

Supporting Information

for

Lewis Acid-catalyzed 2,3-Dihydrofuran Acetal Ring-Opening Benzannulations Toward Functionalized 1-Hydroxycarbazoles

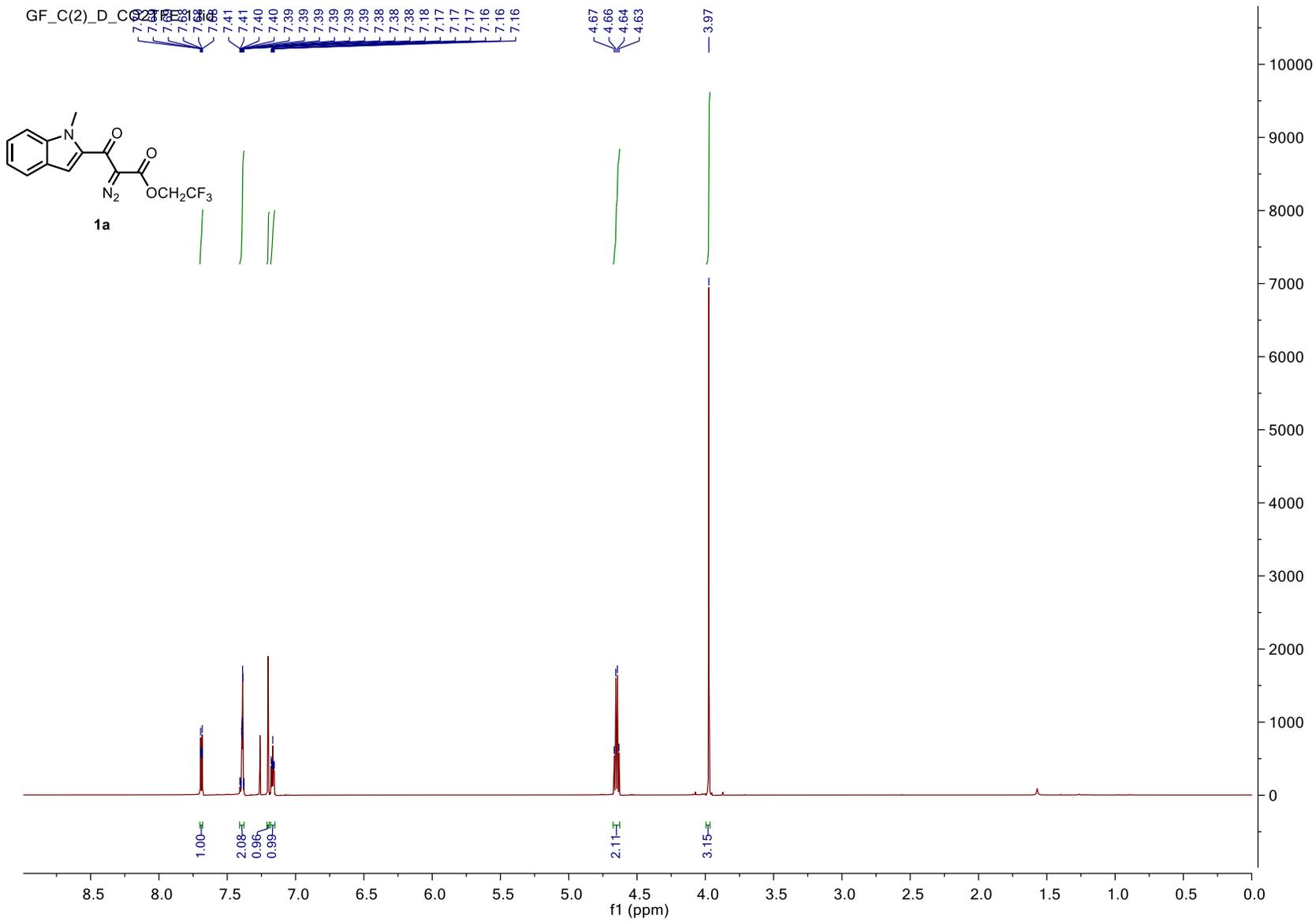
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Stefan France^{1,2,*}**

¹ School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, Georgia, 30332, United States

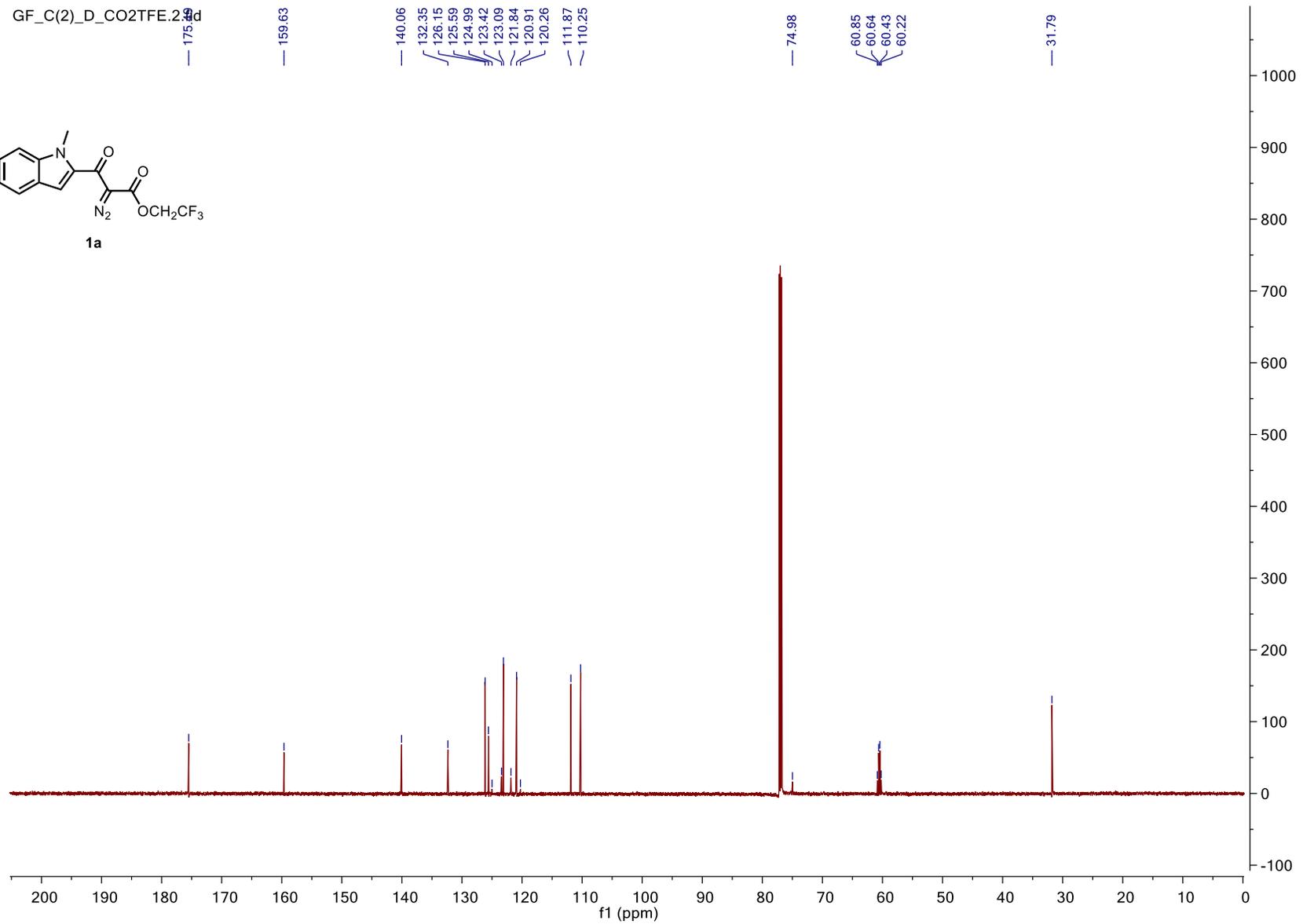
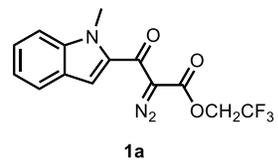
² Petit Institute for Bioengineering and Bioscience, Georgia Institute of Technology, Atlanta, Georgia, 30332; United States

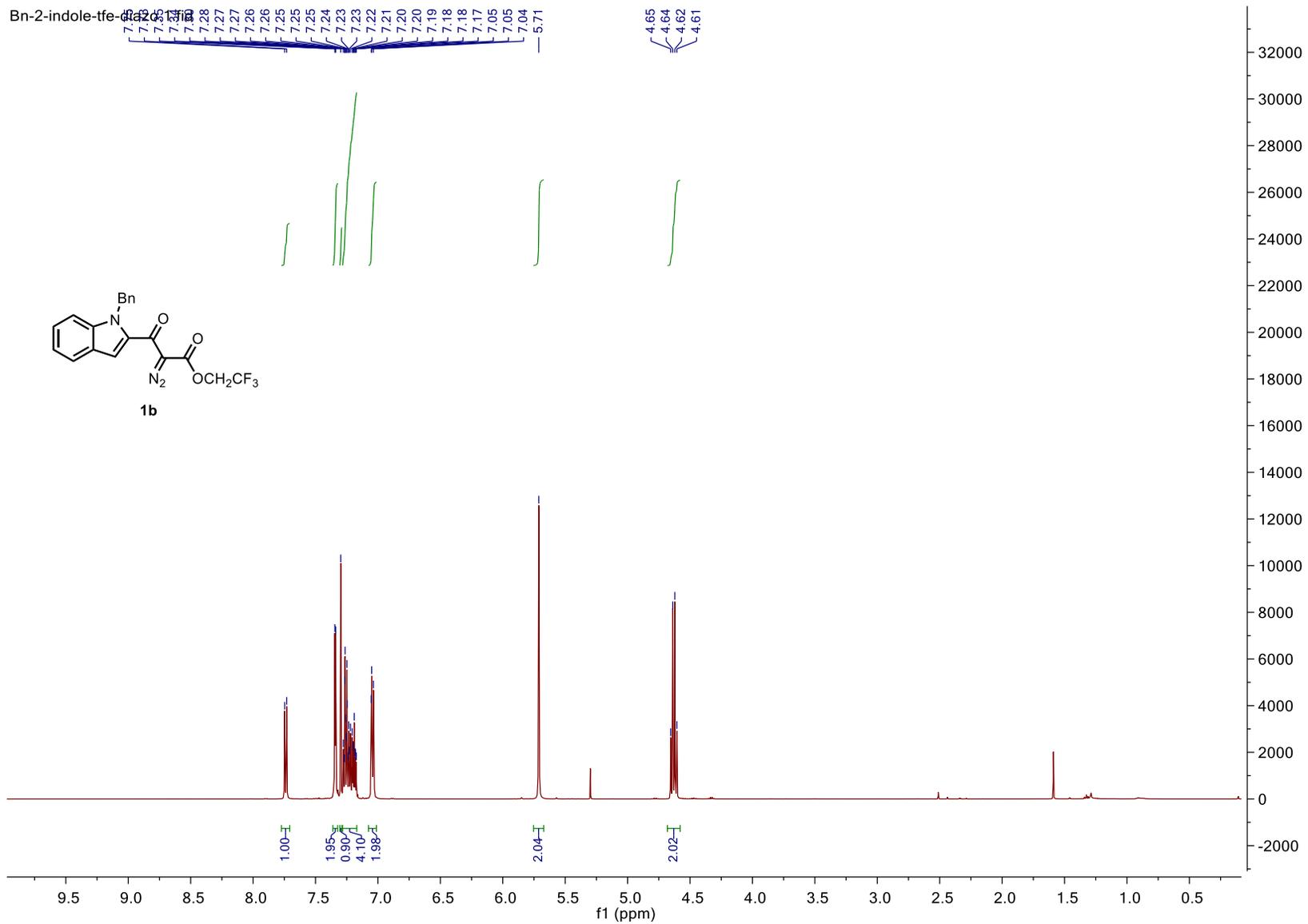
* Correspondence: stefan.france@chemistry.gatech.edu

NMR Spectra

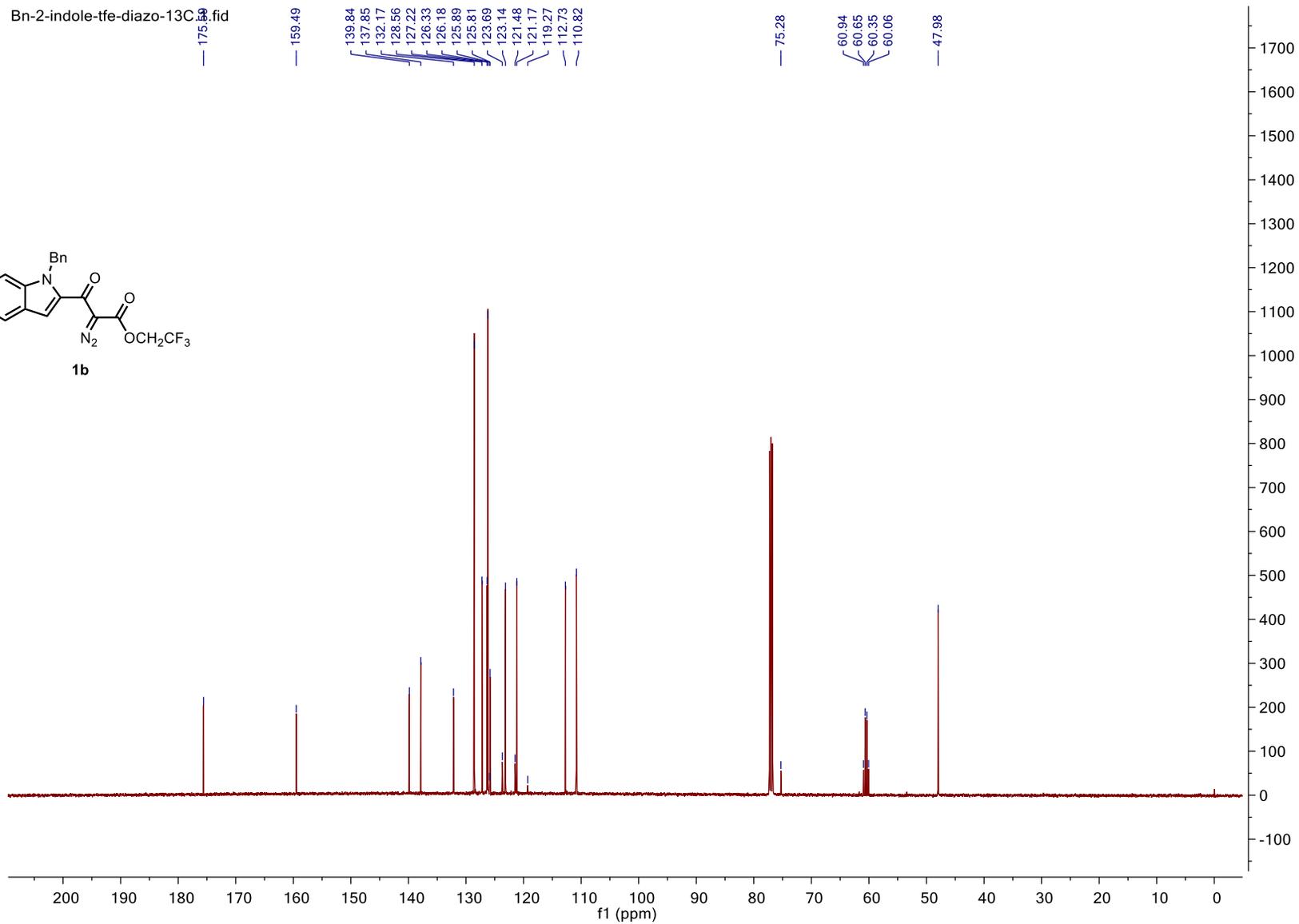
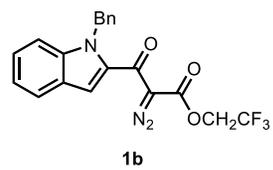


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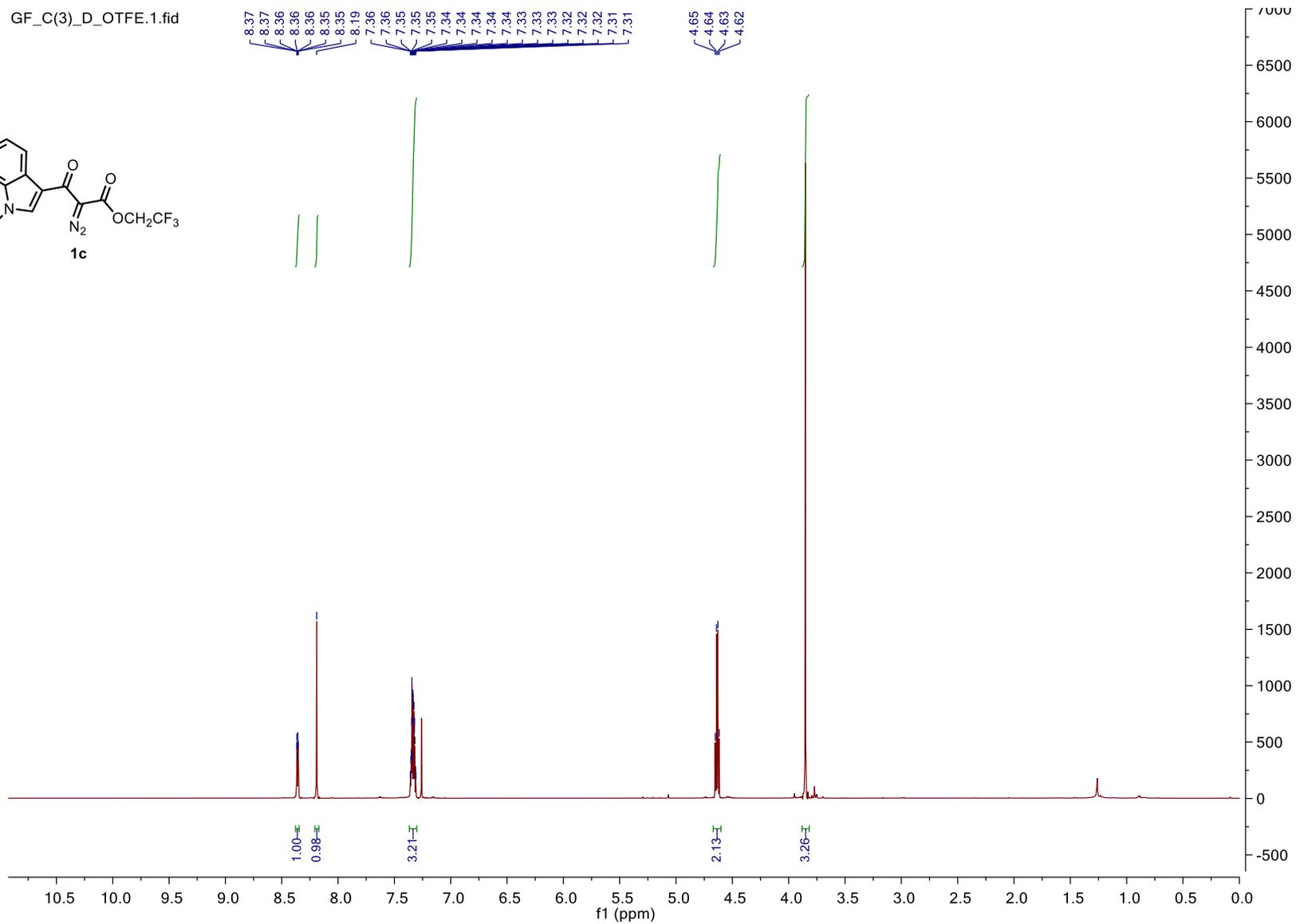
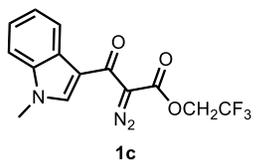




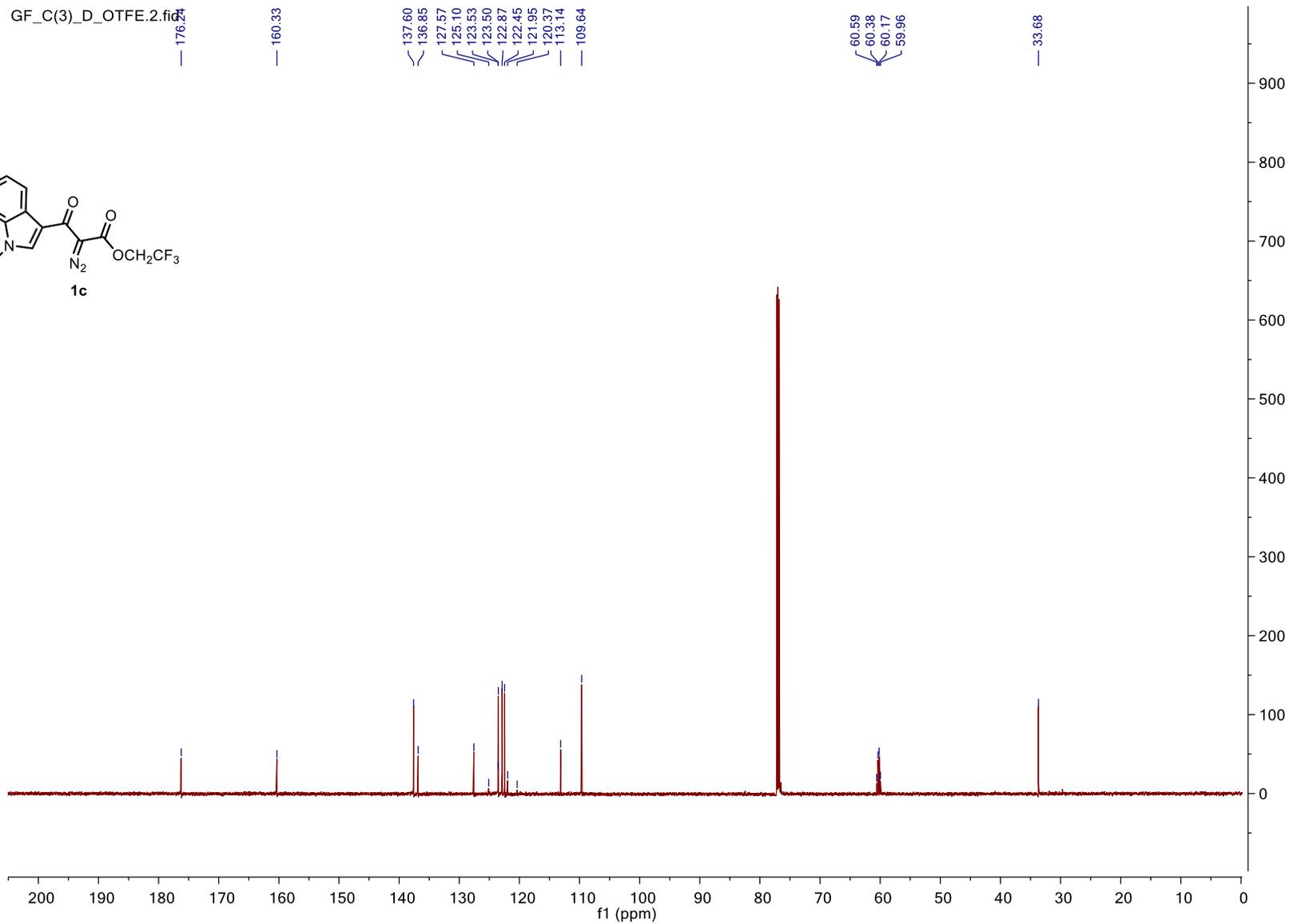
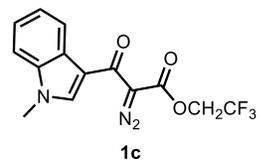
Bn-2-indole-tfe-diazo-13C.fid

