Supporting Information

Total Synthesis of Iheyamine A via the Cyanide-Catalyzed Imino-Stetter Reaction

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Contents

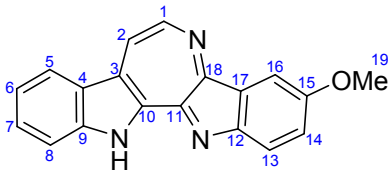
1. Comparison of Spectroscopic Data ----------S1

2. Spectroscopic Data ----------S3

3. Reference ----------S25

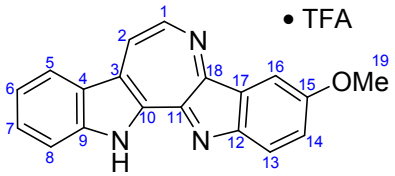
1. Comparison of Spectroscopic Data

1-1. Spectroscopic Data of Iheyamine A (1)



	^{1}H NMR 500 MHz	
Pos.	**Lit.[1]**	**Synthetic**
1	9.04, d (6.4)	9.03, d (6.6)
2	8.55, d (6.4)	8.55, d (6.7)
3	-	-
4	-	-
5	8.37, d (7.9)	8.38, d (7.8)
6	7.52, dd (7.9, 7.0)	7.52, t (7.5)
7	7.74, dd (7.9, 7.0)	7.72, t (7.6)
8	7.86, d (7.9)	7.82, d (8.1)
9	-	-
10	-	-
11	-	-
12	-	-
13	7.70, d (8.9)	7.66, d (8.7)
14	7.37, dd (8.9, 2.4)	7.35, dd (8.7, 2.4)
15	-	-
16	8.01, d (2.4)	8.02, d (2.4)
17	-	
18	-	
19	4.02, s	4.03, s

1-2. Spectroscopic Data of Iheyamine A • TFA Salt (1 • TFA)

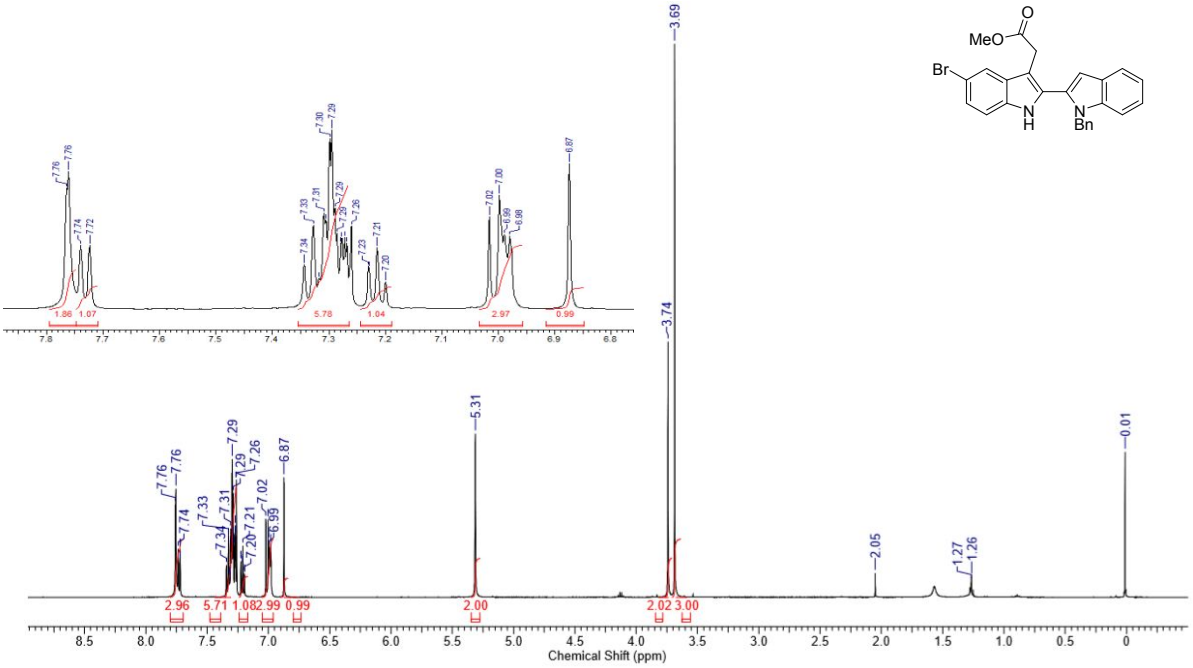


	^{1}H NMR 500 MHz		^{13}C NMR 125 MHz	
Pos.	**Lit.[1]**	**Synthetic**	**Lit.[1]**	**Synthetic**
1	9.38, d (6.4)	9.39, d (6.6)	143.2	143.3
2	8.85, d (6.4)	8.86, d (6.7)	124.5	124.7
3	-	-	128.3	128.6
4	-	-	123.8	124.1
5	8.42, d (7.9)	8.43, d (7.9)	121.4	121.6
6	7.61, dd (7.9, 7.0)	7.63, t (7.6)	124.4	124.6
7	7.84, dd (7.9, 7.0)	7.87, t (7.6)	132.8	133.0
8	8.05, d (7.9)	8.08, d (8.1)	115.1	115.3
9	-	-	144.0	144.3
10	-	-	138.1	138.41
11	-	-	148.9	149.1
12	-	-	138.2	138.44
13	7.99, d (8.9)	8.01, d (9.0)	115.7	116.0
14	7.52, dd (8.9, 2.4)	7.53, dd (8.9, 2.3)	124.1	124.2
15	-	-	157.5	157.7
16	7.96, d (2.4)	7.99, d (2.3)	102.8	102.9
17	-	-	126.1	126.3
18	-	-	135.7	135.9
19	4.02, s	4.03, s	56.0	56.1

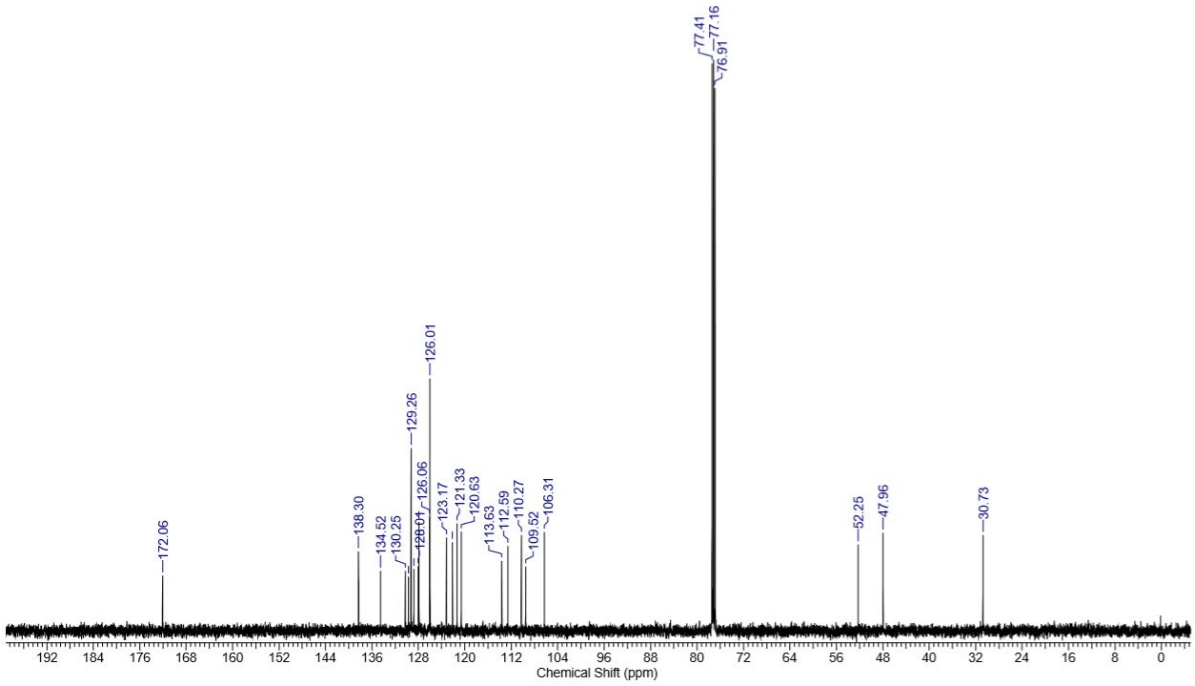
2. Spectroscopic Data

2-1. NMR Spectra of *Methyl 2-(N-benzylindol-2-yl)-5-bromoindole-3-acetate* (10b)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

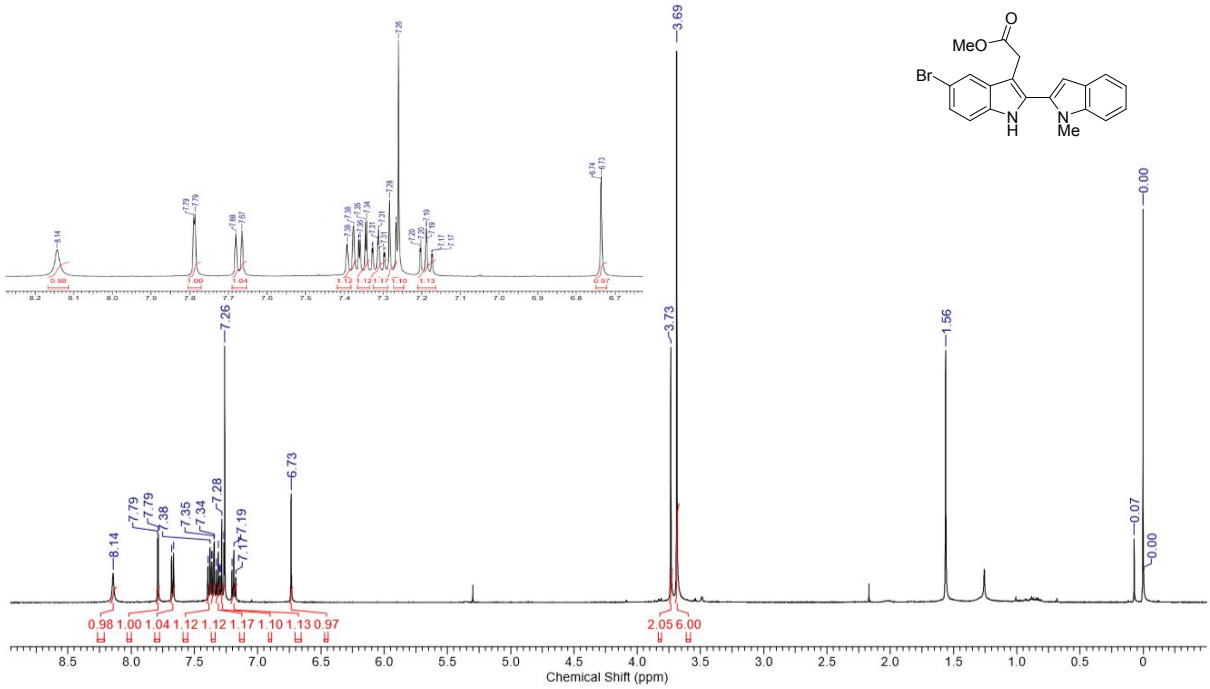


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

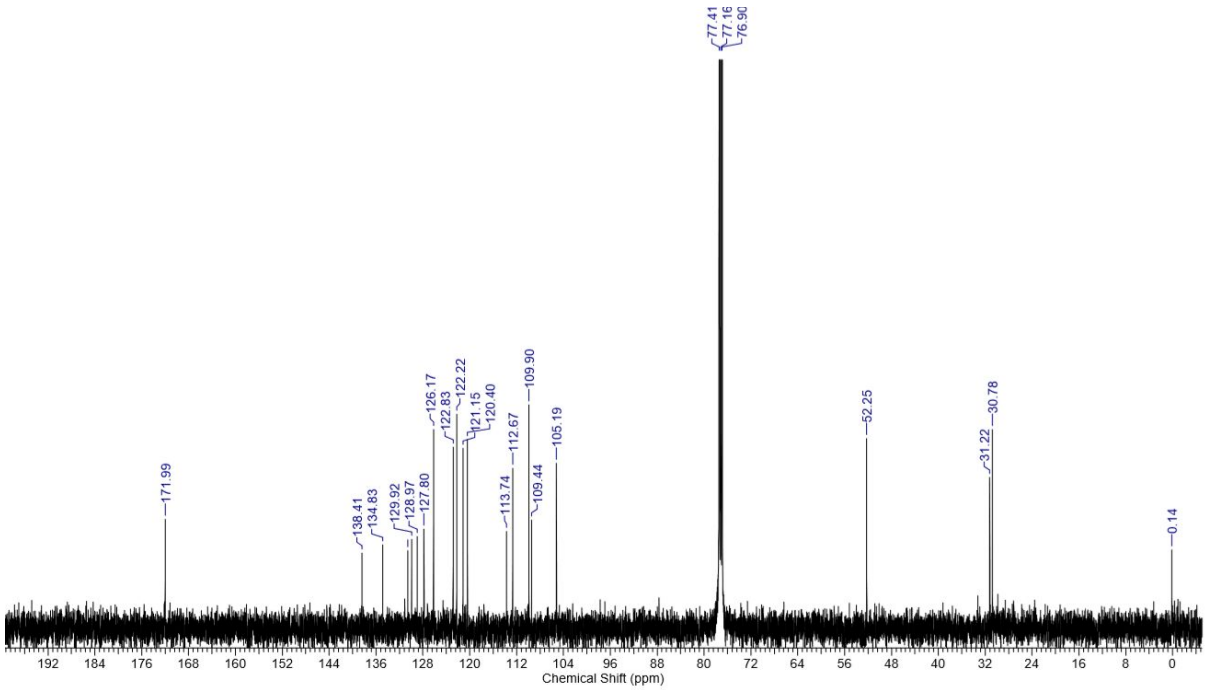


2-2. NMR Spectra of *Methyl 2-(N-methylindol-2-yl)-5-bromoindole-3-acetate* (10c)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

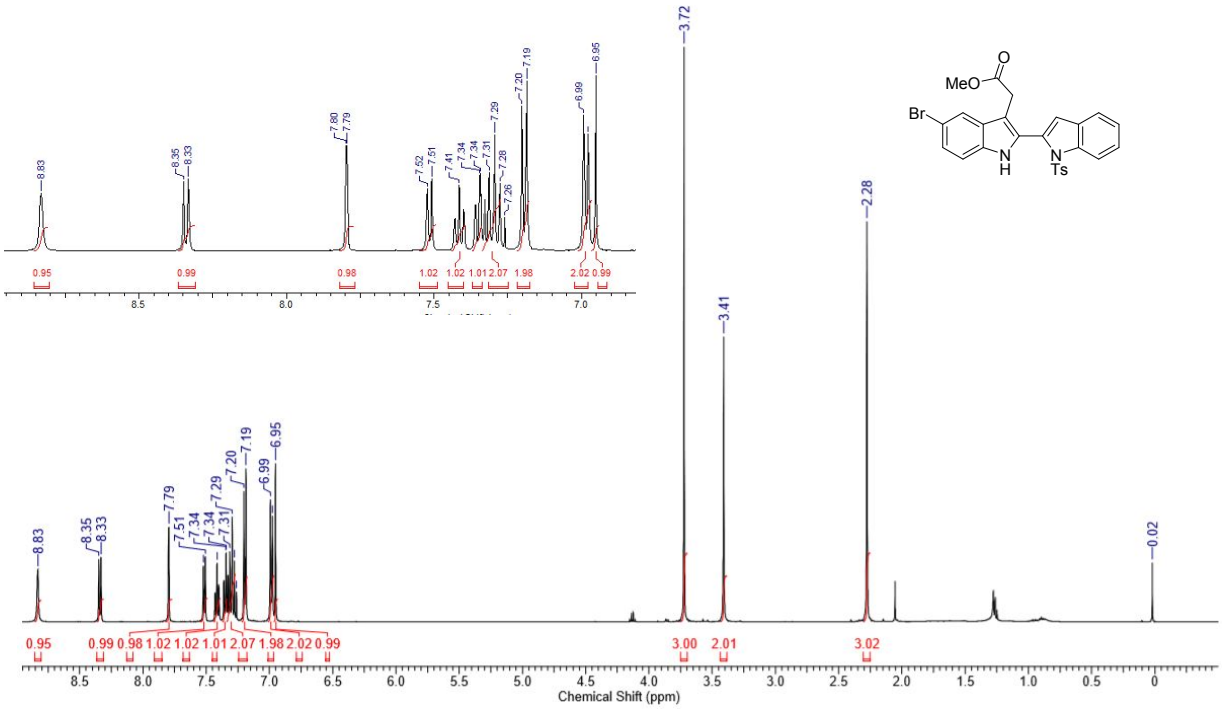


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

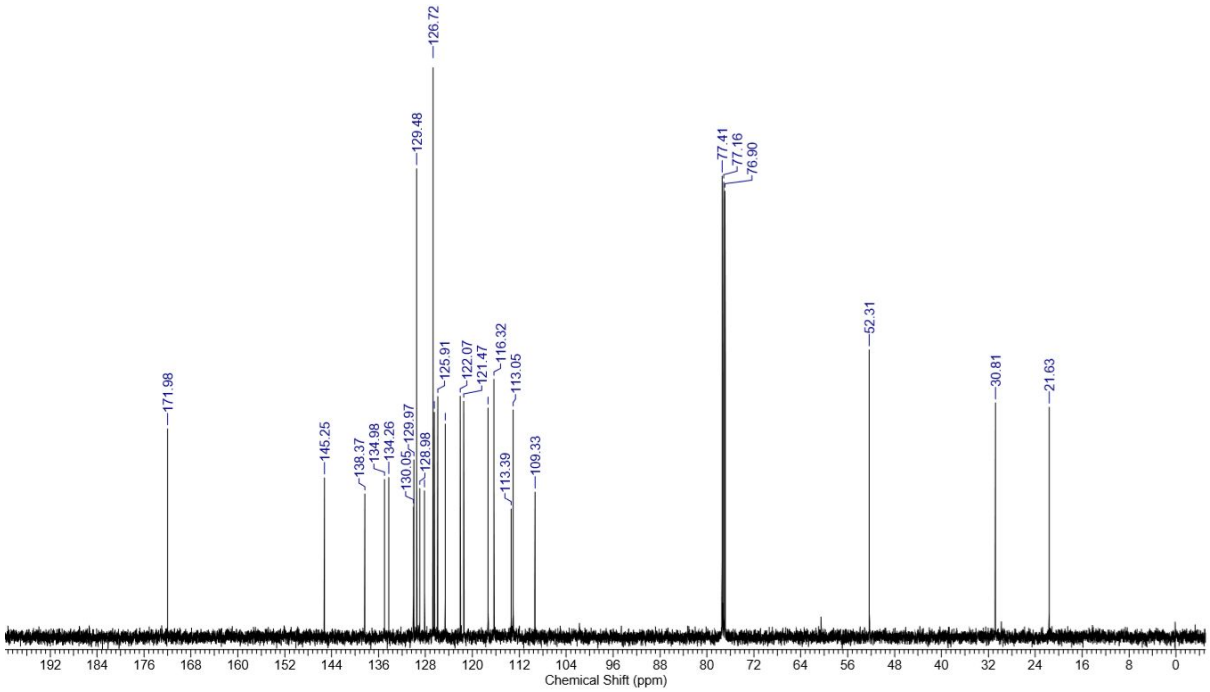


2-3. NMR Spectra of *Methyl 2-(N-tosylindol-2-yl)-5-bromoindole-3-acetate* (10d)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

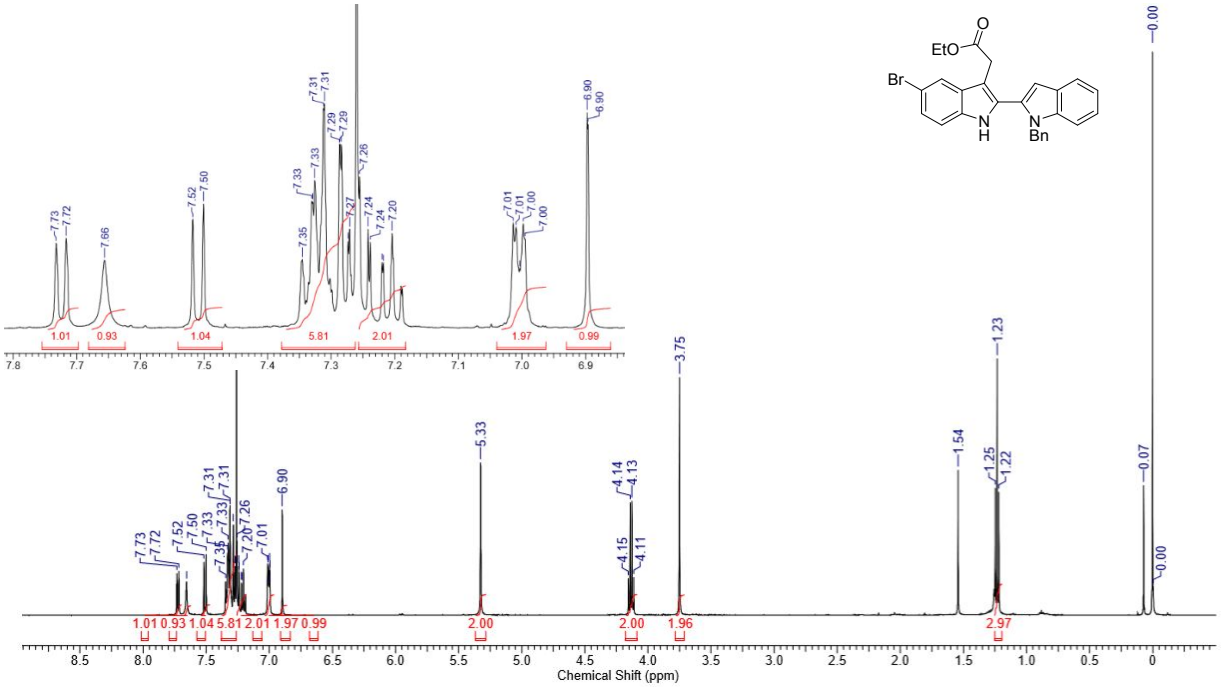


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

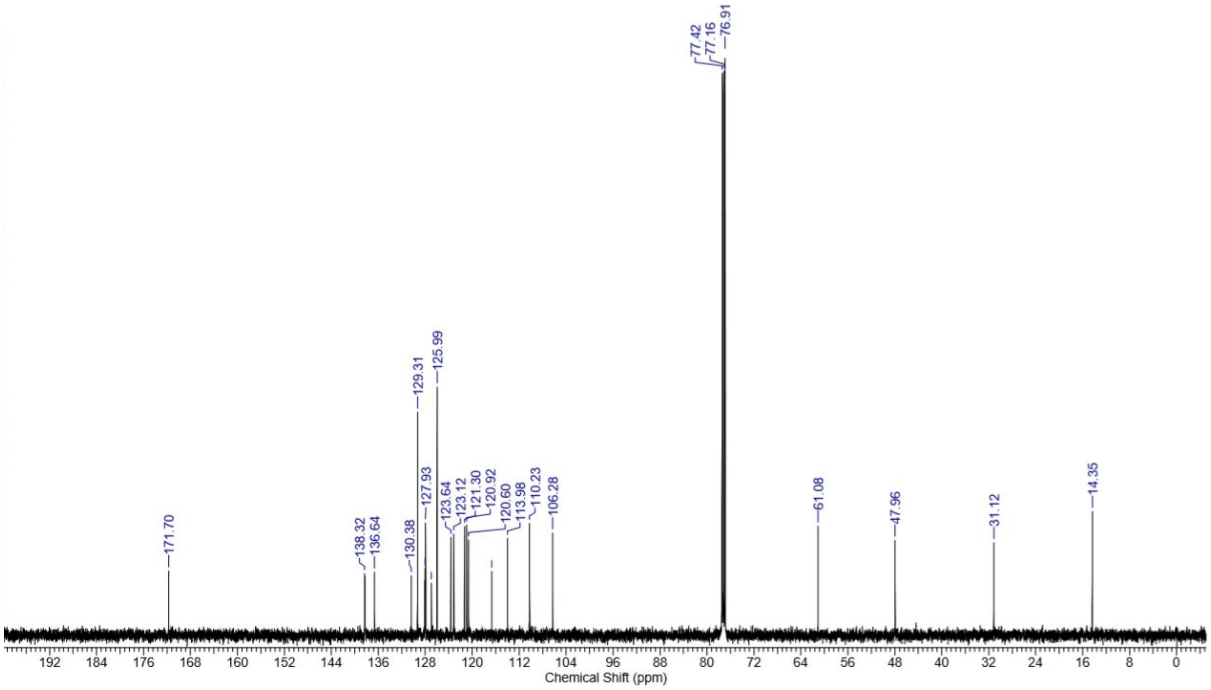


2-4. NMR Spectra of *Ethyl 2-(N-benzylindol-2-yl)-5-bromoindole-3-acetate* (10h)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

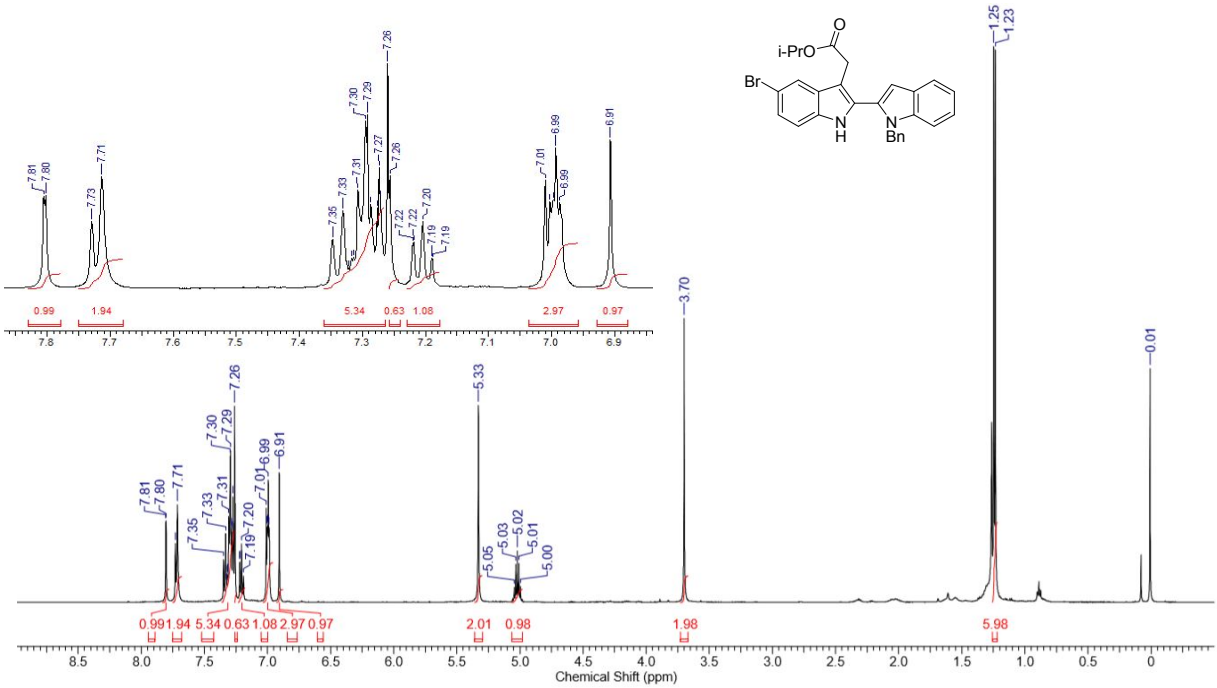


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

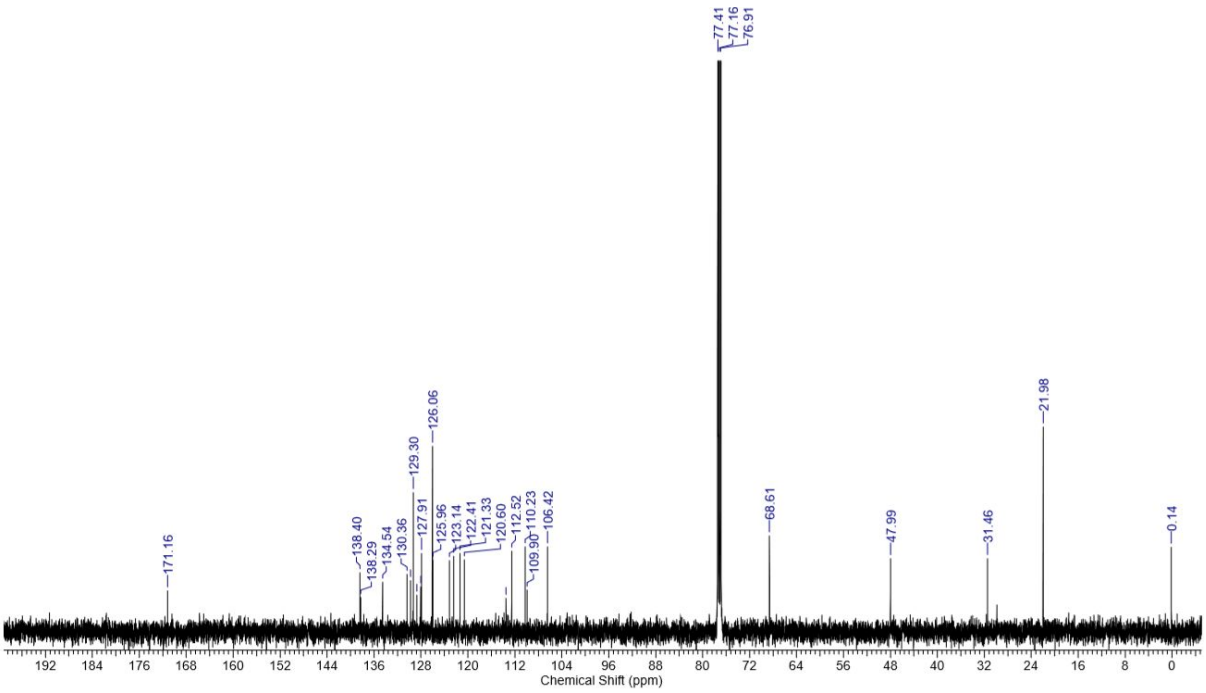


2-5. NMR Spectra of *Isopropyl 2-(N-benzylindol-2-yl)-5-bromoindole-3-acetate* (10i)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

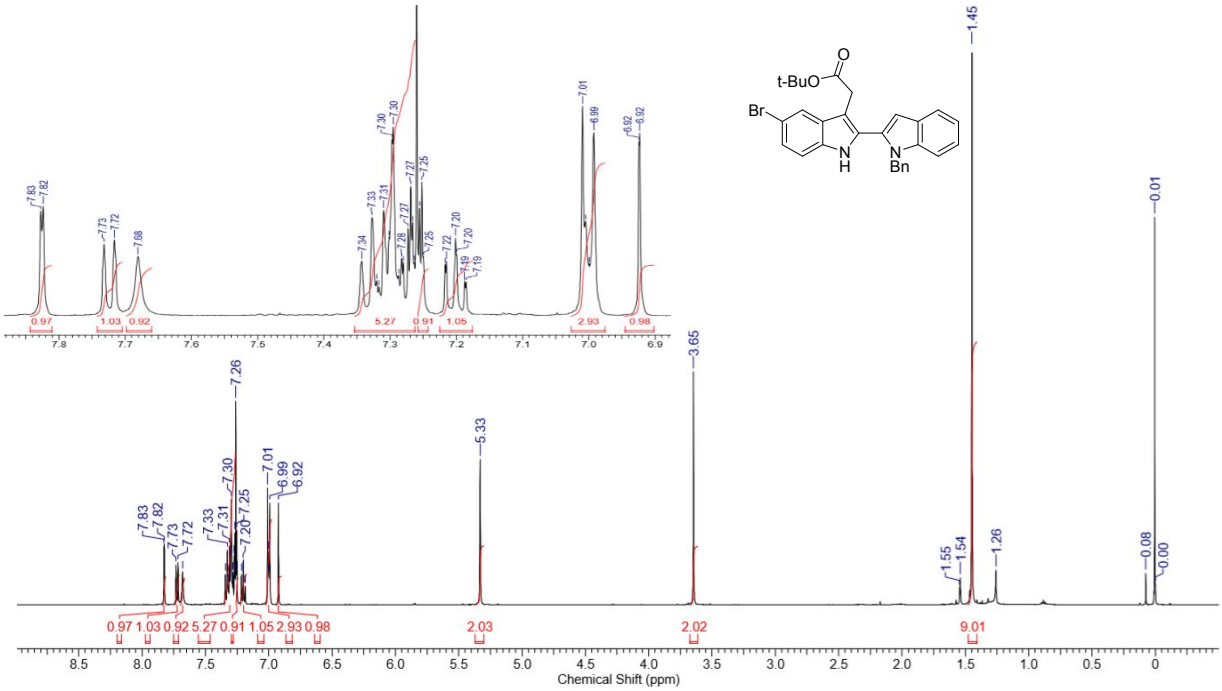


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

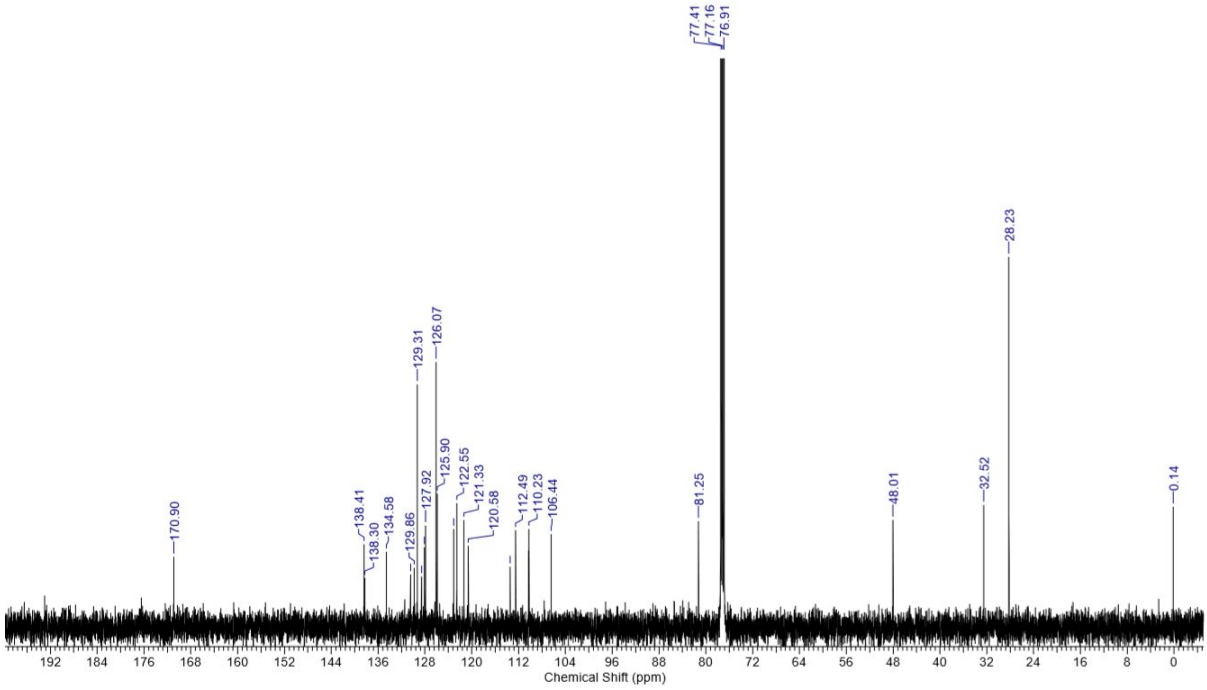


2-6. NMR Spectra of *tert-Butyl 2-(N-benzylindol-2-yl)-5-bromoindole-3-acetate* (10j)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

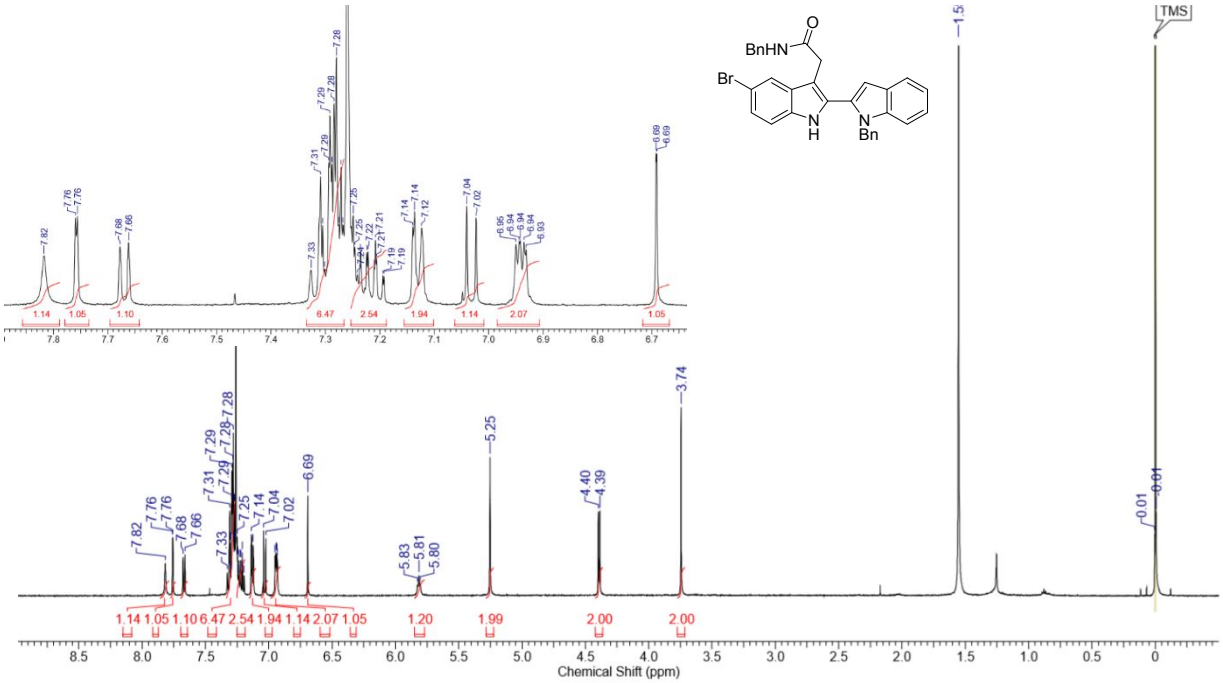


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

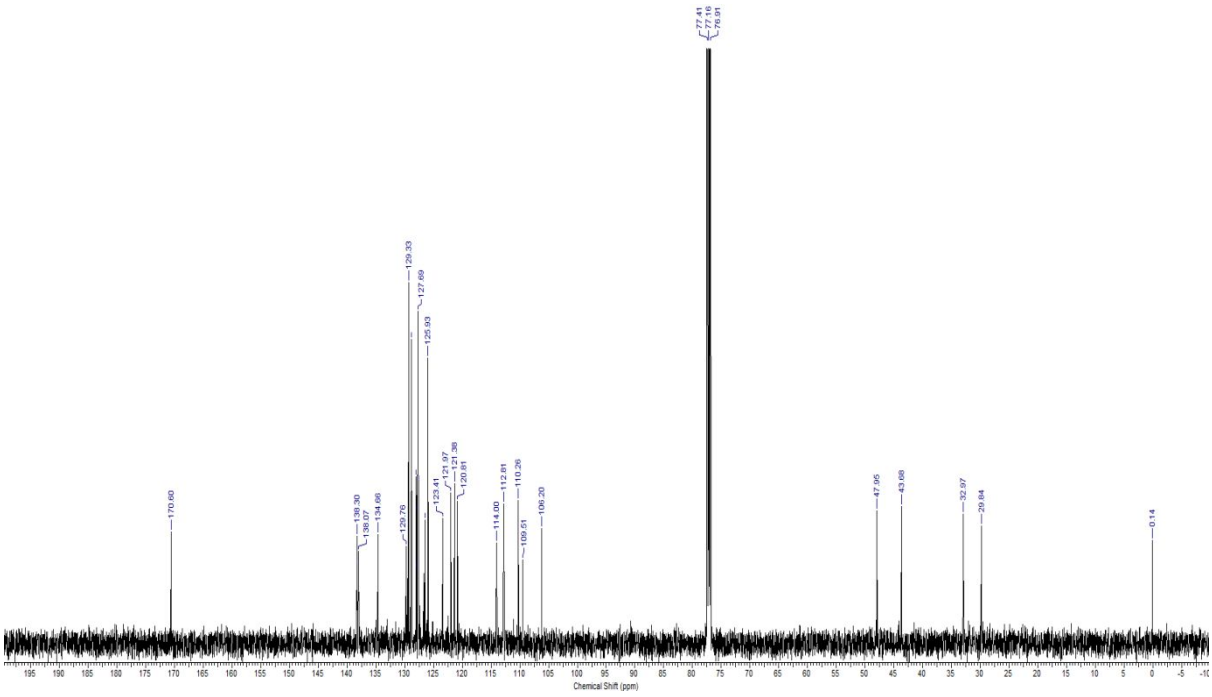


2-7. NMR Spectra of *N-Benzyl 2-(N-benzylindol-2-yl)-5-bromoindole-3-acetamide* (10k)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

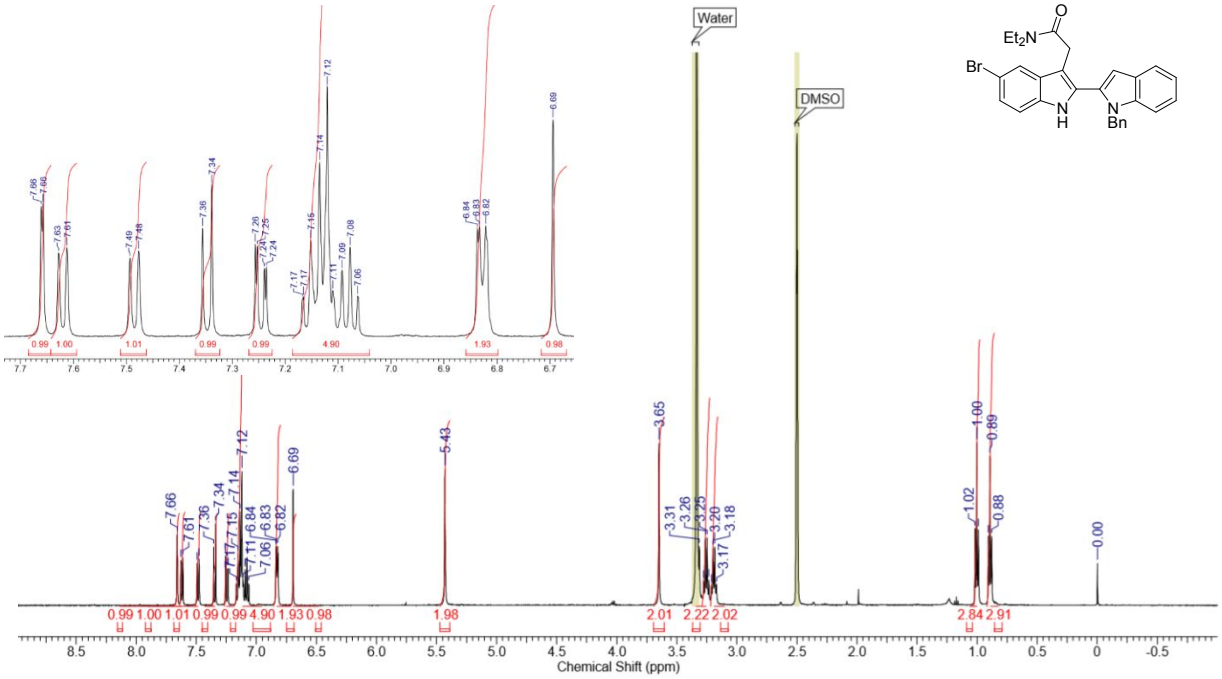


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

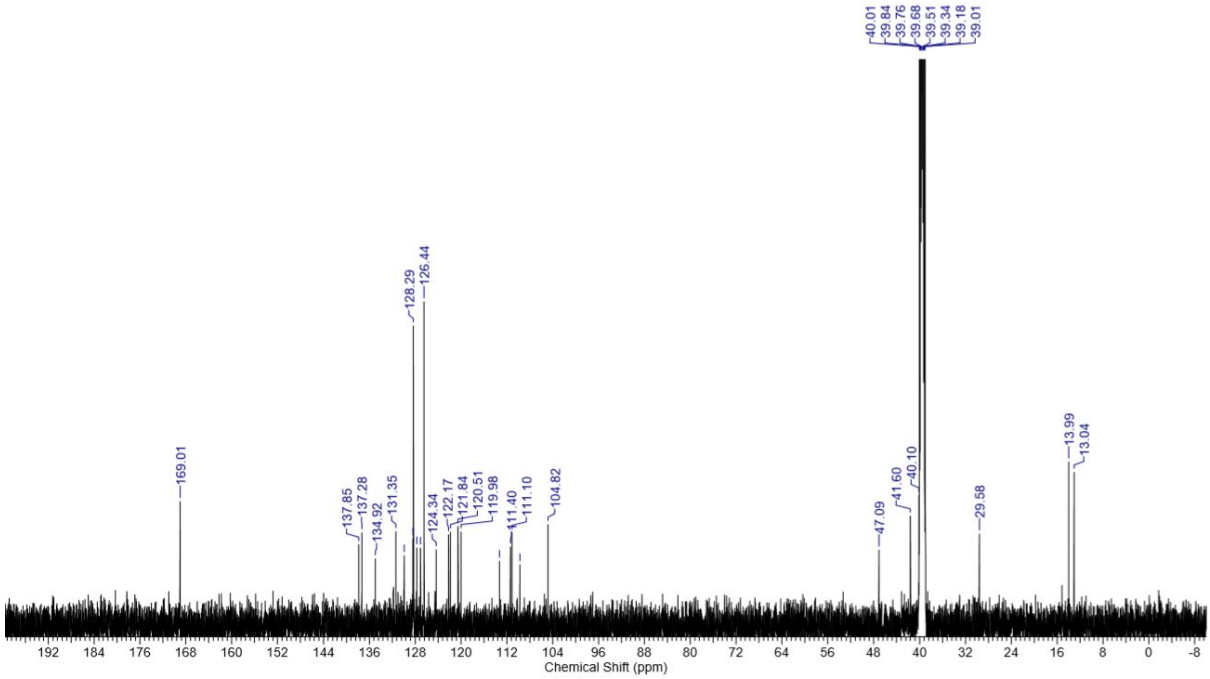


2-8. NMR Spectra of *N,N-Diethyl 2-(N-benzylindol-2-yl)-5-bromoindole-3-acetamide* (10l)

a) ^{1}H NMR Spectrum (in DMSO-d$_6$, 500 MHz)

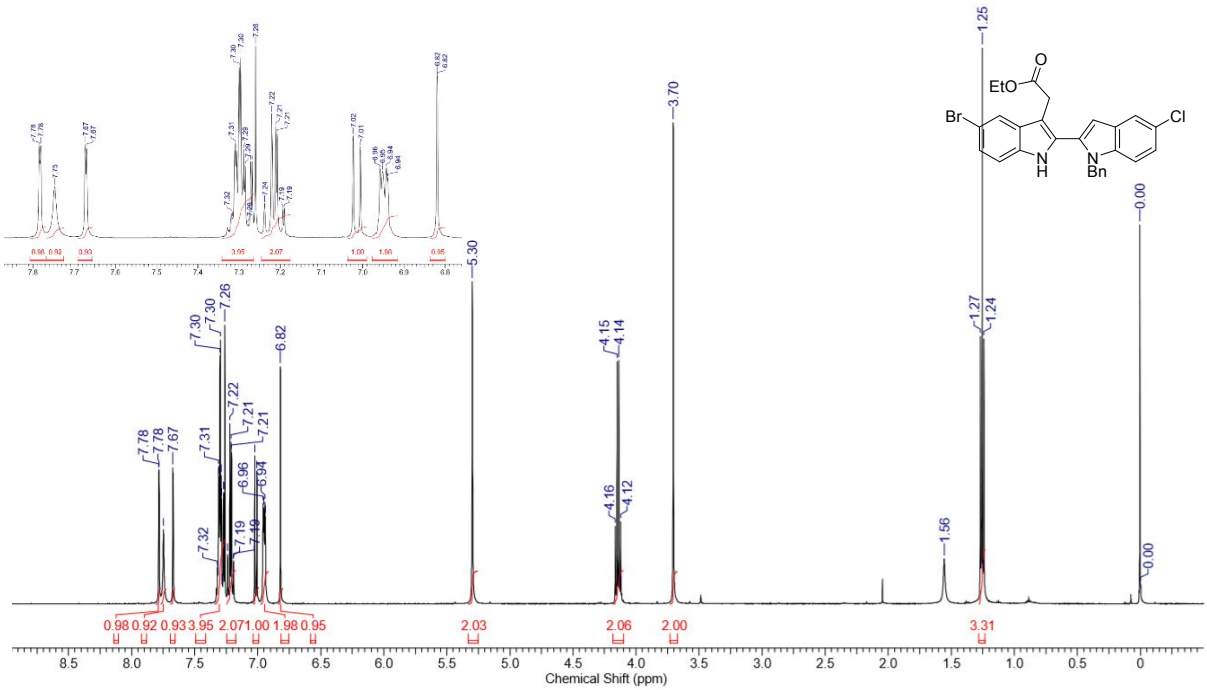


b) ^{13}C NMR Spectrum (in DMSO-d$_6$, 125 MHz)

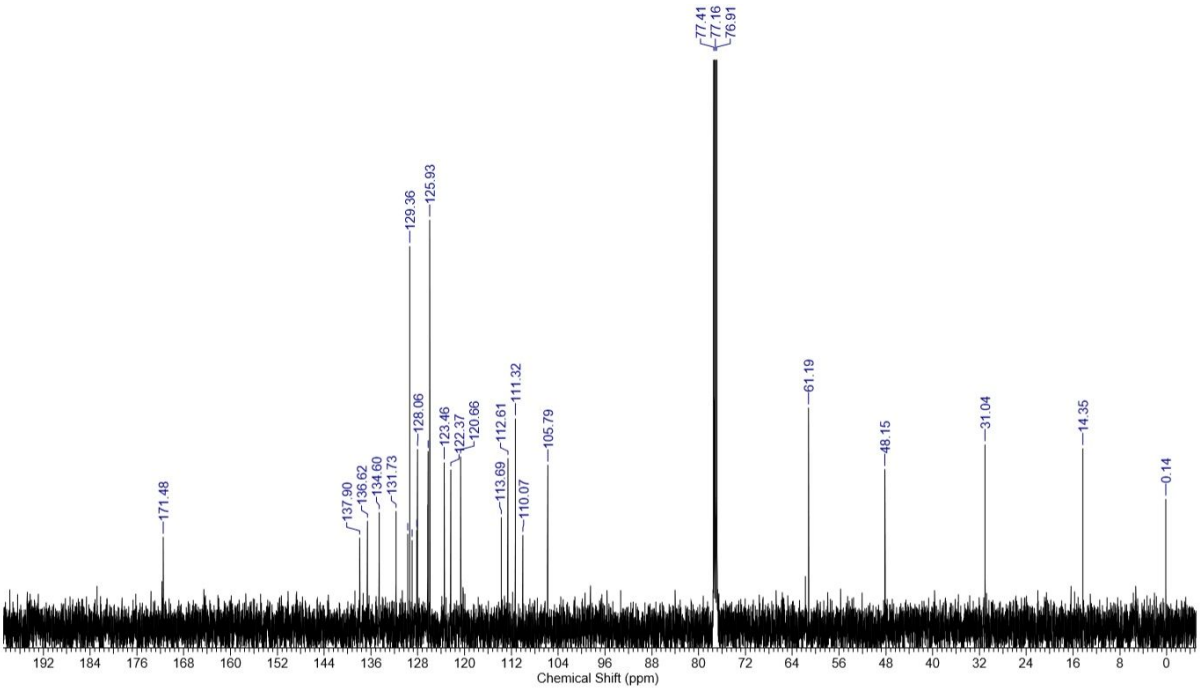


2-9. NMR Spectra of *Ethyl 2-(N-benzyl-5'-chloroindol-2-yl)-5-bromoindole-3-acetate* (10m)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

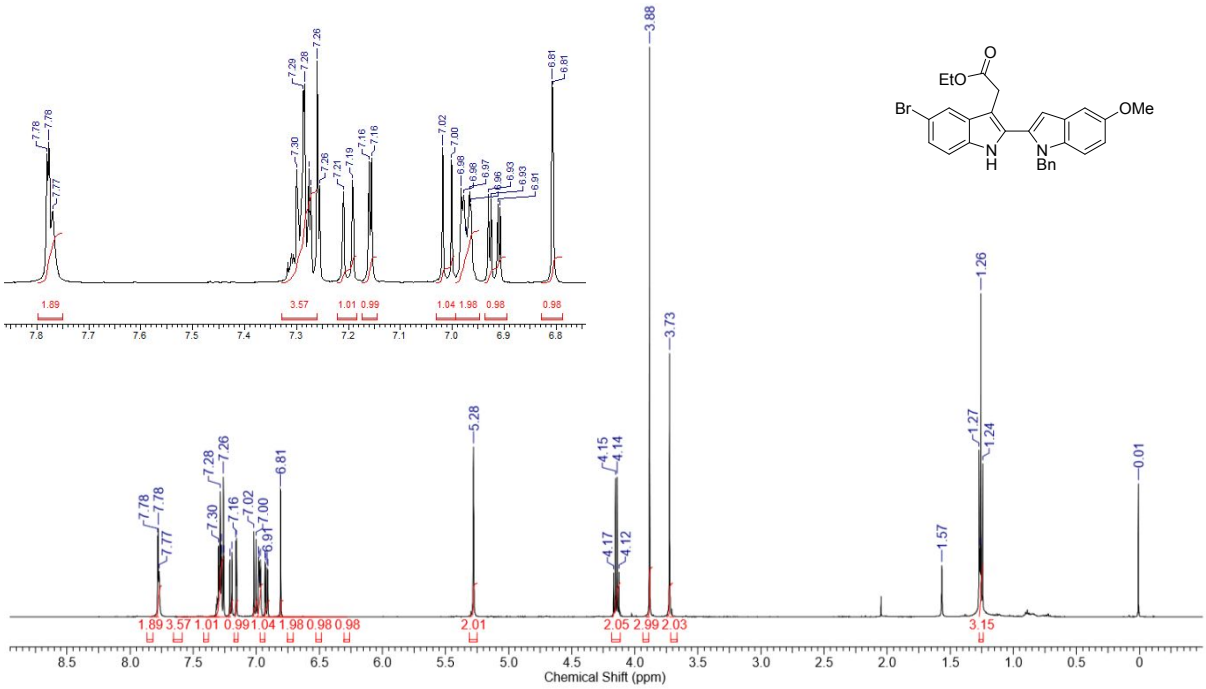


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

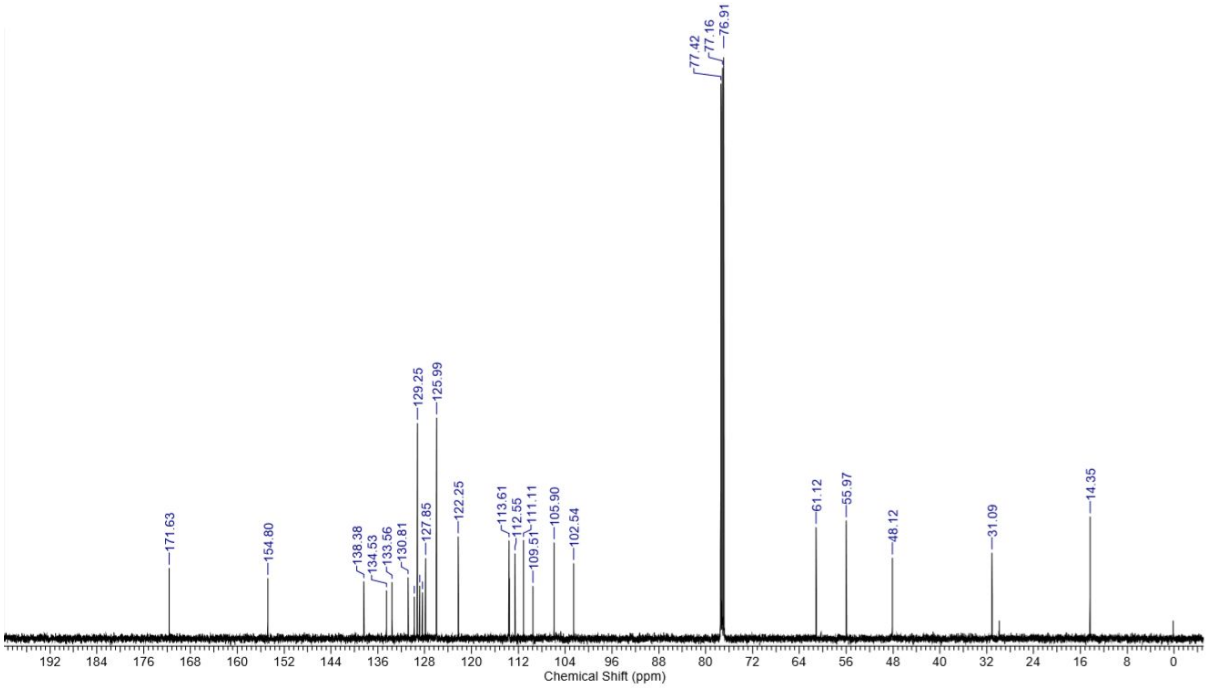


2-10. NMR Spectra of *Ethyl 2-(N-benzyl-5'-methoxyindol-2-yl)-5-bromoindole-3-acetate* (10n)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

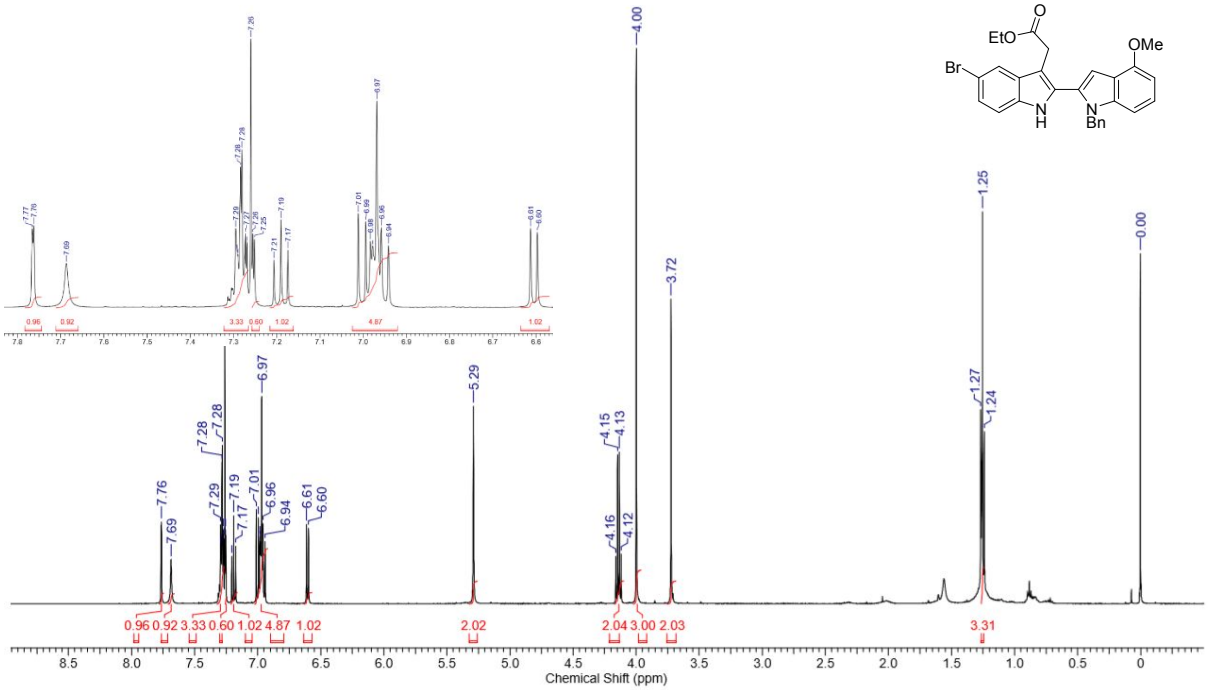


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

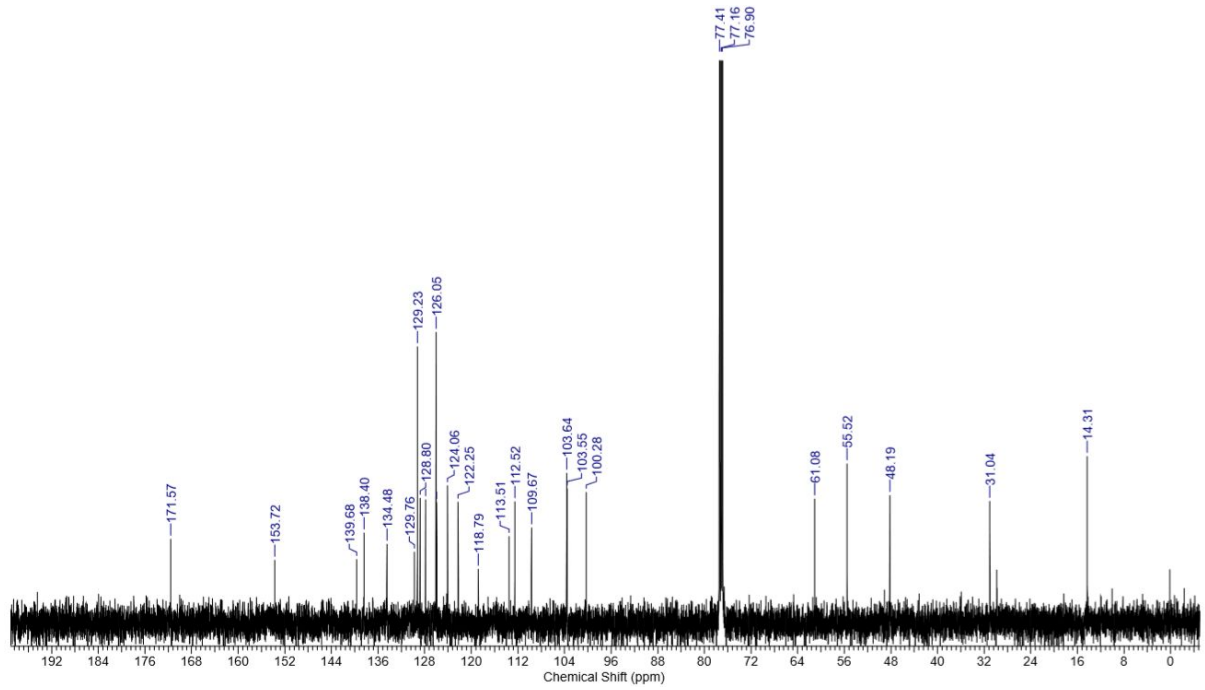


2-11. NMR Spectra of *Ethyl 2-(N-benzyl-4'-methoxyindol-2-yl)-5-bromoindole-3-acetate* (10o)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

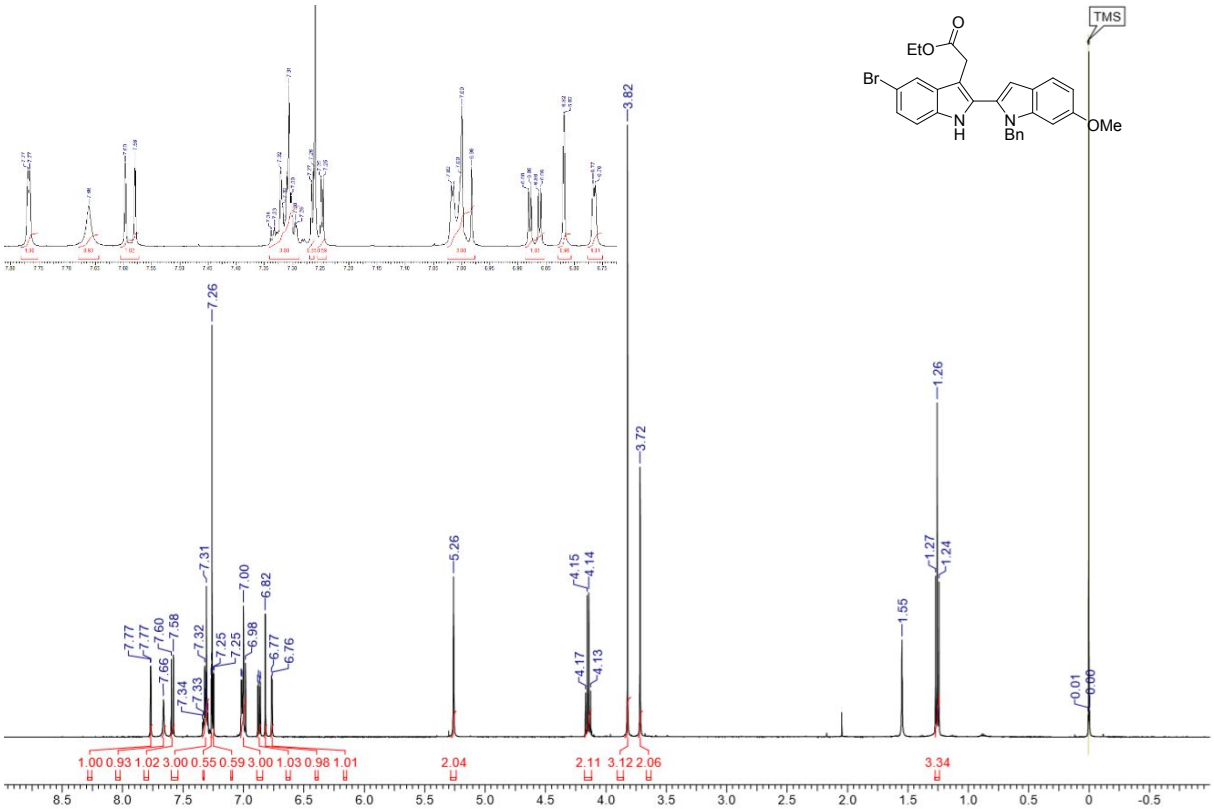


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

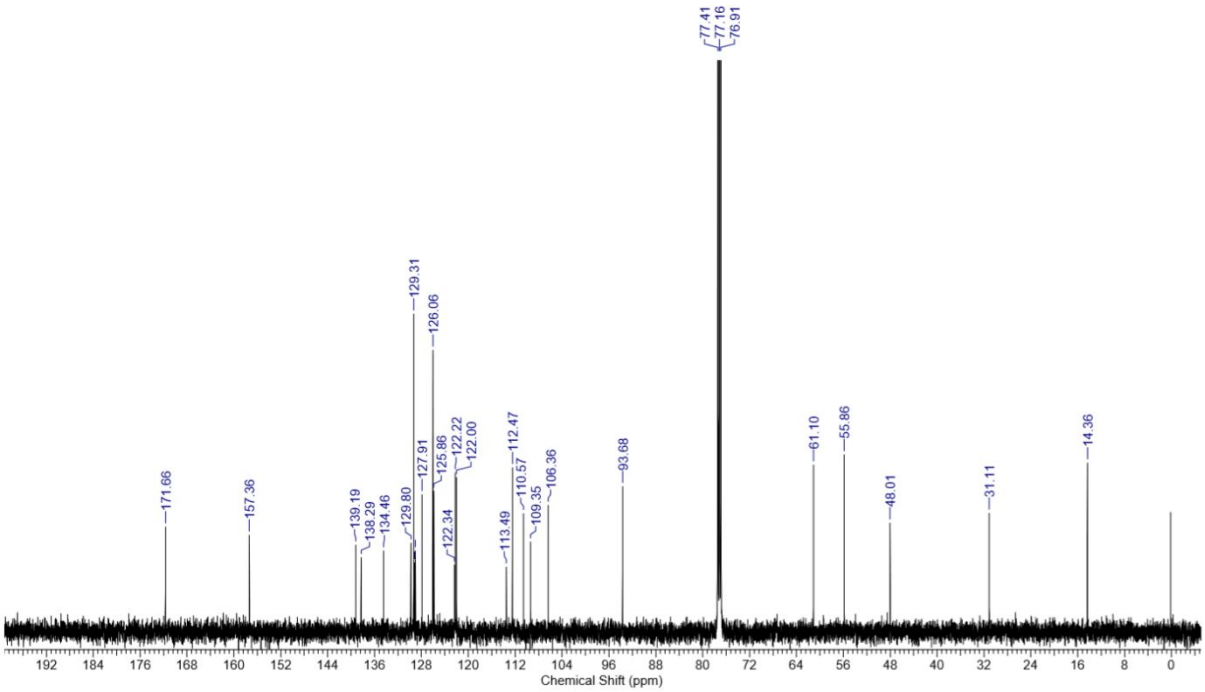


2-12. NMR Spectra of *Ethyl 2-(N-benzyl-6'-methoxyindol-2-yl)-5-bromoindole-3-acetate* (10p)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

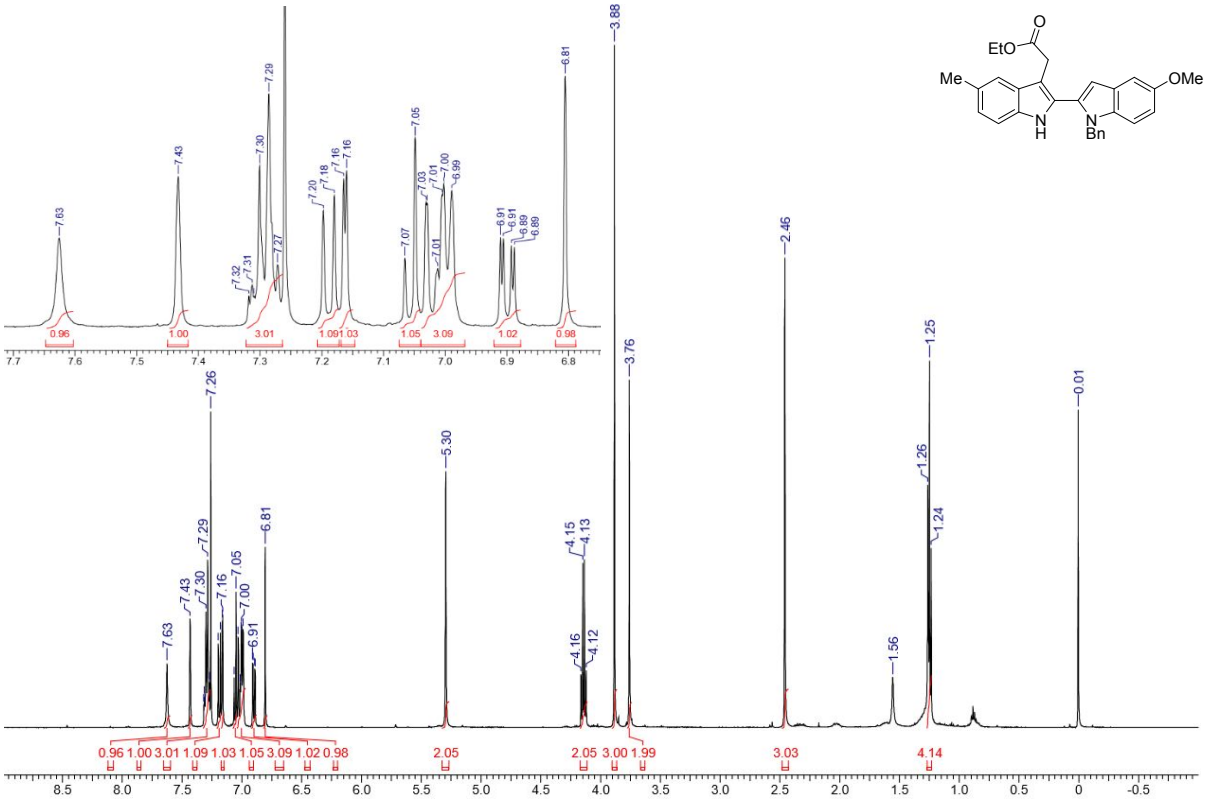


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

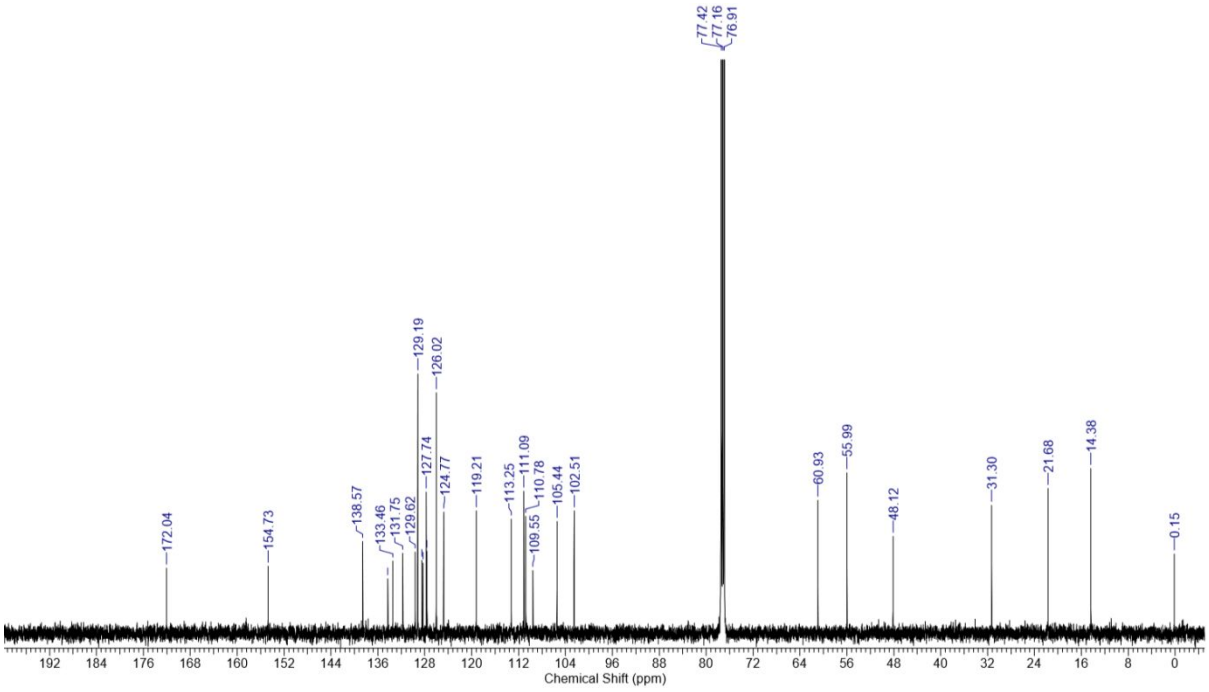


2-13. NMR Spectra of *Ethyl 2-(N-benzyl-5'-methoxyindol-2-yl)-5-methylindole-3-acetate* (10q)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

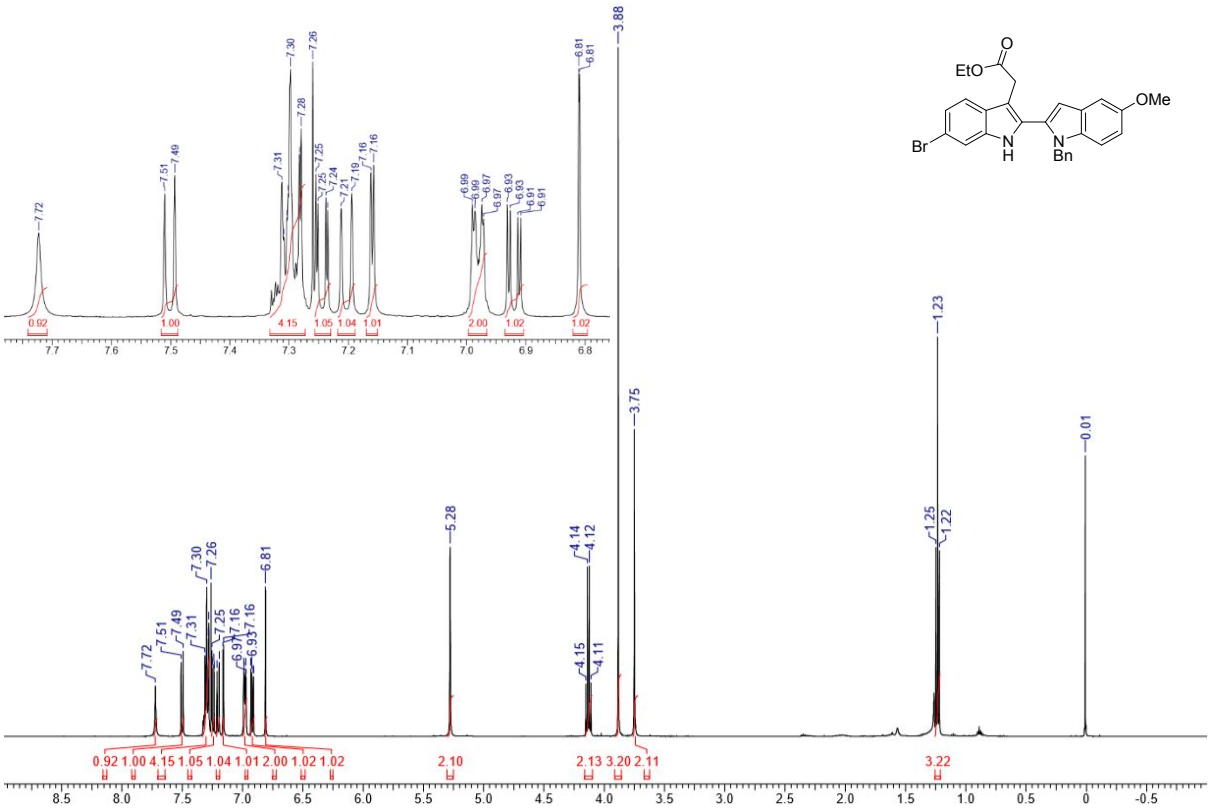


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

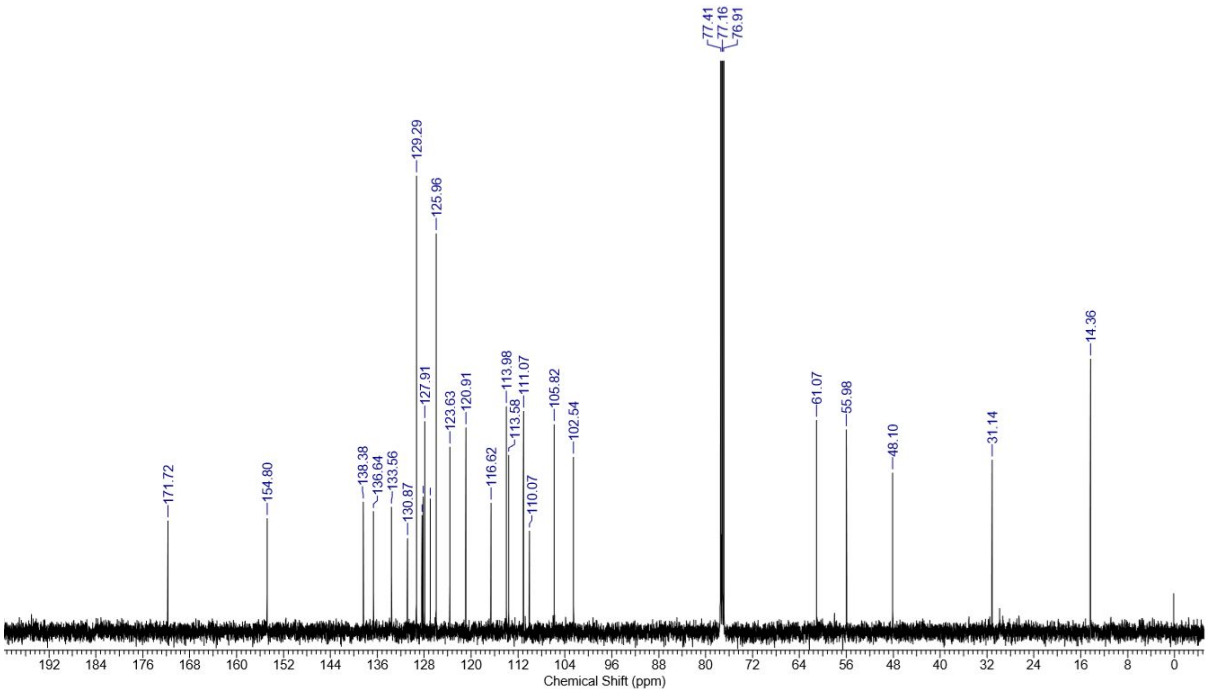


2-14. NMR Spectra of *Ethyl 2-(N-benzyl-5'-methoxyindol-2-yl)-6-bromoindole-3-acetate* (10r)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

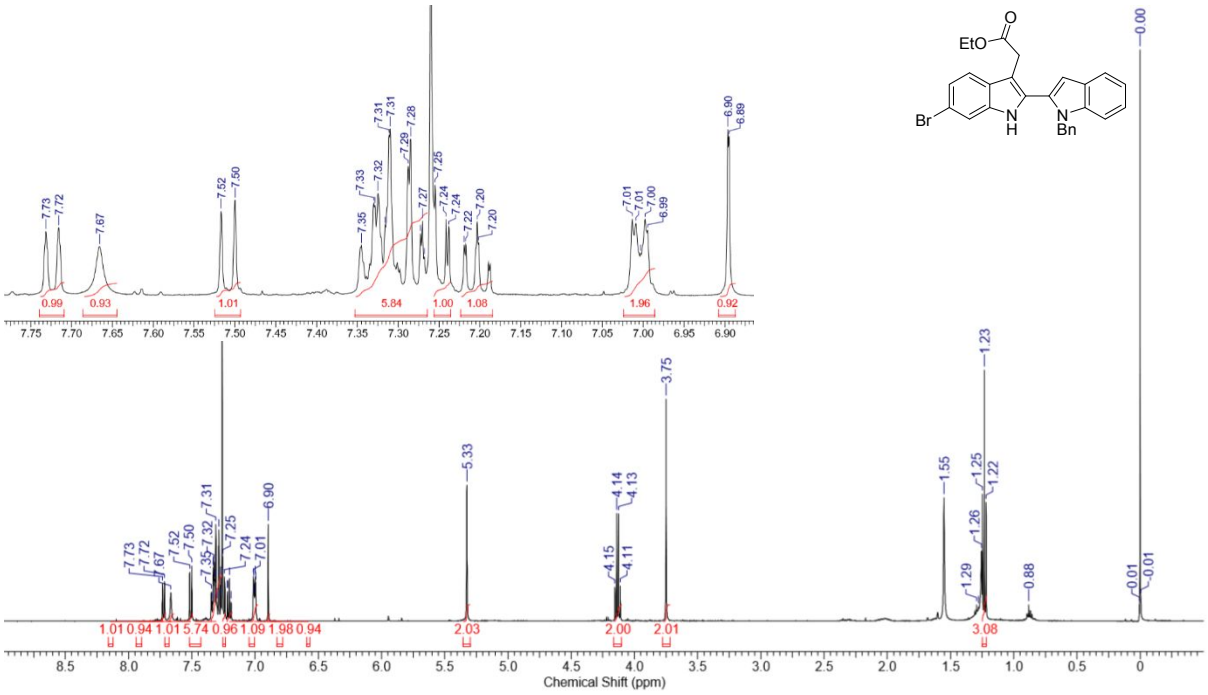


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

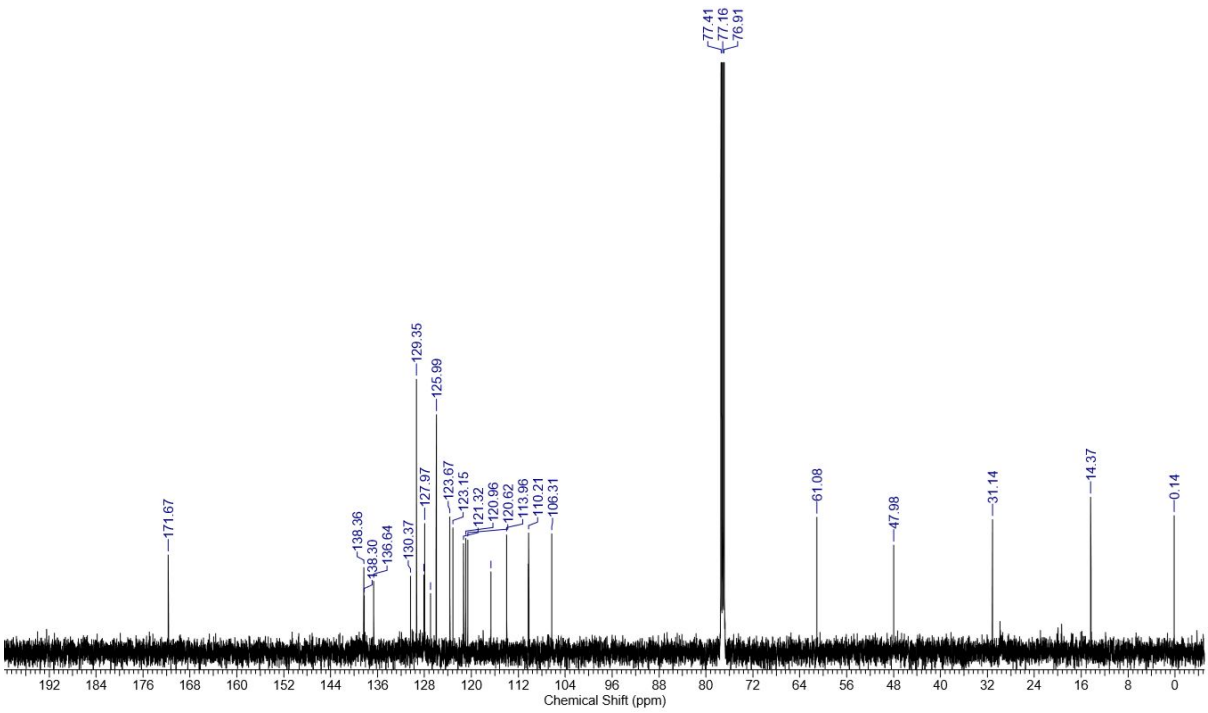


2-15. NMR Spectra of *Ethyl 2-(N-benzylindol-2-yl)-6-bromo-indole-3-acetate* (10s)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

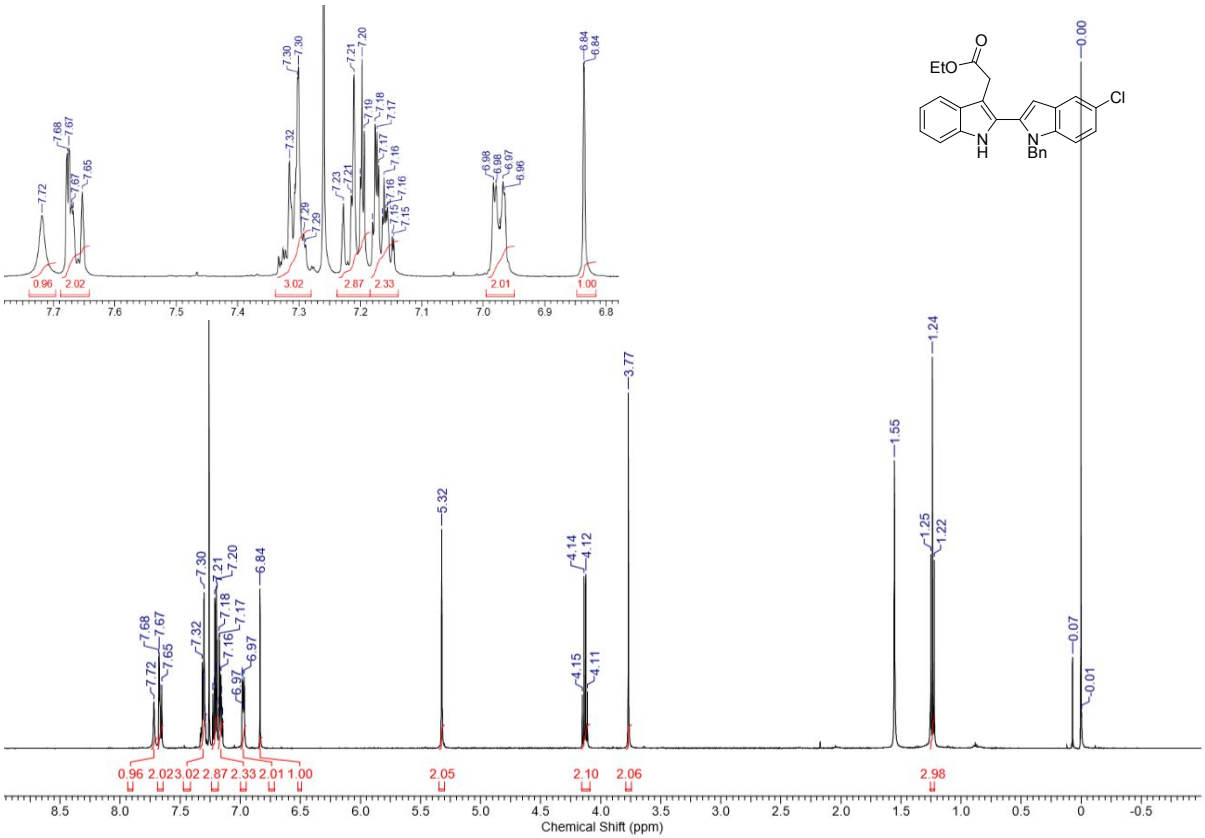


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

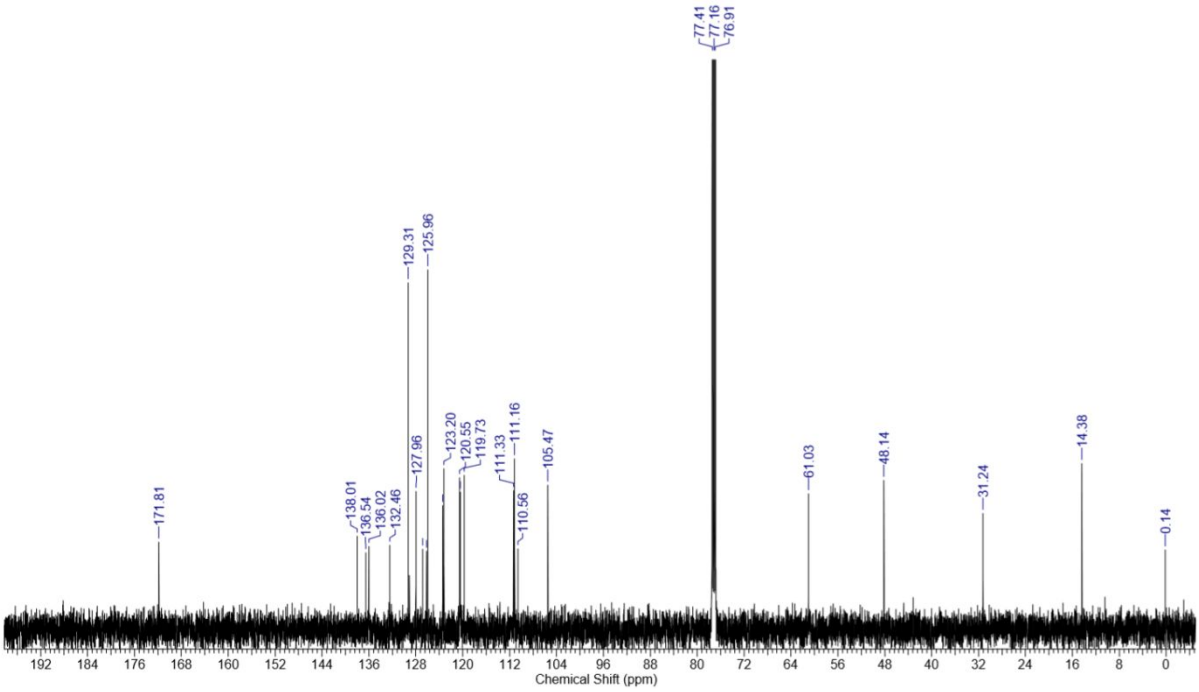


2-16. NMR Spectra of *Ethyl 2-(N-benzyl-5'-chloroindol-2-yl)-indole-3-acetate* (10t)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

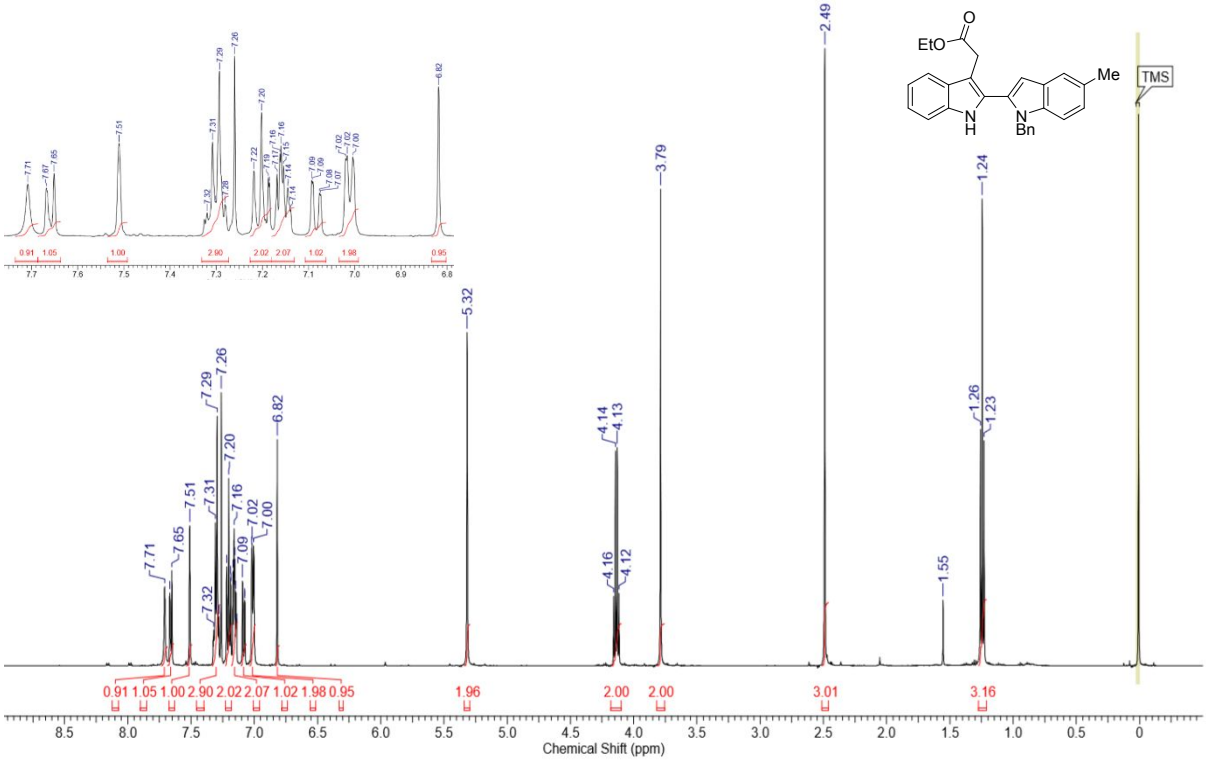


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

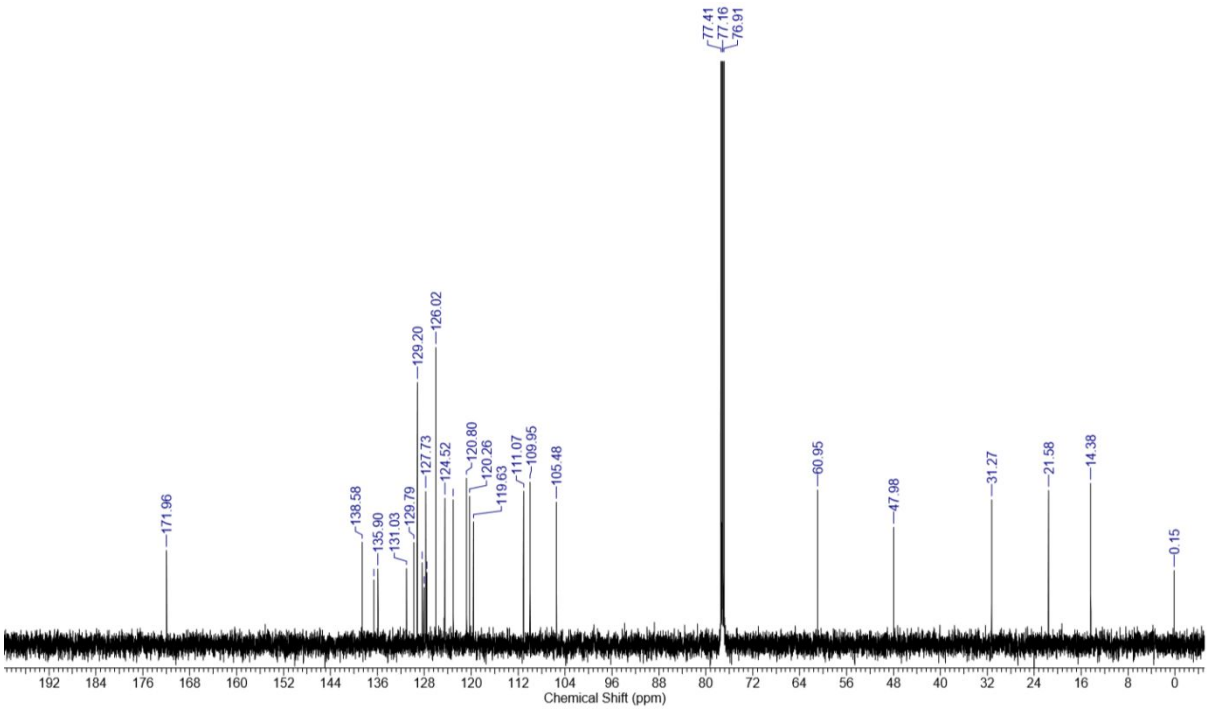


2-17. NMR Spectra of *Ethyl 2-(N-benzyl-5'-methylindol-2-yl)-indole-3-acetate* (10u)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

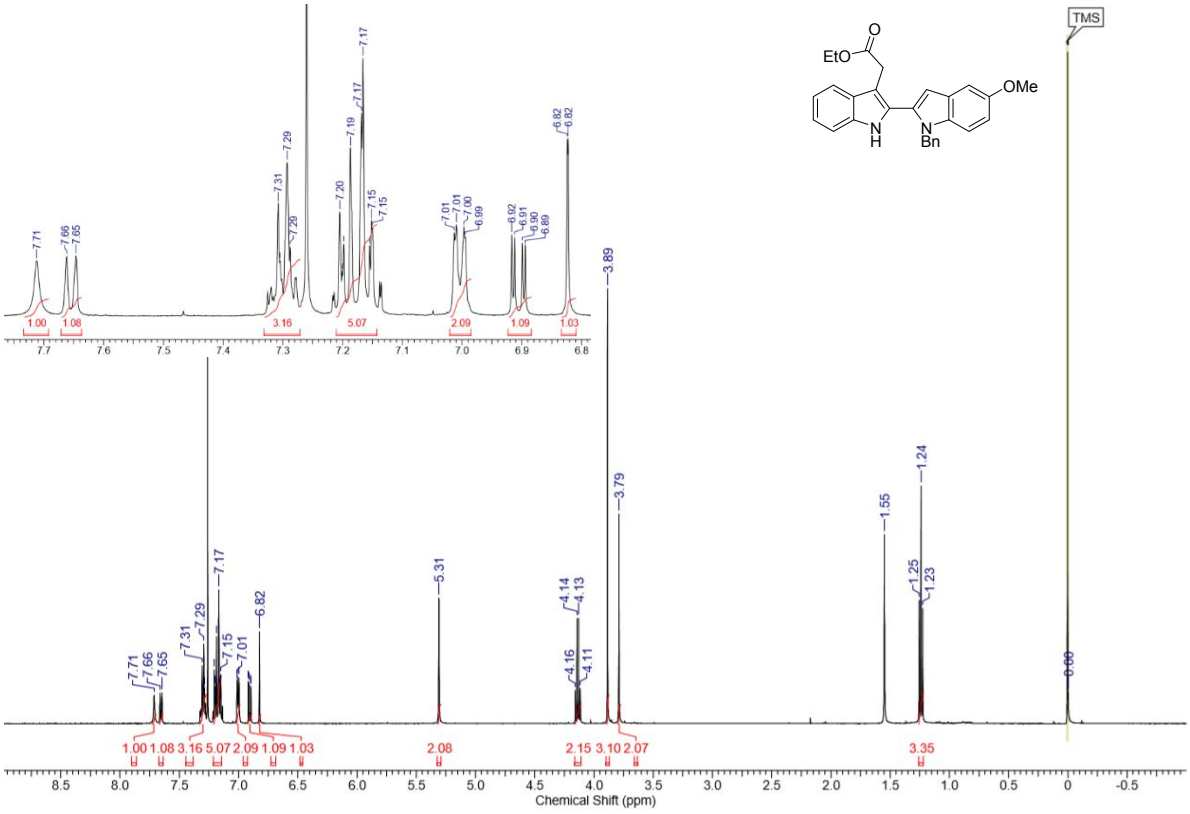


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

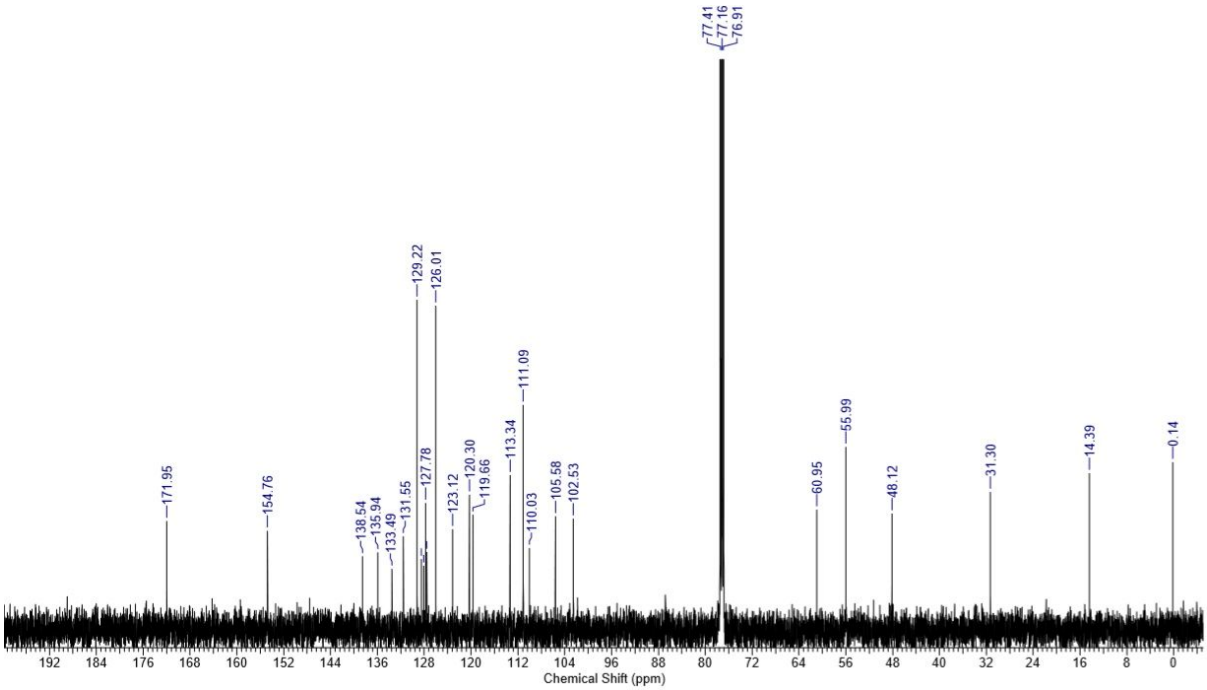


2-18. NMR Spectra of *Ethyl 2-(N-benzyl-5-methoxylindol-2-yl)-indole-3-acetate* (14)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

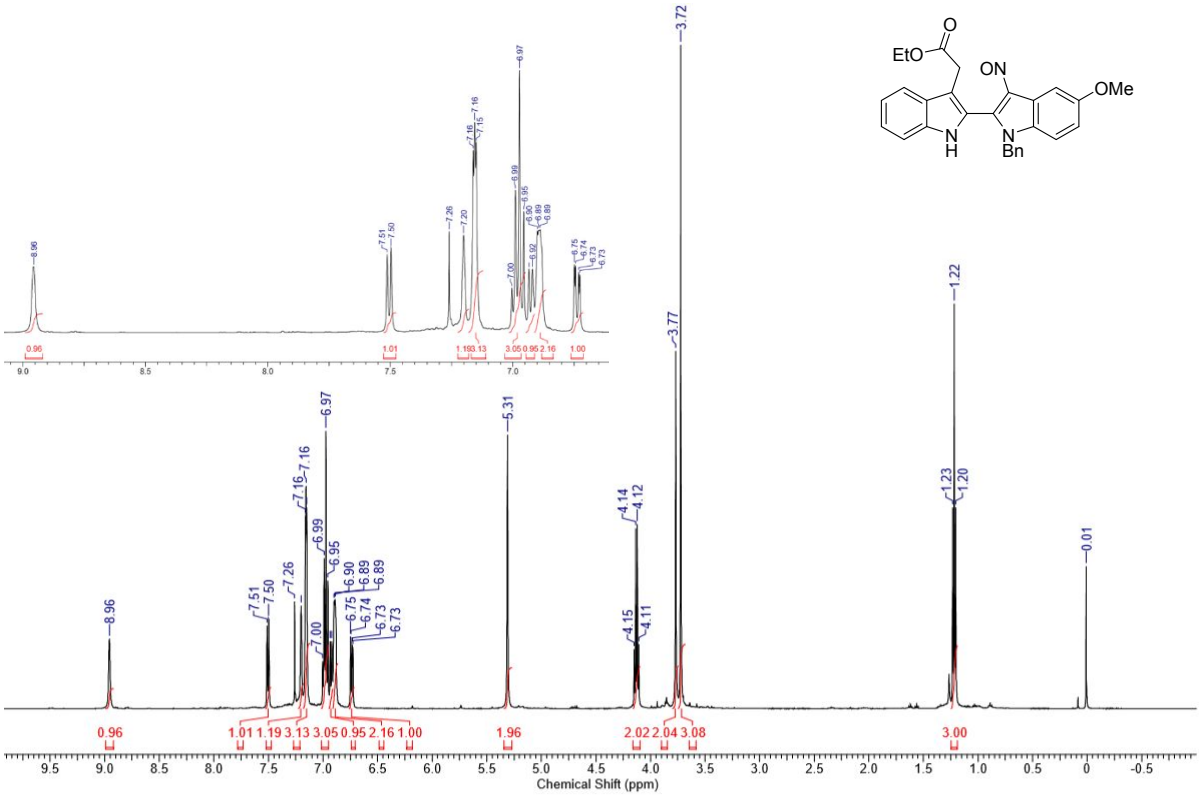


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

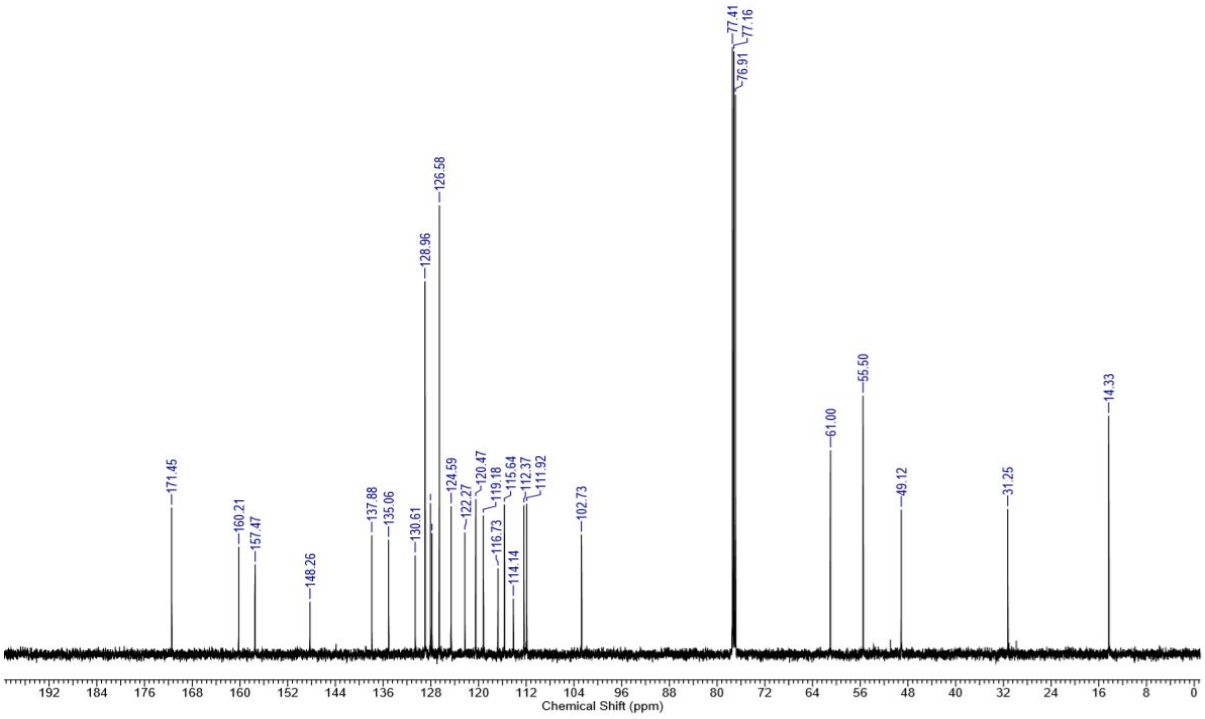


2-19. NMR Spectra of *Ethyl 2-(N-benzyl-3-nitroso -5-methoxylindol-2-yl)-indole-3-acetate* (15)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

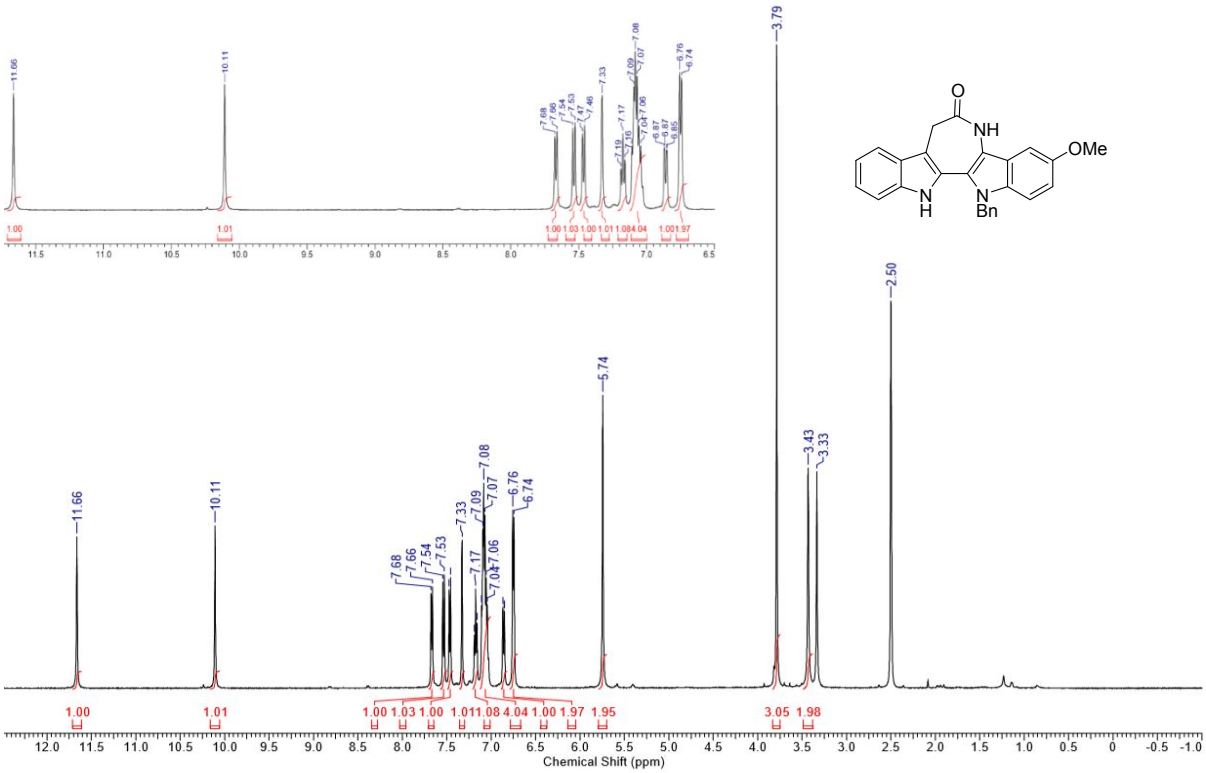


b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)

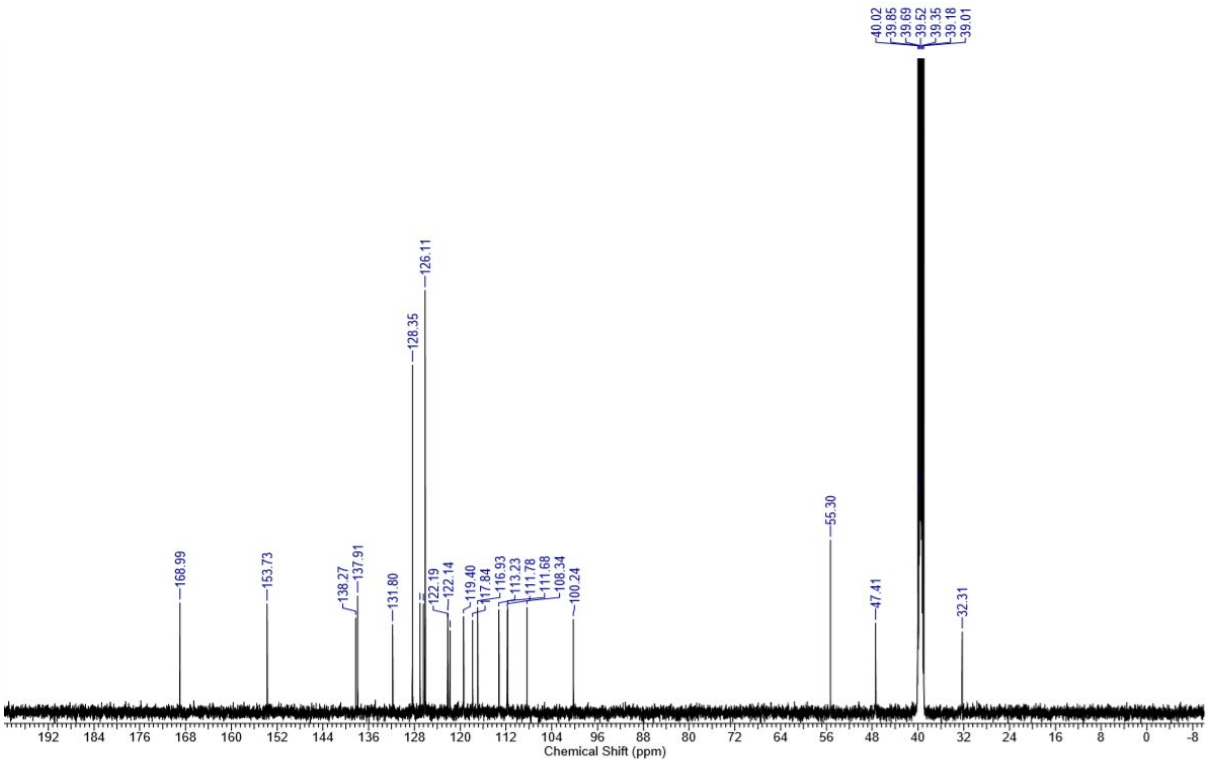


2-20. NMR Spectra of Compound 17

a) ^{1}H NMR Spectrum (in DMSO-d_6, 500 MHz)

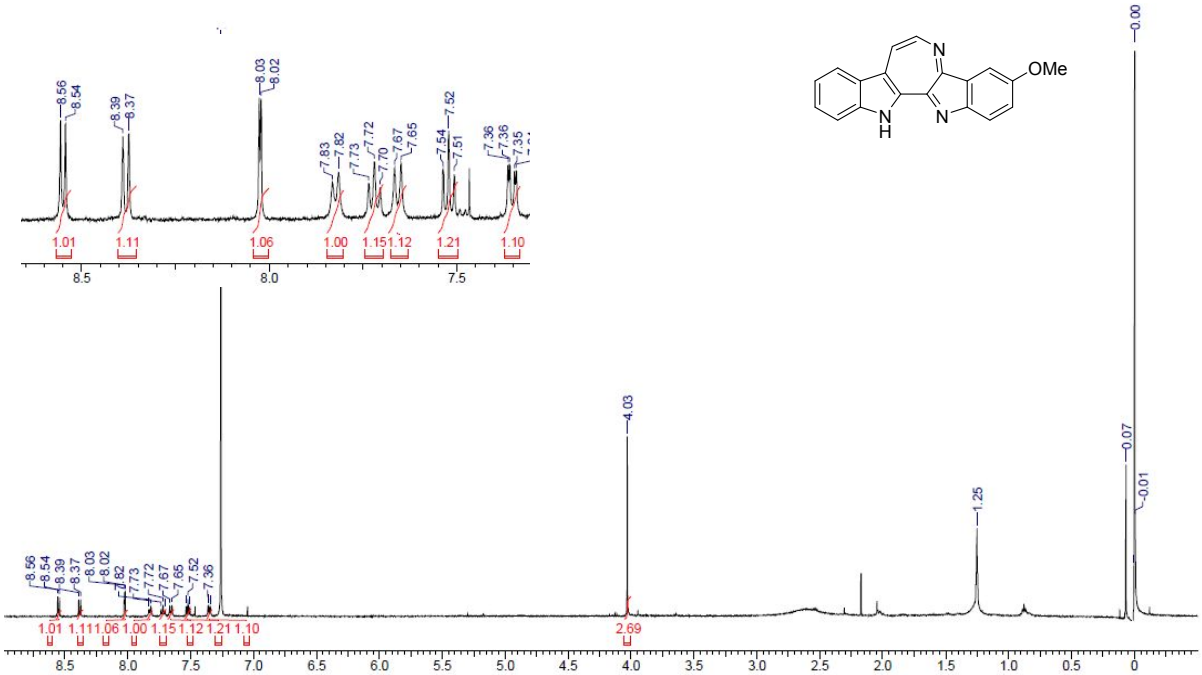


b) ^{13}C NMR Spectrum (in DMSO-d_6, 125 MHz)



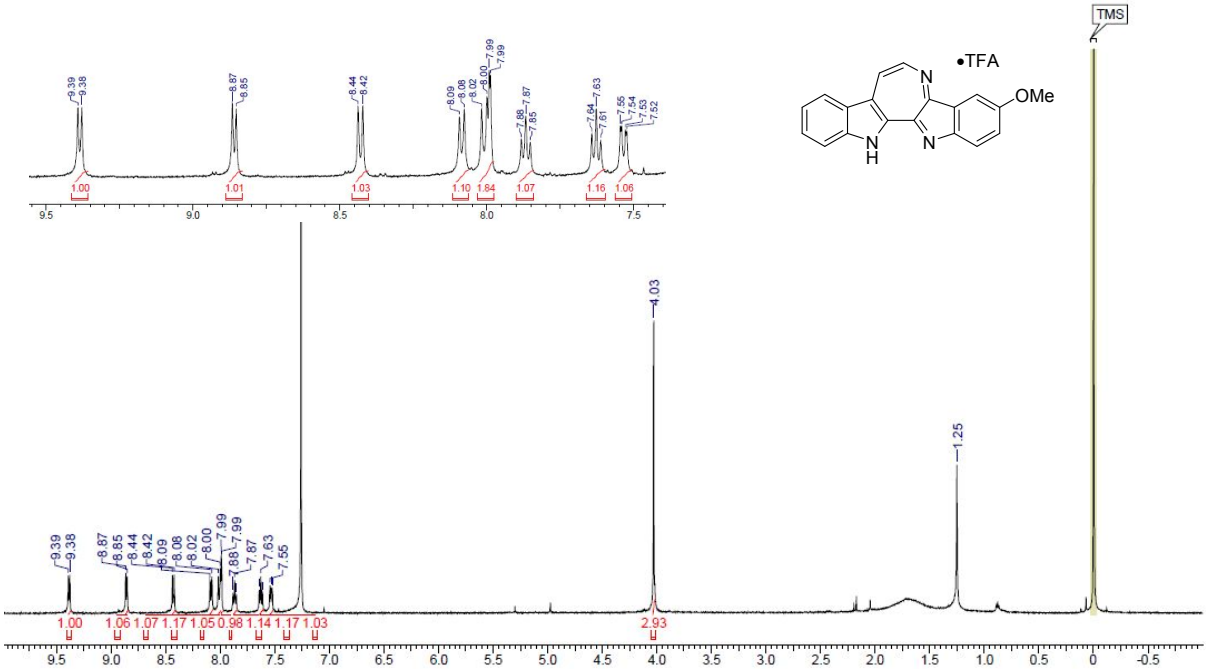
2-21. NMR Spectra of *Iheyamine A* (1)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)

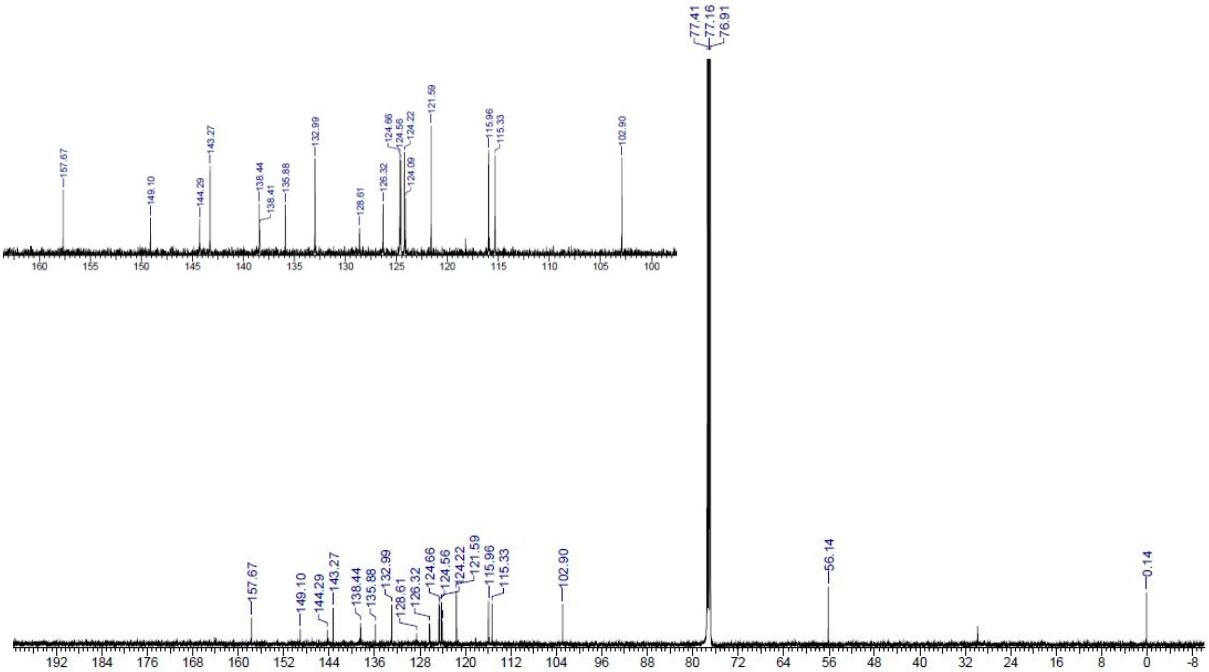


2-22. NMR Spectra of Iheyamine A • TFA salt (1•TFA)

a) ^{1}H NMR Spectrum (in $CDCl_3$, 500 MHz)



b) ^{13}C NMR Spectrum (in $CDCl_3$, 125 MHz)



3. Reference

1. Sasaki, T.; Ohtani, I. I.; Tanaka, J.; Higa, T. *Tetrahedron Lett.* **1999**, *40*, 303-306.