

# The Effect of New Thiophene-Derived Diphenyl Aminophosphonates on Growth of Terrestrial Plants

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**Supplementary Material part 1**

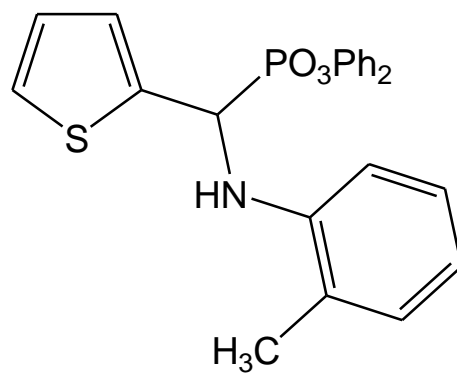
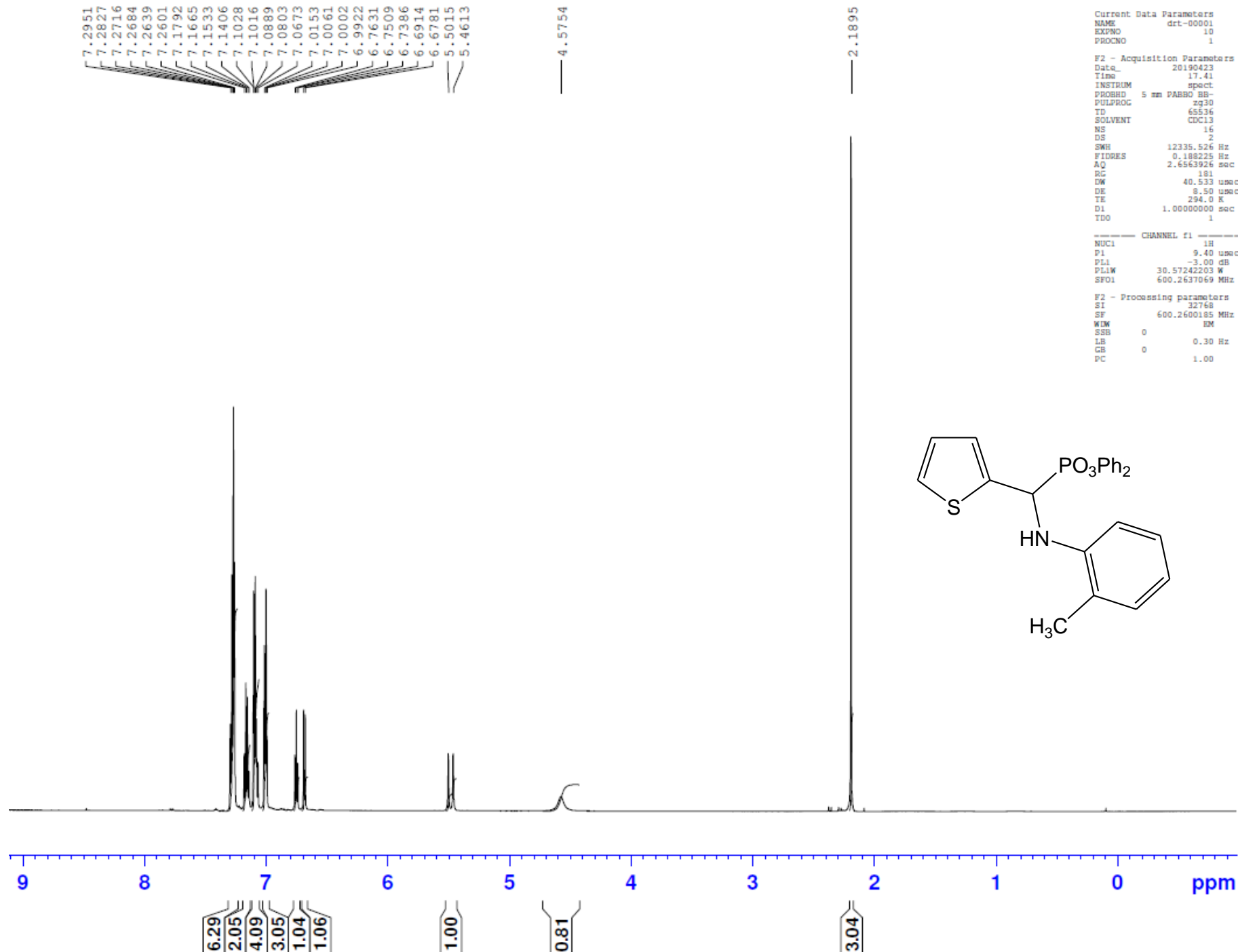


Fig. S1.  $^1\text{H}$  NMR,  $^{13}\text{C}$  NMR,  $^{31}\text{P}$  NMR spectra of diphenyl N-(2-methylphenyl)amino(2-thienyl)methylphosphonate (**1**)