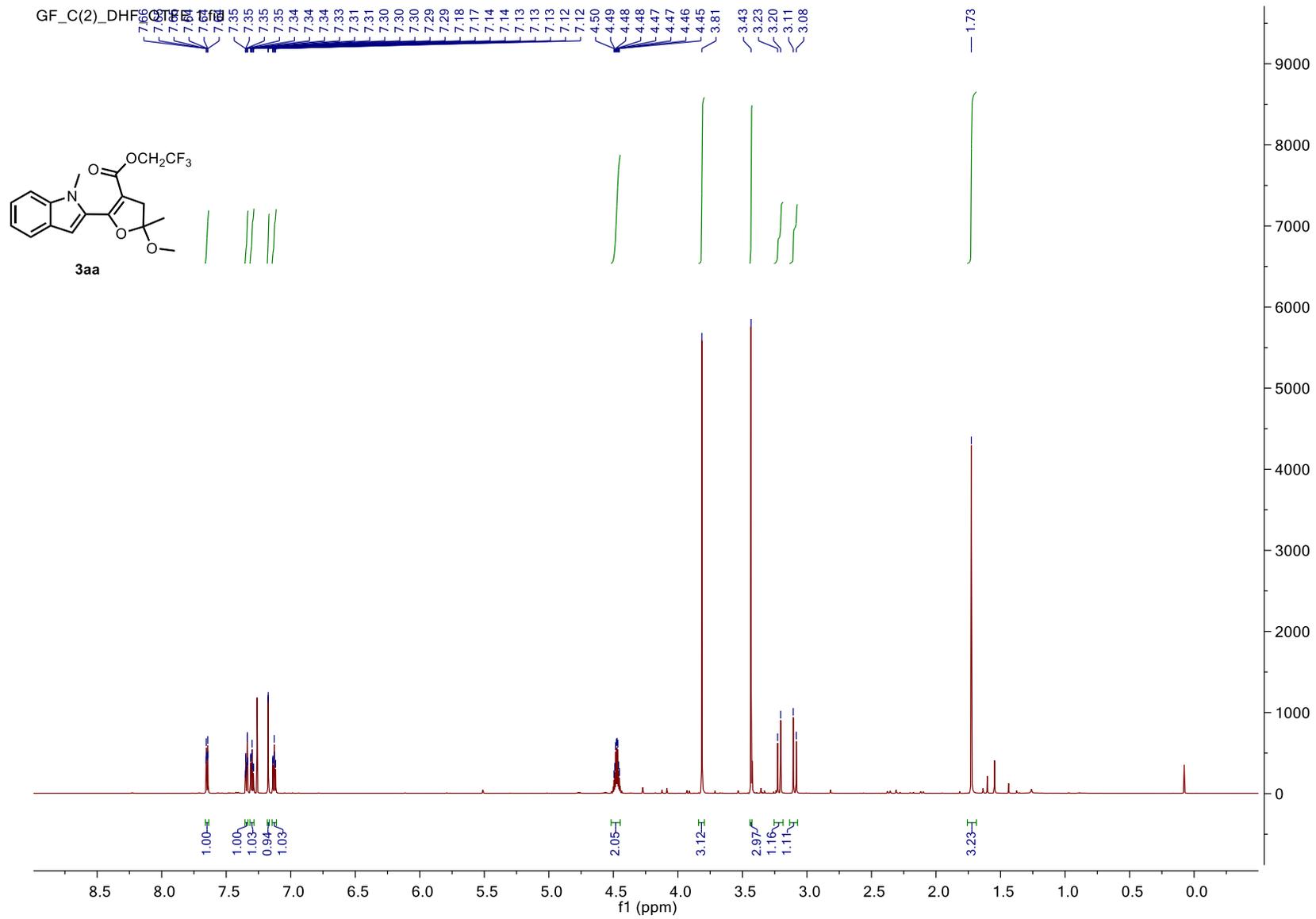


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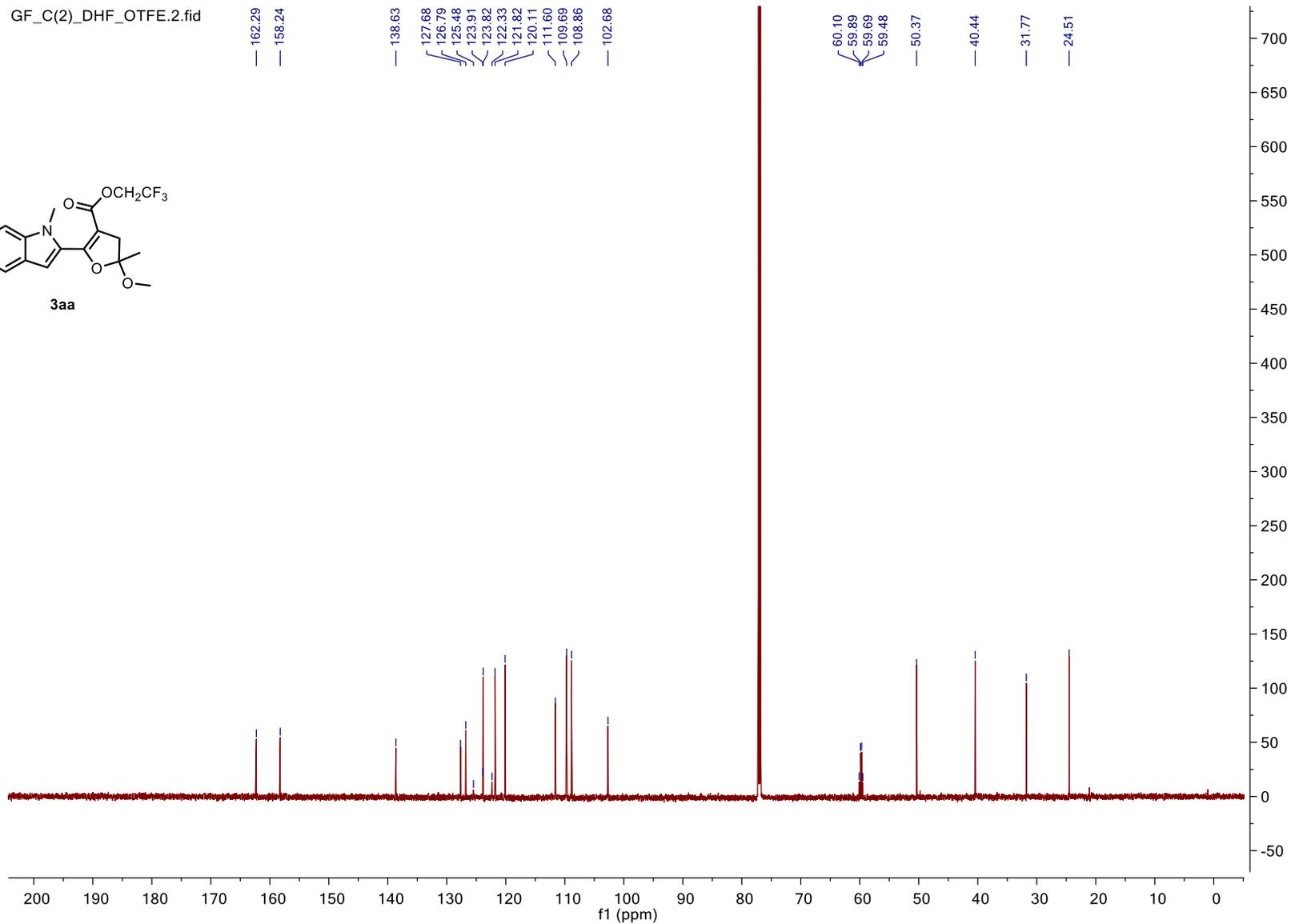
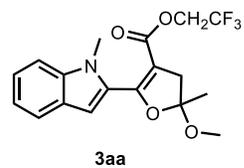


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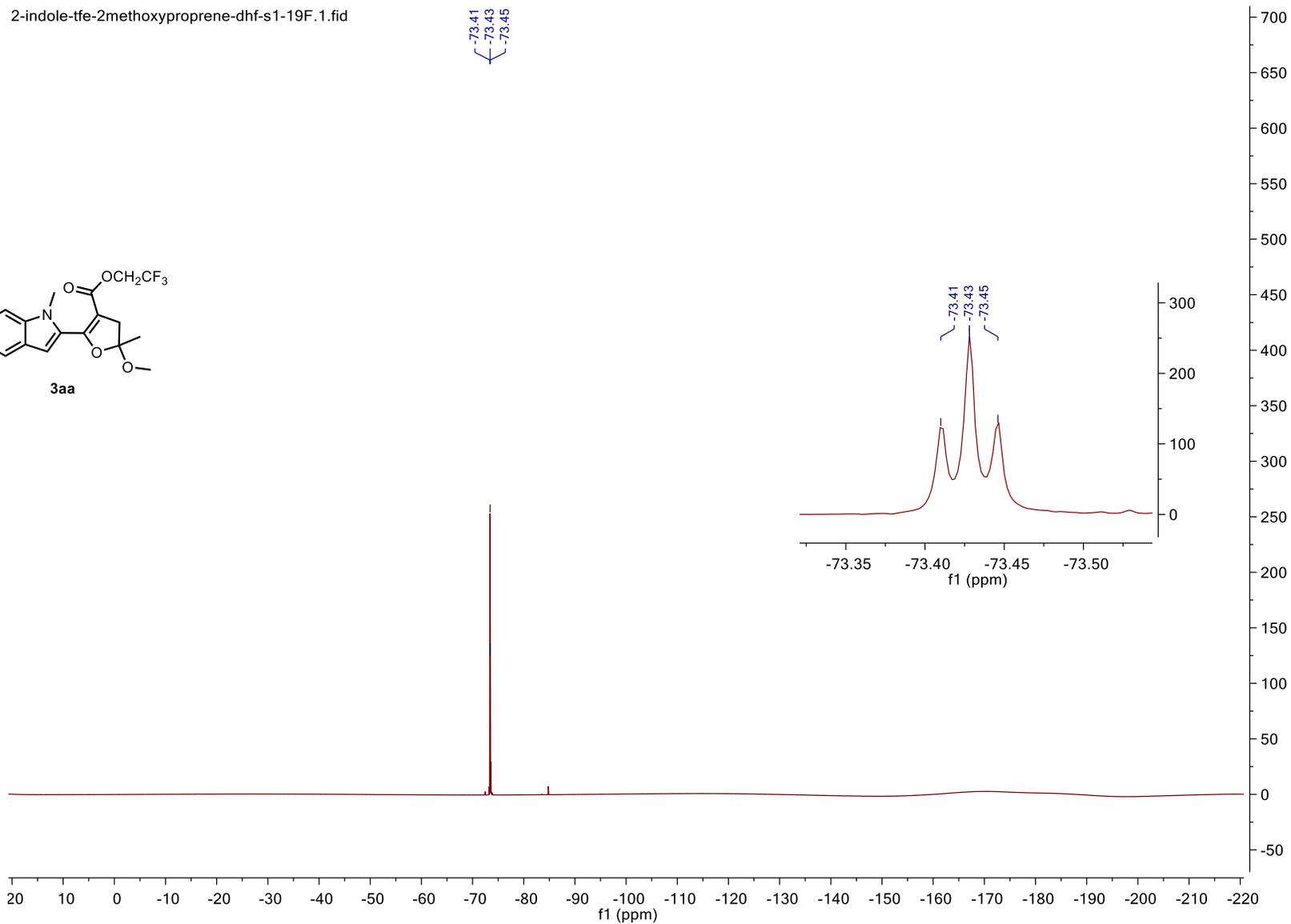
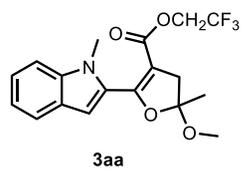


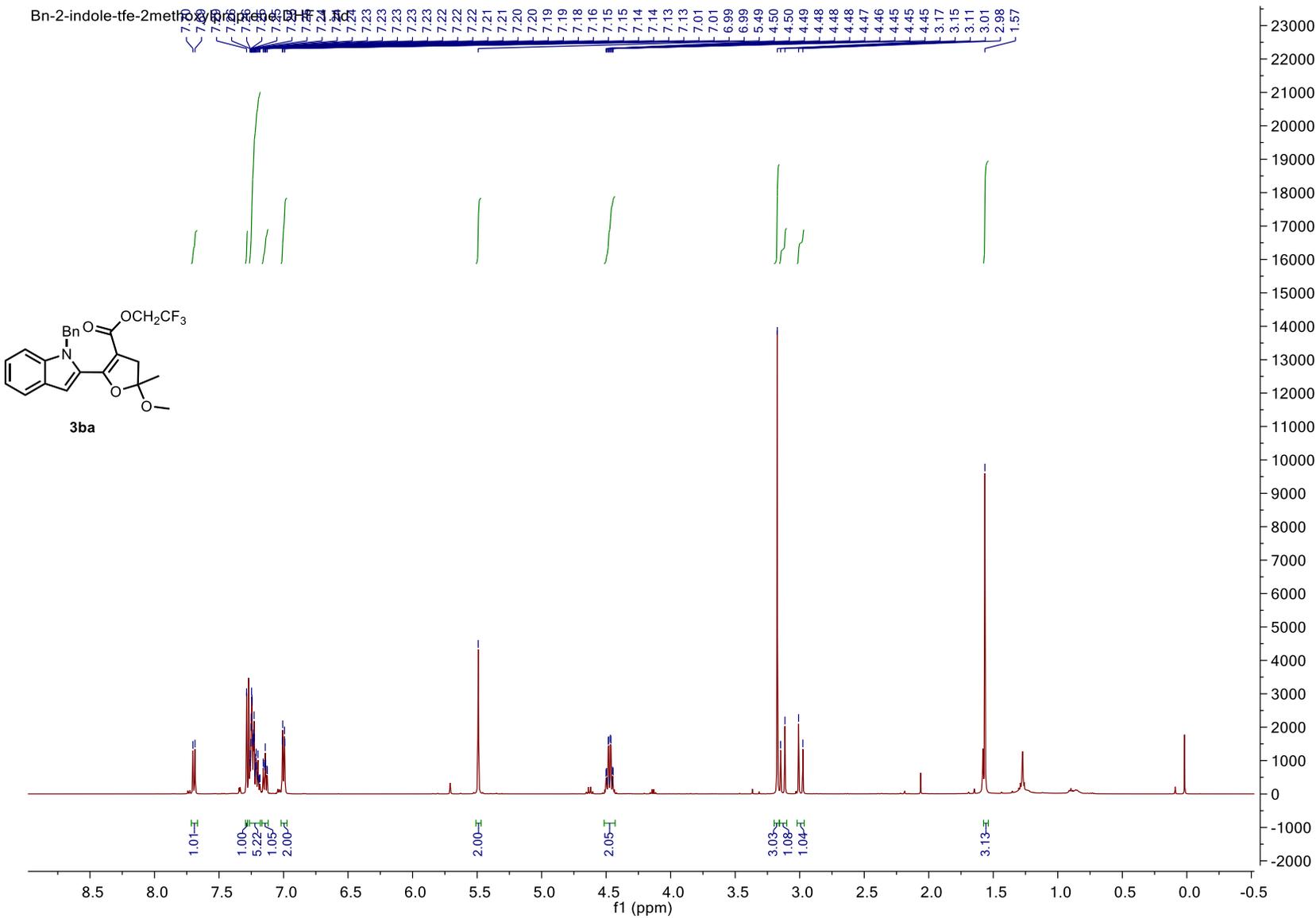
GF_C(2)_DHF_OTFE.2.fid



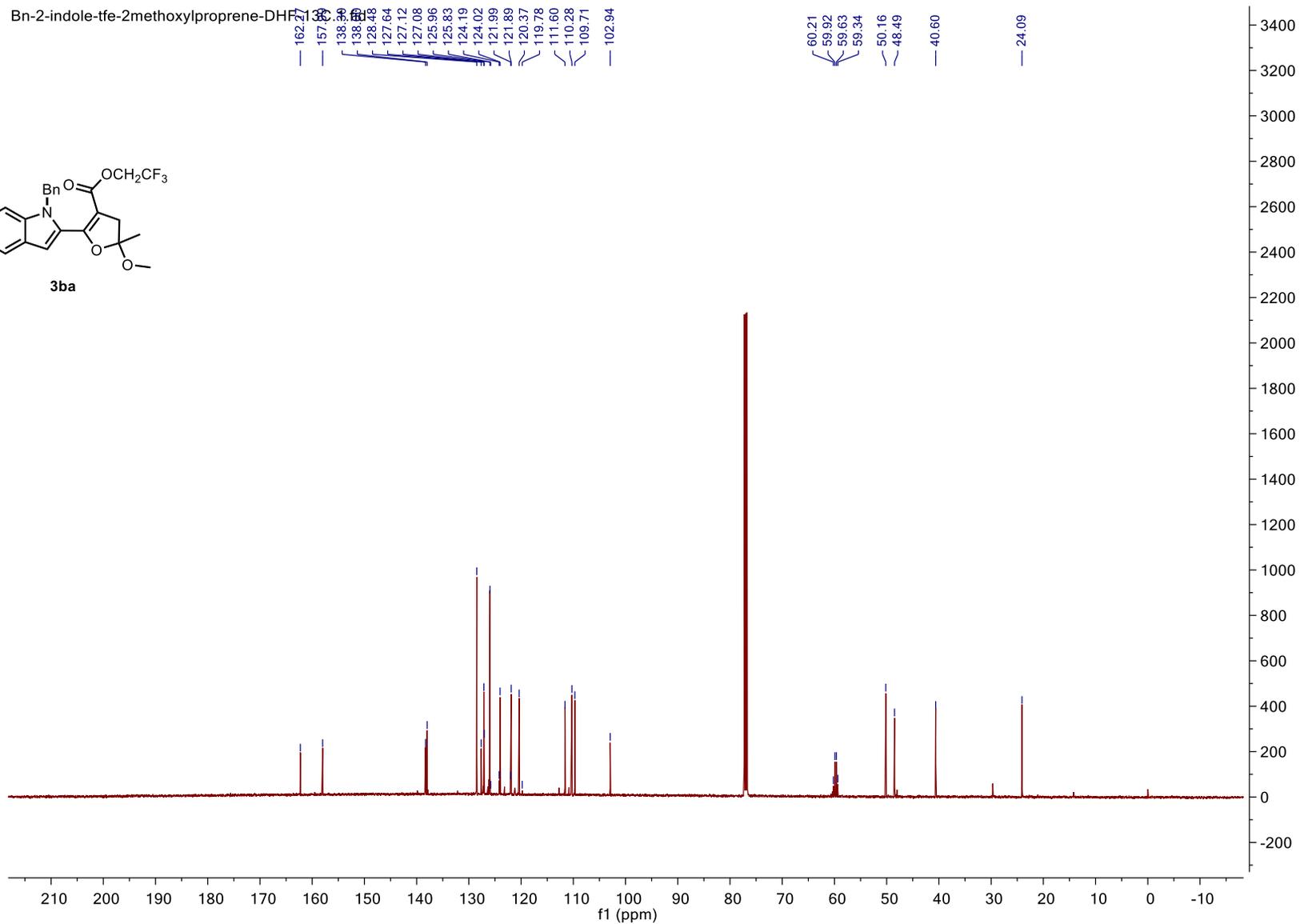
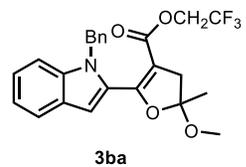
2-indole-tfe-2methoxypropene-dhf-s1-19F. 1.fid

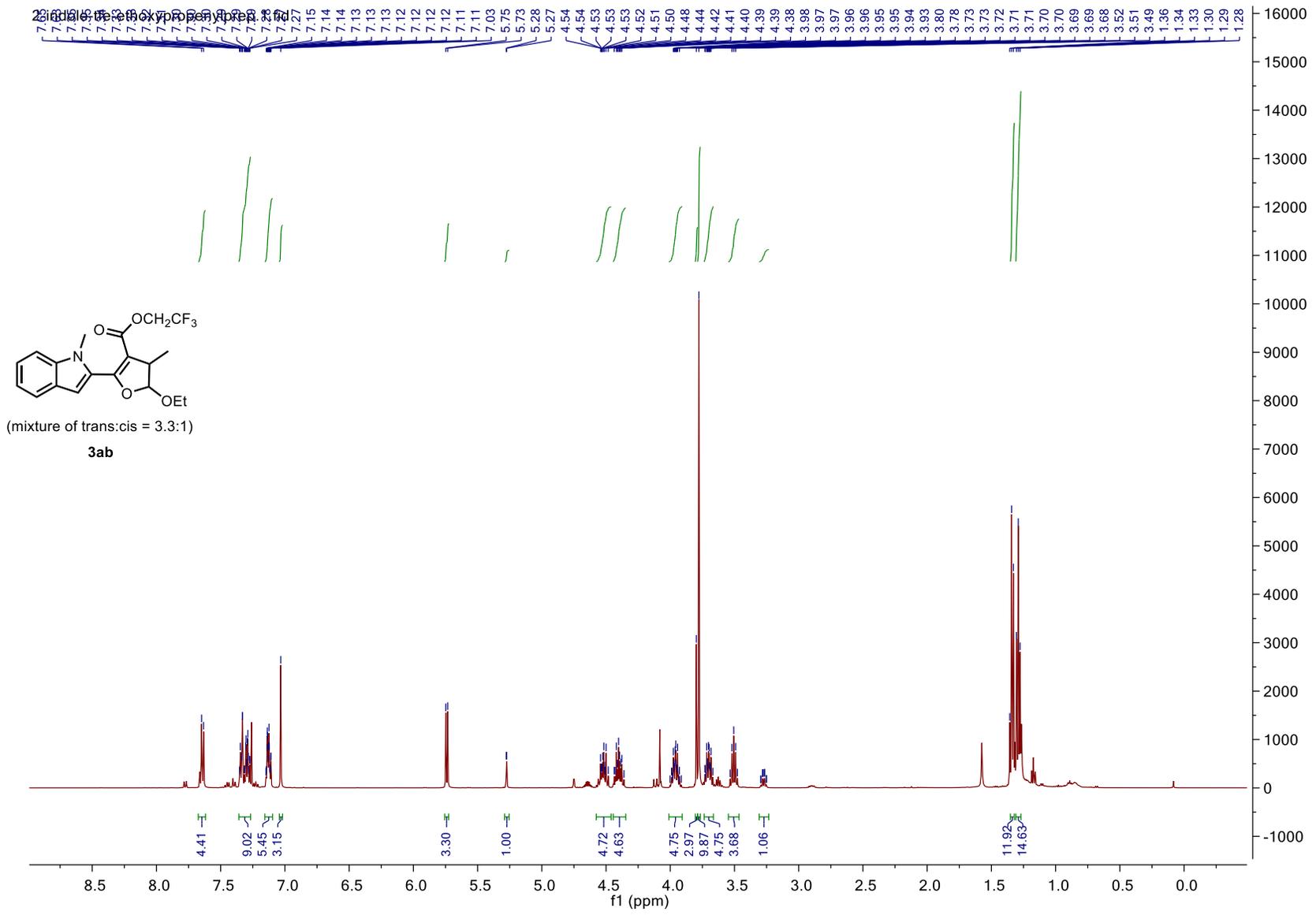
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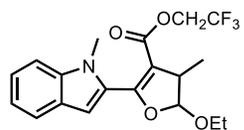
Bn-2-indole-tfe-2methoxypropene-DHF





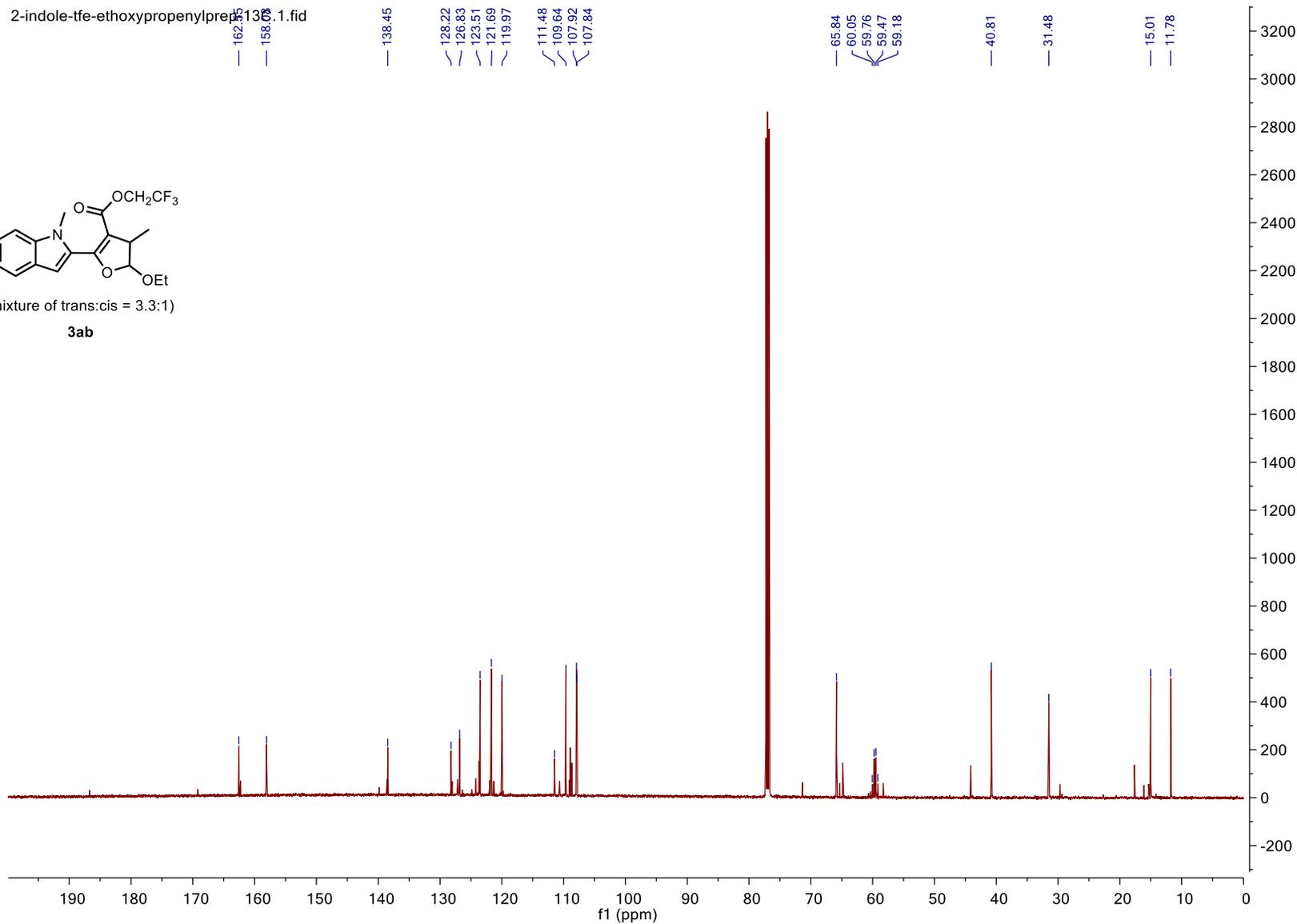
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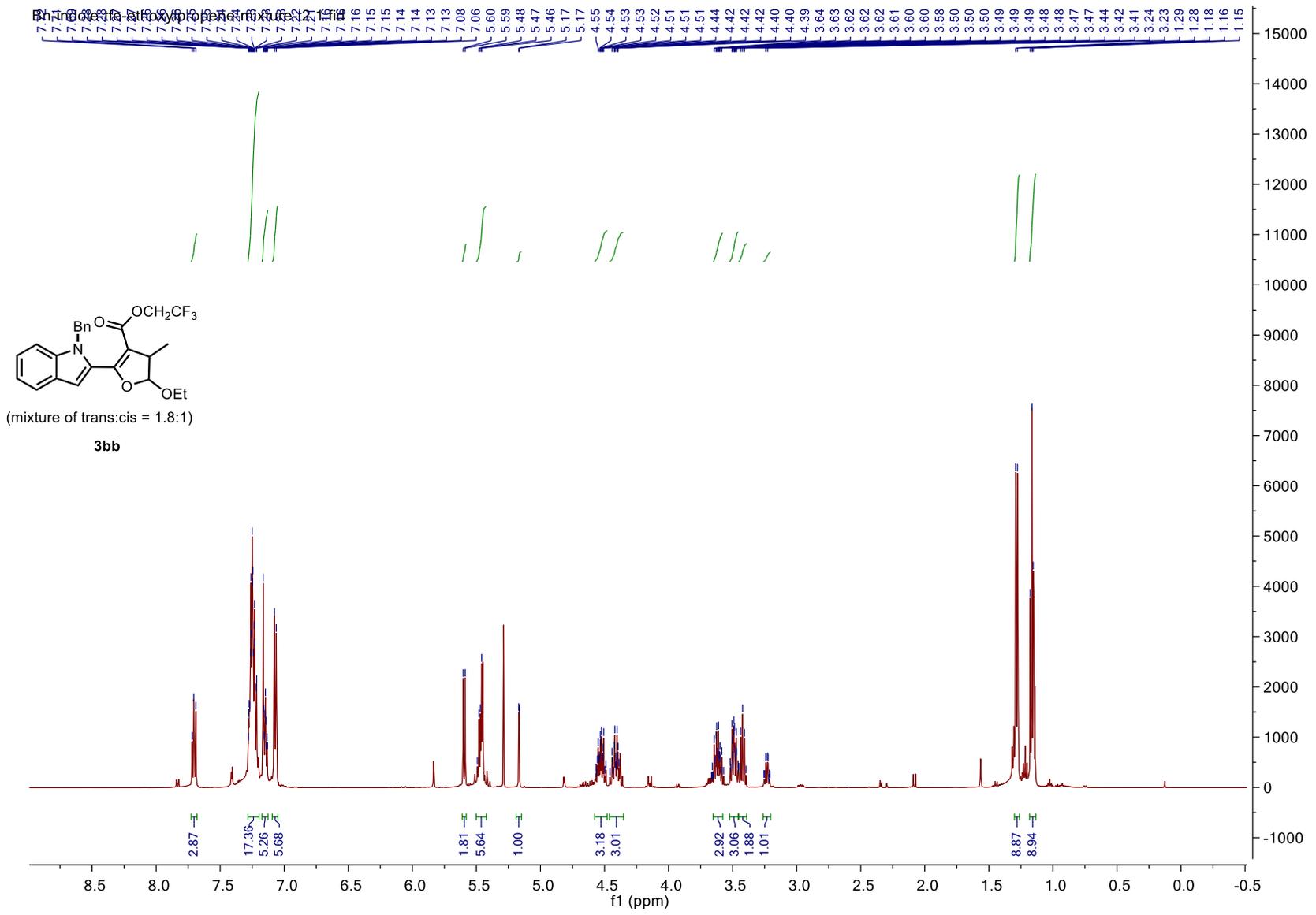
2-indole-tfe-ethoxypropenylpre... 137.1.fid



