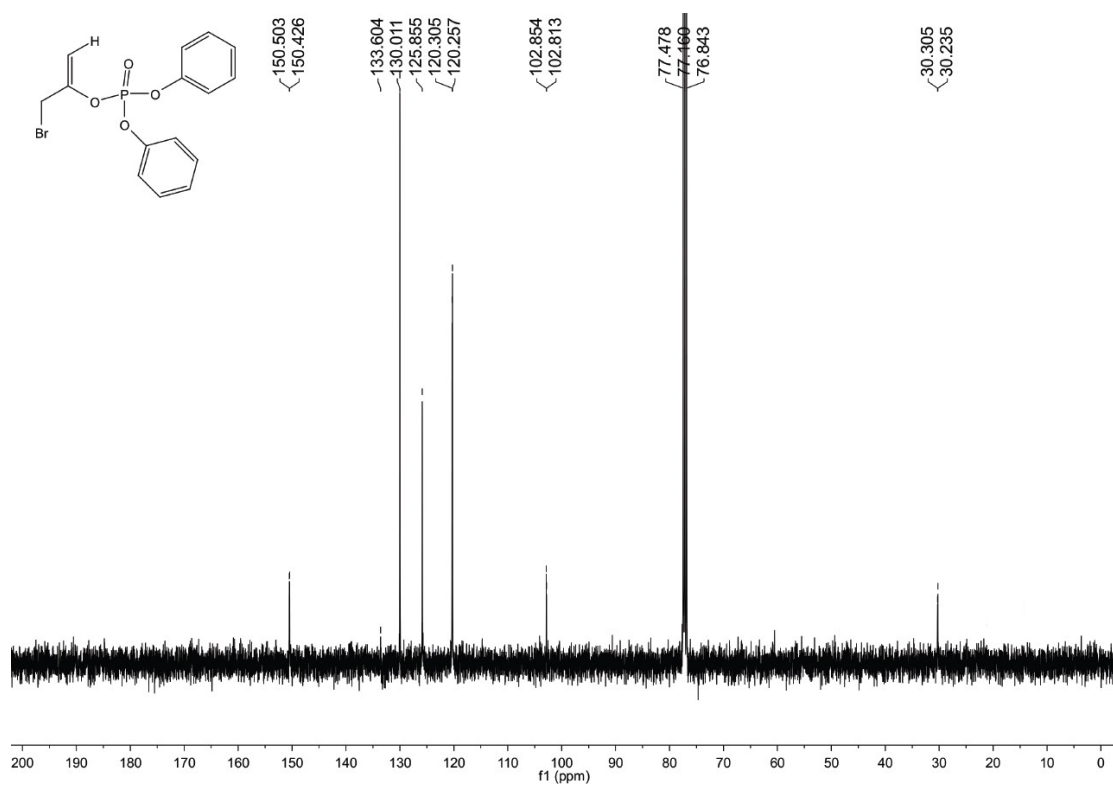
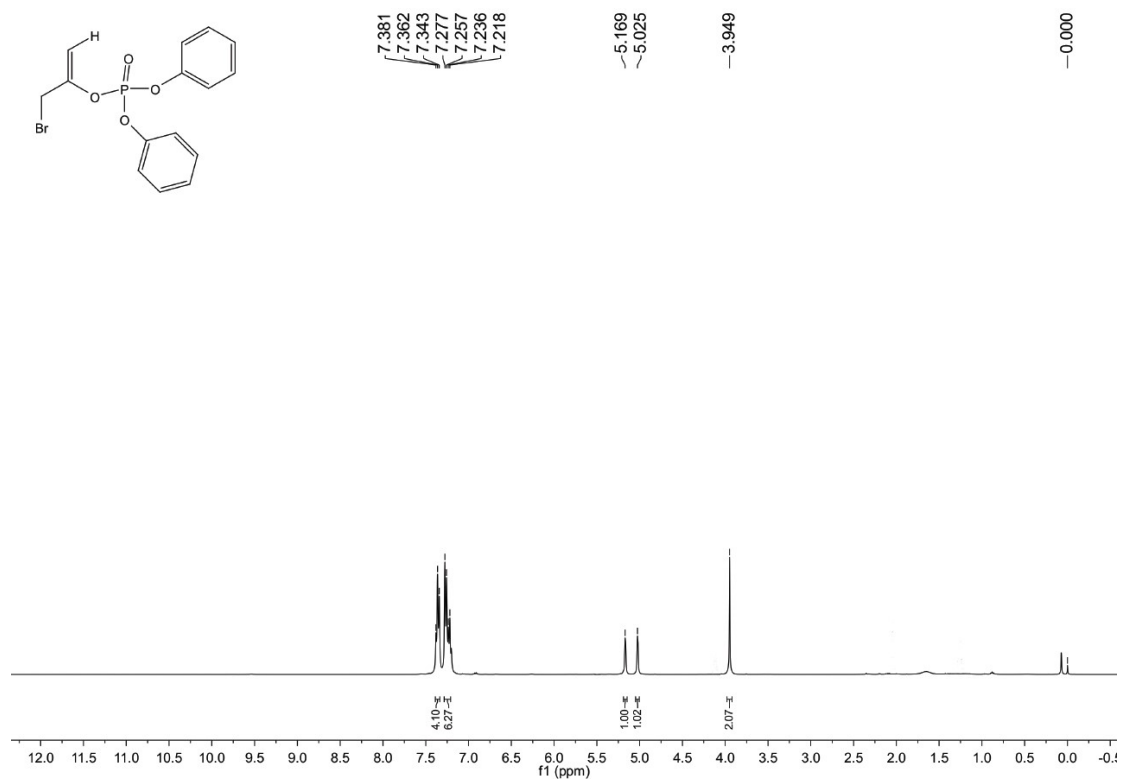
$^{31}\text{P}$  NMR of Compound **2i**



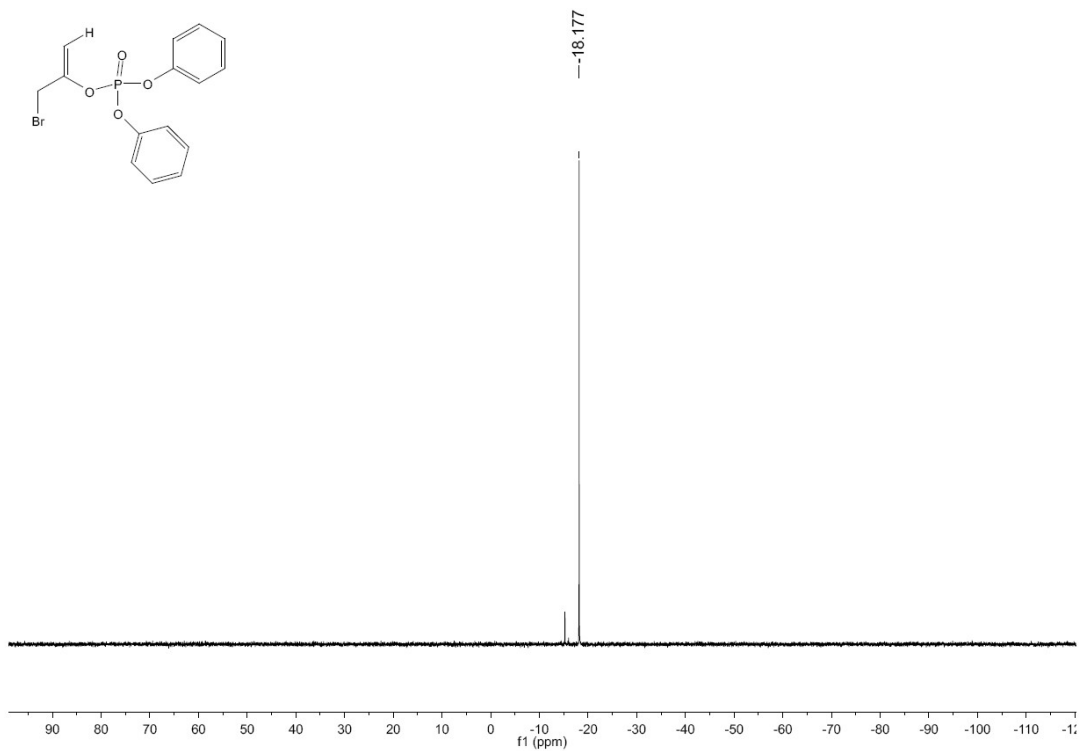
<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound 2j



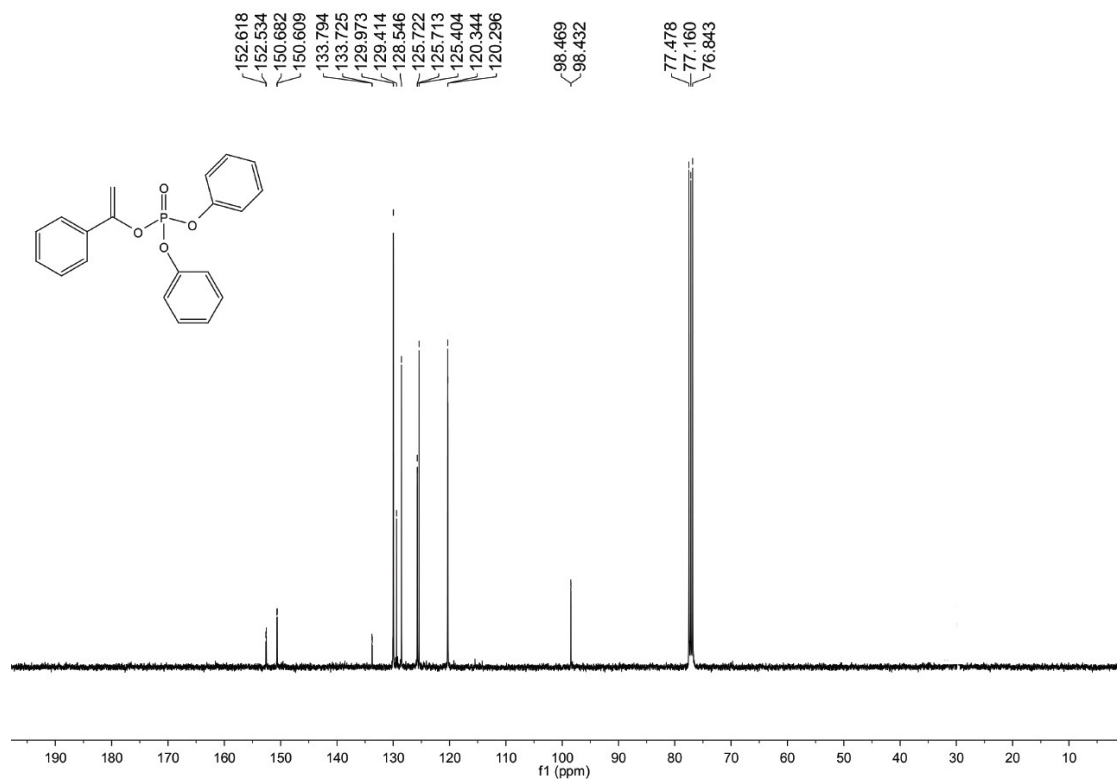
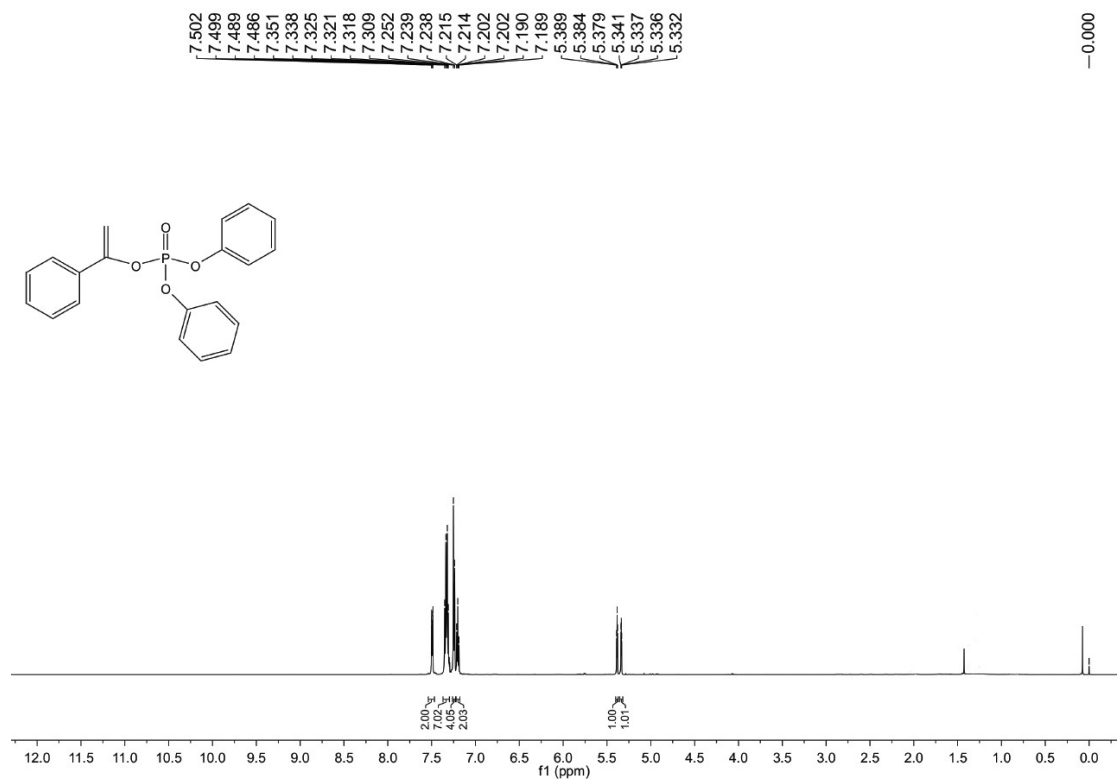
$^{31}\text{P}$  NMR of Compound **2j**



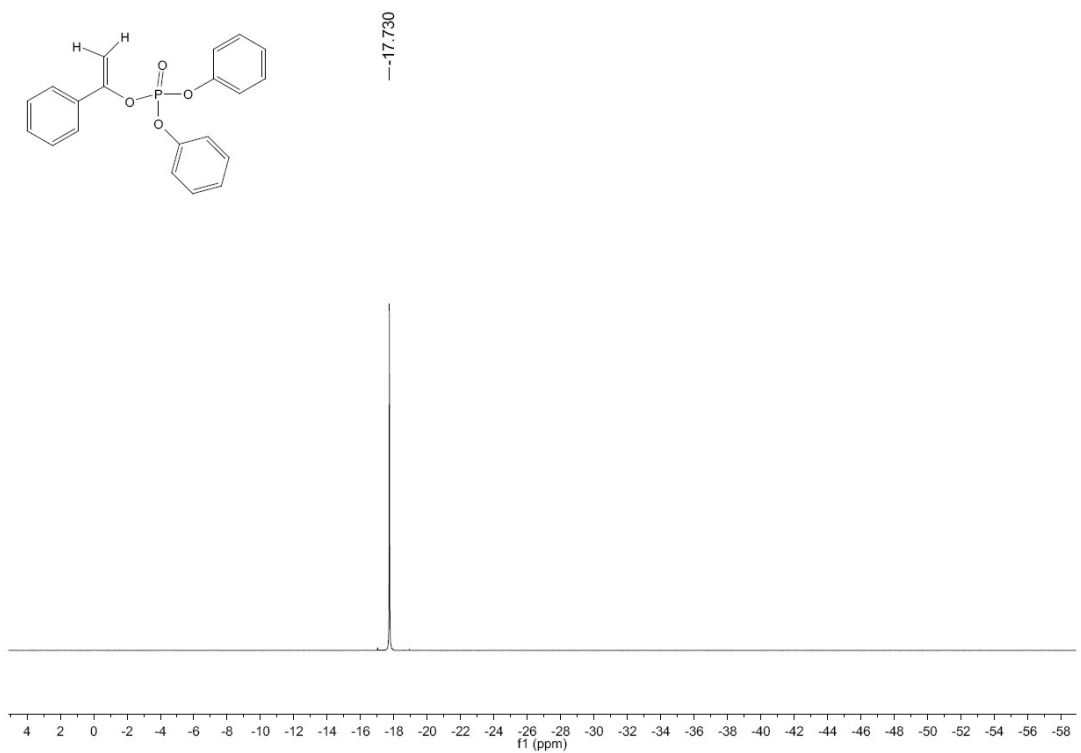
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR of Compound 2k



$^{31}\text{P}$  NMR of Compound **2k**



$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR of Compound 2I

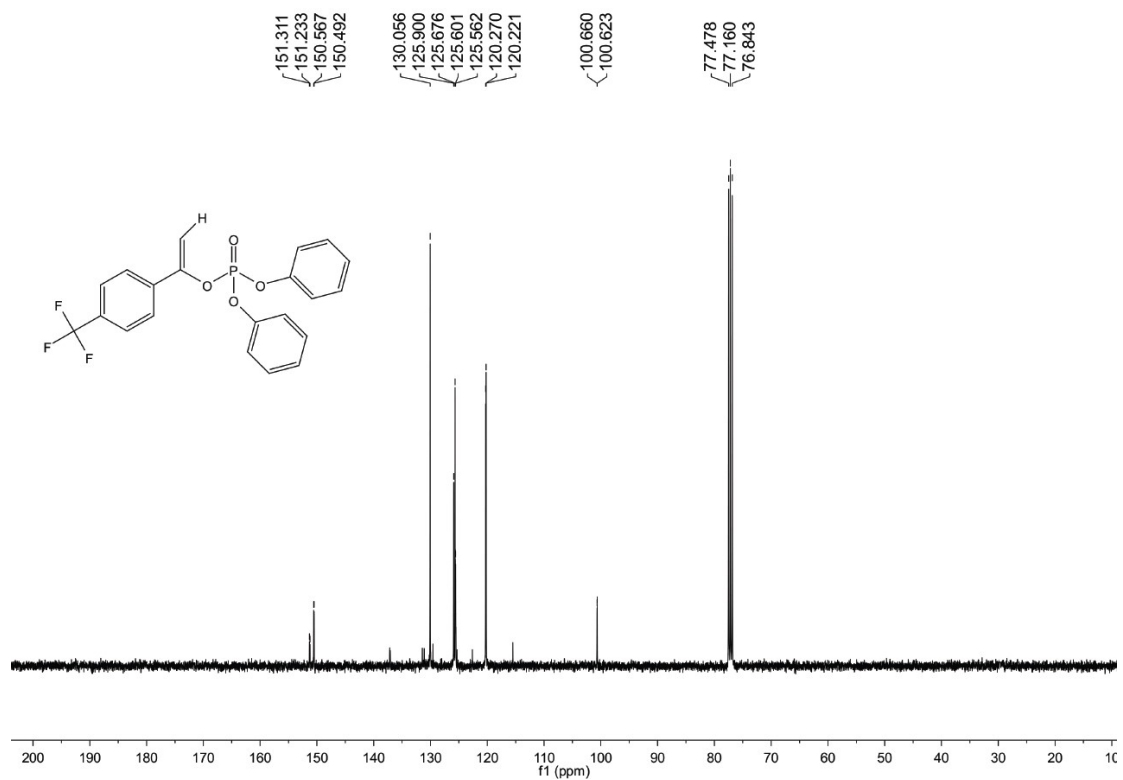
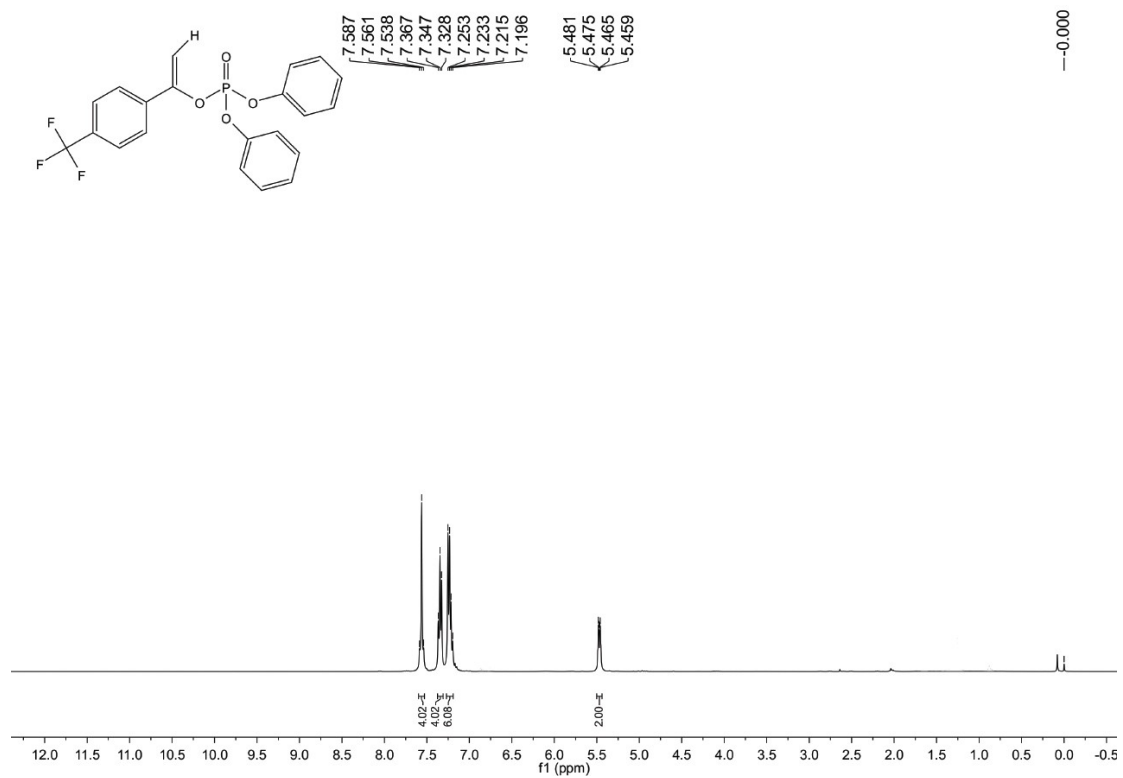


