Supporting Information

Table of Contents

I. General remarks 2

II. General procedure for the synthesis of starting materials 2

III. Optimization of the reaction conditions of remote C–H arylation 7

IV. General procedure for the synthesis of arylation products 9

V. Experimental data for the described substances 9

VI. Photophysical data 28

VII. References. 29

VIII. Copies of ^{1}H and ^{13}C NMR spectra 30

I. General remarks

NMR spectra were obtained on an Agilent 400-MR DD2 spectrometer. The ^{1}H NMR (400 MHz) chemical shifts were measured relative to $CDCl_3$ and DMSO-d_6 as the internal reference ($CDCl_3$: δ = 7.26 ppm; DMSO-d_6: δ = 2.50 ppm). The ^{13}C NMR (100 MHz) chemical shifts were given using $CDCl_3$ or DMSO-d_6 as the internal standard ($CDCl_3$: δ = 77.16 ppm; DMSO-d_6: δ = 39.52 ppm). High-resolution mass spectra (HRMS) were obtained with a Shimadzu LCMS-IT-TOF (ESI).

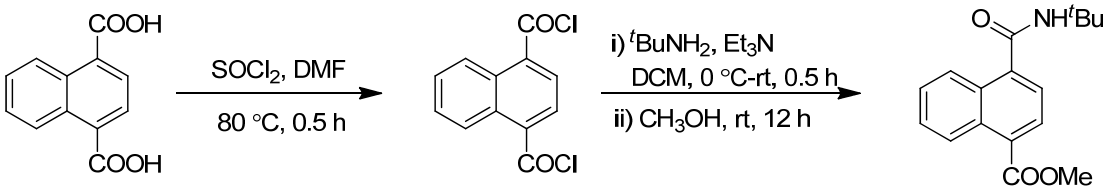
Unless otherwise noted, all reagents were obtained from commercial suppliers and used without further purification. $Cu(OTf)_2$ were purchased from Shanxi Kaida Chemical Engineering (China) Co., Ltd. Aryl iodides were purchased from Energy Chemical (China) Co., Ltd. Arylboronic acids and 1-(naphthalen-1-yl)ethanone (**1s**) were purchased from Energy Chemical (China) CO., Ltd. Solvents were dried with an innovative technology solvent purification system (model no.: PS-MD-5). All syntheses and manipulations were carried out under an air atmosphere unless specially noted.

Naphthamide derivatives **1a-1d**, **1f-1j**, **1q** and **1r** were synthesized according to literature procedures.[1] All diaryliodonium salts **2a-2r** were synthesized according to literature procedures.[2-5]

II. General procedure for the synthesis of starting materials

General procedure A:

Preparation of methyl 4-(*tert*-butylcarbamoyl)-1-naphthoate (1e)

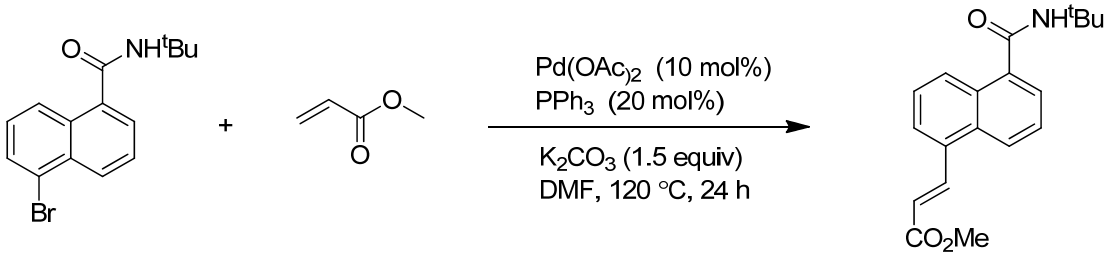


A 25 mL round bottom flask was charged with a magnetic stir bar, corresponding naphthalene-1,4-dicarboxylic acid (5 mmol), DMF (*N*,*N*-dimethylformamide, 2 drops) and $SOCl_2$ (5.0 mL). Then the reaction solution was stirred at 80 °C to become clear for 0.5 h. The mixture was concentrated in vacuo (Bright yellow solid powder). Evaporation residue was dissolved in CH_2Cl_2 (DCM, 10mL). The mixture of

tert-butylamine (1.1 equiv) and Et_3N (3 equiv) was added drop by drop at 0 °C. The reaction mixture was then stirred at room temperature for 0.5 h. Then 2 mL CH_3OH was added to the mixture. After addition, the solution was stirred at room temperature for 12 h. Then the reaction mixture was quenched with water and extracted with DCM. The organic layer was dried over Mg_2SO_4 and concentrated in vacuo. The residue was purified by column chromatography on silica gel (PE (petroleum ether)/EA (ethyl acetate) = 8/1, v/v) to yield **1e** (641.2 mg, 45%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.54 (s, 9H), 4.01 (s, 3H), 5.82 (bs, 1H), 7.52 (d, J = 7.6 Hz, 1H), 7.57-7.66 (m, 2H), 8.09 (d, J = 7.2 Hz, 1H), 8.21-8.24 (m, 1H), 8.88 (dd, J = 8.0, 1.3 Hz, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.0, 52.51, 52.53, 122.9, 125.8, 126.1, 127.3, 128.2, 128.8, 129.1, 130.5, 131.6, 140.6, 167.7, 168.7 ppm. HRMS (ESI): calcd for $C_{17}H_{19}NNaO_3$ $[M+Na]^+$ 308.1257, found 308.1263.

General procedure B:

Preparation of (*E*)-methyl 3-(5-(*tert*-butylcarbamoyl)naphthalen-1-yl)acrylate (1l)

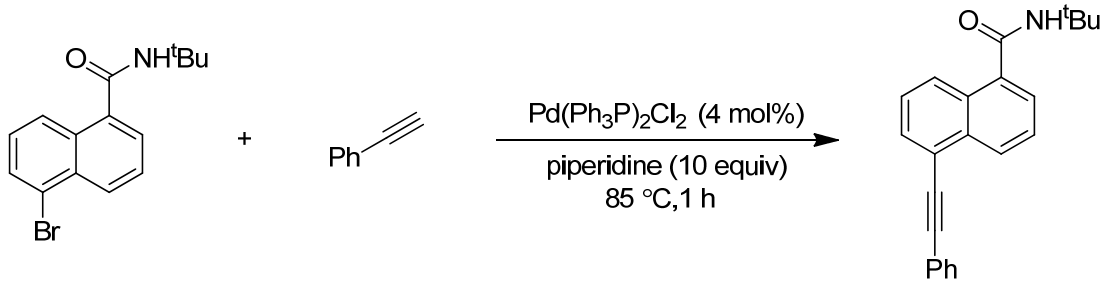


A Schlenk tube with a magnetic stir bar was charged with corresponding 5-bromo-*N*-(*tert*-butyl)-1-naphthamide (0.6 mmol), methyl acrylate (0.9 mmol, 1.5 equiv), $Pd(OAc)_2$ (0.06 mmol, 10 mol%), PPh_3 (0.12 mmol, 20 mol%), K_2CO_3 (0.9 mmol, 1.5 equiv) and DMF (3.6 mL) under a N_2 atmosphere. Then the reaction solution was stirred at 120 °C for 24 h, and the reaction mixture was cooled to room temperature, and diluted with 3 mL of DCM. The mixture was filtered through a celite pad and washed with 10-20 mL of DCM. The filtrate was concentrated and the residue was purified by column chromatography on silica gel (PE/EA = 5/1, v/v) yield **1l** (140.6 mg, 81%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.54 (s, 9H), 3.85 (s, 3H), 5.82 (bs, 1H), 6.51 (d, J = 16.0 Hz, 1H), 7.50-7.59 (m, 3H), 7.76 (d, J = 7.2 Hz, 1H), 8.23 (d, J = 8.4 Hz, 1H), 8.31 (d, J = 8.8 Hz, 1H), 8.50 (d, J = 15.6 Hz,

1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.0, 52.0, 52.3, 121.1, 124.8, 125.4, 125.6, 125.9, 126.6, 127.9, 130.4, 131.7, 132.2, 136.8, 141.9, 167.3, 169.1 ppm. HRMS (ESI): calcd for $C_{19}H_{22}NO_3$ $[M+Na]^+$ 312.1594, found 312.1598.

General procedure C:

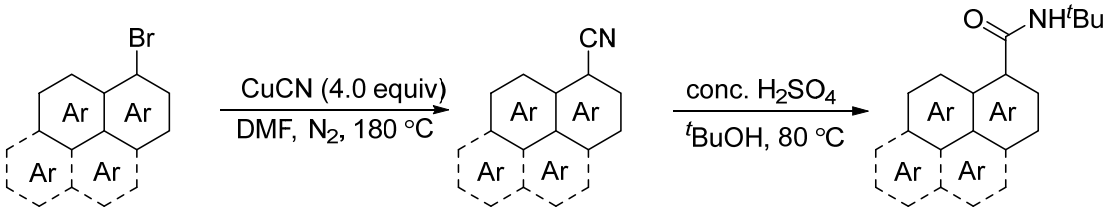
Preparation of *N*-(*tert*-butyl)-5-(phenylethynyl)-1-naphthamide (1m)



A Schlenk tube with a magnetic stir bar was charged with corresponding 5-bromo-*N*-(*tert*-butyl)-1-naphthamide (2 mmol), $Pd(PPh_3)_2Cl_2$ (0.08 mmol, 10 mol%), and piperidine (2 mL, 20 equiv) under a N_2 atmosphere. Then the reaction solution was stirred at 85 °C for 1 h, and the reaction mixture was cooled to room temperature, and diluted with 3 mL of DCM. The mixture was extracted with DCM (10 mL) and 1 M aqueous HCl (10 mL) for two times, saturated aqueous NaCl for two times and dried over anhydrous $MgSO_4$. The filtrate was concentrated and the residue was purified by column chromatography on silica gel (PE/EA = 10/1, v/v) yield **1m** (516.7 mg, 79%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.55 (s, 9H), 5.83 (bs, 1H), 7.36-7.43 (m, 3H), 7.50-7.61 (m, 3H), 7.63-7.67 (m, 2H), 7.79 (dd, J = 7.2, 1.0 Hz, 1H), 8.27 (d, J = 8.4 Hz, 1H), 8.49-8.54 (m, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.3, 87.5, 94.8, 121.4, 123.3, 125.1, 125.8, 126.3, 126.5, 128.4, 128.6, 128.7, 130.1, 131.05, 131.8, 133.6, 136.5, 169.1. ppm HRMS (ESI): calcd for $C_{23}H_{22}NO$ $[M+H]^+$ 328.1696, found 328.1702.

General procedure D:

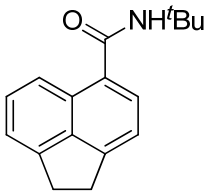
Preparation of polycyclic aromatic hydrocarbon (PAH) substrates (1k, 1n-1p)



Polycyclic aromatic hydrocarbon (PAH) substrates were prepared by the following procedure adapted from the literature.

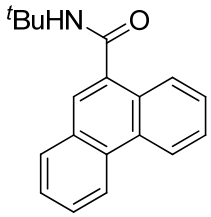
i) Add 1-bromobenzene (2.0 mmol), CuCN (8.0 mmol) and DMF (2.0 mL) to the Schlenk bottle with a magnetic stir bar, and stir the reaction solution at 180 °C for 24 hours under a N_2 atmosphere. Then cooling the reaction mixture to room temperature, to this mixture, $FeCl_3$ (4.4g, 26.7 mmol) in 2 M aqueous HCl (8.0 mL) was added and stirred at 70 °C for 1 h. Then the mixture was extracted with DCM for four times, washed by 6 M aqueous HCl for two times, saturated aqueous Na_2CO_3 for two times, water for two times, and dried over anhydrous $MgSO_4$. The organic layer was dried and concentrated, and the resulting crude product 1-naphthonitrile could be used for next step without purification.

ii) A Schlenk tube with a magnetic stir bar was charged with corresponding 1-naphthonitrile (2.0 mmol), conc. H_2SO_4 (0.25 mL, 4.5 mmol) and ^{t}BuOH (3.0 mL). The resulting mixture was stirred at 80 °C for 8-12 h (detected by TLC) and was cooled to room temperature. Then the reaction mixture was diluted with 8 mL DCM and extracted with brine (10 mL × 2). The organic layer was dried and concentrated, and the resulting residue was purified by column chromatography on silica gel (PE/EA = 20/1-10/1, v/v) to provide PAH substrates in 55-74% yields.



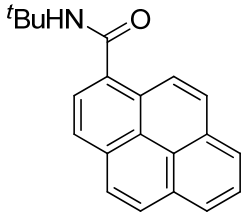
***N*-(*tert*-Butyl)-1,2-dihydroacenaphthylene-5-carboxamide (1k)**

According to above procedure, compound **1k** was prepared from 5-bromo-1,2-dihydroacenaphthylene in 74% yield as a yellow solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.53 (s, 9H), 3.36-3.44 (m, 4H), 5.84 (bs, 1H), 7.24 (d, J = 6.8 Hz, 1H), 7.32 (d, J = 7.2 Hz, 1H), 7.52 (m, 1H), 7.62 (d, J = 6.8 Hz, 1H), 8.06 (d, J = 8.4 Hz, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 30.4, 30.5, 52.0, 118.4, 120.0, 120.9, 127.4, 128.8, 129.1, 130.8, 139.6, 146.3, 149.1, 168.7 ppm. HRMS (ESI): calcd for $C_{17}H_{20}NO$ $[M+H]^+$ 254.1539, found 254.1548.



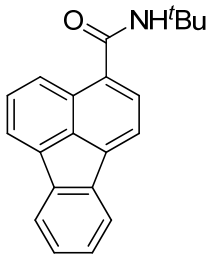
***N*-(*tert*-Butyl)phenanthrene-9-carboxamide (1n)**

According to above procedure, compound **1n** was prepared from 9-bromophenanthrene in 70% yield as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.57 (s, 9H), 5.93 (bs, 1H), 7.59-7.72 (m, 4H), 7.80 (s, 1H), 7.89 (dd, J = 8.0, 1.2 Hz, 1H), 8.27-8.32 (m, 1H), 8.67 (d, J = 8.4 Hz, 1H), 8.69-8.72 (m, 1H). ppm ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.3, 122.8, 123.0, 125.6, 126.3, 127.1, 127.2, 127.3, 127.8, 128.8, 129.1, 130.6, 130.7, 130.9, 135.0, 169.3 ppm. HRMS (ESI): calcd for $C_{19}H_{20}NO$ $[M+H]^+$ 278.1539, found 278.1536.



***N*-(*tert*-Butyl)pyrene-1-carboxamide (1o)**

According to above procedure, compound **1o** was prepared from 1-bromopyrene in 61% yield as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.61 (s, 9H), 5.96 (bs, 1H), 8.02-8.07 (m, 3H), 8.09-8.16 (m, 3H), 8.22 (d, J = 7.2 Hz, 2H), 8.53 (d, J = 9.2 Hz, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.2, 52.4, 124.45, 124.49, 124.6, 124.9, 125.7, 125.8, 126.4, 127.3, 128.4, 128.5, 128.7, 130.9, 131.3, 132.3, 132.7, 169.7 ppm. HRMS (ESI): calcd for $C_{21}H_{19}NNaO$ $[M+Na]^+$ 324.1359, found 324.1363.



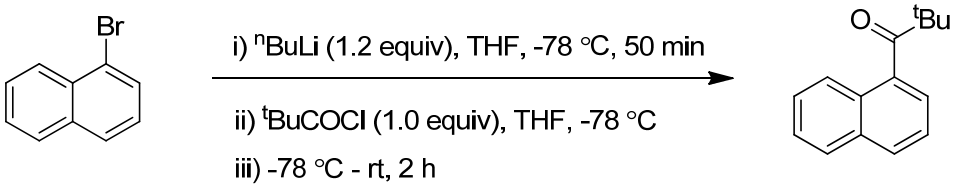
***N*-(*tert*-Butyl)fluoranthene-3-carboxamide (1p)**

According to above procedure, compound **1p** was prepared from

3-bromofluoranthene in 55% yield as a yellow solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.56 (s, 9H), 5.95 (bs, 1H), 7.36-7.43 (m, 2H), 7.66 (dd, J = 8.4, 6.8 Hz, 1H), 7.77 (d, J = 7.2 Hz, 1H), 7.84-7.93 (m, 4H), 8.25-8.28 (m, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.3, 119.1, 120.7, 121.7, 122.0, 125.5, 127.2, 127.5, 127.9, 128.3, 129.1, 132.7, 134.8, 137.2, 138.7, 139.2, 140.1, 168.2 ppm. HRMS (ESI): calcd for $C_{21}H_{20}NO$ $[M+Na]^+$ 302.1539, found 302.1548.

General procedure E:

Preparation of 2,2-dimethyl-1-(naphthalen-1-yl)propan-1-one (1t)



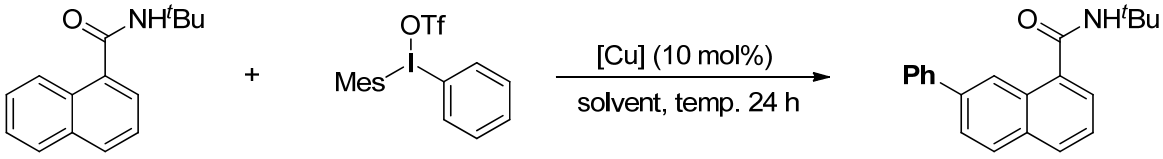
A Schlenk tube with a magnetic stir bar was charged with 1-bromonaphthalene (2.0 mmol) and THF (tetrahydrofuran, 4 mL) under a N_2 atmosphere. 1M of ^{n}BuLi in hexane (2.5 mL) was added dropwise to the reaction solution at -78 °C, and then the reaction mixture was stirred at -78 °C for 50 min. Then 0.25 mL (2 mmol, 1.0 equiv) ^{t}BuCOCl was added dropwise to the reaction mixture, warmed and stirred at room temperature for 2 h. Finally, the reaction mixture was quenched with NH_4Cl (aq.), diluted with DCM and extracted with brine, the organic layer was dried and concentrated, the residue was purified by column chromatography on silica gel (PE/EA = 60/1, v/v) yield **1t** (377.5 mg, 89%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.32 (s, 9H), 7.35 (dd, J = 7.2, 1.2 Hz, 1H), 7.43-7.52 (m, 3H), 7.59-7.64 (m, 1H), 7.84-7.88 (m, 2H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 27.4, 45.7, 122.4, 124.4, 125.6, 126.3, 126.9, 128.6, 129.1, 130.0, 133.7, 139.0, 214.8 ppm. HRMS (ESI): calcd for $C_{15}H_{16}NaO$ $[M+Na]^+$ 235.1093, found 235.1095.

III. Optimization of the reaction conditions of remote C–H arylation

An oven-dried Schlenk test tube with a magnetic stirring bar was charged with *N*-(*tert*-butyl)-1-naphthamide **1a** (0.2 mmol, 1.0 equiv.), mesityl(phenyl)iodonium triflate **2a** (0.3 mmol, 1.5 equiv.), [Cu] catalyst (10 mol%), and solvent (1 mL) under

a N_2 atmosphere. The mixture was stirred at the designed temperature for 24 h. After the reaction was cooled down to ambient temperature, it was diluted with 3 mL of CH_2Cl_2, filtered through a celite pad, and then washed with 15-20 mL of CH_2Cl_2. The combined organic phase was concentrated under reduced pressure and the residue was purified by column chromatography on silica gel (PE/THF = 20/1, v/v) to provide the desired product **3a**.

Table S1. Optimization of the arylation reaction of 1a and 2a[a]



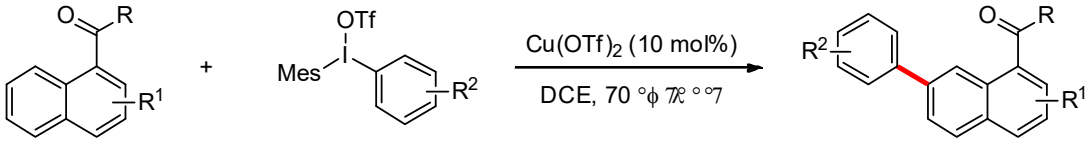
1a **2a** **3a**

Entry	Solvent	[Cu] (10 mol%)	T (°C)	Yield (%)[b]
1	DCE	$Cu(OTf)_2$	80	79
2	DCE	$Cu(OTf)_2$	70	92
3	DCE	$Cu(OTf)_2$	90	53
4	DCE	$Cu(OTf)_2$	60	41
5	DCE	$Cu(OTf)_2$	50	24
6	DCE	$Cu(OTf)_2$	100	35
7	DCE	-	70	N.R
8	DCE	Cu	70	64
9	DCE	CuO	70	81
10	DCE	CuCl	70	84
11	DCE	$CuCl_2$	70	82
12	DCE	CuBr	70	81
13	DCE	$Cu(OAc)_2$	70	80
14	DCE	CuTc	70	62
15	DCM	$Cu(OTf)_2$	70	38
16	ODCB	$Cu(OTf)_2$	70	77
17	Toluene	$Cu(OTf)_2$	70	N.R
18	MeOH	$Cu(OTf)_2$	70	N.R
19	DMF	$Cu(OTf)_2$	70	N.R

20	$CHCl_3$	$Cu(OTf)_2$	70	trace
21	$PhCF_3$	$Cu(OTf)_2$	70	trace

[a]Reaction conditions: **1a** (0.2 mmol, 1.0 equiv), **2a** (0.3 mmol, 1.5 equiv), [Cu] (10 mol%) and solvent (1 mL) under a N_2 atmosphere for 24 h. [b]Isolated yield. DCE = 1,2- Dichloroethane. DCM = Dichloromethane. ODCB= 1,2-Dichlorobenzene. MeOH = Methyl alcohol. DMF = *N,N*-Dimethylformamide. N.R: no reaction.

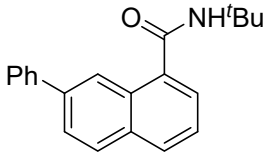
IV. General procedure for the synthesis of arylation products



1 **2** **3 or 4**

An oven-dried Schlenk tube with a magnetic stir bar was charged with 1-naphthoic acid derivative **1** (0.2 mmol, 1.0 equiv.), diaryliodonium salts **2** (0.3 mmol, 1.5 equiv.), $Cu(OTf)_2$ (7.2 mg, 10 mol%) and DCE (1 mL) under a N_2 atmosphere. The mixture was stirred at 50-80 °C for 24 h. After the reaction was cooled down to ambient temperature, it was diluted with 3 mL of CH_2Cl_2. The solution was filtered through a celite pad and washed with 15-20 mL of CH_2Cl_2. The filtrate was concentrated under reduced pressure and the residue was purified by column chromatography on silica gel to provide the corresponding products **3** and **4**.

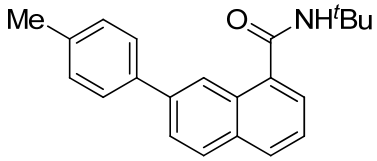
V. Experimental data for the described substances



***N*-(*tert*-Butyl)-7-phenyl-1-naphthamide (3a)**

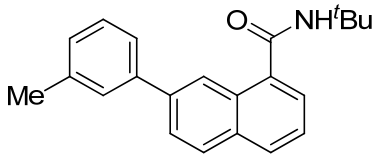
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **3a** (55.8 mg, 92%) as colorless oil. ^1H NMR (400 MHz, $CDCl_3$): δ = 1.55 (s, 9H), 5.87 (s, 1H), 7.37-7.41

(m, 1H), 7.42-7.46 (m, 1H), 7.46-7.52 (m, 2H), 7.58 (dd, J = 7.0, 1.1 Hz, 1H), 7.71-7.74 (m, 2H), 7.79 (dd, J = 8.4, 1.8 Hz, 1H), 7.89-7.94 (m, 2H), 8.51 (t, J = 0.8 Hz,1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.2, 123.4, 124.9, 125.0, 126.2, 127.63, 127.64, 128.9, 129.0, 129.9, 130.5, 132.9, 136.2, 139.7, 141.1, 169.3 ppm. The analytical data matched those reported in the literature.[1]



***N*-(*tert*-Butyl)-7-(*p*-tolyl)-1-naphthamide (3b)**

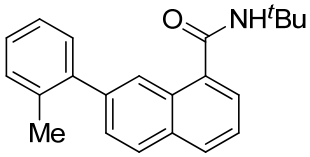
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), mesityl(*p*-tolyl)iodonium triflate (**2b**) (145.8 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **3b** (47.6 mg, 75%) as colorless oil. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.55 (s, 9H), 2.42 (s, 3H), 5.84 (s, 1H), 7.30 (d, J = 8.0 Hz, 2H), 7.4-7.45 (m, 1H), 7.57 (dd, J = 7.2, 1.2 Hz, 1H), 7.61-7.65 (m, 2H), 7.77 (dd, J = 8.4, 1.6 Hz, 1H), 7.90 (t, J = 8.4 Hz, 2H), 8.48 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 21.3, 29.1, 52.2, 123.0, 124.8, 125.0, 126.1, 127.5, 128.9, 129.8, 129.9, 130.5, 132.8, 136.2, 137.5, 138.2, 139.6, 169.3 ppm. The analytical data matched those reported in the literature.[1]



***N*-(*tert*-Butyl)-7-(m-tolyl)-1-naphthamide (3c)**

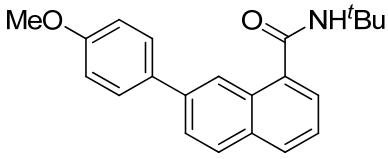
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), mesityl(*m*-tolyl)iodonium triflate (**2c**) (145.8 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **3c** (45.1 mg,71%) as colorless oil. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.55 (s, 9H), 2.45 (s, 3H), 5.85 (s, 1H), 7.21 (d, J = 7.6 Hz, 1H), 7.38 (t, J = 7.4 Hz, 1H), 7.41-7.46 (m, 1H), 7.53 (d, J = 8.4 Hz, 2H), 7.58 (d, J = 6.8 Hz, 1H), 7.78 (dd, J = 8.4, 1.6 Hz, 1H), 7.91 (t, J = 8.4

Hz, 2H), 8.48 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 21.7, 29.1, 52.22, 76.8, 77.2, 77.5, 123.3, 124.8, 126.3, 128.39, 128.41, 128.8, 129.0, 129.9, 130.5, 132.9, 136.3, 138.6, 139.8, 141.1, 169.3 ppm. The analytical data matched those reported in the literature.[1]



***N*-(*tert*-Butyl)-7-(*o*-tolyl)-1-naphthamide (3d)**

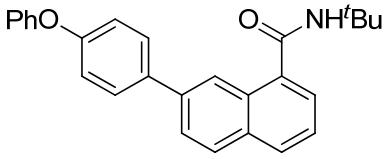
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), mesityl(*o*-tolyl)iodonium triflate (**2d**) (145.8 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/DCM/EA = 40/200/1, v/v/v) yields **3d** (36.2 mg, 57%) as colorless oil ^{1}H NMR (400 MHz, $CDCl_3$): δ =1.51 (s, 9H), 2.34 (s, 3H), 5.83 (bs, 1H), 7.27-7.35 (m, 4H), 7.43-7.47 (m, 1H), 7.52 (dd, *J* = 8.4, 1.6 Hz, 1H), 7.58 (dd, *J* = 7.2, 1.2 Hz, 1H), 7.91 (t, *J* = 8.8 Hz, 2H), 8.24 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 20.8, 29.1, 52.2, 124.8, 125.6, 126.0, 127.6, 128.0, 128.4, 130.0, 130.2, 130.6, 132.6, 135.7, 136.2, 140.6, 141.8, 169.2 ppm. The analytical data matched those reported in the literature.[1]



***N*-(*tert*-Butyl)-7-(4-methoxyphenyl)-1-naphthamide (3e)**

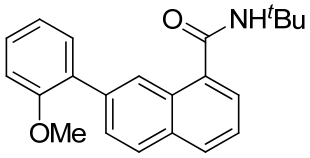
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), mesityl(4-methoxyphenyl)iodonium triflate (**2e**) (150.6 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 60 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 15/1, v/v) yields **3e** (36.2 mg, 54%) as colorless oil. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.55 (s, 9H), 3.87 (s, 3H), 5.84 (bs, 1H), 7.00-7.05 (m, 2H), 7.39-7.43 (m, 1H), 7.56 (dd, *J* = 6.8, 1.2 Hz, 1H), 7.64-7.68 (m, 2H), 7.75 (dd, *J* = 8.4, 1.6 Hz, 1H), 7.89 (t, *J* = 7.6 Hz, 2H), 8.44 (t, *J* = 0.8 Hz, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.2, 55.5, 114.5, 122.6,

124.6, 125.0, 126.0, 128.6, 128.9, 129.9, 130.5, 132.6, 133.6, 136.1, 139.3, 159.5, 169.3 ppm. HRMS (ESI): calcd for $C_{22}H_{24}NO_2$ $[M+H]^+$ 334.1802, found 334.1807.



***N*-(*tert*-Butyl)-7-(4-phenoxyphenyl)-1-naphthamidee (3f)**

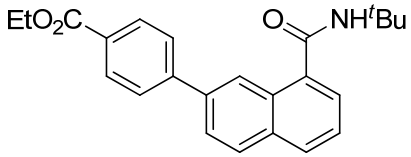
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), mesityl(4-phenoxyphenyl)iodonium triflate (**2f**) (169.2 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 60 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 15/1, v/v) yields **3f** (48.2 mg, 61%) as colorless oil. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.55 (s, 9H), 5.86 (bs, 1H), 7.07-7.11 (m, 3H), 7.12-7.17 (m, 2H), 7.35-7.41 (m, 2H), 7.41-7.45 (m, 1H), 7.56-7.59 (m, 1H), 7.66-7.71 (m, 2H), 7.76 (dd, *J* = 8.4, 2.0 Hz, 1H), 7.91 (t, *J* = 8.4 Hz, 2H), 8.47 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 29.9, 52.3, 119.3, 123.0, 123.6, 124.5, 124.8, 125.0, 126.0, 128.9, 129.0, 130.0, 130.5, 132.8, 136.09, 136.11, 139.0, 157.2, 157.2, 169.3 ppm. The analytical data matched those reported in the literature.[1]



***N*-(*tert*-Butyl)-7-(2-methoxyphenyl)-1-naphthamide (3g)**

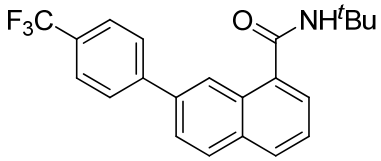
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), mesityl(2-methoxyphenyl)iodonium triflate (**2g**) (150.6 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 60 °C.. After 24 h, purification by column chromatography on silica gel (PE/THF = 15/1, v/v) yields **3g** (33.4 mg, 50%) as colorless oil. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.52 (s, 9H), 3.84 (s, 3H), 5.83 (bs, 1H), 7.03 (d, *J* = 8.0 Hz, 1H), 7.08 (td, *J* = 7.6, 0.8 Hz, 1H), 7.37 (td, *J* = 8.0, 1.6 Hz, 1H), 7.41-7.46 (m, 2H), 7.56 (dd, *J* = 7.2, 1.2 Hz, 1H), 7.74 (dd, *J* = 8.4, 1.6 Hz, 1H), 7.86-7.90 (m, 2H), 8.39 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.1, 55.7, 111.4, 121.2, 124.7, 124.8, 125.6, 127.7, 128.7, 129.0, 129.8, 130.1,

130.7, 131.4, 132.7, 136.2, 137.4, 156.7, 169.3 ppm. HRMS (ESI): calcd for $C_{22}H_{24}NO_2$ $[M+H]^+$ 334.1802, found 334.1808.



Ethyl 4-(8-(*tert*-butylcarbamoyl)naphthalen-2-yl)benzoate (3h)

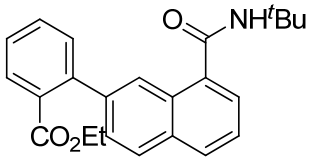
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), (4-(ethoxycarbonyl)phenyl)(mesityl)iodonium triflate (**2h**) (163.2 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 10/1, v/v) yields **3h** (49.6 mg, 66%) as colorless oil. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.42 (t, J = 7.2 Hz, 3H), 1.54 (s, 9H), 4.41 (q, J = 7.2 Hz, 2H), 5.90 (s, 1H), 7.43-7.48 (m, 1H), 7.58 (d, J = 6.9 Hz, 1H), 7.75-7.81 (m, 3H), 7.89-7.95 (m, 2H), 8.14 (d, J = 8.4 Hz, 2H), 8.54 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 14.5, 29.1, 52.3, 61.2, 76.8, 77.2, 77.45, 124.0, 125.1, 125.4, 125.9, 127.5, 129.1, 129.5, 130.0, 130.3, 130.4, 133.3, 136.3, 138.4, 145.4, 166.6, 169.1 ppm. The analytical data matched those reported in the literature.[1]



***N*-(*tert*-Butyl)-7-(4-(trifluoromethyl)phenyl)-1-naphthamide (3i)**

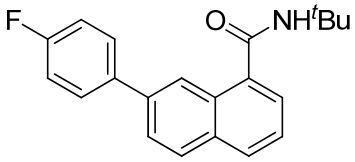
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), mesityl(4-(trifluoromethyl)phenyl)iodonium triflate (**2i**) (162.0 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 80 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 10/1, v/v) yields **3i** (52.1 mg, 70%) as colorless oil. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.55 (s, 9H), 5.86 (bs, 1H), 7.44-7.50 (m, 1H), 7.60 (dd, J = 7.2, 1.2 Hz, 1H), 7.72-7.78 (m, 3H), 7.82 (d, J = 8.0 Hz, 2H), 7.92 (d, J = 8.0 Hz, 1H), 7.96 (d, J = 8.4 Hz, 1H), 8.54 (s, 1H) ppm. ^{13}C NMR (100 MHz, $(CD_3)_2SO$): δ = 28.6, 51.1, 123.0, 123.6, 124.4 (q, J_{CF} = 270 Hz), 125.2, 125.6, 125.8, 126.2 (q, J_{CF} = 4 Hz), 127.7, 128.4, 129.0, 129.3, 130.0, 132.7,

136.49, 136.53, 144.26, 144.27, 168.3 ppm. HRMS (ESI): calcd for $C_{22}H_{21}F_3NO$ $[M+H]^+$ 372.1570, found 372.1572.



Ethyl 2-(8-*(tert*-butylcarbamoyl)naphthalen-2-yl)benzoate (3j)

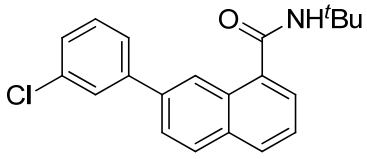
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), (2-(ethoxycarbonyl)phenyl)(mesityl)iodonium triflate (**2j**) (163.2 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 80 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 10/1, v/v) yields **3j** (42.8 mg, 57%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 0.98 (t, J = 7.2 Hz, 3H), 1.51 (s, 9H), 4.10 (q, J = 7.2 Hz, 2H), 5.83 (bs, 1H), 7.42-7.50 (m, 4H), 7.57 (td, J = 7.6, 1.2 Hz, 2H), 7.85 (d, J = 8.4 Hz, 1H), 7.89-7.92 (m, 2H), 8.26 (t, J = 0.8 Hz 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 14.0, 29.1, 52.2, 61.1, 124.6, 124.9, 125.0, 127.5, 127.7, 127.9, 130.0, 130.1, 130.2, 131.1, 131.4, 131.6, 132.8, 136.1, 140.3, 142.7, 168.5, 169.2 ppm. HRMS (ESI): calcd for $C_{24}H_{25}NNaO_3$ $[M+Na]^+$ 398.1727, found 398.1731.



***N*-(*tert*-Butyl)-7-(4-fluorophenyl)-1-naphthamide (3k)**

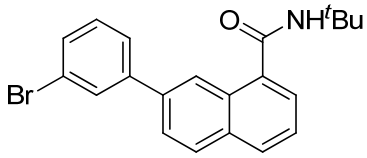
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), (4-fluorophenyl)(mesityl)iodonium triflate (**2k**) (147.0 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **3k** (51.4 mg, 80%) as colorless oil. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.55 (s, 9H), 5.85 (s, 1H), 7.14-7.20 (m, 2H), 7.42-7.46 (m, 1H), 7.58 (dd, J = 7.2, 1.2 Hz, 1H), 7.65-7.70 (m, 2H), 7.73 (dd, J = 8.4, 2.0 Hz, 1H), 7.91 (t, J = 8.0 Hz, 2H), 8.45 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.3, 115.9 ($J_{C\text{-}F}$ = 21 Hz), 123.3, 125.0 ($J_{C\text{-}F}$ = 10 Hz), 126.0, 129.0, 129.15, 129.23, 130.0, 130.5, 132.9, 136.1, 137.3, ($J_{C\text{-}F}$ = 3 Hz),

138.7, 162.8 ($J_{C\text{-}F}$ = 245 Hz), 169.2 ppm. The analytical data matched those reported in the literature.[1]



***N*-(*tert*-Butyl)-7-(3-chlorophenyl)-1-naphthamide (3l)**

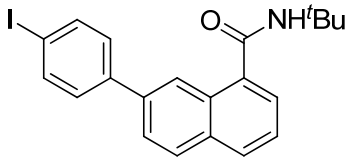
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), (3-chlorophenyl)(mesityl)iodonium triflate (**2l**) (151.8 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **3l** (39.1 mg, 58%) as colorless oil. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.55 (s, 9H), 5.85 (bs, 1H), 7.35 (dt, J = 8.0, 1.4 Hz, 1H), 7.41 (t, J = 7.6 Hz, 1H), 7.45-7.48 (m, 1H), 7.58-7.61 (m, 2H), 7.69 (t, J = 2.0 Hz, 1H), 7.73 (dd, J = 8.4, 1.8 Hz, 1H), 7.92 (t, J = 9.2 Hz, 2H), 8.48 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.3, 123.7, 125.2, 125.3, 125.8, 125.9, 127.65, 127.71, 129.1, 130.0, 130.3, 130.4, 133.2, 134.9, 136.3, 138.3, 143.0, 169.1 ppm. HRMS (ESI): calcd for $C_{21}H_{20}ClNNaO$ $[M+Na]^+$ 360.1126, 362.1096, found 360.1128, 362.1097.



7-(3-Bromophenyl)-*N*-(*tert*-butyl)-1-naphthamide (3m)

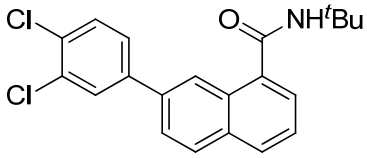
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), (3-bromophenyl)(mesityl)iodonium triflate (**2m**) (165.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **3m** (51.8 mg, 68%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.55 (s, 9H), 5.86 (bs, 1H), 7.35 (t, J = 8.0 Hz, 1H), 7.43-7.48 (m, 1H), 7.51 (ddd, J = 8.0, 2.0, 0.8 Hz, 1H), 7.59 (dd, J = 7.2, 1.2 Hz, 1H), 7.64 (ddd, J = 7.6, 1.6, 0.8 Hz, 1H), 7.73 (dd, J = 8.8, 2.0 Hz, 1H), 7.84 (t, J = 2.0 Hz, 1H), 7.92 (t, J = 9.2 Hz, 2H), 8.47 (t, J = 0.8 Hz, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.3, 123.1, 123.7, 125.2, 125.3,

125.9, 126.3, 129.1, 130.0, 130.4, 130.55, 130.57, 130.6, 133.2, 136.3, 138.2, 143.0, 169.1 ppm. HRMS (ESI): calcd for $C_{21}H_{20}BrNNaO$ $[M+Na]^+$ 404.0620, 406.0600, found 404.0623, 406.0596.



***N*-(*tert*-Butyl)-7-(4-iodophenyl)-1-naphthamide (3n)**

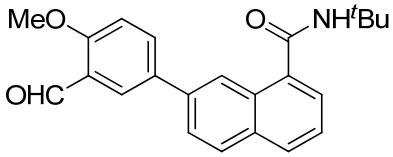
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), (4-iodophenyl)(mesityl)iodonium triflate (**2n**) (179.4 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **3n** (54.9 mg, 64%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.54 (s, 9H), 5.85 (bs, 1H), 7.42-7.47 (m, 3H), 7.58 (dd, J = 7.2, 1.2 Hz, 1H), 7.72 (dd, J = 8.4, 2.0 Hz, 1H), 7.79-7.83 (m, 2H), 7.91 (t, J = 8.8 Hz, 2H), 8.47 (t, J = 0.8 Hz 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.3, 93.5, 123.38, 125.1, 125.2, 125.7, 129.1, 129.4, 130.0, 130.5, 133.1, 136.2, 138.1, 138.5, 140.7, 169.2 ppm. HRMS (ESI): calcd for $C_{21}H_{20}INNaO$ $[M+Na]^+$ 452.0482, 453.0515, found 452.0489, 453.0520.



***N*-(*tert*-Butyl)-7-(3,4-dichlorophenyl)-1-naphthamide (3o)**

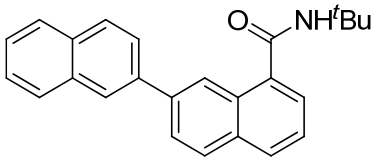
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), (3,4-dichlorophenyl)(mesityl)iodonium triflate (**2o**) (162.0 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **3o** (42.3 mg, 57%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.55 (s, 9H), 5.87 (bs, 1H), 7.44-7.48 (m, 1H), 7.53 (d, J = 1.2 Hz, 2H), 7.59 (dd, J = 6.8, 1.2 Hz, 1H), 7.69 (dd, J = 8.4, 2.0 Hz, 1H), 7.77 (t, J = 1.2 Hz, 1H), 7.89-7.94 (m, 2H), 8.45-8.47 (m, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.3, 123.7, 125.3, 125.4, 125.5, 126.9, 129.3, 129.4, 130.0, 130.4, 131.0, 131.9, 133.1, 133.2, 136.2, 137.2, 141.2,

169.1 ppm. HRMS (ESI): calcd for $C_{21}H_{20}Cl_2NO$ $[M+H]^+$ 372.0916, 374.0887, 373.0950, found 372.0920, 374.0891, 373.0952.



***N*-(*tert*-Butyl)-7-(3-formyl-4-methoxyphenyl)-1-naphthamide (3p)**

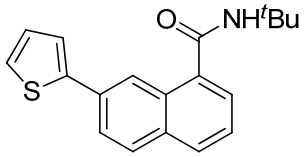
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), (4-formyl-3-methoxyphenyl)(mesityl)iodonium triflate (**2p**) (159.6 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 60 °C. After 24 h, purification by column chromatography on silica gel (PE/DCM/EA = 10/10/1, v/v/v) yields **3p** (42.1 mg, 58%) as colorless oil. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.55 (s, 9H), 4.00 (s, 3H), 5.88 (bs, 1H), 7.12 (d, J = 8.8 Hz, 1H), 7.43 (dd, J = 8.4, 7.2 Hz, 1H), 7.58 (dd, J = 7.0, 1.2 Hz, 1H), 7.76 (dd, J = 8.5, 1.8 Hz, 1H), 7.87-7.96 (m, 3H), 8.17 (d, J = 2.5 Hz, 1H), 8.45 (t, J = 0.8 Hz 1H), 10.52 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.3, 56.0, 112.5, 122.8, 124.99, 125.04, 125.1, 125.7, 127.3, 129.1, 130.0, 130.4, 132.9, 133.7, 134.9, 136.1, 138.0, 161.6, 169.2, 189.9 ppm. HRMS (ESI): calcd for $C_{23}H_{24}NO_3$ $[M+H]^+$ 362.1751, found 362.1757.



