Electronic Supplementary Material (ESI) for Organic Chemistry Frontiers.

Supporting Information

Transition-metal-free oxidative annulation reactions between *N*-acyl-2-aminoacetophenones and alkynes for facile synthesis of 2-amino-1-naphthols

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I. General remarks

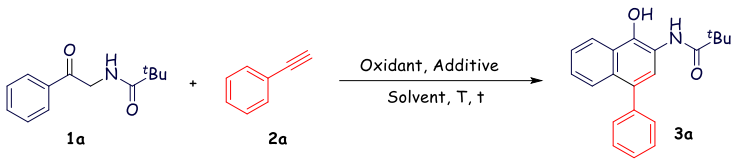
NMR spectra were obtained on a Bruker AV II-400 MHz or a Varian Inova 400 MHz spectrometer. The ^{1}H NMR (400 MHz) chemical shifts were measured relative to $CDCl_3$, DMSO-d_6, Acetone-d_6, CD_3OD or TMS as the internal reference ($CDCl_3$: δ = 7.26 ppm, DMSO-d_6: δ = 2.50 ppm, Acetone-d_6: δ = 2.05 ppm, CD_3OD: δ = 3.31 ppm, TMS: δ = 0.00 ppm). The ^{13}C NMR (100 MHz) chemical shifts were given using $CDCl_3$, DMSO-d_6, CD_3OD or Acetone-d_6 as the internal standard ($CDCl_3$: δ = 77.16 ppm, DMSO-d_6: δ = 39.52 ppm, CD_3OD: δ = 49.00 ppm or Acetone-d_6: δ = 29.84, 206.26 ppm). Chemical shifts δ are reported in ppm relative to residual solvent. Data are reported as follows: chemical shift, multiplicity (s = singlet, d = doublet, t = triplet, q = quartet, bs = broad singlet, m = multiplet), coupling constants (Hz), integration. High-resolution mass spectra (HRMS) were obtained with a Waters-Q-TOF-Premier (ESI).

Unless otherwise noted, all reagents and solvents were obtained from commercially available sources and used without further purification. Reactions were monitored by Thin Layer Chromatography (TLC) using UV light (254/365 nm) for detection. Products were purified by column chromatography, which was carried out on 200-300 mesh of silica gel purchased from Qing Dao Hai Yang Chemical Industry Co. The α-amino ketone substrates were prepared according to the known procedures.[1-5]

II. Optimization of the cascade oxidative annulation of *N*-(2-oxo-2-phenylethyl)pivalamide 1a with phenylacetylene 2a

An oven-dried Schlenk tube with a magnetic stir bar was charged with *N*-(2-oxo-2-phenylethyl)pivalamide **1a** (43.9 mg, 0.20 mmol, 1.0 equiv.), phenylacetylene **2a** (44.0 μl, 0.40 mmol, 2.0 equiv.), oxidant, additive and solvent under N_2 atmosphere. The tube was sealed with a teflon-coated cap and the reaction solution was heated at indicated temperature for indicated time. After being cooled to ambient temperature, the solvent was removed under reduced pressure, and the residue was purified by column chromatography on silica gel (ethyl acetate/petroleum ether = 1/15, v/v) to provide the desired product **3a**.

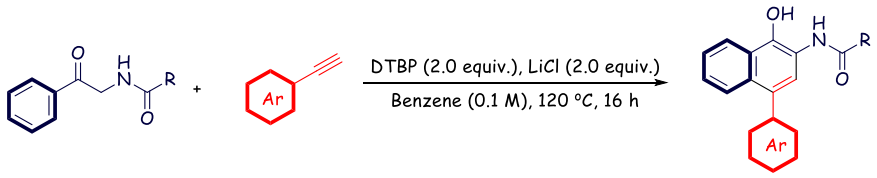
Table S1: Optimization of the cascade oxidative annulation of *N*-(2-oxo-2-phenylethyl)pivalamide **1a** with phenylacetylene **2a**[a]



Entry	Oxidant (equiv.)	Additive (equiv.)	Solvent	T (°C)	Yield (%)[b]
1	DTBP (2.0)	$Cu(acac)_2$ (0.1)	Benzene	140	26
2	DTBP (2.0)	$Fe(acac)_2$ (0.1)	Benzene	140	15
3	DTBP (2.0)	$Ni(acac)_2$ (0.1)	Benzene	140	17
4	DTBP (2.0)	$Co(acac)_2$ (0.1)	Benzene	140	27
5	DTBP (2.0)	$Mn(acac)_2$ (0.1)	Benzene	140	26
6	DTBP (2.0)	$FeCl_2 \cdot 4H_2O$ (0.1)	Benzene	140	trace
7	DTBP (2.0)	$Fe(OTf)_3$ (0.1)	Benzene	140	trace
8	DTBP (2.0)	$Cu(OTf)_2$ (0.1)	Benzene	140	trace
9	DTBP (2.0)	CuCl (0.1)	Benzene	140	18
10	DTBP (2.0)	$Cu(CH_3CN)_4BF_4$ (0.1)	Benzene	140	20
11	DTBP (2.0)	--	Benzene	140	33
12	DTBP (2.0)	--	DCE	140	trace
13	DTBP (2.0)	--	$PhCF_3$	140	28
14	DTBP (2.0)	--	CH_3CN	140	22
15	TBHP (2.0)	--	Benzene	140	28
16	DCP (2.0)	--	Benzene	140	26
17	DTBP (2.0)	LiCl (2.0)	Benzene	140	48
18	**DTBP (2.0)**	**LiCl (2.0)**	**Benzene**	**120**	**61**
19	DTBP (2.0)	LiCl (2.0)	Benzene	110	56
20	DTBP (3.0)	LiCl (2.0)	Benzene	120	41
21	DTBP (1.5)	LiCl (2.0)	Benzene	120	52
22[c]	DTBP (2.0)	LiCl (2.0)	Benzene	120	45
23[d]	DTBP (2.0)	LiCl (2.0)	Benzene	120	59
24[e]	DTBP (2.0)	LiCl (2.0)	Benzene	120	44
25	DTBP (2.0)	KCl (2.0)	Benzene	120	43
26	DTBP (2.0)	LiBr (2.0)	Benzene	120	32
27	DTBP (2.0)	$MgCl_2$ (2.0)	Benzene	120	trace

[a]Reaction conditions: **1a** (43.9 mg, 0.2 mmol, 1.0 equiv.), **2a** (44.0 μl, 0.4 mmol, 2.0 equiv.), oxidant and additive in benzene (2.0 mL) for 16 h. [b]Yield of isolated **3a** after purification by column chromatography. [c]**2a** (1.5 equiv.) was used. [d]24 h. [e]10 h. DTBP = Di-*tert*-butyl peroxide. DCE = 1,2-Dichloroethane. TBHP = *tert*-Butyl hydroperoxide. DCP = Dicumyl peroxide.

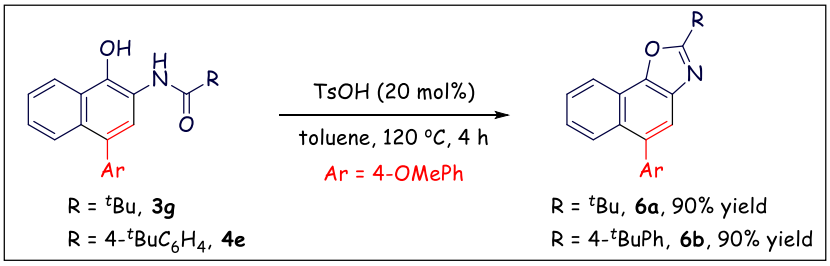
III. General procedure for the synthesis of 2-amino-1-naphthols



In a 25 mL Schlenk tube equipped with a stir bar was charged with α-amino ketone substrates (0.2 mmol, 1.0 equiv.), alkynes (0.4 mmol, 2.0 equiv.), DTBP (73.6 μl, 0.4 mmol, 2.0 equiv.) and LiCl (17.0 mg, 0.4 mmol, 2.0 equiv.) in benzene (2.0 mL). The reaction was stirred at 120 °C for 16 h under N_2 atmosphere. After cooled to room temperature, the solvent was removed under reduced pressure, and the residue was purified by silica gel column chromatography using petroleum ether and ethyl acetate as eluents to obtain the desired products.

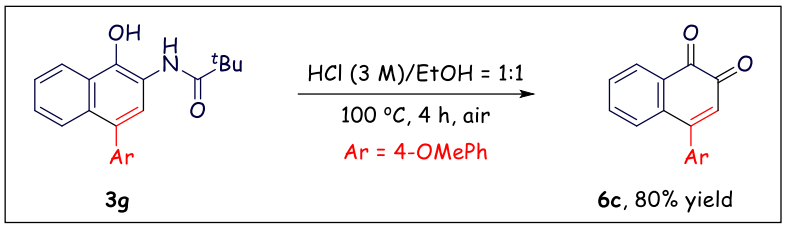
IV. General procedure for synthetic manipulation

a) Procedure for the synthetic of the fused benzoxazole derivatives



In a 10 mL Schlenk tube equipped with a stir bar was charged with **3g** (34.9 mg, 0.1 mmol, 1.0 equiv.) or **4e** (42.5 mg, 0.1 mmol, 1.0 equiv.), TsOH (3.5 mg, 0.02 mmol, 0.2 equiv.) in toluene (1.0 mL). The reaction was stirred at 120 °C for 4 h under N_2 atmosphere. After cooled to room temperature, the solvent was removed under reduced pressure, and the residue was purified by silica gel column chromatography using petroleum ether and ethyl acetate as eluents to obtain the desired product **6a** (29.8 mg, 90% yield) or **6b** (36.6 mg, 90% yield).

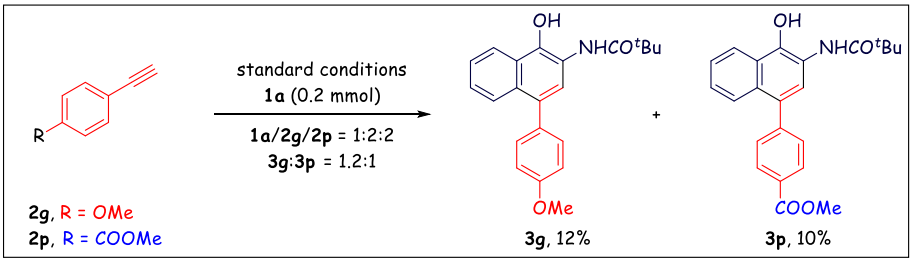
b) Procedure for the synthetic of naphthalene-1,2-dione



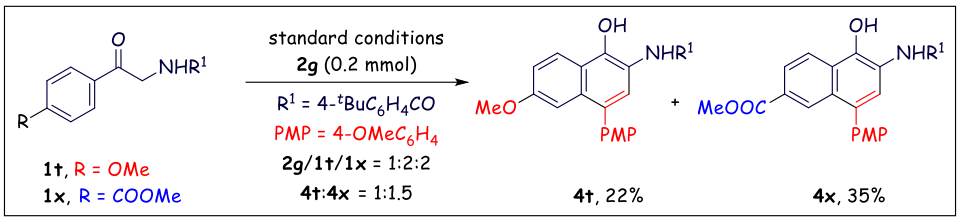
In a 10 mL Schlenk tube equipped with a stir bar was charged with *N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)pivalamide **3g** (34.9 mg, 0.1 mmol, 1.0 equiv.) in EtOH (1.0 mL) and HCl (3 M, 1.0 mL). The reaction was heated to 100 °C for 5 h under air atmosphere. After cooled to room temperature, the ethanol was removed under reduced pressure, and the residue was added saturated sodium bicarbonate solution and extracted with DCM (three times). Then concentrated and dried to obtain the desired product **6c** (21.1 mg, 80% yield).

V. Investigation of the reaction mechanism

a) Intermolecular competition experiments

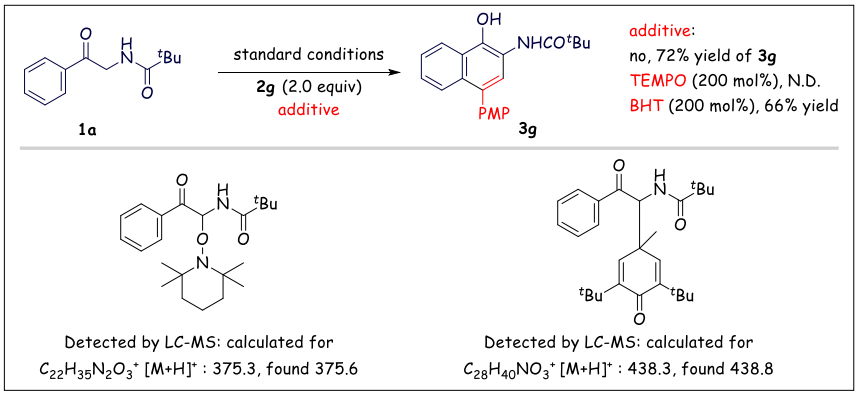


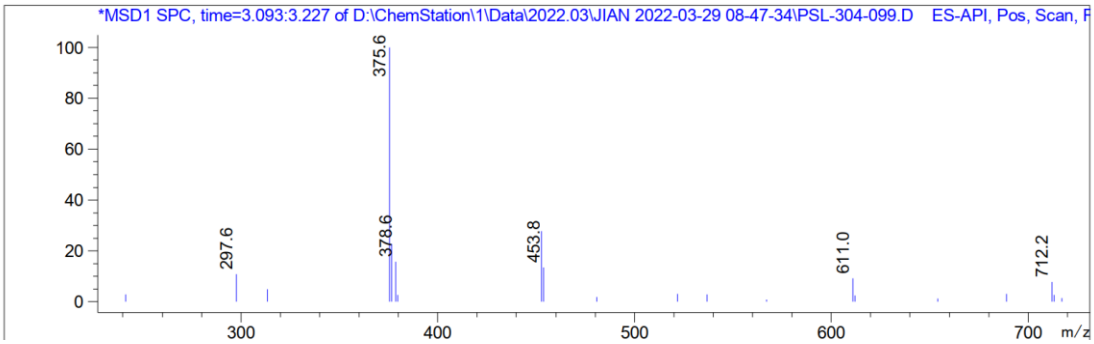
In a 25 mL Schlenk tube equipped with a stir bar was charged with *N*-(2-oxo-2-phenylethyl)pivalamide **1a** (21.9 mg, 0.1 mmol, 1.0 equiv), 1-ethynyl-4-methoxybenzene (26.5 mg, 0.2 mmol, 2.0 equiv), methyl 4-ethynylbenzoate (32.0 mg, 0.2 mmol, 2.0 equiv), DTBP (36.8 μl, 0.2 mmol, 2.0 equiv) and LiCl (8.5 mg, 0.2 mmol, 2.0 equiv) in benzene (2.0 mL). The reaction was stirred at 120 °C for 16 h under N_2 atmosphere. After cooled to room temperature, the solvent was removed under reduced pressure, and the residue was purified by silica gel column chromatography using petroleum ether and ethyl acetate as eluents to obtain the desired products **3g** (4.1 mg, 12% yield) and **3p** (3.9 mg, 10% yield).



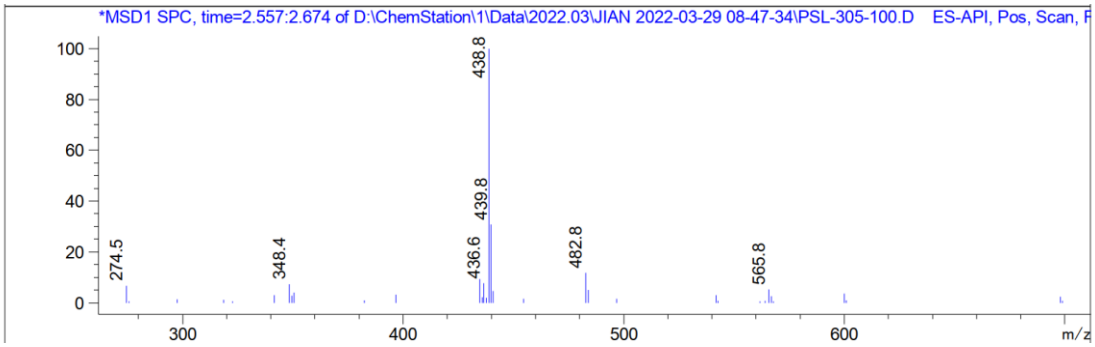
In a 25 mL Schlenk tube equipped with a stir bar was charged with **1t** (65.1 mg, 0.20 mmol, 2.0 equiv), **1x** (70.7 mg, 0.20 mmol, 2.0 equiv), 1-ethynyl-4-methoxybenzene (13.3 mg, 0.1 mmol, 1.0 equiv), DTBP (36.8 μl, 0.2 mmol, 2.0 equiv) and LiCl (8.5 mg, 0.2 mmol, 2.0 equiv) in benzene (2.0 mL). The reaction was stirred at 120 °C for 16 h under N_2 atmosphere. After cooled to room temperature, the solvent was removed under reduced pressure, and the residue was purified by silica gel column chromatography using petroleum ether and ethyl acetate as eluents to obtain the desired products **4t** (10.2 mg, 22% yield) and **4x** (17.0 mg, 35% yield).

b) Radical scavenger experiments



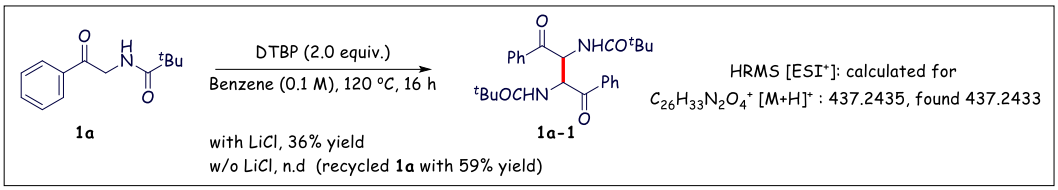


LC-MS (additive TEMPO)

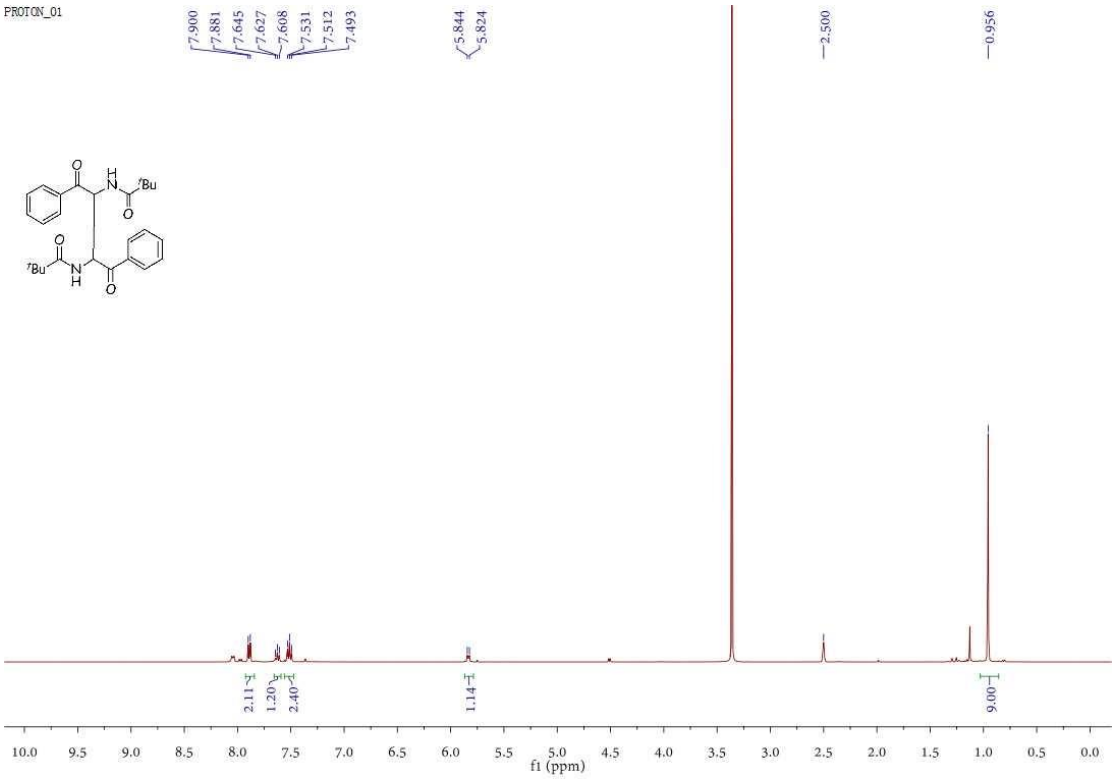


LC-MS (additive BHT)

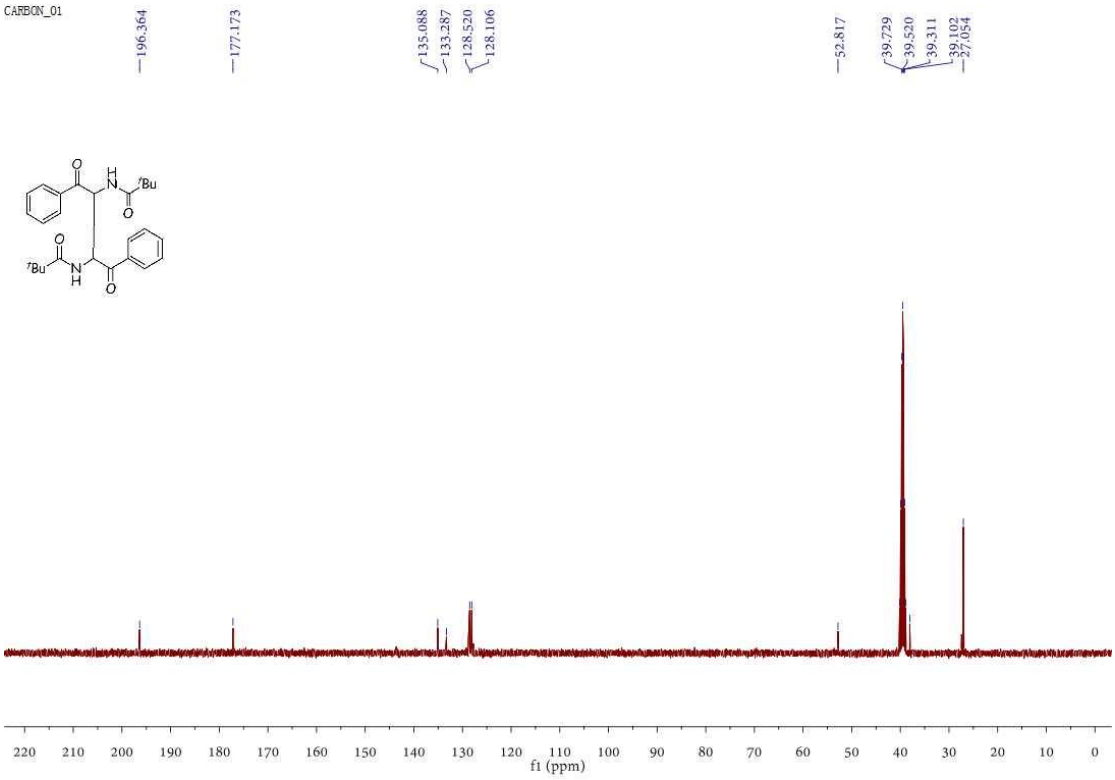
c) The effect of LiCl



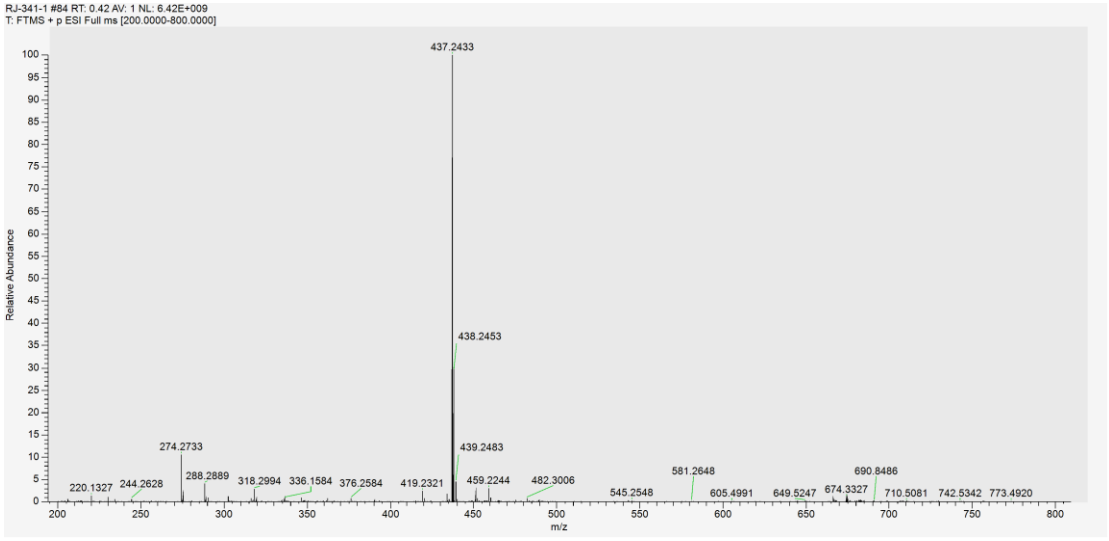
***N,N'*-(1,4-dioxo-1,4-diphenylbutane-2,3-diyl)bis(2,2-dimethylpropanamide) (1a-1)**: Yield: 20%; pale-yellow oil; ^{1}H NMR (400 MHz, DMSO) δ 7.89 (d, *J* = 7.8 Hz, 2H), 7.63 (t, *J* = 7.3 Hz, 1H), 7.51 (t, *J* = 7.6 Hz, 2H), 5.83 (d, *J* = 8.3 Hz, 1H), 0.96 (s, 9H); ^{13}C NMR (101 MHz, DMSO) δ 196.36, 177.17, 135.09, 133.29, 128.52, 128.11, 52.82, 38.04, 27.05. HRMS [ESI]: calculated for $C_{26}H_{33}N_2O_4^+$ [M+H]$^+$: 437.2435, found 437.2433.



^{1}H–NMR spectrum of compound **1a-1** (400 MHz, DMSO)

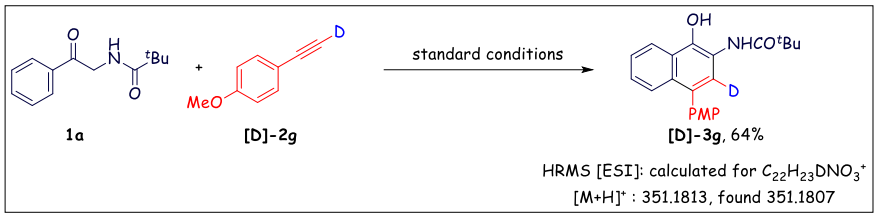


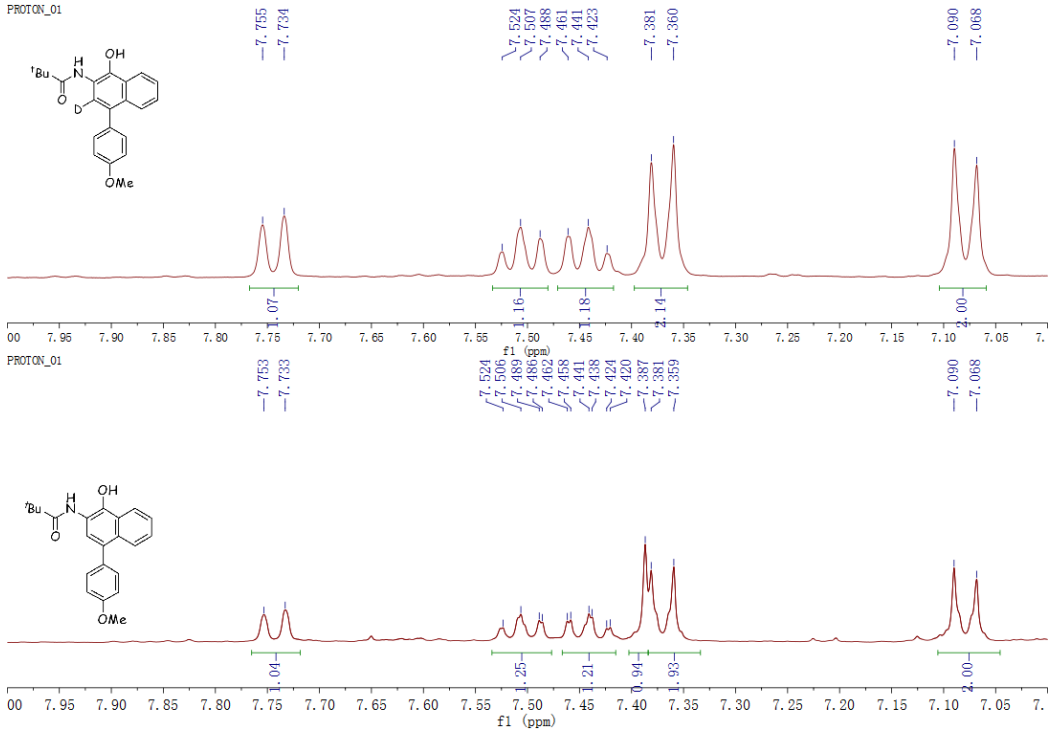
^{13}C–NMR spectrum of compound **1a-1** (101 MHz, DMSO)



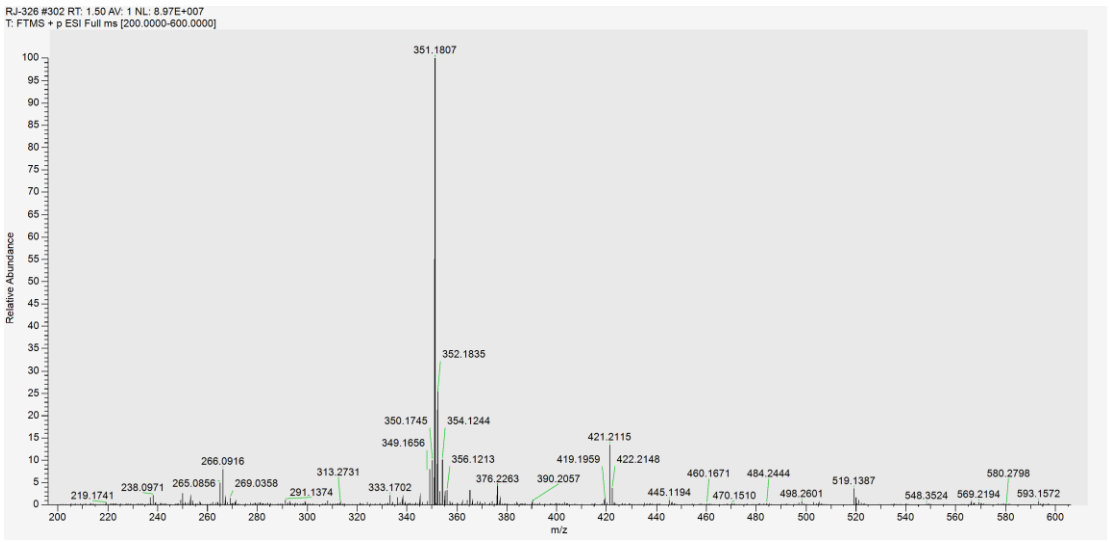
HRMS of compound **1a-1**

d) H/D Exchange experiments

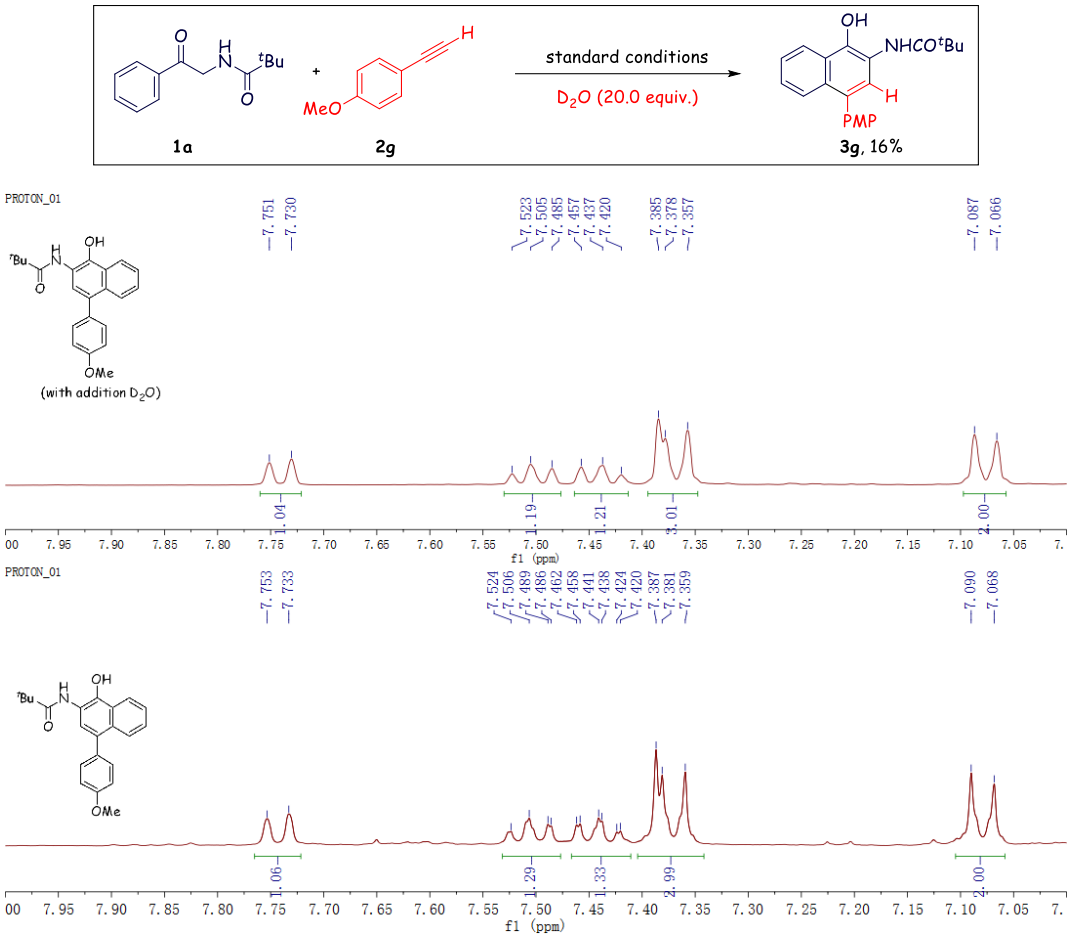




H/D exchange experiments : ^{1}H–NMR spectrum comparison (400 MHz, DMSO)

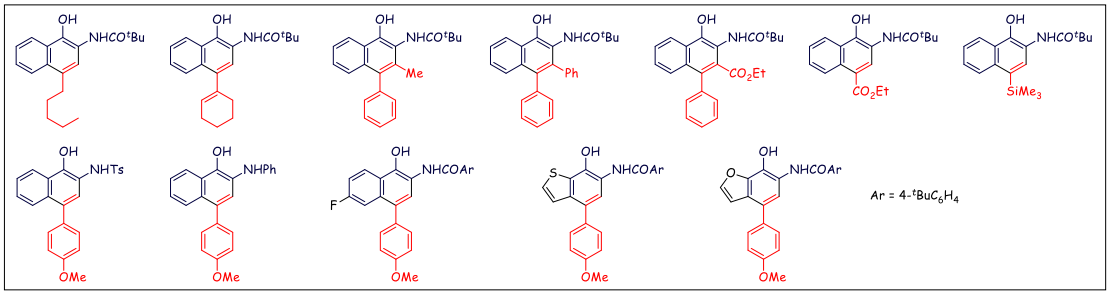


HRMS of compound **[D]-3g**

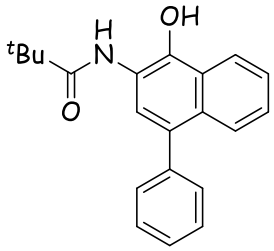


H/D exchange experiments : ^{1}H–NMR spectrum comparison (400 MHz, DMSO)

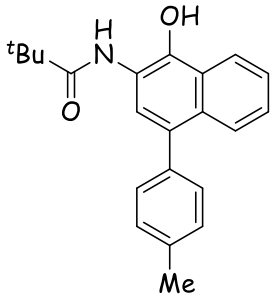
VI. Substrate scope (The products shown below were not obtained)



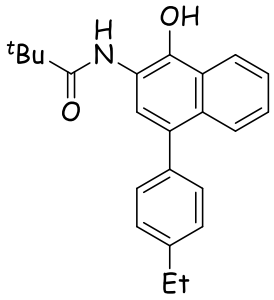
VII. Experimental data for the described substances



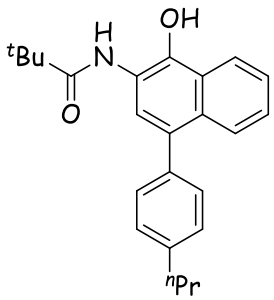
***N*-(1-hydroxy-4-phenylnaphthalen-2-yl)pivalamide** (**3a**): Yield: 61%; pale-yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.90 (s, 1H), 9.57 (s, 1H), 8.34 – 8.27 (m, 1H), 7.74 (d, J = 8.2 Hz, 1H), 7.56 –7.49(m, 3H), 7.48 – 7.40 (m, 5H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.92, 143.22, 139.70, 131.10, 129.80, 129.68, 128.47, 127.19, 126.63, 125.99, 125.32, 124.94, 124.40, 122.70, 120.16, 39.94, 27.37; HRMS [ESI]: calculated for $C_{21}H_{22}NO_2^+$ [M+H]$^+$: 320.1645, found 320.1649.



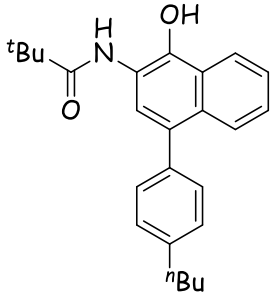
***N*-(1-hydroxy-4-(*p*-tolyl)naphthalen-2-yl)pivalamide** (**3b**): Yield: 40%; pale-yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.88 (s, 1H), 9.61 (s, 1H), 8.31 (d, *J* = 8.3 Hz, 1H), 7.75 (d, *J* = 8.4 Hz, 1H), 7.54 – 7.48 (m, 1H), 7.44 (d, *J* = 8.0 Hz, 1H), 7.41 (s, 1H), 7.36 – 7.29 (m, 4H), 2.39 (s, 3H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.96, 143.11, 136.79, 136.34, 131.14, 129.85, 129.69, 129.06, 126.71, 125.90, 125.28, 125.05, 124.25, 122.72, 120.20, 39.10, 27.40, 20.84; HRMS [ESI]: calculated for $C_{22}H_{24}NO_2^+$ [M+H]$^+$: 334.1802, found 334.1791.



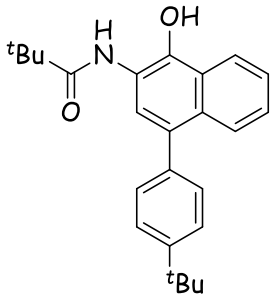
***N*-(4-(4-ethylphenyl)-1-hydroxynaphthalen-2-yl)pivalamide** (**3c**): Yield: 50%; yellow solid; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.84 (s, 1H), 9.56 (s, 1H), 8.34 – 8.25 (m, 1H), 7.75 (d, *J* = 8.2 Hz, 1H), 7.51 (m, 1H), 7.44 (m, 1H), 7.40 (s, 1H), 7.35 (m, 4H), 2.69 (q, *J* = 7.6 Hz, 2H), 1.30 (s, 9H), 1.25 (t, *J* = 7.6 Hz, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ179.01, 143.14, 142.75, 137.08, 131.20, 129.84, 129.80, 127.92, 126.71, 125.97, 125.35, 125.10, 124.35, 122.73, 120.25, 39.16, 27.99, 27.43, 15.73; HRMS[ESI]: calculated for C23H26NO2+ [M+H]+ : 348.1958, found 348.1949.



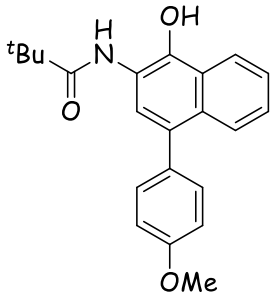
***N*-(1-hydroxy-4-(4-propylphenyl)naphthalen-2-yl)pivalamide (3d)**: Yield: 47%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ9.86 (s, 1H), 9.56 (s, 1H), 8.30 (m, 1H), 7.75 (d, *J* = 8.0 Hz, 1H), 7.50 (m, 1H), 7.46 – 7.41 (m, 1H), 7.40 (s, 1H), 7.33 (m, 4H), 2.67 – 2.60 (m, 2H), 1.65 (dq, *J* = 15.0, 7.4 Hz, 2H), 1.30 (s, 9H), 0.94 (t, *J* = 7.3 Hz, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ179.02, 143.12, 141.11, 137.10, 131.20, 129.83, 129.71, 128.50, 126.72, 125.97, 125.35, 125.09, 124.36, 122.74, 120.25, 39.16, 37.05, 27.42, 24.18, 13.75; HRMS [ESI]: calculated for $C_{24}H_{28}NO_2^+$ $[M+H]^+$: 362.2115, found 362.2110.



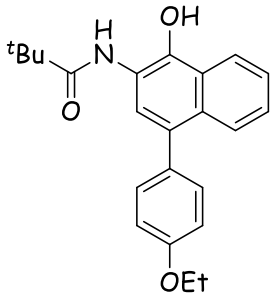
***N*-(4-(4-butylphenyl)-1-hydroxynaphthalen-2-yl)pivalamide (3e)**: Yield: 61%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.86 (s, 1H), 9.55 (s, 1H), 8.30 (d, *J* = 8.3 Hz, 1H), 7.75 (d, *J* = 8.3 Hz, 1H), 7.54 – 7.48 (m, 1H), 7.45 (dd, *J* = 11.1, 4.1 Hz, 1H), 7.40 (s, 1H), 7.34 (m, 4H), 2.67 (t, *J* = 7.6 Hz, 2H), 1.63 (dt, *J* = 15.2, 7.5 Hz, 2H), 1.40 – 1.33 (m, 2H), 1.32 (s, 9H), 0.93 (t, *J* = 7.6 Hz, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.90, 143.05, 141.22, 136.99, 131.09, 129.75, 129.65, 128.38, 126.64, 125.90, 125.26, 125.02, 124.32, 122.68, 120.16, 39.31, 34.56, 33.18, 27.37, 21.79, 13.85; HRMS [ESI]: calculated for $C_{25}H_{30}NO_2^+$ $[M+H]^+$: 376.2271, found 376.2262.



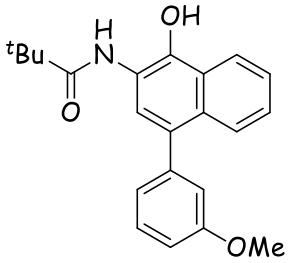
***N*-(4-(4-(*tert*-butyl)phenyl)-1-hydroxynaphthalen-2-yl)pivalamide (3f)**: Yield: 45%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.86 (s, 1H), 9.53 (s, 1H), 8.30 (d, *J* = 8.5 Hz, 1H), 7.77 (d, *J* = 8.2 Hz, 1H), 7.55 – 7.52 (m, 2H), 7.50 (dd, *J* = 8.3, 1.2 Hz, 1H), 7.45 (dd, *J* = 8.3, 1.3 Hz, 1H), 7.42 – 7.37 (m, 3H), 1.35 (s, 9H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.86, 149.50, 143.08, 136.79, 130.99, 129.72, 129.46, 126.64, 125.88, 125.24, 125.20, 125.05, 124.41, 122.67, 120.19, 39.94, 34.32, 31.19, 27.36; HRMS [ESI]: calculated for $C_{25}H_{30}NO_2^+$ $[M+H]^+$: 376.2271, found 376.2263.



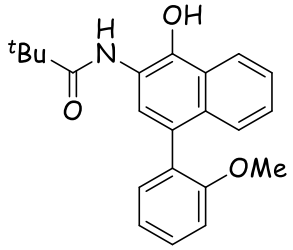
***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)pivalamide** (**3g**): Yield: 72%; pale-yellow solid; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.83 (s, 1H), 9.57 (s, 1H), 8.29 (d, J = 7.8 Hz, 1H), 7.74 (d, J = 8.1 Hz, 1H), 7.50 (dd, J = 11.1, 4.0 Hz, 1H), 7.47 – 7.41 (m, 1H), 7.40 – 7.34 (m, 3H), 7.08 (d, J = 8.7 Hz, 2H), 3.83 (s, 3H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.90, 158.46, 142.92, 131.87, 130.88, 129.92, 126.67, 125.85, 125.24, 125.05, 124.23, 122.67, 120.15, 113.91, 55.18, 39.73, 27.38; HRMS [ESI]: calculated for $C_{22}H_{24}NO_2^+$ $[M+H]^+$: 350.1751, found 350.1740.



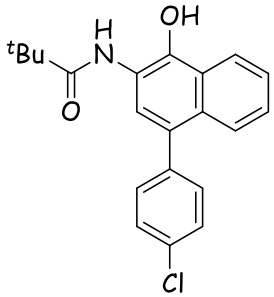
***N*-(4-(4-ethoxyphenyl)-1-hydroxynaphthalen-2-yl)pivalamide** (**3h**): Yield: 61%; pale-yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.84 (s, 1H), 9.59 (s, 1H), 8.29 (d, J = 8.3 Hz, 1H), 7.75 (d, J = 8.3 Hz, 1H), 7.53 – 7.47 (m, 1H), 7.44 (s, 1H), 7.38 (s, 1H), 7.35 (d, J = 8.2 Hz, 2H), 7.06 (d, J = 8.3 Hz, 2H), 4.09 (q, J = 6.9 Hz, 2H), 1.37 (t, J = 6.9 Hz, 3H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.93, 157.74, 142.93, 131.75, 130.89, 129.94, 126.69, 125.87, 125.26, 125.08, 124.25, 122.70, 120.16, 114.36, 63.10, 39.12, 27.40, 14.76; HRMS [ESI]: calculated for $C_{23}H_{26}NO_2^+$ $[M+H]^+$: 364.1907, found 364.1898.



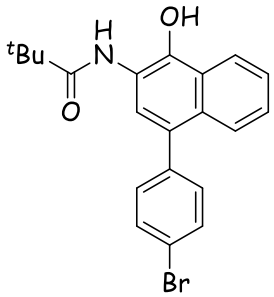
***N*-(1-hydroxy-4-(3-methoxyphenyl)naphthalen-2-yl)pivalamide** (**3i**): Yield: 60%; pale-yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.90 (s, 1H), 9.59 (s, 1H), 8.30 (d, J = 8.3 Hz, 1H), 7.77 (d, J = 8.3 Hz, 1H), 7.54 – 7.49 (m, 1H), 7.48 – 7.40 (m, 3H), 7.04 – 6.96 (m, 3H), 3.81 (s, 3H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.98, 159.27, 143.32, 141.12, 130.98, 129.72, 129.52, 126.63, 126.03, 125.35, 125.03, 124.31, 122.71, 122.20, 120.09, 115.41, 112.69, 55.18, 39.72, 27.40; HRMS [ESI]: calculated for $C_{22}H_{24}NO_2^+$ $[M+H]^+$: 350.1751, found 350.1742.



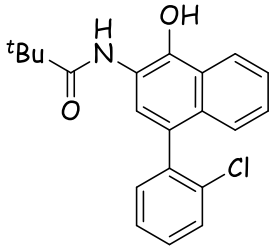
***N*-(1-hydroxy-4-(2-methoxyphenyl)naphthalen-2-yl)pivalamide (3j)**: Yield: 67%; pale-yellow oil; ^{1}H NMR (400 MHz, CD_3OD) δ 8.32 (d, *J* = 8.4 Hz, 1H), 7.43 (d, J = 7.0 Hz, 1H), 7.41 – 7.35 (m, 2H), 7.33 – 7.28 (m, 1H), 7.24 (s, 1H), 7.22 (dd, J = 7.4, 1.3 Hz, 1H), 7.10 – 7.01 (m, 2H), 3.64 (s, 3H), 1.37 (s, 9H); ^{13}C NMR (101 MHz, CD_3OD) δ 181.32, 158.83, 144.76, 132.89, 132.72, 130.79, 130.36, 130.15, 128.21, 127.03, 126.46, 126.04, 124.82, 123.54, 121.58, 120.99, 112.11, 55.80, 40.49, 27.99; HRMS [ESI]: calculated for $C_{22}H_{24}NO_2^+$ $[M+H]^+$: 350.1751, found 350.1743.



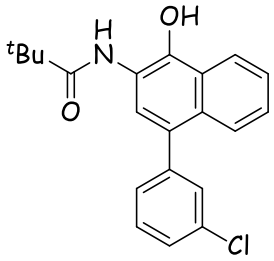
***N*-(4-(4-chlorophenyl)-1-hydroxynaphthalen-2-yl)pivalamide (3k)**: Yield: 40%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.95 (s, 1H), 9.59 (s, 1H), 8.31 (d, *J* = 8.3 Hz, 1H), 7.70 (d, *J* = 8.3 Hz, 1H), 7.57 (m, 2H), 7.55 – 7.50 (m, 1H), 7.47 (m, 3H), 7.43 (s, 1H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 179.34, 143.96, 138.92, 132.39, 132.00, 130.05, 129.91, 128.91, 127.01, 126.61, 125.84, 125.11, 124.96, 123.17, 120.57, 39.10, 27.76; HRMS [ESI]: calculated for $C_{21}H_{21}{}^{35}ClNO_2^+$ $[M+H]^+$: 354.1255, found 354.1247, $C_{21}H_{21}{}^{37}ClNO_2^+$ $[M+H]^+$: 356.1226, found 356.1215.



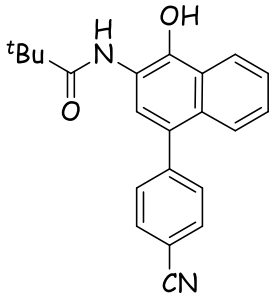
***N*-(4-(4-bromophenyl)-1-hydroxynaphthalen-2-yl)pivalamide (3l)**: Yield: 40%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.95 (s, 1H), 9.59 (s, 1H), 8.31 (d, *J* = 8.3 Hz, 1H), 7.70 (m, 3H), 7.49 (m, 2H), 7.42 (d, *J* = 2.4 Hz, 2H), 7.40 (s, 1H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 179.33, 143.98, 139.29, 132.33, 131.83, 130.06, 129.84, 127.02, 126.62, 125.85, 125.11, 124.91, 123.17, 120.95, 120.58, 39.12, 27.76; HRMS [ESI]: calculated for $C_{21}H_{21}{}^{79}BrNO_2^+$ $[M+H]^+$: 398.0750, found 398.0743, $C_{21}H_{21}{}^{81}BrNO_2^+$ $[M+H]^+$: 400.0730, found 400.0720.



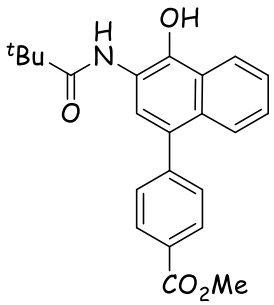
***N*-(4-(2-chlorophenyl)-1-hydroxynaphthalen-2-yl)pivalamide** (**3m**): Yield: 55%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.95 (s, 1H), 9.61 (s, 1H), 8.30 (d, J = 8.3 Hz, 1H), 7.63 (d, J = 6.9 Hz, 1H), 7.50 (m, 3H), 7.42 (m, 2H), 7.38 (s, 1H), 7.24 (d, J = 8.3 Hz, 1H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 179.32, 144.08, 138.61, 133.69, 132.81, 130.27, 129.99, 129.75, 128.78, 127.73, 126.69, 126.47, 125.76, 125.39, 124.73, 123.03, 120.42, 39.11, 27.75; HRMS [ESI]: calculated for $C_{21}H_{21}{}^{35}ClNO_2^+$ $[M+H]^+$: 354.1255, found 354.1247, $C_{21}H_{21}{}^{37}ClNO_2^+$ $[M+H]^+$: 356.1226, found 356.1214.



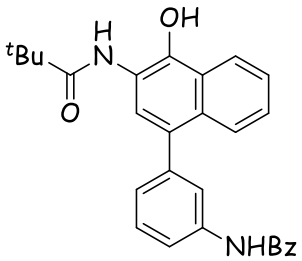
***N*-(4-(3-chlorophenyl)-1-hydroxynaphthalen-2-yl)pivalamide** (**3n**): Yield: 51%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.01 (s, 1H), 9.58 (s, 1H), 8.31 (d, J = 8.3 Hz, 1H), 7.71 (d, J = 8.2 Hz, 1H), 7.56 (d, J = 7.7 Hz, 1H), 7.53 (d, J = 4.3 Hz, 2H), 7.51 – 7.48 (m, 2H), 7.46 (s, 1H), 7.43 (dd, J = 7.1, 1.1 Hz, 1H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 179.38, 144.10, 142.23, 133.59, 130.70, 129.81, 129.78, 129.05, 127.57, 127.00, 126.72, 125.88, 125.11, 125.00, 123.20, 120.54, 39.11, 27.76; HRMS [ESI]: calculated for $C_{21}H_{21}{}^{35}ClNO_2^+$ $[M+H]^+$: 354.1255, found 354.1247, $C_{21}H_{21}{}^{37}ClNO_2^+$ $[M+H]^+$: 356.1226, found 356.1216.



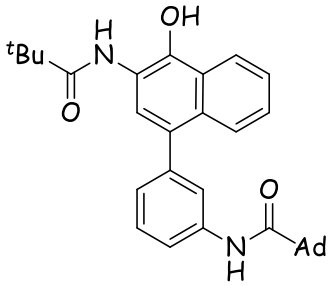
***N*-(4-(4-cyanophenyl)-1-hydroxynaphthalen-2-yl)pivalamide** (**3o**): Yield: 57%; brown solid; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.06 (s, 1H), 9.56 (s, 1H), 8.33 (d, J = 7.8 Hz, 1H), 7.98 (d, J = 8.3 Hz, 2H), 7.69 (d, J = 9.2 Hz, 1H), 7.67 (d, J = 8.3 Hz, 2H), 7.54 (m, 2H), 7.49 (s, 1H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.95, 144.69, 144.13, 132.46, 130.80, 129.18, 129.13, 126.59, 126.47, 125.59, 124.92, 124.44, 122.86, 120.26, 118.92, 109.90, 39.10, 27.34; HRMS [ESI]: calculated for $C_{21}H_{22}N_2O_2^+$ $[M+H]^+$: 345.1598, found 345.1589.



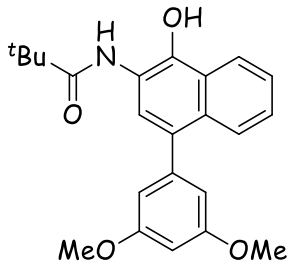
Methyl 4-(4-hydroxy-3-pivalamidonaphthalen-1-yl)benzoate (**3p**): Yield: 50%; pale-yellow solid; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.02 (s, 1H), 9.58 (s, 1H), 8.33 (m, 1H), 8.11 (d, J = 8.3 Hz, 2H), 7.73 (d, J = 8.1 Hz, 1H), 7.62 (d, J = 8.3 Hz, 2H), 7.54 (m, 1H), 7.49 (s, 1H), 7.48 – 7.45 (m, 1H), 3.90 (s, 3H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.97, 166.14, 144.66, 143.85, 130.19, 129.79, 129.39, 129.30, 128.29, 126.65, 126.32, 125.50, 124.70, 124.62, 122.82, 120.25, 52.21, 39.10, 27.34; HRMS [ESI]: calculated for $C_{21}H_{22}N_2O_2^+$ [M+H]$^+$: 345.1598, found 345.1589.



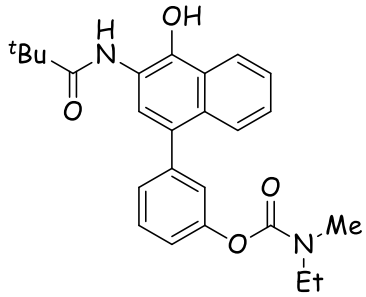
***N*-(3-(4-hydroxy-3-pivalamidonaphthalen-1-yl)phenyl)benzamide** (**3q**): Yield: 51%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.40 (s, 1H), 9.92 (s, 1H), 9.61 (s, 1H), 8.33 (d, J = 8.0 Hz, 1H), 8.01 – 7.95 (m, 3H), 7.91 – 7.82 (m, 2H), 7.62 – 7.45 (m, 7H), 7.20 (d, J = 7.6 Hz, 1H), 1.32 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.94, 165.73, 143.34, 140.08, 139.35, 134.94, 131.67, 131.01, 129.66, 128.76, 128.45, 127.72, 126.67, 126.07, 125.39, 125.18, 125.07, 124.40, 122.75, 121.65, 120.21, 119.03, 39.15, 27.41; HRMS [ESI]: calculated for $C_{28}H_{27}N_2O_3^+$ [M+H]$^+$: 439.2016, found 439.2015.



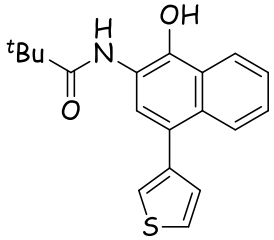
(3s)-*N*-(3-(4-hydroxy-3-pivalamidonaphthalen-1-yl)phenyl)adamantane-1-carboxamide (**3r**): Yield: 50%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.89 (s, 1H), 9.58 (s, 1H), 9.24 (s, 1H), 8.31 (d, J = 9.9 Hz, 1H), 7.97 – 7.93 (m, 1H), 7.84 – 7.77 (m, 2H), 7.53 – 7.47 (m, 2H), 7.43 (s, 1H), 7.40 (d, J = 7.8 Hz, 1H), 7.11 (d, J = 7.7 Hz, 1H), 2.01 (m, 3H), 1.92 (m, 6H), 1.69 (m, 6H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.91, 167.35, 143.16, 139.89, 139.56, 132.89, 131.15, 129.29, 128.59, 126.64, 125.97, 125.31, 125.06, 124.21, 122.70, 121.50, 120.21, 118.81, 41.00, 38.32, 36.04, 27.71, 27.39; HRMS [ESI]: calculated for $C_{32}H_{37}N_2O_3^+$ [M+H]$^+$: 497.2799, found 497.2795.



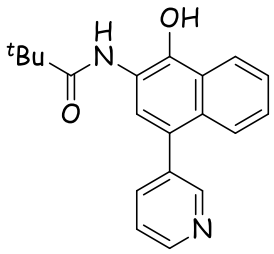
***N*-(4-(3,5-dimethoxyphenyl)-1-hydroxynaphthalen-2-yl)pivalamide** (**3s**): Yield: 55%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 11.00 (s, 1H), 9.88 (s, 1H), 9.58 (s, 1H), 8.29 (d, J = 8.3 Hz, 1H), 7.78 (d, J = 8.3 Hz, 1H), 7.48 (d, J = 7.1 Hz, 1H), 7.42 (s, 1H), 6.58 (d, J = 1.7 Hz, 1H), 6.56 (s, 2H), 3.79 (s, 6H), 1.30 (d, J = 6.5 Hz, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 179.02, 164.27, 160.39, 143.34, 141.76, 131.09, 129.72, 126.61, 126.04, 125.36, 124.06, 120.04, 109.63, 108.06, 99.07, 55.35, 27.41, 25.91; HRMS [ESI]: calculated for $C_{23}H_{26}NO_2^+$ $[M+H]^+$: 380.1856, found 380.1849.



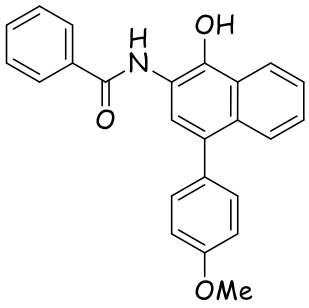
3-(4-hydroxy-3-pivalamidonaphthalen-1-yl)phenyl ethyl(methyl)carbamate (**3t**): Yield: 42%; pale-yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.96 (s, 1H), 9.59 (s, 1H), 8.31 (d, J = 8.1 Hz, 1H), 7.77 (d, J = 8.3 Hz, 1H), 7.53 – 7.46 (m, 3H), 7.45 (s, 1H), 7.31 (d, J = 7.6 Hz, 1H), 7.19 (d, J = 7.9 Hz, 2H), 3.44 (dd, J = 13.9, 6.9 Hz, 1H), 3.33 – 3.28 (m, 1H), 2.97 (d, J = 52.5 Hz, 3H), 1.31 (s, 9H), 1.26 – 1.17 (m, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 179.38, 151.75, 143.83, 130.48, 129.90, 129.63, 129.16, 128.16, 127.04, 126.56, 125.79, 125.16, 124.90, 123.57, 123.16, 121.07, 120.55, 43.92, 39.12, 27.80, 27.77, 12.71; HRMS [ESI]: calculated for $C_{25}H_{29}N_2O_4^+$ $[M+H]^+$: 421.2122, found 421.2116.



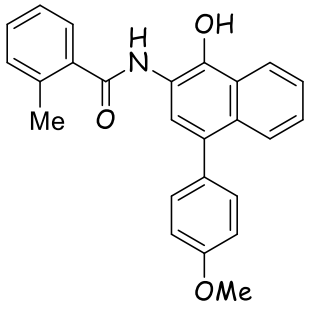
***N*-(1-hydroxy-4-(thiophen-3-yl)naphthalen-2-yl)pivalamide** (**3u**): Yield: 59%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.89 (s, 1H), 9.58 (s, 1H), 8.30 (d, J = 8.0 Hz, 1H), 7.88 (d, J = 8.2 Hz, 1H), 7.74 – 7.70 (m, 1H), 7.61 (d, J = 2.9 Hz, 1H), 7.55 – 7.46 (m, 3H), 7.32 – 7.29 (m, 1H), 1.32 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.93, 143.31, 140.00, 129.94, 129.42, 126.64, 126.33, 126.09, 125.93, 125.38, 124.99, 124.45, 123.57, 122.69, 120.15, 39.10, 27.40; HRMS [ESI]: calculated for $C_{19}H_{20}NO_2S^+$ $[M+H]^+$: 326.1209, found 326.1199.



***N*-(1-hydroxy-4-(pyridin-3-yl)naphthalen-2-yl)pivalamide** (**3v**): Yield: 18%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.01 (s, 1H), 9.59 (s, 1H), 8.65 (d, *J* = 2.1 Hz, 2H), 8.33 (d, *J* = 8.2 Hz, 1H), 7.92 – 7.87 (m, 1H), 7.66 (d, *J* = 8.2 Hz, 1H), 7.58 – 7.53 (m, 2H), 7.50 (d, *J* = 8.2 Hz, 1H), 7.47 (s, 1H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.98, 150.02, 148.39, 144.03, 137.35, 135.40, 129.71, 127.28, 126.69, 126.44, 125.57, 125.09, 124.52, 123.58, 122.88, 120.32, 39.16, 27.40; HRMS [ESI]: calculated for $C_{20}H_{21}N_2O_2^+$ [M+H]$^+$: 321.1598, found 321.1588.

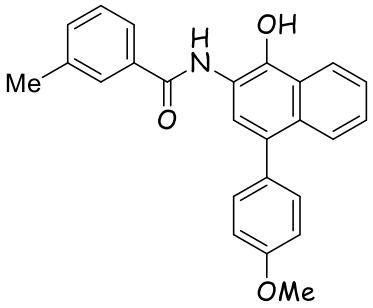


***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)benzamide** (**4a**): Yield: 50%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.48 (s, 1H), 9.98 (s, 1H), 8.35 (d, *J* = 8.2 Hz, 1H), 8.10 (d, *J* = 7.8 Hz, 2H), 7.79 (d, *J* = 8.3 Hz, 1H), 7.63 (d, *J* = 6.7 Hz, 1H), 7.60 – 7.54 (m, 2H), 7.52 (d, *J* = 8.0 Hz, 1H), 7.50 – 7.46 (m, 2H), 7.40 (d, *J* = 8.0 Hz, 2H), 7.09 (d, *J* = 7.9 Hz, 2H), 3.83 (s, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 167.15, 158.87, 144.38, 133.94, 132.48, 132.28, 131.31, 131.19, 130.64, 128.90, 128.49, 126.97, 126.48, 125.66, 125.50, 125.32, 123.21, 120.03, 114.34, 55.57; HRMS [ESI]: calculated for $C_{24}H_{20}NO_3^+$ [M+H]$^+$: 370.1438, found 370.1430.

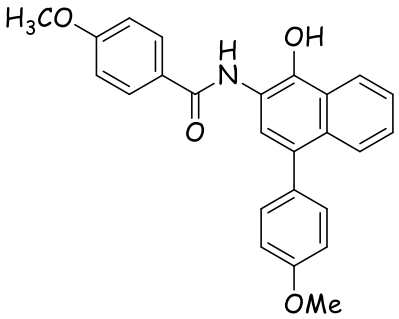


***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)-2-methylbenzamide** (**4b**): Yield: 44%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.57 (s, 1H), 10.08 (s, 1H), 8.35 (d, *J* = 8.0 Hz, 1H), 7.78 (d, *J* = 8.3 Hz, 1H), 7.67 (d, *J* = 7.2 Hz, 1H), 7.58 – 7.42 (m, 4H), 7.41 – 7.32 (m, 4H), 7.09 (d, *J* = 8.6 Hz, 2H), 3.83 (s, 3H), 2.47 (s, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 169.44, 158.51, 143.11, 135.85, 135.59, 131.87, 131.02, 130.92, 130.73, 130.27, 130.14, 127.85, 126.69, 126.04, 125.73, 125.35, 125.11, 123.93,

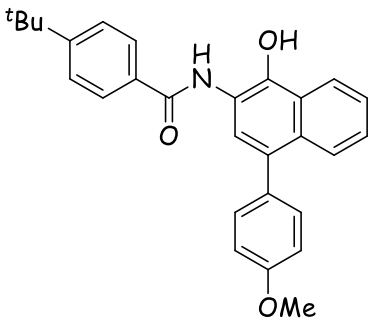
122.80, 119.92, 113.96, 55.18, 19.55; HRMS [ESI]: calculated for $C_{25}H_{22}NO_3^+$ [M+H]$^+$: 384.1594, found 384.1583.



