Supporting information

Cascade Rh(II) and Yb(III) Catalyzed Synthesis of Substituted Naphthofurans *via* Transannulation of of *N*-Sulfonyl -1,2,3-triazoles with *β*-naphthols

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Table of contents

1) General Comments:

All the starting materials synthesis was carried out under nitrogen atmosphere. Synthesis of naphtho[2,1-*b*]furans were carried under oxygen atmosphere. All *N*-sulfonyl 1,2,3-triazoles[1] and *β*-naphthol derivatives[2] were synthesized according to the literature procedure. Dry toluene was prepared by distilling over sodium and stored over activated 4Å molecular sieves under N_2 atmosphere. Column chromatography was performed using Rankem Silica gel (100-200 mesh) and the solvent system used unless otherwise specified, was ethyl acetate-hexanes with various percentage of polarity depending on the nature of the substrate.

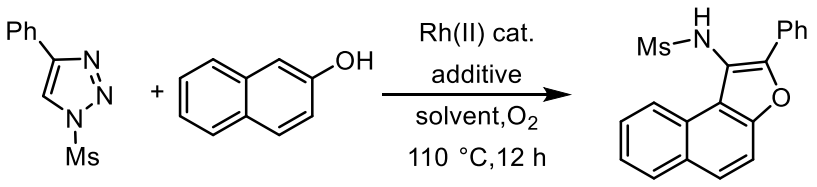
2. Analytical Methods:

NMR data were recorded on 400 and 500 MHz spectrometers. ^{1}H and ^{13}C NMR spectra were referenced to signals of either deuterated solvents or residual protiated solvents. Infrared spectra were recorded on a Thermo Nicolet iS10 FT spectrometer. HRMS were recorded by electron spry ionization (ESI) method on a Q-TOF Micro with lock spray source.

[1] J. Raushel, V. V. Fokin, *Org. Lett*. **2010**, *12*, 4952-4955.

[2] AlHujran, T. A.; Dawe, L. N.; Collins, J.; Georghiou, P. E., *J. Org. Chem.* **2011,** *76*, 971-973.

3.1. Synthesis of Naphthofurans: Optimization



Entry	Catalyst (mol %)	Oxidant (mol %)	Solvent	Time (h)	Yield (%)
1	$Rh_2(OAc)_4$ (2)	CuTC (10)	Toluene	14	45
2	$Rh_2(Oct)_4$ (2)	CuTC (10)	Toluene	14	28
3	Rh_2(*S*-NTTL)$_4$ (2)	CuTC (10)	Toluene	14	25
4	$Rh_2(OAc)_4$(2)	CuTC (10)	DCM	12	29
5	$Rh_2(OAc)_4$ (2)	CuTC (10)	Trifluorotoluene	12	17
6	$Rh_2(OAc)_4$ (2)	CuTC (10)	Toluene	12	26
7	$Rh_2(OAc)_4$ (2)	$Cu(OAc)_2.H_2O$ (10)	Toluene	12	20
8	$Rh_2(OAc)_4$(2)	Oxone	Toluene	12	21
9	$Rh_2(OAc)_4$(2)	Cu_2O (10)	Toluene	12	36
10	$Rh_2(OAc)_4$(2)	AgOTf (10)	Toluene	10	31
11	$Rh_2(OAc)_4$(2)	$Sc(OTf)_3$ (10)	Toluene	12	31
12	$Rh_2(OAc)_4$(2)	$Yb(OTf)_3$ (10)	Toluene	12	40
13	$Rh_2(OAc)_4$(2)	$Zn(OTf)_2$ (10)	Toluene	10	36
14	$Rh_2(OAc)_4$ (2)	$Yb(OTf)_3$ (20)	Toluene	12	61
15	$Rh_2(OAc)_4$ (4)	$Yb(OTf)_3$ (20)	Toluene	12	65
16[d]	**$Rh_2(OAc)_4$** (4)	**$Yb(OTf)_3$ (20)**	**Toluene**	**12**	**75**
17	$Rh_2(OAc)_4$ (4)	$Ni(OTf)_2$ (20)	Toluene	12	44
18	$Rh_2(OAc)_4$ (4)	$Hf(OTf)_3$ (20)	Toluene	12	60
19	$Rh_2(OAc)_4$ (4)	$Cu(OTf)_3$ (20)	Toluene	12	32

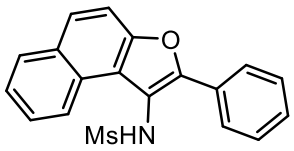
20	$Rh_2(OAc)_4$ (4)	$Yt(OTf)_3$ (20)	Toluene	12	37
21	$Rh_2(OAc)_4$ (4)	$La(OTf)_3$ (20)	Toluene	12	46
22	$Rh_2(OAc)_4$ (4)	$In(OTf)_3$ (20)	Toluene	12	48
23	$Rh_2(OAc)_4$ (4)	$Yb(OTf)_3$ (20)	Toluene	12	40
24	$Rh_2(TFA)_4$ (4)	$Yb(OTf)_3$ (20)	Toluene	12	60
25	$Rh_2(Oct)_4$ (4)	$Yb(OTf)_3$ (20)	Toluene	12	28
26	$Rh_2(esp)_4$ (4)	$Yb(OTf)_3$ (20)	Toluene	12	43
27	$Rh_2(Piv)_4$ (4)	$Yb(OTf)_3$ (20)	Toluene	12	39

Reaction Conditions: [a]2 equiv. of mesyltriazole was used;

3.2. General procedure for the synthesis of naphtho[2,1-*b*]furan (3)

N-Sulfonyl-1,2,3 triazole **1** (155 mg, 0.694 mmol, 2 equiv), *β*-naphthol derivative **2** (50 mg, 0.347 mmol, 1 equiv), $Rh_2(OAc)_4$ (6 mg, 0.003 mmol) and $Yb(OTf)_3$ (43 mg, 0.069 mmol) were taken in an oven dried 10 mL Schlenk tube. The Schlenk tube was filled with oxygen through successive evacuation and refilled with oxygen. To ensure the continuous oxygen supply, one oxygen filled balloon was put on side tube of the Schlenk tube. The mouth of the Schlenk tube was sealed with a septum and dry toluene (5.0 mL) was added to the reaction mixture. The reaction was stirred at 110 °C for the 12 h. After the specified time, the reaction mixture was cooled to room temperature and diluted with EtOAc. Evaporation of solvent under reduced pressure and purification of resultant crude through column chromatography using (Hexane:EtOAc:9:1) as eluent afforded the naphthofuran derivatives.

N-(2-Phenylnaphtho[2,1-*b*]furan-1-yl)methanesulfonamide (3a)



Yield: 75 % (87 mg); White solid; *Rf* = 0.35 in 2:8 EtOAc/Hexane.

MP: 196-198 ˚C.

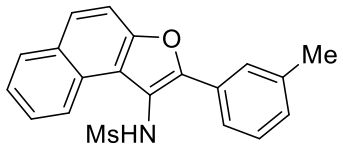
IR (ν_{max}, cm^{-1}): 3448, 2972, 1637, 1309, 1075, 750.

^{1}H NMR (400 MHz, DMSO, 24 °C): δ 8.71 (d, *J* = 8.4 Hz, 1H), 8.54 (d, *J* = 8.0 Hz, 2H), 7.95 (d, *J* = 8.0 Hz, 1H), 7.77 (d, *J* = 8.8 Hz, 1H), 7.66-7.63 (m, 2H), 7.55-7.51 (m, 3H), 7.44 (t, *J* = 7.2 Hz, 1H), 6.47 (s, 1H), 2.82 (s, 3H).

^{13}C{^{1}H} NMR (125 MHz, DMSO, 24 °C) *δ* 151.7, 151.0, 131.1, 129.4, 129.2, 129.0, 128.8, 127.5, 126.8,126.7, 126.6, 125.0, 123.1, 121.1, 114.2,112.3, 41.1.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{19}H_{16}NO_3S$, 338.0850, found 338.0836.

N-(2-(*m*-Tolyl)naphtho[2,1-*b*]furan-1-yl)methanesulfonamide (3b)



Yield: 52 % (63 mg); White solid; *Rf* = 0.40 in 2:8 EtOAc/Hexane.

MP: 156-158 ˚C.

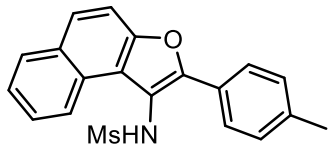
IR (ν_{max}, cm^{-1}): 3474, 2972, 1637, 1315, 1143, 747.

^{1}H NMR (400 MHz, DMSO, 24 °C): δ 9.99 (s, 1H), 8.85 (d, *J* = 8.0 Hz, 1H), 8.05 (d, *J* = 7.6 Hz, 1H), 7.94-7.88 (m, 3H), 7.82 (d, *J* = 8.8 Hz, 1H), 7.67 (t, *J* = 7.2 Hz, 1H), 7.55 (t, *J* = 7.0 Hz, 1H), 7.46 (t, *J* = 7.6 Hz, 1H), 7.29 (d, *J* = 6.8 Hz, 1H), 2.76 (s, 3H), 2.42 (s, 3H).

^{13}C{^{1}H} NMR (100 MHz, DMSO, 24 °C) *δ* 150.9, 150.2, 138.3, 130.6, 130.0, 128.9, 128.8, 128.7, 127.1, 126.9, 126.6, 126.4, 125.0, 123.7, 123.4, 121.2, 114.9, 112.4, 41.8, 21.1.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{20}H_{18}NO_3S$, 352.1007, found 352.1000.

N-(2-(*p*-Tolyl)naphtho[2,1-*b*]furan-1-yl)methanesulfonamide (3c)



Yield: 93 % (113 mg); White solid; *Rf* = 0.33 in 2:8 EtOAc/Hexane.

MP: 204-206 ˚C.

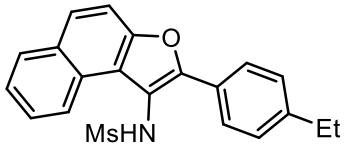
IR (ν_{max}, cm^{-1}): 3470, 2977, 1637, 1319, 1150, 818.

^{1}H NMR (400 MHz, DMSO, 24 °C): δ 9.93 (s, 1H), 8.83 (d, *J* = 8.0 Hz, 1H), 8.06 (d, *J* = 8.0 Hz, 1H), 8.01 (d, *J* = 8.0 Hz, 2H), 7.89 (d, *J* = 8.8 Hz, 1H), 7.82 (d, *J* = 8.8 Hz, 1H), 7.66 (t, *J* = 7.6 Hz, 1H), 7.55 (t, *J* = 7.6 Hz, 1H), 7.39 (d, *J* = 8.0 Hz, 2H), 2.76 (s, 3H), 2.40 (s, 3H).

$^{13}C\{^{1}H\}$ NMR (100 MHz, DMSO, 24 °C) δ 150.1, 150.0, 138.9, 130.6, 129.5, 128.8, 127.0, 126.4, 126.3, 126.2, 126.1, 124.9, 123.3, 121.2, 114.3, 112.3, 41.7, 21.0.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{20}H_{18}NO_3S$, 352.1007, found 352.0991.

N-(2-(4-Ethylphenyl)naphtho[2,1-*b*]furan-1-yl)methanesulfonamide (3d)



Yield: 85 % (107 mg); White solid; *Rf* = 0.37 in 2:8 EtOAc/Hexane.

MP: 188-190 ˚C.

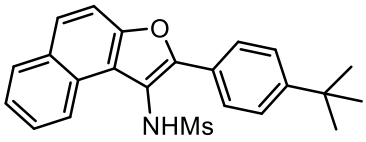
IR (ν_{max}, cm^{-1}): 3311, 2965, 1683, 1312, 1143, 836.

^{1}H NMR (400 MHz, DMSO, 24 °C): δ 9.94 (s, 1H), 8.83 (d, *J* = 8.5 Hz, 1H), 8.06 -8.03(m, 3H), 7.89 (d, *J* = 9.0 Hz, 1H), 7.82 (d, *J* = 9.0 Hz, 1H), 7. 68-7.64 (m, 1H), 7.57-7.54 (m, 1H), 7.43 (d, *J* = 8.5 Hz, 2H), 2.77 (s, 3H), 2.71-2.67 (m, 2H), 1.26-1.23 (m, 3H)

$^{13}C\{^{1}H\}$ NMR (125 MHz, DMSO, 24 °C) δ 151.0, 150.0, 145.1, 130.5, 128.8, 128.3, 127.0, 126.5, 126.3(2C), 126.2, 124.9, 123.3, 121.2, 114.3, 112.3, 41.6, 28.0, 15.2.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{21}H_{20}NO_3S$, 366.1163, found 366.1157.

N-(2-(4-(*tert*-Butyl)phenyl)naphtho[2,1-*b*]furan-1-yl)methanesulfonamide (3e)



Yield: 67 % (92 mg); White solid; *Rf* = 0.42 in 2:8 EtOAc/Hexane.

MP: 250-252 ˚C.

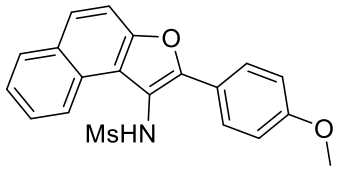
IR (ν_{max}, cm^{-1}): 3478, 2959, 1632, 1315, 1161, 835.

^{1}H NMR (400 MHz, $CDCl_3$, 24 °C): δ 8.73 (d, *J* = 8.0 Hz, 1H), 7.94 (d, *J* = 7.0 Hz, 2H), 7.87 (d, *J* = 8.5 Hz, 1H), 7.70-7.68 (m, 1H), 7.59-7.55 (m, 2H), 7.48-7.44 (m, 3H), 2.74 (s, 3H), 1.31 (s, 9H).

$^{13}C\{^{1}H\}$ NMR (125 MHz, DMSO, 24 °C) δ 152.5, 151.9, 150.9, 131.1, 128.9, 127.4, 126.5 (3C), 125.8 (2C), 124.9, 123.2, 121.1, 113.6, 112.3, 41.1, 34.9, 31.2.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{23}H_{24}NO_3S$, 394.1476, found 394.1467.

N-(2-(4-Methoxyphenyl)naphtho[2,1-*b*]furan-1-yl)methanesulfonamide (3f)



Yield: 28 % (36 mg); White solid; *Rf* = 0.37 in 2:8 EtOAc/Hexane.

MP: 235-237 ˚C.

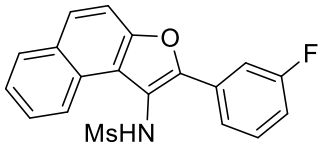
IR (ν_{max}, cm^{-1}): 3480, 2920, 1637, 1310, 1144, 809.

^{1}H NMR (400 MHz, $CDCl_3$, 24 °C): δ 8.69 (d, *J* = 8.4 Hz, 1H), 8.00 (d, *J* = 8.4 Hz, 2H), 7.95 (d, *J* = 8.4 Hz, 1H), 7.76-7.73 (m, 1H), 7.64-7.62 (m, 2H), 7.51 (t, *J* = 7.6 Hz, 1H), 7.04 (d, *J* = 8.4 Hz, 2H), 6.37 (s, 1H), 3.89 (s, 3H), 2.84 (s, 3H).

$^{13}C\{^{1}H\}$ NMR (125 MHz, DMSO, 24 °C) *δ* 160.4, 151.6, 150.3, 131.0, 129.2, 128.6, 127.4, 126.7, 126.5, 125.4, 123.8, 121.8, 121.7, 114.9, 113.9, 112.8, 55.8, 42.1.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{20}H_{18}NO_4S$, 368.0956, found 368.0951.

N-(2-(3-Fluorophenyl)naphtho[2,1-*b*]furan-1-yl)methanesulfonamide (3g)



Yield: 77 % (95 mg); White solid; *Rf* = 0.31 in 2:8 EtOAc/Hexane.

MP: 218-220 ˚C.

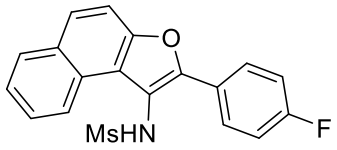
IR (ν_{max}, cm^{-1}): 3473, 2971, 1637, 1313, 1140, 778.

^{1}H NMR (500 MHz, DMSO, 24 °C): δ 10.05 (s, 1H), 8.82 (d, *J* = 8.5 Hz, 1H), 8.07 (d, *J* = 8.0 Hz, 1H), 7.98-7.91 (m, 3H), 7.85 (d, *J* = 9.0 Hz, 1H), 7.70-7.67 (m, 1H), 7.65-7.61 (m, 1H), 7.59-7.56 (m, 1H), 7.35-7.31 (m, 1H), 2.83 (s, 3H).

$^{13}C\{^{1}H\}$ NMR (125 MHz, DMSO, 24 °C) *δ* 162.3 (d, *J* = 242.0 Hz), 150.5, 149.4, 149.3, 131.2 (d, *J* = 8.5 Hz), 131.0 (d, *J* = 8.9 Hz), 130.6, 128.9, 127.2, 127.0, 126.6, 125.2, 123.3, 122.5 (d, *J* = 2.4 Hz), 120.9, 116.0 (d, *J* = 21.0 Hz), 115.9, 113.0 (d, *J* = 23.8 Hz), 41.6.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{19}H_{15}FNO_3S$, 356.0756, found 356.0750.

N-(2-(4-Fluorophenyl)naphtho[2,1-*b*]furan-1-yl)methanesulfonamide (3h)



Yield: 69% (85 mg); White solid; *Rf* = 0.29 in 2:8 EtOAc/Hexane.

MP: 210-212 ˚C.

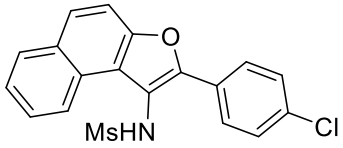
IR (ν_{max}, cm^{-1}): 3471, 2972, 1637, 1315, 1141, 816.

^{1}H NMR (500 MHz, DMSO, 24 °C): δ 9.98 (s, 1H), 8.81 (d, *J* = 6.8 Hz, 1H), 8.17-8.14 (m, 2H), 8.05 (d, *J* = 6.4 Hz, 1H), 7.90 (d, *J* = 7.2 Hz, 1H), 7.82 (d, *J* = 7.2 Hz, 1H), 7.67 (t, *J* = 7.2 Hz, 1H), 7.56 (t, *J* = 7.2 Hz, 1H), 7.44-7.41 (m, 2H), 2.79 (s, 3H).

$^{13}C\{^{1}H\}$ NMR (125 MHz, DMSO, 24 °C) *δ* 162.4 (d, *J* = 246.0 Hz), 150.3, 150.1, 130.6, 128.9, 128.8 (d, *J* = 8.3 Hz), 127.0, 126.7, 126.4, 125.5 (d, *J* = 3.1 Hz), 125.1, 123.4, 121.0, 116.1 (d, *J* = 21.8 Hz), 114.8, 112.4, 41.7.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{19}H_{15}FNO_3S$, 356.0756, found 356.0749.

N-(2-(4-Chlorophenyl)naphtho[2,1-*b*]furan-1-yl)methanesulfonamide (3i)



Yield: 62 % (80 mg); White solid; *Rf* = 0.32 in 2:8 EtOAc/Hexane.

MP: 217-219 ˚C.

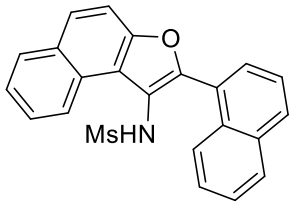
IR (ν_{max}, cm^{-1}): 3459, 2925, 1630, 1320, 1148, 806.

^{1}H NMR (400 MHz, DMSO, 24 °C): δ 10.03 (s, 1H), 8.82 (d, *J* = 8.4 Hz, 1H), 8.13 (d, *J* = 8.4 Hz, 2H), 8.06 (d, *J* = 8.0 Hz, 1H), 7.95-7.91 (m, 1H), 7.83 (d, *J* = 8.8 Hz, 1H), 7.70-7.64 (m, 3H), 7.59-7.55 (m, 1H), 2.83 (s, 3H).

$^{13}C\{^{1}H\}$ NMR (100 MHz, DMSO, 24 °C) *δ* 150.4, 149.4, 133.7, 130.6, 129.1 (2C), 128.9, 128.1, 127.7, 127.0, 126.5, 125.1, 123.4, 121.0, 115.4, 112.4, 41.7.

HRMS: m/z: $[M+Na]^+$ Calcd. for $C_{19}H_{14}ClNO_3SNa$, 394.0280, found 394.0268.

N-(2-(Naphthalen-1-yl)naphtho[2,1-*b*]furan-1-yl)methanesulfonamide (3j)



Yield: 61 % (82 mg); White solid; *Rf* = 0.25 in 2:8 EtOAc/Hexane.

MP: 220-222 ˚C.

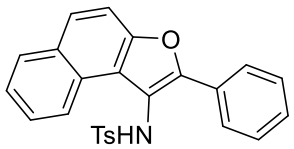
IR (ν_{max}, cm^{-1}): 3447, 2925, 1636, 1267, 1142, 751.

^{1}H NMR (400 MHz, DMSO, 24 °C): δ 10.13 (s, 1H), 8.88 (d, *J* = 8.4 Hz, 1H), 8.68 (s, 1H), 8.29 (d, *J* = 8.8 Hz, 1H), 8.13-8.08 (m, 3H), 8.01-7.99 (m, 1H), 7.95 (d, *J* = 8.8 Hz, 1H), 7.89 (d, *J* = 8.8 Hz, 1H), 7.72-7.68 (m, 1H), 7.63-7.57 (m, 3H), 2.79 (s, 3H).

$^{13}C\{^{1}H\}$ NMR (100 MHz, DMSO, 24 °C) *δ* 150.9, 150.4, 140.0, 136.6, 131.1, 129.4,129.1(2C), 129.0, 128.8, 127.6, 127.1, 127.0 (2C), 126.5, 126.4, 126.2, 125.4, 124.1, 121.2, 115.0, 112.9, 41.7.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{23}H_{18}NO_3S$, 388.1007, found 388.0997.

4-Methyl-*N*-(2-phenylnaphtho[2,1-*b*]furan-1-yl)benzenesulfonamide (3k)



Yield: 53 % (76 mg); White solid; *Rf* = 0.37 in 2:8 EtOAc/Hexane.

MP: 230-232 ˚C.

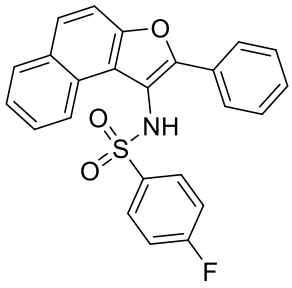
IR (ν_{max}, cm^{-1}): 3452, 2932, 1637, 1315, 1140, 840.

^{1}H NMR (400 MHz, $CDCl_3$, 24 °C): δ 8.58-8.56 (m, 1H), 7.90-7.88 (m, 1H), 7.72 (d, *J* = 8.8 Hz, 1H), 7.63-7.58 (m, 3H), 7.50-7.44 (m, 3H), 7.26-7.23 (m, 3H), 6.86 (d, *J* = 8.0 Hz, 2H), 6.62 (s,1H), 2.21 (s, 3H).

$^{13}C\{^{1}H\}$ NMR (100 MHz, $CDCl_3$, 24 °C) *δ* 151.8, 151.0, 143.8, 136.5, 131.0, 129.4 (2C), 129.2, 128.8, 128.5, 128.4, 127.5, 126.8, 126.5, 126.4, 125.0, 123.5, 121.0, 114.3, 112.3, 21.4.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{25}H_{20}NO_3S$, 414.1163, found 394.414.1150.

4-Fluoro-*N*-(2-phenylnaphtho[2,1-*b*]furan-1-yl)benzenesulfonamide (3l)



Yield: 60 % (87 mg); Brown solid; *Rf* = 0.38 in 2:8 EtOAc/Hexane.

MP: 220-222 ˚C.

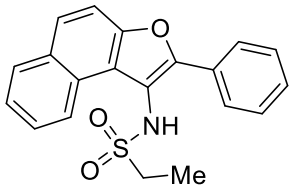
IR (ν_{max}, cm^{-1}): 3478, 2921, 1637, 1331, 1152, 805.

^{1}H NMR (500 MHz, DMSO, 24 °C): δ 10.48 (s, 1H), 8.63-8.61 (m, 1H), 8.03-8.01 (m, 1H), 7.88 (d, *J* = 6.8 Hz, 1H), 7.81-7.79 (m, 1H), 7.75-7.73 (m, 2H), 7.56-7.50 (m, 4H), 7.30-7.28 (m, 3H), 7.02-6.99 (m, 2H).

$^{13}C\{^{1}H\}$ NMR (125 MHz, DMSO, 24 °C) *δ* 165.2 (d, *J* = 250.0 Hz), 151.0, 150.2, 137.0 (d, *J* = 2.8 Hz), 130.5, 129.5 (d, *J* = 9.6 Hz), 128.7, 128.6, 128.5, 128.4, 127.0, 126.6, 126.1, 126.0, 124.9, 123.2, 121.0, 115.9 (d, *J* = 22.7 Hz), 114.4, 112.4.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{24}H_{17}FNO_3S$, 418.0913, found 418.0911.

***N*-(2-Phenylnaphtho[2,1-*b*]furan-1-yl)ethanesulfonamide (3m)**



Yield: 50 % (61 mg); White solid; *Rf* = 0.37 in 2:8 EtOAc/Hexane.

MP: 169-171 ˚C.

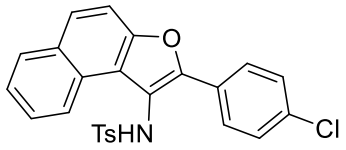
IR (ν_{max}, cm^{-1}): 3375, 2931, 1632, 1320, 1143, 762.

^{1}H NMR (400 MHz, DMSO, 24 °C): δ 9.90 (s, 1H), 8.85 (d, *J* = 8.0 Hz, 1H), 8.07-8.05 (m, 3H), 7.90 (d, *J* = 8.8 Hz, 1H), 7.82 (d, *J* = 8.8 Hz, 1H), 7.66 (t, *J* = 7.2 Hz, 1H), 7.57-7.55 (m, 3H), 7.50-7.48 (m, 1H), 2.81-2.79 (m, 2H), 1.08 (t, *J* = 6.8 Hz, 3H).

$^{13}C\{^{1}H\}$ NMR (100 MHz, DMSO, 24 °C) *δ* 150.9, 150.2, 130.6, 129.3, 128.9, 128.8, 127.1 (2C), 126.7, 126.6, 126.3, 125.0, 123.3, 121.4, 115.1, 112.4, 48.0, 7.8.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{20}H_{18}NO_3S$, 352.1007, found 352.0995.

_N_-(2-(4-Chlorophenyl)naphtho[2,1-*b*]furan-1-yl)-4-methylbenzenesulfonamide (3n)



Yield: 46 % (71 mg); White solid; *Rf* = 0.39 in 2:8 EtOAc/Hexane.

MP: 194-196 ˚C.

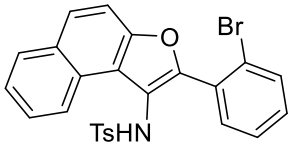
IR (ν_{max}, cm^{-1}): 3419, 2929, 1633, 1161, 815.

^{1}H NMR (500 MHz, DMSO, 24 °C): δ 10.32 (s, 1H), 8.68-8.66 (m,1H), 8.05-8.03 (m, 1H), 7.90 (d, *J* = 8.5 Hz, 1H), 7.78 (d, *J* = 9.0 Hz, 1H), 7.67 (d, *J* = 8.5 Hz, 2H), 7.57-7.52 (m, 2H), 7.35 (d, *J* = 8.0 Hz, 2H), 7.30 (d, *J* = 8.5 Hz, 2H), 7.01 (d, *J* = 8.0 Hz, 2H), 2.24 (s, 3H).

$^{13}C\{^{1}H\}$ NMR (125 MHz, DMSO, 24 °C) *δ* 150.3, 149.7, 143.1, 137.8, 133.1, 130.5, 129.2, 128.7, 128.3,127.6, 127.4, 127.1, 126.8, 126.5, 126.2, 124.9, 123.3, 121.1, 115.2, 112.3, 20.8.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{25}H_{19}ClNO_3S$, 448.0774, found 448.0769.

_N_-(2-(2-Bromophenyl)naphtho[2,1-*b*]furan-1-yl)-4-methylbenzenesulfonamide (3o)



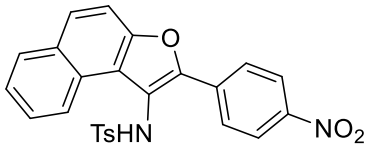
Yield: 38 % (65 mg); White solid; *Rf* = 0.39 in 2:8 EtOAc/Hexane.

^{1}H NMR (400 MHz, $CDCl_3$, 24 °C): δ 9.04 (d, *J* = 8.0 Hz, 1H), 7.94 (d, *J* = 8.2 Hz, 1H), 7.78 (d, *J* = 8.8 Hz, 1H), 7.68-7.65 (m,1H), 7.59-7.52 (m, 2H), 748-7.46 (m,1H), 7.34 (d, *J* = 8.0 Hz, 2H), 7.19-7.13 (m,2H), 7.06-7.04 (m,1H), 6.85 (s, 1H).6.82 (d, *J* = 8.0 Hz, 2H), 2.24 (s, 3H).

$^{13}C\{^{1}H\}$ NMR (125 MHz, DMSO, 24 °C) *δ* 150.9, 150.6, 142.3, 137.2, 133.2, 132.3, 130.9, 130.4, 129.3, 129.2, 128.7, 127.3, 127.1, 126.7, 126.3, 126.1, 125.0, 123.3, 122.7, 120.3, 116.4,112.5, 20.9.

HRMS: m/z: $[M+Na]^+$ Calcd. for $C_{25}H_{18}BrNO_3SNa$, 514.0088, found 514.0085.

4-Methyl-_N_-(2-(4-nitrophenyl)naphtho[2,1-*b*]furan-1-yl)benzenesulfonamide (3p)



Yield: 27 % (43 mg); Pale yellow solid; *Rf* = 0.37 in 2:8 EtOAc/Hexane.

MP: 110-112 ˚C.

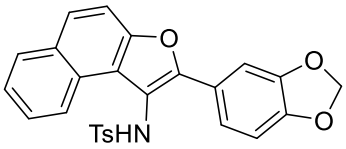
IR (ν_{max}, cm^{-1}): 3458, 2930, 1637, 1515, 1336, 760.

