

Studies Towards Greener Diazo Transfer

Methodology

Elaine Tarrant^a, Claire V. O'Brien^a and Stuart G. Collins^{*a}

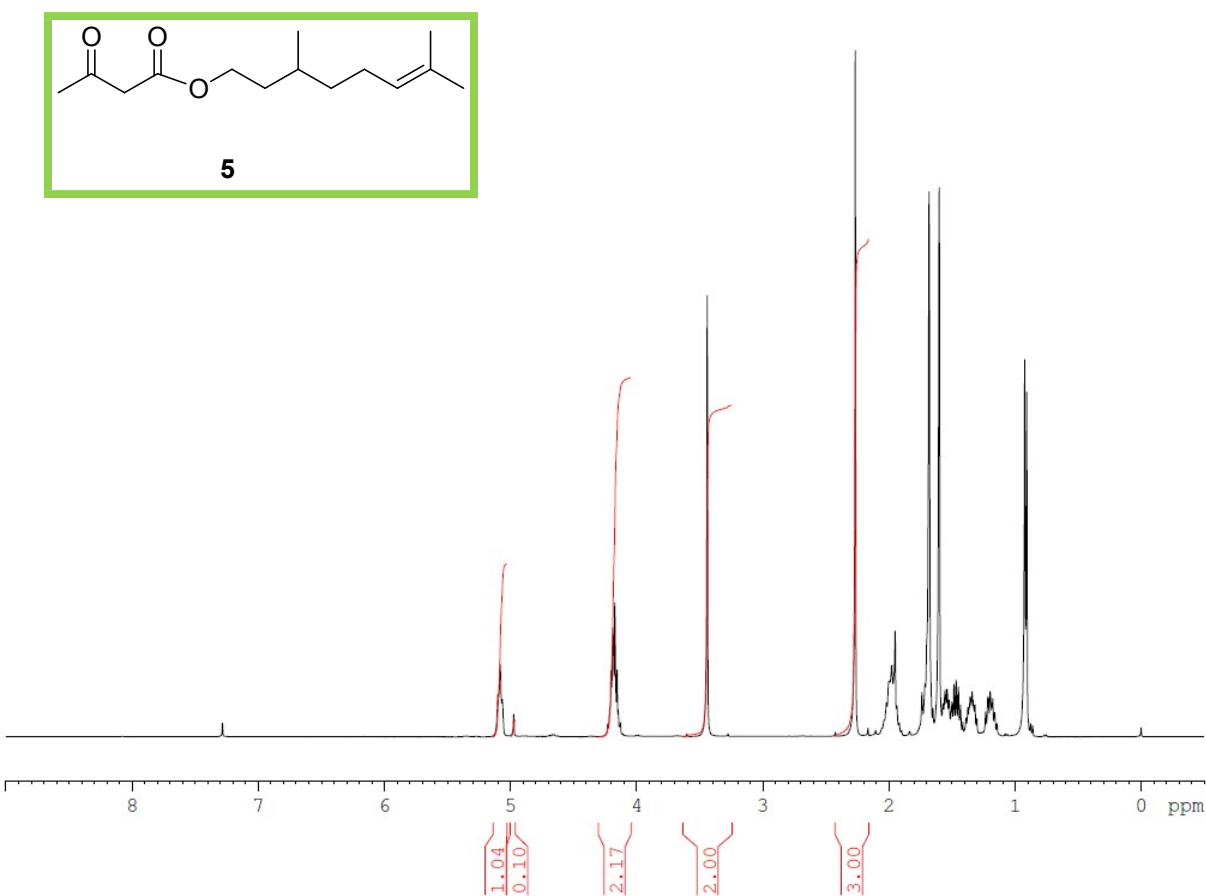
^a *Department of Chemistry, Analytical and Biological Chemistry Research Facility, Synthesis and Solid State Pharmaceutical Centre, University College Cork, Ireland. E-mail: stuart.collins@ucc.ie*

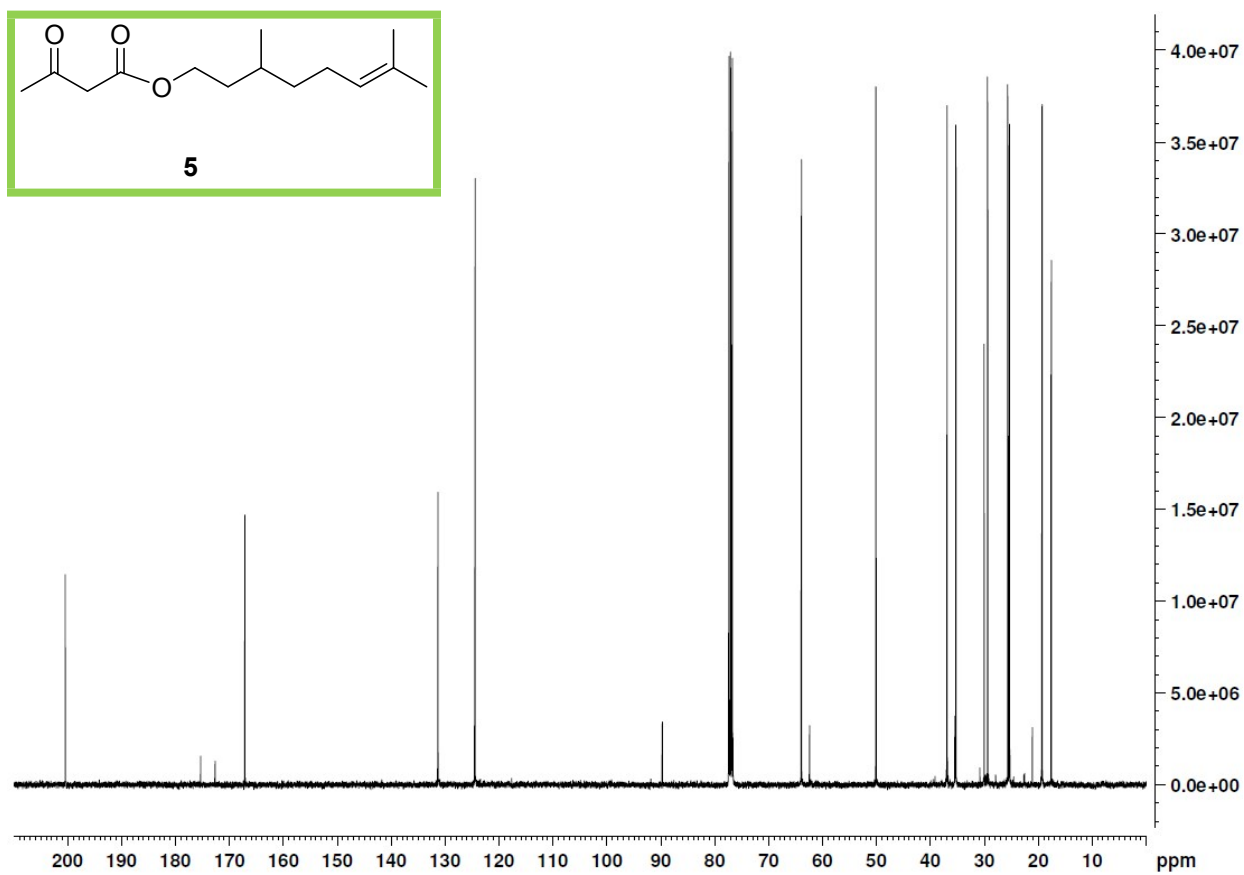
Contents: Copies of ¹H and ¹³C NMR spectra for all compounds.

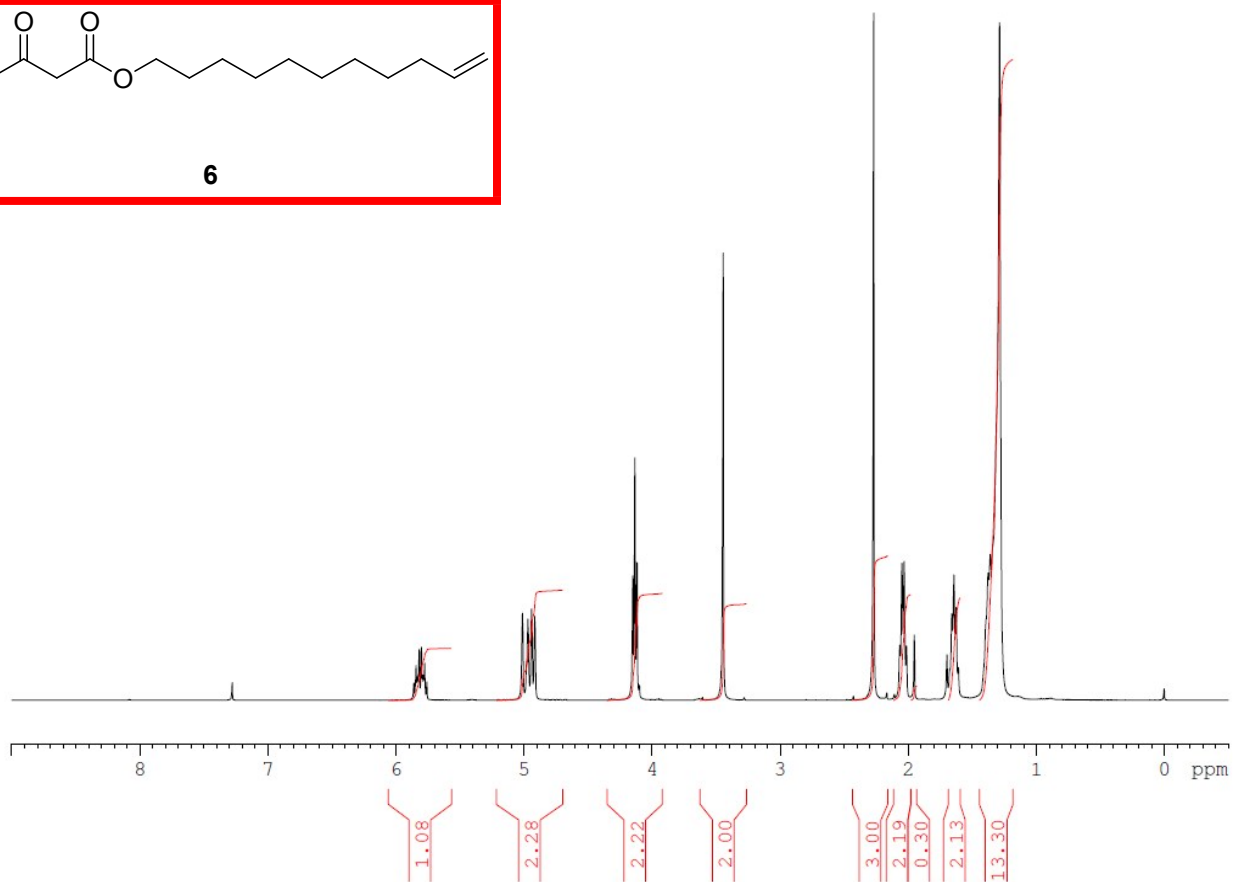
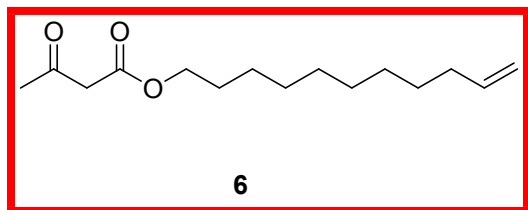
All ¹H and ¹³C NMR spectra were recorded in CDCl₃.

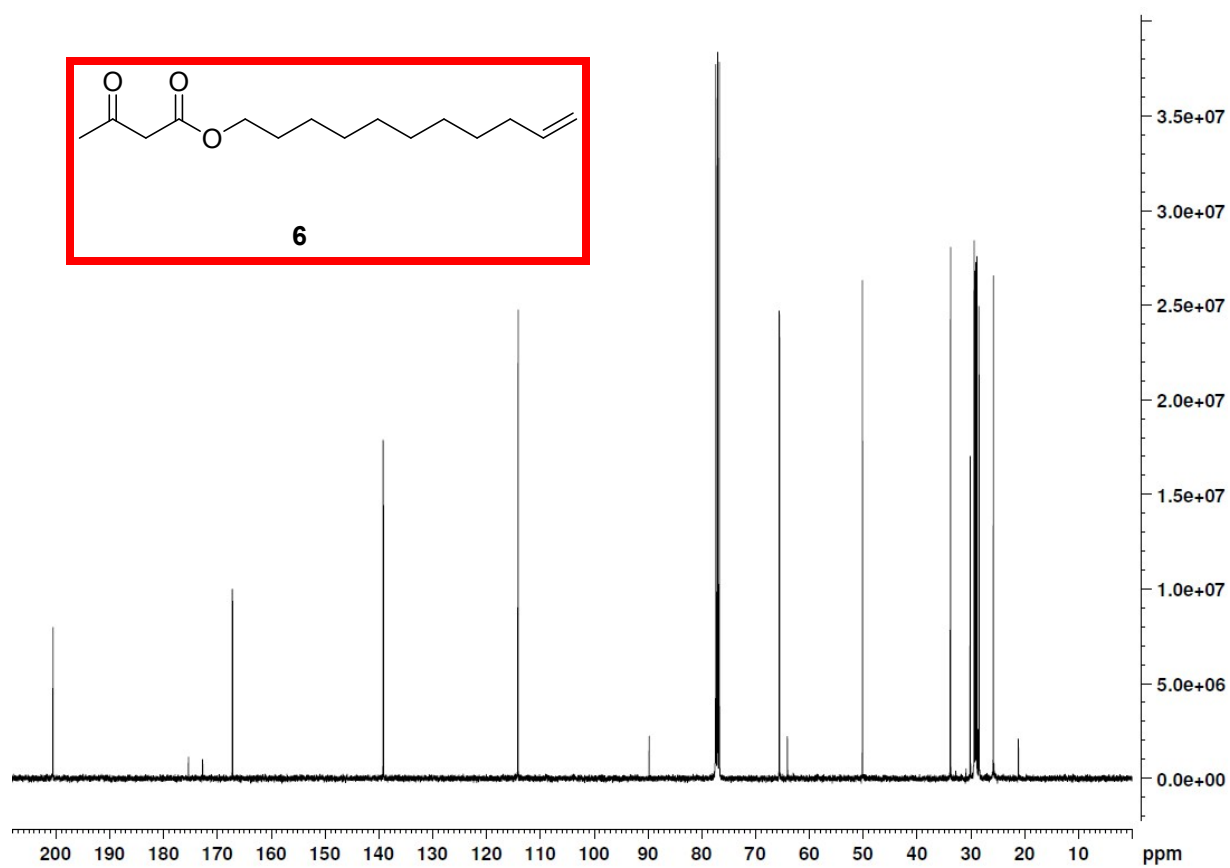
Table 1 Synthesis of β -ketoesters 4-6

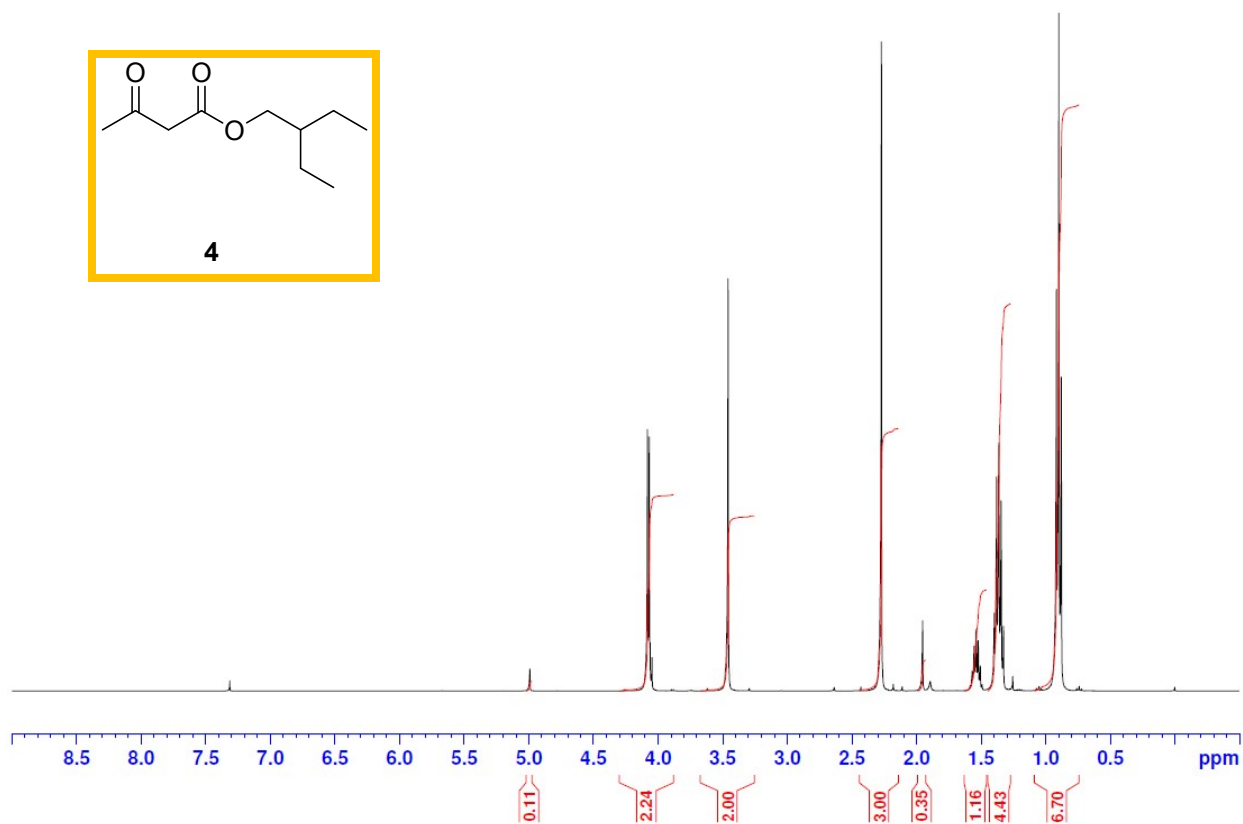
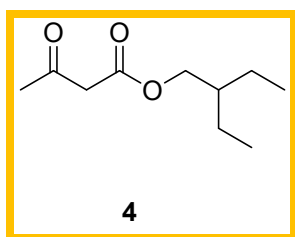
Note: β -keto esters 4-6 can also exist in enol form and it can be seen from the ^1H NMR and ^{13}C NMR spectra that there is up to 10% enol form present. Characteristic signals for the enol form are present at 5ppm in the ^1H NMR spectrum and at 22, 63, 90, 173 and 176 ppm in the ^{13}C NMR spectrum for these samples.











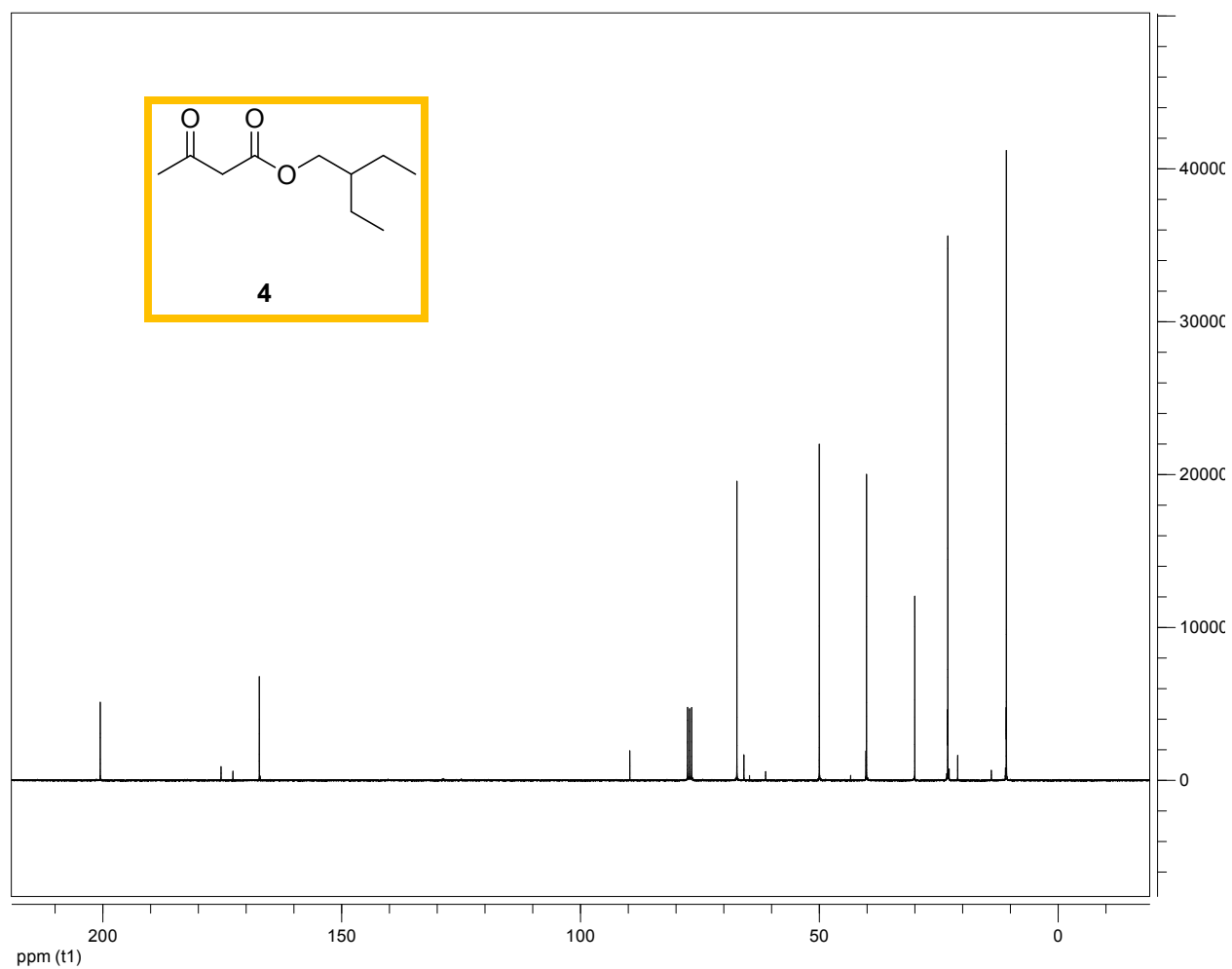
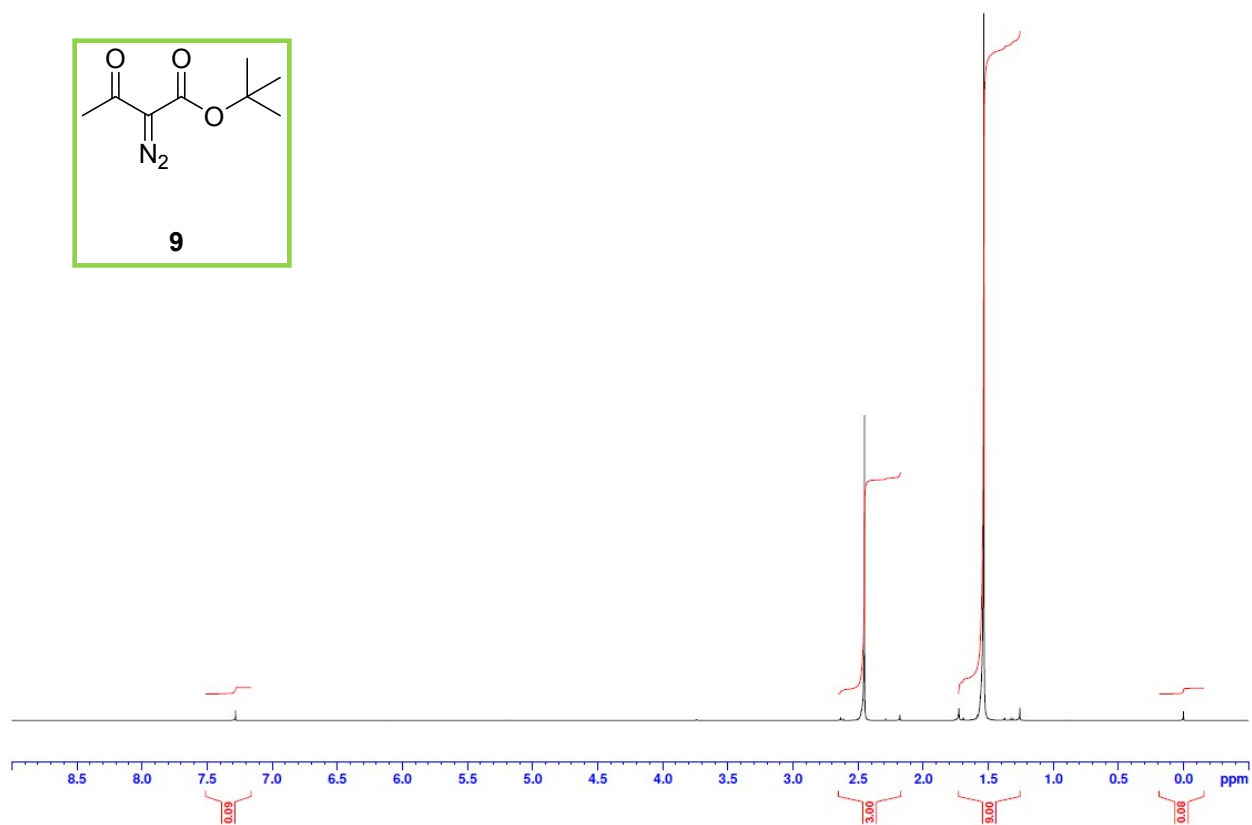
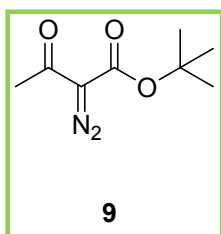
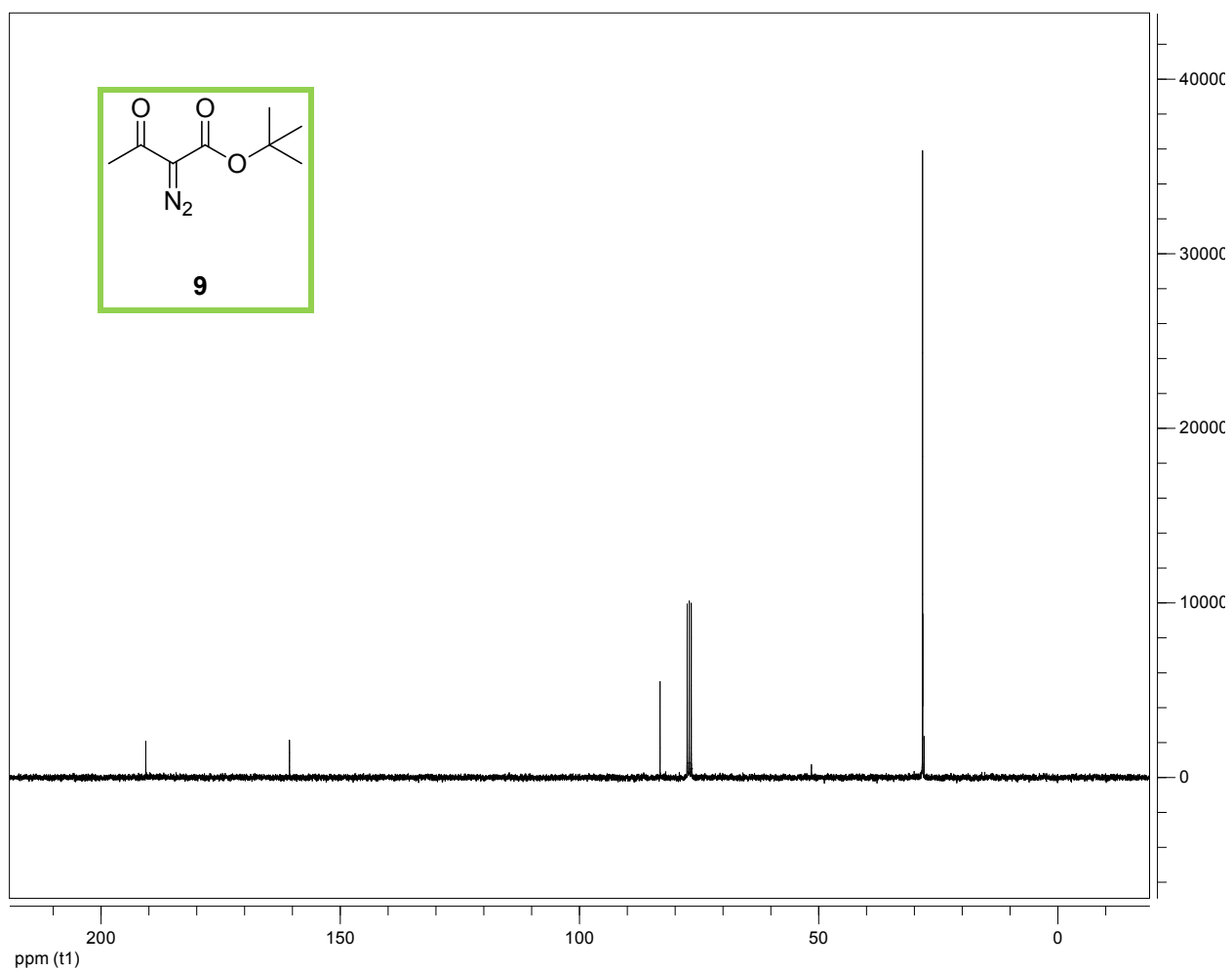
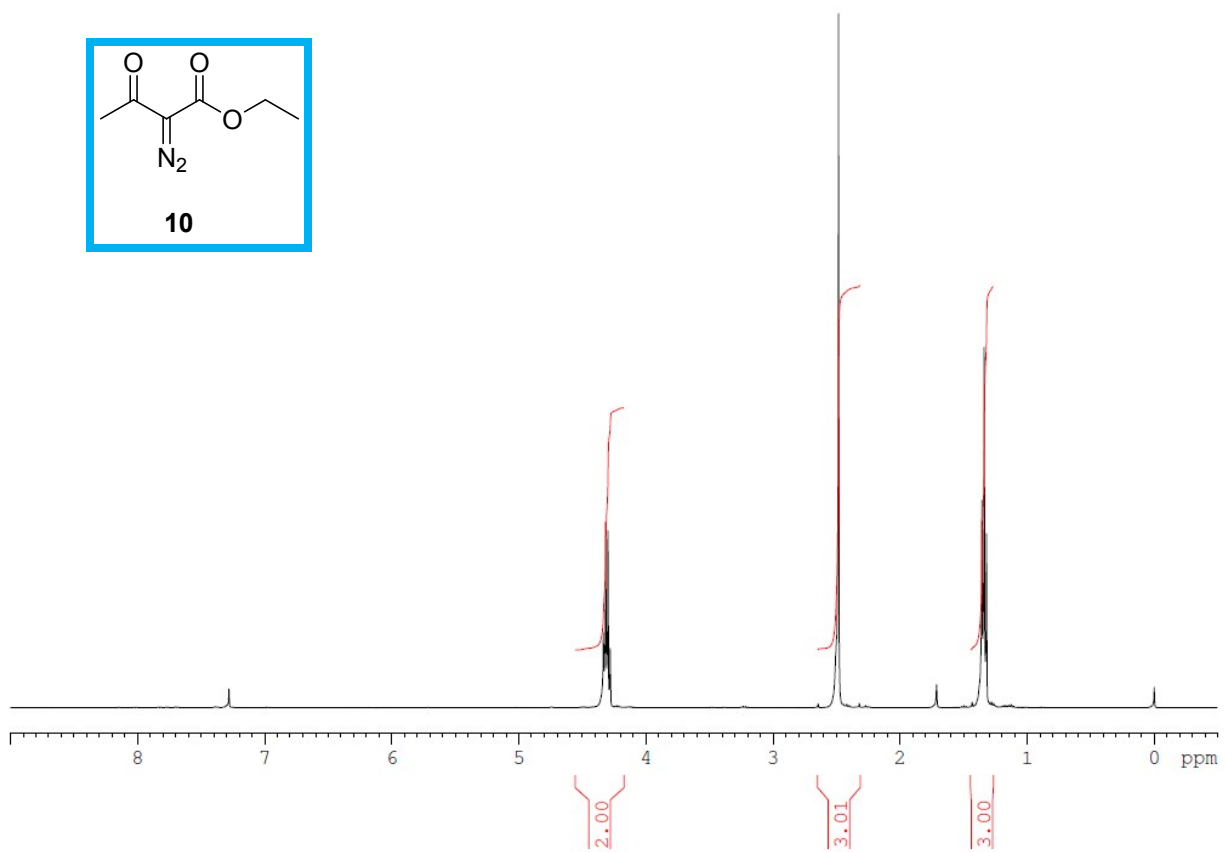
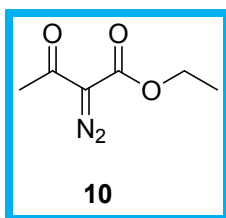
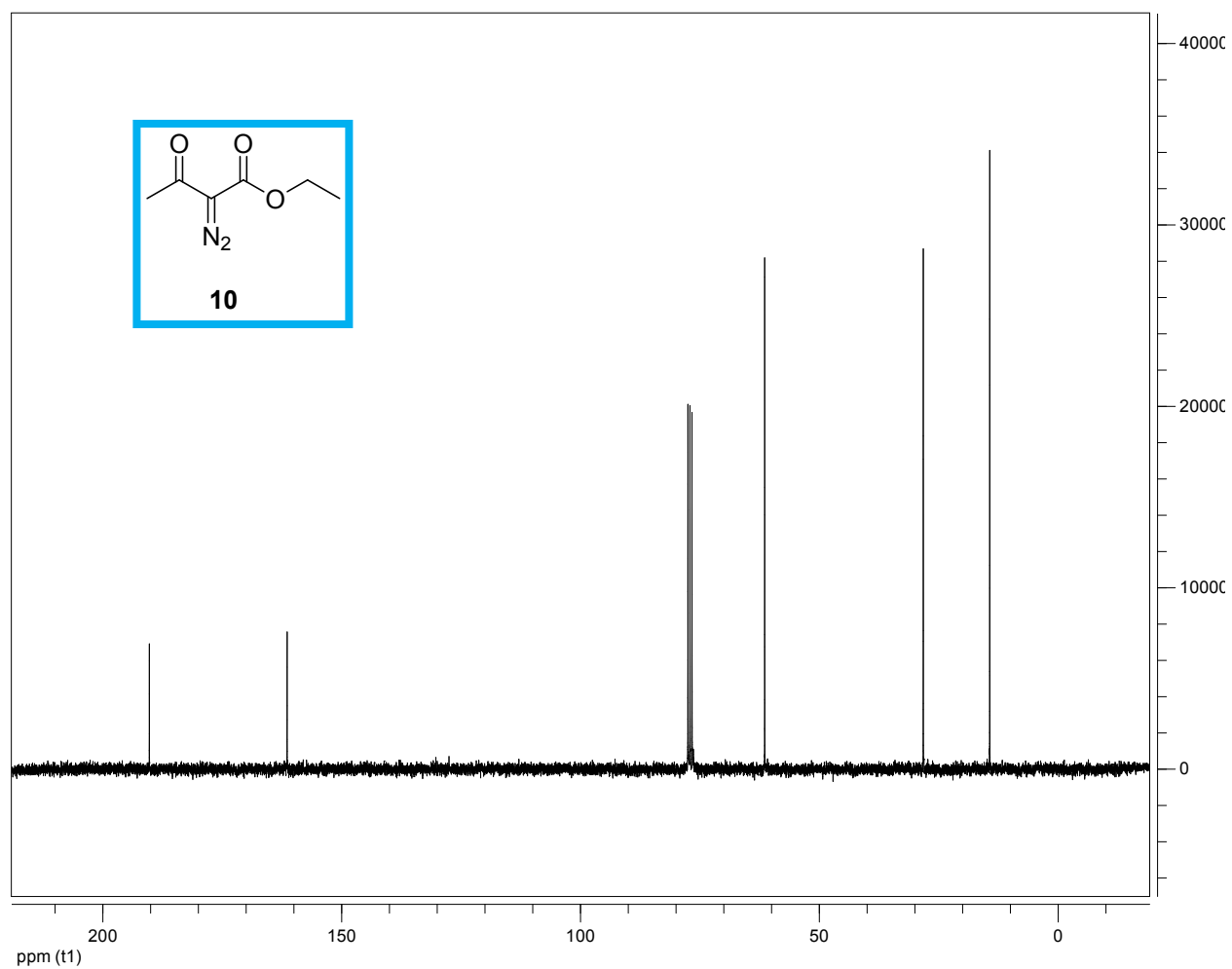


