

Supplementary Material

Solvent-controlled diastereodivergent cascade synthesis of trisubstituted tetrahydrothiophenes utilizing polystyrene-supported amine

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1. Recycling of PS-Catalyst for the synthesis of 3a

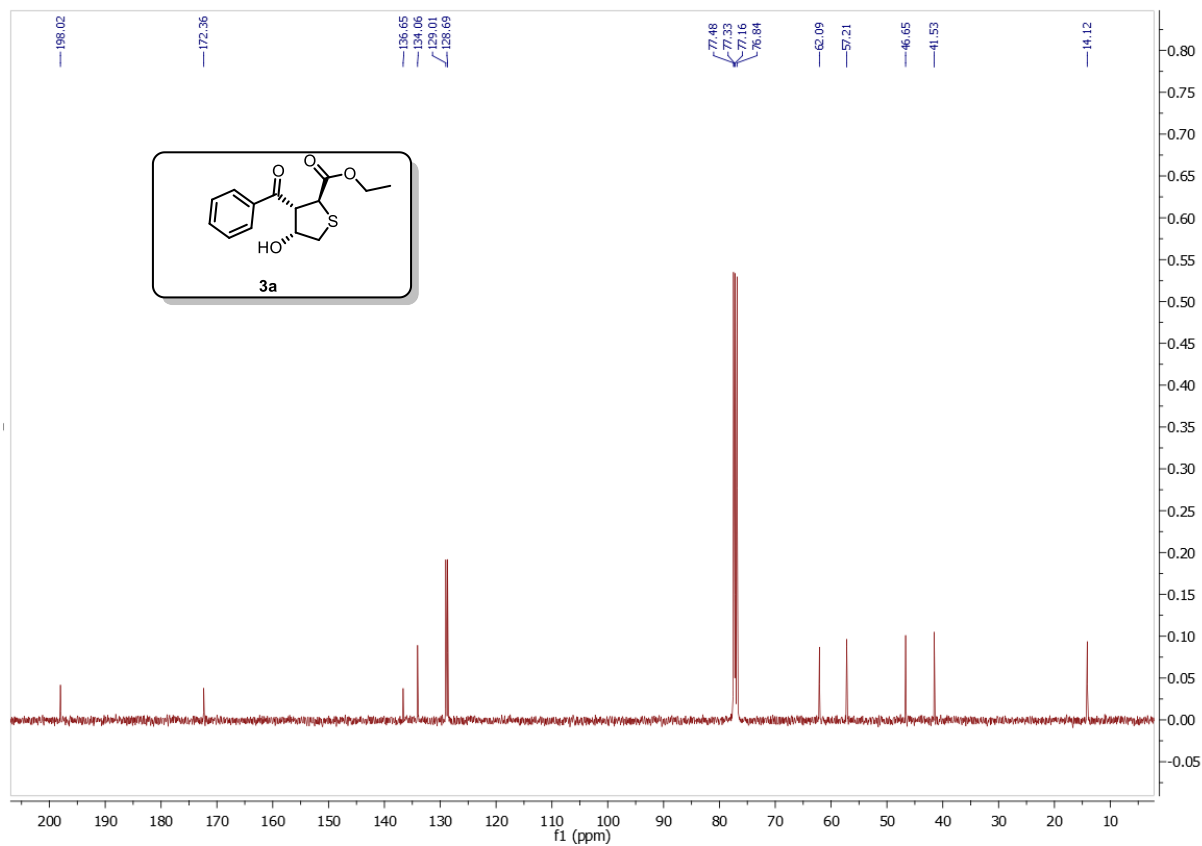
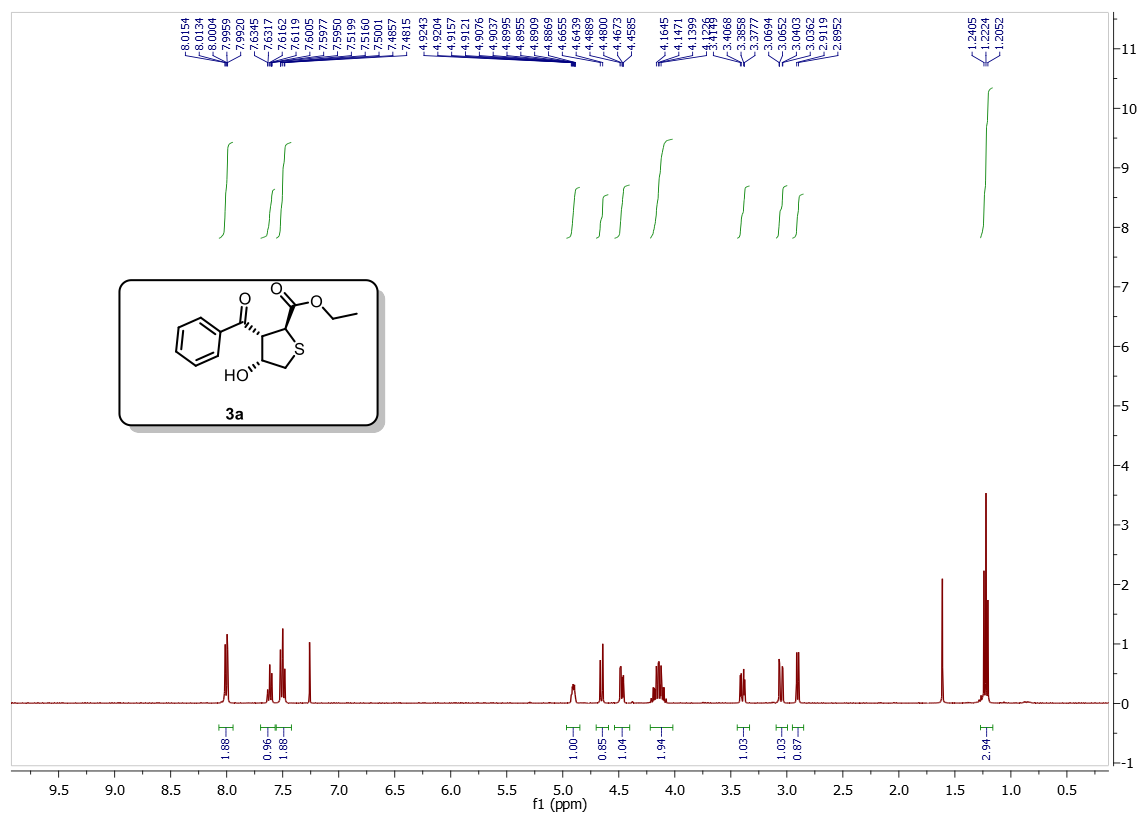
Cycle	Compound Weight 3a (g)	Yield 3a (%)	Polymer Weight (g)	Polymer Loss (g)	Recovered Polymer ^a (%)
1	1.287	92	363.64	4.57	98.7
2	1.279	91	359.07	3.51	99.0
3	1.268	90	355.56	7.14	98.0
4	1.255	90	348.42	6.42	98.2
5	1.241	89	342	4.51	98.7
6	1.216	87	337.49	7.25	97.9
7	1.21	86	330.24	6.21	98.1
8	1.204	86	324.03	5.11	98.4
9	1.187	85	318.92	6.89	97.8
10	1.177	84	312.03	4.81	98.5

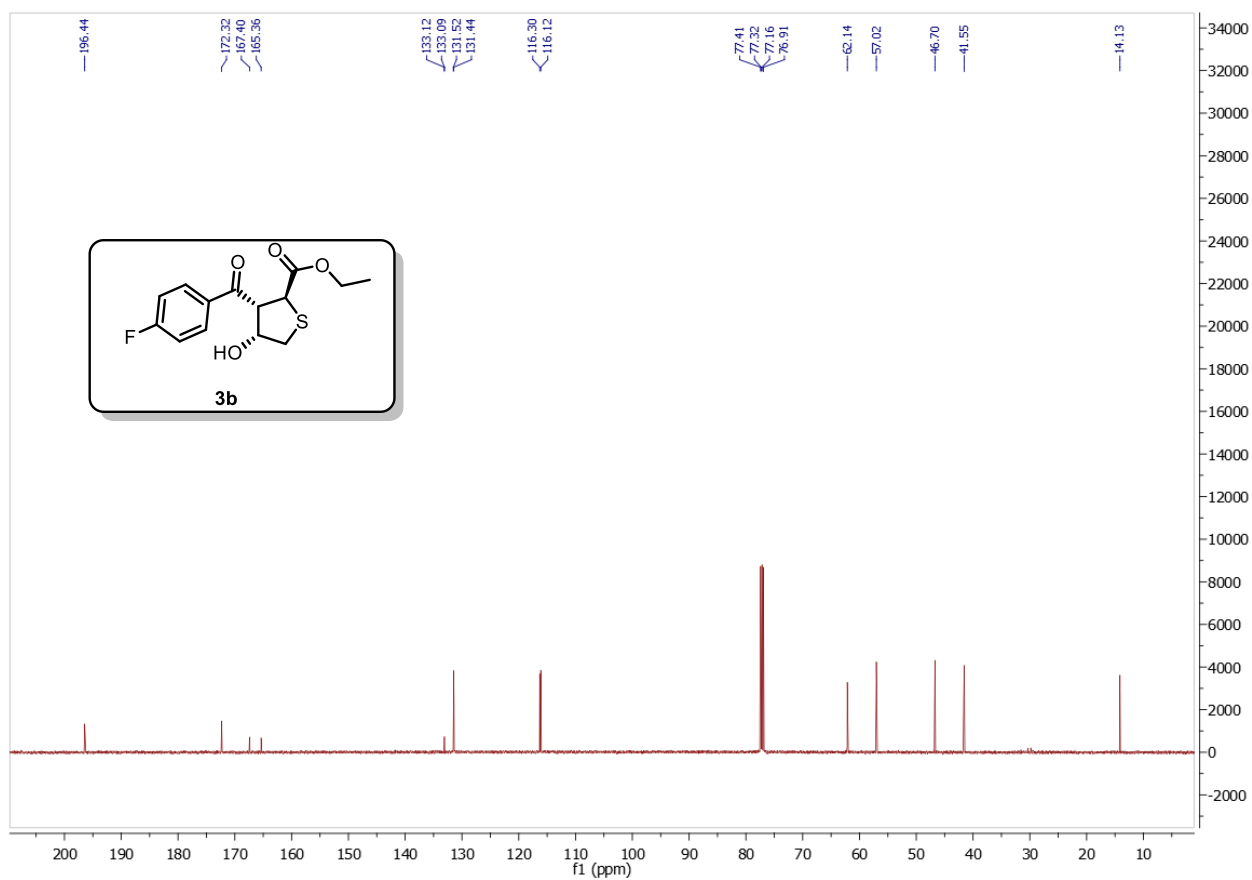
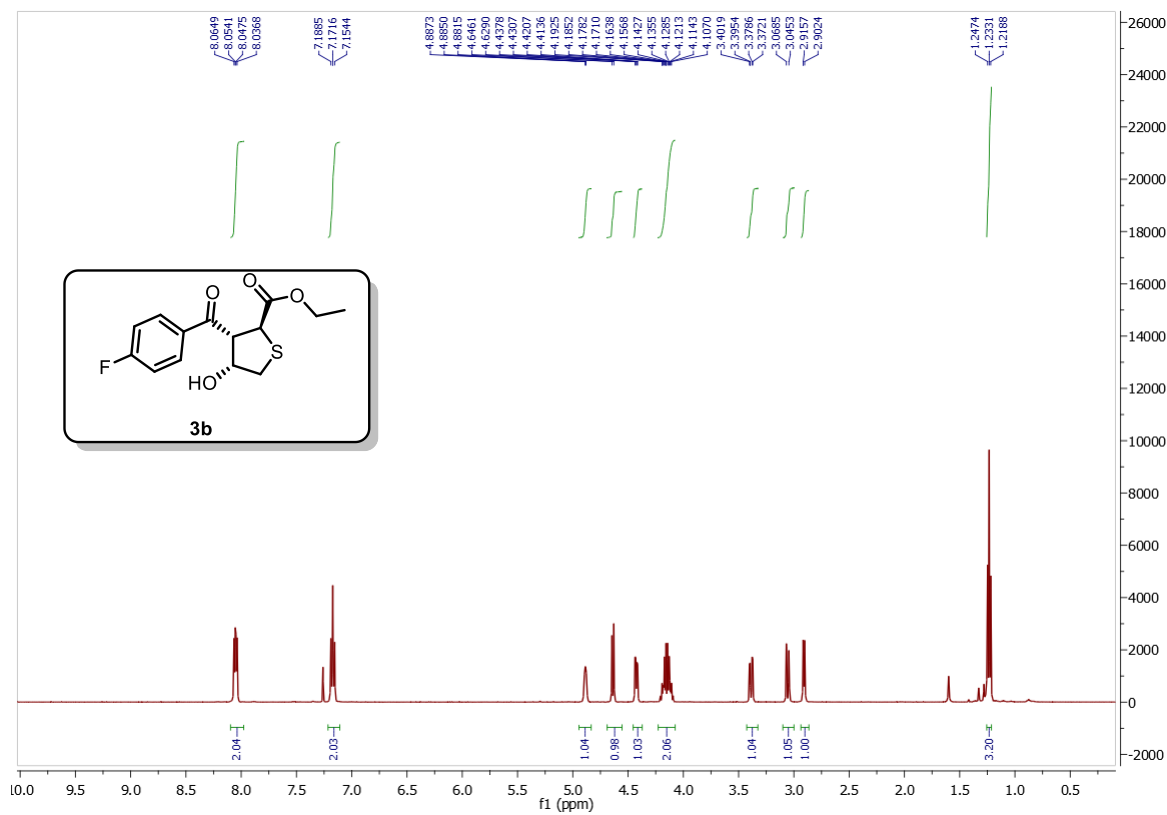
^a% of recovered polymer = (Polymer Weight – Polymer loss) / Polymer Weight.

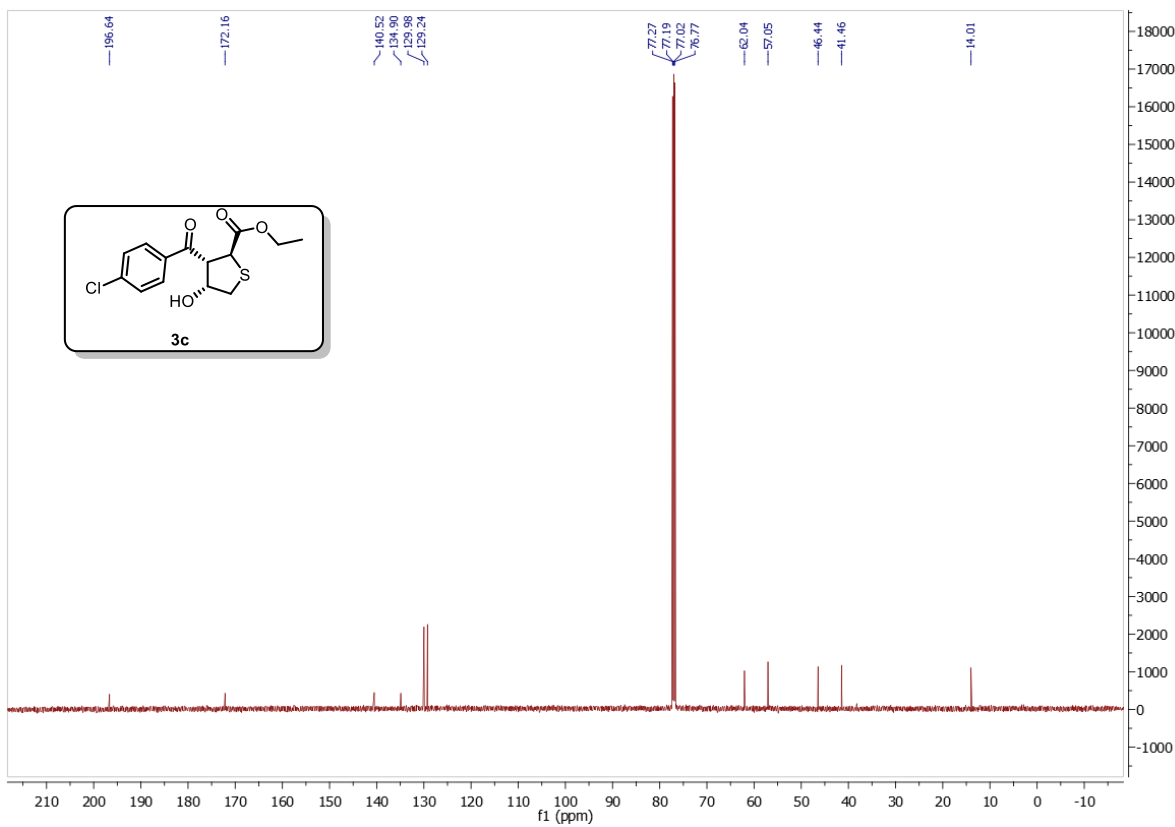
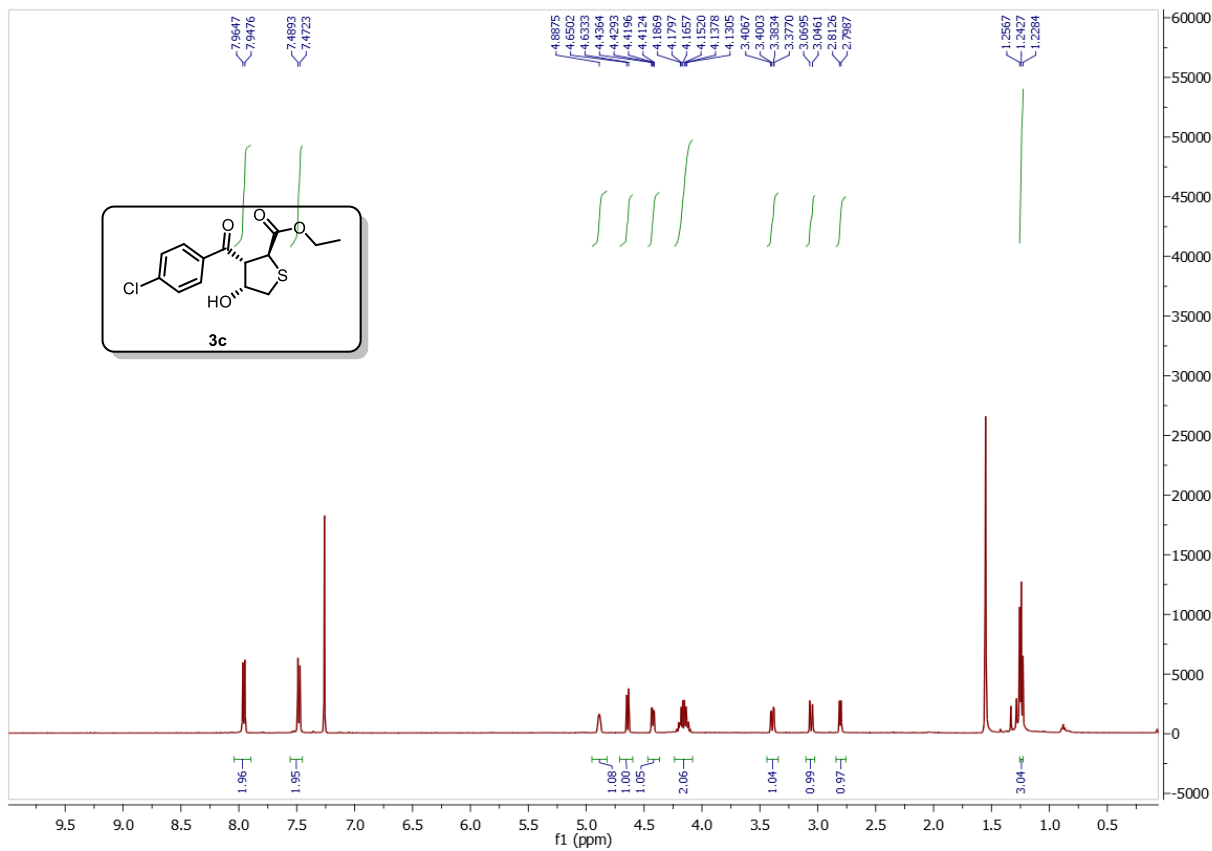
2. Recycling of PS-Catalyst for the synthesis of 4a

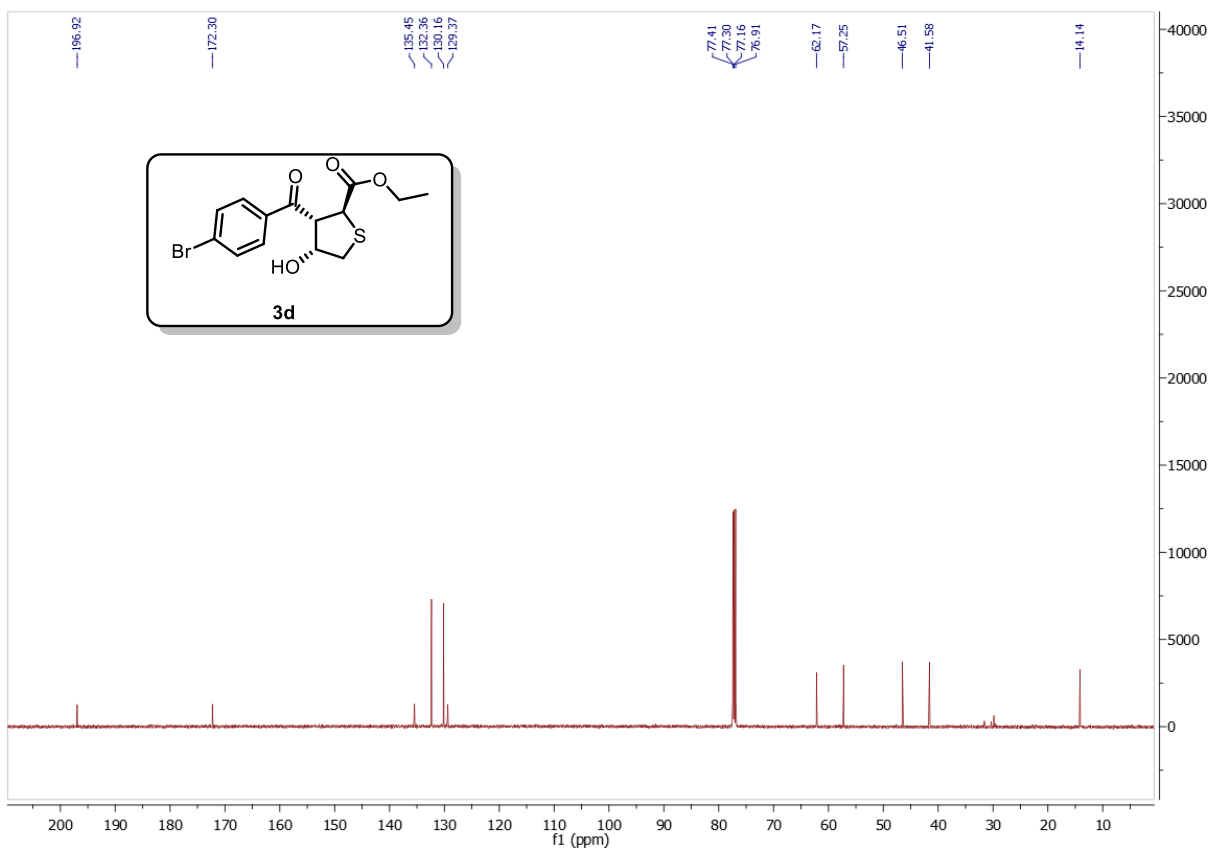
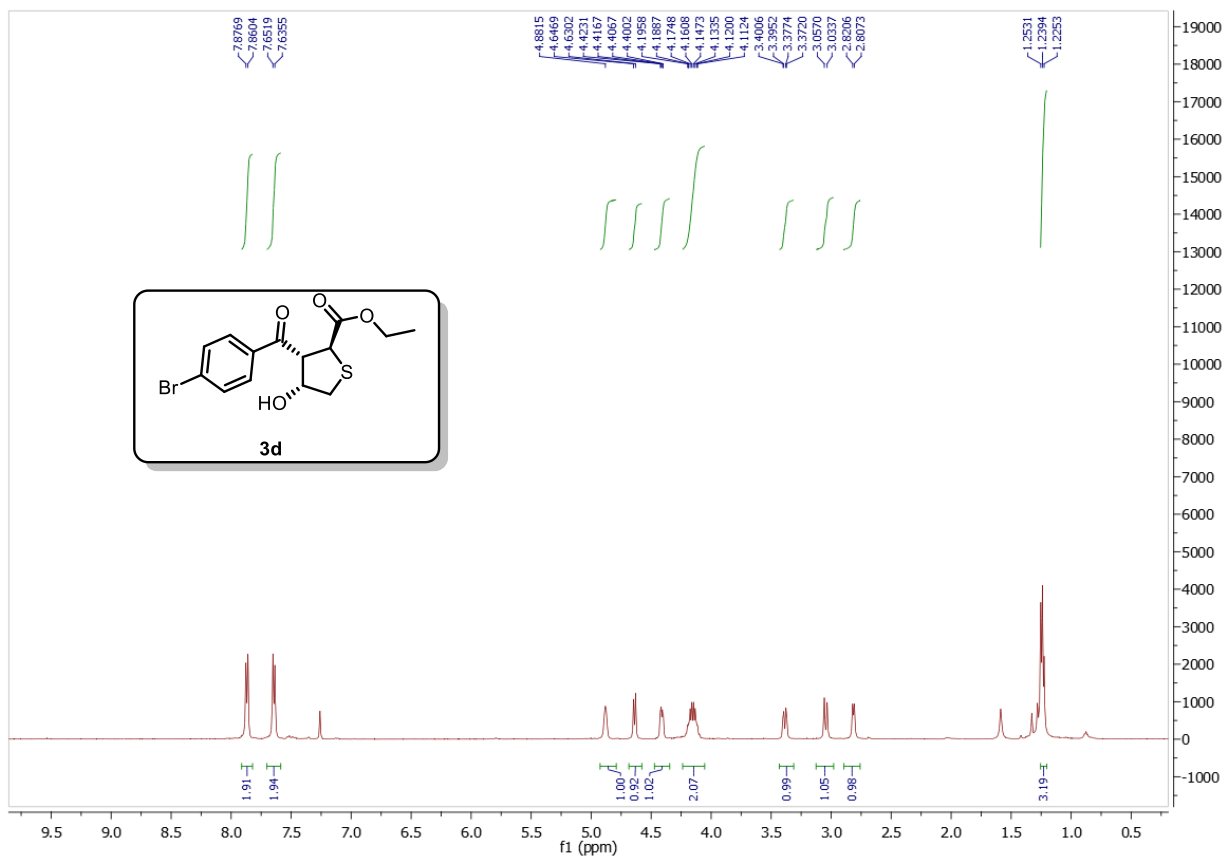
Cycle	Compound Weight 4a (g)	Yield 4a (%)	Polymer Weight (g)	Polymer Loss (g)	Recovered Polymer ^a (%)
1	1.281	91	363.64	5.41	98.5
2	1.274	91	358.23	7.24	98.0
3	1.267	90	350.99	8.14	97.7
4	1.249	89	342.85	5.21	98.5
5	1.235	88	337.64	4.95	98.5
6	1.215	87	332.69	3.98	98.8
7	1.199	86	328.71	5.84	98.2
8	1.196	85	322.87	6.21	98.1
9	1.185	85	316.66	6.84	97.8
10	1.181	84	309.82	7.21	97.7