^{1}H NMR (400 MHz, DMSO, 24 °C): δ 10.51 (s, 1H), 8.69-8.67 (m, 1H), 8.09-8.05 (m, 3H), 7.98-7.91 (m, 3H), 7.84 (d, *J* = 8.8 Hz, 1H), 7.60-7.54 (m, 2H), 7.38 (d, *J* = 8.0 Hz, 2H), 6.99 (d, *J* = 8.0 Hz, 2H), 2.10 (s, 3H).

$^{13}C\{^{1}H\}$ NMR (100 MHz, DMSO, 24 °C) *δ* 151.1, 148.2, 146.1, 143.2, 137.8(2C), 134.7, 130.5, 129.3, 128.8, 128.0, 127.1, , 126.6(2C), 126.5, 125.2, 123.5, 123.3, 121.0, 112.4, 20.6.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{25}H_{19}N_2O_5S$, 459.1014, found 459.0998.

N-(2-(Benzo[*d*][1,3]dioxol-5-yl)naphtho[2,1-*b*]furan-1-yl)-4-methylbenzenesulfonamide (3q)



Yield: 37 % (59 mg); White solid; *Rf* = 0.33 in 2:8 EtOAc/Hexane.

MP: 204-206 ˚C.

IR (ν_{max}, cm^{-1}): 3468, 2957, 1618, 1241, 1088, 811.

^{1}H NMR (400 MHz, DMSO, 24 °C): δ 10.19 (s, 1H), 8.68 (d, *J* = 7.2 Hz, 1H), 8.02 (d, *J* = 7.6 Hz, 1H), 7.85 (d, *J* = 8.8 Hz, 1H), 7.76 (d, *J* = 8.8 Hz, 1H), 7.61-7.46 (m, 2H), 7.37 (d, *J* =7.6 Hz, 2H), 7.20 (d, *J* = 8.0 Hz, 1H), 7.15 (s, 1H), 7.05 (d, *J* = 7.2 Hz, 2H), 6.82 (d, *J* = 8.0 Hz, 1H), 6.05 (s, 2H), 2.24 (s, 3H).

$^{13}C\{^{1}H\}$ NMR (100 MHz, DMSO, 24 °C) *δ* 151.0, 149.7, 147.6, 147.1, 142.8, 138.0, 130.5, 129.2, 128.6, 127.0, 126.5, 126.0, 124.8, 123.3, 122.5, 121.3, 120.8, 113.6, 112.2, 108.2, 106.4, 101.4, 54.9, 20.8.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{26}H_{20}NO_5S$, 458.1062, found 458.1062.

N-(7-(Benzyloxy)-2-phenylnaphtho[2,1-*b*]furan-1-yl)methanesulfonamide (3r)

Yield: 37 % (57 mg); White solid; *Rf* = 0.30 in 2:8 EtOAc/Hexane.

MP: 194-196 ˚C.

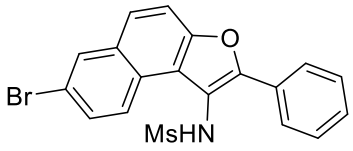
IR (ν_{max}, cm^{-1}): 3447, 2925, 1637, 1327, 1148,740.

^{1}H NMR (400 MHz, DMSO, 24 °C): δ 9.96 (s, 1H), 8.76-8.73 (m, 1H), 8.10 (d, *J* = 8.0 Hz, 2H), 7.79 (s, 2H), 7.62-7.33 (m, 10H), 5.26 (s, 2H), 2.76 (s, 3H).

$^{13}C\{^{1}H\}$ NMR (100 MHz, DMSO, 24 °C) *δ* 155.6, 150.7, 149.3, 137.0, 132.1, 129.2, 129.0, 128.5, 128.0, 127.9, 126.5 (2C), 125.6, 124.8, 121.9, 121.4, 118.3, 114.7, 112.8, 109.4, 69.4, 41.6.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{26}H_{22}NO_4S$, 444.1269, found 444.1249.

N-(7-bromo-2-phenylnaphtho[2,1-*b*]furan-1-yl)methanesulfonamide (3s)



Yield: 45 % (65 mg); White solid; *Rf* = 0.30 in 2:8 EtOAc/Hexane.

MP: 230-232 ˚C.

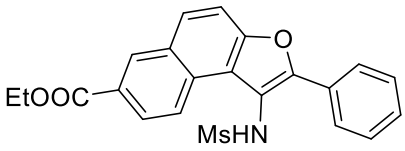
IR (ν_{max}, cm^{-1}): 3416, 2964, 1638, 1334, 1142, 767.

^1H NMR (500 MHz, DMSO, 24 °C): δ 10.05 (s, 1H), 8.77 (d, *J* = 9.0 Hz, 1H), 8.35 (d, *J* = 2.0 Hz, 1H), 8.12 (d, *J* = 8.0 Hz, 2H), 7.90-7.86 (m, 2H), 7.82 (dd, *J* = 9.0, 1.5 Hz, 1H), 7.58 (t, *J* = 7.5 Hz, 2H), 7.50-7.44 (m, 1H), 2.77 (s, 3H).

$^{13}C\{^1H\}$ NMR (125 MHz, DMSO, 24 °C) *δ* 151.3, 150.3, 132.1, 130.7, 129.5, 129.2, 129.0, 128.6, 126.6, 125.8, 125.6, 125.5, 121.3, 118.1, 114.8, 113.7, 41.5.

HRMS: m/z: $[M+Na]^+$ Calcd. for $C_{19}H_{14}BrNO_3SNa$, 437.9775, found 437.9763.

Ethyl 1-(methylsulfonamido)-2-phenylnaphtho[2,1-*b*]furan-7-carboxylate (3t)



Yield: 75 % (106 mg); White solid; *Rf* = 0.27 in 2:8 EtOAc/Hexane.

MP: 130-132 ˚C.

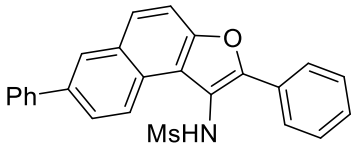
IR (ν_{max}, cm^{-1}): 3469, 2925, 1711, 1633, 1147, 749.

^1H NMR (400 MHz, DMSO, 24 °C): δ 10.07 (s, 1H), 8.92 (d, *J* = 8.4 Hz, 1H), 8.75 (s,1H), 8.14-8.12 (m, 4H), 7.93 (d, *J* = 8.4 Hz, 1H), 7.59-7.49 (m, 3H), 4.41-4.39 (m, 2H), 2.80 (s, 3H), 1.39-1.37 (m, 3H).

$^{13}C\{^1H\}$ NMR (100 MHz, DMSO, 24 °C) *δ* 165.8, 151.5, 151.4, 131.2, 129.8, 129.4, 129.0 (3C), 128.6, 127.9, 126.6, 126.2, 125.4, 123.8, 121.2, 114.9, 113.5, 60.9, 41.6, 14.3.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{22}H_{20}NO_5S$, 410.1062, found 410.1051.

_N_-(2,7-Diphenylnaphtho[2,1-*b*]furan-1-yl)methanesulfonamide (3u)



Yield: 27 % (60 mg); White solid; *Rf* = 0.37 in 2:8 EtOAc/Hexane.

MP: 240-242 ˚C.

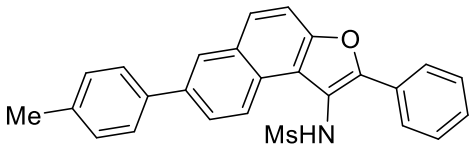
IR (ν_{max}, cm^{-1}): 3452, 2924, 1636, 1144, 762.

^{1}H NMR (400 MHz, DMSO, 24 °C): δ 10.03 (s, 1H), 8.91 (d, *J* = 8.8 Hz, 1H), 8.39 (s,1H), 8.13 (d, *J* = 8.0 Hz, 2H), 8.02-7.99 (m, 2H), 7.88-7.86 (m, 3H), 7.61-7.45 (m, 5H), 7.43-7.40 (m, 1H), 2.78 (s, 3H).

$^{13}C\{^{1}H\}$ NMR (100 MHz, DMSO, 24 °C) *δ* 150.9, 150.4, 139.9, 136.6, 131.0, 129.3, 129.0, 128.9, 128.8, 127.5, 127.1, 126.9, 126.5, 126.4, 126.1, 125.3, 124.0, 121.1, 114.9, 112.8, 41.6.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{25}H_{20}NO_3S$, 414.1163, found 414.1152.

_N_-(2-Phenyl-7-(*p*-tolyl)naphtho[2,1-*b*]furan-1-yl)methanesulfonamide (3v)



Yield: 33 % (49 mg); White solid; *Rf* = 0.33 in 2:8 EtOAc/Hexane.

MP: 252-254 ˚C.

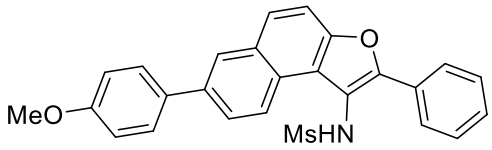
IR (ν_{max}, cm^{-1}): 3473, 2972, 1633, 1317, 1148, 776.

^{1}H NMR (400 MHz, DMSO, 24 °C): δ 10.03 (s, 1H), 8.89 (d, *J* = 8.8 Hz, 1H), 8.35 (s,1H), 8.13 (d, *J* = 7.6 Hz, 2H), 8.00-7.98 (m, 2H), 7.87(d, *J* = 8.8 Hz, 1H), 7.76 (d, *J* = 8.0 Hz, 2H), 7.59 (t, *J* = 7.6 Hz, 2H),7.51-7.47 (m, 1H), 7.33 (d, *J* = 7.6 Hz, 2H), 2.79 (s, 3H), 2.38 (s, 3H).

$^{13}C\{^{1}H\}$ NMR (100 MHz, DMSO, 24 °C) *δ* 150.9, 150.3, 137.0, 136.9, 136.5, 131.1, 129.7, 129.3, 129.0, 128.9, 127.0, 126.8, 126.5, 126.0, 125.9, 125.2, 124.0, 121.2, 114.9, 112.8, 41.7, 20.7.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{26}H_{22}NO_3S$, 428.1320, found 428.1310.

_N_-(7-(4-Methoxyphenyl)-2-phenylnaphtho[2,1-*b*]furanyl)methanesulfonamide (3w)



Yield: 37 % (57 mg); White solid; *Rf* = 0.30 in 2:8 EtOAc/Hexane.

MP: 168-170 ˚C.

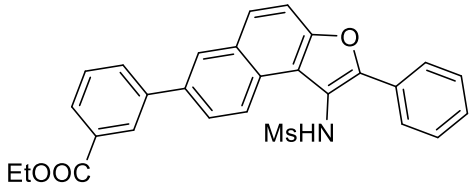
IR (ν_{max}, cm^{-1}): 3480, 2970, 1635, 1312, 1149, 812.

^{1}H NMR (400 MHz, DMSO, 24 °C): δ 10.03 (s, 1H), 8.87 (d, *J* = 8.4 Hz, 1H), 8.31 (s,1H), 8.13 (d, *J* = 7.2 Hz, 2H), 7.97 (d, *J* = 8.4 Hz, 2H), 7.86-7.80 (m, 3H), 7.59-7.57 (m, 2H), 7.50-7.48 (m, 1H), 7.09 (d, *J* = 7.6Hz, 2H), 3.83 (s, 3H), 2.78 (s, 3H).

$^{13}C\{^{1}H\}$ NMR (100 MHz, DMSO, 24 °C) *δ* 159.0, 150.8, 150.3, 136.3, 132.2, 131.1, 129.3, 129.0, 128.9, 128.0, 127.0, 126.5, 125.7, 125.5, 125.1, 124.0, 121.2, 114.9, 114.5, 112.7, 55.2, 41.7.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{26}H_{22}NO_4S$, 444.1269, found 444.1264.

Ethyl 3-(1-(methylsulfonamido)-2-phenylnaphtho[2,1-*b*]furan-7-yl)benzoate (3x)



Yield: 75 % (126 mg); White solid; *Rf* = 0.20 in 2:8 EtOAc/Hexane.

MP: 149-151 ˚C.

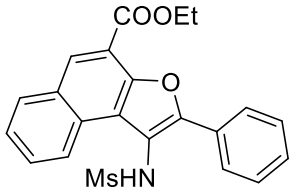
IR (ν_{max}, cm^{-1}): 3450, 2926, 1712, 1638, 1306, 1148, 805.

^{1}H NMR (400 MHz, DMSO, 24 °C): δ 10.05 (s, 1H), 8.94 (d, *J* = 8.8 Hz, 1H), 8.44 (s,1H), 8.38 (s,1H), 8.15-8.13 (m, 3H), 8.05 (d, *J* = 8.4 Hz, 2H), 8.00 (d, *J* = 7.6 Hz, 1H), 7.88 (d, *J* = 8.8 Hz, 1H), 7.71-7.65 (m, 1H), 7.61-7.57 (m, 2H), 7.51-7.47 (m, 1H), 4.38 (q, *J* = 7.0 Hz, 2H), 2.79 (s, 3H), 1.37 (t, *J* = 7.0 Hz, 3H).

$^{13}C\{^{1}H\}$ NMR (100 MHz, DMSO, 24 °C) δ 165.7, 151.0, 150.5, 140.5, 135.5, 131.8, 131.0, 130.8, 129.6, 129.3, 129.0, 128.8, 128.1, 127.3, 127.2, 126.7, 126.5, 126.4, 125.2, 124.3, 121.1, 114.9, 113.0, 61.0, 41.7, 14.2.

HRMS: m/z: $[M+Na]^+$ Calcd. for $C_{28}H_{23}NO_5SNa$, 508.1194, found 508.3100.

.**Ethyl 1-(methylsulfonamido)-2-phenylnaphtho[2,1-*b*]furan-4-carboxylate (3y)**



Yield: 62 % (88 mg); White solid; *Rf* = 0.30 in 2:8 EtOAc/Hexane.

MP: 112-114 ˚C.

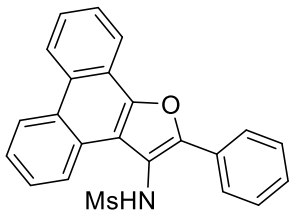
IR (ν_{max}, cm^{-1}): 3438, 2925, 1713, 1637, 1312, 1143, 763.

^{1}H NMR (400 MHz, DMSO, 24 °C): δ 10.07 (s, 1H), 8.90 (d, *J* = 8.4 Hz, 1H), 8.55 (s, 1H), 8.27 (d, *J* = 8.0 Hz, 1H), 8.17 (d, *J* = 7.6 Hz, 2H), 7.82 (d, *J* = 7.4 Hz, 1H), 7.67-7.60 (m, 3H), 7.53-7.51 (m, 1H), 4.48-4.51 (m, 2H), 2.81 (s, 3H), 1.48 (s, 3H).

$^{13}C\{^{1}H\}$ NMR (125 MHz, DMSO, 24 °C) *δ* 163.7, 151.3, 147.2, 130.3, 129.9, 129.5, 129.0 (3C), 128.8, 128.6, 126.4, 125.9, 123.2, 122.9, 115.4, 114.8, 61.1, 41.7, 14.3.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{22}H_{20}NO_5S$, 410.1062, found 410.1056.

N-(2-Phenylphenanthro[9,10-*b*]furan-3-yl)methanesulfonamide (3z)



Yield: 28% (38 mg); White solid; *Rf* = 0.40 in 2:8 EtOAc/Hexane.

MP: 238-240 ˚C.

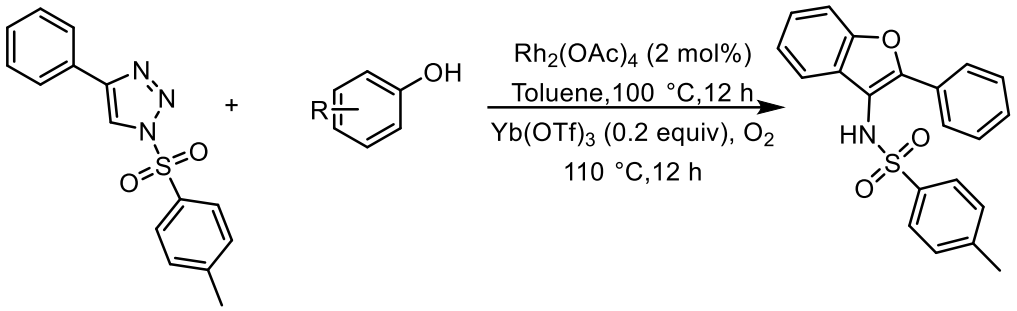
IR (ν_{max}, cm^{-1}): 3480, 2922, 1637, 1322, 1147, 761.

^{1}H NMR (400 MHz, DMSO, 24 °C): δ 10.04 (s, 1H), 8.91-8.89 (m, 3H), 8.44 (d, *J* = 7.6Hz, 1H), 8.21 (d, *J* = 7.6Hz, 2H), 7.82-7.69 (m, 4H), 7.61 (t, *J* = 7.4 Hz, 2H), 7.51-7.48 (m, 1H), 2.78 (s, 3H).

$^{13}C\{^{1}H\}$ NMR (100 MHz, DMSO, 24 °C) *δ* 150.8, 146.7, 129.3, 129.1, 129.0, 128.9, 128.1, 127.9, 127.2, 127.1, 126.6, 126.5, 126.1, 124.1 (2C), 124.0, 121.2, 120.1, 118.7, 115.7, 41.8.

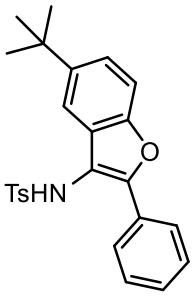
HRMS: m/z: $[M+H]^+$ Calcd. for $C_{23}H_{18}NO_3S$, 388.1007, found 388.1005.

3.3. Typical procedure for Rhodium(III) catalyzed benzofuran synthesis (3aa & 3ab) :



N-Sulfonyl-1,2,3triazole **1a** (100 mg, 0.334 mmol, 1 equiv) phenol derivative (38 mg, 0.401 mmol, 1.2 equiv) and $Rh_2(OAc)_4$ (3 mg, 0.007 mmol) were taken in an oven dried 10 mL Schlenk tube. The tube was filled with nitrogen through successive evacuation and refilled with nitrogen and dry toluene (2.0 mL) was introduced to the reaction mixture *via* syringe. The reaction was stirred at 100 °C for 3 h. After the consumption of triazole monitored by TLC analysis, $Yb(OTf)_3$ (41 mg, 0.066 mmol) was added and the reaction was continued further 12 h under oxygen atmosphere. After the TLC analysis, the reaction mixture was cooled to room temperature and diluted with EtOAc. Evaporation of solvent and purification of crude through column chromatography using (Hexane: EtOAc: 9:1) as eluent gave the benzofurans.

N-(5-(*tert*-Butyl)-2-phenylbenzofuran-3-yl)-4-methylbenzenesulfonamide (3aa)



Yield: 38 % (53 mg); Yellow liquid; *Rf* = 0.48 in 2:8 EtOAc/Hexane.

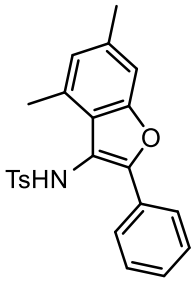
IR (ν_{max}, cm^{-1}): 3425, 2955, 1619, 1325, 1150, 813.

^1H NMR (400 MHz, $CDCl_3$, 24 °C): δ 7.94 (d, *J* = 8.0 Hz, 2H), 7.65 (d, *J* = 8.0 Hz, 2H), 7.39-7.29 (m, 5H), 7.12 (d, *J* = 8.0 Hz, 2H), 6.89(s, 1H), 6.46(s, 1H), 2.33(s, 3H), 1.23(s, 9H).

$^{13}C\{^1H\}$ NMR (100 MHz, $CDCl_3$, 24 °C) δ 152.2, 151.1, 146.3, 144.1, 137.1, 129.8, 129.2, 129.1, 128.6, 127.7, 126.7, 126.6, 123.2, 115.3, 112.7, 110.8, 34.8, 31.7, 21.6.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{25}H_{26}NO_3S$, 420.1633, found 420.1626.

***N*-(4,6-Dimethyl-2-phenylbenzofuran-3-yl)-4-methylbenzenesulfonamide (3ab)**



Yield: 29 % (28 mg); White solid; *Rf* = 0.52 in 2:8 EtOAc/Hexane.

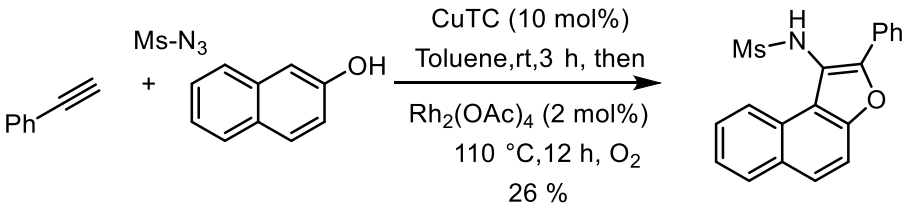
IR (ν_{max}, cm^{-1}): 3429, 3064, 2961, 1614, 828.

^1H NMR (500 MHz, $CDCl_3$, 24 °C): δ 7.51-7.49 (m, 2H), 7.42 (d, *J* = 8.5 Hz, 2H), 7.18-7.13 (m, 3H), 7.10 (s, 1H), 6.89 (d, *J* = 8.0 Hz, 2H), 6.84 (s, 1H), 6.38 (s, 1H), 2.60 (s, 3H), 2.42 (s, 3H), 2.24 (s, 3H).

$^{13}C\{^1H\}$ NMR (125 MHz, $CDCl_3$, 24 °C) δ 153.8, 151.4, 143.7, 136.6, 135.5, 131.3, 129.3, 129.2, 128.2 (2C), 127.5, 127.0, 126.5, 123.4, 112.9, 109.4, 21.7, 21.5, 18.5.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{23}H_{22}NO_3S$, 392.1320, found 392.1319.

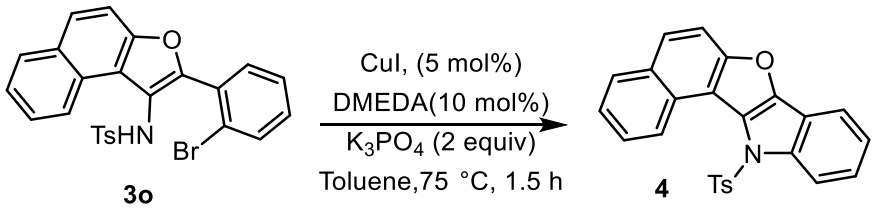
3.4 One-pot synthesis of naphthofuran 3a:



In an over dried 10 mL Schlenk tube, equipped with stir bar, CuTC (0.1 mmol, 0.2 equiv) was dissolved in toluene (4 mL) and stirred at room temperature under N_2 atmosphere. To the stirred solution phenylacetylene (0.55 mmol, 1.1 equiv) followed by mesyl azide (0.5 mmol, 1 equiv) were added and the resulting mixture was stirred for 3 h. After complete conversion of the starting material as monitored by TLC analysis, $Rh_2(OAc)_4$ (0.02 mmol, 4 mol%) and *β*-naphthol (0.5 mmol, 1 equiv) were added to the Schlenk tube equipped with oxygen atmosphere and stirred at 110 °C for 12 h. After completion of reaction, as monitored by TLC analysis, the reaction mixture was cooled to room temperature and purified by column chromatography using hexane/ethyl acetate mixture to afford the **3a** in 26% (44 mg) of yield.

4. Synthetic application of the developed method:

4.1. Synthesis of compound 12*H*-naphtho[1',2':4,5]furo[3,2-*b*]indole (4):



In an oven dried 10 mL reaction tube, equipped with stir bar, **3o** (0.1 mmol) was dissolved in 1 mL of toluene. Subsequently, CuI (5 mol%), *N*,*N*'-dimethylethylenediamine (DMEDA) (10 mol%) and K_3PO_4 (2 equiv) were added under nitrogen atmosphere. The reaction tube was sealed and stirred at 75 °C for 1.5 h. After the TLC analysis, it was cooled to room temperature and purified by column chromatography using ethyl acetate / hexane (9:91) mixture as eluent to afford the polyheteroaromatic compound **4** in 89% of yield.

Yield: 89 % (37 mg); White solid; *Rf* = 0.34 in 2:8 EtOAc/Hexane.

MP: 128-130 ˚C.

IR (ν_{max}, cm^{-1}): 3483, 2926, 1637, 1326, 1417.

^1H NMR (400 MHz, $CDCl_3$, 24 °C): δ 9.02 (d, *J* = 8.4 Hz, 1H), 7.93 (d, *J* = 7.6 Hz, 1H), 7.78 (d, *J* = 8.8 Hz, 1H), 7.66 (t, *J* = 7.6 Hz, 1H), 7.58-7.51 (m, 2H), 7.48-7.46 (m, 1H), 7.33 (d, *J* = 8.0 Hz, 2H), 7.16-7.15 (m, 2H), 7.05-7.03 (m, 1H), 6.83-6.80 (m, 2H), 2.23 (s, 3H).

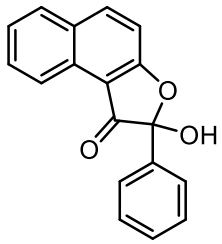
$^{13}C\{^1H\}$ NMR (125 MHz, DMSO, 24 °C) δ 152.0, 150.0, 143.5, 135.7, 133.0, 132.1, 131.1, 130.4, 130.3, 129.4, 128.7, 127.9, 127.3, 127.2(2C), 126.8, 125.3, 124.4, 121.7, 120.7, 116.5, 112.2, 21.5.

HRMS: m/z: $[M+Na]^+$ Calcd. for $C_{25}H_{17}NO_3SNa$, 434.0826, found 434.0781.

4. 2. Synthesis of naphtho[2,1-*b*]furan-1(2*H*)-ones:

In an oven dried 10 mL Schlenk tube equipped with stir bar, **3a** or **3s (**0.1 mmol) was dissolved in 2 mL DMF. Subsequently, $Pd(OAc)_2$ (10 mol%), $Cu(OAc)_4$ (1 equiv) were added under oxygen atmosphere. The reaction mixture was stirred at 100 °C for 12 h. After the TLC analysis, the reaction mixture was cooled to room temperature and diluted with water, extracted with DCM. The obtained organic layer was washed with cold water and dried over Na_2SO_4. Evaporation of solvent and purification of crude through column chromatography using (Hexane: EtOAc: 9:1) as eluent to afford the product.

2-Hydroxy-2-phenylnaphtho[2,1-*b*]furan-1(2*H*)-one (5):



Yield: 58 % (16 mg); White solid; *Rf* = 0.38 in 2:8 EtOAc/Hexane.

MP: 85-87 ˚C.

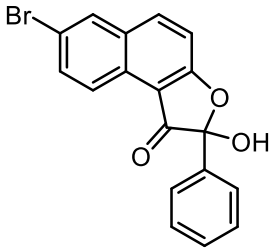
IR (ν_{max}, cm^{-1}): 3396, 1709, 1258, 1077, 748

^{1}H NMR (400 MHz, $CDCl_3$, 24 °C): δ 8.47 (d, *J* = 8.00 Hz, 1H), 8.10 (d, *J* = 8.8 Hz, 1H), 7.77 (d, *J* = 8.00 Hz, 1H), 7.69-7.68 (m, 2H), 7.54 (t, *J* = 7.6 Hz, 1H), 7.44-7.38 (m, 4H), 7.29 (d, *J* = 7.2 Hz, 1H), 4.92 (bs, 1H).

$^{13}C\{^{1}H\}$ NMR (125 MHz, DMSO, 24 °C) δ 197.6, 173.5, 141.6, 136.4, 130.4, 129.3, 129.2, 129.1, 129.0, 128.6, 125.8, 125.5, 121.9, 114.2, 109.7, 105.3.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_8H_{13}O_3$, 277.0864, found 277.0873.

7-Bromo-2-hydroxy-2-phenylnaphtho[2,1-*b*]furan-1(2*H*)-one (6)



Yield: 47 % (17 mg); White solid; *Rf* = 0.43 in 2:8 EtOAc/Hexane.

MP: 108-110 ˚C.

IR (ν_{max}, cm^{-1}): 3389, 1710, 1498, 1277, 1066, 740.

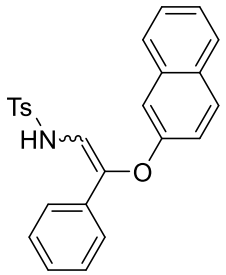
^{1}H NMR (400 MHz, $CDCl_3$, 24 °C): δ 8.67 (s, 1H), 8.41 (dd, *J* = 8.8, 2.8 Hz, 2H), 8.36 (s, 1H), 7.87-7.84 (m, 1H), 7.61 (d, *J* = 8.8 Hz, 1H), 7.52-7.51(m, 2H), 7.41-7.40(m, 3H),

$^{13}C\{^{1}H\}$ NMR (100 MHz, $CDCl_3$, 24 °C) δ 197.8, 174.0, 140.4, 135.2, 133.3, 130.7, 130.6, 130.0, 128.9, 127.9, 126.0, 124.4, 119.3, 114.9, 110.5, 105.0.

HRMS: m/z: $[M+H]^+$ Calcd. for $C_{18}H_{12}BrO_3$, 354.9969, found 354.9996.

5. Synthesis of 4-Methyl-*N*-(2-(naphthalen-2-yloxy)-2-phenylvinyl)benzenesulfonamide (7):

In an over dried 10 mL sealed tube, equipped with stir bar tosyl triazole **1b** (0.5 mmol, 1 equiv) followed by β-naphthol (0.6 mmol, 1.2 equiv) and $Rh_2(OAc)_4$ (0.01 mmol, 2 mol%) were added and the resulting mixture was stirred for 12 h in toluene. After complete conversion of starting material as monitored by TLC analysis the reaction mixture was cooled to room temperature and purified by column chromatography using hexane/ethyl acetate mixture to afford the **7** in 43% of yield.



Yield: 43 % (89 mg); White solid; *Rf* = 0.37 in 2:8 EtOAc/Hexane.

IR (ν_{max}, cm^{-1}): 3430, 2978, 1166, 1329,743.

^1H NMR (400 MHz, DMSO, 24 °C): δ 10.35 (d, *J* = 10.4 Hz, 1H), 7.83-7.77 (m, 4H), 7.53 (d, *J* = 8.0 Hz, 1H, 7.44-7.40 (m, 1H), 7.38-7.32 (m, 3H), 7.27-7.23 (m, 3H), 7.18-7.14 (m, 3H), 6.99-6.96 (m, 1H), 2.36 (s, 3H).