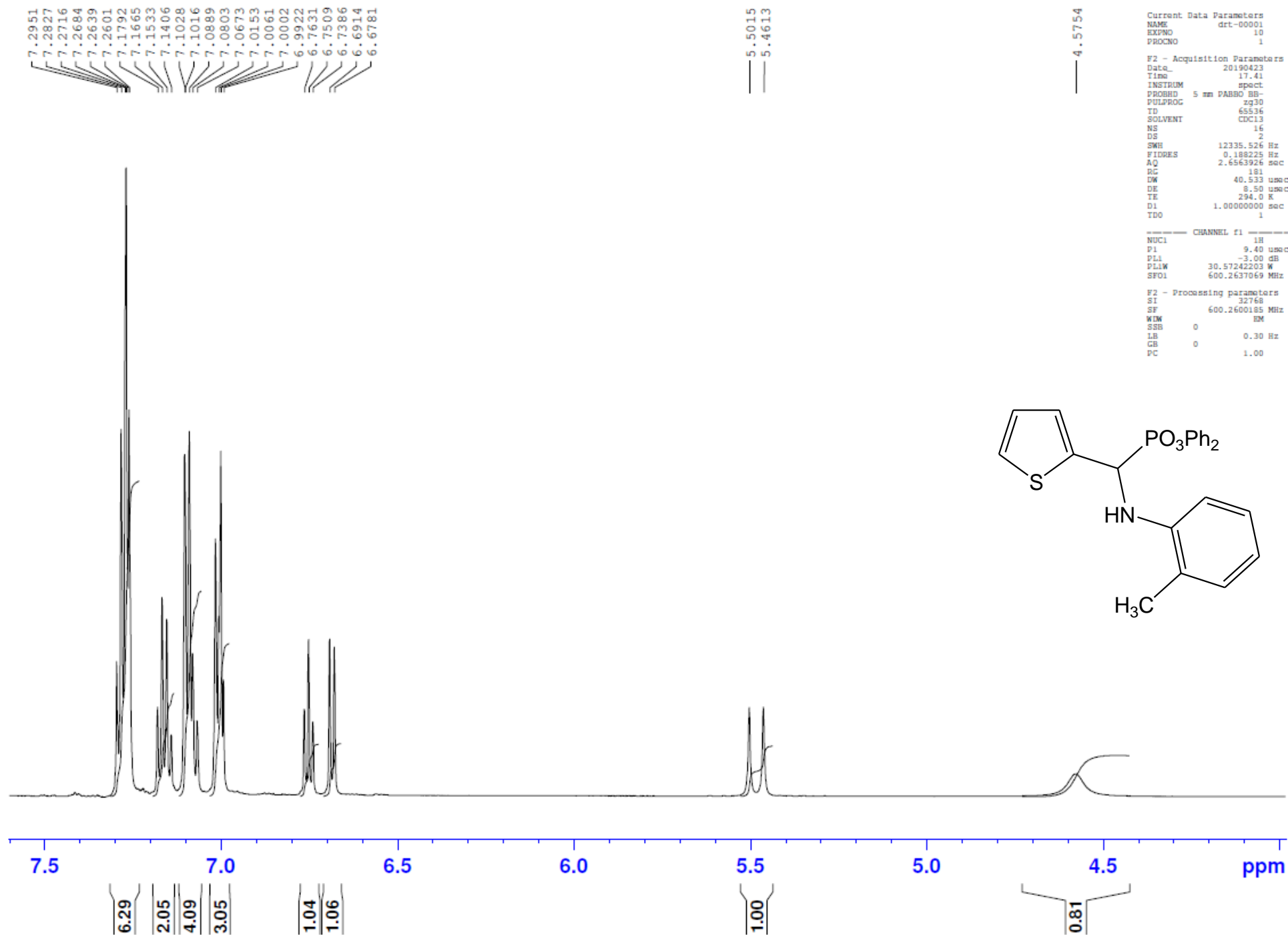


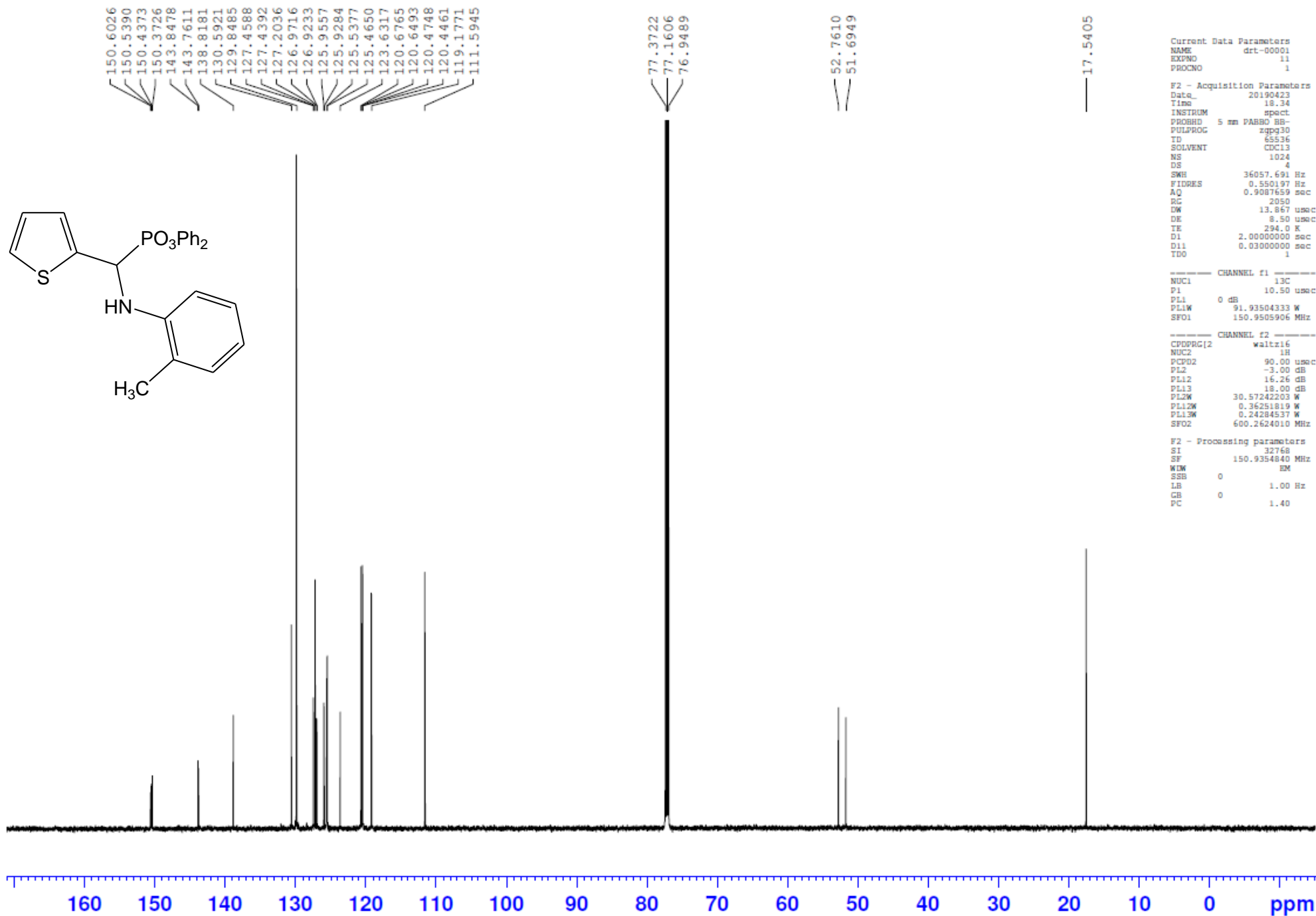
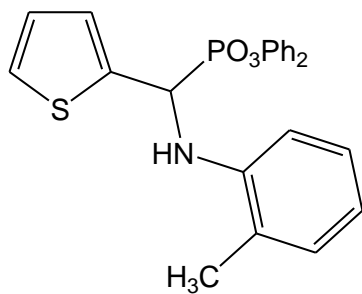
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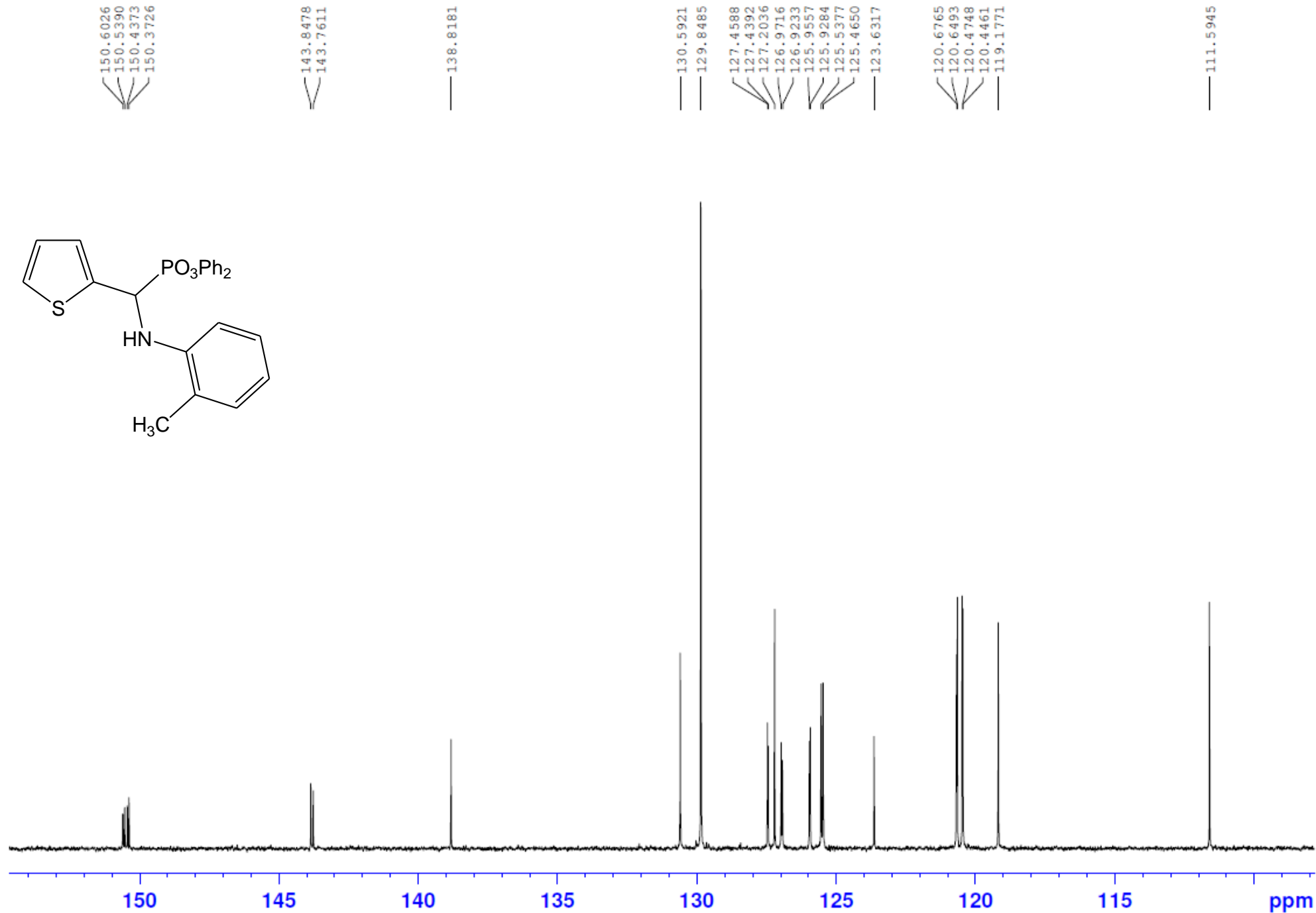
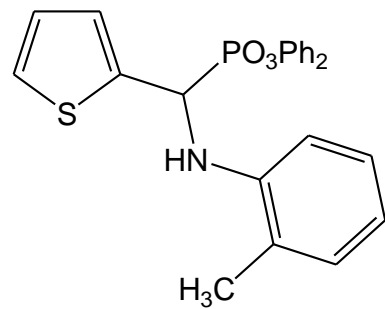
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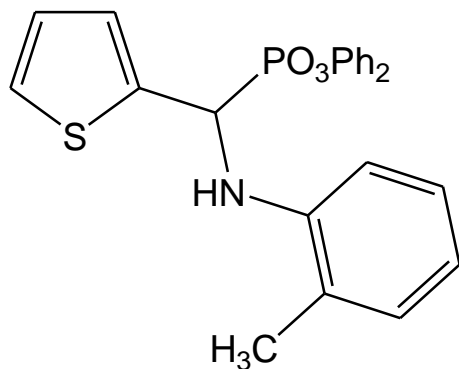