***N*-(*tert*-Butyl)-[2,2'-binaphthalene]-8-carboxamide (3q)**

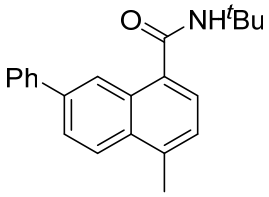
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), mesityl(naphthalen-2-yl)iodonium triflate (**2q**) (156.6 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **3q** (46.6 mg, 66%) as colorless oil. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.56 (s, 9H), 5.89 (s, 1H), 7.43-7.48 (m, 1H), 7.48-7.56 (m, 2H), 7.60 (dd, J = 6.8, 1.2 Hz, 1H), 7.86-7.98 (m, 7H), 8.17-8.19 (m, 1H), 8.63 (t, J = 0.8, Hz 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.3, 76.8, 77.2, 77.45, 123.7, 125.0, 125.1, 125.83, 126.2, 126.35, 126.41, 126.5, 127.8, 128.5, 128.7, 129.0, 130.0, 130.5, 132.8, 133.0, 133.8, 136.2,

138.4, 139.6, 169.3 ppm. The analytical data matched those reported in the literature.[1]



***N*-(*tert*-Butyl)-7-(thiophen-2-yl)-1-naphthamide (3r)**

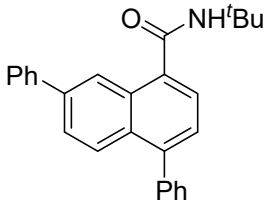
Following the general procedure, the reaction of *N*-(*tert*-butyl)-1-naphthamide (**1a**) (45.4 mg, 0.20 mmol), mesityl(thiophen-2-yl)iodonium triflate (**2r**) (111.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 50 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **3r** (21.6 mg, 35%) as colorless oil ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.57 (s, 9H), 5.84 (bs, 1H), 7.10-7.14 (m, 1H), 7.33 (dd, J = 5.2, 1.2 Hz, 1H), 7.39-7.44 (m, 1H), 7.45 (dd, J = 3.6, 0.8 Hz, 1H), 7.57 (dd, J = 7.2, 1.2 Hz, 1H), 7.78 (dd, J = 8.4, 1.6 Hz, 1H), 7.85 (dd, J = 8.4, 3.6 Hz, 2H), 8.48 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.3, 121.7, 123.9, 124.9, 125.0, 125.4, 125.6, 128.4, 129.1, 129.9, 130.4, 132.9, 133.0, 136.1, 144.5, 169.1 ppm. HRMS (ESI): calcd for $C_{19}H_{20}NOS$ $[M+H]^+$ 310.1260, found 310.1262.



***N*-(*tert*-Butyl)-4-methyl-7-phenyl-1-naphthamide (4a)**

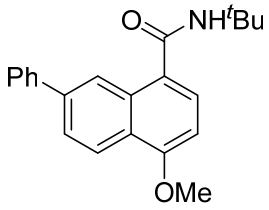
Following the general procedure, the reaction of *N*-(*tert*-butyl)-4-methyl-1-naphthamide (**1b**) (48.2 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **4a** (56.5 mg, 89%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.54 (s, 9H), 2.73 (d, J = 0.8 Hz, 3H), 5.83 (s, 1H), 7.27 (dd, J = 7.2, 0.8 Hz, 1H), 7.36-7.41 (m, 1H), 7.46-7.51 (m, 3H), 7.72-7.75 (m, 2H), 7.82 (dd, J = 8.8, 2.0 Hz, 1H), 8.09 (d, J = 9.2 Hz, 1H), 8.54 (d, J = 1.6 Hz, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 19.8, 29.1, 52.1, 124.0, 124.8, 125.1, 125.6, 125.9,

127.59, 127.61, 129.0, 130.6, 132.0, 134.7, 136.7, 139.2, 141.1, 169.5 ppm. The analytical data matched those reported in the literature.[1]



***N*-(*tert*-Butyl)-4,7-diphenyl-1-naphthamide (4b)**

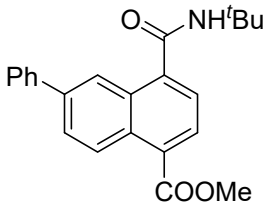
Following the general procedure, the reaction of *N*-(*tert*-butyl)-4-phenyl-1-naphthamide (**1c**) (60.6 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 10/1, v/v) yields **4b** (66.7 mg, 88%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.57 (s, 9H), 5.91 (s, 1H), 7.37-7.42 (m, 2H), 7.46-7.55 (m, 7H), 7.62 (d, J = 7.2 Hz, 1H), 7.71-7.75 (m, 3H), 7.98 (d, J = 8.8 Hz, 1H), 8.56 (d, J = 1.6 Hz, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.3, 123.6, 124.5, 125.9, 126.2, 127.2, 127.6, 127.7, 127.78, 128.5, 129.1, 130.1, 130.9, 131.2, 135.8, 139.4, 140.3, 140.9, 142.3, 169.4 ppm. The analytical data matched those reported in the literature.[1]



***N*-(*tert*-Butyl)-4-methoxy-7-phenyl-1-naphthamide (4c)**

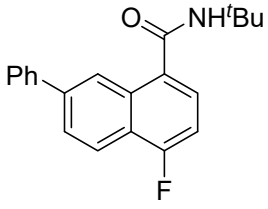
Following the general procedure, the reaction of *N*-(*tert*-butyl)-4-methoxy-1-naphthamide (**1d**) (51.4 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 10/1, v/v) yields **4c** (54.0 mg, 81%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.53 (s, 9H), 4.03 (s, 3H), 5.82 (s, 1H), 6.74 (d, J = 8.0 Hz, 1H), 7.36-7.41 (m, 1H), 7.48 (t, J = 7.6 Hz, 2H), 7.54 (d, J = 8.0 Hz, 1H), 7.71-7.75

(m, 2H), 7.77 (dd, J = 8.8, 1.6 Hz, 1H), 8.35 (d, J = 8.8 Hz, 1H), 8.54 (d, J = 1.6 Hz, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.0, 55.8, 102.5, 123.0, 123.3, 124.9, 125.4, 126.1, 127.63, 127.64, 128.7, 129.0, 131.8, 140.1, 141.2, 157.0, 169.3 ppm. The analytical data matched those reported in the literature.[1]



Methyl 4-(*tert*-butylcarbamoyl)-6-phenyl-1-naphthoate (4d)

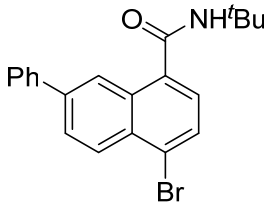
Following the general procedure, the reaction of methyl 4-(tert-butylcarbamoyl)-1-naphthoate (**1e**) (57.0 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/DCM/EA = 20/20/1, v/v/v) yields **4d** (51.9 mg, 72%) as colorless oil ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.55 (s, 9H), 4.02 (s, 3H), 5.91 (bs, 1H), 7.38-7.42 (m, 1H), 7.47-7.54 (m, 3H), 7.72 (dd, J = 8.4, 1.2 Hz, 2H), 7.89 (dd, J = 9.2, 2.0 Hz, 1H), 8.08 (d, J = 7.2 Hz, 1H), 8.43 (d, J = 2.0 Hz, 1H), 8.96 (d, J = 9.2 Hz, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.0, 52.54, 52.55, 123.3, 123.4, 126.7, 127.5, 127.7, 127.9, 128.6, 129.08, 129.12, 130.8, 130.9, 139.6, 140.5, 140.7, 167.6, 168.7 ppm. HRMS (ESI): calcd for $C_{23}H_{24}NO_3$ $[M+H]^+$ 362.1751 , found 362.1752.



***N*-(*tert*-Butyl)-4-fluoro-7-phenyl-1-naphthamide (4e)**

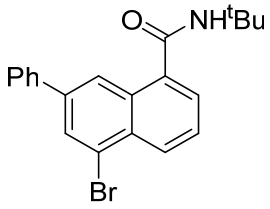
Following the general procedure, the reaction of *N*-(*tert*-butyl)-4-fluoro-1-naphthamide (**1f**) (49.0 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 10/1, v/v) yields **4e** (45.6 mg, 71%) as a white solid. ^{1}H NMR

(400 MHz, $CDCl_3$): δ = 1.54 (s, 9H), 5.86 (bs, 1H), 7.05-7.10 (m, 1H), 7.38-7.43 (m, 1H), 7.47-7.54 (m, 3H), 7.70-7.73 (m, 2H), 7.84 (dd, J = 8.8, 1.6 Hz, 1H), 8.19 (d, J = 8.8 Hz, 1H), 8.52 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.3, 108.4 (d, J_{C-F} = 21 Hz), 121.5 (d, J_{C-F} = 5 Hz), 123.0, 123.1, 123.5 (d, J_{C-F} = 2 Hz), 125.4 (d, J_{C-F} = 9 Hz), 126.6 (d, J_{C-F} = 2 Hz), 127.7, 128.0, 129.1, 132.3 (d, J_{C-F} = 4 Hz), 132.4 (d, J_{C-F} = 5 Hz), 140.7, 159.7 (d, J_{C-F} = 254 Hz), 168.6 ppm. The analytical data matched those reported in the literature.[1]



4-Bromo-*N*-*(tert*-butyl)-7-phenyl-1-naphthamid*e* (4f)

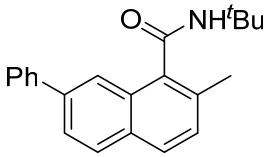
Following the general procedure, the reaction of *N-(tert*-butyl)-4-phenyl-1-naphthamide (**1g**) (61.2 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/DCM/EA = 50/110/1, v/v/v) yields **4f** (57.2 mg, 75%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.53 (s, 9H), 5.87 (bs, 1H), 7.37-7.43 (m, 2H), 7.47-7.52 (m, 2H), 7.70-7.74 (m, 3H), 7.88 (dd, J = 8.8, 1.6 Hz, 1H), 8.33 (d, J = 9.6 Hz, 1H), 8.47 (d, J = 1.6 Hz, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.0, 52.4, 123.7, 124.8, 125.1, 127.5, 127.6, 128.0, 128.2, 128.9, 129.1, 131.4, 131.7, 136.1, 140.4, 168.6 ppm. The analytical data matched those reported in the literature.[1]



5-Bromo-*N*-(*tert*-butyl)-7-phenyl-1-naphthamide (4g)

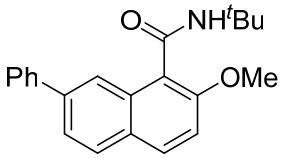
Following the general procedure, the reaction of 5-bromo-*N*-(*tert*-butyl)-1-naphthamide (**1h**) (61.0 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10

mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **4g** (51.1 mg, 67%) as colorless oil ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.54 (s, 9H), 5.84 (bs, 1H), 7.40 (t, J = 7.2 Hz, 1H), 7.46-7.57 (m, 3H), 7.59-7.71 (m, 3H), 8.11 (s, 1H), 8.32 (d, J = 8.4 Hz, 1H), 8.45 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.4, 123.3, 123.7, 125.7, 126.3, 127.5, 128.1, 129.1, 129.2, 130.2, 131.3, 131.6, 136.7, 139.7, 140.2, 168.8 ppm. HRMS (ESI): calcd for $C_{21}H_{21}BrNO$ $[M+H]^+$ 382.0801, 384.0781, found 382.0809, 384.0782.



***N*-(*tert*-Butyl)-2-methyl-7-phenyl-1-naphthamide (4h)**

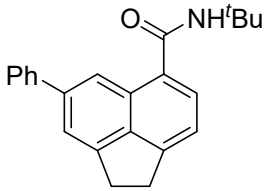
Following the general procedure, the reaction of *N*-(*tert*-butyl)-2-methyl-1-naphthamide (**1i**) (48.2 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **4h** (53.9 mg, 85%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.56 (s, 9H), 2.53 (s, 3H), 5.71 (bs, 1H), 7.30 (d, J = 8.4 Hz, 1H), 7.36-7.40 (m, 1H), 7.46-7.51 (m, 2H), 7.68-7.73 (m, 3H), 7.77 (d, J = 8.4 Hz, 1H), 7.87 (d, J = 8.4 Hz, 1H), 8.10 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 19.5, 29.1, 52.3, 122.6, 125.2, 127.5, 127.6, 128.4, 128.57, 128.62, 129.1, 130.5, 131.0, 132.2, 135.2, 139.4, 141.2, 169.3 ppm. The analytical data matched those reported in the literature.[1]



***N*-(*tert*-Butyl)-2-methoxy-7-phenyl-1-naphthamide (4i)**

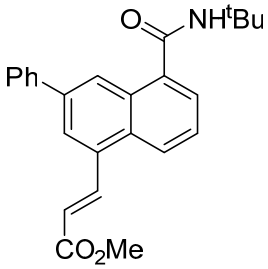
Following the general procedure, the reaction of *N*-(*tert*-butyl)-2-methoxy-1-naphthamide (**1j**) (51.4 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography

on silica gel (PE/THF = 15/1, v/v) yields **4i** (53.3 mg, 80%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.55 (s, 9H), 3.97 (s, 3H), 5.80 (bs, 1H), 7.25 (d, J = 8.8 Hz, 1H), 7.35-7.40 (m, 1H), 7.45-7.50 (m, 2H), 7.63 (dd, J = 8.6, 1.6 Hz, 1H), 7.69-7.72 (m, 2H), 7.84 (d, J = 5.6 Hz, 1H), 7.86 (d, J = 6.4 Hz, 1H), 8.14 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.2, 57.0, 113.5, 122.2, 122.4, 124.0, 127.5, 127.6, 128.1, 128.5, 129.0, 130.5, 131.8, 140.0, 141.2, 153.7, 167.0 ppm. The analytical data matched those reported in the literature.[1]



2,2-Dimethyl-1-(7-phenylnaphthalen-1-yl)propan-1-one (4j)

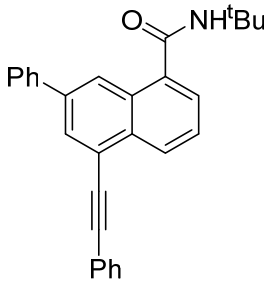
Following the general procedure, the reaction of *N-(tert*-butyl)-1,2-dihydroacenaphthylene-5-carboxamide (**1k**) (50.6 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **4j** (34.9 mg, 53%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.54 (s, 9H), 3.40-3.49 (m, 4H), 5.89 (bs, 1H), 7.24 (dt, J = 7.2, 1.2 Hz, 1H), 7.35-7.40 (m, 1H), 7.45-7.50 (m, 2H), 7.57 (d, J = 1.2 Hz, 1H), 7.64 (d, J = 7.2 Hz, 1H), 7.69-7.72 (m, 2H), 8.31 (d, J = 1.2 Hz, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.2, 30.5, 30.6, 52.0, 118.5, 119.8, 120.1, 127.4, 127.8, 128.0, 128.9, 131.0, 139.0, 142.3, 142.5, 146.9, 149.0, 168.7 ppm. HRMS (ESI): calcd for $C_{23}H_{24}NO_3$ $[M+H]^+$ 330.1852, found 330.1759.



***(E)*-Methyl 3-(5-(*tert*-butylcarbamoyl)-3-phenylnaphthalen-1-yl)acrylate (4k)**

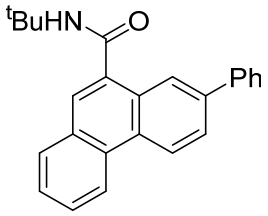
Following the general procedure, the reaction of (*E*)-methyl 3-(5-(*tert*-butylcarbamoyl)naphthalen-1-yl)acrylate (**1l**) (62.2 mg, 0.20 mmol),

mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/DCM/EA = 20/20/1, v/v/v) yields **4k** (54.2 mg, 70%) as colorless oil. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.55 (s, 9H), 3.87 (s, 3H), 5.87 (bs, 1H), 6.59 (d, J = 16.0 Hz, 1H), 7.39-7.43 (m, 1H), 7.47-7.55 (m, 3H), 7.59-7.62 (m, 1H), 7.69-7.73 (m, 2H), 8.02 (d, J = 1.6 Hz, 1H), 8.23 (d, J = 8.4 Hz, 1H), 8.53 (d, J = 15.6), 8.54 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.0, 52.4, 121.5, 125.2, 125.3, 125.4, 125.7, 125.82, 127.6, 128.0, 129.2, 130.87, 130.89, 132.8, 137.0, 139.2, 140.5, 142.0, 167.3, 169.1 ppm. HRMS (ESI): calcd for $C_{25}H_{26}NO_3$ $[M+H]^+$, 388.1907, found 388.1906.



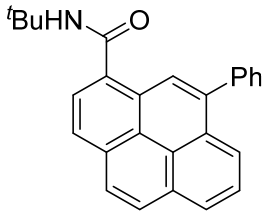
***N*-(*tert*-Butyl)-7-phenyl-5-(phenylethynyl)-1-naphthamide (4l)**

Following the general procedure, the reaction of *N*-(*tert*-butyl)-5-(phenylethynyl)-1-naphthamide (**1m**) (65.4 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **4l** (48.4 mg, 60%) as colorless oil. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.55 (s, 9H), 5.88 (bs, 1H), 7.37-7.44 (m, 4H), 7.47-7.52 (m, 2H), 7.52-7.57 (m, 1H), 7.62 (dd, J = 6.8, 1.2 Hz, 1H), 7.65-7.69 (m, 2H), 7.72-7.76 (m, 2H), 8.08 (d, J = 1.6 Hz, 1H), 8.49-8.53 (m, 2H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.3, 87.5, 94.8, 122.0, 123.3, 124.1, 125.5, 125.7, 127.6, 127.9, 128.3, 128.6, 128.7, 129.1, 130.50, 130.54, 131.8, 132.7, 136.6, 139.2, 140.4, 169.1ppm. HRMS (ESI): calcd for $C_{29}H_{26}NO$ $[M+H]^+$ 404.2009, found 404.2016.



***N*-(*tert*-Butyl)-7-phenylphenanthrene-9-carboxamide (4m)**

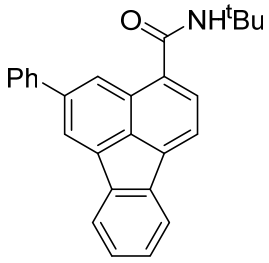
Following the general procedure, the reaction of *N*-(*tert*-butyl)phenanthrene-9-carboxamide (**1n**) (55.4 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **4m** (52.4 mg, 74%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.58 (s, 9H), 5.97 (bs, 1H), 7.38-7.42 (m, 1H), 7.48-7.53 (m, 2H), 7.60-7.65 (m, 1H), 7.68-7.73 (m, 1H), 7.74-7.78 (m, 2H), 7.83 (s, 1H), 7.90 (dd, J = 8.0, 1.6 Hz, 1H), 7.94 (dd, J = 8.4, 2.0 Hz, 1H), 8.53 (d, J = 1.8 Hz, 1H), 8.67 (d, J = 7.8 Hz, 1H), 8.75 (d, J = 8.6 Hz, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.1, 52.3, 122.8, 123.6, 124.4, 126.1, 126.4, 127.2, 127.5, 127.7, 127.9, 129.08, 129.14, 129.2, 129.8, 130.6, 130.8, 135.1, 139.8, 140.9, 169.3 ppm. HRMS (ESI): calcd for $C_{25}H_{23}NNaO_3$ $[M+Na]^+$ 376.1672, found 376.1679.



***N*-(*tert*-Butyl)-2-phenylpyrene-1-carboxamide (4n)**

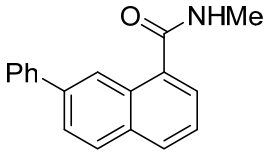
Following the general procedure, the reaction of *N-(tert*-butyl)pyrene-1-carboxamide (**1o**) (60.2 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **6c** (49.0 mg, 65%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.57 (s, 9H), 5.96 (bs, 1H), 7.48-7.53 (m, 1H), 7.54-7.59 (m, 2H), 7.65-7.69 (m, 2H), 7.98 (t, J = 8.0 Hz, 1H), 8.06-8.09 (m, 2H), 8.13-8.16 (m, 2H), 8.22-8.26 (m, 2H), 8.50 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.2, 52.4, 124.4, 124.5, 124.7, 124.8, 124.97, 124.99,

126.1, 126.3, 127.2, 127.8, 128.2, 128.6, 128.8, 130.2, 130.3, 131.6, 132.3, 132.8, 140.8, 140.9, 169.6 ppm. HRMS (ESI): calcd for $C_{27}H_{24}NO$ $[M+H]^+$, 378.1852, found 378.1858.



***N*-(*tert*-Butyl)-5-phenylfluoranthene-3-carboxamide (4o)**

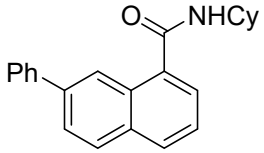
Following the general procedure, the reaction of *N*-(*tert*-butyl)fluoranthene-3-carboxamide (**1p**) (60.2 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **4o** (36.2 mg, 48%) as a yellow solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.57 (s, 9H), 6.02 (bs, 1H), 7.38-7.45 (m, 3H), 7.50-7.55 (m, 2H), 7.75-7.79 (m, 3H), 7.82 (d, J = 7.2 Hz, 1H), 7.86-7.89 (m, 1H), 7.90-7.93 (m, 1H), 8.14 (d, J = 1.2 Hz, 1H), 8.48 (d, J = 1.2 Hz, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 29.2, 52.3, 119.0, 120.8, 121.8, 122.1, 124.0, 127.61, 127.62, 127.7, 127.97, 128.01, 128.4, 129.0, 132.2, 134.8, 137.7, 139.10, 139.12, 140.0, 142.0, 142.7, 168.2 ppm. HRMS (ESI): calcd for $C_{27}H_{24}NO$ $[M+H]^+$ 378.1852, found 378.1861.



***N*-Methyl-7-phenyl-1-naphthamide (4p)**

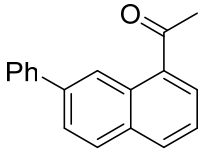
Following the general procedure, the reaction of *N*-methyl-1-naphthamide (**1q**) (37.0 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **4p** (35.0 mg, 67%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 3.09 (d, J = 4.8 Hz, 3H), 6.07 (bs,

1H), 7.36-7.40 (m, 1H), 7.41-7.45 (m, 1H), 7.45-7.50 (m, 2H), 7.59 (dd, J = 7.2, 1.2 Hz, 1H), 7.71-7.74 (m, 2H), 7.79 (dd, J = 8.4, 2.0 Hz, 1H), 7.90-7.94 (m, 2H), 8.51 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 27.1, 123.6, 124.8, 125.4, 126.3, 127.7, 127.7, 128.9, 129.0, 130.45, 130.53, 133.0, 134.8, 139.9, 141.0, 170.4 ppm. The analytical data matched those reported in the literature.[1]



***N*-Cyclohexyl-7-phenyl-1-naphthamide (4q)**

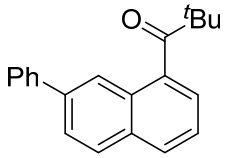
Following the general procedure, the reaction of *N*-cyclohexyl-1-naphthamide (**1r**) (50.6 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 20/1, v/v) yields **4q** (55.3 mg, 84%) as a white solid. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.14-1.32 (m, 3H), 1.41-1.53 (m, 2H), 1.64-1.71 (m, 1H), 1.73-1.81 (m, 2H), 2.08-2.16 (m, 2H), 4.07-4.16 (m, 1H), 5.92 (d, J = 8.4 Hz, 1H), 7.36-7.41 (m, 1H), 7.42-7.51 (m, 3H), 7.60 (dd, J = 6.8, 1.2 Hz, 1H), 7.71-7.75 (m, 2H), 7.79 (dd, J = 8.4, 1.6 Hz, 1H), 7.92 (t, J = 7.6 Hz, 2H), 8.53 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 25.0, 25.7, 33.4, 48.9, 123.5, 124.9, 125.3, 126.2, 127.66, 127.68, 128.9, 129.0, 130.3, 130.5, 133.0, 135.3, 139.8, 141.0, 168.8 ppm. The analytical data matched those reported in the literature.[1]



1-(7-Phenylnaphthalen-1-yl)ethanone (4r)

Following the general procedure, the reaction of 1-(naphthalen-1-yl)ethanone (**1s**) (34.0 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 40/1, v/v) yields **4r** (21.1 mg, 43%) as a yellow oil. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 2.78 (s, 3H), 7.37-7.42 (m, 1H), 7.47-7.53 (m, 3H), 7.74-7.77 (m, 2H), 7.82 (dd, J = 8.4, 1.6 Hz, 1H), 7.95 (d, J = 8.4

Hz, 1H), 7.98 (dd, J = 7.2, 1.2 Hz, 1H), 8.02 (d, J = 8.0 Hz, 1H), 9.03 (t, J = 0.8 Hz, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 30.2, 124.2, 124.5, 126.2, 127.7, 127.8, 128.99, 129.04, 129.4, 130.6, 133.0, 133.3, 135.6, 140.8, 141.1, 202.0 ppm. HRMS (ESI): calcd for $C_{18}H_{15}O$ $[M+H]^+$ 247.1117, found 247.1124.



2,2-Dimethyl-1-(7-phenylnaphthalen-1-yl)propan-1-one (4s)

Following the general procedure, the reaction of 2,2-dimethyl-1-(naphthalen-1-yl)propan-1-one (**1t**) (42.4 mg, 0.20 mmol), mesityl(phenyl)iodonium triflate (**2a**) (141.3 mg, 0.30 mmol), $Cu(OTf)_2$ (7.2 mg, 10 mol%), in DCE (1 mL) at 70 °C. After 24 h, purification by column chromatography on silica gel (PE/THF = 60/1, v/v) yields **4s** (33.4 mg, 58%) as yellow oil. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 1.35 (s, 9H), 7.36-7.41 (m, 2H), 7.50 (t, J = 1.2 Hz, 3H), 7.64-7.67 (m, 2H), 7.76 (dd, J = 8.4, 1.6 Hz, 1H), 7.79 (t, J = 0.8 Hz, 1H), 7.89 (d, J = 8.4 Hz, 1H), 7.94 (d, J = 8.4 Hz, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 27.5, 45.7, 122.9, 123.5, 124.4, 126.2, 127.6, 127.7, 128.9, 129.1, 130.3, 132.9, 139.2, 139.6, 141.0, 214.8 ppm. HRMS (ESI): calcd for $C_{21}H_{20}NaO$ $[M+Na]^+$ 311.1406, found 311.1411.

VI. Photophysical data

Table S2. Photophysical data of 4k, 4n and 4o in toluene (1×10^{-5} mol/L) at 298 K.

Compound	λ_{abs} [a] (nm)	λ_{em} [b] (nm)
4k	322	395
4n	335/350	390
4o	351/370	477

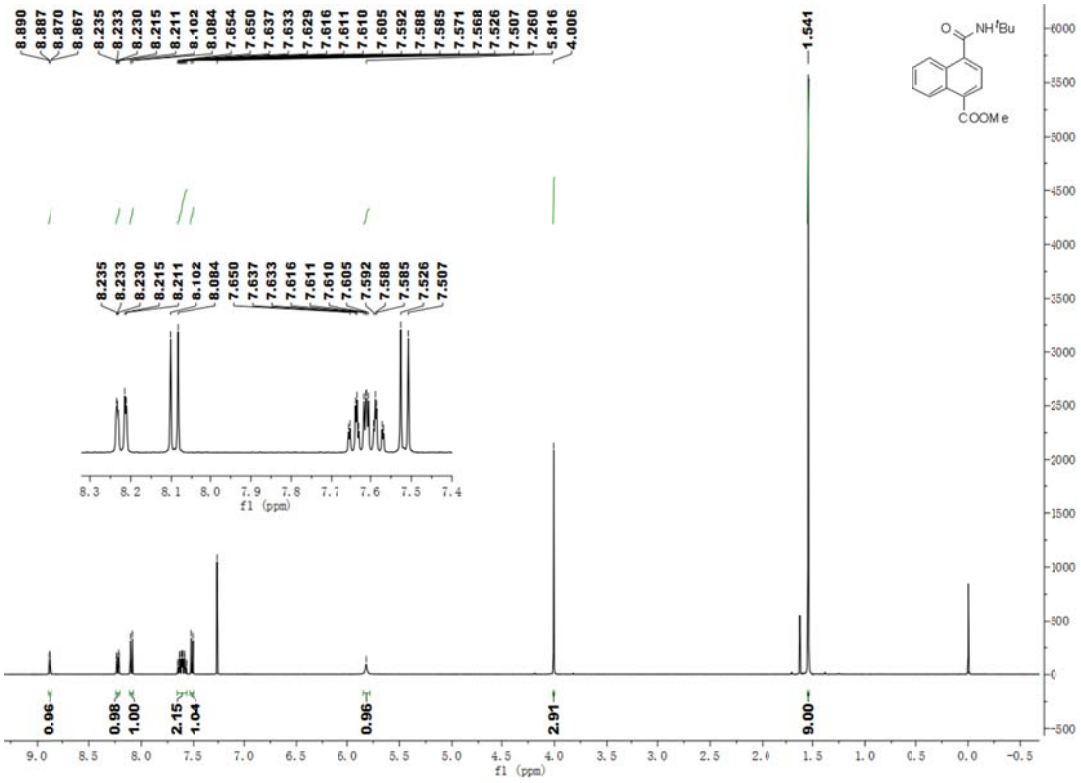
[a]UV-visible absorption peaks tested in toluene (1×10^{-5} mol/L). [b]Emission peaks tested in toluene (1×10^{-5} mol/L).

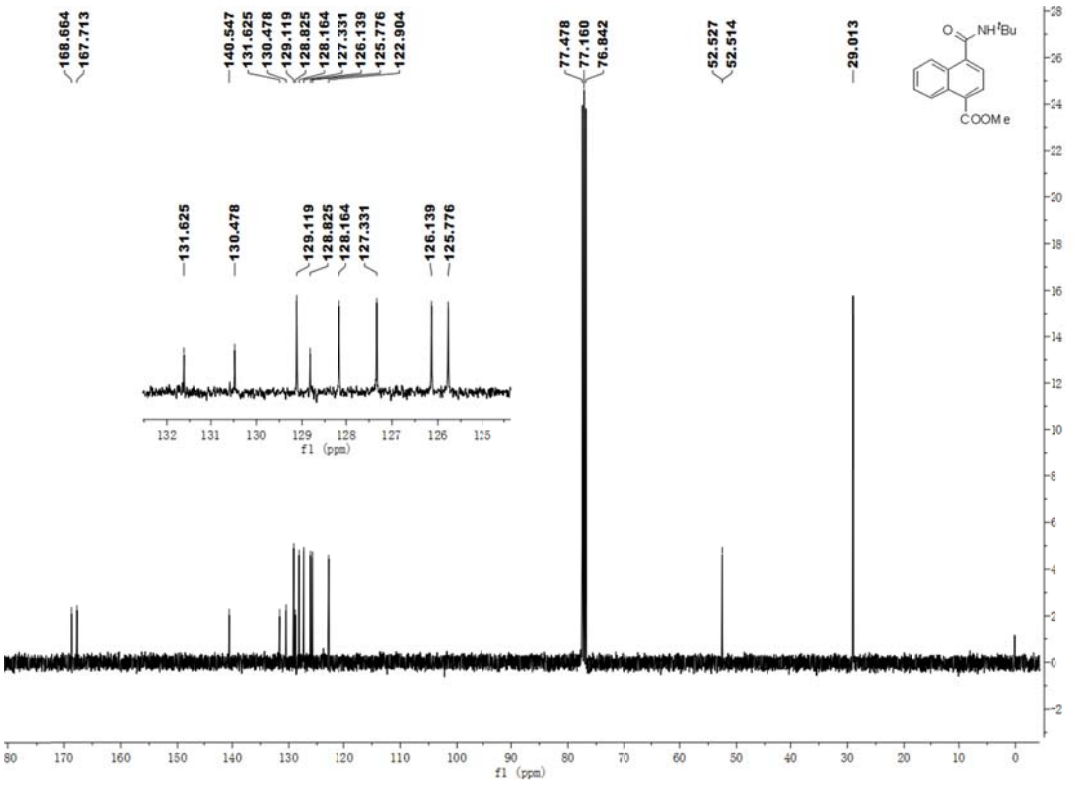
VII. References.

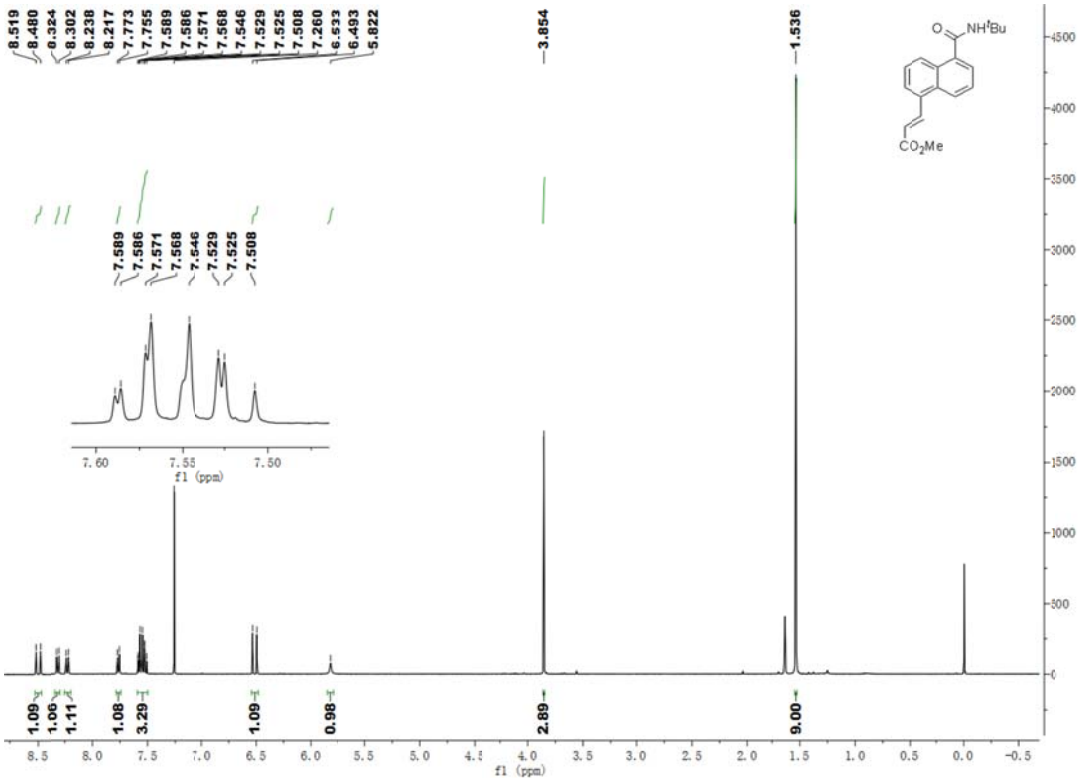
1. Zhang, M.; Luo, A.; Shi, Y.; Su, R.; Yang, Y.; You, J. *ACS Catal.* **2019,** 9, 11802-11807.
2. Bielawski, M.; Zhu, M.; Olofsson, B. *Adv. Synth. Catal*. **2007**, *349*, 2610-2618.
3. Bielawski, M.; AiliBerit, D.; Olofsson, B. *J. Org. Chem*. **2008**, *73*, 4602-4607.
4. Phipps, R. J.; Gaunt, M. J. *Science*. **2009**, *323*, 1593-1597.
5. Allen, A. E.; MacMillan, D. W. C. *J. Am. Chem. Soc*. **2011**, *133*, 4260−4263.

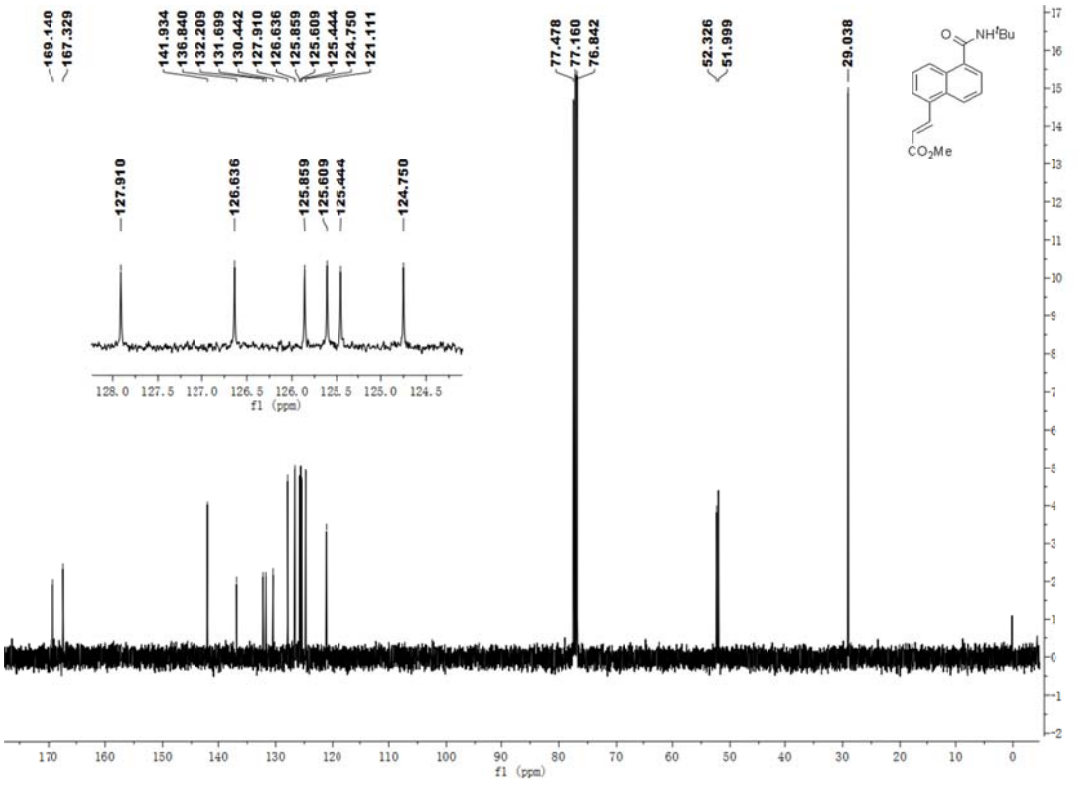
VIII. Copies of ^{1}H and ^{13}C NMR spectra

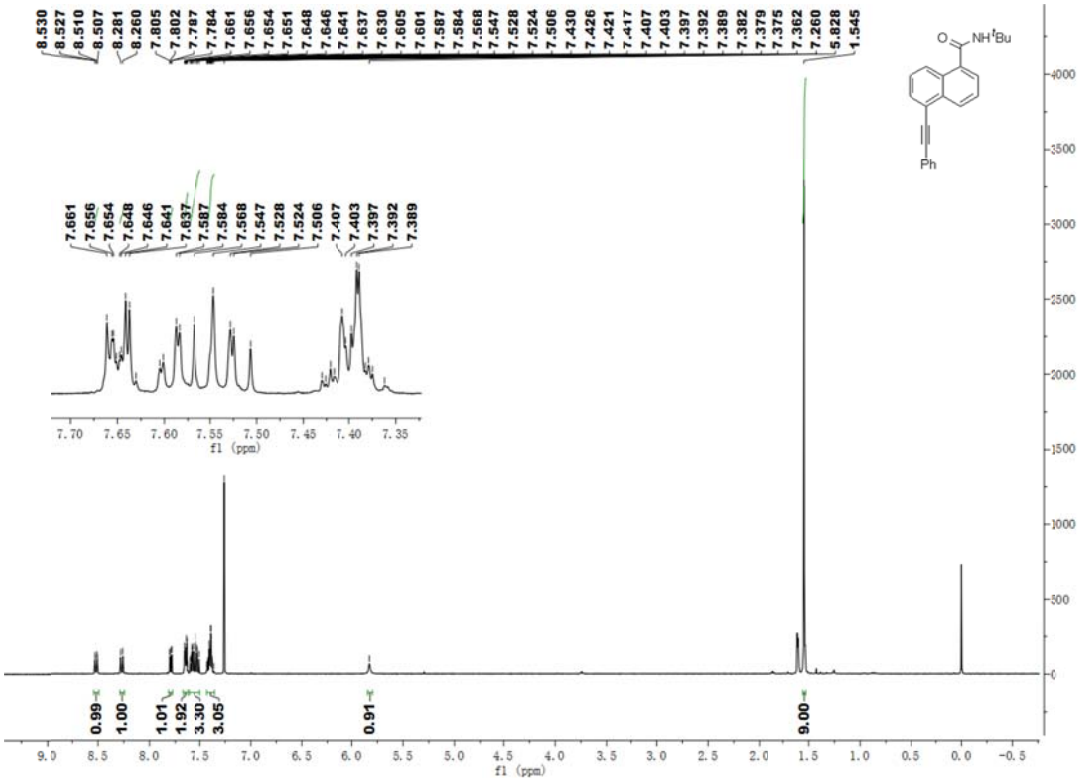
^{1}H and ^{13}C NMR Spectra of substrates