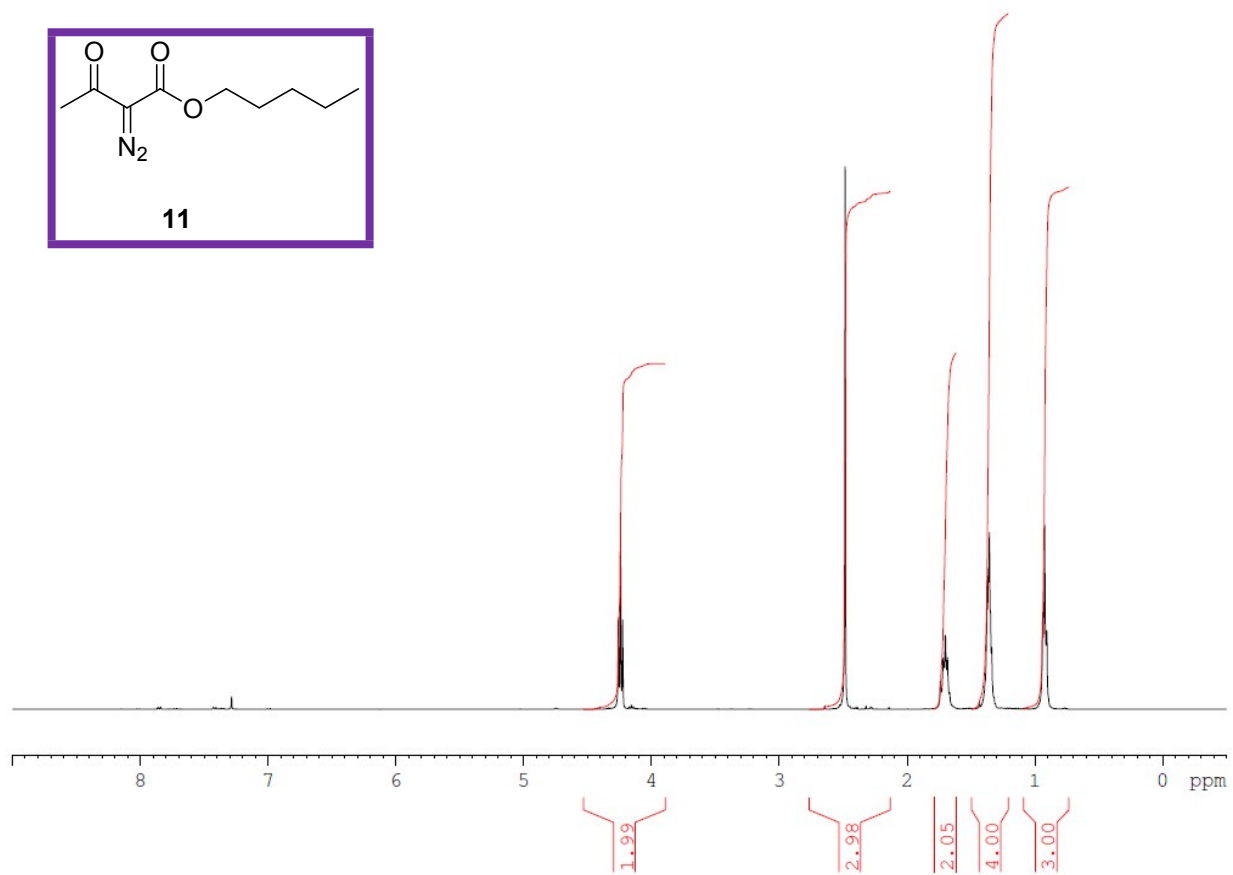
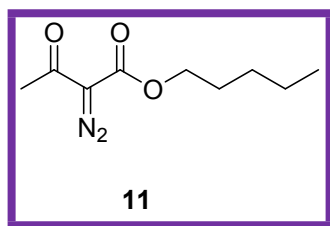
Table 2 Synthesis of diazo compounds 9-16

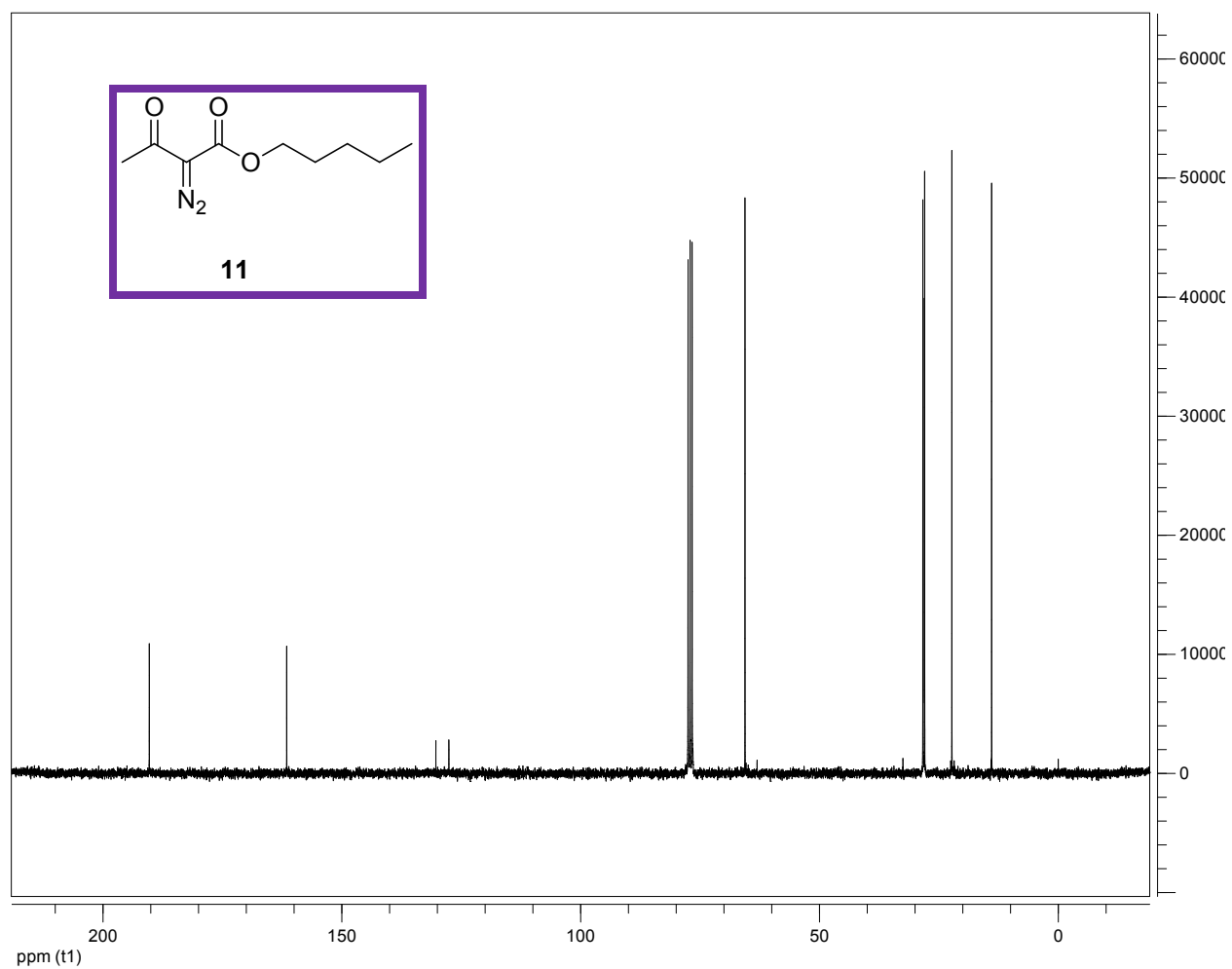


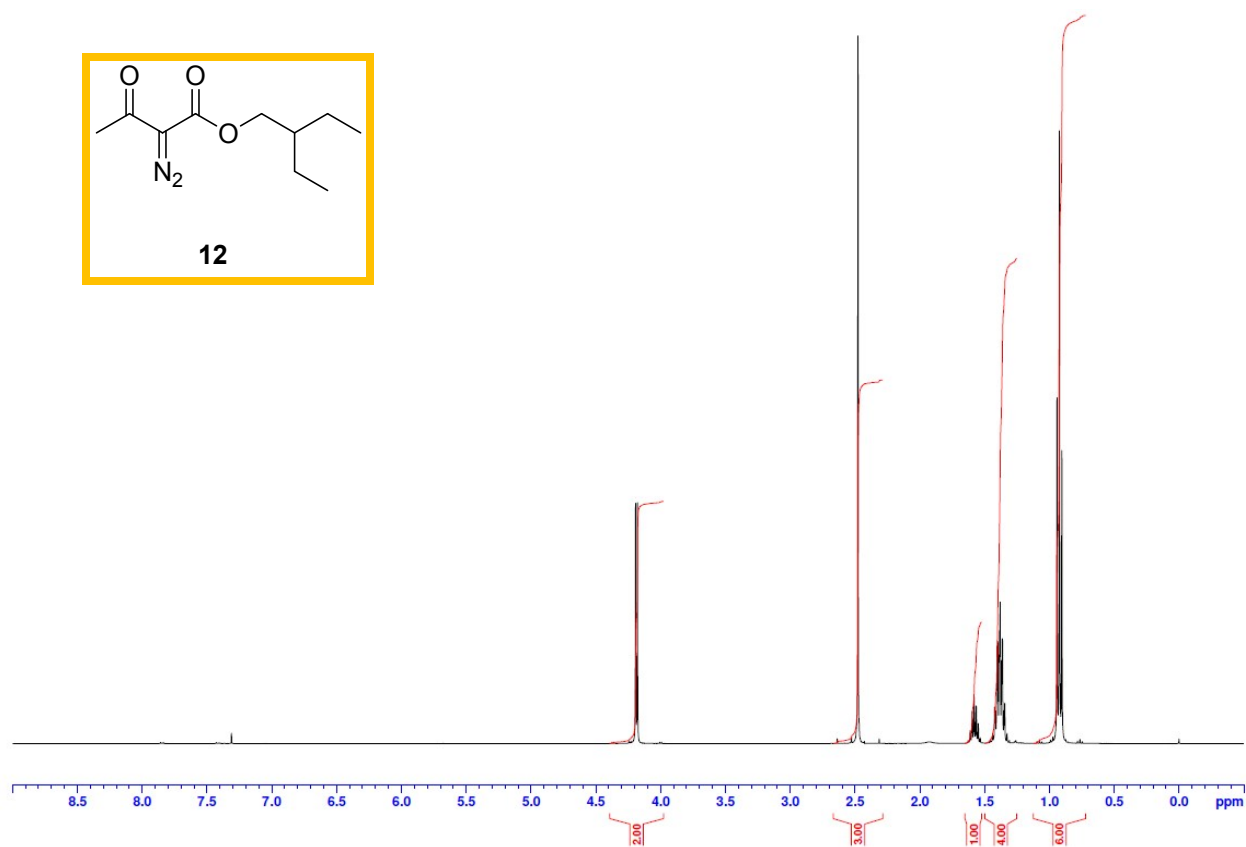
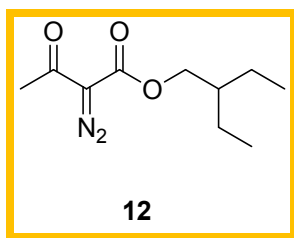


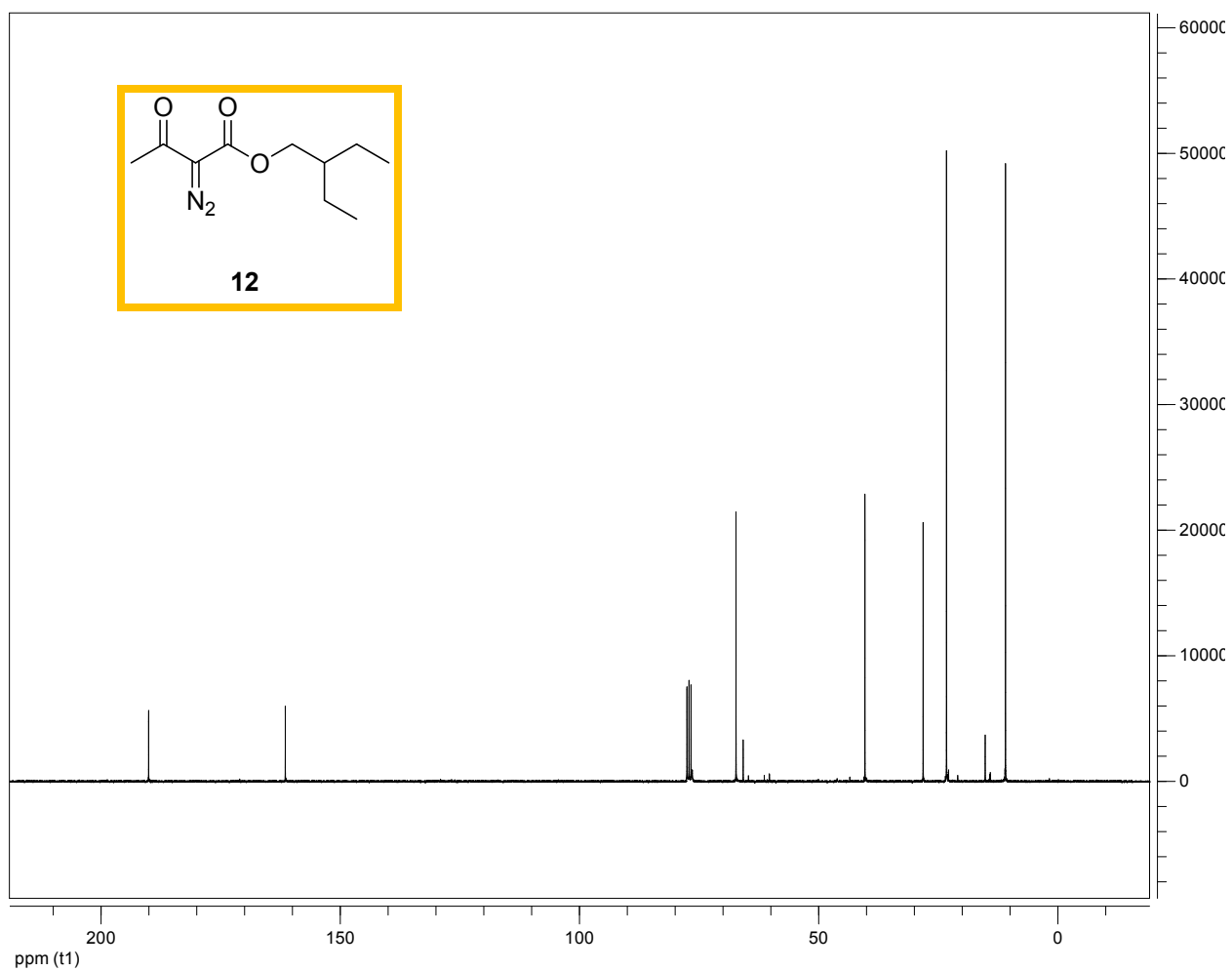


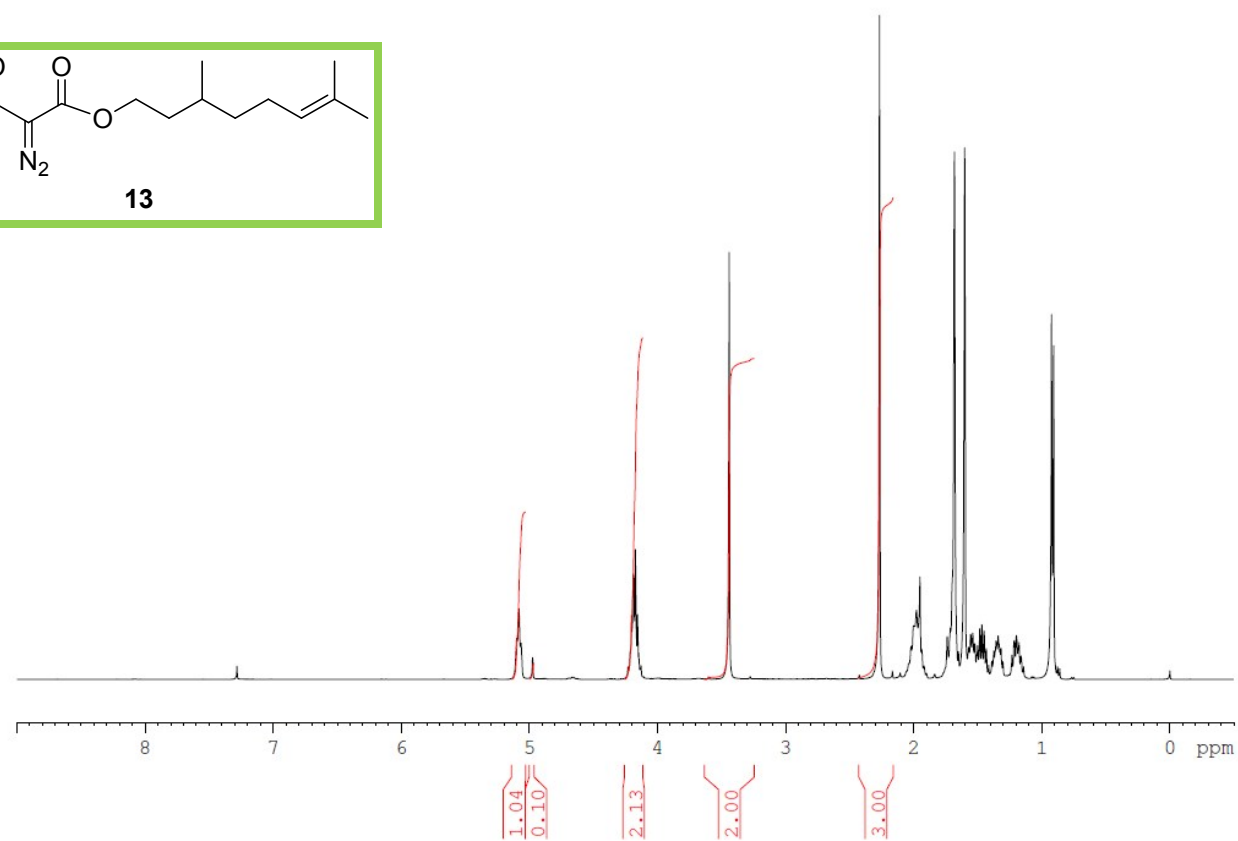
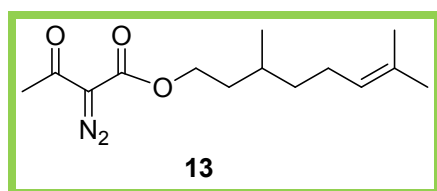


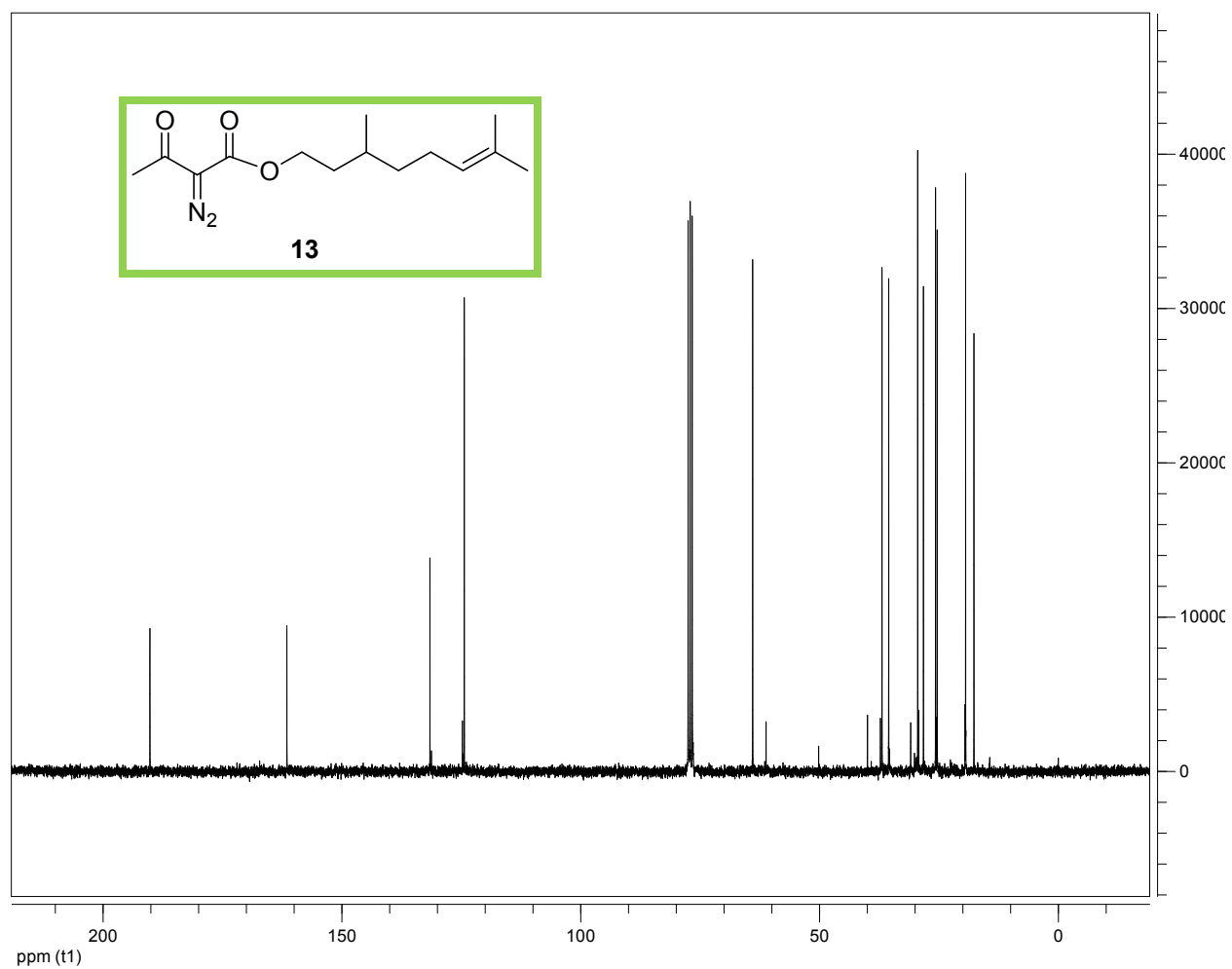


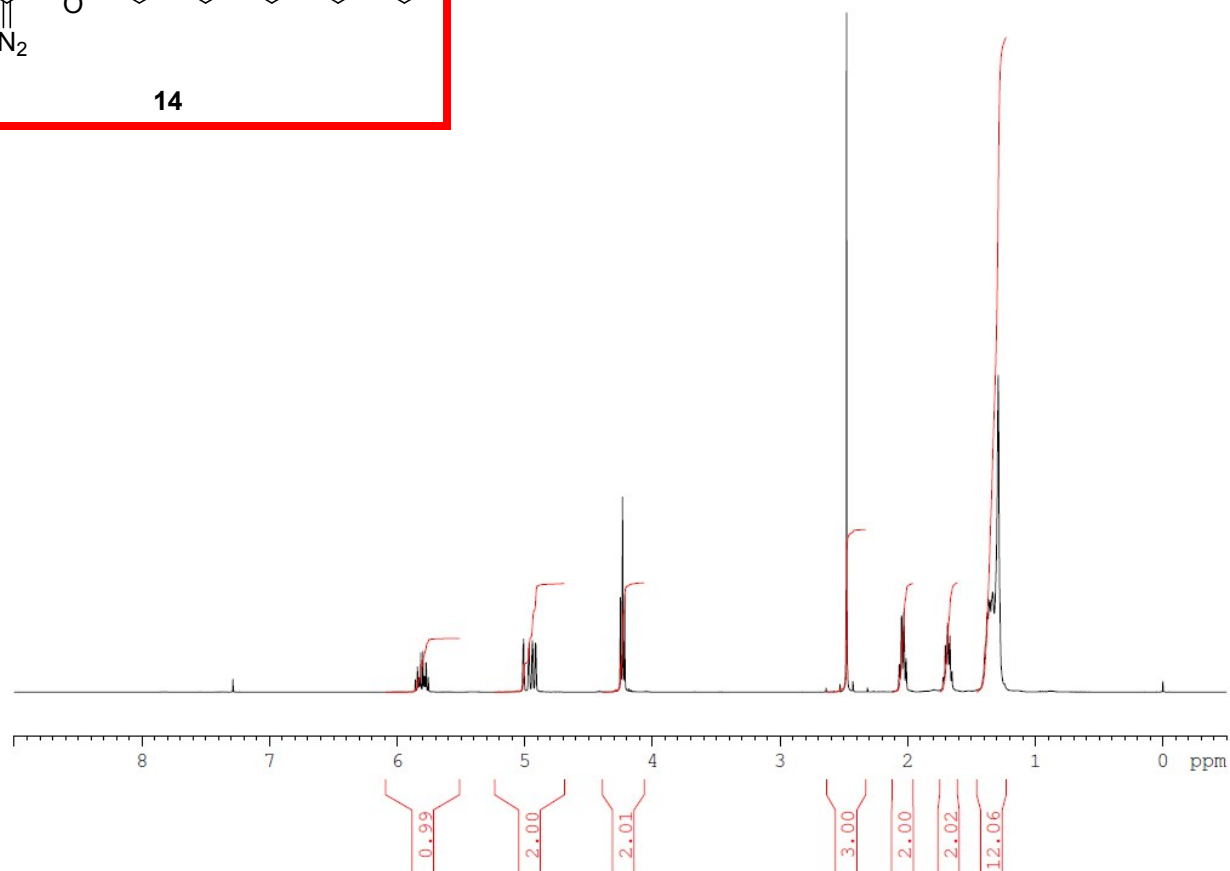
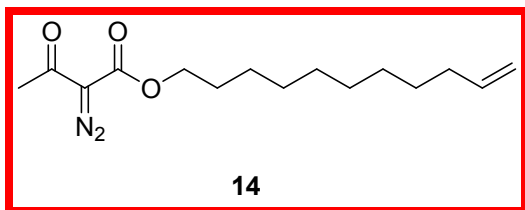


