

SUPPORTING INFORMATION

Total Synthesis of Lamellarin G Trimethyl Ether through Enaminone Cyclocondensation

Urtė Šachlevičiūtė,^{a,b} Neringa Kleizienė,^a Aurimas Bieliauskas,^a Algirdas Šačkus,^{*a} and Till Opatz^{*b}

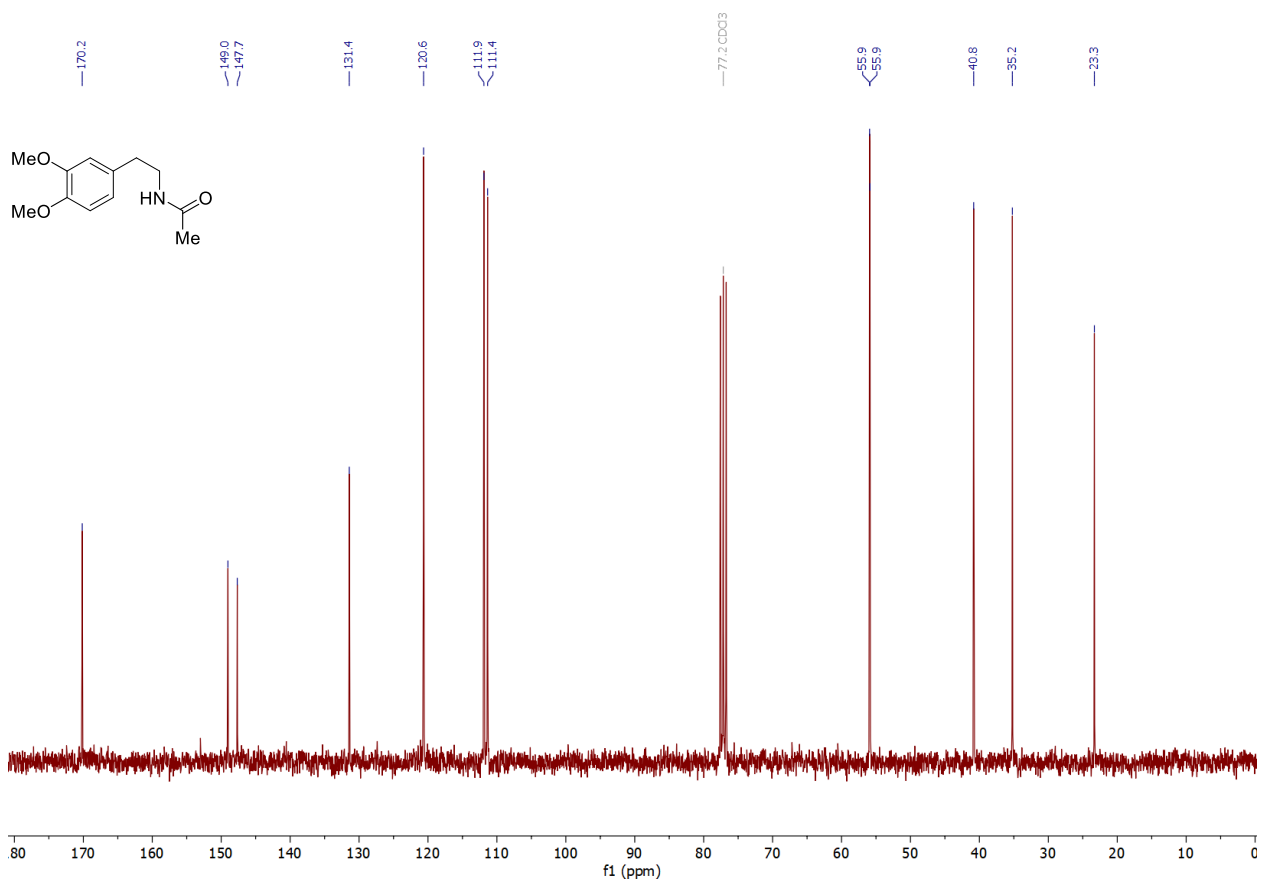
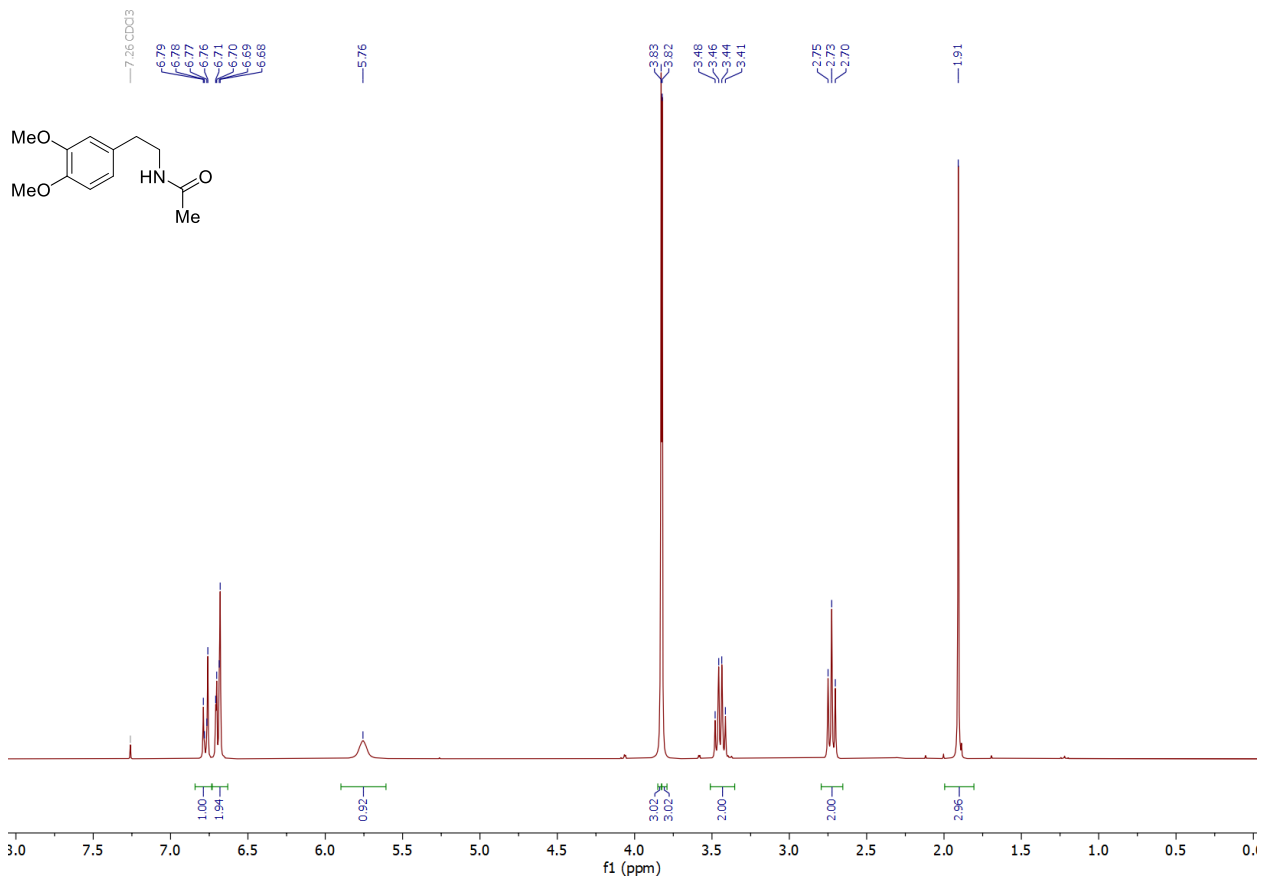
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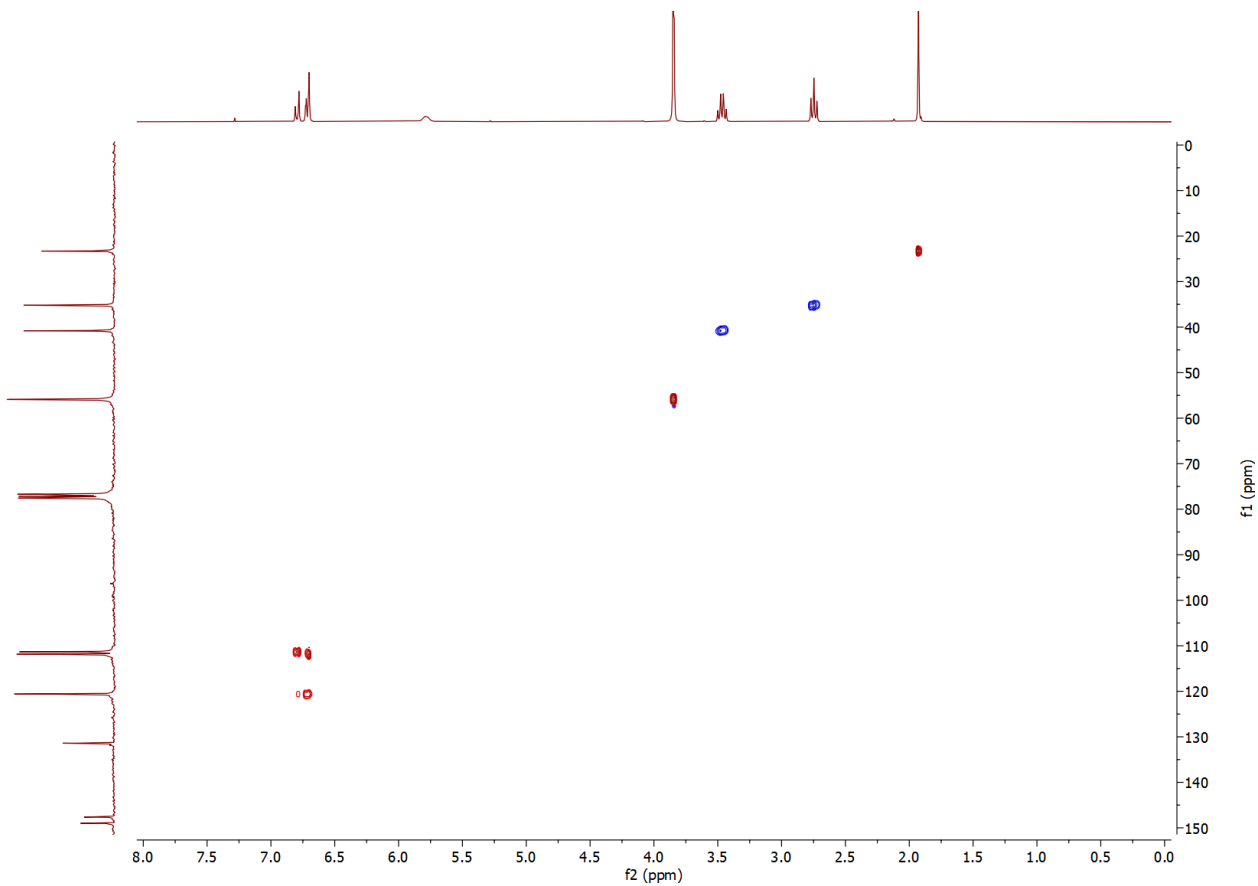
^b Department of Chemistry, Johannes Gutenberg University Mainz, Duesbergweg 10-14, 55128 Mainz, Germany

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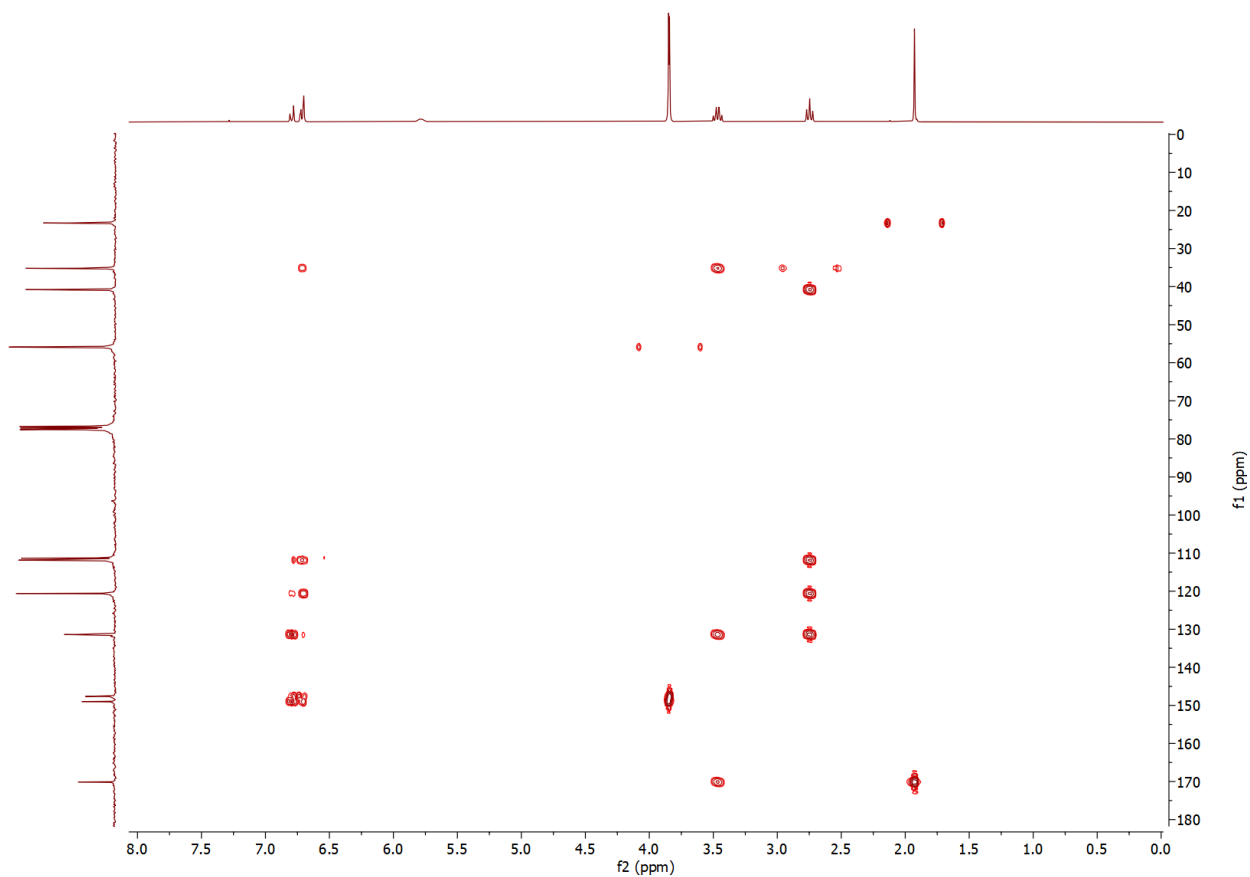
E-mail: algirdas.sackus@ktu.lt, opatz@uni-mainz.de.

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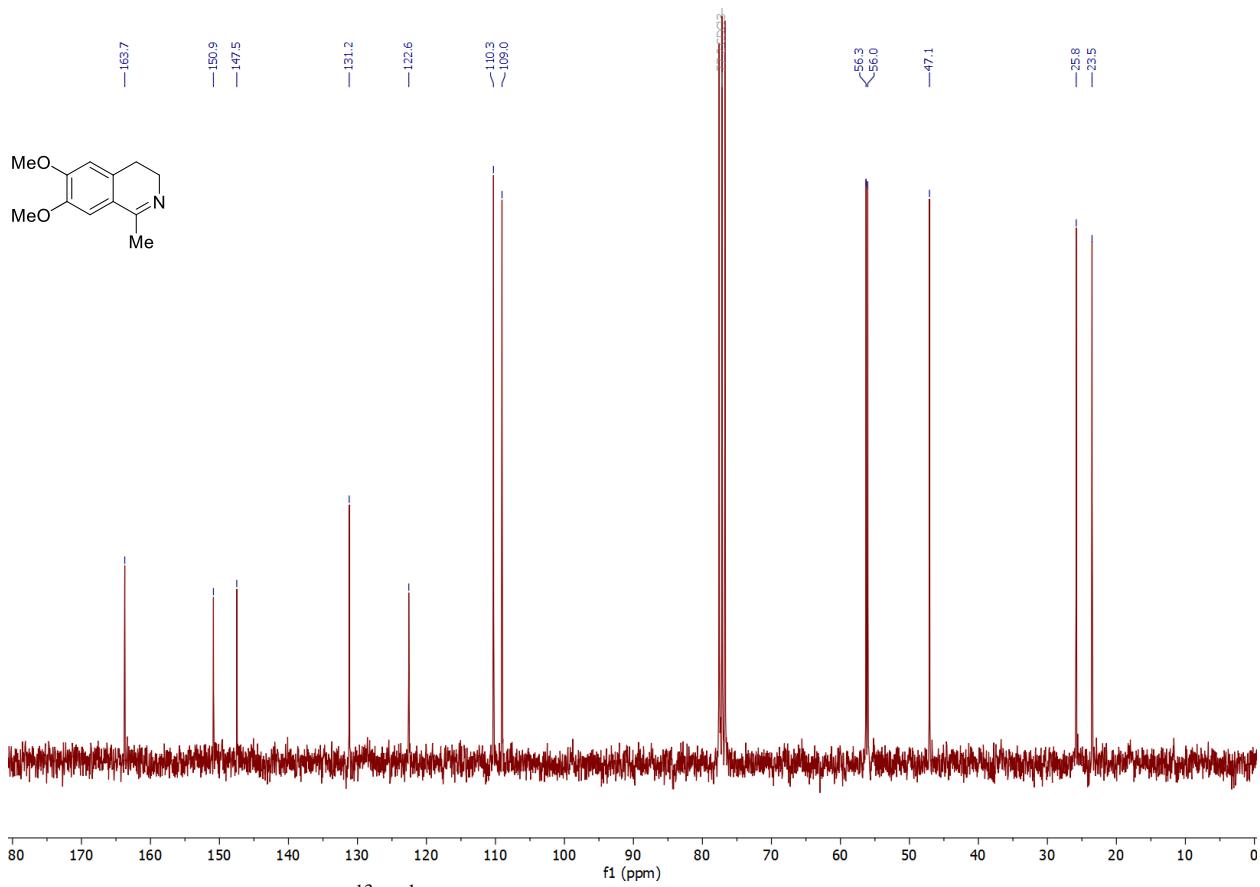
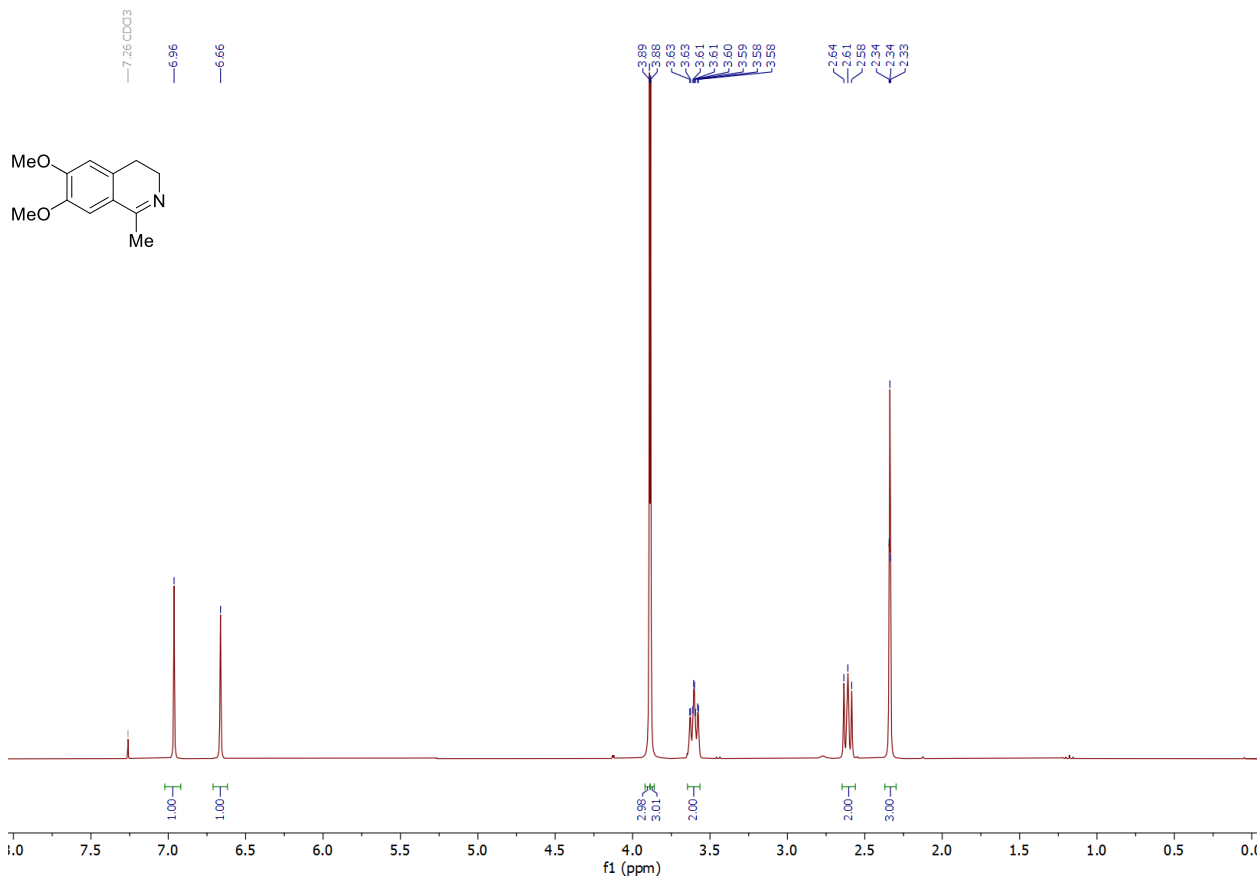


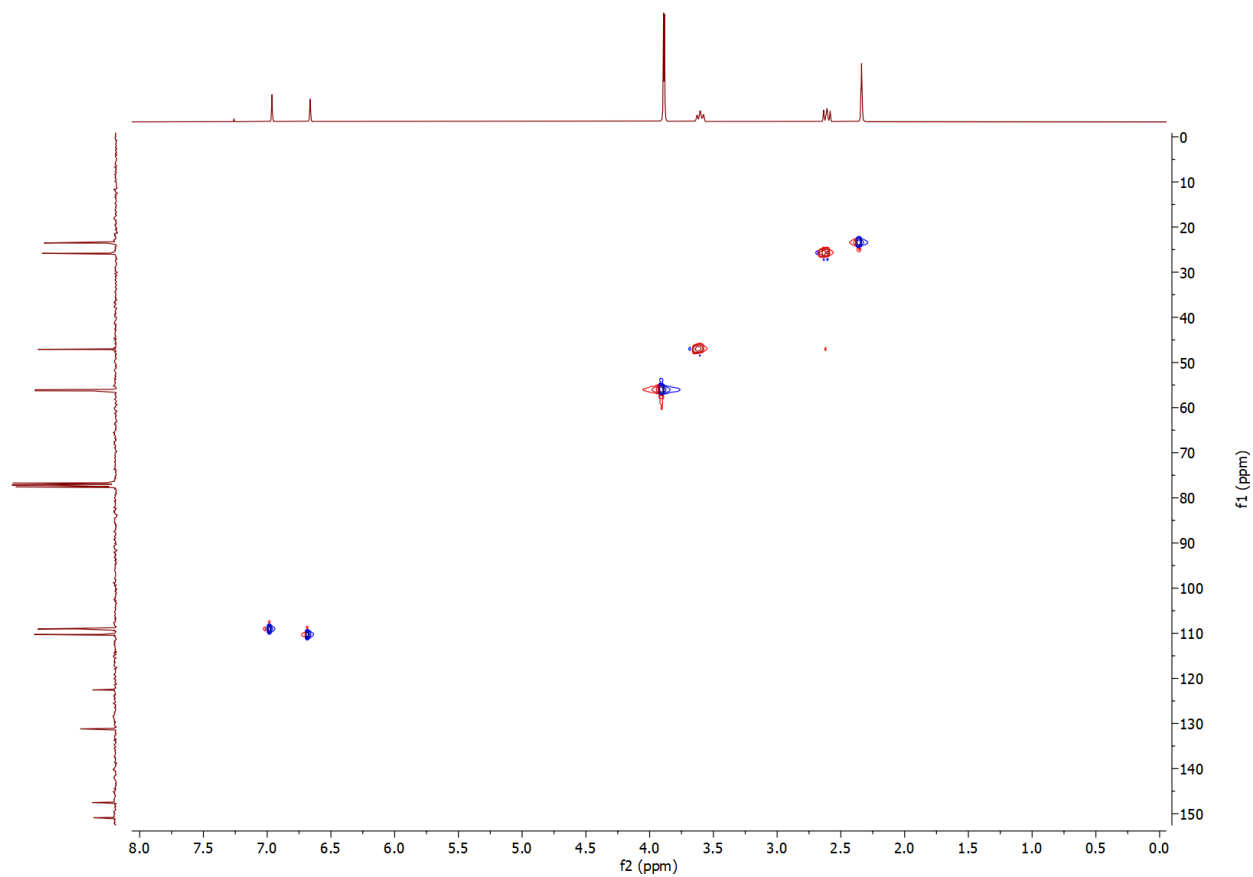


^1H - ^{13}C HSQC spectrum of intermediate *N*-[2-(3,4-dimethoxyphenyl)ethyl]acetamide

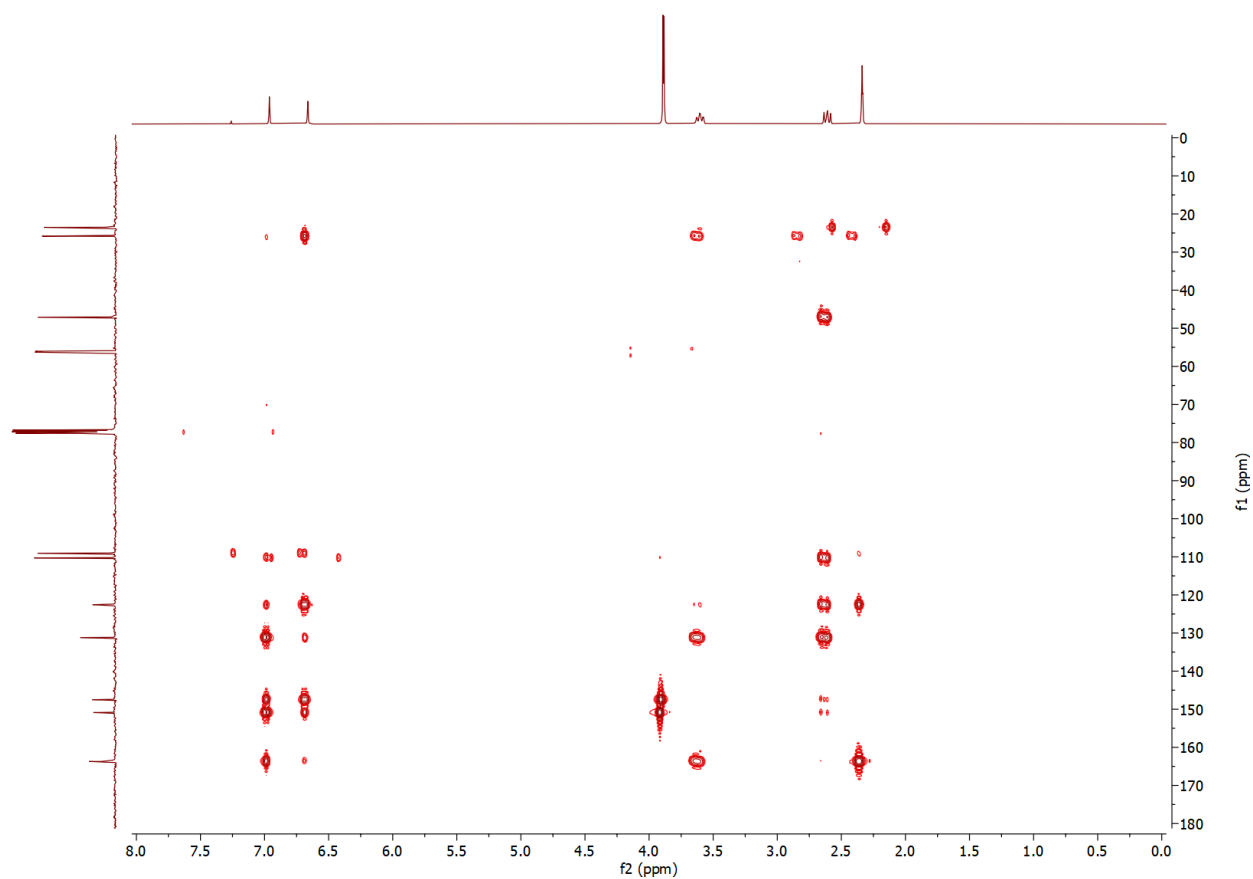


^1H - ^{13}C HMBC spectrum of intermediate *N*-[2-(3,4-dimethoxyphenyl)ethyl]acetamide

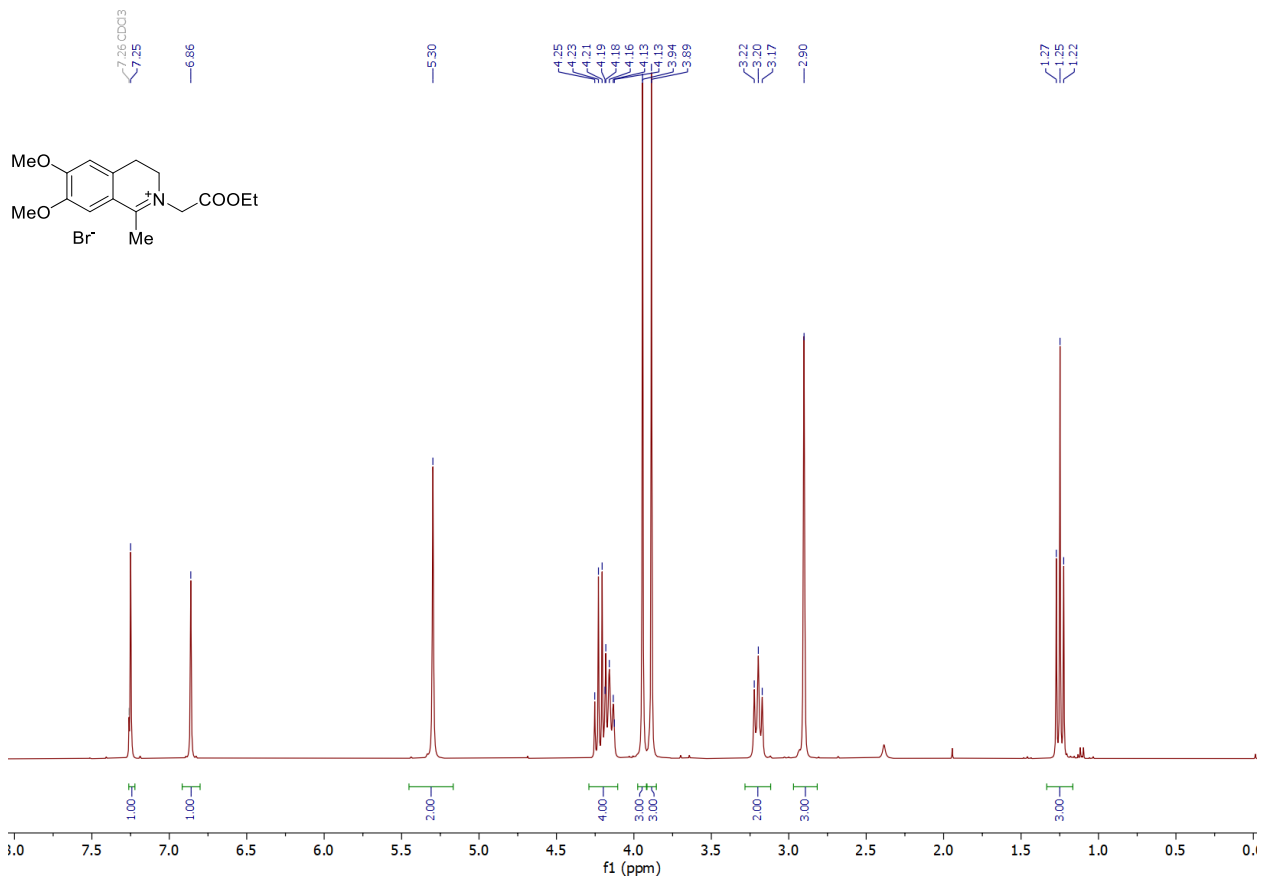




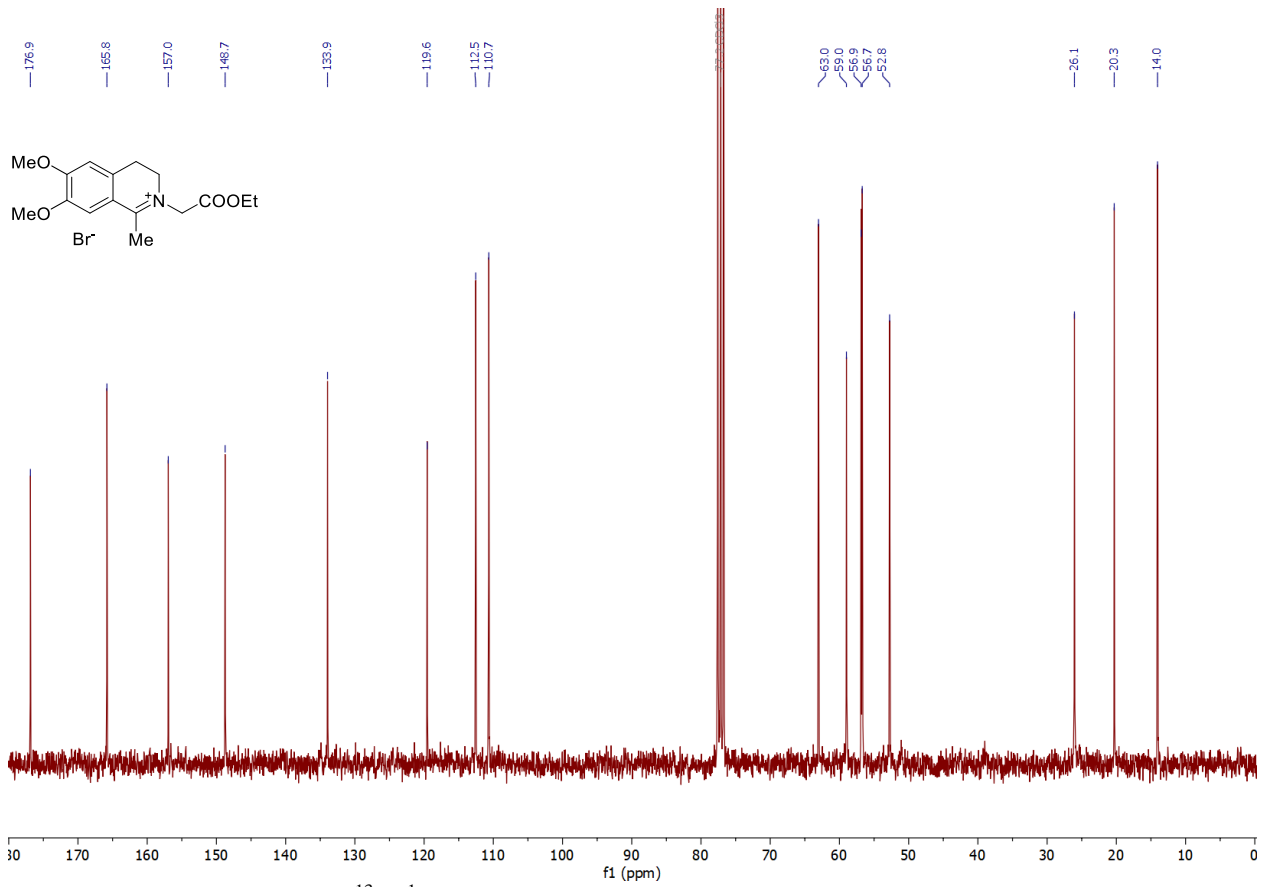
^1H - ^{13}C HSQC spectrum of **2**



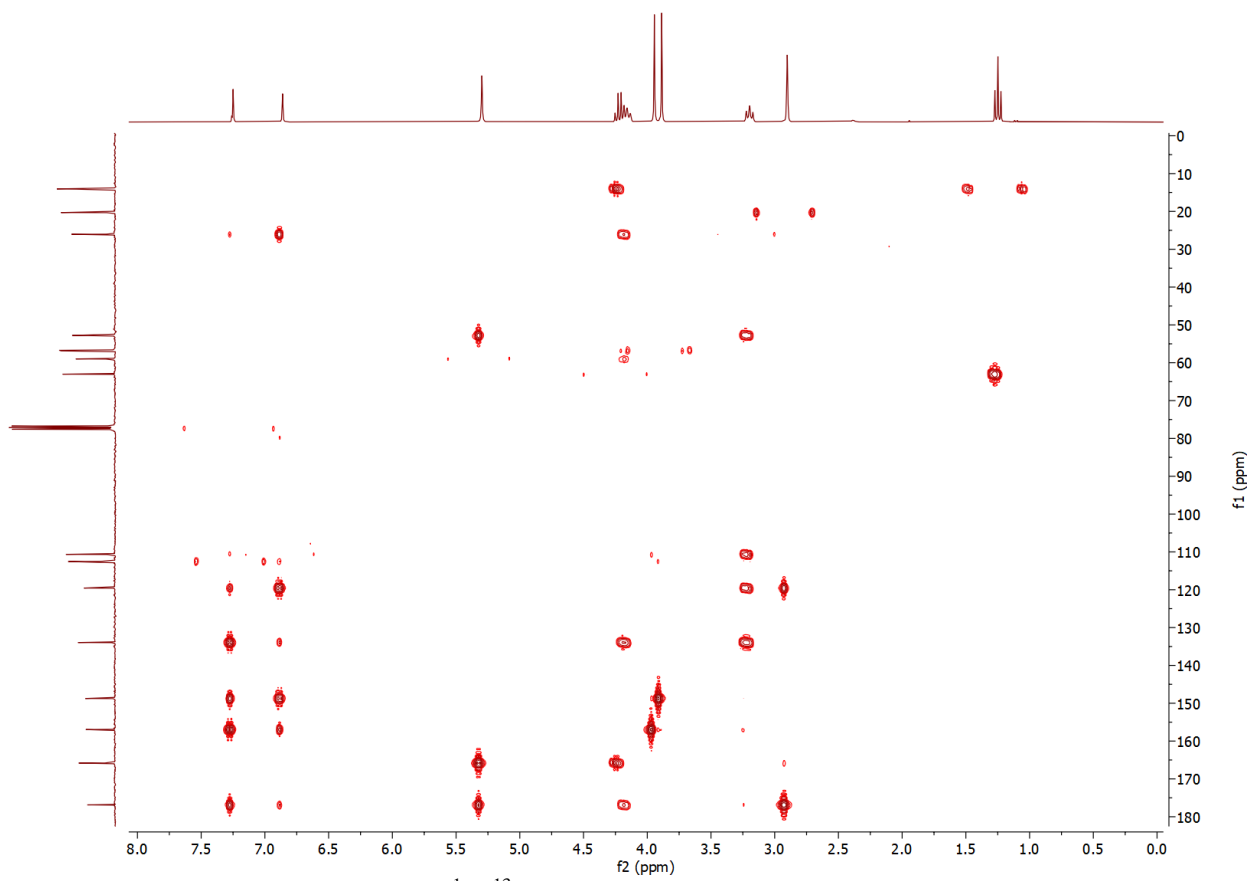
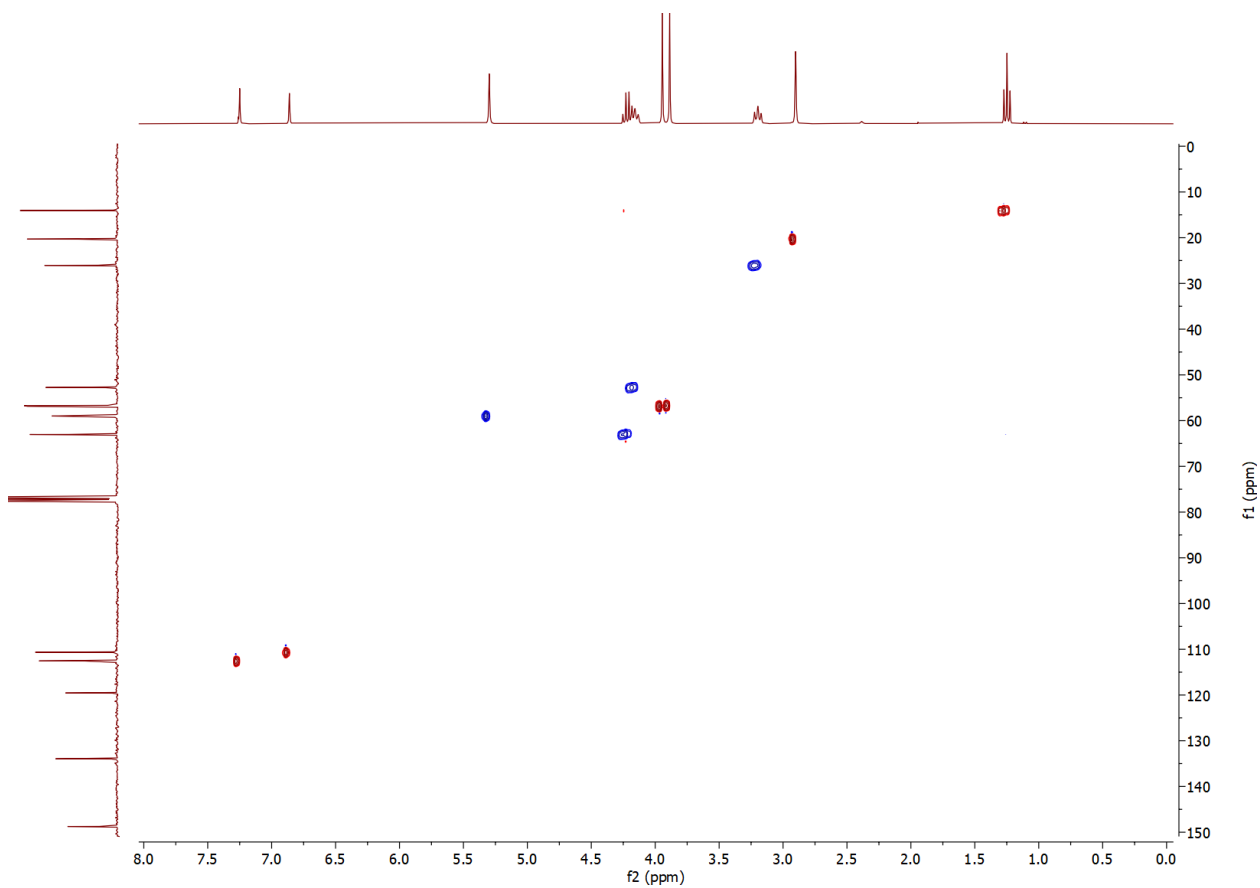
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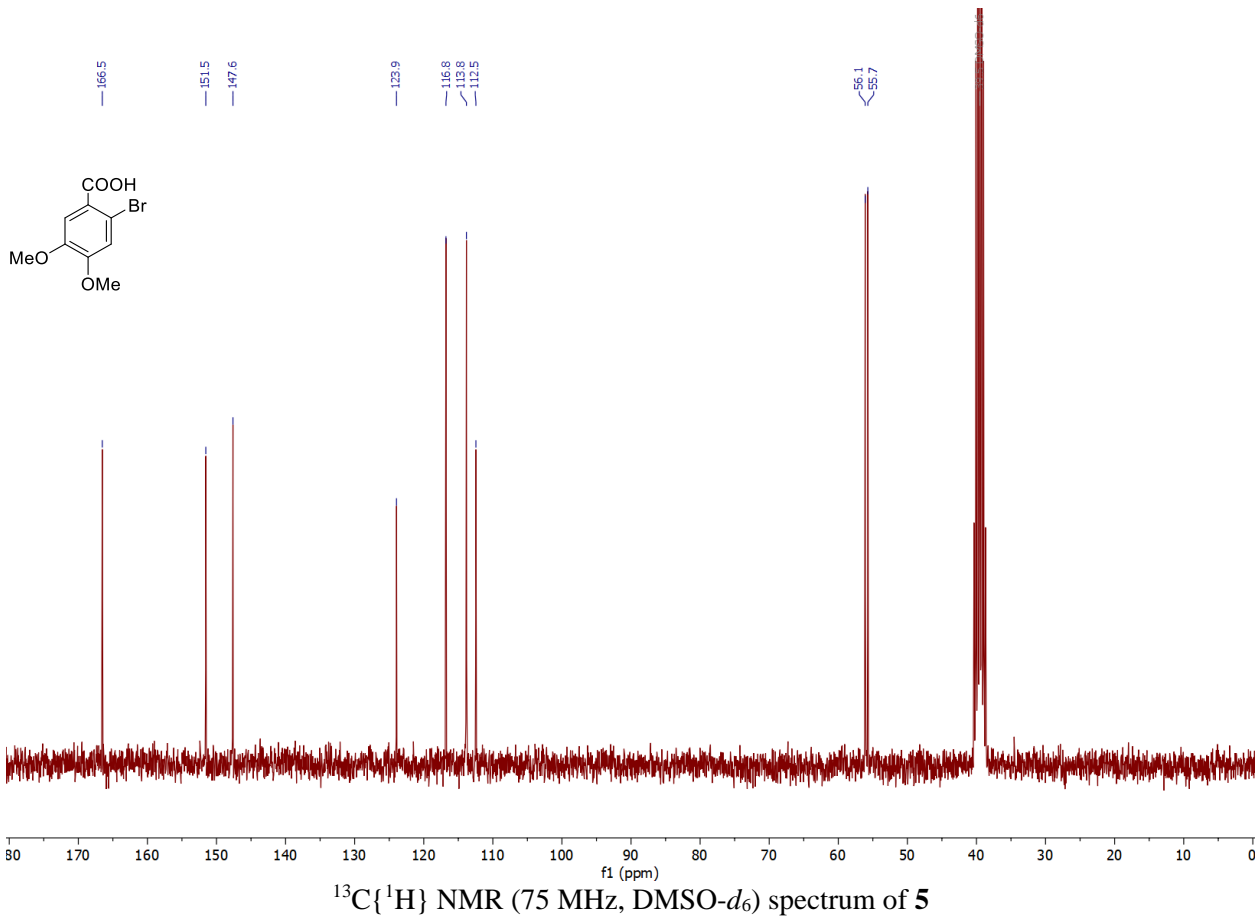
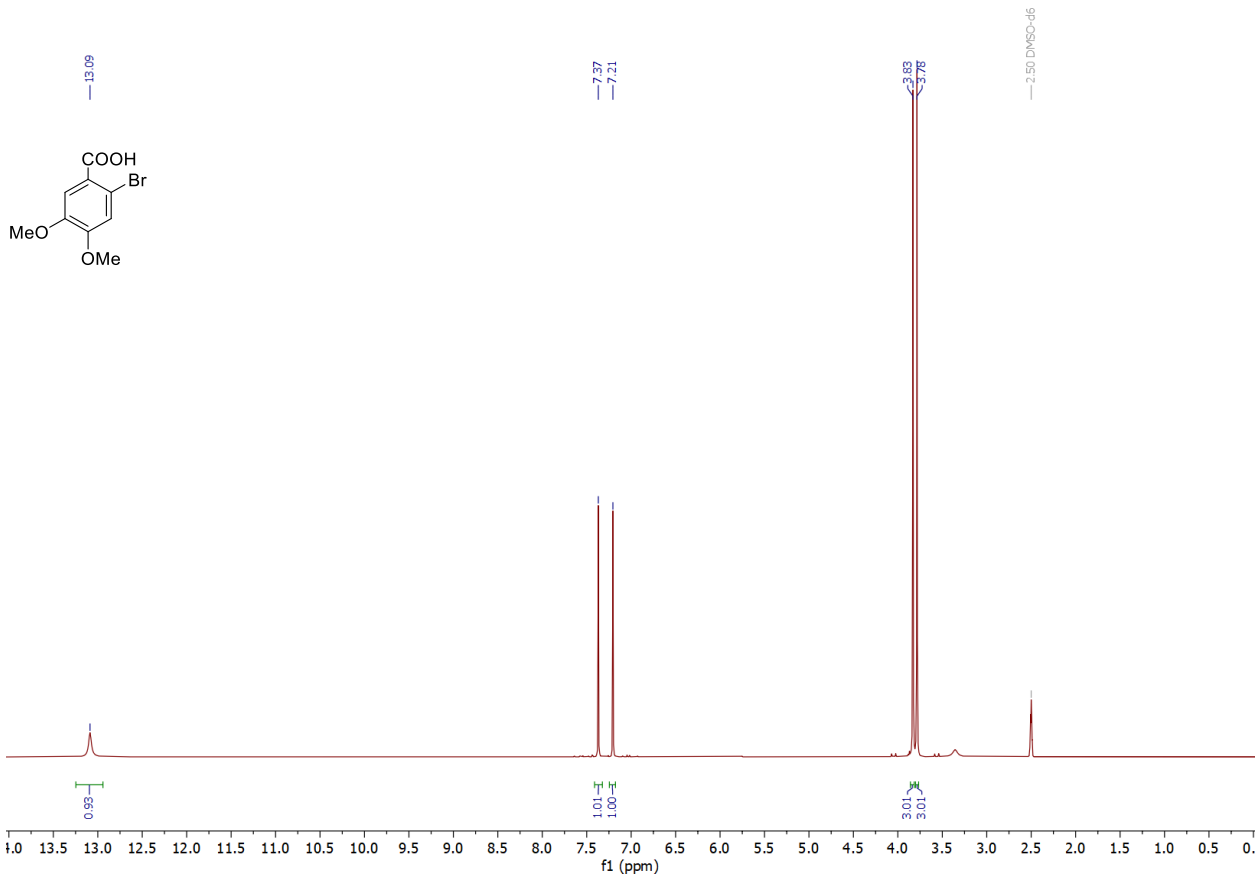