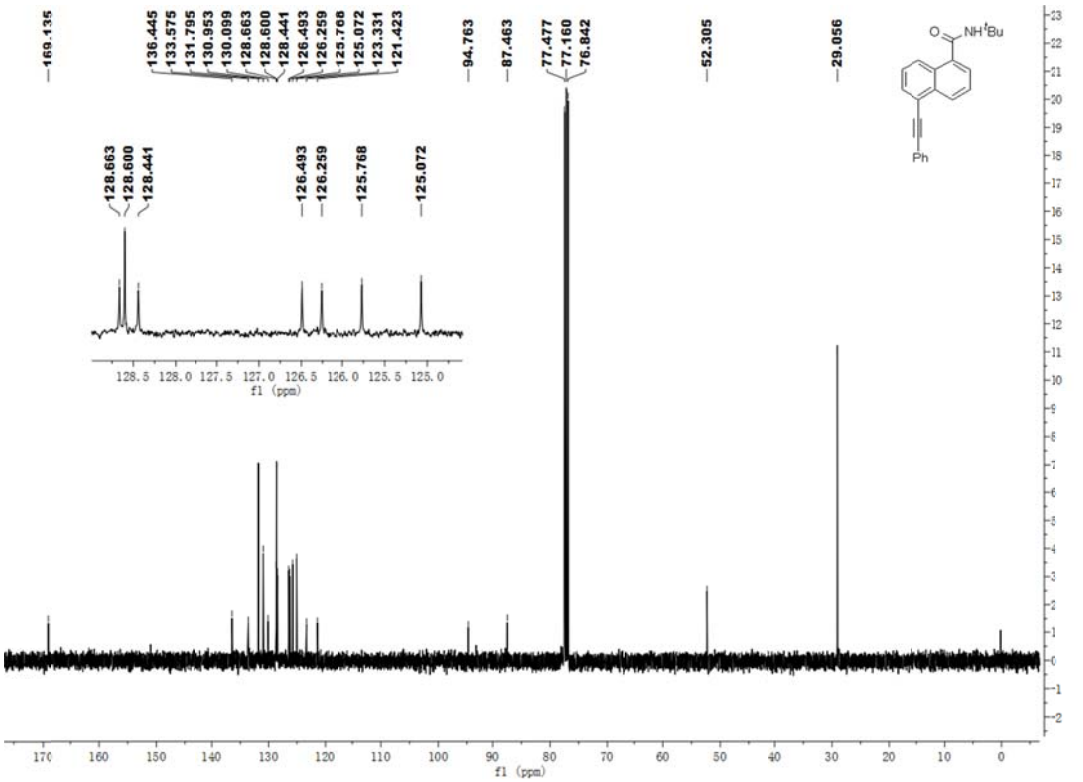


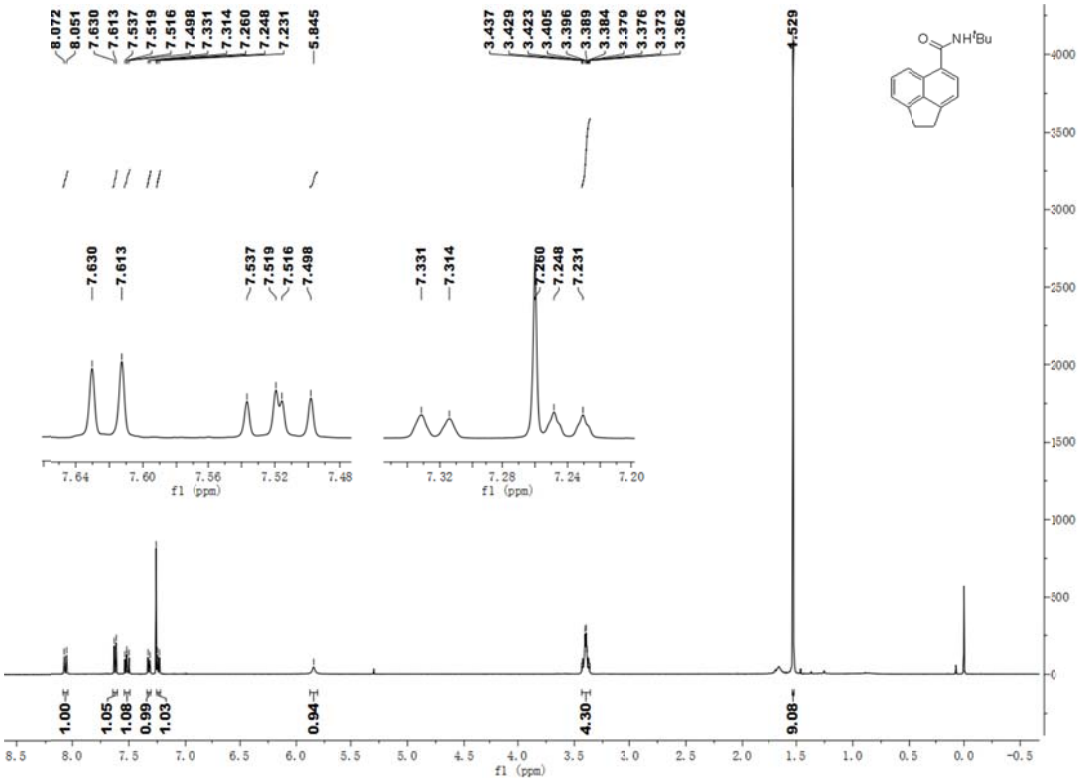


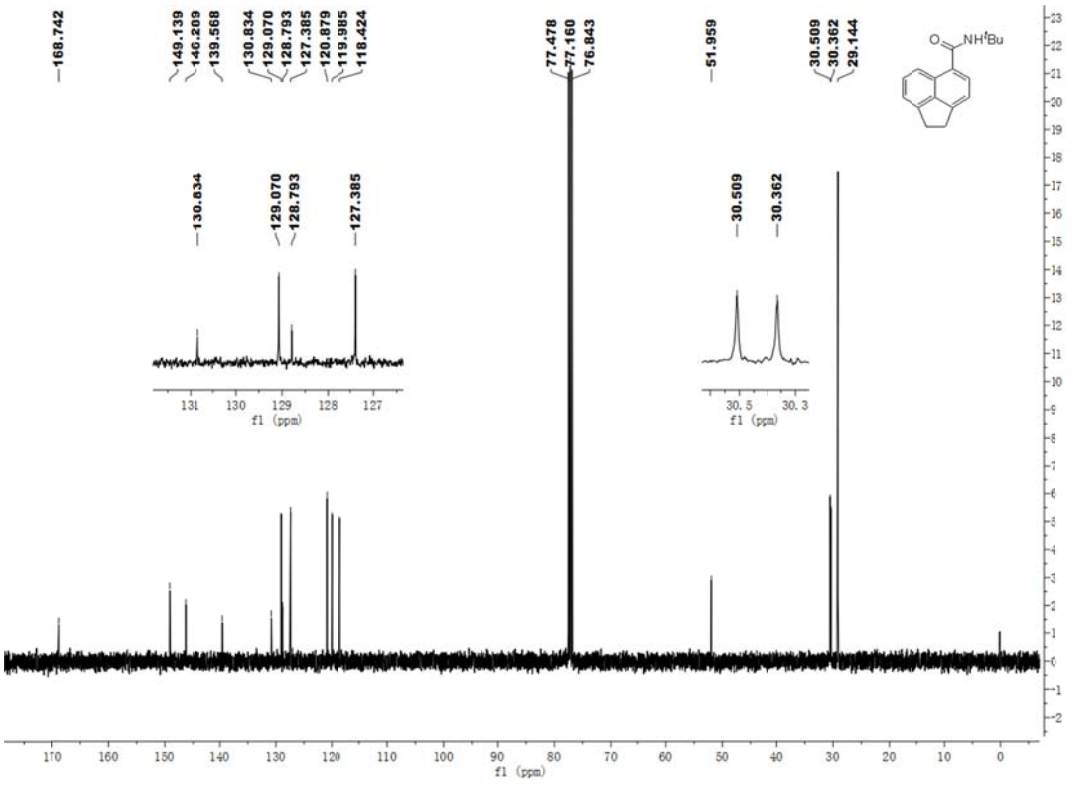

8.519
8.480
8.324
8.302
8.238
8.217
7.773
7.755
7.589
7.586
7.571
7.568
7.546
7.529
7.525
7.508
7.260
6.533
6.493
5.822
3.854
1.536
NH^{t}Bu
CO$_2$Me
f1 (ppm)
1.09
1.06
1.11
1.08
3.29
1.09
0.98
2.89
9.00

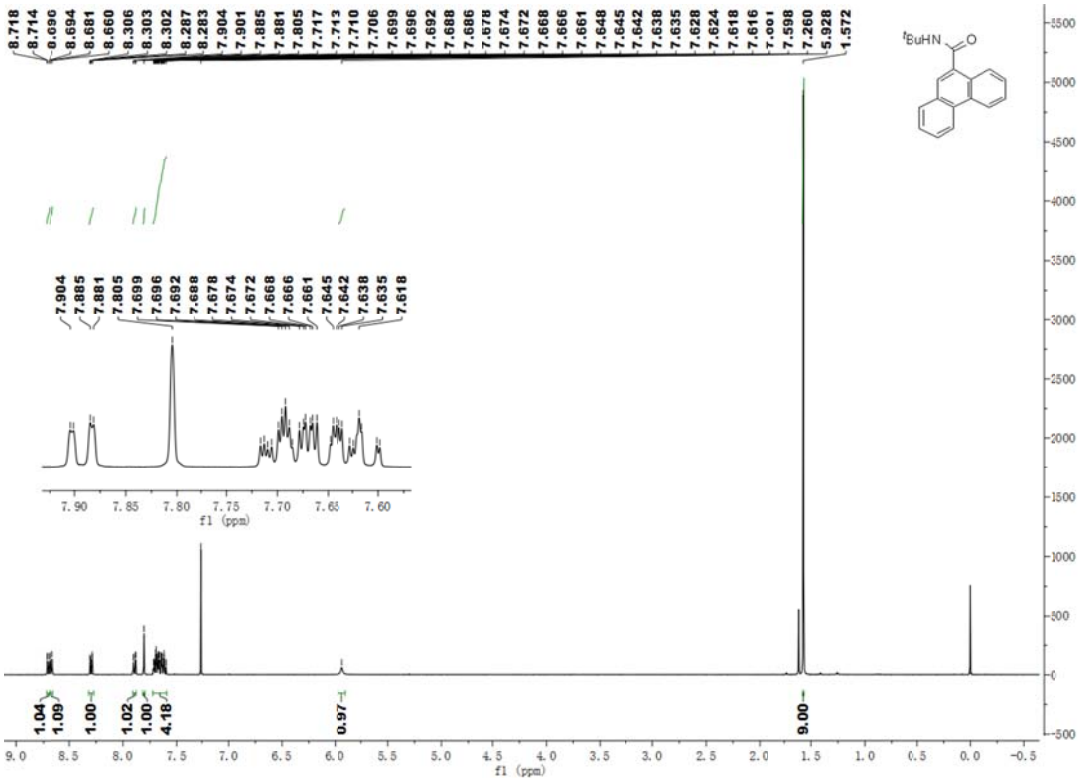

169.440
167.329
141.934
136.840
132.209
131.699
130.442
127.910
126.636
125.859
125.609
125.444
124.750
121.111
77.478
77.160
76.842
52.326
51.999
29.038
NH^{t}Bu
CO$_2$Me
f1 (ppm)

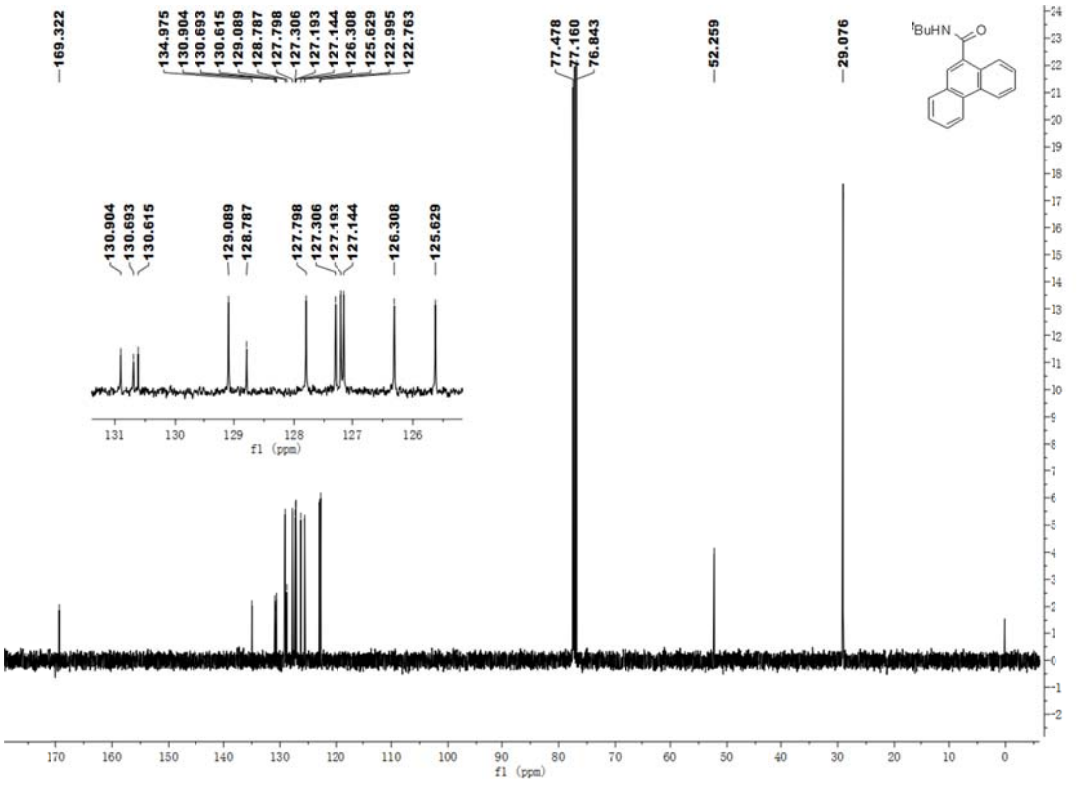

8.530
8.527
8.510
8.507
8.281
8.260
7.805
7.802
7.787
7.784
7.661
7.656
7.654
7.651
7.648
7.646
7.641
7.637
7.630
7.605
7.601
7.587
7.584
7.568
7.547
7.528
7.524
7.506
7.430
7.426
7.421
7.407
7.403
7.397
7.392
7.389
7.382
7.379
7.375
7.362
7.260
5.828
1.545
NH^{t}Bu
Ph
f1 (ppm)
0.99
1.00
1.01
1.92
3.30
3.05
0.91
9.00

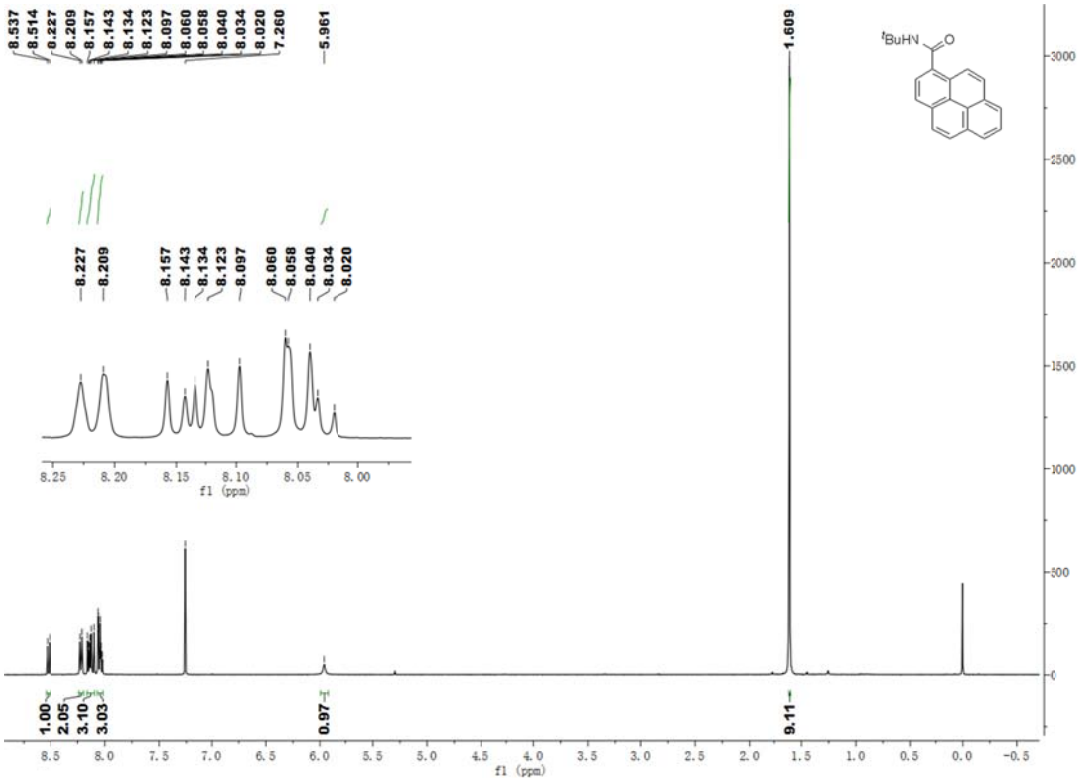

169.135
136.445
133.575
131.795
130.953
130.099
128.663
128.600
128.441
126.493
126.259
125.768
125.072
123.331
121.423
94.763
87.463
77.477
77.160
76.842
52.305
29.056
NH^{t}Bu
Ph
f1 (ppm)

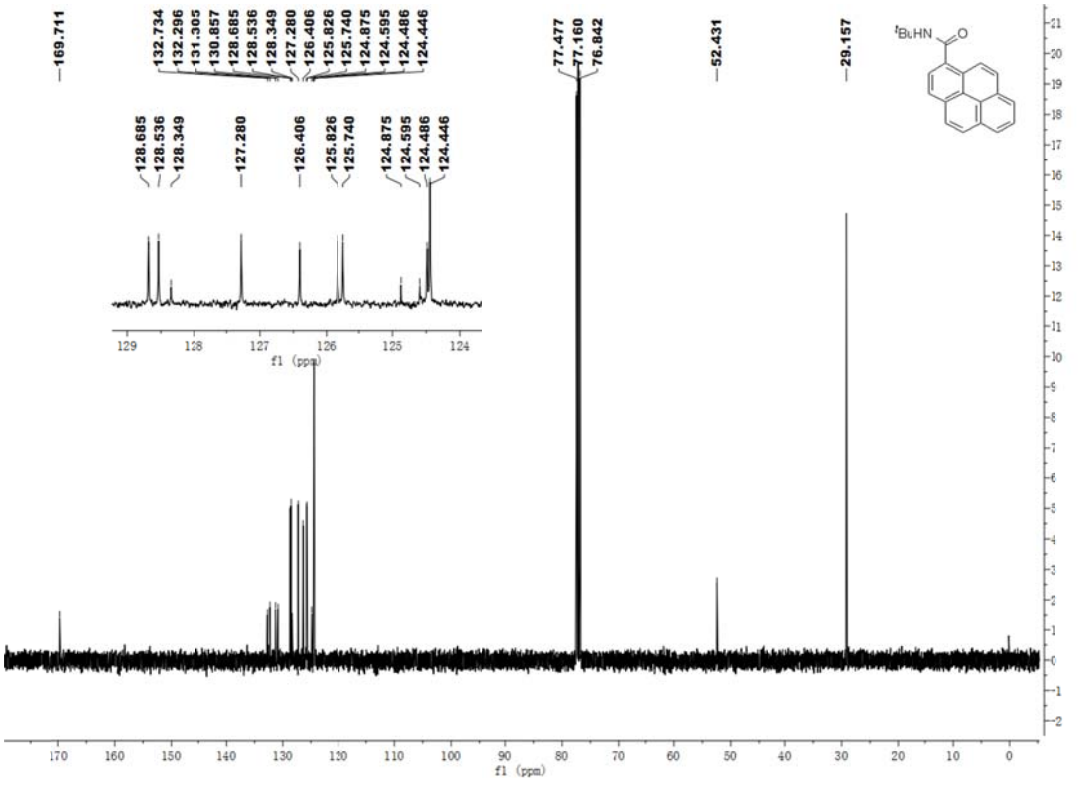

8.072
8.051
7.630
7.613
7.537
7.519
7.516
7.498
7.331
7.314
7.260
7.248
7.231
5.845
3.437
3.429
3.423
3.405
3.396
3.389
3.384
3.379
3.376
3.373
3.362
1.529
NH^{t}Bu
1.00
1.05
1.08
0.99
1.03
0.94
4.30
9.08
f1 (ppm)

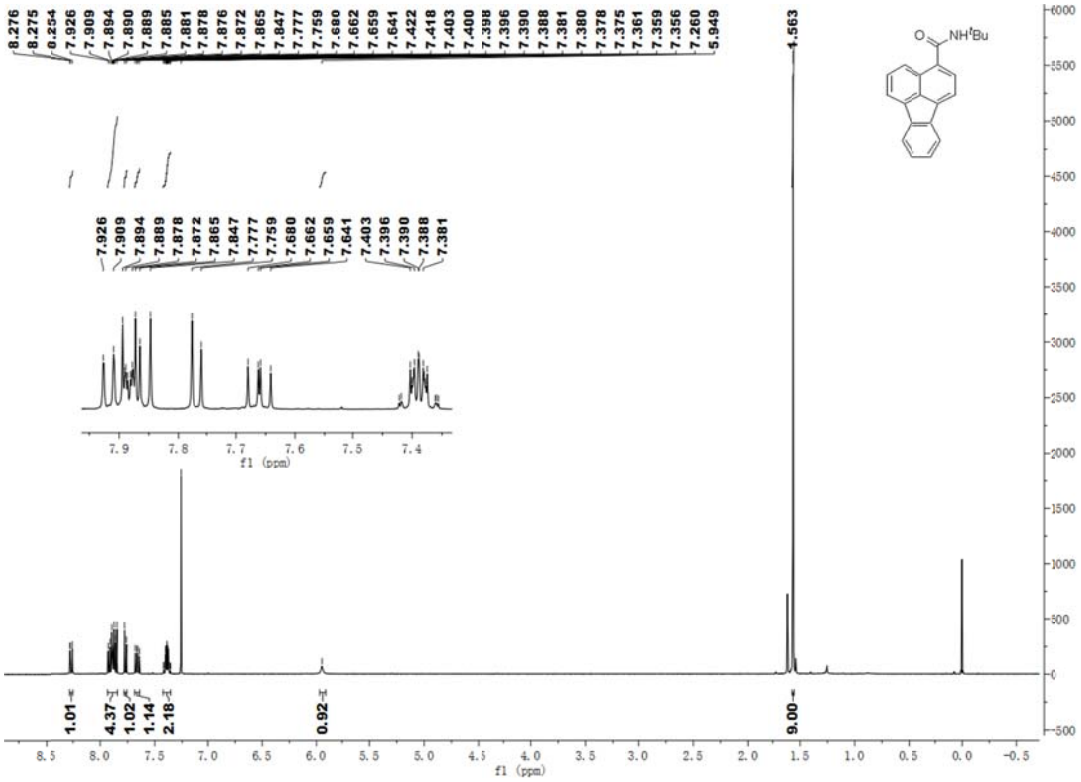

168.742
149.139
146.209
139.568
130.834
129.070
128.793
127.385
120.879
119.985
118.424
77.478
77.160
76.843
51.959
30.509
30.362
29.144
NH^{t}Bu
f1 (ppm)

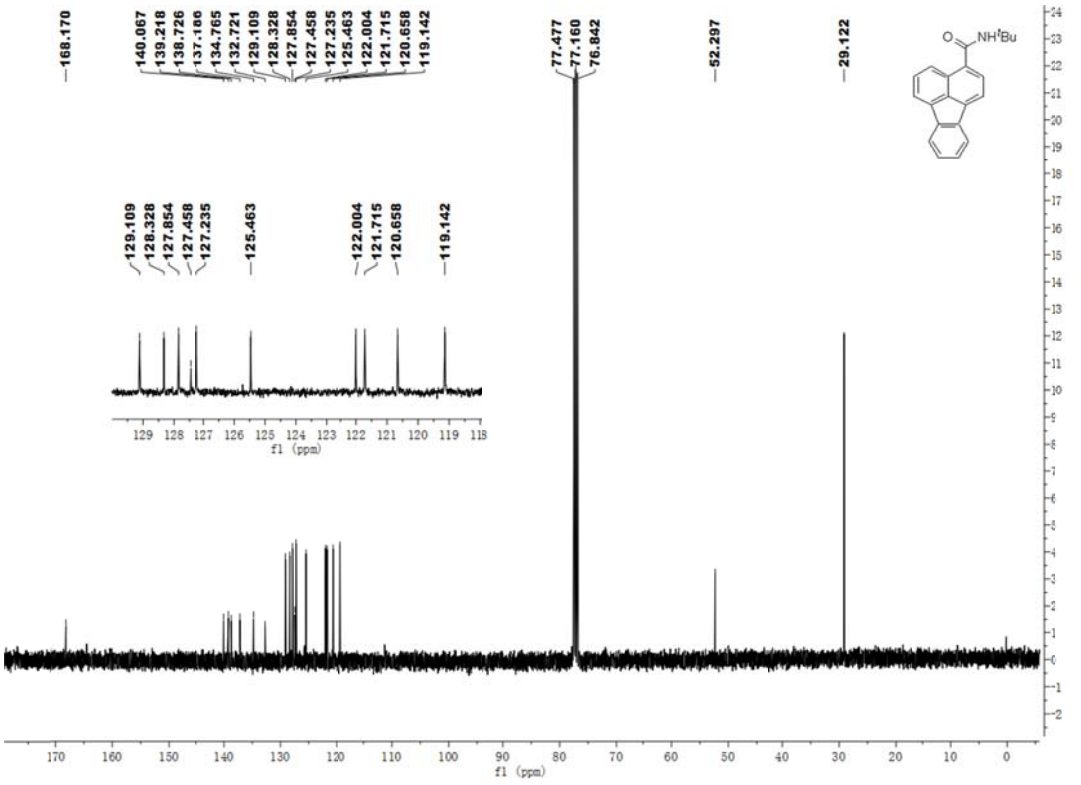

8.718
8.714
8.696
8.694
8.681
8.660
8.306
8.303
8.302
8.287
8.283
7.904
7.901
7.885
7.881
7.805
7.717
7.713
7.710
7.706
7.699
7.696
7.692
7.688
7.686
7.678
7.674
7.672
7.668
7.666
7.661
7.648
7.645
7.642
7.638
7.635
7.628
7.624
7.618
7.616
7.598
7.260
5.928
1.572
tBuHN
O
7.904
7.885
7.881
7.805
7.699
7.696
7.692
7.688
7.678
7.674
7.672
7.668
7.666
7.661
7.645
7.642
7.638
7.635
7.618
7.90 7.85 7.80 7.75 7.70 7.65 7.60
f1 (ppm)
1.04
1.09
1.00
1.02
1.00
4.18
0.97
9.00
f1 (ppm)

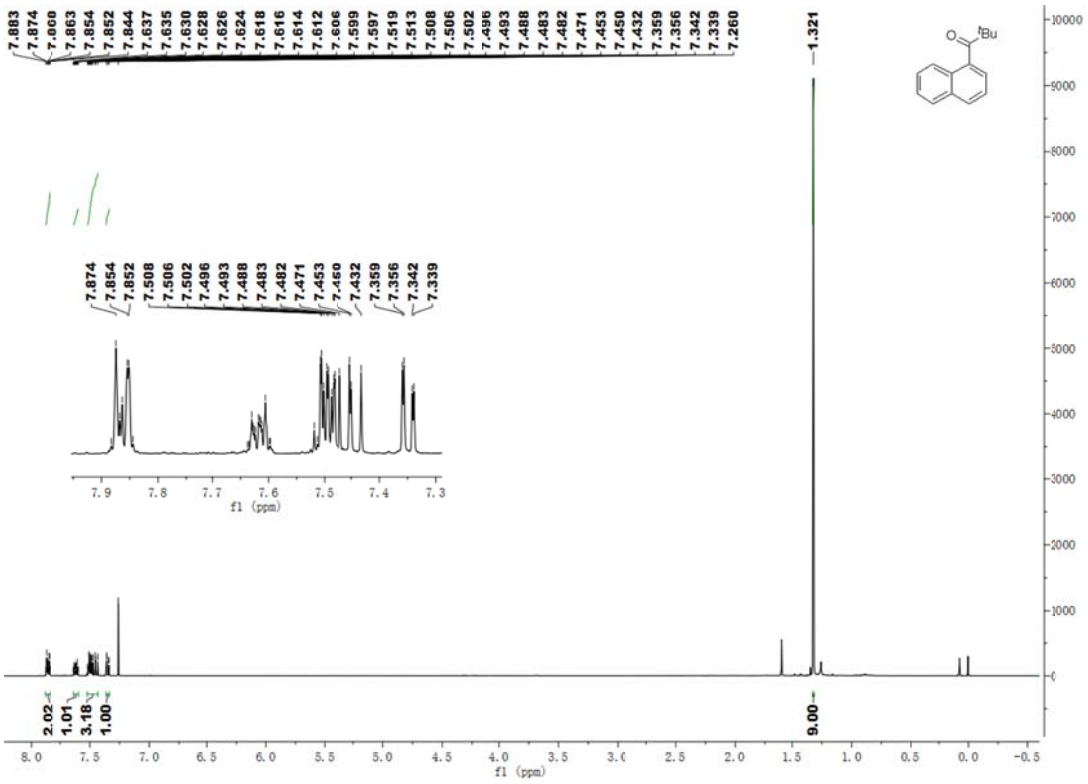

169.322
134.975
130.904
130.693
130.615
129.089
128.787
127.798
127.306
127.193
127.144
126.308
125.629
122.995
122.763
77.478
77.160
76.843
52.259
29.076
tBuHN
O
130.904
130.693
130.615
129.089
128.787
127.798
127.306
127.193
127.144
126.308
125.629
131 130 129 128 127 126
f1 (ppm)
f1 (ppm)

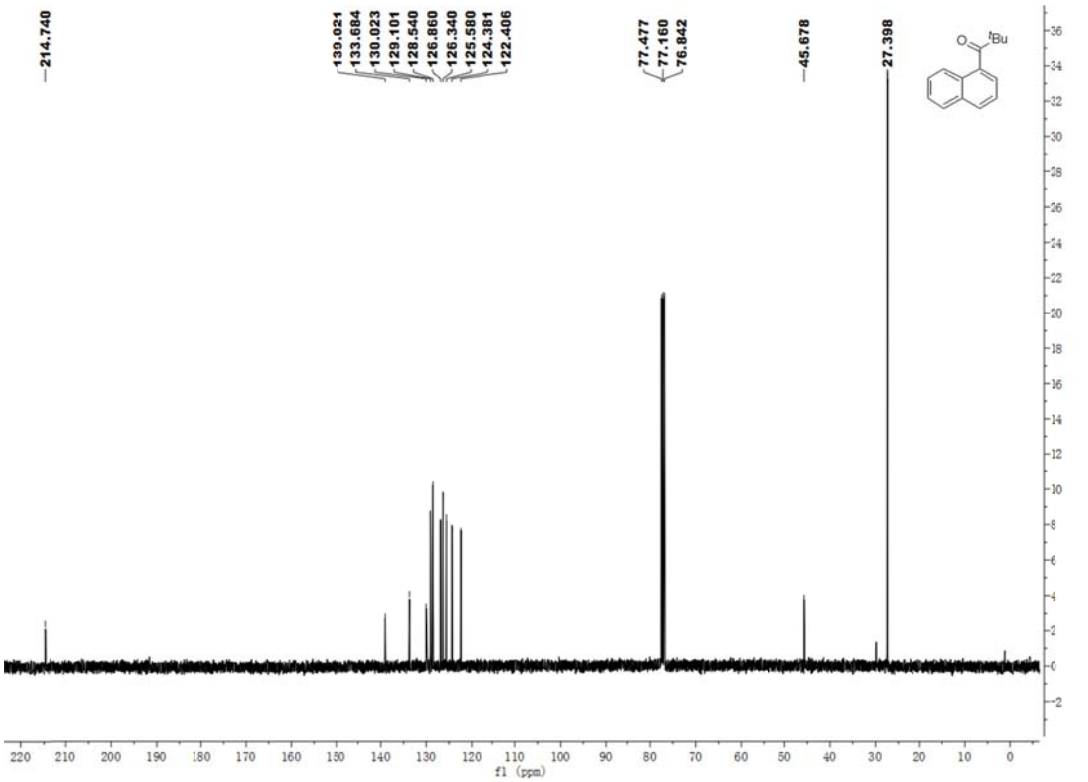

8.537
8.514
8.227
8.209
8.157
8.143
8.134
8.123
8.097
8.060
8.058
8.040
8.034
8.020
7.260
5.961
1.609
tBuHN
O
1.00
2.05
3.10
3.03
0.97
9.11
f1 (ppm)


169.711
132.734
132.296
131.305
130.857
128.685
128.536
128.349
127.280
126.406
125.826
125.740
124.875
124.595
124.486
124.446
77.477
77.160
76.842
52.431
29.157
tBuHN
O
f1 (ppm)

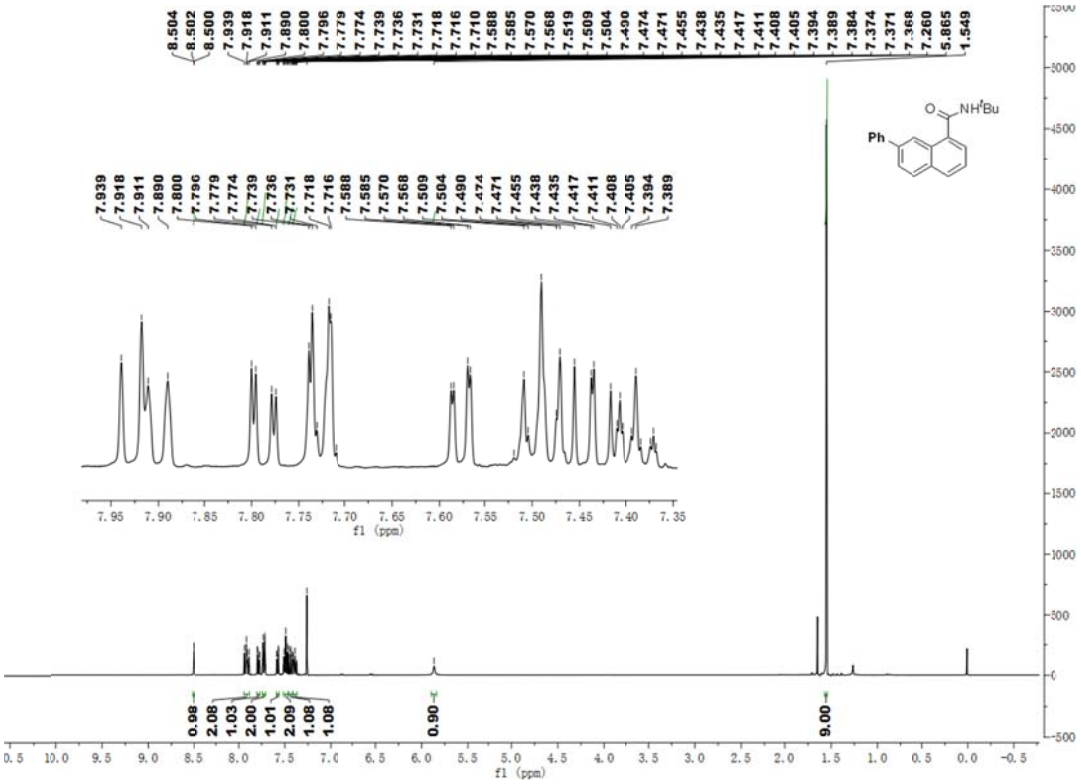

8.276
8.275
8.254
7.926
7.909
7.894
7.890
7.889
7.885
7.881
7.878
7.876
7.872
7.865
7.847
7.777
7.759
7.680
7.662
7.659
7.641
7.422
7.418
7.403
7.400
7.398
7.396
7.390
7.388
7.381
7.380
7.378
7.375
7.361
7.359
7.356
7.260
5.949
1.563
NH^{t}Bu
f1 (ppm)
1.01
4.37
1.02
1.14
2.18
0.92
9.00

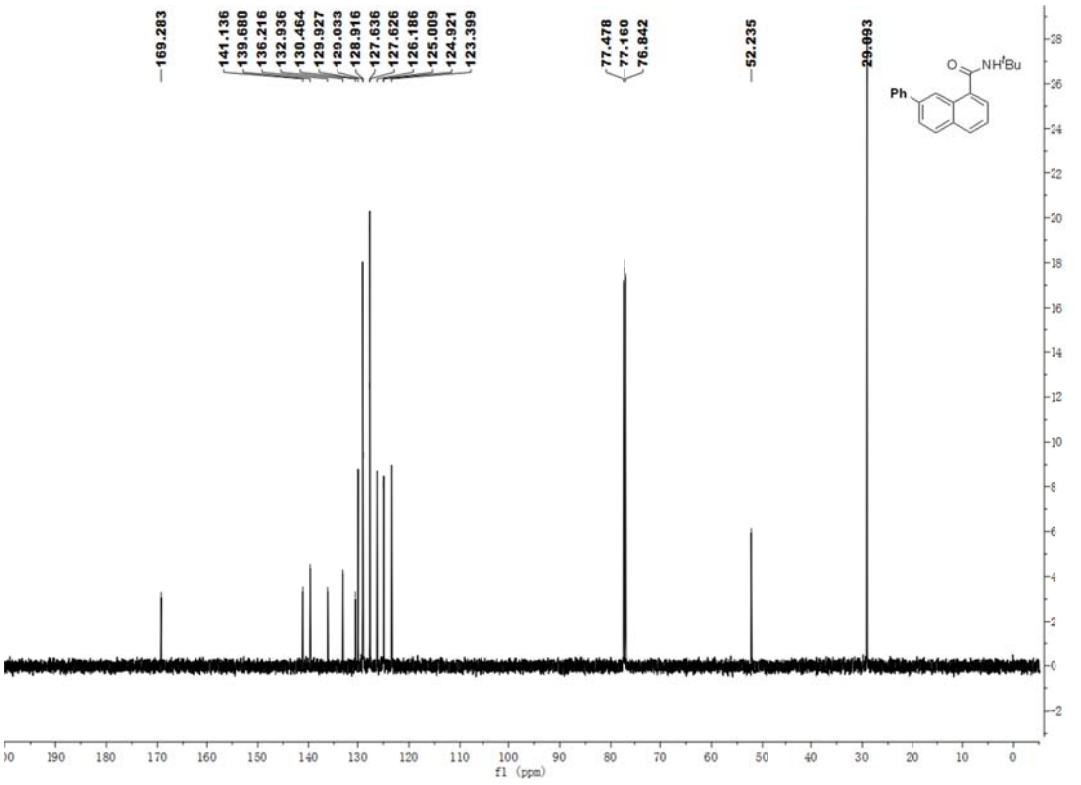

168.170
140.067
139.218
138.726
137.186
134.765
132.721
129.109
128.328
127.854
127.458
127.235
125.463
122.004
121.715
120.658
119.142
77.477
77.160
76.842
52.297
29.122
NH^{t}Bu
f1 (ppm)

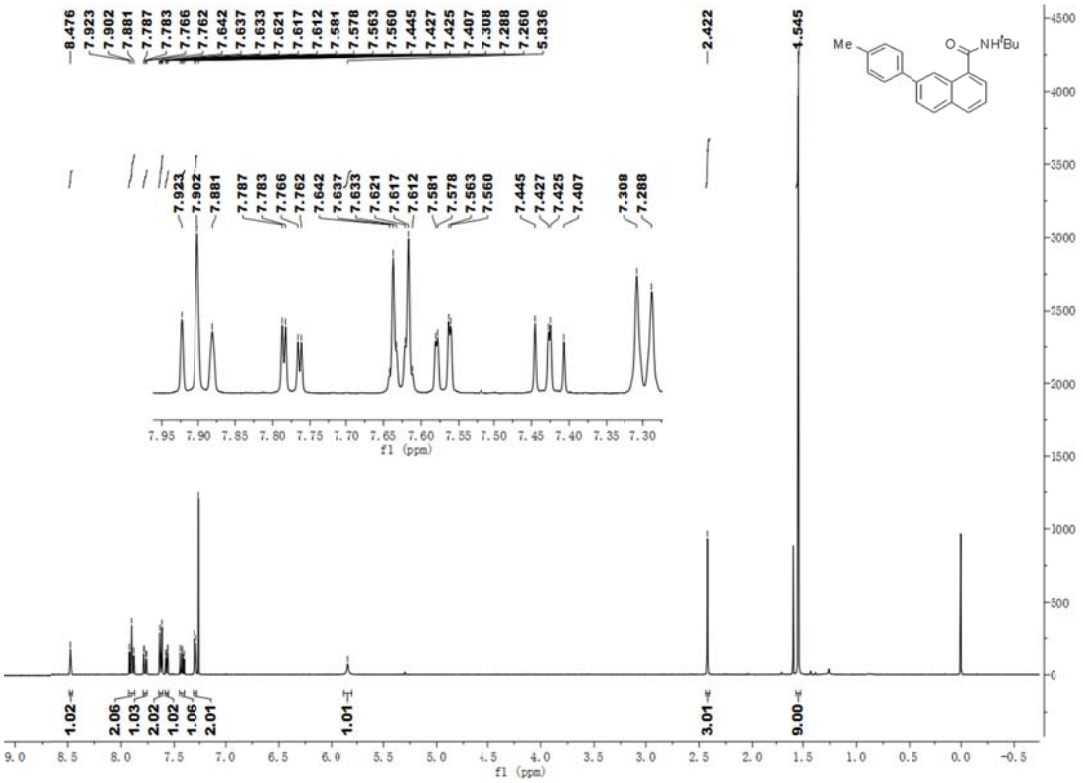

7.883
7.874
7.866
7.863
7.854
7.852
7.844
7.637
7.635
7.630
7.628
7.626
7.624
7.618
7.616
7.614
7.612
7.606
7.599
7.597
7.519
7.513
7.508
7.506
7.502
7.496
7.493
7.488
7.483
7.482
7.471
7.453
7.450
7.432
7.359
7.356
7.342
7.339
7.260
1.321
tBu
2.02
1.01
3.18
1.00
9.00
f1 (ppm)

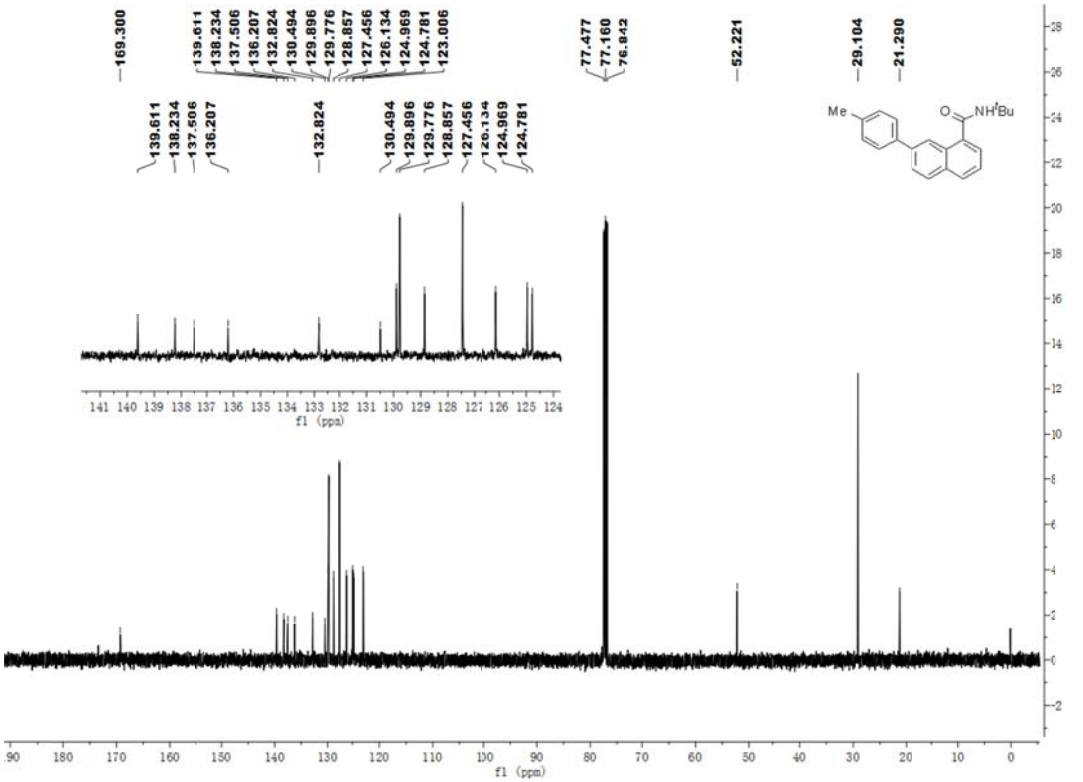

214.740
139.021
133.684
130.023
129.101
128.540
126.860
126.340
125.580
124.381
122.406
77.477
77.160
76.842
45.678
27.398
tBu
f1 (ppm)