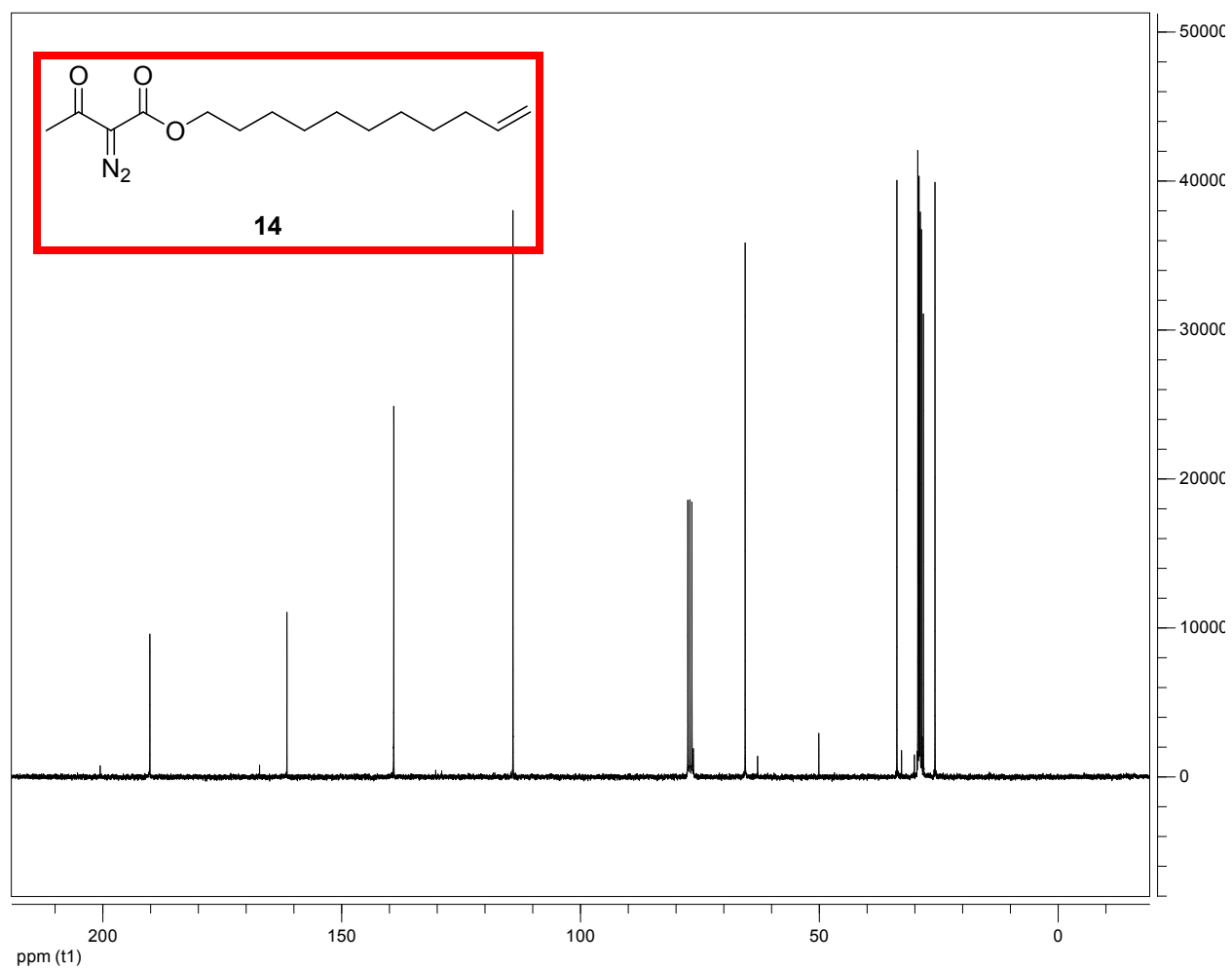


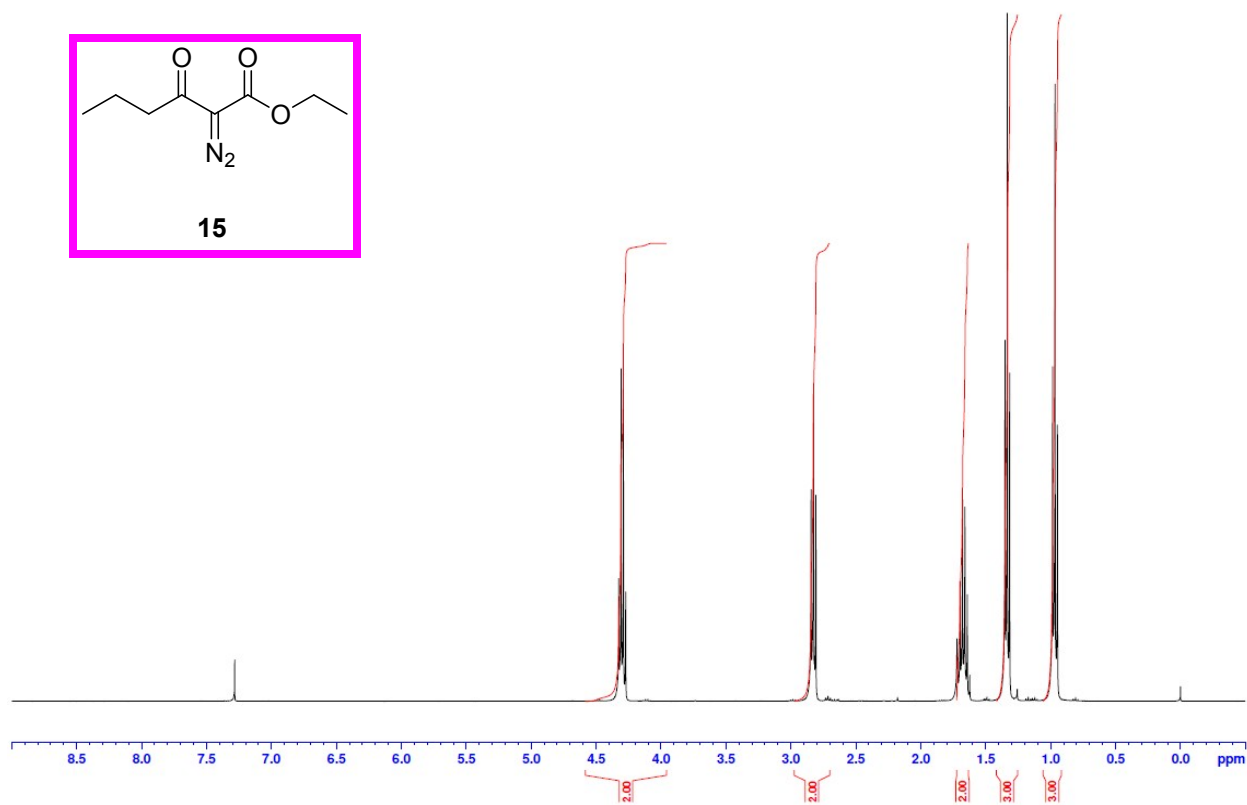
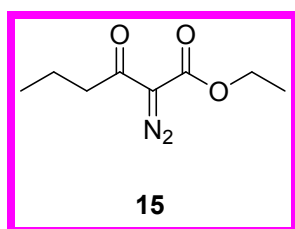


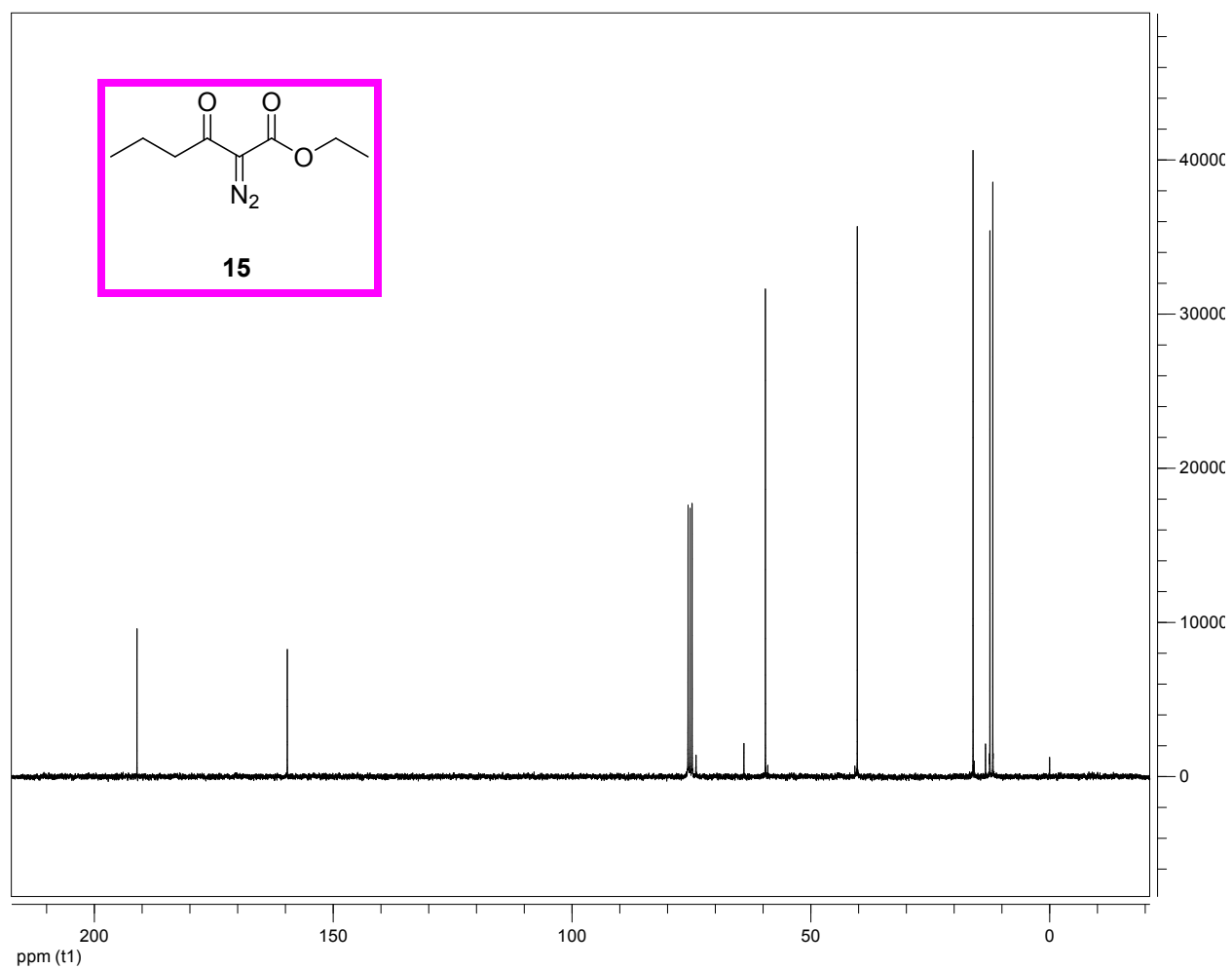


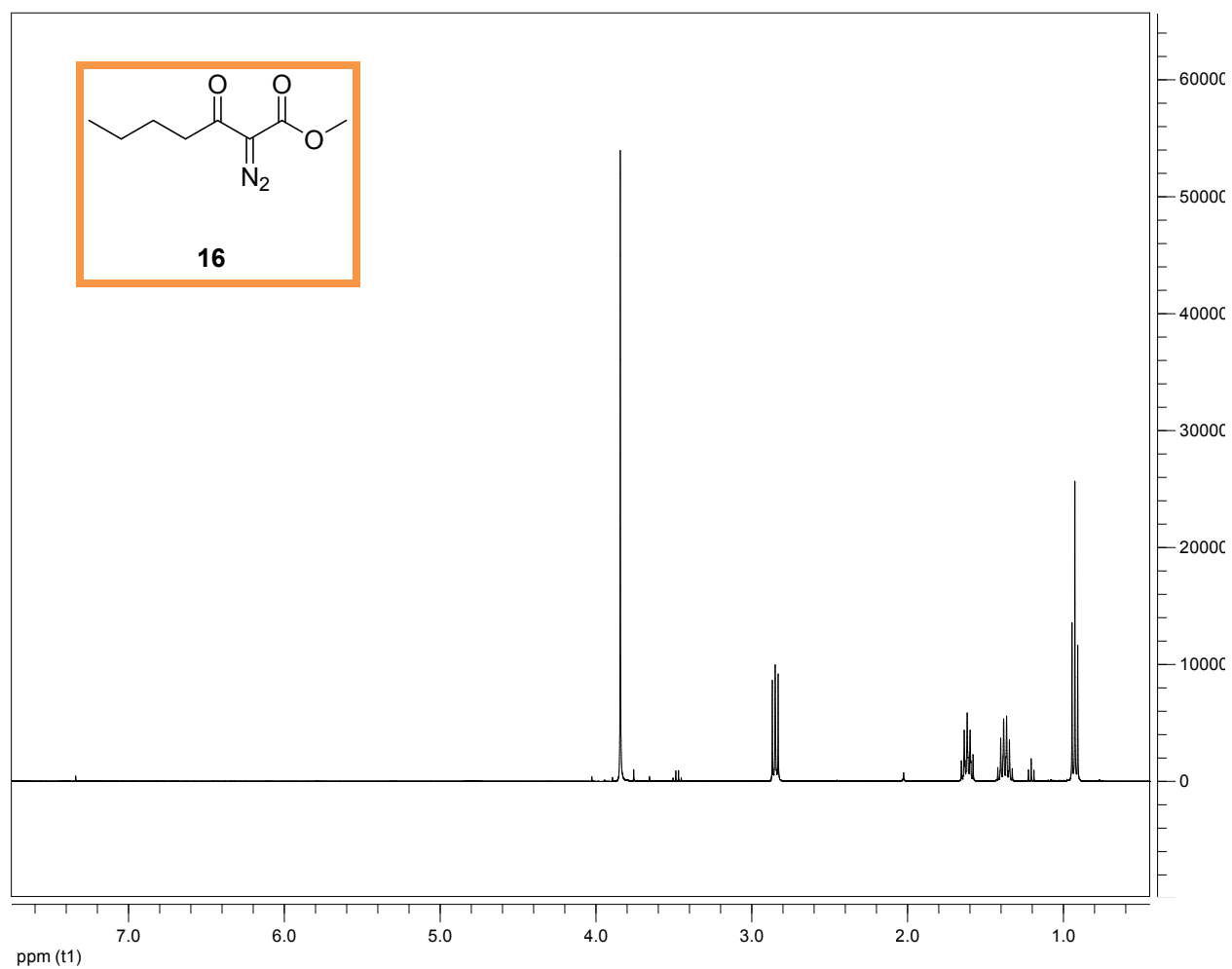












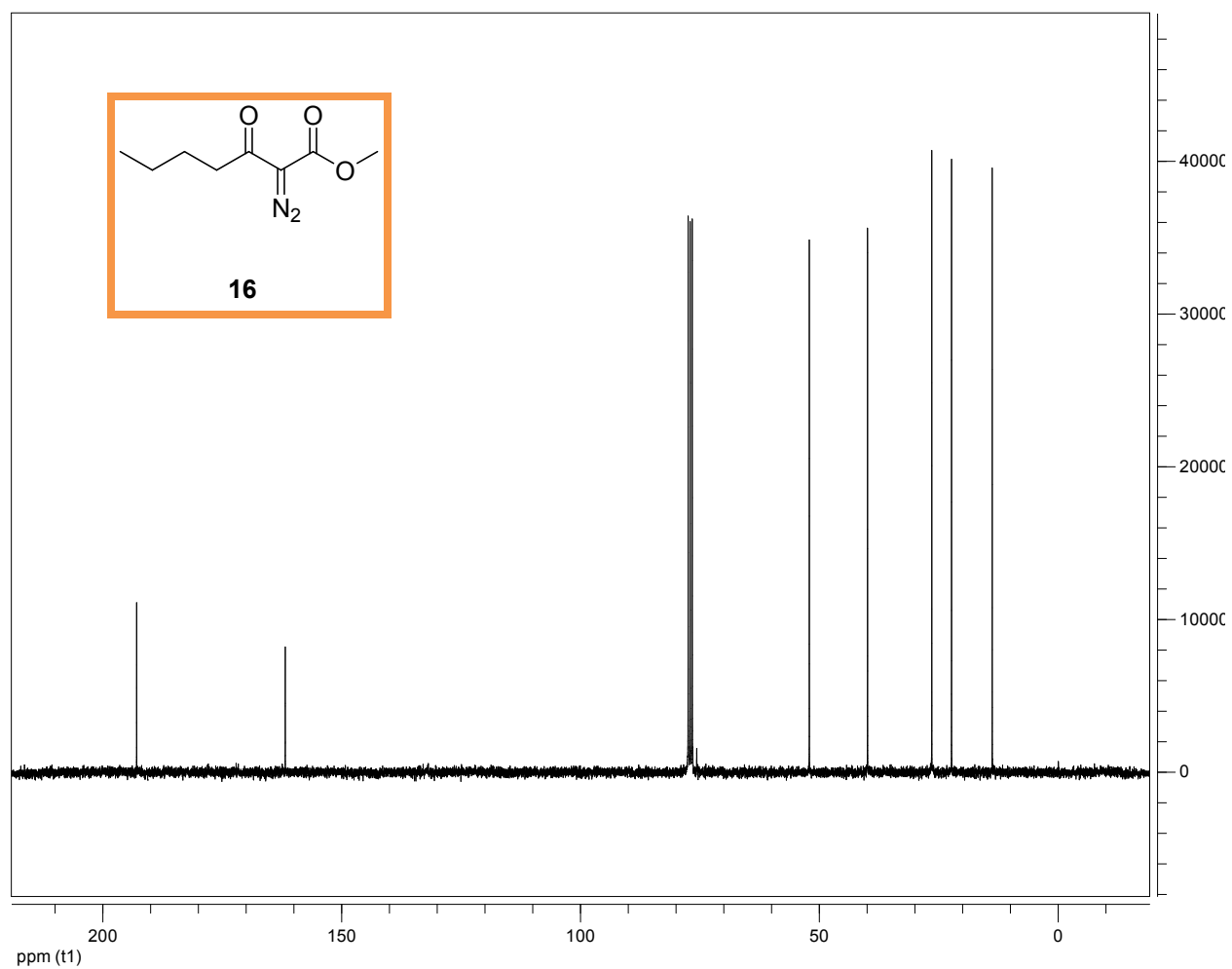


Table 3 Entry 1 – Et₃N – Before KOH workup

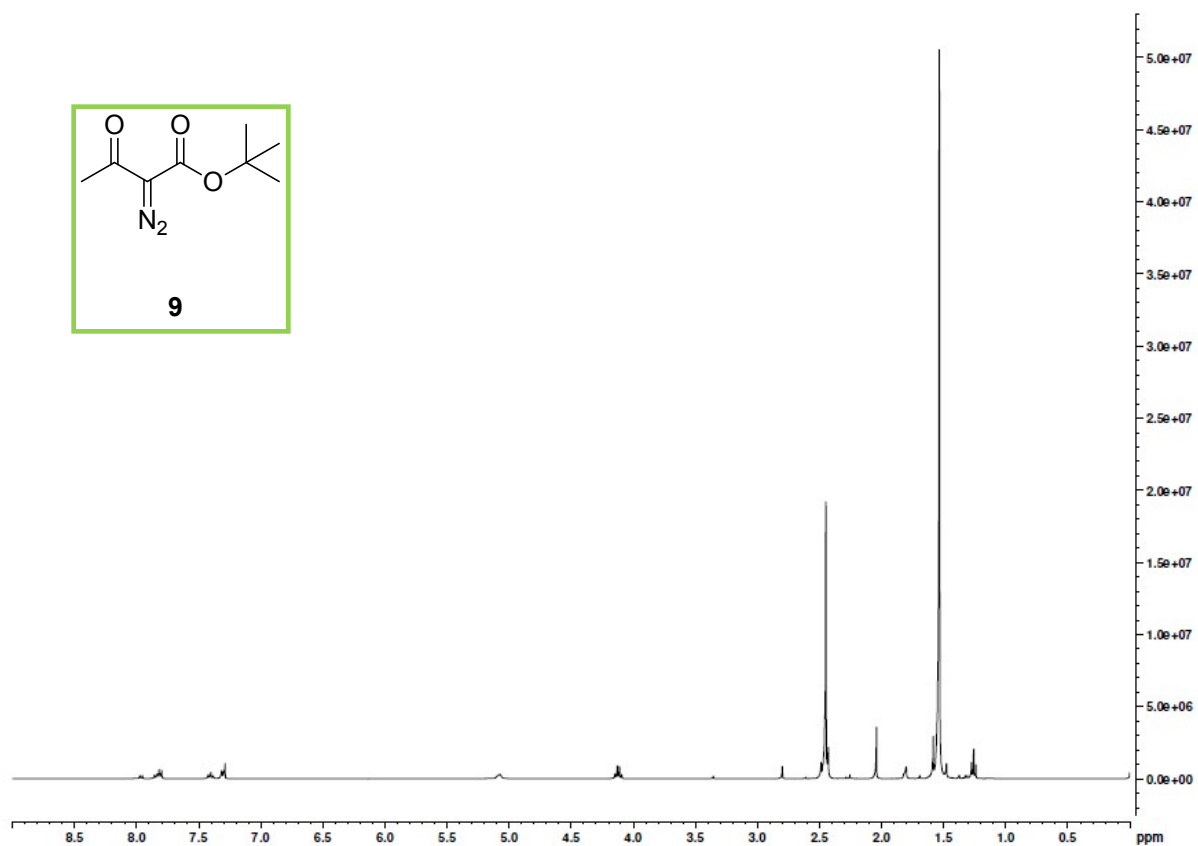


Table 3 Entry 1 – Et₃N – After KOH workup

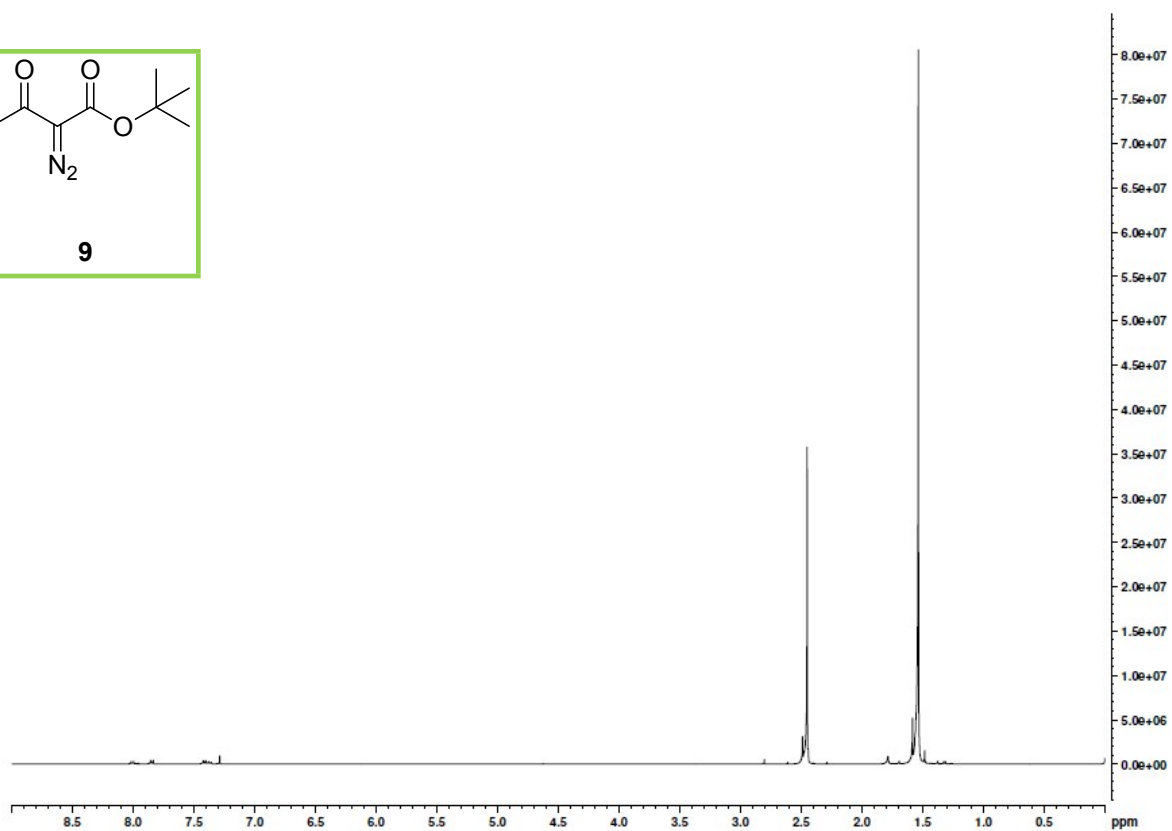
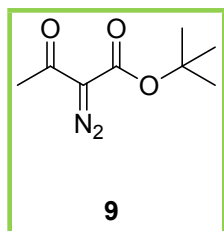