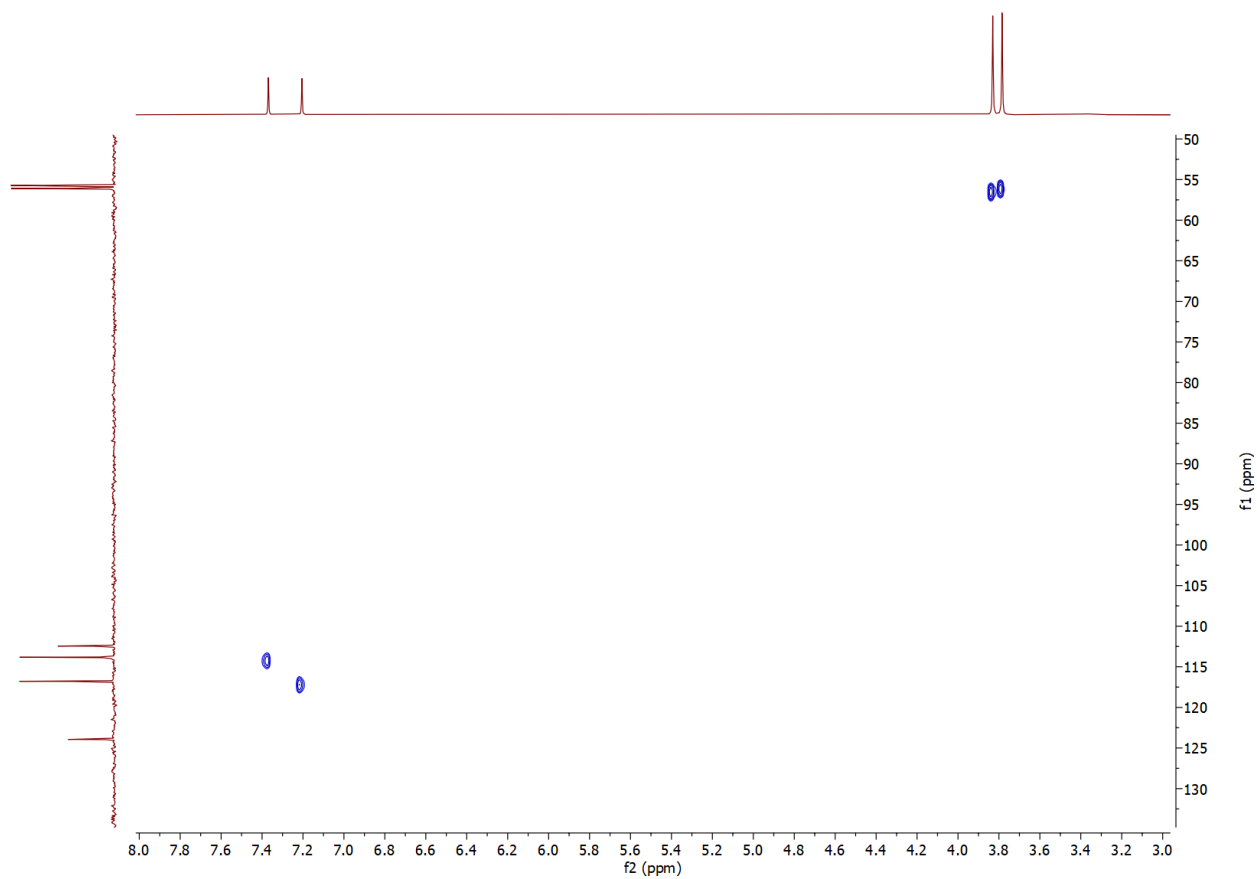
¹H NMR (300 MHz, CDCl₃) spectrum of **3**



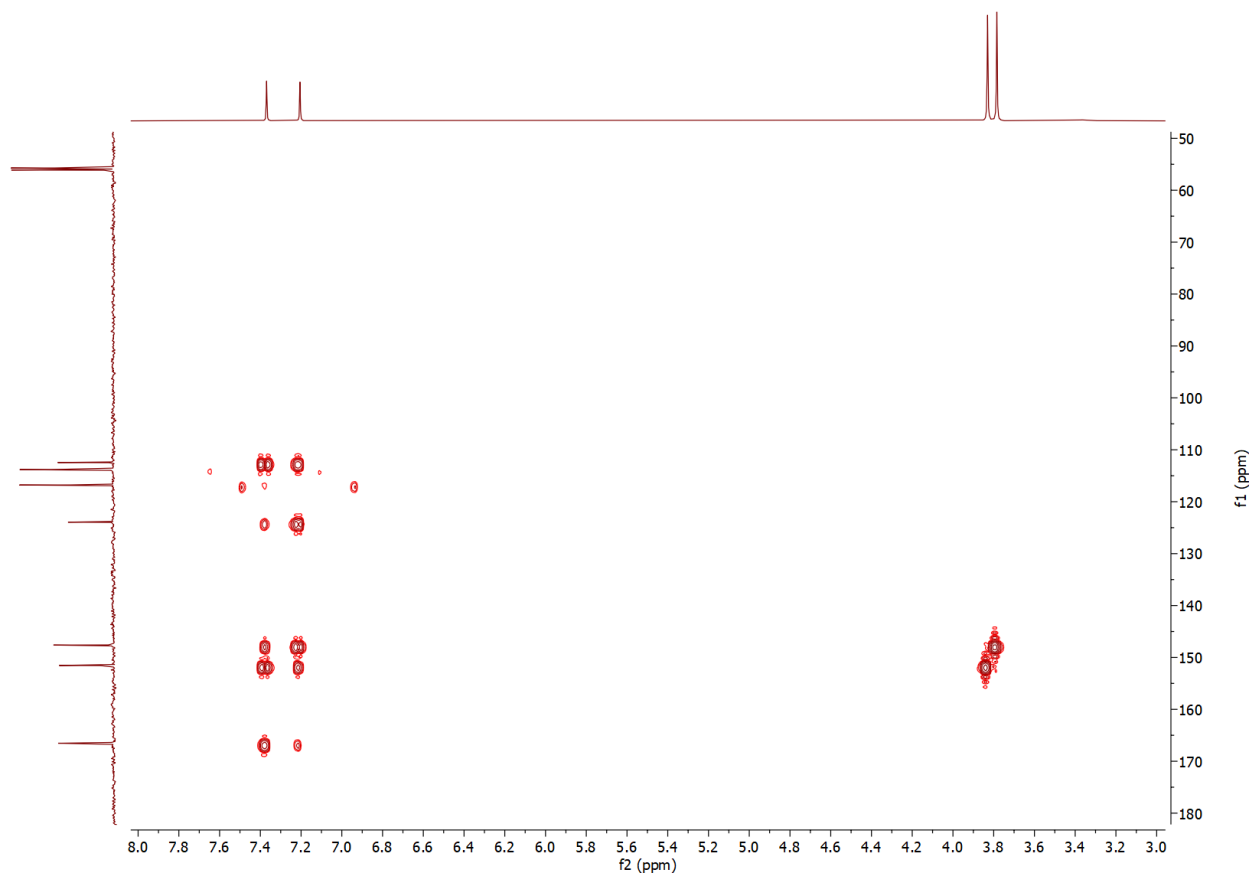
¹³C{¹H} NMR (75 MHz, CDCl₃) spectrum of **3**



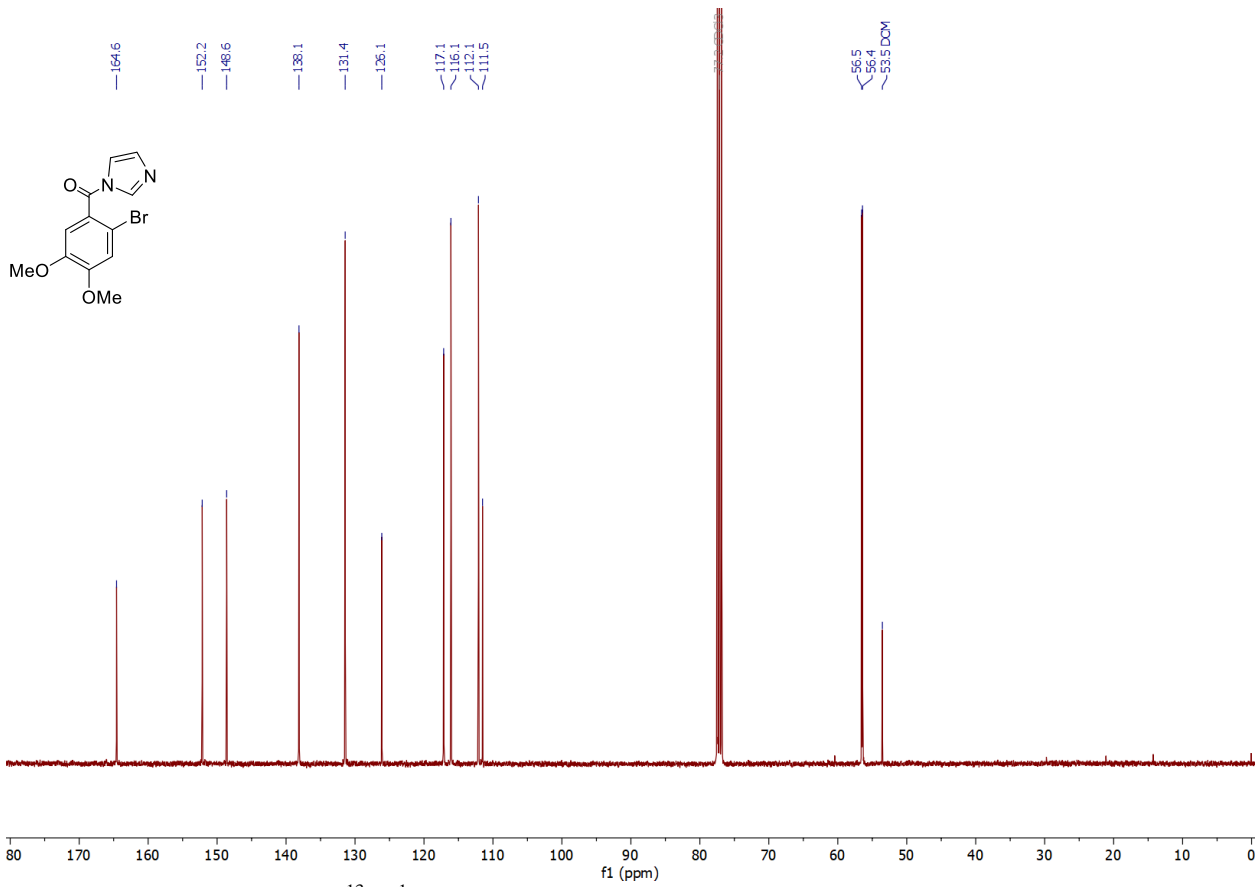
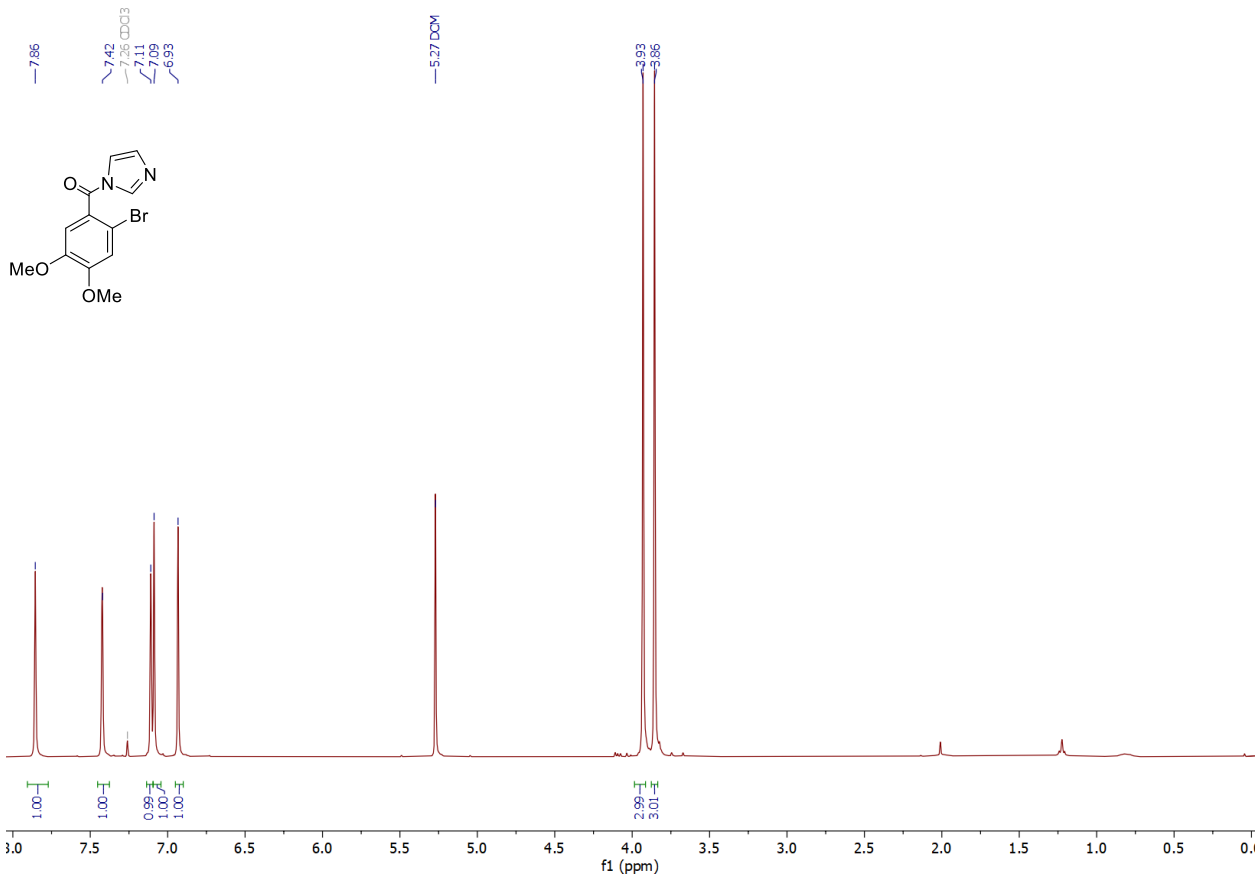


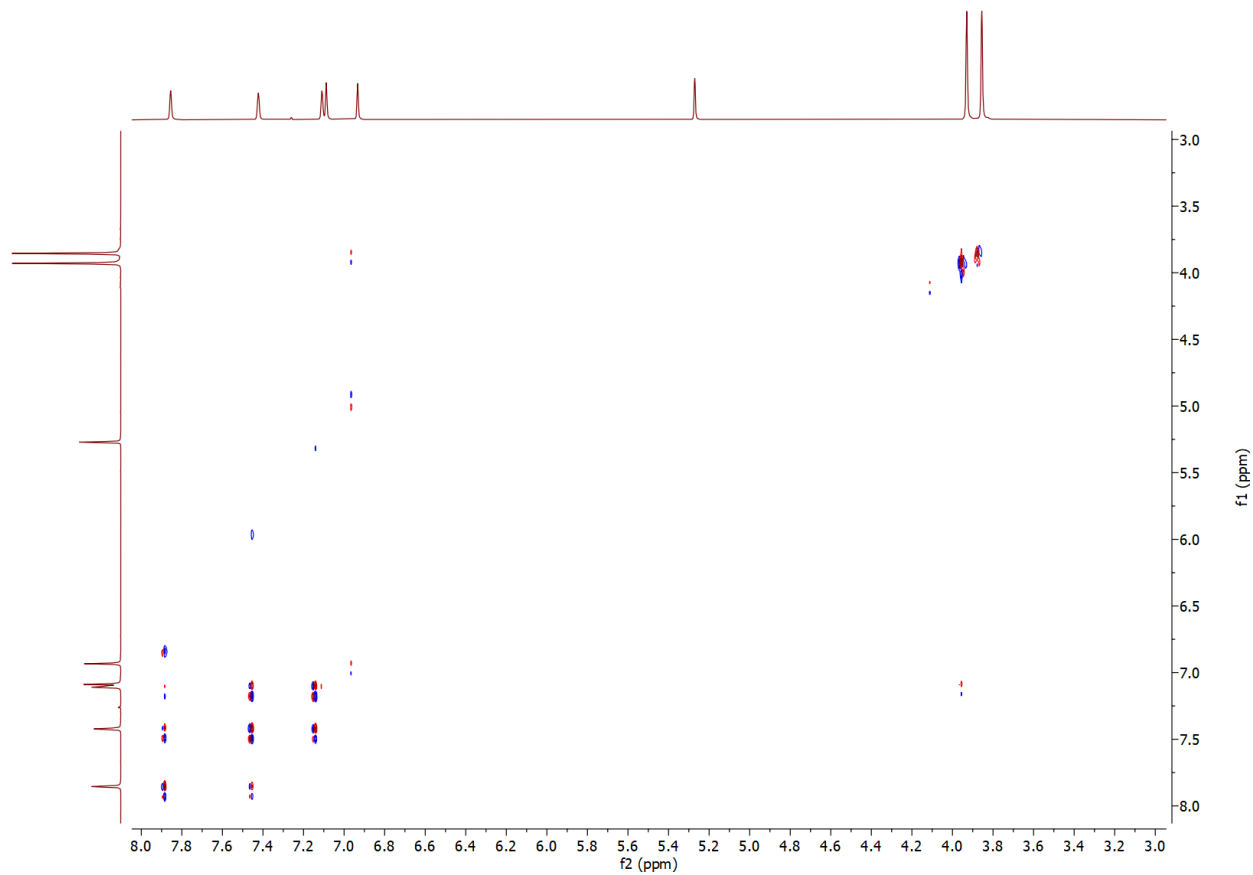


^1H - ^{13}C HSQC spectrum of **5**

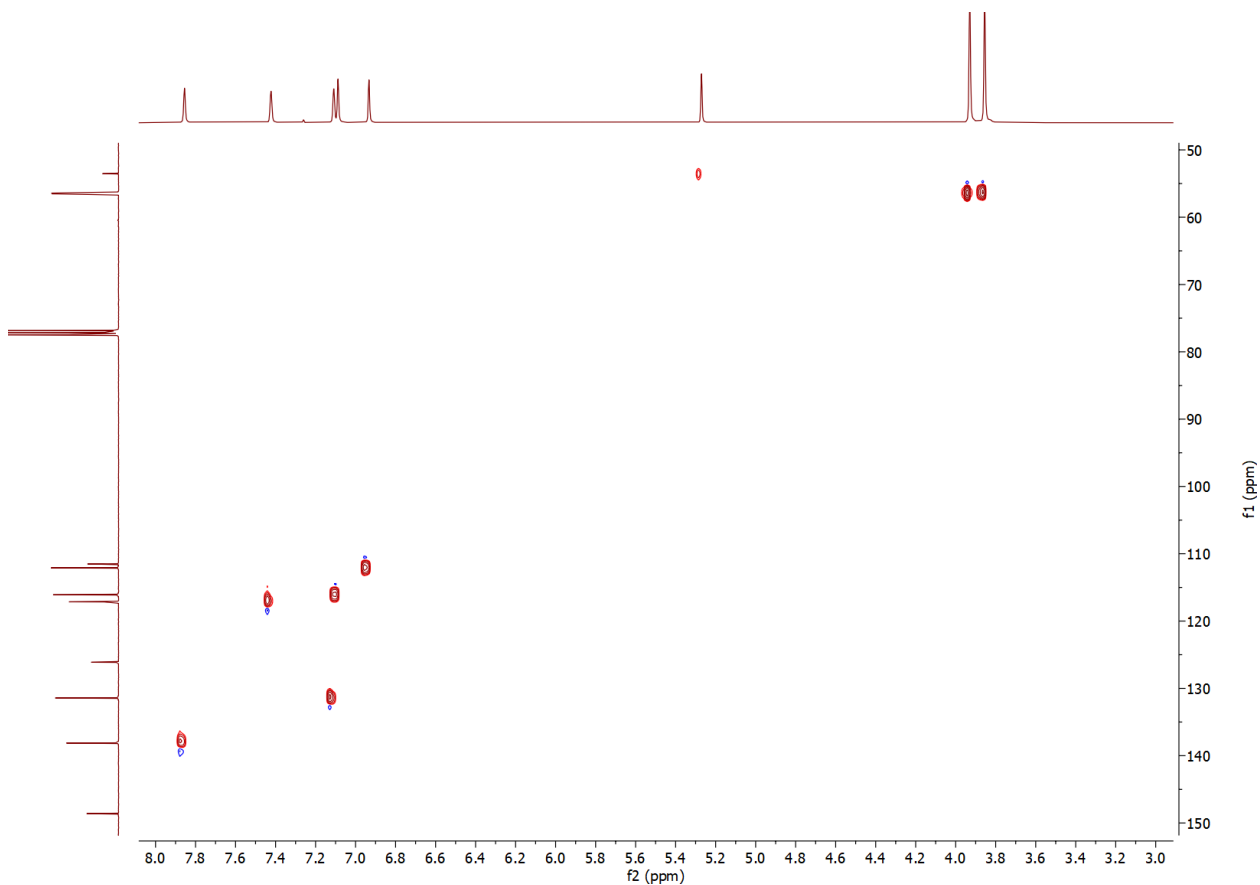


^1H - ^{13}C HMBC spectrum of **5**

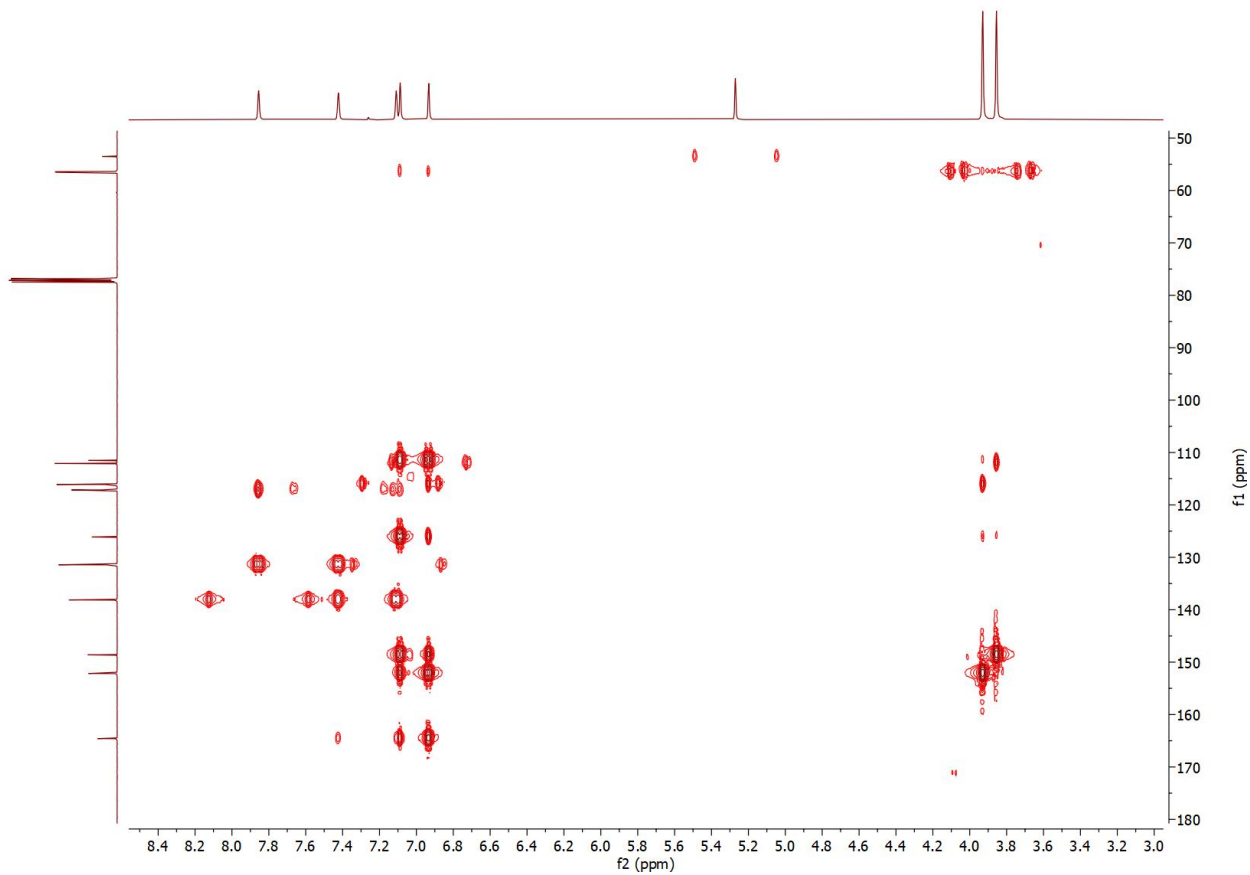




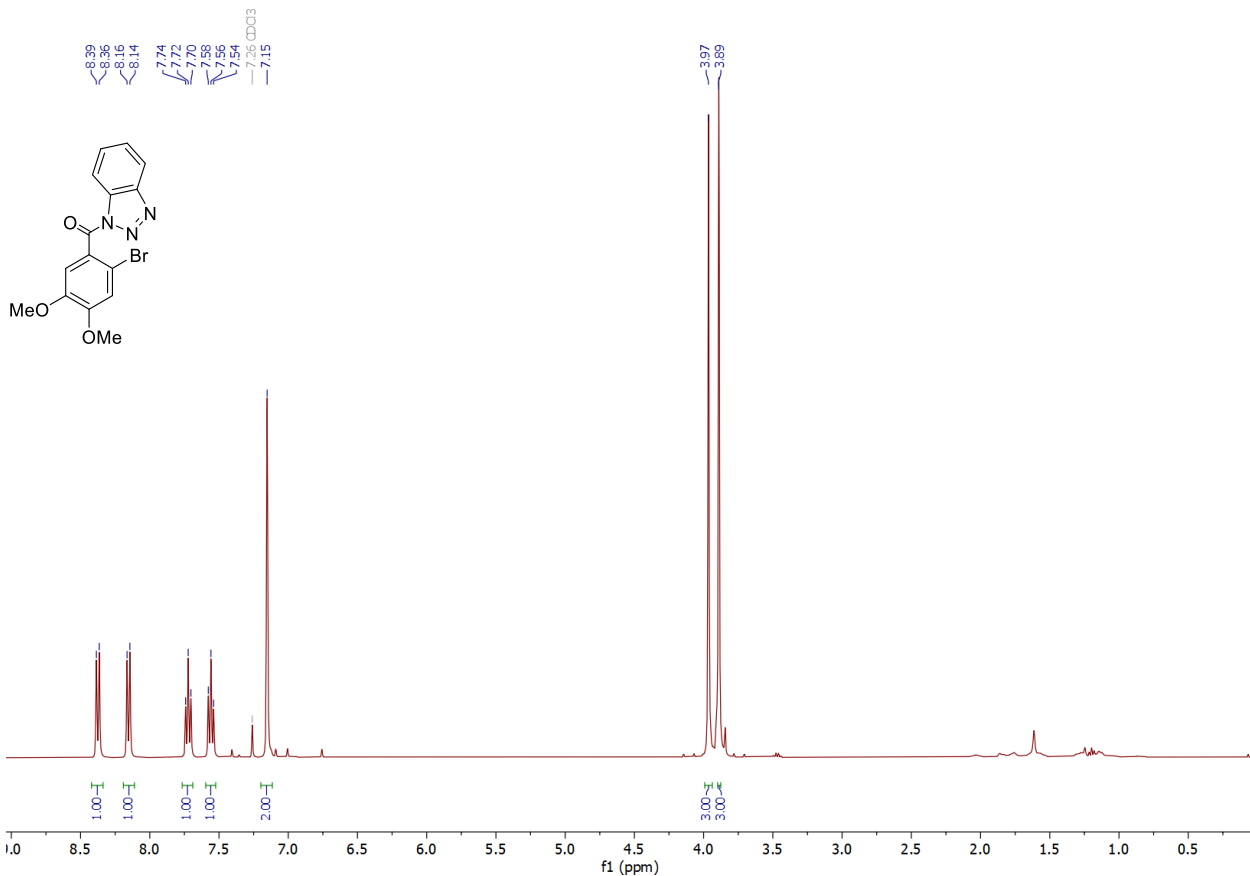
^1H - ^1H COSY spectrum of **7**



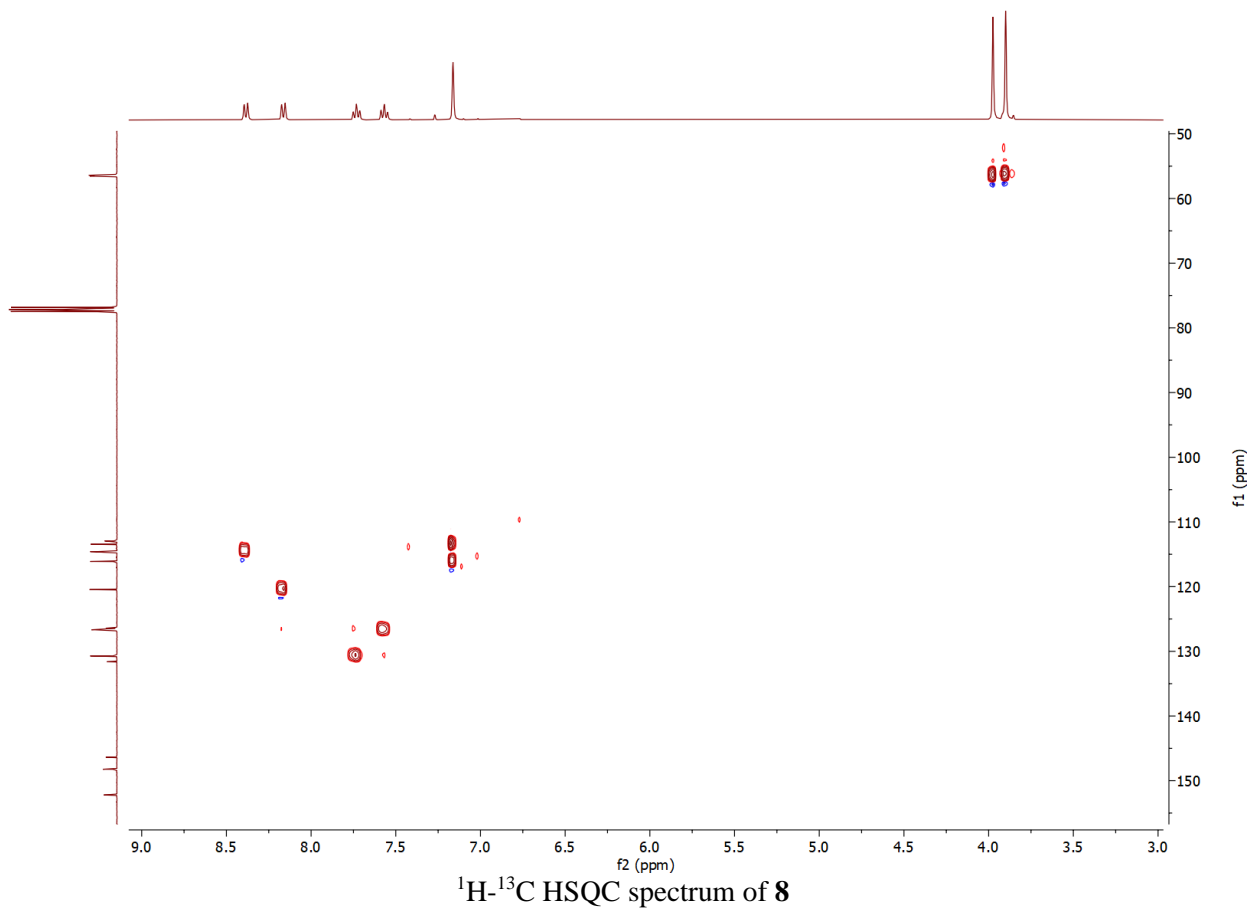
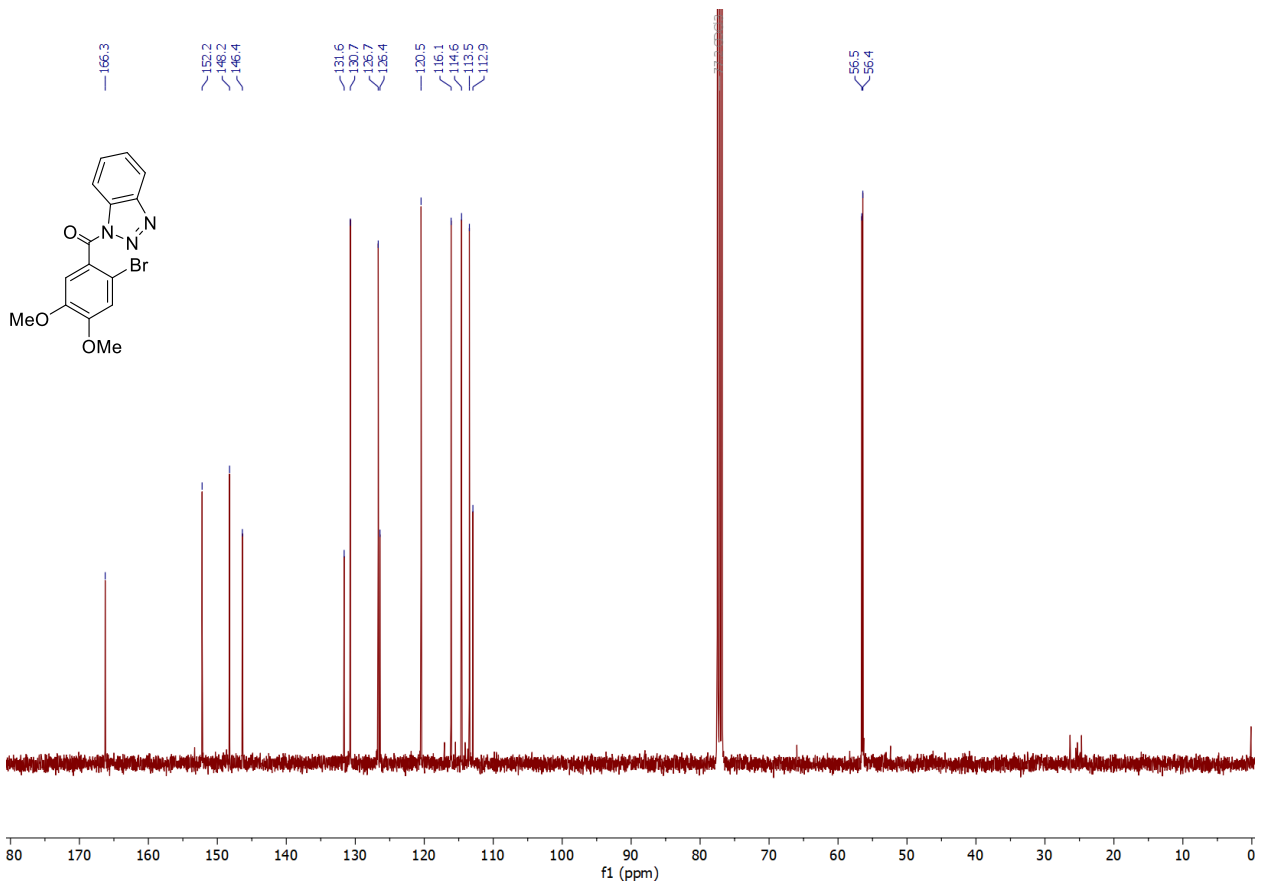
^1H - ^{13}C HSQC spectrum of **7**