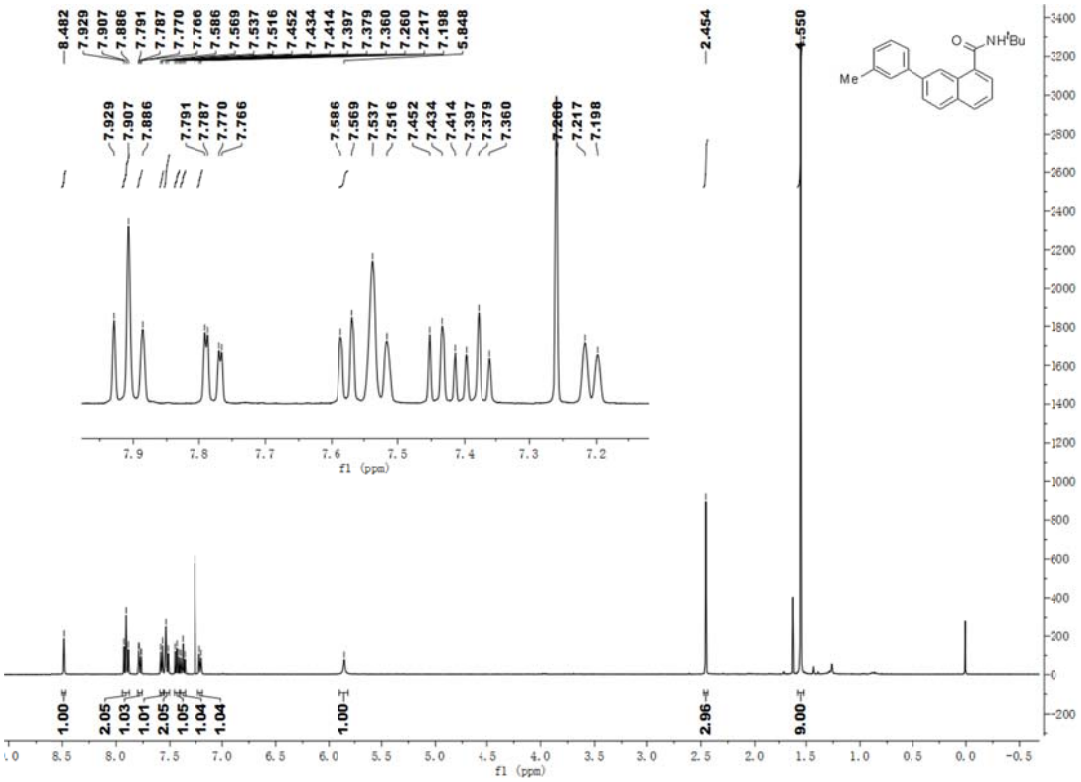
^{1}H and ^{13}C NMR Spectra of Products

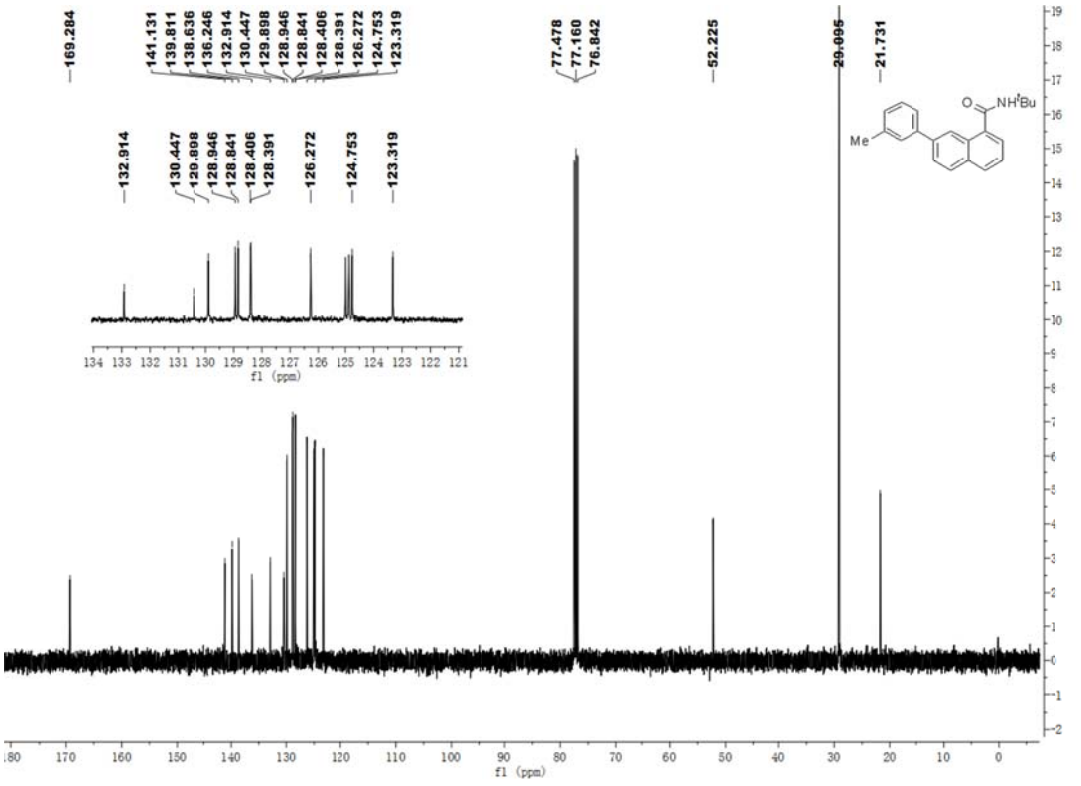


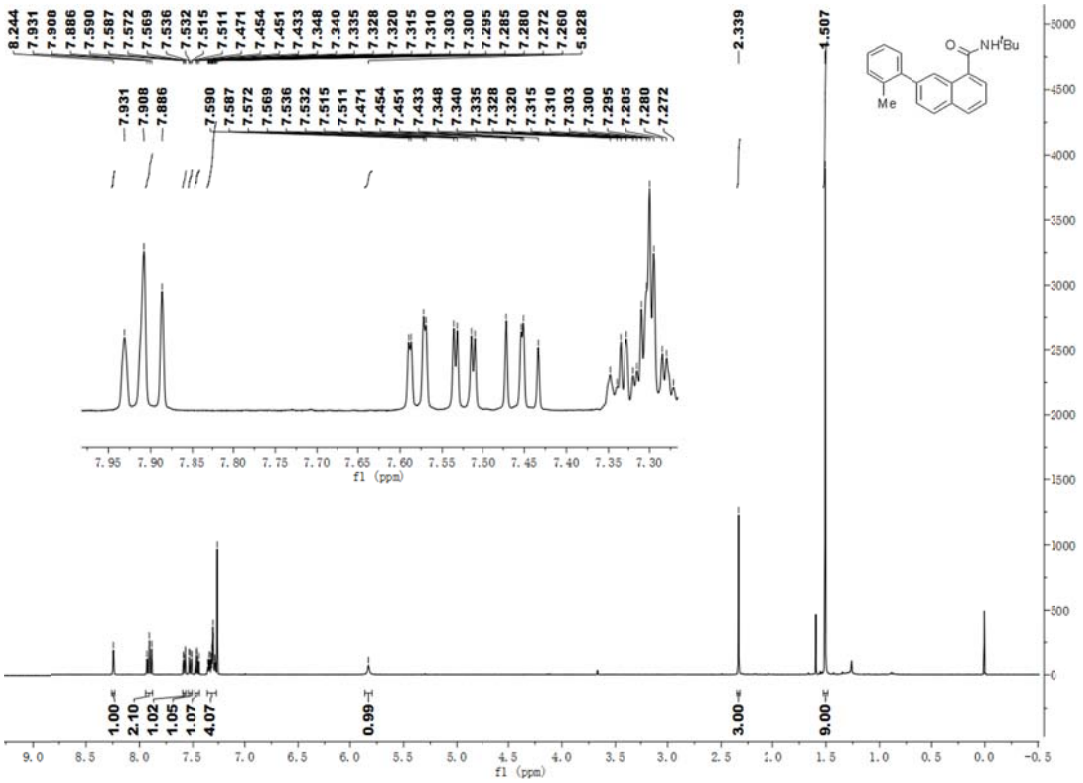


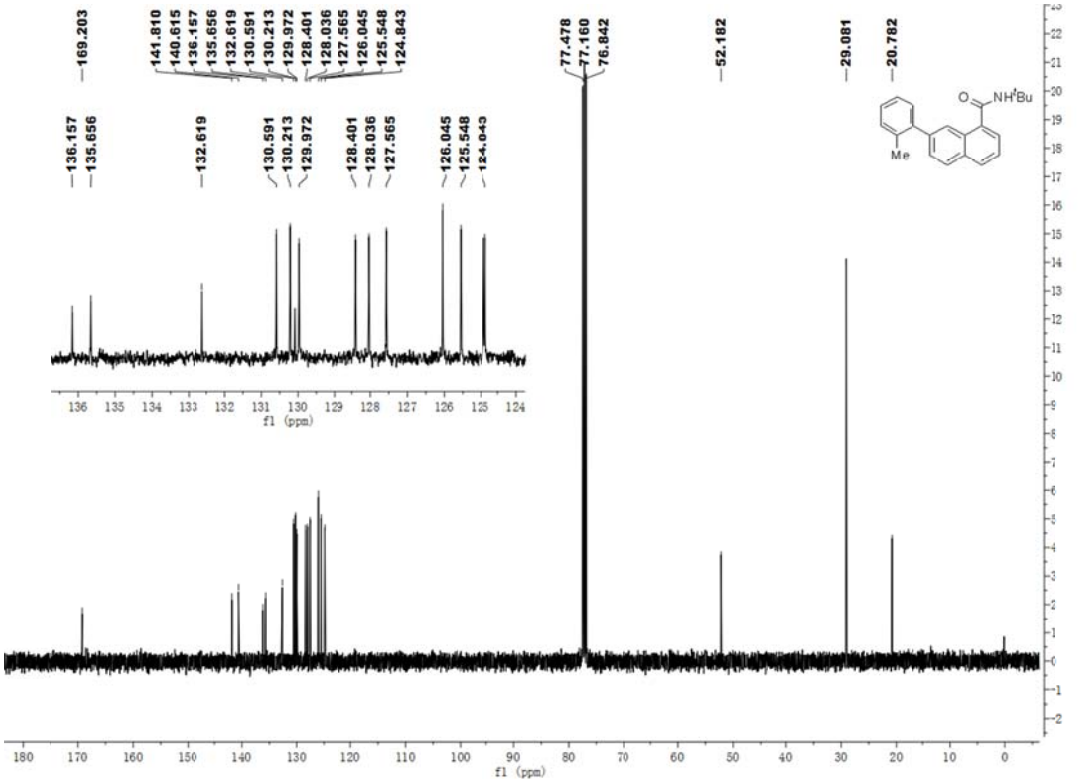

8.476
7.923
7.902
7.881
7.787
7.783
7.766
7.762
7.642
7.637
7.633
7.621
7.617
7.612
7.581
7.578
7.563
7.560
7.445
7.427
7.425
7.407
7.308
7.288
7.260
5.836
2.422
1.545
Me
O
NH^{t}Bu
1.02
2.06
1.03
2.02
1.02
1.06
2.01
1.01
3.01
9.00
f1 (ppm)

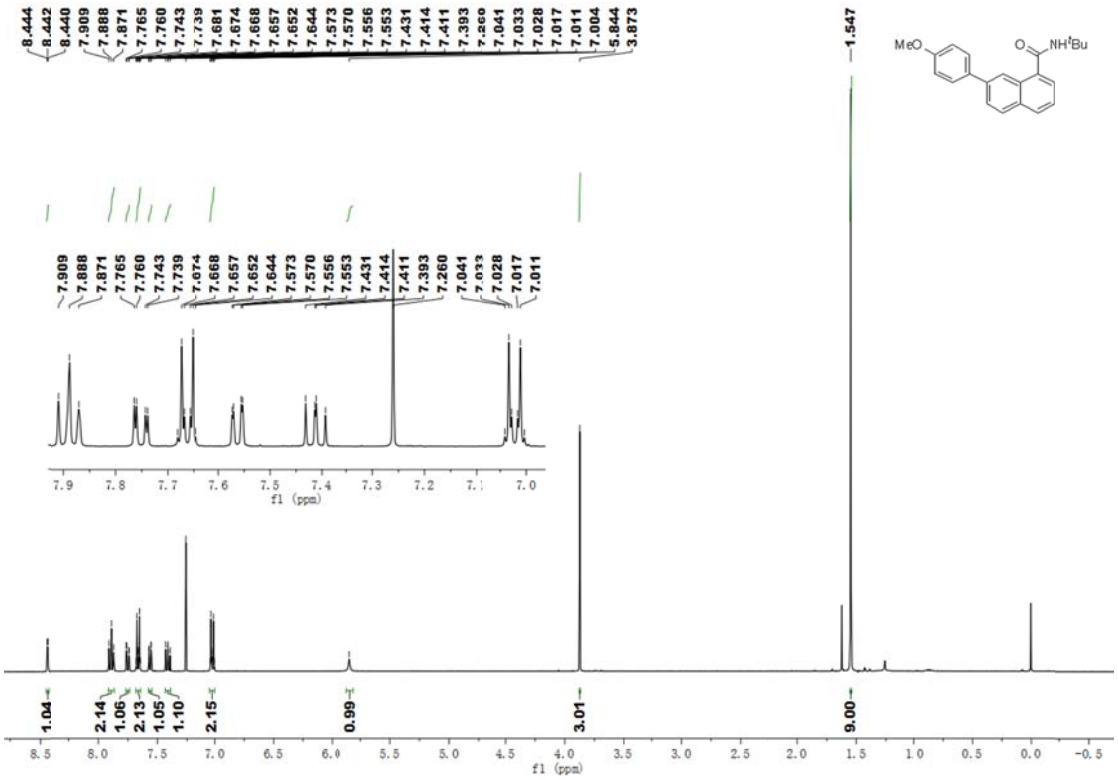

169.300
139.611
138.234
137.506
136.207
132.824
130.494
129.896
129.776
128.857
127.456
126.134
124.969
124.781
123.006
77.477
77.160
76.842
52.221
29.104
21.290
Me
O
NH^{t}Bu
f1 (ppm)

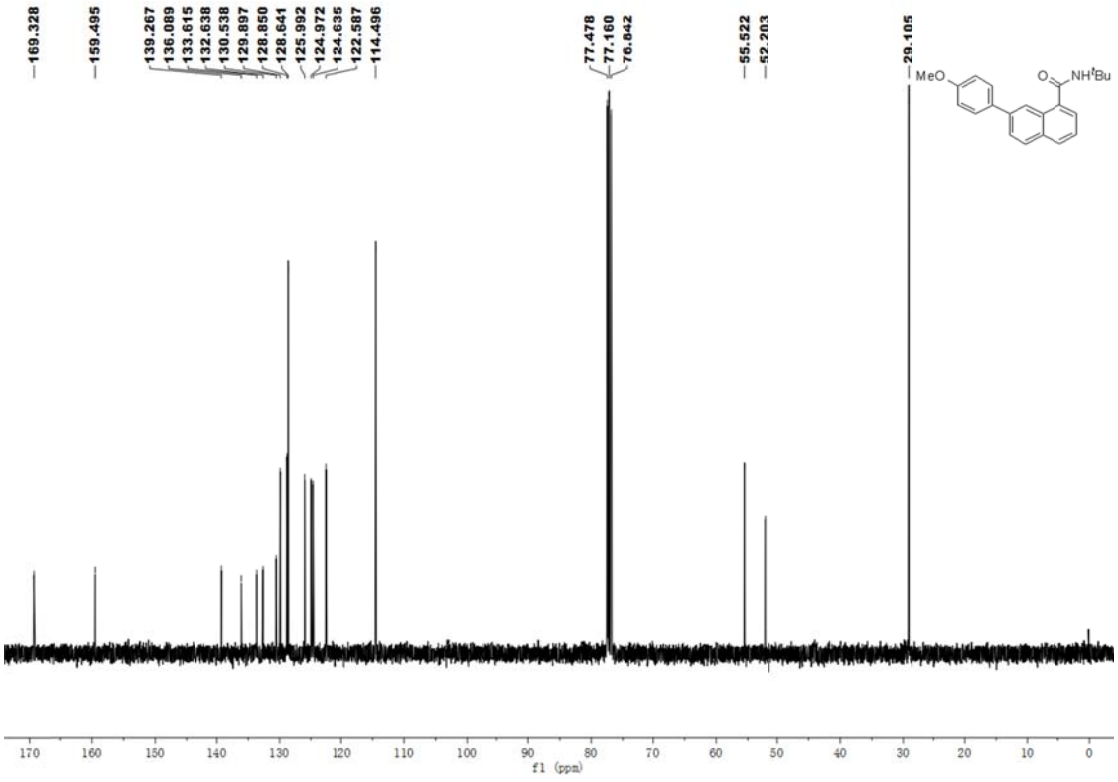

8.482
7.929
7.907
7.886
7.791
7.787
7.770
7.766
7.586
7.569
7.537
7.516
7.452
7.434
7.414
7.397
7.379
7.360
7.260
7.217
7.198
5.848
2.454
1.550
Me
O
NHᵗBu
1.00
2.05
1.03
1.01
2.05
1.05
1.04
1.04
1.00
2.96
9.00
f1 (ppm)

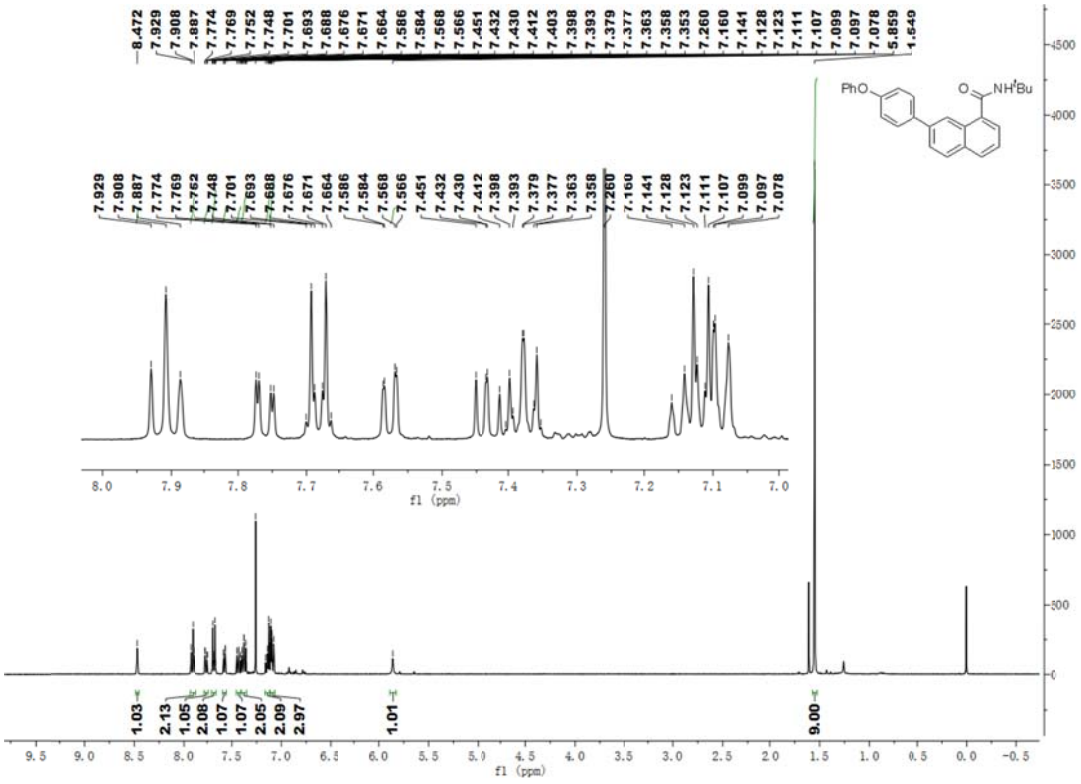

169.284
141.131
139.811
138.636
136.246
132.914
130.447
129.898
128.946
128.841
128.406
128.391
126.272
124.753
123.319
77.478
77.160
76.842
52.225
29.095
21.731
Me
O
NHᵗBu
f1 (ppm)

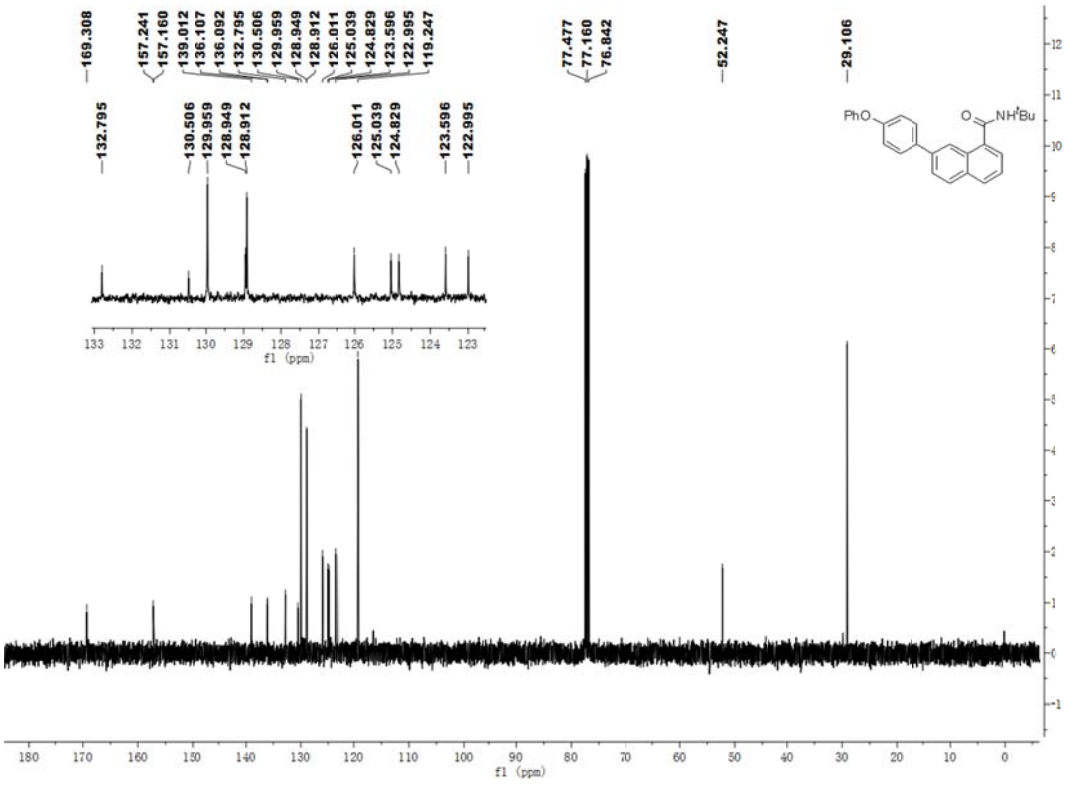

8.244
7.931
7.908
7.886
7.590
7.587
7.572
7.569
7.536
7.532
7.515
7.511
7.471
7.454
7.451
7.433
7.348
7.340
7.335
7.328
7.320
7.315
7.310
7.303
7.300
7.295
7.285
7.280
7.272
7.260
5.828
2.339
1.507
1.00
2.10
1.02
1.05
1.07
4.07
0.99
3.00
9.00
f1 (ppm)
Me
NHtBu

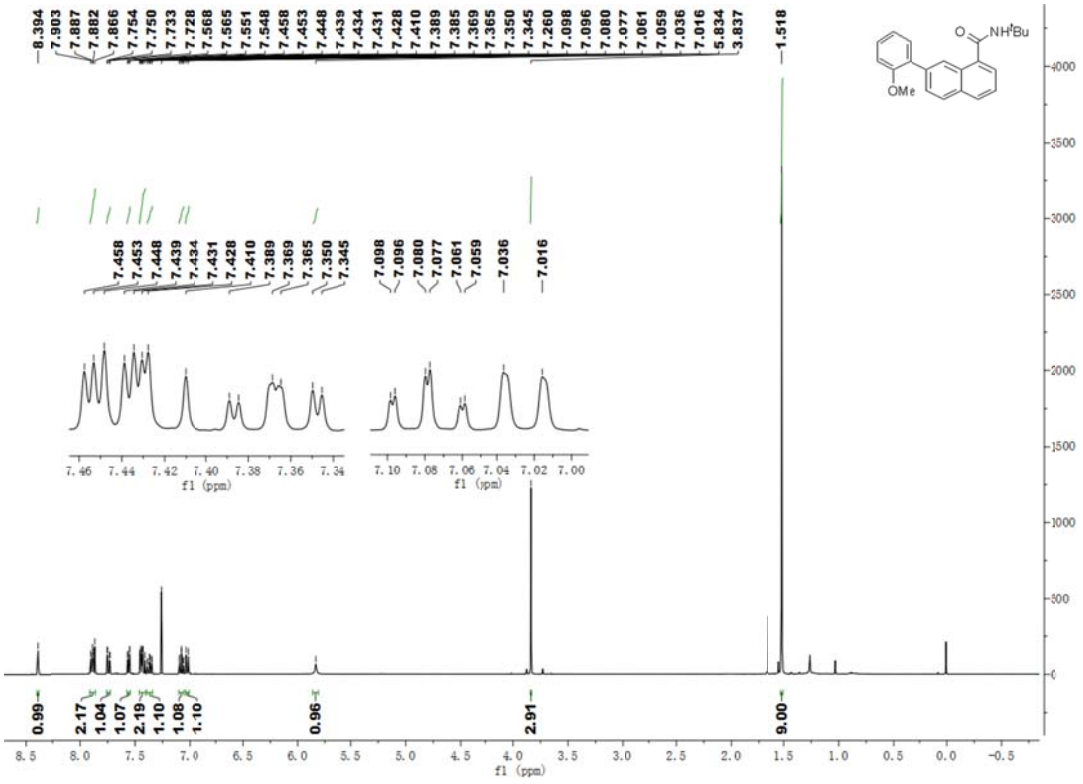

169.203
141.810
140.615
136.157
135.656
132.619
130.591
130.213
129.972
128.401
128.036
127.565
126.045
125.548
124.843
77.478
77.160
76.842
52.182
29.081
20.782
f1 (ppm)
Me
NHtBu

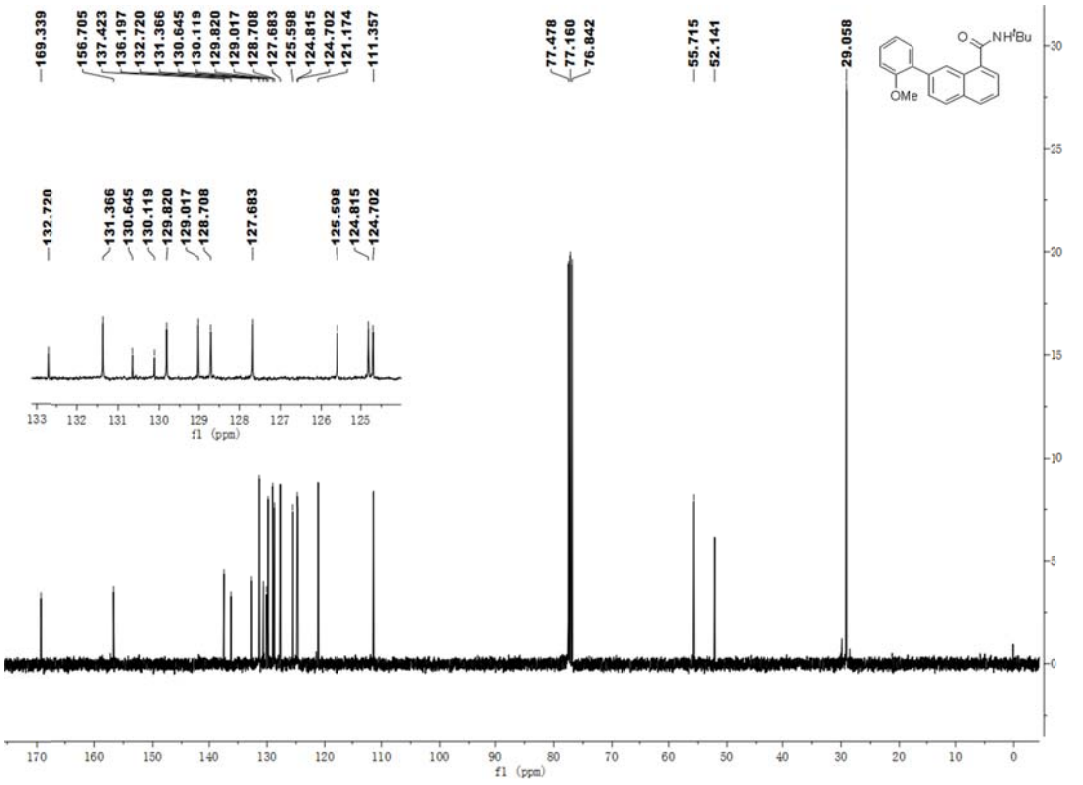

8.444
8.442
8.440
7.909
7.888
7.871
7.765
7.760
7.743
7.739
7.681
7.674
7.668
7.657
7.652
7.644
7.573
7.570
7.556
7.553
7.431
7.414
7.411
7.393
7.260
7.041
7.033
7.028
7.017
7.011
7.004
5.844
3.873
1.547
MeO
O
NH^{t}Bu
f1 (ppm)
1.04
2.14
1.06
2.13
1.05
1.10
2.15
0.99
3.01
9.00

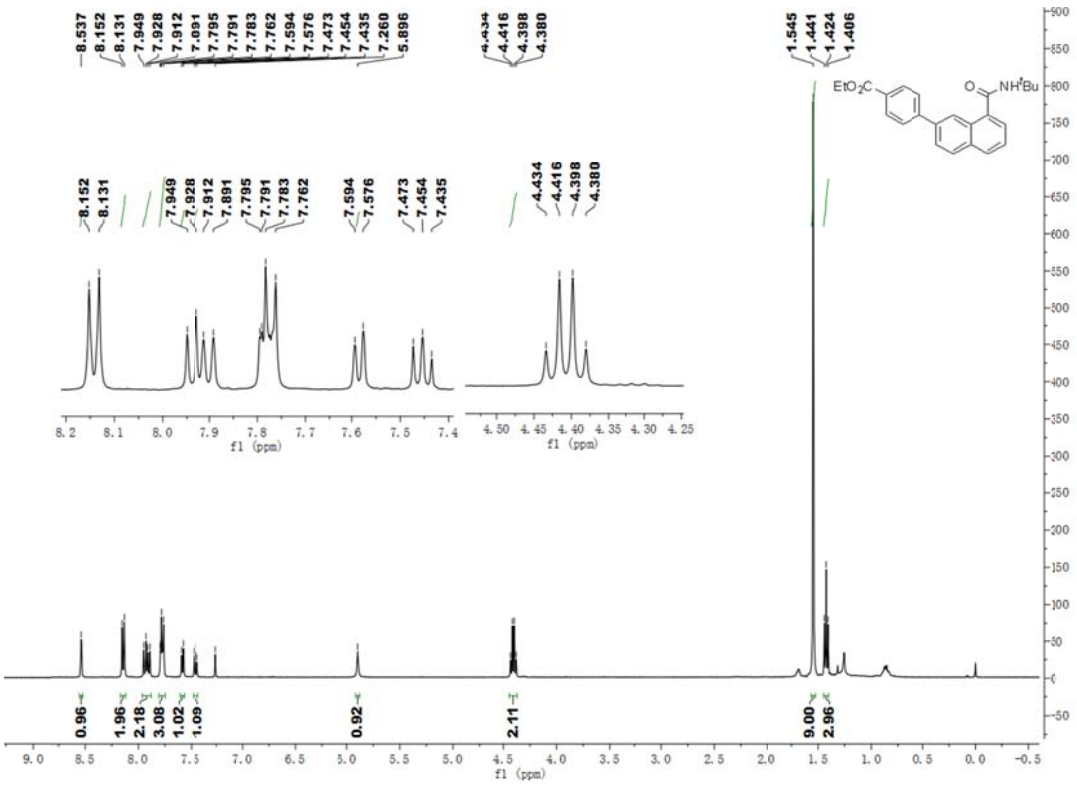

169.328
159.495
139.267
136.089
133.615
132.638
130.538
129.897
128.850
128.641
125.992
124.972
124.635
122.587
114.496
77.478
77.160
76.842
55.522
52.203
29.105
MeO
O
NH^{t}Bu
f1 (ppm)

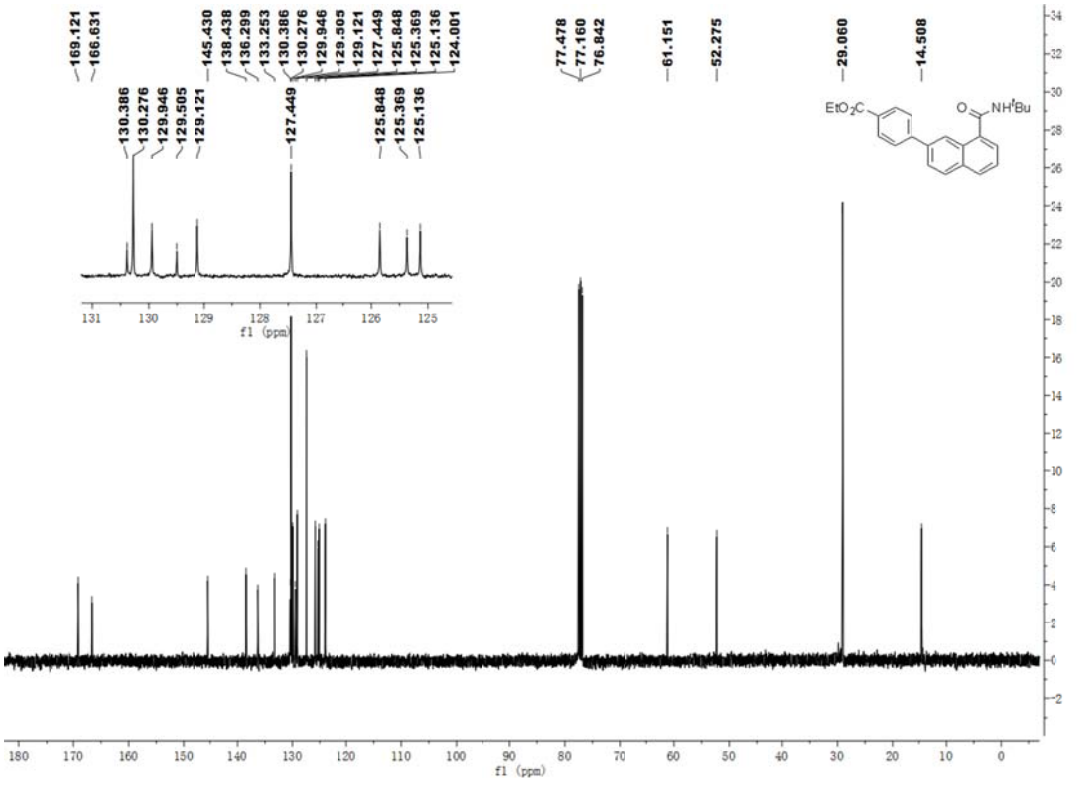

8.472
7.929
7.908
7.887
7.774
7.769
7.752
7.748
7.701
7.693
7.688
7.676
7.671
7.664
7.586
7.584
7.568
7.566
7.451
7.432
7.430
7.412
7.398
7.393
7.379
7.377
7.363
7.358
7.260
7.160
7.141
7.128
7.123
7.111
7.107
7.099
7.097
7.078
5.859
1.649
PhO
O
NHᵗBu
1.03
2.13
1.05
2.08
1.07
1.07
2.05
2.09
2.97
1.01
9.00
f1 (ppm)

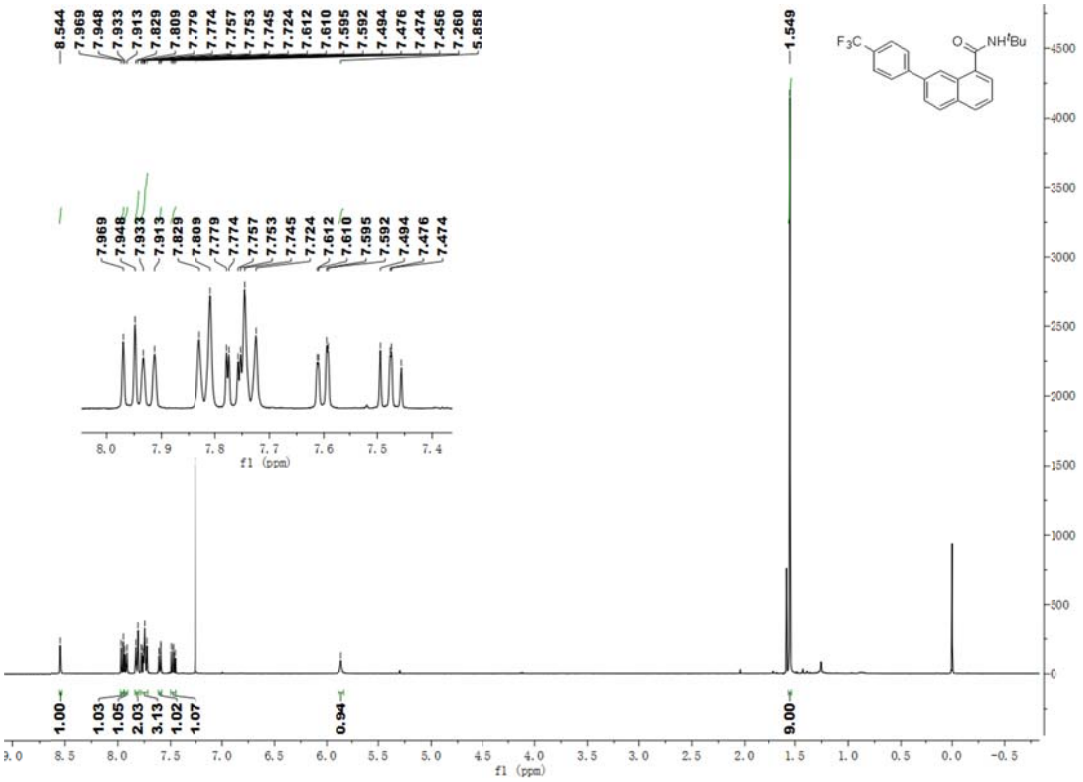

169.308
157.241
157.160
139.012
136.107
136.092
132.795
130.506
129.959
128.949
128.912
126.011
125.039
124.829
123.596
122.995
119.247
77.477
77.160
76.842
52.247
29.106
PhO
O
NHᵗBu
f1 (ppm)

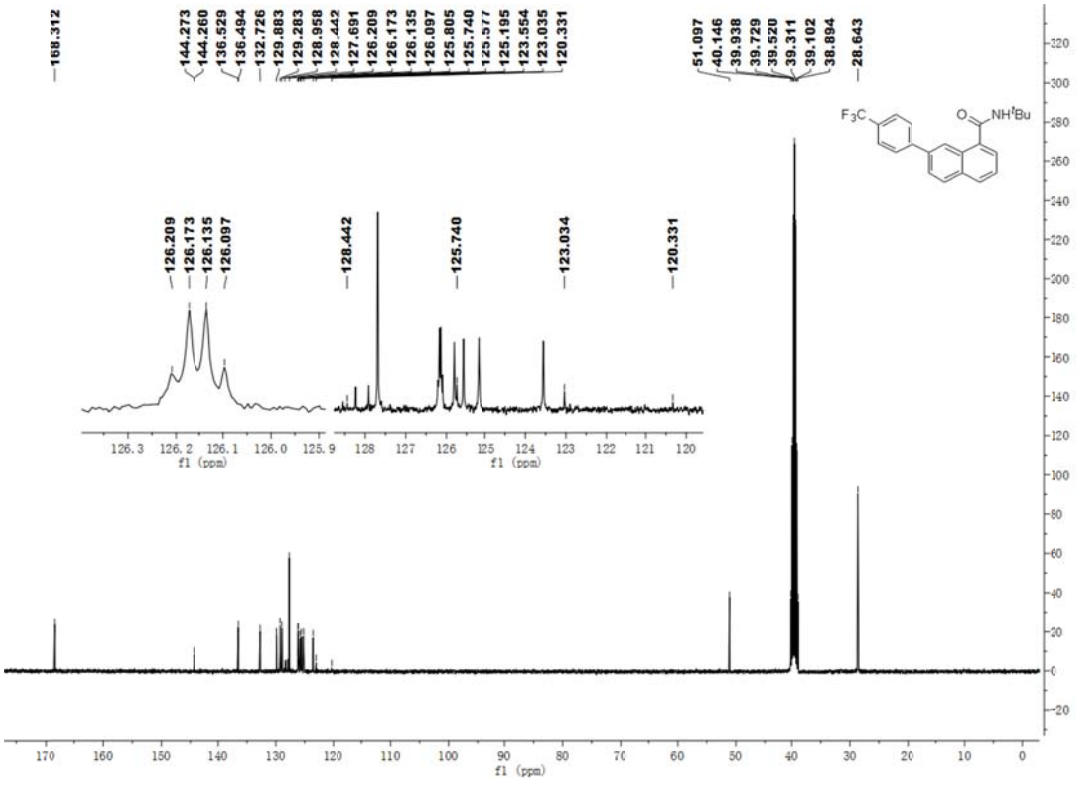

8.394
7.903
7.887
7.882
7.866
7.754
7.750
7.733
7.728
7.568
7.565
7.551
7.548
7.458
7.453
7.448
7.439
7.434
7.431
7.428
7.410
7.389
7.385
7.369
7.365
7.350
7.345
7.260
7.098
7.096
7.080
7.077
7.061
7.059
7.036
7.016
5.834
3.837
1.518
NH^{t}Bu
OMe
0.99
2.17
1.04
1.07
2.19
1.10
1.08
1.10
0.96
2.91
9.00
f1 (ppm)