Table 3 Entry 1 – Et₃N – After column chromatography

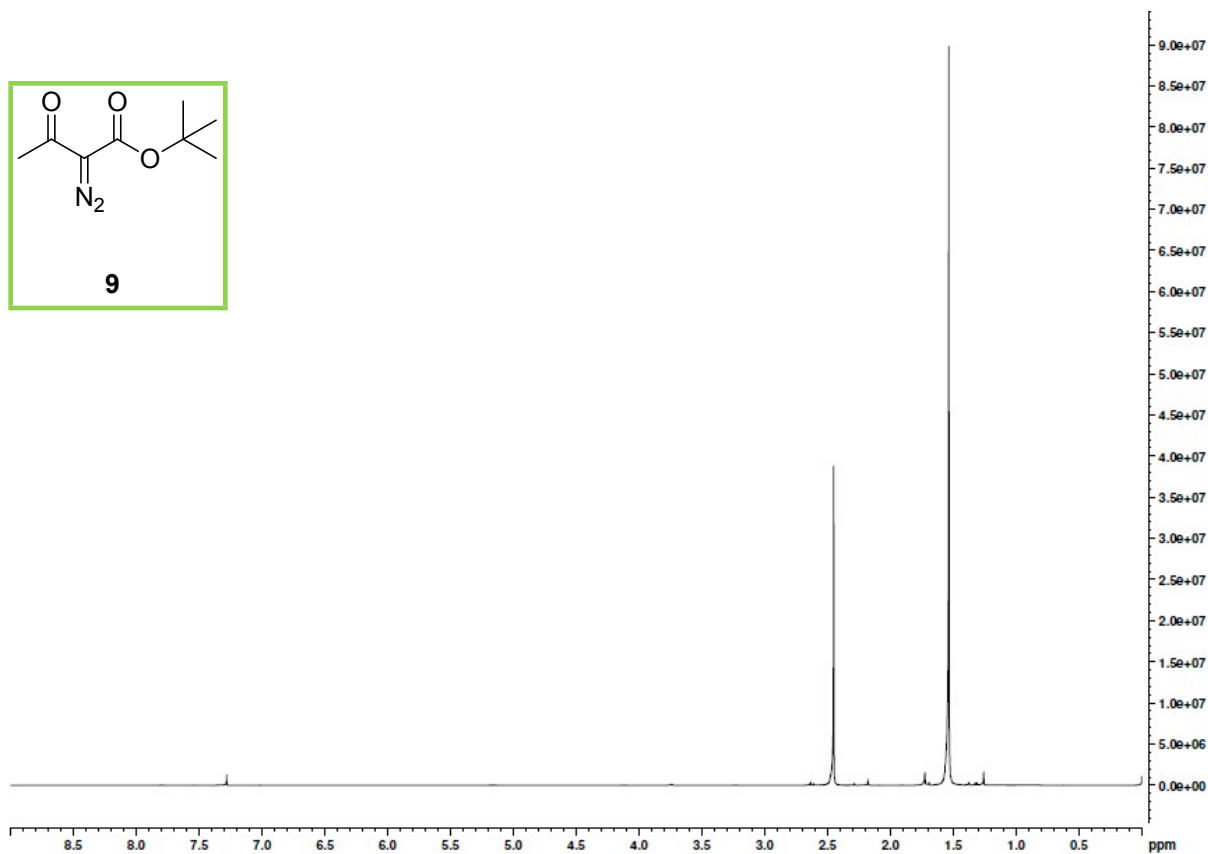


Table 3 Entry 1 – DMAP – Before KOH workup

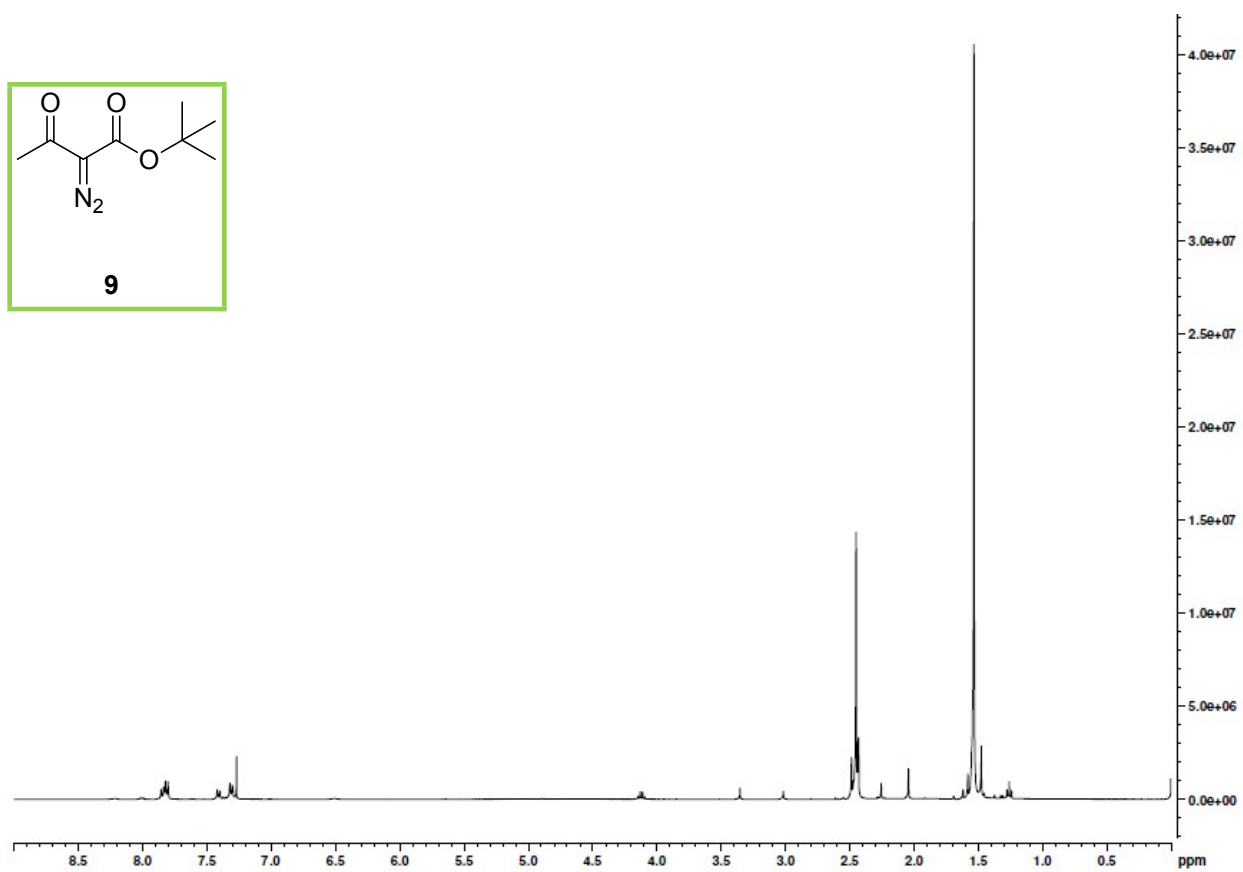
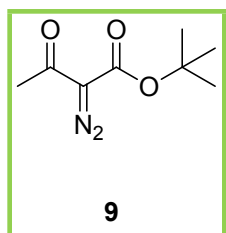


Table 3 Entry 1 – DMAP – After KOH workup

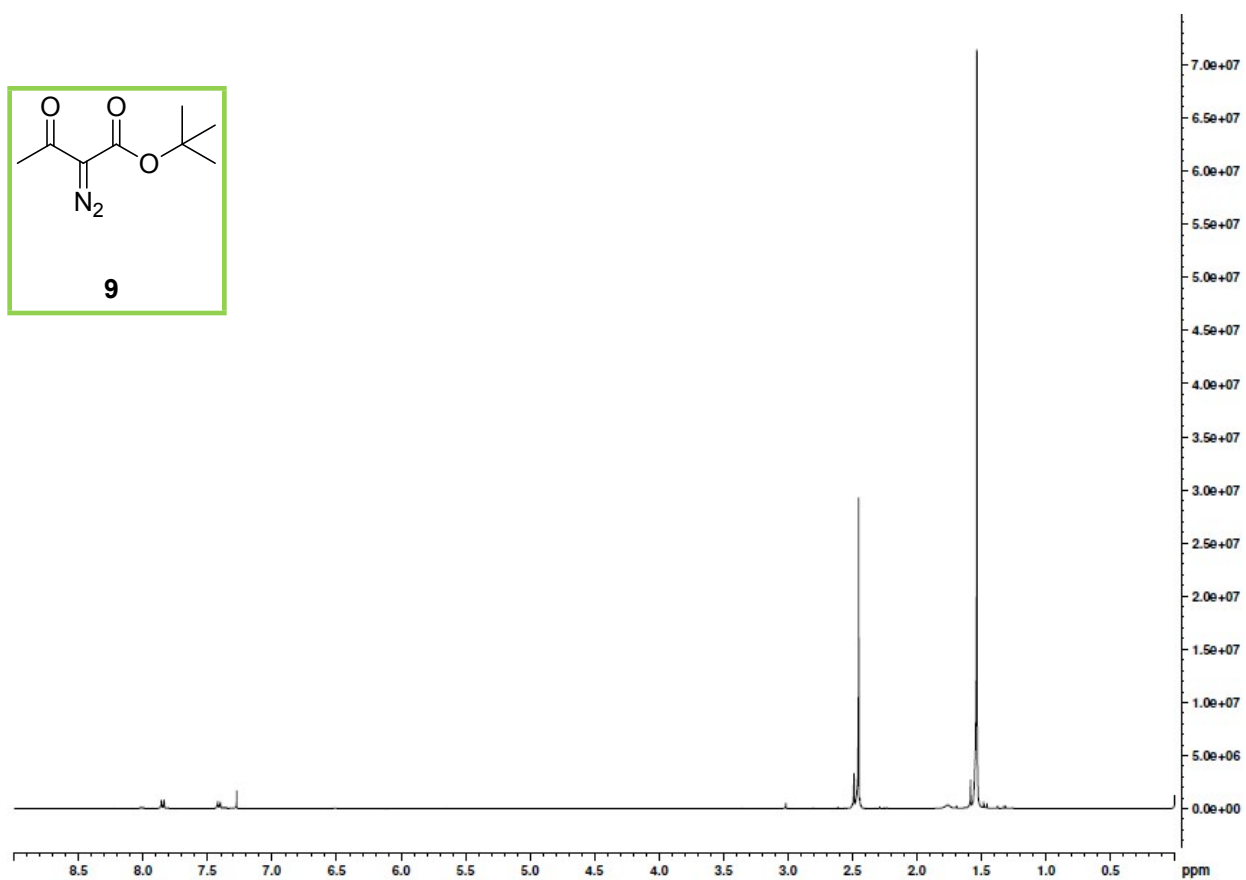
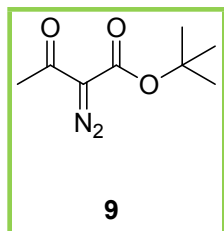


Table 3 Entry 1 – DMAP – After column chromatography

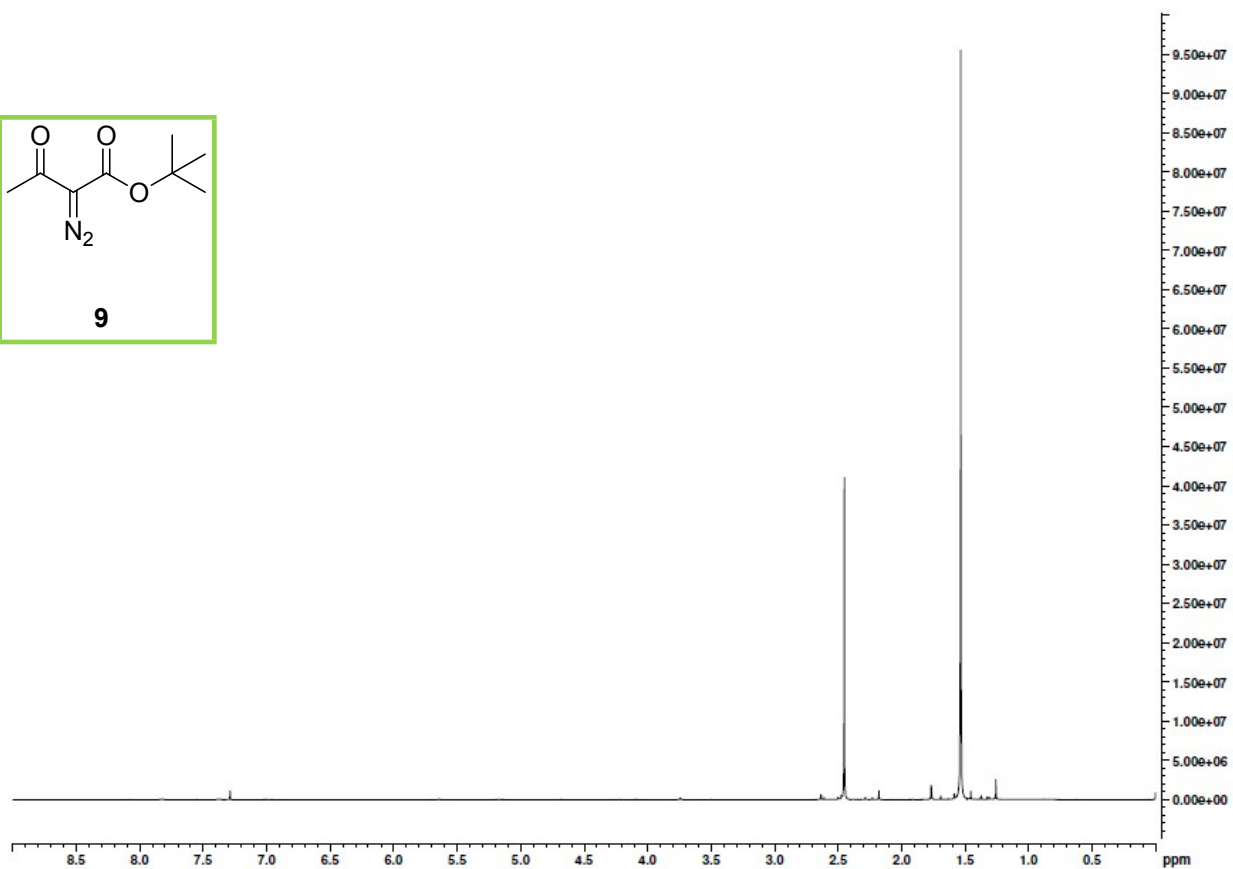
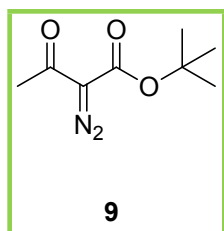


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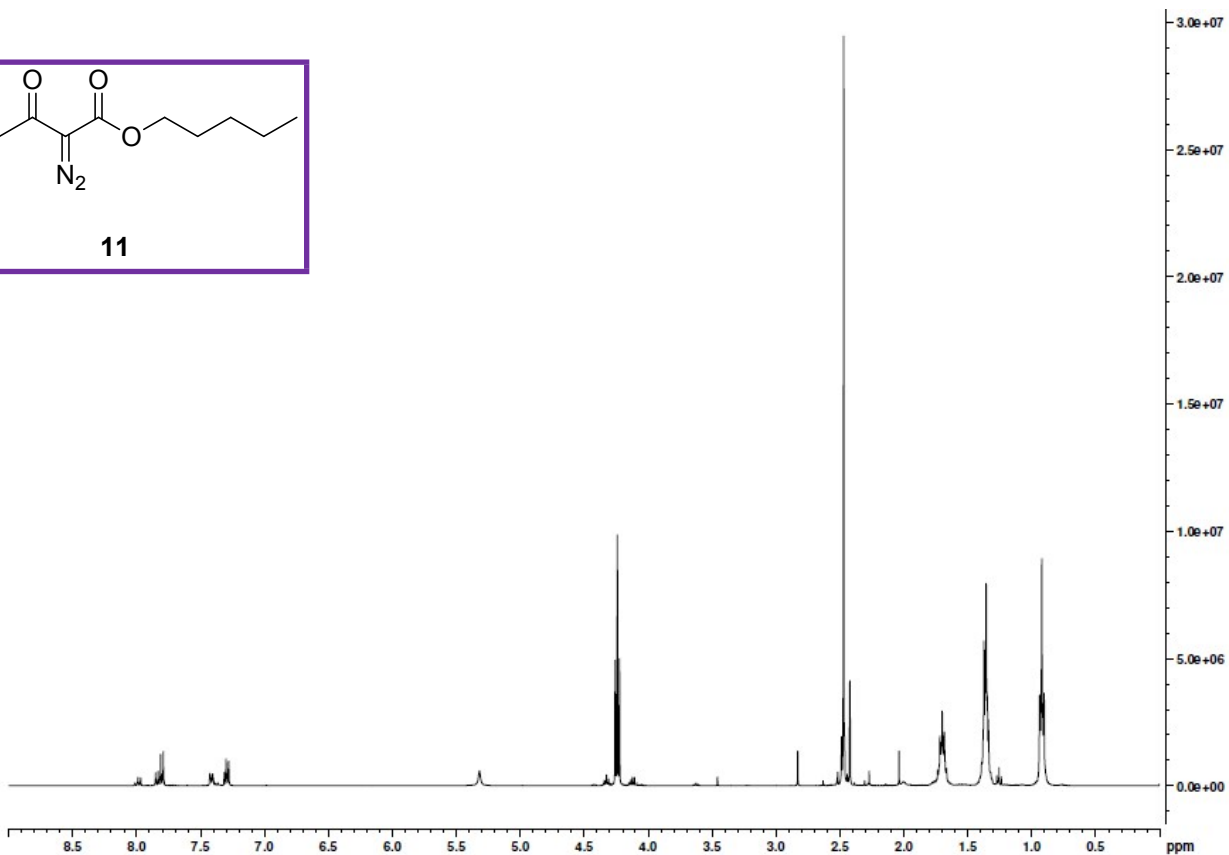
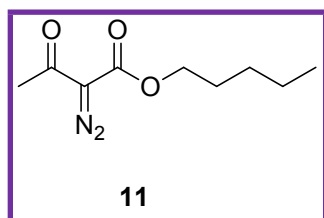


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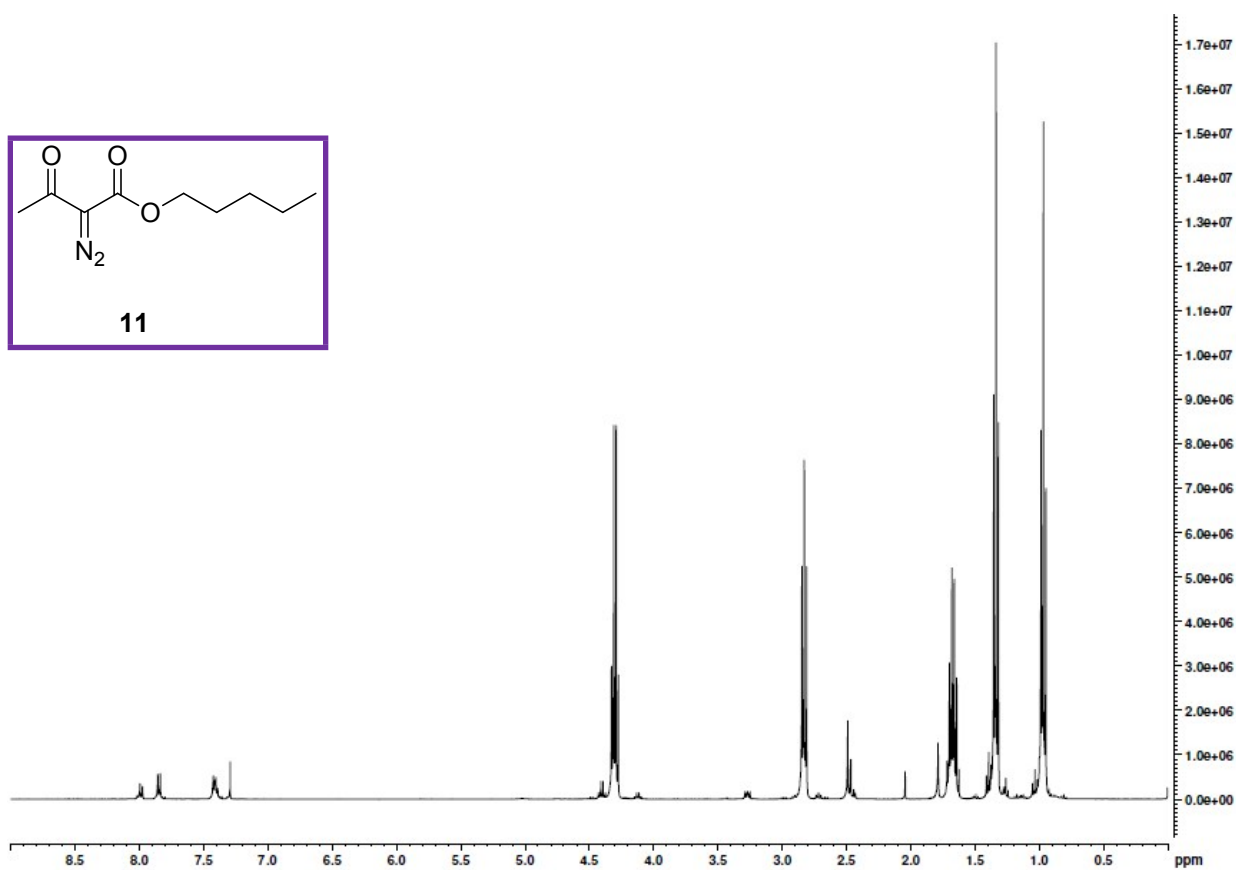


Table 3 Entry 2 – Et₃N – After column chromatography

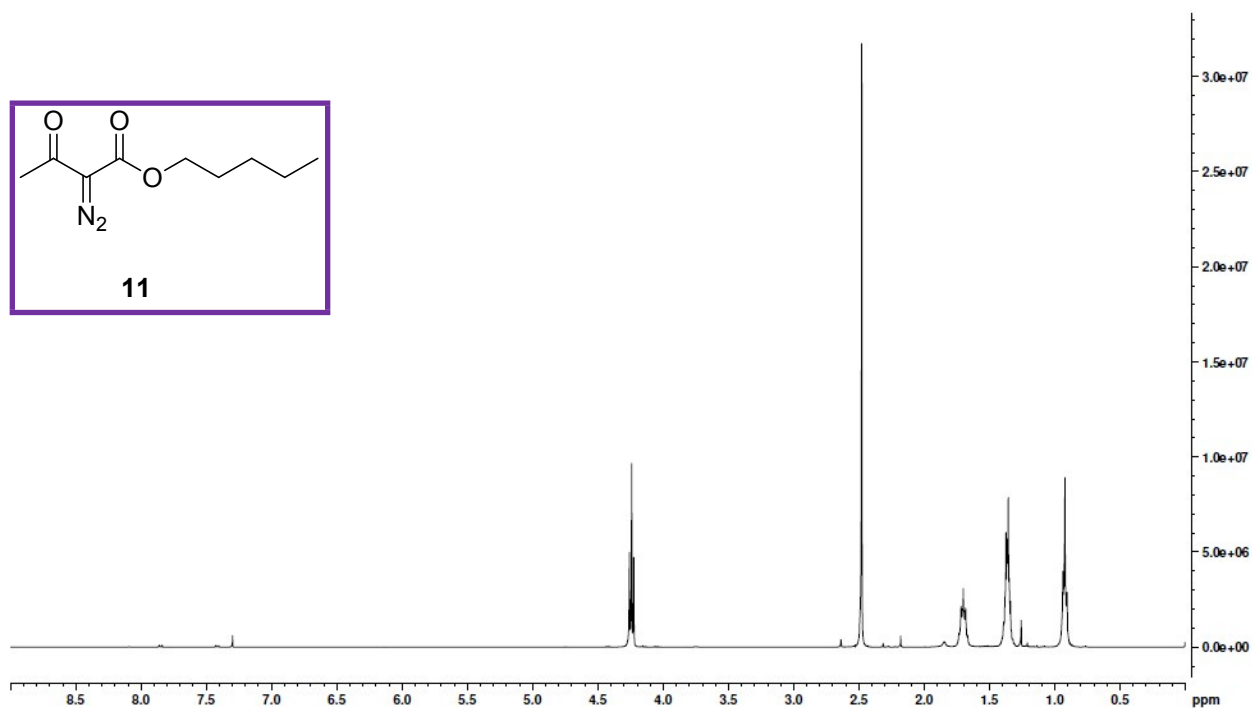


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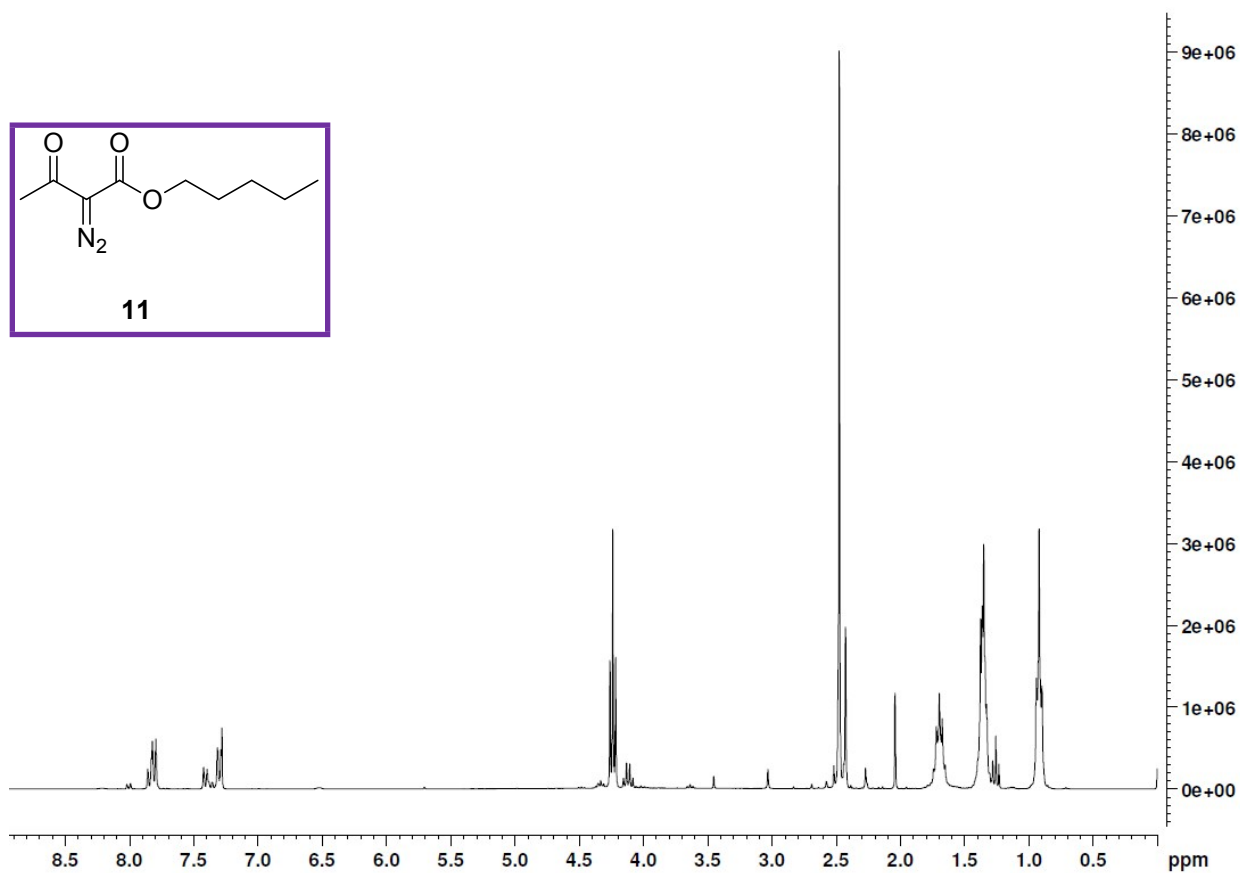


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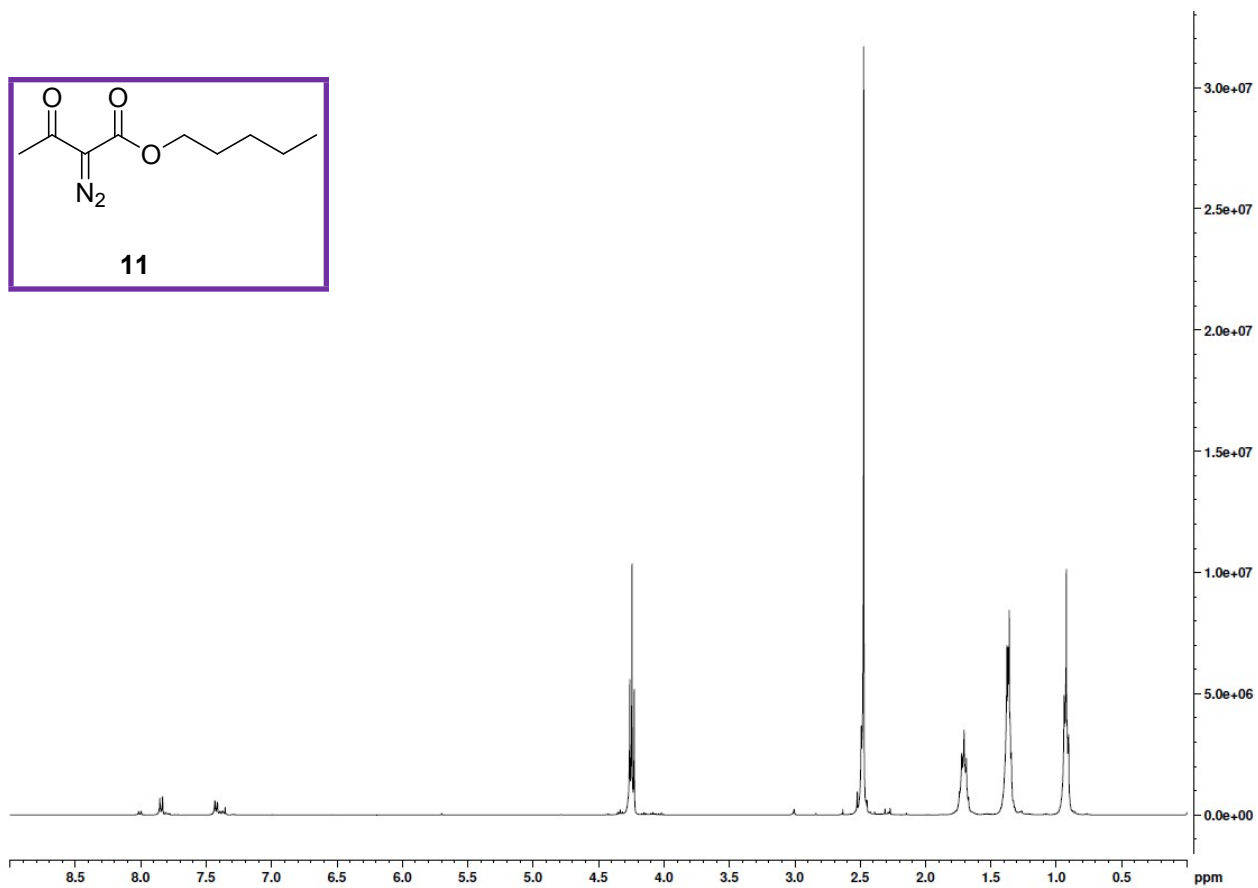