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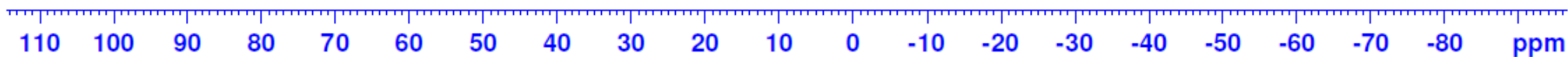
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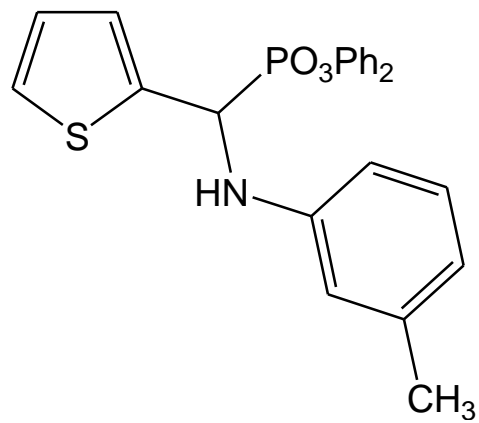
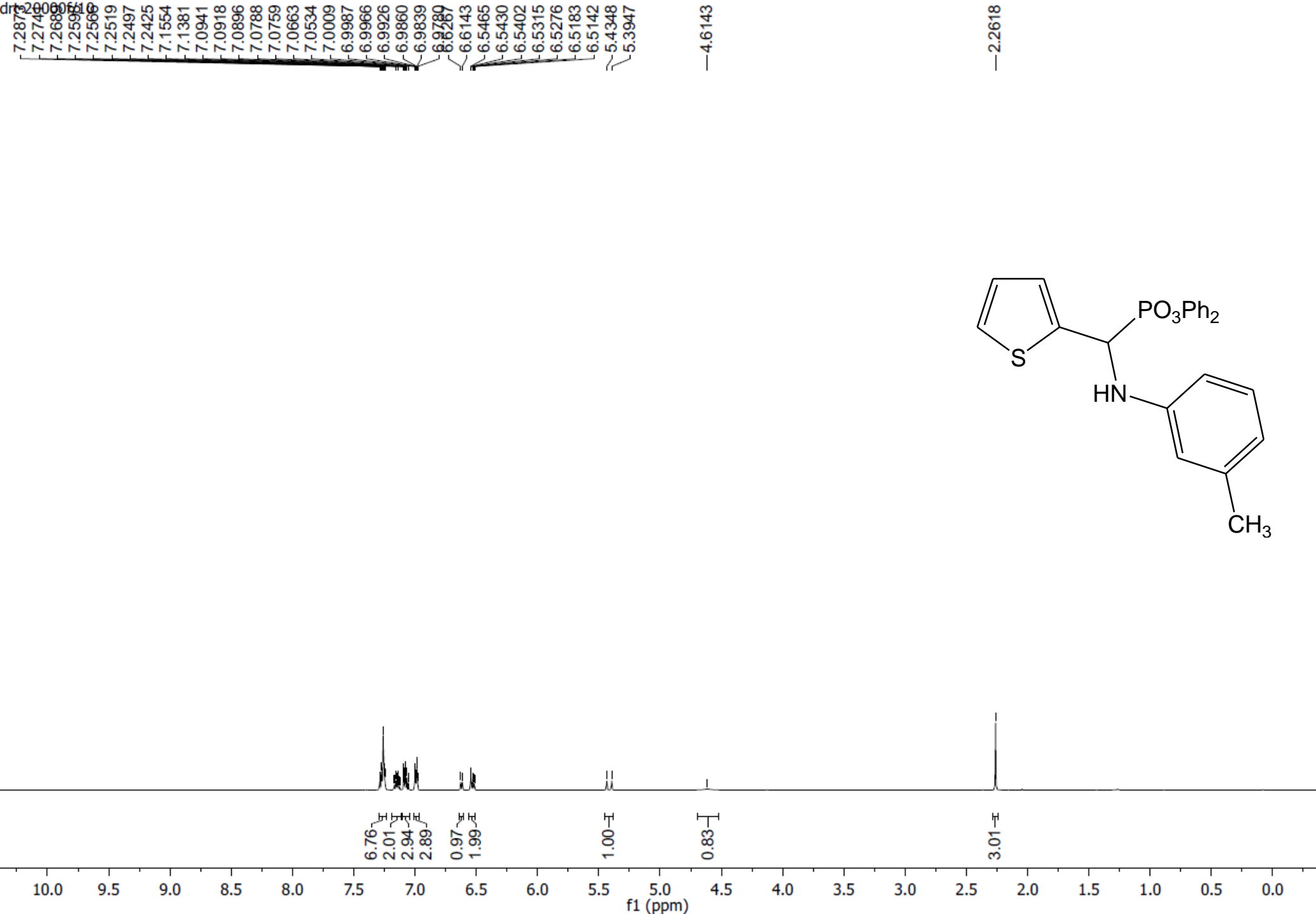
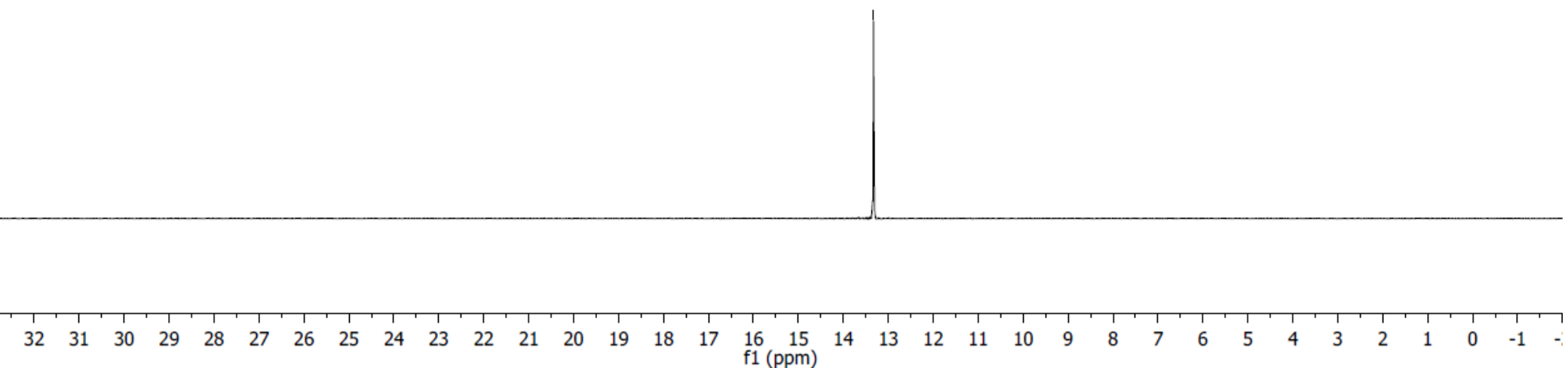
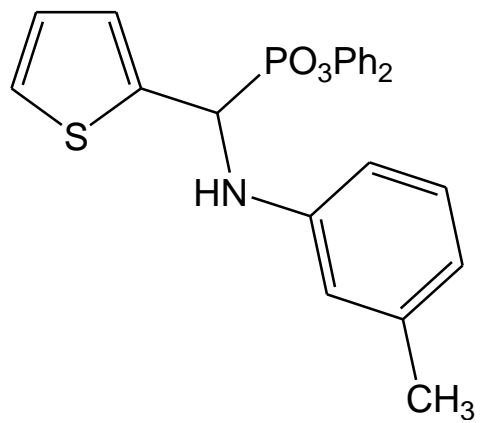