(mixture of trans:cis = 3.3:1)

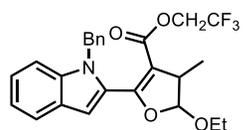
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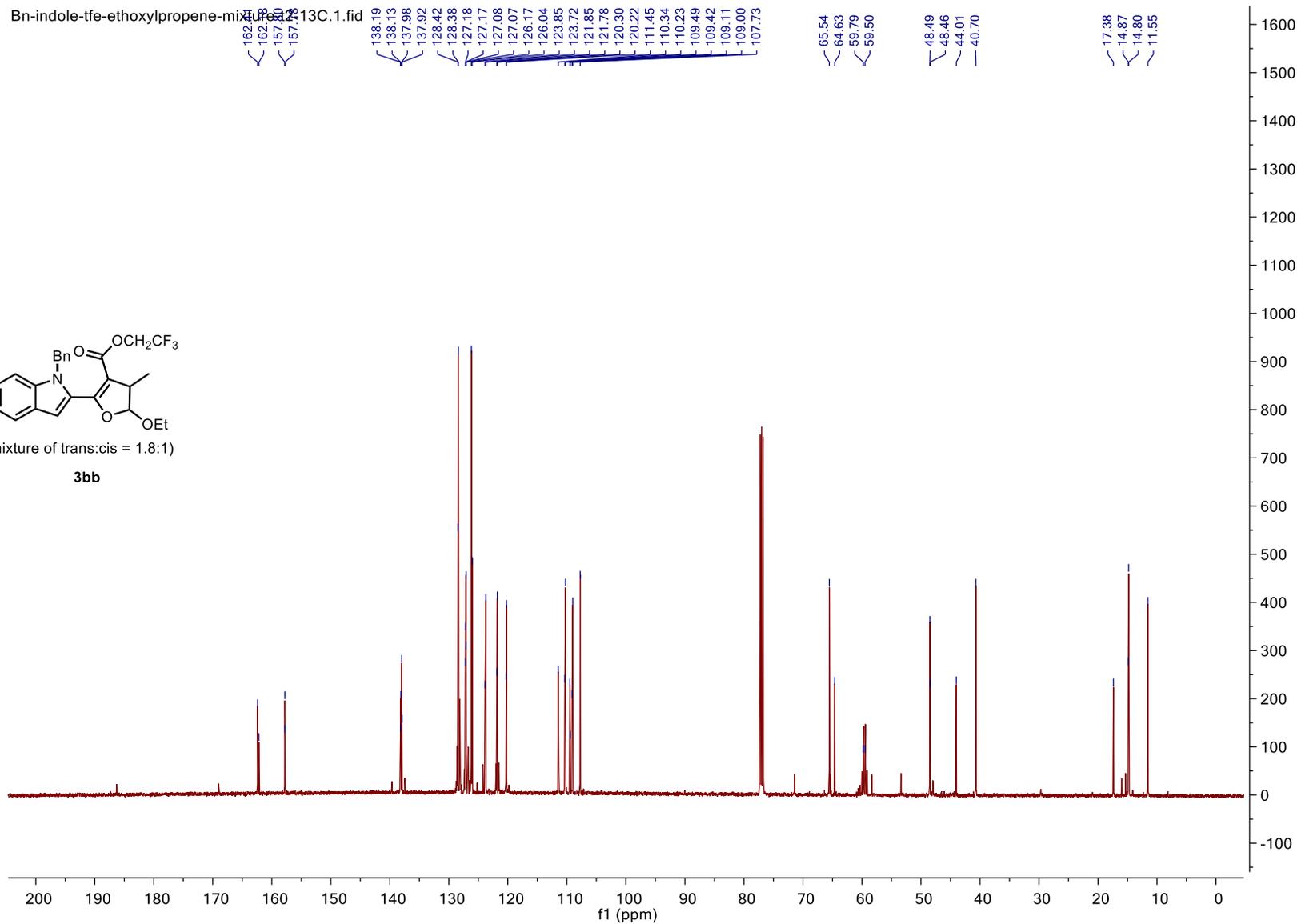
Bn-indole-3-ethoxypropene-mixture 13C.1.fid

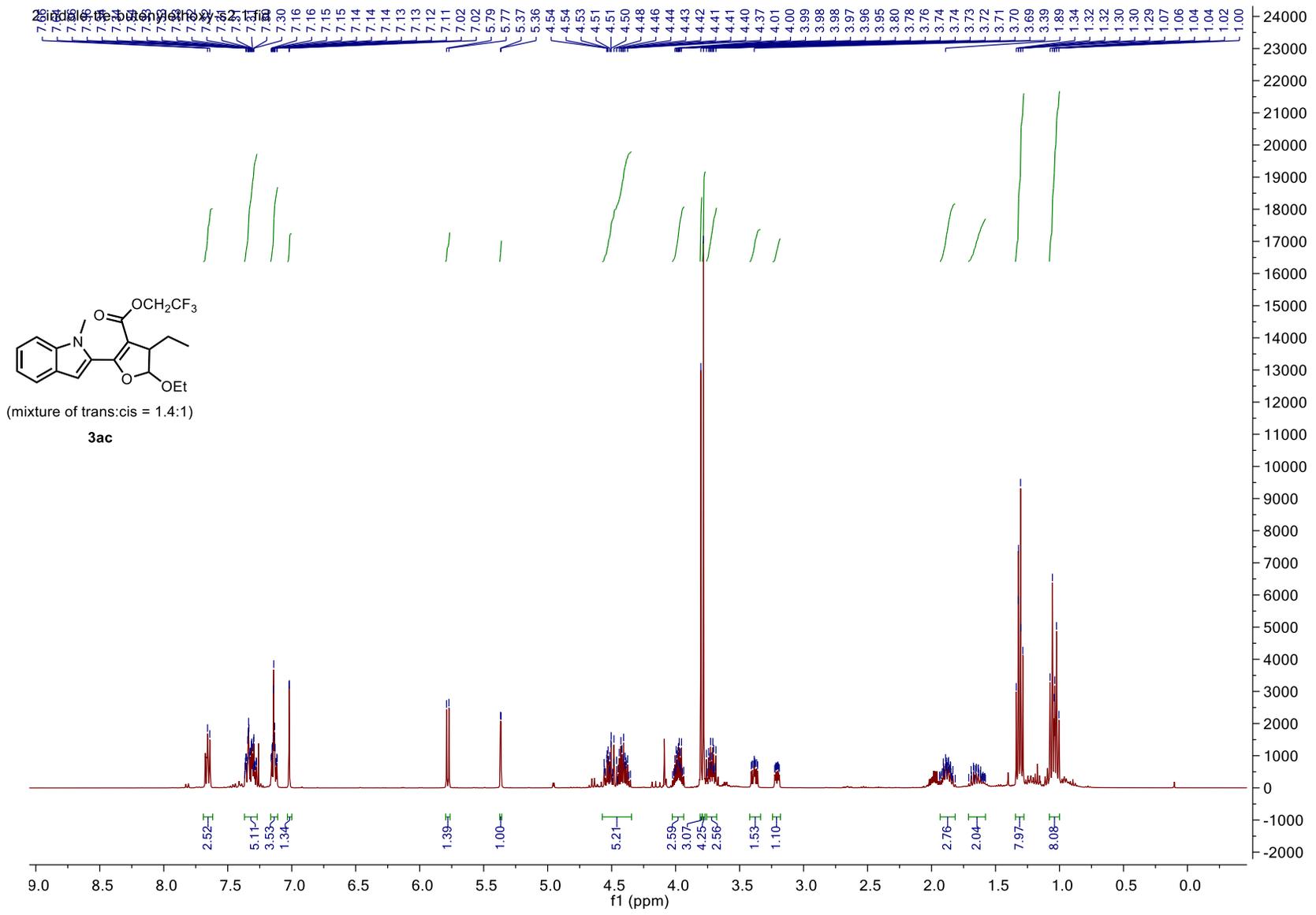
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157.78
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138.13
137.98
137.92
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127.08
127.07
126.17
126.04
123.85
123.72
121.85
121.78
120.30
120.22
111.45
110.34
110.23
109.49
109.42
109.11
109.00
107.73
65.54
64.63
59.79
59.50
48.49
48.46
44.01
40.70
17.38
14.87
14.80
11.55



(mixture of trans: cis = 1.8:1)

3bb





2-indole-tfe-butenylethoxy-s2-13c

162.21
162.11
158.86

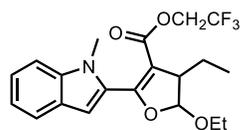
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123.45
121.75
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120.03
119.95
109.65
109.61
108.63
107.80
107.68
107.65
107.21

65.86
64.74
60.13
59.77
59.41
59.05

50.37
47.22

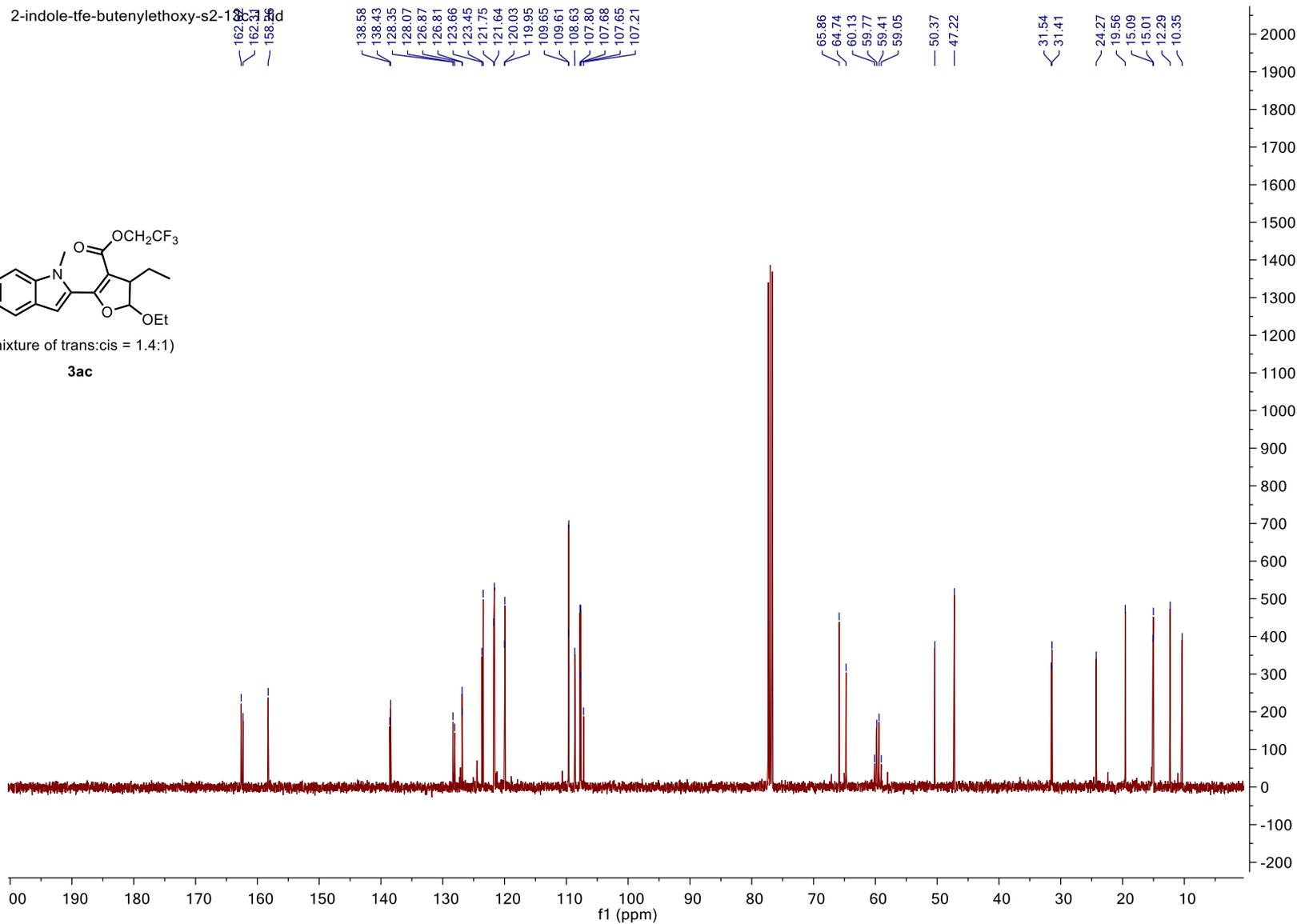
31.54
31.41

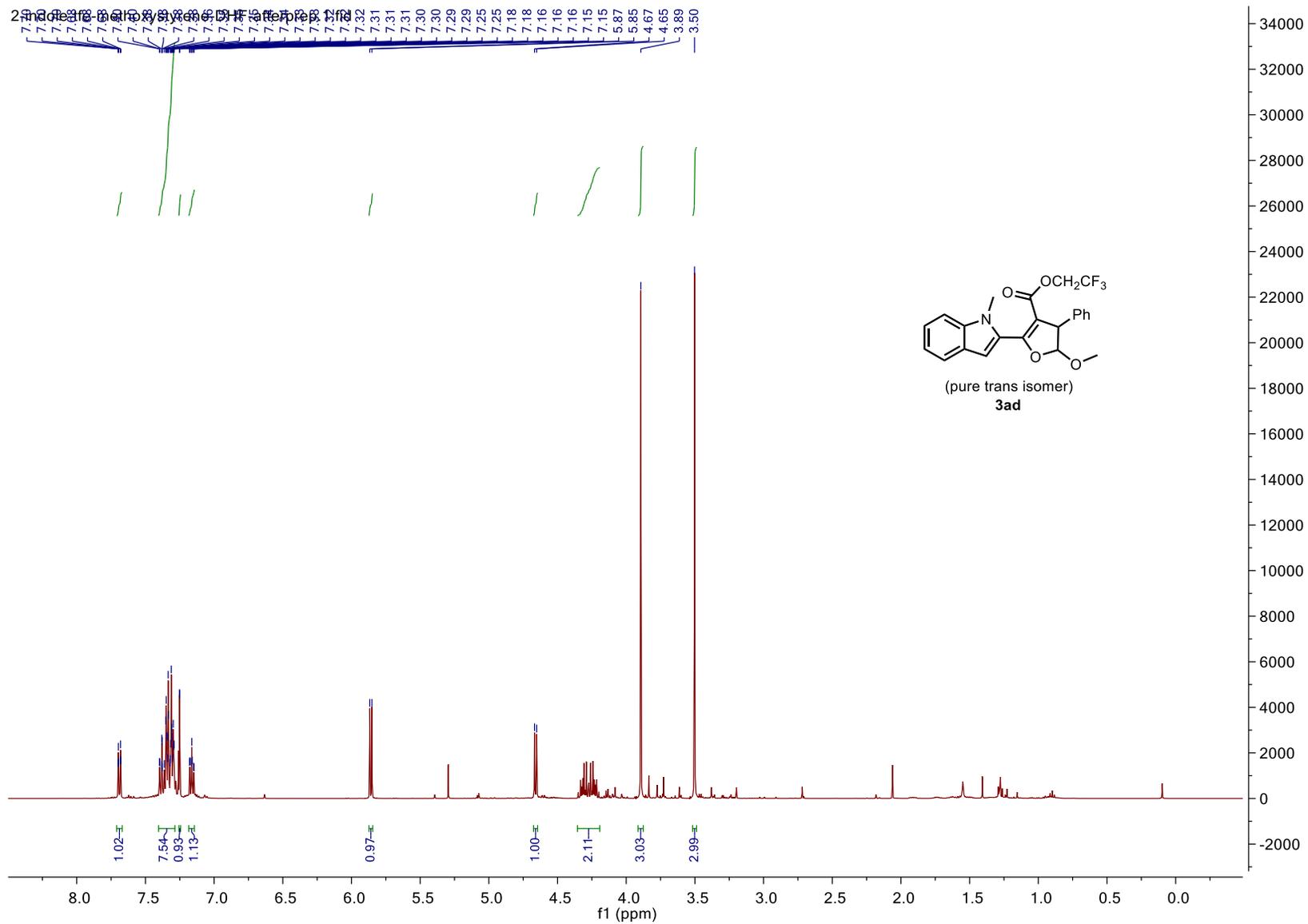
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15.01
12.29
10.35



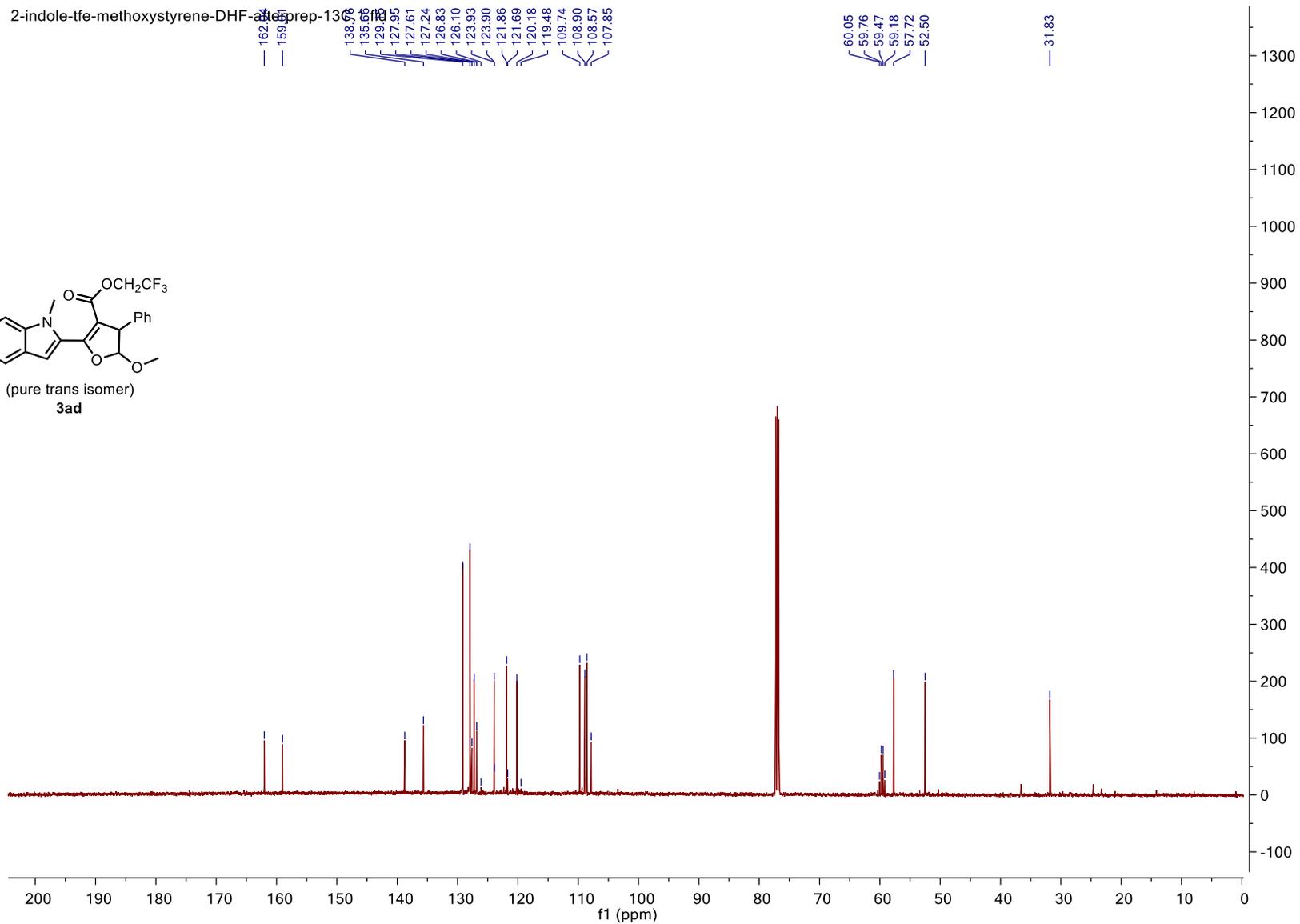
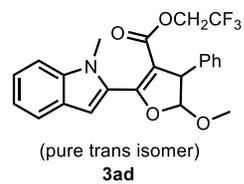
(mixture of trans:cis = 1.4:1)

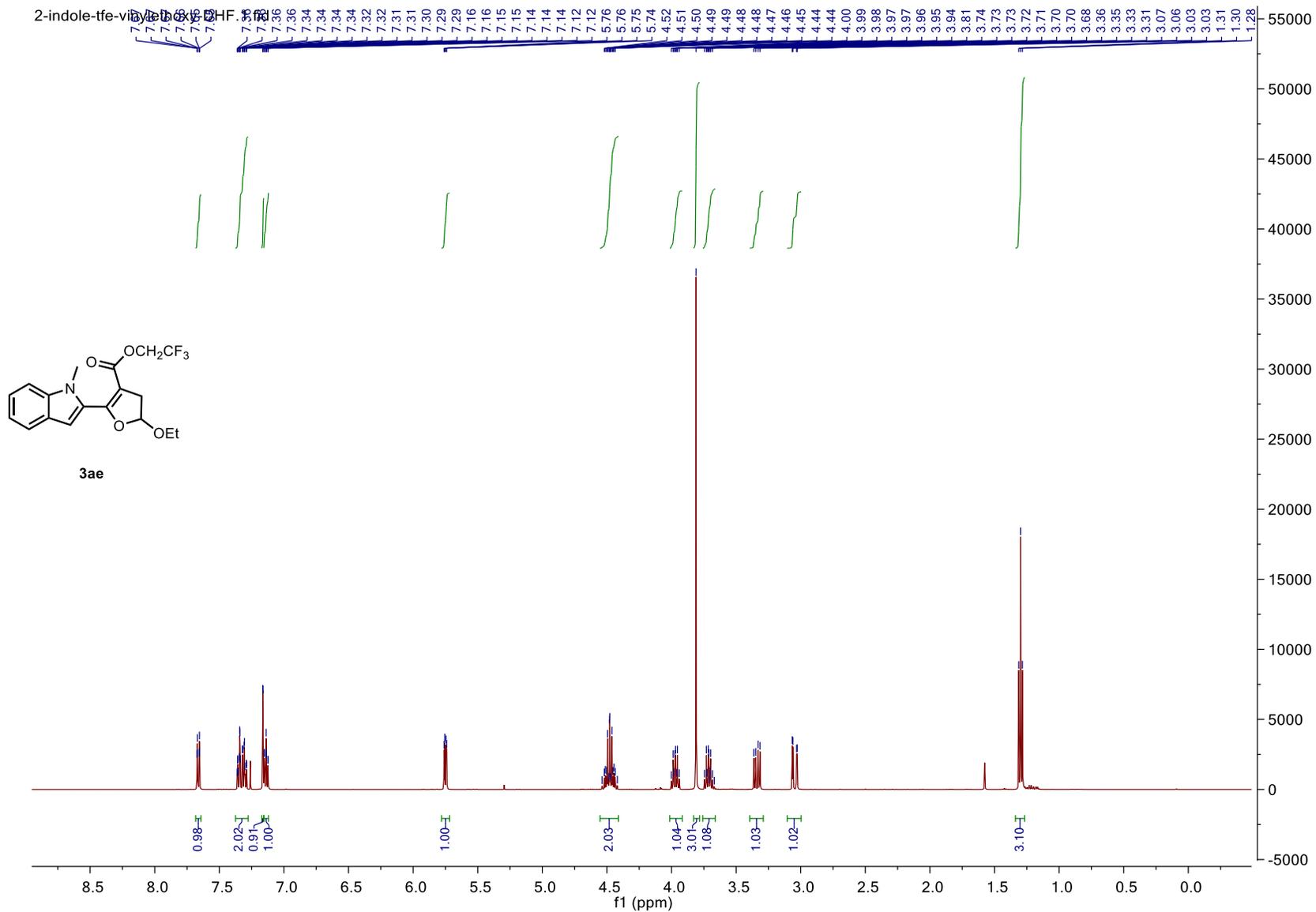
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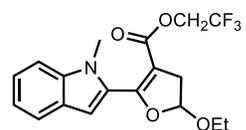


