Supporting Information

A Free-Radical-Promoted Site-Selective C-H Silylation of Arenes by Using Hydrosilanes

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General Information

^{1}H, ^{19}F and ^{13}C NMR spectra were recorded on a Bruker advance Ⅲ 400 spectrometer in $CDCl_3$ with TMS as internal standard. Mass spectra were determined on a Hewlett Packard 5988A spectrometer by direct inlet at 70 eV. High-resolution mass spectral analysis (HRMS) data were measured on a Bruker Apex II. All products were identified by ^{1}H and ^{13}C NMR, MS, and HRMS. The starting materials were purchased from Aldrich, Acros Organics, J&K Chemicals or TCI and used without further purification.

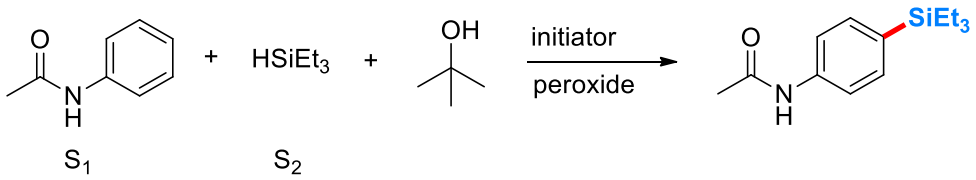
Representative procedure:

Procedure A (0.1 mmol scale): A mixture of *N*-phenylacetamide (1 equiv, 0.1 mmol), silanes (18 equiv, 1.8 mmol), Cu_2O(5 mol%, 0.005 mmol), DTBP (12 equiv, 1.2 mmol) and *t*-BuOH (0.5 mL) was heaed at 120 ^{o}C in a sealed tube (5 mL). After 12 h, the reaction mixture was treated with an additional portion of silanes (18 equiv, 1.8 mmol), DTBP (12 equiv, 1.2 mmol), the resulting mixture was stirred for another 12 h. After the reaction finished, the mixture was evaporated under vacuum and purified by column chromatography to afford the desired product **1** (petroleum ether/ethyl acetate = 3/1; 15.4 mg;

62% isolated yield).

Procedure B (1 mmol scale): A mixture of *N*-phenylacetamide (1 equiv, 1.0 mmol), silanes (18 equiv, 18.0 mmol), Cu_2O (5 mol%, 0.05 mmol), DTBP (12 equiv, 12.0 mmol) and *t*-BuOH (5 mL) was heated at 120 ^oC in a sealed tube (25 mL). After 12 h, the reaction mixture was treated with an additional portion of silanes (18 equiv, 18.0 mmol), DTBP (12 equiv, 12.0 mmol), the resulting mixture was stirred for another 12 h. After the reaction finished, the mixture was evaporated under vacuum and purified by column chromatography to afford the desired product **1** (petroleum ether/ethyl acetate = 3/1; 87.2 mg; 35% isolated yield).

The modification of the reaction condition



S_1 S_2

S1 : 1 equiv（0.2 mmol）

Entry	S_2(equiv)	Initiator	Catalyst	Solvent (mL)	T(°C)	t (h)	Yield(%)
1	**8**	4 equiv DTBP	5% CuF_2	2	130	12	19
2	**6**	4 equiv DTBP	5% CuF_2	2	130	12	23
3	**4**	4 equiv DTBP	5% CuF_2	2	130	12	18
4	**10**	4 equiv DTBP	5% CuF_2	2	130	12	20
5	6	4 equiv DTBP	**-**	2	130	12	trace
6	6	4 equiv DTBP	**5% Cu**	2	130	12	20
7	6	4 equiv DTBP	**5% CuCl**	2	130	12	6
8	6	4 equiv DTBP	**5% CuBr**	2	130	12	8
9	6	4 equiv DTBP	**5% CuI**	2	130	12	8
10	6	4 equiv DTBP	**5% Cu_2O**	2	130	12	28
11	6	4 equiv	**5% $CuCl_2$**	2	130	12	9

		DTBP					
12	6	4 equiv DTBP	**5% $CuBr_2$**	2	130	12	trace
13	6	4 equiv DTBP	**5% $Mn(OAc)_2$**	2	130	12	7
14	6	4 equiv DTBP	**5% $PdCl_2$**	2	130	12	trace
15	6	4 equiv DTBP	**5% $Fe(OAc)_2$**	2	130	12	trace
16	6	4 equiv DTBP	**5% $NiCl_2$**	2	130	12	NR
17	6	4 equiv DTBP	**5% *t*-Bu_4NI**	2	130	12	trace
18	6	4 equiv DTBP	**5% $AgNO_3$**	2	130	12	NR
19	6	4 equiv DTBP	**5% $Cu(OAc)_2$**	2	130	12	25
20	6	4 equiv DTBP	**5% $Cu(acac)_2$**	2	130	12	NR
21	6	4 equiv DTBP	**5% $Cu(OTf)_2$**	2	130	12	NR
22	6	4 equiv DTBP	**5% $CuSO_4$ 5 H_2O**	2	130	12	trace
23	6	4 equiv DTBP	**5% $FeCl_2$**	2	130	12	trace
24	6	4 equiv DTBP	**5% $Co(OAc)_2$**	2	130	12	trace
25	6	4 equiv DTBP	**5% $FeCl_3$**	2	130	12	12
26	6	**4 equiv TBHP**	5% Cu_2O	2	130	12	trace
27	6	**4 equiv TBPA**	5% Cu_2O	2	130	12	8
28	6	**4 equiv DCP**	5% Cu_2O	2	130	12	NR
29	6	**4 equiv BPO**	5% Cu_2O	2	130	12	trace
30	6	**4 equiv TBCP**	5% Cu_2O	2	130	12	NR
31	6	**4 equiv $K_2S_2O_8$**	5% Cu_2O	2	130	12	NR
32	6	4 equiv DTBP	5% Cu_2O	2	130	**6**	14

33	6	4 equiv DTBP	5% Cu_2O	2	130	**18**	25
34	6	4 equiv DTBP	5% Cu_2O	**2 mL Ph**	130	12	trace
35	6	4 equiv DTBP	5% Cu_2O	**2 mL ethanol**	130	12	18
36	6	4 equiv DTBP	5% Cu_2O	**2 mL propan-2-ol**	130	12	NR
37	6	4 equiv DTBP	5% Cu_2O	**2 mL cyclohexane**	130	12	NR
38	6	4 equiv DTBP	5% Cu_2O	**2 mL tetrahydrofuran**	130	12	NR
39	6	4 equiv DTBP	5% Cu_2O	**2mL DMF**	130	12	NR
40	6	4 equiv DTBP	5% Cu_2O	**2 mL DMSO**	130	12	NR
41	6	4 equiv DTBP	5% Cu_2O	**2 mL TFE**	130	12	NR
42	6	4 equiv DTBP	5% Cu_2O	**2mL ethyl acetate**	130	12	NR
43	6	4 equiv DTBP	5% Cu_2O	**2 mL 1,2-dichloroethane**	130	12	NR
44	6	4 equiv DTBP	5% Cu_2O	**2mL toluene**	130	12	NR
45	6	4 equiv DTBP	5% Cu_2O	**2 mL bromobenzene**	130	12	NR
46	6	4 equiv DTBP	5% Cu_2O	**0.5**	130	12	23
47	6	4 equiv DTBP	5% Cu_2O	**1**	130	15	28
48	6	4 equiv DTBP	5% Cu_2O	**3**	130	12	15
49	6	4 equiv DTBP	5% Cu_2O	**5**	130	12	trace
50	6	4 equiv DTBP	5% Cu_2O	1	**90**	12	trace
51	6	4 equiv	5% Cu_2O	1	**110**	12	16

		DTBP					
52	6	4 equiv DTBP	5% Cu_2O	1	**160**	12	trace
53	6	4 equiv DTBP 0.5 equiv ***t*-BuOK**	5% Cu_2O	1	130	12	10
54	6	4 equiv DTBP 0.5 equiv **CF_3COOH**	5% Cu_2O	1	130	12	trace

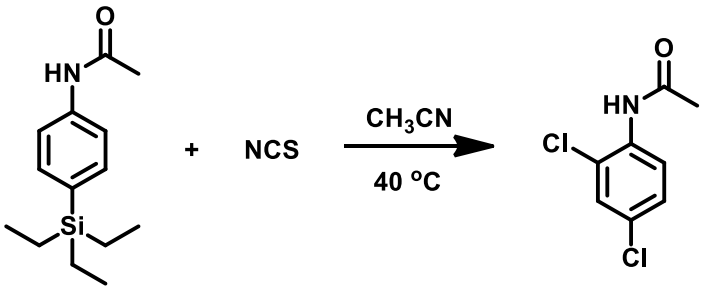
S1 : 1 equiv（0.1 mmol）

Entry	S_2（equiv）	Initiator （equiv）	Catalyst	Solvent (mL)	T (°C)	t （h）	Yield(%)
1	12	2×8	10% Cu_2O	**0.5**	130	12	52
2	12	2×8	10% Cu_2O	**1**	130	12	27
3	12	2×8	10% Cu_2O	**2**	130	12	18
4	12	**2×4**	10% Cu_2O	0.5	130	12	24
5	12	**2×6**	10% Cu_2O	0.5	130	12	33
6	12	**2×10**	10% Cu_2O	0.5	130	12	46
7	12	**2×12**	10% Cu_2O	0.5	130	12	38
8	12	**2×15**	10% Cu_2O	0.5	130	12	39
9	**8**	2×8	10% Cu_2O	0.5	130	12	34
10	**16**	2×8	10% Cu_2O	0.5	130	12	37
11	**24**	2×8	10% Cu_2O	0.5	130	12	45
12	**36**	2×8	10% Cu_2O	0.5	130	12	46
13	12	2×8	10% Cu_2O	0.5	**140**	12	44
14	12	2×8	10% Cu_2O	0.5	**150**	12	40
15	12	2×8	10%	0.5	**120**	12	21

			Cu_2O				
16	2×12	2×8	10% Cu_2O	0.5	130	2×12	34
17	2×18	2×12	10% Cu_2O	0.5	130	2×12	49
18	2×18	2×12	10% Cu_2O	0.5	120	2×12	56
19	2×18	2×12	-----	0.5	120	2×12	Trace
20	2×18	2×12	10% Cu	0.5	120	2×12	42
21	2×18	2×12	10% CuBr	0.5	120	2×12	14
22	2×18	2×12	10% $Fe(OAc)_2$	0.5	120	2×12	trace
23	2×18	2×12	10% Cu_2O	0.5 DMF	120	2×12	NR
24	2×18	2×12	10% Cu_2O	0.5 DMSO	120	2×12	NR
25	2×18	2×12	10% Cu_2O	0.5 TFE	120	2×12	NR
26	2×18	2×12	10% Cu_2O	0.5 Ph	120	2×12	NR
27	2×18	2×12 DCP	10% Cu_2O	0.5	120	2×12	trace
28	2×18	2×12 BPO	10% Cu_2O	0.5	120	2×12	trace
29	2×18	2×12	5% Cu_2O	0.5	120	2×12	62
30	2×18	2×12	2% Cu_2O	0.5	120	2×12	51

Transformation of the arylsilane products.

(1)



1 equiv (0.25 mmol) **5 equiv**

An oven-dried 5 mL screw-capped test tube containing a stirring bar was charged

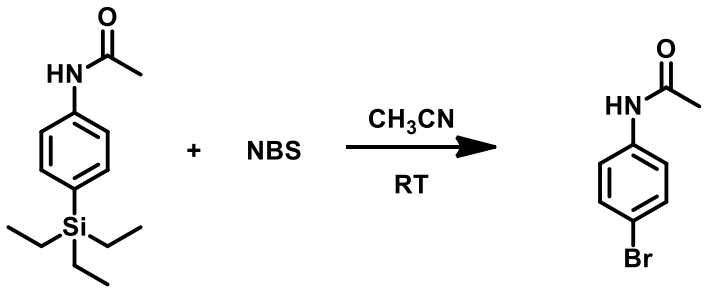
with *N*-(4-(triethylsilyl)phenyl)acetamide (62 mg, 0.25 mmol) and NCS (168 mg, 5 equiv.). The test tube was evacuated and back-filled with dry argon (this sequence was repeated three times). Dry acetonitrile (3 mL) was then added into the tube by syringe through the septum under a positive pressure of argon and the resulting mixture was stirred at 40 ^{o}C for 24 h. Then the mixture was concentrated and purified by column chromatography in silica gel (Hexanes/AcOEt = 5/1) to yield the title product *N*-(2,4-dichlorophenyl)acetamide (Yield: 85%, 43 mg, colorless liquid).

^{1}H NMR (400 MHz, $CDCl_3$): δ 8.33 (d, *J* = 8.8 Hz, 1H), 7.56 (s, 1H), 7.37 (d, *J* = 2.4 Hz, 1H), 7.24 (dd, *J* = 8.8, 2.4 Hz, 1H), 2.24 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 168.2, 133.3, 129.0, 128.6, 127.9, 122.9, 122.2, 24.8.

MS(EI): *m/z*(%): 207(2.5), 205(12.0), 203(18.9), 168(24.1), 161(100.0)

(2)



1 equiv (0.25 mmol) 5 equiv

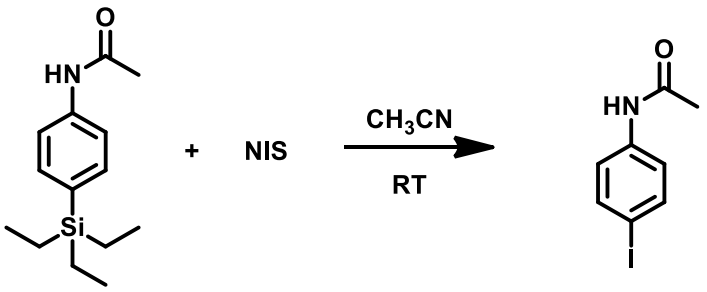
An oven-dried 5 mL screw-capped test tube containing a stirring bar was charged with *N*-(4-(triethylsilyl)phenyl)acetamide (62 mg, 0.25 mmol) and NBS (222 mg, 5 equiv.). The test tube was evacuated and back-filled with dry argon (this sequence was repeated three times). Dry acetonitrile (3 mL) was then added into the tube by syringe through the septum under a positive pressure of argon and the resulting mixture was stirred at room temperature for 24 h. Then the mixture was concentrated and purified by column chromatography in silica gel (Hexanes/AcOEt = 5/1) to yield the title product *N*-(4-bromophenyl)acetamide (Yield: 88%, 47mg, white solid).

^{1}H NMR (400 MHz, DMSO): δ 10.07 (s, 1H), 7.55 (d, *J* = 8.8 Hz, 2H), 7.46 (d, *J* = 8.8 Hz, 2H), 2.04 (s, 3H).

^{13}C NMR (101 MHz, DMSO): δ 168.6, 138.9, 131.6, 120.9, 114.6, 24.1.

MS(EI): *m/z*(%): 215(24.8), 213(26.5), 173(98.2), 171(100.0), 105(45.0), 92(38.8).

(3)



1 equiv (0.25 mmol) **5 equiv**

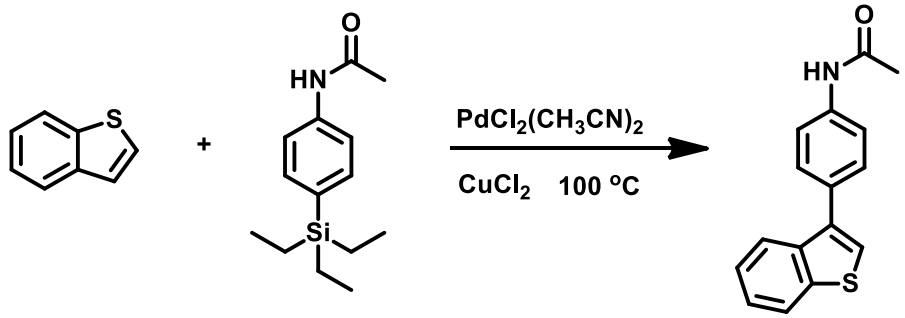
An oven-dried 5 mL screw-capped test tube containing a stirring bar was charged with *N*-(4-(triethylsilyl)phenyl)acetamide (61 mg, 0.25 mmol) and N-iodosuccinimide (281 mg, 5 equiv.). The test tube was evacuated and back-filled with dry argon (this sequence was repeated three times). Dry acetonitrile (3 mL) was then added into the tube by syringe through the septum under a positive pressure of argon and the resulting mixture was stirred at room temperature for 24 h. Then the mixture was concentrated and purified by column chromatography in silica gel (Hexanes/AcOEt = 5/1) to yield the title product *N*-(4-iodophenyl)acetamide (Yield: 67%, 44 mg, white solid).

^{1}H NMR (400 MHz, DMSO): δ 10.04 (s, 1H), 7.61 (d, *J* = 8.8 Hz, 2H), 7.42 (d, *J* = 8.8 Hz, 2H), 2.03 (s, 3H).

^{13}C NMR (101 MHz, DMSO): δ 168.6, 139.2, 137.4, 121.2, 86.4, 24.2.

MS(EI): *m/z*(%): 261(46.4), 219(100.0), 92(42.2).

(4)



1 equiv (0.5 mmol) **2 equiv**

A 5 mL glass vial was charged with $PdCl_2(MeCN)_2$ (6.5 mg, 5 mol %, 0.025 mmol), $CuCl_2$ (134.5 mg, 1.0 mmol), and benzo[b]thiophene (0.5 mmol). The vial was

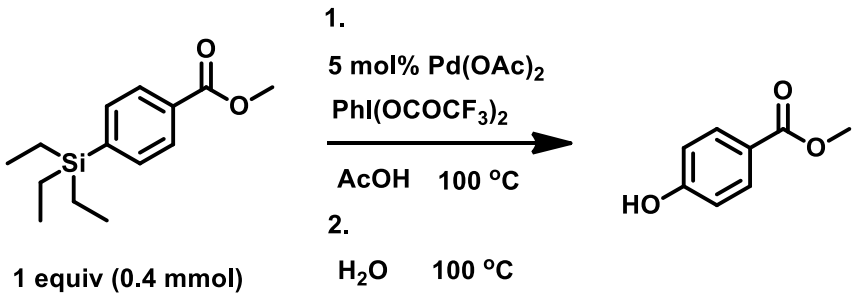
evacuated and refilled with N_2 through a MininertTM valve. Then, 0.5 mL of dried toluene and N-(4-(triethylsilyl)phenyl)acetamide (1.0 mmol) were added, and the resulting mixture was stirred at 100 ℃ for 24 h. The reaction mixture was cooled to room temperature, and passed through a silica gel short column (dichloromethane). After the volatile was removed in vacuo, the residue was purified by silica gel flash column chromatography to give the corresponding cross-coupling product (Yield: 62%, 83 mg, white solid).

^{1}H NMR (400 MHz, $CDCl_3$): δ 7.93 – 7.86 (m, 2H), 7.68 (s, 1H), 7.63 (d, *J* = 8.8 Hz, 2H), 7.53 (d, *J* = 8.4 Hz, 2H), 7.39 – 7.36 (m, 2H), 7.34 (s, 1H), 2.22 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 168.6, 140.6, 137.8, 137.4, 137.3, 132.0, 129.2, 124.4, 124.3, 123.1, 122.9, 122.8, 120.2, 24.6.

HRMS (ESI, m/z): Calculated for $C_{16}H_{13}NOS$ $(M+H)^+$ 268.0791, found 268.0792.

(5)



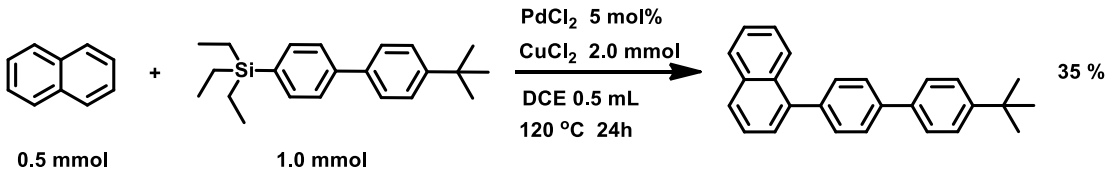
A mixture of methyl 4-(triethylsilyl)benzoate (0.4 mmol), $PhI(OAc)_2$ (0.6 mmol), and $Pd(OAc)_2$ (0.02 mmol) in AcOH (1 mL) was stirred at 100 ℃ for 24 h. To the reaction mixture, then, was added water (1 mL) and the mixture was stirred at 100 ℃ for 3 h. The reaction mixture was poured into aqueous $NaHCO_3$ solution and extract with CH_2Cl_2 (20 mL × 3). The combined organic extract was dried over anhydrous Na_2SO_4, and concentrated under a reduced pressure. The product was separated by column chromatography on silica gel with hexane/AcOEt eluent (Yield: 53%, 32 mg, white solid).

^{1}H NMR (400 MHz, CDCl3): δ 7.96 (d, J = 8.8 Hz, 2H), 6.86 (d, J = 8.8 Hz, 2H), 5.56 (s, 1H), 3.89 (s, 3H).

^{13}C NMR (101 MHz, CDCl3): δ 166.9, 159.7, 131.9, 122.7, 115.2, 51.9.

MS(EI): m/z(%): 152(48.6), 121(100.0), 93(22.2), 65(11.6).

(6)



Naphthalene (0.5 mmol), aryltrimethylsilanes (1.0 mmol), $CuCl_2$ (269.0 mg, 2.0 mmol), and $PdCl_2$ (4.4 mg, 0.025 mmol) in 0.5 mL of dried 1.2-dichloroethane was stirred at 120 ℃ for 24 h. The reaction mixture was cooled to room temperature and passed through a silica gel short column (dichloroethane). After the volatile was removed in vacuo, the residue was purified by silica gel flash chromatography (hexane) to give the cross-coupling product (Yield: 35%, 59 mg, white solid).

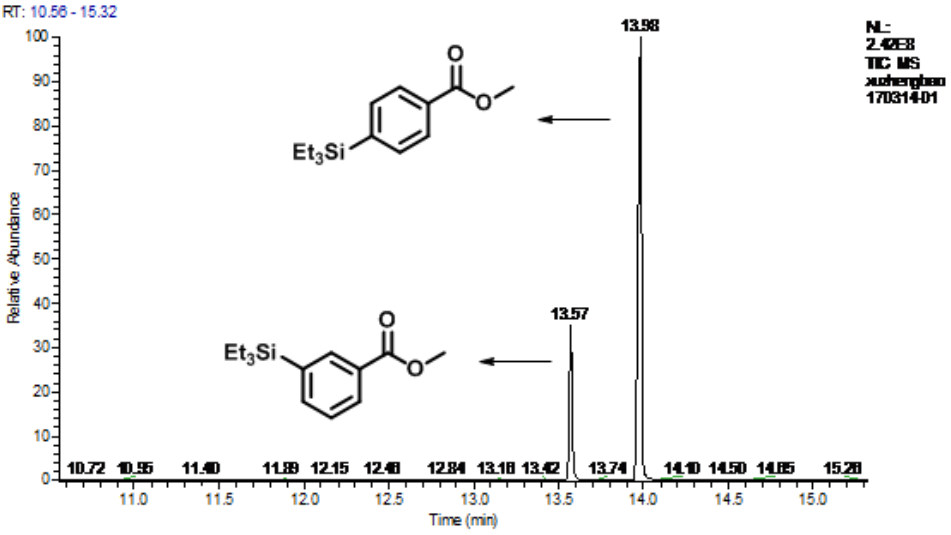
^{1}H NMR (400 MHz, $CDCl_3$): δ 8.10 (d, *J* = 8.4 Hz, 1H), 8.00 (d, *J* = 7.6 Hz, 1H), 7.95 (d, *J* = 8.4 Hz, 1H), 7.80 (d, *J* = 8.4 Hz, 2H), 7.72 (d, *J* = 8.4 Hz, 2H), 7.65 (d, *J* = 8.0 Hz, 2H), 7.62 – 7.51 (m, 6H), 1.48 (s, 9H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 150.3, 139.9, 139.9, 139.4, 137.9, 133.8, 131.6, 130.4, 128.3, 127.6, 126.9, 126.8, 126.7, 126.0, 125.8, 125.4, 34.5, 31.4.

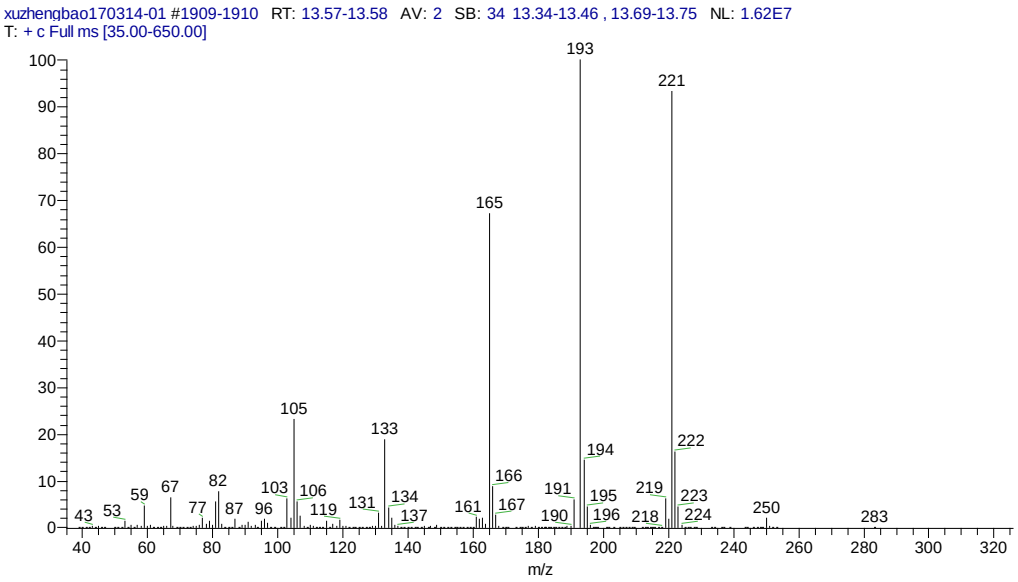
MS(EI): *m/z*(%): 336(83.2), 322(25.5), 321(100.0), 146(30.9).

Confirmation of isomer structure

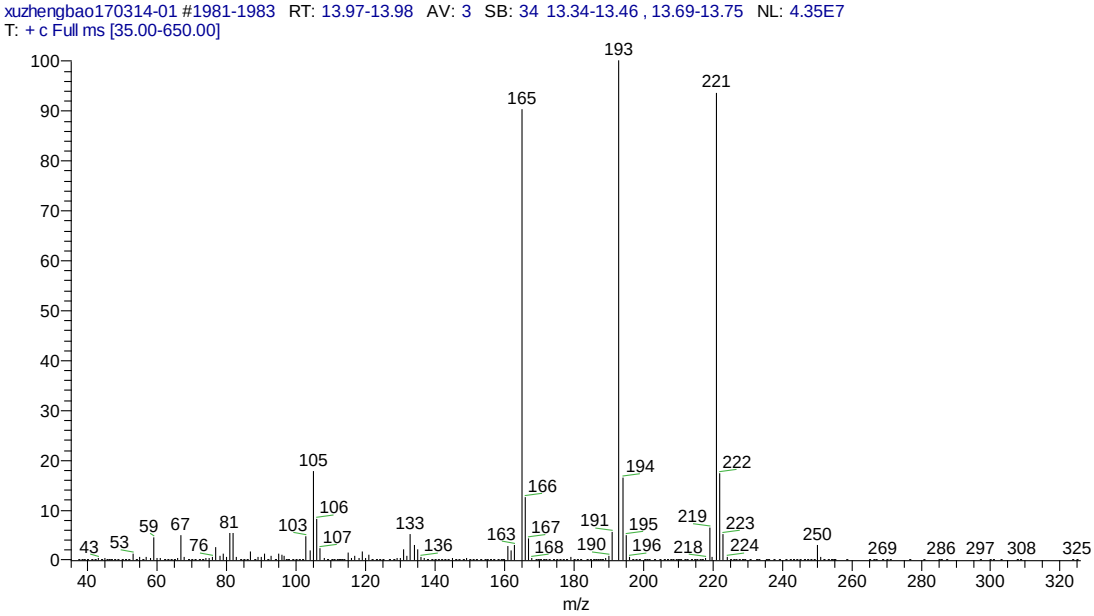
(1) Mixture of isomers(GC-MS):



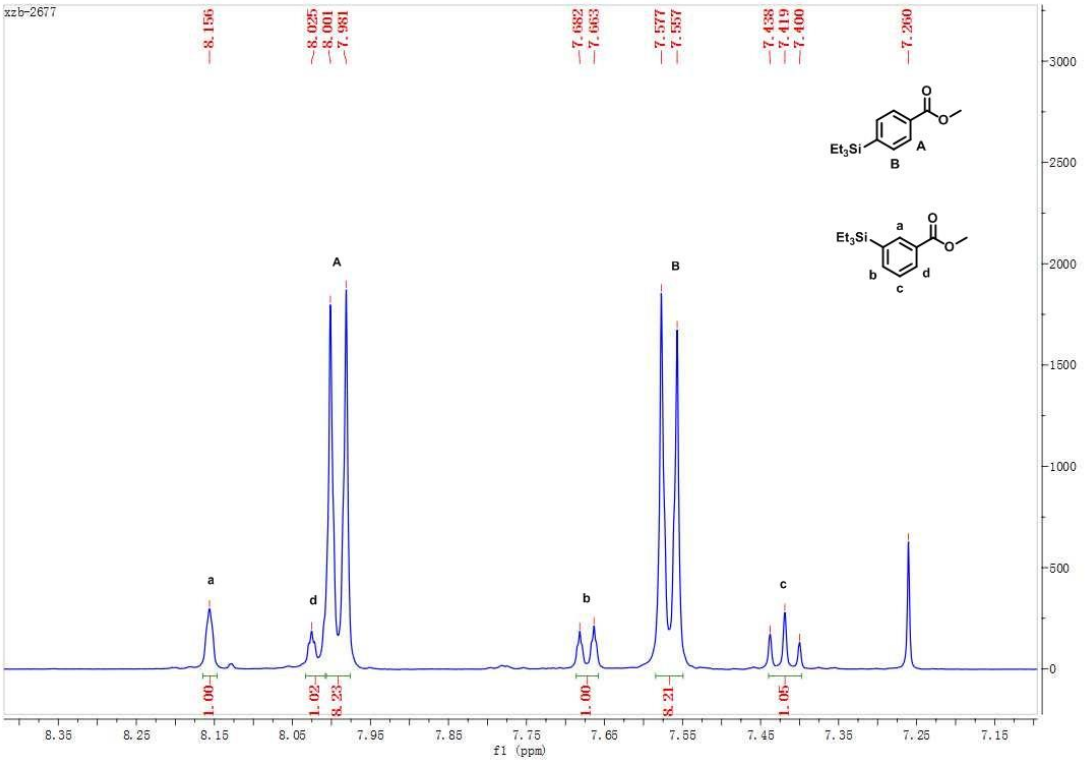
methyl 3-(triethylsilyl)benzoate (MS)



methyl 4-(triethylsilyl)benzoate (MS)

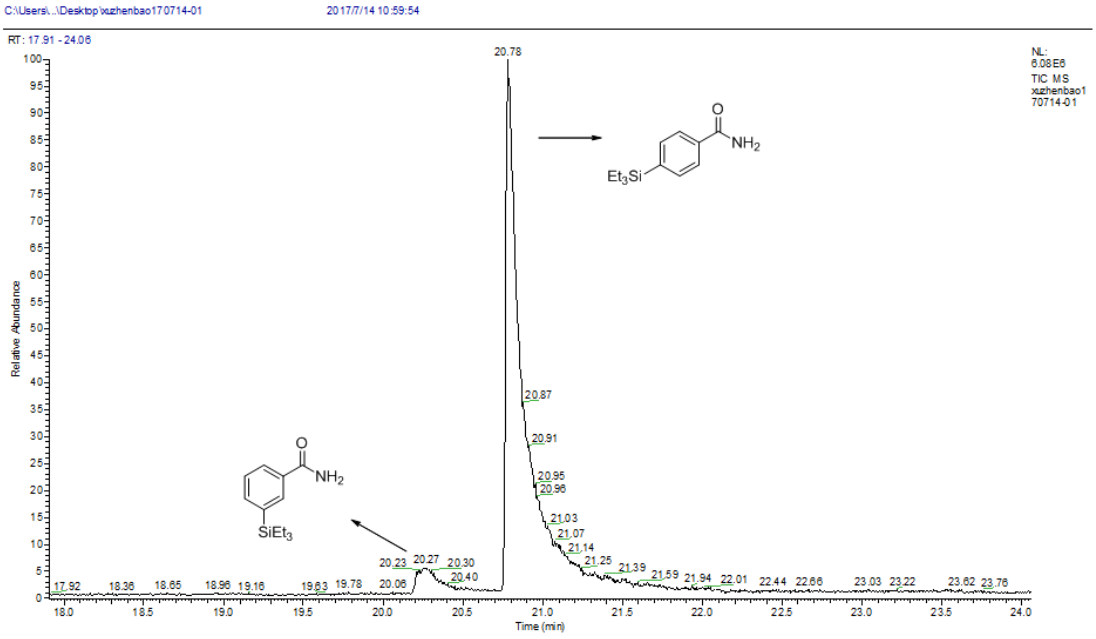


Mixture of isomers (^{1}H NMR)

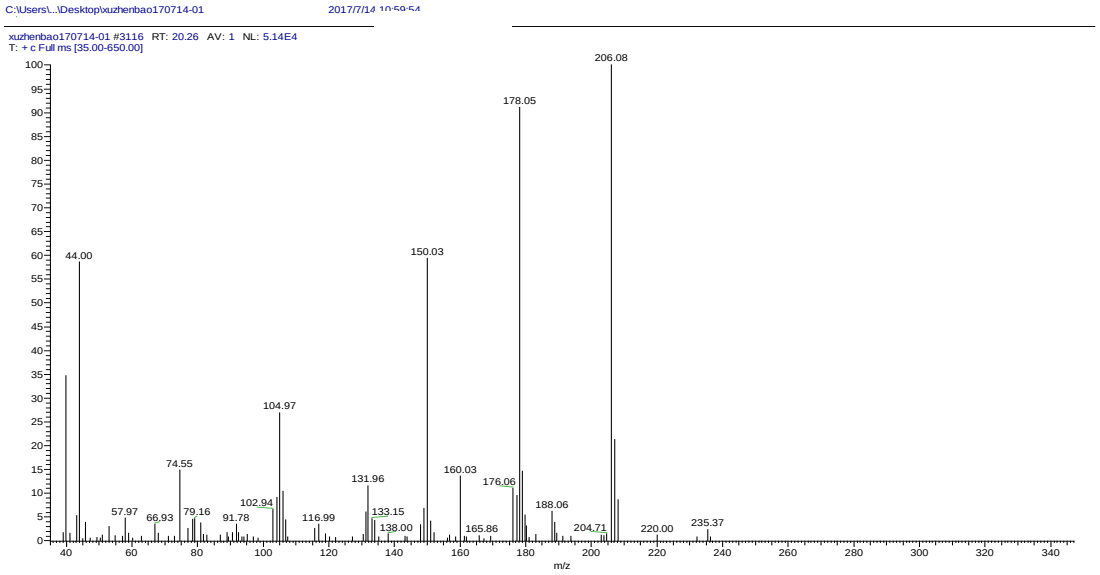


From these spectra, we can know that the mixture of isomers are *para*-isomer and *meta*- isomer, the ratio of the isomers: *p*: *m* = 4: 1.

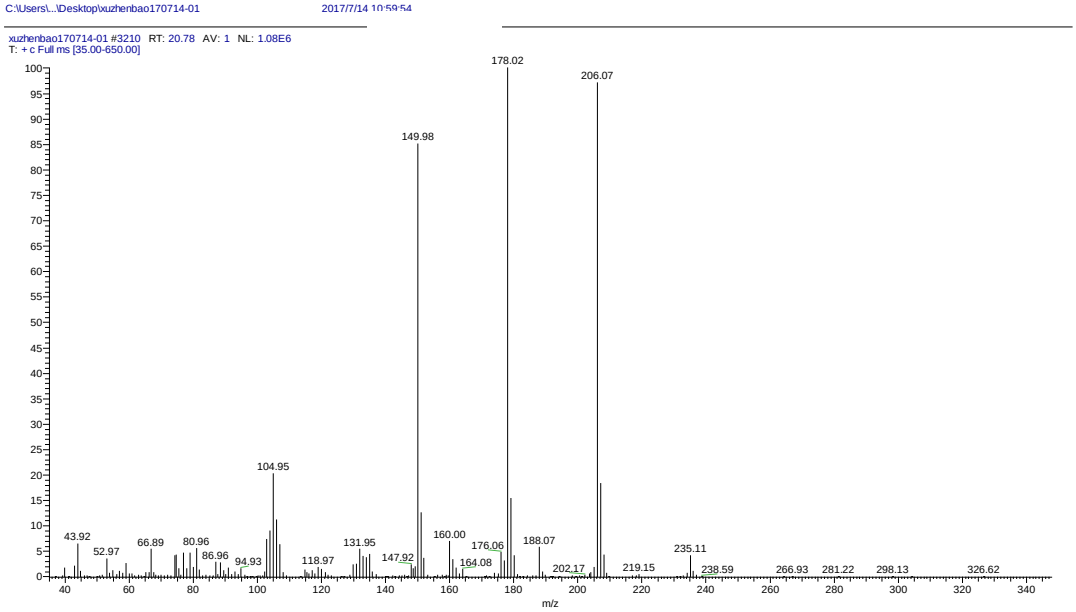
(2) Mixture of isomers(GC-MS):



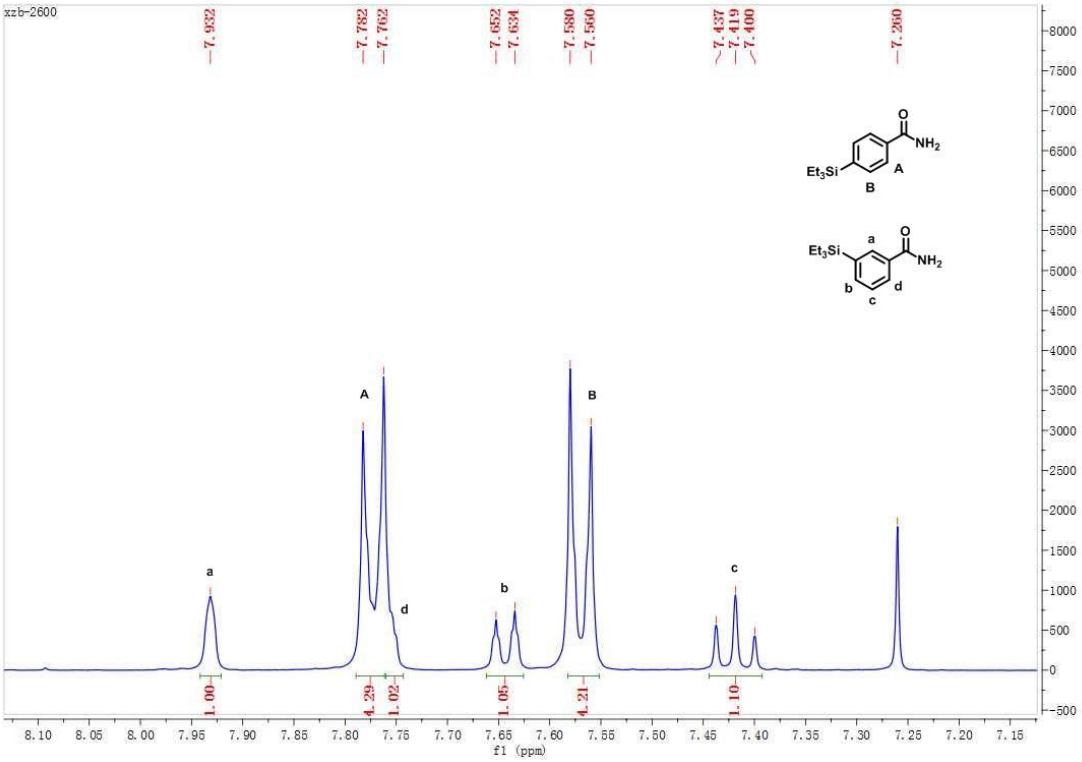
3-(triethylsilyl)benzamide (MS)



4-(triethylsilyl)benzamide (MS)



Mixture of isomers (^{1}H NMR)



From these spectra, we can know that the mixture of isomers are *para*-isomer and *meta*- isomer, the ratio of the isomers: *p*: *m* = 2: 1.

Physical data and references for the following products

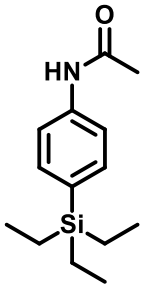
All known compounds are determined by ^{1}H NMR, ^{19}F NMR and ^{13}C NMR, MS analysis and compared with which were cited in the following references, and the new compounds were further confirmed by HRMS and/or element analysis.

References:

1. L. Zhang, Z. Hang, Z.-Q. Liu**,** *Angew. Chem. Int. Ed***. 2016**, *55*, 236-239.
2. K. Funaki, T. Sato, S. Qi, *Org. Lett.* **2012**, *14*, 6186-6189.
3. K. Gondo, J. Oyamada, T. Kitamura, *Org. Lett.* **2015**, *17*, 4778-4781.
4. K. Funaki, H. Kawai, T. Sato, S. Qi, *Chem. Lett.*. **2011**, *40*, 1050-1052.
5. T. Komiyama, Y. Minami, T. Hiyama, *Angew. Chem. Int. Ed***. 2016**, *55*, 15787-15791.

1. N-(4-(triethylsilyl)phenyl)acetamide

A yellow solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 3/1; 62%, 15.4 mg)



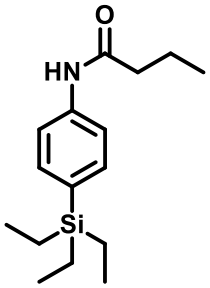
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.49 (d, *J* = 8.4 Hz, 2H), 7.47(s, 1H), 7.43 (d, *J* = 8.0 Hz, 2H), 2.16 (s, 3H), 0.95 (t, *J* = 8.0 Hz, 9H), 0.76 (q, *J* = 8.0 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 168.4, 138.4, 134.9, 132.9, 119.0, 24.6, 7.3, 3.4.

HRMS (ESI, m/z): Calculated for $C_{14}H_{23}NOSi$ $(M+H)^+$ 250.1622, found 250.1620.

2. N-(4-(triethylsilyl)phenyl)butyramide

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 3/1; 53%, 14.7 mg)



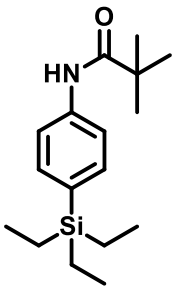
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.50 (d, *J* = 8.0 Hz, 2H), 7.43 (d, *J* = 8.4 Hz, 2H), 7.21 (s, 1H), 2.33 (t, *J* = 7.6 Hz, 2H), 1.80 – 1.71 (m, 2H), 1.00 (t, *J* = 7.2 Hz, 3H), 0.95 (t, *J* = 7.6 Hz, 9H), 0.77 (q, *J* = 7.6 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 171.2, 138.4, 135.0, 132.8, 118.9, 39.8, 19.1, 13.7, 7.3, 3.4.

HRMS (ESI, m/z): Calculated for $C_{16}H_{27}NOSi$ $(M+H)^+$ 278.1935, found 278.1936.

3. N-(4-(triethylsilyl)phenyl)pivalamide

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 3/1; 59%, 17.2 mg)

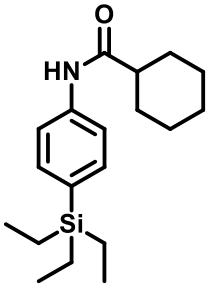


^{1}H NMR (400 MHz, $CDCl_3$): δ 7.52 (d, *J* = 8.4 Hz, 2H), 7.44 (d, *J* = 8.4 Hz, 2H), 7.31 (s, 1H), 1.31 (s, 3H), 0.94 (t, *J* = 7.6 Hz, 9H), 0.77 (q, *J* = 7.6 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 176.5, 138.5, 134.9, 132.8, 119.1, 39.6, 27.6, 7.3, 3.4.

HRMS (ESI, m/z): Calculated for $C_{17}H_{29}NOSi$ $(M+H)^+$ 292.2091, found 292.2092.

4. N-(4-(triethylsilyl)phenyl)cyclohexanecarboxamide

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 3/1; 50%, 15.9 mg)

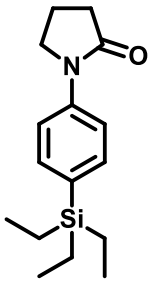


^{1}H NMR (400 MHz, $CDCl_3$): δ 7.54 (d, *J* = 8.0 Hz, 2H), 7.46 (s, 1H), 7.42 (d, *J* = 8.0 Hz, 2H), 2.24 (tt, *J* = 11.6, 3.2 Hz, 1H), 1.93 (d, *J* = 12.8 Hz, 1H), 1.81 (dd, *J* = 9.6, 3.2 Hz, 2H), 1.68 (d, *J* = 8.0 Hz, 1H), 1.52 (dt, *J* = 12.0, 7.6 Hz, 2H), 1.32 – 1.21 (m, 3H), 0.94 (t, *J* = 8.0 Hz, 9H), 0.76 (q, *J* = 8.0 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 174.5, 138.6, 134.9, 132.5, 118.9, 46.5, 32.0, 29.6, 25.6, 7.3, 3.3.

HRMS (ESI, m/z): Calculated for $C_{19}H_{31}NOSi$ $(M+H)^+$ 318.2248, found 318.2253.

5. 1-(4-(triethylsilyl)phenyl)pyrrolidin-2-one

A white solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 5/1; 51%, 14.0 mg)



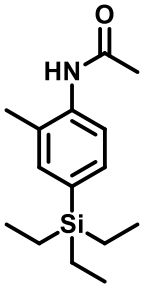
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.59 (d, *J* = 8.8 Hz, 2H), 7.49 (d, *J* = 8.8 Hz, 2H), 3.85 (t, *J* = 6.8 Hz, 2H), 2.59 (t, *J* = 8.0 Hz, 2H), 2.18 – 2.10 (m, 2H), 0.95 (t, *J* = 7.6 Hz, 9H), 0.78 (q, *J* = 7.6 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 174.1, 139.8, 134.7, 133.1, 119.0, 48.5, 32.7, 18.0, 7.3, 3.3.

HRMS (ESI, m/z): Calculated for $C_{16}H_{25}NOSi$ $(M+H)^+$ 276.1778, found 276.1777.

6. N-(2-methyl-4-(triethylsilyl)phenyl)acetamide

A colorless liquid after purification by flash column chromatography (petroleum

ether/ethyl acetate = 3/1; 62%, 16.3 mg)

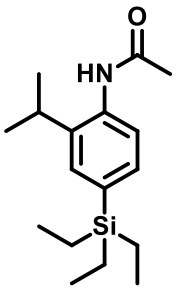


^{1}H NMR (400 MHz, $CDCl_3$): δ 7.77 (d, *J* = 8.0 Hz, 1H), 7.32 (d, *J* = 8.0 Hz, 1H), 7.28 (s, 1H), 7.08 (s, 1H), 2.26 (s, 3H), 2.19 (s, 3H), 0.95 (t, *J* = 8.0 Hz, 9H), 0.77 (q, *J* = 8.0 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 168.2, 136.3, 136.2, 134.0, 132.8, 127.8, 122.2, 24.3, 17.8, 7.3, 3.3.

HRMS (ESI, m/z): Calculated for $C_{15}H_{25}NOSi$ $(M+H)^+$ 264.1778, found 264.1776.

7. N-(2-isopropyl-4-(triethylsilyl)phenyl)acetamide

A white solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 3/1; 60%, 17.5 mg)

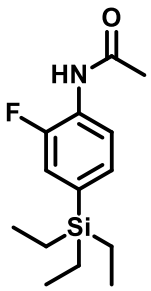


^{1}H NMR (400 MHz, $CDCl_3$): δ 7.63 (d, *J* = 7.6 Hz, 1H), 7.38 (s, 1H), 7.32 (dd, *J* = 7.6, 1.2 Hz, 1H), 7.08 (s, 1H), 3.03 (dt, *J* = 13.6, 6.8 Hz, 1H), 2.20 (s, 3H), 1.25 (d, *J* = 6.8 Hz, 6H), 0.96 (t, *J* = 7.6 Hz, 9H), 0.77 (q, *J* = 7.6 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 168.6, 139.1, 134.9, 134.5, 132.3, 131.4, 123.9, 27.9, 24.3, 23.1, 7.4, 3.4.

HRMS (ESI, m/z): Calculated for $C_{17}H_{29}NOSi$ $(M+H)^+$ 292.2091, found 292.2094.

8. N-(2-fluoro-4-(triethylsilyl)phenyl)acetamide

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 3/1; 63%, 16.8 mg)

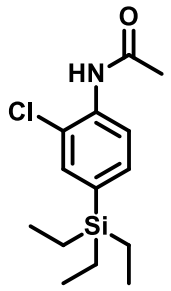


^{1}H NMR (400 MHz, $CDCl_3$): δ 8.27 (t, *J* = 8.0 Hz, 1H), 7.39 (s, 1H), 7.22 (d, *J* = 8.0 Hz, 1H), 7.17 (d, *J* = 11.2 Hz, 1H), 2.22 (s, 3H), 0.94 (t, *J* = 8.0 Hz, 9H), 0.76 (q, *J* = 8.0 Hz, 6H).
^{19}F NMR (376 MHz, $CDCl_3$): δ -133.04 – -133.10 (m, 1F).
^{13}C NMR (101 MHz, $CDCl_3$): δ 168.2, 152.0 (d, *J* = 246.0 Hz), 134.2, 130.4 (d, *J* = 3.6 Hz), 126.6 (d, *J* = 9.7 Hz), 121.0, 119.7 (d, *J* = 16.8 Hz), 24.6, 7.2, 3.3.

HRMS (ESI, m/z): Calculated for $C_{14}H_{22}FNOSi$ $(M+H)^+$ 268.1527, found 268.1528.

9. N-(2-chloro-4-(triethylsilyl)phenyl)acetamide

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 3/1; 43%, 12.2 mg)

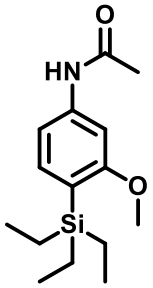


^{1}H NMR (400 MHz, $CDCl_3$): δ 8.33 (d, *J* = 8.0 Hz, 1H), 7.63 (s, 1H), 7.43 (d, *J* = 1.2 Hz, 1H), 7.36 (dd, *J* = 8.0, 1.2 Hz, 1H), 2.23 (s, 3H), 0.95 (t, *J* = 8.4 Hz, 9H), 0.77 (q, *J* = 8.4 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 168.2, 134.8, 134.5,134.3, 133.6, 122.4, 120.9, 24.8, 7.2, 3.2.

HRMS (ESI, m/z): Calculated for $C_{14}H_{22}ClNOSi$ $(M+H)^+$ 284.1232, found 284.1230.

10. N-(3-methoxy-4-(triethylsilyl)phenyl)acetamide

A white solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 3/1; 72%, 20.1 mg)

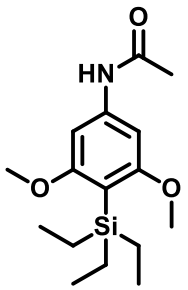


^{1}H NMR (400 MHz, $CDCl_3$): δ 8.00 (s, 1H), 7.33 (d, *J* = 0.8 Hz, 1H), 7.23 (d, *J* = 8.0 Hz, 1H), 6.90 (d, *J* = 7.6 Hz, 1H), 3.71 (s, 3H), 2.16 (s, 3H), 0.91 (t, *J* = 7.6 Hz, 9H), 0.78 (q, *J* = 7.6 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 168.8, 165.1, 140.4, 136.1, 120.4, 111.2, 101.7, 54.8, 24.5, 7.5, 3.4.

HRMS (ESI, m/z): Calculated for $C_{15}H_{25}NO_2Si$ $(M+H)^+$ 280.1727, found 280.1726.

11. N-(3,5-dimethoxy-4-(triethylsilyl)phenyl)acetamide

A white solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 3/1; 76%, 23.5 mg)



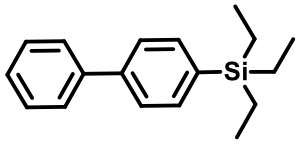
^{1}H NMR (400 MHz, $CDCl_3$): δ 8.05 (s, 1H), 6.76 (s, 2H), 3.65 (s, 6H), 2.16 (s, 3H), 0.90 (t, *J* = 7.6 Hz, 9H), 0.79 (q, *J* = 7.6 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 168.8, 166.1, 141.0, 107.4, 95.3, 54.9, 24.6, 7.8, 5.1.

HRMS (ESI, m/z): Calculated for $C_{16}H_{27}NO_3Si$ $(M+H)^+$ 310.1833, found 310.1832.

12. [1,1'-biphenyl]-4-yltriethylsilane

A colorless liquid after purification by flash column chromatography (petroleum ether; 32%, 8.6 mg)



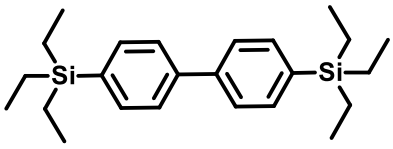
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.62 (d, *J* = 7.6 Hz, 2H), 7.59 (dt, *J* = 8.4, 1.6 Hz, 4H), 7.45 (t, *J* = 7.6 Hz, 2H), 7.35 (t, *J* = 7.2 Hz, 1H), 1.01 (t, *J* = 7.6 Hz, 9H), 0.84 (q, *J* = 7.6 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 141.4, 141.2, 136.2, 134.7, 128.7, 127.3, 127.1, 126.4, 7.4, 3.4.