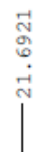
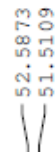
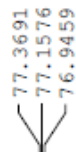
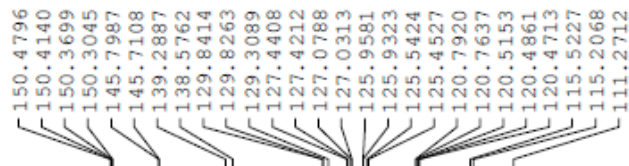
Fig. S2.  $^1\text{H}$  NMR,  $^{13}\text{C}$  NMR,  $^{31}\text{P}$  NMR spectra of diphenyl N-(3-methylphenyl)amino(2-thienyl)methylphosphonate (**2**)



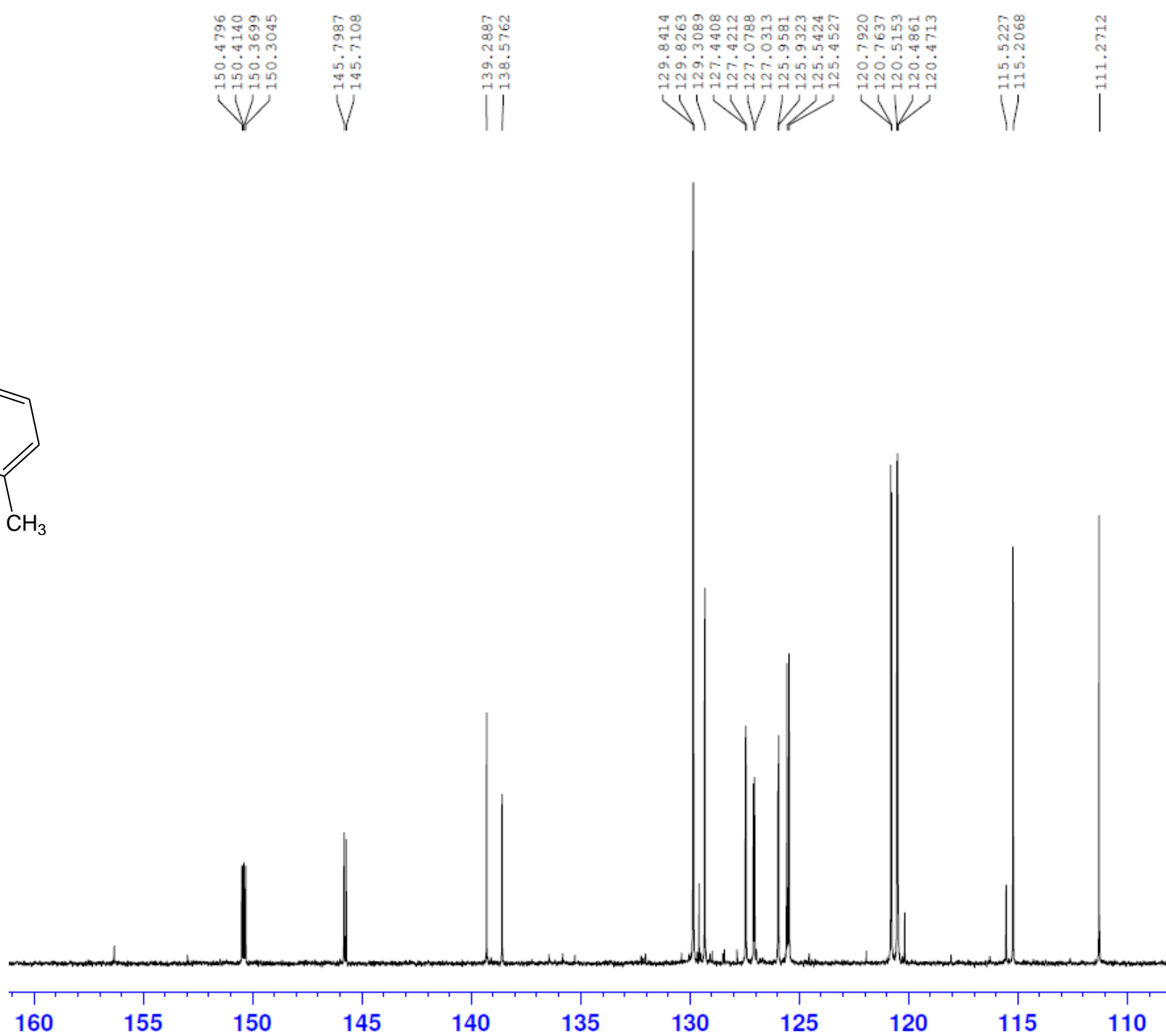
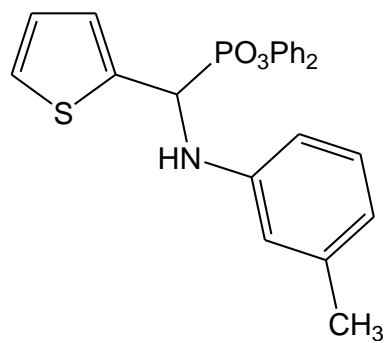


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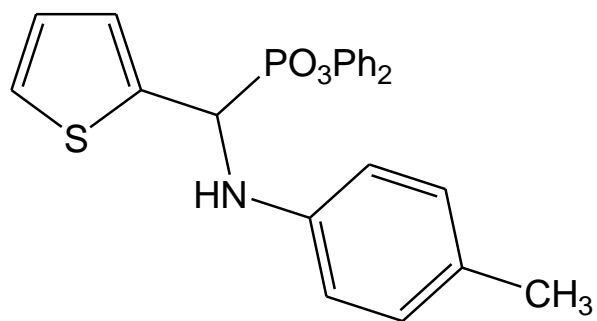
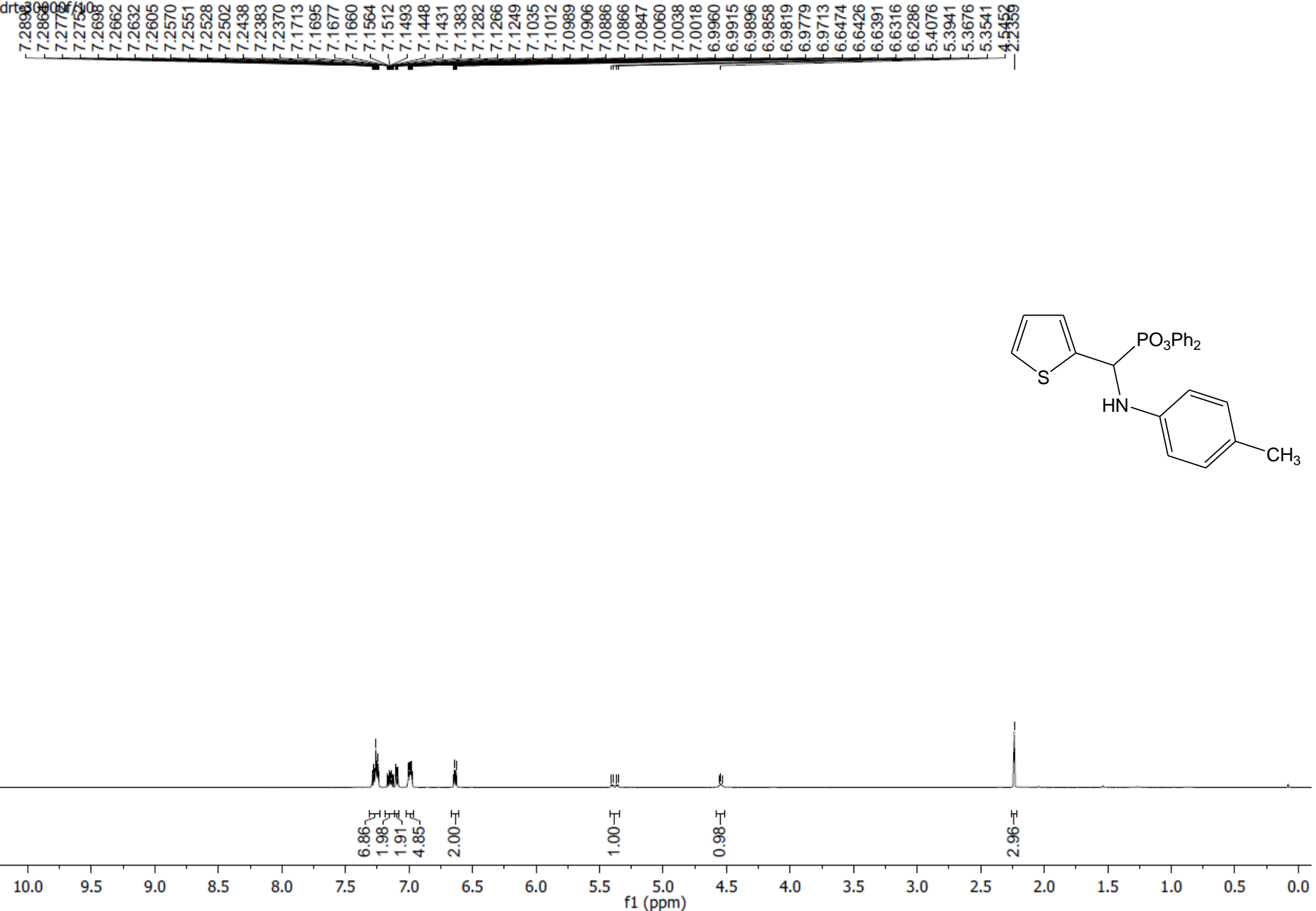
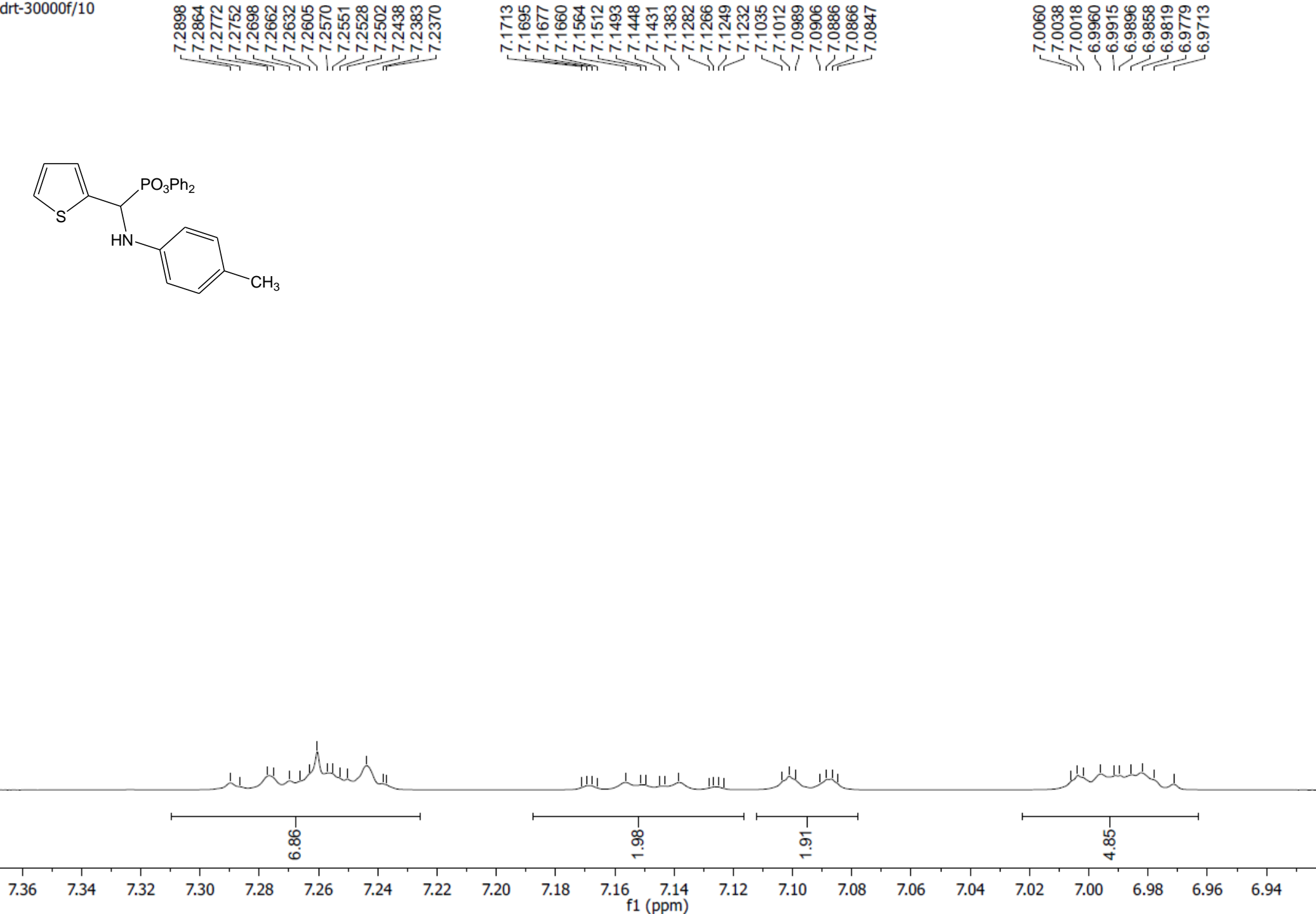
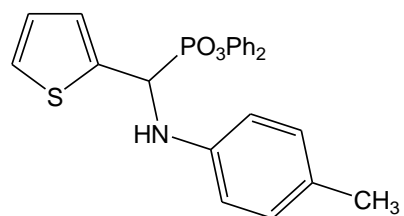