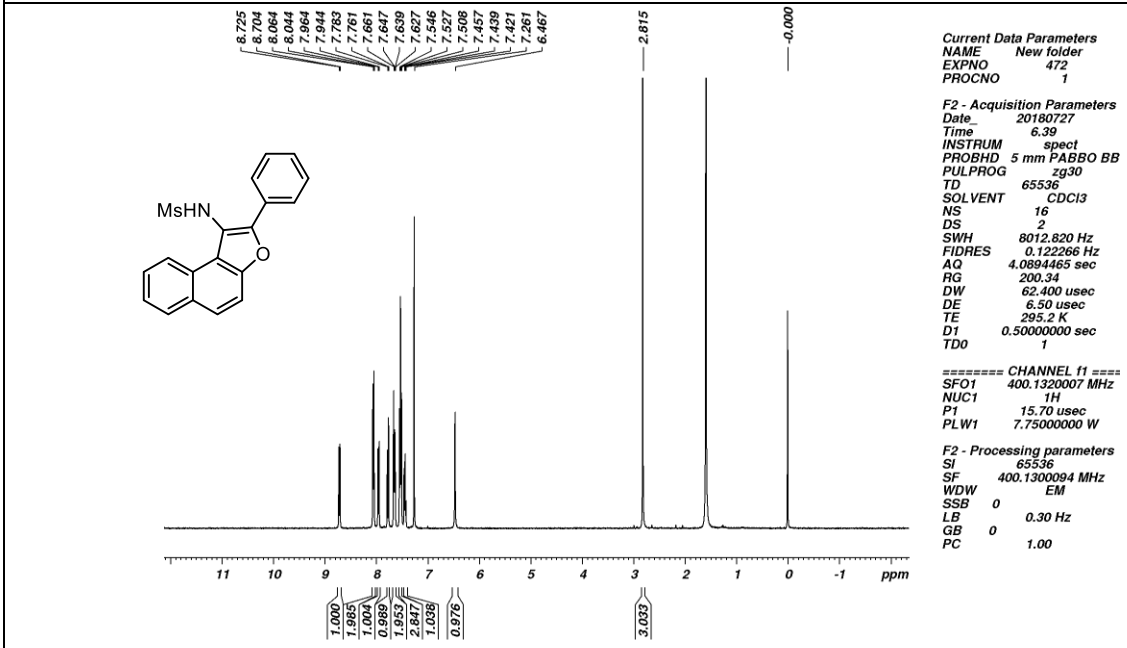
$^{13}C\{^1H\}$ NMR (100 MHz, DMSO, 24 °C) *δ* 154.6, 143.7, 138.2, 134.9, 134.1, 133.7, 130.2, 129.9, 129.6, 129.1, 128.0, 127.8, 127.1, 126.9, 124.6, 124.4, 119.0, 114.9, 109.6, 21.3.

HRMS: m/z: $[M+Na]^+$ Calcd. for $C_{25}H_{21}NO_3SNa$, 438.1139, found 438.1127.

6. Spectral data of the synthesized compounds:

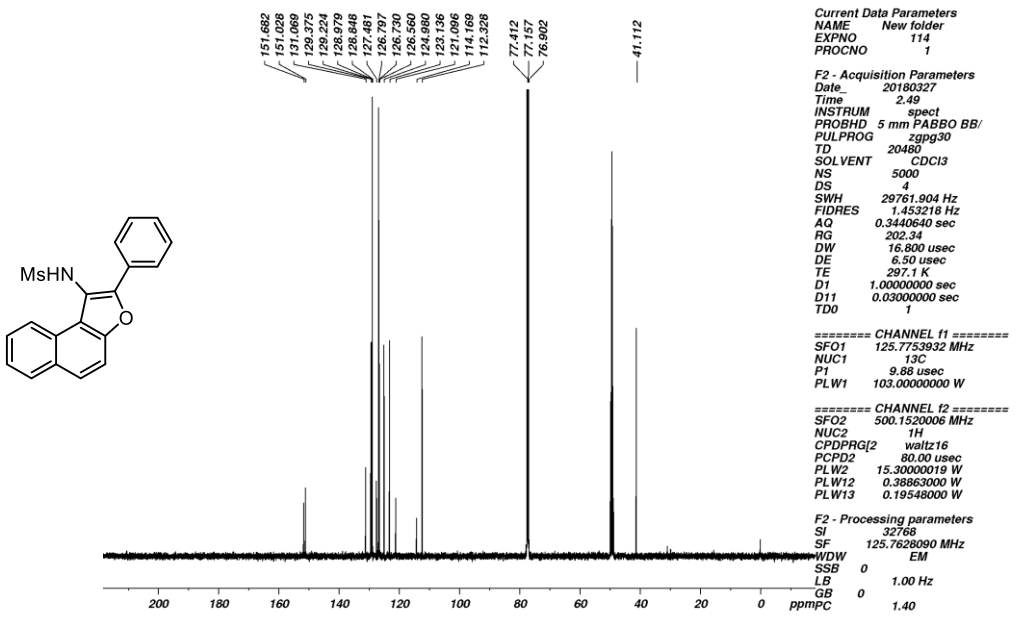
_N_-(2-Phenylnaphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3a):

^{1}H NMR (400 MHz, $CDCl_3$, 24 °C):



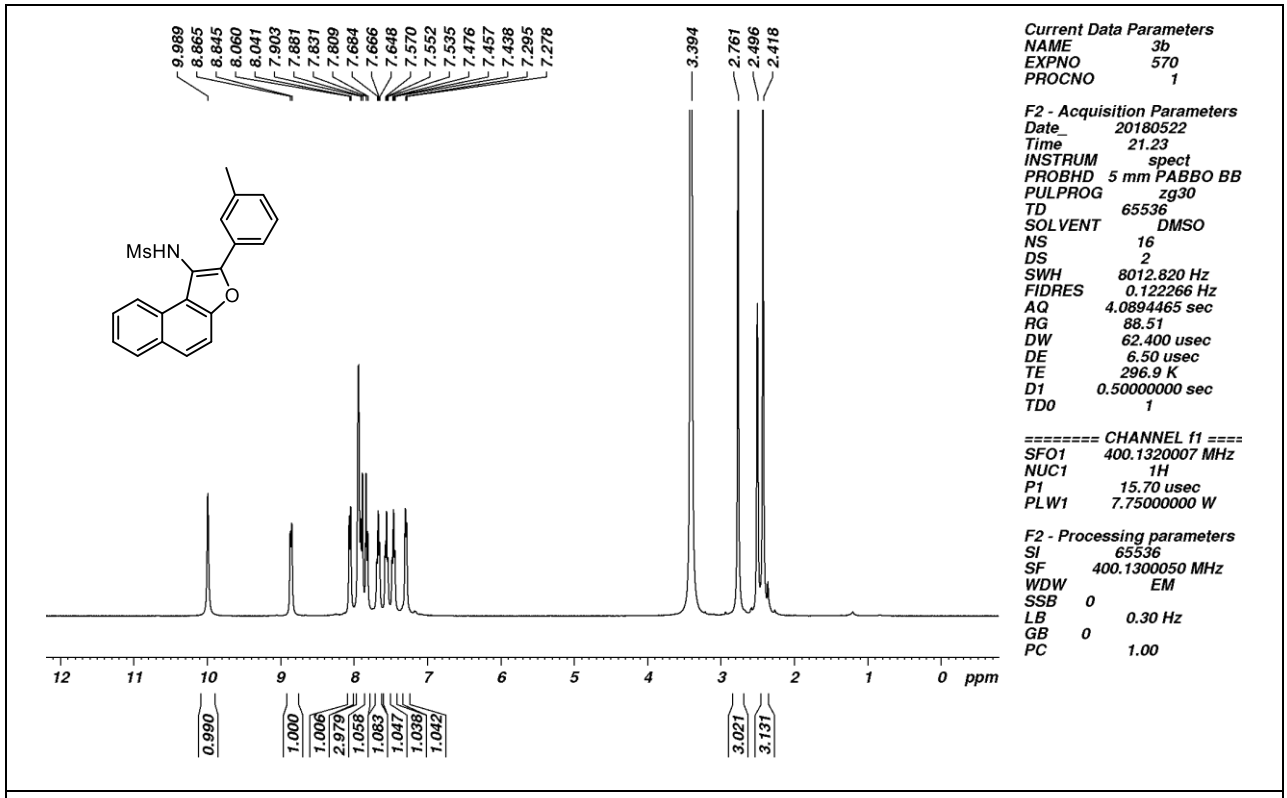
_N_-(2-Phenylnaphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3a):

^{13}C NMR (500 MHz, $CDCl_3$+DMSO, 24 °C):



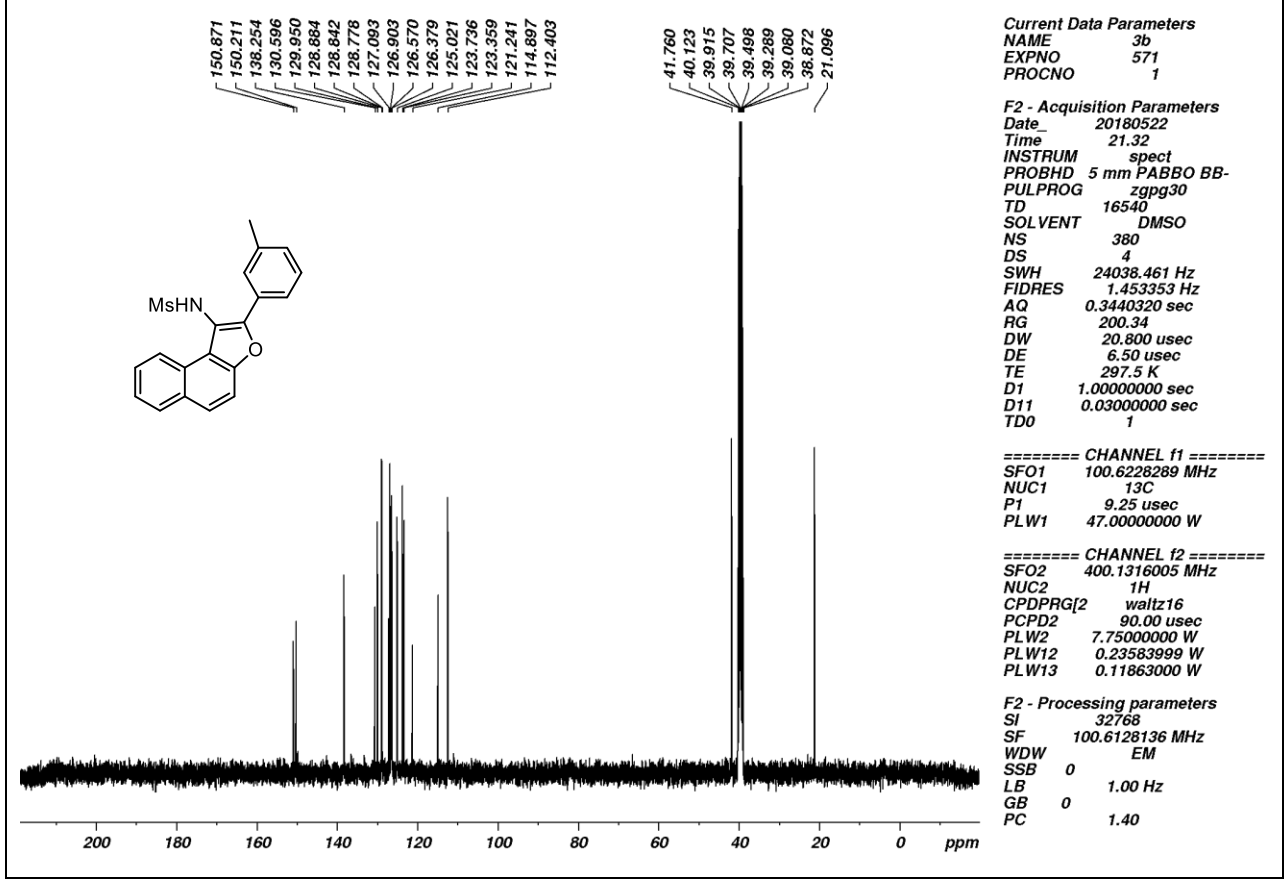
_N_-(2-(_m_-Tolyl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3b)

^{1}H NMR (400 MHz, DMSO, 24 °C):



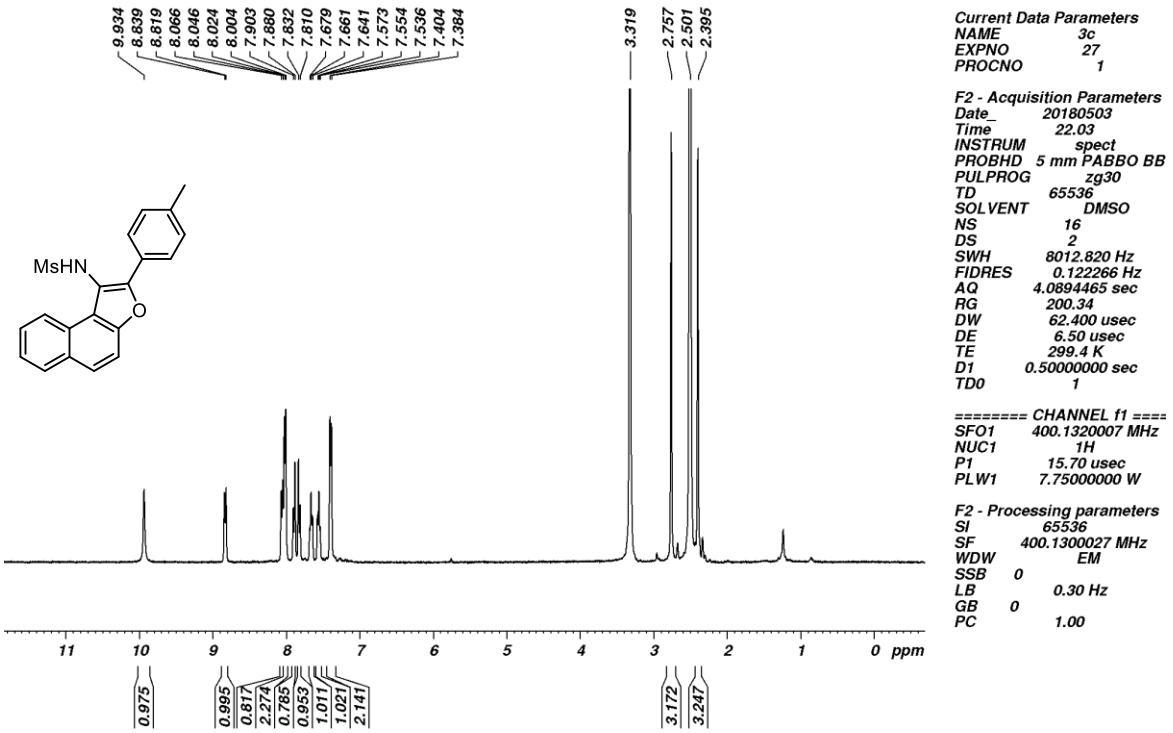
_N_-(2-(_m_-Tolyl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3b)

^{13}C NMR (400 MHz, DMSO, 24 °C):



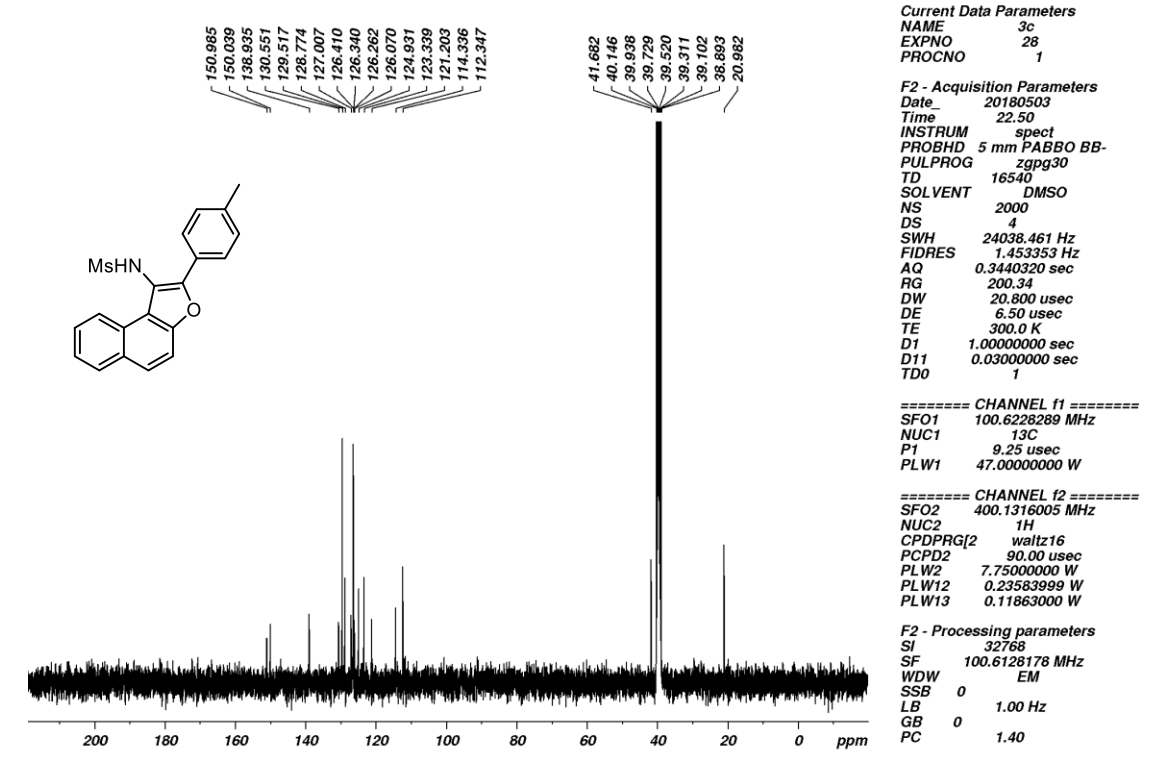
_N_-(2-(_p_-Tolyl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3c)

^{1}H NMR (400 MHz DMSO, 24 °C):



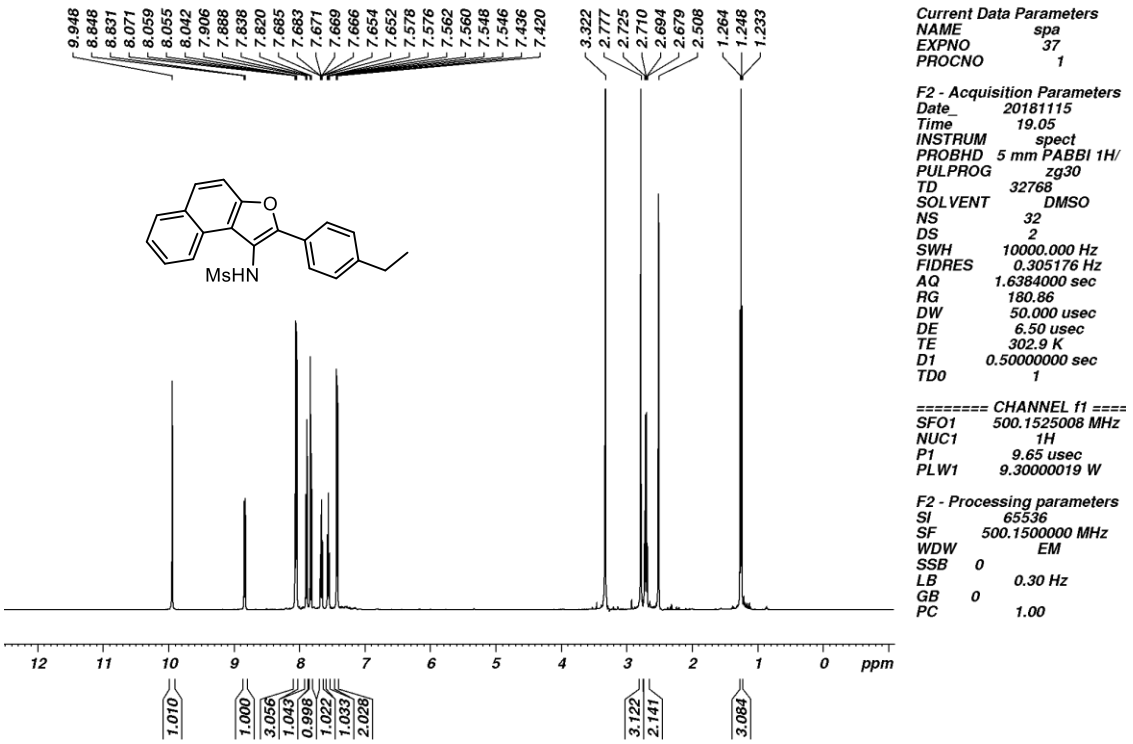
_N_-(2-(_p_-Tolyl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3c)

^{13}C NMR (400 MHz, DMSO, 24 °C):



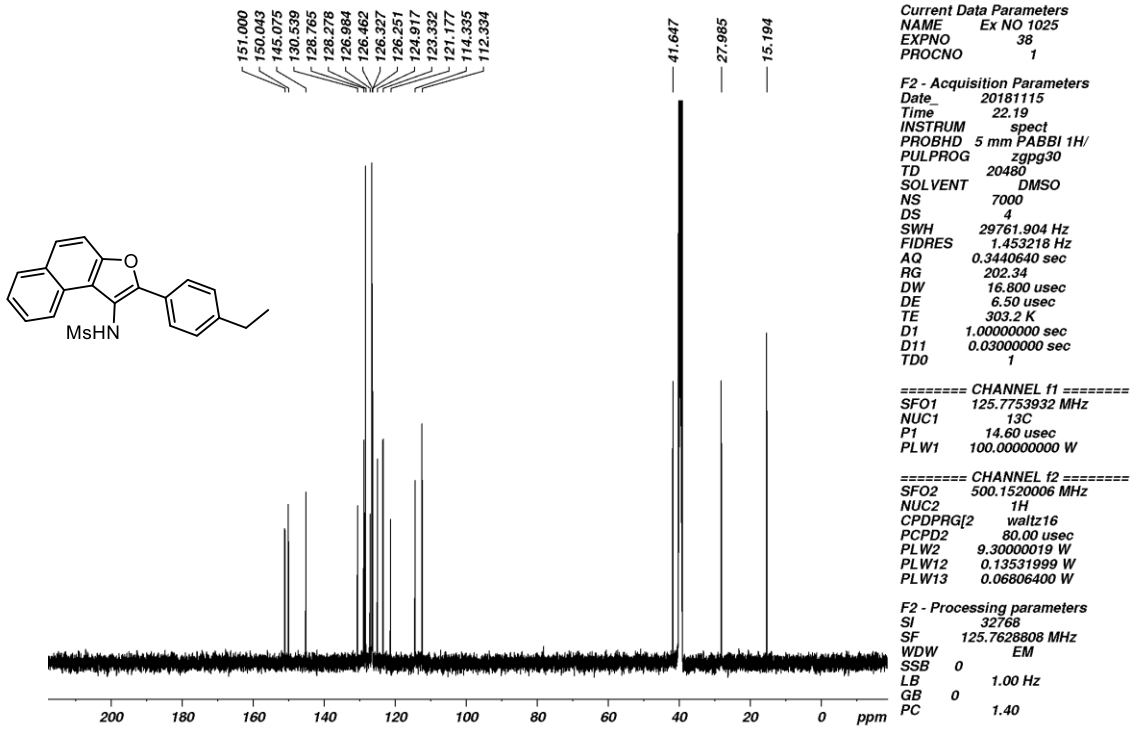
_N_-(2-(4-Ethylphenyl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3d)

^{1}H NMR (500 MHz DMSO, 24 °C):



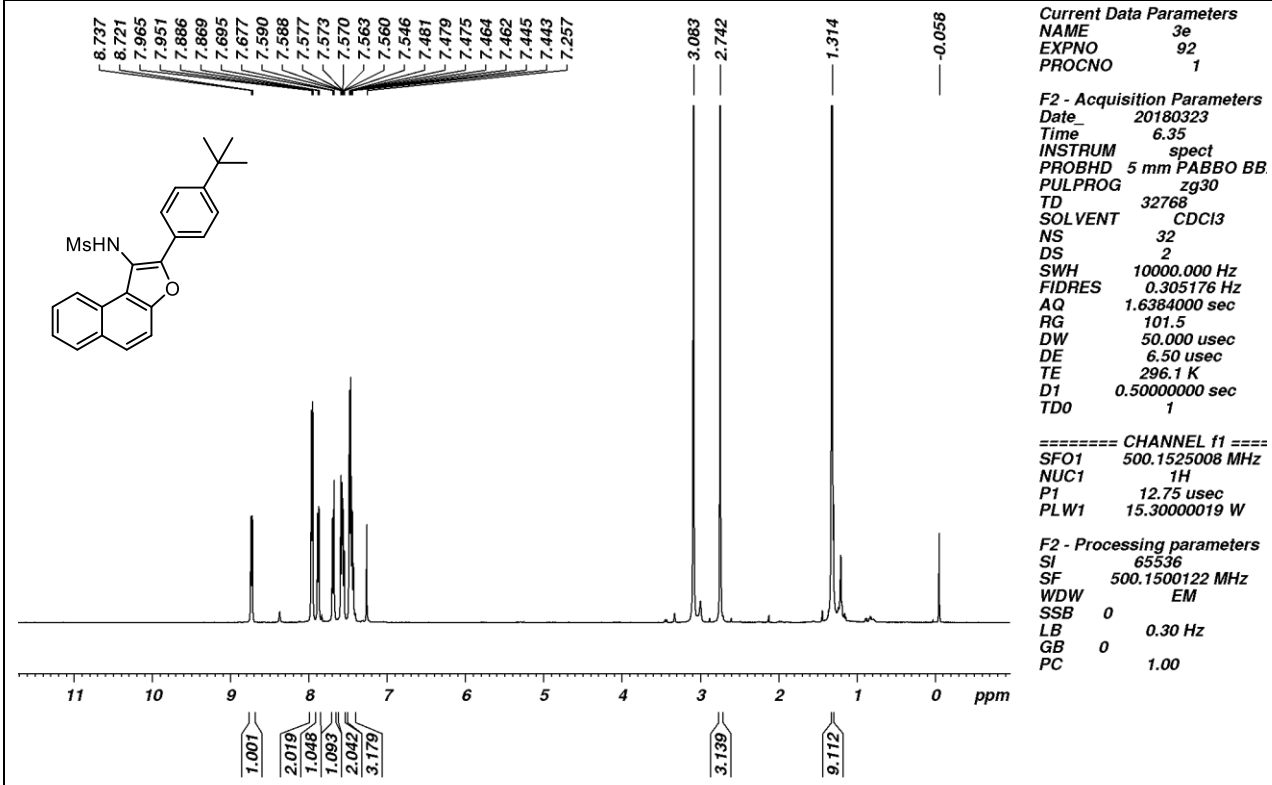
_N_-(2-(4-Ethylphenyl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3d)

^{13}C NMR (400 MHz, DMSO, 24 °C):



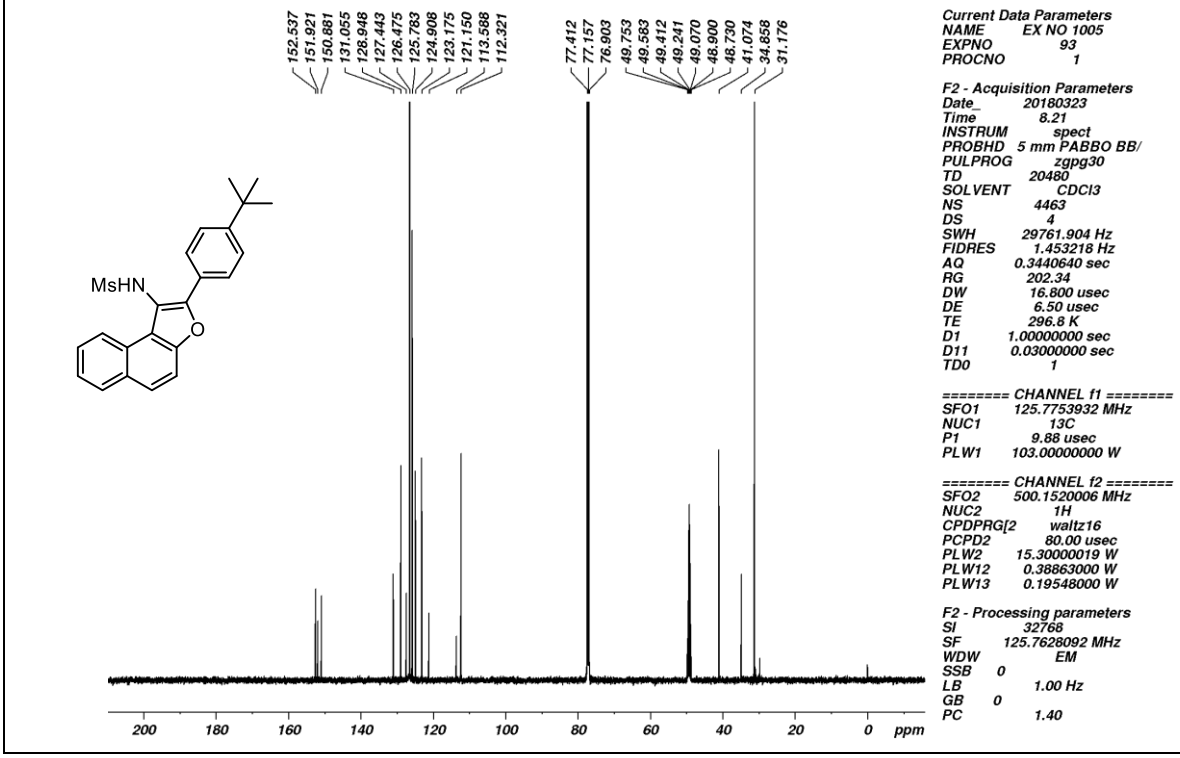
_N_-(2-(4-(_tert_-Butyl)phenyl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3e)

^{1}H NMR (500 MHz DMSO, 24 °C):