$^{31}\text{P}$  NMR of Compound **21**

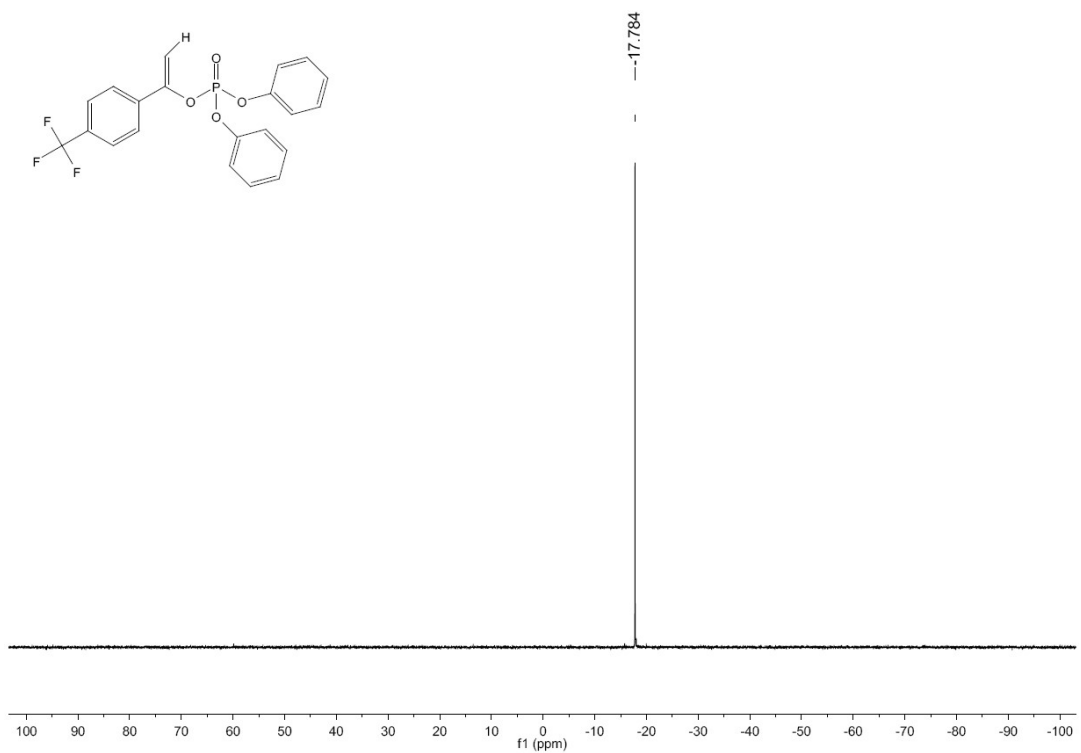




$^{31}\text{P}$  NMR of Compound **2m**



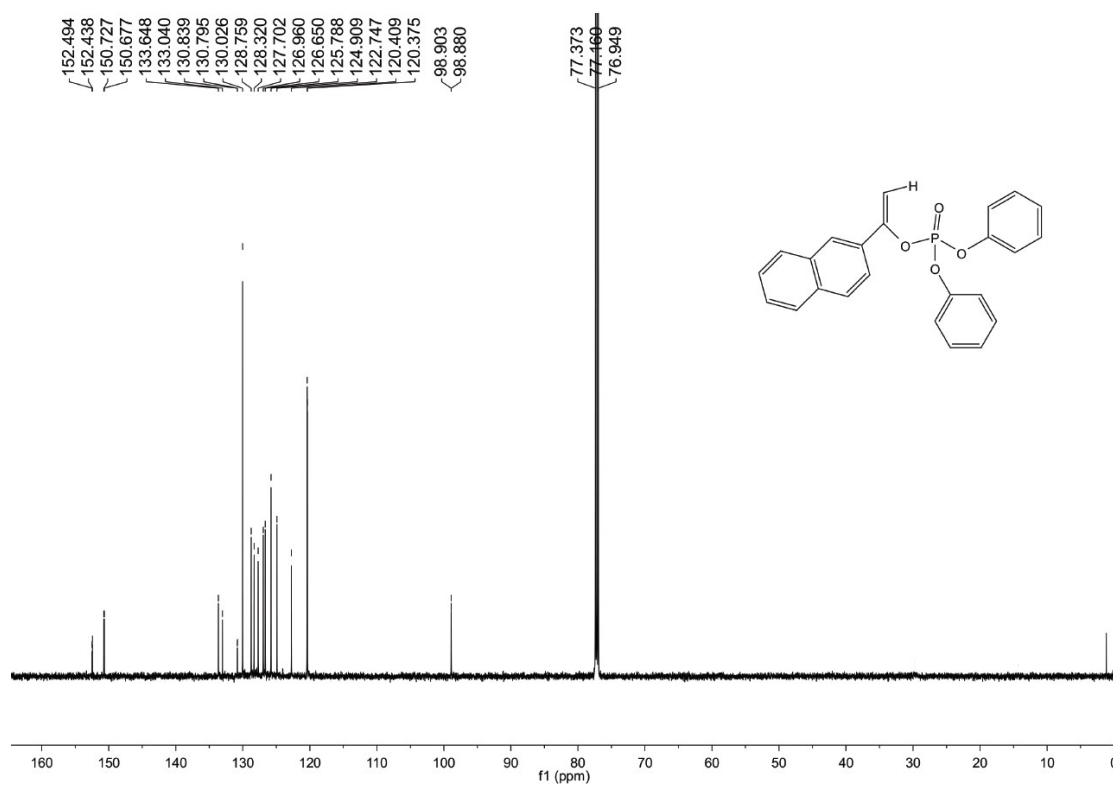
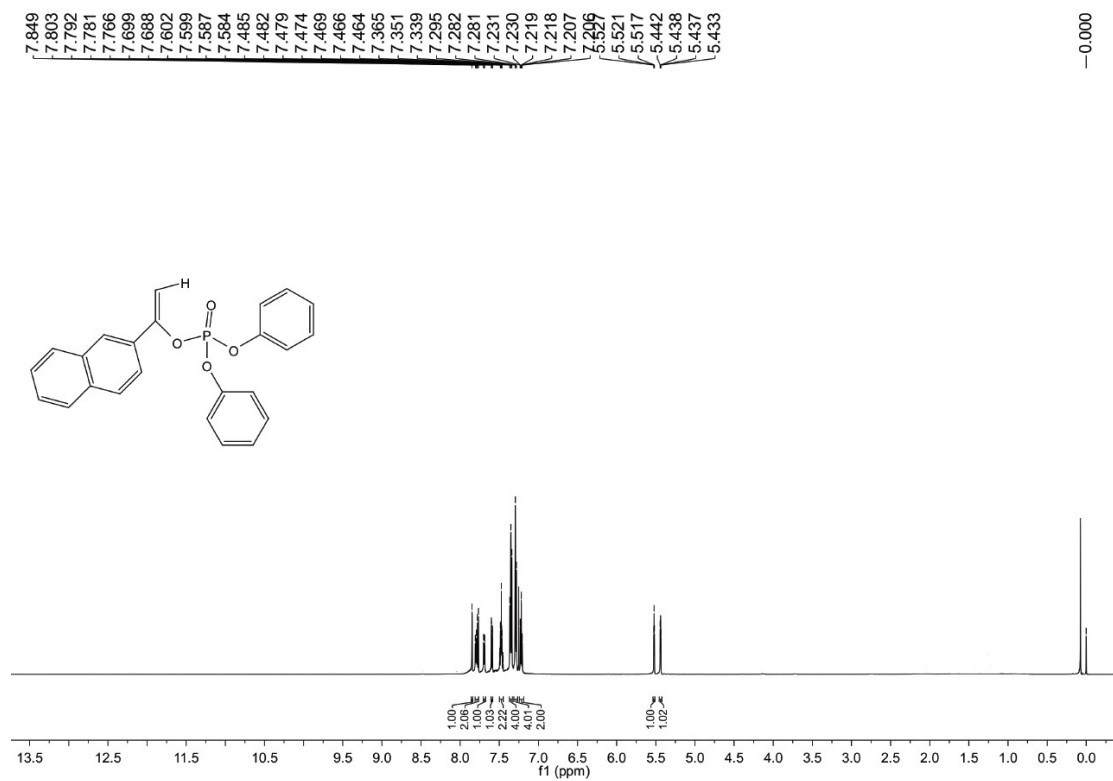
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR of Compound **2n**



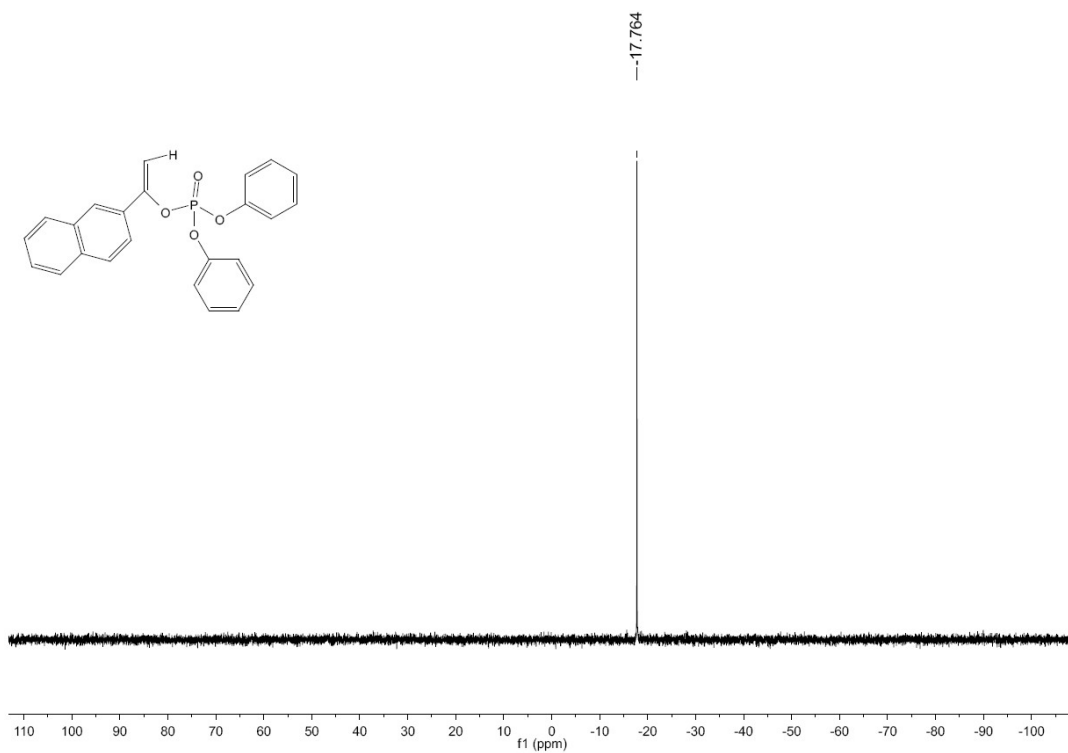
<sup>31</sup>P NMR of Compound 2n



<sup>19</sup>F NMR of Compound 2n

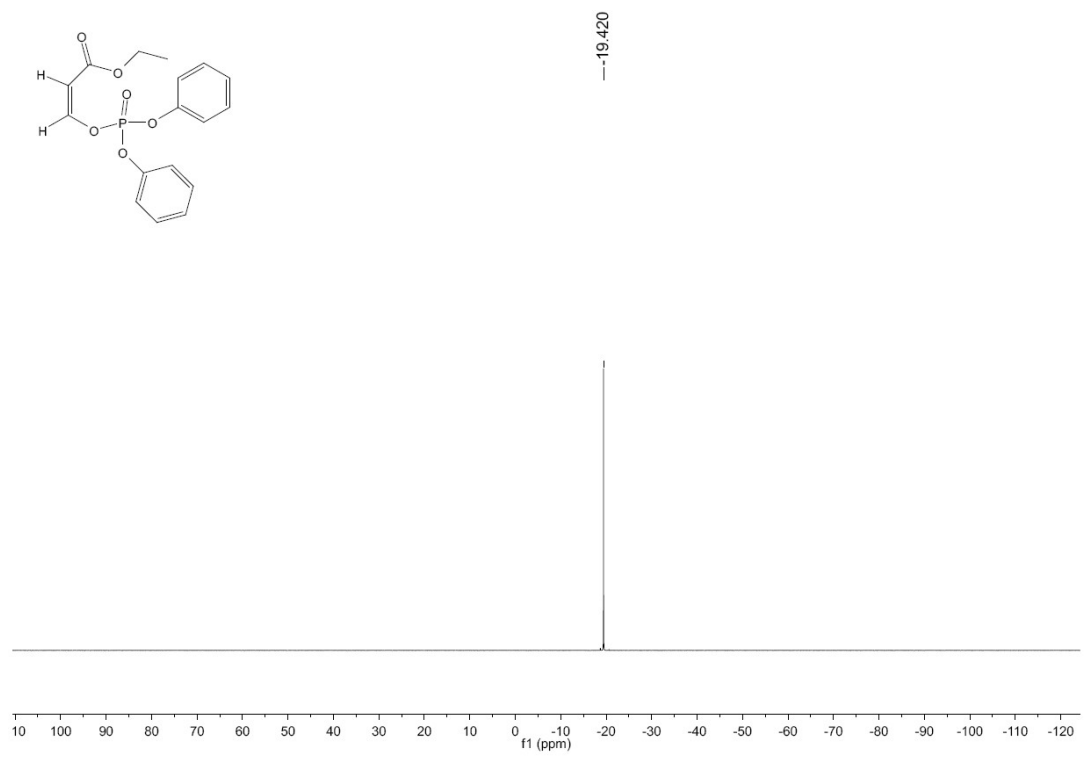


<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound 20

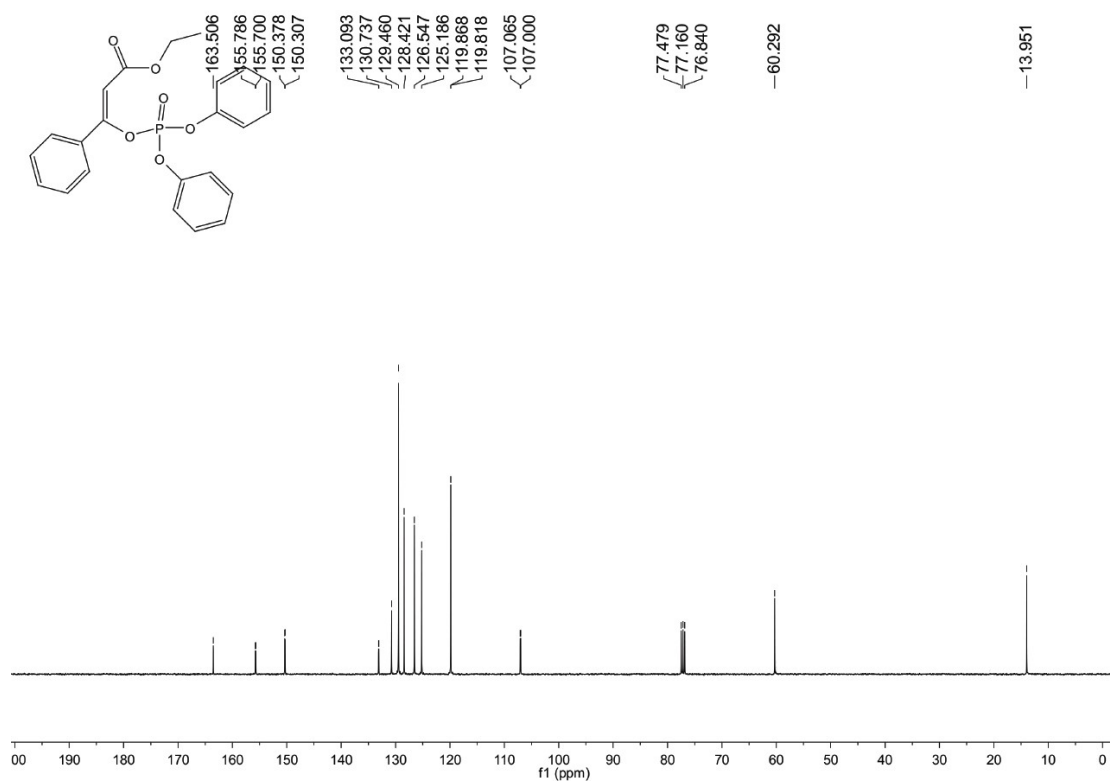
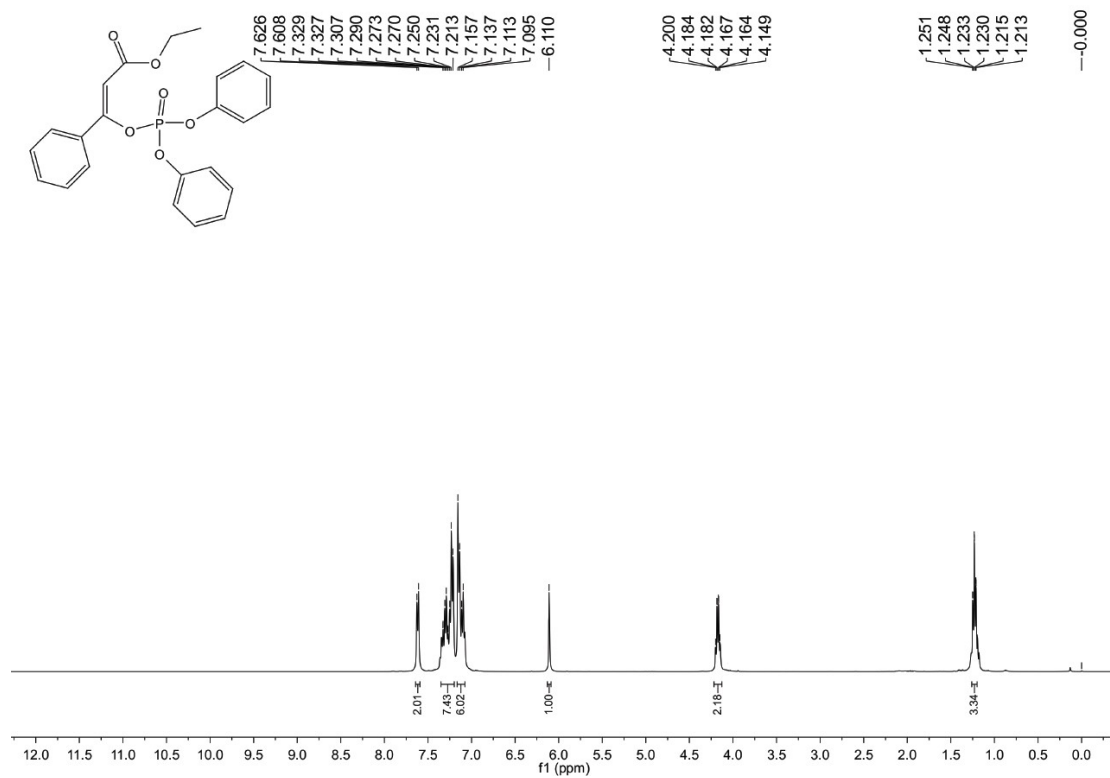


$^{31}\text{P}$  NMR of Compound **2o**

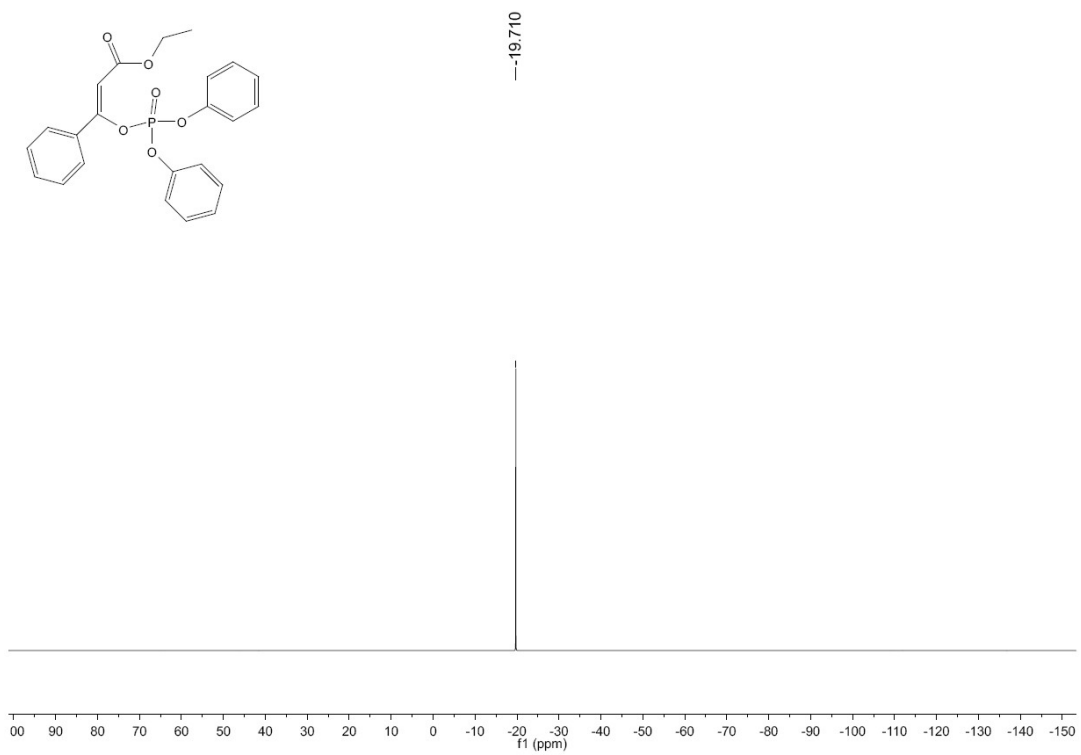




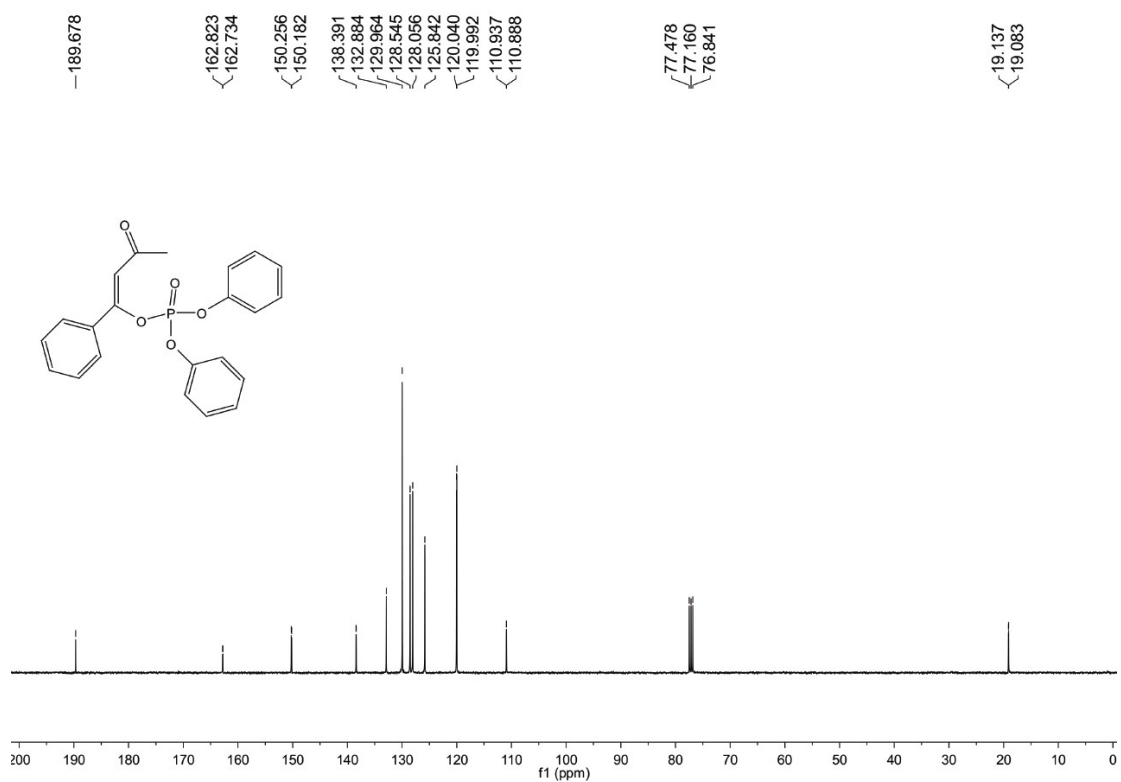
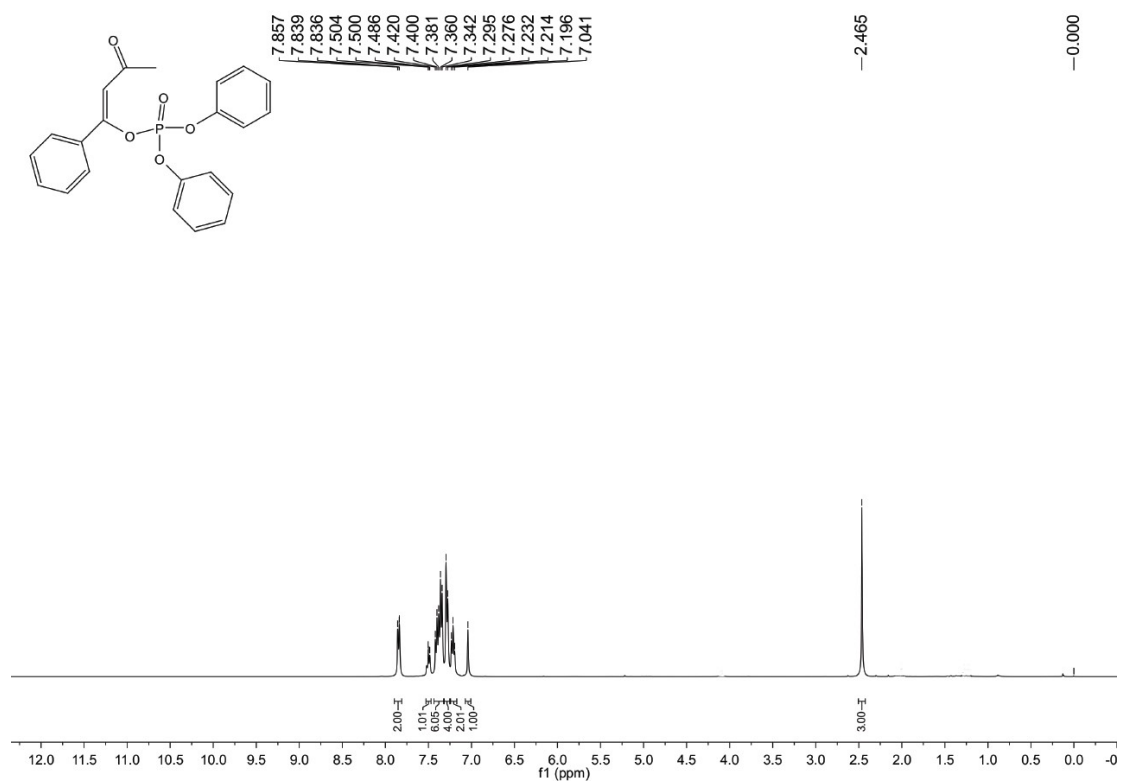
$^{31}\text{P}$  NMR of Compound **2p**