MS(EI): *m/z*(%): 268(23.2), 239(68.1), 211(89.4), 183(100.0), 181(50.3).

12^{c}. 4,4'-bis(triethylsilyl)-1,1'-biphenyl

A colorless liquid after purification by flash column chromatography (petroleum ether; 14%, 5.4 mg)



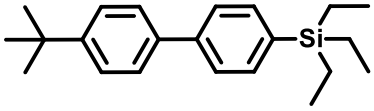
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.58 (q, *J* = 8.4 Hz, 8H), 1.00 (t, *J* = 7.6 Hz, 18H), 0.83 (q, *J* = 7.6 Hz, 12H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 141.4, 136.3, 134.6, 126.3, 7.4, 3.4

MS(EI): *m/z*(%): 382(24.0), 353(72.9), 325(47.0), 297(100.0), 212(49.7), 134(41.9), 120(43.7), 106(75.7).

13. (4'-(tert-butyl)-[1,1'-biphenyl]-4-yl)triethylsilane

A colorless liquid after purification by flash column chromatography (petroleum ether; 51%, 16.5 mg)



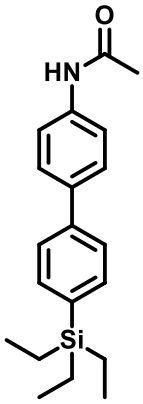
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.61 – 7.55 (m, 6H), 7.48 (d, *J* = 8.4 Hz, 2H), 1.39 (s, 9H), 1.02 (t, *J* = 8.0 Hz, 9H), 0.85 (q, *J* = 8.0 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 150.2, 141.3, 138.3, 135.8, 134.6, 126.7, 126.2, 125.7, 34.5, 31.4, 7.4, 3.4.

MS(EI): *m/z*(%): 324(23.0), 295(54.7), 267(48.8), 239(100.0), 112(38.8), 98(38.1).

14. N-(4'-(triethylsilyl)-[1,1'-biphenyl]-4-yl)acetamide

A white solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 3/1; 43%, 14.0 mg)



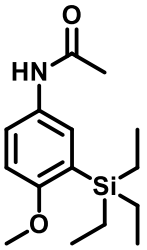
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.56 (d, *J* = 7.6 Hz, 8H), 7.45 (s, 1H), 2.20 (s, 3H), 0.99 (t, *J* = 7.6 Hz, 9H), 0.82 (q, *J* = 7.6 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 168.3, 140.6, 137.2, 137.1, 136.1, 134.7, 127.5, 126.0, 120.1, 24.6, 7.41, 3.4.

HRMS (ESI, m/z): Calculated for $C_{20}H_{27}NOSi$ $(M+H)^+$ 326.1935, found 326.1942.

15. N-(4-methoxy-3-(triethylsilyl)phenyl)acetamide

A white solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 3/1; 42%, 11.7 mg)



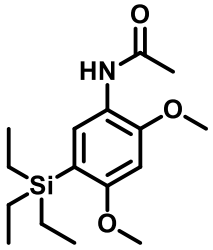
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.63 (dd, *J* = 8.8, 2.8 Hz, 1H), 7.48 (s, 1H), 7.22 (d, *J* = 2.8 Hz, 1H), 6.76 (d, *J* = 8.8 Hz, 1H), 3.75 (s, 3H), 2.13 (s, 3H), 0.92 (t, *J* = 7.6 Hz, 9H), 0.79 (q, *J* = 7.6 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 168.3, 161.3, 130.7, 128.1, 125.7, 123.0, 109.6, 55.2, 24.2, 7.5, 3.4.

HRMS (ESI, m/z): Calculated for $C_{15}H_{25}NO_2Si$ $(M+H)^+$ 280.1727, found 280.1725.

16. N-(2,4-dimethoxy-5-(triethylsilyl)phenyl)acetamide

A white solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 3/1; 36%, 11.1 mg)

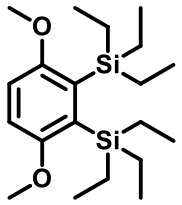


^{1}H NMR (400 MHz, $CDCl_3$): δ 8.26 (s, 1H), 7.47 (s, 1H), 6.42 (s, 1H), 3.88 (s, 3H), 3.77 (s, 3H), 2.16 (s, 3H), 0.93 (t, *J* = 7.6 Hz, 9H), 0.79 (q, *J* = 7.6 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 167.8, 161.4, 150.2, 127.7, 120.7, 115.7, 93.9, 55.5, 55.3, 24.6, 7.6, 3.6.

HRMS (ESI, m/z): Calculated for $C_{16}H_{27}NO_3Si$ $(M+H)^+$ 310.1833, found 310.1836.

17. (3,6-dimethoxy-1,2-phenylene)bis(triethylsilane)

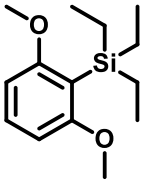
A white solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 52%, 19.1 mg)



^{1}H NMR (400 MHz, $CDCl_3$): δ 6.83 (s, 2H), 3.76 (s, 6H), 0.97 (t, *J* = 8.0 Hz, 18H), 0.84 (q, *J* = 8.0 Hz, 12H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 158.5, 127.2, 117.0, 55.6, 7.6, 3.6.
MS(EI): *m/z*(%): 366(57.6), 337(42.4), 309(54.1), 251(28.9), 235(100.0), 126(25.6).

18. (2,6-dimethoxyphenyl)triethylsilane

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 41%, 10.3 mg)



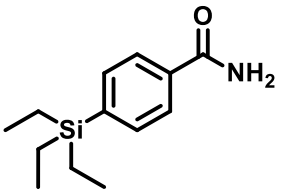
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.28 (t, *J* = 8.0 Hz, 1H), 6.50 (d, *J* = 8.0 Hz, 2H), 3.75 (s, 6H), 0.94 (t, *J* = 6.8 Hz, 9H), 0.85 (q, *J* = 7.6 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 165.9, 131.1, 112.0, 103.3, 55.0, 7.8, 5.3.

HRMS (ESI, m/z): Calculated for $C_{14}H_{24}O_2Si$ $(M+H)^+$ 253.1618, found 253.1624.

19. 4-(triethylsilyl)benzamide

A white solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 5/1; 35%, 8.2 mg)

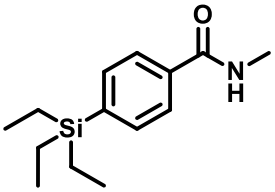


^{1}H NMR (400 MHz, $CDCl_3$): δ 7.77 (d, *J* = 7.6 Hz, 2H), 7.57 (d, *J* = 8.0 Hz, 2H), 6.13 (d, *J* = 32.4 Hz, 1H), 0.95 (t, *J* = 7.6 Hz, 9H), 0.80 (q, *J* = 7.6 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 169.7, 142.9, 134.4, 133.4, 126.2, 7.3, 3.2.

HRMS (ESI, m/z): Calculated for $C_{13}H_{21}NOSi$ $(M+H)^+$ 236.1465, found 236.1467.

20. N-methyl-4-(triethylsilyl)benzamide

A white solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 5/1; 71%, 17.7 mg)

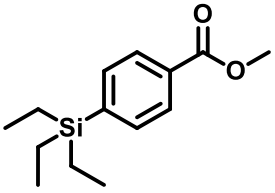


^{1}H NMR (400 MHz, $CDCl_3$): δ 7.71 (d, *J* = 8.0 Hz, 2H), 7.53 (d, *J* = 8.0 Hz, 3H), 6.30 (s, 1H), 3.00 (d, *J* = 4.8 Hz, 3H), 0.95 (t, *J* = 8.0 Hz, 9H), 0.79 (q, *J* = 8.0 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 168.4, 141.9, 134.7, 134.3, 125.8, 26.8, 7.3, 3.2.

HRMS (ESI, m/z): Calculated for $C_{14}H_{23}NOSi$ $(M+H)^+$ 250.1622, found 250.1626.

21. methyl 4-(triethylsilyl)benzoate

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 75%, 18.8 mg)

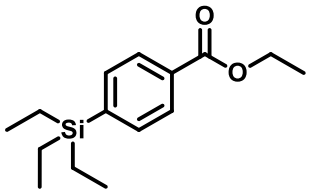


^{1}H NMR (400 MHz, $CDCl_3$): δ 7.99 (d, *J* = 8.0 Hz, 2H), 7.57 (d, *J* = 8.0 Hz, 2H), 3.91 (s, 3H), 0.96 (t, *J* = 7.6 Hz, 9H), 0.81 (q, *J* = 7.6 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 167.3, 144.0, 134.1, 130.2, 128.4, 52.0, 7.3, 3.2.

HRMS (ESI, m/z): Calculated for $C_{14}H_{22}O_2Si$ $(M+H)^+$ 251.1462, found 215.1461.

22. ethyl 4-(triethylsilyl)benzoate

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 76%, 20.1 mg)



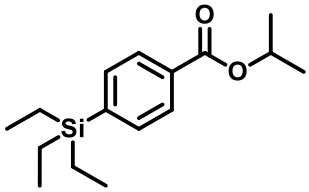
^{1}H NMR (400 MHz, $CDCl_3$): δ 8.00 (d, *J* = 8.0 Hz, 2H), 7.56 (d, *J* = 8.0 Hz, 2H), 4.38 (q, *J* = 6.8 Hz, 2H), 1.39 (t, *J* = 6.8 Hz, 3H), 0.96 (t, *J* = 7.6 Hz, 9H), 0.81 (q, *J* = 7.6 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 166.8, 143.9, 134.1, 130.6, 128.3, 60.8, 14.3, 7.3, 3.2.

HRMS (ESI, m/z): Calculated for $C_{15}H_{24}O_2Si$ $(M+H)^+$ 265.1618, found 265.1617.

23. isopropyl 4-(triethylsilyl)benzoate

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 70%, 19.5 mg)



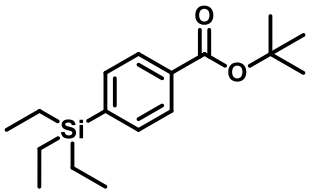
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.99 (d, *J* = 8.0 Hz, 2H), 7.56 (d, *J* = 8.4 Hz, 2H), 5.30 - 5.21 (m, 1H), 1.36 (d, *J* = 6.4 Hz, 6H), 0.96 (t, *J* = 7.6 Hz, 9H), 0.81 (q, *J* = 7.6 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 166.3, 143.7, 134.1, 131.0, 128.3, 68.2, 21.9, 7.3, 3.2.

HRMS (ESI, m/z): Calculated for $C_{16}H_{26}O_2Si$ $(M+H)^+$ 279.1775, found 279.1776.

24. tert-butyl 4-(triethylsilyl)benzoate

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 67%, 19.6 mg)



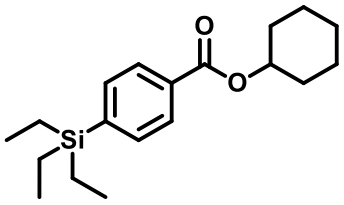
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.95 (d, *J* = 8.4 Hz, 2H), 7.55 (d, *J* = 8.4 Hz, 2H), 1.59 (s, 9H), 0.95 (t, *J* = 7.6 Hz, 9H), 0.80 (q, *J* = 7.6 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 166.0, 143.3, 134.0, 132.1, 128.2, 28.2, 7.3, 3.2.

HRMS (ESI, m/z): Calculated for $C_{17}H_{28}O_2Si$ $(M+Na)^+$ 315.1751, found 315.1750.

25. cyclohexyl 4-(triethylsilyl)benzoate

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 65%, 20.7 mg)



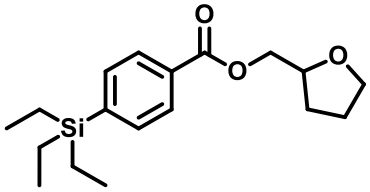
^{1}H NMR (400 MHz, $CDCl_3$): δ 8.01 (d, *J* = 8.0 Hz, 2H), 7.57 (d, *J* = 8.0 Hz, 2H), 5.07 – 5.00 (m, 1H), 1.93 (d, *J* = 8.4 Hz, 2H), 1.81 – 1.78 (m, 2H), 1.63 – 1.55 (m, 4H), 1.49 – 1.43 (m, 2H), 0.96 (t, *J* = 7.6 Hz, 9H), 0.81 (q, *J* = 7.6 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 166.2, 143.7, 134.1, 131.1, 128.3, 72.9, 31.6, 25.5, 23.6, 7.3, 3.2.

HRMS (ESI, m/z): Calculated for $C_{19}H_{30}O_2Si$ $(M+Na)^+$ 341.1907, found 341.1906.

26. (tetrahydrofuran-2-yl)methyl 4-(triethylsilyl)benzoate

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 68%, 21.8 mg)



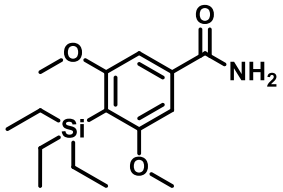
^{1}H NMR (400 MHz, $CDCl_3$): δ 8.01 (d, *J* = 7.6 Hz, 2H), 7.56 (d, *J* = 7.6 Hz, 2H), 4.39 – 4.35 (m, 1H), 4.33 – 4.25 (m, 2H), 3.93 (dd, *J* = 14.8, 6.4 Hz, 1H), 3.83 (dd, *J* = 14.8, 6.4 Hz, 1H), 2.11 – 2.03 (m, 1H), 2.01 – 1.89 (m, 2H), 1.79 – 1.69 (m, 1H), 0.95 (t, *J* = 7.6 Hz, 9H), 0.81 (q, *J* = 7.6 Hz,6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 166.8, 144.1, 134.1, 130.2, 128.5, 76.6, 68.5, 66.8, 28.1, 25.8, 7.3, 3.2.

HRMS (ESI, m/z): Calculated for $C_{18}H_{28}O_3Si$ $(M+H)^+$ 321.1880, found 321.1879.

27. 3,5-dimethoxy-4-(triethylsilyl)benzamide

A white solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 5/1; 60%, 17.7 mg)



^{1}H NMR (400 MHz, $CDCl_3$): δ 6.90 (s, 2H), 6.46 (s, 2H), 3.75 (s, 6H), 0.90 (t, *J* =

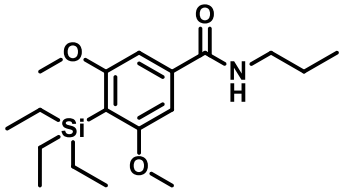
8.0 Hz, 9H), 0.82 (q, *J* = 8.0 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 170.1, 165.8, 136.4, 116.9, 102.1, 55.2, 7.7, 5.0.

HRMS (ESI, m/z): Calculated for $C_{15}H_{25}NO_3Si$ $(M+H)^+$ 296.1676, found 296.1675.

28. 3,5-dimethoxy-N-propyl-4-(triethylsilyl)benzamide

A white solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 5/1; 84%, 28.4 mg)



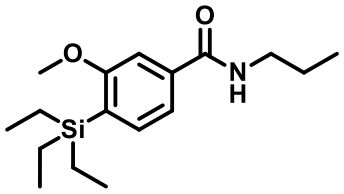
^{1}H NMR (400 MHz, $CDCl_3$): δ 6.86 (s, 2H), 6.51 (s, 1H), 3.74 (s, 6H), 3.37 (dd, *J* = 13.2, 6.4 Hz, 2H), 1.65 – 1.56 (m, 2H), 0.94 (t, *J* = 7.6 Hz, 3H), 0.89 (t, *J* = 7.6 Hz, 9H), 0.81 (q, *J* = 7.6 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 167.8, 165.8, 138.0, 115.8, 101.8, 55.1, 41.7, 22.9, 11.4, 7.7, 5.0.

HRMS (ESI, m/z): Calculated for $C_{18}H_{31}NO_3Si$ $(M+H)^+$ 338.2146, found 338.2145.

29. 3-methoxy-N-propyl-4-(triethylsilyl)benzamide

A white solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 5/1; 80%, 24.6 mg)



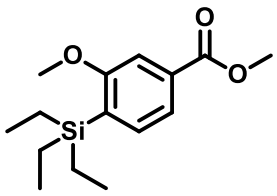
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.35 (d, *J* = 7.6 Hz, 1H), 7.31 (d, *J* = 0.8 Hz, 1H), 7.20 (dd, *J* = 7.6, 0.8 Hz, 1H), 6.34 (s, 1H), 3.81 (s, 3H), 3.40 (dd, *J* = 13.6, 6.4 Hz, 2H), 1.66 – 1.57 (m, 2H), 0.96 (t, *J* = 7.2 Hz, 3H), 0.91 (t, *J* = 7.6 Hz, 9H), 0.80 (q, *J* = 7.6 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 167.7, 164.8, 137.1, 135.8, 129.4, 117.6, 108.3, 55.0, 41.7, 22.9, 11.4, 7.5, 3.3.

HRMS (ESI, m/z): Calculated for $C_{17}H_{29}NO_2Si$ $(M+H)^+$ 308.2040, found 308.2045.

30. methyl 3-methoxy-4-(triethylsilyl)benzoate

A white solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 85%, 23.8 mg)

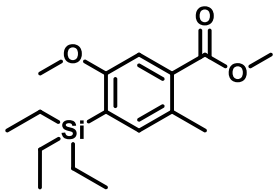


^{1}H NMR (400 MHz, $CDCl_3$): δ 7.61 (dd, *J* = 7.6, 1.2 Hz, 1H), 7.45 (d, *J* = 1.2 Hz, 1H), 7.41 (d, *J* = 7.6 Hz, 1H), 3.91 (s, 3H), 3.84 (s, 3H), 0.93 (t, *J* = 7.6 Hz, 9H), 0.83 (q, *J* = 7.6 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 167.2, 164.4, 135.9, 132.1, 131.7, 121.4, 109.6, 55.05, 52.0, 7.5, 3.3.

HRMS (ESI, m/z): Calculated for $C_{15}H_{24}O_3Si$ $(M+H)^+$ 281.1567, found 281.1572.

31. methyl 5-methoxy-2-methyl-4-(triethylsilyl)benzoate

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 82%, 24.1 mg)

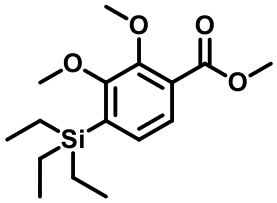


^{1}H NMR (400 MHz, $CDCl_3$): δ 7.33 (s, 1H), 7.18 (s, 1H), 3.90 (s, 3H), 3.80 (s, 3H), 2.52 (s, 3H), 0.93 (t, *J* = 7.6 Hz, 9H), 0.82 (q, *J* = 7.6 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 168.2, 162.4, 139.3, 131.3, 130.8, 130.7, 110.5, 55.1, 51.8, 20.9, 7.5, 3.3.

HRMS (ESI, m/z): Calculated for $C_{16}H_{26}O_3Si$ $(M+H)^+$ 295.1724, found 295.1728.

32. methyl 2,3-dimethoxy-4-(triethylsilyl)benzoate

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 45%, 14.0 mg)

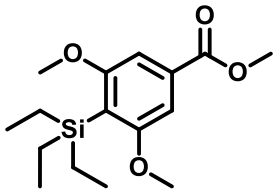


^{1}H NMR (400 MHz, $CDCl_3$): δ 7.44 (d, *J* = 7.6 Hz, 1H), 7.11 (d, *J* = 7.6 Hz, 1H), 3.91 (s, 3H), 3.89 (s, 3H), 3.87 (s, 3H), 0.94 (t, *J* = 7.6 Hz, 9H), 0.82 (q, *J* = 7.6 Hz,6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 166.7, 158.6, 151.6, 136.4, 130.3, 127.2, 125.0, 61.0, 60.2, 52.2, 7.5, 3.5.

HRMS (ESI, m/z): Calculated for $C_{16}H_{26}O_4Si$ $(M+H)^+$ 311.1673, found 311.1678.

33. methyl 3,5-dimethoxy-4-(triethylsilyl)benzoate

A white solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 86%, 26.7 mg)

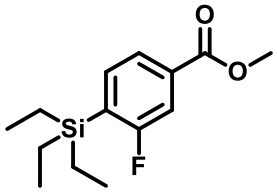


^{1}H NMR (400 MHz, $CDCl_3$): δ 7.14 (s, 2H), 3.91 (s, 3H), 3.79 (s, 6H), 0.91 (t, *J* = 6.4 Hz, 9H), 0.84 (q, *J* = 7.2 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 167.1, 165.7, 132.8, 118.2, 104.1, 55.2, 52.1, 7.8, 5.0.

HRMS (ESI, m/z): Calculated for $C_{16}H_{26}O_4Si$ $(M+H)^+$ 311.1673, found 311.1676.

34. methyl 3-fluoro-4-(triethylsilyl)benzoate

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 63%, 16.9 mg)

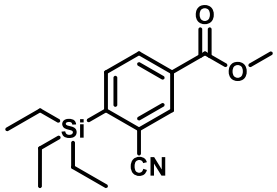


^{1}H NMR (400 MHz, $CDCl_3$): δ 7.78 (d, *J* = 7.6 Hz, 1H), 7.61 (dd, *J* = 8.8, 0.8 Hz, 1H), 7.45 (dd, *J* = 7.6, 5.2 Hz, 1H), 3.92 (s, 3H), 0.95 (t, *J* = 7.6 Hz, 9H), 0.86 (q, *J* = 7.6 Hz, 6H).
^{19}F NMR (376 MHz, $CDCl_3$): δ -99.17 – -99.60 (m, 1F).
^{13}C NMR (101 MHz, $CDCl_3$): δ 167.3 (d, *J* = 218.2 Hz), 166.0, 136.1 (d, *J* = 11.9 Hz), 133.1 (d, *J* = 8.1 Hz), 129.7 (d, *J* = 32.0 Hz), 124.6 (d, *J* = 2.8 Hz), 115.5 (d, *J* = 28.8 Hz), 52.3, 7.2, 3.2.

HRMS (ESI, m/z): Calculated for $C_{14}H_{21}FO_2Si$ $(M+H)^+$ 269.1368, found 269.1369.

35. methyl 3-cyano-4-(triethylsilyl)benzoate

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 38%, 10.4 mg)

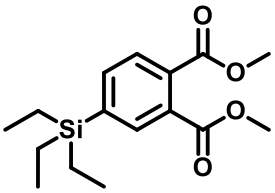


^{1}H NMR (400 MHz, $CDCl_3$): δ 8.32 (d, *J* = 0.8 Hz, 1H), 8.15 (dd, *J* = 8.0, 1.6 Hz, 1H), 7.67 (d, *J* = 8.0 Hz, 1H), 3.95 (s, 3H), 1.02 - 0.94 (m , 15H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 165.4, 148.1, 136.0, 134.3, 131.8, 131.0, 119.2, 118.1, 52.6, 7.26, 2.8.

HRMS (ESI, m/z): Calculated for $C_{15}H_{21}NO_2Si$ $(M+H)^+$ 276.1414, found 276.1419.

36. dimethyl 4-(triethylsilyl)phthalate

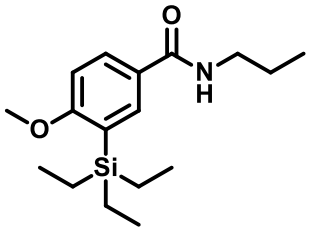
A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 70%, 21.6 mg)



^{1}H NMR (400 MHz, $CDCl_3$): δ 7.79 (s, 1H), 7.68 (d, *J* = 7.6 Hz, 1H), 7.63 (dd, *J* = 7.6, 0.8 Hz, 1H), 3.89 (s, 3H), 3.88 (s, 3H), 0.93 (t, *J* = 7.6 Hz, 9H), 0.80 (q, *J* = 7.6 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 168.5, 168.1, 142.4, 136.8, 134.1, 131.7, 130.9, 127.7, 52.5, 52.5, 7.1, 3.0.

HRMS (ESI, m/z): Calculated for $C_{16}H_{24}O_4Si$ $(M+H)^+$ 309.1517, found 309.1516.

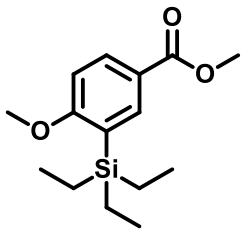
37. 4-methoxy-N-propyl-3-(triethylsilyl)benzamide
A white solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 5/1; 48%, 14.7 mg)



^{1}H NMR (400 MHz, $CDCl_3$): δ 7.77 - 7.74 (m, 2H), 6.81 (d, *J* = 8.4 Hz, 1H), 6.13 (s, 1H), 3.81 (s, 3H), 3.39 (dd, *J* = 14.0, 6.8 Hz, 2H), 1.67 – 1.58 (m, 2H), 0.97 (t, *J* = 7.6 Hz, 3H), 0.91 (t, *J* = 7.6 Hz, 9H), 0.82 (q, *J* = 7.6 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 167.6, 166.8, 134.8, 129.8, 126.7, 125.4, 108.8, 55.1, 41.6, 23.0, 11.4, 7.5, 3.3.

HRMS (ESI, m/z): Calculated for $C_{17}H_{29}NO_2Si$ $(M+H)^+$ 308.2040, found 308.2043.

38. methyl 4-methoxy-3-(triethylsilyl)benzoate
A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 51%, 14.3 mg)

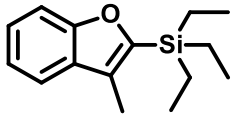


^{1}H NMR (400 MHz, $CDCl_3$): δ 8.05 – 8.03 (m, 2H), 6.83 (d, *J* = 8.0 Hz, 1H), 3.88 (s, 3H), 3.84 (s, 3H), 0.93 (t, *J* = 7.6 Hz, 9H), 0.83 (q, *J* = 7.6 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 168.1, 167.2, 137.8, 133.0, 125.4, 122.2, 108.8, 55.1, 51.8, 7.5, 3.3.

HRMS (ESI, m/z): Calculated for $C_{15}H_{24}O_3Si$ $(M+H)^+$ 281.1567, found 281.1568.

39. triethyl(3-methylbenzofuran-2-yl)silane

A colorless liquid after purification by flash column chromatography (petroleum ether; 76%, 18.7 mg)



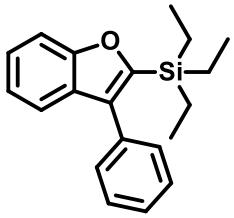
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.53 (dd, *J* = 7.6, 0.4 Hz, 1H), 7.47 (d, *J* = 8.0 Hz, 1H), 7.30 – 7.26 (m, 1H), 7.24 – 7.20 (m, 1H), 2.34 (s, 3H), 1.04 (t, *J* = 7.6 Hz, 9H), 0.92 (q, *J* = 7.6 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 157.7, 156.0, 129.9, 126.0, 124.0, 121.6, 119.1, 111.1, 8.9, 7.3, 3.4.

MS(EI): *m/z*(%): 246(38.1), 217(45.9), 189(100.0), 161(44.5), 115(26.3).

40. triethyl(3-phenylbenzofuran-2-yl)silane

A colorless liquid after purification by flash column chromatography (petroleum ether; 71%, 21.9 mg)



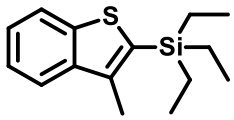
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.61 (d, *J* = 8.4 Hz, 1H), 7.55 – 7.45 (m, 6H), 7.37 (t, *J* = 7.2 Hz, 1H), 7.27 (t, *J* = 7.2 Hz, 1H), 0.99 (t, *J* = 8.0 Hz, 9H), 0.82 (q, *J* = 8.0 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 157.7, 157.0, 133.2, 133.2, 129.8, 129.0, 128.2, 127.6, 124.4, 122.2, 120.0, 111.2, 7.3, 3.6.

HRMS (ESI, m/z): Calculated for $C_{20}H_{24}OSi$ $(M+H)^+$ 309.1669, found 309.1671.

41. triethyl(3-methylbenzo[b]thiophen-2-yl)silane

A colorless liquid after purification by flash column chromatography (petroleum ether; 72%, 18.9 mg)



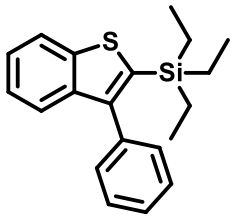
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.87 (d, *J* = 8.0 Hz, 1H), 7.75 (d, *J* = 7.6 Hz, 1H), 7.39 (t, *J* = 7.6 Hz, 1H), 7.34 (t, *J* = 7.6 Hz, 1H), 2.52 (s, 3H), 1.04 (t, *J* = 7.6 Hz, 9H), 0.95 (q, *J* = 7.6 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 143.1, 141.8, 139.0, 132.0, 123.9, 123.5, 122.1, 121.6, 14.6, 7.5, 4.5.

MS(EI): *m/z*(%): 262(51.8), 233(62.5), 205(100.0), 177(97.7).

42. triethyl(3-phenylbenzo[b]thiophen-2-yl)silane

A colorless liquid after purification by flash column chromatography (petroleum ether; 70%, 22.7 mg)



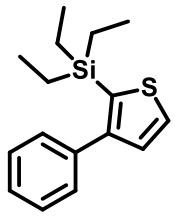
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.97 (d, *J* = 7.6 Hz, 1H), 7.51 (d, *J* = 7.2 Hz, 4H), 7.45 (dd, *J* = 7.4, 2.4 Hz, 2H), 7.42 – 7.38 (m, 1H), 7.37 – 7.33 (m, 1H), 0.98 (t, *J* = 8.0 Hz, 9H), 0.72 (q, *J* = 8.0 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 145.6, 142.9, 141.8, 137.6, 134.9, 130.1, 128.0, 127.6, 124.2, 123.8, 123.1, 121.8, 7.4, 4.5.

HRMS (ESI, m/z): Calculated for $C_{20}H_{24}SSi$ $(M+H)^+$ 325.1441, found 325.1439.

43. triethyl(3-phenylthiophen-2-yl)silane

A colorless liquid after purification by flash column chromatography (petroleum ether; 35%, 9.6 mg)



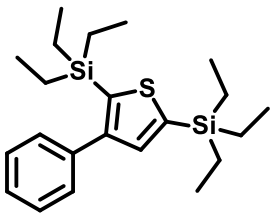
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.59 (d, *J* = 4.4 Hz, 1H), 7.37 – 7.34 (m, 5H), 7.17 (d, *J* = 4.4 Hz, 1H), 0.87 (t, *J* = 8.0 Hz, 9H), 0.64 (q, *J* = 8.0 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 150.9, 139.3, 131.9, 131.2, 129.8, 129.1, 127.8, 127.1, 7.3, 4.8.

HRMS (ESI, m/z): Calculated for $C_{16}H_{22}SSi$ $(M+H)^+$ 275.1284, found 275.1278.

43^c. (3-phenylthiophene-2,5-diyl)bis(triethylsilane)

A colorless liquid after purification by flash column chromatography (petroleum ether; 12%, 4.7 mg)



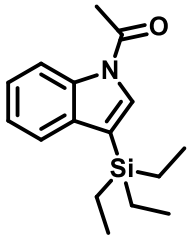
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.37 – 7.32 (m, 5H), 7.26 (s, 1H), 1.03 (t, *J* = 8.0 Hz,

9H), 0.87 (t, *J* = 8.0 Hz, 9H), 0.83 (q, *J* = 8.0 Hz, 6H), 0.65 (t, *J* = 8.0 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 151.7, 141.8, 139.5, 138.5, 137.8, 129.1, 127.7, 127.0, 7.4, 7.4, 4.9, 4.6.

HRMS (ESI, m/z): Calculated for $C_{22}H_{36}SSi_2(M+H)^+$ 389.2149, found 389.2146.

44. 1-(3-(triethylsilyl)-1H-indol-1-yl)ethanone

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 60/1; 30%, 8.2 mg)

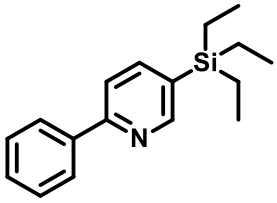


^{1}H NMR (400 MHz, $CDCl_3$): δ 8.44 (d, *J* = 8.4 Hz, 1H), 7.62 (d, *J* = 7.6 Hz, 1H), 7.38 (s, 1H), 7.36 – 7.32 (m, 1H), 7.29 – 7.25 (m, 1H), 2.67 (s, 3H), 1.00 (t, *J* = 7.6 Hz, 9H), 0.90 (q, *J* = 7.6 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 168.3, 136.8, 134.7, 131.8, 124.8, 123.4, 121.9, 116.5, 115.6, 24.1, 7.5, 3.8.

HRMS (ESI, m/z): Calculated for $C_{16}H_{23}NOSi$ $(M+H)^+$ 274.1622, found 274.1621.

45. 2-phenyl-5-(triethylsilyl)pyridine

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 40/1; 32%, 8.6 mg)

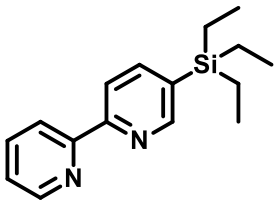


^{1}H NMR (400 MHz, $CDCl_3$): δ 8.76 (s, 1H), 8.02 (d, *J* = 8.0 Hz, 2H), 7.84 (d, *J* = 7.6 Hz, 1H), 7.71 (d, *J* = 7.6 Hz, 1H), 7.48 (t, *J* = 7.6 Hz, 2H), 7.41 (t, *J* = 7.2 Hz, 1H), 1.00 (t, *J* = 7.6 Hz, 9H), 0.85 (q, *J* = 7.6Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 157.3, 154.6, 142.8, 139.4, 130.3, 129.0, 128.7, 126.8, 119.8, 7.3, 3.2.

HRMS (ESI, m/z): Calculated for $C_{17}H_{23}NSi$ $(M+H)^+$ 270.1673, found 270.1671.

46. 5-(triethylsilyl)-2,2'-bipyridine

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 5/1; 40%, 10.8 mg)

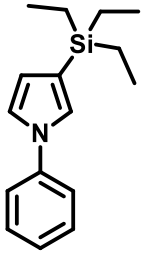


^{1}H NMR (400 MHz, $CDCl_3$): δ 8.74 (dd, *J* = 1.6, 0.8 Hz, 1H), 8.70 – 8.66 (m, 1H), 8.40 (d, *J* = 8.0 Hz, 1H), 8.35 (dd, *J* = 8.0, 0.8 Hz, 1H), 7.90 (dd, *J* = 8.0, 1.6 Hz, 1H), 7.81 (td, *J* = 7.6, 2.0 Hz, 1H), 7.30 (ddd, *J* = 7.6, 4.8, 1.2 Hz, 1H), 0.99 (t, *J* = 7.6 Hz, 9H), 0.85 (q, *J* = 7.6 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 156.2, 156.0, 154.0, 149.2, 143.0, 136.9, 132.5, 123.7, 121.0, 120.3, 7.2, 3.1.

HRMS (ESI, m/z): Calculated for $C_{16}H_{22}N_2Si$ $(M+H)^+$ 271.1625, found 271.1623.

47. 1-phenyl-3-(triethylsilyl)-1H-pyrrole

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 62%, 15.9 mg)

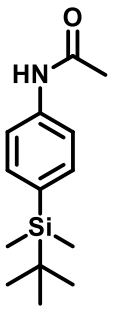


^{1}H NMR (400 MHz, $CDCl_3$): δ 7.42 – 7.41 (m, 4H), 7.26 – 7.22 (m, 1H), 7.18 (t, *J* = 2.4 Hz, 1H), 7.10 (t, *J* = 1.6 Hz, 1H), 6.41 – 6.40 (m, 1H), 1.02 (t, *J* = 7.6 Hz, 9H), 0.75 (q, *J* = 7.6 Hz, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 140.6, 129.4, 125.5, 125.2, 120.5, 120.4, 116.5, 115.9, 7.6, 4.3.

HRMS (ESI, m/z): Calculated for $C_{16}H_{23}NSi$ $(M+H)^+$ 258.1673, found 258.1676.

48. N-(4-(tert-butyldimethylsilyl)phenyl)acetamide

A white solid after purification by flash column chromatography (petroleum ether/ethyl acetate = 3/1; 61%, 15.2 mg)



^{1}H NMR (400 MHz, $CDCl_3$): δ 7.49 (d, *J* = 8.4 Hz, 2H), 7.45 (d, *J* = 8.4 Hz, 2H),

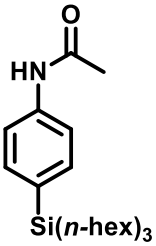
7.40 (s, 1H), 2.17 (s, 3H), 0.86 (s, 9H), 0.25 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 168.4, 138.4, 135.2, 133.3, 118.8, 26.4, 24.6, 16.9, -6.2.

HRMS (ESI, m/z): Calculated for $C_{14}H_{23}NOSi$ $(M+H)^+$ 250.1622, found 250.1623.

49. N-(4-(trihexylsilyl)phenyl)acetamide

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 3/1; 56%, 23.4 mg)



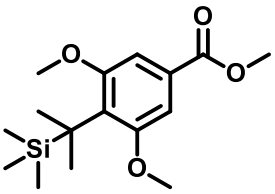
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.48 (d, *J* = 8.0 Hz, 2H), 7.42 (d, *J* = 8.4 Hz, 2H), 7.40 (s, 1H), 2.17 (s, 3H), 1.30 – 1.24 (m, 24H), 0.87 (t, *J* = 6.4 Hz, 9H), 0.77 – 0.73 (m, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 168.3, 138.2, 134.9, 133.8, 119.0, 33.4, 31.5, 24.6, 23.7, 22.6, 14.1, 12.5.

HRMS (ESI, m/z): Calculated for $C_{26}H_{47}NOSi$ $(M+H)^+$ 435.3765, found 435.3764.

50. methyl 3,5-dimethoxy-4-(2-(trimethylsilyl)propan-2-yl)benzoate

A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 83%, 25.7 mg)



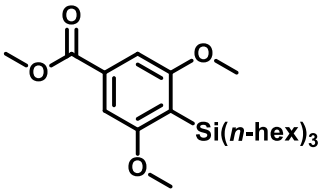
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.14 (s, 2H), 3.92 (s, 3H), 3.77 (s, 6H), 0.87 (s, 9H), 0.29 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 167.0, 165.6, 132.9, 118.8, 104.2, 55.1, 52.2, 26.9, 18.2, -1.8.

HRMS (ESI, m/z): Calculated for $C_{16}H_{26}O_4Si$ $(M+H)^+$ 311.1673, found 311.1674.

51. methyl 3,5-dimethoxy-4-(trihexylsilyl)benzoate

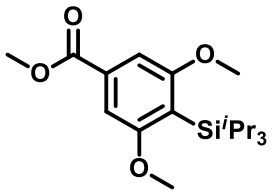
A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 80%, 38.2 mg)



^{1}H NMR (400 MHz, $CDCl_3$): δ 7.14 (s, 2H), 3.91 (s, 3H), 3.79 (s, 6H), 1.27 – 1.23 (m, 24H), 0.86 (t, *J* = 6.4 Hz, 9H), 0.82 – 0.80 (m, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 167.1, 165.5, 132.7, 119.0, 104.2, 55.2, 52.1, 33.6, 31.6, 24.1, 22.6, 14.2, 14.1.

HRMS (ESI, m/z): Calculated for $C_{28}H_{50}O_4Si$ $(M+H)^+$ 479.3551, found 479.3550.

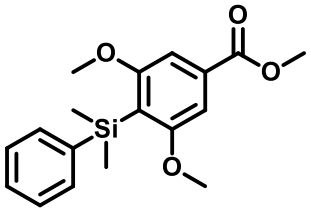
52. methyl 3,5-dimethoxy-4-(triisopropylsilyl)benzoate
A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 48%, 16.9 mg)



^{1}H NMR (400 MHz, $CDCl_3$): δ 7.16 (s, 2H), 3.92 (s, 3H), 3.78 (s, 6H), 1.54 - 1.46 (m, 3H), 1.02 (d, *J* = 7.2 Hz, 18H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 167.1, 165.7, 132.7, 117.4, 103.9, 54.8, 52.1, 19.0, 13.0.

HRMS (ESI, m/z): Calculated for $C_{19}H_{32}O_4Si$ $(M+H)^+$ 353.2143, found 353.2152.

53. methyl 4-(dimethyl(phenyl)silyl)-3,5-dimethoxybenzoate
A colorless liquid after purification by flash column chromatography (petroleum ether/ethyl acetate = 100/1; 67%, 22.1 mg)

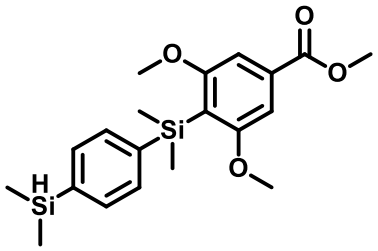


^{1}H NMR (400 MHz, $CDCl_3$): δ 7.56 – 7.54 (m, 2H), 7.34 – 7.31 (m, 3H), 7.18 (s, 2H), 3.94 (s, 3H), 3.72 (s, 6H), 0.62 (s, 6H).
^{13}C NMR (101 MHz, $CDCl_3$): δ 166.9, 165.4, 140.4, 133.5, 133.3, 128.2, 127.4, 127.3, 127.3, 118.4, 104.6, 55.3, 52.2, 0.3.

HRMS (ESI, m/z): Calculated for $C_{18}H_{22}O_4Si$ $(M+H)^+$ 331.1360, found 331.1359.

54. methyl 4-((4-(dimethylsilyl)phenyl)dimethylsilyl)-3,5-dimethoxybenzoate
A colorless liquid after purification by flash column chromatography (petroleum

ether/ethyl acetate = 100/1; 51%, 19.8 mg)



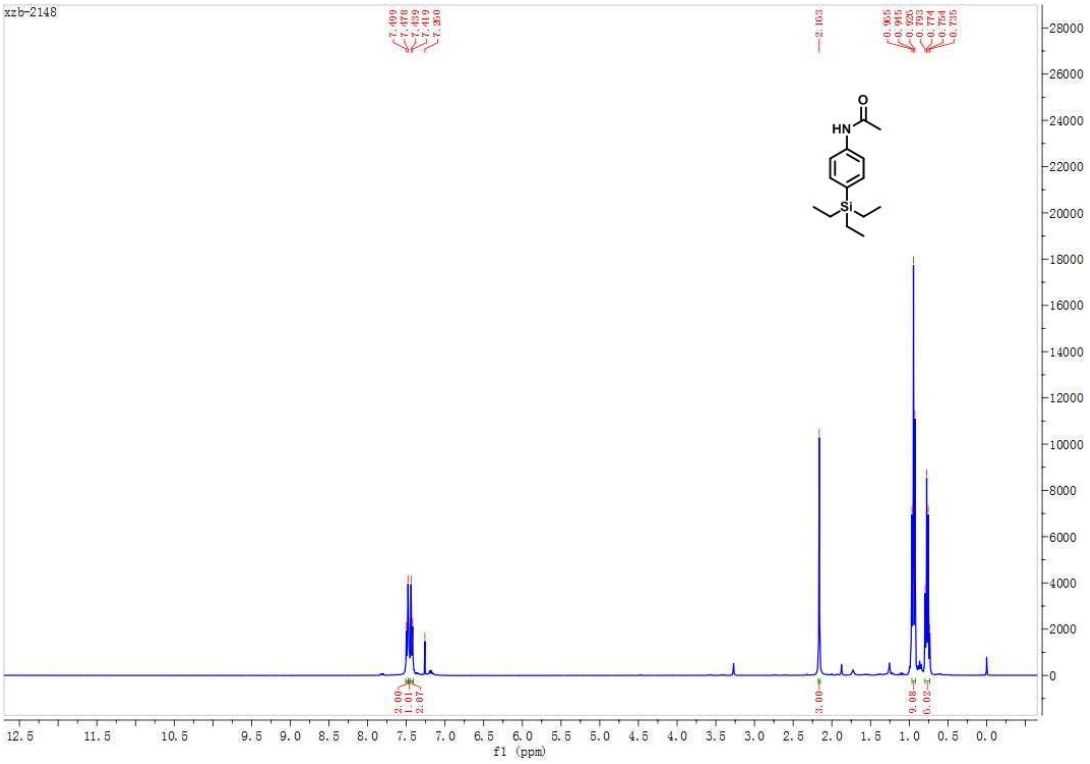
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.53 (d, *J* = 7.8 Hz, 1H), 7.48 (d, *J* = 7.9 Hz, 1H), 7.15 (s, 1H), 4.45 – 4.35 (m, 1H), 3.92 (s, 1H), 3.72 (s, 2H), 0.58 (s, 2H), 0.33 (d, *J* = 3.7 Hz, 3H).

^{13}C NMR (101 MHz, $CDCl_3$): δ 167.0, 165.4, 141.5, 137.2, 133.3, 133.0, 132.9, 118.3, 104.6, 55.3, 52.2, 0.3, -3.9.

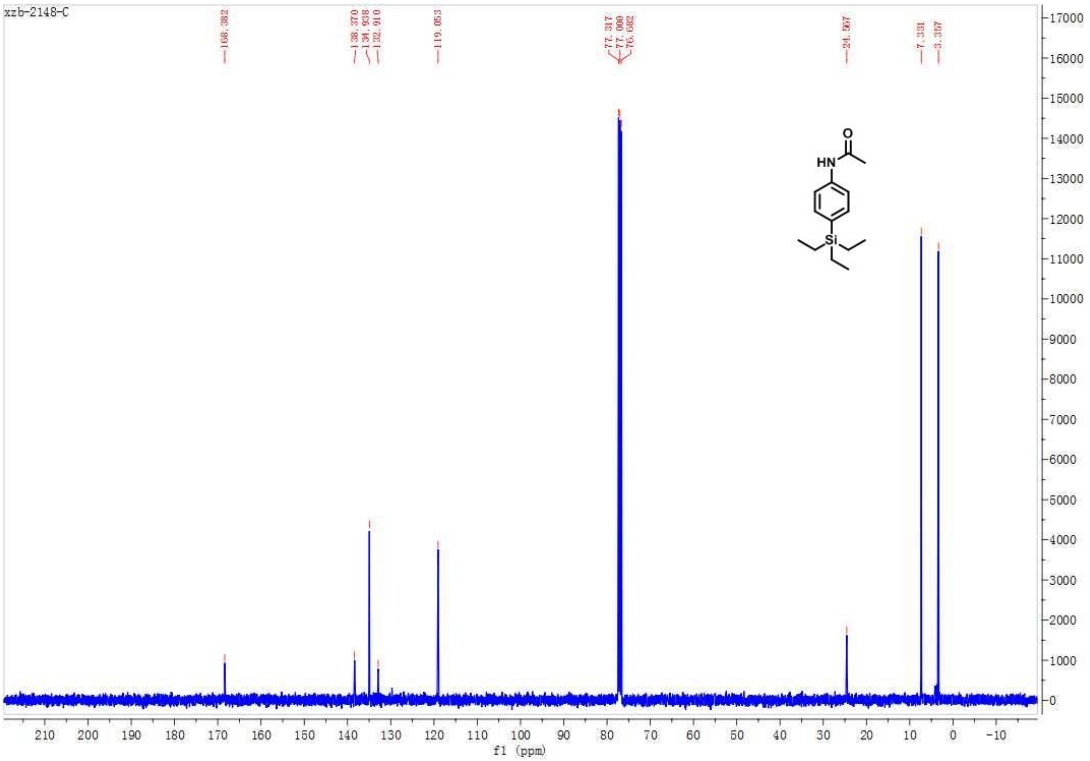
HRMS (ESI, m/z): Calculated for $C_{20}H_{28}O_4Si_2$ $(M+H)^+$ 389.1599, found 389.1607.