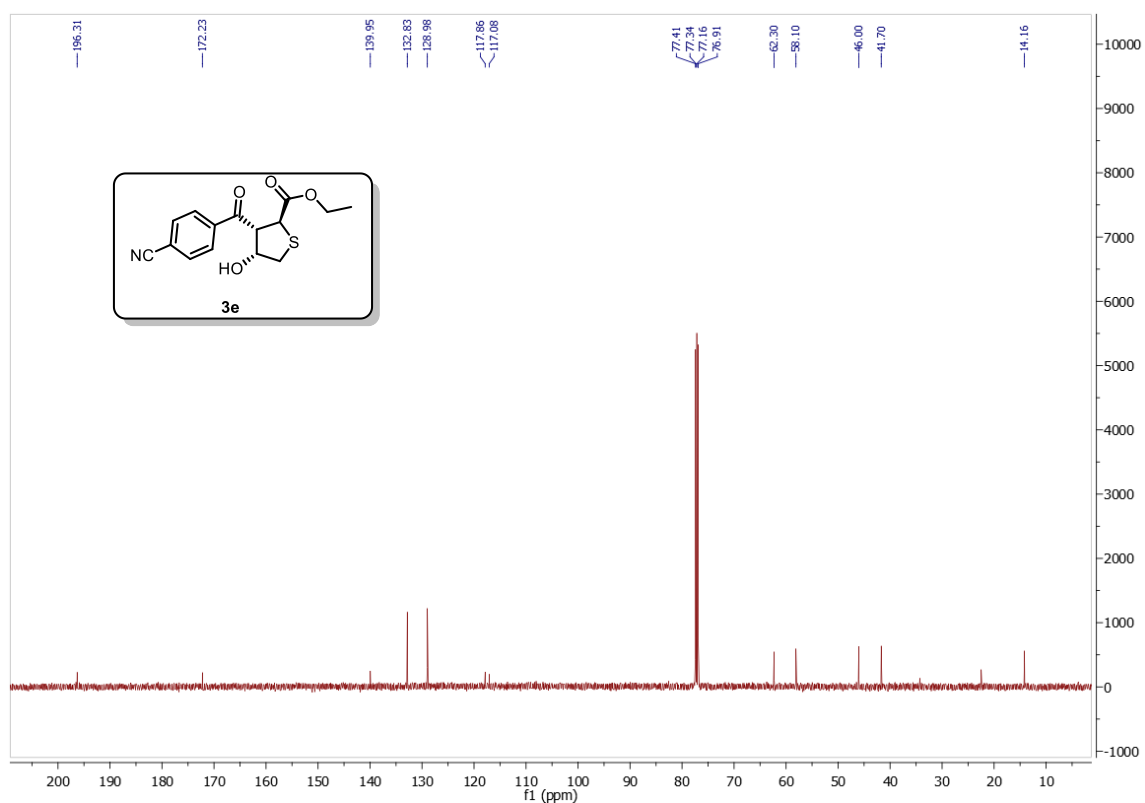
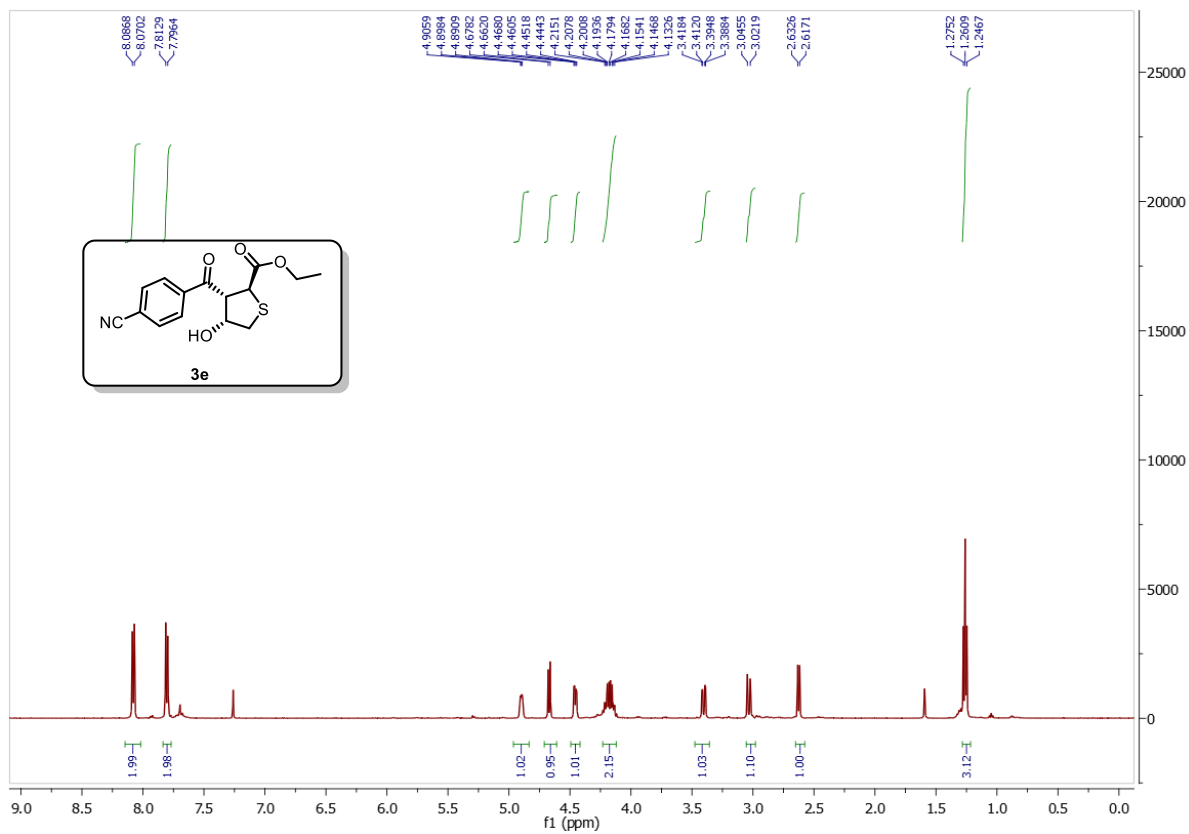
^a% of recovered polymer = (Polymer Weight – Polymer loss) / Polymer Weight.

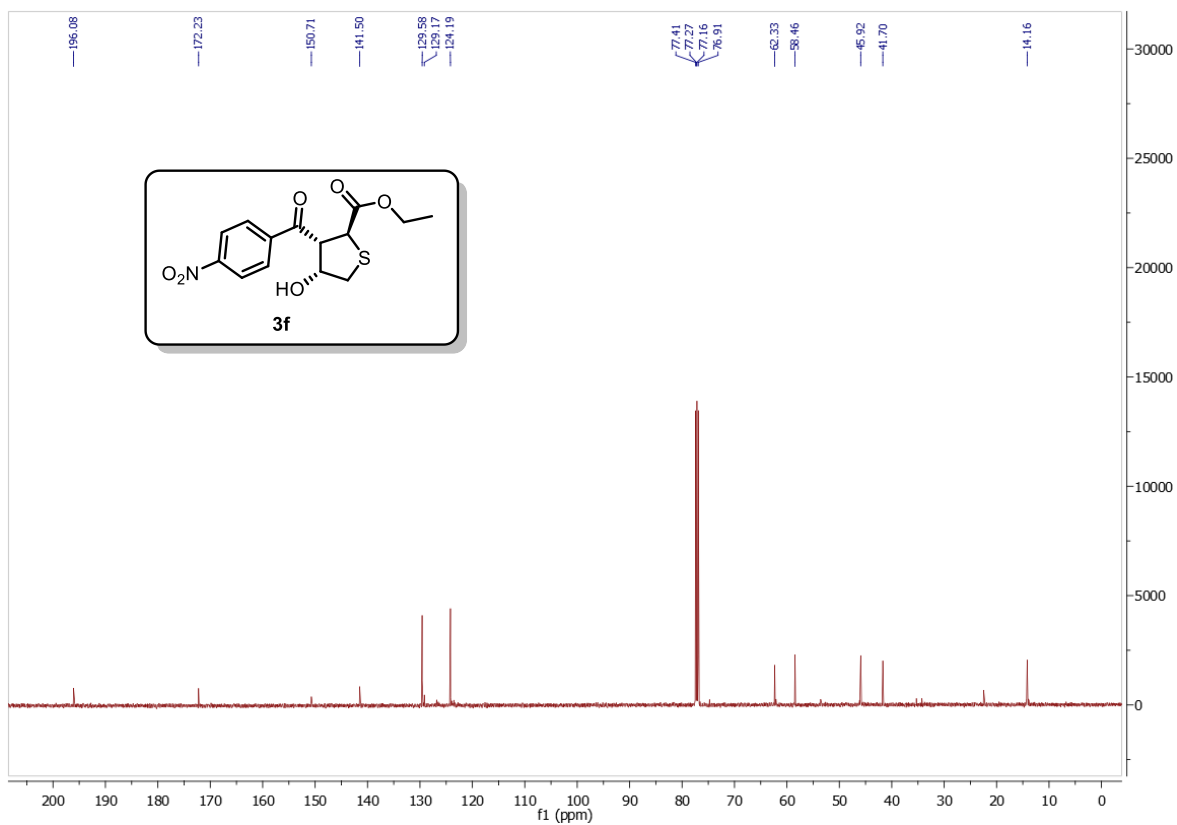
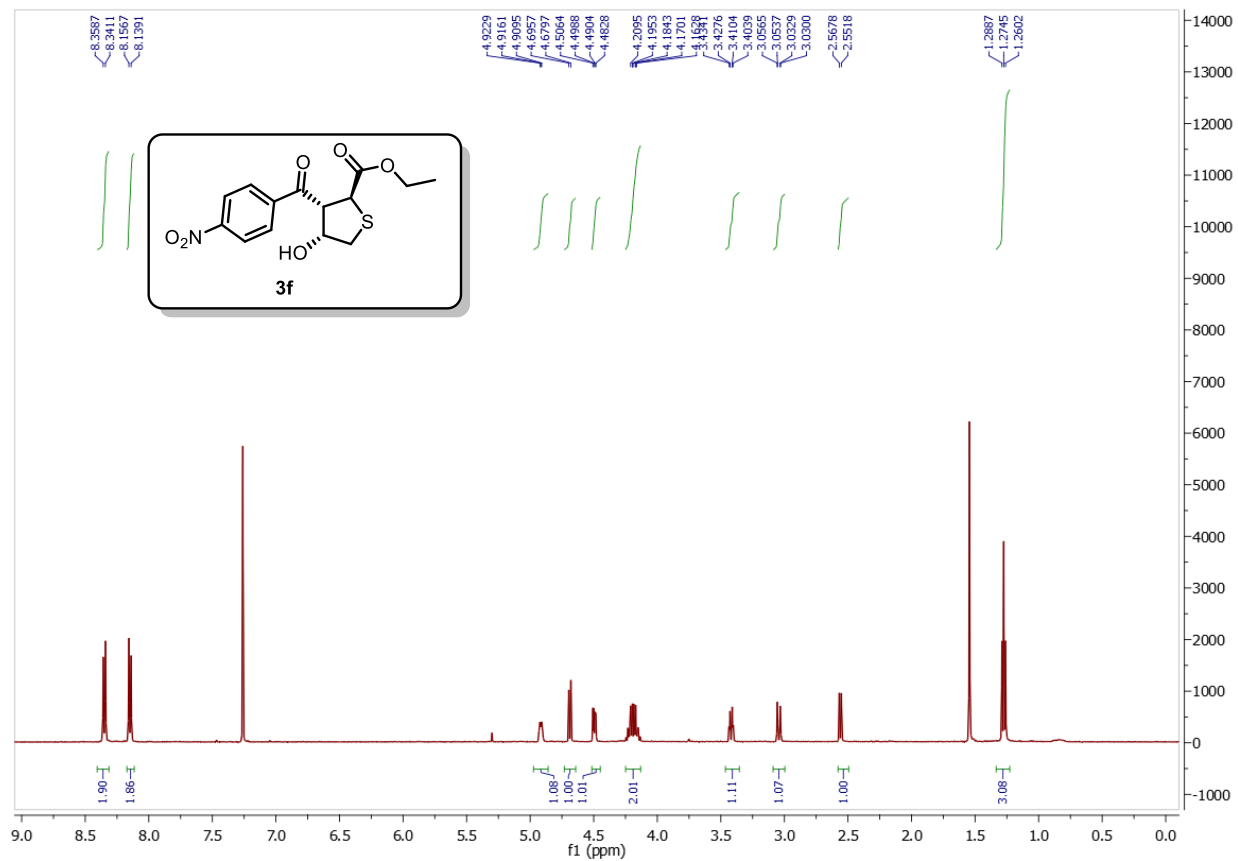
3. ^1H and ^{13}C NMR spectra (3a-p, 4a-r, 5a and 6a)400 MHz ^1H NMR and 100 MHz ^{13}C NMR Spectra of **3a**

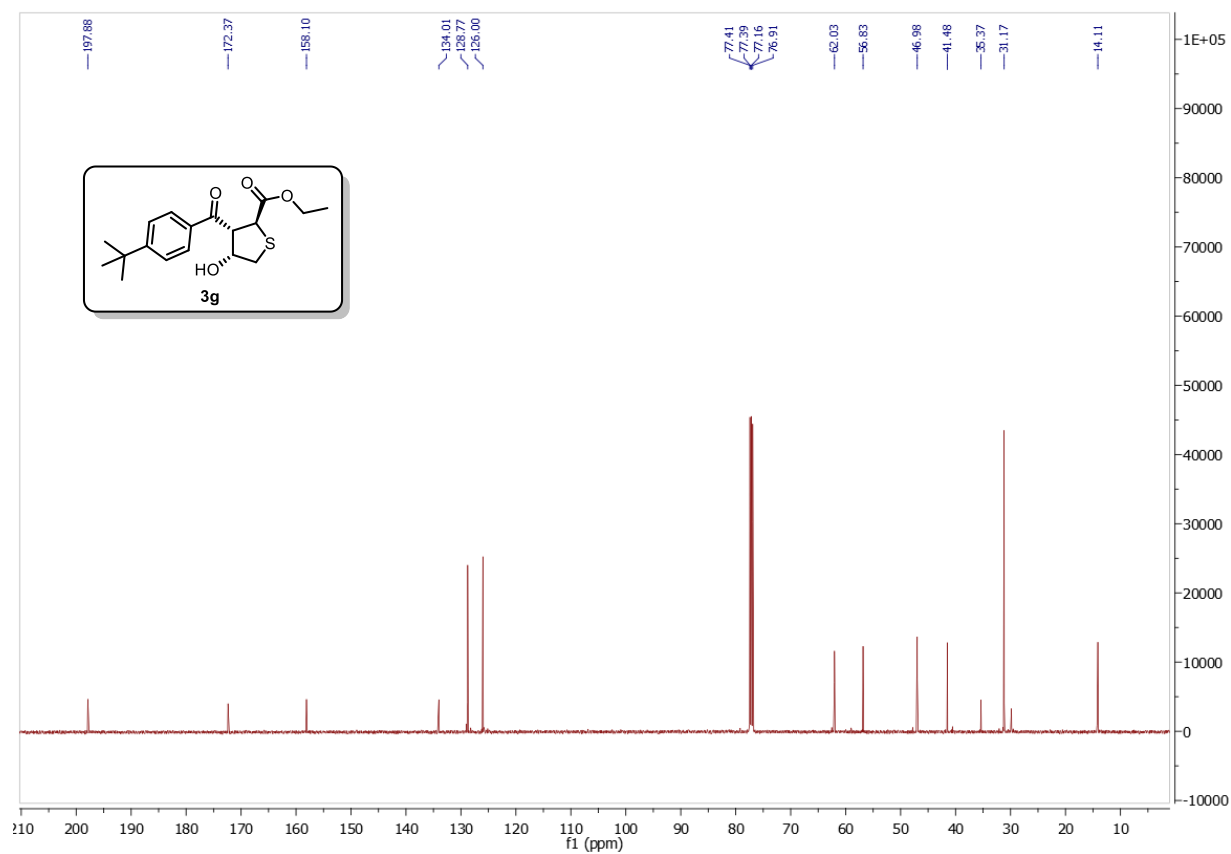
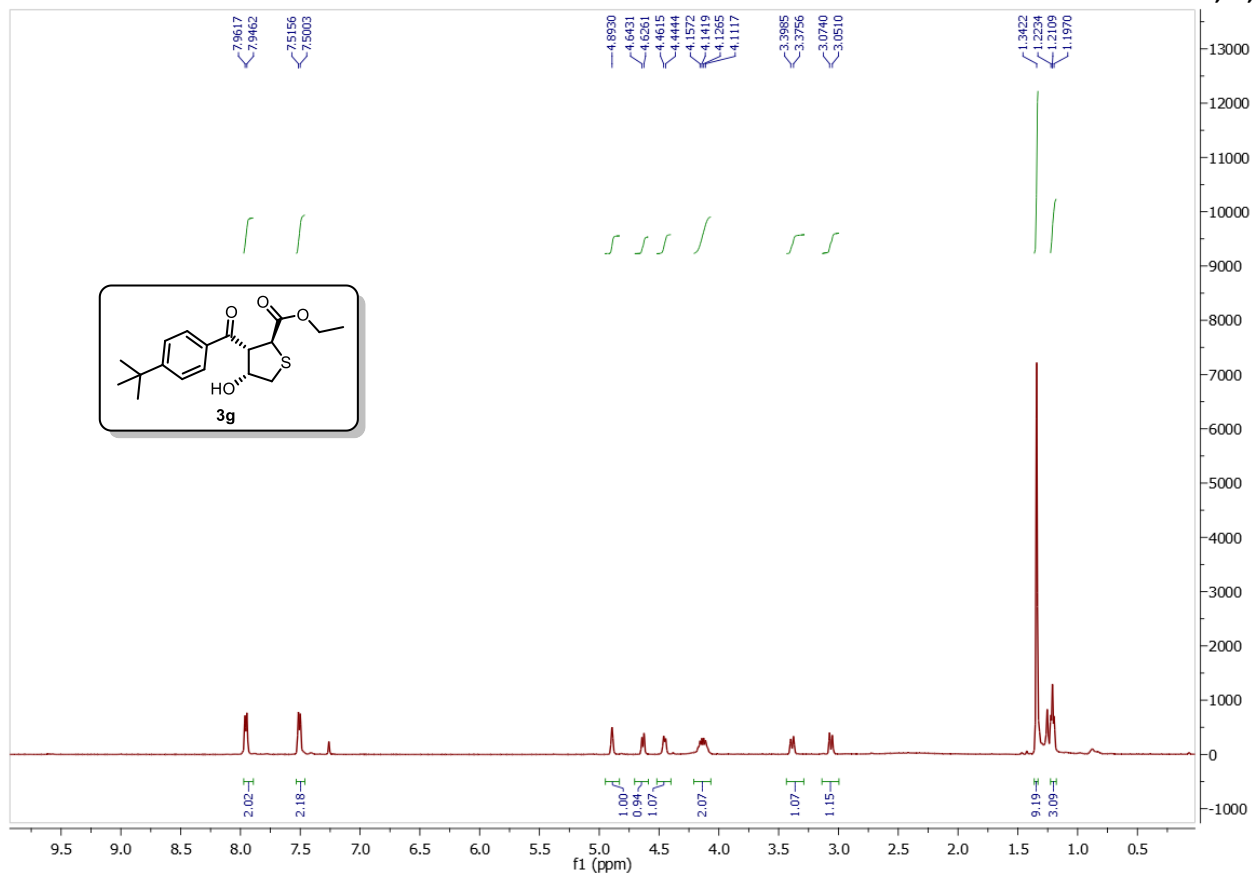
500 MHz ^1H NMR and 125 MHz ^{13}C NMR Spectra of **3b**