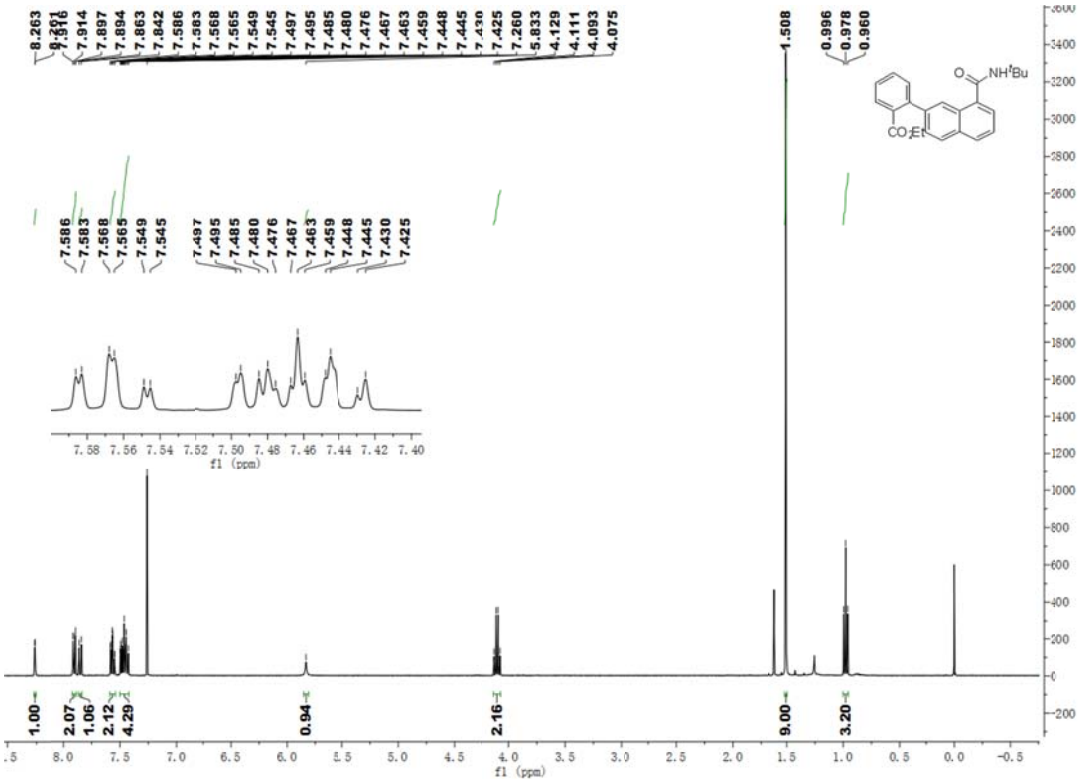

169.339
156.705
137.423
136.197
132.720
131.366
130.645
130.119
129.820
129.017
128.708
127.683
125.598
124.815
124.702
121.174
111.357
77.478
77.160
76.842
55.715
52.141
29.058
NH^{t}Bu
OMe
f1 (ppm)

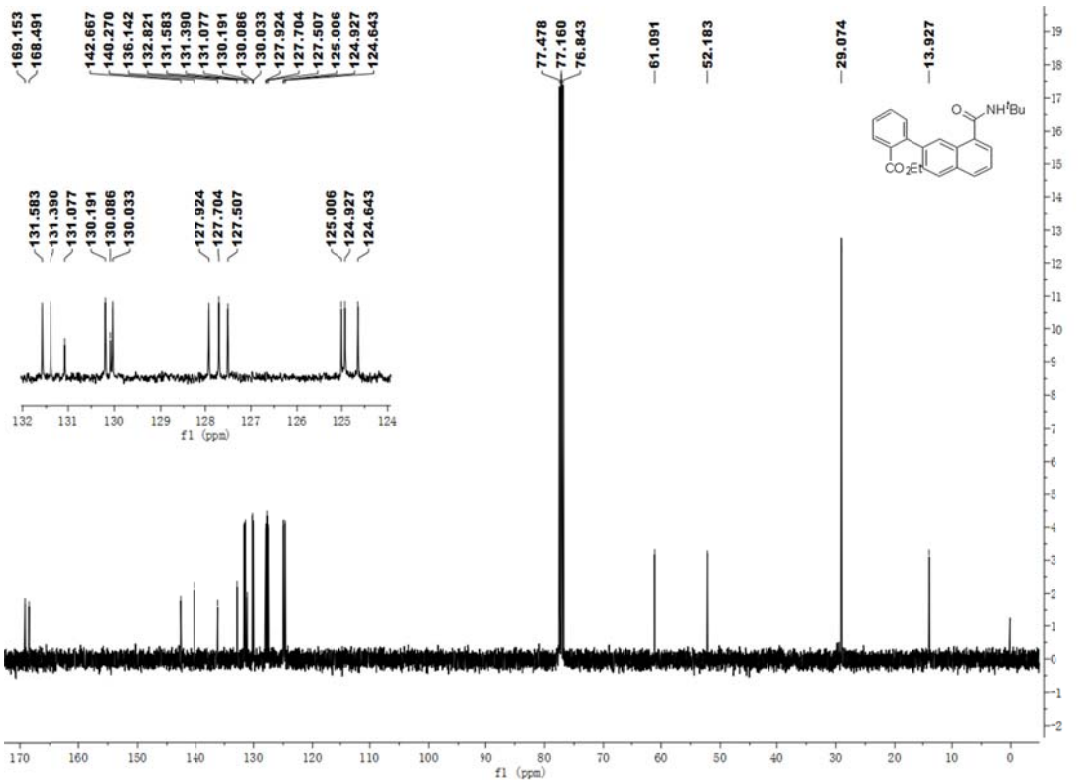

8.537
8.152
8.131
7.949
7.928
7.912
7.795
7.791
7.783
7.762
7.594
7.576
7.473
7.454
7.435
7.260
5.896
4.434
4.416
4.398
4.380
1.545
1.441
1.424
1.406
EtO2C
O
NHtBu
0.96
1.96
2.18
3.08
1.02
1.09
0.92
2.11
9.00
2.96
f1 (ppm)

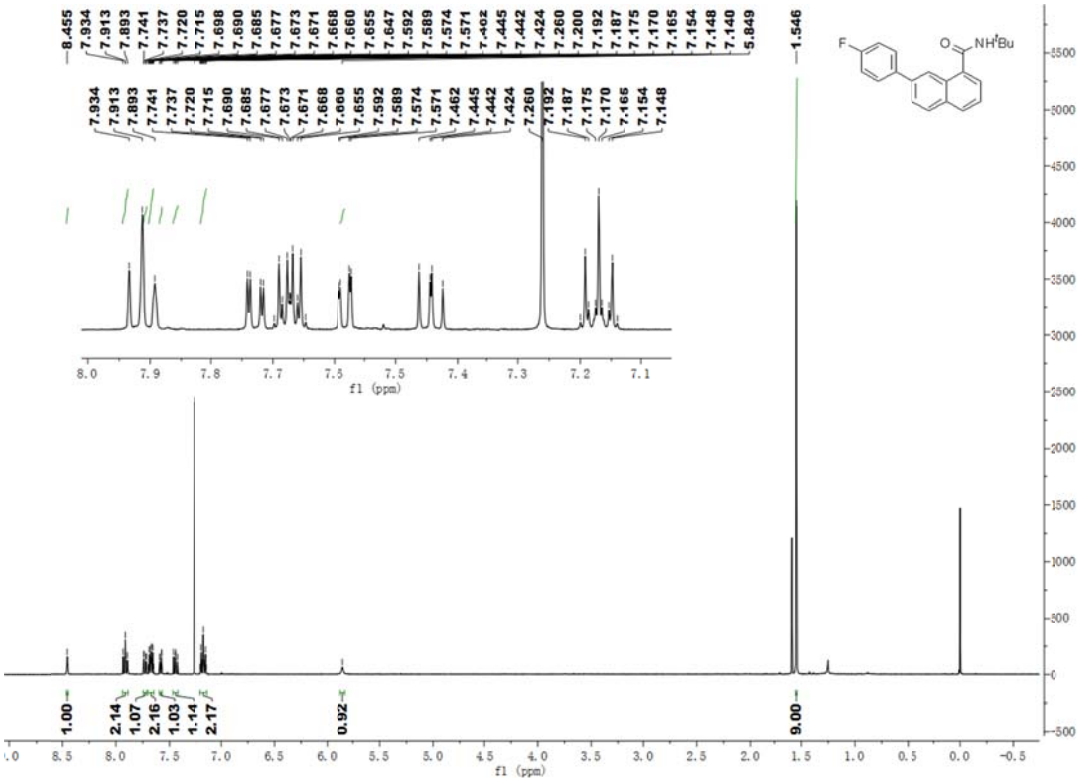

169.121
166.631
145.430
138.438
136.299
133.253
130.386
130.276
129.946
129.505
129.121
127.449
125.848
125.369
125.136
124.001
77.478
77.160
76.842
61.151
52.275
29.060
14.508
EtO2C
O
NHtBu
f1 (ppm)

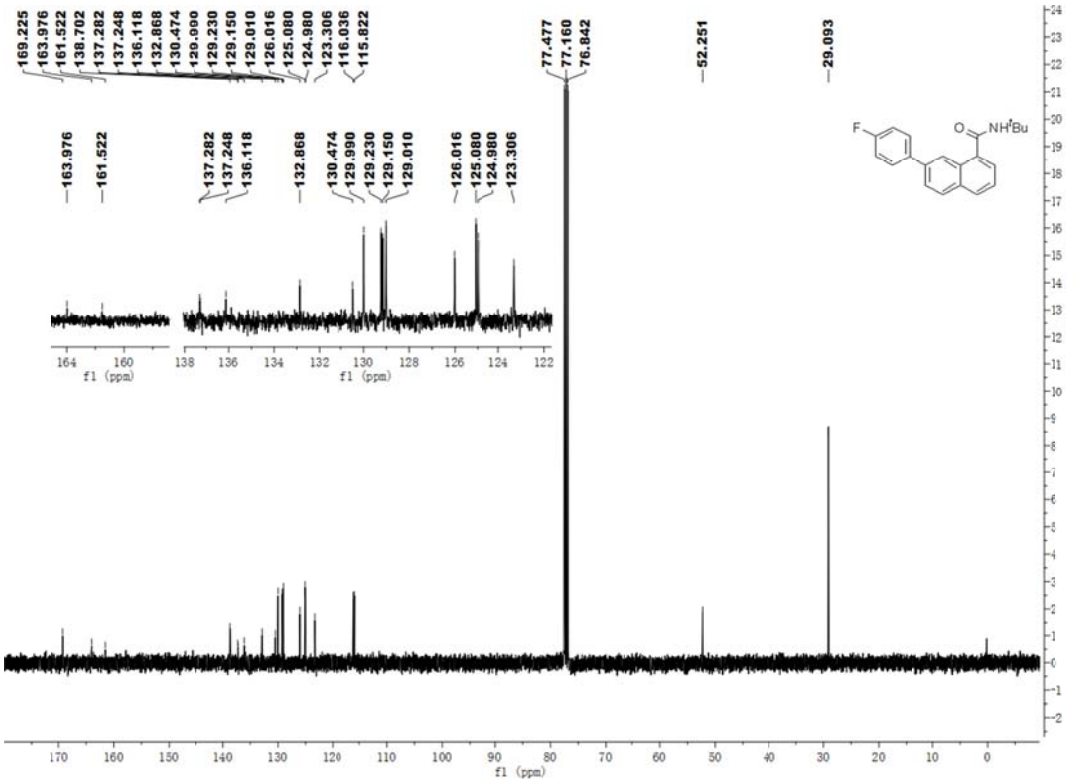

8.544
7.969
7.948
7.933
7.913
7.829
7.809
7.779
7.774
7.757
7.753
7.745
7.724
7.612
7.610
7.595
7.592
7.494
7.476
7.474
7.456
7.260
5.858
1.549
F3C
O
NH^{t}Bu
f1 (ppm)
1.00
1.03
1.05
2.03
3.13
1.02
1.07
0.94
9.00

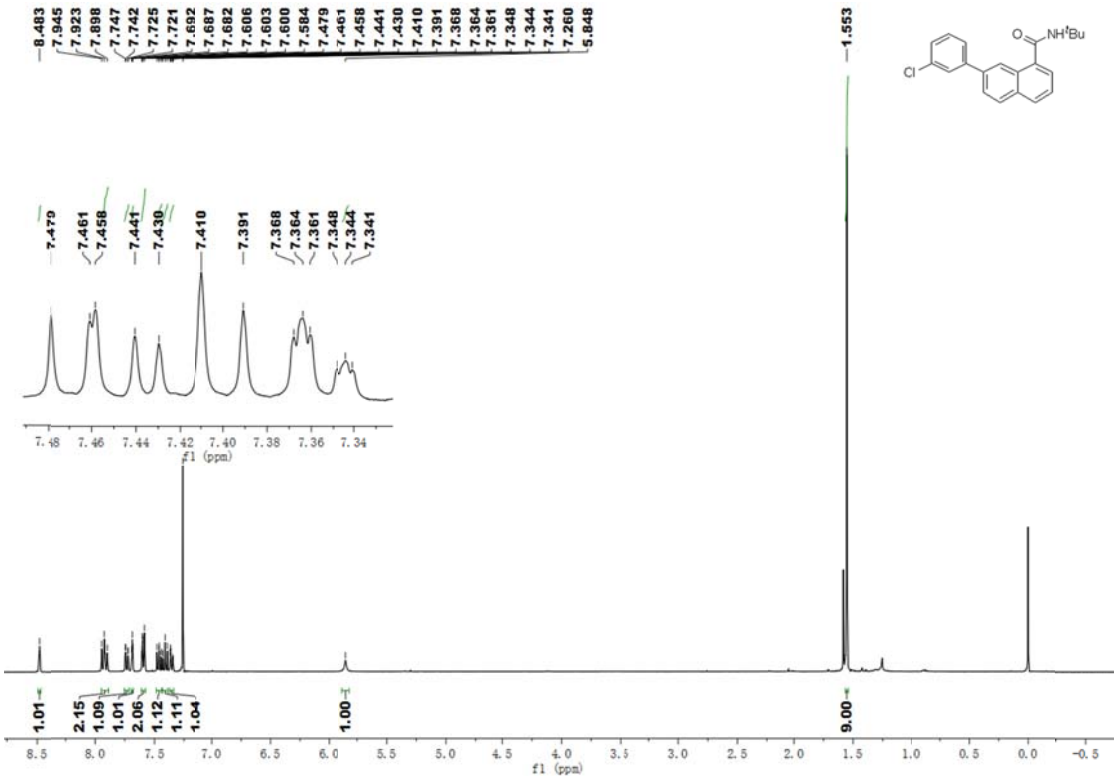

168.312
144.273
144.260
136.529
136.494
132.726
129.883
129.283
128.958
128.442
127.691
126.209
126.173
126.135
126.097
125.805
125.740
125.195
123.554
123.035
120.331
51.097
40.146
39.938
39.729
39.520
39.311
39.102
38.894
28.643
F3C
O
NH^{t}Bu
126.209
126.173
126.135
126.097
128.442
125.740
123.034
120.331
f1 (ppm)

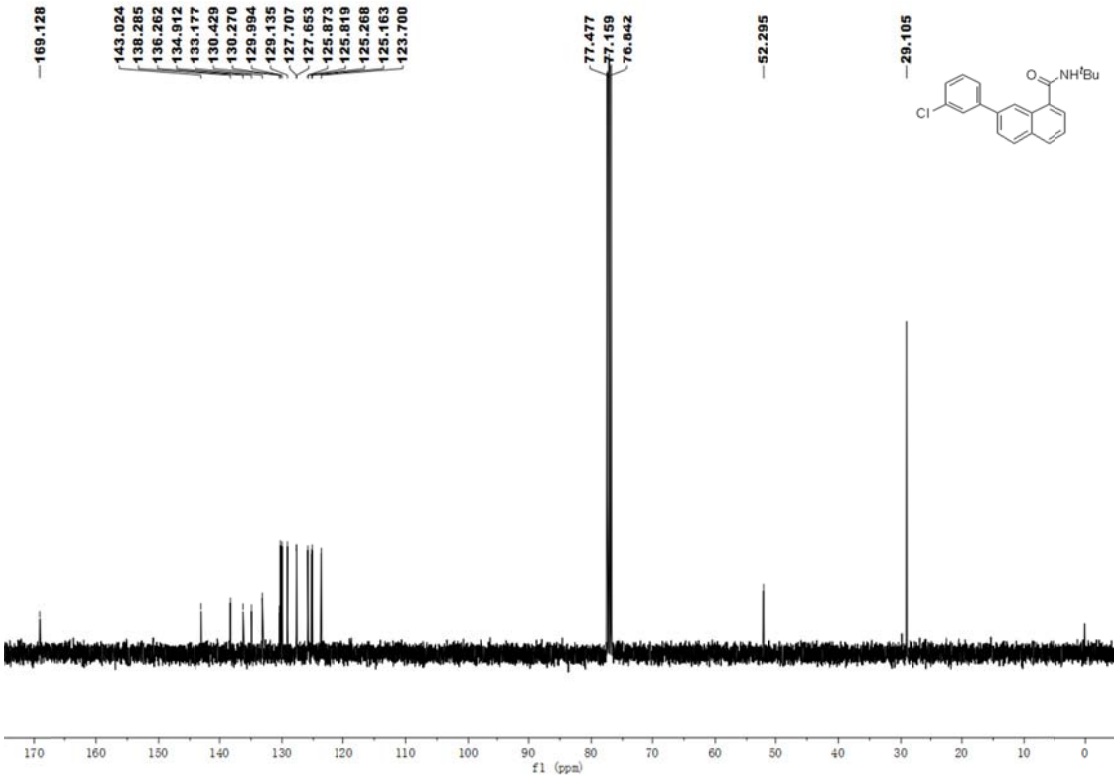

8.263
8.261
7.914
7.897
7.894
7.863
7.842
7.586
7.583
7.568
7.565
7.549
7.545
7.497
7.495
7.485
7.480
7.476
7.467
7.463
7.459
7.448
7.445
7.430
7.425
7.260
5.833
4.129
4.111
4.093
4.075
1.508
0.996
0.978
0.960
NH^{t}Bu
CO$_2$Et
1.00
2.07
1.06
2.12
4.29
0.94
2.16
9.00
3.20
f1 (ppm)

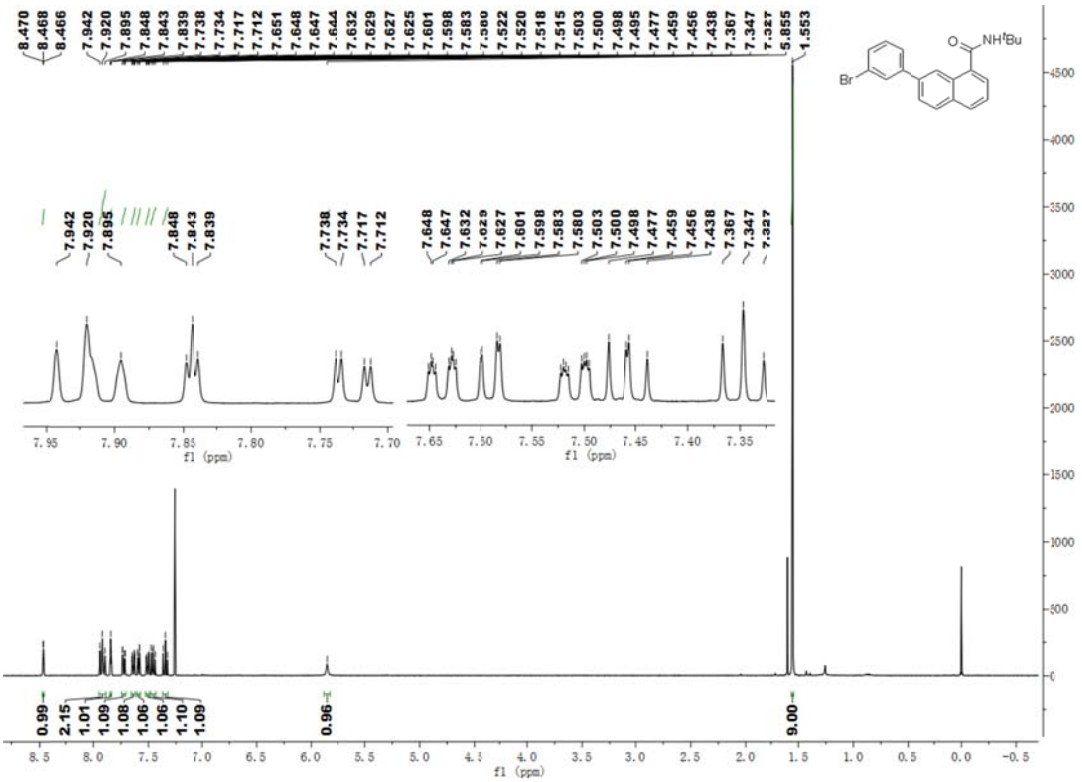

169.153
168.491
142.667
140.270
136.142
132.821
131.583
131.390
131.077
130.191
130.086
130.033
127.924
127.704
127.507
125.006
124.927
124.643
77.478
77.160
76.843
61.091
52.183
29.074
13.927
NH^{t}Bu
CO$_2$Et
f1 (ppm)

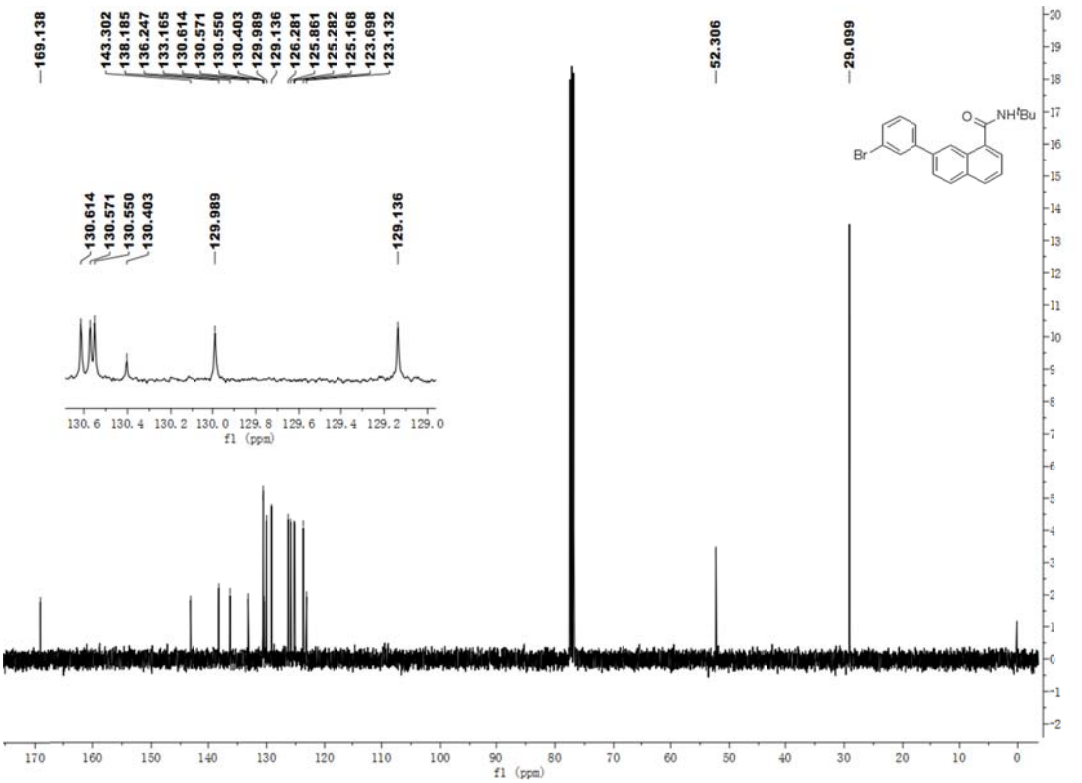

8.455
7.934
7.913
7.893
7.741
7.737
7.720
7.715
7.698
7.690
7.685
7.677
7.673
7.671
7.668
7.660
7.655
7.647
7.592
7.589
7.574
7.571
7.462
7.445
7.442
7.424
7.260
7.200
7.192
7.187
7.175
7.170
7.165
7.154
7.148
7.140
5.849
1.546
F
O
NH^{t}Bu
f1 (ppm)
1.00
2.14
1.07
2.16
1.03
1.14
2.17
0.92
9.00

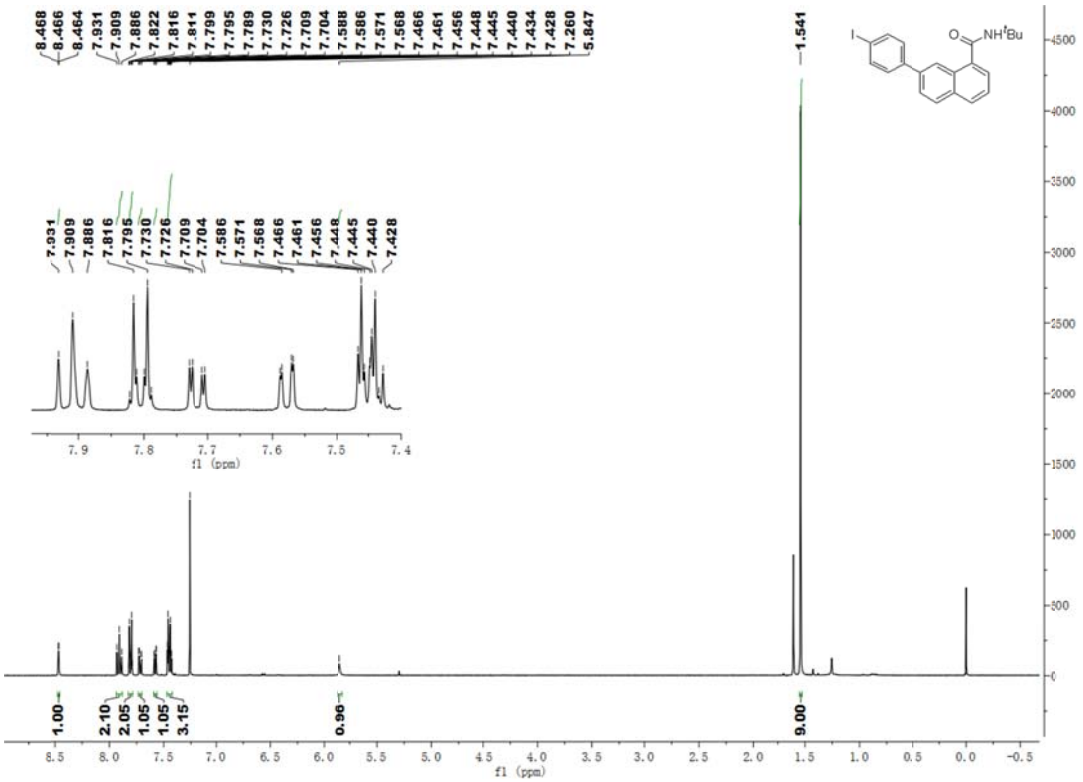

169.225
163.976
161.522
138.702
137.282
137.248
136.118
132.868
130.474
129.990
129.230
129.150
129.010
126.016
125.080
124.980
123.306
116.036
115.822
77.477
77.160
76.842
52.251
29.093
F
O
NH^{t}Bu
f1 (ppm)

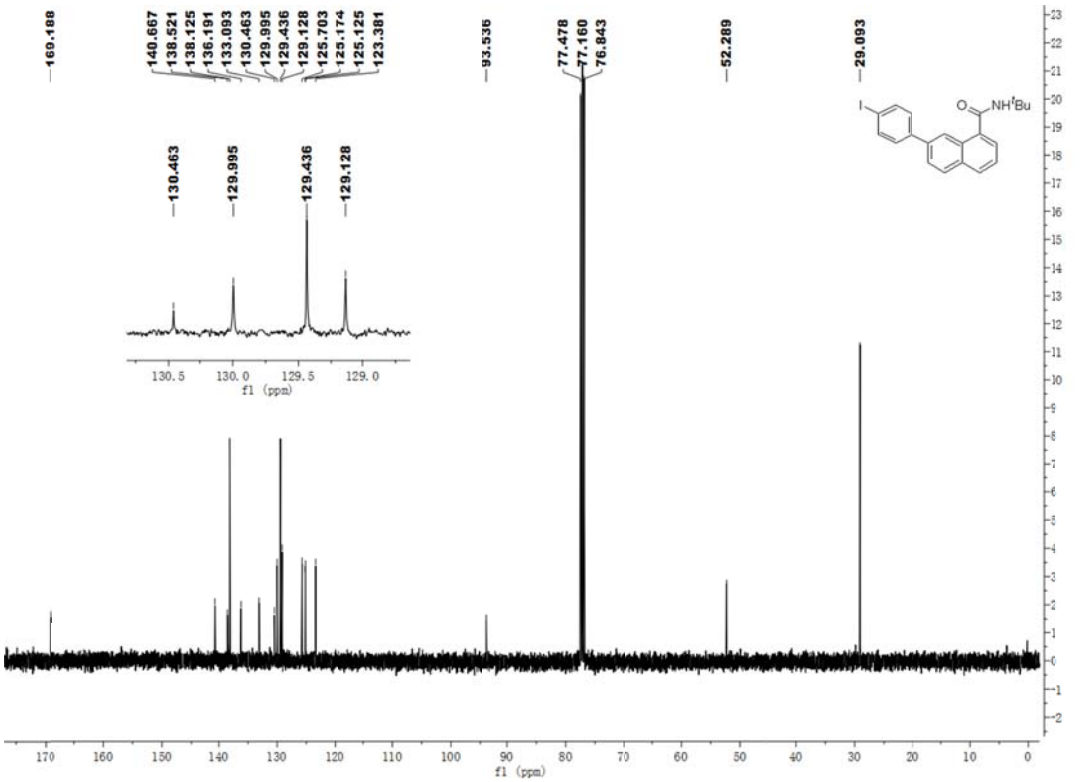

8.483
7.945
7.923
7.898
7.747
7.742
7.725
7.721
7.692
7.687
7.682
7.606
7.603
7.600
7.584
7.479
7.461
7.458
7.441
7.430
7.410
7.391
7.368
7.364
7.361
7.348
7.344
7.341
7.260
5.848
1.553
Cl
O
NH^{t}Bu
f1 (ppm)
1.01
2.15
1.09
1.01
2.06
1.12
1.11
1.04
1.00
9.00

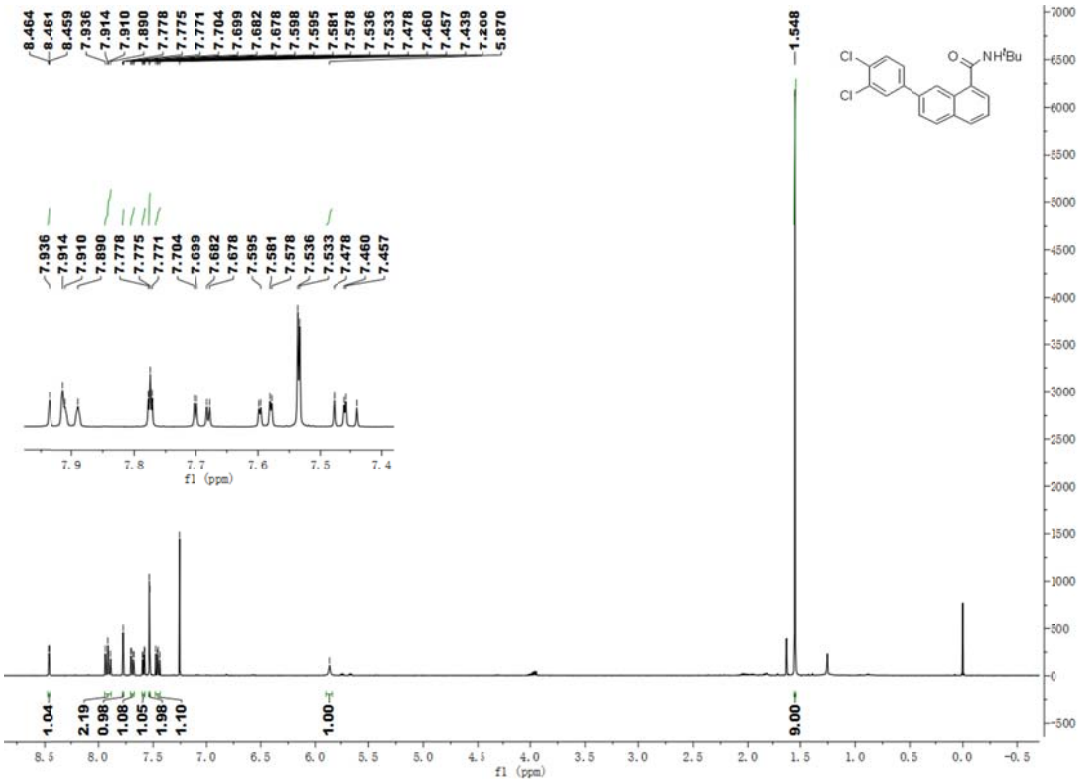

169.128
143.024
138.285
136.262
134.912
133.177
130.429
130.270
129.994
129.135
127.707
127.653
125.873
125.819
125.268
125.163
123.700
77.477
77.159
76.842
52.295
29.105
Cl
O
NH^{t}Bu
f1 (ppm)

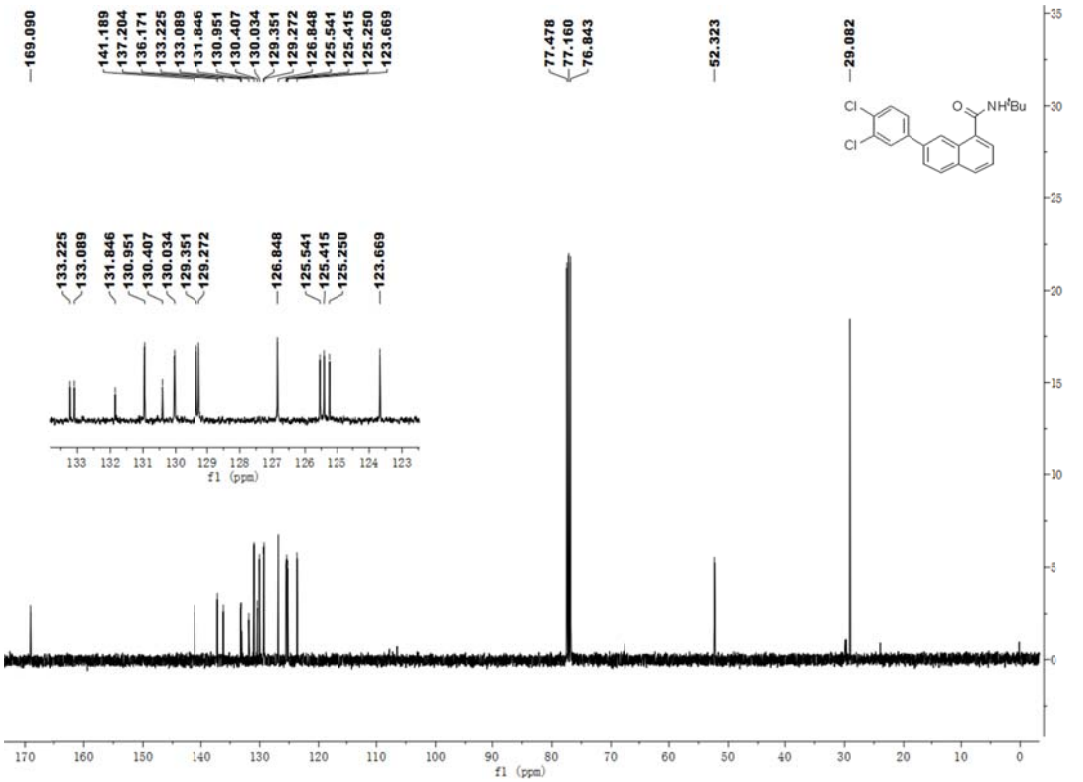

8.470
8.468
8.466
7.942
7.920
7.895
7.848
7.843
7.839
7.738
7.734
7.717
7.712
7.651
7.648
7.647
7.644
7.632
7.629
7.627
7.625
7.601
7.598
7.583
7.580
7.522
7.520
7.518
7.515
7.503
7.500
7.498
7.495
7.477
7.459
7.456
7.438
7.367
7.347
5.855
1.553
NH^{t}Bu
Br
0.99
2.15
1.01
1.09
1.08
1.06
1.06
1.10
1.09
0.96
9.00
f1 (ppm)

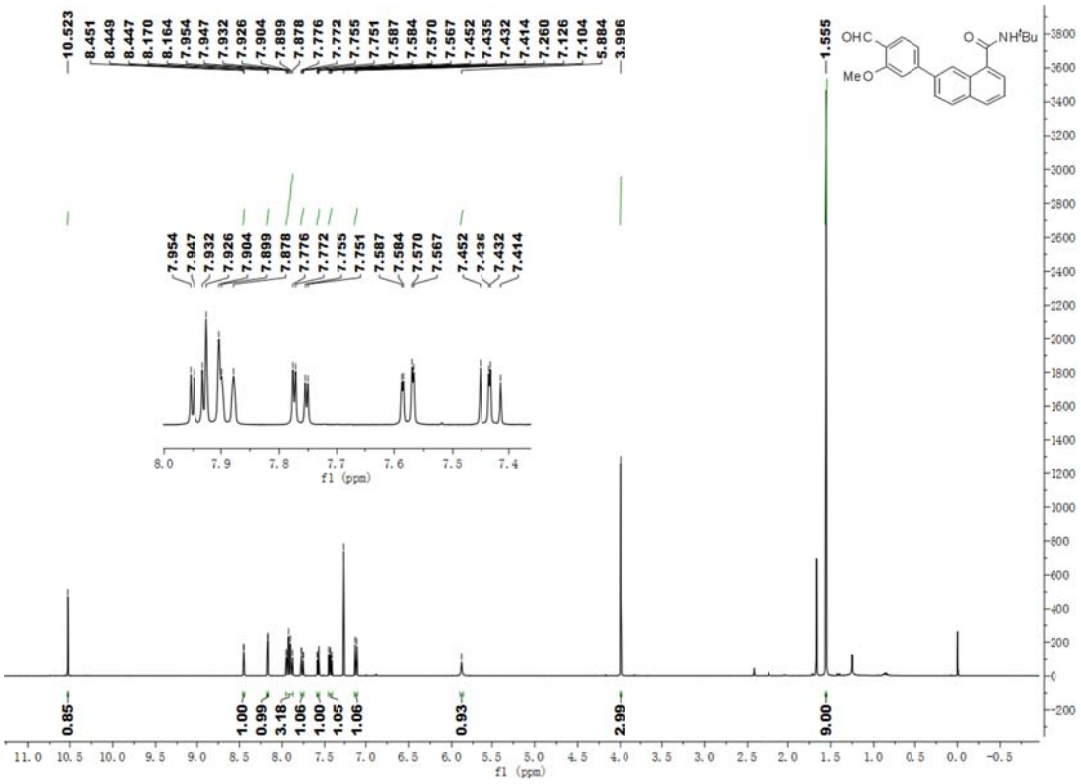

169.138
143.302
138.185
136.247
133.165
130.614
130.571
130.550
130.403
129.989
129.136
126.281
125.861
125.282
125.168
123.698
123.132
52.306
29.099
NH^{t}Bu
Br
f1 (ppm)

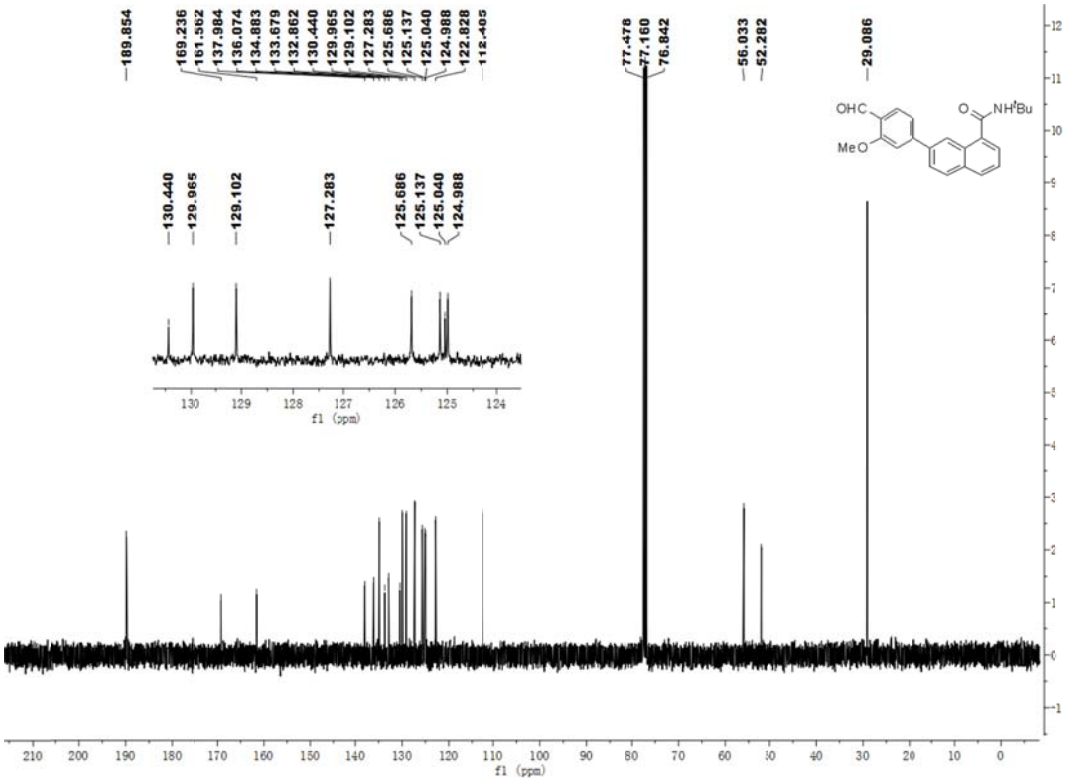

8.468
8.466
8.464
7.931
7.909
7.886
7.822
7.816
7.811
7.799
7.795
7.789
7.730
7.726
7.709
7.704
7.588
7.586
7.571
7.568
7.466
7.461
7.456
7.448
7.445
7.440
7.434
7.428
7.260
5.847
1.541
NH^{t}Bu
1.00
2.10
2.05
1.05
1.05
3.15
0.96
9.00
f1 (ppm)