Copies of the ^{1}H NMR, ^{19}F NMR ,^{13}C NMR spectra

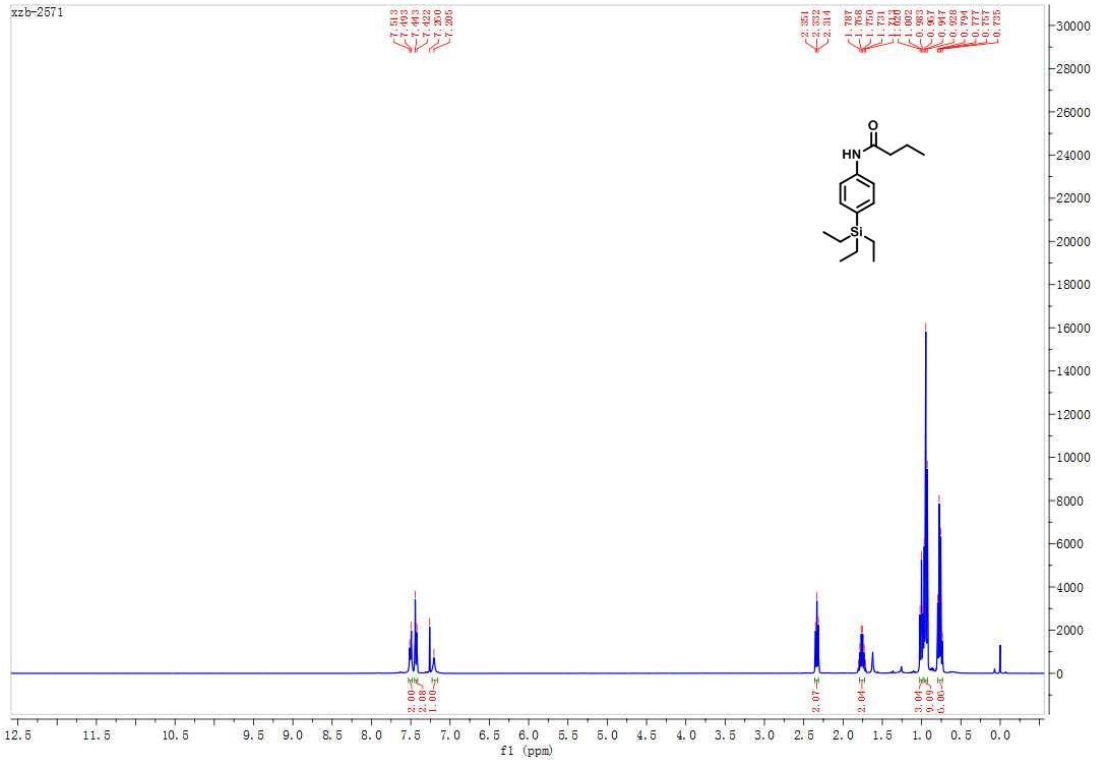
1.^{1}H NMR



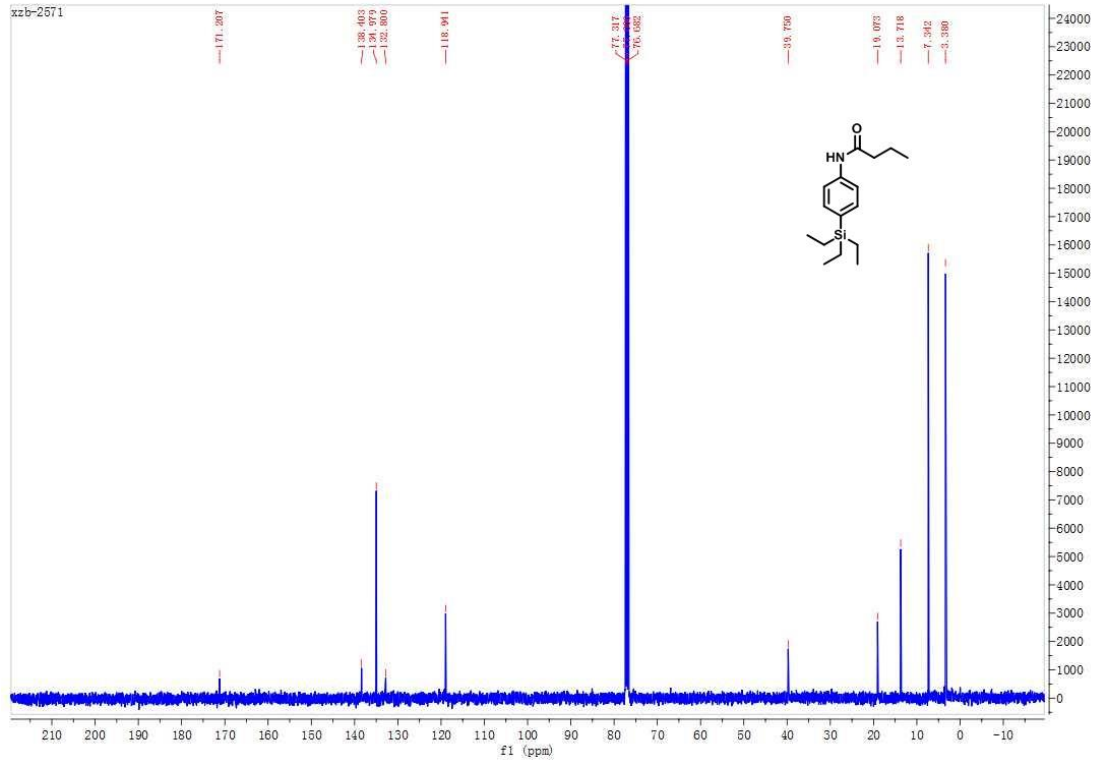
1.^{13}C NMR



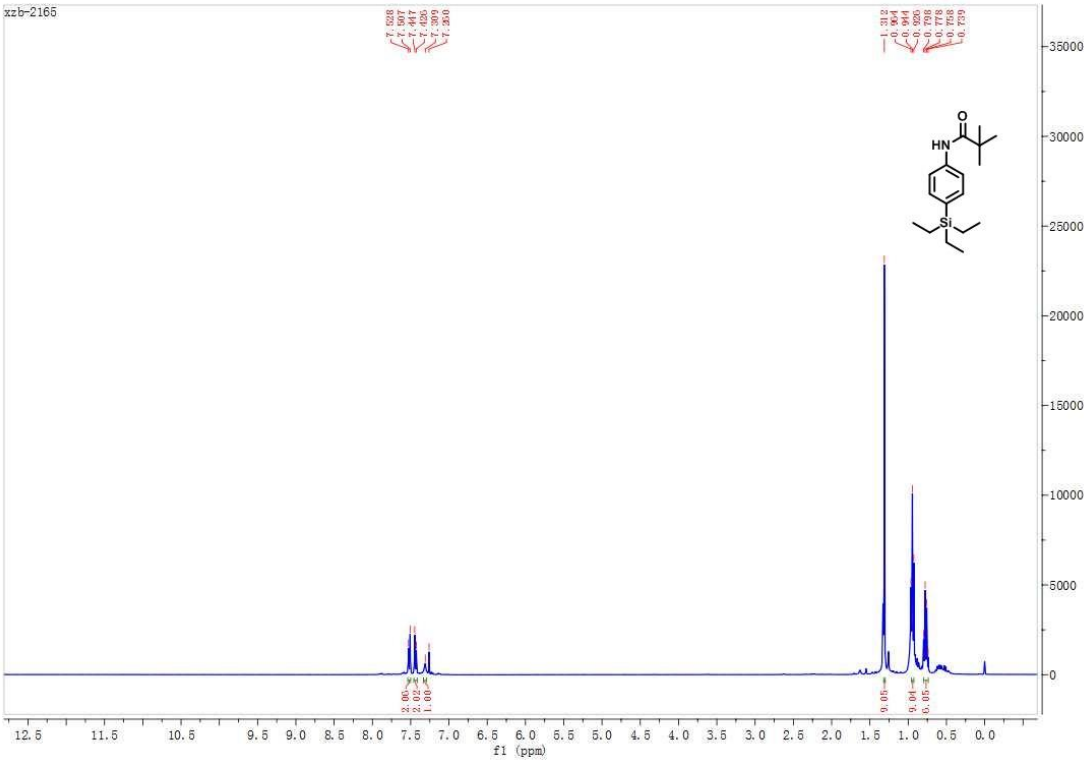
2.^{1}H NMR



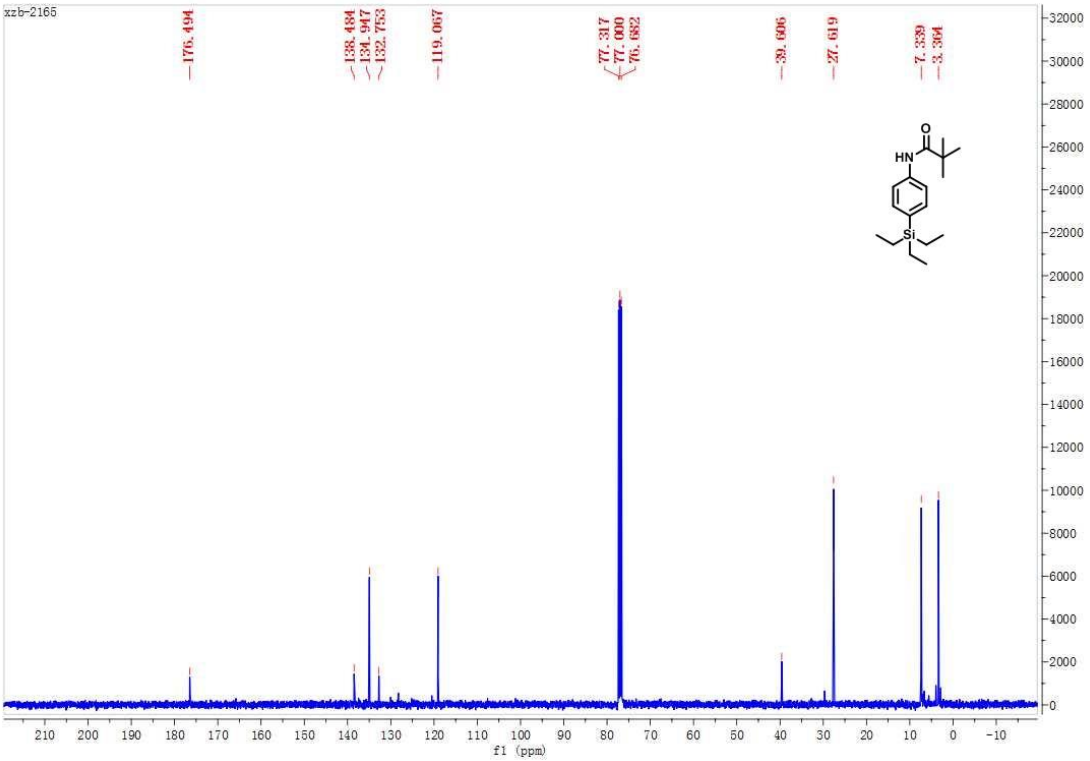
2.^{13}C NMR



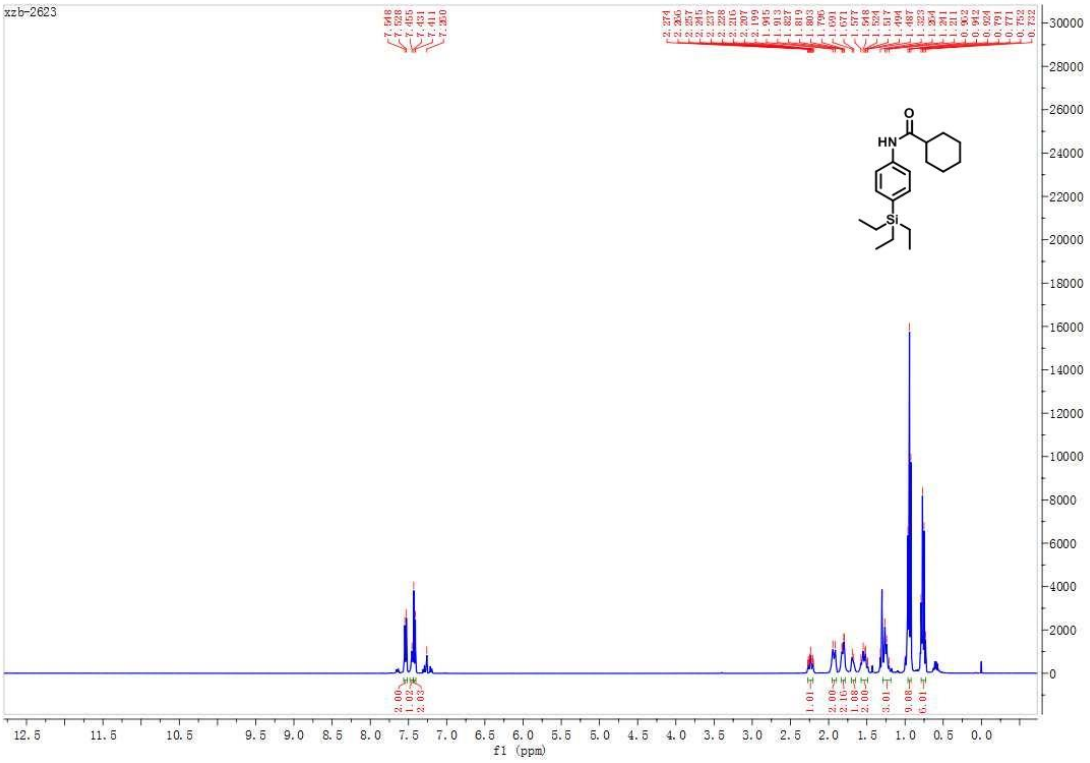
3.^{1}H NMR



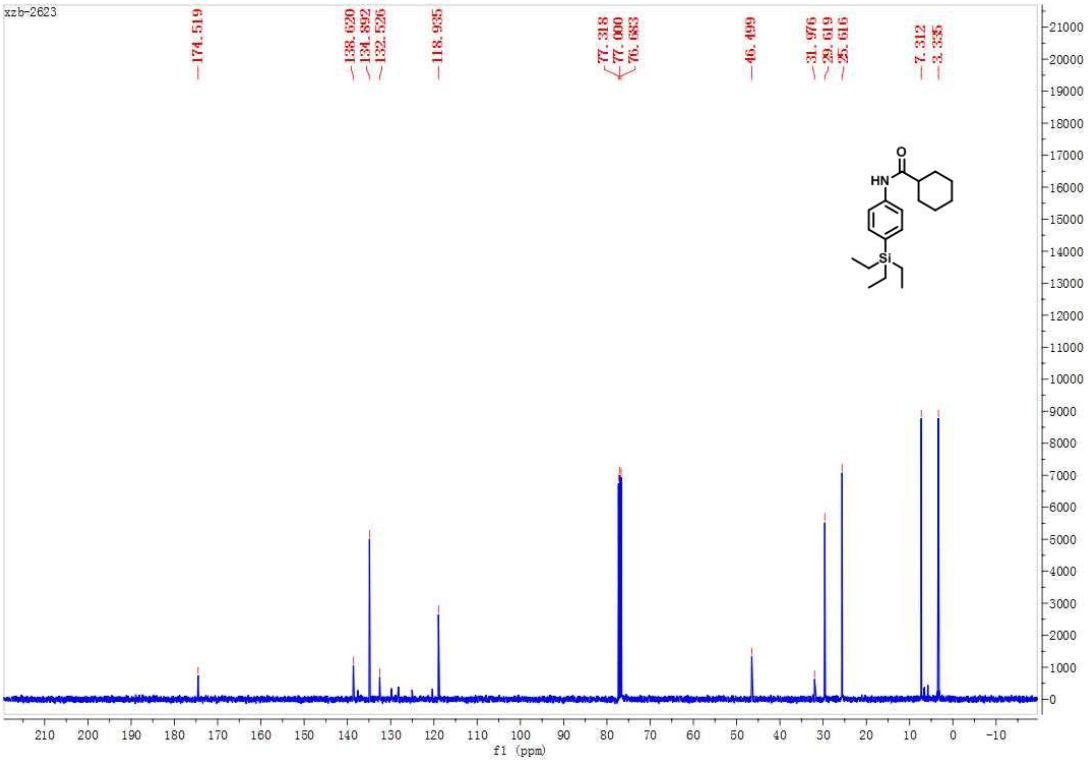
3.^{13}C NMR



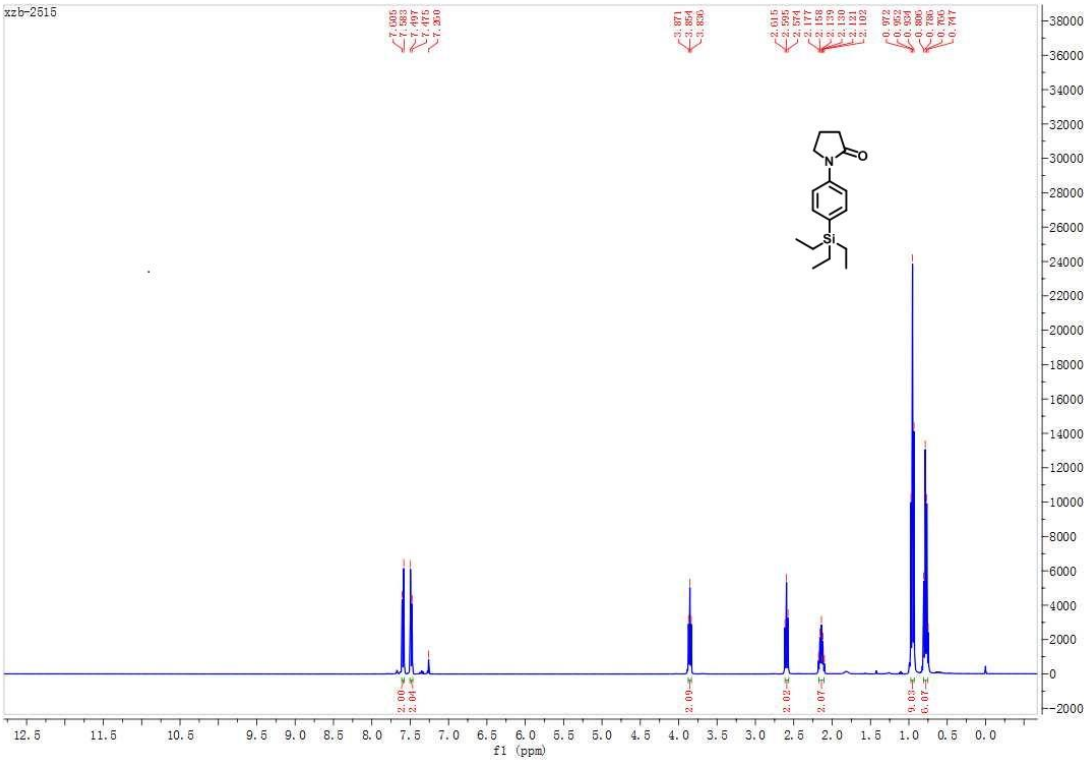
4.^{1}H NMR



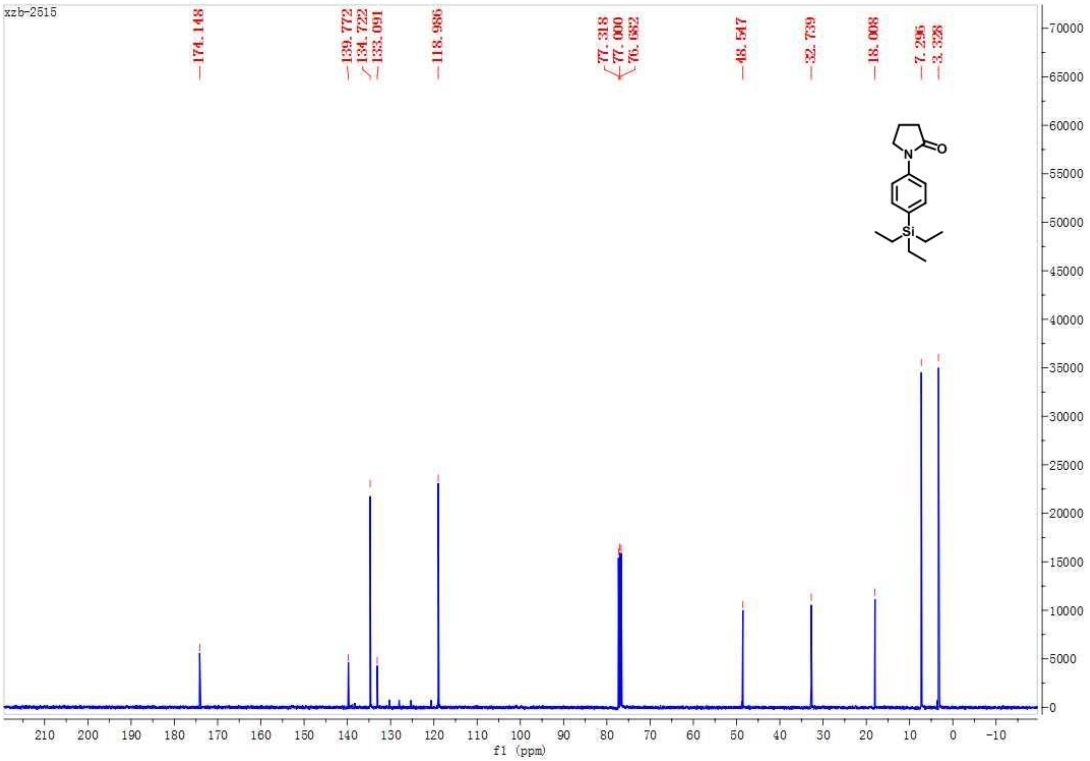
4.^{13}C NMR



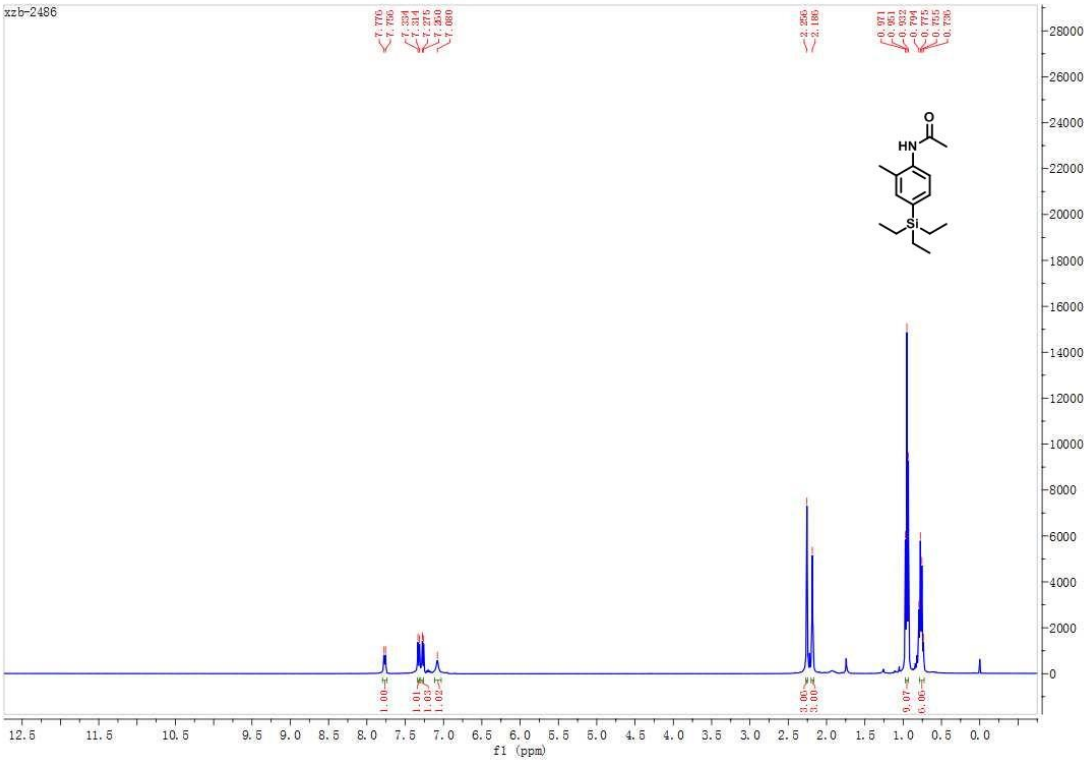
5.^{1}H NMR



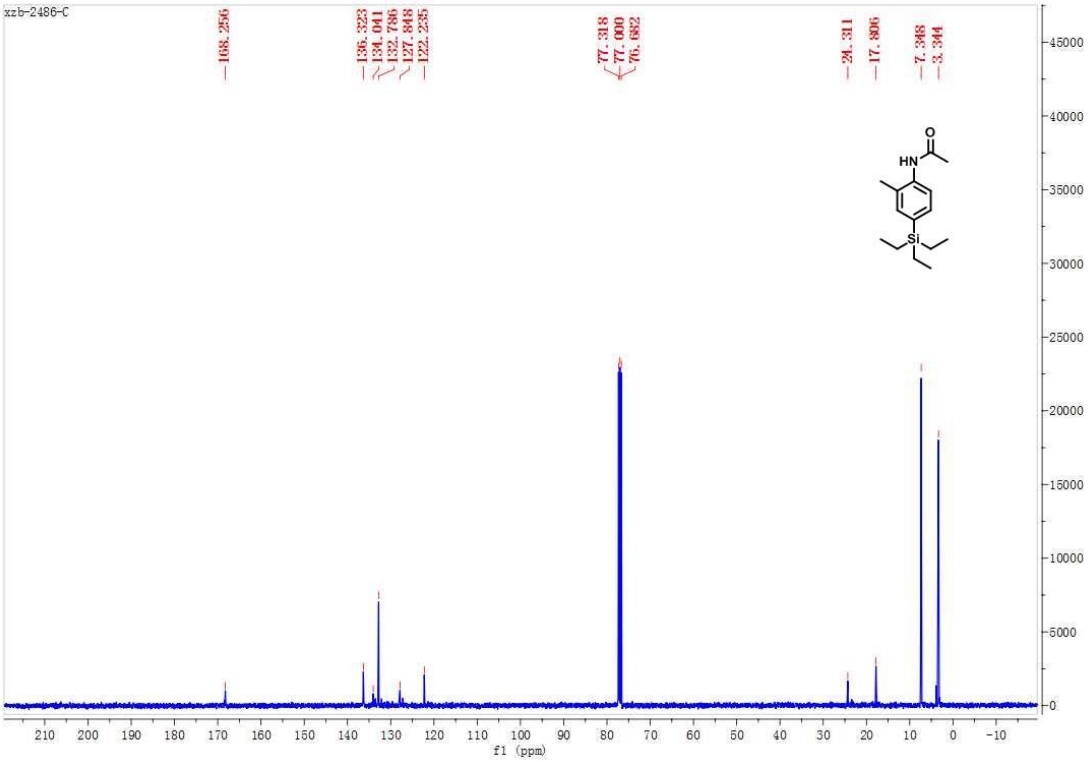
5.^{13}C NMR



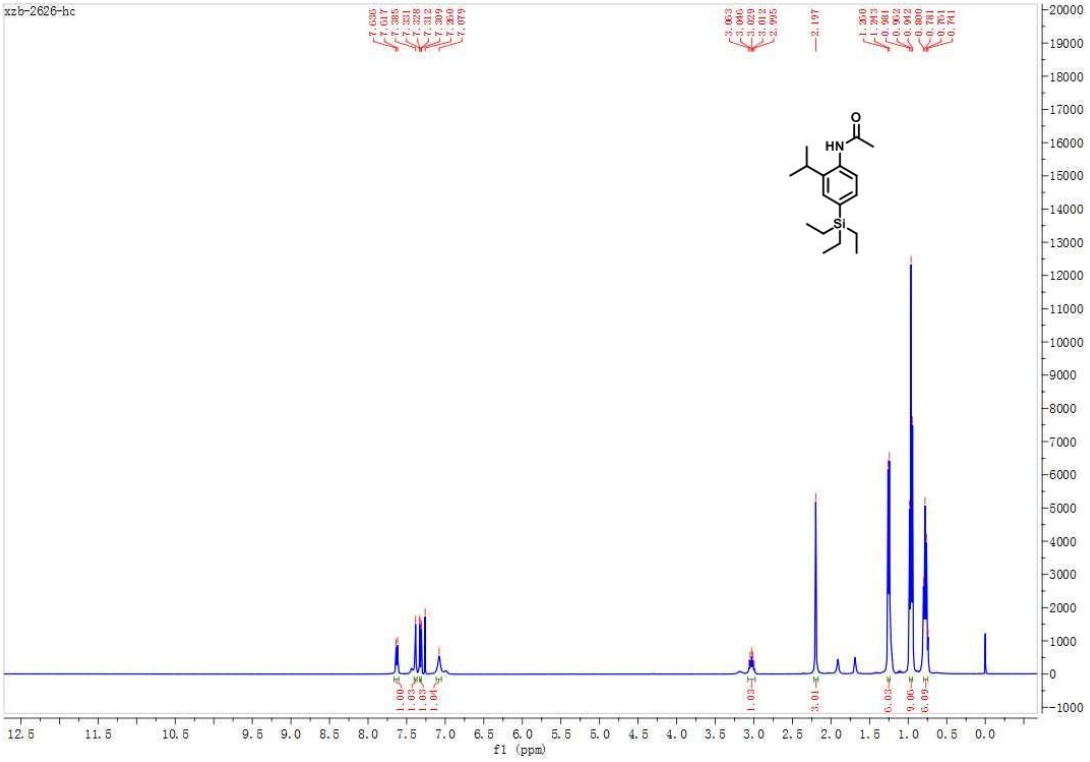
6.^{1}H NMR



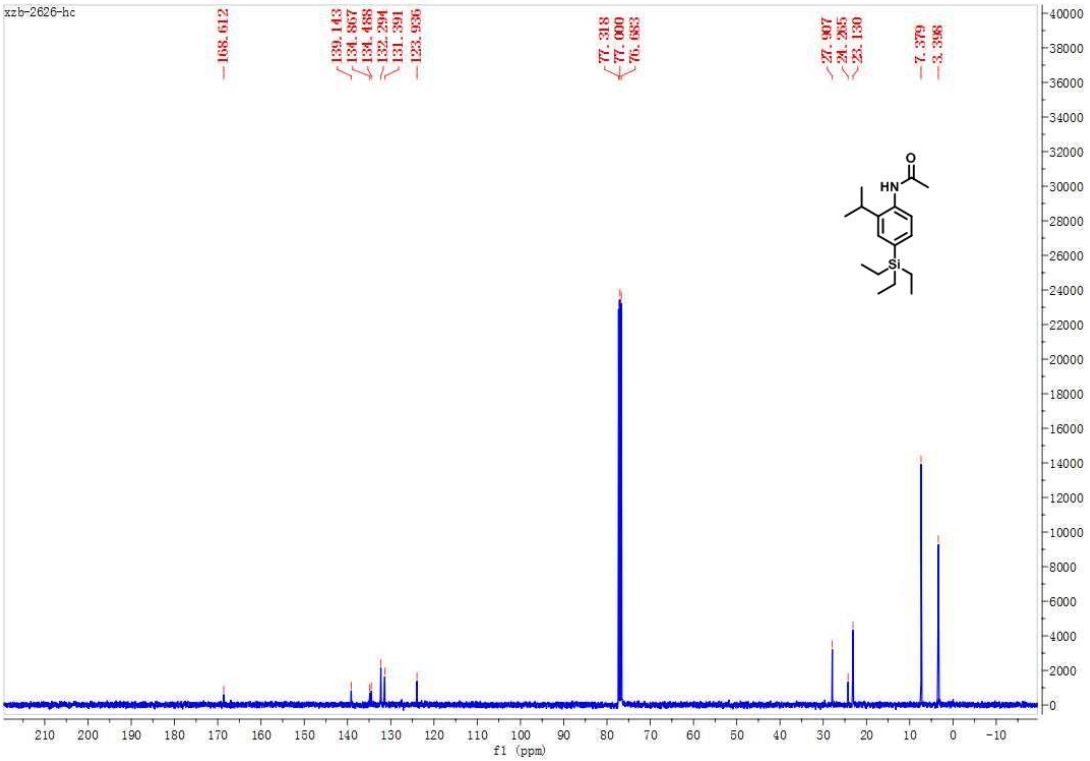
6.^{13}C NMR



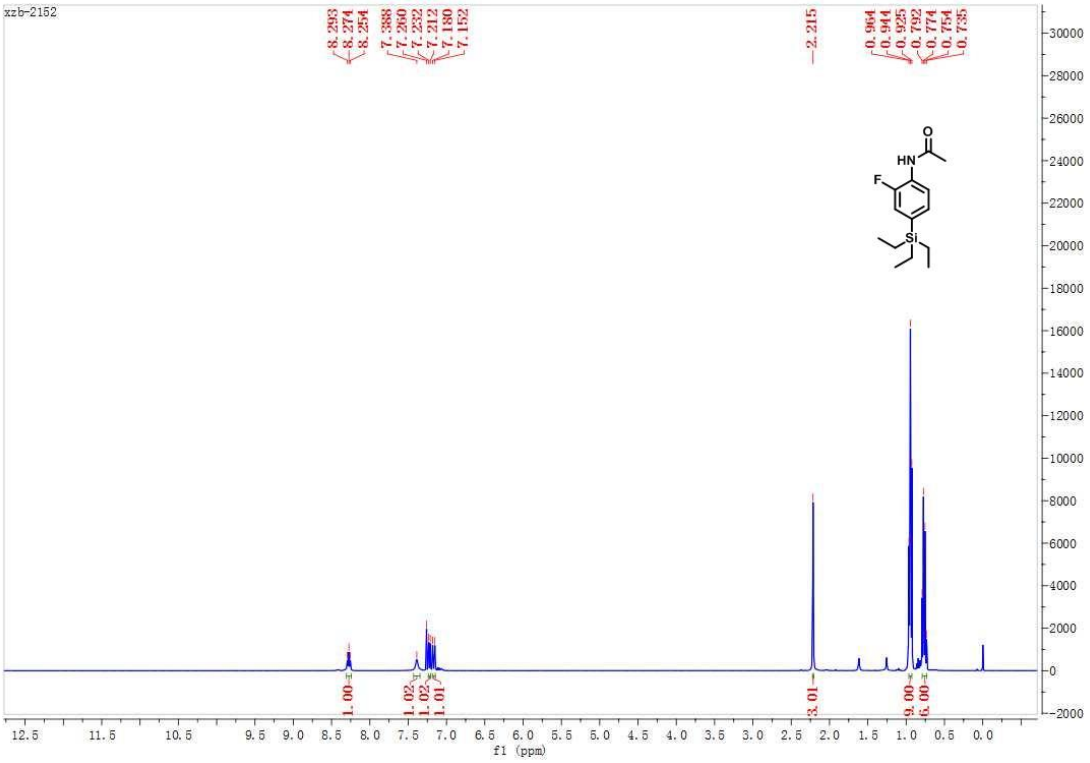
7.^{1}H NMR



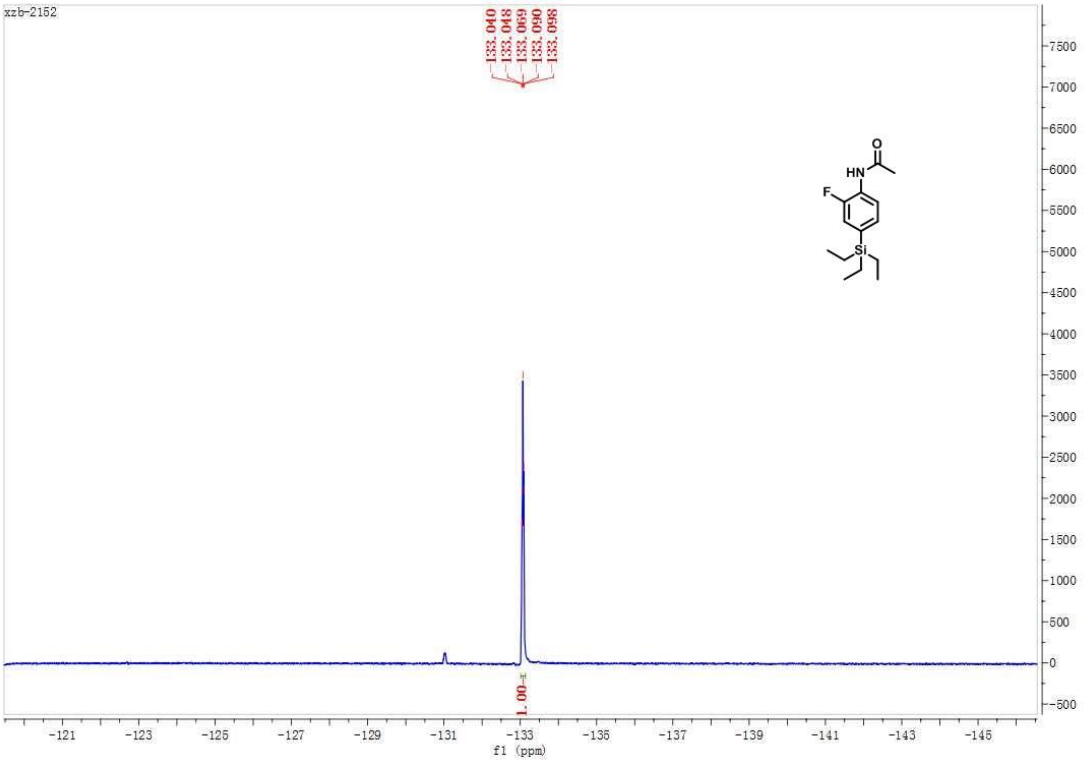
7.^{13}C NMR



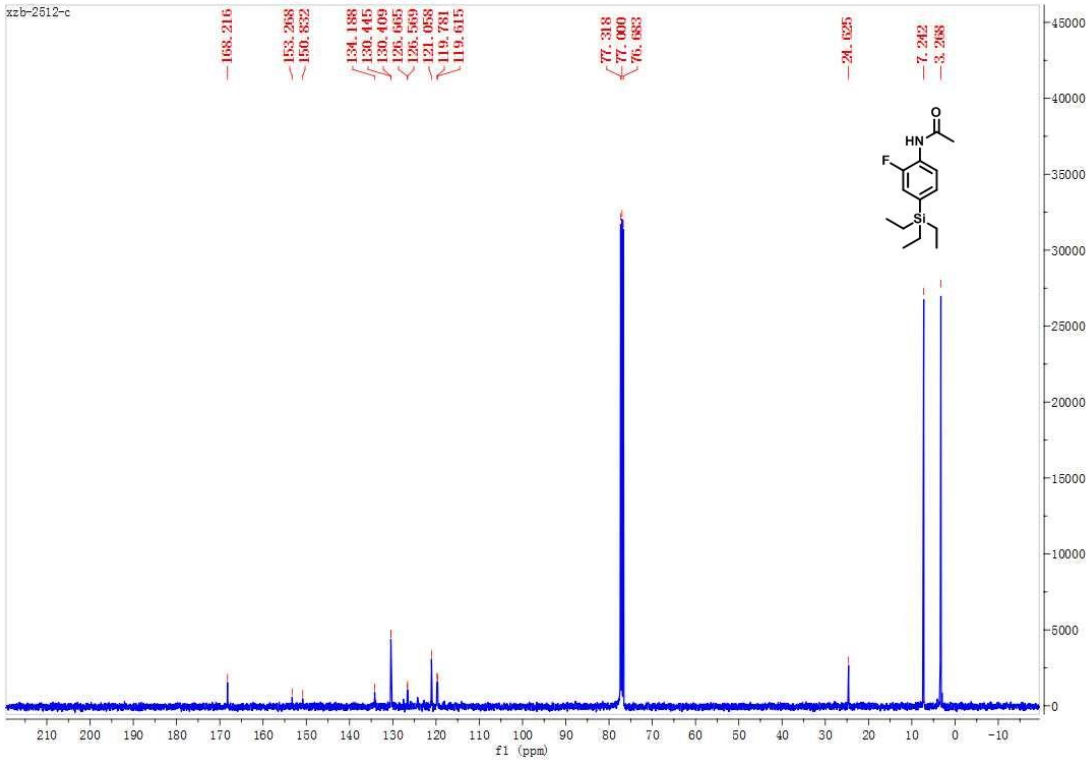
8.^{1}H NMR



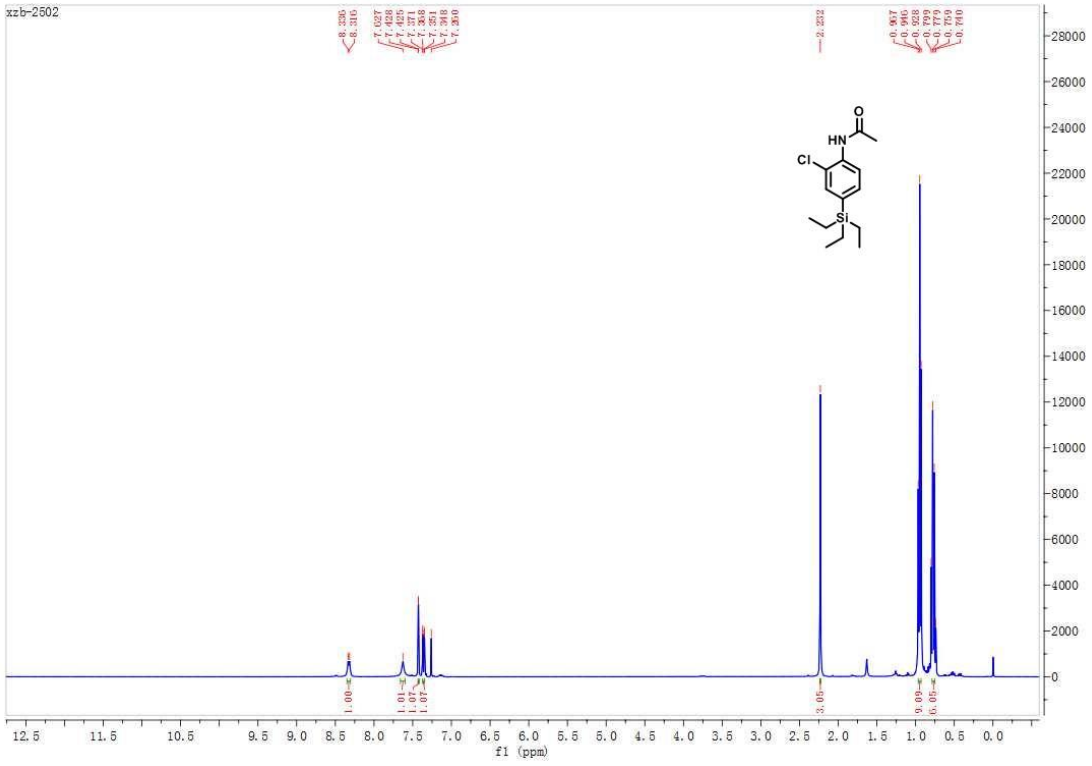
8.^{19}F NMR



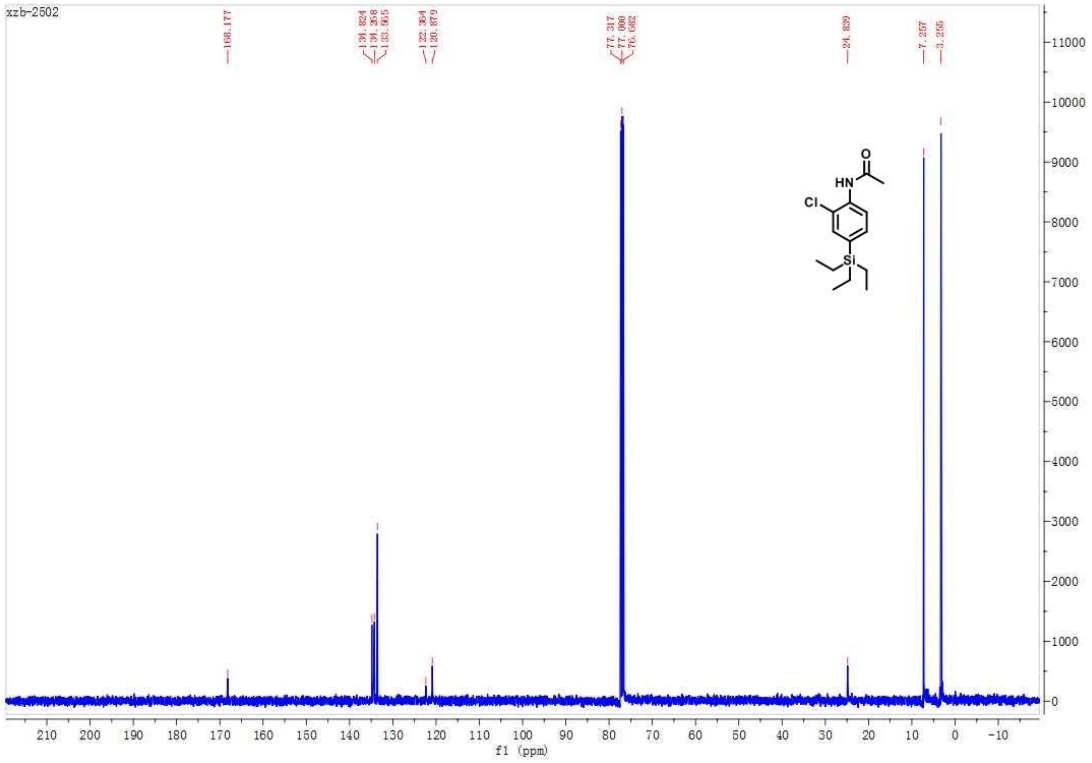
8.^{13}C NMR



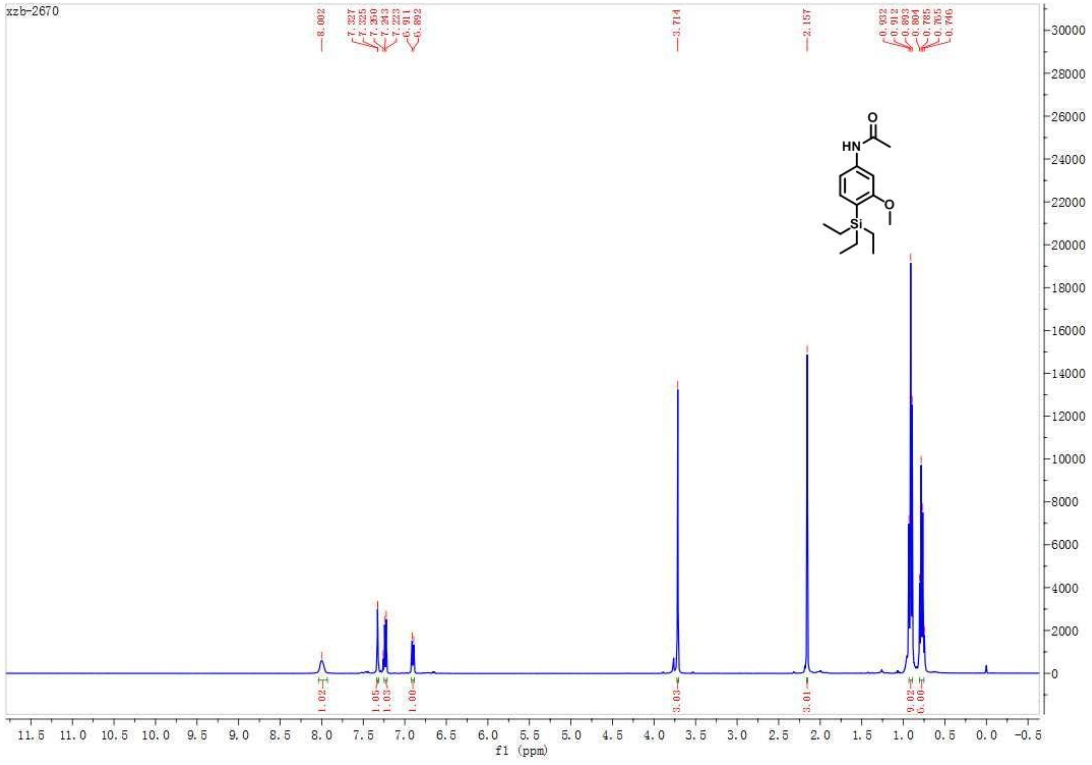
9.^{1}H NMR



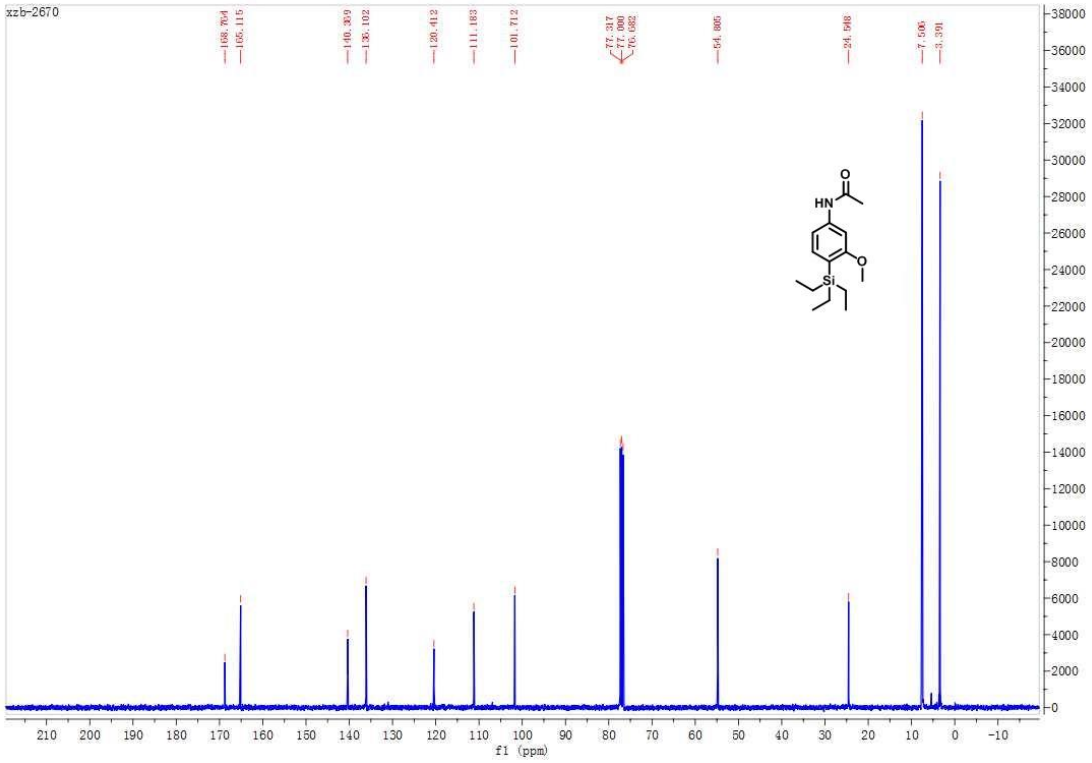
9.^{13}C NMR



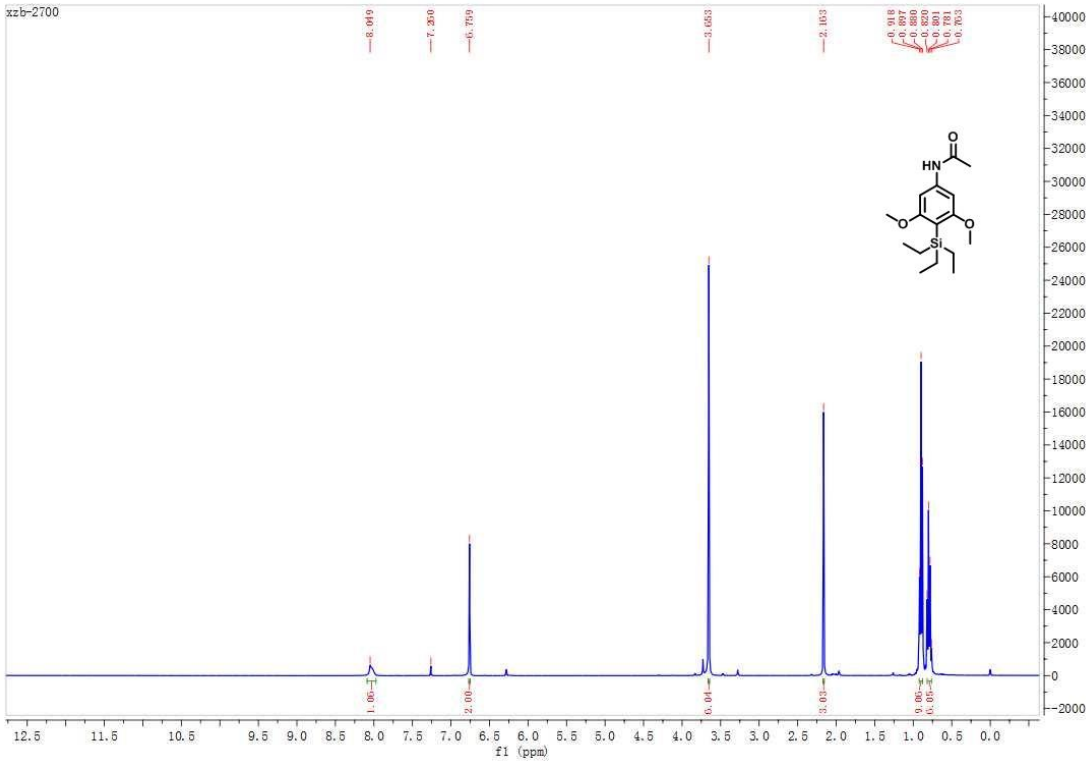
10.^{1}H NMR



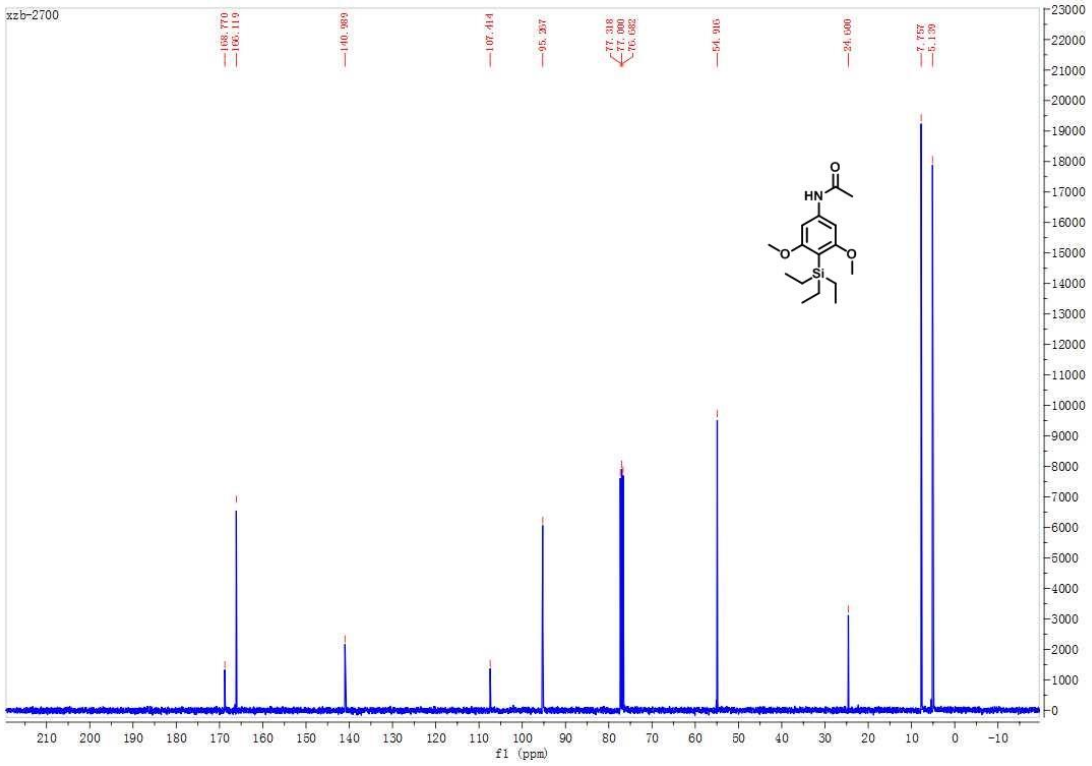
10.^{13}C NMR



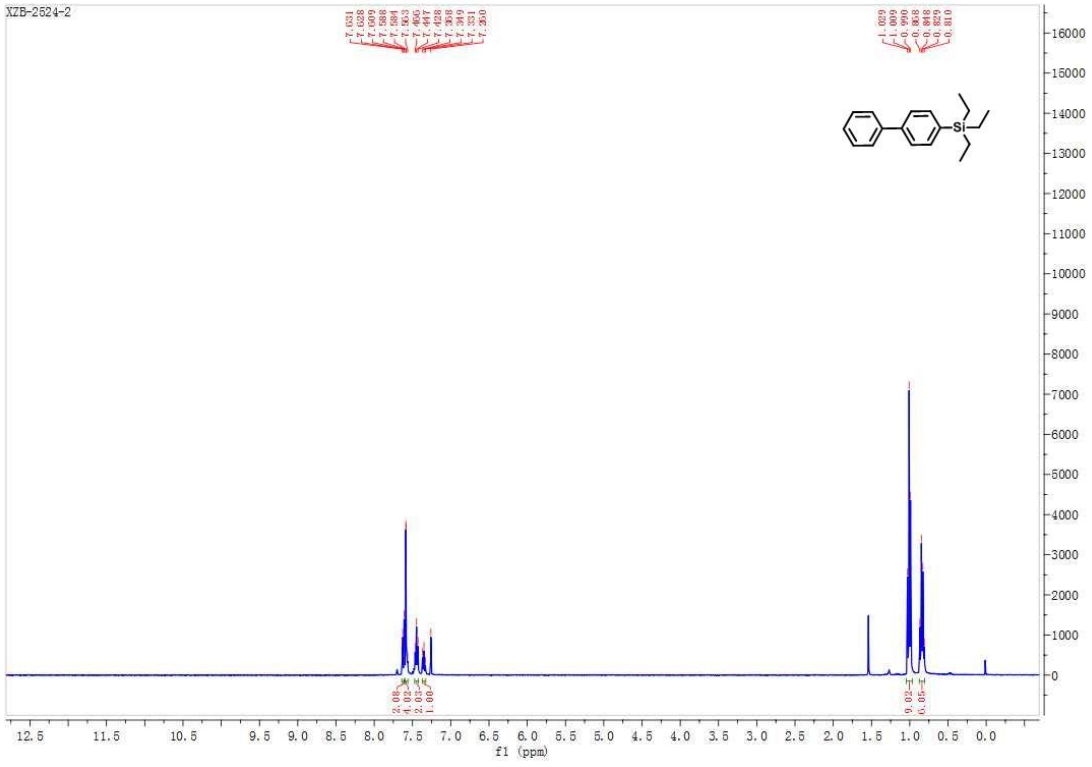