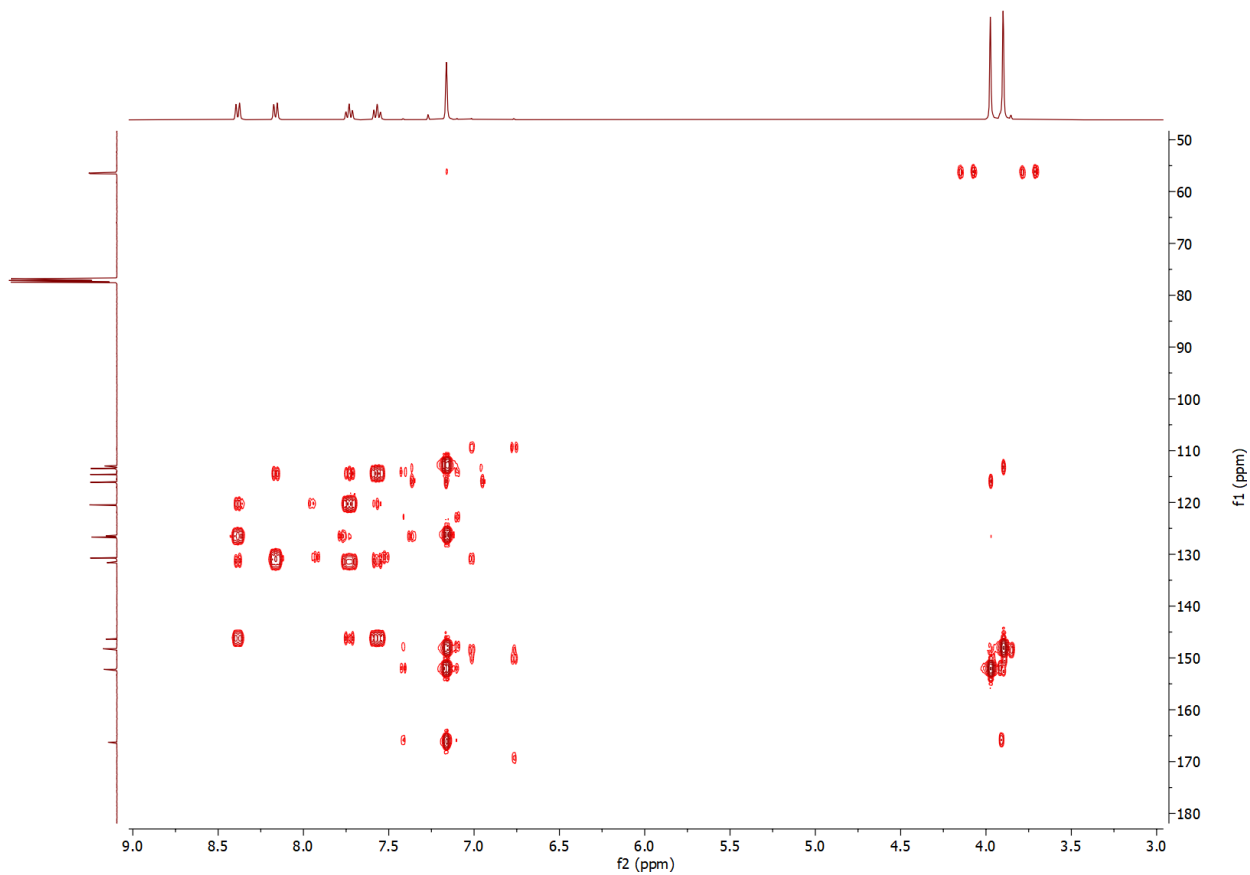


^1H - ^{13}C HMBC spectrum of **7**

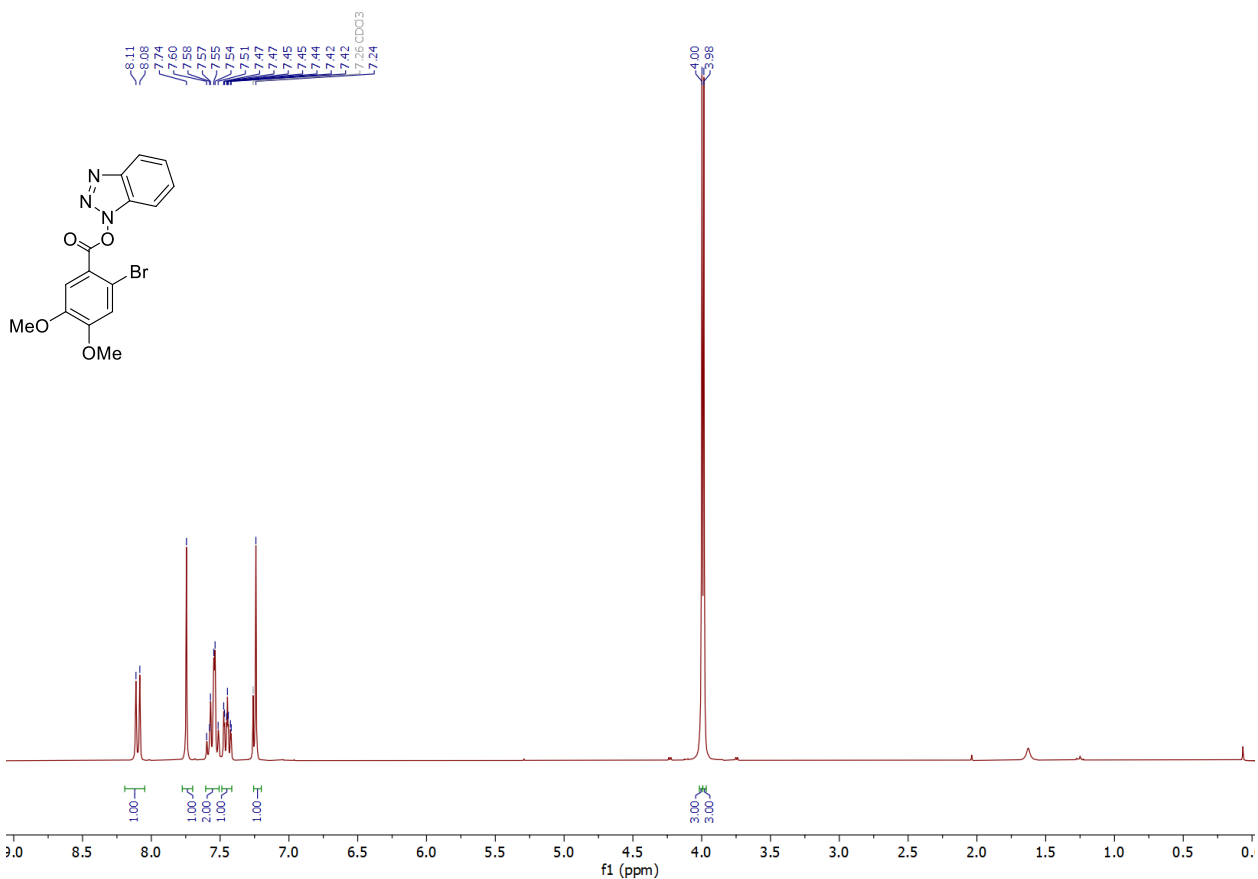


^1H NMR (400 MHz, CDCl_3) spectrum of **8**

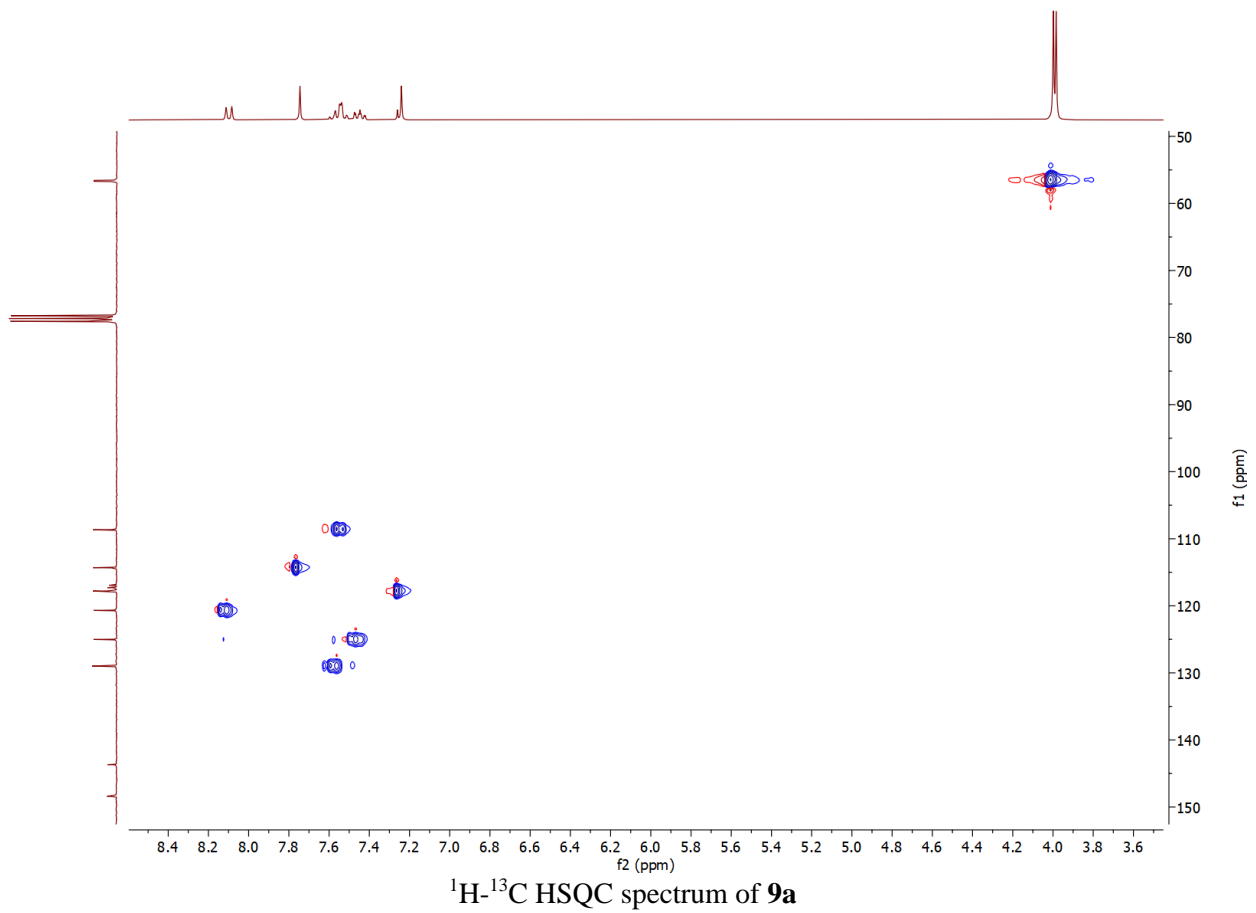
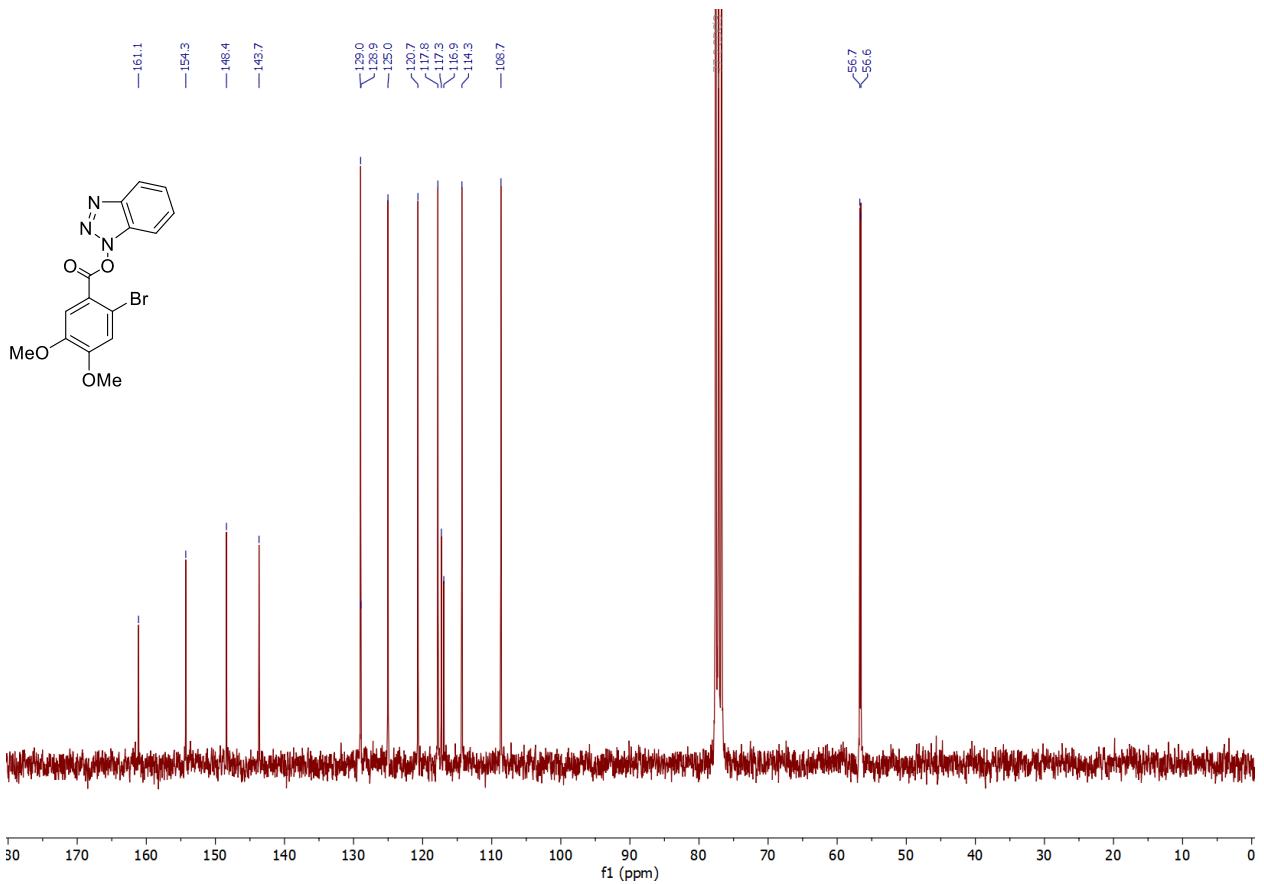


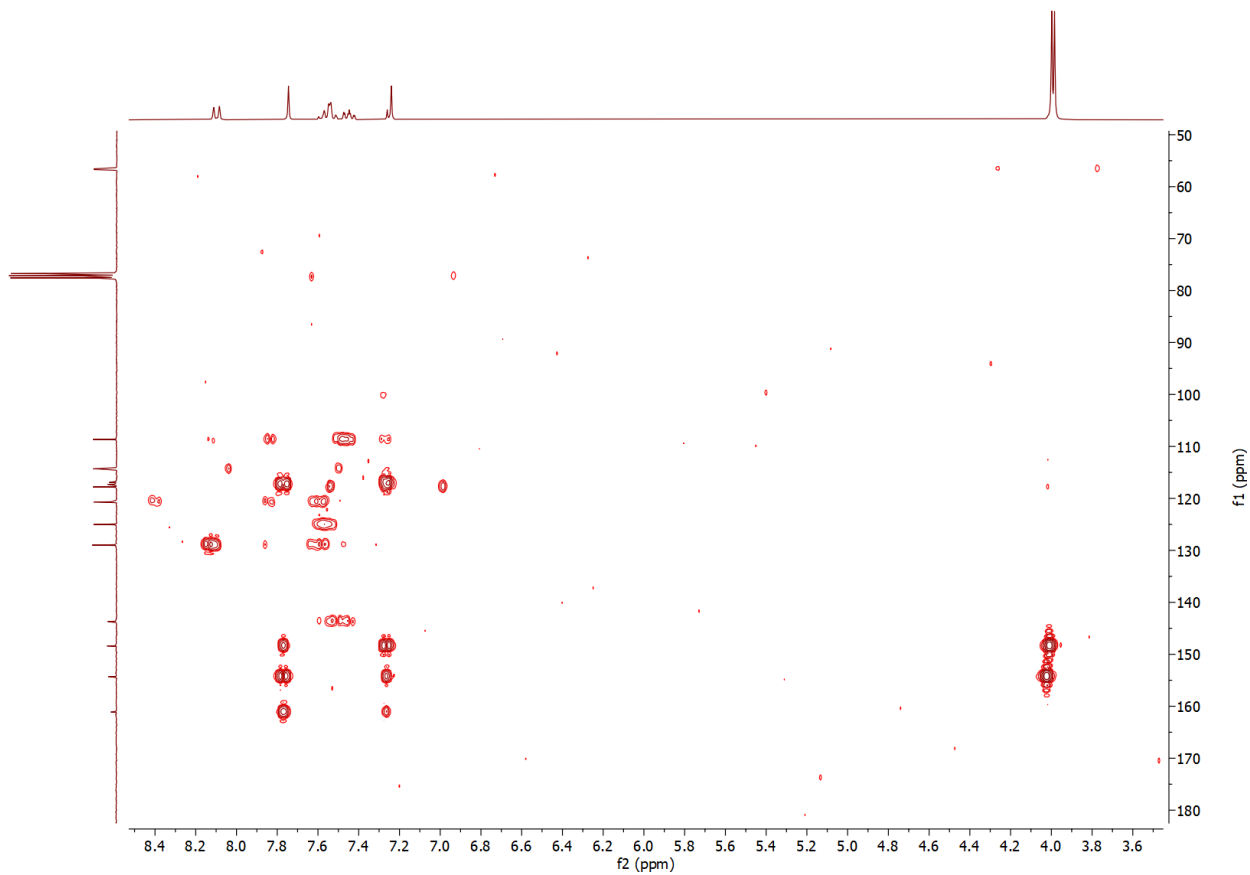


^1H - ^{13}C HMBC spectrum of **8**

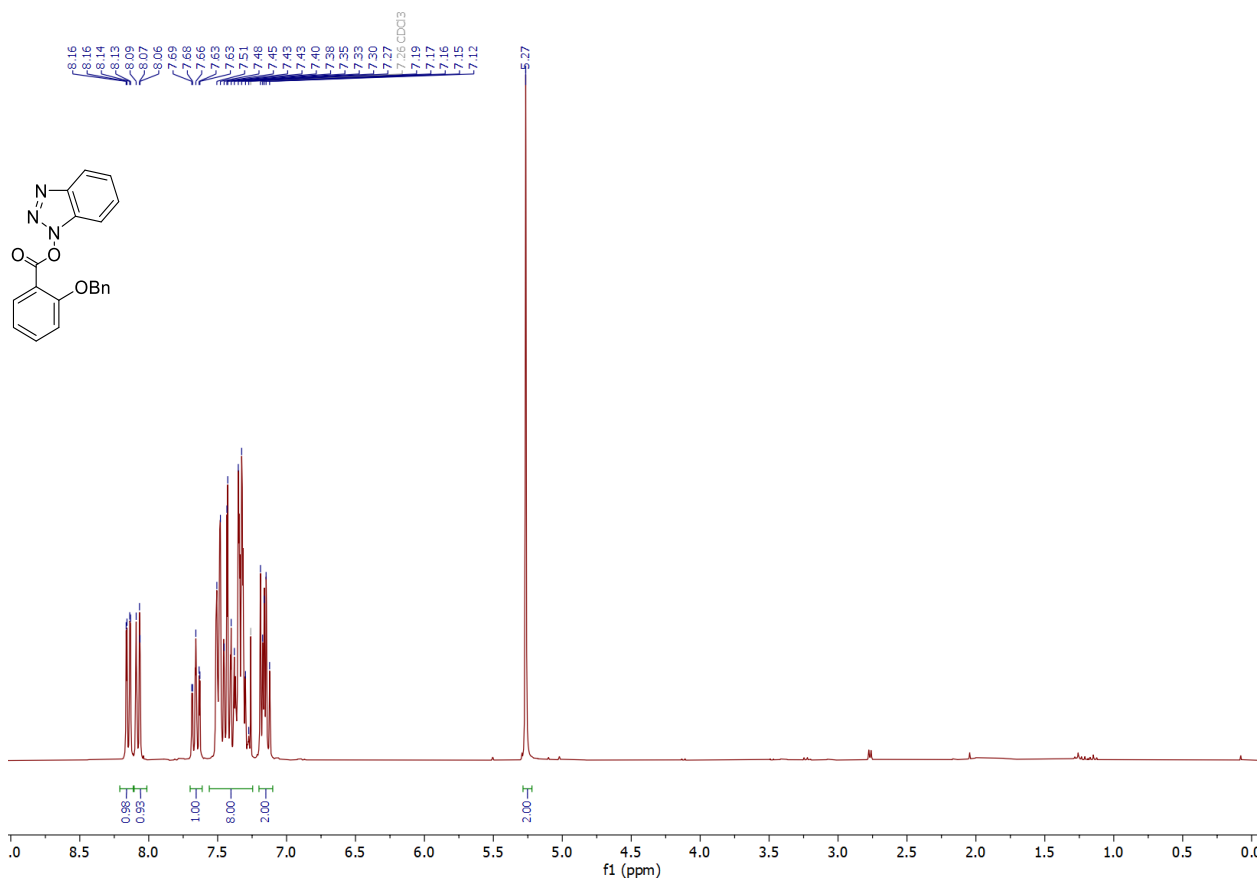


^1H NMR (300 MHz, CDCl_3) spectrum of **9a**

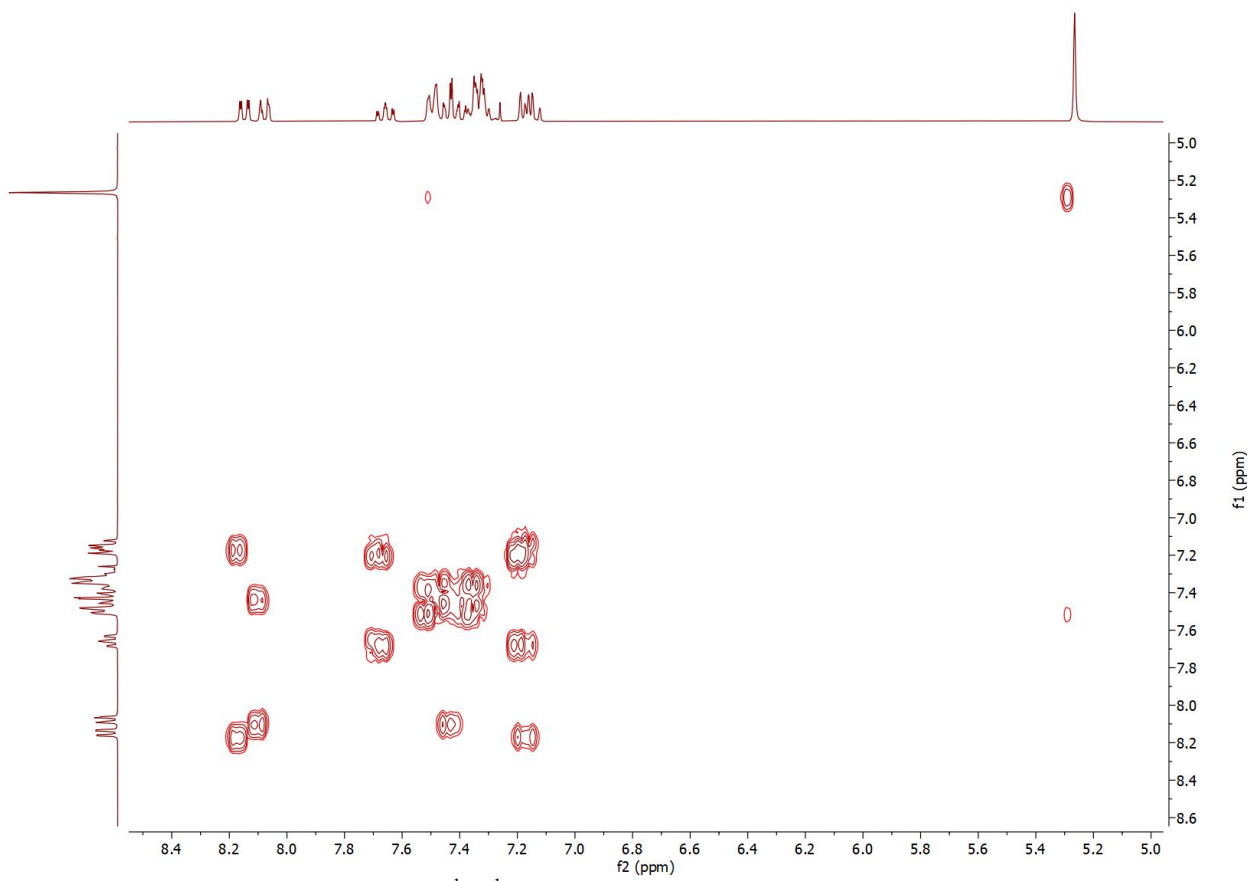
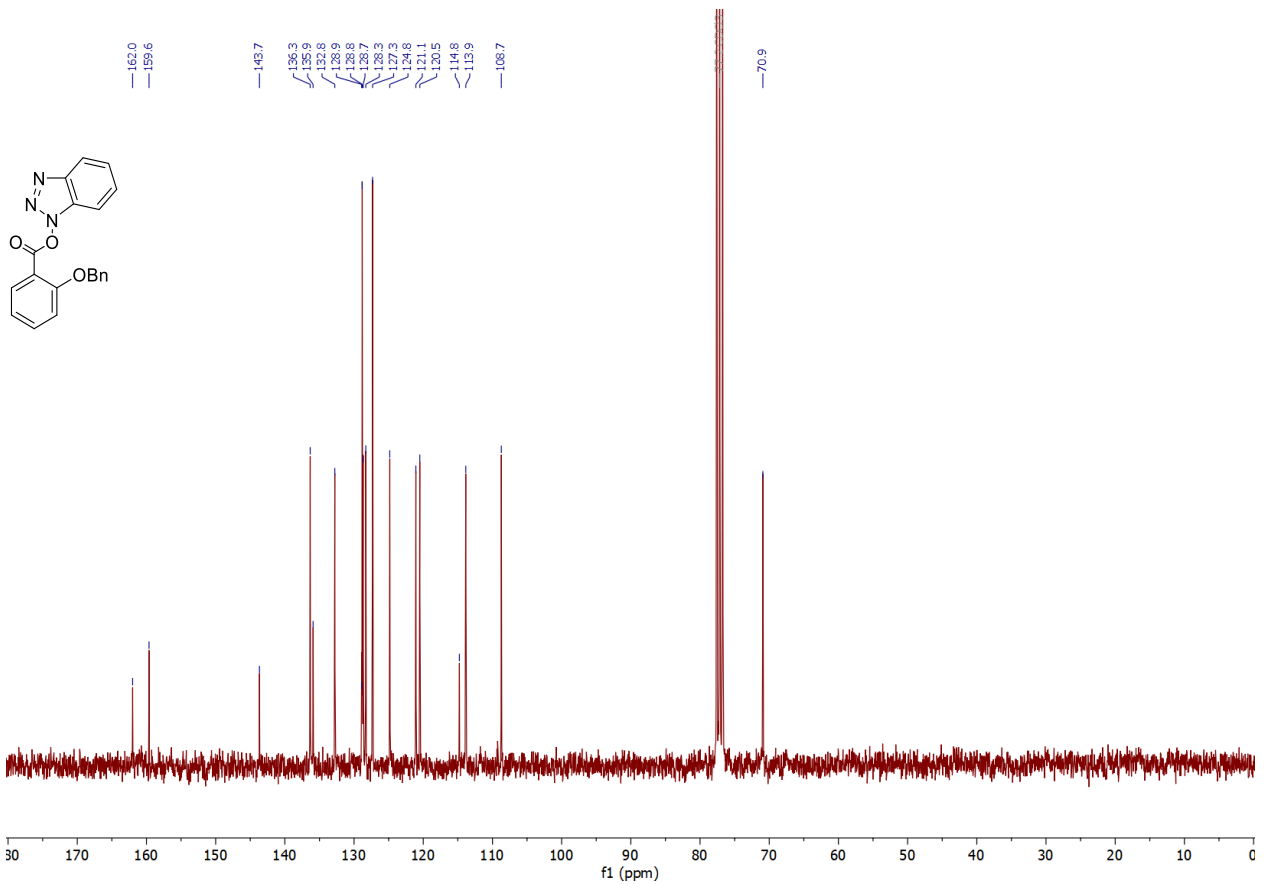


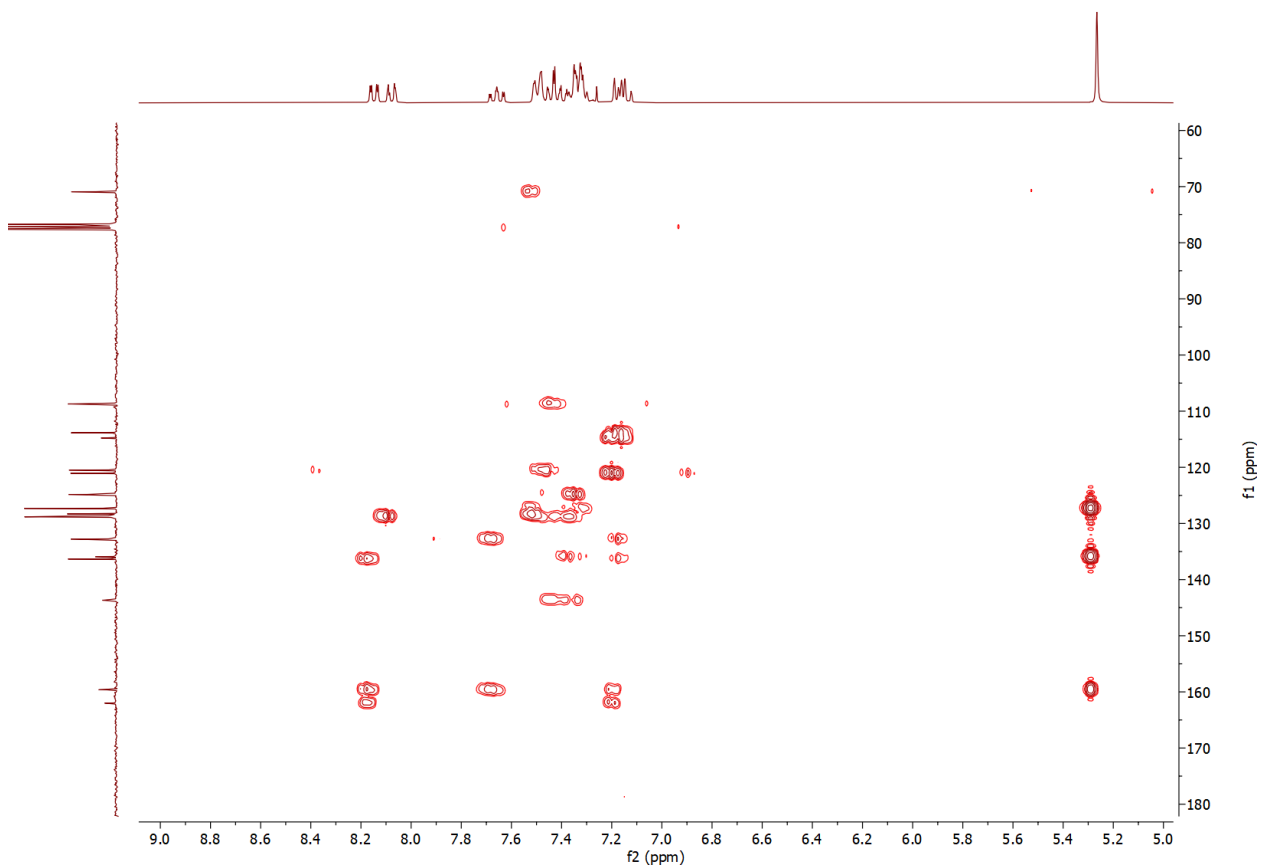
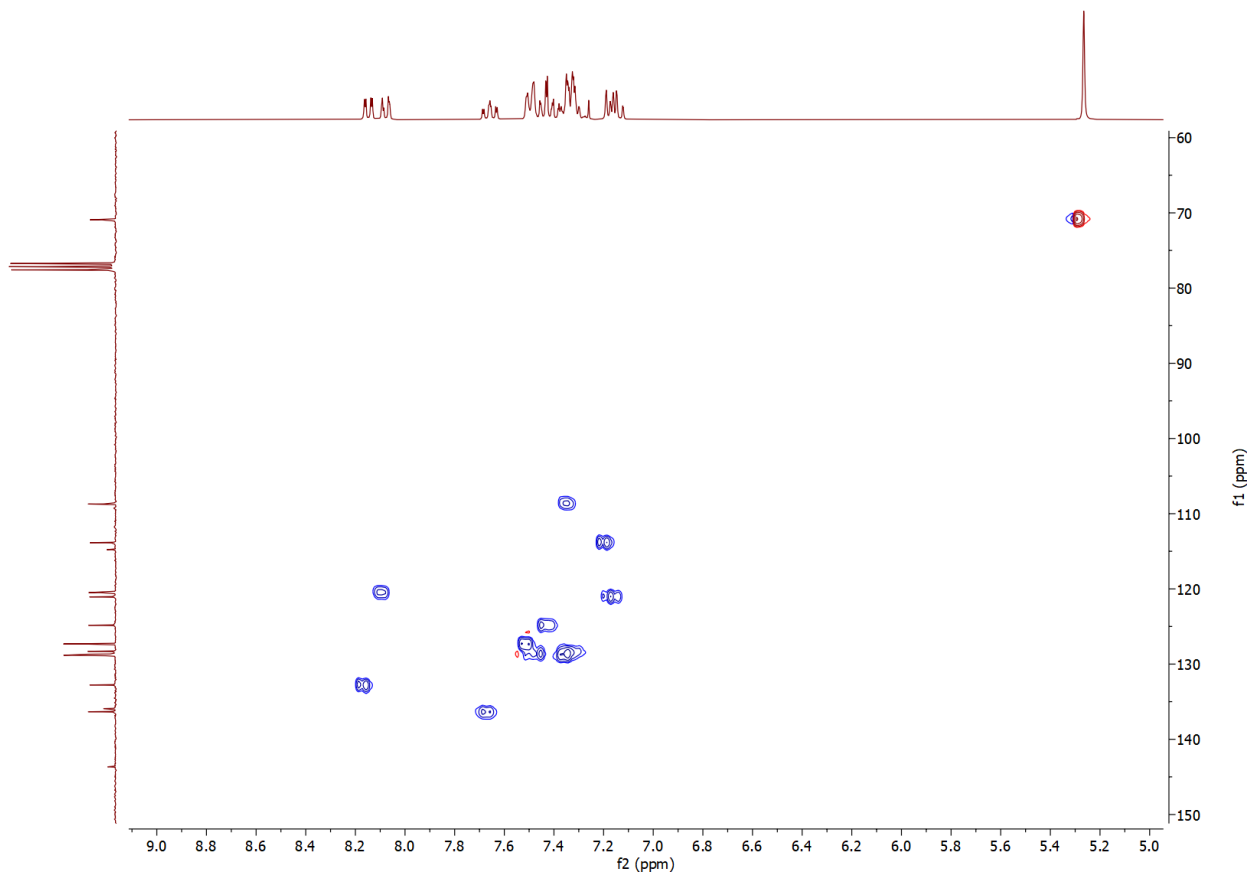


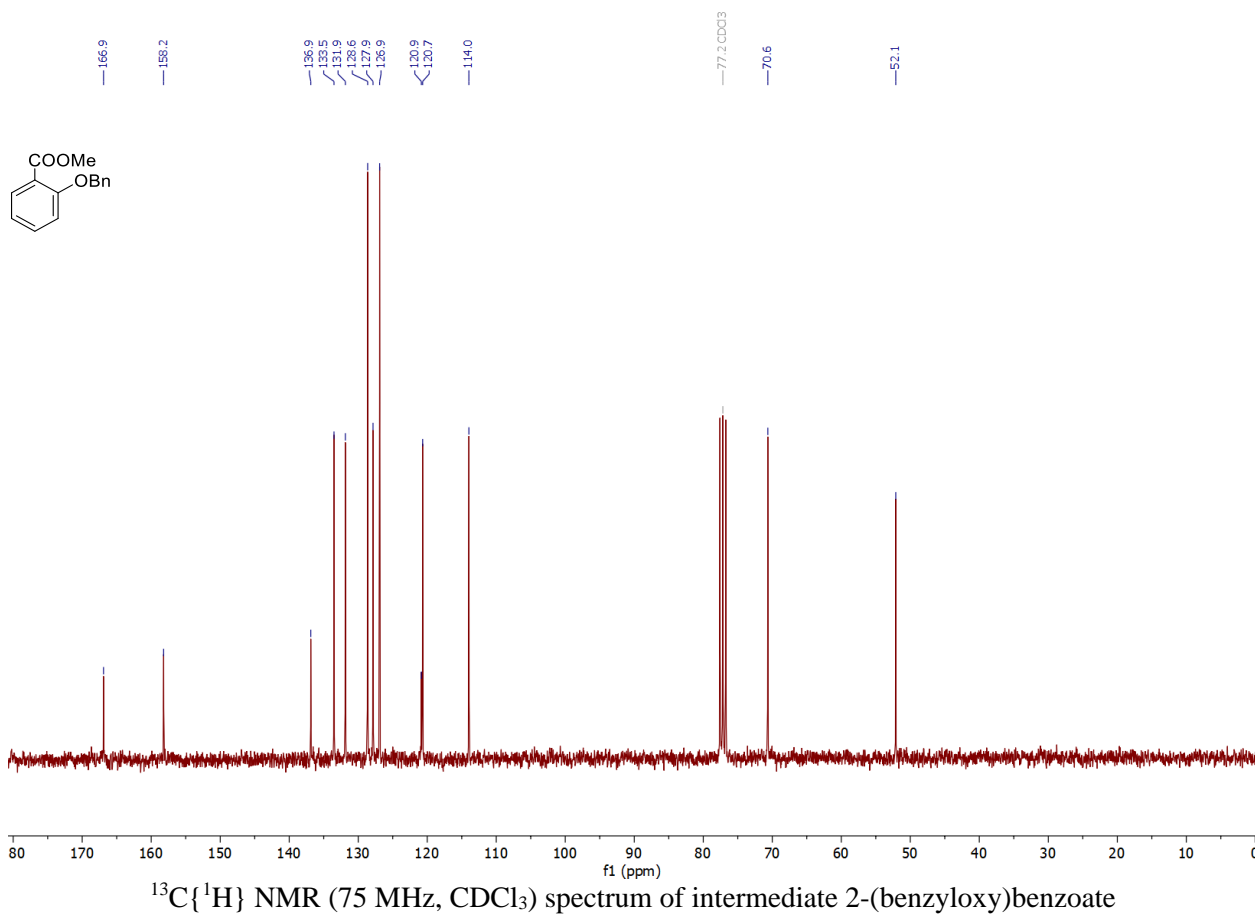
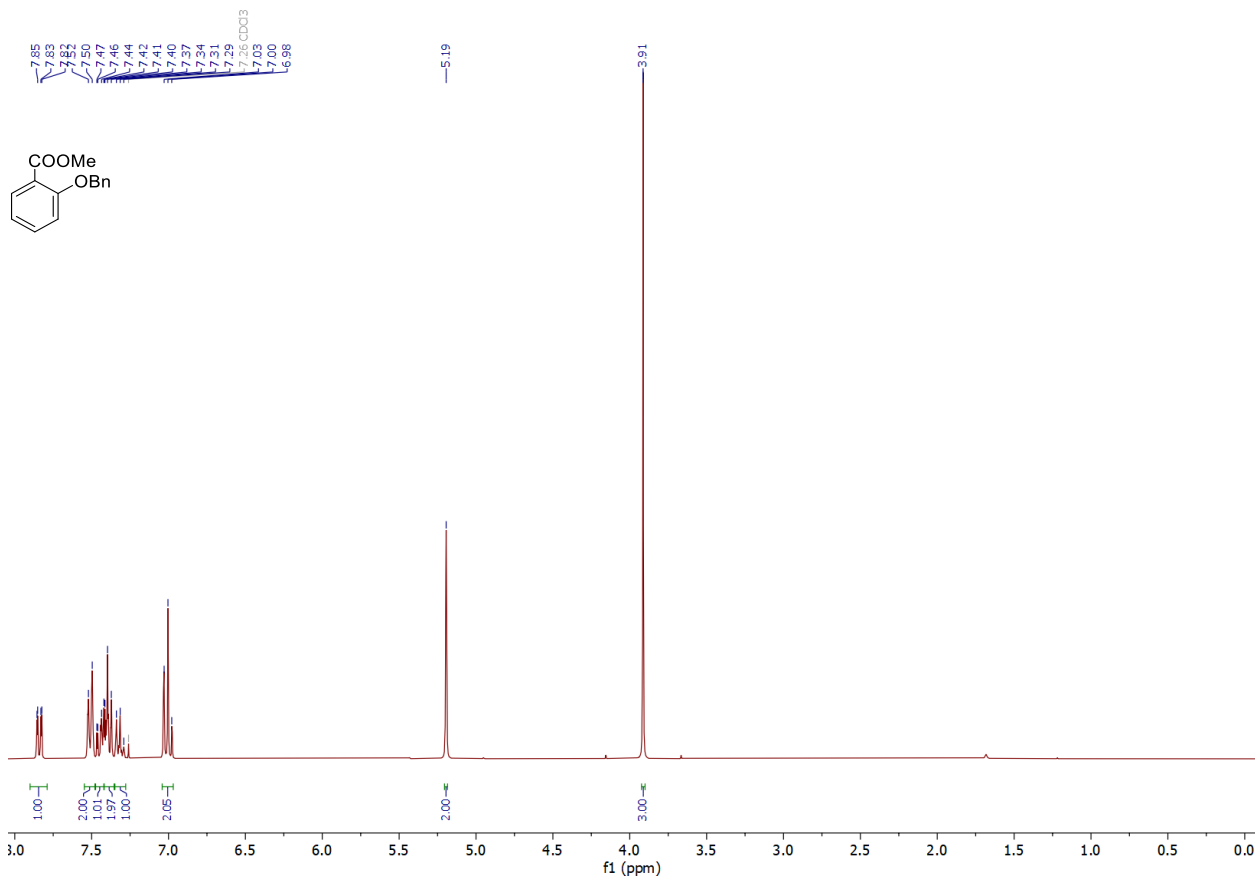
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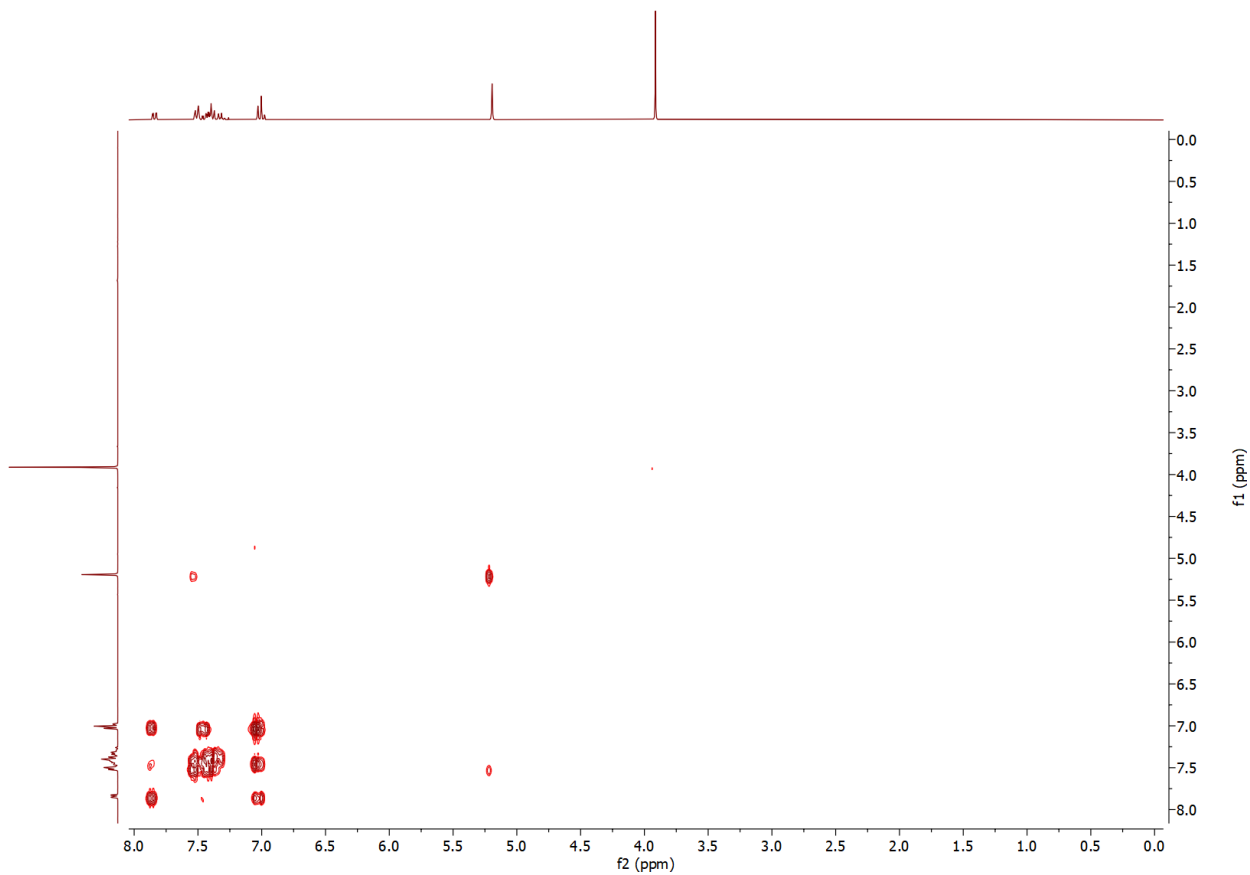


^1H NMR (300 MHz, CDCl_3) spectrum of **9b**

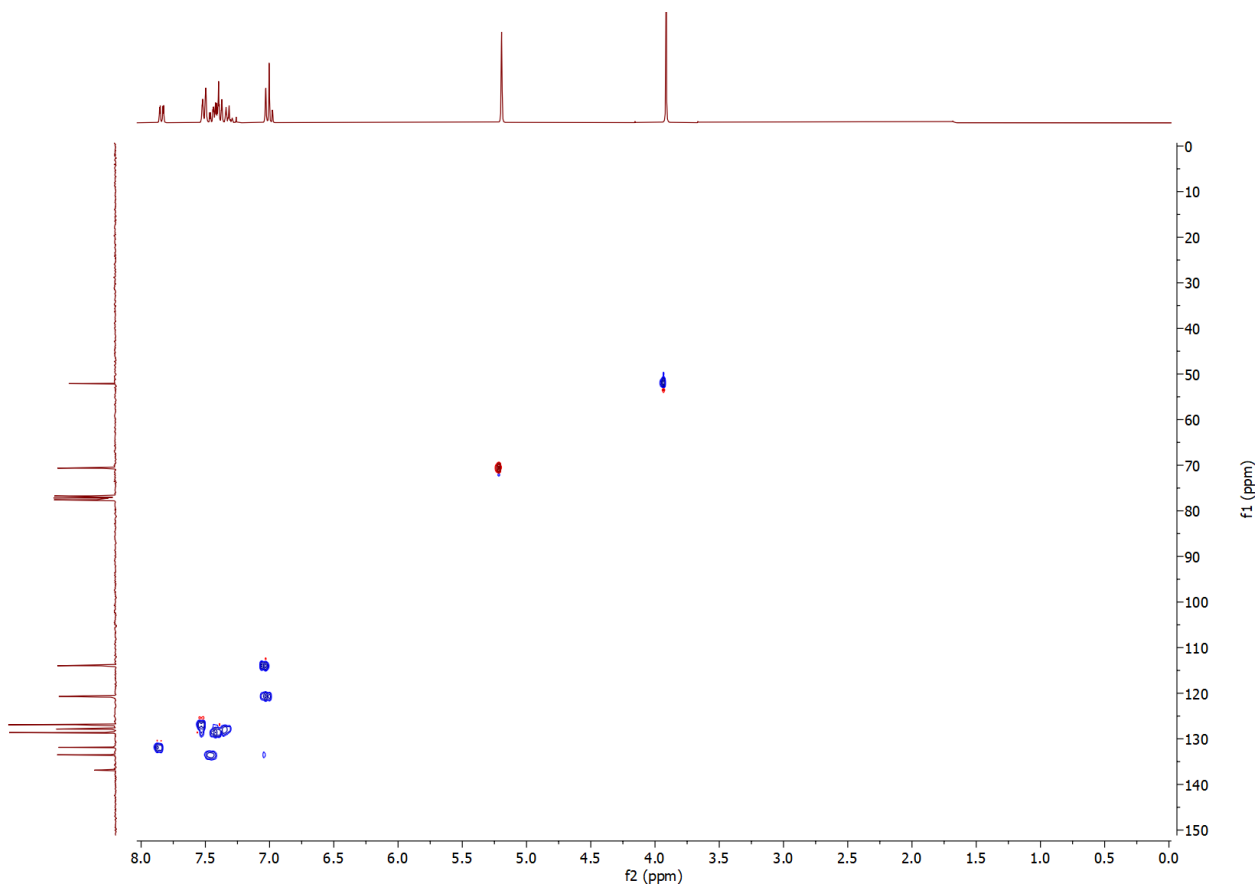




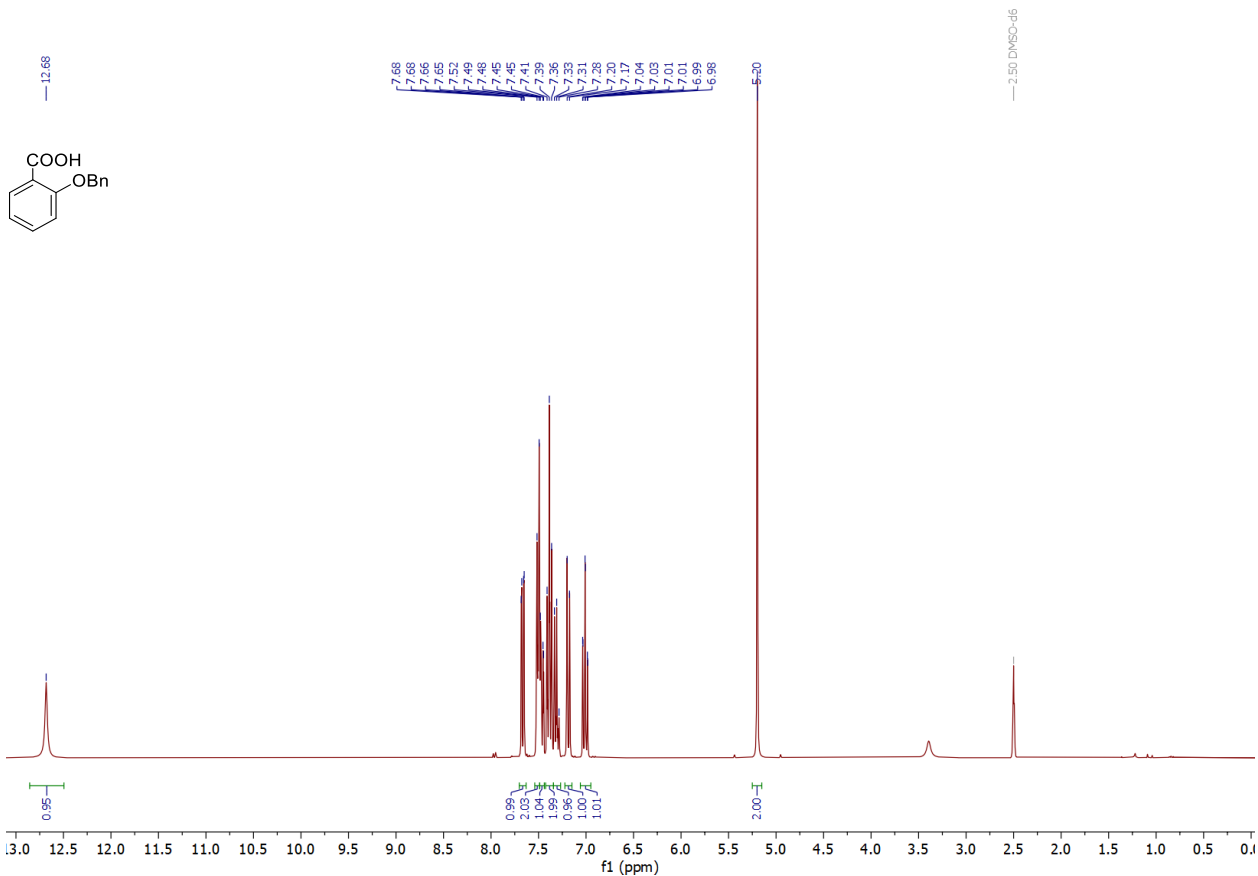
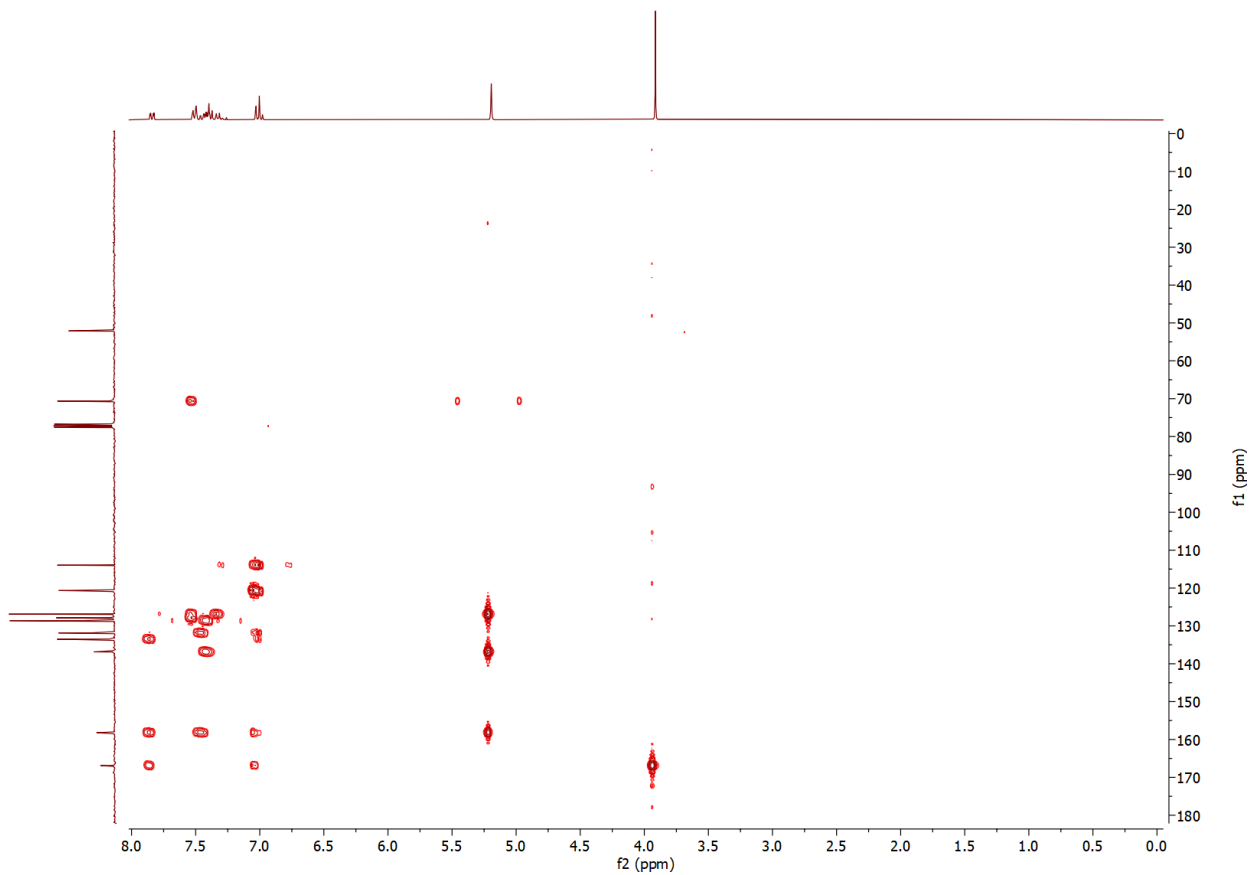