<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound 2q

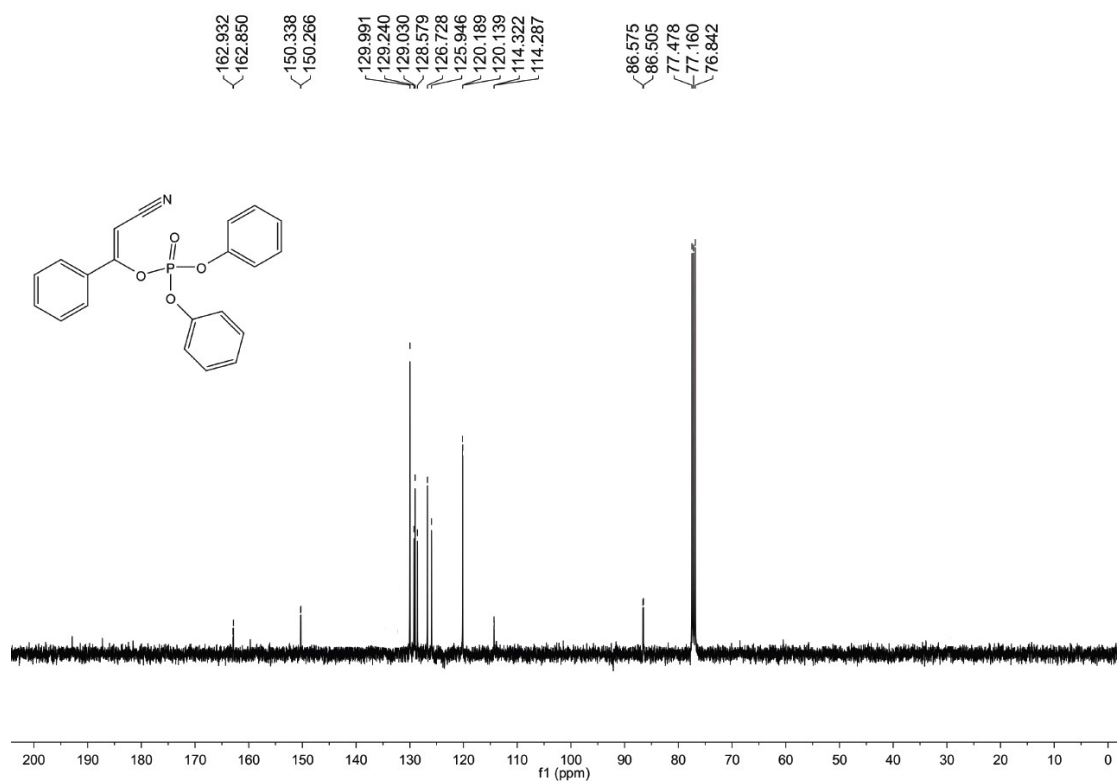
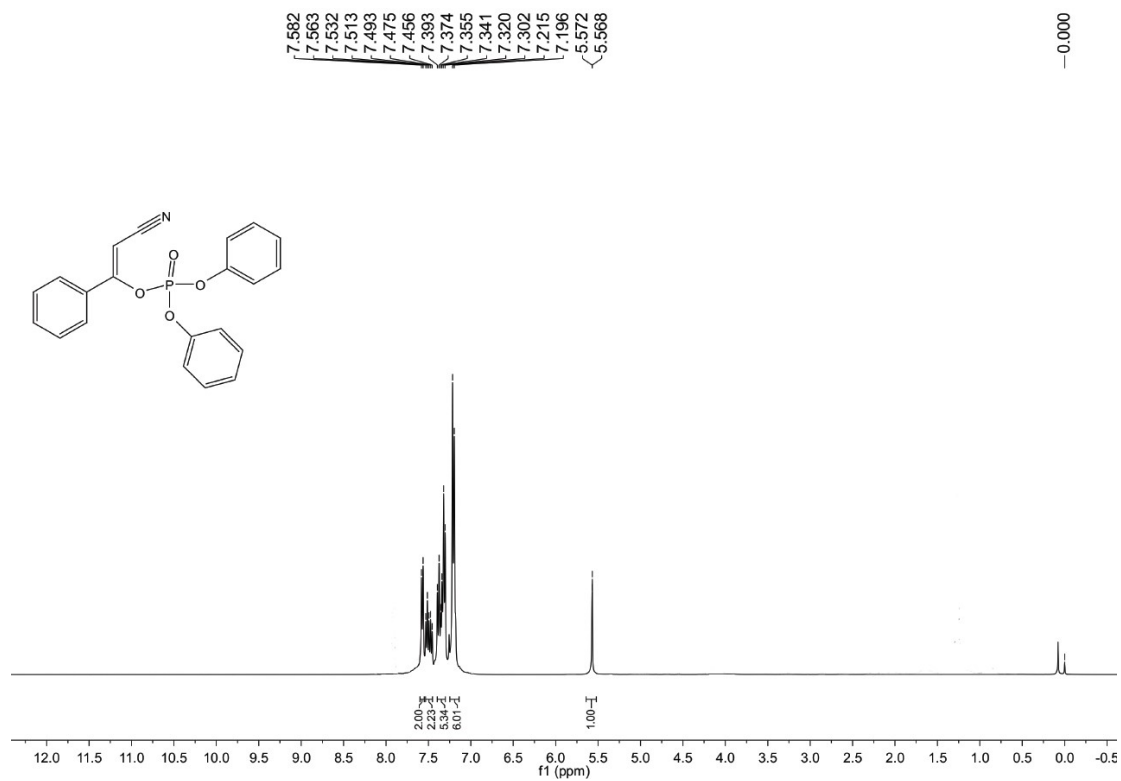


<sup>31</sup>P NMR of Compound 2q

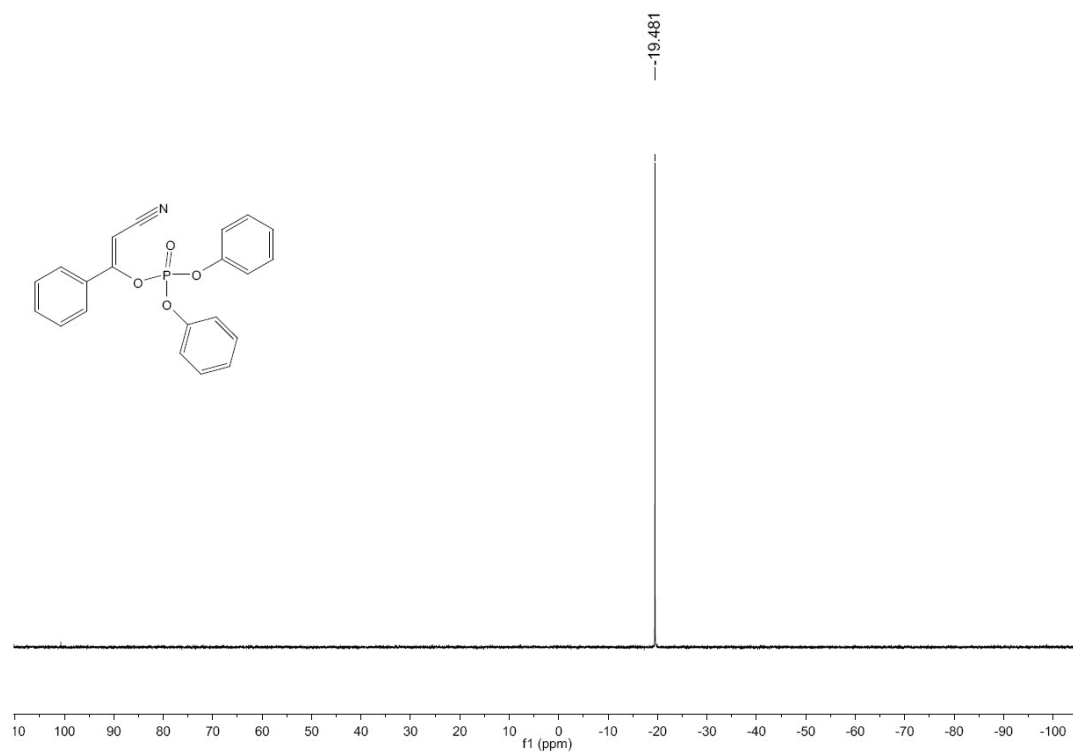


<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound 2r

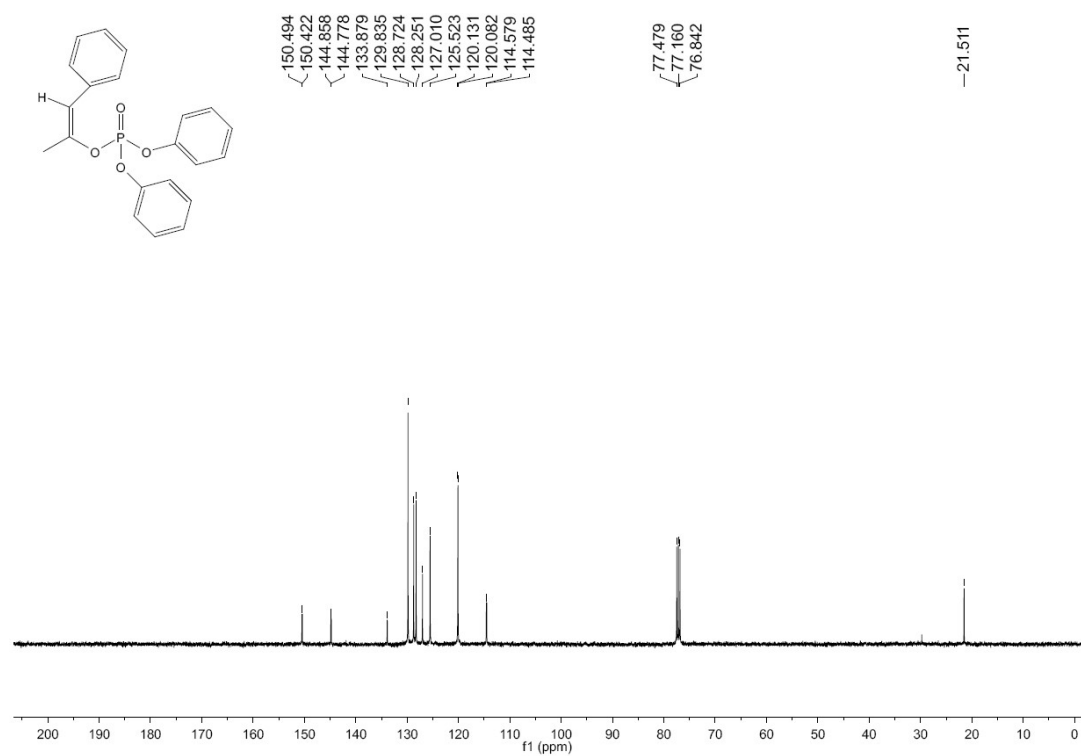
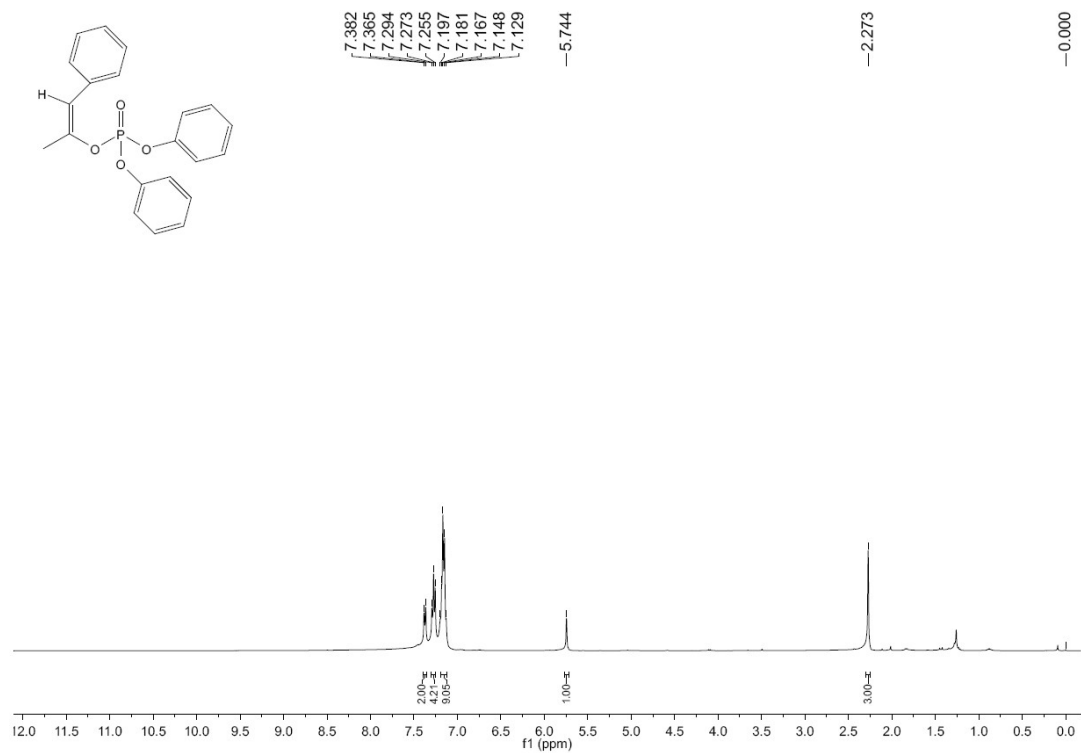




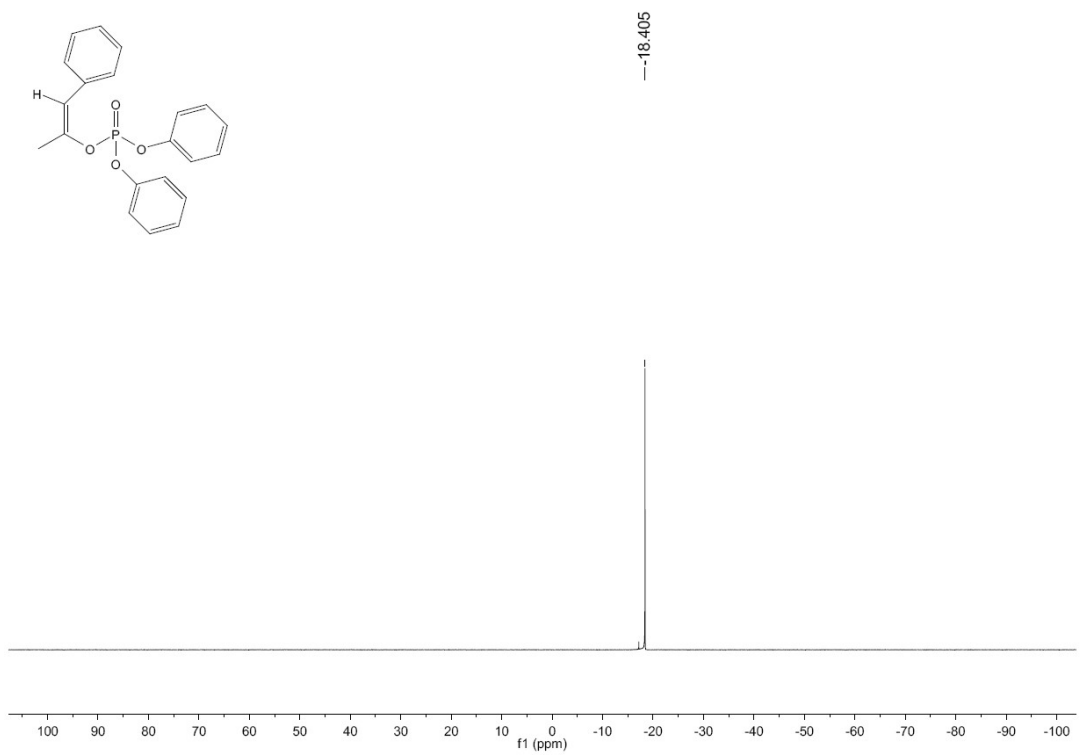
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR of Compound **2s**



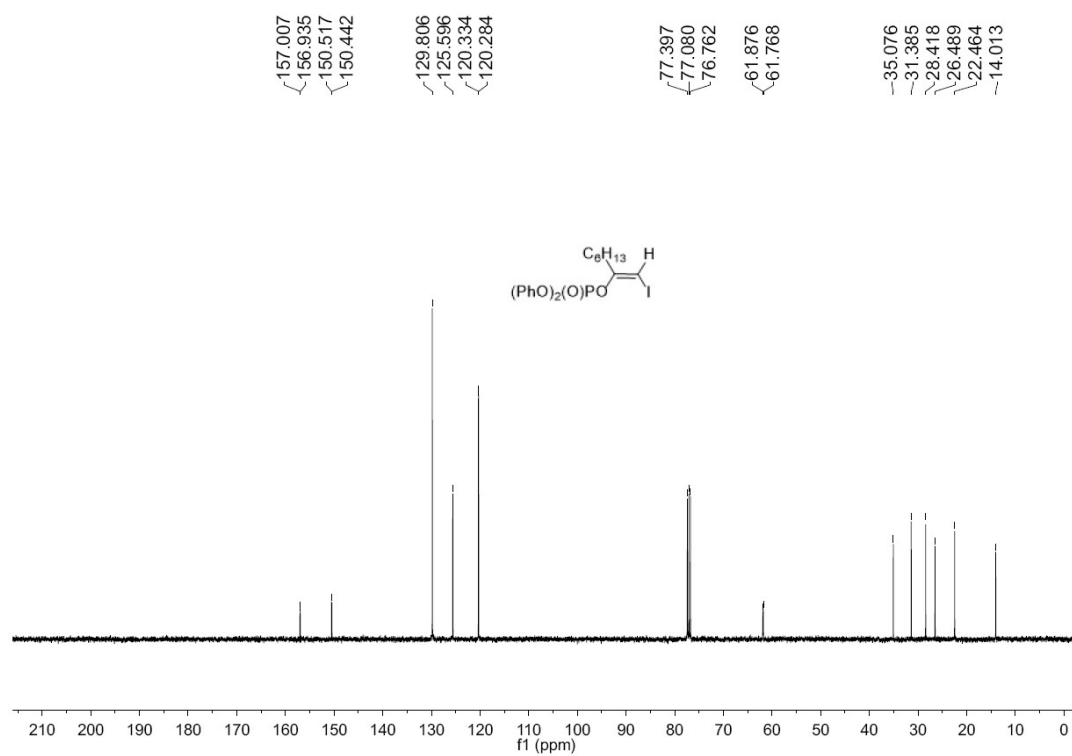
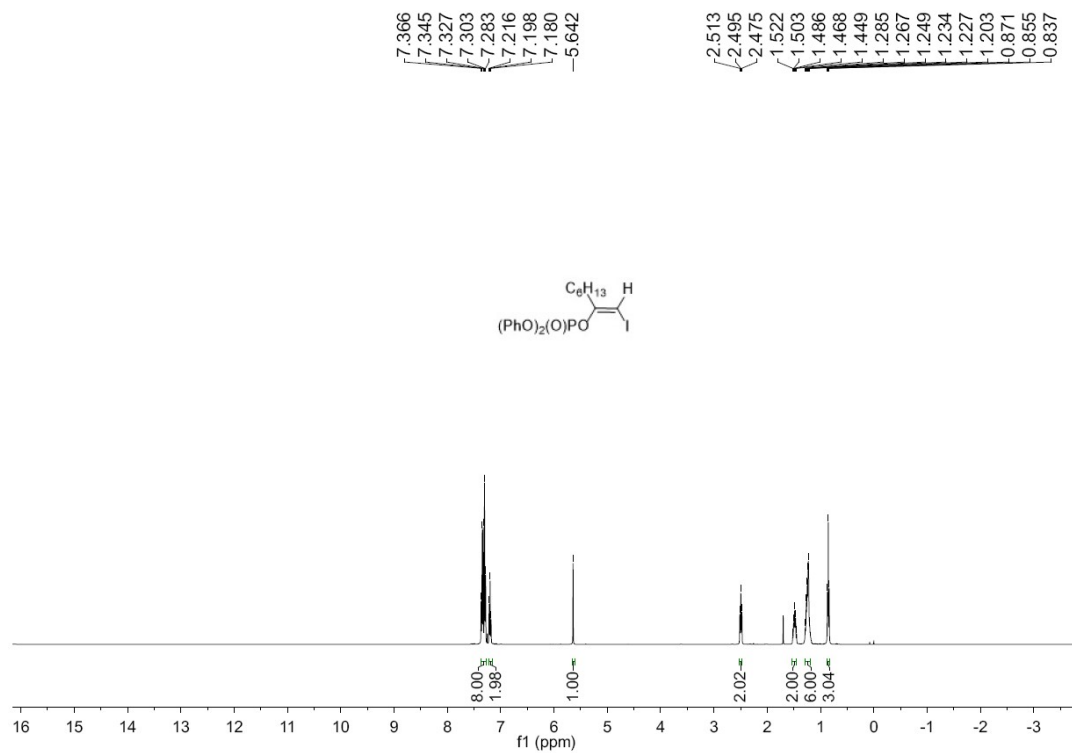
$^{31}\text{P}$  NMR of Compound 2s