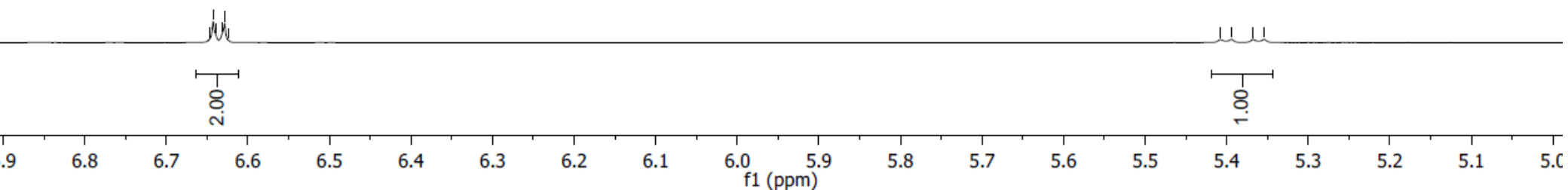
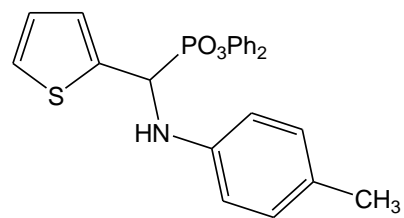
Fig. S3.  $^1\text{H}$  NMR,  $^{13}\text{C}$  NMR,  $^{31}\text{P}$  NMR spectra of diphenyl N-(4-methylphenyl)amino(2-thienyl)methylphosphonate (**3**)



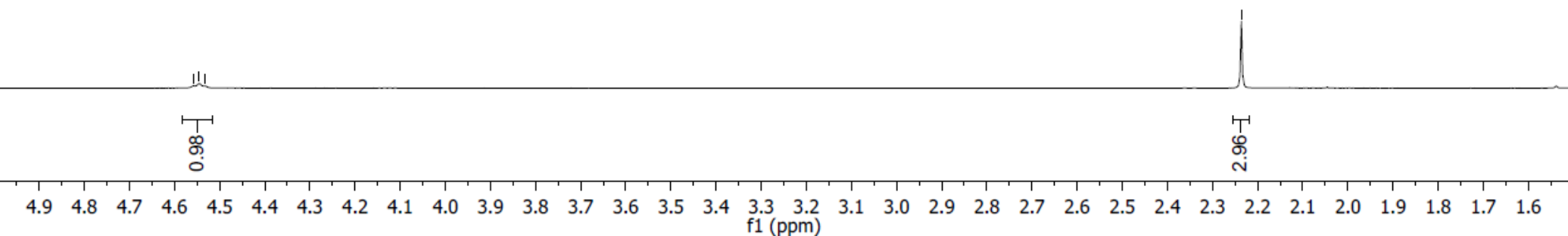
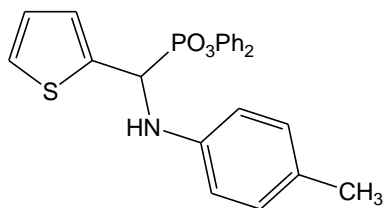


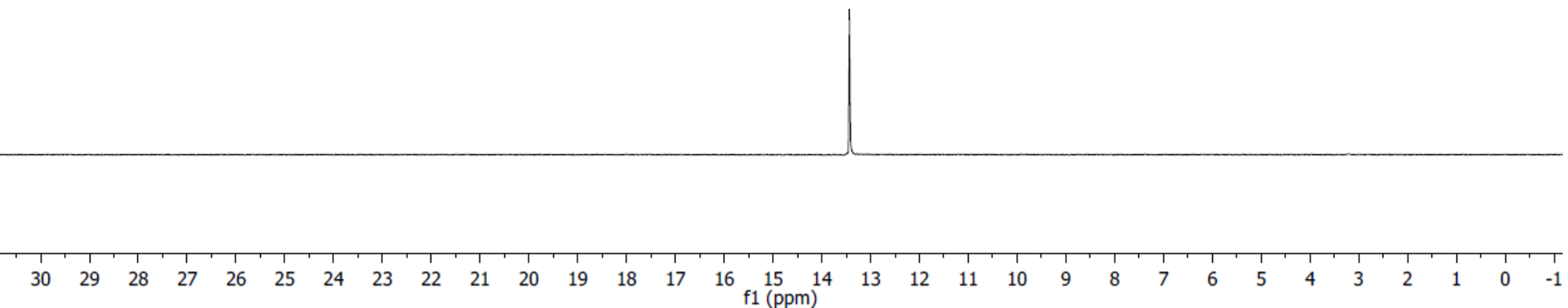
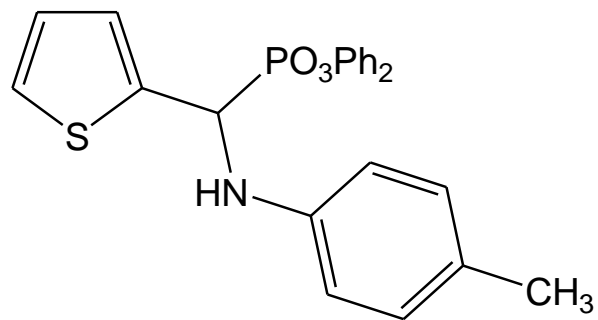
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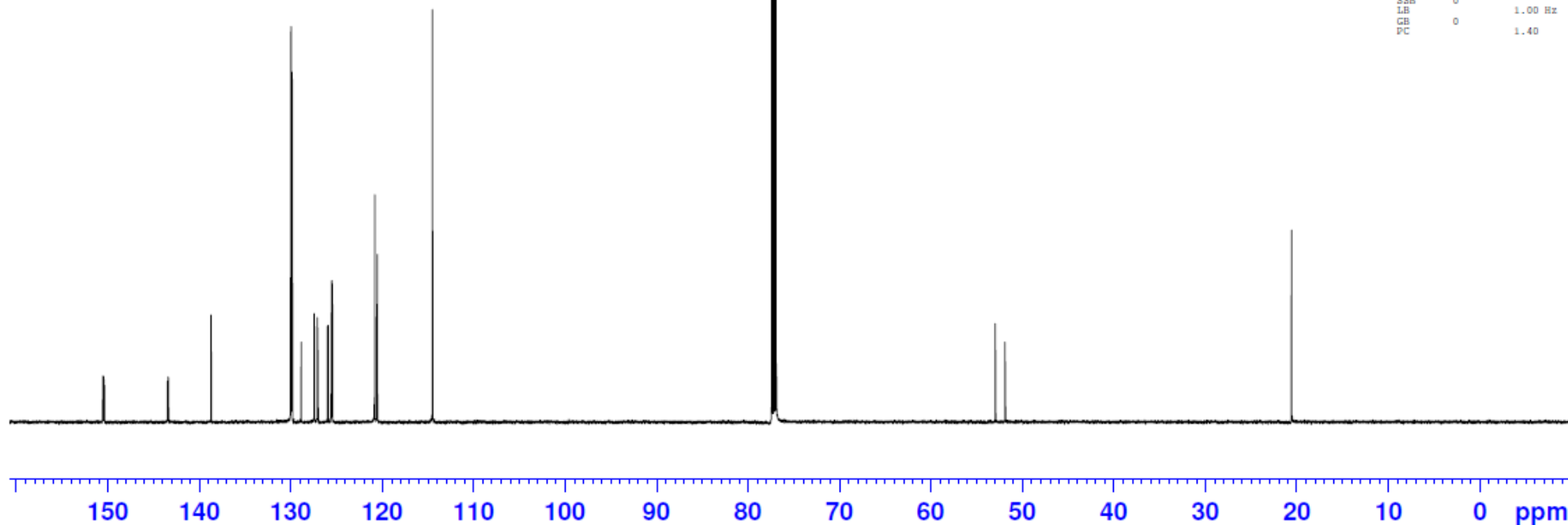
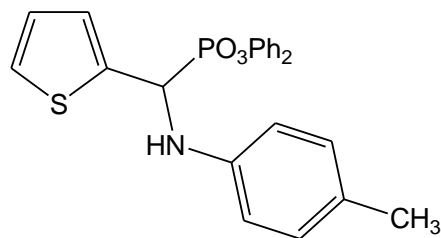