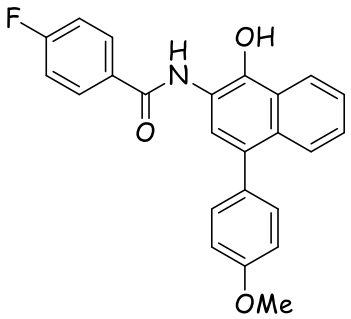
***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)-3-methylbenzamide** (**4c**): Yield: 41%; brown oil; ^{1}H NMR (400 MHz, acetone-d_6) δ 10.24 (s, *J* = 1.6 Hz, 1H), 10.10 (s, 1H), 8.47 (d, *J* = 8.3 Hz, 1H), 8.00 – 7.93 (m, 2H), 7.83 (d, *J* = 8.4 Hz, 1H), 7.54 (m, 1H), 7.46 (m, 3H), 7.41 (d, *J* = 2.9 Hz, 2H), 7.39 (s, 1H), 7.07 (d, *J* = 8.6 Hz, 2H), 3.87 (s, 3H), 2.43 (s, 3H); ^{13}C NMR (101 MHz, acetone-d_6) δ 168.60, 159.92, 144.69, 139.31, 133.98, 133.88, 133.15, 132.90, 132.82, 131.86, 129.41, 129.38, 128.57, 126.84, 126.13, 125.98, 124.30, 124.02, 120.57, 114.60, 55.59, 21.32; HRMS [ESI]: calculated for $C_{25}H_{22}NO_3^+$ [M+H]$^+$: 384.1594, found 384.1584.



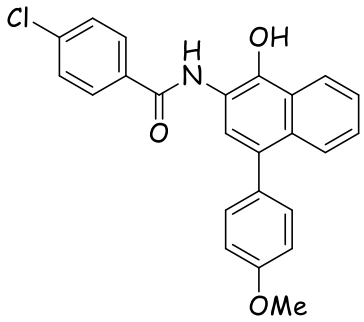
***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)-4-methoxybenzamide** (**4d**): Yield: 43%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.41 (s, 1H), 10.12 (s, 1H), 8.35 (d, *J* = 8.3 Hz, 1H), 8.10 (d, *J* = 8.5 Hz, 2H), 7.78 (d, *J* = 8.3 Hz, 1H), 7.53 (m, 1H), 7.49 – 7.43 (m, 2H), 7.40 (d, *J* = 8.1 Hz, 2H), 7.10 (m, 4H), 3.86 (s, 3H), 3.83 (s, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 166.72, 162.78, 158.86, 144.12, 132.29, 131.31, 131.20, 130.54, 127.09, 126.40, 125.72, 125.65, 125.46, 125.12, 123.21, 120.25, 114.33, 114.18, 55.91, 55.56; HRMS [ESI]: calculated for $C_{25}H_{22}NO_4^+$ [M+H]$^+$: 400.1543, found 400.1534.



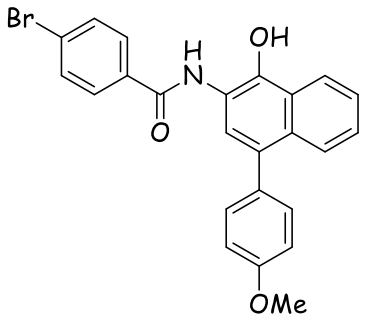
4-(*tert*-butyl)-*N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)benzamide (**4e**): Yield: 67%; brown solid; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.44 (s, 1H), 10.03 (s, 1H), 8.36 – 8.31 (m, 1H), 8.07 – 8.01 (m, 2H), 7.78 (d, *J* = 8.2 Hz, 1H), 7.58 (d, *J* = 8.5 Hz, 2H), 7.55 – 7.50 (m, 1H), 7.49 –7.50 – 7.43 (m, 2H), 7.42 – 7.37 (m, 2H), 7.12 – 7.06 (m, 2H), 3.83 (s, 3H), 1.33 (s, 9H); ^{13}C NMR (101 MHz, acetone-d_6) δ 168.36, 159.90, 156.70, 144.66, 133.16, 132.78, 131.86, 131.15, 129.59, 128.77, 128.57, 128.22, 126.79, 126.40, 126.12, 124.29, 124.01, 120.63, 114.58, 55.58, 35.56, 31.34; HRMS [ESI]: calculated for $C_{28}H_{28}NO_3^+$ $[M+H]^+$: 426.2064, found 426.2060.



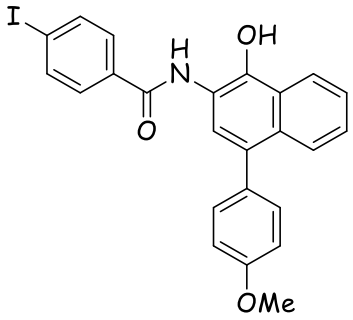
4-fluoro-*N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)benzamide (**4f**): Yield: 50%; yellow oil; ^{1}H NMR (400 MHz, acetone-d_6) δ 10.19 (s, 1H), 10.11 (s, *J* = 8.2 Hz, 1H), 8.47 (d, *J* = 8.3 Hz, 1H), 8.24 (m, 2H), 7.83 (d, *J* = 8.4 Hz, 1H), 7.54 (m, 1H), 7.49 – 7.44 (m, 1H), 7.41 (d, *J* = 4.2 Hz, 2H), 7.39 (s, 1H), 7.33 (m, 2H), 7.07 (d, *J* = 8.5 Hz, 2H), 3.87 (s, 3H); ^{13}C NMR (101 MHz, acetone-d_6) δ 167.33, 165.98 (d, *J* = 251.0 Hz), 159.91, 144.71, 133.10, 132.86, 131.85, 131.70, 131.61, 130.45 (d, *J* = 3.2 Hz), 128.49, 126.89, 126.14, 124.33, 123.98, 120.44, 116.38 (d, *J* = 22.2 Hz), 114.59, 55.57; ^{19}F NMR (376 MHz, acetone-d_6) δ -108.72; HRMS [ESI]: calculated for $C_{24}H_{19}FNO_3^+$ $[M+H]^+$: 388.1343, found 388.1332.



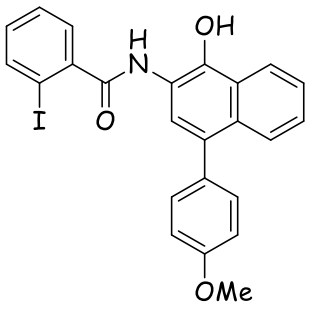
4-chloro-*N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)benzamide (**4g**): Yield: 51%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.47 (s, 1H), 9.87 (s, 1H), 8.34 (d, *J* = 8.3 Hz, 1H), 8.11 (d, *J* = 8.3 Hz, 2H), 7.78 (d, *J* = 8.3 Hz, 1H), 7.64 (d, *J* = 8.2 Hz, 2H), 7.56 – 7.50 (m, 1H), 7.48 (d, *J* = 8.1 Hz, 1H), 7.44 (s, 1H), 7.39 (d, *J* = 8.3 Hz, 2H), 7.08 (d, *J* = 8.3 Hz, 2H), 3.82 (s, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 165.60, 158.48, 144.34, 136.86, 132.51, 131.89, 130.92, 130.77, 130.35, 130.03, 128.55, 126.47, 126.14, 125.26, 125.20, 125.13, 122.82, 119.33, 113.96, 55.18; HRMS [ESI]: calculated for $C_{24}H_{19}{}^{35}ClNO_3^+$ $[M+H]^+$: 404.1048, found 404.1039, $C_{24}H_{19}{}^{37}ClNO_3^+$ $[M+H]^+$: 406.1018, found 406.1004.



4-bromo-*N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)benzamide (**4h**): Yield: 40%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.47 (s, 1H), 9.87 (s, 1H), 8.34 (d, J = 8.2 Hz, 1H), 8.04 (d, J = 8.4 Hz, 2H), 7.78 (m, 3H), 7.56 – 7.46 (m, 2H), 7.44 (s, 1H), 7.39 (d, J = 8.5 Hz, 2H), 7.08 (d, J = 8.3 Hz, 2H), 3.83 (s, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 166.09, 158.85, 144.76, 133.26, 132.26, 131.88, 131.31, 131.12, 130.73, 130.58, 126.82, 126.54, 126.21, 125.65, 125.52, 123.20, 119.67, 114.33, 55.56; HRMS [ESI]: calculated for $C_{24}H_{19}{}^{79}BrNO_3^+$ [M+H]$^+$: 448.0543, found 448.0531, $C_{24}H_{19}{}^{81}BrNO_3^+$ [M+H]$^+$: 450.0522, found 450.0513.

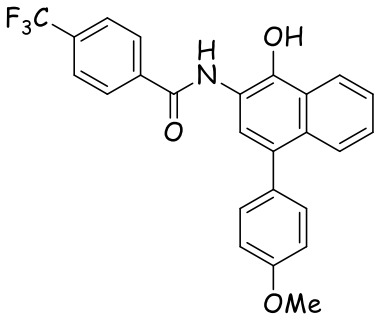


***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)-4-iodobenzamide** (**4i**): Yield: 38%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.42 (s, 1H), 9.84 (s, 1H), 8.30 (d, J = 8.2 Hz, 1H), 7.92 (d, J = 8.2 Hz, 2H), 7.83 (d, J = 8.3 Hz, 2H), 7.74 (d, J = 8.3 Hz, 1H), 7.51 – 7.42 (m, 2H), 7.40 (s, 1H), 7.35 (d, J = 8.4 Hz, 2H), 7.04 (d, J = 8.4 Hz, 2H), 3.79 (s, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 166.38, 158.84, 144.68, 137.74, 133.51, 132.25, 131.31, 131.12, 130.70, 130.37, 126.84, 126.54, 125.66, 125.56, 125.51, 123.20, 119.71, 114.33, 100.33, 55.57; HRMS [ESI]: calculated for $C_{24}H_{19}INO_3^+$ [M+H]$^+$: 496.0404, found 496.0395.

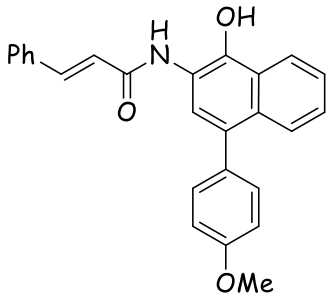


***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)-2-iodobenzamide** (**4j**): Yield: 43%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.68 (s, 1H), 9.92 (s, 1H), 8.35 (d, J = 8.3 Hz, 1H), 7.98 (d, J = 7.9 Hz, 1H), 7.78 (d, J = 8.3 Hz, 1H), 7.71 (d, J = 7.5 Hz, 1H), 7.58 – 7.52 (m, 2H), 7.49 (d, J = 8.2 Hz, 1H), 7.46 (s, 1H), 7.39 (d, J = 8.3 Hz, 2H), 7.27 (m, 1H), 7.09 (d, J = 8.3 Hz, 2H), 3.83 (s, 3H);

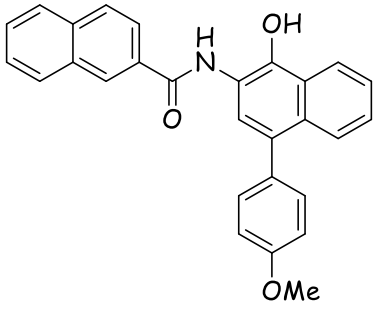
^{13}C NMR (101 MHz, DMSO-d_6) δ 169.48, 158.91, 143.70, 142.18, 139.57, 132.23, 131.89, 131.42, 131.33, 130.61, 129.05, 128.54, 126.95, 126.55, 125.80, 125.55, 124.25, 123.18, 119.88, 114.38, 94.57, 55.59; HRMS [ESI]: calculated for $C_{24}H_{19}INO_3^+$ [M+H]$^+$: 496.0404, found 496.0401.



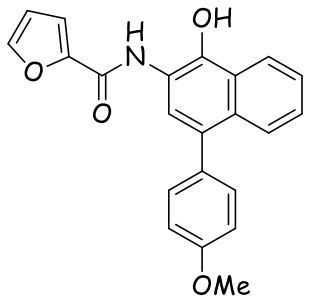
***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)-4-(trifluoromethyl)benzamide** (**4k**): Yield: 43%; brown solid; ^{1}H NMR (400 MHz, acetone-d_6) δ 10.34 (s, 1H), 9.90 (s, *J* = 8.3 Hz, 1H), 8.46 (d, *J* = 8.3 Hz, 1H), 8.36 (d, *J* = 8.1 Hz, 2H), 7.92 (d, *J* = 8.2 Hz, 2H), 7.83 (d, *J* = 8.4 Hz, 1H), 7.57 – 7.52 (m, 1H), 7.47 (m, 1H), 7.43 (s, 1H), 7.39 (d, *J* = 8.4 Hz, 2H), 7.06 (d, *J* = 8.4 Hz, 2H), 3.86 (s, 3H); ^{13}C NMR (101 MHz, acetone-d_6) δ 167.10, 159.96, 144.85, 137.90, 133.06, 133.01, 132.01, 131.86, 129.73, 129.35 (q, *J* = 28.8 Hz), 128.42, 127.03, 126.44 (q, *J* = 3.8 Hz), 126.23, 126.20, 124.85 (q, *J* = 271.6 Hz), 124.34, 123.98, 120.24, 114.61, 55.58; ^{19}F NMR (376 MHz, acetone-d_6) δ -63.44; HRMS [ESI]: calculated for $C_{25}H_{19}F_3NO_3^+$ [M+H]$^+$: 438.1312, found 438.1310.



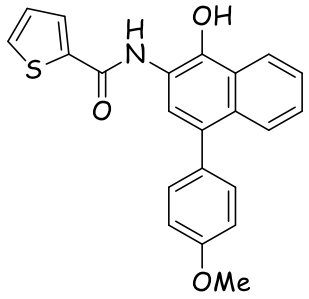
***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)cinnamamide** (**4l**): Yield: 34%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.70 (s, 1H), 10.65 (s, 1H), 8.33 (d, *J* = 8.2 Hz, 1H), 7.78 – 7.66 (m, 4H), 7.55 – 7.50 (m, 1H), 7.46 (m, 3H), 7.44 – 7.35 (m, 4H), 7.07 (m, 3H), 3.83 (s, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 165.66, 158.90, 143.10, 142.04, 134.85, 132.18, 131.49, 131.30, 130.60, 130.37, 129.51, 128.41, 127.13, 126.39, 125.79, 125.52, 123.32, 123.24, 120.87, 120.45, 114.35, 55.56; HRMS [ESI]: calculated for $C_{26}H_{22}NO_3^+$ [M+H]$^+$: 396.1594, found 396.1585.



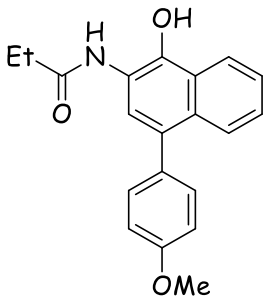
***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)-2-naphthamide** (**4m**): Yield: 44%; yellow oil; ^{1}H NMR (400 MHz, acetone-d_6) δ 10.35 (s, 1H), 10.29 (s, *J* = 8.3 Hz, 1H), 8.78 (s, 1H), 8.50 (d, *J* = 8.3 Hz, 1H), 8.20 (m, 1H), 8.07 (m, 2H), 8.00 (d, *J* = 8.5 Hz, 1H), 7.84 (d, *J* = 8.4 Hz, 1H), 7.67 – 7.59 (m, 2H), 7.57 – 7.52 (m, 1H), 7.50 – 7.45 (m, 2H), 7.41 (d, *J* = 8.5 Hz, 2H), 7.10 – 7.04 (m, 2H), 3.87 (s, 3H); ^{13}C NMR (101 MHz, acetone-d_6) δ 167.62, 159.06, 143.90, 135.12, 132.57, 132.29, 132.01, 131.02, 130.41, 129.12, 128.92, 128.42, 128.23, 127.77, 127.72, 126.99, 126.01, 125.29, 124.20, 123.49, 123.18, 119.79, 113.74, 54.73; HRMS [ESI]: calculated for $C_{28}H_{22}NO_3^+$ $[M+H]^+$: 420.1594, found 420.1588.



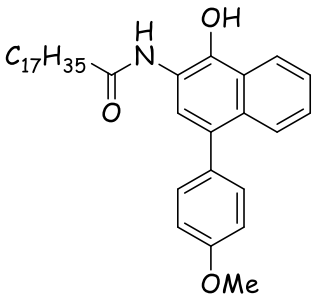
***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)furan-2-carboxamide** (**4n**): Yield: 43%; yellow solid; ^{1}H NMR (400 MHz, acetone-d_6) δ 10.03 (s, *J* = 10.1 Hz, 1H), 10.01 (s, 1H), 8.44 (d, *J* = 8.3 Hz, 1H), 7.90 – 7.79 (m, 2H), 7.55 – 7.43 (m, 3H), 7.43 – 7.34 (m, 3H), 7.06 (d, *J* = 8.3 Hz, 2H), 6.72 (m, 1H), 3.85 (d, *J* = 13.2 Hz, 3H); ^{13}C NMR (101 MHz, acetone-d_6) δ 159.93, 158.60, 147.78, 147.01, 144.24, 133.11, 133.02, 131.88, 131.78, 128.37, 128.30, 126.84, 126.18, 124.09, 123.86, 120.11, 117.17, 114.60, 113.44, 55.58; HRMS [ESI]: calculated for $C_{22}H_{18}NO_4^+$ $[M+H]^+$: 360.1230, found 360.1218.



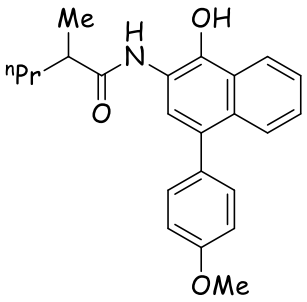
***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)thiophene-2-carboxamide** (**4o**): Yield: 43%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.40 (s, 1H), 9.87 (s, 1H), 8.37 – 8.31 (m, 1H), 8.13 (d, *J* = 3.0 Hz, 1H), 7.91 (m, 1H), 7.78 (d, *J* = 7.9 Hz, 1H), 7.50 (m 2H), 7.42 (s, 1H), 7.39 (d, *J* = 8.7 Hz, 2H), 7.27 (m, 1H), 7.09 (d, *J* = 8.7 Hz, 2H), 3.83 (s, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) 161.14, 158.48, 144.17, 138.67, 132.38, 131.84, 130.90, 130.82, 130.27, 130.17, 128.31, 126.47, 126.10, 125.27, 125.12, 125.03, 122.76, 119.15, 113.95, 55.17; HRMS [ESI]: calculated for $C_{22}H_{18}NO_3S^+$ $[M+H]^+$: 376.1002, found 376.0992.



***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)propionamide** (**4p**): Yield: 53%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.32 (s, 1H), 10.26 (s, 1H), 8.28 (d, J = 8.3 Hz, 1H), 7.73 (d, J = 8.4 Hz, 1H), 7.53 – 7.46 (m, 1H), 7.46 – 7.39 (m, 1H), 7.36 (d, J = 8.1 Hz, 2H), 7.27 (s, 1H), 7.07 (d, J = 8.2 Hz, 2H), 3.82 (s, 3H), 2.51 (q, J = 7.5 Hz, 3H), 1.16 (t, J = 7.5 Hz, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 174.43, 158.48, 142.54, 131.84, 130.91, 129.87, 126.70, 125.85, 125.30, 125.07, 123.33, 122.76, 119.92, 113.95, 55.19, 28.85, 9.92; HRMS [ESI]: calculated for $C_{20}H_{20}NO_3^+$ $[M+H]^+$: 322.1438, found 322.1431.

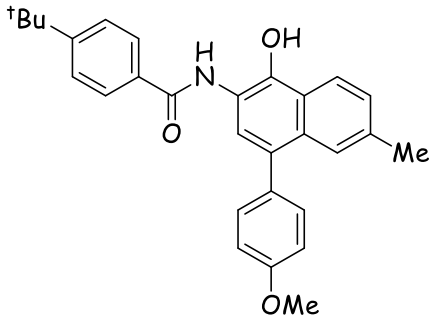


***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)stearamide** (**4q**): Yield: 42%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.34 (s, 1H), 10.31 (s, 1H), 8.27 (d, J = 8.1 Hz, 1H), 7.73 (d, J = 8.1 Hz, 1H), 7.52 – 7.47 (m, 1H), 7.44 (d, J = 8.1 Hz, 1H), 7.35 (d, J = 8.3 Hz, 2H), 7.24 (s, 1H), 7.07 (d, J = 8.4 Hz, 2H), 3.83 (s, 3H), 2.47 (m, 2H), 1.69 – 1.58 (m, 2H), 1.21 (m, 28H), 0.84 (t, J = 6.6 Hz, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 173.76, 158.47, 142.53, 131.82, 130.92, 130.86, 129.88, 126.75, 125.82, 125.26, 125.03, 123.16, 122.76, 119.89, 113.92, 55.17, 35.54, 31.35, 29.10, 29.07, 29.03, 28.95, 28.77, 28.56, 25.31, 22.15, 13.99; HRMS [ESI]: calculated for $C_{35}H_{50}NO_3^+$ $[M+H]^+$: 532.3785, found 532.3786.

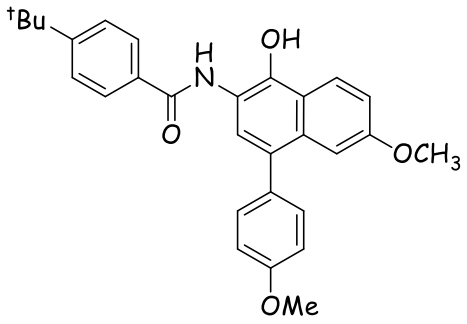


***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)-2-methylpentanamide** (**4r**): Yield: 50%; yellow oil; ^{1}H NMR (400 MHz, acetone-d_6) δ 10.51 (s, J = 9.9 Hz, 1H), 9.83 (s, 1H), 8.41 (d, J = 8.4 Hz, 1H), 7.78 (d, J = 8.4 Hz, 1H), 7.53 – 7.47 (m, 1H), 7.45 – 7.40 (m, 1H), 7.37 (t, J = 5.7 Hz, 2H), 7.17 (s, 1H), 7.08 – 7.02 (m, 2H), 3.86 (s, 3H), 2.81(m, 1H), 1.81 – 1.73 (m, 1H), 1.53 – 1.35 (m, 3H), 1.25

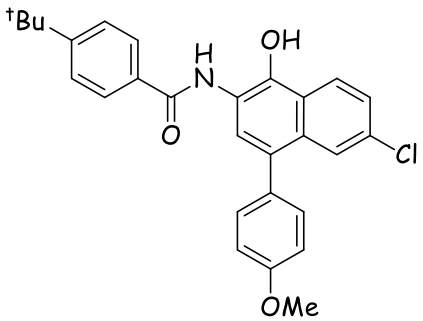
(d, *J* = 6.8 Hz, 3H), 0.93 (t, *J* = 7.2 Hz, 3H); ^{13}C NMR (101 MHz, acetone-d_6) δ 178.69, 159.89, 144.15, 133.12, 132.67, 131.82, 131.63, 128.54, 126.63, 126.07, 126.05, 123.94, 123.49, 120.50, 114.58, 55.57, 41.55, 37.37, 21.26, 18.41, 14.30; HRMS [ESI]: calculated for $C_{23}H_{26}NO_3^+$ [M+H]$^+$: 364.1907, found 364.1898.



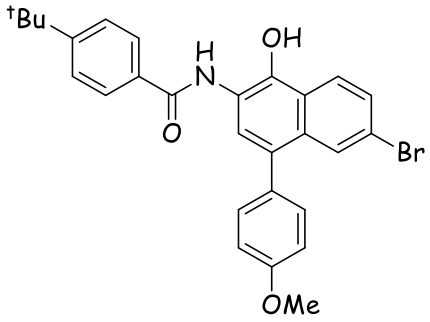
4-(*tert*-butyl)-*N*-(1-hydroxy-4-(4-methoxyphenyl)-6-methylnaphthalen-2-yl)benzamide (**4s**): Yield: 48%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.42 (s, 1H), 10.00 (s, 1H), 8.25 (d, *J* = 8.5 Hz, 1H), 8.03 (d, *J* = 8.1 Hz, 2H), 7.60 – 7.53 (m, 3H), 7.43 – 7.33 (m, 4H), 7.12 – 7.05 (m, 2H), 3.83 (s, 3H), 2.39 (s, 3H), 1.32 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 167.05, 158.80, 155.45, 144.23, 135.61, 132.47, 131.28, 131.08, 130.86, 130.62, 128.35, 127.74, 125.71, 125.24, 124.44, 123.24, 119.44, 114.32, 55.54, 35.18, 31.32, 21.92; HRMS [ESI]: calculated for $C_{29}H_{30}NO_3^+$ [M+H]$^+$: 440.2220, found 440.2220.



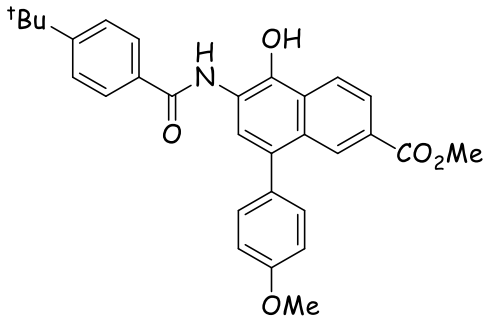
4-(*tert*-butyl)-*N*-(1-hydroxy-6-methoxy-4-(4-methoxyphenyl)naphthalen-2-yl)benzamide (**4t**): Yield: 35%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.40 (s, 1H), 10.05 (s, 1H), 8.26 (d, *J* = 9.2 Hz, 1H), 8.02 (d, *J* = 8.3 Hz, 2H), 7.57 (d, *J* = 8.4 Hz, 2H), 7.46 – 7.39 (m, 3H), 7.22 – 7.17 (m, 1H), 7.16 (d, *J* = 2.0 Hz, 1H), 7.11 – 7.06 (m, 2H), 3.83 (s, 3H), 3.73 (s, 3H), 1.32 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 167.02, 158.77, 157.91, 155.42, 144.58, 132.50, 131.94, 131.14, 131.09, 130.00, 128.34, 125.96, 125.69, 125.08, 122.13, 118.51, 117.36, 114.40, 104.62, 55.52, 55.31, 35.17, 31.32; HRMS [ESI]: calculated for $C_{29}H_{30}NO_4^+$ [M+H]$^+$: 456.2169, found 456.2168.



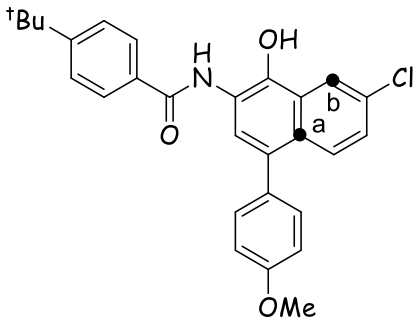
4-(*tert*-butyl)-*N*-(6-chloro-1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)benzamide (**4u**): Yield: 58%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.46 (s, 1H), 10.26 (s, 1H), 8.35 (d, *J* = 9.0 Hz, 1H), 8.05 – 7.98 (m, 2H), 7.70 (d, *J* = 1.7 Hz, 1H), 7.60 – 7.55 (m, 3H), 7.54 – 7.50 (m, 1H), 7.41 – 7.36 (m, 2H), 7.13 – 7.07 (m, 2H), 3.83 (s, 3H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 167.19, 159.07, 155.56, 144.32, 131.54, 131.43, 131.35, 131.26, 130.98, 130.45, 128.39, 126.59, 126.05, 125.70, 125.42, 124.08, 120.79, 114.51, 55.55, 35.16, 31.29; HRMS [ESI]: calculated for $C_{28}H_{27}{}^{35}ClNO_3^+$ $[M+H]^+$: 460.1674, found 460.1671, $C_{28}H_{27}{}^{37}ClNO_3^+$ $[M+H]^+$: 462.1644, found 462.1653.



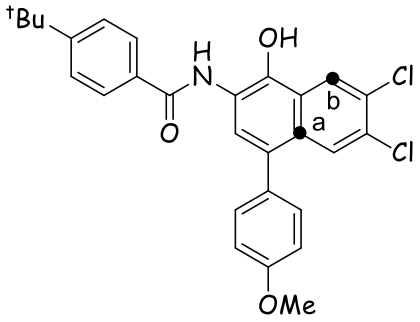
***N*-(6-bromo-1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)-4-(*tert*-butyl)benzamide** (**4v**): Yield: 60%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.44 (s, 1H), 10.25 (s, 1H), 8.32 – 8.25 (m, 1H), 8.05 – 7.99 (m, 2H), 7.87 (d, J = 1.9 Hz, 1H), 7.64 (d, J = 9.0 Hz, 1H), 7.60 – 7.53 (m, 3H), 7.42 – 7.35 (m, 2H), 7.13 – 7.08 (m, 2H), 3.83 (s, 3H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 167.18, 159.07, 155.56, 144.34, 131.78, 131.52, 131.26, 130.98, 130.40, 128.57, 128.39, 127.30, 126.52, 125.79, 125.70, 125.59, 120.87, 120.19, 114.51, 55.56, 35.16, 31.29; HRMS [ESI]: calculated for $C_{28}H_{27}{}^{79}BrNO_3^+$ $[M+H]^+$: 504.1169, found 504.1161, $C_{28}H_{27}{}^{81}BrNO_3^+$ $[M+H]^+$: 506.1148, found 506.1140.



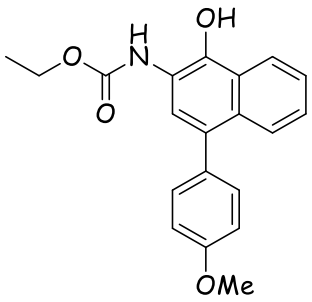
methyl 6-(4-(*tert*-butyl)benzamido)-5-hydroxy-8-(4-methoxyphenyl)-2-naphthoate (**4w**): Yield: 23%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.47 (s, 1H), 10.22 (s, 1H), 8.49 – 8.39 (m, 2H), 8.01 (m, 3H), 7.63 – 7.56 (m, 3H), 7.42 (d, *J* = 8.5 Hz, 2H), 7.13 (d, *J* = 8.5 Hz, 2H), 3.85 (s, 3H), 3.84 (s, 3H), 1.33 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 166.82, 166.40, 158.76, 155.26, 143.50, 132.21, 131.27, 131.00, 130.60, 129.20, 128.67, 128.03, 127.86, 126.71, 125.70, 125.36, 124.17, 123.54, 122.27, 114.14, 55.23, 52.29, 34.82, 30.93; HRMS [ESI]: calculated for $C_{30}H_{30}NO_5^+$ $[M+H]^+$: 484.2118, found 484.2116.



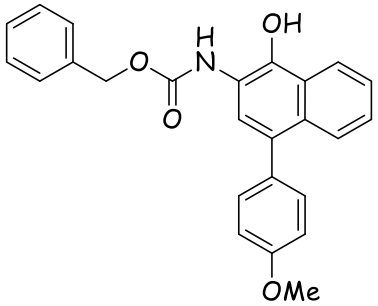
4-(*tert*-butyl)-*N*-(7-chloro-1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)benzamide (**4x**): Yield: 60%; The ratio of the two diastereoisomers is 2.0:1; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6, a mixture of two isomers) δ 10.47 (s, major), 10.43 (s, minor), 10.30 (s, major + minor isomer), 8.39 (dd, J = 8.4, 1.2 Hz, major), 8.31 (s, minor), 8.30 (d, J = 2.2 Hz, minor), 8.02 (d, J = 8.4 Hz, major + minor isomer), 7.78 (d, J = 9.0 Hz, minor), 7.59 – 7.53 (m, major + minor isomer), 7.47 (dt, J = 4.3, 3.3 Hz, major + minor isomer), 7.38 (d, J = 8.6 Hz, minor), 7.20 (d, J = 8.6 Hz, major), 7.09 (d, J = 8.7 Hz, minor), 6.95 (d, J = 8.6 Hz, major), 3.83 (s, minor), 3.80 (s, major), 1.32 (s, minor), 1.32 (s, major); ^{13}C NMR (101 MHz, DMSO-d_6) δ 166.88, 166.78, 158.65, 158.17, 155.25, 155.18, 143.91, 142.85, 134.92, 131.36, 130.94, 130.88, 130.60, 130.42, 130.31, 130.09, 129.88, 129.21, 129.01, 128.71, 128.48, 128.02, 127.99, 127.60, 127.48, 127.39, 126.87, 126.33, 125.40, 125.31, 125.15, 122.63, 121.47, 121.09, 119.95, 114.04, 112.78, 55.18, 55.05, 34.77, 30.89; HRMS [ESI]: calculated for $C_{28}H_{27}{}^{35}ClNO_3^+$ $[M+H]^+$: 460.1674, found 460.1674, $C_{28}H_{27}{}^{37}ClNO_3^+$ $[M+H]^+$: 462.1644, found 462.1633.



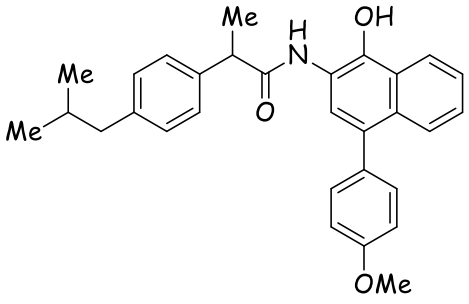
4-(*tert*-butyl)-*N*-(6,7-dichloro-1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)benzamide (**4y**): Yield: 55%; The ratio of the two diastereoisomers is 3.0:1; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6, a mixture of two isomers) δ 10.48 (s, major), 10.43 (s, minor), 8.46 (s, minor), 8.36 (t, J = 8.4 Hz, major), 8.01 (d, J = 8.5 Hz, major + minor isomer), 7.86 (s, minor), 7.67 (d, J = 9.1 Hz, major), 7.60 (s, minor), 7.58 – 7.53 (m, major + minor isomer), 7.39 (d, J = 8.7 Hz, minor), 7.23 – 7.16 (m, major), 7.09 (d, J = 8.7 Hz, minor), 6.99 – 6.92 (m, major), 3.83 (s, minor), 3.80 (s, major), 1.31 (s, minor), 1.31 (s, major); ^{13}C NMR (101 MHz, DMSO-d_6) δ 166.94, 166.82, 158.81, 158.23, 155.31, 155.24, 144.01, 142.84, 134.94, 131.95, 130.84, 130.75, 130.54, 130.43, 130.34, 130.02, 129.96, 129.25, 128.84, 128.26, 128.04, 128.00, 127.51, 127.21, 126.44, 125.86, 125.30, 124.29, 123.67, 121.43, 120.49, 114.19, 112.97, 55.17, 55.07, 34.76, 30.88; HRMS [ESI]: calculated for $C_{28}H_{26}{}^{35}Cl_2NO_3^+$ $[M+H]^+$: 494.1284, found 494.1270, $C_{28}H_{26}{}^{35}Cl{}^{37}Cl\ NO_3^+$ $[M+H]^+$: 496.1255, found 496.1260, $C_{28}H_{26}{}^{37}Cl_2NO_3^+$ $[M+H]^+$: 498.1225, found 498.1224.



ethyl (1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)carbamate (**4z**) : Yield: 27%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.52 (s, 1H), 9.03 (s, 1H), 8.24 (d, J = 8.4 Hz, 1H), 7.72 (d, J = 8.4 Hz, 1H), 7.51 – 7.45 (m, 1H), 7.44 – 7.39 (m, 2H), 7.34 (d, J = 8.5 Hz, 2H), 7.06 (d, J = 8.6 Hz, 2H), 4.15 (q, J = 7.1 Hz, 2H), 3.82 (s, 3H), 1.28 (t, J = 6.6 Hz, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 158.45, 155.05, 132.09, 130.94, 130.88, 130.78, 129.45, 128.89, 126.08, 125.52, 125.15, 124.12, 122.42, 119.81, 113.96, 60.85, 55.21, 14.59; HRMS [ESI]: calculated for $C_{20}H_{20}NO_4^+$ [M+H]$^+$: 338.1387, found 338.1386.

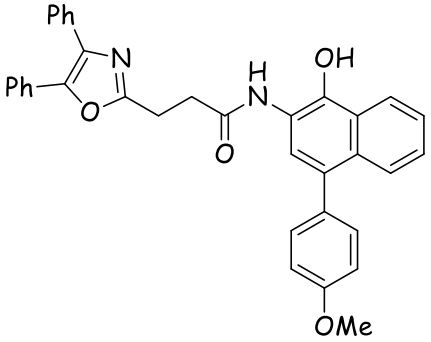


benzyl (1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)carbamate (**4aa**) : Yield: 36%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.54 (s, 1H), 9.15 (s, 1H), 8.25 (d, J = 8.4 Hz, 1H), 7.73 (d, J = 8.4 Hz, 1H), 7.49 (d, J = 7.2 Hz, 1H), 7.46 (s, 1H), 7.43 (d, J = 3.9 Hz, 2H), 7.40 (d, J = 5.7 Hz, 2H), 7.38 – 7.31 (m, 4H), 7.06 (d, J = 8.4 Hz, 2H), 5.18 (s, 2H), 3.82 (s, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 158.45, 154.81, 136.60, 132.08, 130.92, 130.78, 129.53, 128.48, 128.08, 127.91, 126.67, 126.46, 126.04, 125.84, 125.56, 125.15, 122.42, 113.95, 66.29, 55.21; HRMS [ESI]: calculated for $C_{25}H_{22}NO_4^+$ [M+H]$^+$: 400.1543, found 400.1537.

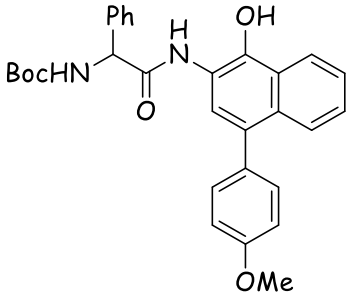


***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)-2-(4-isobutylphenyl)propanamide** (**5a**): Yield: 62%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.36 (s, 1H), 10.15 (s, 1H), 8.26 (d, J = 8.4 Hz, 1H), 7.71 (d, J = 8.3 Hz, 1H), 7.49 (m, 1H), 7.45 – 7.39 (m, 1H), 7.39 – 7.27 (m, 5H), 7.14 (d, J = 8.0 Hz, 2H), 7.10 – 7.03 (m, 2H), 4.04 (q, J = 6.7 Hz, 1H), 3.82 (s, 3H), 2.41 (d, J = 7.1 Hz, 2H), 1.80 (tt, J = 13.4, 6.6 Hz, 1H), 1.48 (d, J = 7.0 Hz, 3H), 0.84 (d, J = 6.6 Hz, 6H); ^{13}C NMR (101 MHz,

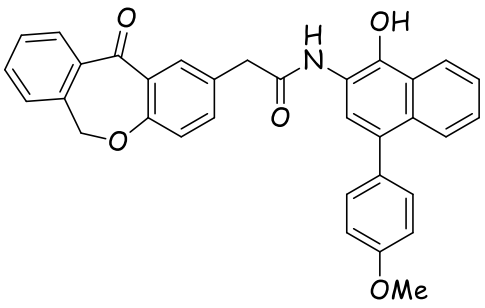
DMSO-d_6) δ 174.55, 158.47, 142.30, 139.80, 138.64, 131.79, 131.03, 130.86, 129.80, 129.09, 127.09, 126.57, 125.84, 125.32, 125.08, 123.09, 122.65, 120.01, 113.92, 55.17, 44.90, 44.25, 29.64, 22.21, 18.61; HRMS [ESI]: calculated for $C_{30}H_{32}NO_3^+$ $[M+H]^+$: 454.2377, found 454.2372.



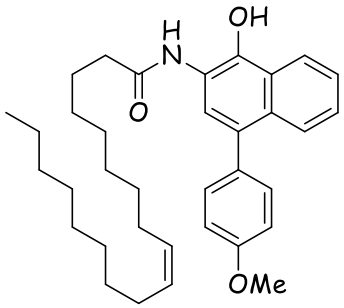
3-(4,5-diphenyloxazol-2-yl)-*N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)propanamide (**5b**): Yield: 60%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.40 (s, 1H), 10.11 (s, 1H), 8.31 (d, *J* = 8.9 Hz, 1H), 7.75 (d, *J* = 8.4 Hz, 1H), 7.56 (m, 2H), 7.51 (m, 2H), 7.44 (m, 1H), 7.40 – 7.30 (m, 10H), 7.08 – 7.03 (m, 2H), 3.82 (s, 3H), 3.25 (t, *J* = 7.1 Hz, 2H), 3.08 (t, *J* = 7.1 Hz, 2H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 172.20, 162.83, 158.86, 145.09, 143.27, 134.79, 132.42, 132.25, 131.29, 131.25, 130.32, 129.30, 129.19, 129.02, 128.82, 128.56, 127.77, 126.94, 126.72, 126.24, 125.65, 125.47, 124.05, 123.11, 120.15, 114.31, 55.56, 32.59, 23.79; HRMS [ESI]: calculated for $C_{35}H_{29}N_2O_4^+$ $[M+H]^+$: 541.2122, found 541.2122.



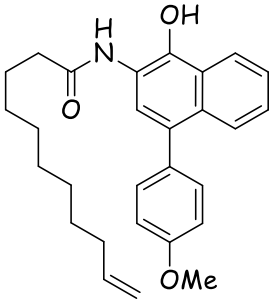
***tert*-butyl(2-((1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)amino)-2-oxo-1-phenylethyl)carbamate** (**5c**): Yield: 35%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.36 (s, 1H), 9.92 (s, 1H), 8.27 (d, *J* = 8.3 Hz, 1H), 7.72 (d, *J* = 8.2 Hz, 2H), 7.56 (d, *J* = 7.3 Hz, 2H), 7.49 (d, *J* = 7.3 Hz, 1H), 7.41 (m, 2H), 7.37 (d, *J* = 7.7 Hz, 2H), 7.33 (m, 3H), 7.06 (d, *J* = 8.6 Hz, 2H), 5.56 (d, J = 7.3 Hz, 1H), 3.82 (s, 3H), 1.41 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 171.10, 158.87, 155.63, 142.68, 138.23, 132.21, 131.50, 131.25, 130.16, 128.89, 128.36, 128.00, 126.68, 126.24, 125.73, 125.58, 123.34, 122.96, 120.28, 114.31, 79.06, 58.37, 55.55, 28.59; HRMS [ESI]: calculated for $C_{30}H_{31}N_2O_5^+$ $[M+H]^+$: 499.2227, found 499.2221.



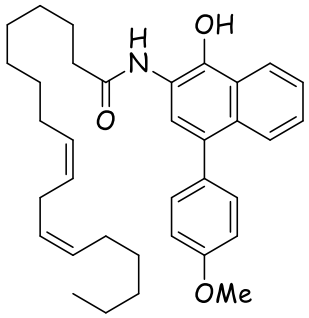
***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)-2-(11-oxo-6,11-dihydrodibenzo[*b*,*e*]oxepin-2-yl)acetamide (5d)**: Yield: 44%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.47 (s, 1H), 10.12 (s, 1H), 8.28 (d, *J* = 8.4 Hz, 1H), 8.15 (d, *J* = 2.0 Hz, 1H), 7.76 (m, 2H), 7.68 – 7.61 (m, 2H), 7.58 – 7.52 (m, 2H), 7.49 (d, *J* = 8.2 Hz, 1H), 7.46 – 7.40 (m, 1H), 7.36 (m, 3H), 7.11 (d, *J* = 8.4 Hz, 1H), 7.07 (d, *J* = 8.4 Hz, 2H), 5.30 (s, 2H), 3.88 (s, 2H), 3.82 (s, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 190.58, 171.51, 160.31, 158.86, 143.03, 140.35, 137.17, 136.32, 133.48, 132.22, 132.12, 131.37, 131.28, 130.26, 129.77, 129.58, 129.22, 128.70, 126.89, 126.27, 125.69, 125.51, 125.00, 123.79, 123.08, 121.21, 120.32, 114.32, 73.17, 55.55, 41.65; HRMS [ESI]: calculated for $C_{33}H_{26}NO_5^+$ $[M+H]^+$: 516.1805, found 516.1802.



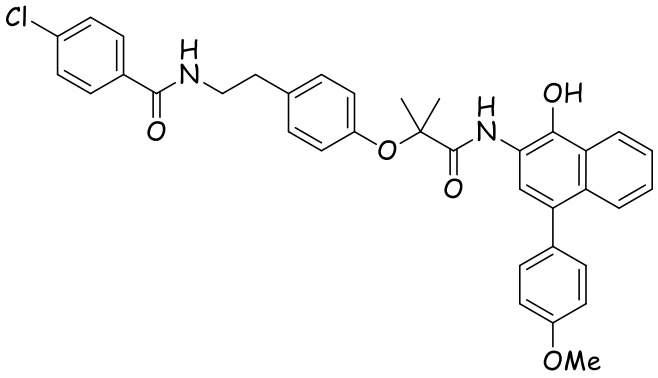
***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)oleamide (5e)**: Yield: 33%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.34 (s, 1H), 10.32 (s, 1H), 8.28 (d, *J* = 8.2 Hz, 1H), 7.73 (d, *J* = 8.3 Hz, 1H), 7.53 – 7.46 (m, 1H), 7.46 – 7.40 (m, 1H), 7.35 (d, *J* = 8.4 Hz, 2H), 7.24 (s, 1H), 7.07 (d, *J* = 8.3 Hz, 2H), 5.31 (m, 2H), 3.82 (s, 3H), 2.47 (m, 2H), 1.99 (m, 2H), 1.64 (m, 2H), 1.40 – 1.09 (m, 22H), 0.86 – 0.77 (m, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 173.74, 158.48, 142.54, 131.82, 130.93, 130.88, 129.88, 129.63, 126.75, 125.85, 125.28, 125.05, 123.18, 122.76, 119.90, 115.78, 113.93, 55.18, 35.54, 31.33, 29.13, 29.10, 29.06, 28.95, 28.88, 28.75, 28.63, 28.60, 28.54, 26.61, 25.32, 22.14, 13.99; HRMS [ESI]: calculated for $C_{35}H_{48}NO_3^+$ $[M+H]^+$: 530.3629, found 530.3628.



***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)undec-10-enamide** (**5f**): Yield: 32%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.38 (s, 1H), 10.35 (s, 1H), 8.32 (d, J = 8.4 Hz, 1H), 7.77 (d, J = 8.3 Hz, 1H), 7.56 – 7.50 (m, 2H), 7.42 – 7.37 (m, 2H), 7.28 (s, 1H), 7.14 – 7.08 (m, 2H), 5.84 – 5.78 (m, 1H), 5.03 (m, 1H), 4.94 (m, 1H), 3.86 (s, 3H), 2.53 (t, J = 7.1 Hz, 2H), 2.05 – 2.01 (m, 2H), 1.73 – 1.65 (m, 2H), 1.35 – 1.23 (m, 10H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 173.77, 158.48, 142.54, 138.84, 131.82, 130.88, 129.89, 129.30, 128.60, 125.84, 125.29, 125.05, 123.19, 122.76, 119.90, 114.66, 113.93, 55.17, 35.55, 33.24, 28.79, 28.74, 28.58, 28.53, 28.30, 25.32; HRMS [ESI]: calculated for $C_{28}H_{34}NO_3^+$ $[M+H]^+$: 432.2533, found 432.2527.

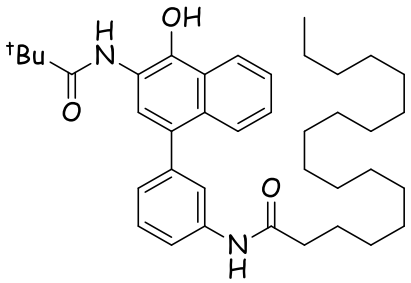


(9*Z*,12*Z*)-*N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)octadeca-9,12-dienamide (**5g**): Yield: 22%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.36 (d, J = 12.8 Hz, 2H), 8.32 (d, J = 8.4 Hz, 1H), 7.76 (d, J = 8.3 Hz, 1H), 7.54 – 7.50 (m, 1H), 7.47 (m, 1H), 7.39 (m, 2H), 7.28 (s, 1H), 7.13 – 7.07 (m, 2H), 5.43 – 5.28 (m, 4H), 3.86 (s, 3H), 2.76 (t, J = 6.1 Hz, 2H), 2.55 – 2.49 (m, 2H), 2.05 – 1.99 (m, 4H), 1.73 – 1.65 (m, 2H), 1.36 (m, 14H), 0.86 (t, J = 6.6 Hz, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 173.74, 158.47, 142.53, 131.81, 130.92, 130.87, 129.88, 129.74, 129.72, 127.79, 127.75, 126.74, 125.84, 125.28, 125.04, 123.17, 122.75, 119.89, 113.93, 55.17, 40.15, 35.55, 30.93, 29.06, 28.77, 28.58, 26.64, 25.25, 22.02, 13.96; HRMS [ESI]: calculated for $C_{35}H_{46}NO_3^+$ $[M+H]^+$: 528.3472, found 528.3468.

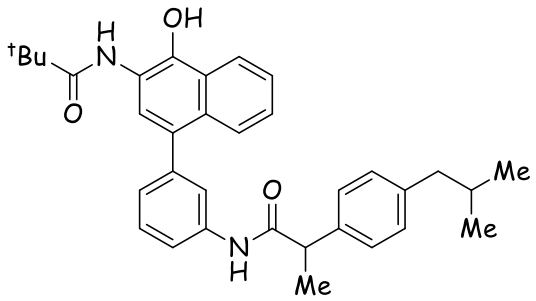


4-chloro-*N*-(4-((1-((1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl)amino)-2-methyl-1-oxopropan-2-yl)oxy)phenethyl)benzamide (**5h**): Yield: 38%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.01 (s, 1H), 9.78 (s, 1H), 8.66 (m, 1H), 8.28 (d, J = 8.4 Hz, 1H), 7.85 – 7.81 (m, 3H), 7.76 (d, J = 8.4 Hz, 1H), 7.51 (m, 3H), 7.45 – 7.40 (m, 1H), 7.36 (d, J = 8.4 Hz, 2H), 7.20 (d, J = 8.4 Hz, 2H), 7.08 (d, J = 8.4 Hz, 2H), 6.99 (d, J = 8.3 Hz, 2H), 3.82 (s, 3H), 3.46 (m, 2H), 2.80 (t, J = 7.4 Hz, 2H), 1.56 (s, 6H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 173.52, 165.12, 158.49, 152.59, 141.62, 135.94, 134.18, 133.33, 132.07, 131.23, 130.94, 129.61, 129.42, 129.08, 128.37, 126.14, 125.64, 125.32, 122.64, 122.42,

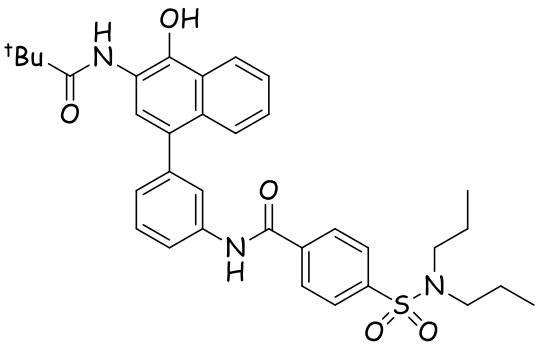
120.87, 120.81, 113.94, 80.99, 55.18, 40.98, 34.30, 25.01; HRMS [ESI]: calculated for $C_{36}H_{34}{}^{35}ClN_2O_5^+$ $[M+H]^+$: 609.2151, found 609.2145, $C_{36}H_{34}{}^{37}ClN_2O_5^+$ $[M+H]^+$: 611.2121, found 611.2120.



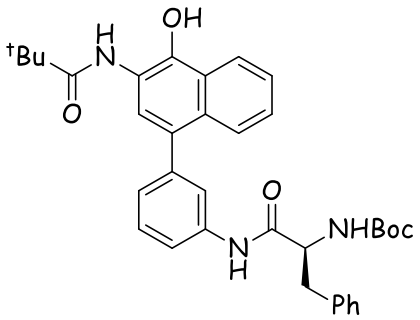
***N*-(3-(4-hydroxy-3-pivalamidonaphthalen-1-yl)phenyl)stearamide** (**5i**): Yield: 37%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.98 (s, 1H), 9.88 (s, 1H), 9.57 (s, 1H), 8.30 (d, J = 8.3 Hz, 1H), 7.95 (d, J = 8.1 Hz, 1H), 7.77 (m, 2H), 7.63 (m, 1H), 7.51 (m, 1H), 7.47 – 7.43 (m, 1H), 7.42 (s, 1H), 7.10 (d, J = 7.6 Hz, 1H), 2.30 (t, J = 7.3 Hz, 2H), 1.61 – 1.54 (m, 2H), 1.30 (s, 9H), 1.23 – 1.19 (m, 28H), 0.84 (t, J = 6.6 Hz, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.86, 171.43, 143.22, 140.10, 139.47, 131.04, 129.62, 128.69, 126.63, 125.91, 125.28, 124.99, 124.44, 124.21, 122.69, 120.38, 120.18, 117.76, 36.47, 31.30, 29.03, 28.93, 28.80, 28.72, 27.36, 25.10, 22.11, 13.95; HRMS [ESI]: calculated for $C_{39}H_{57}N_2O_3^+$ $[M+H]^+$: 601.4364, found 601.4369.



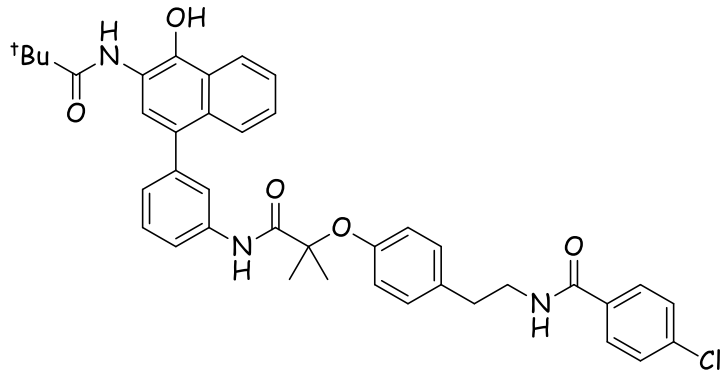
***N*-(1-hydroxy-4-(3-(2-(4-isobutylphenyl)propanamido)phenyl)naphthalen-2-yl)pivalamide** (**5j**): Yield: 47%; yellow solid; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.16 (s, 1H), 9.89 (s, 1H), 9.56 (s, 1H), 8.30 (d, J = 7.8 Hz, 1H), 7.76 (m, 2H), 7.66 – 7.62 (m, 1H), 7.54 – 7.49 (m, 1H), 7.47 – 7.43 (m, 1H), 7.43 – 7.38 (m, 2H), 7.30 (d, J = 8.1 Hz, 2H), 7.13 – 7.07 (m, 3H), 3.81 (q, J = 6.9 Hz, 1H), 2.39 (d, J = 7.1 Hz, 2H), 1.85 – 1.72 (m, 1H), 1.41 (d, J = 7.0 Hz, 3H), 1.31 (s, 9H), 0.84 (d, J = 6.6 Hz, 6H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.93, 172.57, 143.26, 140.15, 139.57, 139.45, 139.10, 138.51, 130.98, 129.61, 128.98, 128.68, 127.14, 127.04, 126.63, 126.02, 125.35, 124.72, 124.25, 122.72, 120.44, 120.17, 45.69, 44.27, 29.68, 27.39, 26.71, 22.23, 18.69; HRMS [ESI]: calculated for $C_{34}H_{39}N_2O_3^+$ $[M+H]^+$: 523.2955, found 523.2953.



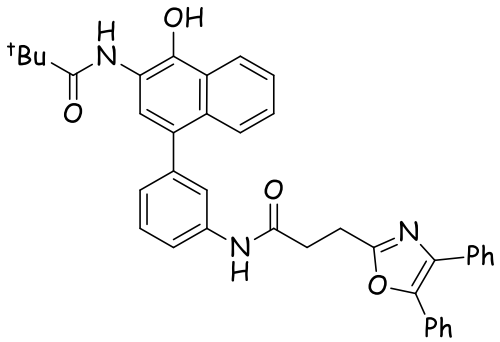
4-(*N*,*N*-dipropylsulfamoyl)-*N*-(3-(4-hydroxy-3-pivalamidonaphthalen-1-yl)phenyl)benzamide (**5k**): Yield: 45%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.61 (s, 1H), 9.91 (s, 1H), 9.59 (s, 1H), 8.32 (d, *J* = 8.2 Hz, 1H), 8.14 (d, *J* = 8.4 Hz, 2H), 8.00 – 7.92 (m, 3H), 7.90 – 7.80 (m, 2H), 7.59 – 7.45 (m, 4H), 7.22 (d, *J* = 7.5 Hz, 1H), 3.11 – 3.01 (m, 4H), 1.54 – 1.39 (m, 4H), 1.32 (s, 9H), 0.81 (m, 6H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.91, 164.58, 143.37, 141.99, 140.15, 139.01, 138.49, 130.88, 129.61, 128.87, 128.78, 127.79, 126.93, 126.65, 126.08, 125.40, 125.00, 124.43, 122.75, 121.71, 120.22, 119.10, 49.70, 39.10, 27.40, 21.69, 11.04; HRMS [ESI]: calculated for $C_{34}H_{40}N_3O_5S^+$ $[M+H]^+$: 602.2683, found 602.2679.



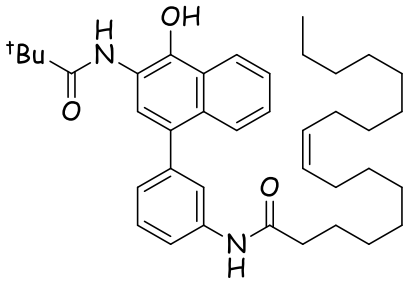
(*S*)-*tert*-butyl(1-((3-(4-hydroxy-3-pivalamidonaphthalen-1-yl)phenyl)amino)-1-oxo-3-phenylpropan-2-yl)carbamate (**5l**): Yield: 42%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.19 (s, 1H), 9.91 (s, 1H), 9.60 (s, 1H), 8.31 (d, *J* = 8.0 Hz, 1H), 7.78 (d, *J* = 8.4 Hz, 1H), 7.73 (s, 1H), 7.66 (d, *J* = 8.1 Hz, 1H), 7.55 – 7.51 (m, 1H), 7.50 – 7.45 (m, 2H), 7.44 (s, 1H), 7.33 (d, *J* = 7.3 Hz, 2H), 7.28 (t, *J* = 7.3 Hz, 2H), 7.22 – 7.17 (m, 1H), 7.15 (d, *J* = 8.6 Hz, 1H), 6.72 (brs, 1H), 4.38 – 4.30 (m, 1H), 3.05 – 3.97 (m, 1H), 2.89 – 2.80 (m, 1H), 1.32 (s, 9H), 1.30 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.94, 171.04, 155.47, 143.32, 140.16, 139.07, 138.00, 130.94, 129.61, 129.29, 128.88, 128.09, 126.65, 126.34, 126.04, 125.40, 125.00, 124.85, 124.33, 122.75, 120.60, 120.19, 118.05, 78.14, 56.69, 39.14, 28.20, 27.40, 26.79; HRMS [ESI]: calculated for $C_{34}H_{40}N_3O_5^+$ $[M+H]^+$: 582.2962, found 582.2955.



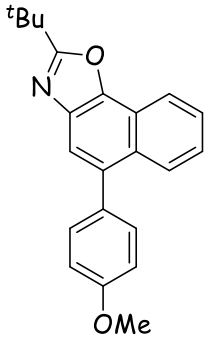
4-chloro-*N*-(4-((1-((3-(4-hydroxy-3-pivalamidonaphthalen-1-yl)phenyl)amino)-2-methyl-1-oxopropan-2-yl)oxy)phenethyl)benzamide (**5m**): Yield: 39%; brown oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.12 (s, 1H), 9.88 (s, 1H), 9.57 (s, 1H), 8.62 (m, 1H), 8.33 – 8.28 (m, 1H), 7.85 (d, J = 1.6 Hz, 1H), 7.83 – 7.78 (m, 3H), 7.76 – 7.73 (m, 1H), 7.53 – 7.49 (m, 3H), 7.48 – 7.45 (m, 1H), 7.43 (d, J = 6.6 Hz, 2H), 7.16 (d, J = 8.7 Hz, 3H), 6.88 (d, J = 8.5 Hz, 2H), 3.43 (dd, J = 14.1, 6.4 Hz, 2H), 2.77 (t, J = 7.4 Hz, 2H), 1.52 (s, 6H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.89, 172.87, 165.05, 153.05, 143.26, 139.98, 138.73, 135.89, 133.44, 133.31, 130.93, 129.59, 129.50, 129.04, 128.58, 128.34, 126.63, 125.99, 125.32, 125.21, 125.01, 124.32, 122.70, 121.69, 120.18, 119.80, 119.11, 80.47, 40.93, 34.22, 31.17, 27.38, 24.86; HRMS [ESI]: calculated for $C_{40}H_{41}{}^{35}ClN_3O_5^+$ [M+H]$^+$: 678.2729, found 678.2717, $C_{40}H_{41}{}^{37}ClN_3O_5^+$ [M+H]$^+$: 680.2700, found 680.2706.



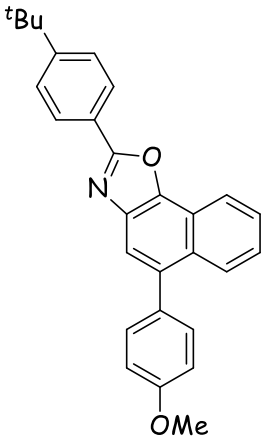
***N*-(4-(3-(3-(4,5-diphenyloxazol-2-yl)propanamido)phenyl)-1-hydroxynaphthalen-2-yl)pivalamide** (**5n**): Yield: 31%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 10.24 (s, 1H), 9.88 (s, 1H), 9.56 (s, 1H), 8.34 – 8.27 (m, 1H), 7.77 (m, 2H), 7.68 – 7.62 (m, 1H), 7.57 – 7.54 (m, 2H), 7.53 – 7.51 (m, 1H), 7.51 – 7.49 (m, 1H), 7.47 – 7.33 (m, 10H), 7.13 (d, J = 7.6 Hz, 1H), 3.17 (t, J = 7.2 Hz, 2H), 2.93 (t, J = 7.2 Hz, 2H), 1.31 (s, 9H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.92, 169.81, 162.66, 144.62, 143.27, 140.19, 139.31, 134.37, 132.04, 131.01, 129.64, 129.29, 128.94, 128.81, 128.66, 128.45, 128.18, 127.37, 126.64, 126.32, 125.97, 125.33, 124.98, 124.66, 124.26, 122.70, 120.44, 120.18, 117.83, 39.12, 32.75, 27.37, 23.12; HRMS [ESI]: calculated for $C_{39}H_{36}N_3O_4^+$ [M+H]$^+$: 610.2700, found 610.2690.



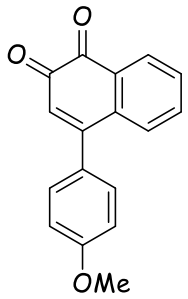
***N*-(3-(4-hydroxy-3-pivalamidonaphthalen-1-yl)phenyl)oleamide** (**50**): Yield: 23%; yellow oil; ^{1}H NMR (400 MHz, DMSO-d_6) δ 9.99 (s, 1H), 9.89 (s, 1H), 9.58 (s, 1H), 8.30 (d, *J* = 8.4 Hz, 1H), 7.76 (d, *J* = 9.1 Hz, 2H), 7.63 (d, *J* = 7.7 Hz, 1H), 7.54 – 7.48 (m, 1H), 7.48 – 7.36 (m, 3H), 7.10 (d, *J* = 7.6 Hz, 1H), 5.35 – 5.25 (m, 2H), 2.30 (t, *J* = 7.3 Hz, 2H), 2.00 – 1.93 (m, 2H), 1.60 – 1.45 (m, 4H), 1.31 (s, 9H), 1.30 – 1.15 (m, 20H), 0.83 (t, *J* = 4.9 Hz, 3H); ^{13}C NMR (101 MHz, DMSO-d_6) δ 178.89, 171.42, 143.25, 140.10, 139.48, 131.05, 129.68, 129.63, 128.74, 126.62, 125.97, 125.33, 125.01, 124.46, 124.27, 122.71, 120.35, 120.17, 117.75, 109.62, 36.48, 33.69, 31.34, 31.32, 29.13, 29.07, 28.97, 28.87, 28.76, 28.72, 28.62, 28.56, 27.39, 26.60, 25.13, 22.14, 13.99; HRMS [ESI]: calculated for $C_{39}H_{55}N_2O_3^+$ [M+H]$^+$: 599.4207, found 599.4203.