2-indole-tfe-methoxystyrene-DHF-~~at~~ prep-13

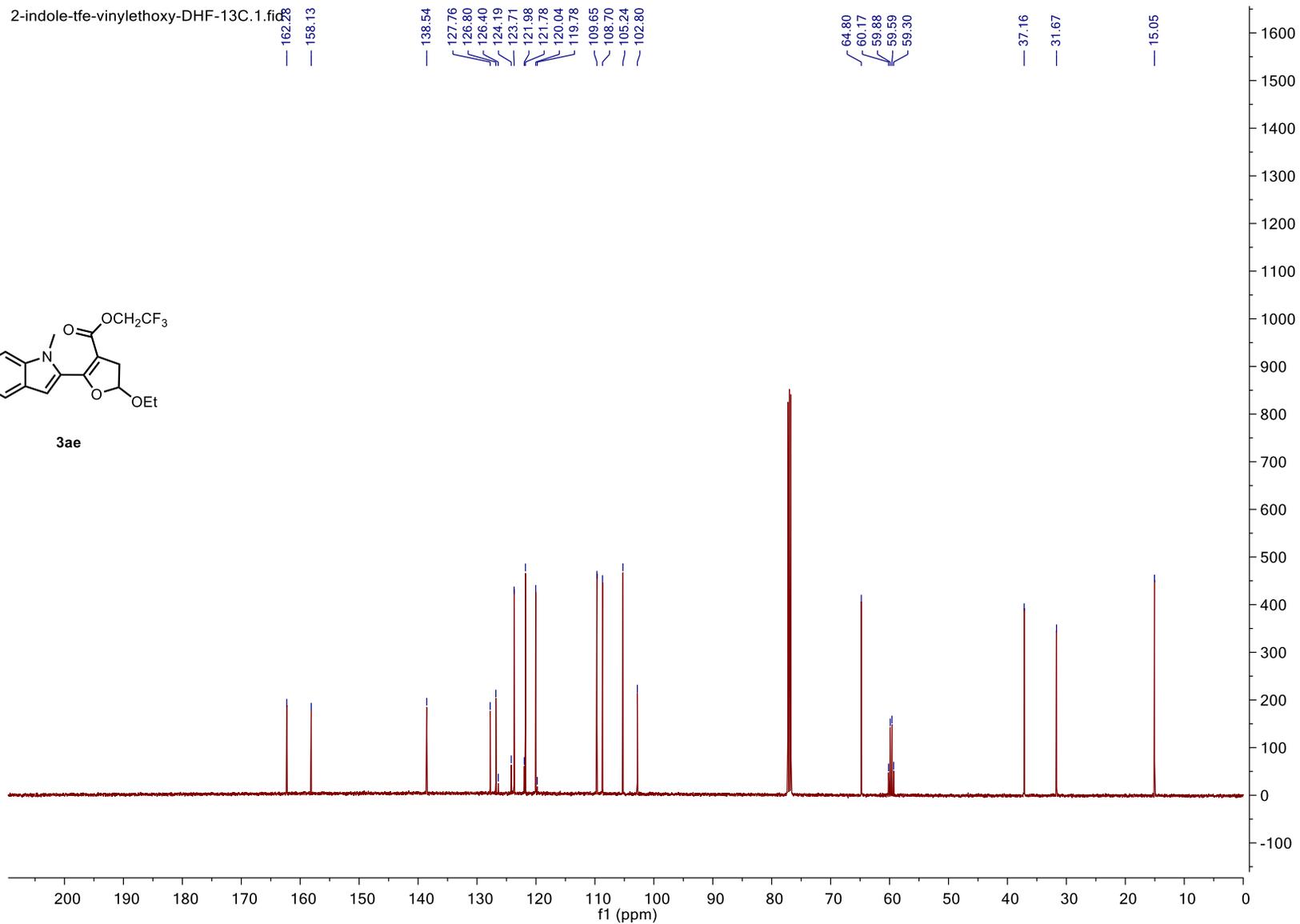


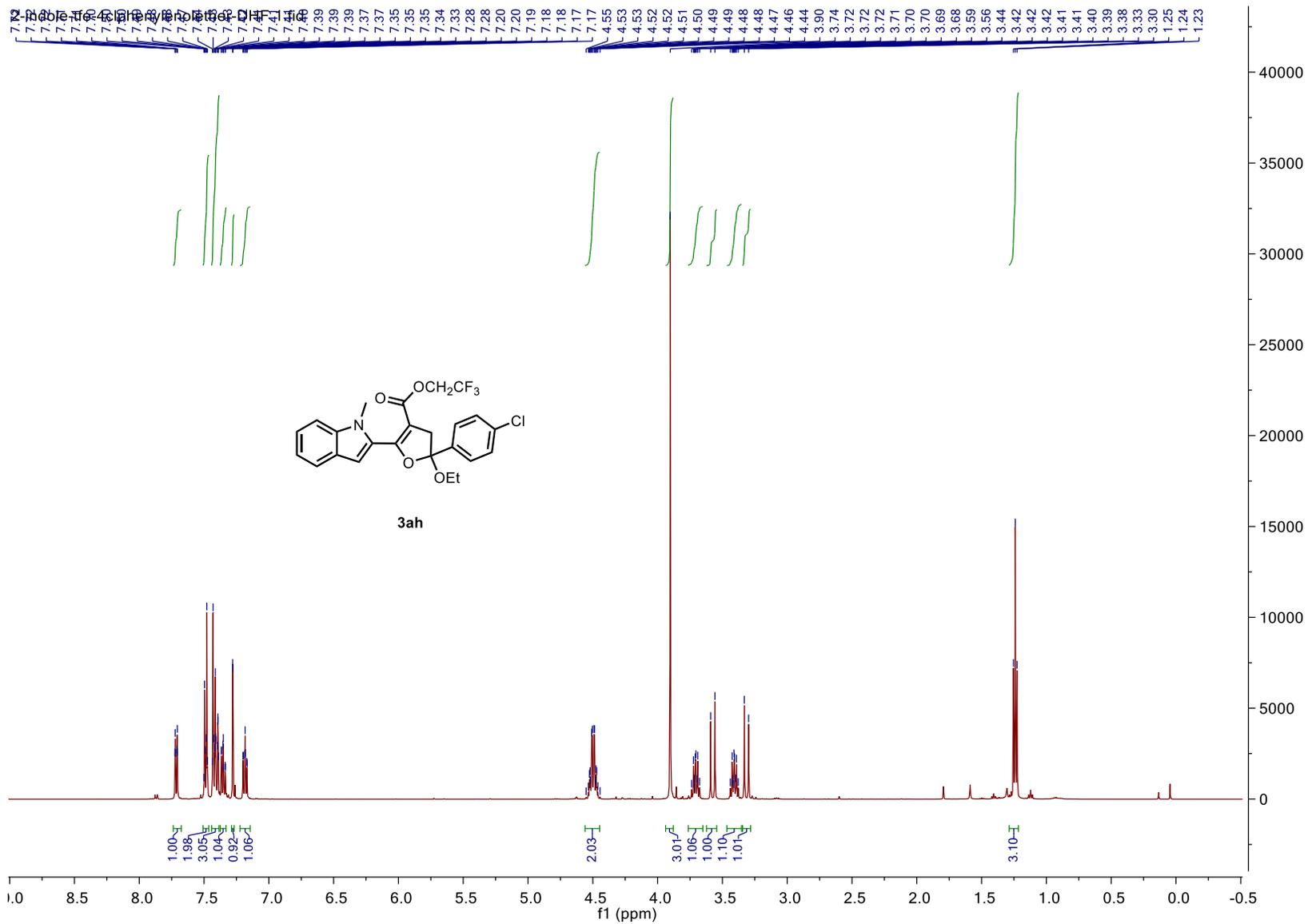


2-indole-tfe-vinylethoxy-DHF-13C.1.tif

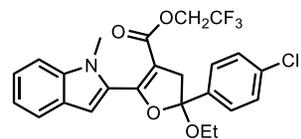


3ae

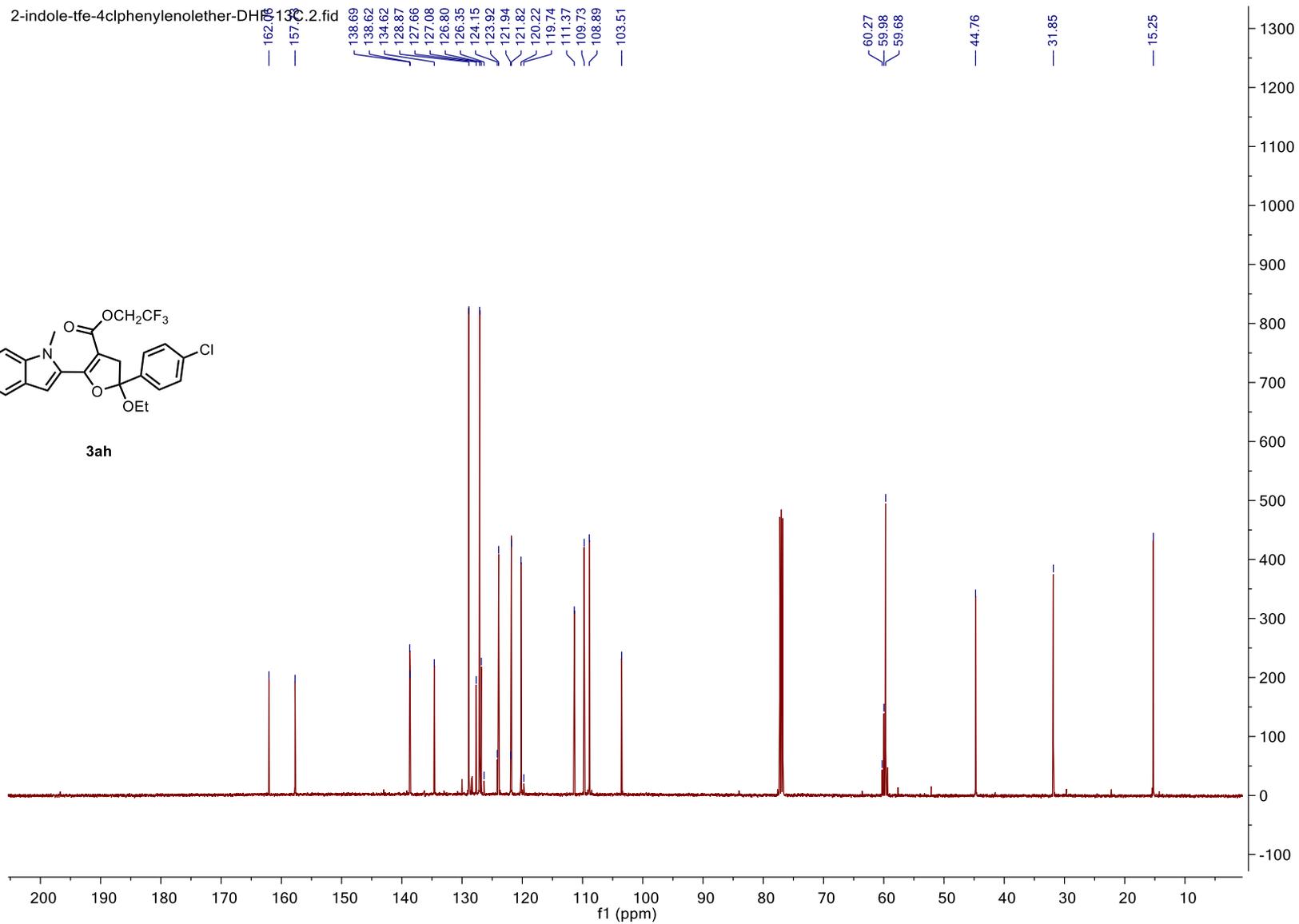




2-indole-tfe-4clphenylenelether-DH 13C.2.fid

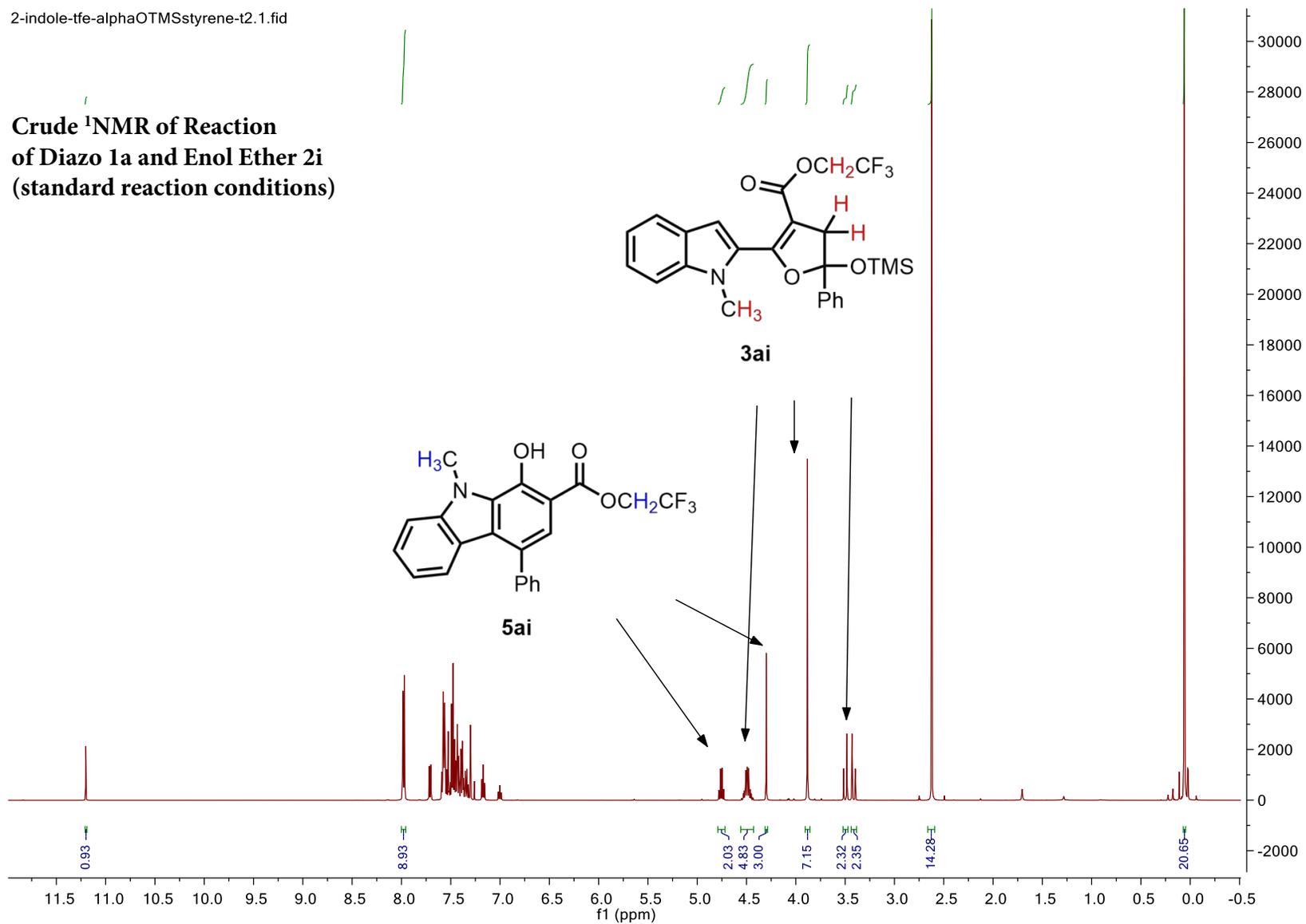


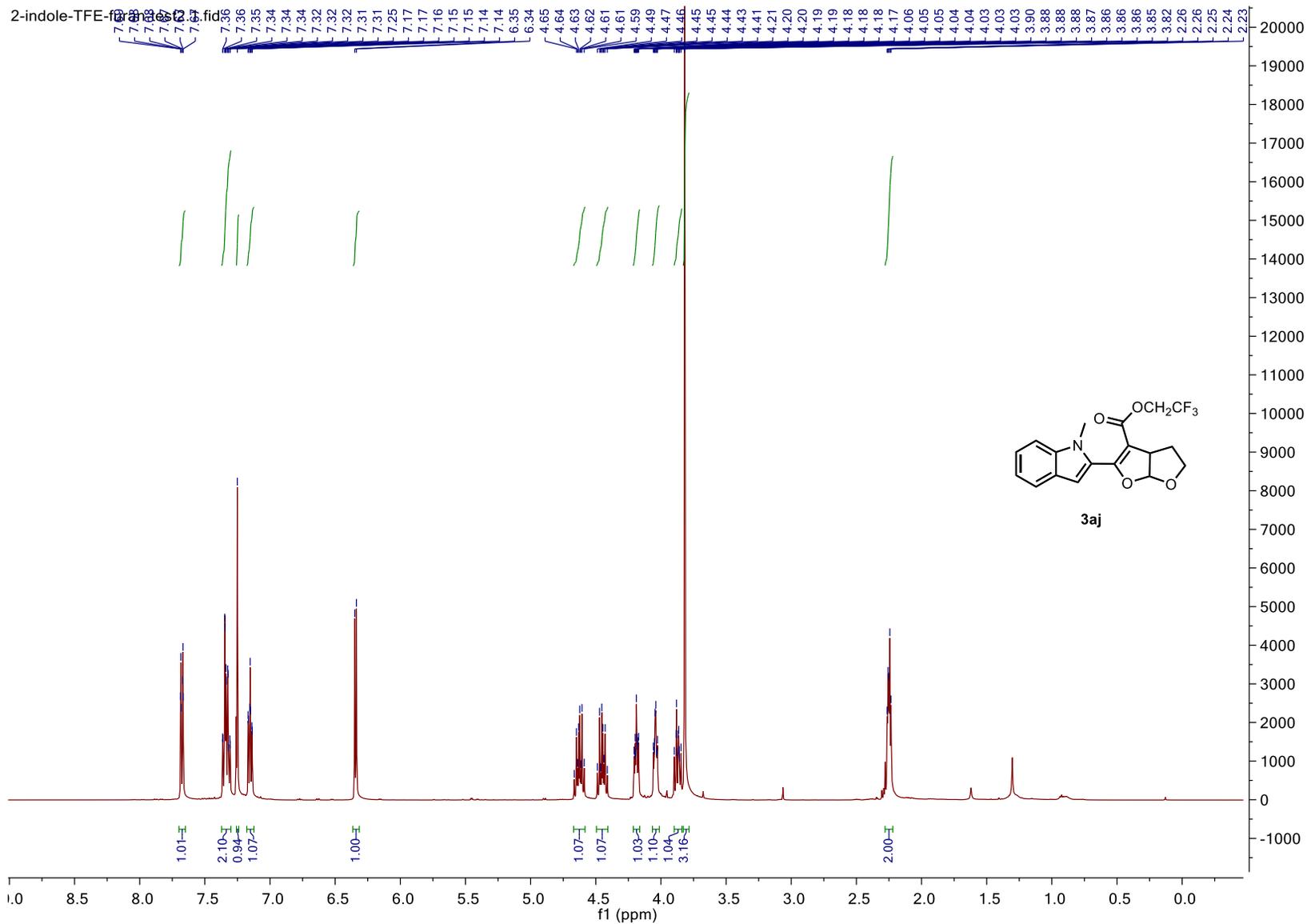
3ah



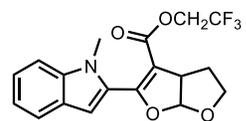
2-indole-tfe-alphaOTMSstyrene-t2.1.fid

**Crude ^1NMR of Reaction
of Diazo 1a and Enol Ether 2i
(standard reaction conditions)**

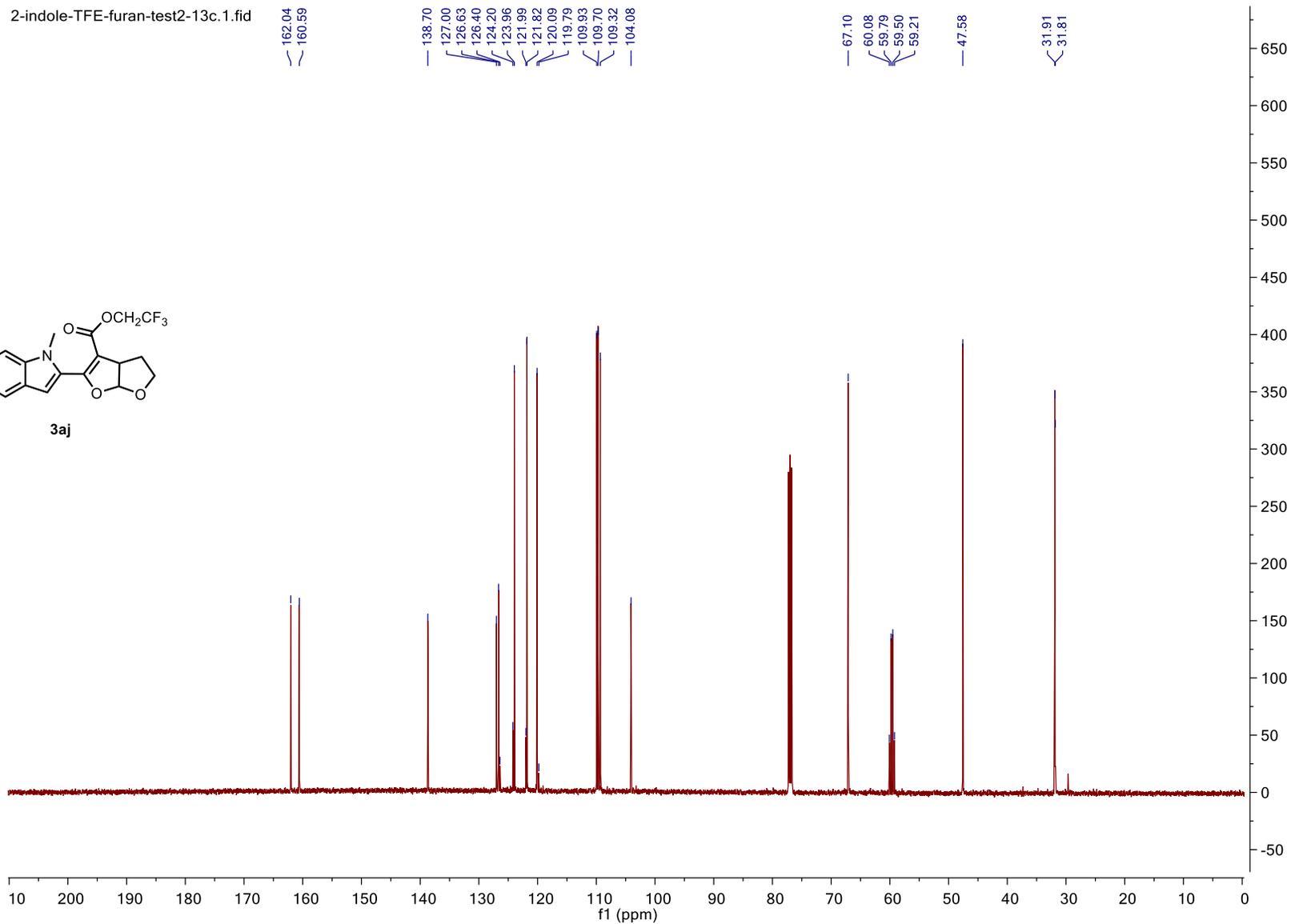


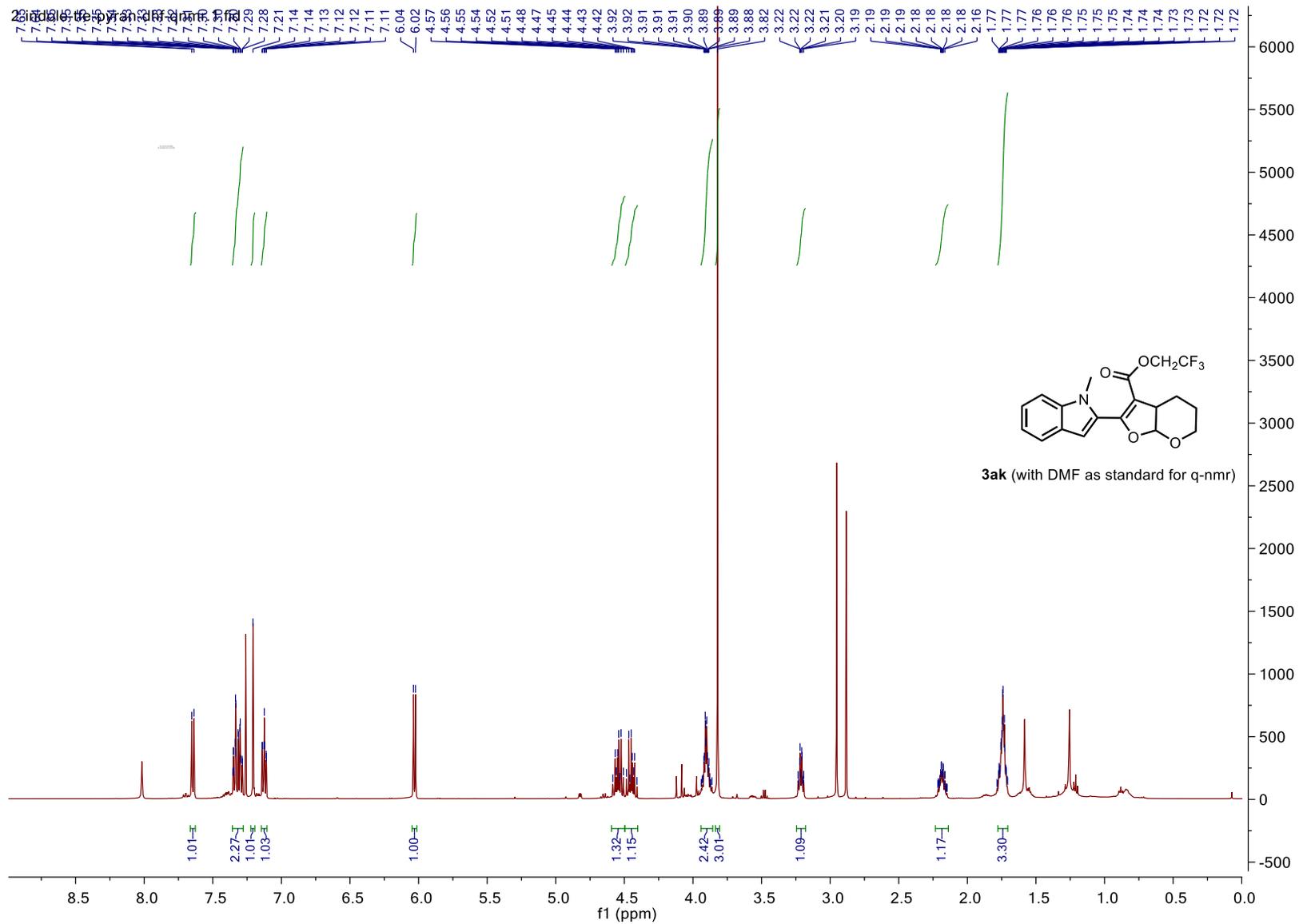


2-indole-TFE-furan-test2-13c.1.fid

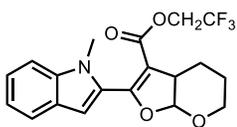


3aj

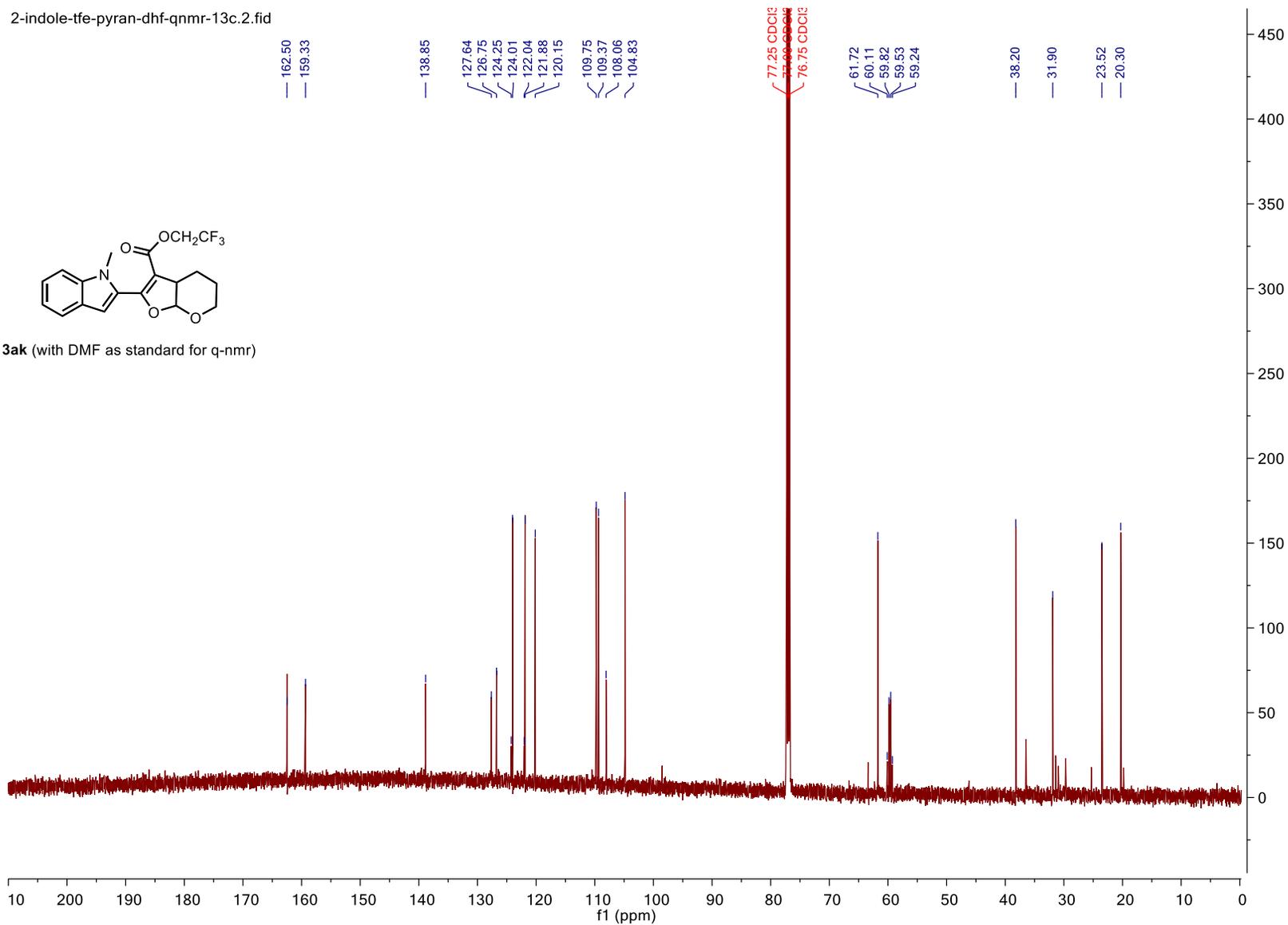