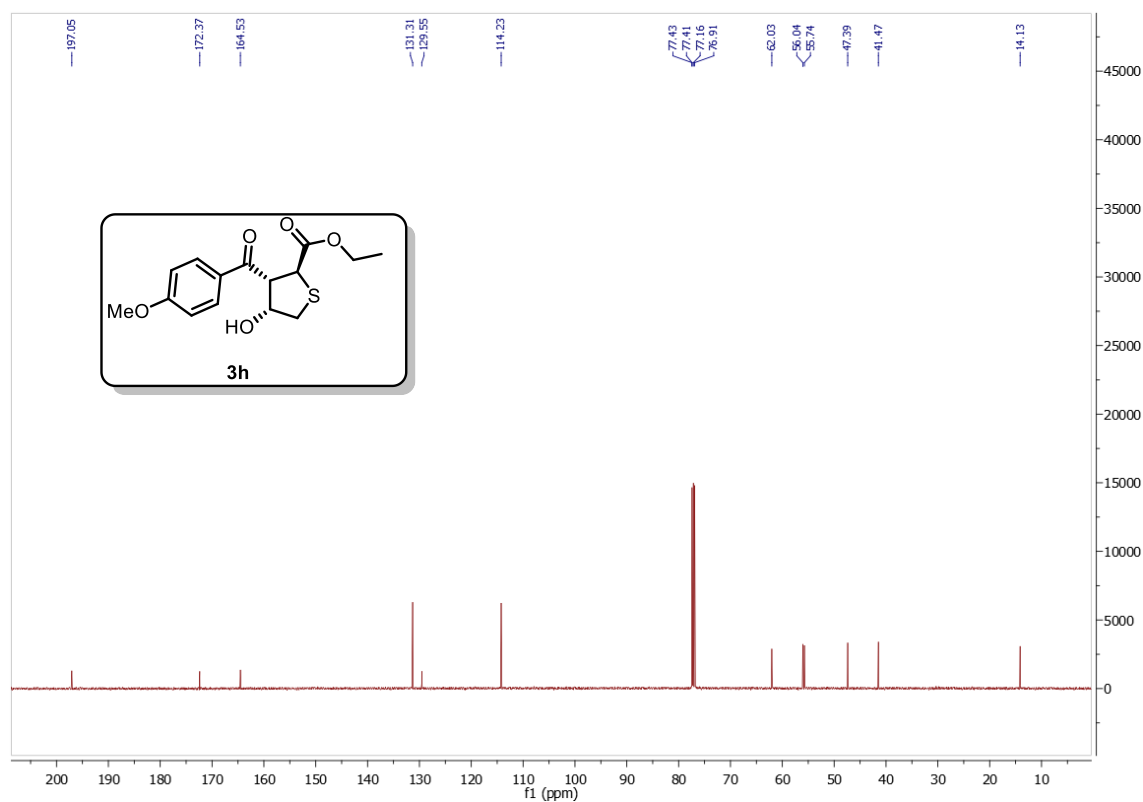
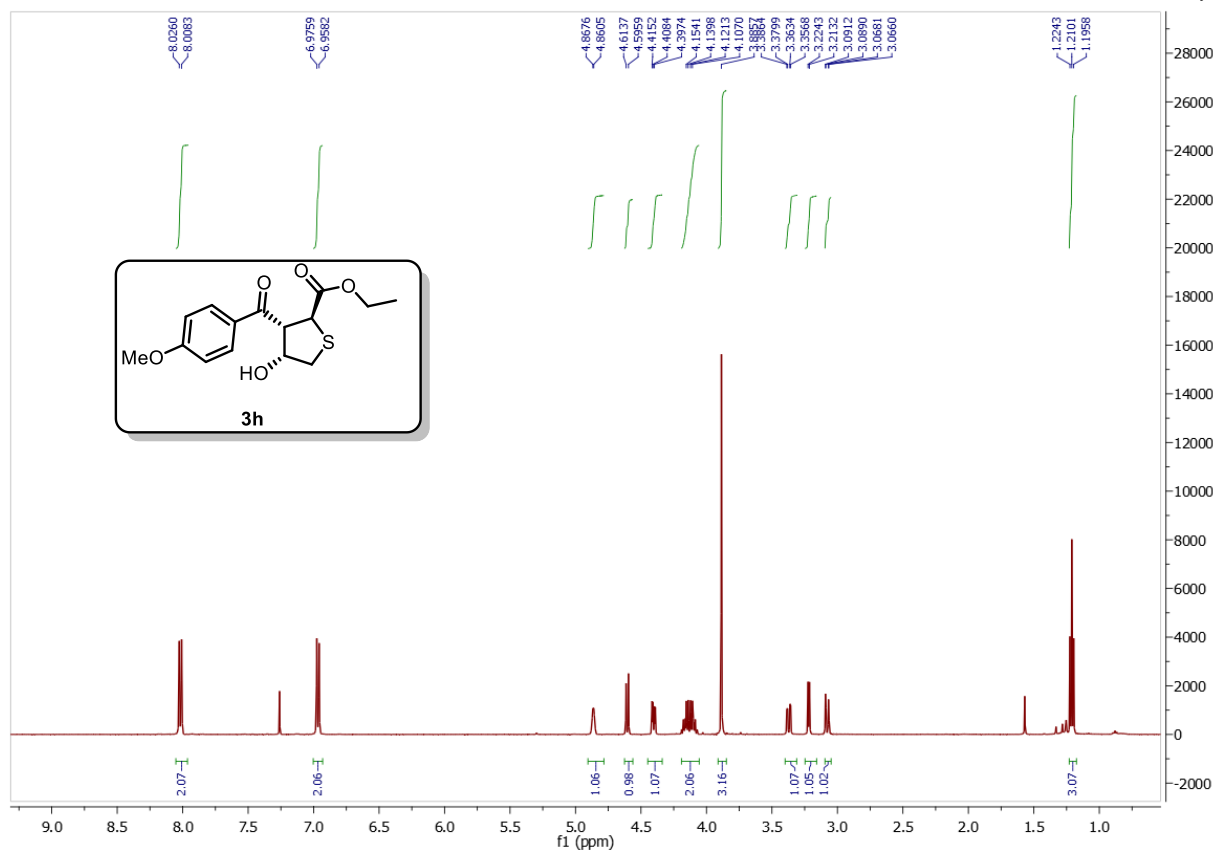
500 MHz ^1H NMR and 125 MHz ^{13}C NMR Spectra of **3c**

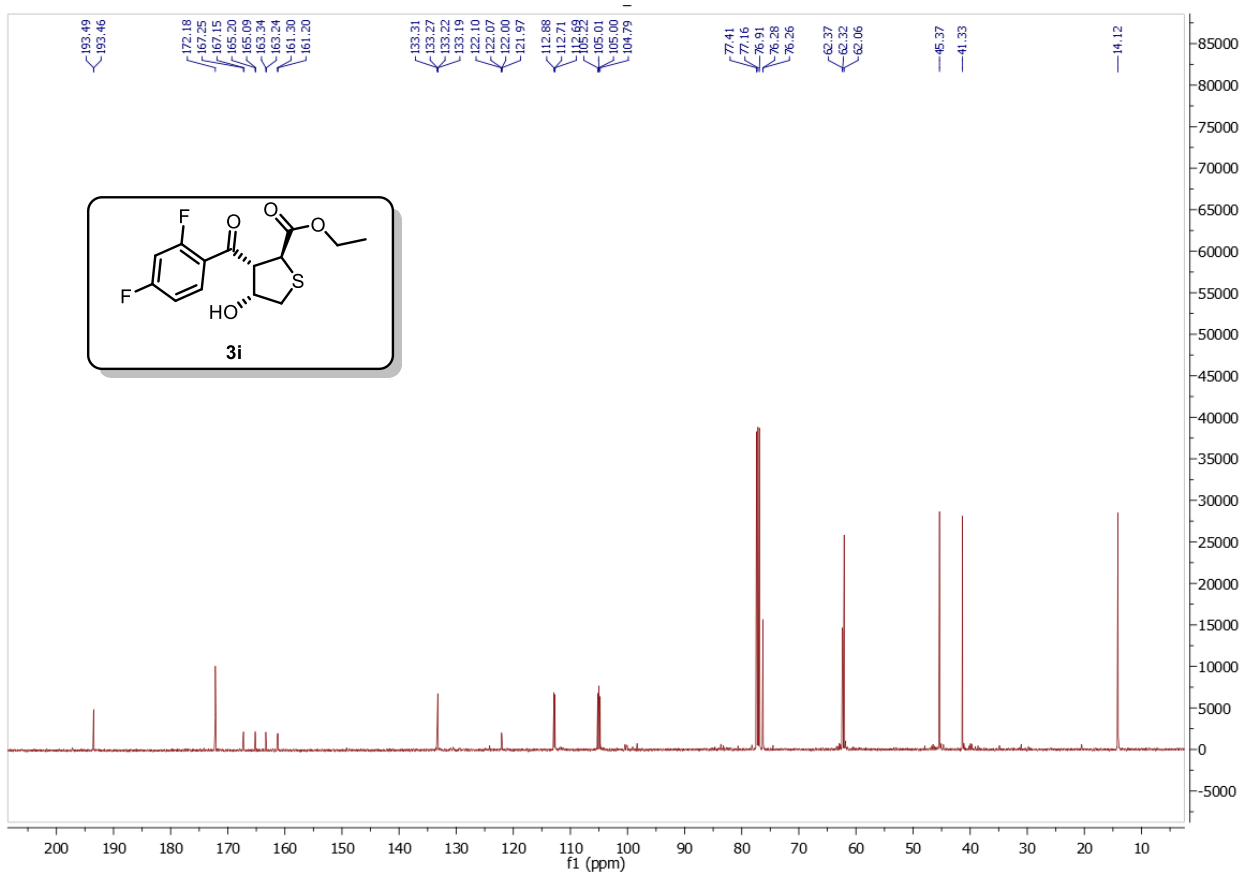
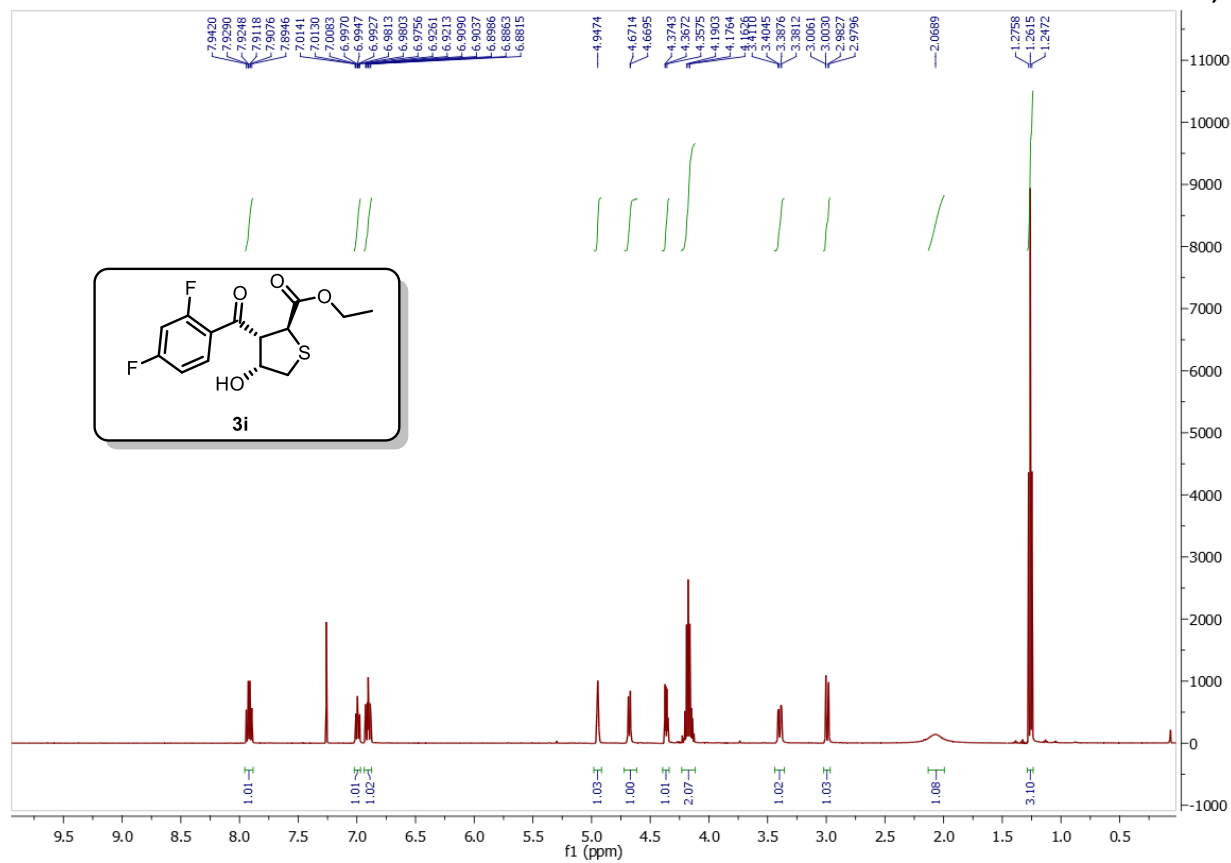
500 MHz $^1\text{H NMR}$ and 125 MHz $^{13}\text{C NMR}$ Spectra of **3d**

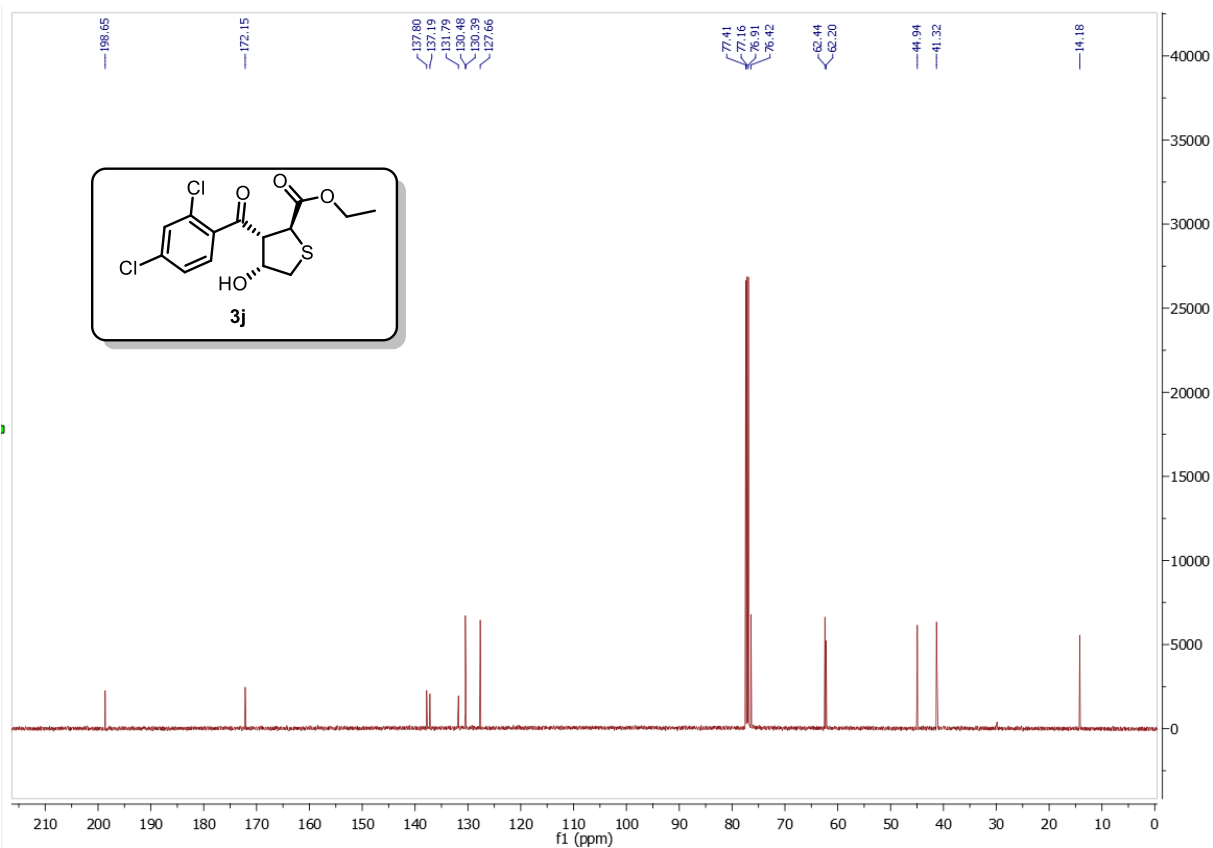
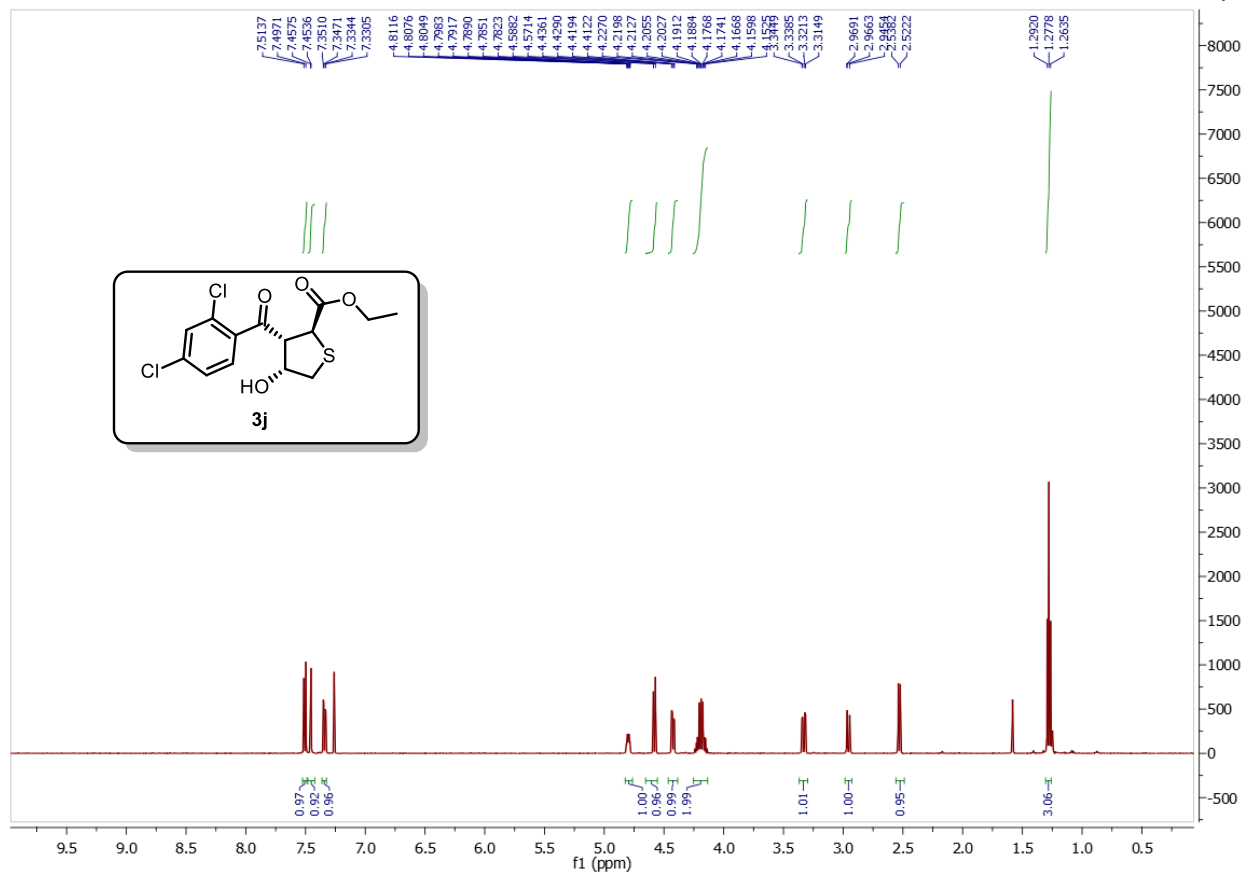
500 MHz ¹H NMR and 125 MHz ¹³C NMR Spectra of **3e**

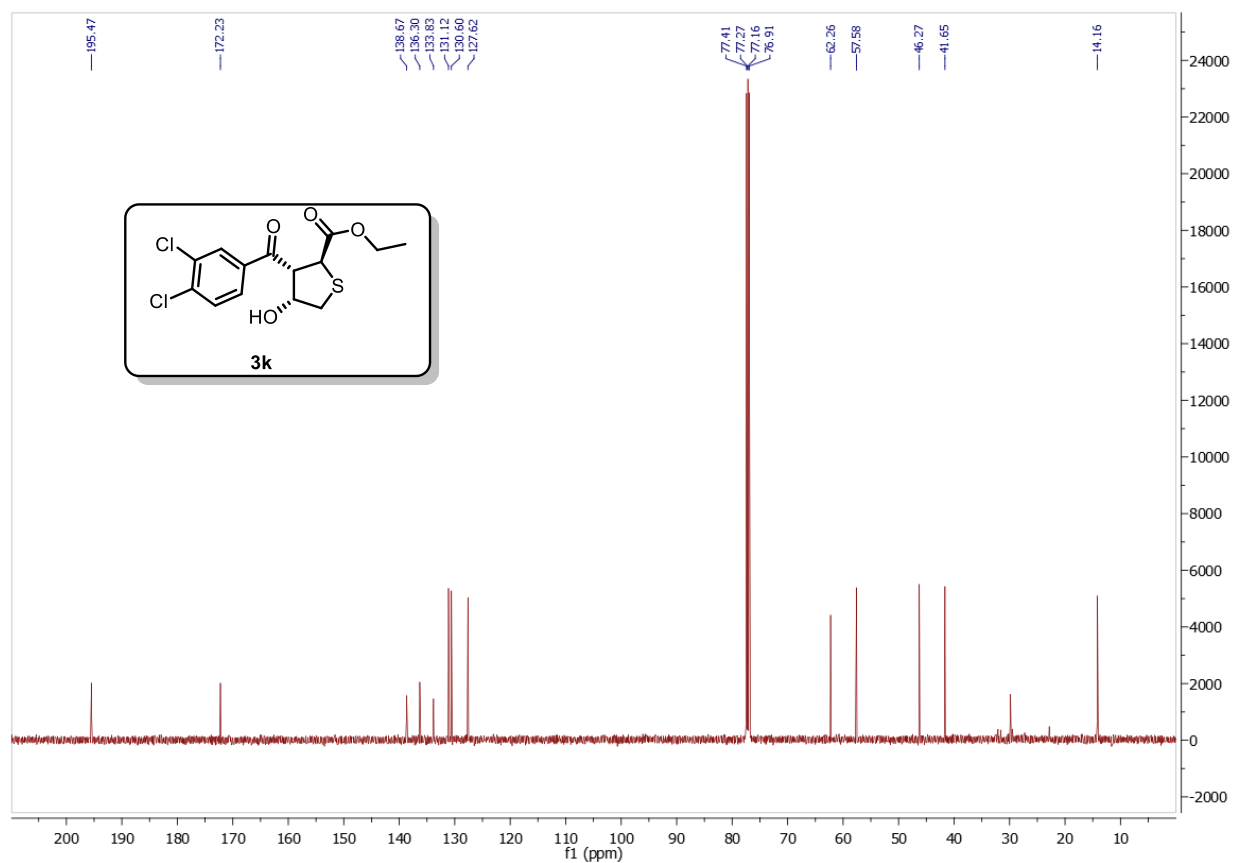
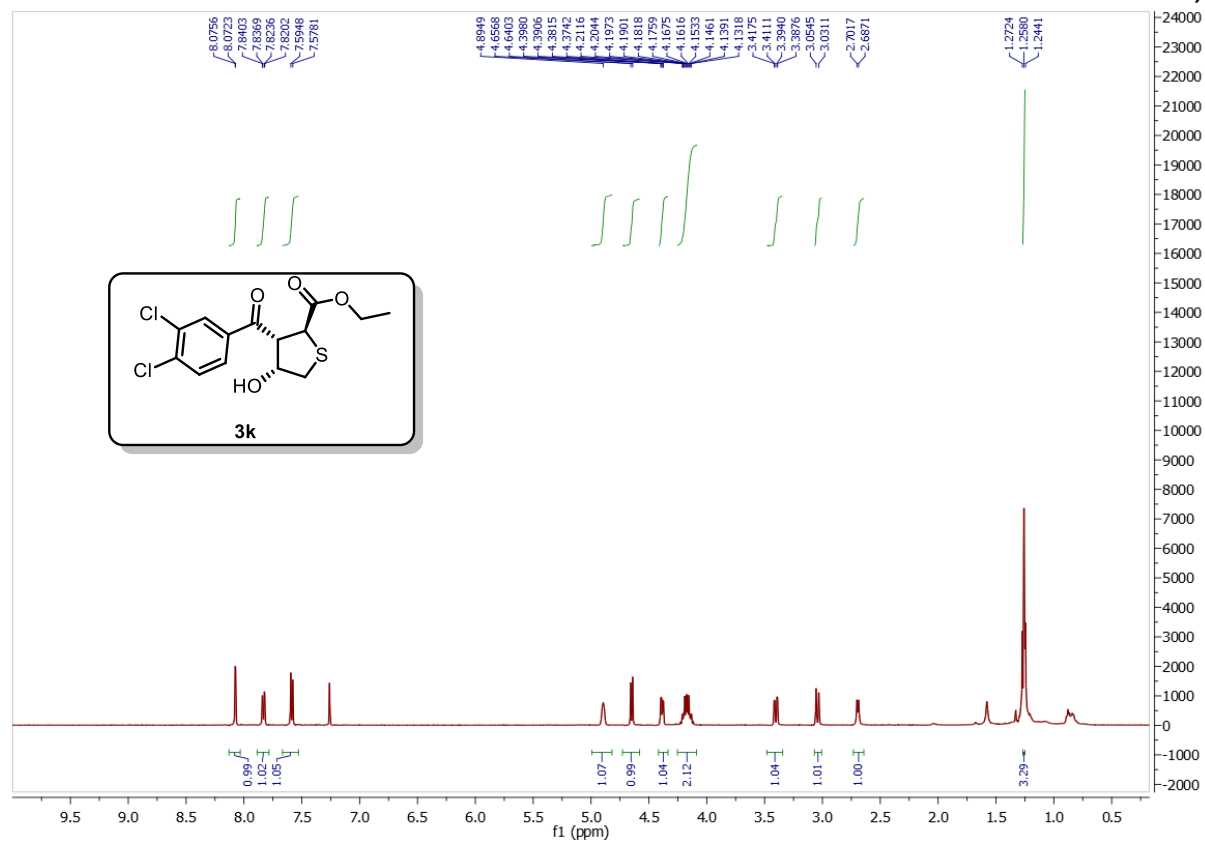
500 MHz ^1H NMR and 125 MHz ^{13}C NMR Spectra of **3f**