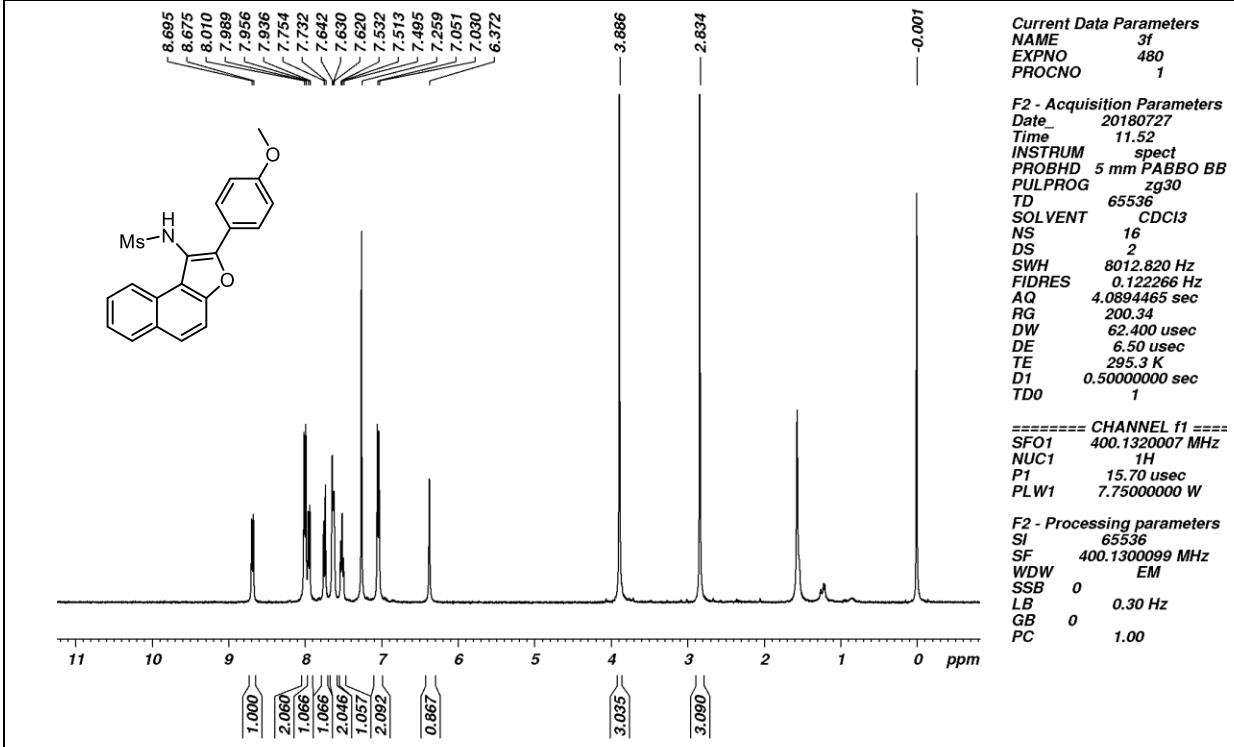
_N_-(2-(4-(_tert_-Butyl)phenyl)naphtho[2,1-b]furan-1-yl)methanesulfonamide (3e)

^{13}C NMR (500 MHz, $CDCl_3$+DMSO, 24 °C):



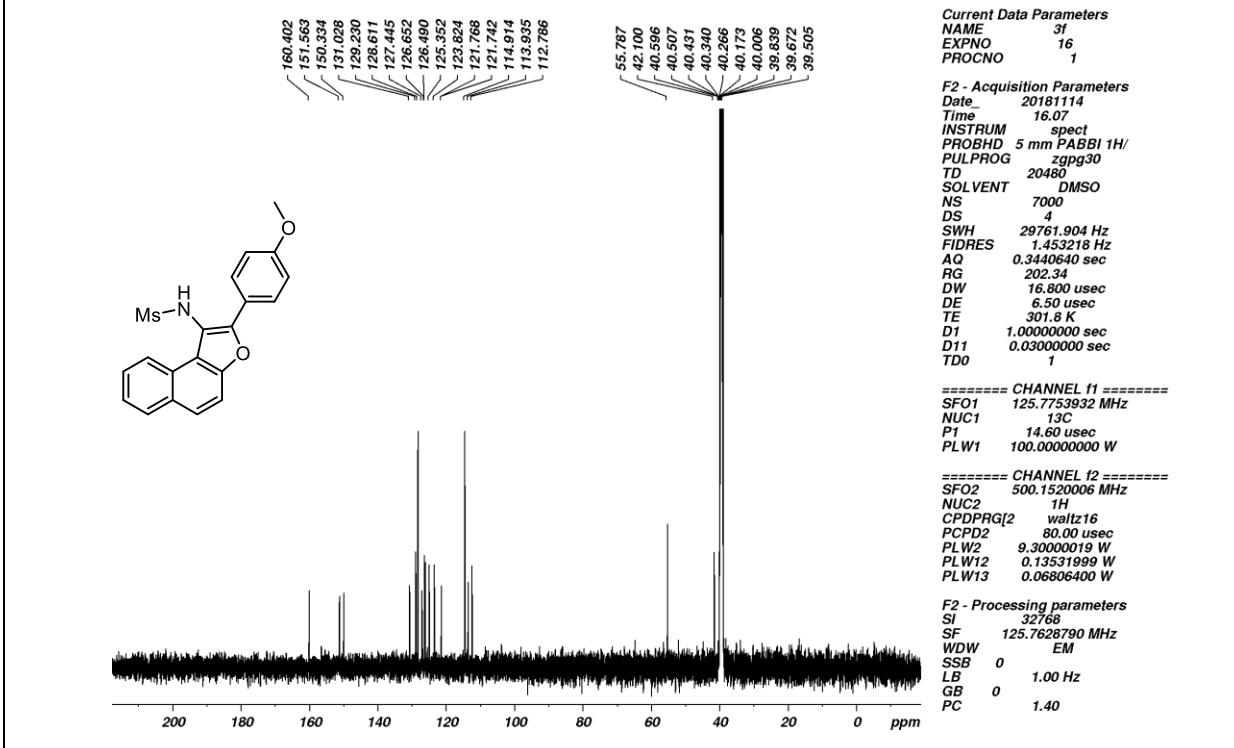
_N_-(2-(4-Methoxyphenyl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3f)

^{1}H NMR (400 MHz, $CDCl_3$, 24 °C):



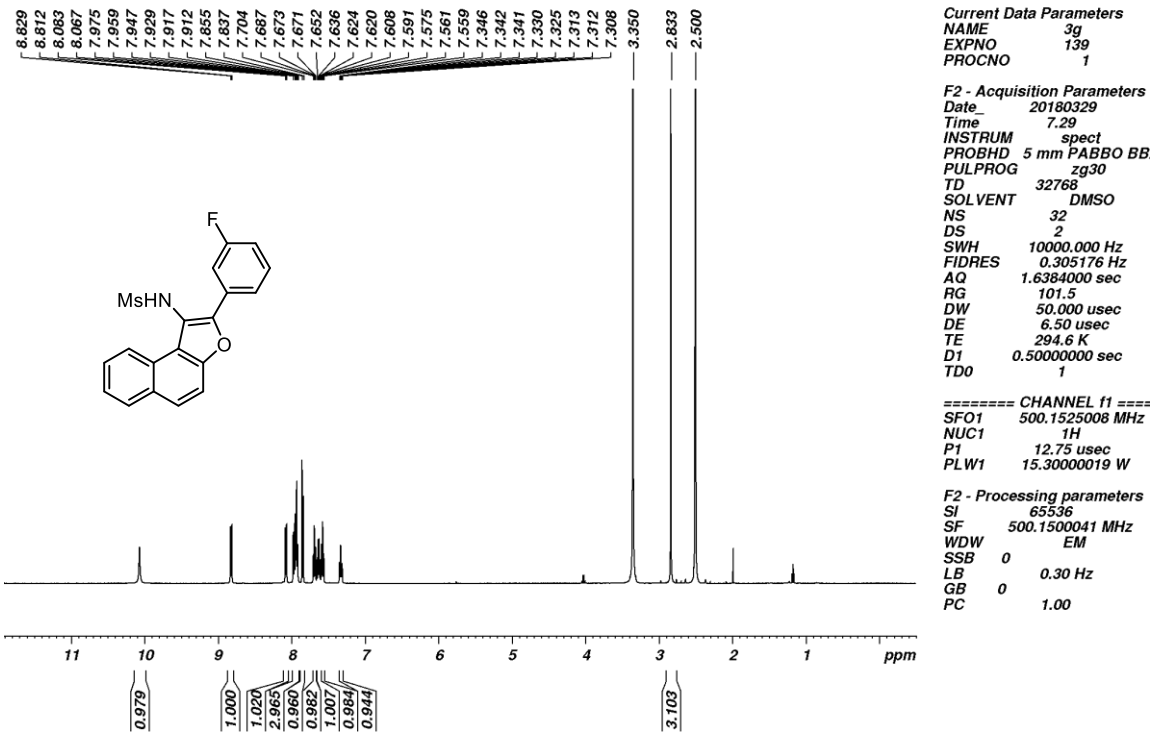
_N_-(2-(4-Methoxyphenyl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3f)

^{13}C NMR (500 MHz, DMSO, 24 °C):



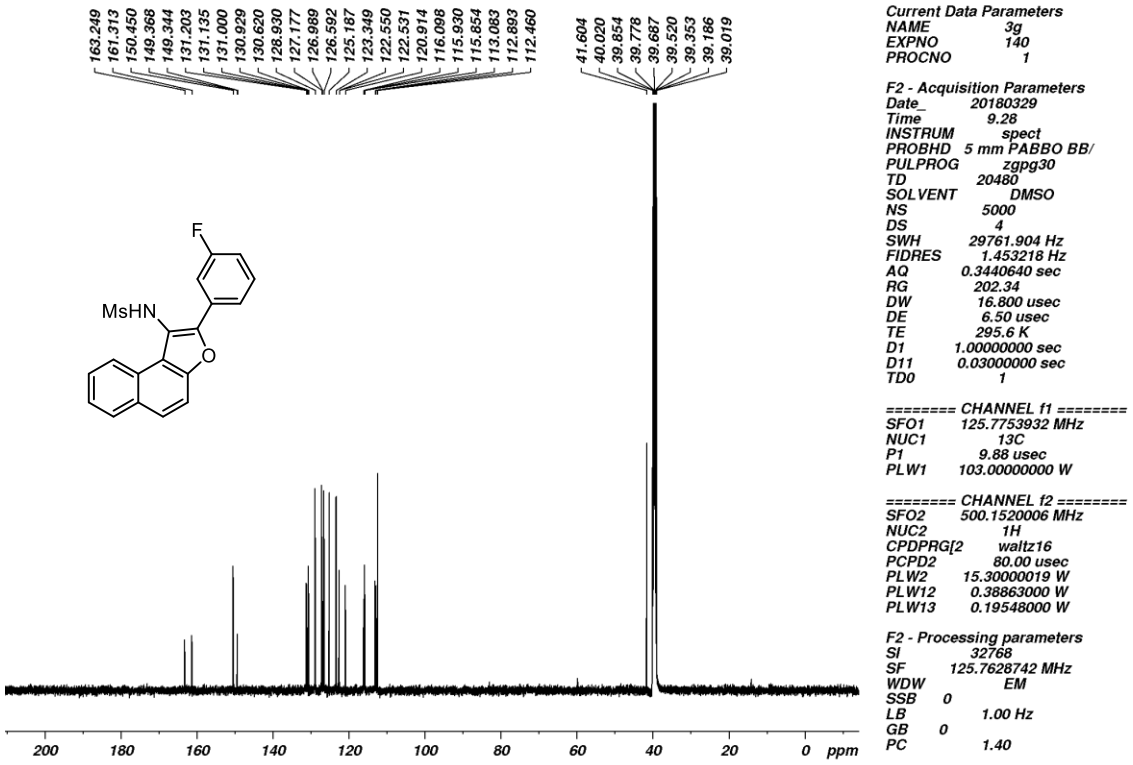
_N_-(2-(3-Fluorophenyl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3g)

^{1}H NMR (500 MHz, DMSO, 24 °C):



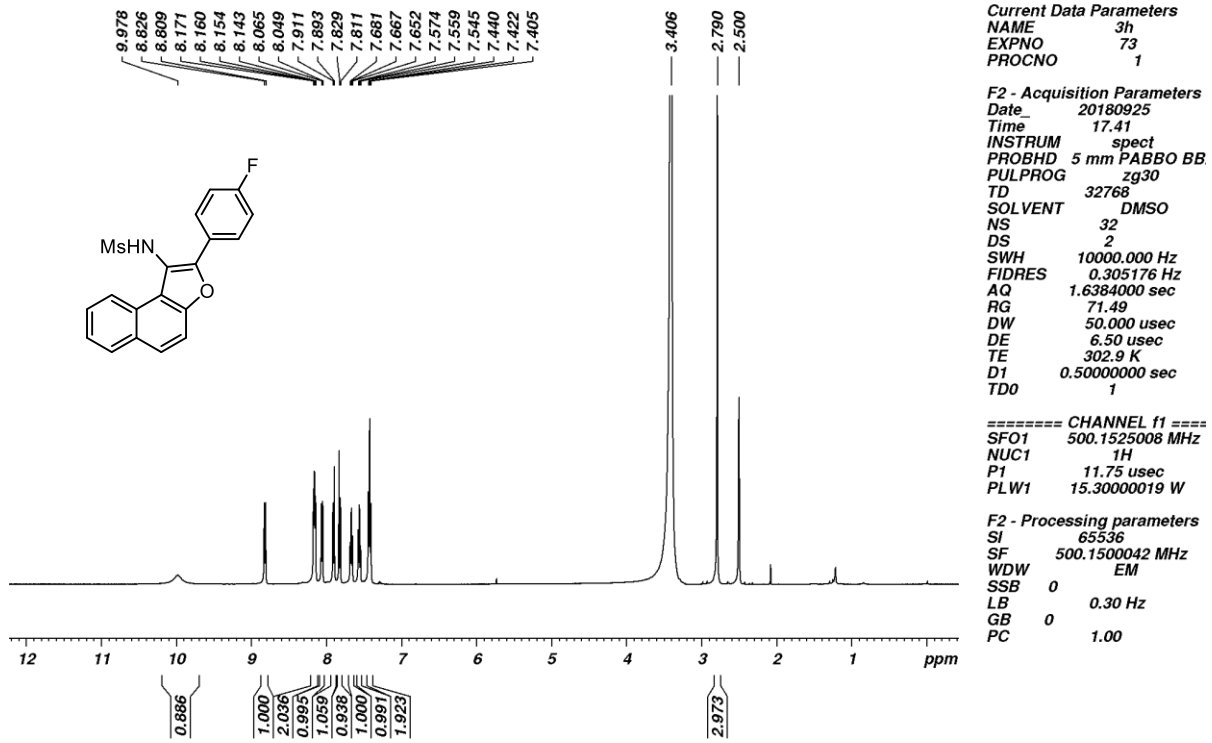
_N_-(2-(3-Fluorophenyl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3g)

^{13}C NMR (500 MHz, DMSO, 24 °C):



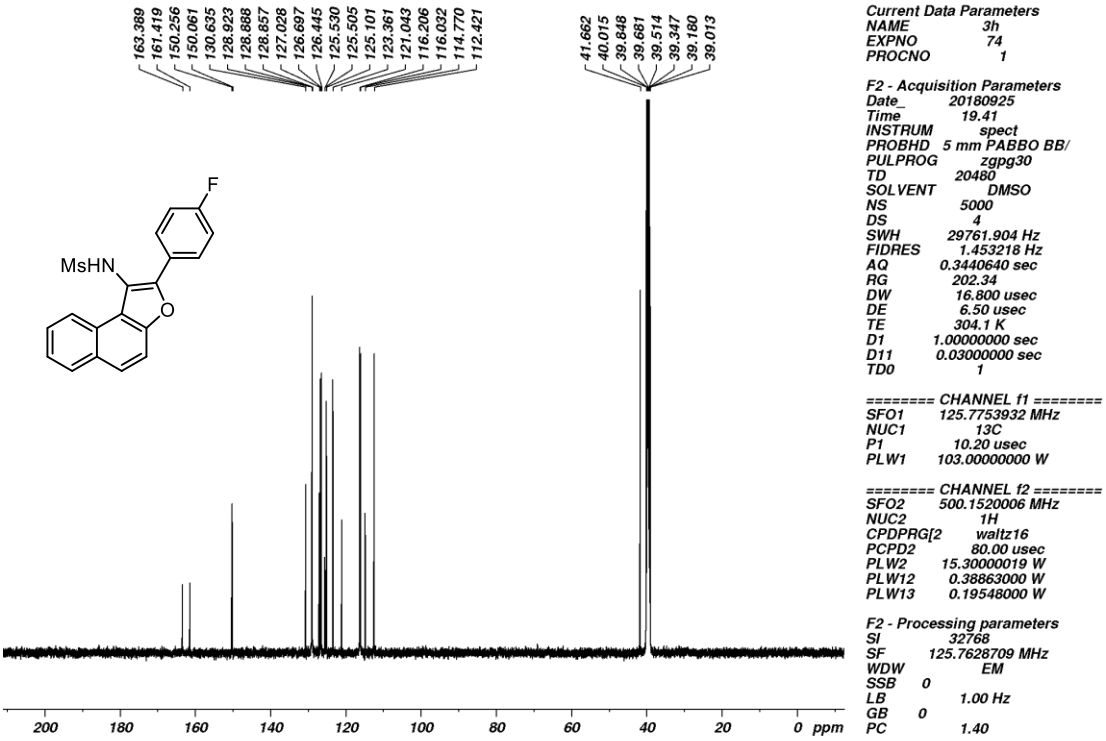
_N_-(2-(4-Fluorophenyl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3h)

^{1}H NMR (500 MHz, DMSO, 24 °C):



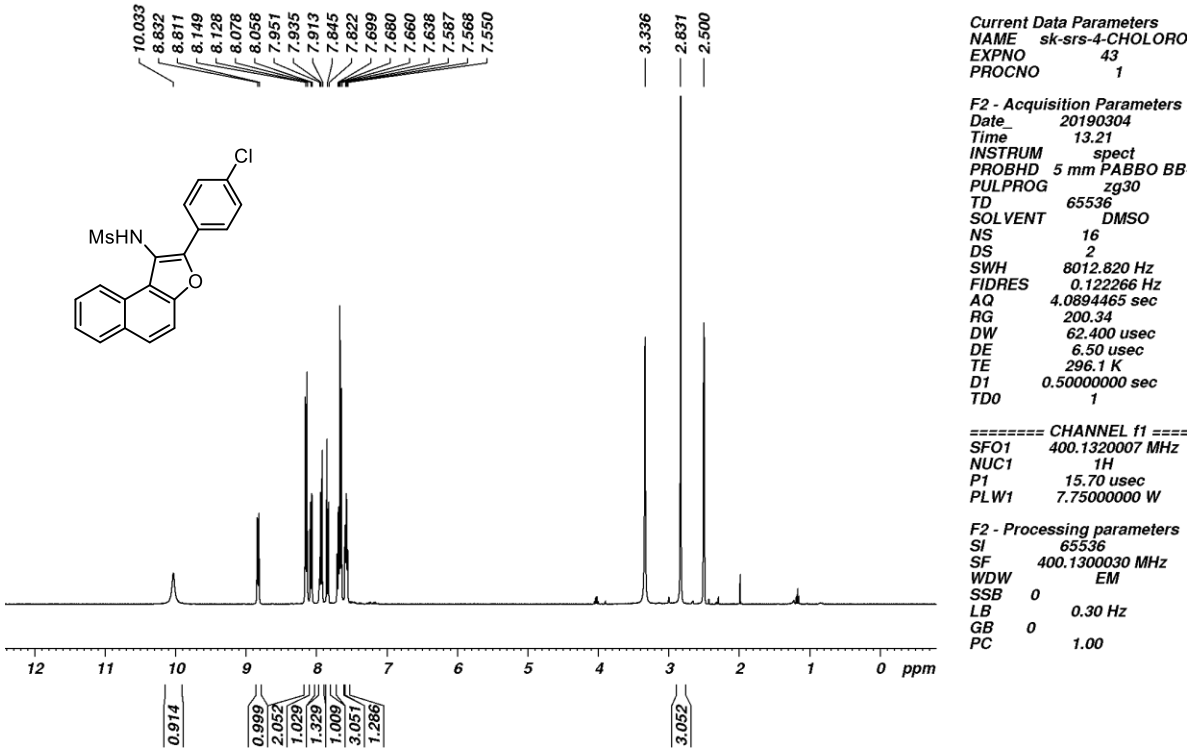
_N_-(2-(4-Fluorophenyl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3h)

^{13}C NMR (500 MHz, DMSO, 24 °C):



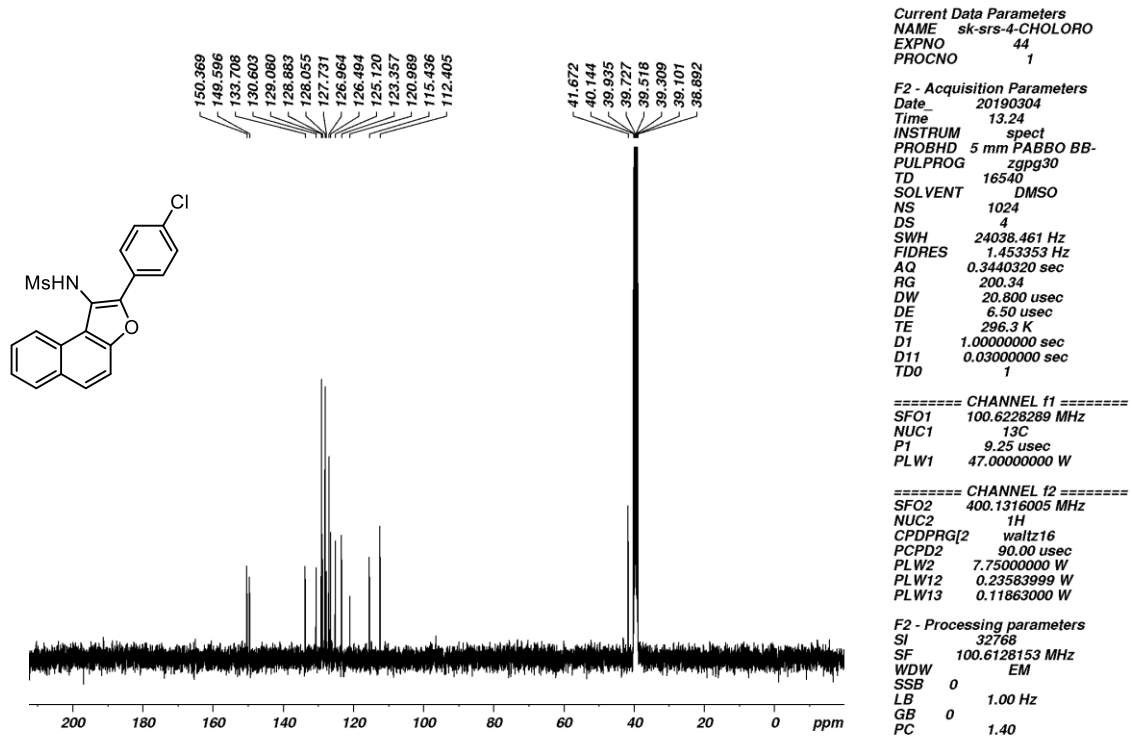
_N_-(2-(4-Chlorophenyl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3i)

^{1}H NMR (400 MHz, DMSO, 24 °C):



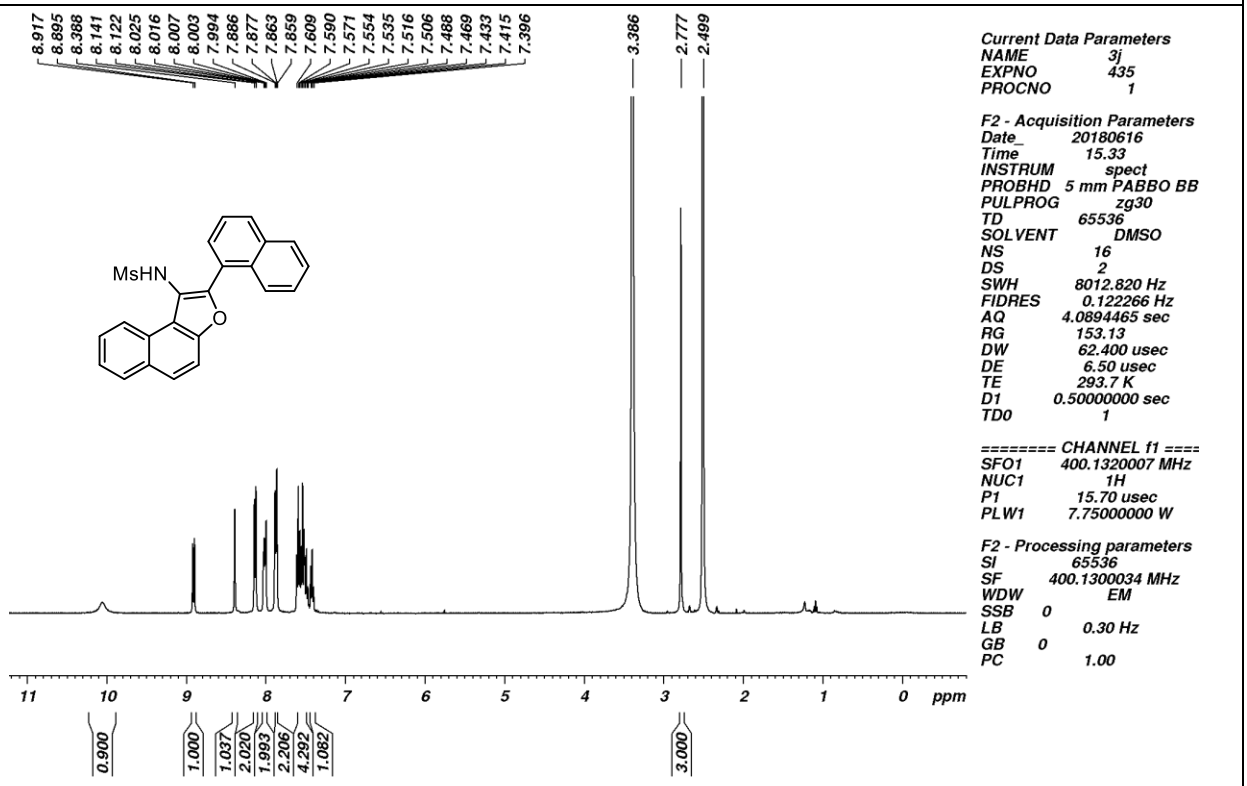
_N_-(2-(4-Chlorophenyl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3i)

^{13}C NMR (400 MHz, DMSO, 24 °C):



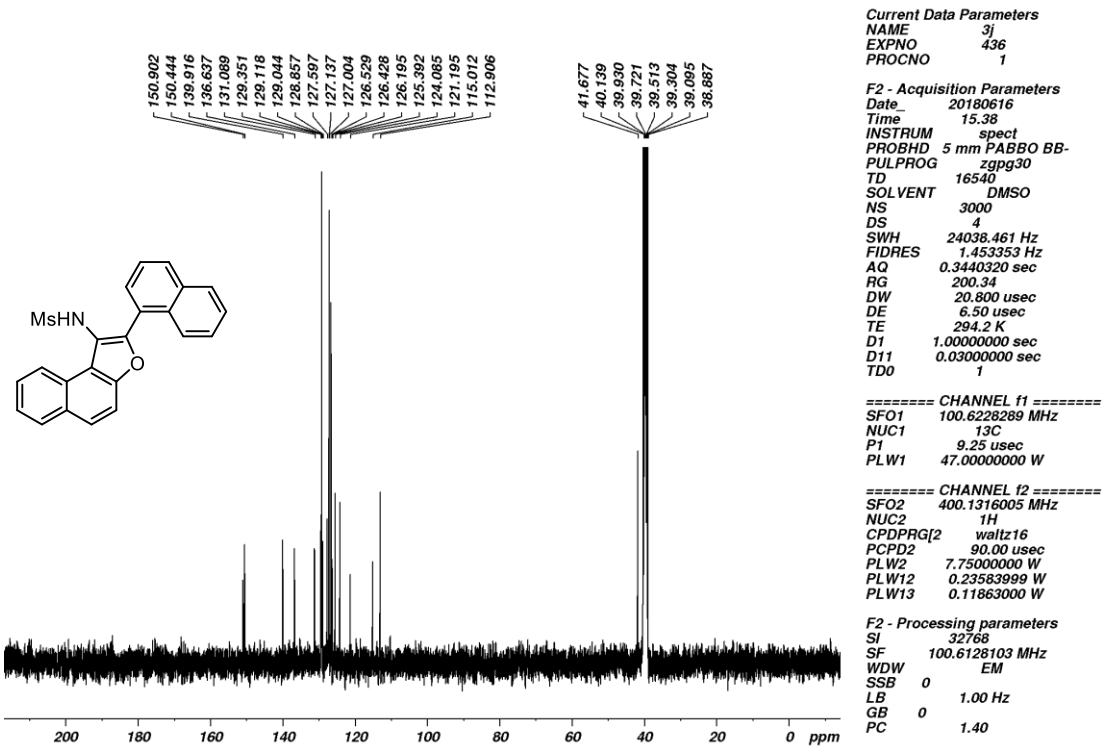
_N_-(2-(Naphthalen-1-yl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3j)

^{1}H NMR (400 MHz, DMSO, 24 °C):



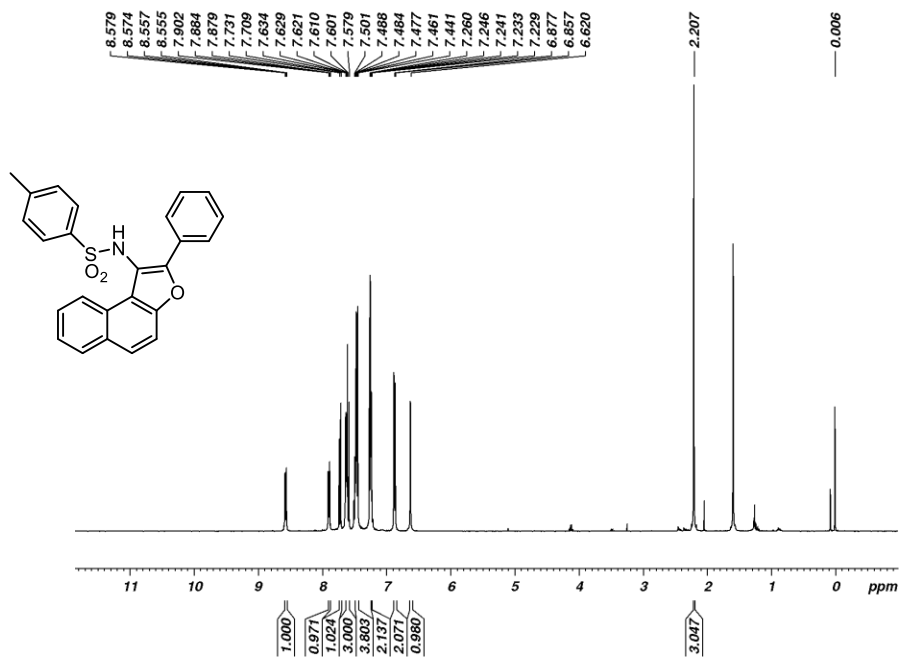
_N_-(2-(Naphthalen-1-yl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3j)