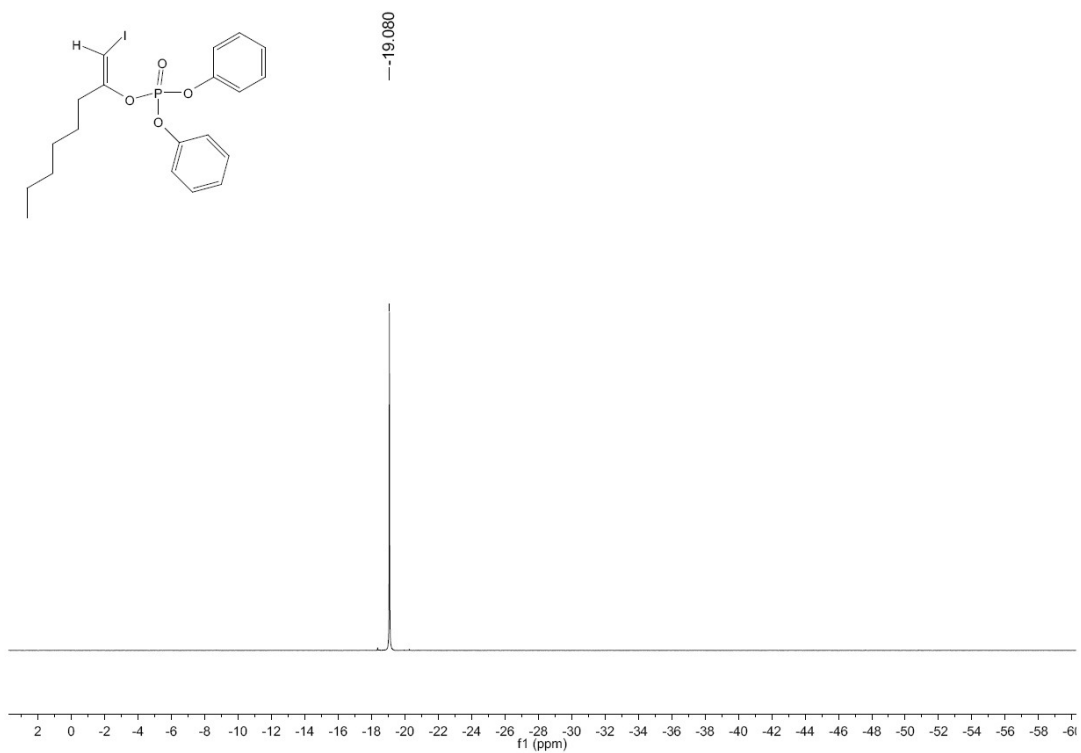
<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound 2t



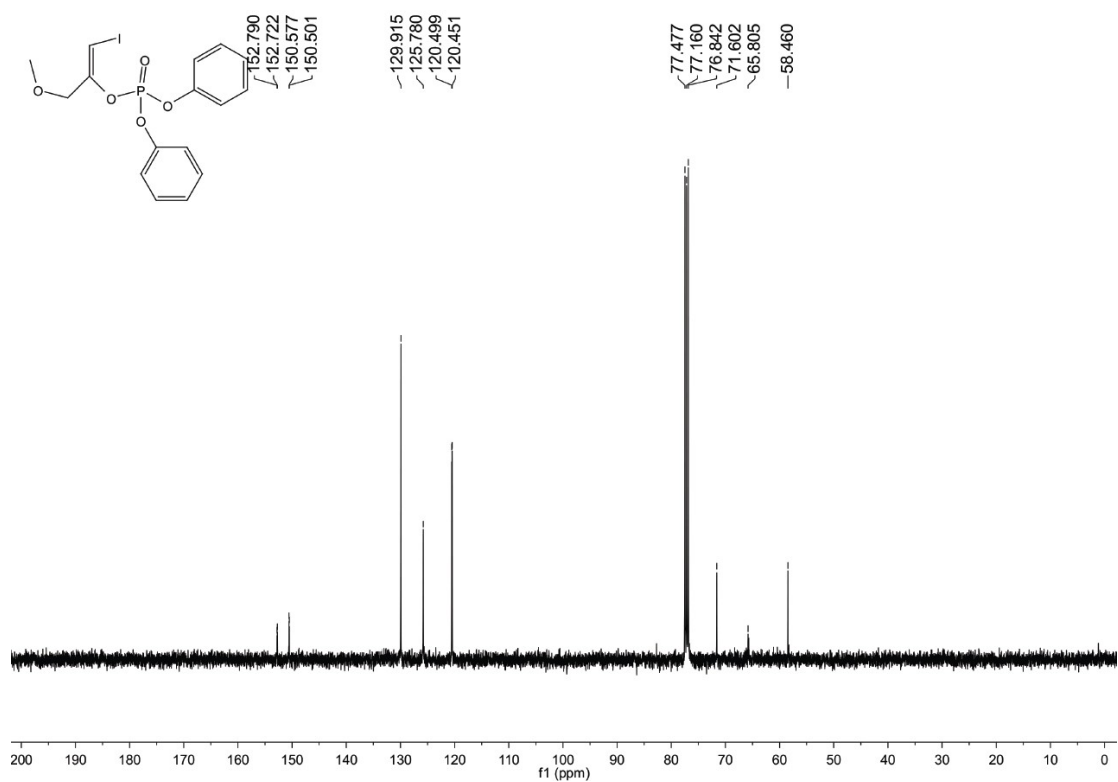
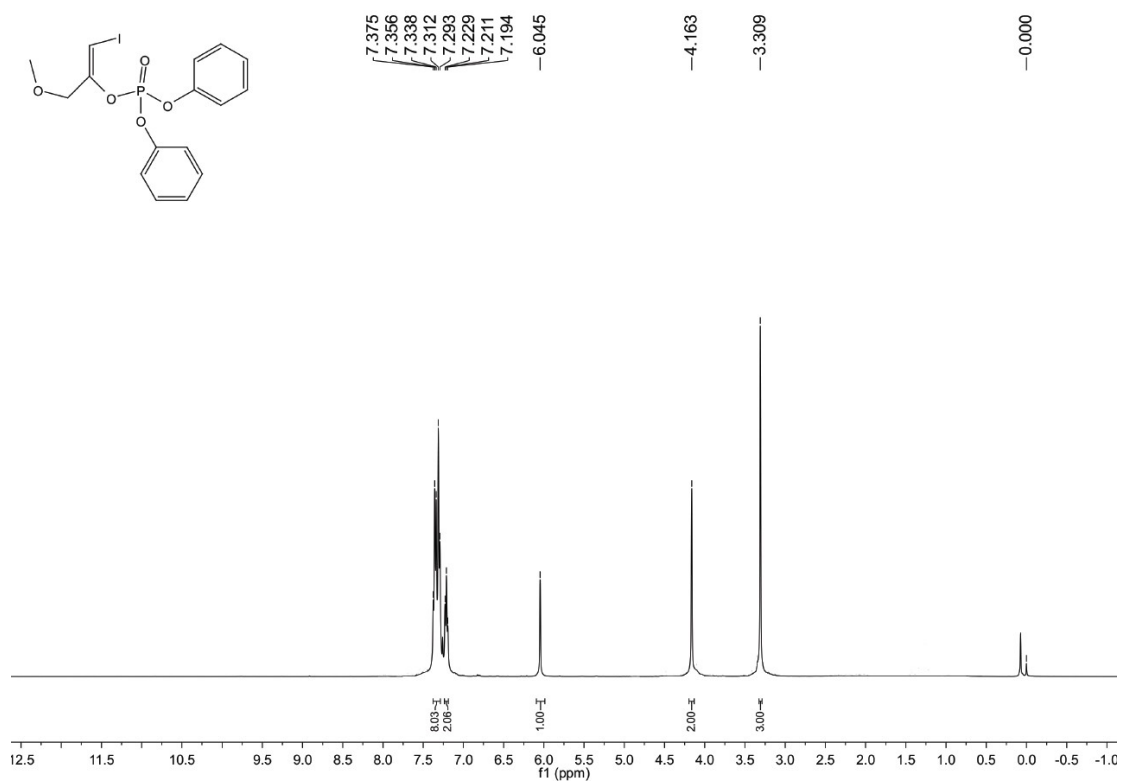
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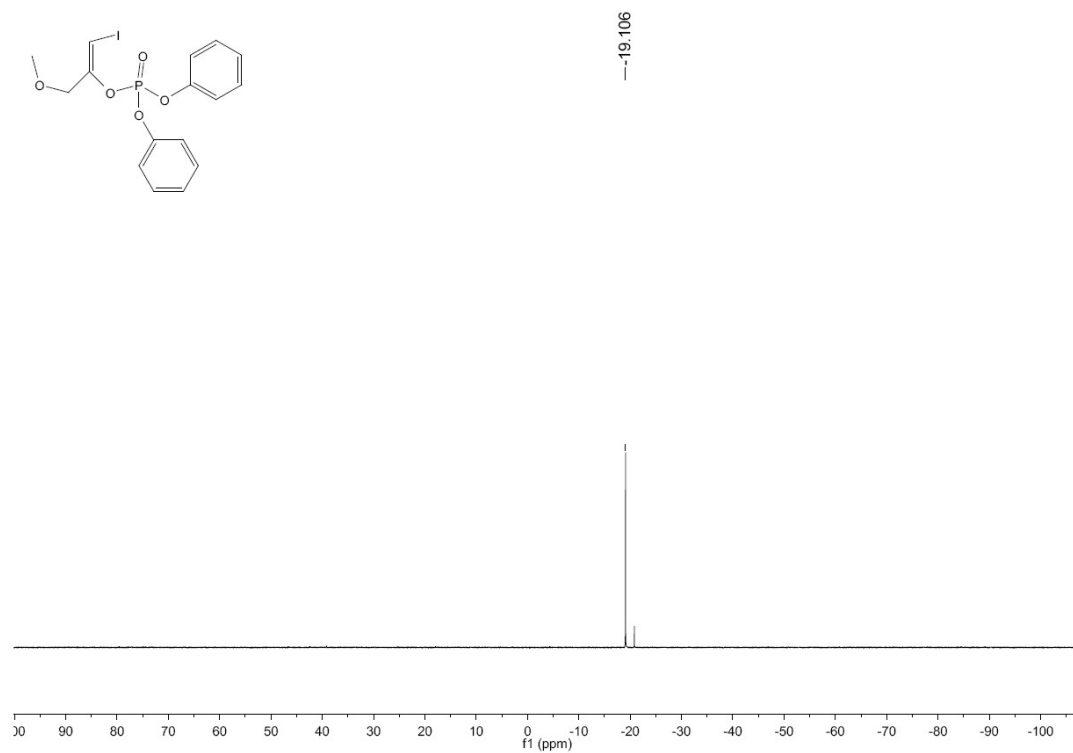
<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound 4a



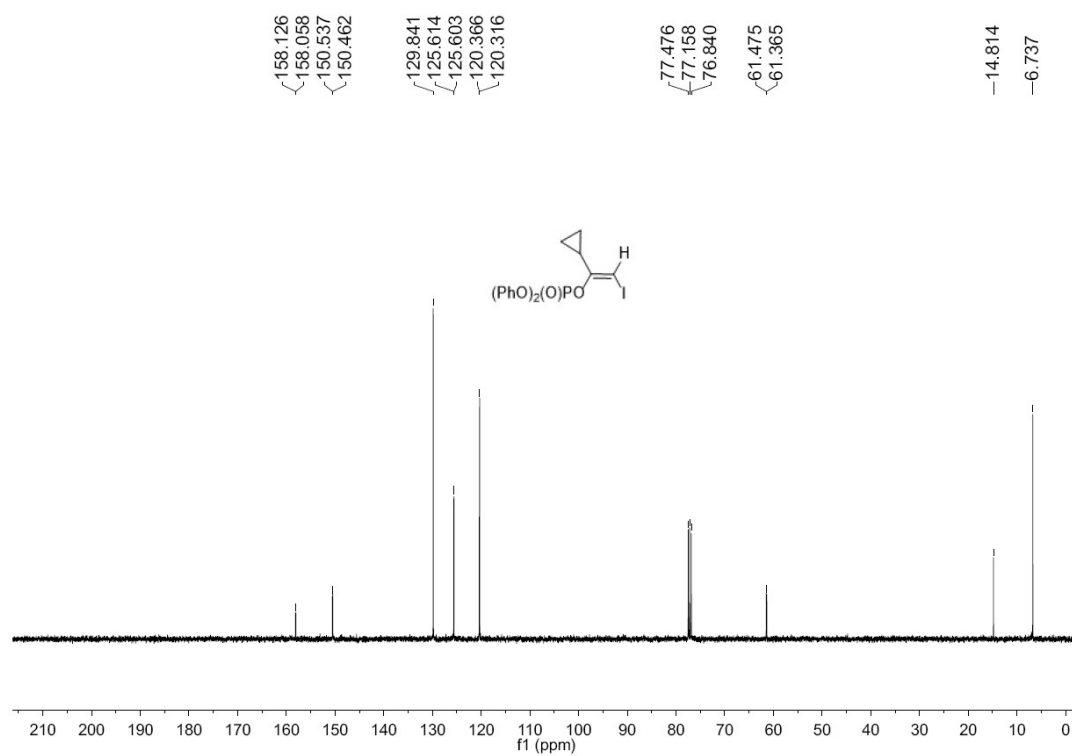
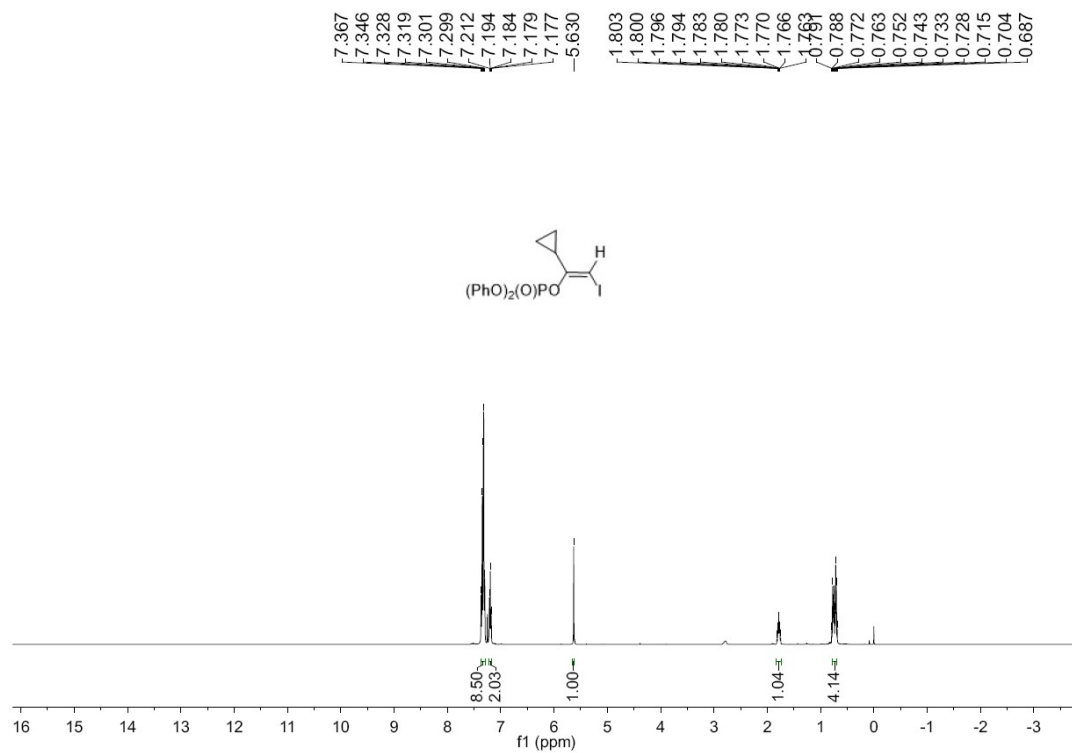
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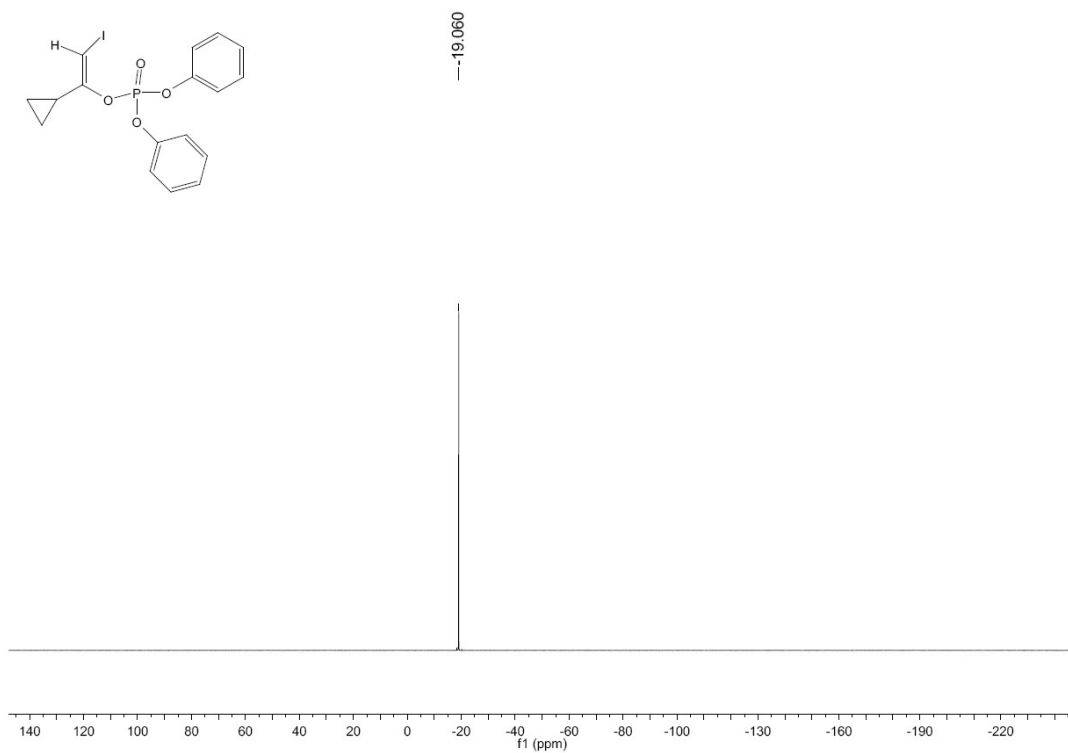
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR of Compound **4b**



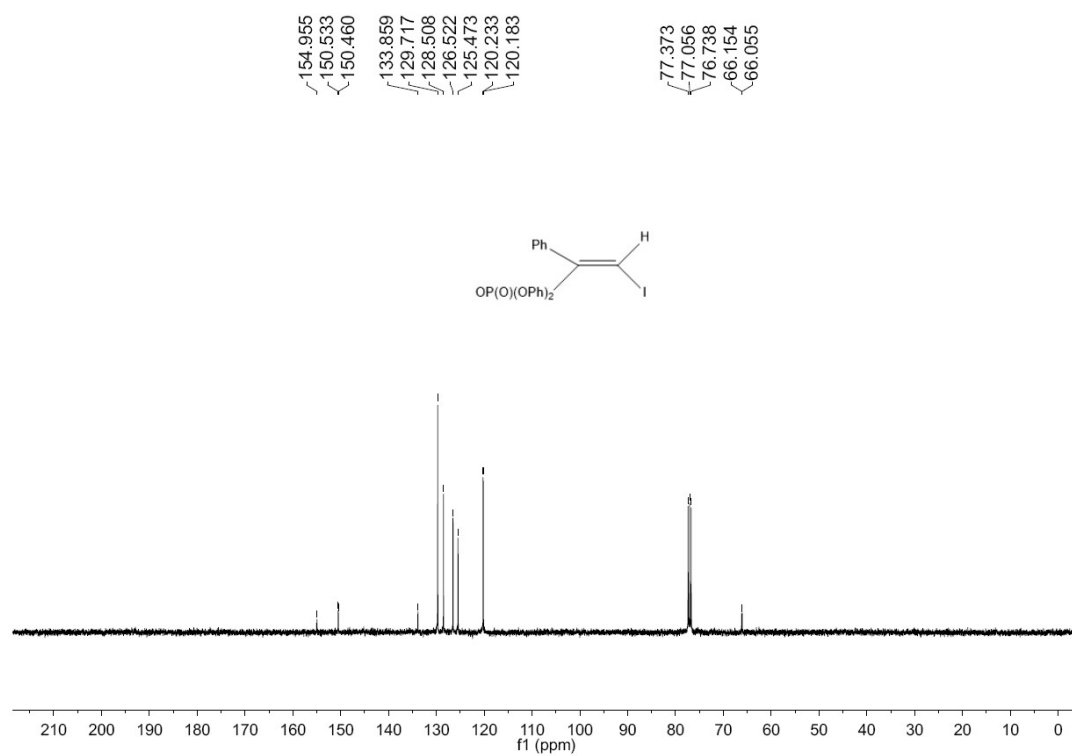
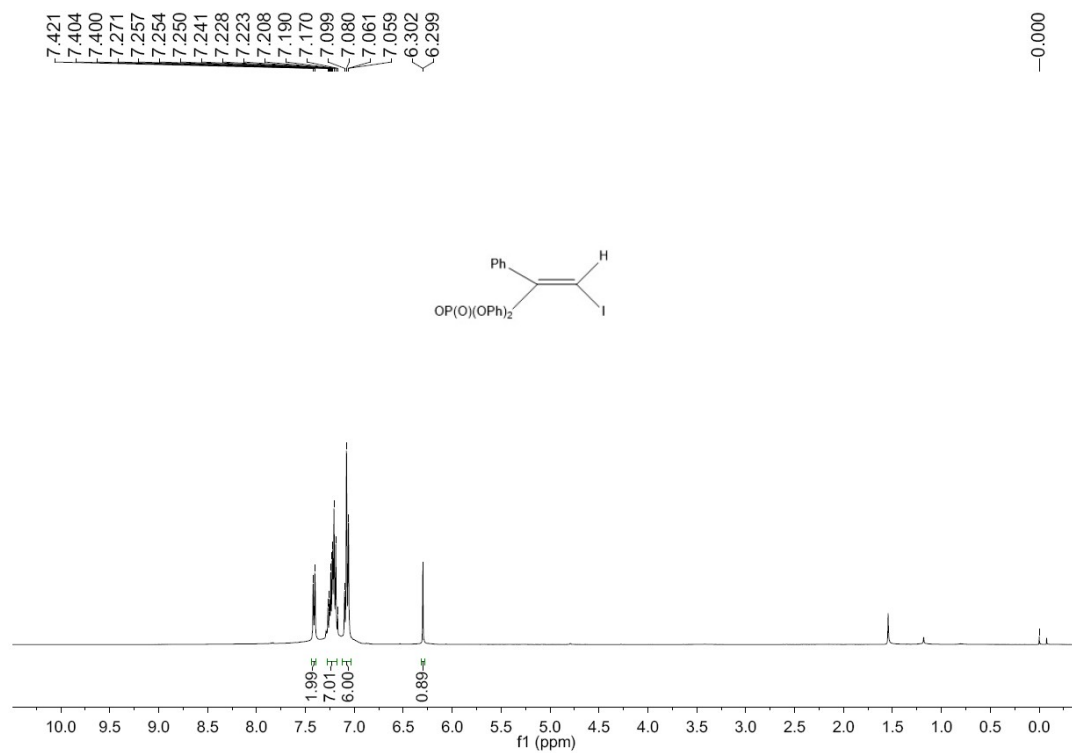
$^{31}\text{P}$  NMR of Compound **4b**