11.^{1}H NMR



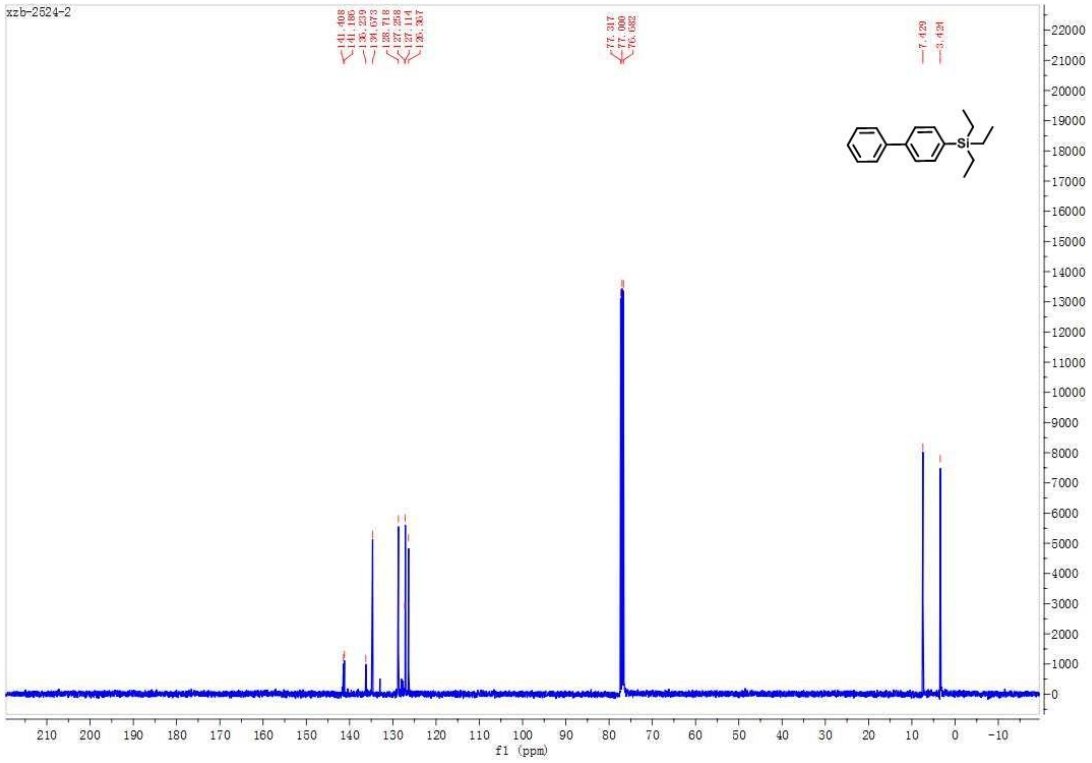
11.^{13}C NMR



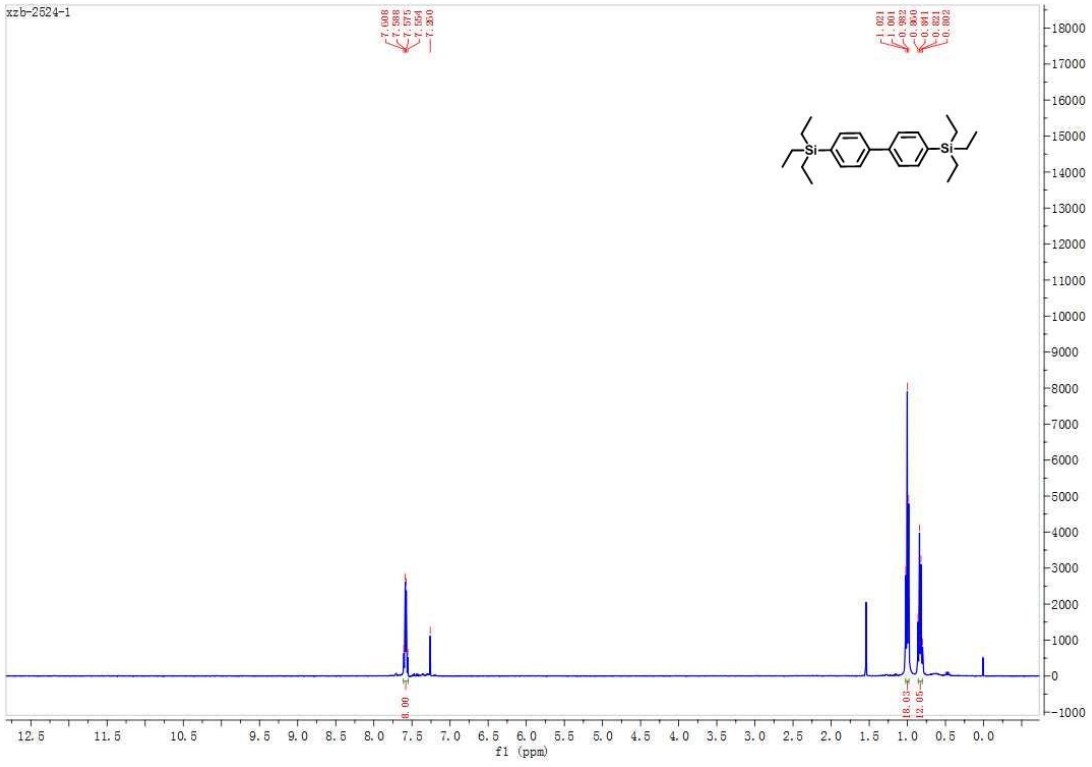
12.^{1}H NMR



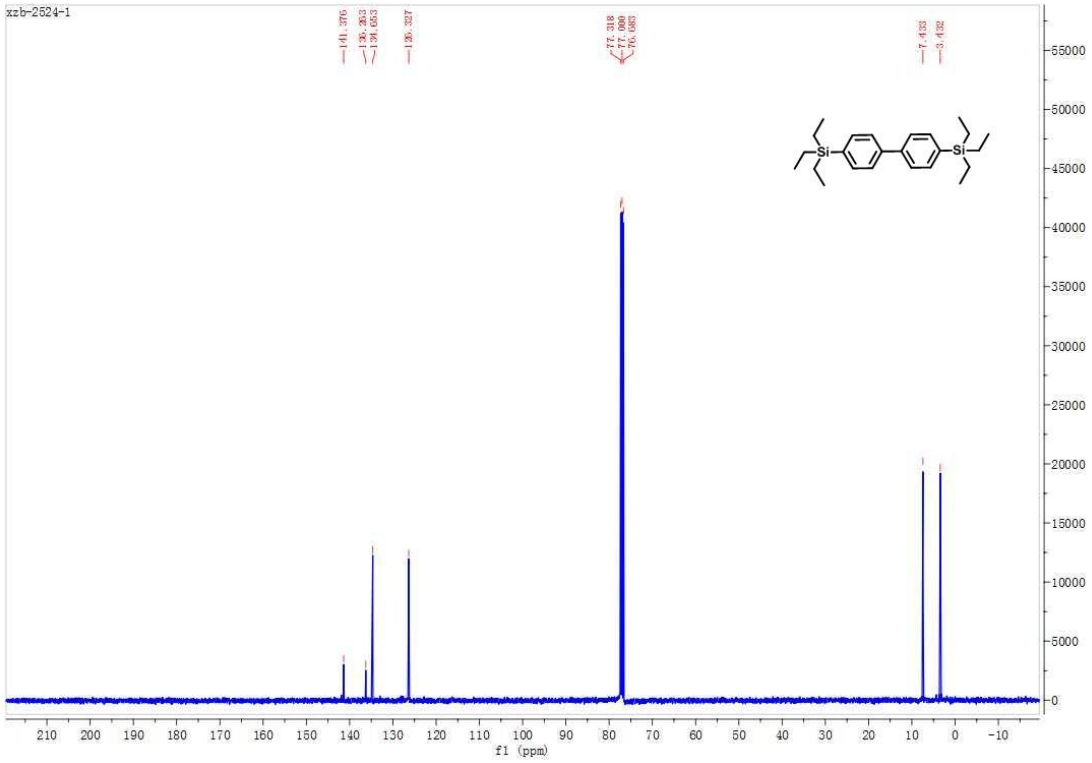
12.^{13}C NMR



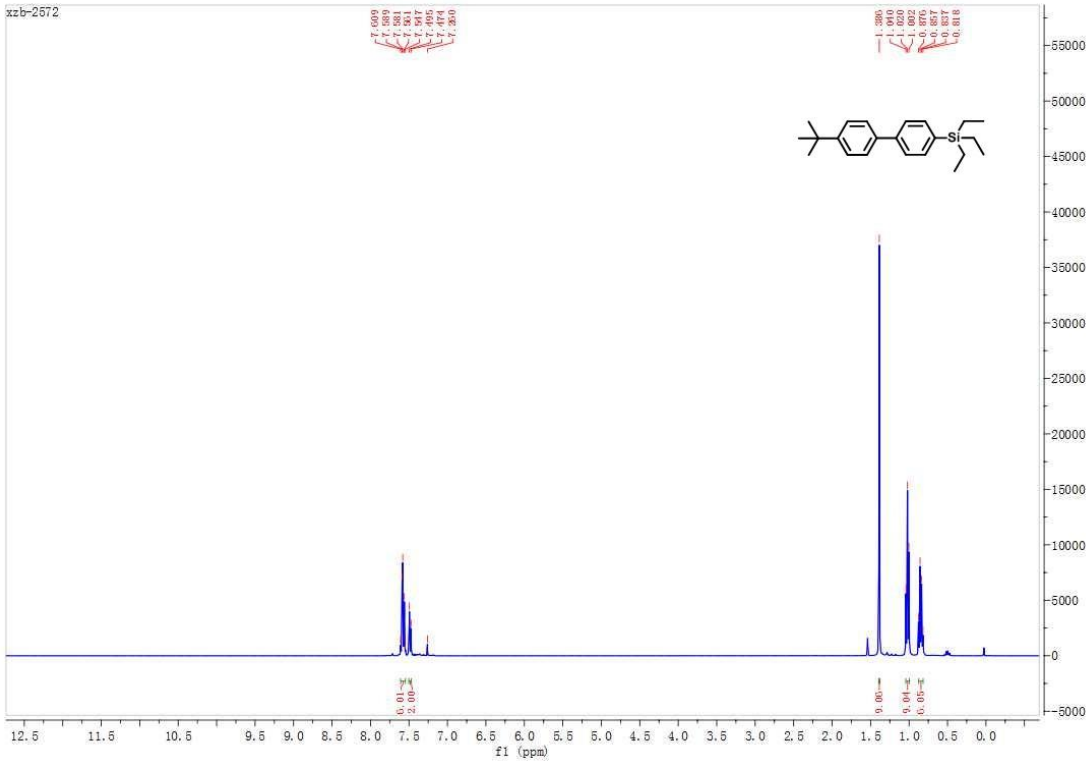
12^{c}.^{1}H NMR



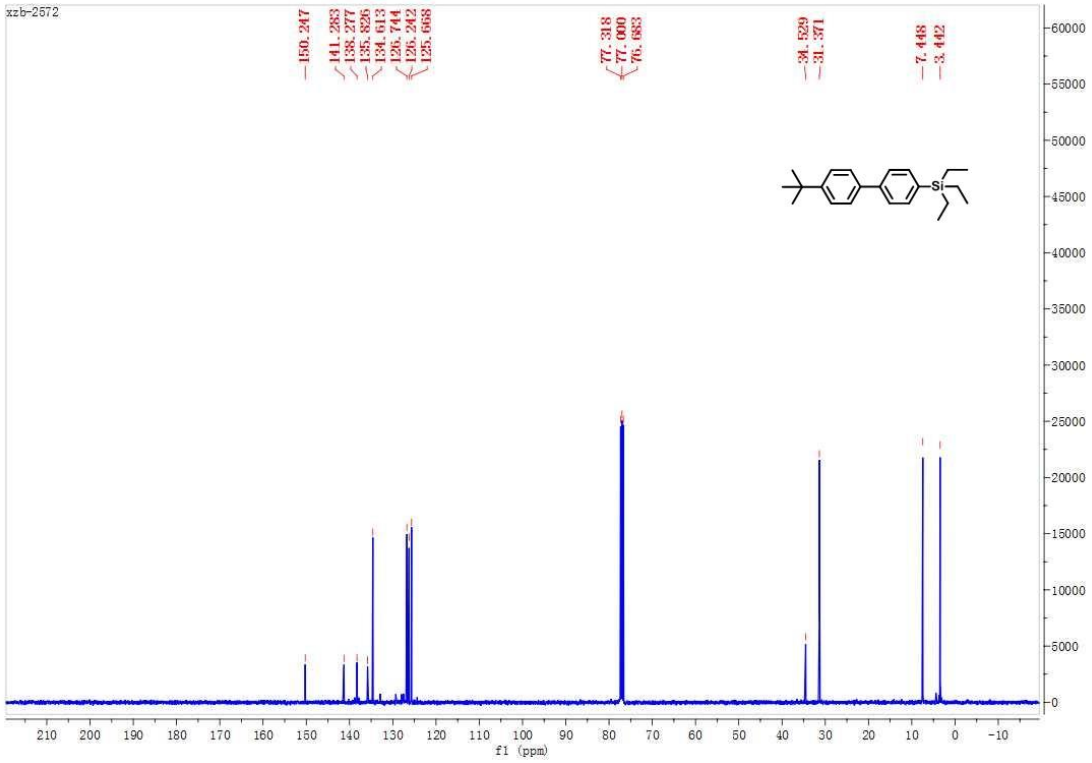
12^{c}.^{13}C NMR



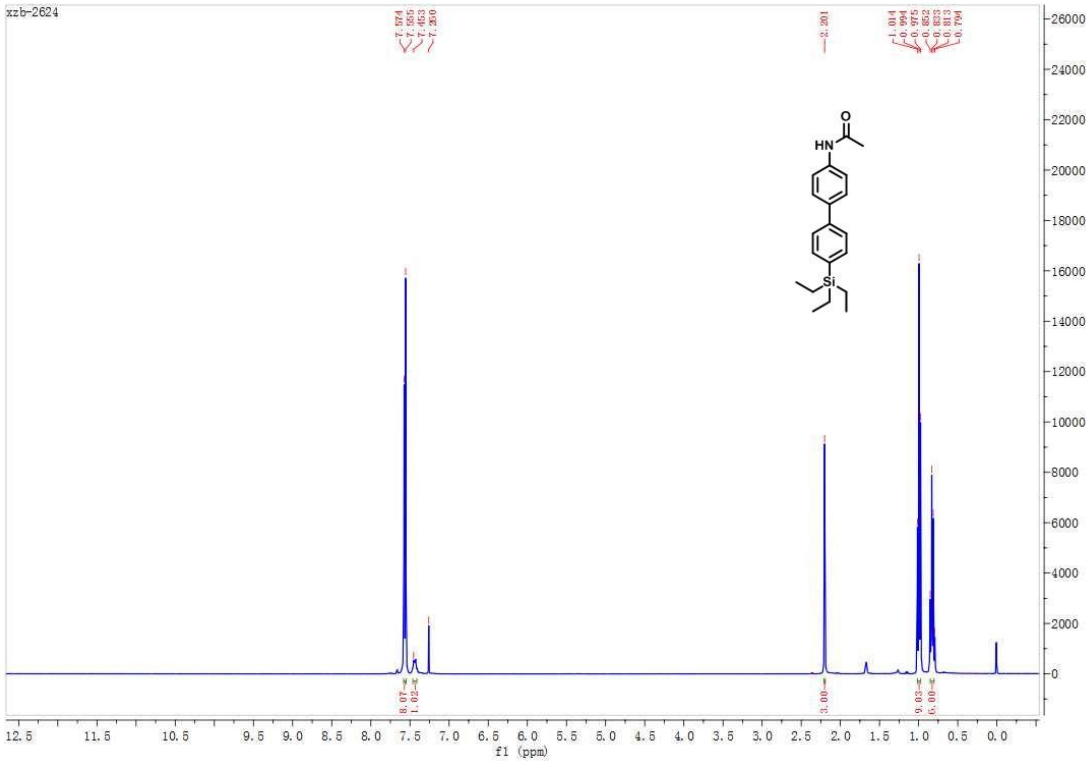
13.^{1}H NMR



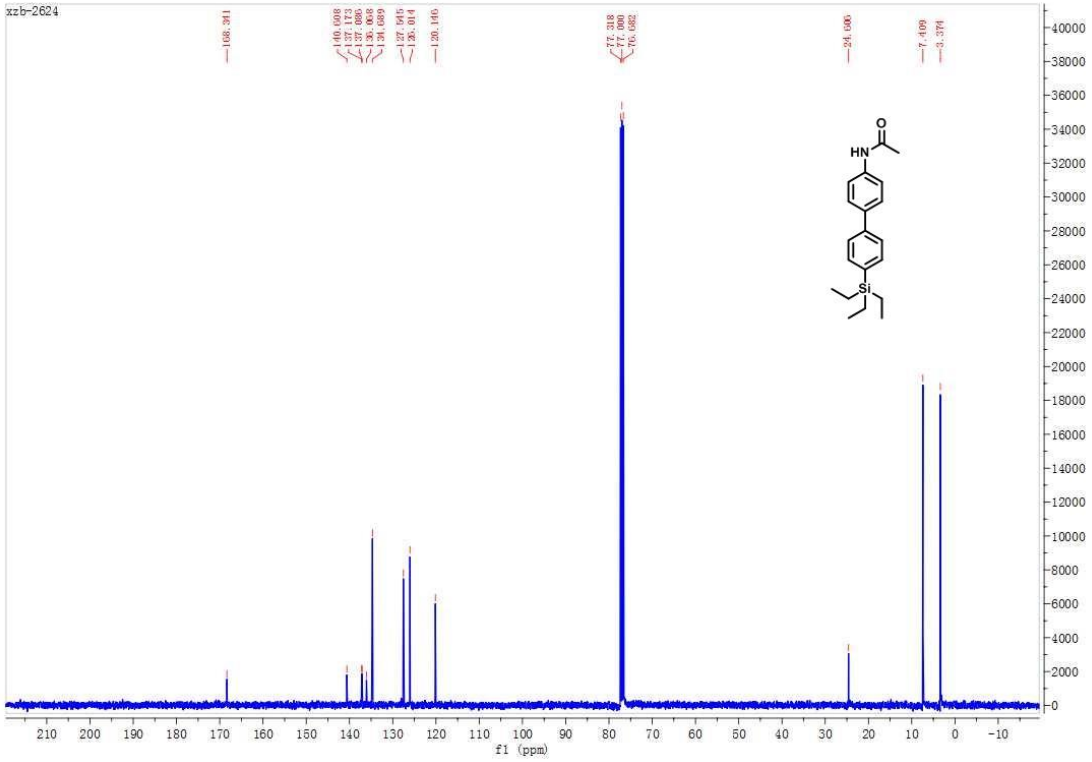
13.^{13}C NMR



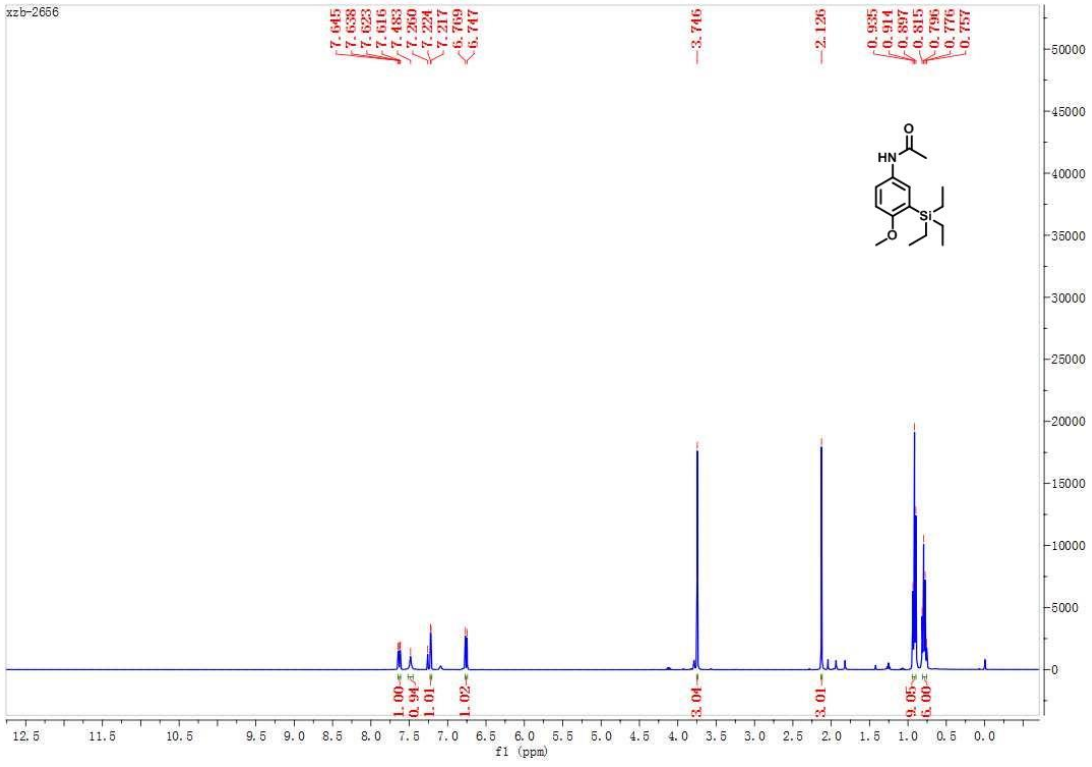
14.^{1}H NMR



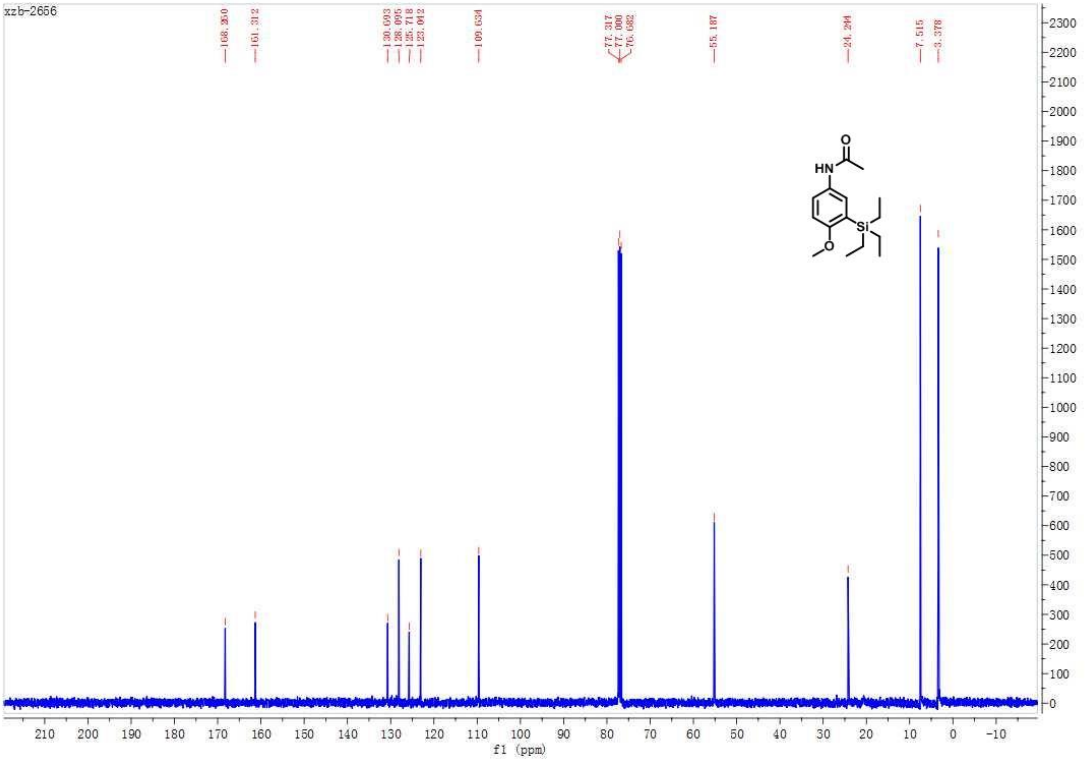
14.^{13}C NMR



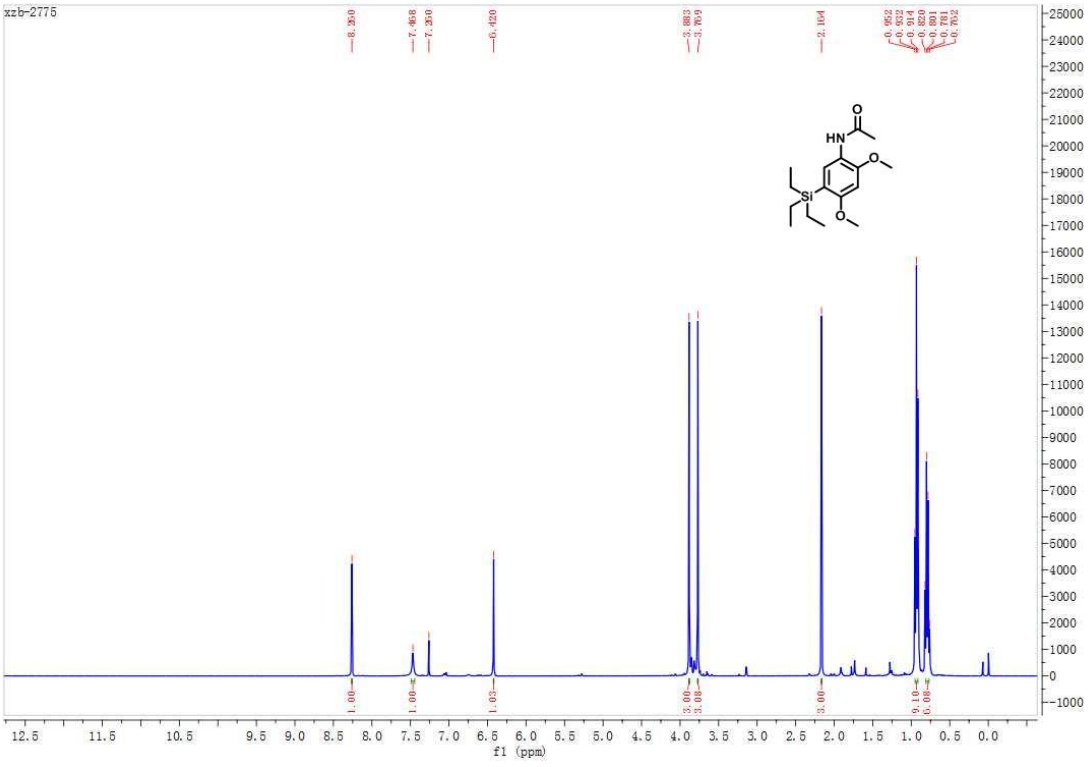
15.^{1}H NMR



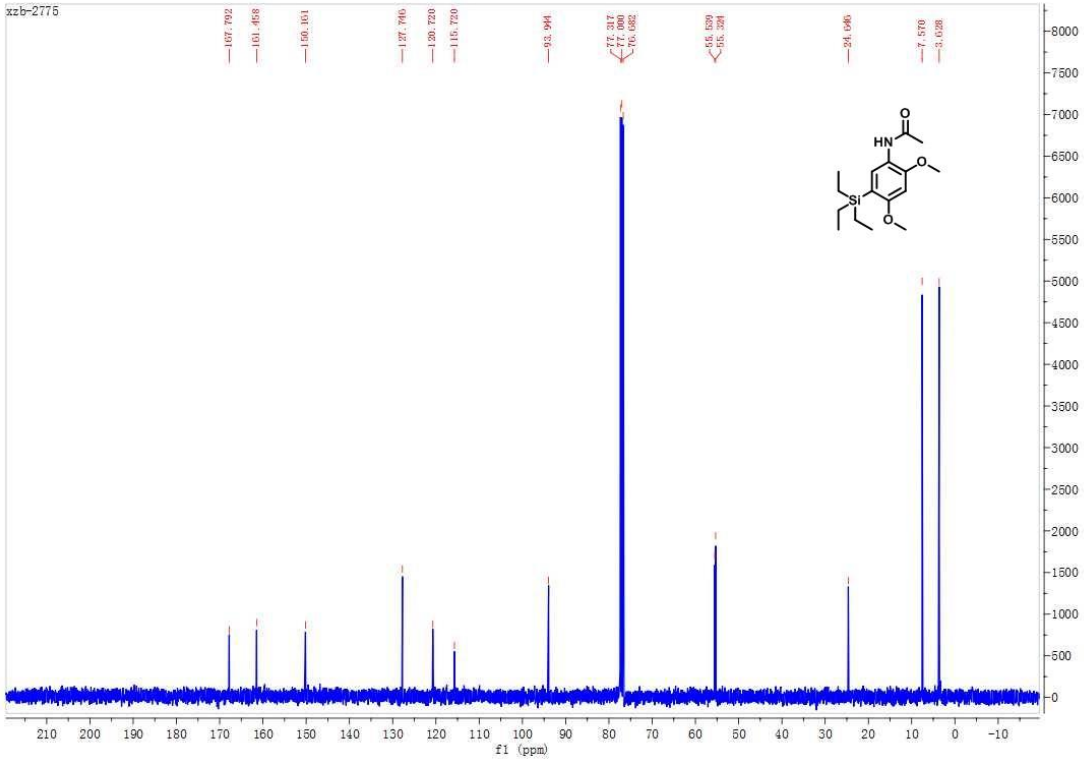
15.^{13}C NMR



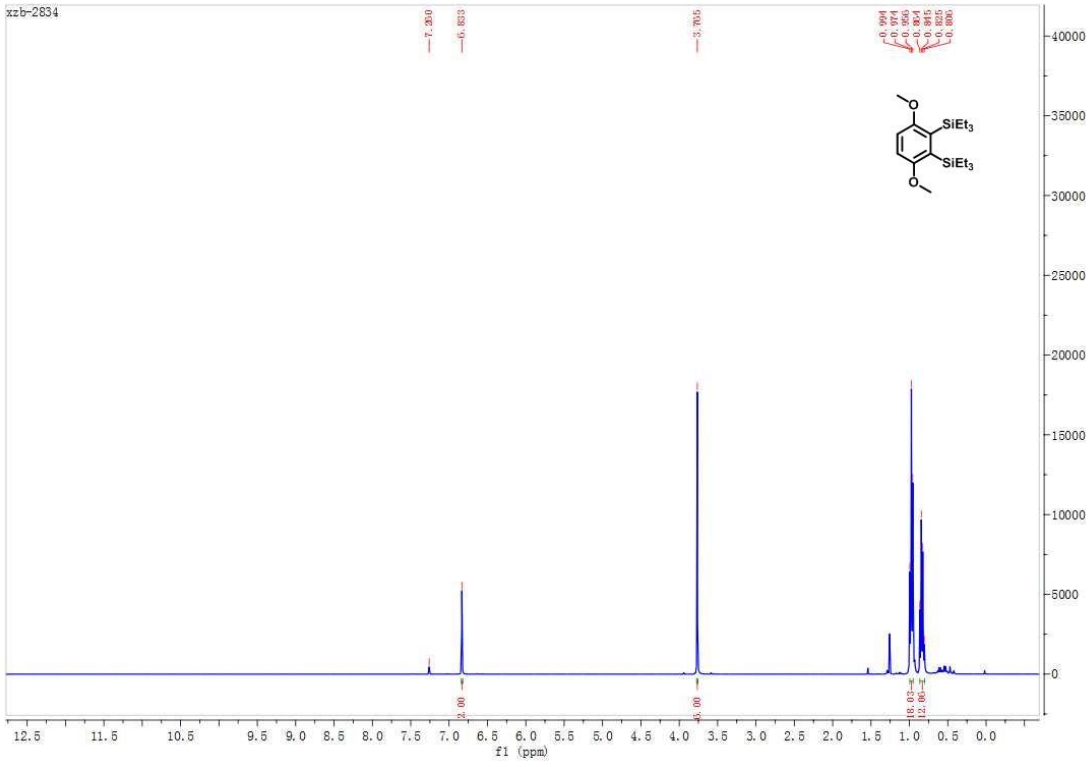
16.^{1}H NMR



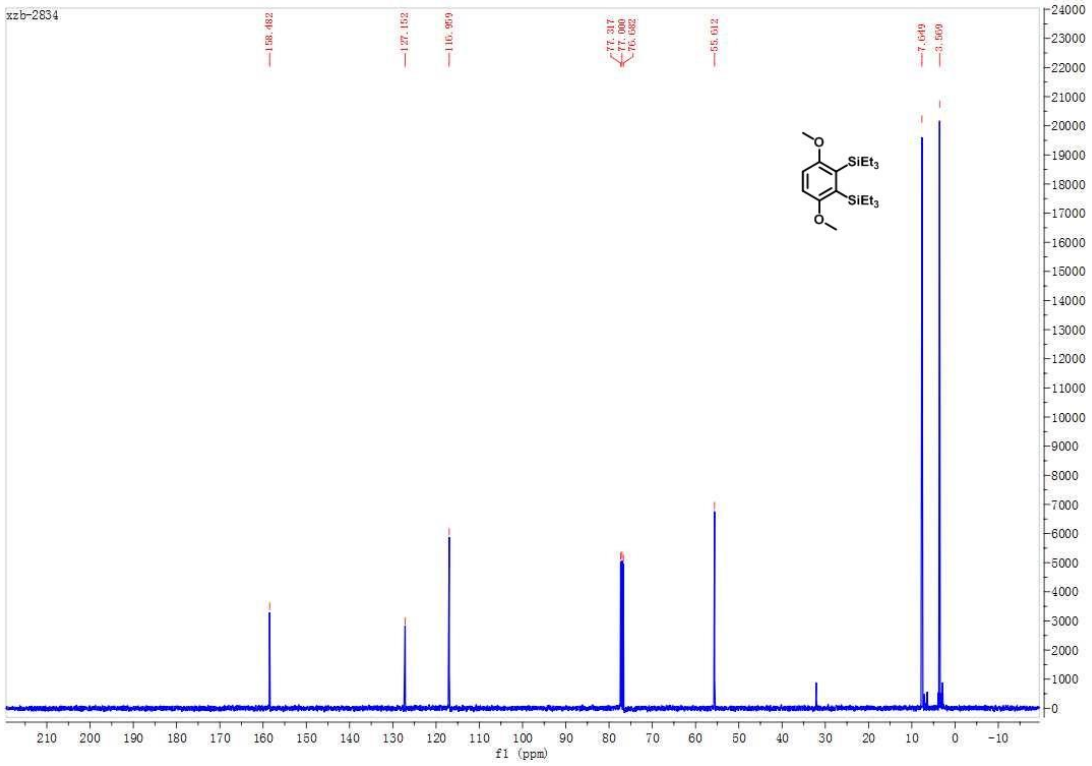
16.^{13}C NMR



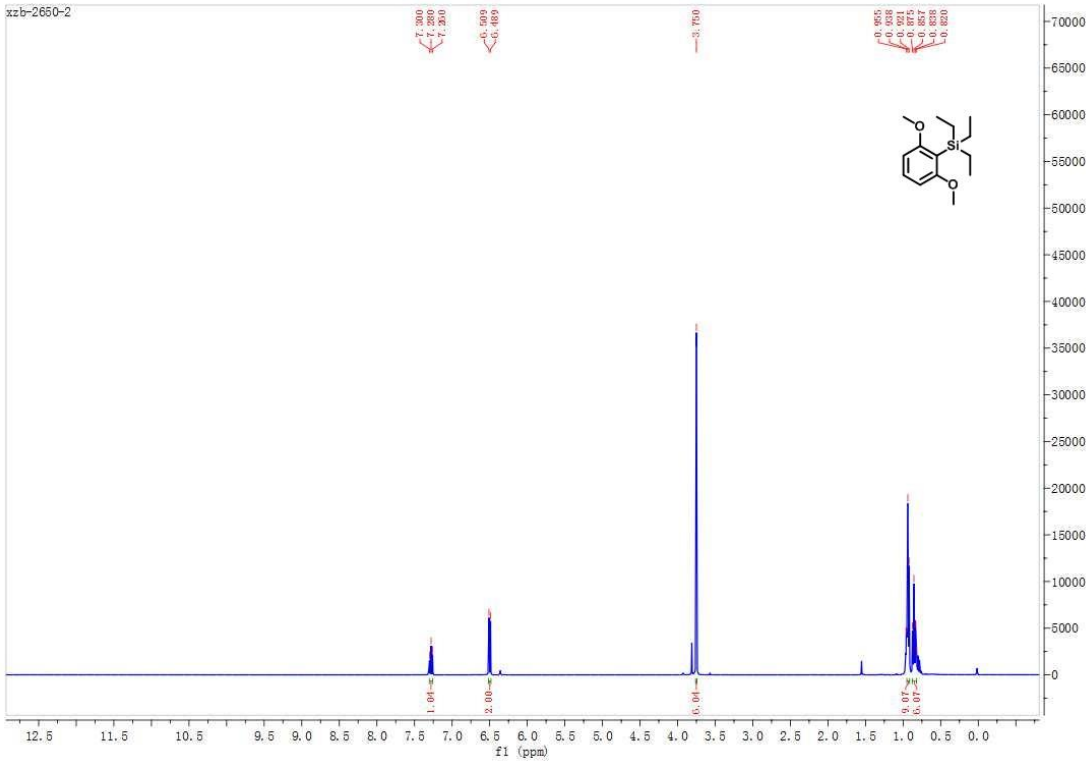
17.^{1}H NMR



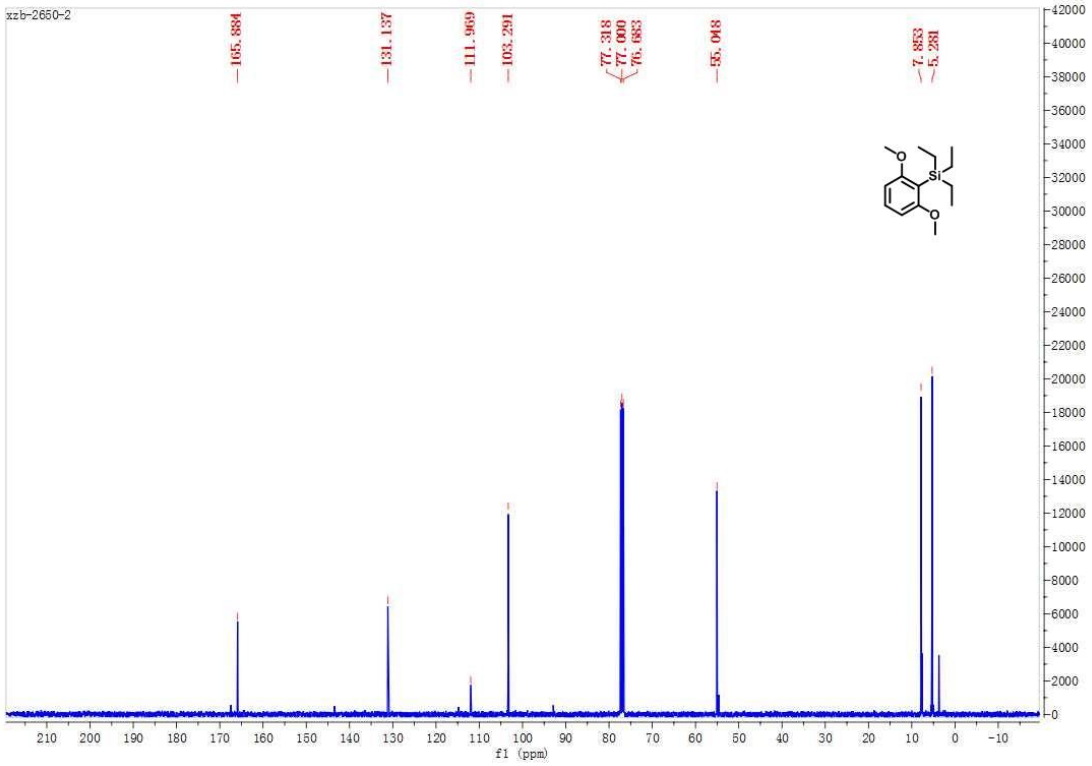
17.^{13}C NMR



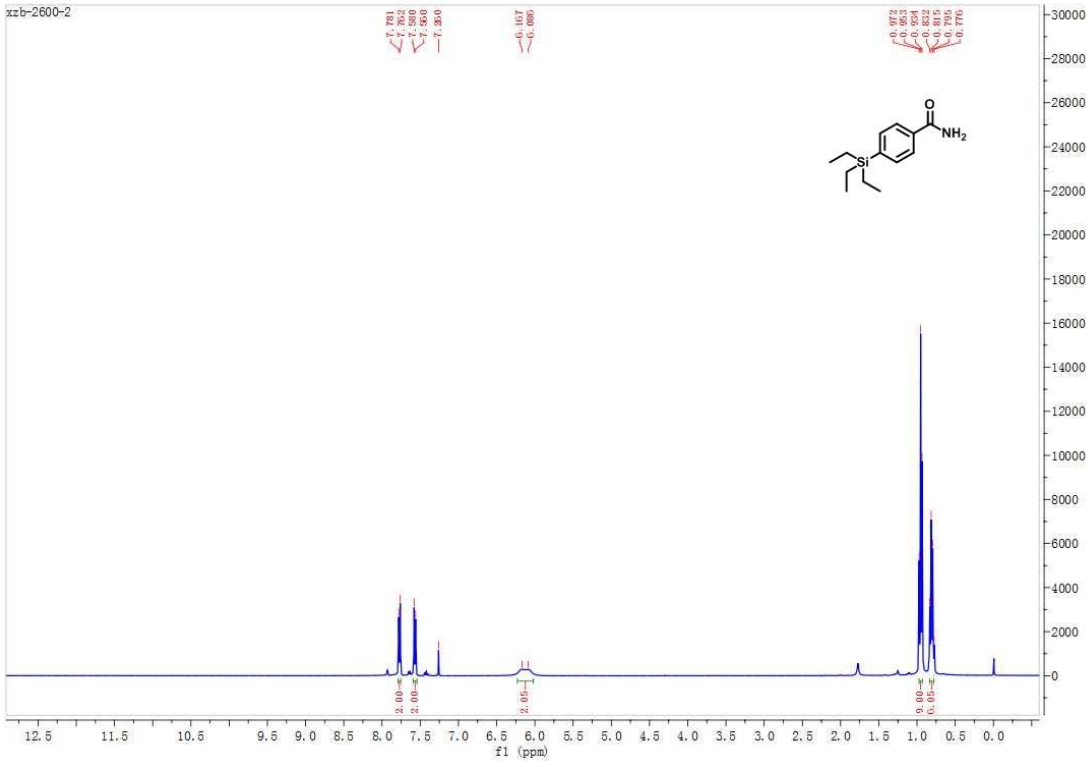
18.^{1}H NMR



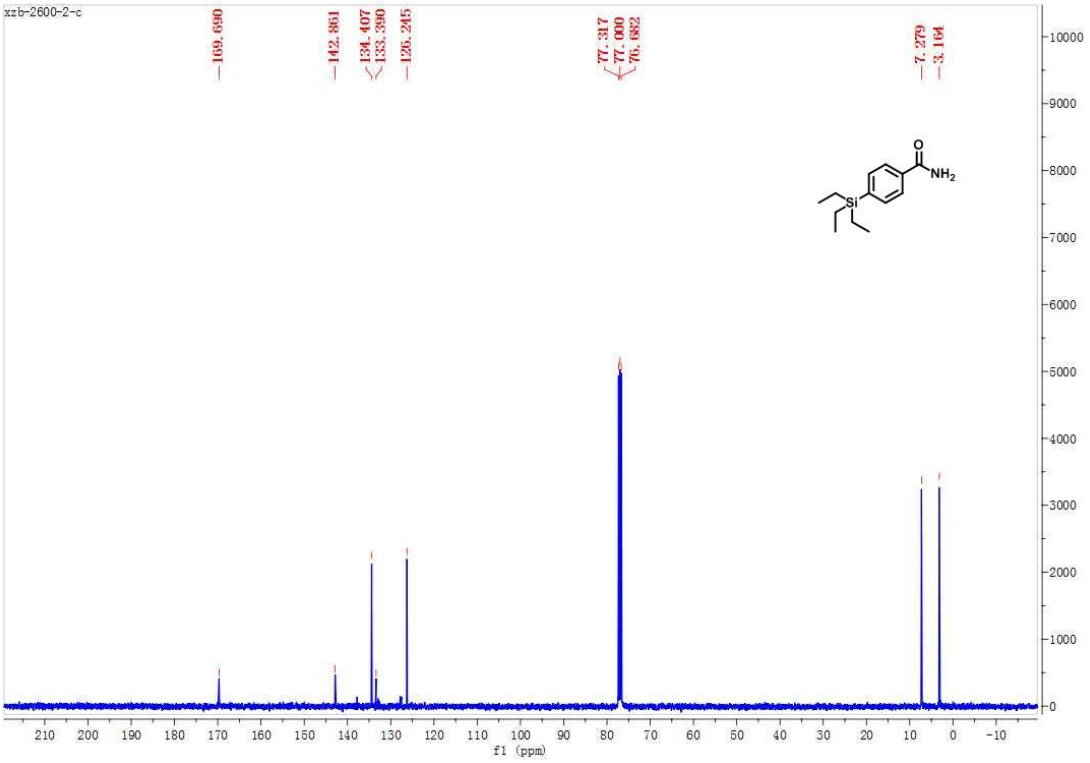
18.^{13}C NMR



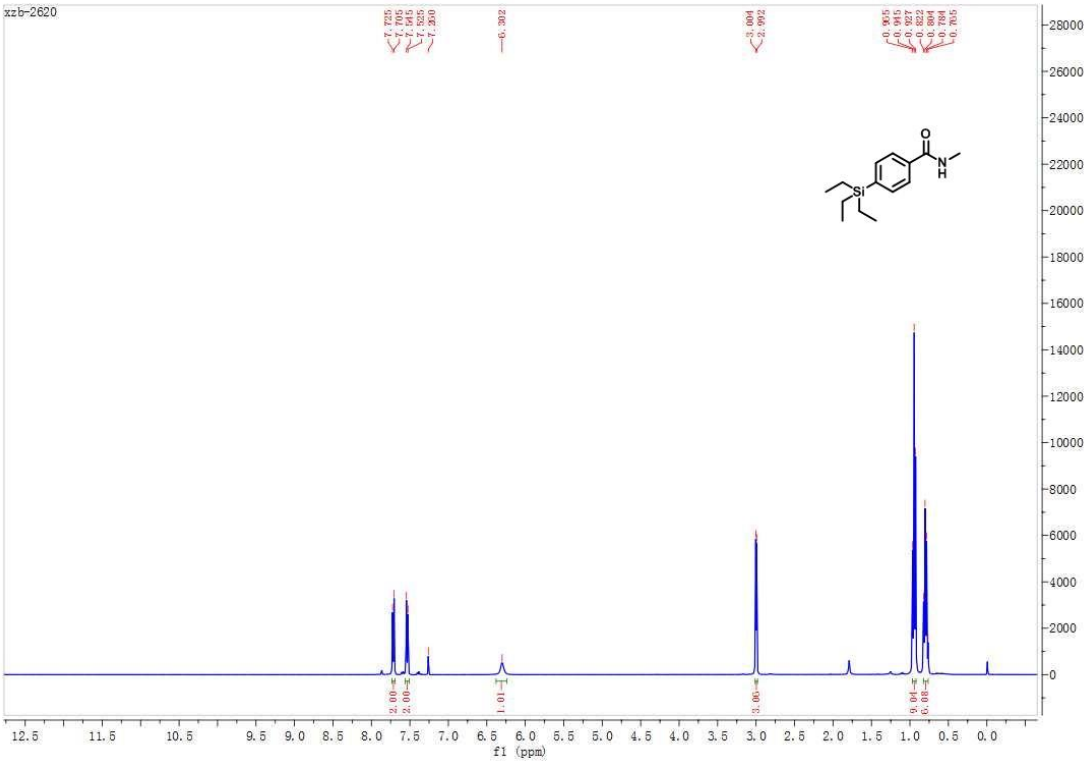
19.^{1}H NMR



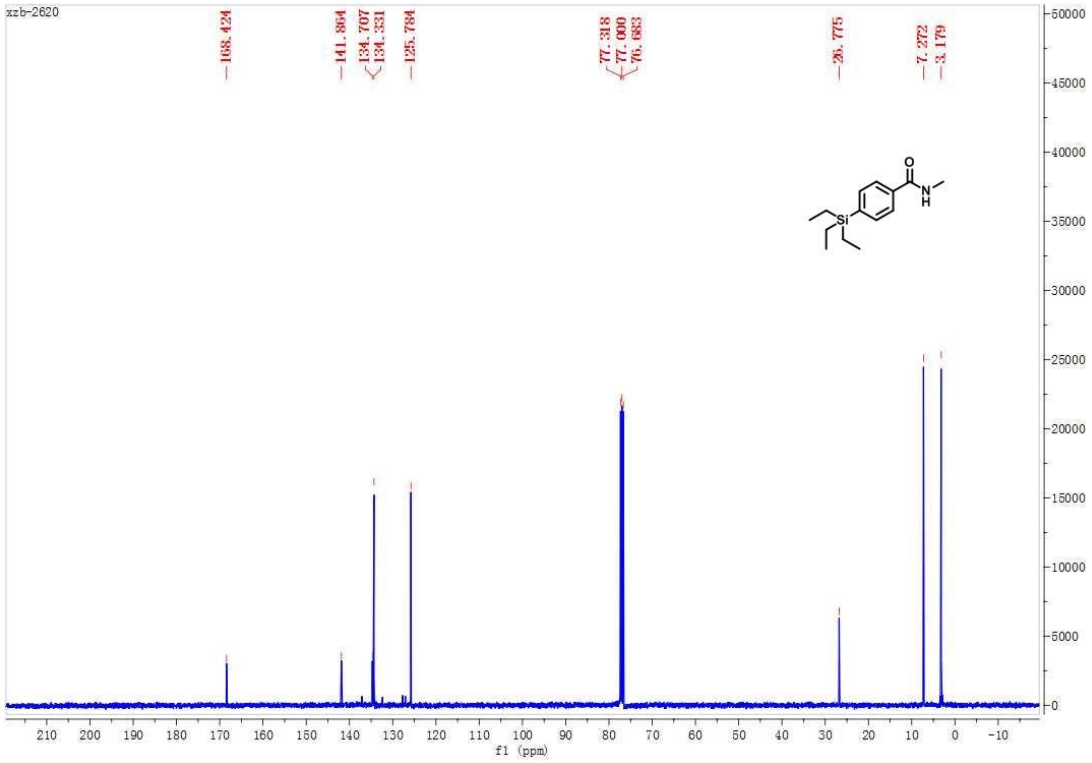
19.^{13}C NMR



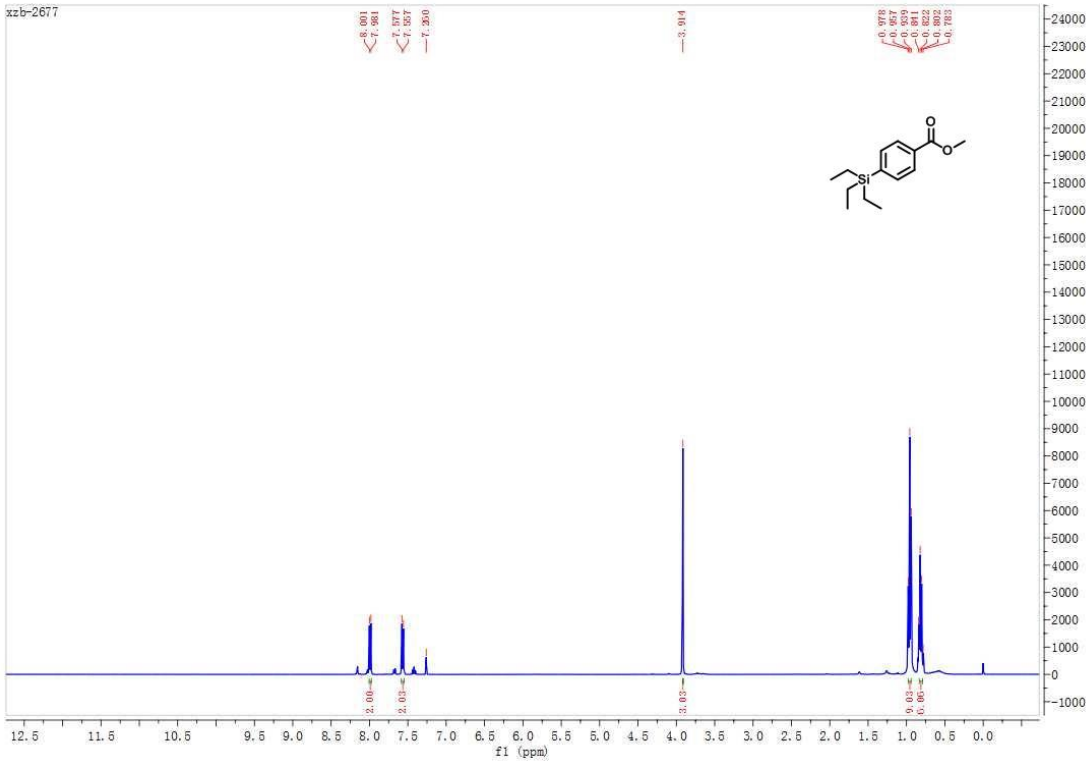
20.^{1}H NMR



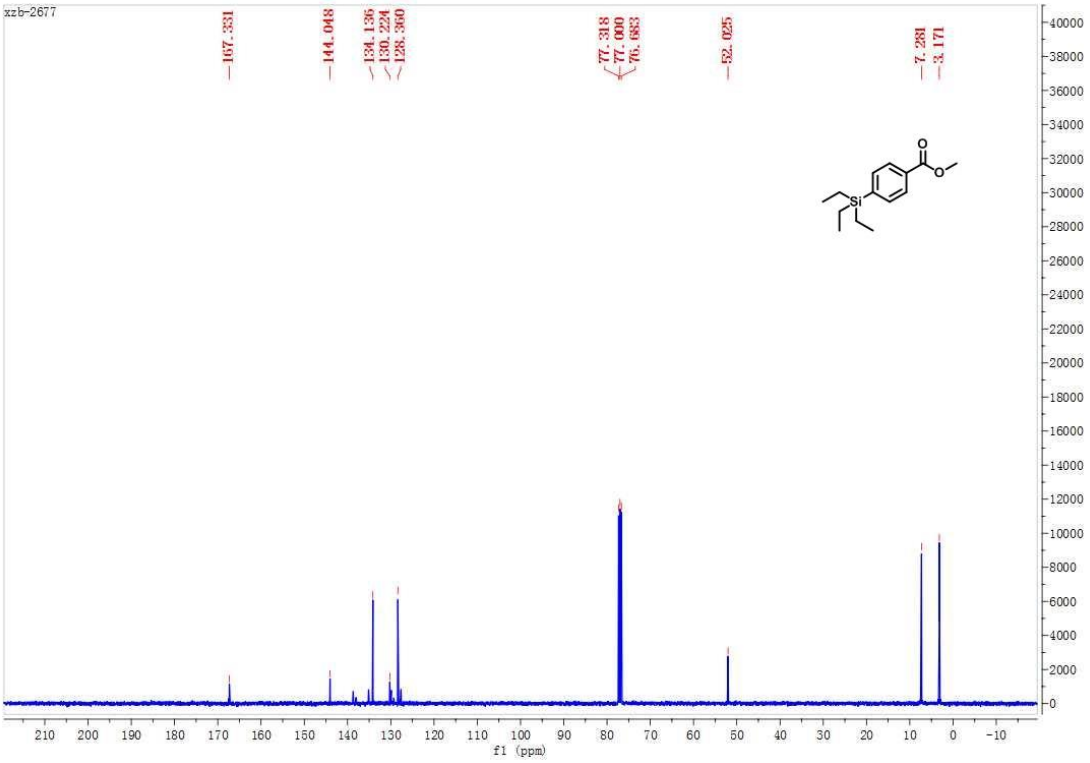
20.^{13}C NMR



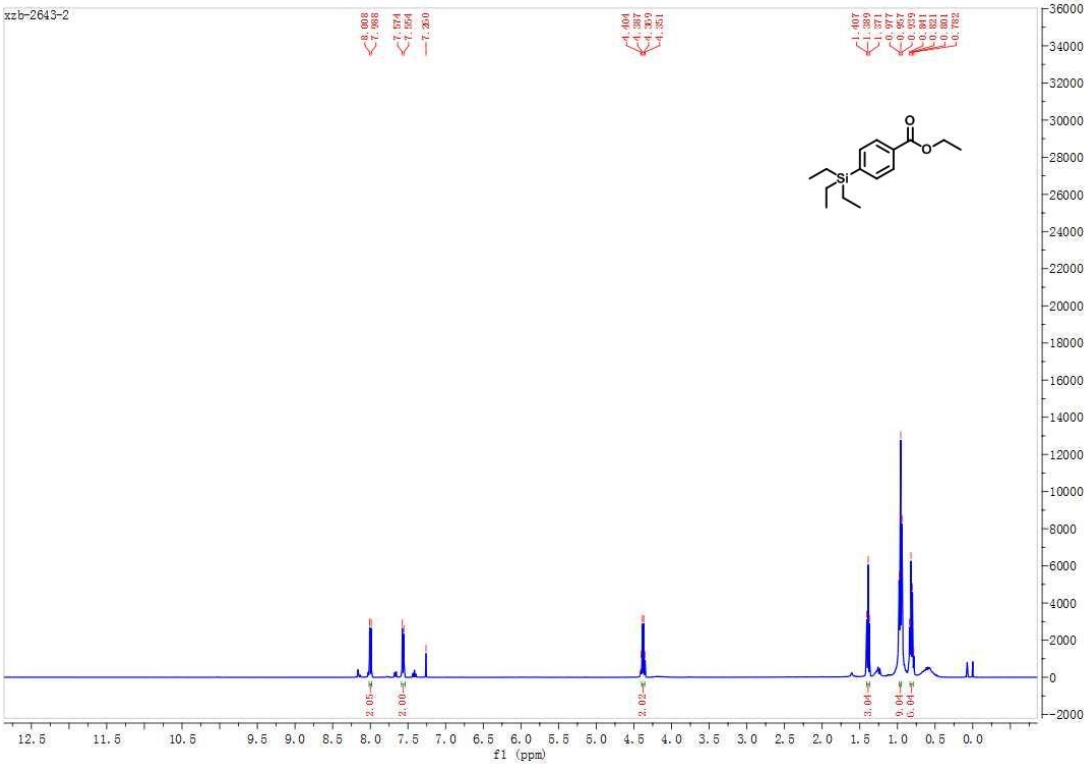
21.^{1}H NMR