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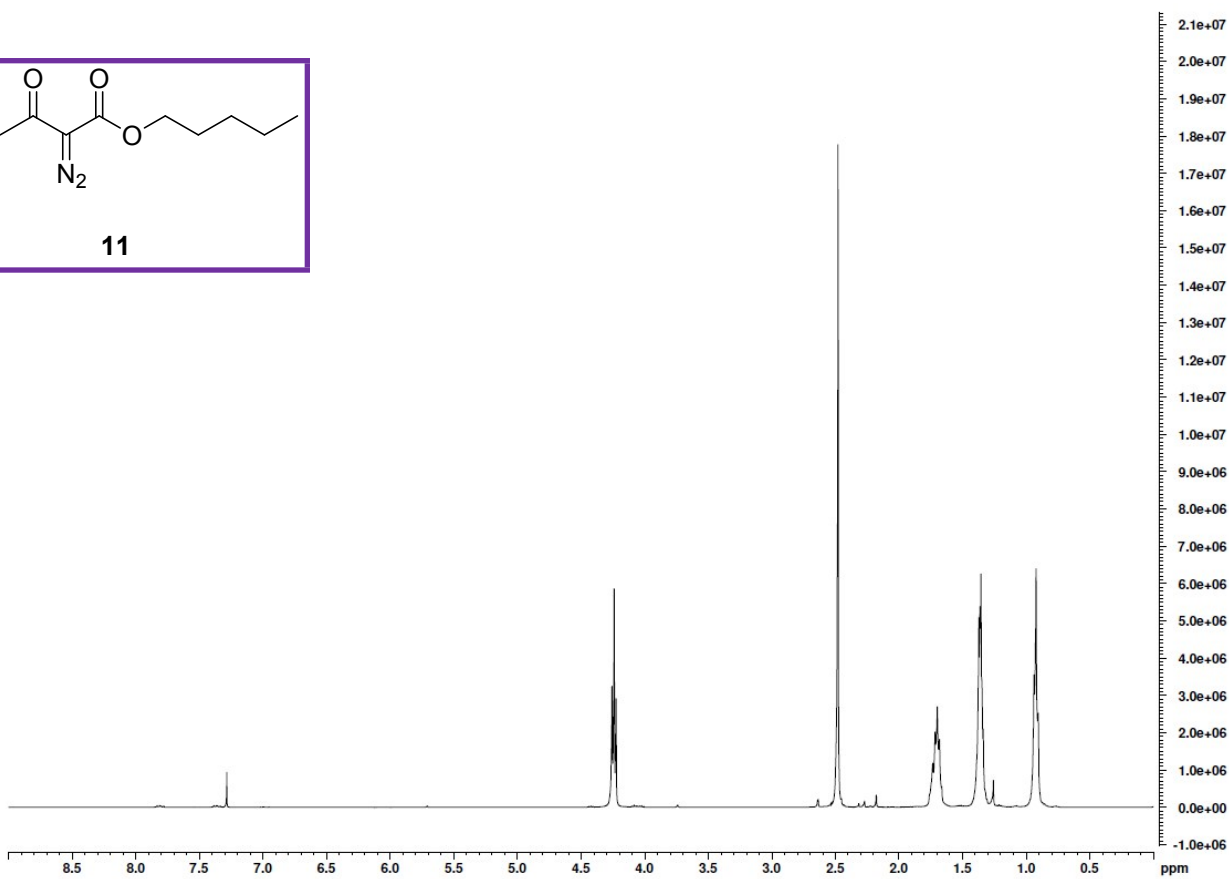
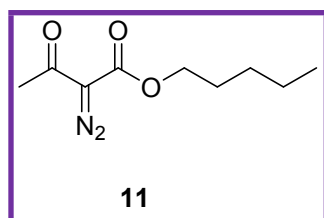


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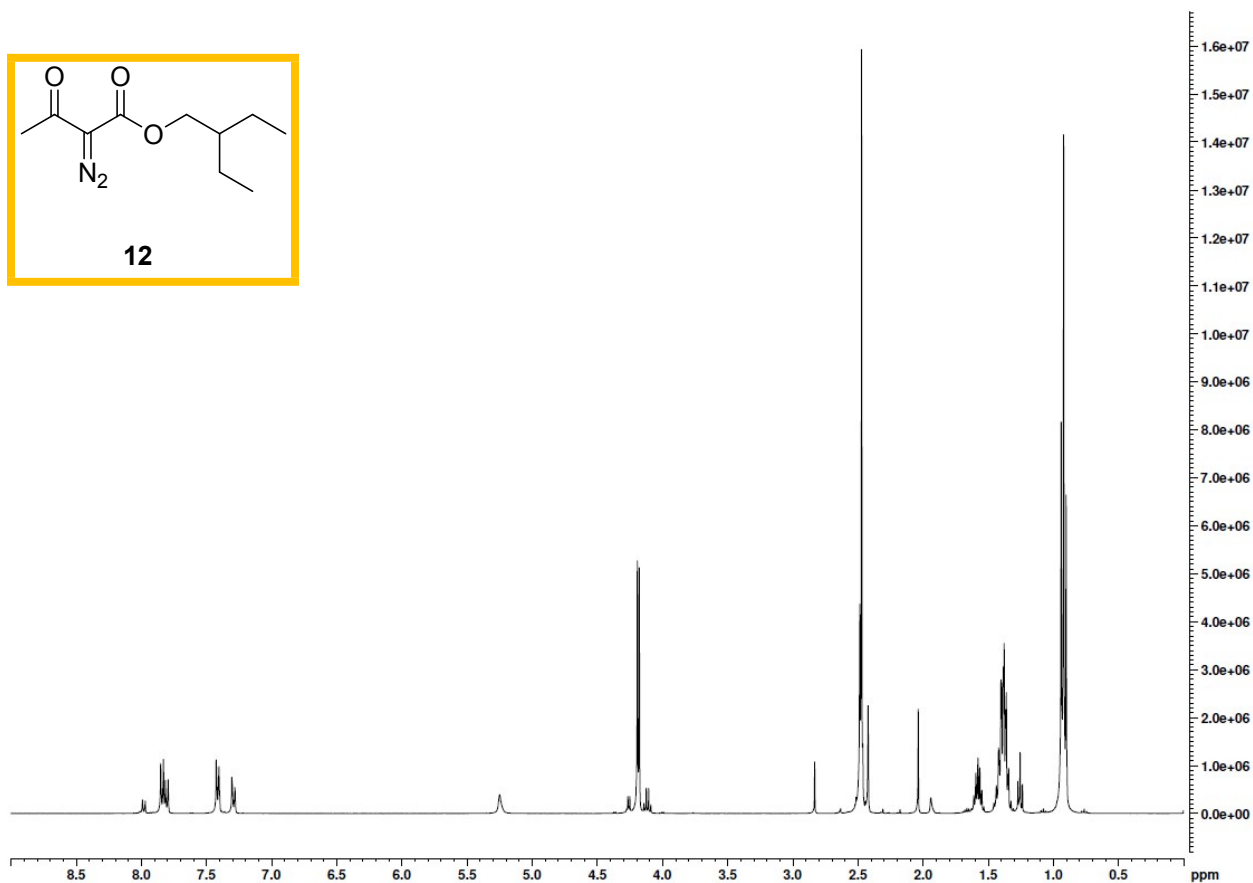


Table 3 Entry 3 – Et₃N – After KOH workup



Table 3 Entry 3 – Et₃N – After column chromatography

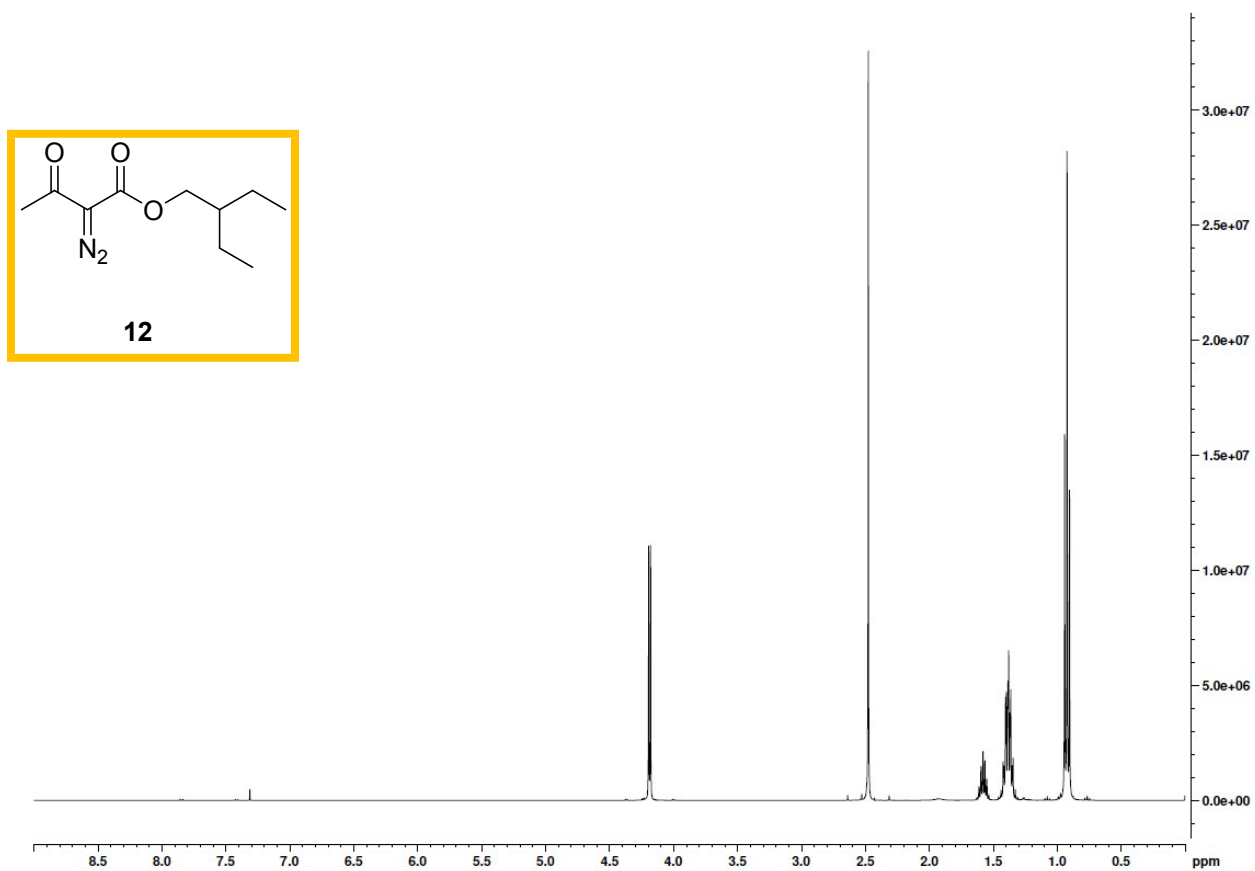


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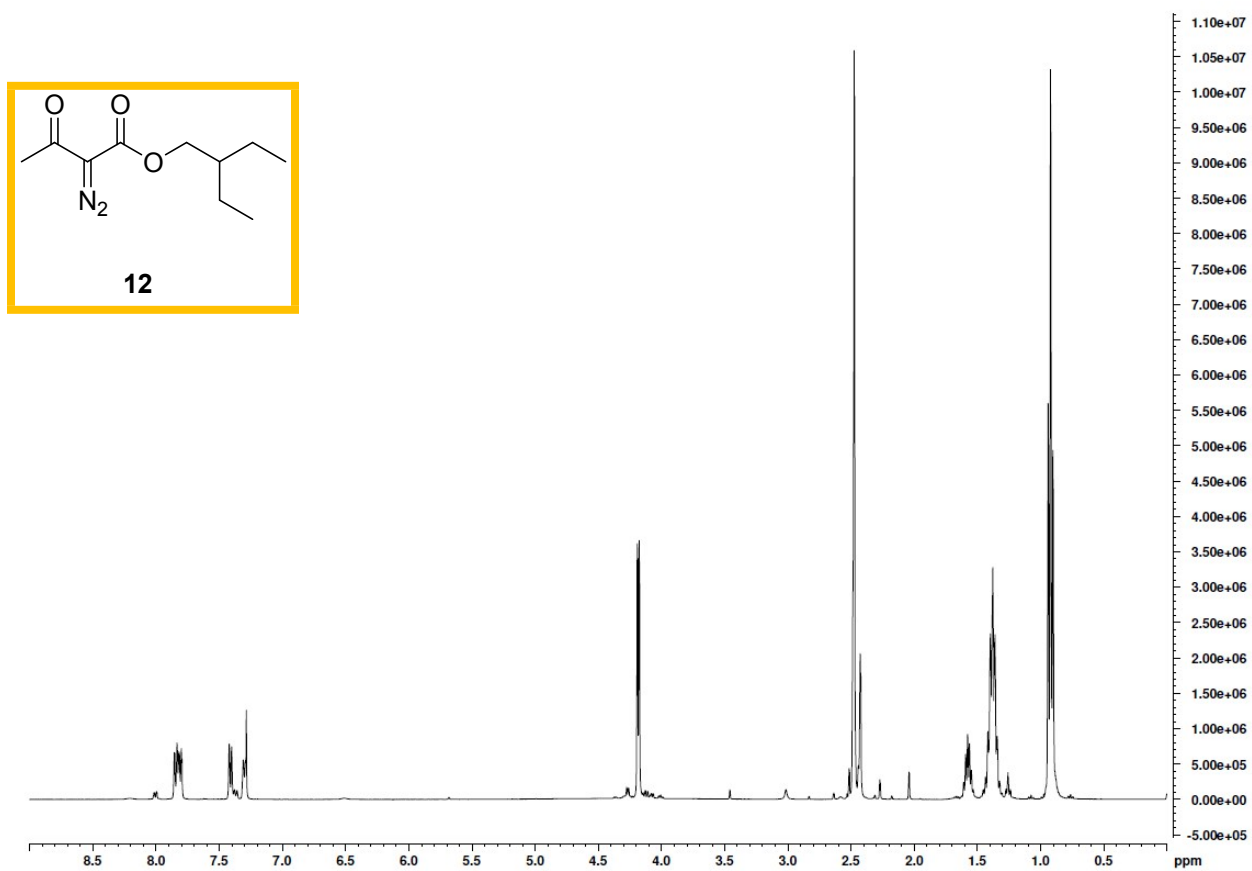


Table 3 Entry 3 – DMAP – After KOH workup



Table 3 Entry 3 – DMAP – After column chromatography

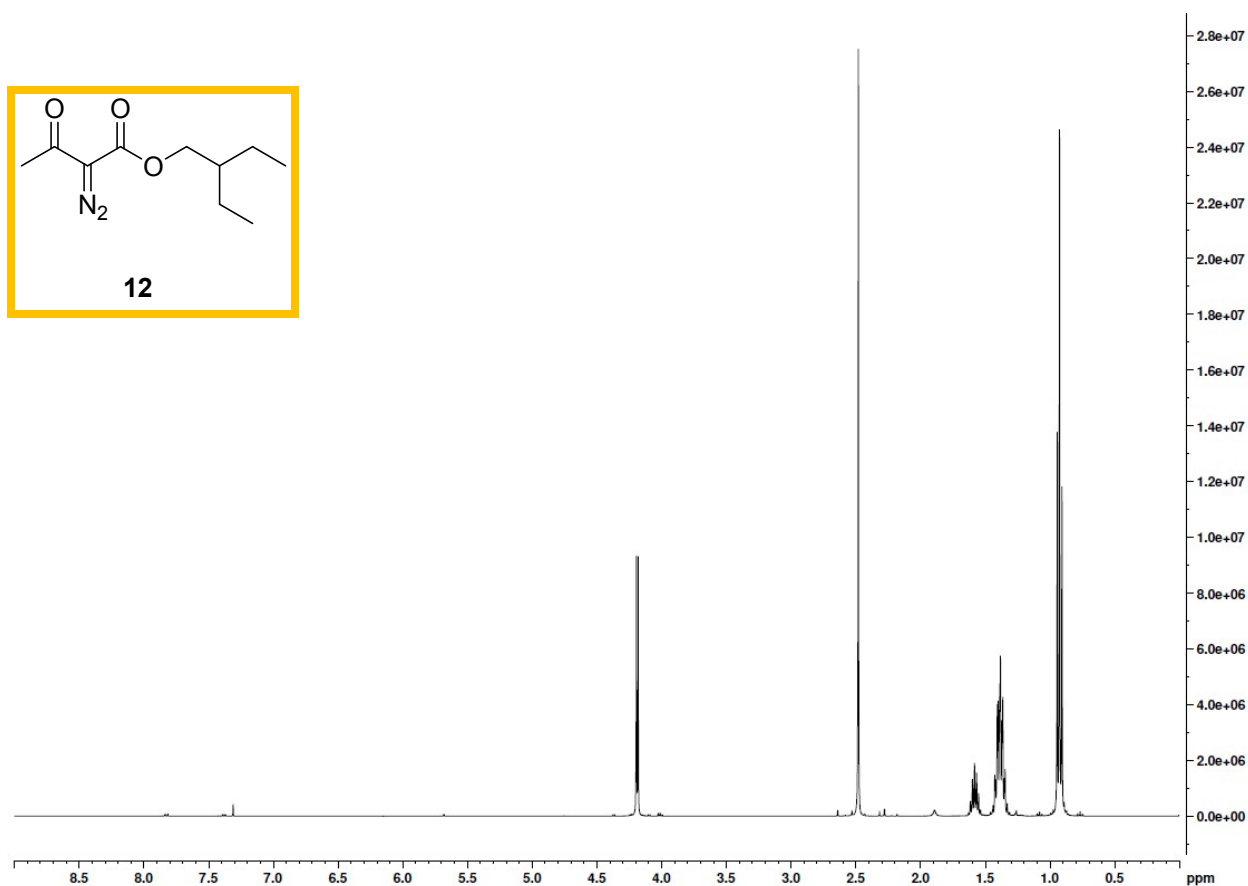


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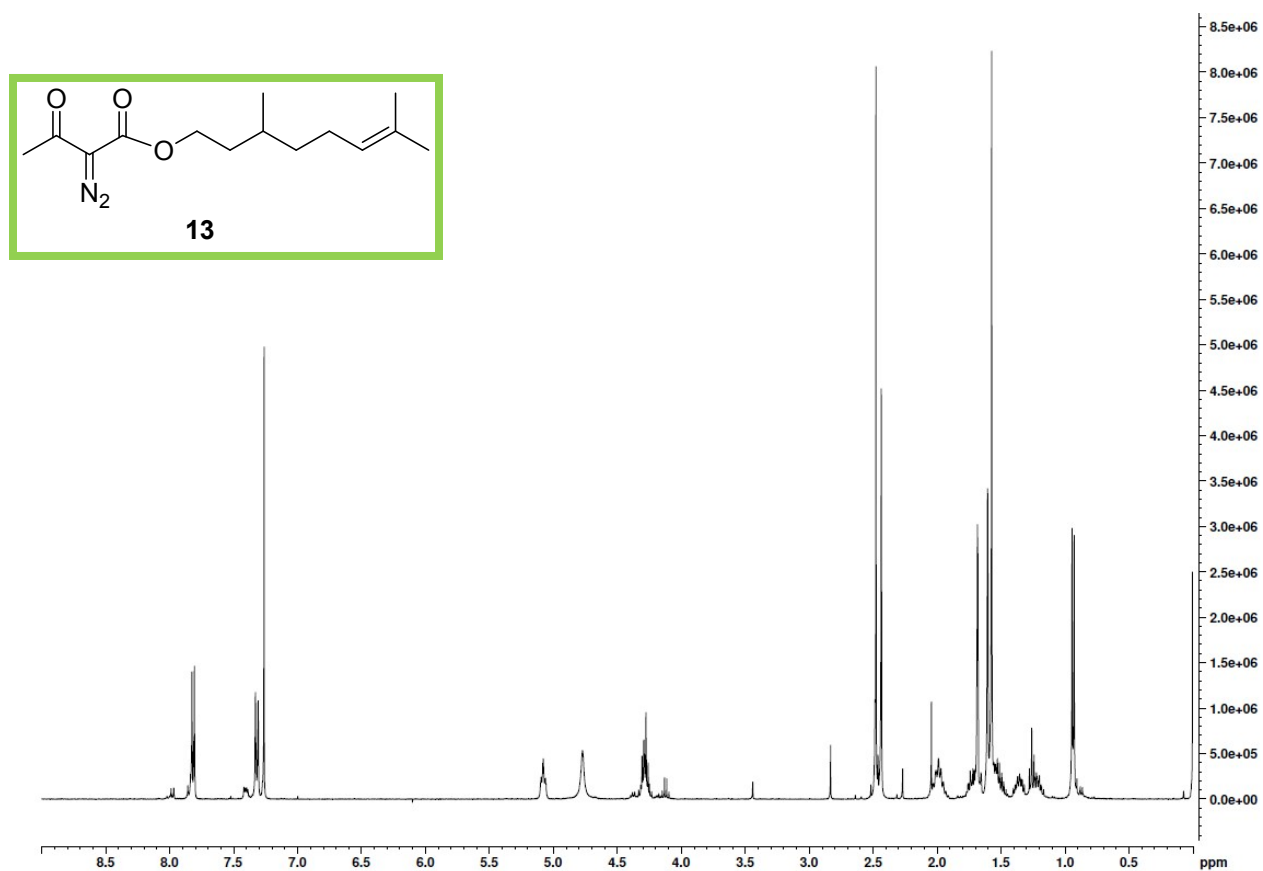


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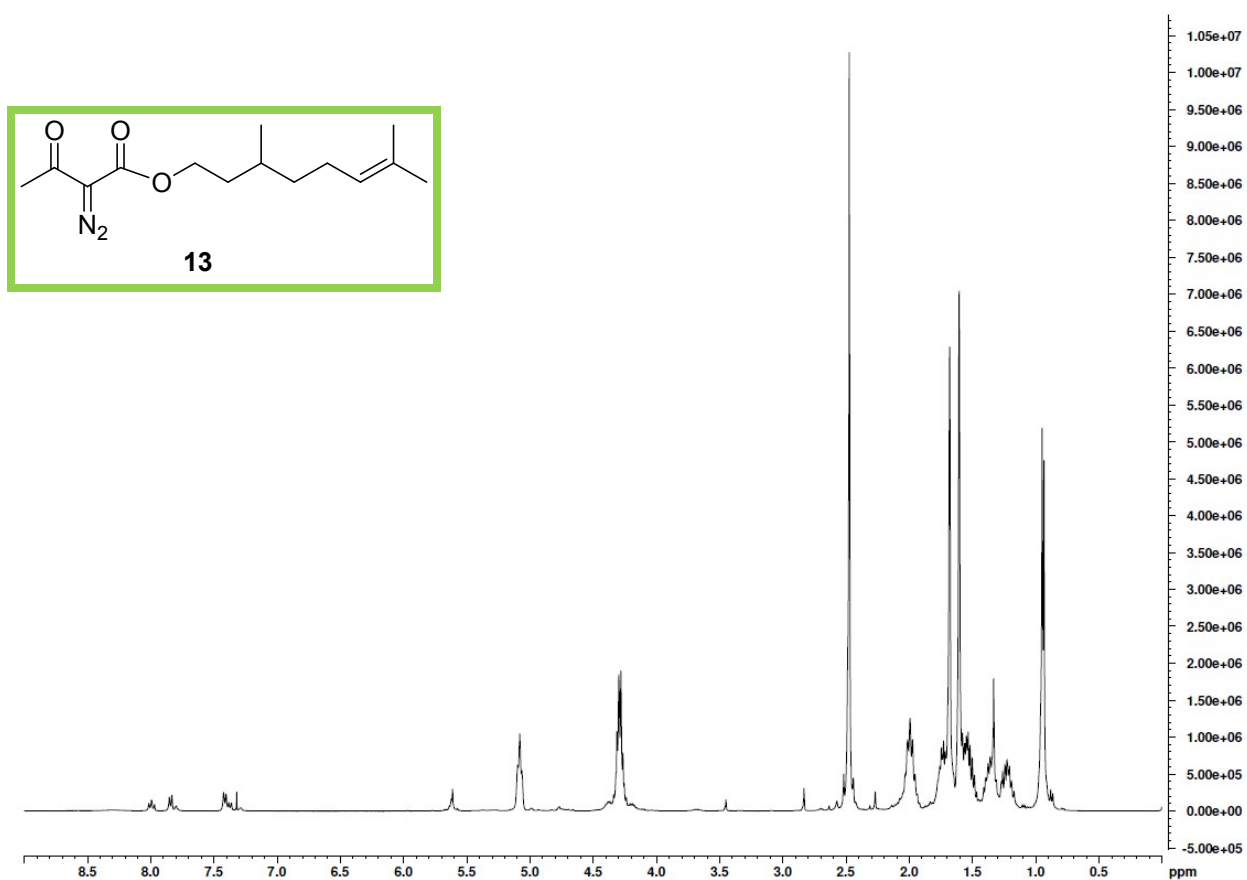
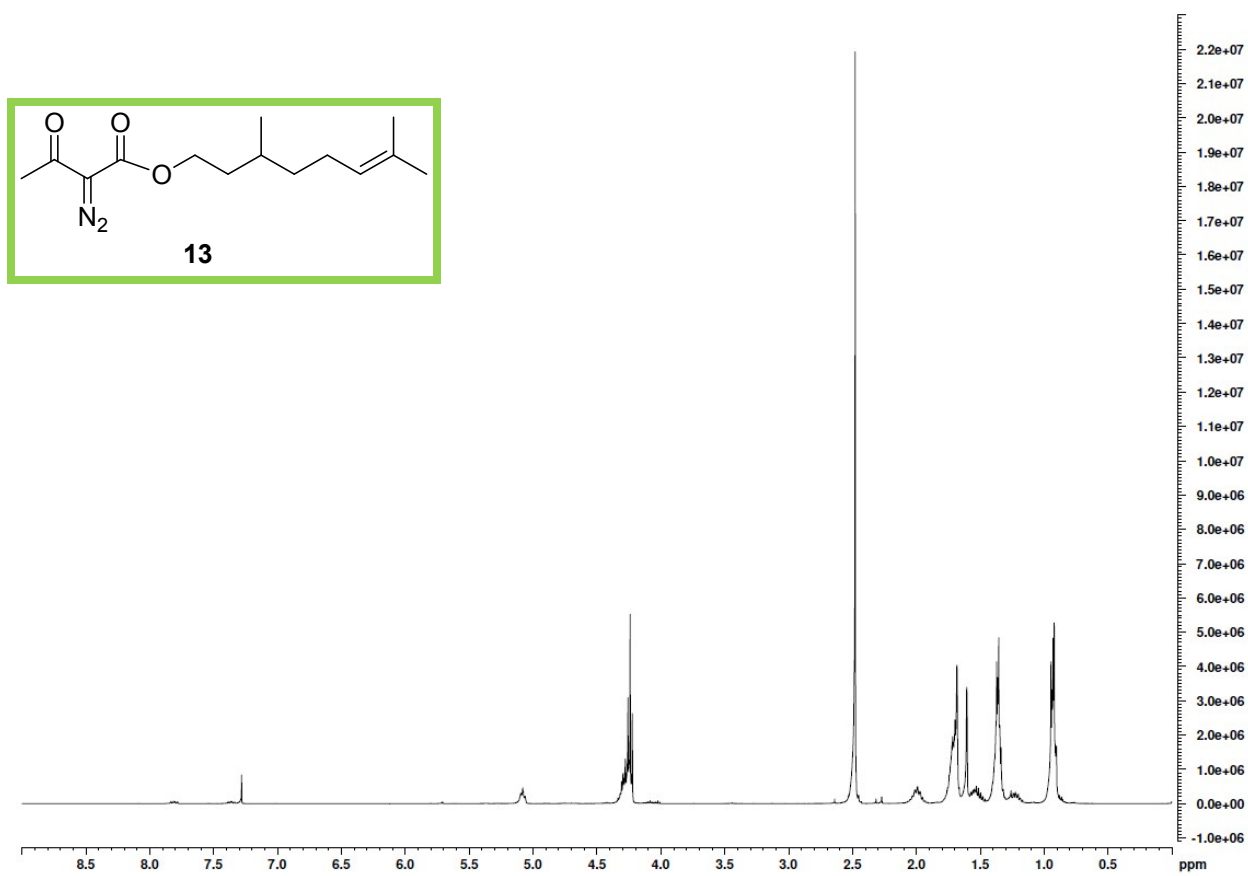


Table 3 Entry 4 – Et₃N – After column chromatography



13

7.0e+06
6.5e+06
6.0e+06
5.5e+06
5.0e+06
4.5e+06
4.0e+06
3.5e+06
3.0e+06
2.5e+06
2.0e+06
1.5e+06
1.0e+06
5.0e+05
0.0e+00