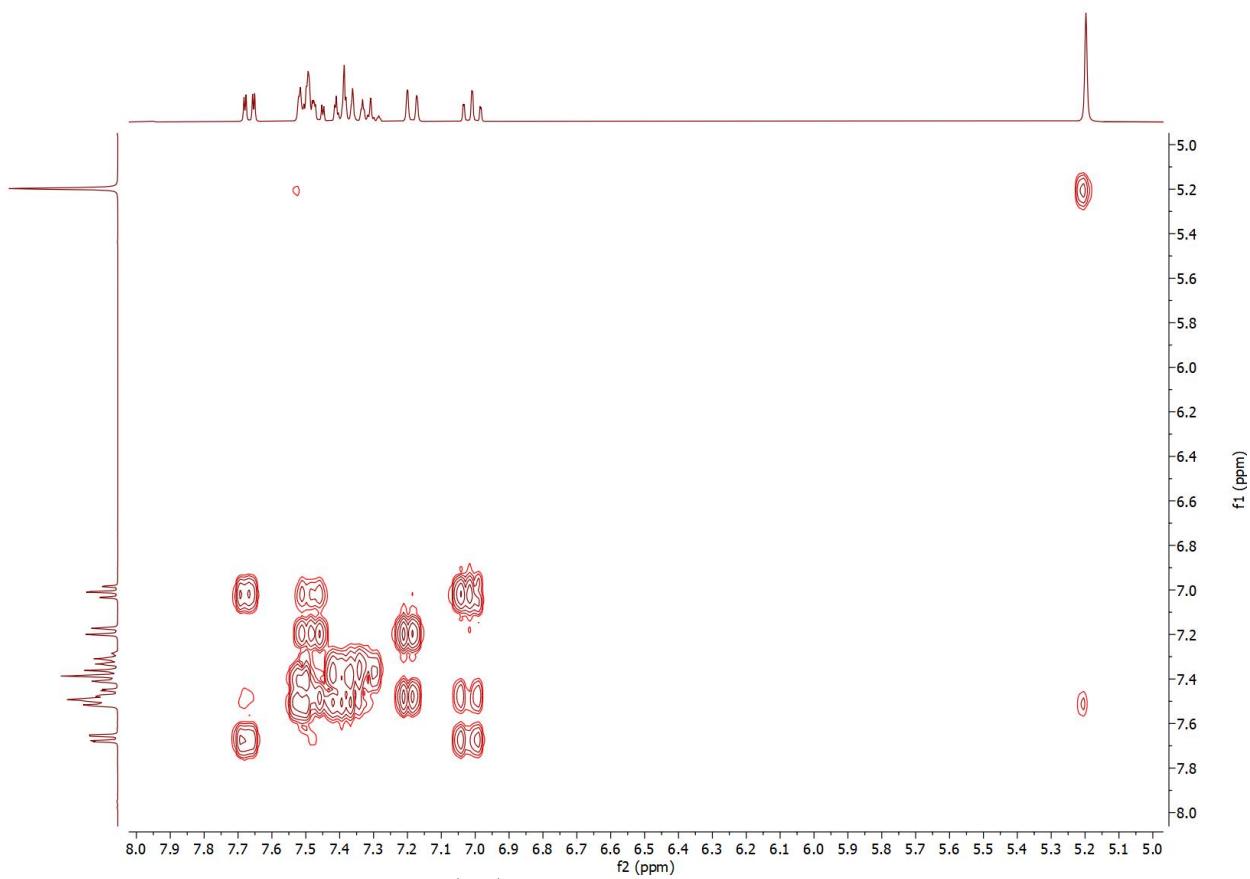
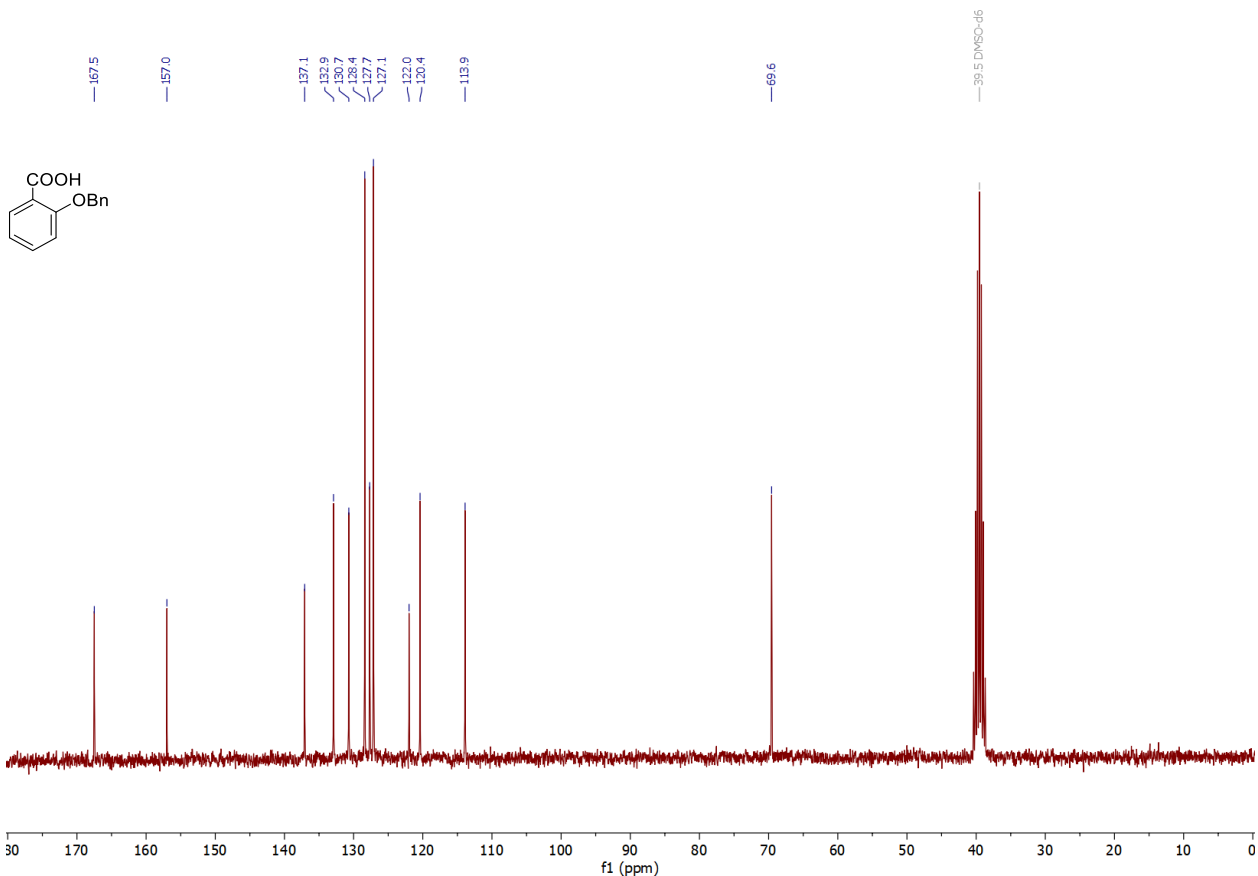


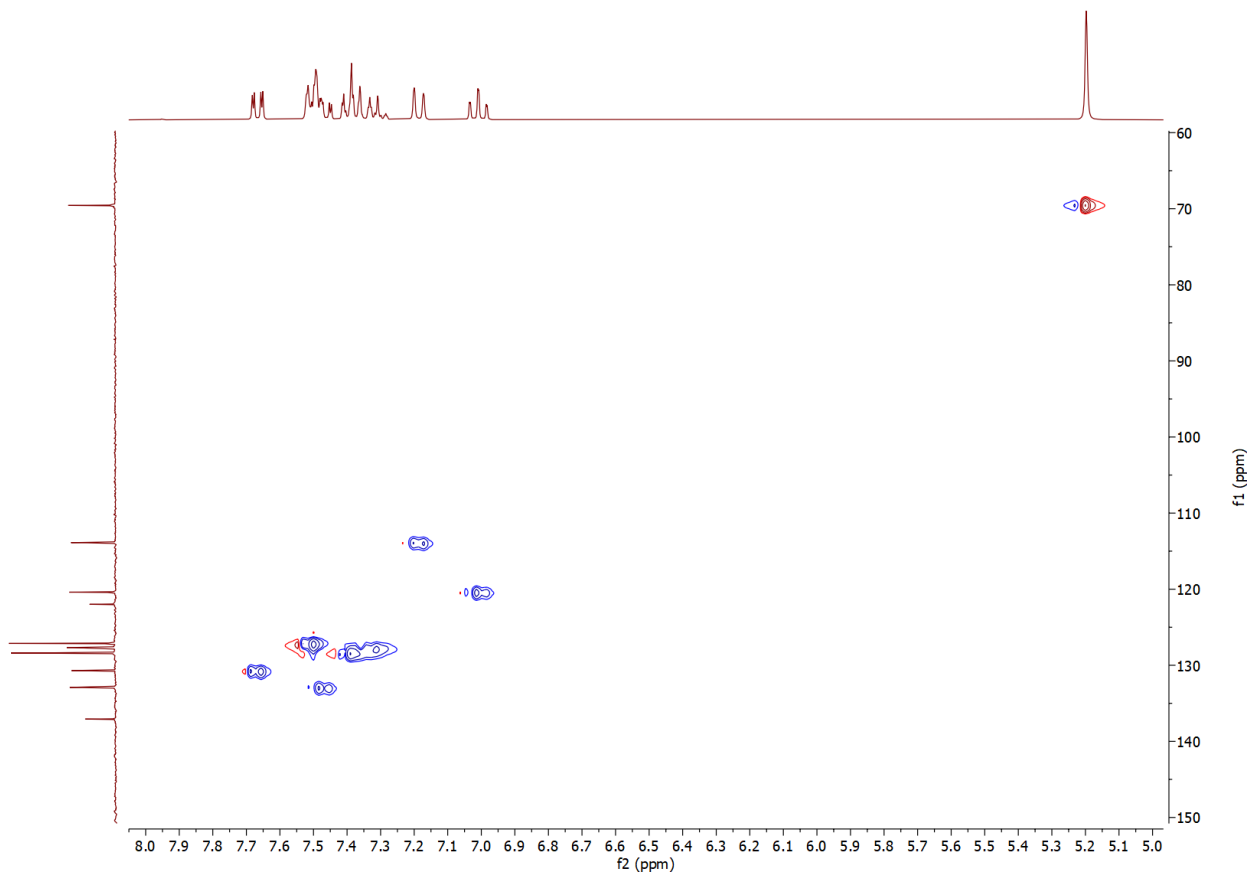
^1H - ^1H COSY spectrum of intermediate 2-(benzyloxy)benzoate



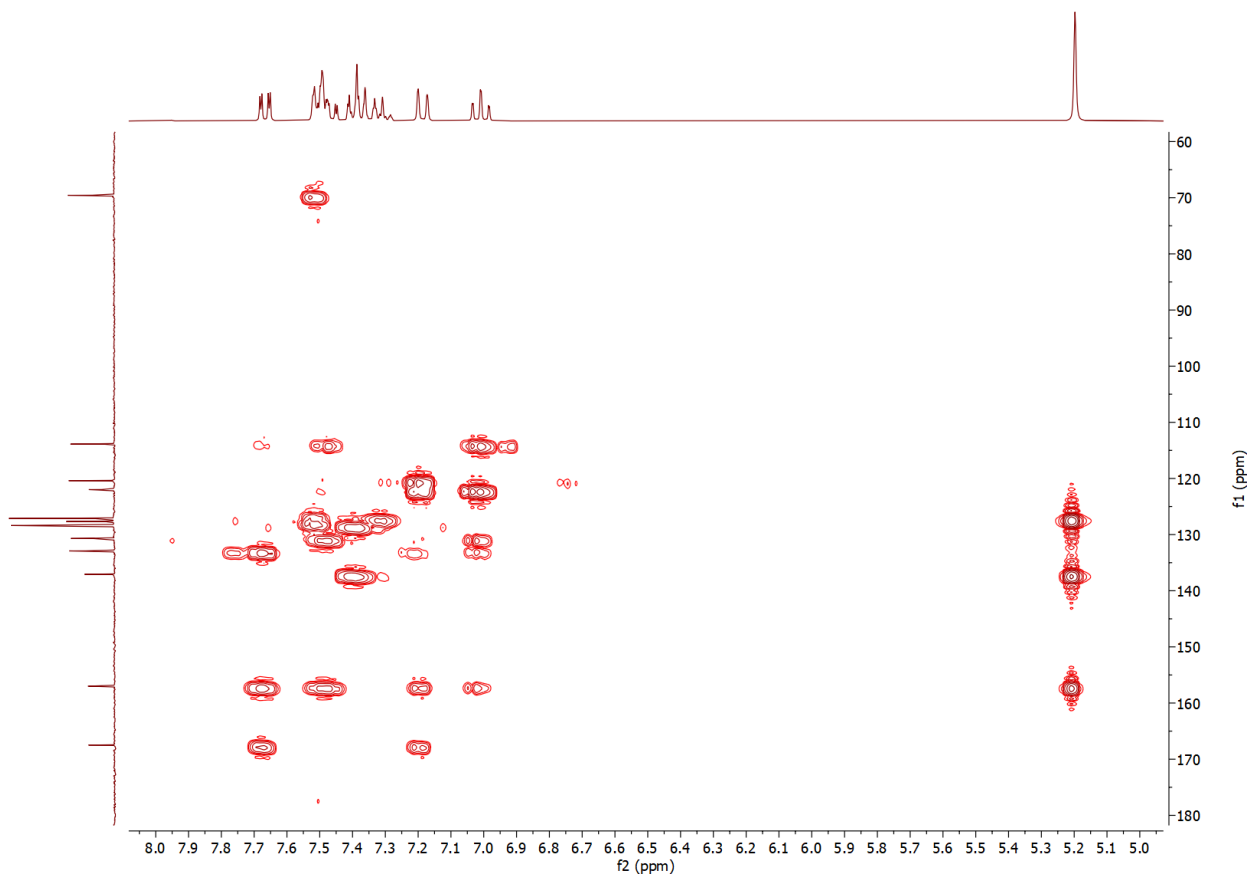
^1H - ^{13}C HSQC spectrum of intermediate 2-(benzyloxy)benzoate



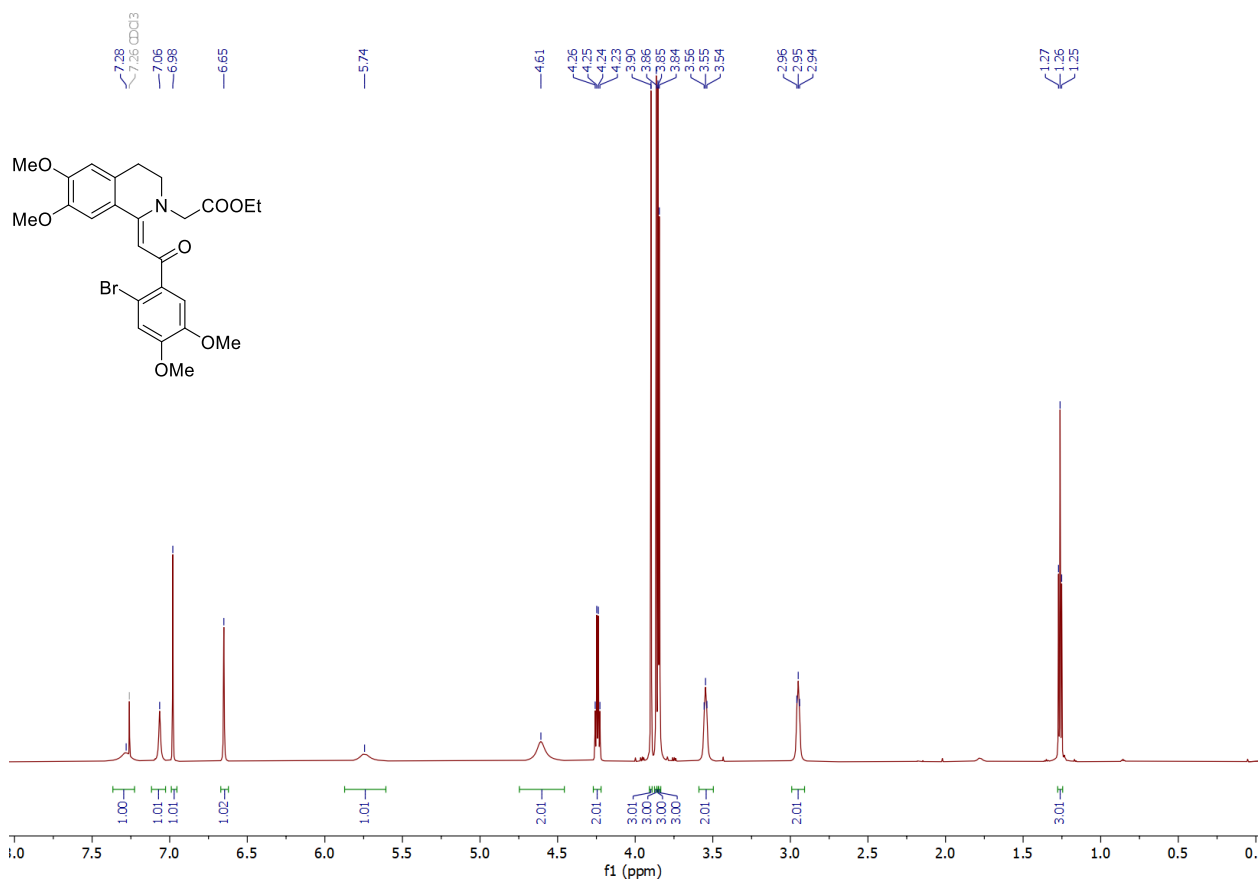




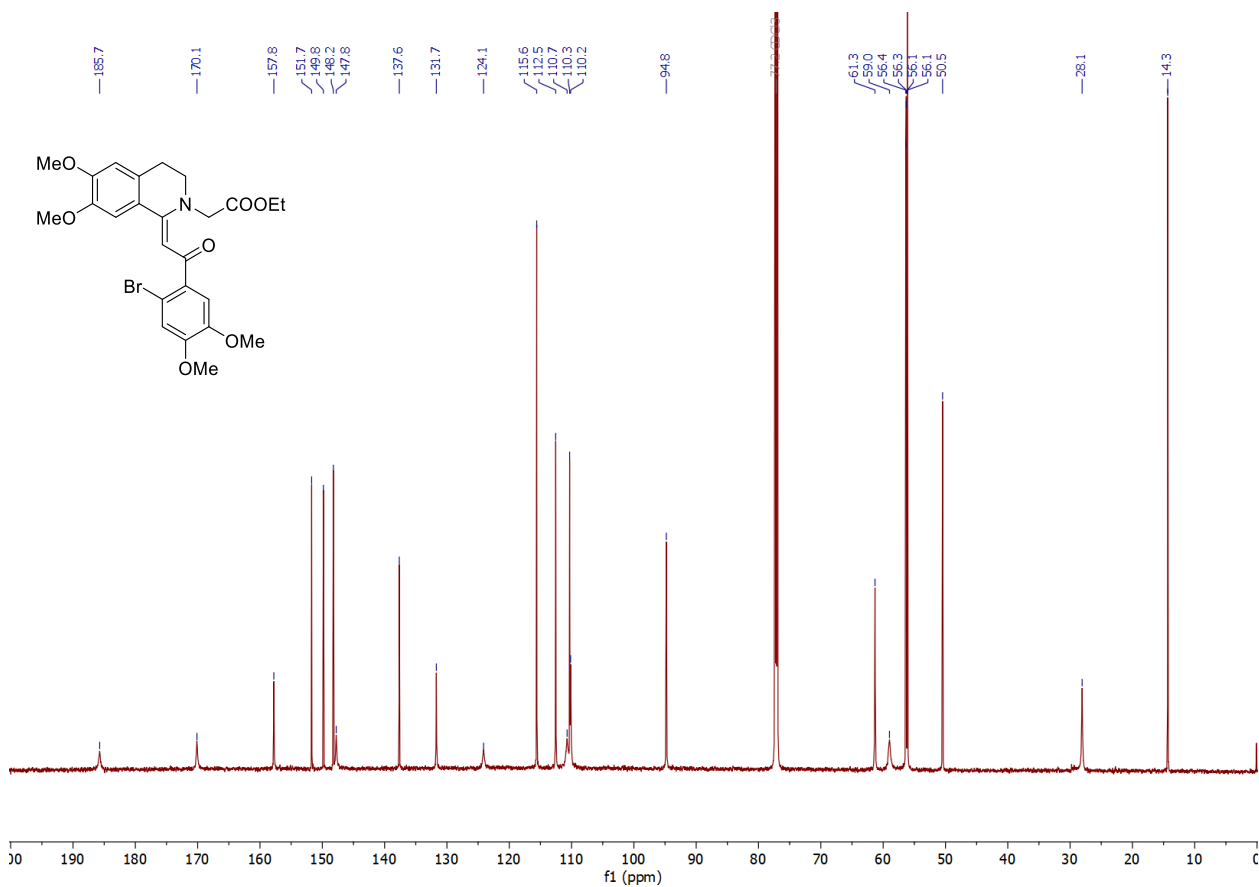
^1H - ^{13}C HSQC spectrum of **11**



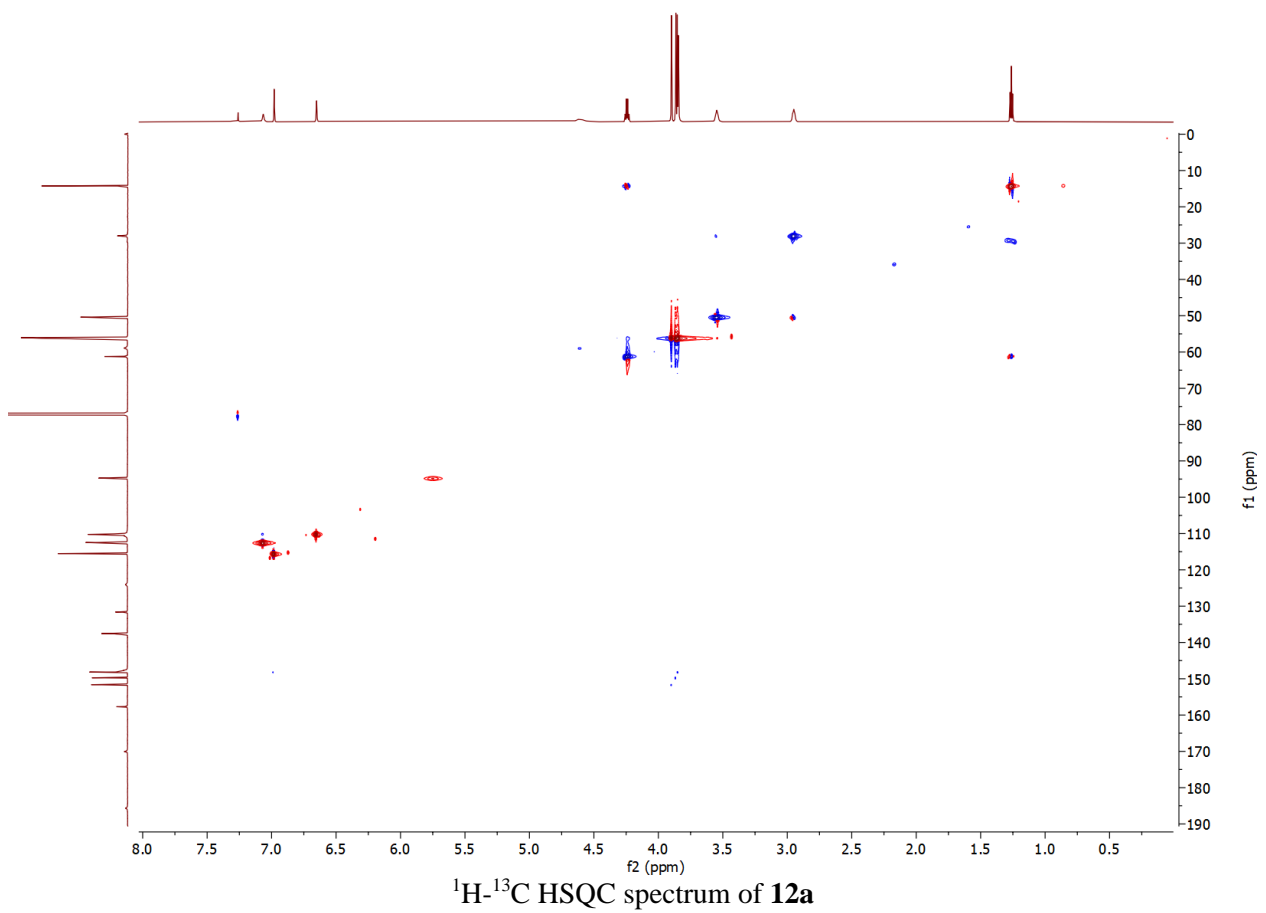
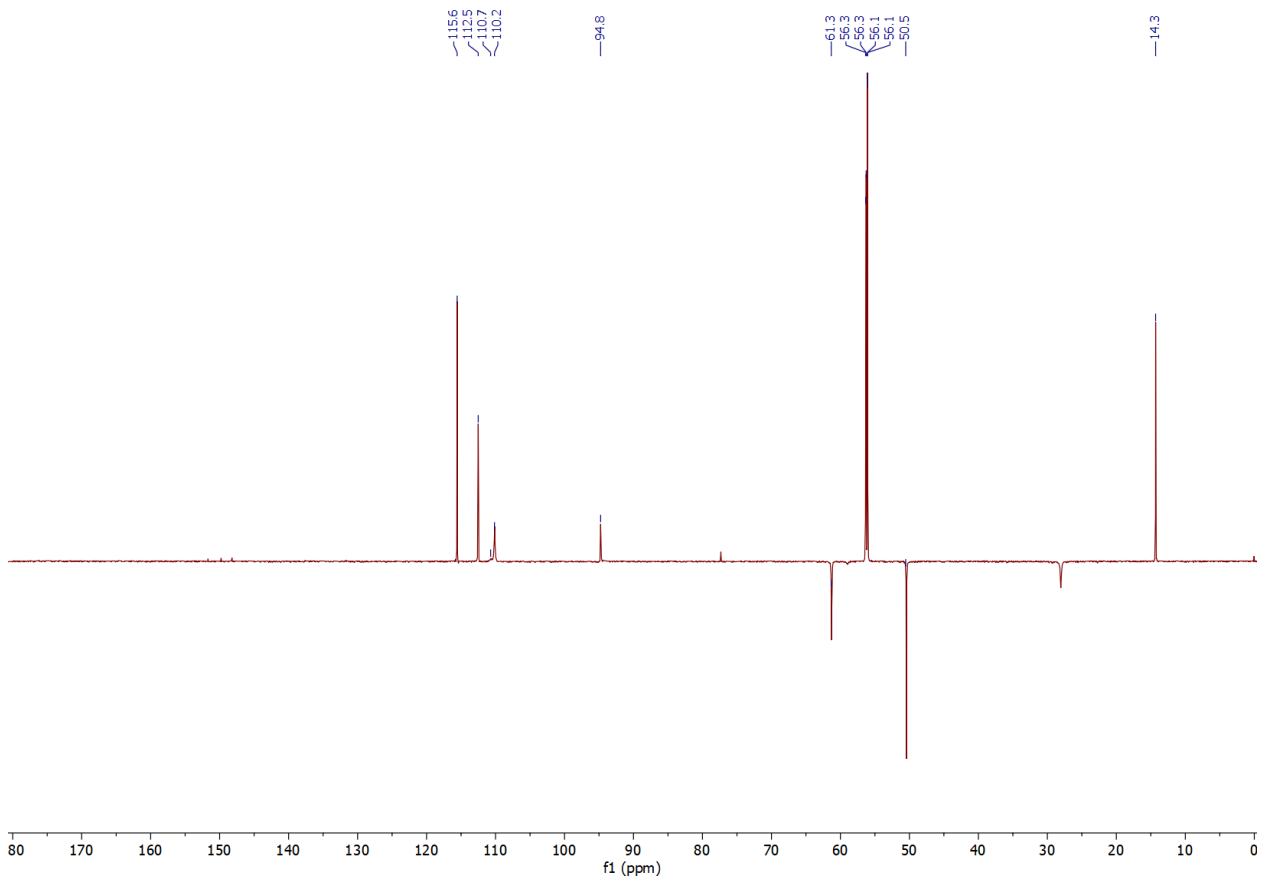
^1H - ^{13}C HMBC spectrum of **11**