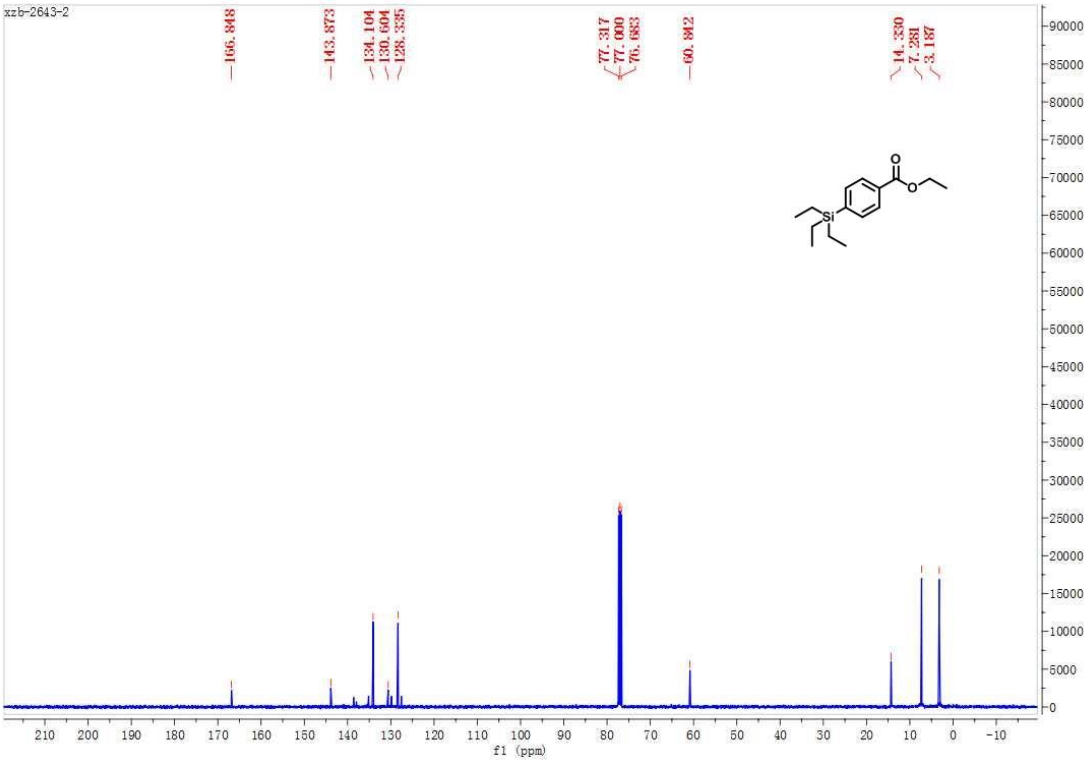
21.^{13}C NMR



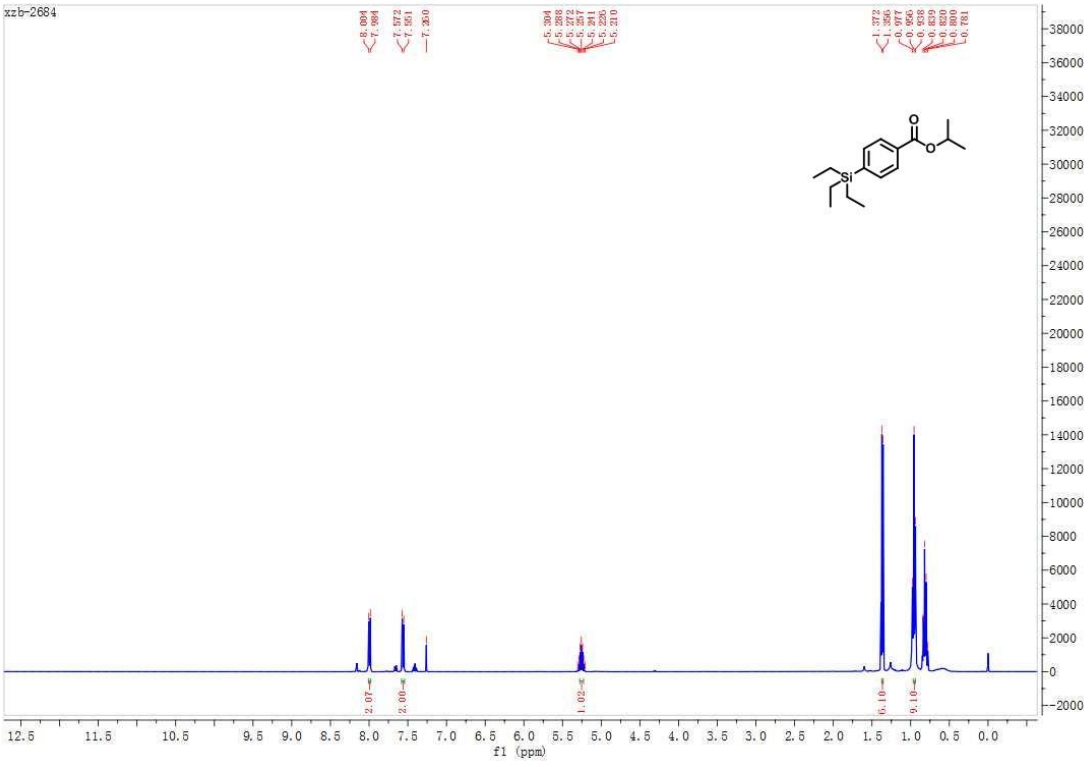
22.^{1}H NMR



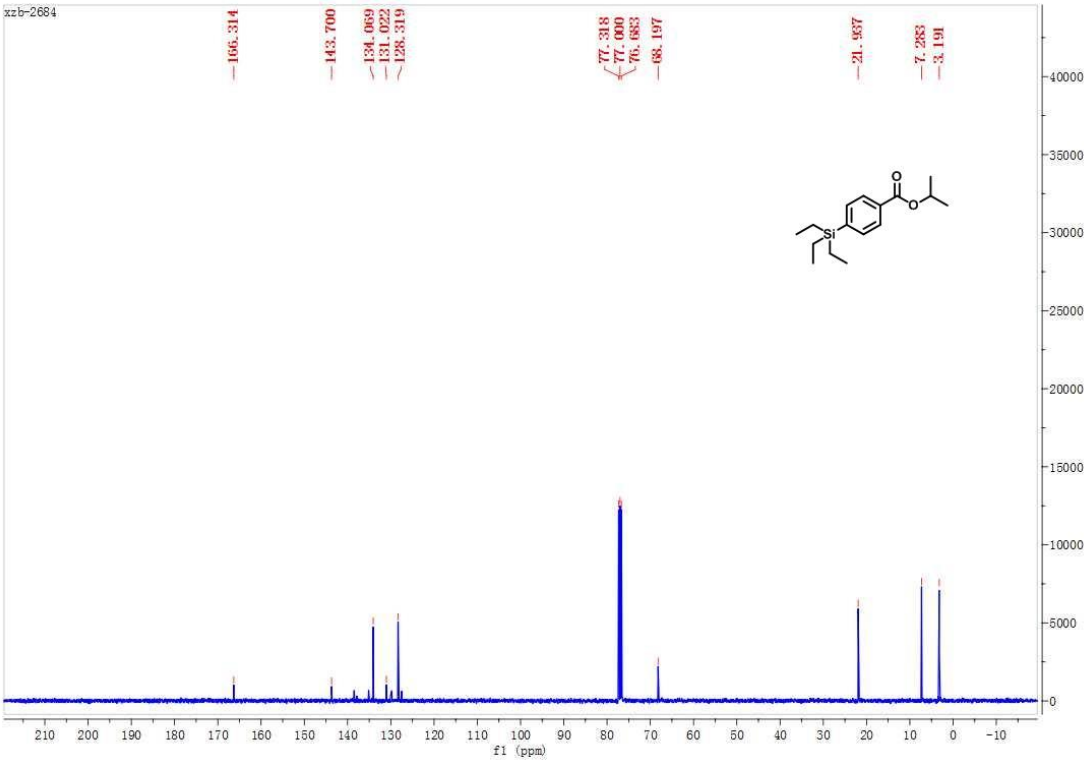
22.^{13}C NMR



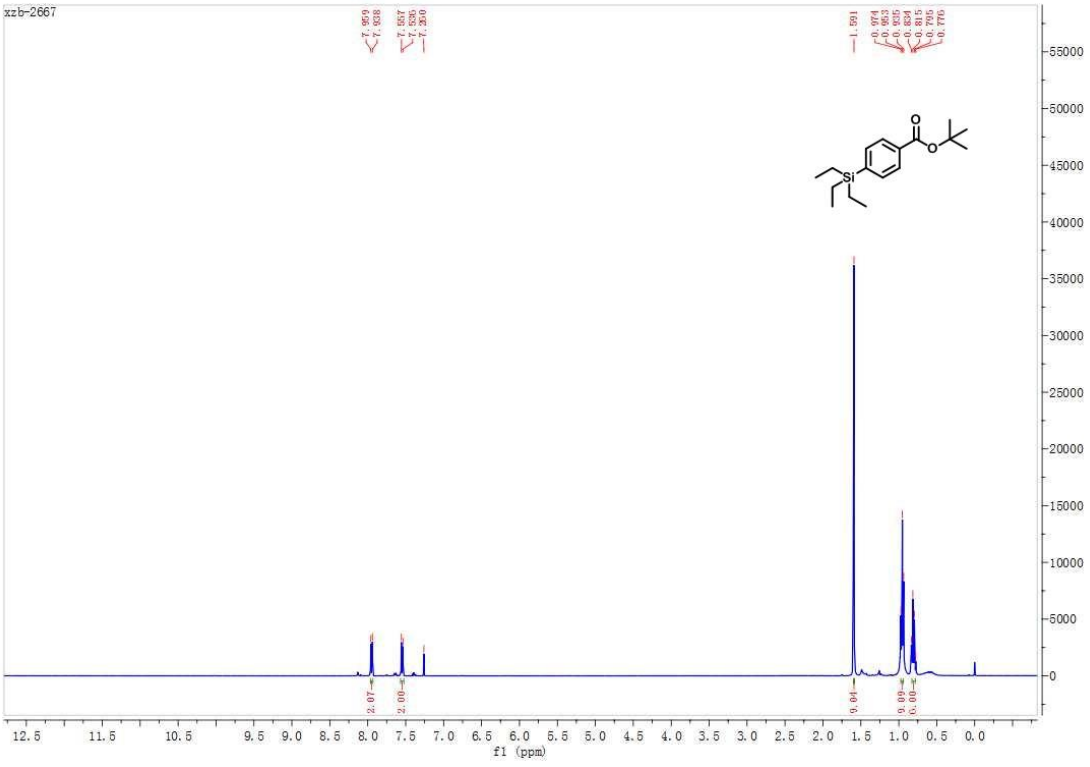
23.^{1}H NMR



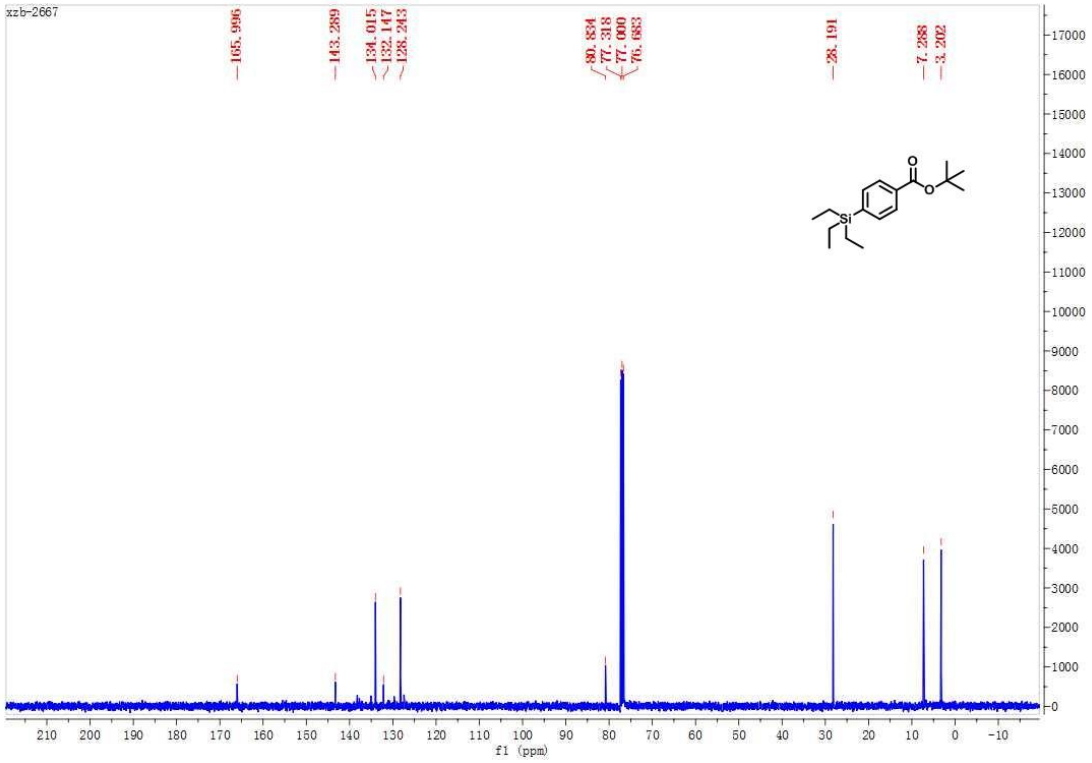
23.^{13}C NMR



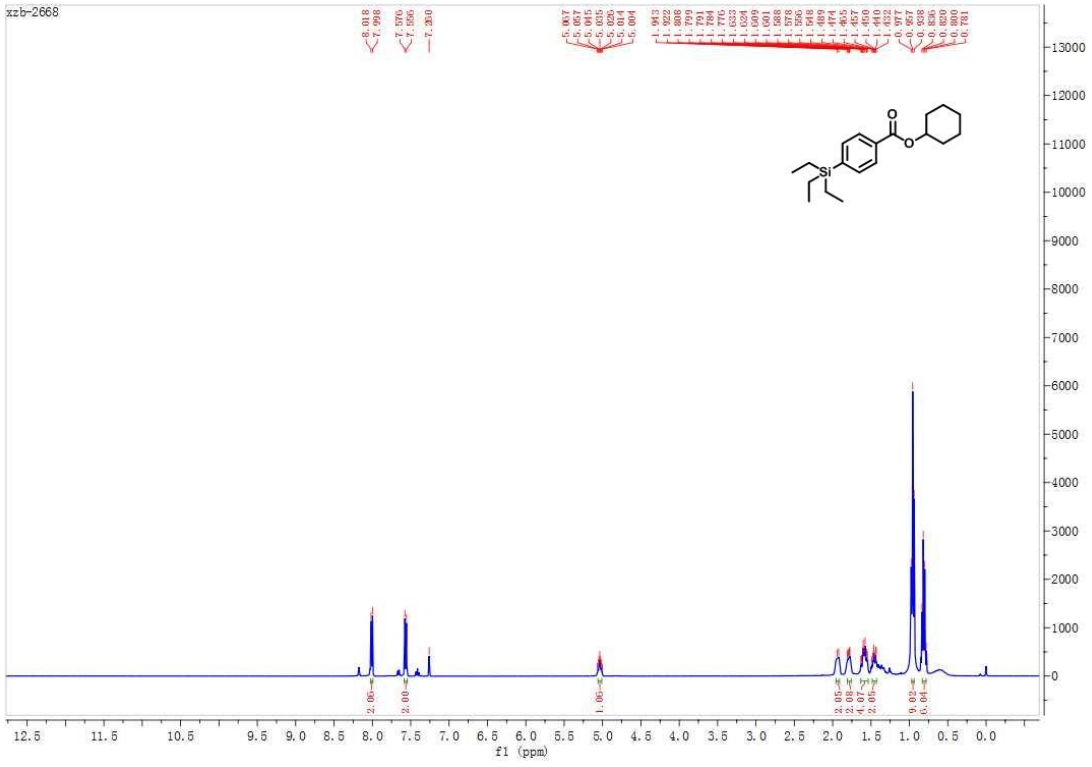
24.^{1}H NMR



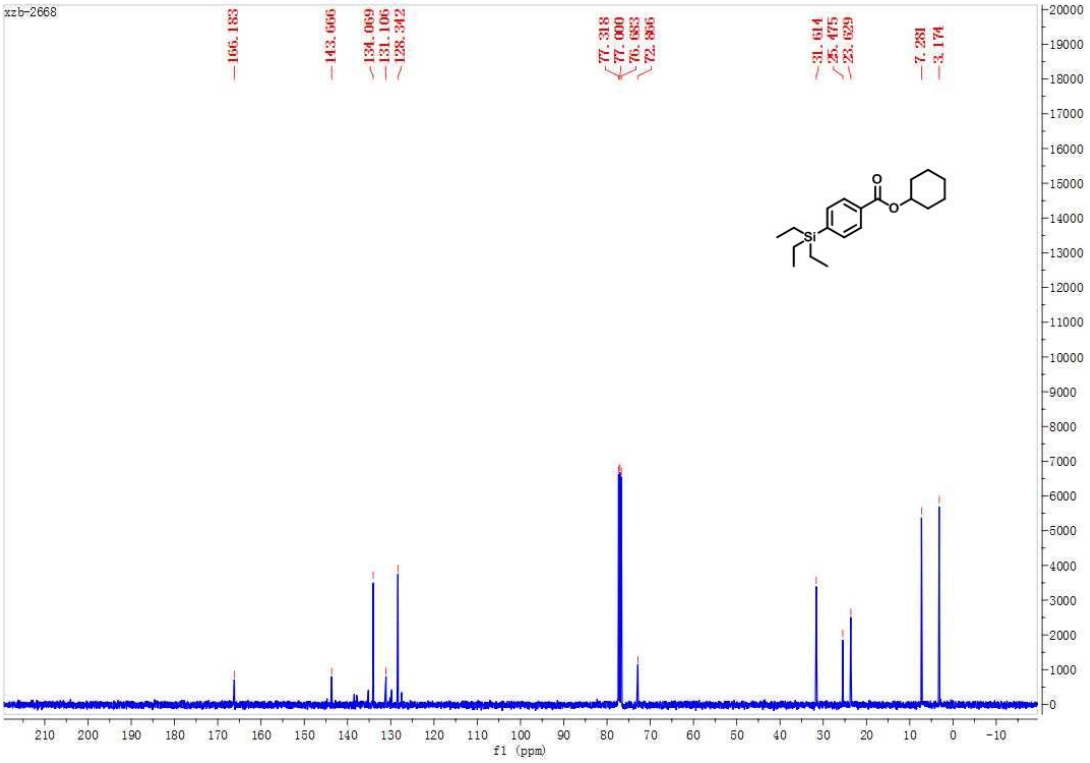
24.^{13}C NMR



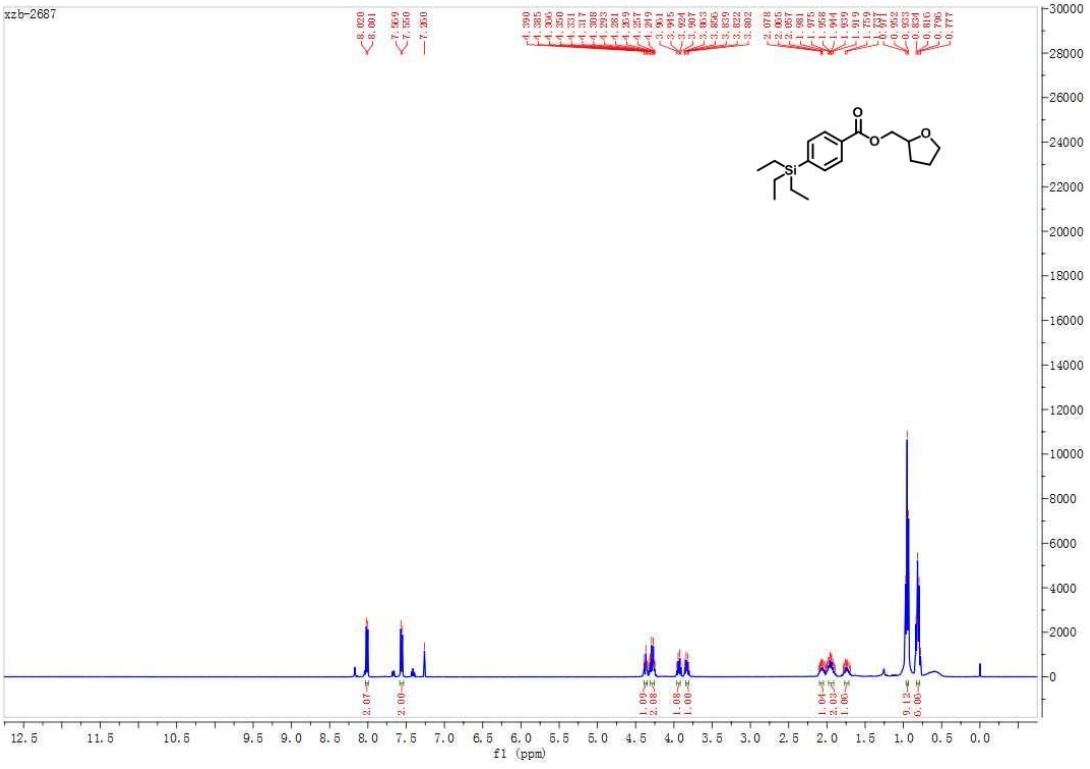
25.^{1}H NMR



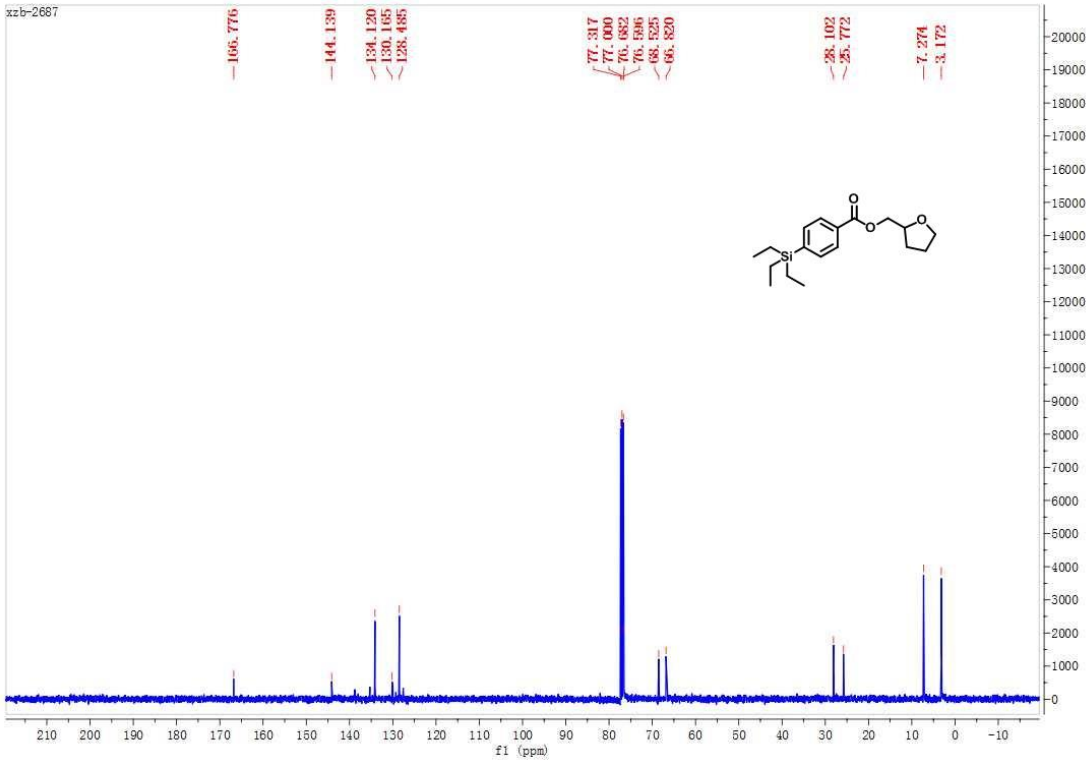
25.^{13}C NMR



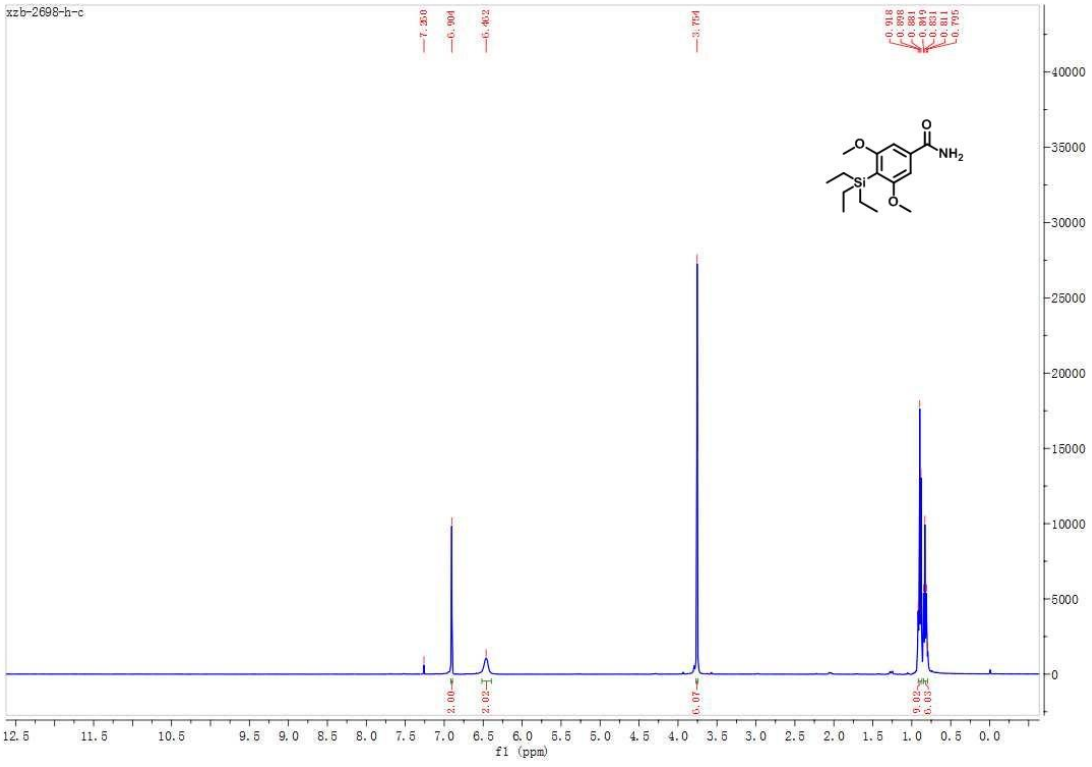
26.^{1}H NMR



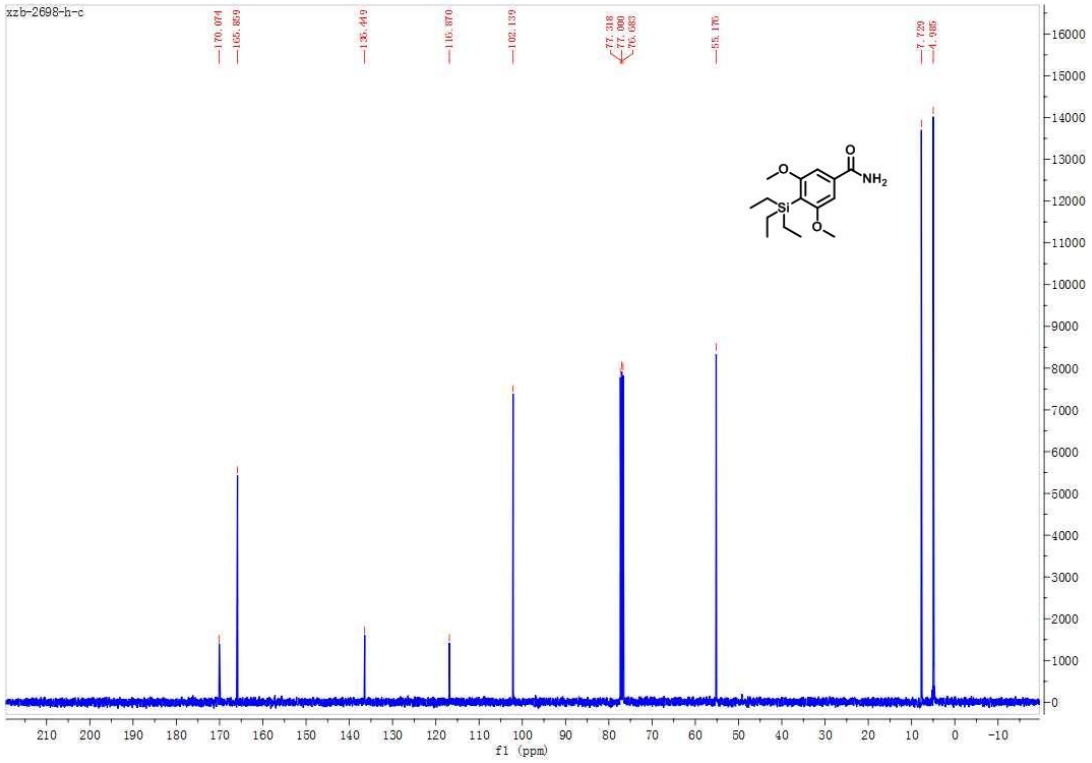
26.^{13}C NMR



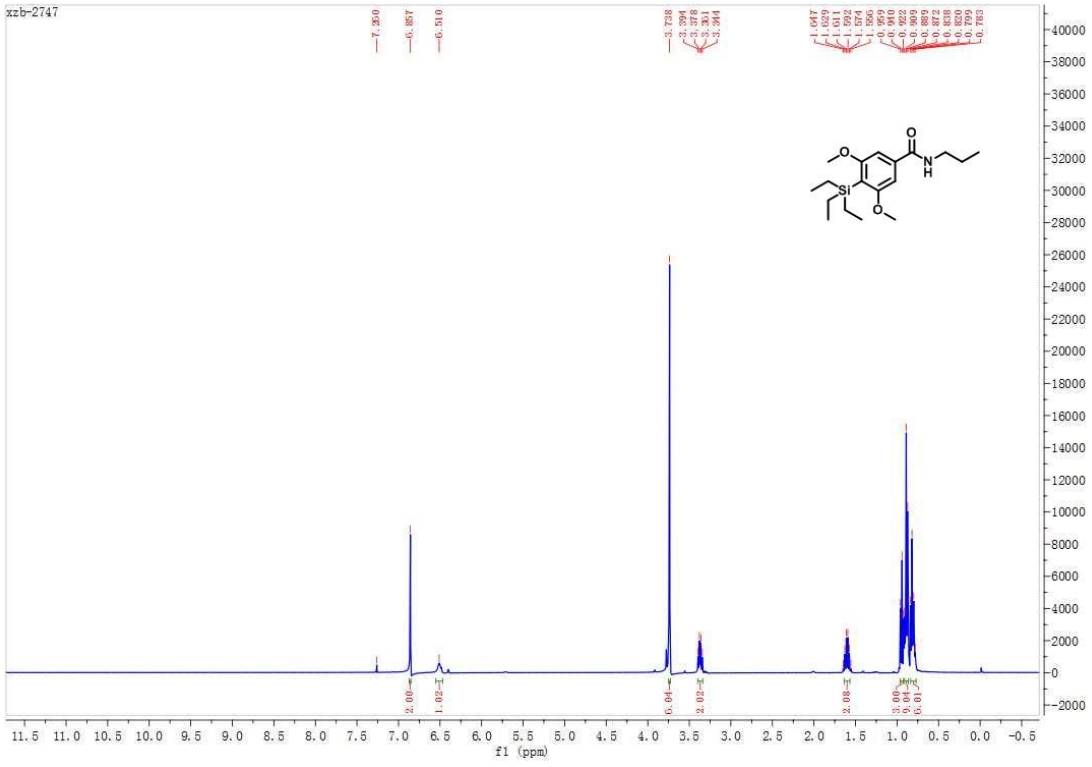
27.^{1}H NMR



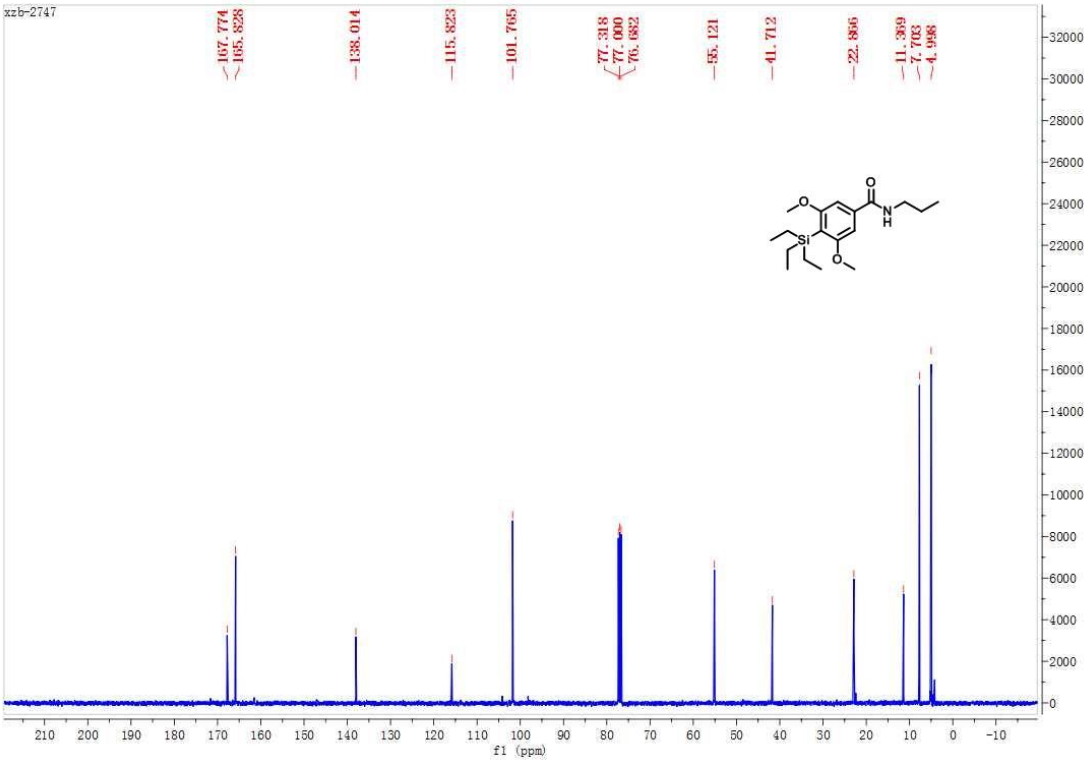
27.^{13}C NMR



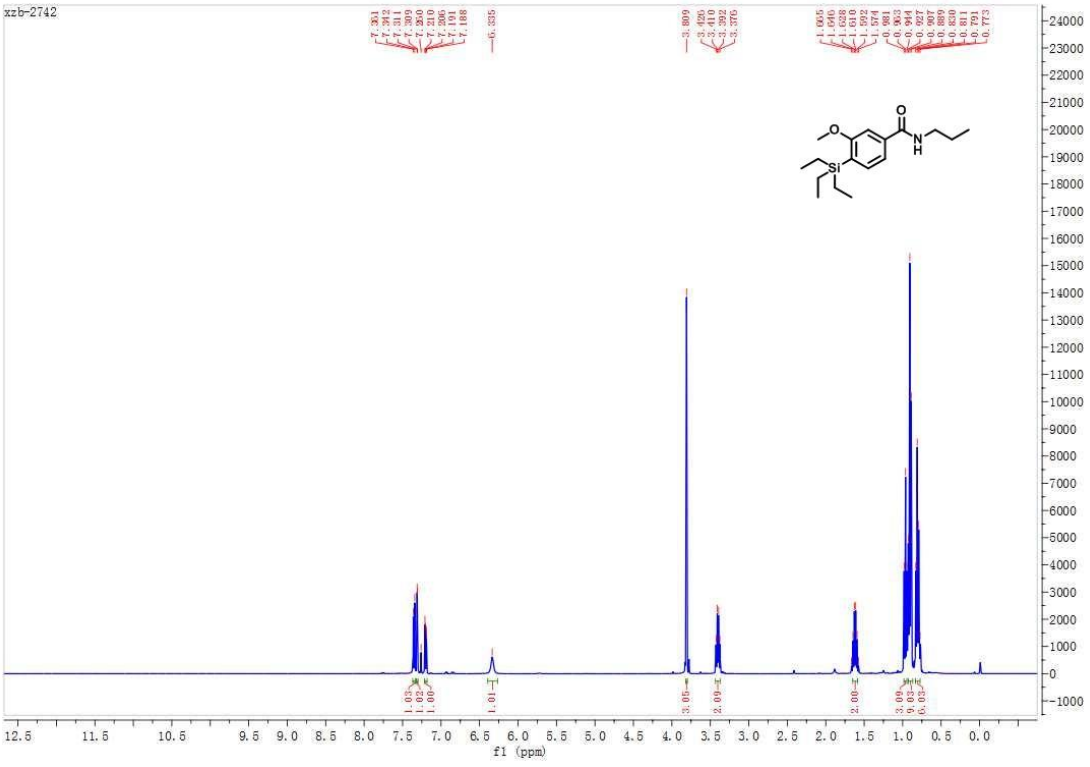
28.^{1}H NMR



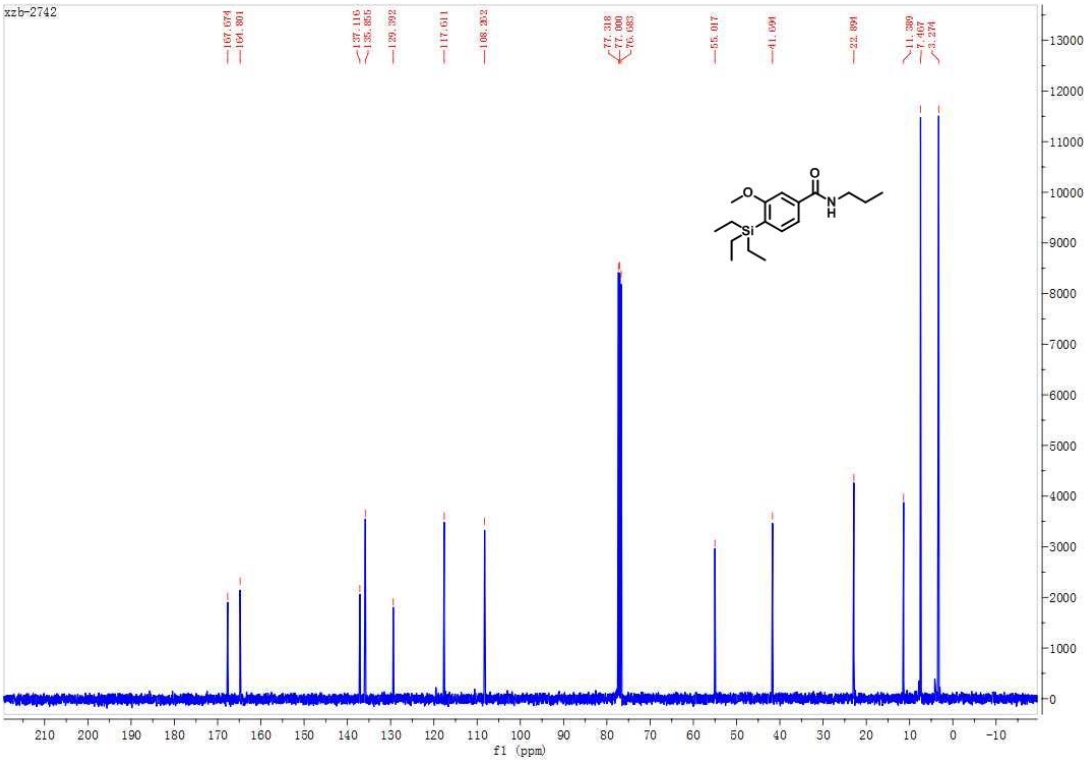
28.^{13}C NMR



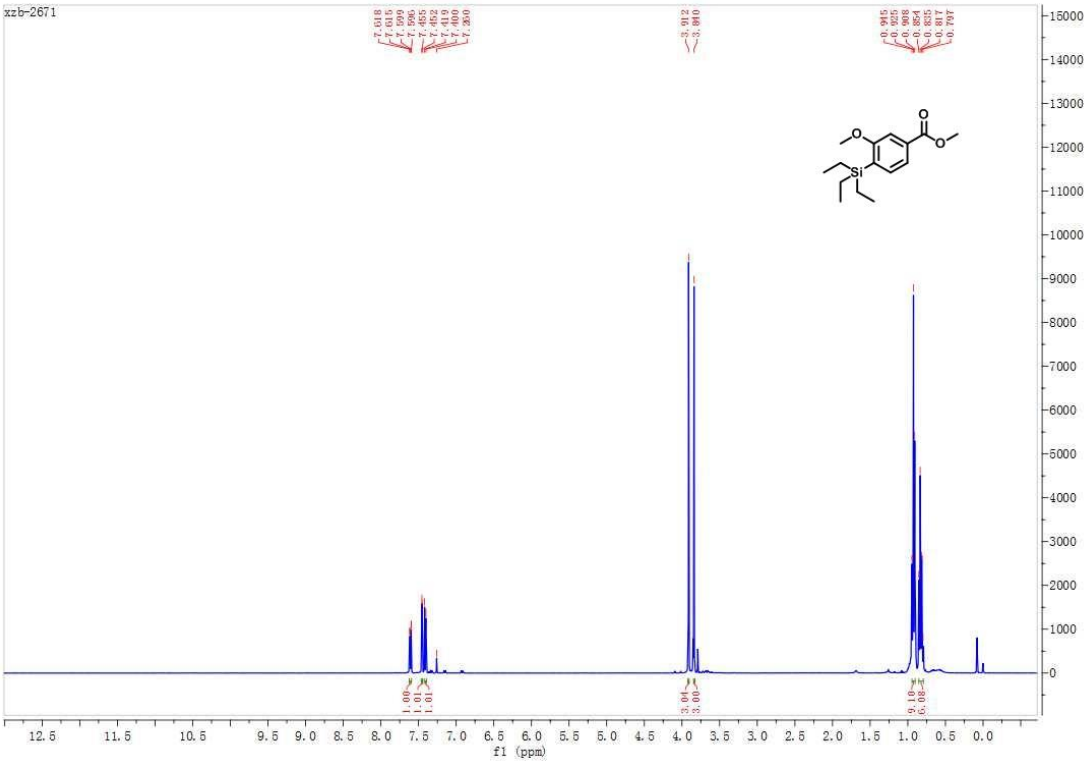
29.^{1}H NMR



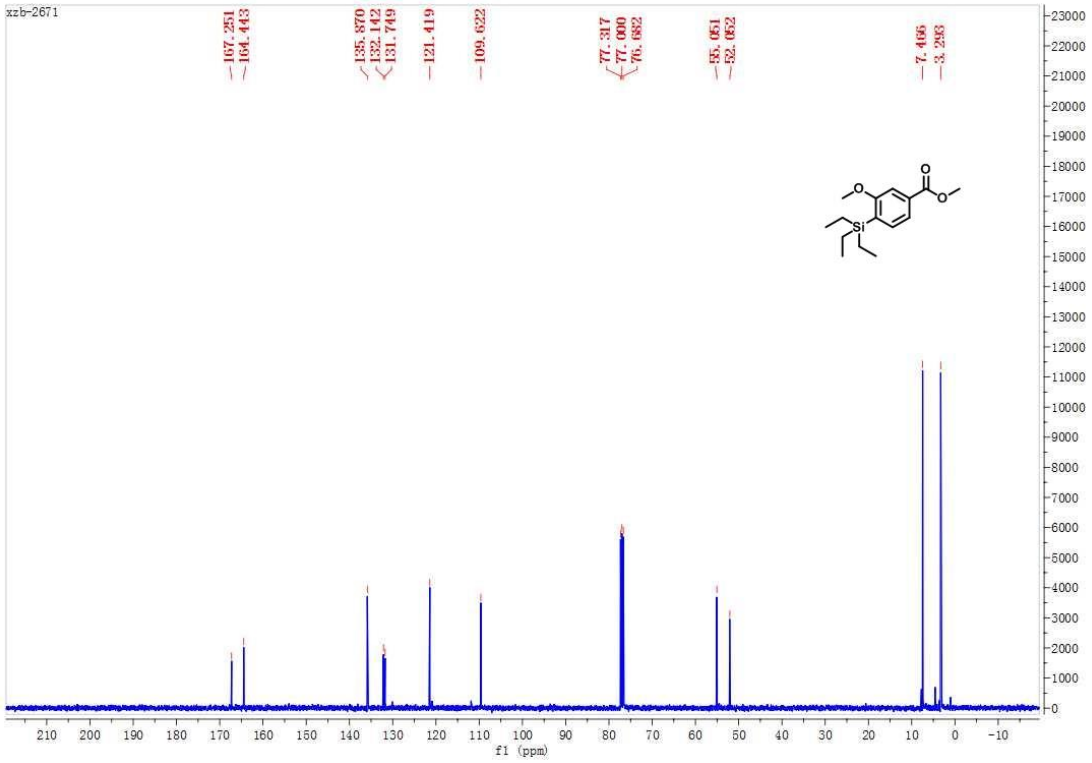
29.^{13}C NMR



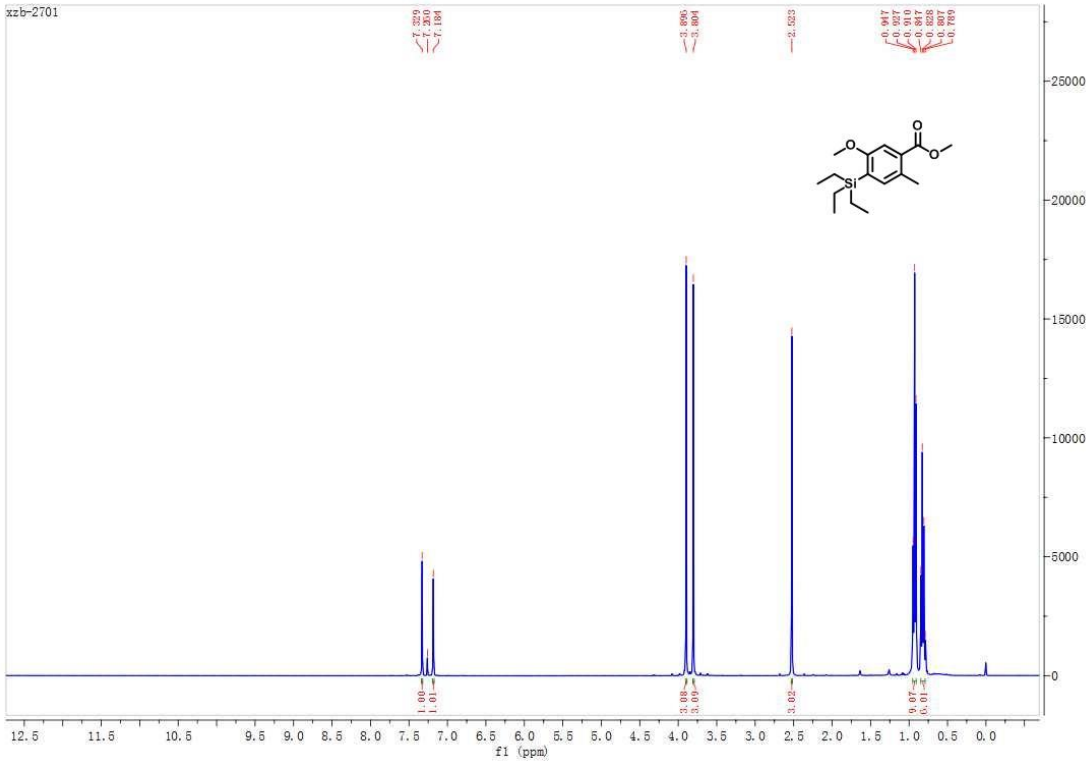
30.^{1}H NMR



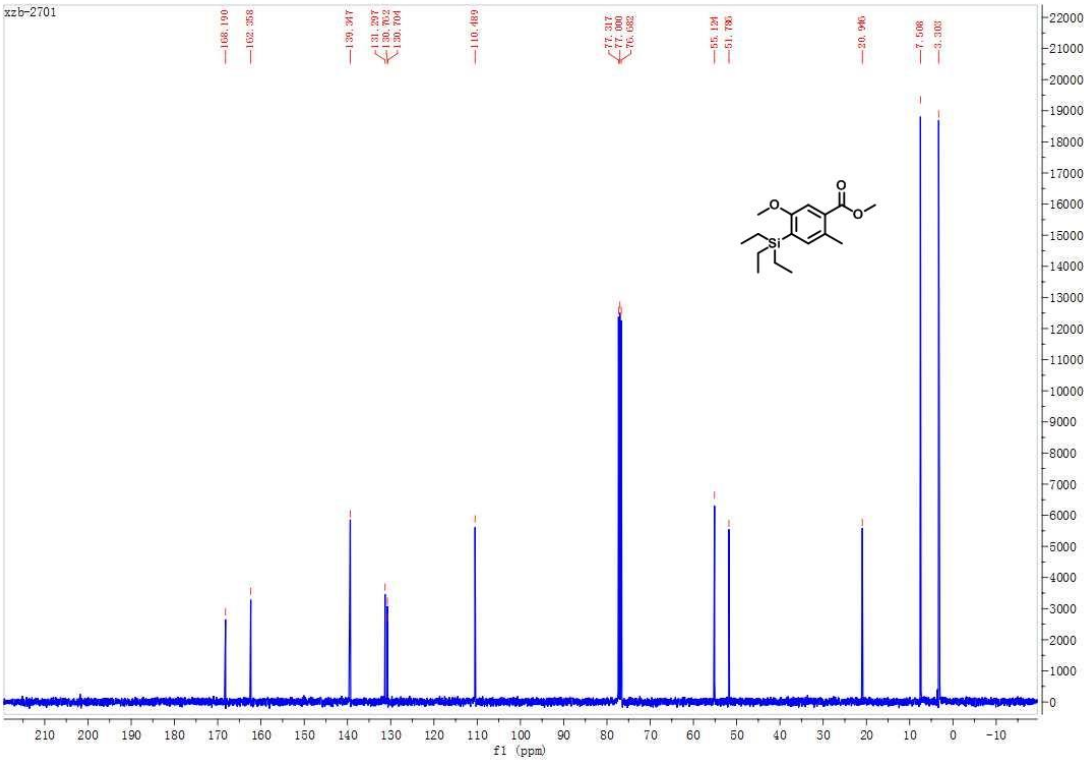
30.^{13}C NMR



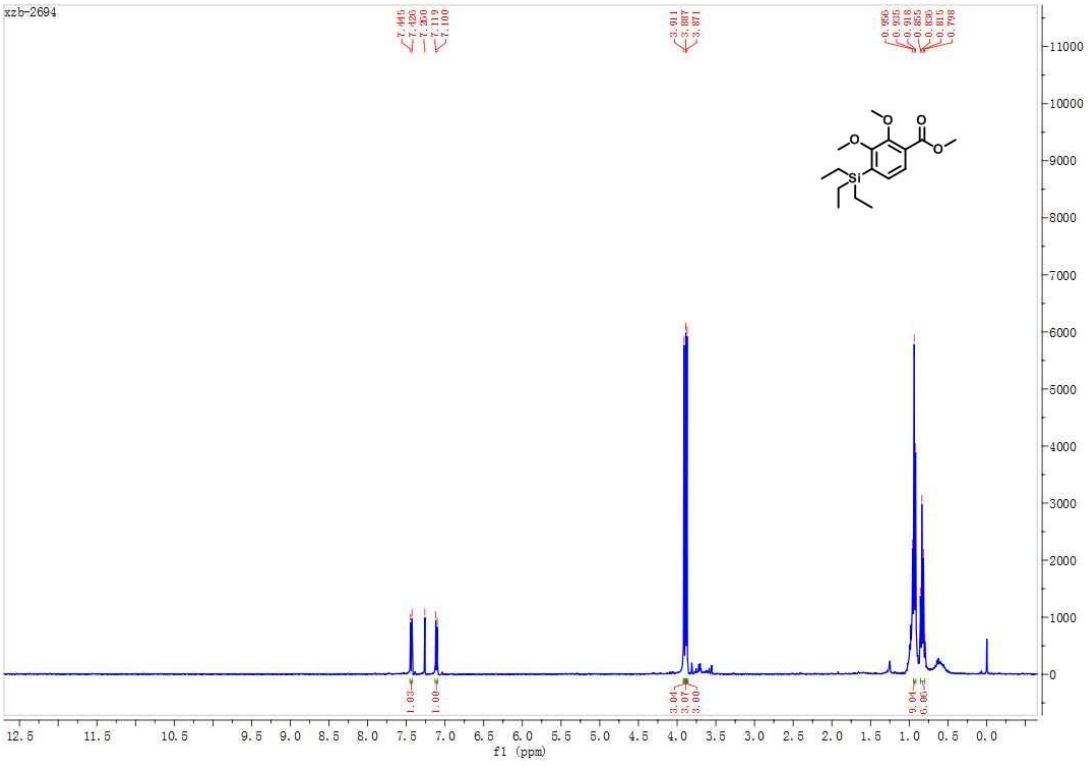
31.^{1}H NMR



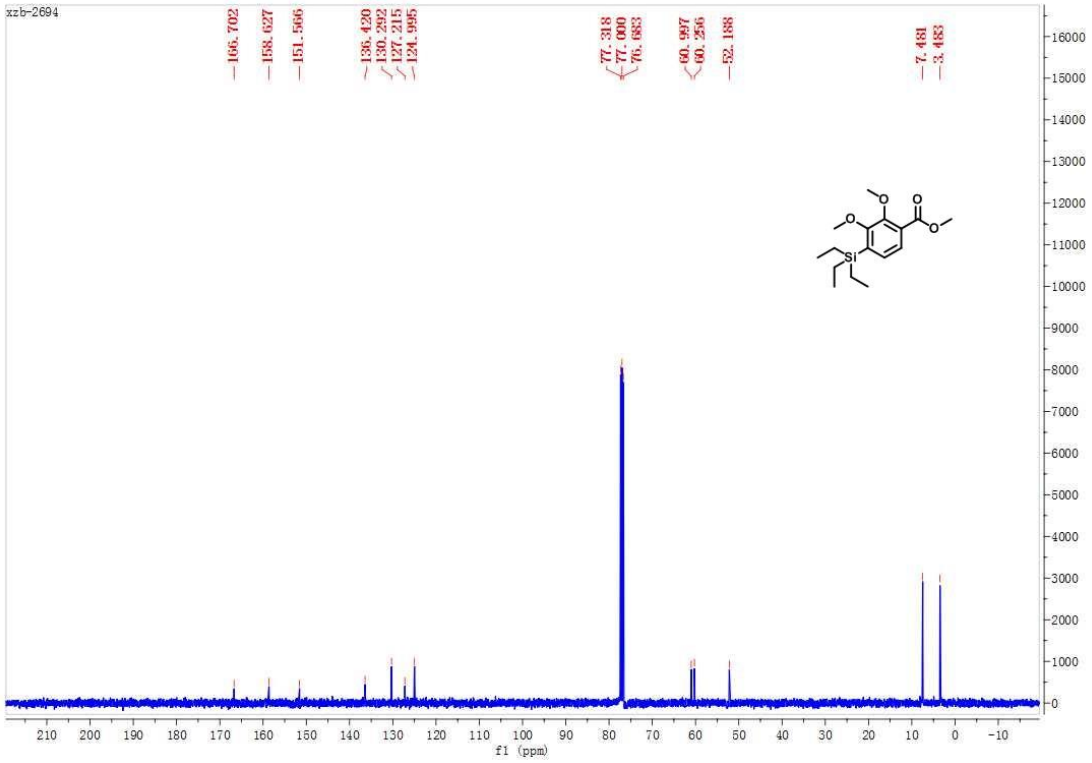
31.^{13}C NMR



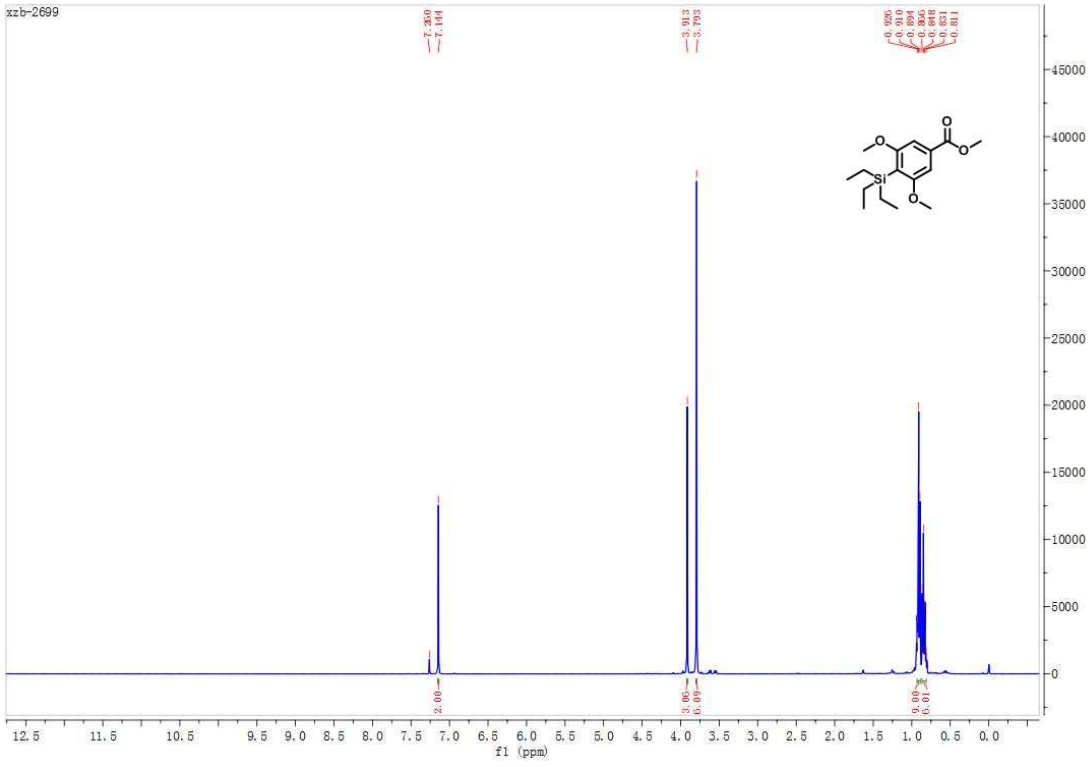
32.^{1}H NMR