8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 ppm

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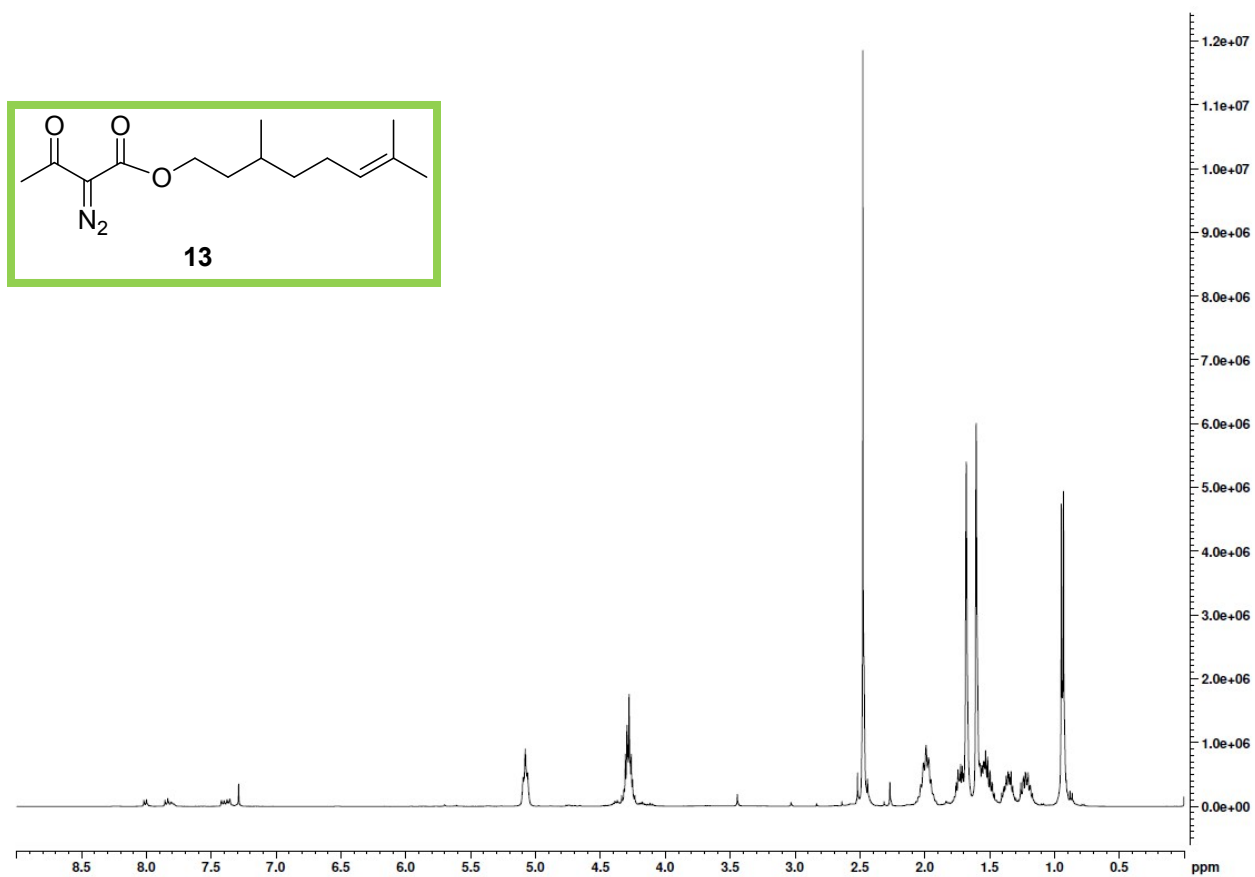


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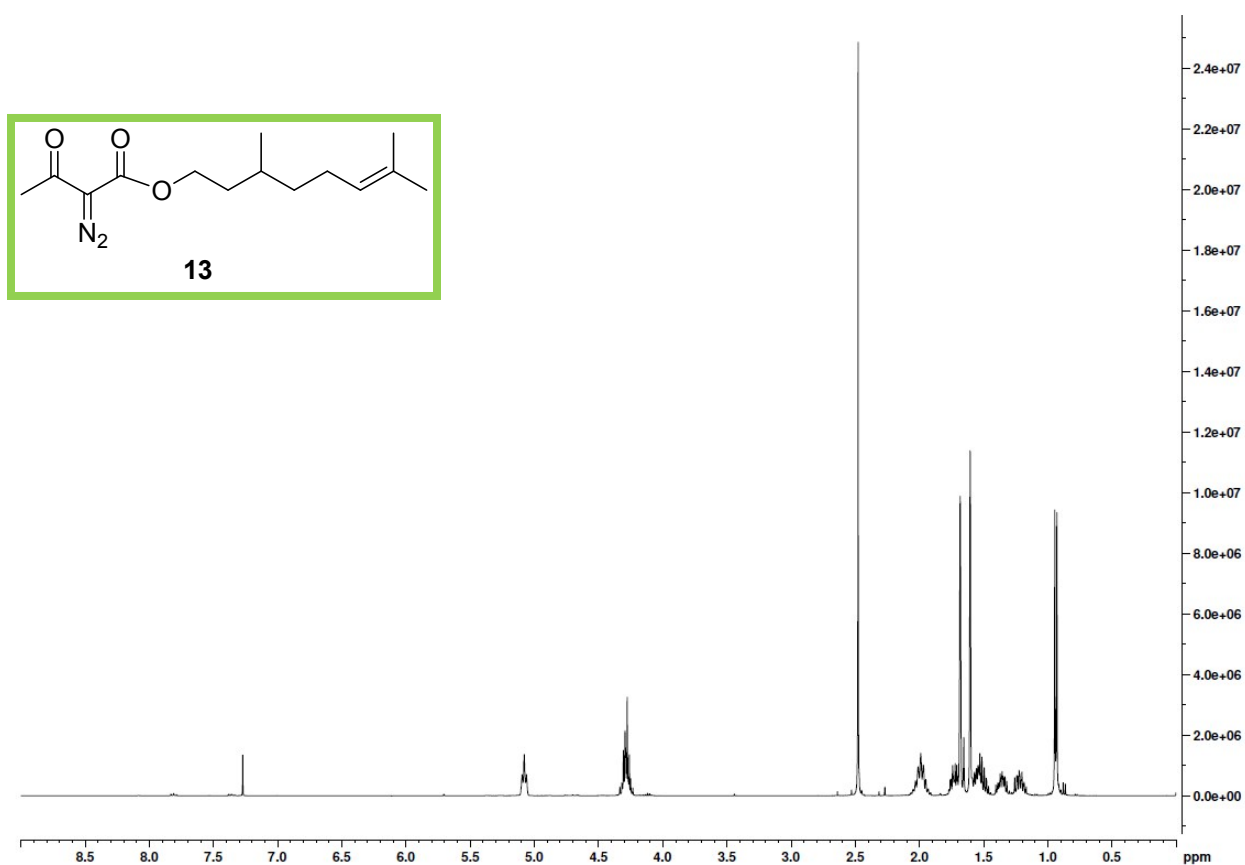


Table 3 Entry 5 – Et₃N – Before KOH workup

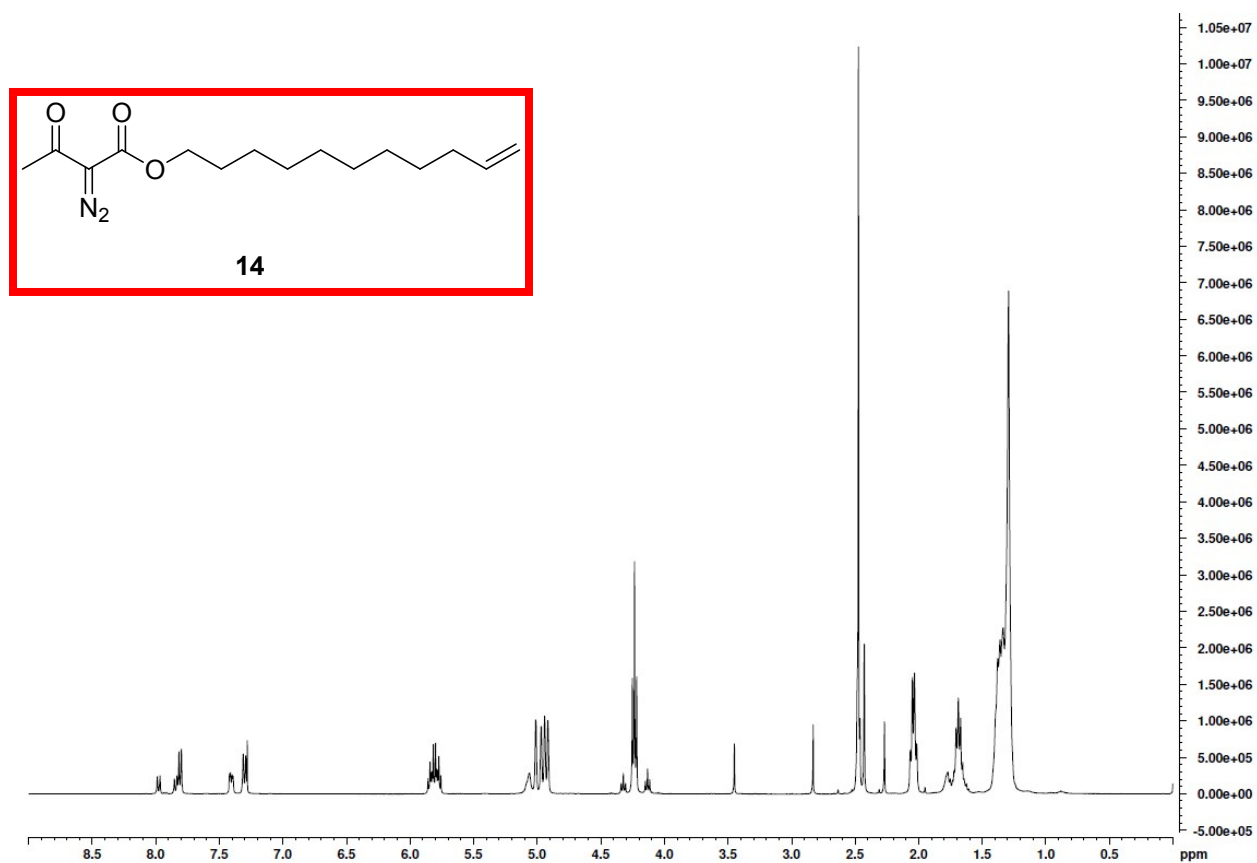


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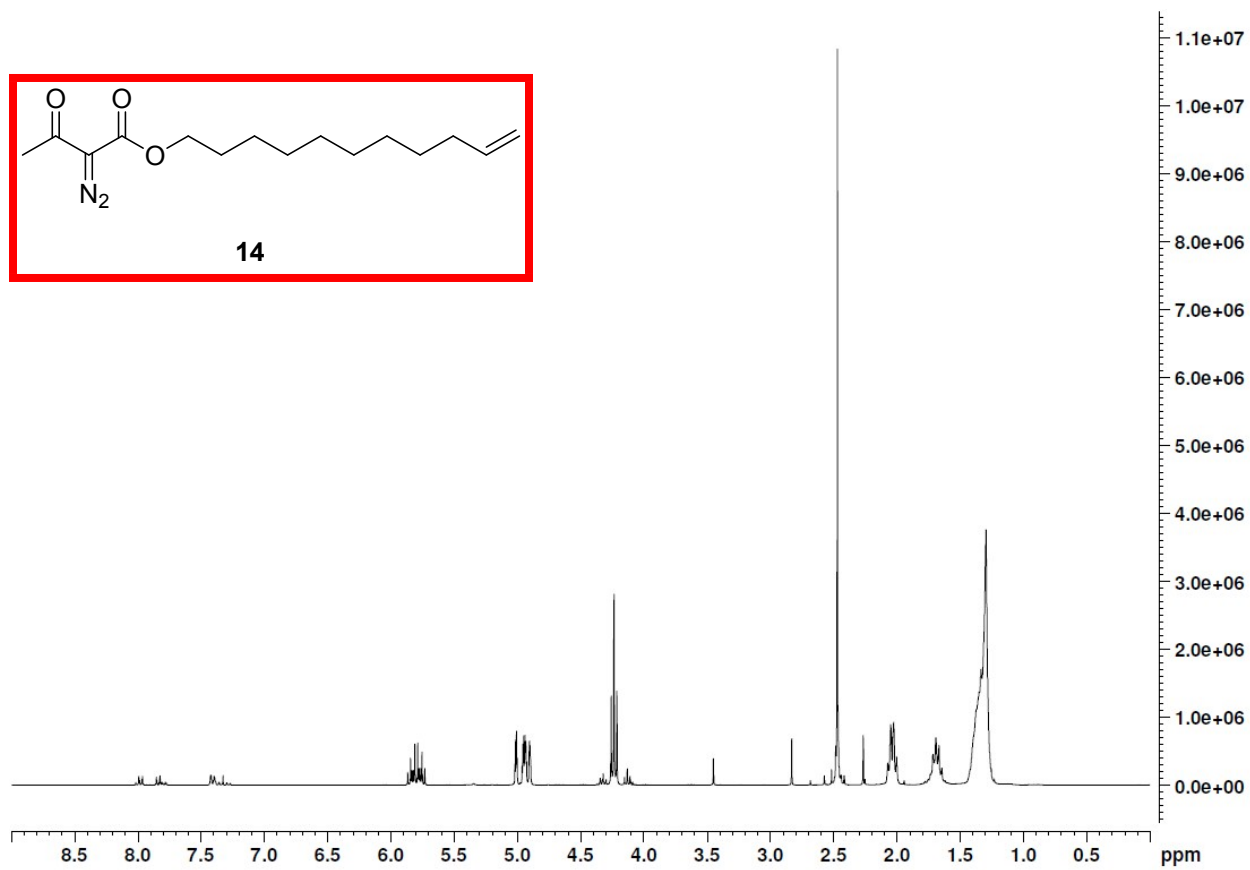


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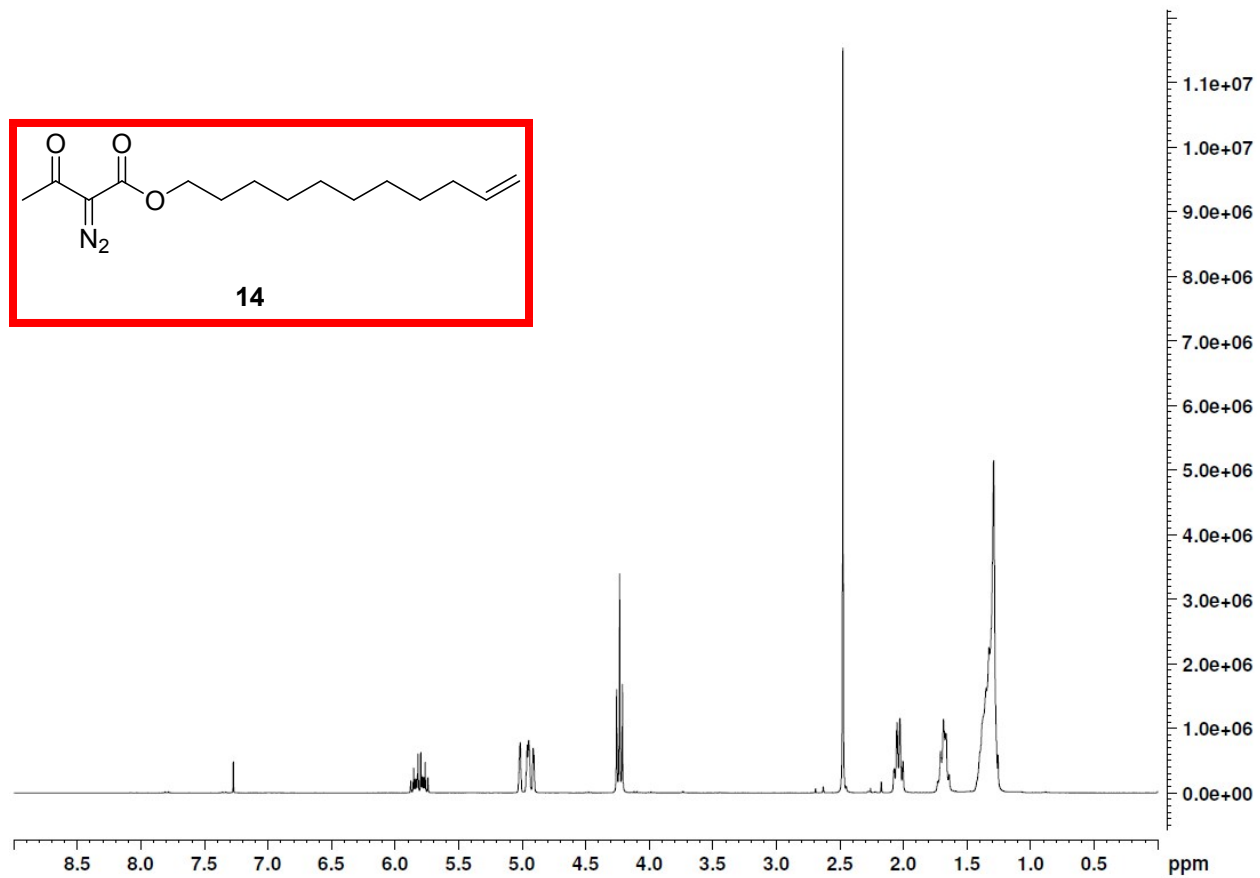


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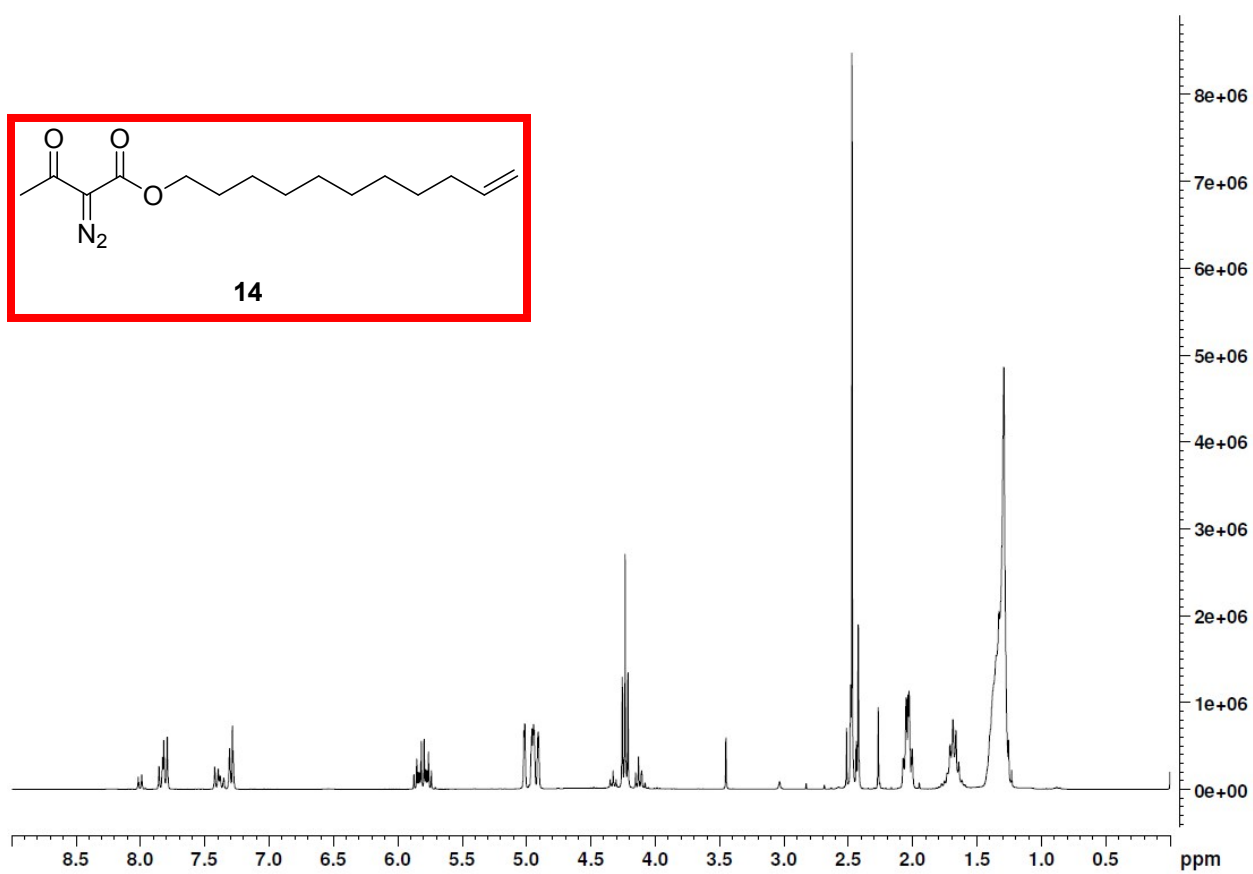


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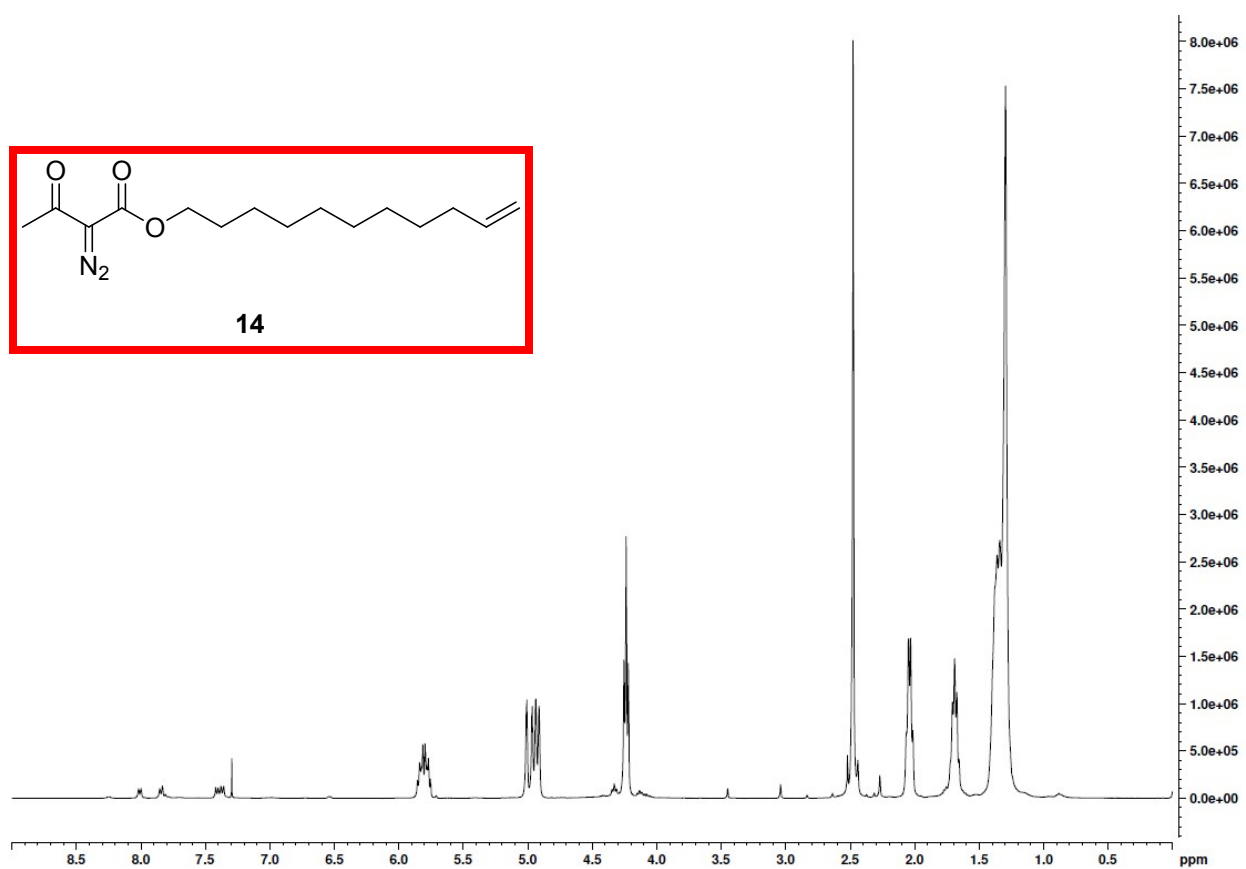


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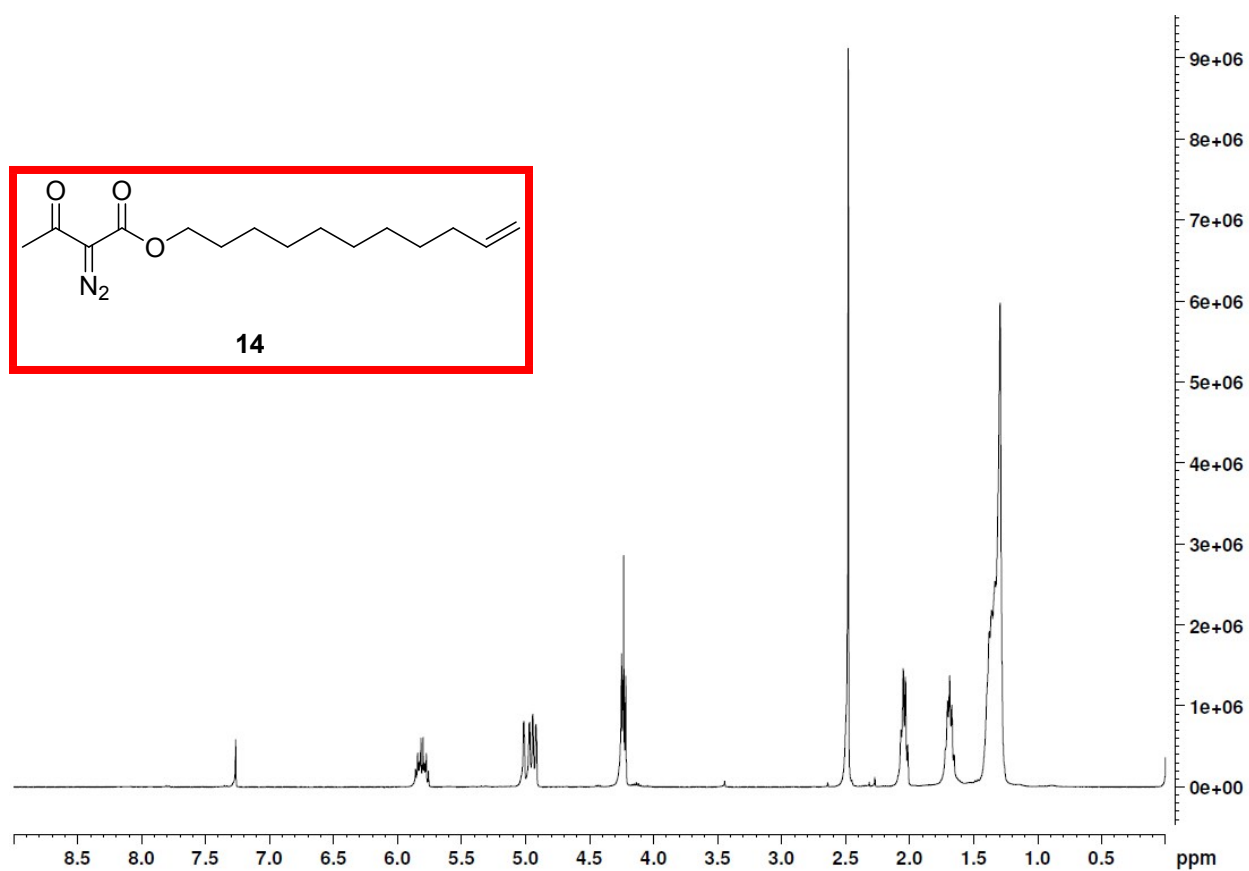


