

Supporting Information

Transition-Metal-Free Alkylation Strategy: A Facile Access of Alkylated Oxindoles via Alkyl Transfer

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1. General Information

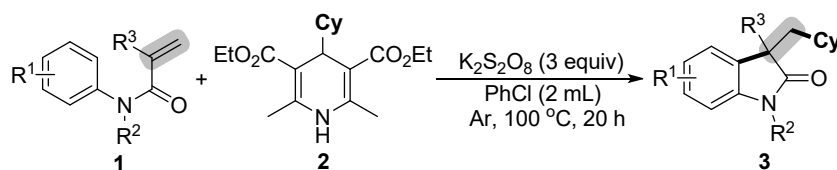
Unless otherwise stated, all commercial reagents were used as received. Aniline (BK, 99%), aldehydes (Innochem, >98%) and halohydrocarbon (Innochem, >98%) were used without further treatment. All reagents and solvents were commercially available and used without any further purification unless specified. All solvents were dried and distilled according to standard procedures. Flash column chromatography was performed using silica gel (0.25mm, 300-400 mesh). Analytical thin-layer chromatography was performed using glass plates pre-coated with 0.25mm 300-400 mesh silica gel impregnated with a fluorescent indicator (254 nm). All reactions were carried out with magnetic stirring and in dried glassware. Nuclear magnetic resonance (NMR) spectra are recorded in parts per million from internal tetramethylsilane on the δ scale. ^1H NMR, ^{19}F NMR and ^{13}C NMR spectra were recorded in CDCl_3 on a Bruker DRX-400 spectrometer operating at 400 MHz, 376 MHz and 100 MHz, respectively. All chemical shift values are quoted in ppm and coupling constants quoted in Hz. The solvent peak was used as a reference value, for ^1H NMR: TMS = 0.00 ppm, for ^{13}C NMR: CDCl_3 = 77.00 ppm. The following abbreviations were used to explain multiplicities: s = singlet, d = doublet, dd = doublet of doublet, t = triplet, td = triplet of doublet, q = quartet, m = multiplet, and br = broad. High-resolution mass spectra (HRMS) were obtained on an Agilent mass spectrometer using ESI-TOF (electrospray ionization-time of flight).

2. Experiment Section

2.1 General Procedure for the Synthesis of Substrates

All *N*-arylacrylamide derivatives **1**¹ and 4-alkylated Hantzsch esters **2**²⁻³ were synthesized according to the known methods.

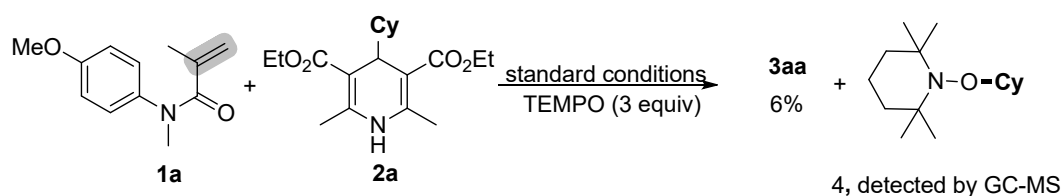
2.2 Typical Experimental Procedure



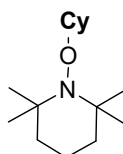
To a Schlenk tube were added *N*-arylacrylamide derivatives **1** (0.2 mmol, 0.1 M), acyl Hantzsch esters **2** (0.3 mmol, 1.5 equiv), K₂S₂O₈ (0.6 mmol, 3 equiv) and PhCl (2 mL) at 100 °C for 20 h. Until complete consumption of the starting material was observed by TLC and/or GC-MS analysis. After the reaction was finished, the reaction mixture removal of the solvent, the crude product was purified by column chromatography (petroleum ether/ethyl acetate, 10 : 1) to provide the desired products **3**. A scaled-up experiment conducted in the presence of **1a** (5 mmol), **2a** (7.5 mmol, 1.5 equiv), K₂S₂O₈ (15 mmol, 3 equiv) and PhCl (50 mL) at 100 °C for 120 h gave the target product **3aa** in 60% yield.

2.3 Radical Trapping Experiments

2.3.1 Using TEMPO as Radical Inhibitor



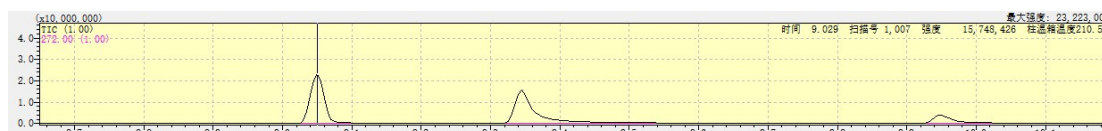
To a Schlenk tube were added *N*-arylacrylamide derivatives **1a** (0.2 mmol, 0.1 M), acyl Hantzsch esters **2a** (0.3 mmol, 1.5 equiv), K₂S₂O₈ (0.6 mmol, 3 equiv), TEMPO (3 equiv) and PhCl (2 mL) at 100 °C for 20 h. The GC-MS analysis of raw reaction mixture showed that onyl 6% yield of target product **3aa** was detected. Additionally, the cyclohexyl-trapping products **4** could be detected by GC-MS analysis of raw reaction mixture.



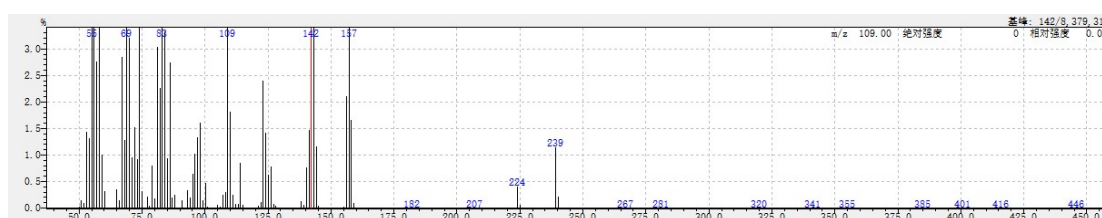
4, detected by GC-MS
 Chemical Formula: C₁₅H₂₉NO
 Exact Mass: 239.2249
 Molecular Weight: 239.3969
 m/z: 239.2249 (100.0%), 240.2283 (16.2%), 241.2316 (1.2%)
 Elemental Analysis: C, 75.26; H, 12.21; N, 5.85; O, 6.68

GC-MS analysis of raw reaction mixture by using TEMPO as radical inhibitor

GC spectra



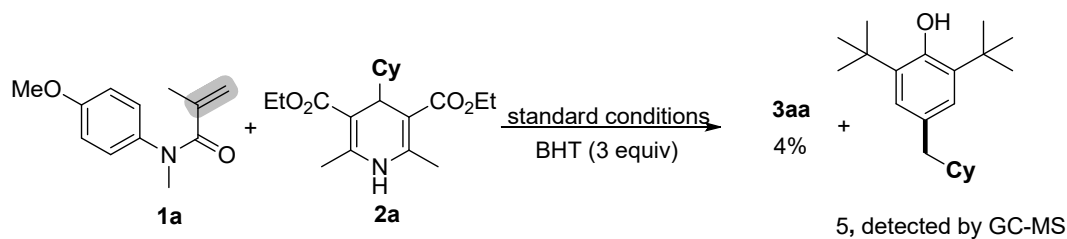
MS spectra of the peak at 9.050 min



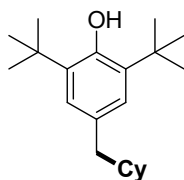
[MS Spectrum]	63.00	16930.02	87.05	14056	0.18			
# of Peaks	281	64.05	563	0.01	88.10	17200	0.22	
Raw Spectrum	9.055 (scan : 1012)	65.05	24727	0.32	89.10	961	0.01	
Background	8.770 (scan : 955)	66.05	10544	0.14	90.00	110	0.00	
Base Peak	m/z 142.20 (Inten : 7,719,651)	67.05	197888	2.56	91.05	10760	0.14	
Event#	1	68.05	88777	1.15	92.10	17960.02		
m/z	Absolute Intensity	69.05	923219	11.96	93.10	23651	0.31	
	Relative Intensity	70.05	219894	2.85	94.10	14935	0.19	
50.00	30390.04	71.05	65901	0.85	95.10	45107	0.58	
51.00	10249	0.13	72.05	104784	1.36	96.10	69264	0.90
52.05	70170.09	73.05	63164	0.82	97.10	91573	1.19	
53.05	102045	1.32	74.05	595765	7.72	98.10	107027	1.39
54.10	93252	1.21	75.05	21670	0.28	99.15	10320	0.13
55.05	1674242	21.69	76.05	15730.02		100.10	31626	0.41
56.05	667056	8.64	77.05	17077	0.22	101.10	19890.03	
57.10	191577	2.48	78.05	39460.05		102.10	13620.02	
58.05	435891	5.65	79.05	54108	0.70	102.90	250	0.00
59.05	69675	0.90	80.10	13075	0.17	104.10	287	0.00
60.05	22593	0.29	81.05	206945	2.68	105.10	45460.06	
61.05	827	0.01	82.05	155225	2.01	106.10	19800.03	
62.00	829	0.01	83.10	426320	5.52	107.10	17391	0.23
			84.10	225669	2.92	108.15	20011	0.26
			85.10	63152	0.82	109.10	962268	12.47
			86.05	186362	2.41	110.10	122978	1.59

111.10	15860	0.21	159.10	65490.08	220.95	633	0.01	
112.15	57100.07		160.10	274	0.00	222.20	253	0.00
113.15	59260.08		161.10	86	0.00	223.25	271	0.00
114.10	55840	0.72	162.10	37	0.00	224.20	25471	0.33
115.10	41070.05		163.10	13	0.00	225.15	35010.05	
116.15	10730.01		166.10	197	0.00	226.30	306	0.00
117.10	187	0.00	168.10	142	0.00	227.30	38	0.00
118.20	95	0.00	169.10	20	0.00	228.30	9	0.00
119.20	287	0.00	170.10	5	0.00	230.30	16	0.00
120.25	367	0.00	172.10	96	0.00	231.30	52	0.00
121.15	33200.04		174.10	59	0.00	232.30	5	0.00
122.25	79140.10		175.10	32	0.00	233.30	20	0.00
123.15	157884	2.05	176.10	133	0.00	236.30	31	0.00
124.20	91828	1.19	178.10	222	0.00	237.30	31	0.00
125.20	41526	0.54	179.10	7	0.00	238.20	131	0.00
126.15	51966	0.67	180.10	126	0.00	239.20	65216	0.84
127.20	53480.07		181.10	80	0.00	240.20	11931	0.15
128.20	36370.05		182.10	165	0.00	241.20	11040.01	
129.20	90	0.00	184.10	128	0.00	242.20	71	0.00
131.00	123	0.00	185.10	45	0.00	243.20	6	0.00
132.00	48	0.00	190.95	21	0.00	247.20	21	0.00
133.15	31	0.00	191.90	10	0.00	249.20	91	0.00
135.15	355	0.00	193.05	289	0.00	250.20	18	0.00
136.15	17100.02		194.00	88	0.00	251.20	83	0.00
137.10	833	0.01	196.00	126	0.00			
138.15	93450.12		197.00	33	0.00			
139.15	40360.05		198.00	30	0.00			
140.15	48897	0.63	199.00	7	0.00			
141.25	93398	1.21	200.00	2	0.00			
142.20	7719651	100.00	203.00	30	0.00			
143.15	1202386	15.58	205.00	24	0.00			
144.15	71088	0.92	206.00	61	0.00			
145.15	31610.04		207.00	883	0.01			
146.10	187	0.00	208.00	283	0.00			
147.05	555	0.01	209.00	85	0.00			
149.15	143	0.00	210.00	57	0.00			
150.10	56	0.00	212.00	31	0.00			
151.05	242	0.00	213.00	8	0.00			
153.10	48	0.00	215.00	23	0.00			
154.20	906	0.01	216.00	40	0.00			
155.15	13680.02		217.00	10	0.00			
156.15	132436	1.72	218.00	18	0.00			
157.15	1000692	12.96	219.00	27	0.00			
158.10	101371	1.31	220.00	8	0.00			

2.3.2 Using BHT as Radical Inhibitor



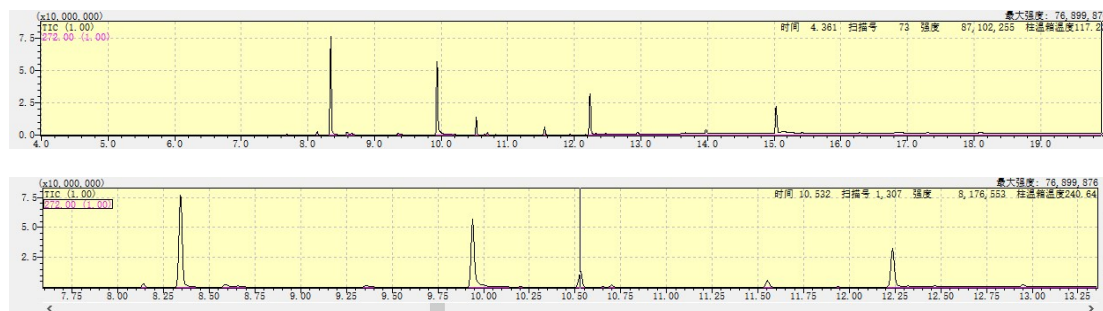
To a Schlenk tube were added N-arylacrylamide derivatives **1a** (0.2 mmol, 0.1 M), acyl Hantzsch esters **2a** (0.3 mmol, 1.5 equiv), $\text{K}_2\text{S}_2\text{O}_8$ (0.6 mmol, 3 equiv), BHT (3 equiv) and PhCl (2 mL) at 100 °C for 20 h. The GC-MS analysis of raw reaction mixture showed that onyl 4% yield of target product **3aa** was detected. Additionally, the cyclohexyl-trapping products **5** could be detected by GC-MS analysis of raw reaction mixture.



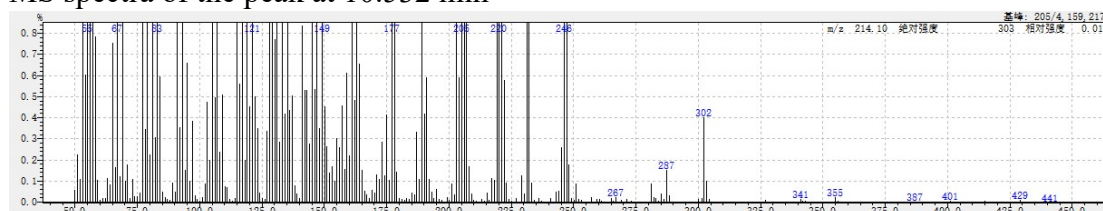
5, detected by GC-MS
 Chemical Formula: $\text{C}_{21}\text{H}_{34}\text{O}$
 Exact Mass: 302.2610
 Molecular Weight: 302.4941
 m/z: 302.2610 (100.0%), 303.2643 (22.7%), 304.2677 (2.5%)
 Elemental Analysis: C, 83.38; H, 11.33; O, 5.29

GC-MS analysis of raw reaction mixture by using BHT as radical inhibitor

GC spectra



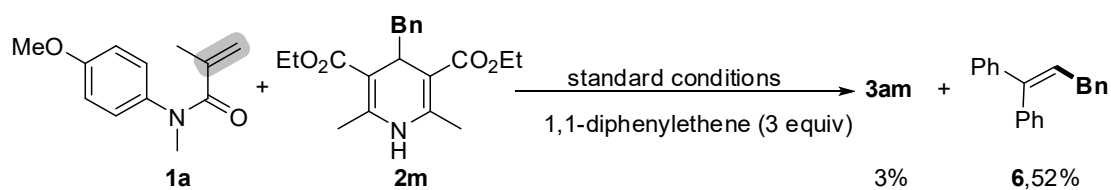
MS spectra of the peak at 10.532 min



[MS Spectrum]			82.15	13216	0.31	125.10	686	0.02
# of Peaks			83.10	405811	9.55	126.15	296	0.01
Raw Spectrum 10.530 (scan : 1307)			84.10	27416	0.65	127.10	15274	0.36
Background 10.480 (scan : 1297)			85.10	18040.04		128.10	58398	1.37
Base Peak m/z 205.15 (Inten : 4,249,046)			86.15	11800.03		129.10	64541	1.52
Event# 1			87.10	515	0.01	130.10	35834	0.84
m/z	Absolute	Intensity	87.85	409	0.01	131.10	68274	1.61
	Relative Intensity		89.00	41140.10		132.15	12219	0.29
50.00	26110.06		90.15	22660.05		133.15	85415	2.01
51.00	10208	0.24	91.10	144842	3.41	134.10	18656	0.44
52.05	45390.11		92.10	15638	0.37	135.15	72780	1.71
53.05	56928	1.34	93.10	41842	0.98	136.15	18422	0.43
54.15	28787	0.68	94.10	67120.16		137.15	20304	0.48
55.05	961645	22.63	95.10	30630	0.72	138.15	27180.06	
56.10	50300	1.18	96.05	28900.07		139.10	17430.04	
57.10	803558	18.91	97.10	17255	0.41	140.15	709	0.02
58.05	37771	0.89	98.10	14960.04		141.10	37078	0.87
59.05	47350.11		99.10	479	0.01	142.10	23718	0.56
60.05	250	0.01	100.05	330	0.01	143.10	23479	0.55
61.00	350	0.01	101.05	13090.03		144.15	12399	0.29
62.05	472	0.01	102.10	39910.09		145.10	133355	3.14
63.05	42750.10		103.05	21853	0.51	146.10	23841	0.56
64.05	24690.06		104.15	85610.20		147.10	50338	1.18
65.05	35617	0.84	105.10	168264	3.96	148.10	15009	0.35
66.00	75040.18		106.10	21355	0.50	149.10	147168	3.46
67.05	79379	1.87	107.10	46461	1.09	150.10	17384	0.41
68.05	57700.14		108.10	10832	0.25	151.10	87590.21	
69.05	63588	1.50	109.10	23965	0.56	152.10	58260.14	
70.05	48500.11		110.15	30360.07		153.10	76380.18	
71.05	84330.20		111.10	31790.07		154.05	41280.10	
72.05	11130.03		112.10	176	0.00	155.10	13941	0.33
73.05	10300.02		113.10	225	0.01	156.10	12195	0.29
74.00	990	0.02	114.15	685	0.02	157.10	20576	0.48
75.00	787	0.02	115.10	59987	1.41	158.10	67260.16	
76.05	20510.05		116.10	25613	0.60	159.10	27946	0.66
77.05	65659	1.55	117.10	44618	1.05	160.15	86160.20	
78.05	14468	0.34	118.15	76350.18		161.10	127248	2.99
79.05	72006	1.69	119.10	121282	2.85	162.10	21200	0.50
80.10	10506	0.25	120.15	18636	0.44	163.10	74733	1.76
81.05	57008	1.34	121.10	179741	4.23	164.10	28590	0.67
			122.15	21596	0.51	165.10	65150.15	
			123.15	15897	0.37	166.00	20760.05	
			124.15	21100.05		167.15	14860.03	

168.10	10600.02		211.10	226	0.01		259.20	926	0.02
169.10	25540.06		212.10	93	0.00		260.25	638	0.02
170.05	22530.05		213.10	819	0.02		261.15	728	0.02
171.10	59930.14		214.15	218	0.01		263.20	58	0.00
172.05	50600.12		215.15	18120.04			264.10	38	0.00
173.10	12520	0.29	216.15	563	0.01		265.10	224	0.01
174.10	54720.13		217.10	44640.11			266.05	85	0.00
175.10	18162	0.43	218.15	44220.10			268.00	57	0.00
176.15	45430.11		219.25	44452	1.05		269.05	217	0.01
177.10	285431	6.72	220.15	1496618	35.22		271.20	562	0.01
178.10	40986	0.96	221.15	245460	5.78		272.20	204	0.00
179.05	46630.11		222.10	22006	0.52		273.20	211	0.00
180.10	473	0.01	223.05	16550.04			274.20	109	0.00
181.10	552	0.01	224.00	229	0.01		276.20	10	0.00
182.05	548	0.01	225.05	778	0.02		277.20	8	0.00
183.05	742	0.02	226.10	208	0.00		278.20	11	0.00
184.15	575	0.01	227.10	10080.02			282.05	352	0.01
185.10	19250.05		228.05	266	0.01		284.00	189	0.00
186.10	18640.04		229.10	55330.13			285.20	14290.03	
187.10	14432	0.34	230.25	17210.04			286.20	612	0.01
188.15	47300.11		231.15	213884	5.03		287.25	64480.15	
189.10	108435	2.55	232.15	36325	0.85		288.30	12370.03	
190.10	18040	0.42	233.15	40230.09			289.30	130	0.00
191.10	24089	0.57	234.15	386	0.01		290.30	41	0.00
192.05	42790.10		235.10	40	0.00		294.30	29	0.00
193.00	511	0.01	239.10	197	0.00		296.30	53	0.00
193.95	183	0.00	240.05	195	0.00		297.30	64	0.00
195.00	262	0.01	241.05	452	0.01		298.30	39	0.00
196.10	341	0.01	242.20	135	0.00		299.30	20	0.00
197.00	664	0.02	243.15	14220.03			300.20	540	0.01
198.20	243	0.01	244.20	21270.05			301.25	752	0.02
199.15	955	0.02	245.25	10870	0.26		302.25	15161	0.36
200.10	322	0.01	246.20	361054	8.50		303.30	36850.09	
201.10	37100.09		247.20	67167	1.58		304.30	662	0.02
202.15	15330.04		248.10	66810.16			305.30	26	0.00
203.10	42457	1.00	249.20	563	0.01		306.30	4	0.00
204.15	24654	0.58	251.05	139	0.00		310.30	100	0.00
205.15	4249046	100.00	252.10	57	0.00		315.30	6	0.00
206.10	672979	15.84	255.00	55	0.00		316.30	12	0.00
207.10	57283	1.35	256.00	22	0.00		318.30	17	0.00
208.05	37110.09		257.20	11080.03			319.30	7	0.00
209.90	262	0.01	258.20	188	0.00				

2.3.3 Using 1,1-diphenylethene as Radical Inhibitor



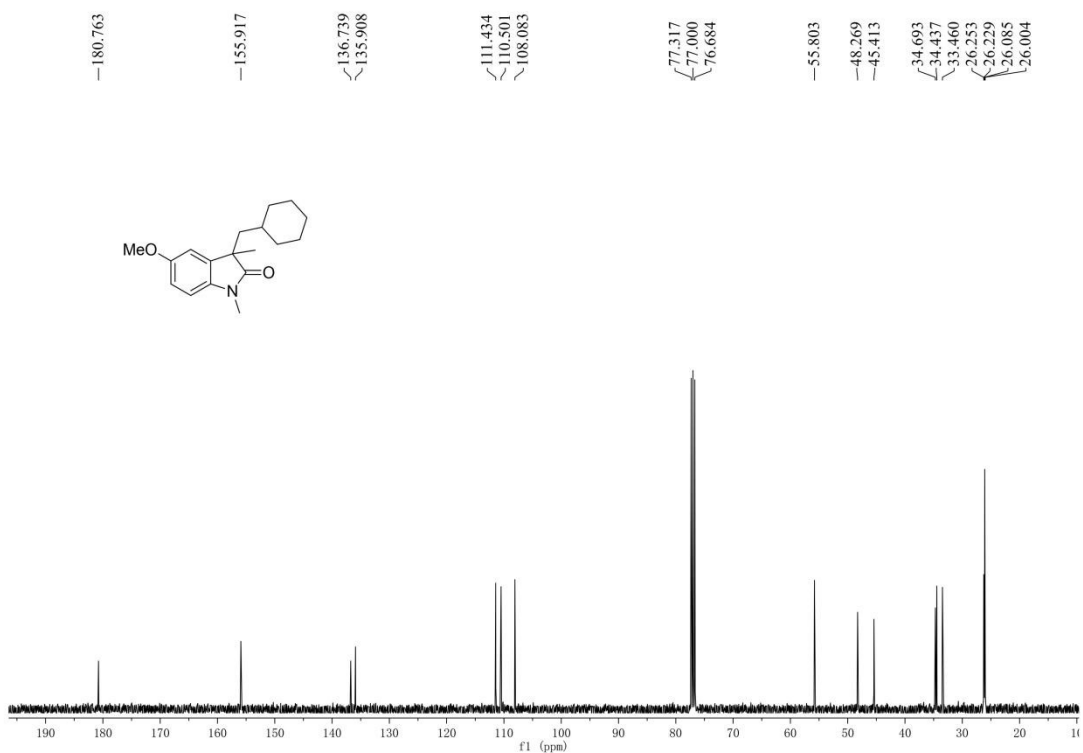
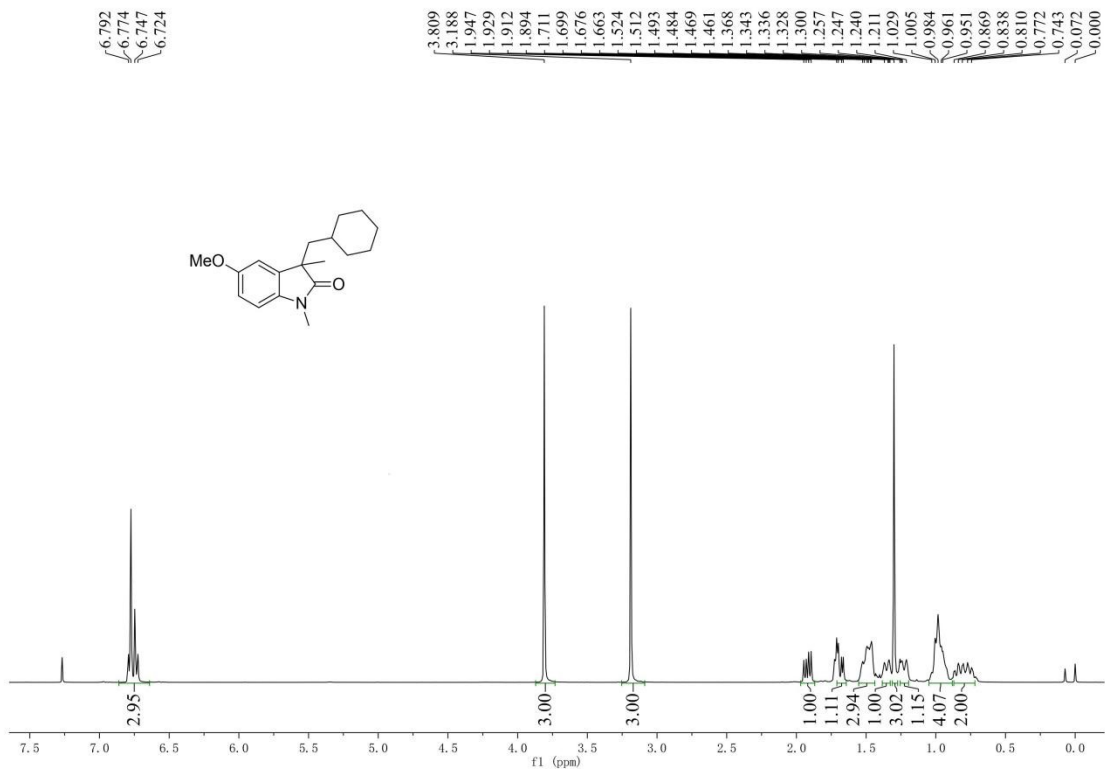
To a Schlenk tube were added N-arylacrylamide derivatives **1a** (0.2 mmol, 0.1 M), acyl Hantzsch esters **2m** (0.3 mmol, 1.5 equiv), $K_2S_2O_8$ (0.6 mmol, 3 equiv), 1,1-diphenylethene (3 equiv) and PhCl (2 mL) at 100 °C for 20 h. The GC-MS analysis of raw reaction mixture showed that onyl 3% yield of target product **3am** was detected. The benzyl-trapping products **6** could be obtained in 52% yield.

3. References

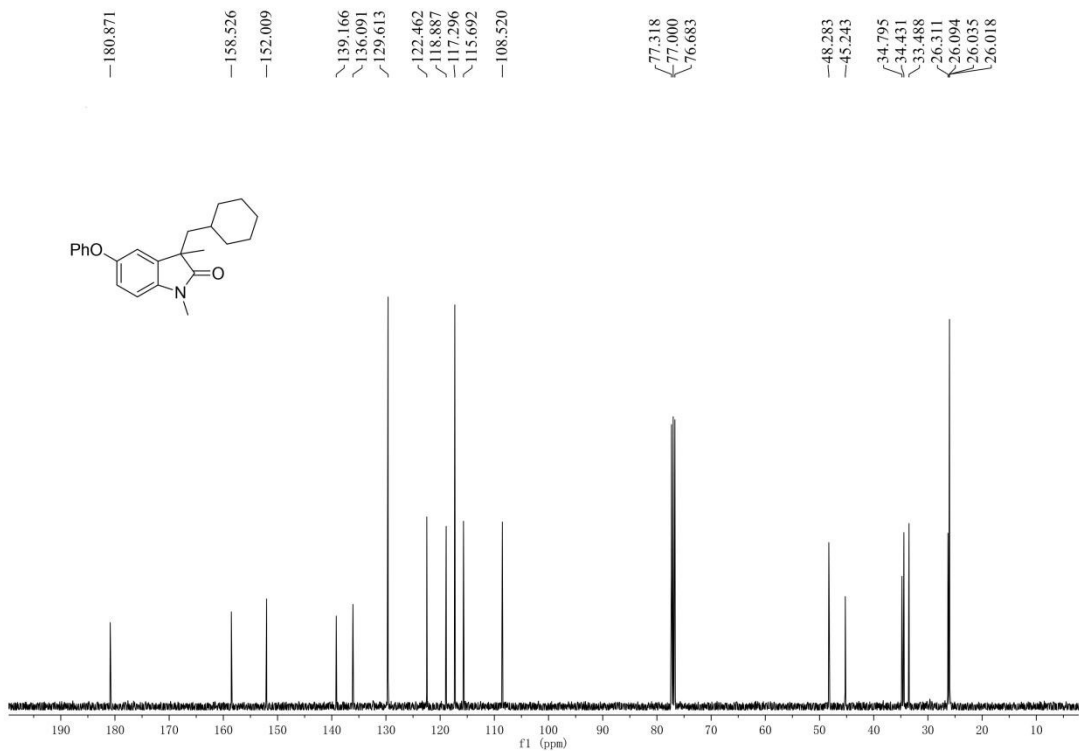
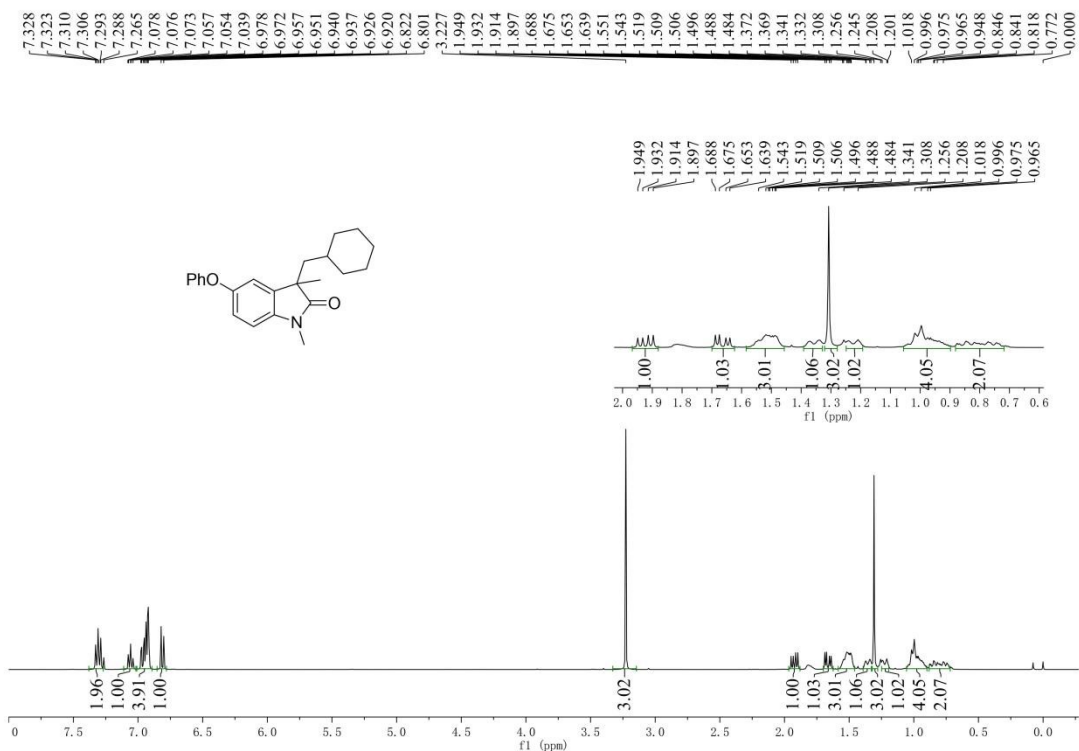
- [1] Q.-L. Wang, Q. Zhou, J. Liao, Z. Chen, B.-Q. Xiong, G.-J. Deng, K.-W. Tang and Y. Liu, *J. Org., Chem.*, 2021, **86**, 2866-2875.
- [2] F. Gu, W. Huang, X. Liu, W. Chen and X. Cheng, *Adv. Synth. Catal.*, 2018, **360**, 925.
- [3] Q.-Y. Wu, Q.-Q. Min, G.-Z. Ao and F. Liu, *Org. Biomol. Chem.*, 2018, **16**, 6391.