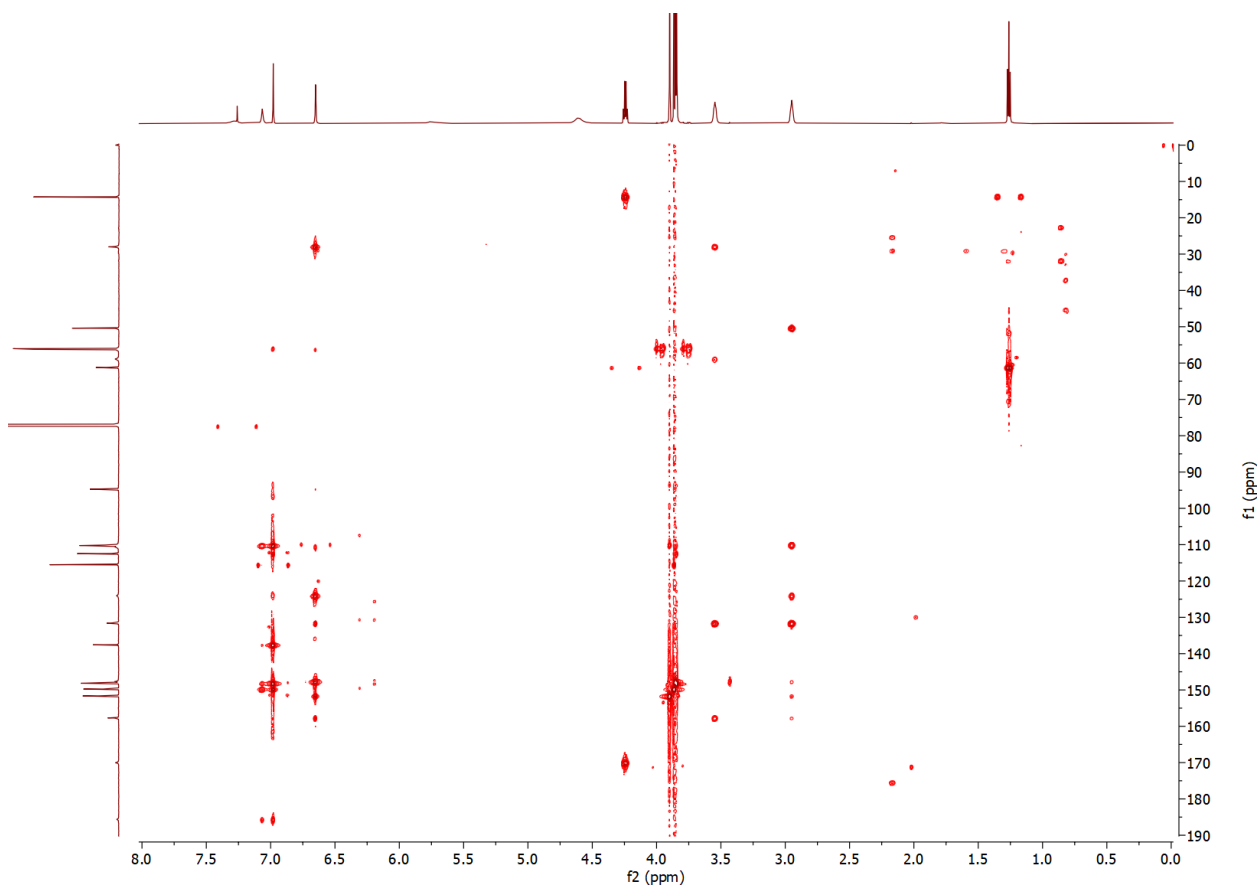


¹H NMR (700 MHz, CDCl₃) spectrum of **12a**

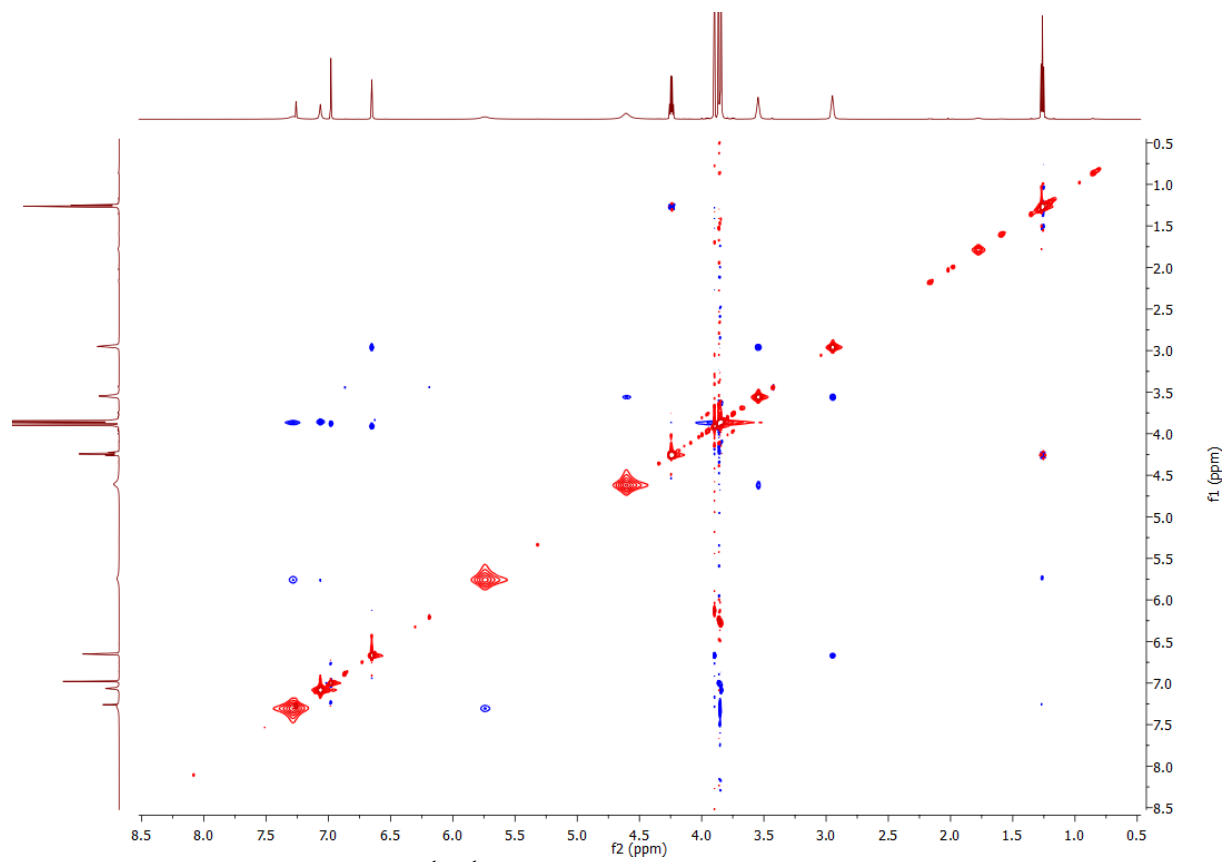


¹³C{¹H} NMR (176 MHz, CDCl₃) spectrum of **12a**

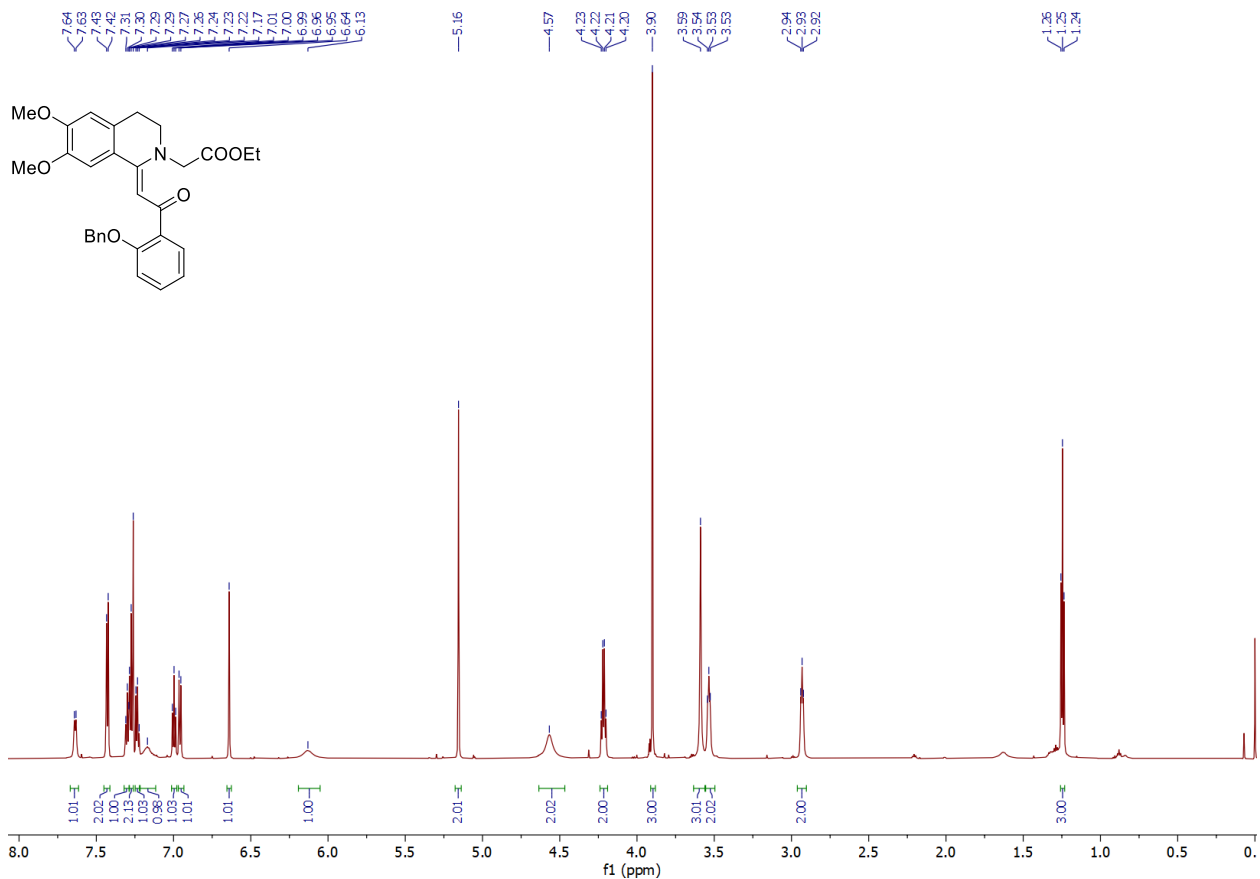




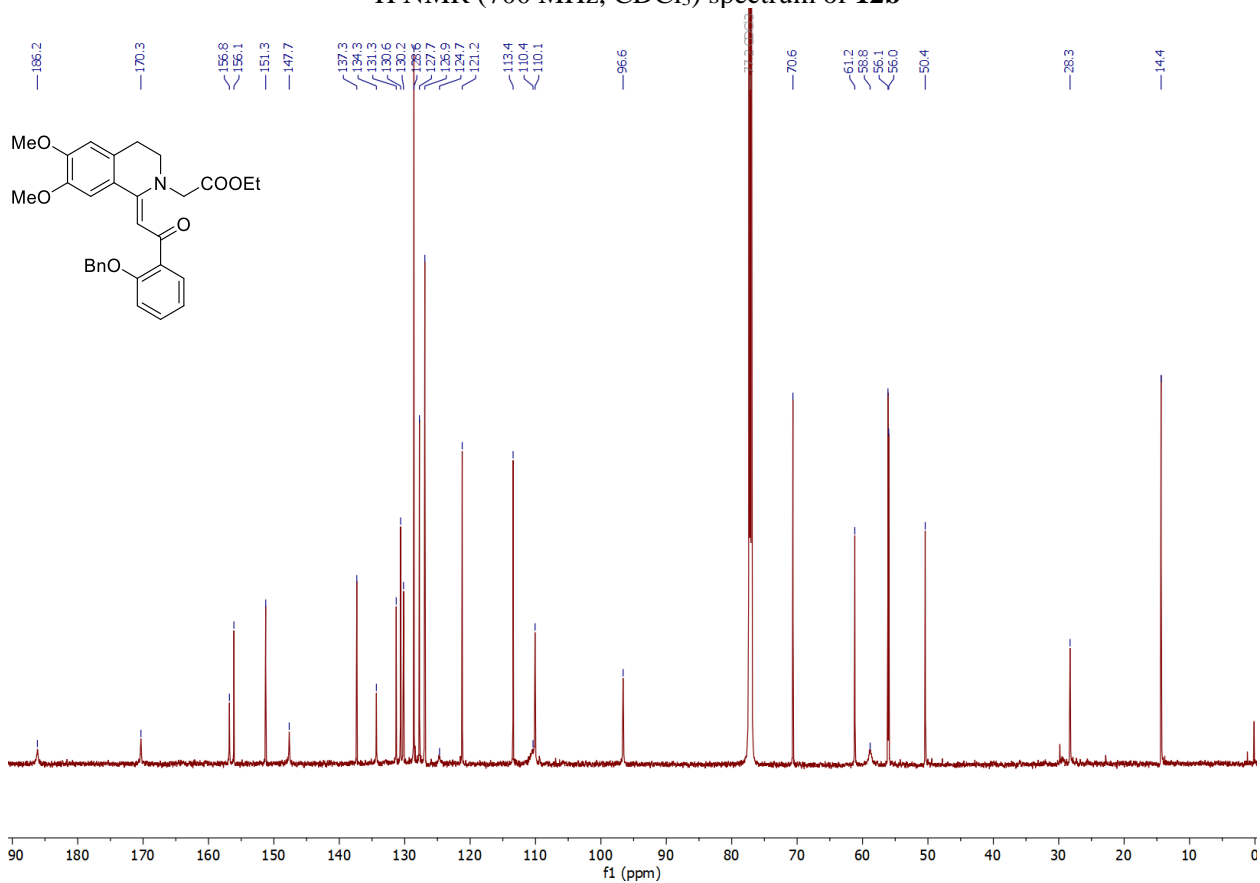
^1H - ^{13}C HMBC spectrum of 12a



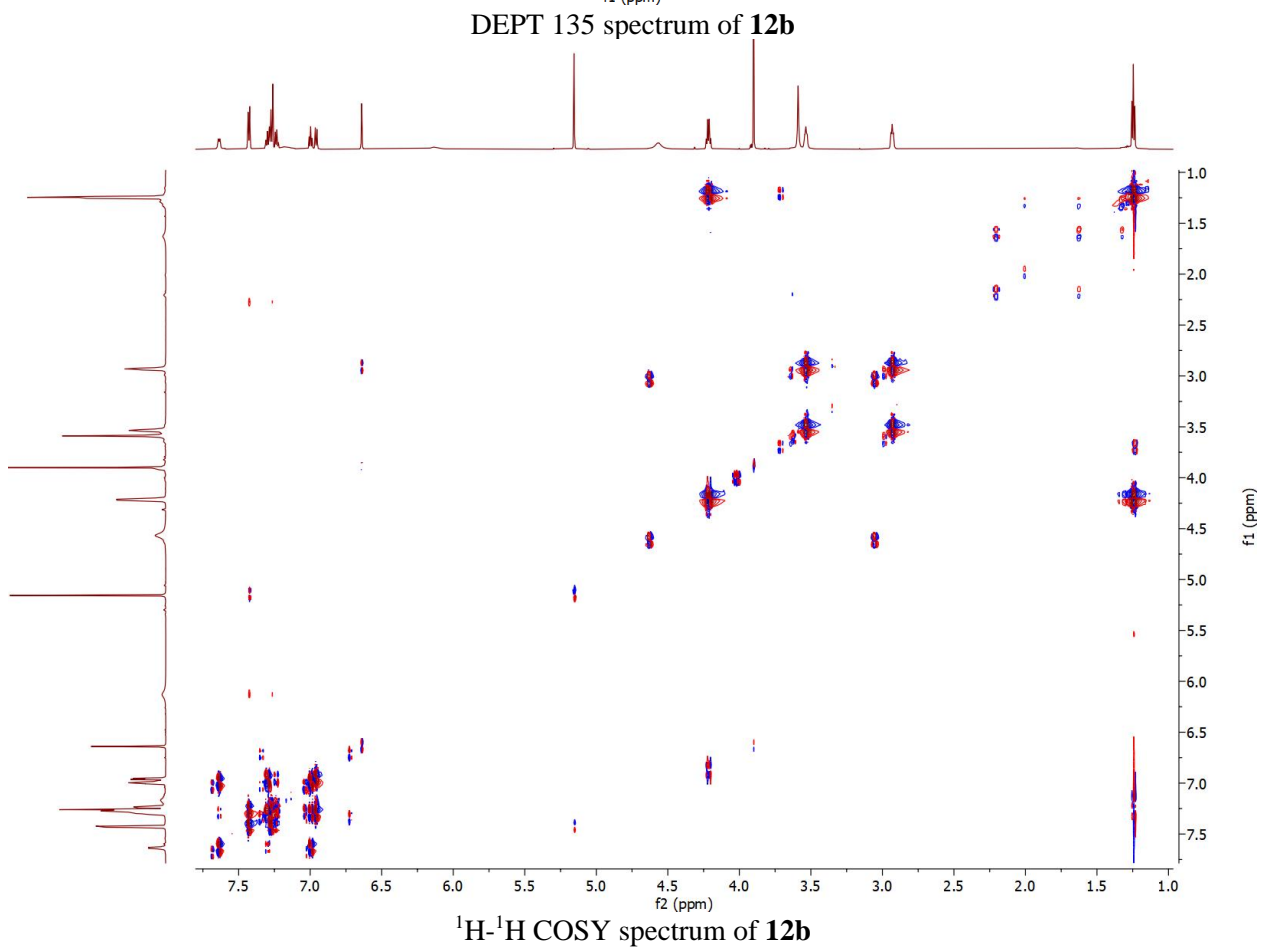
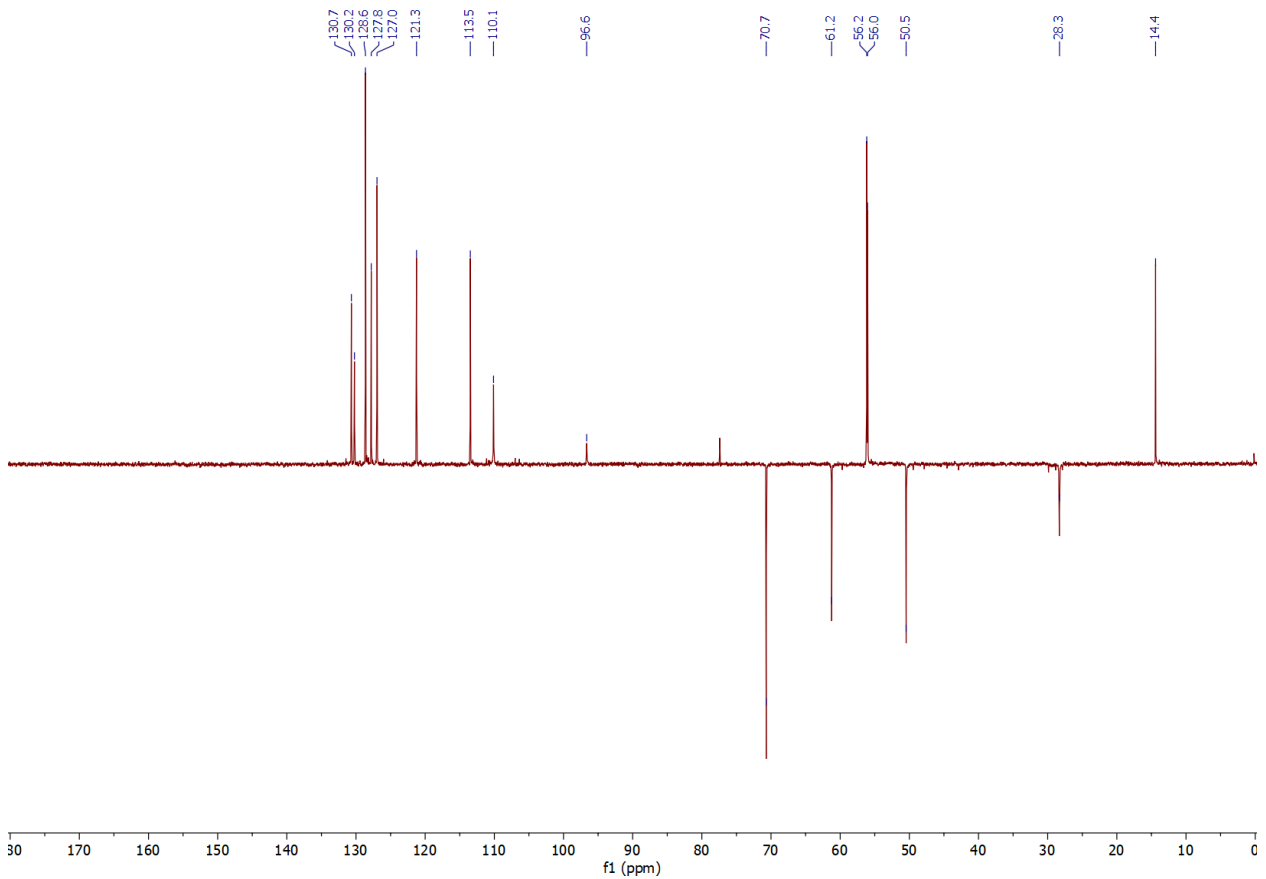
^1H - ^1H NOESY spectrum of 12a

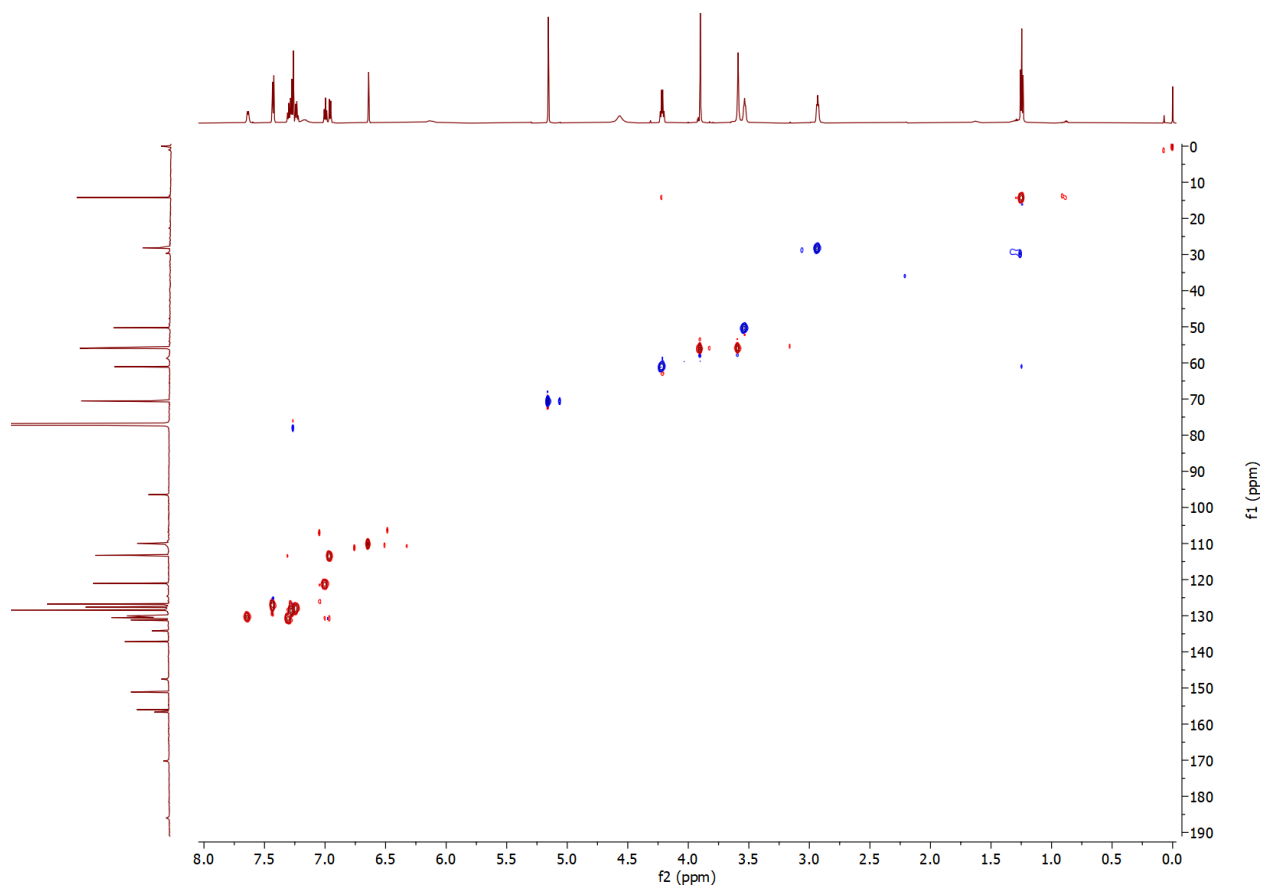


^1H NMR (700 MHz, CDCl_3) spectrum of **12b**

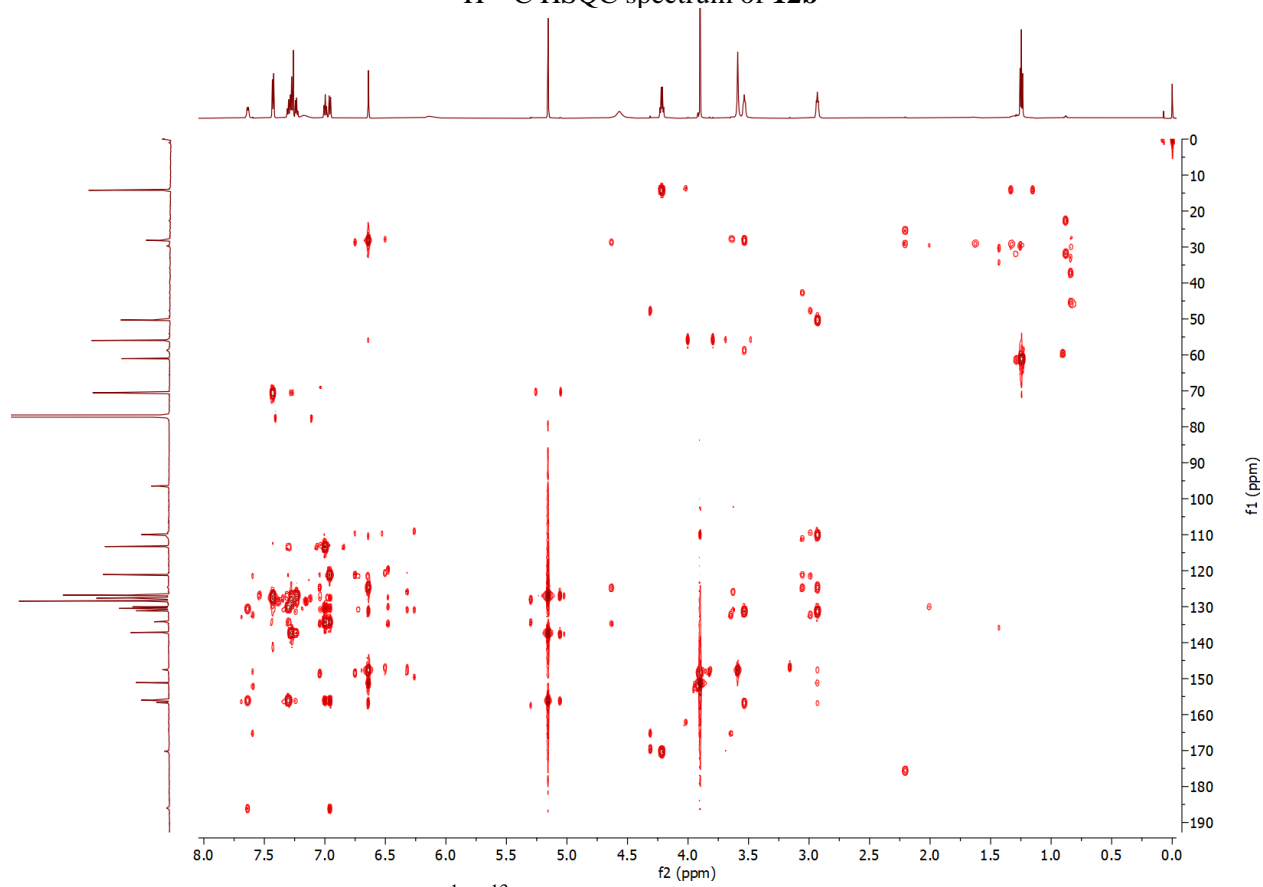


$^{13}\text{C}\{^1\text{H}\}$ NMR (176 MHz, CDCl_3) spectrum of **12b**

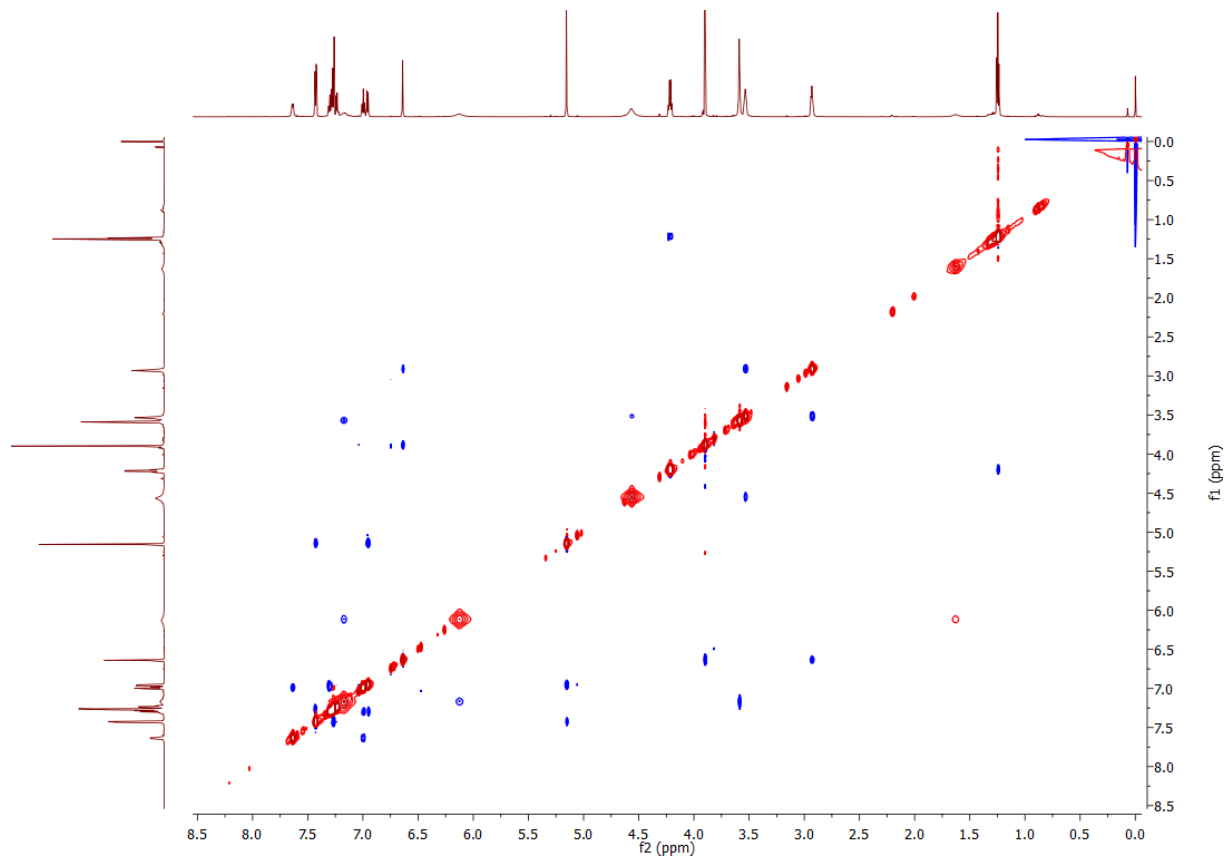




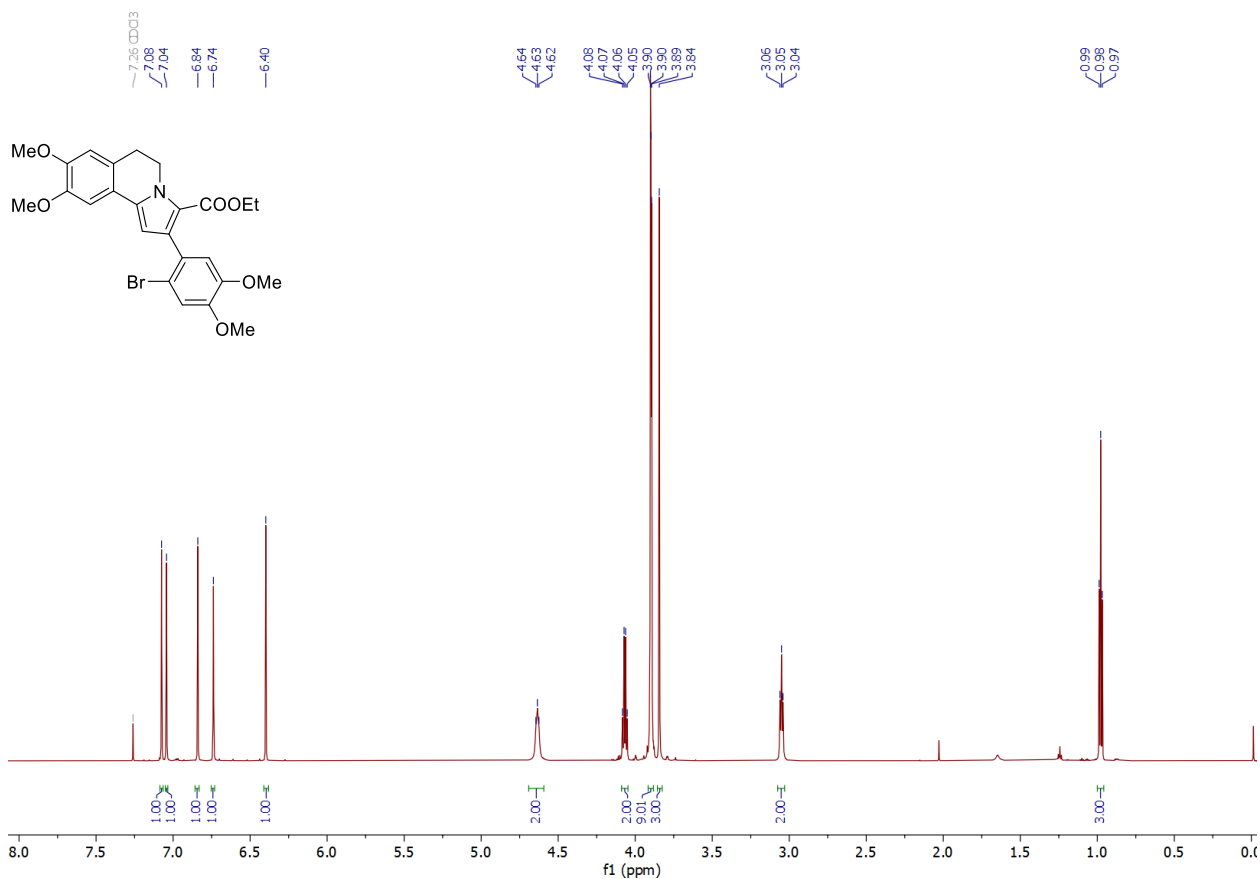
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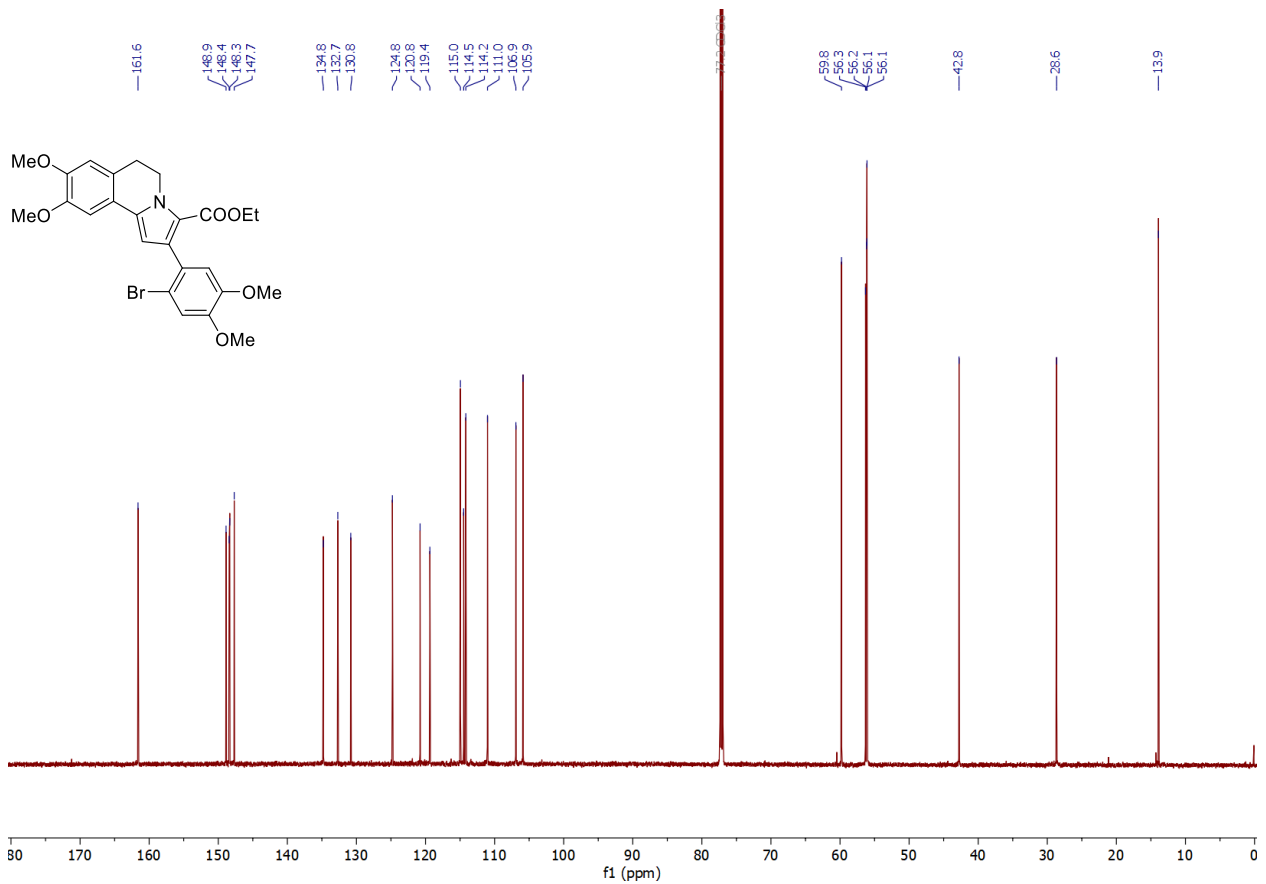
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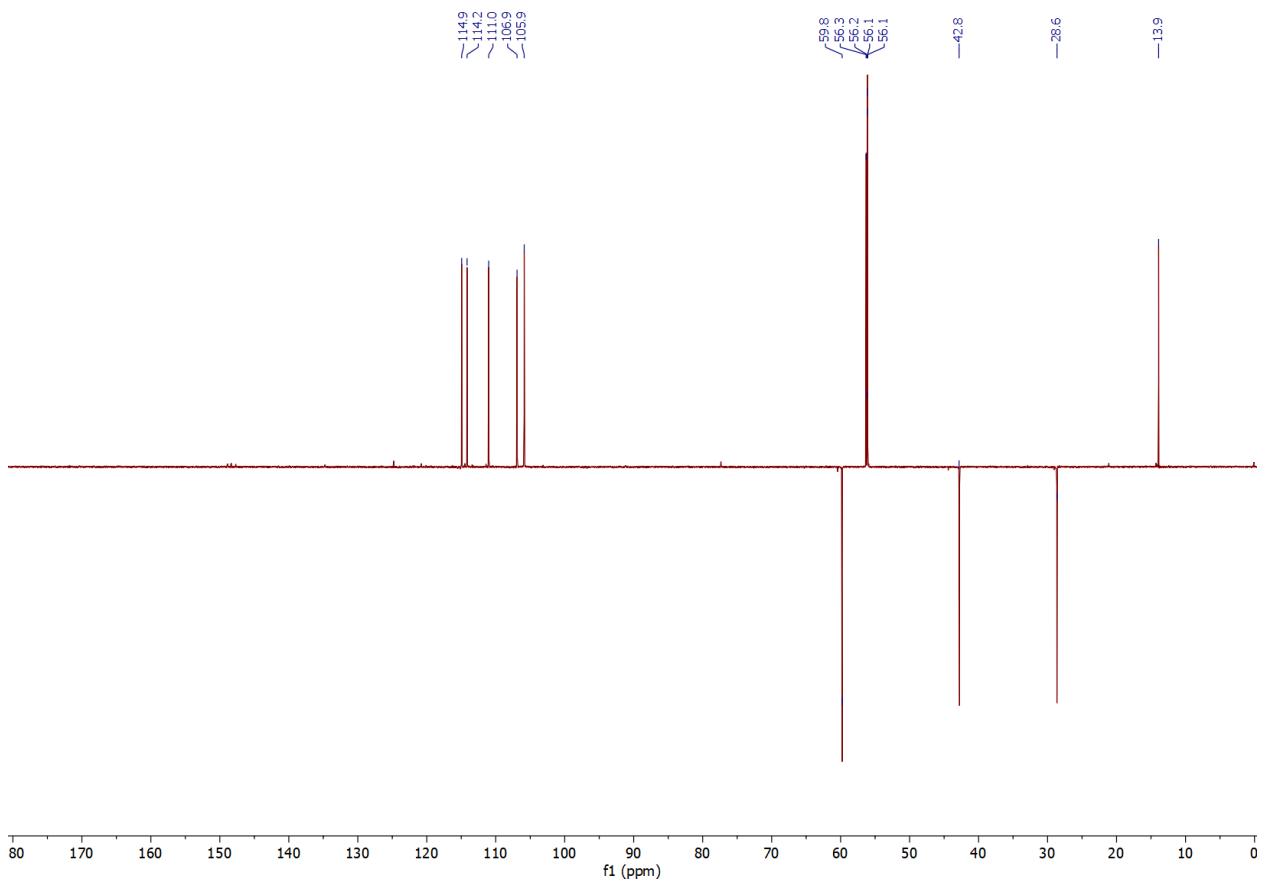
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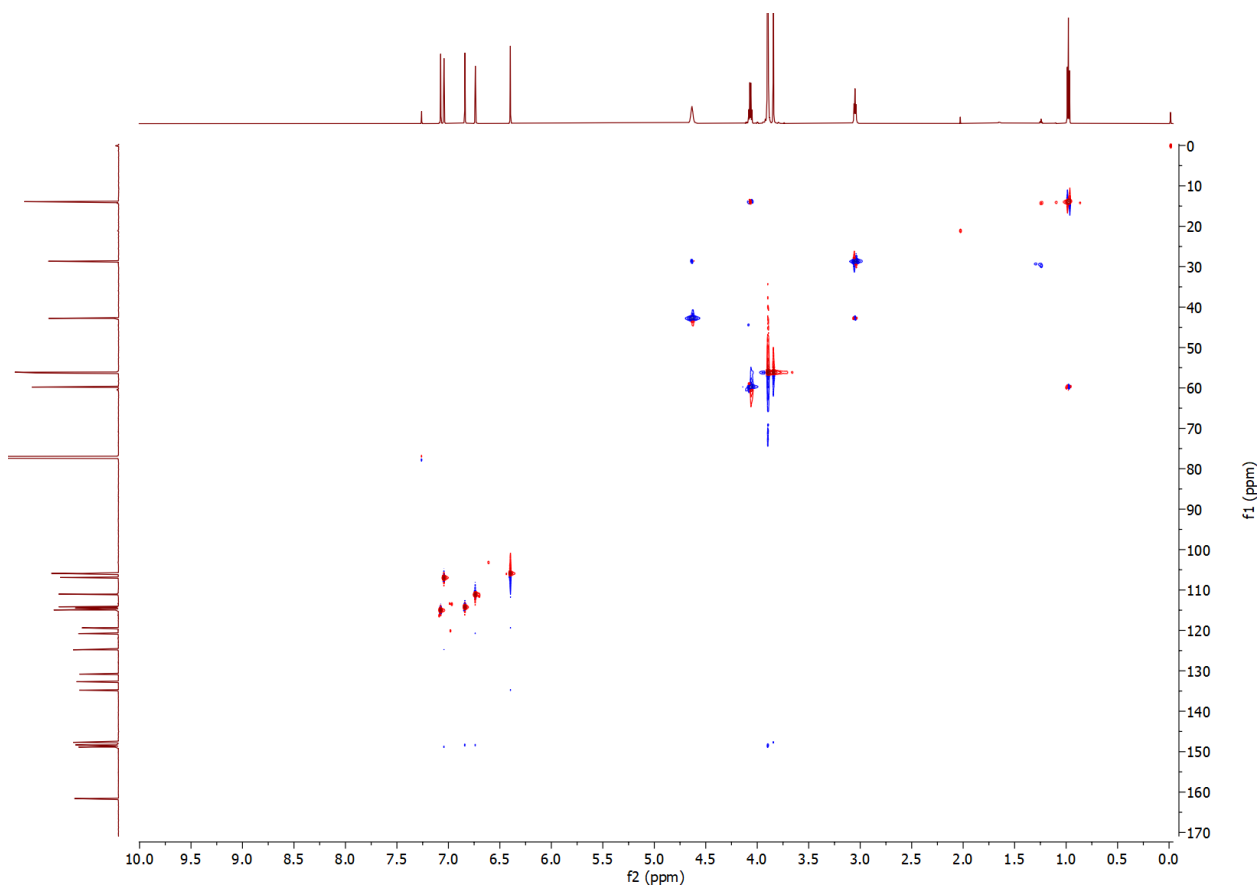
^1H NMR (700 MHz, CDCl_3) spectrum of **13a**



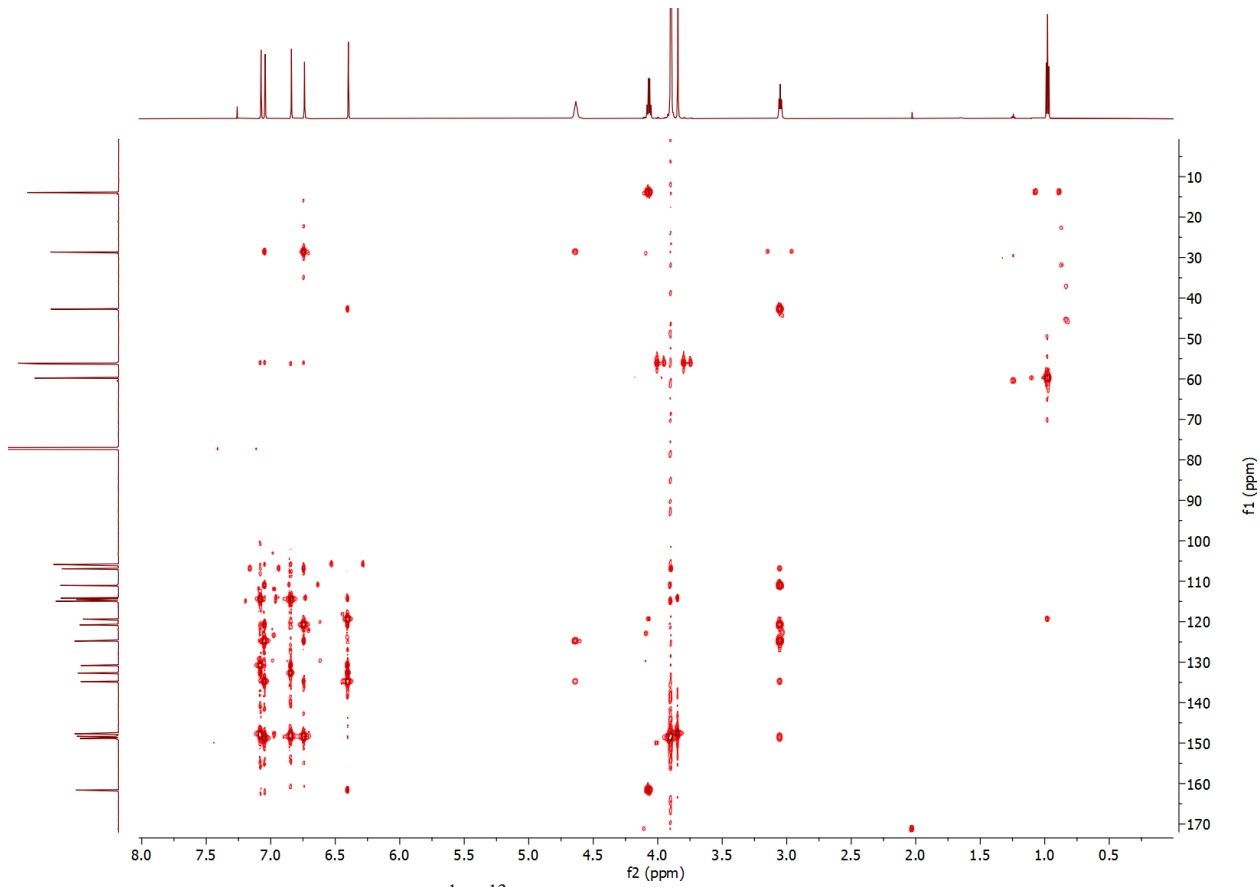
$^{13}\text{C}\{^1\text{H}\}$ NMR (176 MHz, CDCl_3) spectrum of **13a**



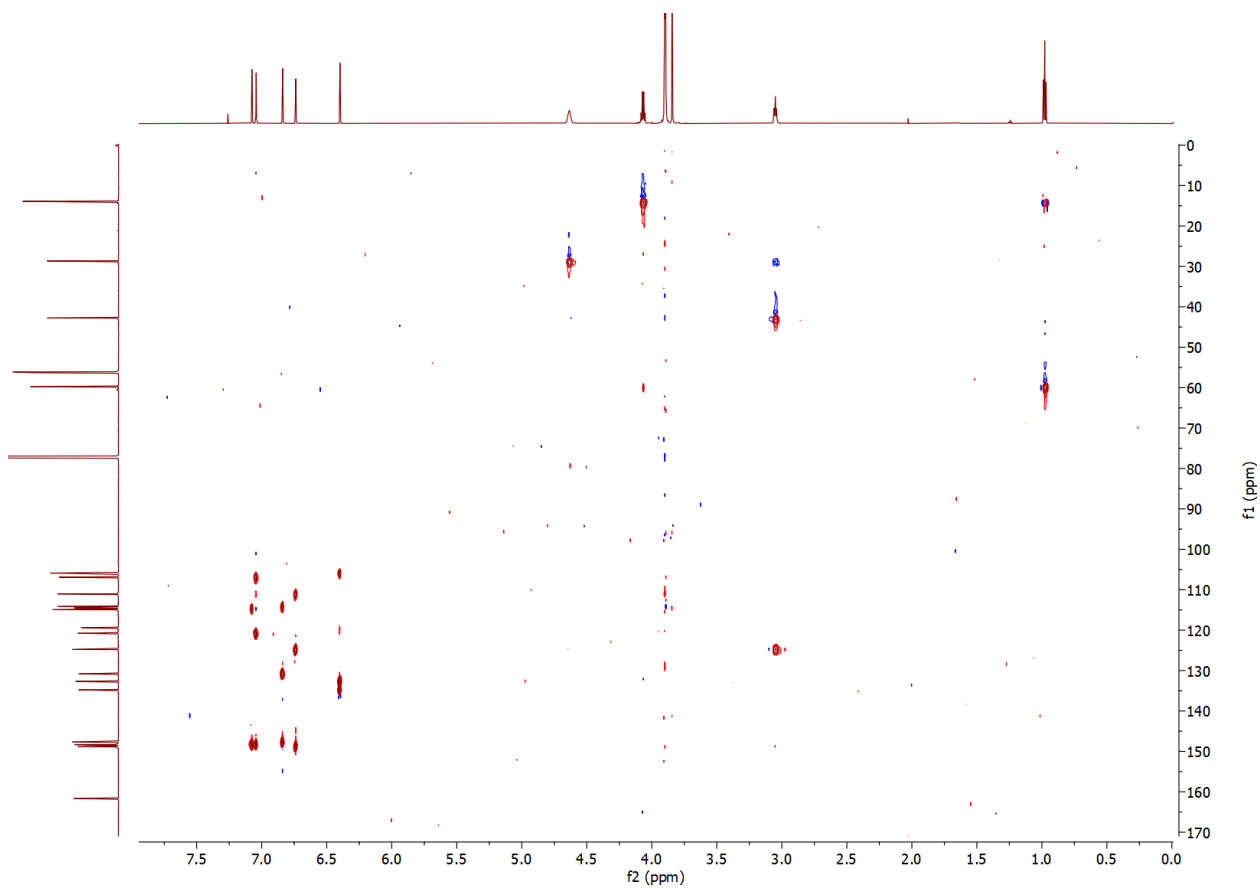
DEPT 135 spectrum of **13a**



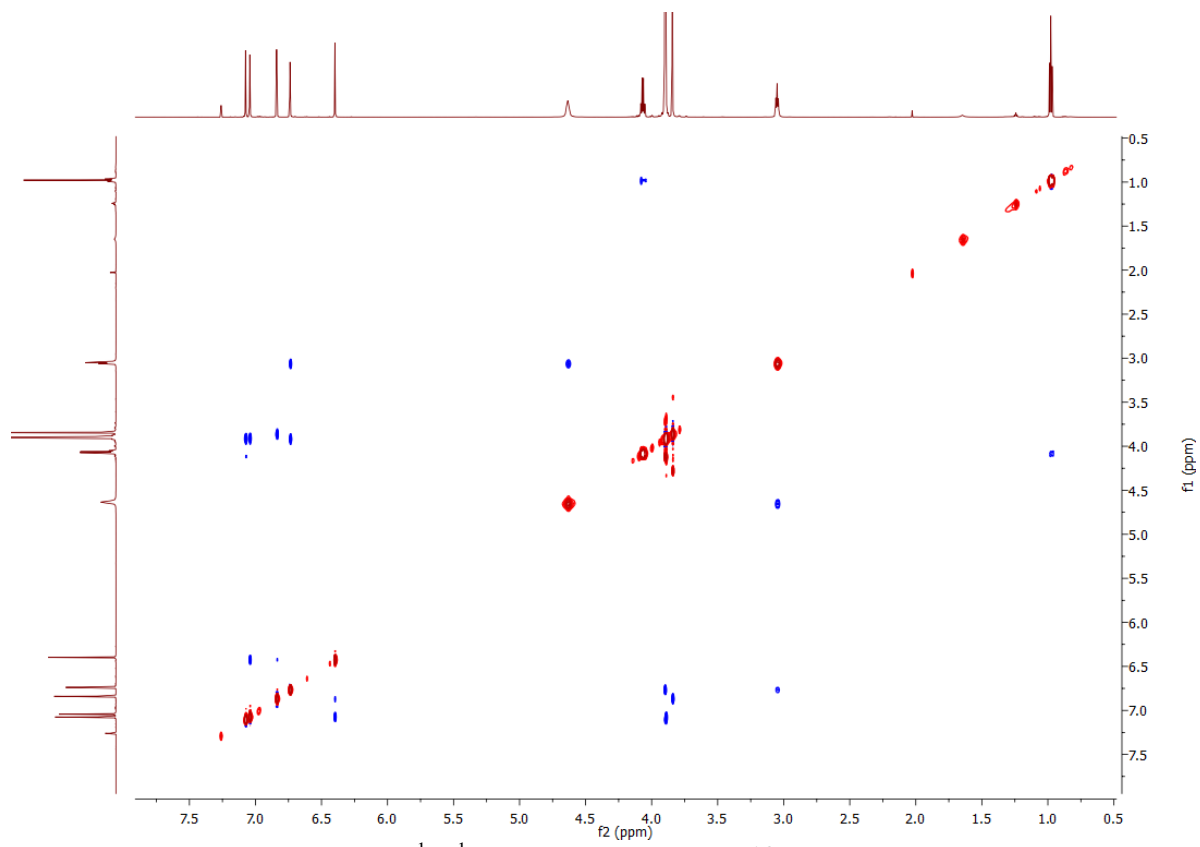
^1H - ^{13}C HSQC spectrum of 13a



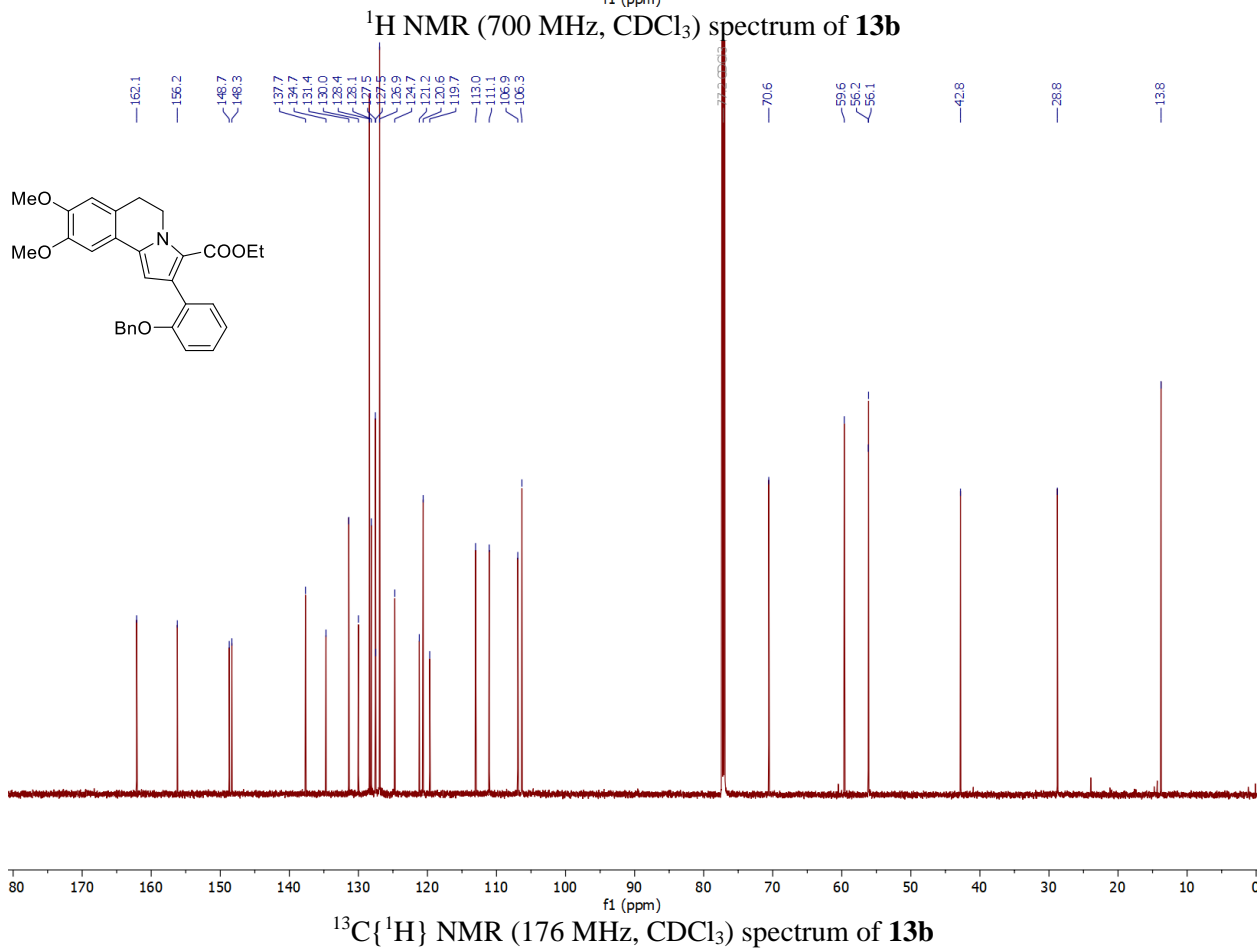
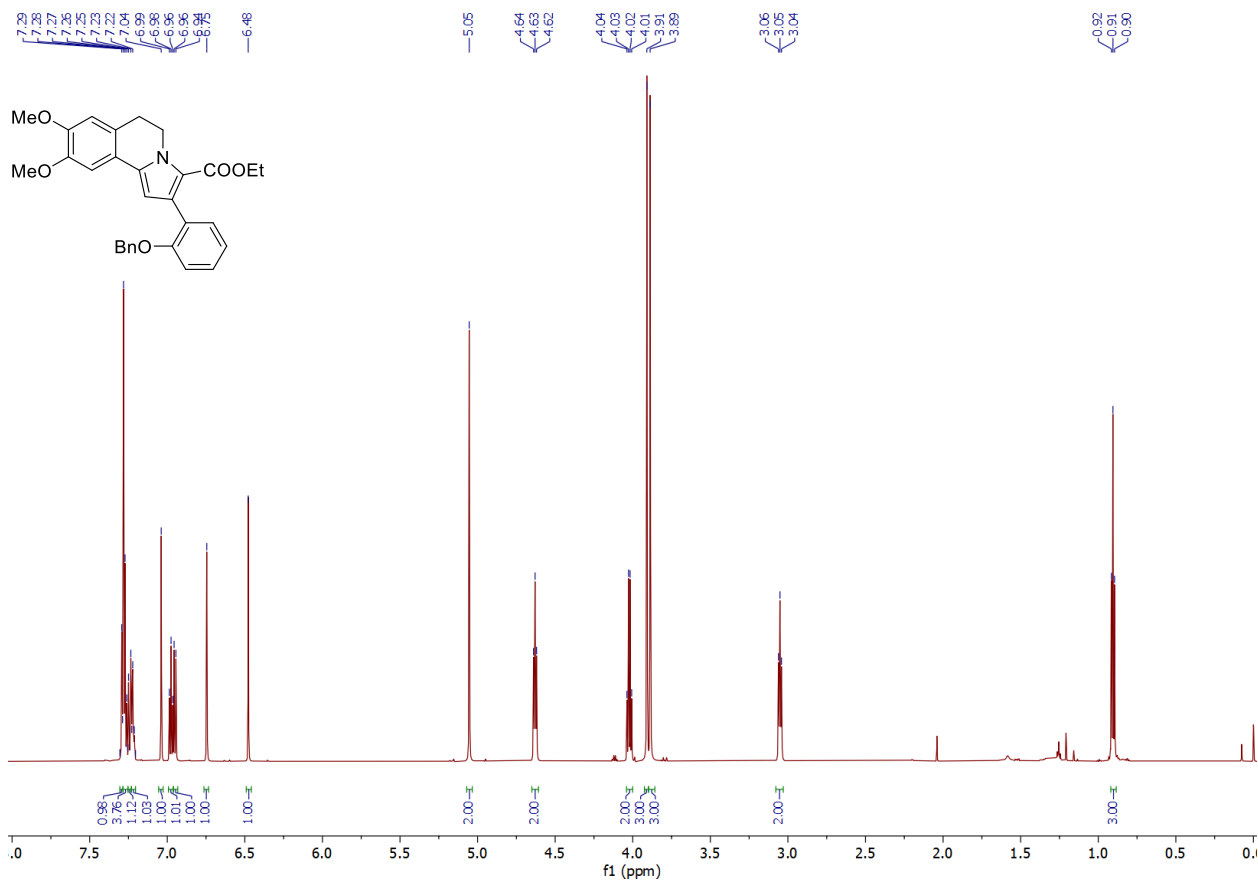
^1H - ^{13}C HMBC spectrum of 13a