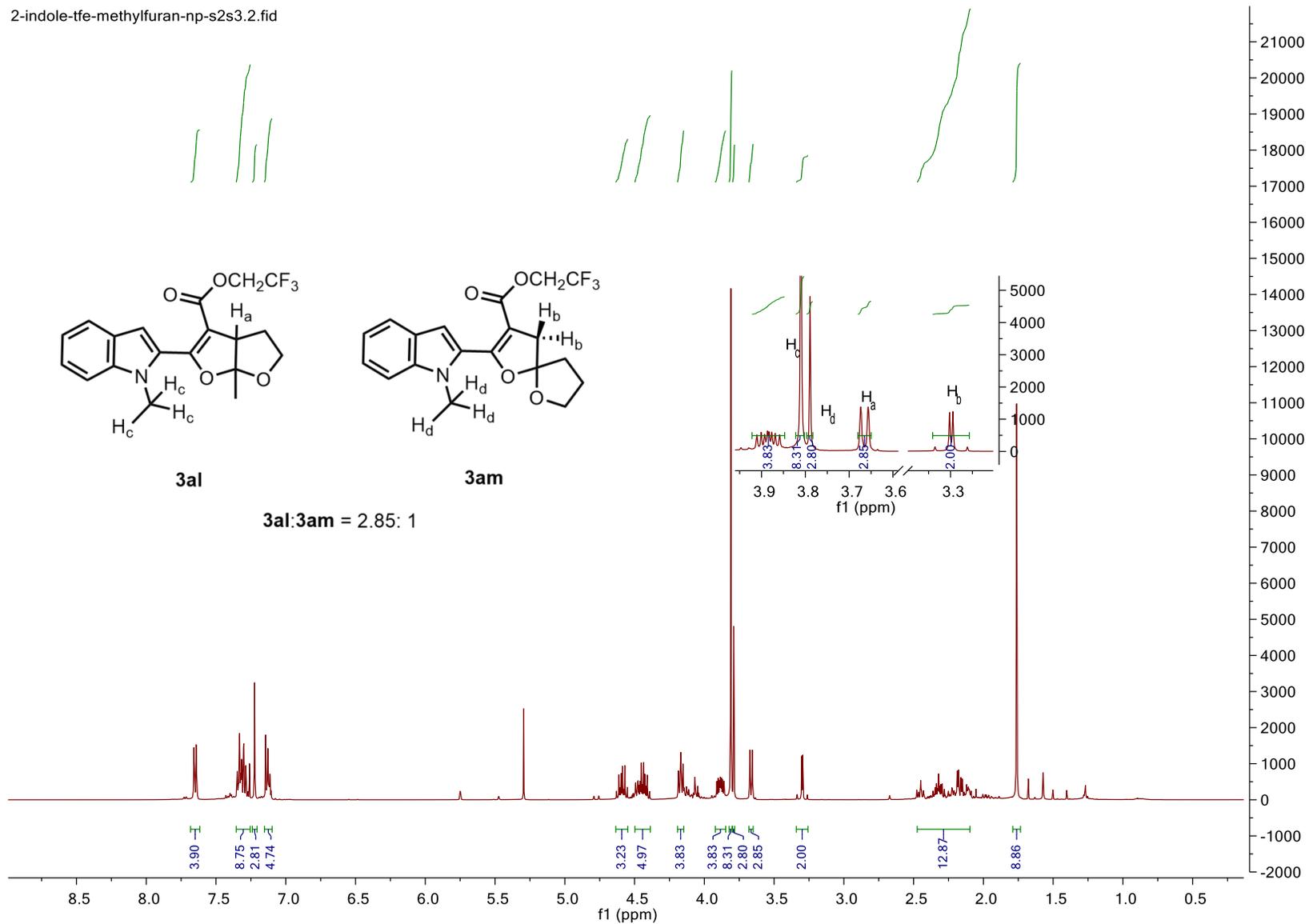
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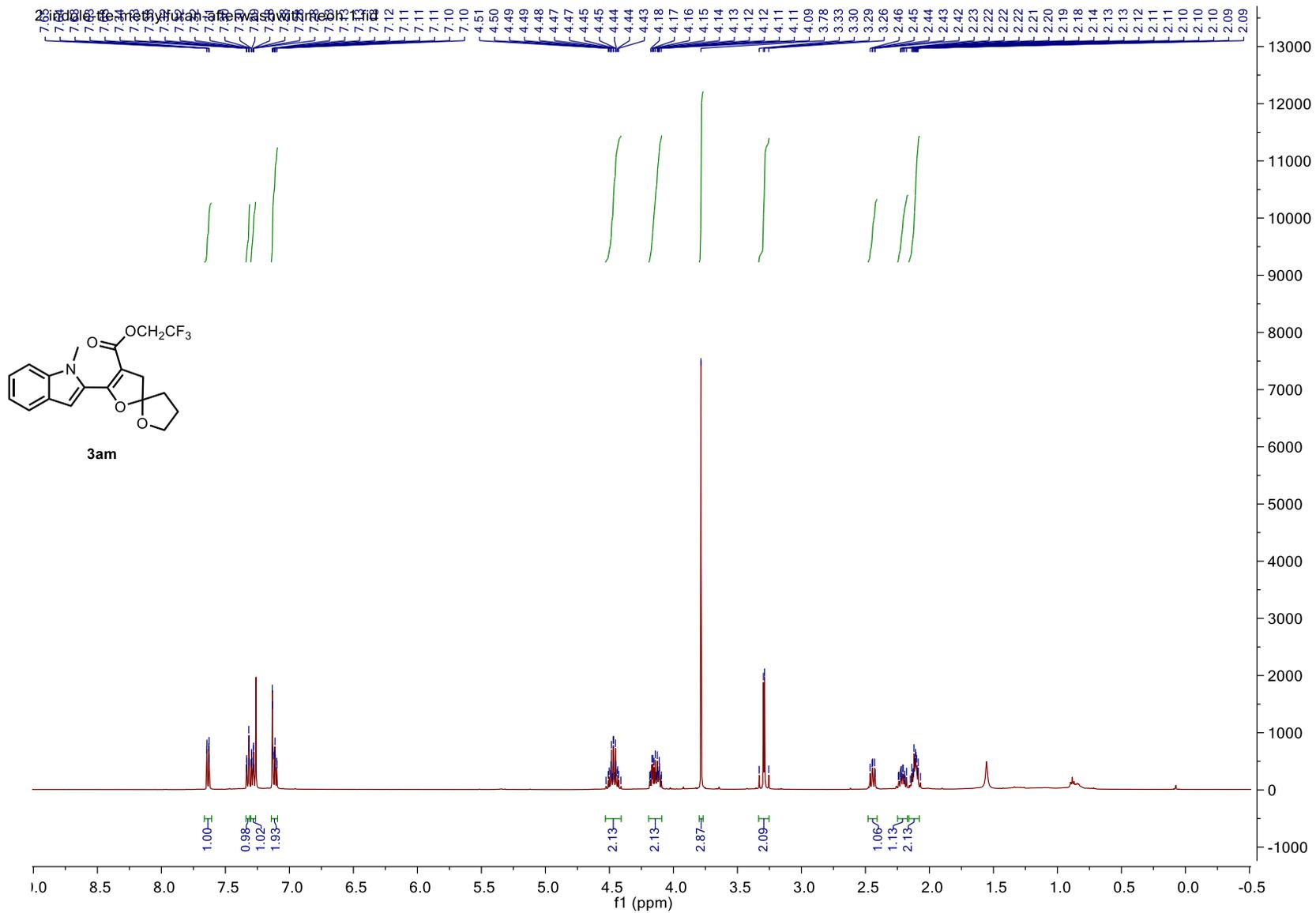


3ak (with DMF as standard for q-nmr)

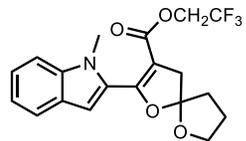


2-indole-tfe-methylfuran-np-s2s3.2.fid

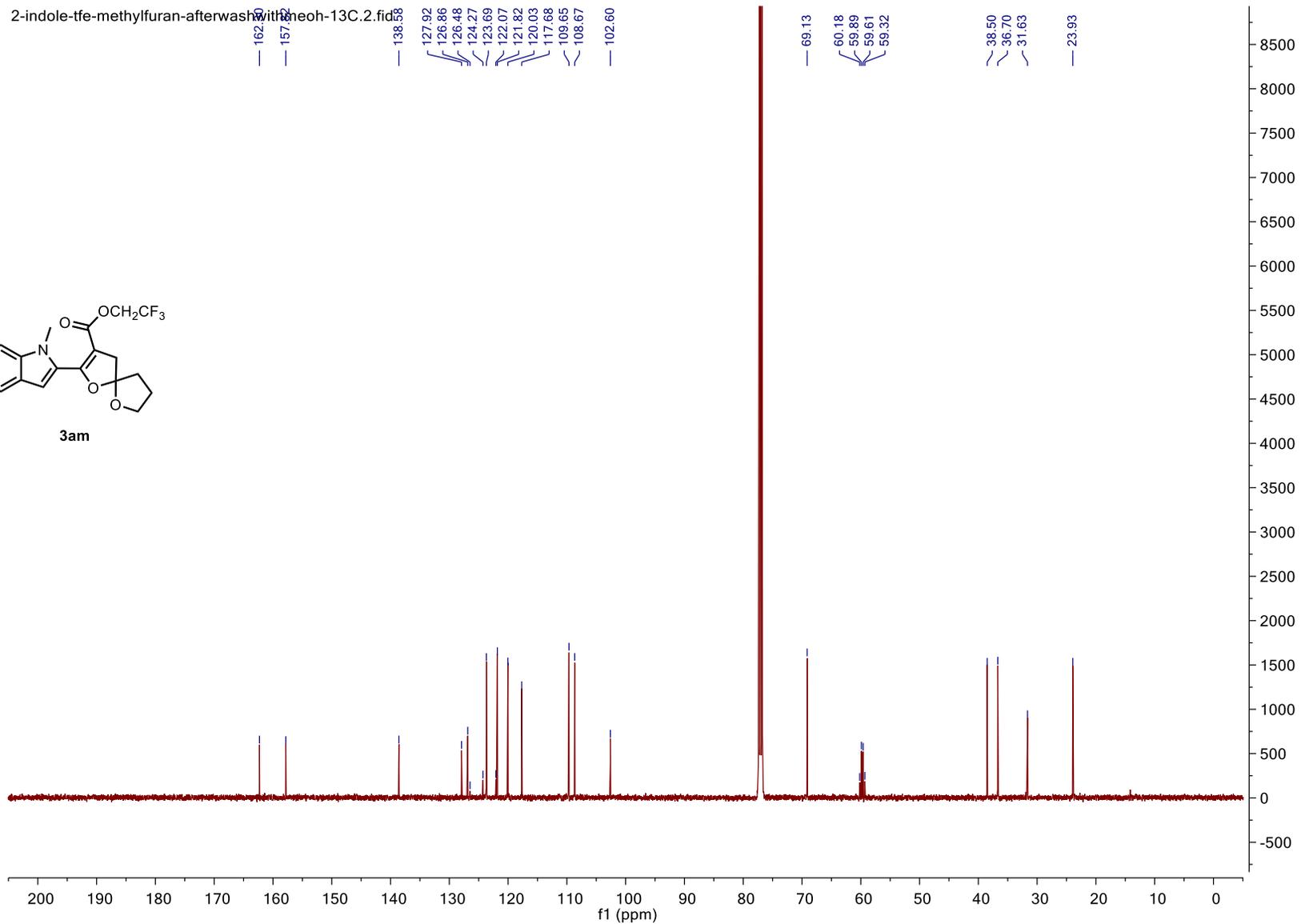




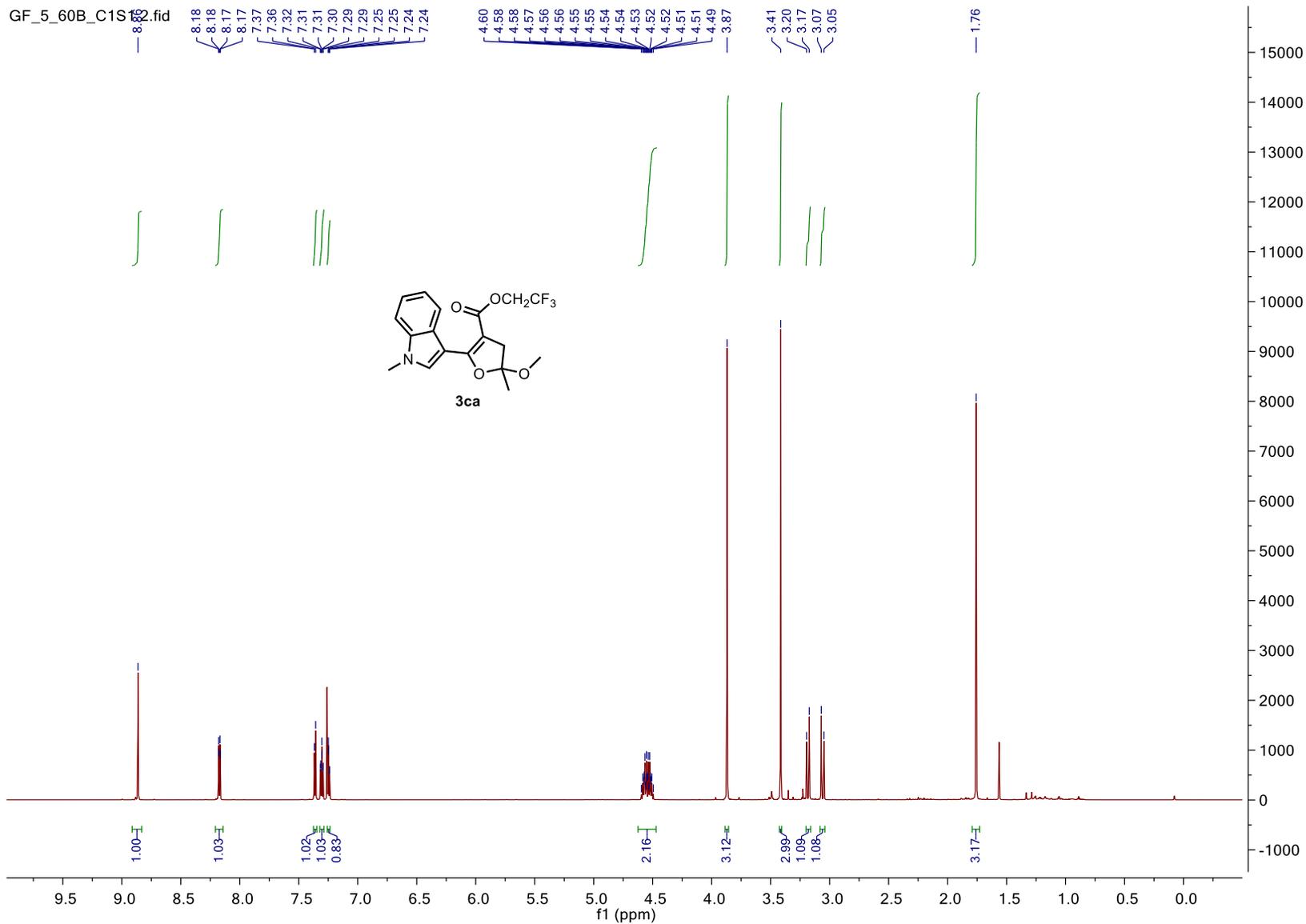
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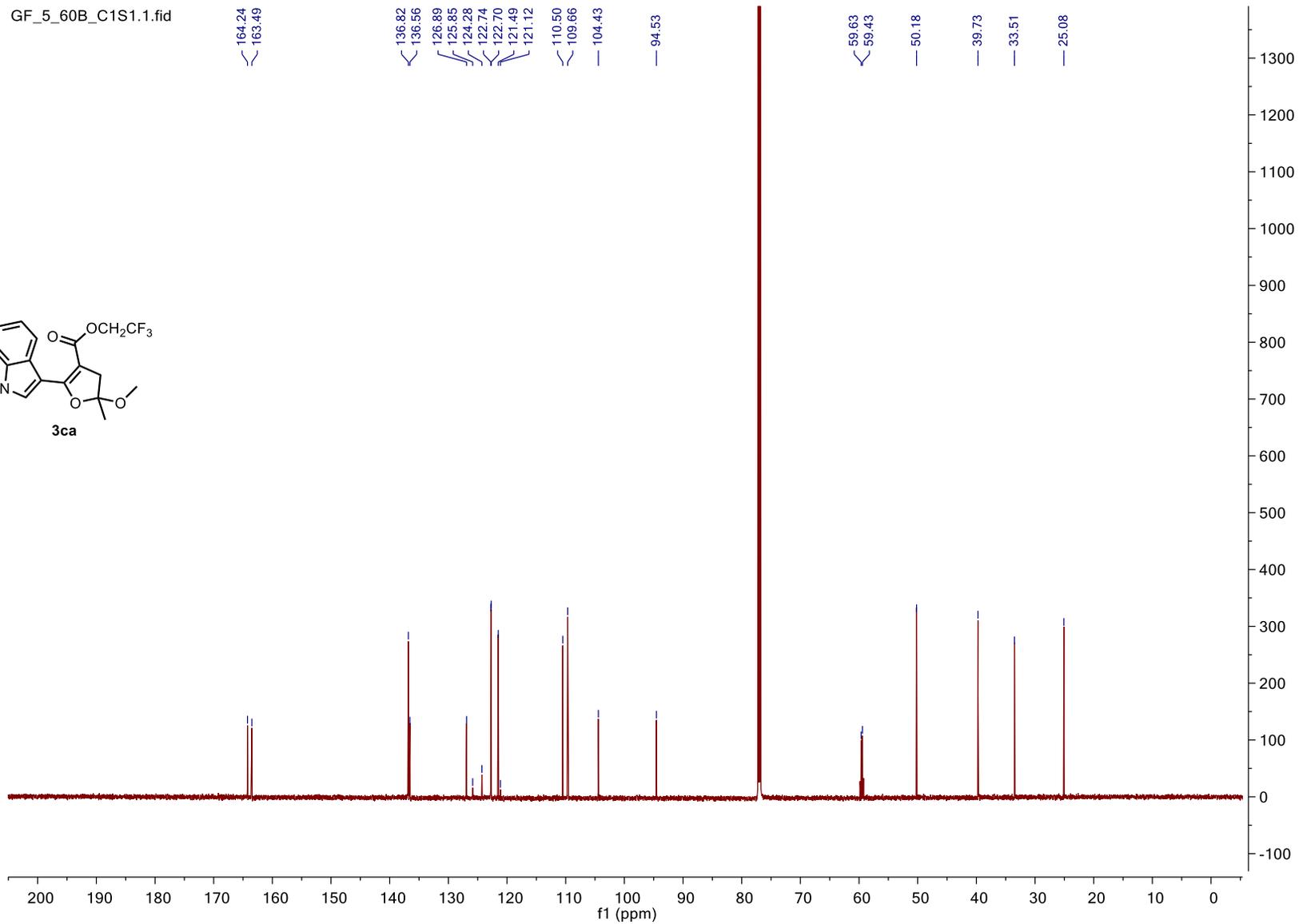
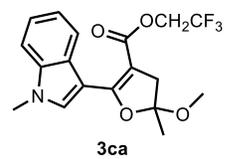
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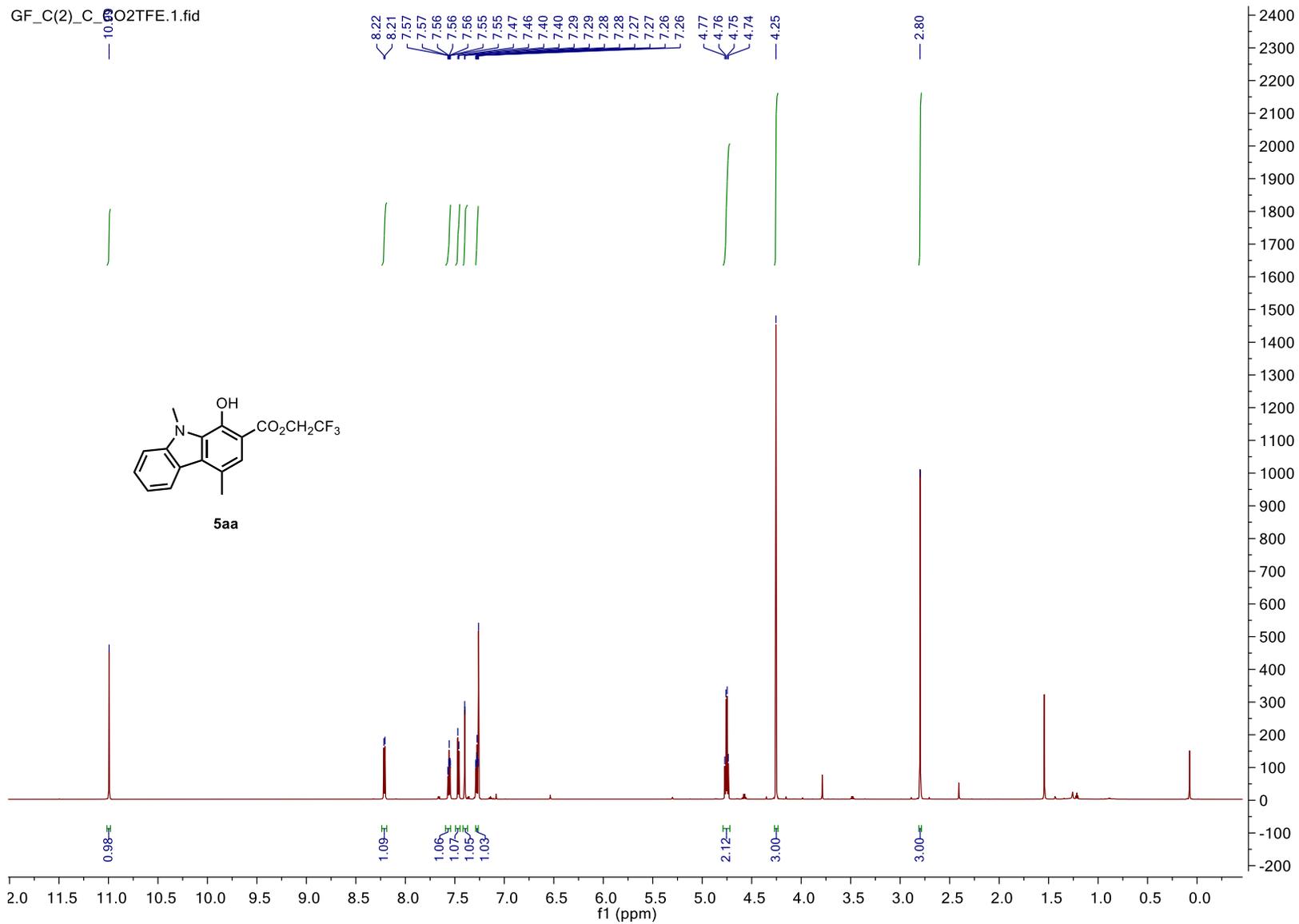
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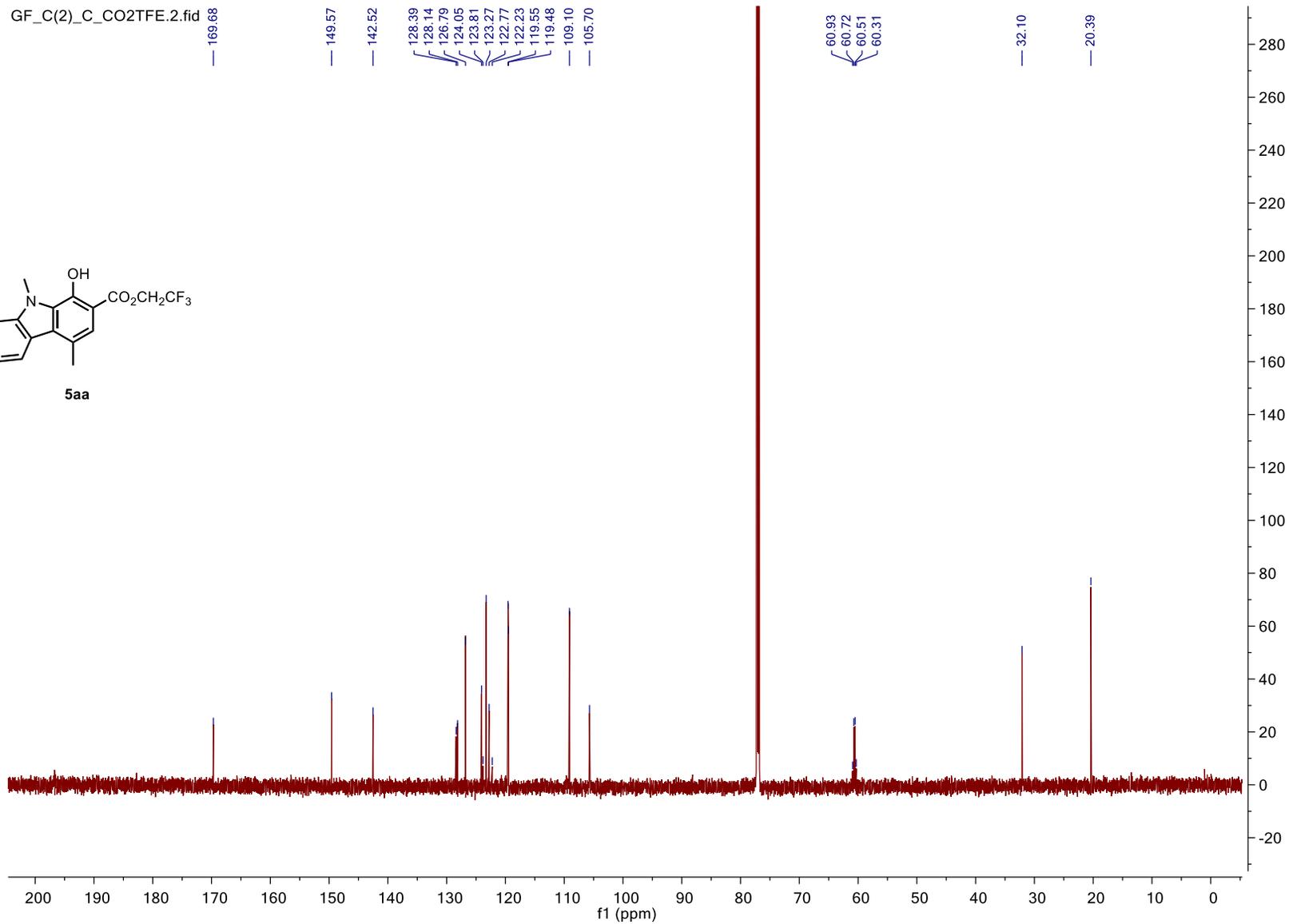
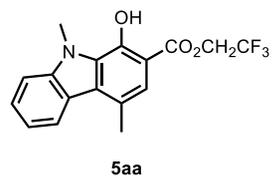
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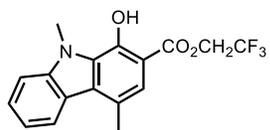