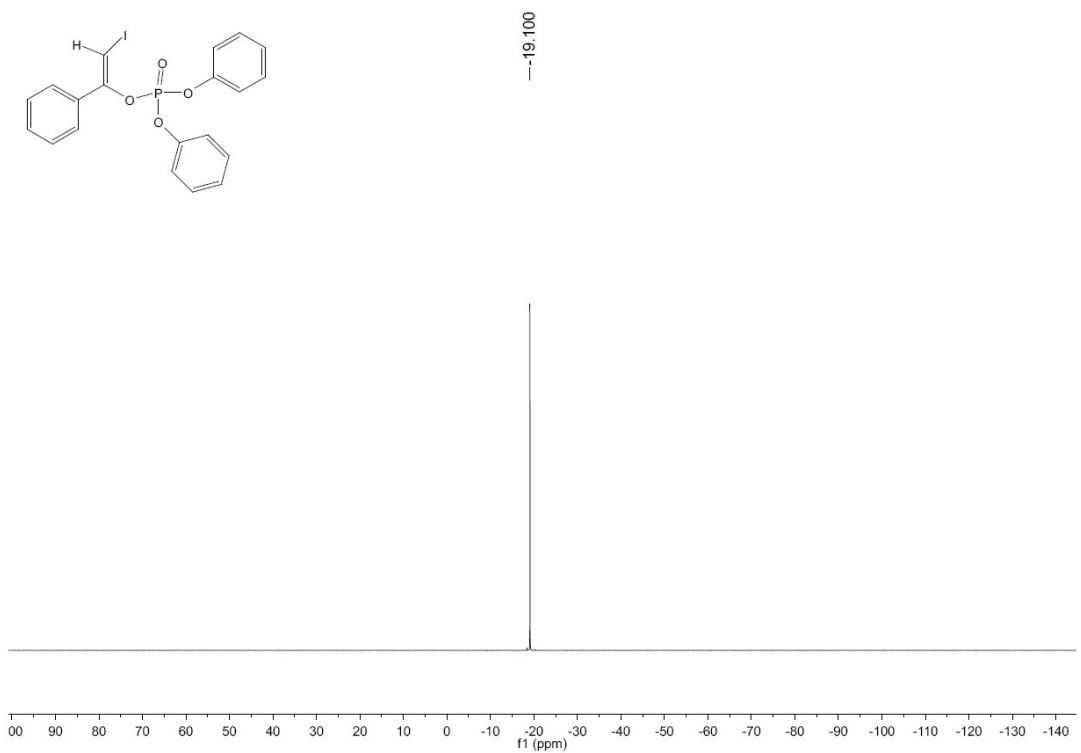
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR of Compound **4c**



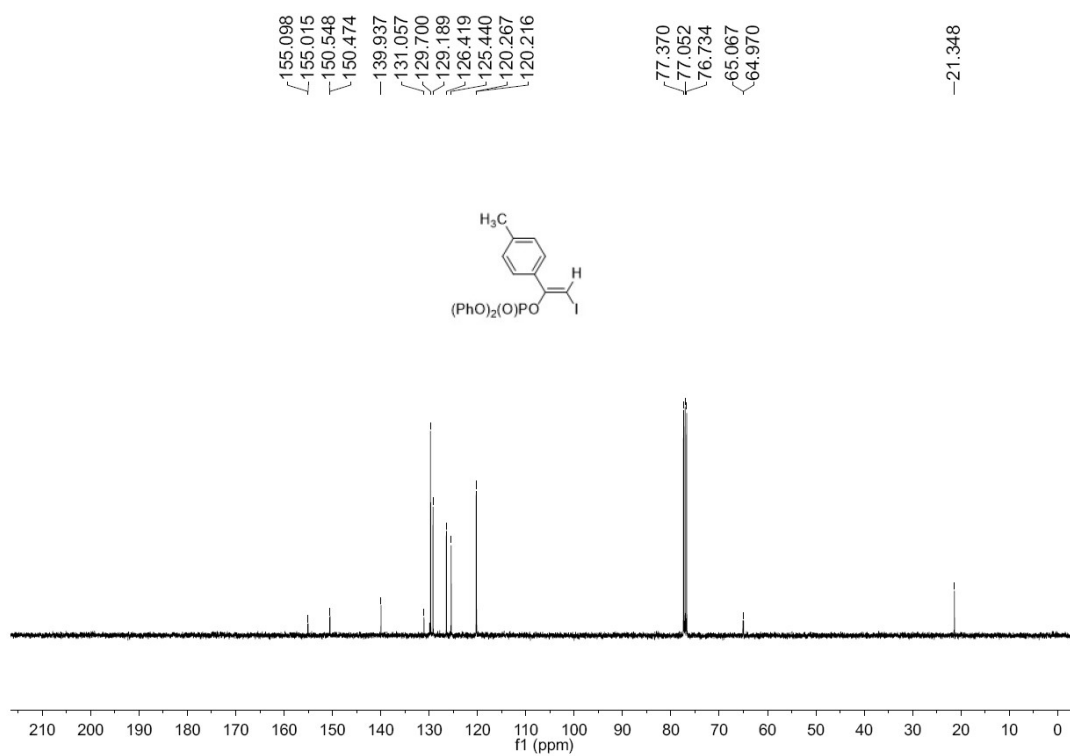
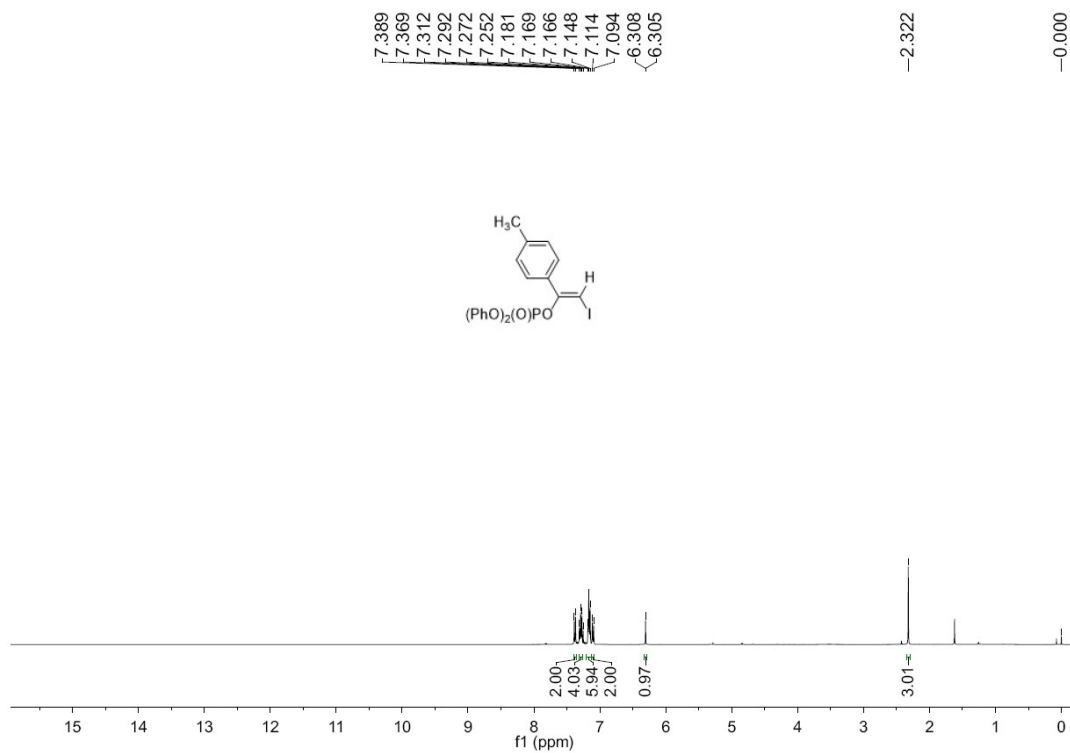
$^{31}\text{P}$  NMR of Compound **4c**



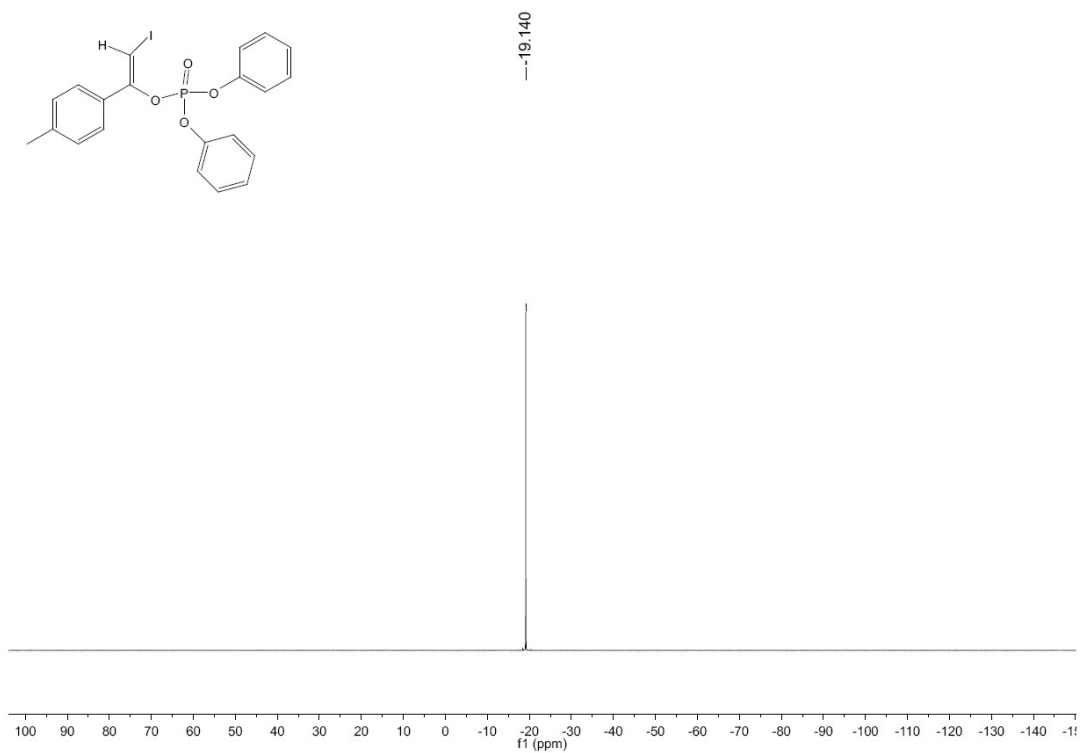
<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound **4d**



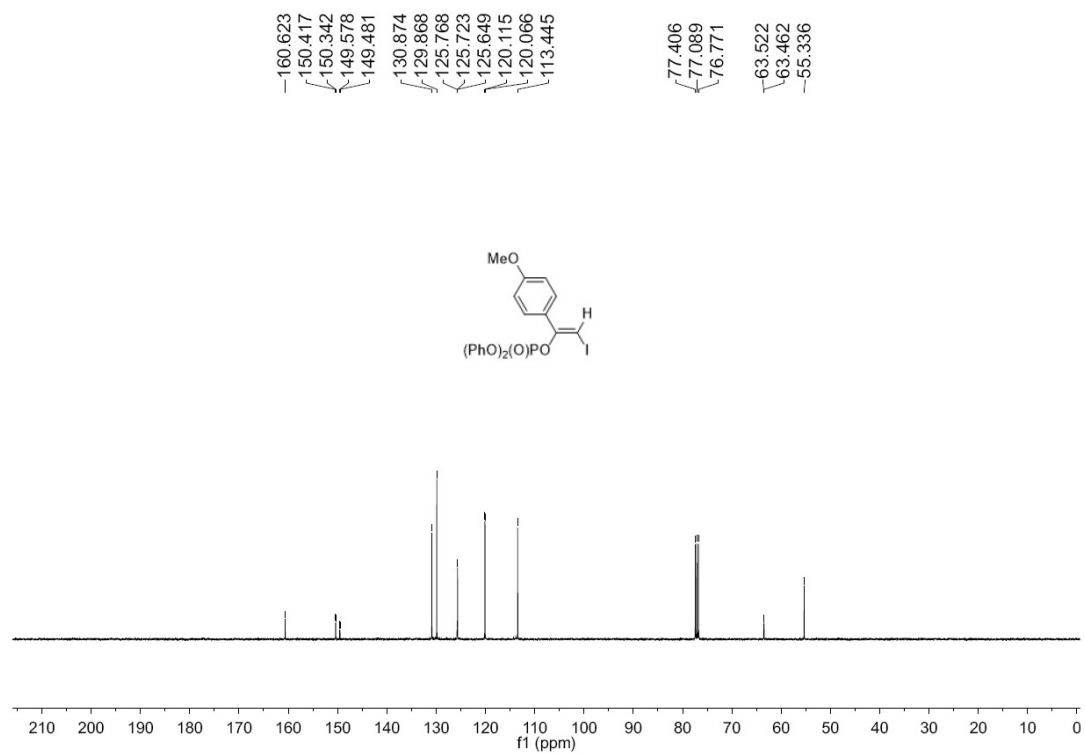
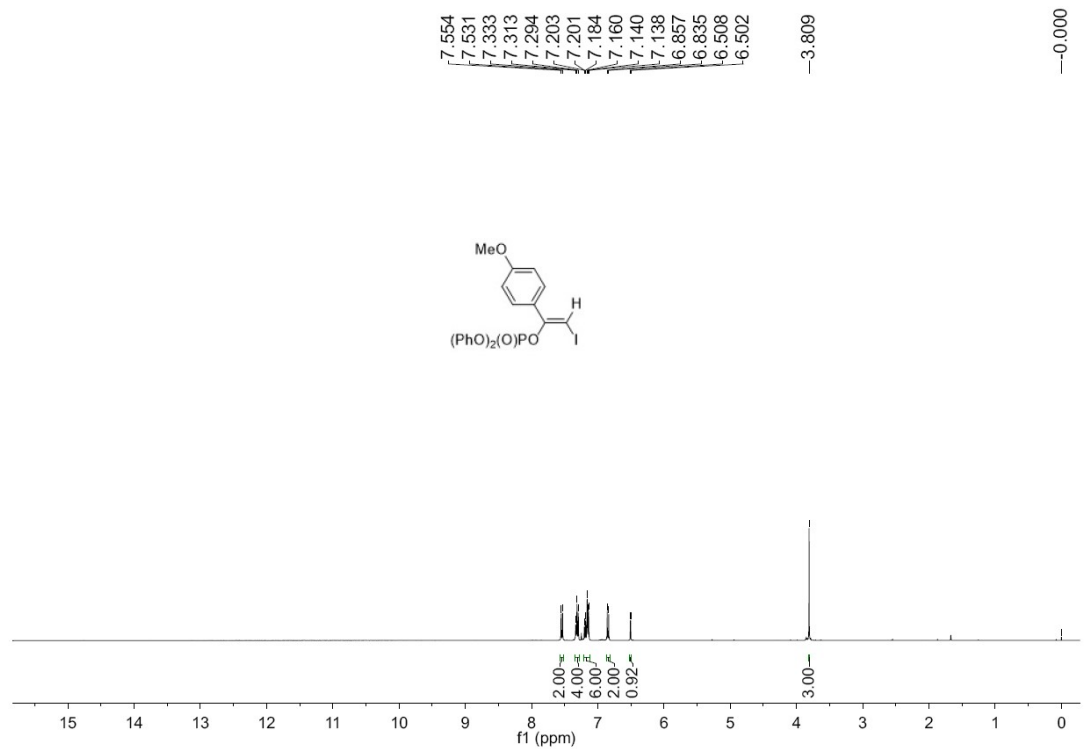
$^{31}\text{P}$  NMR of Compound **4d**



<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound 4e



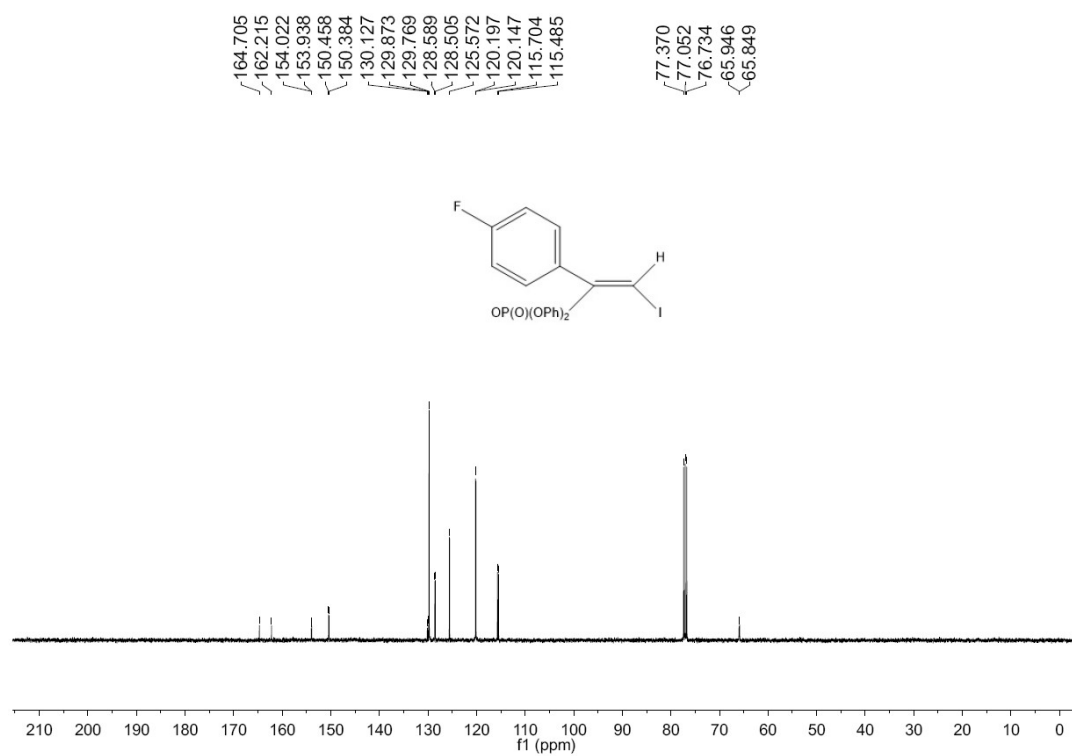
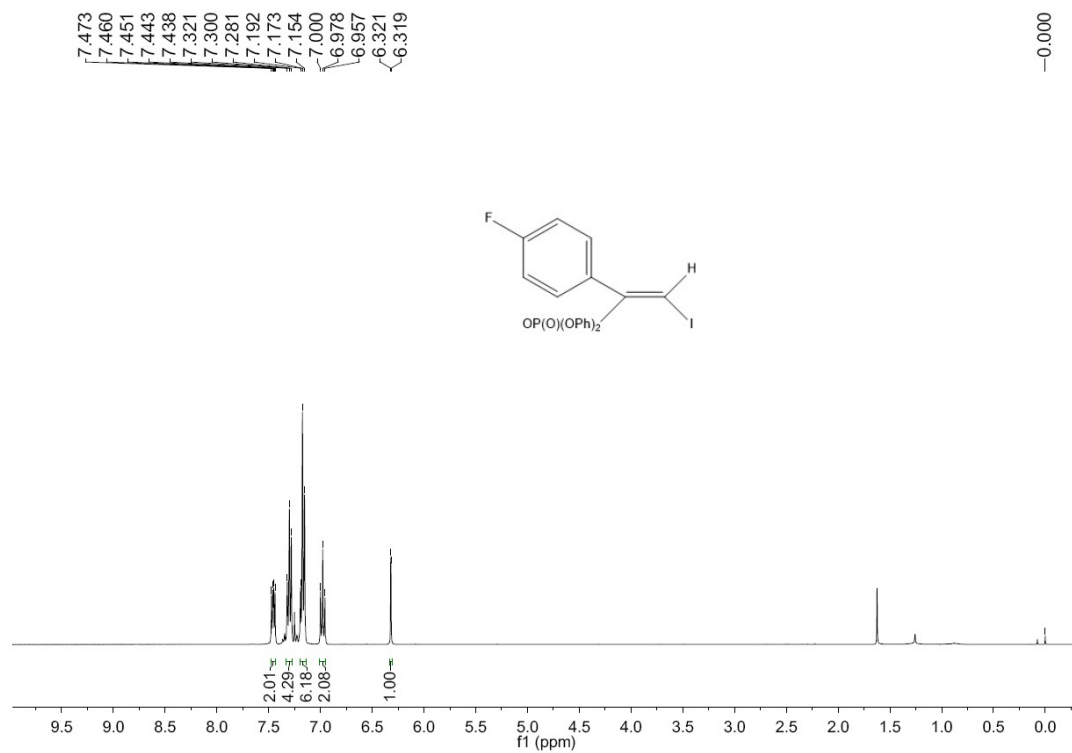
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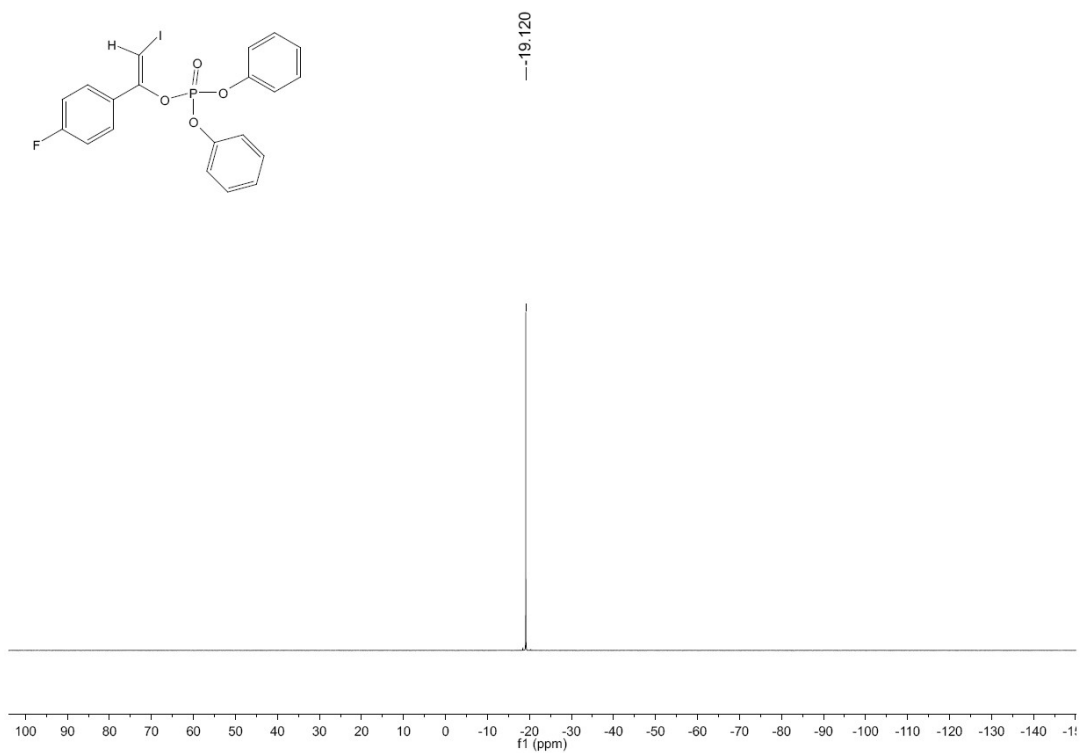
<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound **4f**



