

Supplementary Materials

Synthesis of Novel Trisubstituted Olefin-type Probe Molecules Containing *N*-Heterocycles and Their Application in Detection of Malononitrile

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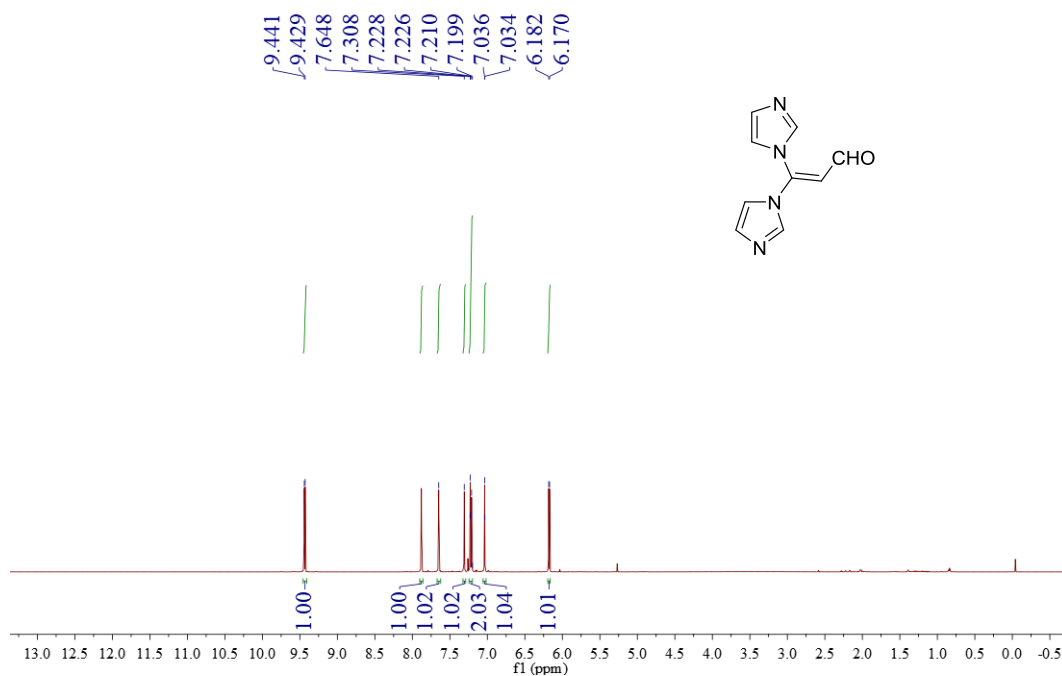
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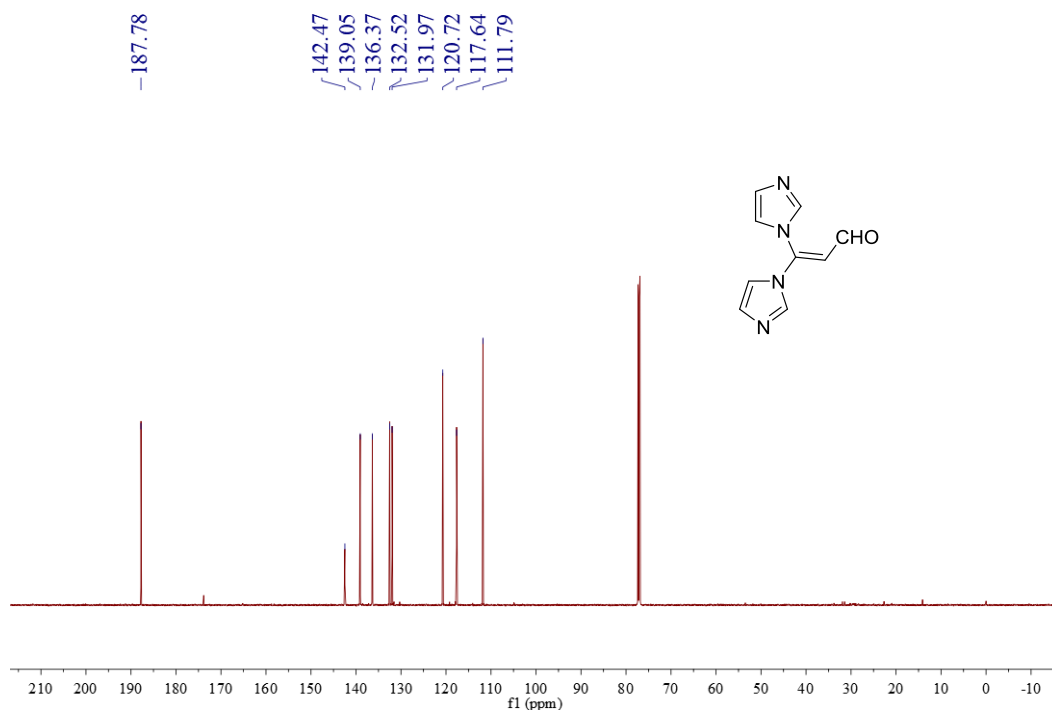
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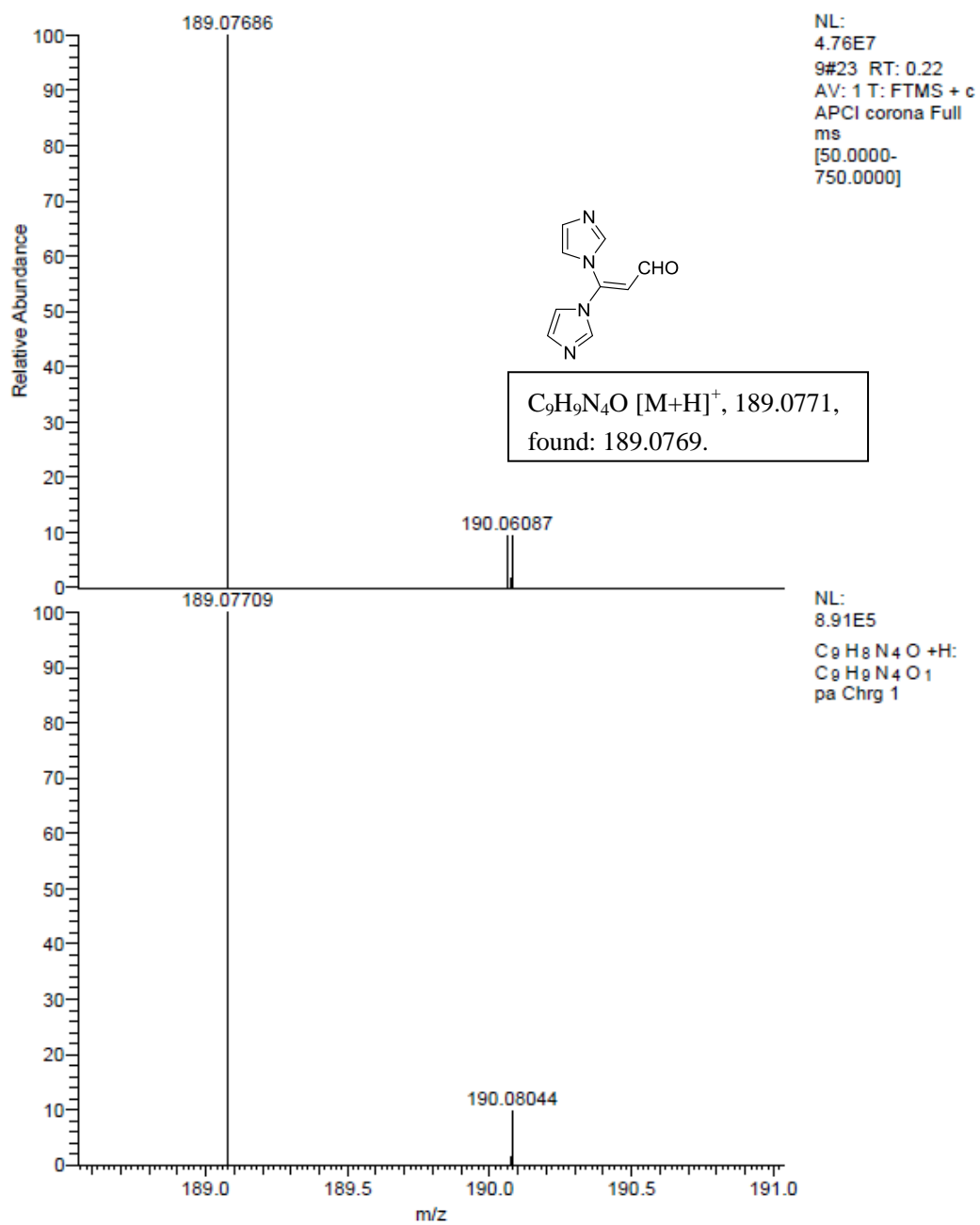
^1H NMR, ^{13}C NMR and HR-MS Spectra for All Compounds 3a-3f