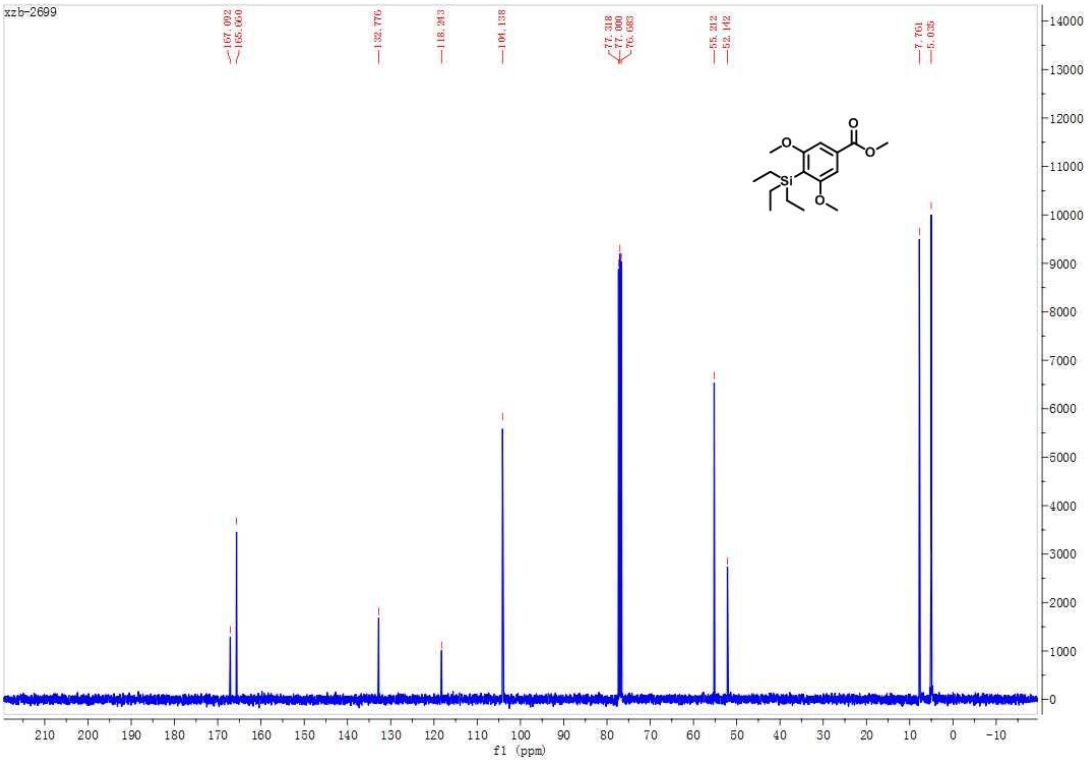
32.^{13}C NMR



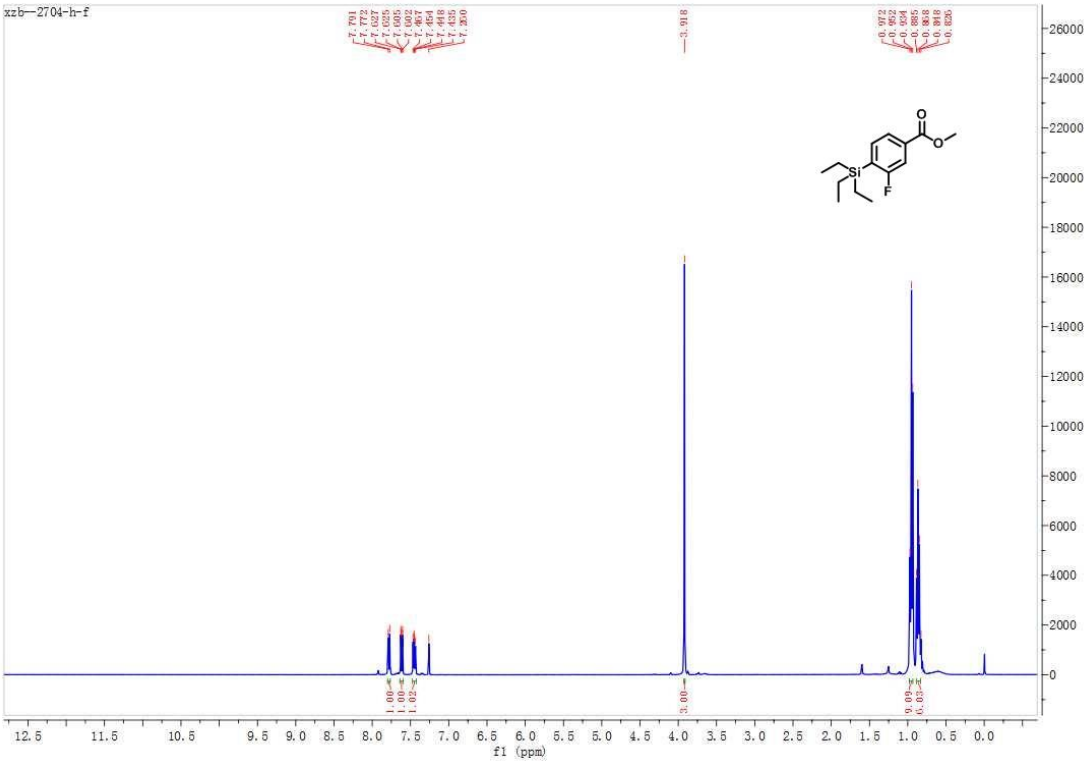
33.^{1}H NMR



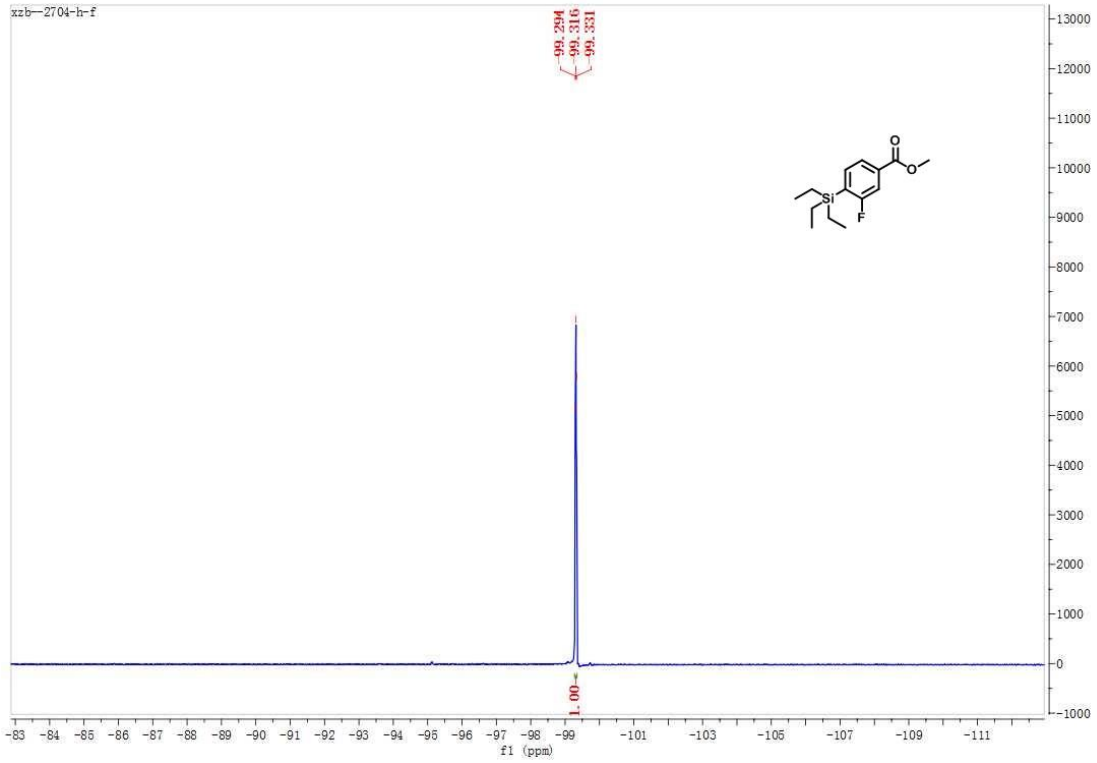
33.^{13}C NMR



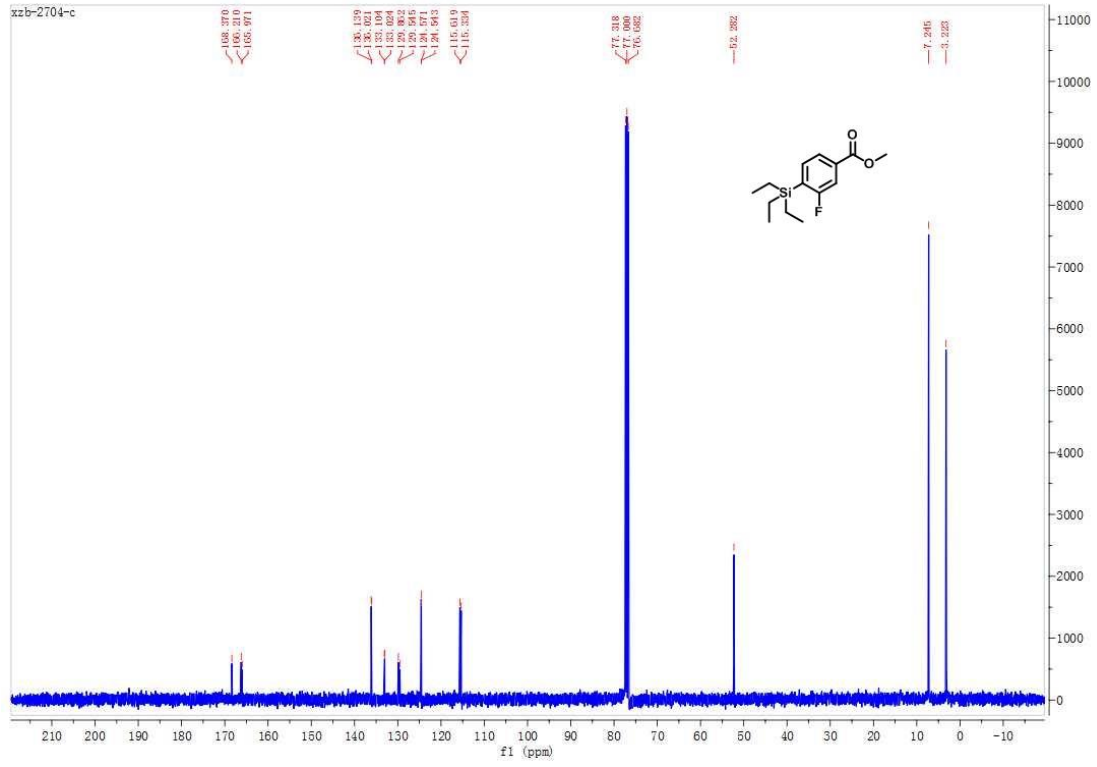
34.^{1}H NMR



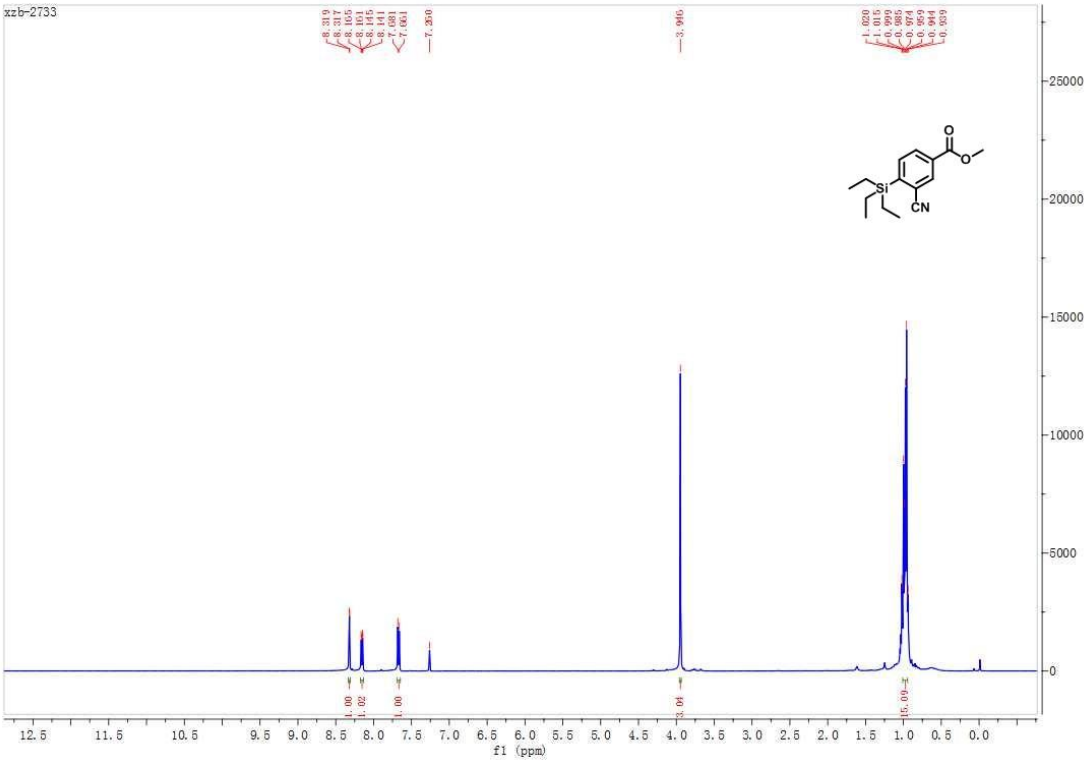
34.^{19}F NMR



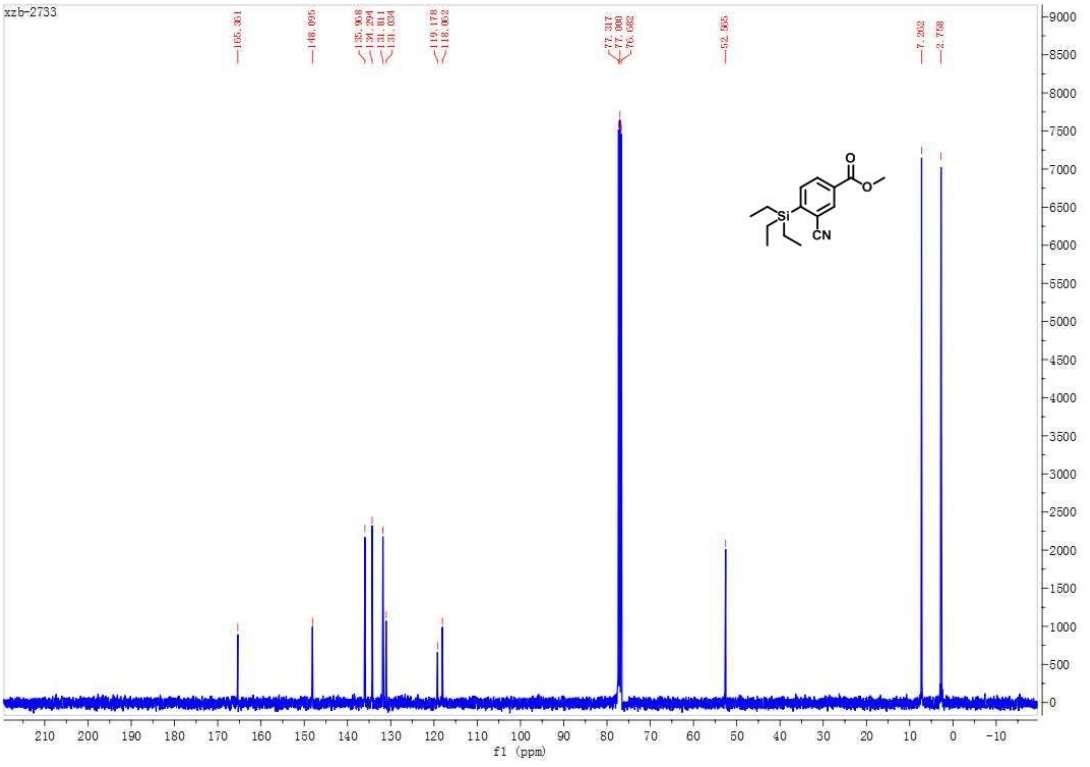
34.^{13}C NMR



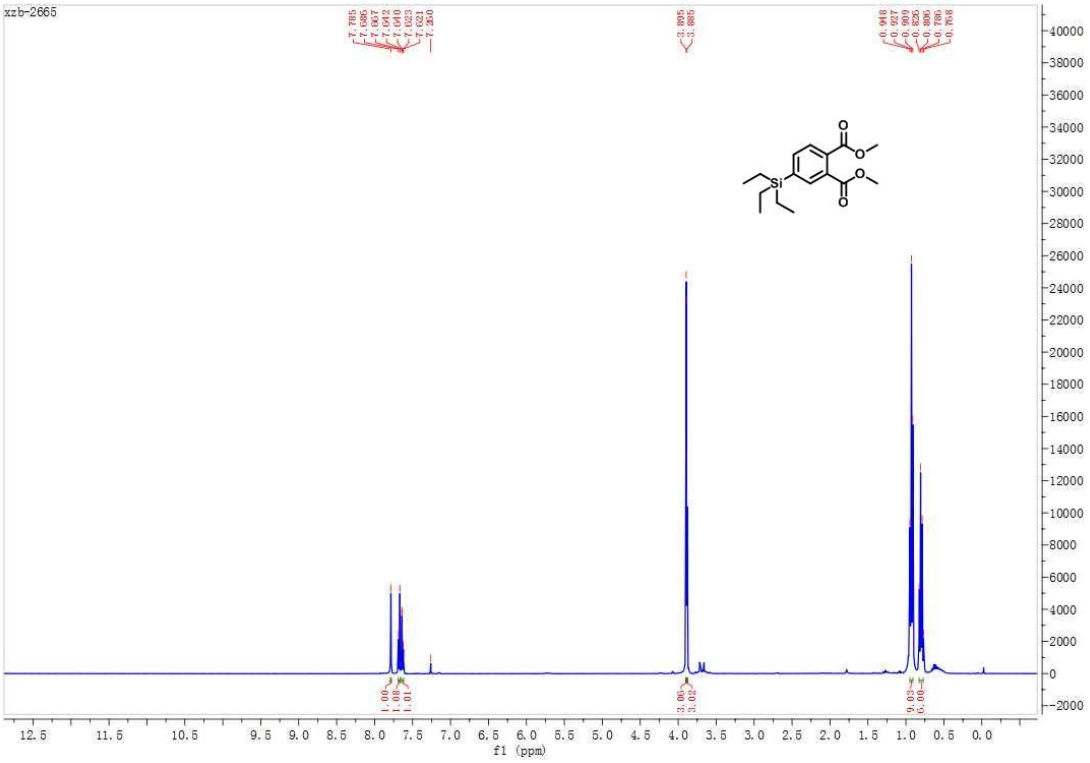
35.^{1}H NMR



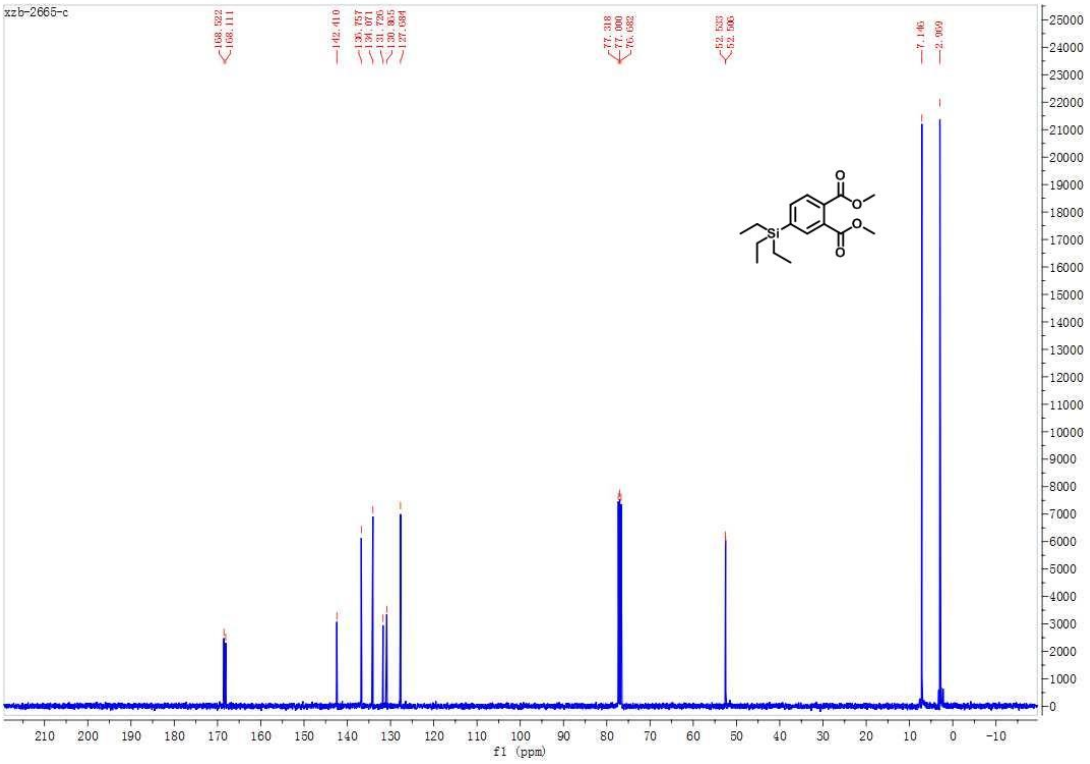
35.^{13}C NMR



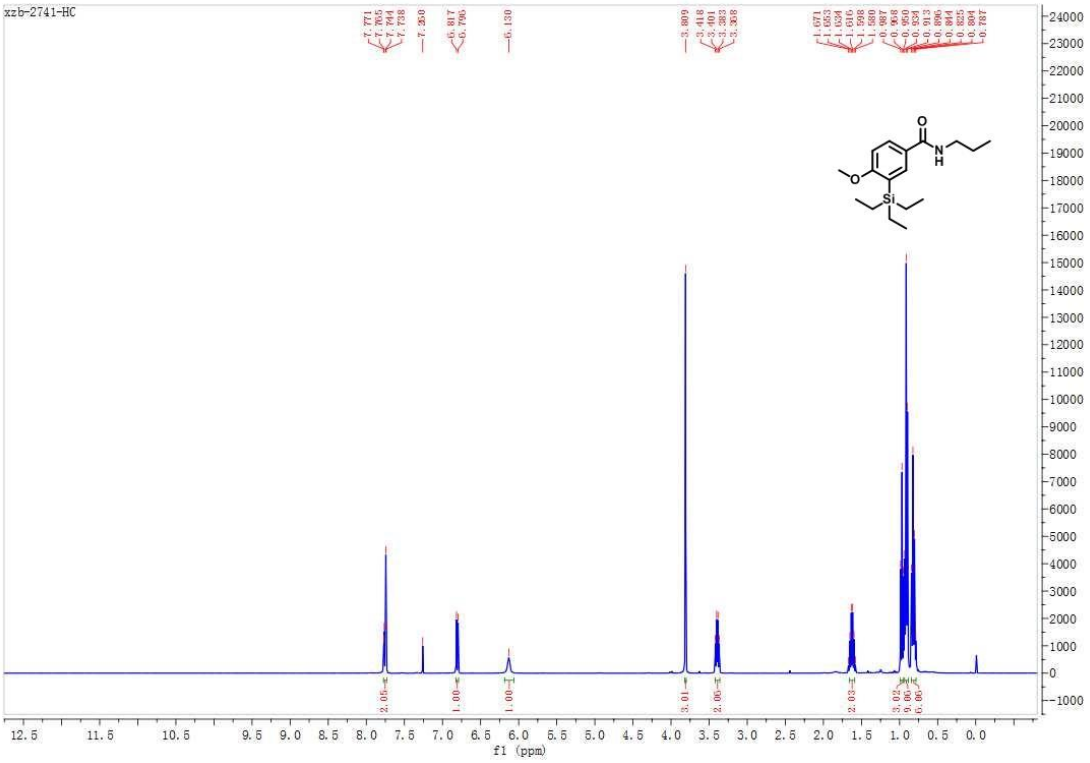
36.^{1}H NMR



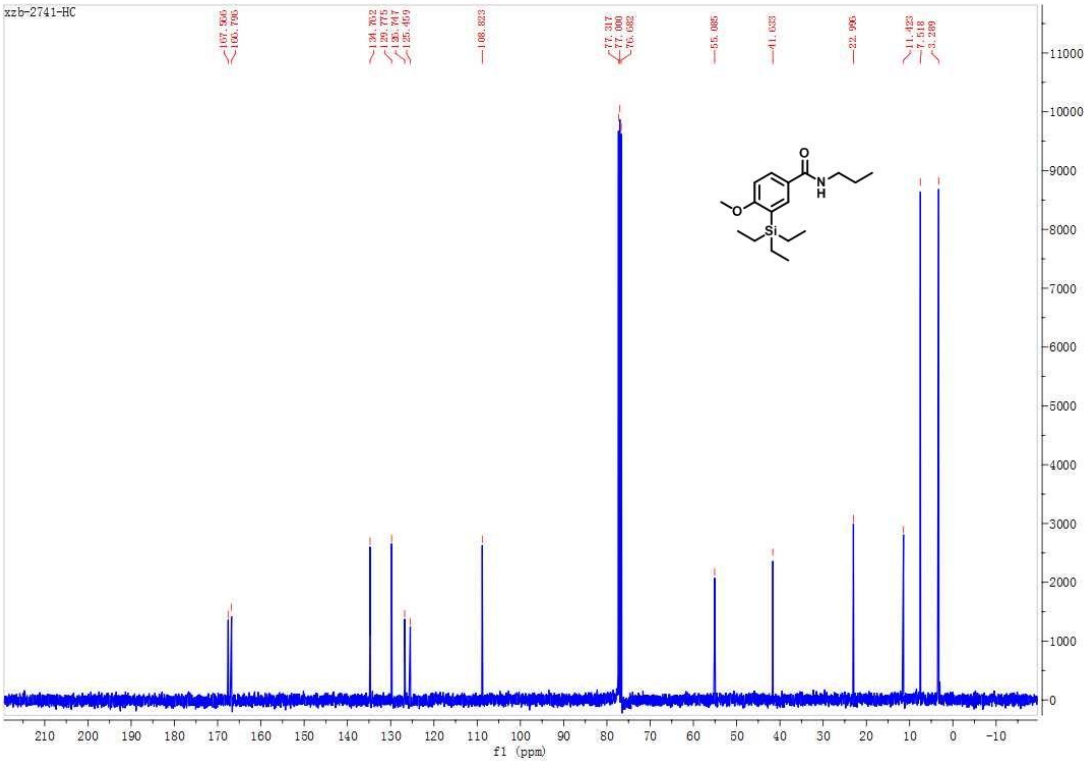
36.^{13}C NMR



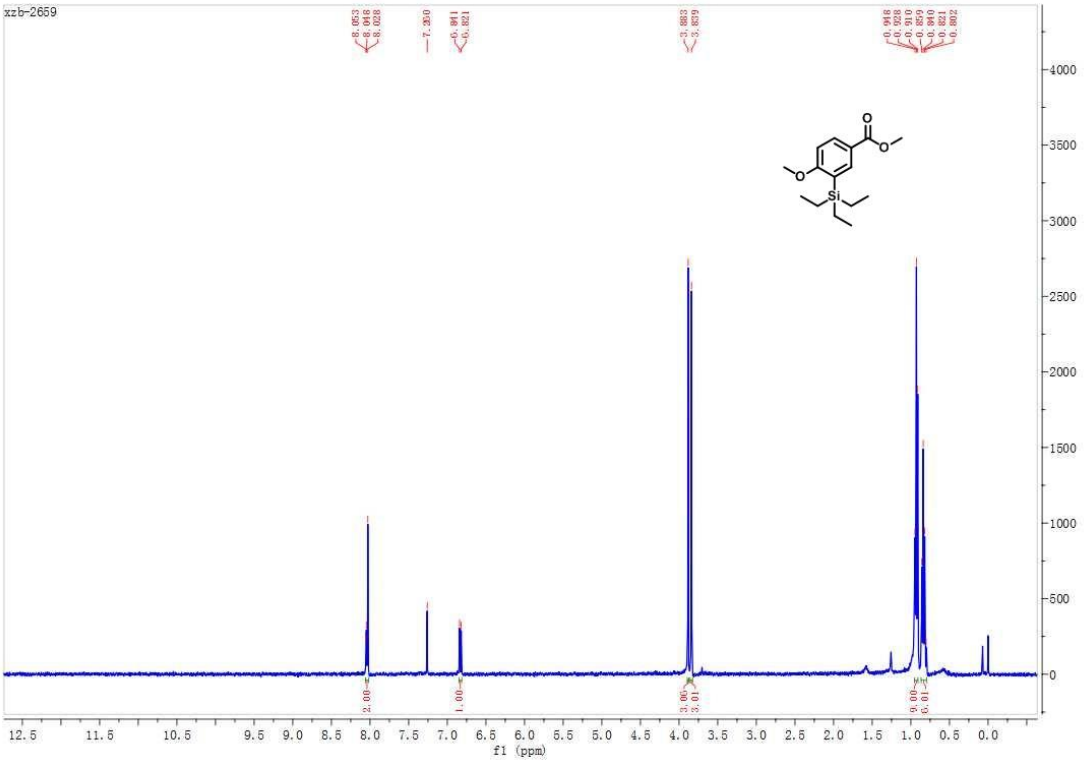
37.^{1}H NMR



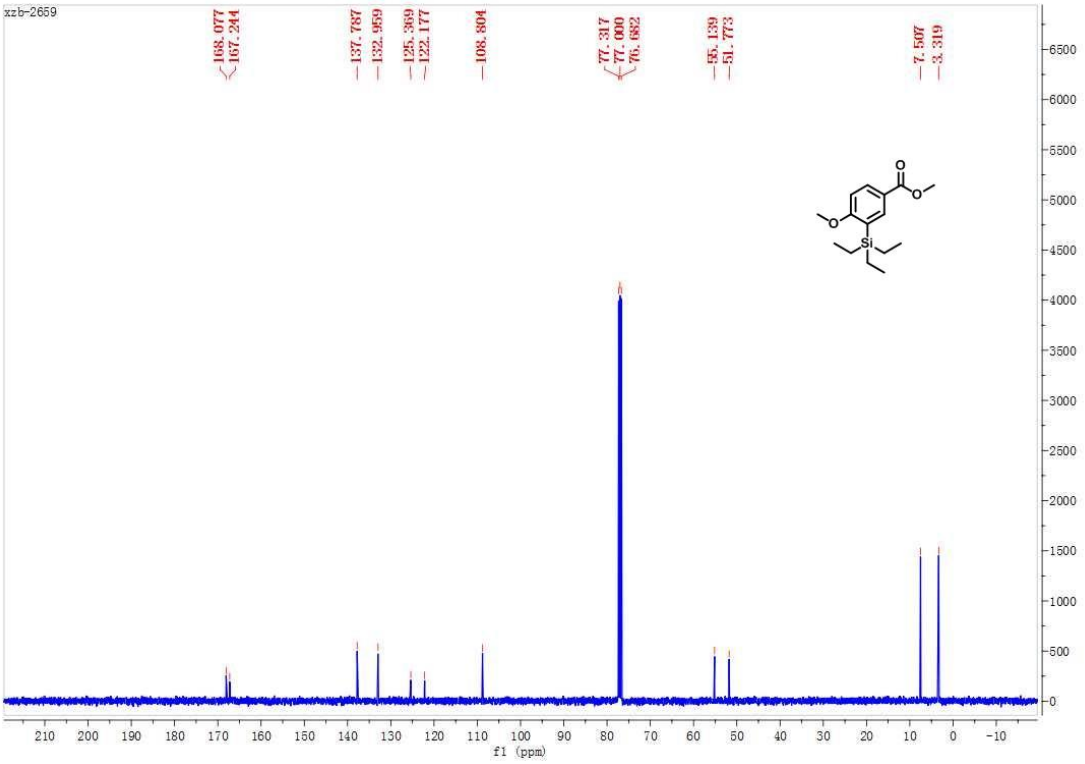
37.^{13}C NMR



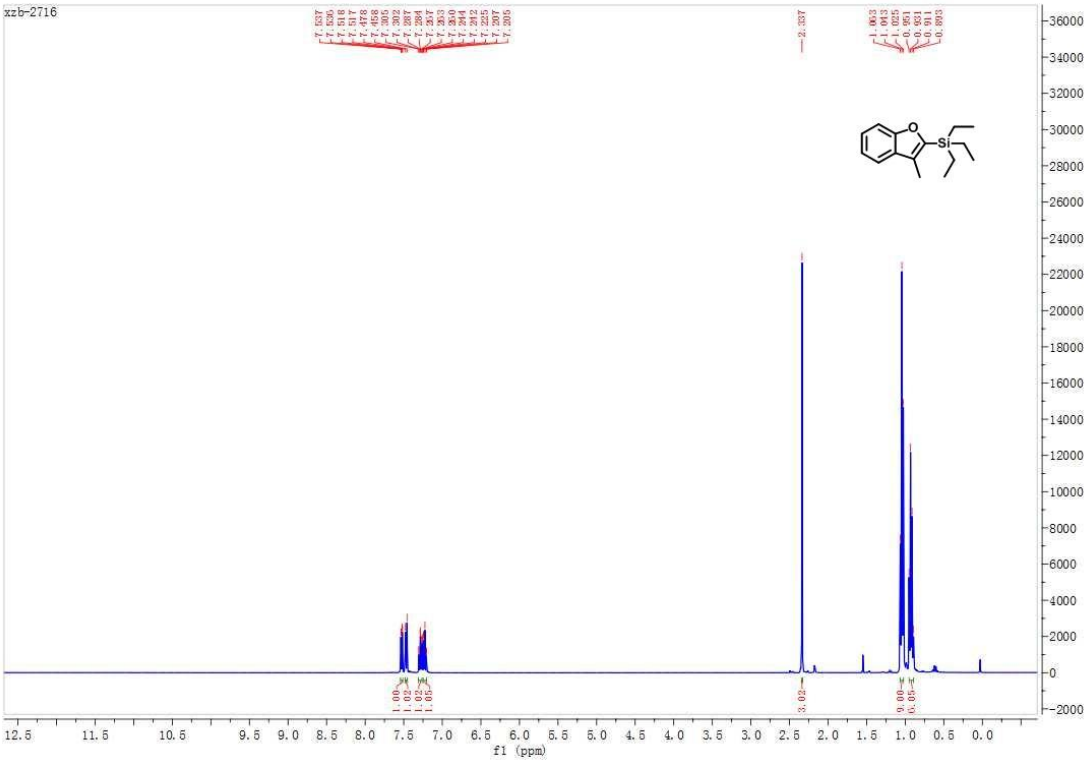
38.^{1}H NMR



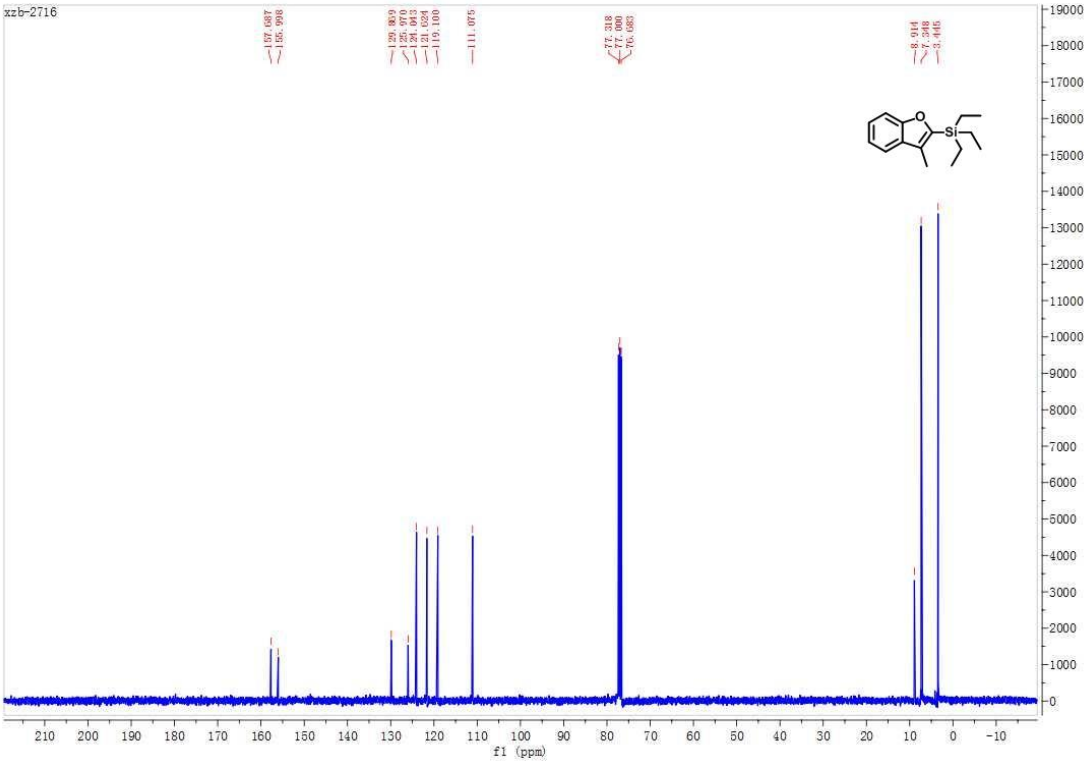
38.^{13}C NMR



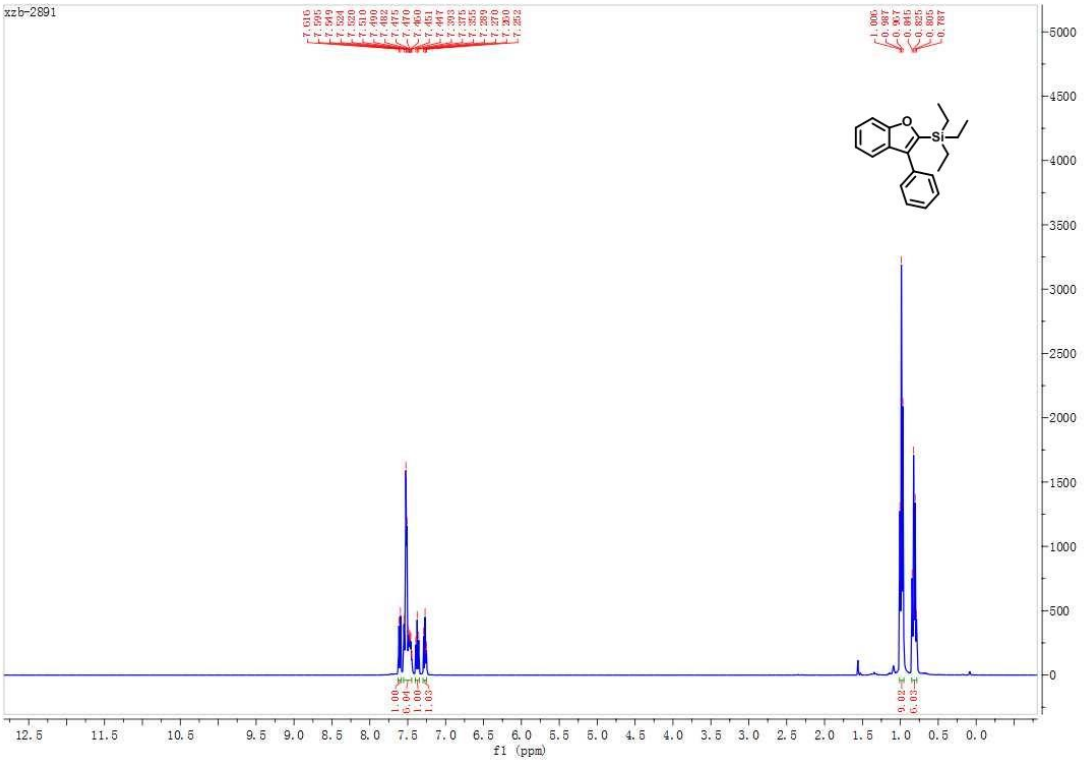
39.^{1}H NMR



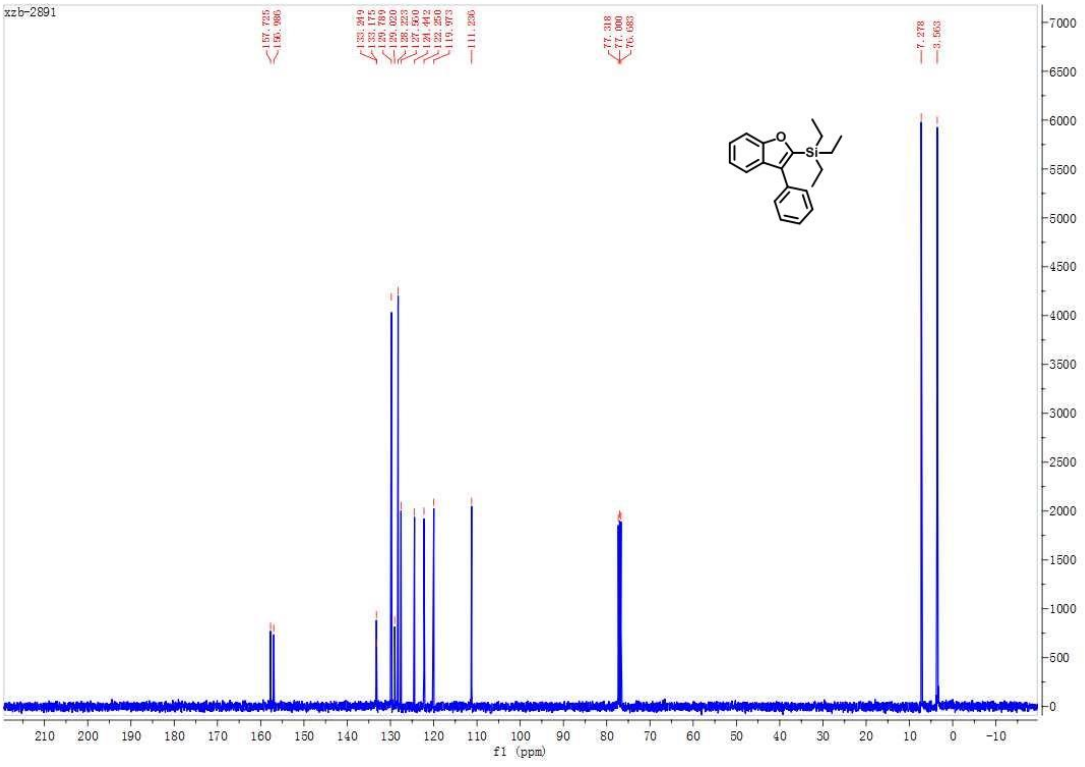
39.^{13}C NMR



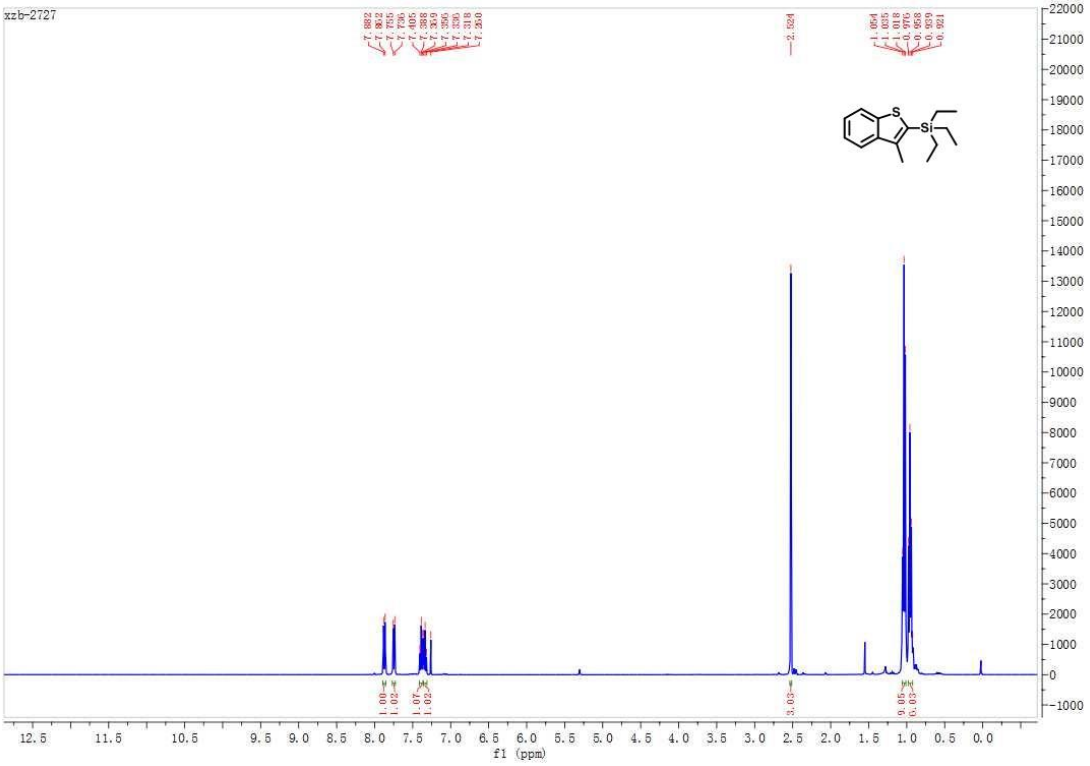
40.^{1}H NMR



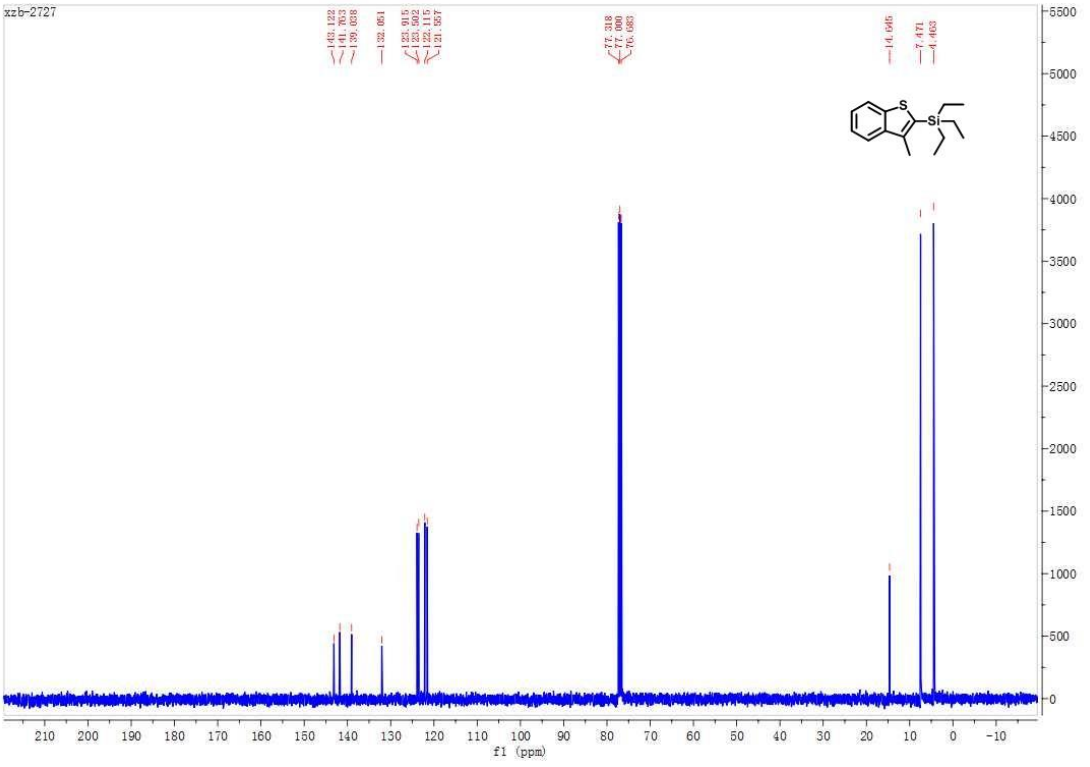
40.^{13}C NMR



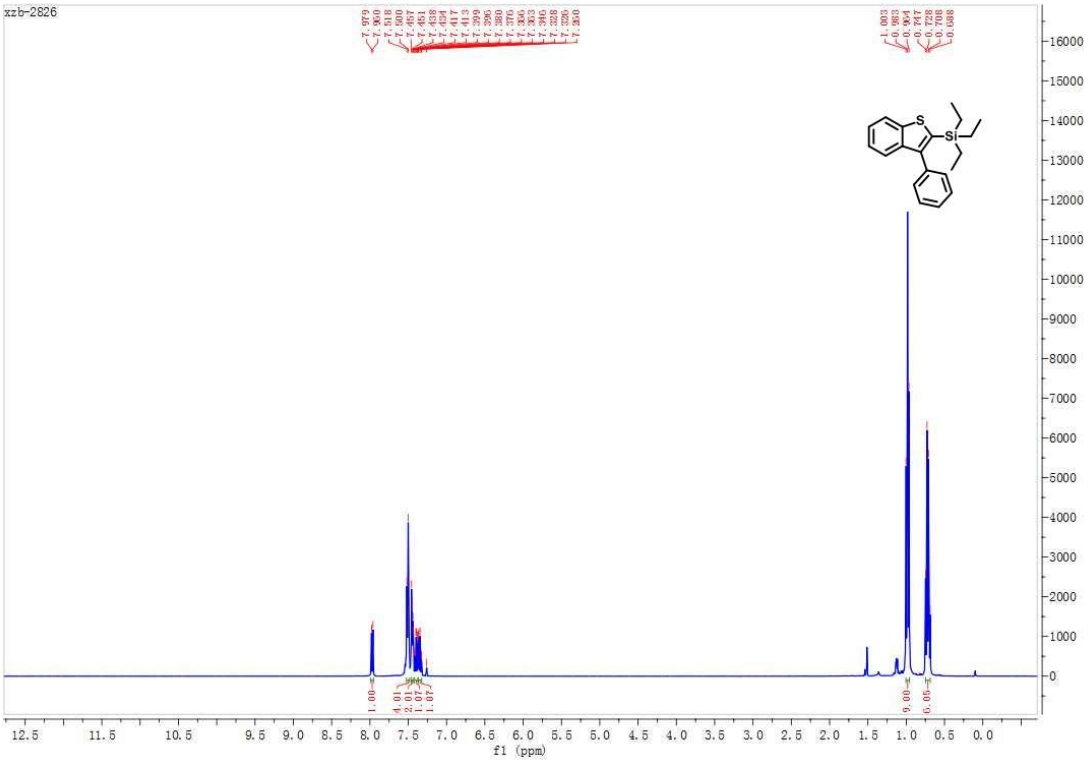
41.^{1}H NMR



41.^{13}C NMR



42.^{1}H NMR



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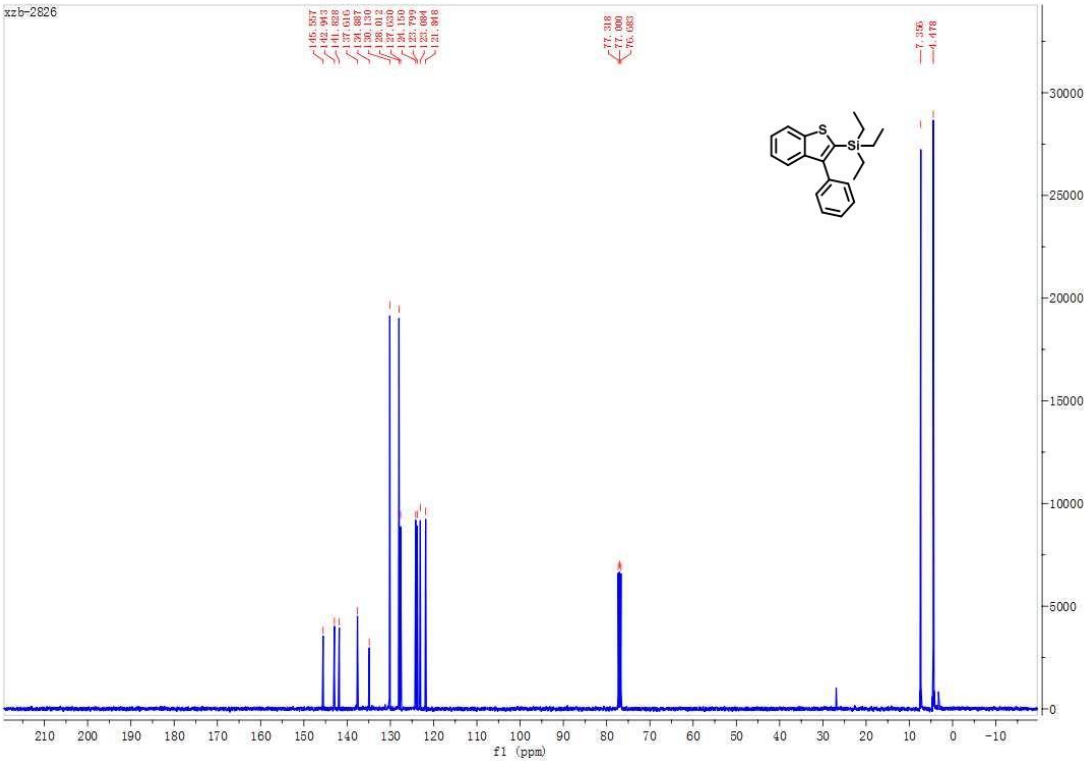
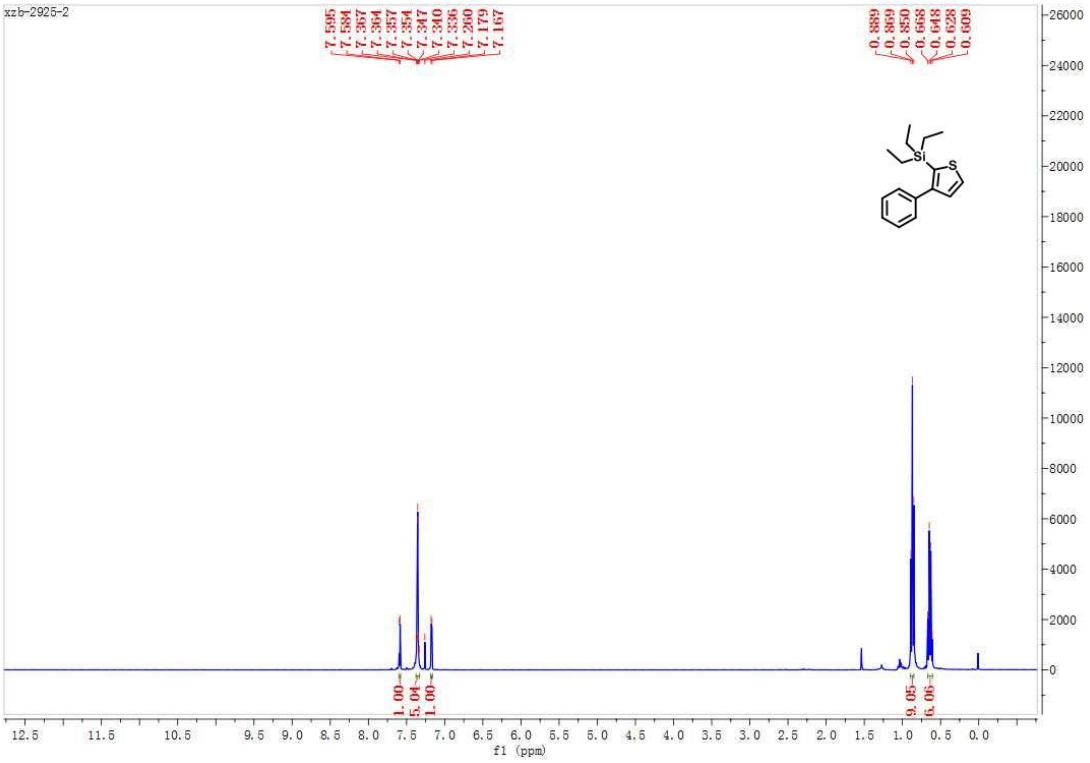
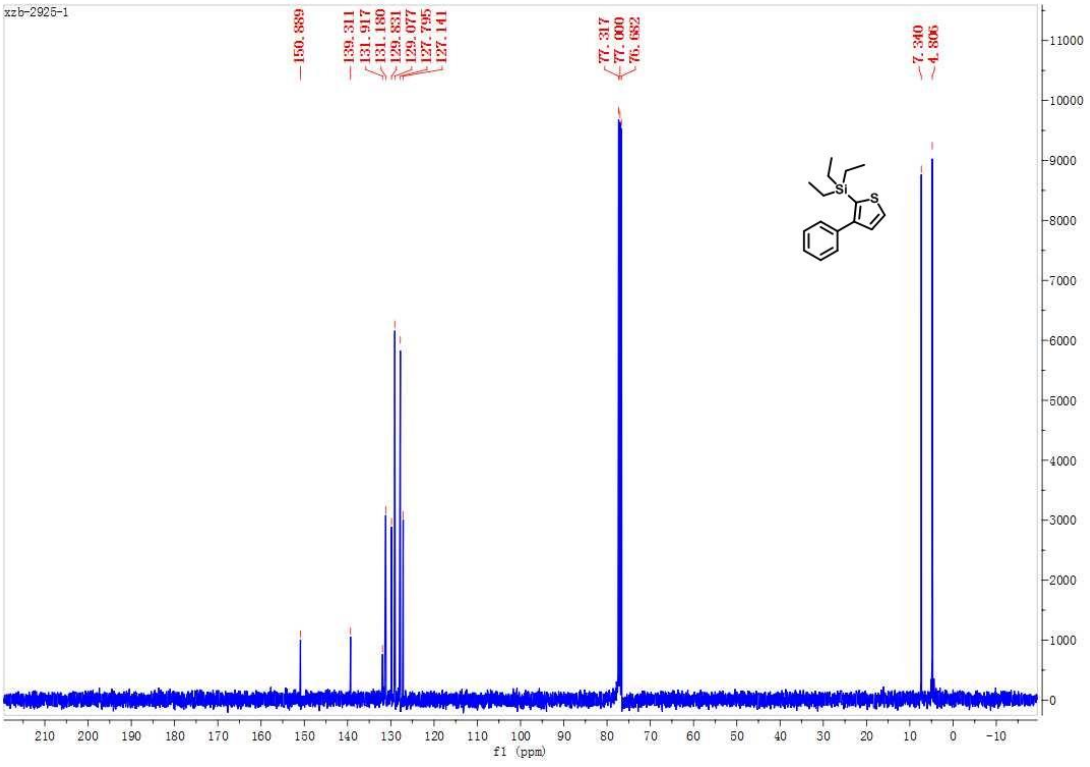


