Supporting Information

TBAI Assisted Direct C-H Activation of Indoles with β-E-Styrene Sulfonyl Hydrazides: A Stereo selective Access to 3- Styryl Thioindoles.

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Table of Contents

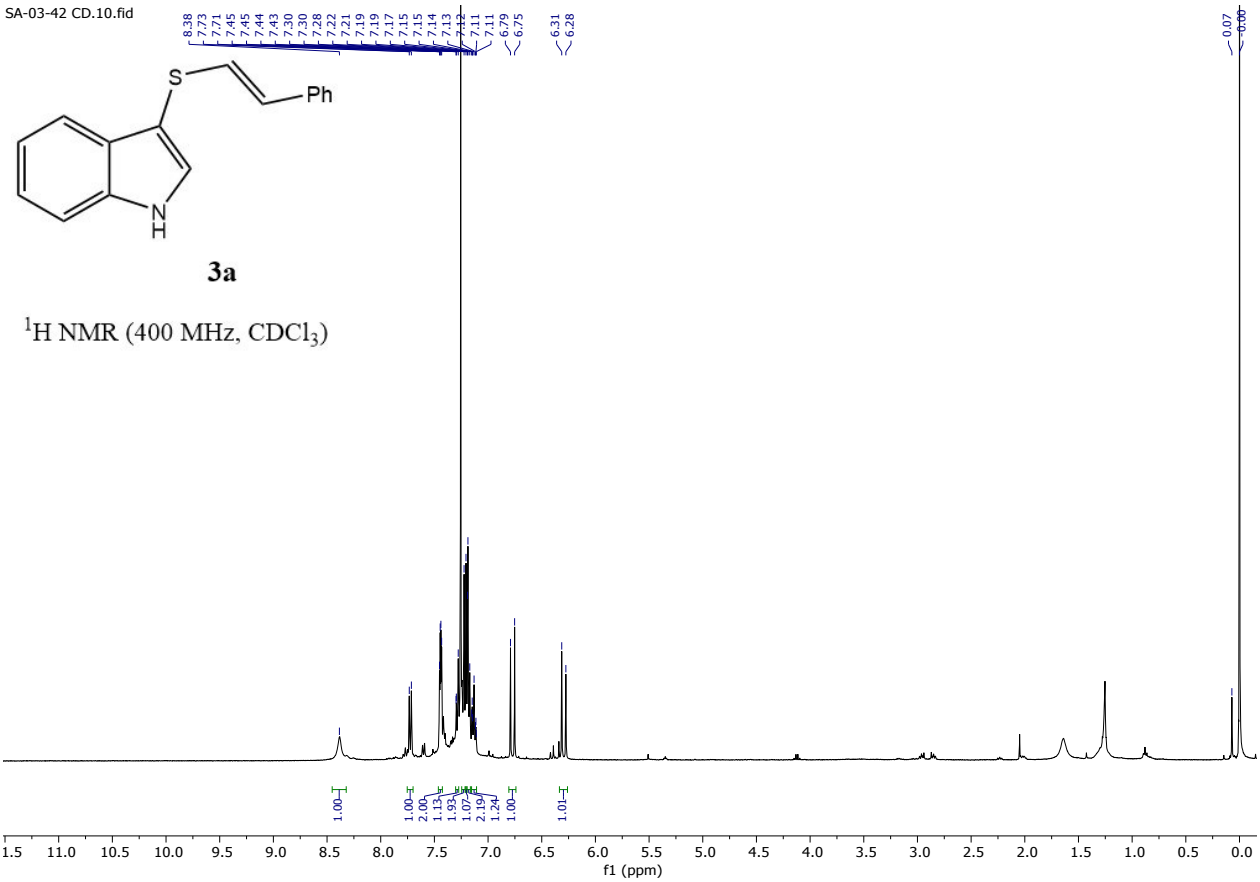


Fig. 1 ^{1}H NMR Spectrum of *(E)*-3-(Styrylthio)-^{1}H-indole **3a**

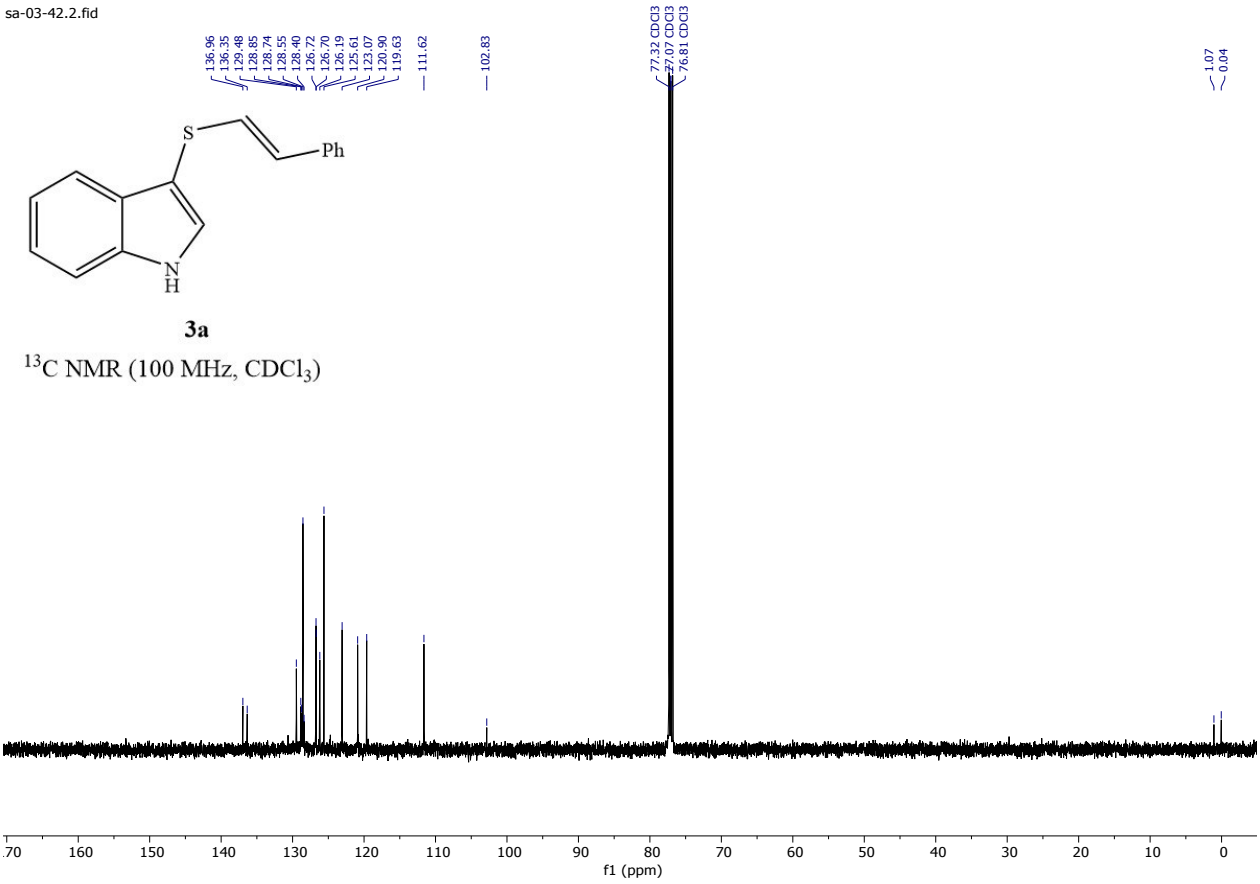


Fig. 2 ^{13}C NMR Spectrum of *(E)*-3-(Styrylthio)-^{1}H-indole **3a**

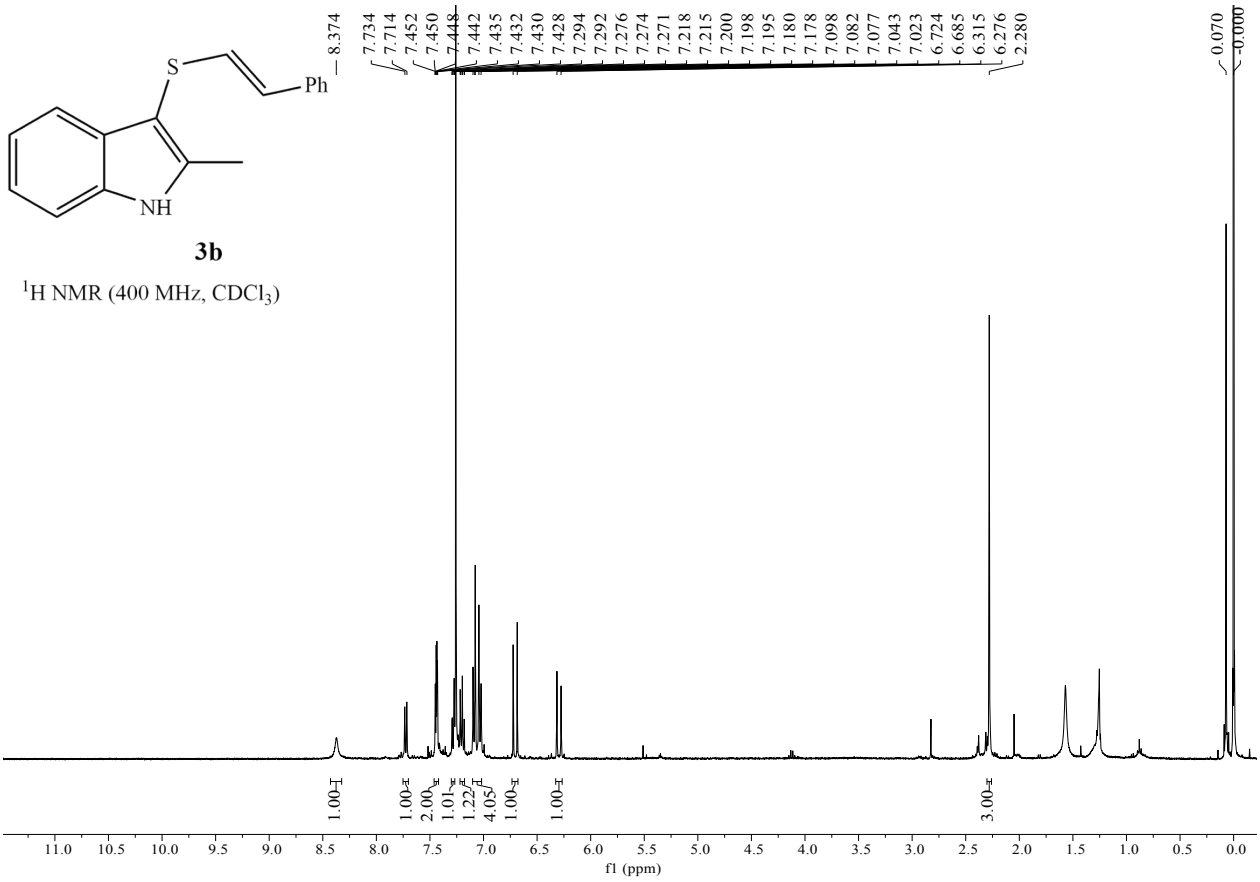


Fig. 3 ^{1}H NMR Spectrum of *(E)*-2-methyl-3-(styrylthio)-1*H*-indole **3b**

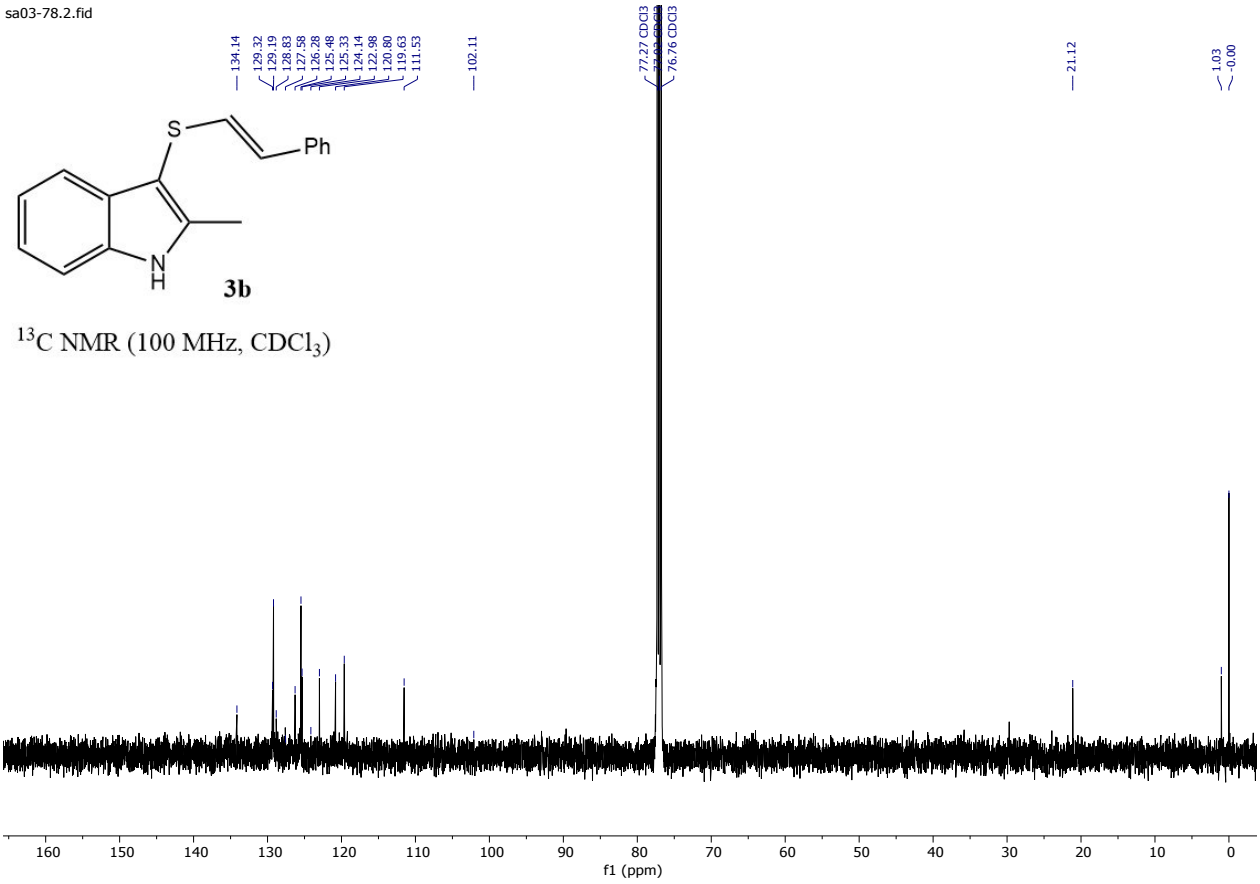


Fig. 4 ^{13}C NMR Spectrum of *(E)*-2-methyl-3-(styrylthio)-1*H*-indole **3b**

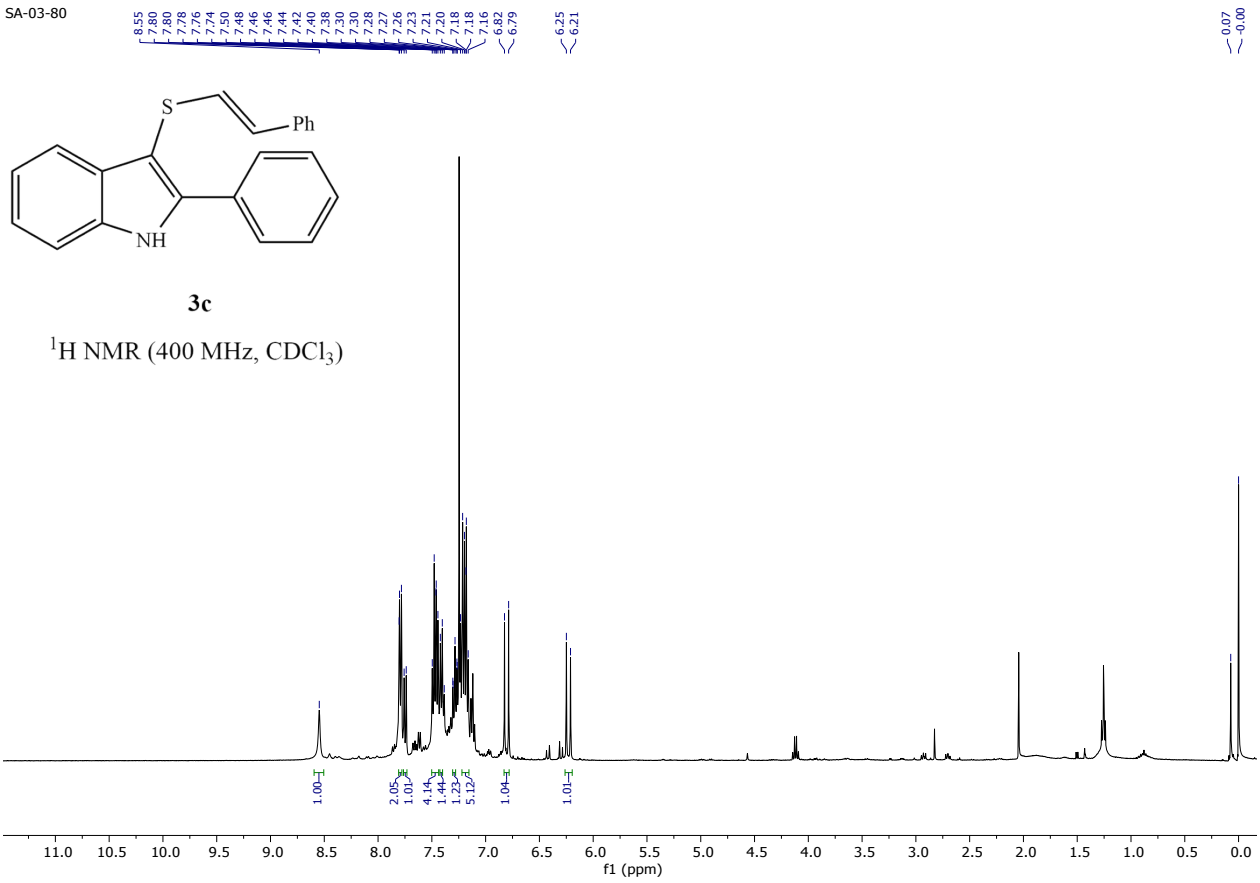


Fig. 5 ^{1}H NMR Spectrum of *(E)*-2-phenyl-3-(styrylthio)-1*H*-indole **3c**

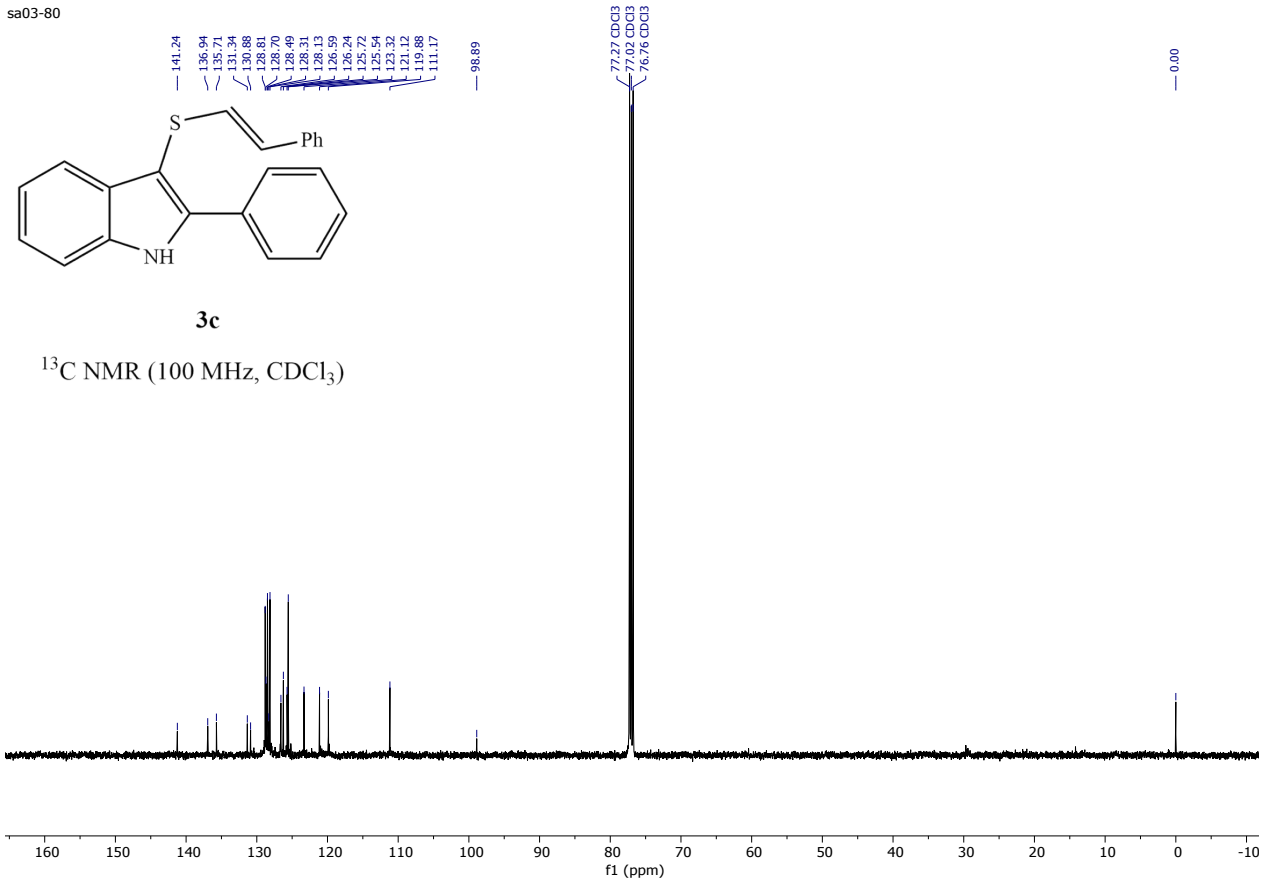