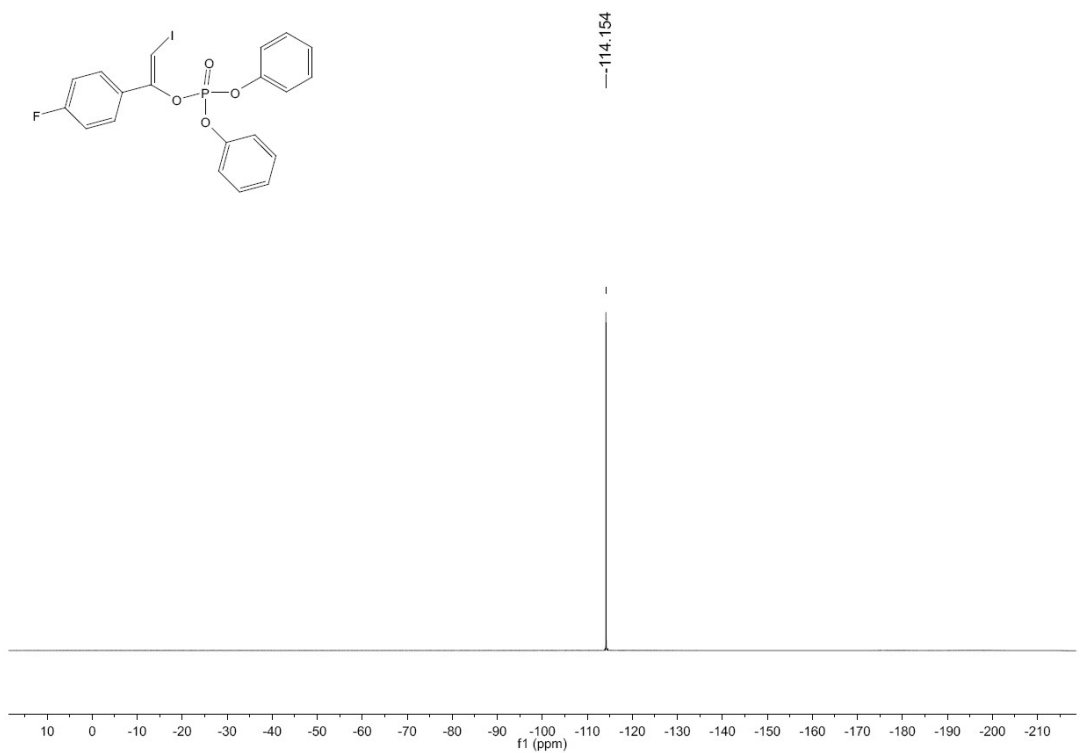
$^{31}\text{P}$  NMR of Compound **4f**



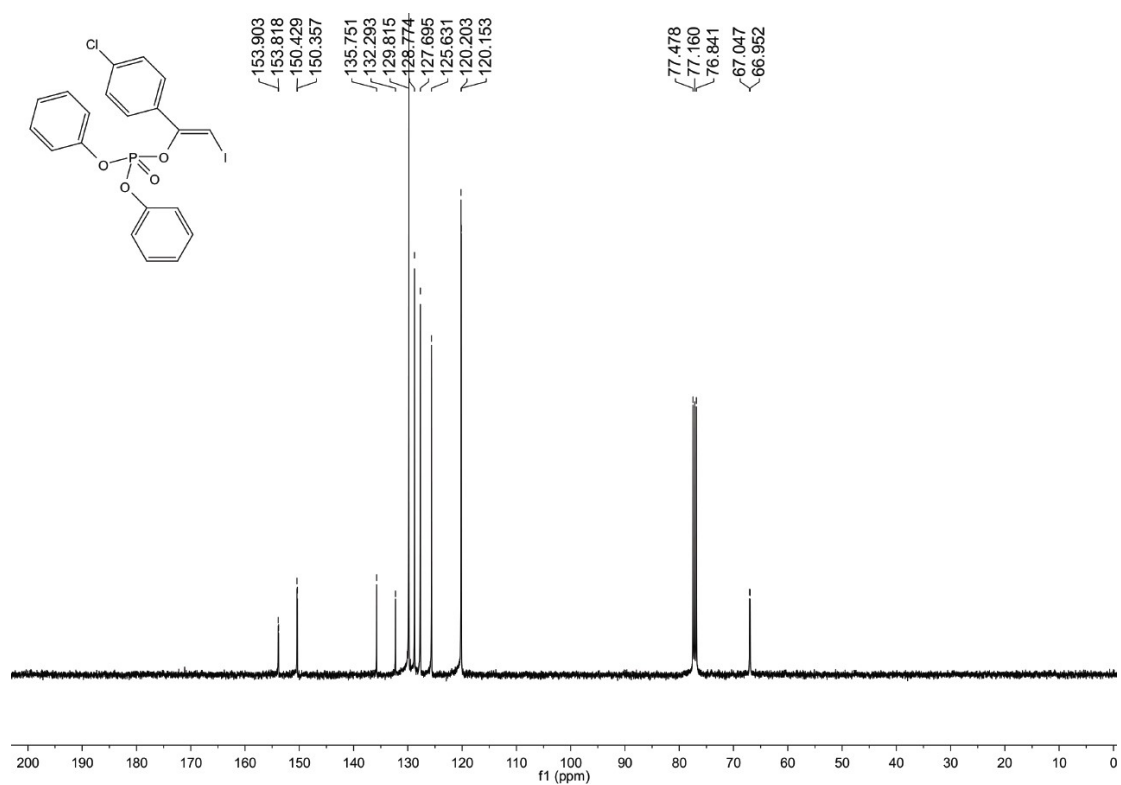
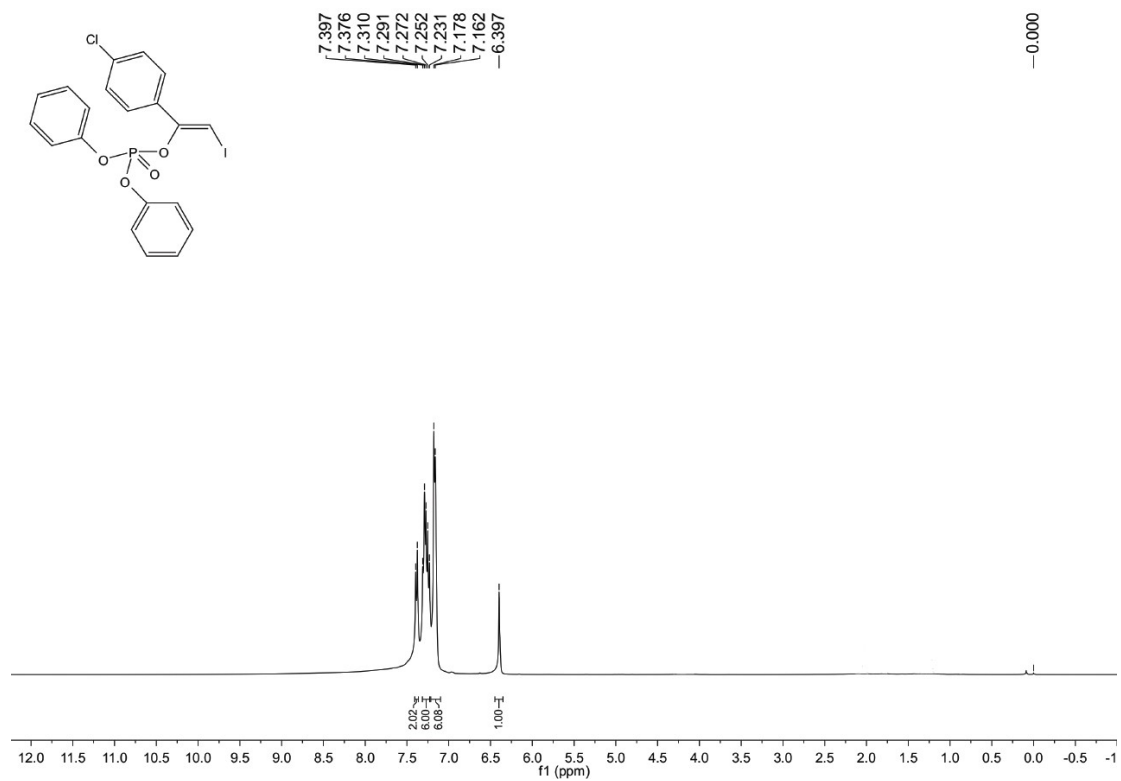
<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound **4g**



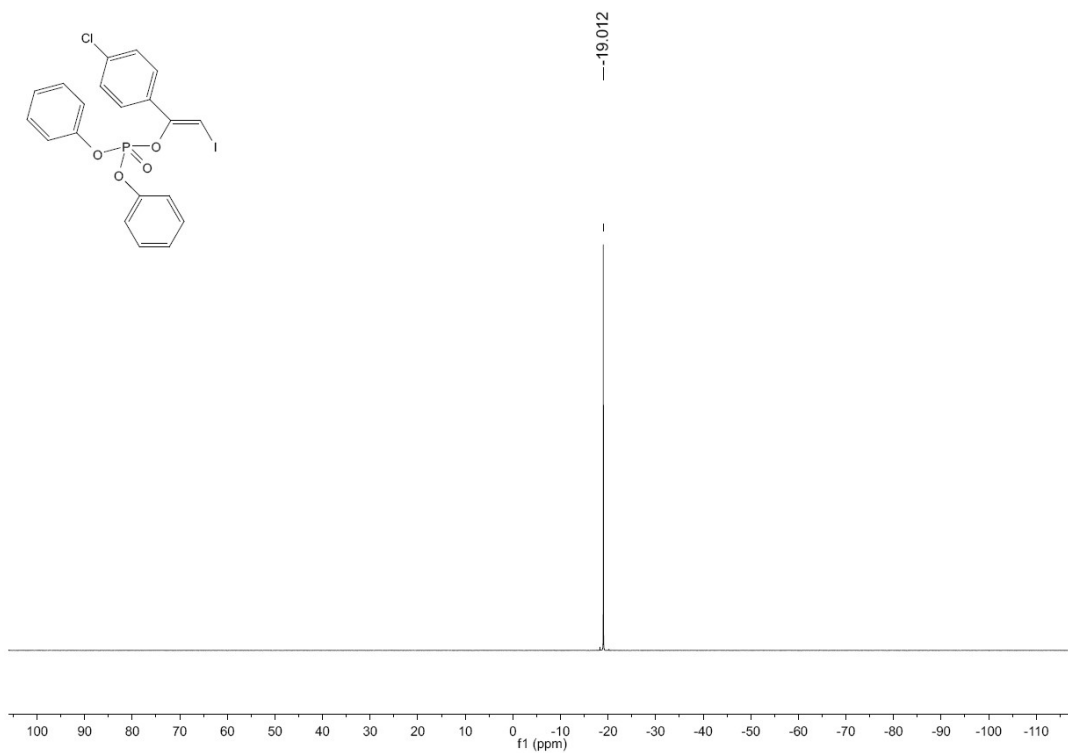
$^{31}\text{P}$  NMR of Compound **4g**



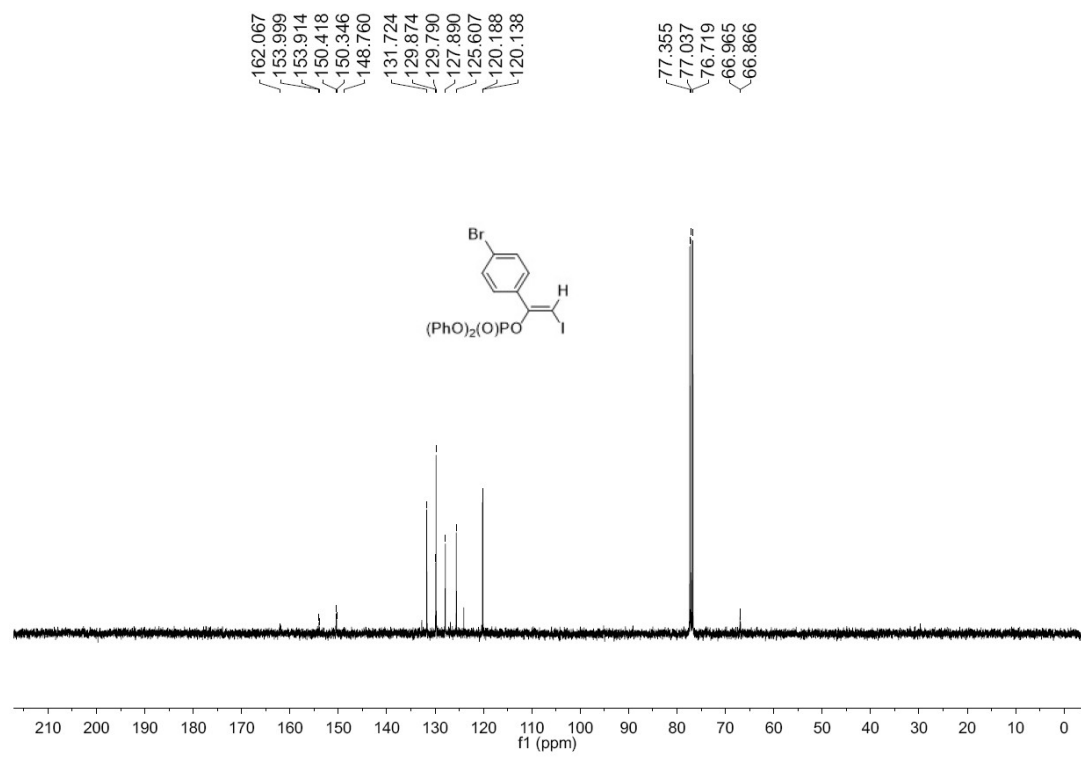
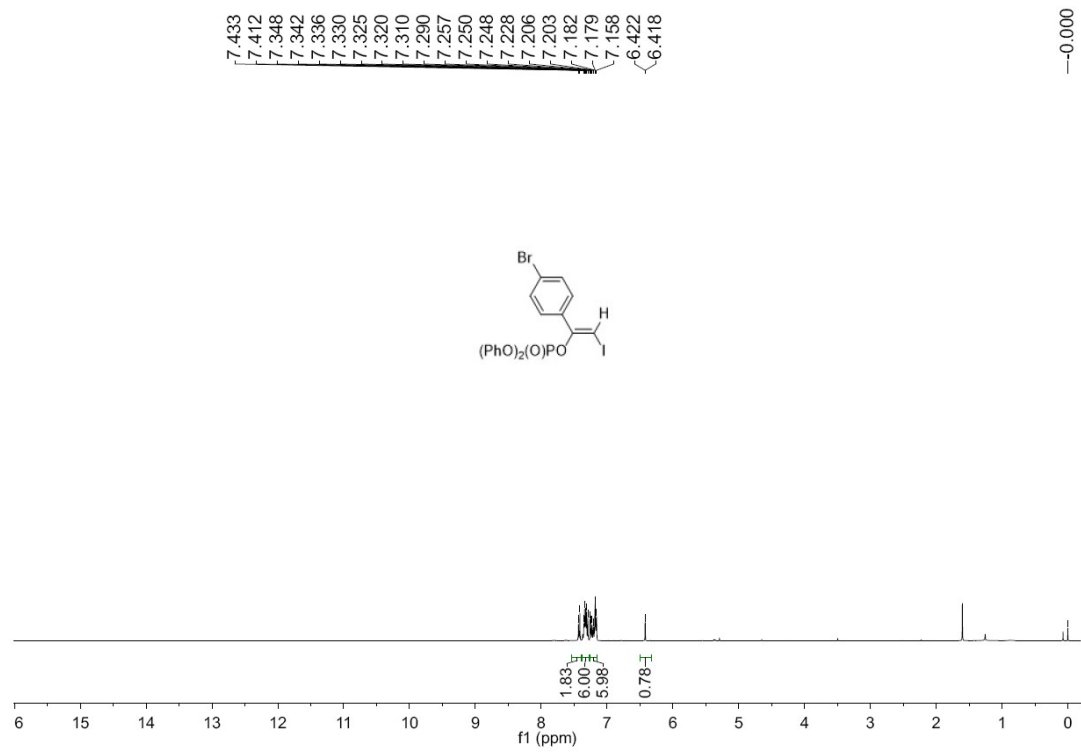
$^{19}\text{F}$  NMR of Compound **4g**



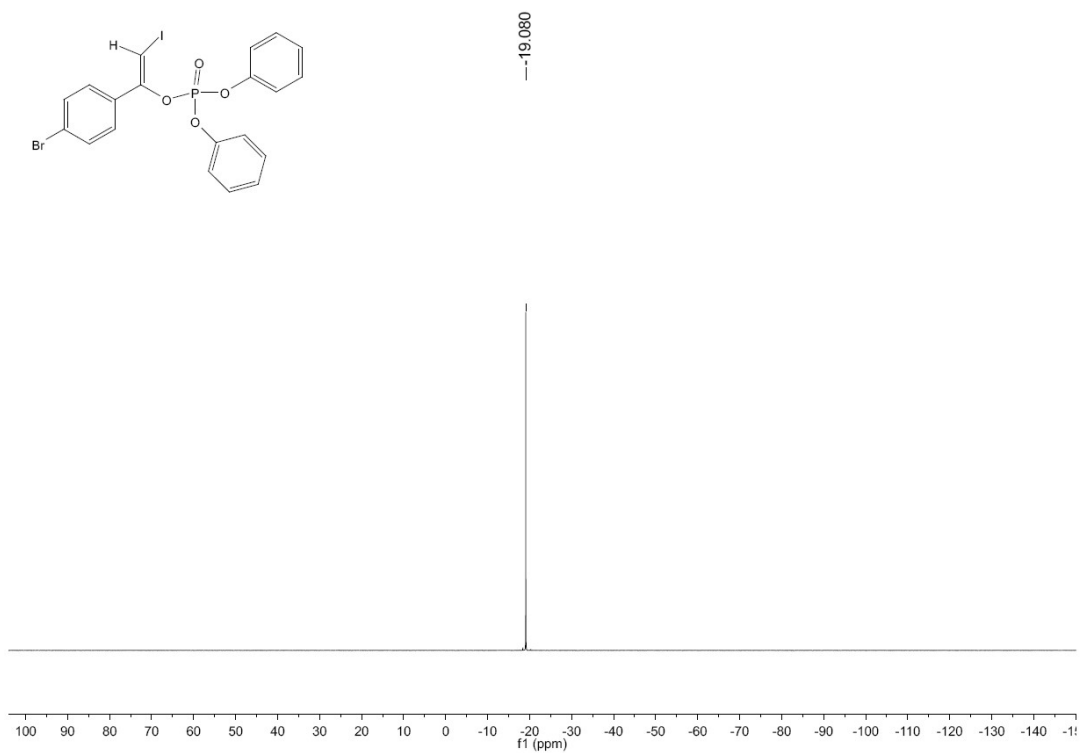
**<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound 4h**



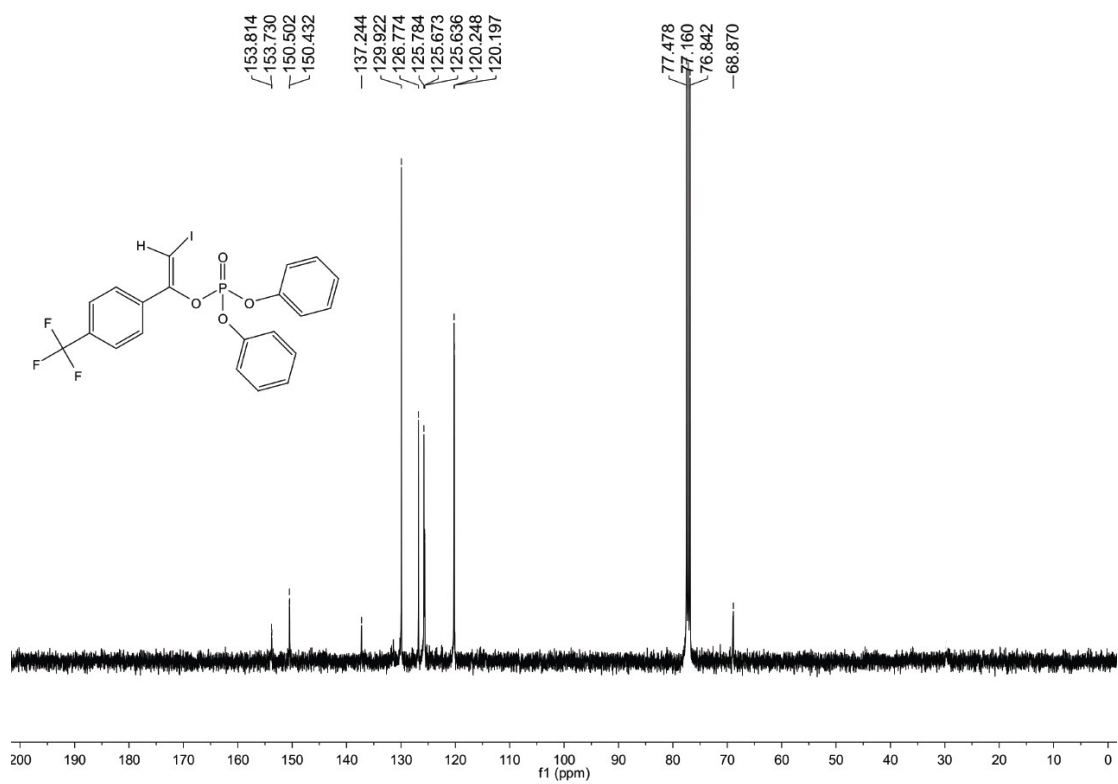
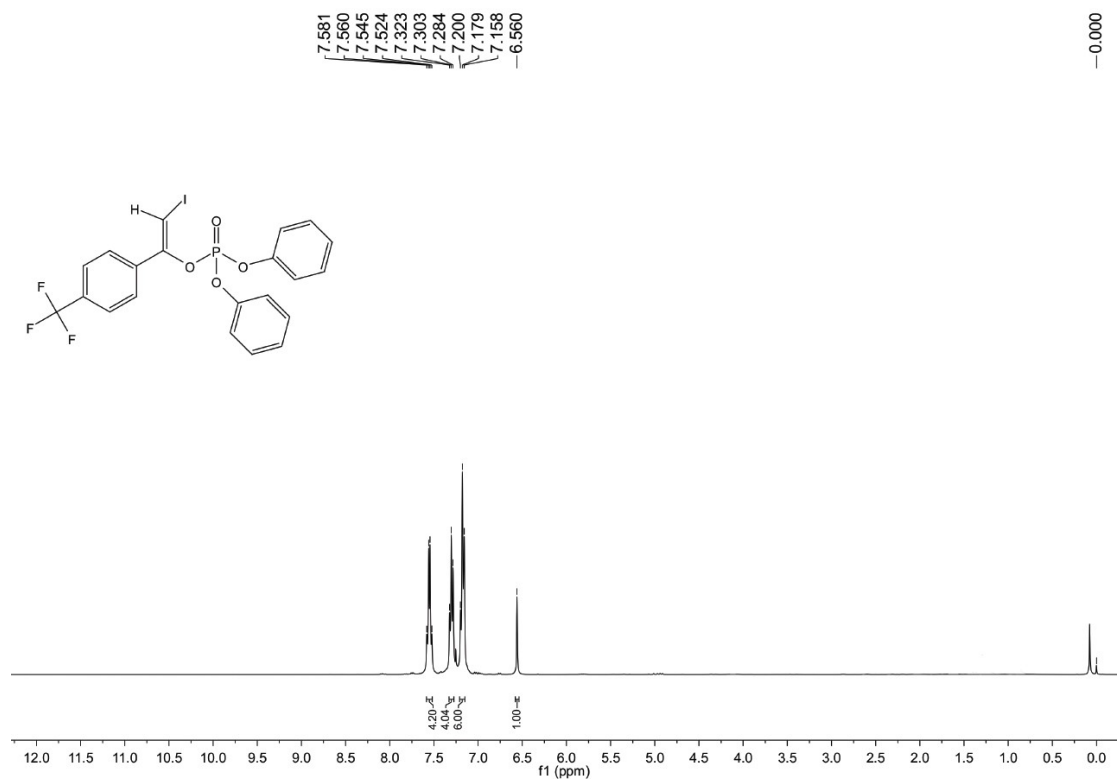
$^{31}\text{P}$  NMR of Compound **4h**