4. Spectra

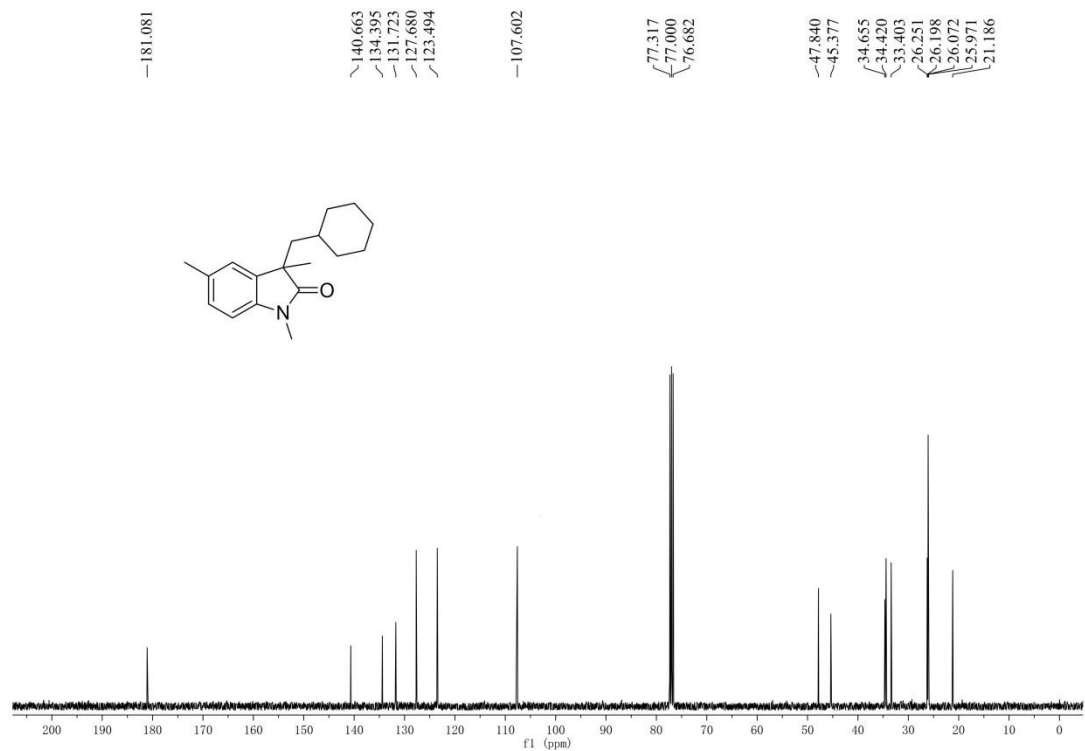
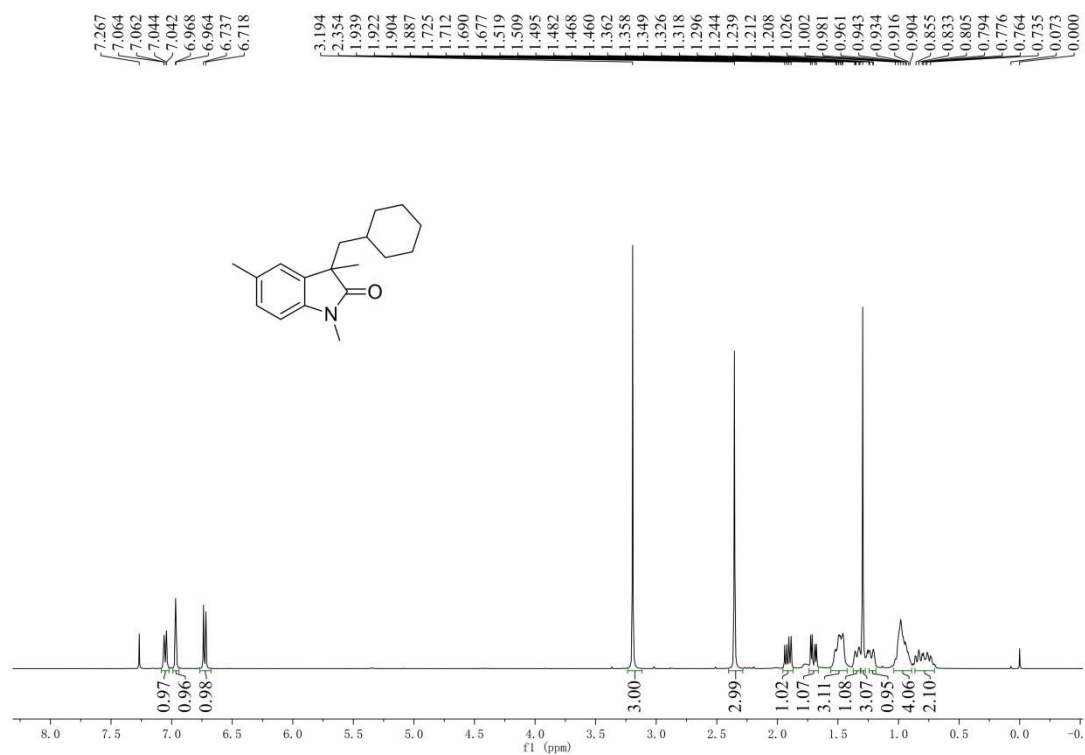
3-(Cyclohexylmethyl)-5-methoxy-1,3-dimethylindolin-2-one (3aa)



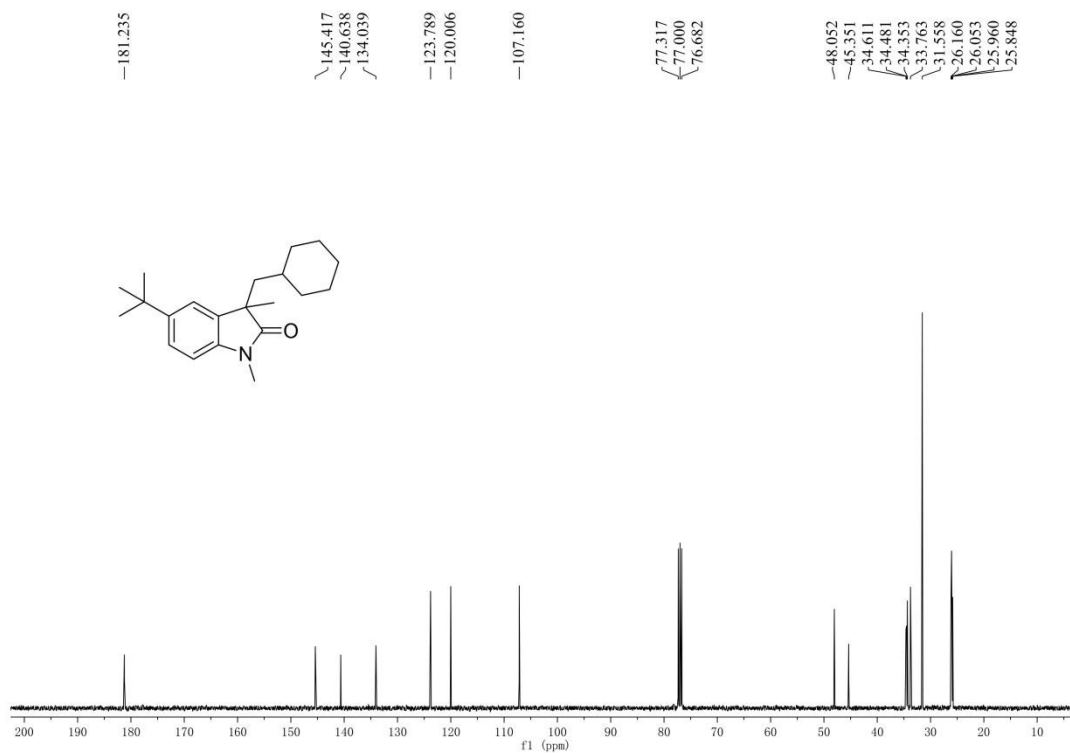
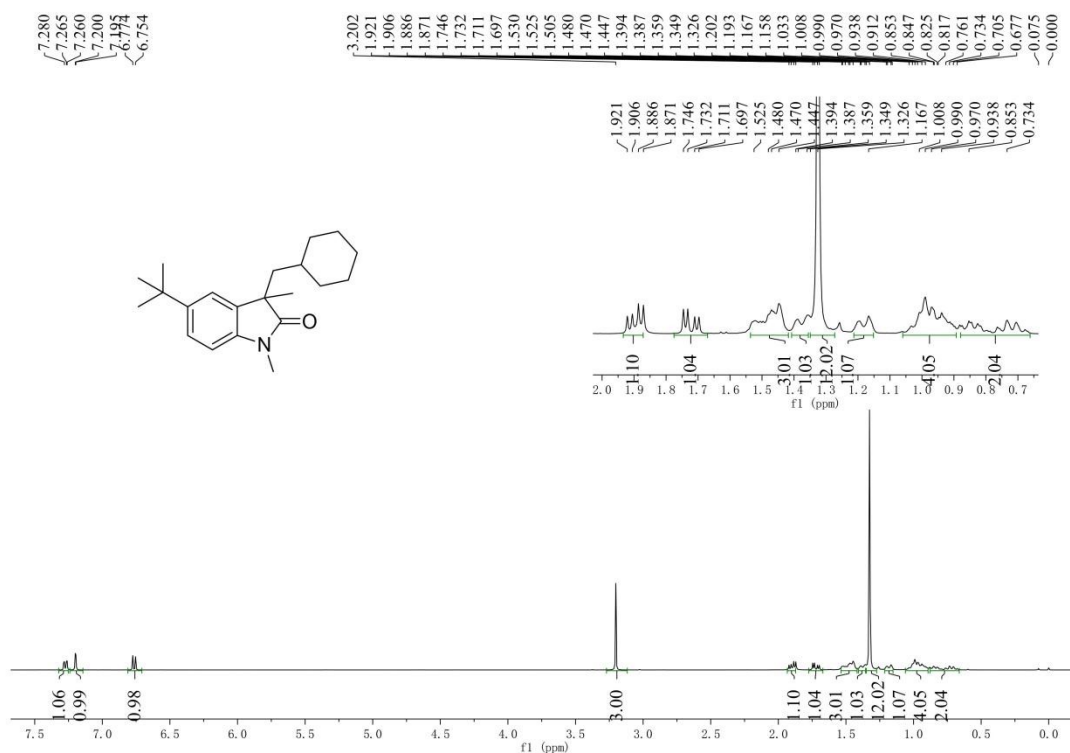
3-(Cyclohexylmethyl)-1,3-dimethyl-5-phenoxyindolin-2-one (3ba)



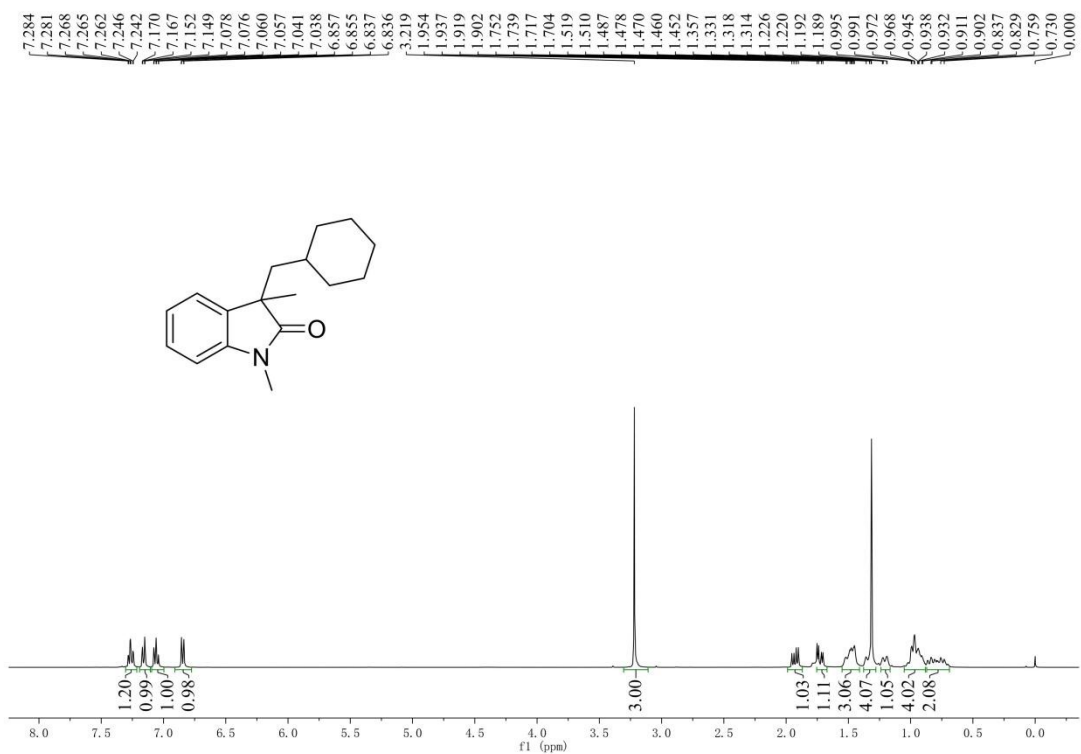
3-(Cyclohexylmethyl)-1,3,5-trimethylindolin-2-one (3ca)



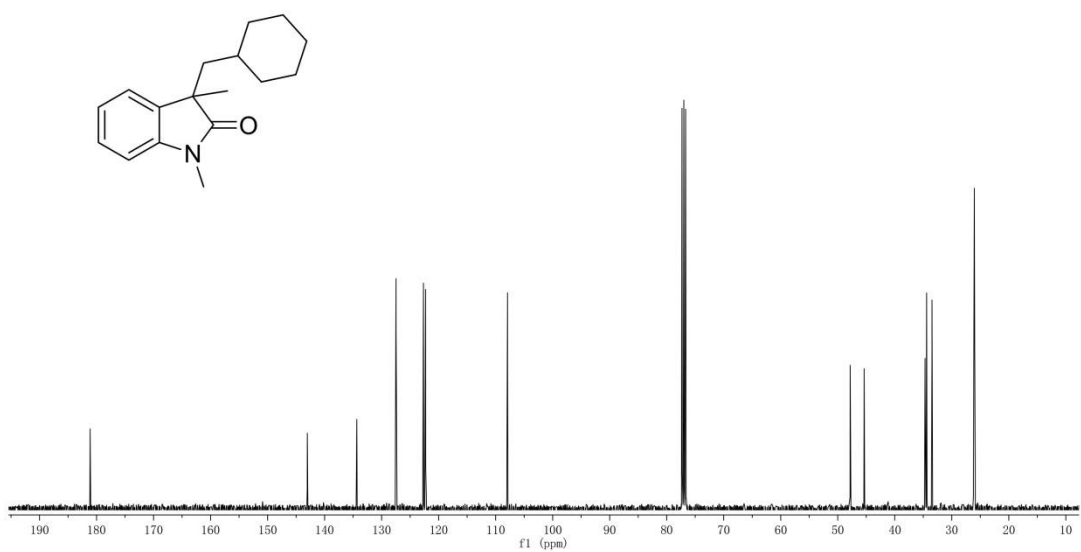
5-(*Tert*-butyl)-3-(cyclohexylmethyl)-1,3-dimethylindolin-2-one (3da)



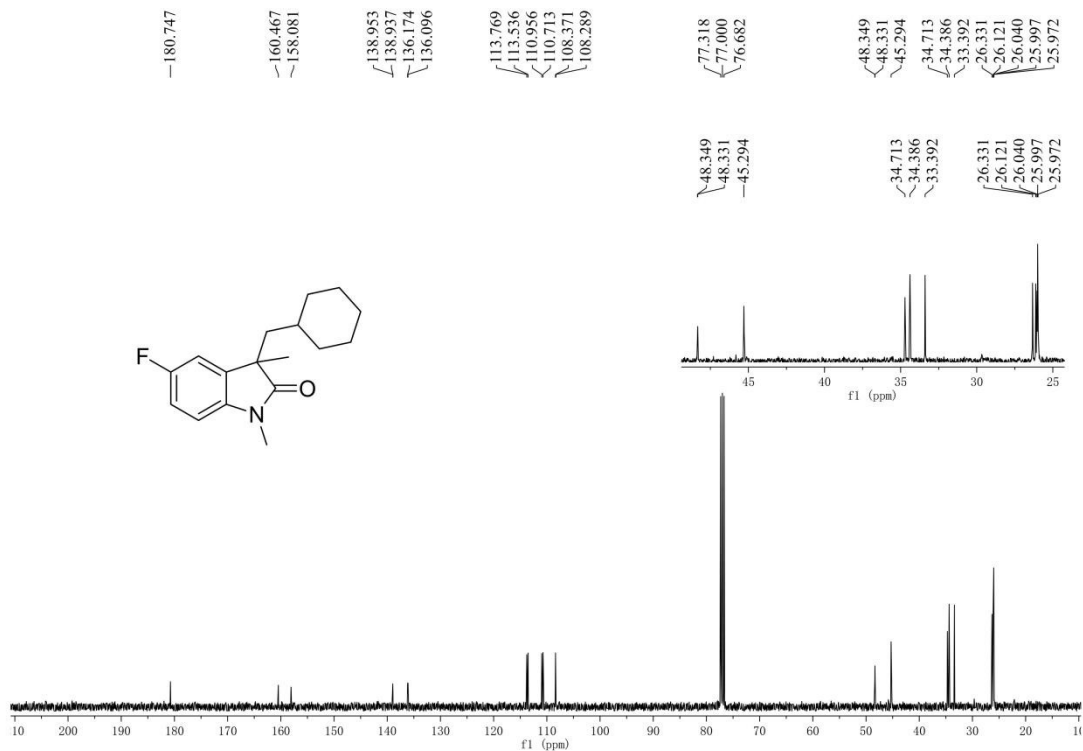
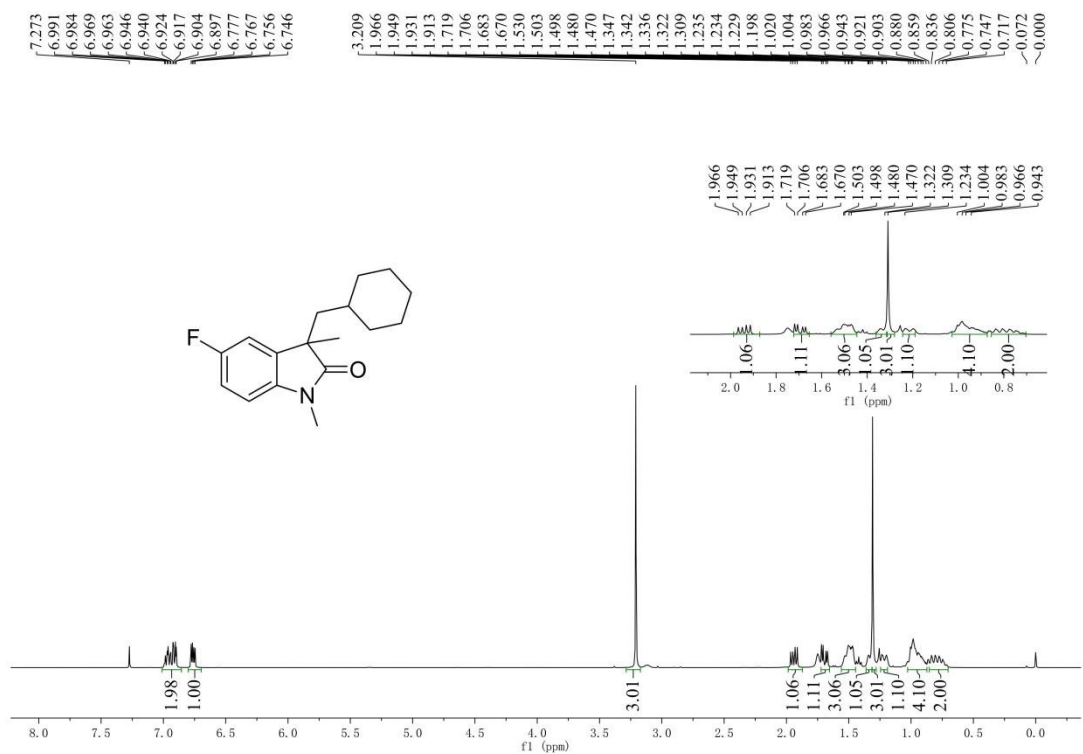
3-(Cyclohexylmethyl)-1,3-dimethylindolin-2-one (3ea)

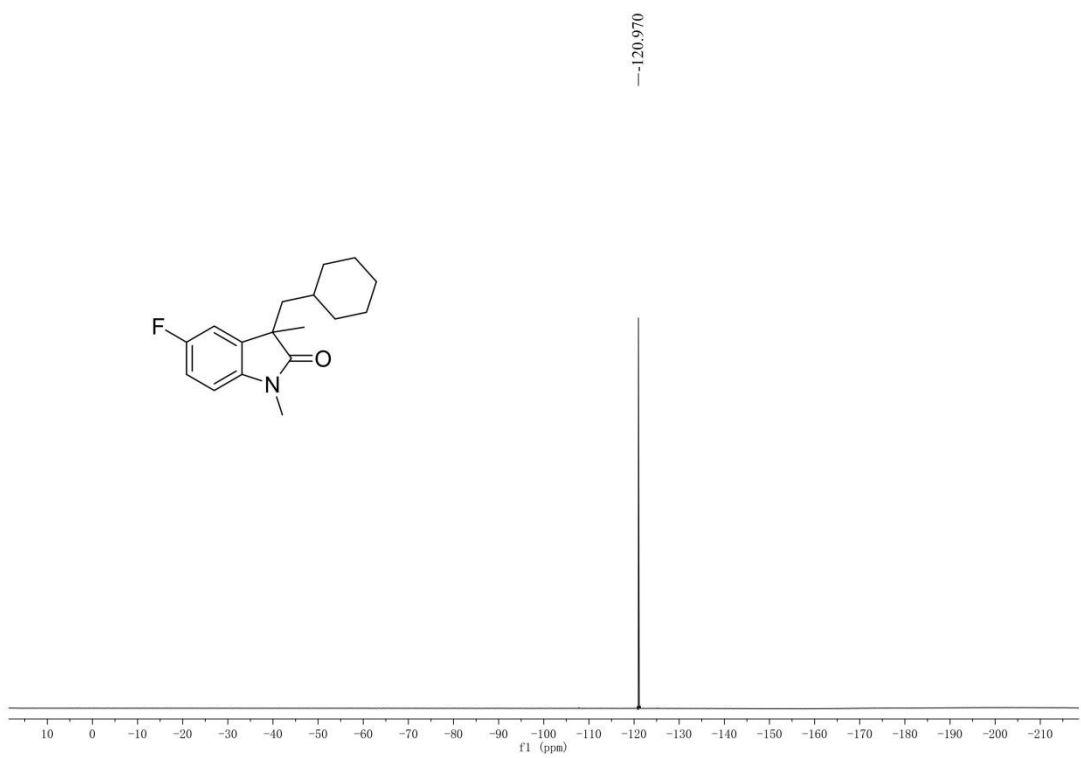


Chemical shifts (ppm): 181.125, 143.032, 134.349, 127.470, 122.666, 122.289, 107.912, 77.317, 76.999, 76.682, 47.822, 45.367, 34.689, 34.414, 33.472, 26.173, 26.131, 26.062, 26.048, 25.984.

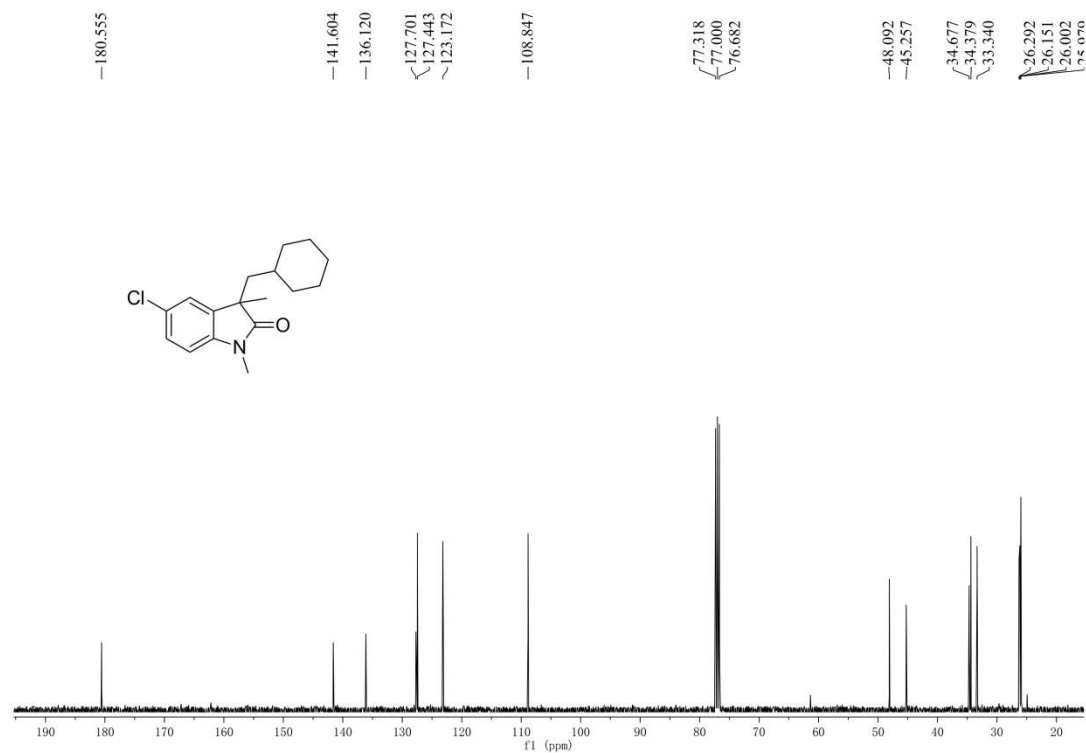
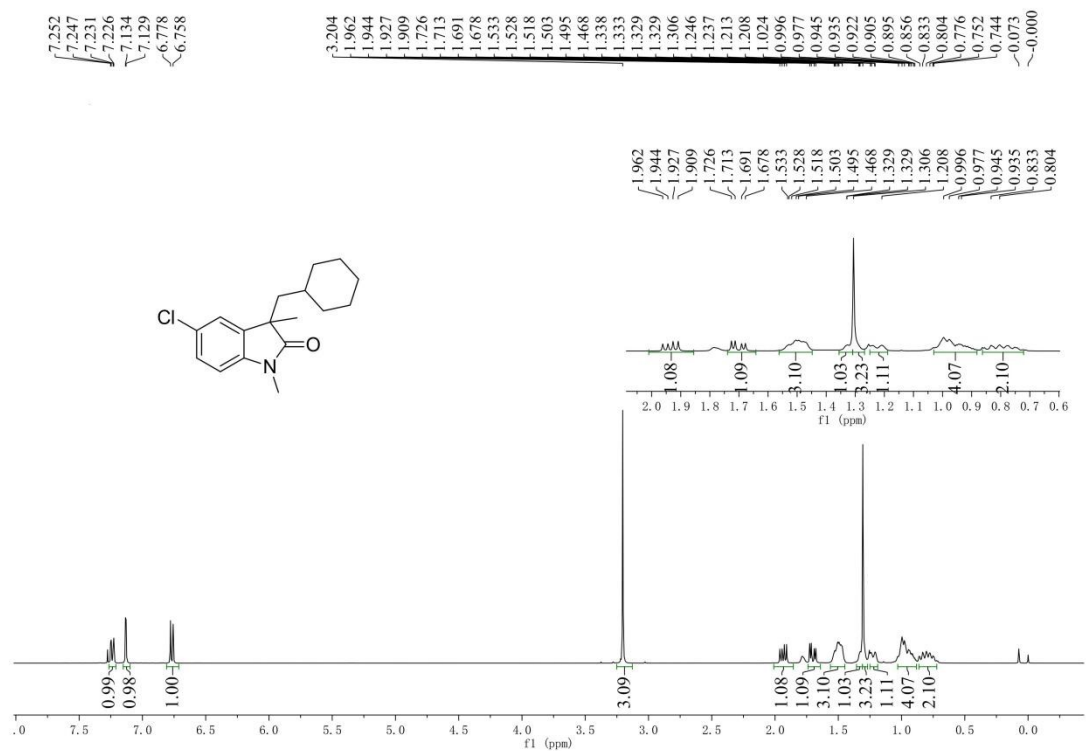


3-(Cyclohexylmethyl)-5-fluoro-1,3-dimethylindolin-2-one (3fa)

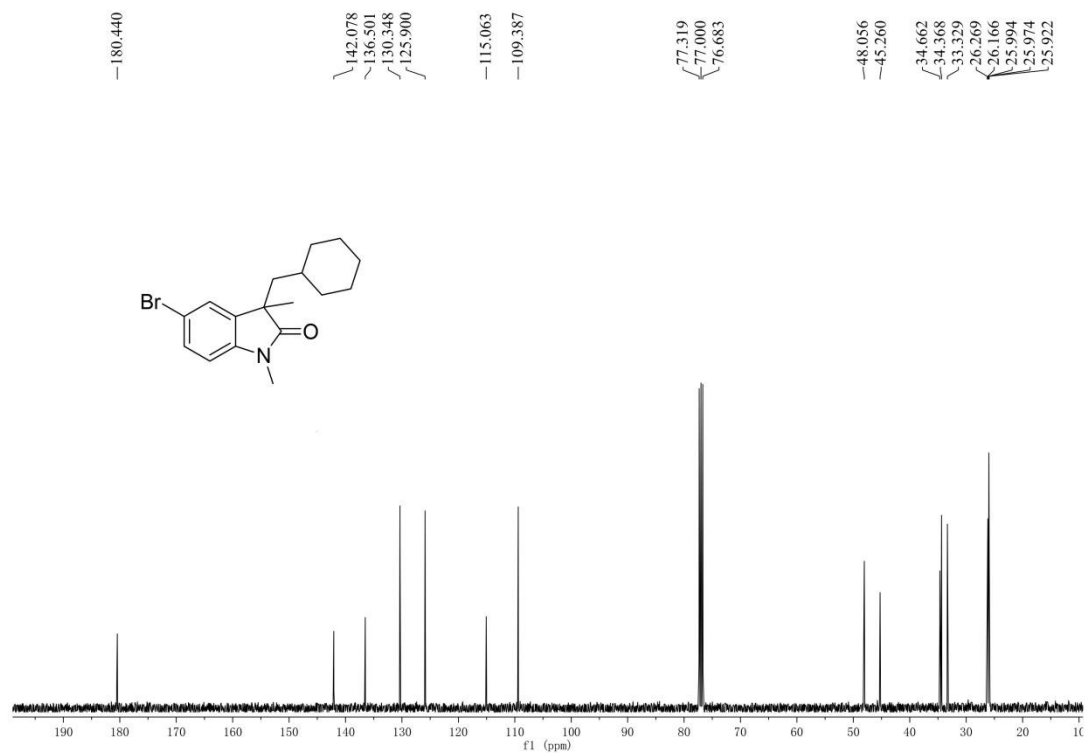
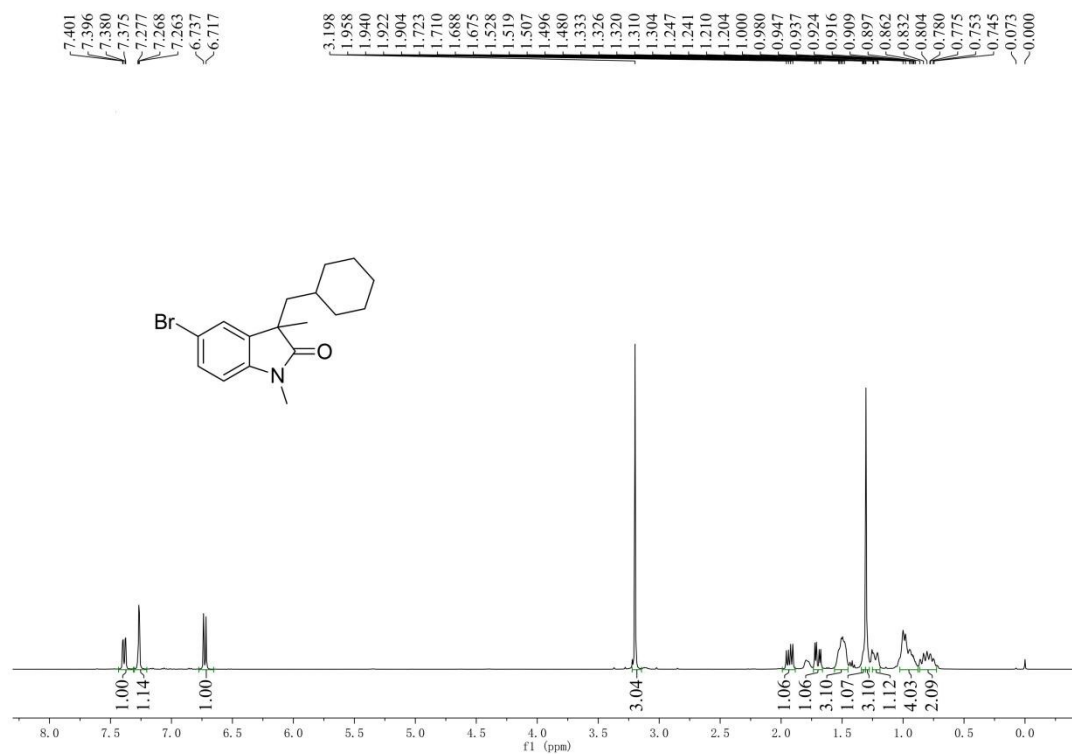