Table 3 Entry 6 – Et₃N – Before KOH workup

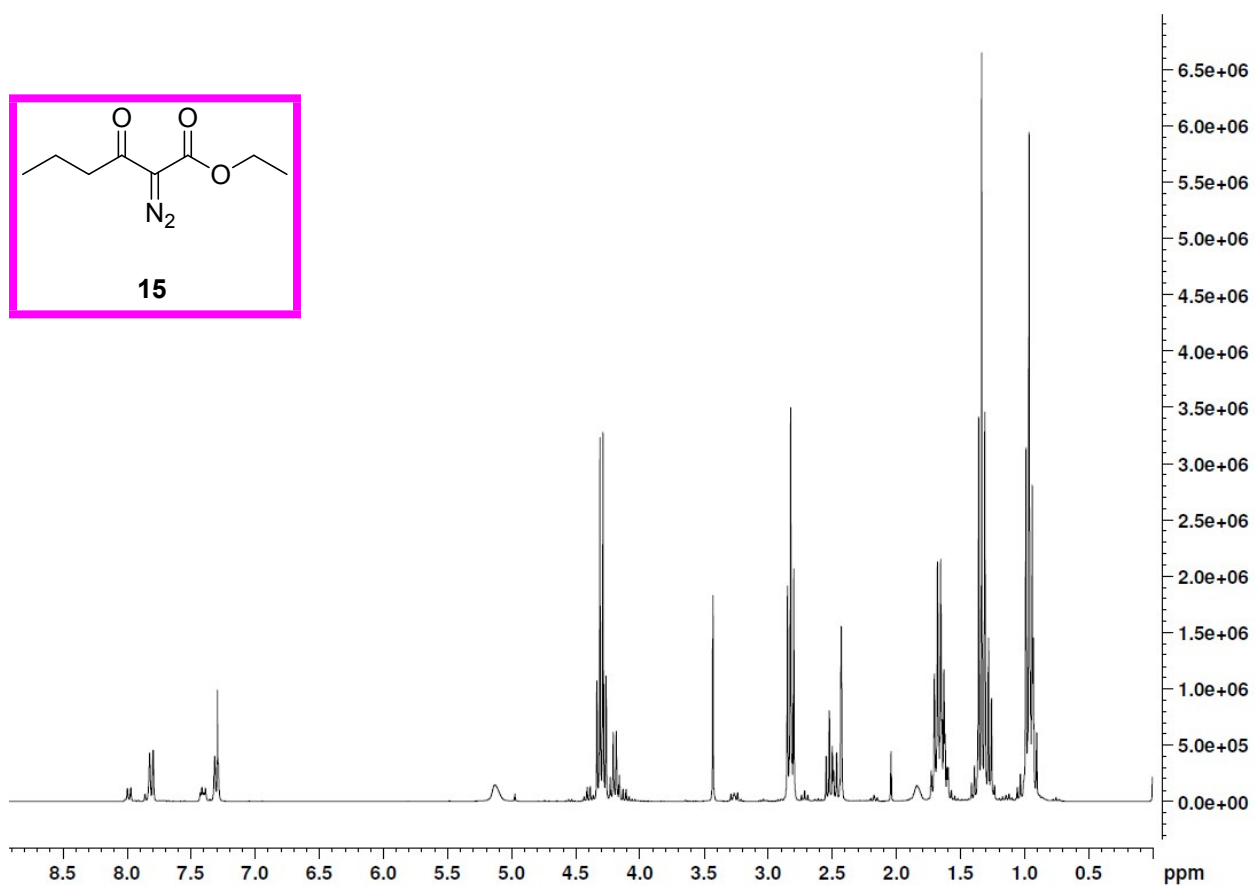


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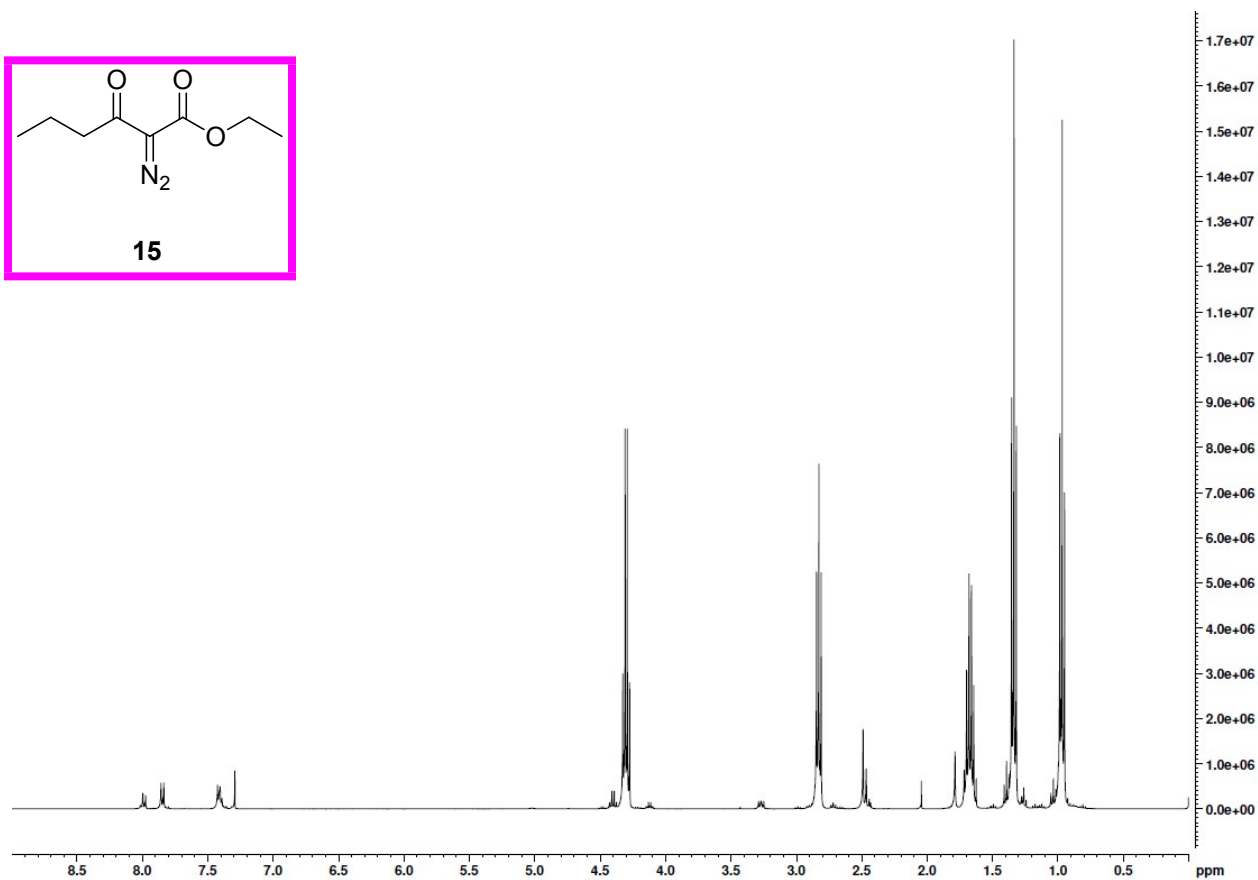
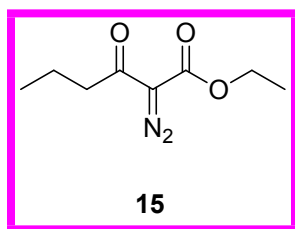


Table 3 Entry 6 – Et₃N – After column chromatography

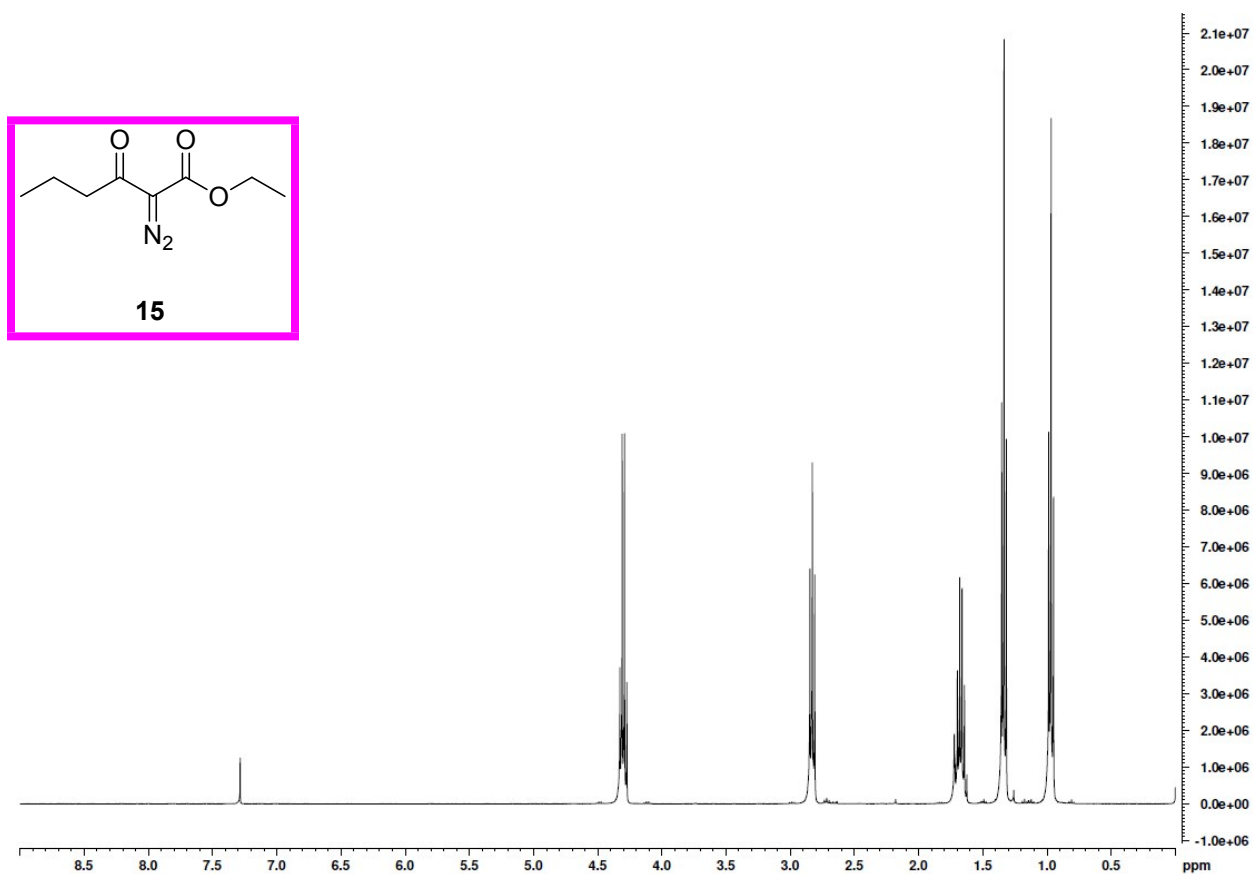


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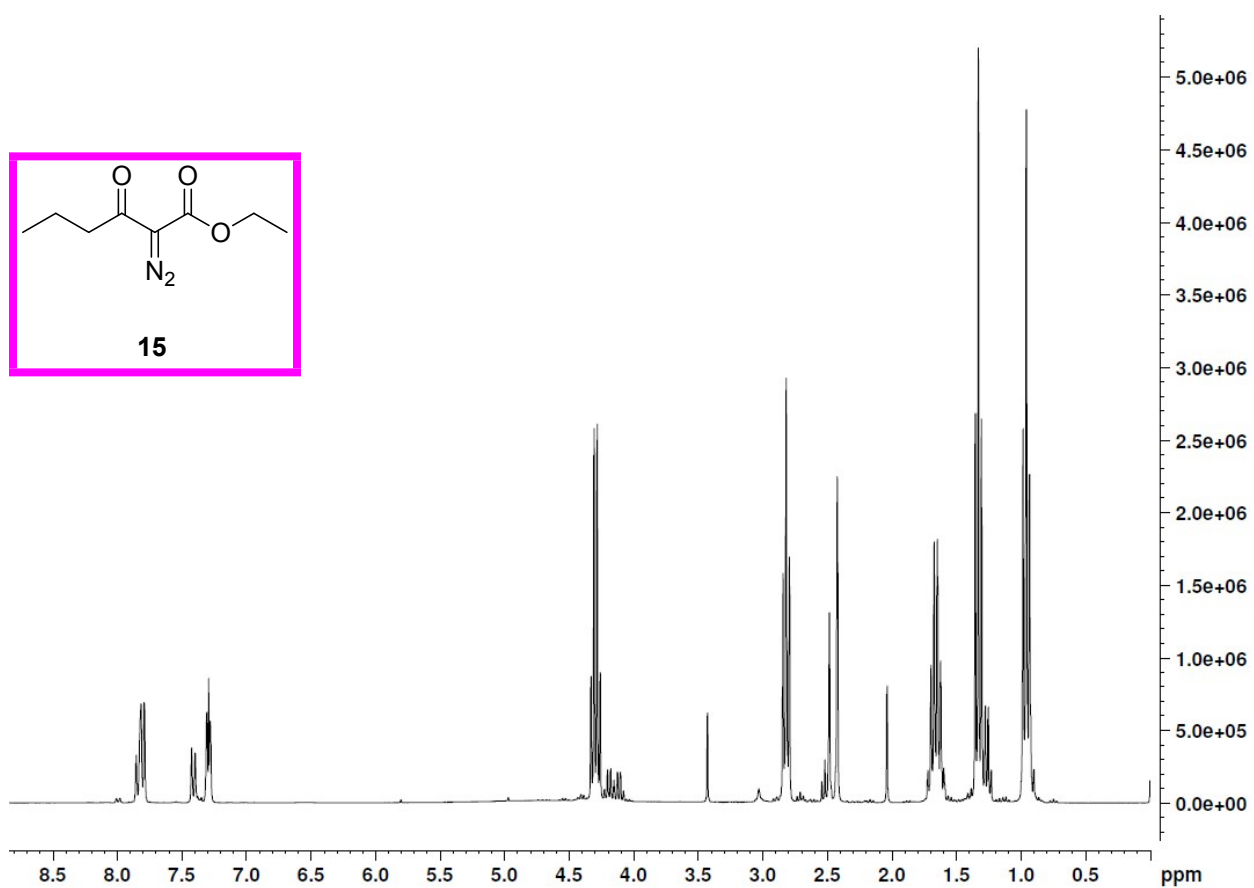


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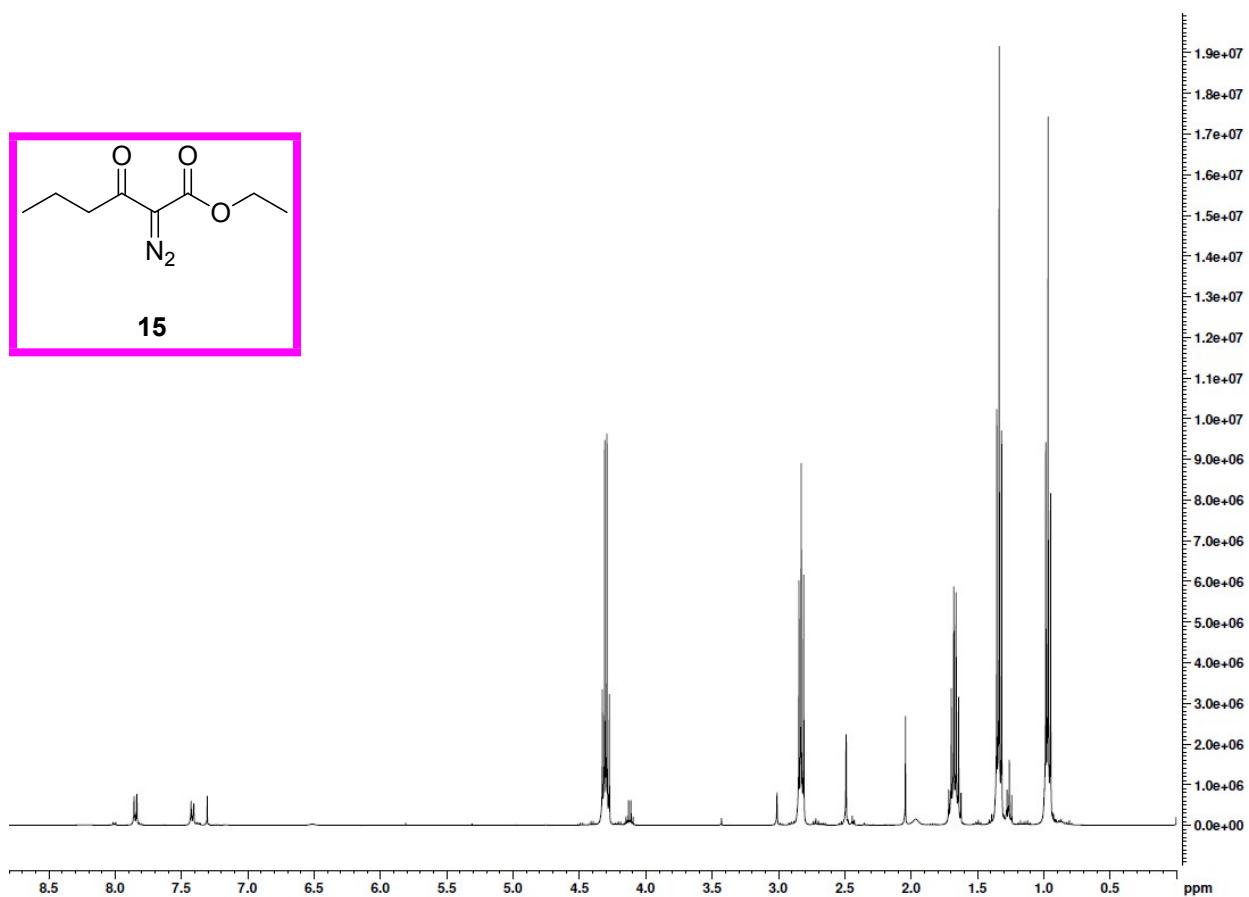


Table 3 Entry 6 – DMAP – After column chromatography

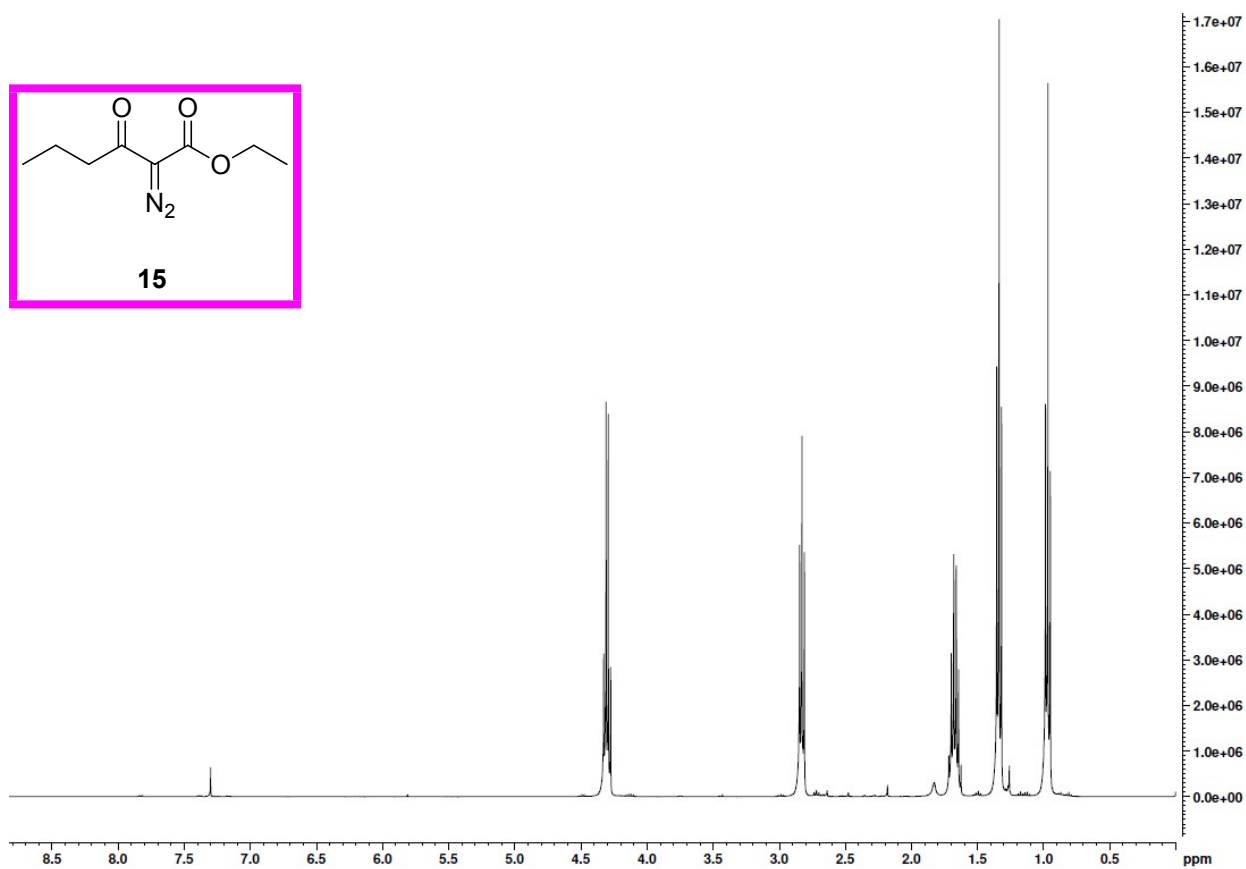


Table 4 Entry 1 – 3 eq Et_3N with polymer-bound azide

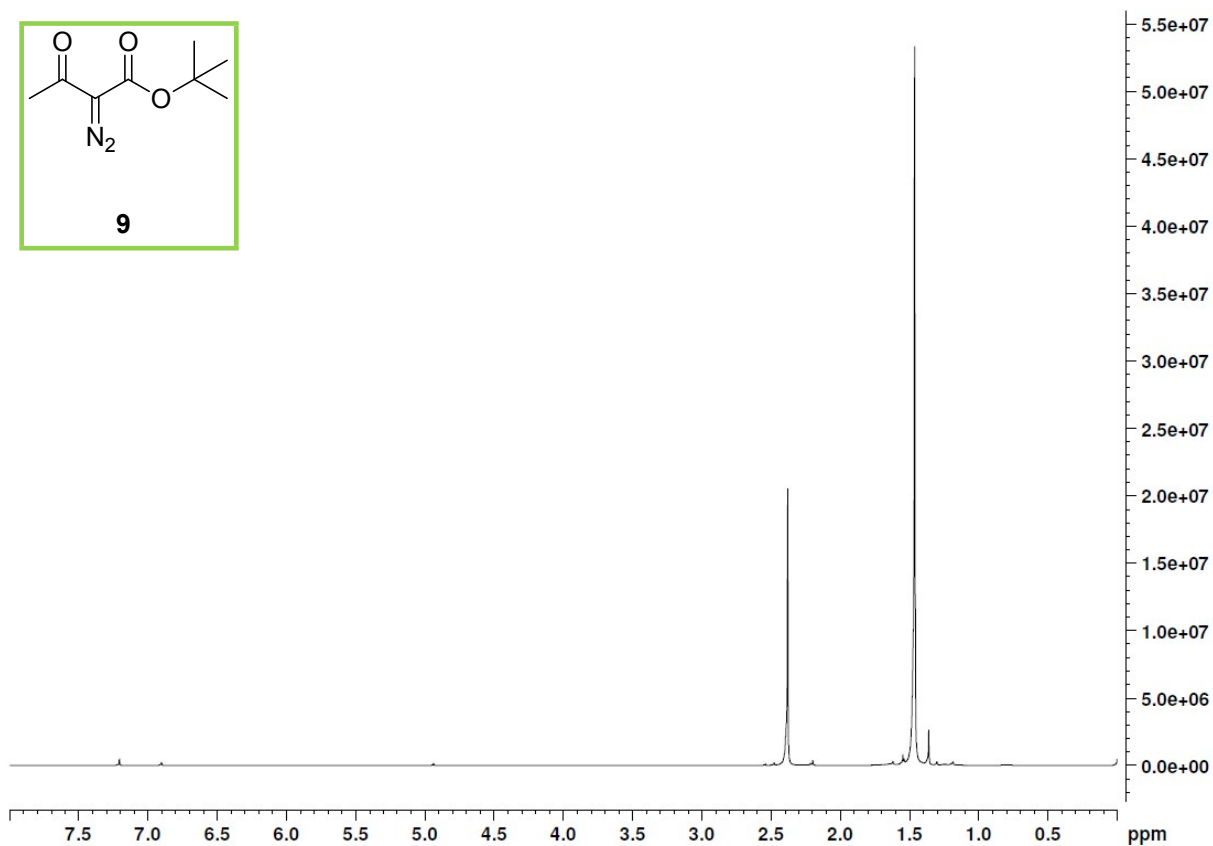
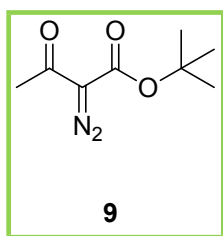


Table 4 Entry 2 – 3 eq Et_3N with polymer-bound azide

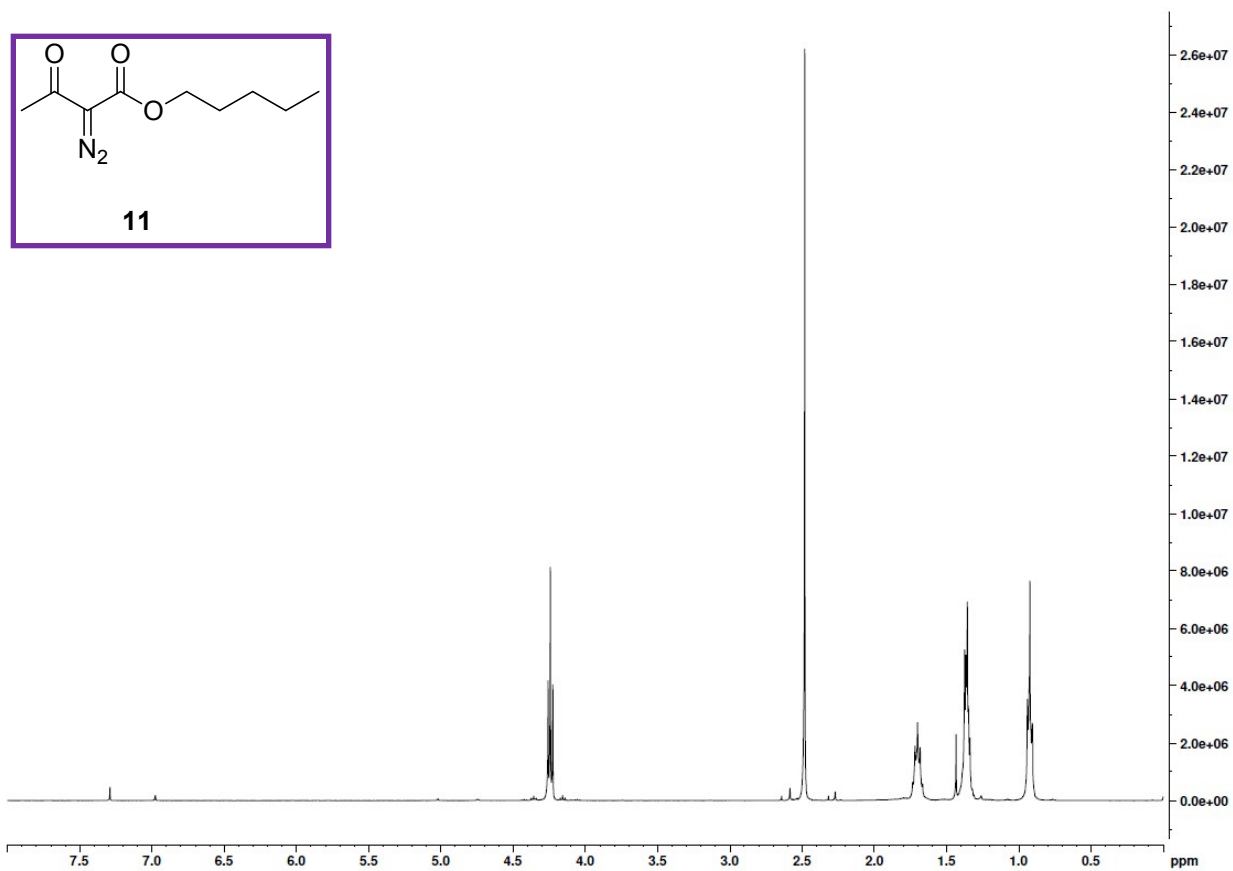
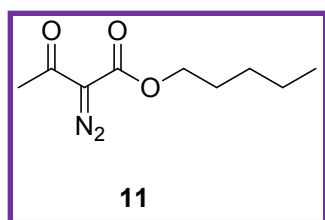


Table 4 Entry 3 – 3 eq Et_3N with polymer-bound azide

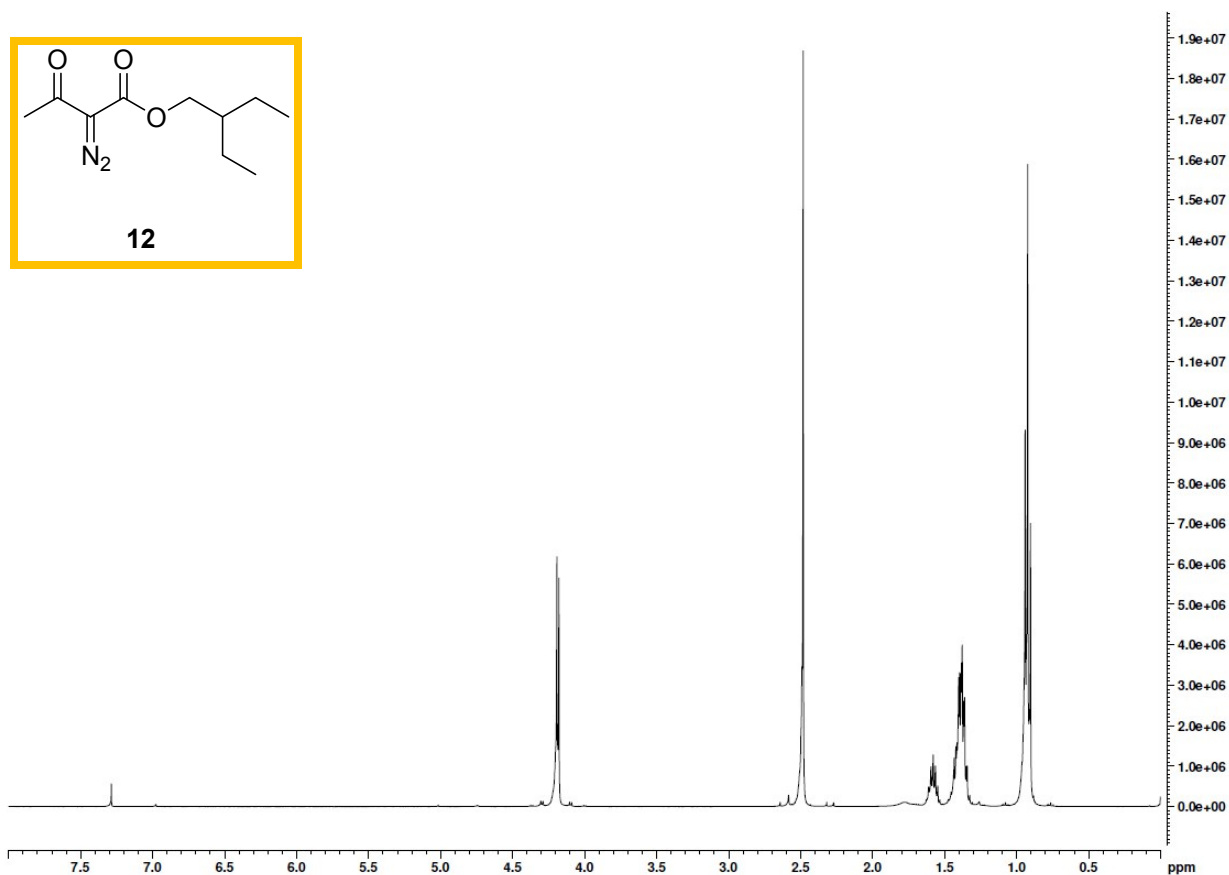
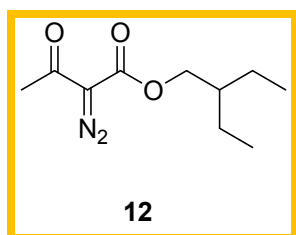