^{13}C NMR (400 MHz, DMSO, 24 °C):



4-Methyl-*N*-(2-phenylnaphtho[2,1-*b*]furan-1-yl)benzenesulfonamide (3k)

^{1}H NMR (400 MHz, $CDCl_3$, 24 °C):

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Current Data Parameters
NAME          3k
EXPNO         277
PROCNO        1

F2 - Acquisition Parameters
Date_         20180316
Time          3.37
INSTRUM       spect
PROBHD   5 mm PABBO BB
PULPROG       zg30
TD            65536
SOLVENT       CDCl3
NS            16
DS            2
SWH           8012.820 Hz
FIDRES        0.122266 Hz
AQ            4.0894465 sec
RG            200.34
DW            62.400 usec
DE            6.50 usec
TE            298.4 K
D1            0.50000000 sec
TD0           1

======== CHANNEL f1 ====
SFO1          400.1320007 MHz
NUC1          1H
P1            15.70 usec
PLW1          7.75000000 W

F2 - Processing parameters
SI            65536
SF            400.1300099 MHz
WDW           EM
SSB           0
LB            0.30 Hz
GB            0
PC            1.00
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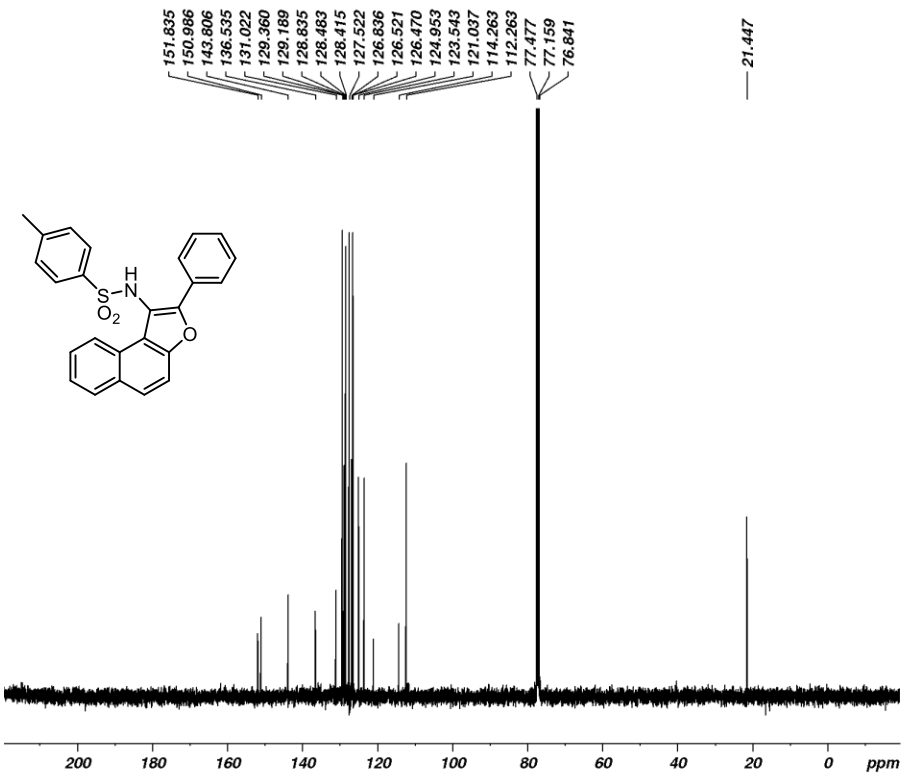
4-Methyl-*N*-(2-phenylnaphtho[2,1-*b*]furan-1-yl)benzenesulfonamide (3k)

^{13}C NMR (400 MHz, $CDCl_3$, 24 °C):

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Current Data Parameters
NAME          3k
EXPNO         278
PROCNO        1

F2 - Acquisition Parameters
Date_         20180316
Time          4.07
INSTRUM       spect
PROBHD   5 mm PABBO BB-
PULPROG       zgpg30
TD            16540
SOLVENT       CDCl3
NS            1638
DS            4
SWH           24038.461 Hz
FIDRES        1.453353 Hz
AQ            0.3440320 sec
RG            200.34
DW            20.800 usec
DE            6.50 usec
TE            299.2 K
D1            1.00000000 sec
D11           0.03000000 sec
TD0           1

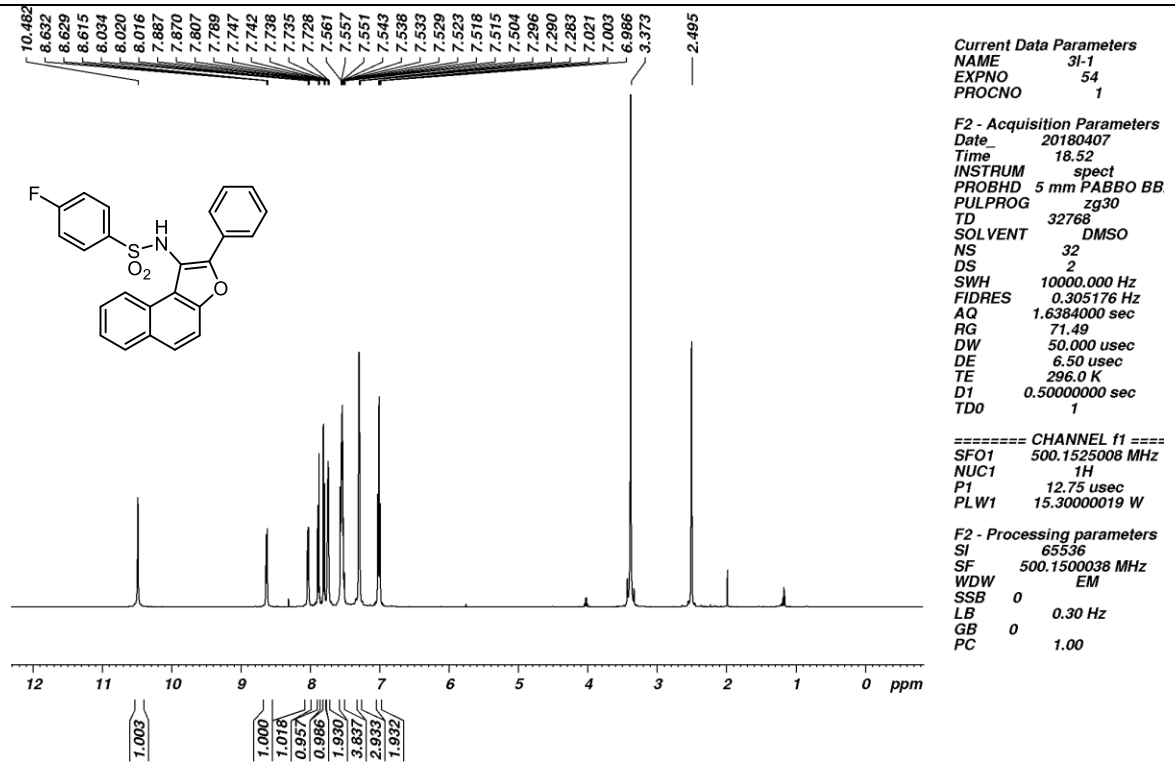
======== CHANNEL f1 ========
SFO1          100.6228289 MHz
NUC1          13C
P1            9.25 usec
PLW1          47.00000000 W

======== CHANNEL f2 ========
SFO2          400.1316005 MHz
NUC2          1H
CPDPRG[2      waltz16
PCPD2         90.00 usec
PLW2          7.75000000 W
PLW12         0.23583999 W
PLW13         0.11863000 W