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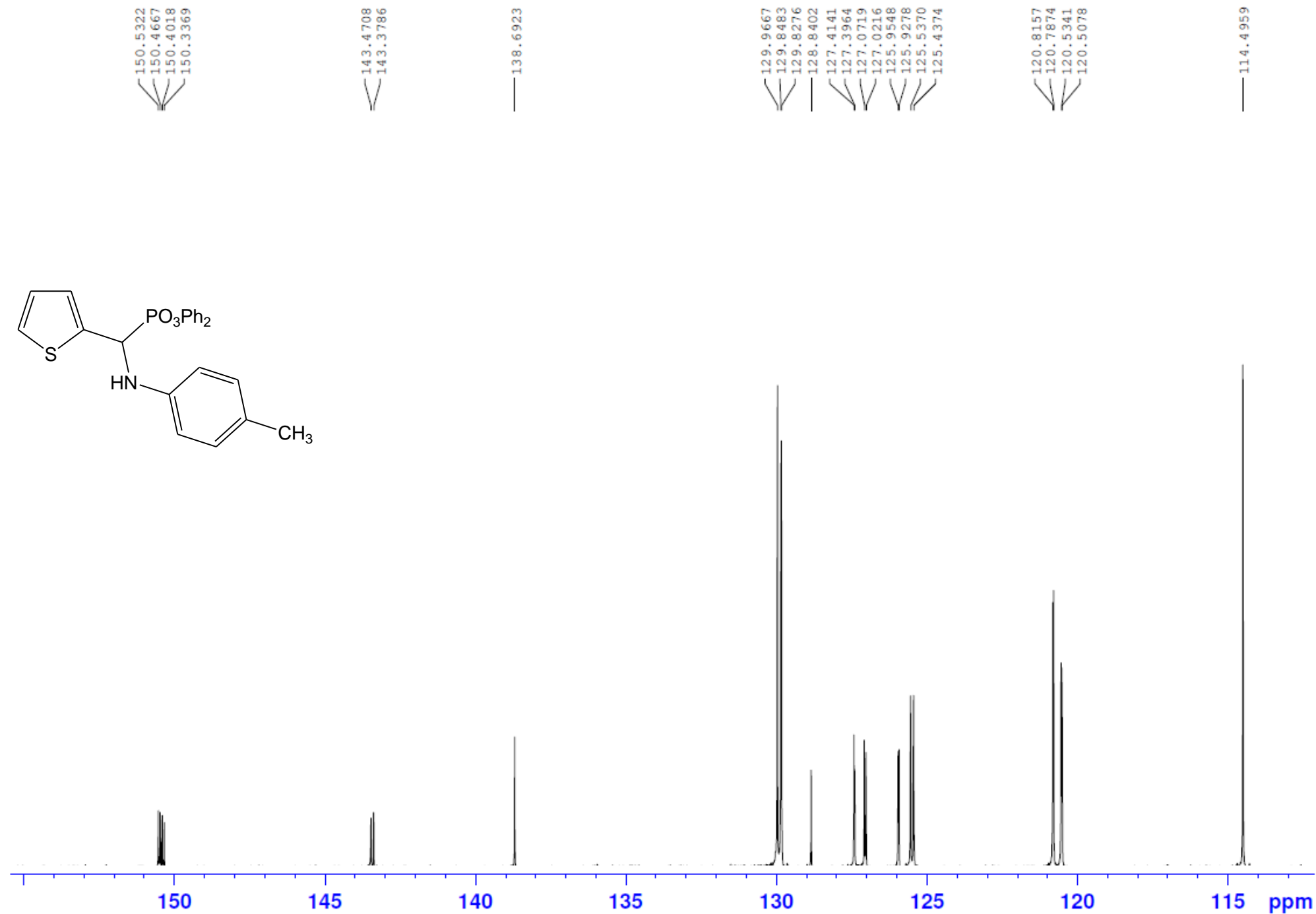
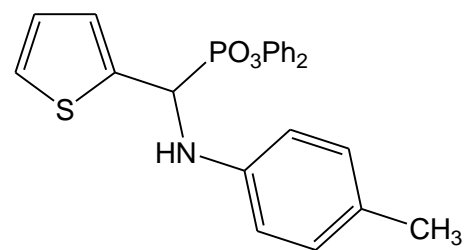
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DE 8.50 usec  
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D11 0.03000000 sec  
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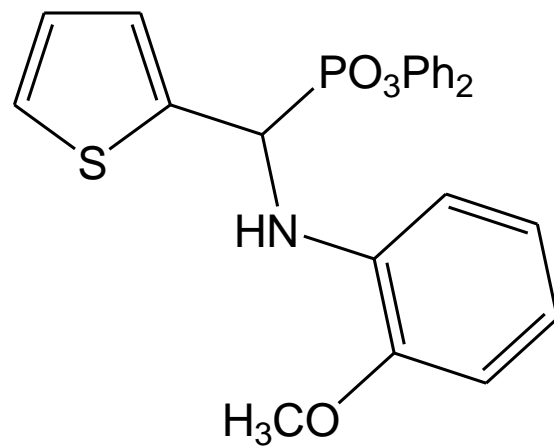
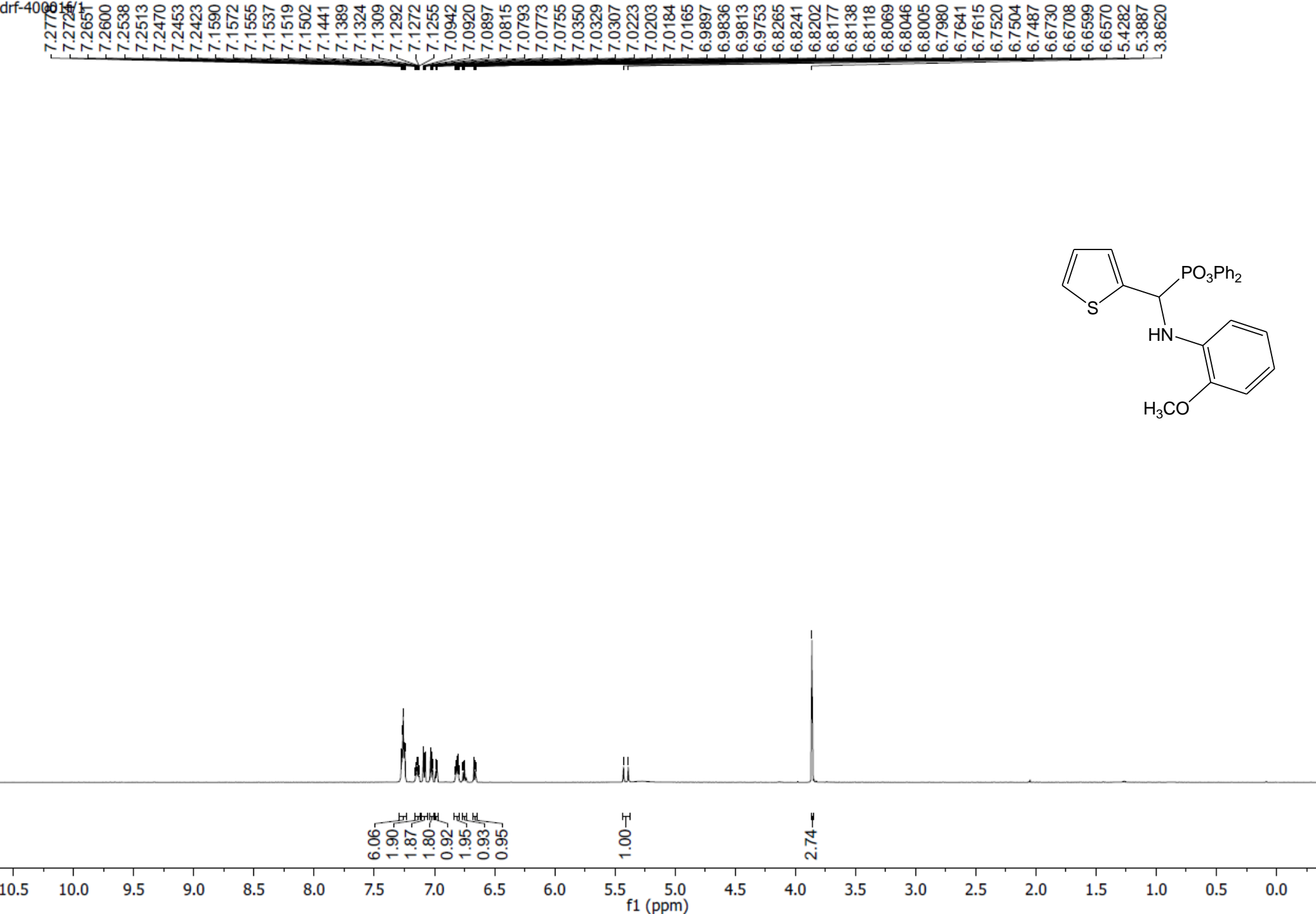
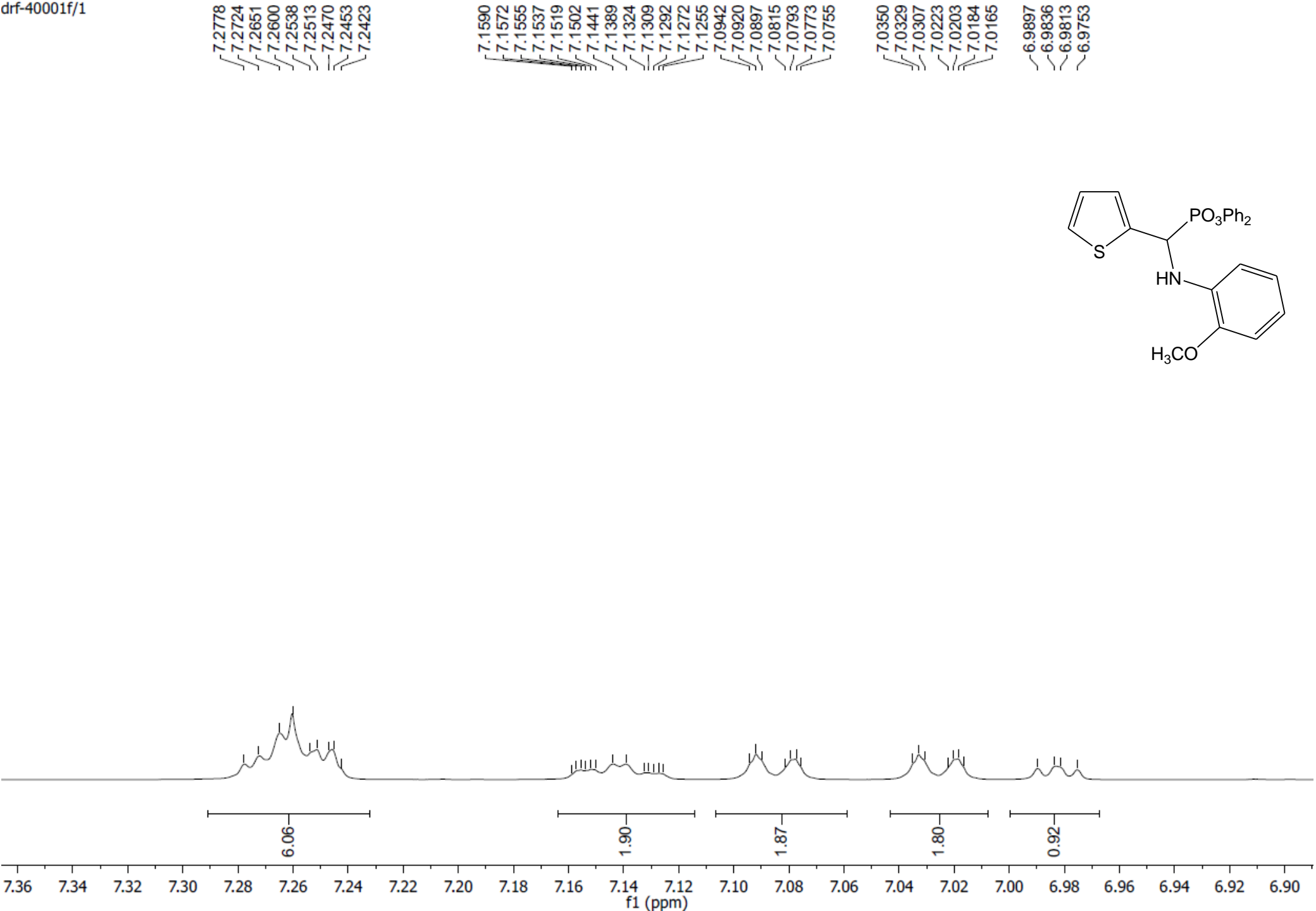
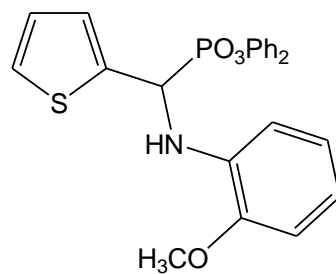


Fig. S4.  $^1\text{H}$  NMR,  $^{13}\text{C}$  NMR,  $^{31}\text{P}$  NMR spectra of diphenyl N-(2-methoxyphenyl)amino(2-thienyl)methylphosphonate (**4**)