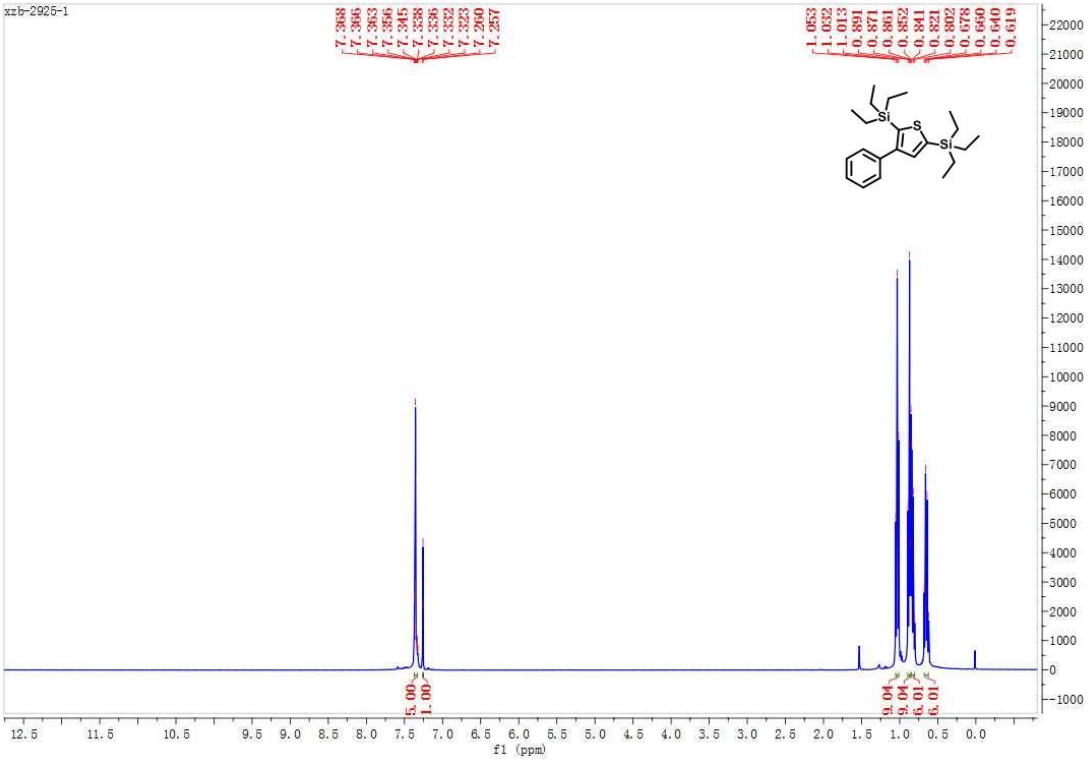
43.^{1}H NMR



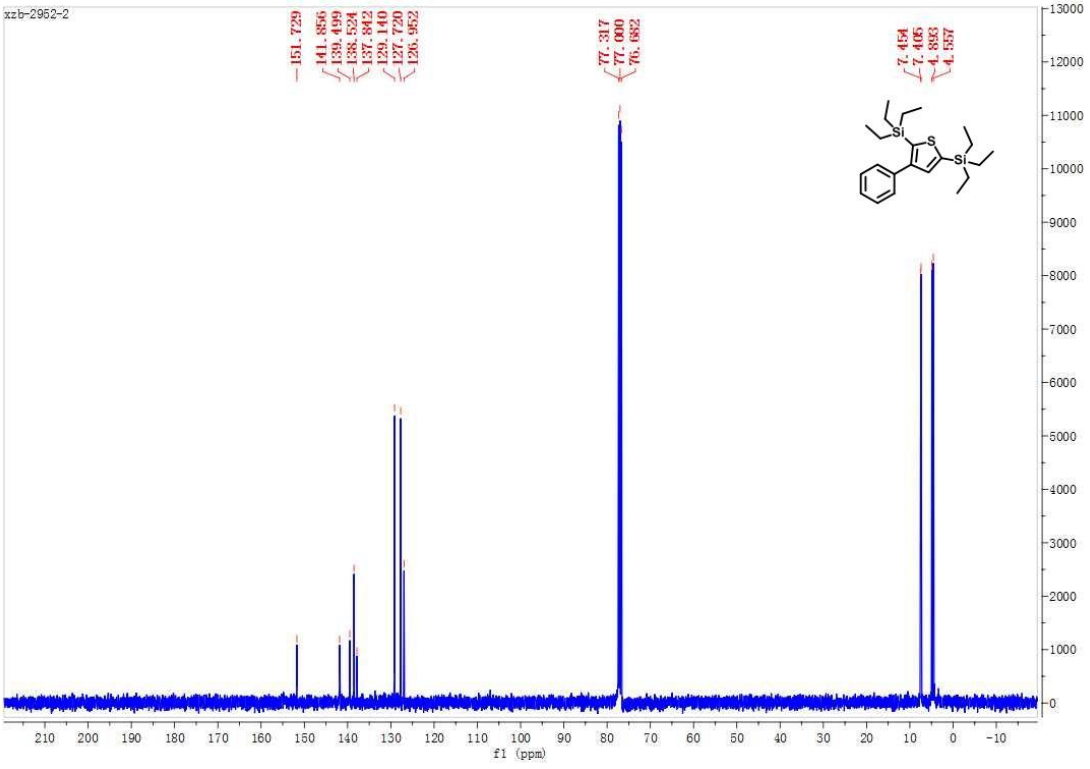
43.^{13}C NMR



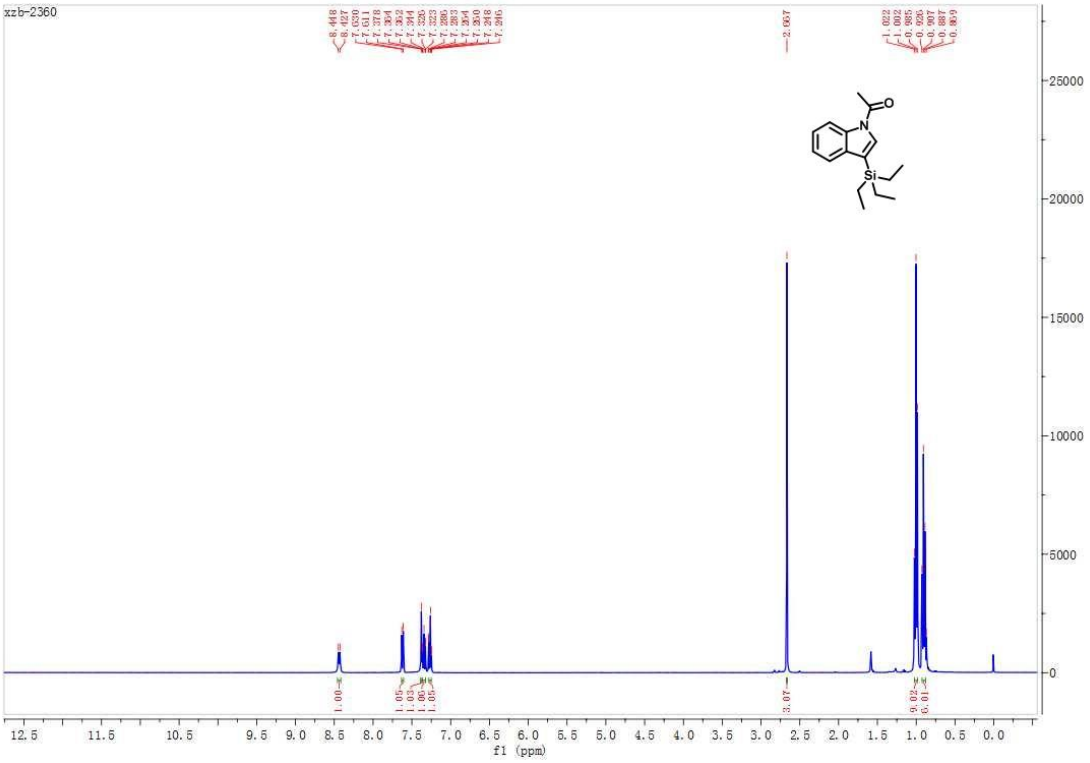
43^{c}.^{1}H NMR



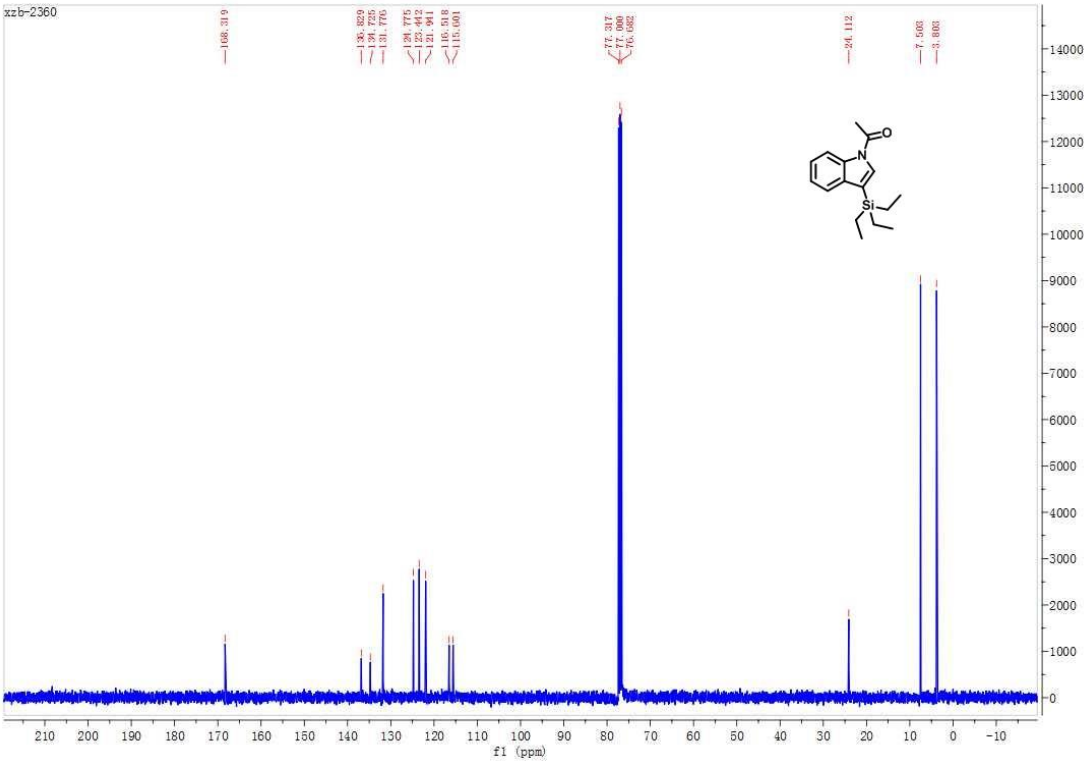
43^{c}.^{13}C NMR



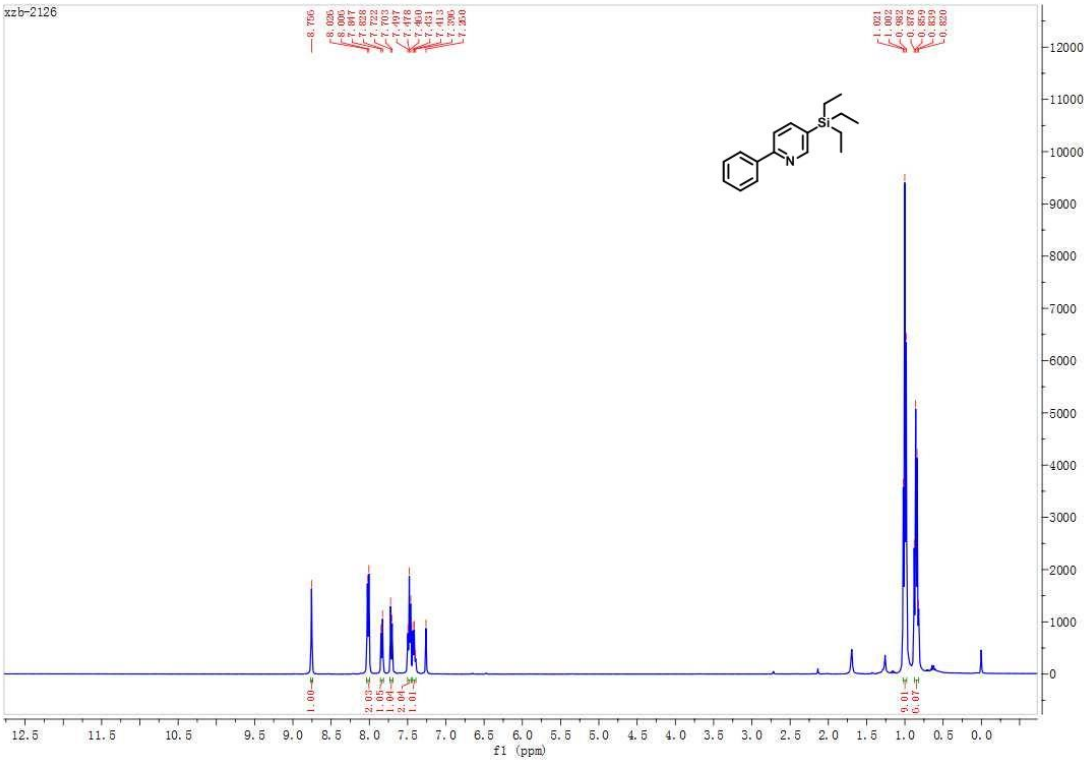
44.^{1}H NMR



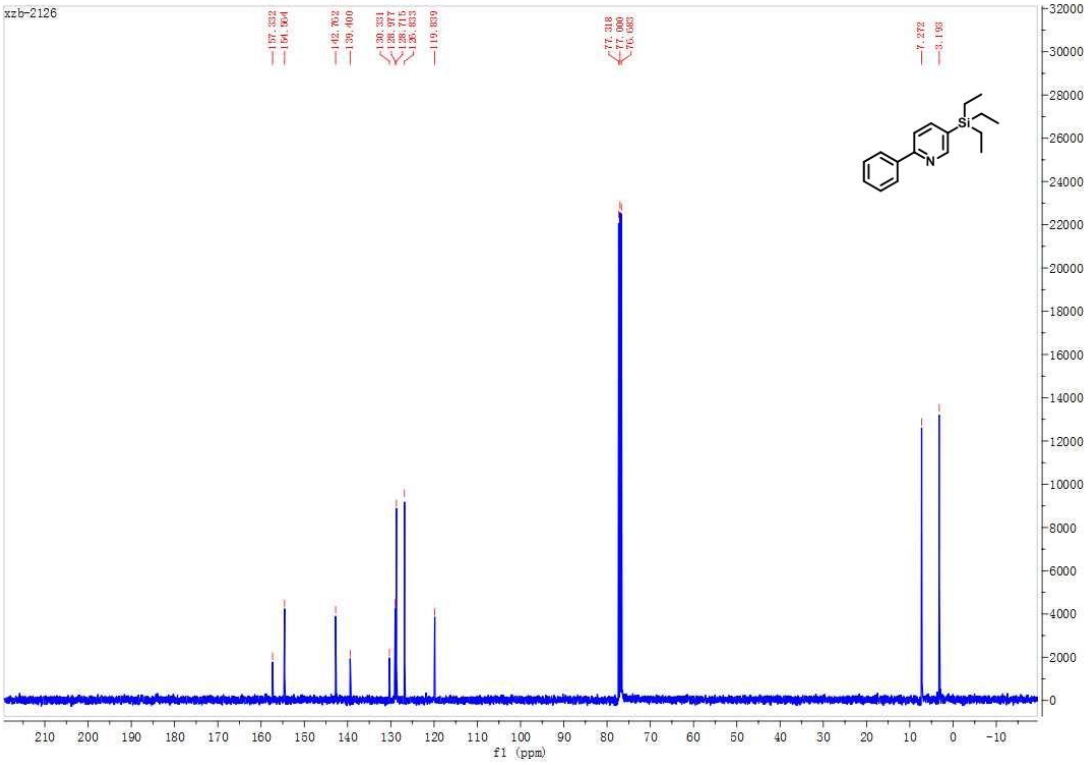
44.^{13}C NMR



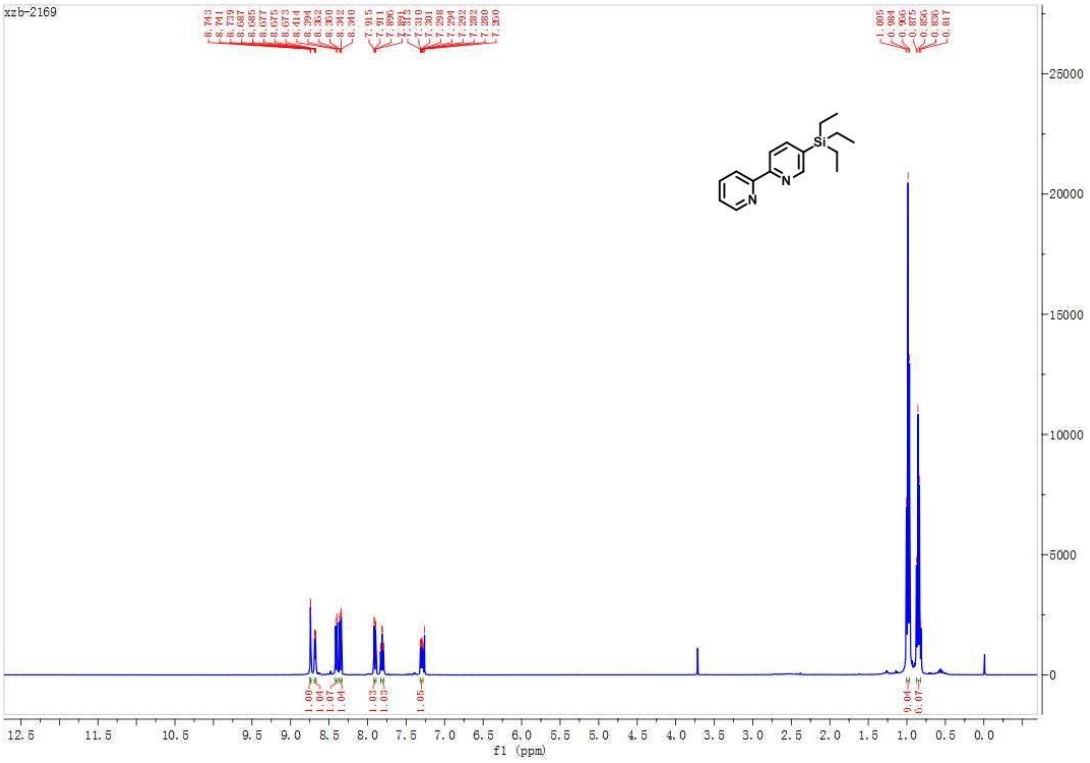
45.^{1}H NMR



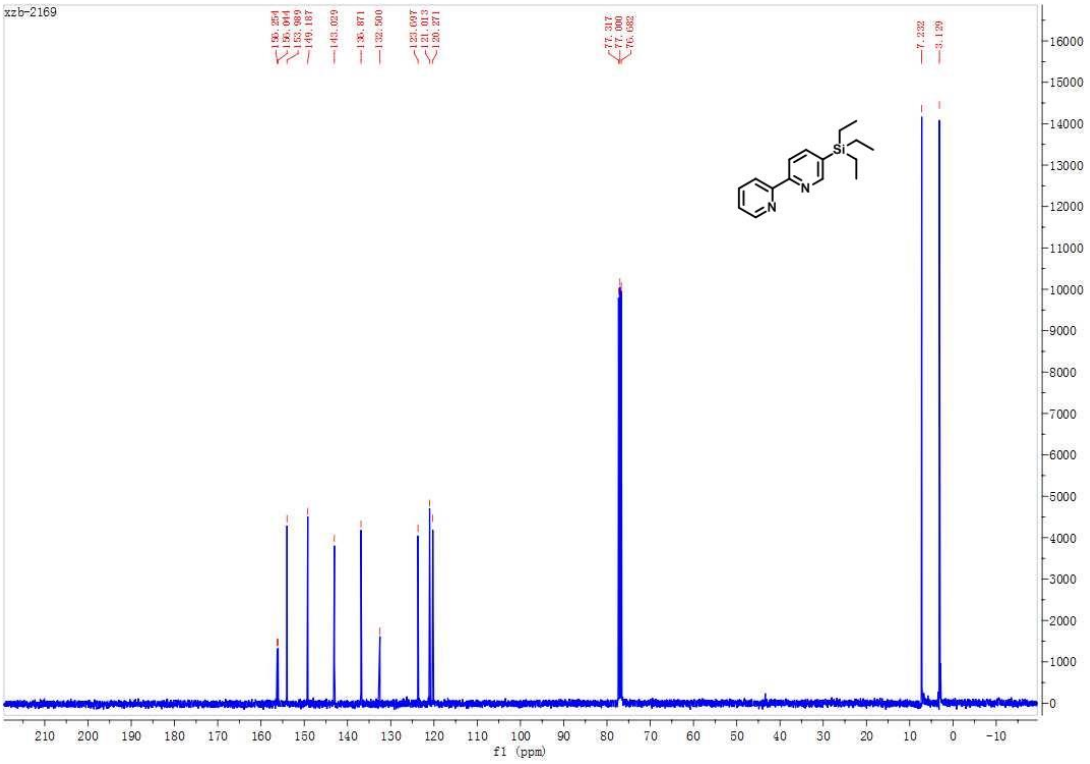
45.^{13}C NMR



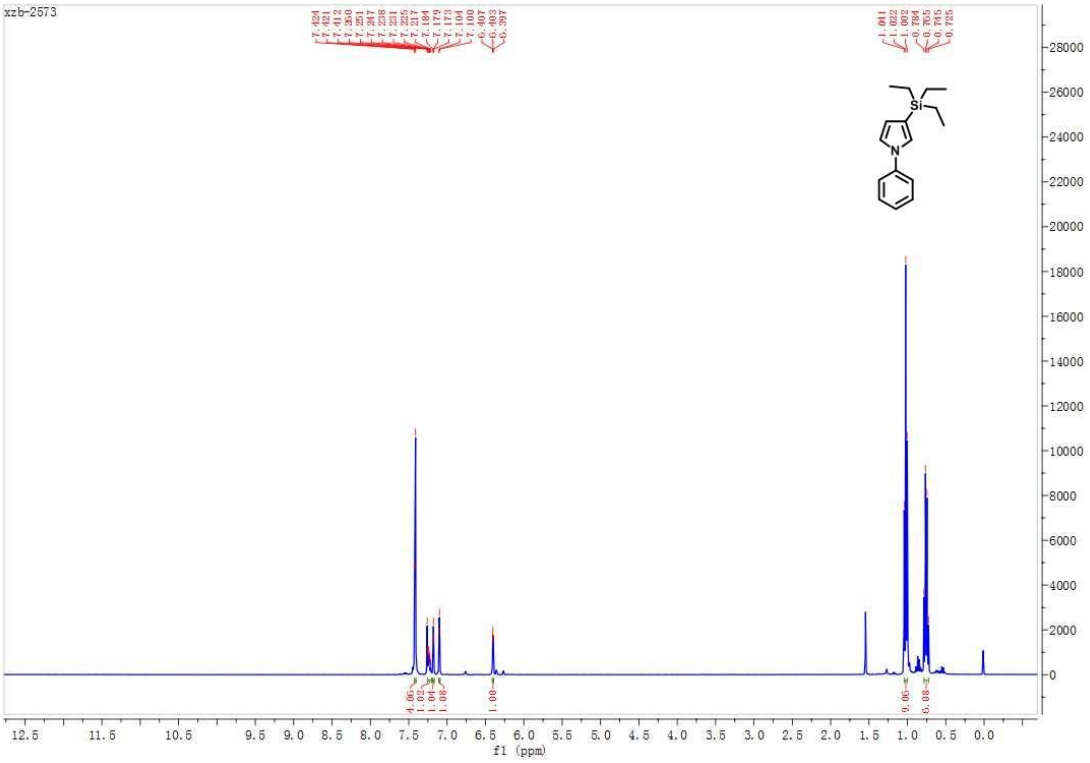
46.^{1}H NMR



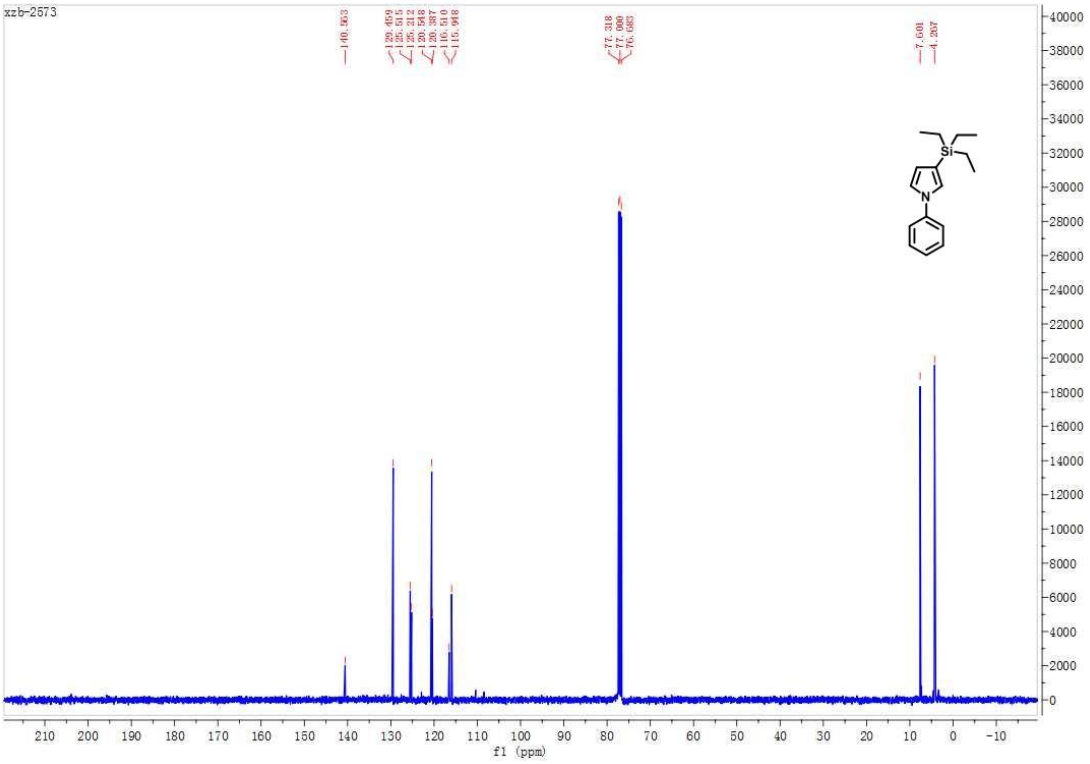
46.^{13}C NMR



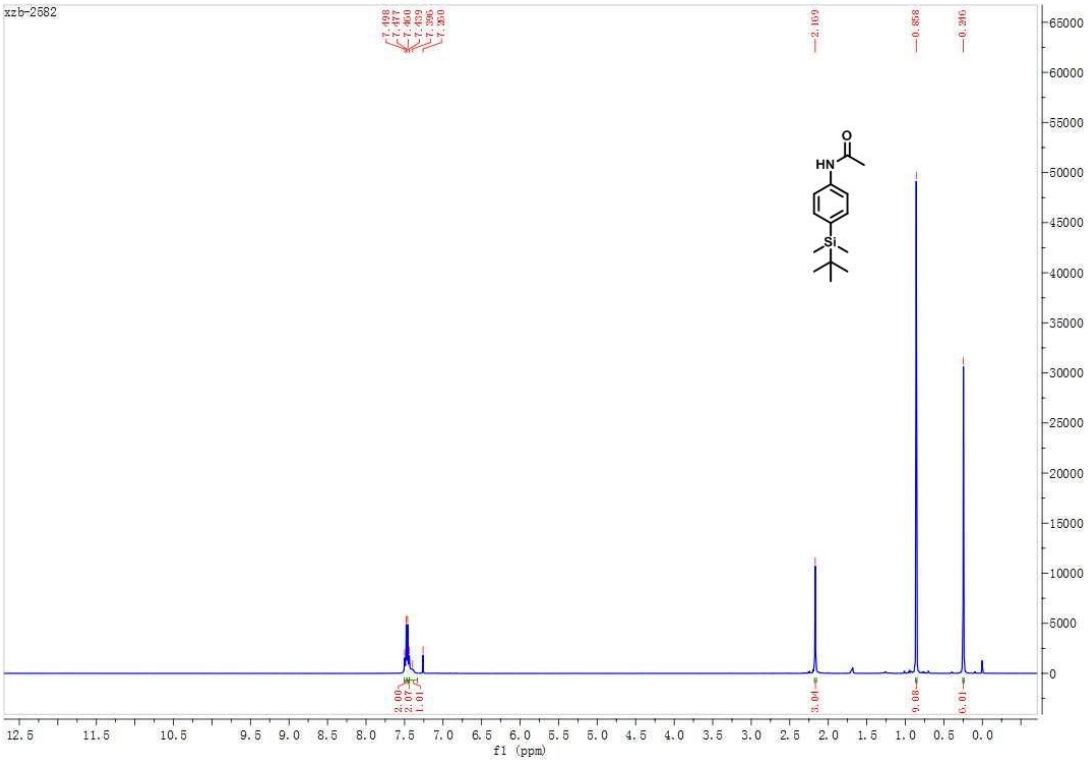
47.^{1}H NMR



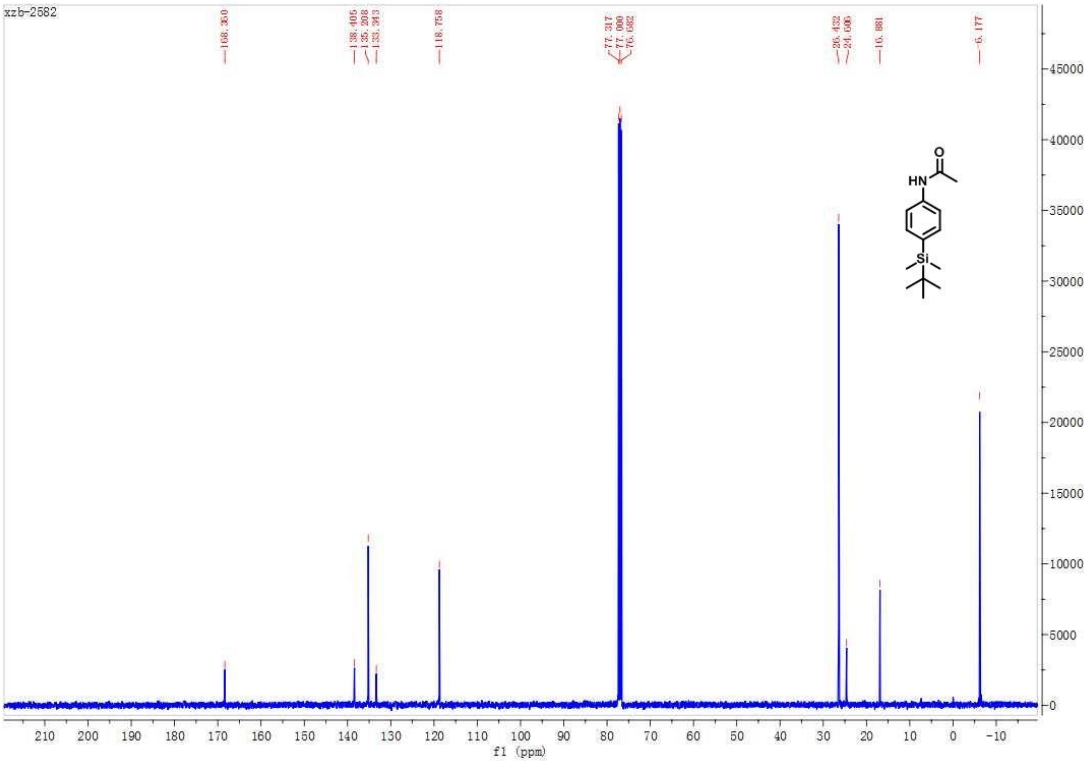
47.^{13}C NMR



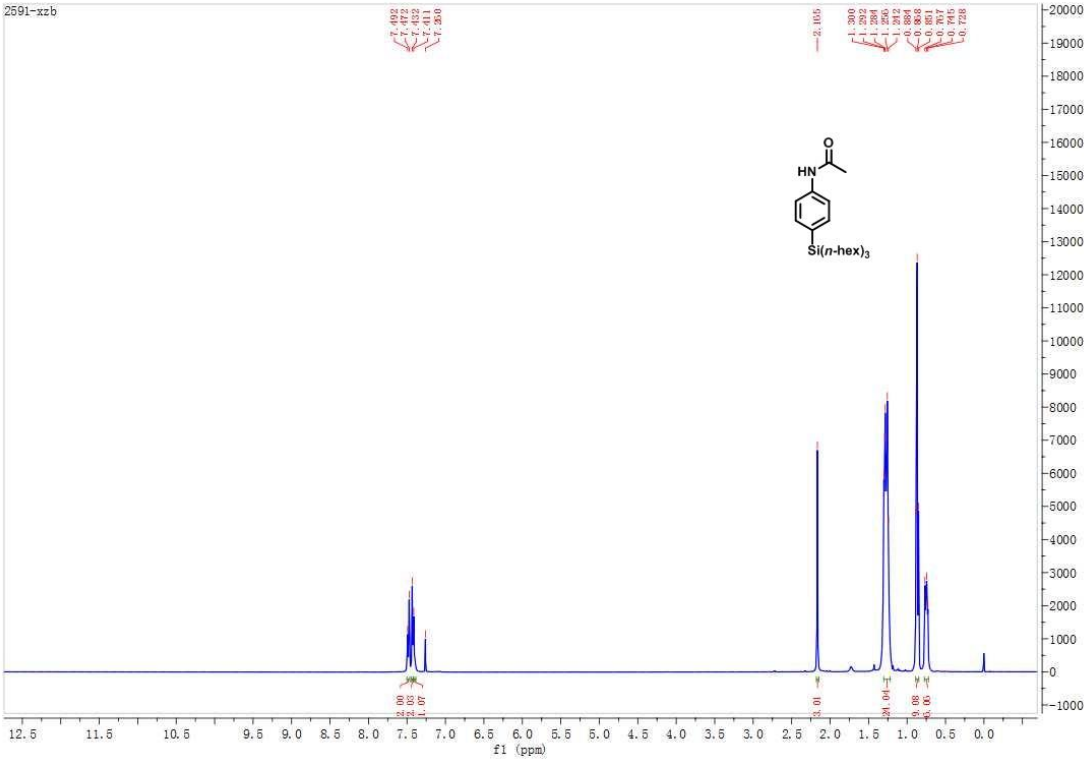
48.^{1}H NMR



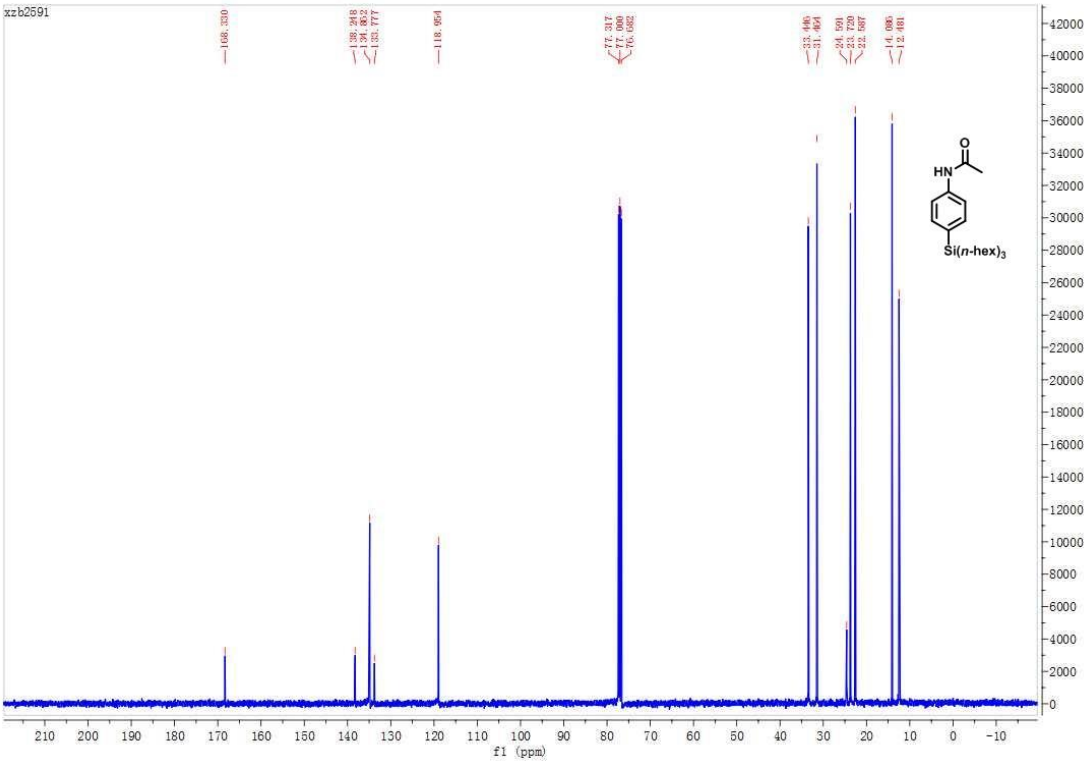
48.^{13}C NMR



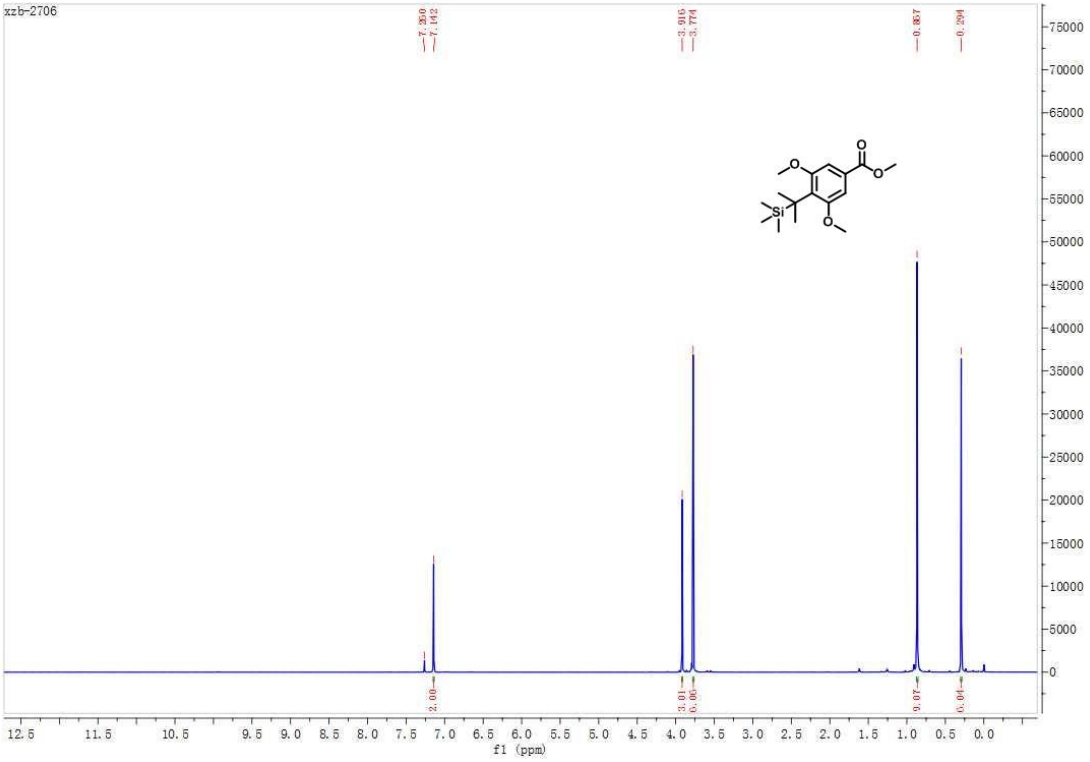
49.^{1}H NMR



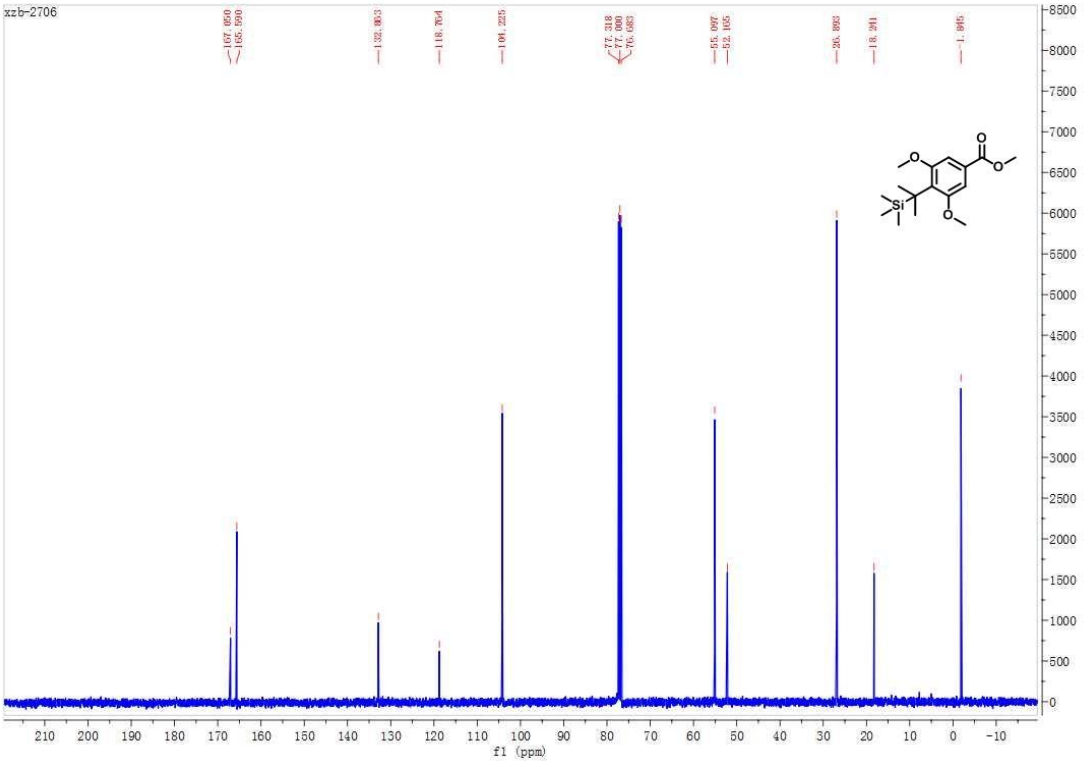
49.^{13}C NMR



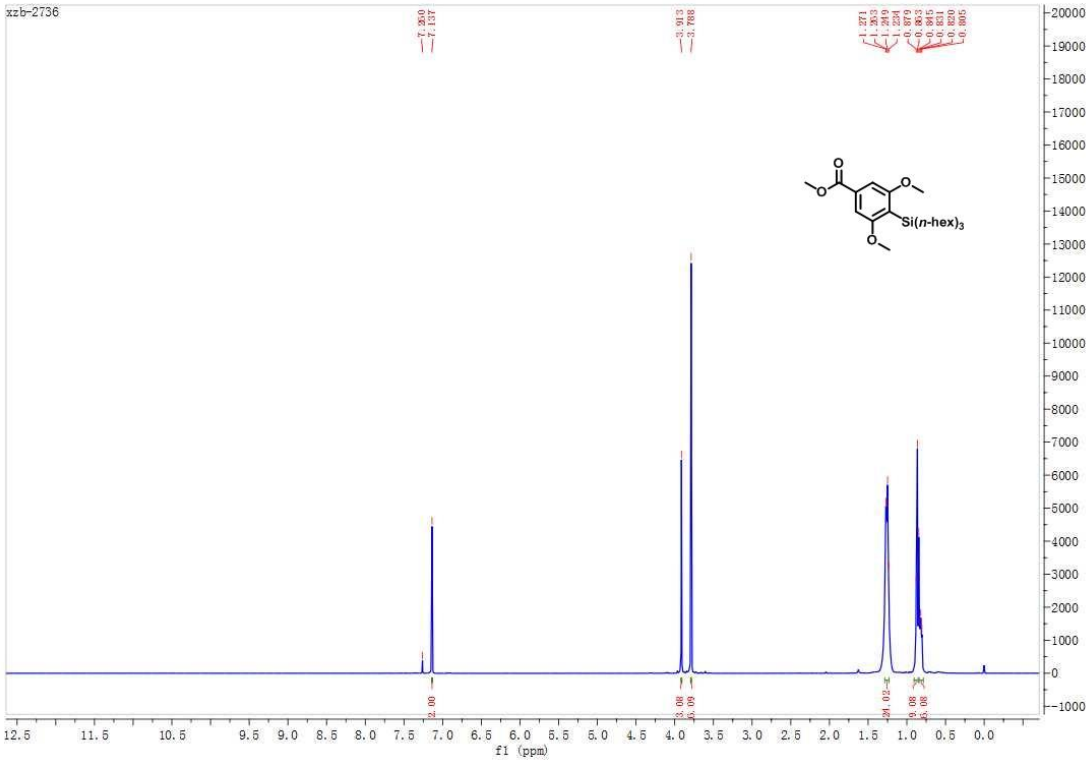
50.^{1}H NMR



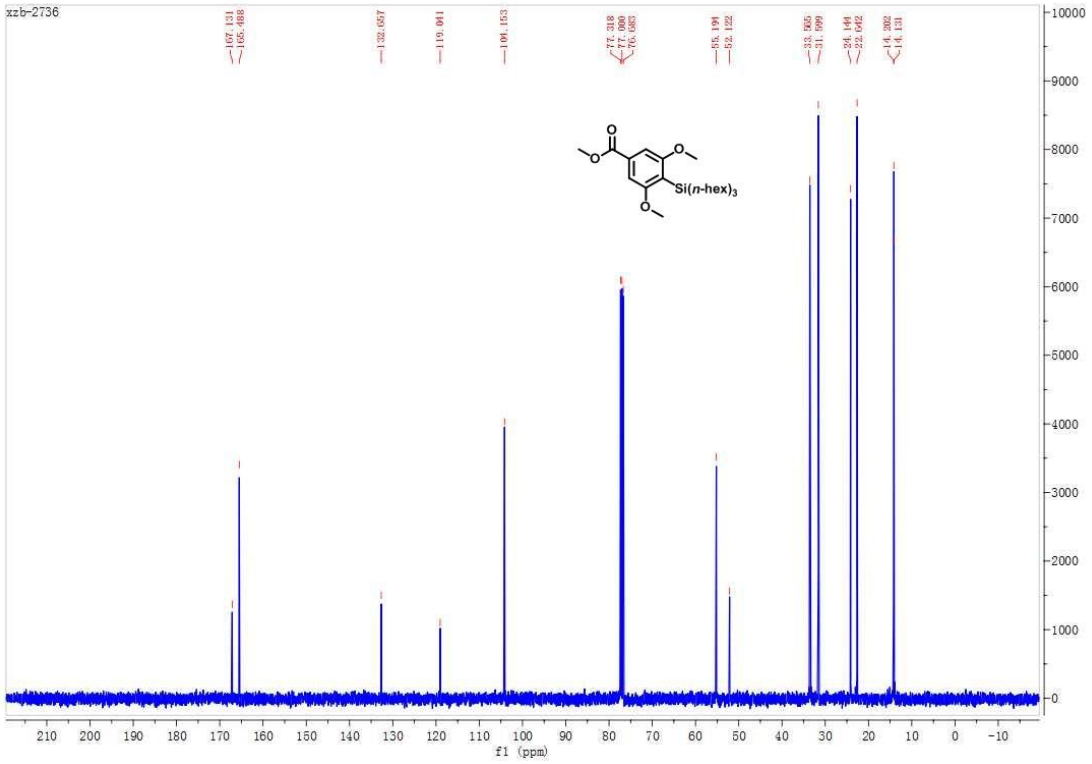