Fig. 6 ^{13}C NMR Spectrum of *(E)*-2-phenyl-3-(styrylthio)-1*H*-indole **3c**

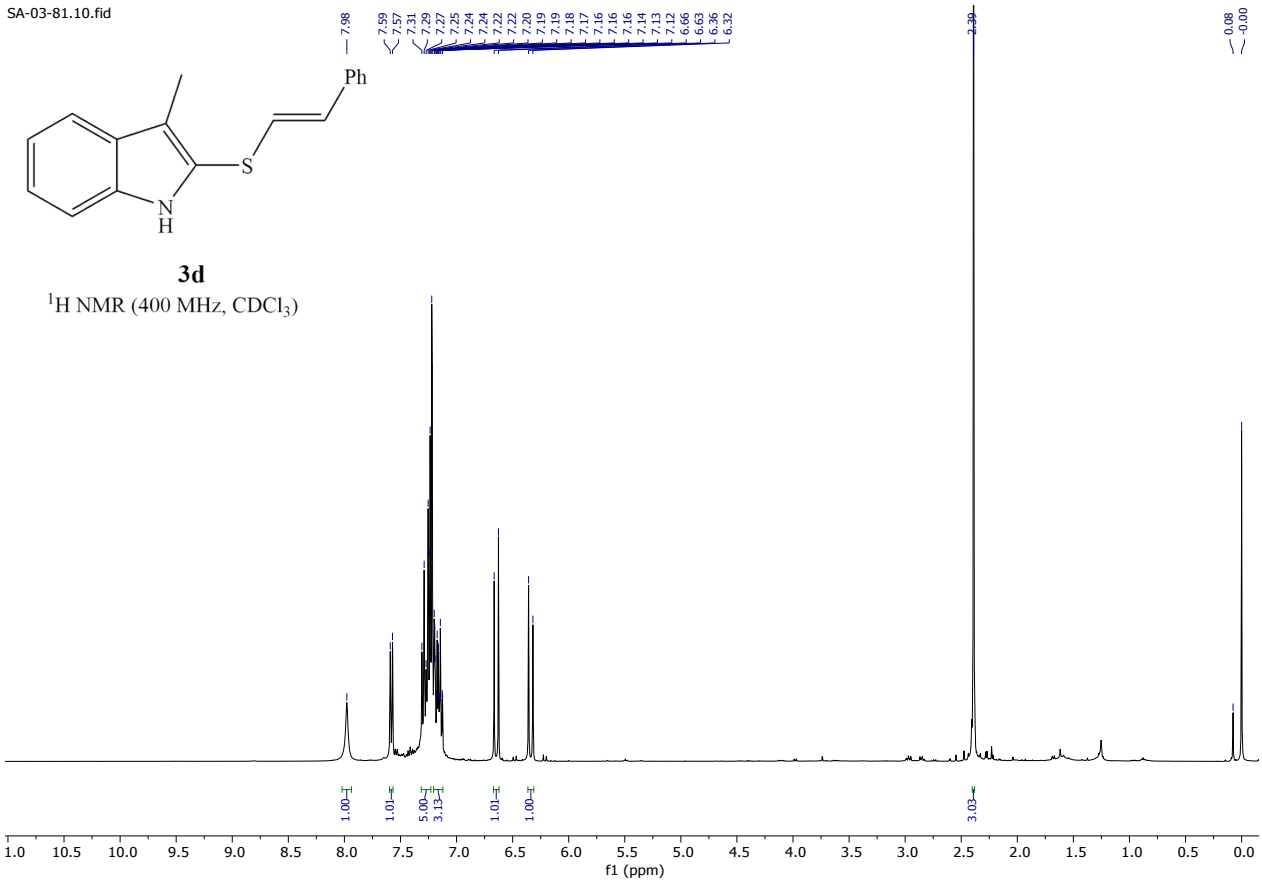


Fig. 7 ^{1}H NMR Spectrum of *(E)*-3-methyl-2-(styrylthio)-1*H*-indole **3d**

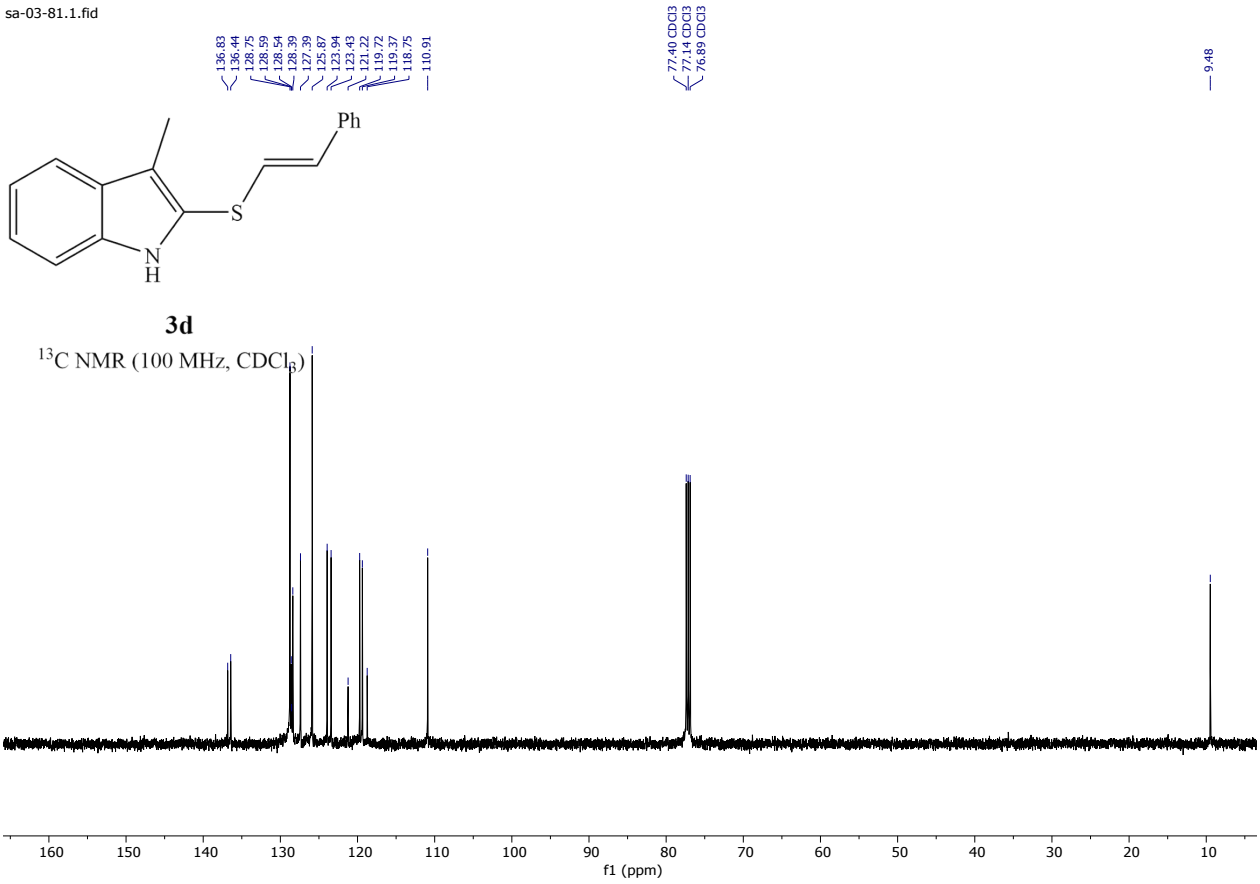


Fig. 8 ^{13}C NMR Spectrum of *(E)*-3-methyl-2-(styrylthio)-1*H*-indole **3d**

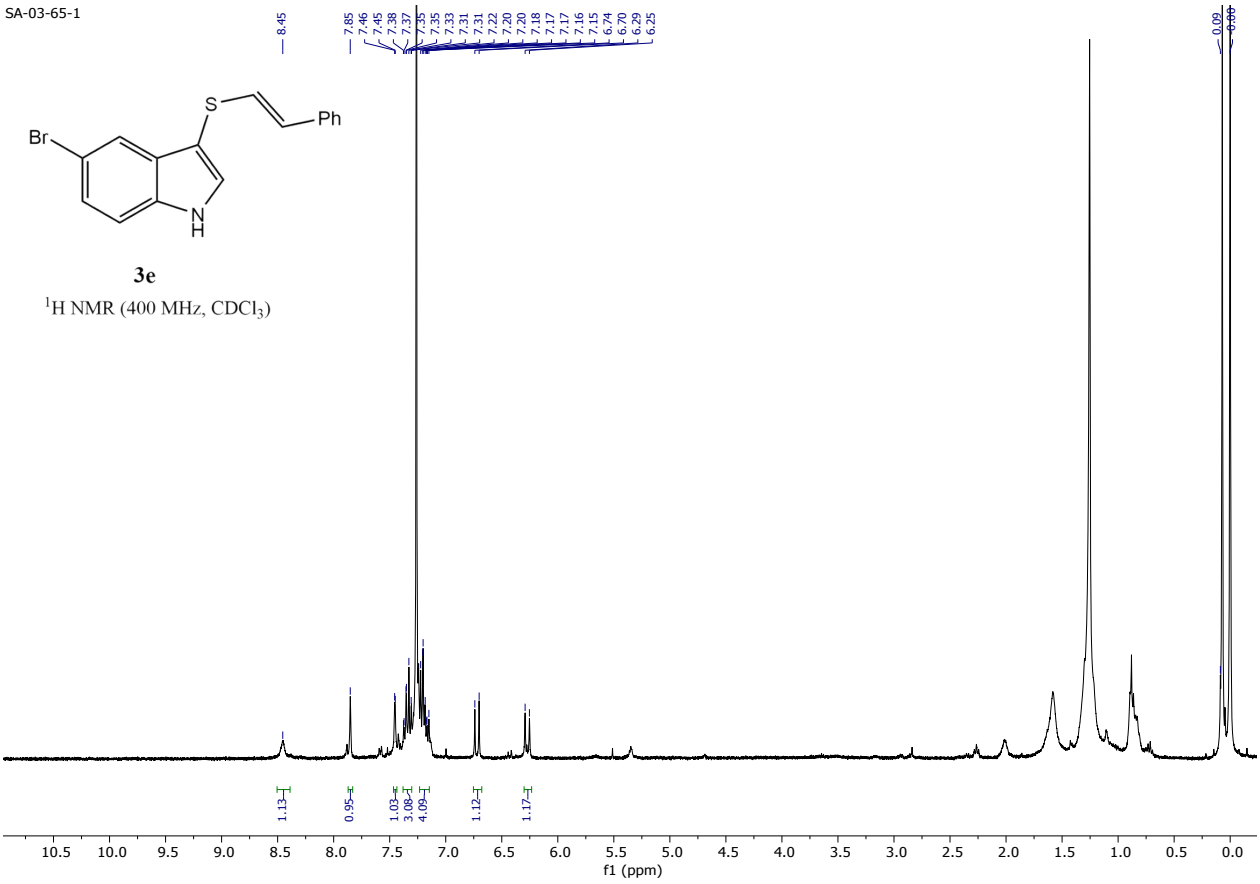


Fig. 9 ^{1}H NMR Spectrum of *(E)*-5-bromo-3-(styrylthio)-1*H*-indole **3e**

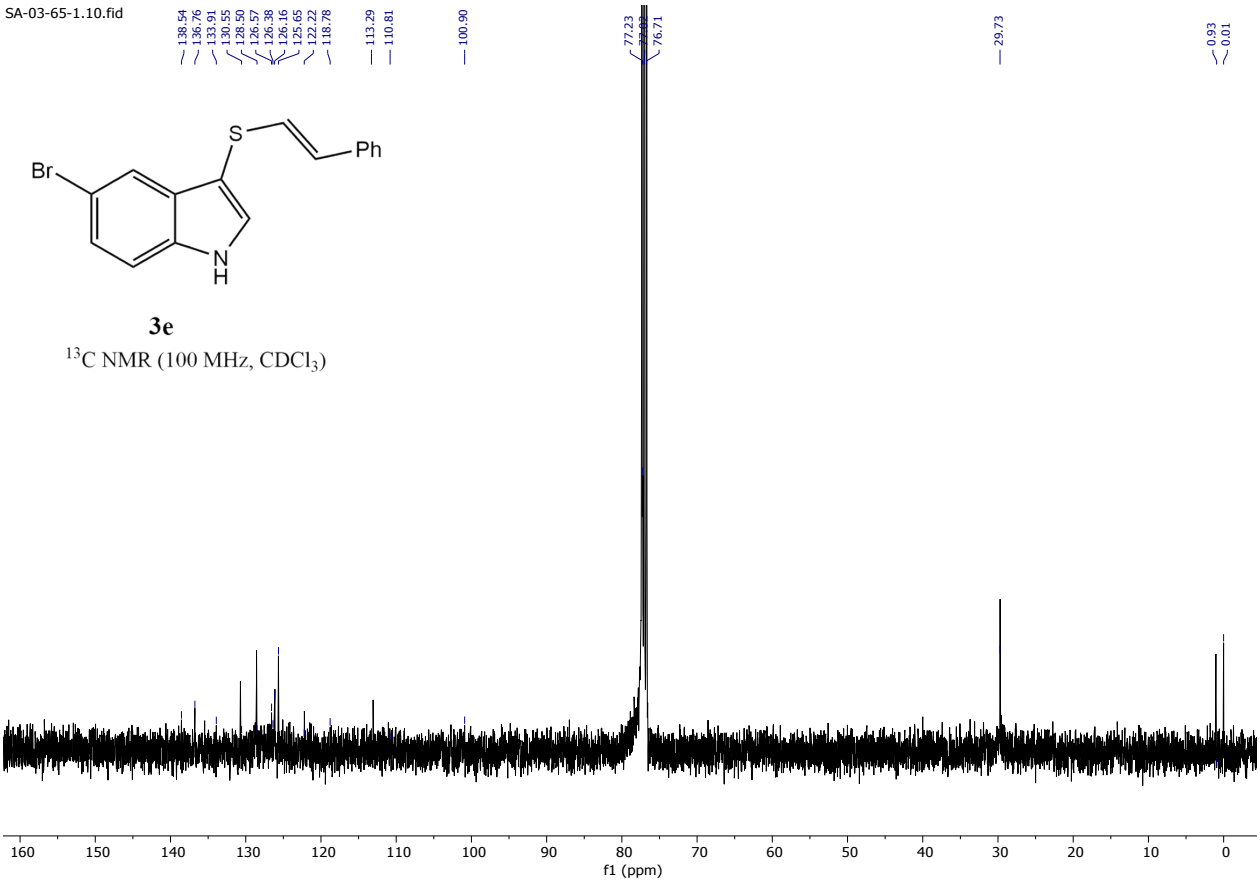


Fig. 10 ^{13}C NMR Spectrum of *(E)*-5-bromo-3-(styrylthio)-1*H*-indole **3e**

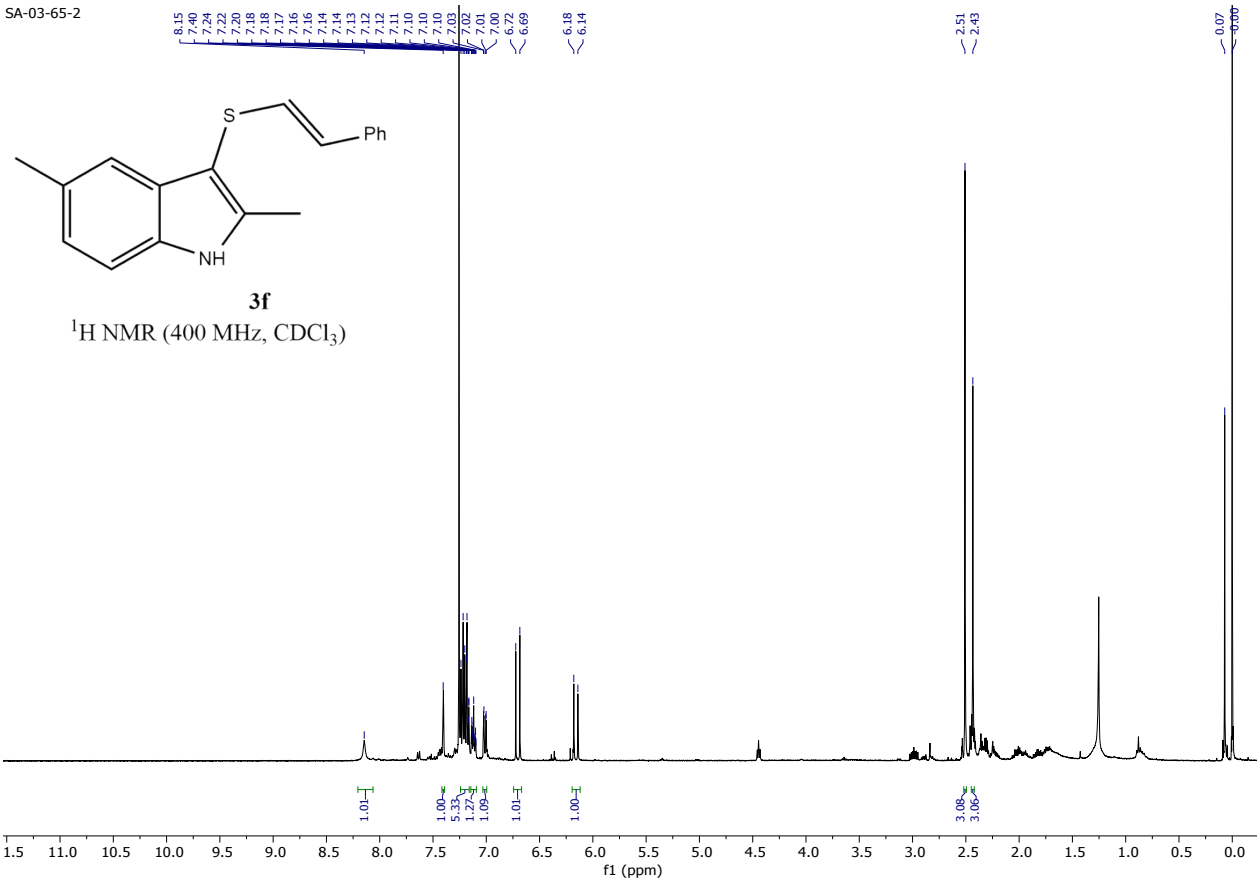
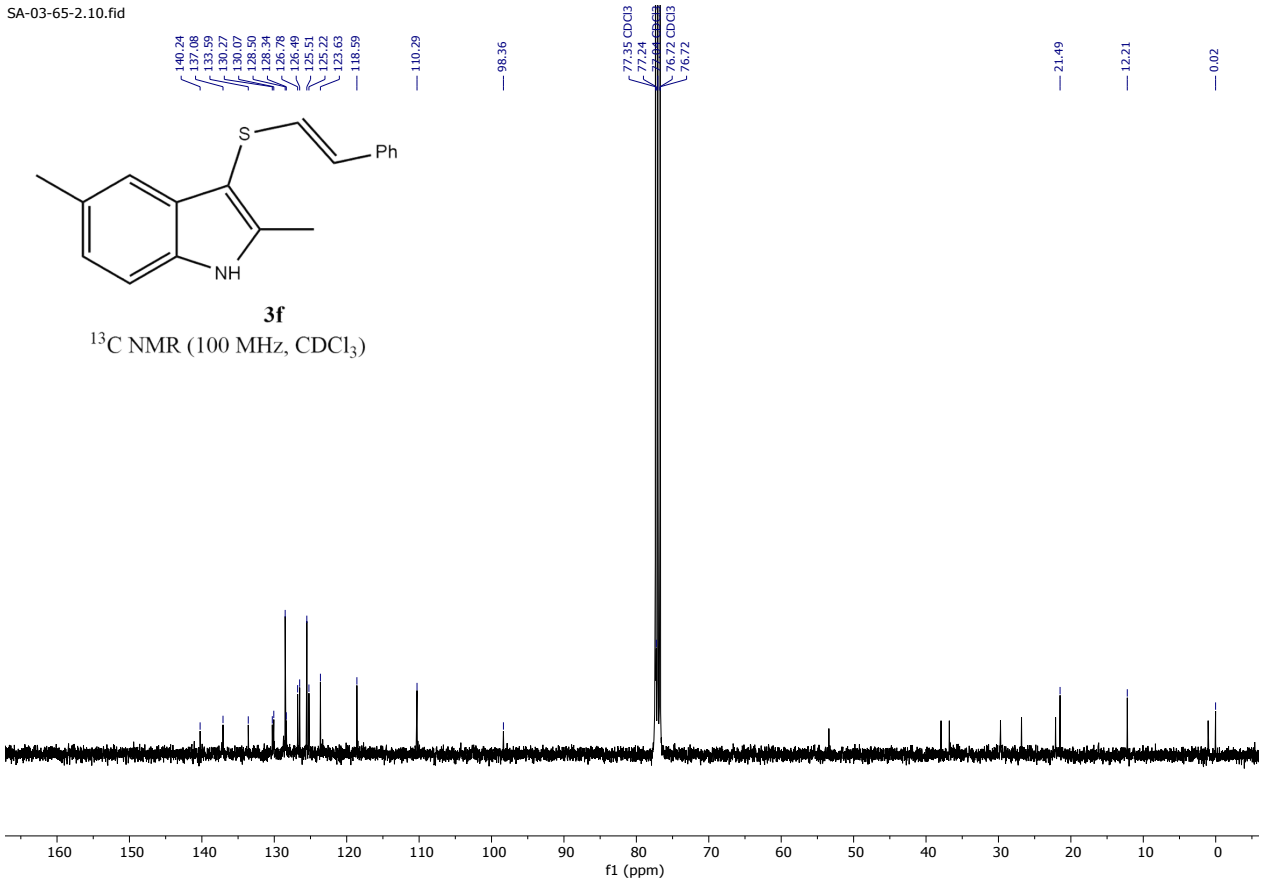


Fig. 11 ^{1}H NMR Spectrum of *(E)*-2,5-dimethyl-3-(styrylthio)-1*H*-indole **3f**



3f

^{13}C NMR (100 MHz, $CDCl_3$)

Fig. 12 ^{13}C NMR Spectrum of *(E)*-2,5-dimethyl-3-(styrylthio)-1*H*-indole **3f**