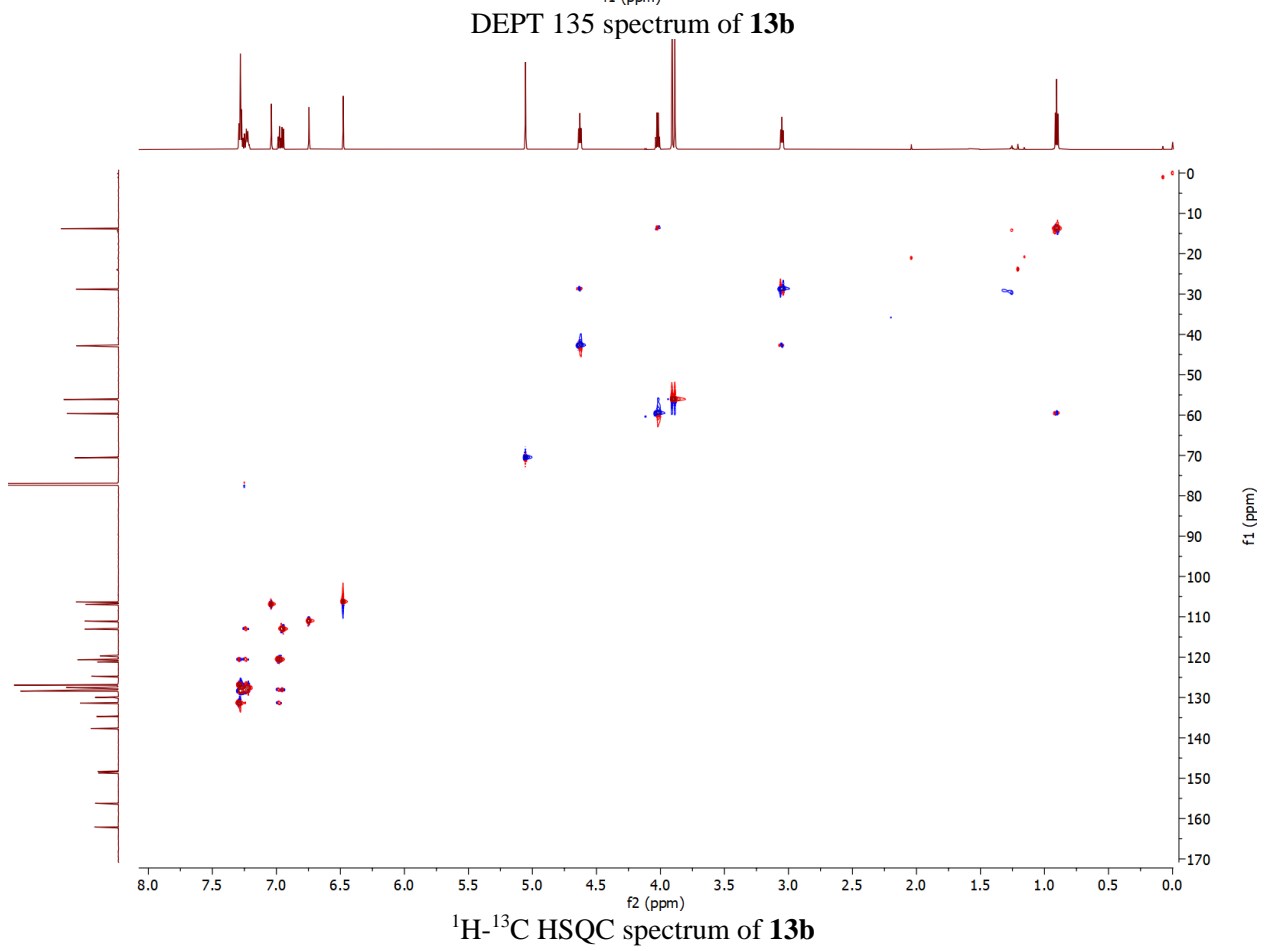
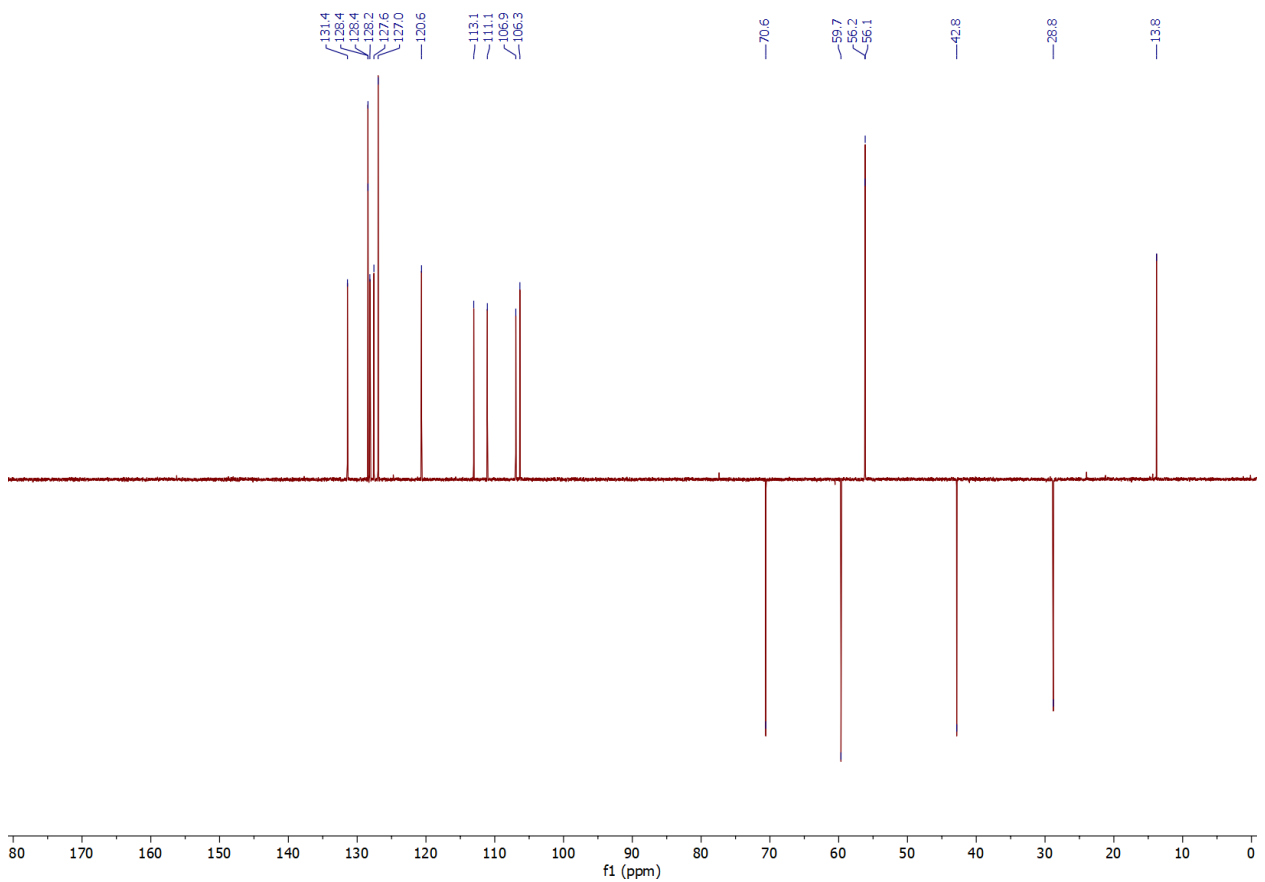


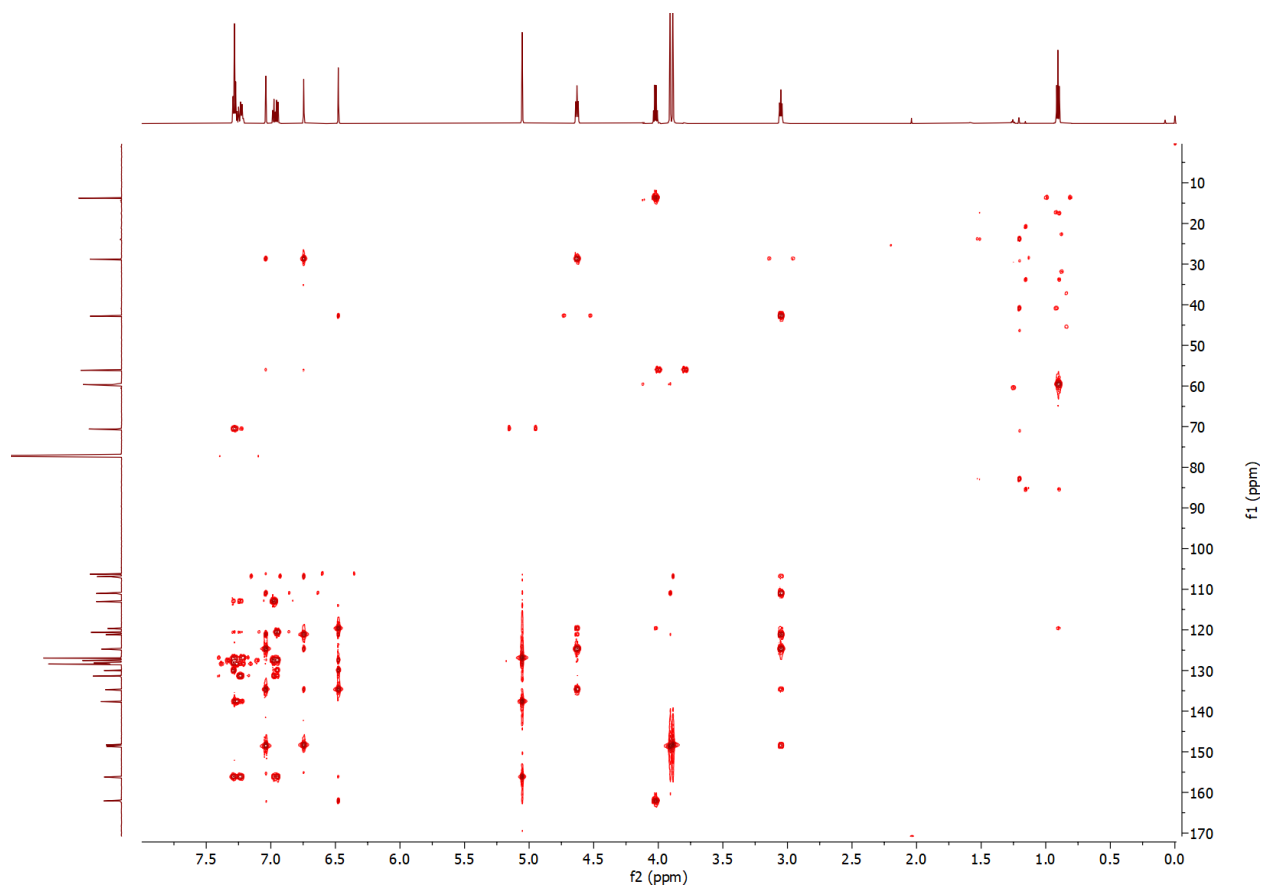
1,1-ADEQUATE spectrum of **13a**



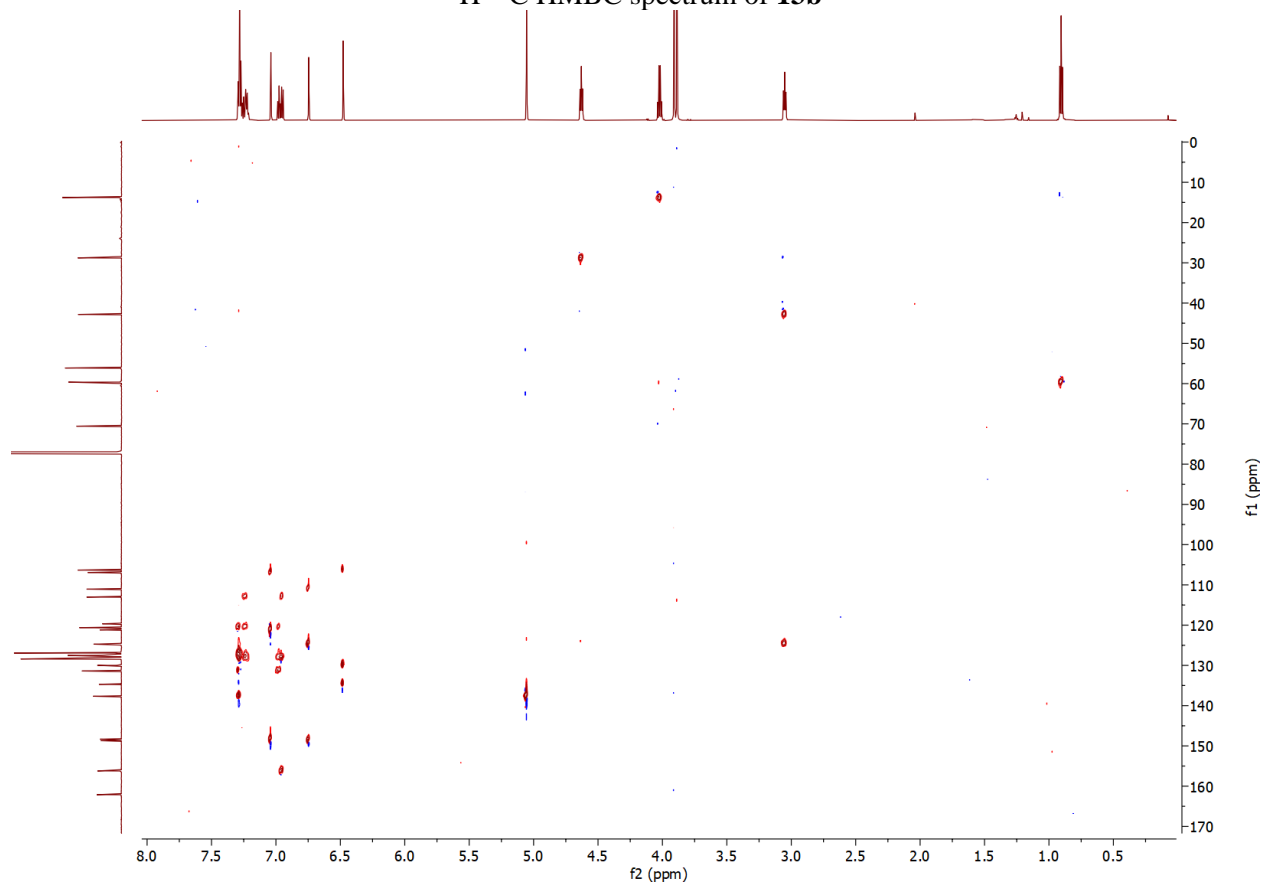
¹H-¹H NOESY spectrum of **13a**



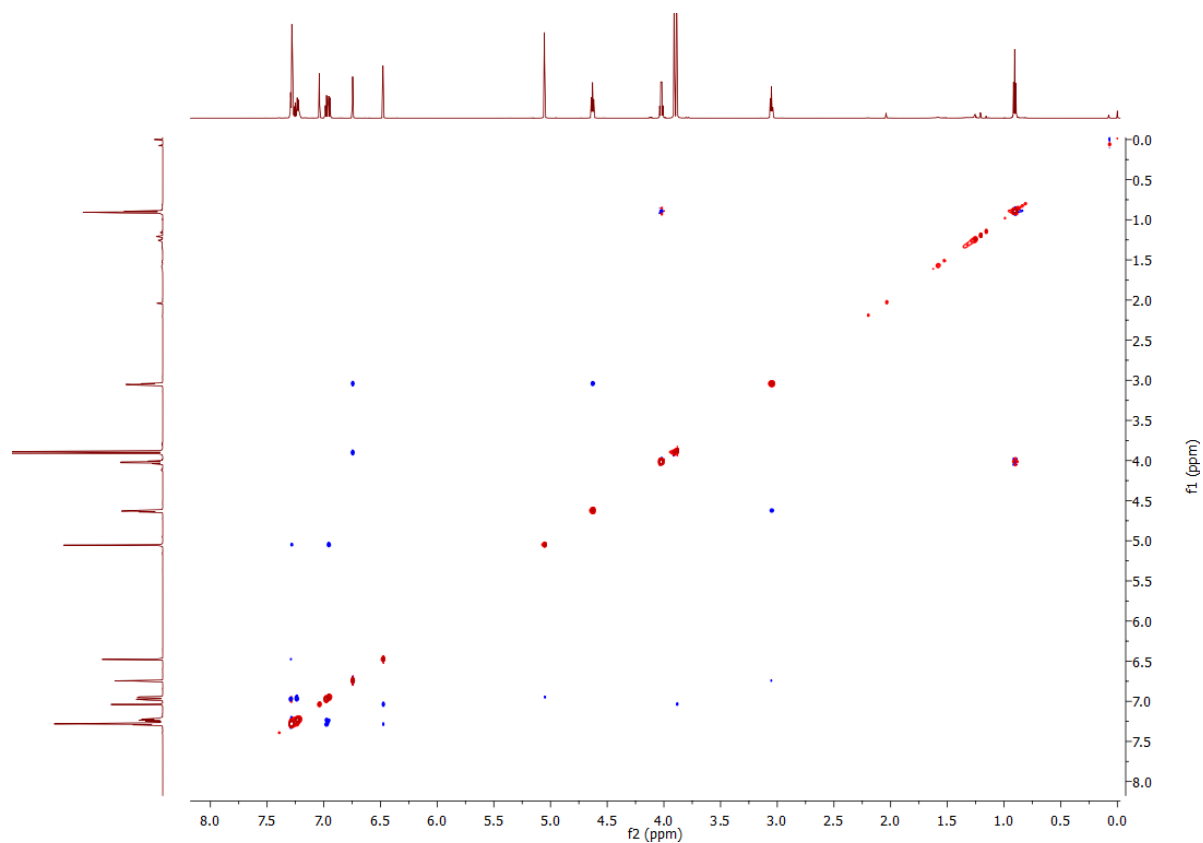




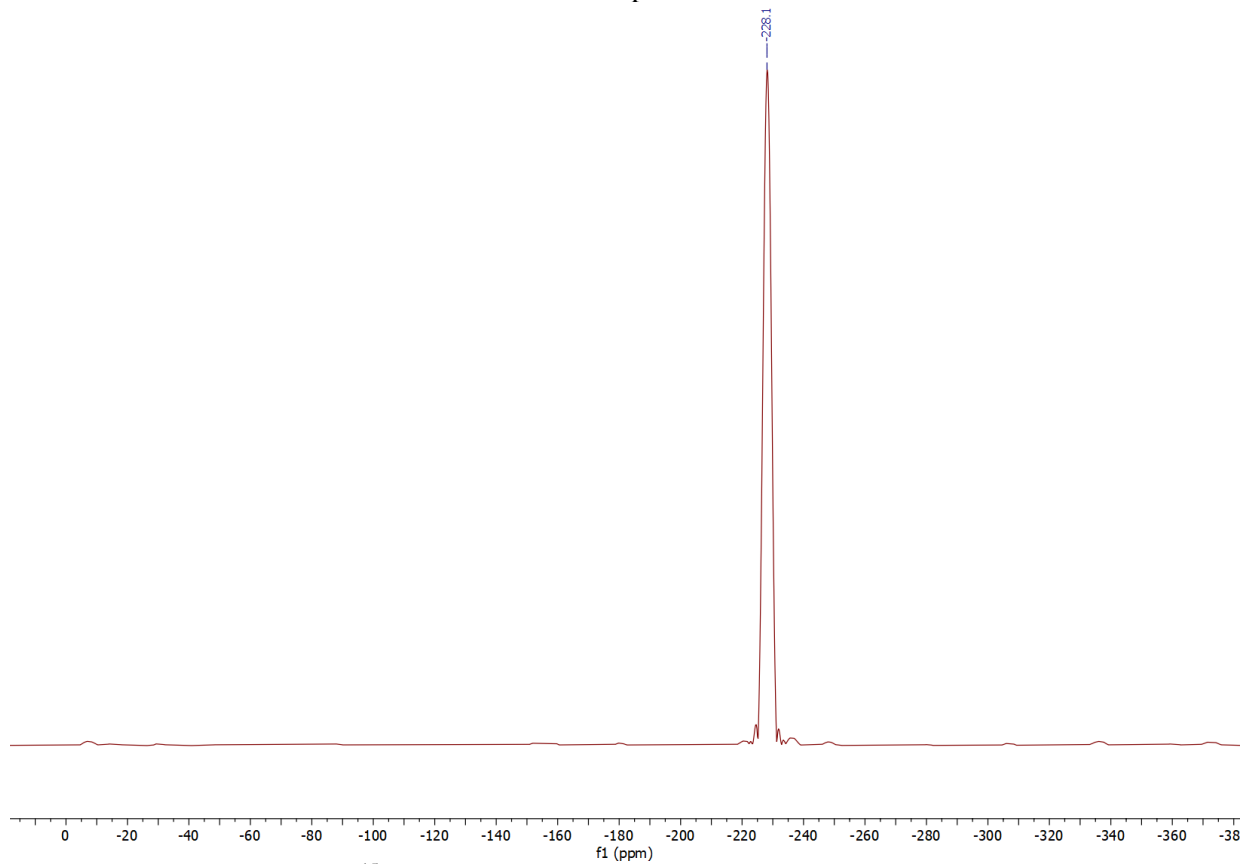
^1H - ^{13}C HMBC spectrum of **13b**



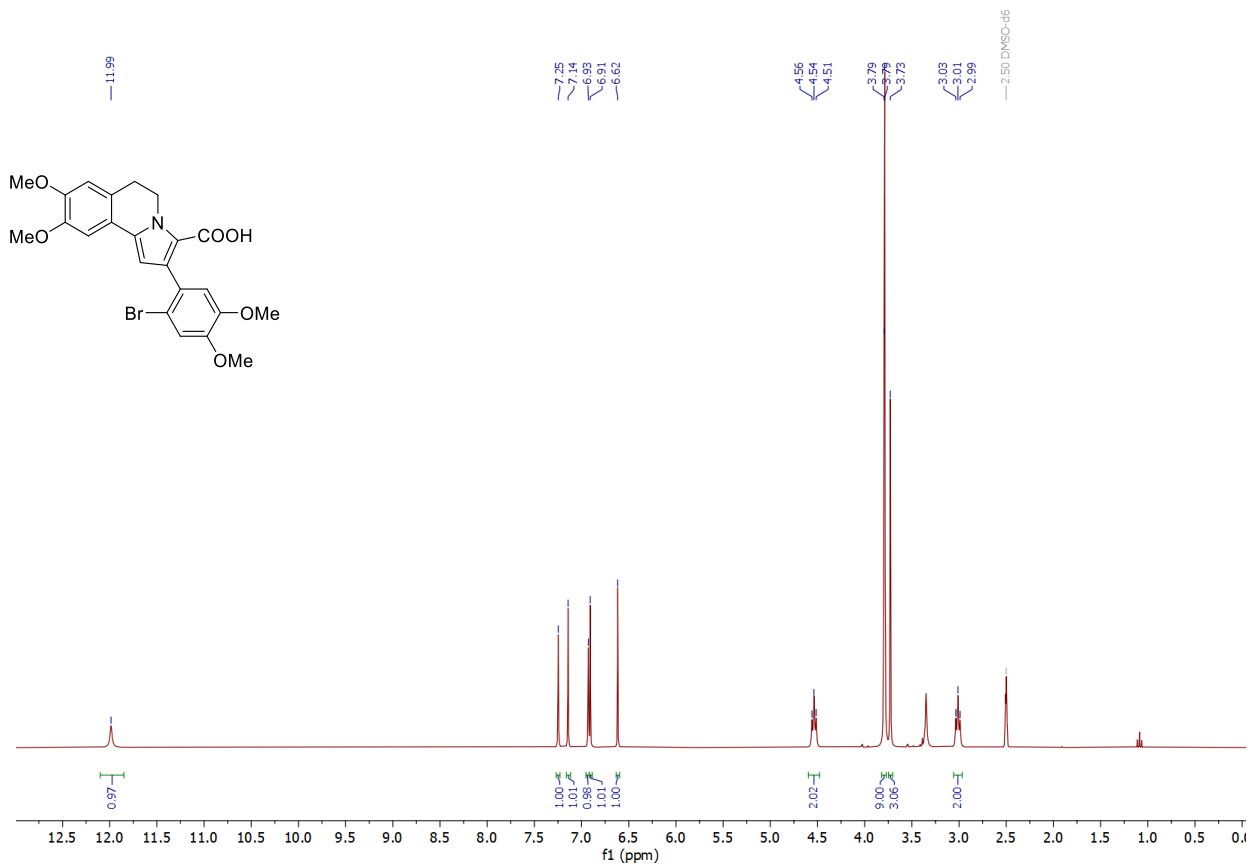
1,1-ADEQUATE spectrum of **13b**



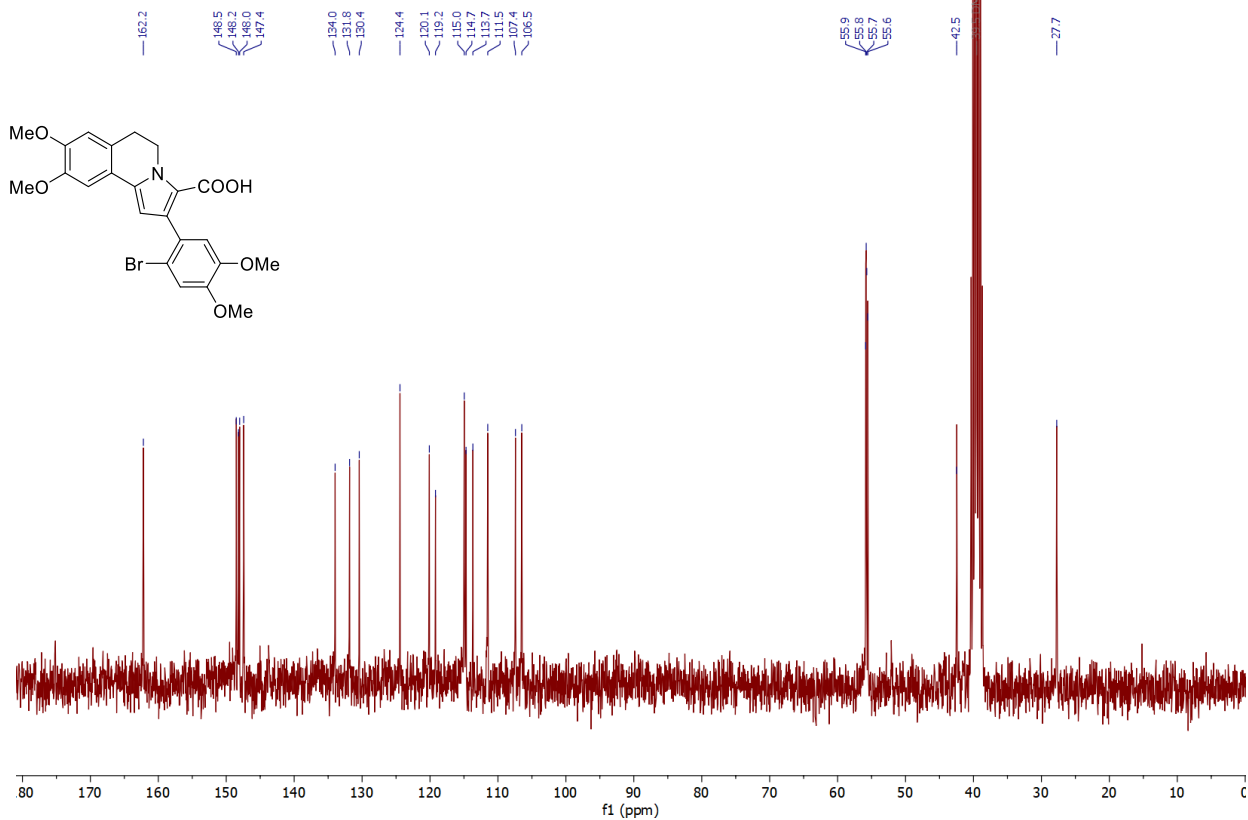
^1H - ^1H NOESY spectrum of **13b**



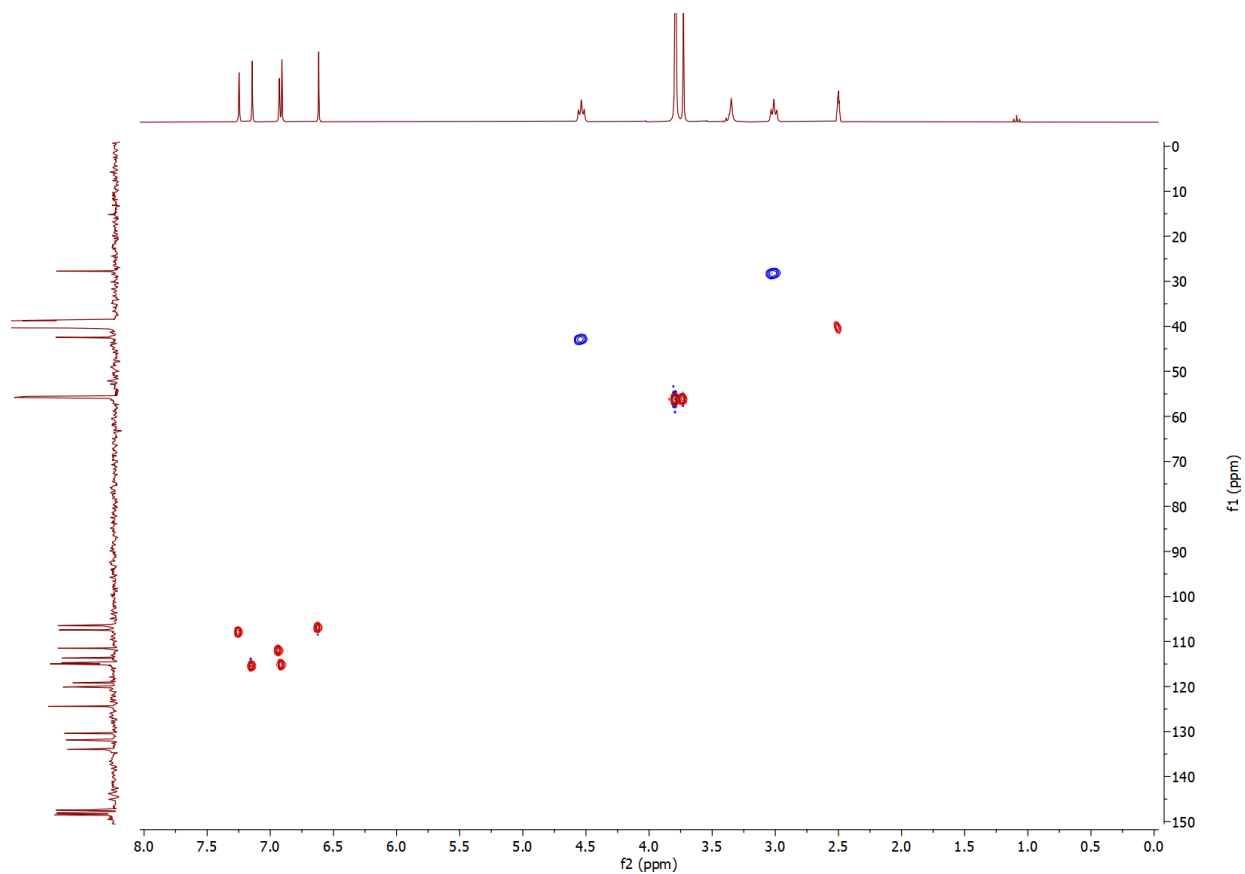
^{15}N NMR (71 MHz, CDCl_3) spectrum of **13b**



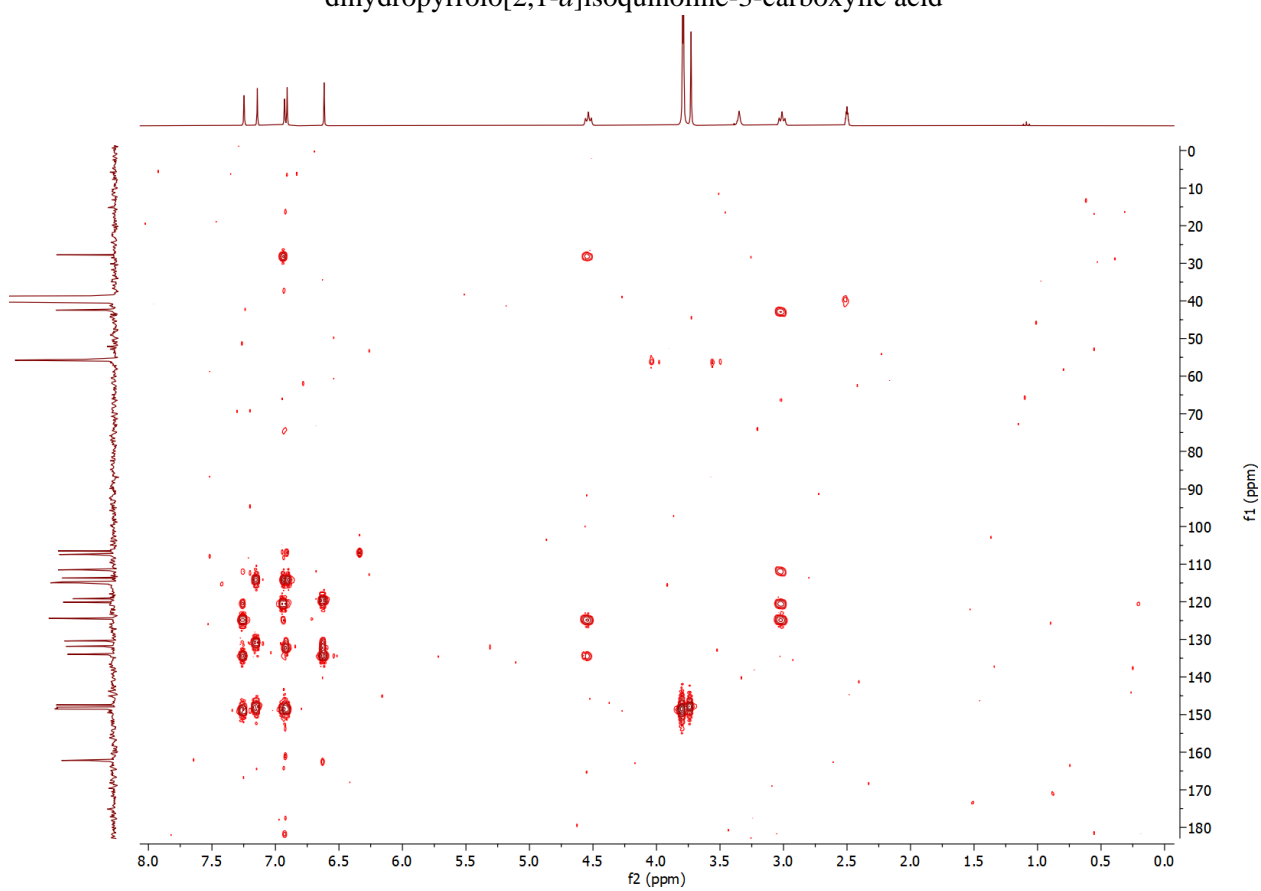
¹H NMR (300 MHz, DMSO-*d*₆) spectrum of intermediate 2-(2-bromo-4,5-dimethoxyphenyl)-8,9-dimethoxy-5,6-dihydropyrrolo[2,1-*a*]isoquinoline-3-carboxylic acid



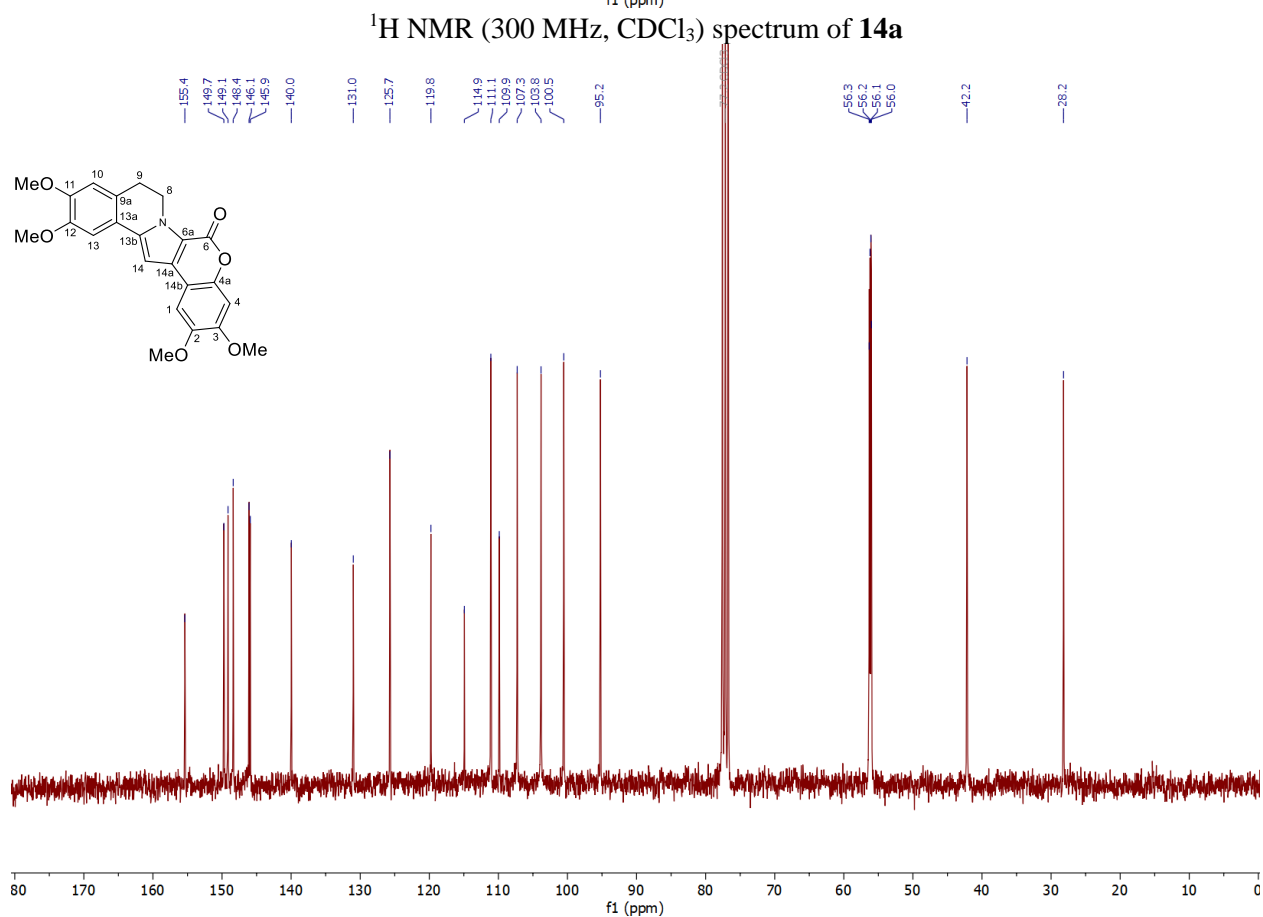
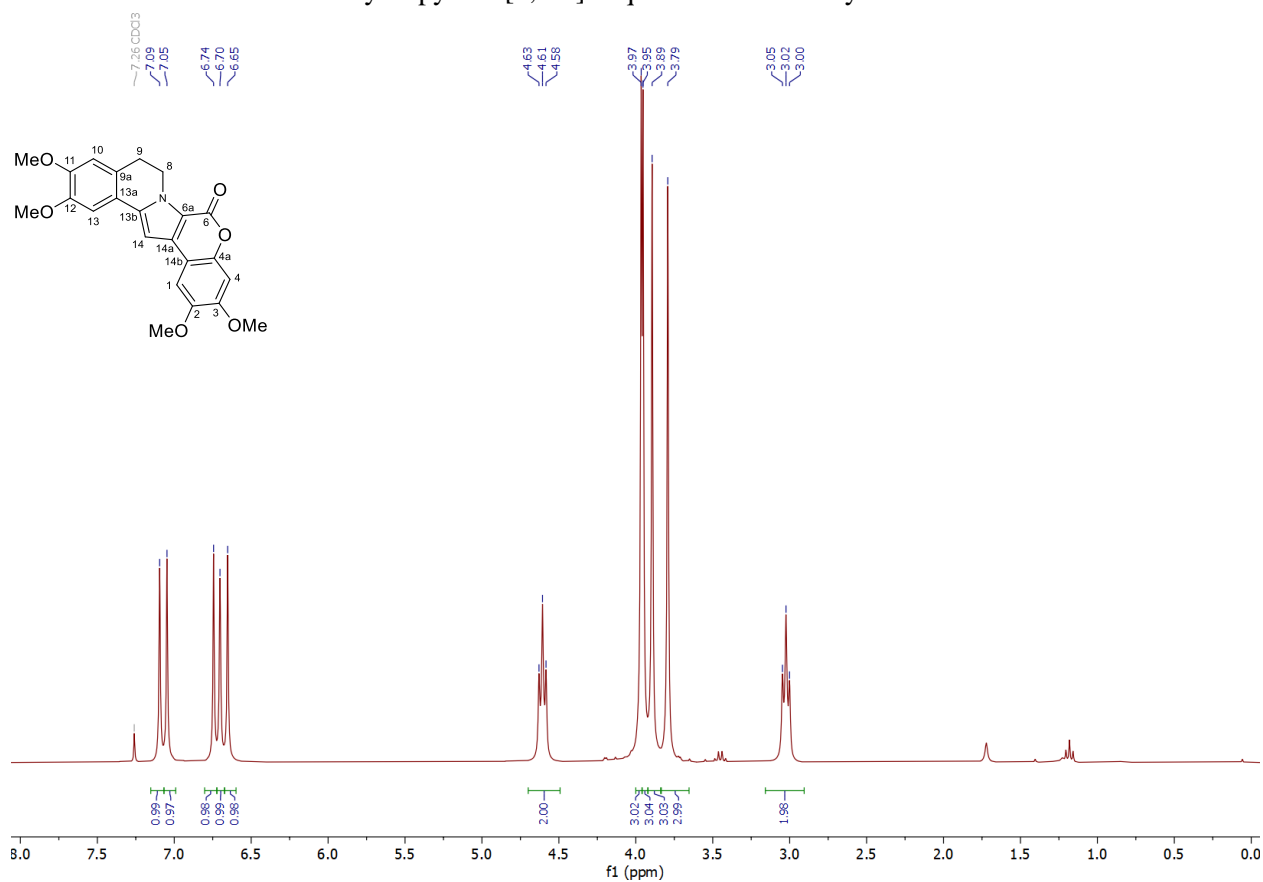
¹³C{¹H} NMR (75 MHz, DMSO-*d*₆) spectrum of intermediate 2-(2-bromo-4,5-dimethoxyphenyl)-8,9-dimethoxy-5,6-dihydropyrrolo[2,1-*a*]isoquinoline-3-carboxylic acid