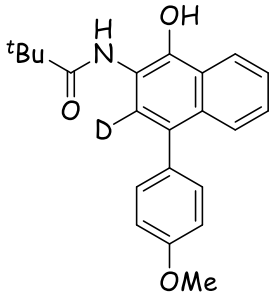
2-(*tert*-butyl)-5-(4-methoxyphenyl)naphtho[2,1-*d*]oxazole (**6a**): Yield: 90%; pale-yellow solid; ^{1}H NMR (400 MHz, DMSO) δ 8.26 (d, *J* = 8.2 Hz, 1H), 7.87 (d, *J* = 8.6 Hz, 1H), 7.73 – 7.68 (m, 1H), 7.67 (s, 1H), 7.57 – 7.51 (m, 1H), 7.40 (d, *J* = 8.4 Hz, 2H), 7.10 (d, *J* = 8.4 Hz, 2H), 3.85 (s, 3H), 1.52 (s, 9H); ^{13}C NMR (101 MHz, DMSO) δ 172.62, 158.78, 145.08, 136.82, 136.58, 132.07, 131.19, 129.22, 127.11, 126.80, 125.82, 120.11, 119.81, 118.98, 113.99, 55.25, 34.09, 28.40; HRMS [ESI]: calculated for $C_{22}H_{22}NO_2^+$ [M+H]$^+$: 332.1645, found 332.1636.



2-(4-(*tert*-butyl)phenyl)-5-(4-methoxyphenyl)naphtho[2,1-*d*]oxazole (6b): Yield: 90%; yellow solid; ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.38 (d, *J* = 8.0 Hz, 1H), 8.29 (d, *J* = 8.5 Hz, 2H), 7.98 (d, *J* = 8.5 Hz, 1H), 7.78 (s, 1H), 7.68 – 7.63 (m, 1H), 7.59 (d, *J* = 8.6 Hz, 2H), 7.50 – 7.44 (m, 3H), 7.09 – 7.05 (m, 2H), 3.92 (s, 3H), 1.41 (s, 9H); ^{13}C NMR (101 MHz, $CDCl_3$) δ 162.01, 158.16, 153.92, 144.98, 137.24, 136.90, 132.09, 130.48, 129.46, 126.55, 126.33, 125.78, 125.10, 124.61, 123.75, 119.65, 119.54, 118.45, 112.91, 54.51, 34.22, 30.33; HRMS [ESI]: calculated for $C_{28}H_{26}NO_2^+$ $[M+H]^+$: 408.1958, found 408.1956.

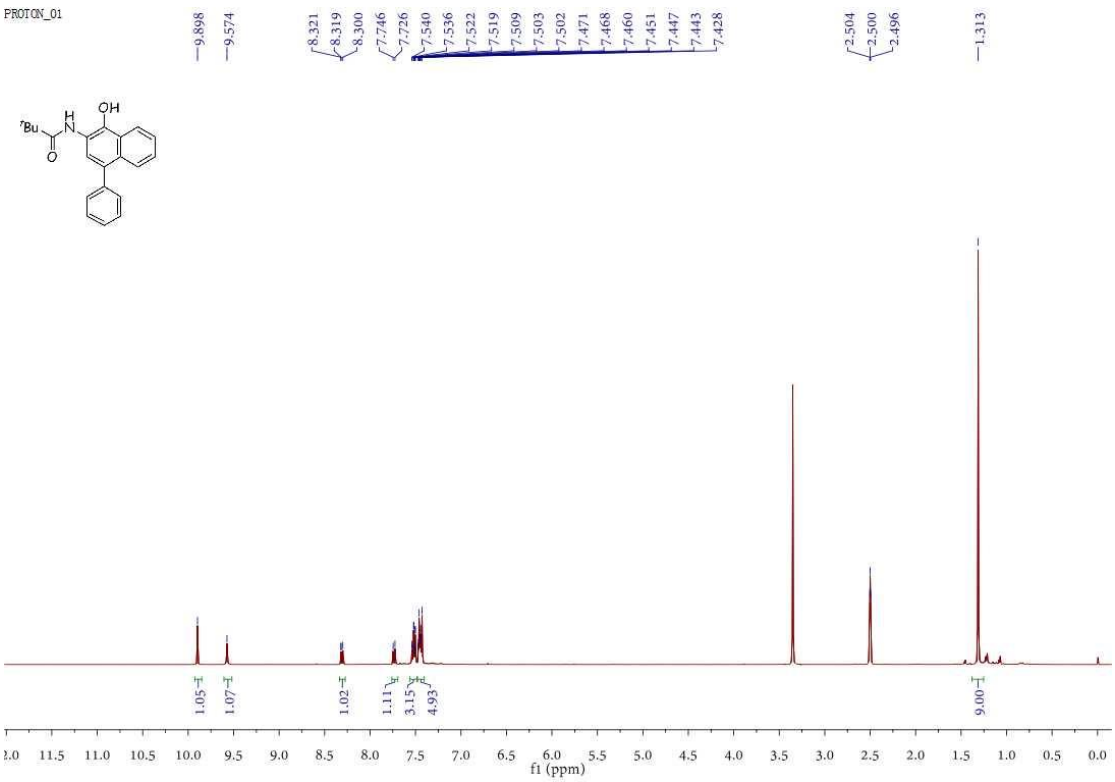


4-(4-methoxyphenyl)naphthalene-1,2-dione (6c): Yield: 80%; orange oil; ^{1}H NMR (400 MHz, DMSO) δ 8.05 (d, *J* = 7.5 Hz, 1H), 7.70 (t, *J* = 7.6 Hz, 1H), 7.62 (t, *J* = 7.5 Hz, 1H), 7.46 (d, *J* = 8.5 Hz, 2H), 7.32 (d, *J* = 7.8 Hz, 1H), 7.11 (d, *J* = 8.5 Hz, 2H), 6.31 (s, 1H), 3.84 (s, 3H); ^{13}C NMR (101 MHz, DMSO) δ 179.71, 178.95, 160.39, 154.99, 135.02, 134.69, 131.94, 130.68, 129.96, 129.48, 129.11, 128.57, 127.09, 114.30, 55.39; HRMS [ESI]: calculated for $C_{17}H_{13}O_3^+$ $[M+H]^+$: 265.0859, found 265.0855.

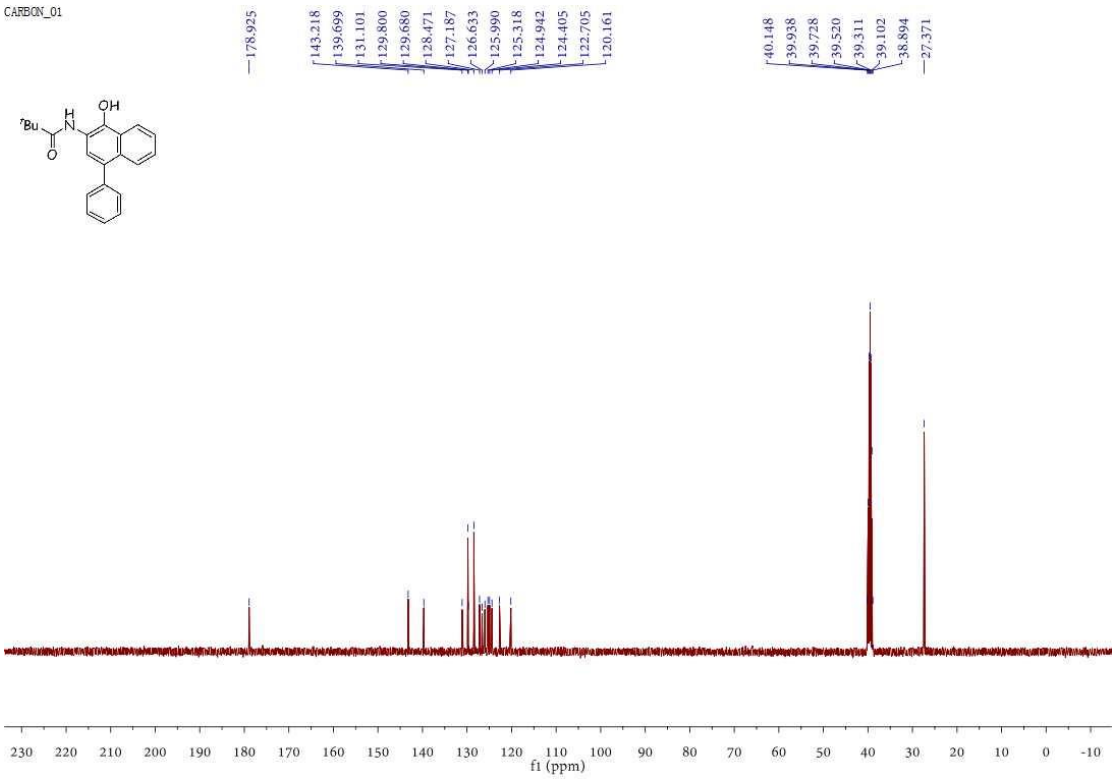


***N*-(1-hydroxy-4-(4-methoxyphenyl)naphthalen-2-yl-3-*d*)pivalamide ([D]-3g)**: Yield: 64%; pale-yellow oil; ^{1}H NMR (400 MHz, DMSO) δ 9.84 (s, 1H), 9.58 (s, 1H), 8.29 (d, *J* = 8.3 Hz, 1H), 7.74 (d, *J* = 8.3 Hz, 1H), 7.54 – 7.48 (m, 1H), 7.47 – 7.42 (m, 1H), 7.37 (d, *J* = 8.6 Hz, 2H), 7.08 (d, *J* = 8.6 Hz, 2H), 3.83 (s, 3H), 1.31 (s, 9H); HRMS [ESI]: calculated for $C_{22}H_{22}DNO_3^+$ $[M+H]^+$: 351.1813, found 351.1807.

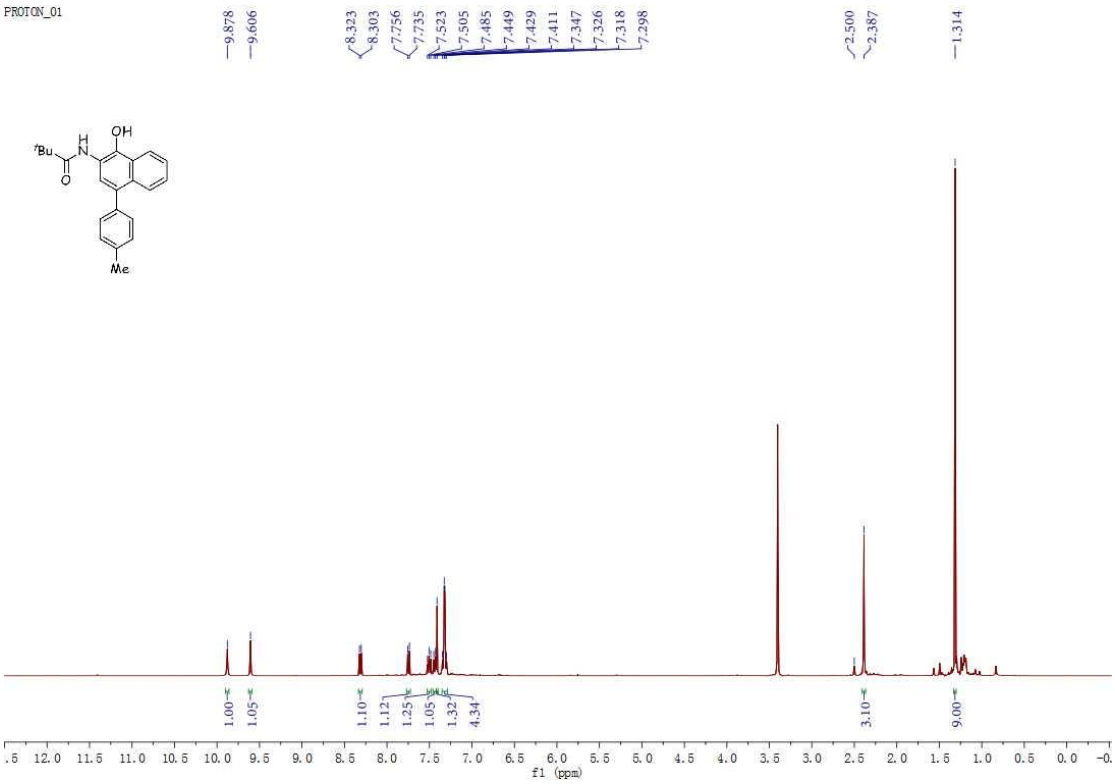
VIII. Copies of ^{1}H, ^{13}C NMR and ^{19}F spectra



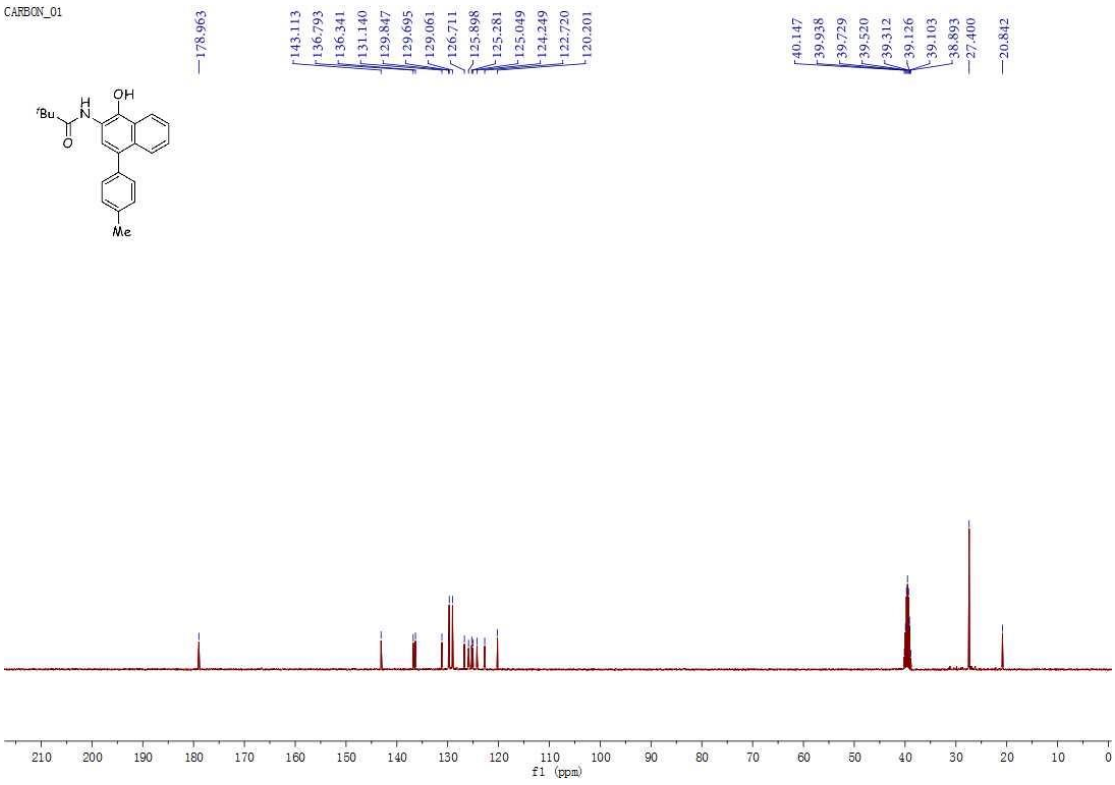
^{1}H – NMR spectrum of compound – **3a** (400 MHz, DMSO-d_6)



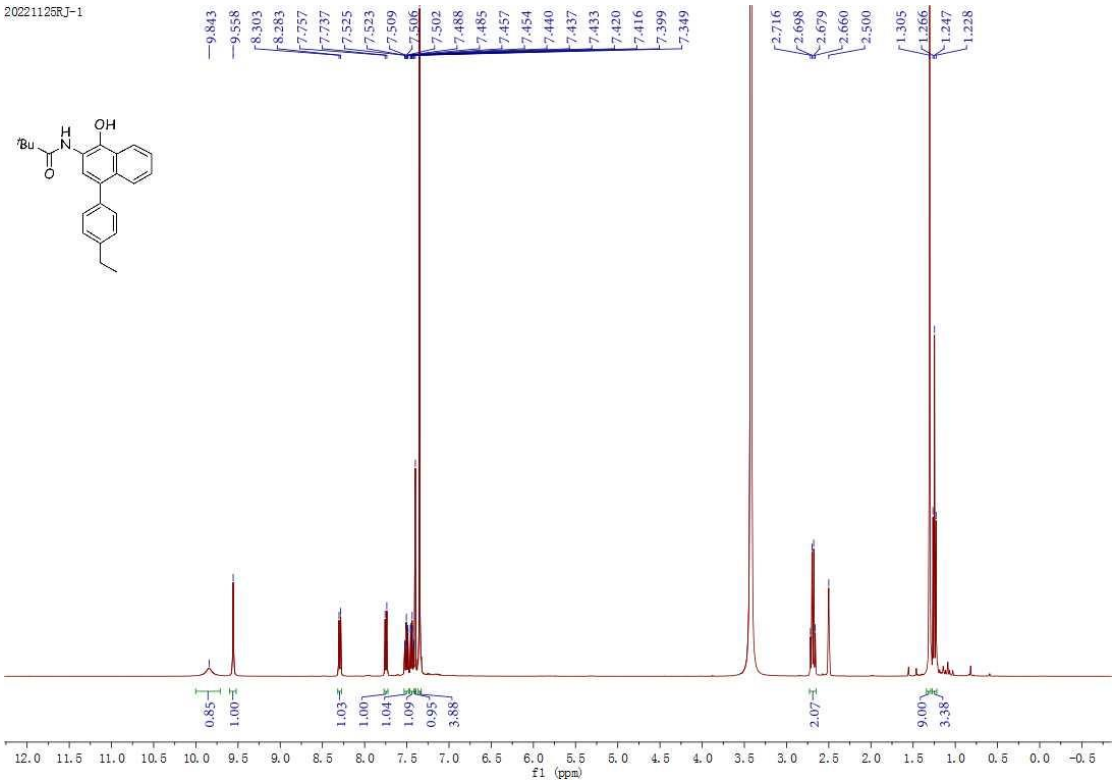
^{13}C – NMR spectrum of compound – **3a** (101 MHz, DMSO-d_6)



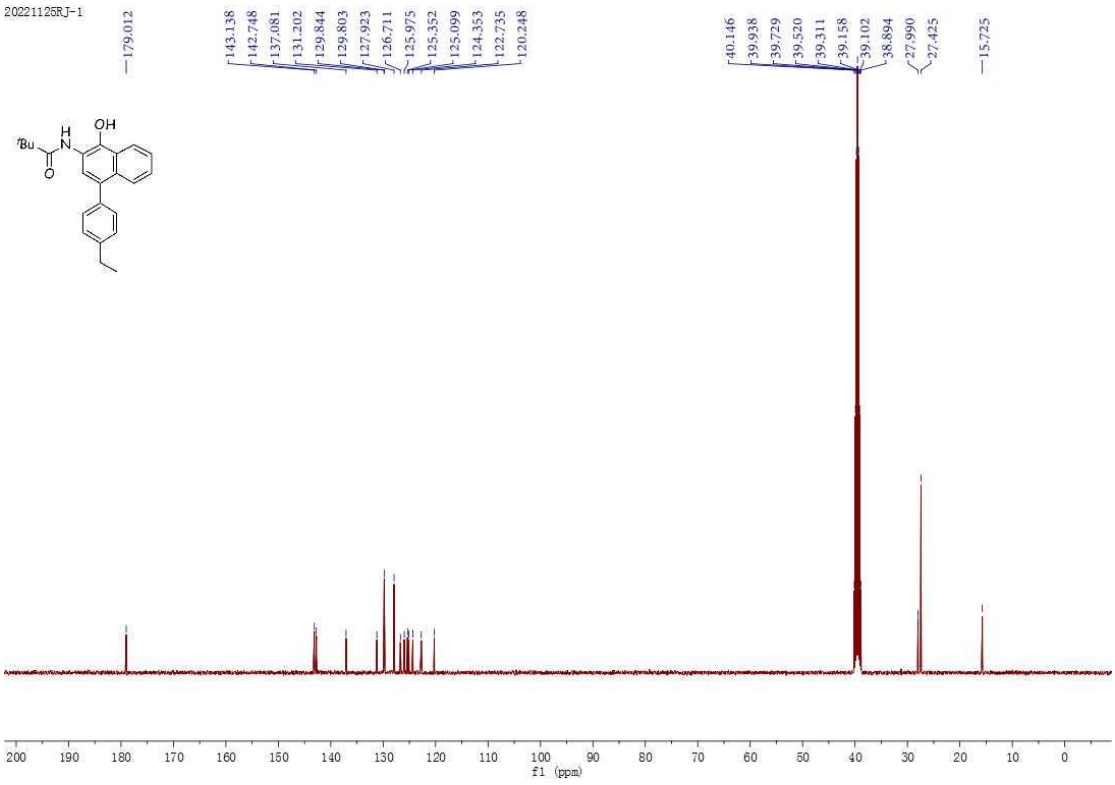
^{1}H – NMR spectrum of compound – **3b** (400 MHz, DMSO-d_6)



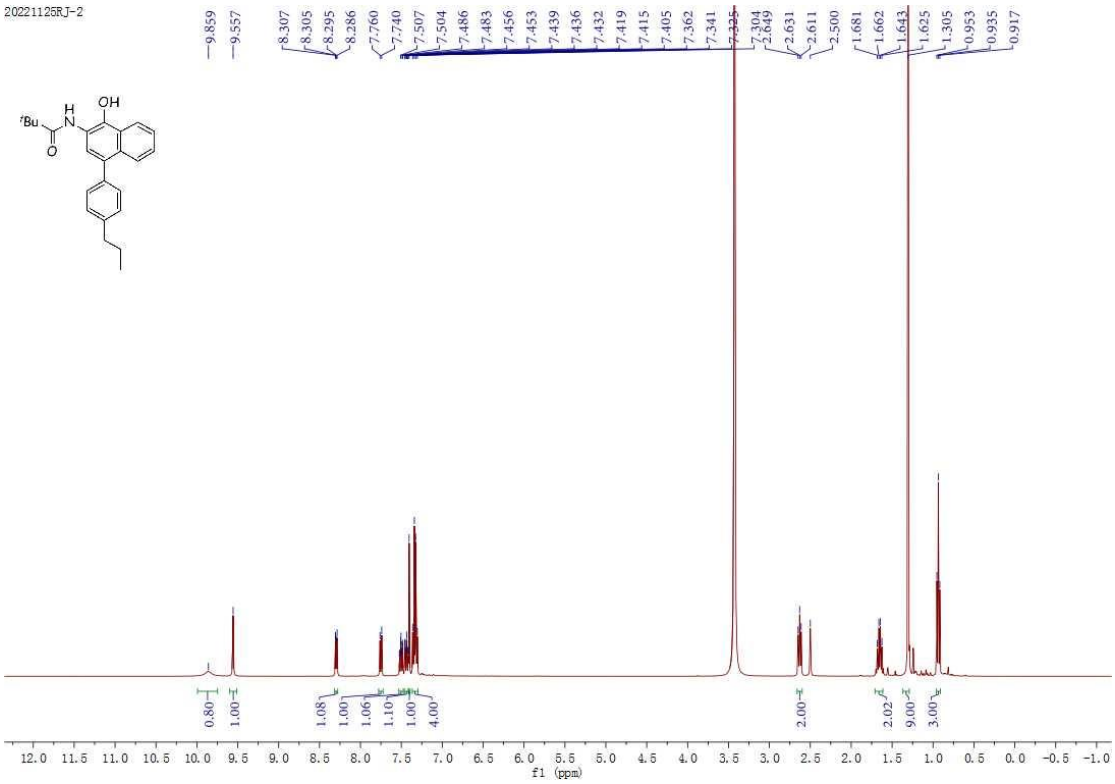
^{13}C – NMR spectrum of compound – **3b** (101 MHz, DMSO-d_6)



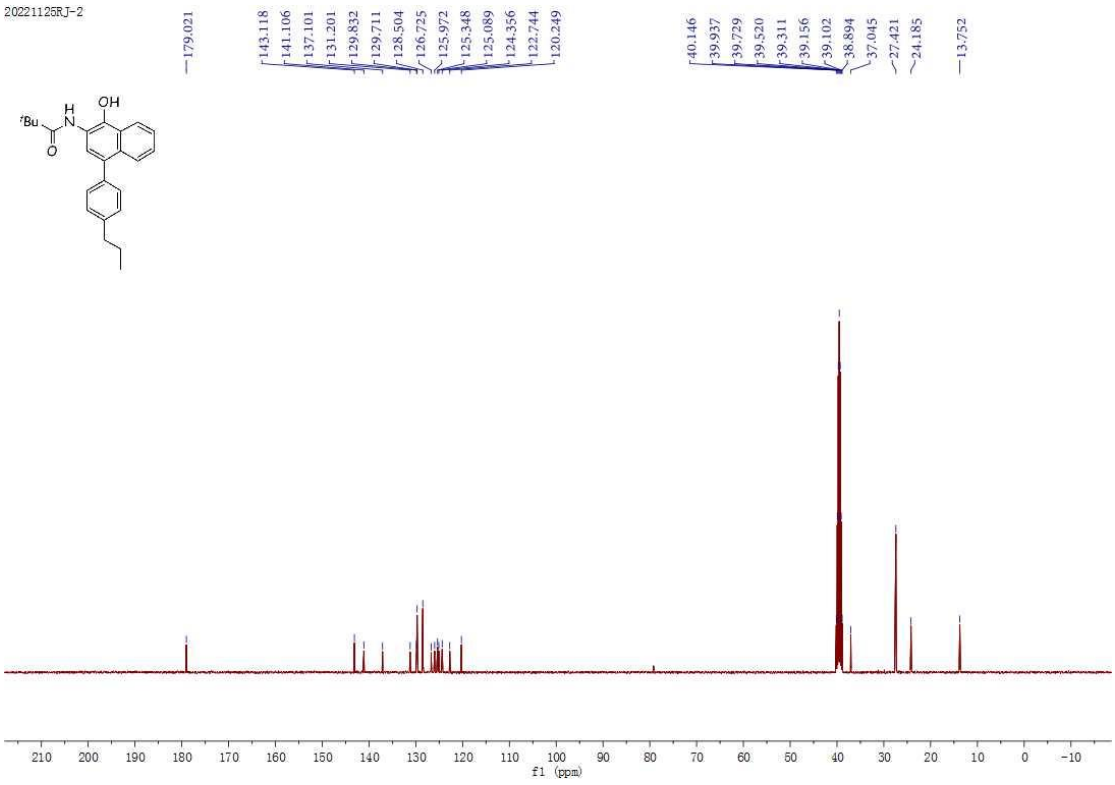
^{1}H – NMR spectrum of compound – **3c** (400 MHz, DMSO-d_6)



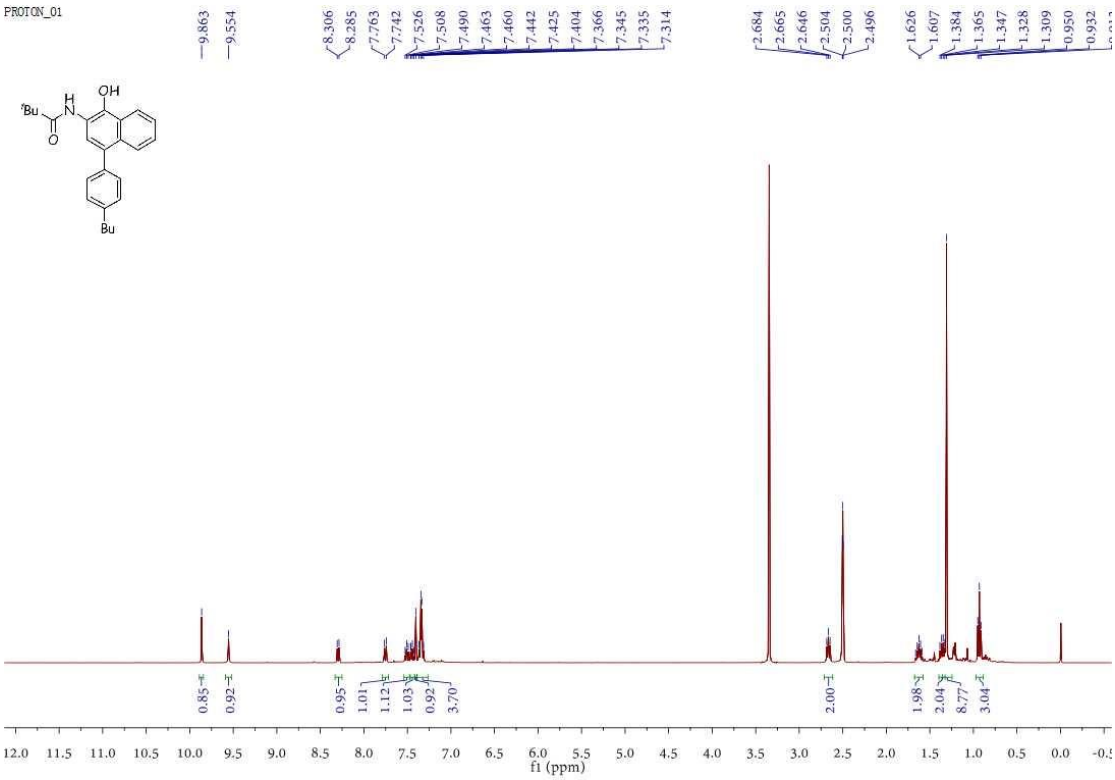
^{13}C – NMR spectrum of compound – **3c** (101 MHz, DMSO-d_6)



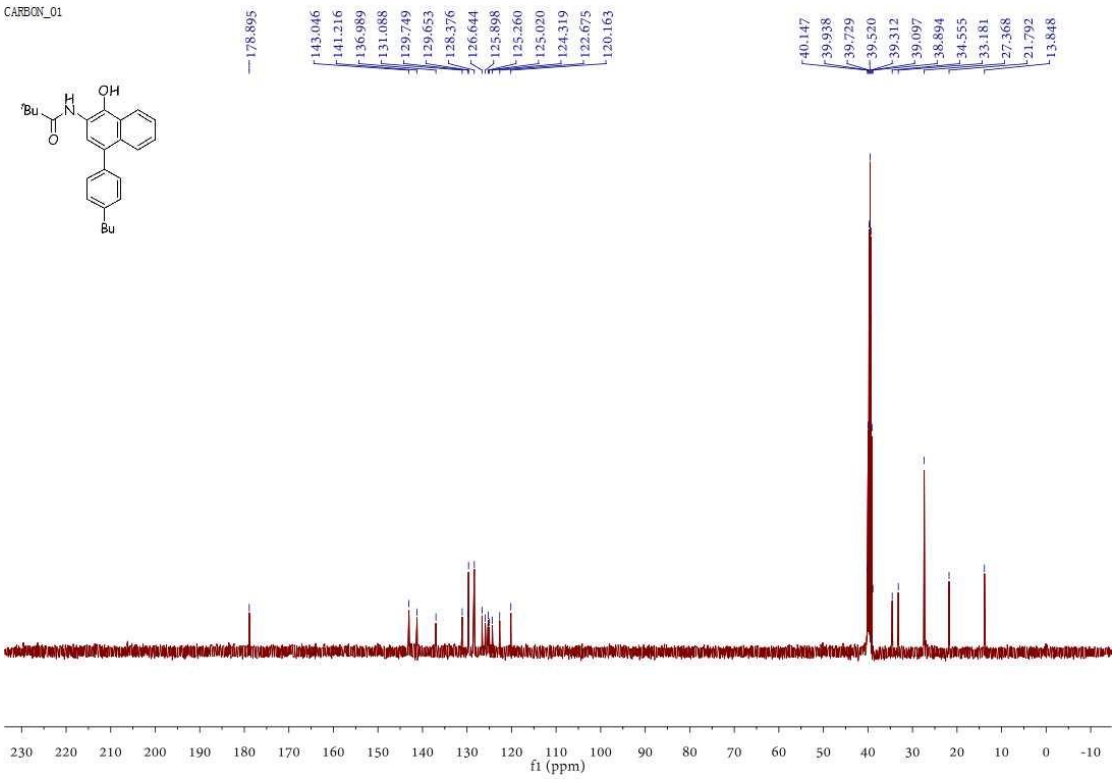
^{1}H – NMR spectrum of compound – **3d** (400 MHz, DMSO-d_6)



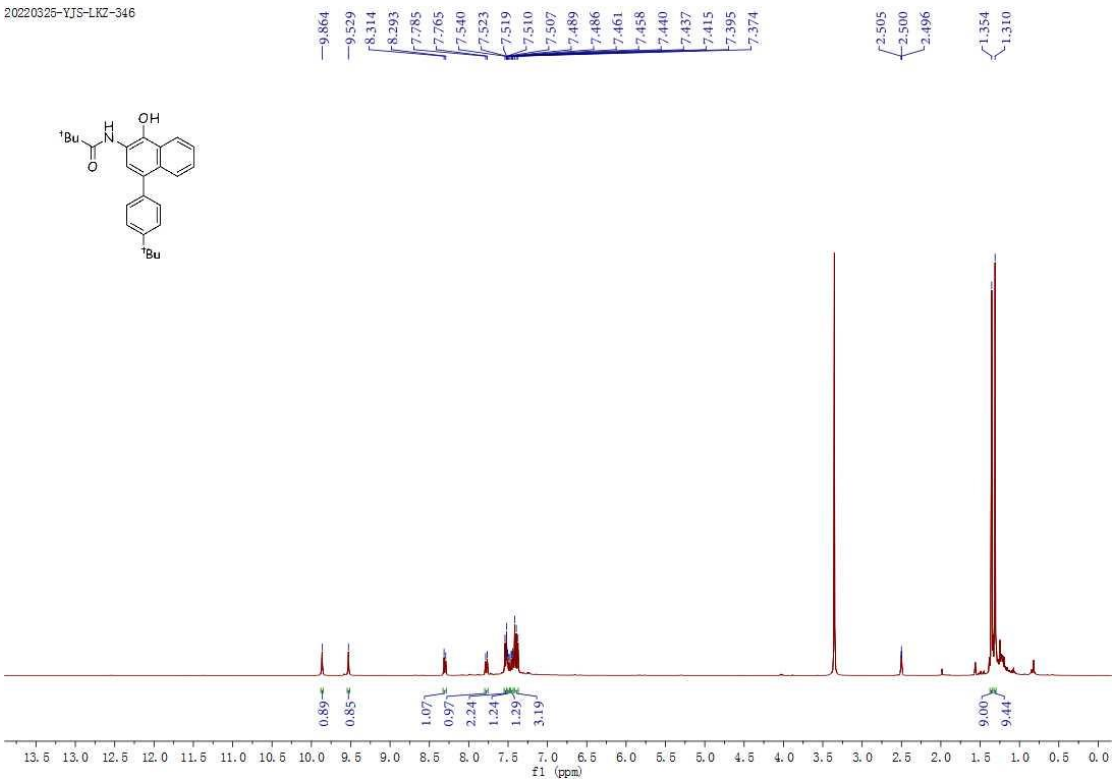
^{13}C – NMR spectrum of compound – **3d** (101 MHz, DMSO-d_6)



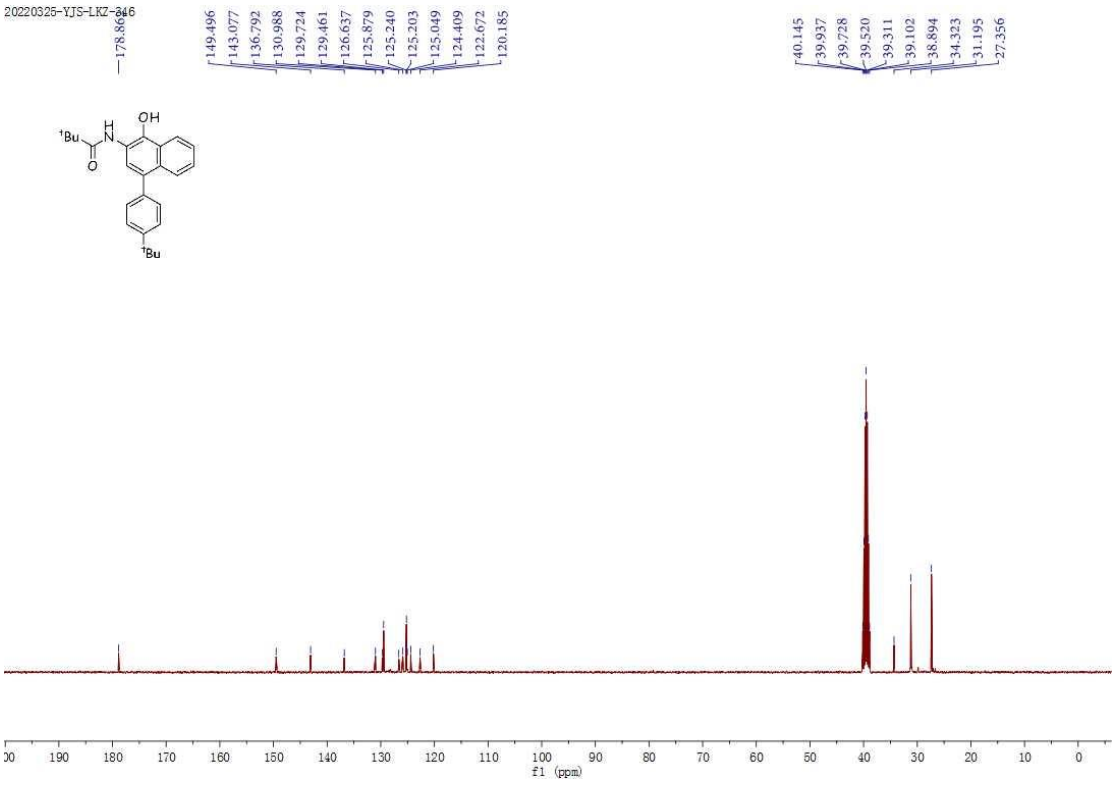
^{1}H – NMR spectrum of compound – **3e** (400 MHz, DMSO-d_6)



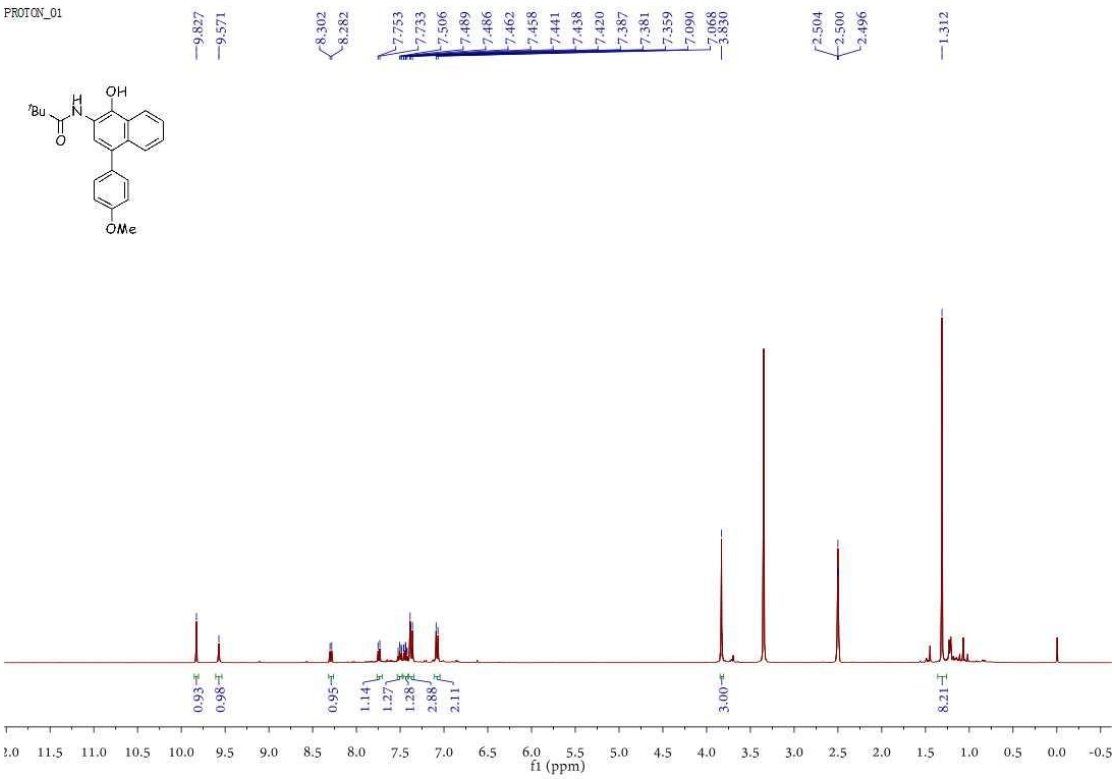
^{13}C – NMR spectrum of compound – **3e** (101 MHz, DMSO-d_6)



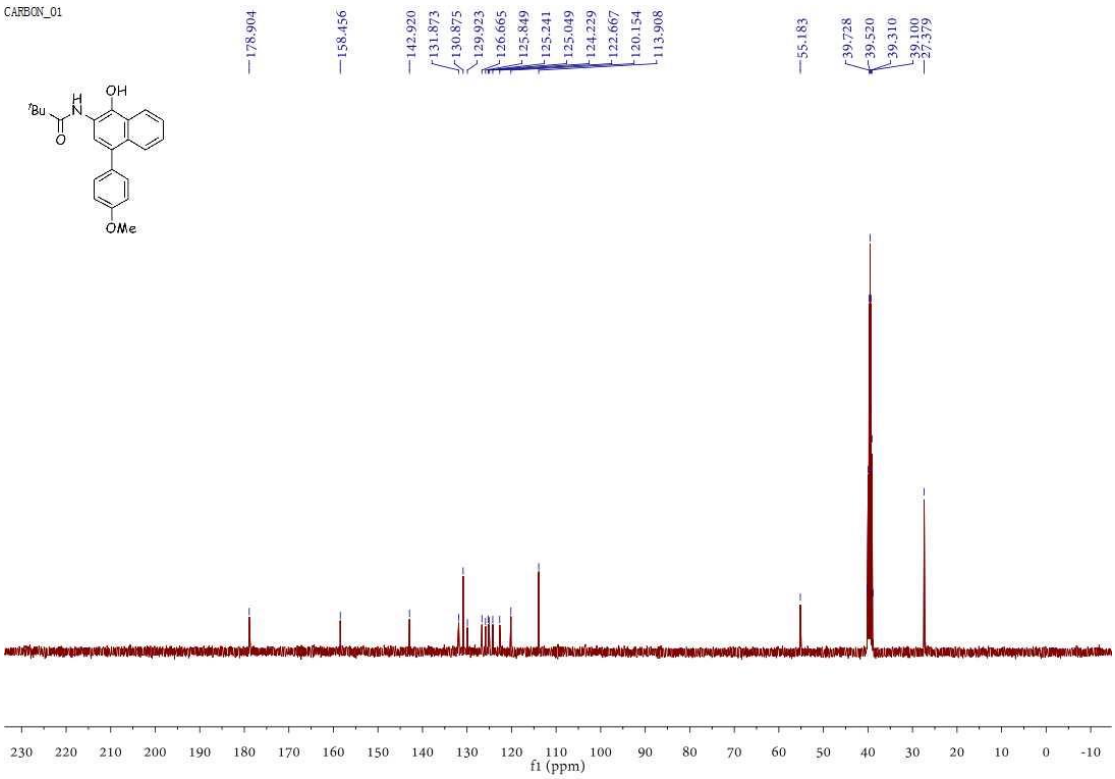
^{1}H – NMR spectrum of compound – **3f** (400 MHz, DMSO-d_6)



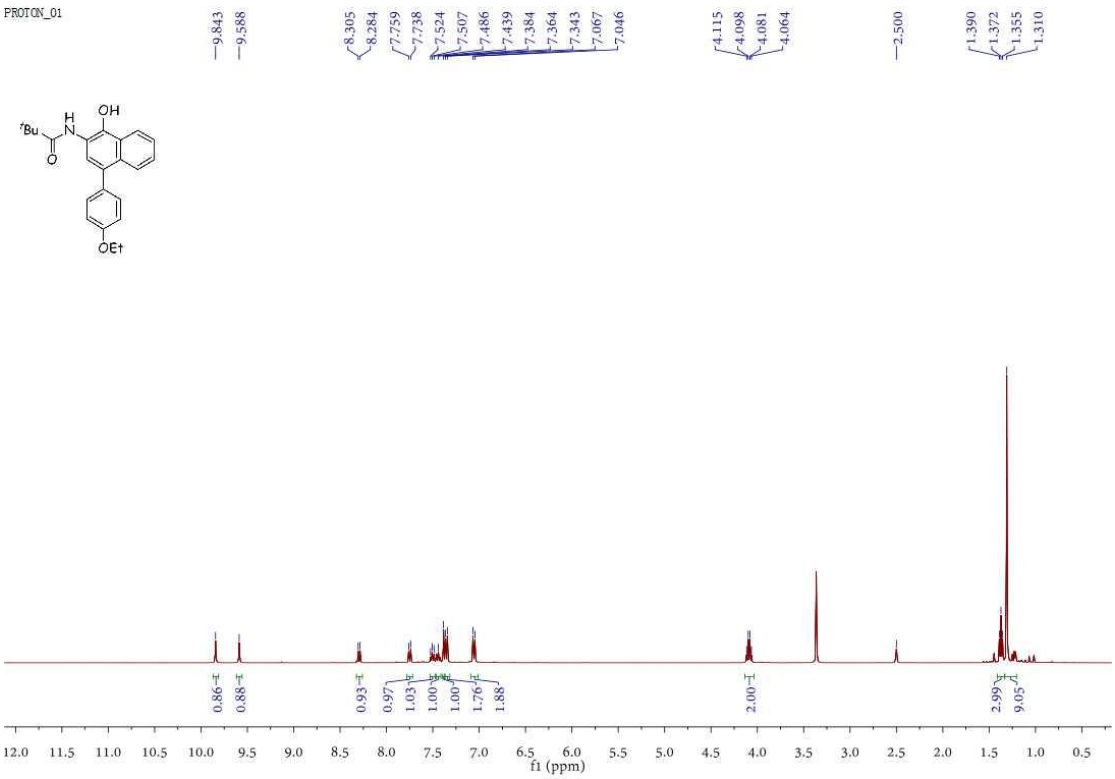
^{13}C – NMR spectrum of compound – **3f** (101 MHz, DMSO-d_6)



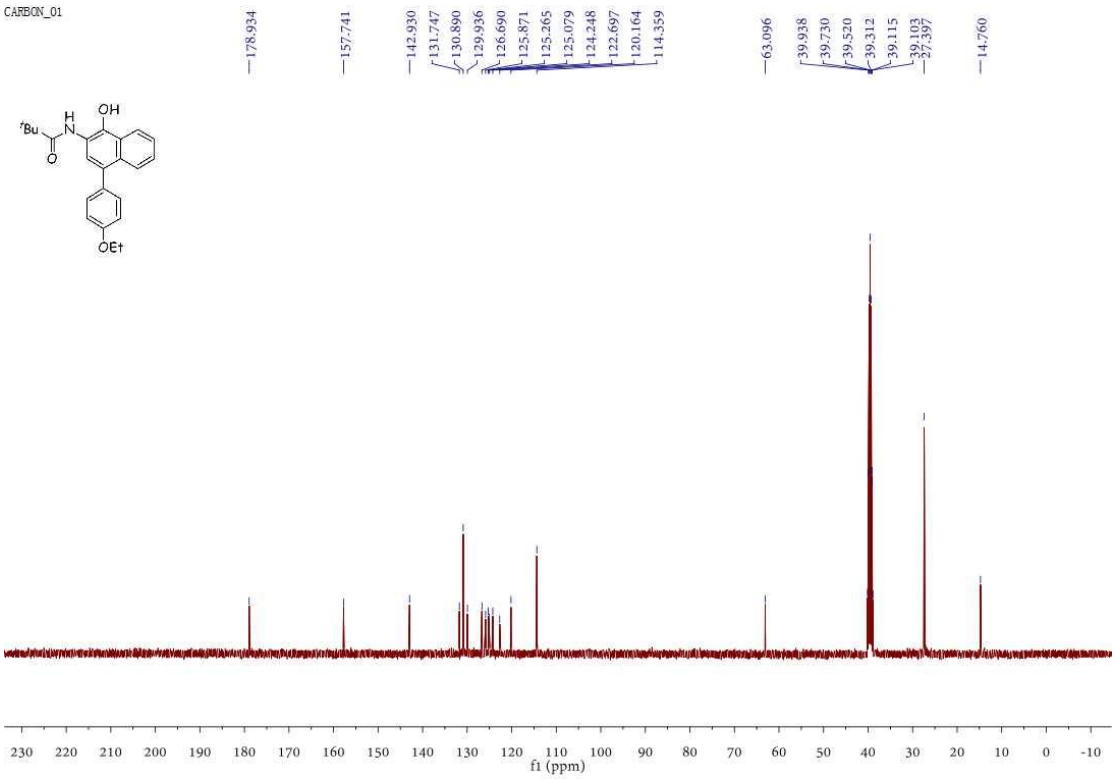
^{1}H – NMR spectrum of compound – **3g** (400 MHz, DMSO-d_6)



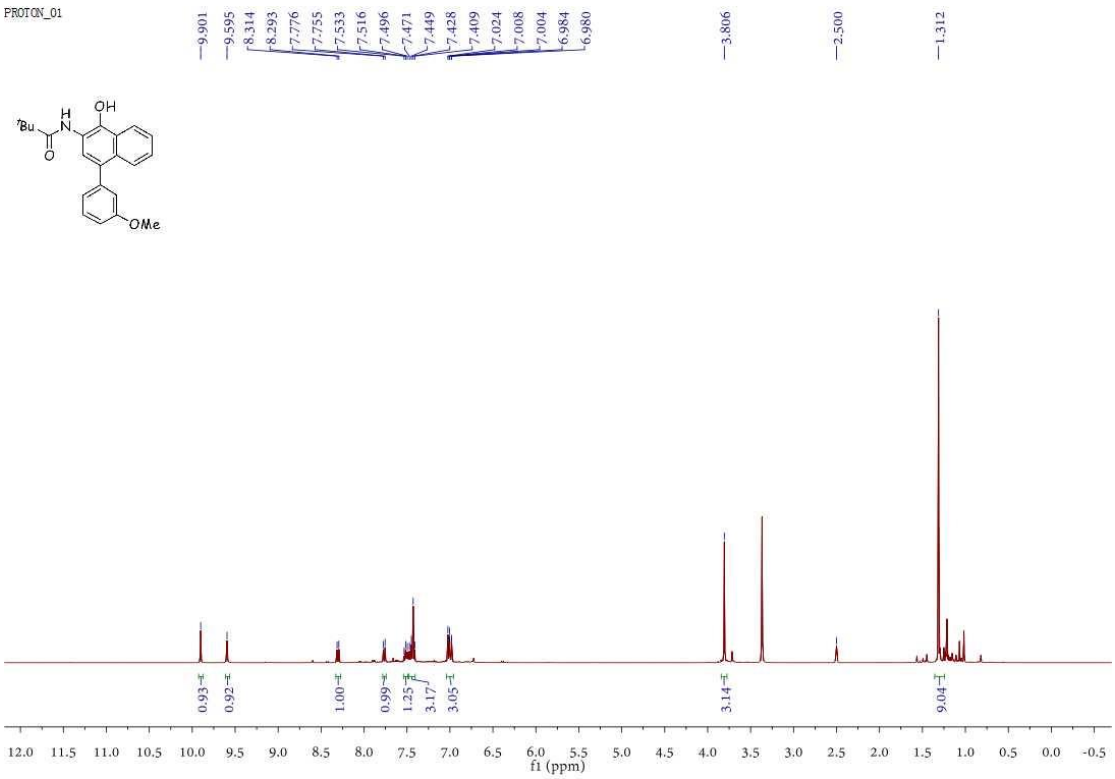
^{13}C – NMR spectrum of compound – **3g** (101 MHz, DMSO-d_6)



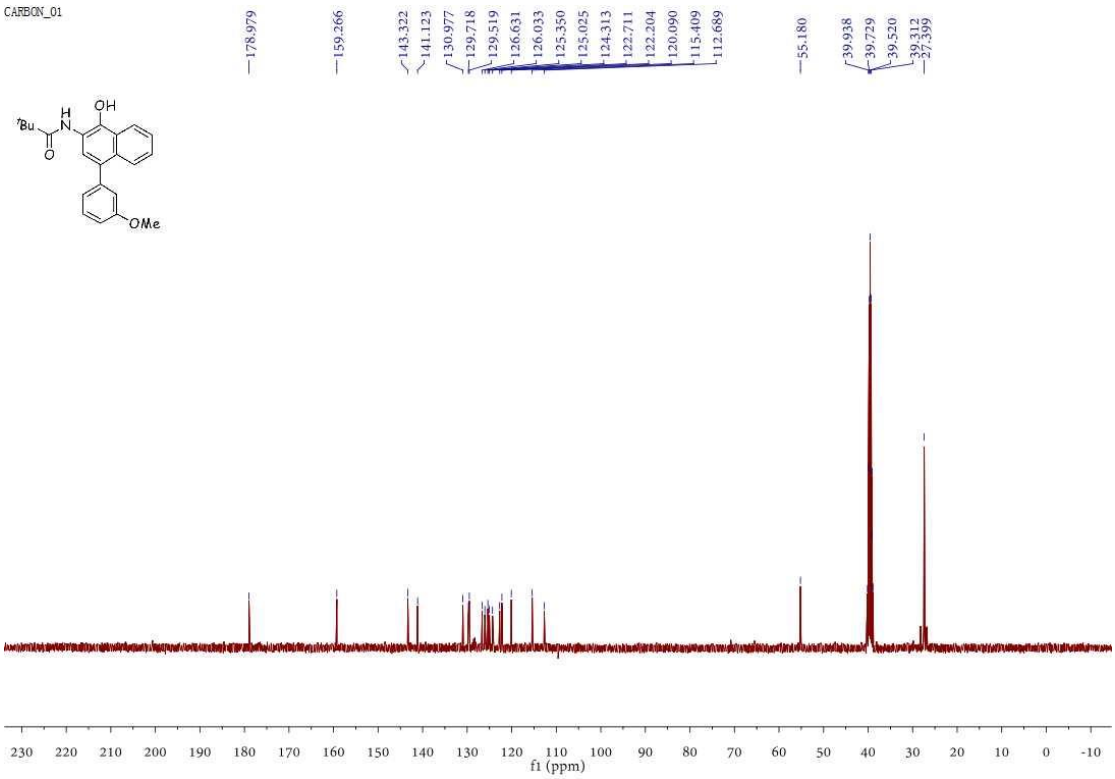
^{1}H – NMR spectrum of compound – **3h** (400 MHz, DMSO-d_6)



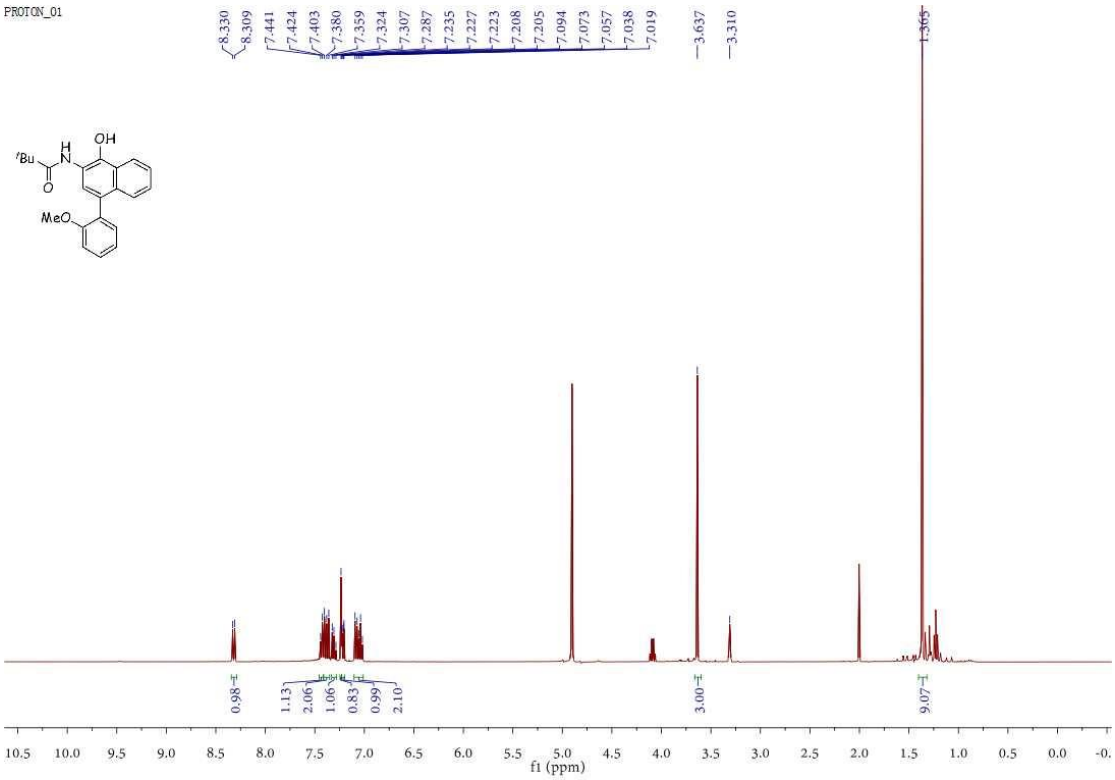
^{13}C – NMR spectrum of compound – **3h** (101 MHz, DMSO-d_6)



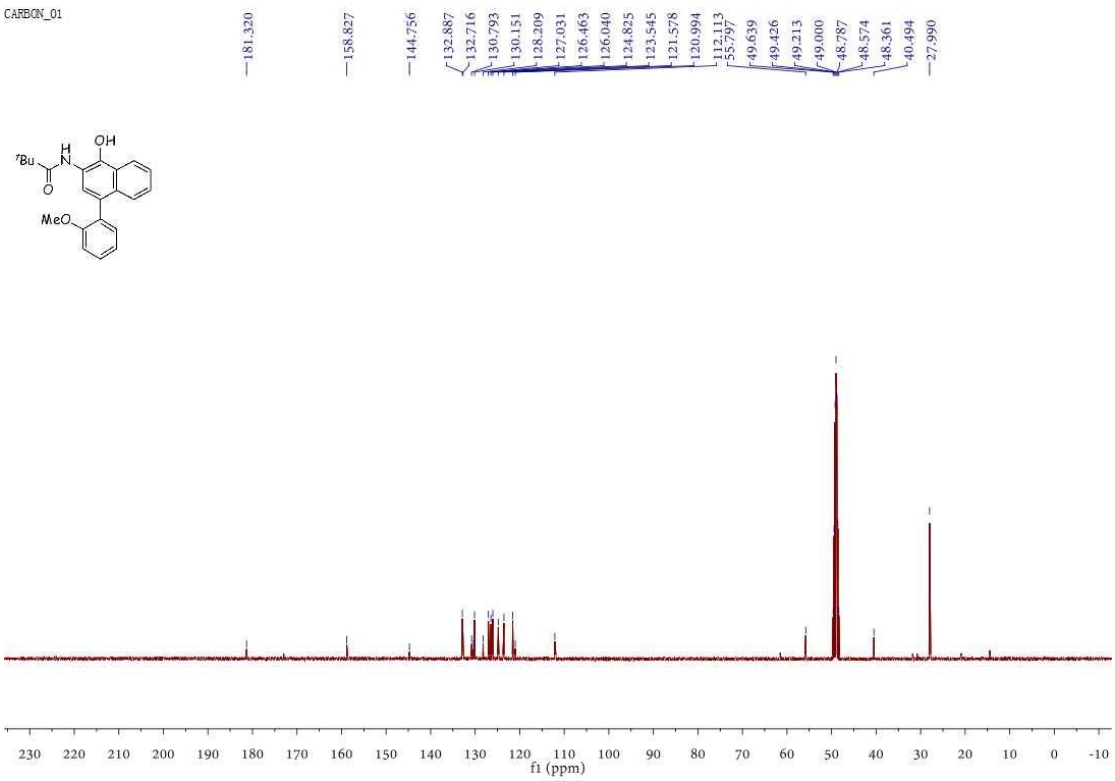
^{1}H – NMR spectrum of compound – **3i** (400 MHz, DMSO-d_6)



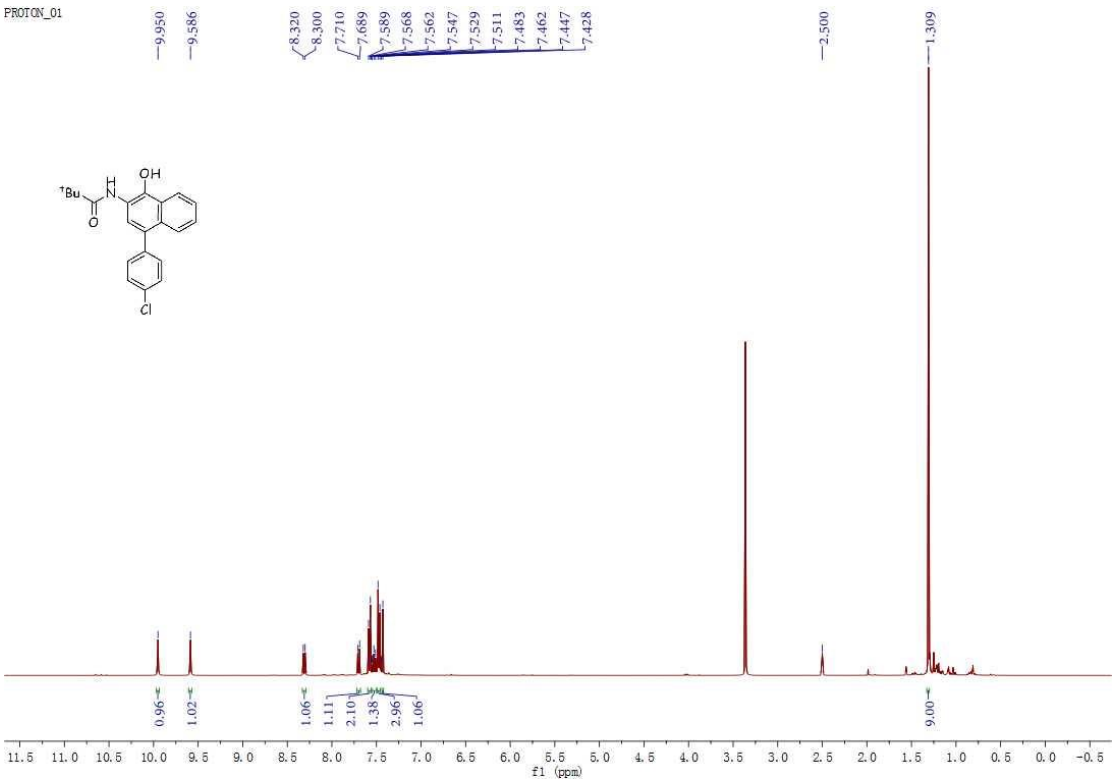
^{13}C – NMR spectrum of compound – **3i** (101 MHz, DMSO-d_6)



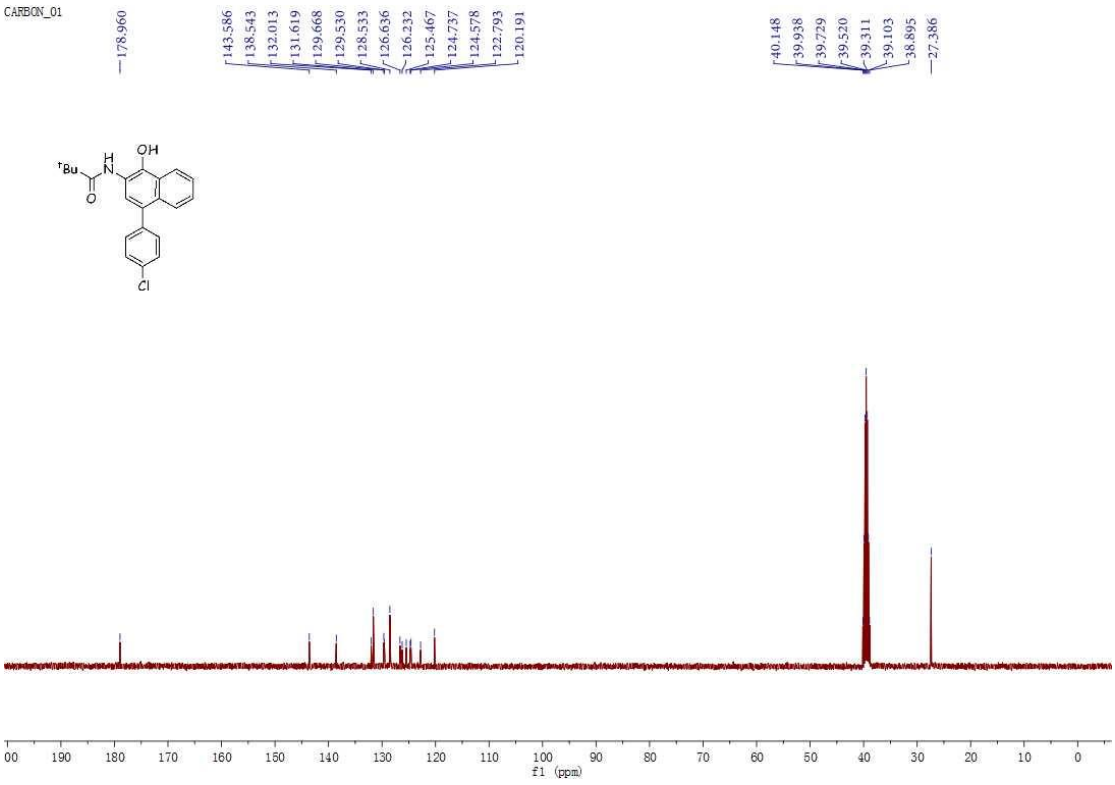
^{1}H – NMR spectrum of compound – **3j** (400 MHz, CD_3OD)