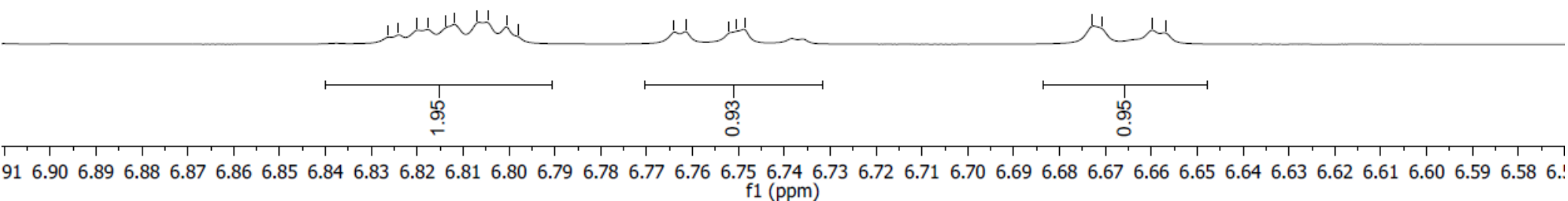




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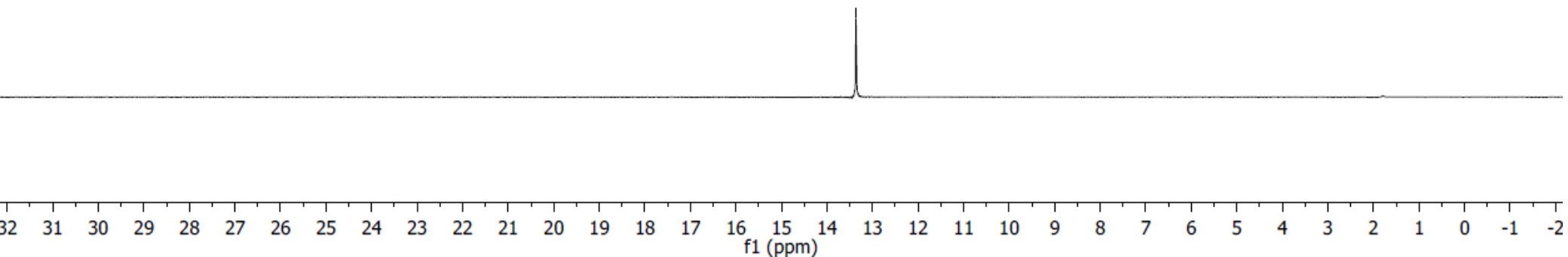
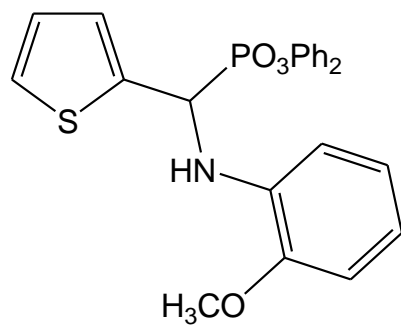
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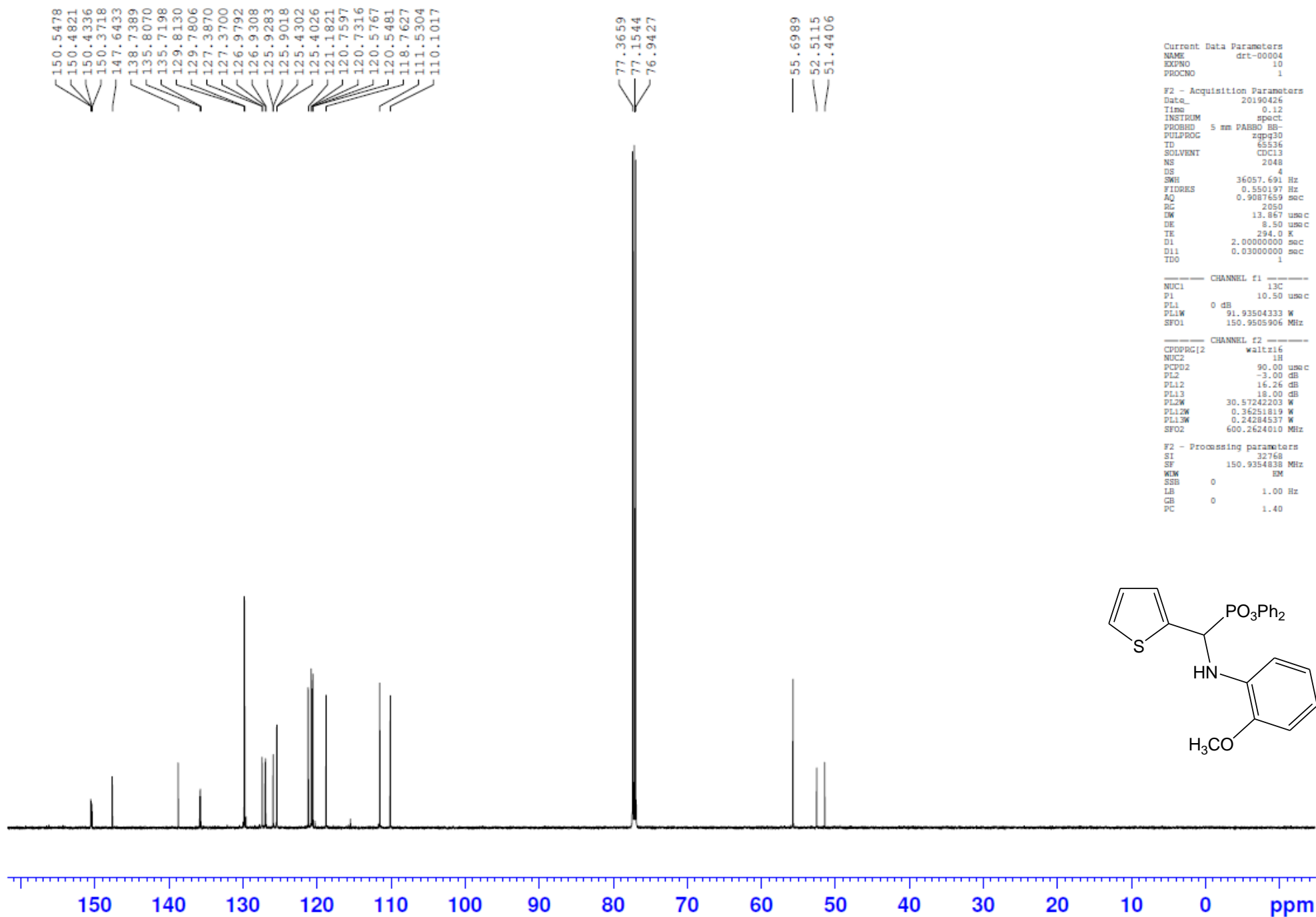
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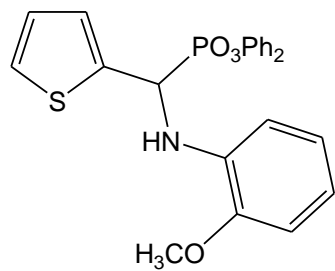




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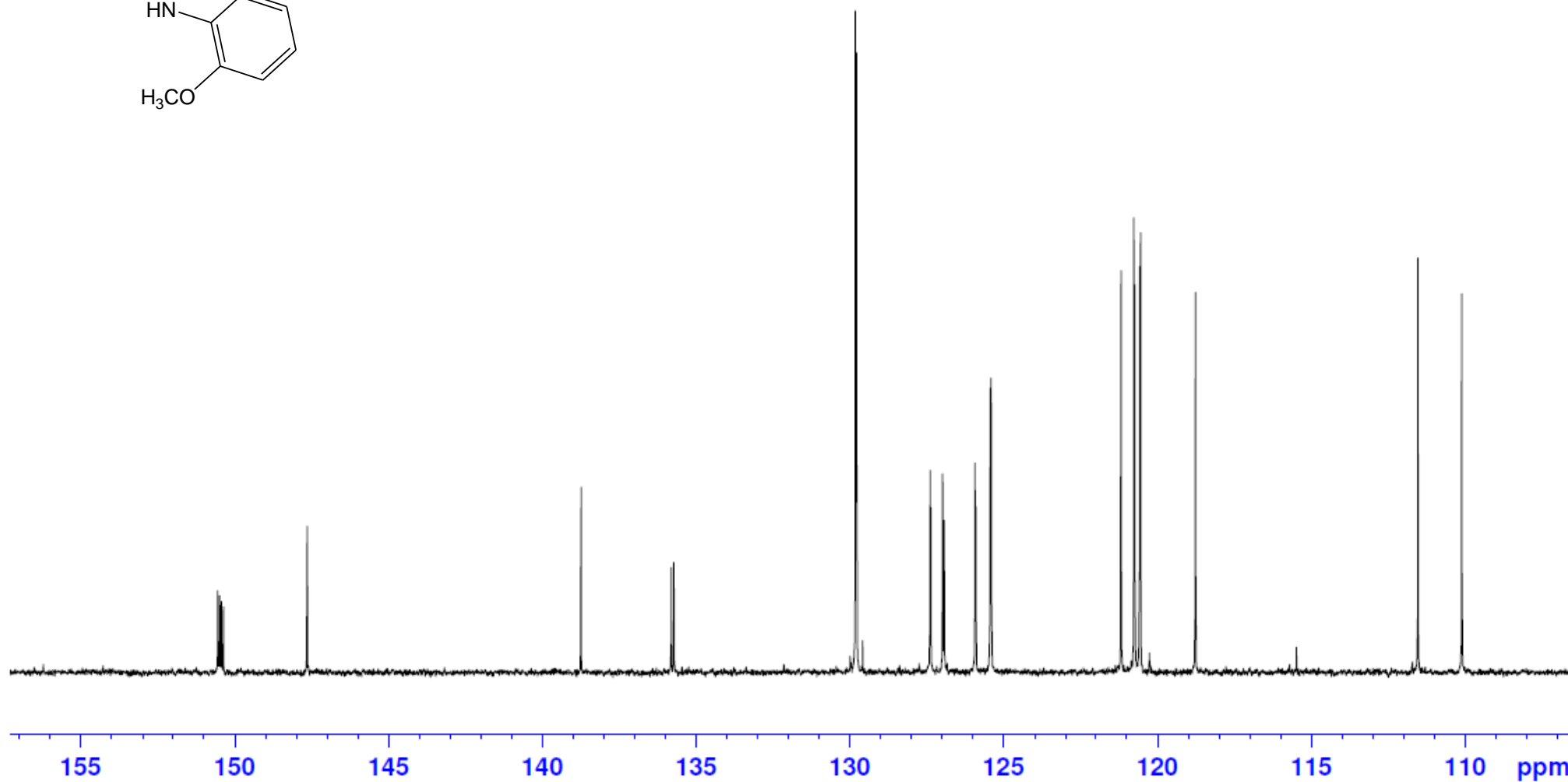
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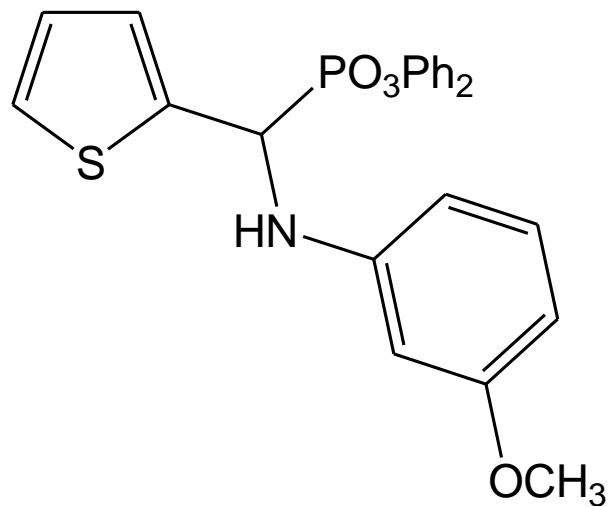
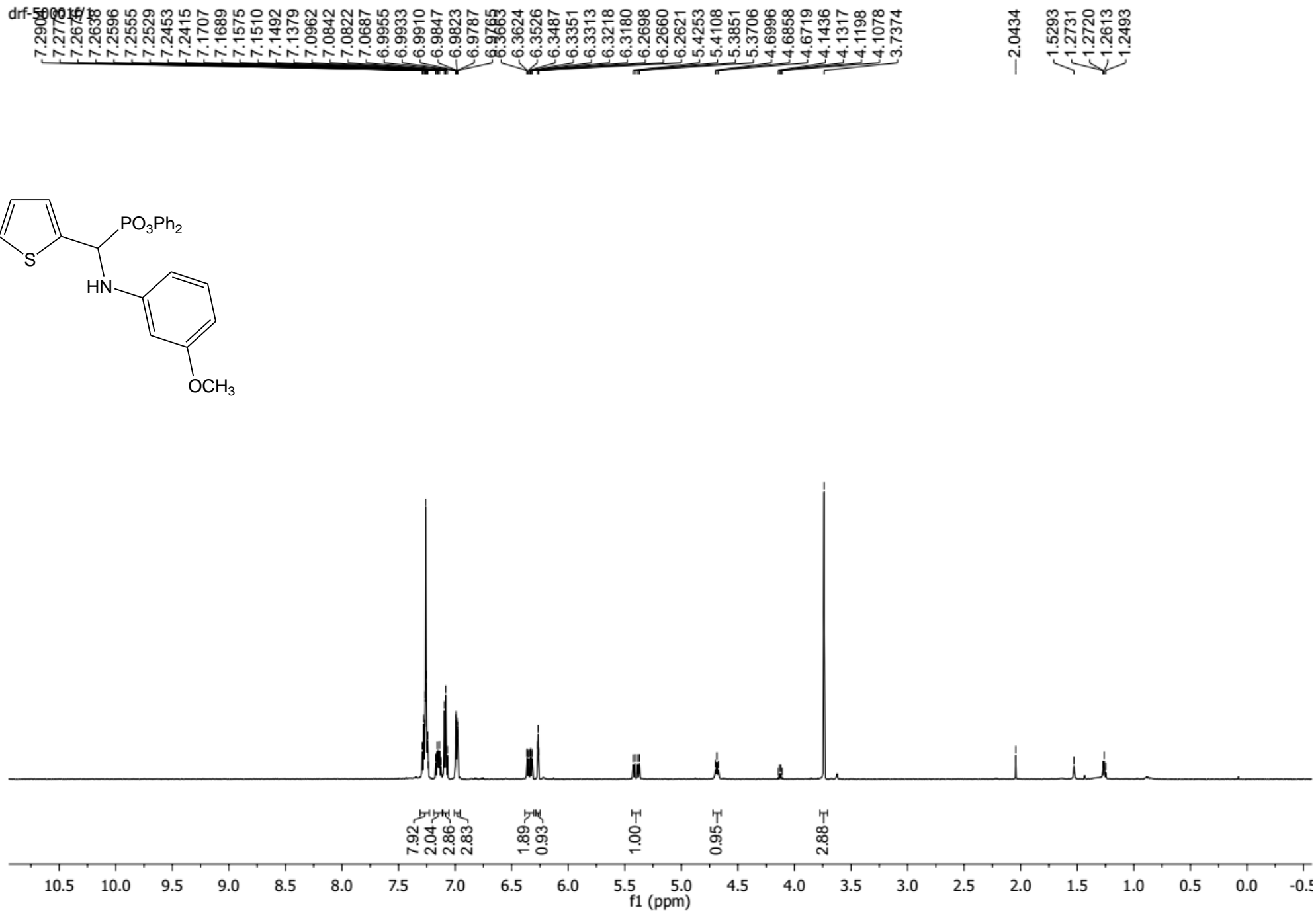
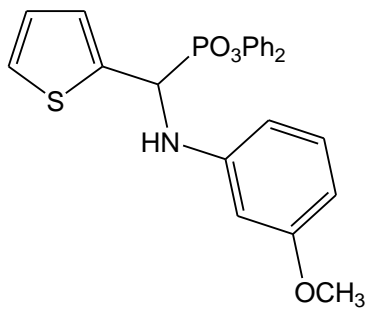
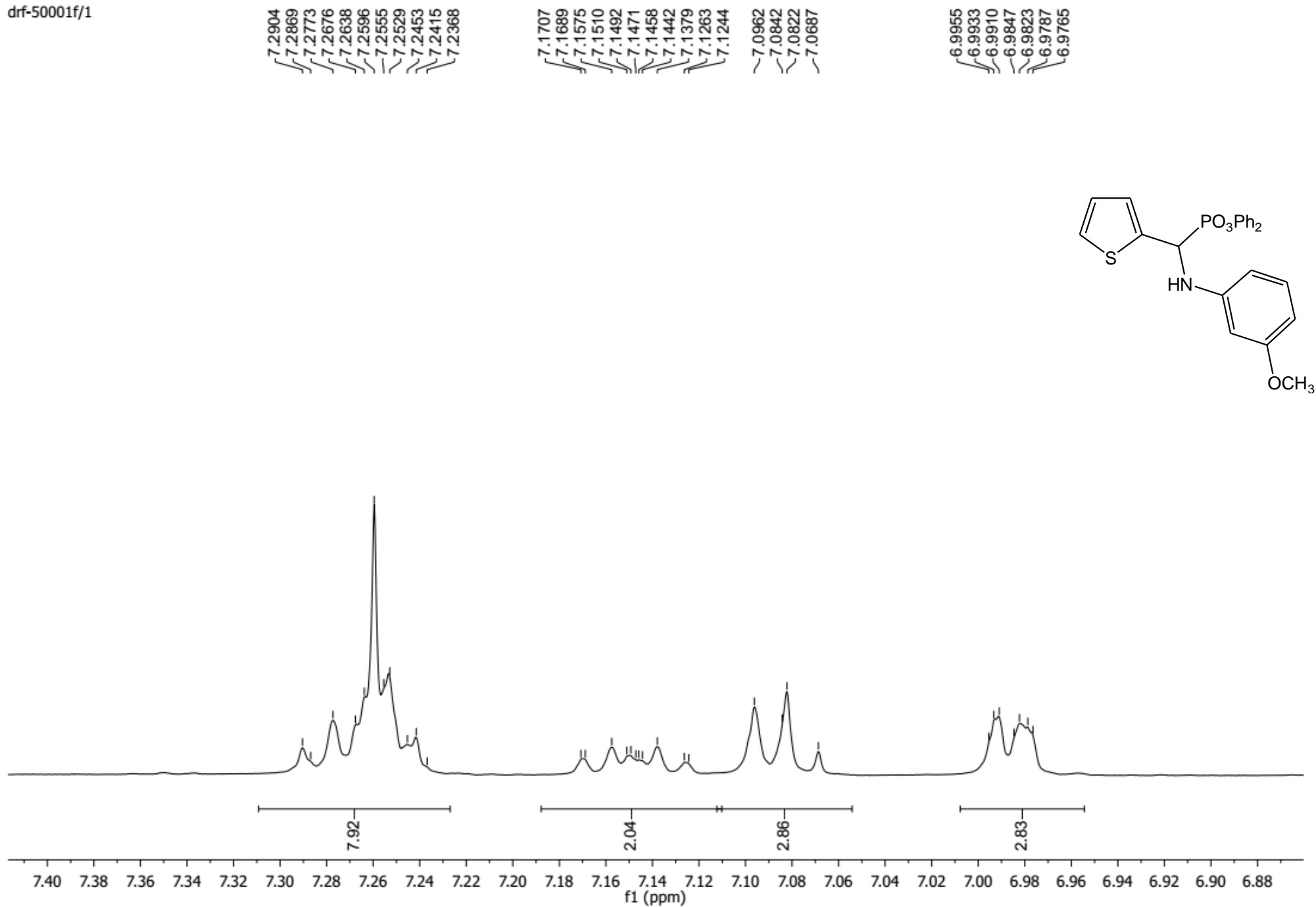