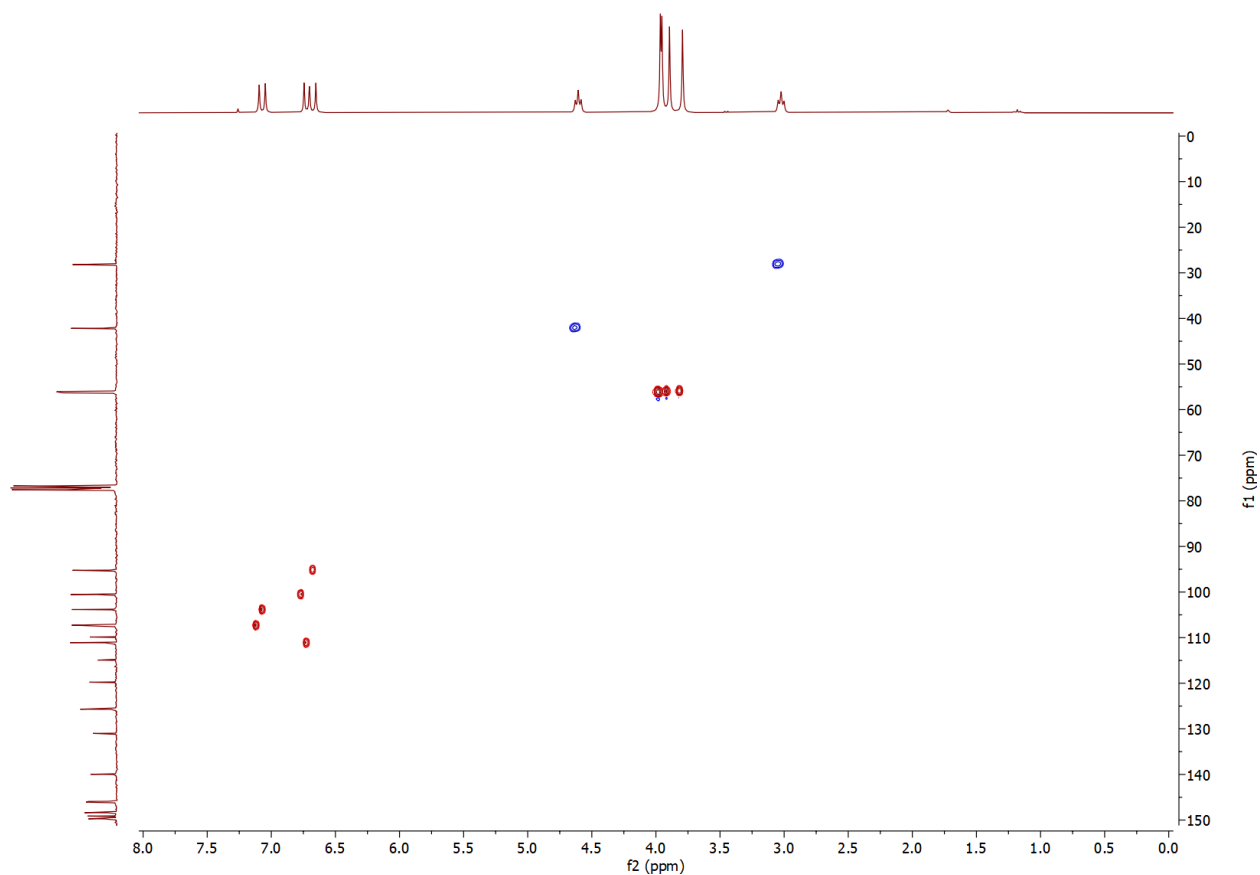
^1H - ^{13}C HSQC spectrum of intermediate 2-(2-bromo-4,5-dimethoxyphenyl)-8,9-dimethoxy-5,6-dihydropyrrolo[2,1-*a*]isoquinoline-3-carboxylic acid



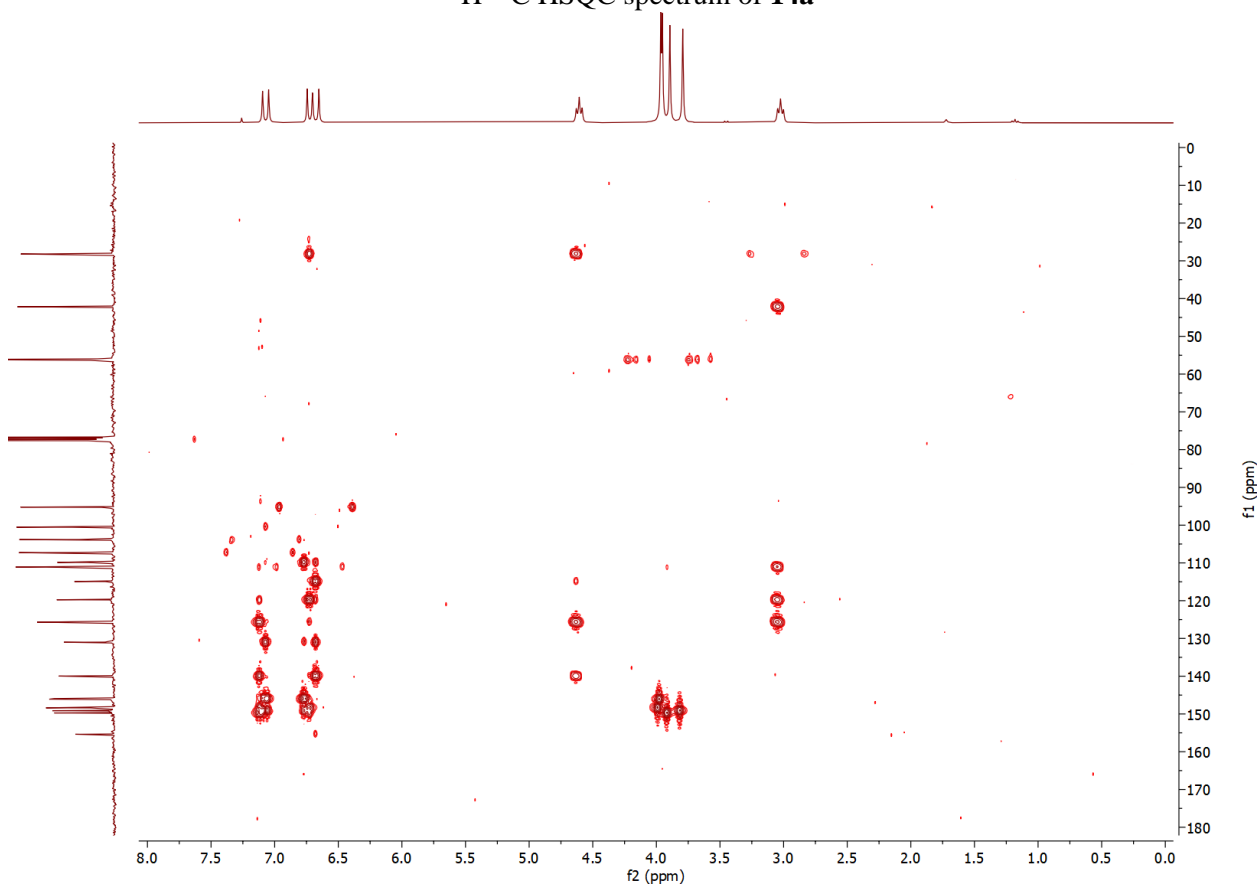
^1H - ^{13}C HMBC spectrum of intermediate 2-(2-bromo-4,5-dimethoxyphenyl)-8,9-dimethoxy-5,6-dihydropyrrolo[2,1-*a*]isoquinoline-3-carboxylic acid



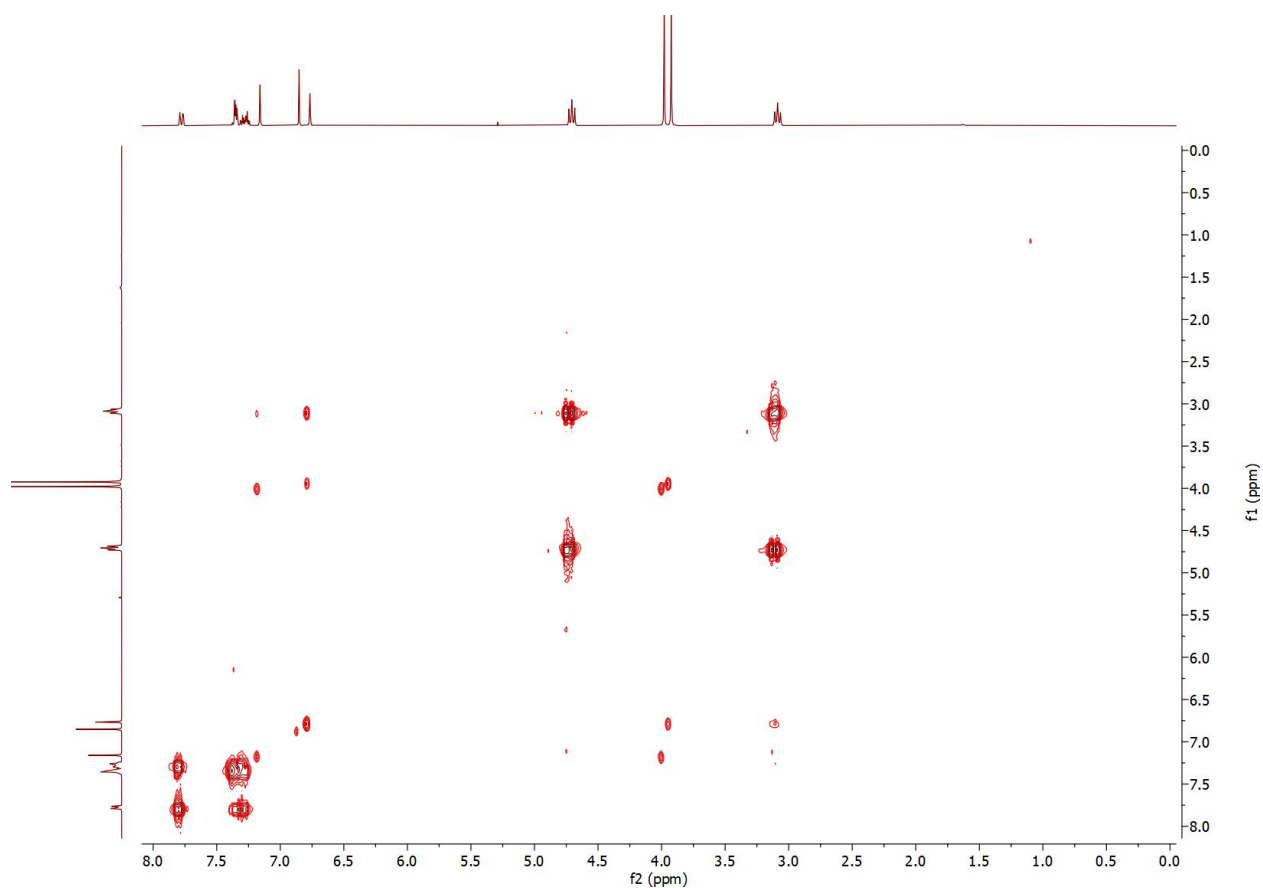
$^{13}\text{C}\{^1\text{H}\}$ NMR (75 MHz, CDCl_3) spectrum of **14a**



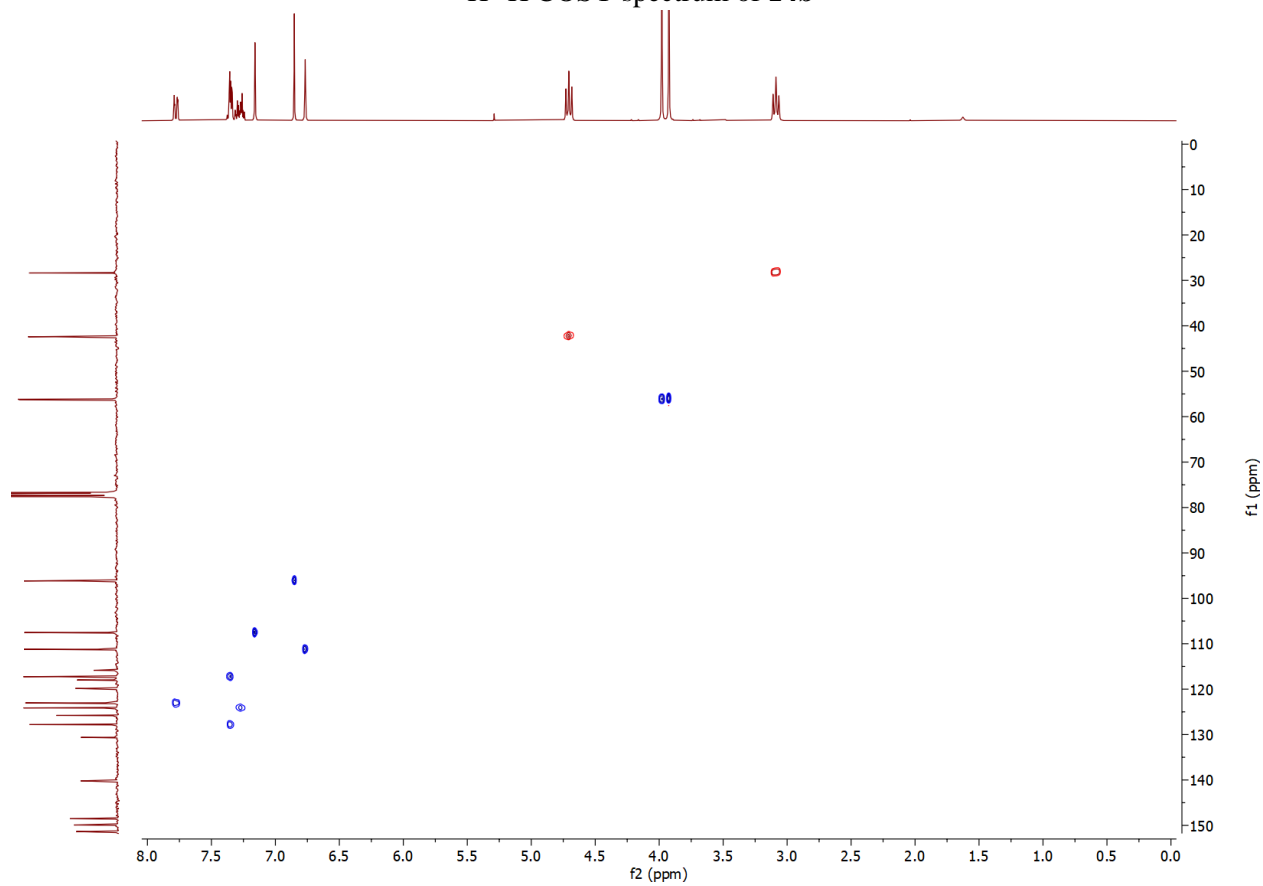
$^1\text{H}-^{13}\text{C}$ HSQC spectrum of **14a**



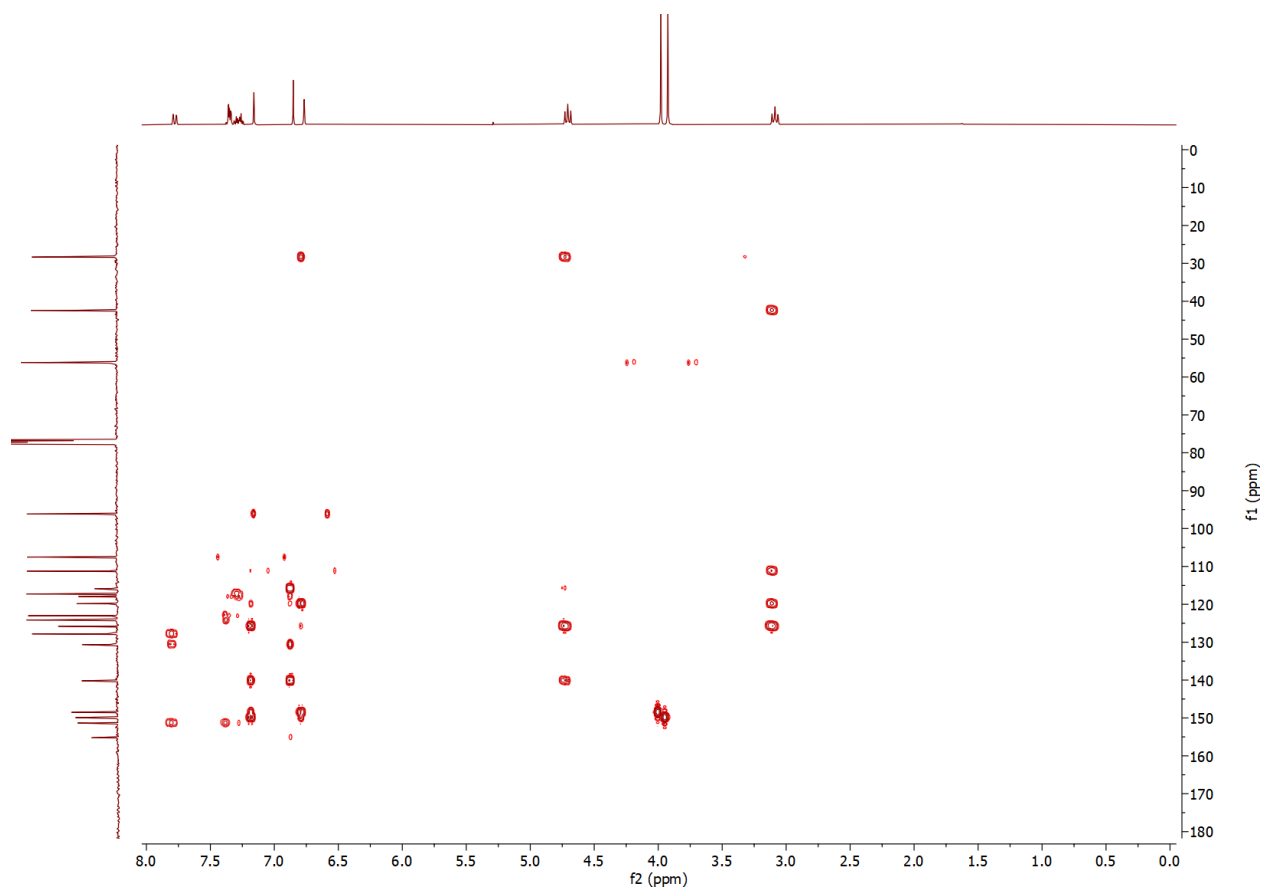
$^{13}\text{C}\{^1\text{H}\}$ NMR (75 MHz, CDCl_3) spectrum of **14b**



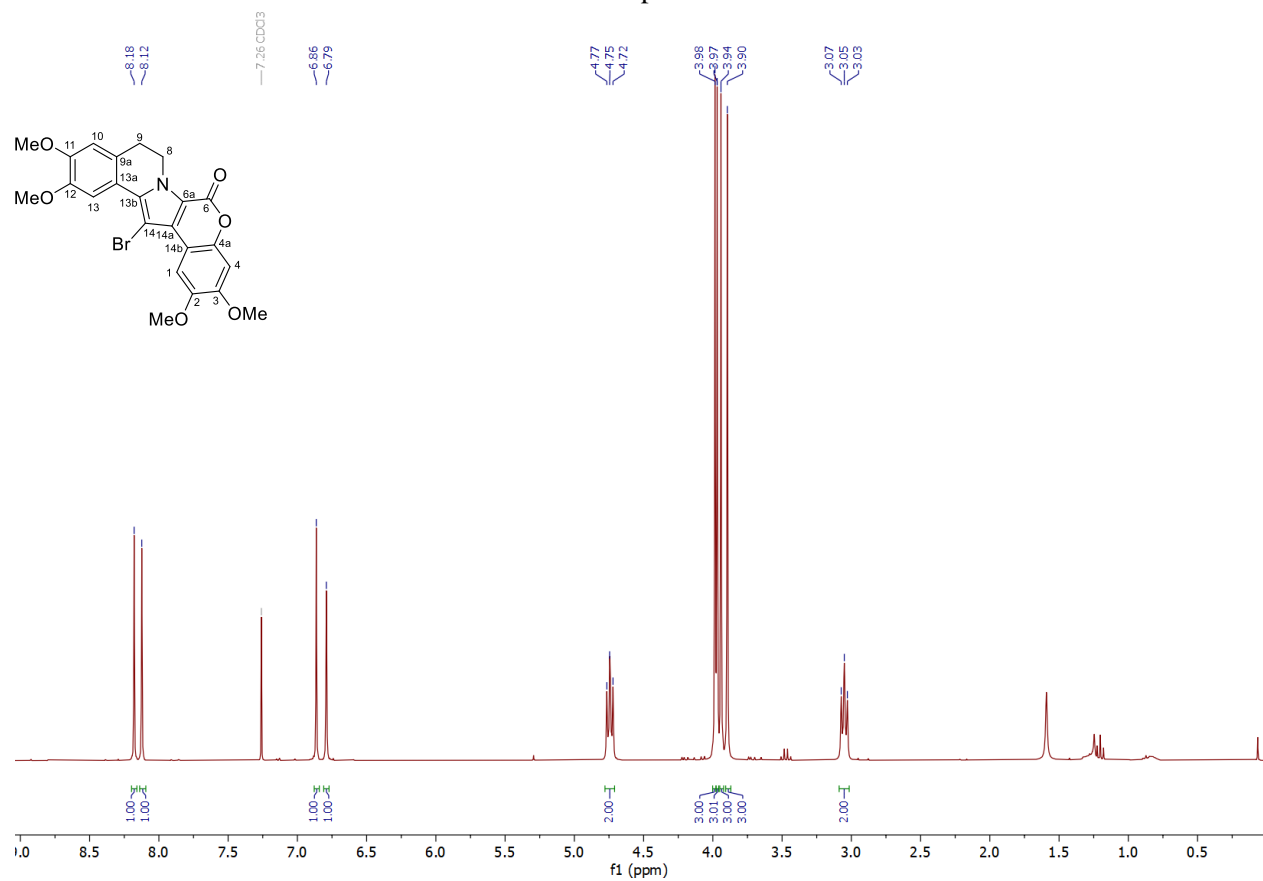
^1H - ^1H COSY spectrum of **14b**



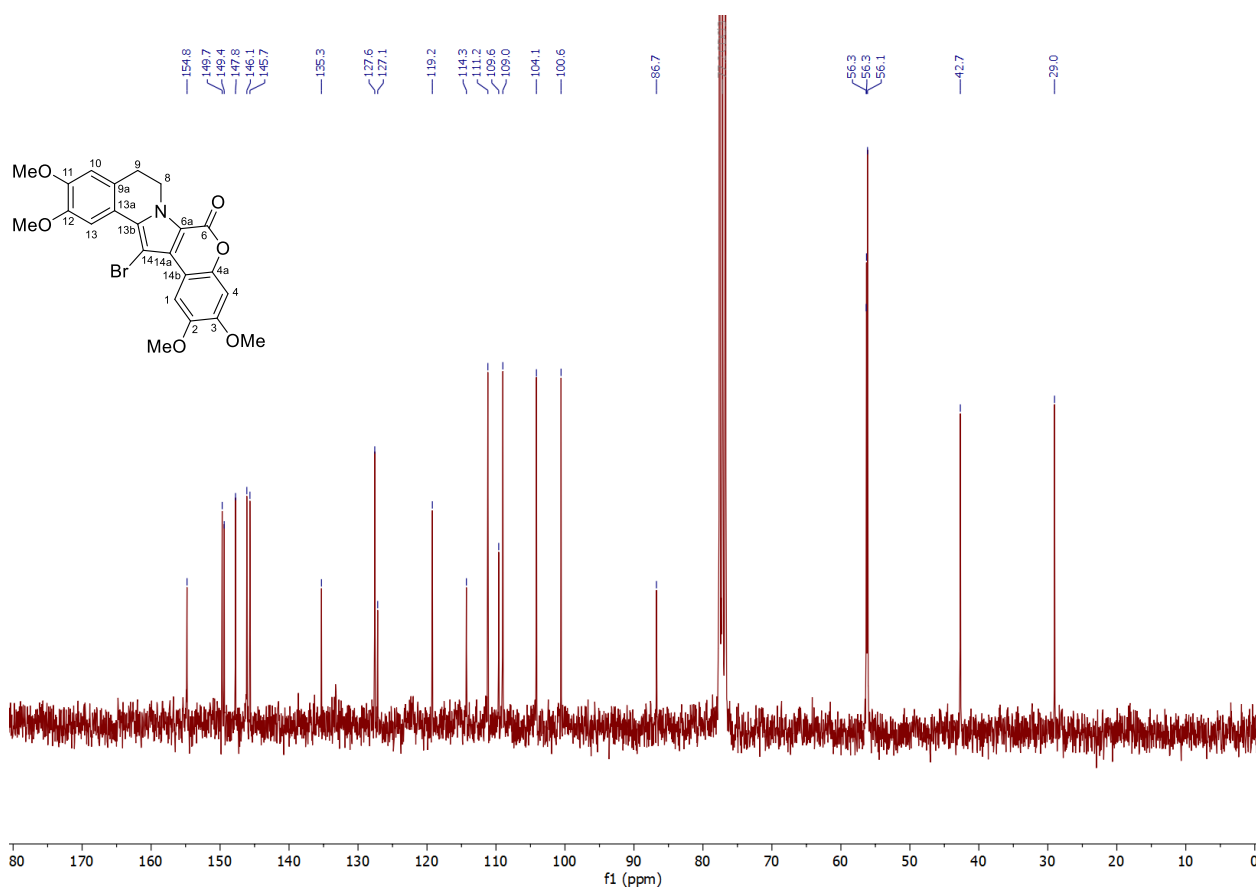
^1H - ^{13}C HSQC spectrum of **14b**



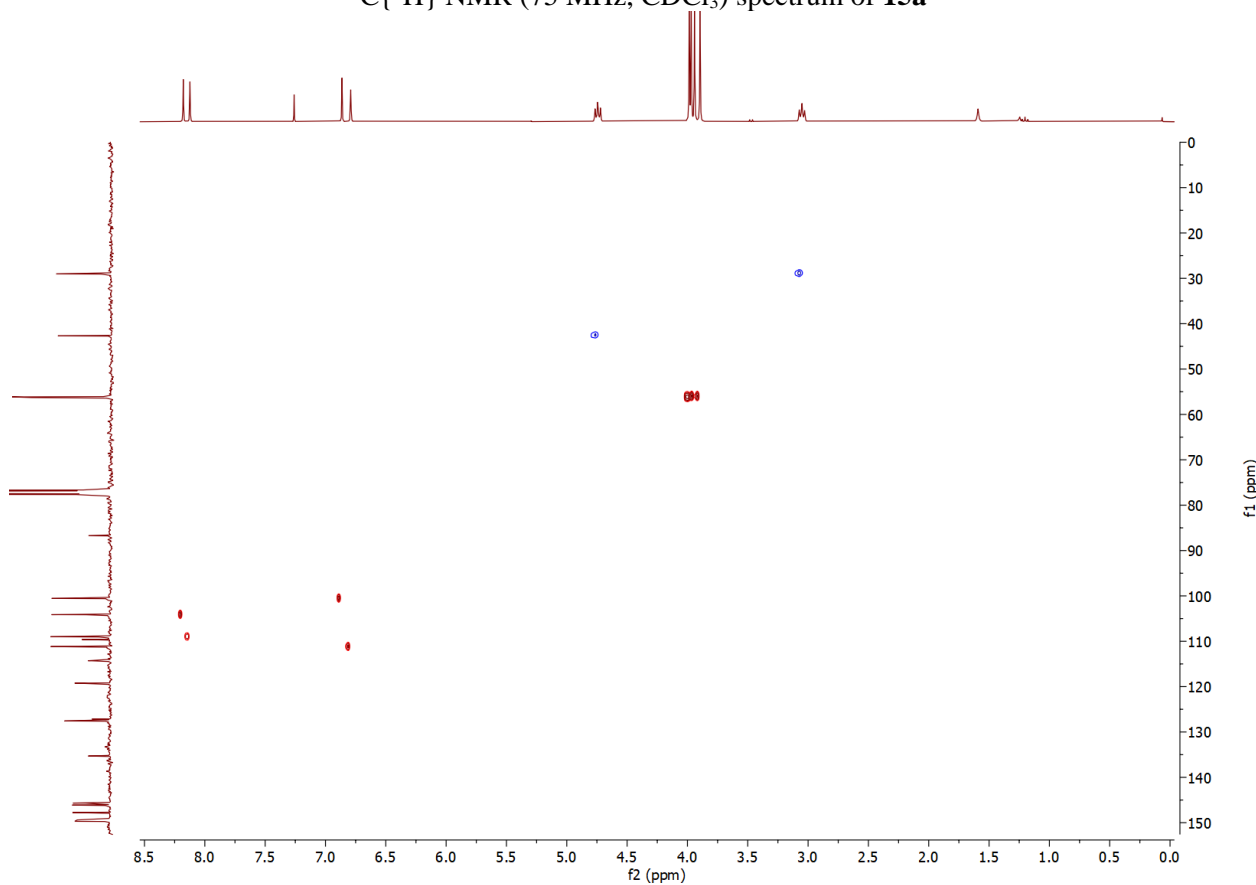
^1H - ^{13}C HMBC spectrum of **14b**



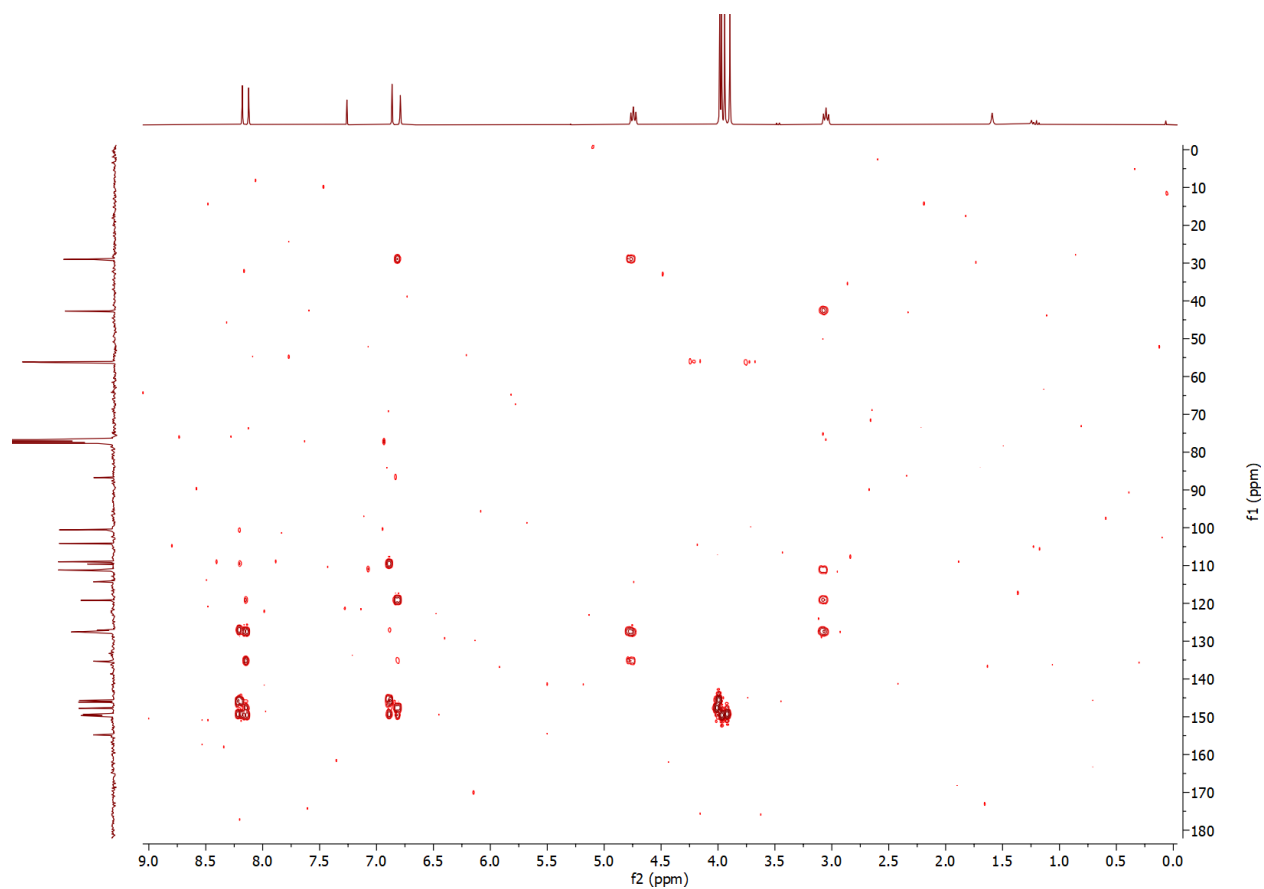
^1H NMR (300 MHz, CDCl_3) spectrum of **15a**



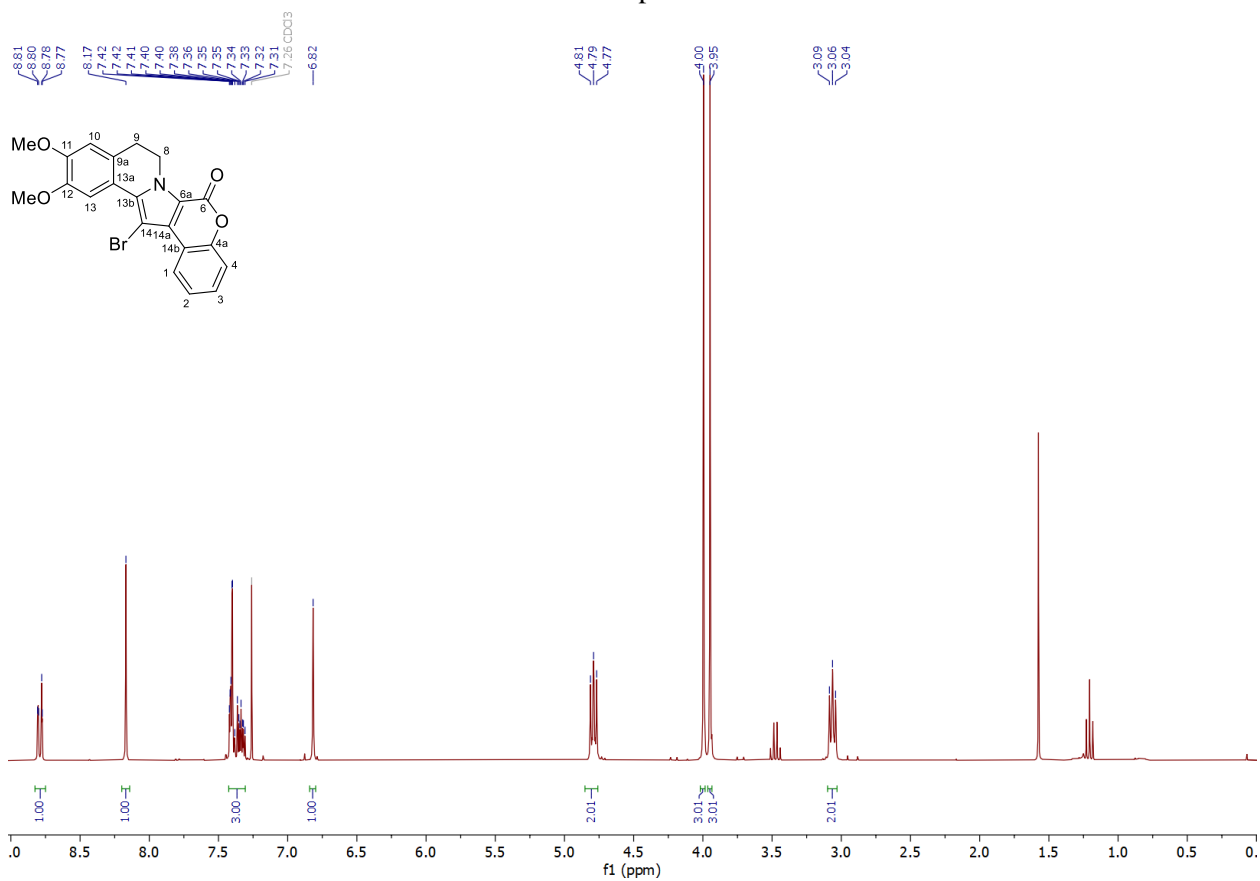
$^{13}\text{C}\{^1\text{H}\}$ NMR (75 MHz, CDCl_3) spectrum of **15a**



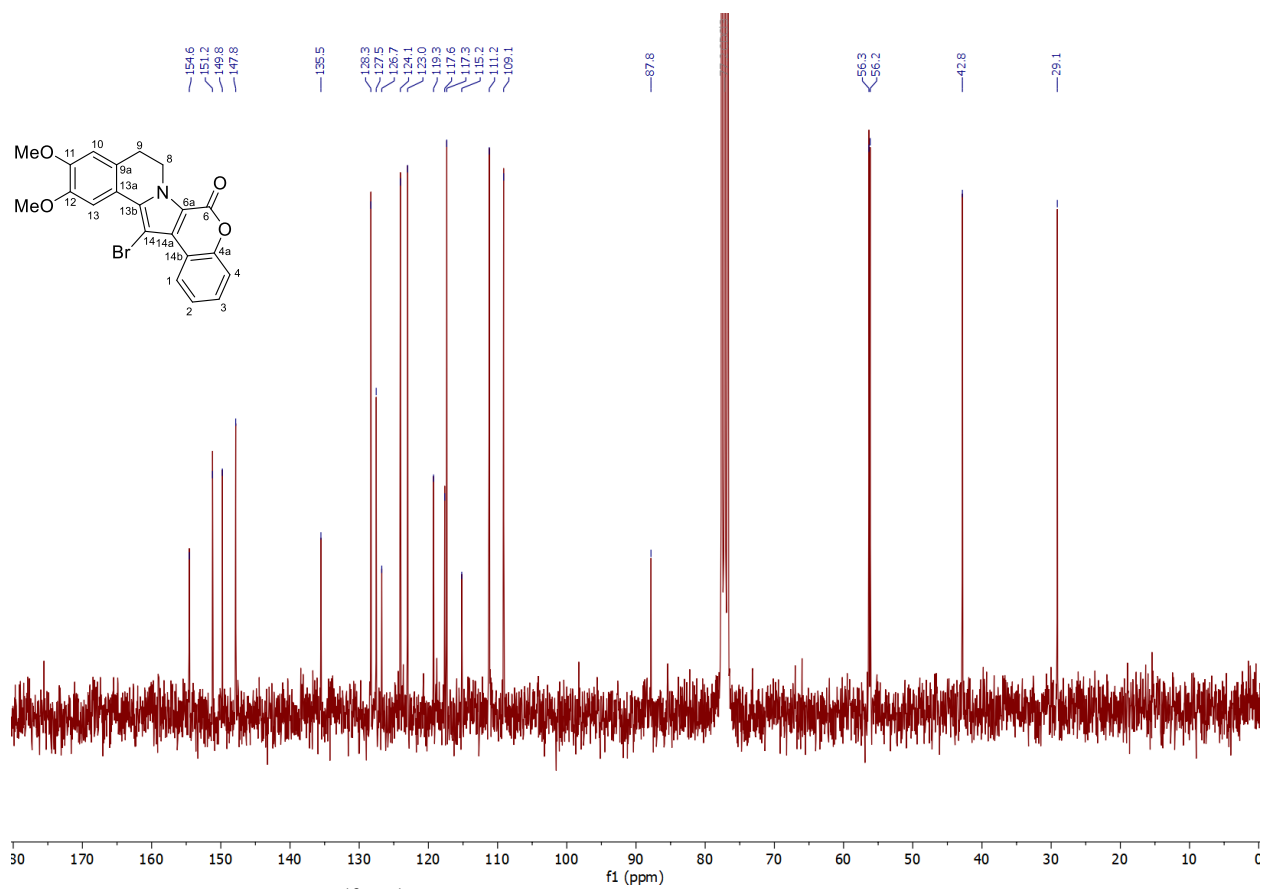
^1H - ^{13}C HSQC spectrum of **15a**



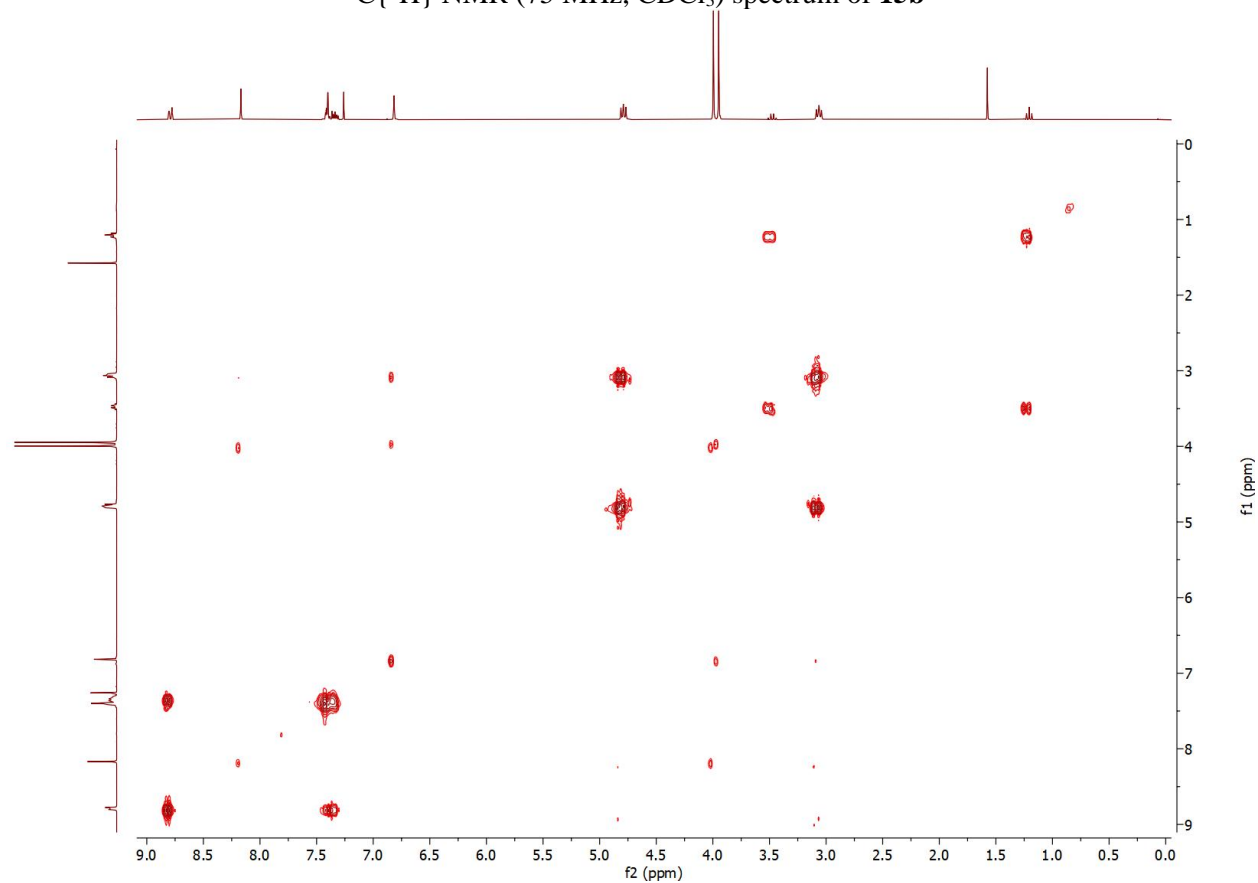
^1H - ^{13}C HMBC spectrum of **15a**



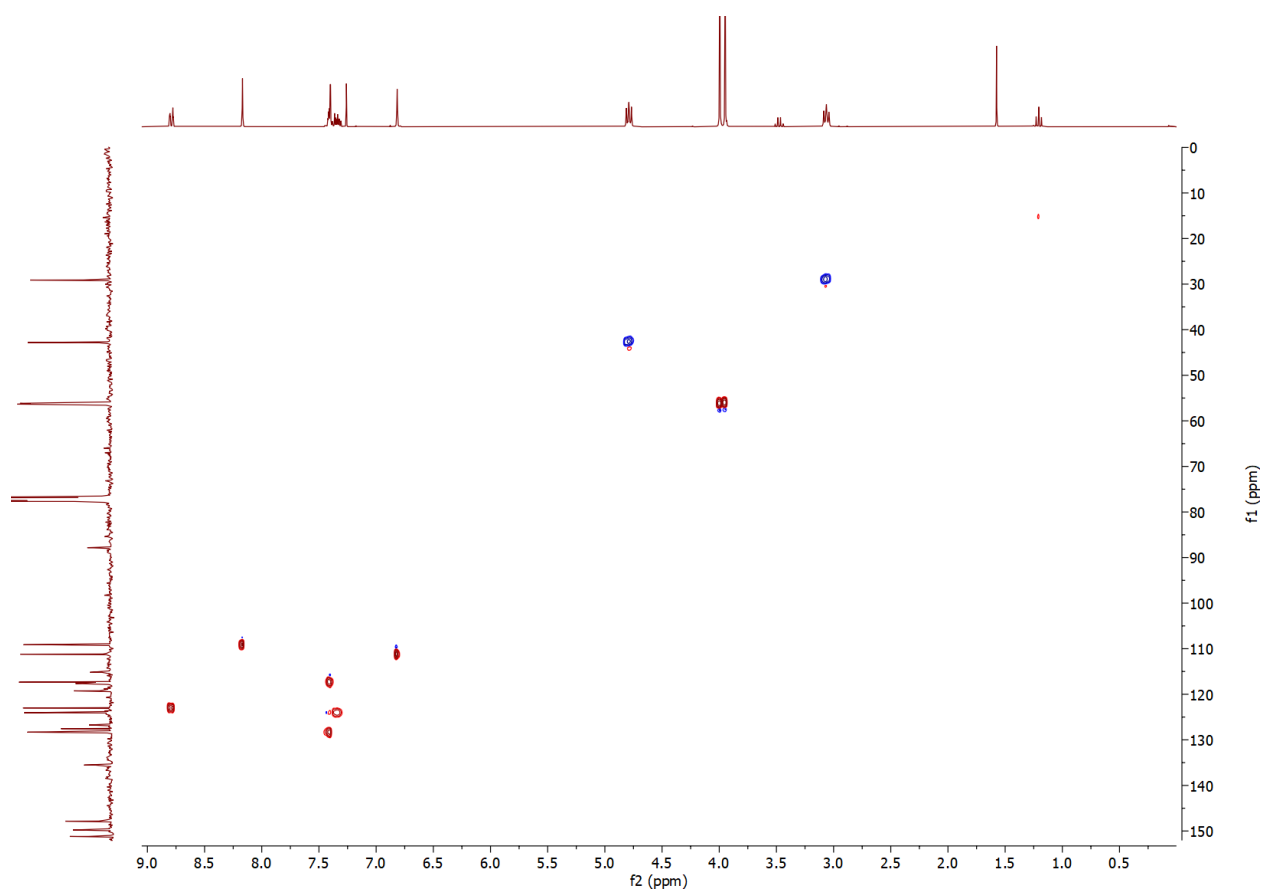
^1H NMR (300 MHz, CDCl_3) spectrum of **15b**