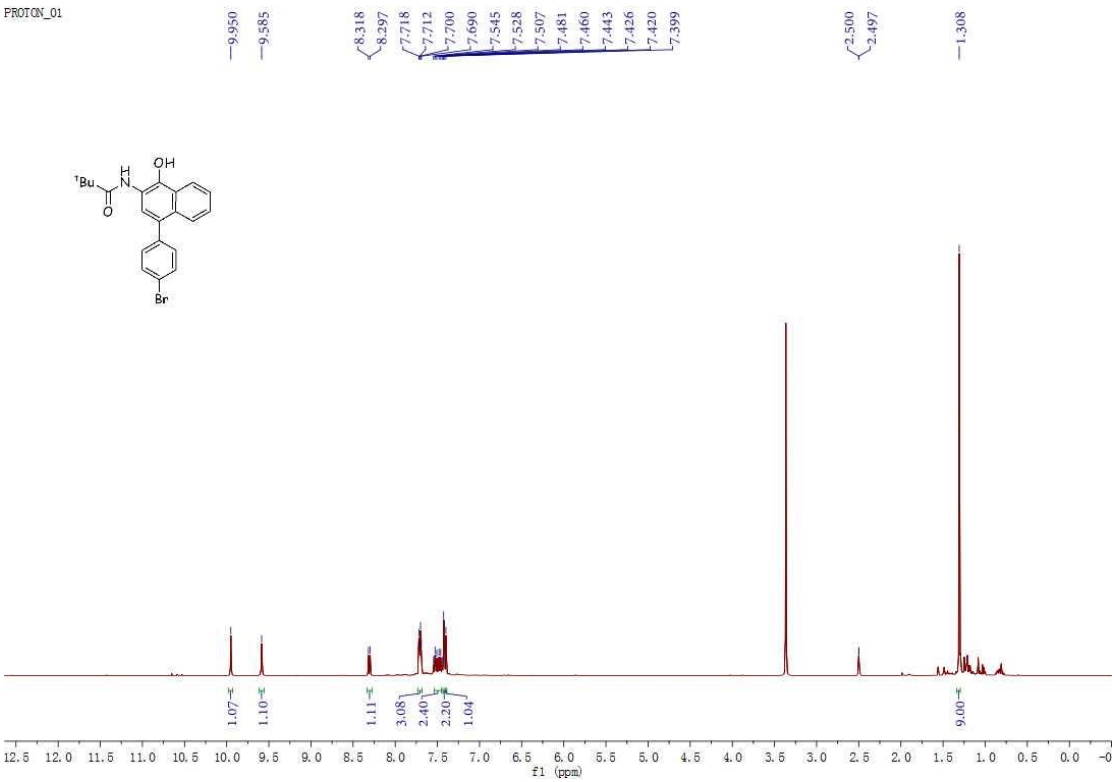
^{13}C – NMR spectrum of compound – **3j** (101 MHz, CD_3OD)



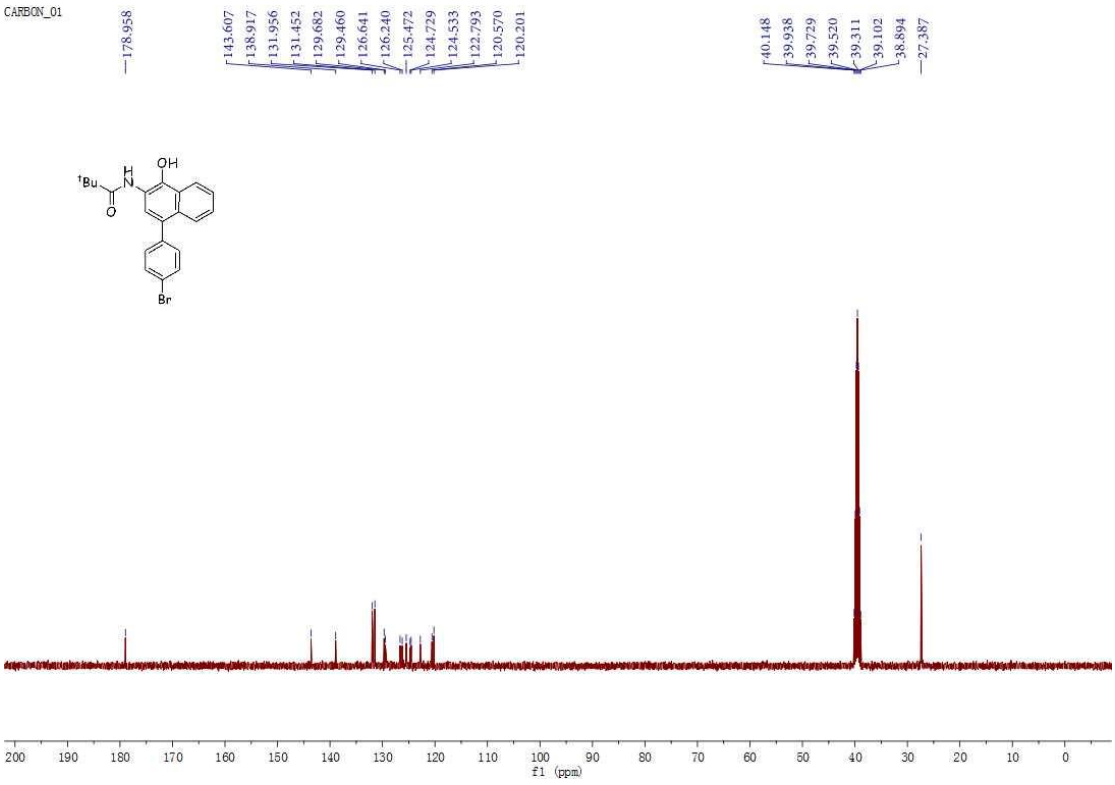
^{1}H – NMR spectrum of compound – **3k** (400 MHz, DMSO-d_6)



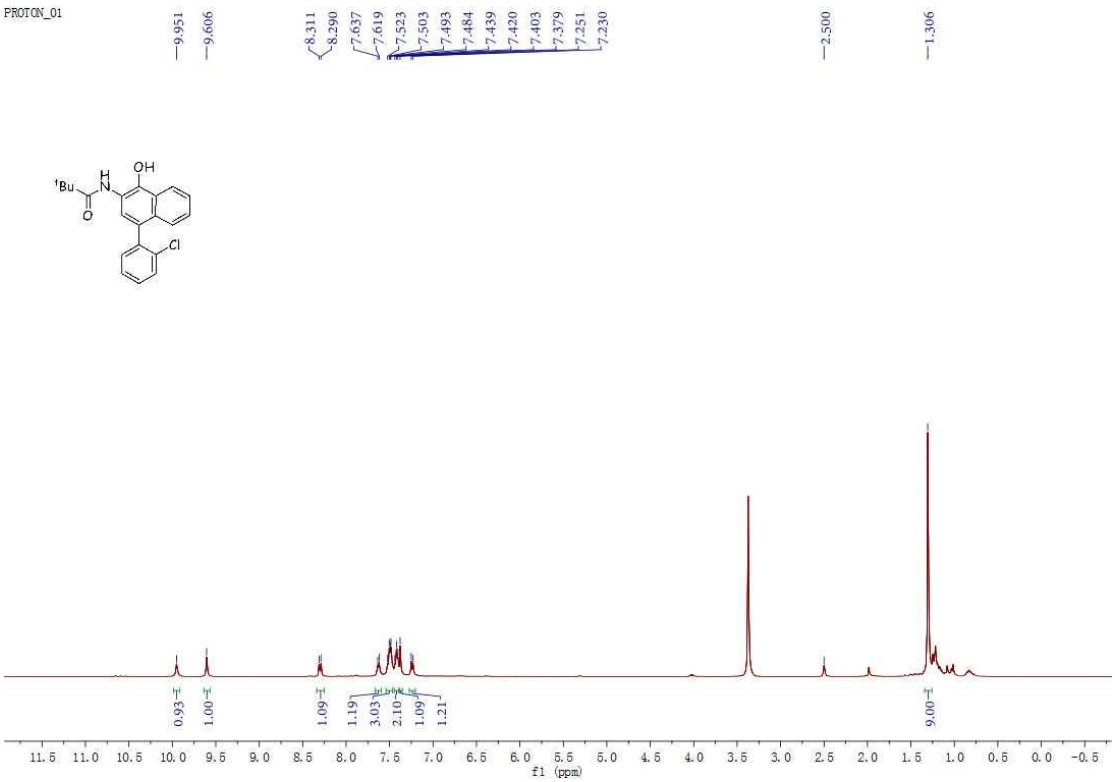
^{13}C – NMR spectrum of compound – **3k** (101 MHz, DMSO-d_6)



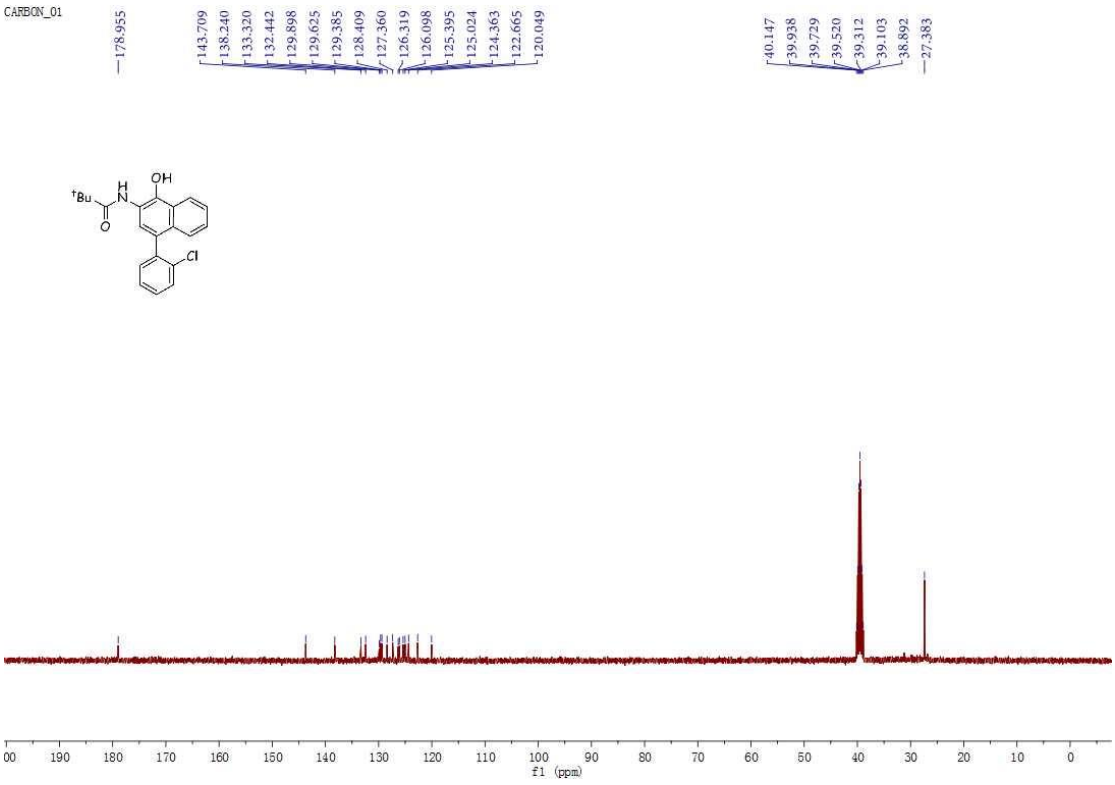
^{1}H – NMR spectrum of compound – **3l** (400 MHz, DMSO-d_6)



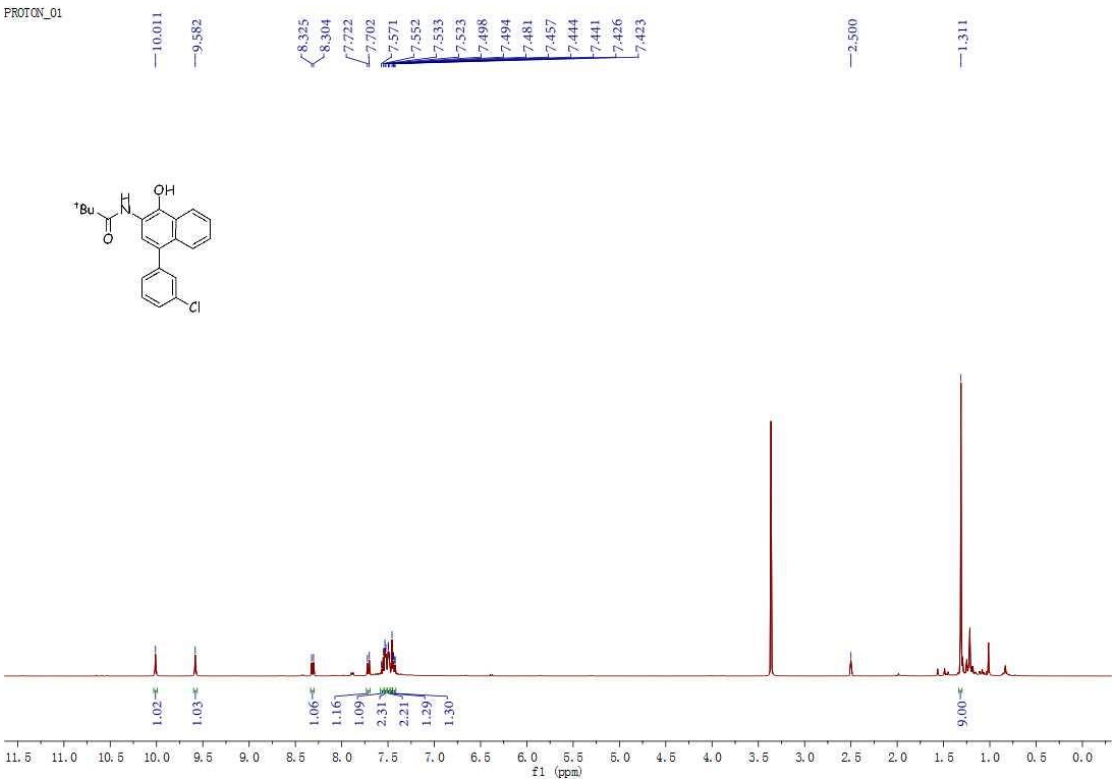
^{13}C – NMR spectrum of compound – **3l** (101 MHz, DMSO-d_6)



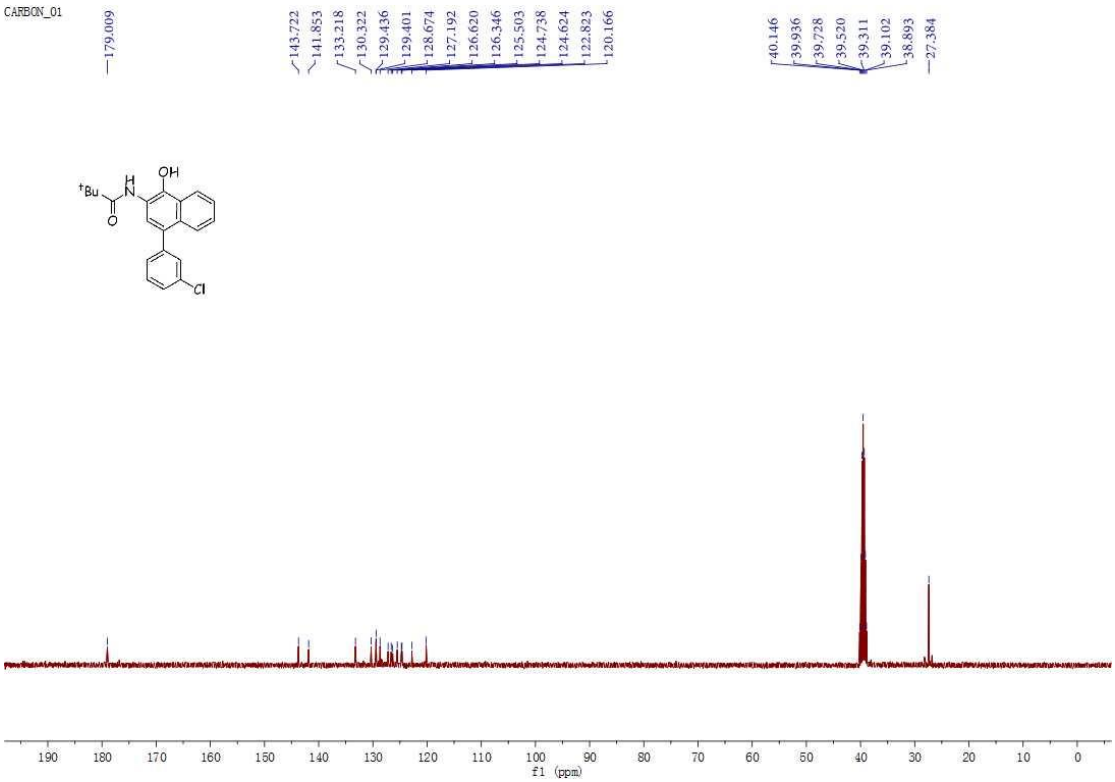
^{1}H – NMR spectrum of compound – **3m** (400 MHz, DMSO-d_6)



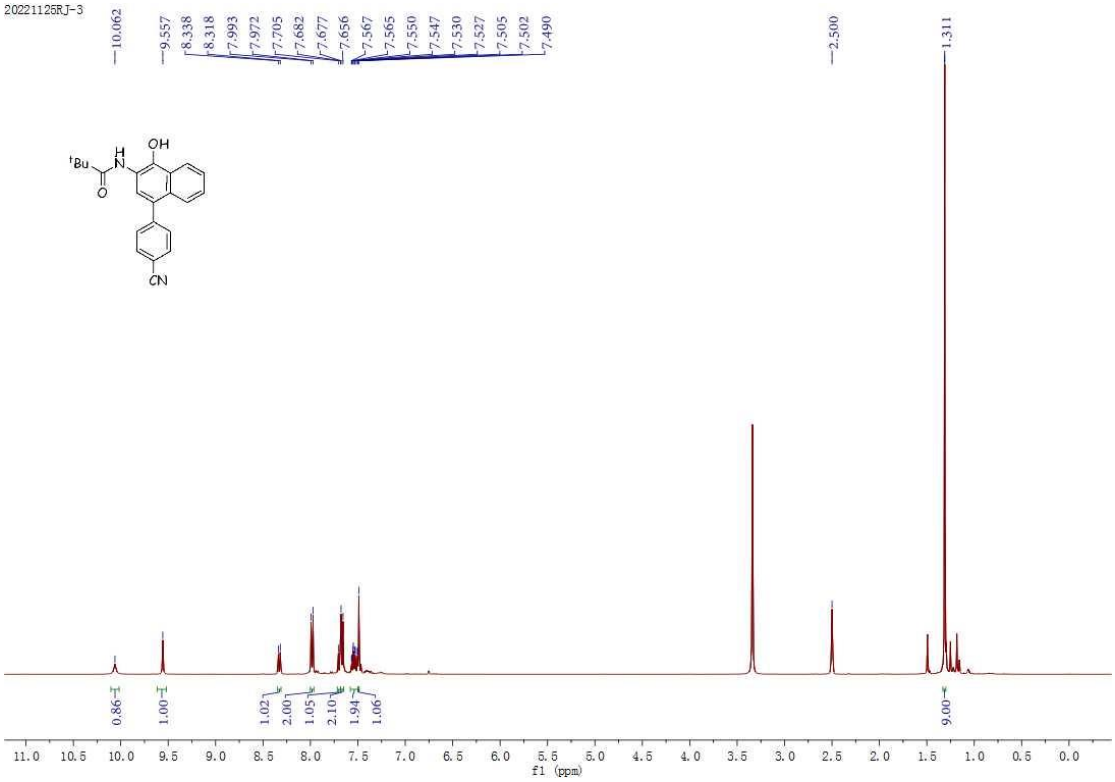
^{13}C – NMR spectrum of compound – **3m** (101 MHz, DMSO-d_6)



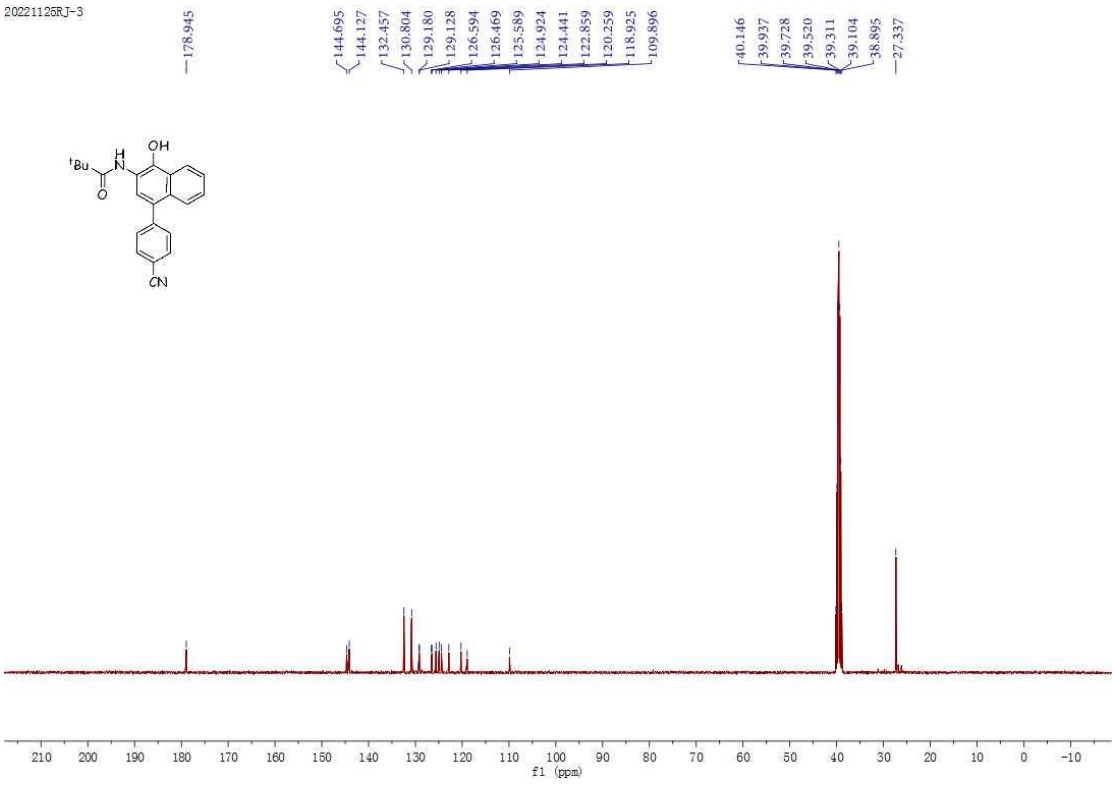
^{1}H – NMR spectrum of compound – **3n** (400 MHz, DMSO-d_6)



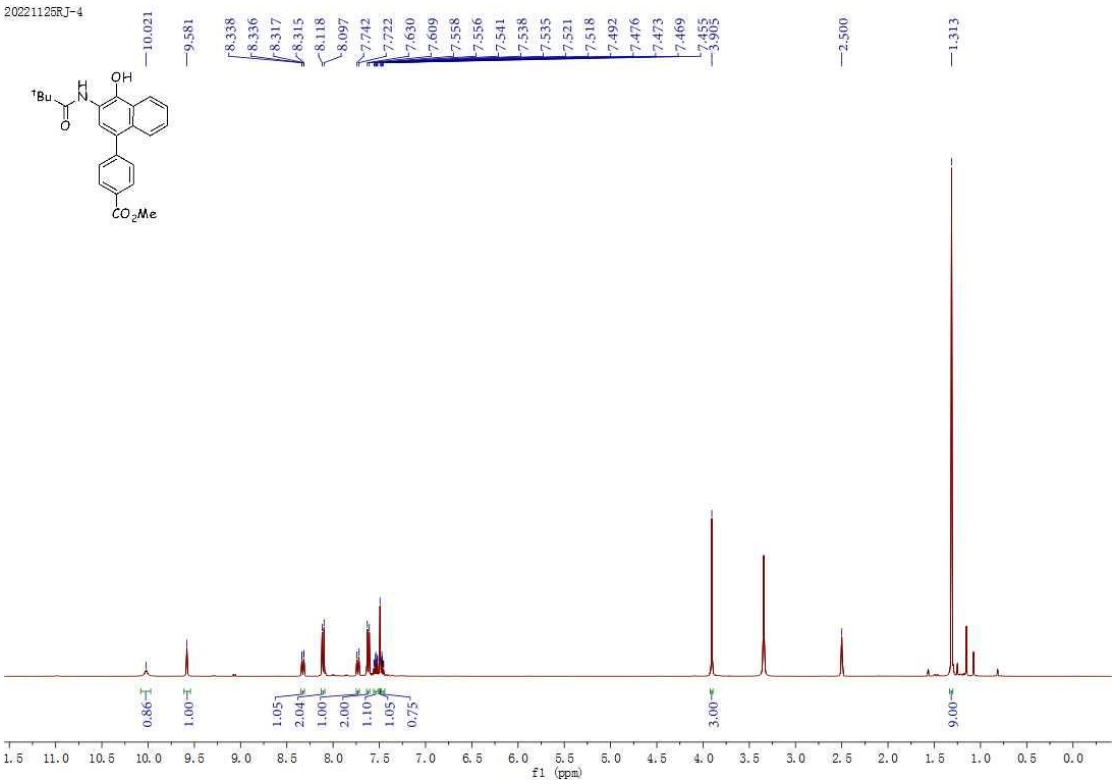
^{13}C – NMR spectrum of compound – **3n** (101 MHz, DMSO-d_6)



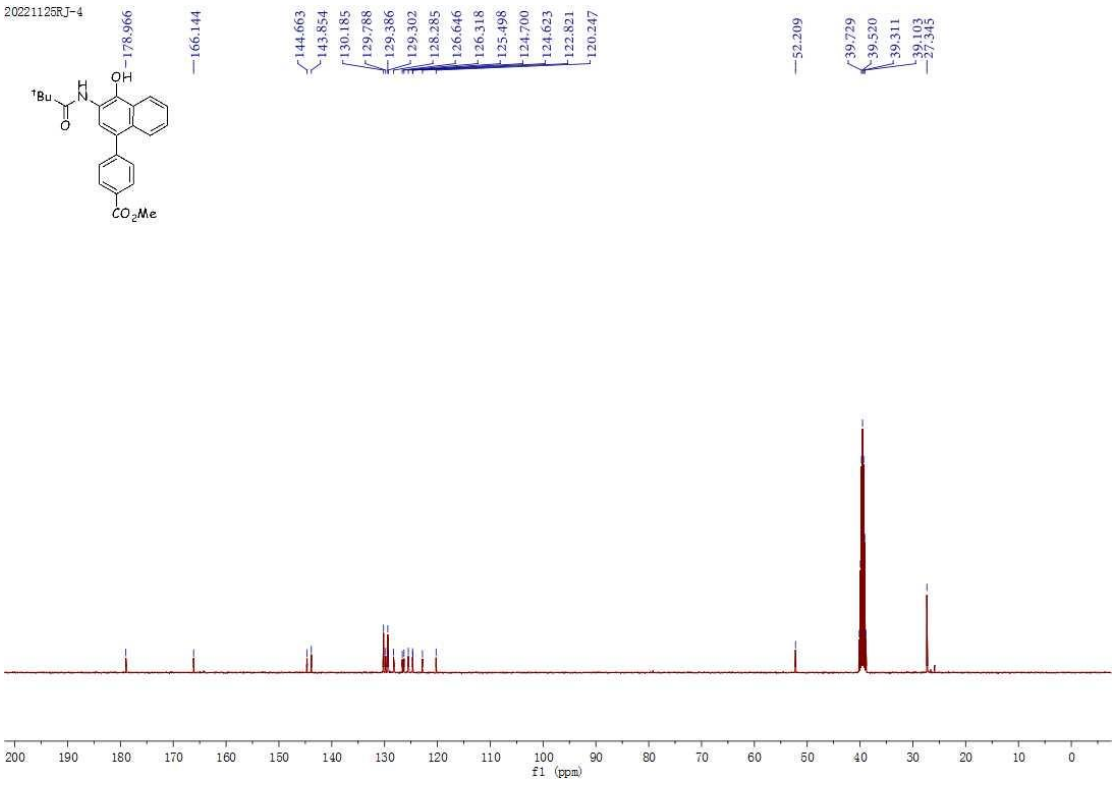
^{1}H – NMR spectrum of compound – **30** (400 MHz, DMSO-d_6)



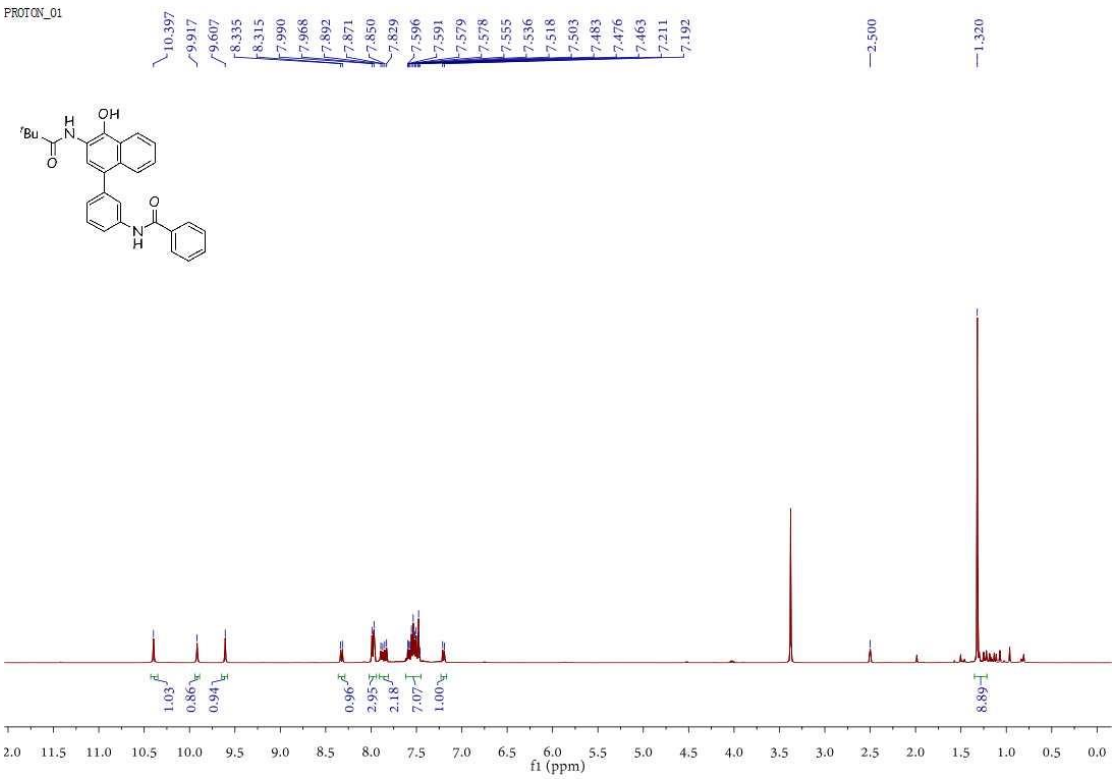
^{13}C – NMR spectrum of compound – **30** (101 MHz, DMSO-d_6)



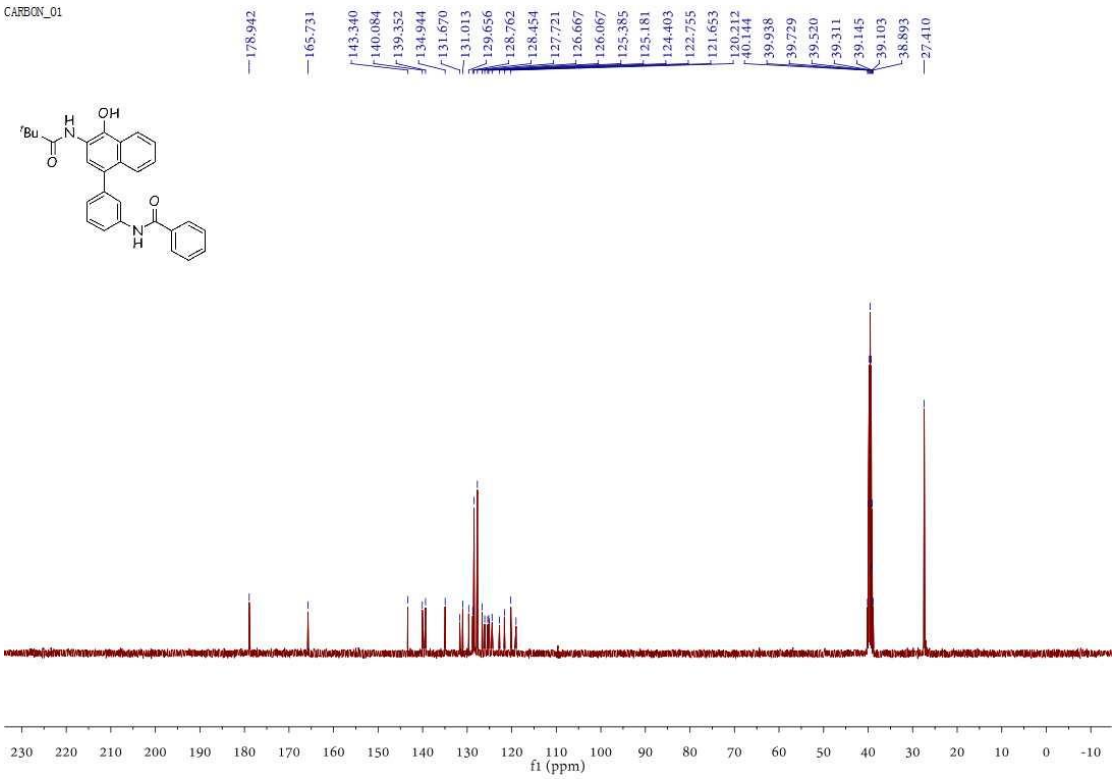
^{1}H – NMR spectrum of compound – **3p** (400 MHz, DMSO-d_6)



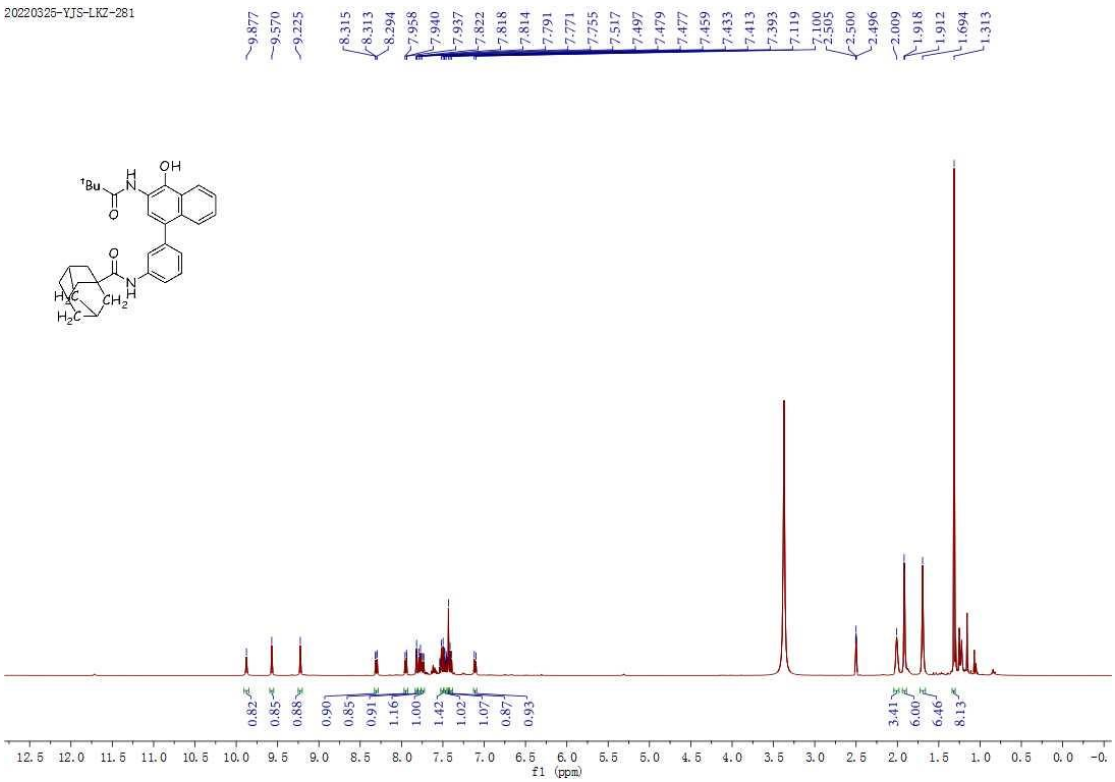
^{13}C – NMR spectrum of compound – **3p** (101 MHz, DMSO-d_6)



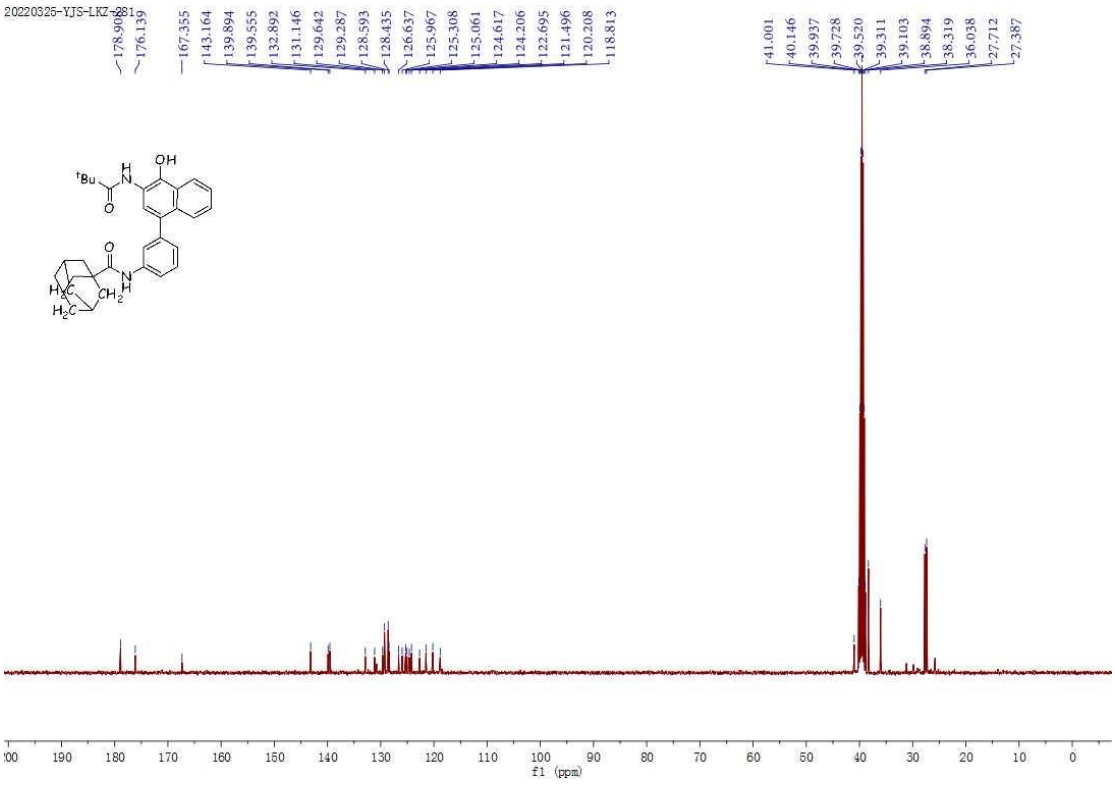
^{1}H – NMR spectrum of compound – **3q** (400 MHz, DMSO-d_6)



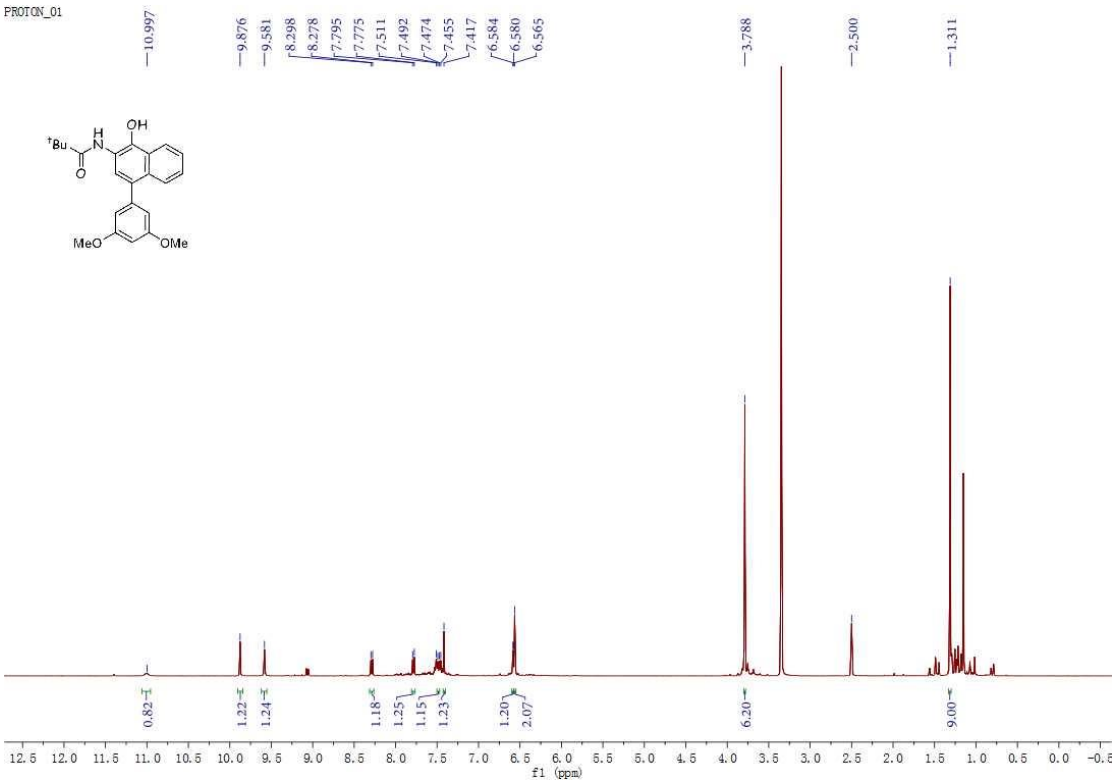
^{13}C – NMR spectrum of compound – **3q** (101 MHz, DMSO-d_6)



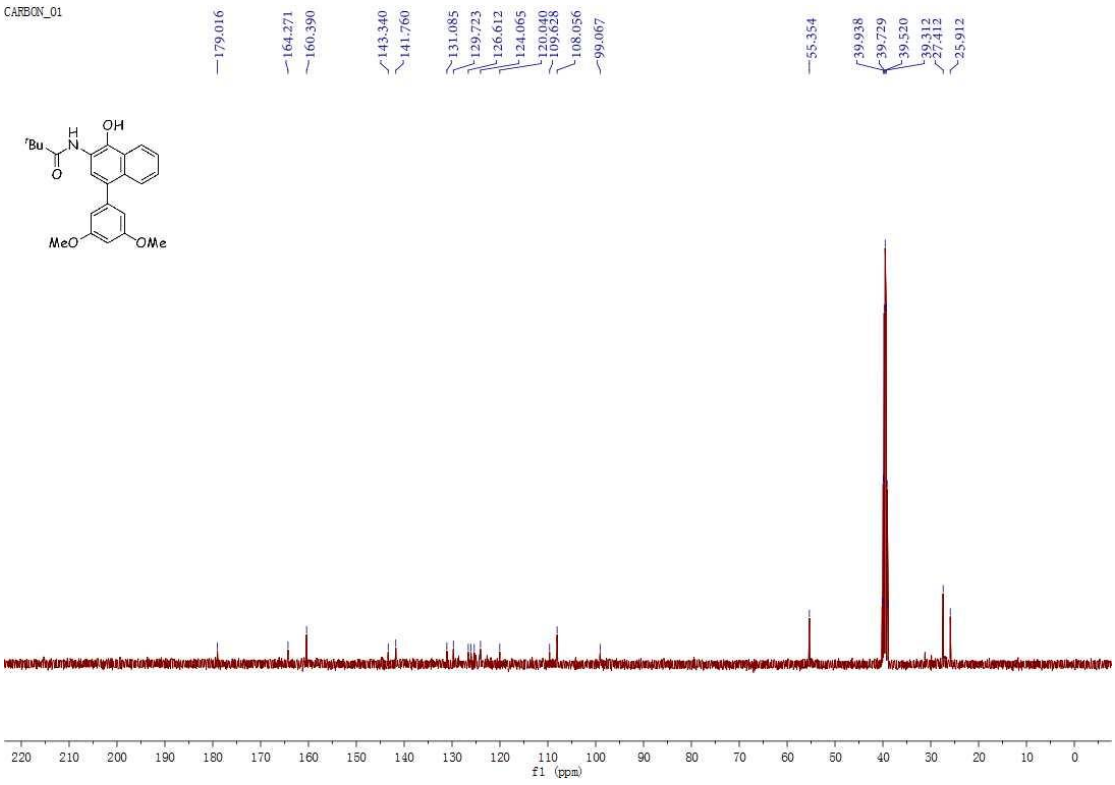
^{1}H – NMR spectrum of compound – **3r** (400 MHz, DMSO-d_6)



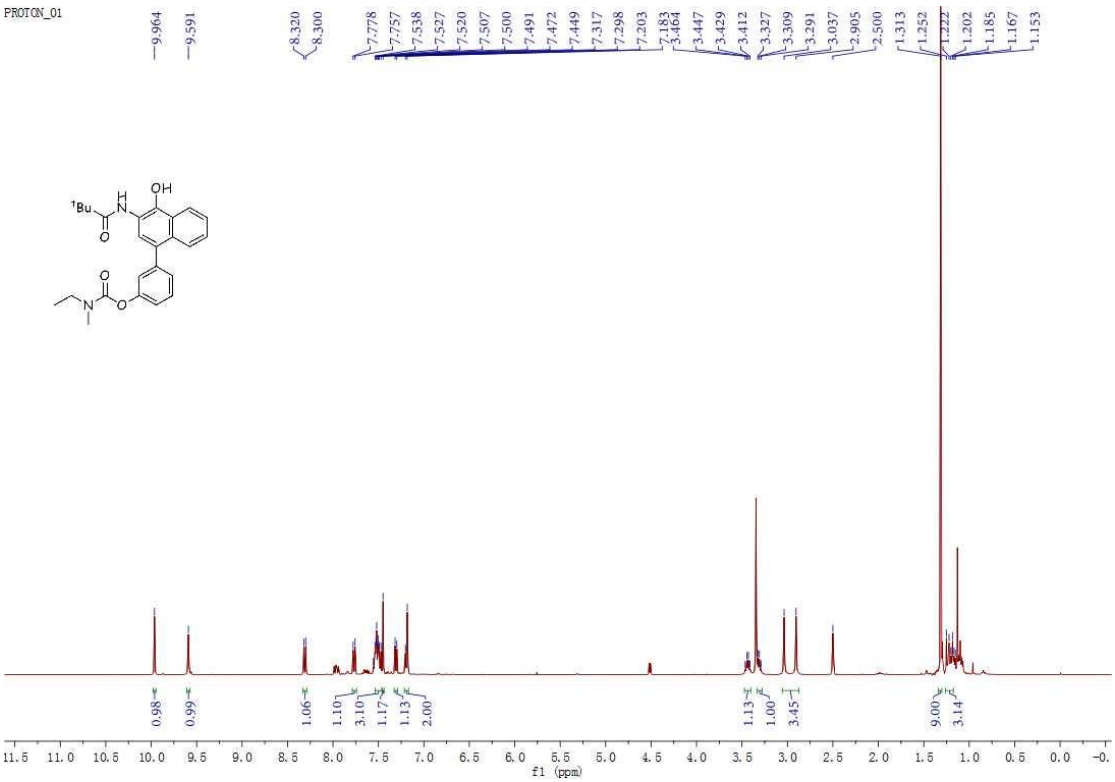
^{13}C – NMR spectrum of compound – **3r** (101 MHz, DMSO-d_6)



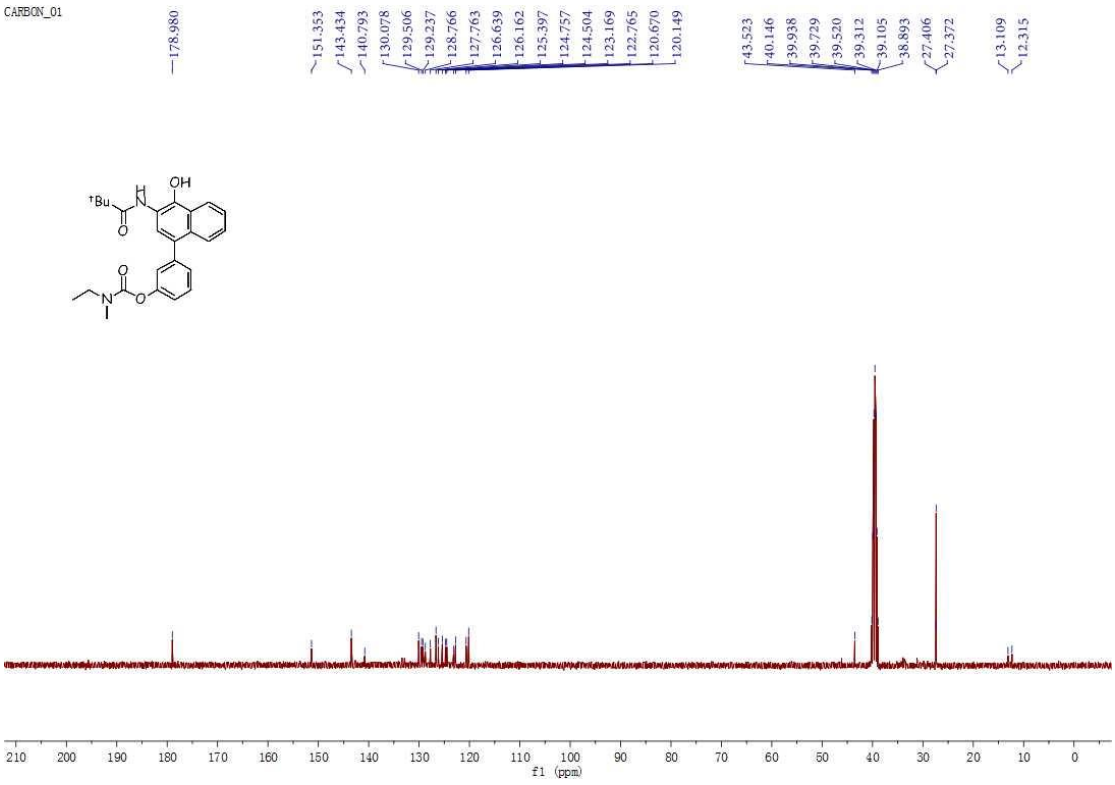
^{1}H – NMR spectrum of compound – **3s** (400 MHz, DMSO-d_6)



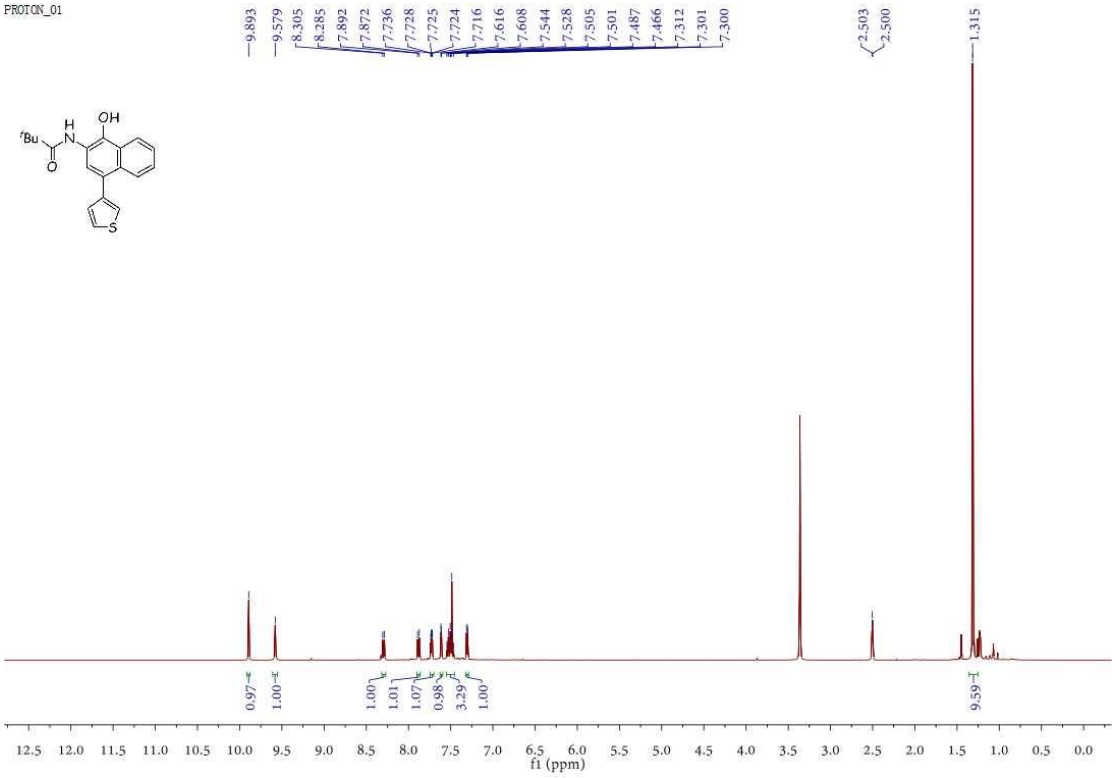
^{13}C – NMR spectrum of compound – **3s** (101 MHz, DMSO-d_6)



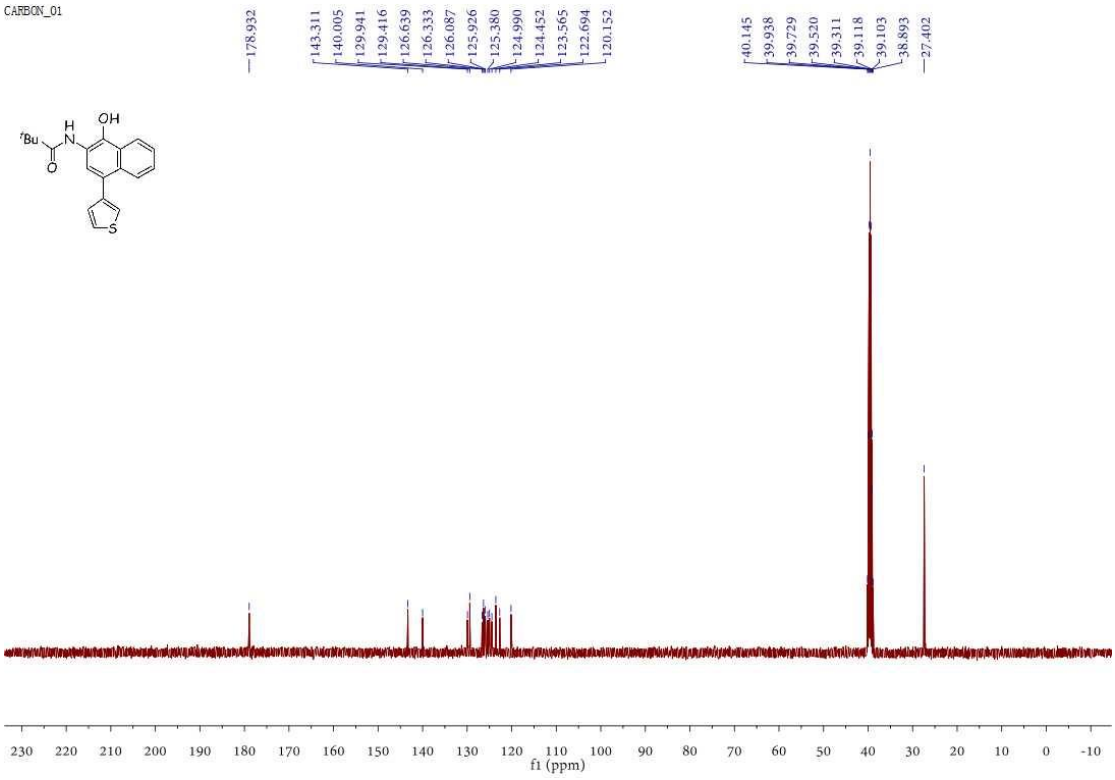
^{1}H – NMR spectrum of compound – **3t** (400 MHz, DMSO-d_6)



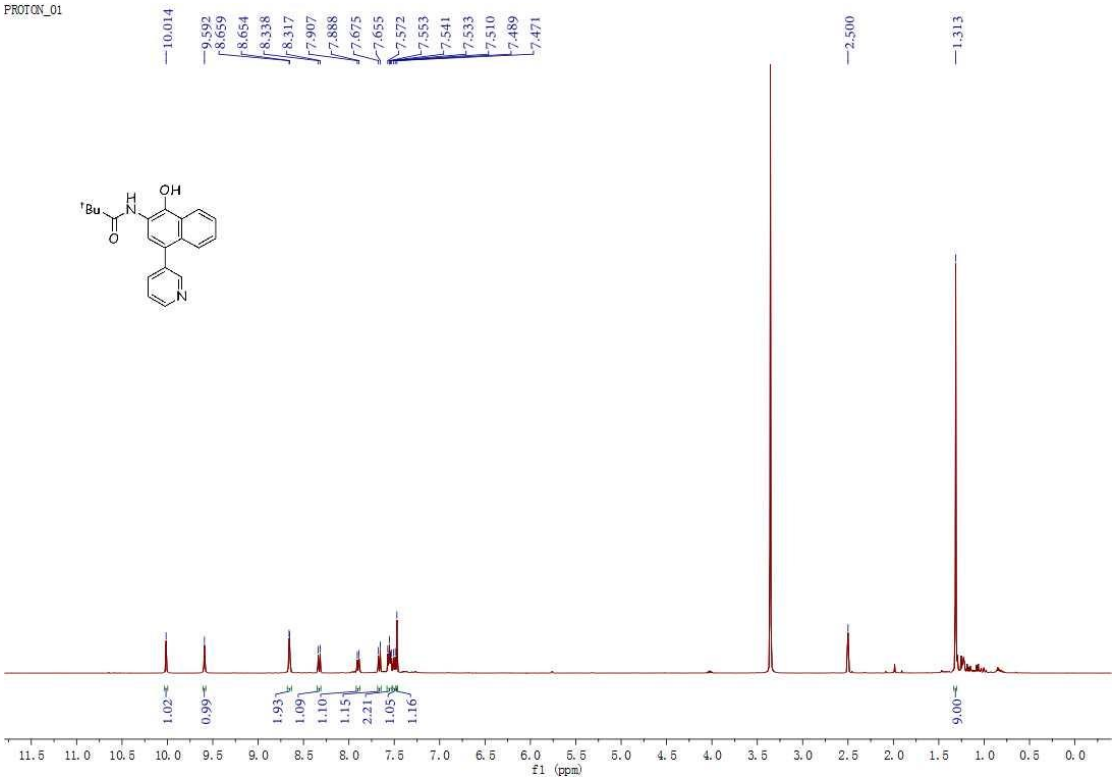
^{13}C – NMR spectrum of compound – **3t** (101 MHz, DMSO-d_6)



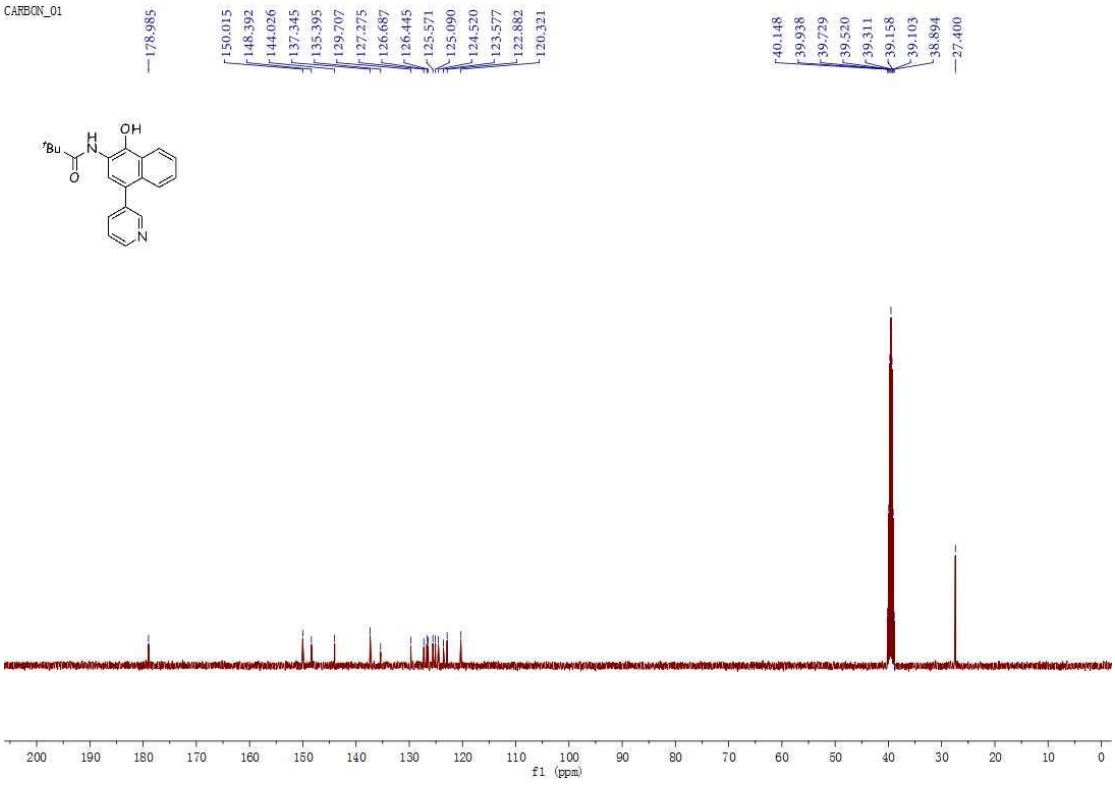
^{1}H – NMR spectrum of compound – **3u** (400 MHz, DMSO-d_6)



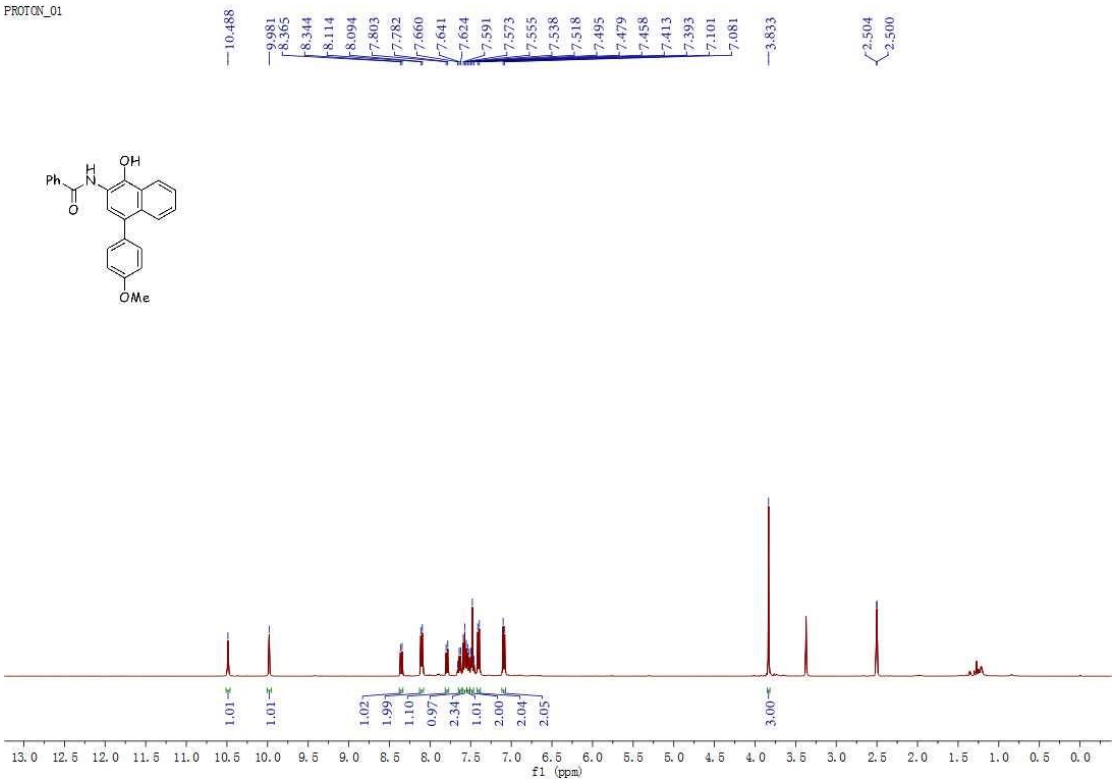
^{13}C – NMR spectrum of compound – **3u** (101 MHz, DMSO-d_6)