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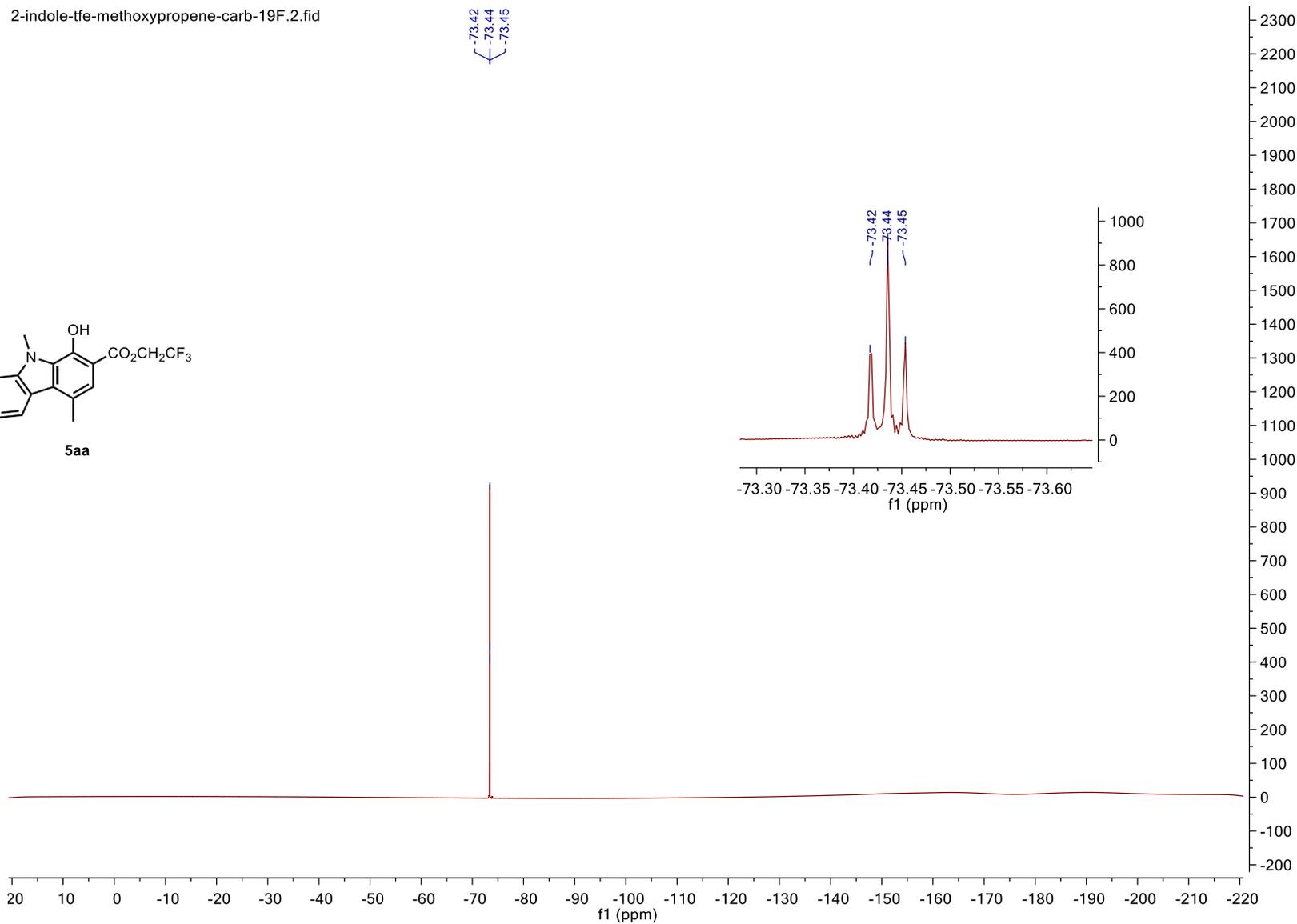


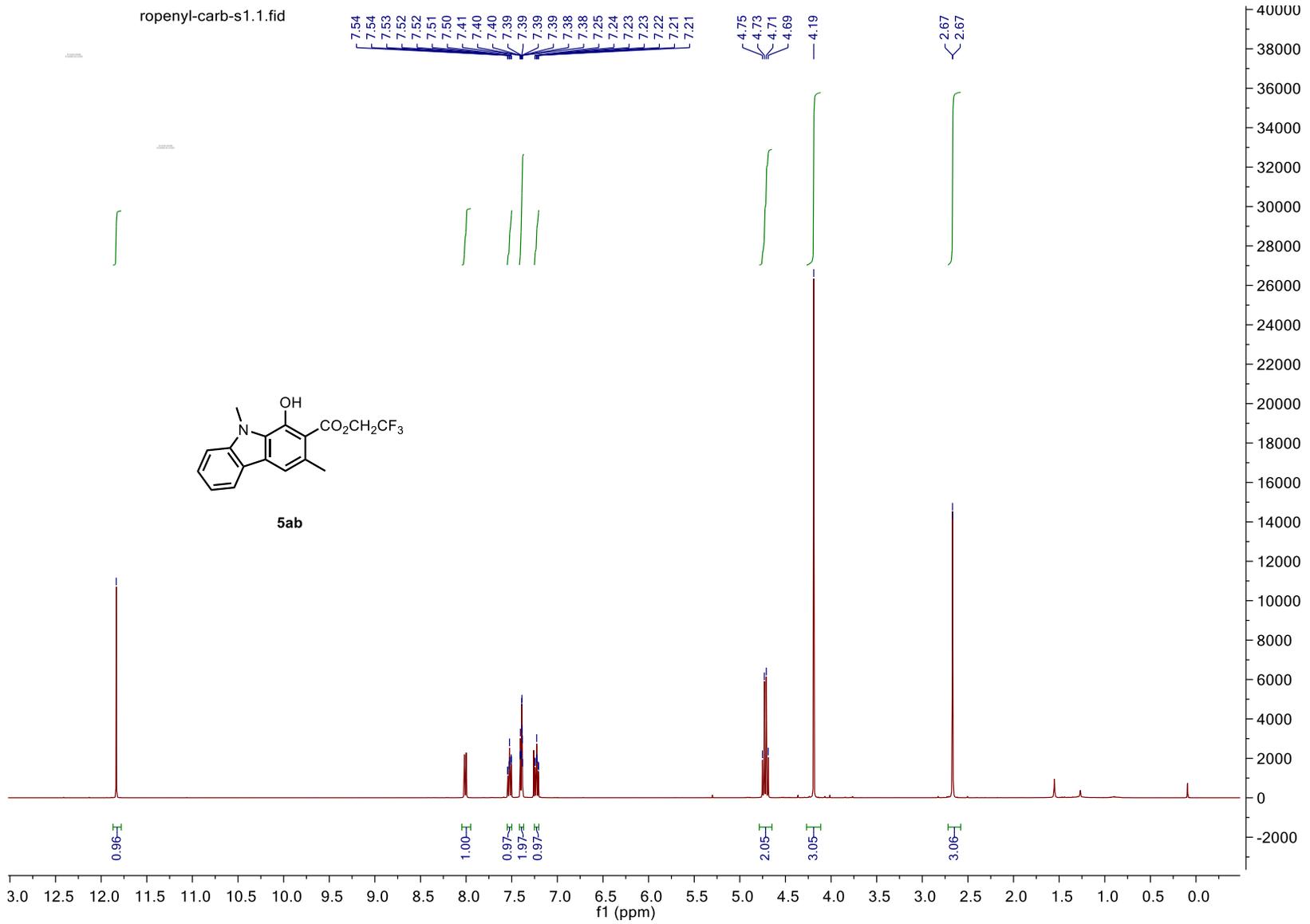
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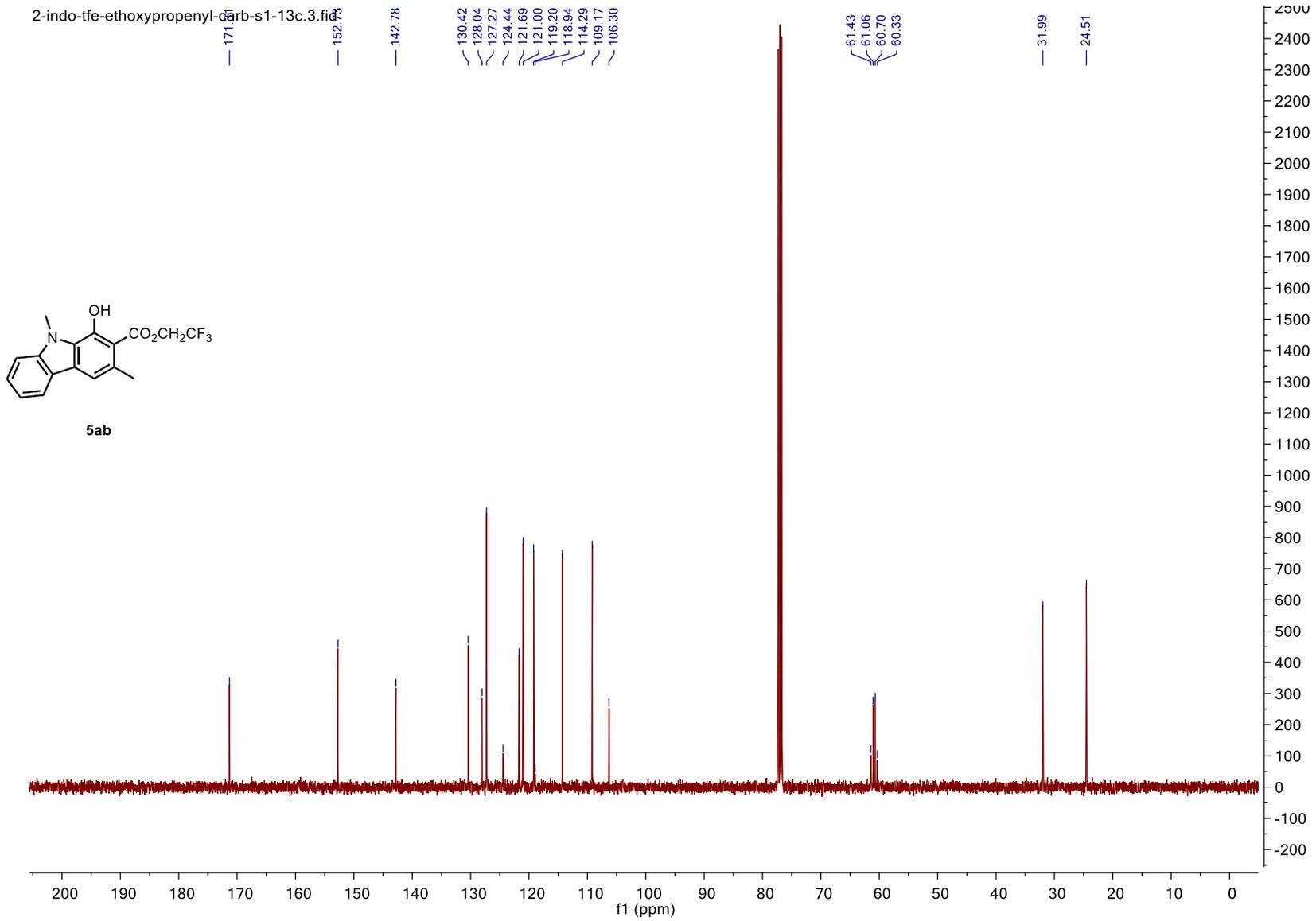
-73.42
-73.44
-73.45



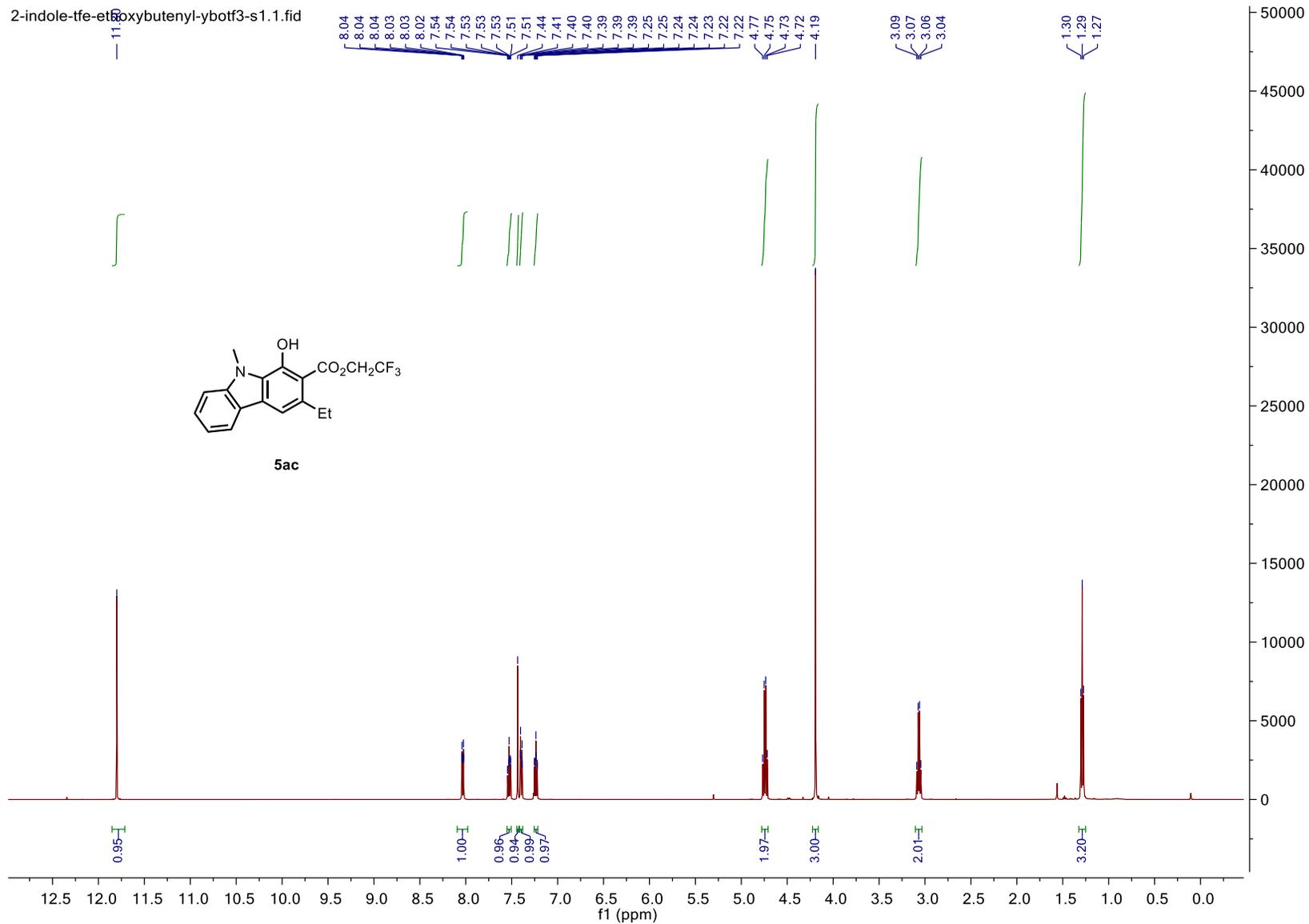
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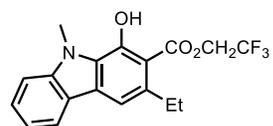




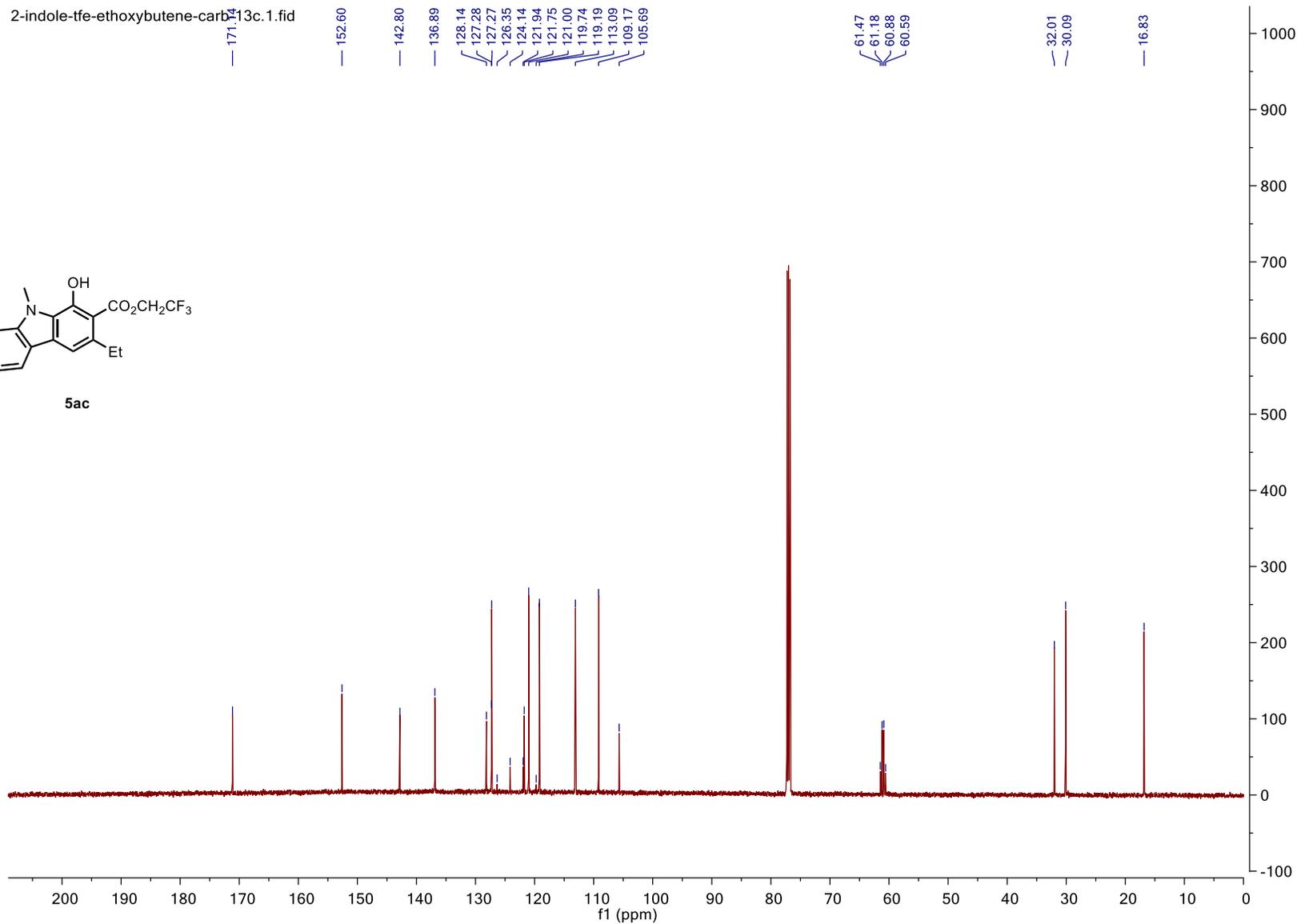
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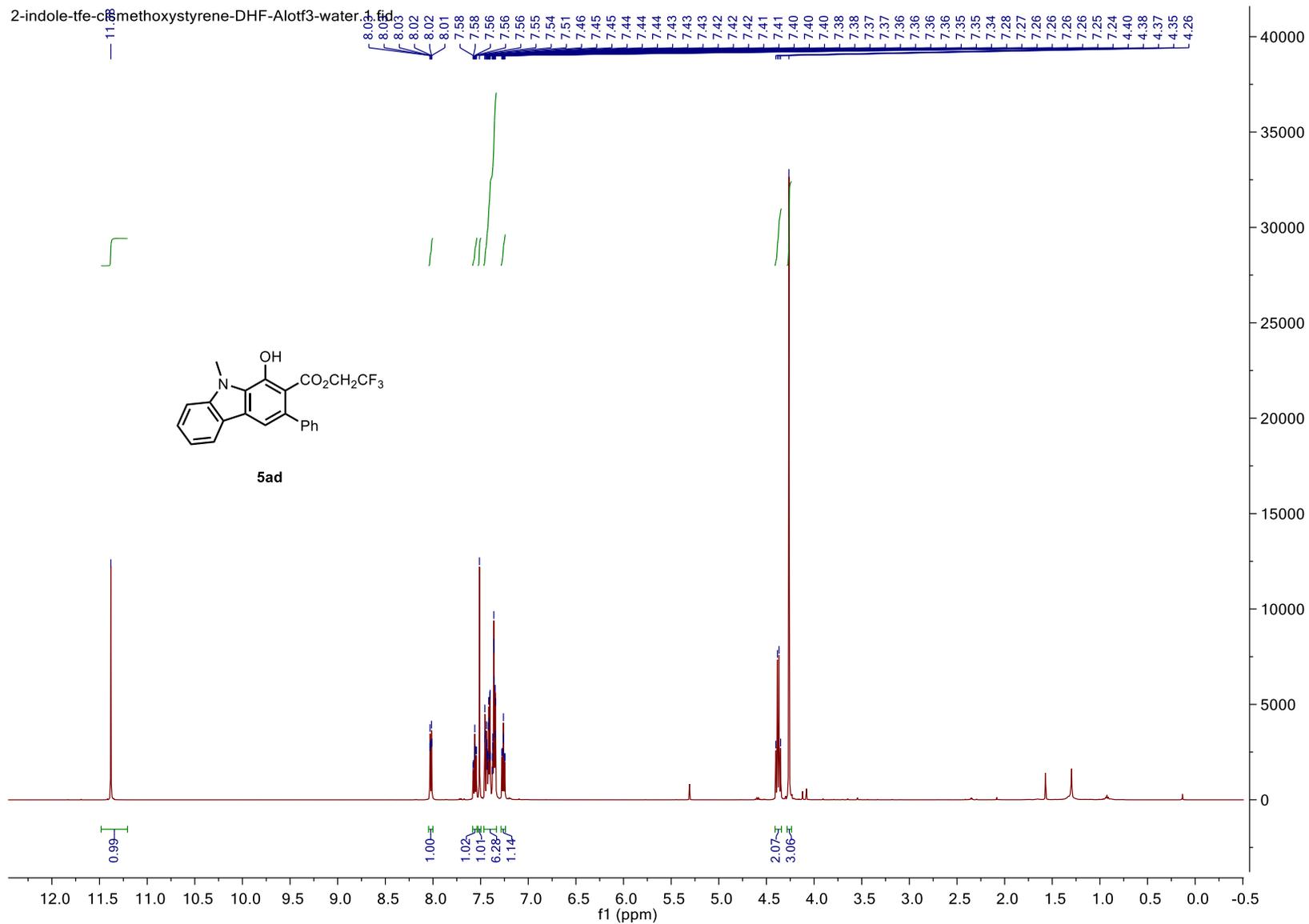