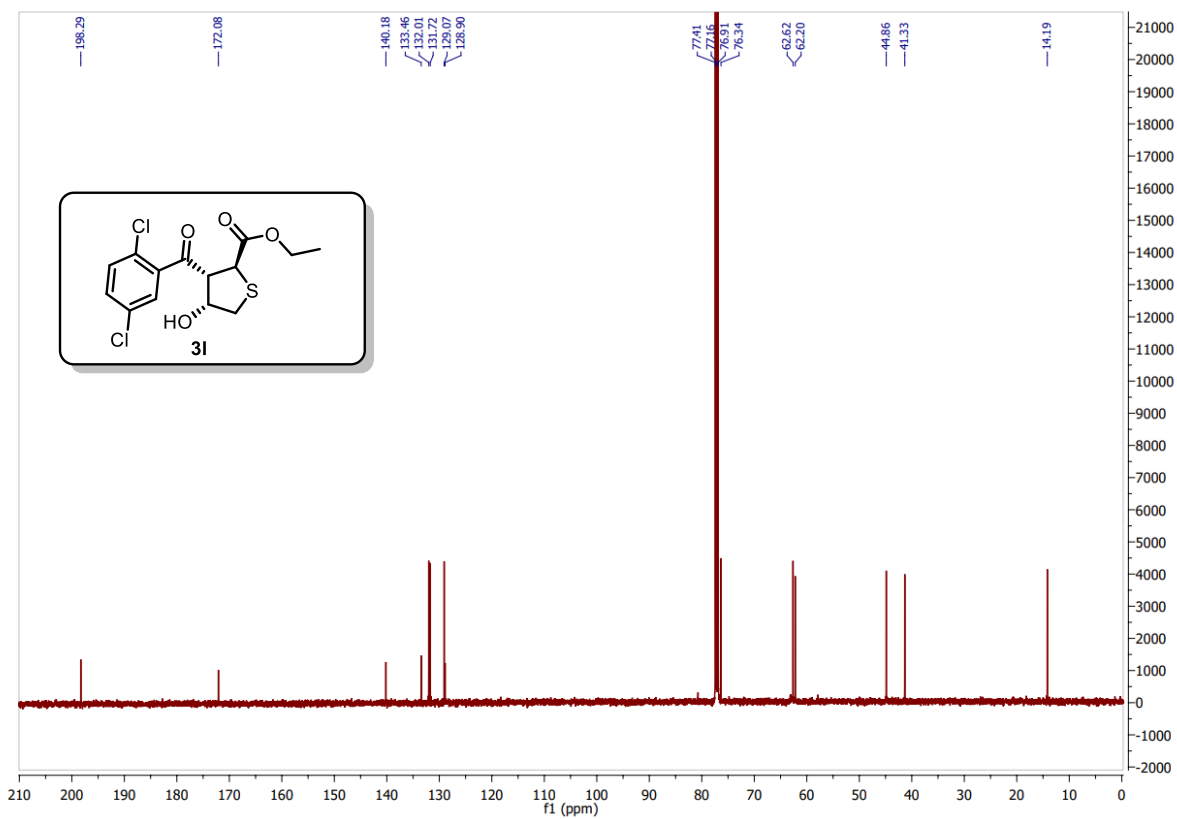
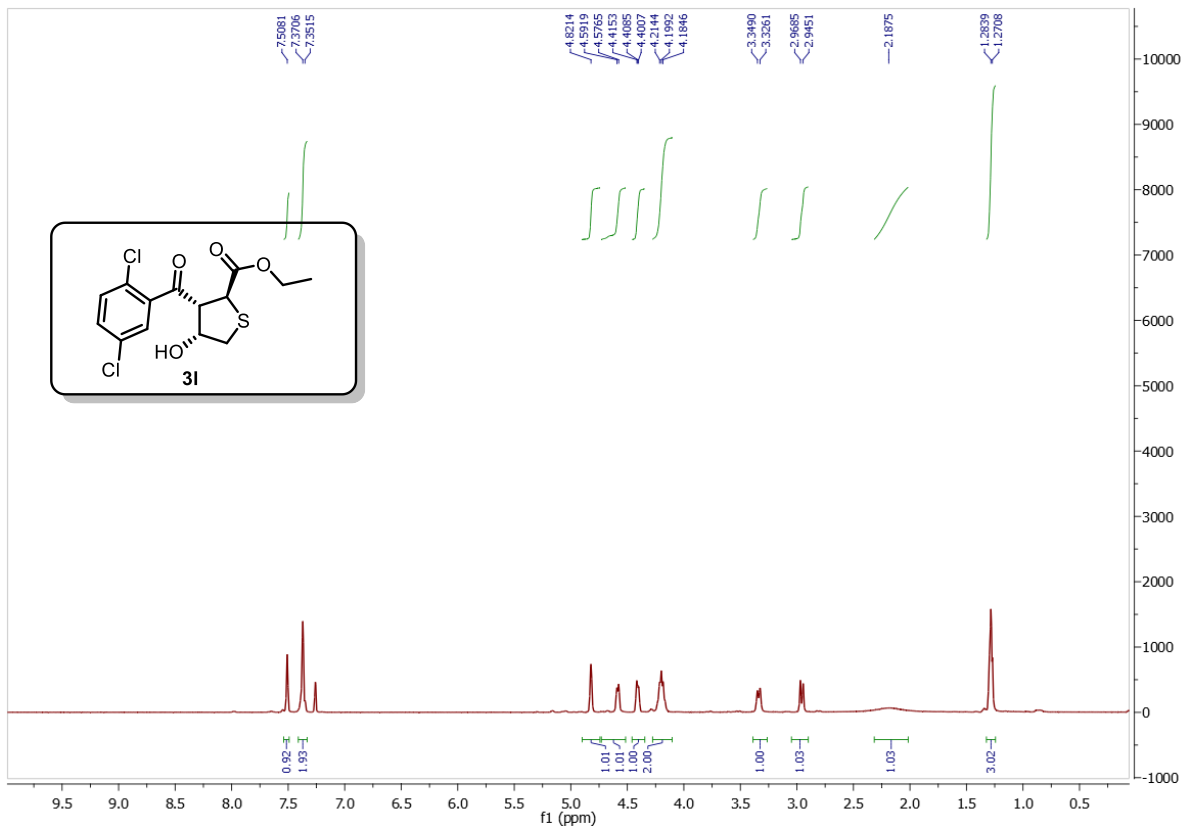
500 MHz ¹H NMR and 125 MHz ¹³C NMR Spectra of **3g**

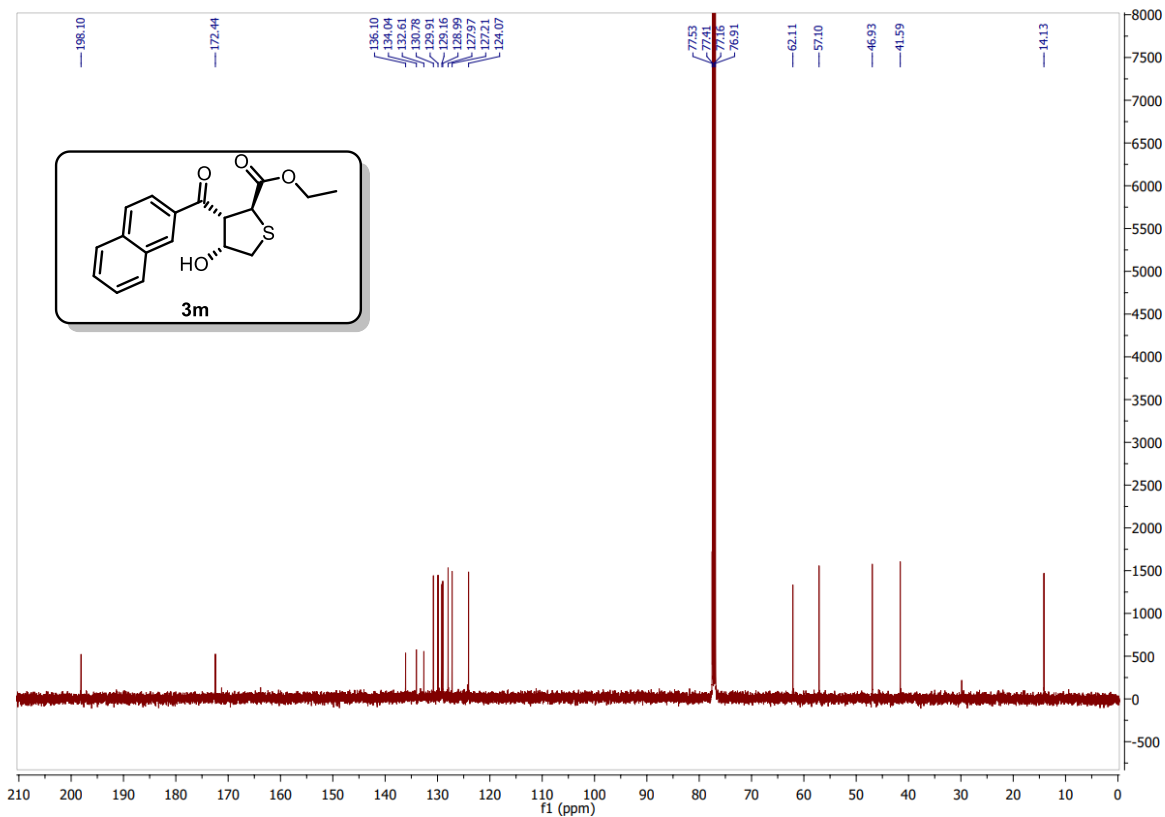
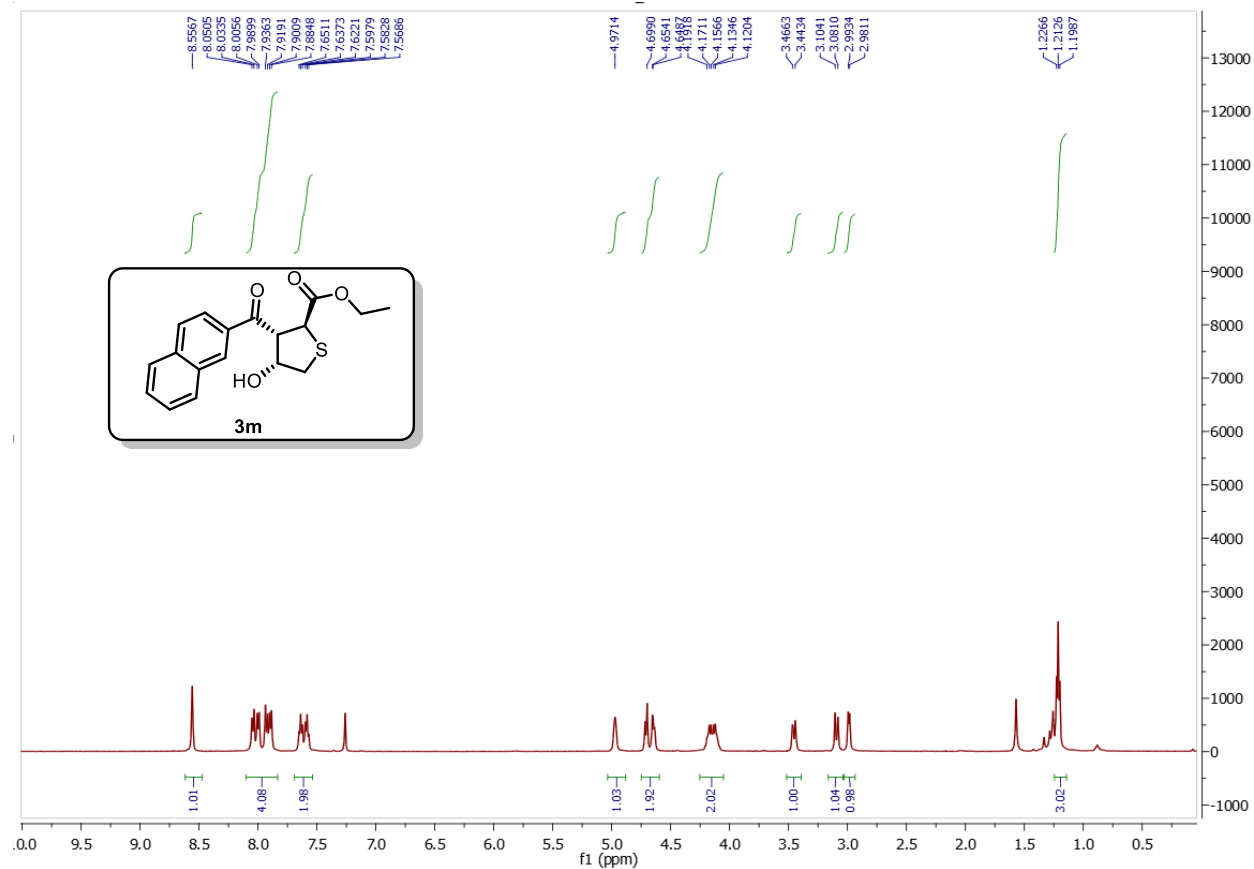
500 MHz ¹H NMR and 125 MHz ¹³C NMR Spectra of **3h**

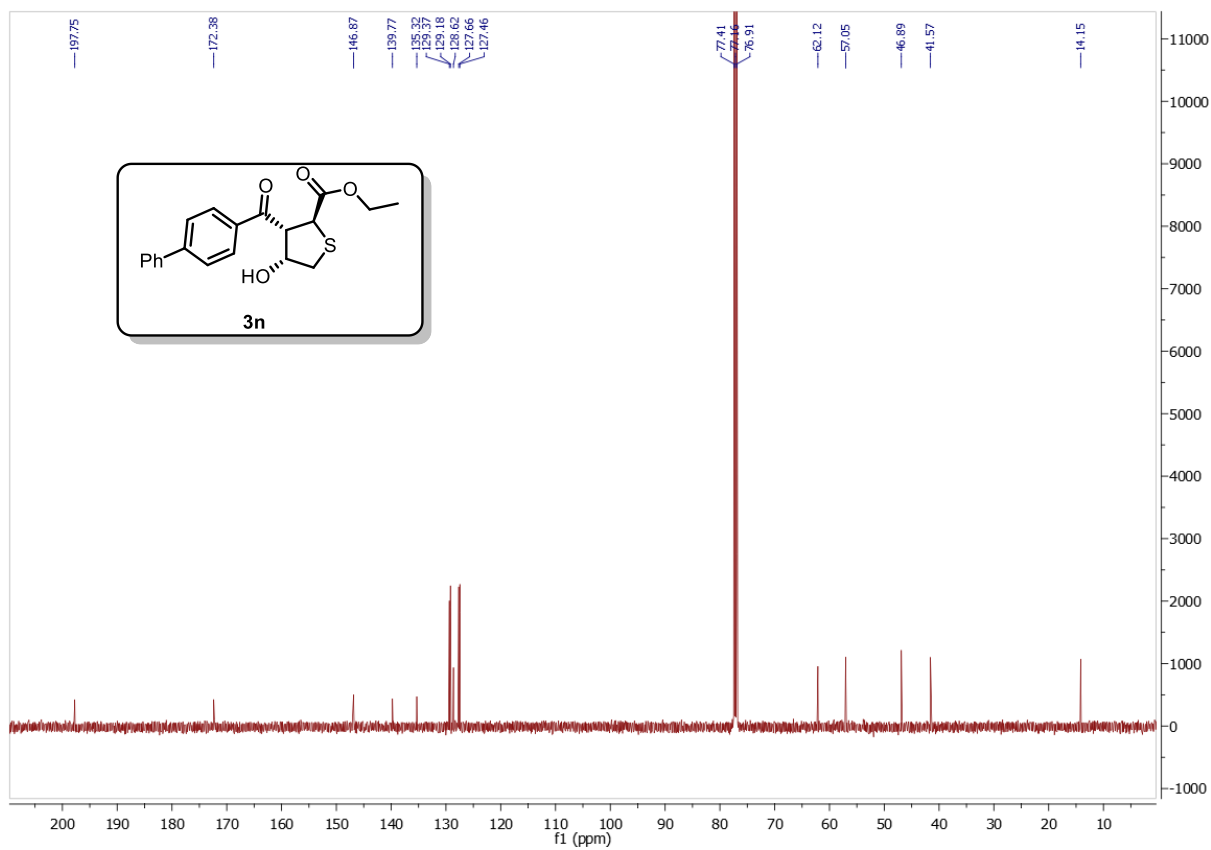
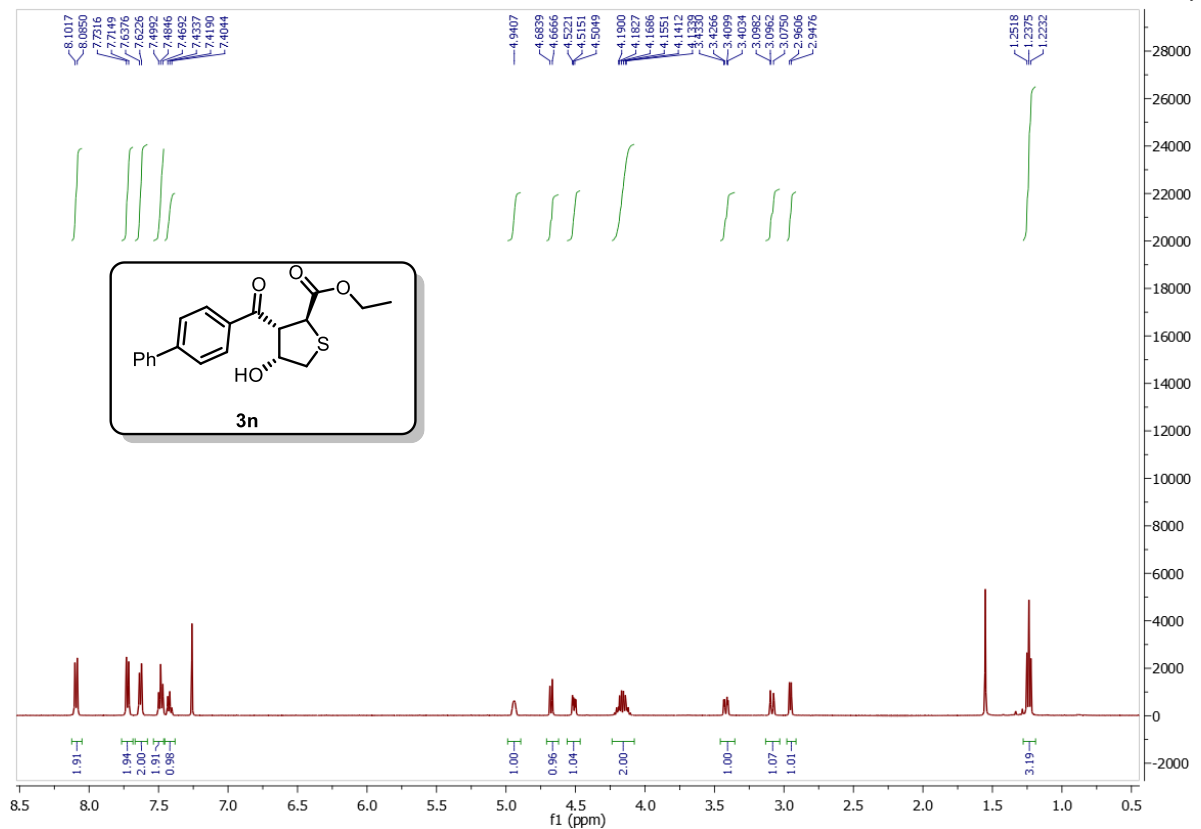
500 MHz ¹H NMR and 125 MHz ¹³C NMR Spectra of **3i**