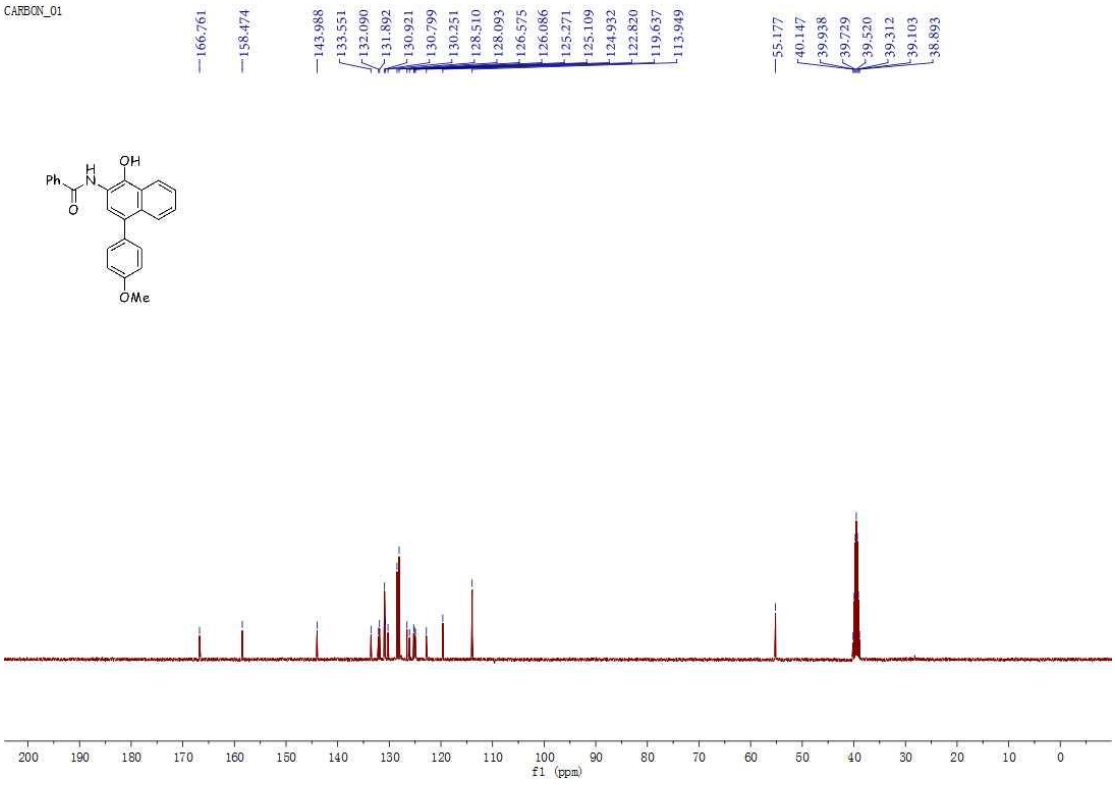
^{1}H – NMR spectrum of compound – **3v** (400 MHz, DMSO-d_6)



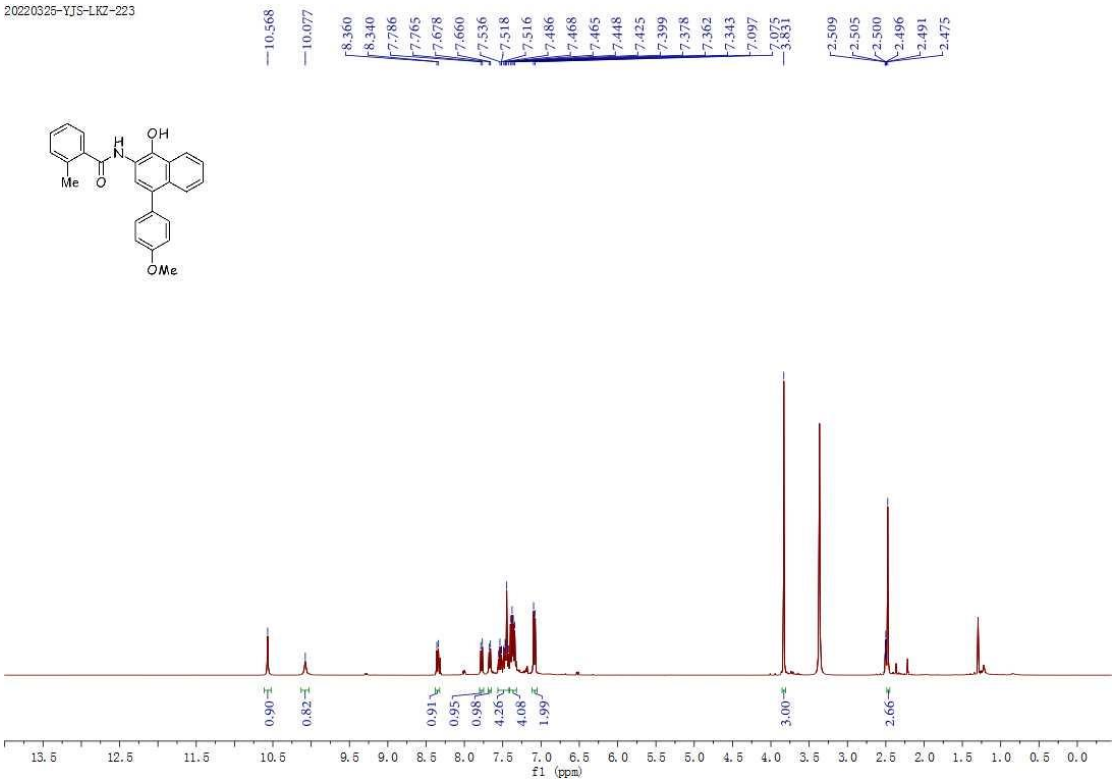
^{13}C – NMR spectrum of compound – **3v** (101 MHz, DMSO-d_6)



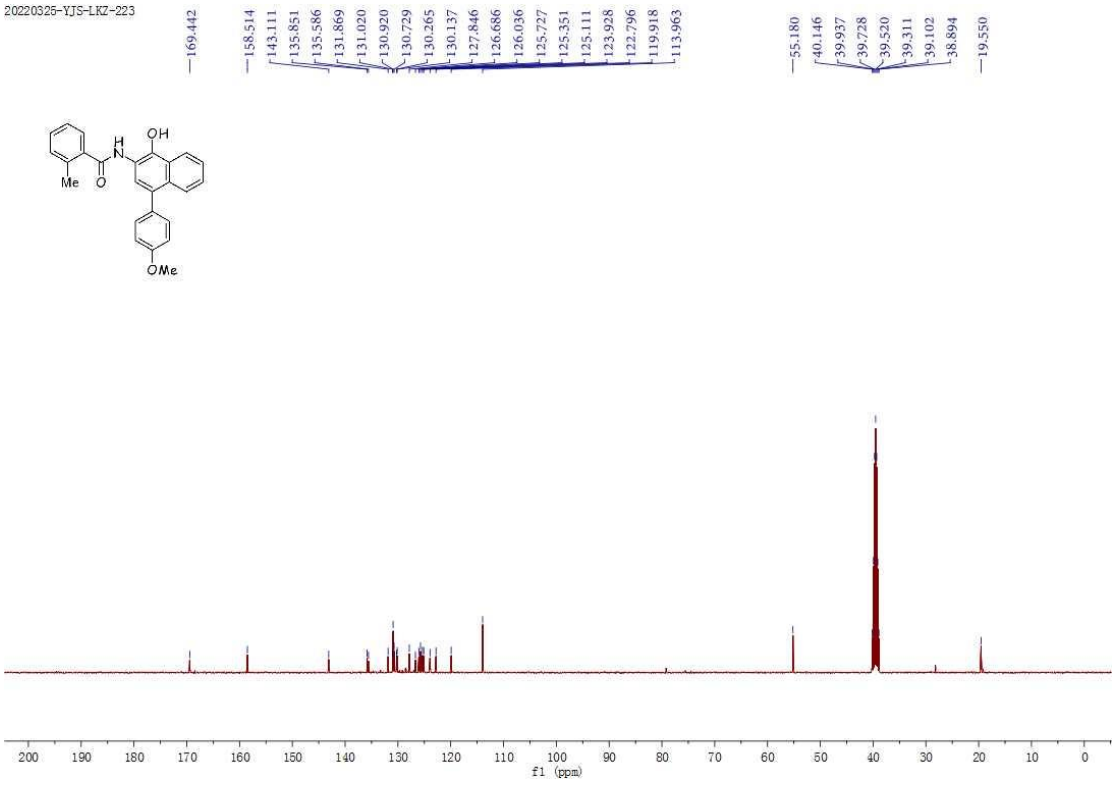
^{1}H – NMR spectrum of compound – **4a** (400 MHz, DMSO-d_6)



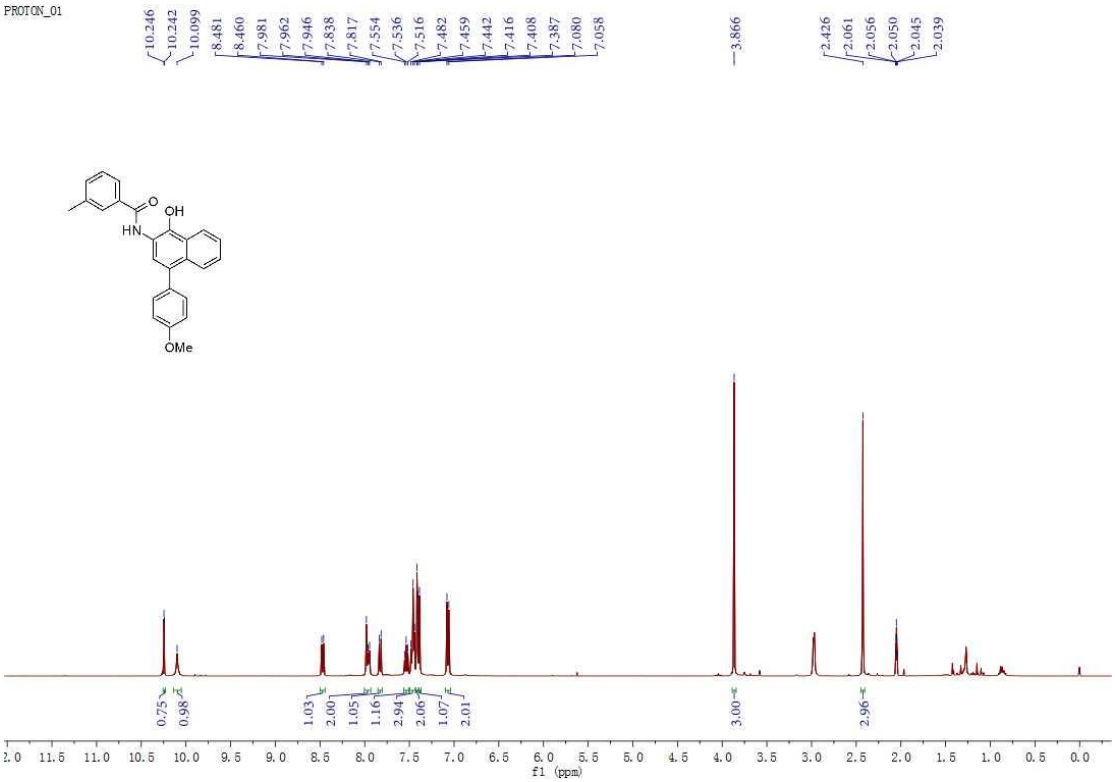
^{13}C – NMR spectrum of compound – **4a** (101 MHz, DMSO-d_6)



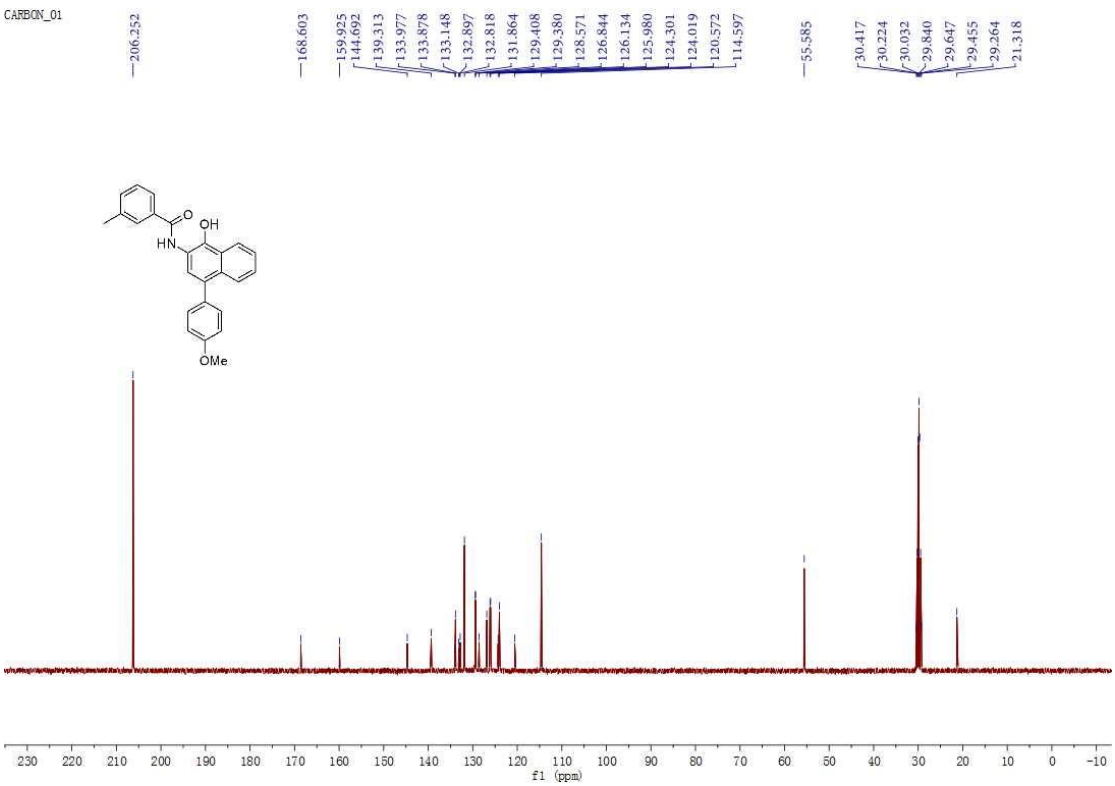
^{1}H – NMR spectrum of compound – **4b** (400 MHz, DMSO-d_6)



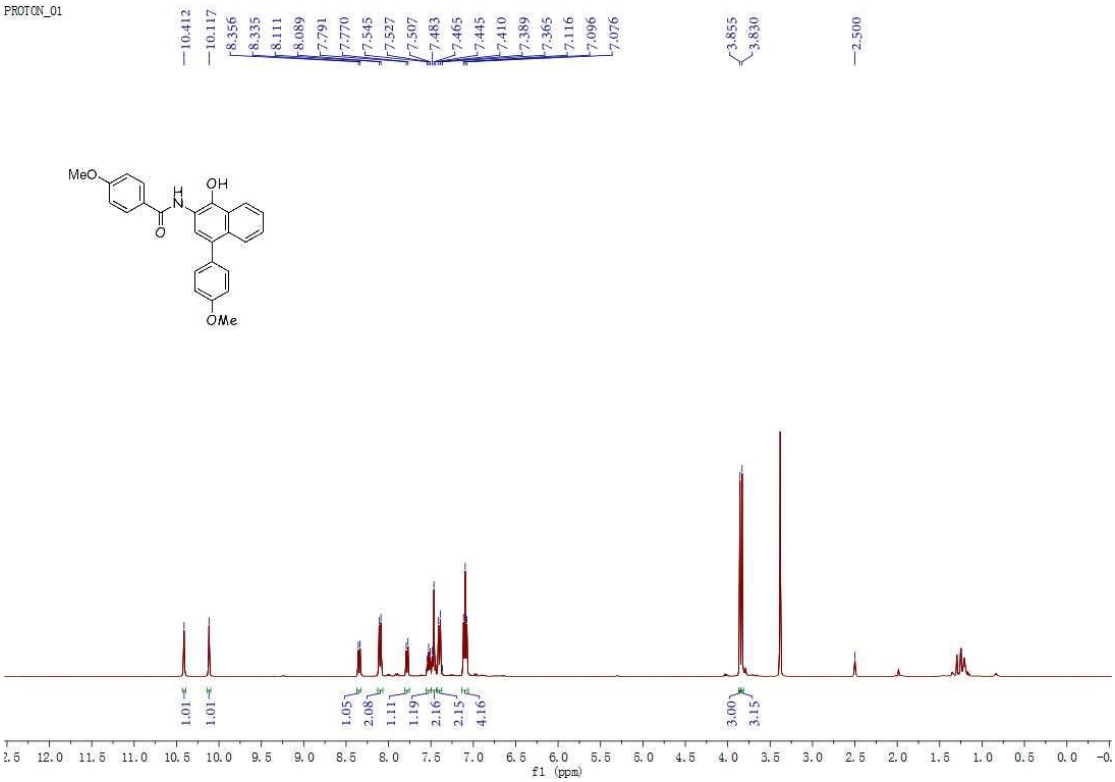
^{13}C – NMR spectrum of compound – **4b** (101 MHz, DMSO-d_6)



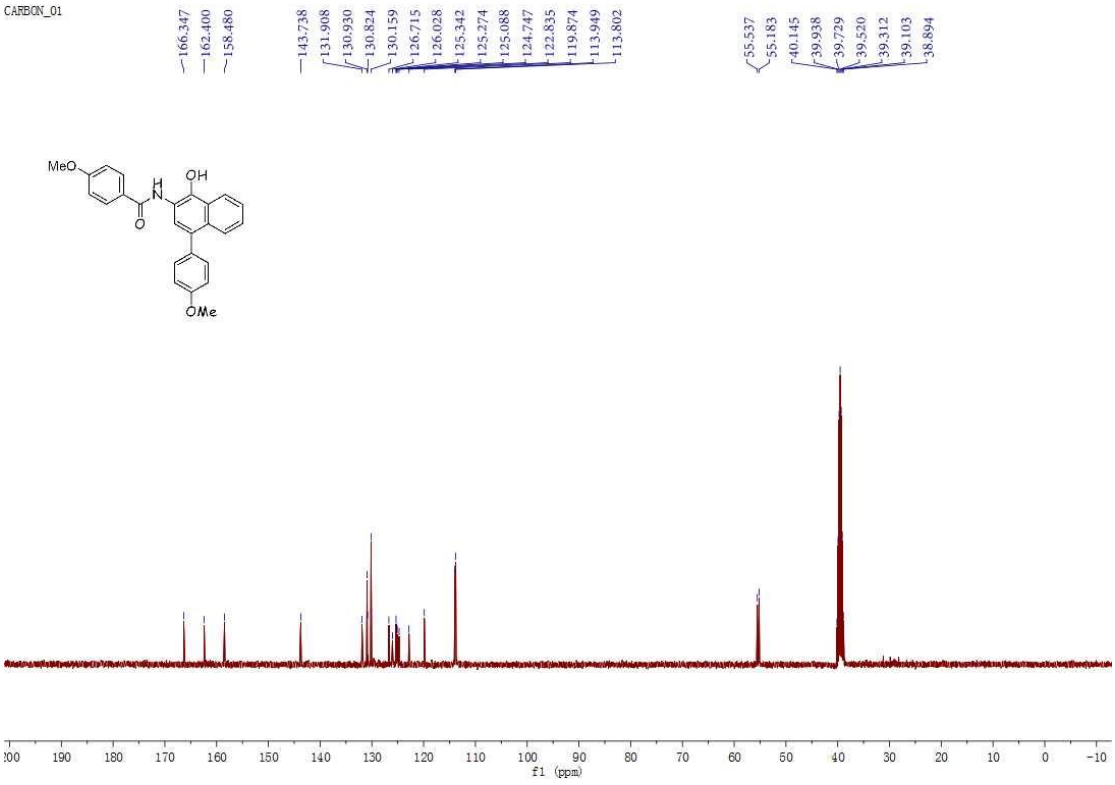
^{1}H – NMR spectrum of compound – **4c** (400 MHz, acetone-d_6)



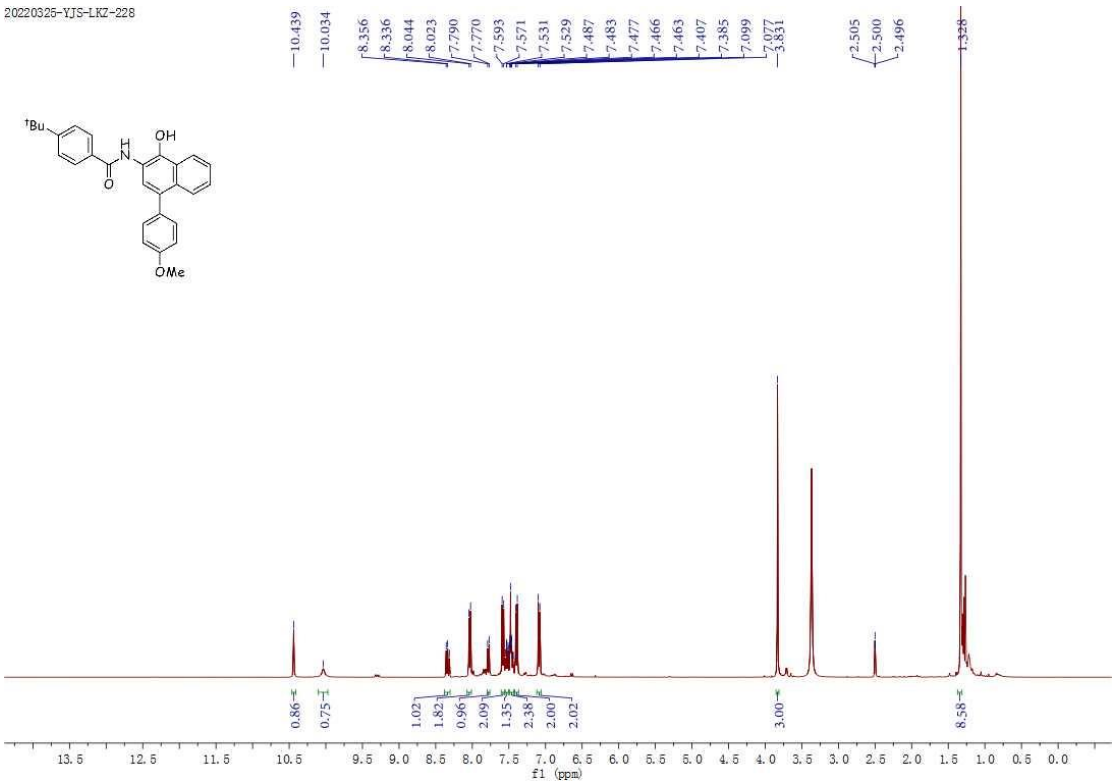
^{13}C – NMR spectrum of compound – **4c** (101 MHz, acetone-d_6)



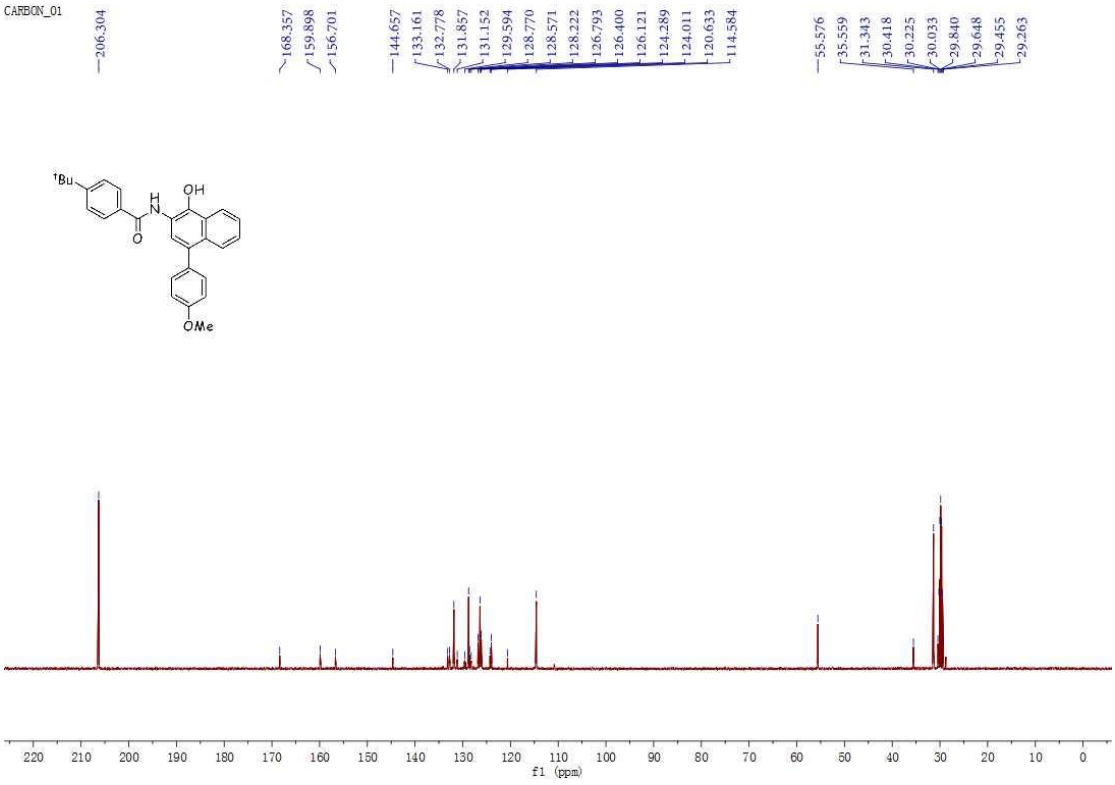
^{1}H – NMR spectrum of compound – **4d** (400 MHz, DMSO-d_6)



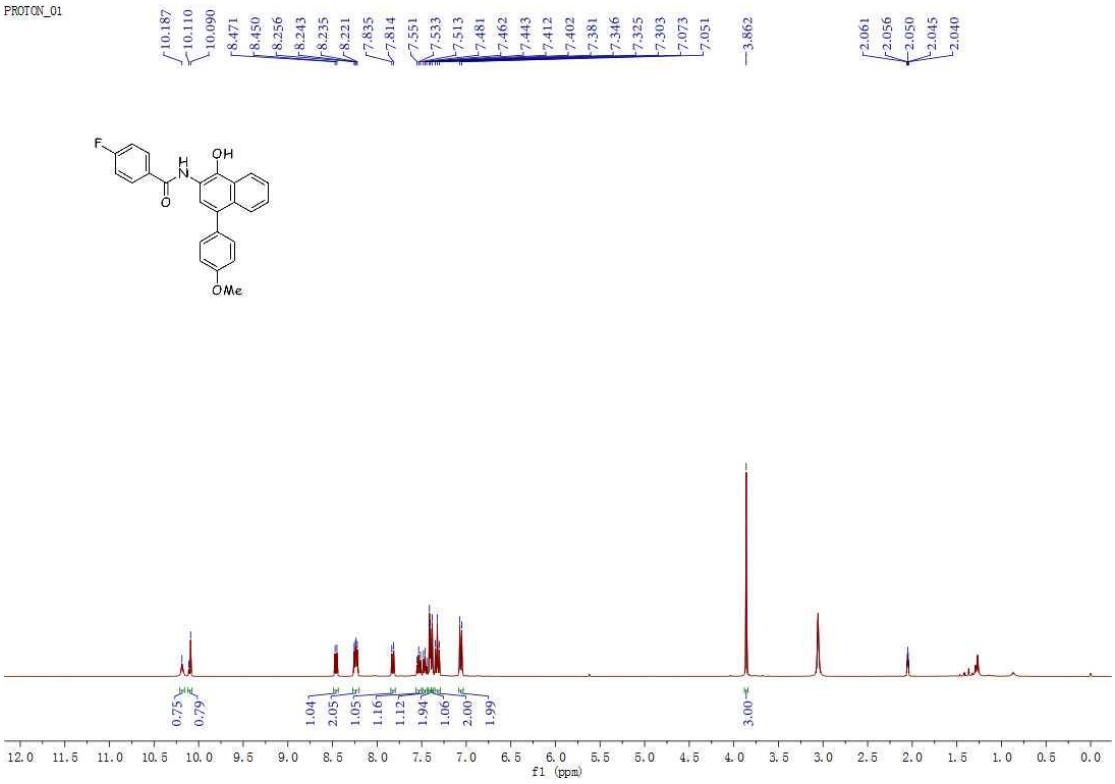
^{13}C – NMR spectrum of compound – **4d** (101 MHz, DMSO-d_6)



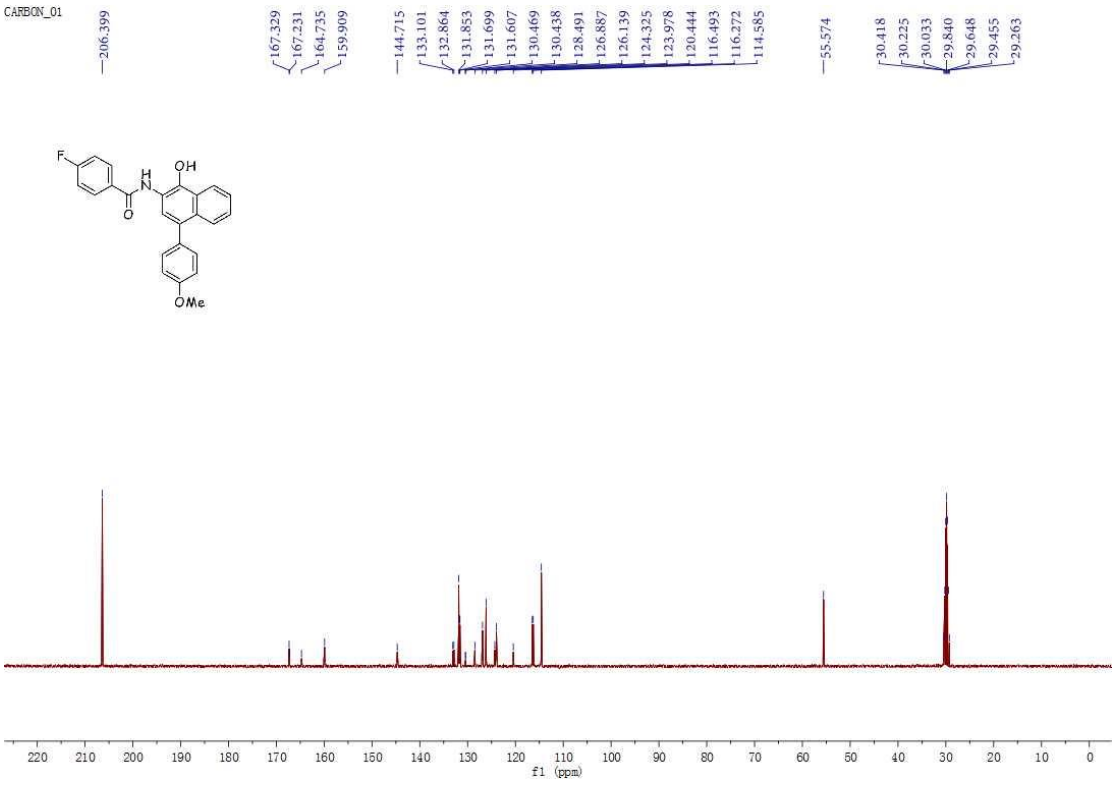
^{1}H – NMR spectrum of compound – **4e** (400 MHz, DMSO-d_6)



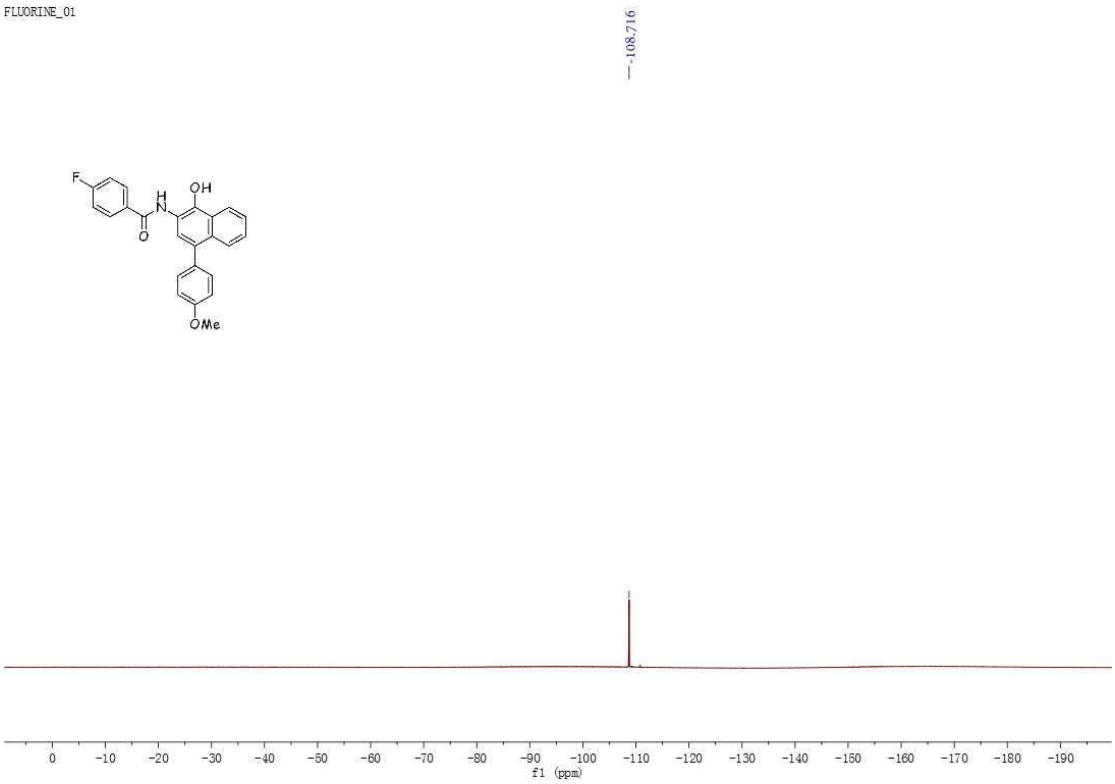
^{13}C – NMR spectrum of compound – **4e** (101 MHz, acetone-d_6)



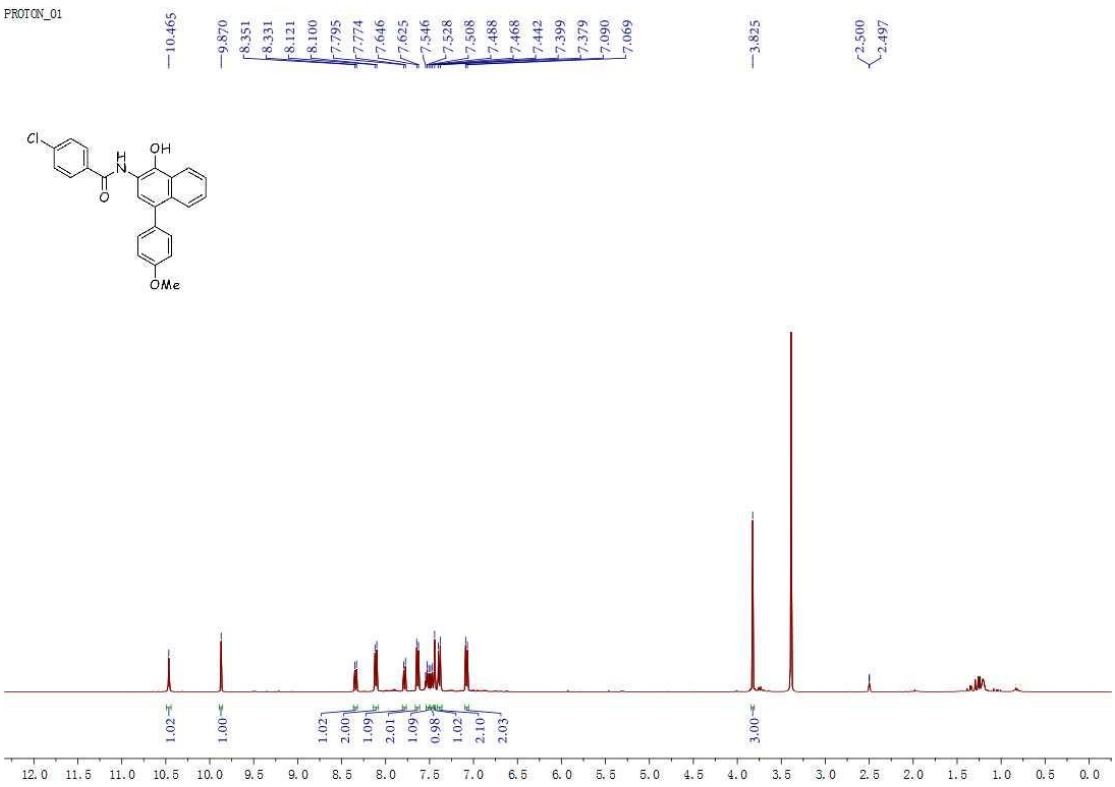
^{1}H – NMR spectrum of compound – **4f** (400 MHz, acetone-d_6)



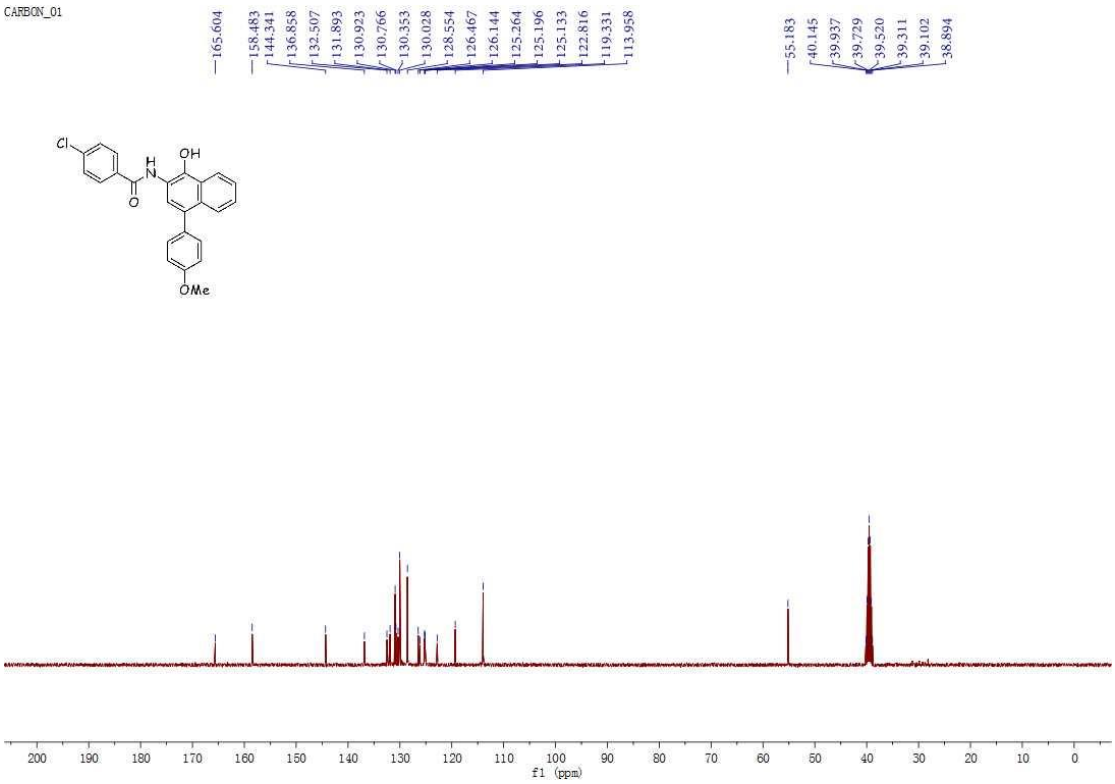
^{13}C – NMR spectrum of compound – **4f** (101 MHz, acetone-d_6)



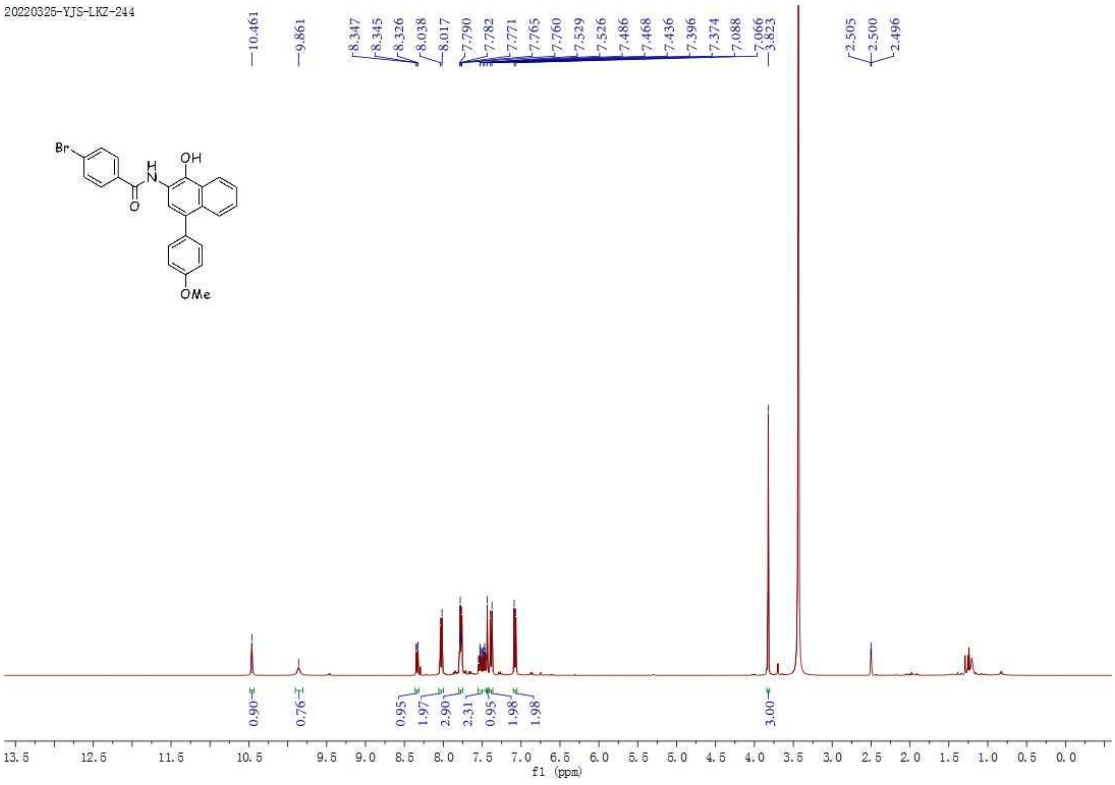
^{19}F – NMR spectrum of compound – **4f** (376 MHz, acetone-d_6)



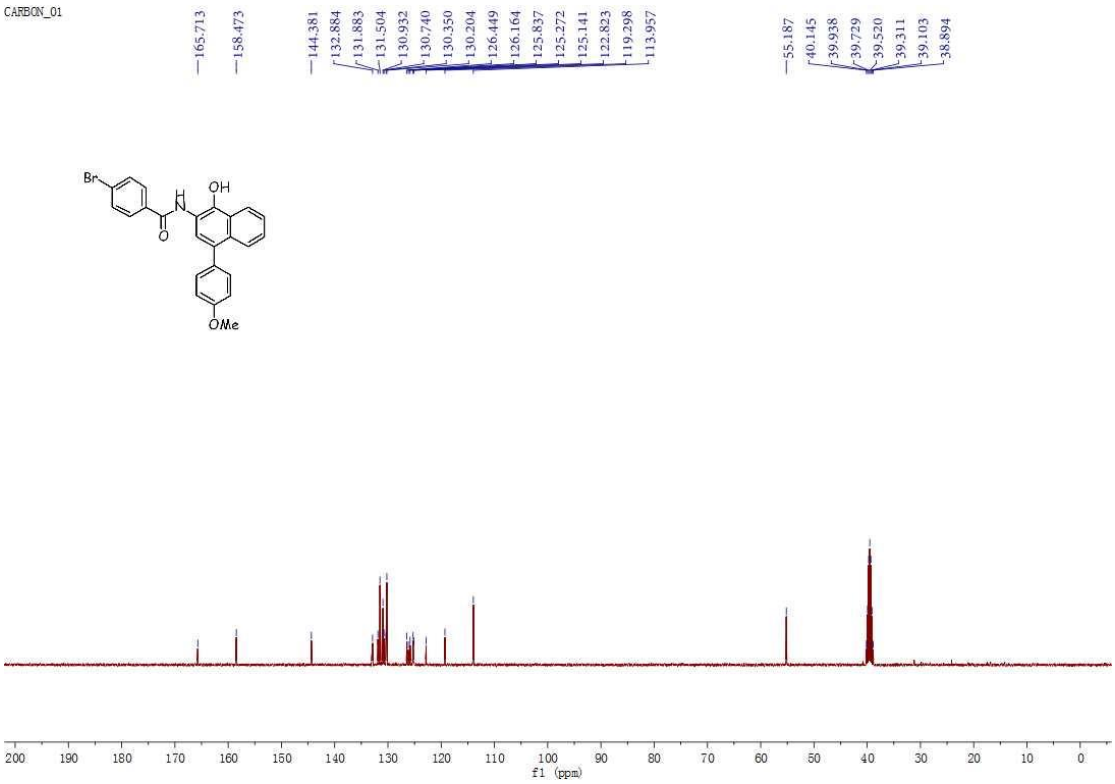
^{1}H – NMR spectrum of compound – **4g** (400 MHz, DMSO-d_6)



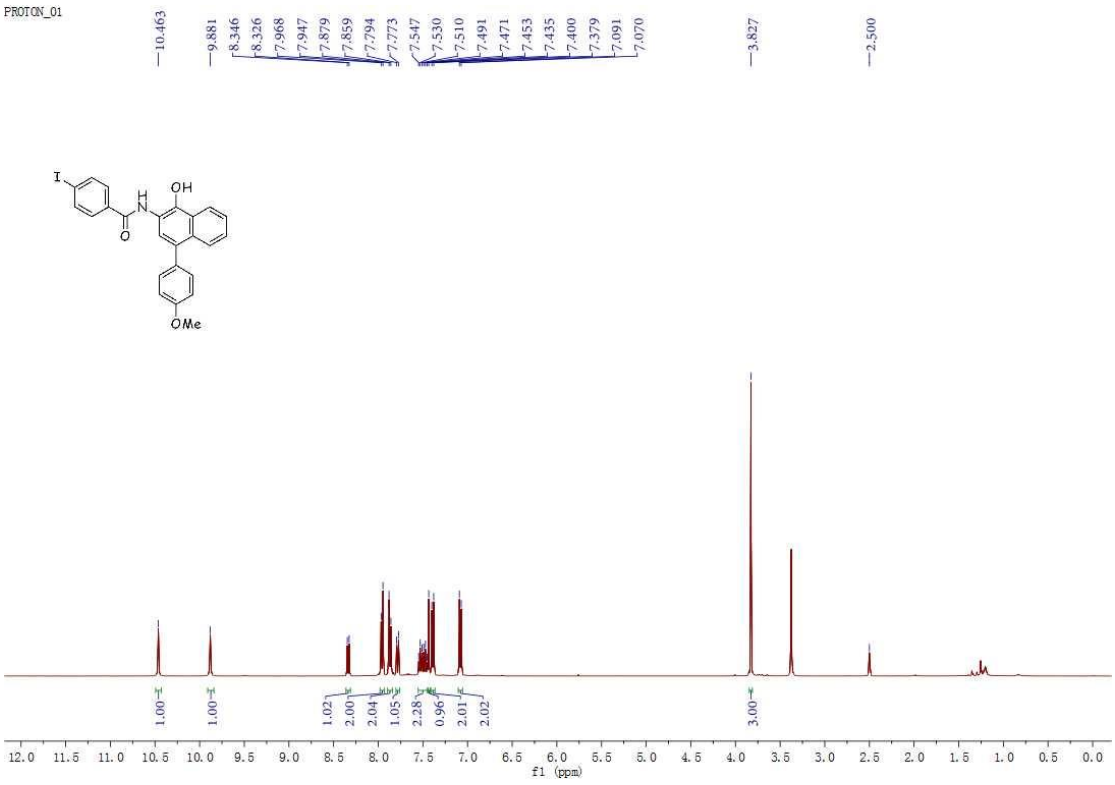
^{13}C – NMR spectrum of compound – **4g** (101 MHz, DMSO-d_6)



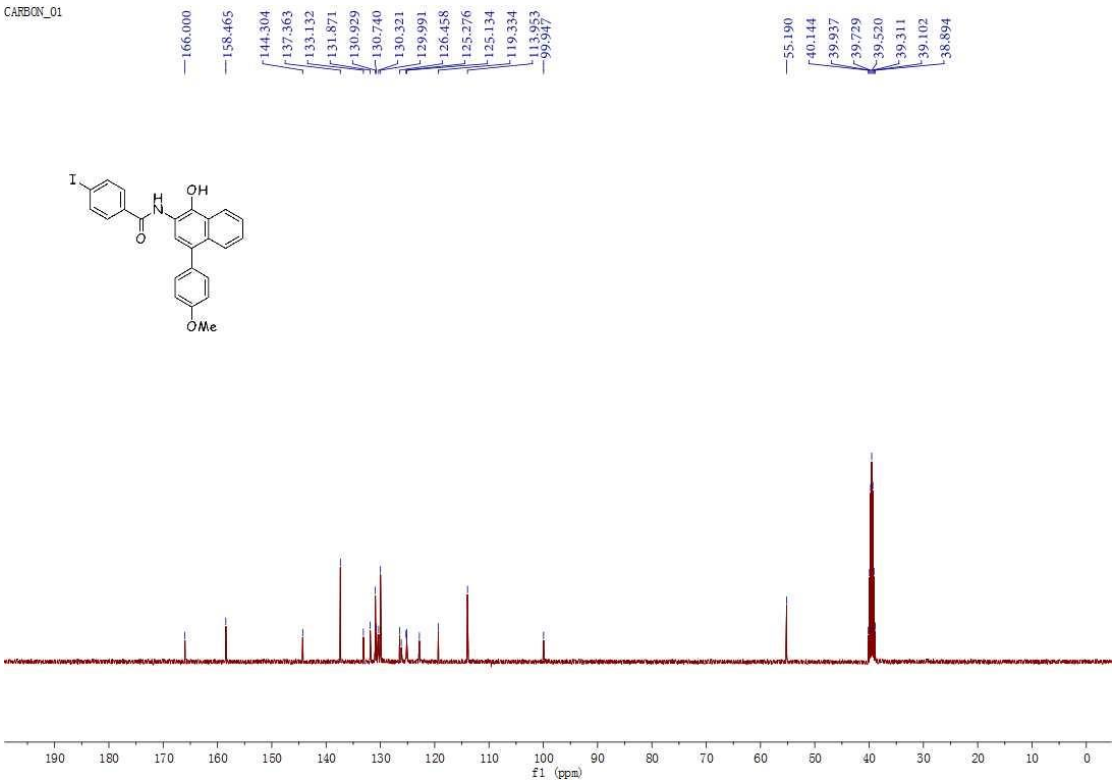
^{1}H – NMR spectrum of compound – **4h** (400 MHz, DMSO-d_6)



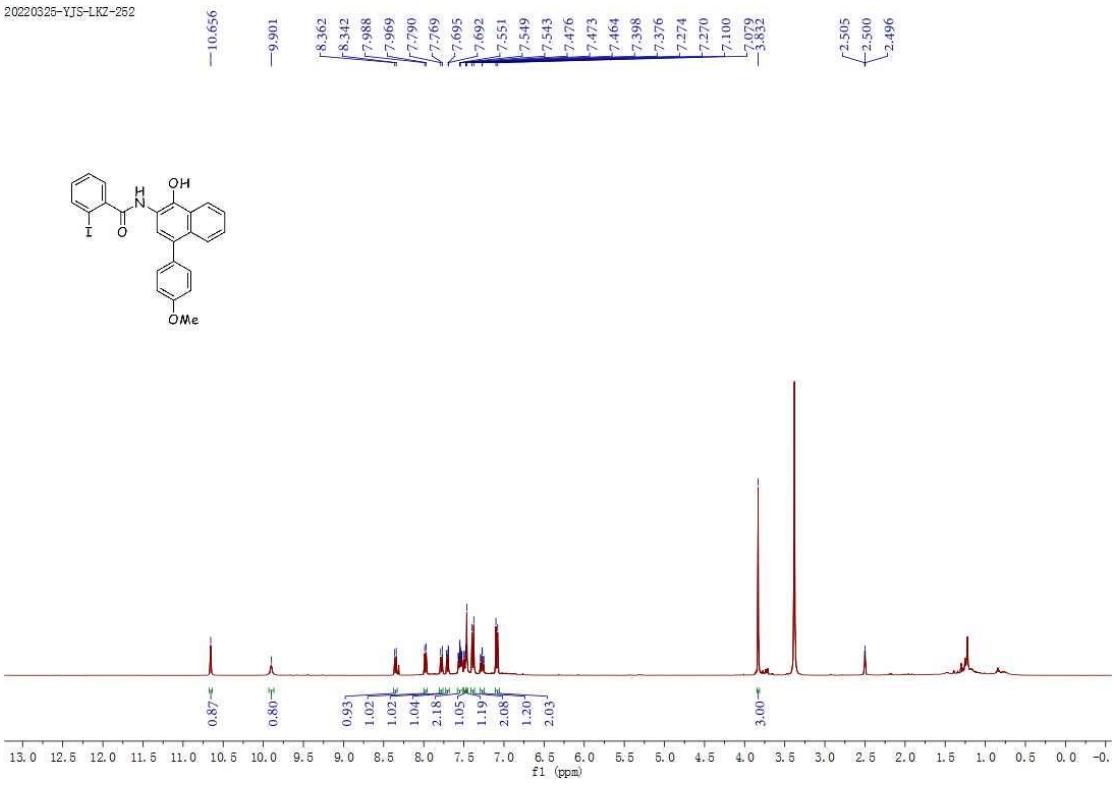
^{13}C – NMR spectrum of compound – **4h** (101 MHz, DMSO-d_6)



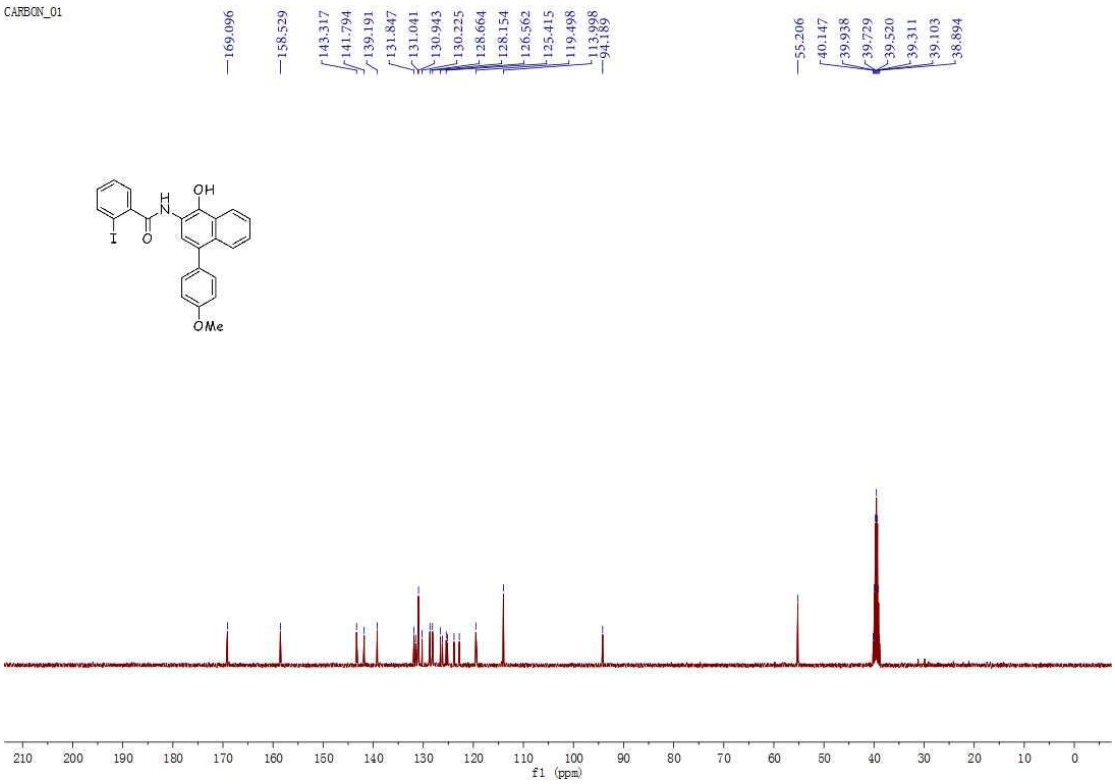
^{1}H – NMR spectrum of compound – **4i** (400 MHz, DMSO-d_6)



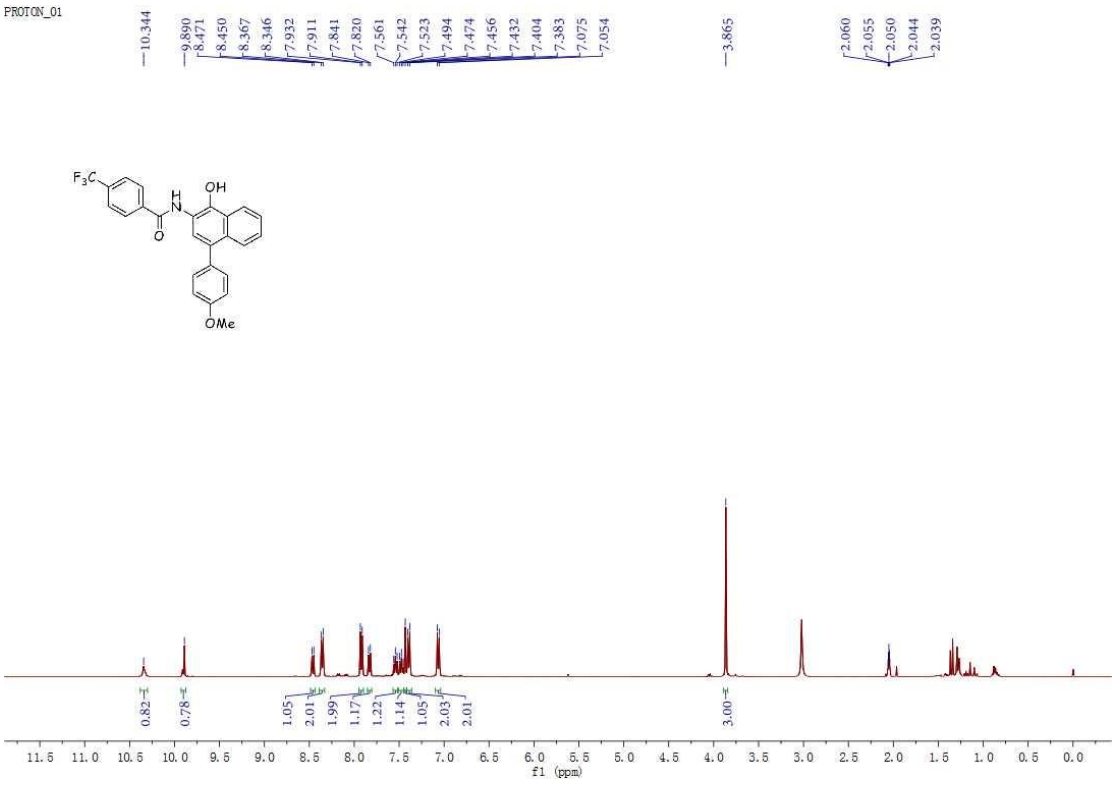
^{13}C – NMR spectrum of compound – **4i** (101 MHz, DMSO-d_6)



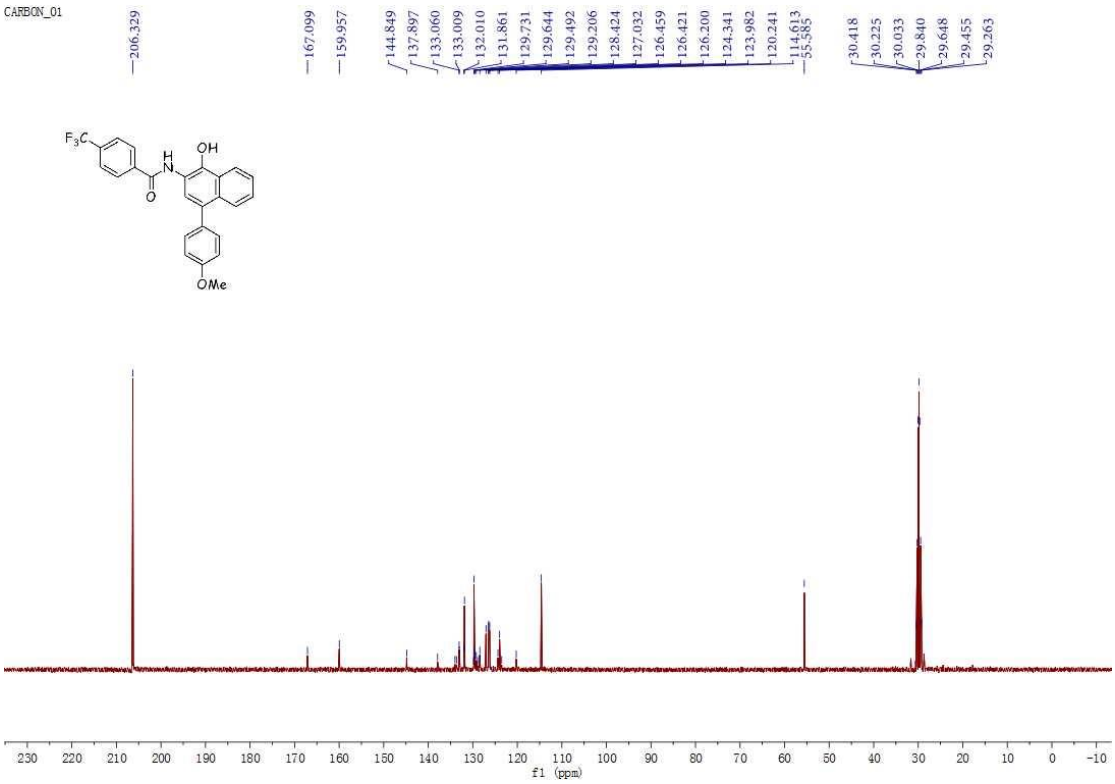
^{1}H – NMR spectrum of compound – **4j** (400 MHz, DMSO-d_6)



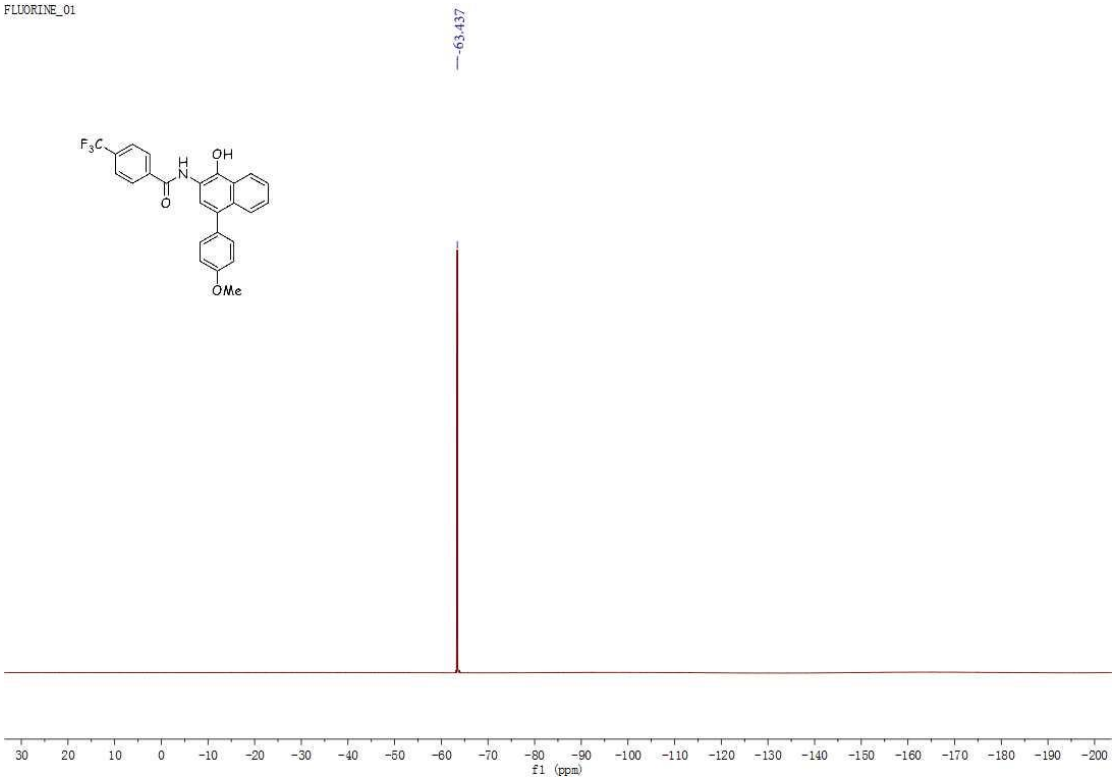
^{13}C – NMR spectrum of compound – **4j** (101 MHz, DMSO-d_6)