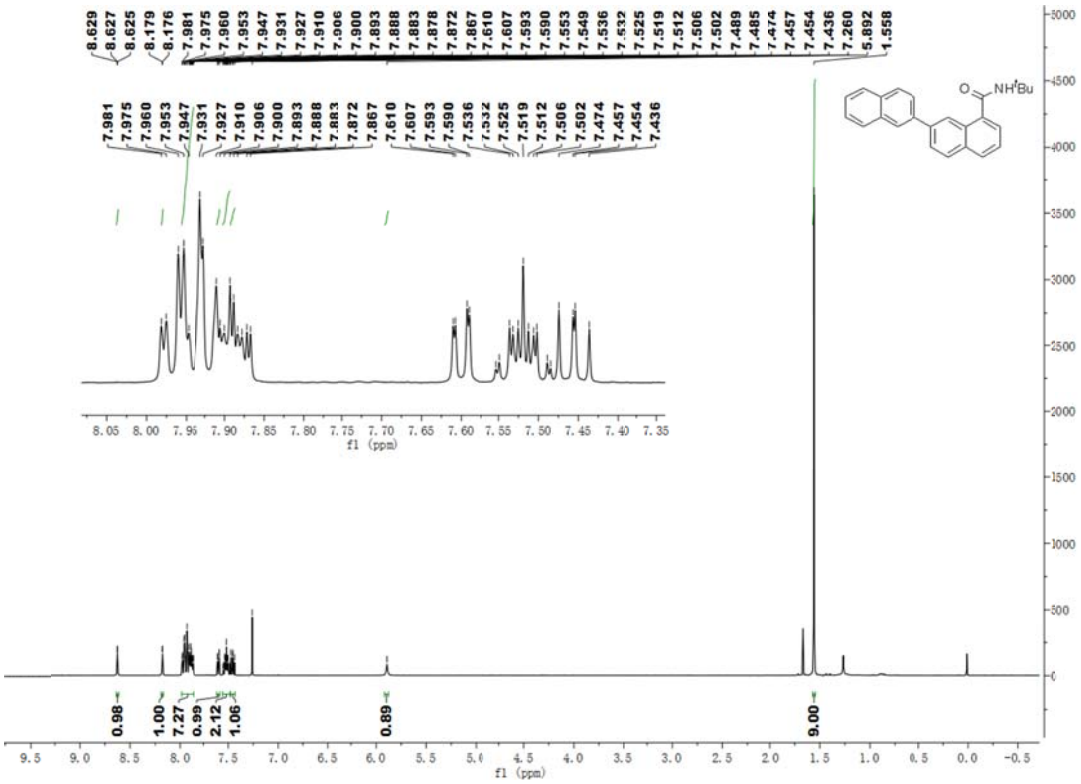

169.188
140.667
138.521
138.125
136.191
133.093
130.463
129.995
129.436
129.128
125.703
125.174
125.125
123.381
93.536
77.478
77.160
76.843
52.289
29.093
NH^{t}Bu
f1 (ppm)

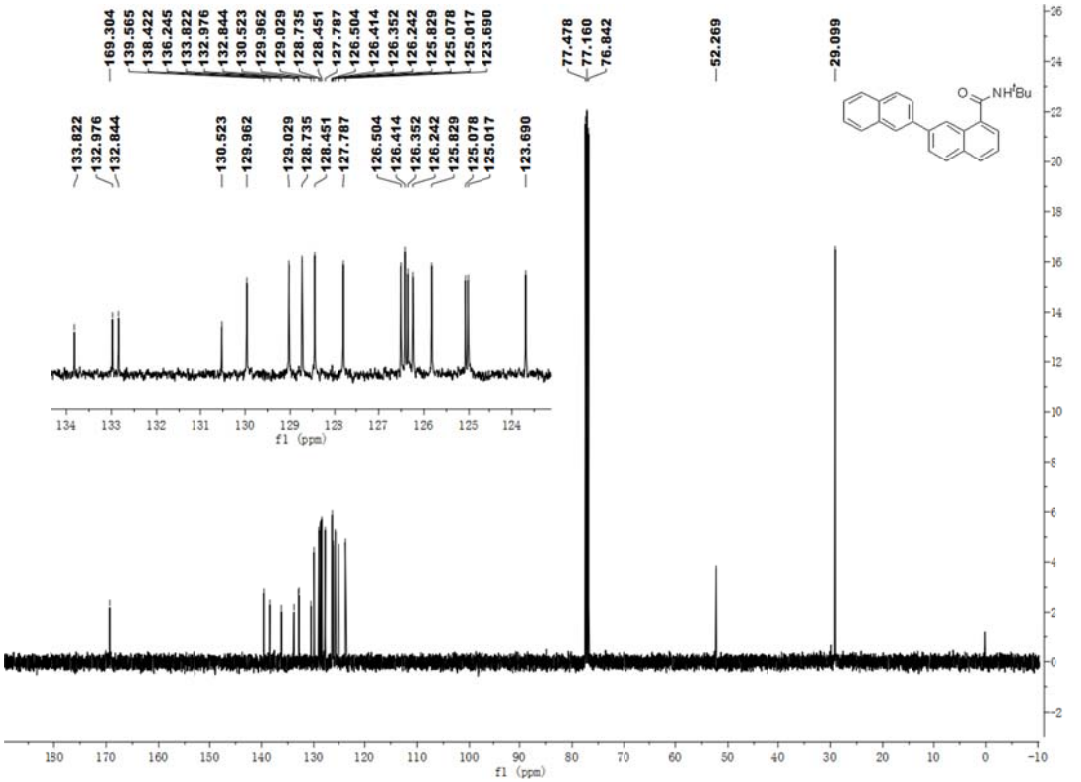

8.464
8.461
8.459
7.936
7.914
7.910
7.890
7.778
7.775
7.771
7.704
7.699
7.682
7.678
7.598
7.595
7.581
7.578
7.536
7.533
7.478
7.460
7.457
7.439
7.200
5.870
1.548
Cl
Cl
O
NH^{t}Bu
f1 (ppm)
1.04
2.19
0.98
1.08
1.05
1.98
1.10
1.00
9.00

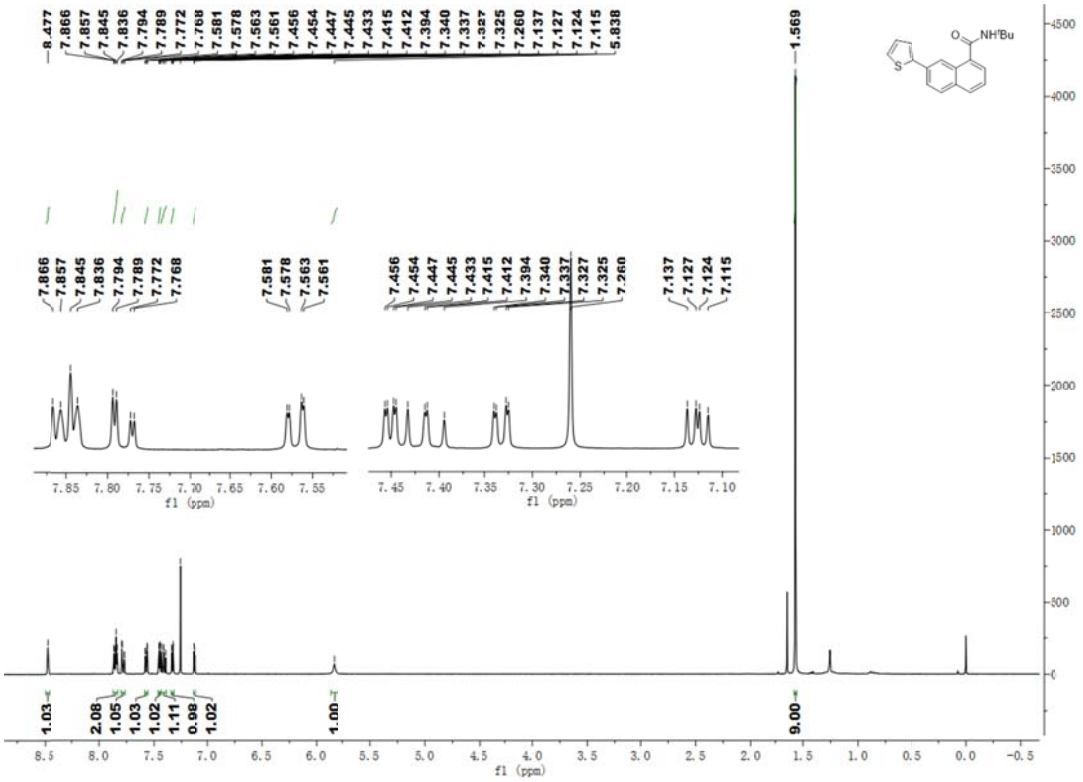

169.090
141.189
137.204
136.171
133.225
133.089
131.846
130.951
130.407
130.034
129.351
129.272
126.848
125.541
125.415
125.250
123.669
77.478
77.160
76.843
52.323
29.082
Cl
Cl
O
NH^{t}Bu
f1 (ppm)

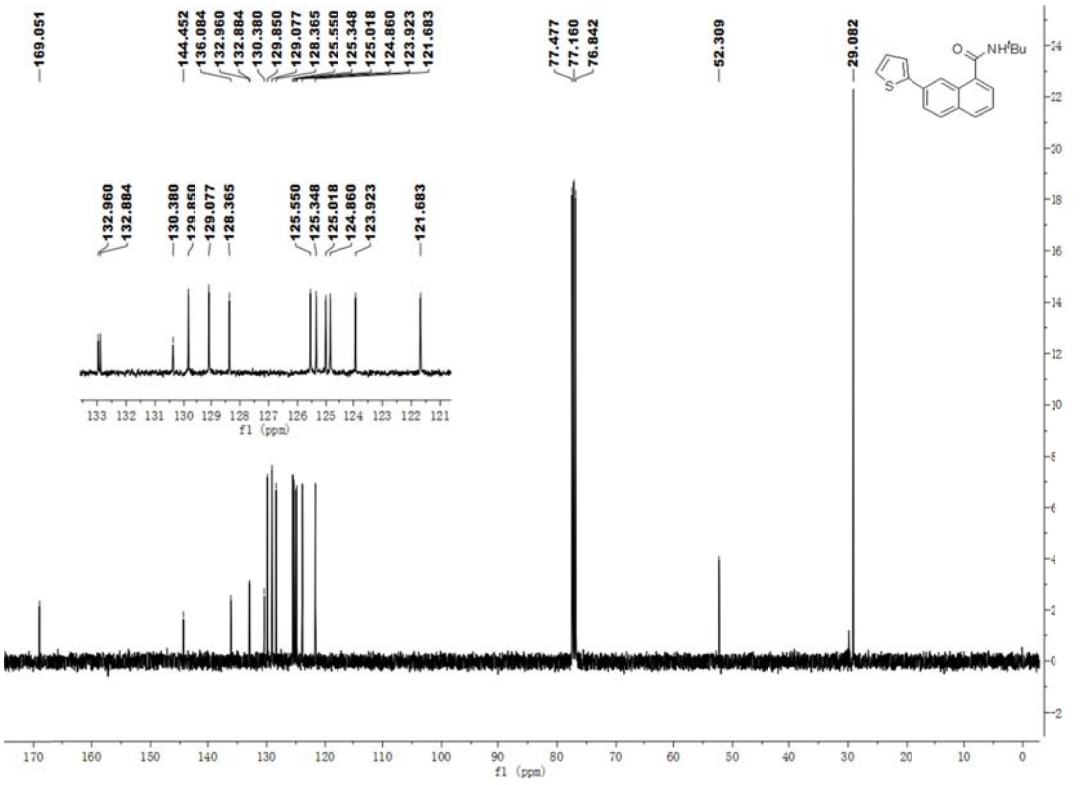

10.523
8.451
8.449
8.447
8.170
8.164
7.954
7.947
7.932
7.926
7.904
7.899
7.878
7.776
7.772
7.755
7.751
7.587
7.584
7.570
7.567
7.452
7.435
7.432
7.414
7.260
7.126
7.104
5.884
3.996
1.555
OHC
MeO
O
NH^{t}Bu
f1 (ppm)
0.85
1.00
0.99
3.18
1.06
1.00
1.05
1.06
0.93
2.99
9.00

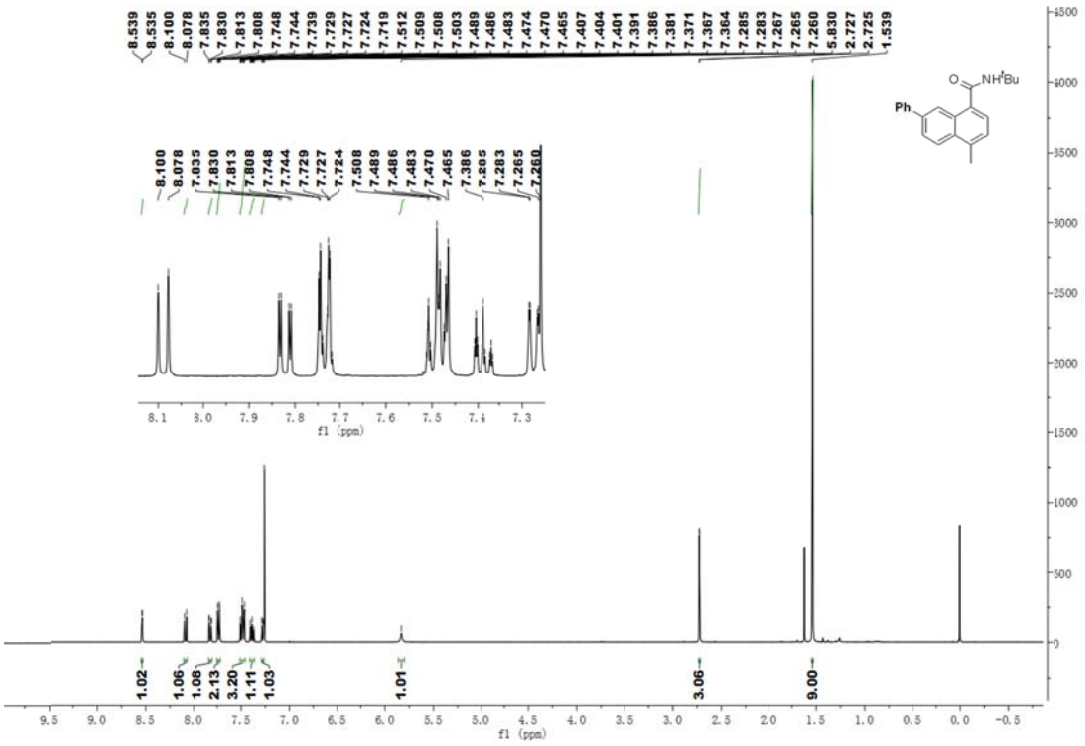

189.854
169.236
161.502
137.984
136.074
134.883
133.679
132.862
130.440
129.965
129.102
127.283
125.686
125.137
125.040
124.988
122.828
112.405
77.478
77.160
76.842
56.033
52.282
29.086
OHC
MeO
O
NH^{t}Bu
f1 (ppm)

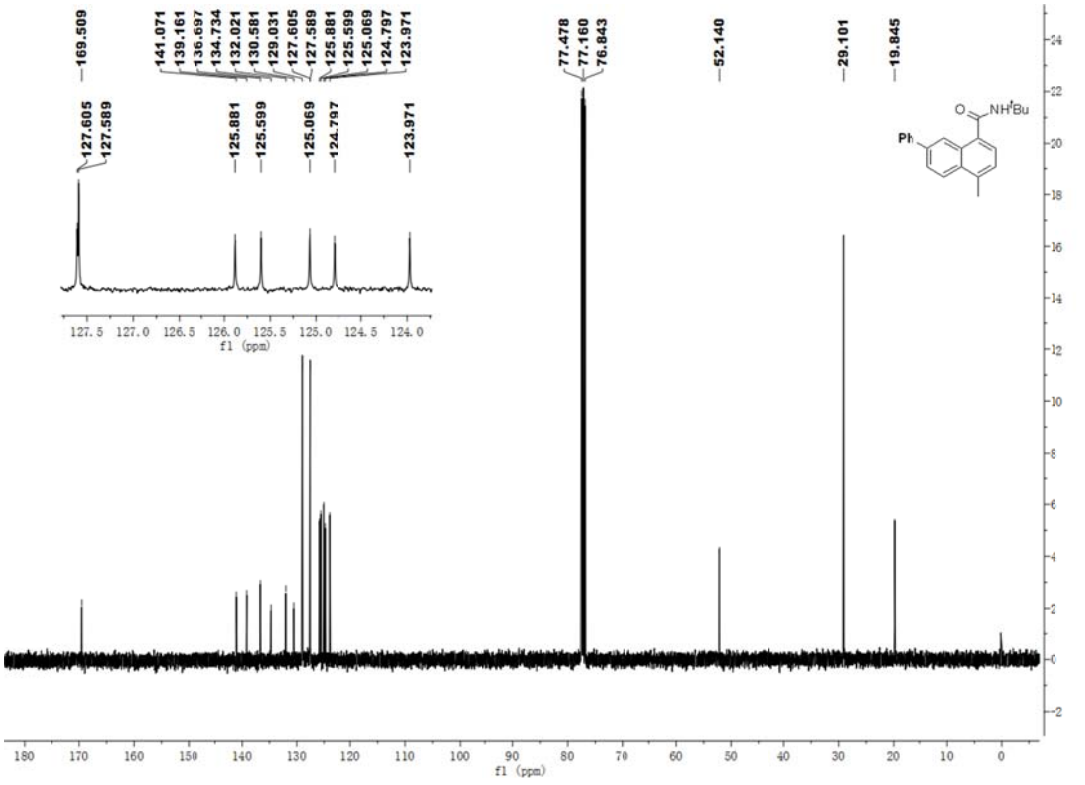

8.629
8.627
8.625
8.179
8.176
7.981
7.975
7.960
7.953
7.947
7.931
7.927
7.910
7.906
7.900
7.893
7.888
7.883
7.872
7.867
7.610
7.607
7.593
7.590
7.536
7.525
7.519
7.512
7.506
7.502
7.474
7.457
7.454
7.436
7.260
5.892
1.558
NH^{t}Bu
f1 (ppm)
0.98
1.00
7.27
0.99
2.12
1.06
0.89
9.00

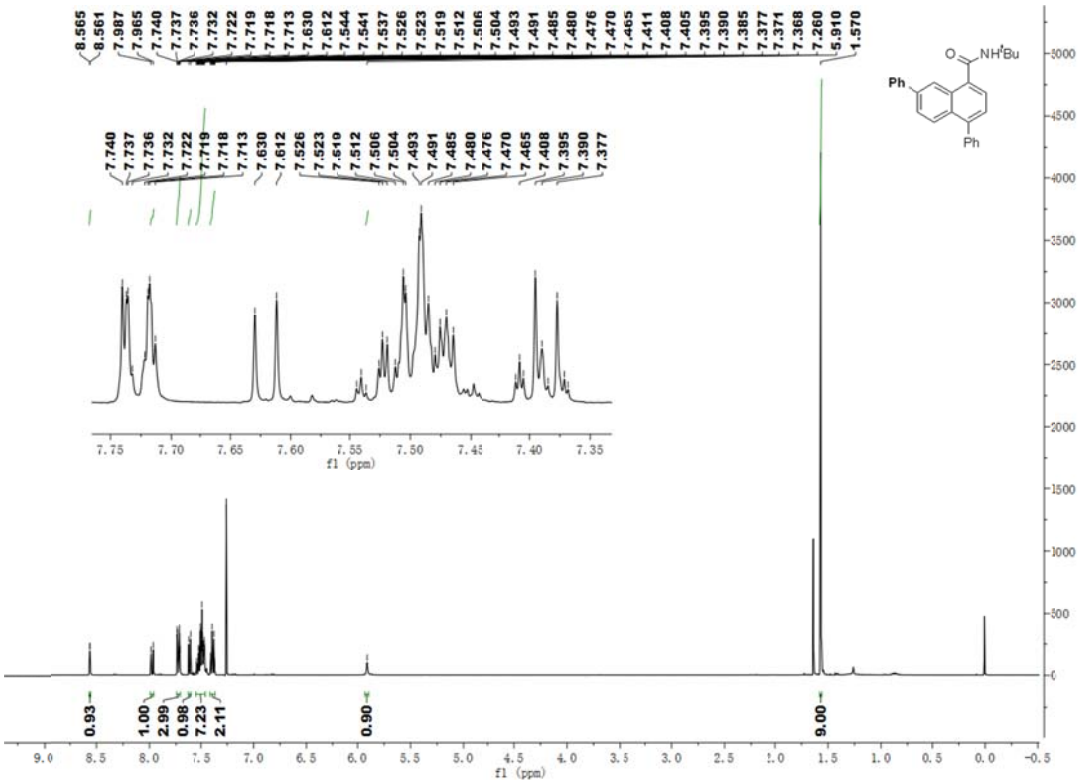

169.304
139.565
138.422
136.245
133.822
132.976
132.844
130.523
129.962
129.029
128.735
128.451
127.787
126.504
126.414
126.352
126.242
125.829
125.078
125.017
123.690
77.478
77.160
76.842
52.269
29.099
NH^{t}Bu
f1 (ppm)

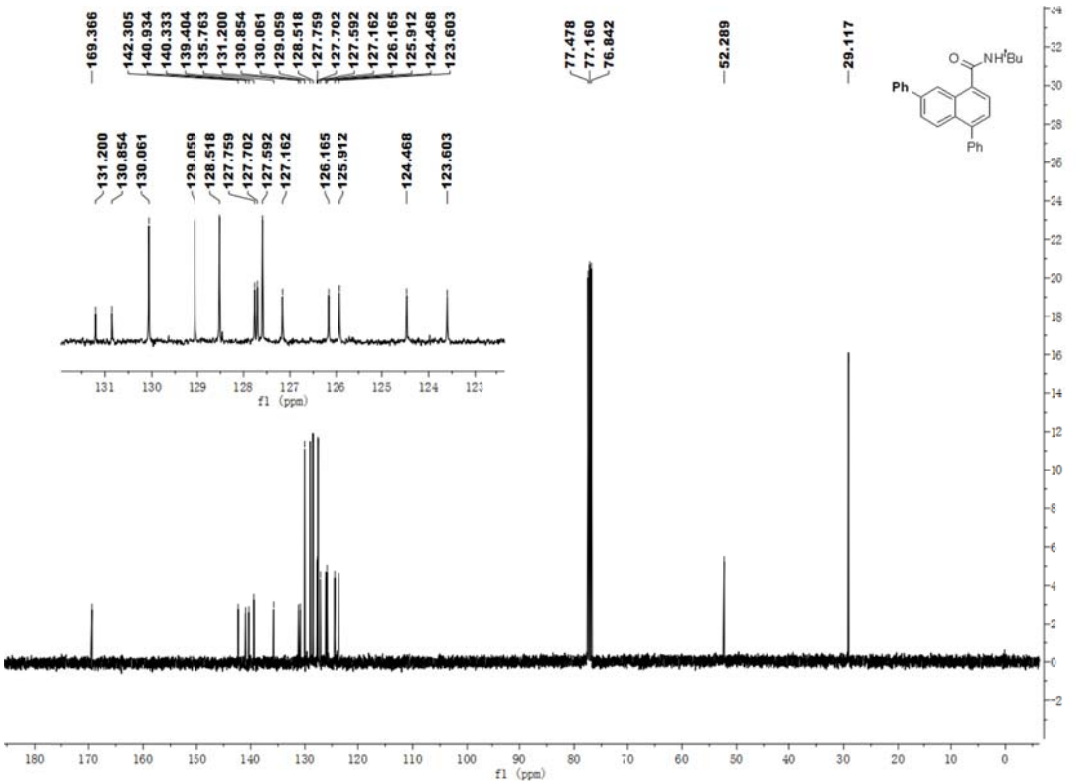

8.477
7.866
7.857
7.845
7.836
7.794
7.789
7.772
7.768
7.581
7.578
7.563
7.561
7.456
7.454
7.447
7.445
7.433
7.415
7.412
7.394
7.340
7.337
7.325
7.260
7.137
7.127
7.124
7.115
5.838
1.569
NH^{t}Bu
1.03
2.08
1.05
1.03
1.02
1.11
0.98
1.02
1.00
9.00
f1 (ppm)

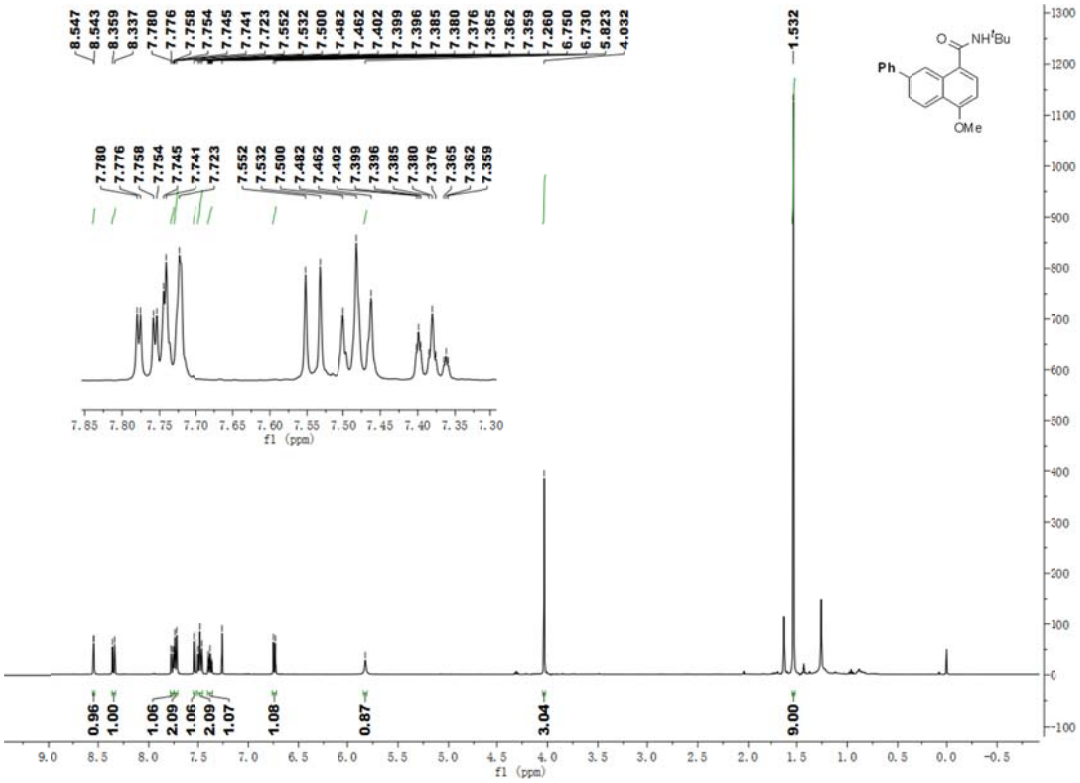

169.051
144.452
136.084
132.960
132.884
130.380
129.850
129.077
128.365
125.550
125.348
125.018
124.860
123.923
121.683
77.477
77.160
76.842
52.309
29.082
NH^{t}Bu
f1 (ppm)

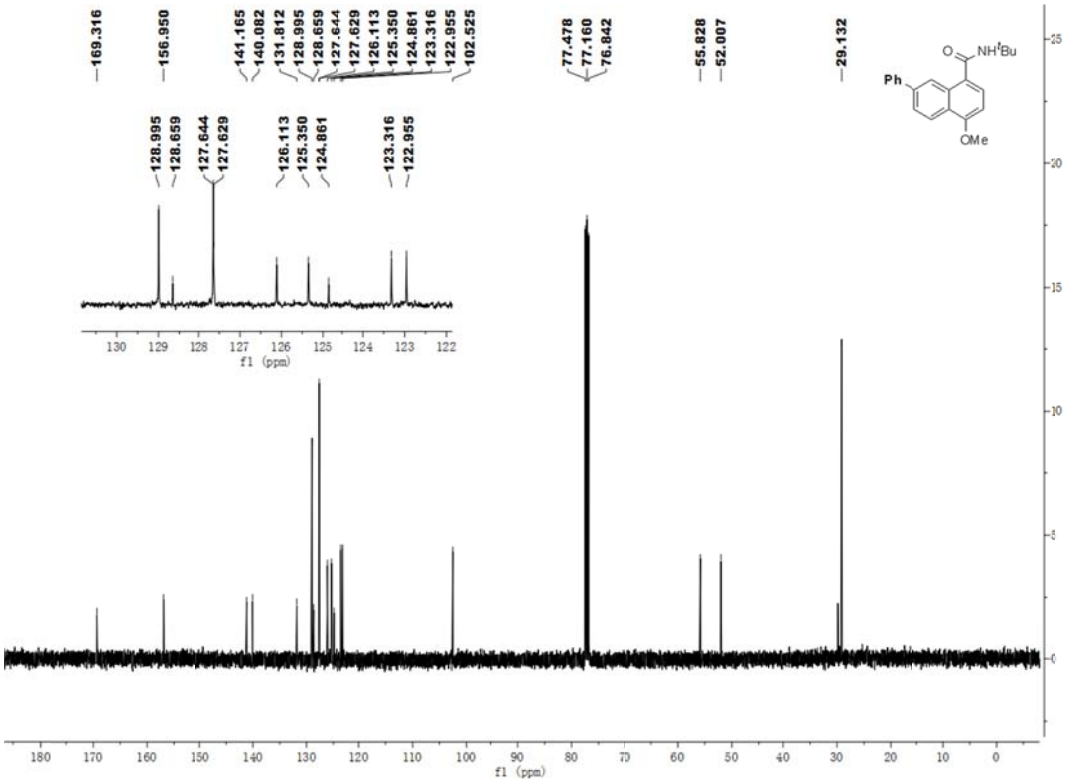

8.539
8.535
8.100
8.078
7.835
7.830
7.813
7.808
7.748
7.744
7.739
7.729
7.727
7.724
7.719
7.512
7.509
7.508
7.503
7.489
7.486
7.483
7.474
7.470
7.465
7.407
7.404
7.401
7.391
7.386
7.381
7.371
7.367
7.364
7.285
7.283
7.267
7.265
7.260
5.830
2.727
2.725
1.539
Ph
O
NH^{t}Bu
f1 (ppm)
1.02
1.06
1.08
2.13
3.20
1.11
1.03
1.01
3.06
9.00

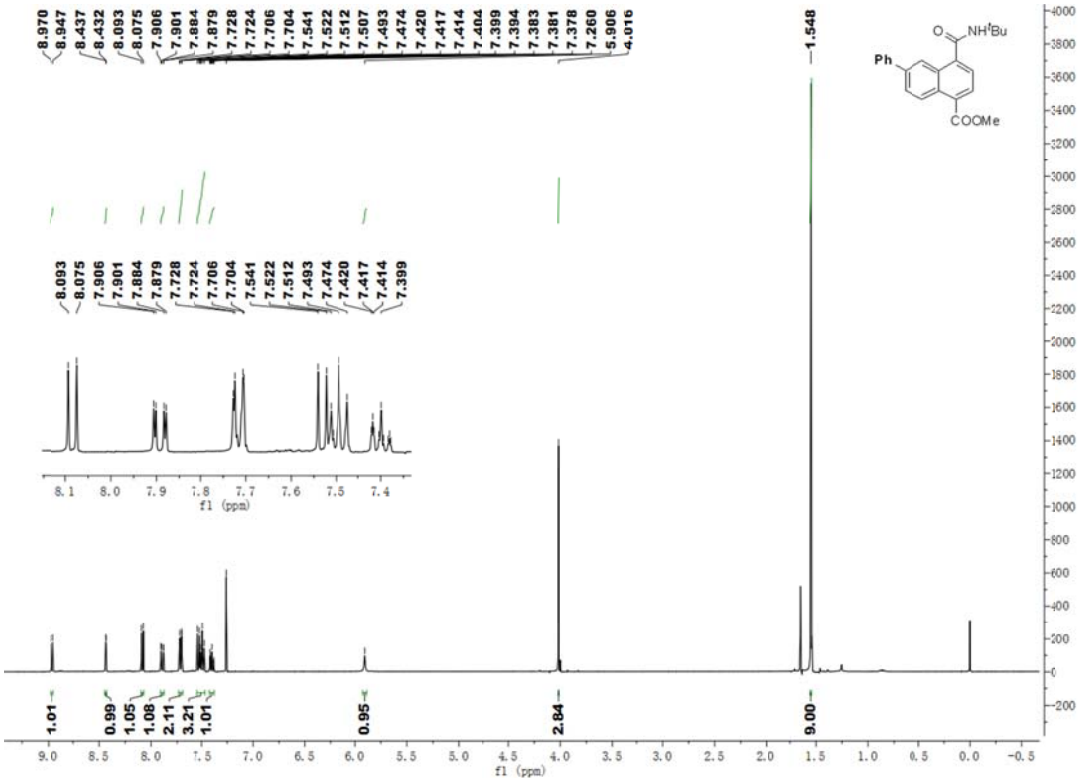

169.509
141.071
139.161
136.697
134.734
132.021
130.581
129.031
127.605
127.589
125.881
125.599
125.069
124.797
123.971
77.478
77.160
76.843
52.140
29.101
19.845
Ph
O
NH^{t}Bu
f1 (ppm)

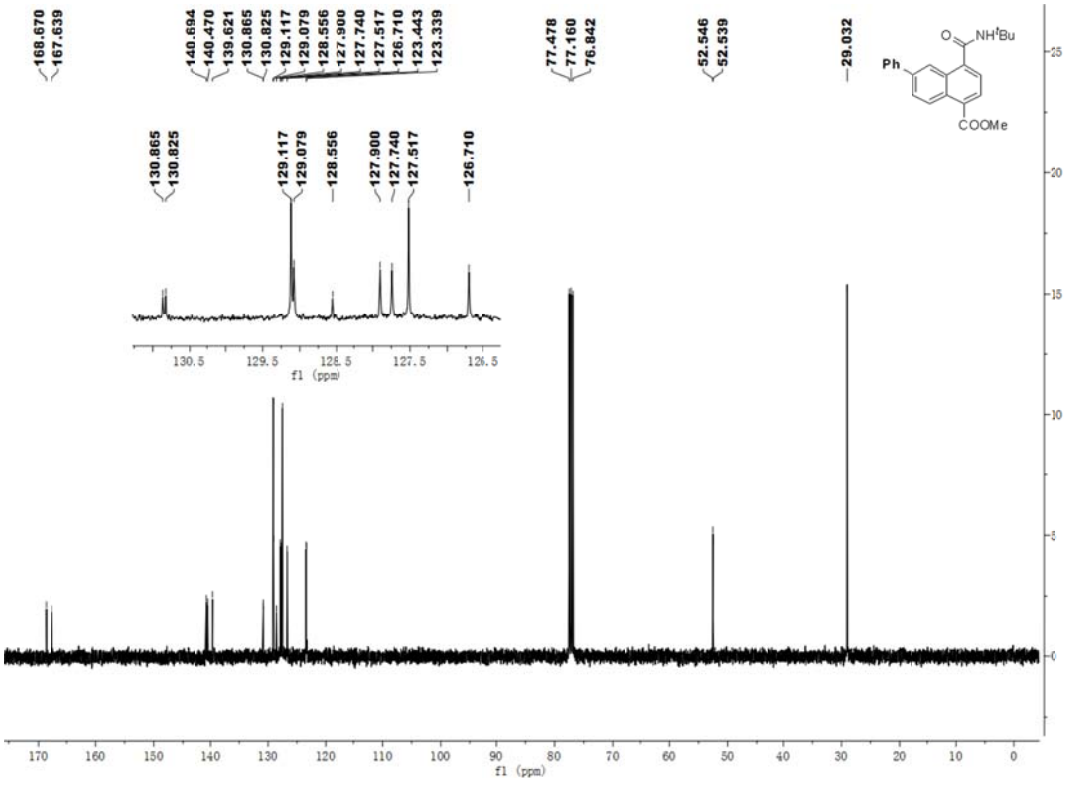

8.565
8.561
7.987
7.965
7.740
7.737
7.736
7.732
7.722
7.719
7.718
7.713
7.630
7.612
7.544
7.541
7.537
7.526
7.523
7.519
7.512
7.506
7.504
7.493
7.491
7.485
7.480
7.476
7.470
7.465
7.411
7.408
7.405
7.395
7.390
7.385
7.377
7.371
7.368
7.260
5.910
1.570
O
NHtBu
Ph
Ph
0.93
1.00
2.99
0.98
7.23
2.11
0.90
9.00
f1 (ppm)

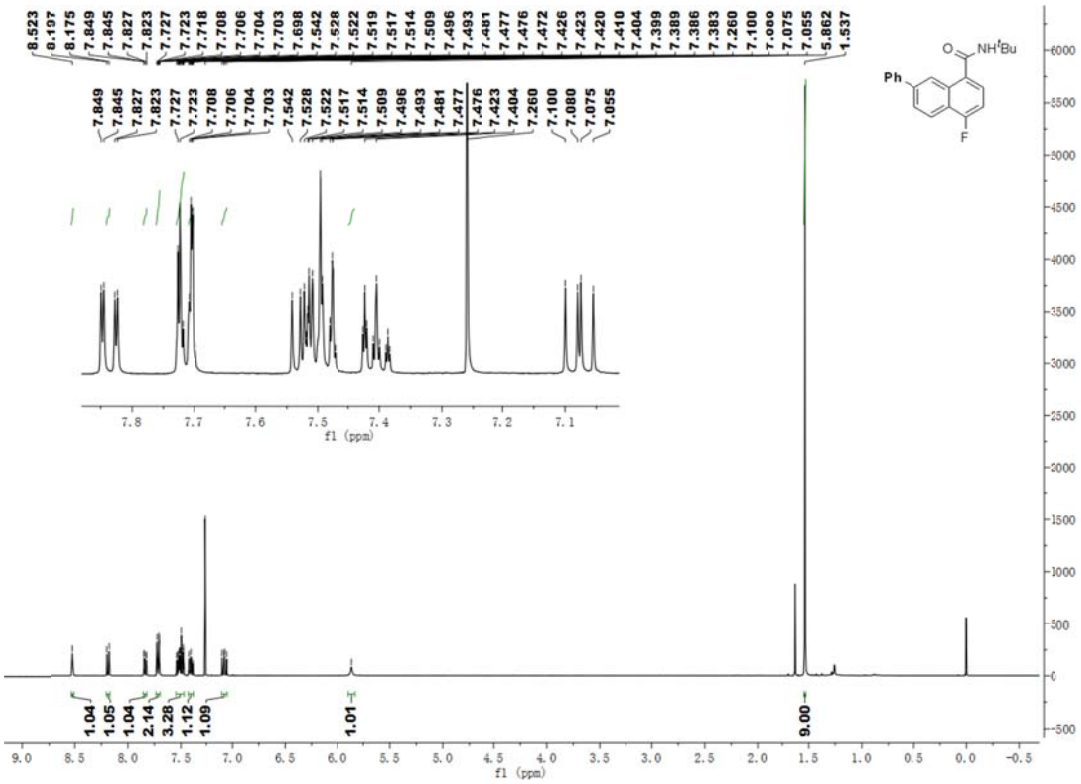

169.366
142.305
140.934
140.333
139.404
135.763
131.200
130.854
130.061
129.059
128.518
127.759
127.702
127.592
127.162
126.165
125.912
124.468
123.603
77.478
77.160
76.842
52.289
29.117
O
NHtBu
Ph
Ph
f1 (ppm)

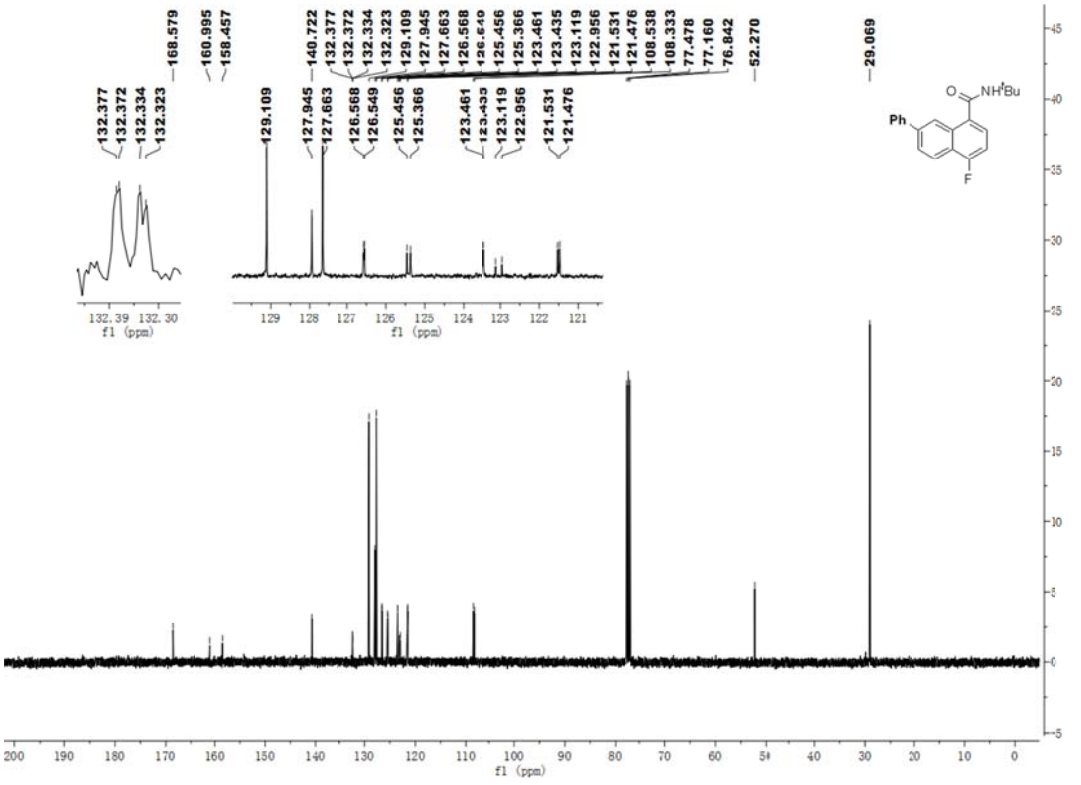

8.547
8.543
8.359
8.337
7.780
7.776
7.758
7.754
7.745
7.741
7.723
7.552
7.532
7.500
7.462
7.462
7.402
7.399
7.396
7.385
7.380
7.376
7.365
7.362
7.359
7.260
6.750
6.730
5.823
4.032
1.532
NH^{t}Bu
Ph
OMe
0.96
1.00
1.06
2.09
1.06
2.09
1.07
1.08
0.87
3.04
9.00
f1 (ppm)