F2 - Processing parameters
SI            32768
SF            100.6127550 MHz
WDW           EM
SSB           0
LB            1.00 Hz
GB            0
PC            1.40
```

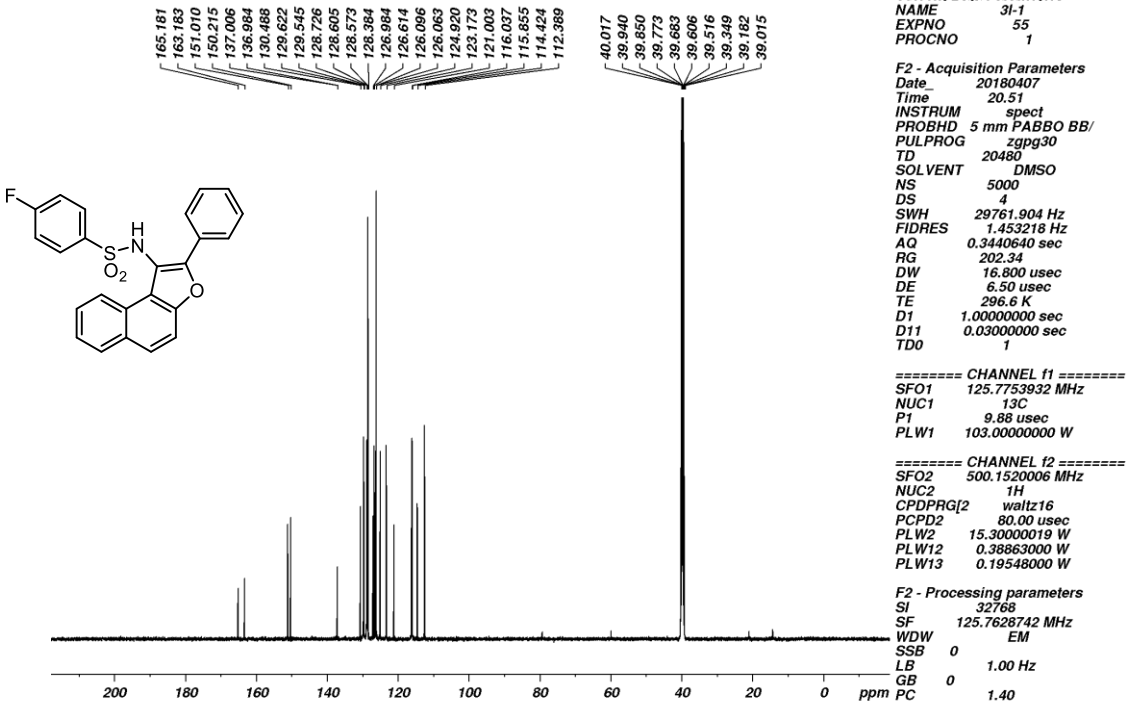
4-Fluoro-*N*-(2-phenylnaphtho[2,1-*b*]furan-1-yl)benzenesulfonamide (3l)

^{1}H NMR (500 MHz, DMSO, 24 °C):



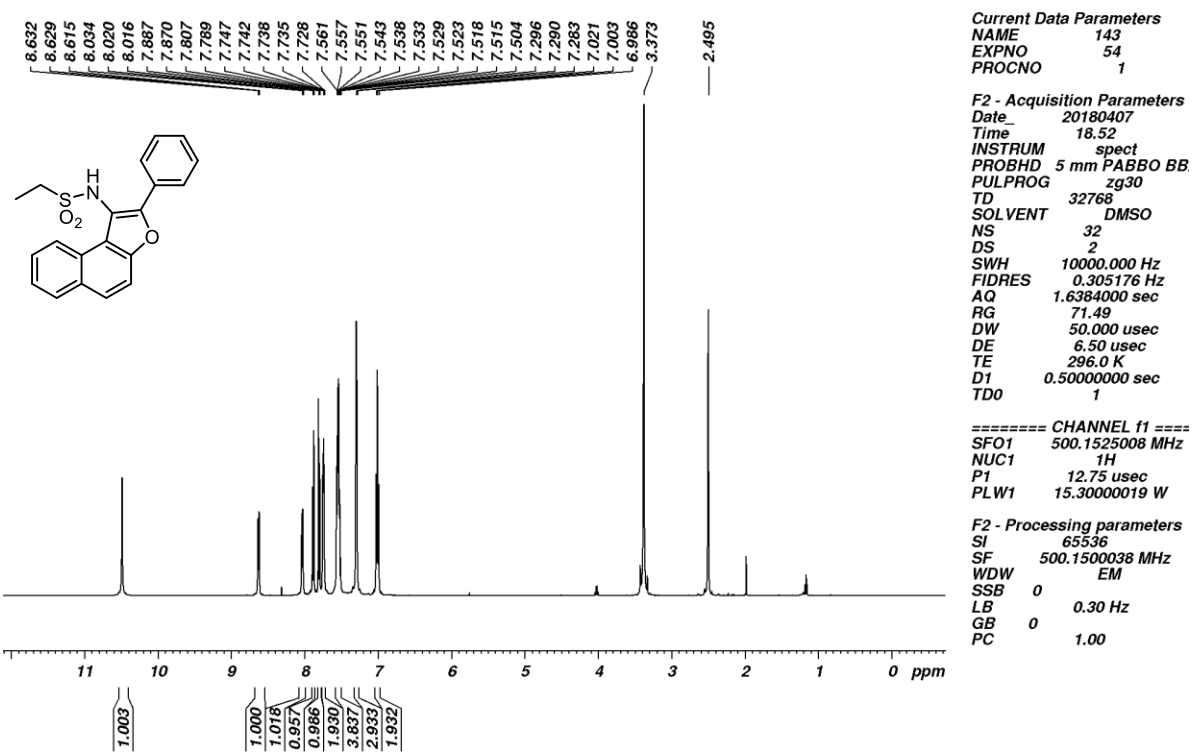
4-Fluoro-*N*-(2-phenylnaphtho[2,1-*b*]furan-1-yl)benzenesulfonamide (3l)

^{13}C NMR (500 MHz, DMSO, 24 °C):



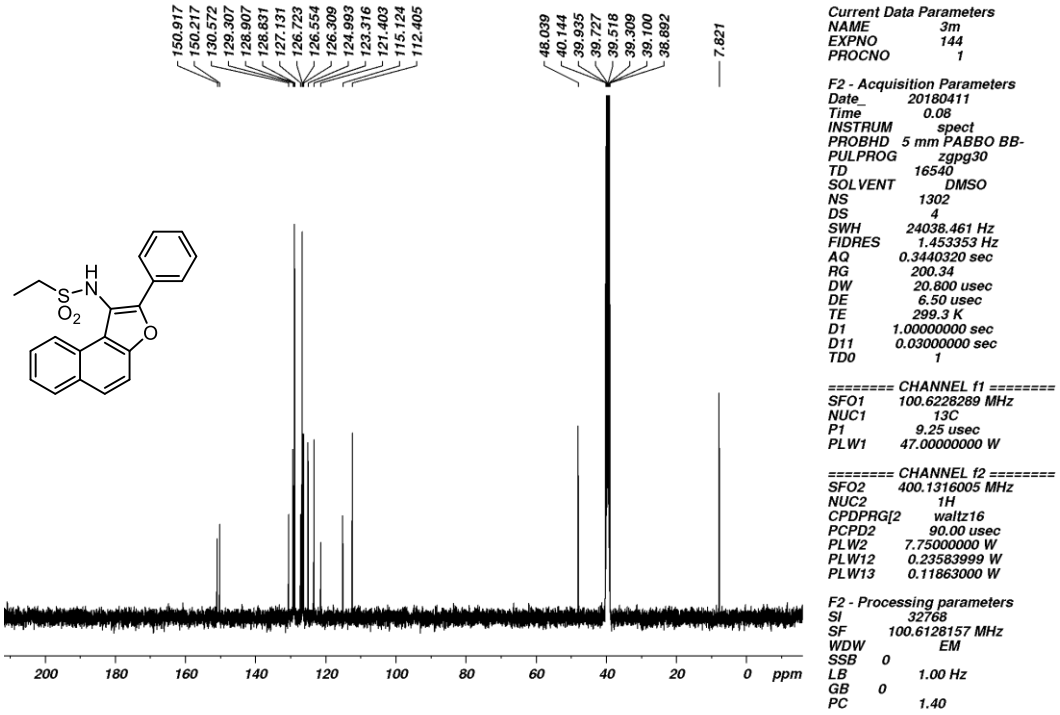
_N_-(2-Phenylnaphtho[2,1-_b_]furan-1-yl)ethanesulfonamide (3m)

^{1}H NMR (400 MHz, DMSO, 24 °C):

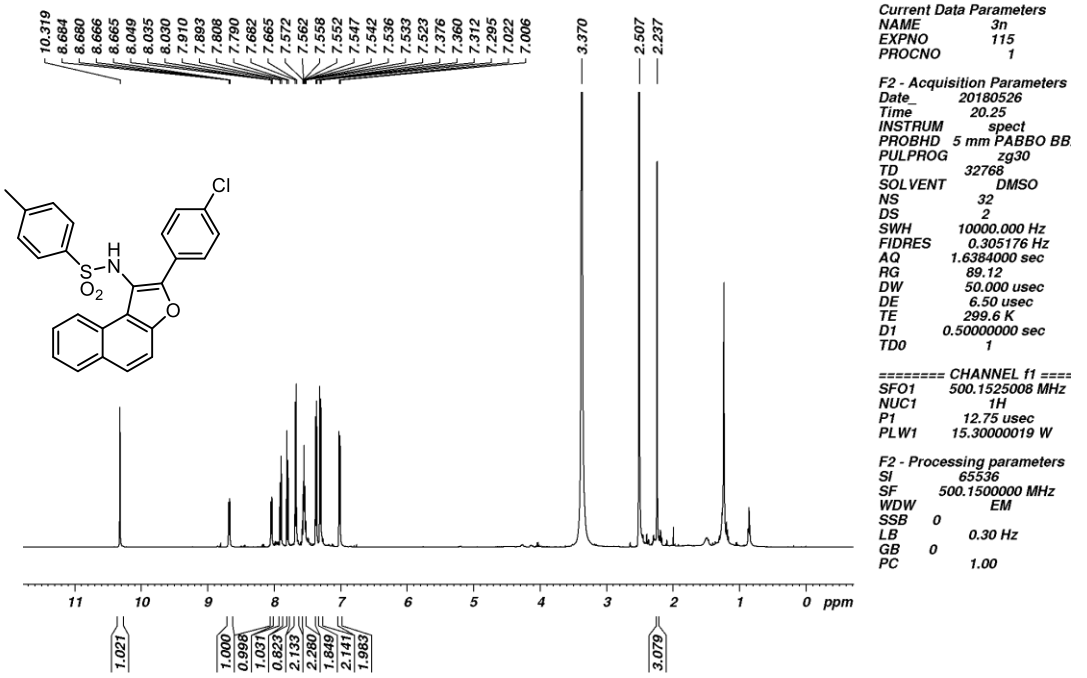


_N_-(2-Phenylnaphtho[2,1-_b_]furan-1-yl)ethanesulfonamide (3m)

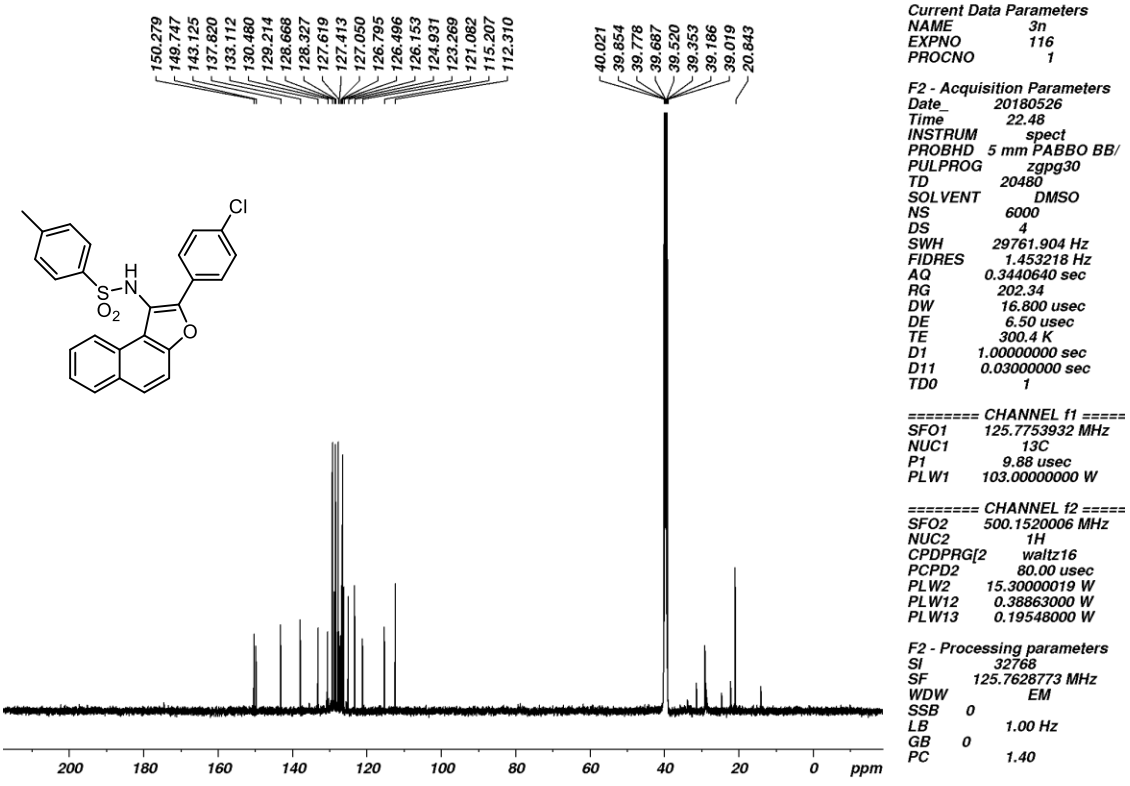
^{13}C NMR (400 MHz, DMSO, 24 °C):



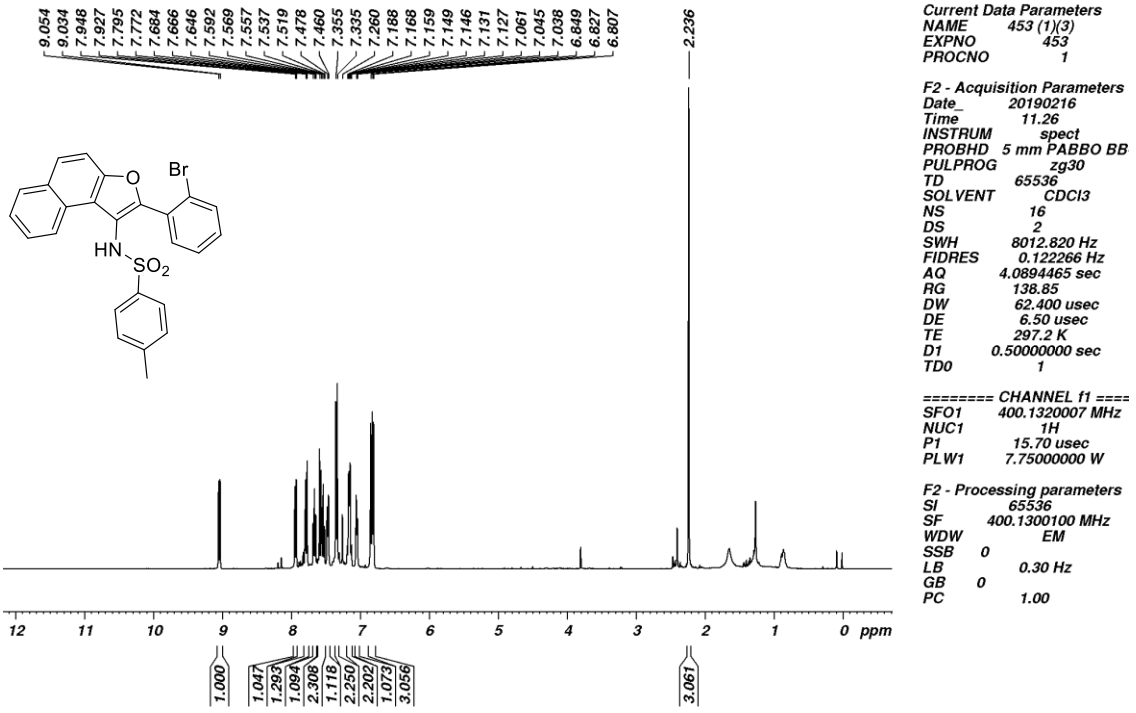
***N*-(2-(4-Chlorophenyl)naphtho[2,1-*b*]furan-1-yl)-4-methylbenzenesulfonamide (3n)** ^{1}H NMR (500 MHz, DMSO, 24 °C):



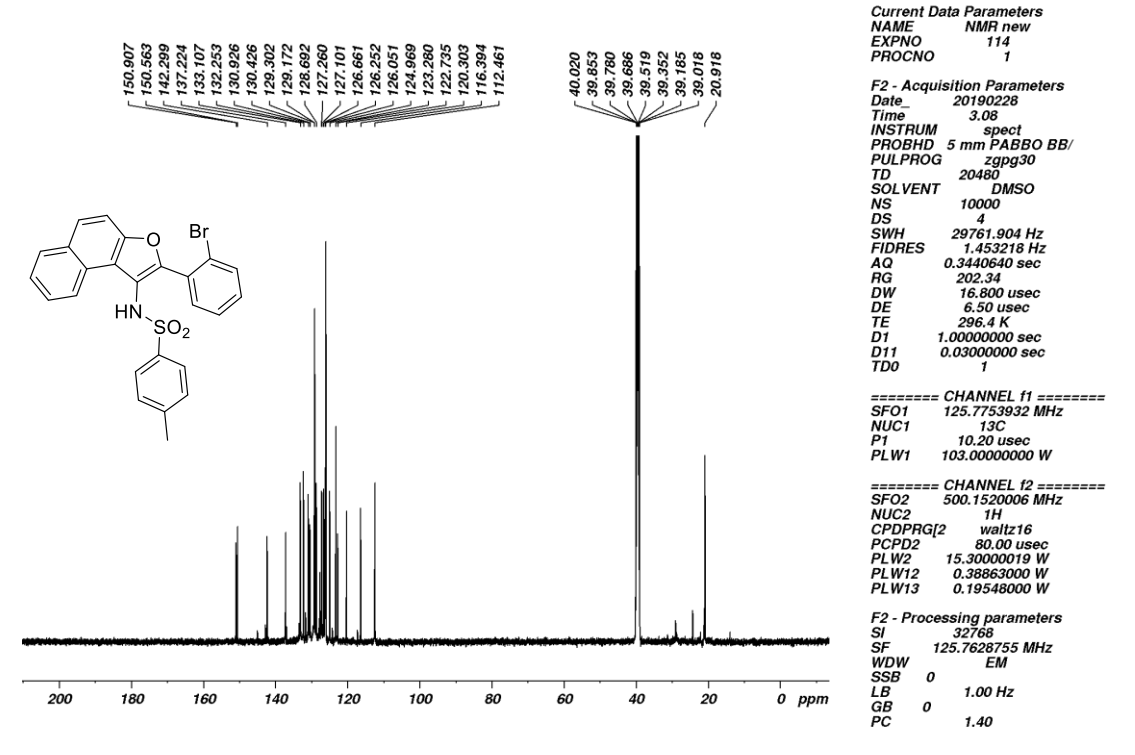
***N*-(2-(4-Chlorophenyl)naphtho[2,1-*b*]furan-1-yl)-4-methylbenzenesulfonamide (3n)** ^{13}C NMR (500 MHz, DMSO, 24 °C):



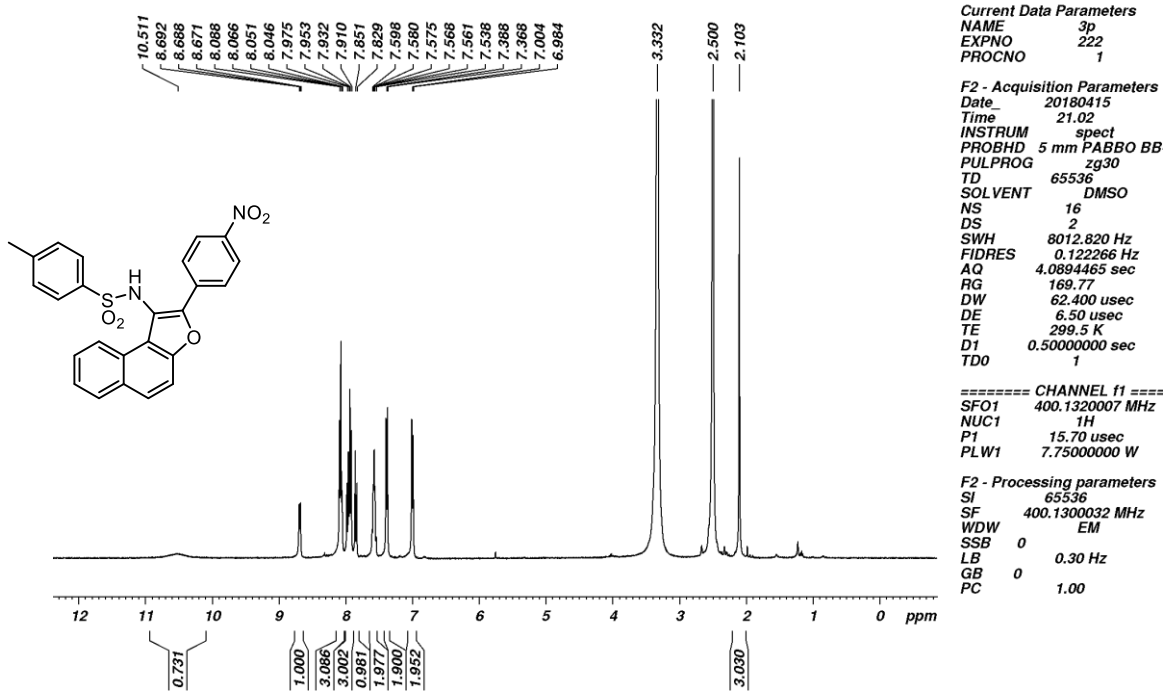
***N*-(2-(2-Bromophenyl)naphtho[2,1-*b*]furan-1-yl)-4-methylbenzenesulfonamide (3o)**^{1}H NMR (400 MHz, $CDCl_3$, 24 °C):



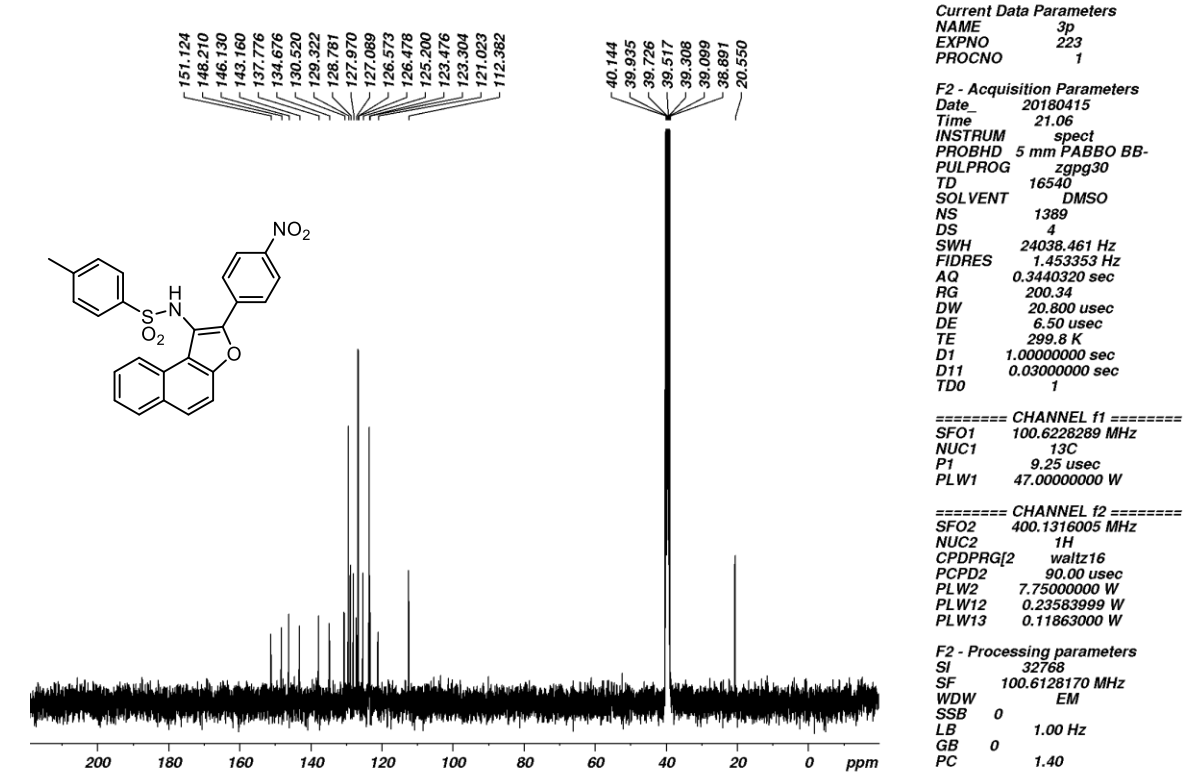
***N*-(2-(2-Bromophenyl)naphtho[2,1-*b*]furan-1-yl)-4-methylbenzenesulfonamide (3o)**^{13}C NMR (500 MHz, DMSO, 24 °C):



4-Methyl-*N*-(2-(4-nitrophenyl)naphtho[2,1-*b*]furan-1-yl)benzenesulfonamide (3p) ^{1}H NMR (400 MHz, DMSO, 24 °C):

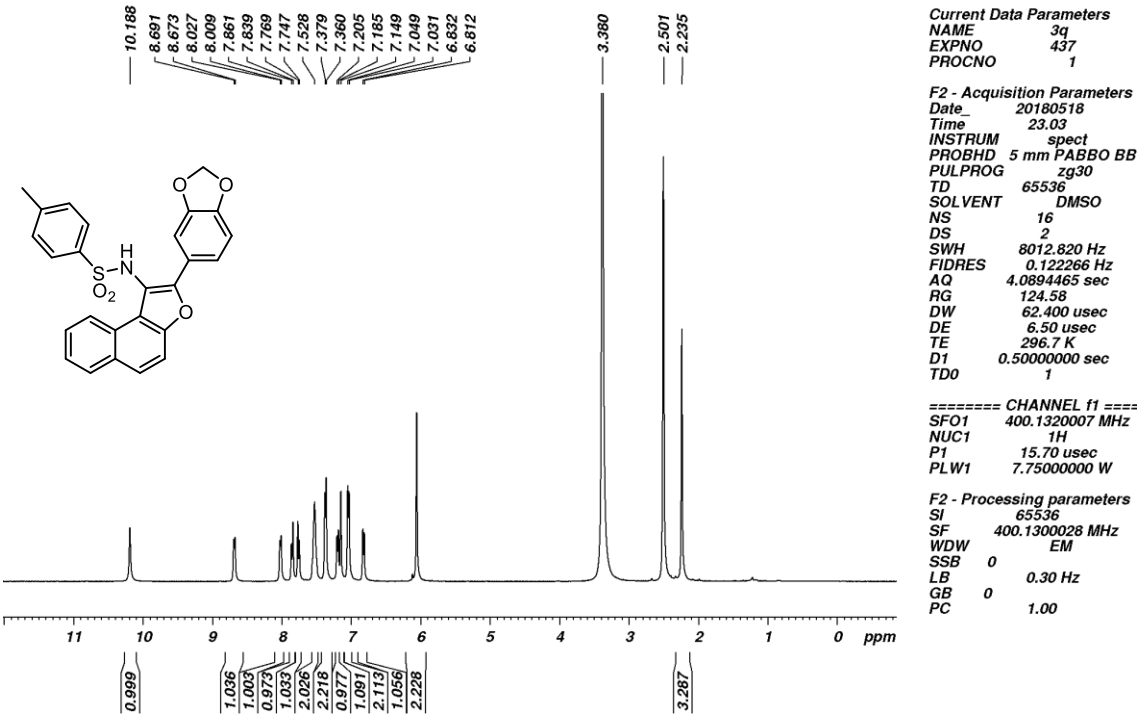


4-Methyl-*N*-(2-(4-nitrophenyl)naphtho[2,1-*b*]furan-1-yl)benzenesulfonamide (3p) ^{13}C NMR (400 MHz, DMSO, 24 °C):



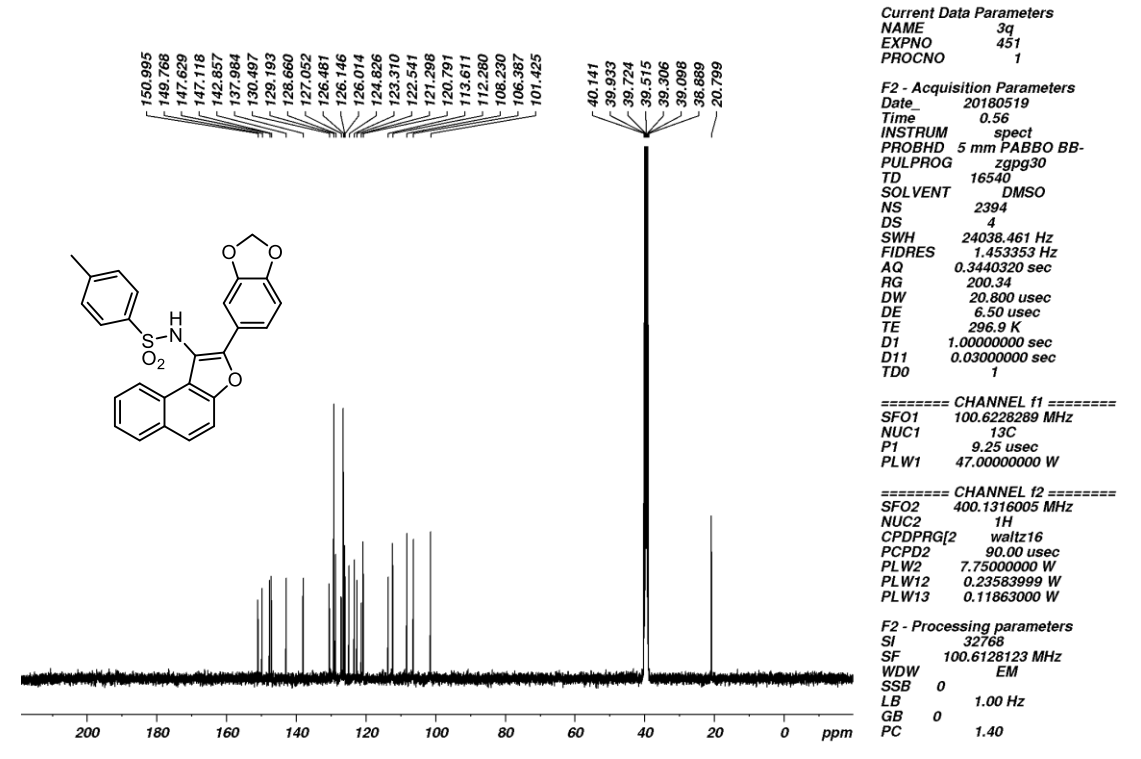
_N_-(2-(Benzo[_d_][1,3]dioxol-5-yl)naphtho[2,1-_b_]furan-1-yl)-4-methylbenzenesulfonamide (3q)

^{1}H NMR (400 MHz, DMSO, 24 °C):



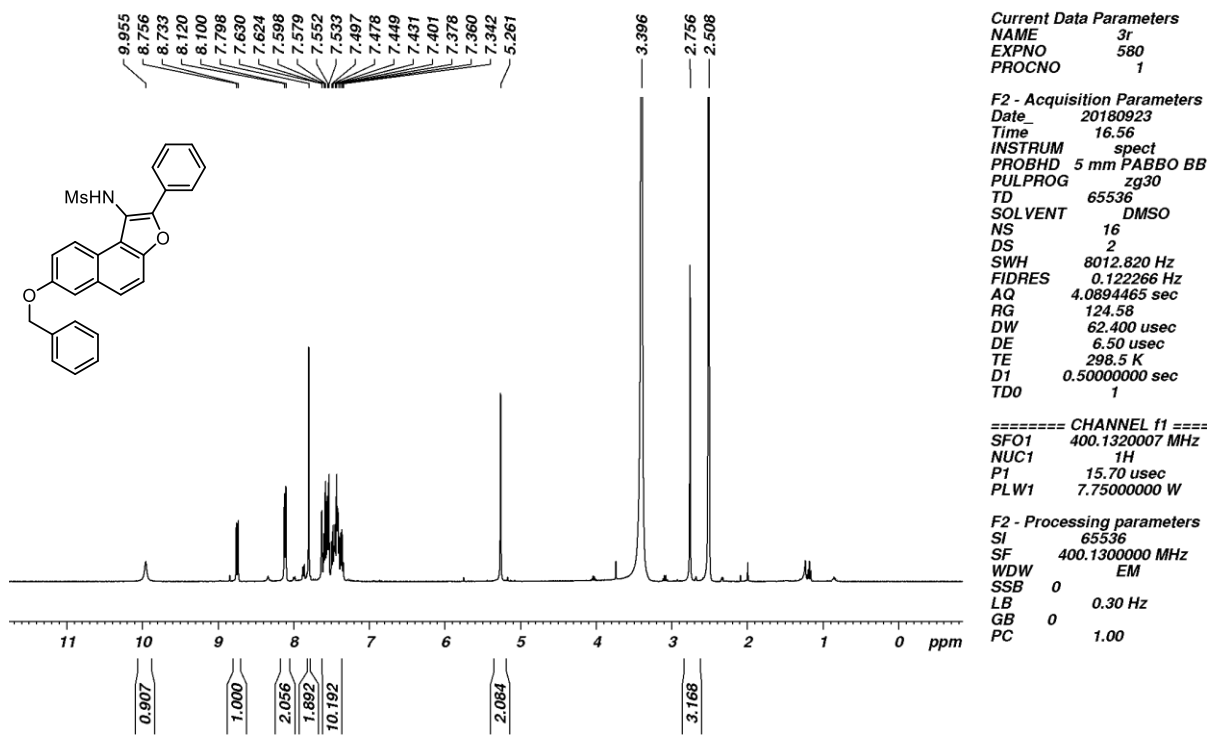
_N_-(2-(Benzo[_d_][1,3]dioxol-5-yl)naphtho[2,1-_b_]furan-1-yl)-4-methylbenzenesulfonamide (3q)

^{13}C NMR (400 MHz, DMSO, 24 °C):



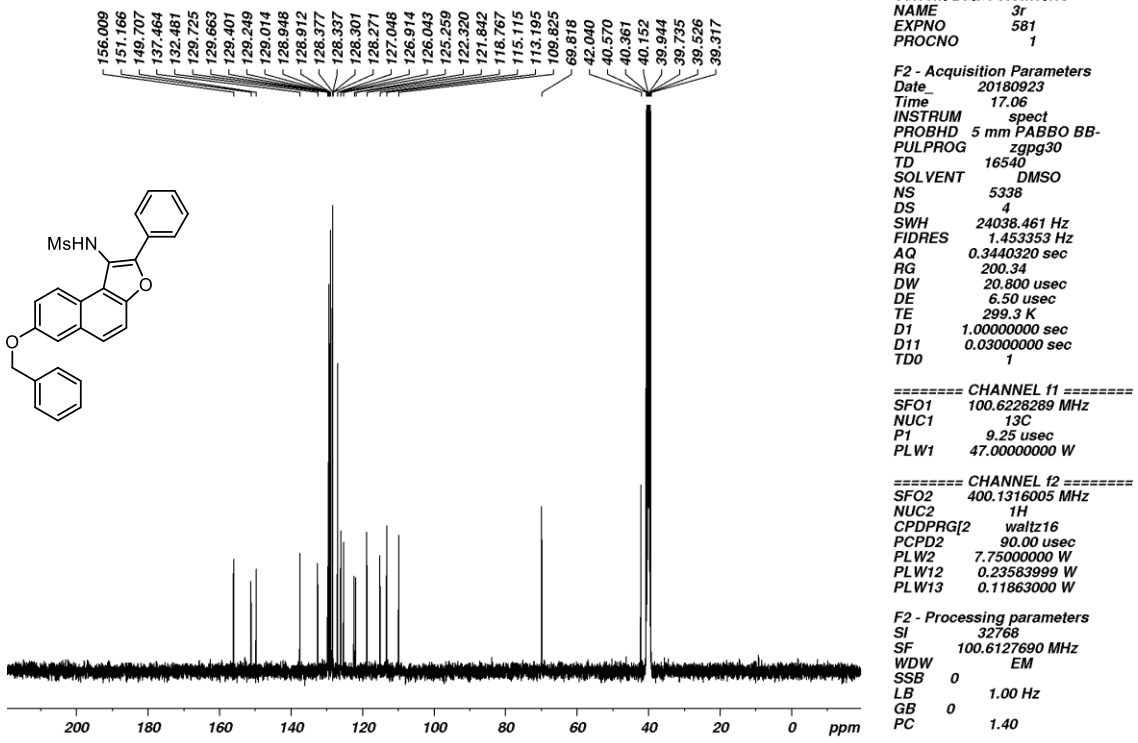
_N_-(7-(Benzyloxy)-2-phenylnaphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3r)

^{1}H NMR (400 MHz, DMSO, 24 °C):



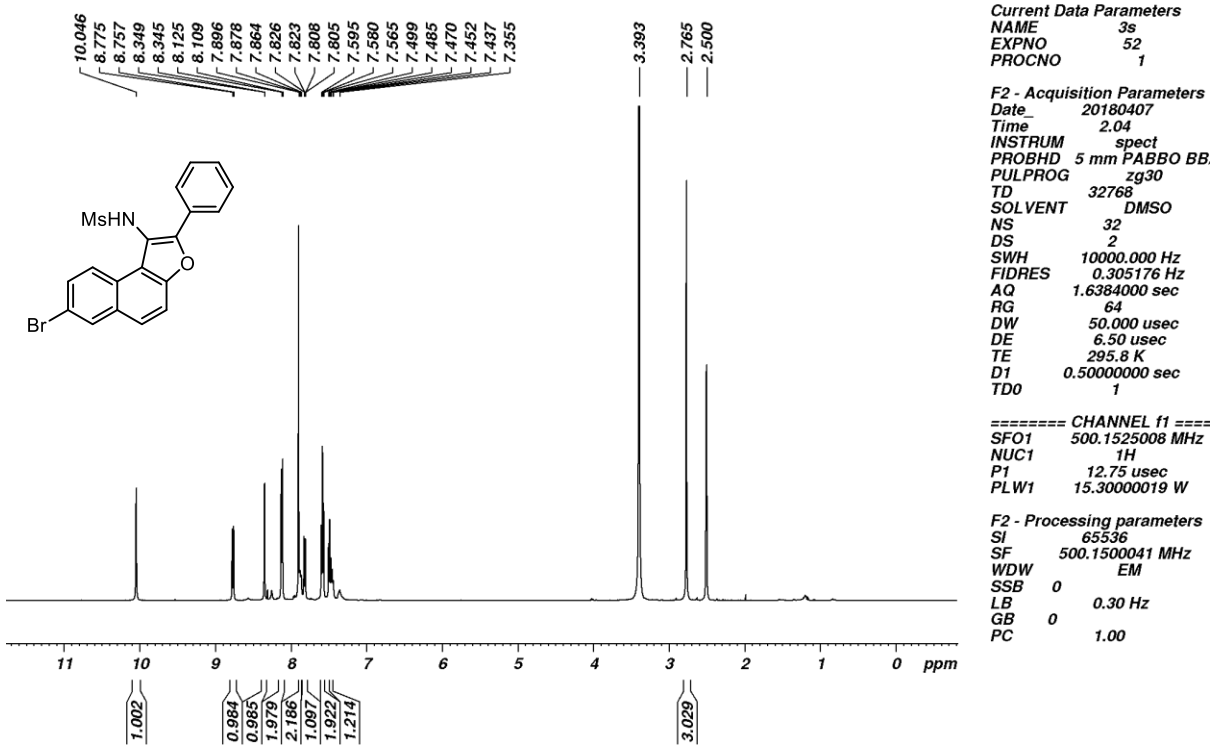
_N_-(7-(Benzyloxy)-2-phenylnaphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3r)

^{13}C NMR (400 MHz, DMSO, 24 °C):



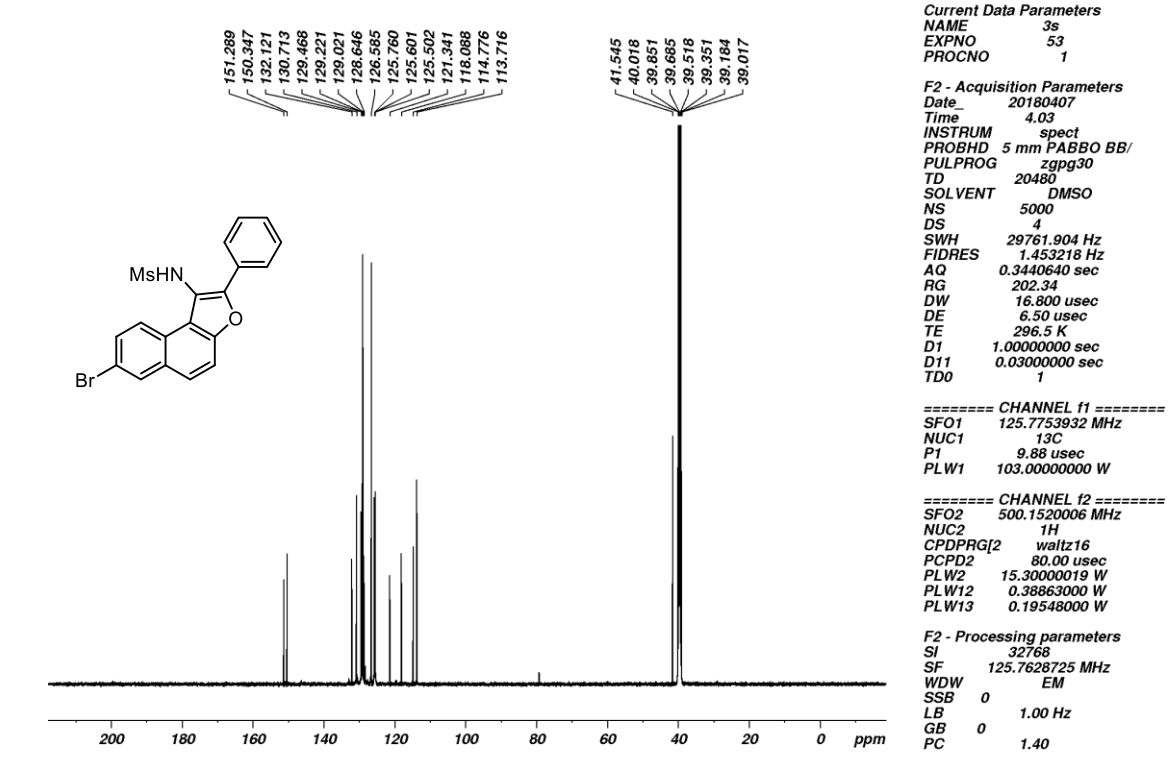
_N_-(7-bromo-2-phenylnaphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3s)

^{1}H NMR (500 MHz, DMSO, 24 °C):



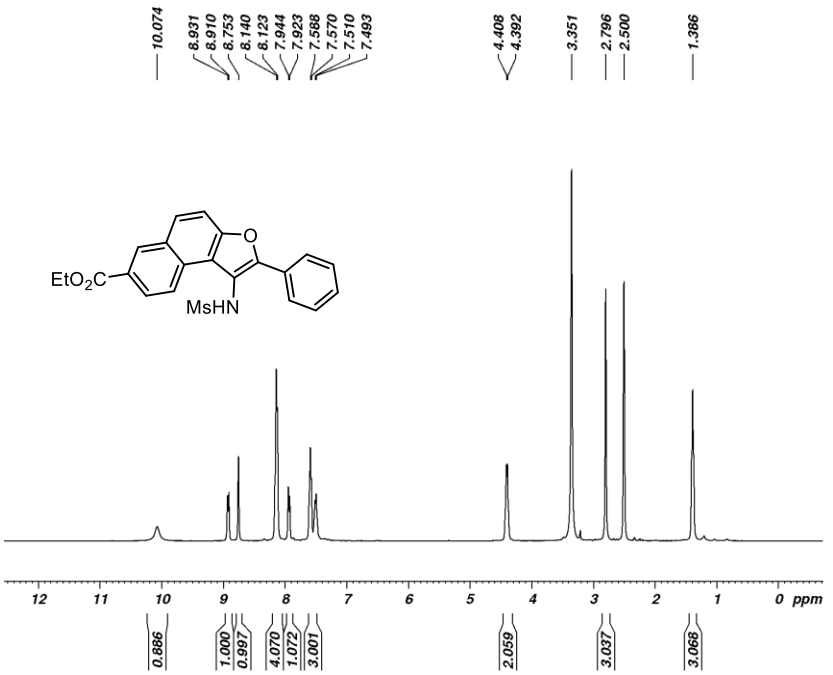
_N_-(7-bromo-2-phenylnaphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3s)

^{13}C NMR (500 MHz, DMSO, 24 °C):



Ethyl 1-(methylsulfonamido)-2-phenylnaphtho[2,1-*b*]furan-7-carboxylate (3t)

^{1}H NMR (400 MHz, DMSO, 24 °C):

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Current Data Parameters
NAME          3t
EXPNO         46
PROCNO        1

F2 - Acquisition Parameters
Date_         20180604
Time          9.29
INSTRUM       spect
PROBHD   5 mm PABBO BB
PULPROG       zg30
TD            65536
SOLVENT       DMSO
NS            16
DS            2
SWH           8012.820 Hz
FIDRES        0.122266 Hz
AQ            4.0894465 sec
RG            124.58
DW            62.400 usec
DE            6.50 usec
TE            298.9 K
D1            0.50000000 sec
TD0           1

======== CHANNEL f1 ====
SFO1          400.1320007 MHz
NUC1          1H
P1            15.70 usec
PLW1          7.75000000 W

F2 - Processing parameters
SI            65536
SF            400.1300032 MHz
WDW           EM
SSB           0
LB            0.30 Hz
GB            0
PC            1.00
```
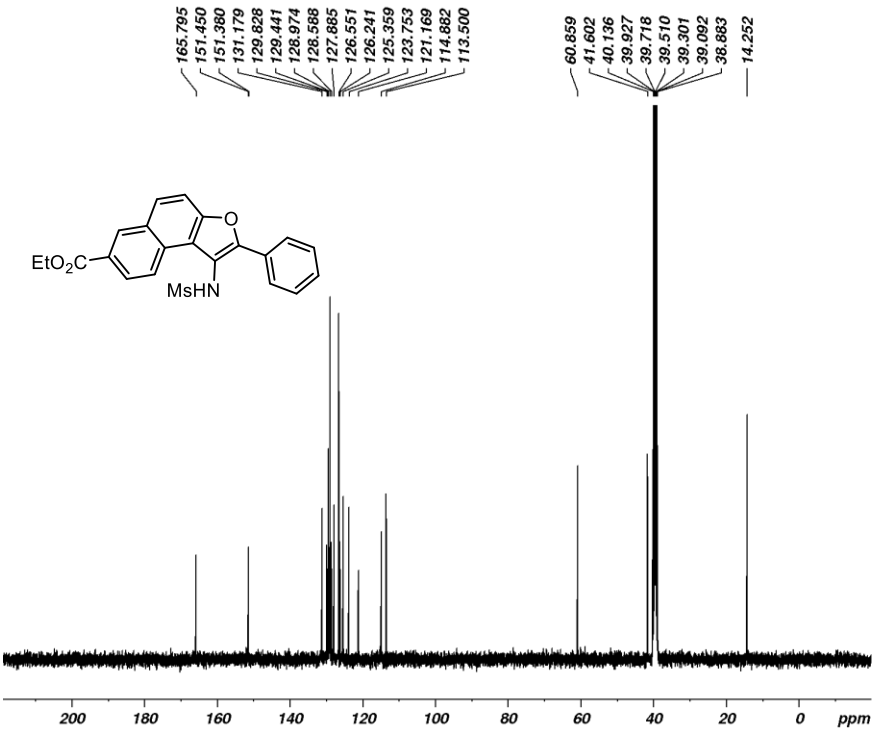

Ethyl 1-(methylsulfonamido)-2-phenylnaphtho[2,1-*b*]furan-7-carboxylate (3t)

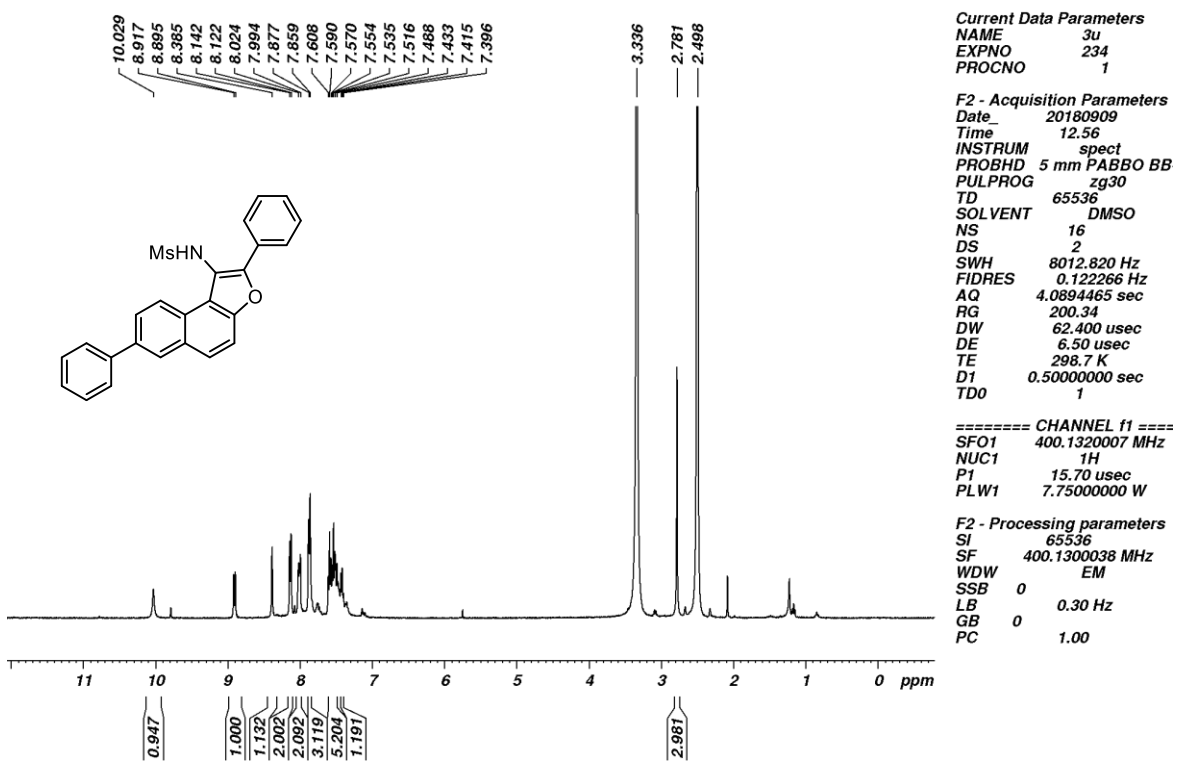
^{13}C NMR (400 MHz, DMSO, 24 °C):




```
Current Data Parameters
NAME          3t
EXPNO         47
PROCNO        1

F2 - Acquisition Parameters
Date_         20180604
Time          9.33
INSTRUM       spect
PROBHD   5 mm PABBO BB-
PULPROG       zgpg30
TD            16540
SOLVENT       DMSO
NS            1004
DS            4
SWH           24038.461 Hz
FIDRES        1.453353 Hz
AQ            0.3440320 sec
RG            200.34
DW            20.800 usec
DE            6.50 usec
TE            299.1 K
D1            1.00000000 sec
D11           0.03000000 sec
TD0           1

======== CHANNEL f1 ========
SFO1          100.6228289 MHz
NUC1          13C
P1            9.25 usec
PLW1          47.00000000 W

======== CHANNEL f2 ========
SFO2          400.1316005 MHz
NUC2          1H
CPDPRG[2      waltz16
PCPD2         90.00 usec
PLW2          7.75000000 W
PLW12         0.23583999 W
PLW13         0.11863000 W

F2 - Processing parameters
SI            32768
SF            100.6128183 MHz
WDW           EM
SSB           0
LB            1.00 Hz
GB            0
PC            1.40
```