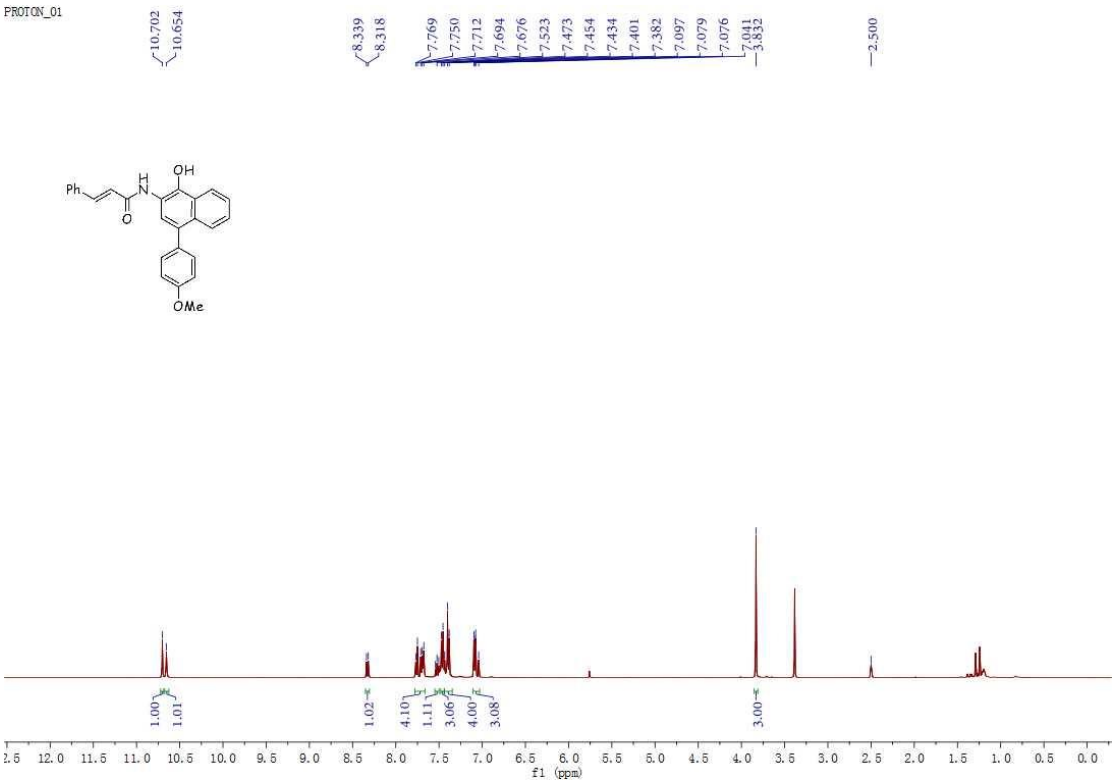
^{1}H – NMR spectrum of compound – **4k** (400 MHz, acetone-d_6)



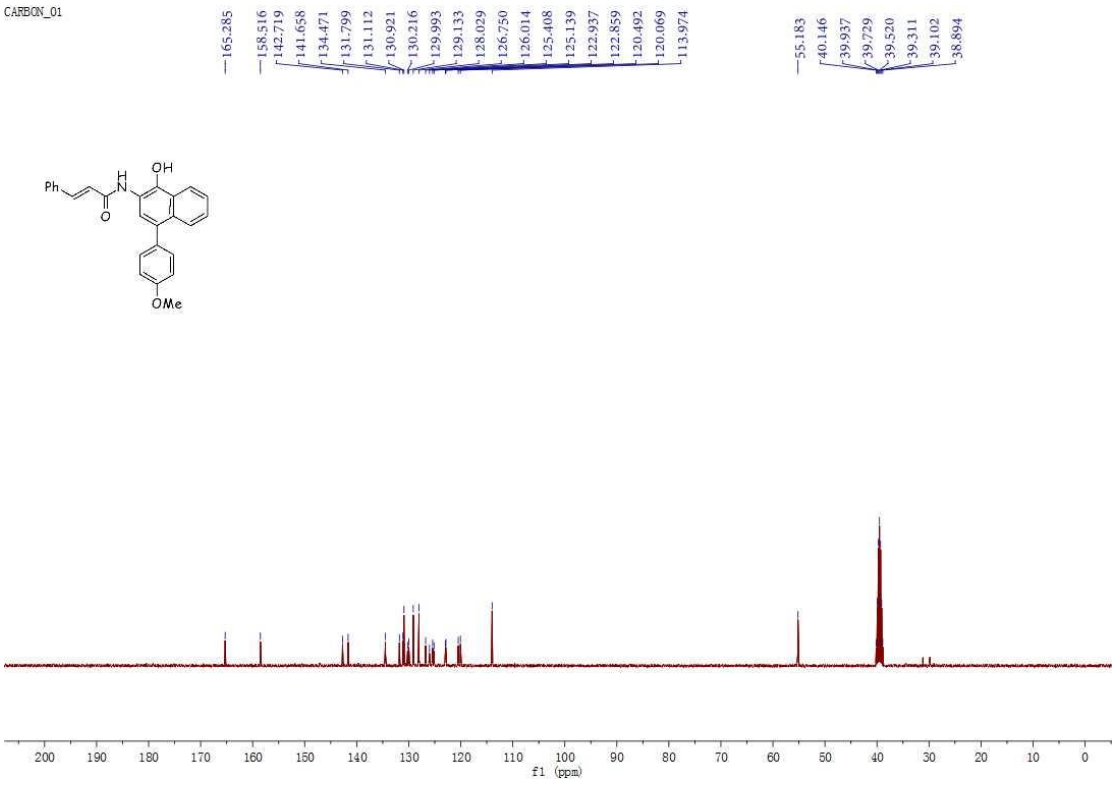
^{13}C – NMR spectrum of compound – **4k** (101 MHz, acetone-d_6)



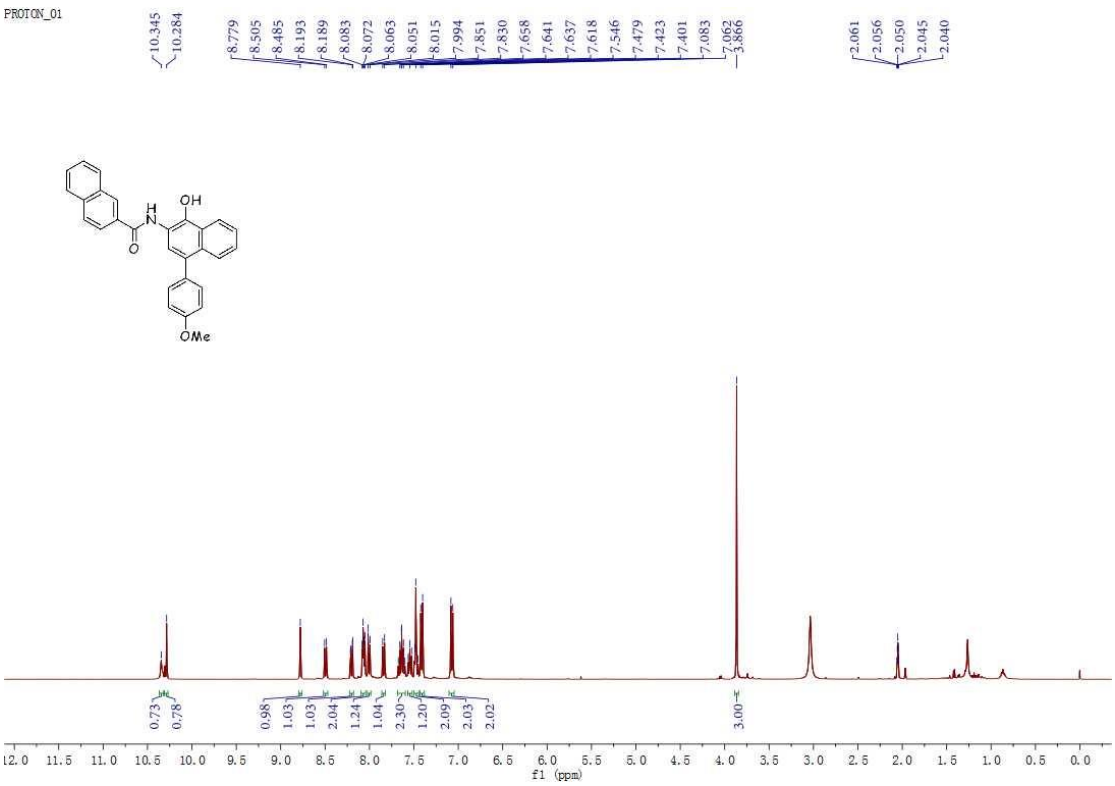
^{19}F – NMR spectrum of compound – **4k** (376 MHz, acetone-d_6)



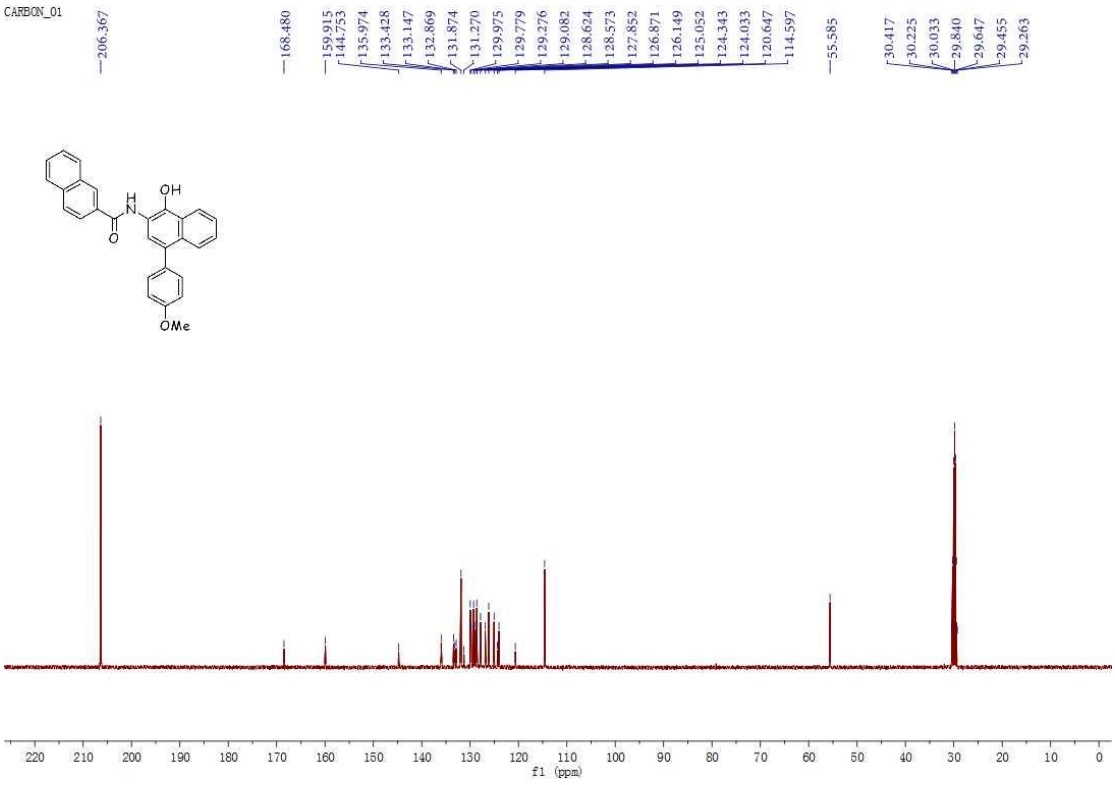
^{1}H – NMR spectrum of compound – **4l** (400 MHz, DMSO-d_6)



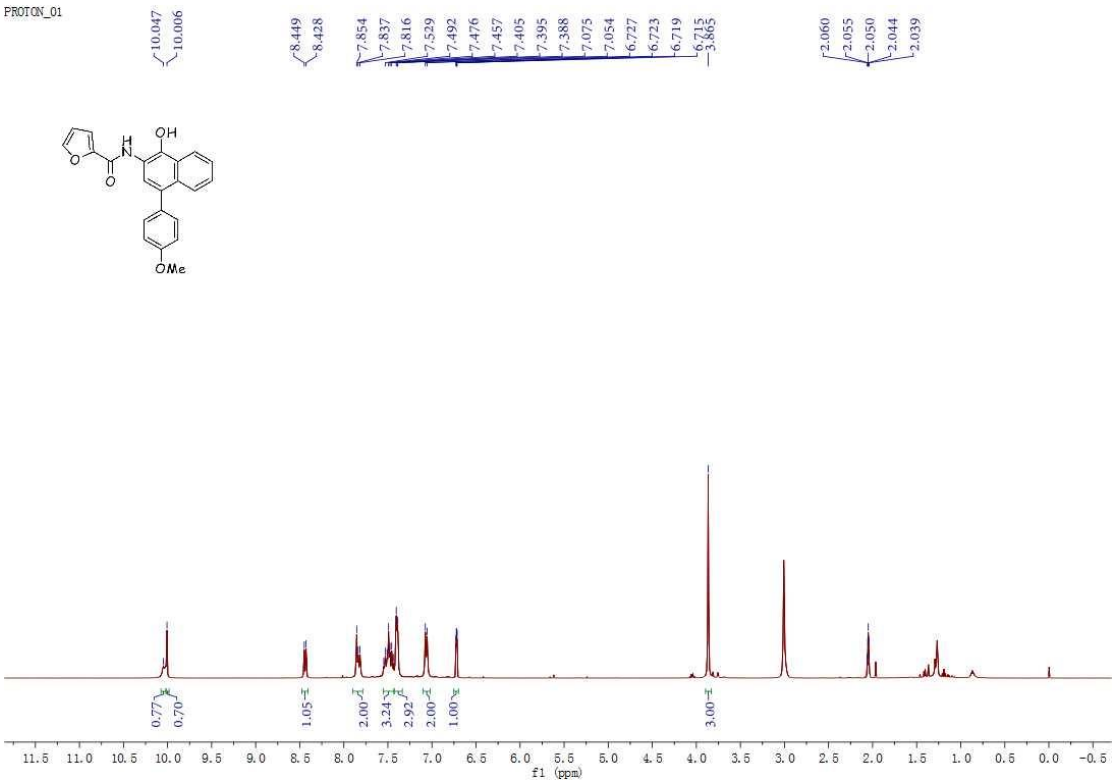
^{13}C – NMR spectrum of compound – **4l** (101 MHz, DMSO-d_6)



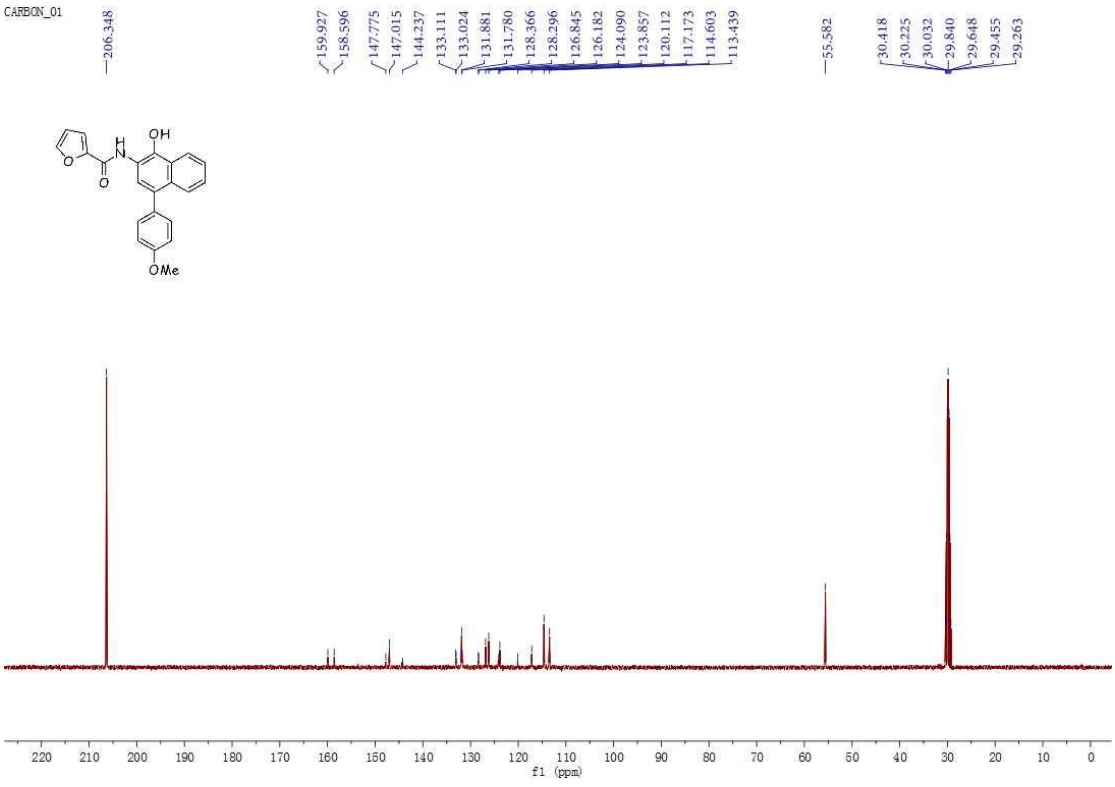
^{1}H – NMR spectrum of compound – **4m** (400 MHz, acetone-d_6)



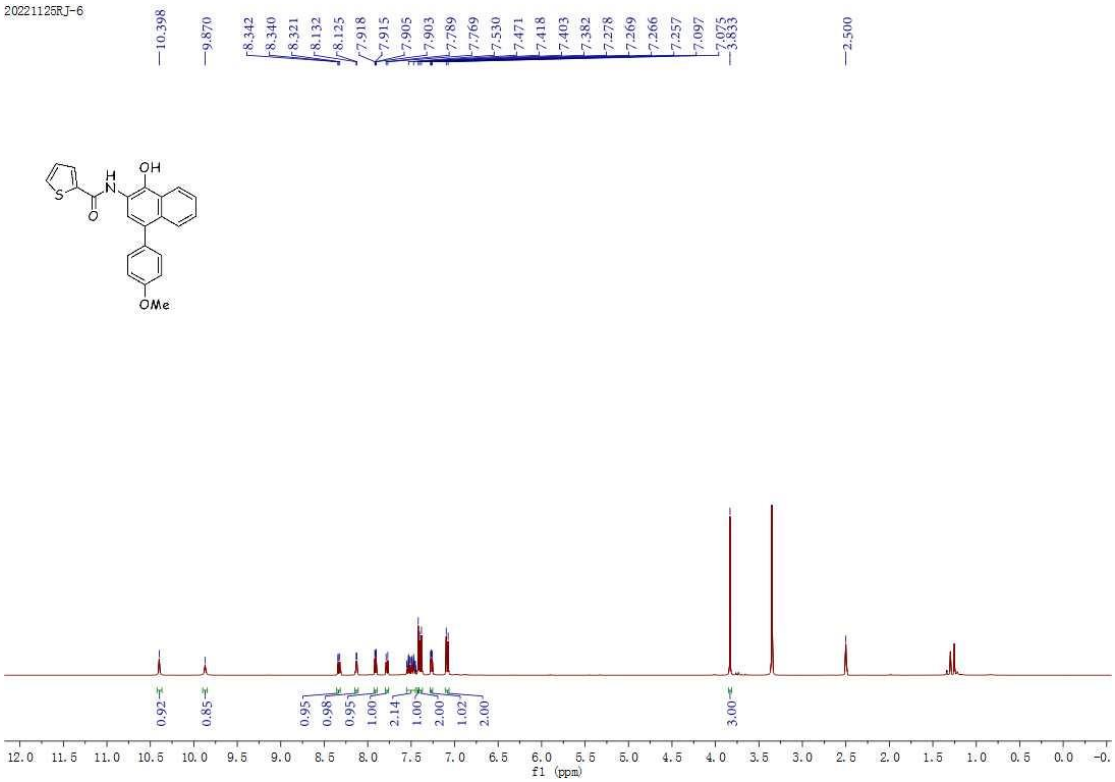
^{13}C – NMR spectrum of compound – **4m** (101 MHz, acetone-d_6)



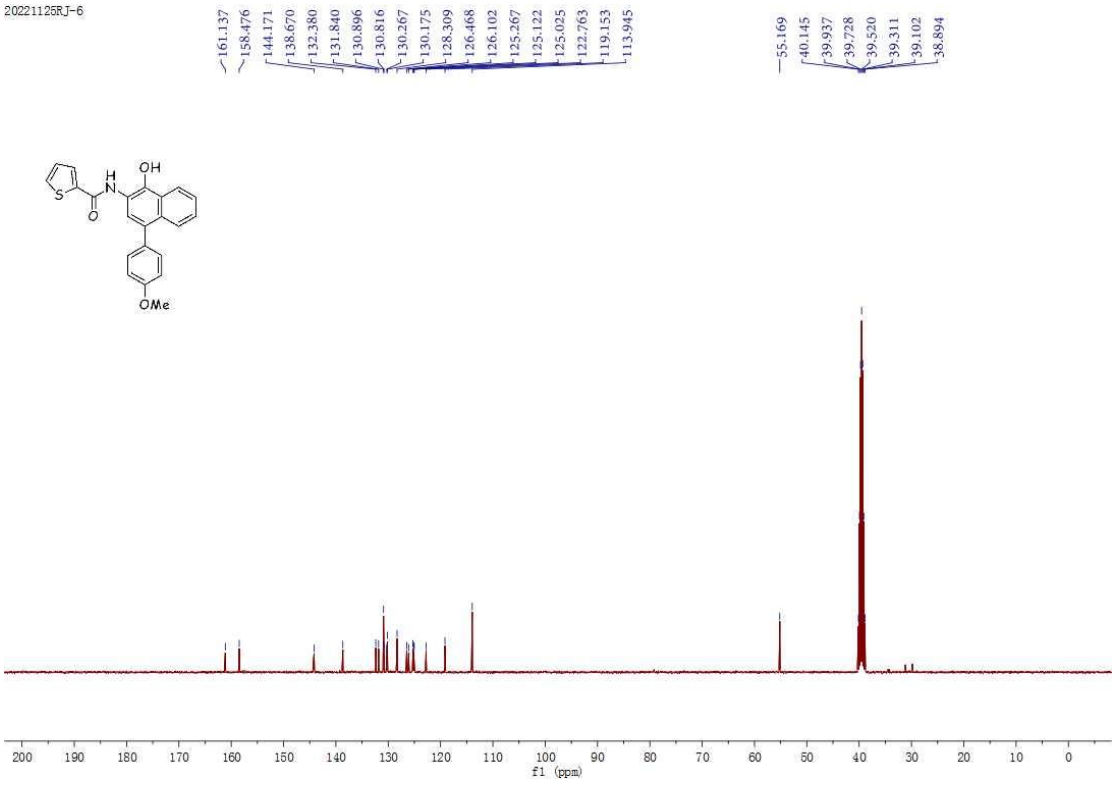
^{1}H – NMR spectrum of compound – **4n** (400 MHz, acetone-d_6)



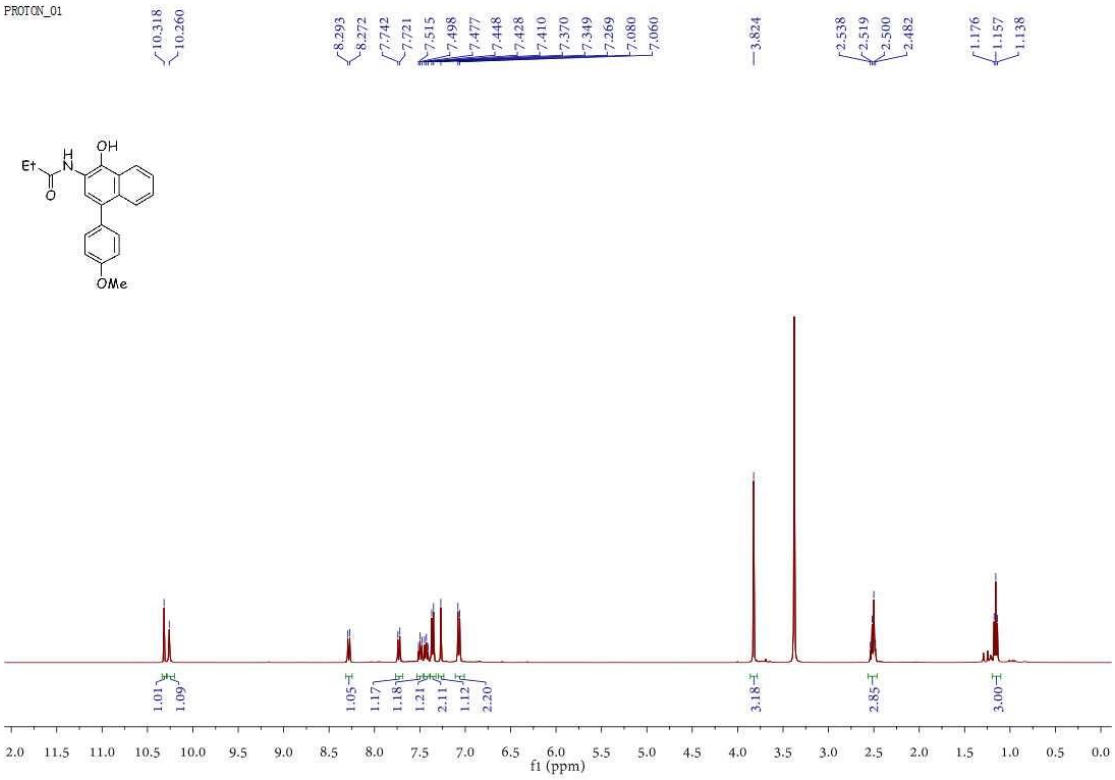
^{13}C – NMR spectrum of compound – **4n** (101 MHz, acetone-d_6)



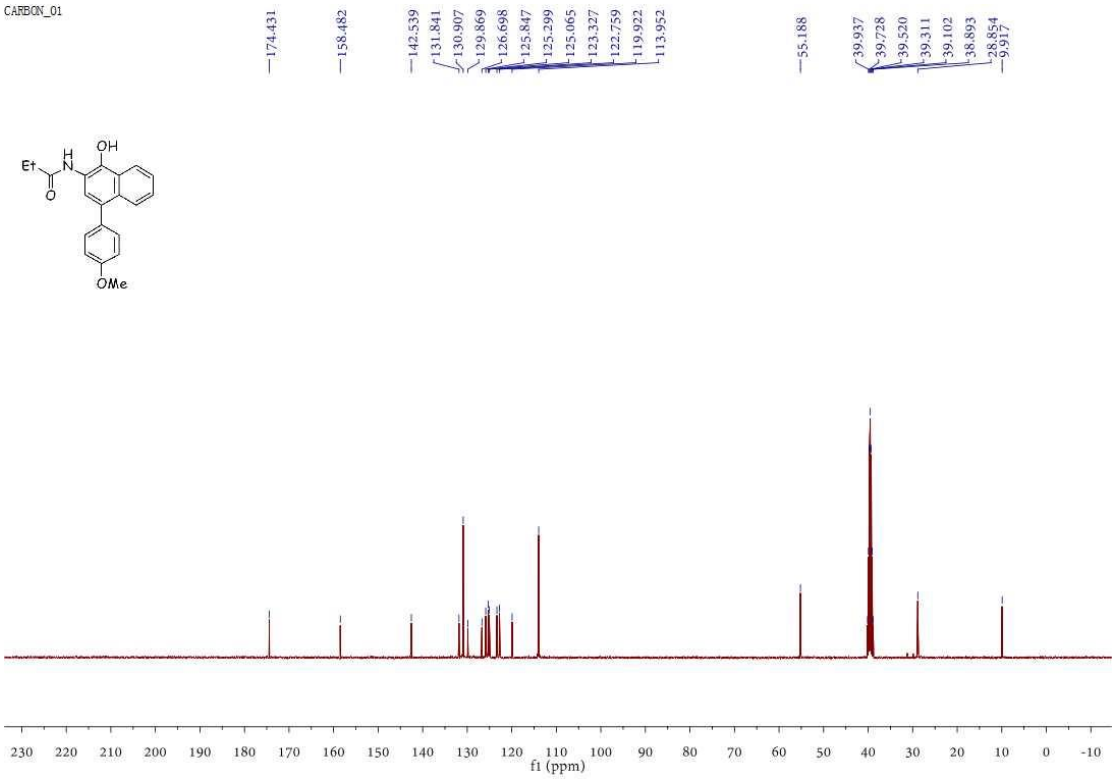
^{1}H – NMR spectrum of compound – **40** (400 MHz, DMSO-d_6)



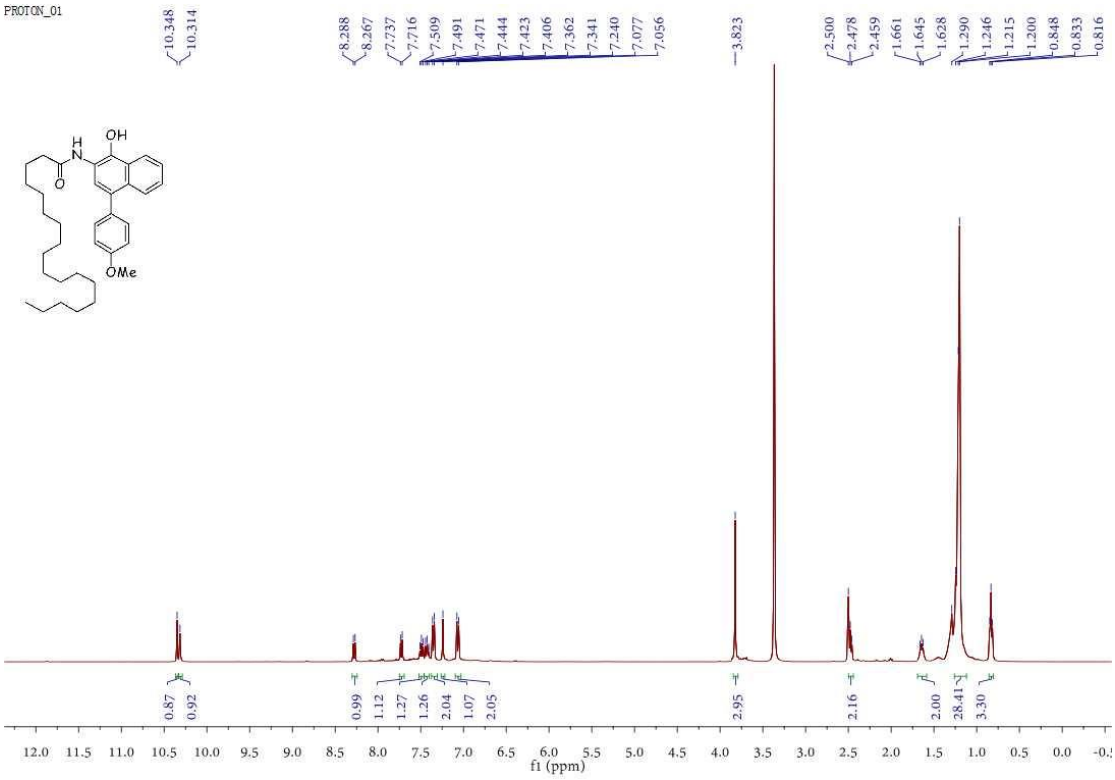
^{13}C – NMR spectrum of compound – **40** (101 MHz, DMSO-d_6)



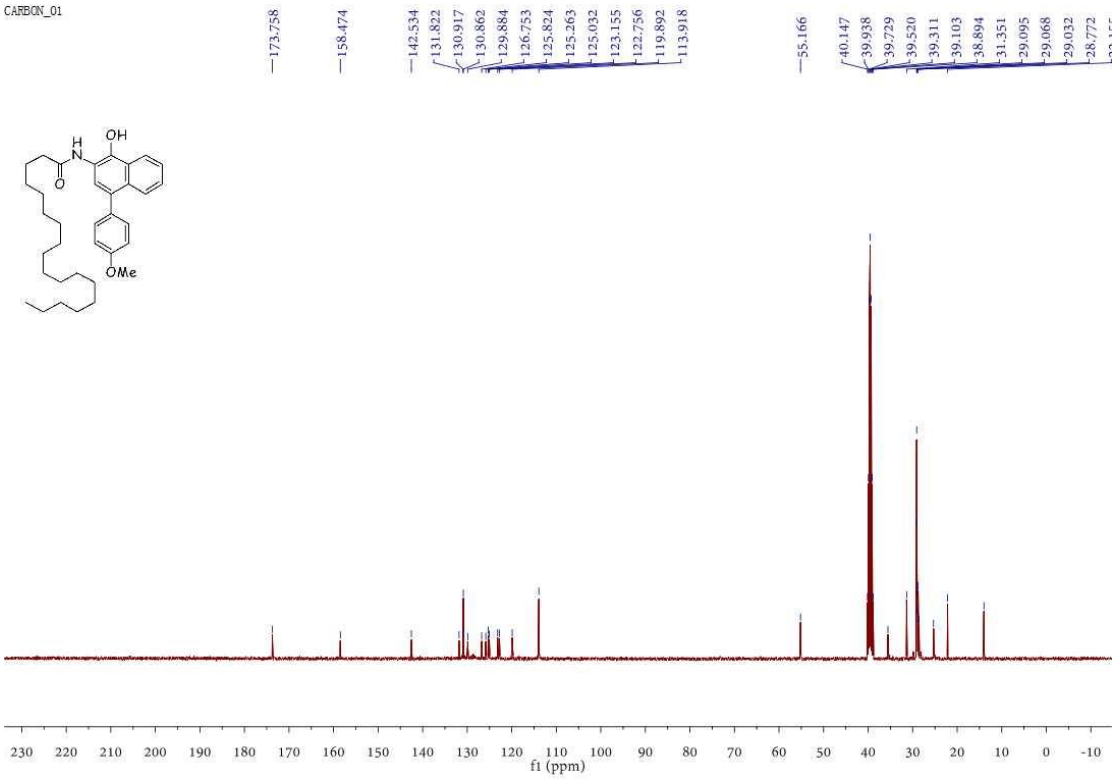
^{1}H – NMR spectrum of compound – **4p** (400 MHz, DMSO-d_6)



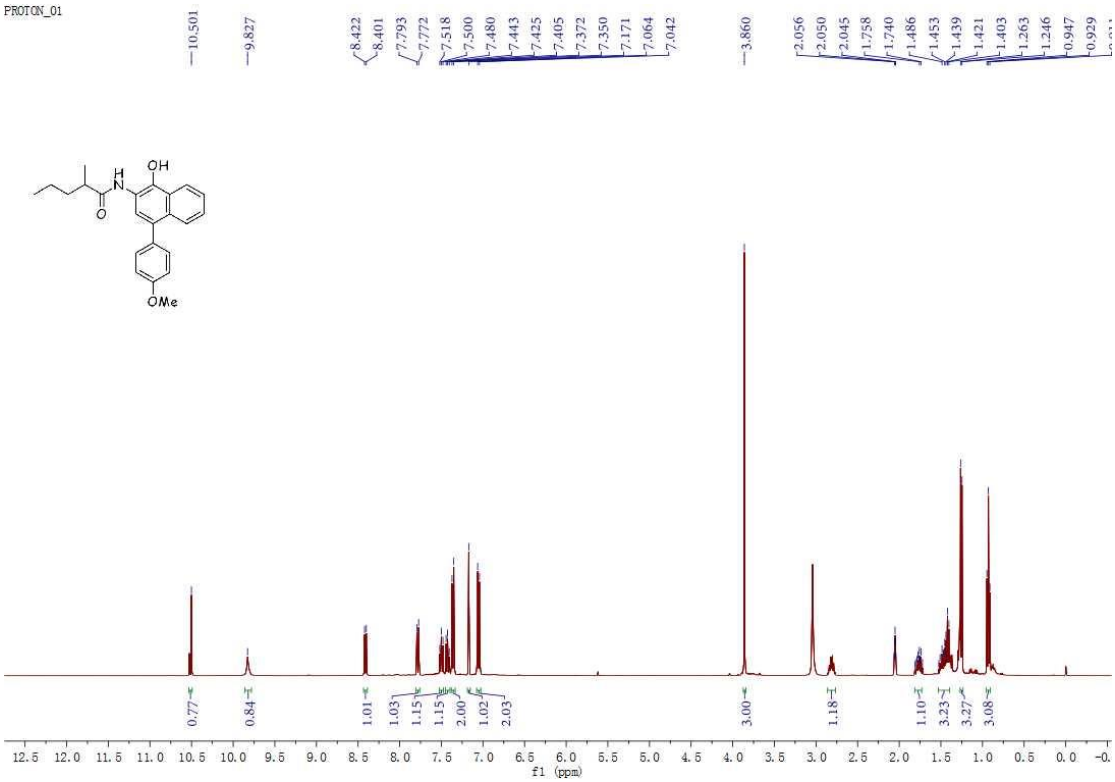
^{13}C – NMR spectrum of compound – **4p** (101 MHz, DMSO-d_6)



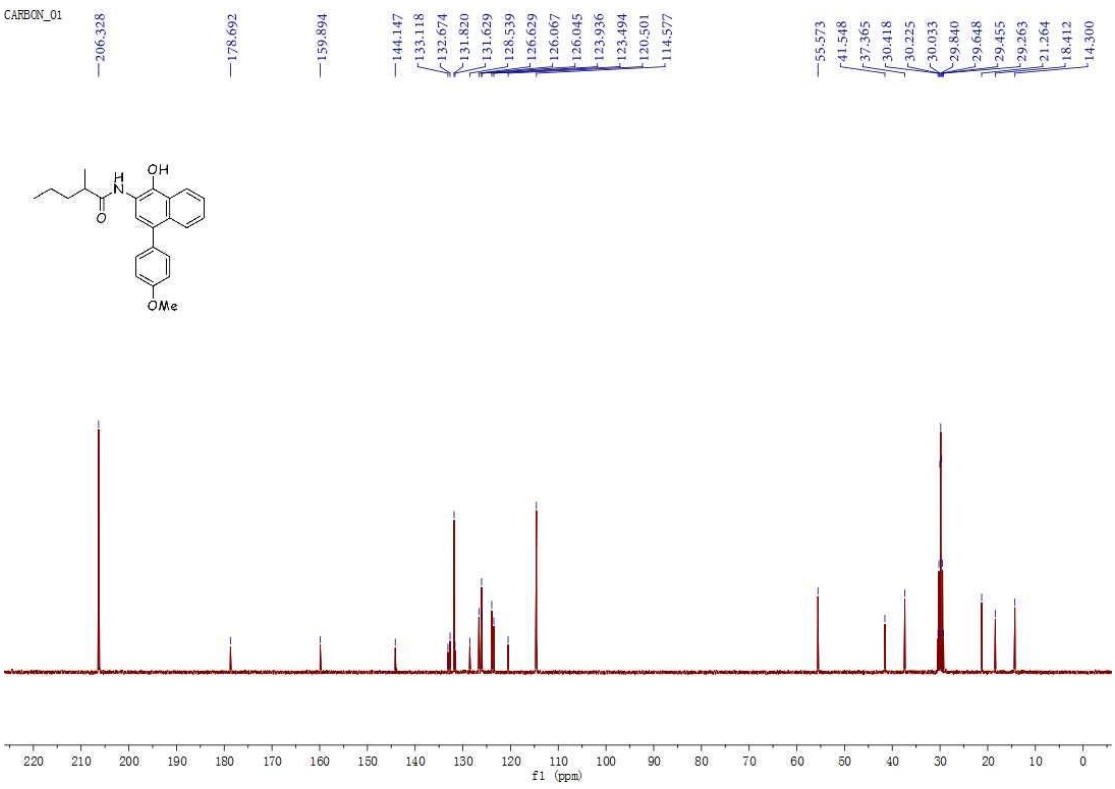
^{1}H – NMR spectrum of compound – **4q** (400 MHz, DMSO-d_6)



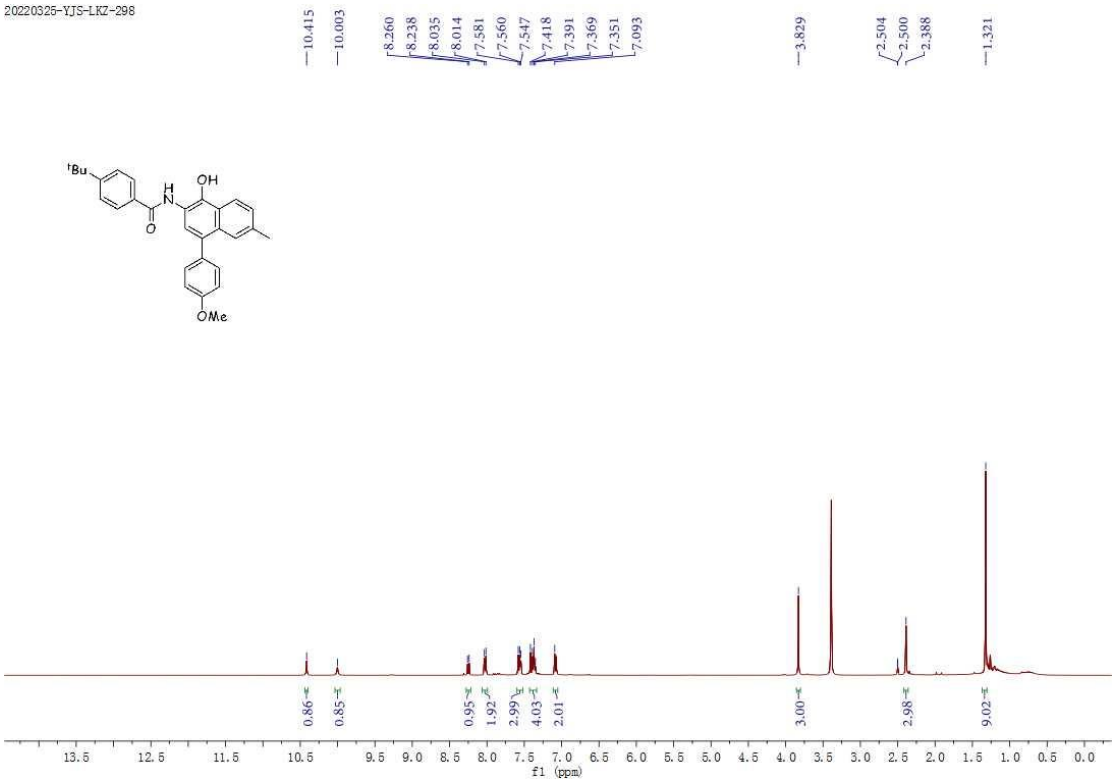
^{13}C – NMR spectrum of compound – **4q** (101 MHz, DMSO-d_6)



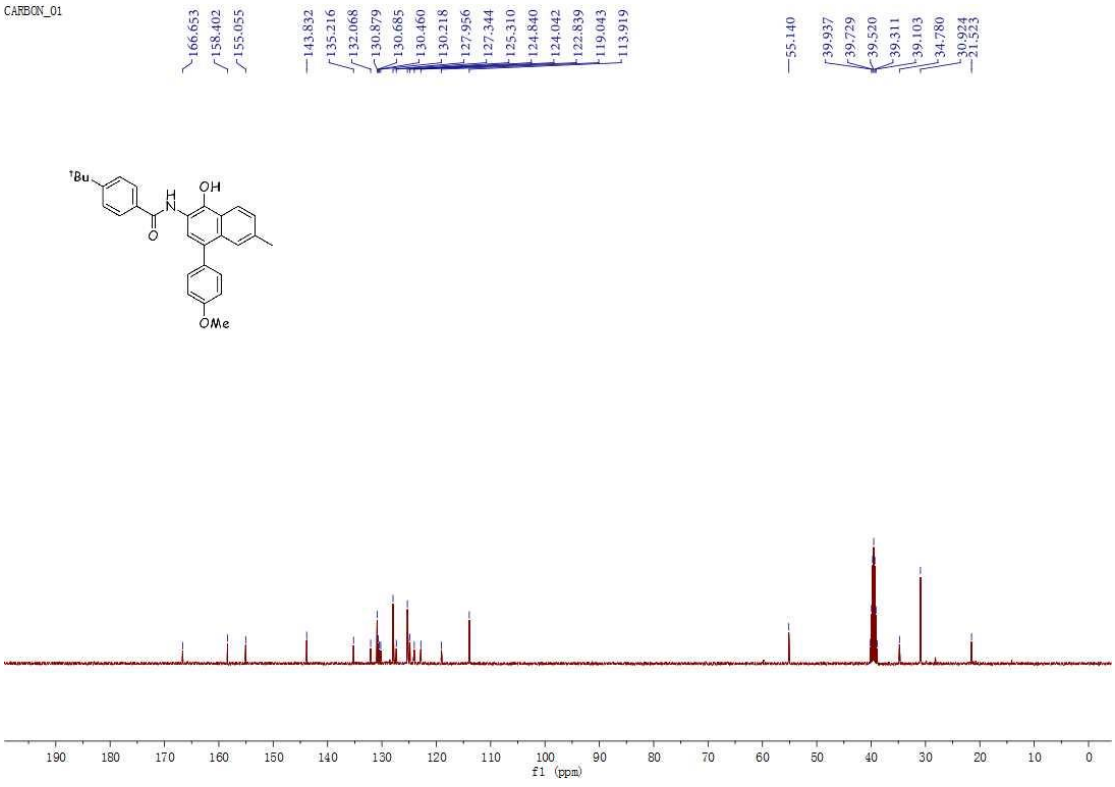
^{1}H – NMR spectrum of compound – **4r** (400 MHz, acetone-d_6)



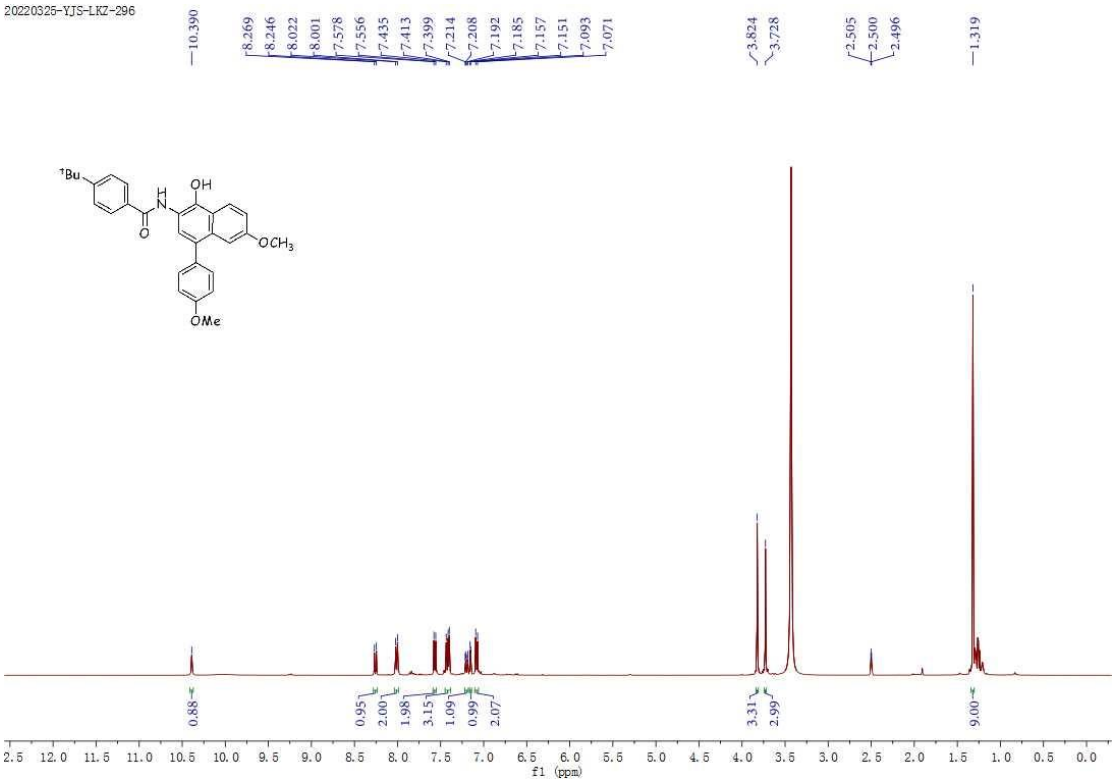
^{13}C – NMR spectrum of compound – **4r** (101 MHz, acetone-d_6)



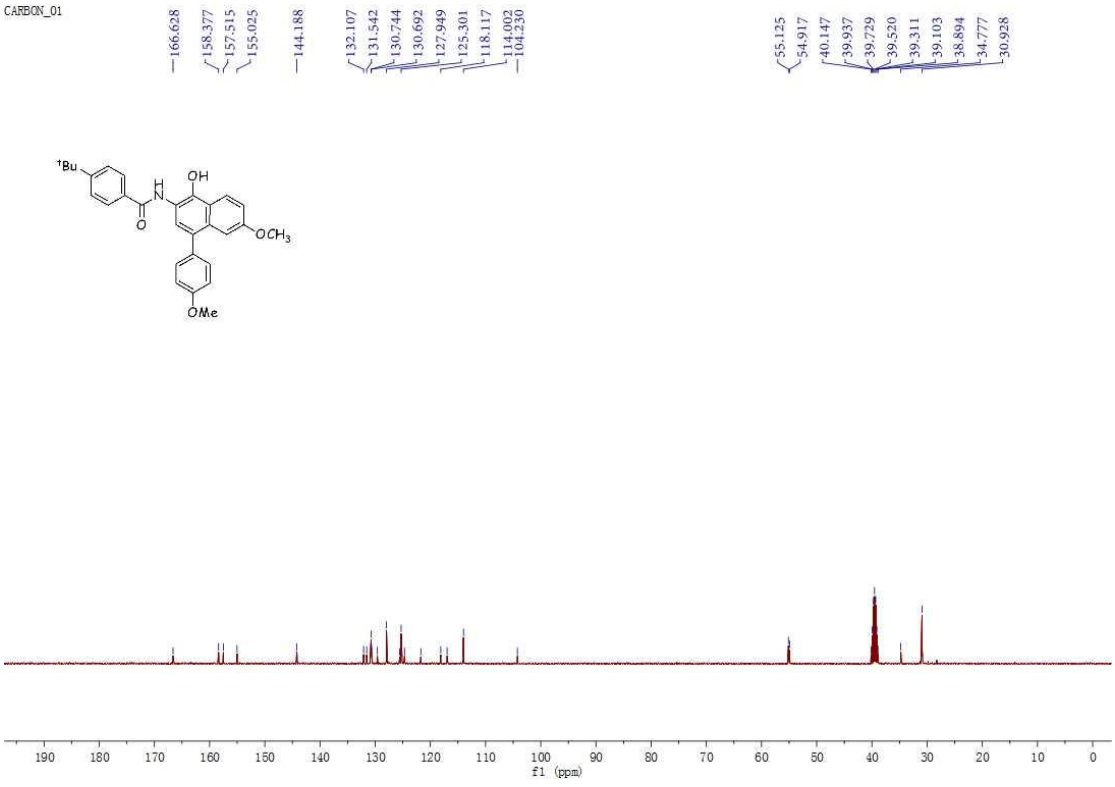
^{1}H – NMR spectrum of compound – **4s** (400 MHz, DMSO-d_6)



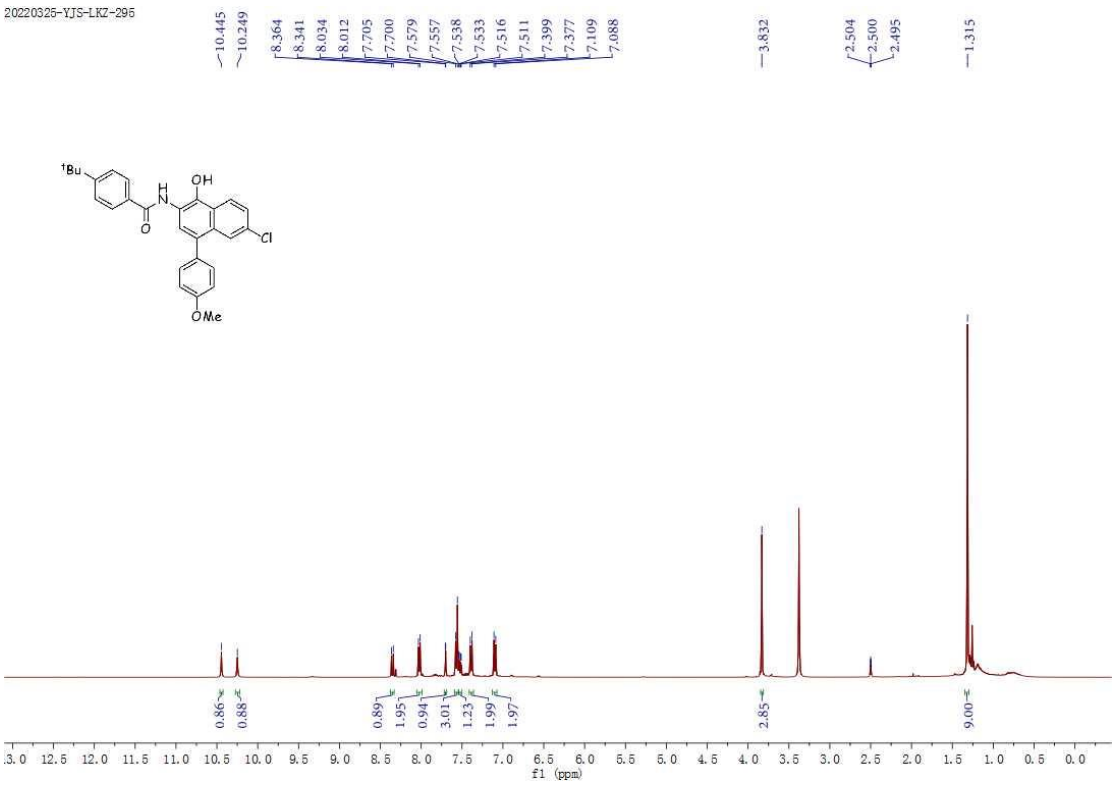
^{13}C – NMR spectrum of compound – **4s** (101 MHz, DMSO-d_6)



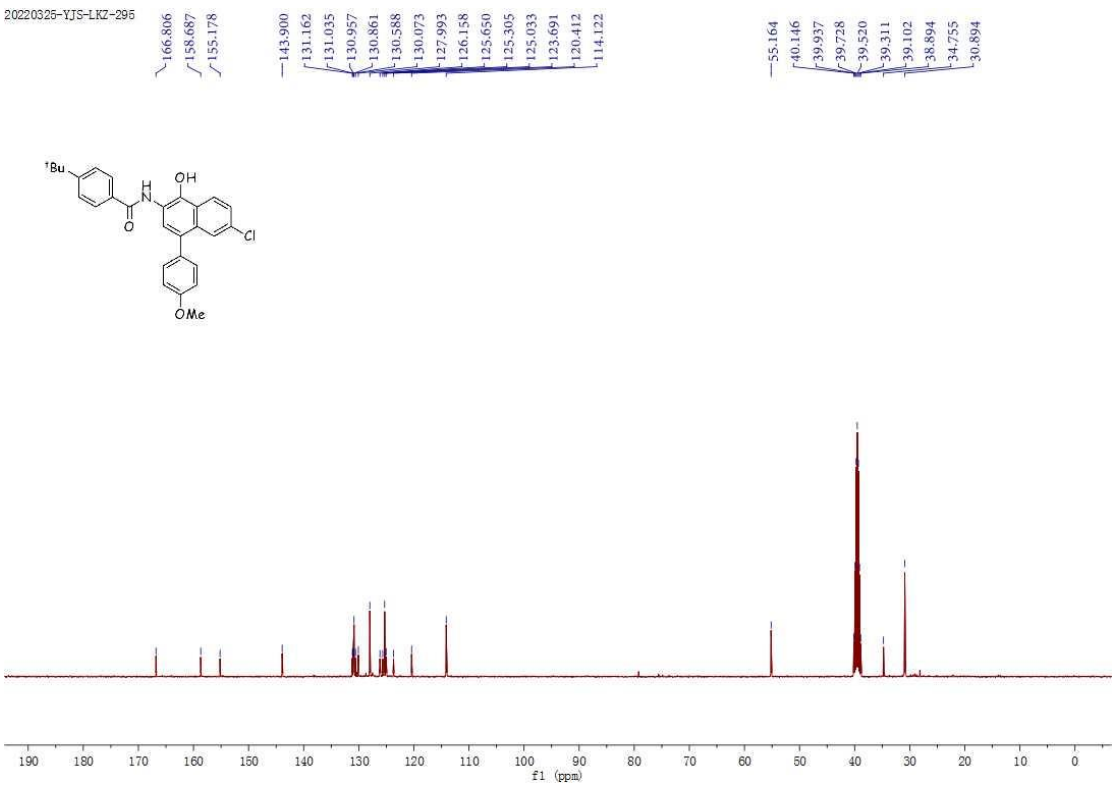
^{1}H – NMR spectrum of compound – **4t** (400 MHz, DMSO-d_6)



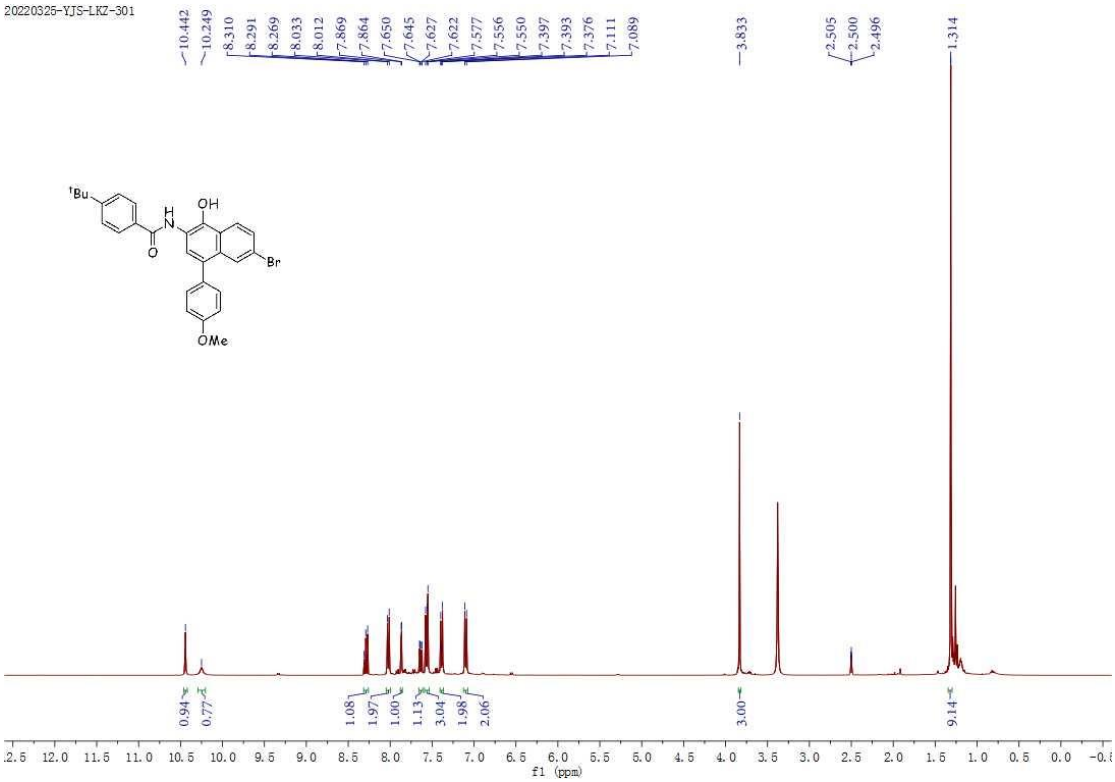
^{13}C – NMR spectrum of compound – **4t** (101 MHz, DMSO-d_6)



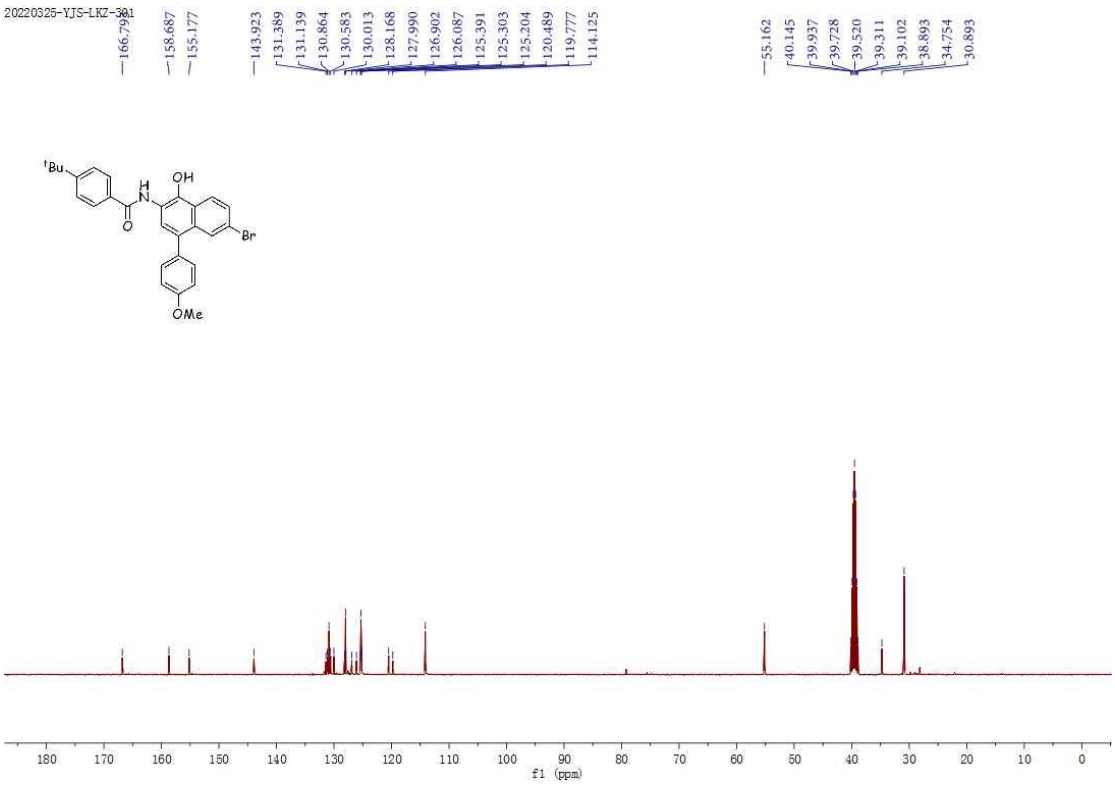
^{1}H – NMR spectrum of compound – **4u** (400 MHz, DMSO-d_6)



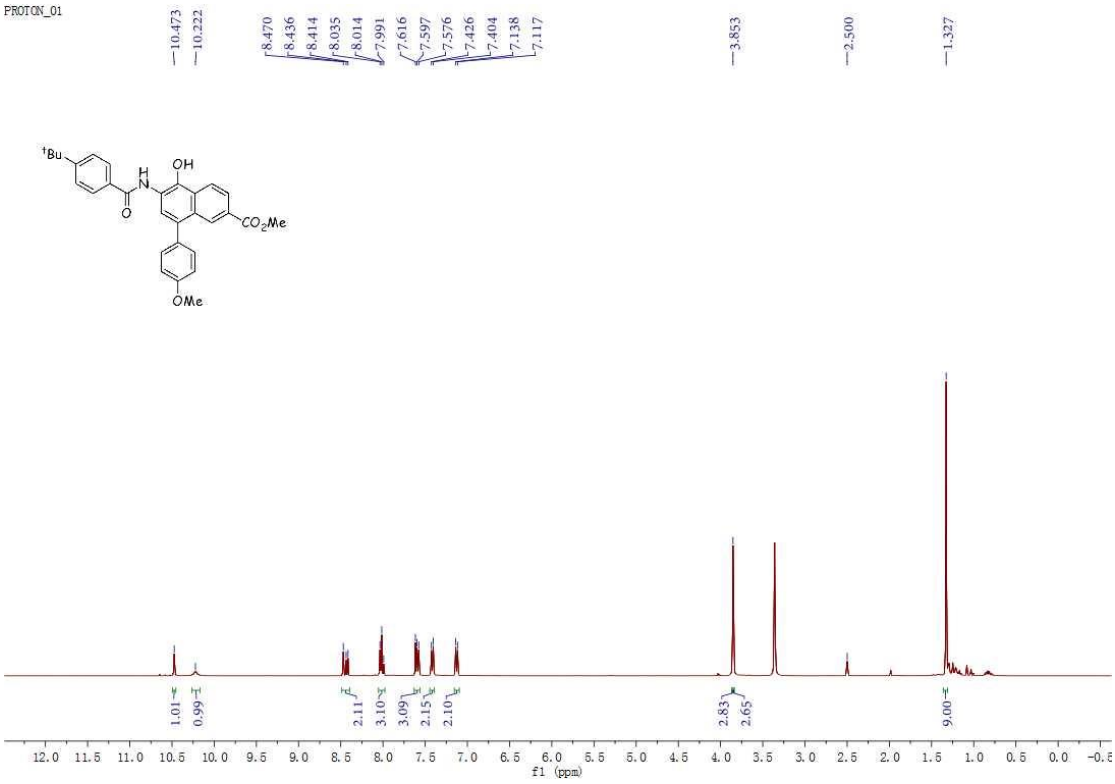
^{13}C – NMR spectrum of compound – **4u** (101 MHz, DMSO-d_6)