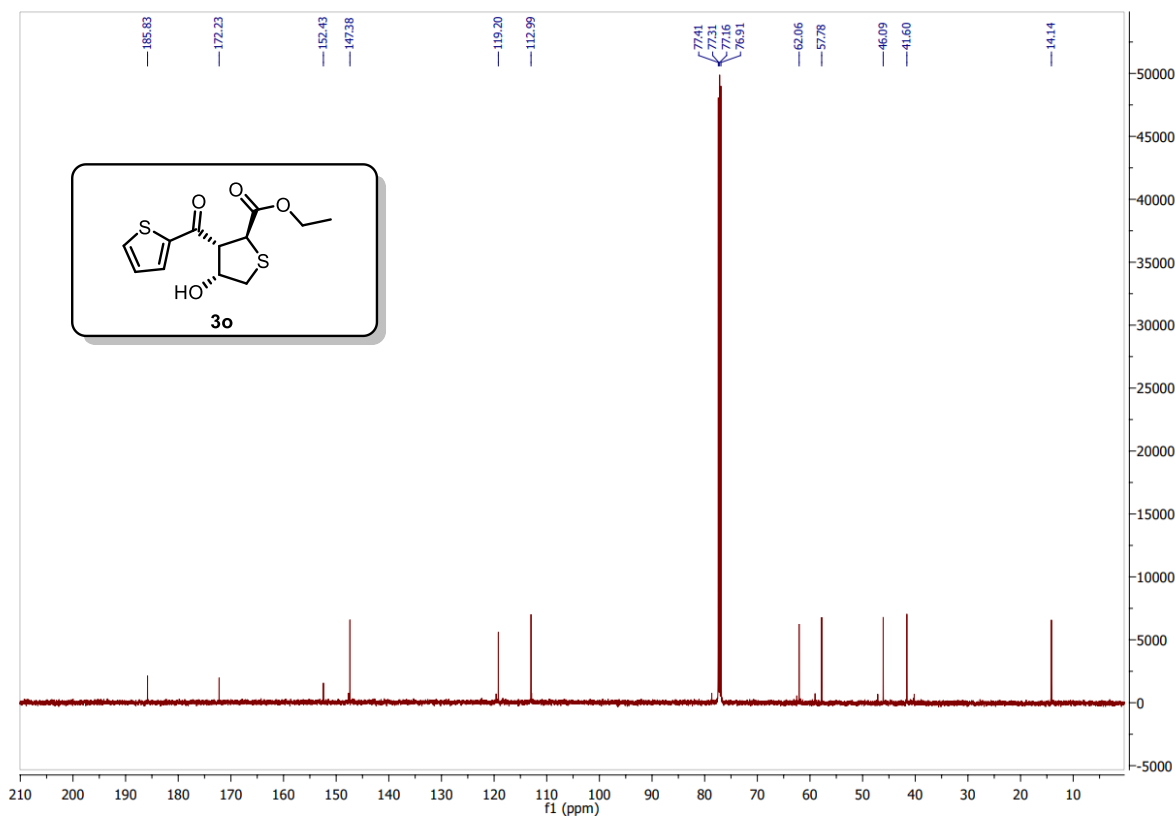
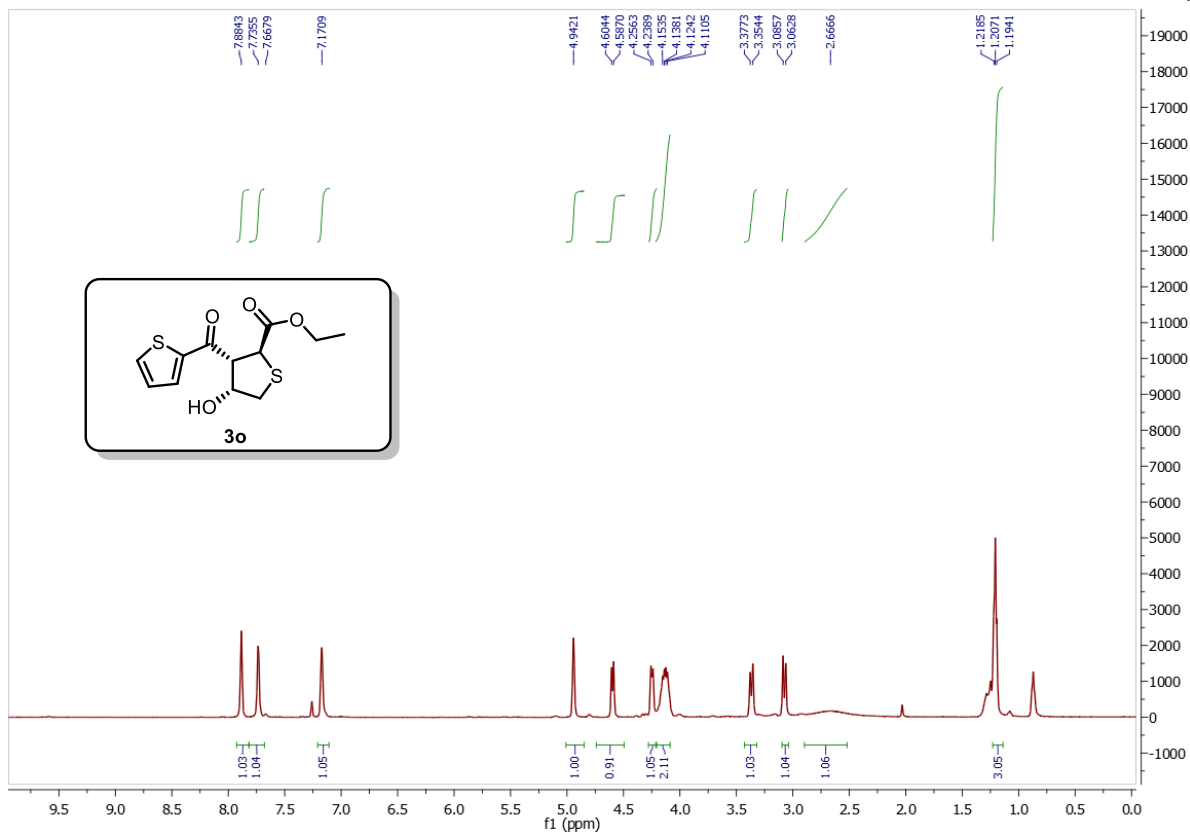
500 MHz ¹H NMR and 125 MHz ¹³C NMR Spectra of **3j**

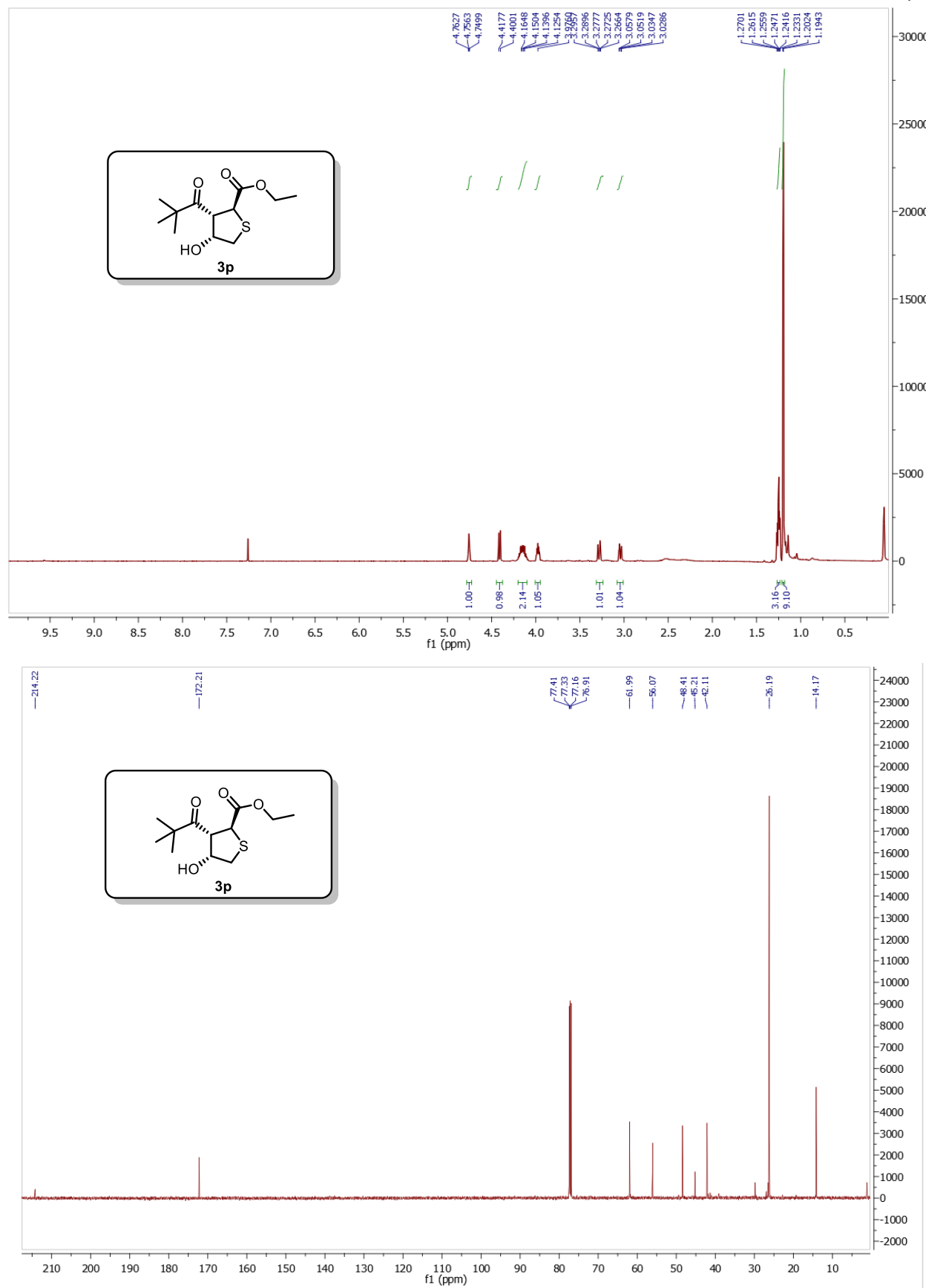
500 MHz ^1H NMR and 125 MHz ^{13}C NMR Spectra of **3k**

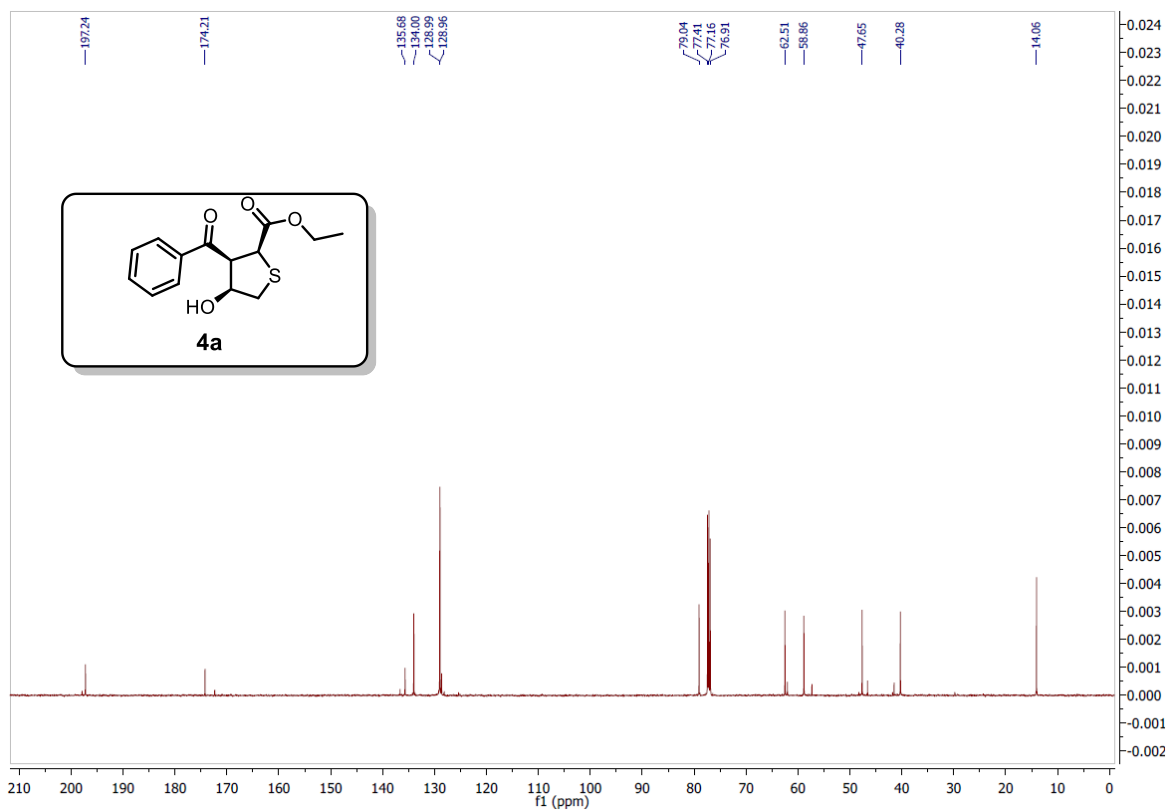
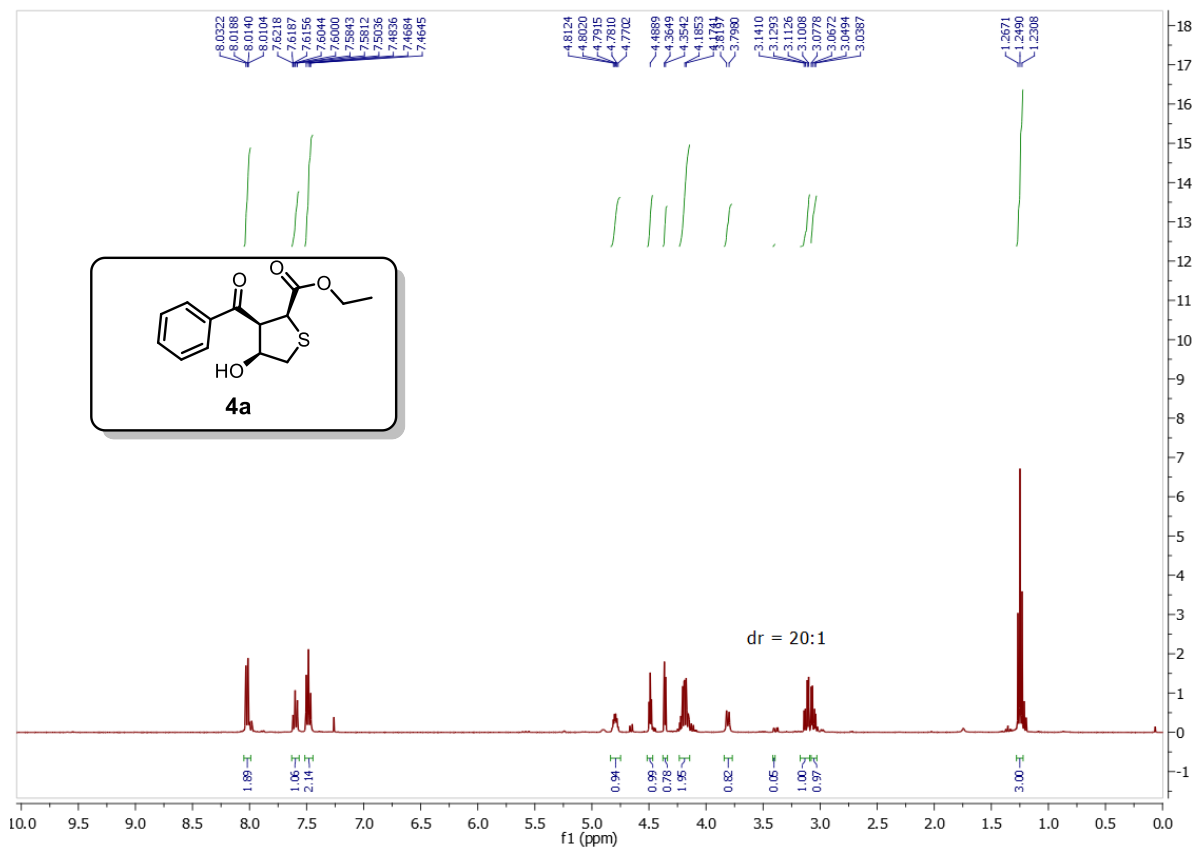
500 MHz ¹H NMR and 125 MHz ¹³C NMR Spectra of **31**

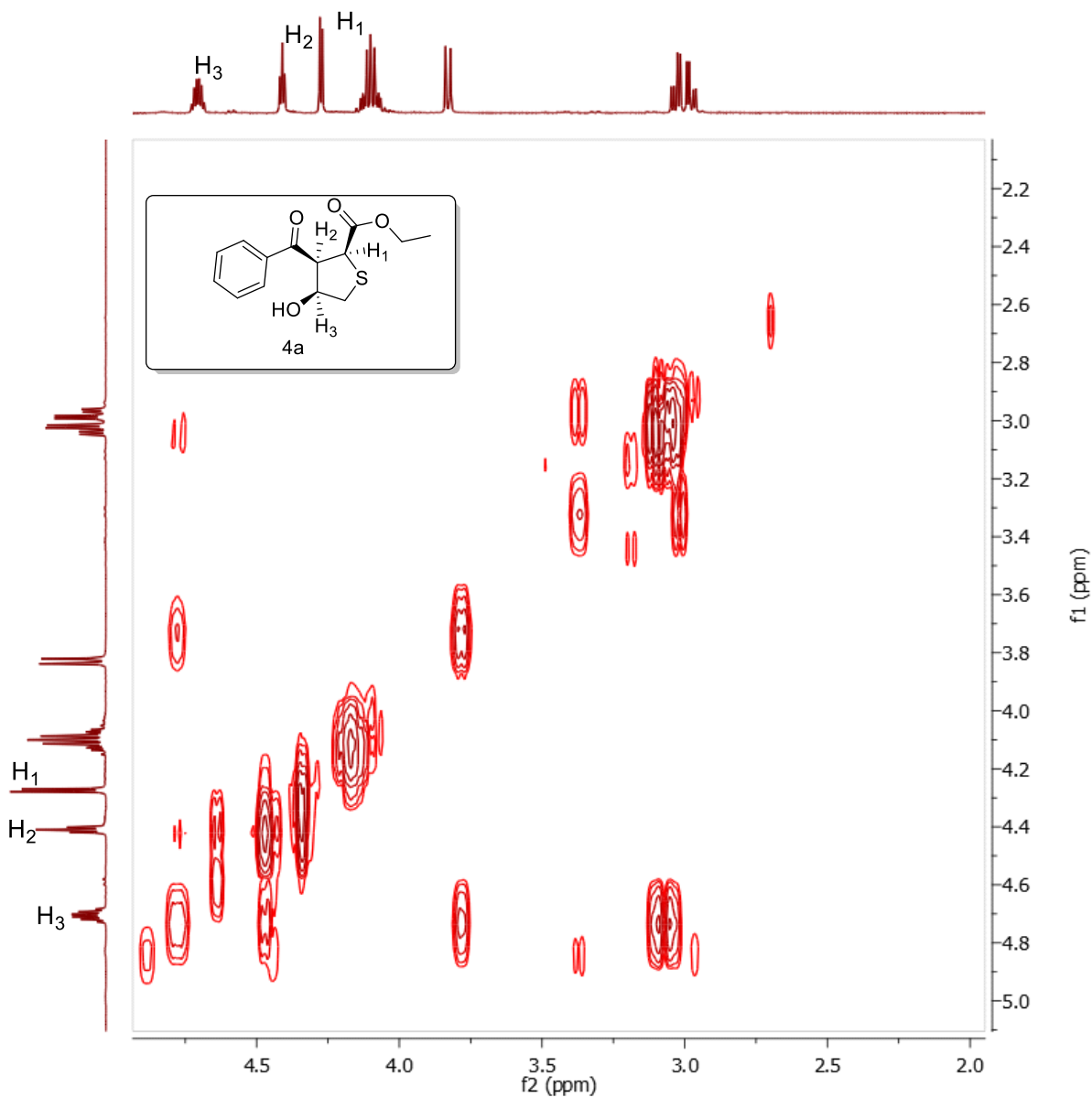
500 MHz ^1H NMR and 125 MHz ^{13}C NMR Spectra of **3m**

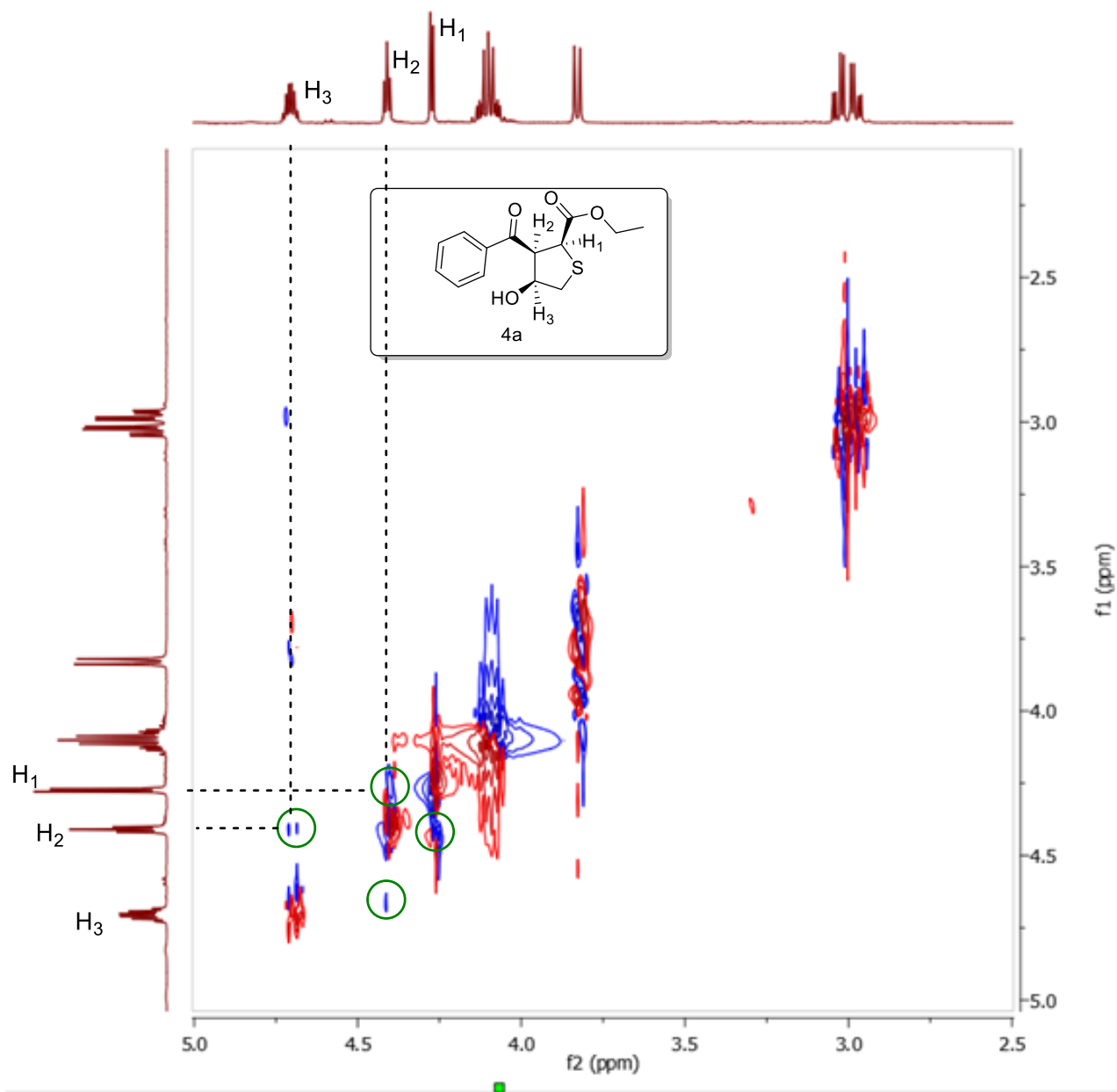
500 MHz ^1H NMR and 125 MHz ^{13}C NMR Spectra of **3n**