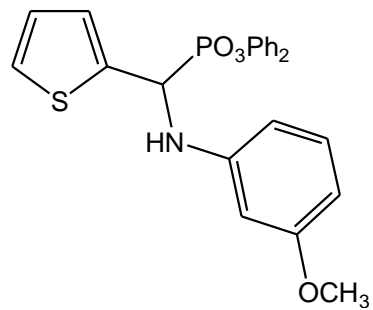
Fig. S5.  $^1\text{H}$  NMR,  $^{13}\text{C}$  NMR,  $^{31}\text{P}$  NMR spectra of diphenyl N-(3-methoxyphenyl)amino(2-thienyl)methylphosphonate (**5**)



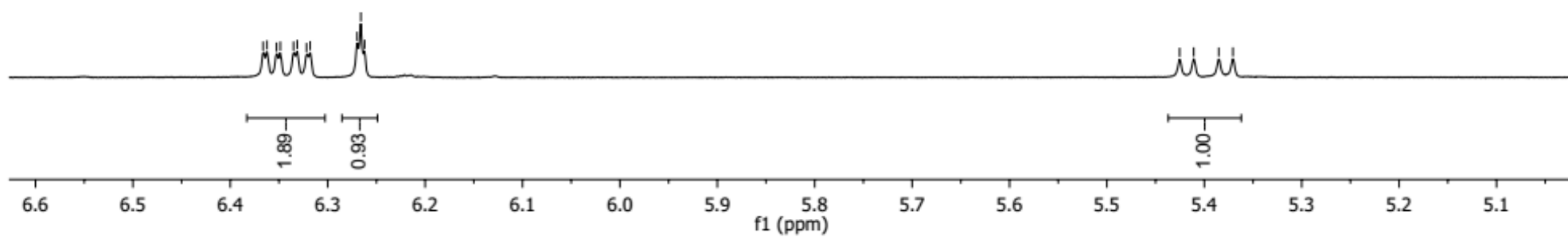


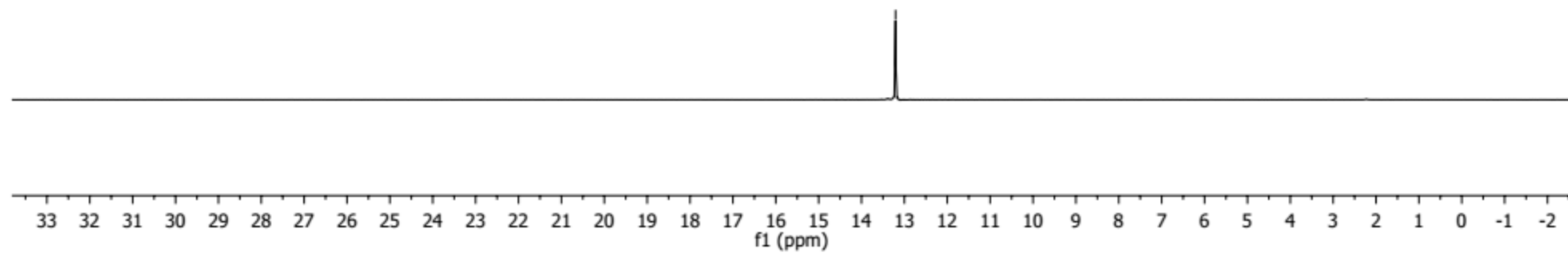
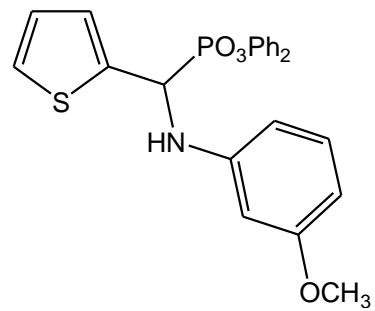
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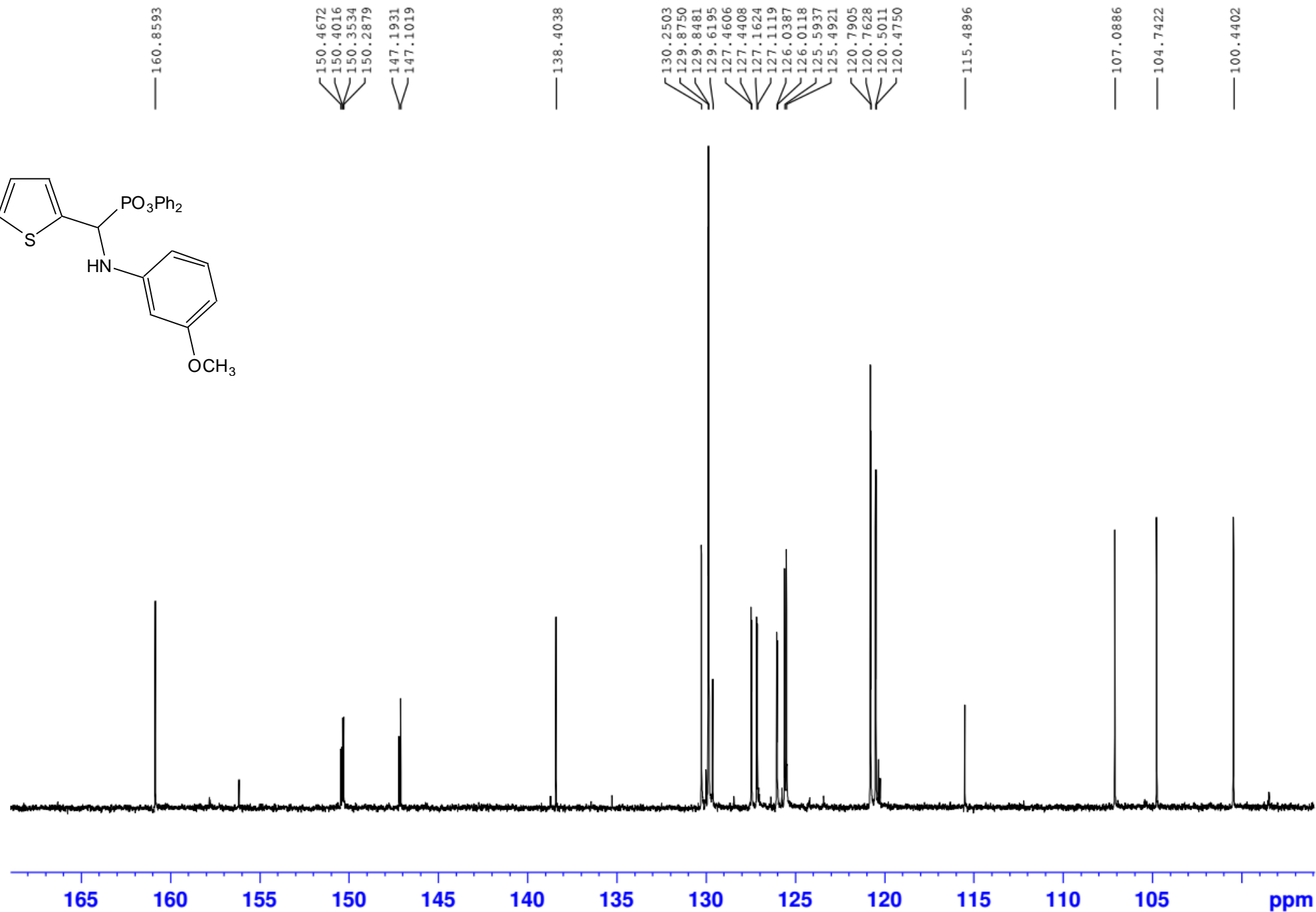
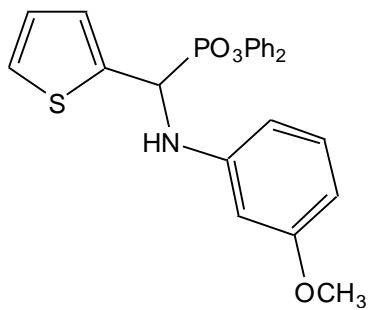
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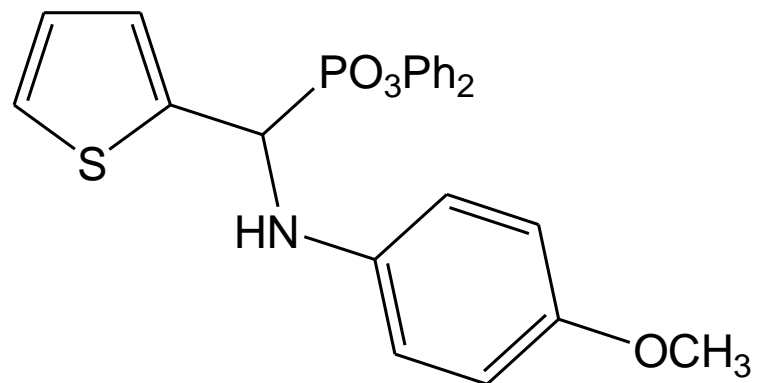
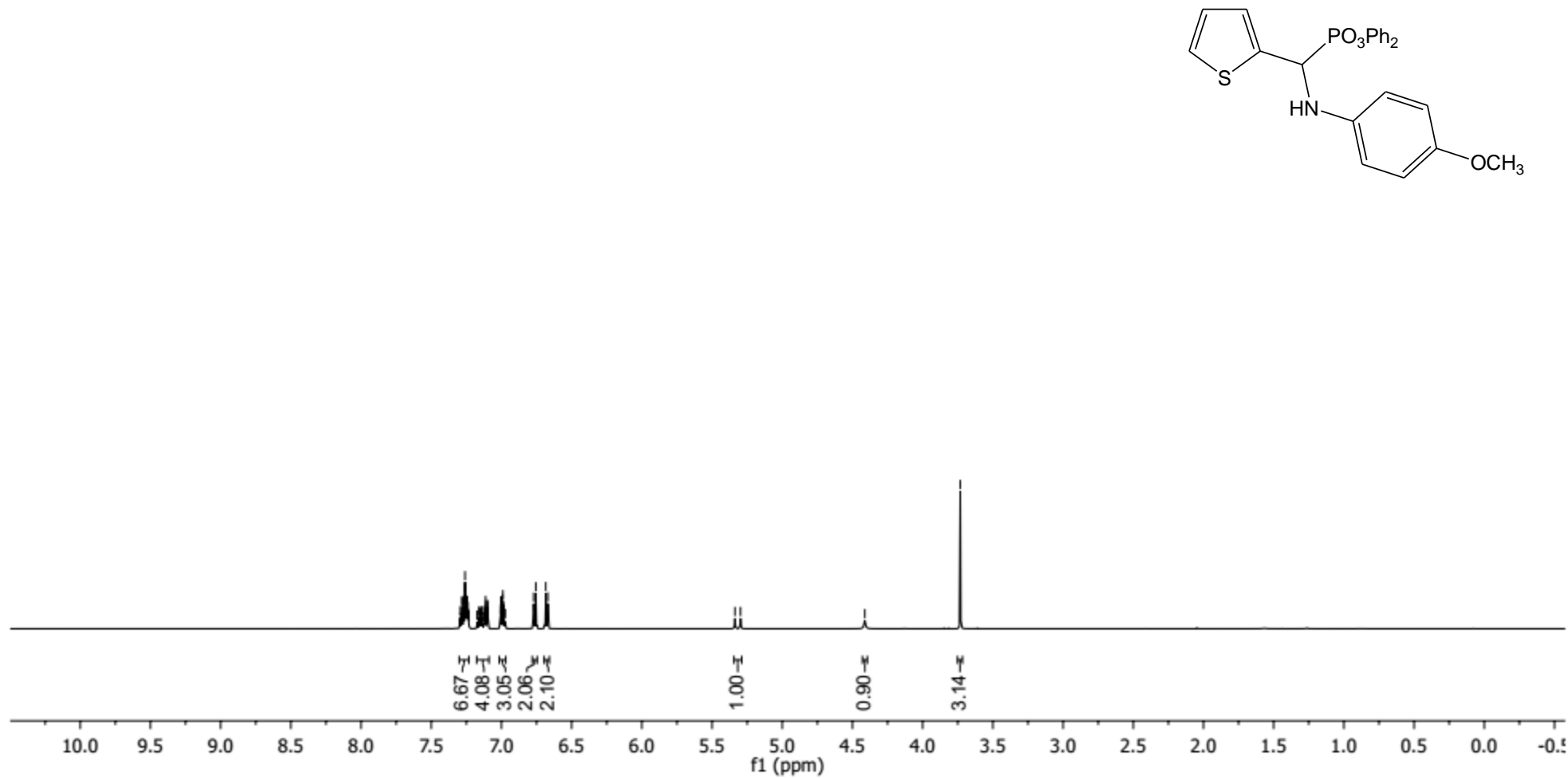


Fig. S6.  $^1\text{H}$  NMR,  $^{13}\text{C}$  NMR,  $^{31}\text{P}$  NMR spectra of diphenyl N-(4-methoxyphenyl)amino(2-thienyl)methylphosphonate (**6**)



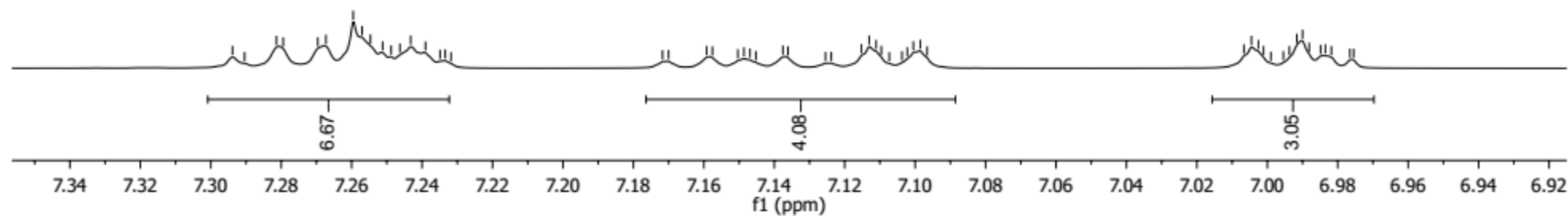
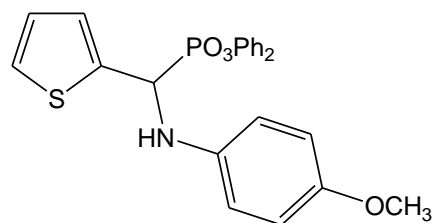
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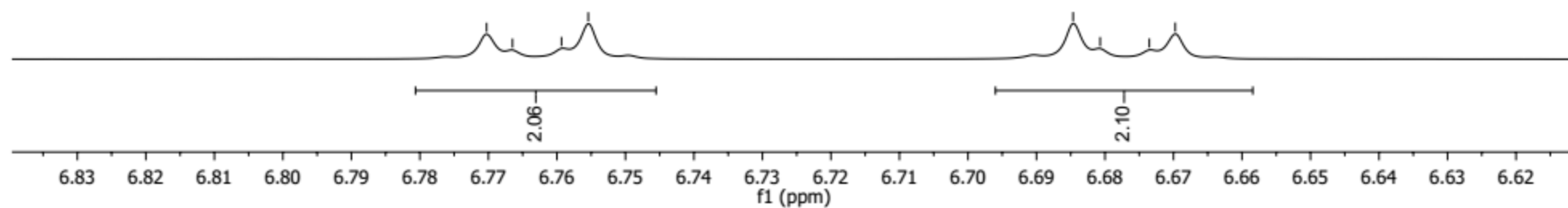
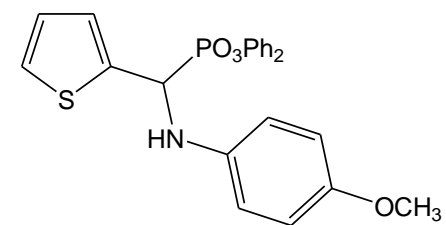
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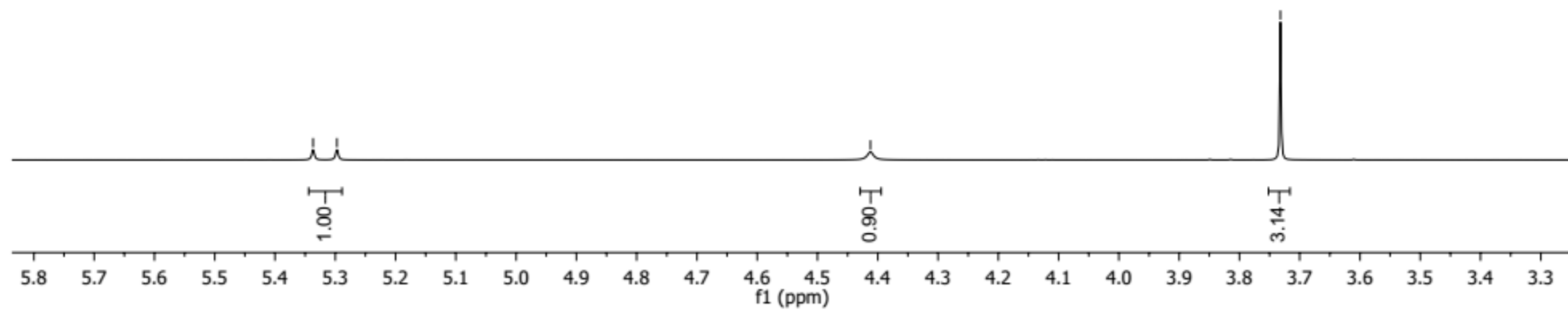
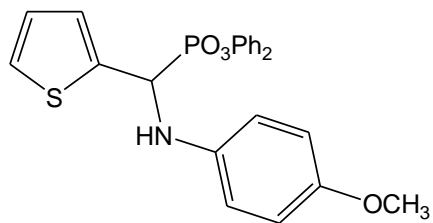


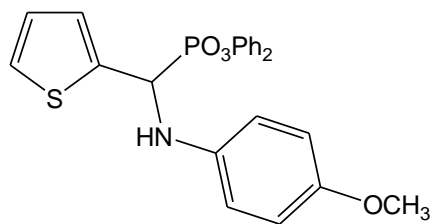
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