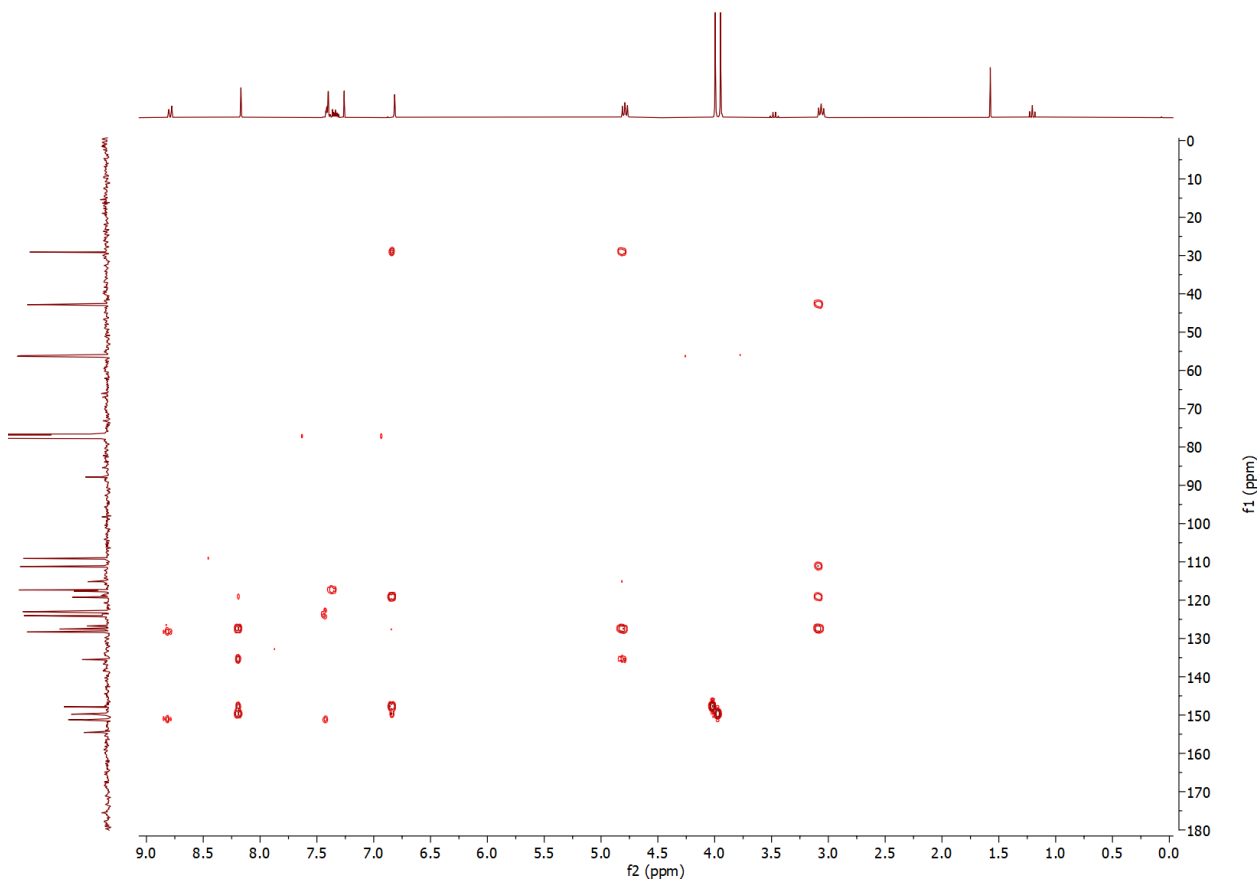
$^{13}\text{C}\{^1\text{H}\}$ NMR (75 MHz, CDCl_3) spectrum of **15b**



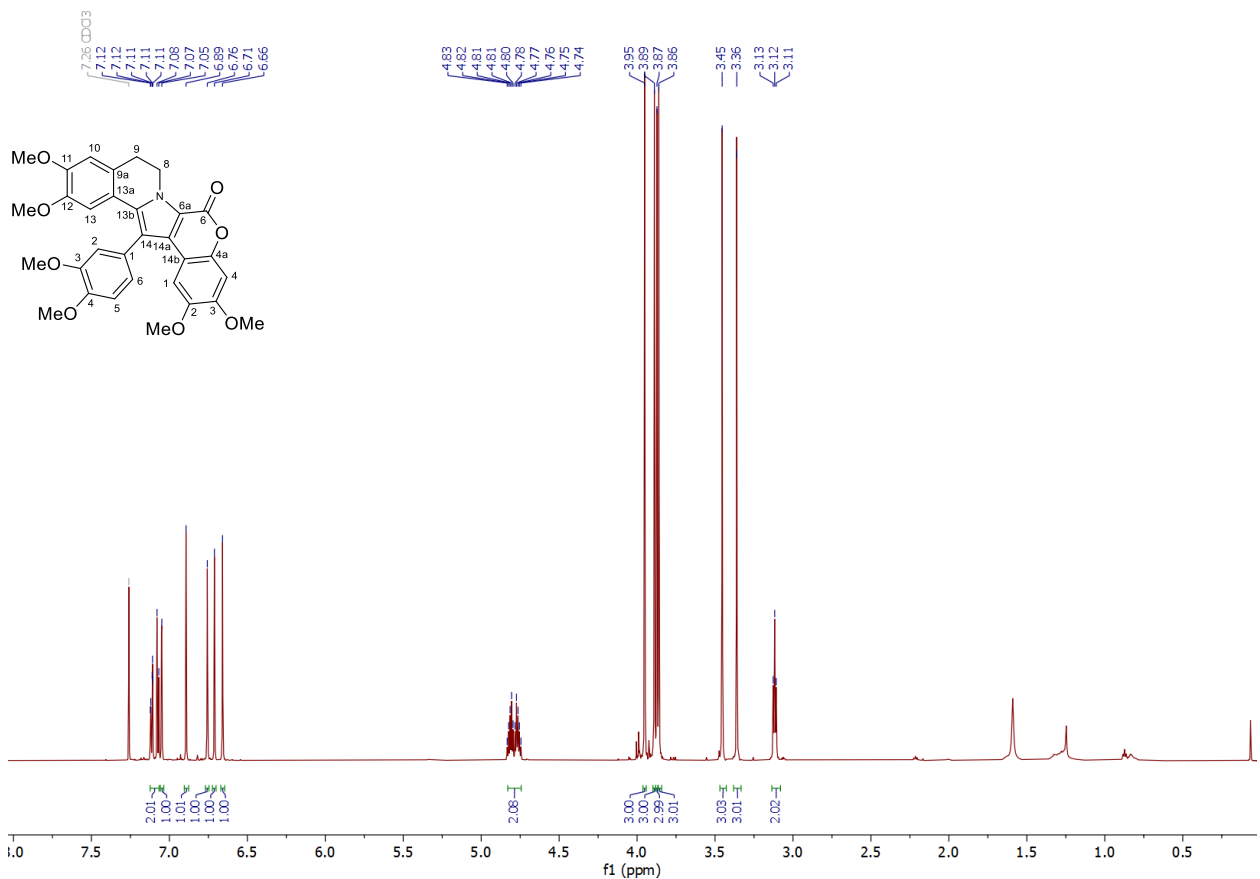
^1H - ^1H COSY spectrum of **15b**



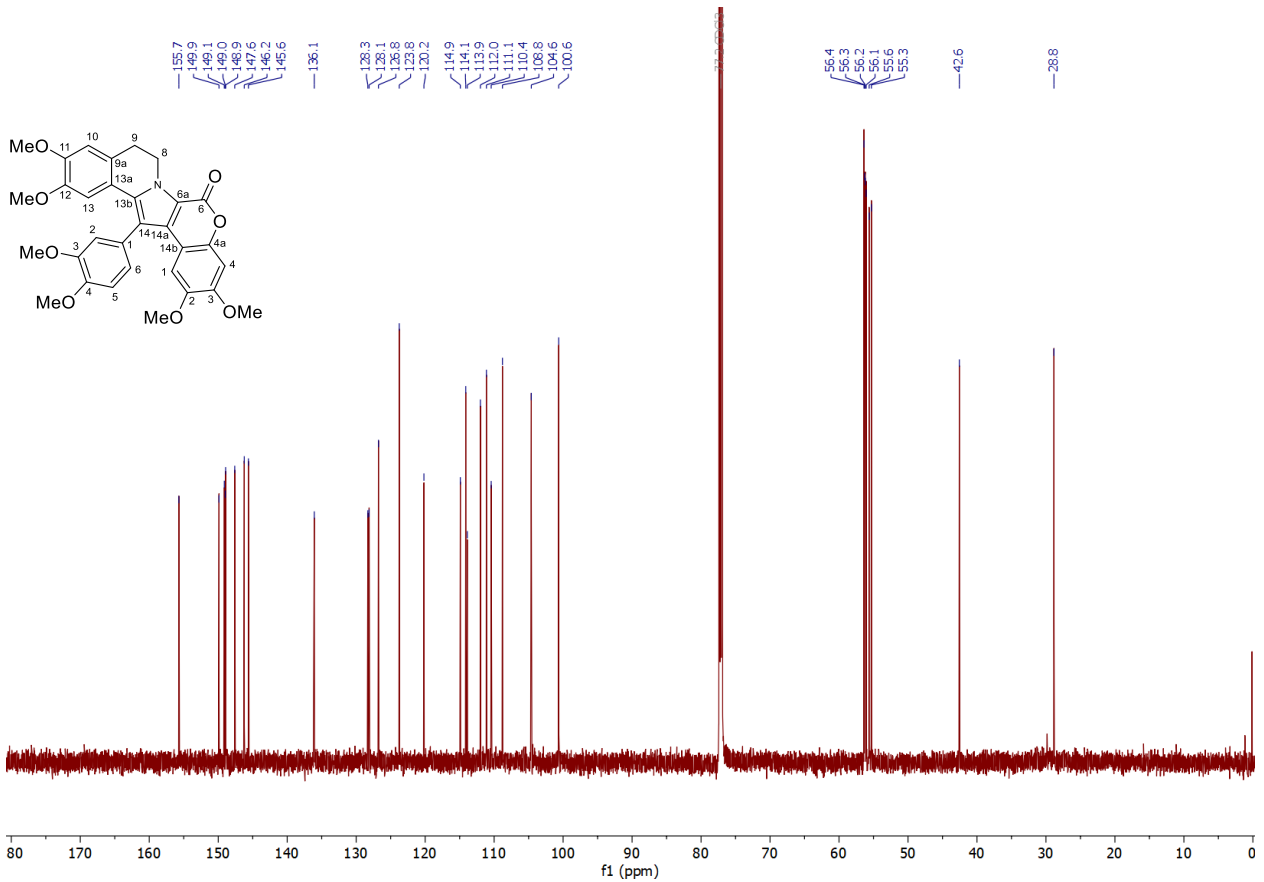
^1H - ^{13}C HSQC spectrum of **15b**



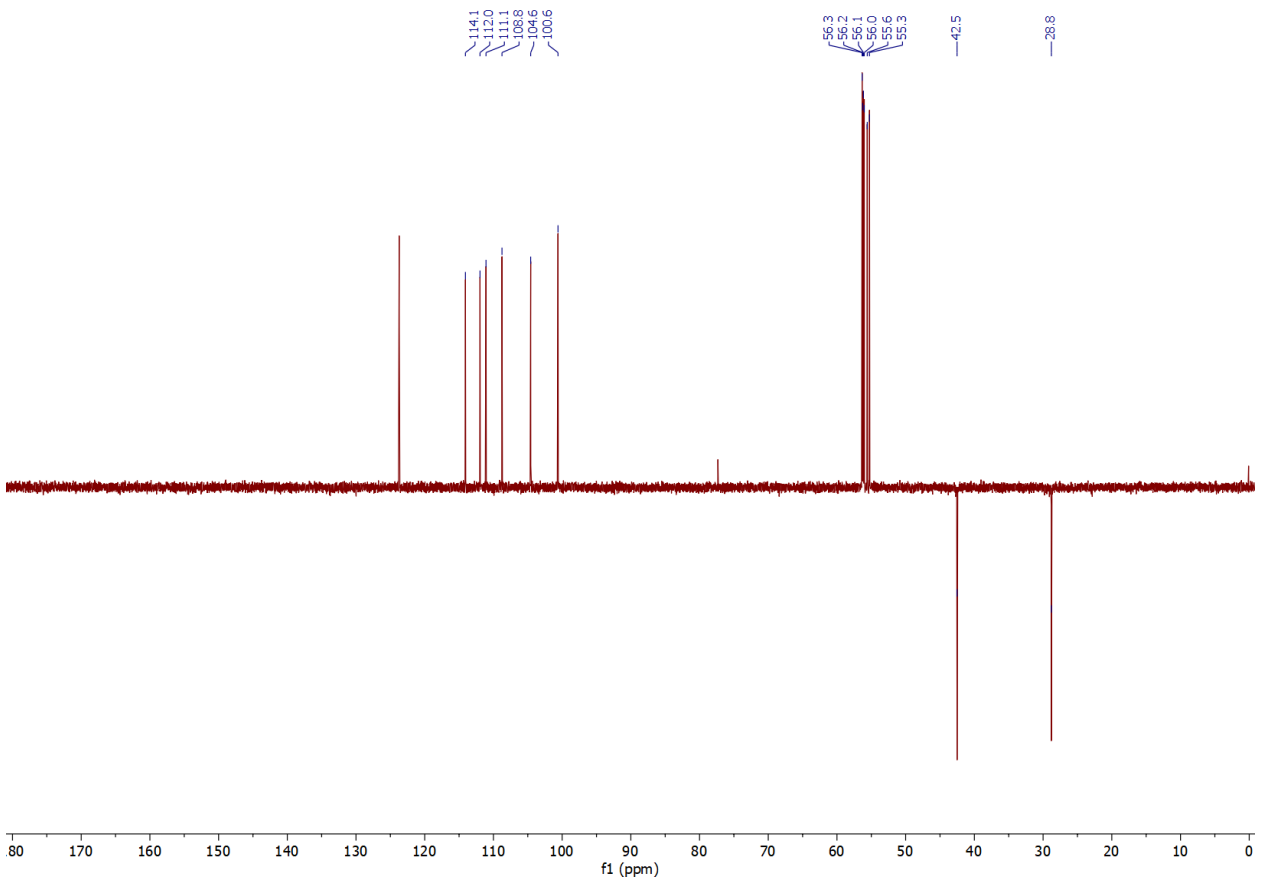
^1H - ^{13}C HMBC spectrum of **15b**



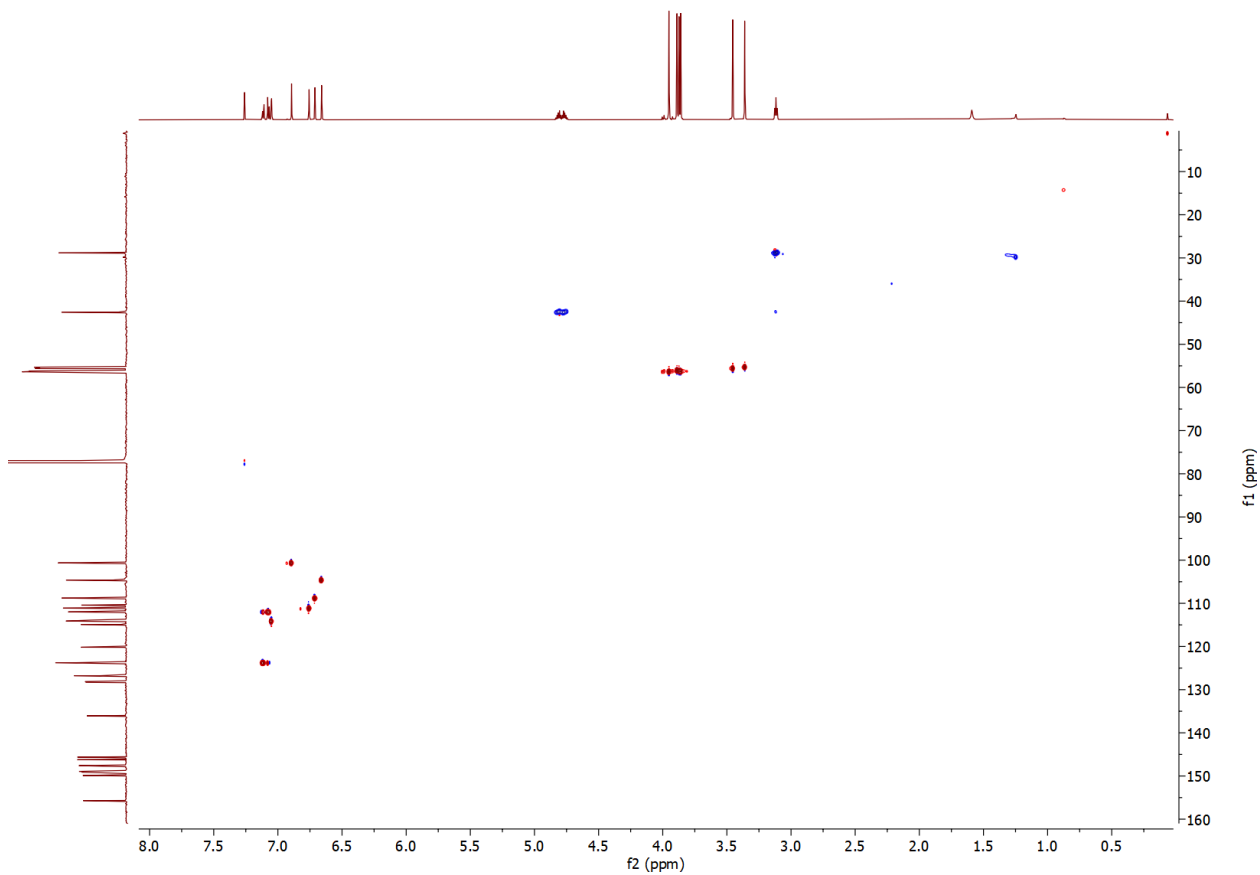
^1H NMR (700 MHz, CDCl_3) spectrum of **16a**



$^{13}\text{C}\{^1\text{H}\}$ NMR (176 MHz, CDCl_3) spectrum of **16a**



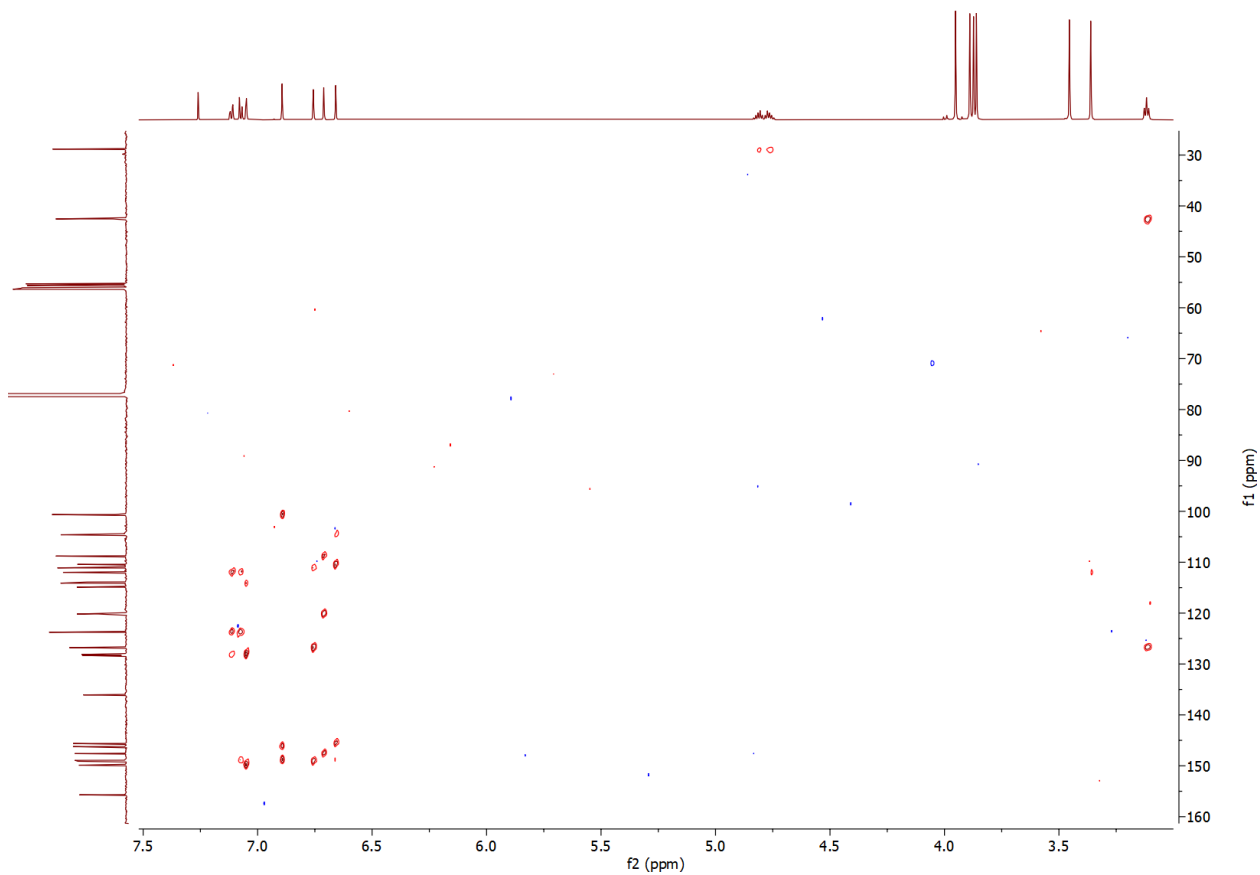
DEPT 135 spectrum of **16a**



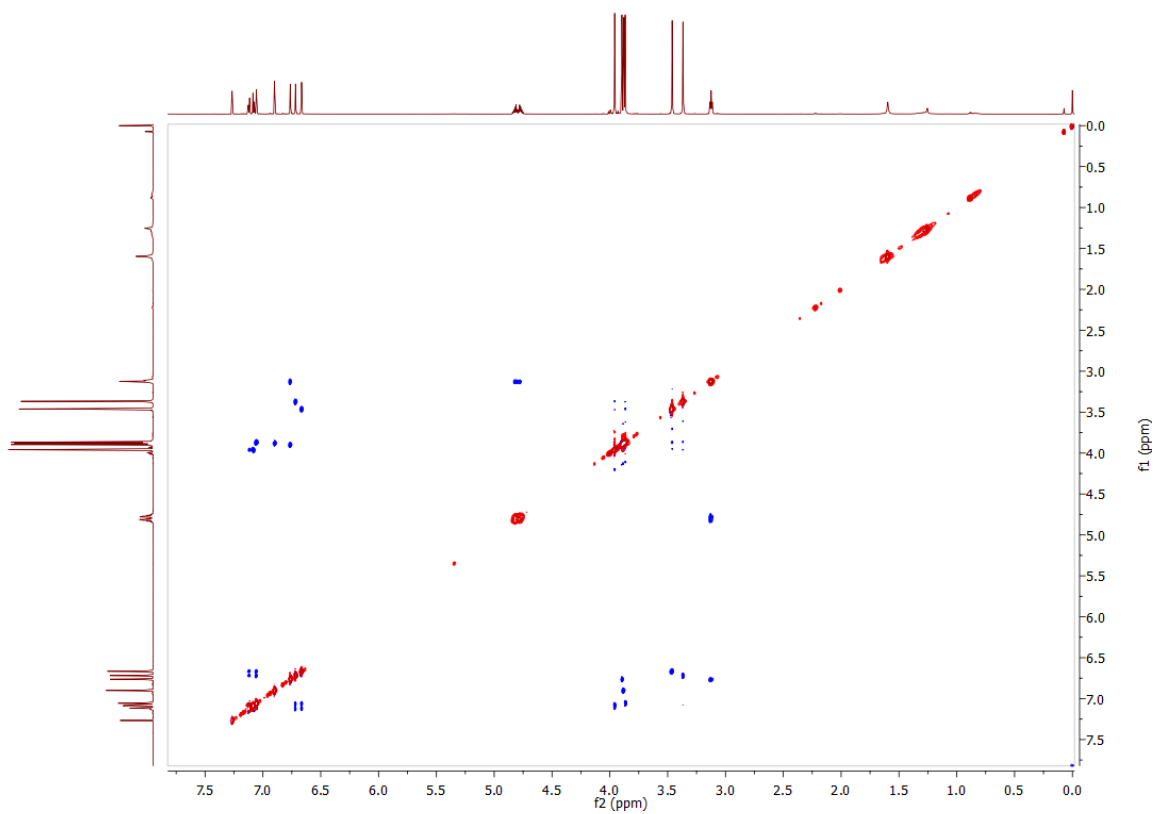
^1H - ^{13}C HSQC spectrum of **16a**



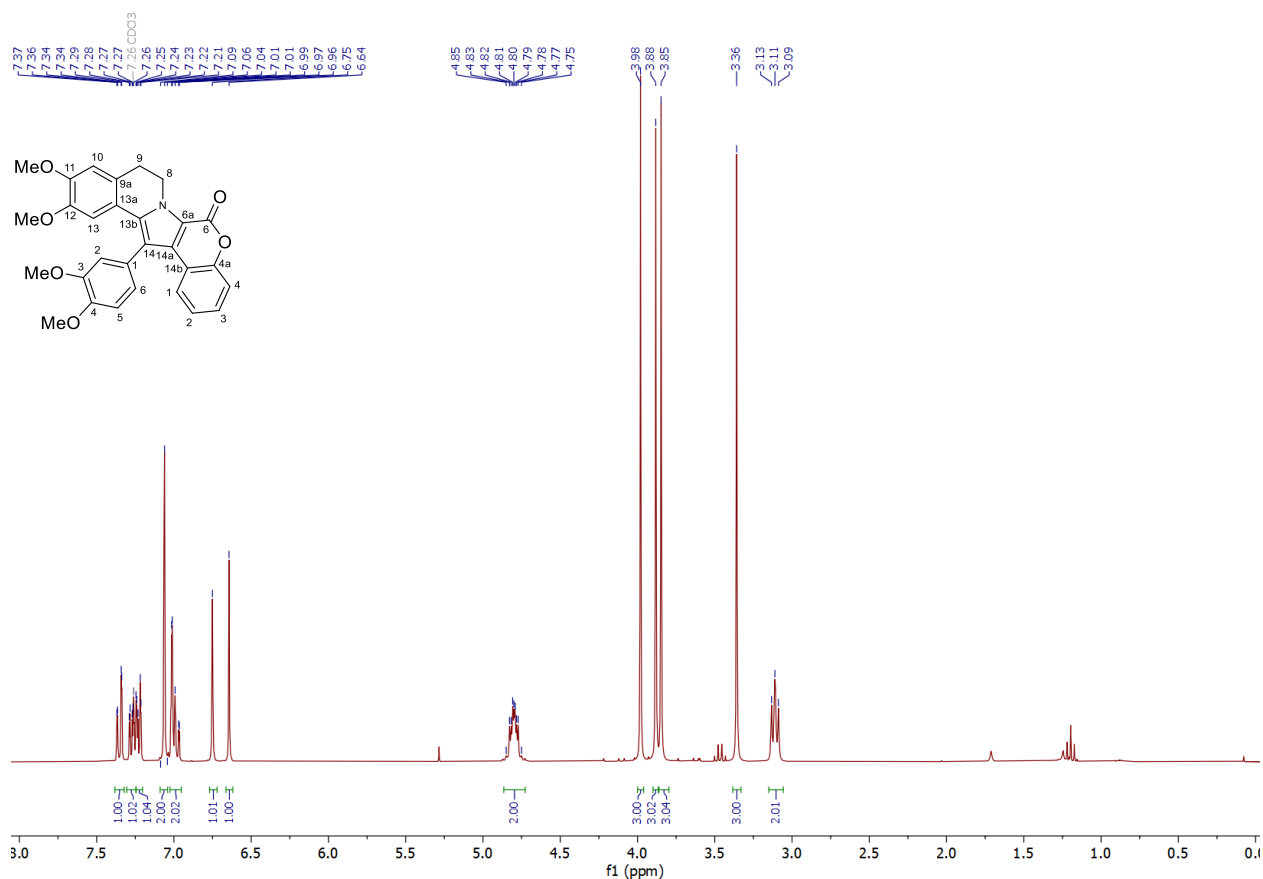
^1H - ^{13}C HMBC spectrum of **16a**



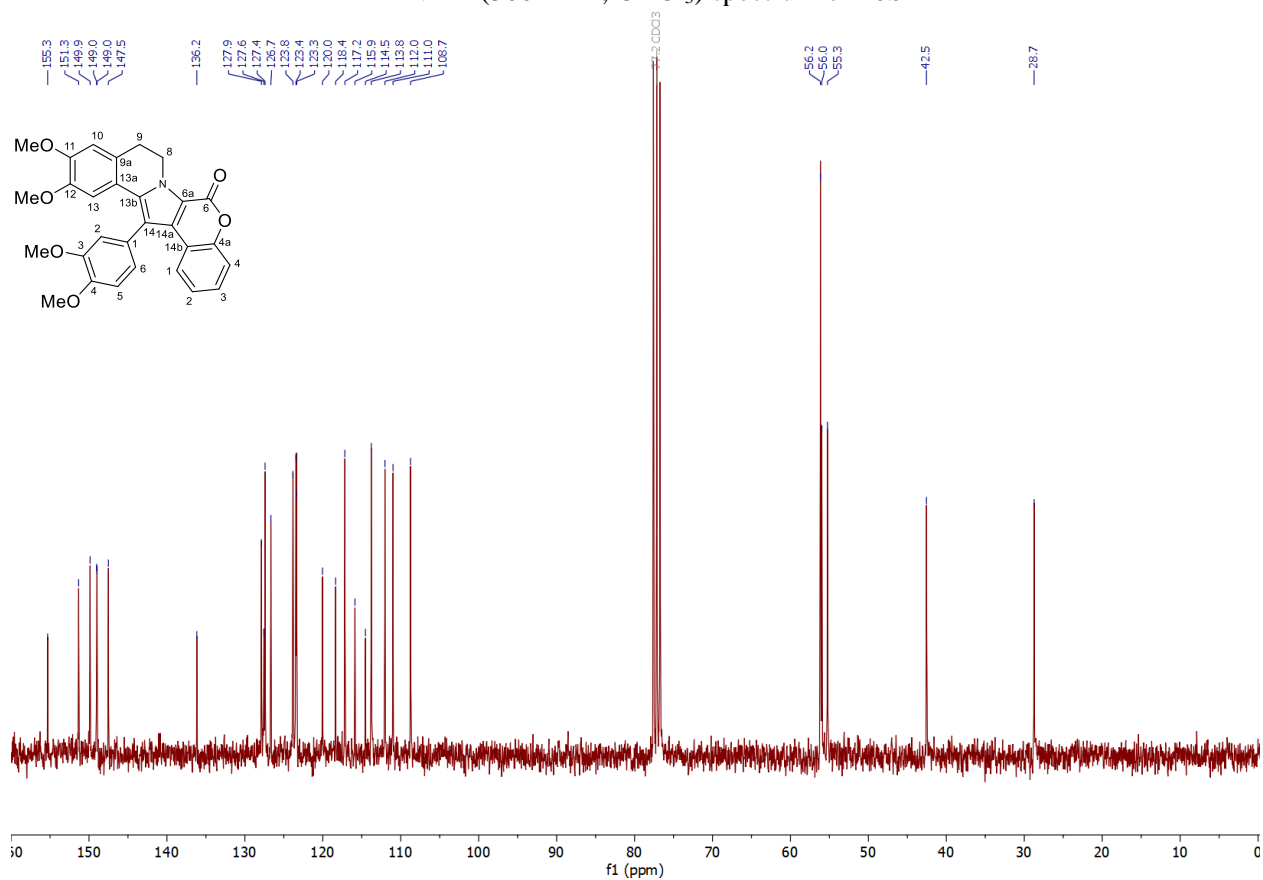
1,1-ADEQUATE spectrum of **16a**



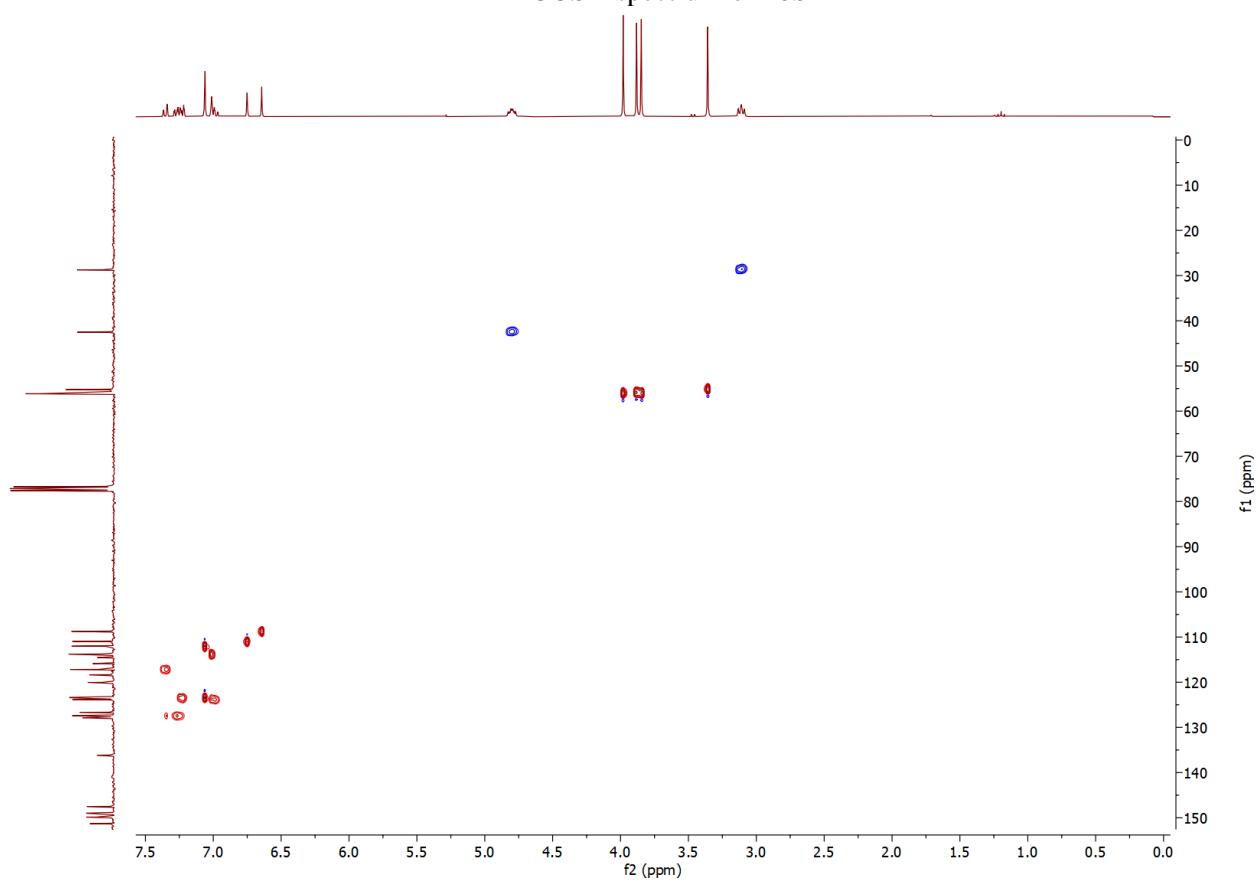
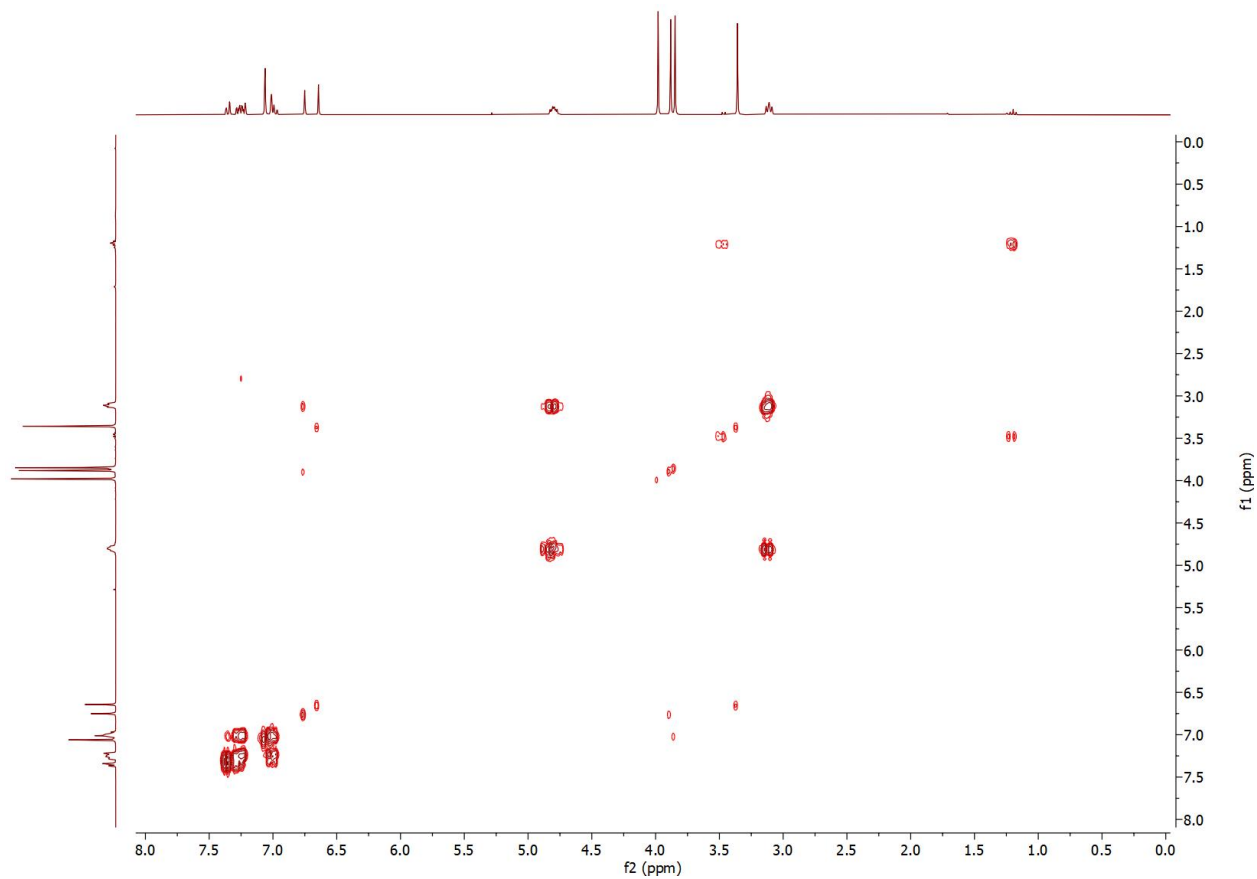
^1H - ^1H NOESY spectrum of **16a**

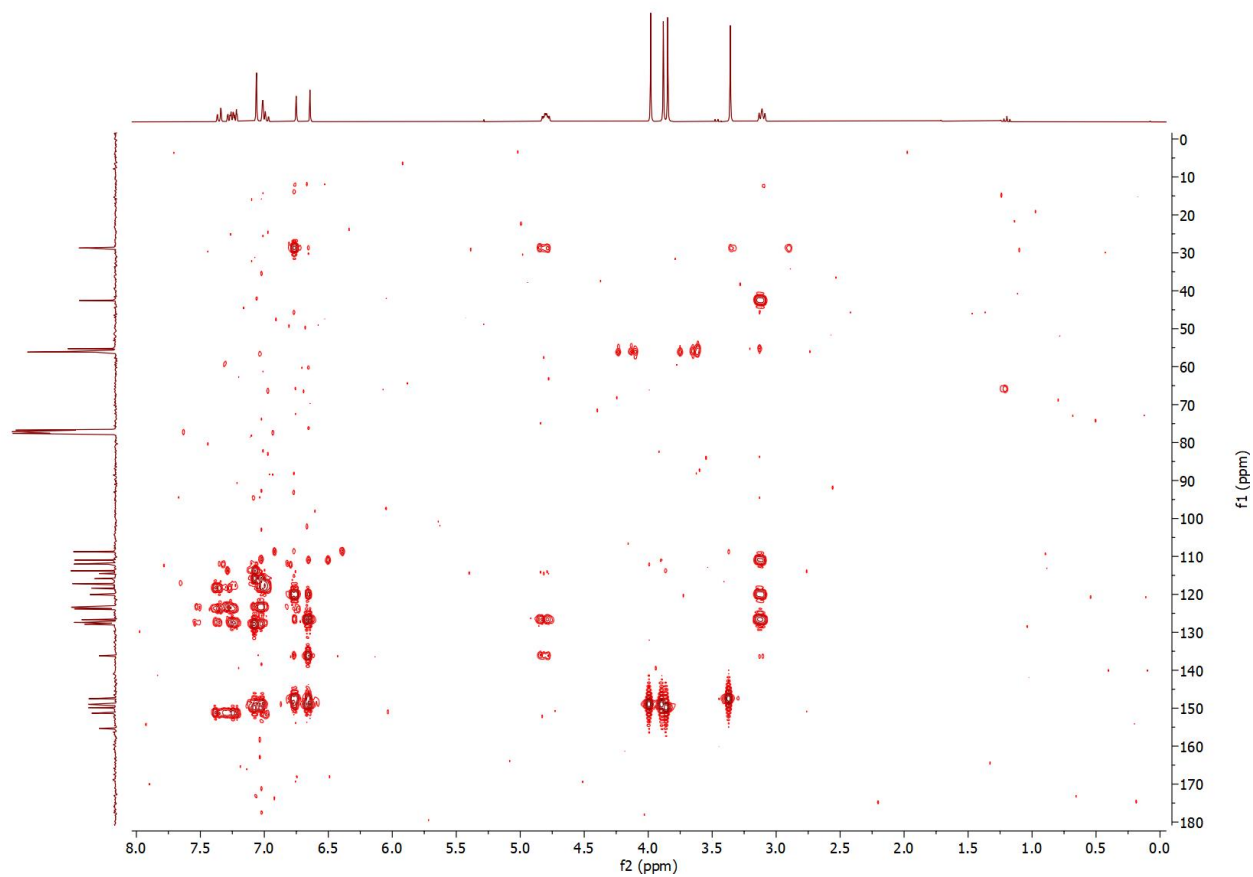


¹H NMR (300 MHz, CDCl₃) spectrum of **16b**



¹³C {¹H} NMR (75 MHz, CDCl₃) spectrum of **16b**





^1H - ^{13}C HMBC spectrum of **16b**