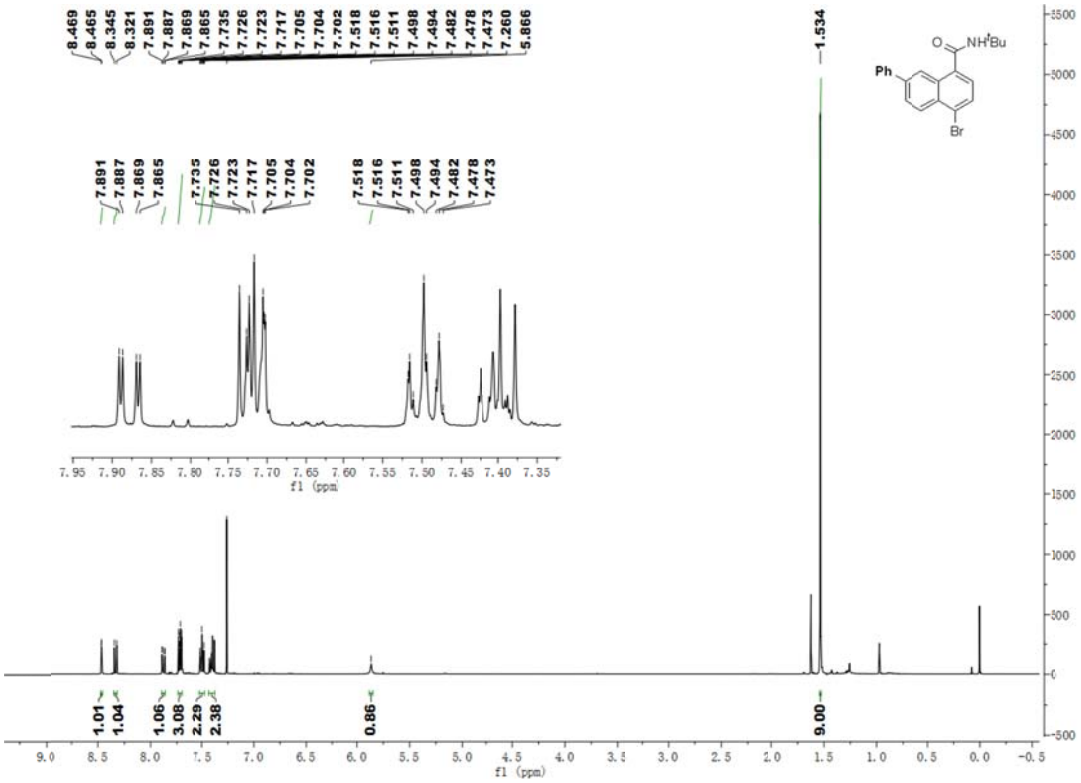

169.316
156.950
141.165
140.082
131.812
128.995
128.659
127.644
127.629
126.113
125.350
124.861
123.316
122.955
102.525
77.478
77.160
76.842
55.828
52.007
29.132
NH^{t}Bu
Ph
OMe
f1 (ppm)

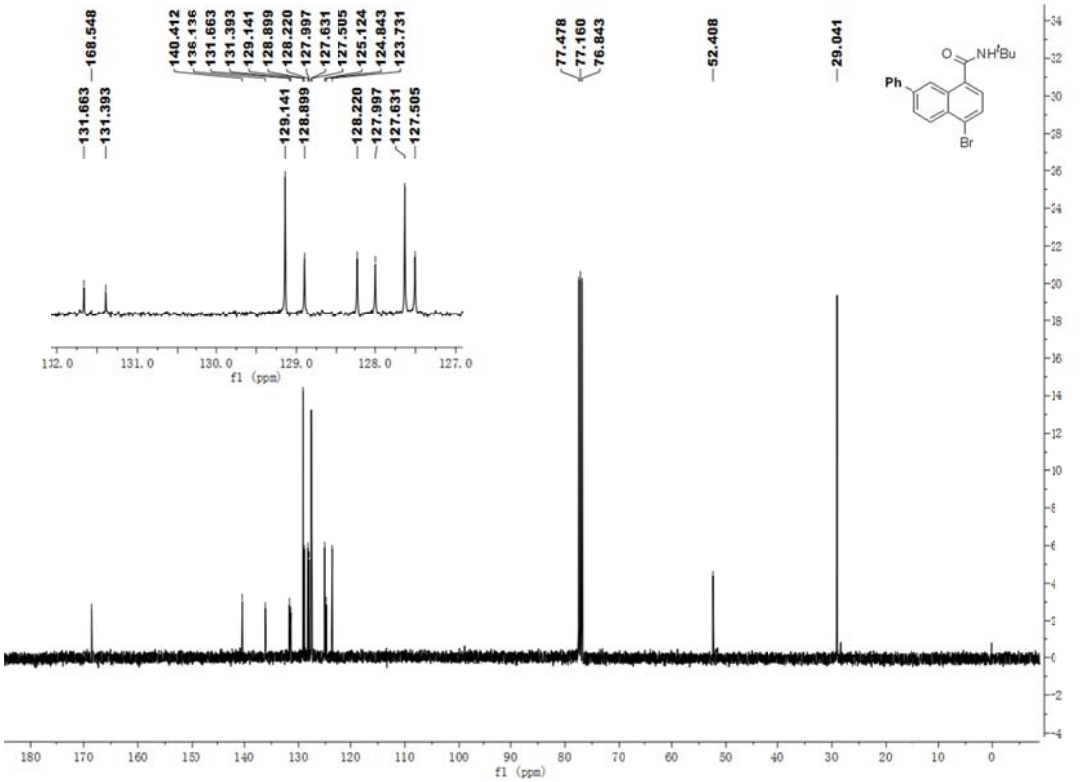

8.970
8.947
8.437
8.432
8.093
8.075
7.906
7.901
7.884
7.879
7.728
7.724
7.706
7.704
7.541
7.522
7.512
7.507
7.493
7.474
7.420
7.417
7.414
7.404
7.399
7.394
7.383
7.381
7.378
7.260
5.906
4.016
1.548
NH^{t}Bu
Ph
COOMe
f1 (ppm)
1.01
0.99
1.05
1.08
2.11
3.21
1.01
0.95
2.84
9.00

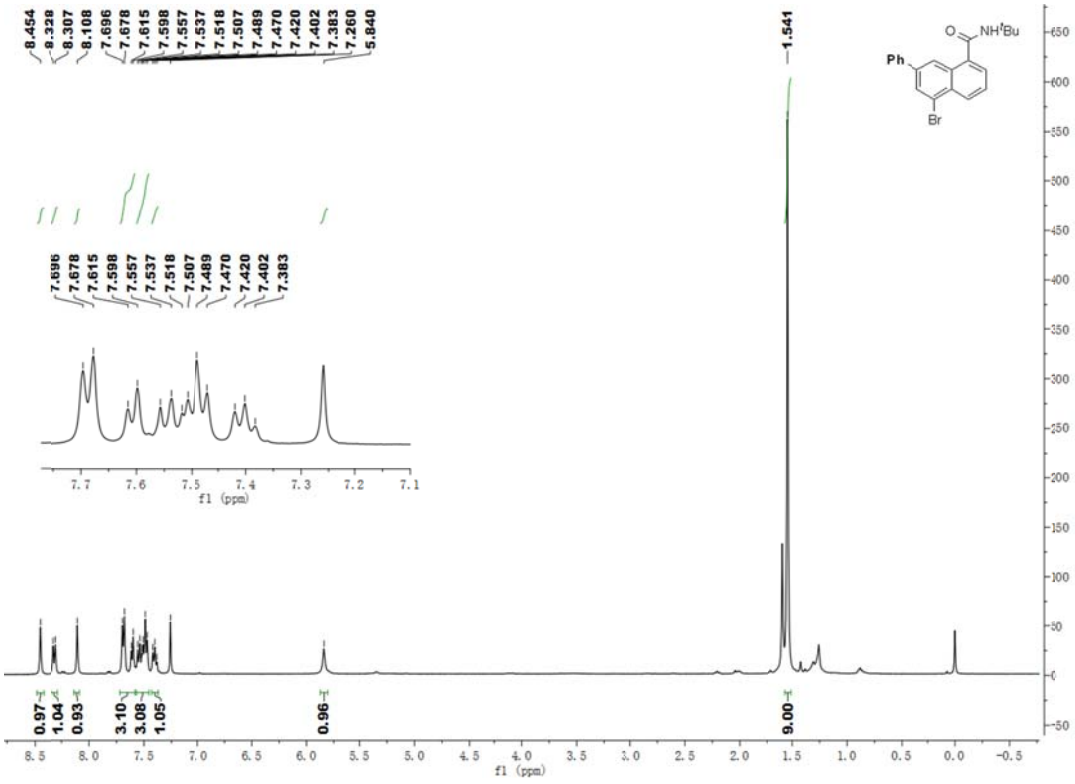

168.670
167.639
140.694
140.470
139.621
130.865
130.825
129.117
129.079
128.556
127.900
127.740
127.517
126.710
123.443
123.339
77.478
77.160
76.842
52.546
52.539
29.032
NH^{t}Bu
Ph
COOMe
f1 (ppm)

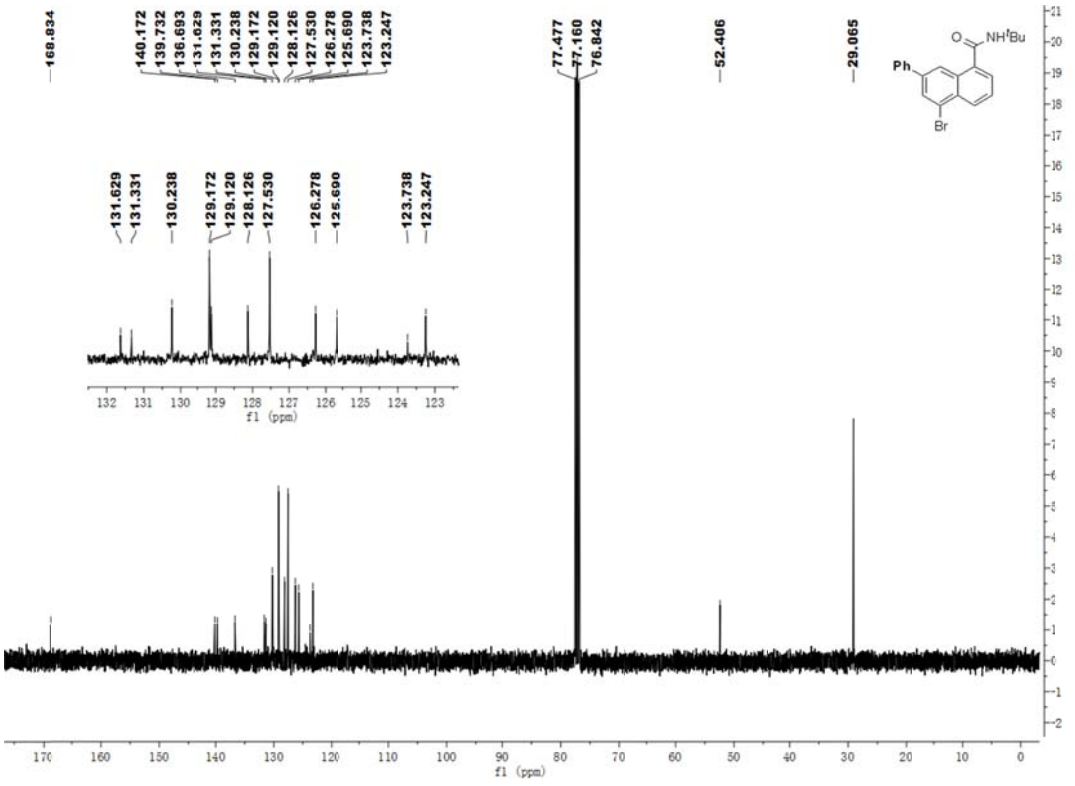

8.523
8.197
8.175
7.849
7.845
7.827
7.823
7.727
7.723
7.718
7.708
7.706
7.704
7.703
7.698
7.542
7.528
7.522
7.519
7.517
7.514
7.509
7.496
7.493
7.481
7.477
7.476
7.423
7.404
7.260
7.100
7.080
7.075
7.055
5.862
1.537
NH^{t}Bu
Ph
F
f1 (ppm)
1.04
1.05
1.04
2.14
3.28
1.12
1.09
1.01
9.00

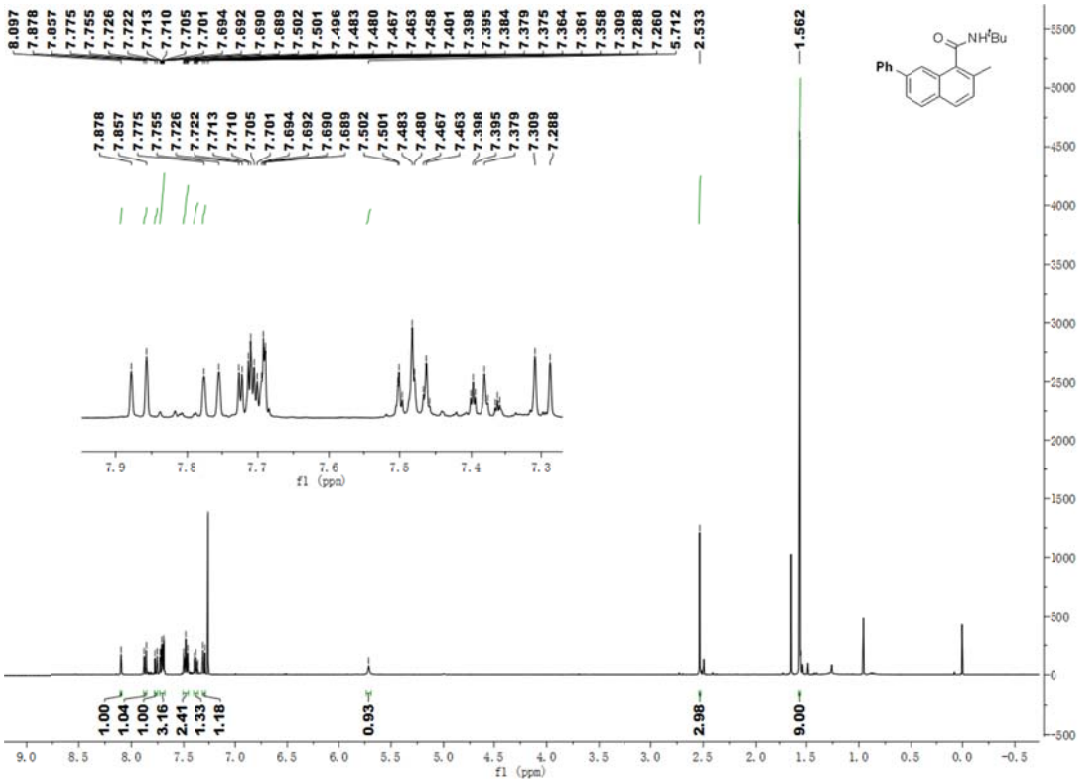

168.579
160.995
158.457
140.722
132.377
132.372
132.334
132.323
129.109
127.945
127.663
126.568
126.549
125.456
125.366
123.461
123.435
123.119
122.956
121.531
121.476
108.538
108.333
77.478
77.160
76.842
52.270
29.069
NH^{t}Bu
Ph
F
f1 (ppm)

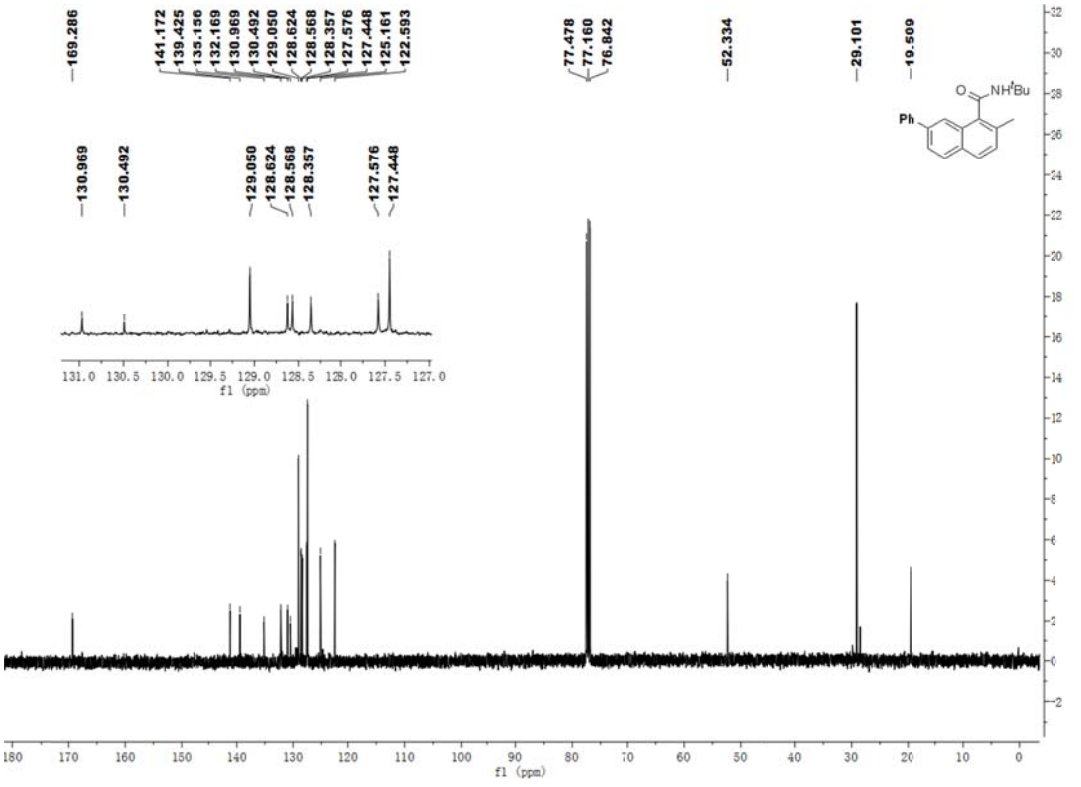

8.469
8.465
8.345
8.321
7.891
7.887
7.869
7.865
7.735
7.726
7.723
7.717
7.705
7.704
7.702
7.518
7.516
7.511
7.498
7.494
7.482
7.478
7.473
7.260
5.866
1.534
Ph
NHtBu
Br
f1 (ppm)
1.01
1.04
1.06
3.08
2.29
2.38
0.86
9.00

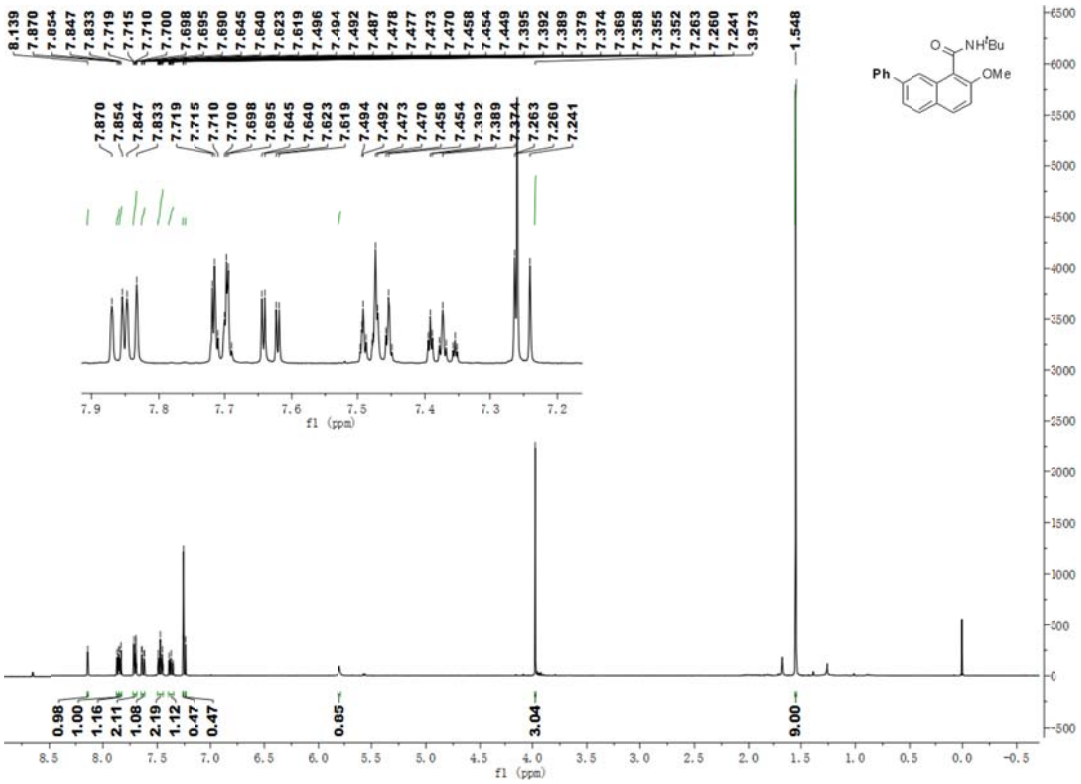

168.548
140.412
136.136
131.663
131.393
129.141
128.899
128.220
127.997
127.631
127.505
125.124
124.843
123.731
77.478
77.160
76.843
52.408
29.041
Ph
NHtBu
Br
f1 (ppm)

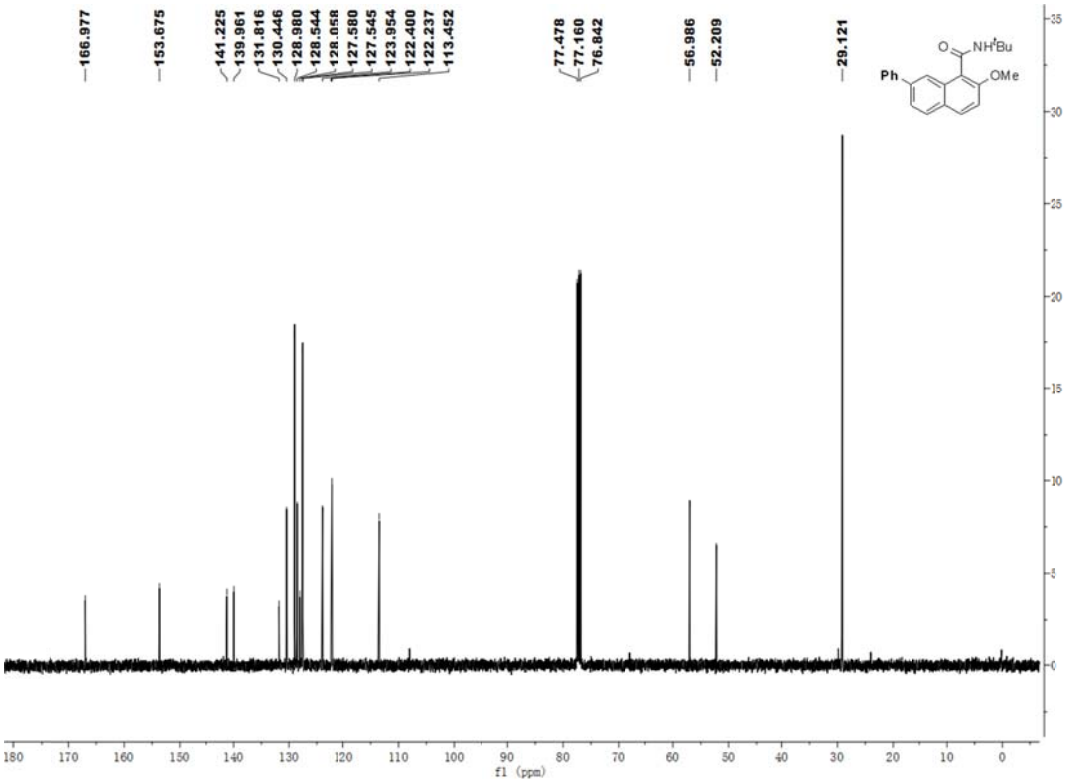

8.454
8.328
8.307
8.108
7.696
7.678
7.615
7.598
7.557
7.537
7.518
7.507
7.489
7.470
7.420
7.402
7.383
7.260
5.840
1.541
0.97
1.04
0.93
3.10
3.08
1.05
0.96
9.00
f1 (ppm)
Ph
Br
NHtBu

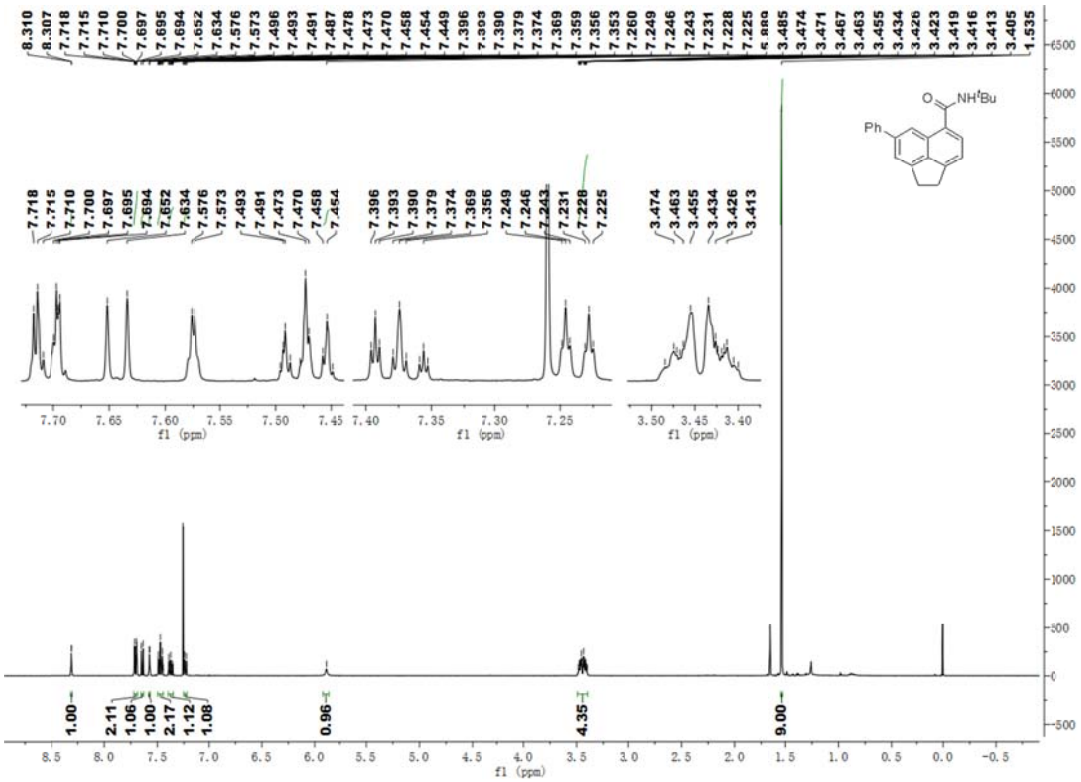

168.834
140.172
139.732
136.693
131.629
131.331
130.238
129.172
129.120
128.126
127.530
126.278
125.690
123.738
123.247
77.477
77.160
76.842
52.406
29.065
f1 (ppm)
Ph
Br
NHtBu

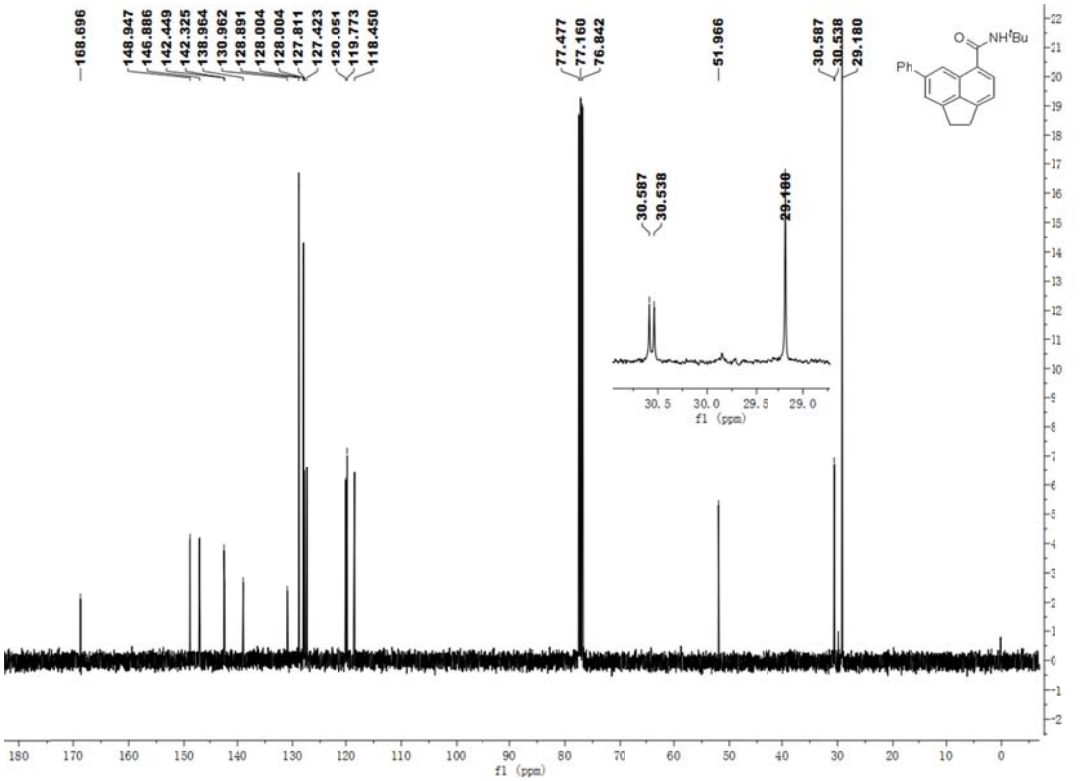

8.097
7.878
7.857
7.775
7.755
7.726
7.722
7.713
7.710
7.705
7.701
7.694
7.692
7.690
7.689
7.502
7.501
7.496
7.483
7.480
7.467
7.463
7.458
7.401
7.398
7.395
7.384
7.379
7.375
7.364
7.361
7.358
7.309
7.288
7.260
5.712
2.533
1.562
Ph
O
NH^{t}Bu
f1 (ppm)
1.00
1.04
1.00
3.16
2.41
1.33
1.18
0.93
2.98
9.00

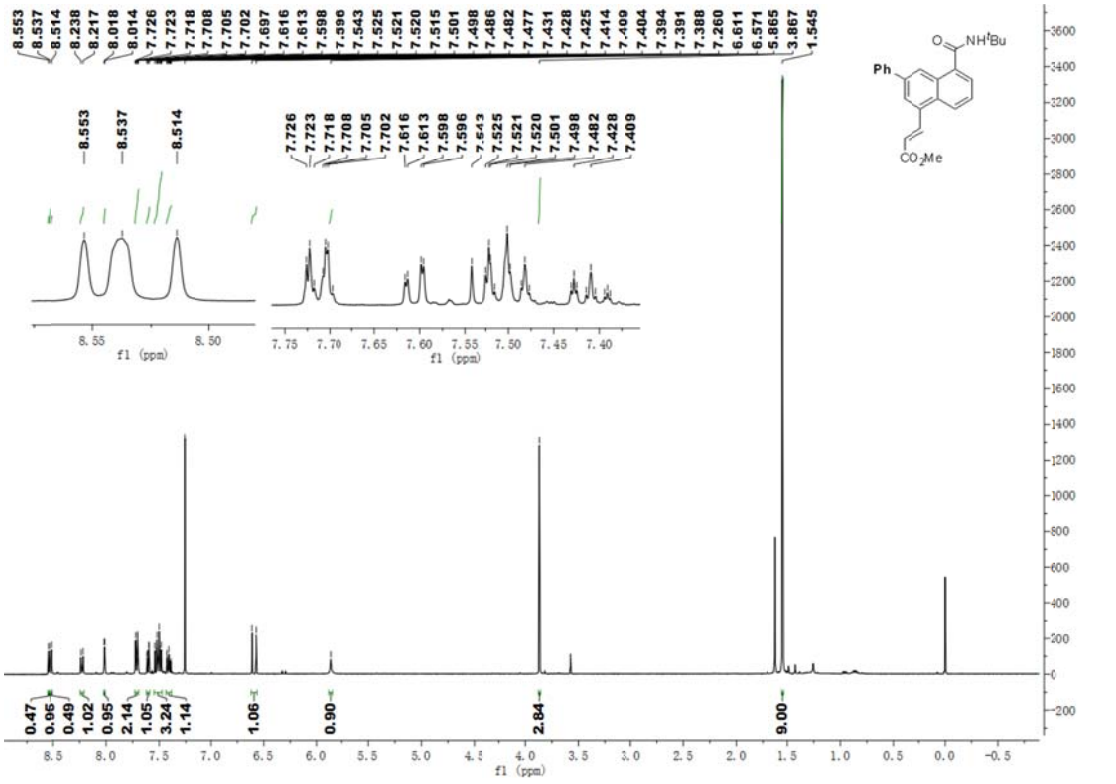

169.286
141.172
139.425
135.136
132.169
130.969
130.492
129.050
128.624
128.568
128.357
127.576
127.448
125.161
122.593
77.478
77.160
76.842
52.334
29.101
19.509
Ph
O
NH^{t}Bu
f1 (ppm)

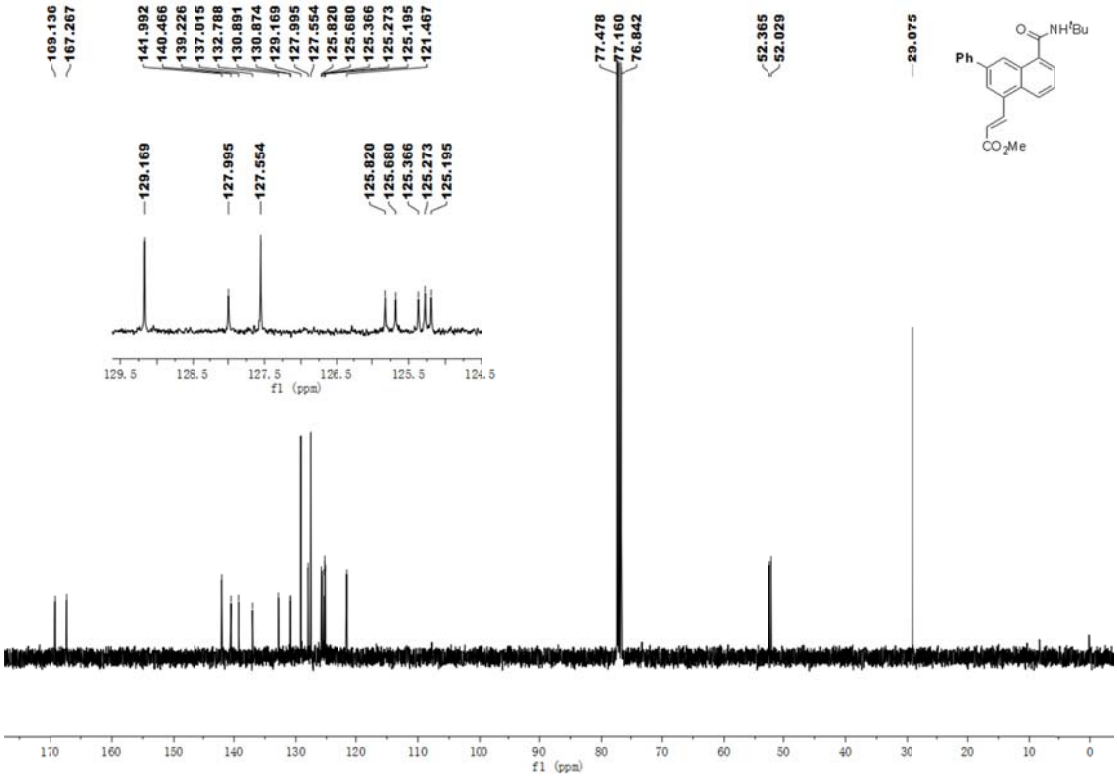

8.139
7.870
7.854
7.847
7.833
7.719
7.715
7.710
7.700
7.698
7.695
7.690
7.645
7.640
7.623
7.619
7.496
7.494
7.492
7.487
7.478
7.477
7.473
7.470
7.458
7.454
7.449
7.395
7.392
7.389
7.379
7.374
7.369
7.358
7.355
7.352
7.263
7.260
7.241
3.973
1.548
O
NHtBu
Ph
OMe
f1 (ppm)
0.98
1.00
1.16
2.11
1.08
2.19
1.12
0.47
0.47
0.65
3.04
9.00

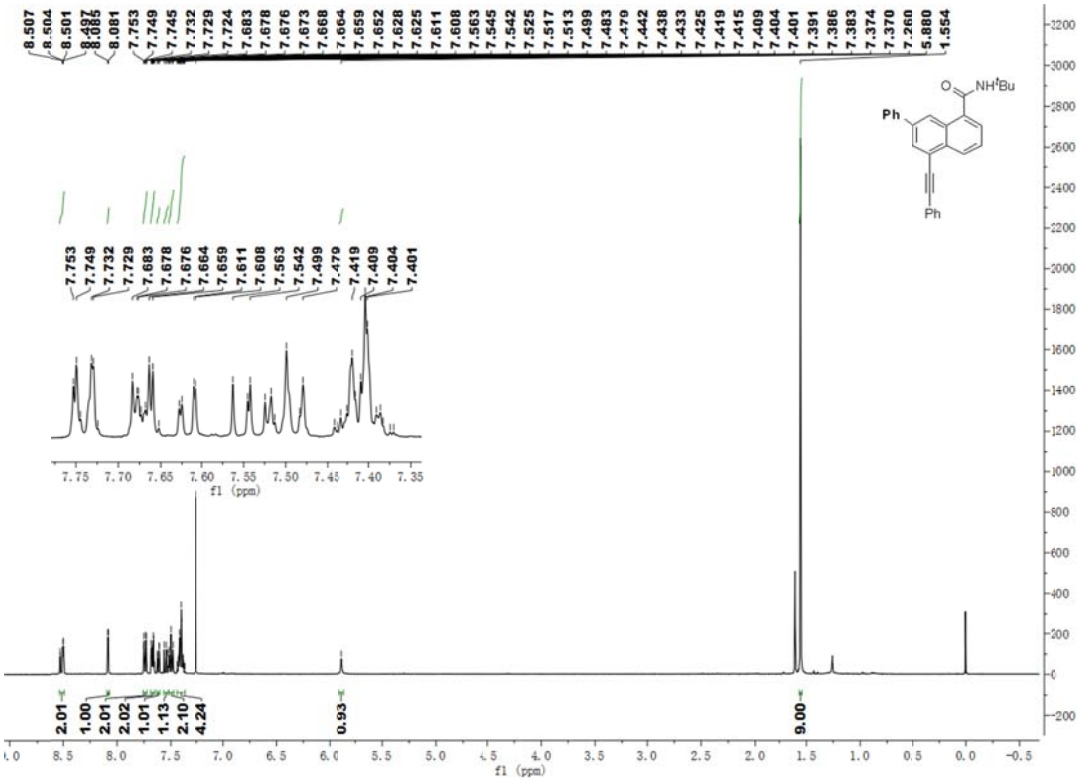

166.977
153.675
141.225
139.961
131.816
130.446
128.980
128.544
128.058
127.580
127.545
123.954
122.400
122.237
113.452
77.478
77.160
76.842
56.986
52.209
29.121
O
NHtBu
Ph
OMe
f1 (ppm)

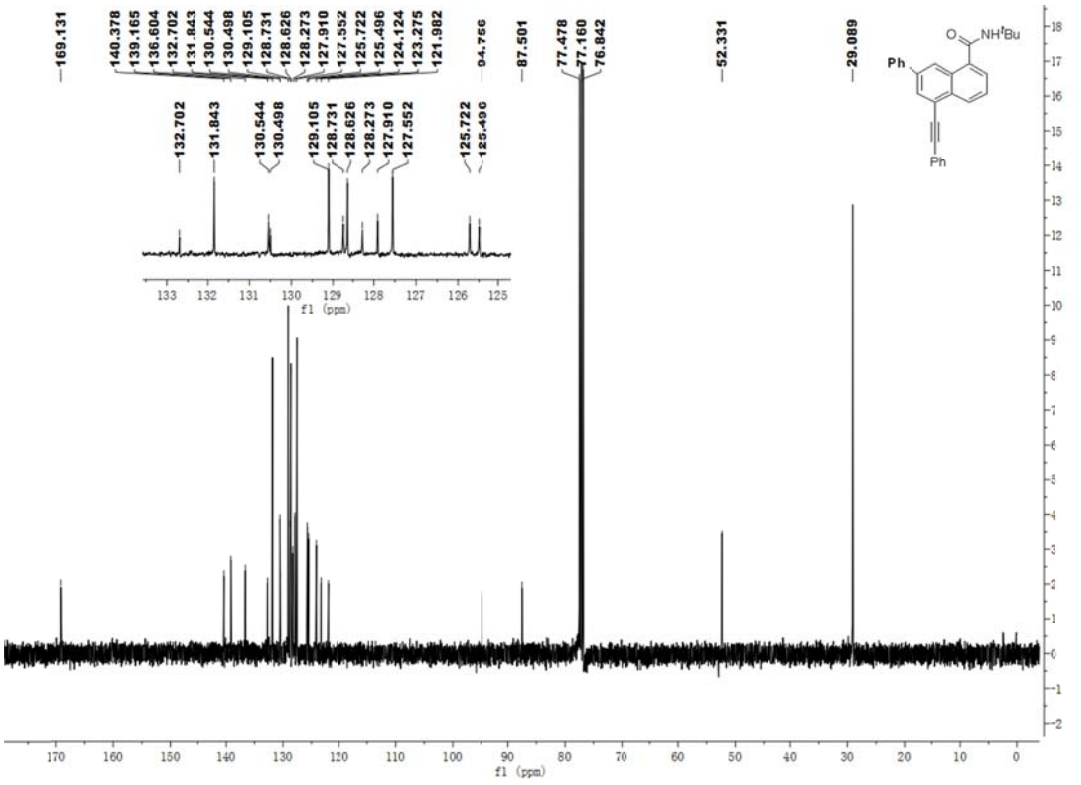

8.310
8.307
7.718
7.715
7.710
7.700
7.697
7.695
7.694
7.652
7.634
7.576
7.573
7.496
7.493
7.491
7.487
7.478
7.473
7.470
7.458
7.454
7.449
7.396
7.393
7.390
7.379
7.374
7.369
7.359
7.356
7.353
7.260
7.249
7.246
7.243
7.231
7.228
7.225
3.485
3.474
3.471
3.467
3.463
3.455
3.434
3.426
3.423
3.419
3.416
3.413
3.405
1.535
O
NH^{t}Bu
Ph
f1 (ppm)
1.00
2.11
1.06
1.00
2.17
1.12
1.08
0.96
4.35
9.00