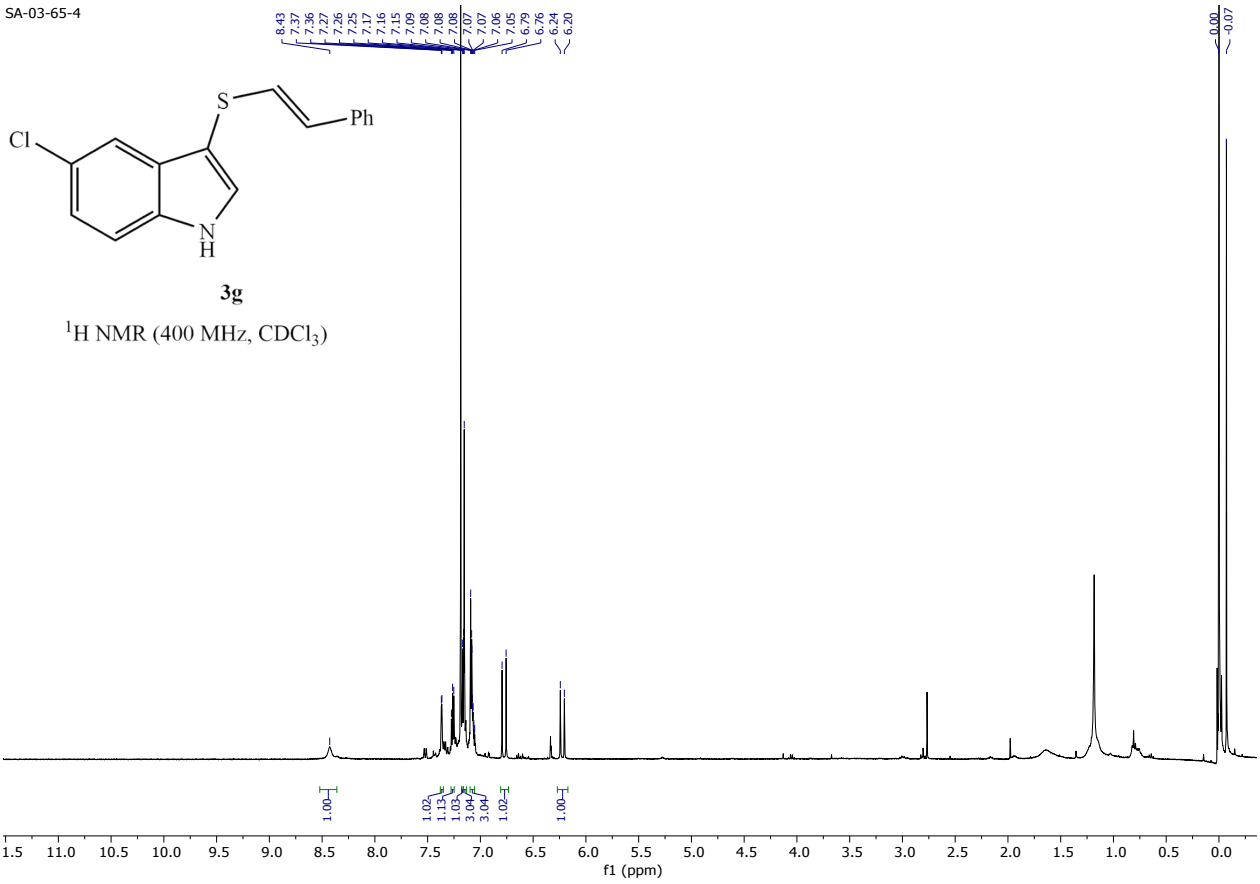


Fig. 13 ^{1}H NMR Spectrum of *(E)*-5-chloro-3-(styrylthio)-1*H*-indole **3g**

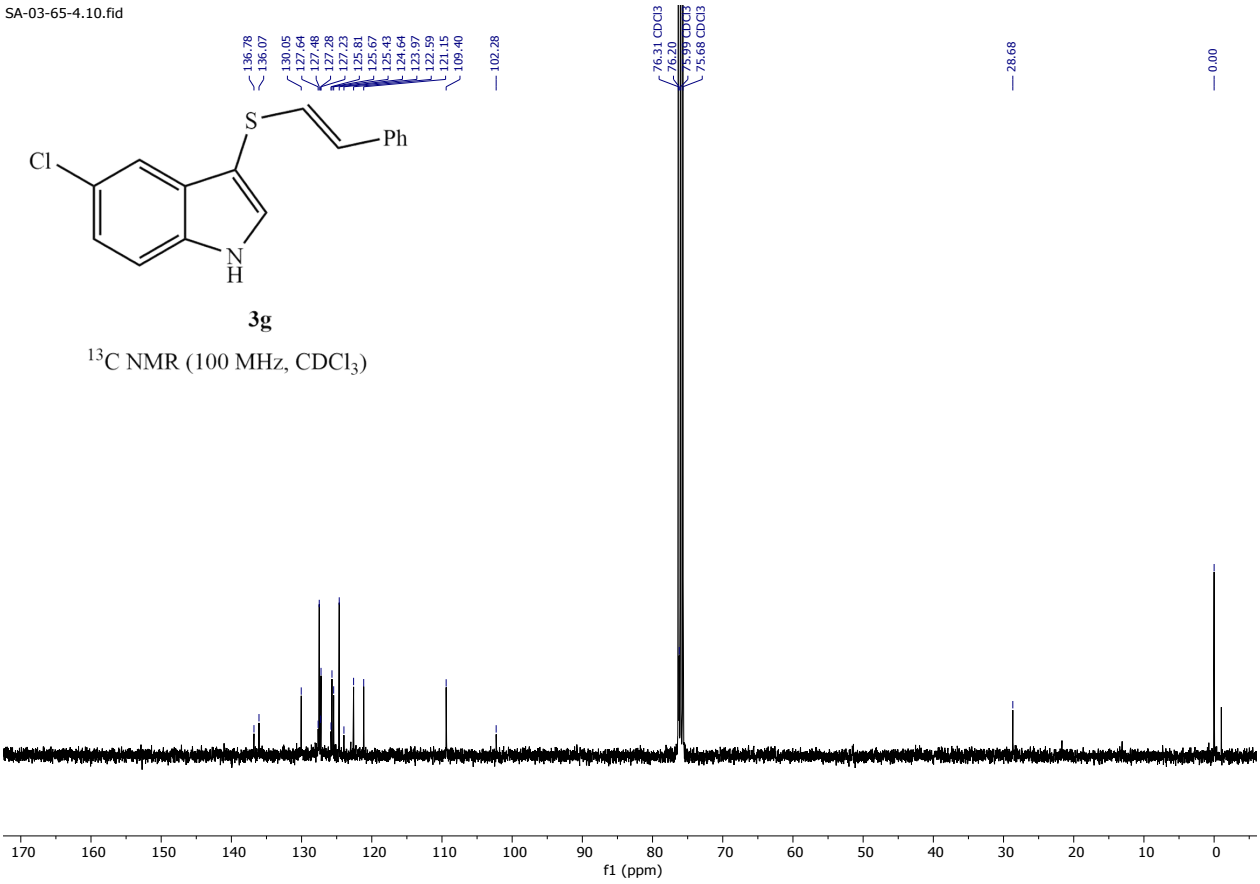


Fig. 14 ^{13}C NMR Spectrum of *(E)*-5-chloro-3-(styrylthio)-1*H*-indole **3g**

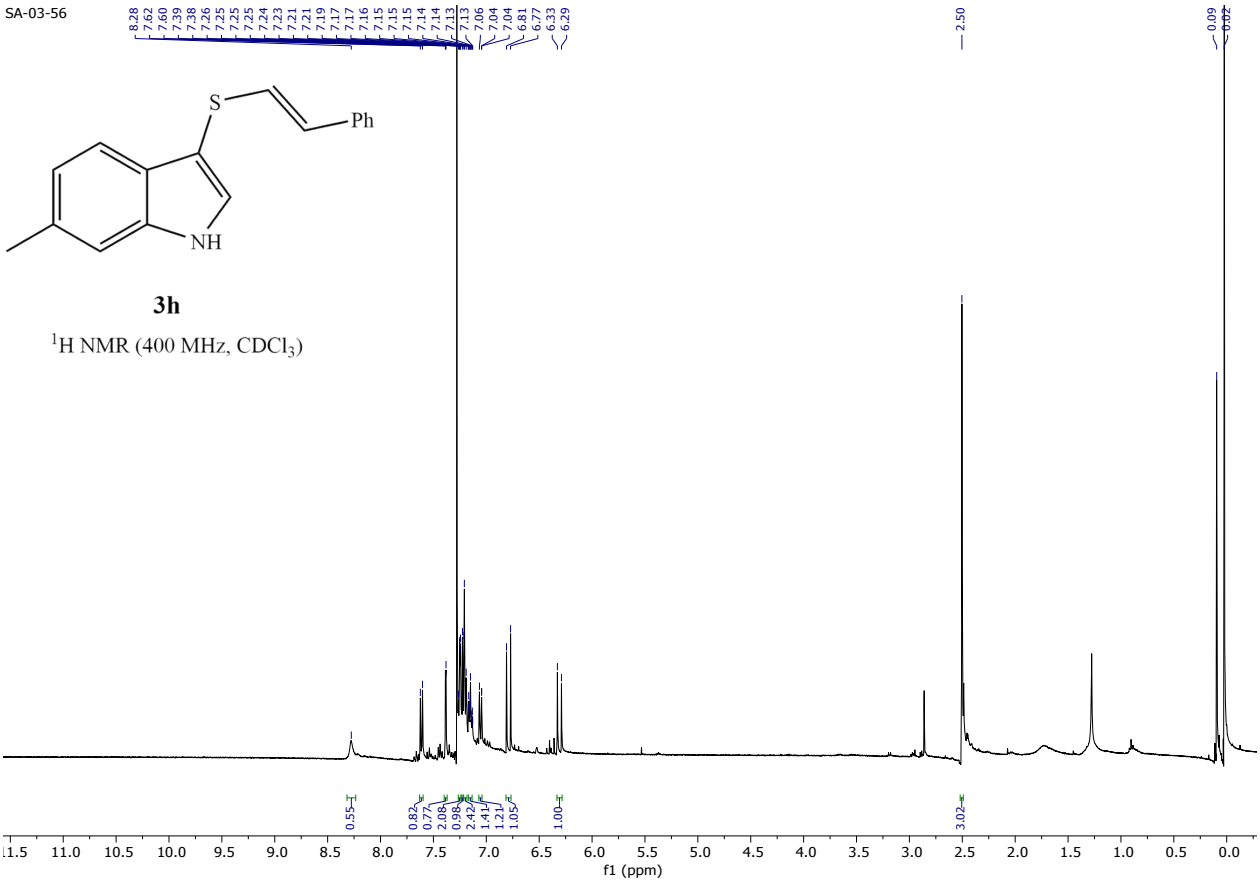


Fig. 15 ^{1}H NMR Spectrum of *(E)*-6-methyl-3-(styrylthio)-1*H*-indole **3h**

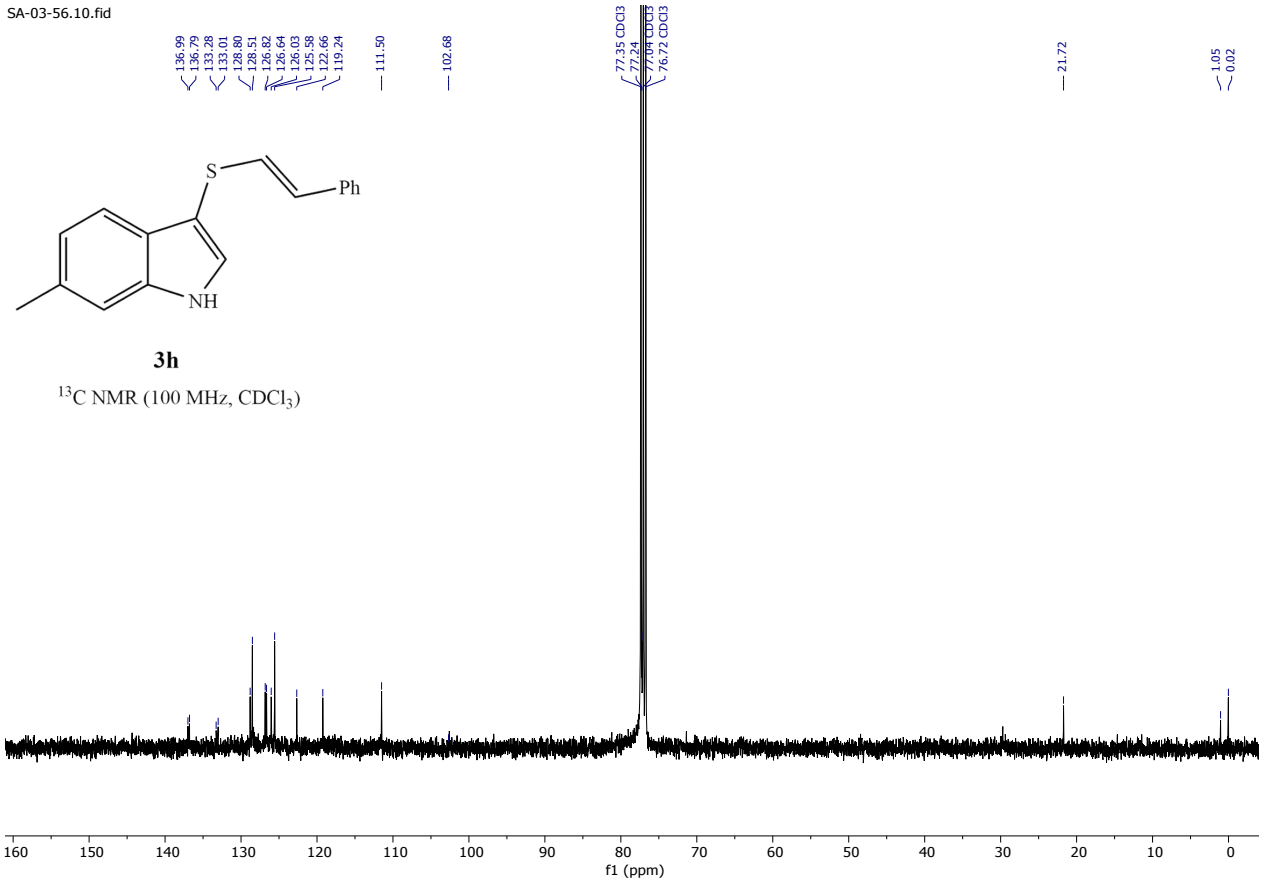


Fig. 16 ^{13}C NMR Spectrum of *(E)*-6-methyl-3-(styrylthio)-1*H*-indole **3h**

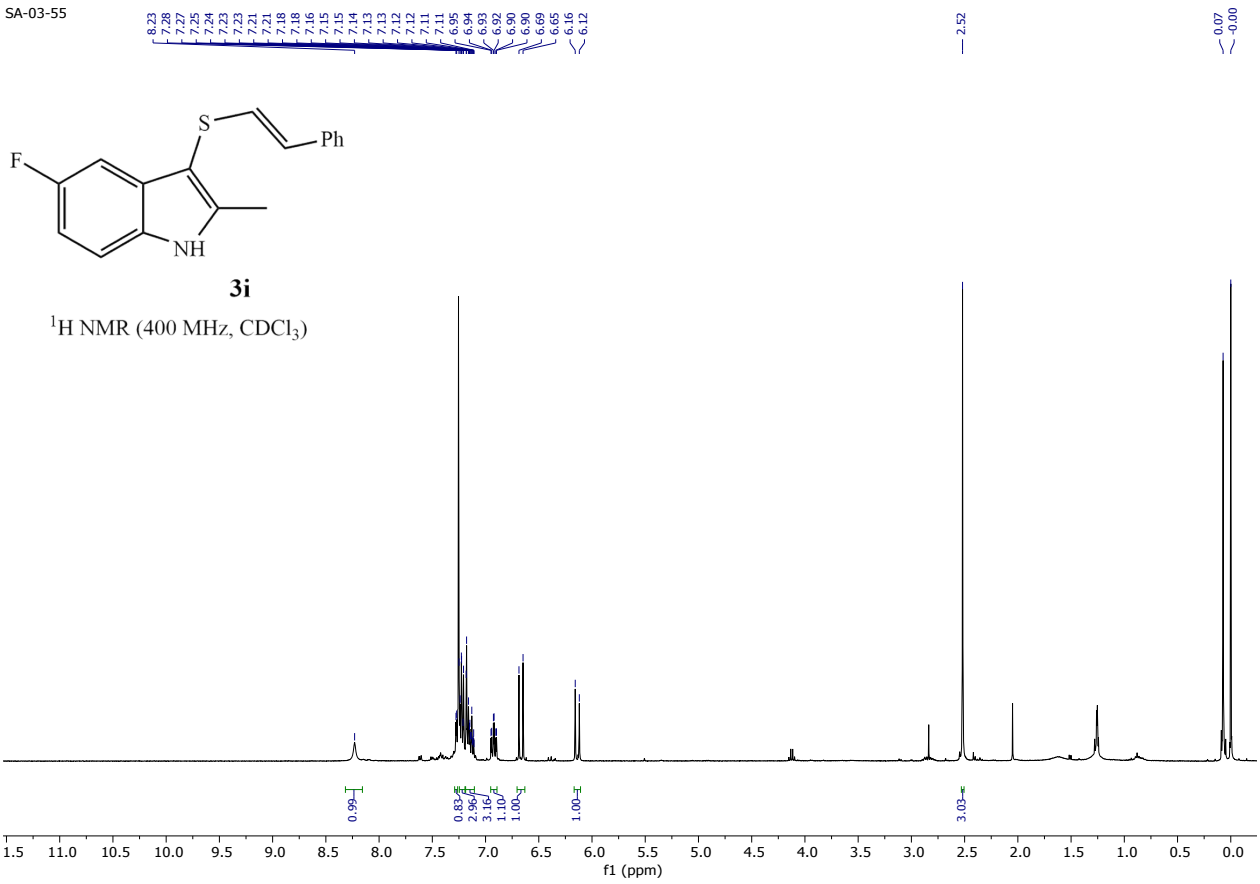


Fig. 17 ^{1}H NMR Spectrum of *(E)*-5-Fluoro-2-methyl-3-(styrylthio)-1*H*-indole **3i**

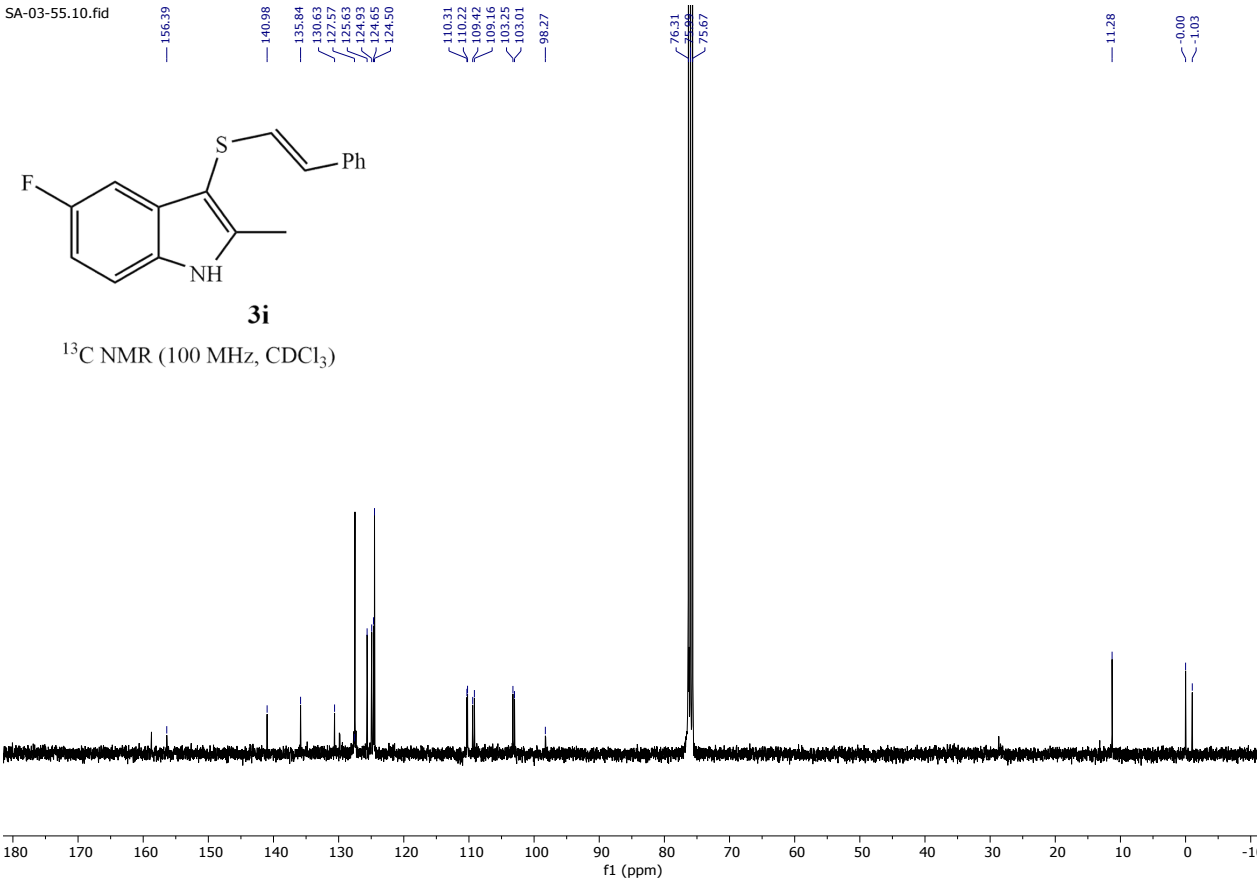


Fig. 18 ^{13}C NMR Spectrum of *(E)*-5-Fluoro-2-methyl-3-(styrylthio)-1*H*-indole **3i**