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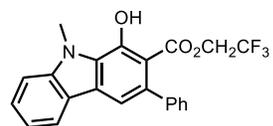


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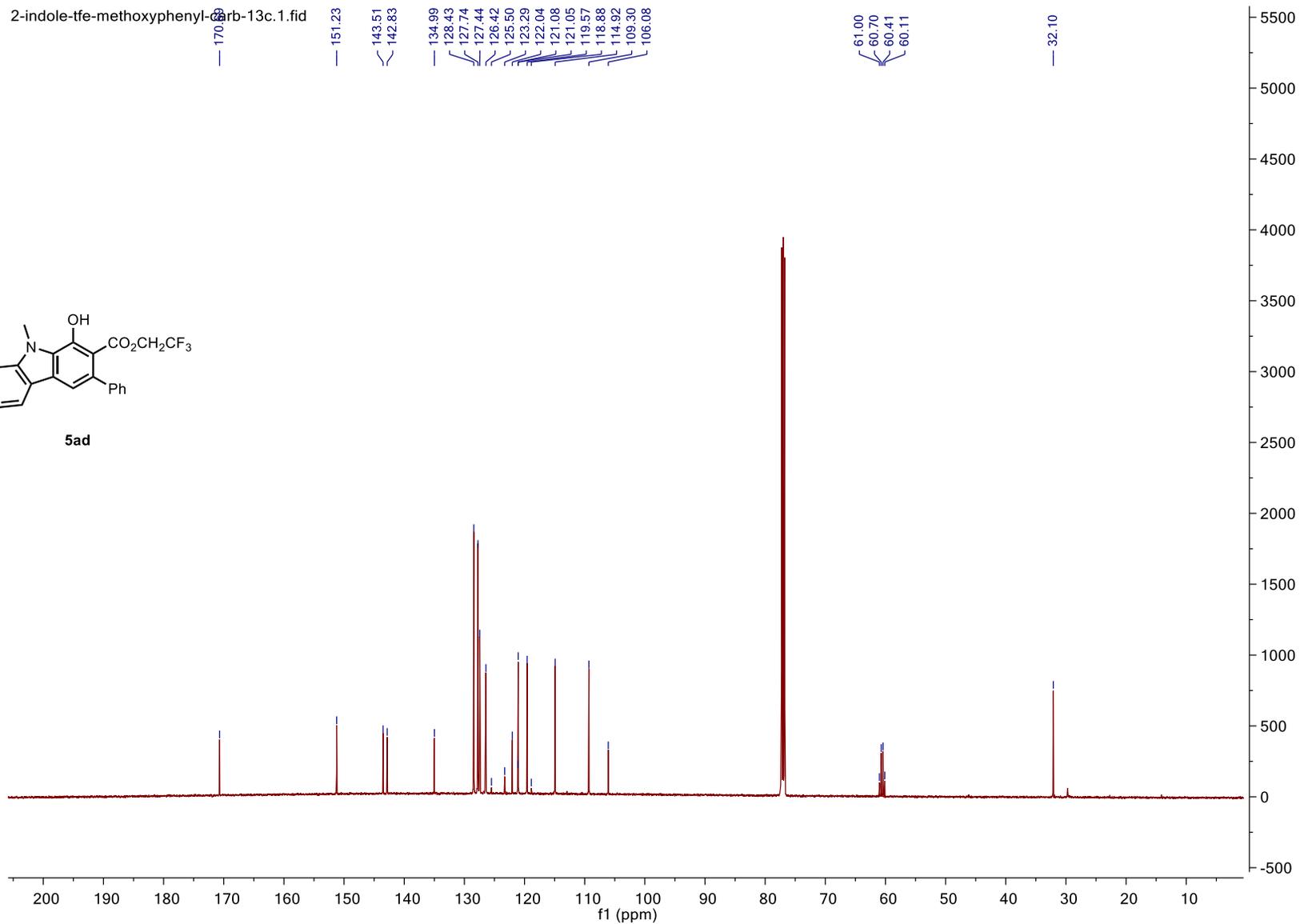




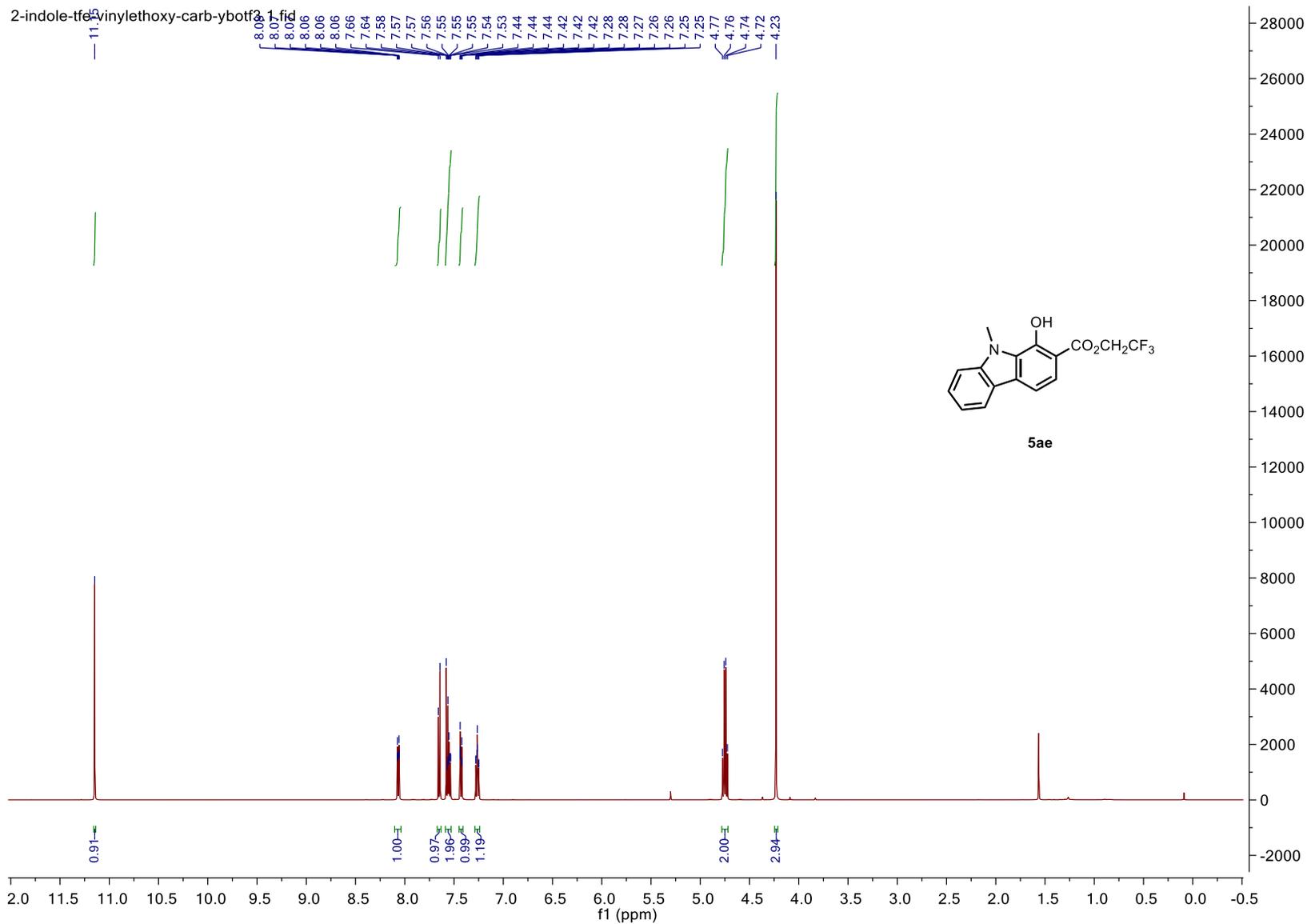
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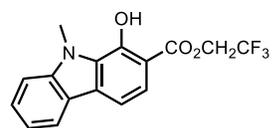
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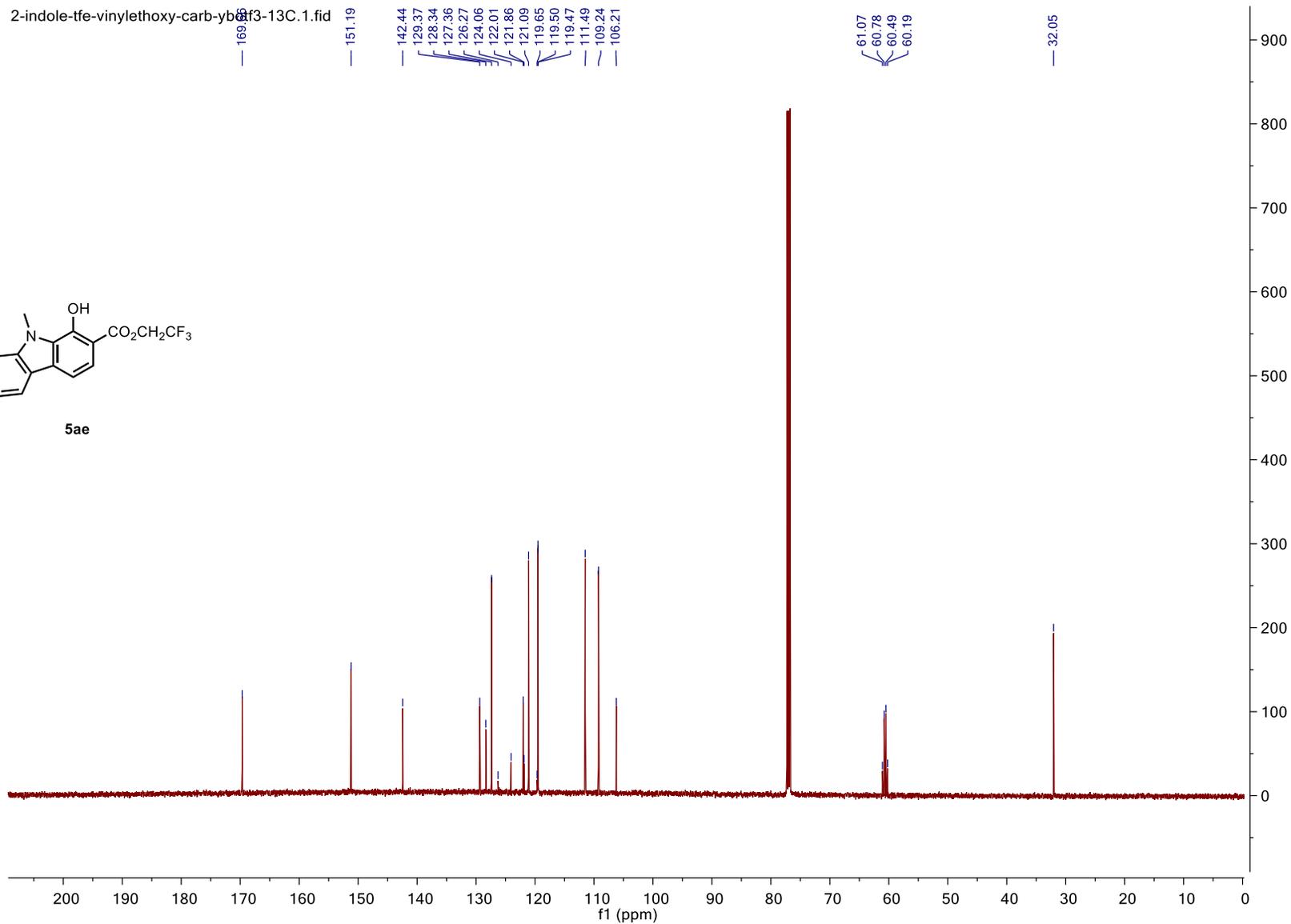
2-indole-1-methyl-3-(vinylethoxy-carbonyl)-5-hydroxybenzene

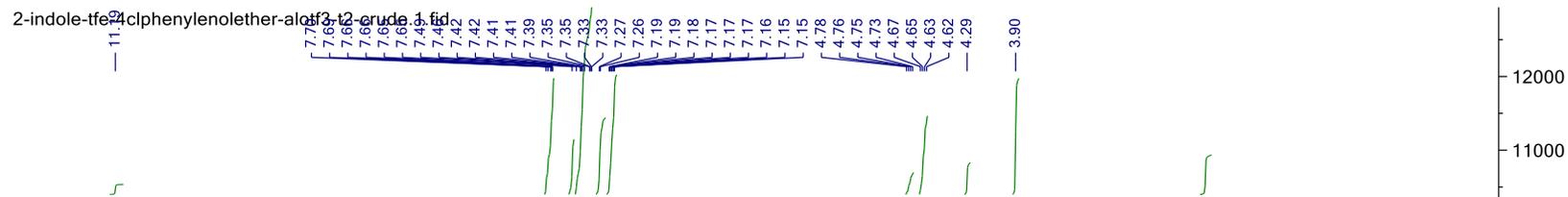


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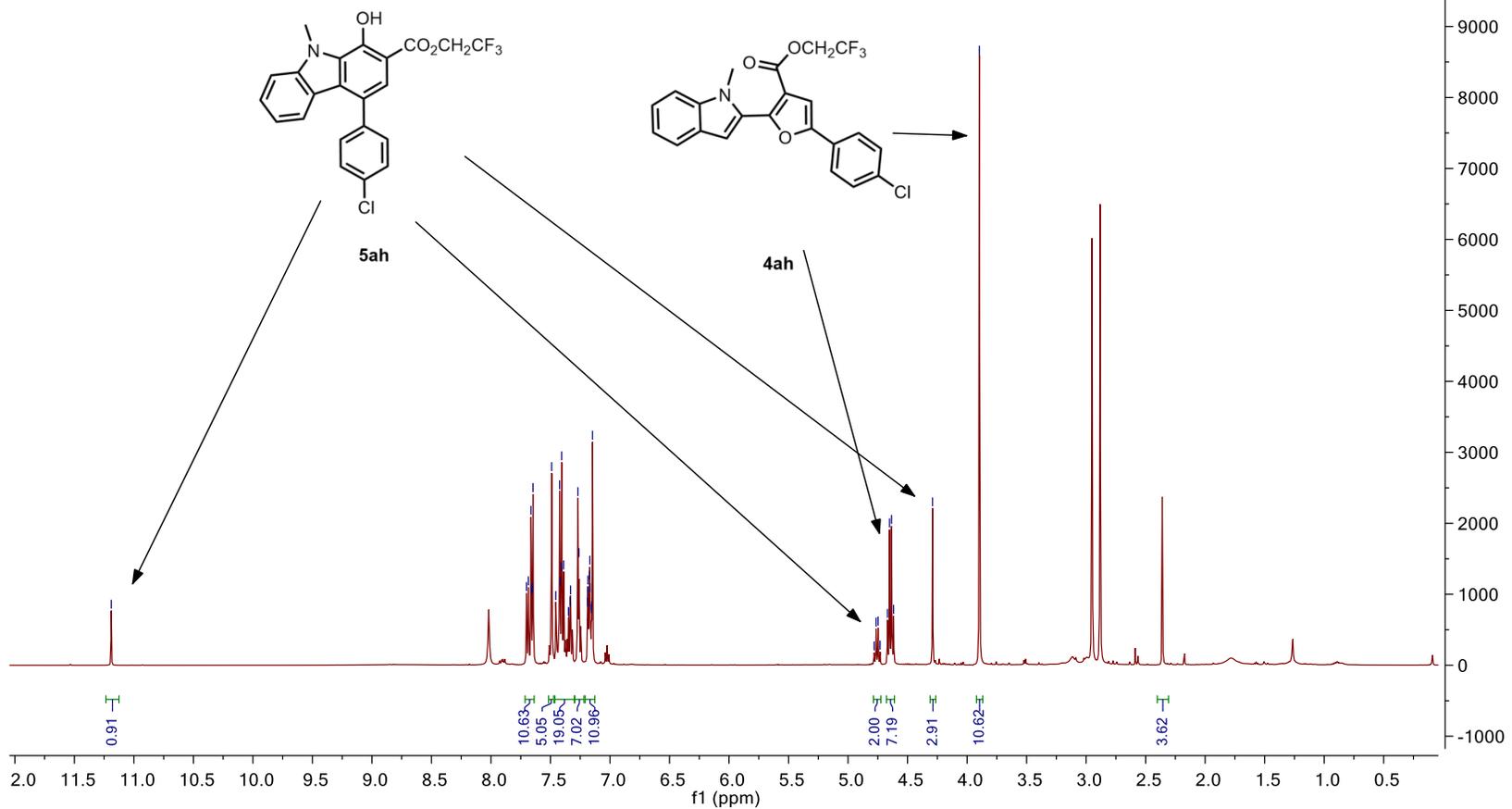


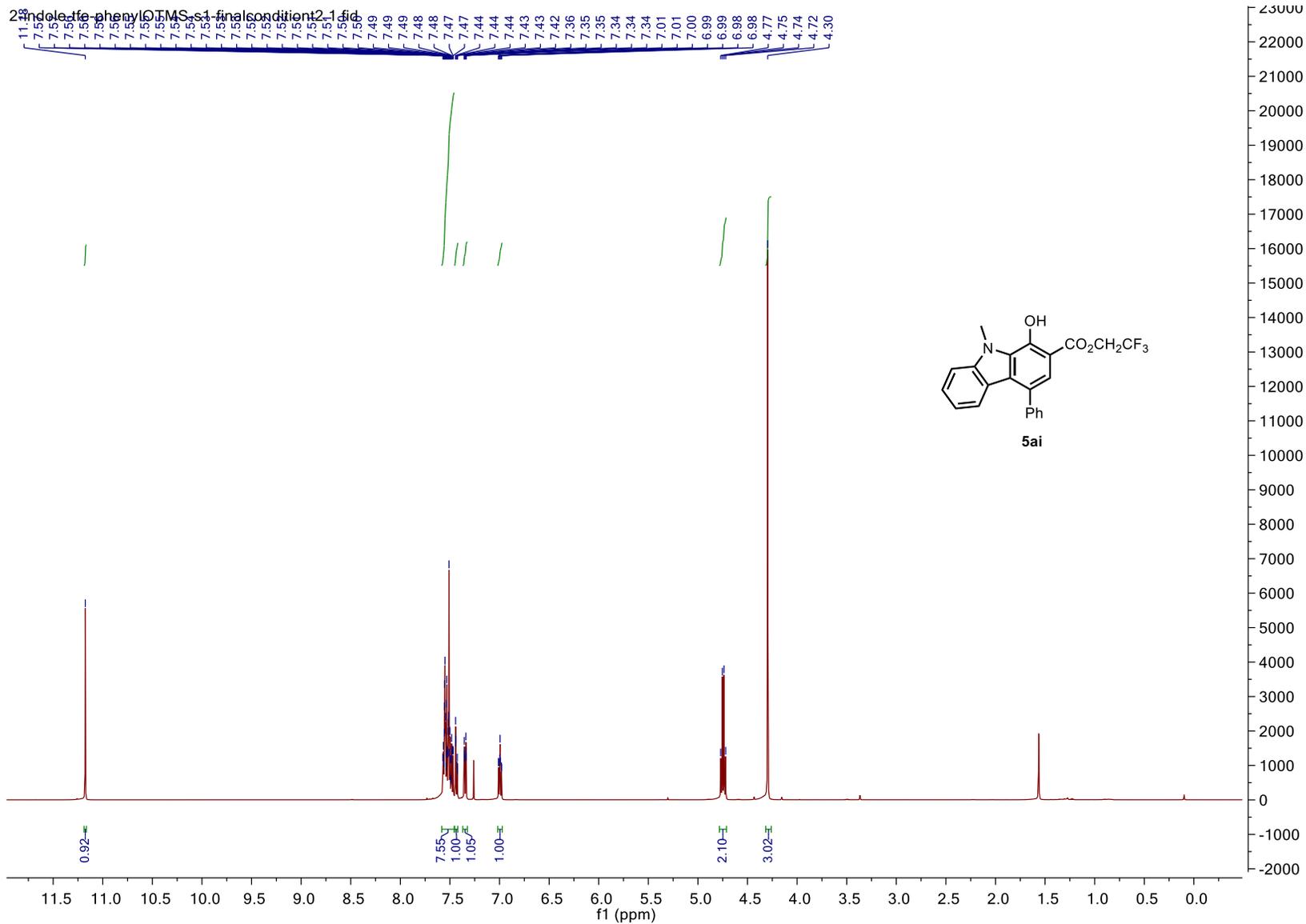
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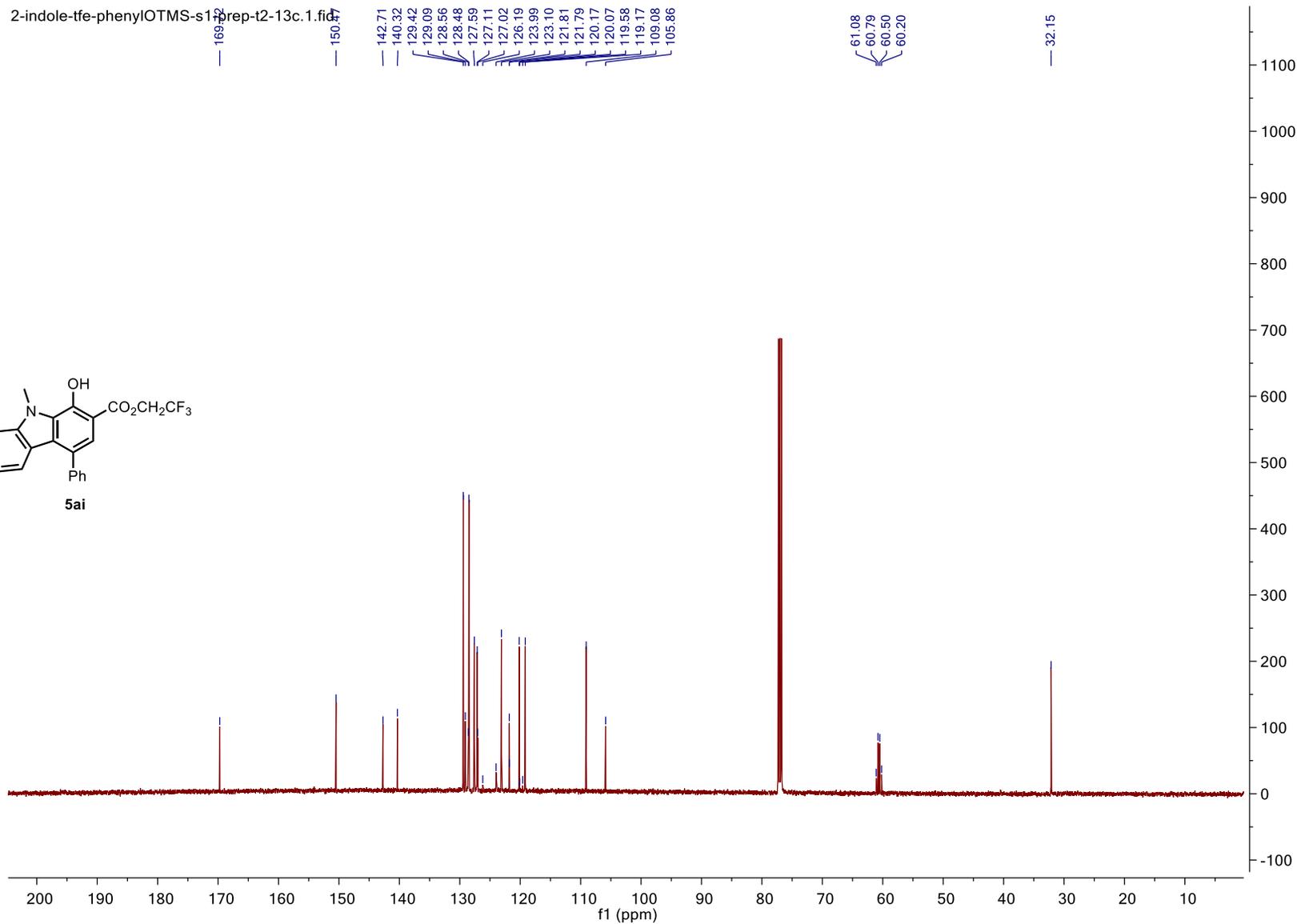
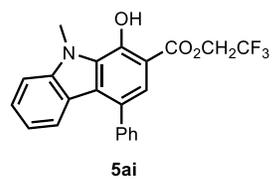