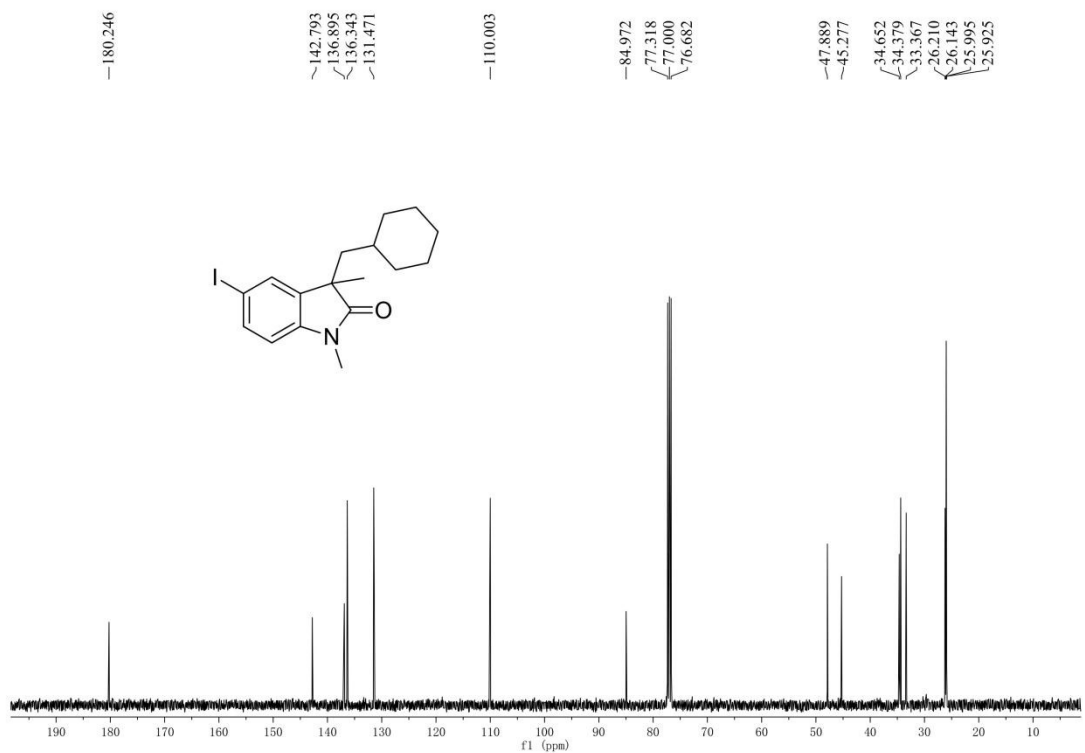
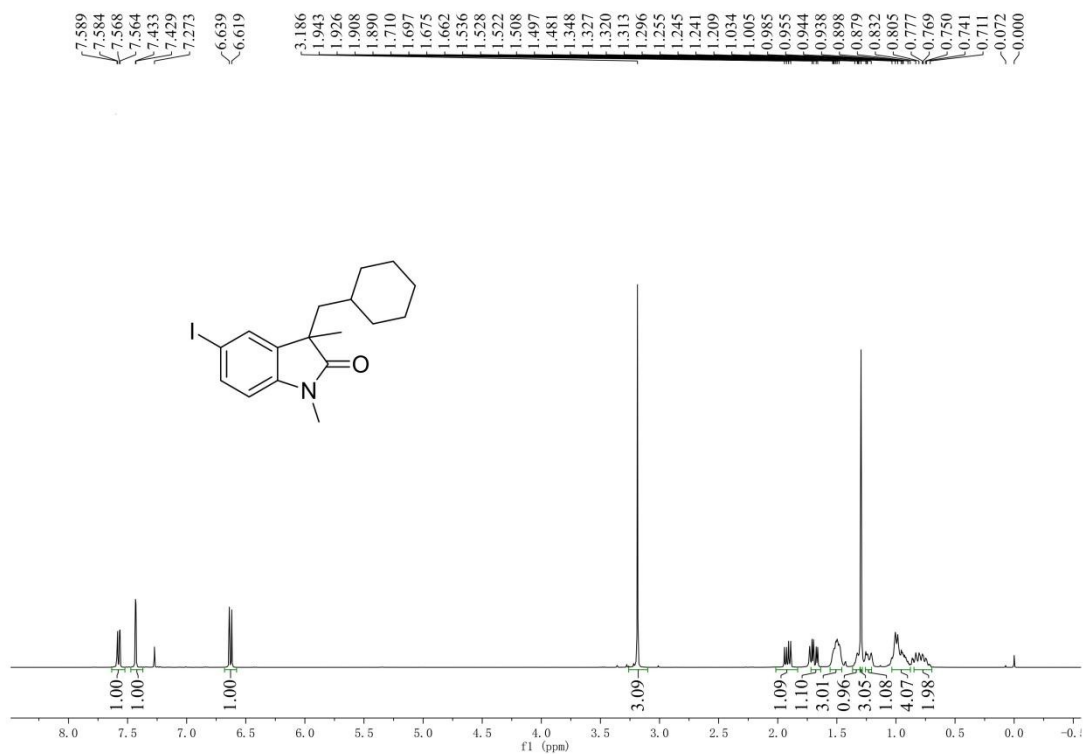
5-Chloro-3-(cyclohexylmethyl)-1,3-dimethylindolin-2-one (3ga)



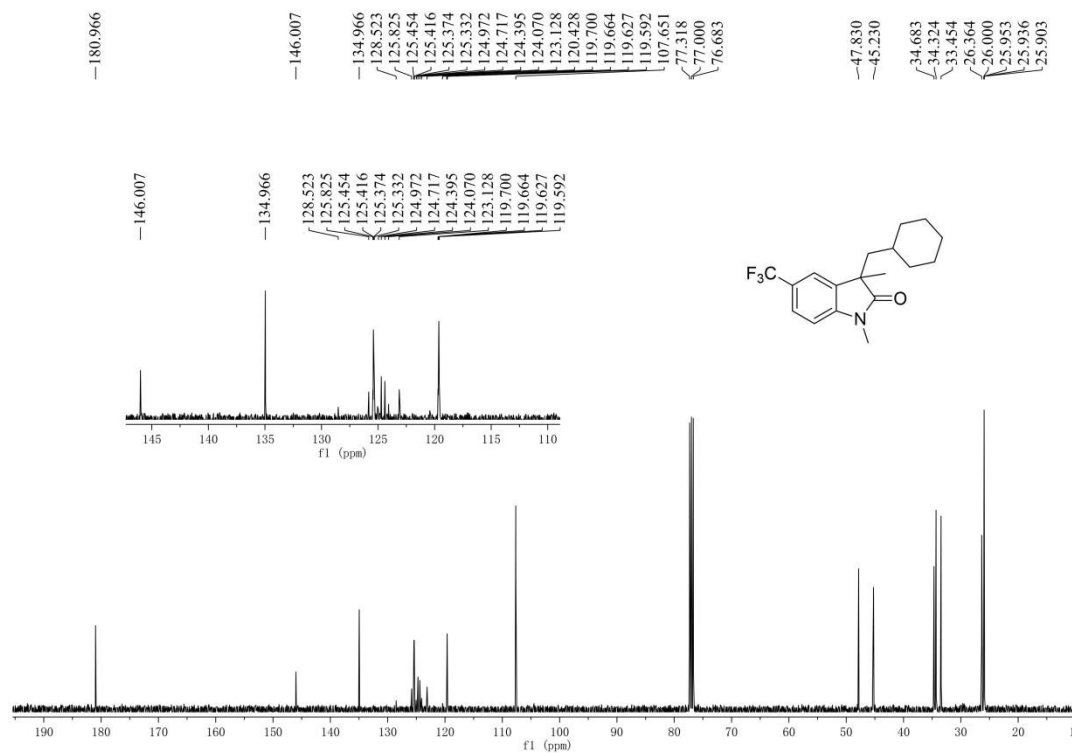
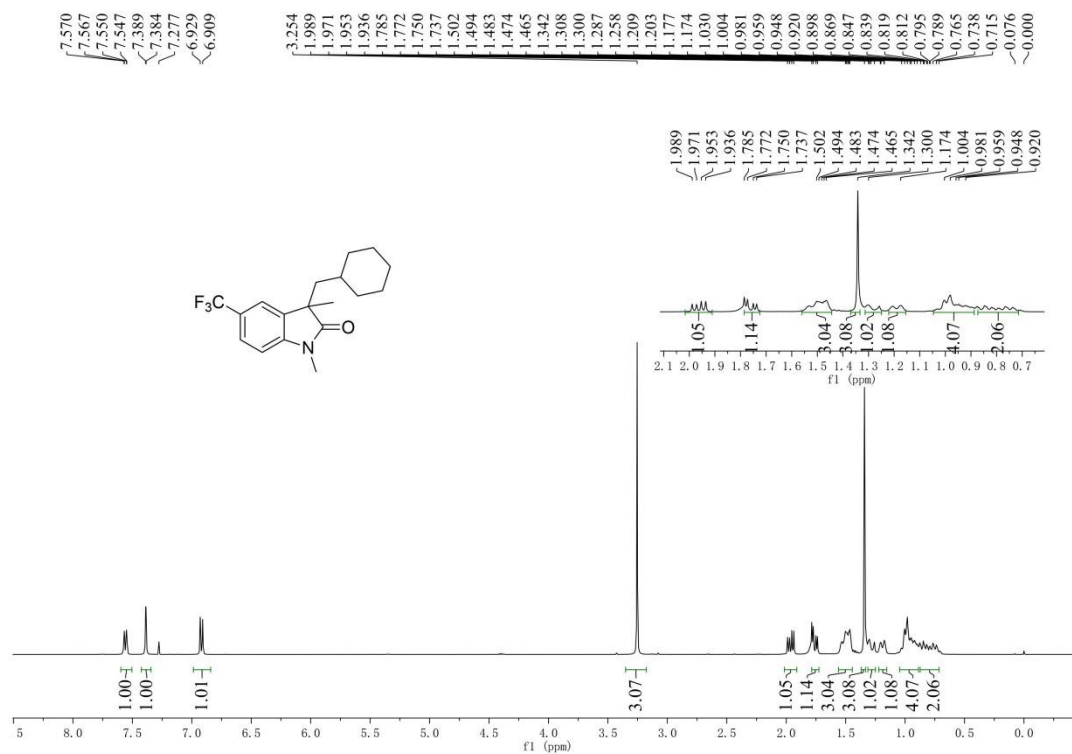
5-Bromo-3-(cyclohexylmethyl)-1,3-dimethylindolin-2-one (3ha)

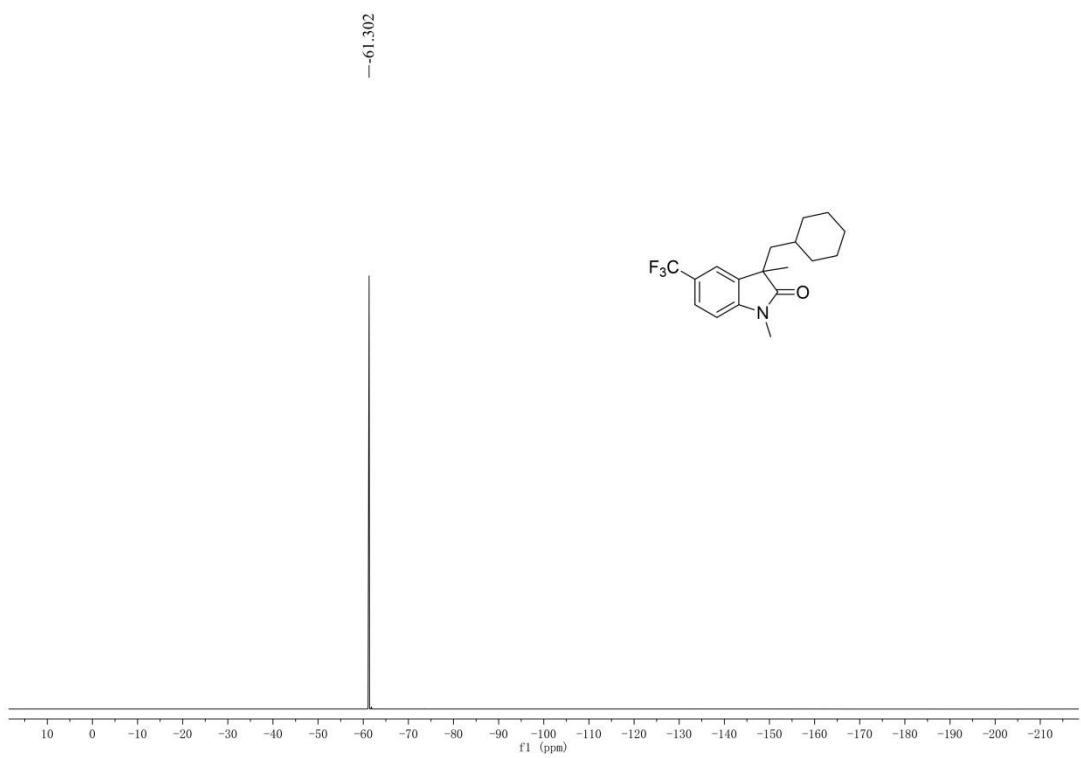


3-(Cyclohexylmethyl)-5-iodo-1,3-dimethylindolin-2-one (3ia)

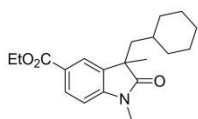
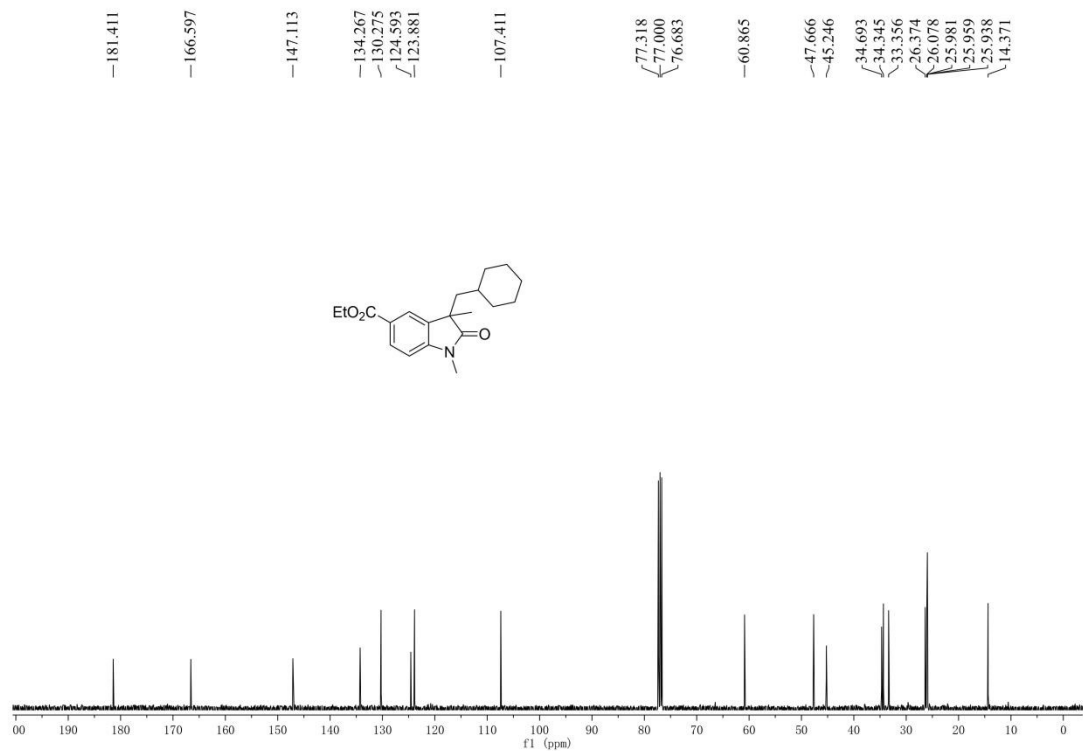
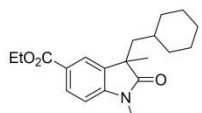
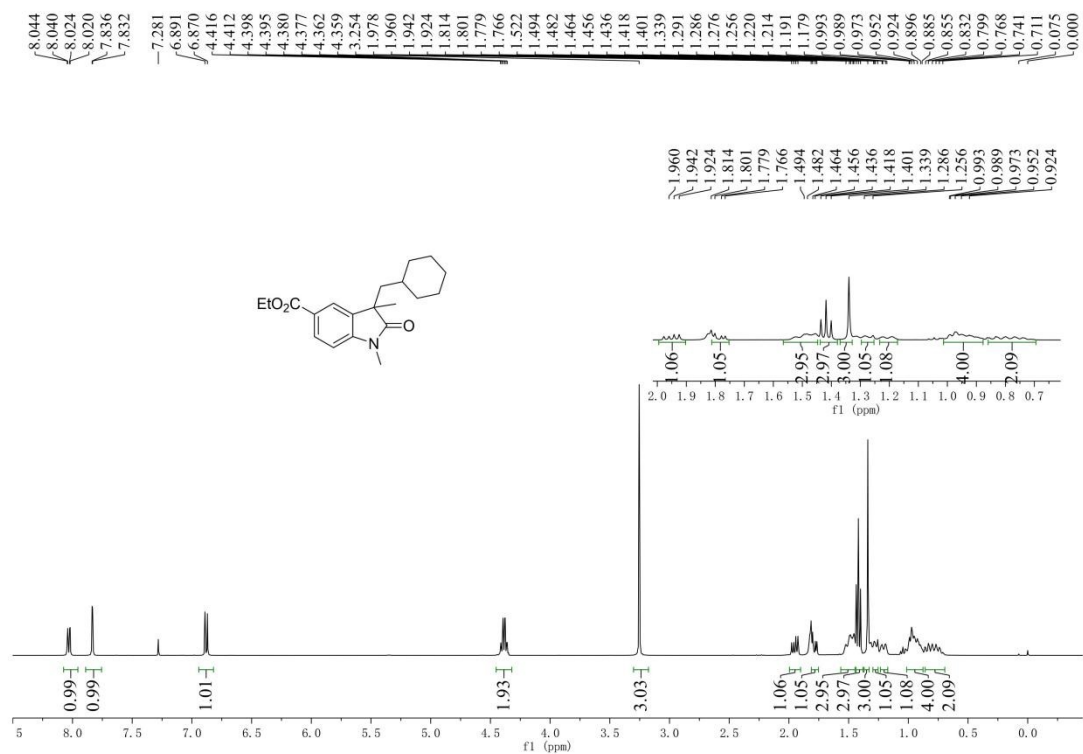


3-(Cyclohexylmethyl)-1,3-dimethyl-5-(trifluoromethyl)indolin-2-one (3ja)

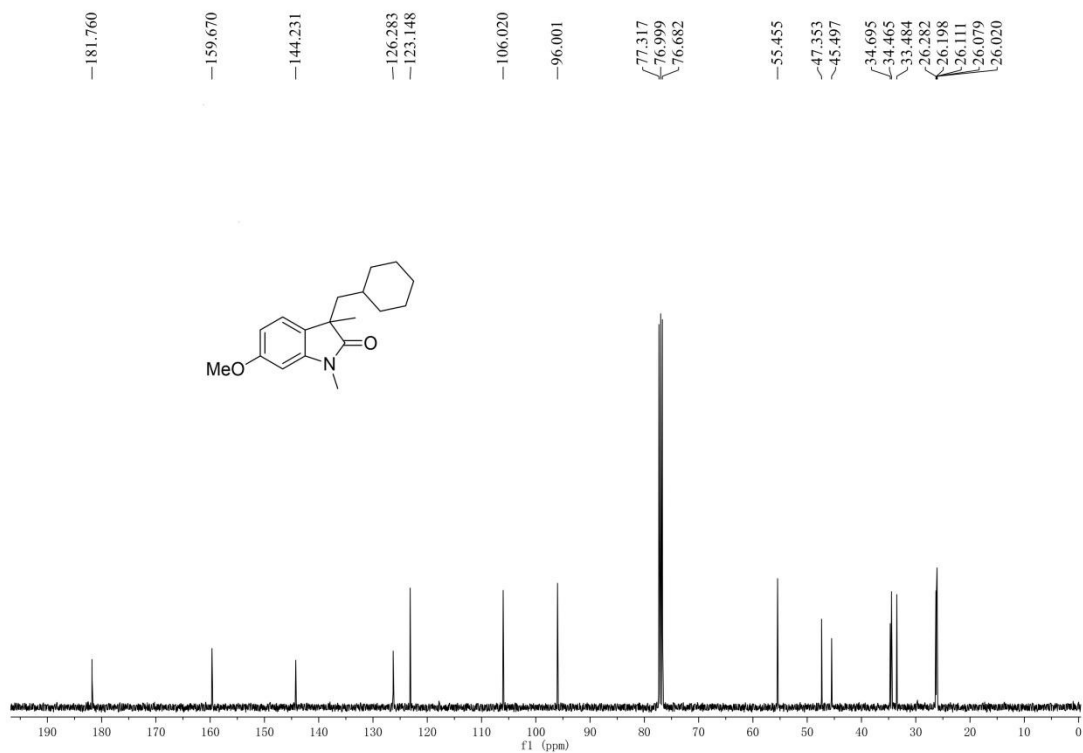
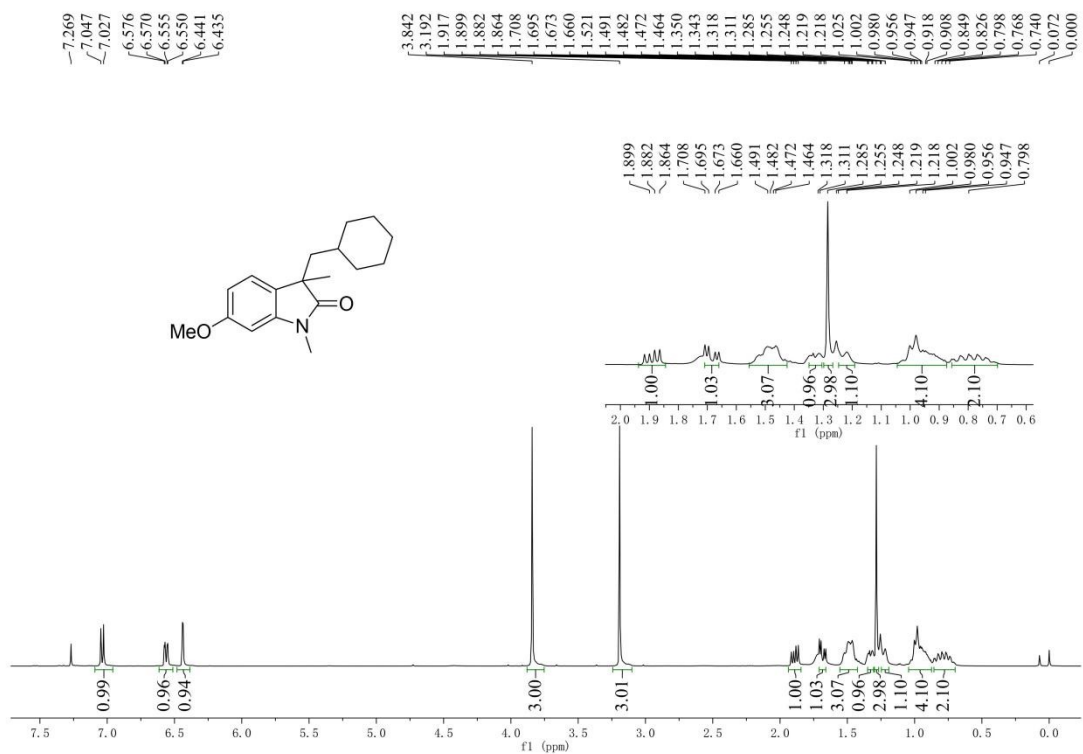




Ethyl 3-(cyclohexylmethyl)-1,3-dimethyl-2-oxindoline-5-carboxylate (3ka)



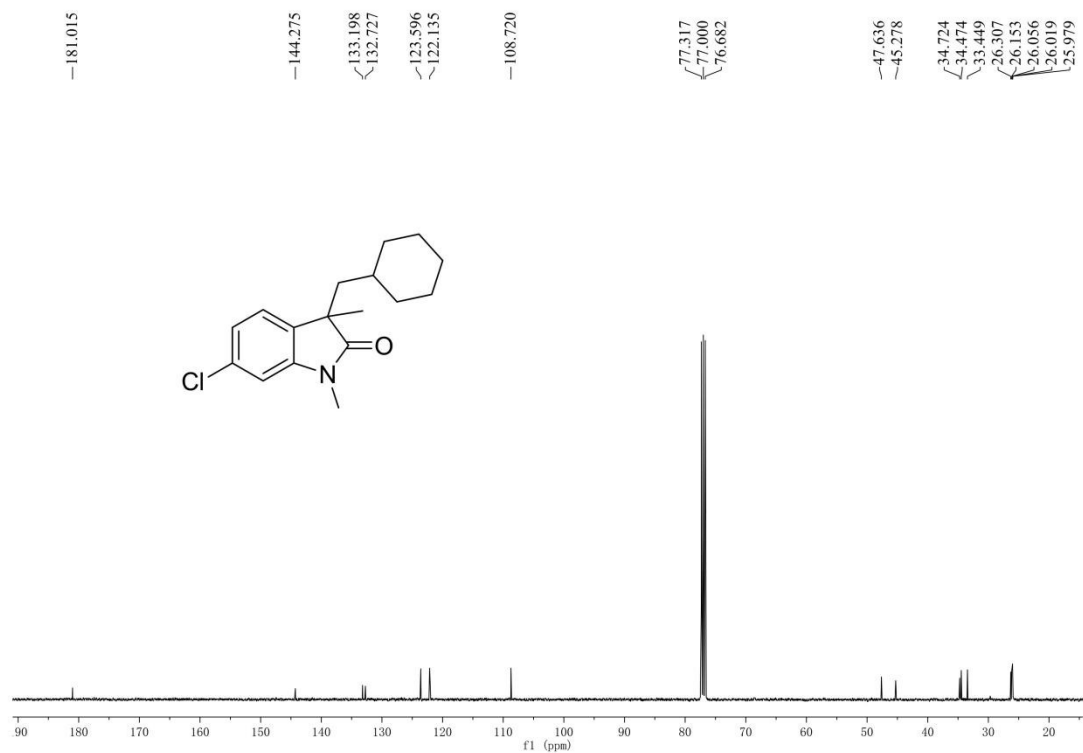
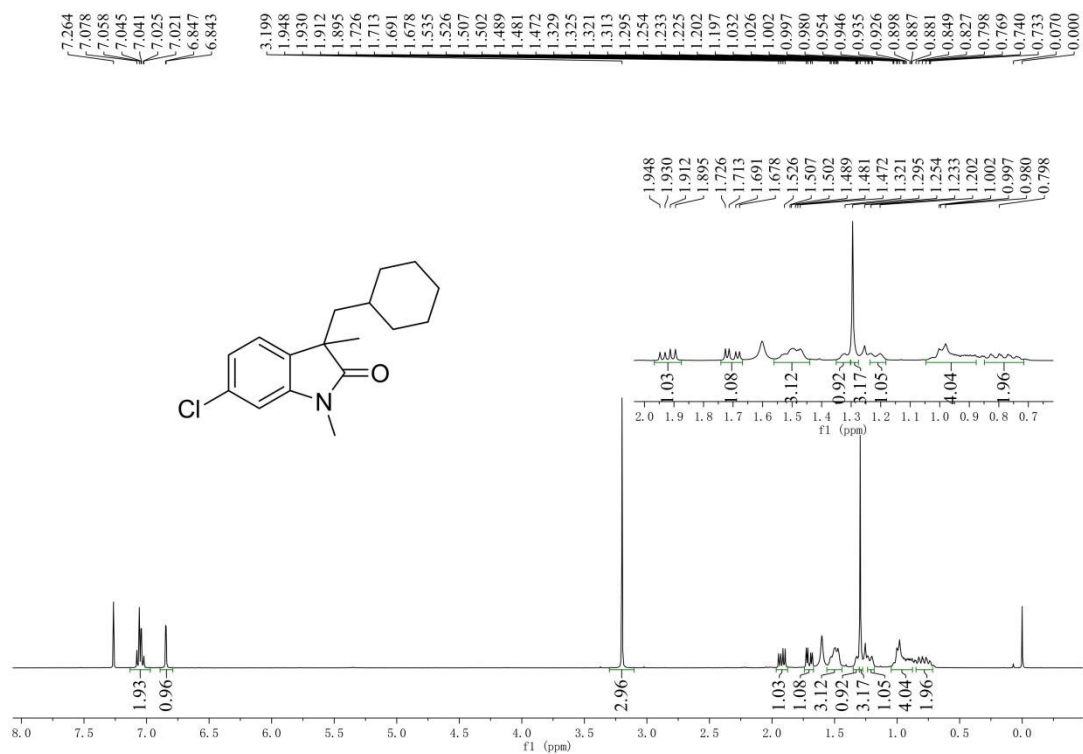
3-(Cyclohexylmethyl)-6-methoxy-1,3-dimethylindolin-2-one (31a)



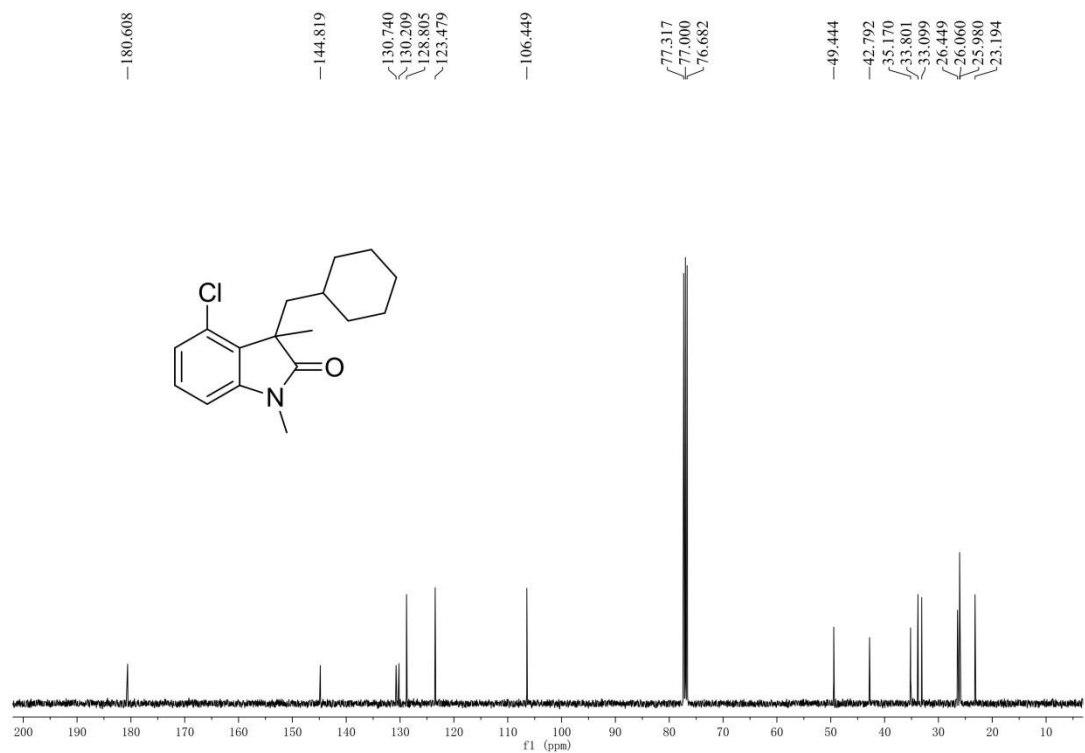
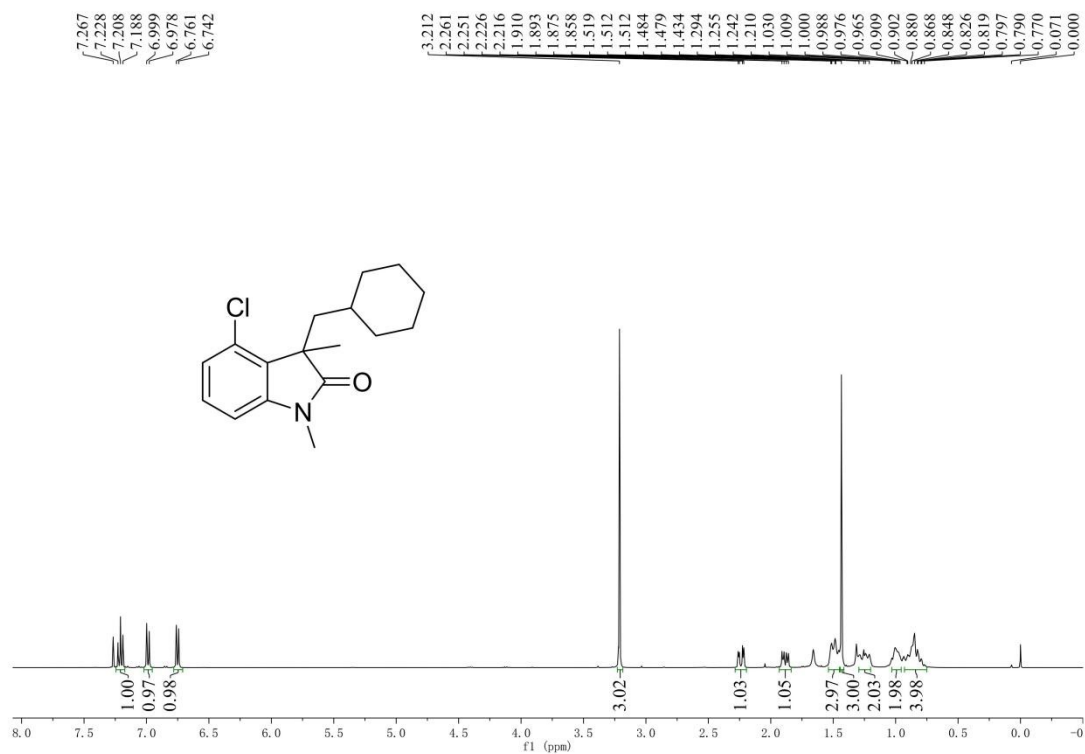
3-(Cyclohexylmethyl)-4-methoxy-1,3-dimethylindolin-2-one (3la')