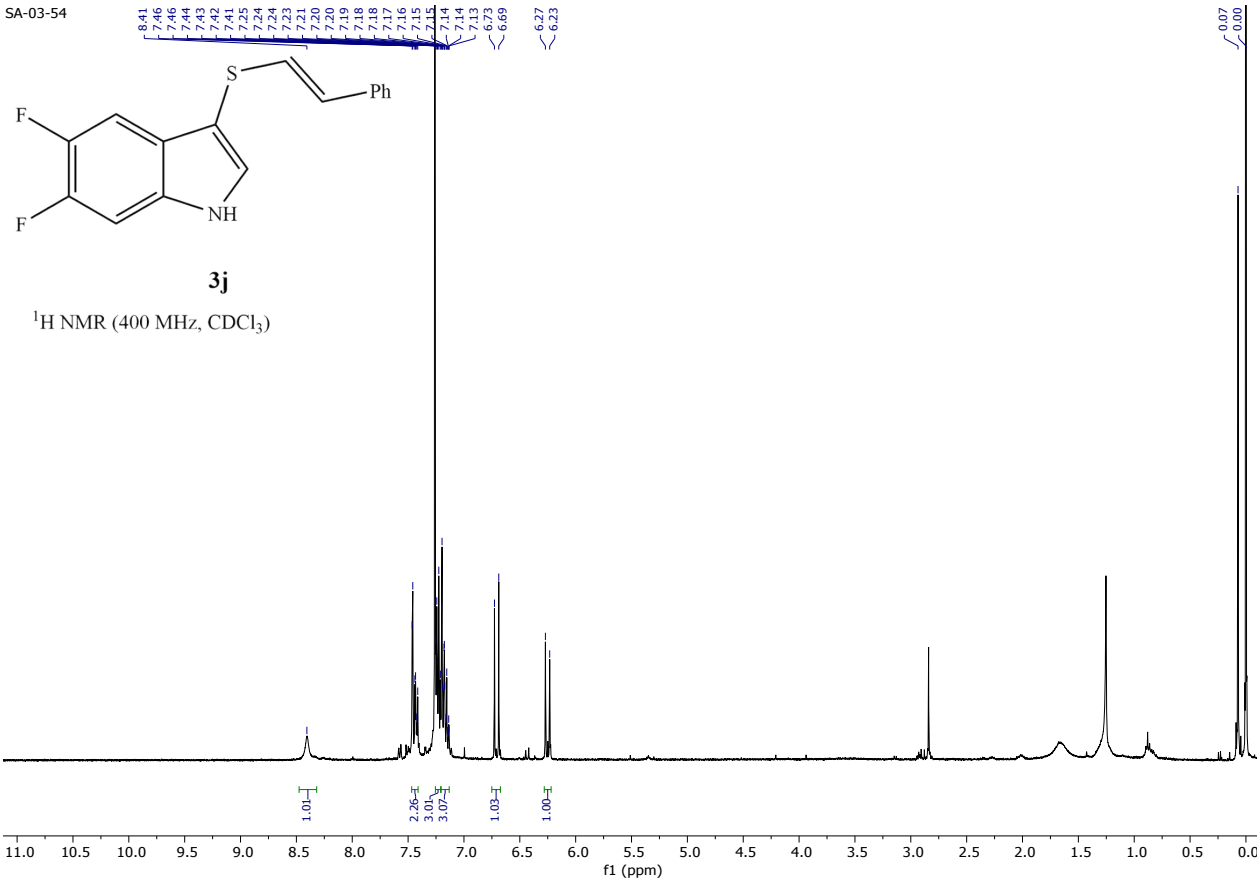


Fig. 1 ^{1}H NMR Spectrum of *(E)*-5,6-Difluoro-3-(styrylthio)-1*H*-indole **3j**

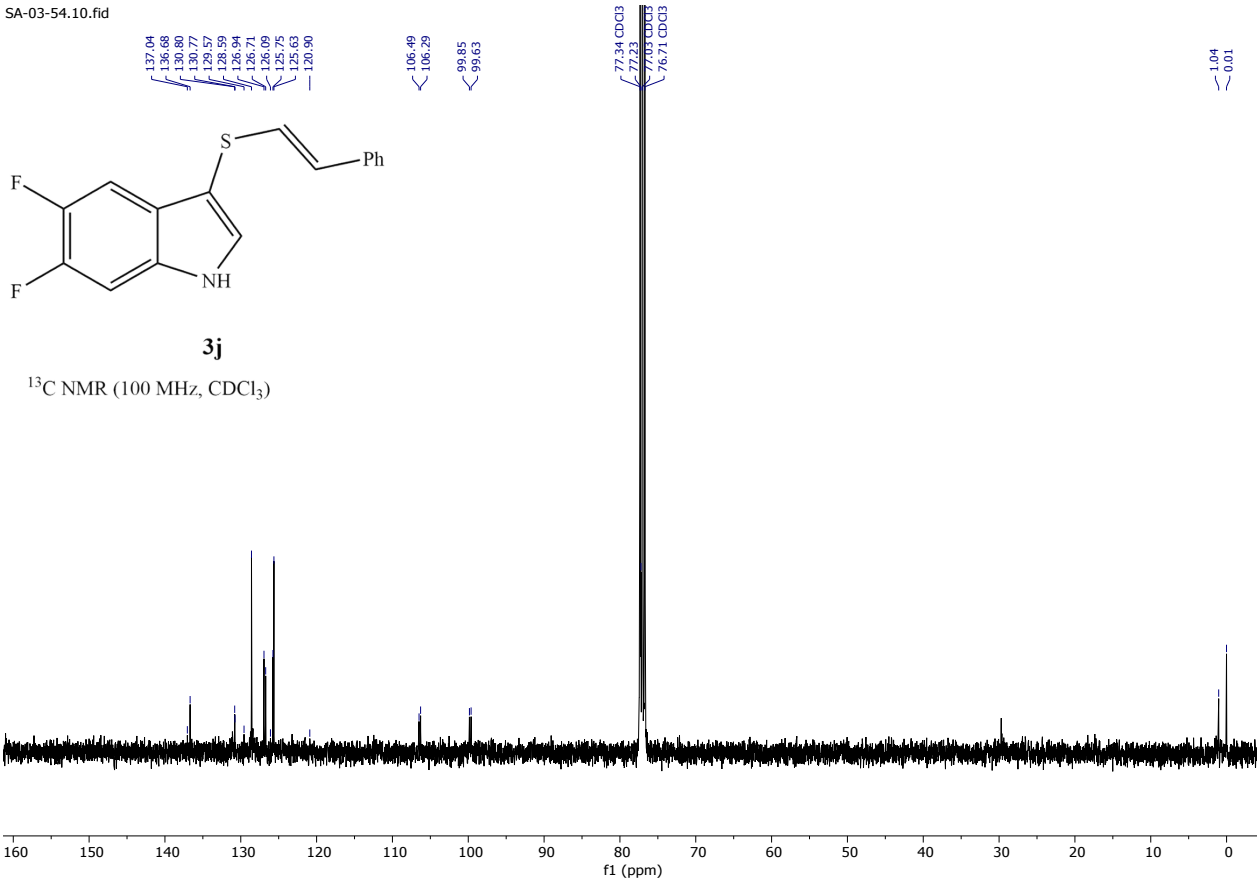


Fig. 20 ^{13}C NMR Spectrum of *(E)*-5,6-Difluoro-3-(styrylthio)-1*H*-indole **3j**

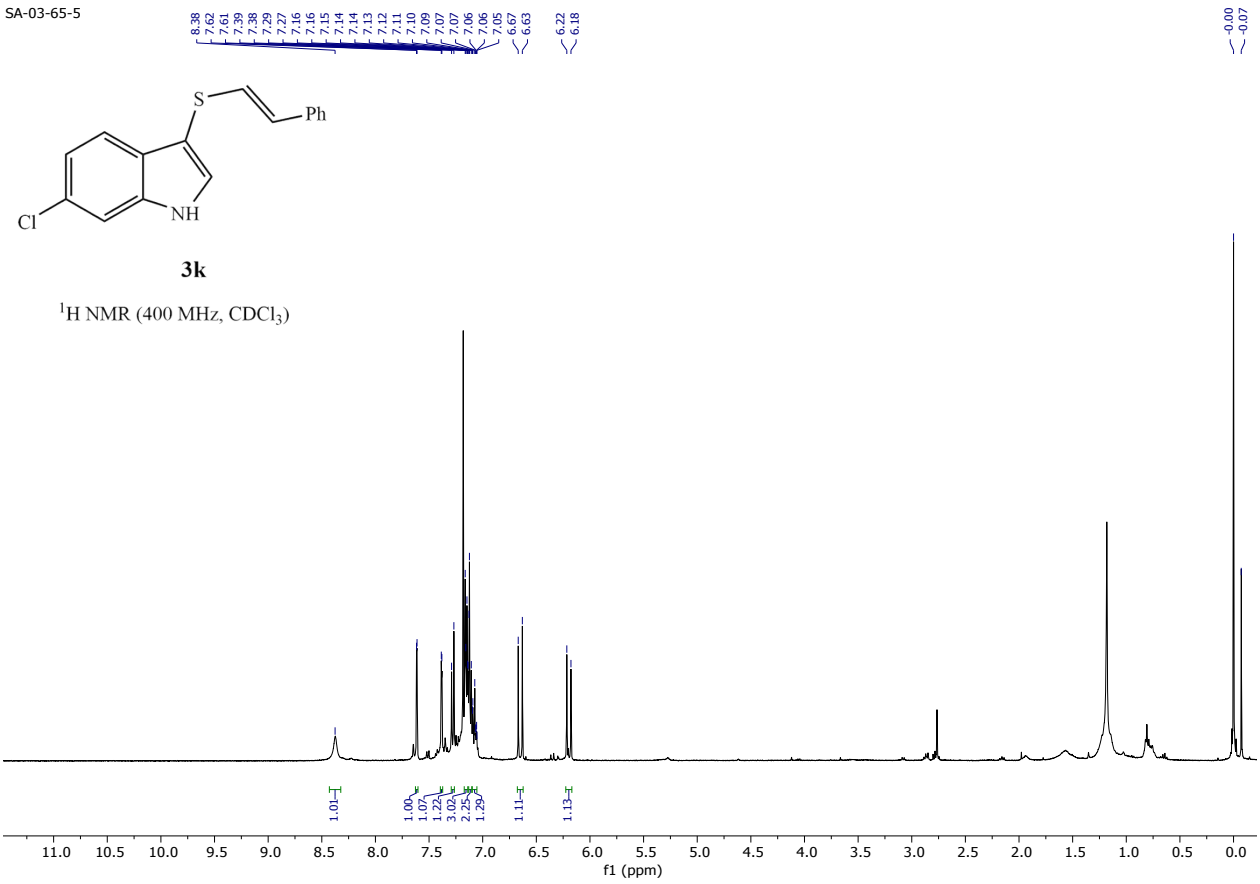


Fig. 21 ^{1}H NMR Spectrum of *(E)*-6-Chloro-3-(styrylthio)-1*H*-indole **3k**

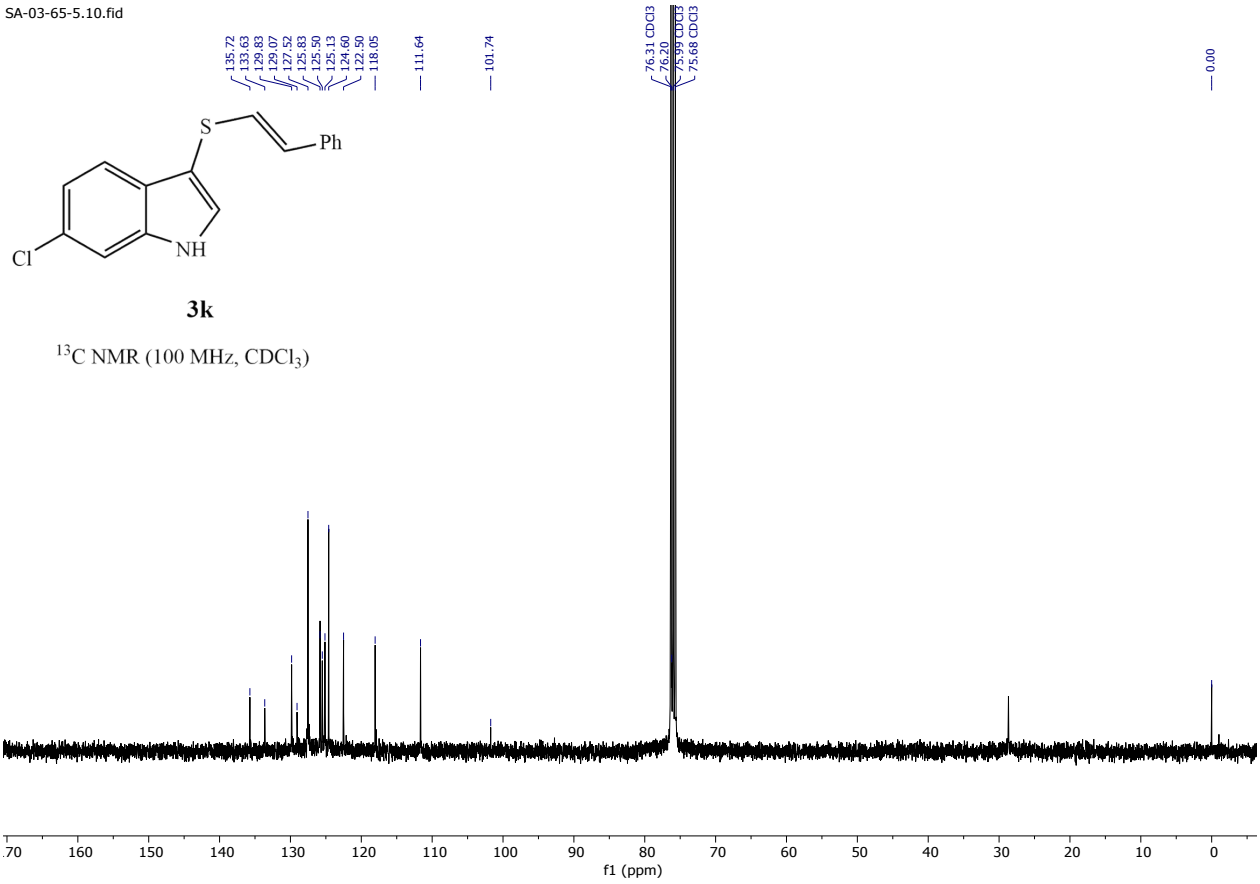


Fig. 22 ^{13}C NMR Spectrum of *(E)*-6-Chloro-3-(styrylthio)-1*H*-indole **3k**

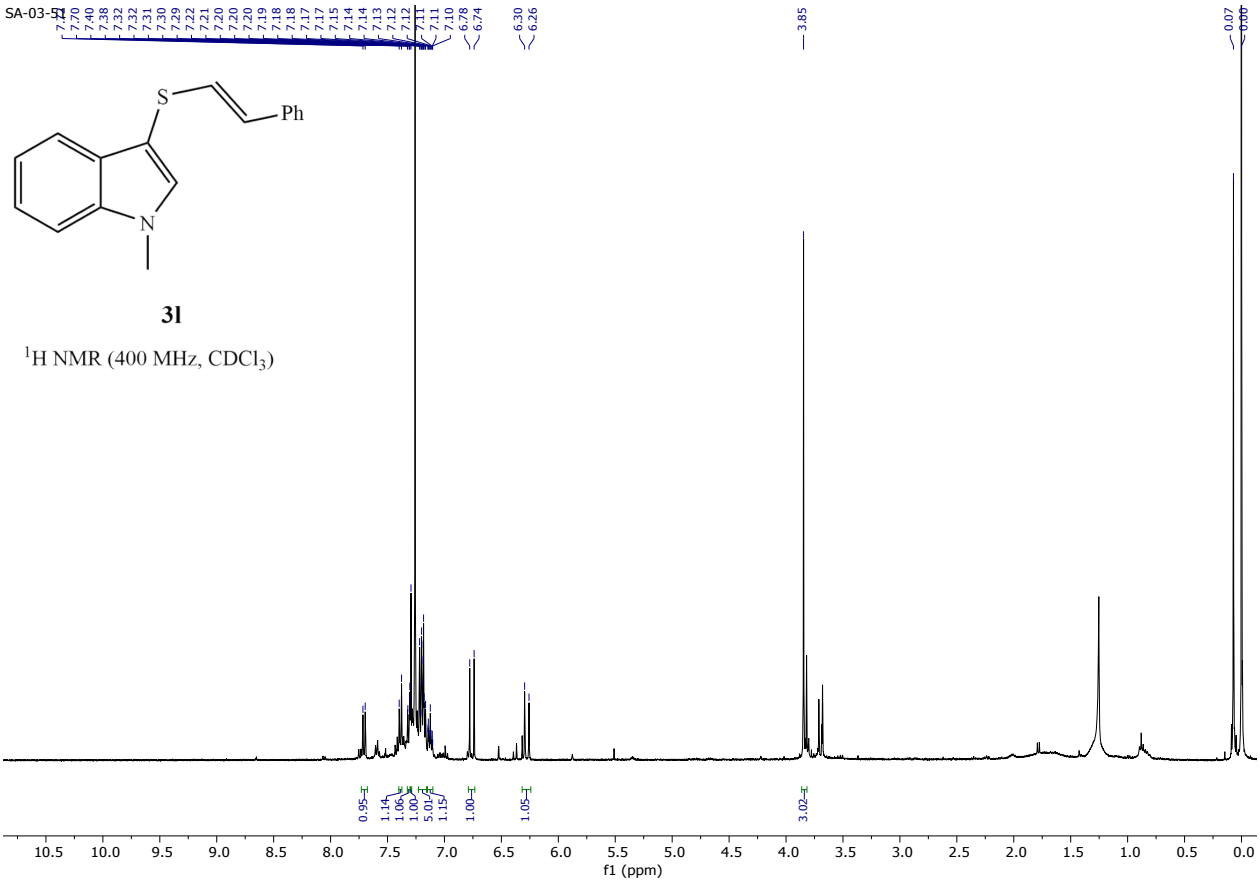


Fig. 23 ^{1}H NMR Spectrum of *(E)*-1-Methyl-3-(styrylthio)-1*H*-indole **3l**

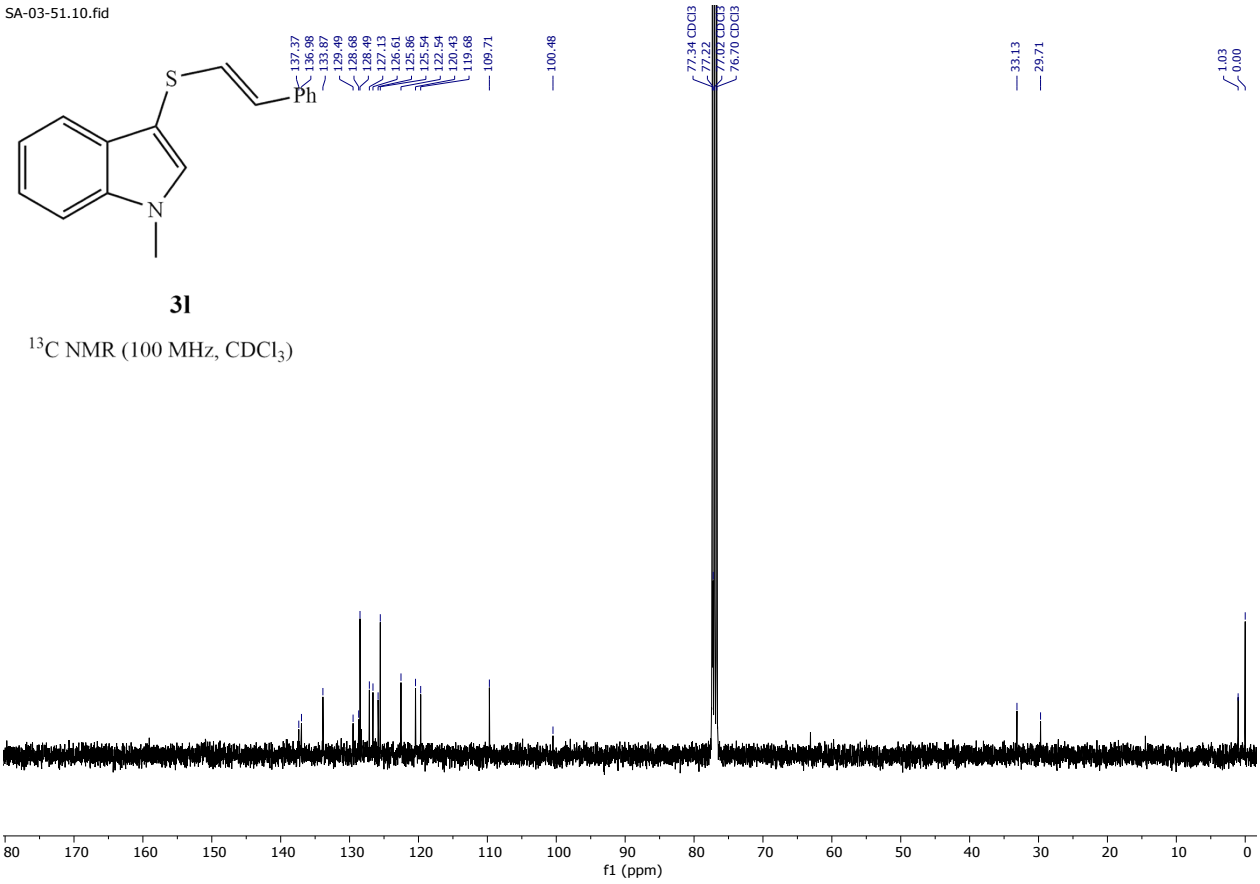


Fig. 24 ^{13}C NMR Spectrum of *(E)*-1-Methyl-3-(styrylthio)-1*H*-indole **3l**

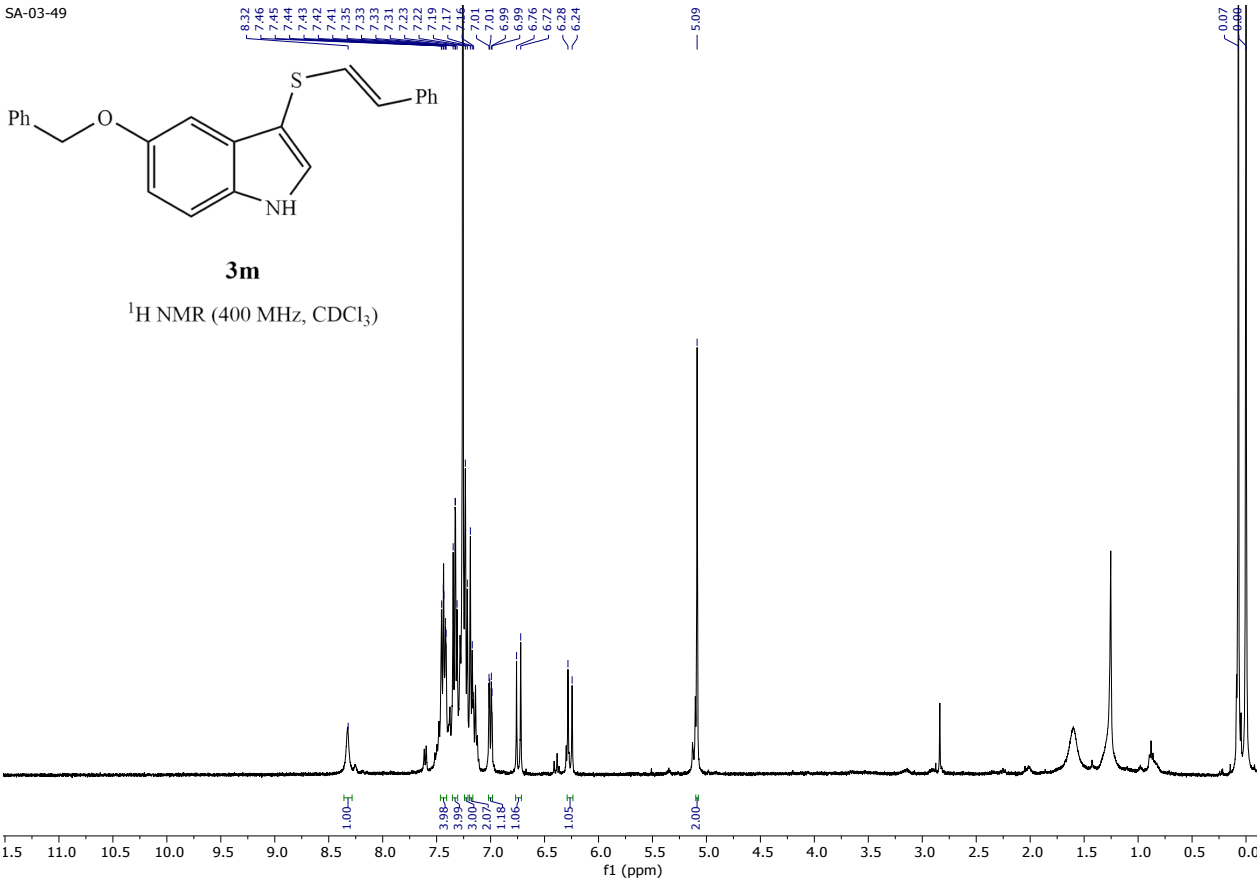


Fig. 25 ^{1}H NMR Spectrum of *(E)*-5-(Benzyloxy)-3-(styrylthio)-1*H*-indole **3m**

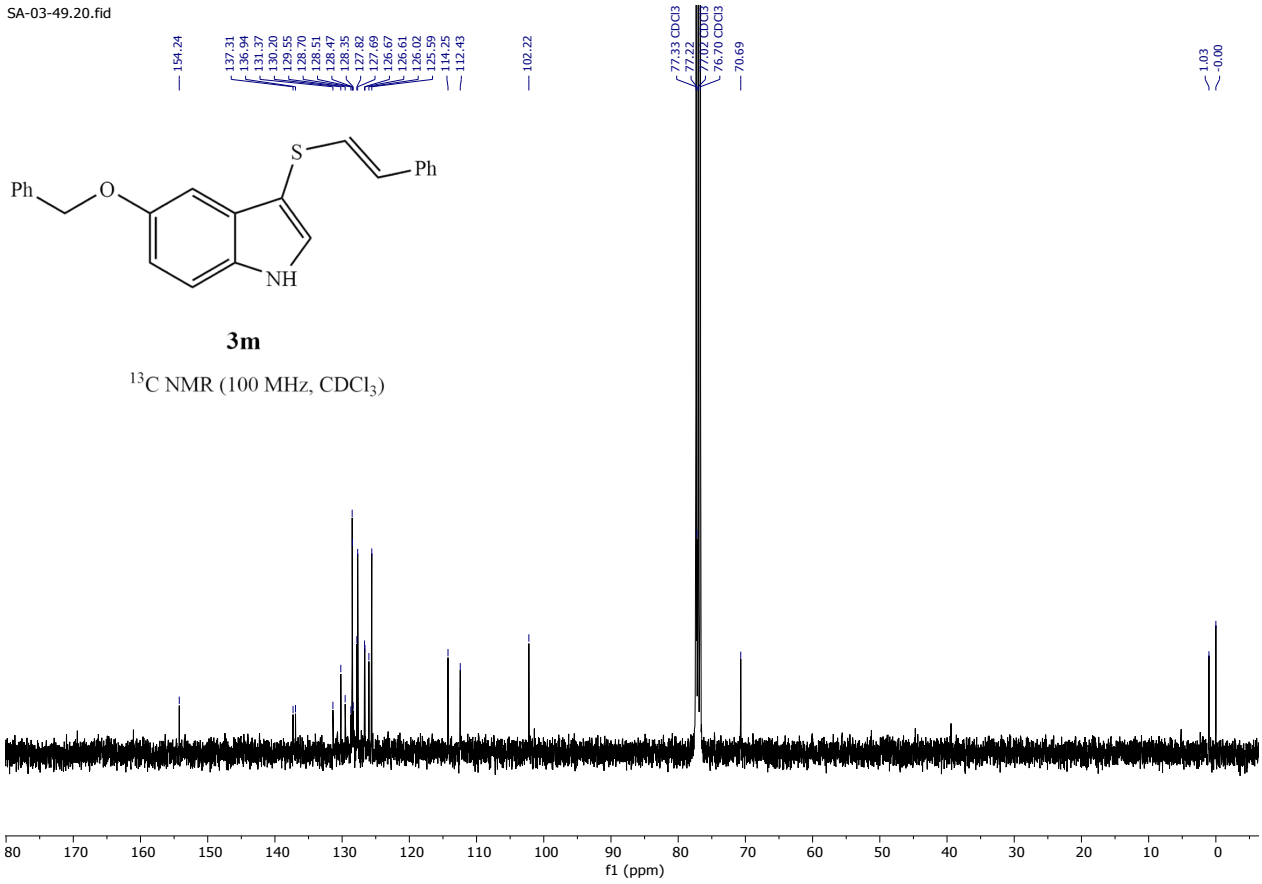


Fig. 26 ^{13}C NMR Spectrum of *(E)*-5-(Benzyloxy)-3-(styrylthio)-1*H*-indole **3m**

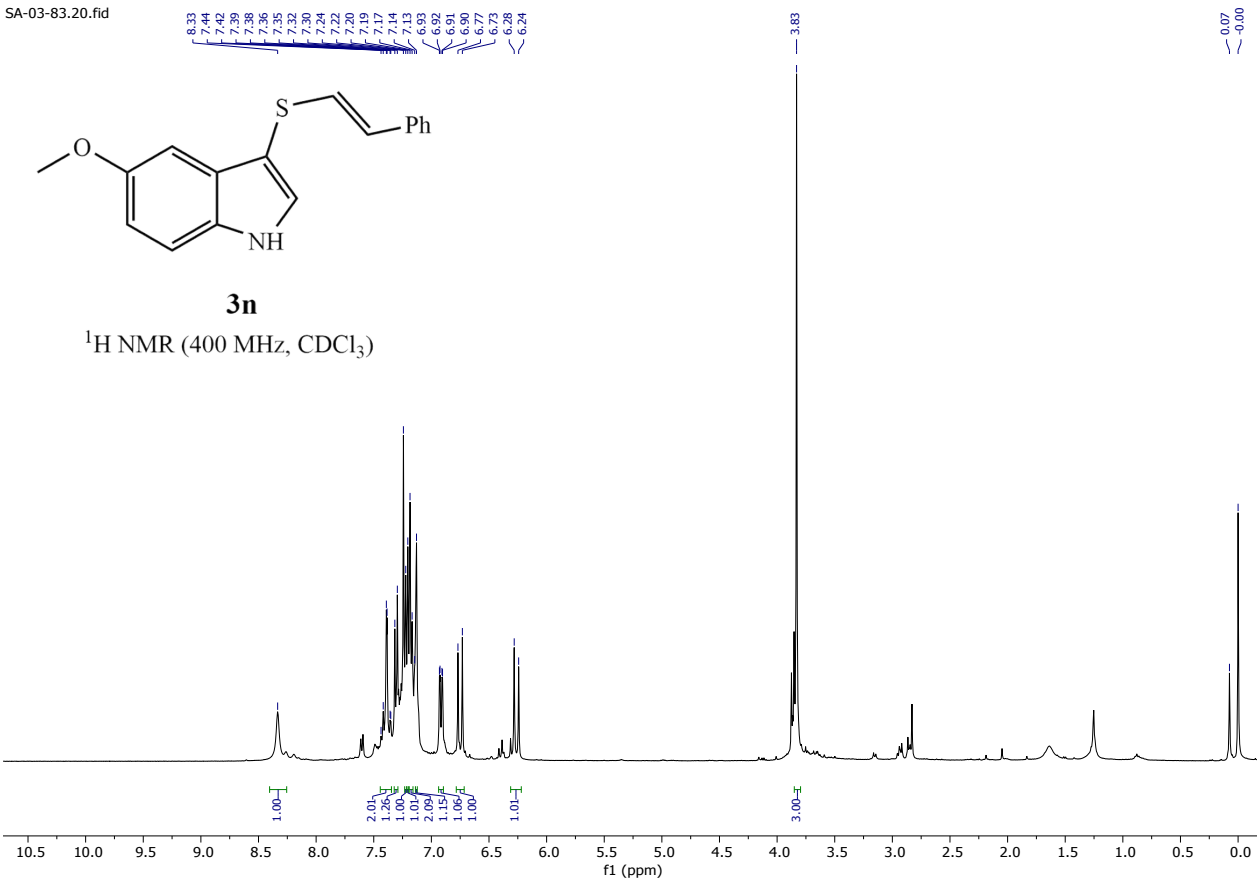


Fig. 27 ^{1}H NMR Spectrum of *(E)*-5-Methoxy-3-(styrylthio)-1*H*-indole **3n**

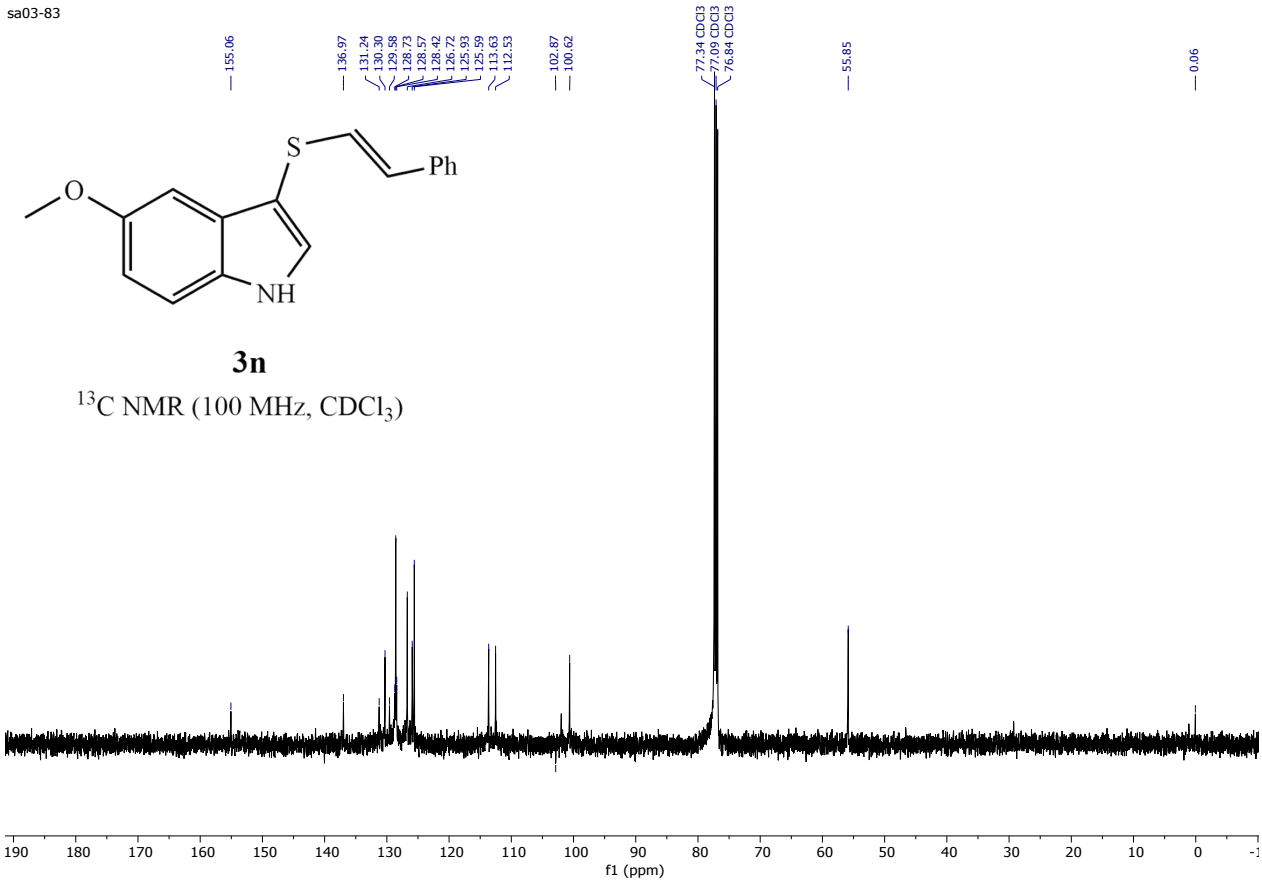


Fig. 28 ^{13}C NMR Spectrum of *(E)*-5-Methoxy-3-(styrylthio)-1*H*-indole **3n**

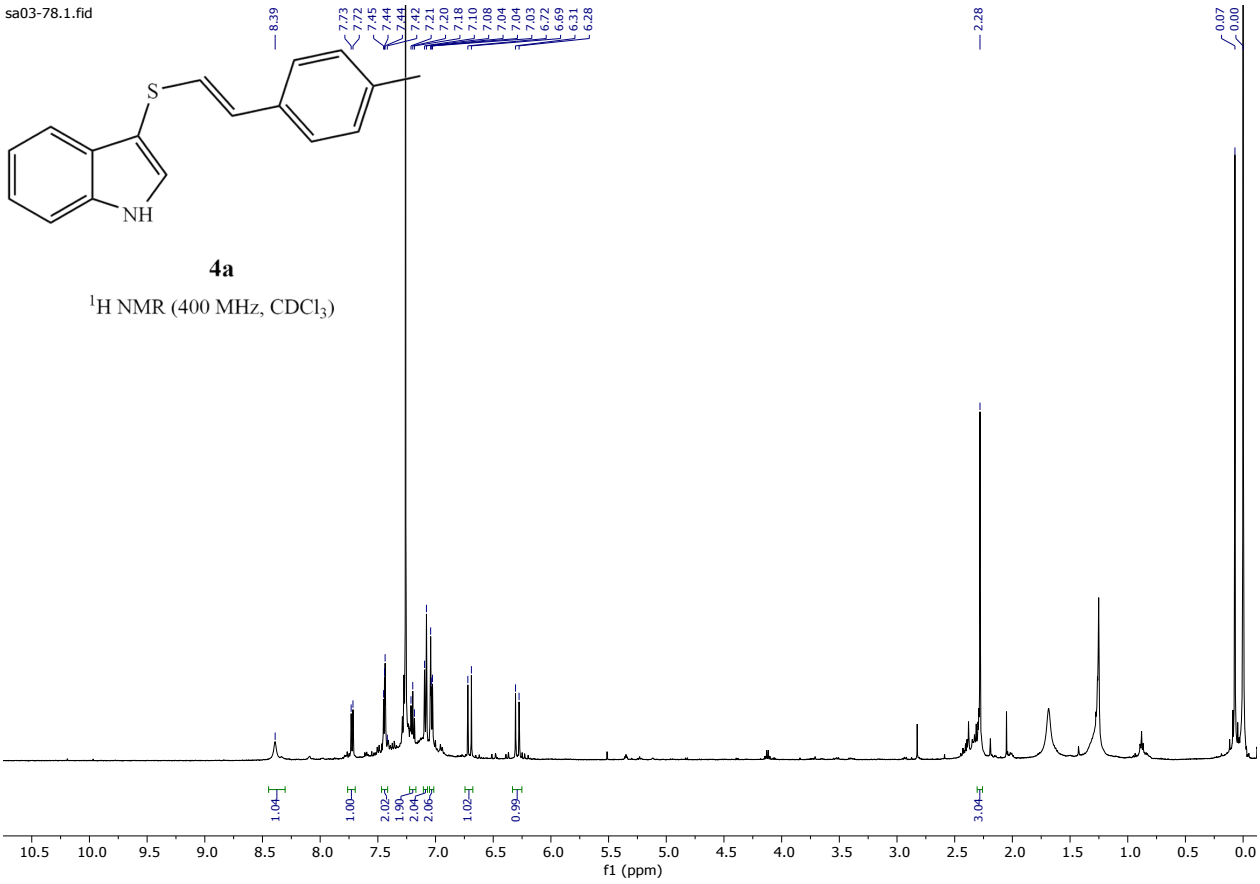


Fig. 29 ^{1}H NMR Spectrum of *(E)*-3-((4-Methylstyryl) thio)-1*H*-indole **4a**

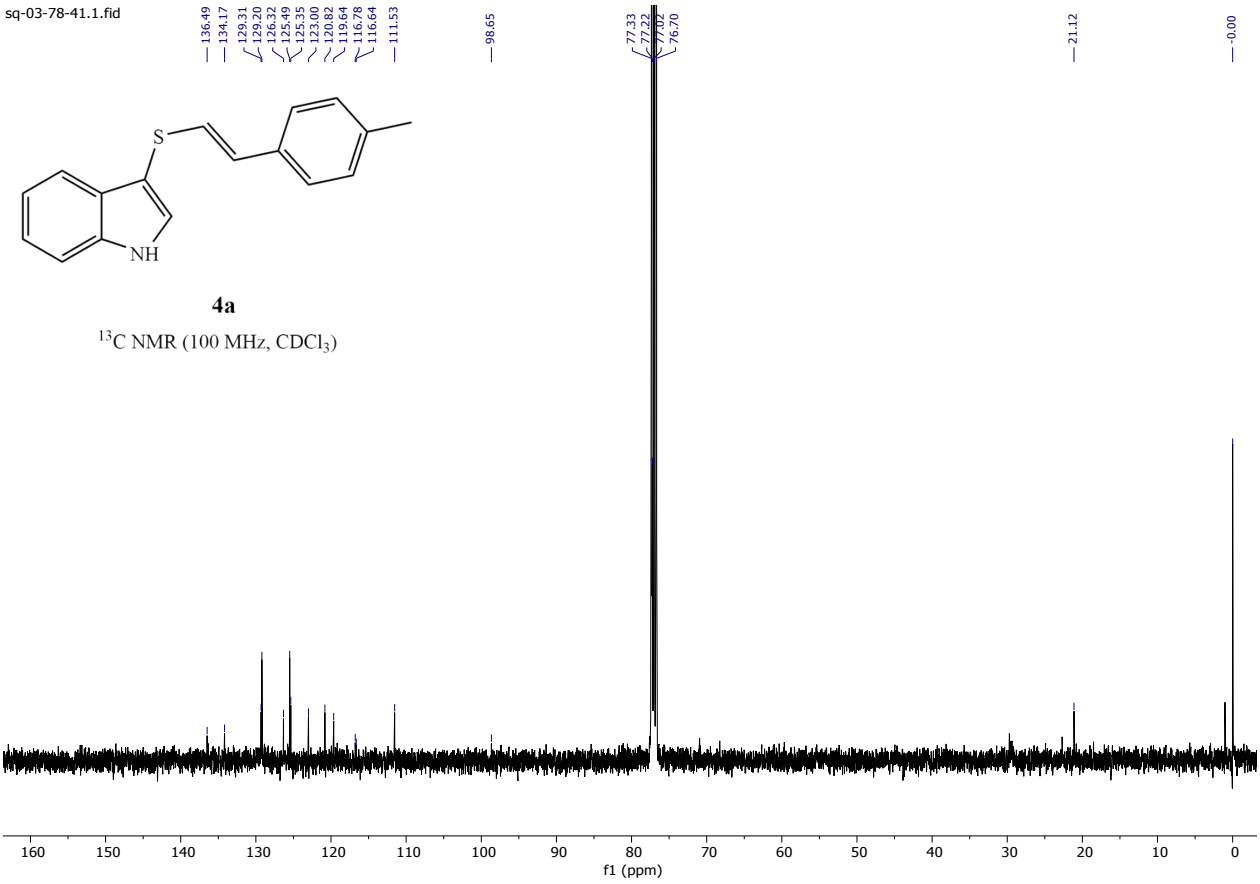


Fig. 30 ^{13}C NMR Spectrum of *(E)*-3-((4-Methylstyryl) thio)-1*H*-indole **4a**

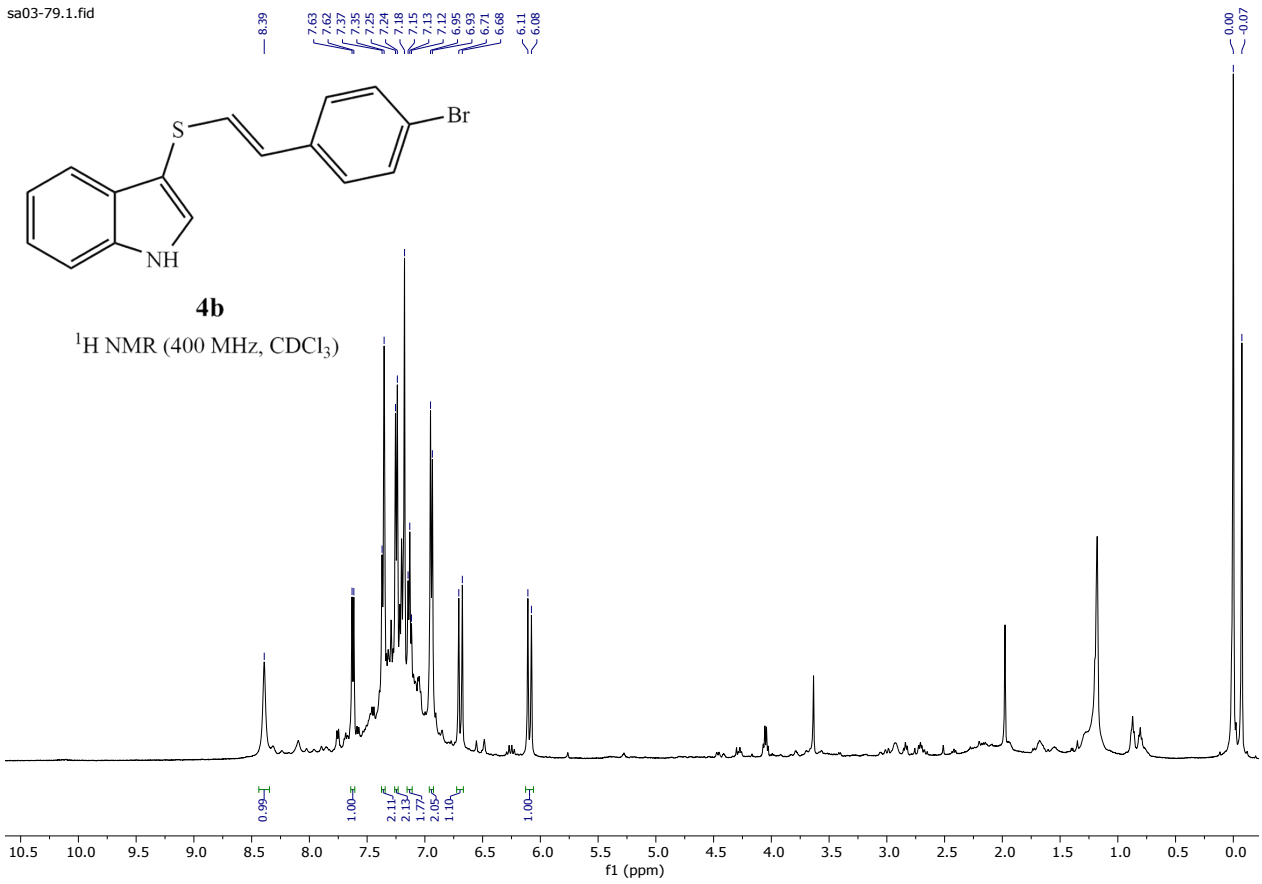


Fig. 31 ^{1}H NMR Spectrum of *(E)*-3-((4-Bromostyryl) thio)-1*H*-indole **4b**

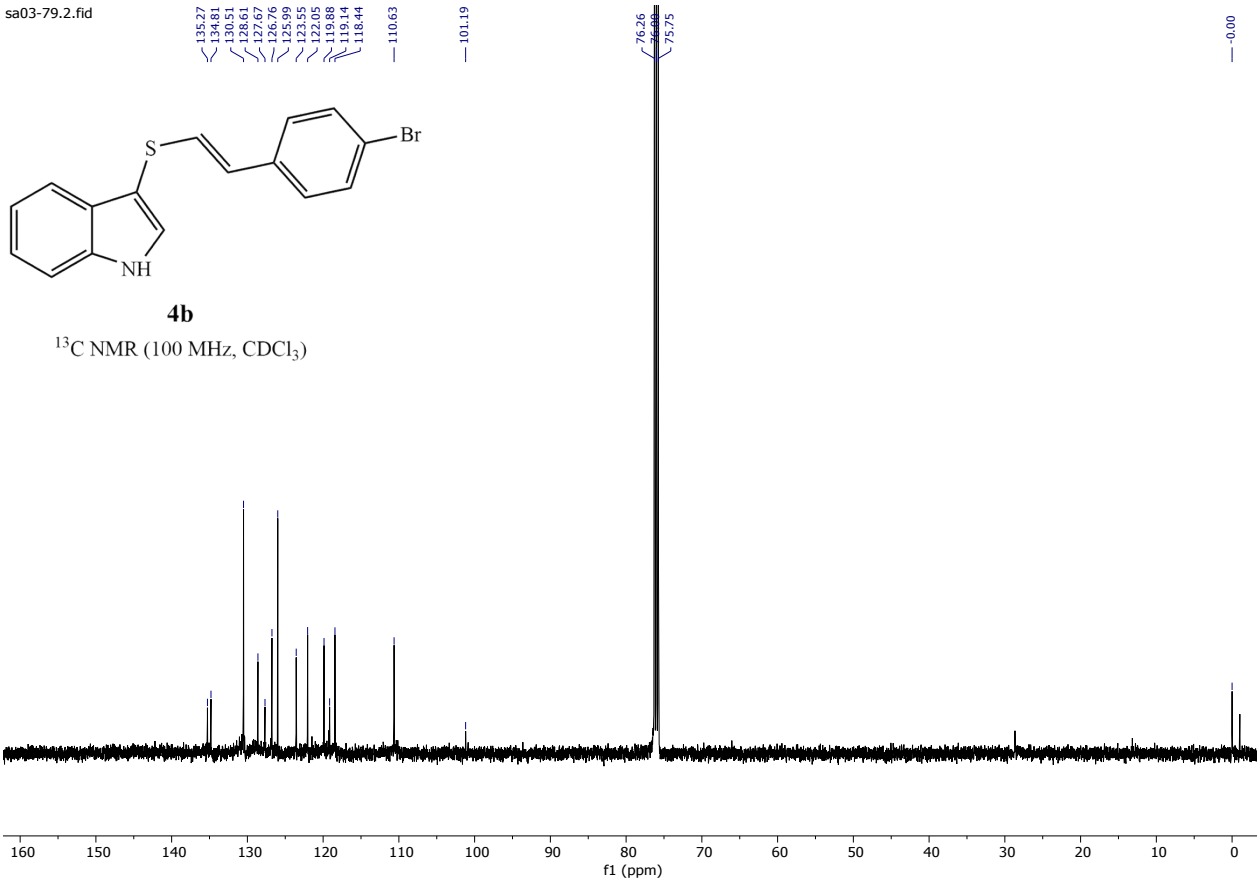


Fig. 32 ^{13}C NMR Spectrum of *(E)*-3-((4-Bromostyryl) thio)-1*H*-indole **4b**

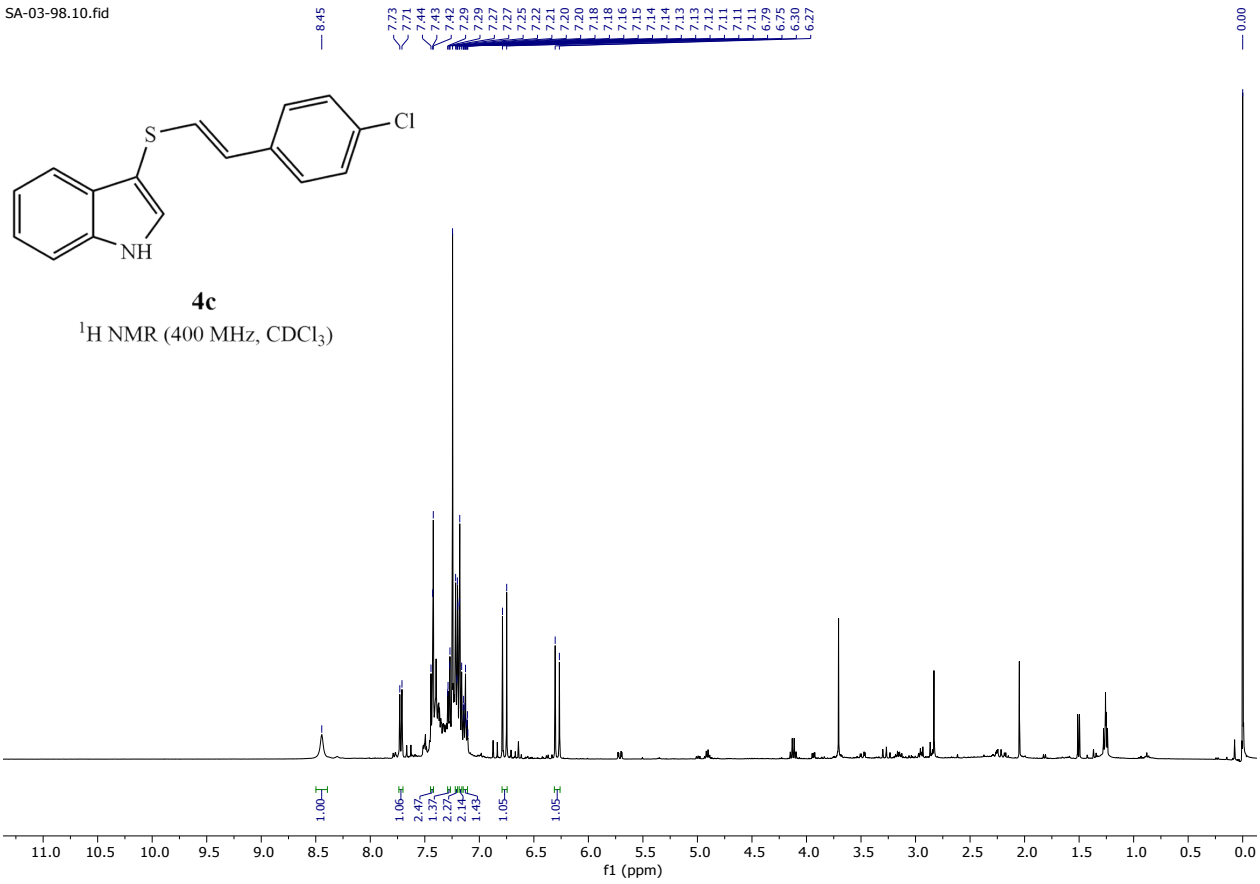


Fig. 33 ^{1}H NMR Spectrum of *(E)*-3-((4-Chlorostyryl) thio)-1*H*-indole **4c**

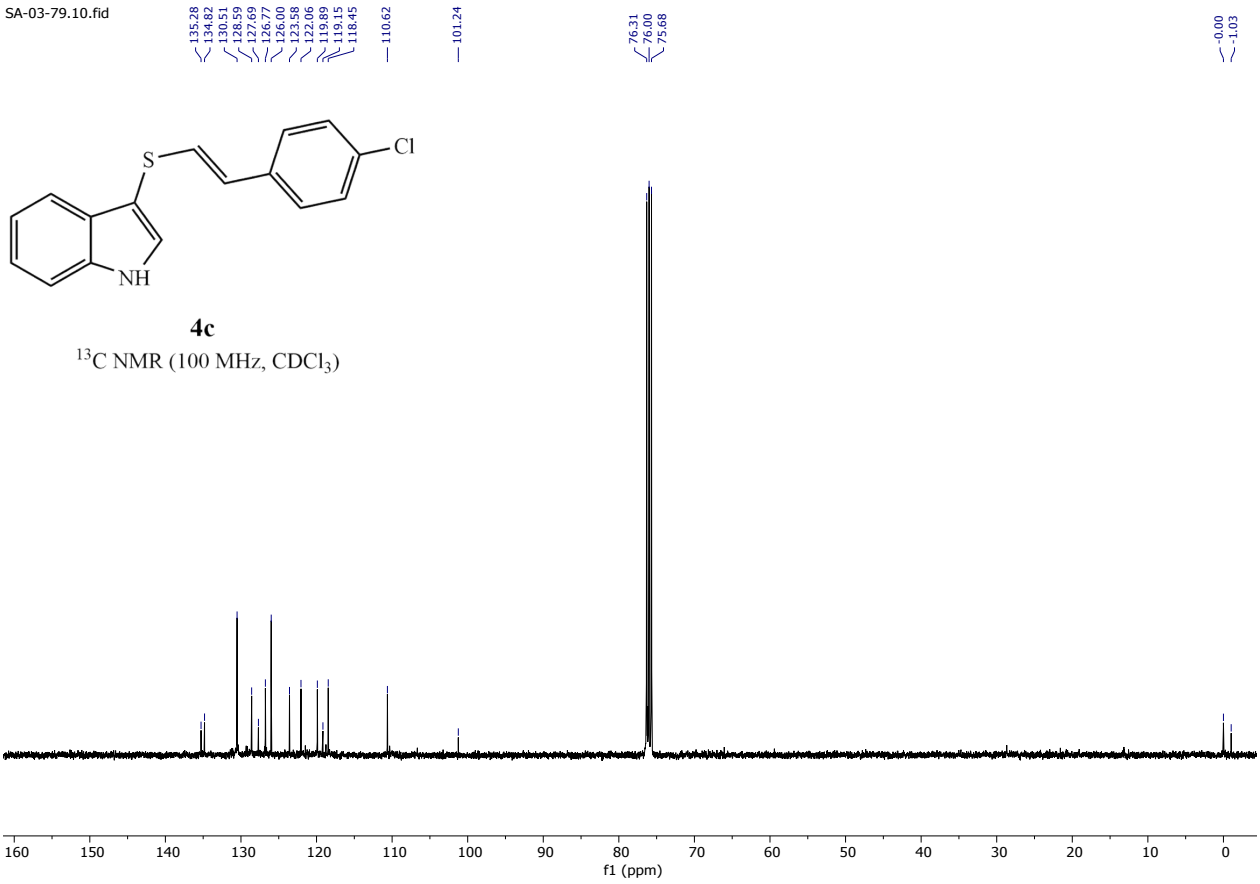


Fig. 34 ^{13}C NMR Spectrum of *(E)*-3-((4-Chlorostyryl) thio)-1*H*-indole **4c**

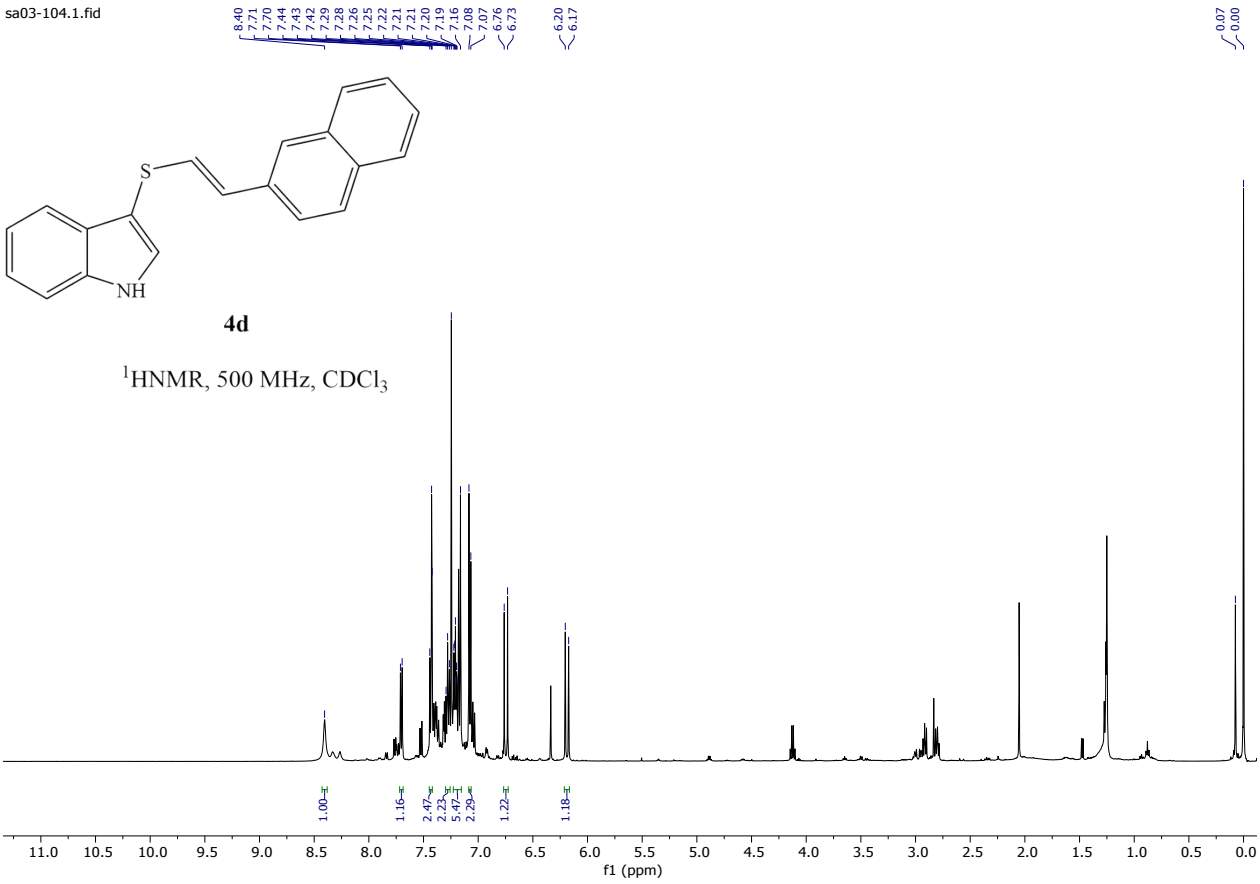
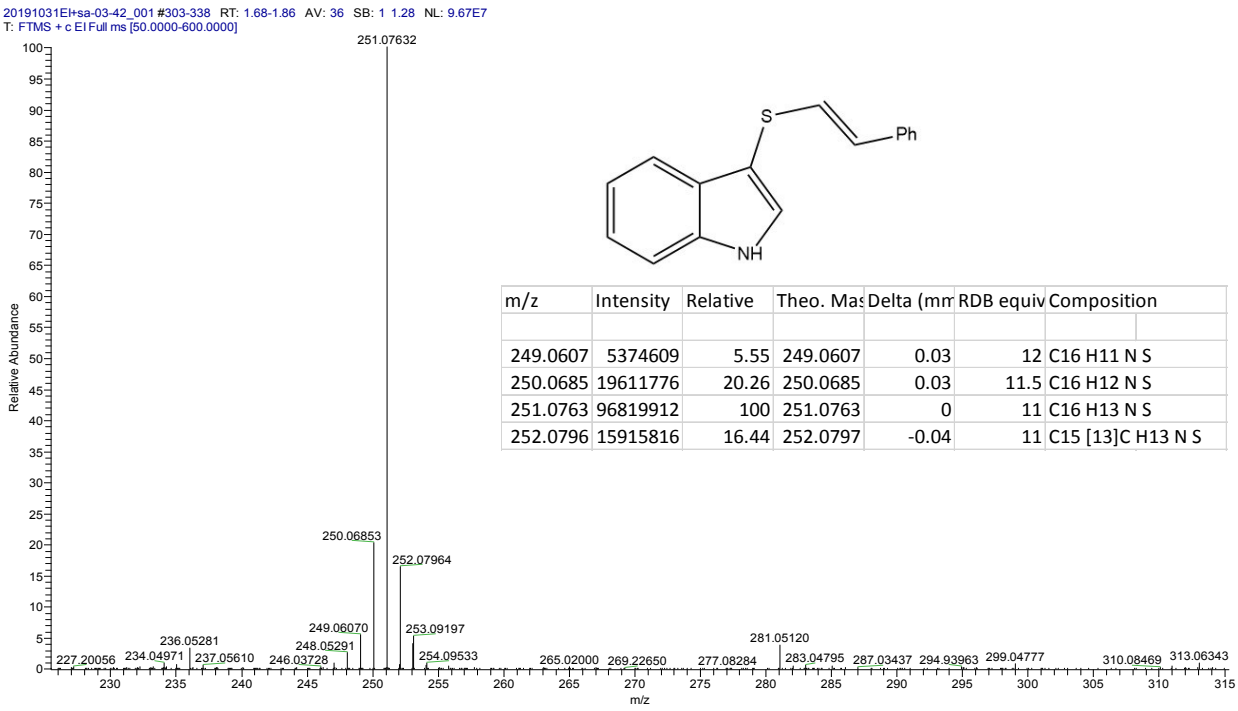


Fig. 35 ^{1}H NMR Spectrum of *(E)*-3-((2-(Naphthalen-2-yl) vinyl) thio)-1*H*-indole **4d**



m/z	Intensity	Relative	Theo. Mas	Delta (mm	RDB equiv	Composition
249.0607	5374609	5.55	249.0607	0.03	12	C16 H11 N S
250.0685	19611776	20.26	250.0685	0.03	11.5	C16 H12 N S
251.0763	96819912	100	251.0763	0	11	C16 H13 N S
252.0796	15915816	16.44	252.0797	-0.04	11	C15 [13]C H13 N S