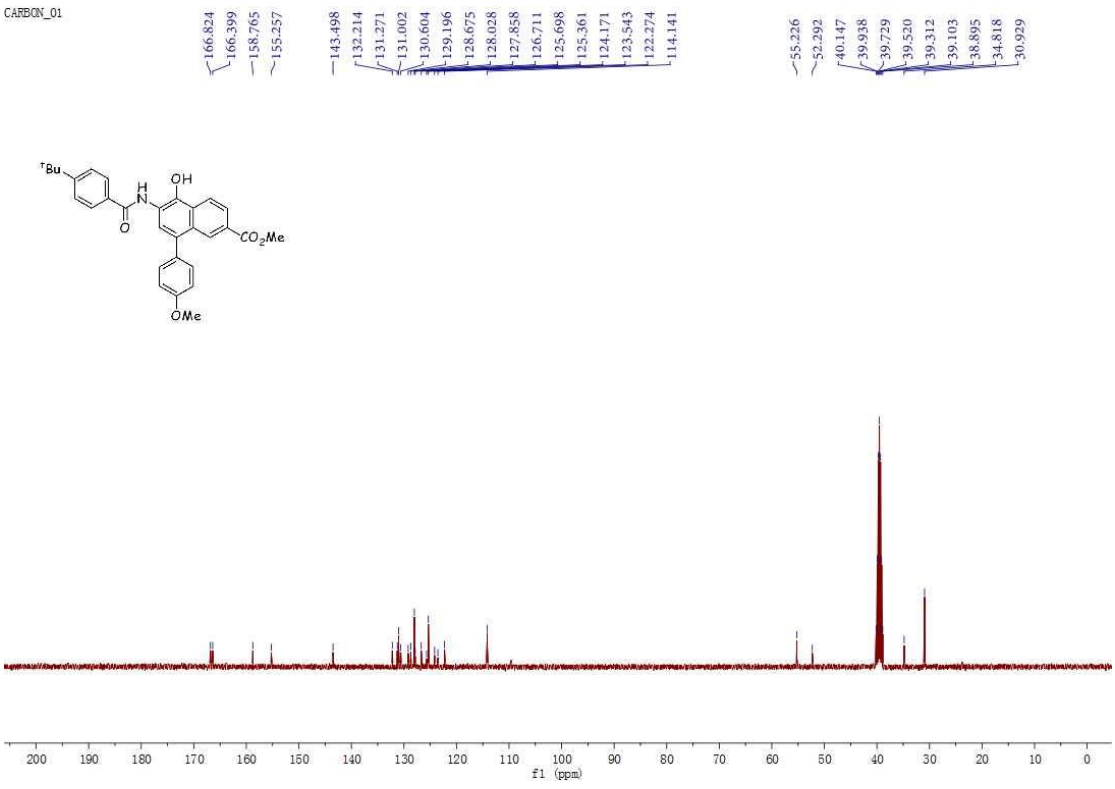
^{1}H – NMR spectrum of compound – **4v** (400 MHz, DMSO-d_6)



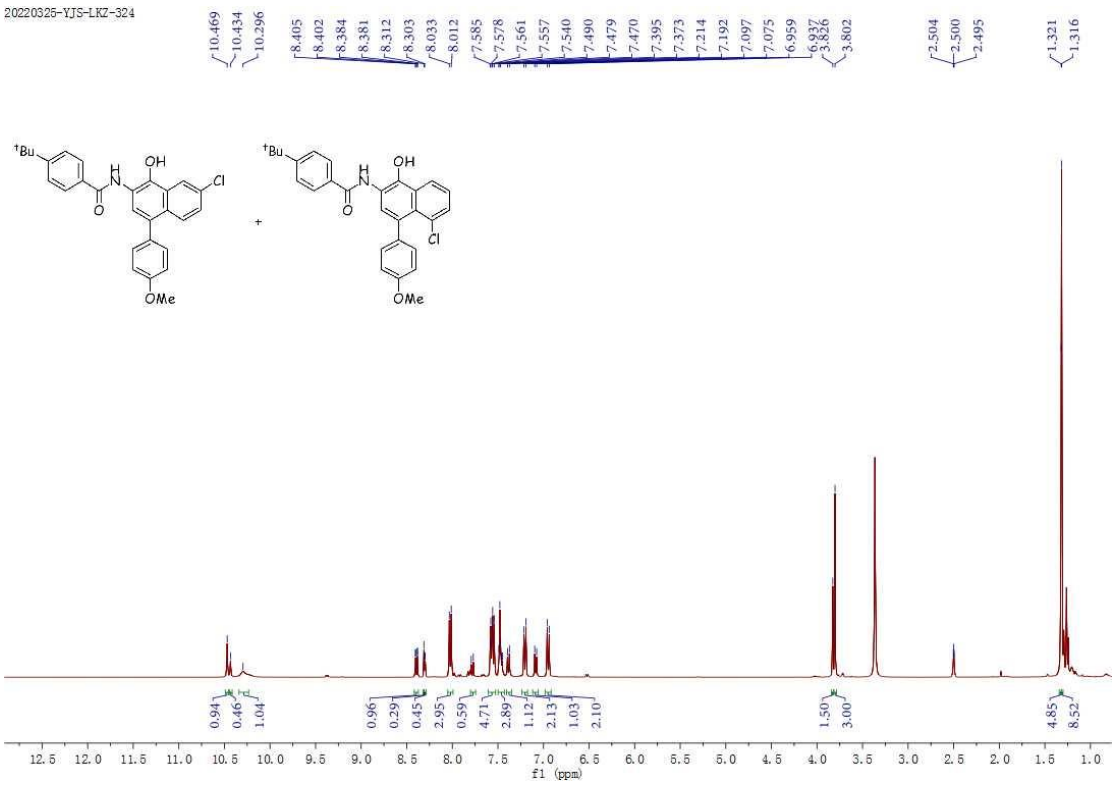
^{13}C – NMR spectrum of compound – **4v** (101 MHz, DMSO-d_6)



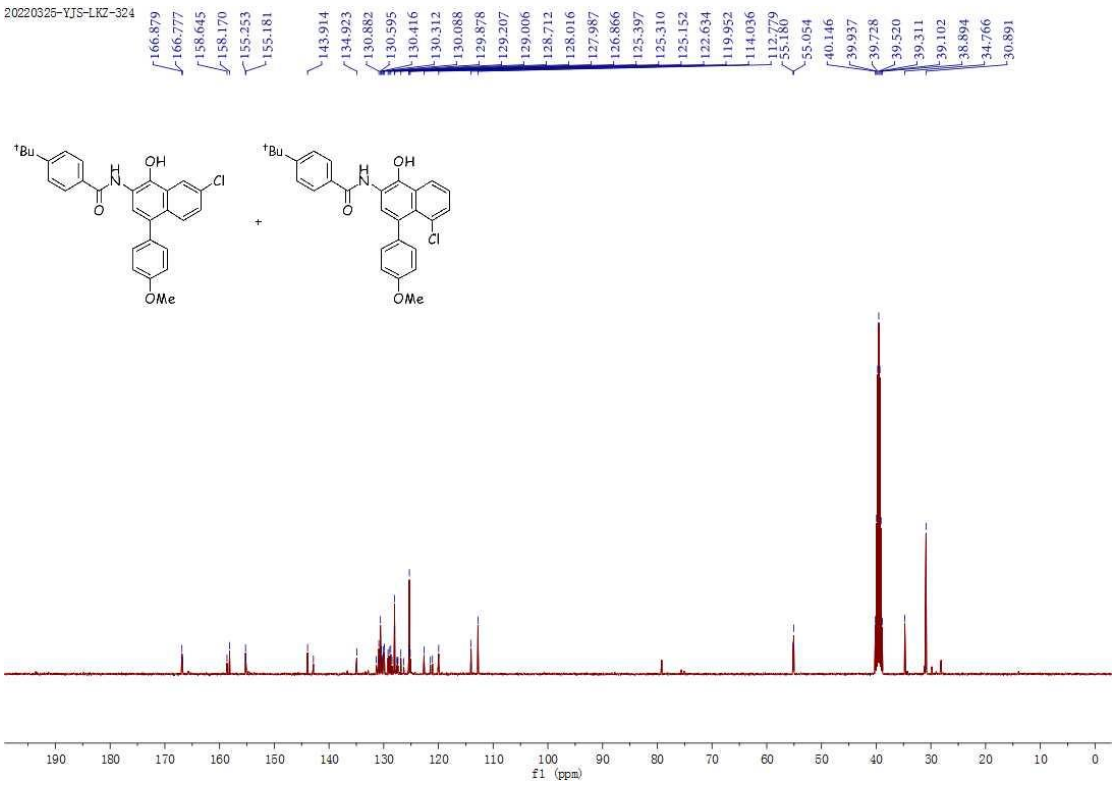
^{1}H – NMR spectrum of compound – **4w** (400 MHz, DMSO-d_6)



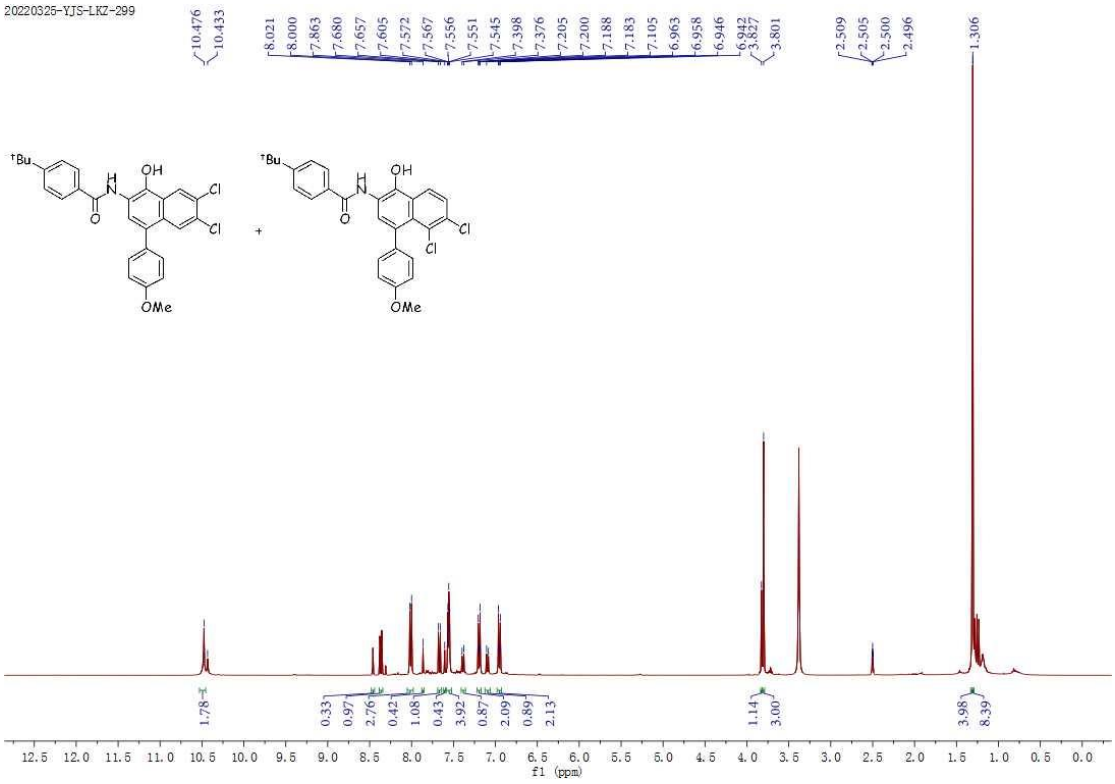
^{13}C – NMR spectrum of compound – **4w** (101 MHz, DMSO-d_6)



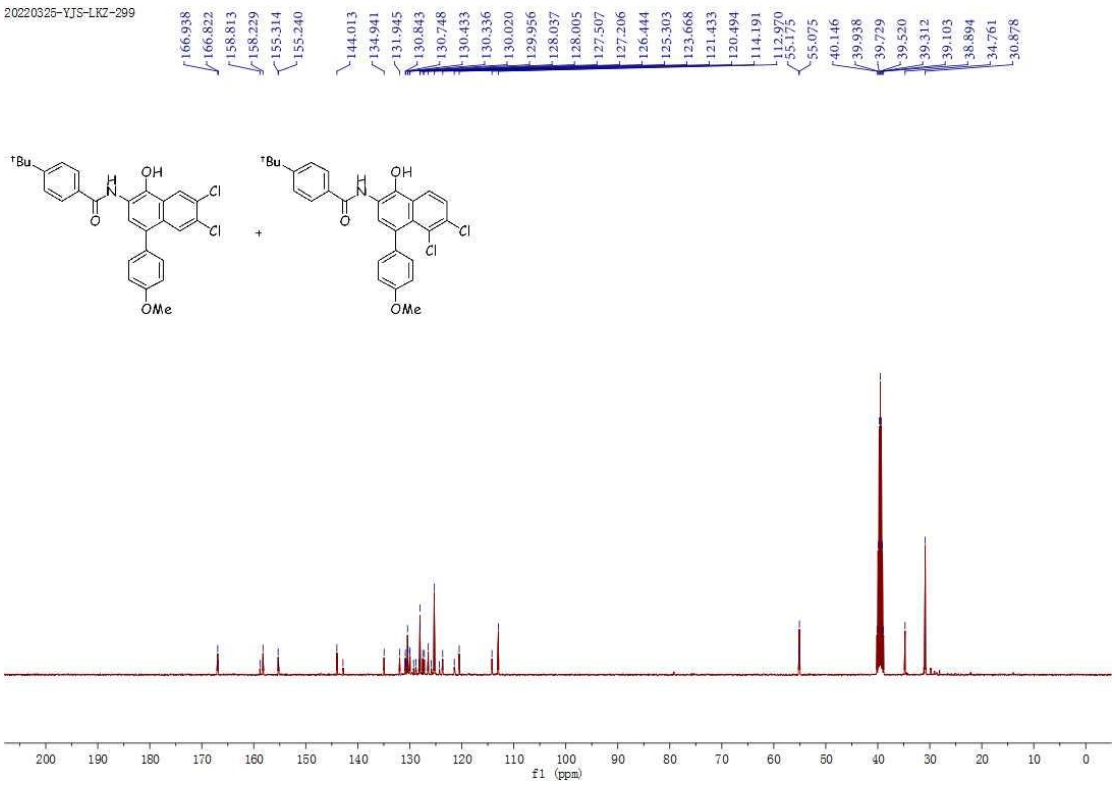
^{1}H – NMR spectrum of compound – **4x** (400 MHz, DMSO-d_6)



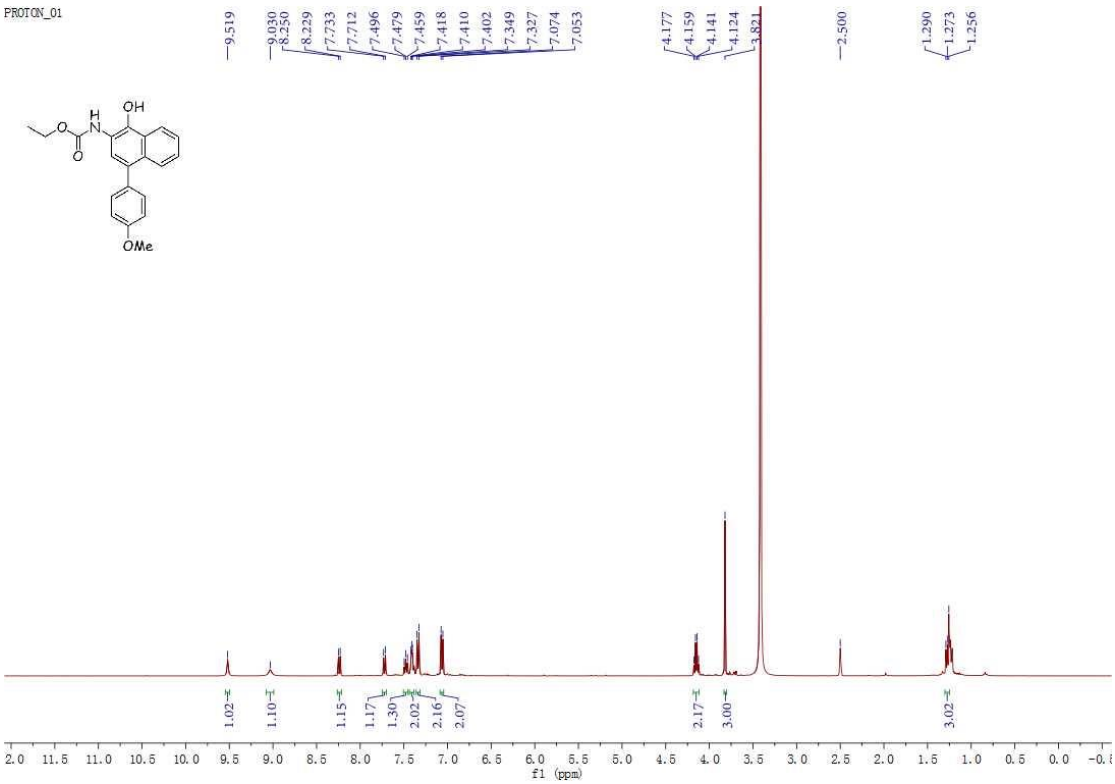
^{13}C – NMR spectrum of compound – **4x** (101 MHz, DMSO-d_6)



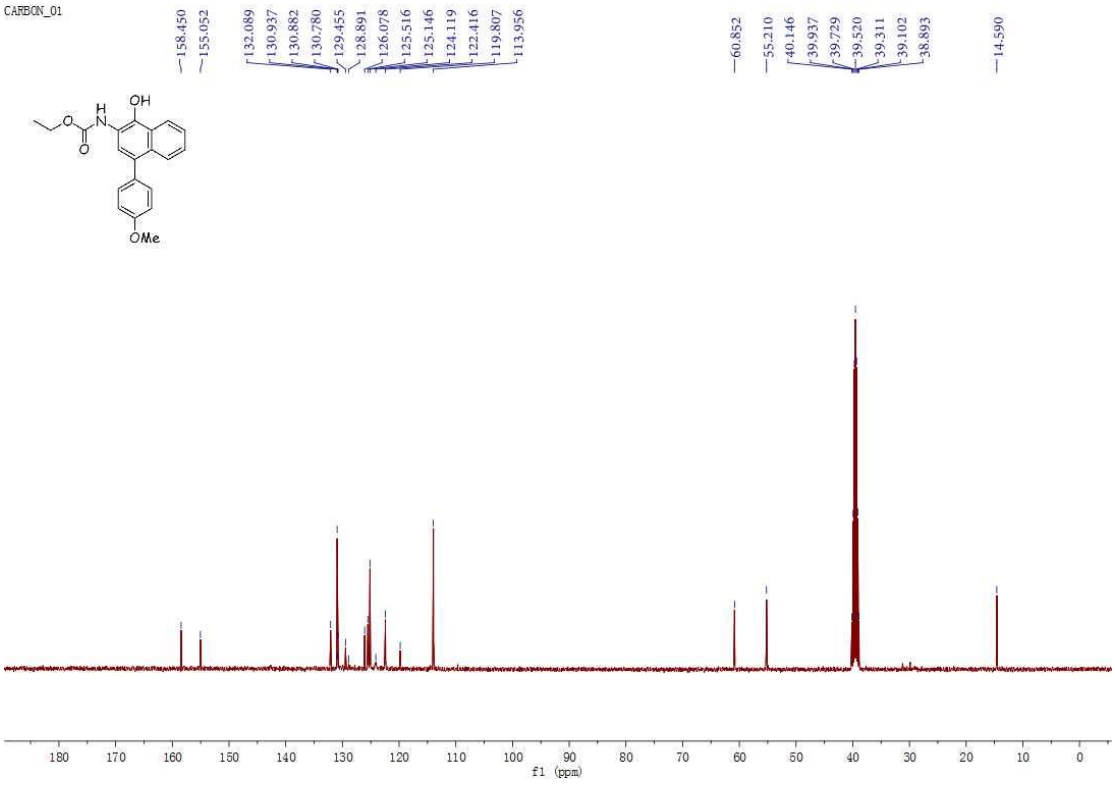
^{1}H – NMR spectrum of compound – **4y** (400 MHz, DMSO-d_6)



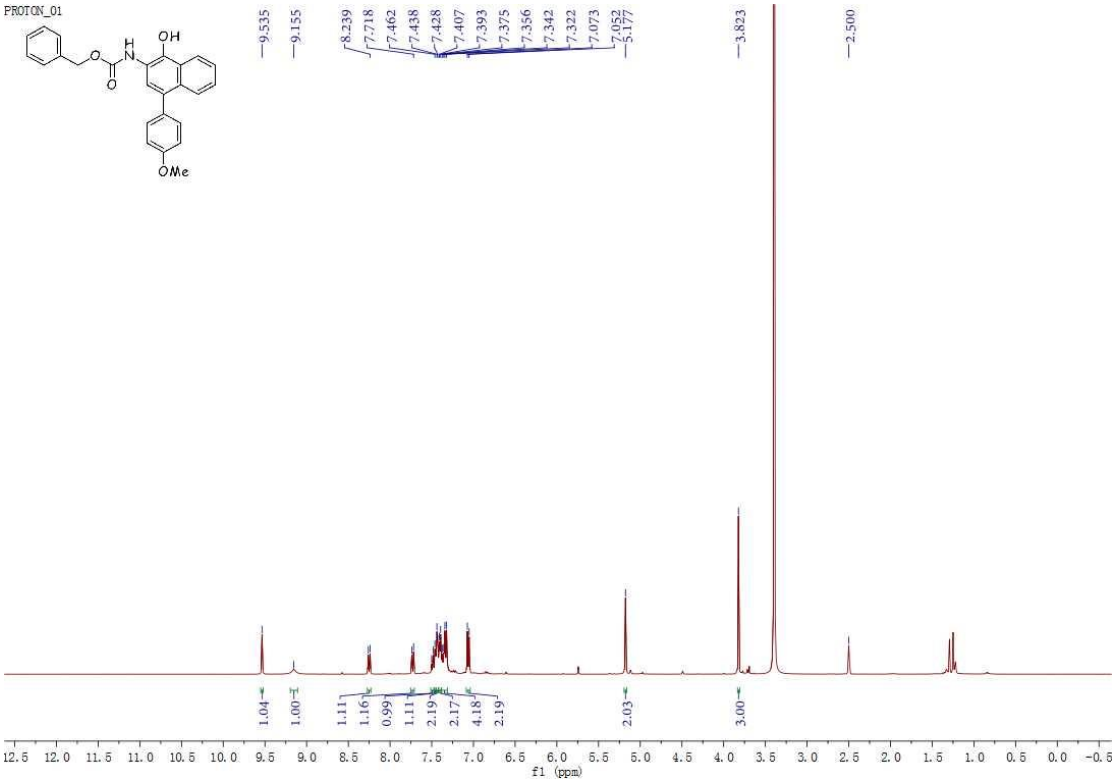
^{13}C – NMR spectrum of compound – **4y** (101 MHz, DMSO-d_6)



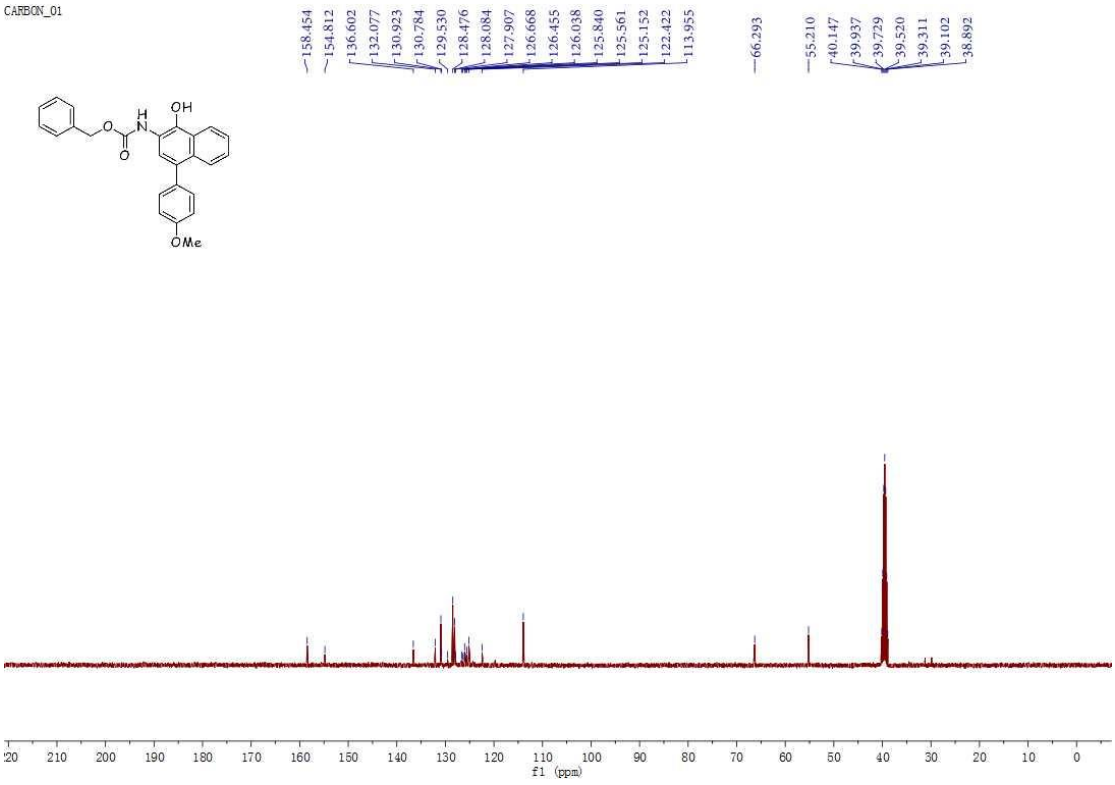
^{1}H – NMR spectrum of compound – **4z** (400 MHz, DMSO-d_6)



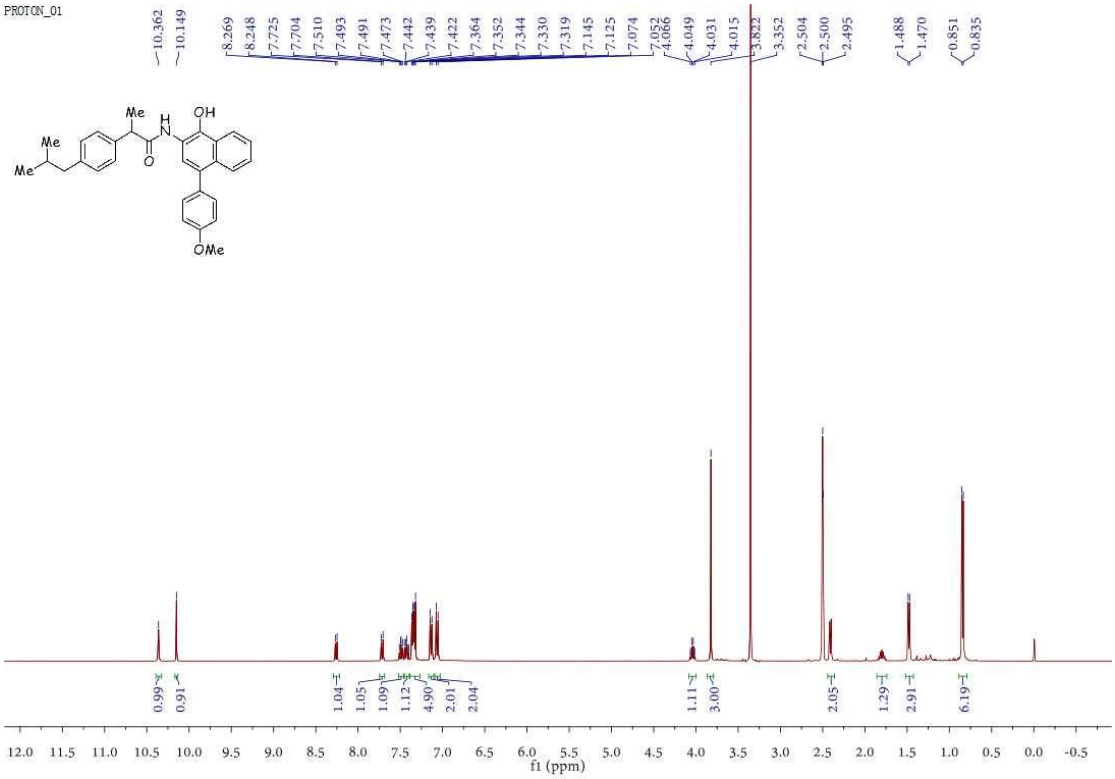
^{13}C – NMR spectrum of compound – **4z** (101 MHz, DMSO-d_6)



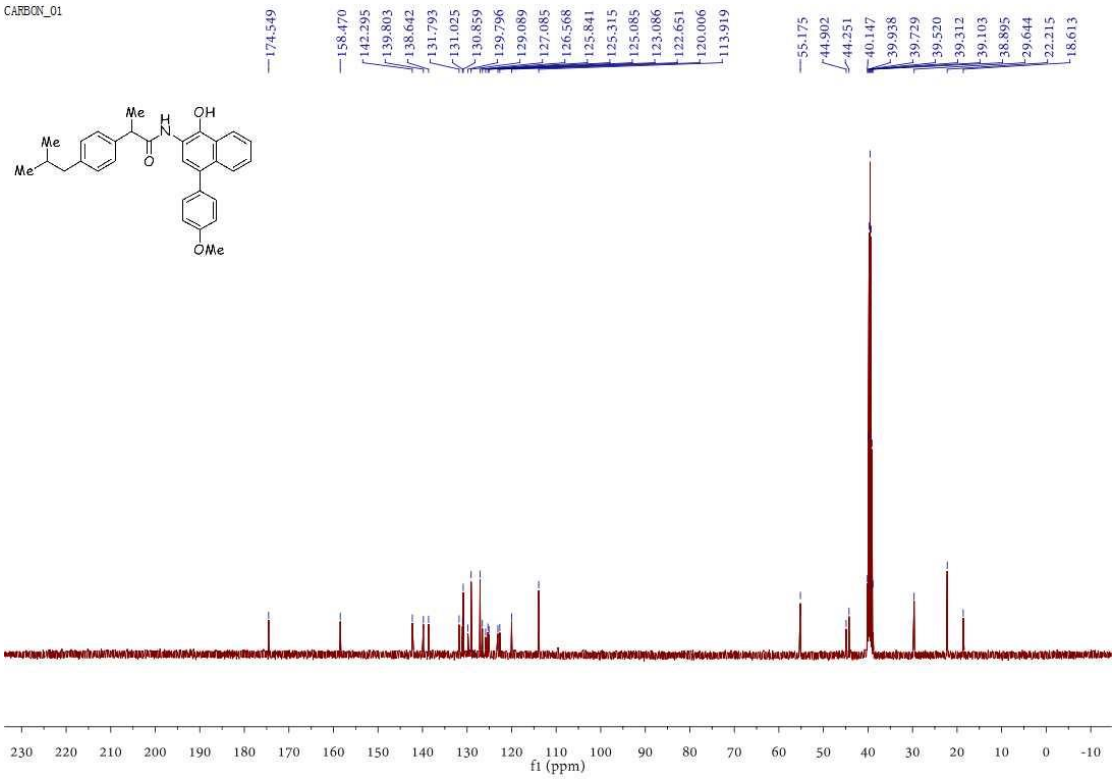
^{1}H – NMR spectrum of compound – **4aa** (400 MHz, DMSO-d_6)



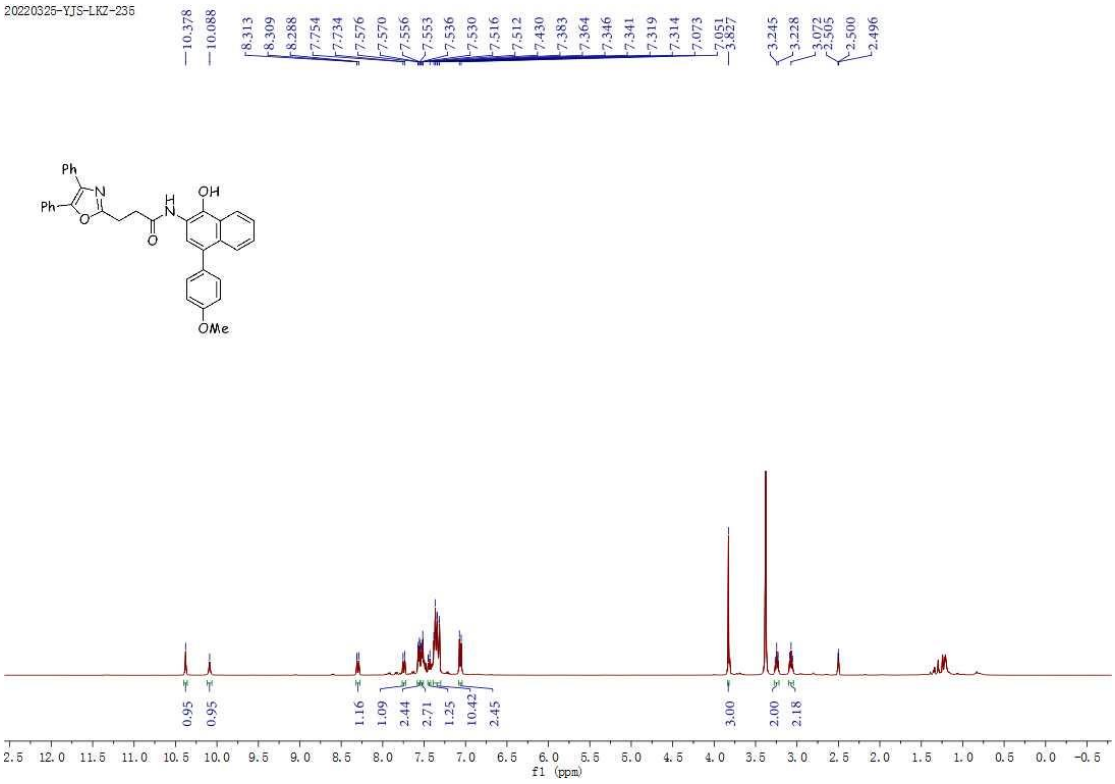
^{13}C – NMR spectrum of compound – **4aa** (101 MHz, DMSO-d_6)



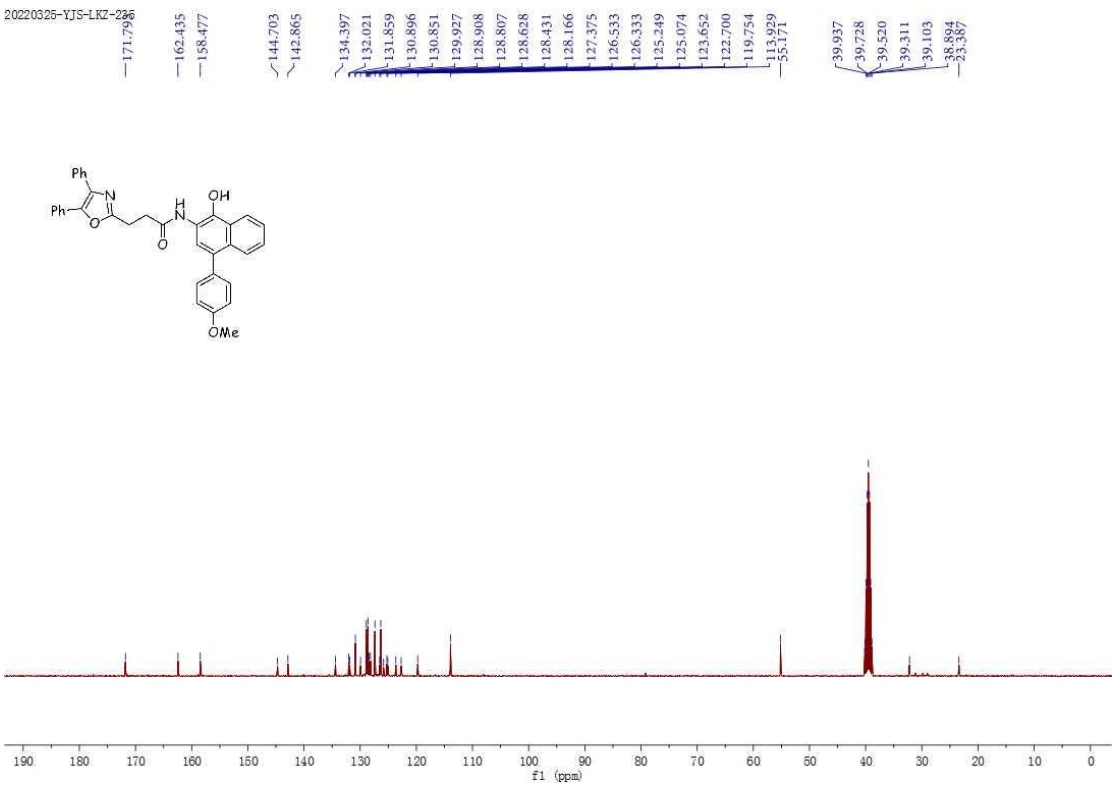
^{1}H – NMR spectrum of compound – **5a** (400 MHz, DMSO-d_6)



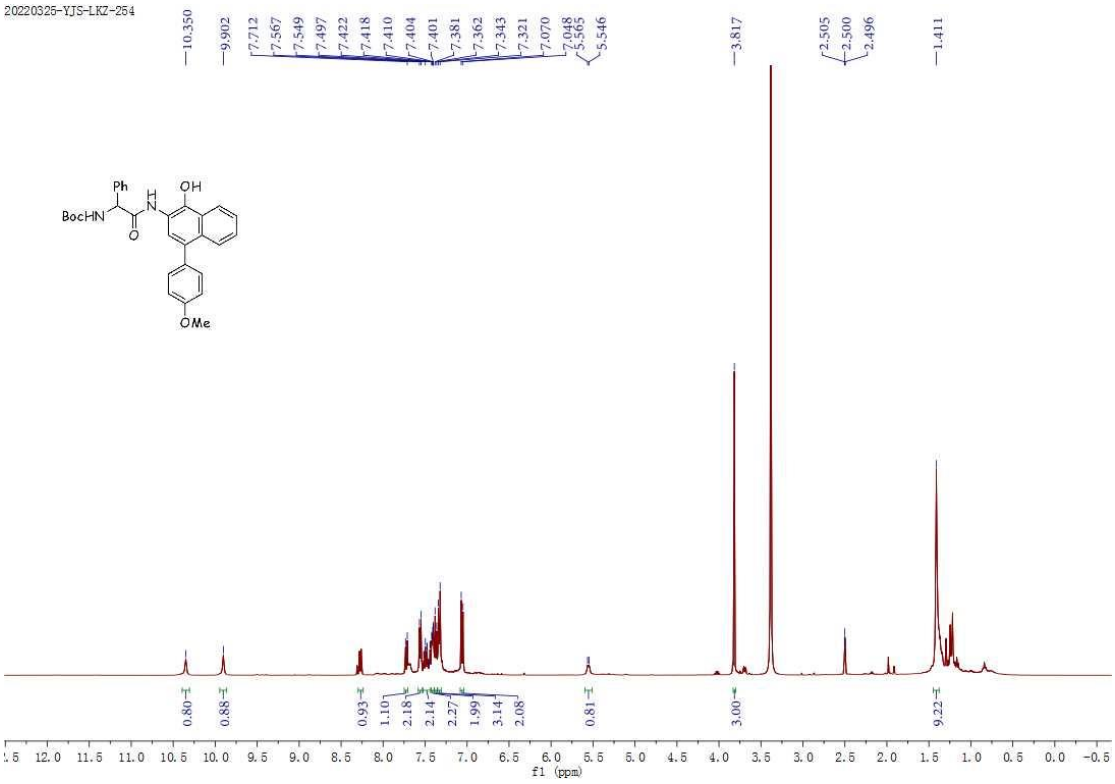
^{13}C – NMR spectrum of compound – **5a** (101 MHz, DMSO-d_6)



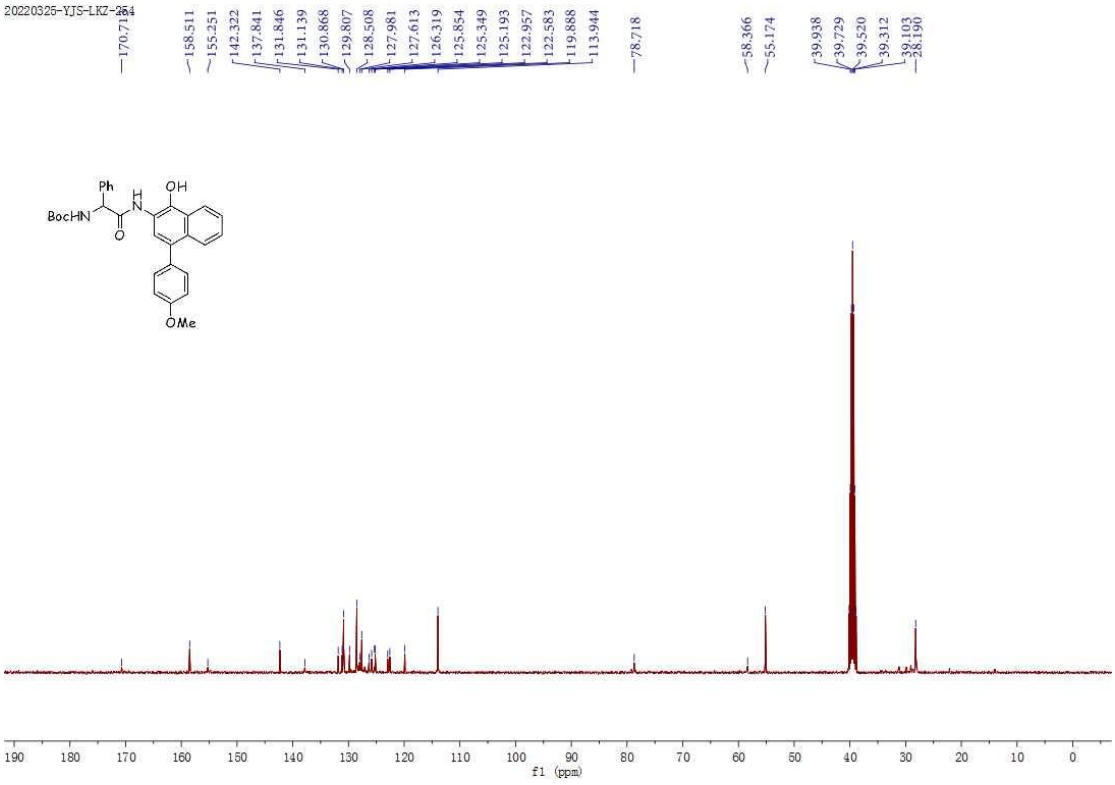
^{1}H – NMR spectrum of compound – **5b** (400 MHz, DMSO-d_6)



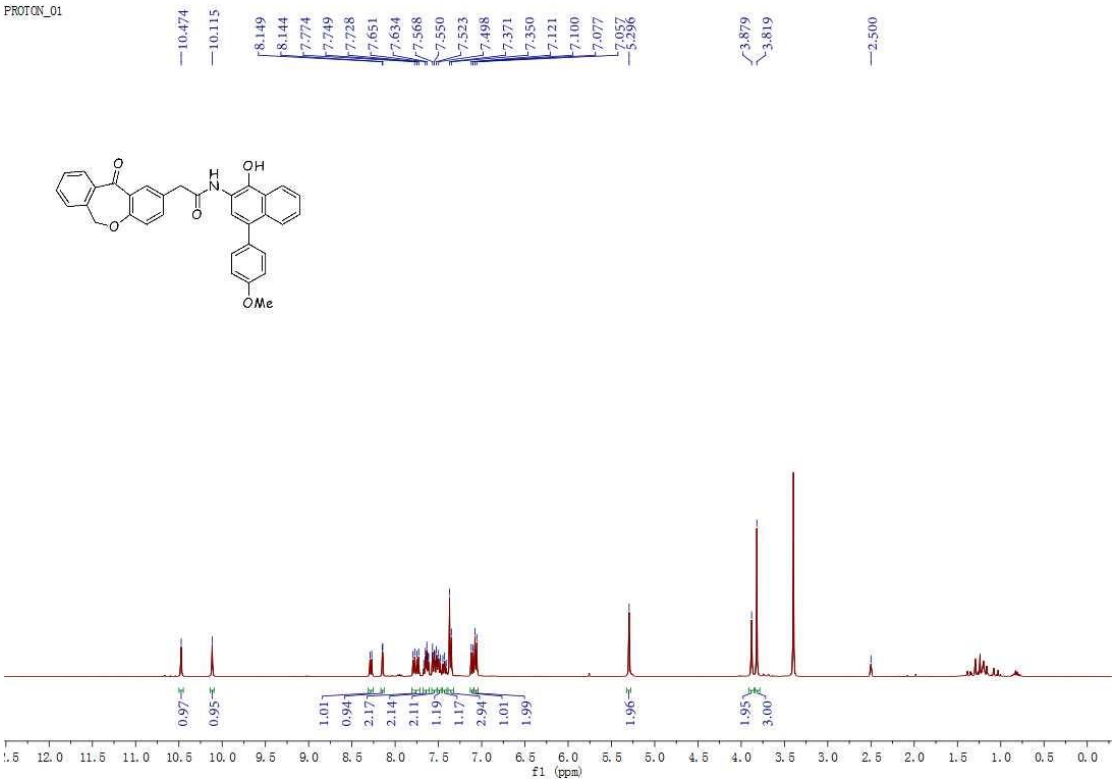
^{13}C – NMR spectrum of compound – **5b** (101 MHz, DMSO-d_6)



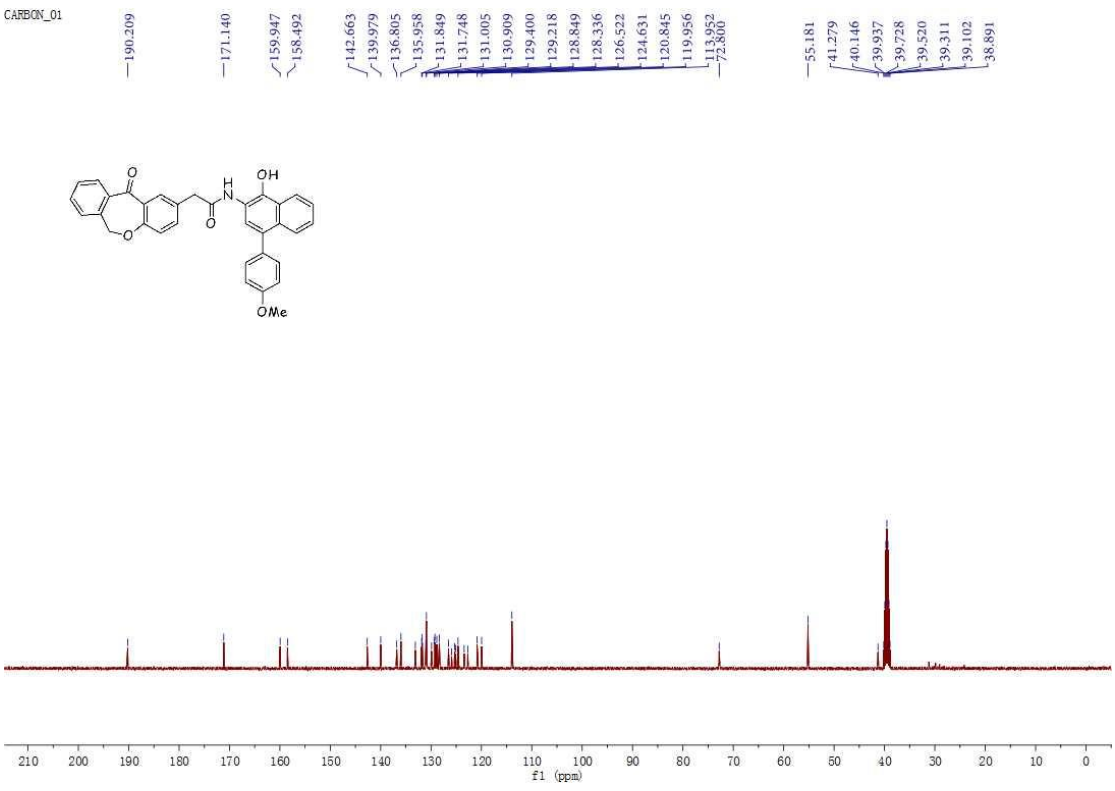
^{1}H – NMR spectrum of compound – **5c** (400 MHz, DMSO-d_6)



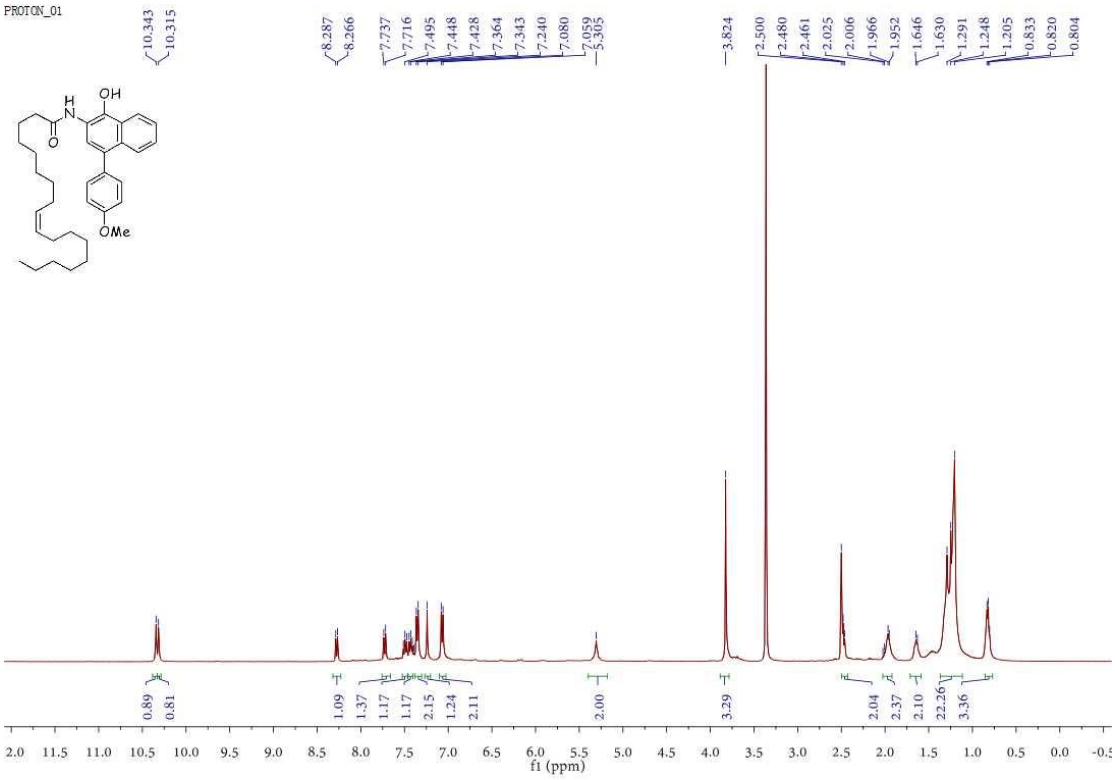
^{13}C – NMR spectrum of compound – **5c** (101 MHz, DMSO-d_6)



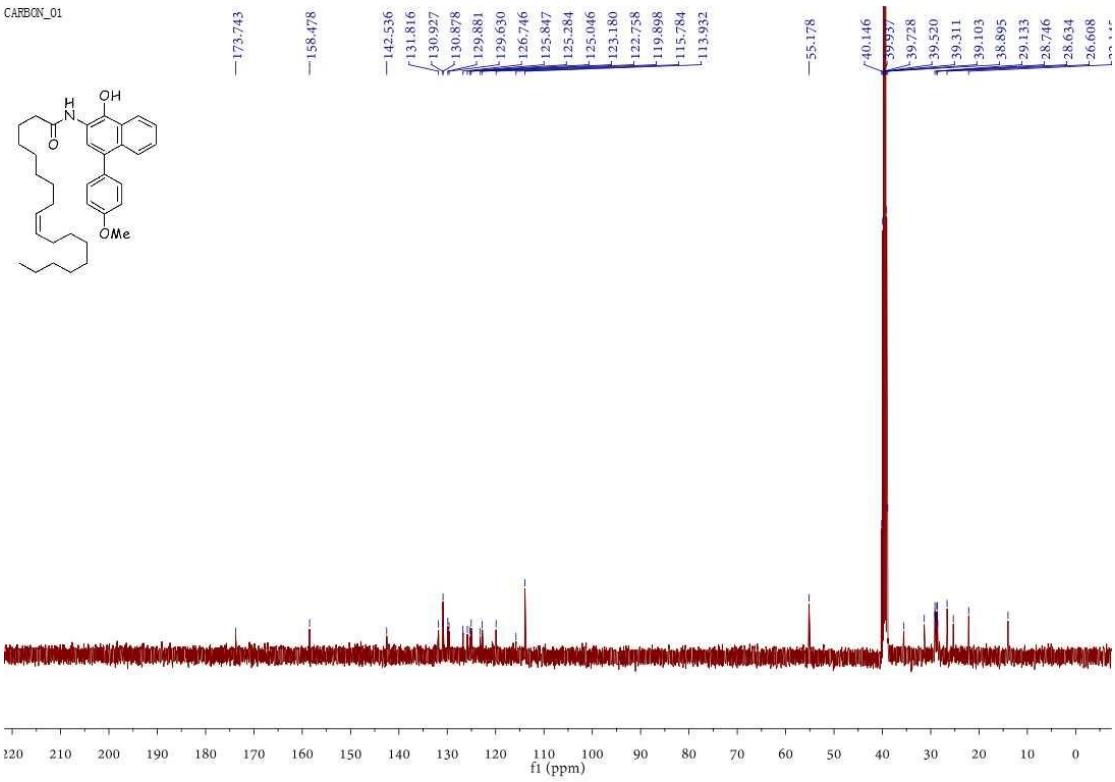
^{1}H – NMR spectrum of compound – **5d** (400 MHz, DMSO-d_6)



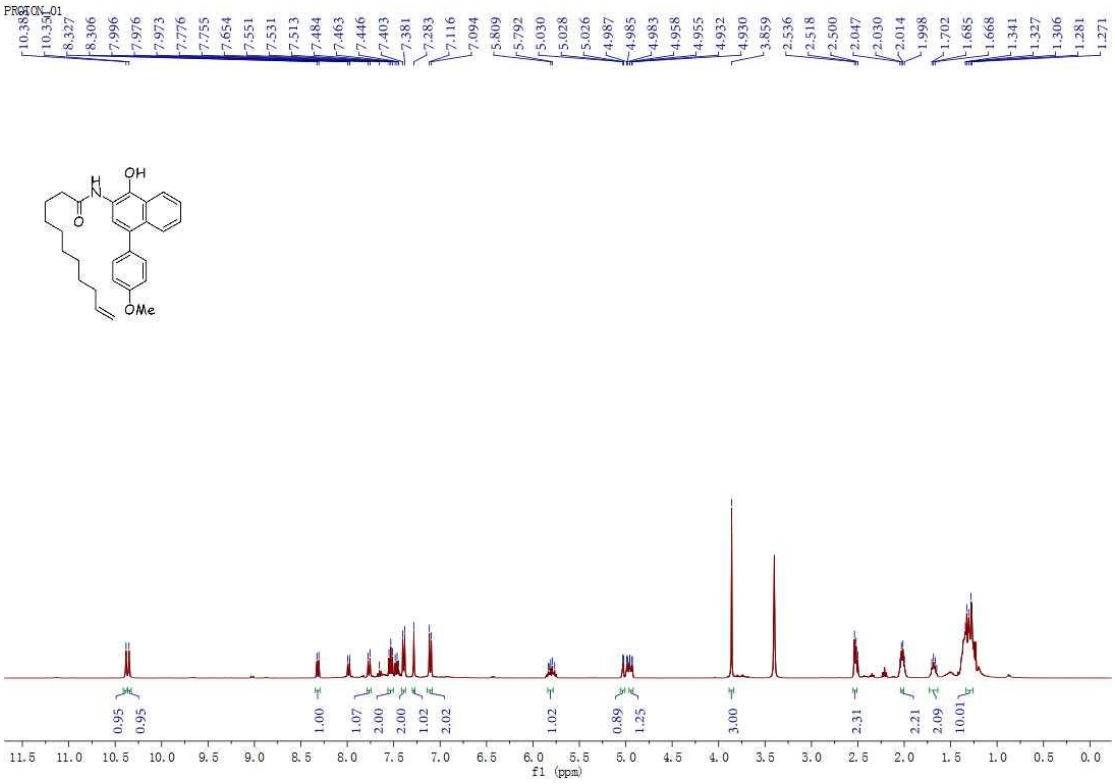
^{13}C – NMR spectrum of compound – **5d** (101 MHz, DMSO-d_6)



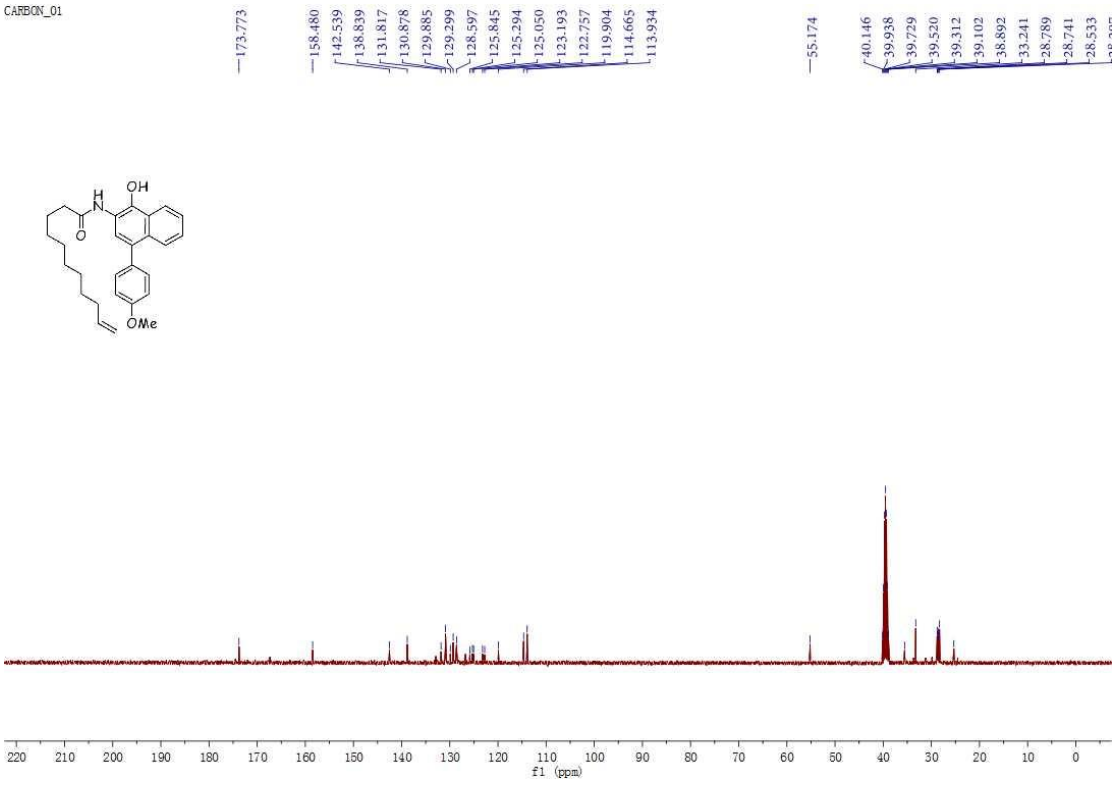
^{1}H – NMR spectrum of compound – **5e** (400 MHz, DMSO-d_6)



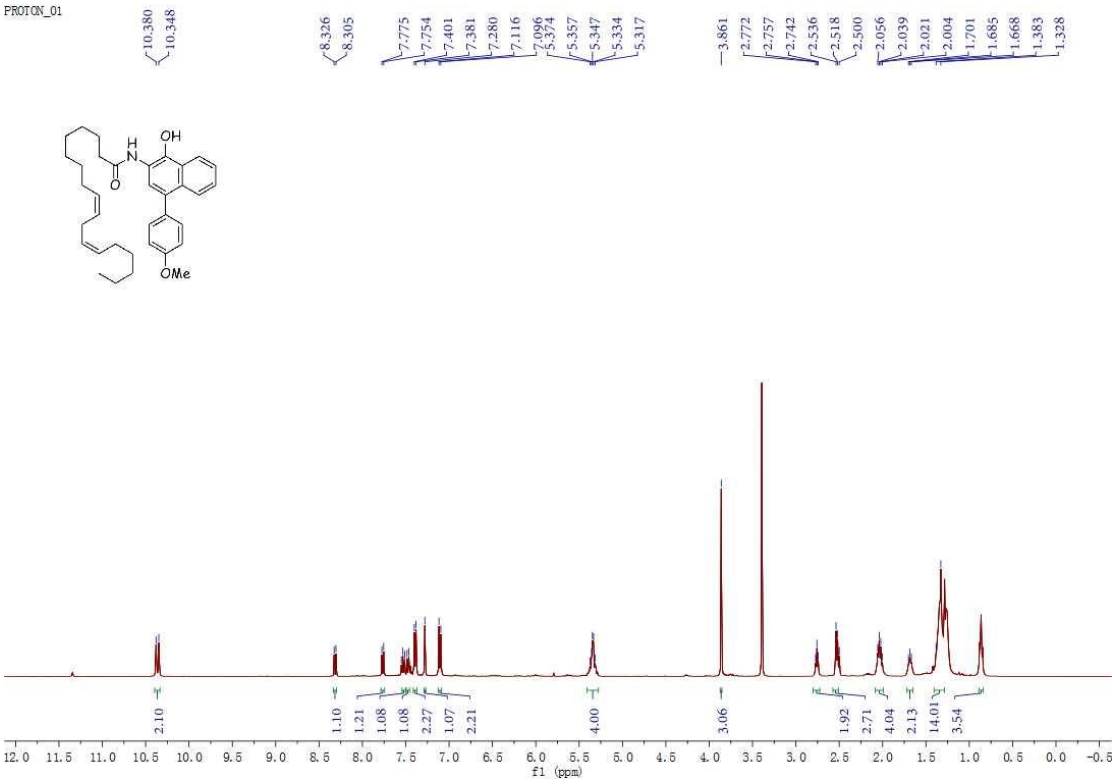
^{13}C – NMR spectrum of compound – **5e** (101 MHz, DMSO-d_6)



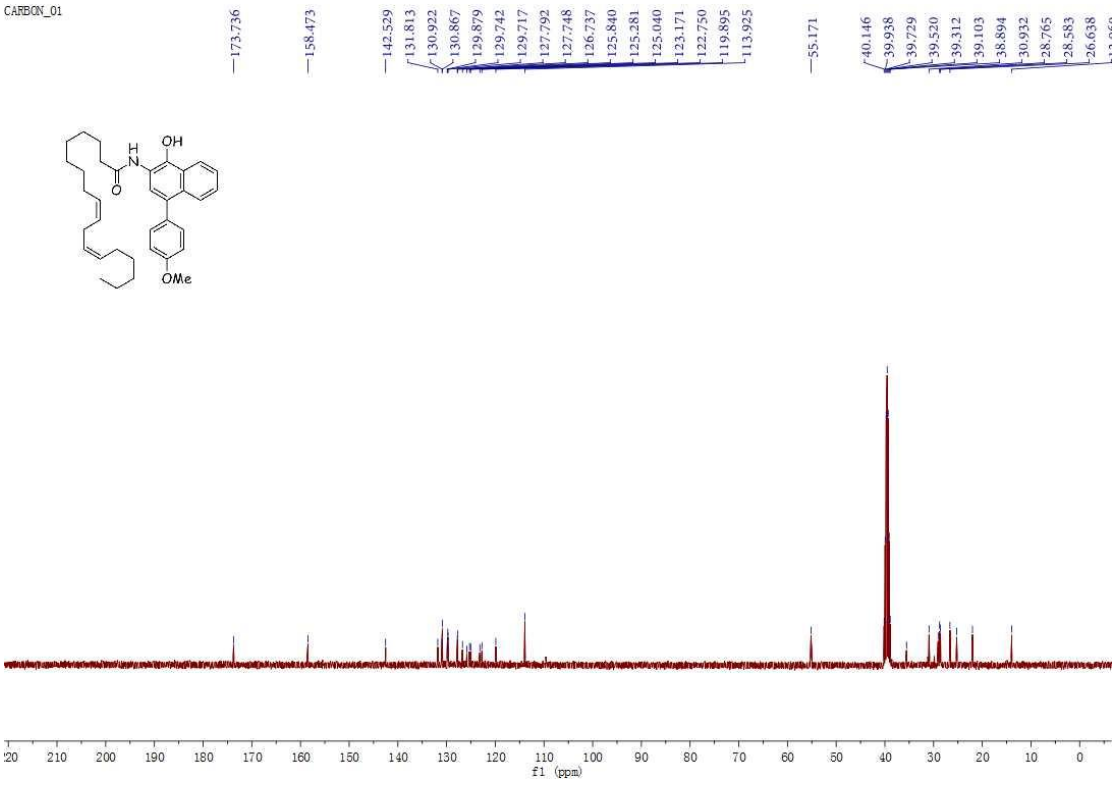
^{1}H – NMR spectrum of compound – **5f** (400 MHz, DMSO-d_6)