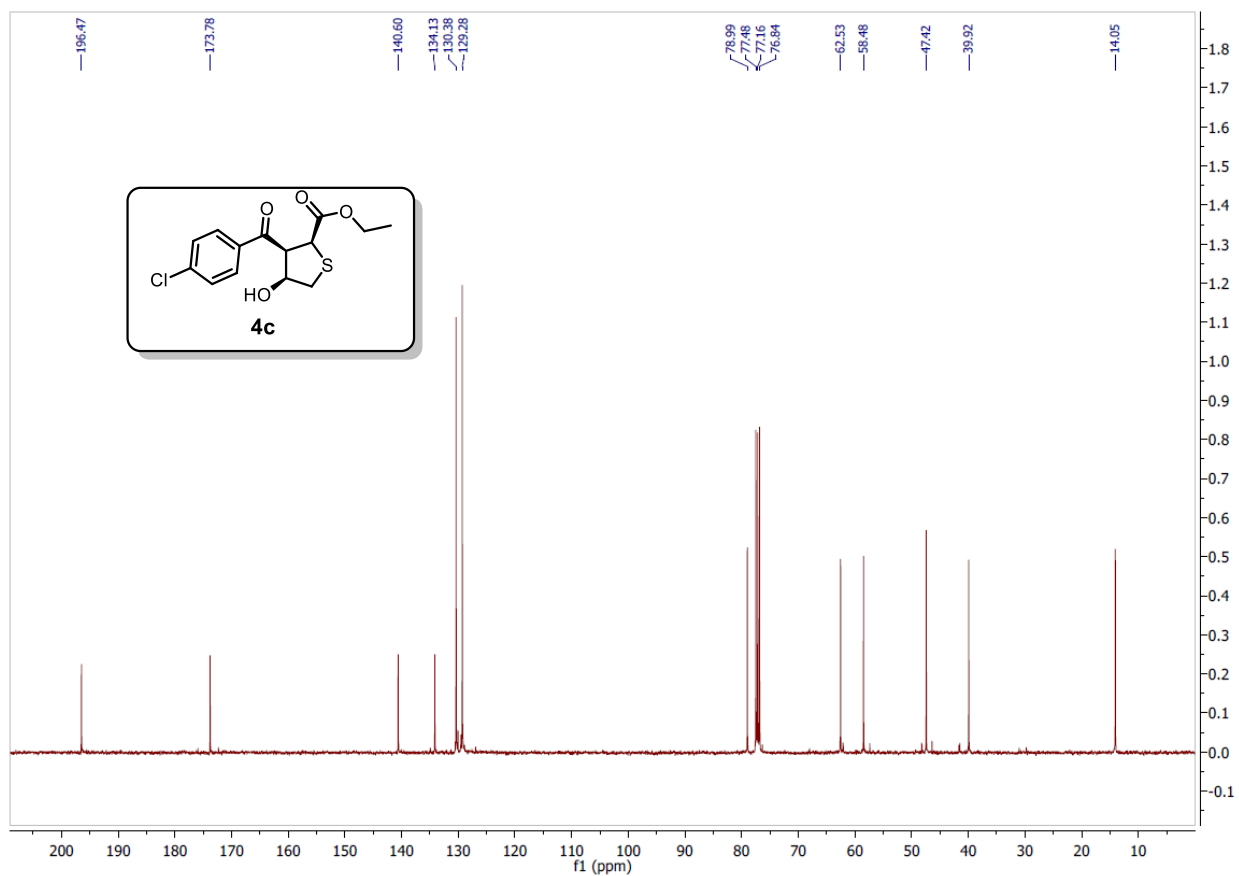
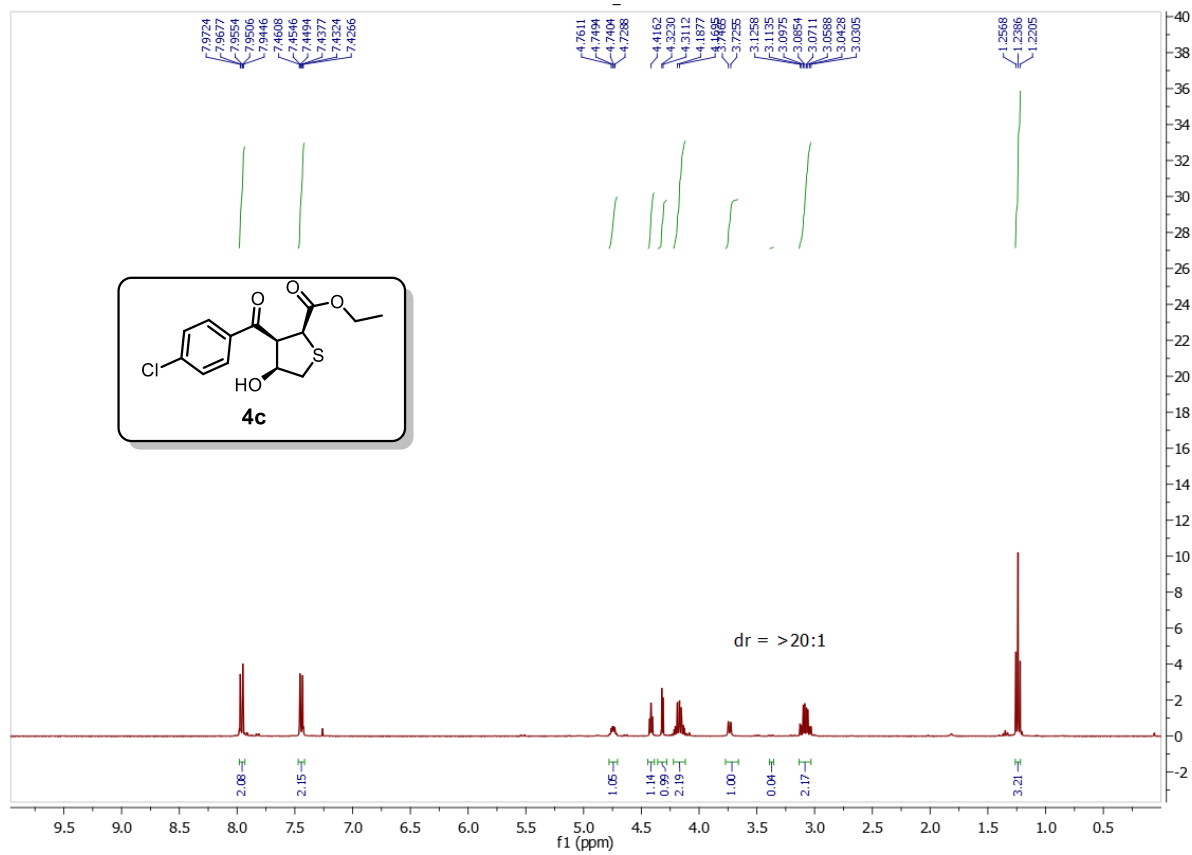
500 MHz ¹H NMR and 125 MHz ¹³C NMR Spectra of **3o**

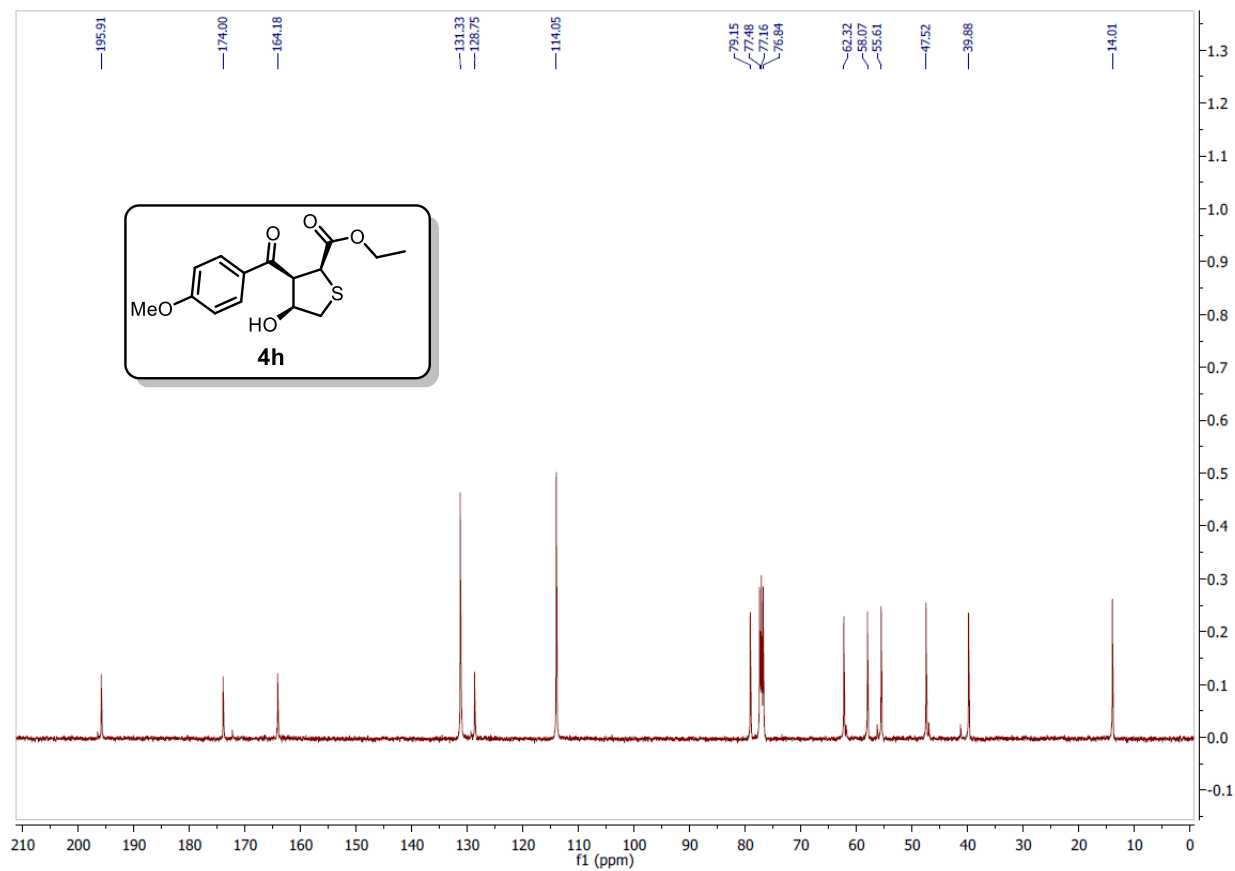
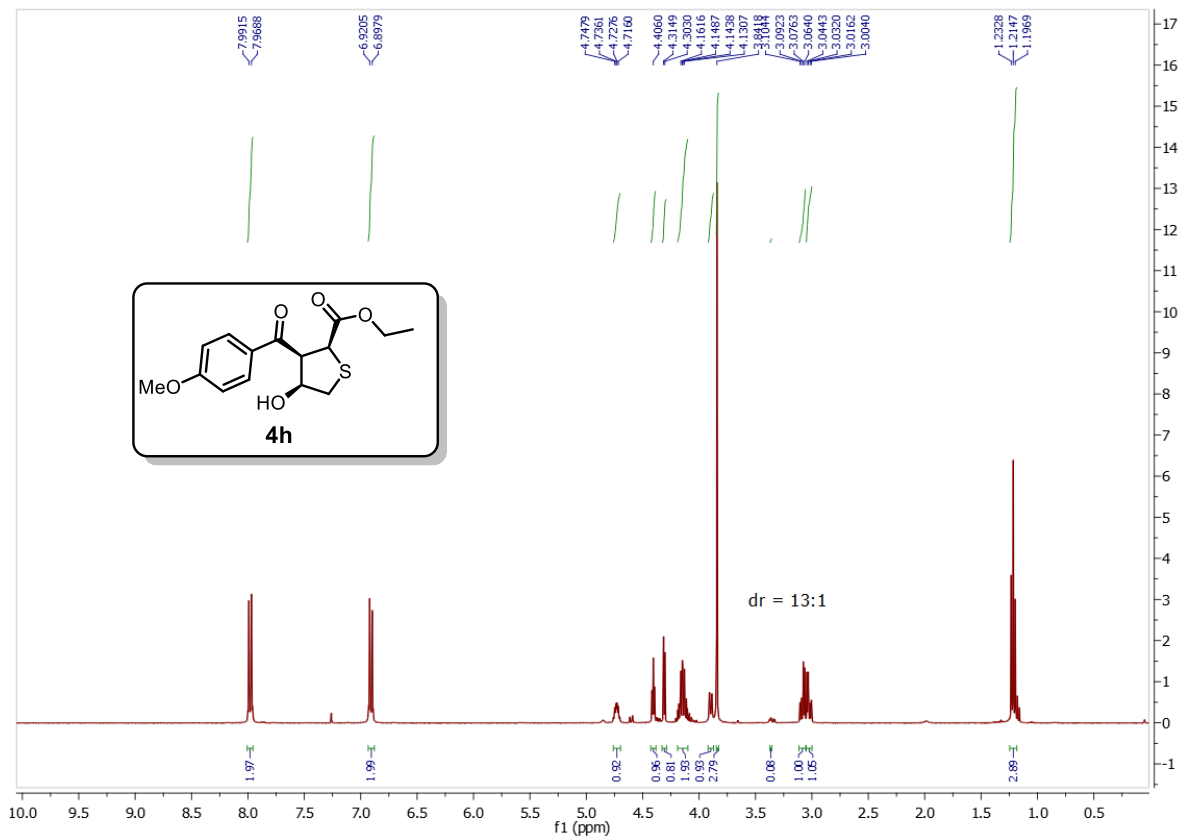
500 MHz ¹H NMR and 125 MHz ¹³C NMR Spectra of **3p**

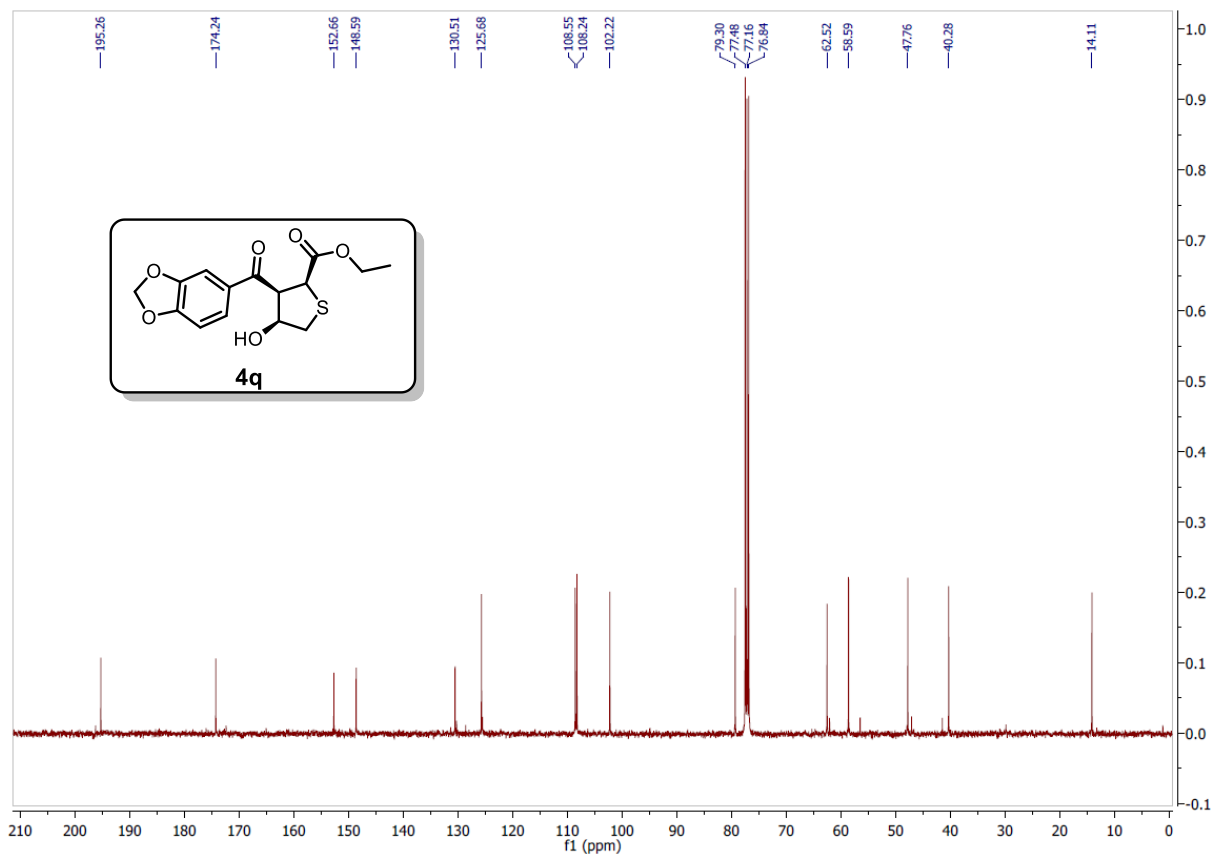
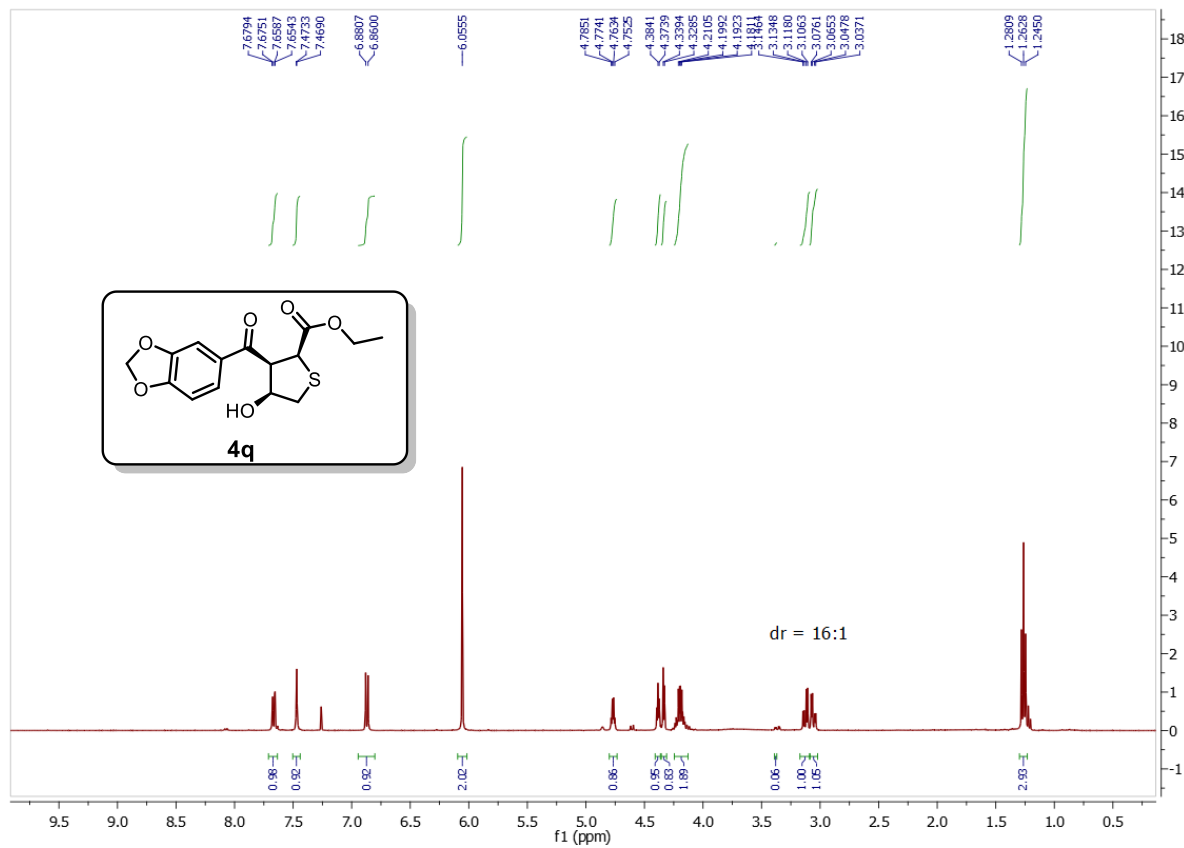
500 MHz ^1H NMR and 125 MHz ^{13}C NMR Spectra of **4a**

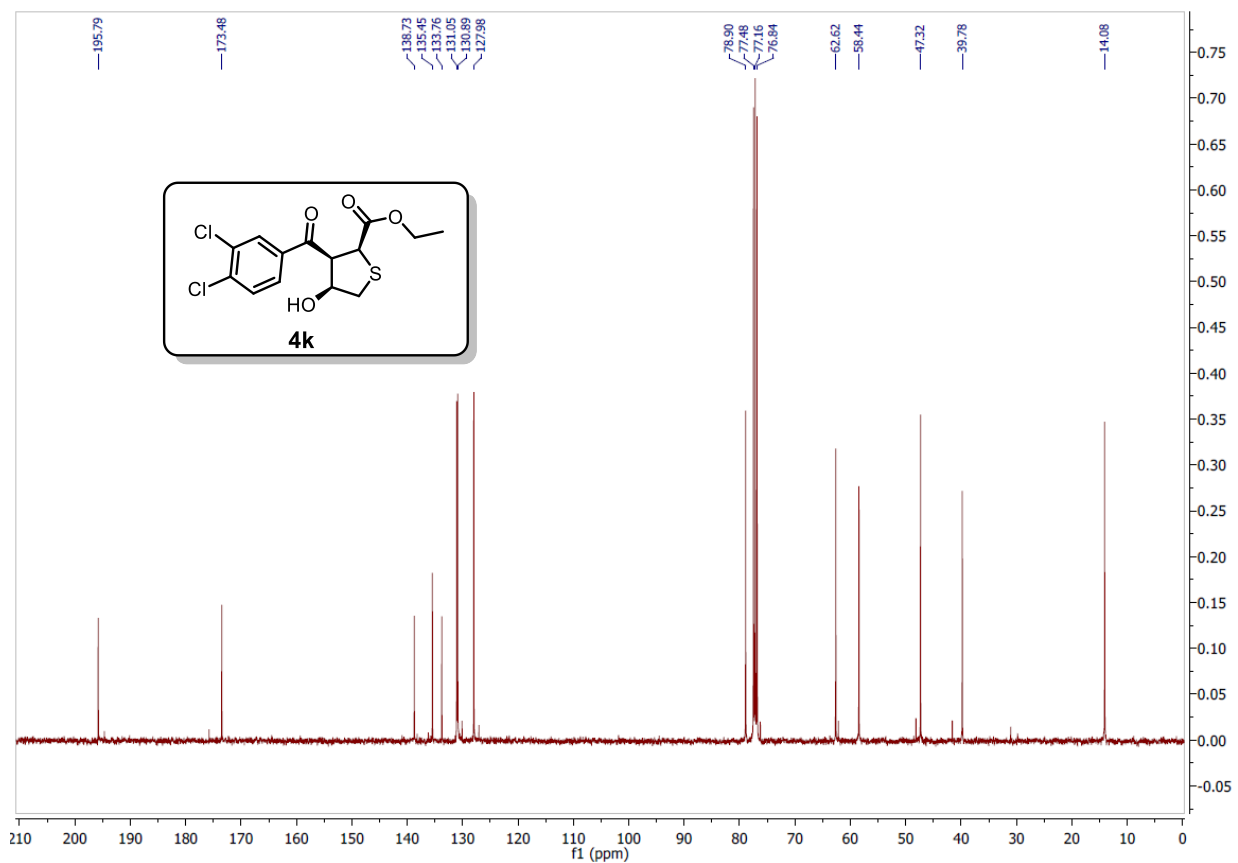
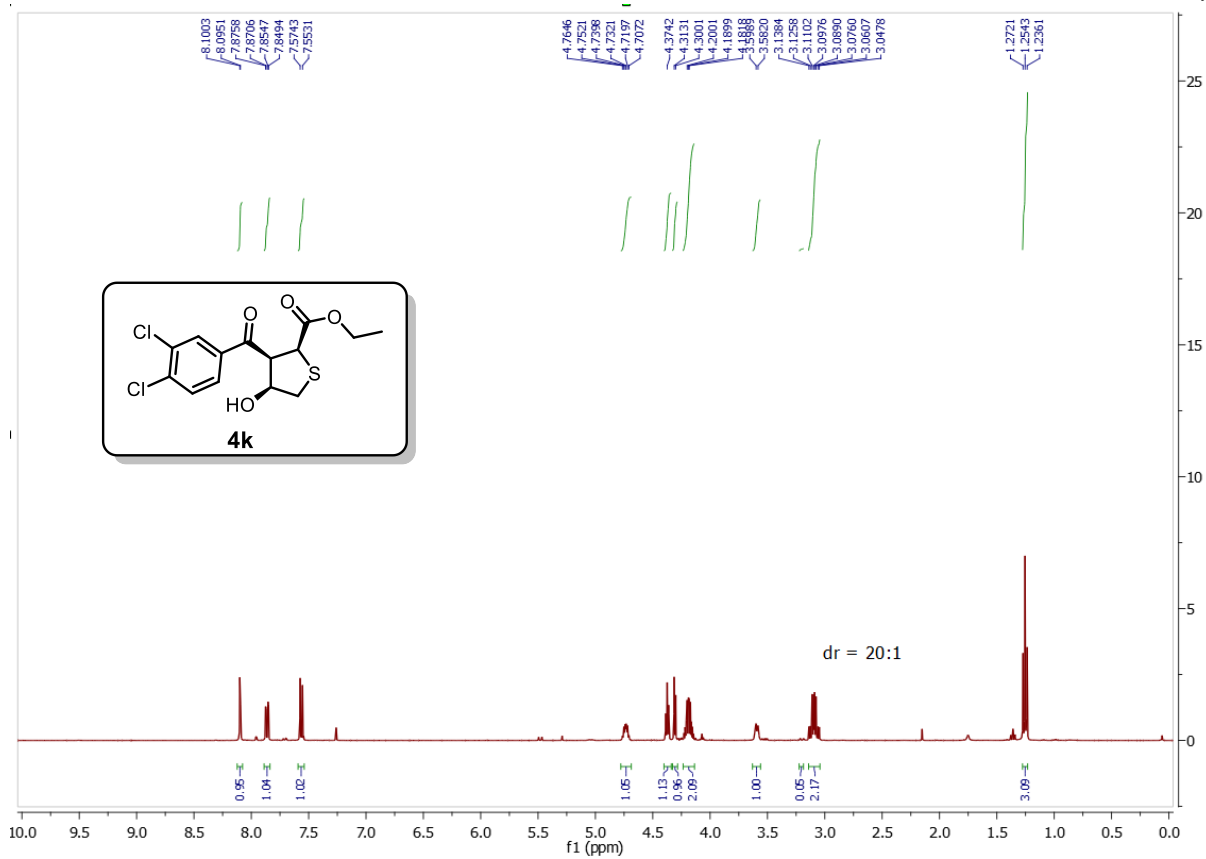
500 MHz ¹H-¹H COSY Spectra of 4a