Crude ¹H NMR of the Benzannulation of Dihydrofuran 3ah

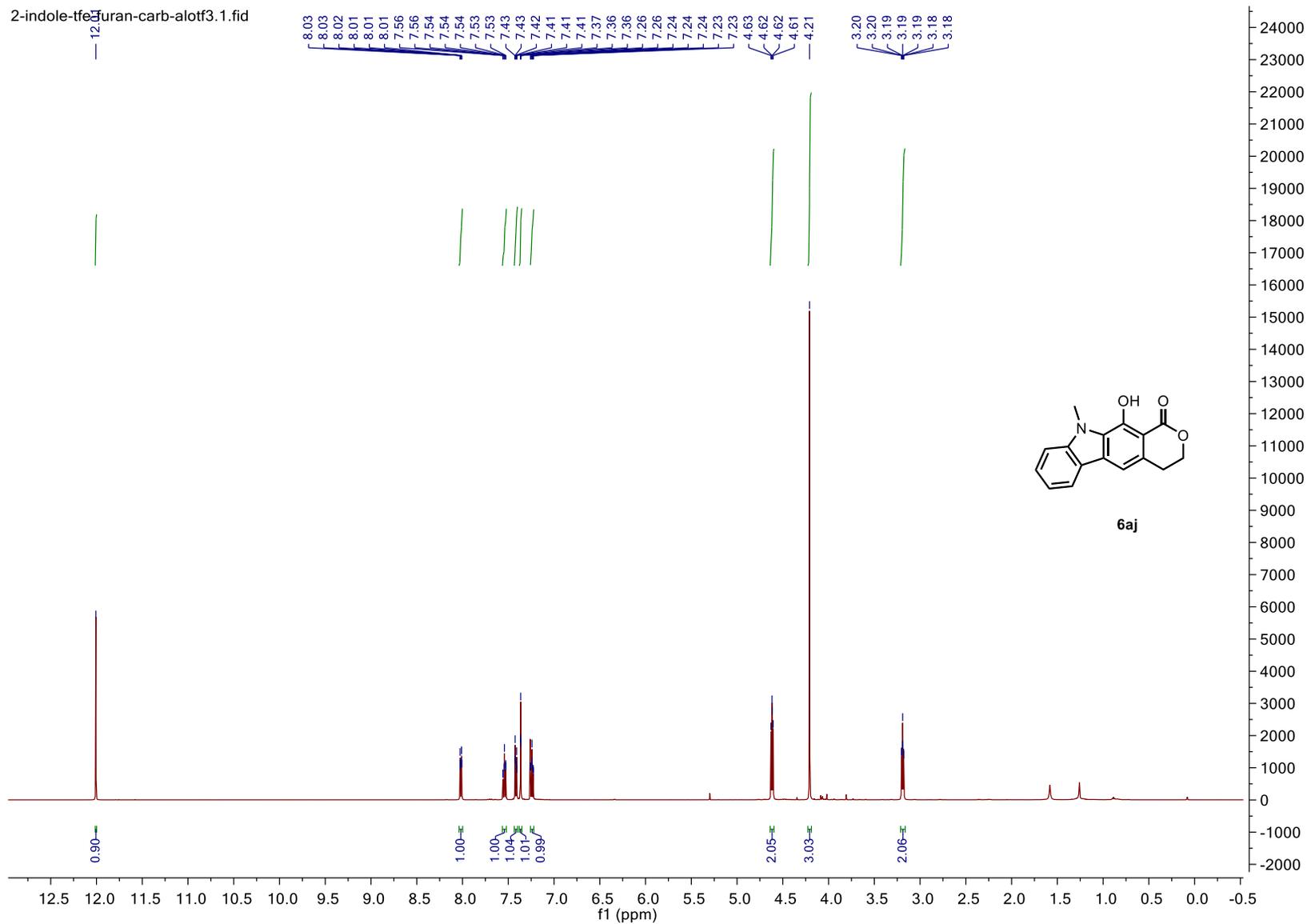




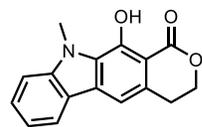
2-indole-tfe-phenylOTMS-s10-prep-t2-13c.1.fig



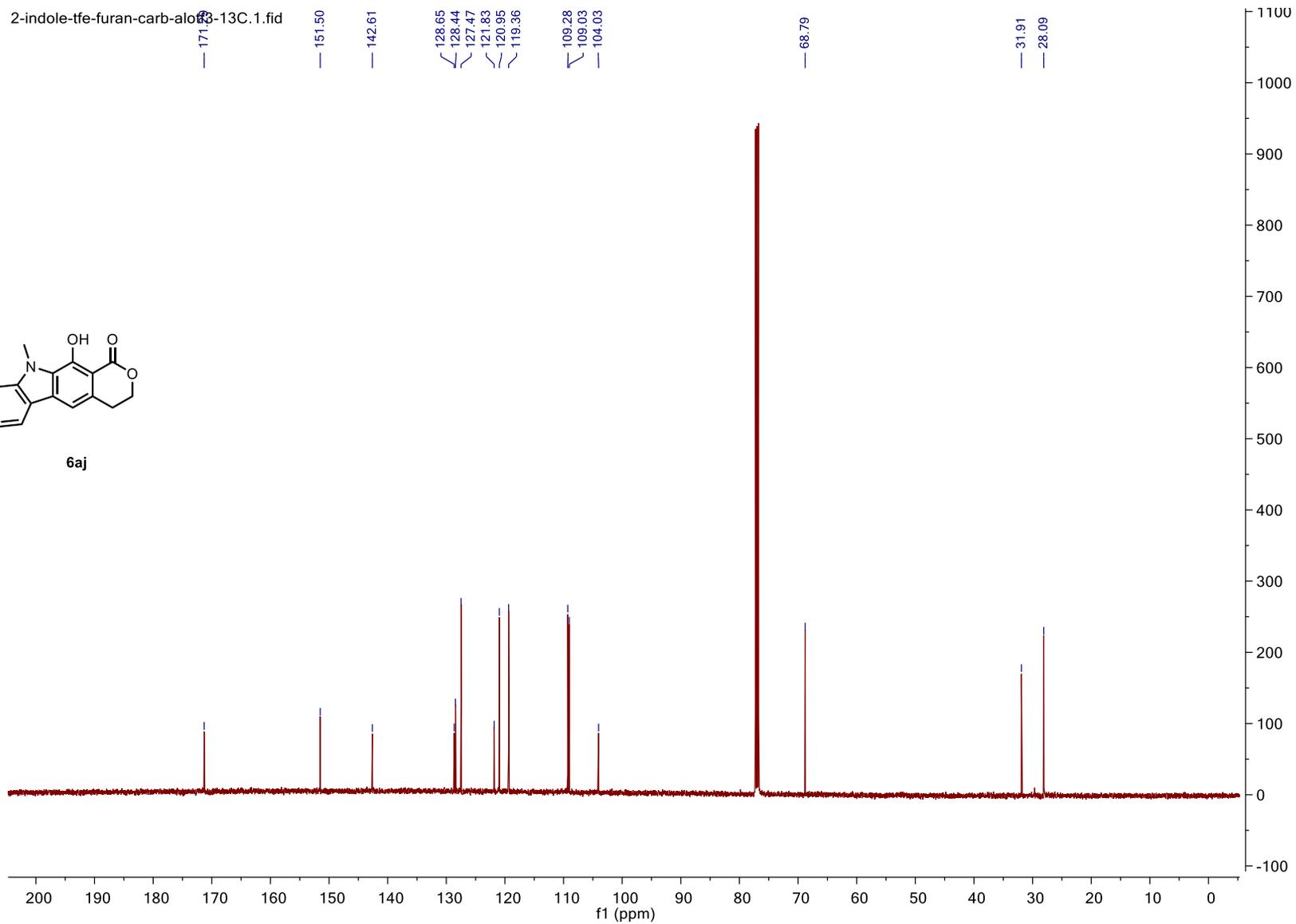
2-indole-furan-carb-alotf3.1.fid



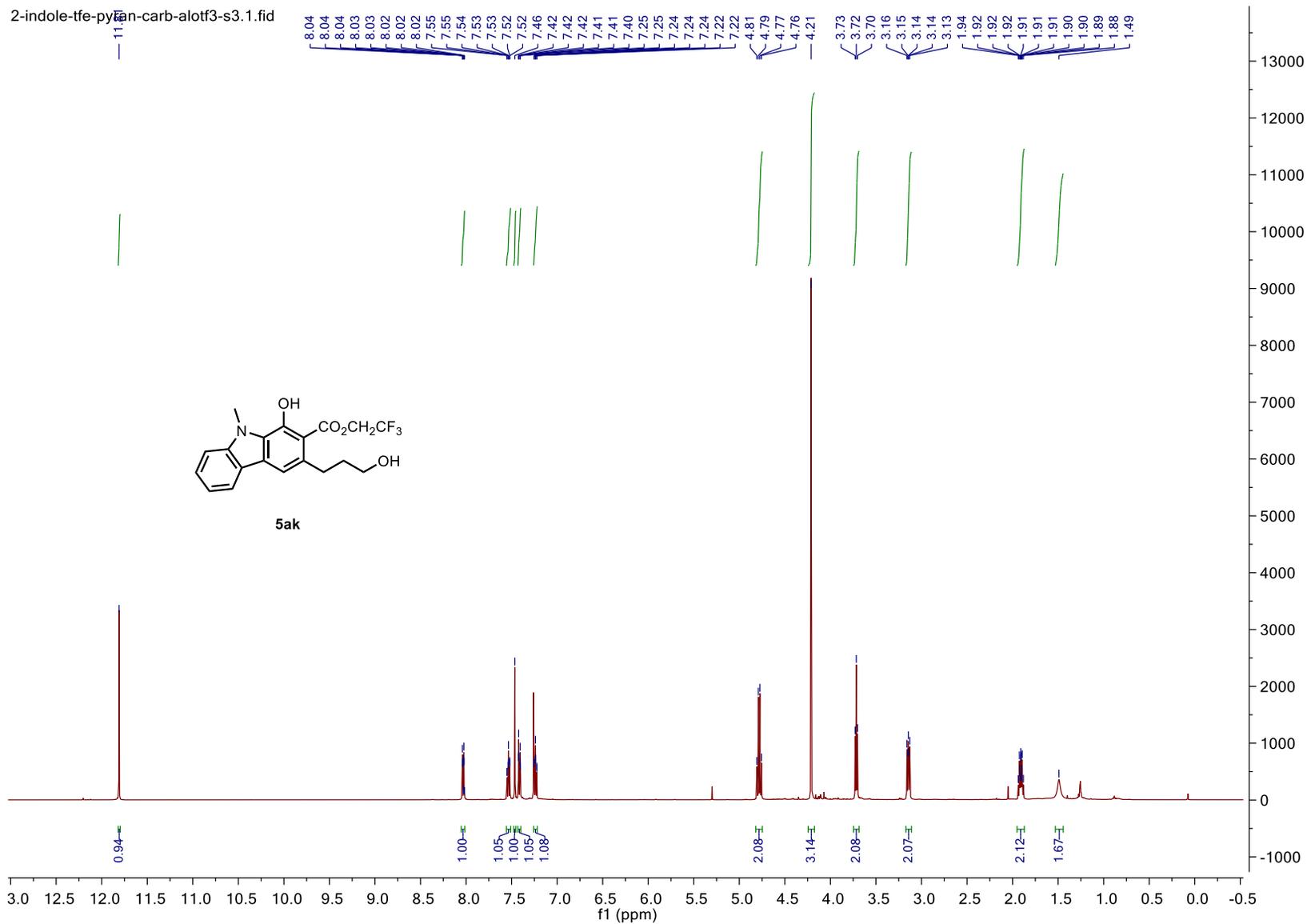
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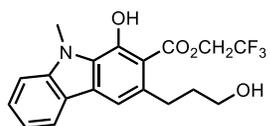
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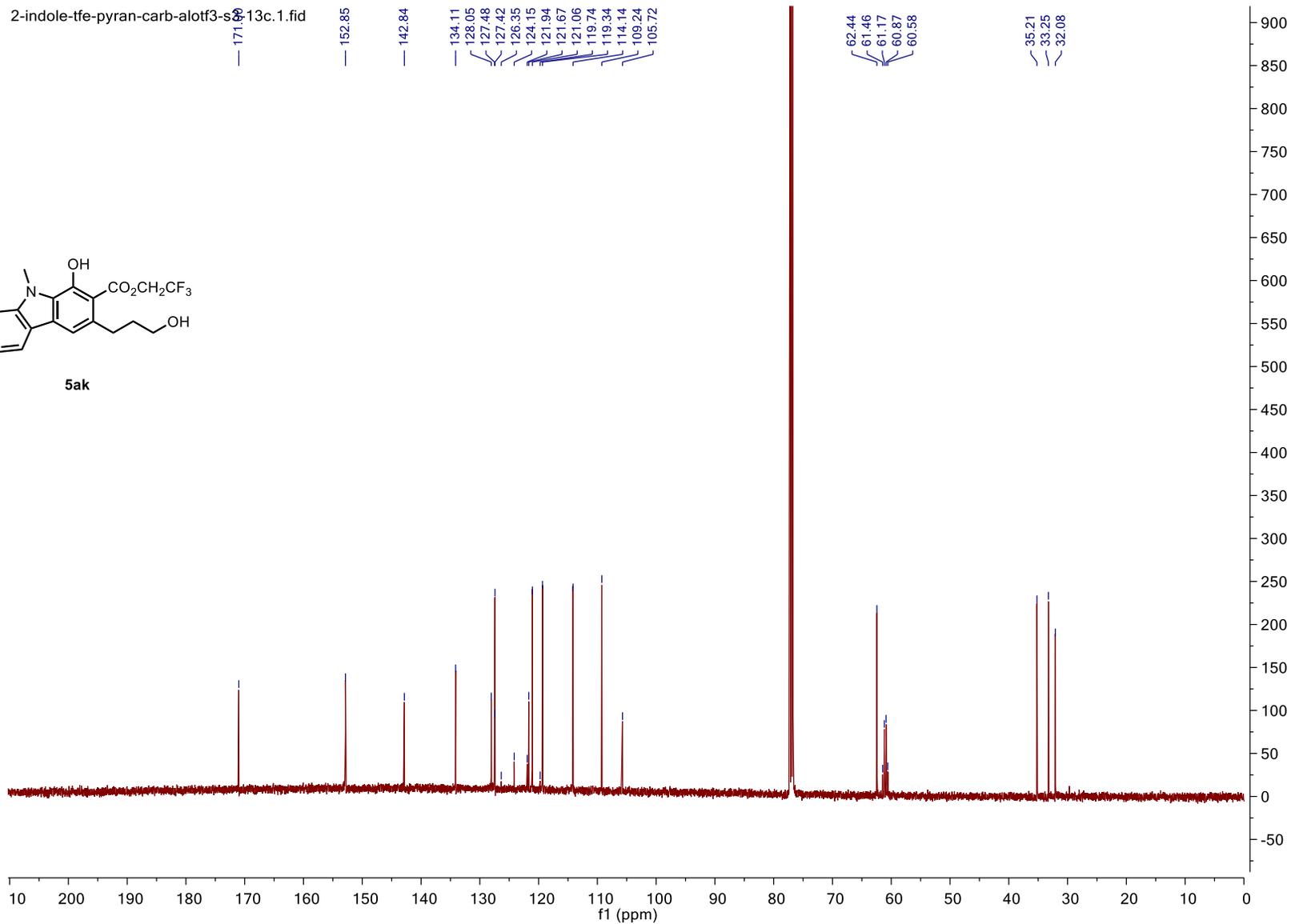
2-indole-tfe-pyran-carb-alotf3-s3.1.fid



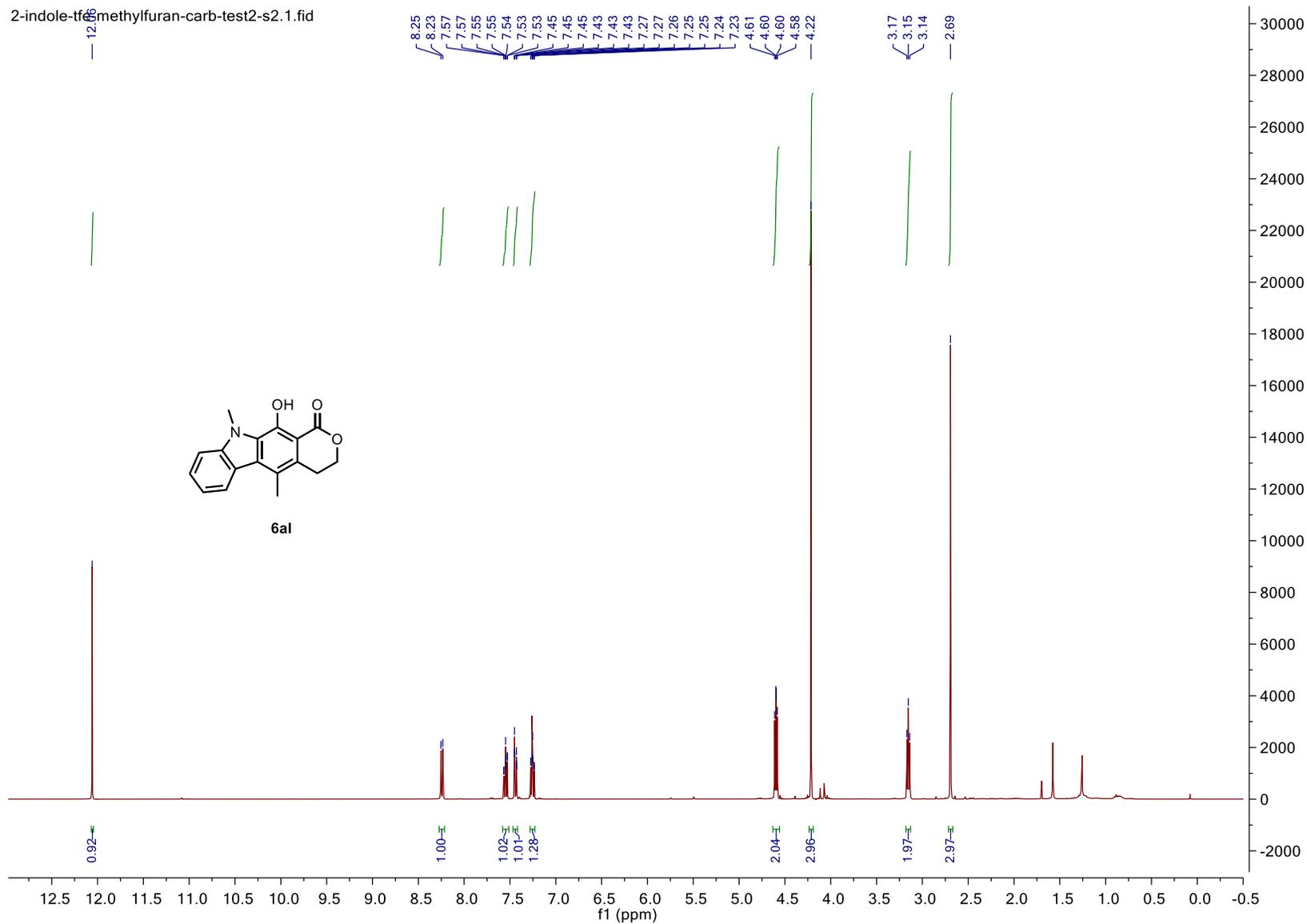
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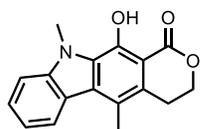
5ak



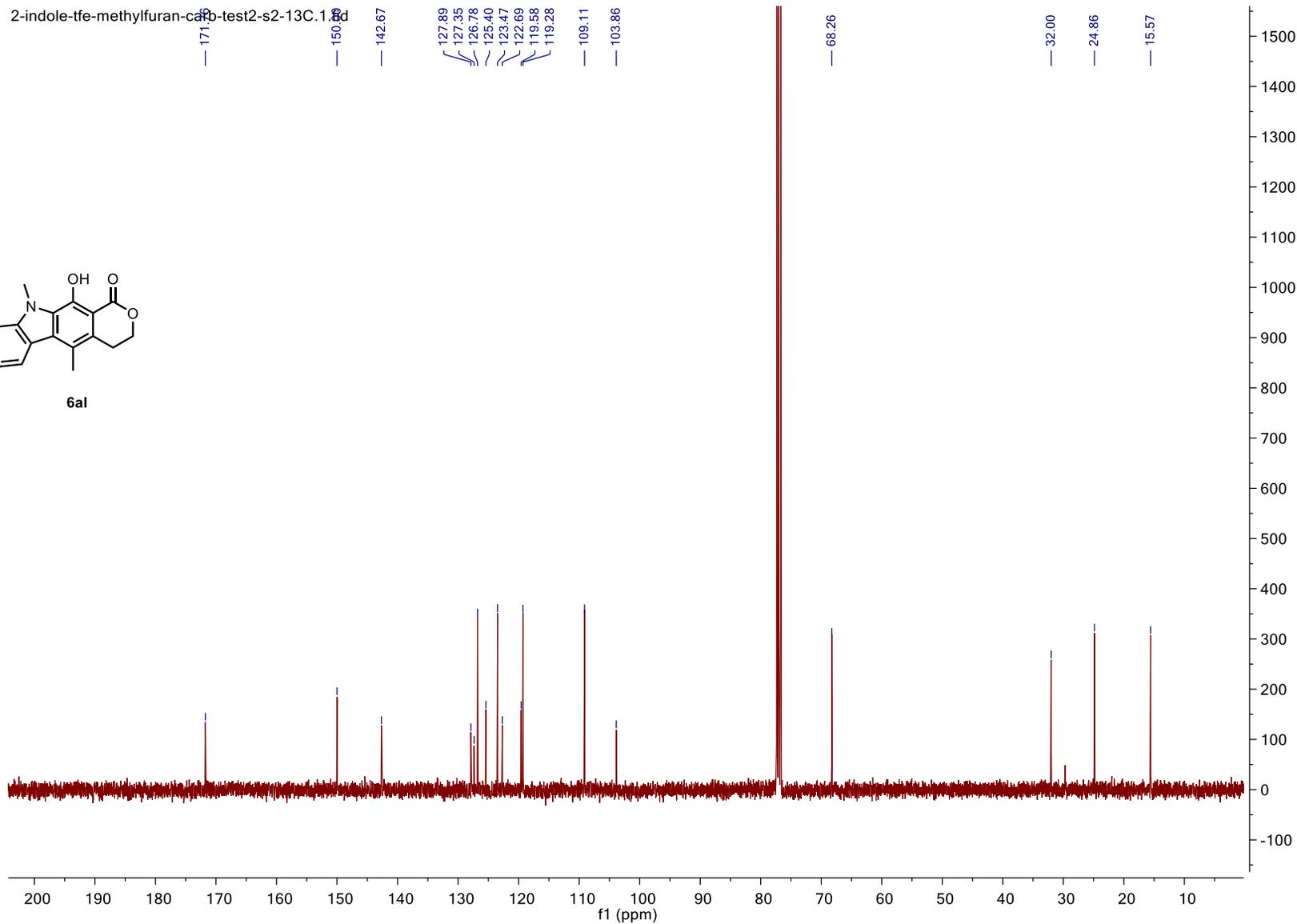
2-indole-1-methylfuran-carb-test2-s2.1.fid



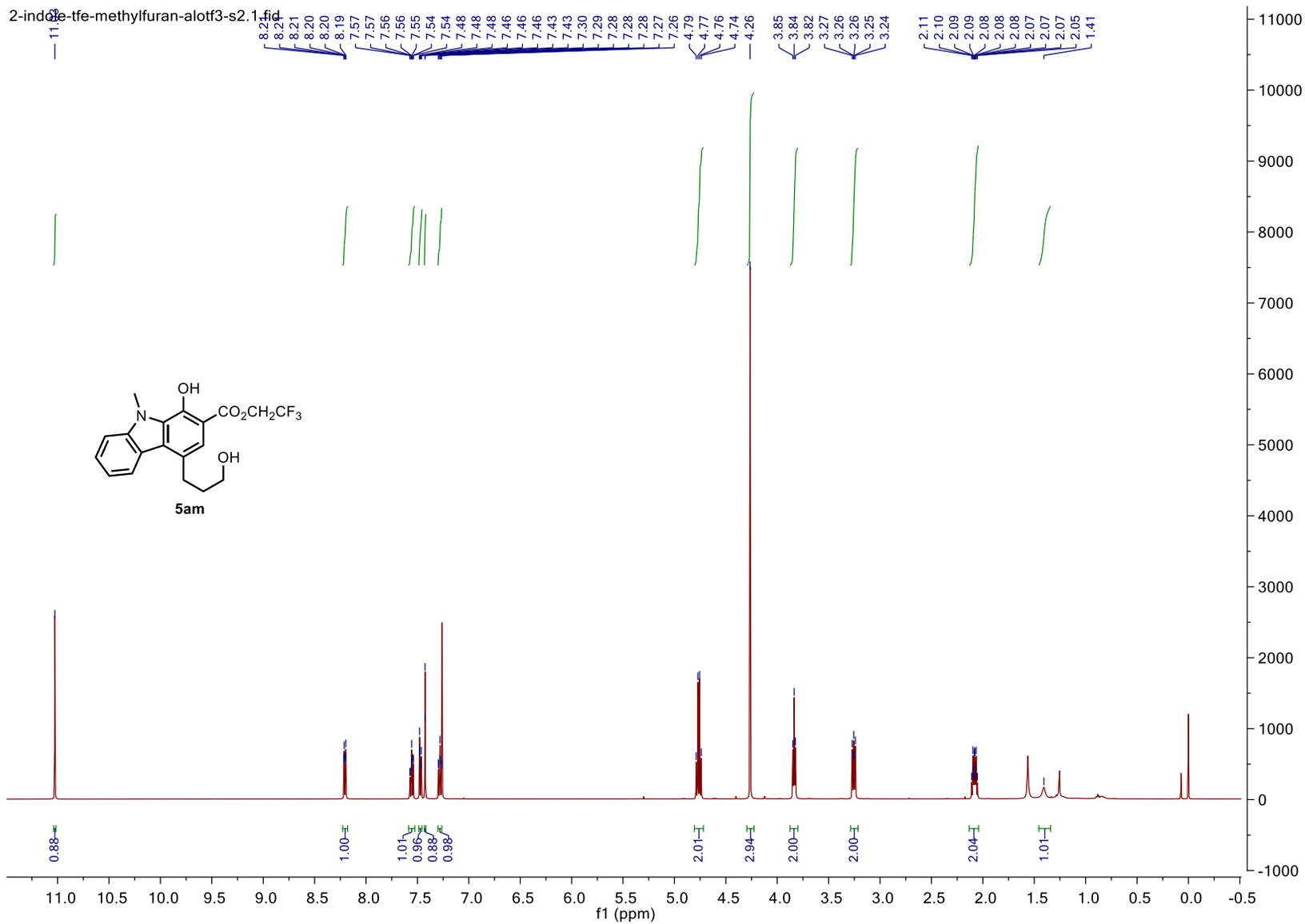
2-indole-tfe-methylfuran-carb-test2-s2-13C.1



6al



2-indole-tfe-methylfuran-alotf3-s2.1.fid



2-indole-tfe-methylfuran-alotf3 2-13C.1.fid