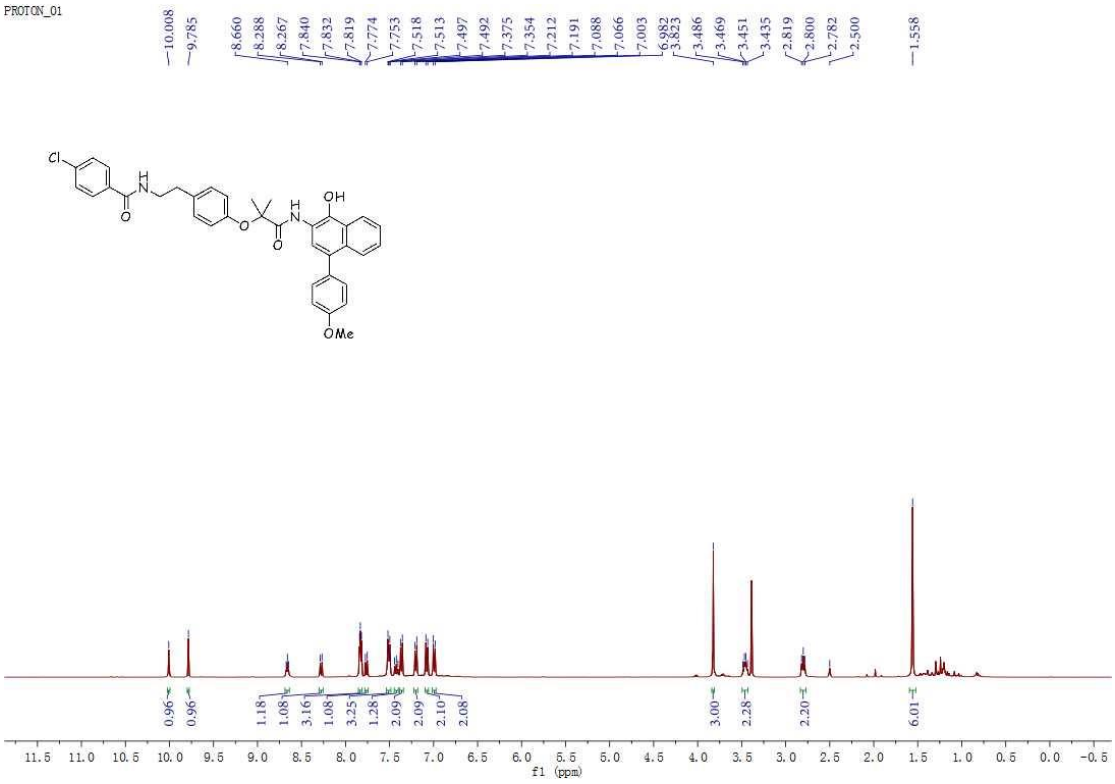
^{13}C – NMR spectrum of compound – **5f** (101 MHz, DMSO-d_6)



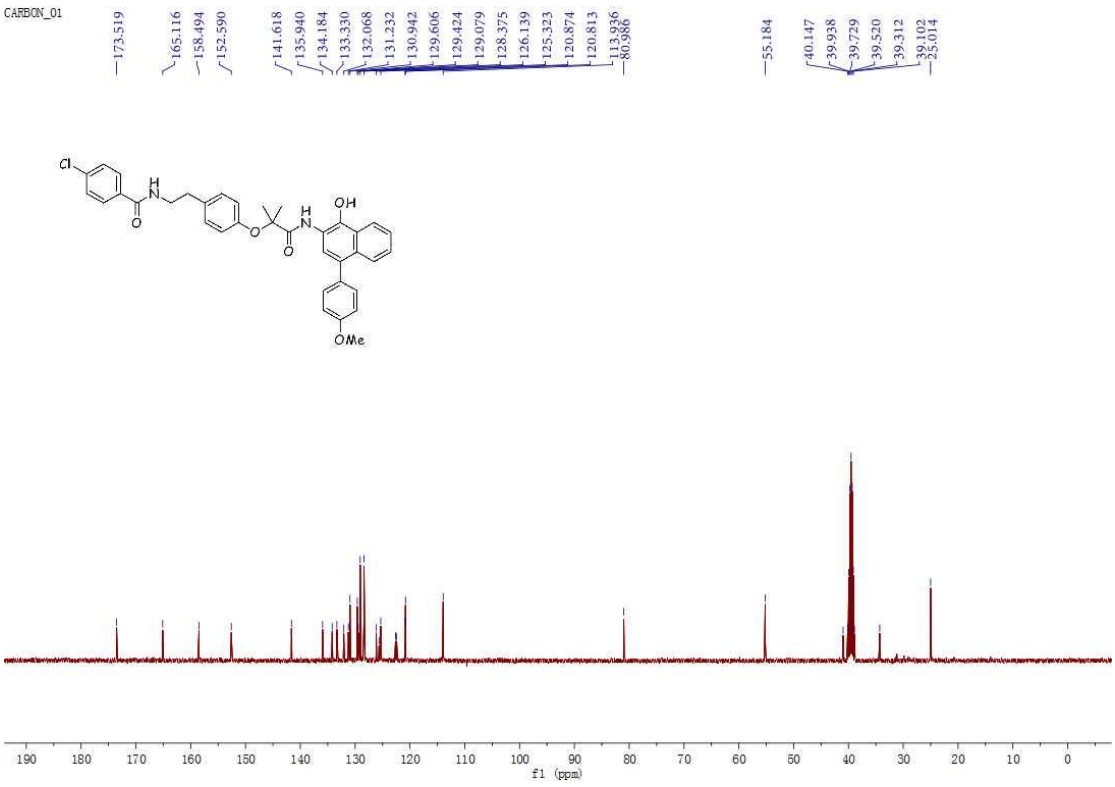
^{1}H – NMR spectrum of compound – **5g** (400 MHz, DMSO-d_6)



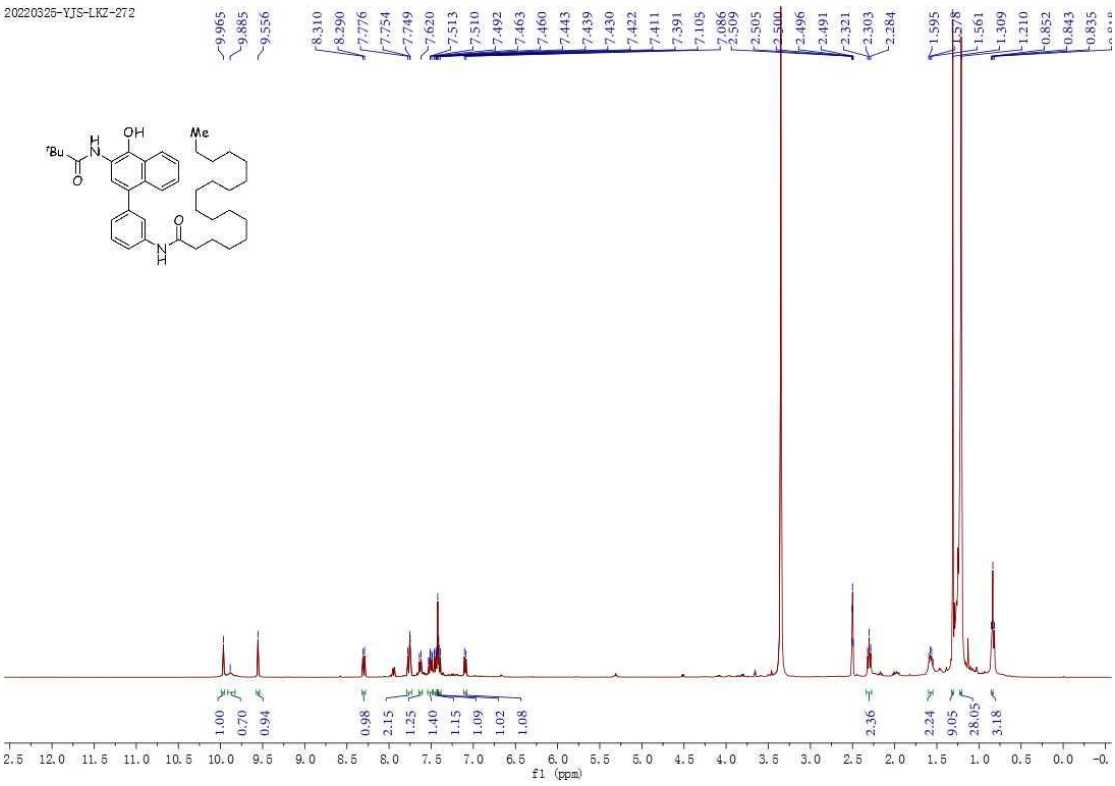
^{13}C – NMR spectrum of compound – **5g** (101 MHz, DMSO-d_6)



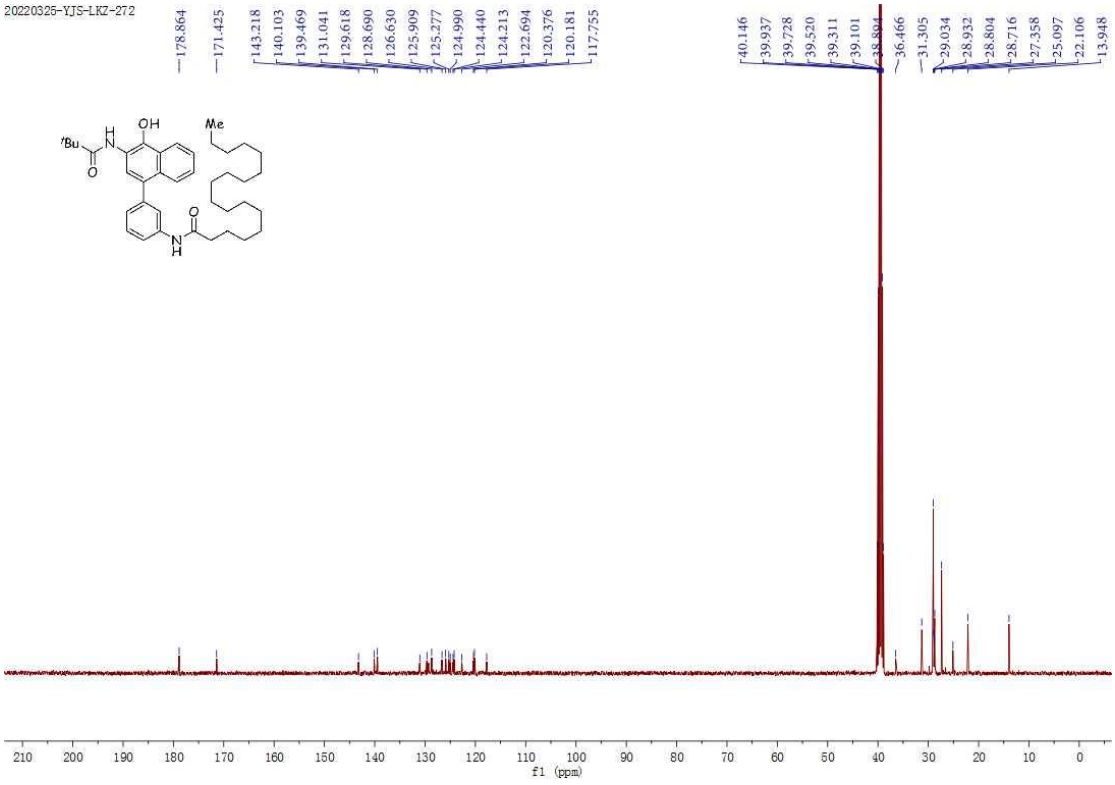
^{1}H – NMR spectrum of compound – **5h** (400 MHz, DMSO-d_6)



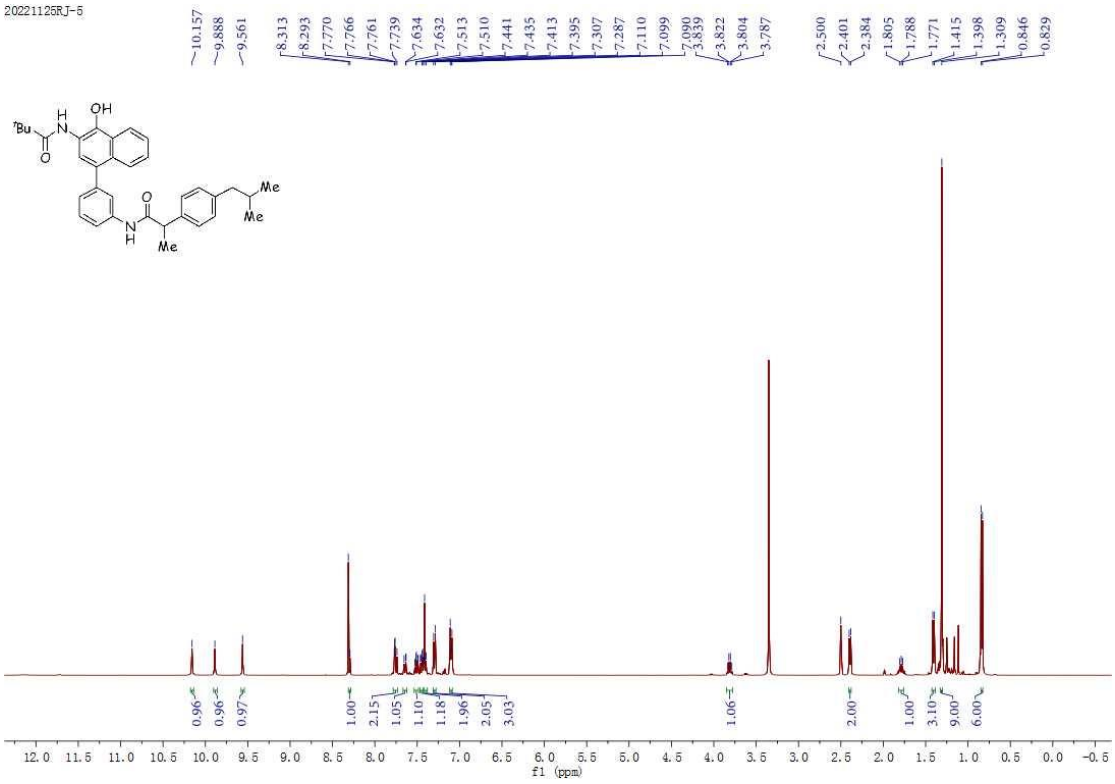
^{13}C – NMR spectrum of compound – **5h** (101 MHz, DMSO-d_6)



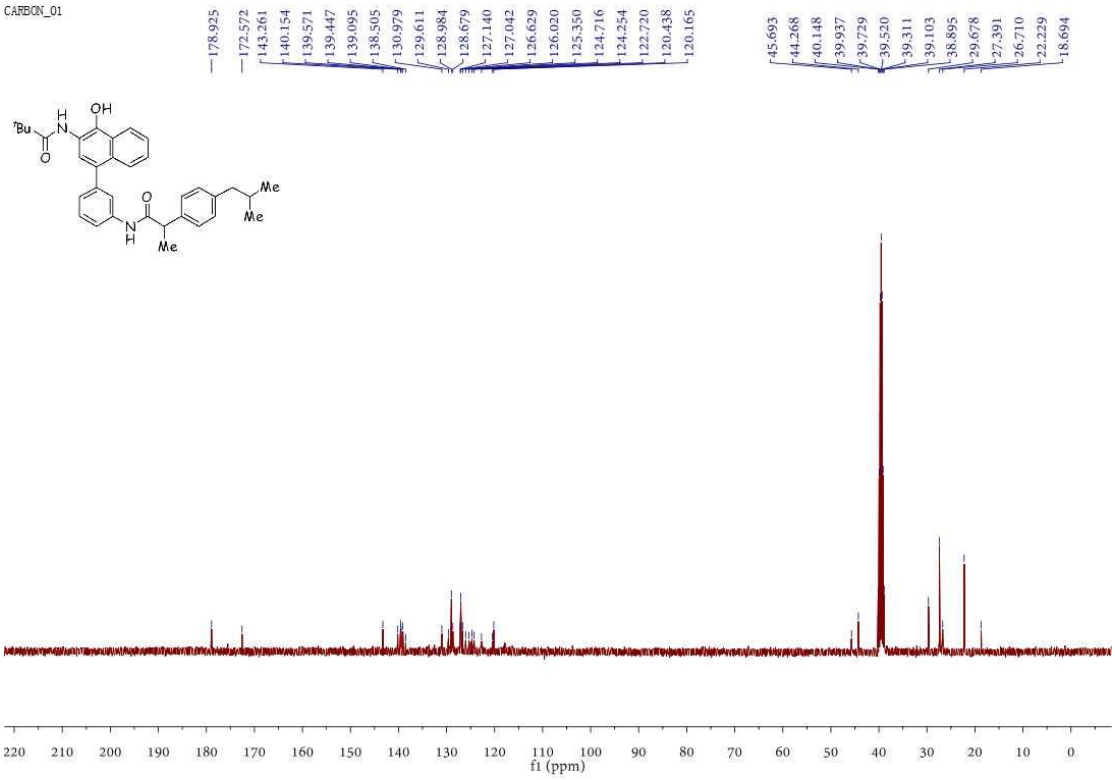
^{1}H – NMR spectrum of compound – **5i** (400 MHz, DMSO-d_6)



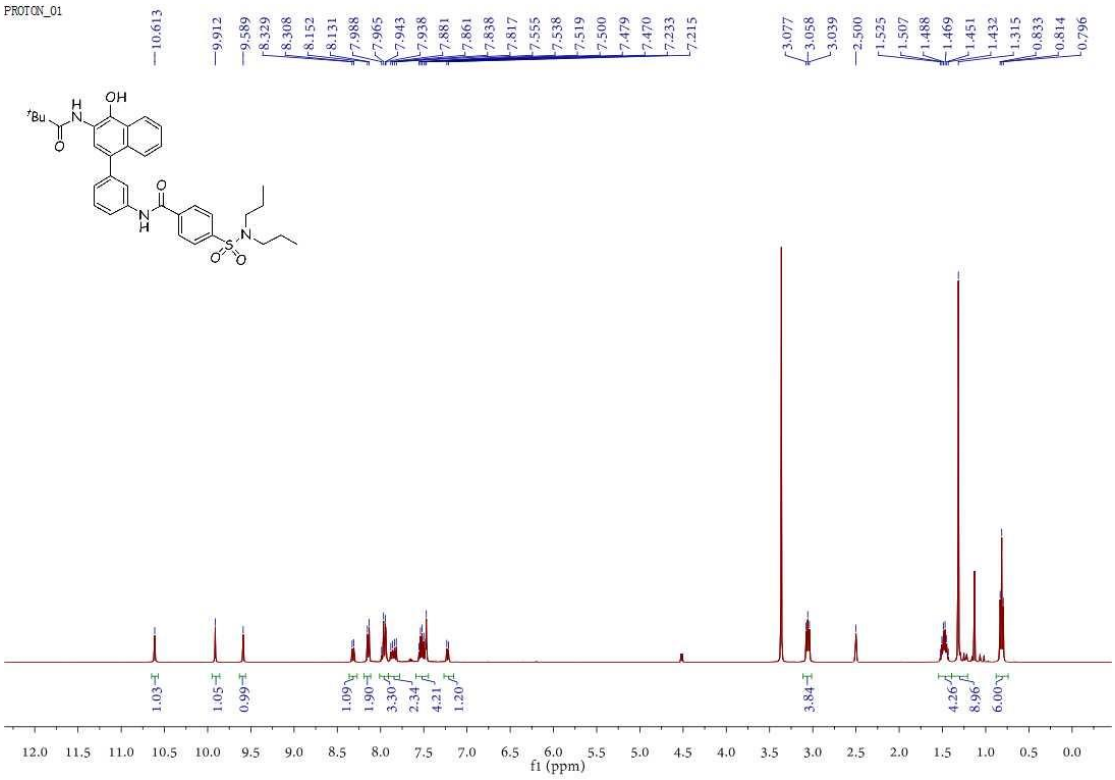
^{13}C – NMR spectrum of compound – **5i** (101 MHz, DMSO-d_6)



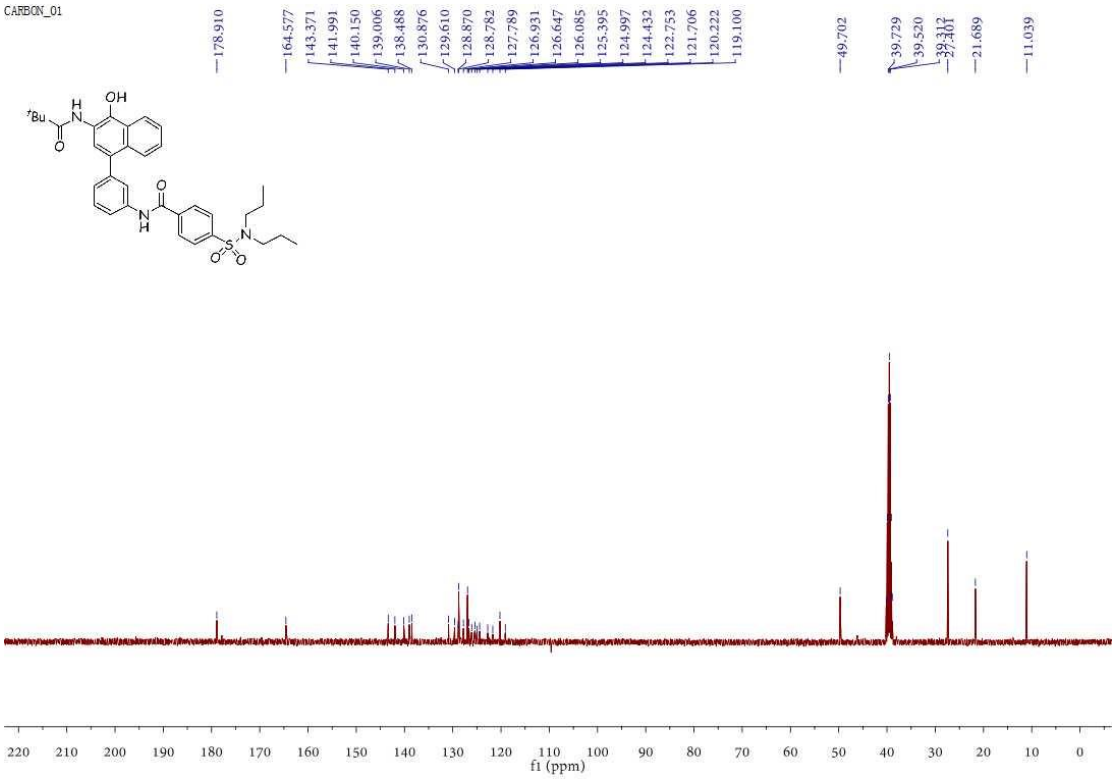
^{1}H – NMR spectrum of compound – **5j** (400 MHz, DMSO-d_6)



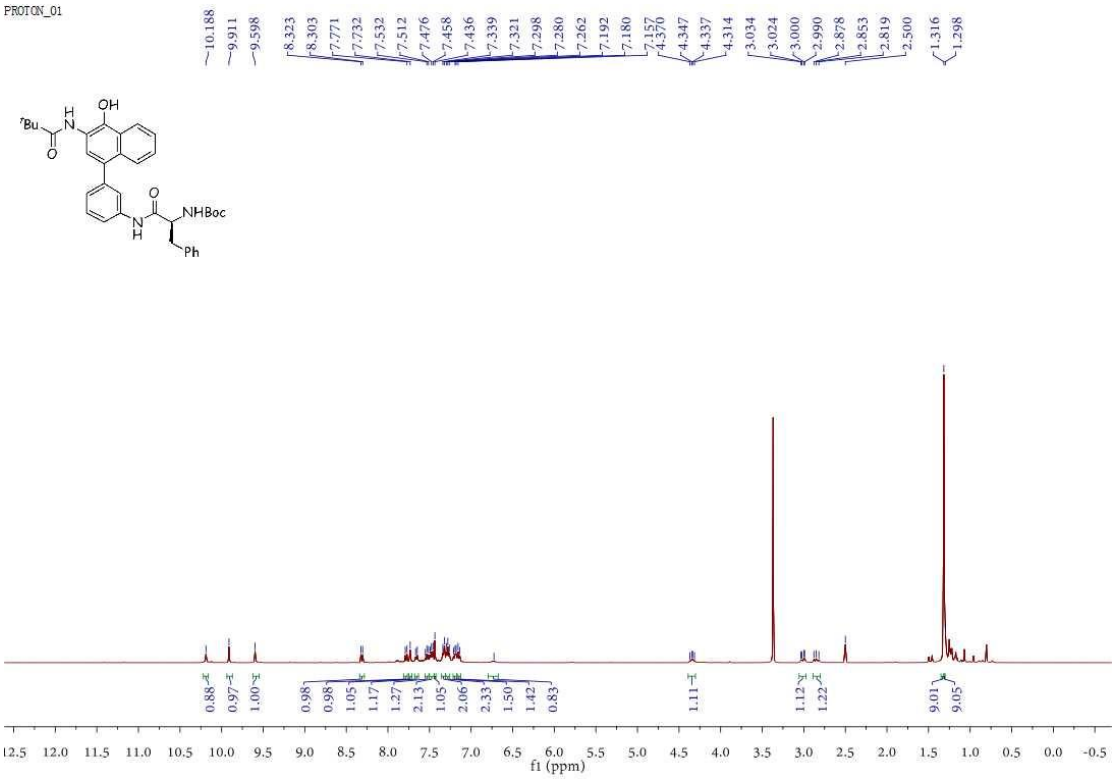
^{13}C – NMR spectrum of compound – **5j** (101 MHz, DMSO-d_6)



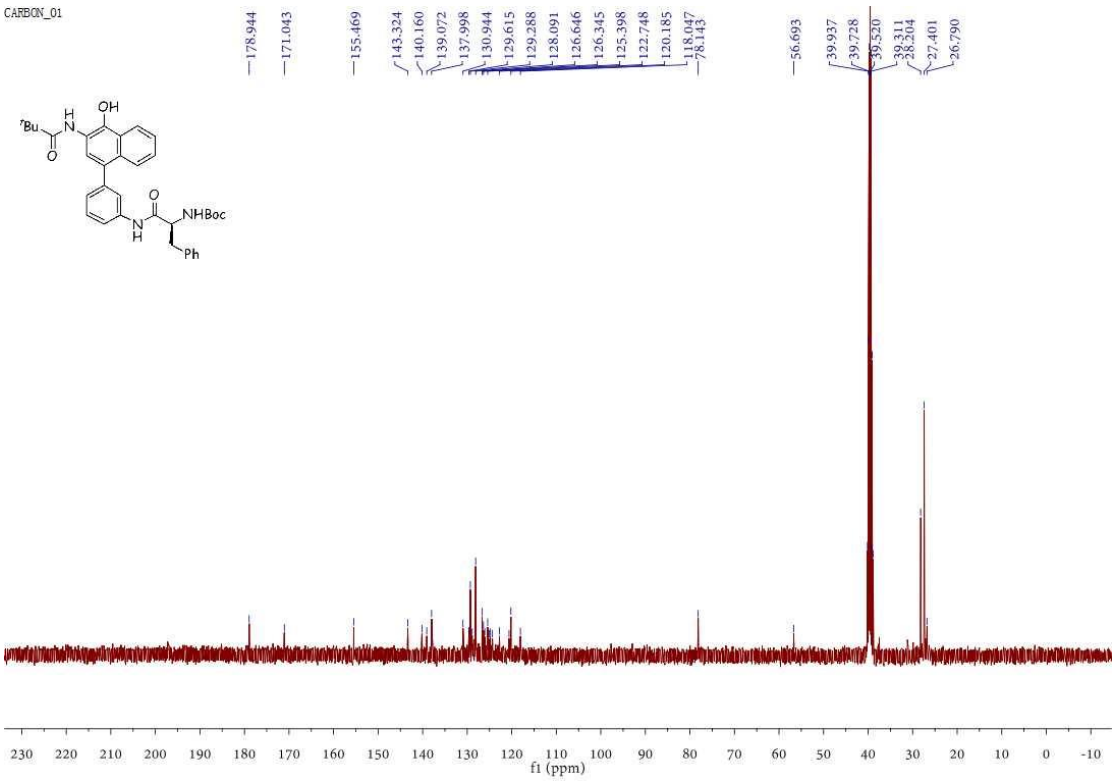
^{1}H – NMR spectrum of compound – **5k** (400 MHz, DMSO-d_6)



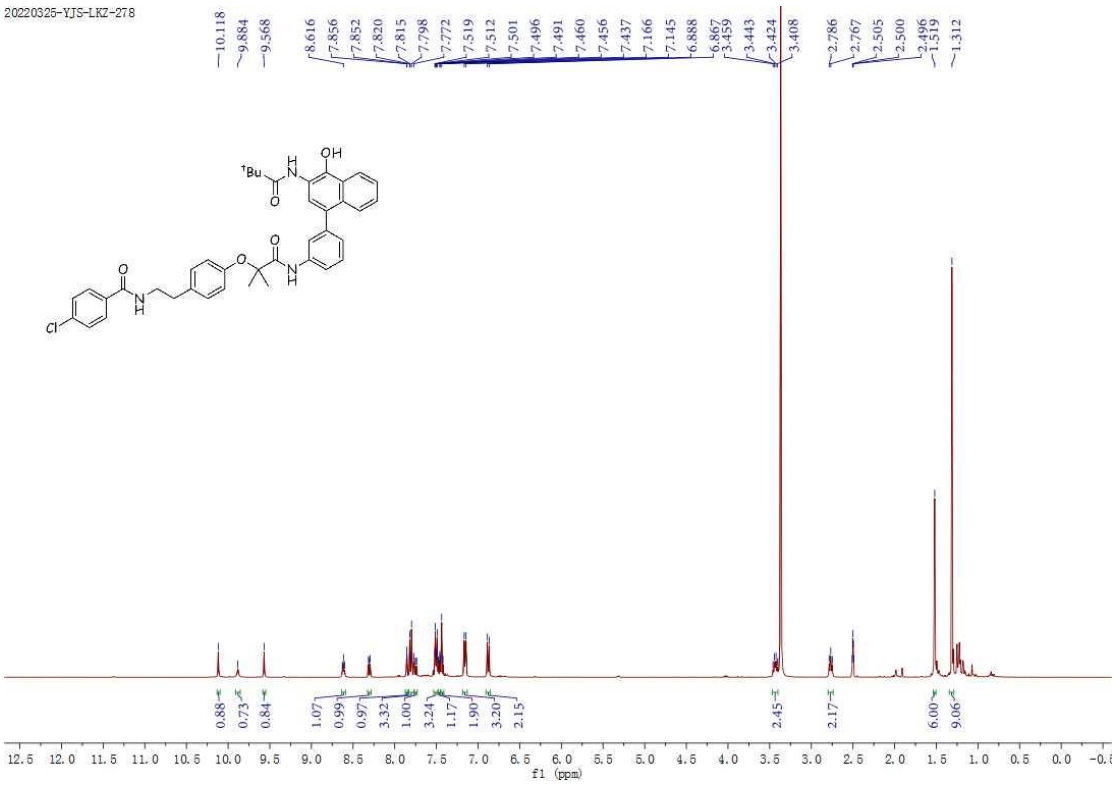
^{13}C – NMR spectrum of compound – **5k** (101 MHz, DMSO-d_6)



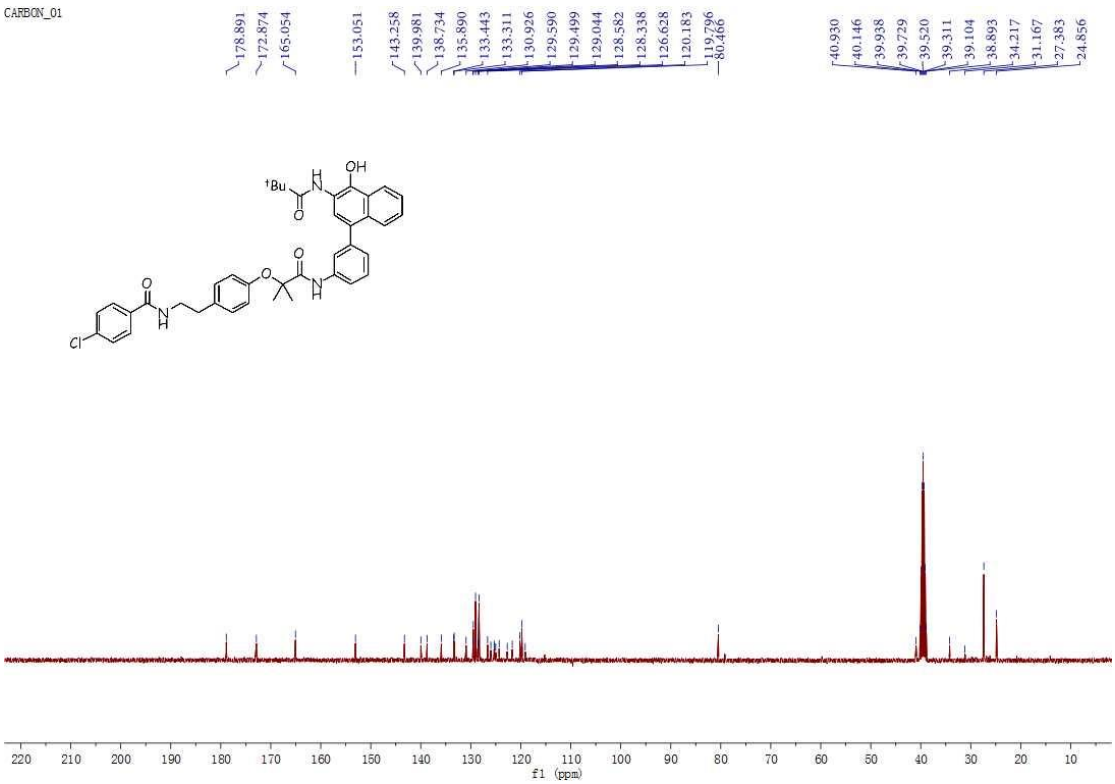
^{1}H – NMR spectrum of compound – **5l** (400 MHz, DMSO-d_6)



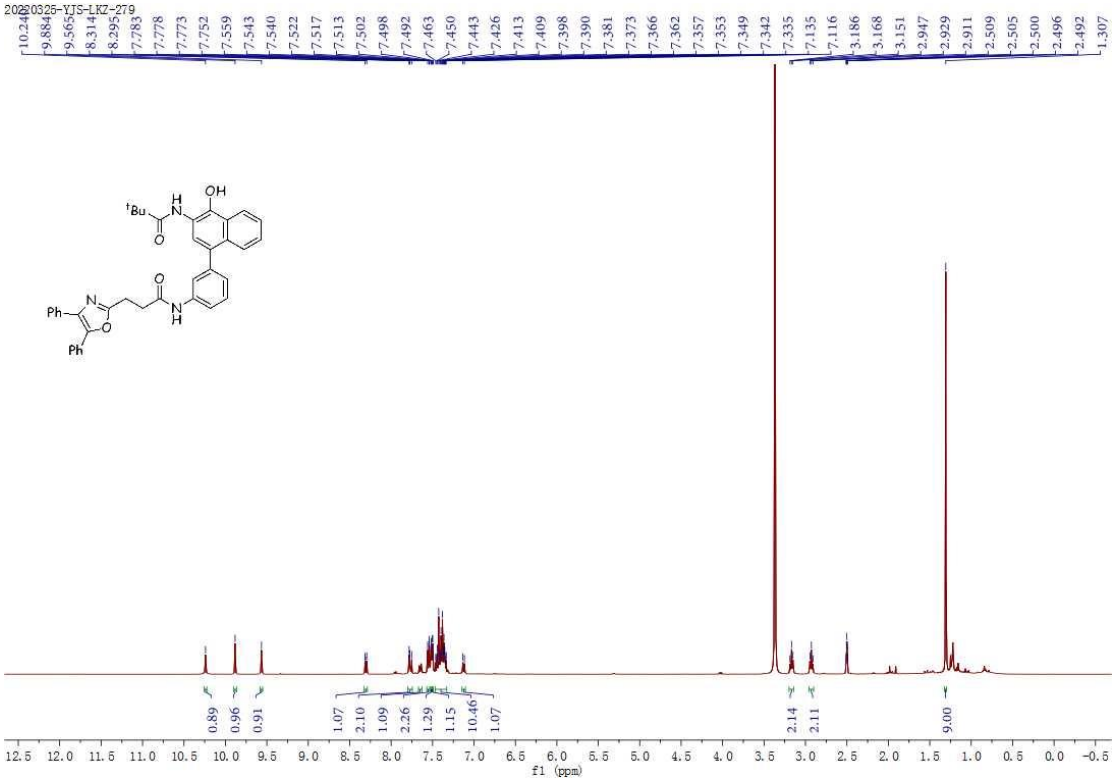
^{13}C – NMR spectrum of compound – **5l** (101 MHz, DMSO-d_6)



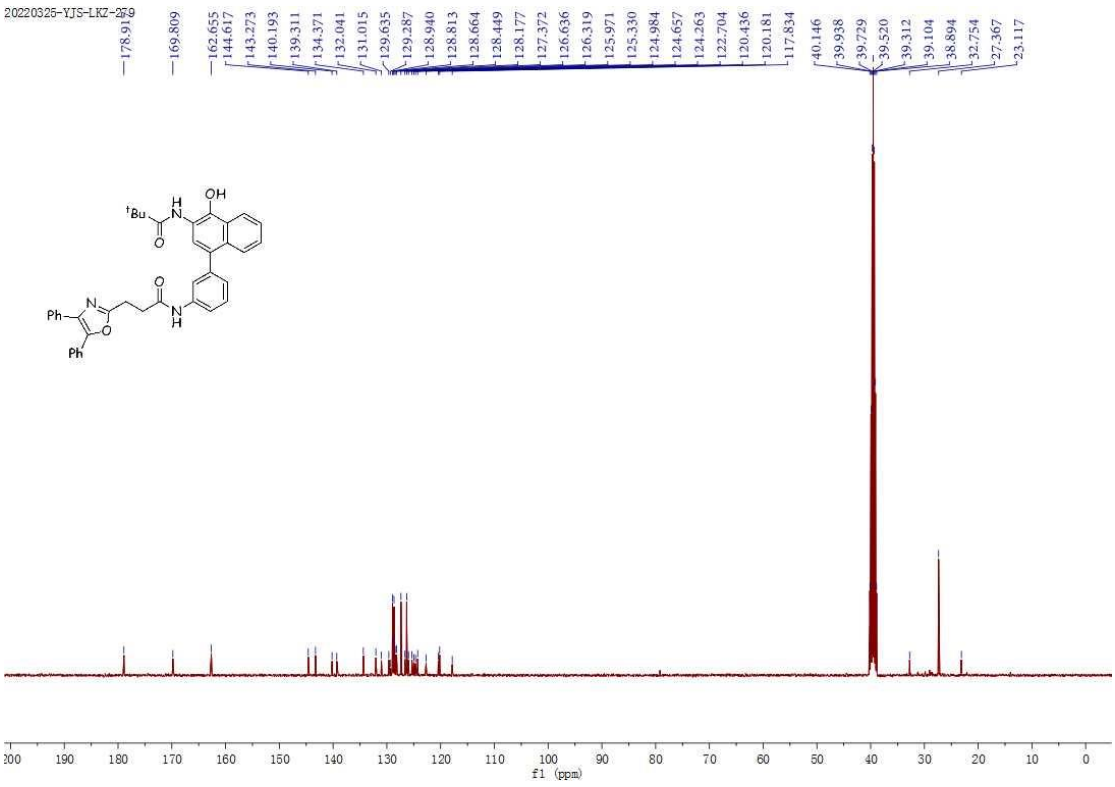
^{1}H – NMR spectrum of compound – **5m** (400 MHz, DMSO-d_6)



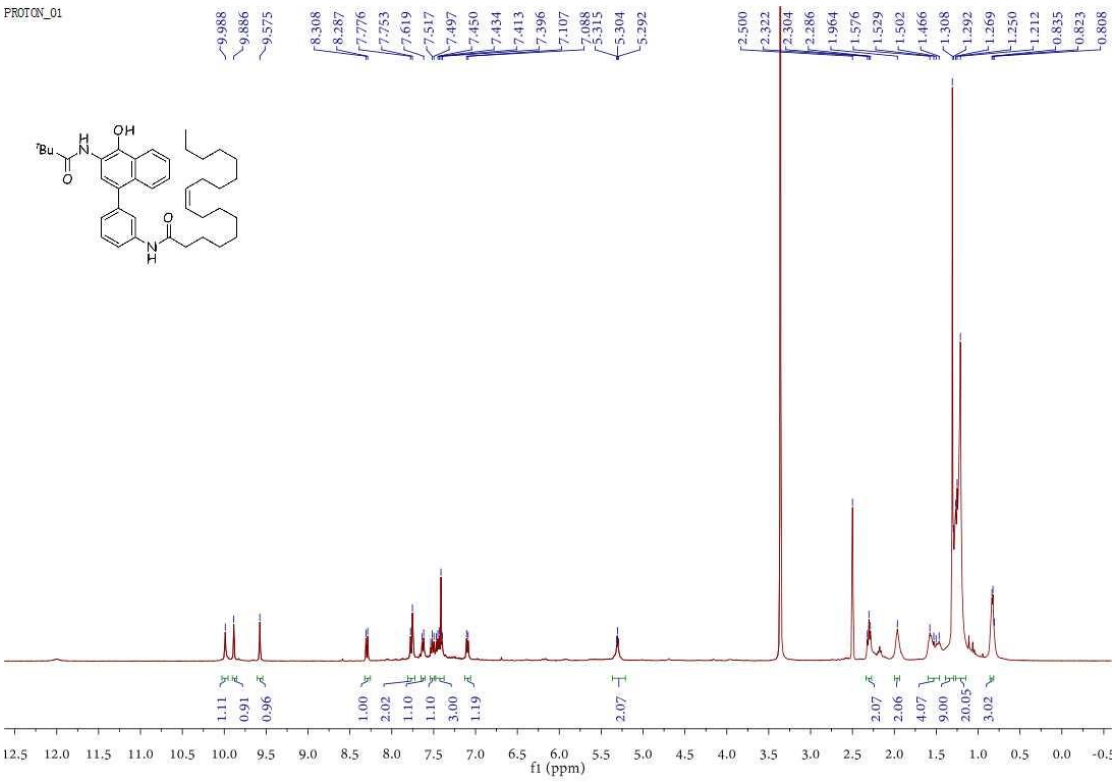
^{13}C – NMR spectrum of compound – **5m** (101 MHz, DMSO-d_6)



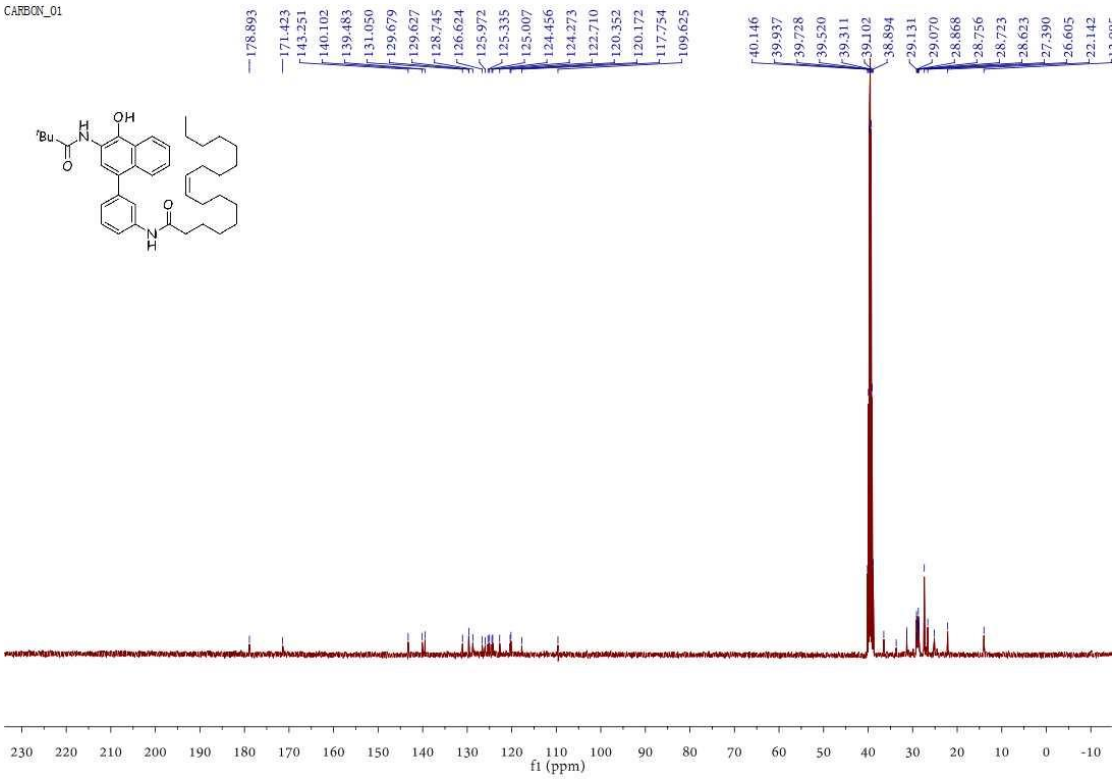
^{1}H – NMR spectrum of compound – **5n** (400 MHz, DMSO-d_6)



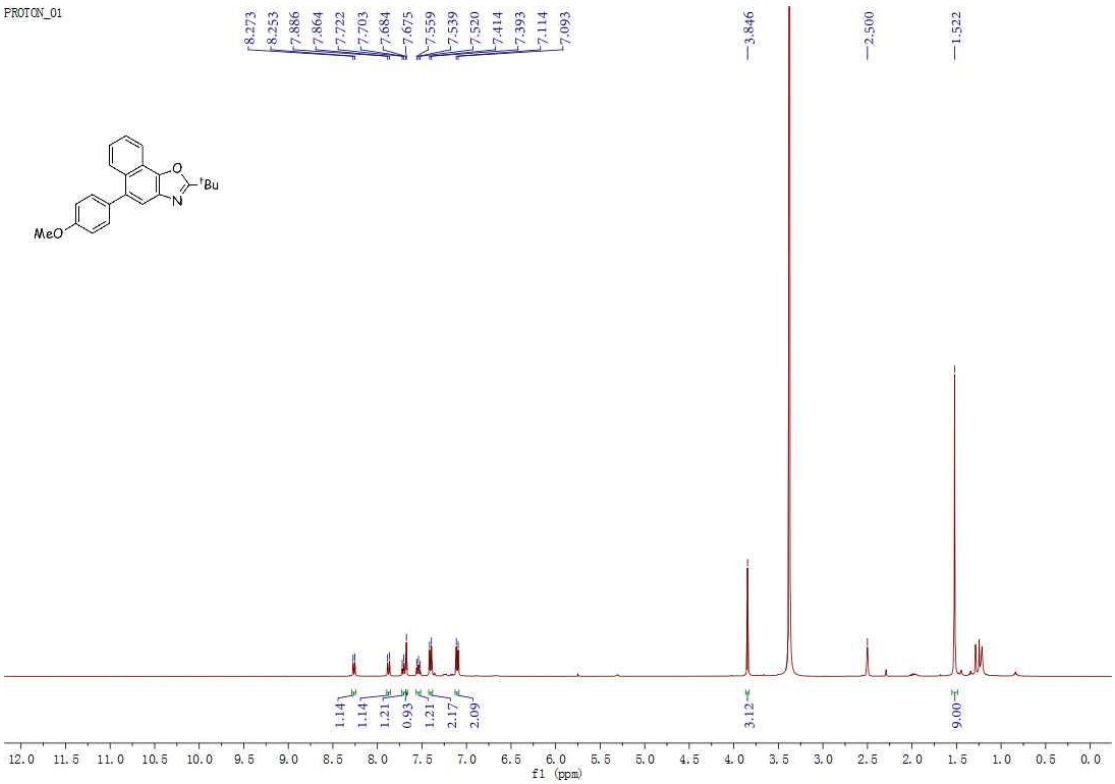
^{13}C – NMR spectrum of compound – **5n** (101 MHz, DMSO-d_6)



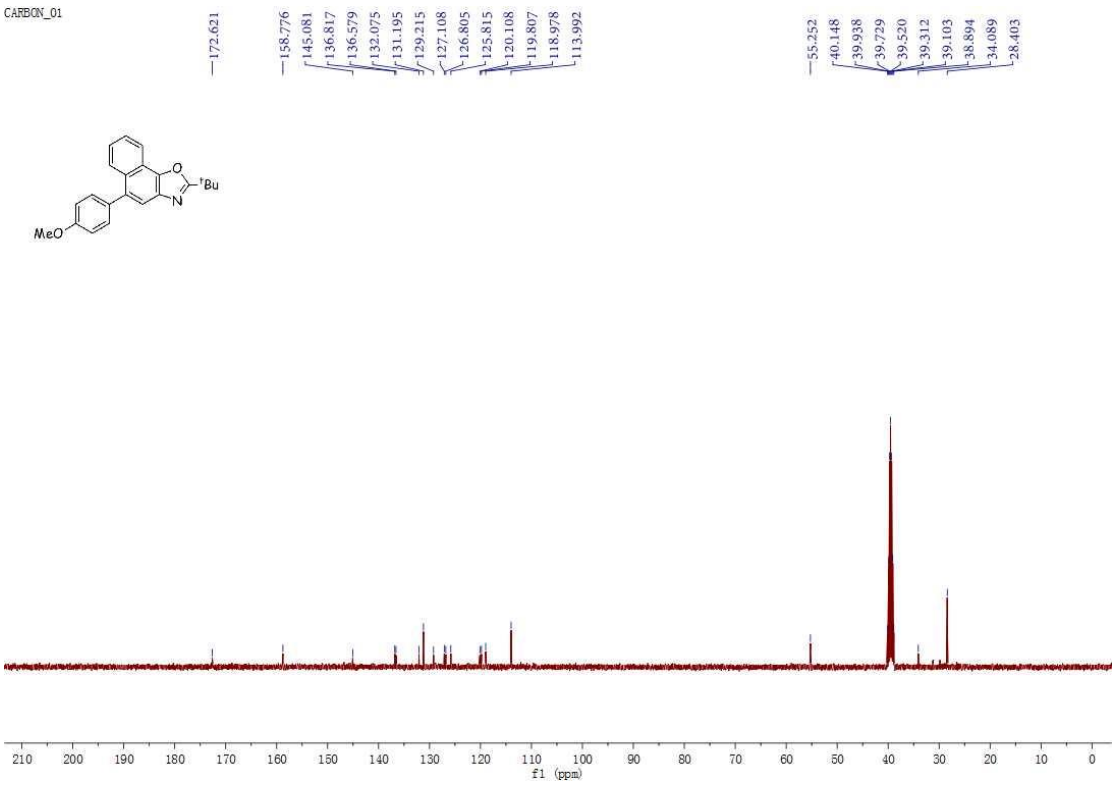
^{1}H – NMR spectrum of compound – **50** (400 MHz, DMSO-d_6)



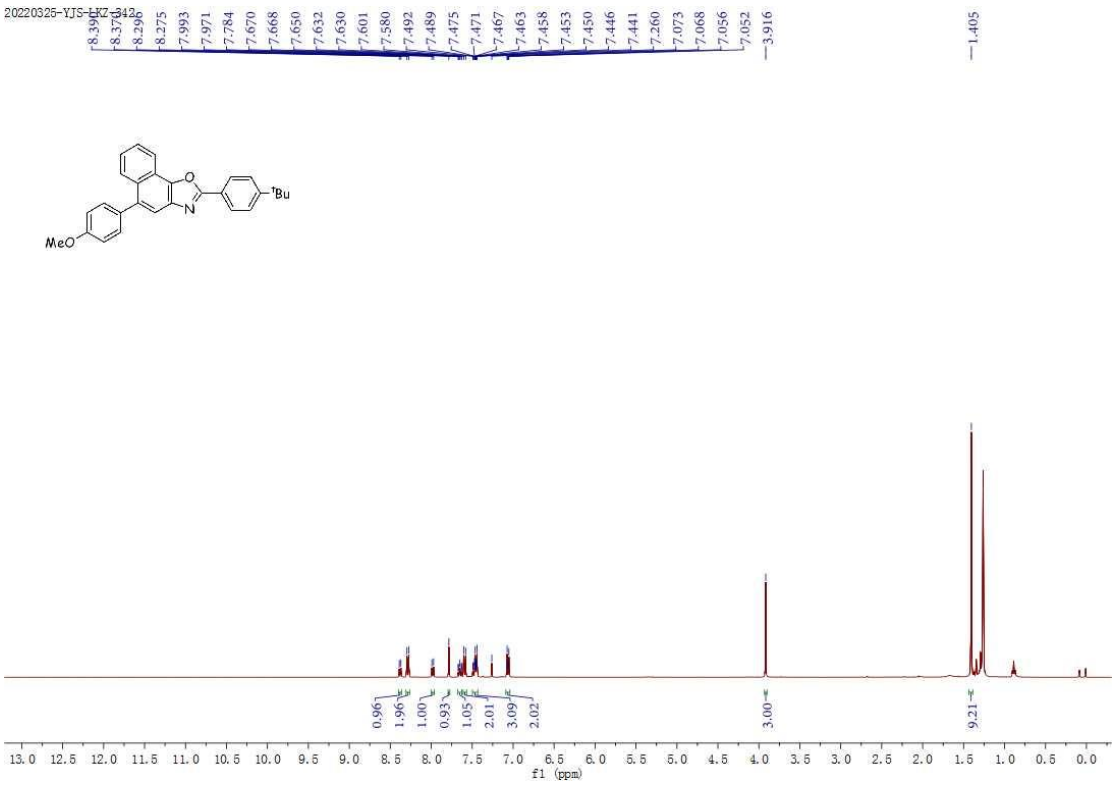
^{13}C – NMR spectrum of compound – **50** (101 MHz, DMSO-d_6)



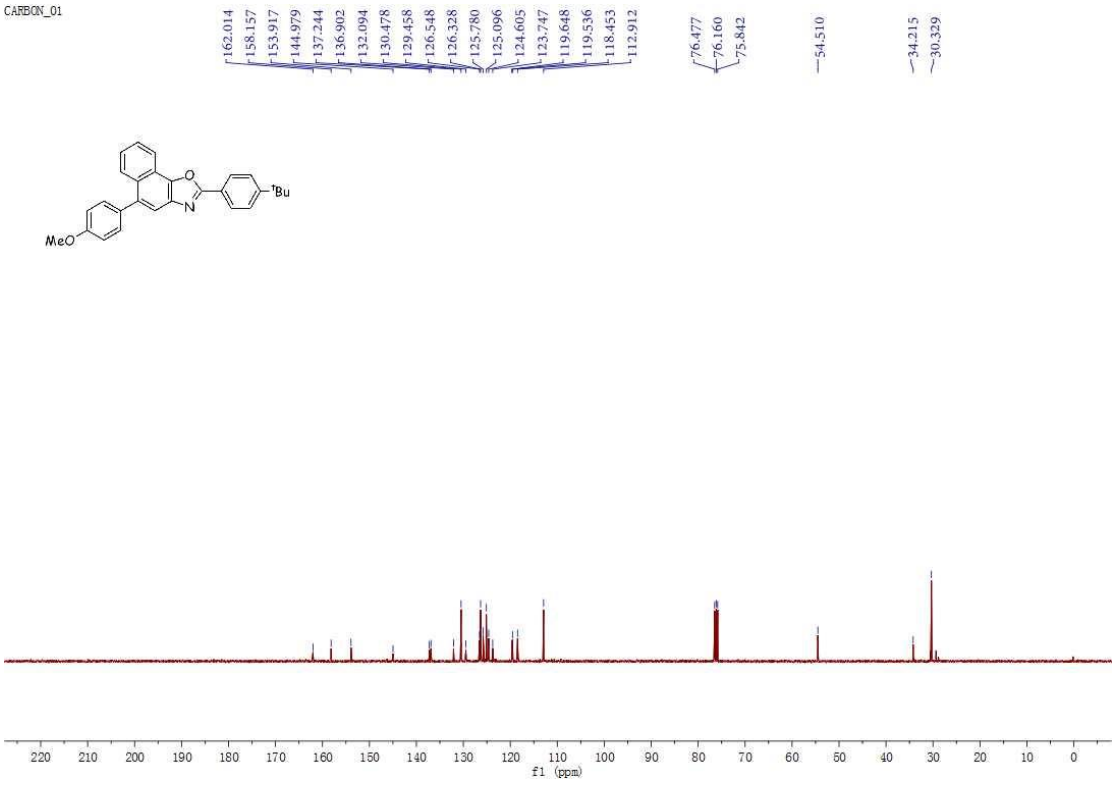
^{1}H – NMR spectrum of compound – **6a** (400 MHz, DMSO-d_6)



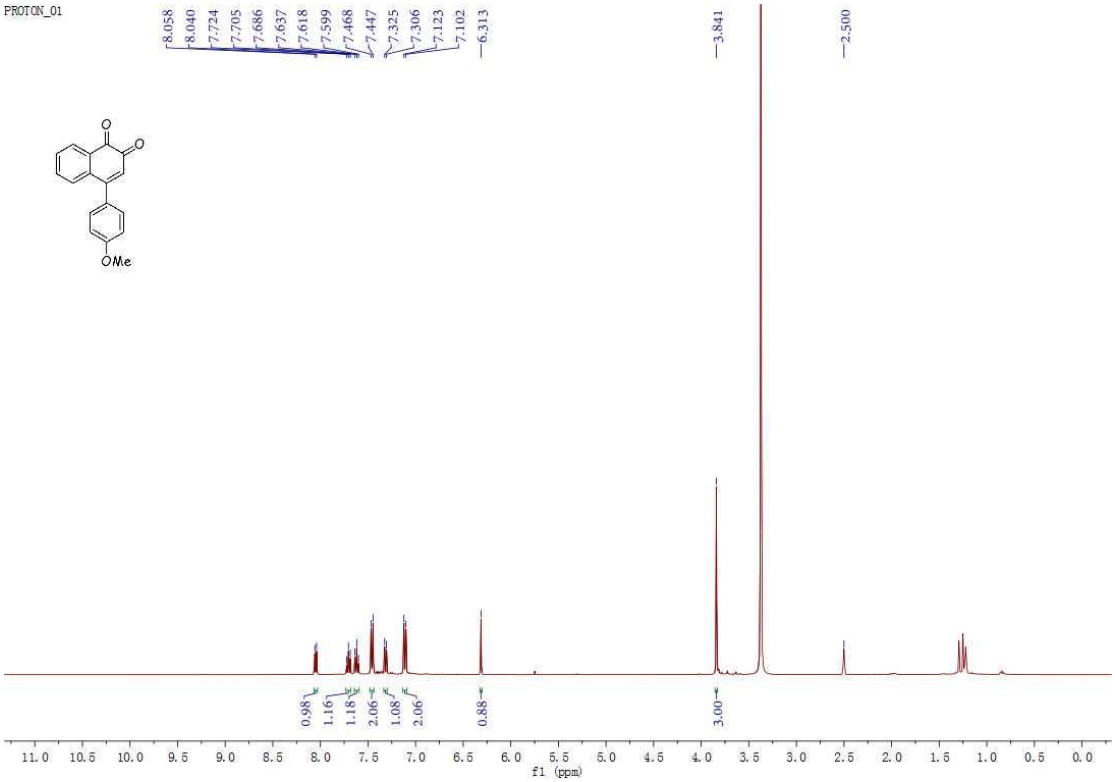
^{13}C – NMR spectrum of compound – **6a** (101 MHz, DMSO-d_6)



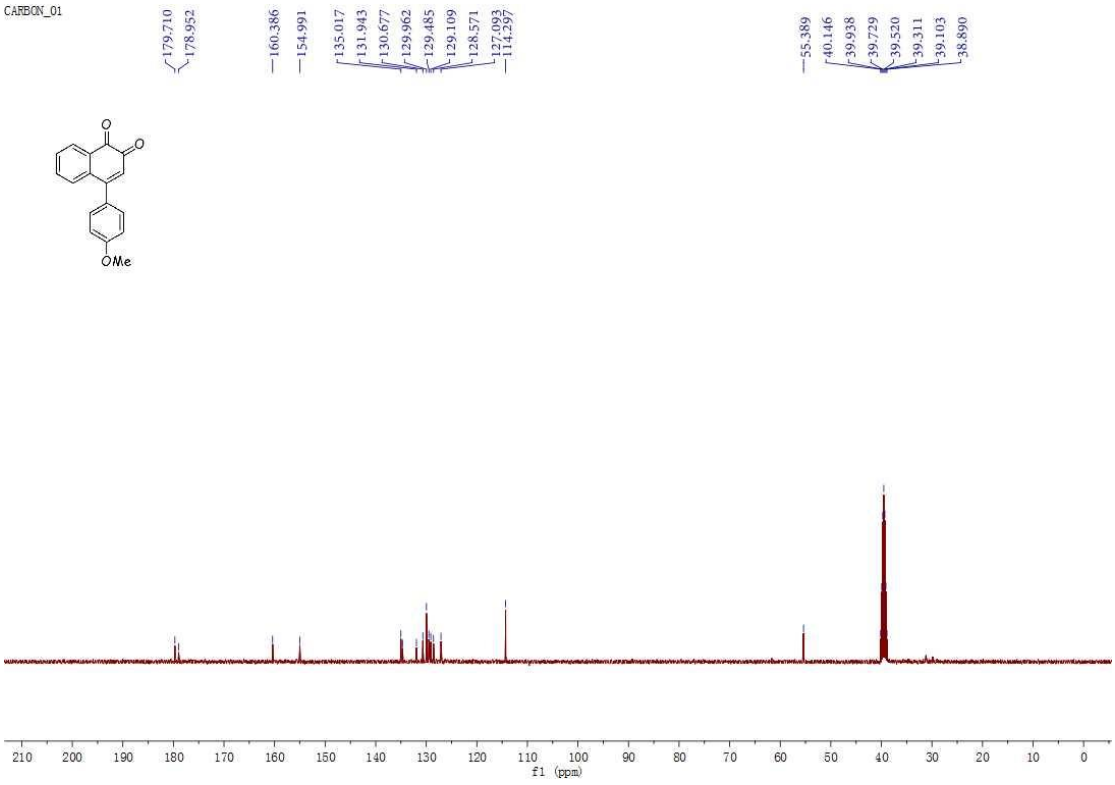
^{1}H – NMR spectrum of compound – **6b** (400 MHz, $CDCl_3$)



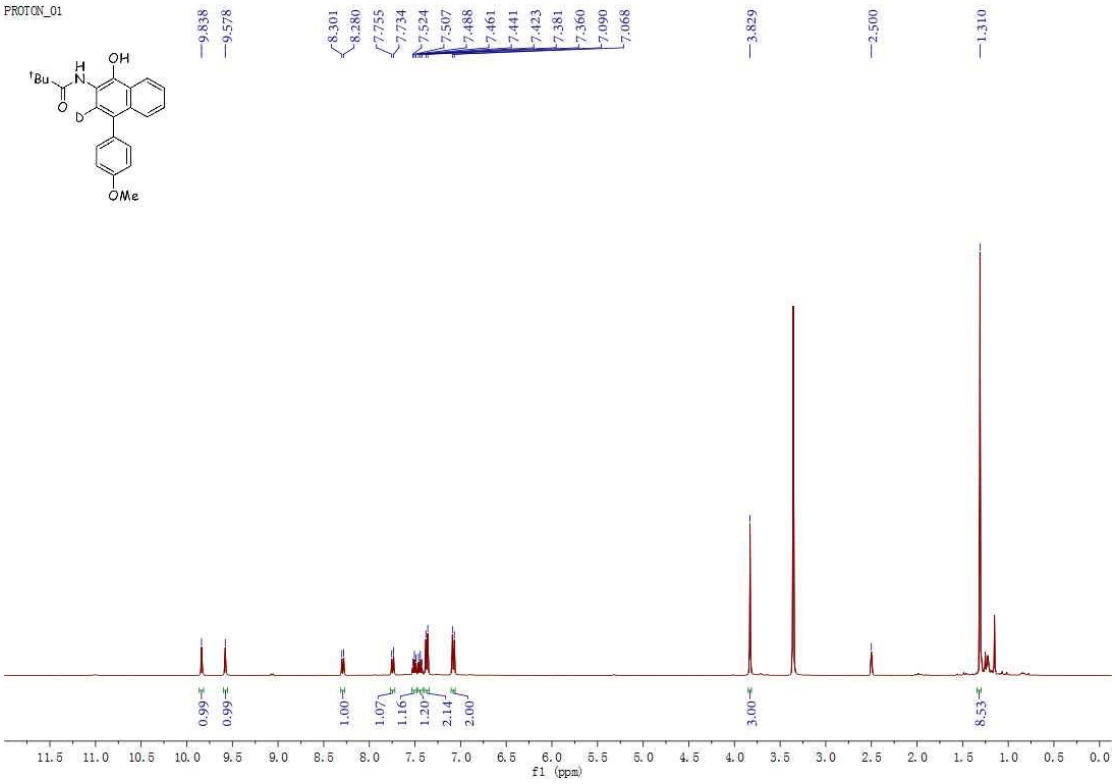
^{13}C – NMR spectrum of compound – **6b** (101 MHz, $CDCl_3$)



^{1}H – NMR spectrum of compound – **6c** (400 MHz, DMSO-d_6)



^{13}C – NMR spectrum of compound – **6c** (101 MHz, DMSO-d_6)



^{1}H – NMR spectrum of compound – **[D]-3g** (400 MHz, DMSO-d_6)

IX. References

1. Chen, J.; Liu, D.; Butt, N.; Li, C.; Fan, D.; Liu, Y.; Zhang, W. *Angew. Chem., Int. Ed.* **2013**, 125, 11846-11850.
2. Jia, T.; Zeng, G.; Zhang, C.; Zeng, L.; Zheng, W.; Li, S.; Zhu, H. *Chem. Commun.* **2021**, 57, 2657-2660.
3. Balti, M.; Miller, S. A.; Efrit, M. L.; Leadbeater, N. E. *RSC Adv.* **2016**, 6, 72165-72169.
4. Arias, S.; Rodríguez, R.; Quiñoá, E.; Riguera, R.; Freire, F. *J. Am. Chem. Soc.* **2018**, 140, 667-674.
5. Datta, S.; Saha, M. L.; Lahiri, N.; Yu, G.; Louie, J.; Stang, P. J. *Org. Lett.* **2018**, 20, 7020-7023.