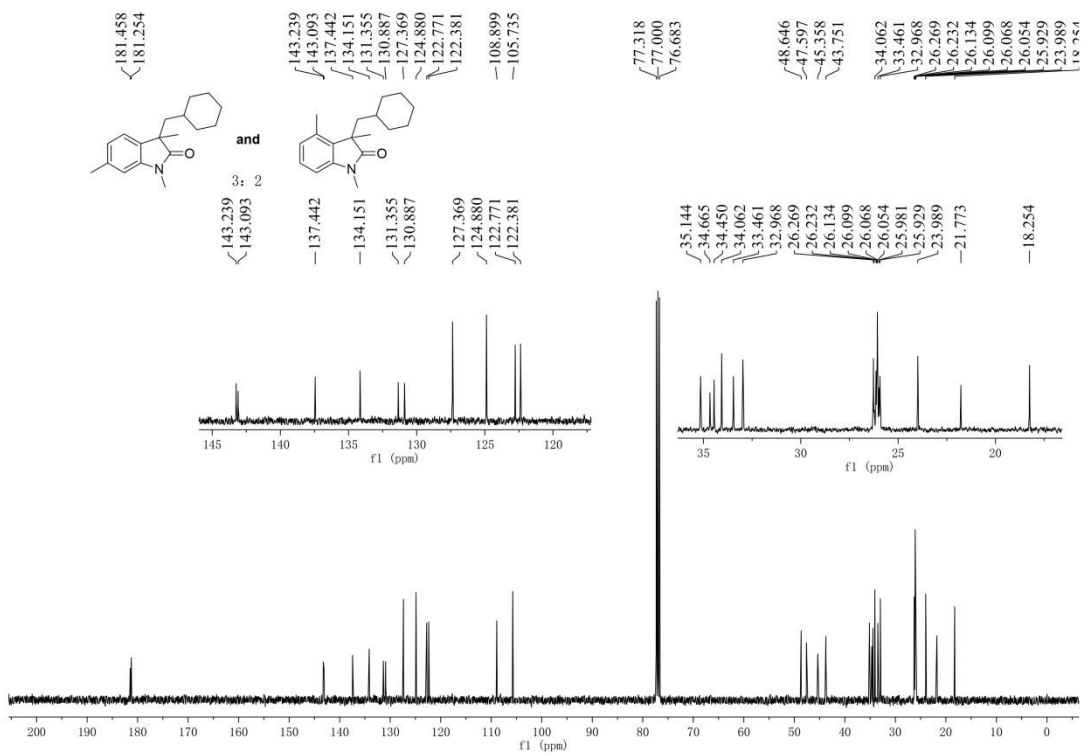
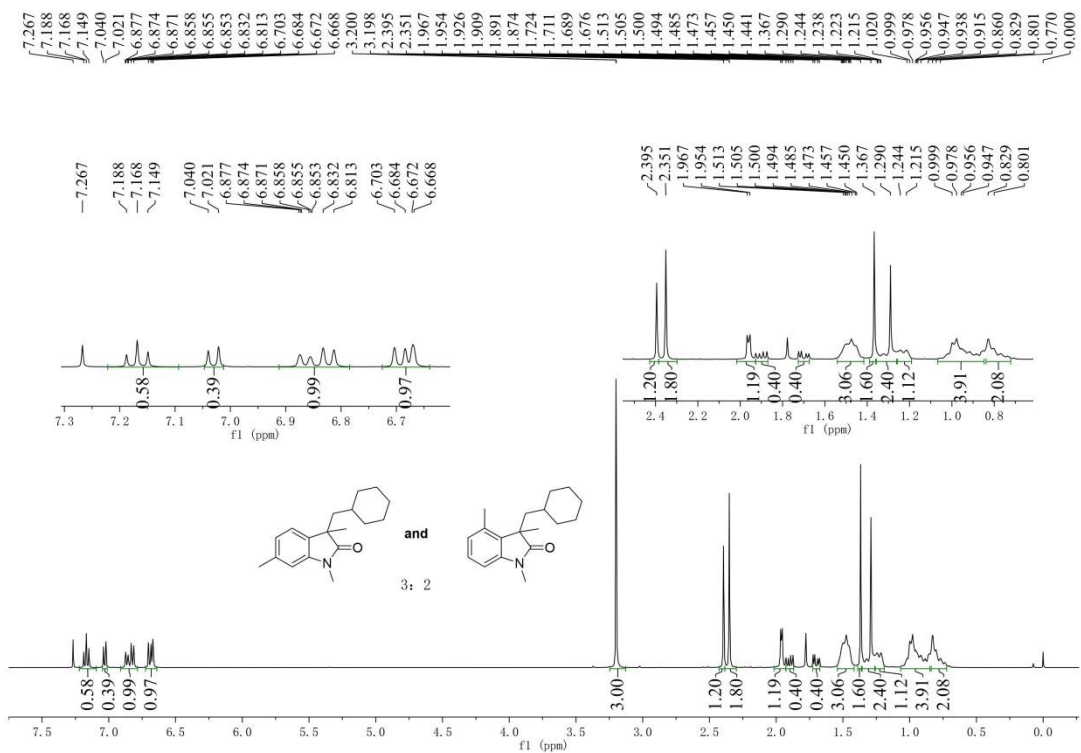
6-Chloro-3-(cyclohexylmethyl)-1,3-dimethylindolin-2-one (3ma)



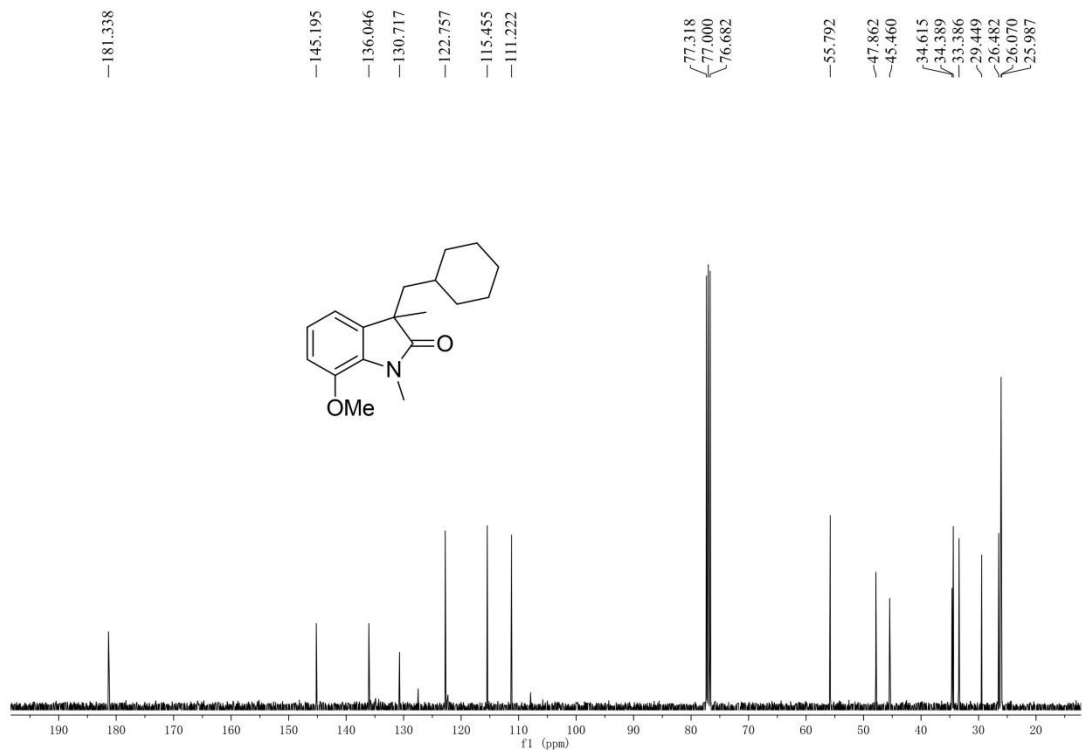
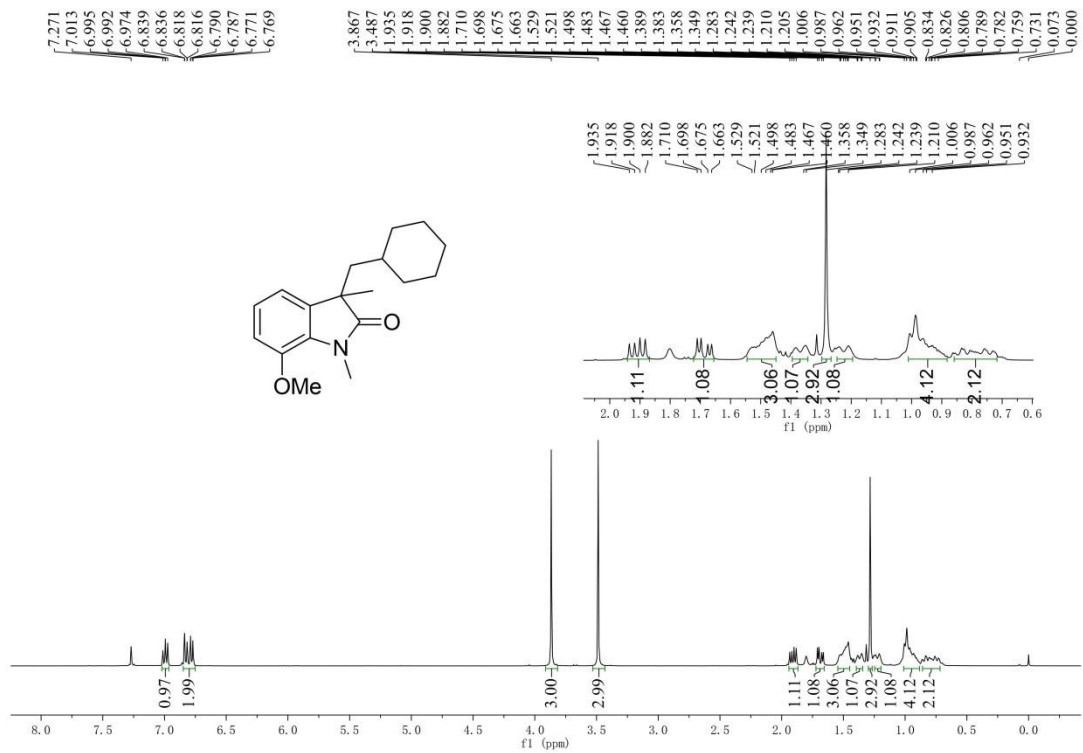
4-chloro-3-(cyclohexylmethyl)-1,3-dimethylindolin-2-one (3ma')



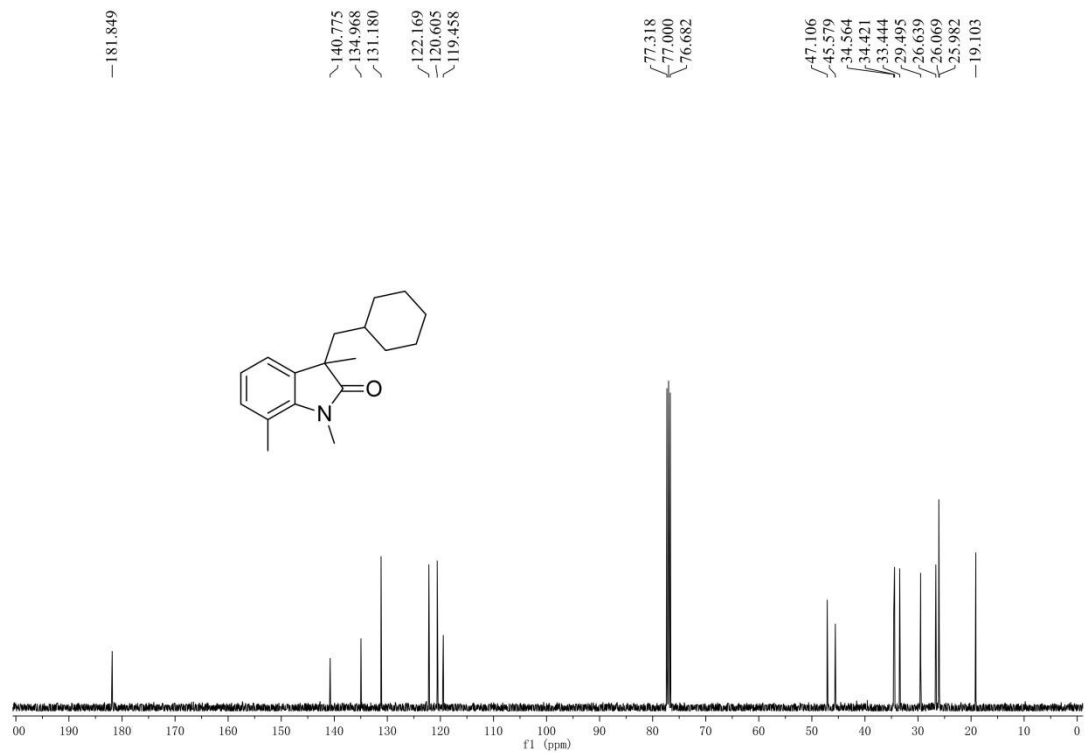
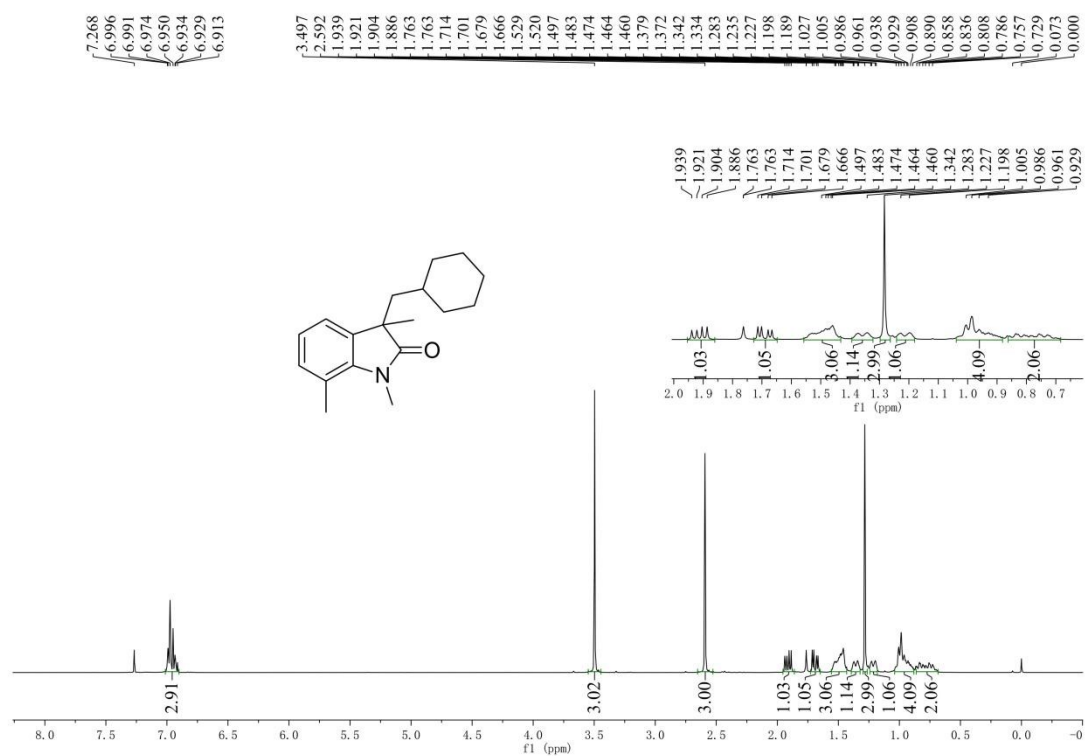
**(Cyclohexylmethyl)-1,3,6-trimethylindolin-2-one (3na) and 3-
(Cyclohexylmethyl)-1,3,4-trimethylindolin-2-one (3na')**



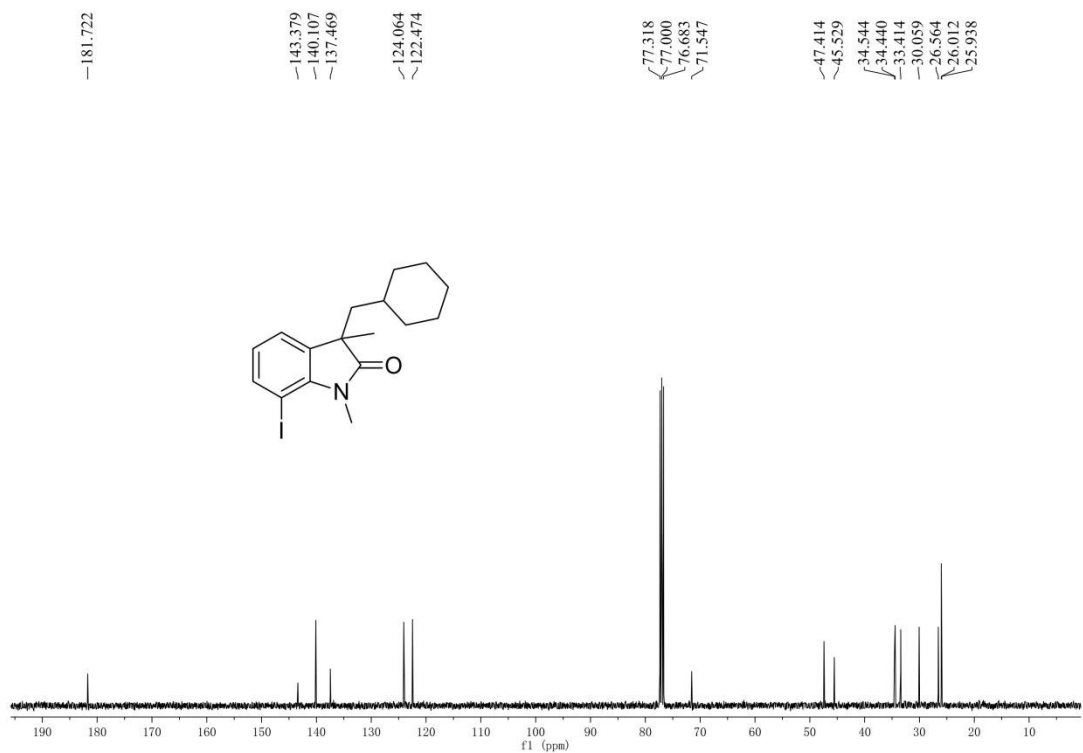
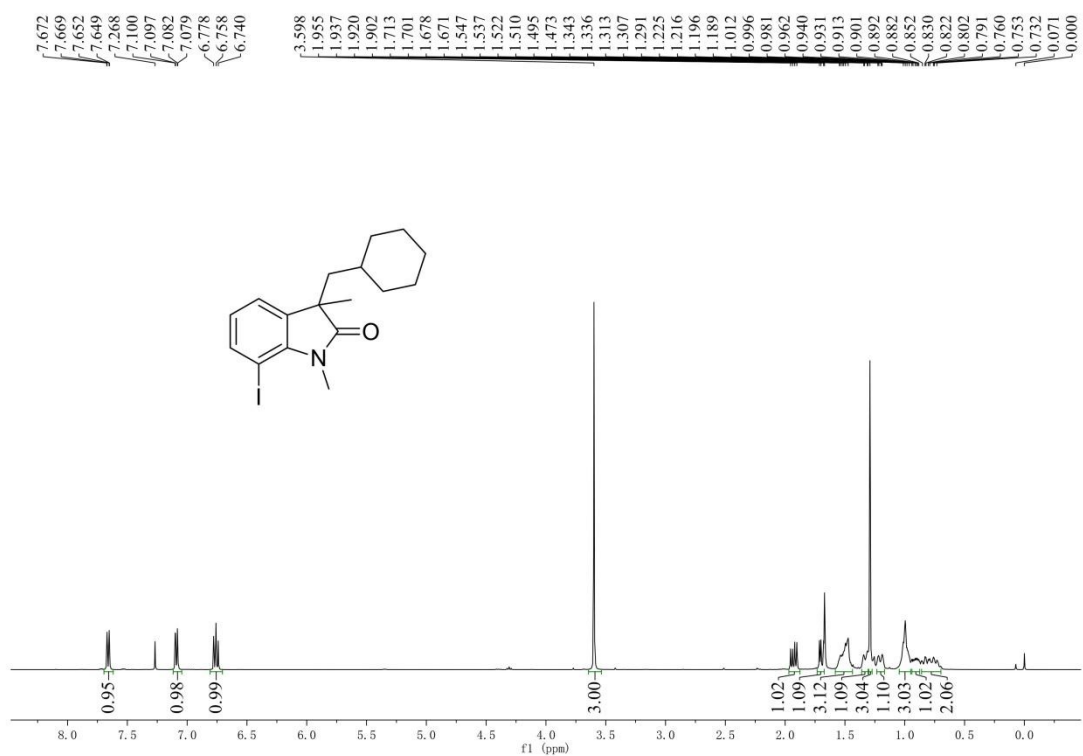
3-(Cyclohexylmethyl)-7-methoxy-1,3-dimethylindolin-2-one (30a)



3-(Cyclohexylmethyl)-1,3,7-trimethylindolin-2-one (3pa)



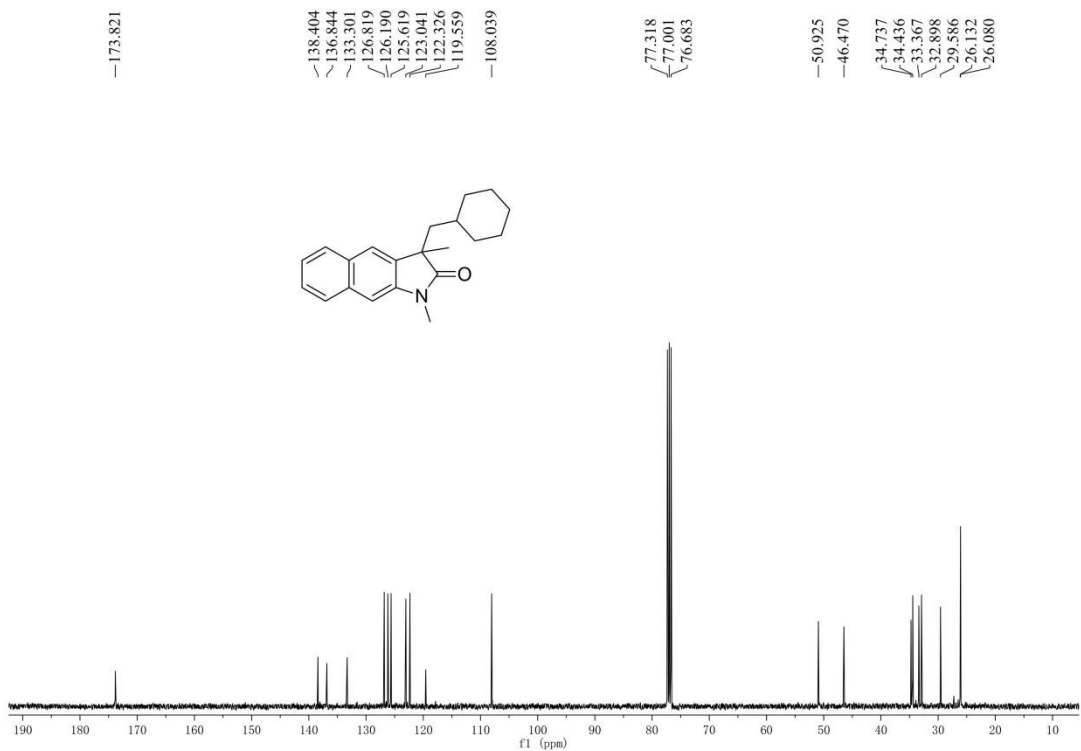
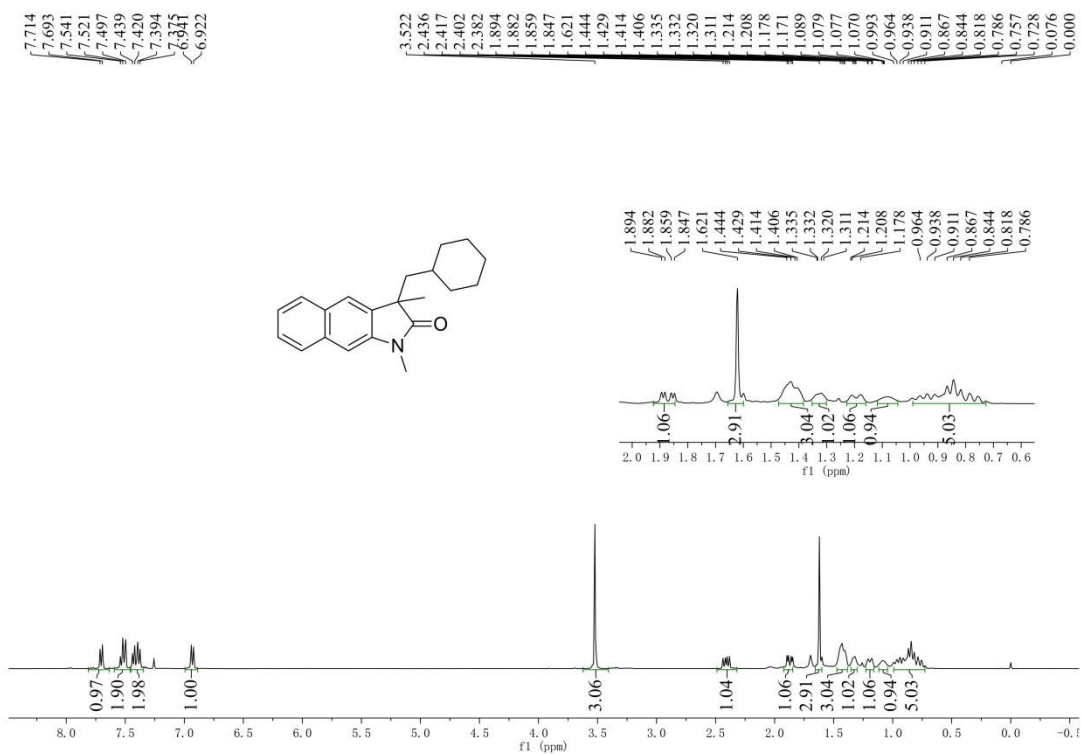
3-(Cyclohexylmethyl)-7-iodo-1,3-dimethylindolin-2-one (3qa)



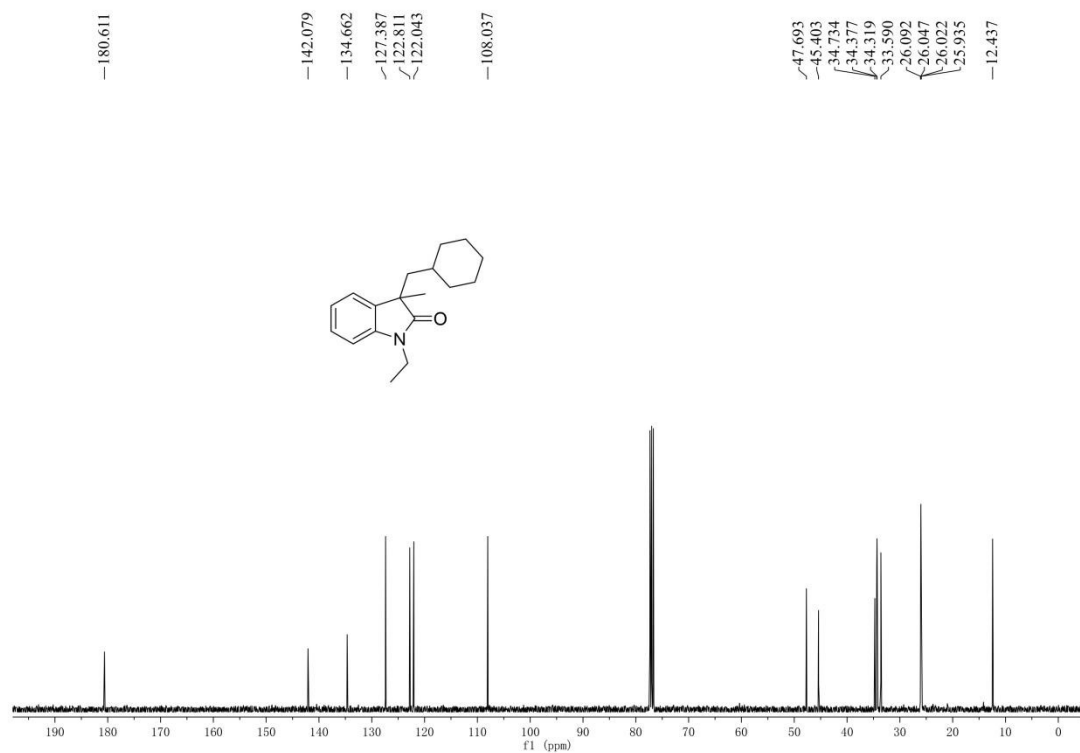
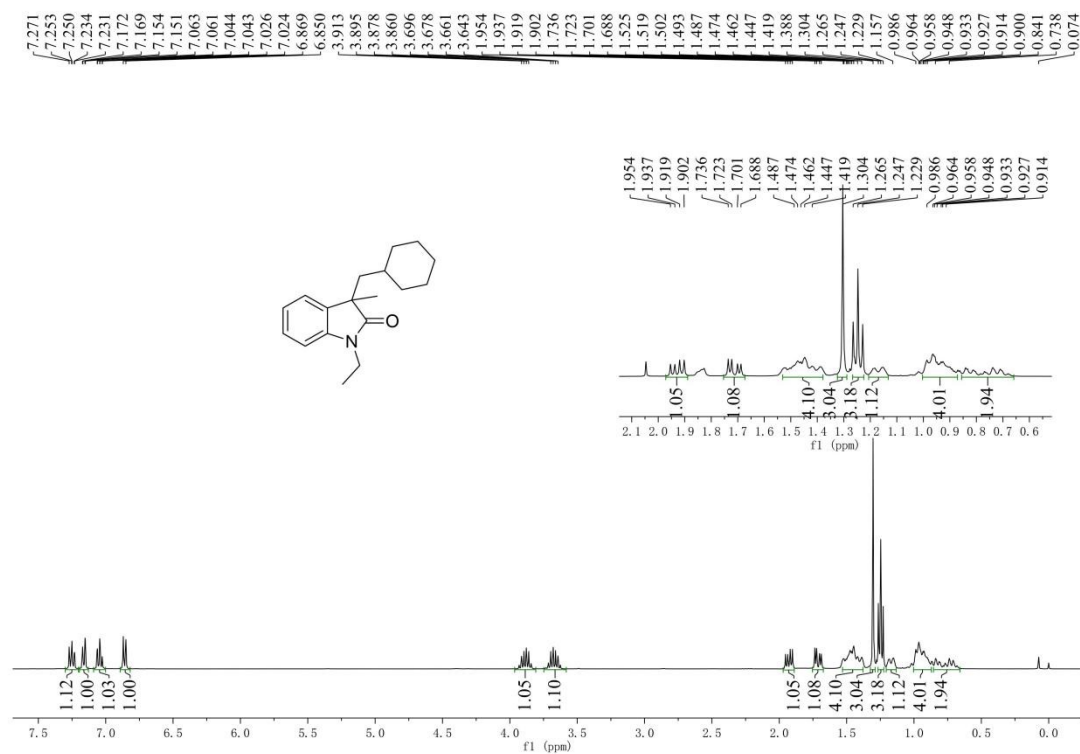
**3-(Cyclohexylmethyl)-1,3-dimethyl-1H-pyrrolo[2,3-b]pyridin-2(3H)-one
(3ra)**