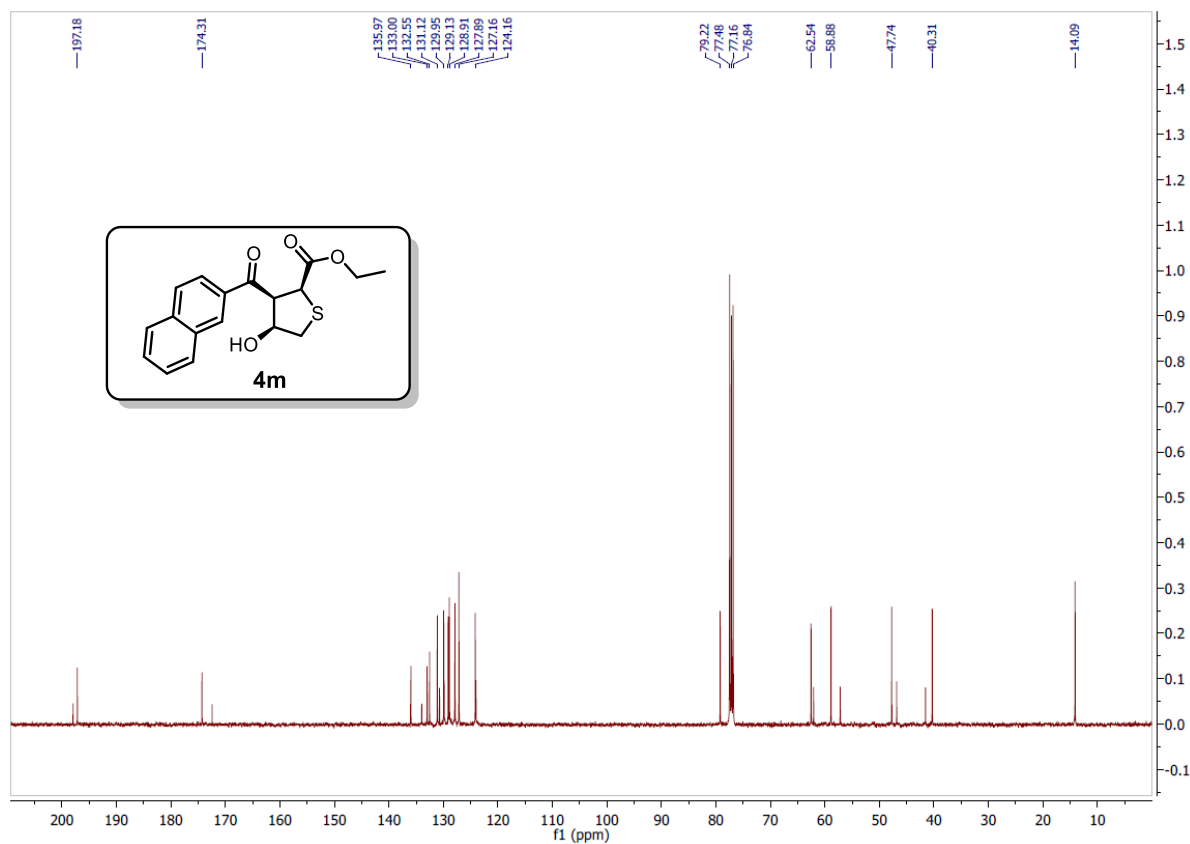
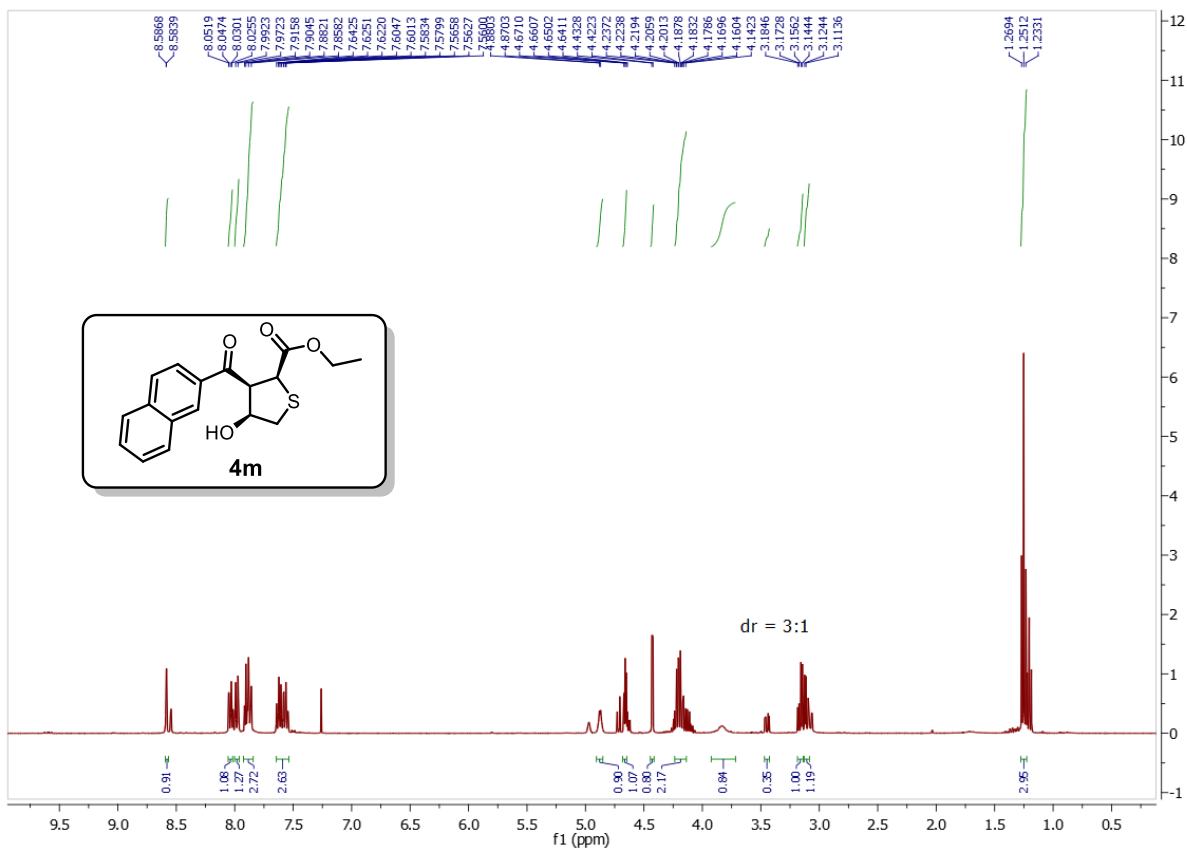
500 MHz NOESY Spectra of **4a**

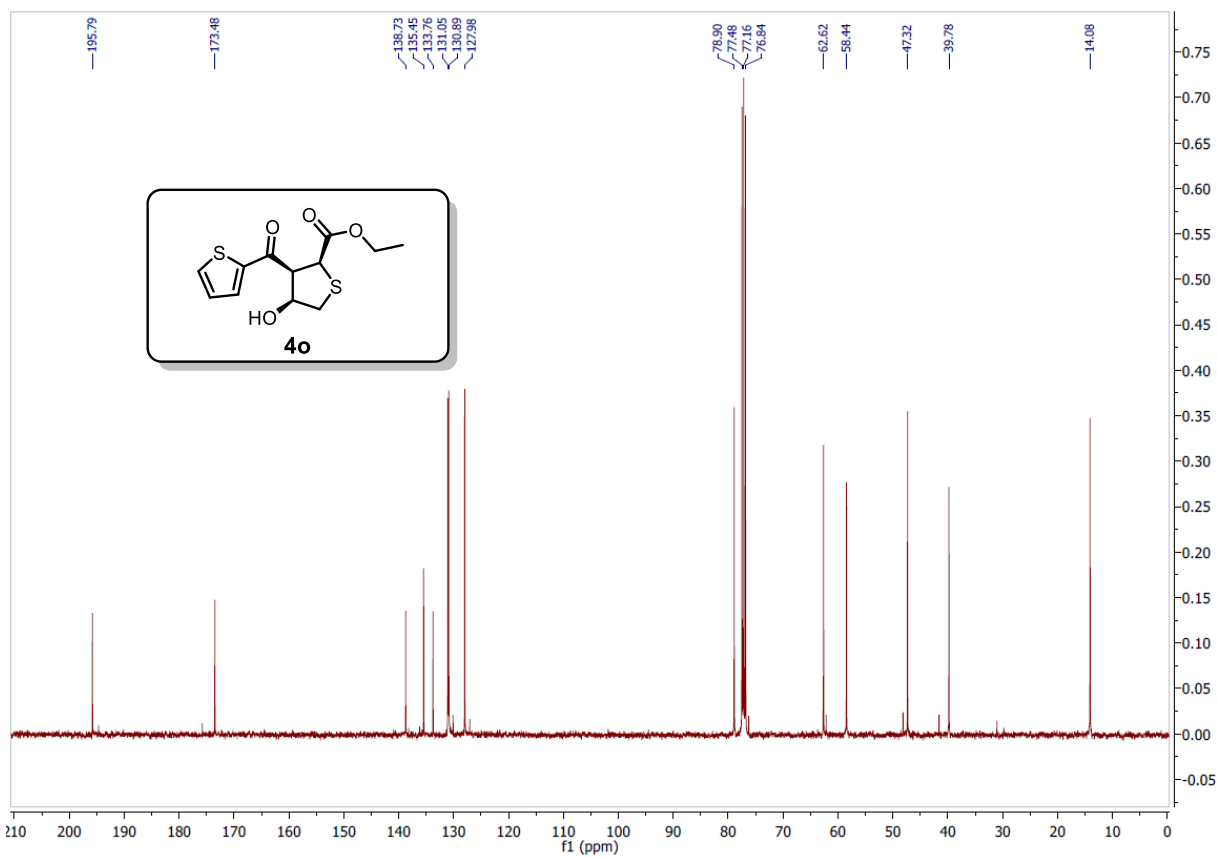
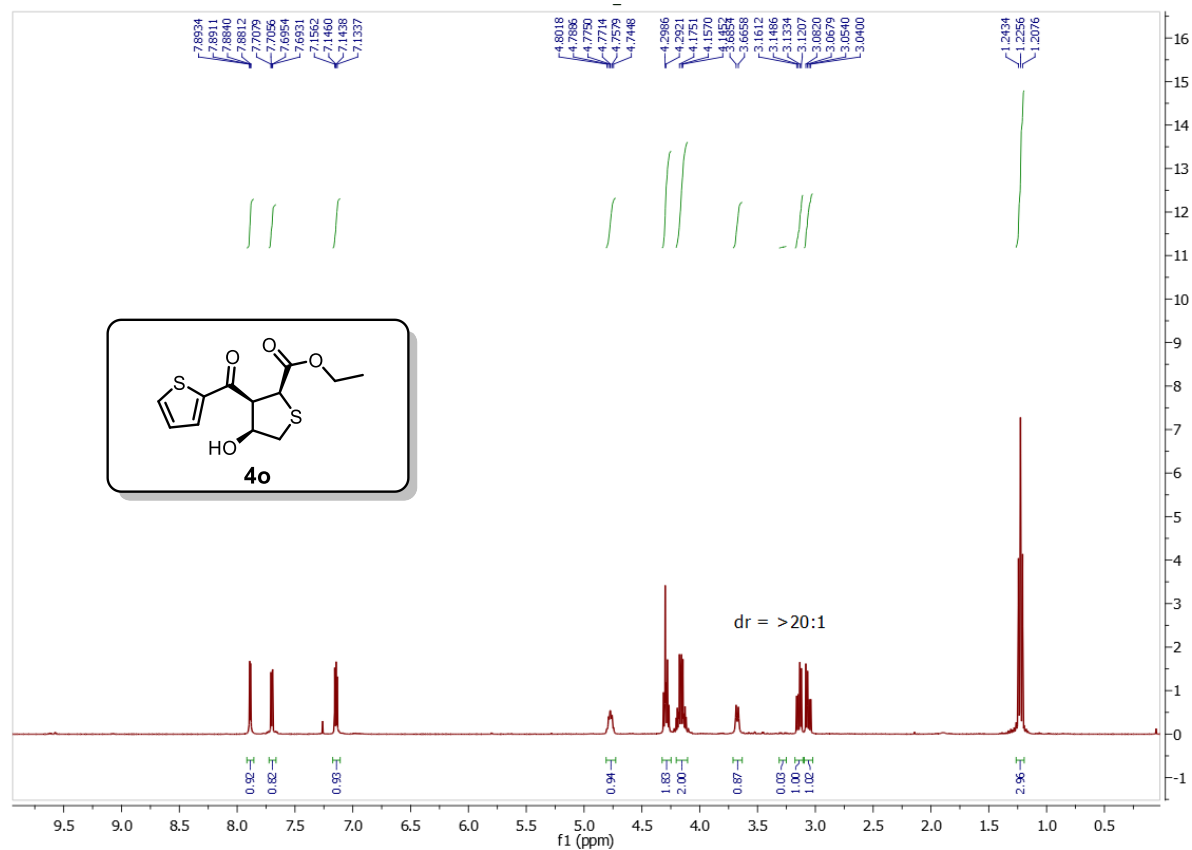
400 MHz ¹H NMR and 100 MHz ¹³C NMR Spectra of **4c**

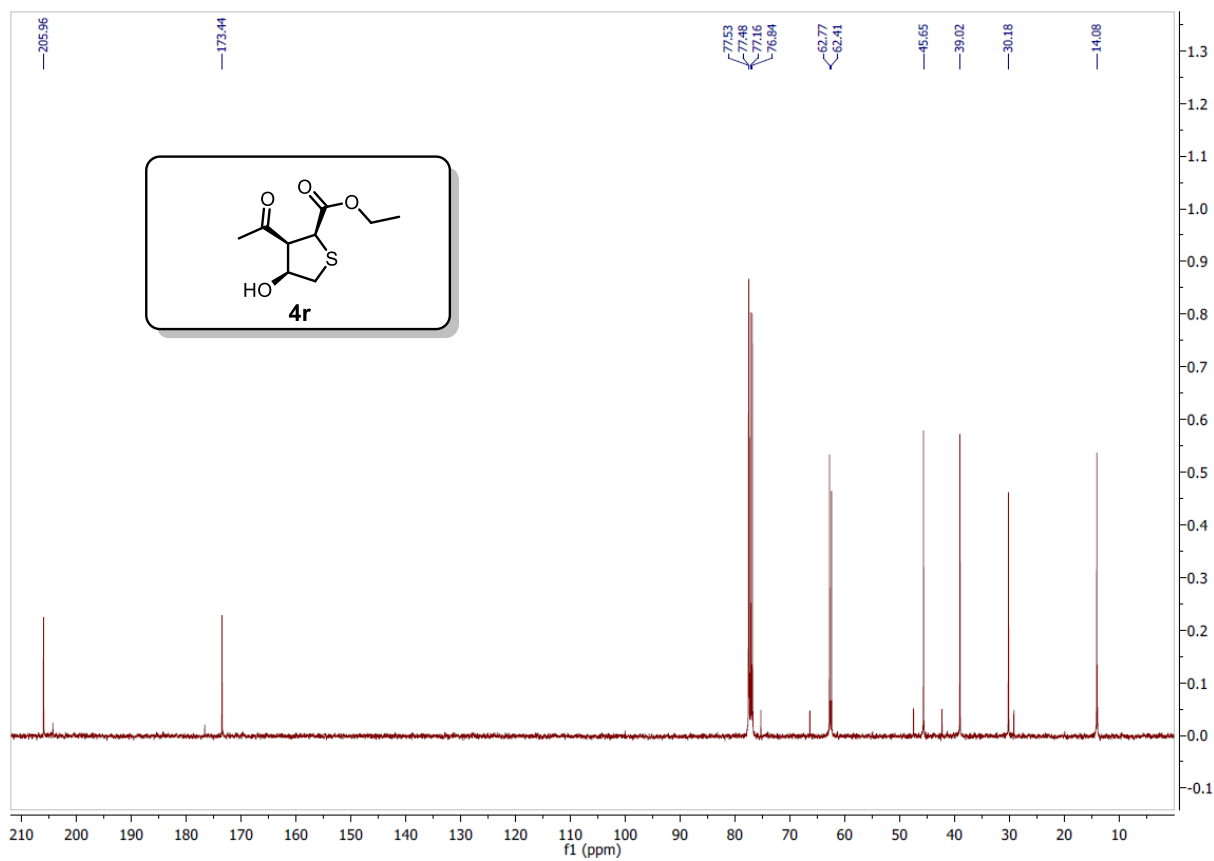
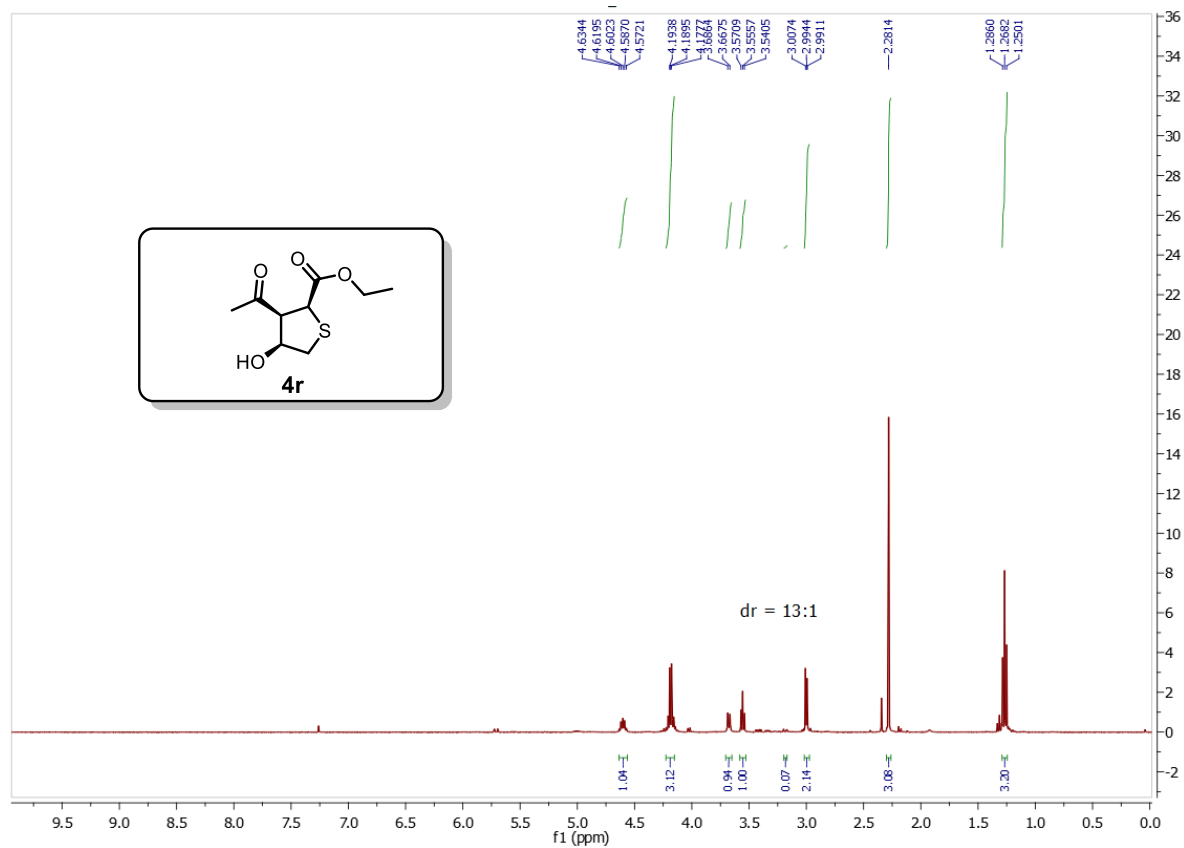
400 MHz ¹H NMR and 100 MHz ¹³C NMR Spectra of **4h**