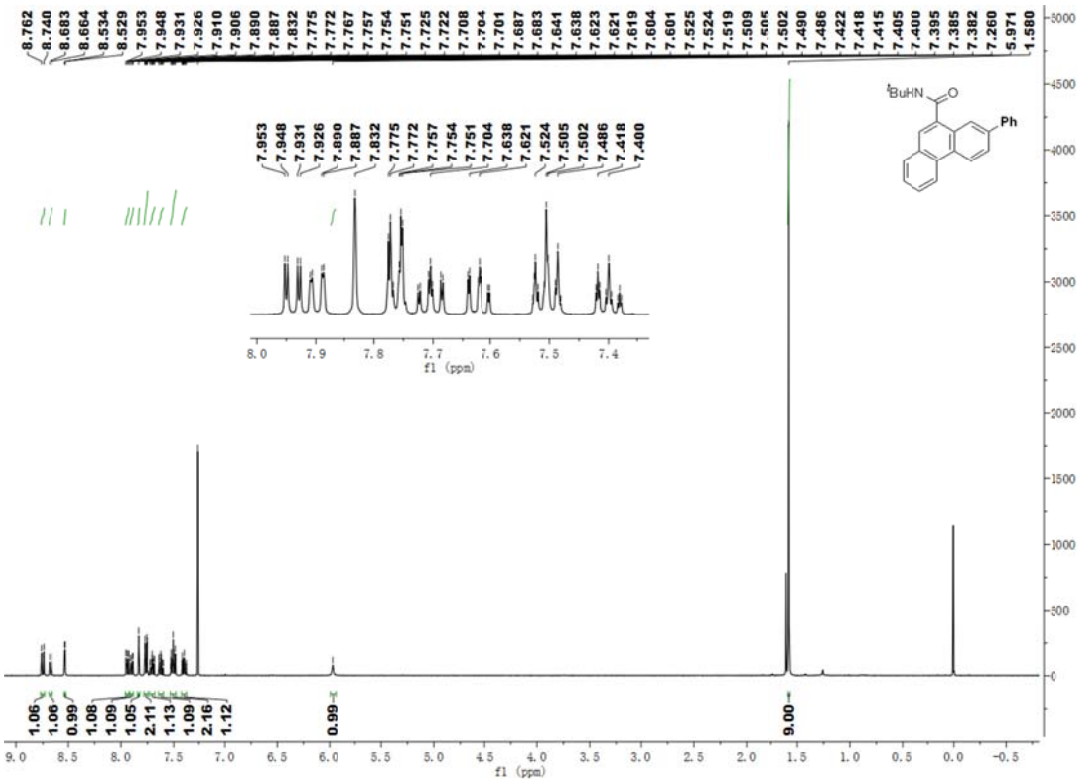

168.696
148.947
146.886
142.449
142.325
138.964
130.962
128.891
128.004
128.004
127.811
127.423
120.051
119.773
118.450
77.477
77.160
76.842
51.966
30.587
30.538
29.180
O
NH^{t}Bu
Ph
f1 (ppm)

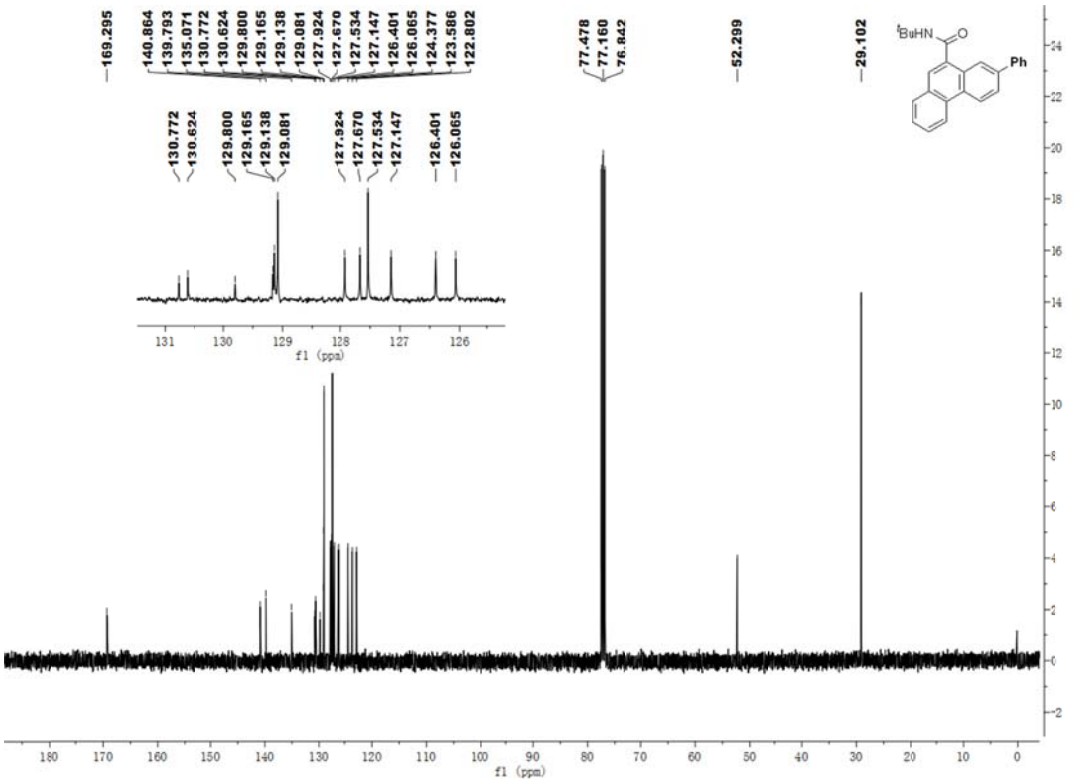

8.553
8.537
8.514
8.238
8.217
8.018
8.014
7.726
7.723
7.718
7.708
7.705
7.702
7.697
7.616
7.613
7.598
7.596
7.543
7.525
7.521
7.520
7.515
7.501
7.498
7.486
7.482
7.477
7.431
7.428
7.425
7.414
7.409
7.404
7.394
7.391
7.388
7.260
6.611
6.571
5.865
3.867
1.545
Ph
NH^{t}Bu
CO$_2$Me
f1 (ppm)
0.47
0.96
0.49
1.02
0.95
2.14
1.05
3.24
1.14
1.06
0.90
2.84
9.00

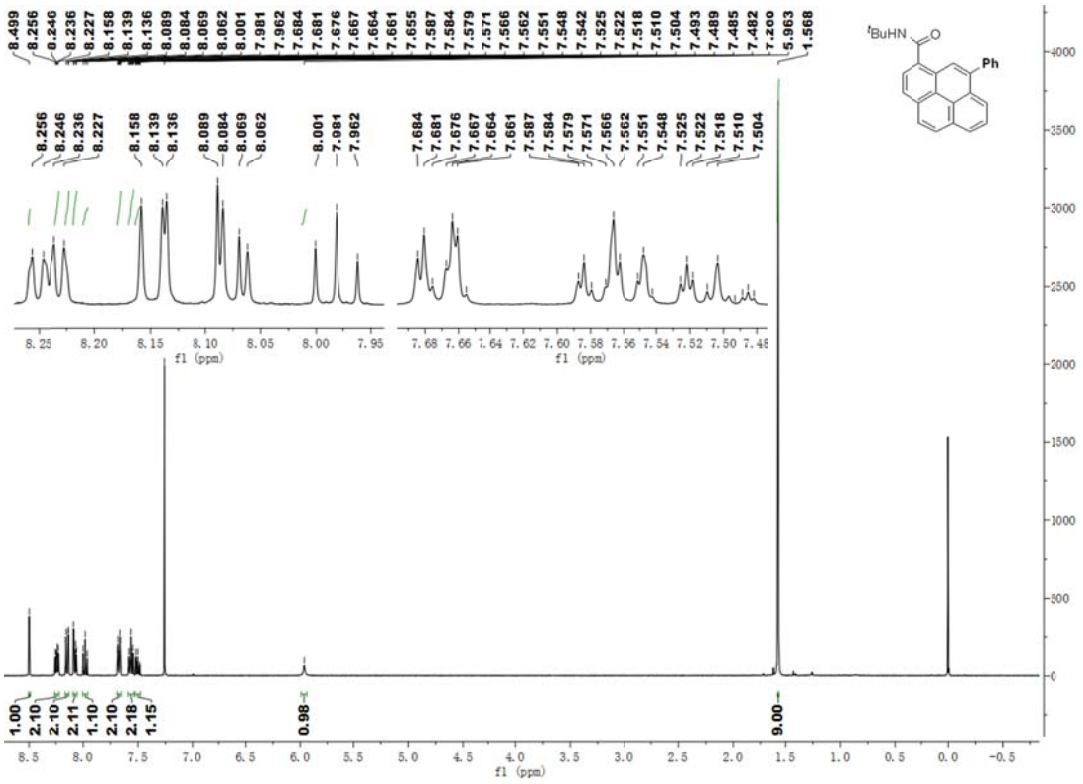

169.136
167.267
141.992
140.466
139.226
137.015
132.788
130.891
130.874
129.169
127.995
127.554
125.820
125.680
125.366
125.273
125.195
121.467
77.478
77.160
76.842
52.365
52.029
23.075
Ph
NH^{t}Bu
CO$_2$Me
f1 (ppm)

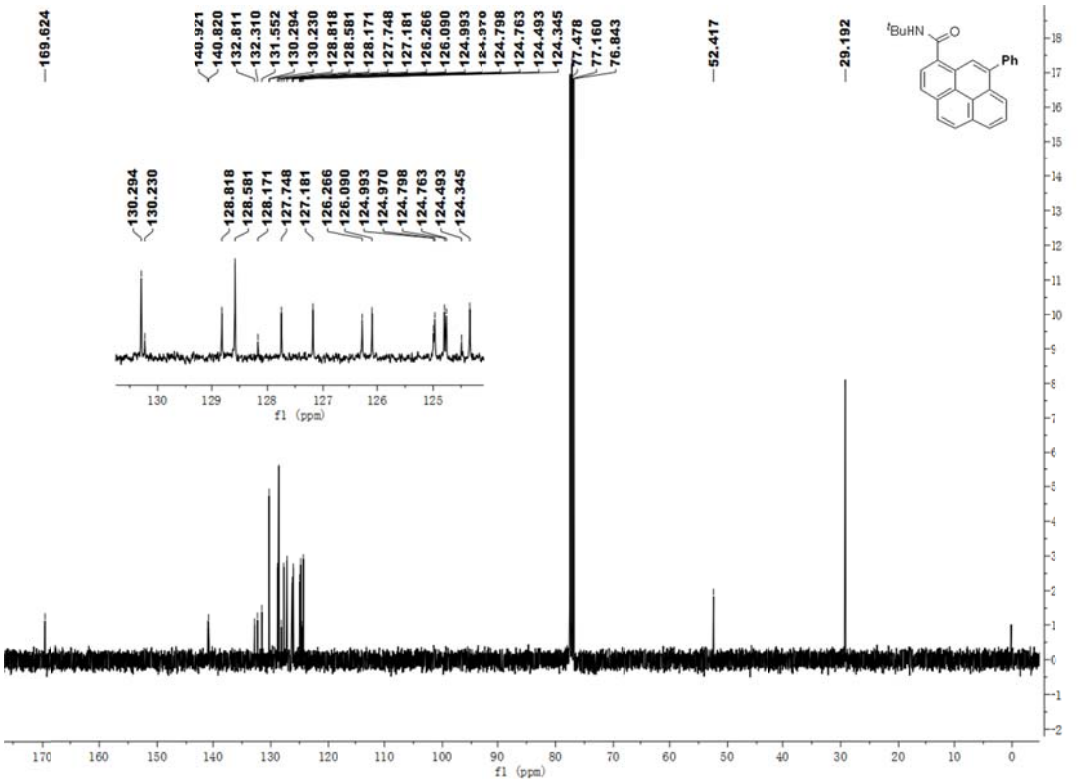

8.507
8.504
8.501
8.487
8.085
8.081
7.753
7.749
7.745
7.732
7.729
7.724
7.683
7.678
7.676
7.673
7.668
7.664
7.659
7.652
7.628
7.625
7.611
7.608
7.563
7.545
7.542
7.525
7.517
7.513
7.499
7.483
7.470
7.442
7.438
7.433
7.425
7.419
7.415
7.409
7.404
7.401
7.391
7.386
7.383
7.374
7.370
7.260
5.880
1.554
O
NH^{t}Bu
Ph
Ph
f1 (ppm)
2.01
1.00
2.01
2.02
1.01
1.13
2.10
4.24
0.93
9.00

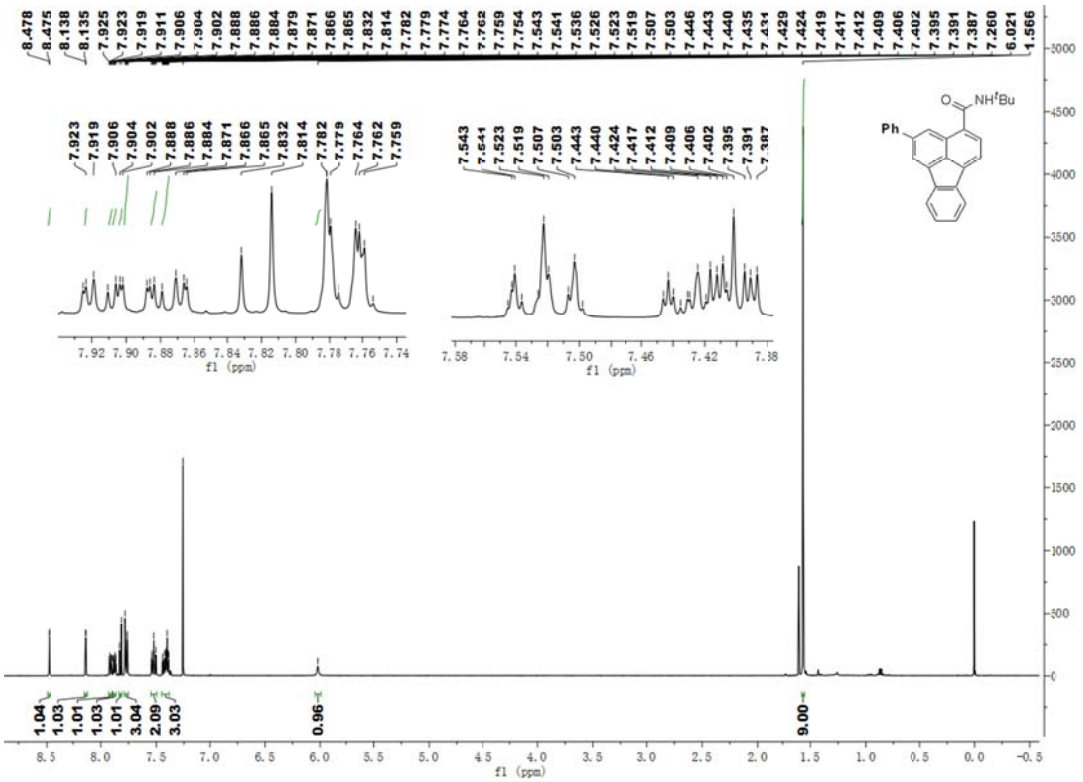

169.131
140.378
139.165
136.604
132.702
131.843
130.544
130.498
129.105
128.731
128.626
128.273
127.910
127.552
125.722
125.496
124.124
123.275
121.982
94.756
87.501
77.478
77.160
76.842
52.331
29.089
O
NH^{t}Bu
Ph
Ph
f1 (ppm)

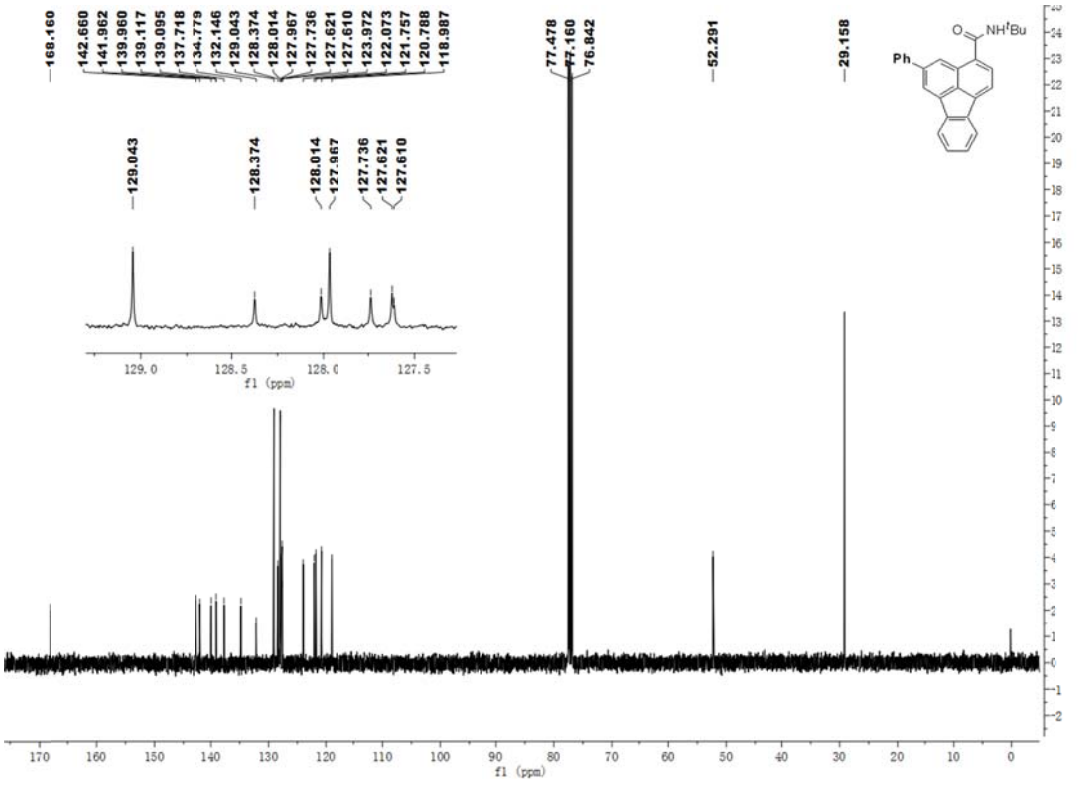

tBuHN
O
Ph
f1 (ppm)

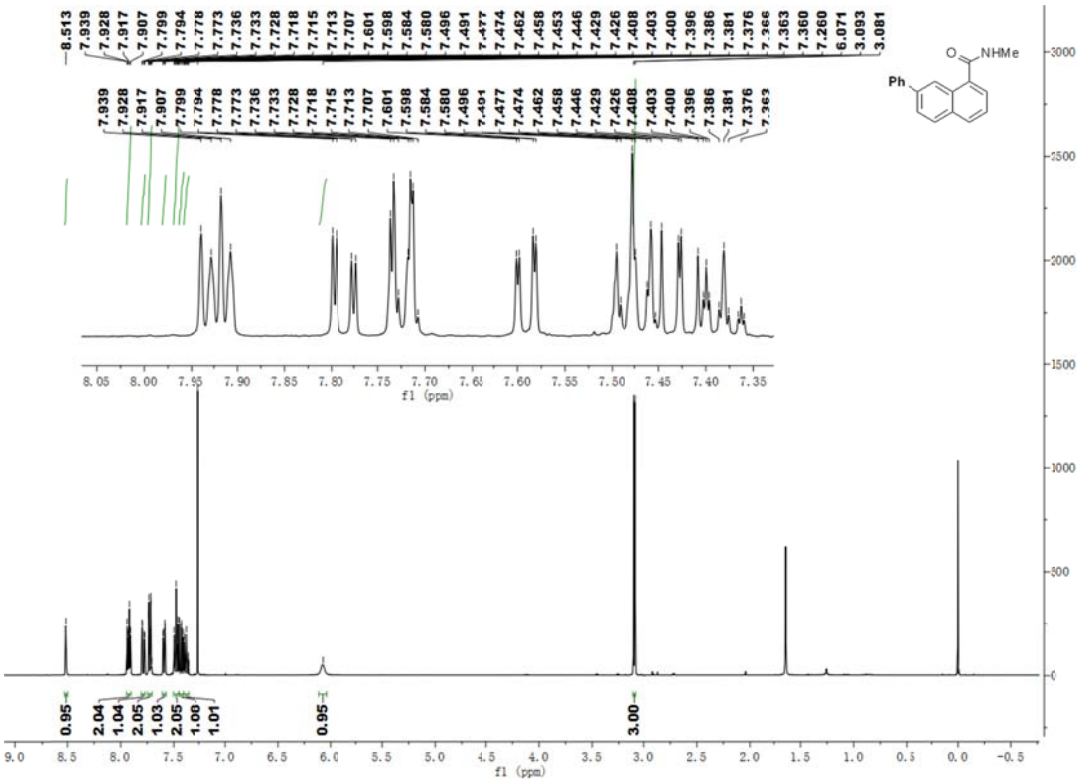

tBuHN
O
Ph
f1 (ppm)

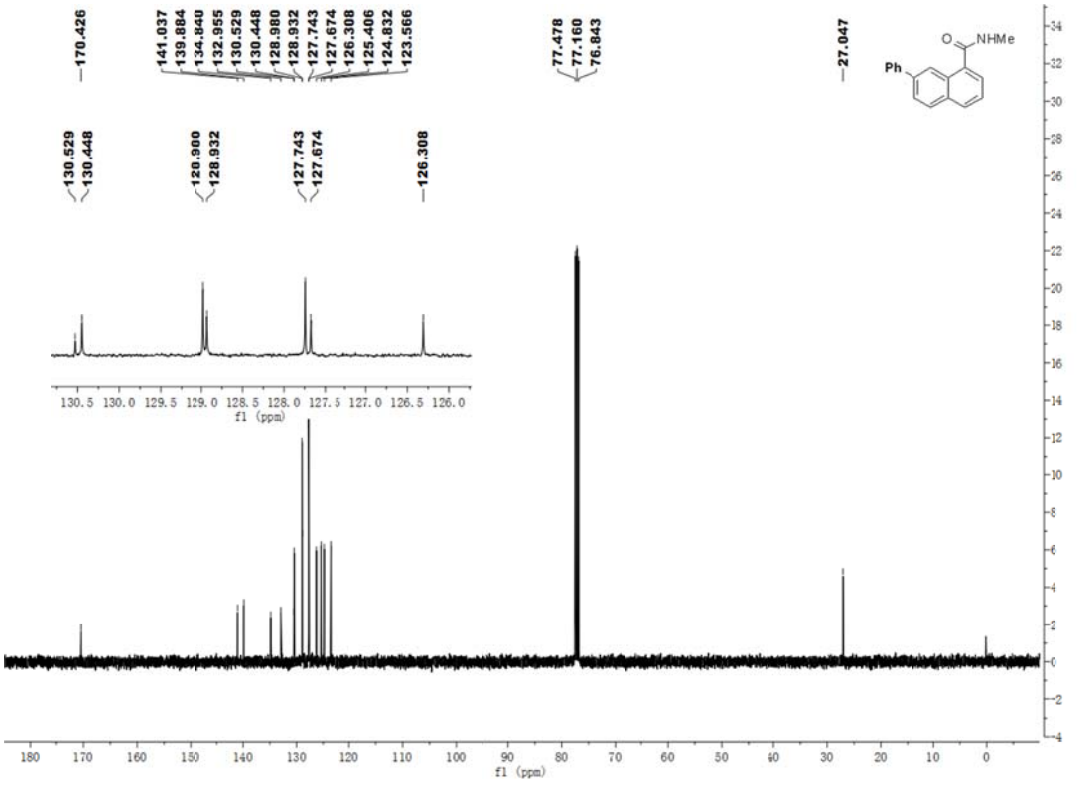

tBuHN
O
Ph
8.499
8.256
8.246
8.236
8.227
8.158
8.139
8.136
8.089
8.084
8.069
8.062
8.001
7.981
7.962
7.684
7.681
7.676
7.667
7.664
7.661
7.655
7.587
7.584
7.579
7.571
7.566
7.562
7.551
7.548
7.542
7.525
7.522
7.518
7.510
7.504
7.493
7.489
7.485
7.482
5.963
1.568
f1 (ppm)
1.00
2.10
2.10
2.11
1.10
2.10
2.18
1.15
0.98
9.00

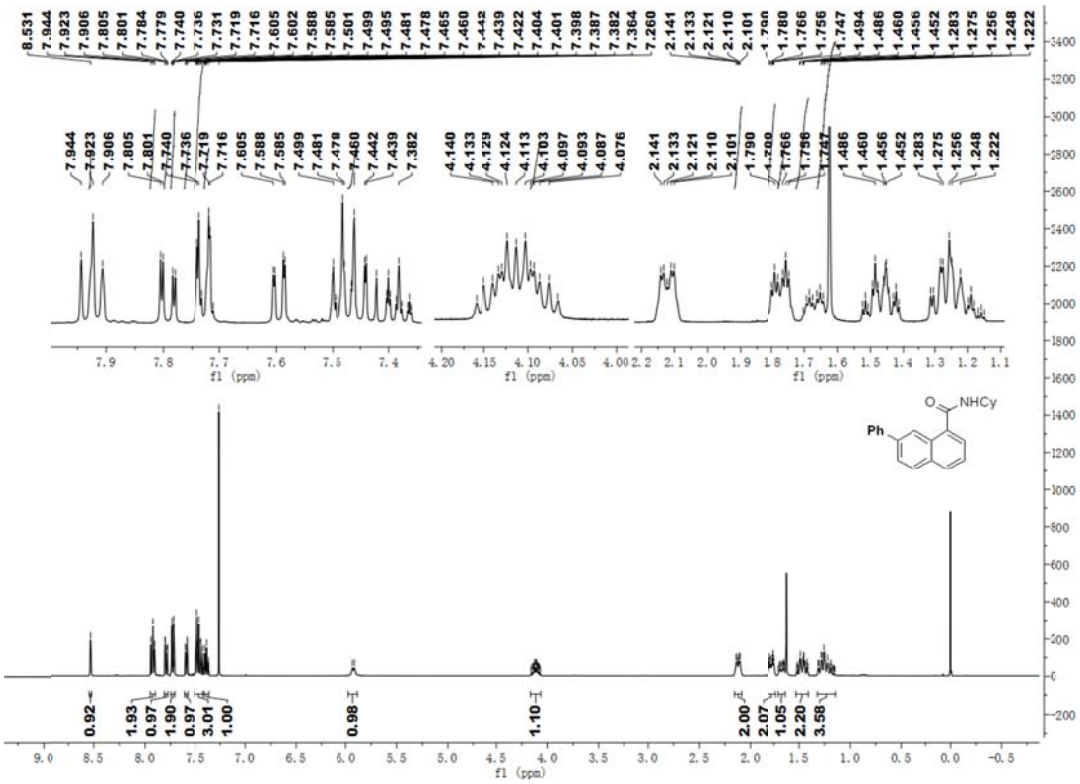

tBuHN
O
Ph
169.624
140.921
140.820
132.811
132.310
131.552
130.294
130.230
128.818
128.581
128.171
127.748
127.181
126.266
126.090
124.993
124.970
124.798
124.763
124.493
124.345
77.478
77.160
76.843
52.417
29.192
f1 (ppm)

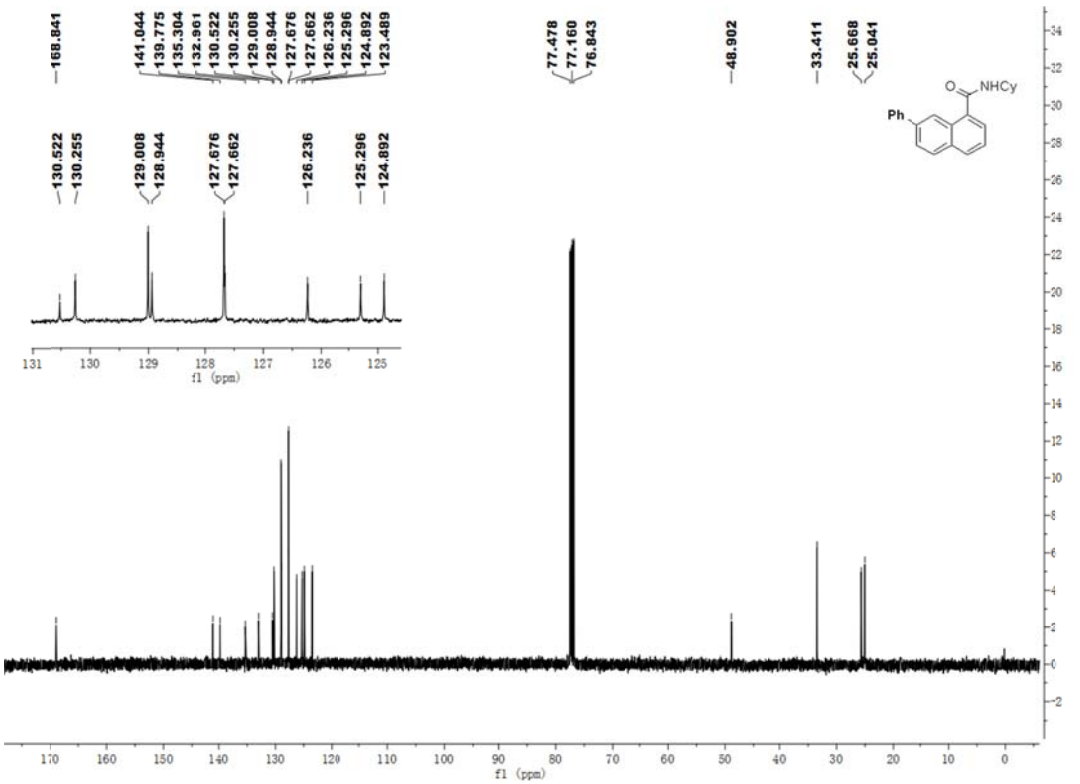

8.478
8.475
8.138
8.135
7.925
7.923
7.919
7.911
7.906
7.902
7.888
7.886
7.884
7.879
7.871
7.866
7.865
7.832
7.814
7.782
7.779
7.774
7.764
7.762
7.759
7.754
7.543
7.541
7.536
7.526
7.523
7.519
7.507
7.503
7.446
7.443
7.440
7.435
7.429
7.424
7.419
7.417
7.412
7.409
7.406
7.402
7.395
7.391
7.387
7.260
6.021
1.566
NH^{t}Bu
Ph
1.04
1.03
1.01
1.03
1.01
3.04
2.09
3.03
0.96
9.00
f1 (ppm)

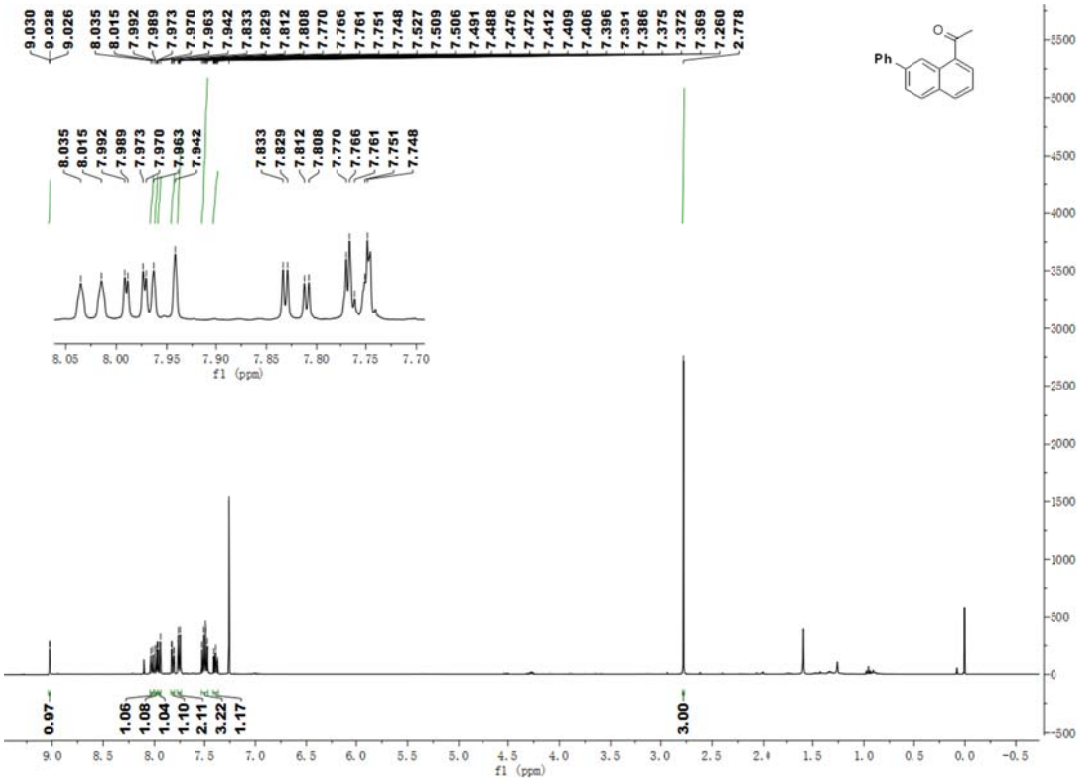

168.160
142.660
141.962
139.960
139.117
139.095
137.718
134.779
132.146
129.043
128.374
128.014
127.967
127.736
127.621
127.610
123.972
122.073
121.757
120.788
118.987
77.478
77.160
76.842
52.291
29.158
NH^{t}Bu
Ph
f1 (ppm)

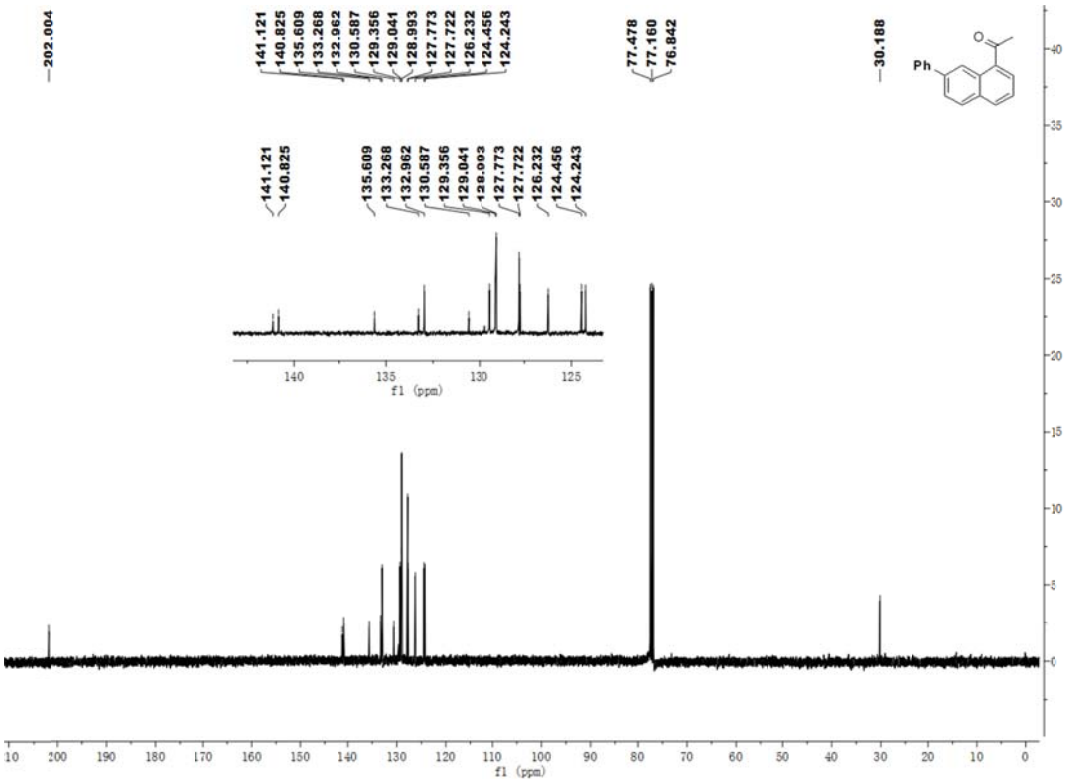

8.513
7.939
7.928
7.917
7.907
7.799
7.794
7.778
7.773
7.736
7.733
7.728
7.718
7.715
7.713
7.707
7.601
7.598
7.584
7.580
7.496
7.491
7.477
7.474
7.462
7.458
7.453
7.446
7.429
7.426
7.408
7.403
7.400
7.396
7.386
7.381
7.376
7.363
7.360
7.260
6.071
3.093
3.081
O
NHMe
Ph
f1 (ppm)
0.95
2.04
1.04
2.05
1.03
2.05
1.00
1.01
0.95
3.00

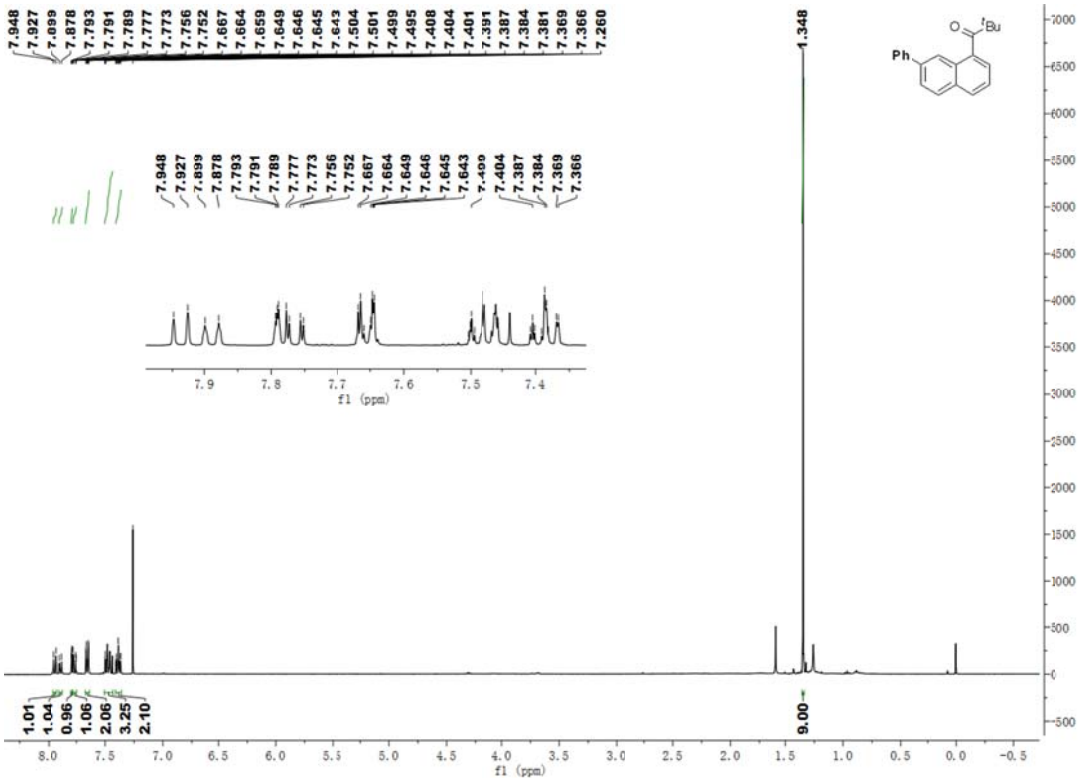

170.426
141.037
139.884
134.840
132.955
130.529
130.448
128.980
128.932
127.743
127.674
126.308
125.406
124.832
123.566
77.478
77.160
76.843
27.047
O
NHMe
Ph
130.529
130.448
128.980
128.932
127.743
127.674
126.308
f1 (ppm)

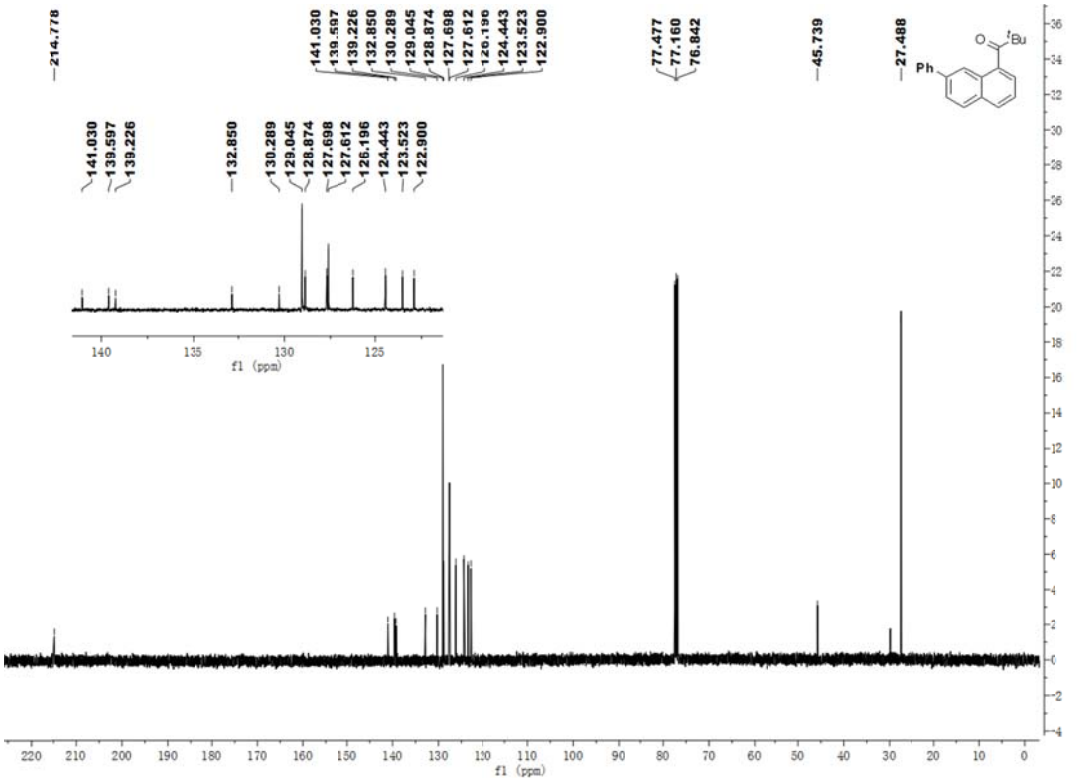

NHCy
Ph
f1 (ppm)


NHCy
Ph
f1 (ppm)


9.030
9.028
9.026
8.035
8.015
7.992
7.989
7.973
7.970
7.963
7.942
7.833
7.829
7.812
7.808
7.770
7.766
7.761
7.751
7.748
7.527
7.509
7.506
7.491
7.488
7.476
7.472
7.412
7.409
7.406
7.396
7.391
7.386
7.375
7.372
7.369
7.260
2.778
Ph
O
f1 (ppm)
0.97
1.06
1.08
1.04
1.10
2.11
3.22
1.17
3.00


202.004
141.121
140.825
135.609
133.268
132.962
130.587
129.356
129.041
128.993
127.773
127.722
126.232
124.456
124.243
77.478
77.160
76.842
30.188
Ph
O
f1 (ppm)


7.948
7.927
7.899
7.878
7.793
7.791
7.789
7.777
7.773
7.756
7.752
7.667
7.664
7.659
7.649
7.646
7.645
7.643
7.504
7.501
7.499
7.495
7.408
7.404
7.401
7.391
7.387
7.384
7.381
7.369
7.366
7.260
1.348
Ph
O
tBu
f1 (ppm)
1.01
1.04
0.96
1.06
2.06
3.25
2.10
9.00


214.778
141.030
139.597
139.226
132.850
130.289
129.045
128.874
127.698
127.612
126.196
124.443
123.523
122.900
77.477
77.160
76.842
45.739
27.488
Ph
O
tBu
f1 (ppm)