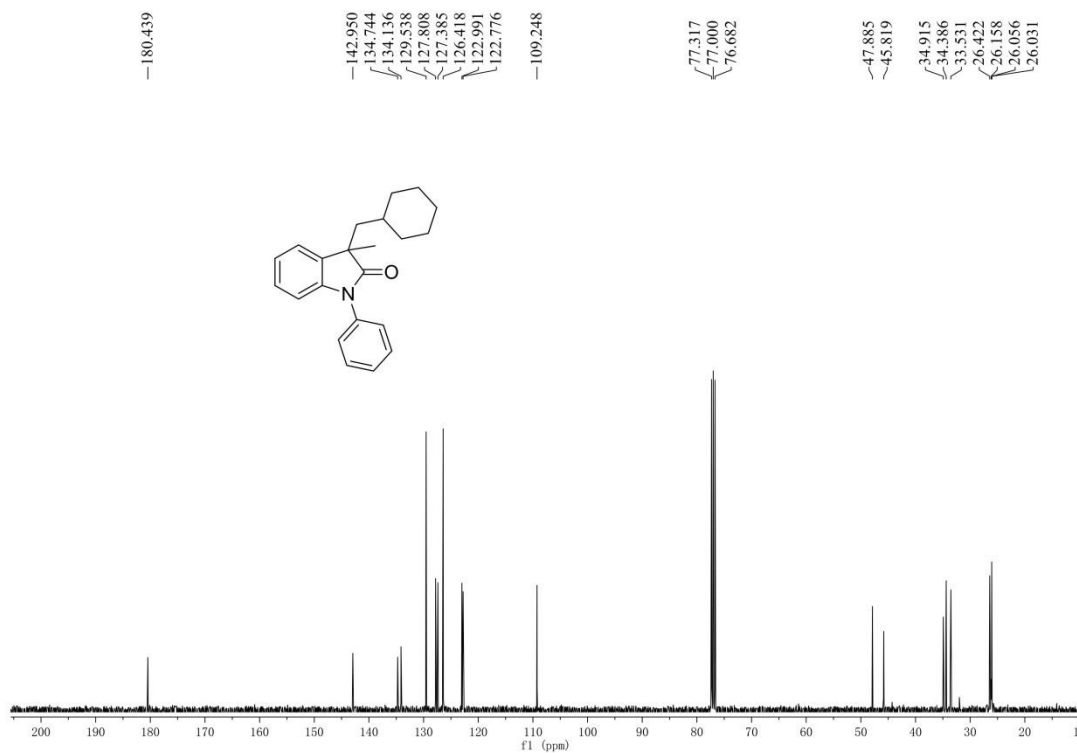
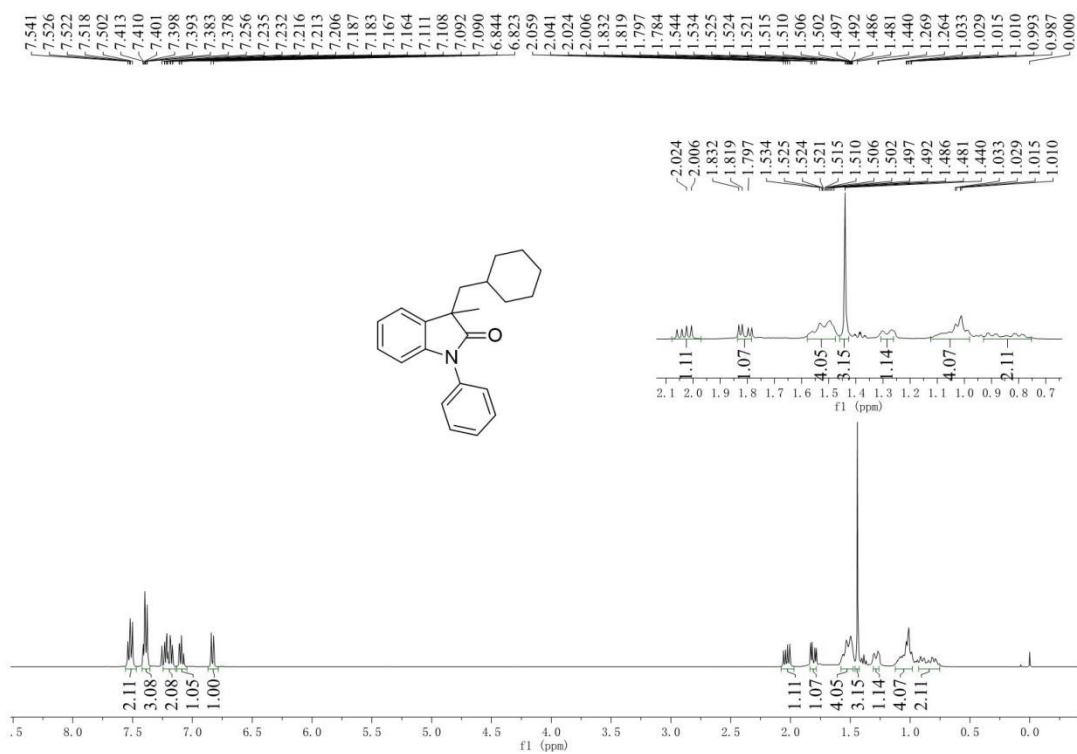
3-(Cyclohexylmethyl)-1,3-dimethyl-1H-benzo[f]indol-2(3H)-one (3sa)



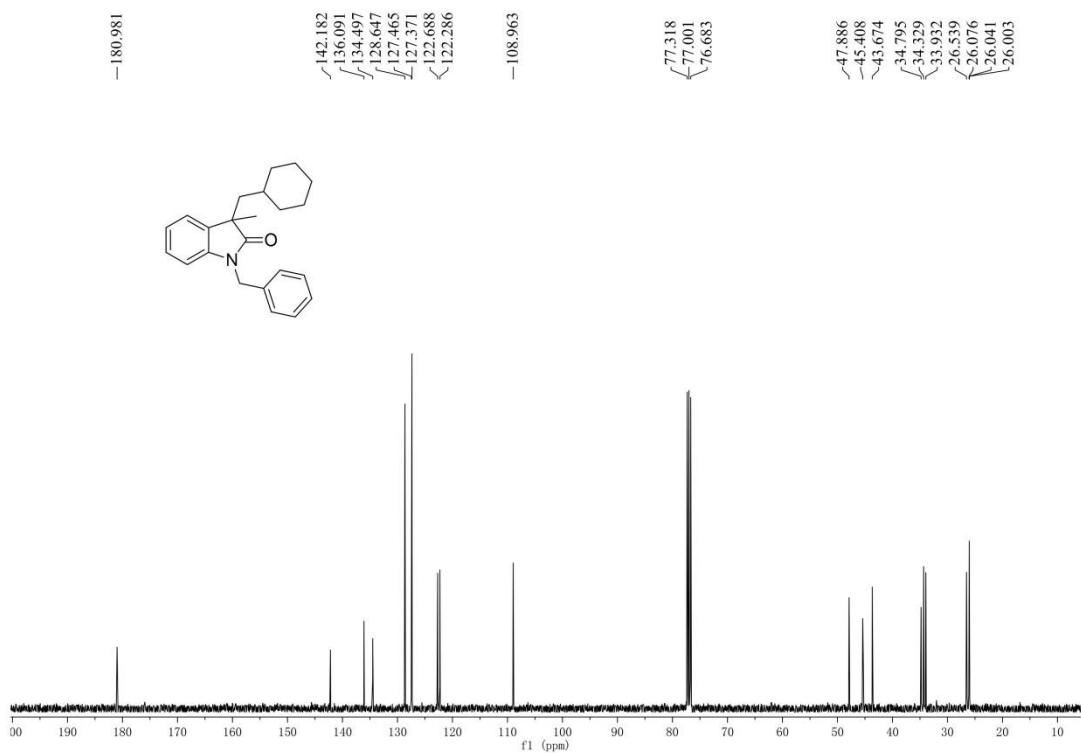
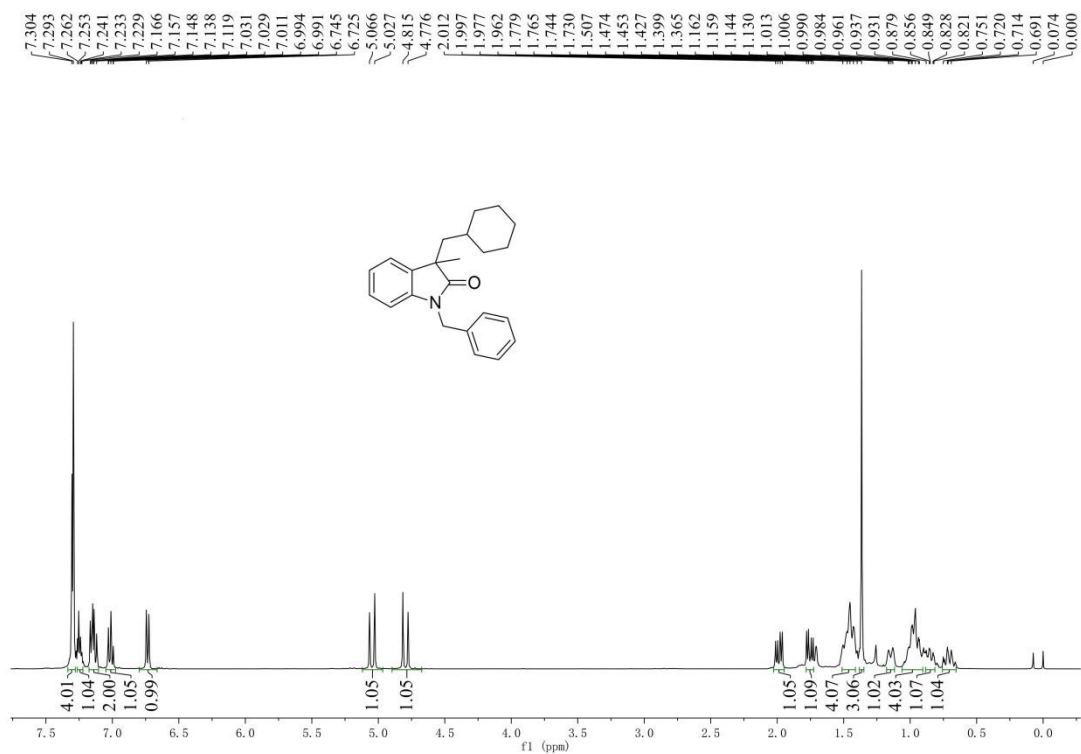
3-(Cyclohexylmethyl)-1-ethyl-3-methylindolin-2-one (3ta)



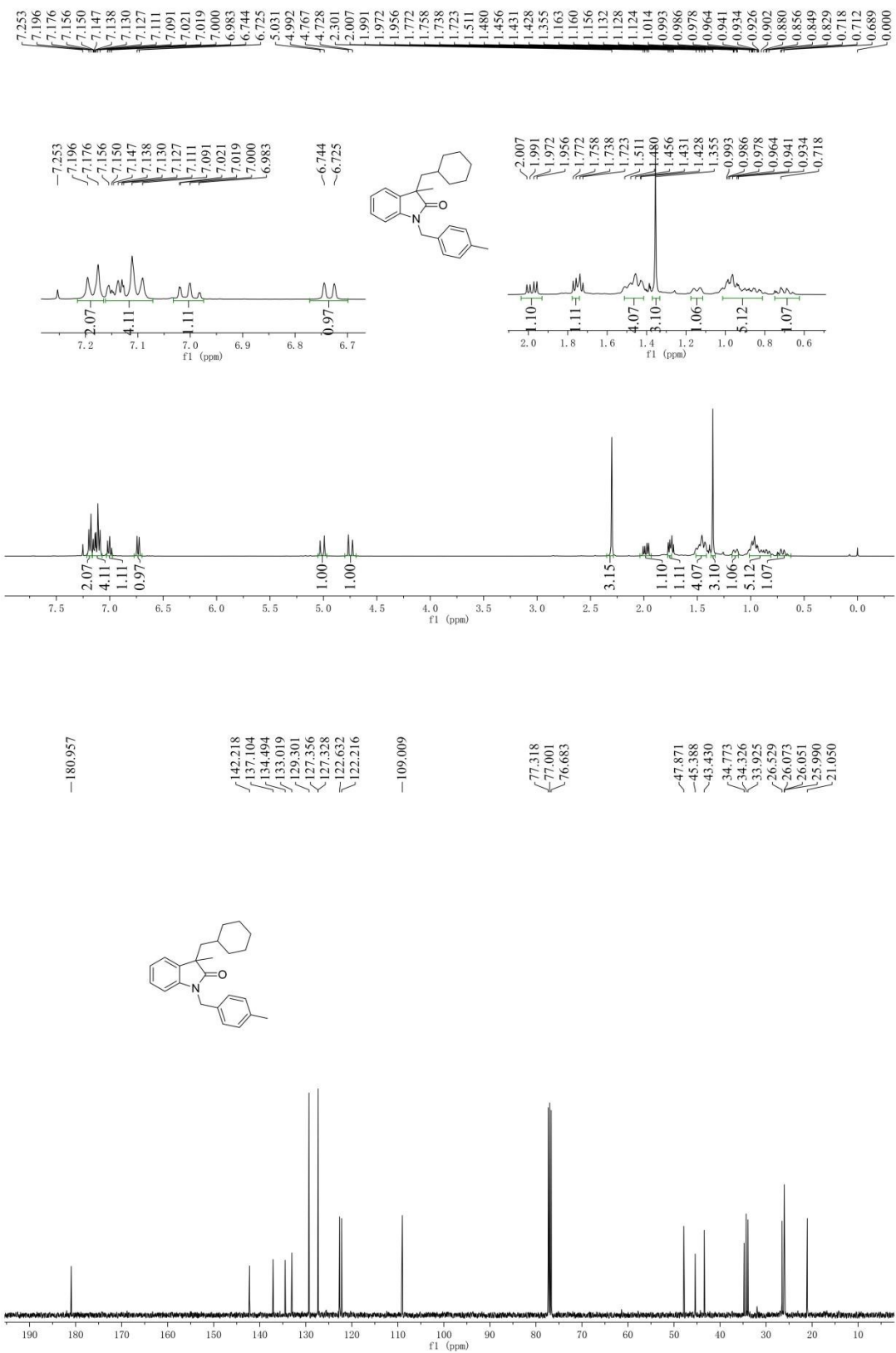
3-(Cyclohexylmethyl)-3-methyl-1-phenylindolin-2-one (3ua)



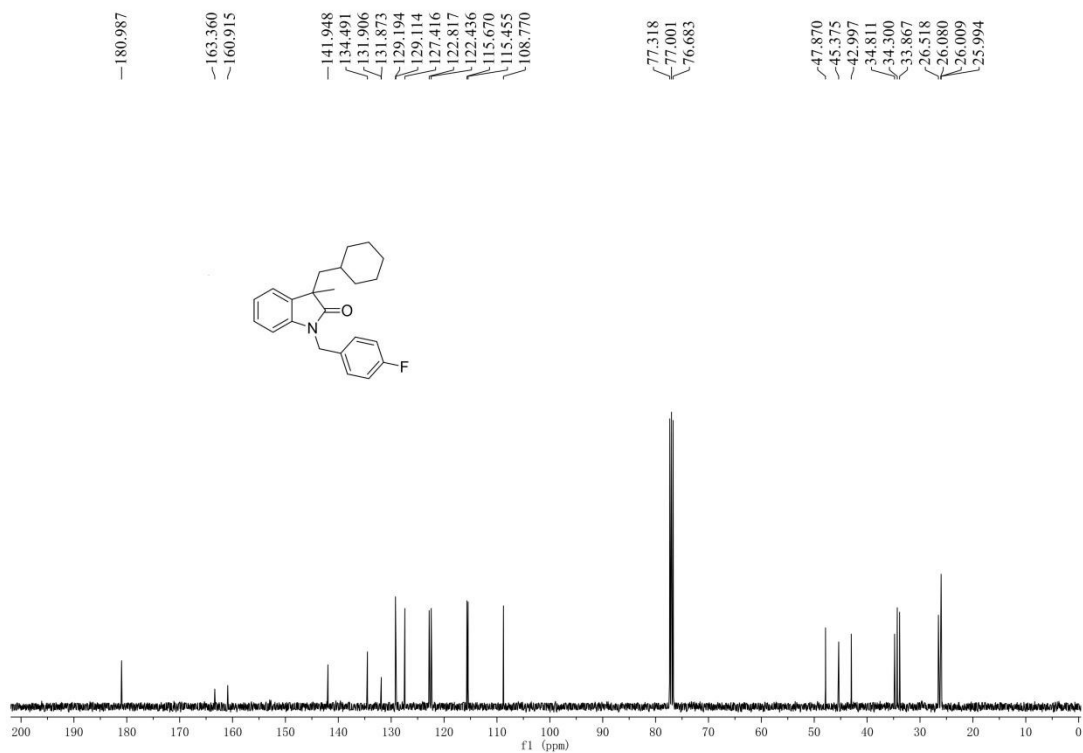
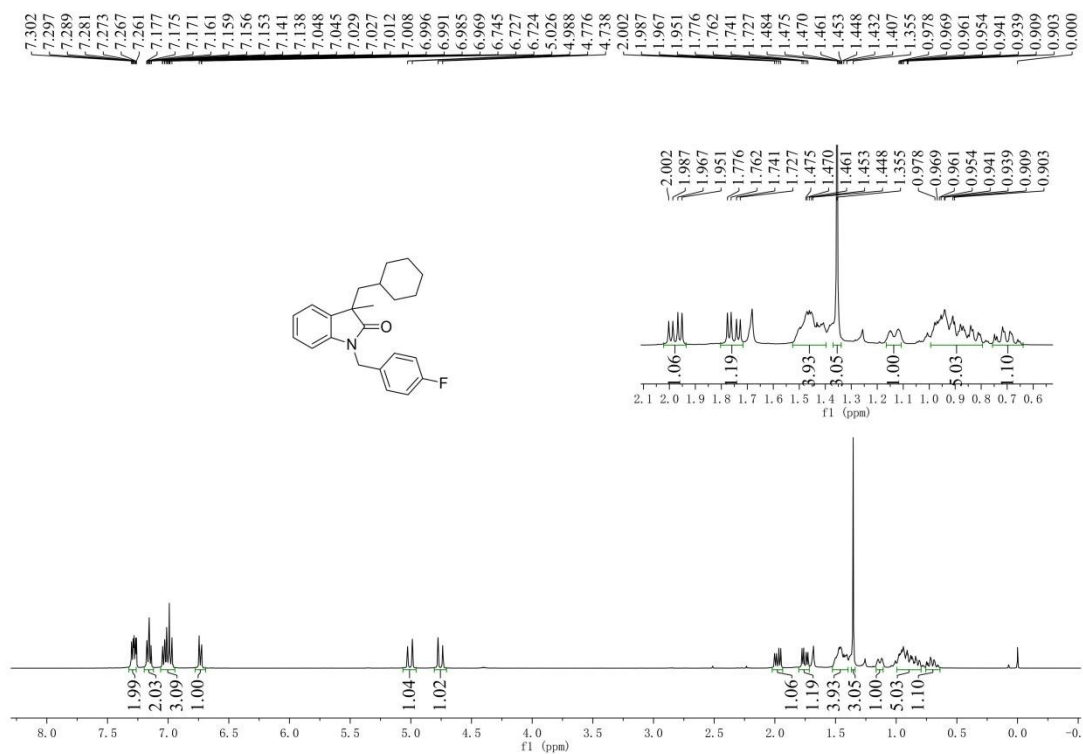
1-Benzyl-3-(cyclohexylmethyl)-3-methylindolin-2-one (3va)

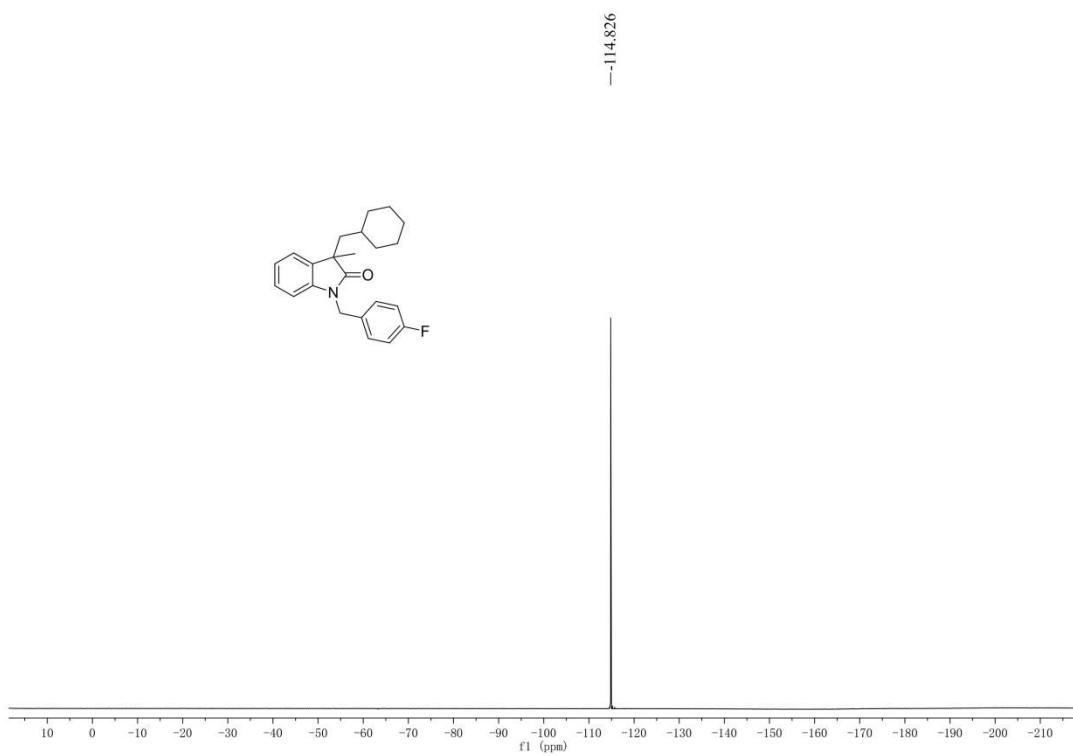


3-(Cyclohexylmethyl)-3-methyl-1-(4-methylbenzyl)indolin-2-one (3wa)

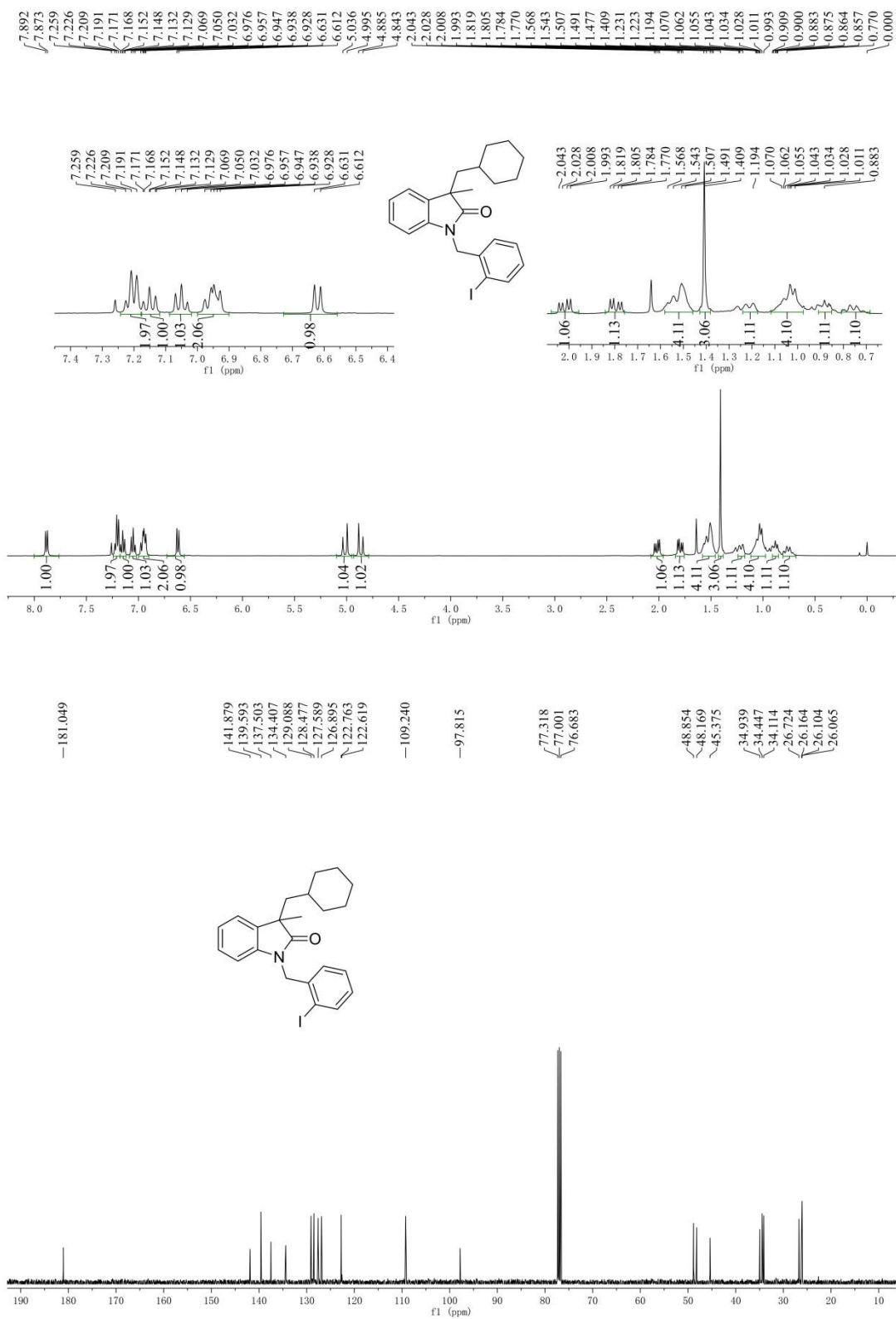


3-(Cyclohexylmethyl)-1-(4-fluorobenzyl)-3-methylindolin-2-one (3xa)

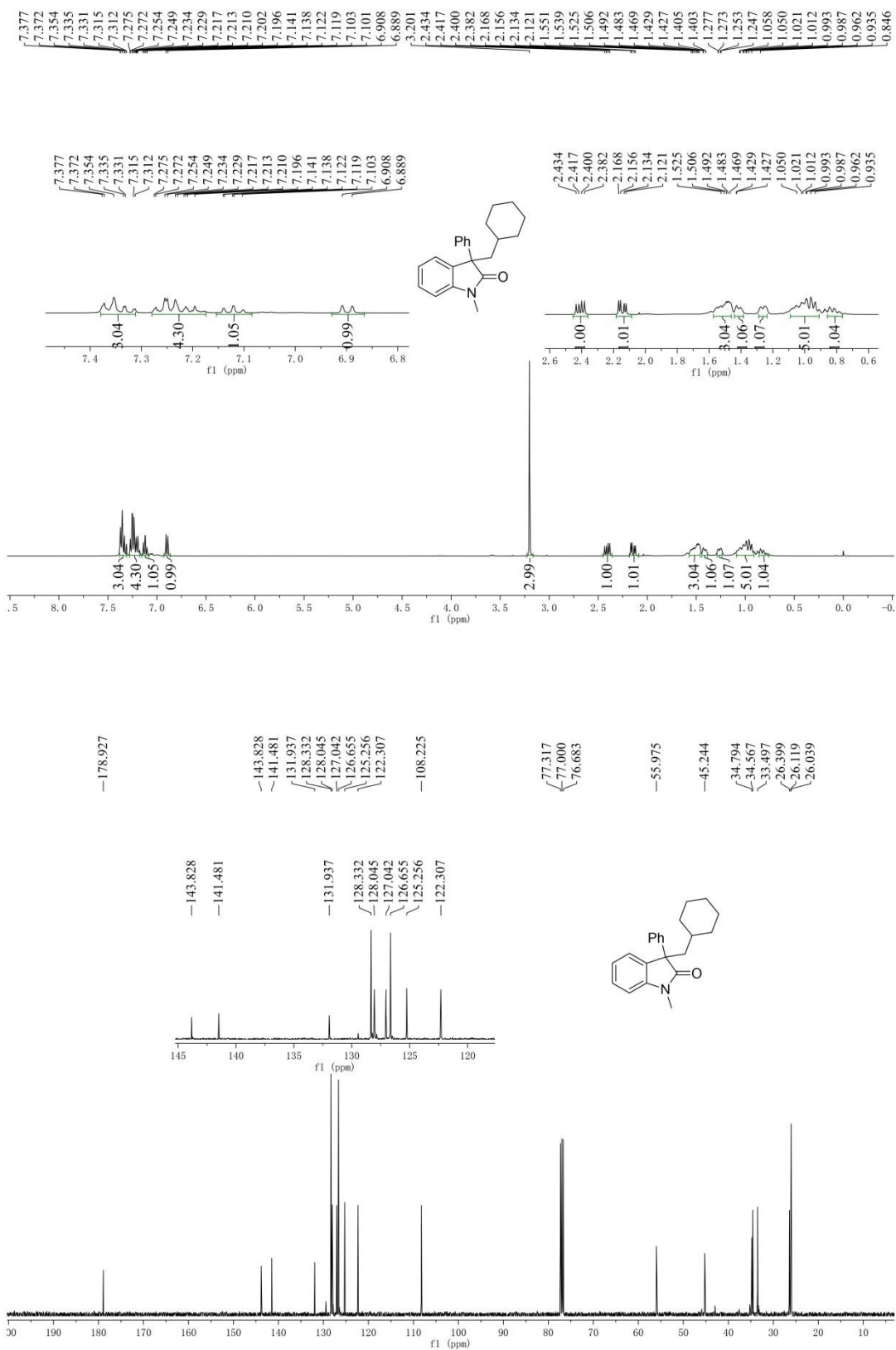




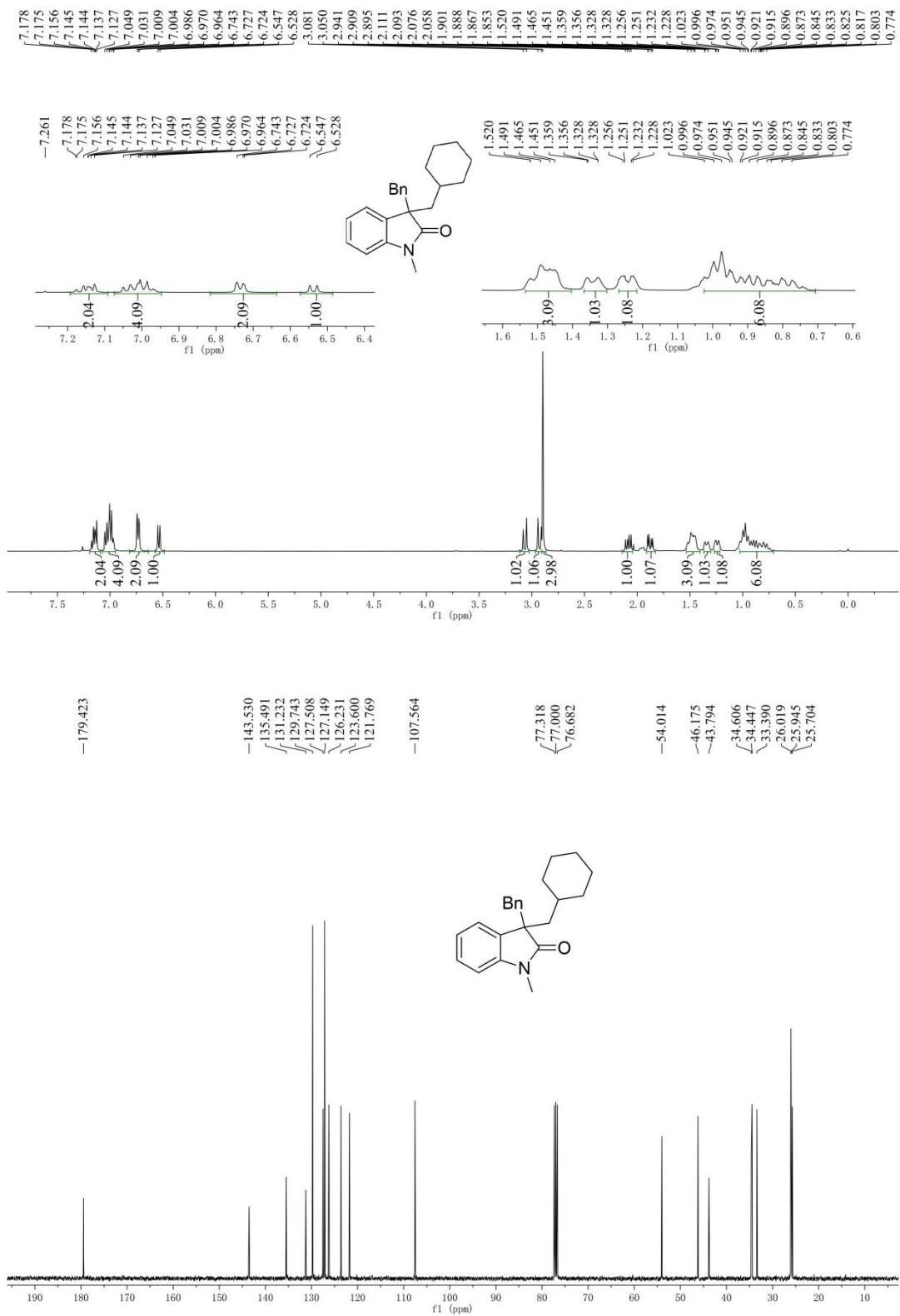
3-(Cyclohexylmethyl)-1-(2-iodobenzyl)-3-methylindolin-2-one (3ya)