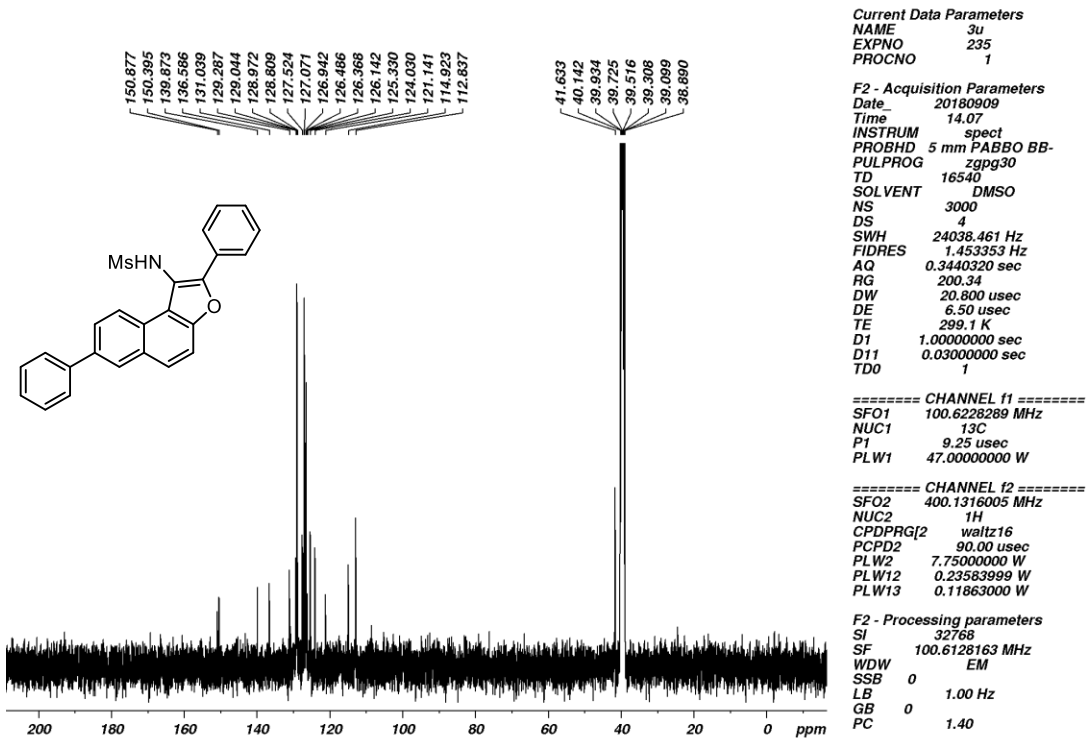
_N_-(2,7-Diphenylnaphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3u)

^{1}H NMR (400 MHz, DMSO, 24 °C):



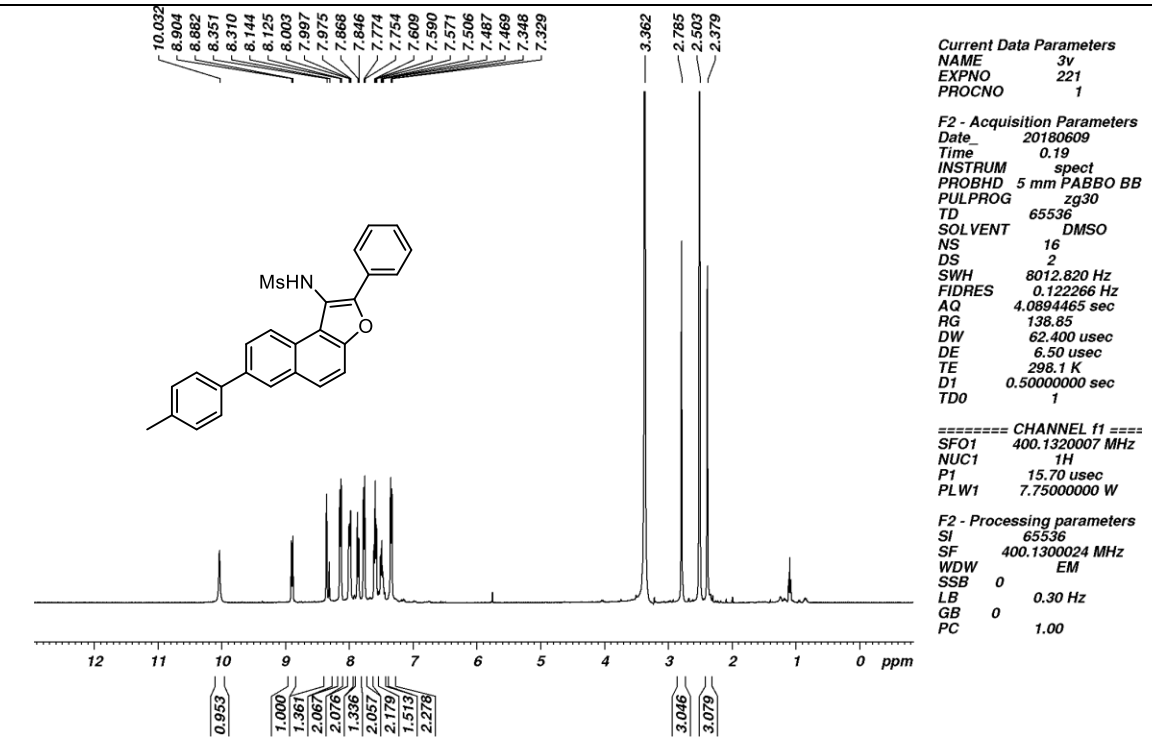
_N_-(2,7-Diphenylnaphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3u)

^{13}C NMR (400 MHz, DMSO, 24 °C):



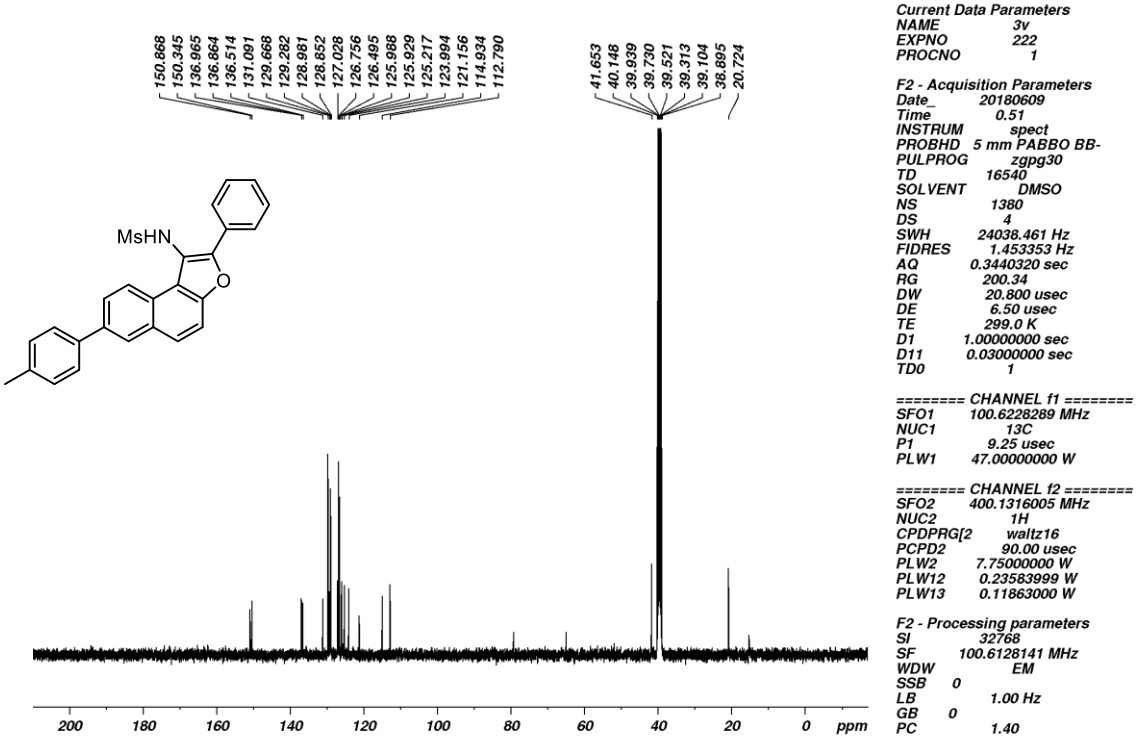
_N_-(2-Phenyl-7-(_p_-tolyl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3v)

^{1}H NMR (400 MHz, DMSO, 24 °C):

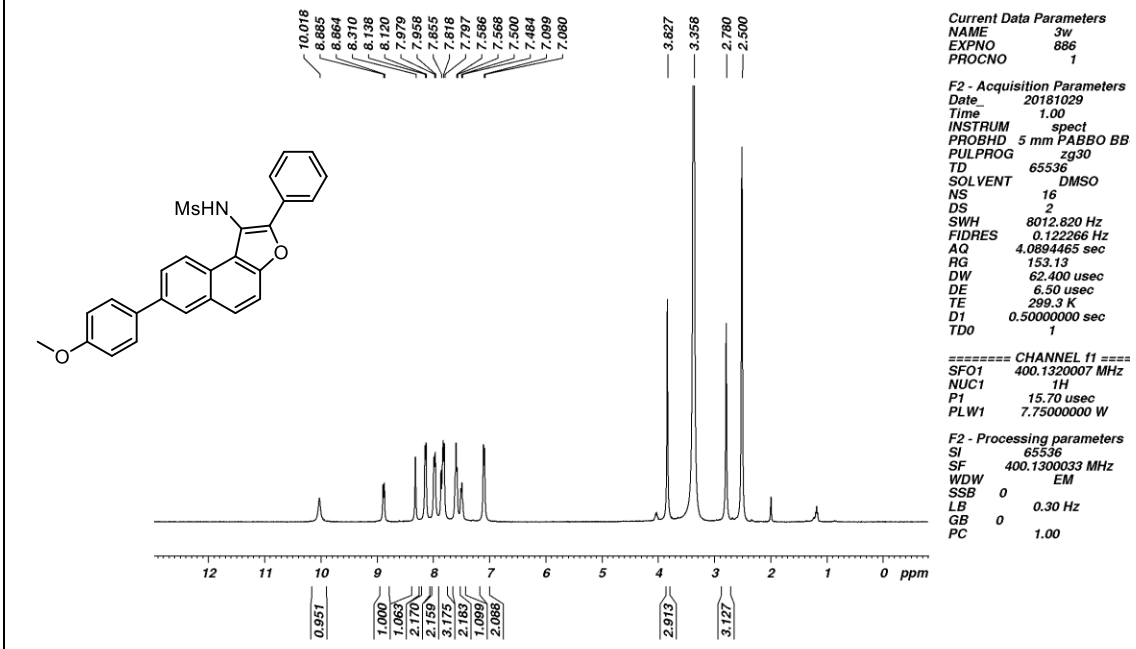


_N_-(2-Phenyl-7-(_p_-tolyl)naphtho[2,1-_b_]furan-1-yl)methanesulfonamide (3v)

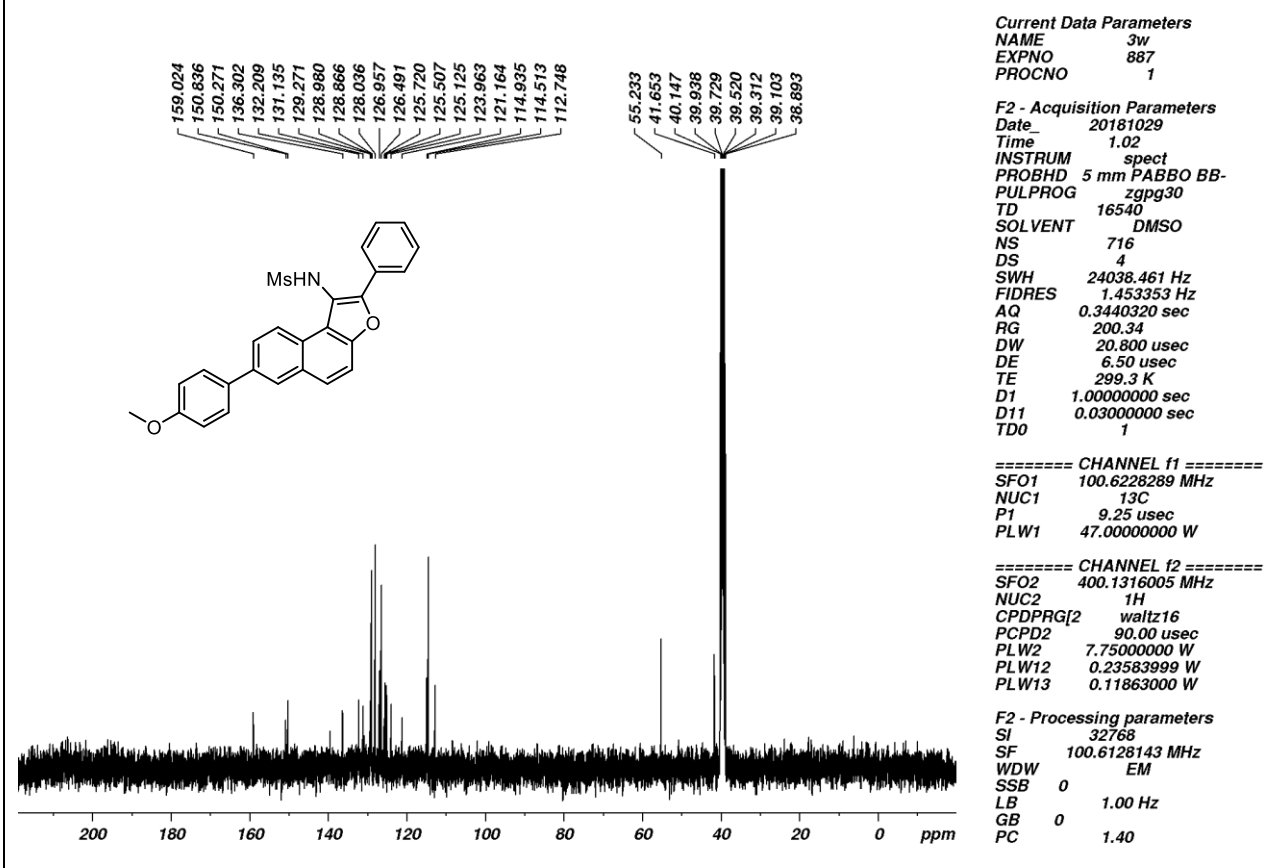
^{13}C NMR (400 MHz, DMSO, 24 °C):



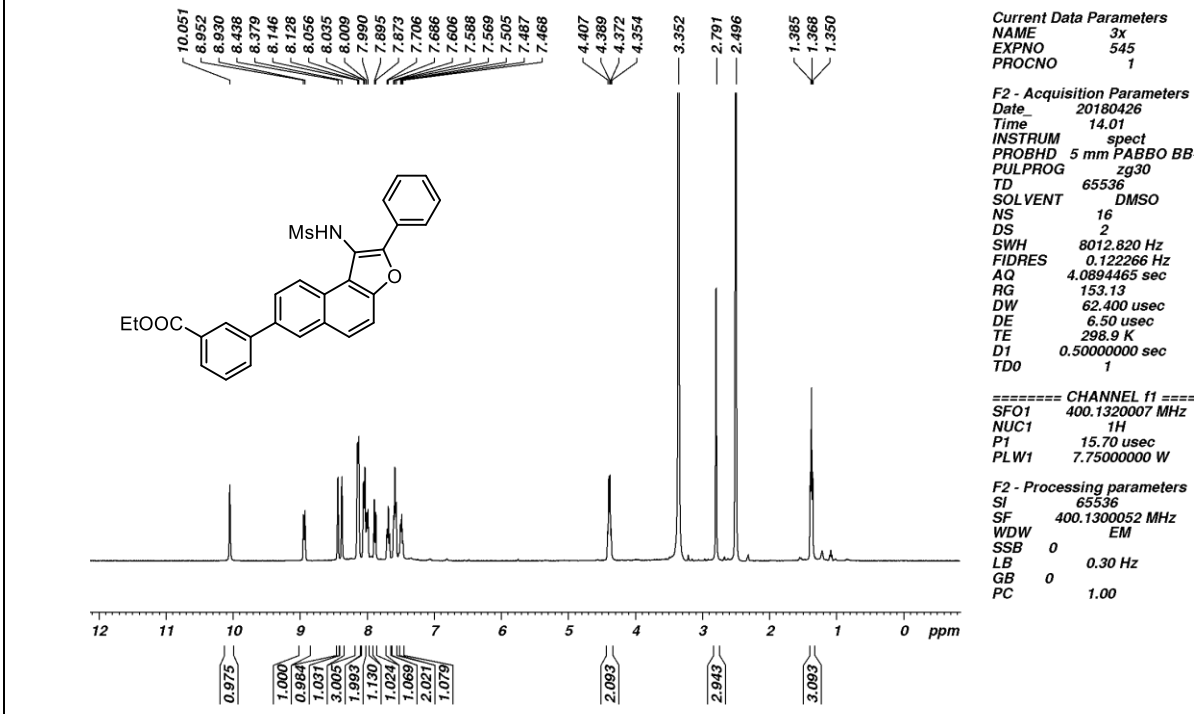
***N*-(7-(4-Methoxyphenyl)-2-phenylnaphtho[2,1-*b*]furan-1-yl)methanesulfonamide (3w)** ^{1}H NMR (400 MHz, DMSO, 24 °C):



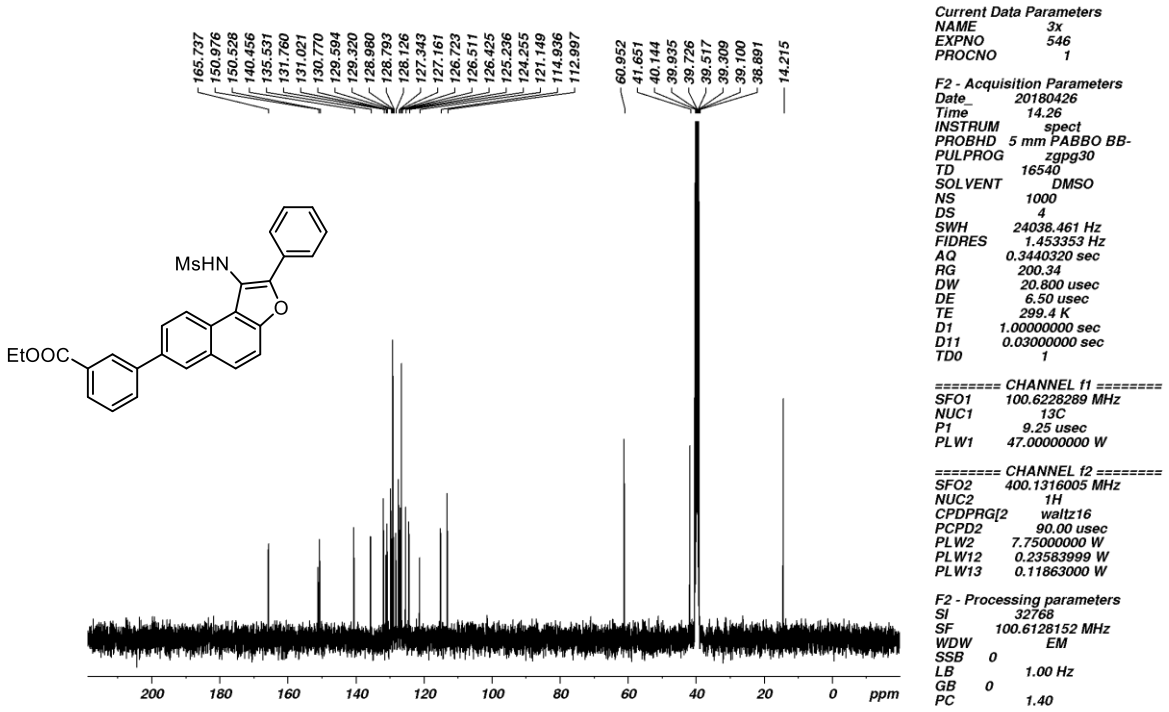
***N*-(7-(4-Methoxyphenyl)-2-phenylnaphtho[2,1-*b*]furan-1-yl)methanesulfonamide (3w)** ^{13}C NMR (400 MHz, DMSO, 24 °C):



Ethyl 3-(1-(methylsulfonamido)-2-phenylnaphtho[2,1-*b*]furan-7-yl)benzoate (3x) ^{1}H NMR (400 MHz, DMSO, 24 °C):

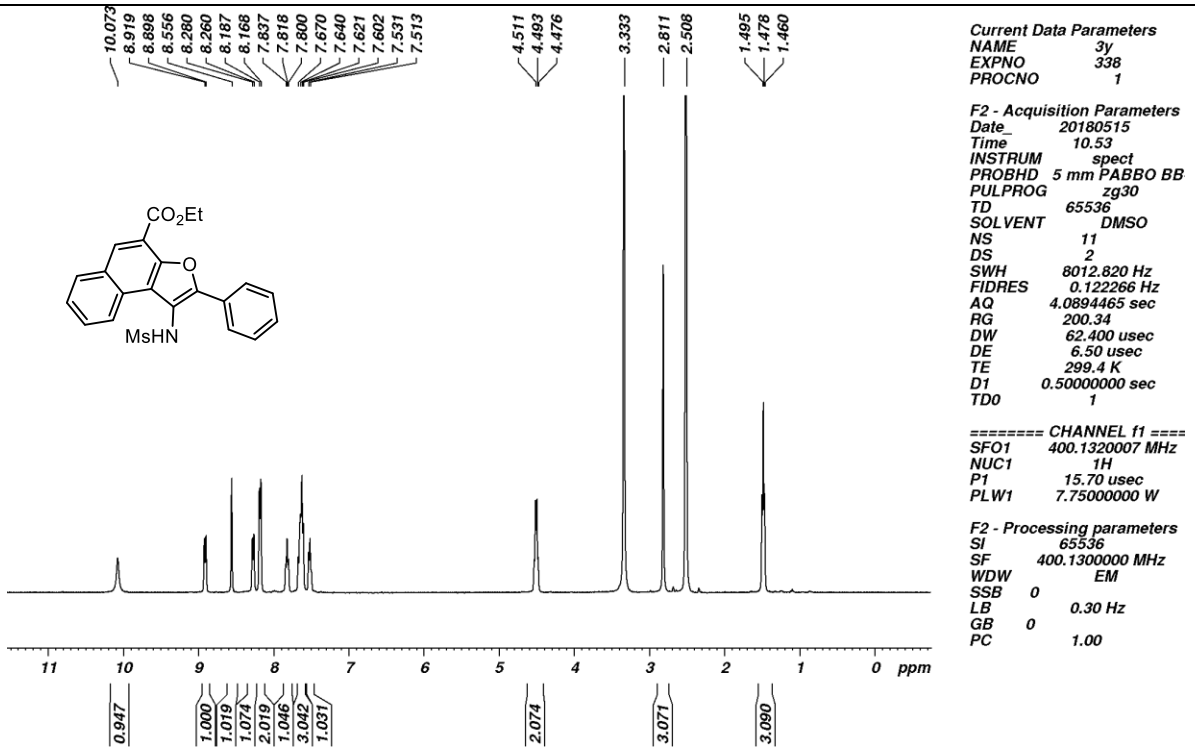


Ethyl 3-(1-(methylsulfonamido)-2-phenylnaphtho[2,1-*b*]furan-7-yl)benzoate (3x) ^{13}C NMR (400 MHz, DMSO, 24 °C):



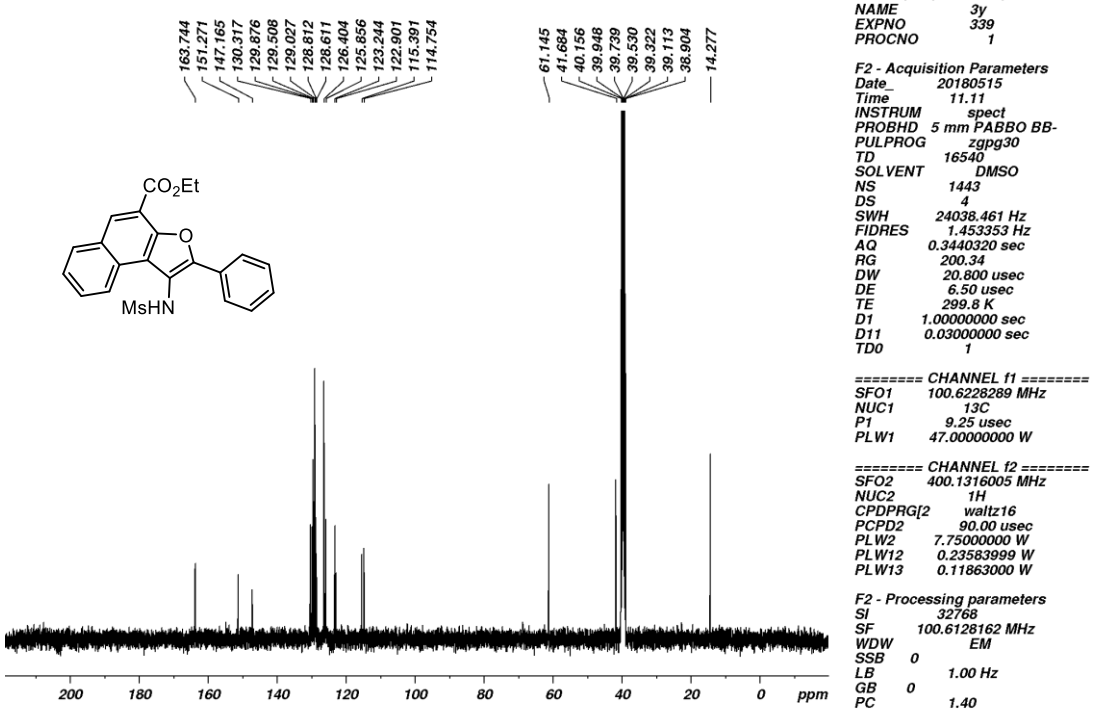
Ethyl 1-(methylsulfonamido)-2-phenylnaphtho[2,1-*b*]furan-4-carboxylate (3y)

^{1}H NMR (400 MHz, DMSO, 24 °C):



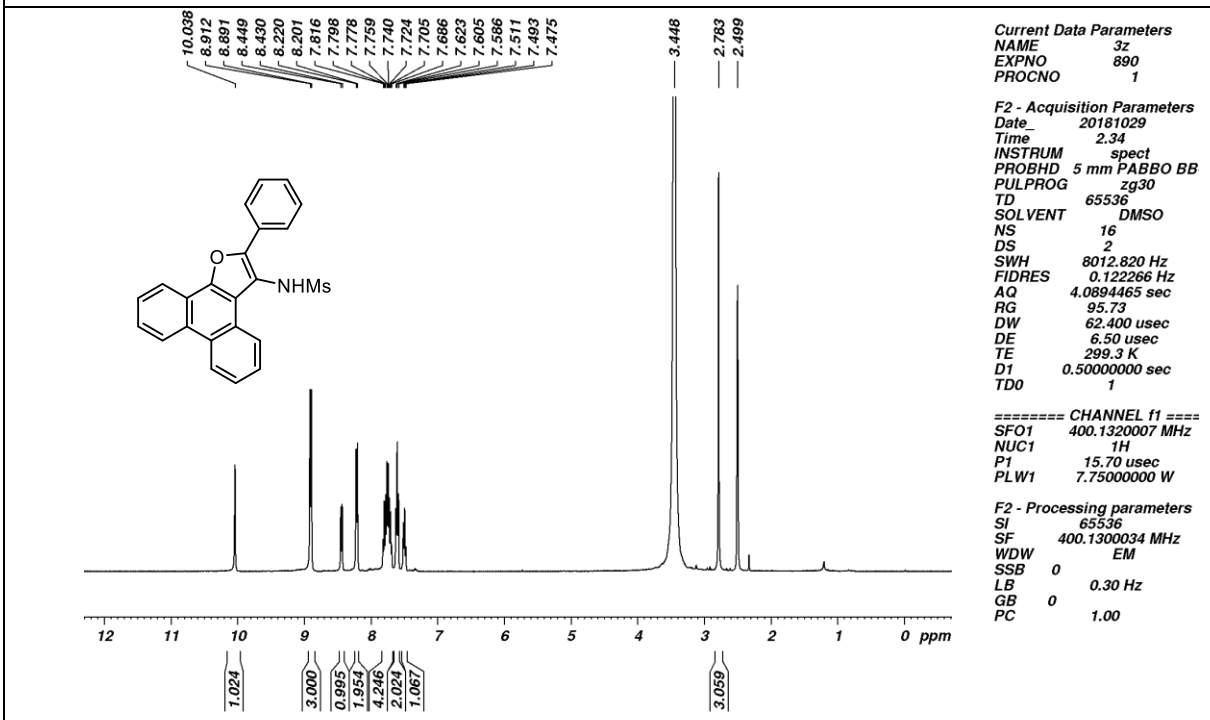
Ethyl 1-(methylsulfonamido)-2-phenylnaphtho[2,1-*b*]furan-4-carboxylate (3y)

^{13}C NMR (400 MHz, DMSO, 24 °C):



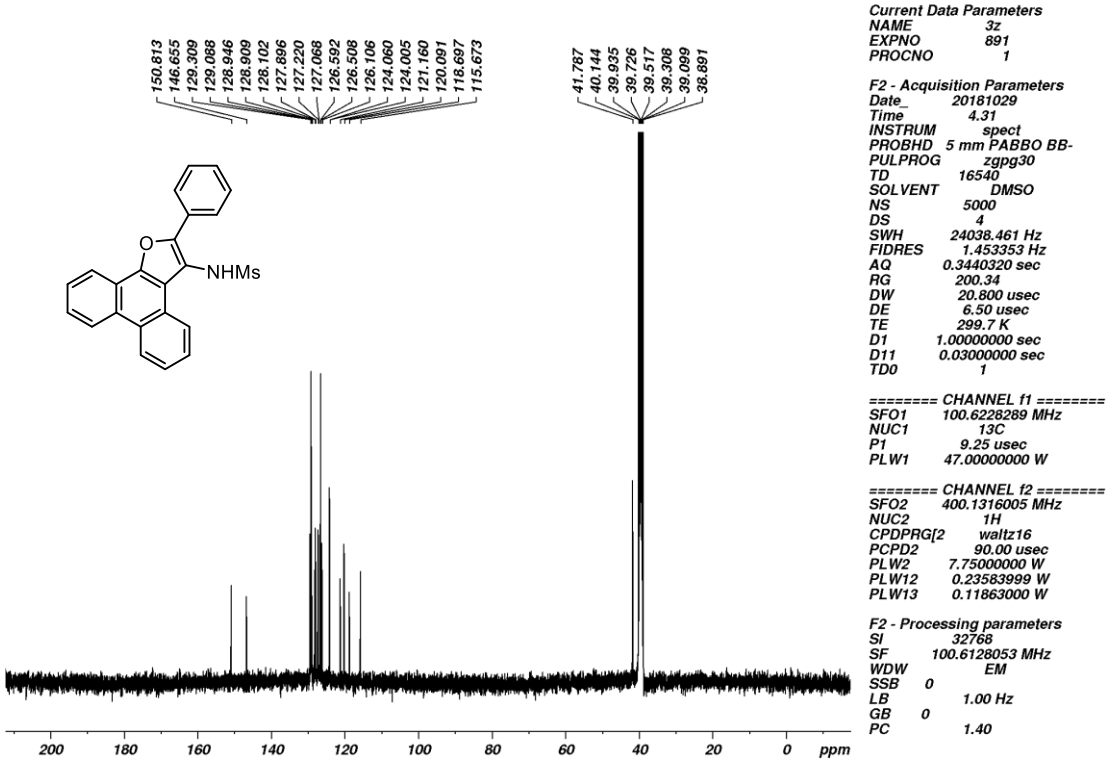
_N_-(2-Phenylphenanthro[9,10-_b_]furan-3-yl)methanesulfonamide (3z)