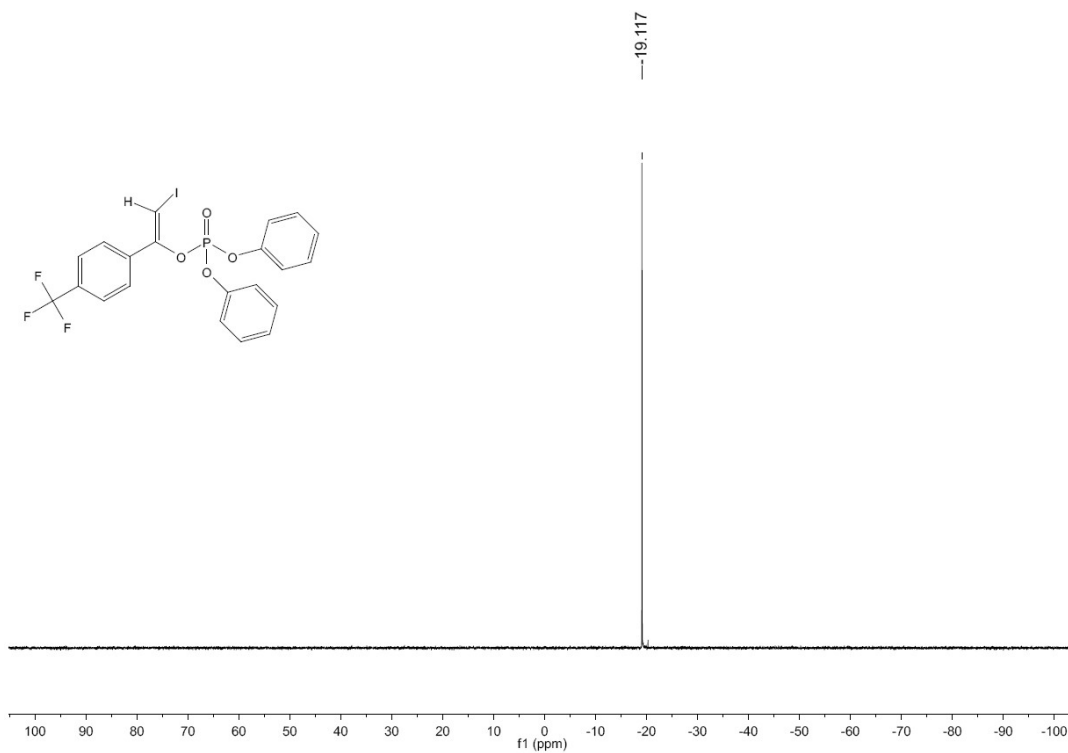
<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound **4i**



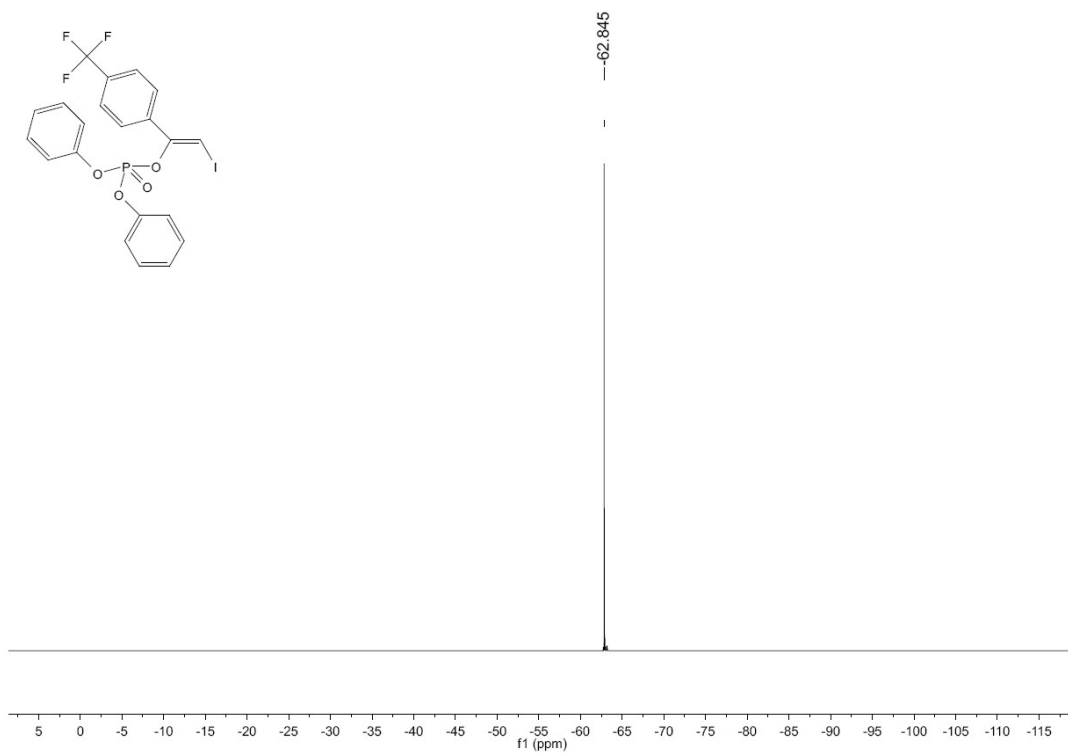
$^{31}\text{P}$  NMR of Compound **4i**



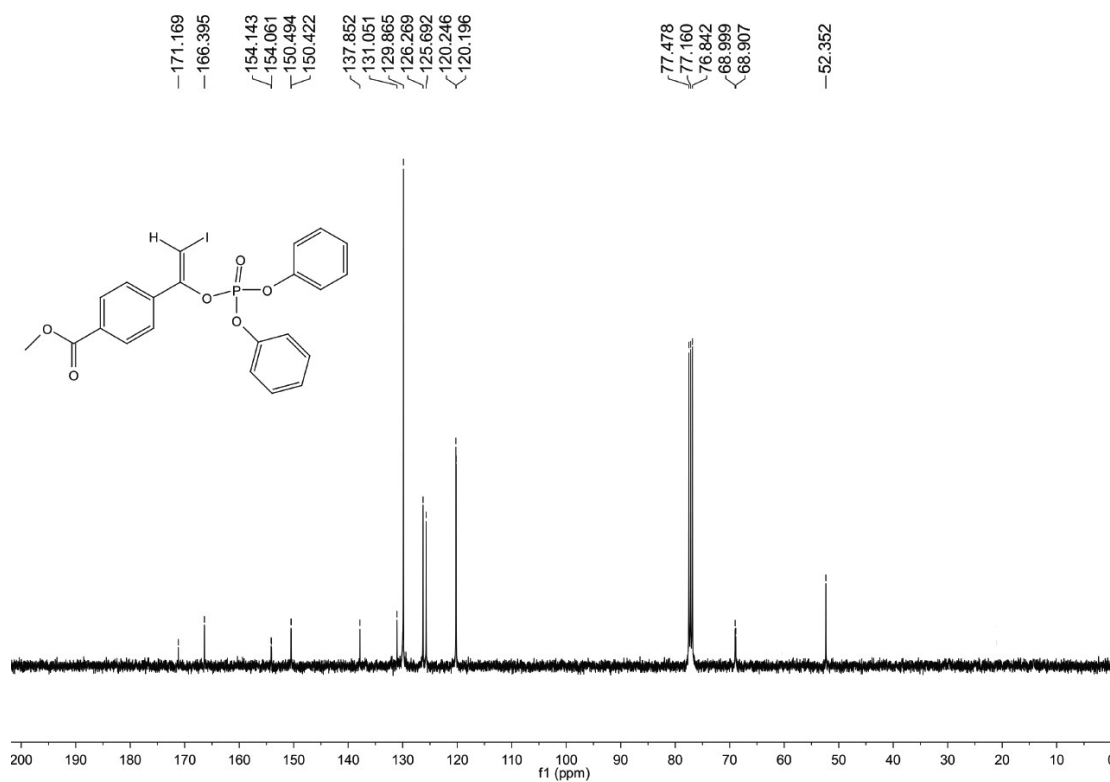
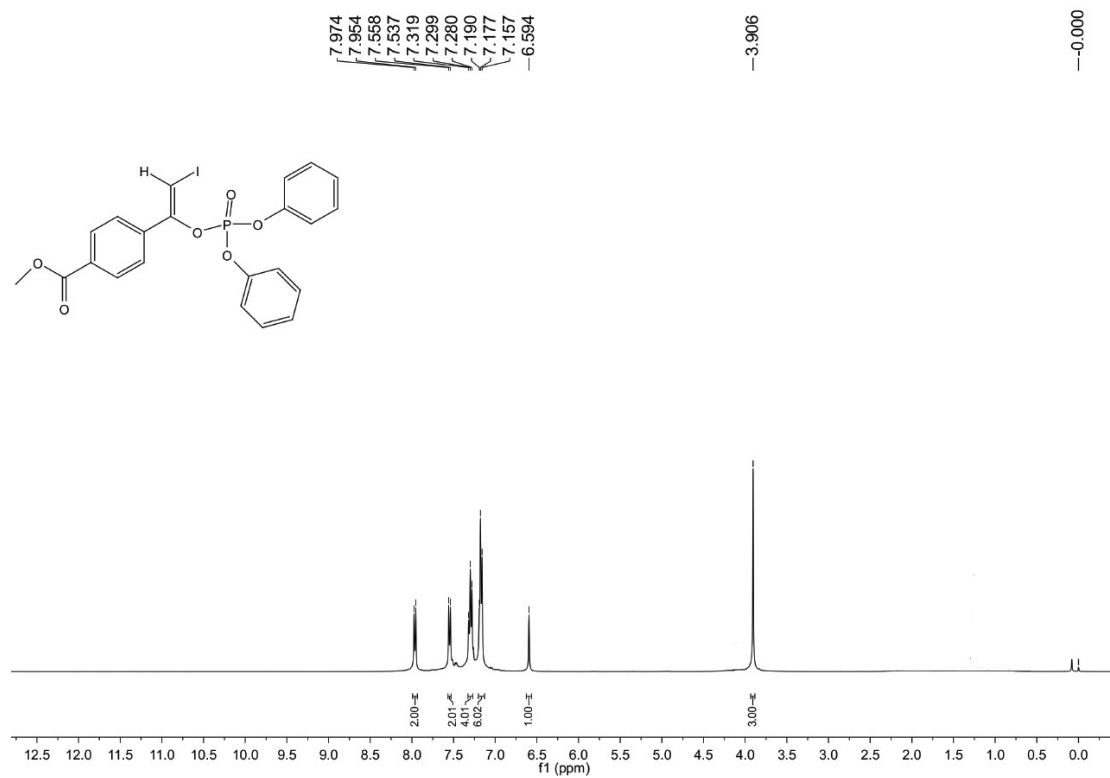
<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound 4j



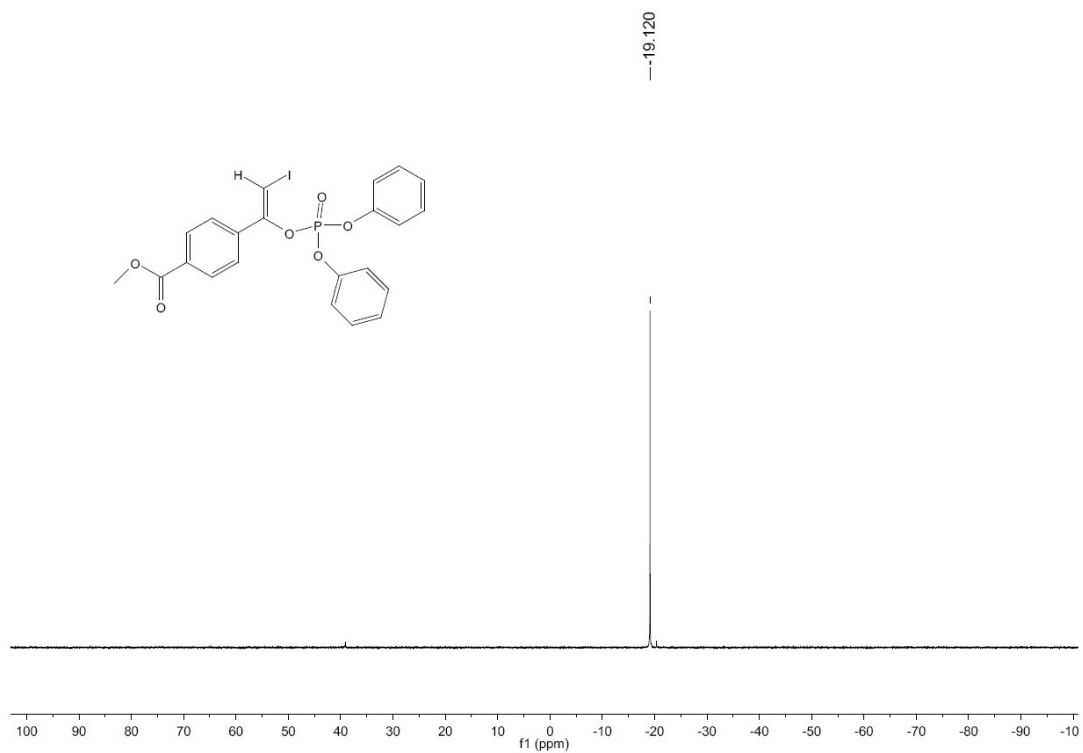
$^{31}\text{P}$  NMR of Compound 4j



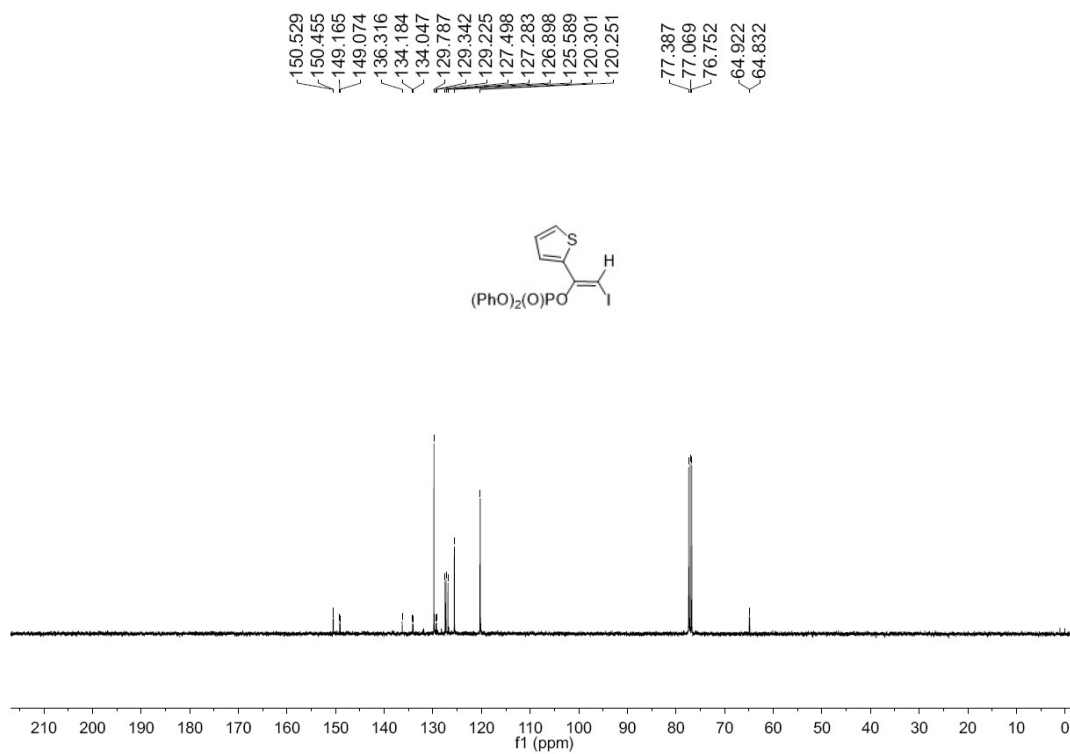
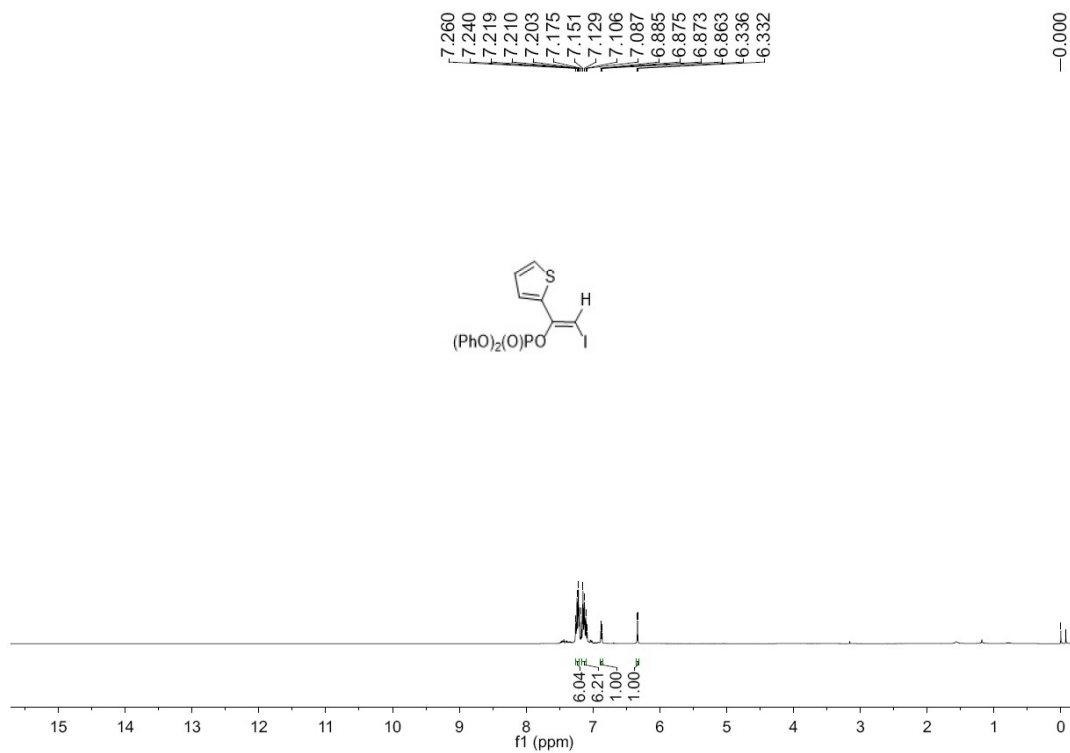
$^{19}\text{F}$  NMR of Compound 4j



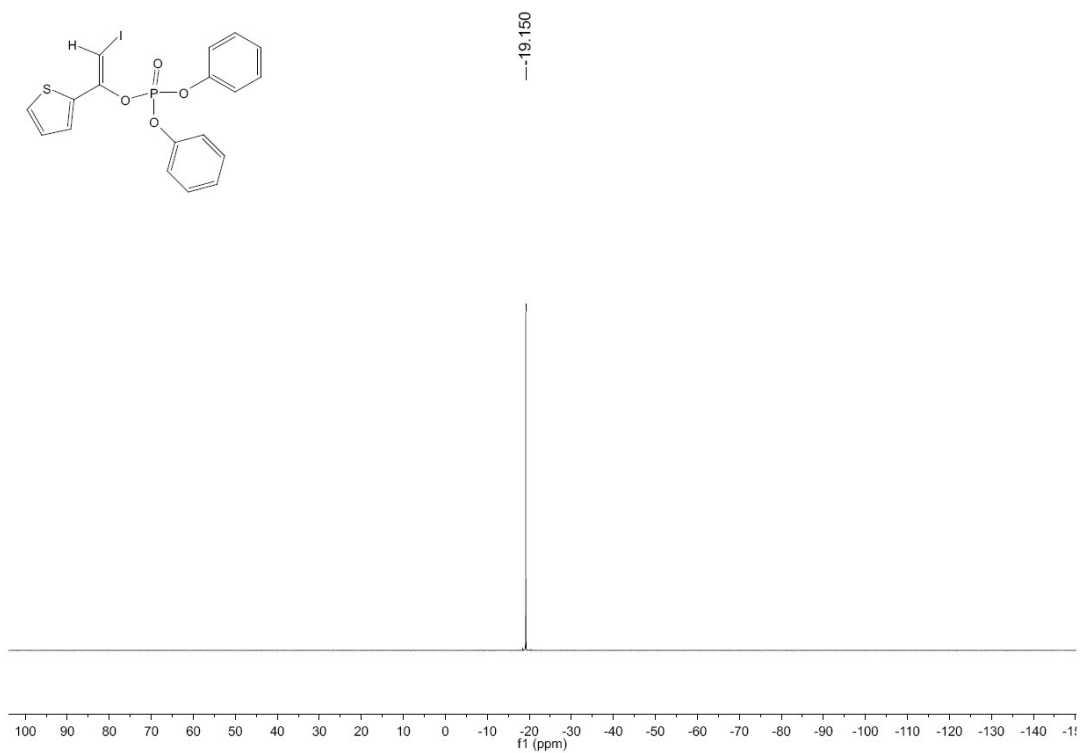
<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound 4k



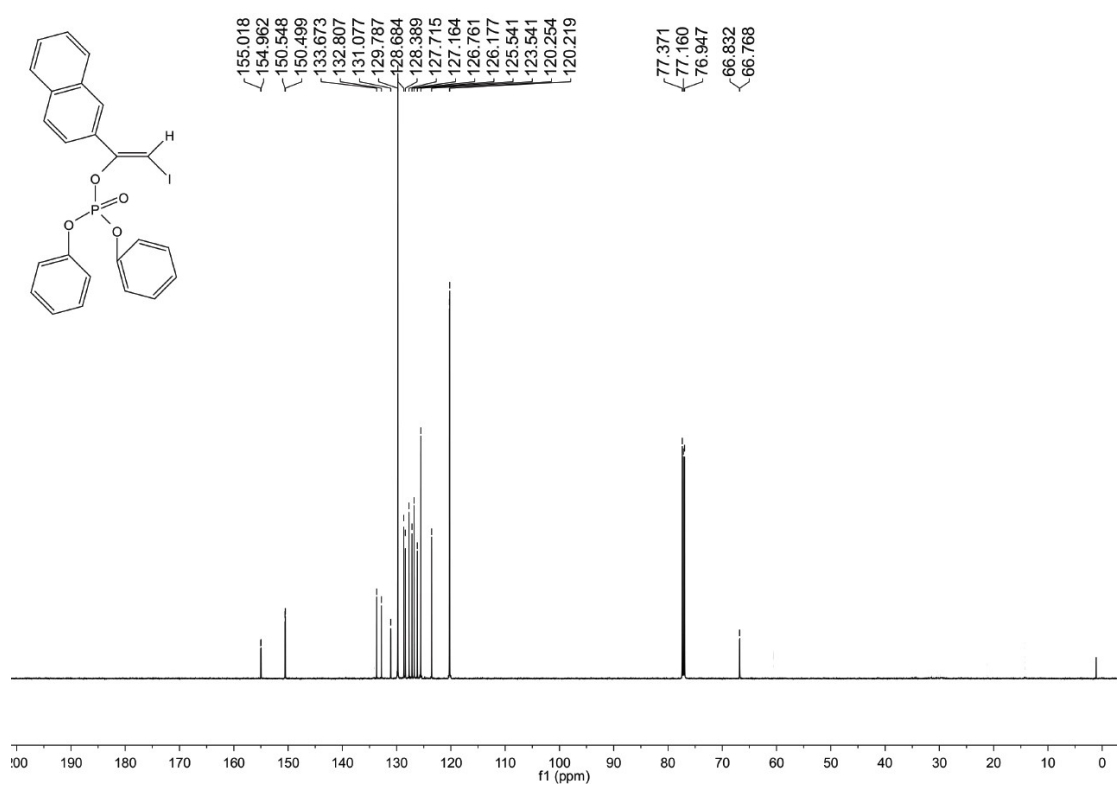
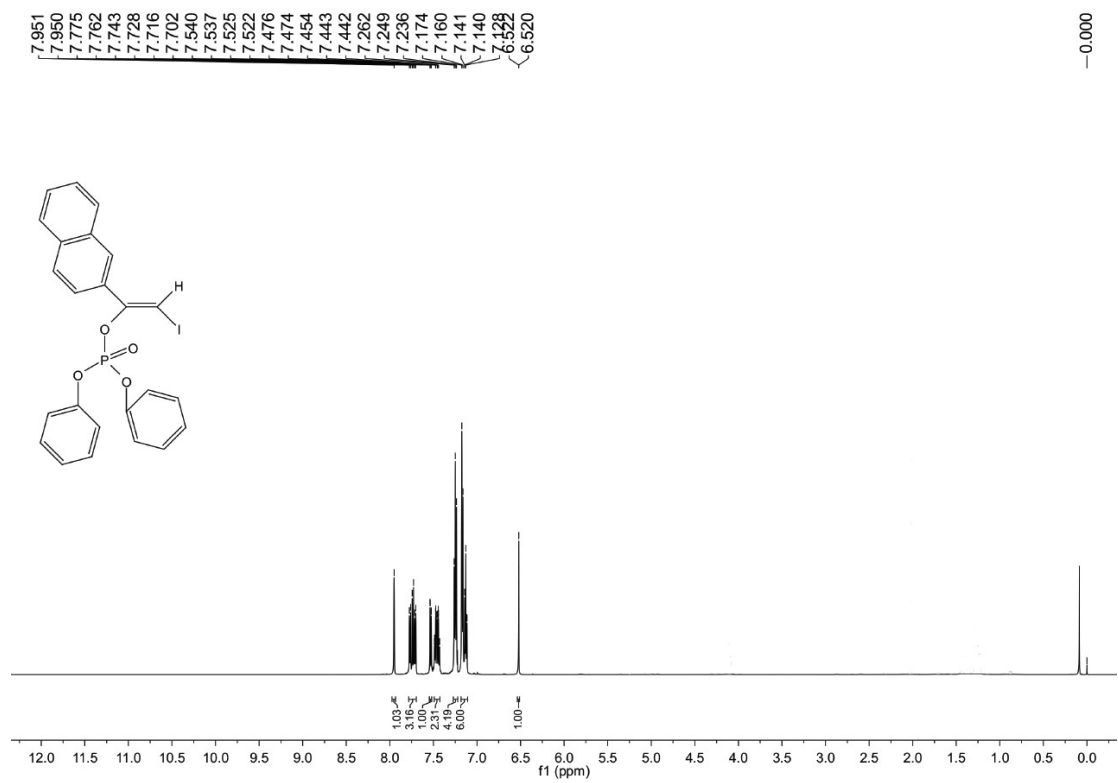
$^{31}\text{P}$  NMR of Compound **4k**