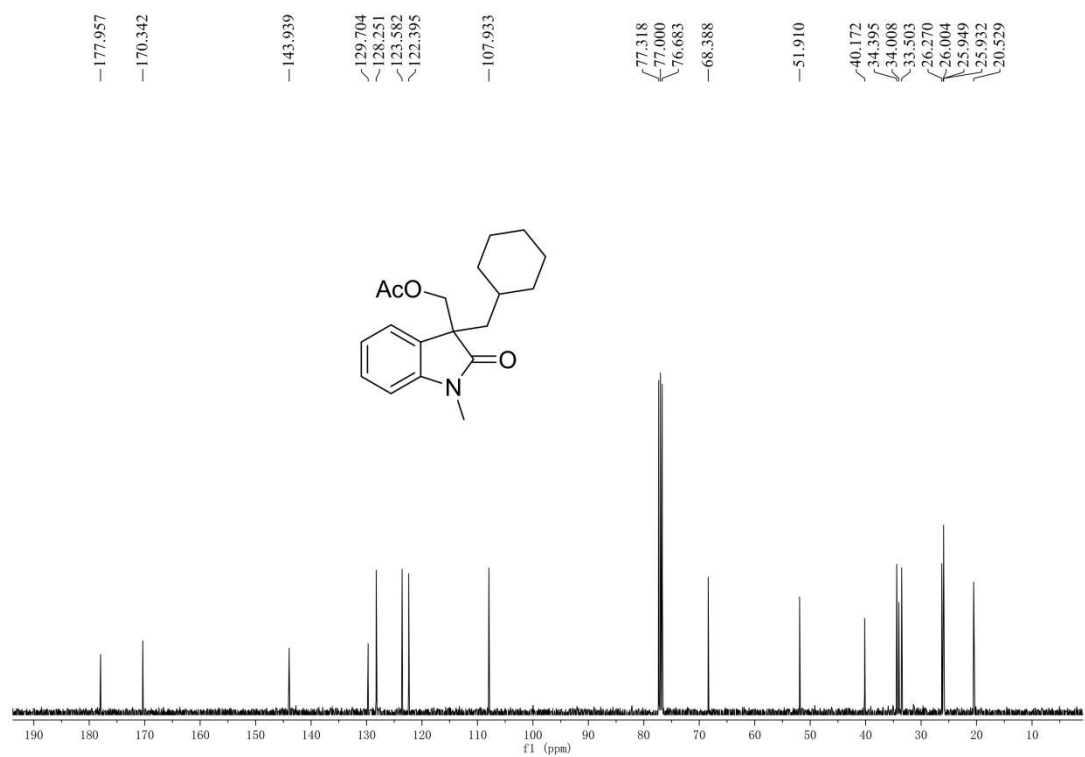
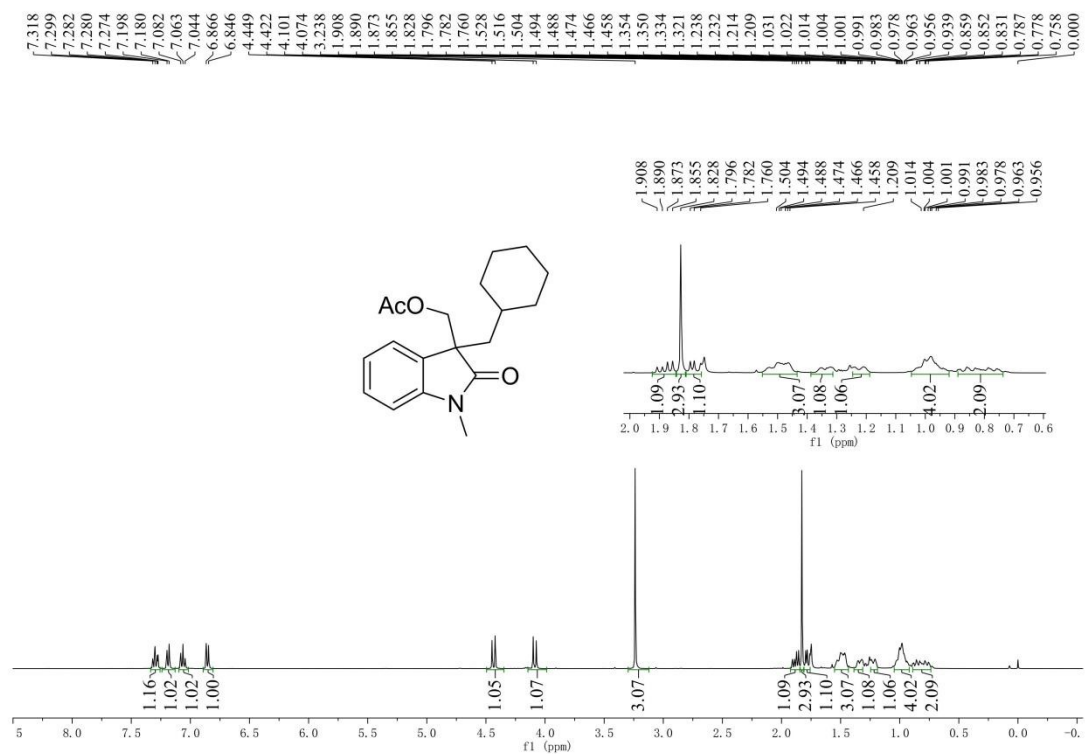
3-(Cyclohexylmethyl)-1-methyl-3-phenylindolin-2-one (3aaa)



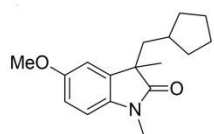
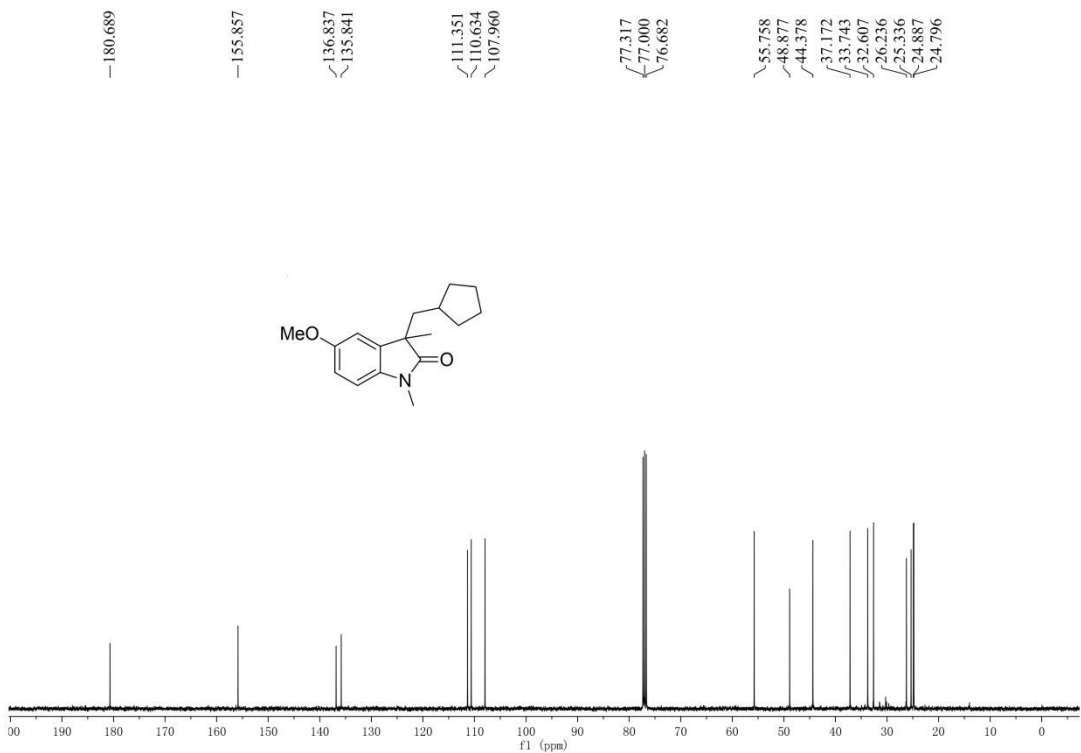
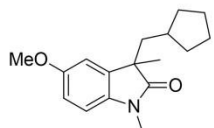
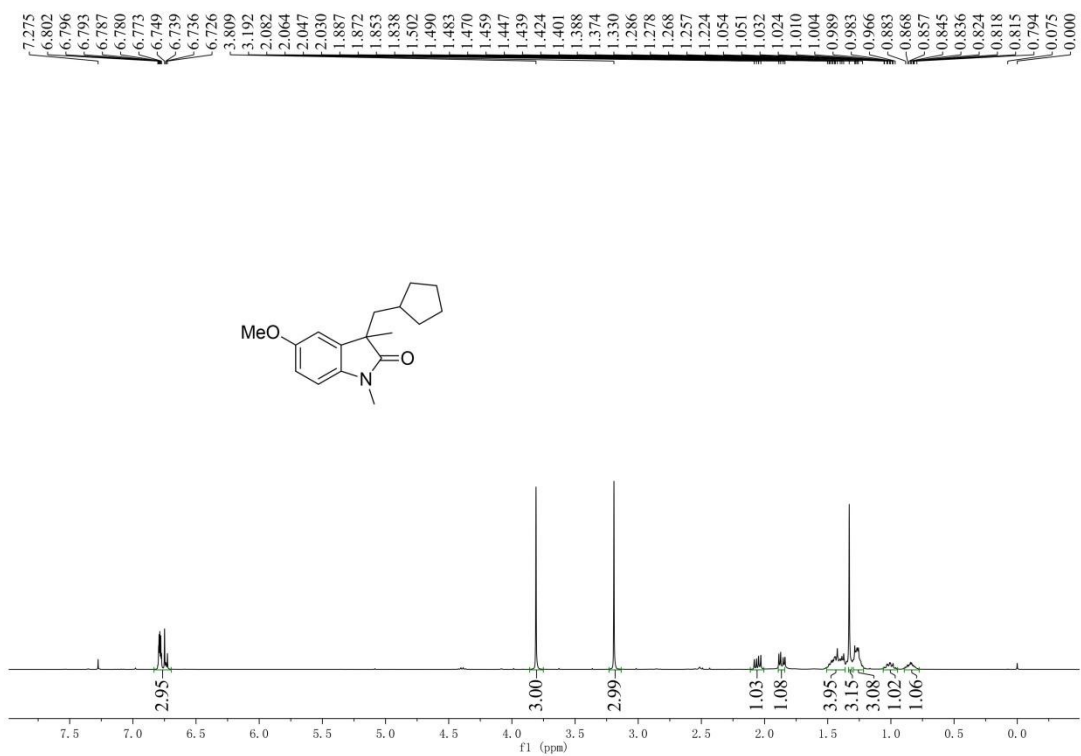
3-Benzyl-3-(cyclohexylmethyl)-1-methylindolin-2-one (3aba)



(3-(Cyclohexylmethyl)-1-methyl-2-oxindolin-3-yl)methyl acetate (3aca)



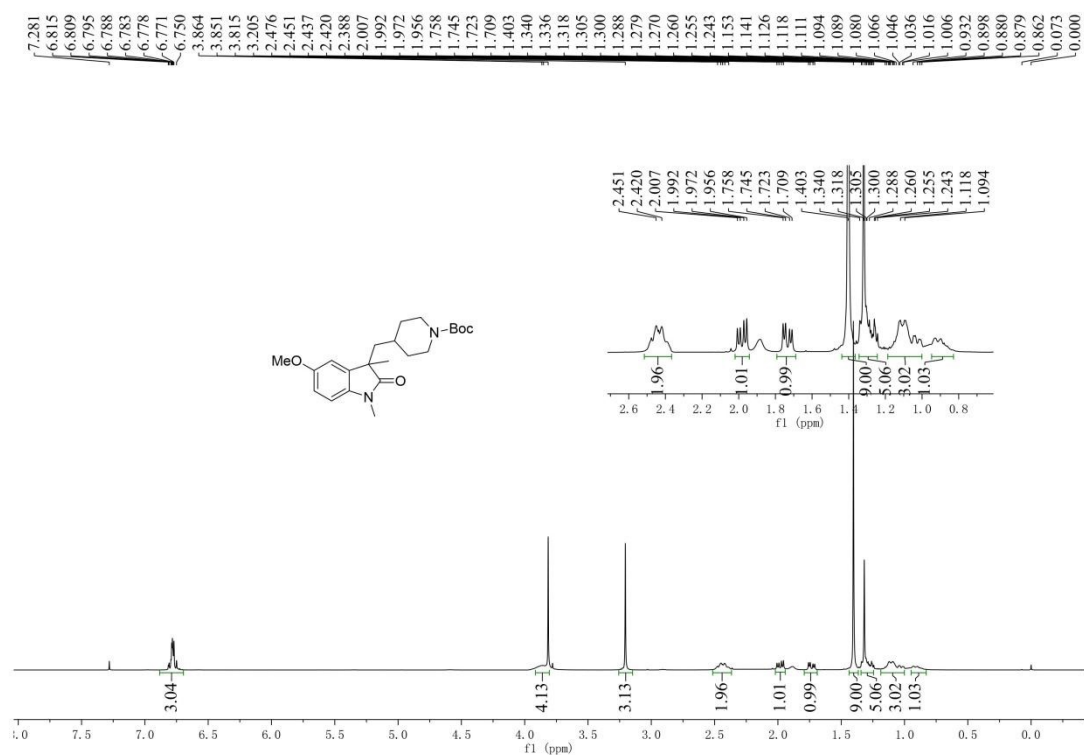
3-(Cyclopentylmethyl)-5-methoxy-1,3-dimethylindolin-2-one (3ab)



3-(Cyclohex-3-en-1-ylmethyl)-5-methoxy-1,3-dimethylindolin-2-one (3ac)



Tert-butyl 4-((5-methoxy-1,3-dimethyl-2-oxindolin-3-yl)methyl)piperidine-1-carboxylate (3ad)



180.331

155.981
154.600

136.474
135.440

111.504
110.418
108.312

79.112
77.318
77.001
76.682

55.734

48.083

44.347

33.109

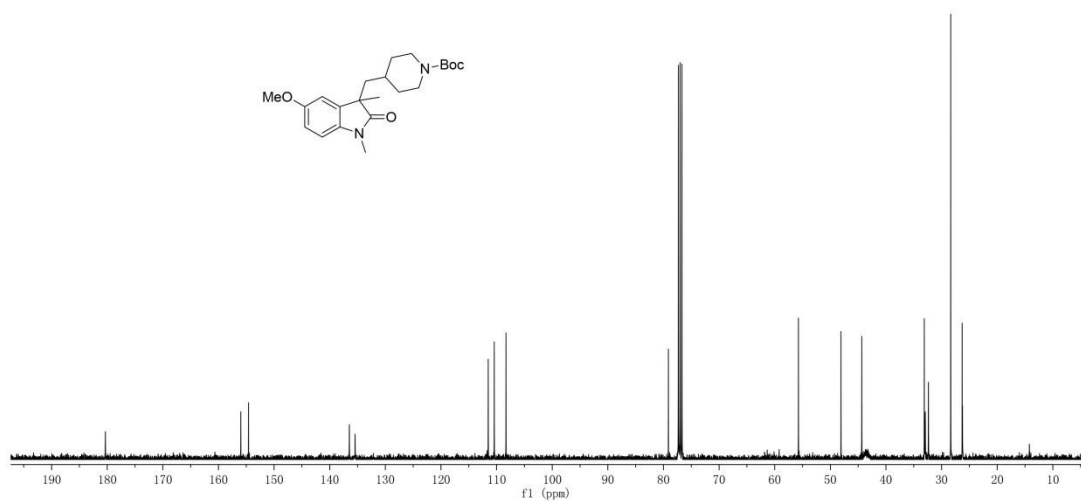
32.938

32.367

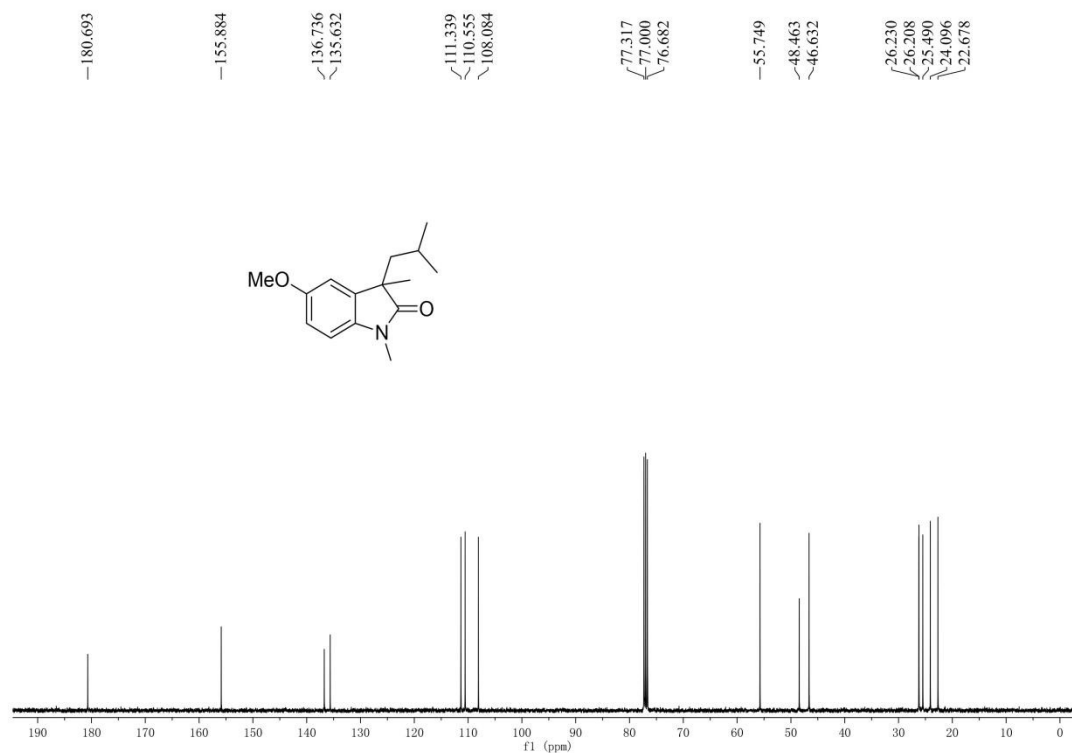
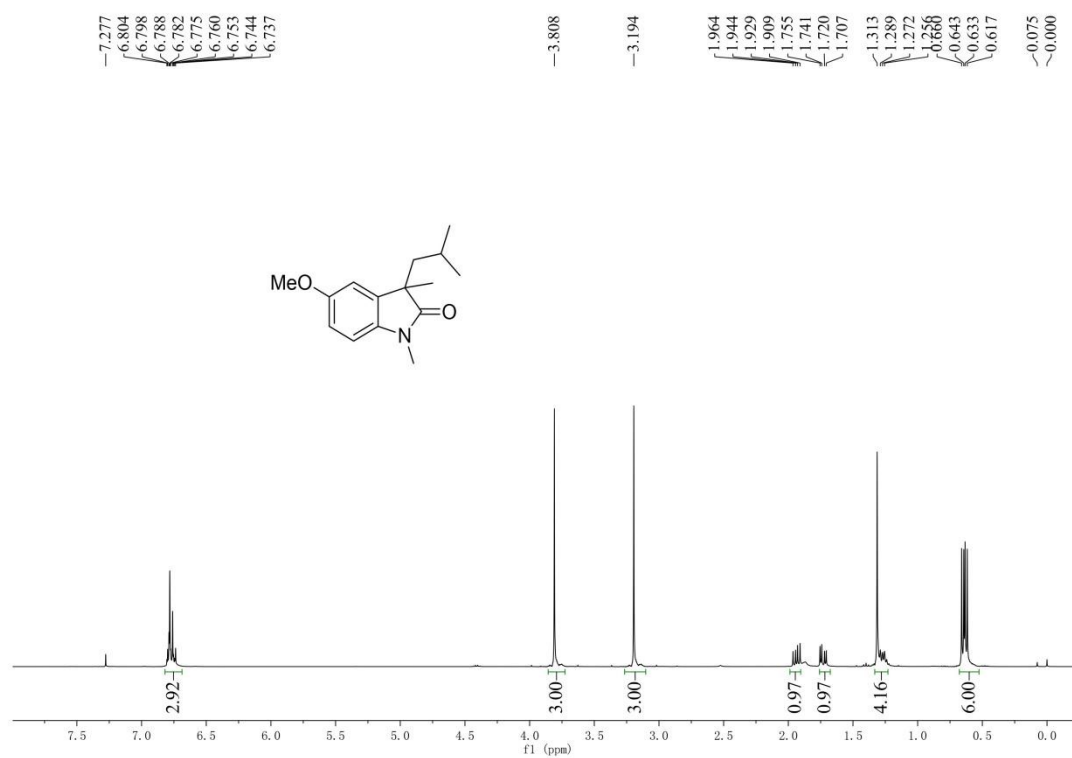
28.358

26.304

26.254



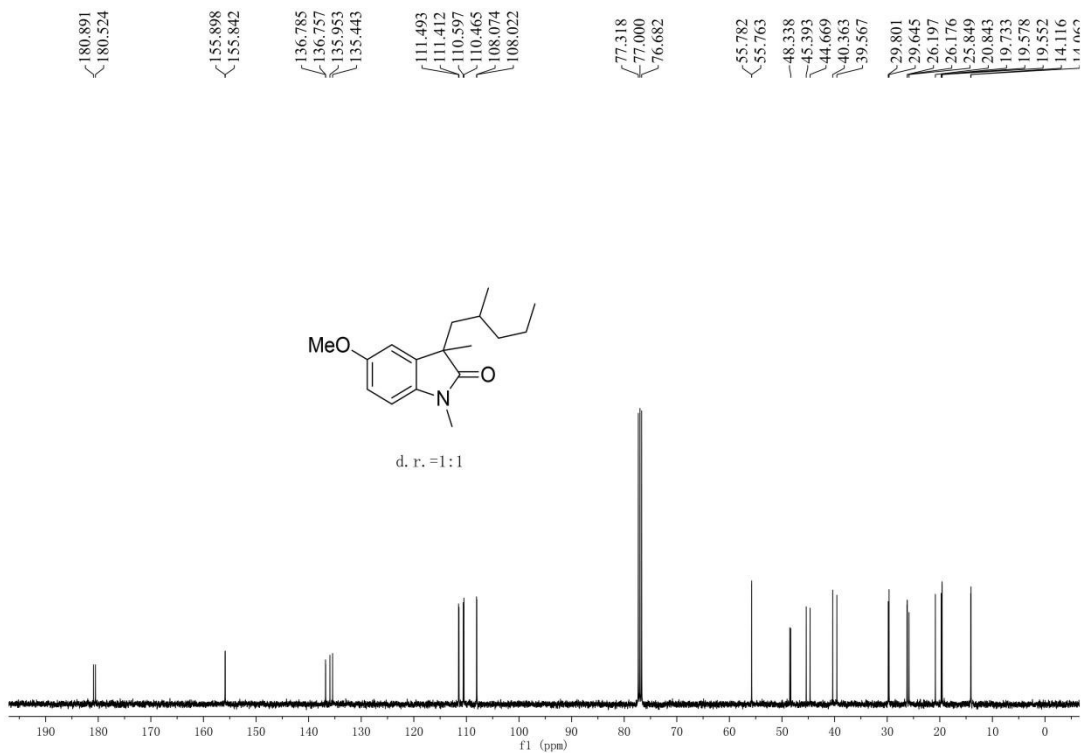
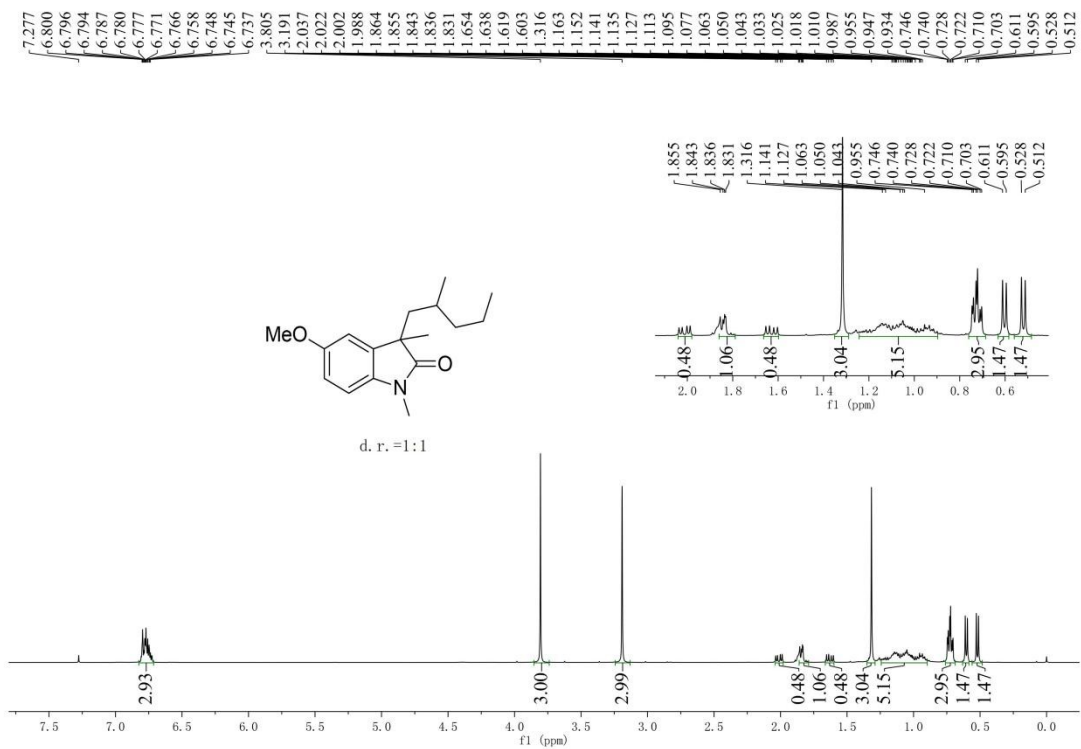
3-Isobutyl-5-methoxy-1,3-dimethylindolin-2-one (3ae)



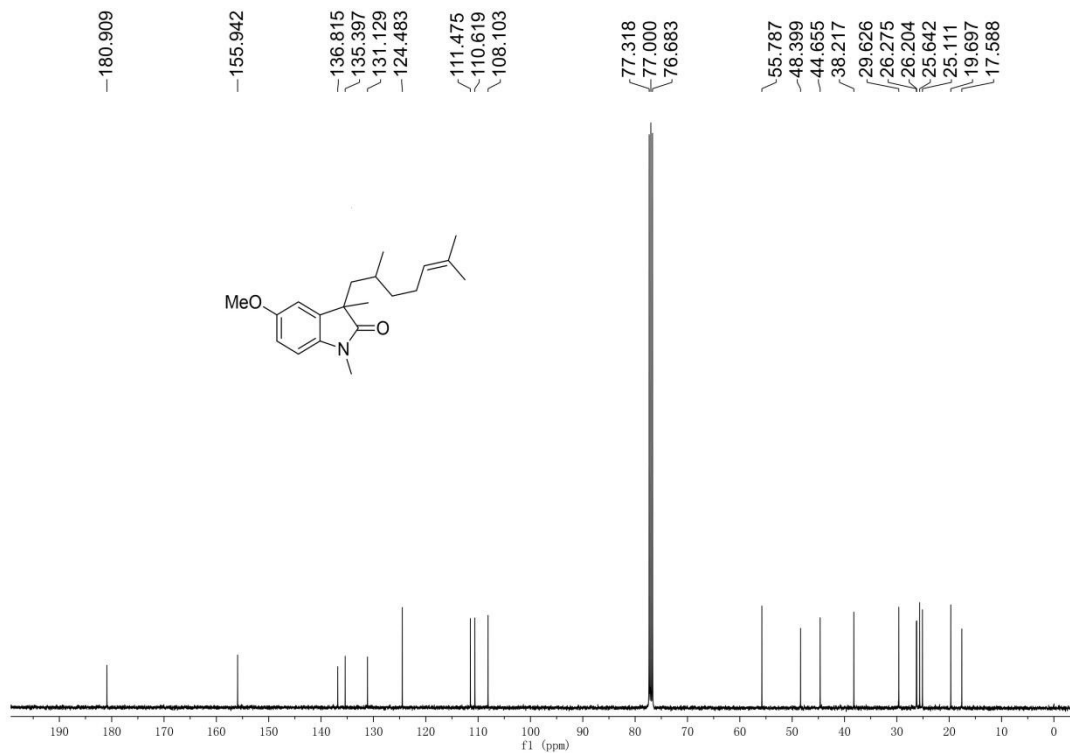
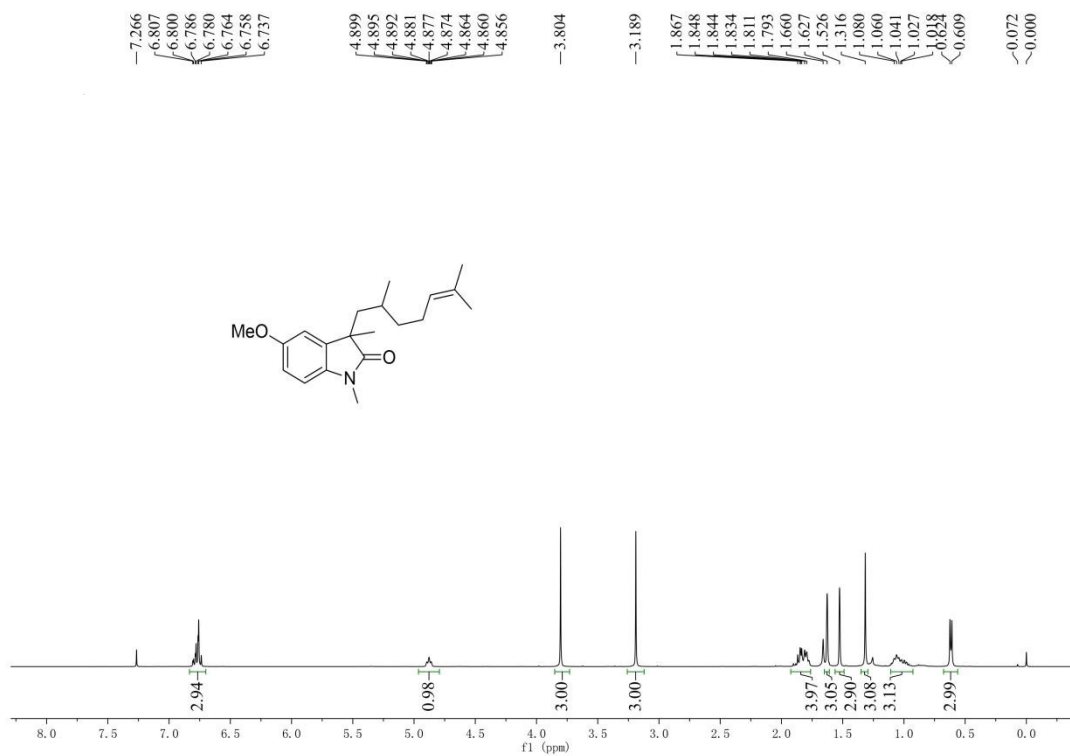
5-Methoxy-1,3-dimethyl-3-(2-methylbutyl)indolin-2-one (3af)