Table 4 Entry 4 – 3 eq Et₃N with polymer-bound azide

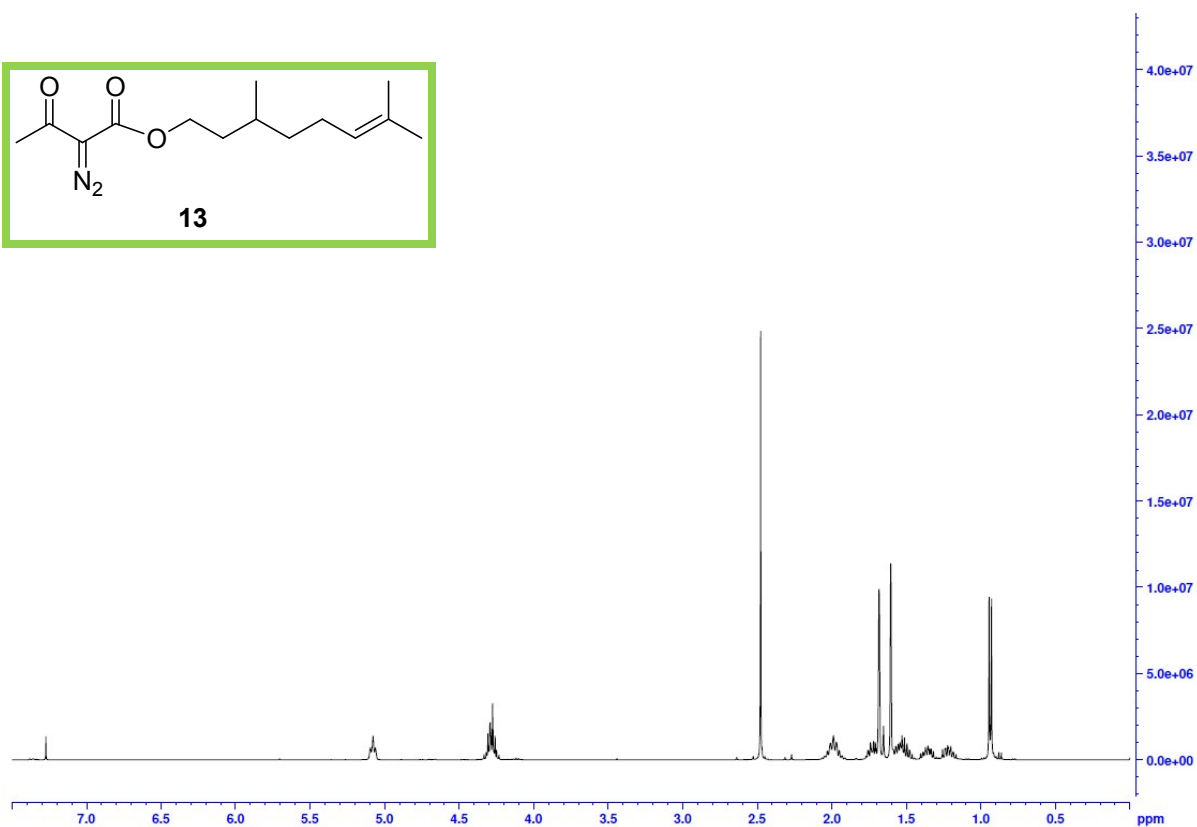
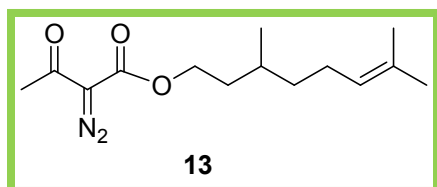


Table 4 Entry 5 – 3 eq Et_3N with polymer-bound azide

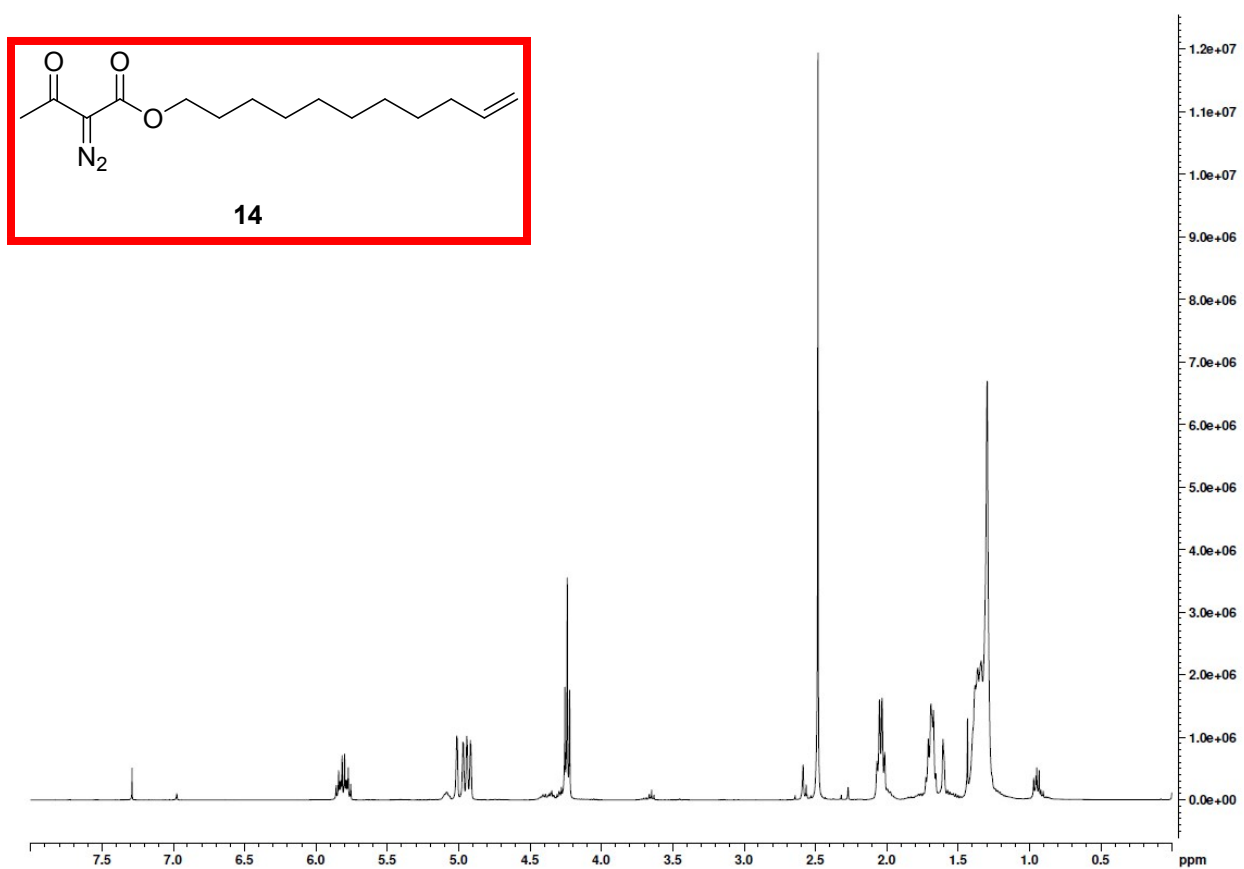


Table 4 Entry 6 – 3 eq Et₃N with polymer-bound azide

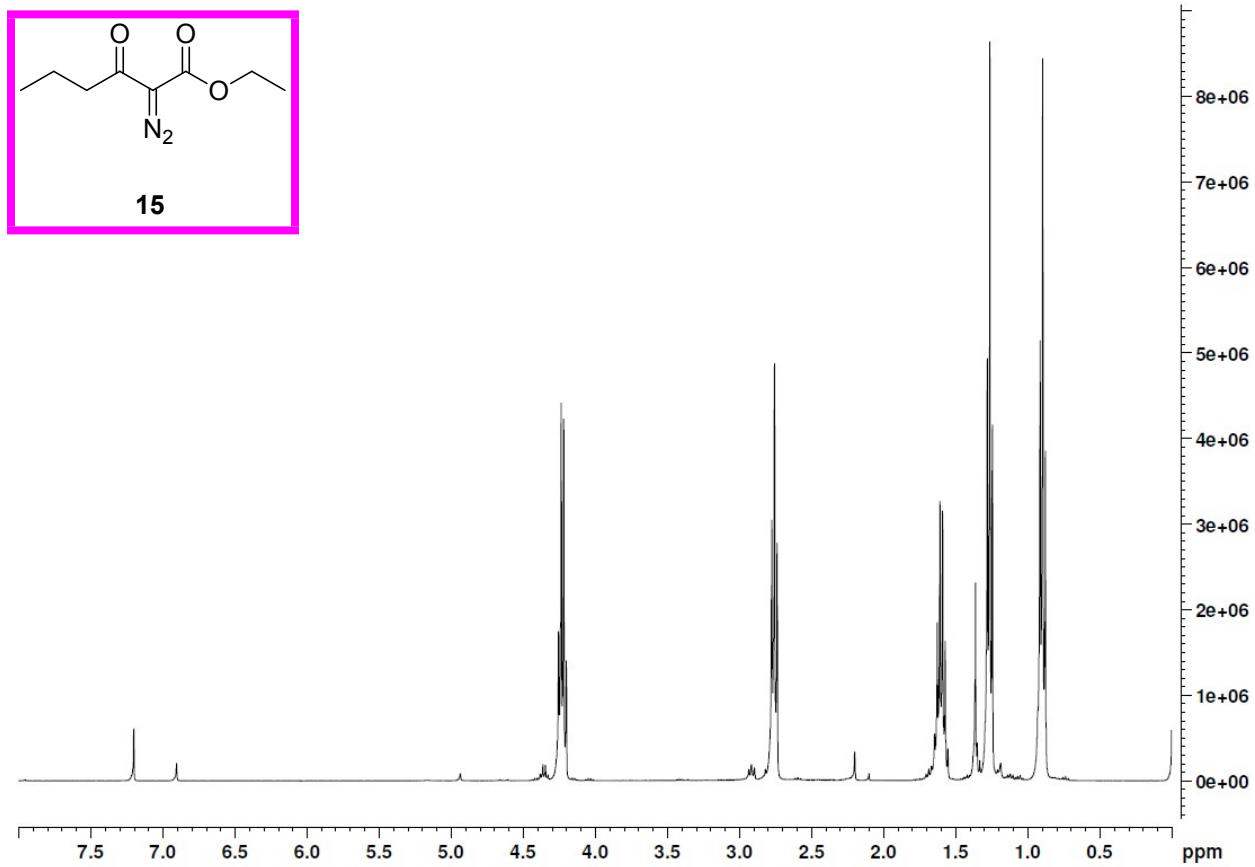


Table 5 Entry 1 – 0.25 eq Et₃N with polymer bound azide

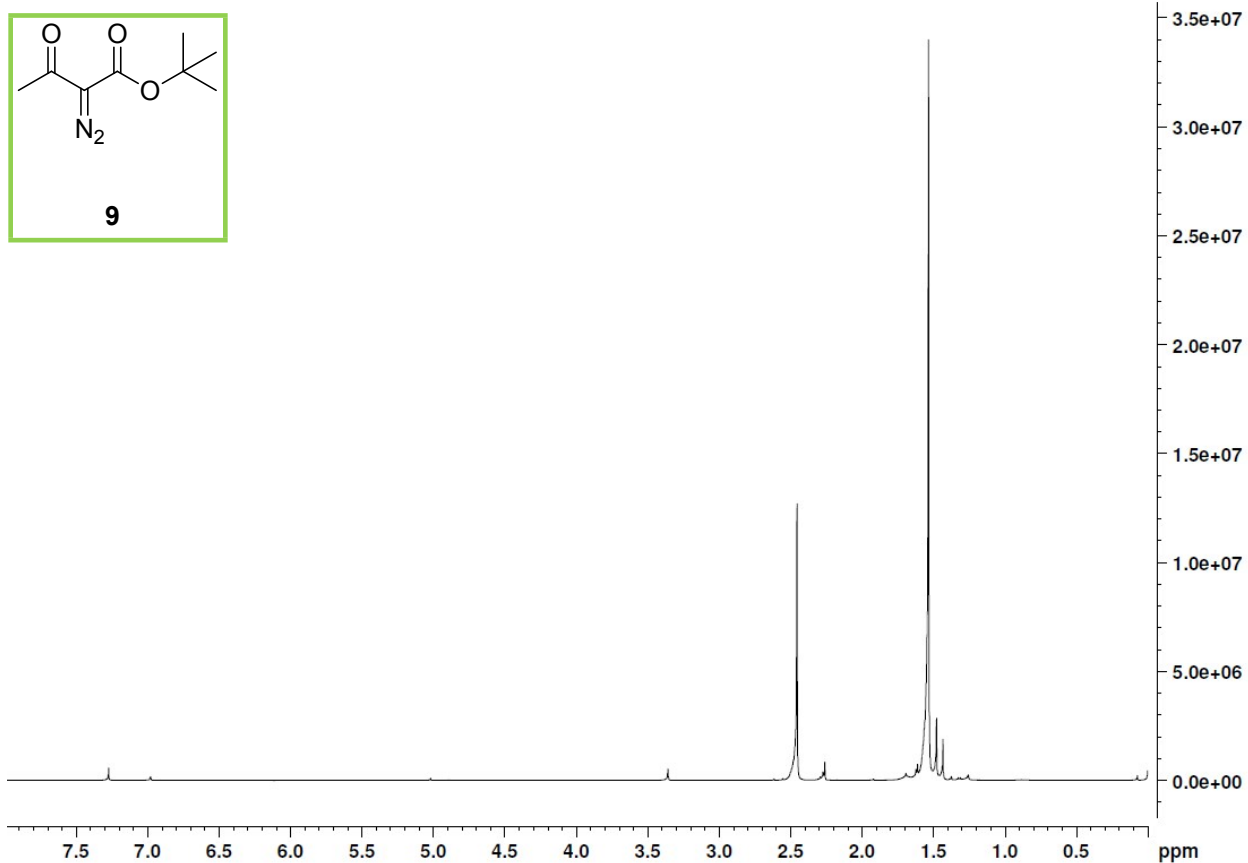


Table 5 Entry 2 – 0.25 eq Et_3N with polymer bound azide

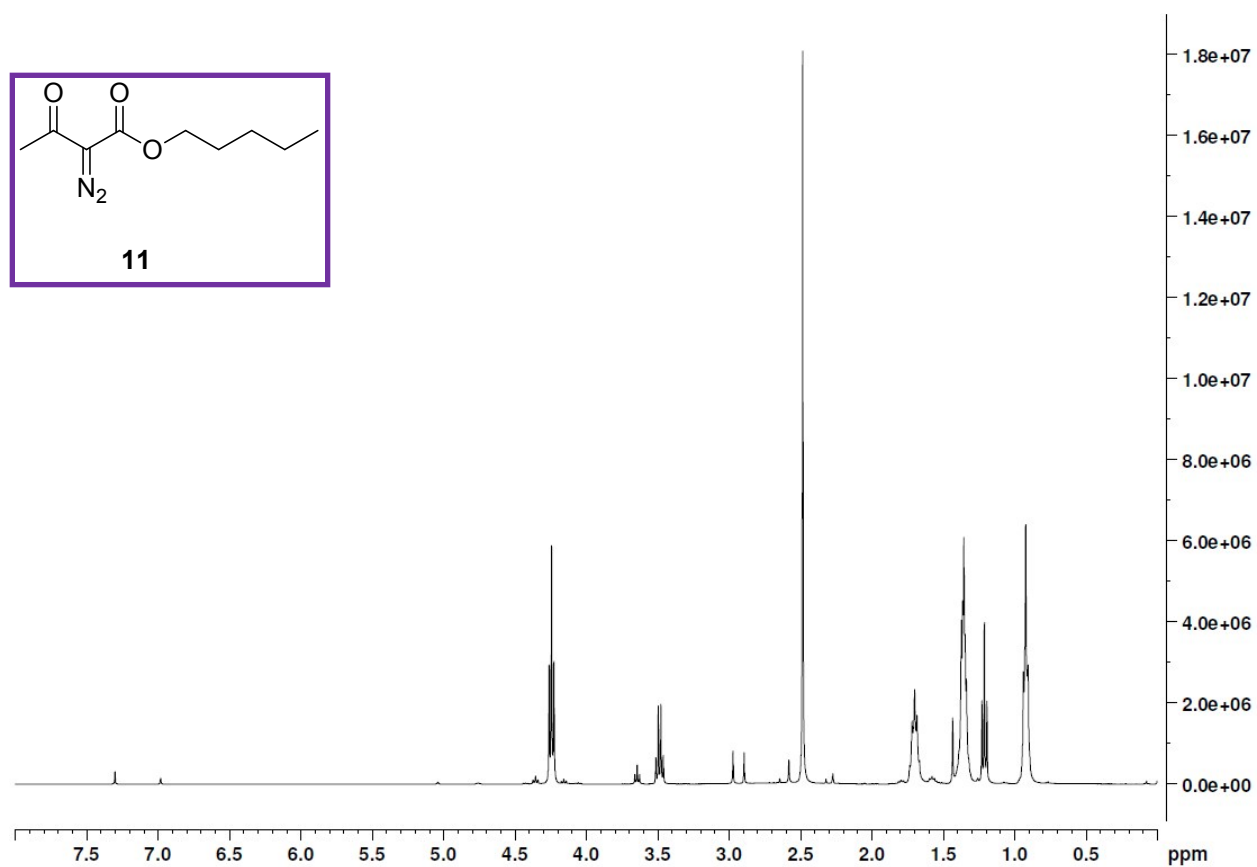


Table 5 Entry 3 – 0.25 eq Et_3N with polymer bound azide

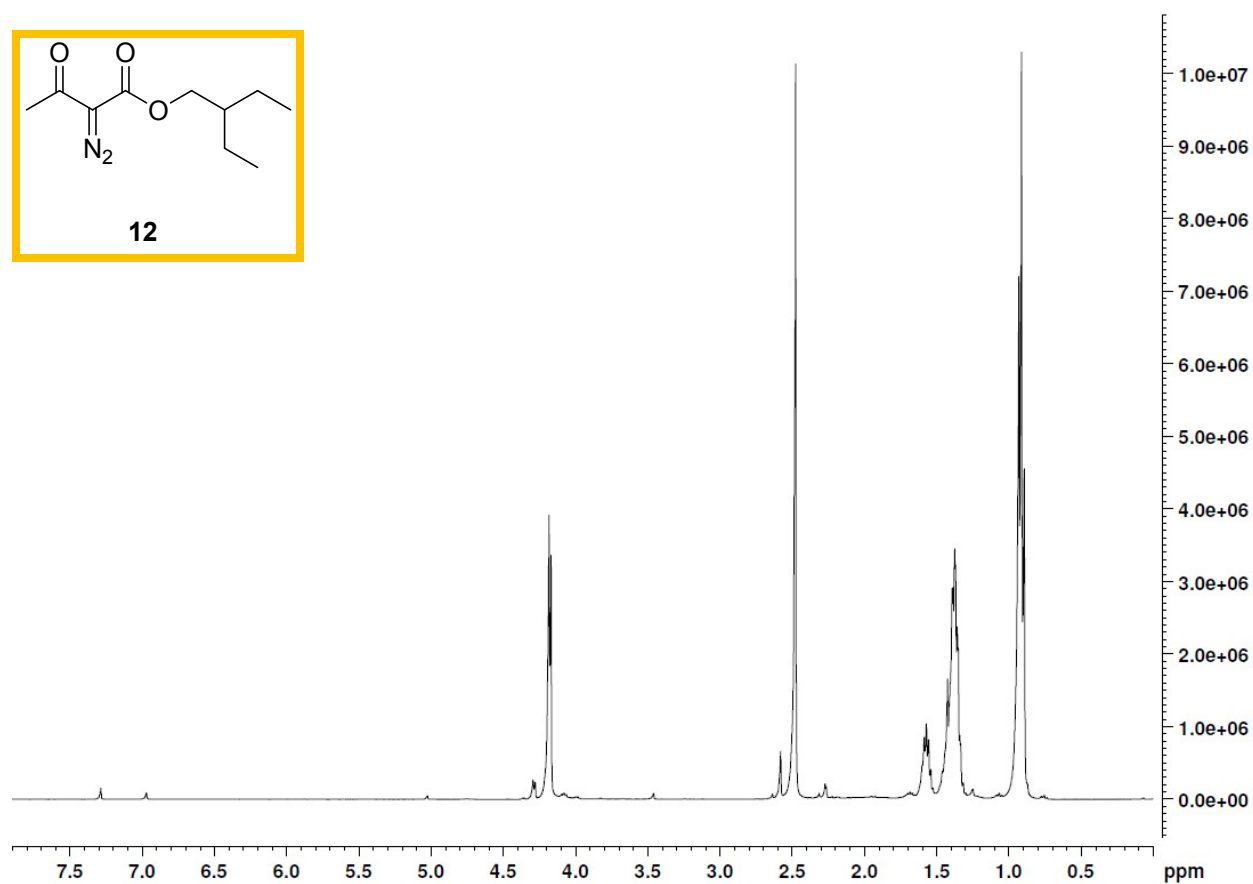
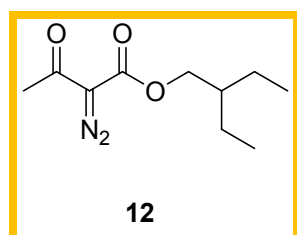


Table 5 Entry 4 – 0.25 eq Et_3N with polymer bound azide

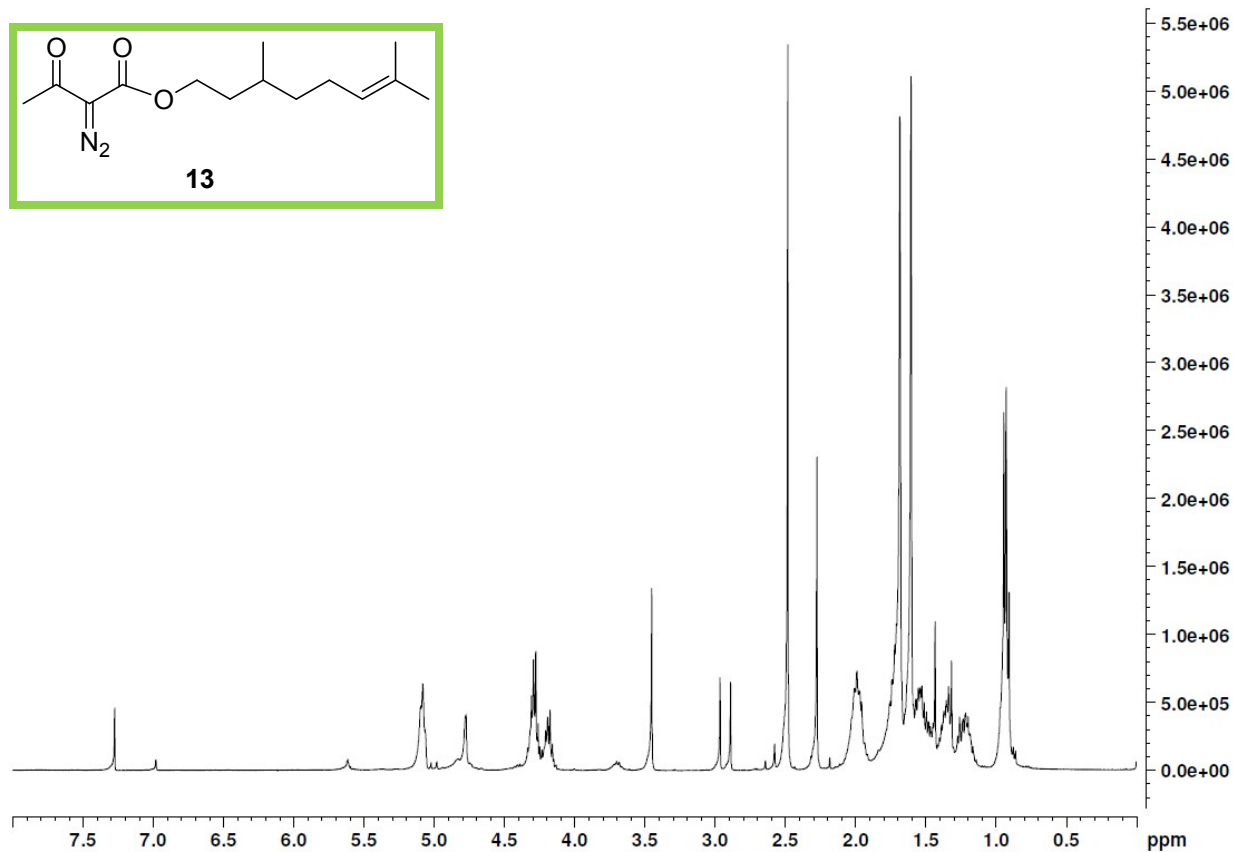


Table 5 Entry 5 – 0.25 eq Et₃N with polymer bound azide

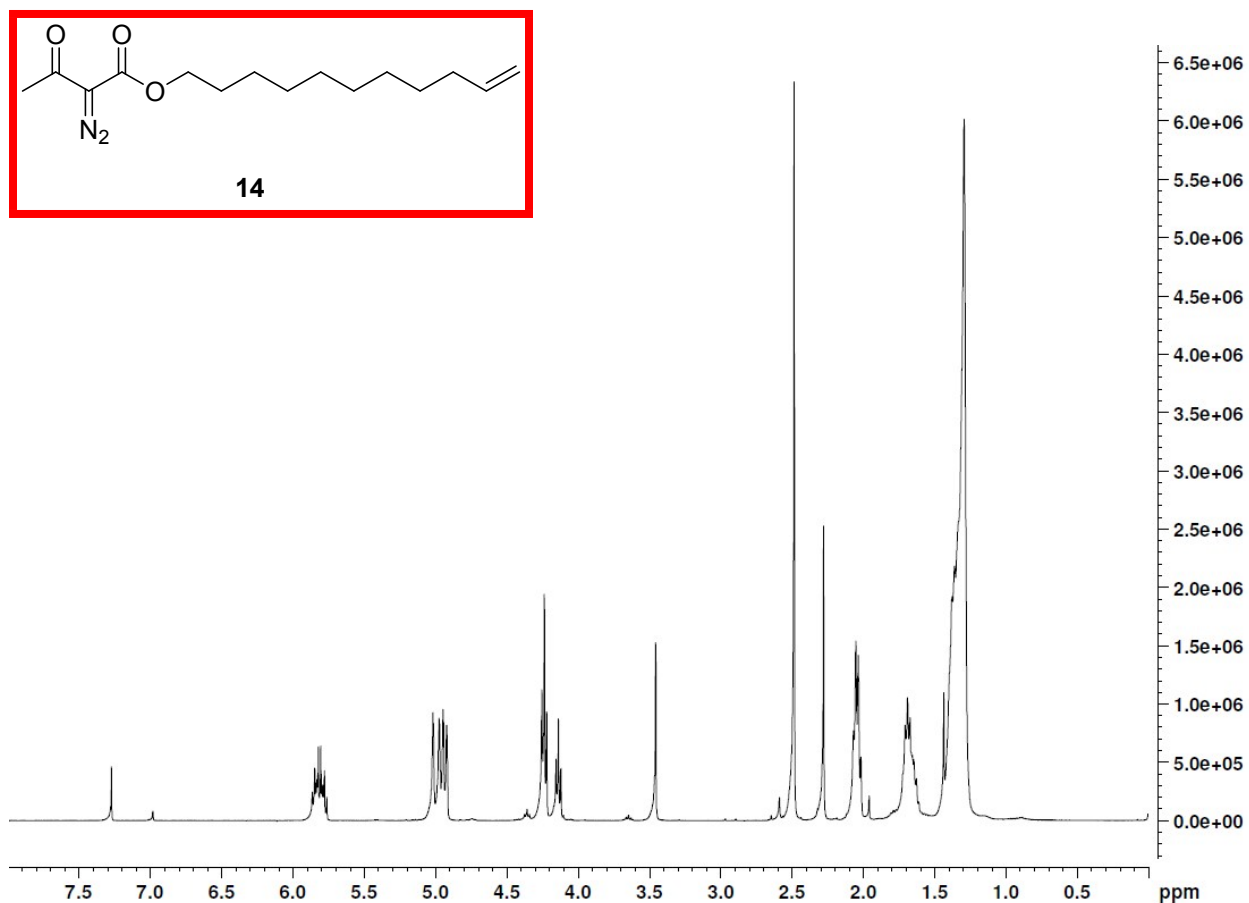


Table 5 Entry 6 – 0.25 eq Et₃N with polymer bound azide