<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound **4I**



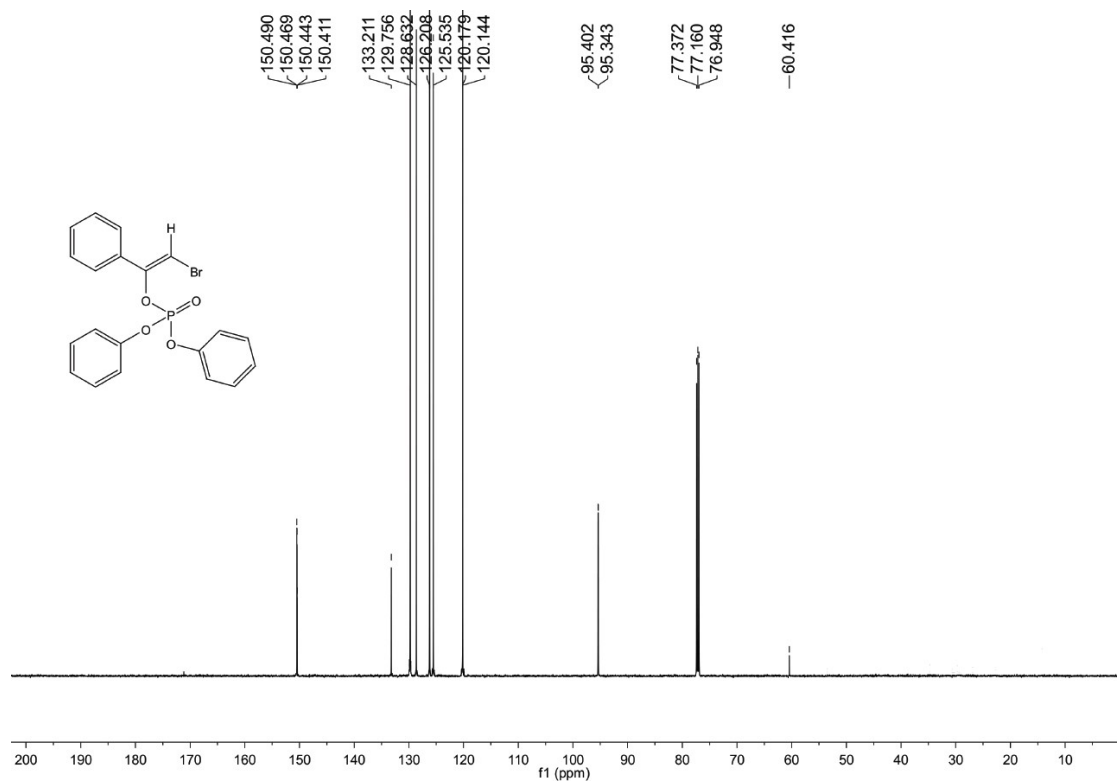
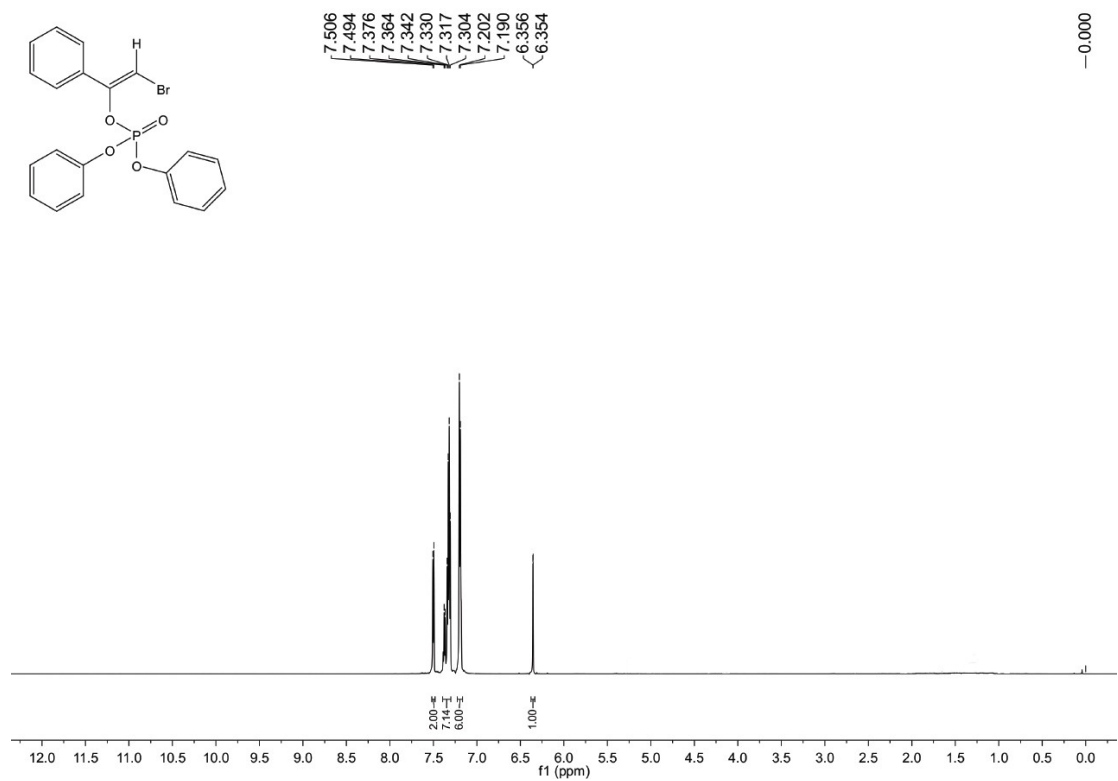
$^{31}\text{P}$  NMR of Compound **4I**



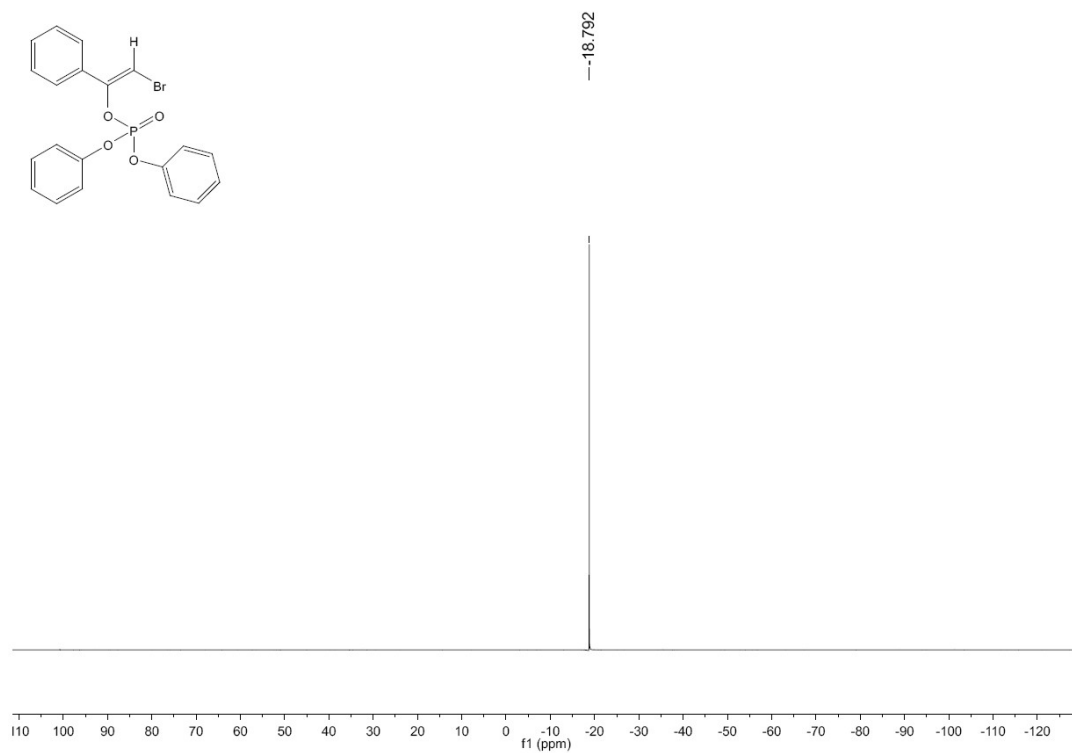
<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound 4m



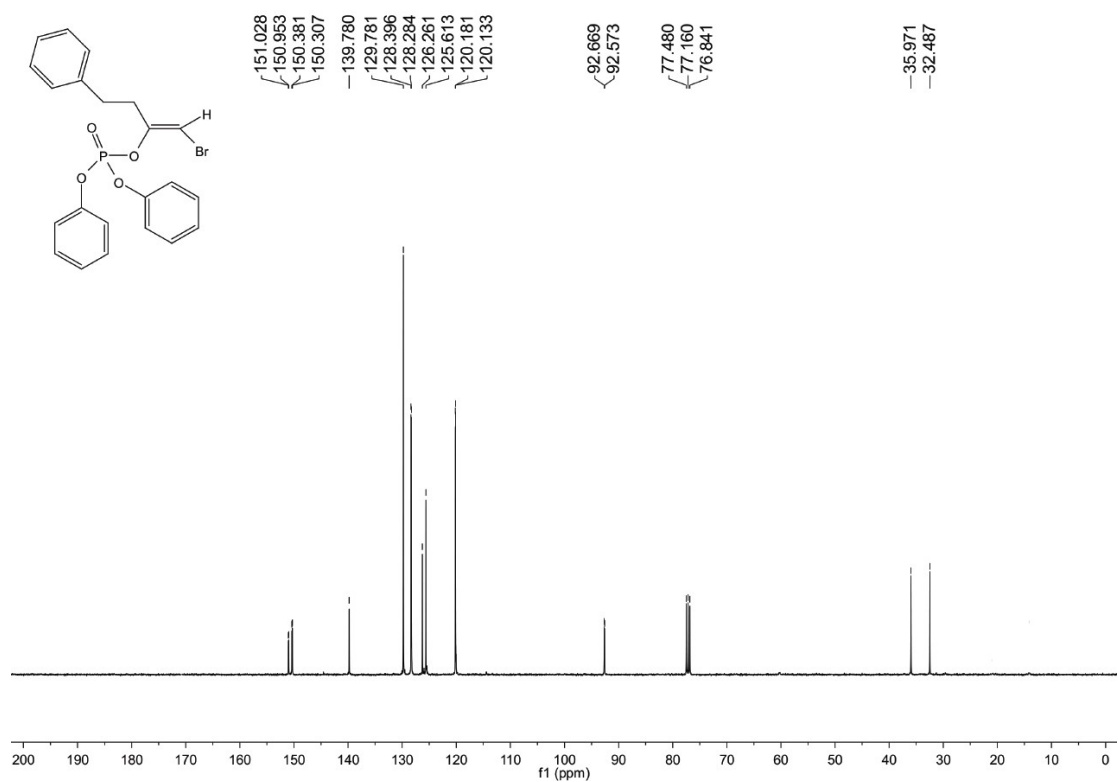
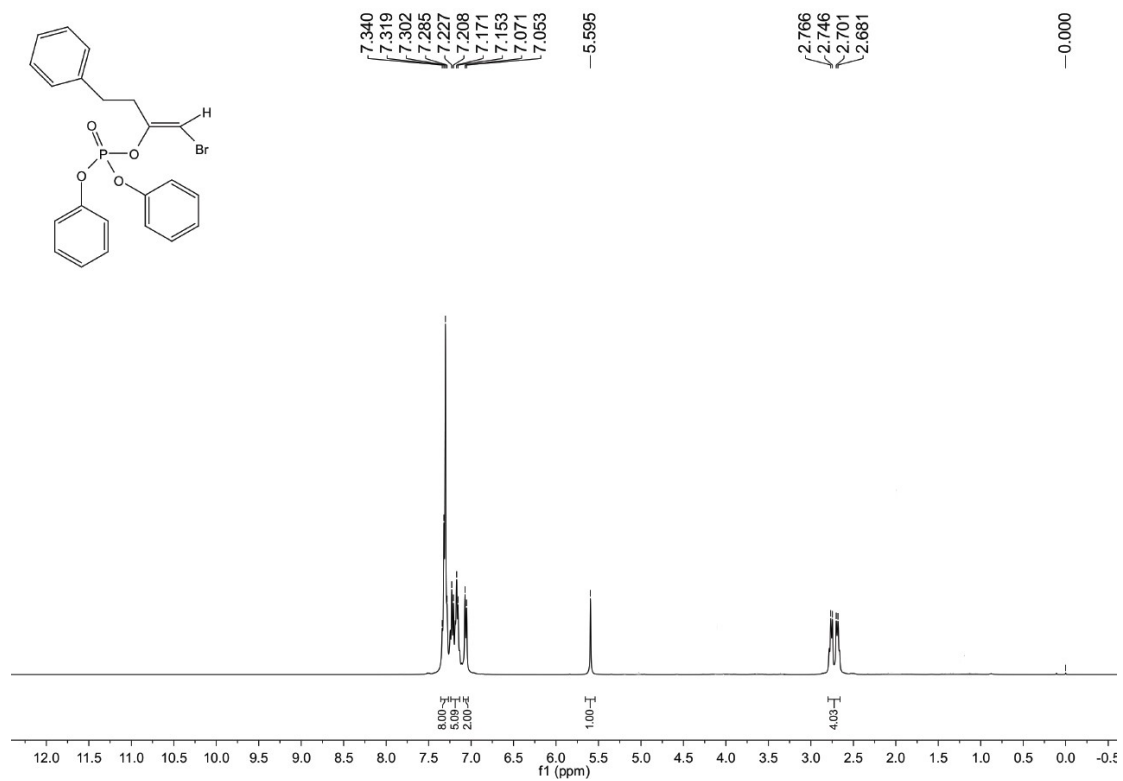
$^{31}\text{P}$  NMR of Compound **4m**



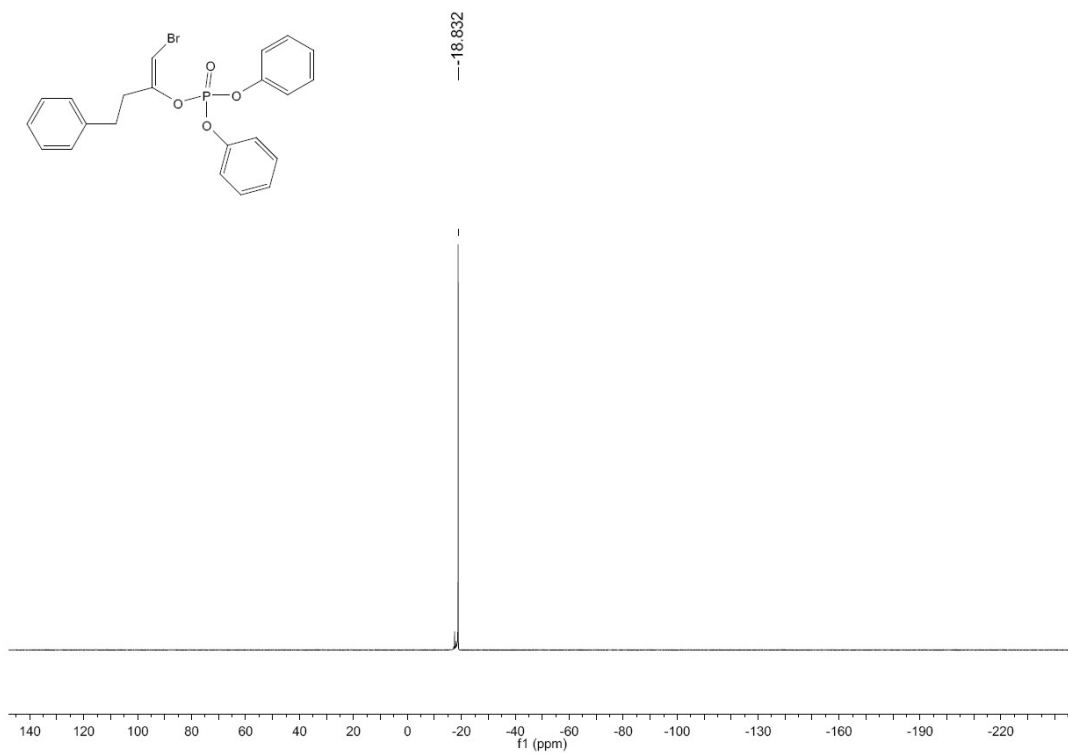
<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound 4n



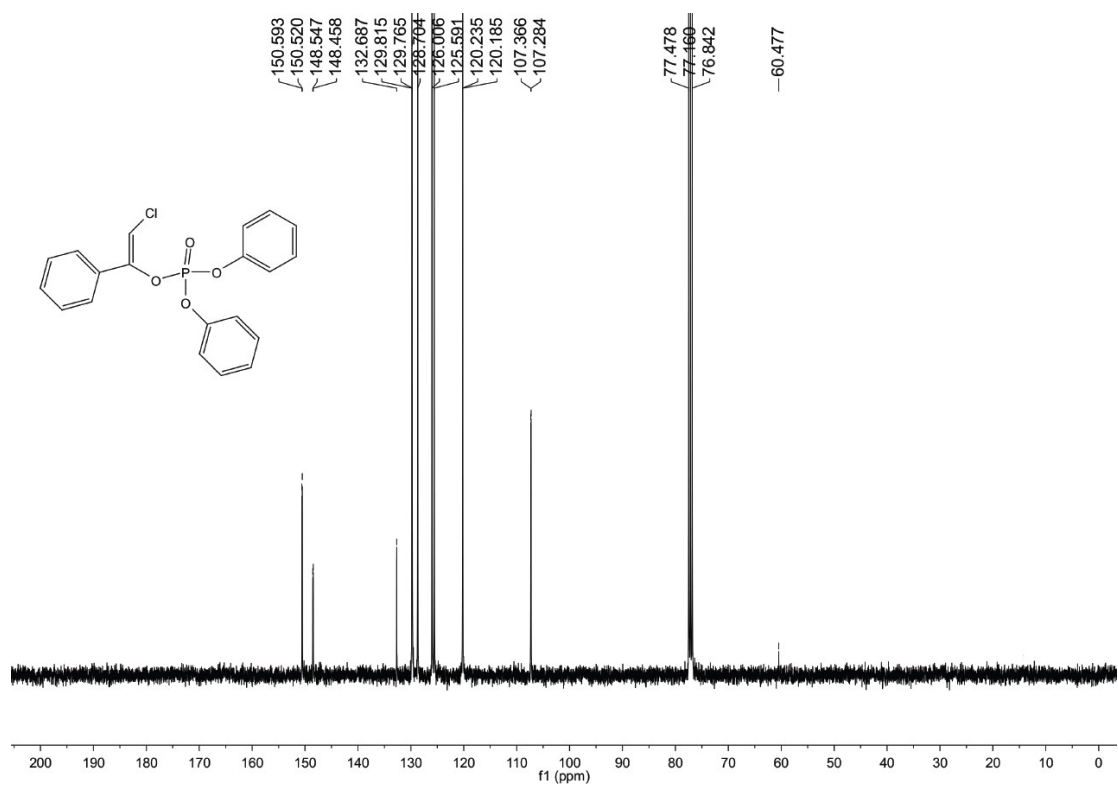
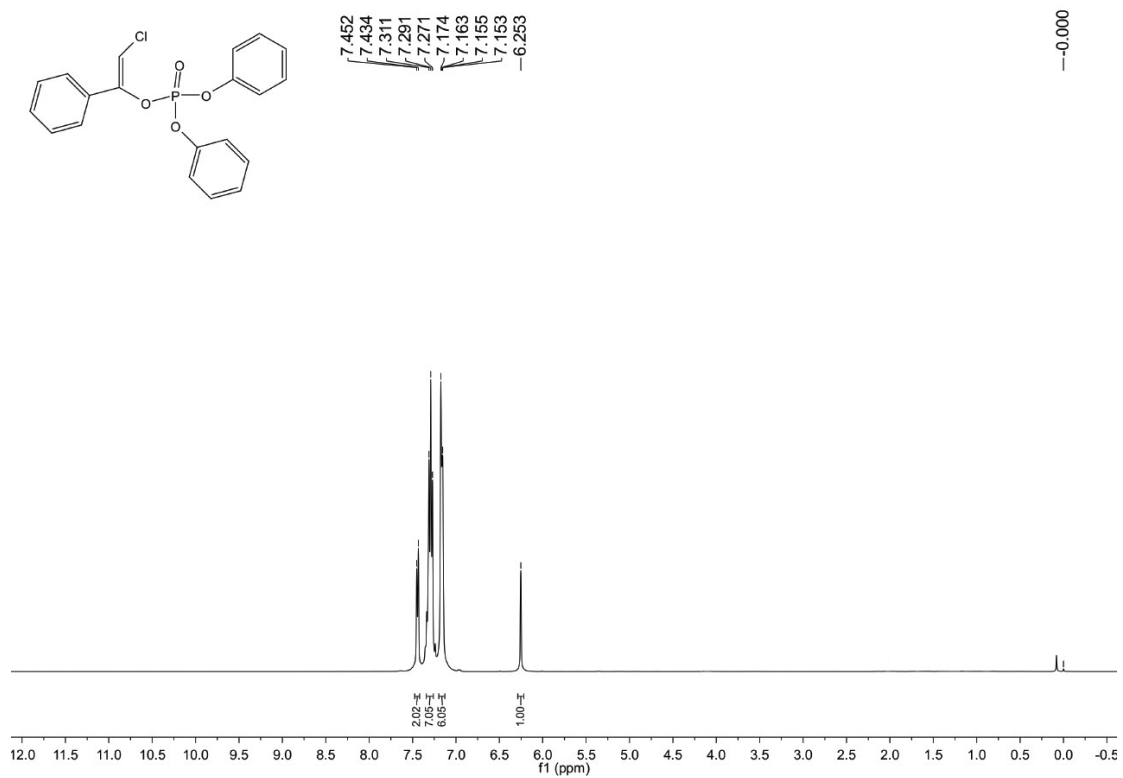
$^{31}\text{P}$  NMR of Compound **4n**



$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR of Compound **40**



$^{31}\text{P}$  NMR of Compound **40**



<sup>1</sup>H NMR and <sup>13</sup>C NMR of Compound 4p



$^{31}\text{P}$  NMR of Compound **4p**