50.^{13}C NMR



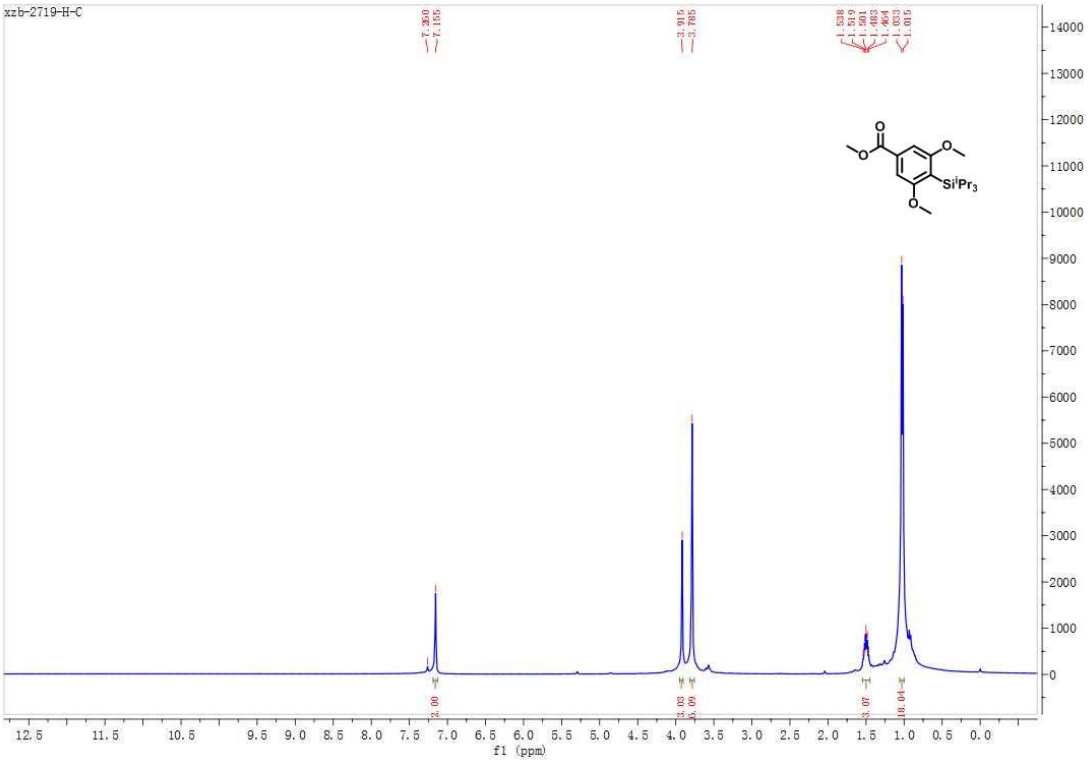
51.^{1}H NMR



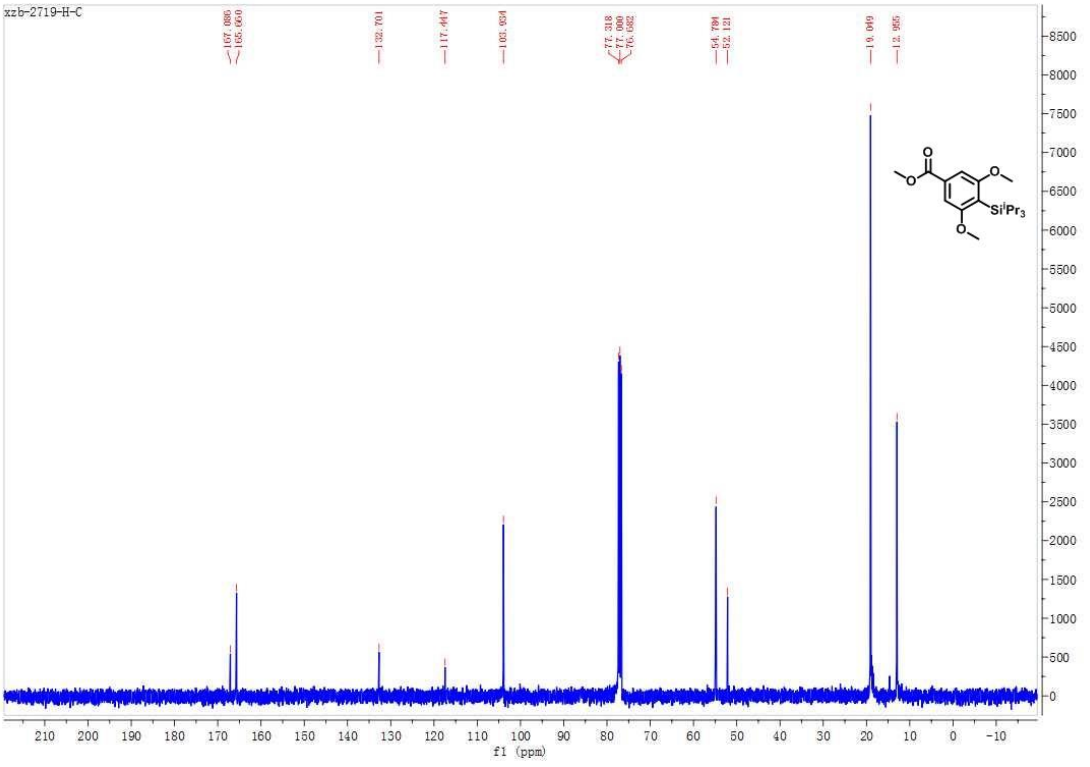
51.^{13}C NMR



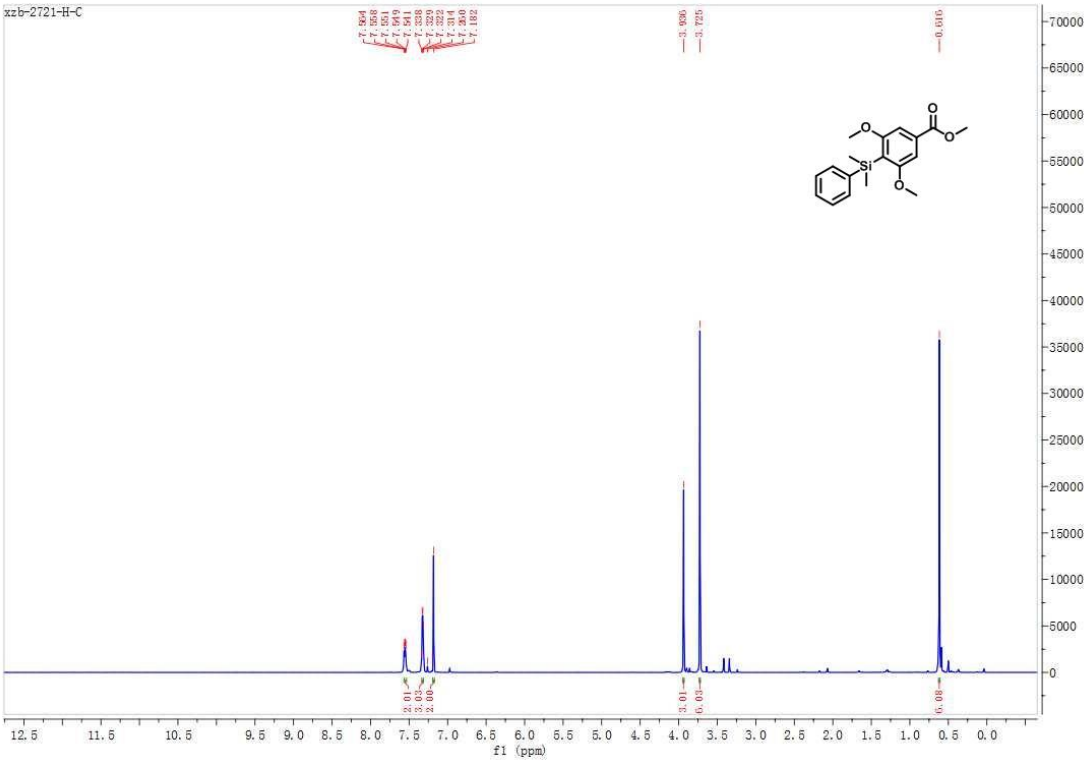
52.^{1}H NMR



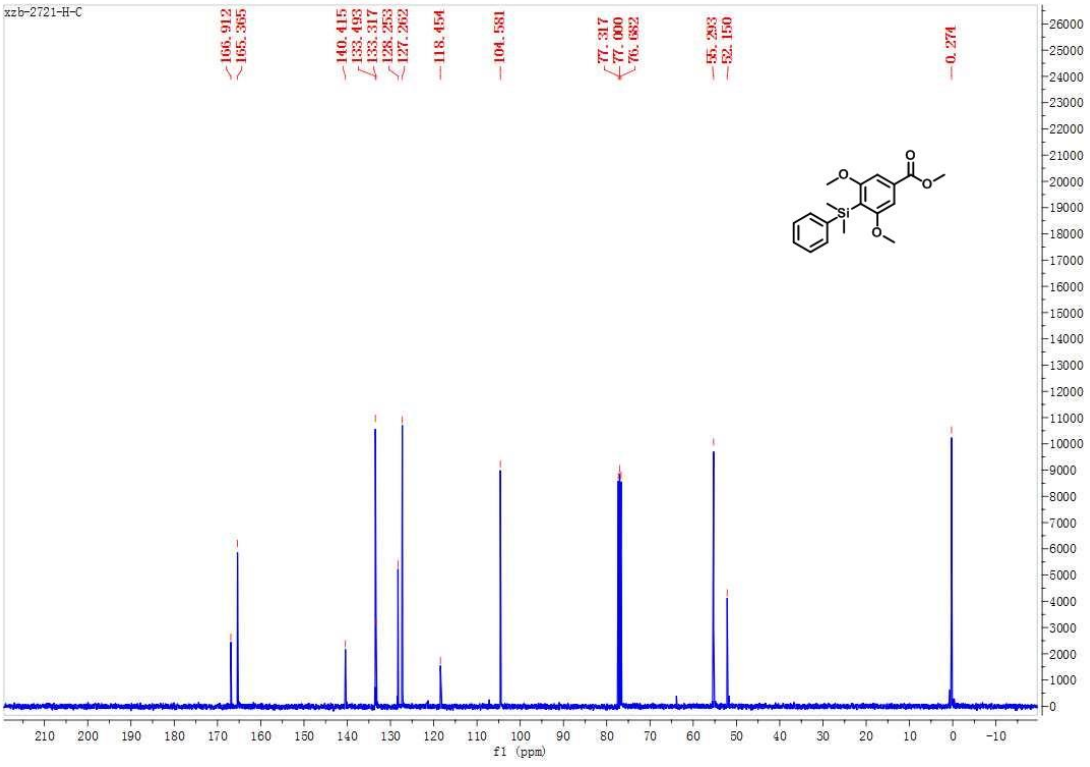
52.^{13}C NMR



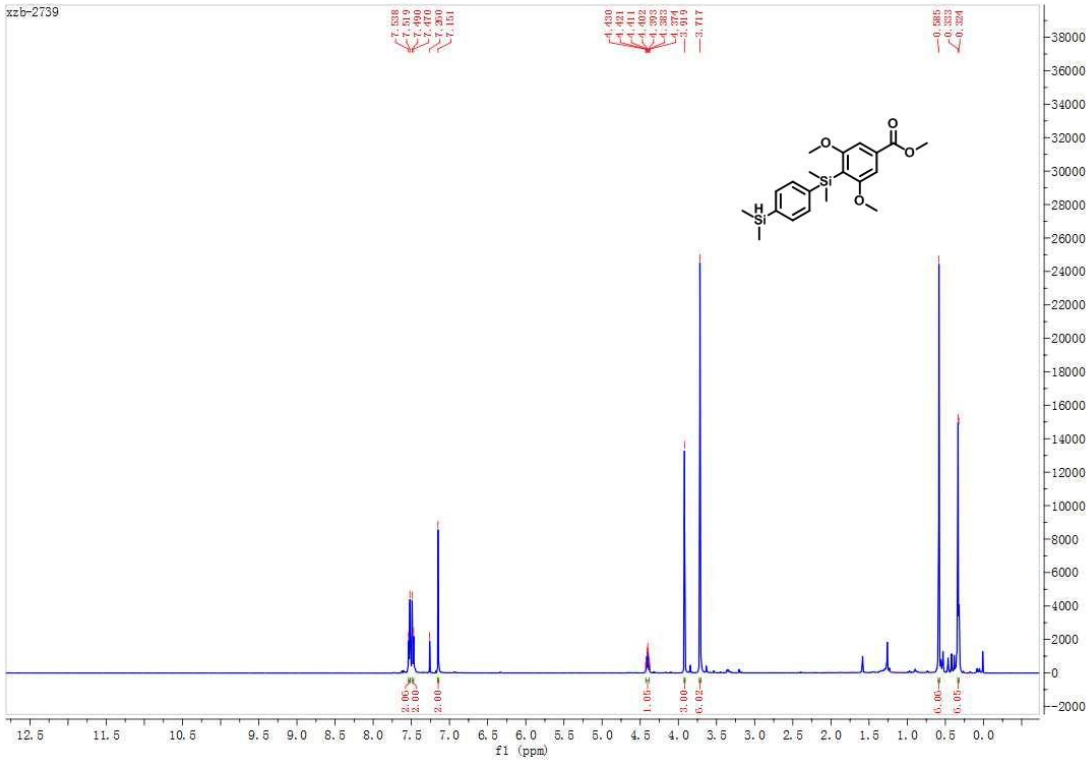
53.^{1}H NMR



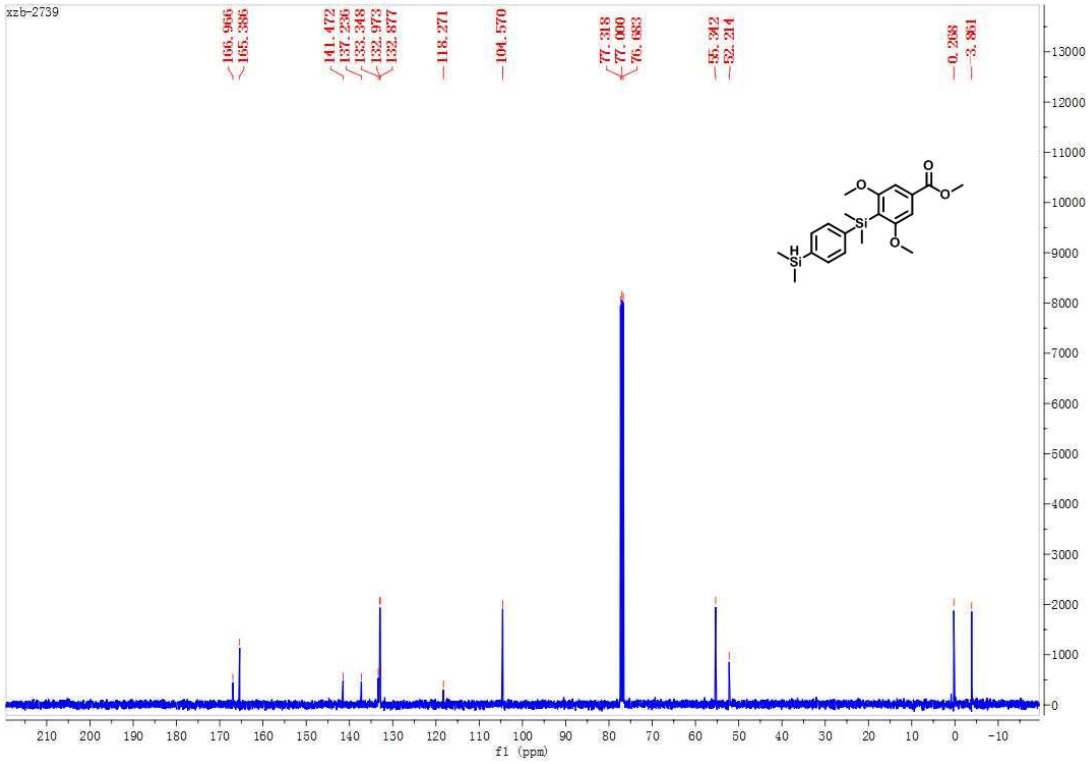
53.^{13}C NMR



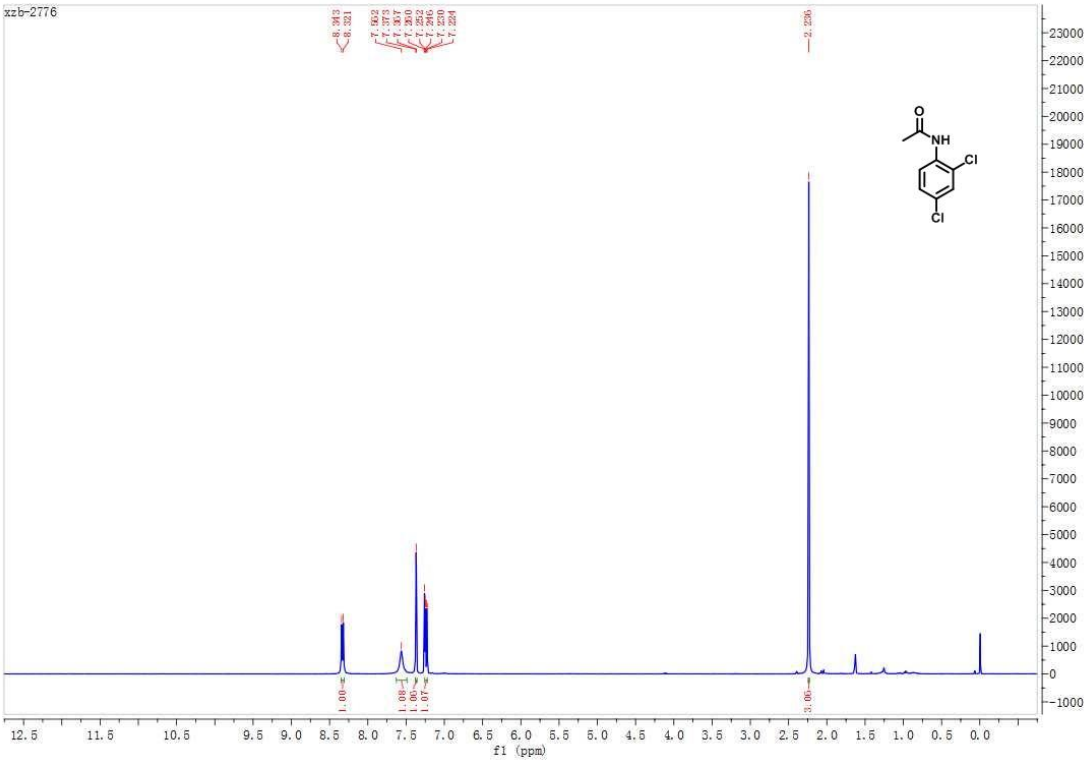
54.^{1}H NMR



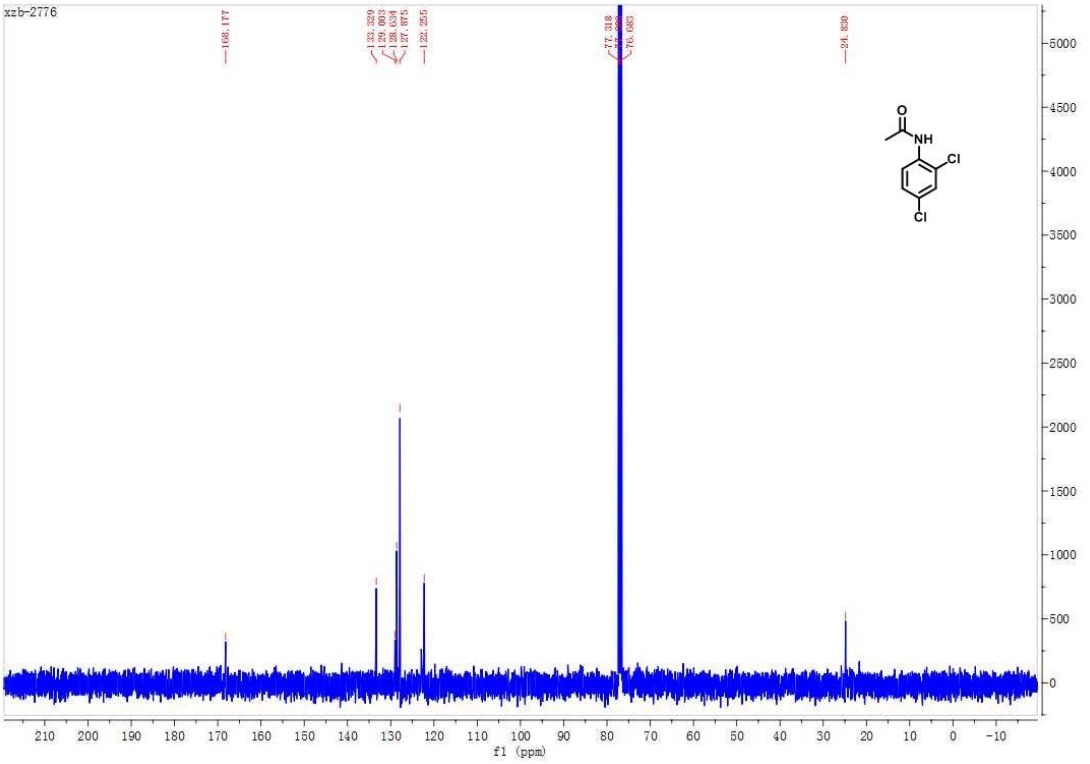
54.^{13}C NMR



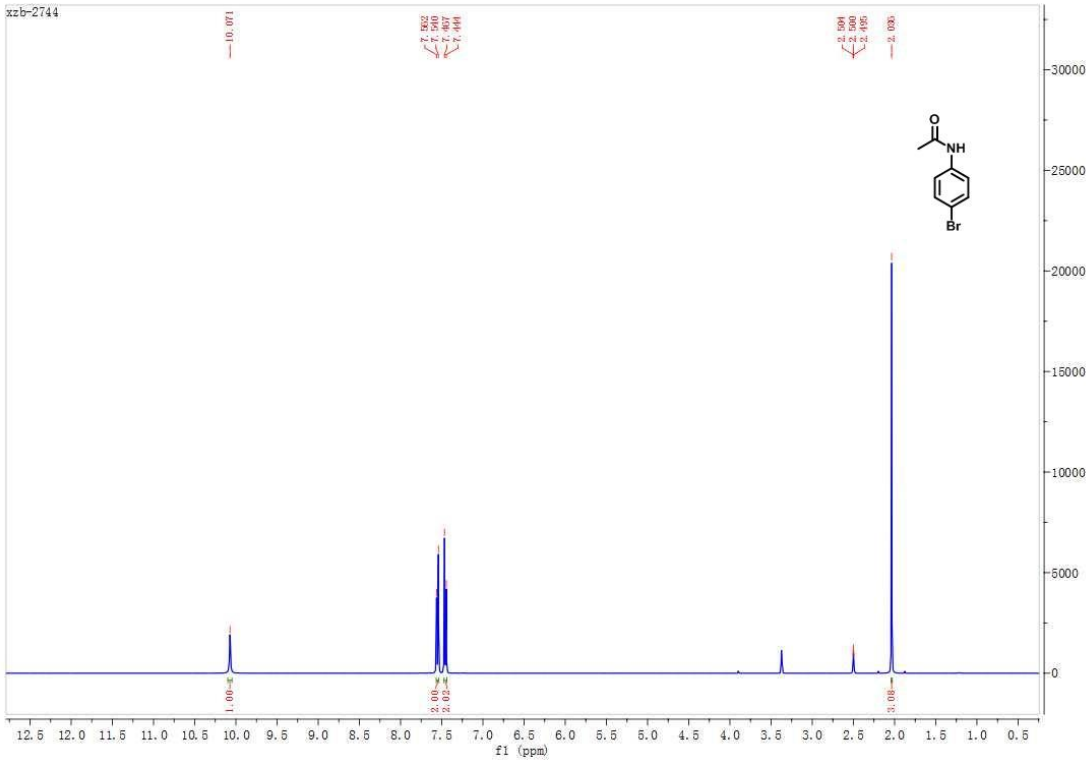
55.^{1}H NMR



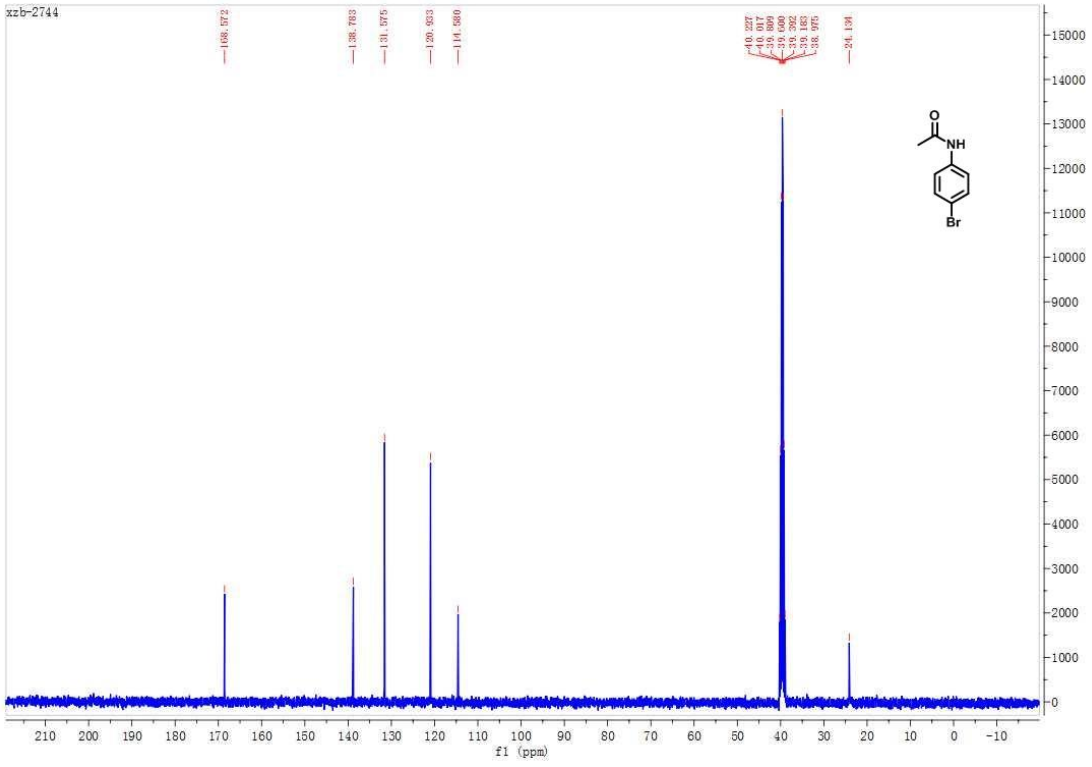
55.^{13}C NMR



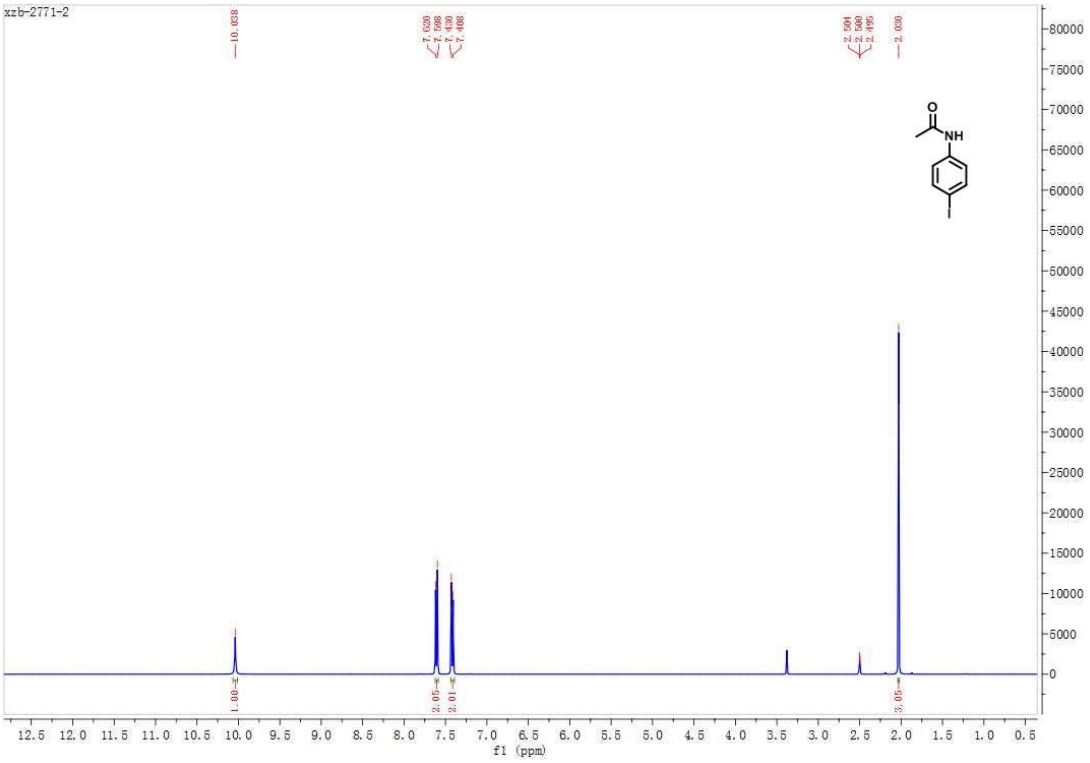
56.^{1}H NMR



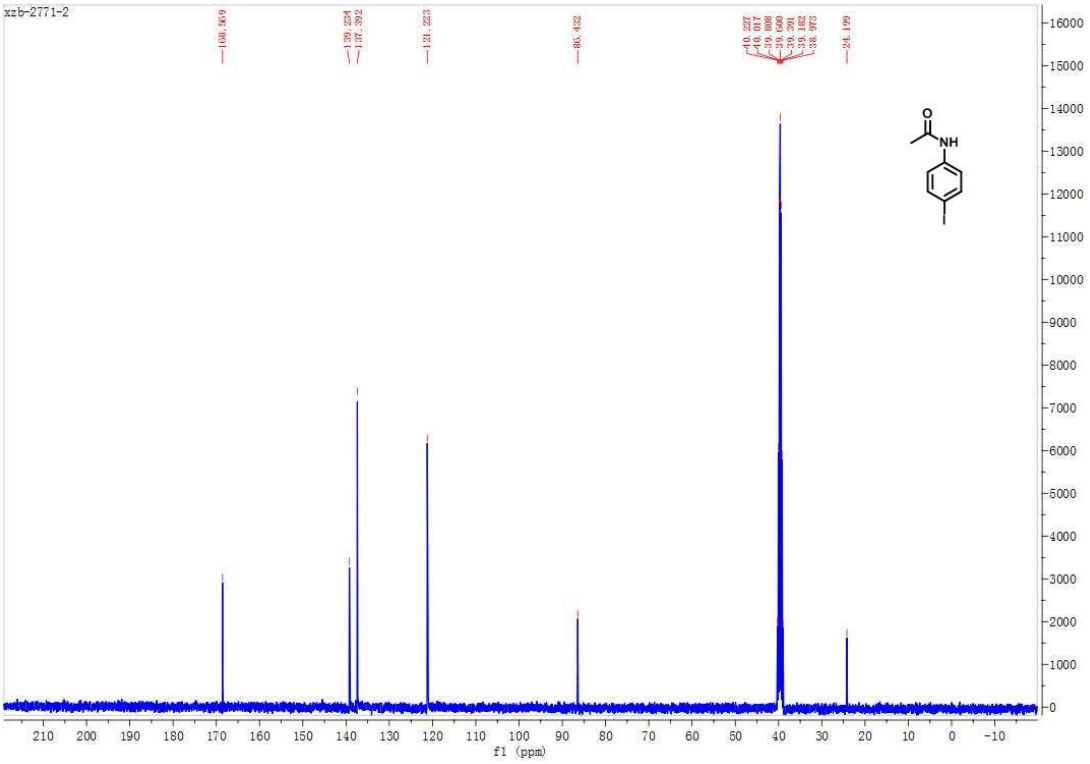
56.^{13}C NMR



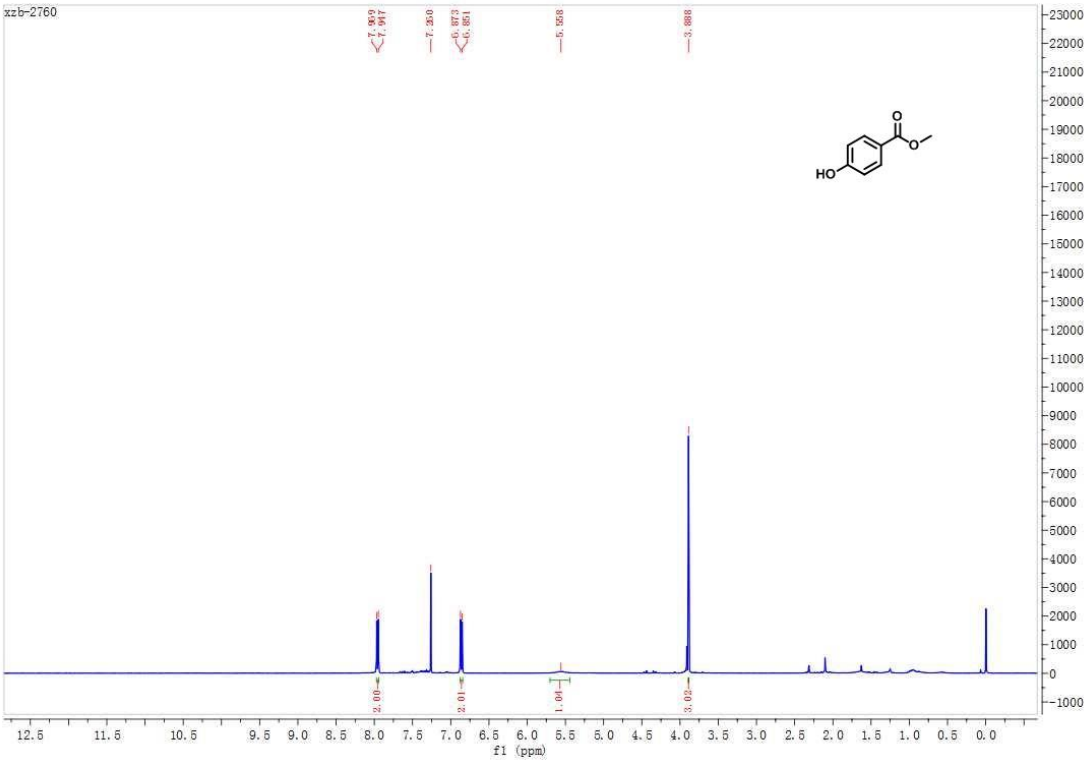
57.^{1}H NMR



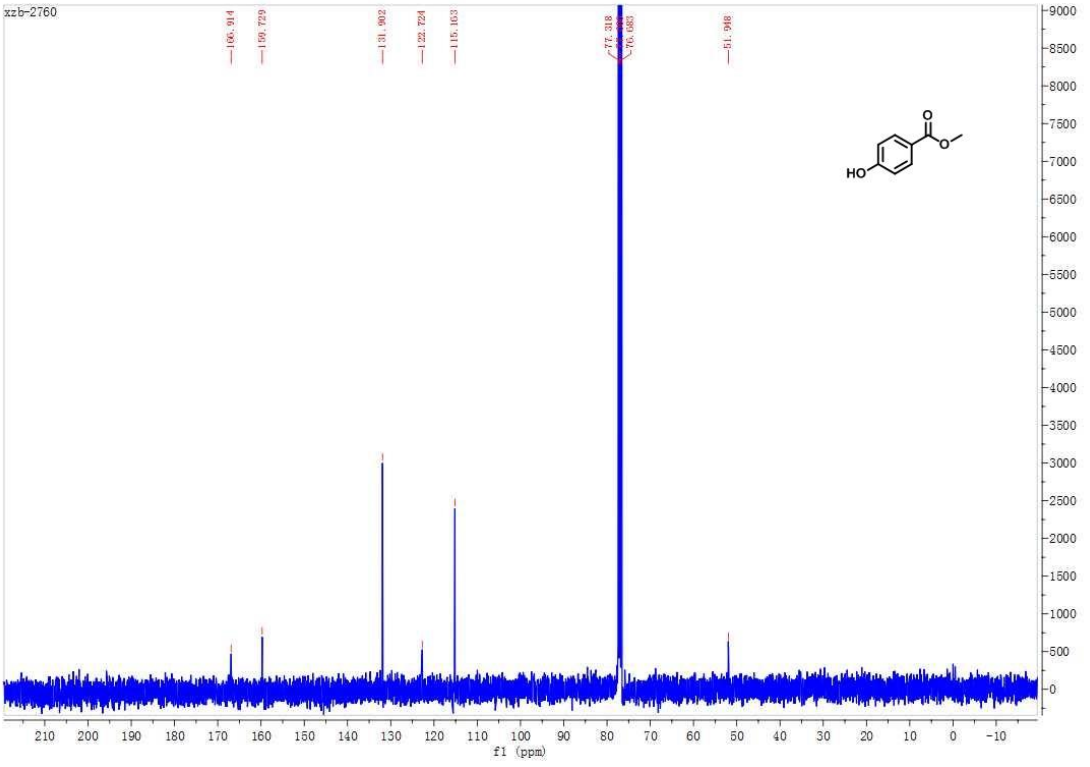
57.^{13}C NMR



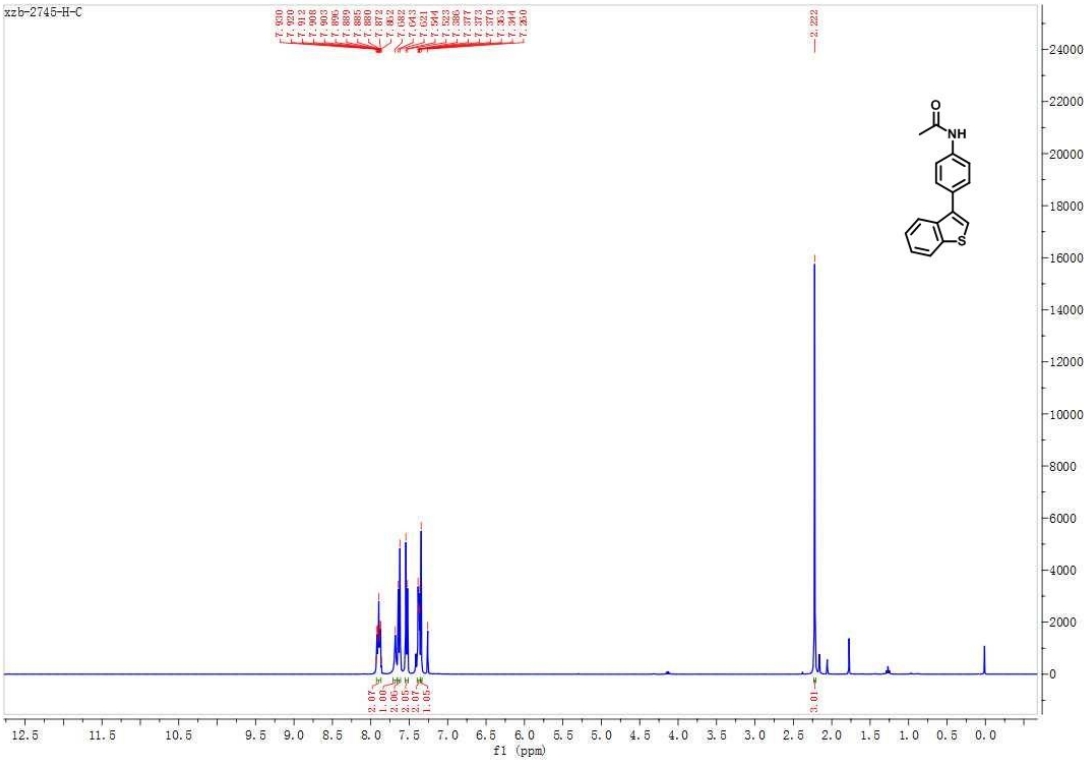
58.^{1}H NMR



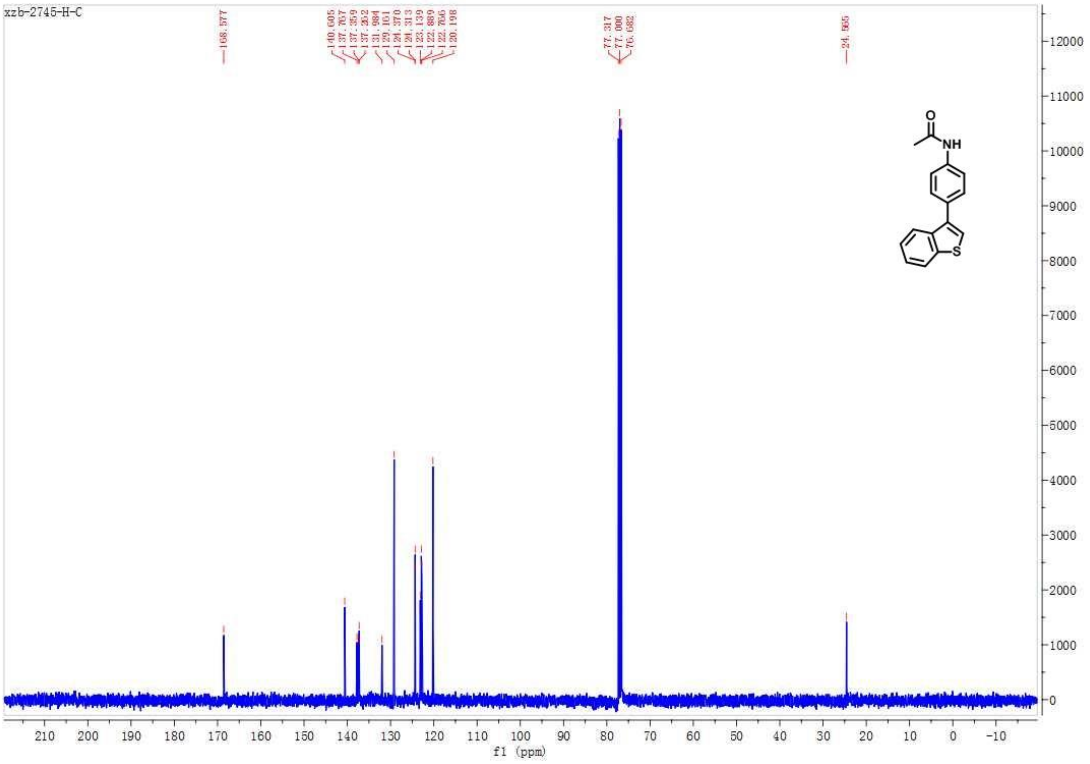
58.^{13}C NMR



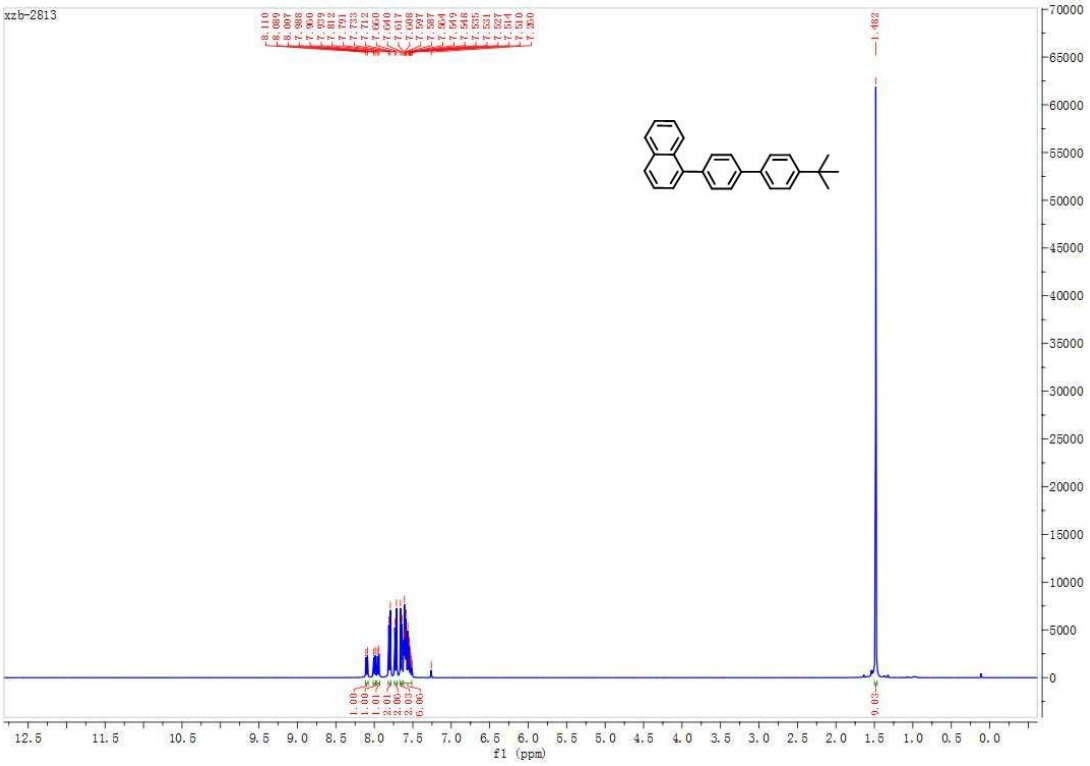
59.^{1}H NMR



59.^{13}C NMR



60.^{1}H NMR



60.^{13}C NMR