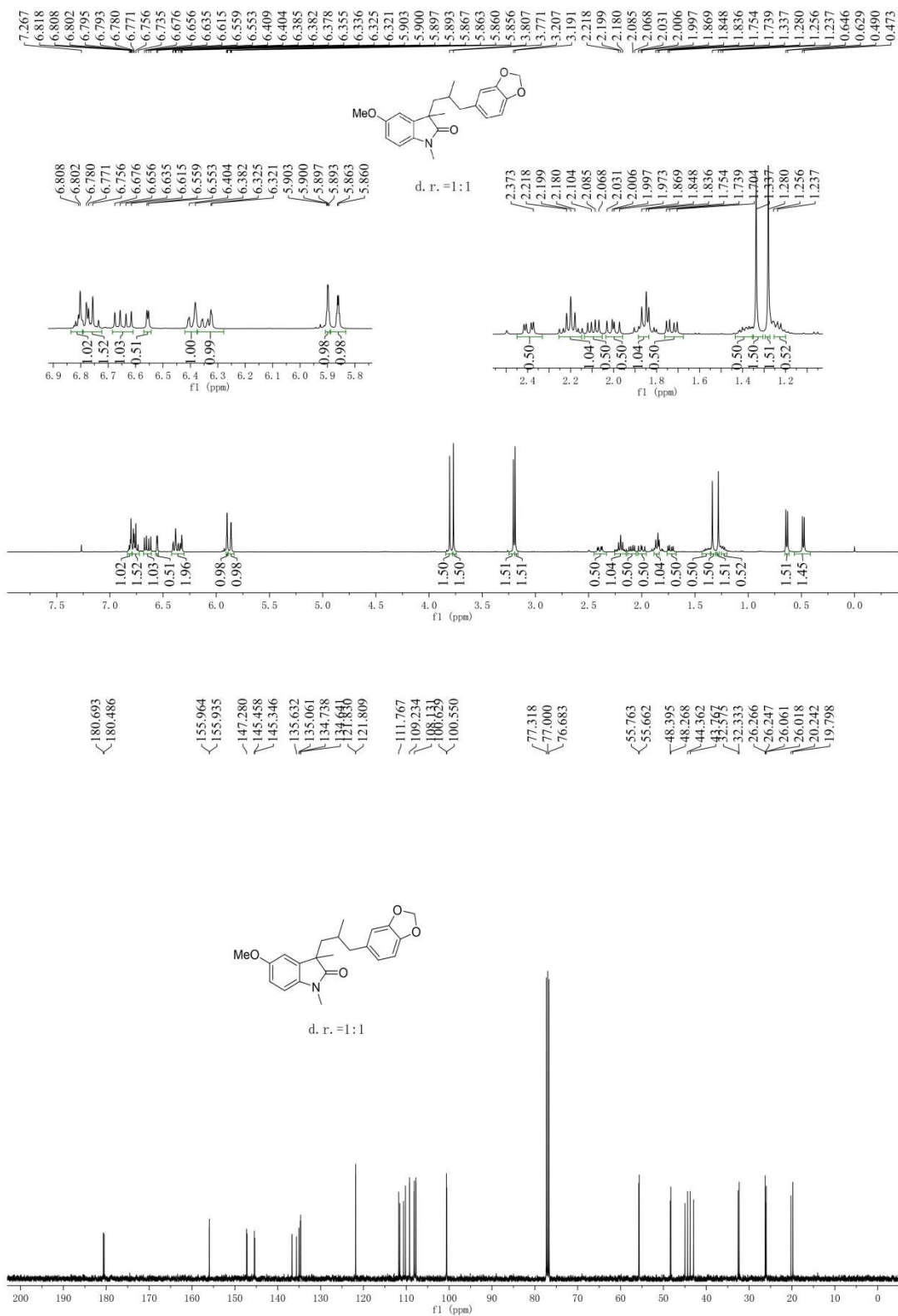
5-Methoxy-1,3-dimethyl-3-(2-methylpentyl)indolin-2-one (3ag)



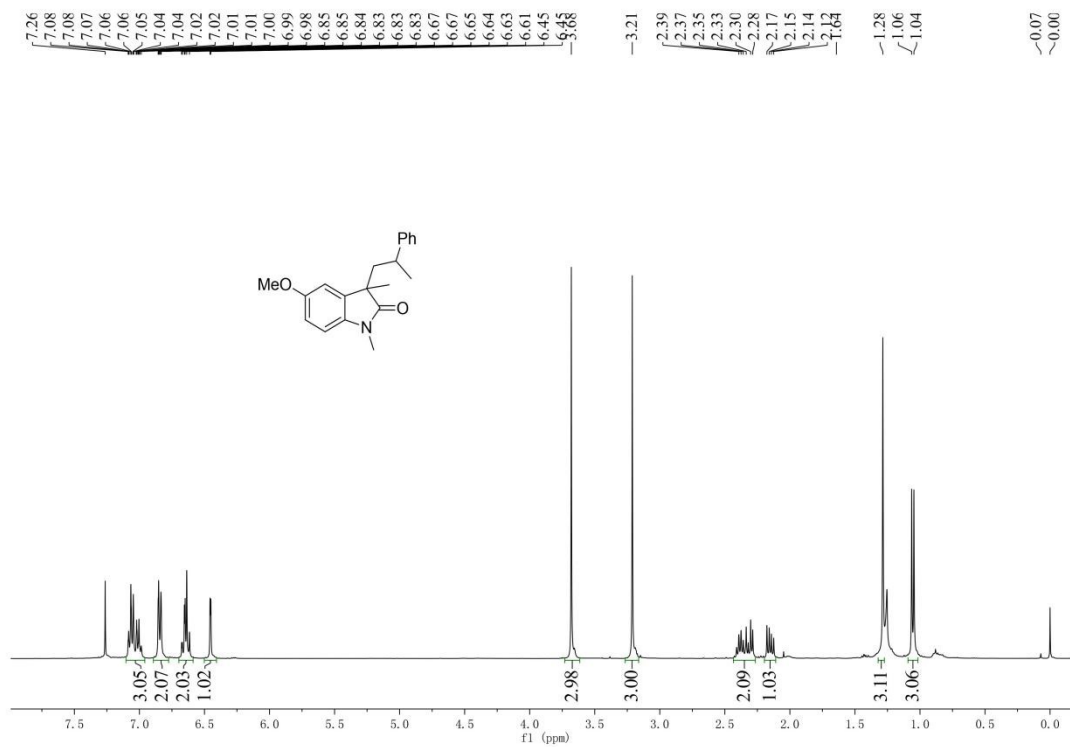
3-(2,6-Dimethylhept-5-en-1-yl)-5-methoxy-1,3-dimethylindolin-2-one (3ah)

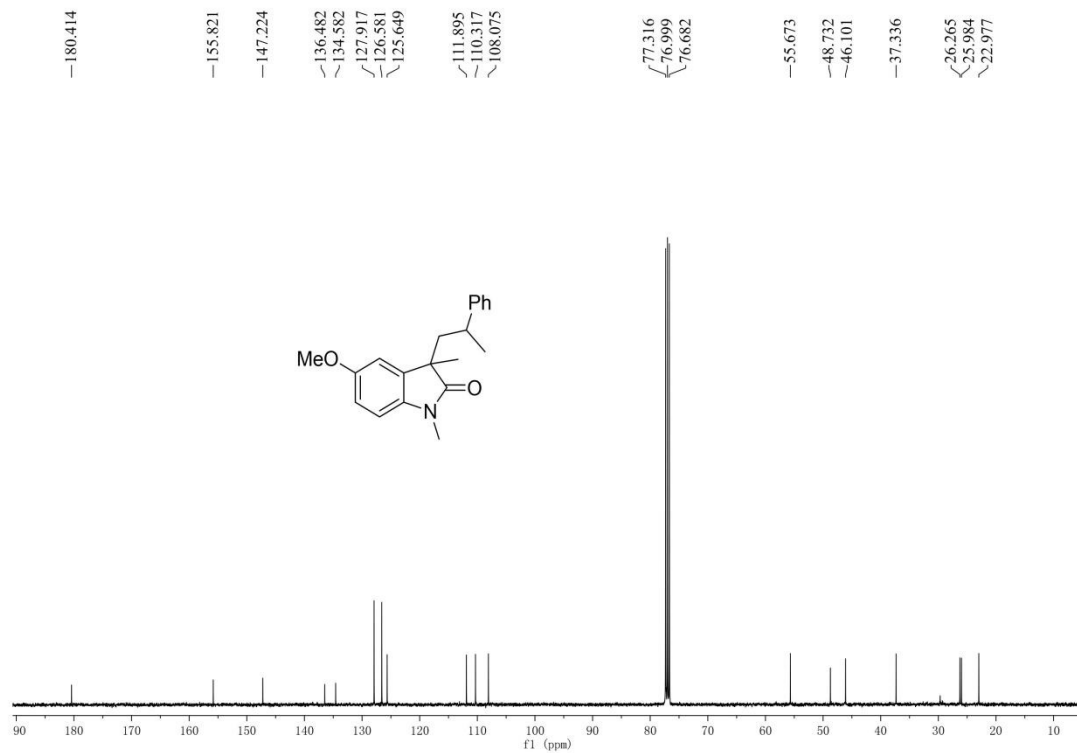


3-(3-(Benzo[d][1,3]dioxol-5-yl)-2-methylpropyl)-5-methoxy-1,3-dimethylindolin-2-one (3ai)

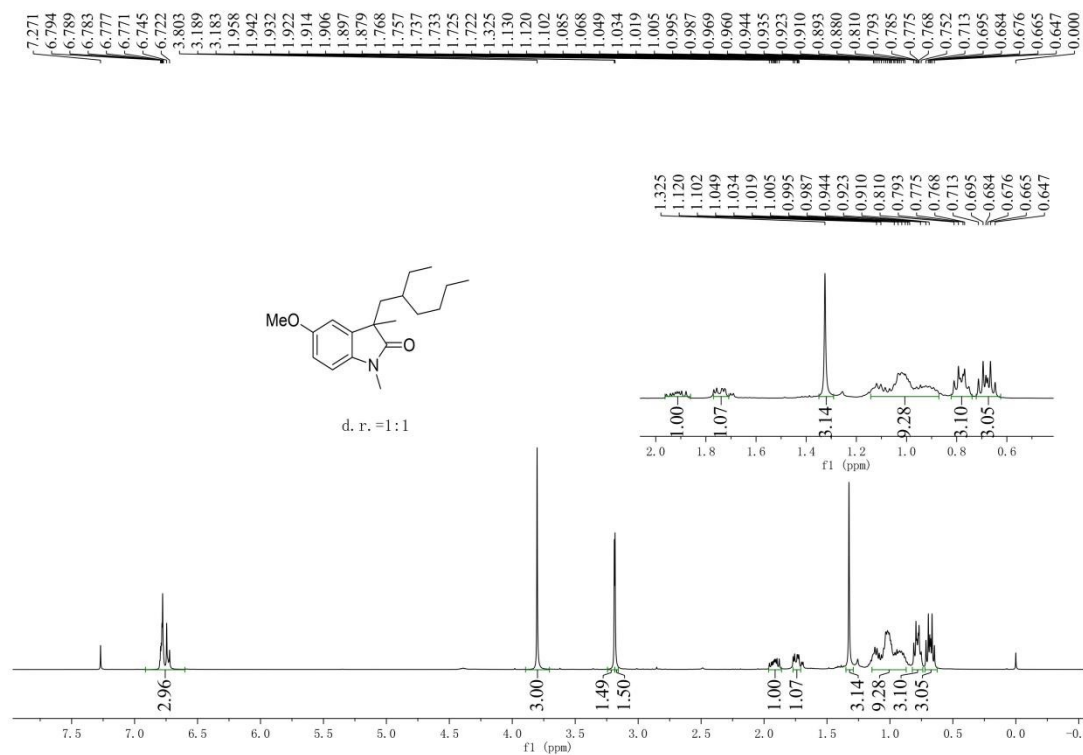


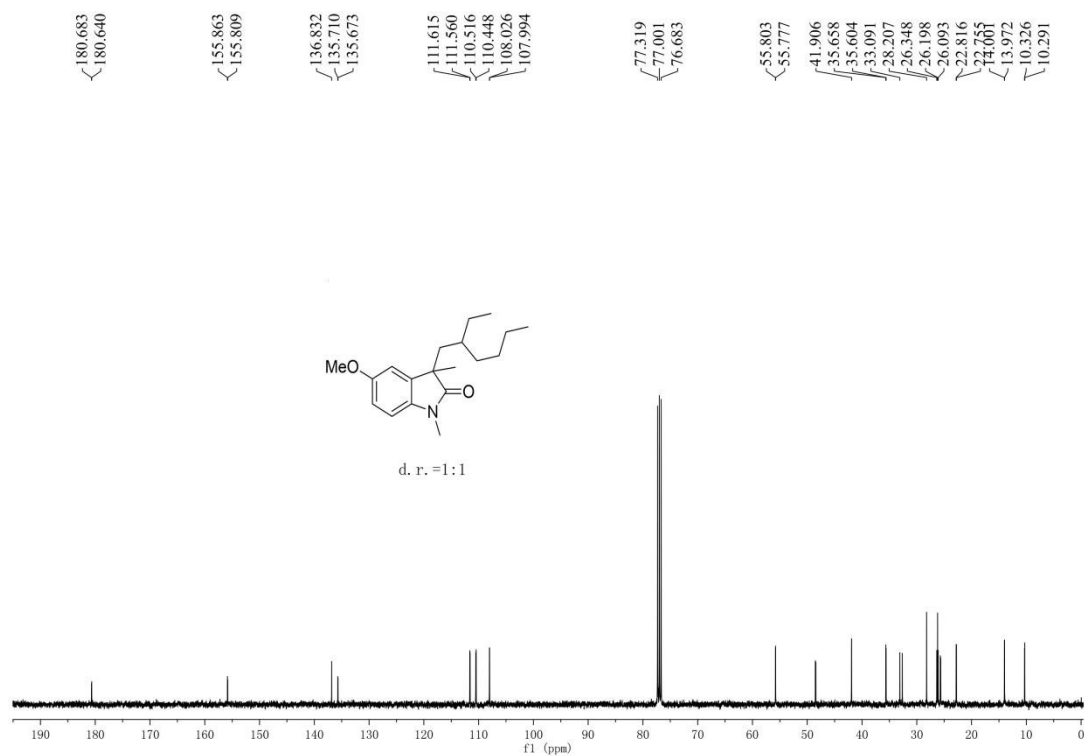
5-Methoxy-1,3-dimethyl-3-(2-phenylpropyl)indolin-2-one (3aj)



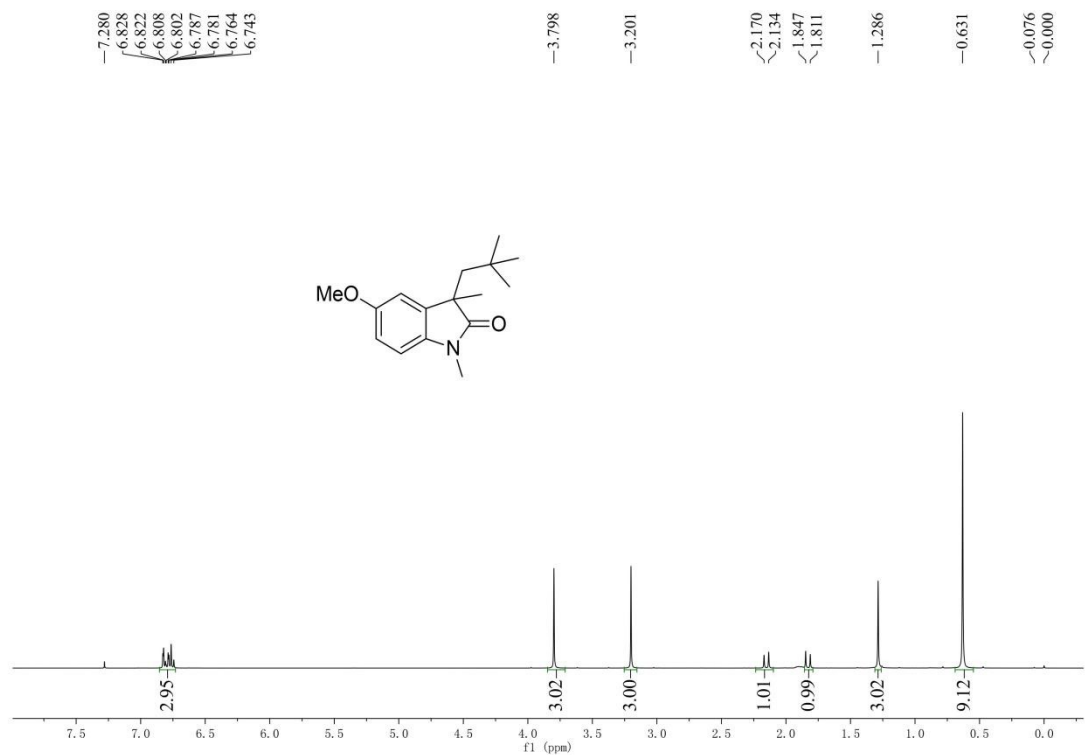


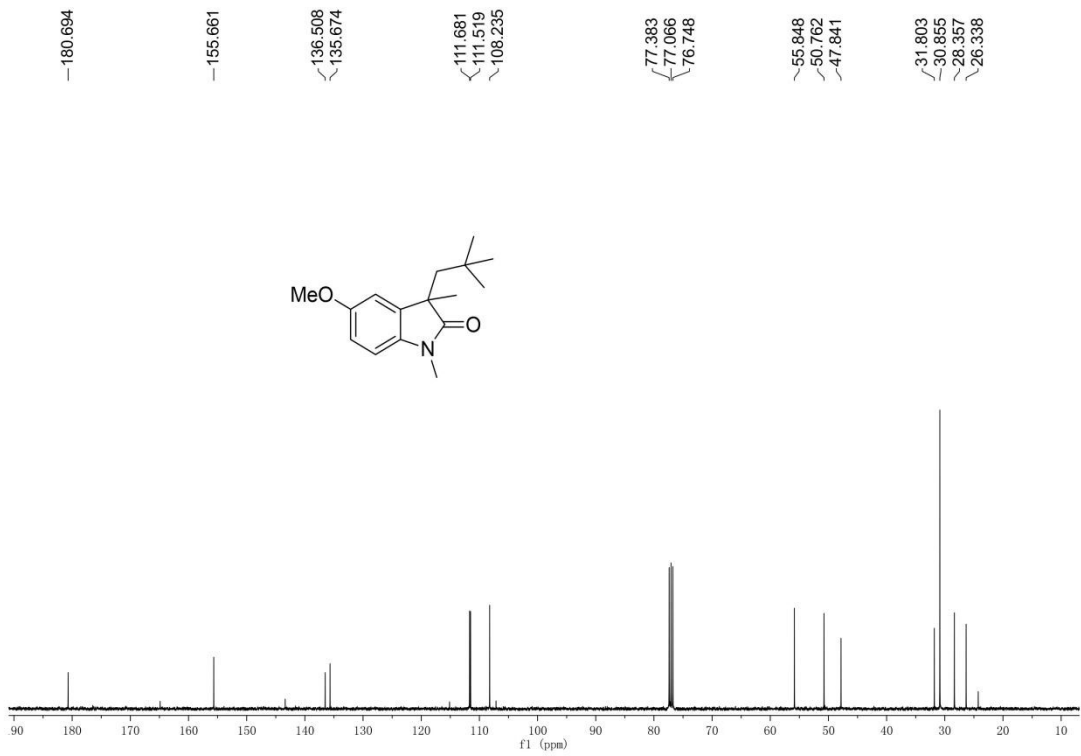
3-(2-Ethylhexyl)-5-methoxy-1,3-dimethylindolin-2-one (3ak)



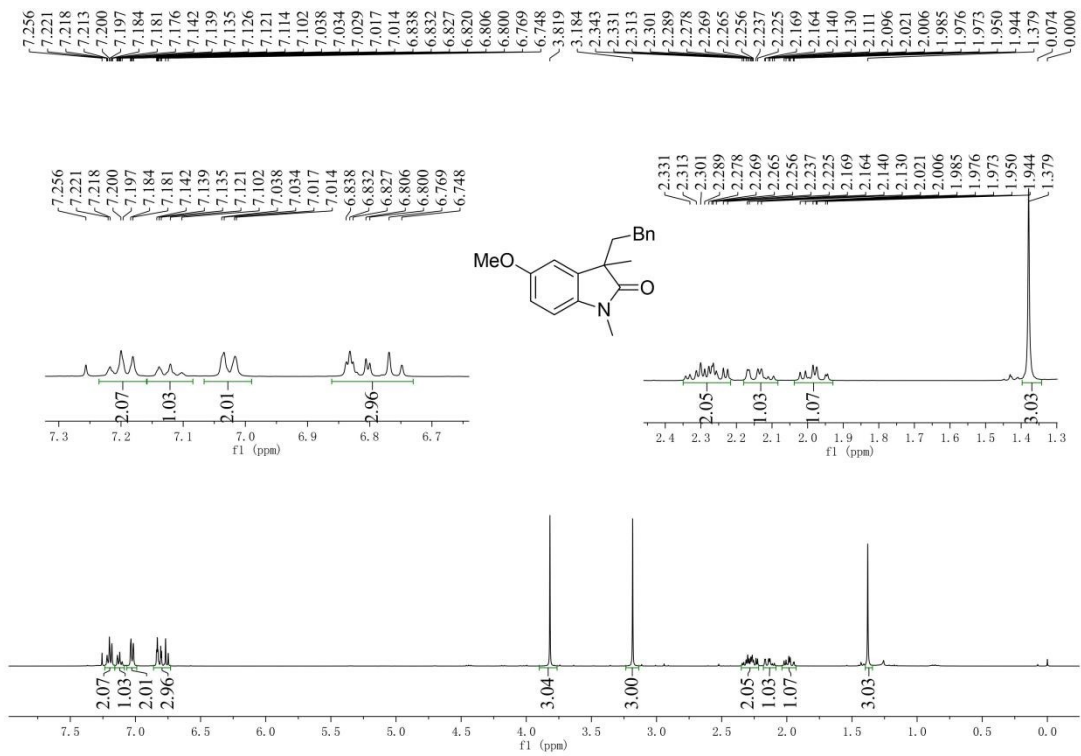


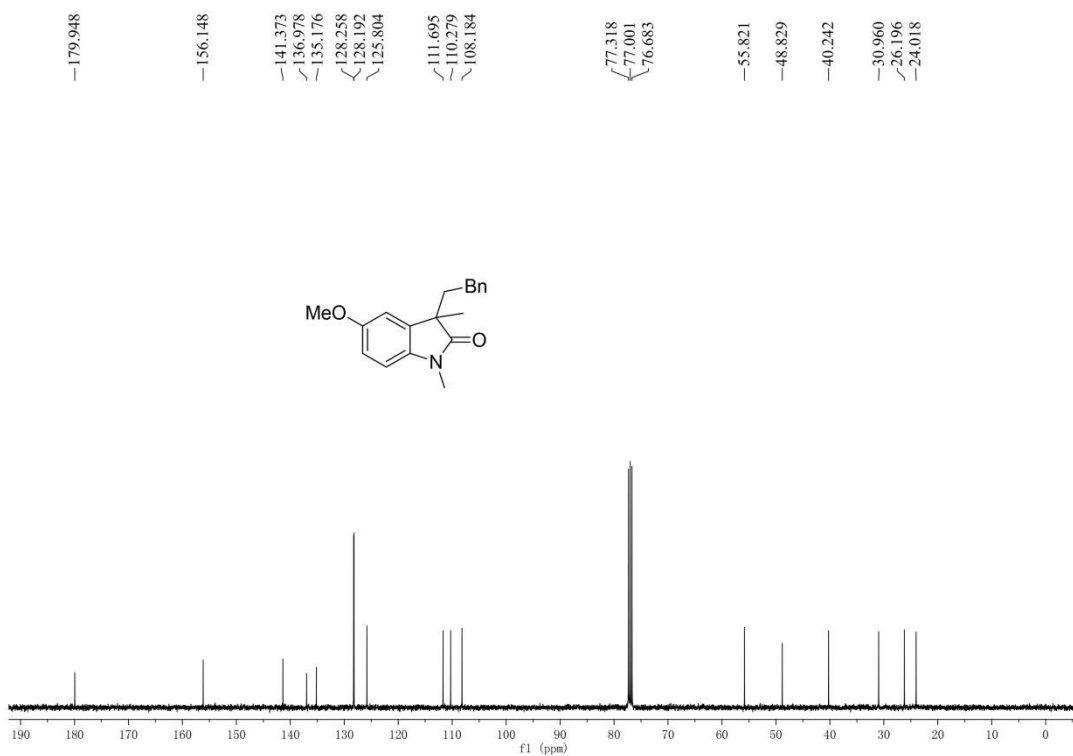
5-Methoxy-1,3-dimethyl-3-neopentylindolin-2-one (3a)



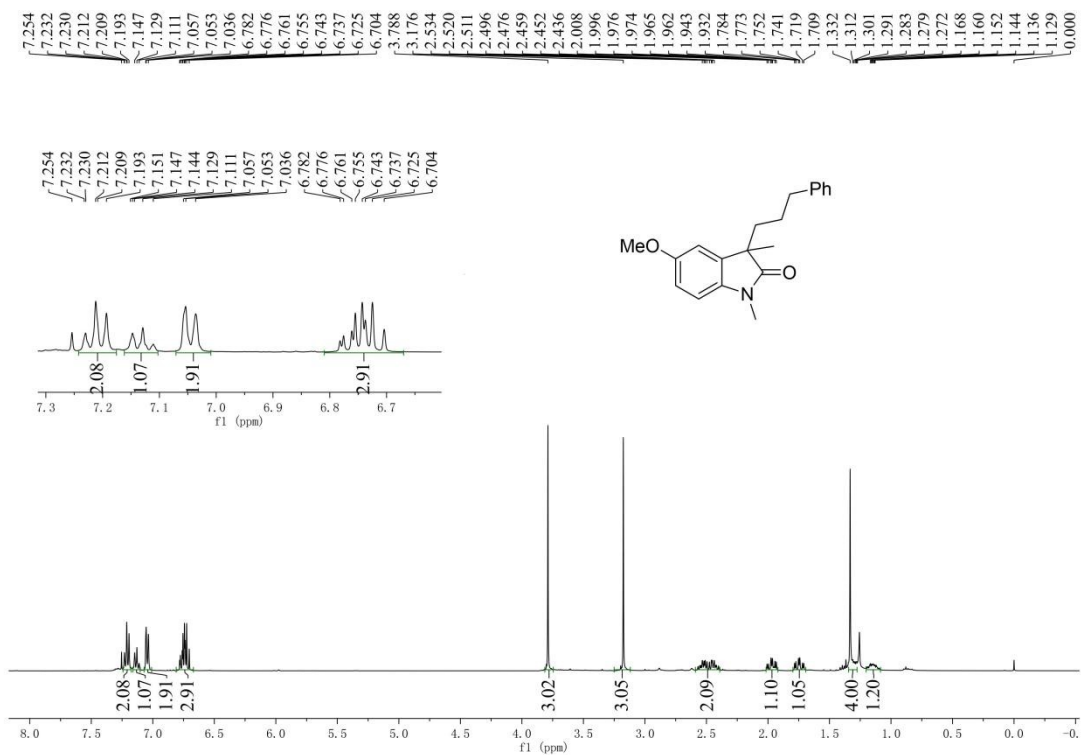


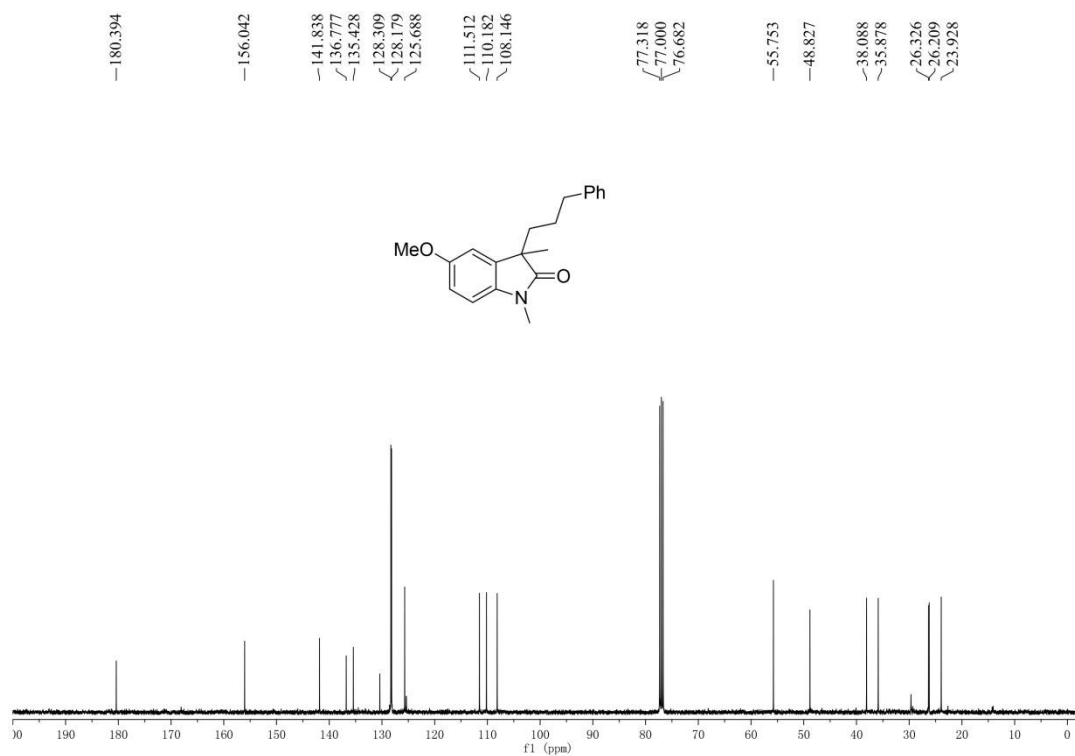
5-Methoxy-1,3-dimethyl-3-phenethylindolin-2-one (3am)



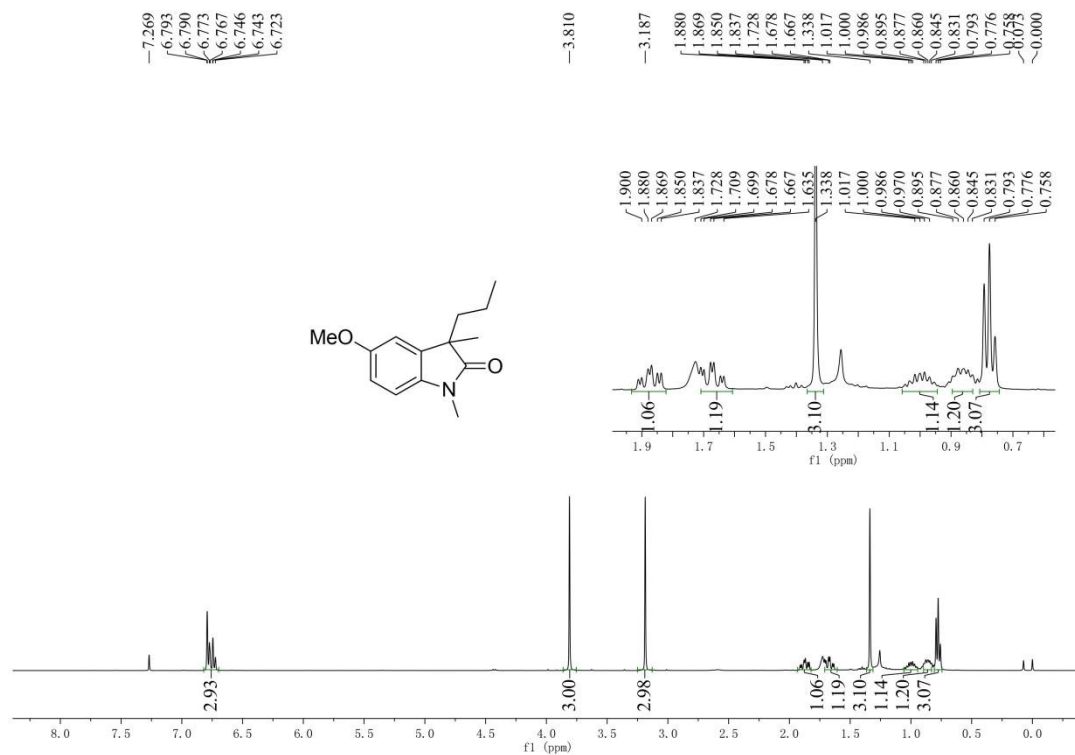


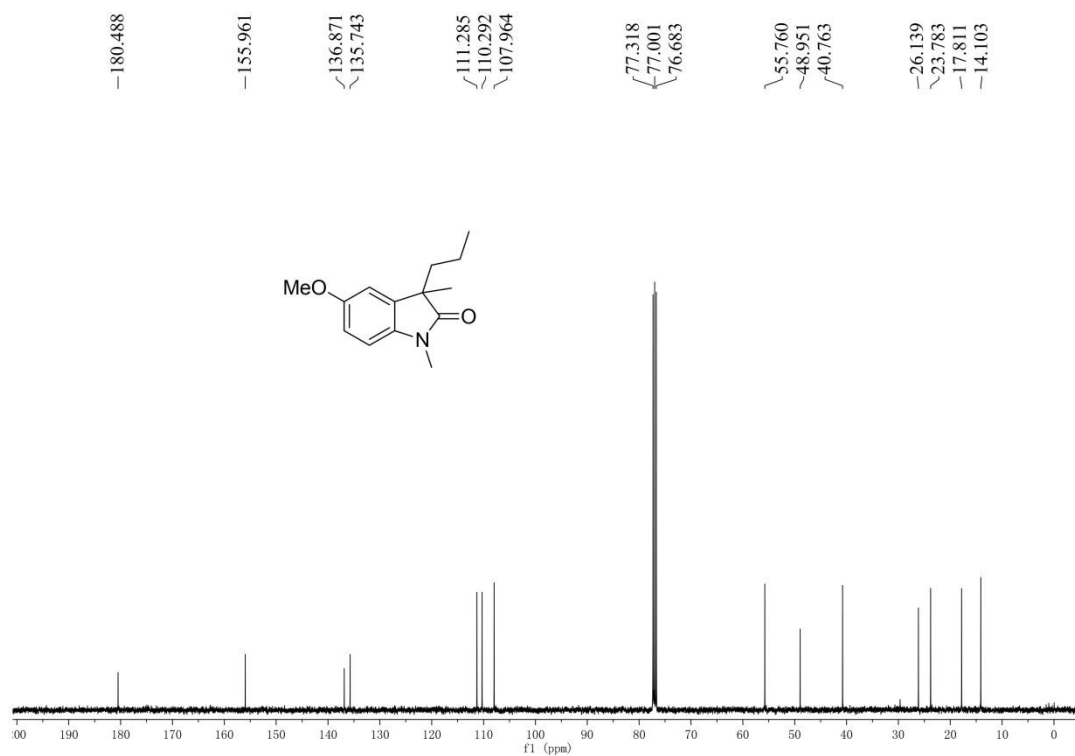
5-Methoxy-1,3-dimethyl-3-(3-phenylpropyl)indolin-2-one (3an)