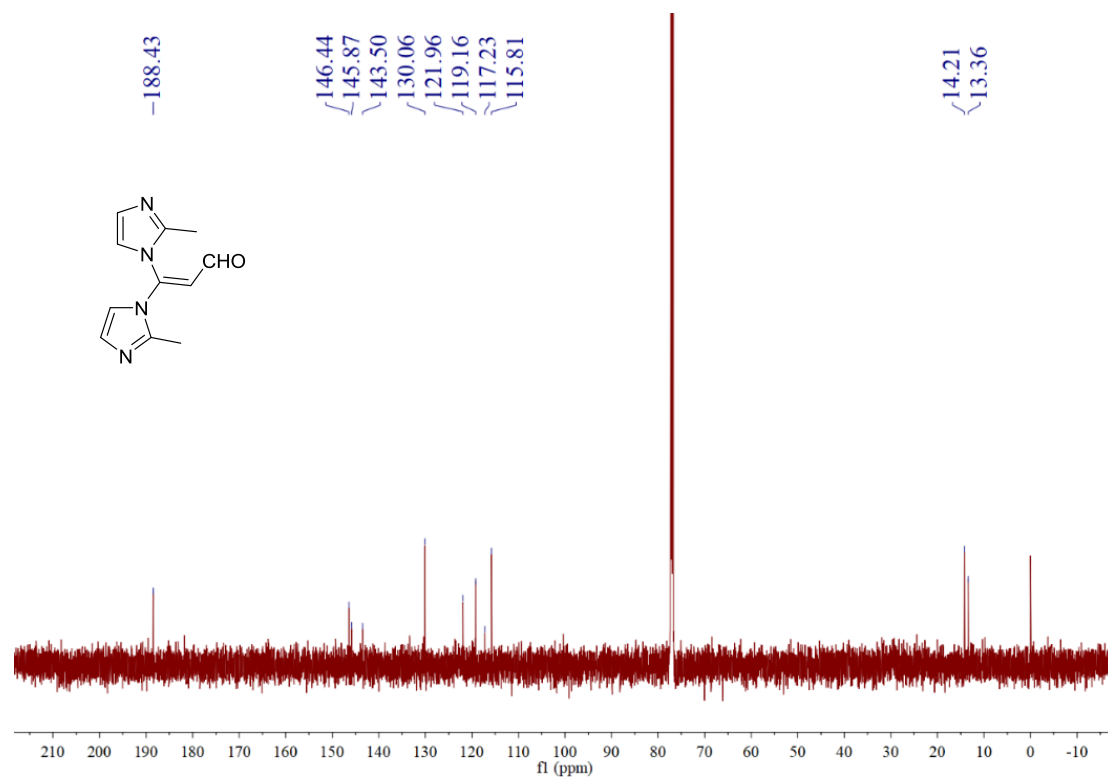
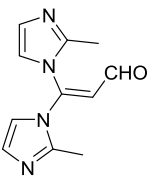
^1H NMR spectrum of compound **3a**

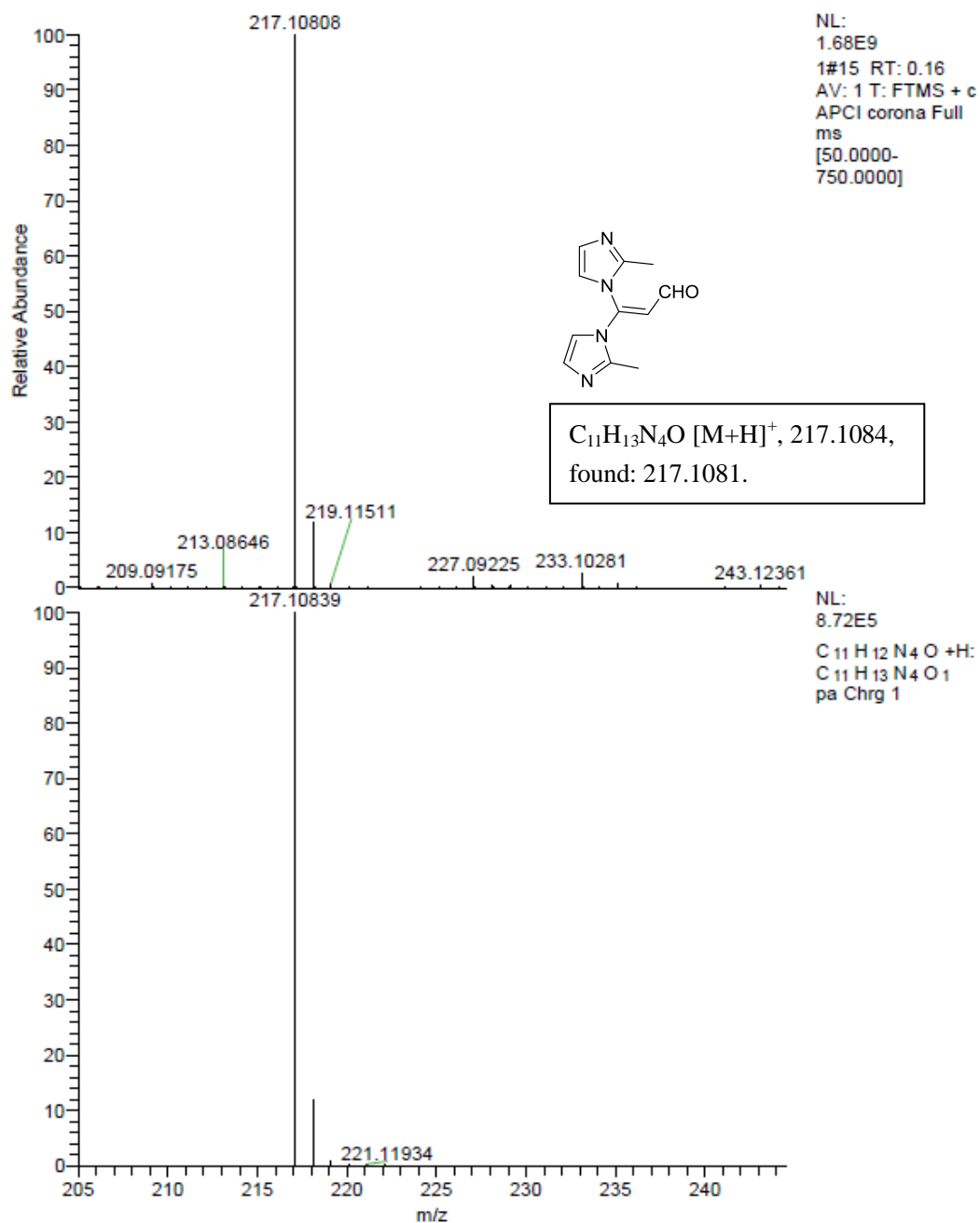


^{13}C NMR spectrum of compound **3a**

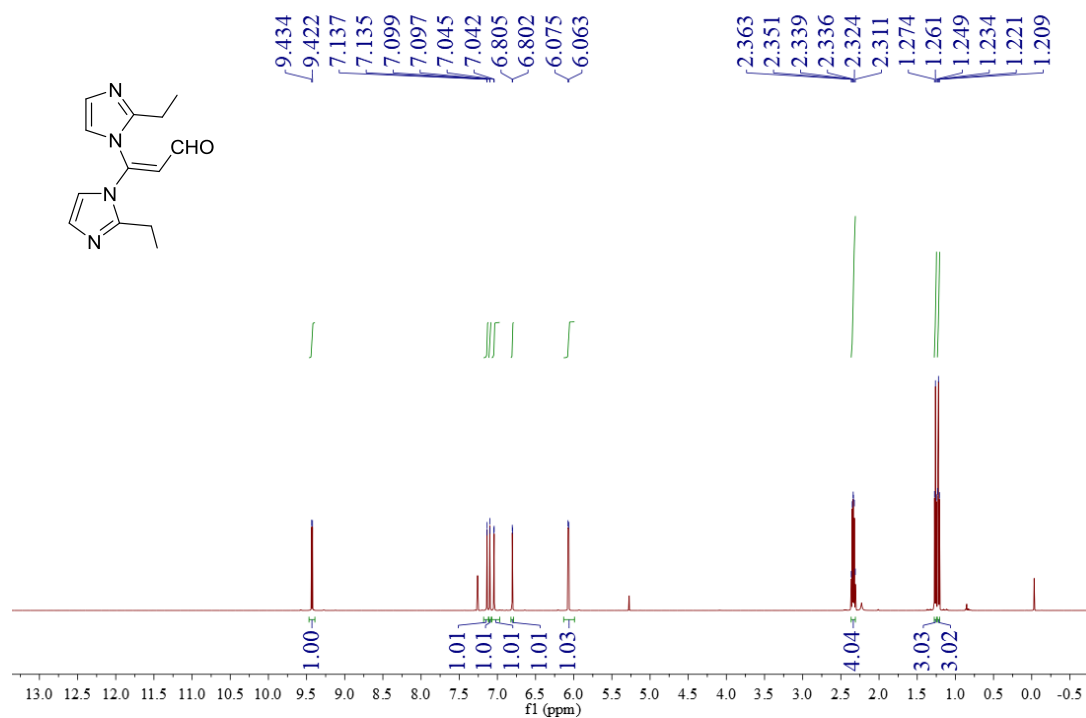


HR-MS of compound **3a**

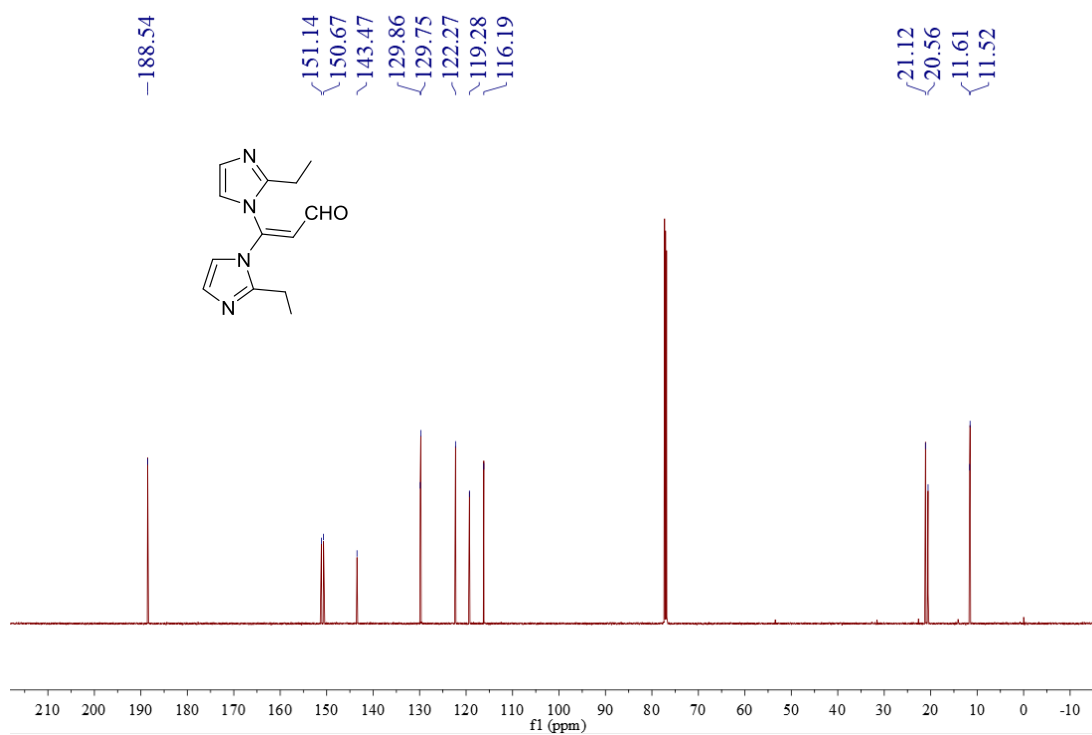




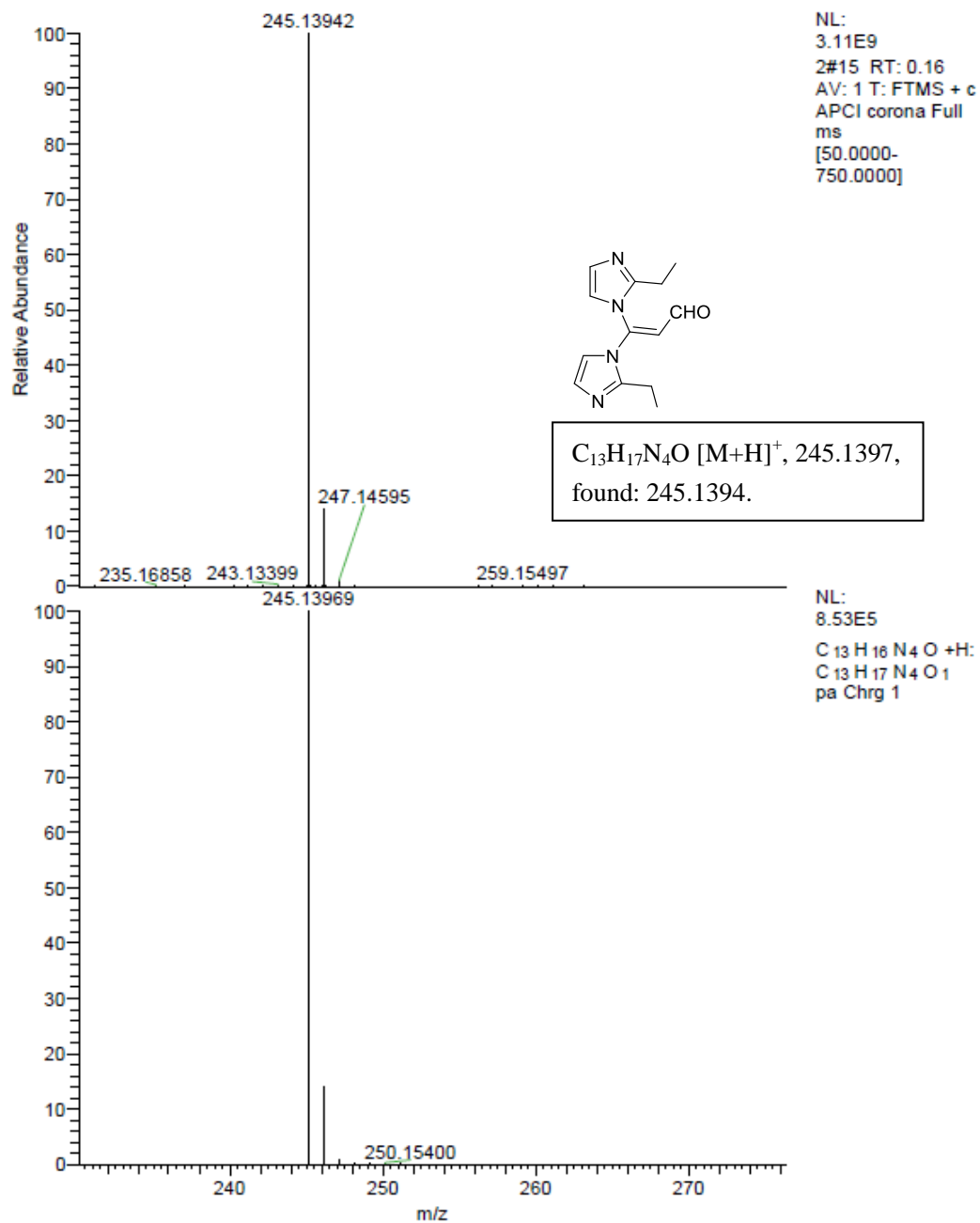
HR-MS of compound **3b**



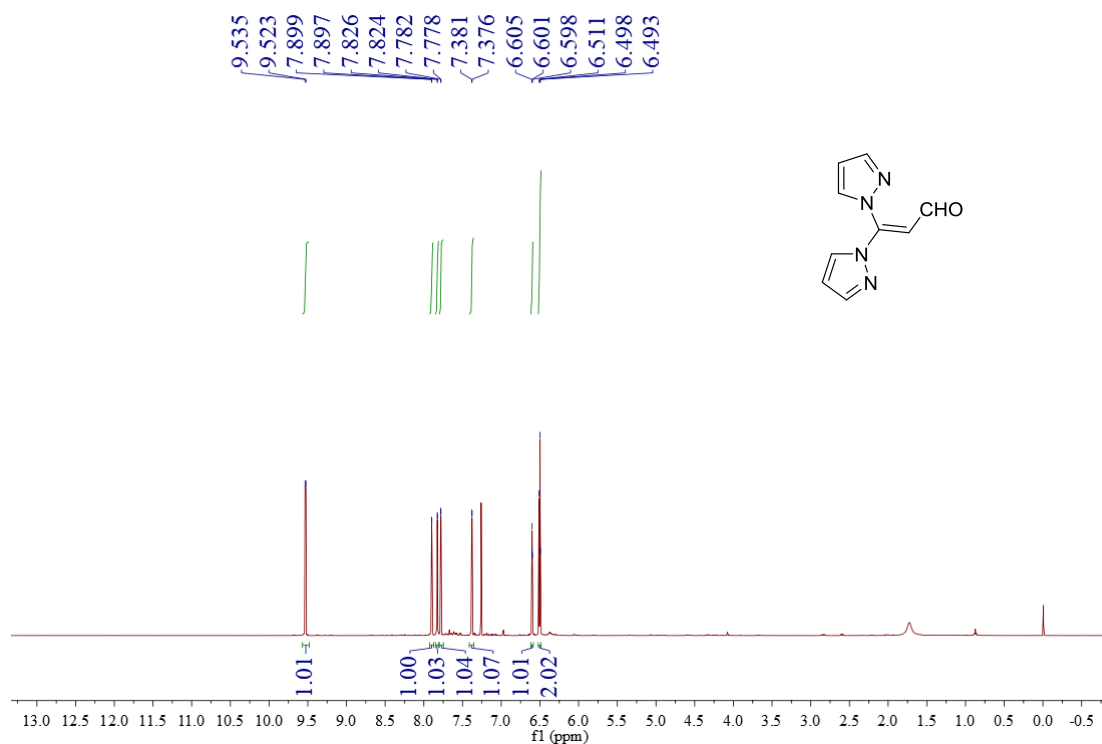
¹H NMR spectrum of compound **3c**



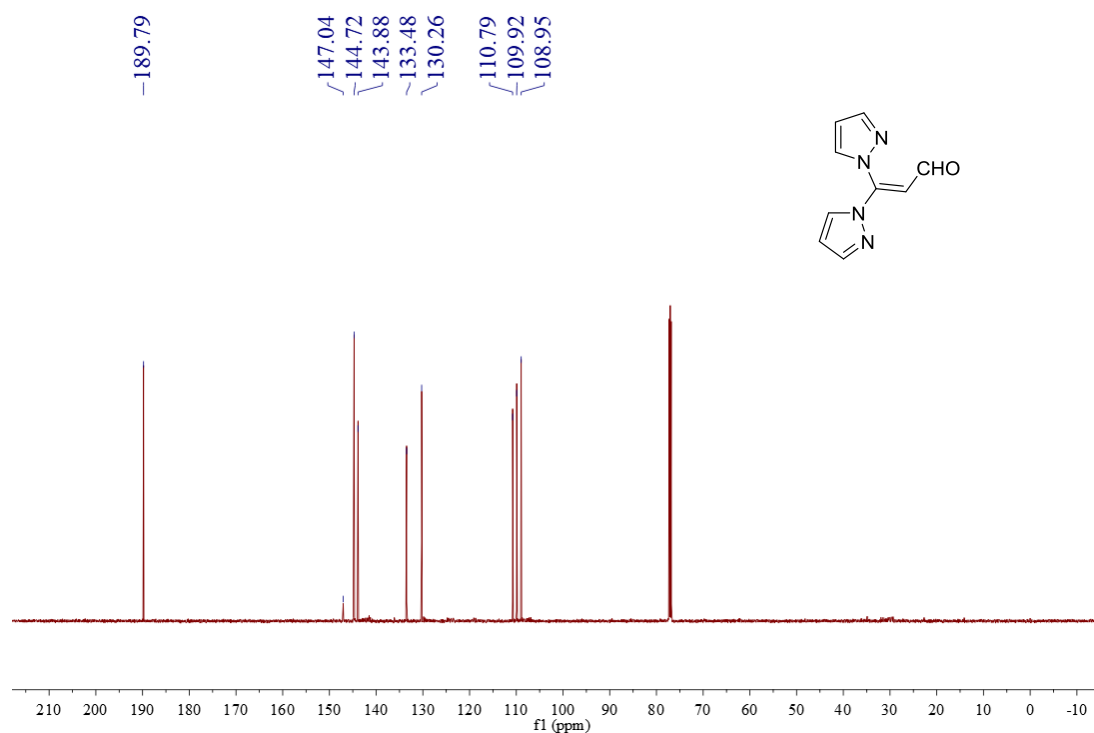
¹³C NMR spectrum of compound **3c**



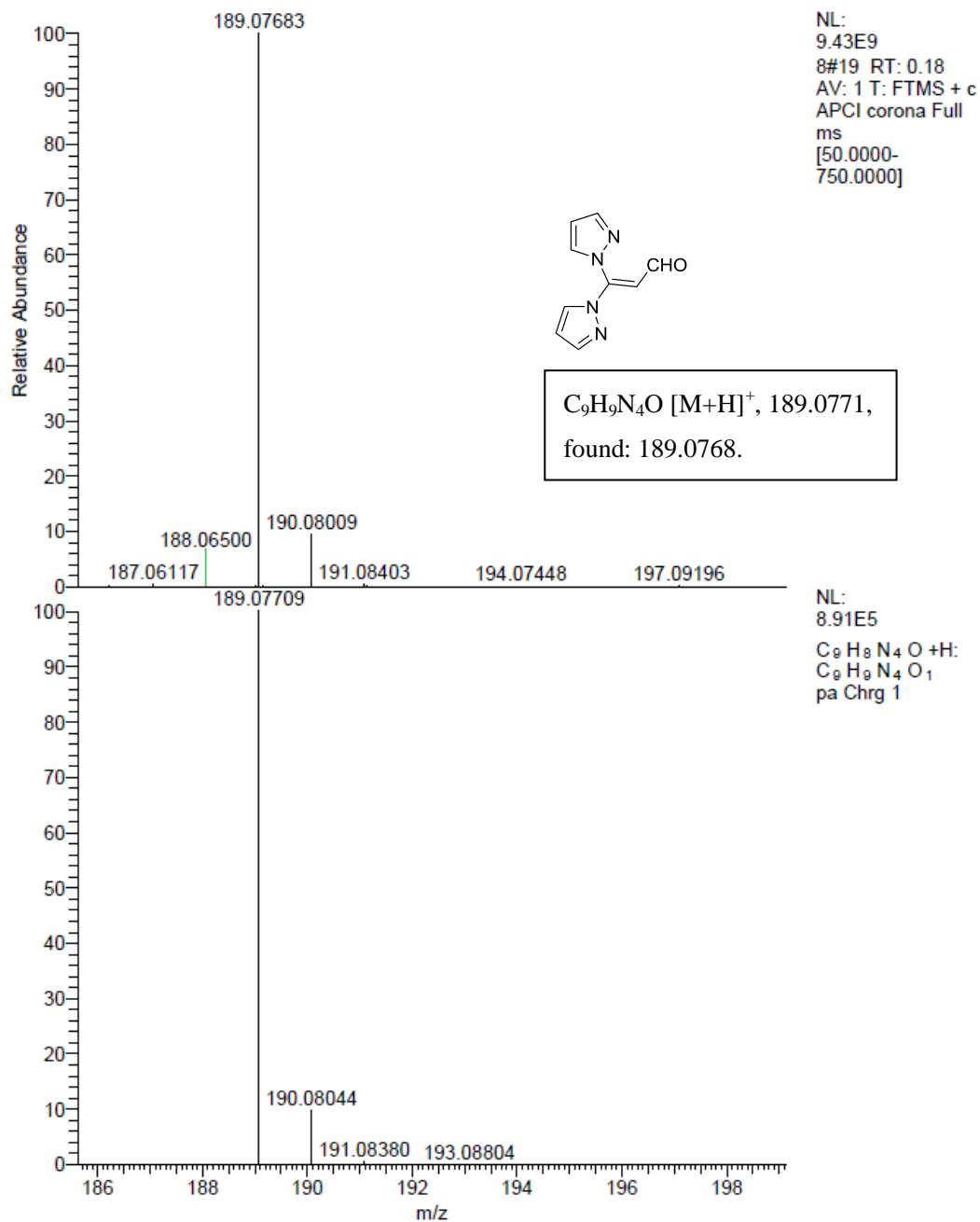
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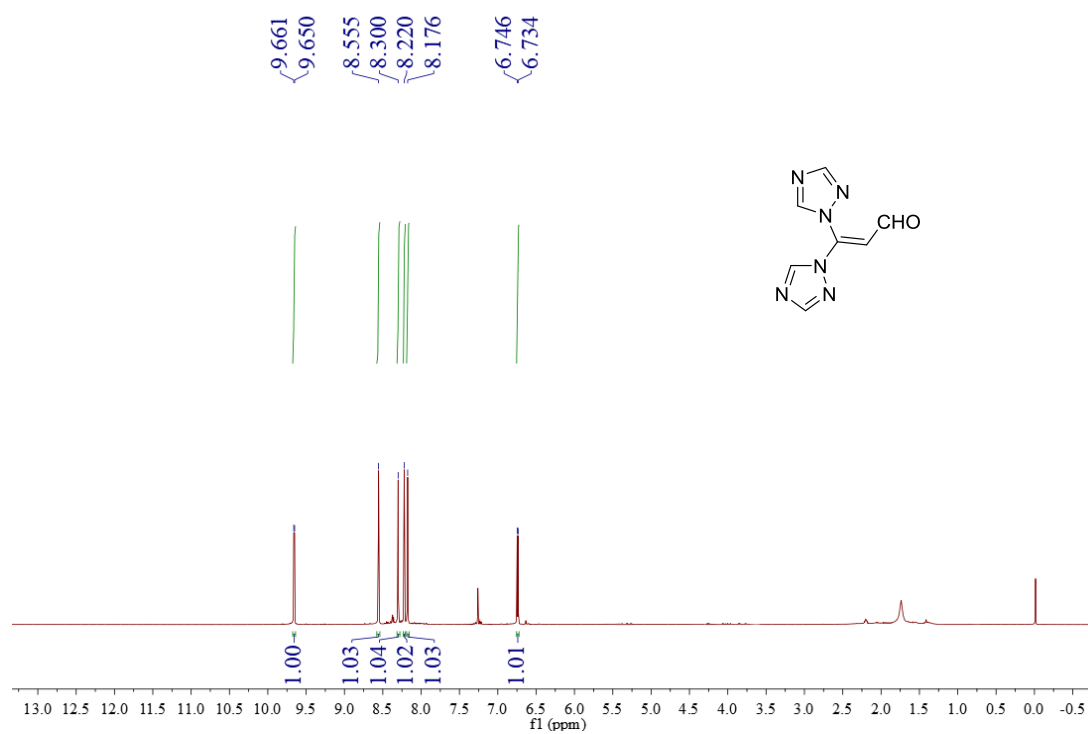
¹H NMR spectrum of compound **3d**



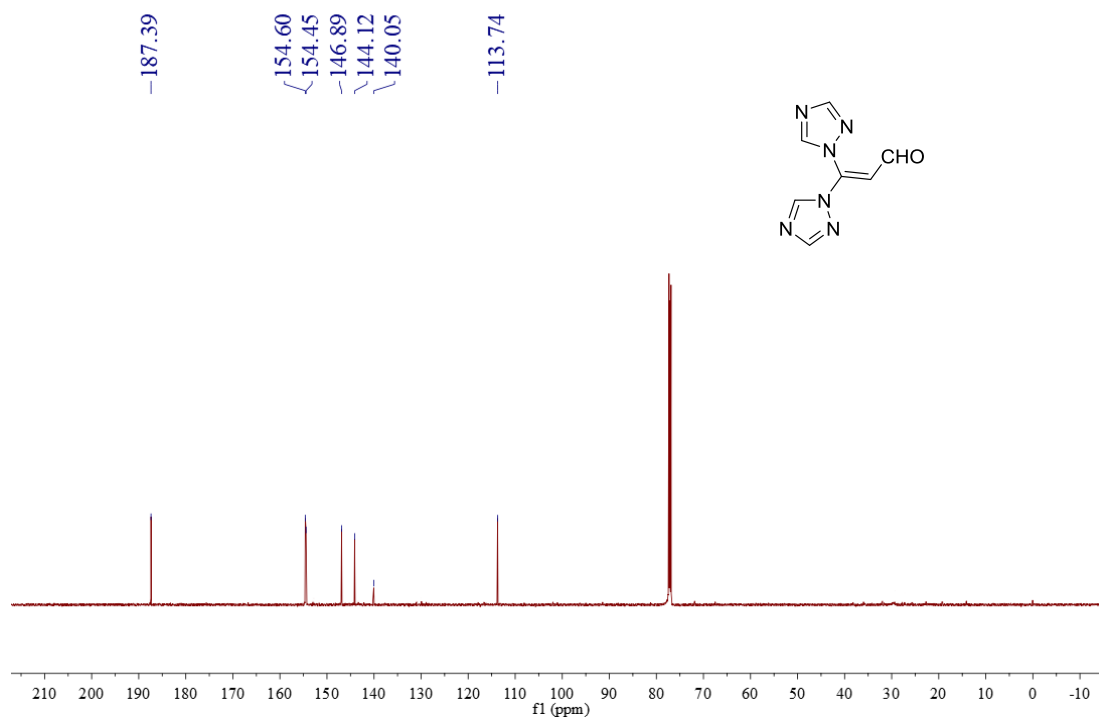
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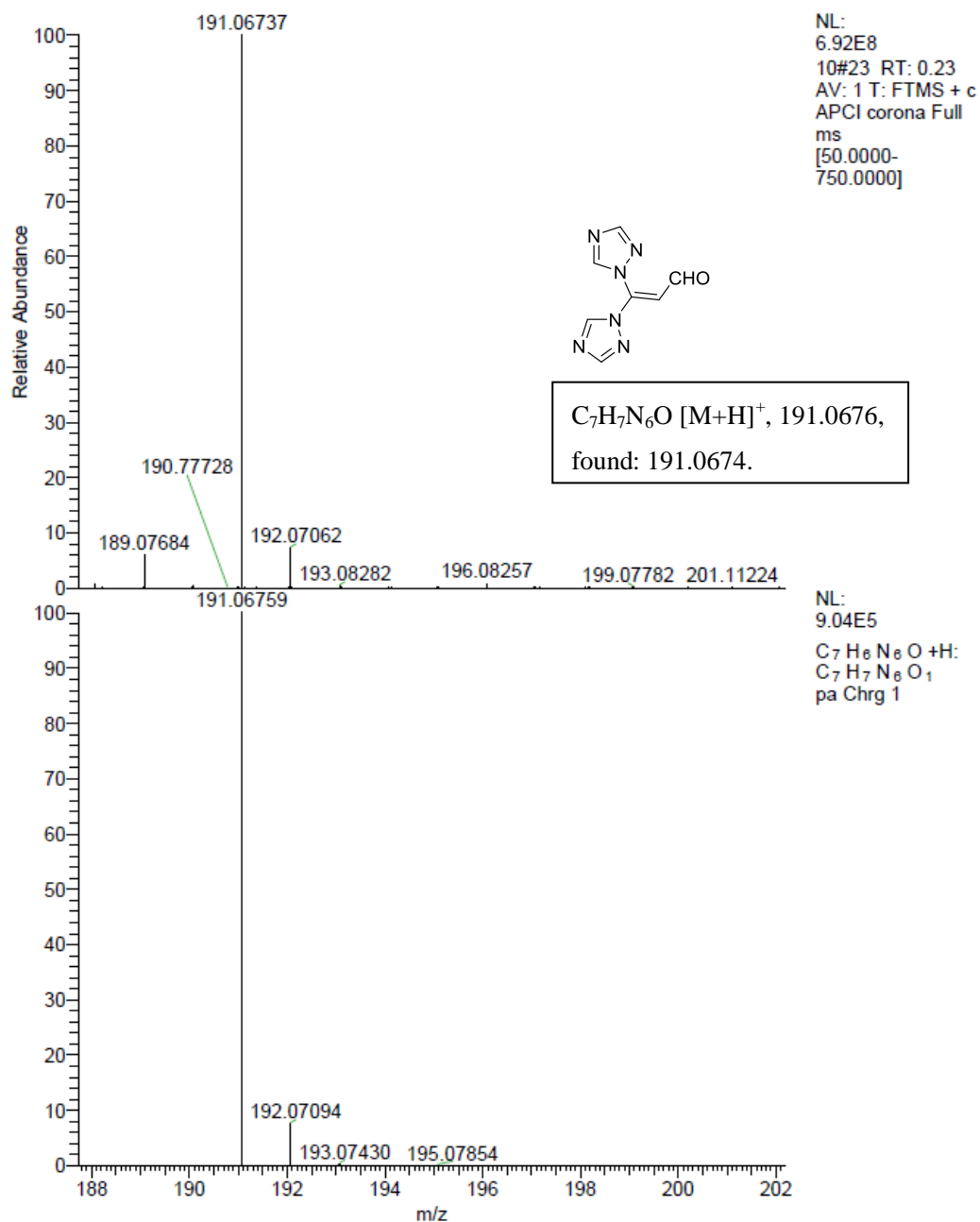
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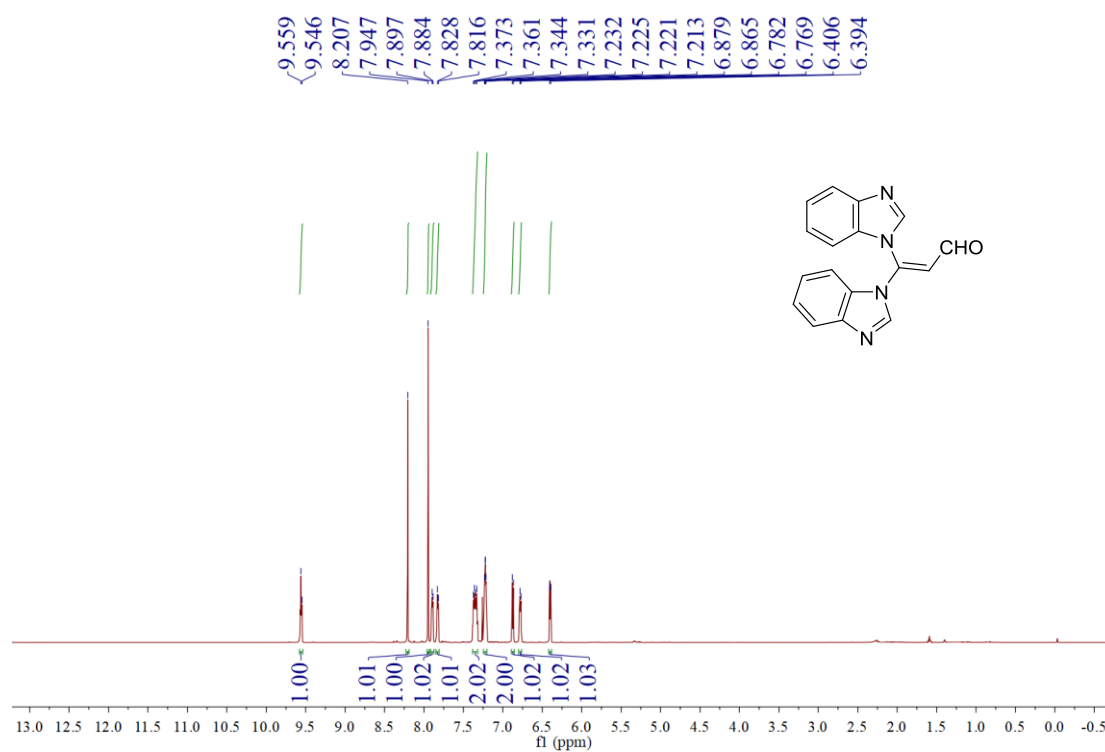
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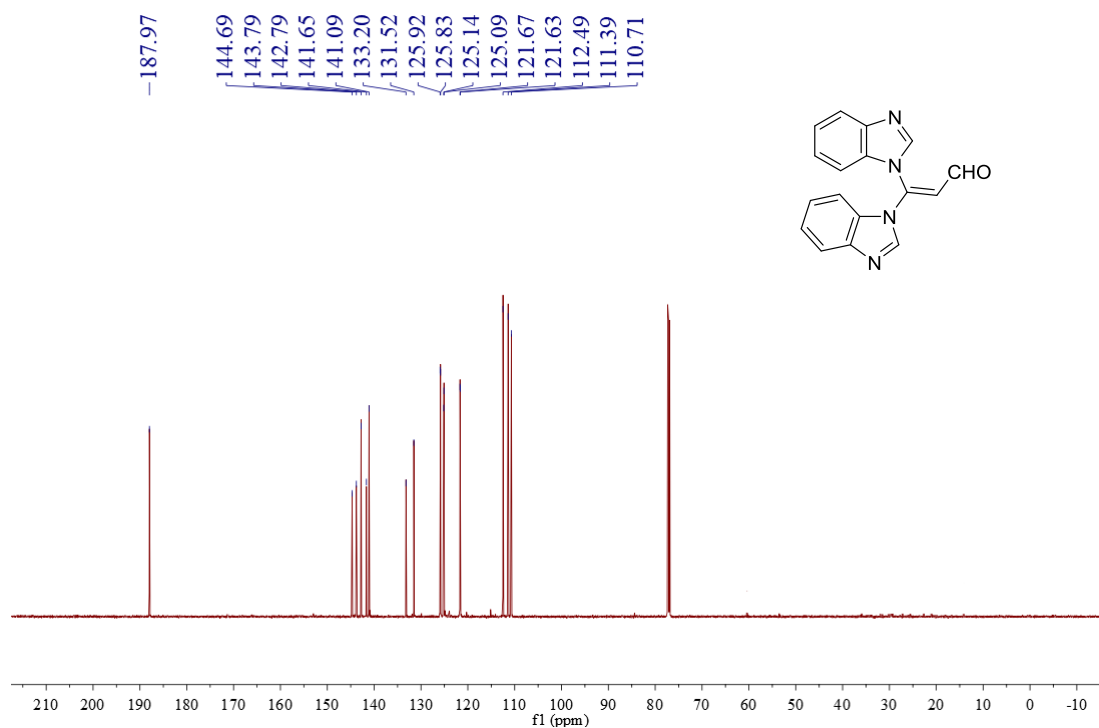
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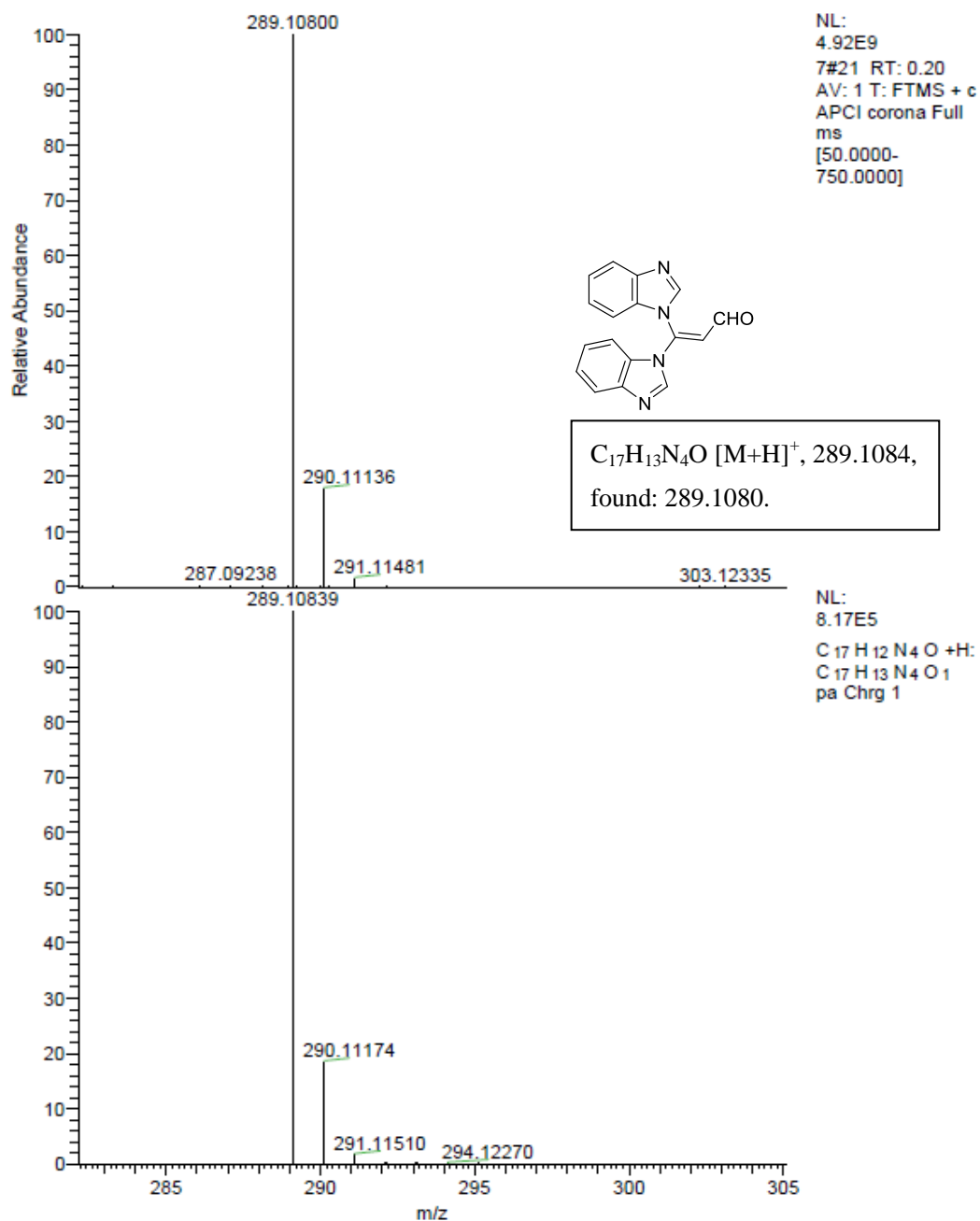
HR-MS of compound **3e**



^1H NMR spectrum of compound **3f**



^{13}C NMR spectrum of compound **3f**



HR-MS of compound **3f**