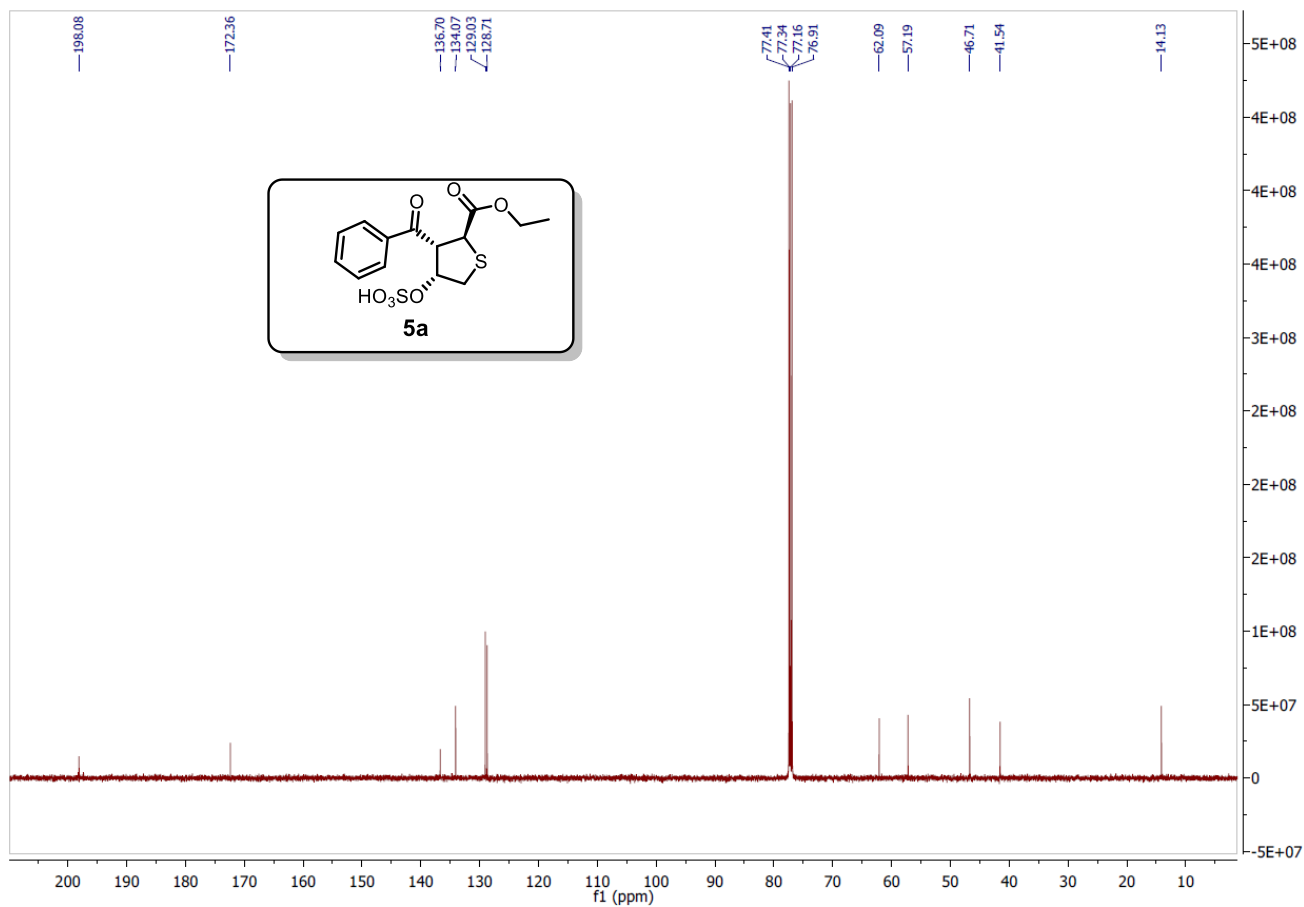
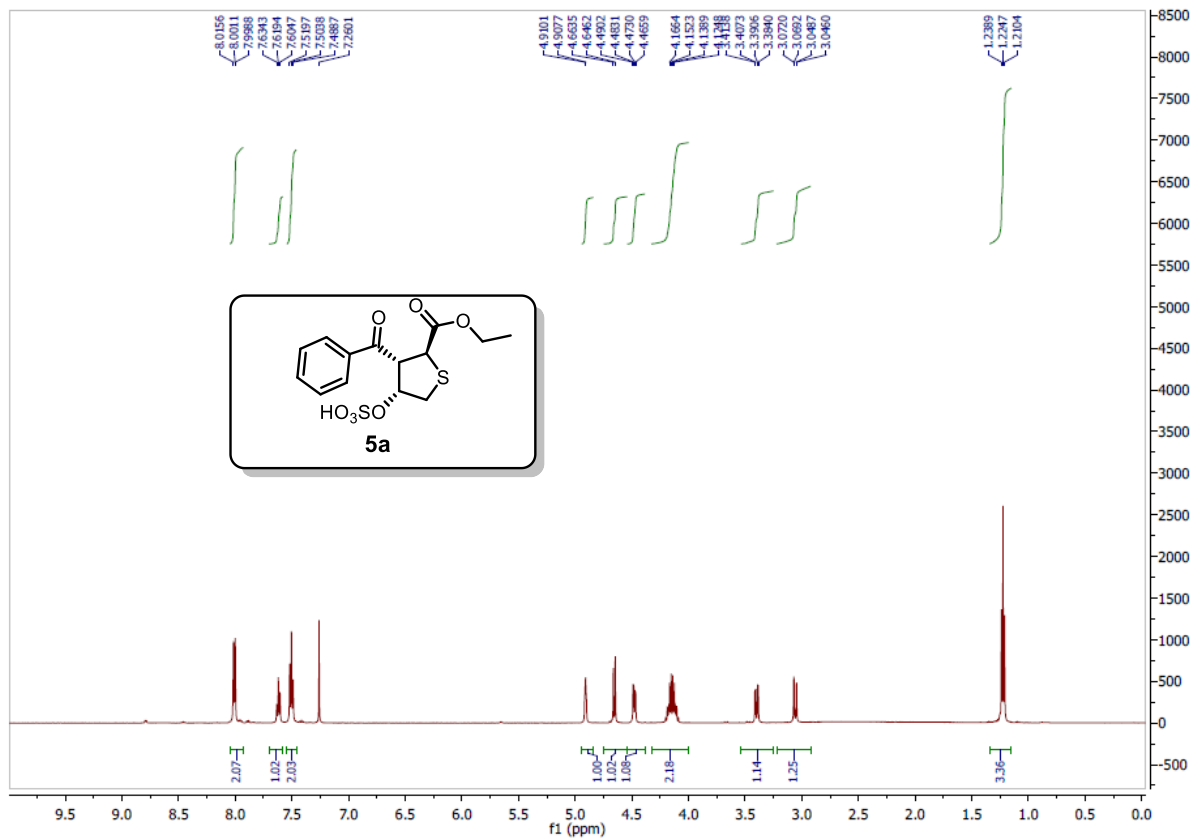
400 MHz ^1H NMR and 100 MHz ^{13}C NMR Spectra of **4q**

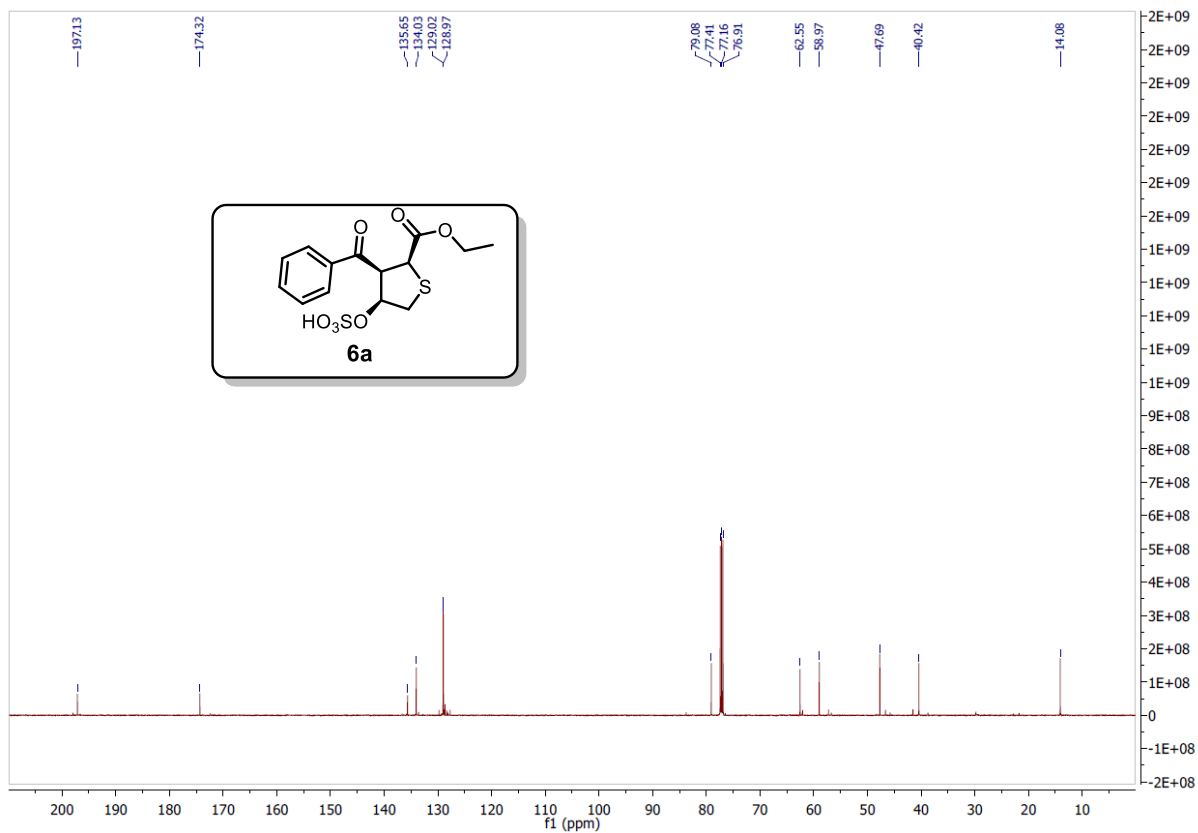
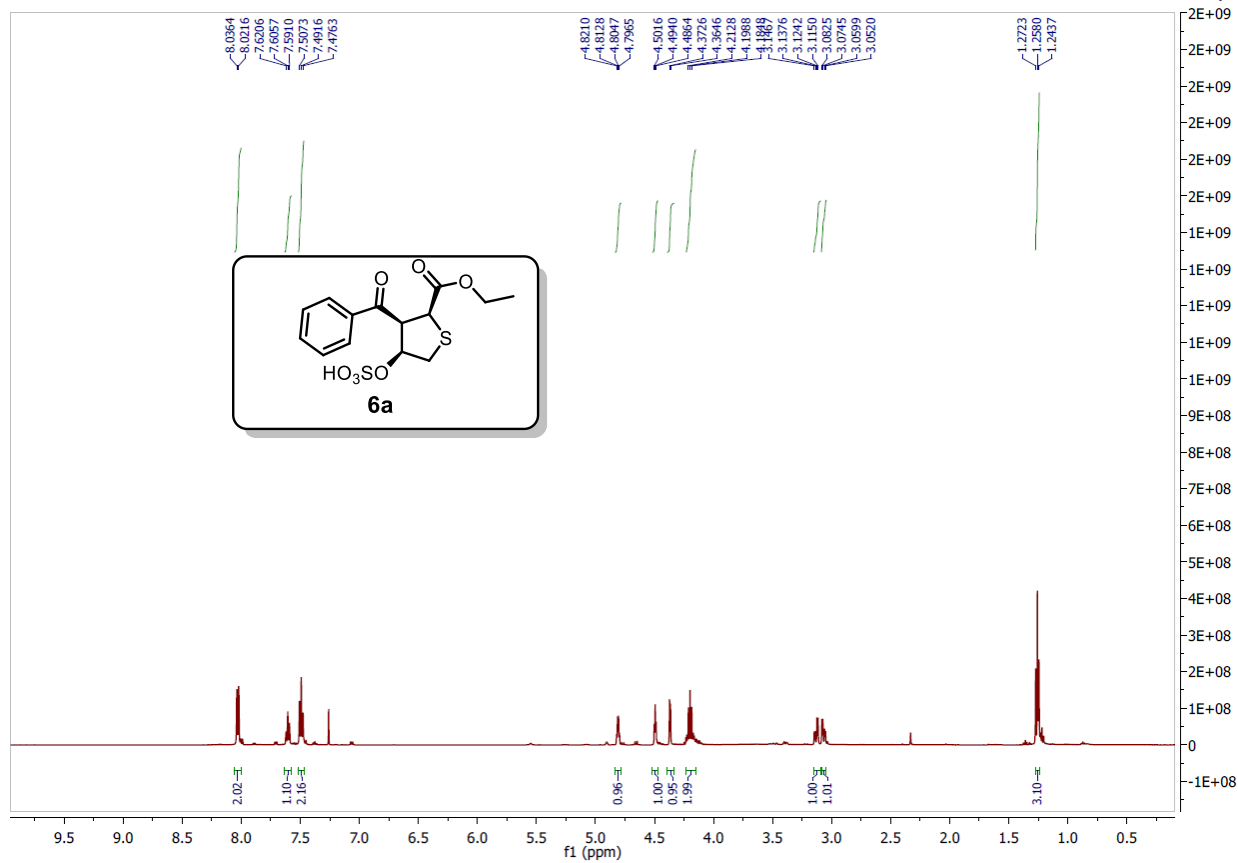
400 MHz ^1H NMR and 100 MHz ^{13}C NMR Spectra of **4k**

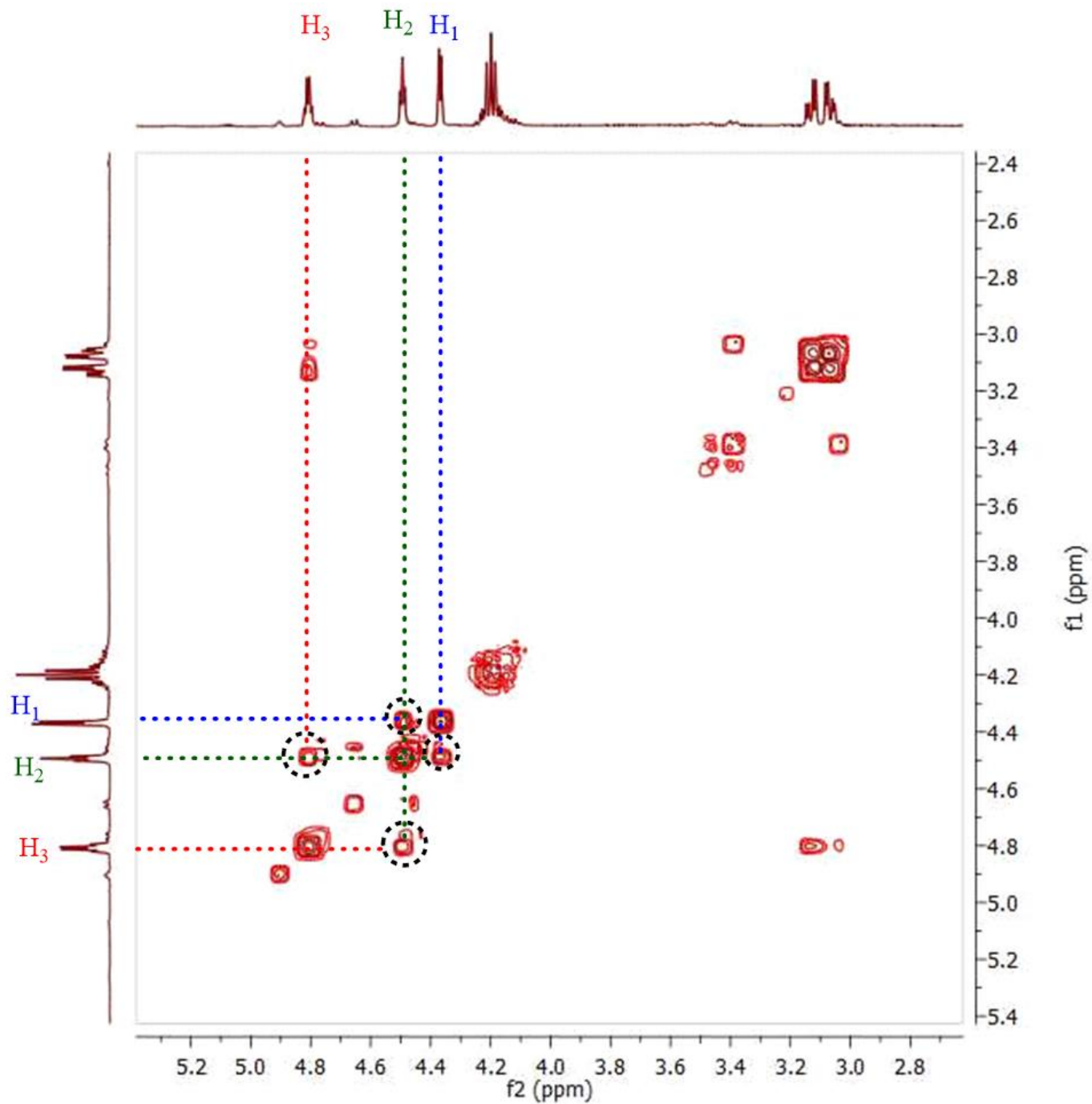
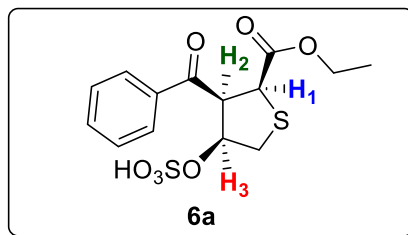
400 MHz ¹H NMR and 100 MHz ¹³C NMR Spectra of **4m**

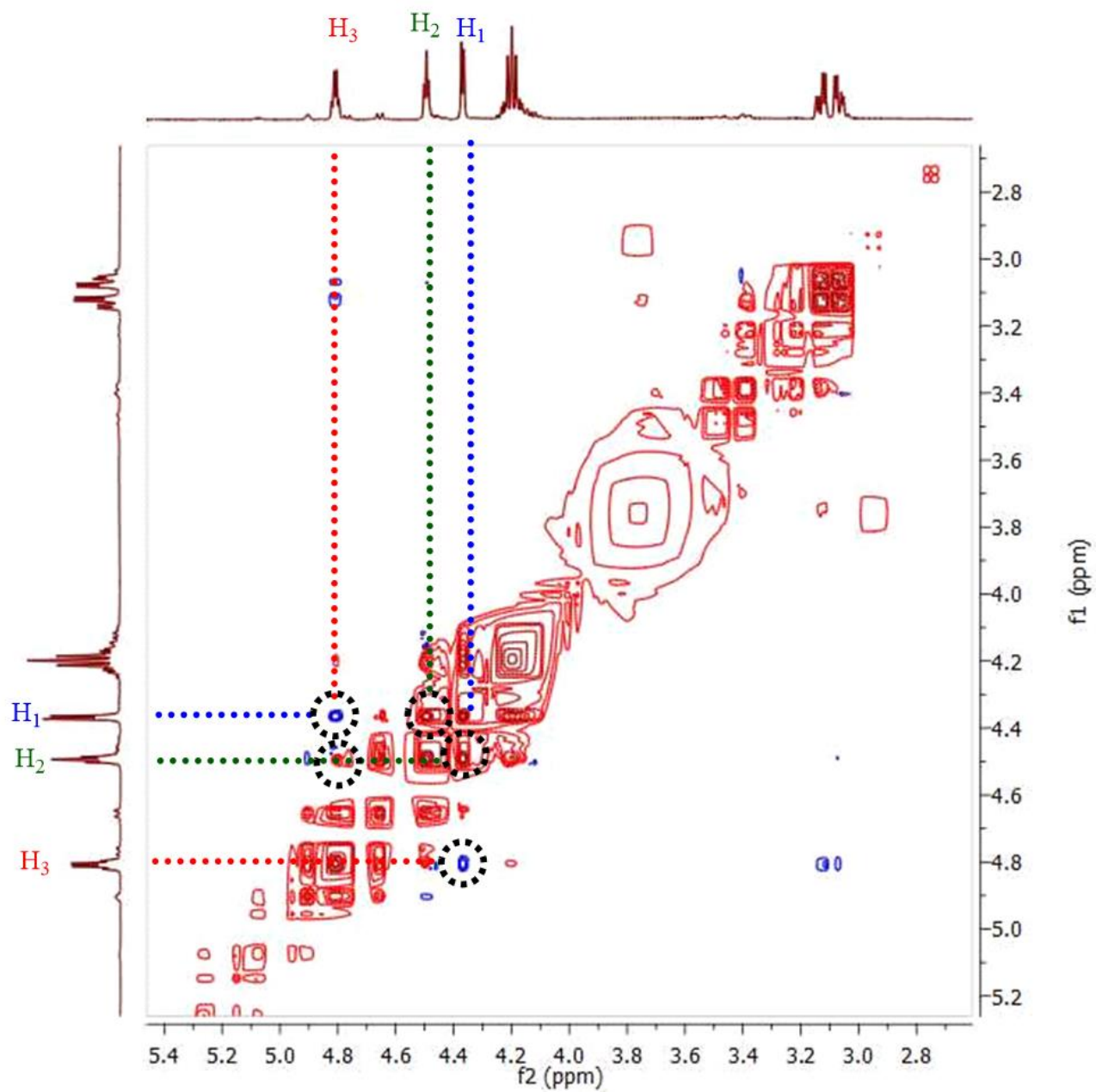
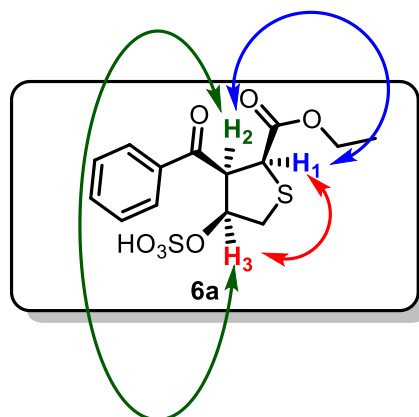
400 MHz ¹H NMR and 100 MHz ¹³C NMR Spectra of **4o**

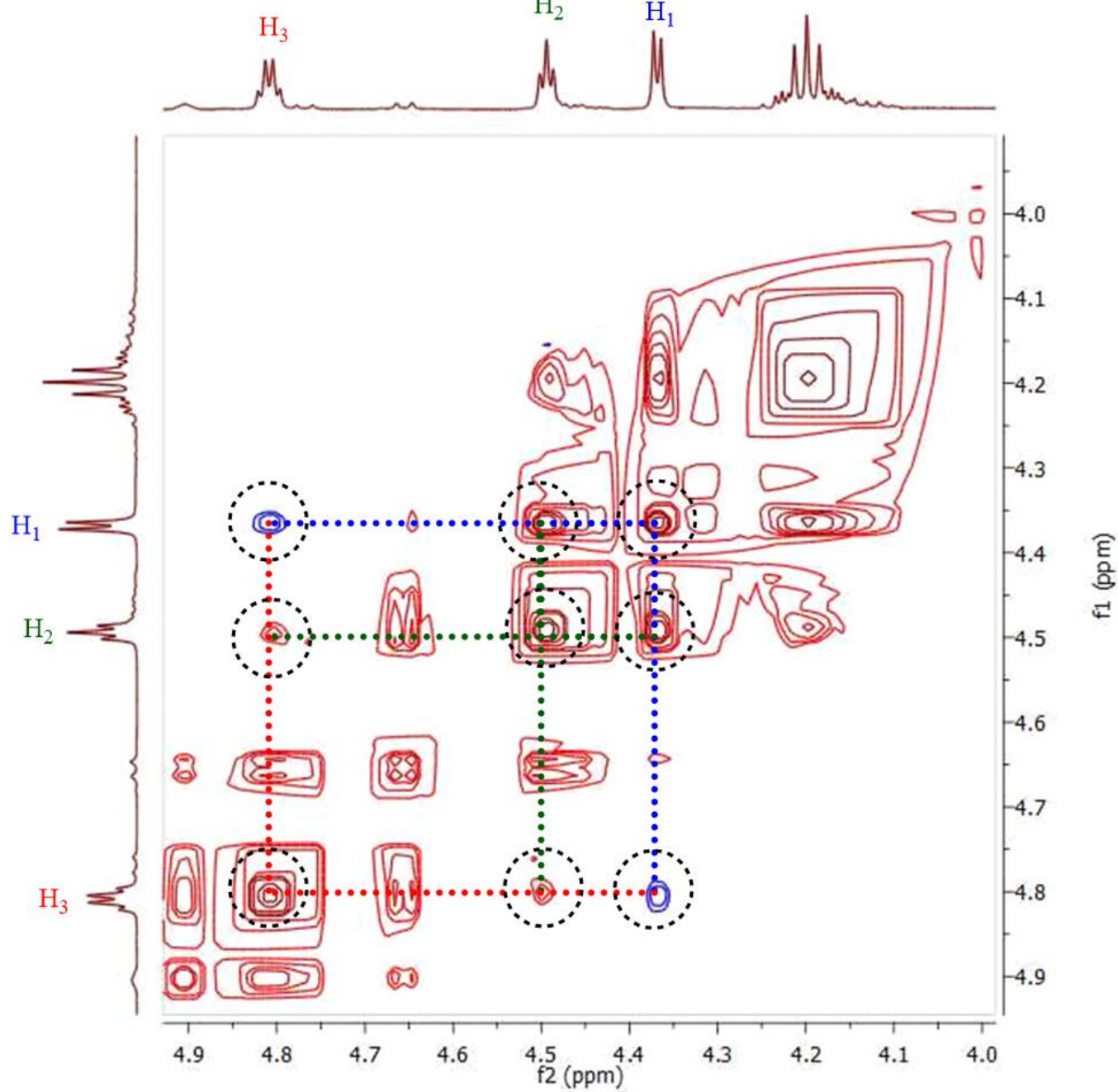
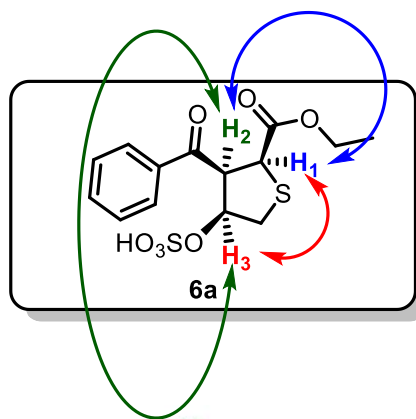
400 MHz ^1H NMR and 100 MHz ^{13}C NMR Spectra of **4r**

500 MHz ^1H and 125 MHz ^{13}C NMR Spectra of **5a**

500 MHz ^1H and 125 MHz ^{13}C NMR Spectra of **6a**

500 MHz ^1H - ^1H COSY Spectra of **6a**

500 MHz NOESY Spectra of **6a**



500 MHz NOESY Spectra of 6a