^{1}H NMR (400 MHz, DMSO, 24 °C):

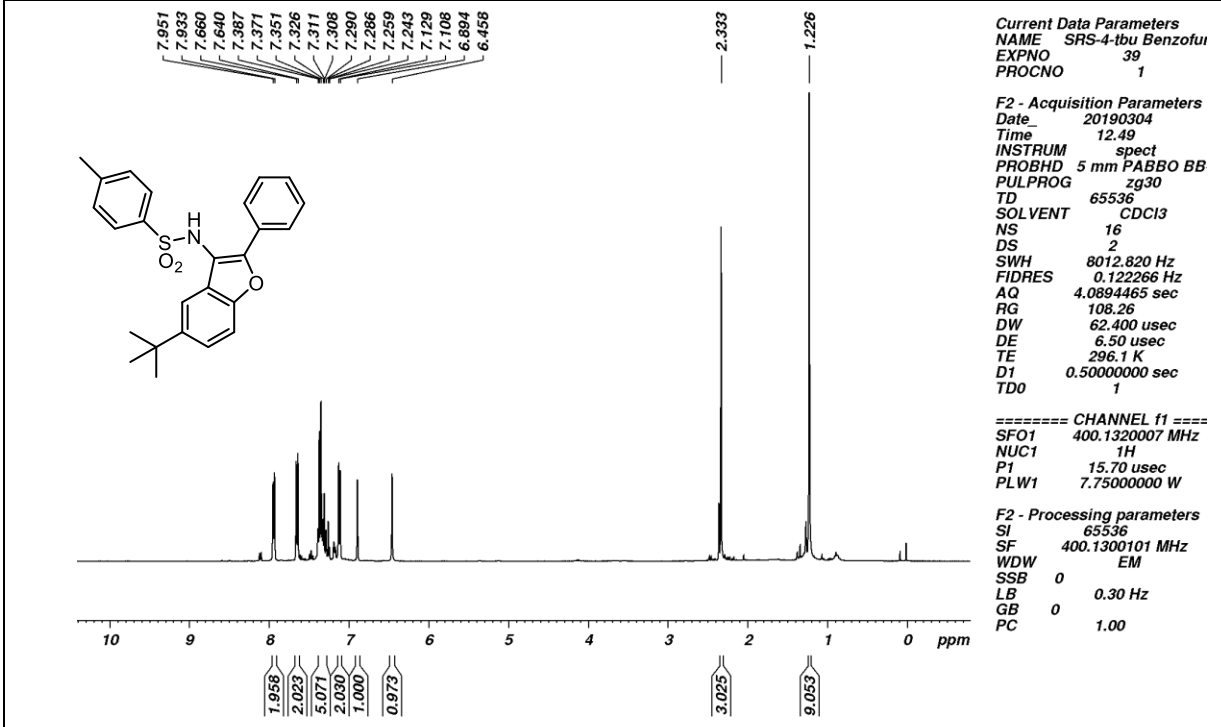


_N_-(2-Phenylphenanthro[9,10-_b_]furan-3-yl)methanesulfonamide (3z)

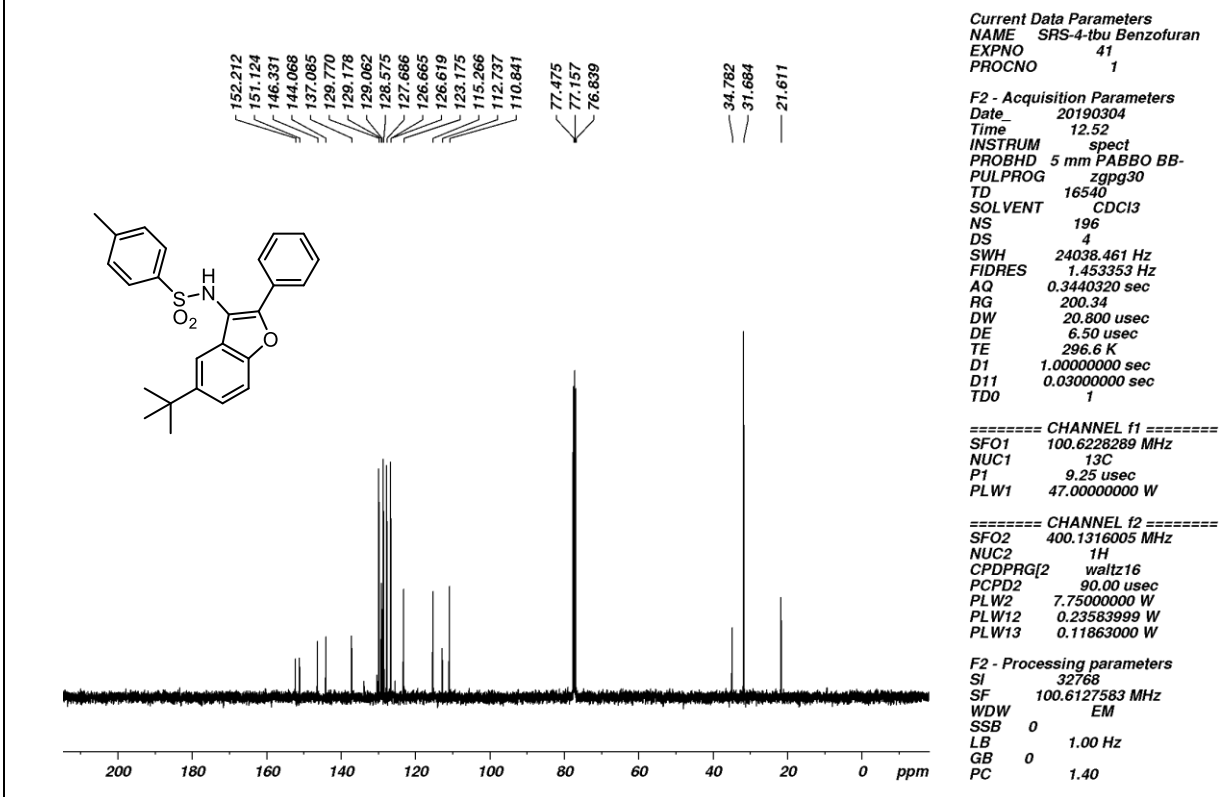
^{13}C NMR (400 MHz, DMSO, 24 °C):



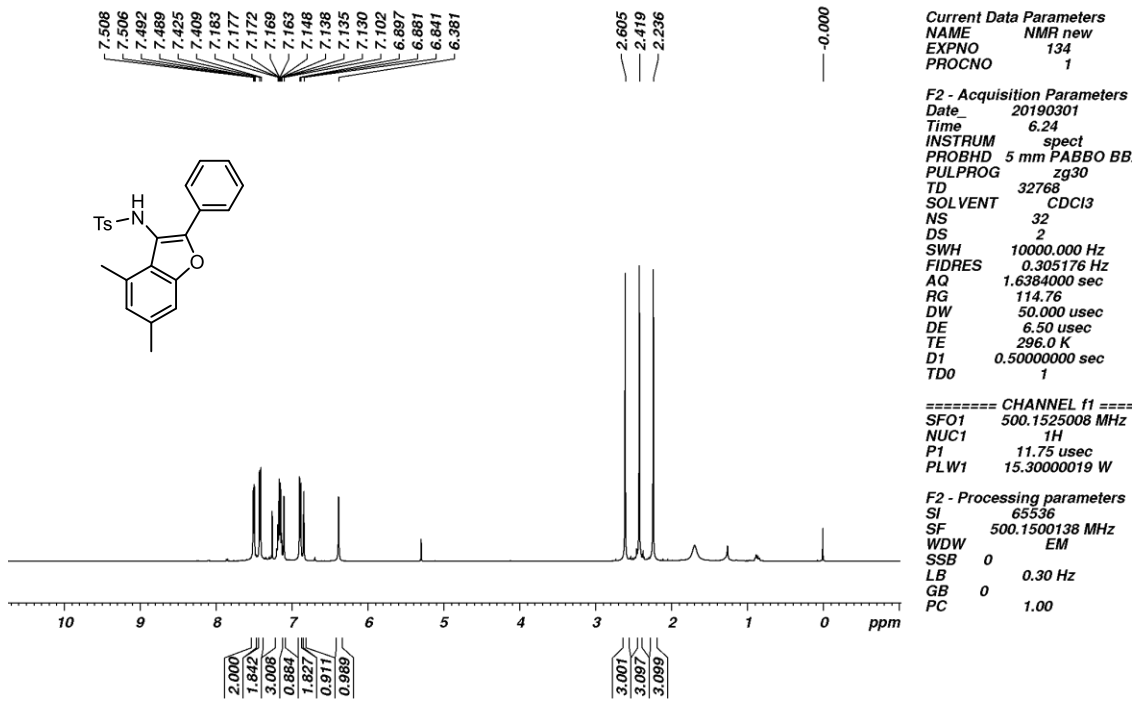
_N_-(5-(_Tert_-butyl)-2-phenylbenzofuran-3-yl)-4-methylbenzenesulfonamide (3aa): ^{1}H NMR (400 MHz, $CDCl_3$, 24 °C):



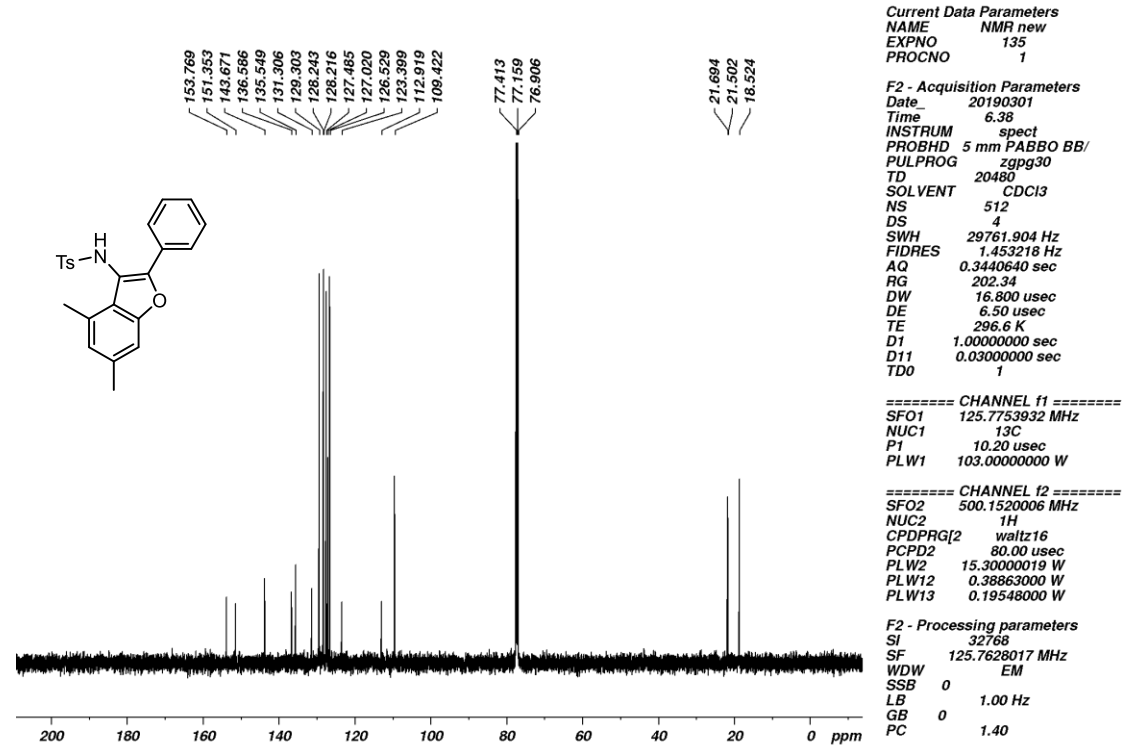
_N_-(5-(_Tert_-butyl)-2-phenylbenzofuran-3-yl)-4-methylbenzenesulfonamide (3aa) : ^{13}C NMR (400 MHz, $CDCl_3$, 24 °C):



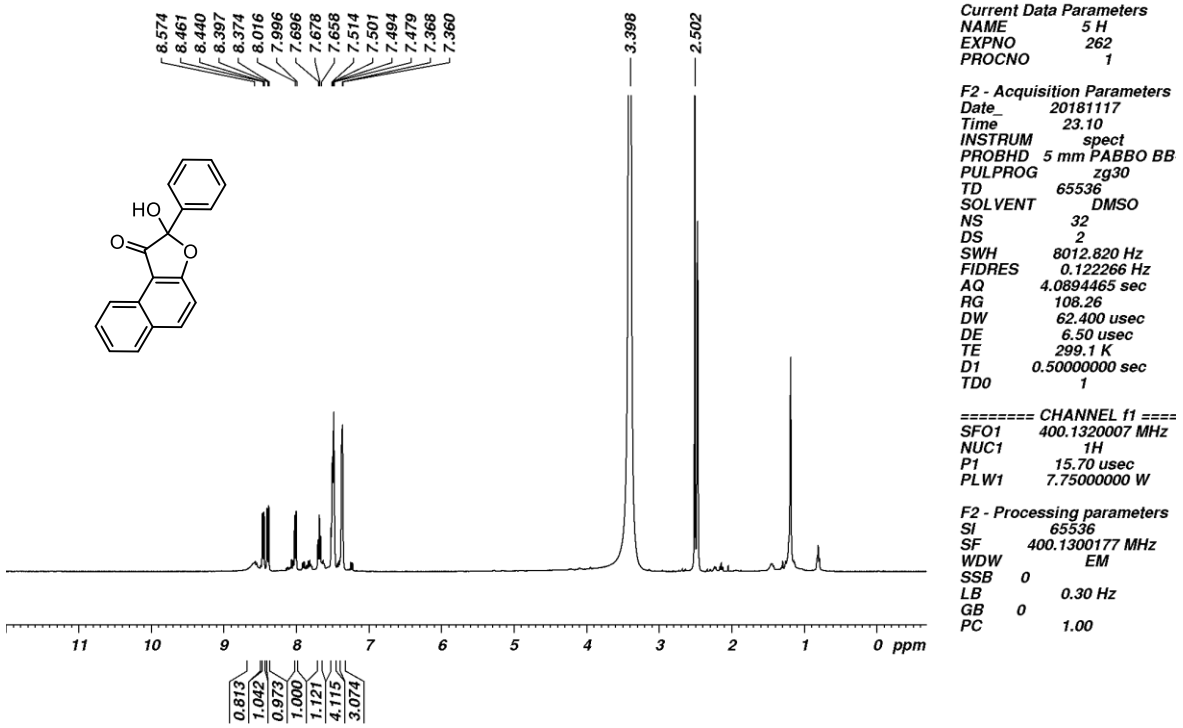
***N*-(4,6-Dimethyl-2-phenylbenzofuran-3-yl)-4-methylbenzenesulfonamide (3ab) :** ^{1}H NMR (500 MHz, $CDCl_3$, 24 °C):



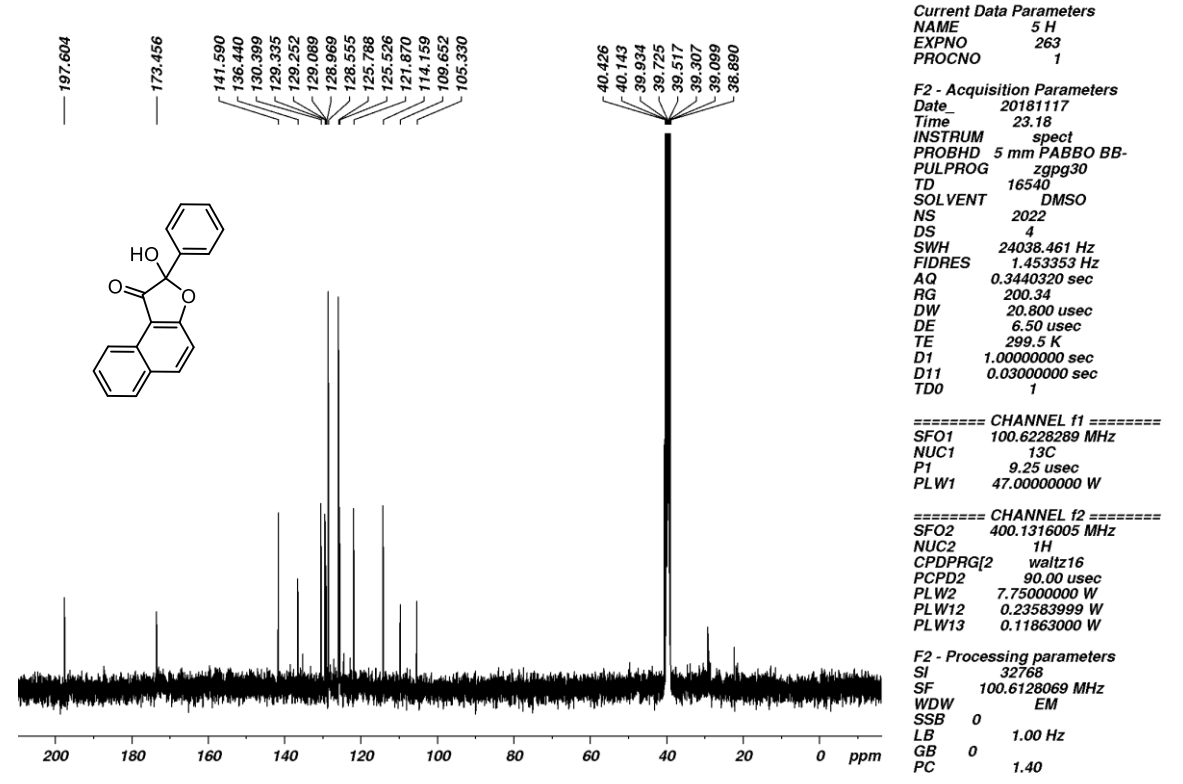
***N*-(4,6-Dimethyl-2-phenylbenzofuran-3-yl)-4-methylbenzenesulfonamide (3ab) :** ^{13}C NMR (500 MHz, $CDCl_3$, 24 °C):



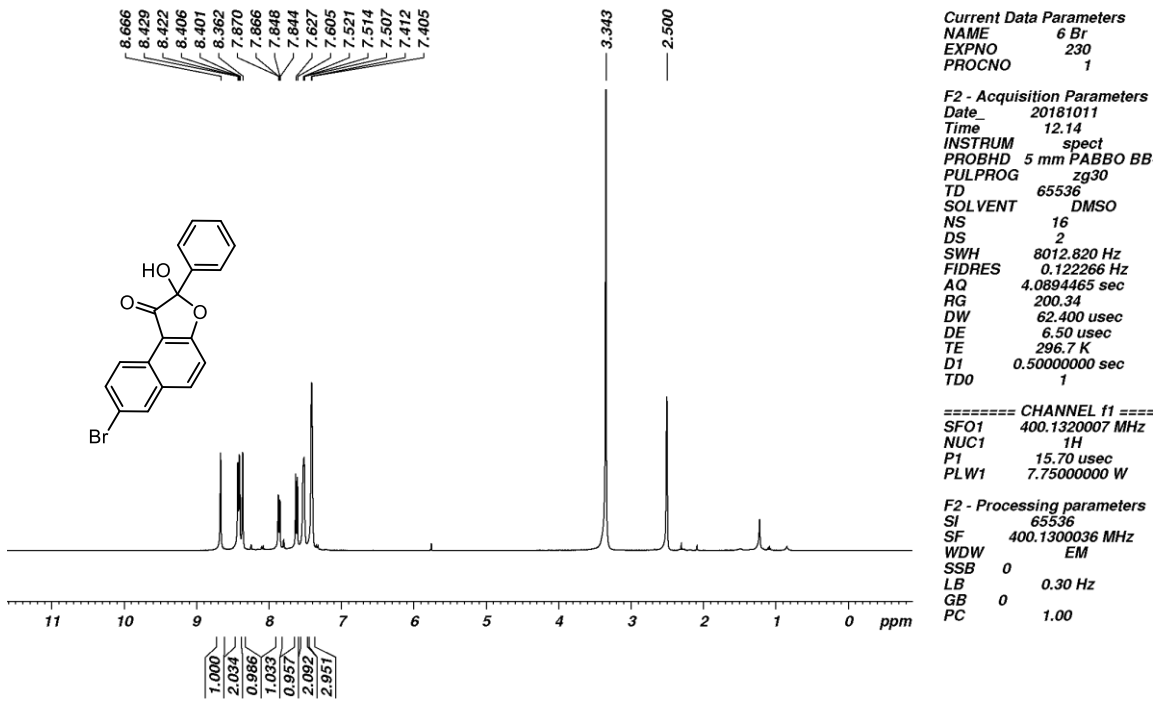
2-Hydroxy-2-phenylnaphtho[2,1-*b*]furan-1(2*H*)-one (5): ^{1}H NMR (400 MHz, $CDCl_3$, 24 °C):



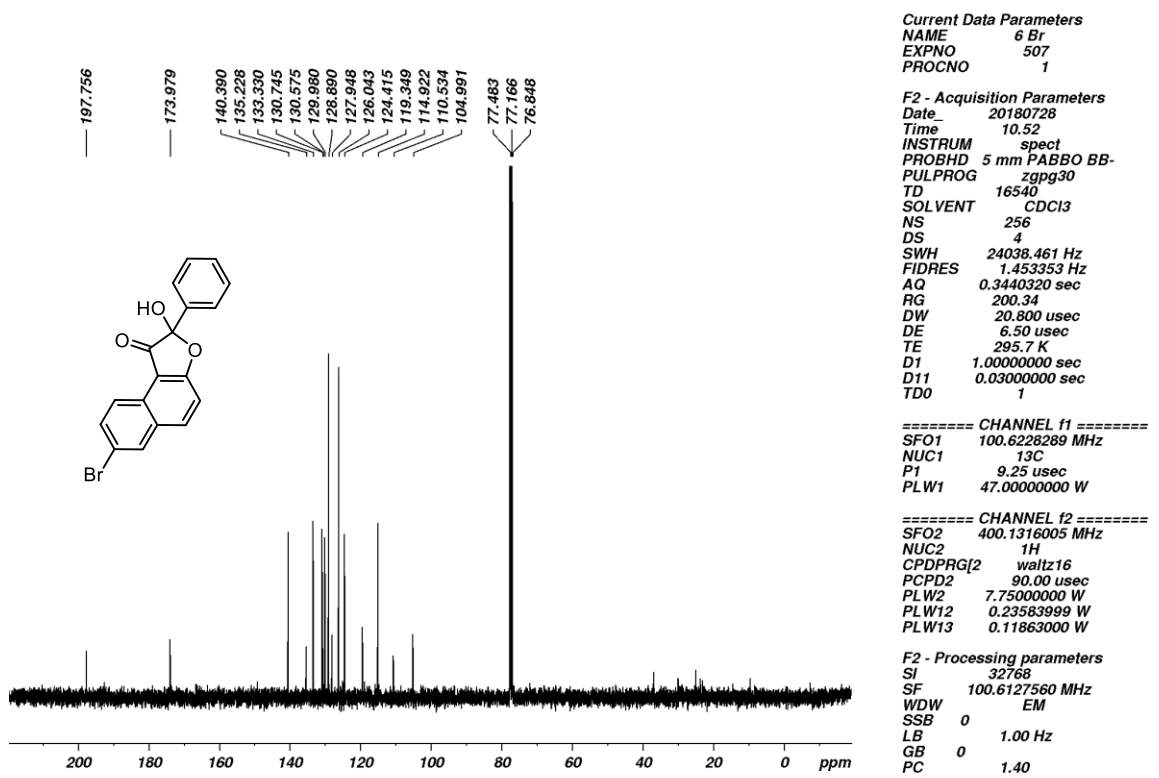
2-Hydroxy-2-phenylnaphtho[2,1-*b*]furan-1(2*H*)-one (5):
^{13}C NMR (400 MHz, $CDCl_3$, 24 °C):



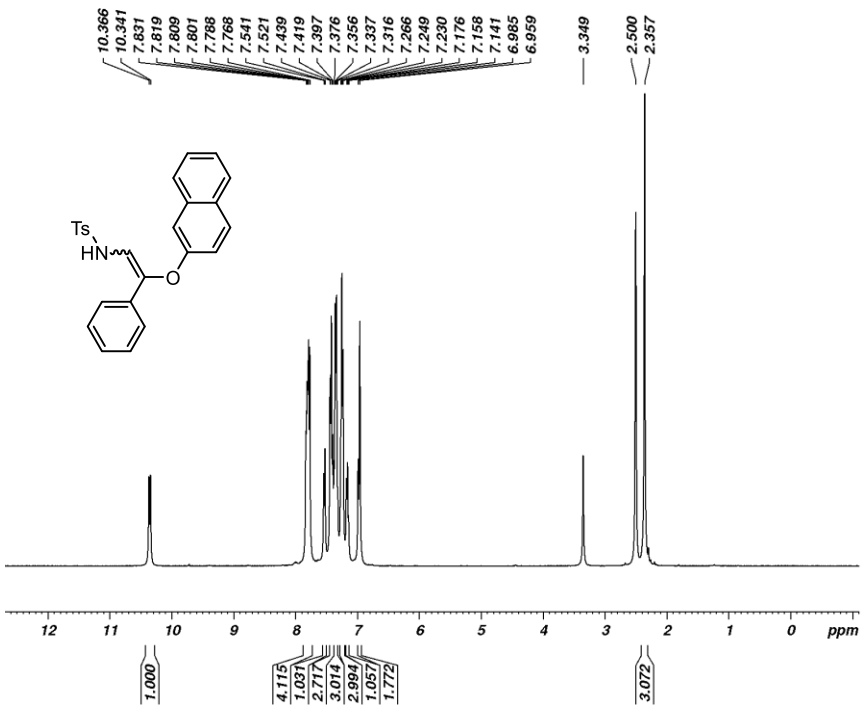
7-Bromo-2-hydroxy-2-phenylnaphtho[2,1-*b*]furan-1(2*H*)-one (6) : ^{1}H NMR (400 MHz, DMSO, 24 °C):



7-Bromo-2-hydroxy-2-phenylnaphtho[2,1-*b*]furan-1(2*H*)-one (6) : ^{13}C NMR (400 MHz, $CDCl_3$, 24 °C):



4-Methyl-*N*-(2-(naphthalen-2-yloxy)-2-phenylvinyl)benzenesulfonamide (7) : ^{1}H NMR (400 MHz, DMSO, 24 °C):

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TD              65536
SOLVENT          DMSO
NS                 16
DS                  2
SWH          8012.820 Hz
FIDRES       0.122266 Hz
AQ           4.0894465 sec
RG              108.26
DW              62.400 usec
DE               6.50 usec
TE              299.1 K
D1           0.50000000 sec
TD0                1

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NUC1               1H
P1              15.70 usec
PLW1         7.75000000 W

F2 - Processing parameters
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SF            400.1300034 MHz
WDW                EM
SSB       0
LB              0.30 Hz
GB        0
PC              1.00
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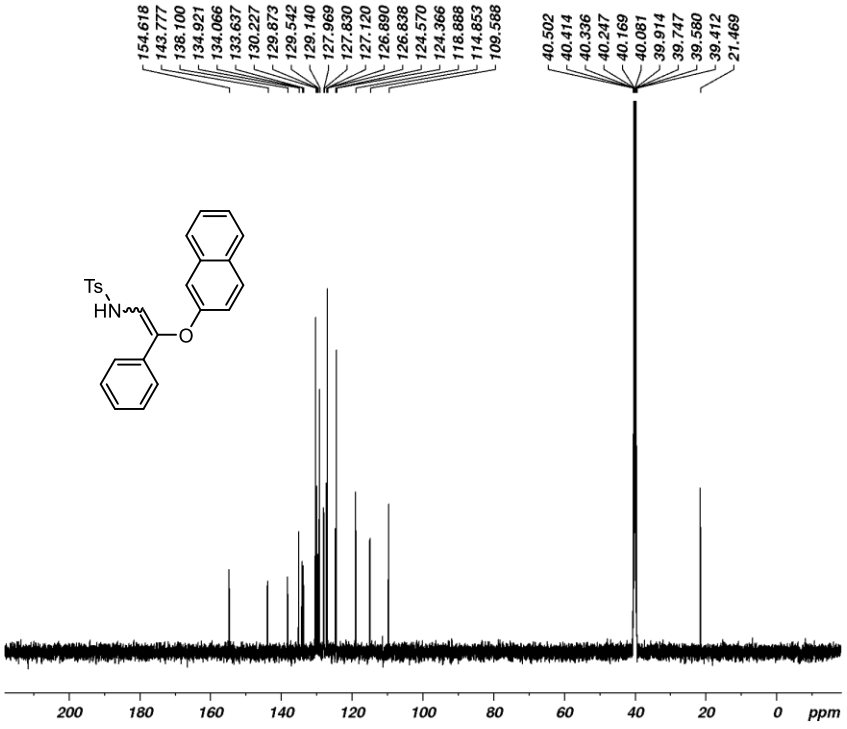
4-Methyl-*N*-(2-(naphthalen-2-yloxy)-2-phenylvinyl)benzenesulfonamide (7) : ^{13}C NMR (400 MHz, DMSO, 24 °C):

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PROCNO            1

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PULPROG         zgpg30
TD              20480
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DS                 4
SWH          29761.904 Hz
FIDRES       1.453218 Hz
AQ           0.3440640 sec
RG              202.34
DW              16.800 usec
DE               6.50 usec
TE              298.3 K
D1           1.00000000 sec
D11          0.03000000 sec
TD0                1

======== CHANNEL f1 ========
SFO1         125.7753932 MHz
NUC1               13C
P1              10.20 usec
PLW1         103.00000000 W

======== CHANNEL f2 ========
SFO2         500.1520006 MHz
NUC2               1H
CPDPRG[2         waltz16
PCPD2            80.00 usec
PLW2         15.30000019 W
PLW12         0.38863000 W
PLW13         0.19548000 W

F2 - Processing parameters
SI                32768
SF            125.7628180 MHz
WDW                EM
SSB       0
LB              1.00 Hz
GB        0
PC              1.40
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