Fig. 36 EIMS of *(E)*-3-(Styrylthio)-1*H*-indole **3a**

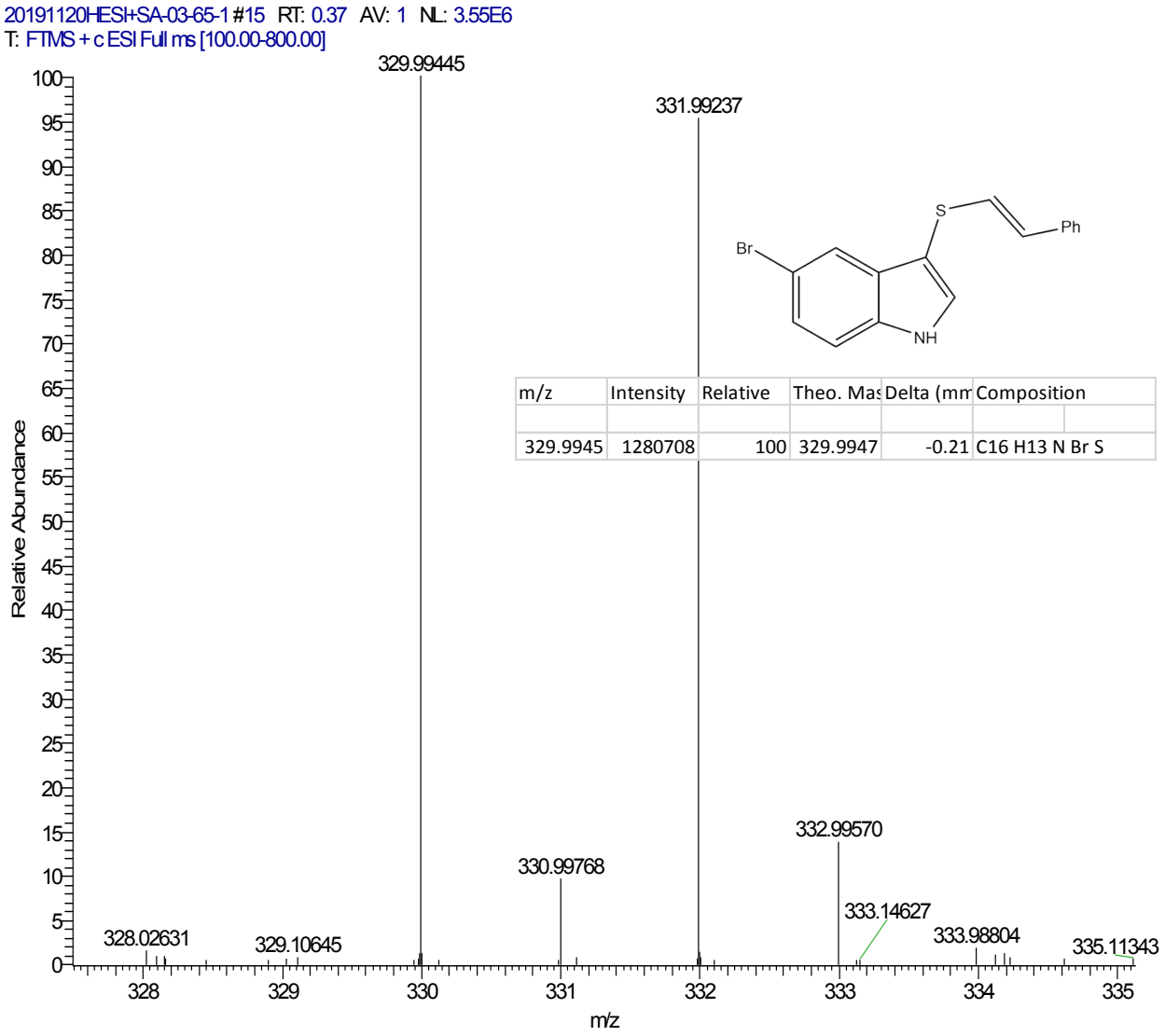


Fig. 37 EIMS of *(E)*-5-bromo-3-(styrylthio)-1*H*-indole **3e**

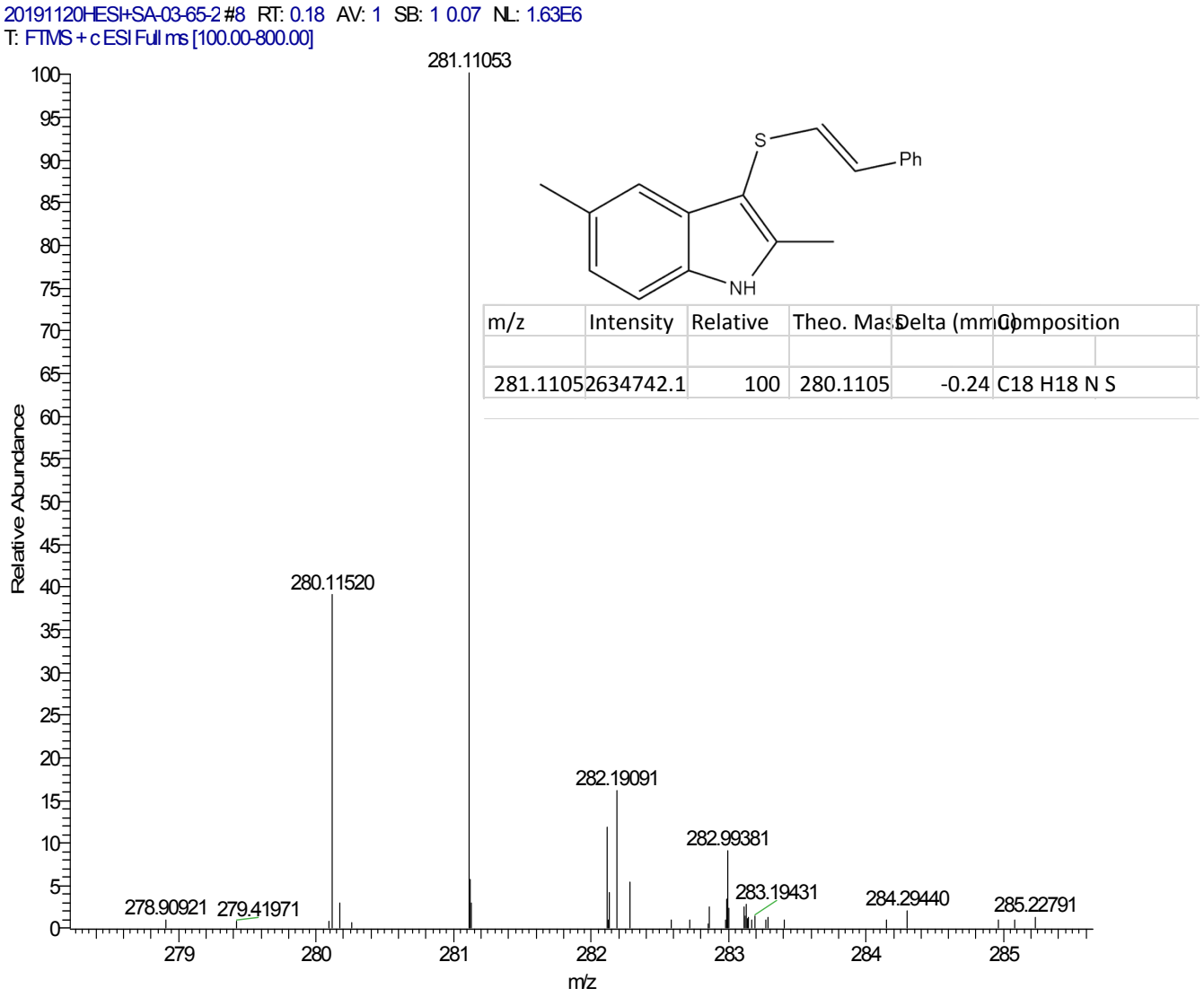


Fig. 38 EIMS of *(E)*-2,5-dimethyl-3-(styrylthio)-1*H*-indole **3f**

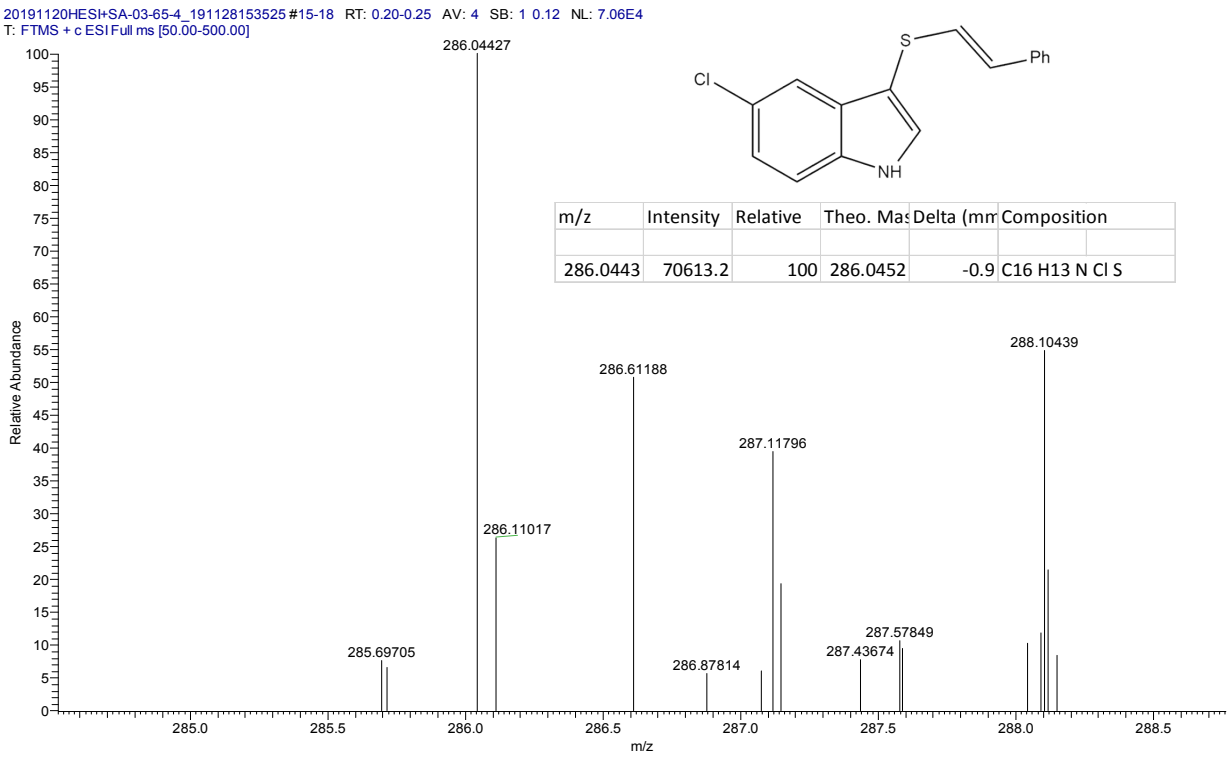


Fig. 39 EIMS of *(E)*-5-chloro-3-(styrylthio)-1*H*-indole **3g**

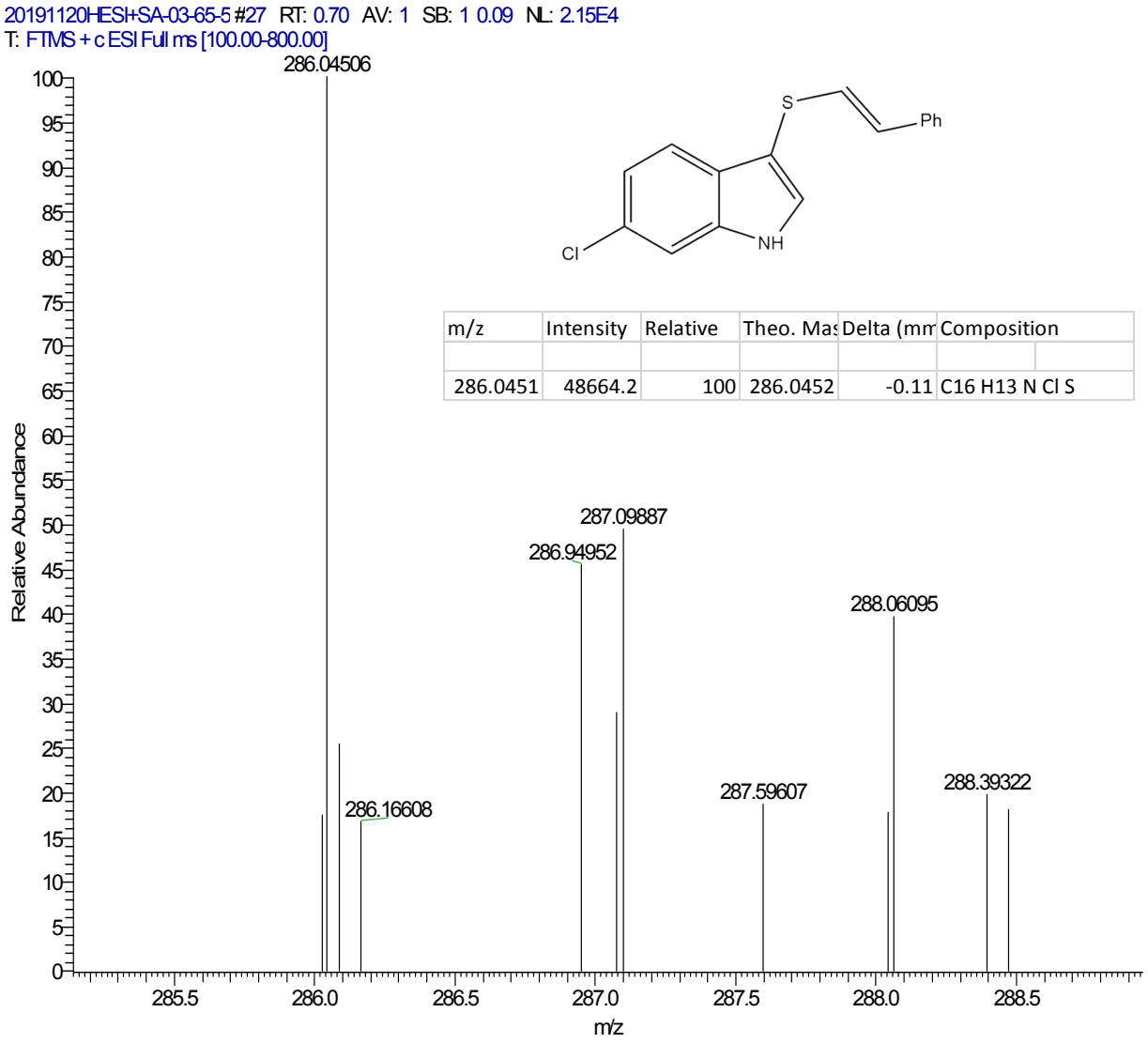


Fig. 40 EIMS of *(E)*-6-chloro-3-(styrylthio)-1*H*-indole **3k**

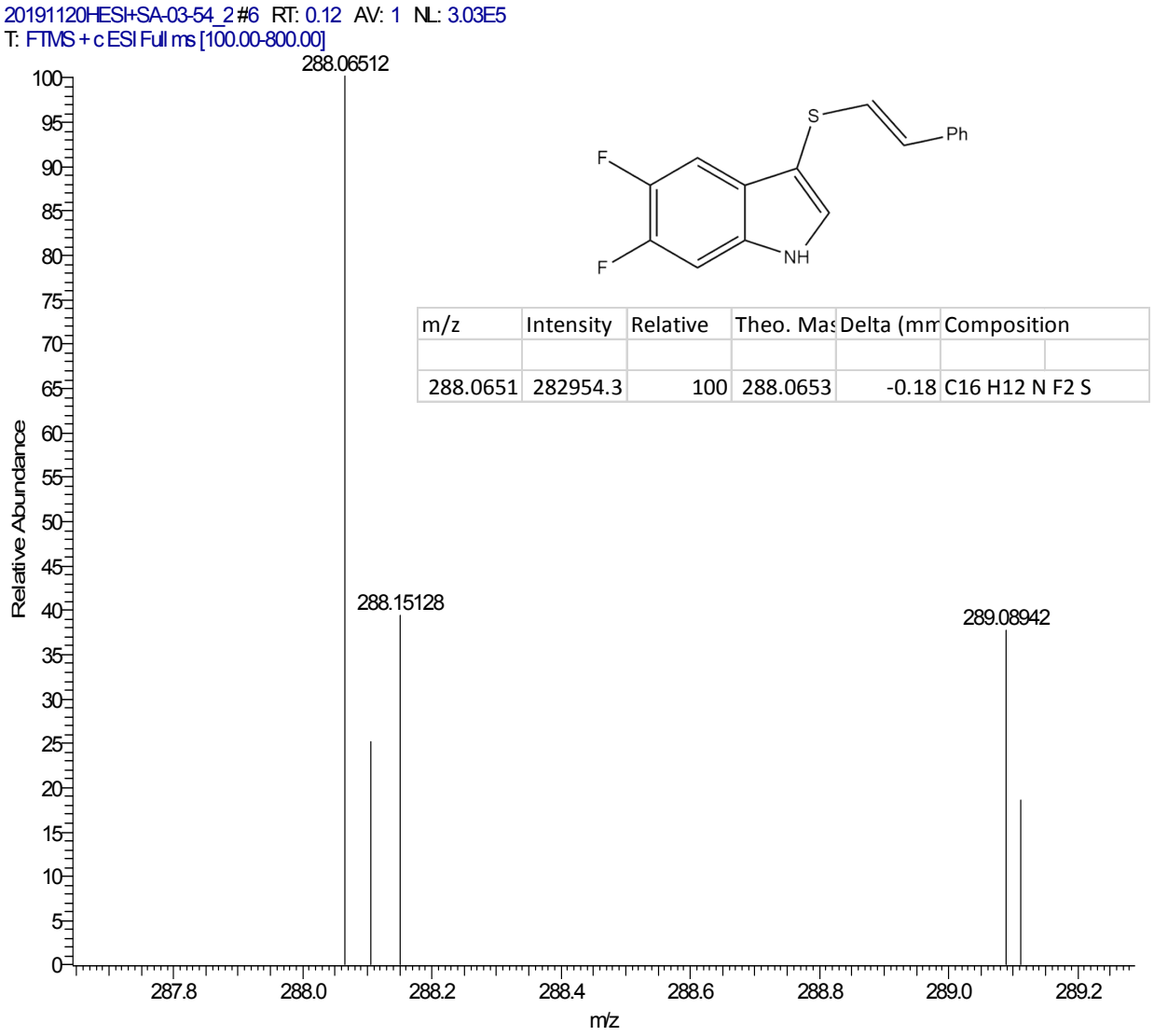


Fig. 41 EIMS of *(E)*-5,6-Difluoro-3-(styrylthio)-1*H*-indole **3j**

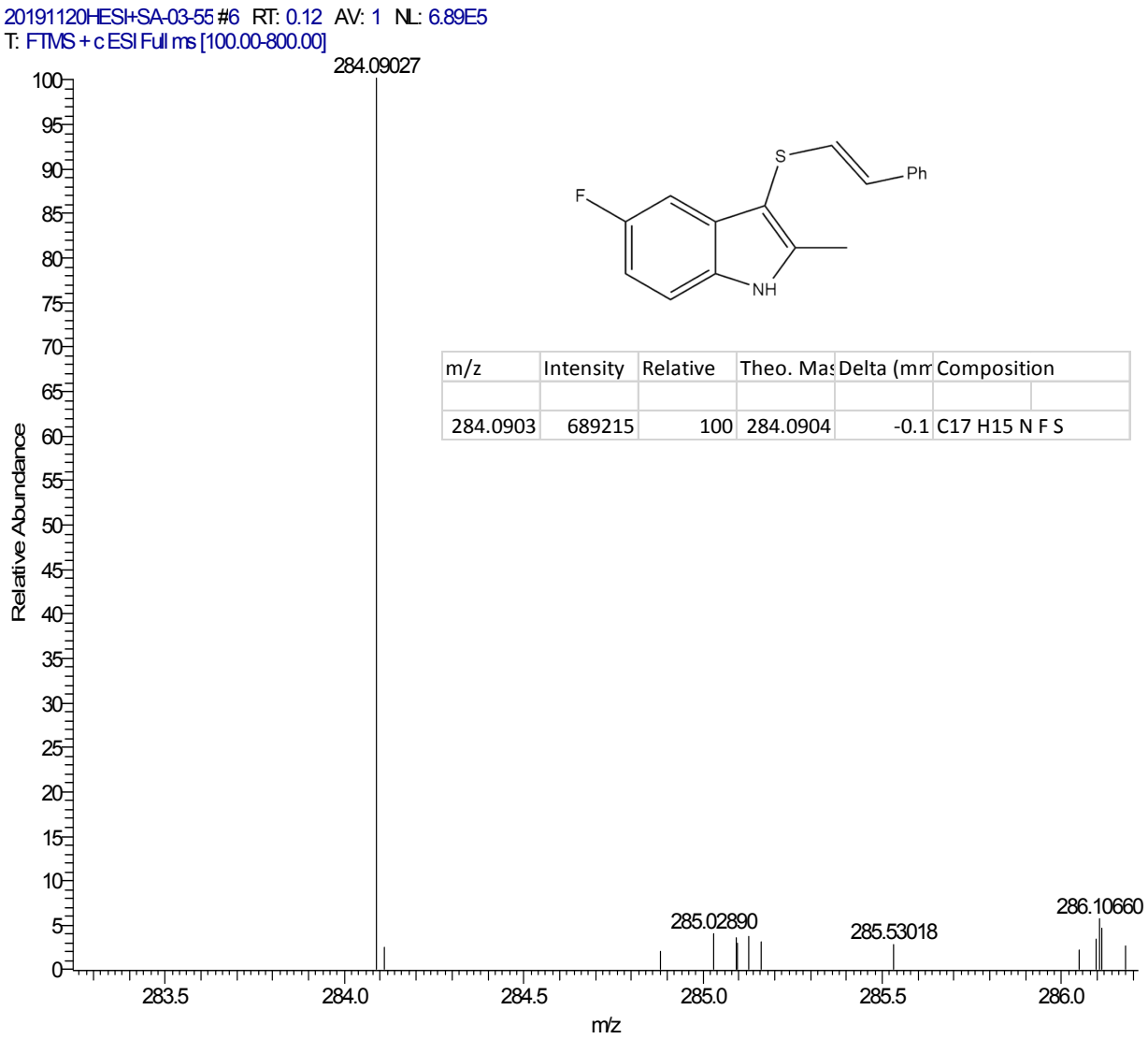


Fig. 42 EIMS of *(E)*-5-Fluoro-2-methyl-3-(styrylthio)-1*H*-indole **3i**

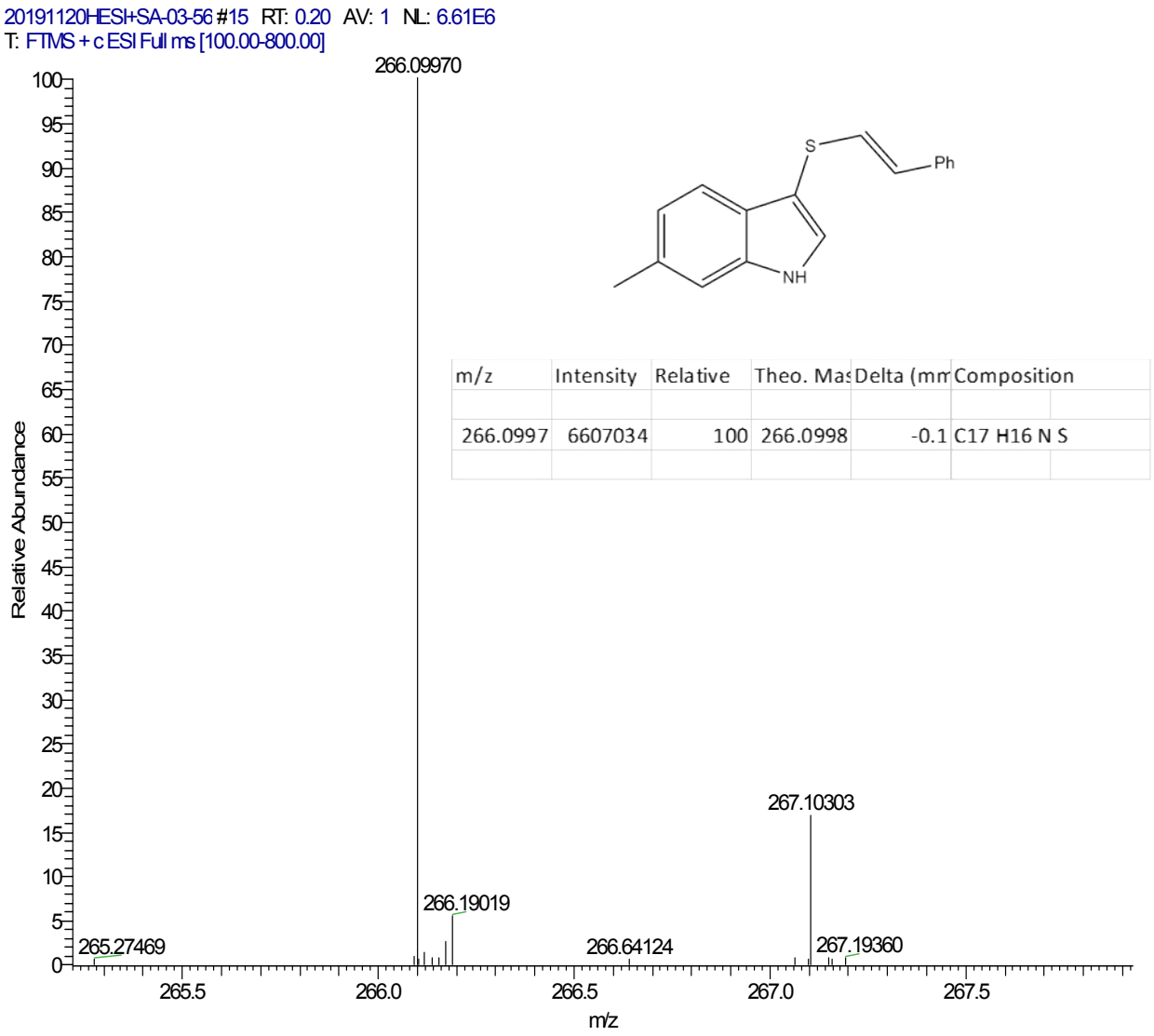


Fig. 43 EIMS of *(E)*-6-methyl-3-(styrylthio)-1*H*-indole **3h**

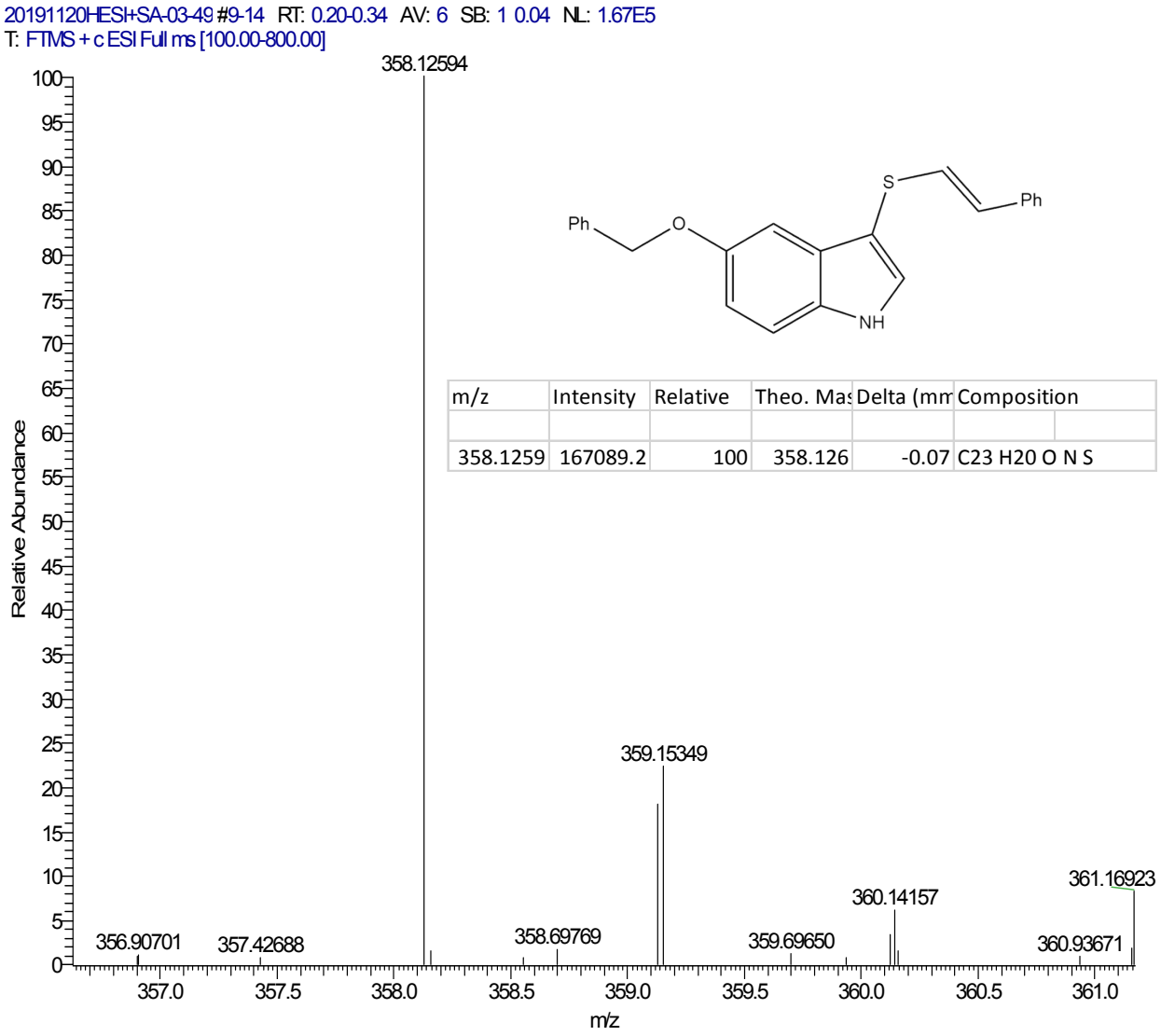


Fig. 44 EIMS of *(E)*-5-(Benzyloxy)-3-(styrylthio)-1*H*-indole **3m**

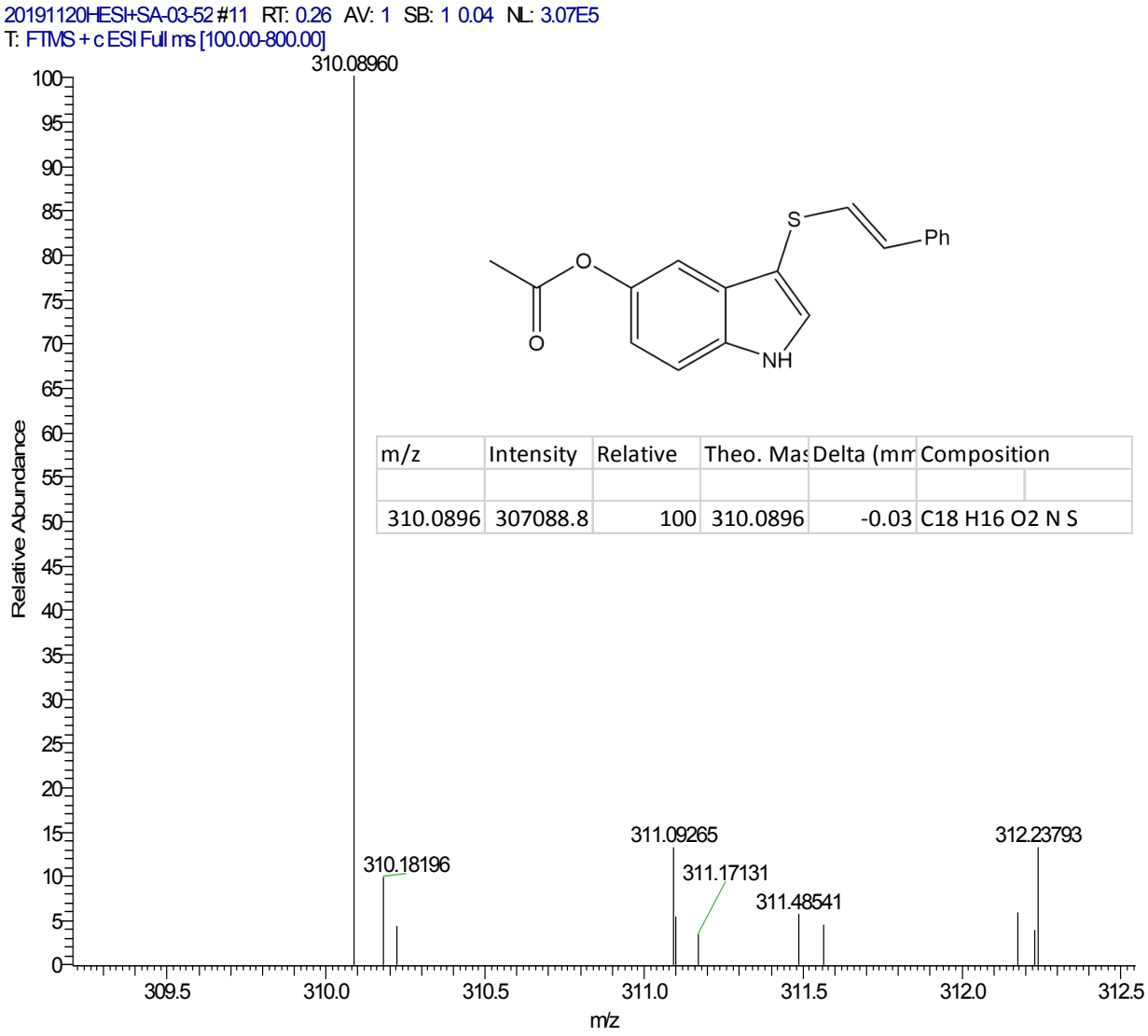


Fig. 45 EIMS of *(E)*-3-(styrylthio)-1H-indol-5-yl acetate

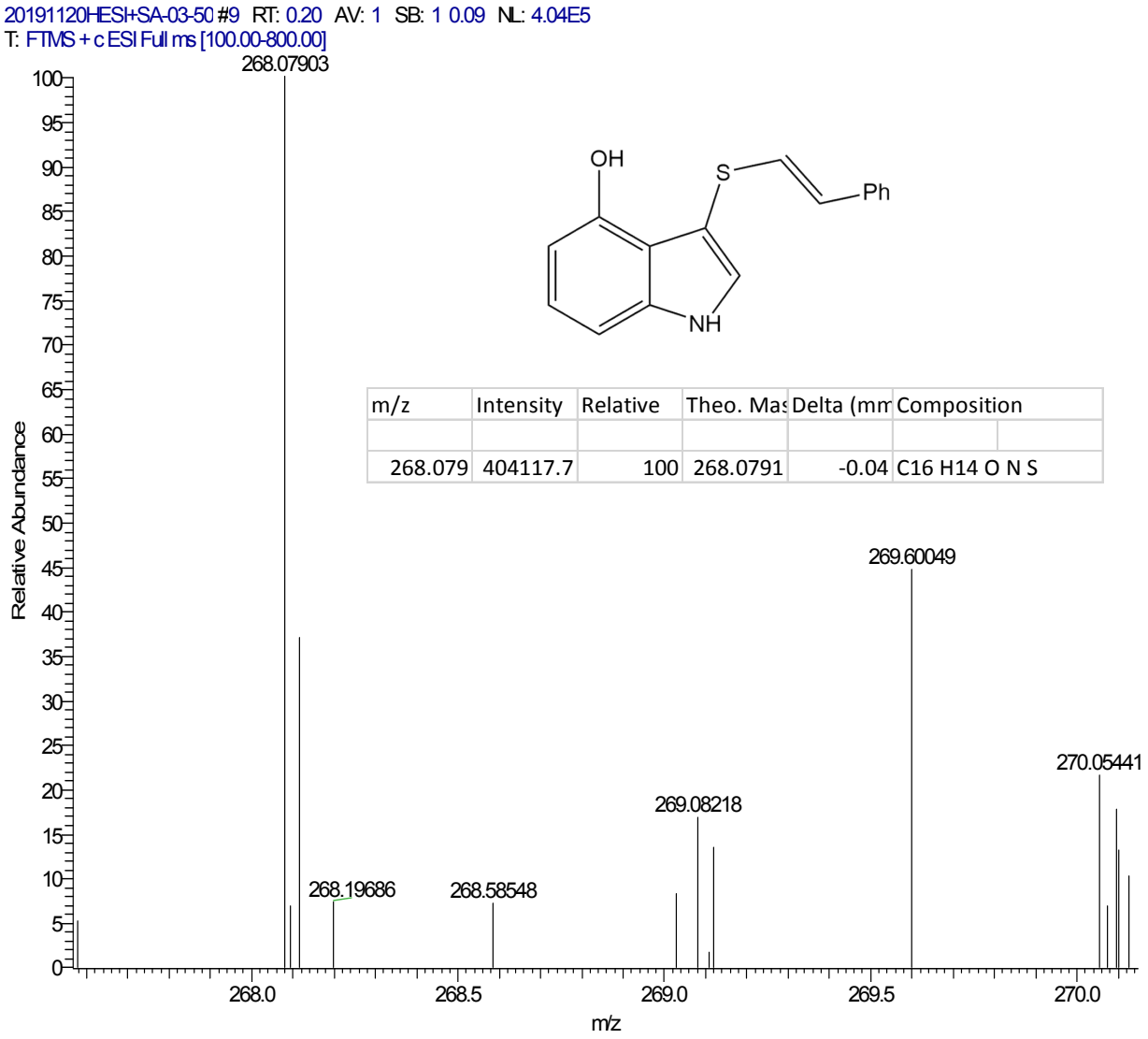


Fig. 46 EIMS of *(E)*-3-(styrylthio)-1H-indol-4-ol

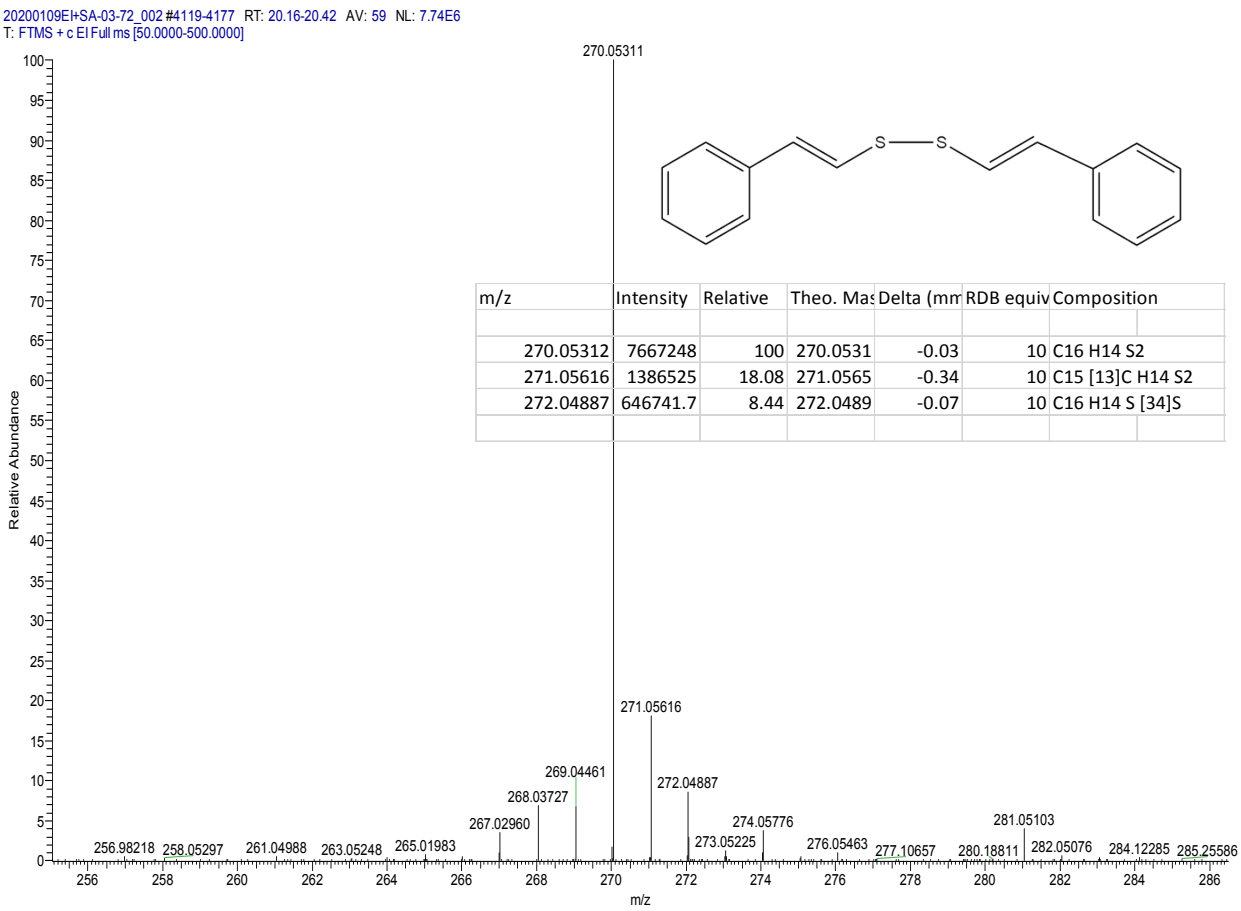
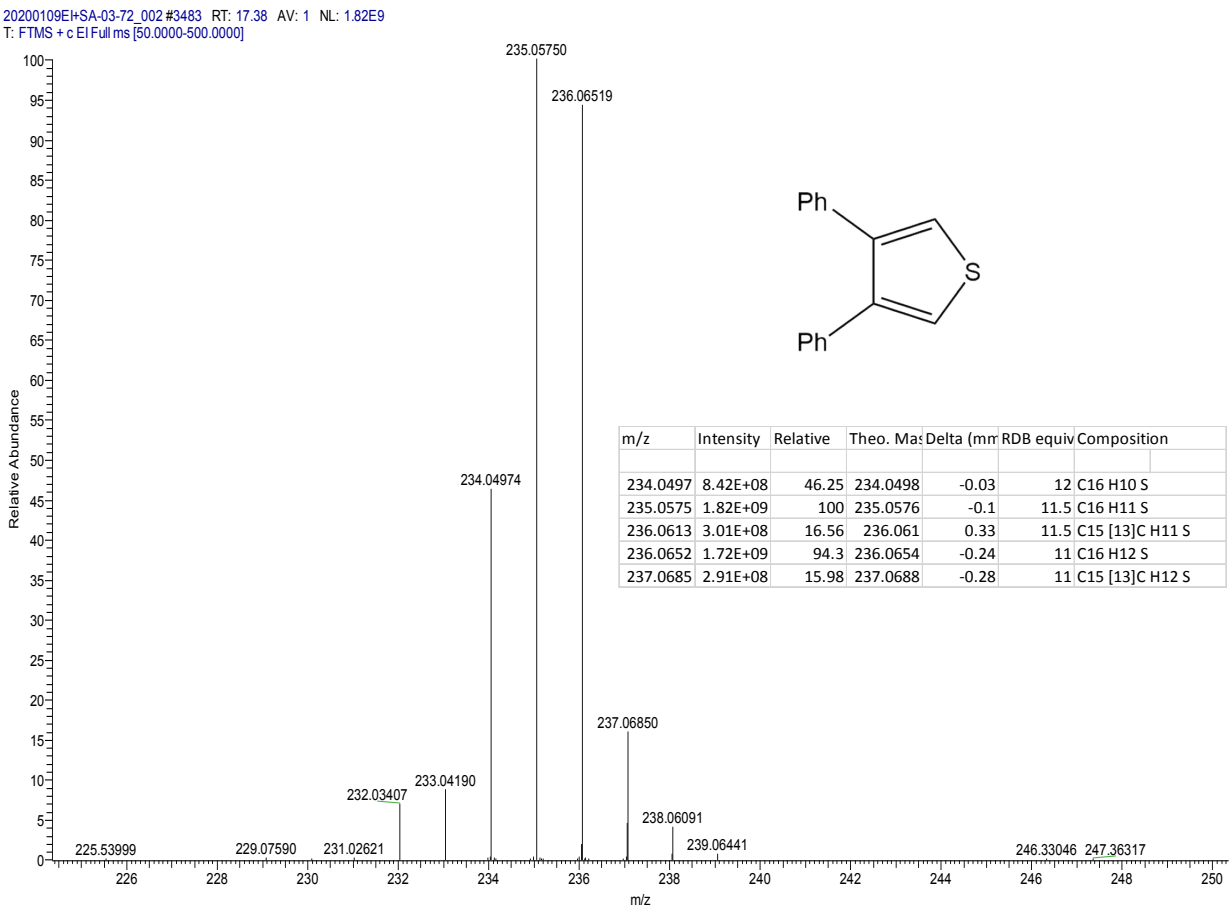


Fig. 47 EIMS of reaction intermediate **3s**

The molecular ion peak M/Z 270.05312 and its isotopic peak of $C_{16}H_{14}S_2$ were detected in E thus confirming the formation of intermediate Ph-CH=CH-S-S-CH=CH-Ph. The molecular ion peak of $C_{16}H_{12}S$ was also detected.



m/z	Intensity	Relative	Theo. Mas	Delta (mm	RDB equiv	Composition
234.0497	8.42E+08	46.25	234.0498	-0.03	12	C16 H10 S
235.0575	1.82E+09	100	235.0576	-0.1	11.5	C16 H11 S
236.0613	3.01E+08	16.56	236.061	0.33	11.5	C15 [13]C H11 S
236.0652	1.72E+09	94.3	236.0654	-0.24	11	C16 H12 S
237.0685	2.91E+08	15.98	237.0688	-0.28	11	C15 [13]C H12 S

Fig. 48 EIMS of reaction intermediate **3t**