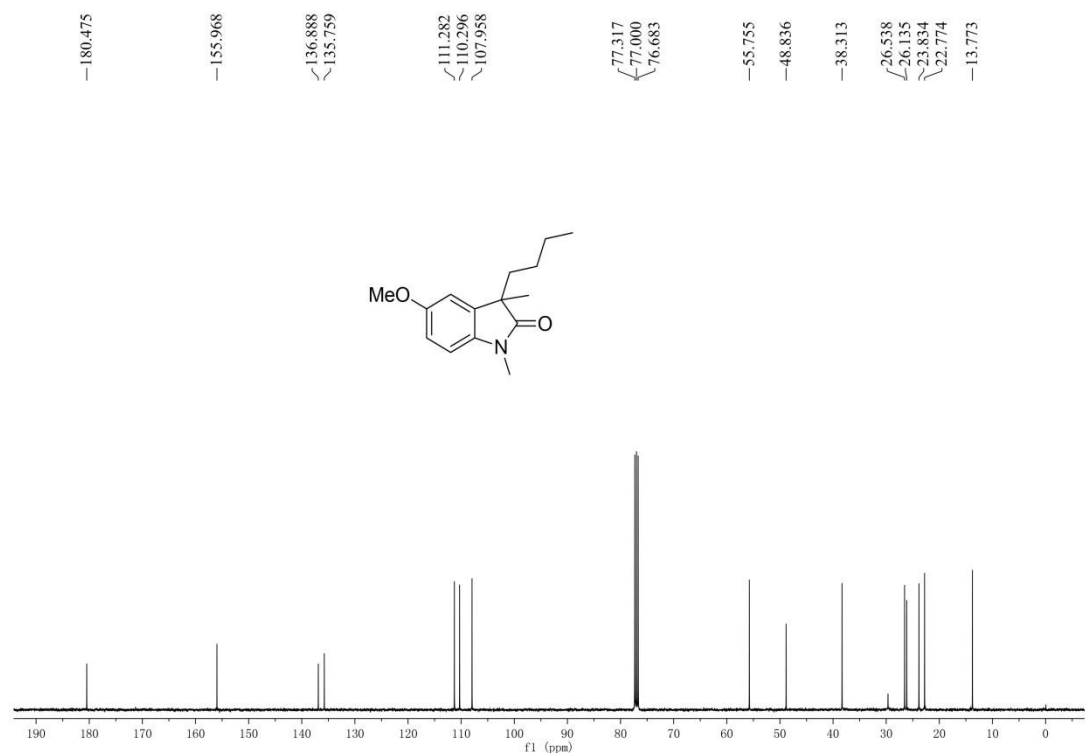
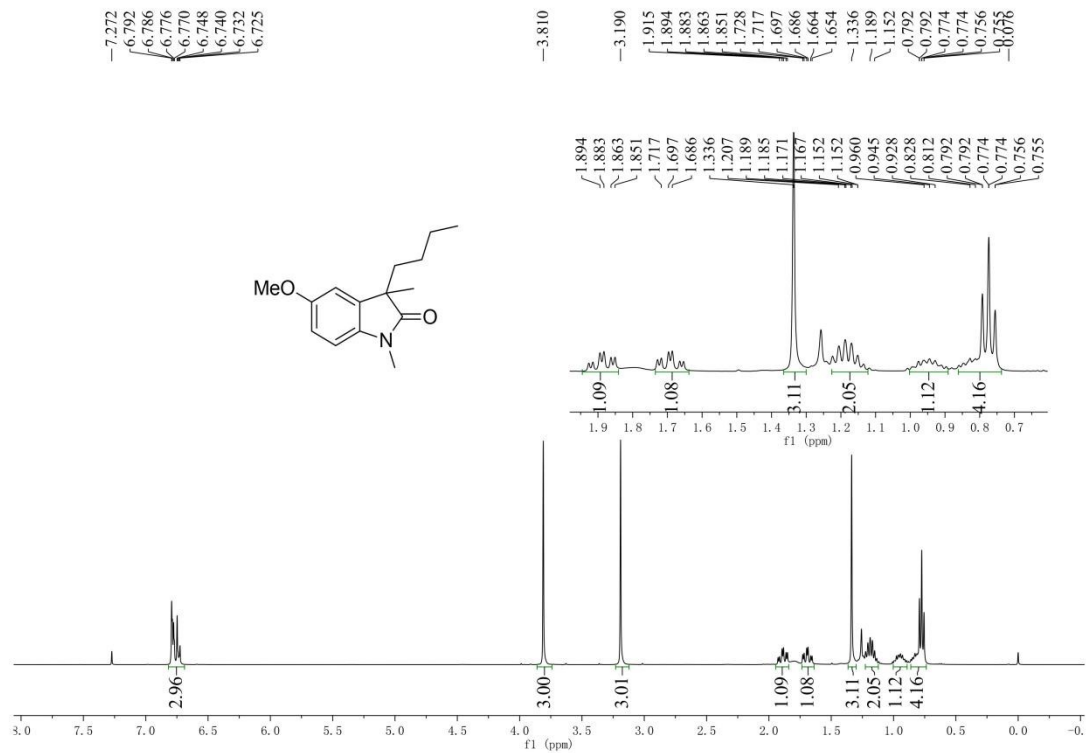


5-Methoxy-1,3-dimethyl-3-propylindolin-2-one (3a)

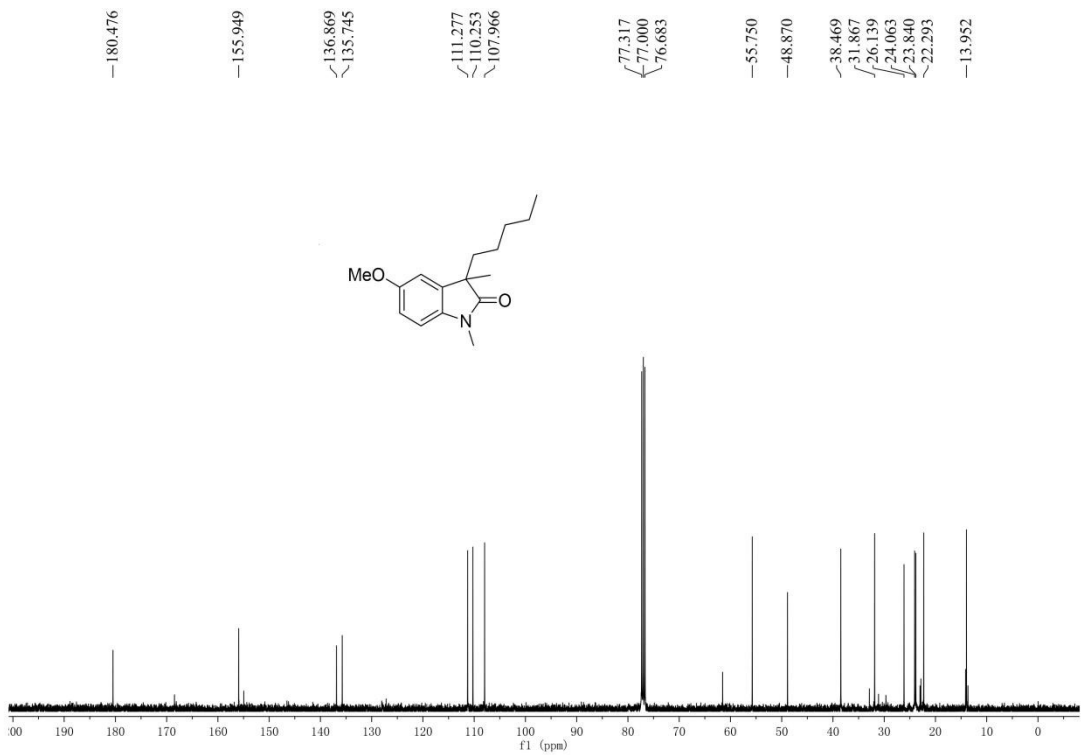
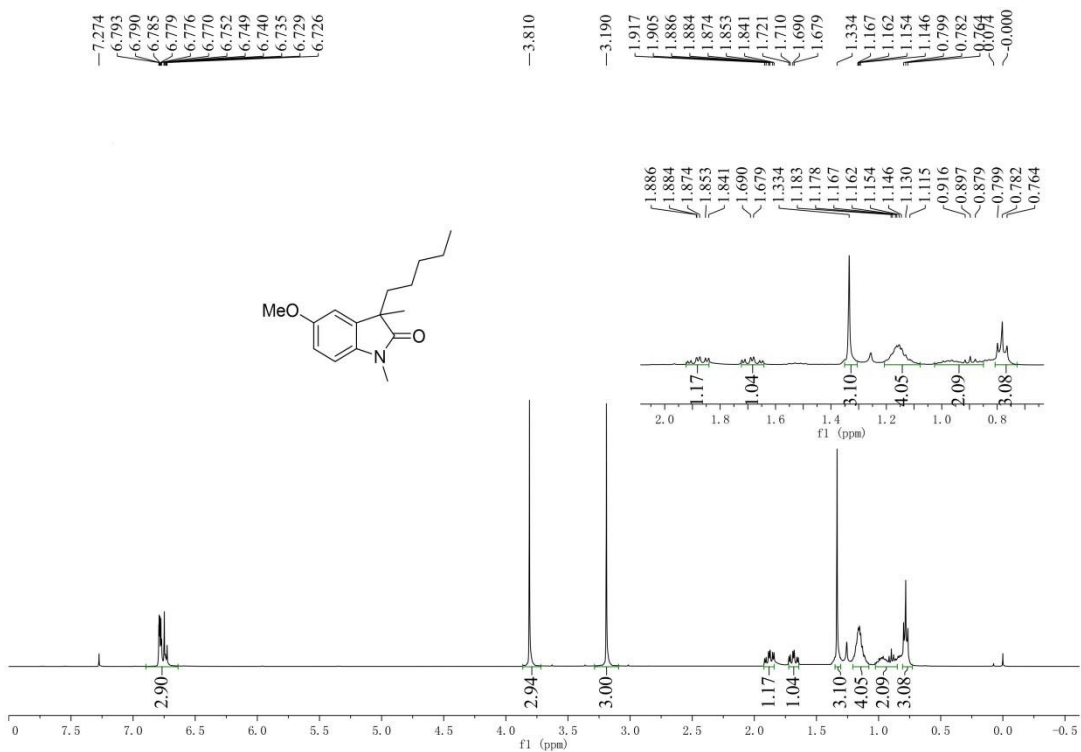




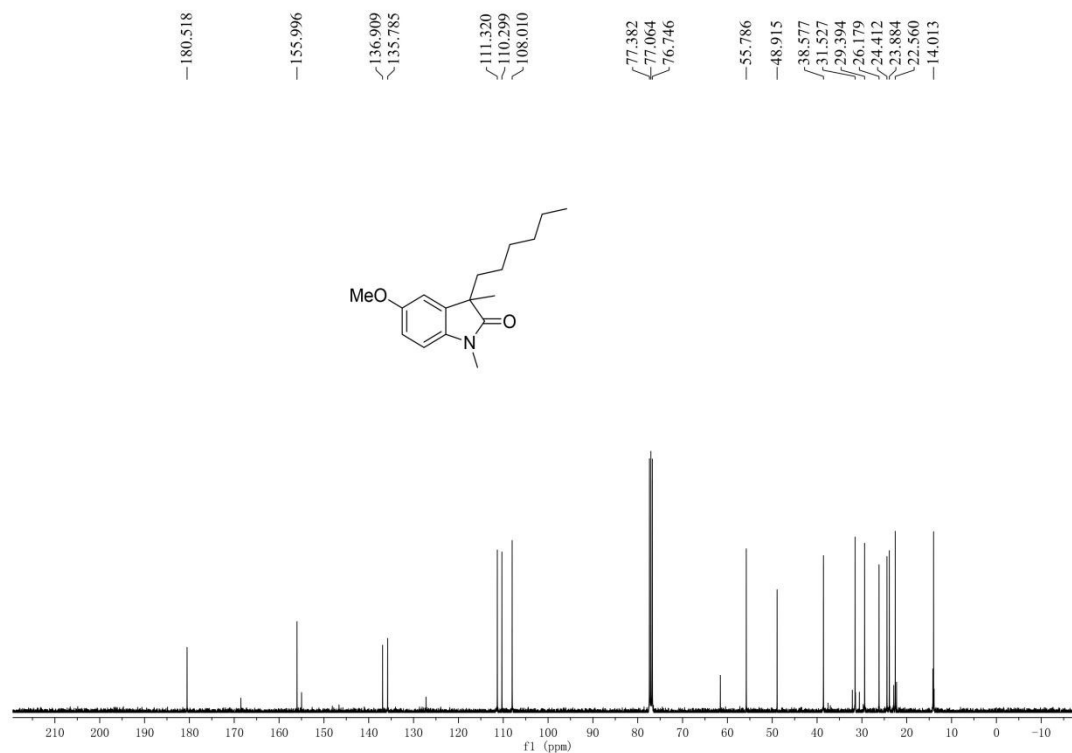
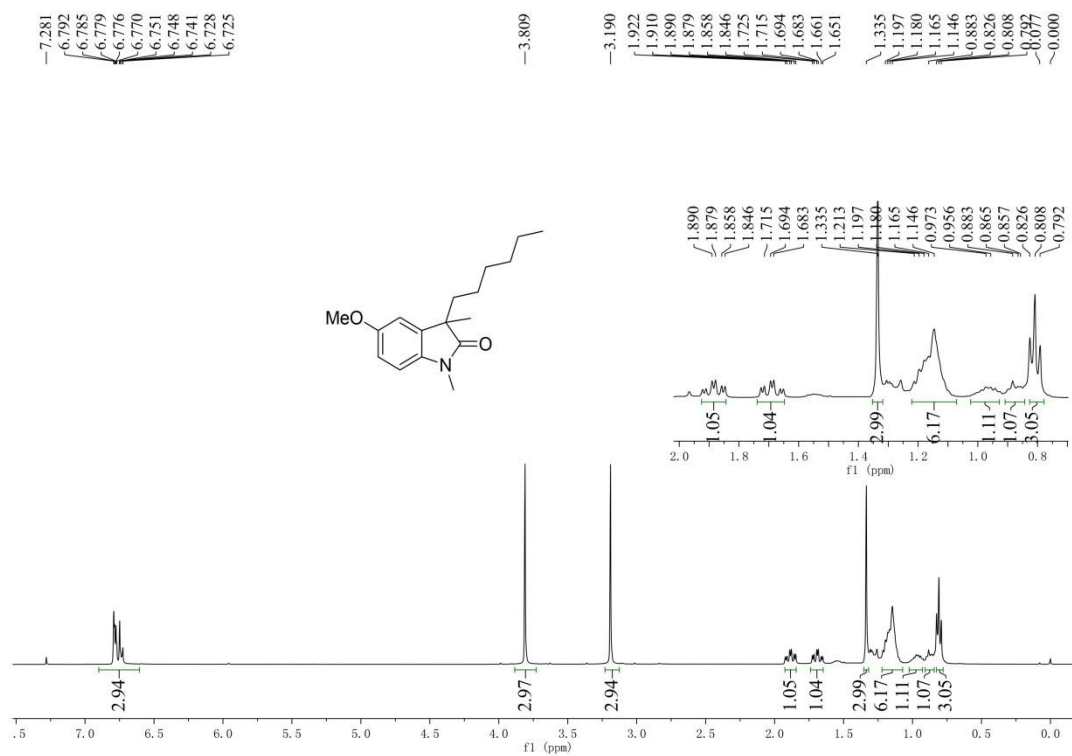
3-Butyl-5-methoxy-1,3-dimethylindolin-2-one (3ap)



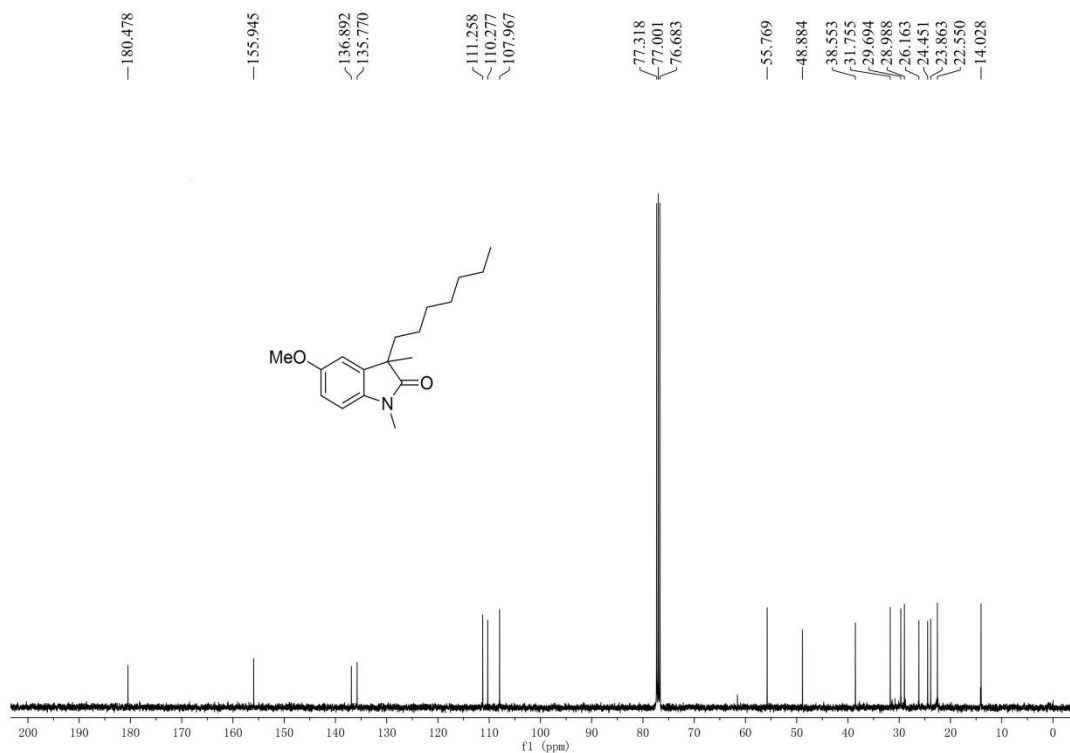
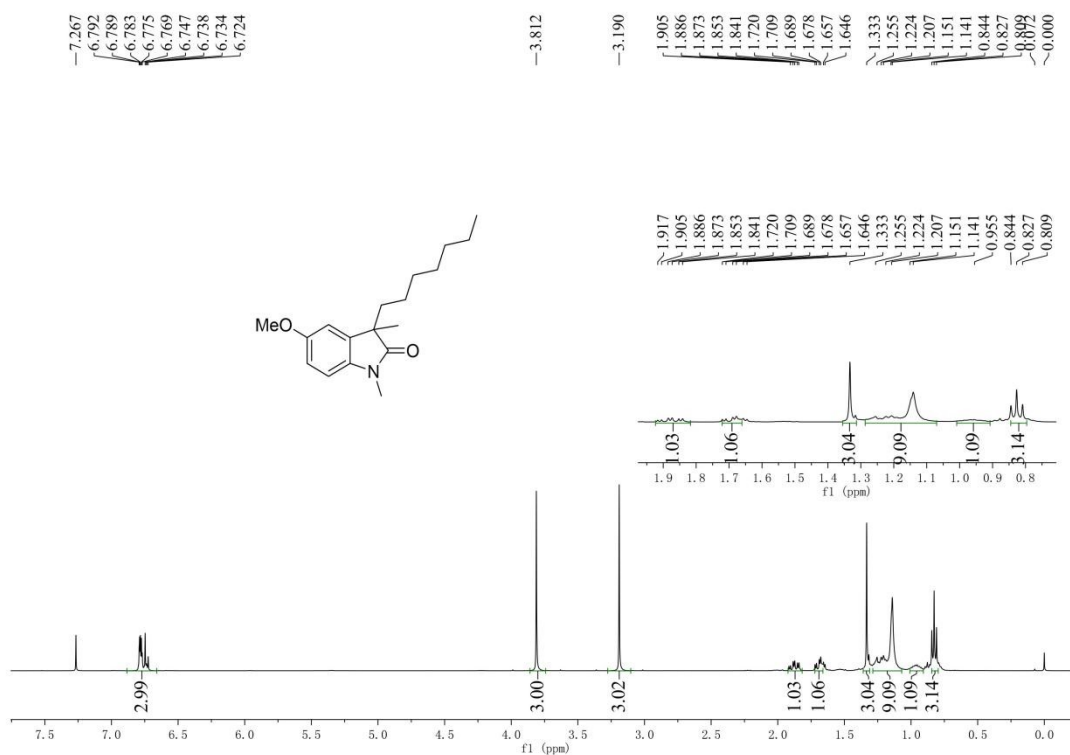
5-Methoxy-1,3-dimethyl-3-pentylindolin-2-one (3aq)



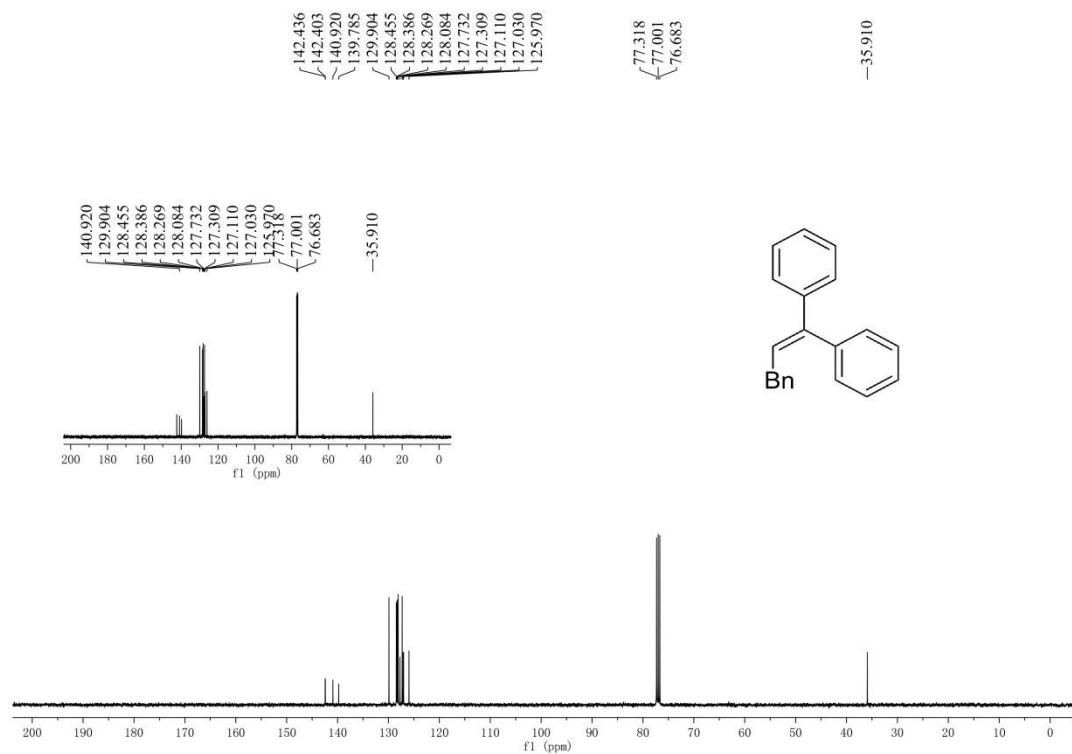
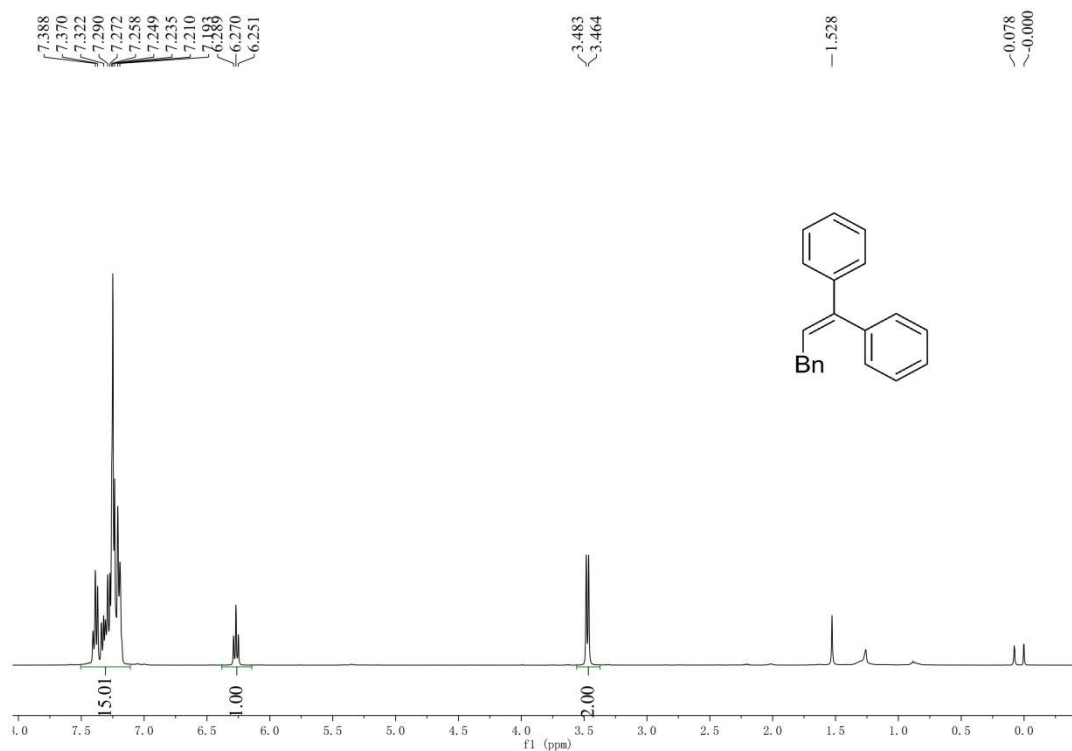
3-Hexyl-5-methoxy-1,3-dimethylindolin-2-one (3ar)



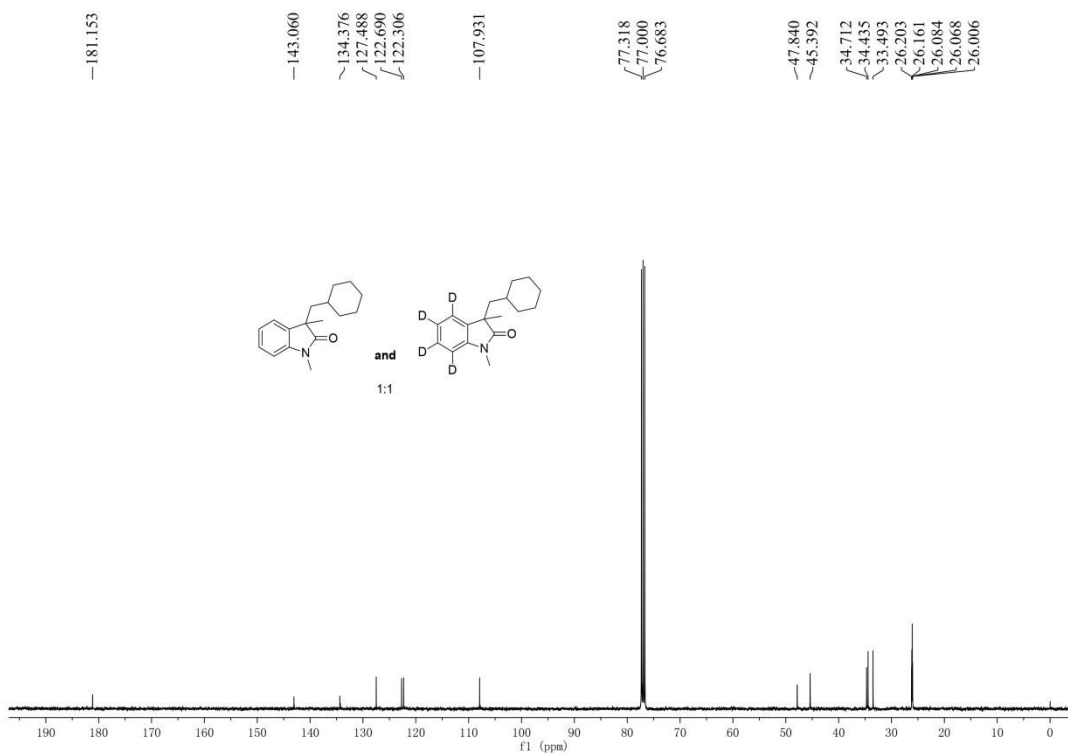
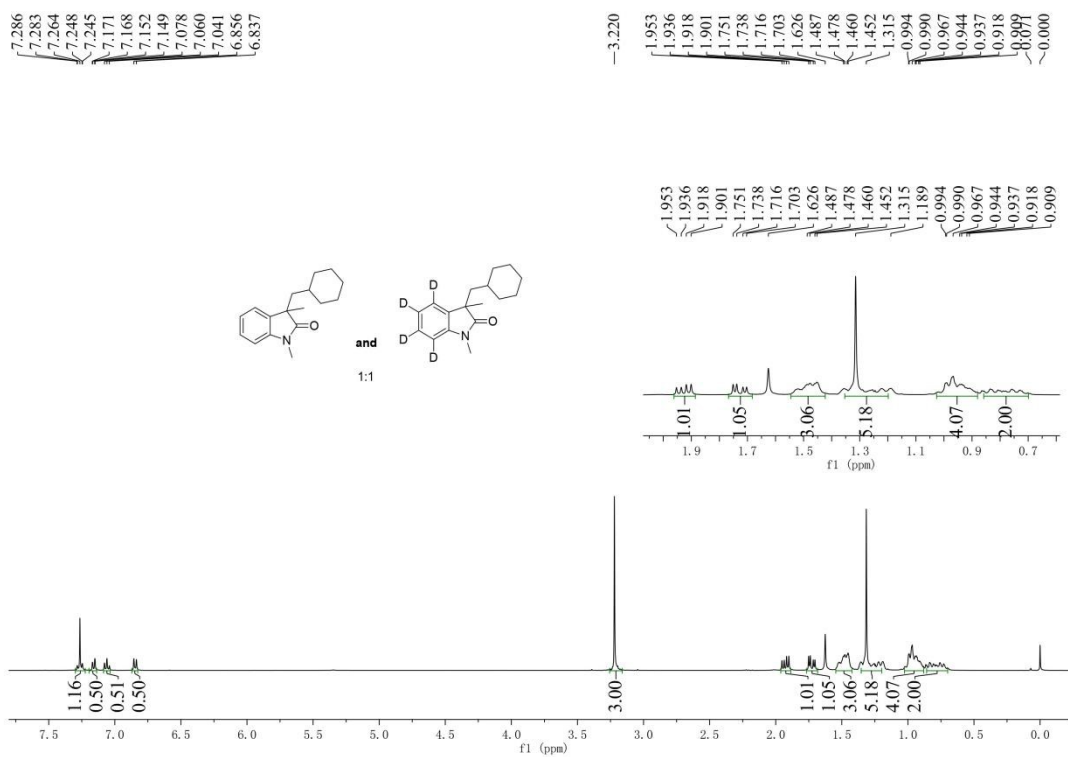
3-Heptyl-5-methoxy-1,3-dimethylindolin-2-one (3as)



Prop-1-ene-1,1,3-triyltribenzene (6)



Product 3ea and product 3ea-D₄:



Product 3ea and product 3ea-D₁:

