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1. General

Commercially available reagents were used without additional purification. E. Merck Kieselgel 60 was used for column chromatography. Thin-layer chromatography (TLC) was performed on silica gel 60 F254 aluminum plates (MERCK). Visualization was performed using UV light (254 or 312 nm) or staining with KMnO_4 .

NMR spectra were recorded on a Bruker Avance III 800 (with a 5-mm CPTXI cryoprobe) and Bruker Fourier 300. Chemical shifts were reported relative to residue peaks CDCl_3 (7.27 ppm for ^1H and 77.0 ppm for ^{13}C) or DMSO-d_6 (2.51 ppm: for ^1H and 39.5 ppm: for ^{13}C).

Melting points were measured on a SMP 30 apparatus without correction.

High-resolution mass spectra (HRMS) spectra were recorded on AB Sciex TripleTOF® 5600+ System or Orbitrap Fusion Lumos Mass spectrometer (ThermoScientific) using electrospray ionization (ESI). The measurements were done in a positive ion mode (interface capillary voltage – 5500 V); mass range from m/z 50 to m/z 3000; external or internal calibration was done with ESI Tuning Mix, Agilent. A syringe injection was used for solutions in acetonitrile, methanol, or water (flow rate 20 $\mu\text{l}/\text{min}$). Nitrogen was applied as a dry gas; interface temperature was set at 180 $^\circ\text{C}$.

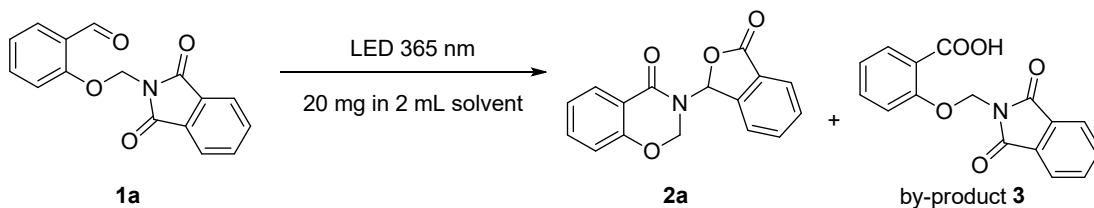
IUPAC compound names were generated using ChemDraw Professional 16.0 Software.

Photocyclization processes were performed on Evoluchem™ PhotoRedOx box (<https://hepatochem.com/photoreactors-leds-accessories/photoredox-box/>, US10906022). 365 nm (LG, HCK1012-01-006, 25 mW/cm^2), 380 nm (LG, HCK1012-01-013, 8 mW/cm^2), 405 nm (LG, HCK1012-01-010, 28 mW/cm^2), and 425 nm (EPILED, HCK1012-01-012, 33 mW/cm^2) light-emitting diode (LED) lamps from Evoluchem™ were used (Figure S1). This device is equipped with a fan to maintain room temperature during the irradiation process.



Figure S1. Evoluchem™ PhotoRedOx box with 365 nm LED lamp.

2. Solvent screening



Compound **1a** (20 mg) was dissolved in freshly distilled solvent (2 ml) in a glass vial. The resulting solution was flushed with argon and then obtained solutions were irradiated with 365 nm LED lamp in EvoluChem™ PhotoRedOx box with stirring for 5 h (Figure S2). Then the reaction mixture was evaporated under vacuum or (for DMSO, DMF, DMAC, NMP solutions) dissolved in EtOAc (10 ml), washed with saturated aqueous KCl solution (5x10 mL), dried over anhydrous Na₂SO₄ and evaporated under vacuum. Finally, all residues were analyzed by ¹H NMR in DMSO-*d*₆. The overall aromatic signal from 6.50 ppm to 8.15 ppm (8H) was used as a standard (800%) as a conditional evaluation method.

The quantity of components was evaluated using the following signals:

- doublets on 4.97 (1H) and 5.16 ppm (1H) for product **2a**
- singlet signal on 5.74 ppm (2H) for starting aldehyde **1a**
- singlet signal on 5.60 ppm (1H) for by-product - acid **3**

The results are presented in Table S1.

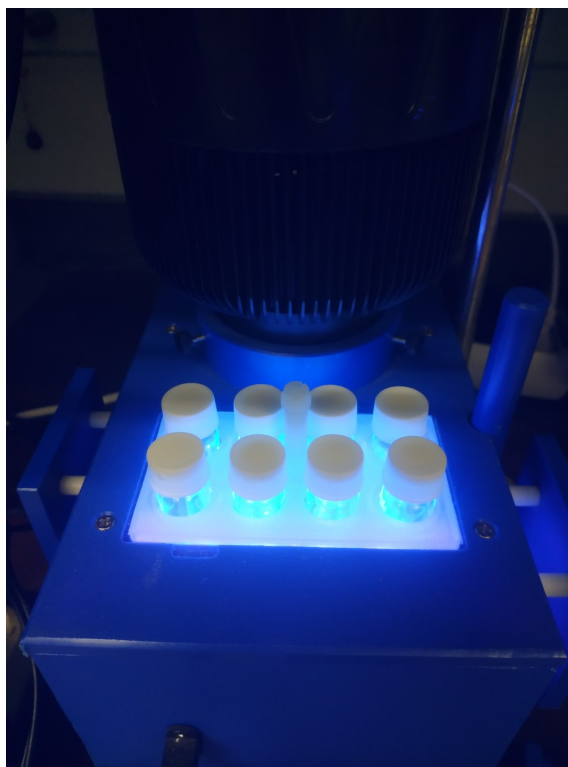


Figure S2. Photochemical set-up. Solvent screening.

Table S1. Solvent screening results.

Entry	Solvent	2a , %	Remained 1a , %	3 , %
1	Toluene	0	12	5
2	CHCl ₃	0	49	8
3	Dioxane	0	0	20
4	MeOH	0	3	0
5	MeCN	0	5	17
6	DMSO	73	5	0
7	C ₂ H ₄ Cl ₂	0	43	21
8	HFIP	0	31	6
9	DMF	22	17	0
10	Benzene	0	50	20
11	DMAC	64	0	0
12	NMP	0	0	0
13	Pyridine	0	0	85
14	EtOAc	0	19	16
15	DCM	0	55	14

3. Different wavelength study

Compound **1a** (30 mg, 0.11 mmol) was dissolved in 4 mL of DMSO-*d*₆ in a Schlenk vessel. The mixture was degassed under vacuum and filled with argon three times. Next, parts of the solution (0.7 mL) were transferred to four argon fused NMR tubes and sealed. NMR tube with these solutions was irradiated with different LED lamps in EvoluChem™ PhotoRedOx box for 1 h. The mixtures were analyzed by ¹H NMR similarly to the mentioned above.

Table S3. Kinetic study of compound **1a** with different wavelengths.

<i>hν</i> , nm	2a , %	6a , %	3 , %	remained 1a , %
365	85	0	5	3
380	33	1	6	47
405	0	2	1	97
425	0	0	0	100

4. Temperature study

Compound **1a** (23 mg, 0.08 mmol) was dissolved in 3 mL of DMSO- d_6 in a Schlenk vessel. The mixture was degassed under vacuum and filled with argon three times. Next, parts of the solution (0.7 mL) were transferred to three argon fused NMR tubes and sealed. The mixtures were analyzed by ^1H NMR (initial point). NMR tubes with these solutions were irradiated for 10 min with 365 nm LED lamp in EvoluChemTM PhotoRedOx box in a glass with distilled water, with the temperature inside controlled using a magnetic stirrer with a thermocouple. The mixtures were analyzed by ^1H NMR similarly to the mentioned above.

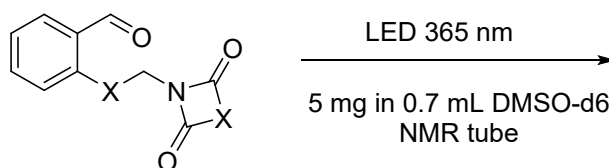
Table S2. Study of photoreactions with different temperature.

Temperature	2a , yield	3 , yield	6a , yield	remained 1a
25 °C	74%	5%	2%	12%
40 °C	78%	6%	2%	10%
60 °C	82%	7%	2%	7%



Figure S3. Photochemical set-up with heating.

5. Various H donor, acceptor and linker screening



Corresponding substrate (5 mg) was dissolved in 0.7 mL of DMSO-d₆ in a Schlenk vessel. The mixture was degassed under vacuum and filled with argon three times. Next, the solution was transferred to argon fused NMR tube and sealed. NMR tube with this solution was irradiated with 365 nm LED lamp in EvoluChem™ PhotoRedOx box for 5 h (Figure S4). The mixture was analyzed by ¹H NMR

The results are presented in Table S4.

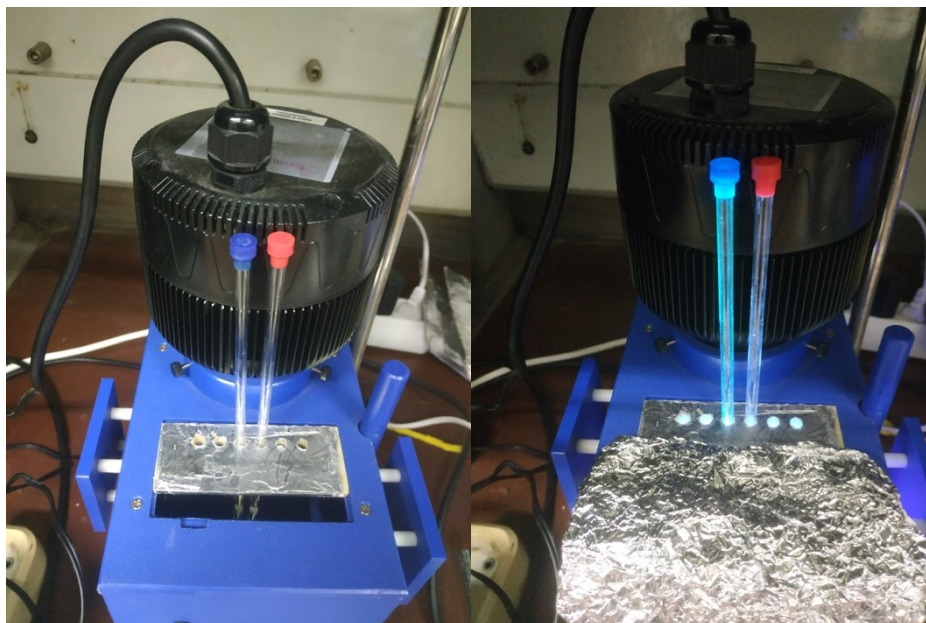


Figure S4. Photochemical set-up in NMR tubes.

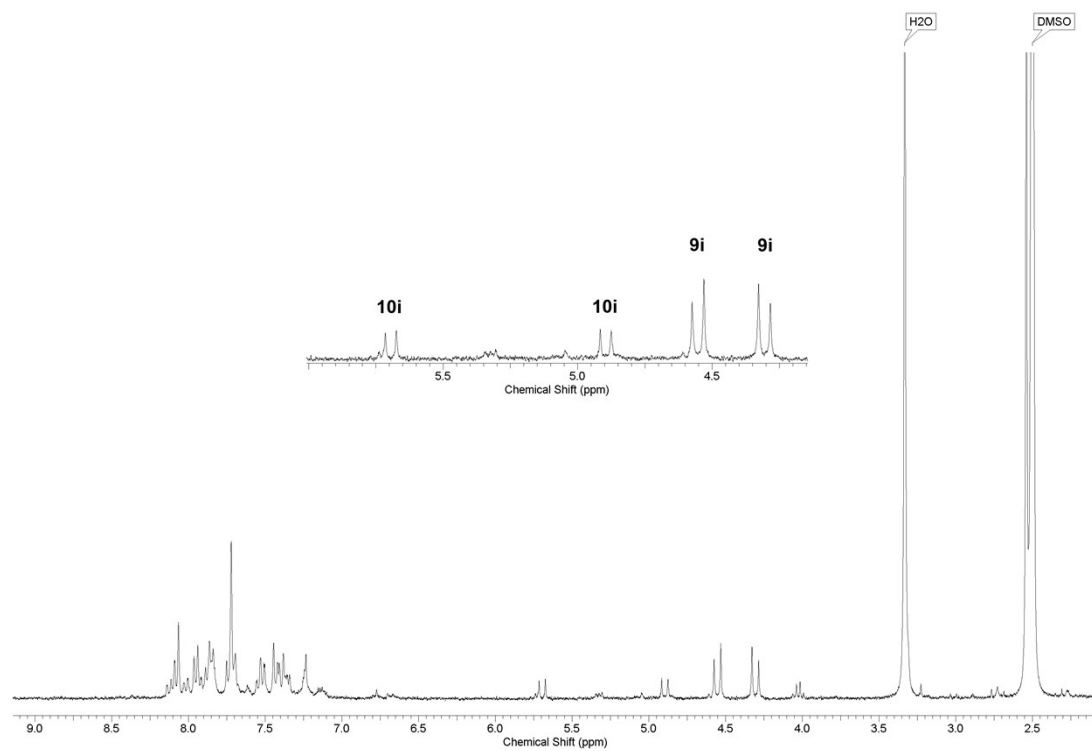
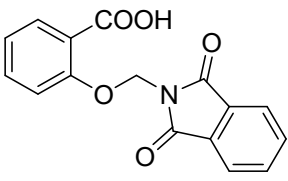
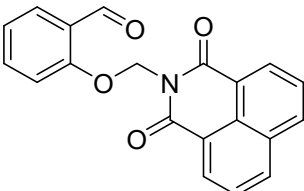
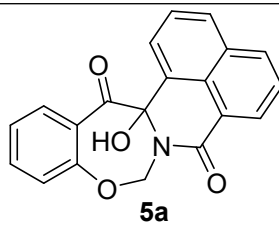
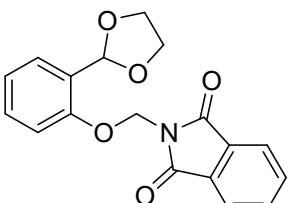
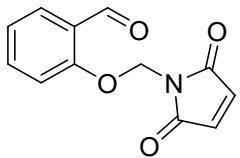
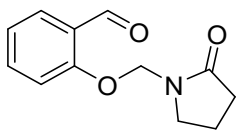
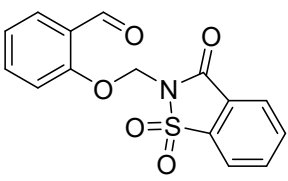
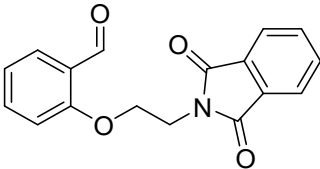
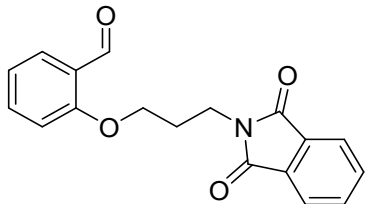
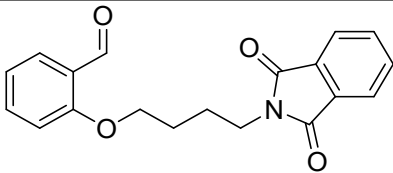
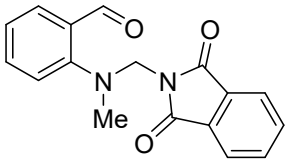
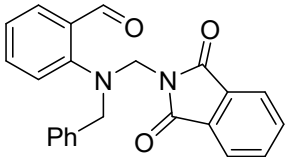
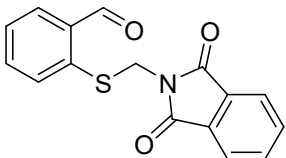
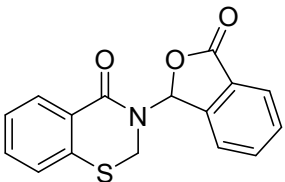
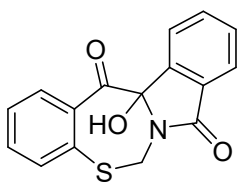


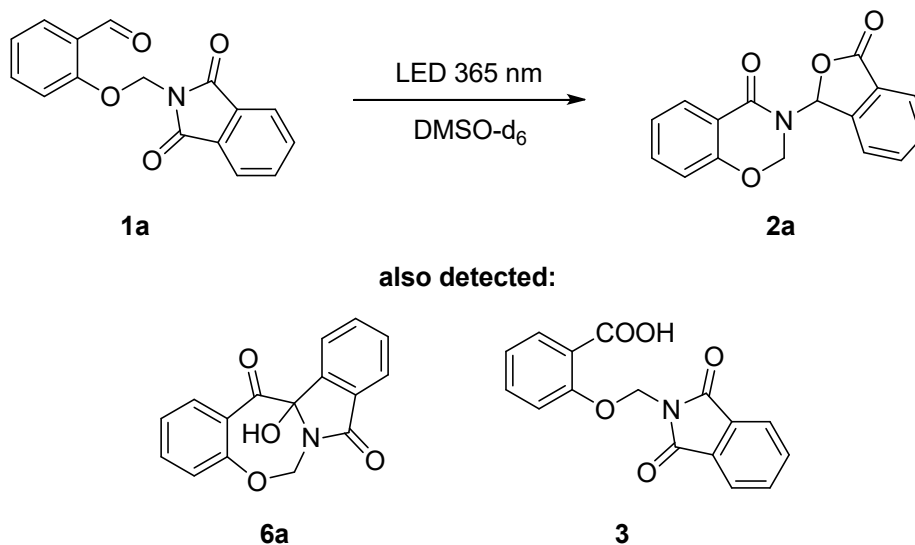
Figure S5. NMR spectrum of the reaction mixture for photoreaction of **8i** ($t = 5$ hours).

Table S4. H donor, acceptor and linker screening.

Substrate	Structure	Result
3		no reaction
4a		 5a , ~34% (+ ~40% remained 4a) detected by NMR
7		no reaction
8a		complex mixture of several products
8b		a complex mixture of a very large number of products
8c		a complex mixture of a very large number of products
8d		complex mixture of several products
8e		complex mixture of several products

8f		a complex mixture of a very large number of products
8g		a complex mixture of a very large number of products
8h		a complex mixture of a very large number of products
8i	   9i 10i 9i, ~44% and 10i, ~15% detected by NMR	

6. Kinetic study



Compound **1a** (15 mg, 5 mmol) was dissolved in 2 mL of DMSO-*d*₆ in a Schlenk vessel. The mixture was degassed under vacuum and filled with argon three times, then 10 mg of TMS was added. The solution (0.7 mL) was transferred to two argon-filled NMR tube and sealed. The NMR tubes with solution were irradiated with 365 nm LED lamp in Evoluchem™ PhotoRedOx box. One tube was wrapped in foil from 15 to 40 minutes after the start of irradiation, then irradiation was continued without foil. The mixtures were analyzed by ¹H NMR. TMS signal was used as an internal standard - for all spectra its integral area was set on equal value. Initial integral area of CH₂ singlet signal from 5.70 ppm to 5.80 ppm was used as 200%.

The quantity of components was assessed using integration the following areas:

- 5.10-5.20 ppm (1H) for product **2a**
- 5.70-5.80 ppm (2H) for starting aldehyde **1a**
- 5.90-6.00 ppm (1H) for intermediate **6a**
- 5.59-5.63 ppm (2H) for acid **3**

The results are presented in Figures S6 and S7.

The characteristic signals of intermediate **6a** (t = 10 min) are shown in Figure S8.

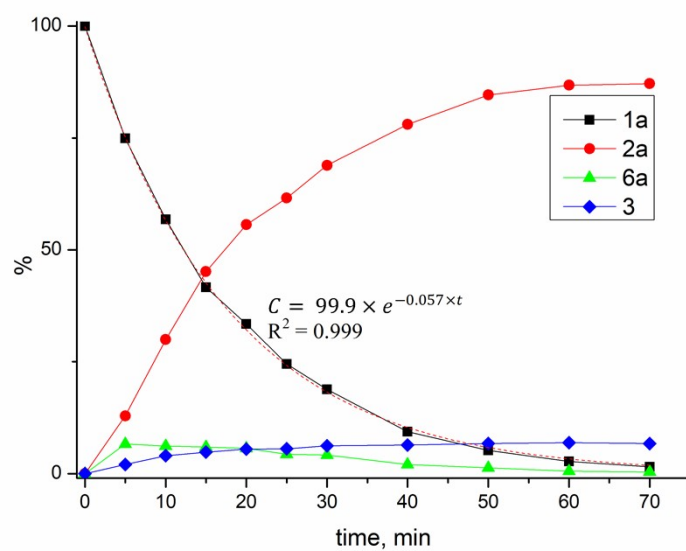


Figure S6. Kinetic study for **1a** photoreaction.

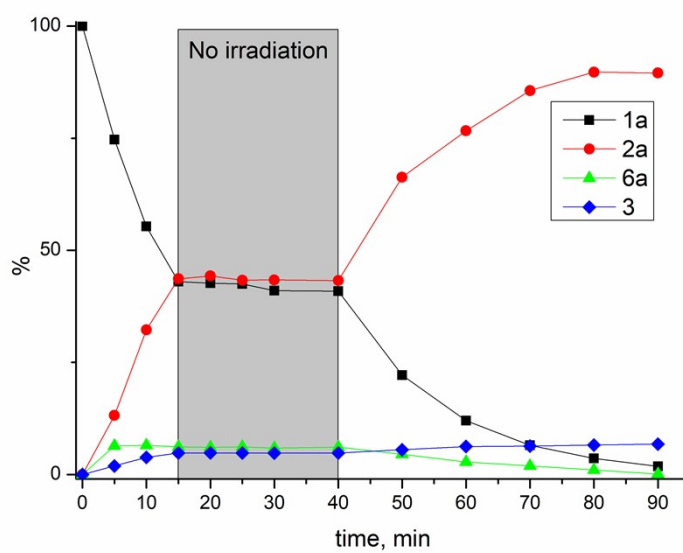


Figure S7. Kinetic study for **1a** photoreaction with interrupted irradiation.

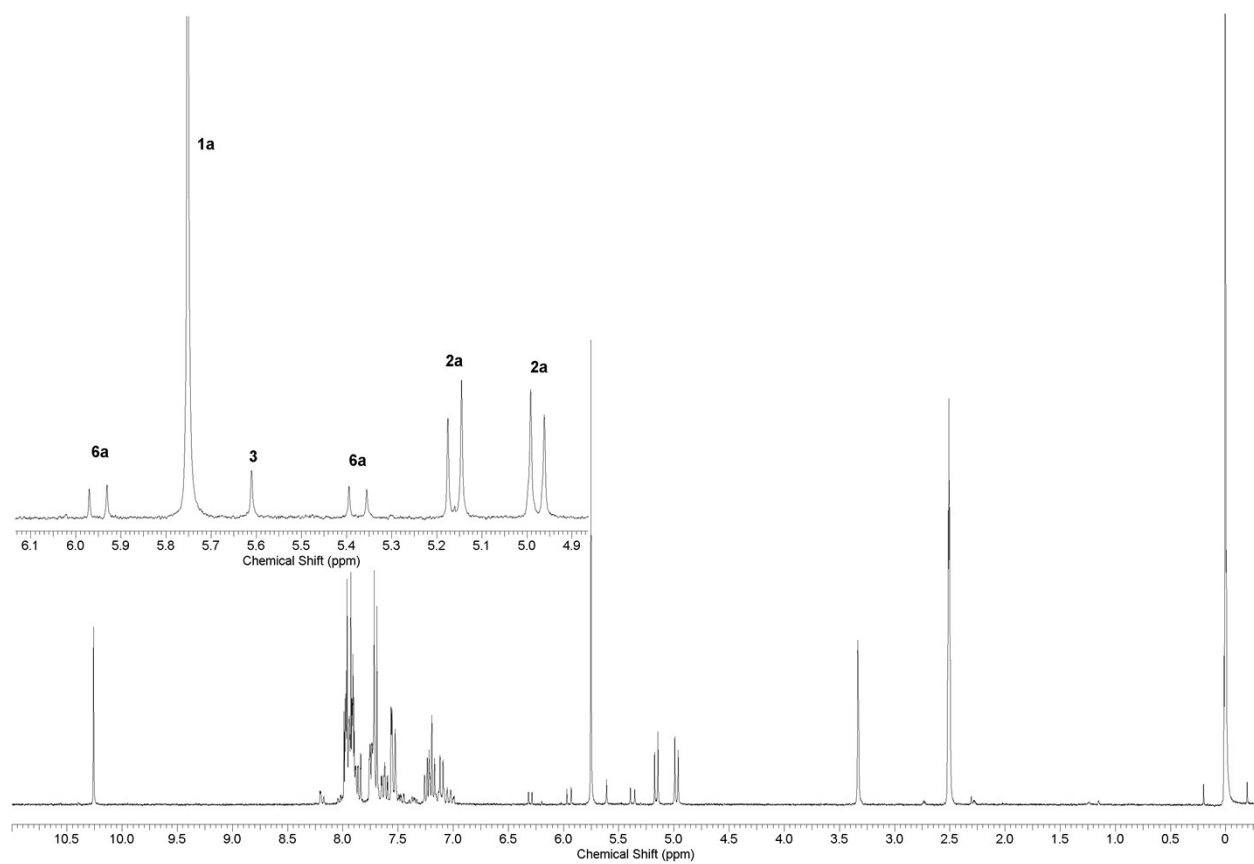


Figure S8. NMR spectrum of the reaction mixture (t = 10 min).

7. Experiments with radical quenching reagents

Compound **1a** (23 mg, 0.08 mmol) was dissolved in 3 mL of DMSO- d_6 in a Schlenk vessel. The mixture was degassed under vacuum and filled with argon three times. Next, parts of the solution (0.7 mL) were transferred to three argon-filled NMR tubes and sealed. (2,2,6,6-tetramethylpiperidin-1-yl)oxidanyl (TEMPO, 6 mg, 0.04 mmol) was added to first tube, butylated hydroxytoluene (BHT, 7 mg, 0.04 mmol) was added to the second one, and the last tube was used without additives. NMR tubes with these solutions were sealed and irradiated with 365 nm LED lamp in Evoluchem™ PhotoRedOx box. The mixtures were analyzed by ^1H NMR (see above in Part 6).

The results are presented in Figure S9.

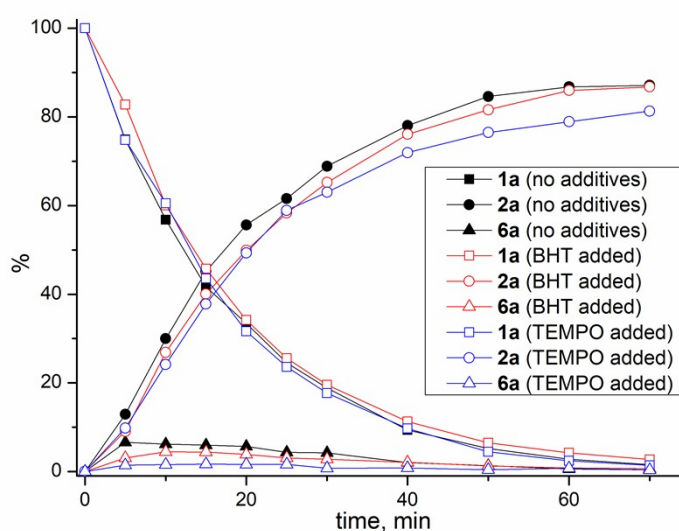
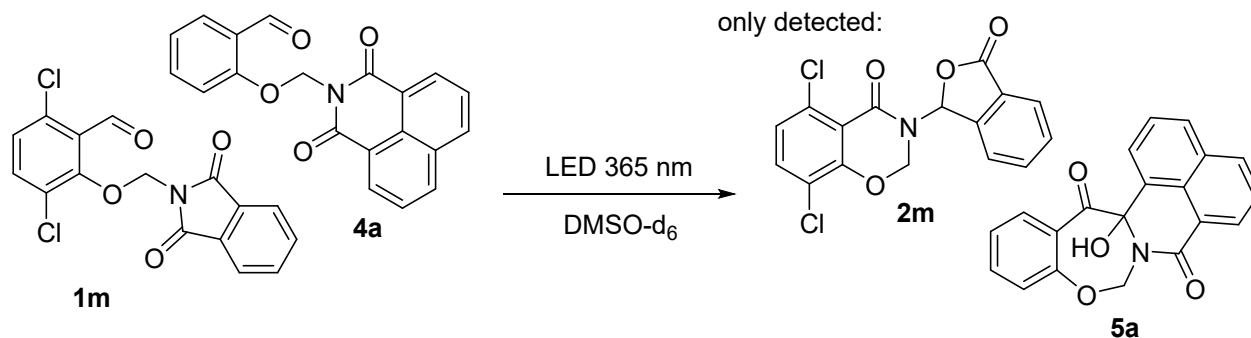


Figure S9. Kinetic study of **1a** phototransformation with BHT and TEMPO.

8. Cross-reaction experiment



Compounds **1m** (2.1 mg, 6 μ mol) and **4a** (2.0 mg, 6 μ mol) were dissolved in freshly distilled degassed DMSO- d_6 (0.7 mL) under argon atmosphere. The solution was transferred to NMR tube and sealed. NMR tubes with these solutions were irradiated with 365 nm LED lamp in EvoluChem™ PhotoRedOx box for 5 h. The mixtures were analyzed by ^1H NMR.

Only the corresponding products **2m** and **5a** were detected after 5 hours of irradiation.

The characteristic signals of products **6m** and **5a** ($t = 5$ hours) are shown in Figure S10.

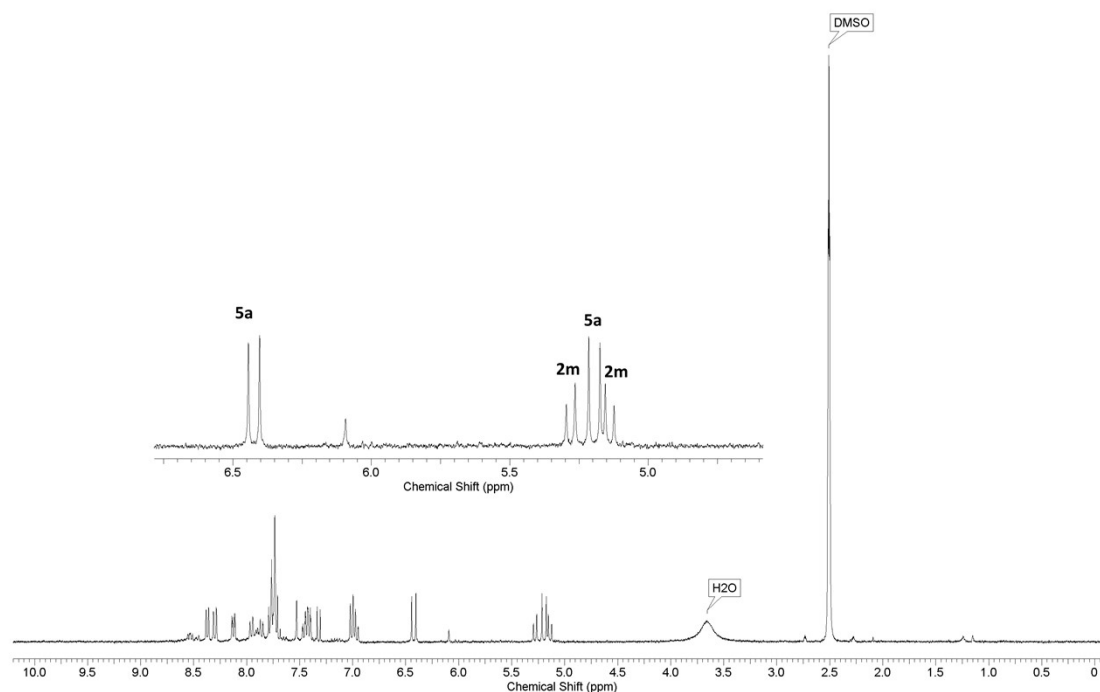


Figure S10. NMR spectrum of the reaction mixture ($t = 5$ hours).

9. Long-term irradiation experiment for substance 6q



Product **6q** (5 mg) was dissolved in freshly distilled degassed DMSO-*d*₆ (0.7 mL) under argon atmosphere. The solution was transferred to NMR tube and sealed. NMR tube was irradiated with 365 nm LED lamp in Evoluchem™ PhotoRedOx box for 30 h.

The NMR spectrum after 30 hours of irradiation is shown in Figure S11.

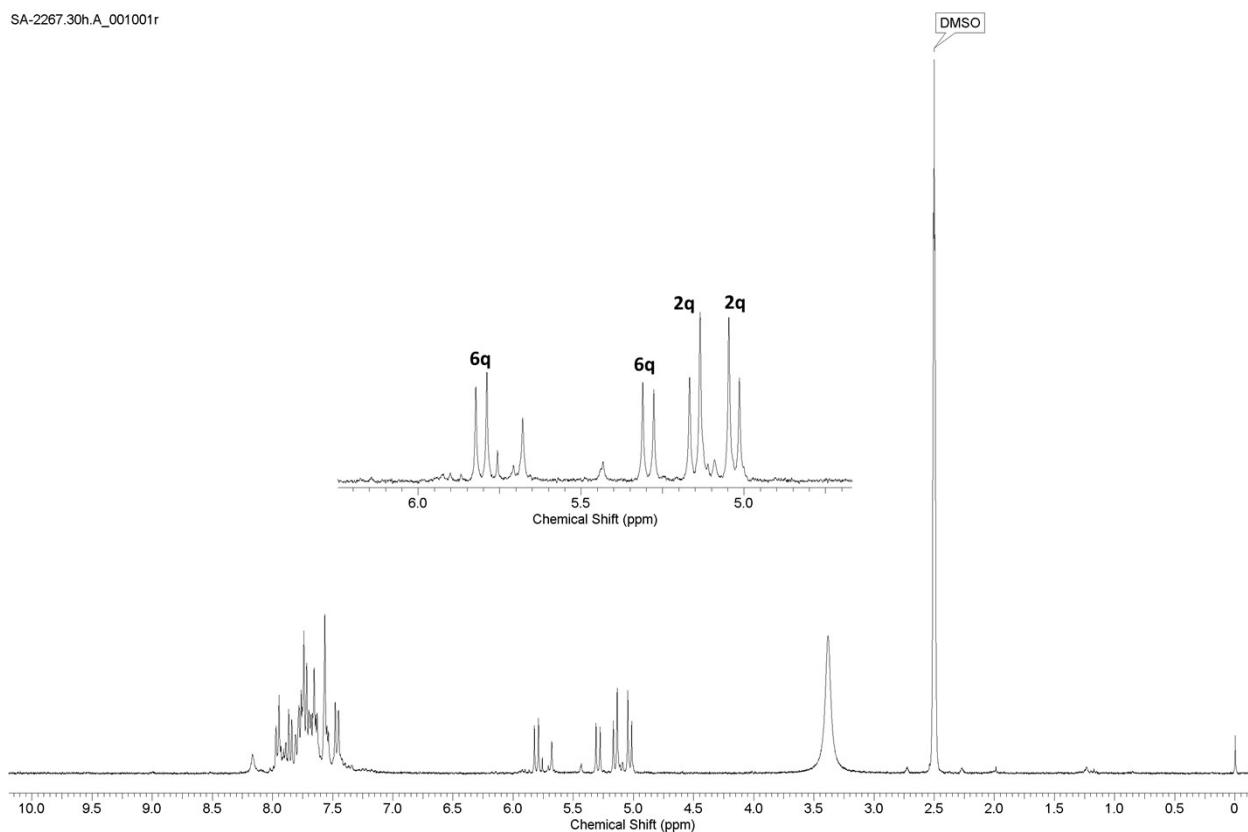
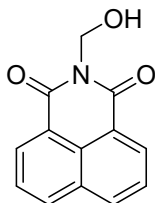


Figure S11. NMR spectrum of the reaction mixture (t = 30 hours).

10. Synthesis

6.1 Synthesis of *N*-chloromethyl compounds

2-(Hydroxymethyl)-1H-benzo[de]isoquinoline-1,3(2H)-dione



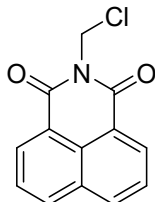
A mixture of 1,8-naphthalimide (1.71 g) and 5% aqueous NaOH (100 μ L) was dissolved in a 37% formaldehyde aqueous solution (3 mL). The reaction mixture was stirred at 100 °C for 3 hours and then transferred to a refrigerator at 5 °C for crystallization. The resulting precipitate was collected by filtration using a glass filter, washed sequentially with water (3 $\times$ 5 mL) and 70% ethanol (1 $\times$ 5 mL), and dried under reduced pressure.

Yield 1.83 g (91%), white solid.

^1H NMR (300 MHz, DMSO- d_6) δ ppm 8.49 (dd, $J=7.3$, 0.9 Hz, 2H), 8.42 - 8.47 (m, 2H), 7.82 - 7.91 (m, 2H), 6.33 (t, $J=7.4$ Hz, 1H), 5.46 (d, $J=7.4$ Hz, 2H).

The ^1H spectrum corresponded to the literature data^{S1}.

2-(Chloromethyl)-1H-benzo[de]isoquinoline-1,3(2H)-dione



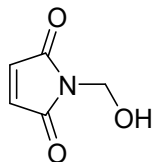
2-(Hydroxymethyl)-1H-benzo[de]isoquinoline-1,3(2H)-dione (1.83 g, 8 mmol) was dissolved in a mixture of DCM (12 mL) and DMF (7 mL). SOCl_2 (1.05 g, 8.8 mmol) was added dropwise over 10 minutes. The reaction mixture was stirred at room temperature for 4 hours. DCM was evaporated under reduced pressure, and water (20 mL) was added to the mixture. The resulting precipitate was collected by vacuum filtration using a glass filter, washed sequentially with water (3 $\times$ 5 mL) and 50% ethanol (3 $\times$ 5 mL), and dried under reduced pressure.

Yield 1.8 g (92%), beige solid.

^1H NMR (300 MHz, DMSO- d_6) δ ppm 8.57 (dd, $J=7.3$, 0.9 Hz, 2H), 8.53 (dd, $J=8.3$, 0.9 Hz, 2H), 7.87 - 7.97 (m, 2H), 5.92 (s, 2H).

The ^1H spectrum corresponded to the literature data^{S2}.

1-(Hydroxymethyl)-1H-pyrrole-2,5-dione



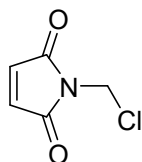
A mixture of maleimide (5g) and 5% aqueous NaOH (0.25 mL) was dissolved in a 37% formaldehyde aqueous solution (3 mL). The reaction mixture was stirred at room temperature for 5 hours and then transferred to a refrigerator at 5 °C for crystallization. The resulting precipitate was collected by filtration using a glass filter, washed with water (3 × 5 mL) and dried under reduced pressure.

Yield 3.66 g (56%), white solid.

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 7.07 (s, 2H), 6.27 (t, *J*=7.0 Hz, 1H), 4.78 (d, *J*=7.1 Hz, 2H).

The ¹H spectrum corresponded to the literature data^{S3}.

1-(Chloromethyl)-1H-pyrrole-2,5-dione



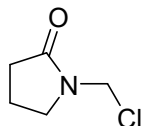
1-(Hydroxymethyl)-1*H*-pyrrole-2,5-dione (3.66 g, 28.8 mmol) was dissolved in dry acetone (20 mL) under an argon atmosphere. PCl₃ (1.03 mL, 11.5 mmol) was added dropwise over 10 minutes. The reaction mixture was stirred at room temperature for 2 hours. The solvent was removed under reduced pressure, and the residue was dissolved in ethyl acetate (EtOAc, 150 mL). The organic solution was washed sequentially with water (3 × 30 mL) and saturated KCl solution (3 × 30 mL). The organic layer was dried over anhydrous Na₂SO₄, filtered, and concentrated under reduced pressure.

Yield 3.56 g (85%), white crystalline solid.

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 7.22 (s, 2H), 5.40 (s, 2H).

The ¹H spectrum corresponded to the literature data^{S4}.

1-(Chloromethyl)pyrrolidin-2-one



2-Pyrrolidone (1 g) and paraformaldehyde (500 mg) were dissolved in TMSCl (30 mL) and refluxed for 3 hours. The reaction mixture was filtered to remove tar and concentrated under reduced pressure. The upper layer, containing hydrolyzed TMSCl byproducts, was removed via pipette and discarded. The lower layer was washed with hexane (3×3 mL) and dried under reduced pressure.

Yield 1.16 g (74%), colorless oil.

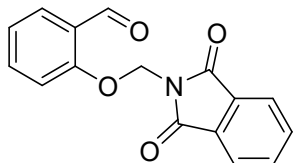
^1H NMR (300 MHz, CDCl_3) δ ppm 5.23 (s, 2H), 3.55 (t, $J=7.0$ Hz, 2H), 2.42 (t, $J=8.0$ Hz, 2H), 2.10 (m, 2H).

The ^1H spectrum corresponded to the literature data^{S5}.

6.2 General method for synthesis of aldehydes 1, 4 and 8a-c, 8g, 8h

Corresponding N-chloromethyl compound (1 mmol) and NaI (180 mg, 1.2 mmol) was mixed in dry acetone (3 mL) and allowed to stir at room temperature for 15 min, then K₂CO₃ (207 mg, 1.5 mmol) and aldehyde (1 mmol) was added. The mixture was stirred at 50 °C for 12 hours. Water (20 mL) was added to the mixture, and product was extracted with CHCl₃ (3x50 mL). Organic layer was washed with brine (3x50 mL) and dried over anhydrous Na₂SO₄. All volatiles were removed in vacuo and the residue was recrystallized from toluene.

2-((1,3-Dioxoisindolin-2-yl)methoxy)benzaldehyde (1a)

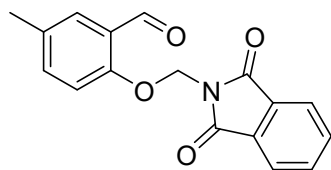


Yield 280 mg (99%), white crystalline solid.

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm: 10.25 (s, 1H), 7.87 - 8.01 (m, 4H), 7.66 - 7.76 (m, 2H), 7.53 (d, *J*=7.9 Hz, 1H), 7.19 (t, *J*=7.5 Hz, 1H), 5.74 (s, 2H).

The ¹H spectrum corresponded to the literature data ^{S6}.

2-((1,3-Dioxoisindolin-2-yl)methoxy)-5-methylbenzaldehyde (1b)



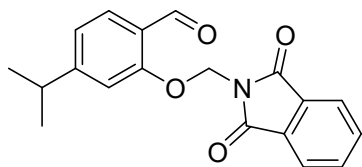
Yield 280 mg (63%), white crystalline solid. M.p. 180-181 °C (from PhMe).

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 10.21 (s, 1H), 7.85 - 8.01 (m, 4H), 7.45 - 7.56 (m, 2H), 7.41 (d, *J*=8.4 Hz, 1H), 5.70 (s, 2H), 2.29 (s, 3H).

¹³C NMR (75 MHz, CDCl₃) δ ppm 189.6, 167.0, 156.7, 136.5, 134.7, 132.3, 131.6, 128.4, 125.9, 124.0, 115.1, 65.8, 20.4.

HRMS found, *m/z*: 296.0919 [M+H]⁺. C₁₇H₁₄NO₄⁺. Calculated, *m/z*: 296.0917.

2-((1,3-Dioxoisindolin-2-yl)methoxy)-4-isopropylbenzaldehyde (1c)



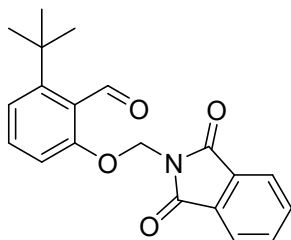
Yield 255 mg (79%), white crystalline solid. M.p. 109-111 °C (from PhMe).

^1H NMR (300 MHz, $\text{DMSO}-d_6$) δ ppm 10.18 (s, 1H), 7.87 - 8.00 (m, 4H), 7.61 (d, $J=8.0$ Hz, 1H), 7.40 (s, 1H), 7.06 (d, $J=8.0$ Hz, 1H), 5.75 (s, 2H), 2.96 (spt, $J=6.8$ Hz, 1H), 1.23 (d, $J=6.8$ Hz, 6 H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 189.1, 167.0, 158.8, 158.2, 134.7, 131.6, 128.5, 124.1, 124.0, 121.0, 112.7, 65.4, 34.8, 23.5.

HRMS found, m/z : 324.1230 $[\text{M}+\text{H}]^+$. $\text{C}_{19}\text{H}_{18}\text{NO}_4^+$. Calculated, m/z : 324.1230.

2-(Tert-butyl)-6-((1,3-dioxoisindolin-2-yl)methoxy)benzaldehyde (1d)



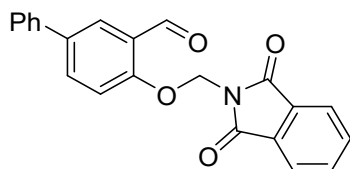
Yield 274 mg (81%), white crystalline solid. M.p. 112-113 °C (from PhMe).

^1H NMR (300 MHz, $\text{DMSO}-d_6$) δ ppm 10.20 (s, 1H), 7.87 - 7.99 (m, 4H), 7.62 (d, $J=8.2$ Hz, 1H), 7.50 (d, $J=1.5$ Hz, 1H), 7.17 - 7.26 (m, 1H), 5.78 (s, 2H), 1.31 (s, 9 H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 189.1, 167.0, 160.5, 158.5, 134.7, 131.6, 128.1, 124.0, 123.8, 119.9, 112.1, 65.4, 35.7, 30.9.

HRMS found, m/z : 338.1388 $[\text{M}+\text{H}]^+$. $\text{C}_{20}\text{H}_{20}\text{NO}_4^+$. Calculated, m/z : 338.1387.

4-((1,3-Dioxoisindolin-2-yl)methoxy)-[1,1'-biphenyl]-3-carbaldehyde (1e)



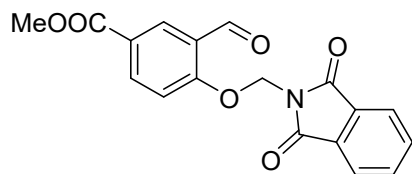
Yield 280 mg (79%), white crystalline solid. M.p. 165-166 °C (from PhMe).

^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.29 (s, 1H), 8.03 (dd, $J=8.7, 2.6$ Hz, 1H), 7.89 - 8.00 (m, 5H), 7.61 - 7.72 (m, 3H), 7.47 (m, 2H), 7.34 - 7.41 (m, 1H), 5.80 (s, 2H).

^{13}C NMR (75 MHz, DMSO- d_6) δ ppm 189.2, 166.9, 158.1, 138.4, 135.1, 134.3, 134.2, 131.3, 129.0, 127.6, 126.4, 125.7, 125.5, 123.7, 116.9, 66.5.

HRMS found, m/z : 358.1076 $[\text{M}+\text{H}]^+$. $\text{C}_{22}\text{H}_{16}\text{NO}_4^+$. Calculated, m/z : 358.1074.

Methyl 4-((1,3-dioxoisindolin-2-yl)methoxy)-3-formylbenzoate (1f)



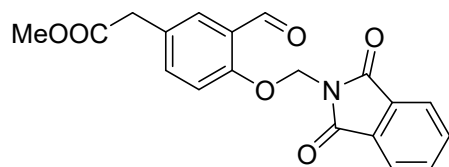
Yield 285 mg (84%), white crystalline solid. M.p. 186-189 °C (from PhMe).

^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.25 (s, 1H), 8.22 - 8.27 (m, 2H), 7.89 - 8.00 (m, 4H), 7.69 (d, $J=9.4$ Hz, 1H), 5.84 (s, 2H), 3.86 (s, 3H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 188.4, 166.8, 165.7, 161.5, 136.9, 134.9, 131.5, 130.5, 125.3, 124.5, 124.2, 113.9, 65.2, 52.2.

HRMS found, m/z : 340.0817 $[\text{M}+\text{H}]^+$. $\text{C}_{18}\text{H}_{14}\text{NO}_6^+$. Calculated, m/z : 340.0816.

Methyl 2-(4-((1,3-dioxoisindolin-2-yl)methoxy)-3-formylphenyl)acetate (1g)



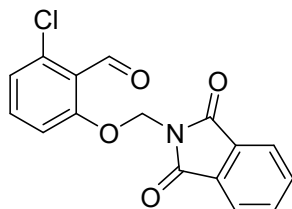
Yield 292 mg (83%), white crystalline solid. M.p. 156-157 °C (from PhMe).

^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.22 (s, 1H), 7.87 - 8.00 (m, 4H), 7.55 - 7.64 (m, 2H), 7.45 - 7.53 (m, 1H), 5.73 (s, 2H), 3.73 (s, 2H), 3.61 (s, 3H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 189.1, 171.5, 167.0, 157.8, 136.7, 134.8, 131.6, 129.1, 128.3, 125.9, 124.1, 114.9, 65.5, 52.2, 39.9.

HRMS found, m/z : 354.0971 $[\text{M}+\text{H}]^+$. $\text{C}_{19}\text{H}_{16}\text{NO}_6^+$. Calculated, m/z : 354.0972.

2-Chloro-6-((1,3-dioxoisindolin-2-yl)methoxy)benzaldehyde (1h)



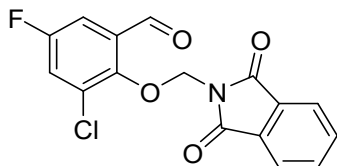
Yield 285 mg (90%), white crystalline solid. M.p. 210-212 °C (from PhMe).

^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.25 (s, 1H), 7.88 - 7.99 (m, 4H), 7.63 (t, $J=8.3$ Hz, 1H), 7.47 - 7.54 (dd, $J=8.4$, 0.8 Hz, 1H), 7.24 (d, $J=7.9$ Hz, 1H), 5.71 (s, 2H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 188.6, 166.9, 159.0, 135.9, 134.8, 134.4, 131.6, 125.4, 124.1, 123.6, 114.5, 66.3.

HRMS found, m/z : 316.0373 $[\text{M}+\text{H}]^+$. $\text{C}_{16}\text{H}_{11}\text{ClNO}_4^+$. Calculated, m/z : 316.0371.

3-Chloro-2-((1,3-dioxisoindolin-2-yl)methoxy)-5-fluorobenzaldehyde (1i)



Yield 237 mg (71%), white crystalline solid. M.p. 205-207 °C (from PhMe).

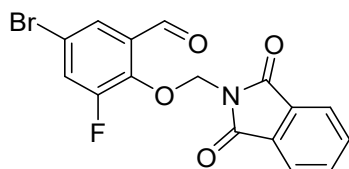
^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.10 (d, $J=2.8$ Hz, 1H), 7.86 - 8.00 (m, 5H), 7.51 (dd, $J=8.1, 3.2$ Hz, 1H), 5.63 (s, 2H)

^{13}C NMR (75 MHz, CDCl_3) δ ppm 187.5, 166.9, 158.9 (d, $J=250.3$ Hz), 151.6, 134.9, 131.8 (d, $J=7.2$ Hz), 131.3, 129.9 (d, $J=9.9$ Hz), 124.1, 123.5 (d, $J=26.4$ Hz), 113.3 (d, $J=23.7$ Hz), 69.3

^{19}F NMR (654 MHz, CDCl_3) δ ppm -113.05 (td, $J=7.56, 2.75$ Hz).

HRMS found, m/z : 356.0101 $[\text{M}+\text{Na}]^+$. $\text{C}_{16}\text{H}_9\text{ClFNNaO}_4^+$. Calculated, m/z : 356.0096.

5-Bromo-2-((1,3-dioxisoindolin-2-yl)methoxy)-3-fluorobenzaldehyde (1j)



Yield 317 mg (84%), white crystalline solid. M.p. 222-224 °C (from PhMe).

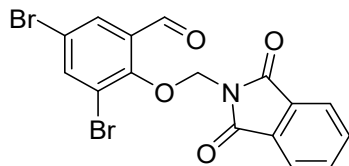
^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.06 (s, 1H), 8.04 (dd, $J=10.4, 2.4$ Hz, 1H), 7.87 - 7.99 (m, 4H), 7.66 (dd, $J=2.2, 1.5$ Hz, 1H), 5.66 (s, 2H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 187.0 (d, $J=3.3$ Hz), 166.8, 155.4 (d, $J=254.2$ Hz), 146.0 (d, $J=12.1$ Hz), 134.9, 131.5, 131.4 (d, $J=9.9$ Hz), 126.6 (d, $J=3.9$ Hz), 125.7 (d, $J=22.0$ Hz), 124.2, 117.3 (d, $J=8.3$ Hz), 69.0 (d, $J=7.7$ Hz).

^{19}F NMR (654 MHz, CDCl_3) δ ppm -124.97 (d, $J=10.3$ Hz).

HRMS found, m/z : 377.9775 $[\text{M}+\text{H}]^+$. $\text{C}_{16}\text{H}_{10}\text{BrFNO}_4^+$. Calculated, m/z : 377.9772.

3,5-Dibromo-2-((1,3-dioxoisindolin-2-yl)methoxy)benzaldehyde (1k)



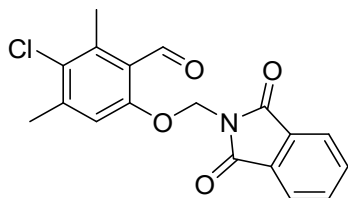
Yield 303 mg (70%), white crystalline solid. M.p. 189-190 °C (from PhMe).

^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.06 (s, 1H), 8.26 (d, $J=2.4$ Hz, 1H), 7.89 - 7.98 (m, 4H), 7.87 (d, $J=2.5$ Hz, 1H), 5.63 (s, 2H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 187.5, 166.9, 155.4, 141.3, 134.9, 132.0, 131.3, 131.1, 124.2, 119.3, 119.1, 69.6.

HRMS found, m/z : 437.8972 $[\text{M}+\text{H}]^+$. $\text{C}_{16}\text{H}_{10}\text{Br}_2\text{NO}_4^+$. Calculated, m/z : 437.8971.

3-Chloro-6-((1,3-dioxoisindolin-2-yl)methoxy)-2,4-dimethylbenzaldehyde (1l)



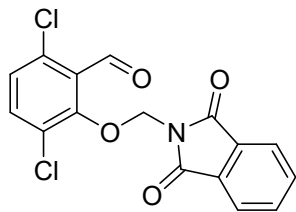
Yield 228 mg (66%), white crystalline solid. M.p. 191-193 °C (from PhMe).

^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.28 (s, 1H), 7.86 - 8.01 (m, 4H), 7.48 (s, 1H), 5.70 (s, 2H), 2.51 (s, 3H), 2.42 (s, 3H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 191.3, 167.0, 157.8, 143.5, 139.3, 134.8, 131.6, 130.3, 124.1, 124.1, 114.8, 65.9, 22.3, 17.0.

HRMS found, m/z : 344.0686 $[\text{M}+\text{H}]^+$. $\text{C}_{18}\text{H}_{15}\text{ClNO}_4^+$. Calculated, m/z : 344.0684.

3,6-Dichloro-2-((1,3-dioxoisindolin-2-yl)methoxy)benzaldehyde (1m)



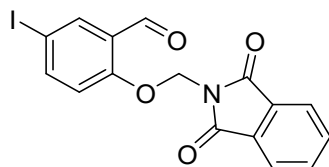
Yield 269 mg (77%), white crystalline solid. M.p. 206-207 °C (from PhMe).

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 10.22 (s, 1H), 7.86 - 8.01 (m, 4H), 7.79 (d, *J*=8.7 Hz, 1H), 7.46 (d, *J*=8.7 Hz, 1H), 5.60 (s, 2H).

¹³C NMR (75 MHz, CDCl₃) δ ppm 188.2, 167.1, 154.7, 135.6, 134.8, 134.6, 131.7, 128.2, 128.0, 127.8, 124.0, 69.9.

HRMS found, *m/z*: 371.9803 [M+Na]⁺. C₁₆H₉Cl₂NNaO₄⁺. Calculated, *m/z*: 371.9801.

2-((1,3-Dioxoisindolin-2-yl)methoxy)-5-iodobenzaldehyde (1n)



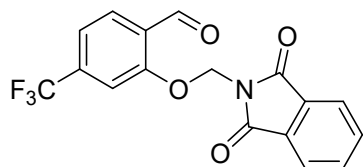
Yield 312 mg (77%), white crystalline solid. M.p. 188-189 °C (from PhMe).

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 10.11 (s, 1H), 8.01 (dd, *J*=8.8, 2.3 Hz, 1H), 7.88 - 7.98 (m, 5H), 7.40 (d, *J*=8.7 Hz, 1H), 5.73 (s, 2H).

¹³C NMR (75 MHz, DMSO-*d*₆) δ ppm 188.2, 166.9, 158.4, 144.1, 136.0, 135.9, 135.1, 131.3, 127.5, 123.8, 119.2, 66.5.

HRMS found, *m/z*: 407.9723 [M+H]⁺. C₁₆H₁₁INO₄⁺. Calculated, *m/z*: 407.9727.

2-((1,3-Dioxoisindolin-2-yl)methoxy)-4-(trifluoromethyl)benzaldehyde (1o)



Yield 219 mg (63%), white crystalline solid. M.p. 169-171 °C (from PhMe).

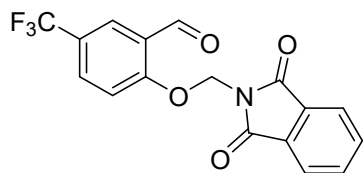
¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 10.29 (s, 1H), 7.84 - 8.04 (m, 6H), 7.53 (d, *J*=8.5 Hz, 1H), 5.87 (s, 2H).

¹³C NMR (75 MHz, CDCl₃) δ ppm 188.0, 166.9, 158.5, 136.8 (q, *J*=33 Hz), 134.9, 131.5, 129.3, 128.0, 124.2, 123.1 (q, *J*=273 Hz), 119.2 (q, *J*=4 Hz), 111.8 (q, *J*=4 Hz), 65.5.

¹⁹F NMR (654 MHz, CDCl₃) δ ppm -63.36 (s).

HRMS found, *m/z*: 350.0639 [M+H]⁺. C₁₈H₁₄F₃NO₄⁺. Calculated, *m/z*: 350.0635.

2-((1,3-Dioxoisindolin-2-yl)methoxy)-5-(trifluoromethyl)benzaldehyde (1p)



Yield 274 mg (78%), white crystalline solid. M.p. 166-167 °C (from PhMe).

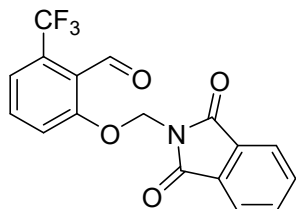
^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.25 (s, 1H), 8.10 (dd, $J=8.8, 2.2$ Hz, 1H), 7.88 - 8.01 (m, 5H), 7.79 (d, $J=8.8$ Hz, 1H), 5.85 (s, 2H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 188.0, 166.9, 160.5, 135.0, 132.4 (q, $J=4$ Hz), 131.4, 126.1 (q, $J=4$ Hz), 125.6, 124.9 (q, $J=34$ Hz), 124.2, 123.5 (q, $J=273$ Hz), 114.5, 65.2.

^{19}F NMR (654 MHz, CDCl_3) δ ppm -62.30 (s).

HRMS found, m/z : 350.0635 $[\text{M}+\text{H}]^+$. $\text{C}_{17}\text{H}_{11}\text{F}_3\text{NO}_4^+$. Calculated, m/z : 350.0635.

2-((1,3-Dioxoisindolin-2-yl)methoxy)-6-(trifluoromethyl)benzaldehyde (1q)



Yield 276 mg (82%), white crystalline solid. M.p. 162-163 °C (from PhMe).

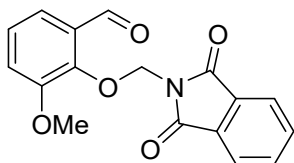
^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.34 (d, $J=1.5$ Hz, 1H), 7.82 - 7.98 (m, 6 H), 7.55 (d, $J=7.4$ Hz, 1H), 5.77 (s, 2H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 189.2, 166.9, 158.0, 134.9, 133.7, 131.5, 130.1 (q, $J=33$ Hz), 125.6, 124.1, 122.9 (q, $J=273$ Hz), 120.8 (q, $J=4$ Hz), 119.5, 66.2.

^{19}F NMR (654 MHz, CDCl_3) δ ppm -58.31 (s).

HRMS found, m/z : 350.0634 $[\text{M}+\text{H}]^+$. $\text{C}_{17}\text{H}_{11}\text{F}_3\text{NO}_4^+$. Calculated, m/z : 350.0635.

2-((1,3-Dioxoisindolin-2-yl)methoxy)-3-methoxybenzaldehyde (1r)



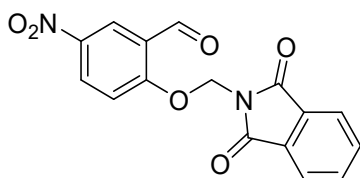
Yield 62 mg (20%), white crystalline solid. M.p. 162-163 °C (from PhMe).

^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.13 (s, 1H), 7.81 - 7.99 (m, 4H), 7.40 (dd, $J=7.29$, 2.43 Hz, 1H), 7.16 - 7.32 (m, 2H), 5.63 (s, 2H), 3.80 (s, 3H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 190.0, 167.3, 152.9, 148.6, 134.8, 131.7, 130.4, 125.3, 124.1, 119.4, 118.0, 68.5, 56.3.

HRMS found, m/z : 312.0870 $[\text{M}+\text{H}]^+$. $\text{C}_{17}\text{H}_{14}\text{NO}_5^+$. Calculated, m/z : 312.0866.

2-((1,3-Dioxoisindolin-2-yl)methoxy)-5-nitrobenzaldehyde (1s)



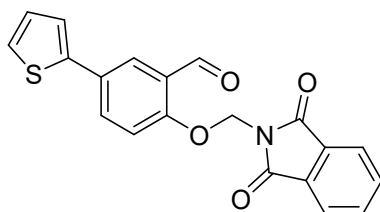
Yield 228 mg (70%), white crystalline solid. M.p. 220-222 °C (from PhMe).

^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.24 (s, 1H), 8.56 (dd, $J=9.12$, 2.52 Hz, 1H), 8.41 (d, $J=2.84$ Hz, 1H), 7.87 - 8.06 (m, 5H), 7.82 (d, $J=9.35$ Hz, 1H), 5.91 (s, 2H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 187.3, 166.9, 162.5, 142.8, 135.3, 131.5, 130.6, 125.8, 124.8, 124.5, 114.6, 65.5.

HRMS found, m/z : 349.0431 $[\text{M}+\text{Na}]^+$. $\text{C}_{16}\text{H}_{10}\text{N}_2\text{NaO}_6^+$. Calculated, m/z : 349.0431.

2-((1,3-Dioxoisindolin-2-yl)methoxy)-5-(thiophen-2-yl)benzaldehyde (1t)



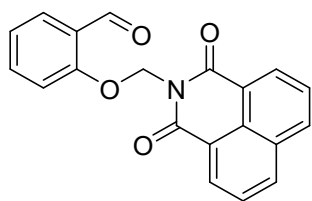
Yield 87 mg (24%), green crystalline solid. M.p. 189-191 °C (from PhMe).

^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.26 (s, 1H), 7.89 - 8.05 (m, 5H), 7.86 (d, $J=2.48$ Hz, 1H), 7.61 (d, $J=8.80$ Hz, 1H), 7.50 - 7.59 (m, 2H), 7.14 (dd, $J=5.04$, 3.67 Hz, 1H), 5.78 (s, 2H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 189.3, 167.1, 157.9, 142.6, 135.0, 133.1, 131.7, 129.4, 128.3, 126.3, 125.5, 125.2, 124.2, 123.5, 115.4, 65.7.

HRMS found, m/z : 364.0644 $[\text{M}+\text{H}]^+$. $\text{C}_{20}\text{H}_{14}\text{NSO}_4^+$. Calculated, m/z : 364.0638.

2-((1,3-Dioxo-1H-benzo[de]isoquinolin-2(3H)-yl)methoxy)benzaldehyde (4a)



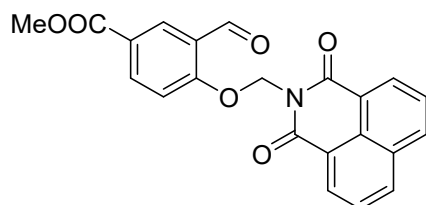
Yield 274 mg (83%), brownish solid. M.p. 242-243 °C (from PhMe).

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 10.24 (s, 1H), 8.55 (ddd, *J*=11.0, 7.8, 0.9 Hz, 4H), 7.91 (dd, *J*=8.3, 7.3 Hz, 2H), 7.67 - 7.77 (m, 2H), 7.56 (dd, *J*=8.2, 0.5 Hz, 1H), 7.15 - 7.23 (m, 1H), 6.18 (s, 2H).

¹³C NMR (75 MHz, CDCl₃) δ ppm 189.7, 163.7, 159.6, 135.8, 134.7, 131.9, 131.7, 128.6, 128.2, 127.1, 126.0, 122.3, 121.9, 115.2, 68.2.

HRMS found, *m/z*: 332.0919 [M+H]⁺. C₂₀H₁₄NO₄⁺. Calculated, *m/z*: 332.0917.

Methyl 4-((1,3-dioxo-1H-benzo[de]isoquinolin-2(3H)-yl)methoxy)-3-formylbenzoate (4b)



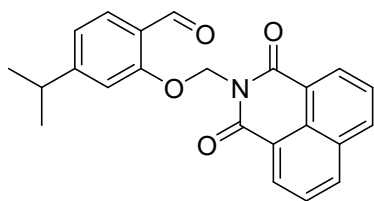
Yield 325 mg (84%), brownish solid. M.p. 261-262 °C (from PhMe).

¹H NMR (300 MHz, CDCl₃) δ ppm 10.40 (s, 1H), 8.69 (dd, *J*=7.3, 1.0 Hz, 2H), 8.52 (d, *J*=2.2 Hz, 1H), 8.26 - 8.36 (m, 3H), 7.82 (m, 2H), 7.45 (d, *J*=8.8 Hz, 1H), 6.38 (s, 2H), 3.92 (s, 3H).

¹³C NMR (176 MHz, DMSO-*d*₆) δ ppm 188.5, 164.9, 163.0, 162.3, 136.2, 134.7, 131.2, 131.0, 128.8, 127.7, 127.0, 124.9, 123.2, 121.4, 115.9, 68.7, 51.9.

HRMS found, *m/z*: 390.0967 [M+H]⁺. C₂₂H₁₆NO₆⁺. Calculated, *m/z*: 390.0972.

2-((1,3-Dioxo-1*H*-benzo[*de*]isoquinolin-2(3*H*)-yl)methoxy)-4-isopropylbenzaldehyde
(4c)



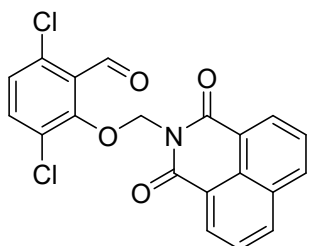
Yield 242 mg (65%), brownish solid. M.p. 210-212 °C (from PhMe).

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 10.18 (s, 1 H), 8.60 - 8.50 (m, 4 H), 7.85 - 7.97 (m, 2 H), 7.62 (d, *J*=8.1 Hz, 1H), 7.40 (d, *J*=0.7 Hz, 1H), 7.07 (d, *J*=7.9 Hz, 1H), 6.19 (s, 2H), 2.99 (sept, *J*=6.9 Hz, 1H), 1.25 (d, *J*=6.9 Hz, 6H)

¹³C NMR (176 MHz, DMSO-*d*₆) δ ppm 188.8, 163.2, 159.6, 157.9, 134.9, 131.4, 131.2, 127.8, 127.6, 127.3, 123.5, 121.5, 120.4, 114.2, 68.8, 34.0, 23.2

HRMS found, *m/z*: 374.1389 [M+H]⁺. C₂₃H₂₀NO₄⁺. Calculated, *m/z*: 374.1387.

3,6-Dichloro-2-((1,3-dioxo-1*H*-benzo[*de*]isoquinolin-2(3*H*)-yl)methoxy)benzaldehyde
(4d)



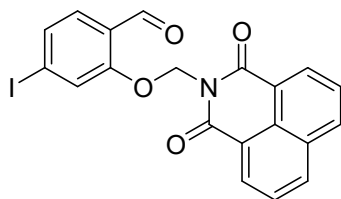
Yield 333 mg (83%), beige solid. M.p. 246-248 °C (from PhMe).

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 10.24 (s, 1H), 8.52 (dd, *J*=7.6, 3.3 Hz, 4H), 7.90 (t, *J*=7.7 Hz, 2H), 7.78 (d, *J*=8.8 Hz, 1H), 7.44 (d, *J*=8.6 Hz, 1H), 6.09 (s, 2H).

¹³C NMR (176 MHz, DMSO-*d*₆) δ ppm 188.3, 163.1, 155.3, 134.7, 134.6, 132.6, 131.2, 130.9, 128.0, 127.6, 127.5, 127.0, 126.6, 121.2, 72.4.

HRMS found, *m/z*: 400.0144 [M+H]⁺. C₂₀H₁₂Cl₂NO₄⁺. Calculated, *m/z*: 400.0138.

2-((1,3-dioxo-1*H*-benzo[*de*]isoquinolin-2(3*H*)-yl)methoxy)-4-iodobenzaldehyde (4e)



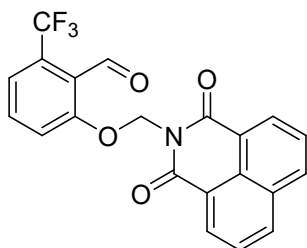
Yield 408 mg (89%), brownish solid. M.p. 271-272 °C with decomposition (from PhMe).

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 10.11 (s, 1H), 8.54 (t, *J*=8.0 Hz, 4H), 8.03 (dd, *J*=8.7, 2.3 Hz, 1H), 7.87 - 8.00 (m, 3H), 7.43 (d, *J*=8.8 Hz, 1H), 6.17 (s, 2H)

¹³C NMR (176 MHz, DMSO-*d*₆) δ ppm 187.9, 163.0, 158.9, 143.7, 135.6, 134.6, 131.2, 130.9, 127.7, 127.4, 127.0, 121.4, 119.2, 85.2, 69.0

HRMS found, *m/z*: 457.9882 [M+H]⁺. C₂₀H₁₃INO₄⁺. Calculated, *m/z*: 457.9884.

2-((1,3-dioxo-1*H*-benzo[*de*]isoquinolin-2(3*H*)-yl)methoxy)-6-(trifluoromethyl)benzaldehyde (4f)



Yield 346 mg (87%), brownish solid. M.p. 217-219 °C (from CH₂Cl₂).

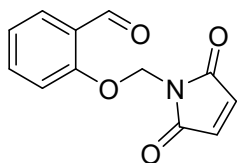
¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 10.33 (s, 1H), 8.54 (t, *J*=8.1 Hz, 4H), 7.82 - 7.98 (m, 4H), 7.55 (d, *J*=7.5 Hz, 1H), 6.21 (s, 2H)

¹³C NMR (151 MHz, DMSO-*d*₆) δ ppm 190.6, 163.7, 159.8, 135.4, 135.0, 132.0, 131.7, 128.4, 128.1 (q, *J*=34 Hz), 127.8, 125.3 (m, 1C), 123.5 (q, *J*=274 Hz), 122.1, 121.8, 120.8 (q, *J*=6 Hz), 70.1

¹⁹F NMR (654 MHz, CDCl₃) δ ppm -57.44 (s).

HRMS found, *m/z*: 400.0791 [M+H]⁺. C₂₁H₁₃F₃NO₄⁺. Calculated, *m/z*: 400.0791.

2-((2,5-Dioxo-2,5-dihydro-1H-pyrrol-1-yl)methoxy)benzaldehyde (8a)



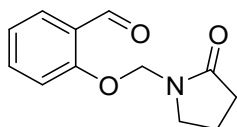
Yield 173 mg (75%), white crystalline solid. M.p. 75-76 °C (from PhMe).

^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.22 (s, 1H), 7.65 - 7.74 (m, 2H), 7.42 - 7.49 (m, 1H), 7.12 - 7.23 (m, 3H), 5.56 (s, 2H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 189.3, 169.2, 158.4, 135.8, 134.8, 128.5, 126.1, 122.6, 114.7, 65.1.

HRMS found, m/z : 232.0604 $[\text{M}+\text{H}]^+$. $\text{C}_{12}\text{H}_{10}\text{NO}_4^+$. Calculated, m/z : 232.0604.

2-((2-Oxopyrrolidin-1-yl)methoxy)benzaldehyde (8b)



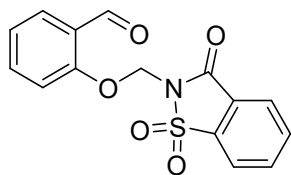
Yield 173 mg (75%), brownish oil.

^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.36 (s, 1H), 7.59 - 7.75 (m, 2H), 7.36 (d, $J=8.3$ Hz, 1H), 7.12 (t, $J=7.5$ Hz, 1H), 5.40 (s, 2H), 3.53 (t, $J=7.1$ Hz, 2H), 2.31 (t, $J=8.1$ Hz, 2H), 1.95 (m, 2H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 189.5, 175.7, 158.6, 136.1, 128.6, 125.2, 121.8, 113.8, 70.6, 45.9, 30.8, 17.8.

HRMS found, m/z : 220.0970 $[\text{M}+\text{H}]^+$. $\text{C}_{12}\text{H}_{14}\text{NO}_3^+$. Calculated, m/z : 220.0968.

2-(((1,1-Dioxido-3-oxobenzo[d]isothiazol-2(3H)-yl)methoxy)benzaldehyde (8c)



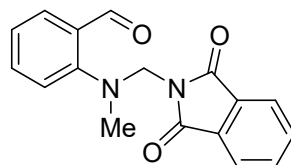
Yield 95 mg (30%), white crystalline solid. M.p. 191-192 °C (from PhMe).

^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.30 (s, 1H), 8.36 (d, $J=7.7$ Hz, 1H), 8.14 - 8.19 (m, 1H), 8.07 - 8.14 (m, 1H), 7.99 - 8.06 (m, 1H), 7.68 - 7.77 (m, 2H), 7.52 - 7.59 (m, 1H), 7.22 (t, $J=7.5$ Hz, 1H), 6.01 (s, 2H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 189.5, 158.5, 158.0, 137.6, 135.7, 135.6, 134.7, 128.7, 126.5, 126.4, 125.8, 123.2, 121.3, 114.9, 66.9.

HRMS found, m/z : 318.0434 $[\text{M}+\text{H}]^+$. $\text{C}_{15}\text{H}_{12}\text{NO}_5\text{S}^+$. Calculated, m/z : 318.0431.

2-(((1,3-dioxoisindolin-2-yl)methyl)(methyl)amino)benzaldehyde (8g)



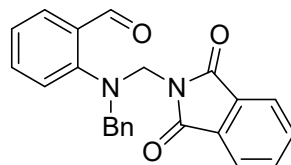
Yield 156 mg (53%), yellow crystalline solid. M.p. 130-131 °C (from PhMe).

^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.27 (s, 1 H), 7.80 - 7.86 (m, 4 H), 7.75 (dd, $J=7.66$, 1.60 Hz, 1 H), 7.47 - 7.55 (m, 1 H), 7.13 - 7.22 (m, 2 H), 4.97 (s, 2 H), 2.88 (s, 3 H).

^{13}C NMR (75 MHz, DMSO- d_6) δ ppm 191.1, 167.9, 152.6, 134.7, 134.6, 131.3, 130.1, 128.7, 123.3, 122.8, 121.3, 60.3, 39.1.

HRMS found, m/z : 295.1084 $[\text{M}+\text{H}]^+$. $\text{C}_{17}\text{H}_{15}\text{N}_2\text{O}_3^+$. Calculated, m/z : 295.1077.

2-(benzyl((1,3-dioxoisindolin-2-yl)methyl)amino)benzaldehyde (8h)



Yield 214 mg (58%), yellow crystalline solid. M.p. 137-138 °C (from PhMe).

^1H NMR (300 MHz, DMSO- d_6) δ ppm 10.44 (s, 1 H), 7.79 - 7.87 (m, 4 H), 7.70 (dd, $J=7.70$, 1.65 Hz, 1 H), 7.39 - 7.47 (m, 1 H), 7.30 - 7.38 (m, 3 H), 7.20 - 7.27 (m, 2 H), 7.11 - 7.19 (m, 2 H), 5.02 (s, 2 H), 4.51 (s, 2 H).

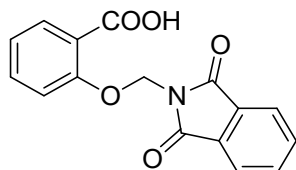
^{13}C NMR (75 MHz, DMSO- d_6) δ ppm 191.4, 168.0, 151.1, 138.1, 134.6, 134.5, 131.4, 130.7, 129.1, 128.4, 128.2, 127.0, 124.3, 124.1, 123.3, 59.7, 54.8.

HRMS found, m/z: 371.1387 $[M+H]^+$. $C_{23}H_{19}N_2O_3^+$. Calculated, m/z: 371.1390.

6.3 Synthesis of 2-((1,3-dioxoisindolin-2-yl)methoxy)benzoic acid 3

Aldehyde **1a** (150 mg, 0.534 mmol, 1 eq.) was dissolved in mixture of MeCN (2 mL) and H₂O (1 mL). 30% H₂O₂ aq. (0.8 mmol, 1.5 eq., 64 μ L) and NaH₂PO₄ (96 mg, 0.8 mmol, 1.5 eq) were added. Reaction mixture was cooled to 0°C (ice bath) and solution of NaClO₂ 80% tech. (90 mg, 0.8 mmol, 1.5 eq.) in H₂O (0.3 mL) was added. Reaction mixture was stirred for 4 hours at room temperature, then diluted with sat. aq. KCl (50 mL) and extracted with EtOAc (3×30 mL). The combined organic layer was dried over Na₂SO₄ and evaporated.

2-((1,3-Dioxoisindolin-2-yl)methoxy)benzoic acid (**3**)



Yield 134 mg (84%), white crystalline solid. M. p. 192-194 °C (from MeCN).

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 5.60 (s, 2H), 7.07 - 7.17 (m, 1H), 7.34 (d, *J*=7.98 Hz, 1H), 7.47 - 7.55 (m, 1H), 7.62 (dd, *J*=7.70, 1.56 Hz, 1H), 7.82 - 8.04 (m, 4H), 12.69 (br. s., 1H).

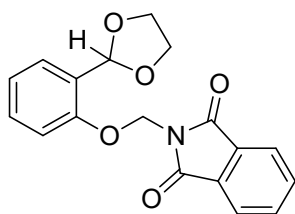
¹³C NMR (75 MHz, DMSO-*d*₆) δ ppm 192.1, 167.0, 155.7, 135.0, 133.0, 131.3, 130.6, 124.0, 123.7, 122.8, 118.7, 67.4.

HRMS found, *m/z*: 320.0532 [M+Na]⁺. C₁₆H₁₁NNaO₅⁺. Calculated, *m/z*: 320.0529.

6.4 Synthesis of 2-((2-(1,3-dioxolan-2-yl)phenoxy)methyl)isoindoline-1,3-dione 7

Salicylaldehyde (1.17 g, 10 mmol, 1 eq.) was dissolved in PhMe (10 mL), then ethylene glycol (1.48 g, 25 mmol, 2.5 eq.) and TsOH (5 mg) was added. The reaction mixture was refluxed for 12 hours, filtrated and evaporated. The crude was kept at reduced pressure to remove salicylaldehyde and dissolved in acetone (16 mL). NaI (1.80 g, 12 mmol, 1.2 eq.), K₂CO₃ (2.07 g, 15 mmol, 1.5 eq.) and N-chloromethyl phthalimide (1.96 g, 10 mmol, 1 eq.) was added. The mixture was stirred at 50 °C for 12 hours. Water (50 mL) was added to the mixture, and product was extracted with CHCl₃ (3x50 mL). Organic layer was washed with brine (3x50 mL) and dried over anhydrous Na₂SO₄. All volatiles were removed in vacuo and the residue was recrystallized from toluene-hexane (1:1 v/v) mixture.

2-((2-(1,3-Dioxolan-2-yl)phenoxy)methyl)isoindoline-1,3-dione (7)



Yield 2.3 g (73%), white crystalline solid. M.p. 124-126 °C (from PhMe-hexane 1:1 v/v).

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 7.81 - 8.03 (m, 4H), 7.32 - 7.45 (m, 3H), 7.07 (t, J=7.29 Hz, 1H), 5.83 (s, 1H), 5.60 (s, 2H), 3.66 - 3.92 (m, 4H).

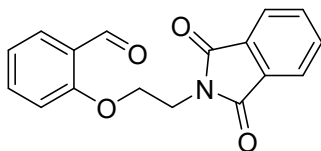
¹³C NMR (75 MHz, DMSO-*d*₆) δ ppm 167.0, 154.8, 134.9, 131.4, 130.5, 128.1, 127.1, 123.6, 122.6, 116.8, 98.0, 67.0, 64.6.

HRMS found, m/z: 326.1026 [M+H]⁺. C₁₈H₁₆NO₅⁺. Calculated, m/z: 326.1023.

6.5 Synthesis of 2-(2-(1,3-dioxoisindolin-2-yl)ethoxy)benzaldehyde 8d

2-(2-bromoethoxy)benzaldehyde (360 mg, 1.57 mmol, 1 eq.) was dissolved in DMF (2 mL), then potassium phthalimide (291 mg, 1.57 mmol, 1 eq.) was added. The reaction mixture was stirred at 70 °C for 6 hours, then mixture was diluted with EtOAc (200 mL), washed with sat. aq. KCl (3×50 mL), dried over Na₂SO₄ and evaporated. The residue was purified by recrystallisation from MeCN.

2-(2-(1,3-dioxoisindolin-2-yl)ethoxy)benzaldehyde (8d)



Yield 371 mg (80%), white crystalline solid. M.p. 144-145 °C (from MeCN).

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 10.26 (s, 1 H), 7.77 - 7.98 (m, 4 H), 7.53 - 7.68 (m, 2 H), 7.20 (d, *J*=8.16 Hz, 1 H), 7.03 (t, *J*=7.47 Hz, 1 H), 4.34 (t, *J*=5.09 Hz, 2 H), 4.05 (t, *J*=5.09 Hz, 2 H).

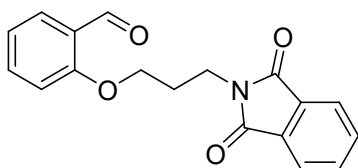
¹³C NMR (75 MHz, DMSO-*d*₆) δ ppm 189.4, 167.9, 160.6, 136.4, 134.5, 131.6, 127.2, 124.2, 123.1, 120.9, 113.3, 65.8, 37.0.

HRMS found, *m/z*: 296.0918 [M+H]⁺. C₁₇H₁₄NO₄⁺. Calculated, *m/z*: 296.0917.

6.6 Synthesis of 2-(3-(1,3-dioxoisindolin-2-yl)propoxy)benzaldehyde 8e and 2-(4-(1,3-dioxoisindolin-2-yl)butoxy)benzaldehyde 8f

Salicylaldehyde (200 mg, 1.64 mmol, 1 eq.) was dissolved in DMF (10 mL), then corresponding *N*-(bromoalkyl)phthalimide (2.13 mmol, 1.3 eq.) and K₂CO₃ (340 mg, 2.46 mmol, 1.5 eq.) were added. The reaction mixture was stirred at room temperature for 24 hours, then mixture was diluted with EtOAc (200 mL), washed with sat. aq. KCl (3×50 mL), dried over Na₂SO₄ and evaporated. The residue was purified by flash chromatography (eluent hexane–EtOAc, 4:1).

2-(3-(1,3-Dioxoisindolin-2-yl)propoxy)benzaldehyde (8e)



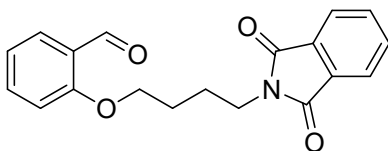
Yield 463 mg (92%), white crystalline solid. M.p. 137-138 °C (from MeCN).

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 10.30 (s, 1 H), 7.77 - 7.88 (m, 4 H), 7.54 - 7.69 (m, 2 H), 7.16 (d, *J*=8.16 Hz, 1 H), 7.05 (t, *J*=7.52 Hz, 1 H), 4.17 (t, *J*=5.64 Hz, 2 H), 3.81 (t, *J*=6.51 Hz, 2 H), 2.14 (dq, *J*=6.19, 6.01 Hz, 2 H).

¹³C NMR (75 MHz, DMSO-*d*₆) δ ppm 188.8, 168.0, 160.9, 136.4, 134.3, 131.7, 127.4, 124.1, 123.0, 120.6, 113.4, 66.1, 34.8, 27.5.

HRMS found, *m/z*: 310.1076 [M+H]⁺. C₁₈H₁₆NO₄⁺. Calculated, *m/z*: 310.1074.

2-(4-(1,3-Dioxoisindolin-2-yl)butoxy)benzaldehyde (8f)



Yield 0.50 g (94%), white crystalline solid. M.p. 102-104 °C (from MeCN).

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 10.37 (s, 1H), 7.78 - 7.88 (m, 4H), 7.58 - 7.70 (m, 2H), 7.20 (d, *J*=8.44 Hz, 1H), 7.04 (t, *J*=7.47 Hz, 1H), 4.08 - 4.22 (m, 2H), 3.60 - 3.72 (m, 2H), 1.71 - 1.86 (m, 4H).

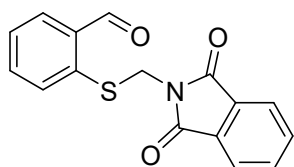
¹³C NMR (75 MHz, DMSO-*d*₆) δ ppm 189.1, 168.0, 160.9, 136.4, 134.3, 131.6, 127.5, 124.2, 123.0, 120.6, 113.5, 67.7, 37.1, 25.9, 24.6.

HRMS found, *m/z*: 338.1394 [M+MeOH+H-H₂O]⁺. C₂₀H₂₀NO₄⁺. Calculated, *m/z*: 338.1387.

6.7 Synthesis of 2-(((1,3-dioxoisindolin-2-yl)methyl)thio)benzaldehyde 8i

2-Mercaptobenzaldehyde (156 mg, 1.13 mmol, 1 eq.) was dissolved in DMF (1 mL), then 2-(chloromethyl)isoindoline-1,3-dione (242 mg, 1.24 mmol, 1.1 eq.) and K₂CO₃ (234 mg, 1.69 mmol, 1.5 eq.) were added. The reaction mixture was stirred at room temperature for 1 hour, then mixture was diluted with EtOAc (200 mL), washed with sat. aq. KCl (3×50 mL), dried over Na₂SO₄ and evaporated. The residue was purified by recrystallisation from MeCN.

2-(((1,3-dioxoisindolin-2-yl)methyl)thio)benzaldehyde (8i)



Yield 167 mg (50%), white crystalline solid. M.p. 124-125 °C (from MeCN).

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 10.27 (s, 1 H), 7.76 - 7.90 (m, 6 H), 7.64 (td, *J*=7.61, 1.38 Hz, 1 H), 7.49 (t, *J*=7.29 Hz, 1 H), 5.10 (s, 2 H).

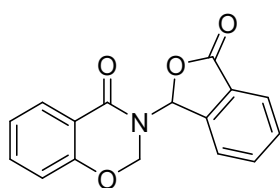
¹³C NMR (75 MHz, DMSO-*d*₆) δ ppm 192.0, 166.6, 137.1, 135.1, 134.9, 134.4, 132.2, 131.4, 131.2, 127.8, 123.4, 40.9.

HRMS found, *m/z*: 298.0533 [M+H]⁺. C₁₆H₁₂NSO₃⁺. Calculated, *m/z*: 298.0532.

6.8 General method for photochemical synthesis of products 2, 5, 6q, 9i, 10i

Aldehyde (100 mg) was dissolved in freshly distilled degassed DMSO (8 ml) in a glass tube. The resulting solutions were irradiated with a 365 nm LED lamp under stirring for 24 h at room temperature. The reaction progress was monitored by TLC and ^1H NMR spectroscopy. After completion of the reaction, the reaction mixture was diluted with EtOAc (100 ml), washed with saturated aqueous KCl solution (8×50 ml) and dried over anhydrous Na_2SO_4 . All volatiles were removed in vacuo and the residue was purified by flash chromatography (eluent hexane–EtOAc, 4:1). Products **9i** and **10i** were obtained in a single synthetic procedure.

3-(3-Oxo-1,3-dihydroisobenzofuran-1-yl)-2,3-dihydro-4H-benzo[e][1,3]oxazin-4-one (2a)



Yield 73 mg (73%), white solid. M.p. 162–163 °C (from hexane–EtOAc 3:1 v/v).

^1H NMR (300 MHz, $\text{DMSO}-d_6$) δ ppm 7.81 – 7.98 (m, 3H), 7.69 – 7.77 (m, 2H), 7.58 – 7.66 (m, 1H), 7.55 (s, 1H), 7.23 (t, $J=7.6$ Hz, 1H), 7.10 (d, $J=8.0$ Hz, 1H), 5.15 (d, $J=9.1$ Hz, 1H), 4.97 (d, $J=9.1$ Hz, 1H).

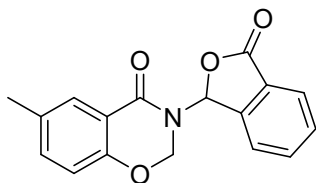
^{13}C NMR (201 MHz, $\text{DMSO}-d_6$) δ ppm 168.1, 162.0, 158.0, 143.8, 135.4, 135.0, 130.8, 128.4, 127.1, 125.2, 123.3, 122.8, 117.8, 116.7, 82.6, 74.6.

^1H – ^{13}C HSQC, key ^{13}C – ^1H correlations (ppm): 74.6 – 5.15, 75.6 – 4.97, 82.6 – 7.55.

^1H – ^{13}C HMBC, key ^{13}C – ^1H correlations (ppm): 74.6 – 5.15, 75.6 – 4.97, 82.6 – 7.55.

HRMS found, m/z : 282.0763 $[\text{M}+\text{H}]^+$. $\text{C}_{16}\text{H}_{12}\text{NO}_4^+$. Calculated, m/z : 282.0761.

6-Methyl-3-(3-oxo-1,3-dihydroisobenzofuran-1-yl)-2,3-dihydro-4H-benzo[e][1,3]oxazin-4-one (2b)



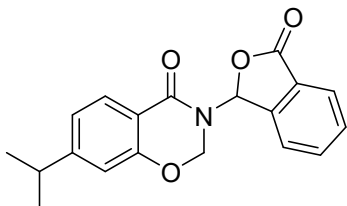
Yield 64 mg (64%), white solid. M.p. 150-151 °C (from hexane-EtOAc 3:1 v/v)..

^1H NMR (300 MHz, DMSO- d_6) δ ppm 7.95 (d, $J=7.2$ Hz, 1H), 7.81 - 7.90 (m, 1H), 7.66 - 7.77 (m, 3H), 7.56 (s, 1H), 7.42 (dd, $J=8.4$, 2.2 Hz, 1H), 6.99 (d, $J=8.4$ Hz, 1H), 5.09 (d, $J=9.1$ Hz, 1H), 4.91 (d, $J=9.2$ Hz, 1H), 2.33 (s, 3H).

^{13}C NMR (75 MHz, DMSO- d_6) δ ppm 168.1, 162.1, 156.0, 143.8, 136.1, 135.0, 132.1, 130.8, 128.1, 127.2, 125.2, 123.3, 117.4, 116.6, 82.6, 74.5, 20.1.

HRMS found, m/z : 296.0919 $[\text{M}+\text{H}]^+$. $\text{C}_{17}\text{H}_{14}\text{NO}_4^+$. Calculated, m/z : 296.0917.

7-Isopropyl-3-(3-oxo-1,3-dihydroisobenzofuran-1-yl)-2,3-dihydro-4H-benzo[e][1,3]oxazin-4-one (2c)



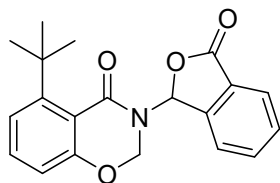
Yield 70 mg (70%), white solid. M.p. 110-112 °C (from hexane-EtOAc 3:1 v/v)..

^1H NMR (300 MHz, DMSO- d_6) δ ppm 7.94 (d, $J=7.5$ Hz, 1H), 7.78 - 7.90 (m, 2H), 7.66 - 7.77 (m, 2H), 7.54 (s, 1H), 7.12 (dd, $J=8.1$, 1.1 Hz, 1H), 6.96 (s, 1H), 5.12 (d, $J=9.1$ Hz, 1H), 4.93 (d, $J=9.2$ Hz, 1H), 2.94 (spt, $J=6.9$ Hz, 1H), 1.20 (d, $J=6.9$ Hz, 6 H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 168.2, 162.8, 158.3, 157.7, 143.8, 135.1, 131.1, 129.0, 127.6, 125.9, 123.1, 121.8, 115.5, 114.3, 81.8, 73.6, 34.4, 23.5, 23.4.

HRMS found, m/z : 324.1234 $[\text{M}+\text{H}]^+$. $\text{C}_{19}\text{H}_{18}\text{NO}_4^+$. Calculated, m/z : 324.1230.

5-(Tert-butyl)-3-(3-oxo-1,3-dihydroisobenzofuran-1-yl)-2,3-dihydro-4H-benzo[e][1,3]oxazin-4-one (2d)



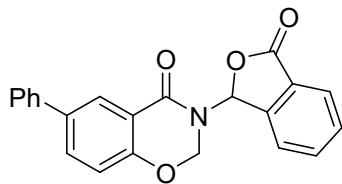
Yield 80 mg (80%), white solid. M.p. 75-77 °C (from hexane-EtOAc 3:1 v/v)..

^1H NMR (300 MHz, DMSO- d_6) δ ppm 7.94 (d, $J=7.6$ Hz, 1H), 7.81 - 7.89 (m, 2H), 7.72 (t, $J=8.0$ Hz, 2H), 7.54 (s, 1H), 7.28 (dd, $J=8.3, 1.7$ Hz, 1H), 7.05 (d, $J=1.6$ Hz, 1H), 5.13 (d, $J=9.1$ Hz, 1H), 4.94 (d, $J=9.2$ Hz, 1H), 1.28 (s, 9 H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 168.2, 162.7, 160.0, 158.0, 143.8, 135.1, 131.1, 128.7, 127.6, 125.9, 123.0, 120.7, 115.1, 113.5, 81.8, 73.6, 35.4, 30.9.

HRMS found, m/z : 338.1388 $[\text{M}+\text{H}]^+$. $\text{C}_{20}\text{H}_{20}\text{NO}_4^+$. Calculated, m/z : 338.1387.

3-(3-Oxo-1,3-dihydroisobenzofuran-1-yl)-6-phenyl-2,3-dihydro-4H-benzo[e][1,3]oxazin-4-one (2e)



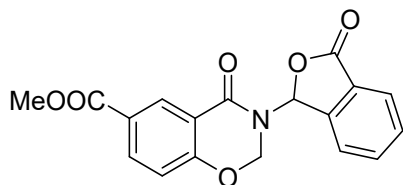
Yield 31 mg (31%), white solid. M.p. 145-146 °C (from hexane-EtOAc 3:1 v/v)..

^1H NMR (300 MHz, DMSO- d_6) δ ppm 8.12 (d, $J=2.3$ Hz, 1H), 7.90 - 7.99 (m, 2H), 7.83 - 7.90 (m, 1H), 7.65 - 7.79 (m, 4H), 7.58 (s, 1H), 7.49 (m, 2H), 7.36 - 7.43 (m, 1H), 7.21 (d, $J=8.5$ Hz, 1H), 5.21 (d, $J=9.2$ Hz, 1H), 5.02 (d, $J=9.2$ Hz, 1H).

^{13}C NMR (75 MHz, DMSO- d_6) δ ppm 168.2, 162.0, 157.5, 143.8, 138.6, 135.0, 135.0, 133.7, 130.9, 129.1, 127.6, 127.2, 126.5, 126.0, 125.3, 123.3, 118.2, 117.5, 82.7, 74.7.

HRMS found, m/z : 358.1076 $[\text{M}+\text{H}]^+$. $\text{C}_{22}\text{H}_{16}\text{NO}_4^+$. Calculated, m/z : 358.1074.

Methyl 4-oxo-3-(3-oxo-1,3-dihydroisobenzofuran-1-yl)-3,4-dihydro-2H-benzo[e][1,3]oxazine-6-carboxylate (2f)



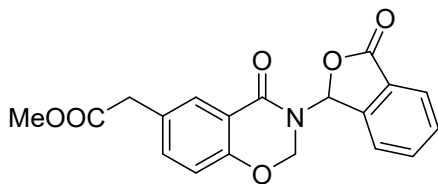
Yield 50 mg (50%), white solid. M.p. 175-177 °C (from hexane-EtOAc 3:1 v/v)..

^1H NMR (300 MHz, $\text{DMSO-}d_6$) δ ppm 8.46 (d, $J=2.1$ Hz, 1H), 8.15 (dd, $J=8.7$, 2.2 Hz, 1H), 7.96 (d, $J=7.3$ Hz, 1H), 7.82 - 7.90 (m, 1H), 7.70 - 7.78 (m, 2H), 7.57 (s, 1H), 7.24 (d, $J=8.6$ Hz, 1H), 5.26 (d, $J=9.0$ Hz, 1H), 5.06 (d, $J=9.2$ Hz, 1H), 3.88 (s, 3H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 168.0, 165.6, 161.9, 161.2, 143.3, 136.3, 135.2, 131.3, 131.2, 127.6, 126.1, 125.4, 123.1, 117.6, 117.1, 81.6, 73.7, 52.3.

HRMS found, m/z : 340.0818 $[\text{M}+\text{H}]^+$. $\text{C}_{18}\text{H}_{14}\text{NO}_6^+$. Calculated, m/z : 340.0816.

Methyl 2-(4-oxo-3-(3-oxo-1,3-dihydroisobenzofuran-1-yl)-3,4-dihydro-2H-benzo[e][1,3]oxazin-6-yl)acetate (2g)



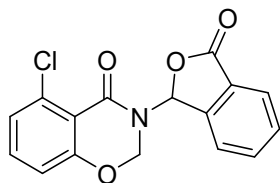
Yield 65 mg (65%), white solid. M.p. 120-122 °C (from hexane-EtOAc 3:1 v/v)..

^1H NMR (300 MHz, $\text{DMSO-}d_6$) δ ppm 7.95 (d, $J=7.9$ Hz, 1H), 7.79 - 7.89 (m, 2H), 7.69 - 7.77 (m, 2H), 7.56 (s, 1H), 7.50 (dd, $J=8.4$, 2.0 Hz, 1H), 7.06 (d, $J=8.4$ Hz, 1H), 5.14 (d, $J=9.1$ Hz, 1H), 4.95 (d, $J=9.2$ Hz, 1H), 3.76 (s, 2H), 3.62 (s, 3H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 171.5, 168.1, 162.5, 157.2, 143.6, 136.3, 135.2, 131.2, 129.7, 129.0, 127.6, 126.0, 123.0, 117.7, 117.1, 81.7, 73.6, 52.2, 40.1.

HRMS found, m/z : 354.0977 $[\text{M}+\text{H}]^+$. $\text{C}_{19}\text{H}_{16}\text{NO}_6^+$. Calculated, m/z : 354.0972.

5-Chloro-3-(3-oxo-1,3-dihydroisobenzofuran-1-yl)-2,3-dihydro-4H-benzo[e][1,3]oxazin-4-one (2h)



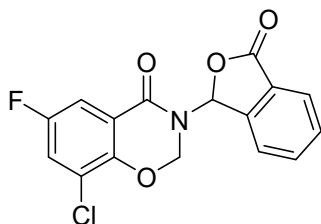
Yield 74 mg (74%), white solid. M.p. 183-184 °C (from hexane-EtOAc 3:1 v/v)..

^1H NMR (300 MHz, DMSO- d_6) δ ppm 7.91 - 7.99 (m, 1H), 7.81 - 7.89 (m, 1H), 7.69 - 7.76 (m, 2H), 7.50 - 7.59 (m, 2H), 7.29 (dd, J =8.0, 0.9 Hz, 1H), 7.10 (dd, J =8.3, 0.9 Hz, 1H), 5.08 - 5.16 (m, 1H), 4.97 - 5.05 (m, 1H).

^{13}C NMR (75 MHz, DMSO- d_6) δ ppm 168.1, 160.1, 159.4, 143.9, 135.0 (s, 2 C), 134.2, 130.8, 127.2, 125.8, 125.3, 123.3, 116.2, 115.8, 82.6, 74.4.

HRMS found, m/z : 316.0375 $[\text{M}+\text{H}]^+$. $\text{C}_{16}\text{H}_{11}\text{ClNO}_4^+$. Calculated, m/z : 316.0371.

8-Chloro-6-fluoro-3-(3-oxo-1,3-dihydroisobenzofuran-1-yl)-2,3-dihydro-4H-benzo[e][1,3]oxazin-4-one (2i)



Yield 70 mg (70%), white solid. M.p. 183-184 °C (from hexane-EtOAc 3:1 v/v)..

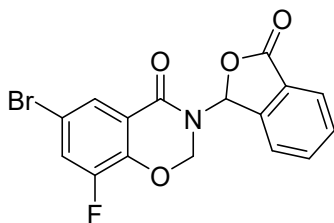
^1H NMR (300 MHz, DMSO- d_6) δ ppm 7.95 (d, J =7.5 Hz, 1H), 7.81 - 7.90 (m, 2H), 7.69 - 7.78 (m, 2H), 7.66 (dd, J =8.0, 2.8 Hz, 1H), 7.51 (s, 1H), 5.31 (d, J =9.1 Hz, 1H), 5.10 (d, J =9.2 Hz, 1H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 167.8, 161.1, 157.2 (d, J =247.0 Hz), 150.5 (d, J =2.8 Hz), 143.1, 135.4, 131.4, 127.5, 126.1, 123.1 (d, J =27.0 Hz), 123.1, 122.9 (d, J =8.8 Hz), 119.7 (d, J =8.3 Hz), 113.9 (d, J =24.8 Hz), 81.6, 74.1.

^{19}F NMR (654 MHz, CDCl_3) δ ppm -116.61 (t, J =7.56 Hz).

HRMS found, m/z : 334.0277 $[\text{M}+\text{H}]^+$. $\text{C}_{16}\text{H}_{10}\text{ClFNO}_4^+$. Calculated, m/z : 334.0277.

6-Bromo-8-fluoro-3-(3-oxo-1,3-dihydroisobenzofuran-1-yl)-2,3-dihydro-4H-benzo[e][1,3]oxazin-4-one (2j)



Yield 45 mg (45%), white solid. M.p. 209-210 °C (from hexane-EtOAc 3:1 v/v)..

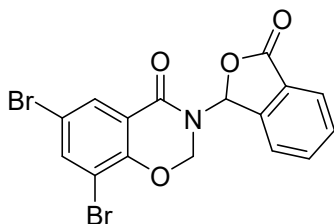
¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 7.92 - 8.01 (m, 2H), 7.79 - 7.90 (m, 2H), 7.69 - 7.78 (m, 2H), 7.52 (s, 1H), 5.30 (d, *J*=9.2 Hz, 1H), 5.10 (d, *J*=9.0 Hz, 1H).

¹³C NMR (75 MHz, CDCl₃) δ ppm 167.8, 160.6 (d, *J*=3 Hz), 150.5 (d, *J*=256 Hz), 145.5 (d, *J*=13 Hz), 143.1, 135.4, 131.4, 127.5, 127.0 (d, *J*=4 Hz), 126.2, 124.8 (d, *J*=20 Hz), 123.1, 121.0 (d, *J*=1 Hz), 114.5 (d, *J*=8 Hz), 81.6, 74.2.

¹⁹F NMR (654 MHz, CDCl₃) δ ppm -131.74 (dd, *J*=9.6, 1.7 Hz).

HRMS found, *m/z*: 377.9767 [M+H]⁺. C₁₆H₁₀BrFNO₄⁺. Calculated, *m/z*: 377.9772.

6,8-Dibromo-3-(3-oxo-1,3-dihydroisobenzofuran-1-yl)-2,3-dihydro-4H-benzo[e][1,3]oxazin-4-one (2k)



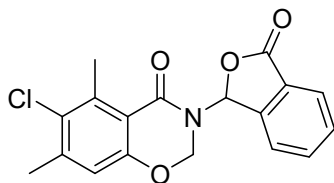
Yield 30 mg (30%), white solid. M.p. 202-203 °C (from hexane-EtOAc 3:1 v/v)..

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 8.17 (d, *J*=2.3 Hz, 1H), 7.97 (d, *J*=2.4 Hz, 1H), 7.95 (d, *J*=7.6 Hz, 1H), 7.86 (t, *J*=7.5 Hz, 1H), 7.70 - 7.77 (m, 2H), 7.50 (s, 1H), 5.32 (d, *J*=9.1 Hz, 1H), 5.11 (d, *J*=9.2 Hz, 1H).

¹³C NMR (75 MHz, CDCl₃) δ ppm 167.8, 160.8, 154.1, 143.0, 140.5, 135.4, 131.4, 131.0, 127.5, 126.1, 123.1, 120.2, 115.7, 111.5, 81.6, 74.1.

HRMS found, *m/z*: 439.8956 [M+H]⁺. C₁₆H₁₀Br₂NO₄⁺. Calculated, *m/z*: 439.8951.

6-Chloro-5,7-dimethyl-3-(3-oxo-1,3-dihydroisobenzofuran-1-yl)-2,3-dihydro-4H-benzo[e][1,3]oxazin-4-one (2l)



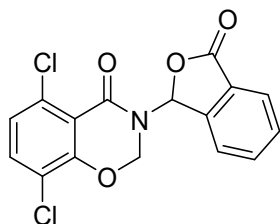
Yield 47 mg (47%), white solid. M.p. 199-200 °C (from hexane-EtOAc 3:1 v/v)..

^1H NMR (300 MHz, DMSO- d_6) δ ppm 7.94 (d, $J=7.6$ Hz, 1H), 7.82 - 7.89 (m, 1H), 7.67 - 7.76 (m, 2H), 7.56 (s, 1H), 7.03 (s, 1H), 4.98 - 5.05 (m, 1H), 4.88 - 4.94 (m, 1H), 2.70 (s, 3H), 2.37 (s, 3H).

^{13}C NMR (75 MHz, DMSO- d_6) δ ppm 168.1, 161.5, 157.3, 144.0, 143.0, 138.9, 135.0, 130.8, 129.4, 127.2, 125.3, 123.2, 116.7, 116.2, 82.6, 74.1, 21.1, 17.9.

HRMS found, m/z : 344.0686 $[\text{M}+\text{H}]^+$. $\text{C}_{18}\text{H}_{15}\text{ClNO}_4^+$. Calculated, m/z : 344.0684.

5,8-Dichloro-3-(3-oxo-1,3-dihydroisobenzofuran-1-yl)-2,3-dihydro-4H-benzo[e][1,3]oxazin-4-one (2m)



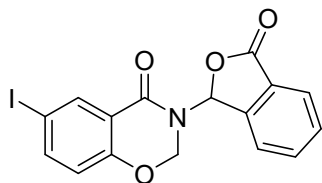
Yield 88 mg (88%), white solid. M.p. 139-140 °C (from hexane-EtOAc 3:1 v/v)..

^1H NMR (300 MHz, DMSO- d_6) δ ppm 7.95 (d, $J=7.4$ Hz, 1H), 7.86 (t, $J=7.3$ Hz, 1H), 7.69 - 7.77 (m, 3H), 7.52 (s, 1H), 7.31 (d, $J=8.6$ Hz, 1H), 5.22 - 5.31 (m, 1H), 5.13 (d, $J=9.5$ Hz, 1H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 167.9, 159.5, 155.7, 143.3, 135.4, 134.6, 134.5, 131.3, 127.5, 126.4, 126.1, 123.1, 120.9, 117.1, 81.4, 73.7.

HRMS found, m/z : 349.9985 $[\text{M}+\text{H}]^+$. $\text{C}_{16}\text{H}_{10}\text{Cl}_2\text{NO}_4^+$. Calculated, m/z : 349.9981.

6-Iodo-3-(3-oxo-1,3-dihydroisobenzofuran-1-yl)-2,3-dihydro-4H-benzo[e][1,3]oxazin-4-one (2n)



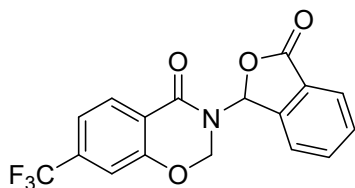
Yield 53 mg (53%), white solid. M.p. 185-186 °C (from hexane-EtOAc 3:1 v/v)..

^1H NMR (300 MHz, DMSO- d_6) δ ppm 8.13 (d, $J=2.1$ Hz, 1H), 7.88 - 7.97 (m, 2H), 7.85 (t, $J=7.1$ Hz, 1H), 7.73 (t, $J=6.4$ Hz, 2H), 7.52 (s, 1H), 6.96 (d, $J=8.6$ Hz, 1H), 5.17 (d, $J=9.2$ Hz, 1H), 4.98 (d, $J=9.1$ Hz, 1H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 168.0, 161.3, 157.7, 143.8, 143.4, 137.7, 135.2, 131.3, 127.5, 126.1, 123.1, 119.7, 119.0, 85.4, 81.6, 73.6.

HRMS found, m/z : 407.9724 $[\text{M}+\text{H}]^+$. $\text{C}_{16}\text{H}_{11}\text{INO}_4^+$. Calculated, m/z : 407.9727.

3-(3-Oxo-1,3-dihydroisobenzofuran-1-yl)-7-(trifluoromethyl)-2,3-dihydro-4H-benzo[e][1,3]oxazin-4-one (2o)



Yield 40 mg (40%), white solid. M.p. 133-134 °C (from hexane-EtOAc 3:1 v/v)..

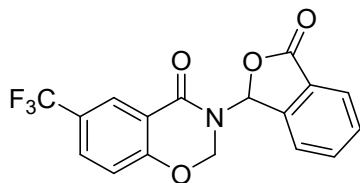
^1H NMR (300 MHz, DMSO- d_6) δ ppm 8.11 (d, $J=8.0$ Hz, 1H), 7.95 (d, $J=7.5$ Hz, 1H), 7.82 - 7.90 (m, 1H), 7.70 - 7.78 (m, 2H), 7.51 - 7.60 (m, 3H), 5.28 (d, $J=9.2$ Hz, 1H), 5.07 (d, $J=9.2$ Hz, 1H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 167.9, 161.6, 158.0, 143.2, 136.7 (q, $J=33$ Hz), 135.3, 131.4, 130.1, 127.5, 126.1, 123.0, 122.9 (q, $J=273$ Hz), 120.6, 119.7 (q, $J=4$ Hz), 114.5 (q, $J=4$ Hz), 81.6, 73.8.

^{19}F NMR (654 MHz, CDCl_3) δ ppm -63.51 (s).

HRMS found, m/z : 350.0639 $[\text{M}+\text{H}]^+$. $\text{C}_{17}\text{H}_{11}\text{F}_3\text{NO}_4^+$. Calculated, m/z : 350.0635.

3-(3-Oxo-1,3-dihydroisobenzofuran-1-yl)-6-(trifluoromethyl)-2,3-dihydro-4H-benzo[e][1,3]oxazin-4-one (2p)



Yield 55 mg (55%), white solid. M.p. 178-180 °C (from hexane-EtOAc 3:1 v/v).

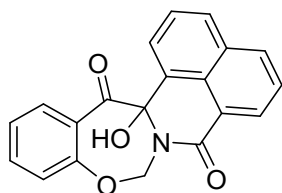
¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 8.15 (d, *J*=2.2 Hz, 1H), 7.93 - 8.01 (m, 2H), 7.82 - 7.90 (m, 1H), 7.69 - 7.78 (m, 2H), 7.54 (s, 1H), 7.34 (d, *J*=8.6 Hz, 1H), 5.29 (d, *J*=9.2 Hz, 1H), 5.09 (d, *J*=9.2 Hz, 1H).

¹³C NMR (75 MHz, CDCl₃) δ ppm 167.9, 161.5, 160.2, 143.2, 135.3, 131.9 (q, *J*=4 Hz), 131.4, 127.5, 126.9 (q, *J*=4 Hz), 126.1, 125.8 (q, *J*=34 Hz), 123.5 (q, *J*=272 Hz), 123.0, 117.9, 117.8, 81.6, 73.8.

¹⁹F NMR (654 MHz, CDCl₃) δ ppm -62.27 (s).

HRMS found, *m/z*: 350.0638 [M+H]⁺. C₁₇H₁₁F₃NO₄⁺. Calculated, *m/z*: 350.0635.

15a-Hydroxy-15a-hydro-7H,9H-benzo[de]benzo[6,7][1,3]oxazepino[4,3-*a*]isoquinoline-7,15-dione (5a)



Yield 45 mg (45%), white solid. M.p. 201-203 °C (from hexane-EtOAc 3:1 v/v) with decomposition.

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 8.36 (dd, *J*=7.2, 1.1 Hz, 1H), 8.29 (dd, *J*=8.3, 1.1 Hz, 1H), 8.12 (dd, *J*=7.2, 2.2 Hz, 1H), 7.87 (s, 1H), 7.67 - 7.80 (m, 3H), 7.38 - 7.47 (m, 2H), 6.93 - 7.03 (m, 2H), 6.42 (d, *J*=12.1 Hz, 1H), 5.19 (d, *J*=12.2 Hz, 1H).

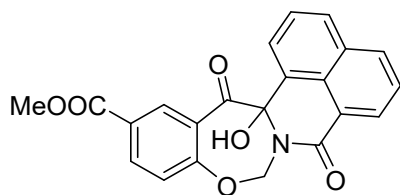
¹³C NMR (75 MHz, CDCl₃) δ ppm 199.7, 162.8, 156.0, 135.1, 133.4, 132.6, 131.6, 129.6, 129.2, 127.5, 127.2, 126.7, 126.5, 124.9, 123.2, 122.2, 121.5, 119.6, 92.2, 72.7.

¹H-¹³C HSQC, key ¹³C-¹H correlations (ppm): 72.7 – 5.19, 72.7 – 6.42.

¹H-¹³C HMBC, key ¹³C-¹H correlations (ppm): 199.7 – 7.87, 92.2 – 5.19, 92.2 – 6.42.

HRMS found, *m/z*: 332.0919 [M+H]⁺. C₂₀H₁₄NO₄⁺. Calculated, *m/z*: 332.0917.

Methyl **15a-hydroxy-7,15-dioxo-15,15a-dihydro-7H,9H-benzo[de]benzo[6,7][1,3]oxazepino[4,3-a]isoquinoline-13-carboxylate (5b)**



Yield 40 mg (40%), white solid. M.p. 205-207 °C (from hexane-EtOAc 3:1 v/v) with decomposition.

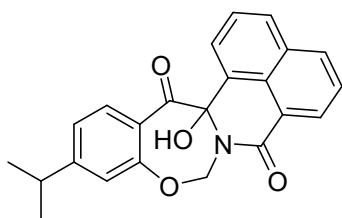
^1H NMR (300 MHz, DMSO- d_6) δ ppm 8.37 (dd, $J=7.2$, 0.8 Hz, 1H), 8.30 (d, $J=7.8$ Hz, 1H), 8.13 (dd, $J=7.7$, 1.4 Hz, 1H), 7.91 - 7.98 (m, 2H), 7.70 - 7.82 (m, 3H), 7.14 (d, $J=9.4$ Hz, 1H), 6.47 (d, $J=12.3$ Hz, 1H), 5.33 (d, $J=12.2$ Hz, 1H), 3.77 (s, 3H).

^1H NMR (300 MHz, CDCl_3) δ ppm 8.55 (dd, $J=7.20$, 0.87 Hz, 1H), 8.27 (d, $J=2.11$ Hz, 1H), 8.09 - 8.15 (m, 1H), 8.04 (dd, $J=8.85$, 2.15 Hz, 1H), 7.97 (dd, $J=6.65$, 2.71 Hz, 1H), 7.70 (t, $J=7.75$ Hz, 1H), 7.58 - 7.66 (m, 2H), 7.08 (d, $J=8.80$ Hz, 1H), 6.72 (d, $J=12.20$ Hz, 1H), 5.05 (d, $J=12.10$ Hz, 1H), 4.92 (s, 1H), 3.87 (s, 3H).

^{13}C NMR (75 MHz, CDCl_3) δ ppm 198.8, 165.5, 162.7, 159.1, 135.6, 134.2, 133.6, 132.5, 129.8, 129.3, 127.1, 126.9, 126.7, 126.7, 125.2, 123.8, 123.2, 121.9, 119.9, 92.1, 73.0, 52.2.

HRMS found, m/z : 390.0972 $[\text{M}+\text{H}]^+$. $\text{C}_{22}\text{H}_{16}\text{NO}_6^+$. Calculated, m/z : 390.0972.

15a-hydroxy-12-isopropyl-15a-hydro-7H,9H-benzo[de]benzo[6,7][1,3]oxazepino[4,3-a]isoquinoline-7,15-dione (5c)



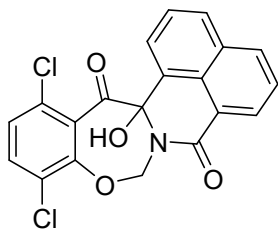
Yield 29 mg (29%), brownish solid. M.p. 199-201 °C (from PhMe).

^1H NMR (300 MHz, DMSO- d_6) δ ppm 8.37 (dd, $J=7.2$, 1.1 Hz, 1H), 8.29 (dd, $J=8.3$, 1.0 Hz, 1H), 8.11 (dd, $J=7.7$, 1.7 Hz, 1H), 7.83 (s, 1H), 7.65 - 7.80 (m, 3H), 7.35 (d, $J=8.0$ Hz, 1H), 6.82 - 6.91 (m, 2H), 6.40 (d, $J=12.1$ Hz, 1H), 5.15 (d, $J=12.1$ Hz, 1H), 2.79 (sept, $J=6.9$ Hz, 1H), 1.09 (d, $J=6.9$ Hz, 6H).

^{13}C NMR (75 MHz, DMSO- d_6) δ ppm 197.4, 161.8, 155.8, 154.8, 133.5, 132.1, 132.0, 129.2, 128.0, 127.7, 126.9, 126.5, 126.5, 126.3, 122.5, 121.9, 119.9, 116.0, 91.9, 72.1, 33.1, 23.1.

HRMS found, m/z : 374.1388 $[\text{M}+\text{H}]^+$. $\text{C}_{23}\text{H}_{20}\text{NO}_4^+$. Calculated, m/z : 374.1387.

11,14-dichloro-15a-hydroxy-15a-hydro-7H,9H-benzo[de]benzo[6,7][1,3]oxazepino[4,3-a]isoquinoline-7,15-dione (5d)



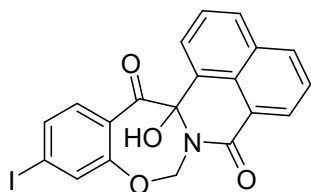
Yield 70 mg (70%), brownish solid. M.p. 234-235 °C (from PhMe).

^1H NMR (300 MHz, DMSO- d_6) δ ppm 8.29 - 8.36 (m, 2 H), 8.24 (s, 1 H), 8.17 (dd, $J=7.9$, 1.4 Hz, 1 H), 7.71 - 7.85 (m, 3 H), 7.55 (d, $J=8.5$ Hz, 1H), 7.02 (d, $J=8.6$ Hz, 1H), 6.49 (d, $J=11.9$ Hz, 1H), 5.41 (d, $J=12.0$ Hz, 1H)

^{13}C NMR (75 MHz, DMSO- d_6) δ ppm 193.2, 161.8, 149.9, 134.2, 134.0, 132.3, 130.7, 130.2, 128.7, 128.5, 127.1, 127.0, 126.8, 125.6, 124.3, 123.0, 121.7, 92.4, 72.5, 55.4

HRMS found, m/z : 400.0140 $[\text{M}+\text{H}]^+$. $\text{C}_{20}\text{H}_{12}\text{Cl}_2\text{NO}_4^+$. Calculated, m/z : 400.0138.

15a-hydroxy-12-iodo-15a-hydro-7H,9H-benzo[de]benzo[6,7][1,3]oxazepino[4,3-a]isoquinoline-7,15-dione (5e)



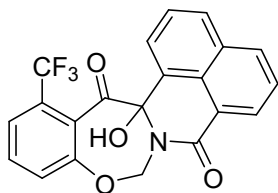
Yield 35 mg (35%), brownish solid. M.p. 245-247 °C with decomposition (from CH_2Cl_2).

^1H NMR (300 MHz, DMSO- d_6) δ ppm 8.37 (dd, $J=7.2$, 1.1 Hz, 1H), 8.31 (dd, $J=8.3$, 0.9 Hz, 1H), 8.14 (dd, $J=6.5$, 2.8 Hz, 1H), 7.94 (s, 1H), 7.69 - 7.79 (m, 4H), 7.66 (d, $J=2.2$ Hz, 1H), 6.85 (d, $J=8.7$ Hz, 1H), 6.41 (d, $J=12.2$ Hz, 1H), 5.20 (d, $J=12.2$ Hz, 1H)

^{13}C NMR (75 MHz, DMSO- d_6) δ ppm 196.3, 161.7, 154.4, 142.6, 139.2, 133.7, 132.0, 129.4, 128.1, 127.1, 127.0 (2C), 126.6, 126.6, 126.5, 121.7, 121.5, 91.9, 84.2, 72.3

HRMS found, m/z : 457.9882 $[\text{M}+\text{H}]^+$. $\text{C}_{20}\text{H}_{13}\text{INO}_4^+$. Calculated, m/z : 457.9884.

15a-hydroxy-14-(trifluoromethyl)-15a-hydro-7H,9H-benzo[de]benzo[6,7][1,3]oxazepino[4,3-a]isoquinoline-7,15-dione (5f)



Yield 41 mg (41%), brownish solid. M.p. 206-207 °C (from PhMe).

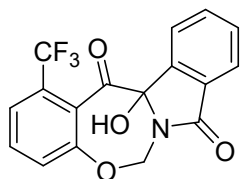
¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 8.46 (s, 1H), 8.30 (ddd, *J*=13.0, 7.8, 1.1 Hz, 2H), 8.18 (dd, *J*=8.1, 1.1 Hz, 1H), 7.86 - 7.92 (m, 1H), 7.62 - 7.84 (m, 3H), 7.49 (m, 2H), 6.33 (d, *J*=10.9 Hz, 1H), 5.49 (d, *J*=10.9 Hz, 1H)

¹³C NMR (75 MHz, DMSO-*d*₆) δ ppm 198.3, 161.9, 153.3, 133.5, 133.0, 131.4, 129.2, 128.4, 128.3 (q, *J*=32 Hz), 127.9, 127.8 (m, 1 C), 127.3, 126.8, 126.7, 126.4, 125.5, 122.7 (q, *J*=273 Hz), 122.1 (q, *J*=5 Hz), 121.4, 89.4, 70.9

¹⁹F NMR (654 MHz, CDCl₃) δ ppm -56.48 (s).

HRMS found, *m/z*: 400.0791 [M+H]⁺. C₂₁H₁₃F₃NO₄⁺. Calculated, *m/z*: 400.0791.

12b-Hydroxy-1-(trifluoromethyl)-12b-hydro-6H,8H-benzo[6,7][1,3]oxazepino[4,3-a]isoindole-8,13-dione (6q)



Yield 70 mg (70%), white solid. M.p. 186-187 °C (from hexane-EtOAc 3:1 v/v).

¹H NMR (300 MHz, DMSO-*d*₆) δ ppm 8.17 (s, 1H), 7.61 - 7.83 (m, 5H), 7.56 (dd, *J*=8.0, 3.5 Hz, 2H), 5.81 (d, *J*=10.2 Hz, 1H), 5.29 (d, *J*=10.2 Hz, 1H).

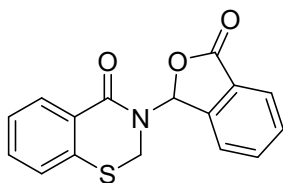
¹³C NMR (75 MHz, CDCl₃) δ ppm 200.4, 167.7, 153.5, 140.9, 134.0, 133.6, 131.3, 130.3, 129.9 (q, *J*=32.5 Hz), 126.2, 124.4, 124.1, 124.1, 122.8 (q, *J*=5.0 Hz), 122.3 (q, *J*=275.0 Hz), 91.6, 70.2.

¹⁹F NMR (654 MHz, CDCl₃) δ ppm -58.13 (s).

¹H-¹³C HSQC, key ¹³C-¹H correlations (ppm): 70.0 – 5.29, 70.0 – 5.81.

HRMS found, *m/z*: 350.0634 [M+H]⁺. C₁₇H₁₁F₃NO₄⁺. Calculated, *m/z*: 350.0635.

3-(3-oxo-1,3-dihydroisobenzofuran-1-yl)-2,3-dihydro-4H-benzo[e][1,3]thiazin-4-one
(9i)



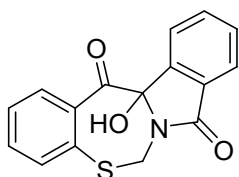
Yield 50 mg (50%), colorless oil.

^1H NMR (300 MHz, $\text{DMSO}-d_6$) δ ppm 8.08 (dd, $J=7.89$, 1.10 Hz, 1 H), 7.95 (d, $J=7.52$ Hz, 1 H), 7.83 - 7.90 (m, 1 H), 7.67 - 7.78 (m, 3 H), 7.49 - 7.57 (m, 1 H), 7.41 - 7.47 (m, 1 H), 7.34 - 7.41 (m, 1 H), 4.55 (d, $J=13.11$ Hz, 1 H), 4.30 (d, $J=13.11$ Hz, 1 H).

^{13}C NMR (75 MHz, $\text{DMSO}-d_6$) δ ppm 168.8, 164.4, 144.5, 138.4, 135.5, 133.3, 131.4, 131.3, 128.5, 128.0, 127.9, 126.7, 125.8, 123.9, 84.4, 44.0.

HRMS found, m/z : 298.0528 $[\text{M}+\text{H}]^+$. $\text{C}_{16}\text{H}_{12}\text{NSO}_3^+$. Calculated, m/z : 298.0532.

12b-hydroxy-12b-hydro-6H,8H-benzo[6,7][1,3]thiazepino[4,3-a]isoindole-8,13-dione
(10i)



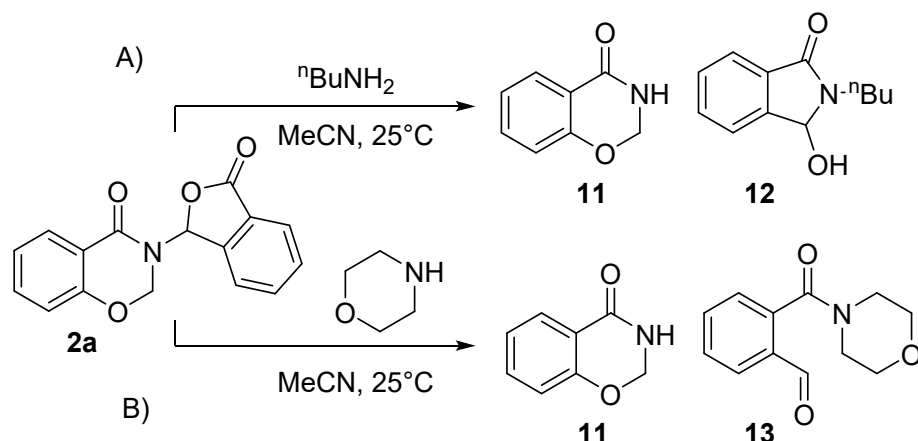
Yield 13 mg (13%), pink solid. M.p. 167-168 °C (from MeCN).

^1H NMR (300 MHz, $\text{DMSO}-d_6$) δ ppm 8.13 (dd, $J=7.61$, 1.01 Hz, 1 H), 7.98 - 8.07 (m, 2 H), 7.81 - 7.96 (m, 2 H), 7.35 (d, $J=7.61$ Hz, 1 H), 7.21 - 7.27 (m, 2 H), 7.09 - 7.16 (m, 1 H), 5.70 (d, $J=12.29$ Hz, 1 H), 4.89 (d, $J=12.29$ Hz, 1 H).

^{13}C NMR (75 MHz, $\text{DMSO}-d_6$) δ ppm 190.5, 160.5, 135.6, 134.0, 133.0, 130.2, 129.8, 129.8, 129.2, 129.1, 128.1 (s, 2C), 126.6, 124.4, 85.1, 38.3.

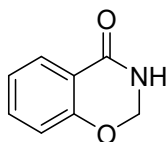
HRMS found, m/z : 298.0538 $[\text{M}+\text{H}]^+$. $\text{C}_{16}\text{H}_{12}\text{SNO}_3^+$. Calculated, m/z : 298.0532.

6.9 Reactions of product 2a with amines



Product **2a** (20 mg, 0.07 mmol, 1 eq.) was dissolved in MECN (0.5 mL) and the corresponding amine (0.10 mmol, 1.5 eq.) was added. The reaction mixture was stirred for 12 hours at room temperature, then evaporated, and the residues were purified by flash chromatography (eluent hexane–EtOAc, 4:1).

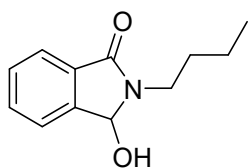
2,3-dihydro-4H-benzo[e][1,3]oxazin-4-one (**11**)



Yield 10 mg (95%) from path A and 10 mg (95%) from path B, white solid. ^1H NMR (300 MHz, CDCl_3) δ ppm 7.94 (d, $J=8.0$ Hz, 1H), 7.58 (br s, 1H), 7.48 (dd, $J=8.0$, 7.6 Hz, 1H), 7.13 (dd, $J=8.0$, 7.6 Hz, 1H), 7.01 (d, $J=8.0$ Hz, 1H), 5.25 (s, 2H).

The ^1H spectrum corresponded to the literature data ^{S7}.

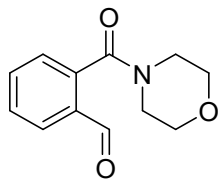
2-butyl-3-hydroxyisoindolin-1-one (**12**)



Yield 14 mg (96%), yellow oil. ^1H NMR (300 MHz, CDCl_3) δ ppm 7.62 - 7.53 (m, 3H), 7.44 - 7.39 (m, 1H), 5.73 (d, $J=9.9$ Hz, 1H), 3.71 (d, $J=9.9$ Hz, 1H), 3.48 - 3.38 (m, 1H), 3.26 - 3.17 (m, 1H), 1.62 - 1.49 (m, 2H), 1.37 - 1.24 (m, 2H), 0.91 (t, $J=7.2$ Hz, 3H).

The ^1H spectrum corresponded to the literature data ^{S8}.

2-(morpholine-4-carbonyl)benzaldehyde (13)



Yield 15 mg (96%), yellow oil. ^1H NMR (300 MHz, CDCl_3) δ ppm 10.00 (s, 1H), 7.86 (dd, $J = 7.7, 0.9$ Hz, 1H), 7.60 (td, $J = 7.5, 1.3$ Hz, 1H), 7.52 (td, $J = 7.6, 1.1$ Hz, 1H), 7.30 (d, $J = 7.5$ Hz, 1H), 3.87 – 3.78 (m, 2H), 3.76 (d, $J = 3.8$ Hz, 2H), 3.56 – 3.41 (m, 2H), 3.19 – 3.00 (m, 2H).

The ^1H spectrum corresponded to the literature data ^{S9}.

11. Electrophysiology

All experimental procedures complied with the ARRIVE guidelines and EU Directive 2010/63/EU for the protection of animals used for scientific purposes and were approved by the Animal Care and Use Committee of the Sechenov Institute of Evolutionary Physiology and Biochemistry of the Russian Academy of Sciences (protocol # 6-1 / 2025). Wistar rats (12–17 days old; male and female) were obtained from the local animal facility. All possible efforts were made to both minimize the number of animals used and alleviate potential suffering. The rats were deeply anesthetized with isoflurane and sacrificed by cervical dislocation. The brains were removed and immersed in ice-cold (2–4°C) artificial cerebrospinal fluid, ACSF (in mM): NaCl (124), KCl (5), CaCl₂ (1.3), MgCl₂ (2), NaHCO₃ (26), NaH₂PO₄ (1.24), and D-glucose (10) aerated with carbogen (95% O₂, 5% CO₂). Slices comprising the hippocampus were made with a vibratome (7000 SMZ-2, Campden Instruments) and stored in aerated ACSF at room temperature (22–24°C). Neurons were isolated from the slices by a vibrodissociation^{S10}. The effects of compounds were studied on hippocampal pyramidal neurons. The whole-cell patch-clamp technique and an EPC-10 amplifier (HEKA Elektronik, Germany) were used to record membrane currents through AMPA receptors. Drugs were applied using an RSC-200 (BioLogic, France) perfusion system under computer control. The patch pipettes were made of borosilicate micropipette. The intrapipette solution contained (in mM): CsF (100), CsCl (40), NaCl (5), CaCl₂ (0.5), EGTA (5), and HEPES (10), the pH was adjusted to 7.2 with CsOH. Recordings were filtered at 10 kHz, and sampled at 20 kHz. The series resistance of about 20 MΩ was compensated by 70–80% and continuously monitored during the experiments. All experiments were performed at room temperature (22–24 °C).

The effects of the drugs are presented as the ratio of current amplitudes in the presence of a drug and the current in the control ($I_{\text{drug}}/I_{\text{contr}}$). Data are presented as mean ± SD estimated from at least five experiments. “n” is a number of cells collected from at least three animals. The off-line analysis was performed with Origin 9.1 (OriginLab Corp., Northampton, MA, USA) software. The concentration dependencies were fitted by Hill equation. The normality of data distribution was verified by the Shapiro–Wilk test. A two-tailed Student’s paired t test was used to determine the significance of the effect (I drug vs. I control). $p < 0.05$ was considered statistically significant.

The statistical significance of agonist concentration effects (Kainate 50 mkM vs. Kainate 500 mkM) on compound activity was determined using an unpaired t-test.

12. Crystallographic data

Single crystal X-ray studies of **2h** and **6q** were carried out in Center for molecule composition studies of INEOS RAS with APEX3 software.^{S11} The data were then integrated with SAINT. SADABS was used for scaling, empirical absorption corrections and the generation of data files for structure solution and refinement.

The structures were solved by dual-space algorithm and refined in anisotropic approximation for non-hydrogen atoms against $F^2(hkl)$. Hydrogen atoms of methyl, methylene and aromatic fragments were calculated according to those idealized geometry and refined with constraints applied to C-H bond lengths and equivalent displacement parameters. All structures were solved with the ShelXT^{S12} program and refined with the ShelXL^{S13} program. Molecular graphics was drawn using OLEX2^{S14} program. Crystal data for **2h** and **6q** are summarized in Table 1.

CCDC 2494463-2494464 contains the supplementary crystallographic data for **2h** and **6q**. These data can be obtained free of charge from the Cambridge Crystallographic Data Centre via <https://www.ccdc.cam.ac.uk/structures>.

Table S3. Crystallographic data

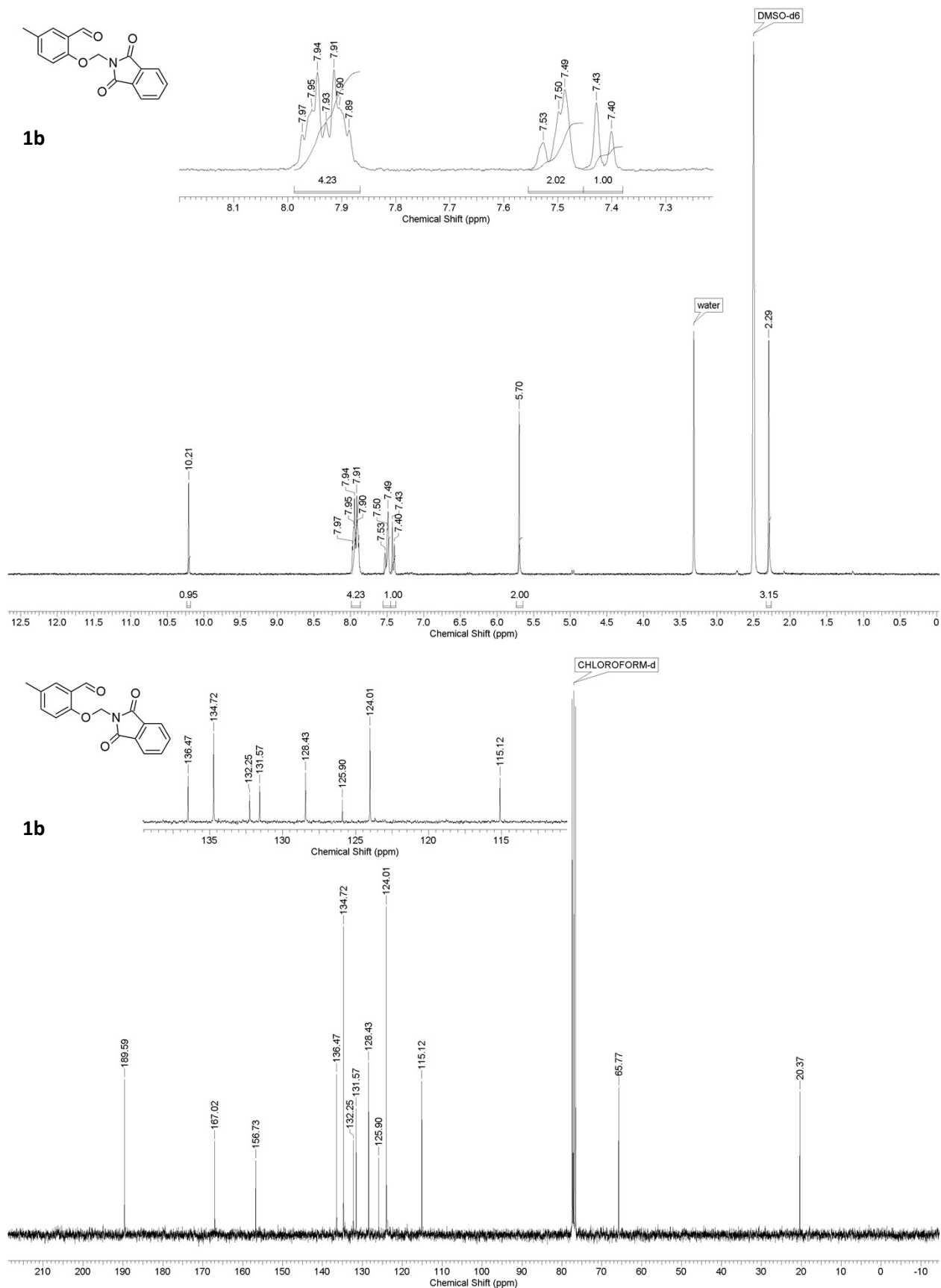
	2h	6q
Brutto formula	C ₁₆ H ₁₀ ClNO ₄	C ₁₇ H ₁₀ F ₃ NO ₄
Formula weight	315.70	349.26
Diffractometer	Bruker APEX-II CCD	Bruker APEX-II CCD
Scan mode	ϕ and ω scans	ω and ϕ scans
Anode [Wavelength, Å]	MoK α [0.71073]	MoK α [0.71073]
Crystal Dimensions, mm	0.21 $\times$ 0.21 $\times$ 0.21	0.21 $\times$ 0.31 $\times$ 0.38
Crystal color	colourless	colourless
Crystal system	monoclinic	monoclinic
a, Å	11.3234(18)	8.1934(9)
b, Å	15.735(3)	7.7898(8)
c, Å	7.5713(13)	23.076(2)
α , °	90	90
β , °	98.695(5)	96.820(3)
γ , °	90	90
Volume, Å ³	1333.5(4)	1462.4(3)
Density, gcm ⁻³	1.572	1.586

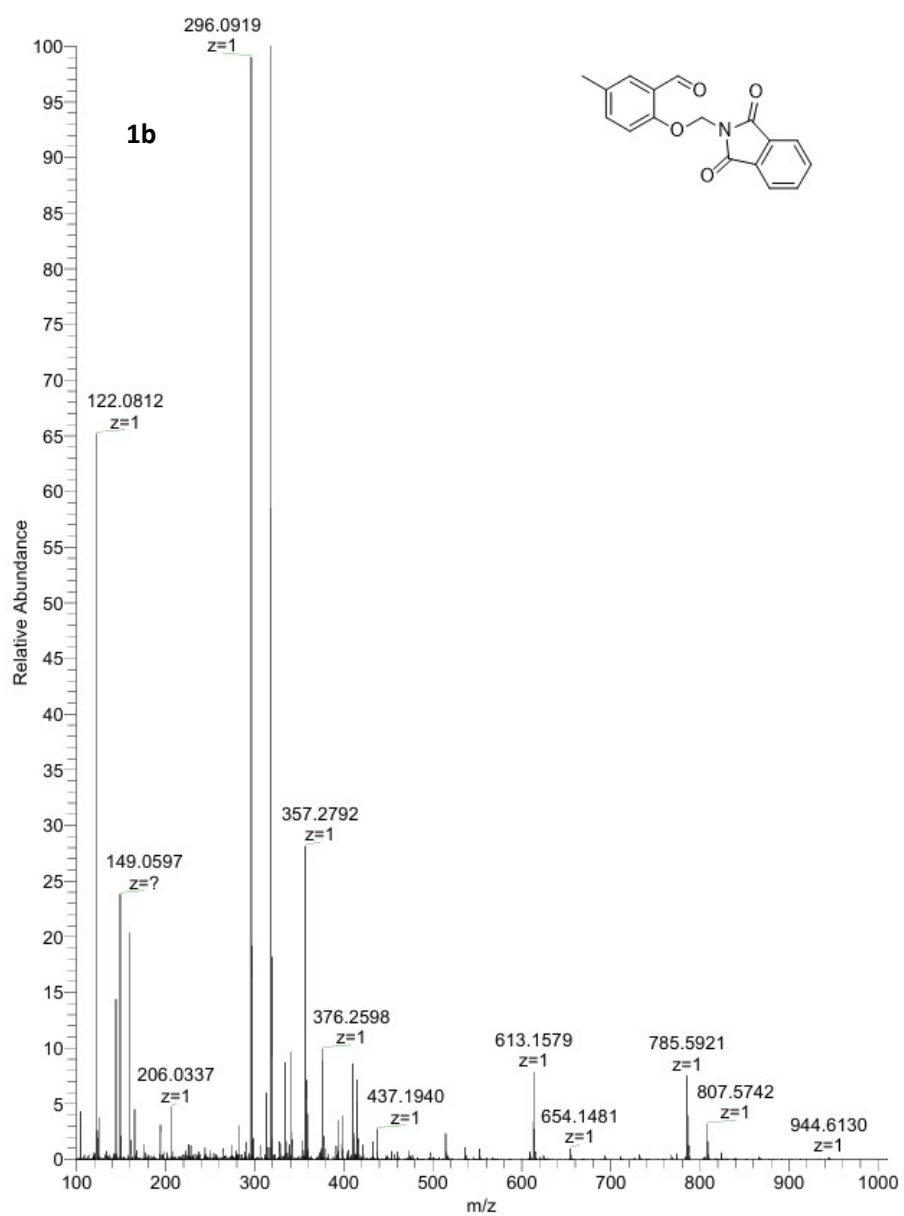
Temperature, K	120	120
$T_{\min}/T_{\max}$	0.4631/0.7461	0.6804/0.7461
μ , mm ⁻¹	0.305	0.138
Space group	P2 ₁ /c	P2 ₁ /c
Z	4	4
F(000)	648	712
Reflections collected	14733	19694
Independent reflections	2944	4447
Reflections ($I > 2\sigma(I)$)	2050	3459
Parameters	199	228
R_{int}	0.1026	0.0236
$2\theta_{\min} - 2\theta_{\max}$, °	3.638 - 54.204	5.524 - 61.030
wR ₂ (all reflections)	0.1548	0.0960
$R_1(I > \sigma(I))$	0.0562	0.0346
GOF	1.027	1.097
$\rho_{\min}/\rho_{\max}$, eÅ ⁻³	-0.396/0.761	-0.227/0.316
Restraints	0	0

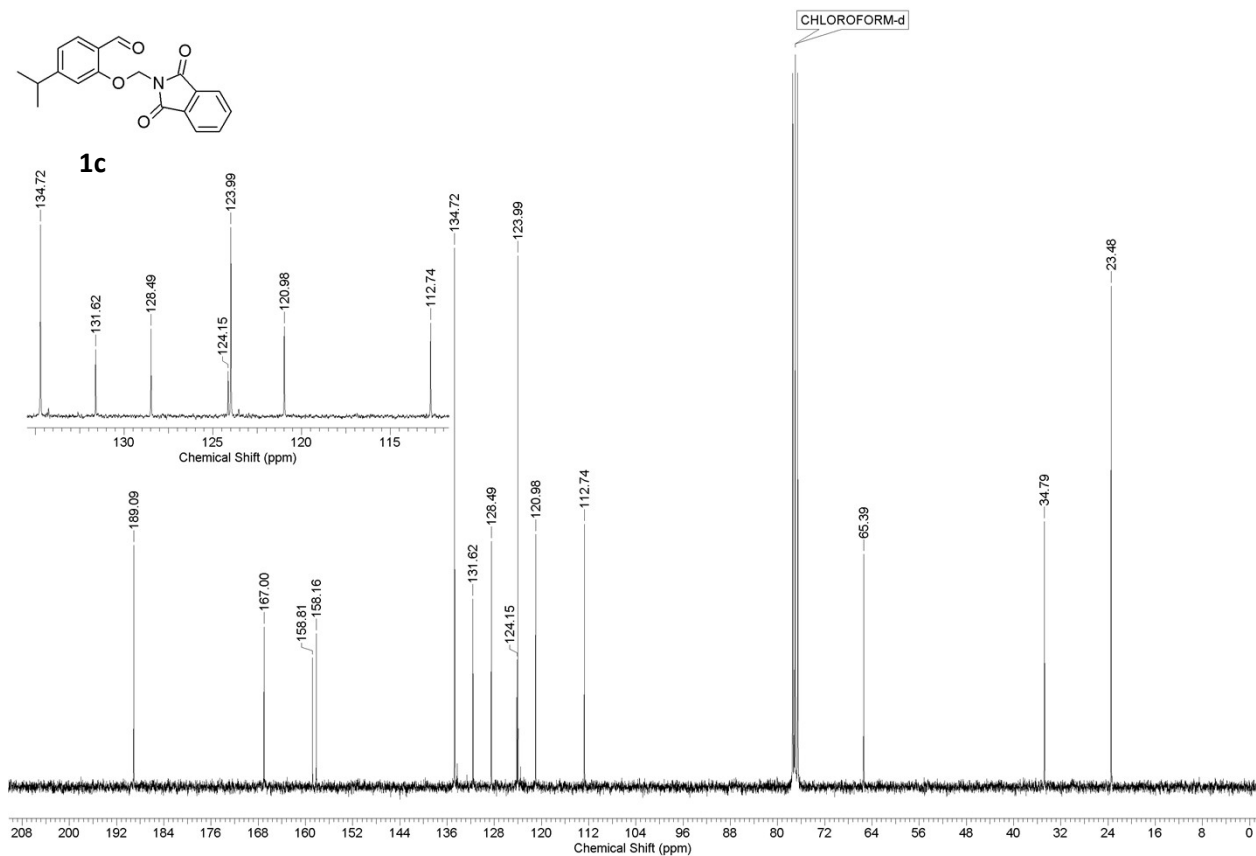
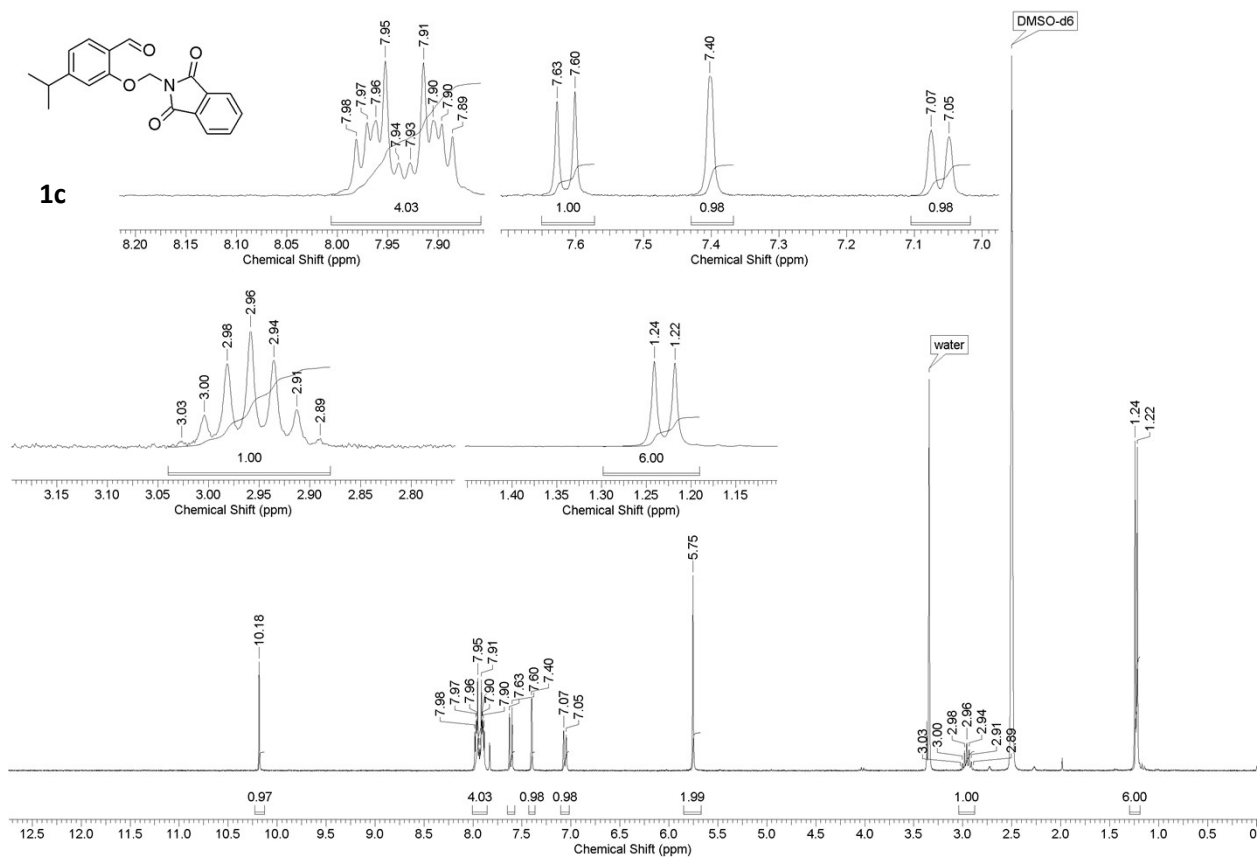
13. References

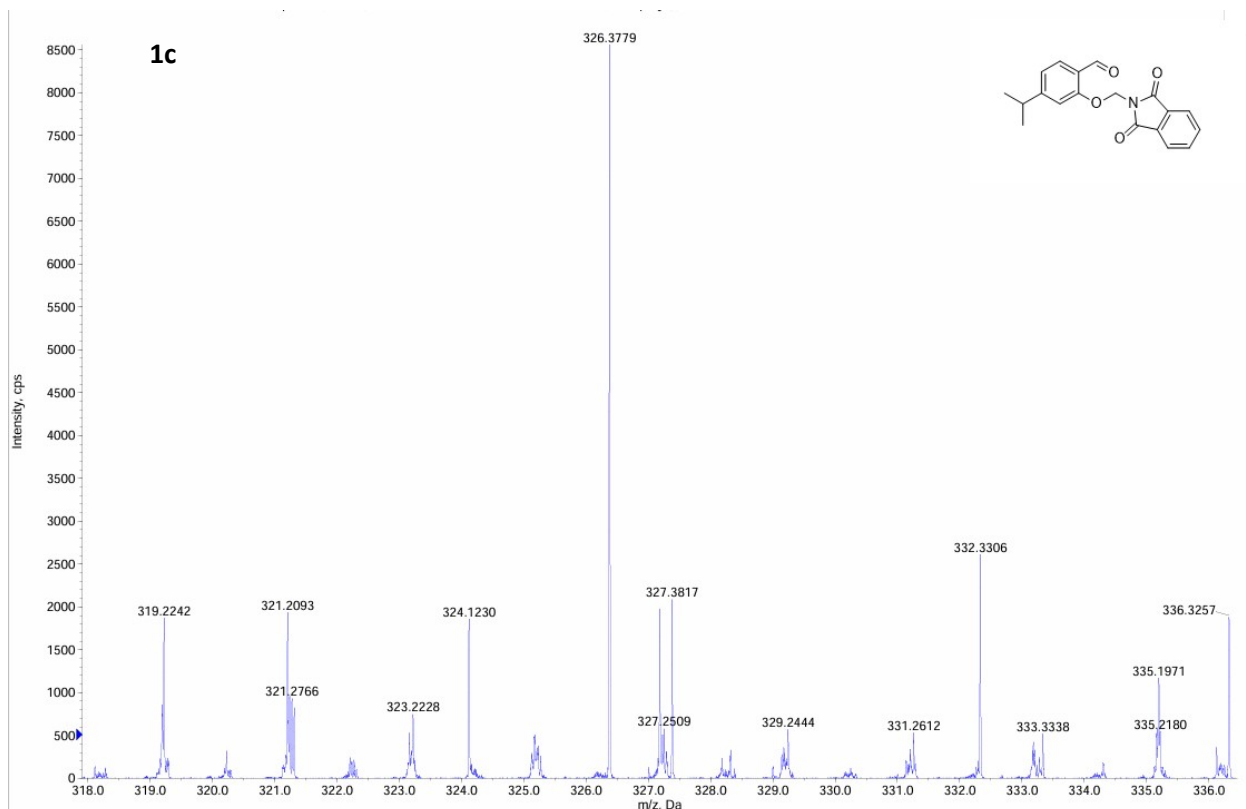
- S1. K. Kacprzak. Rapid and Convenient Microwave-Assisted Synthesis of Aromatic Imides and N-Hydroxymethylimides *Synthetic communications*, 33 (9) (2003), pp. 1499-1507
- S2. S.-D. Cho, J. Hwang, H.-K. Kim, H.-S. Yim, J.-J. Kim, S.-G. Lee, Y.-J. Yoon. Synthesis and photophysical properties of N-styrylazinones *Journal of Heterocyclic Chemistry*, 44 (2007), pp. 951-960
- S3. S. Mhiri, M. Abid, S. Abid, et al. Green synthesis of covalent hybrid hydrogels containing PEG/PLA-based thermoreversible networks *J Polym Res*, 29 (2022), p. 328
- S4. Y. Kondo, N. Koshikawa, K. Takenaga. Method for detecting gene mutation and method for evaluating cancer JP2022176111A (2022)
- S5. A. Frilling, M. Malago, F. Weber, A. Paul, S. Nadalin, G.C. Sotiropoulos, V. Cicinnati, C.E. Broelsch. Liver Transplantation for Hepatic Metastasis of Neuroendocrine Tumors *Viszeralmedizin*, 24 (3) (2008), pp. 287-289
- S6. H.C. Furlong, E.J. McCall. Discovery of novel agonists and antagonists of the ecdysone receptor using a high-throughput reporter gene assay screening pipeline *MedChemComm*, 8 (11) (2017), pp. 2092-2103
- S7. R.A. Aitken, D.B. Cordes, M.R. Kinahan, A.P. McKay. 2,3-Dihydrobenzo[e][1,3]oxazin-4-one *Molbank*, 2024 (2024), p. M1878
- S8. Electroselective and Controlled Reduction of Cyclic Imides to Hydroxylactams and Lactams *Org Lett*, 23 (6) (2021), pp. 2298-2302
- S9. D. McLeod, J. McNulty *European Journal of Organic Chemistry*, 2012 (31) (2012), p. 6127
- S10. A.F. Lieveise, J.W. Van't Hof, M.E. Van't Hof, C.M.A. Rutten. Encephalization in hominids: evidence for the magnetic sensibility of the geomagnetic field *Behavioural Brain Research*, 44 (1) (1991), pp. 25-32.
- S11. Bruker. (2016). APEX3, RLATT, CELL_NOW, TWINABS, SAINT-Plus and SADABS. Bruker AXS Inc.
- S12. Dolomanov, O. V., Bourhis, L. J., Gildea, R. J., Howard, J. A. K., & Puschmann, H. (2009). OLEX2: a complete structure solution, refinement and analysis program. *Journal of Applied Crystallography*, 42, 339–341.
- S13. Sheldrick, G. M. (2015). Crystal structure refinement with SHELXL. *Acta Crystallographica Section C*, 71(1), 3–8.
- S14. Sheldrick, G. M. (2015). SHELXT – Integrated space-group and crystal-structure determination. *Acta Crystallographica Section A*, 71(1), 3–8.

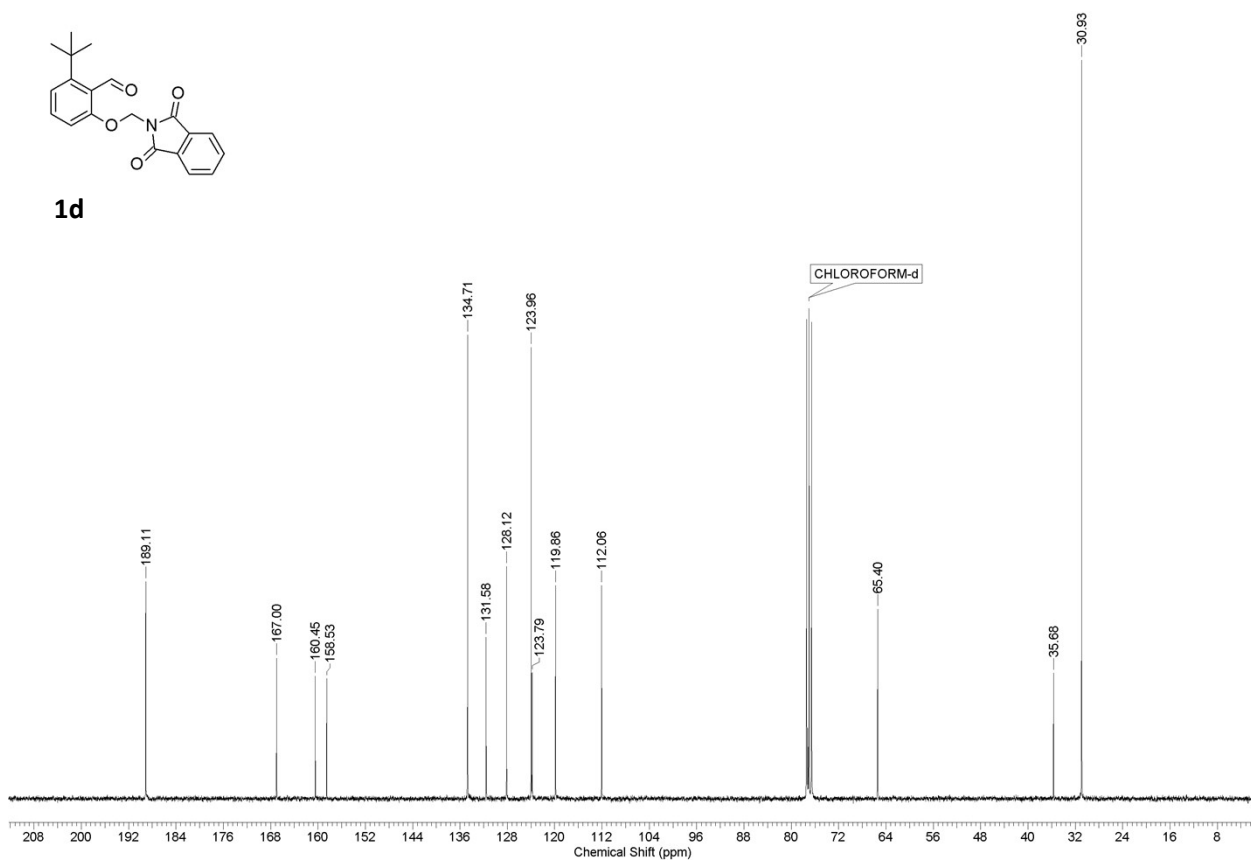
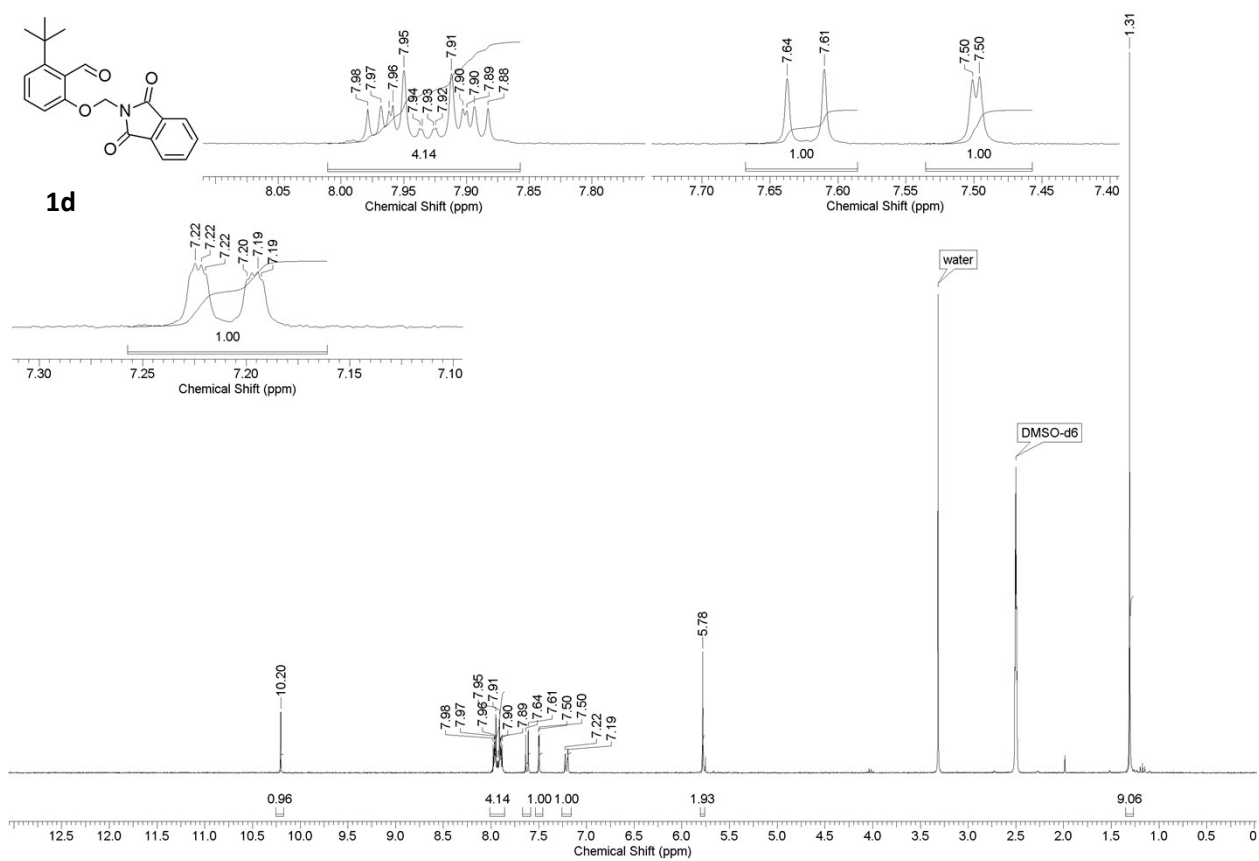
14. Copies of NMR and HRMS spectra for starting compounds 1, 3, 4, 7, 8

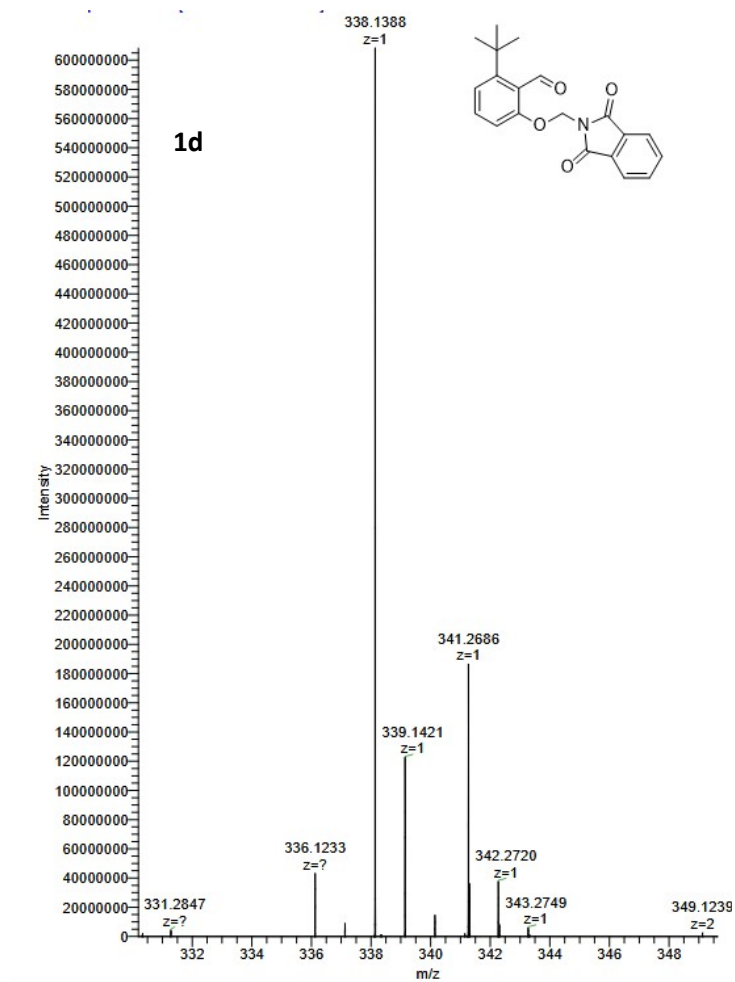


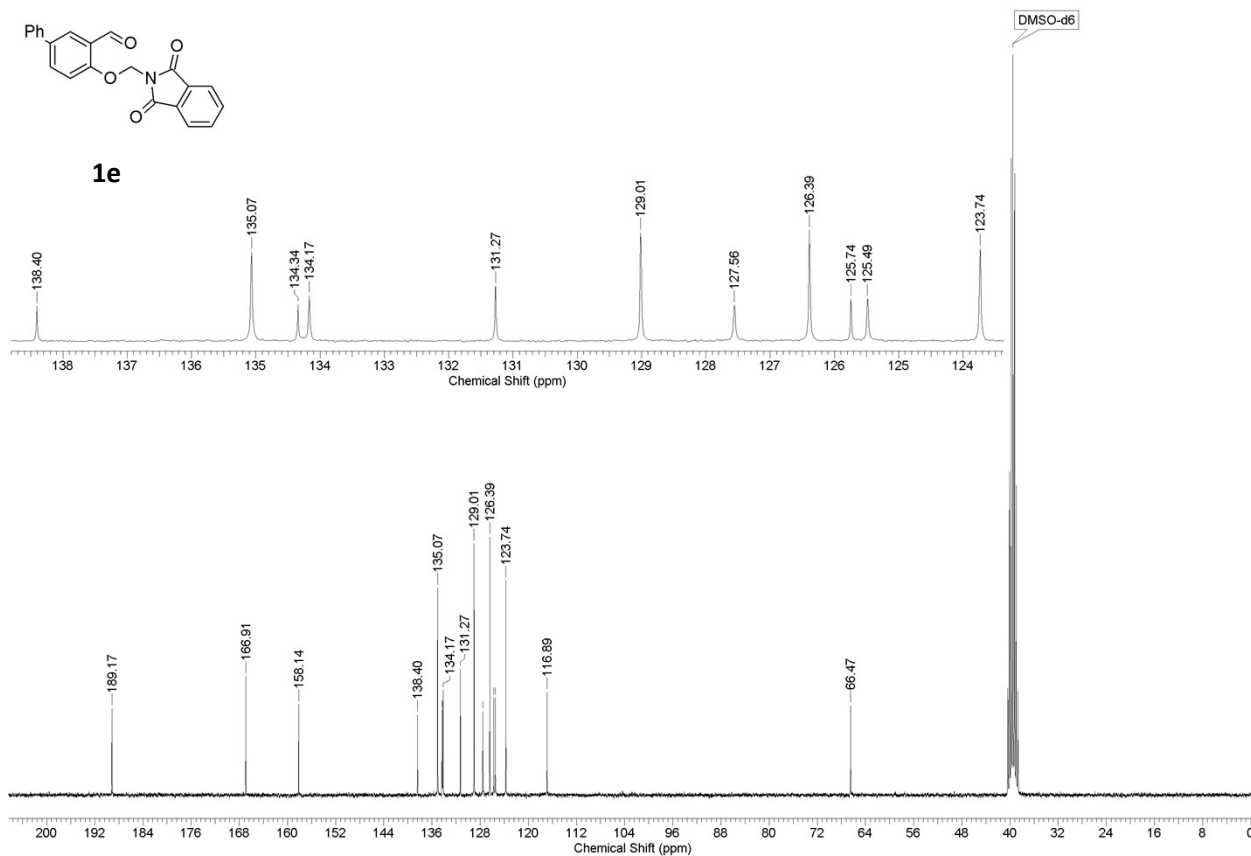
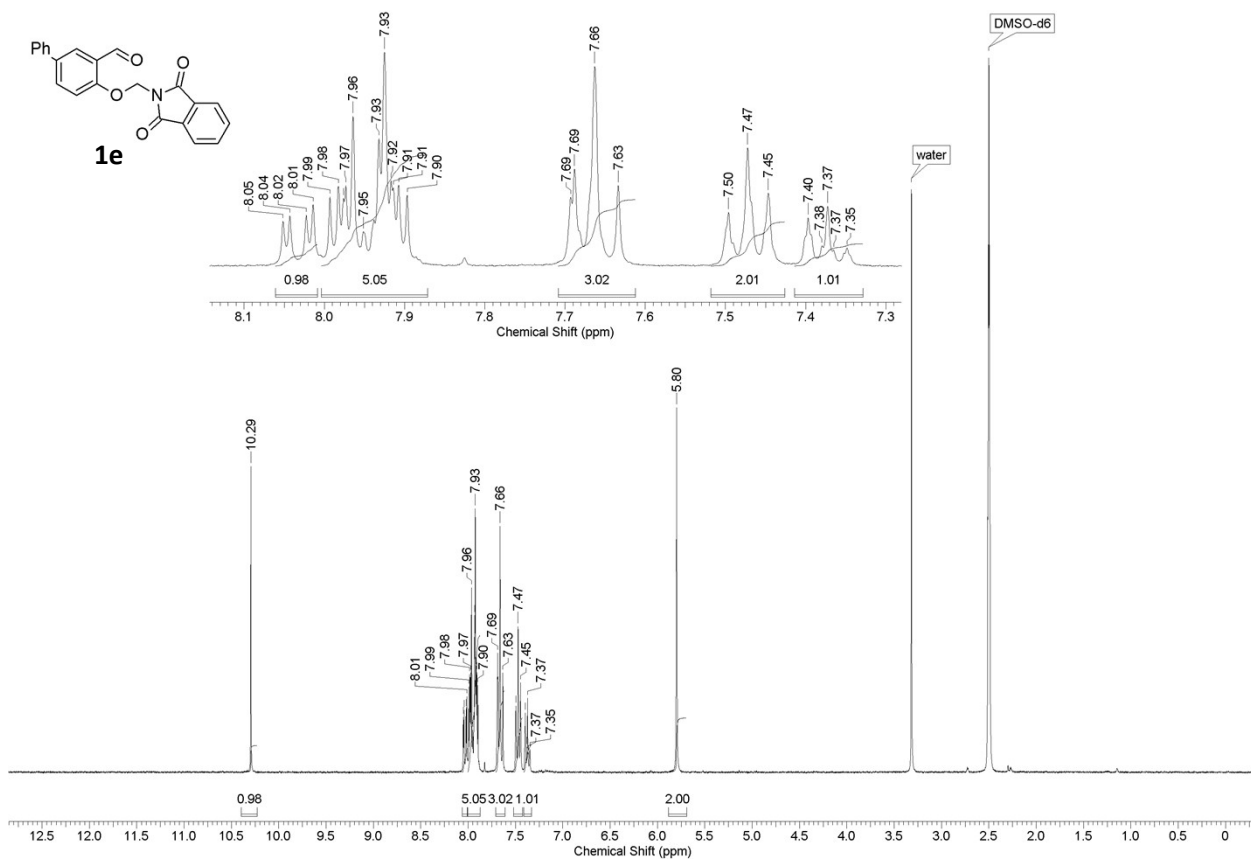


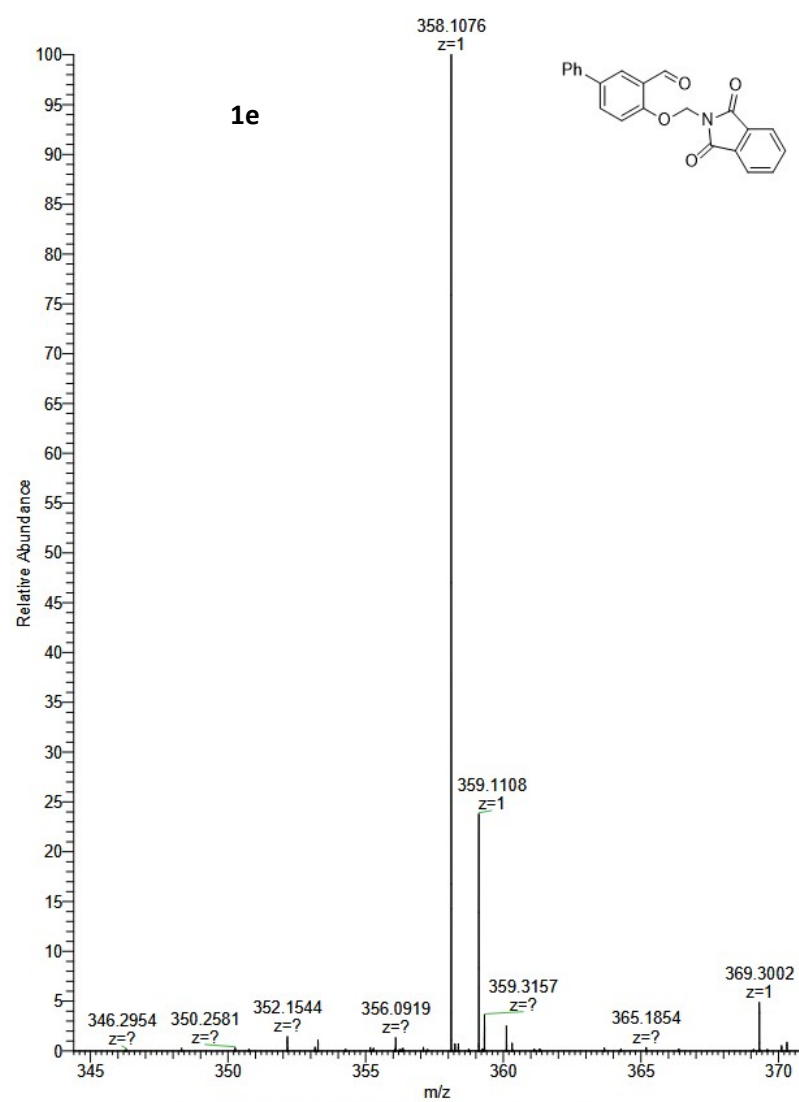


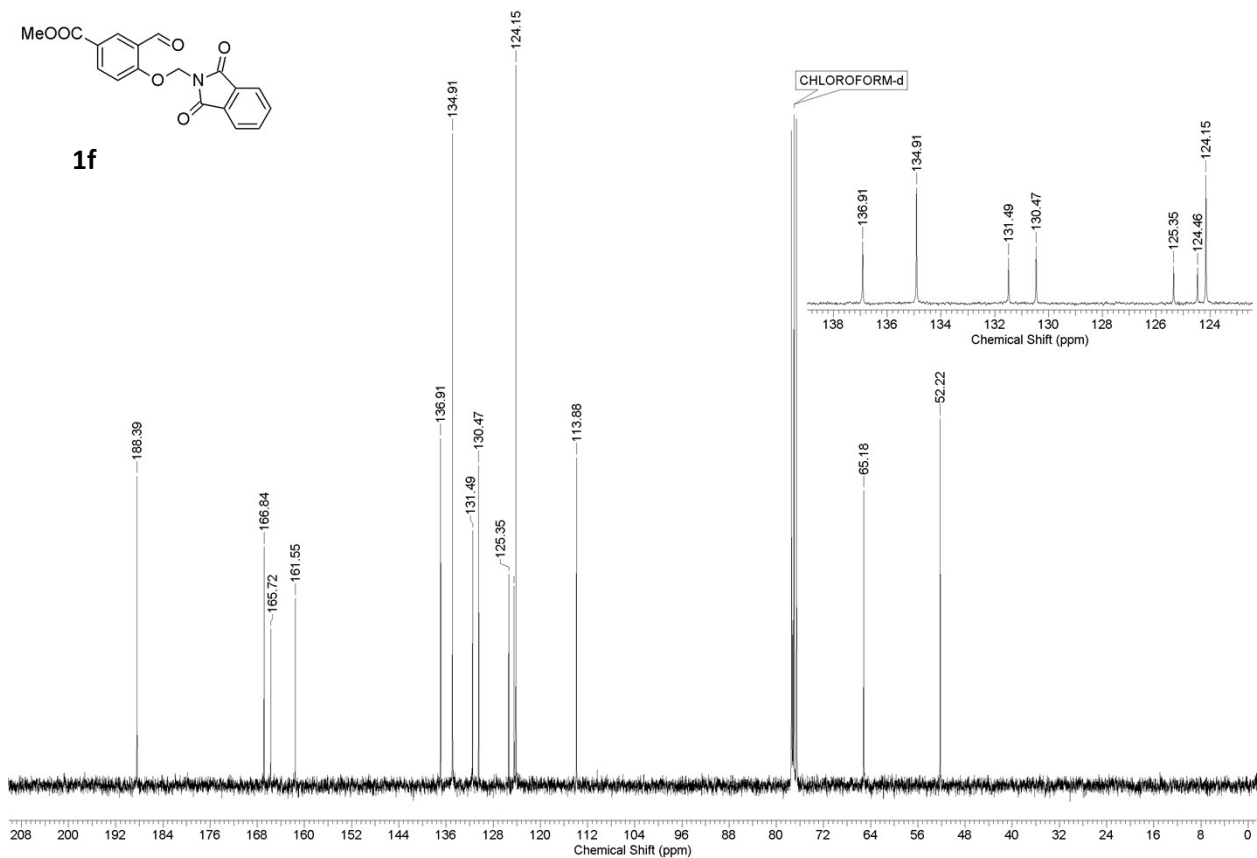
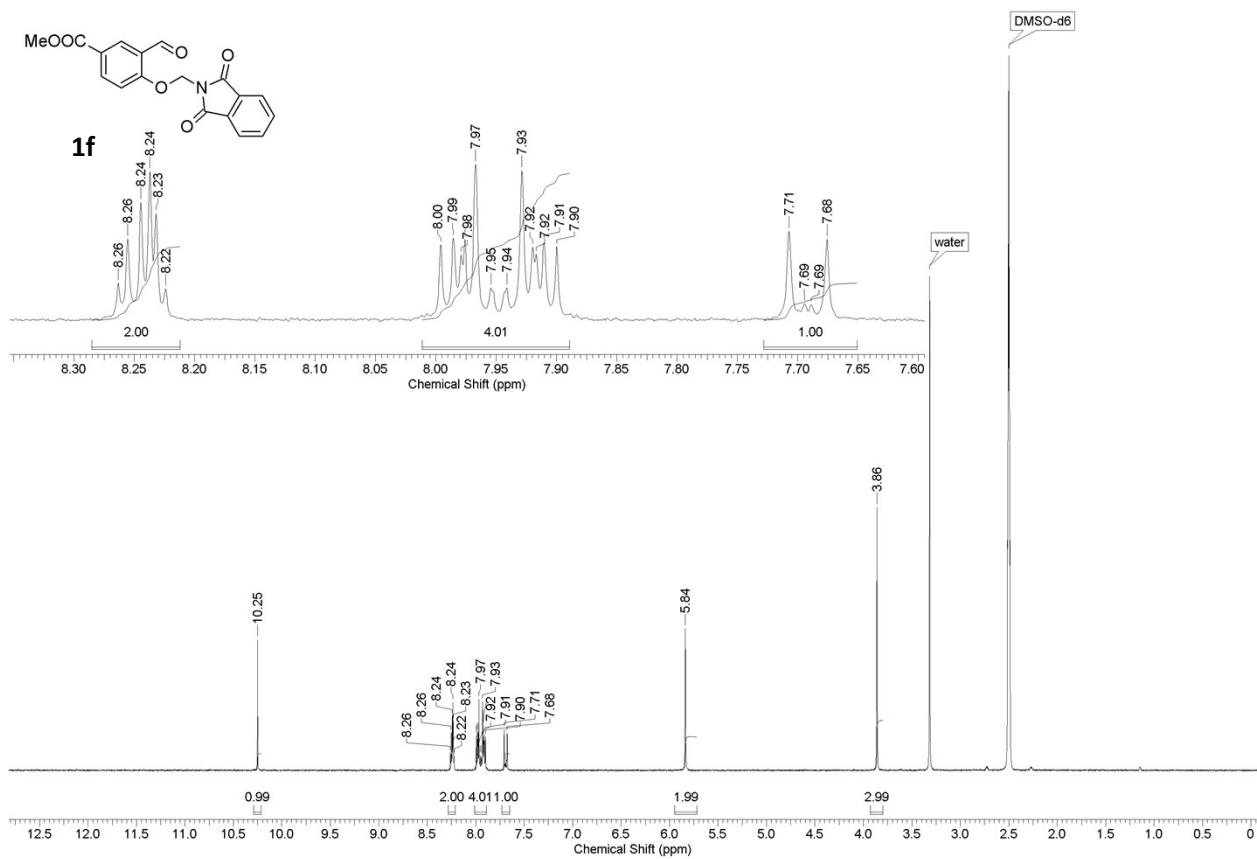


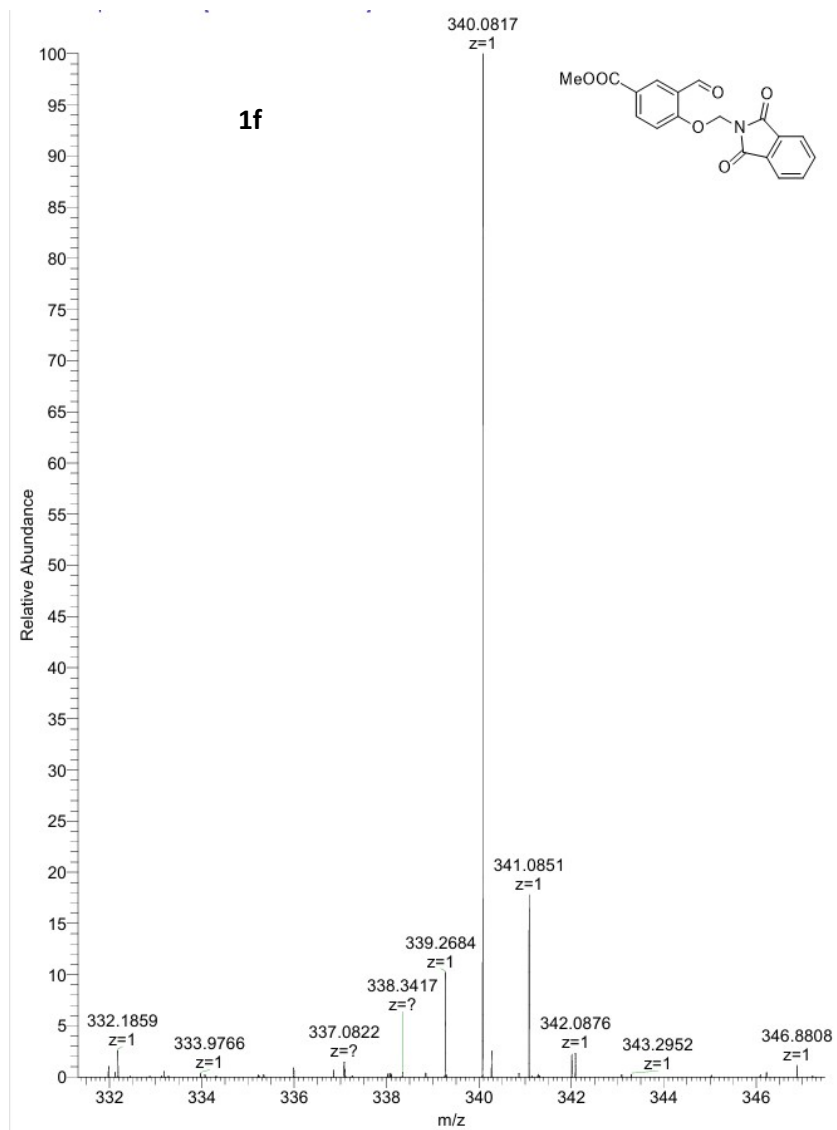


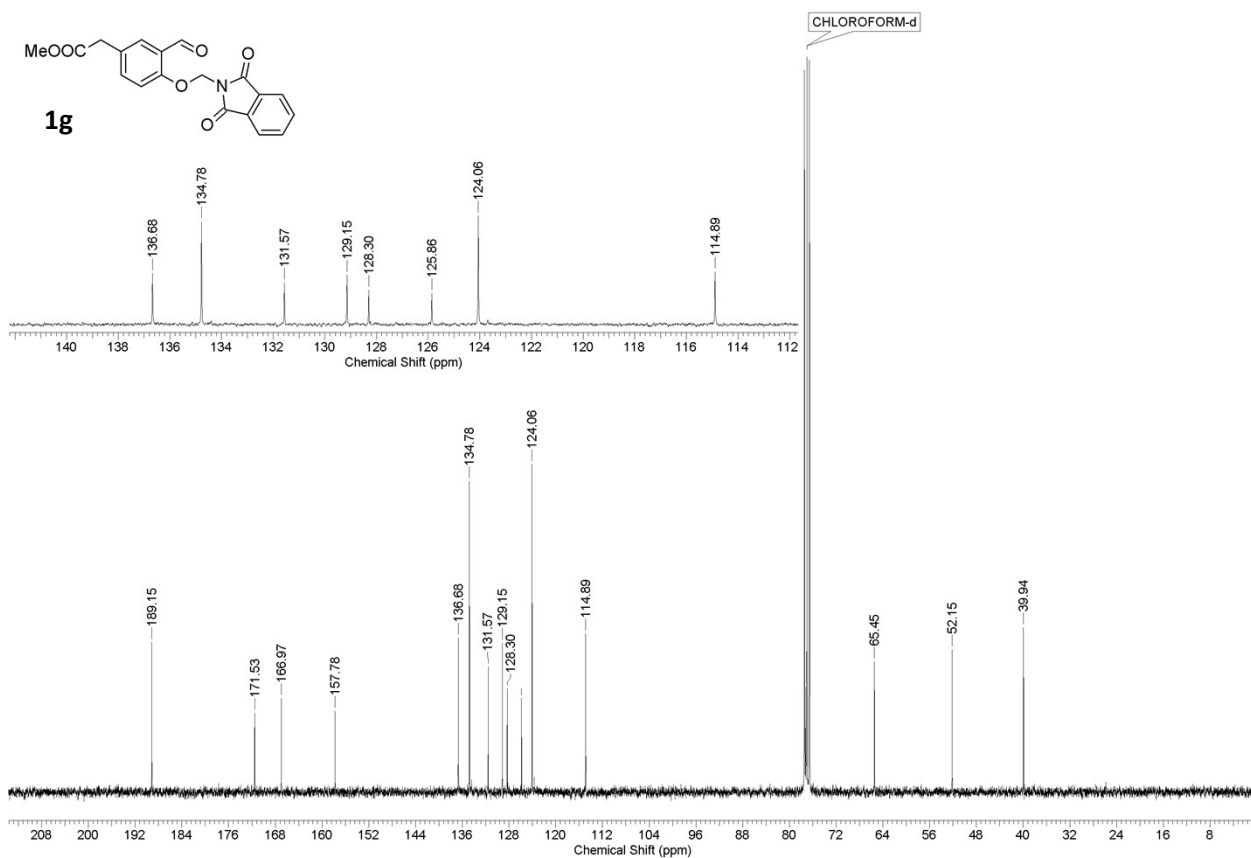
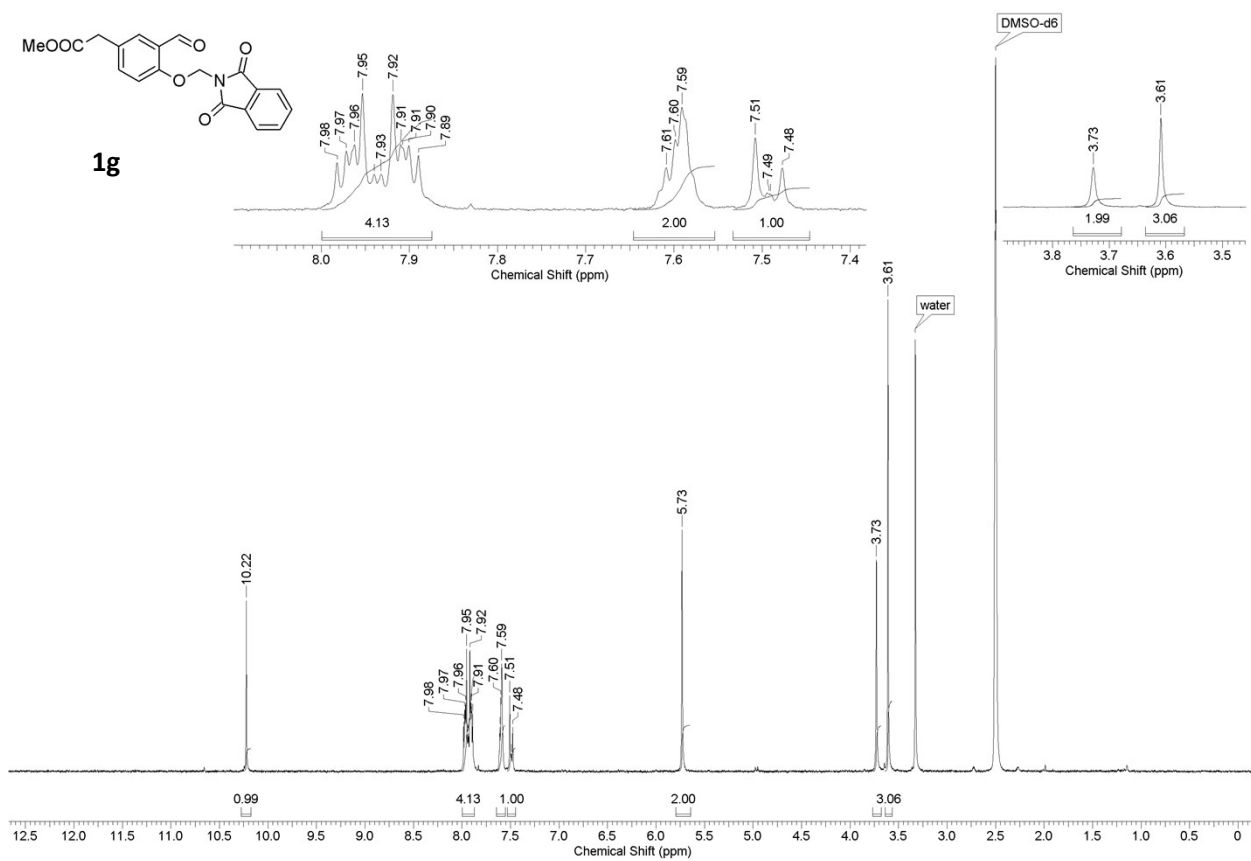


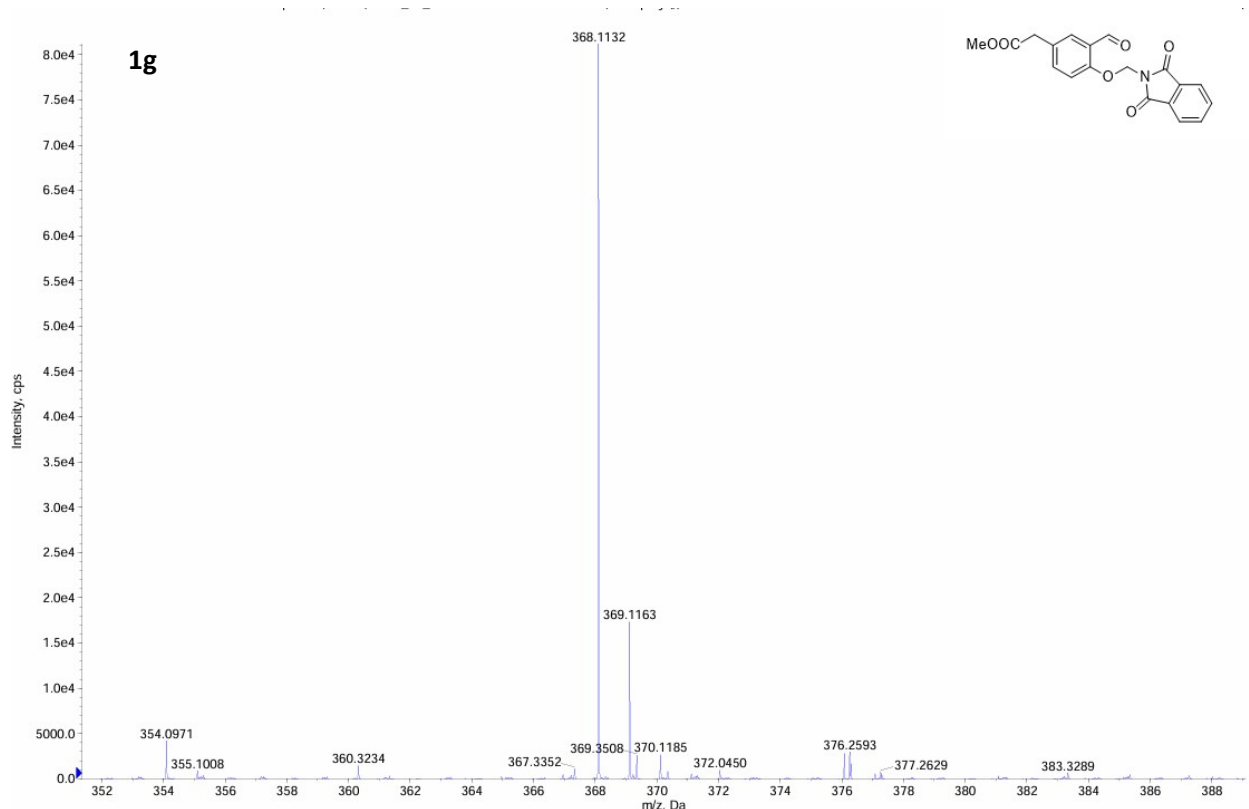


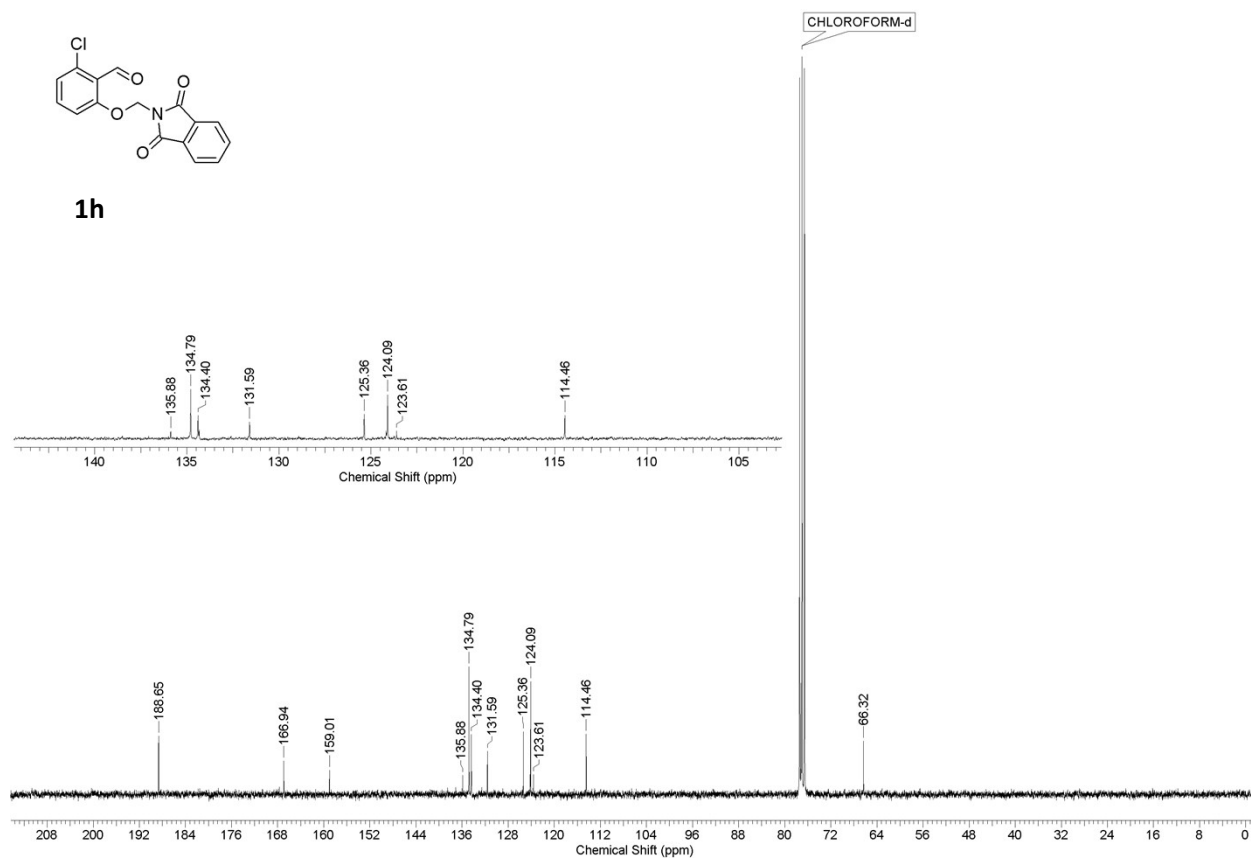
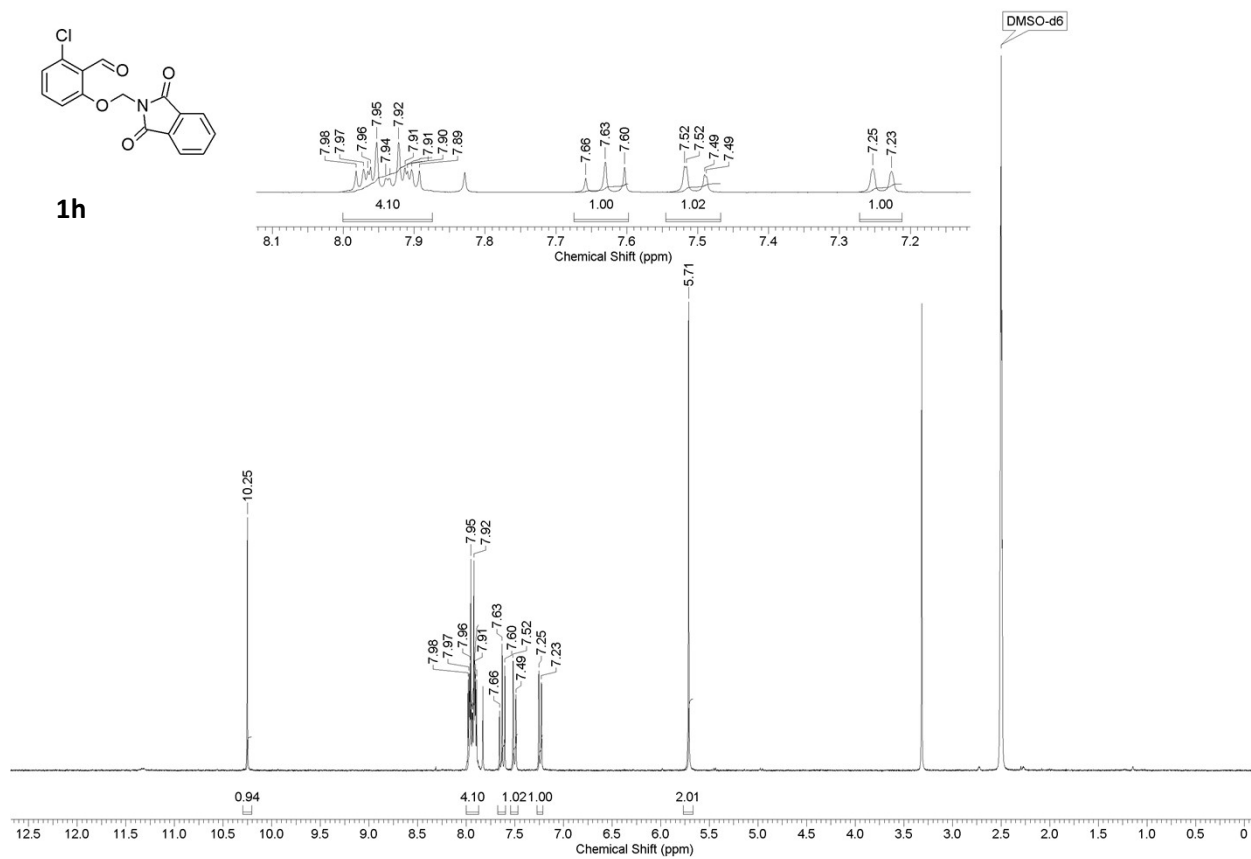


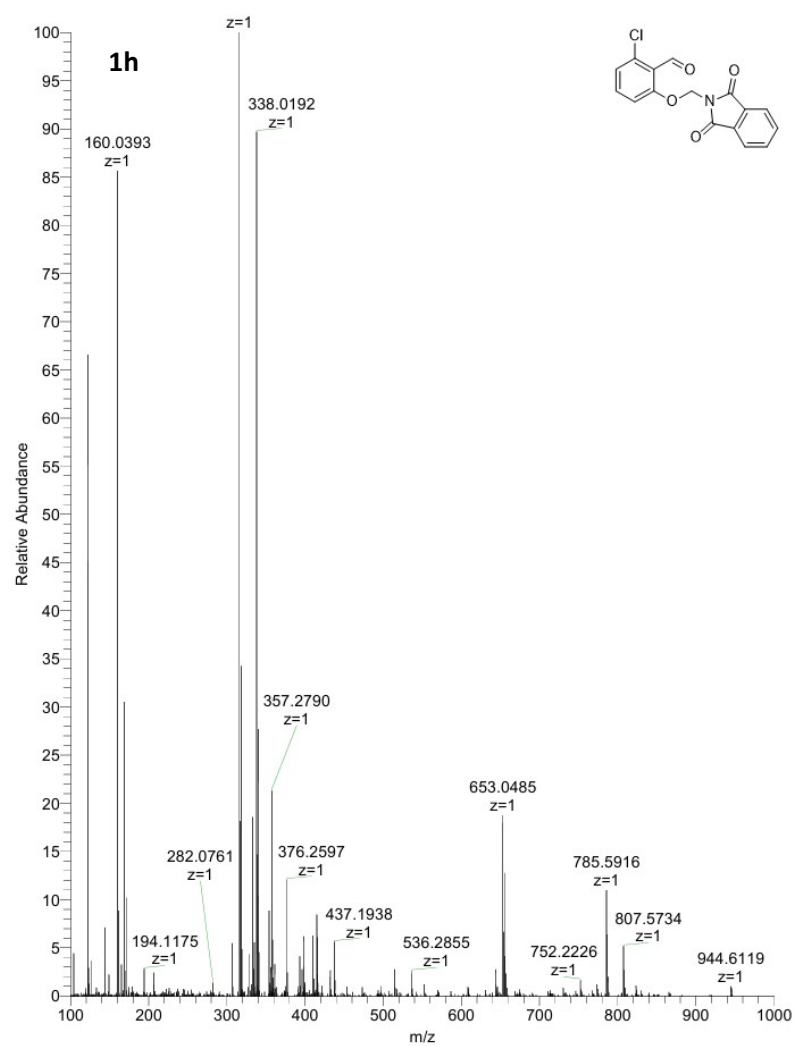


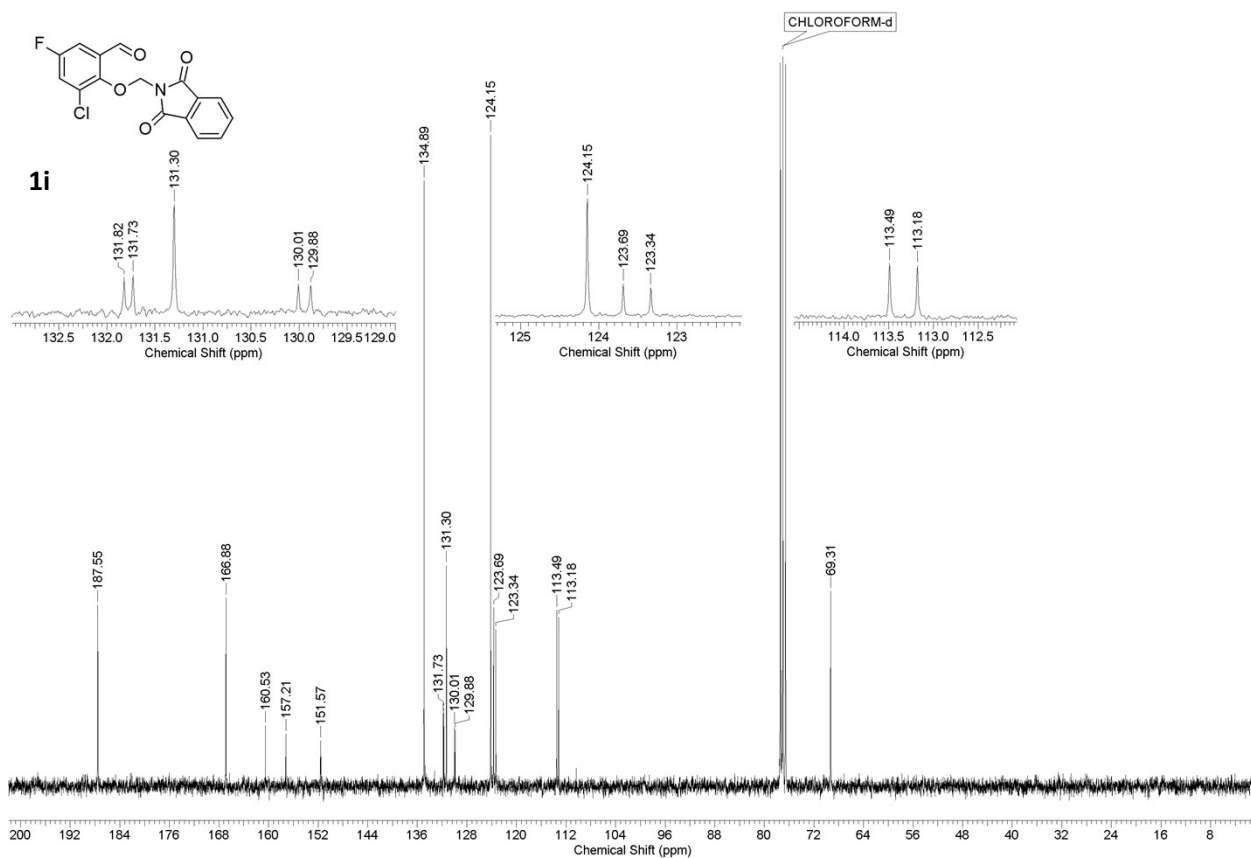
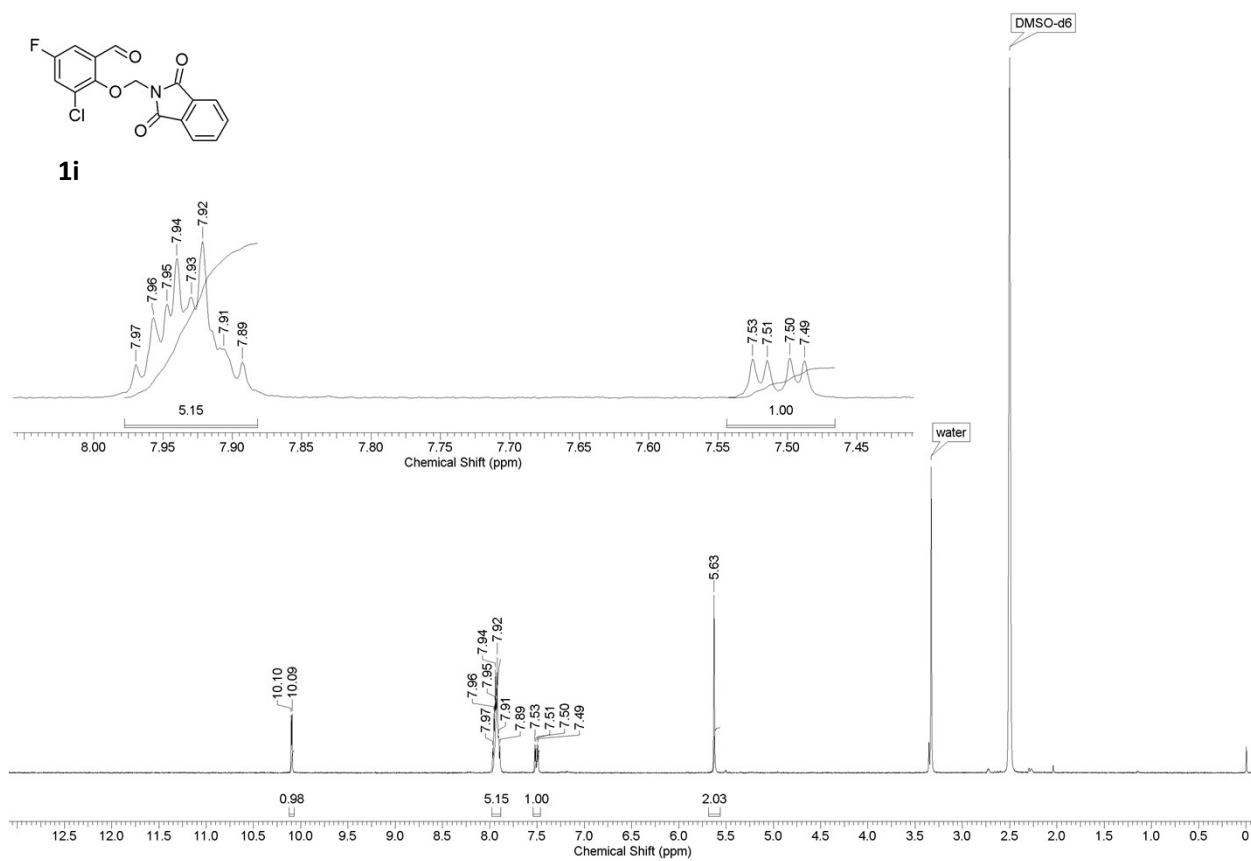


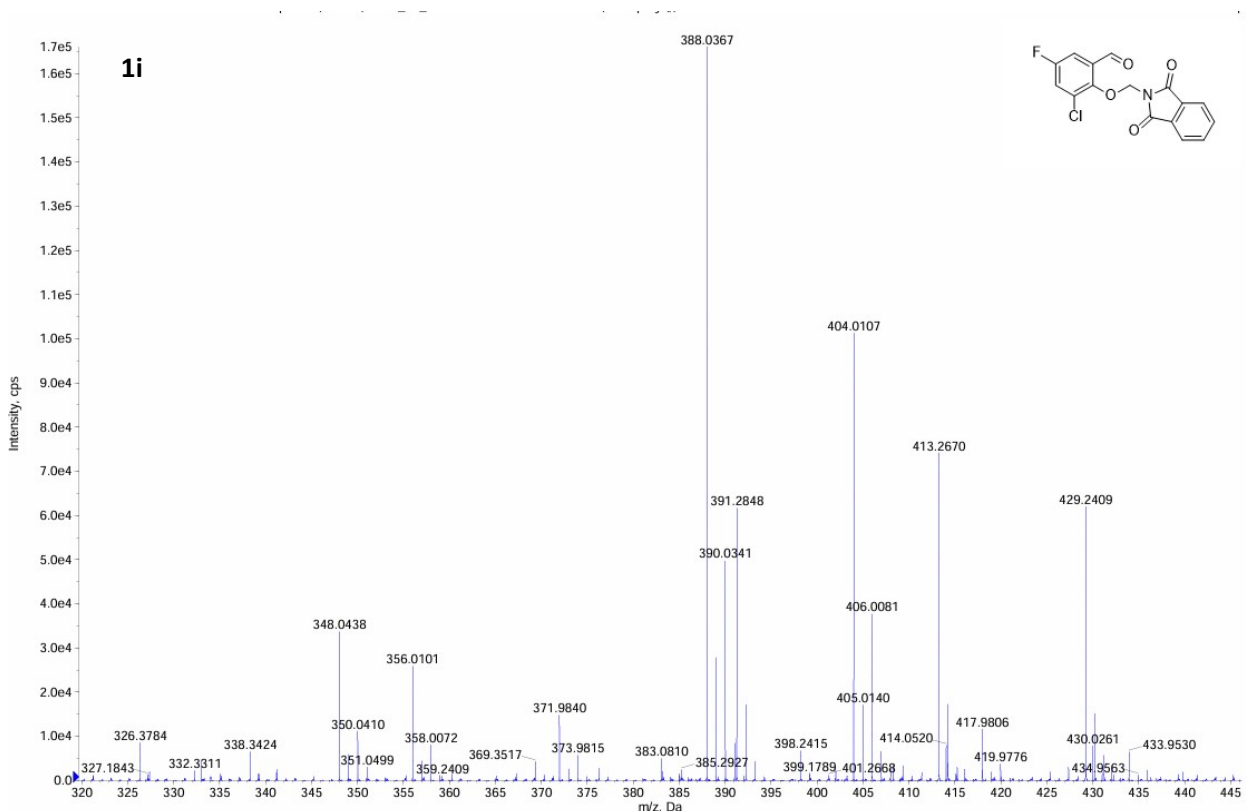
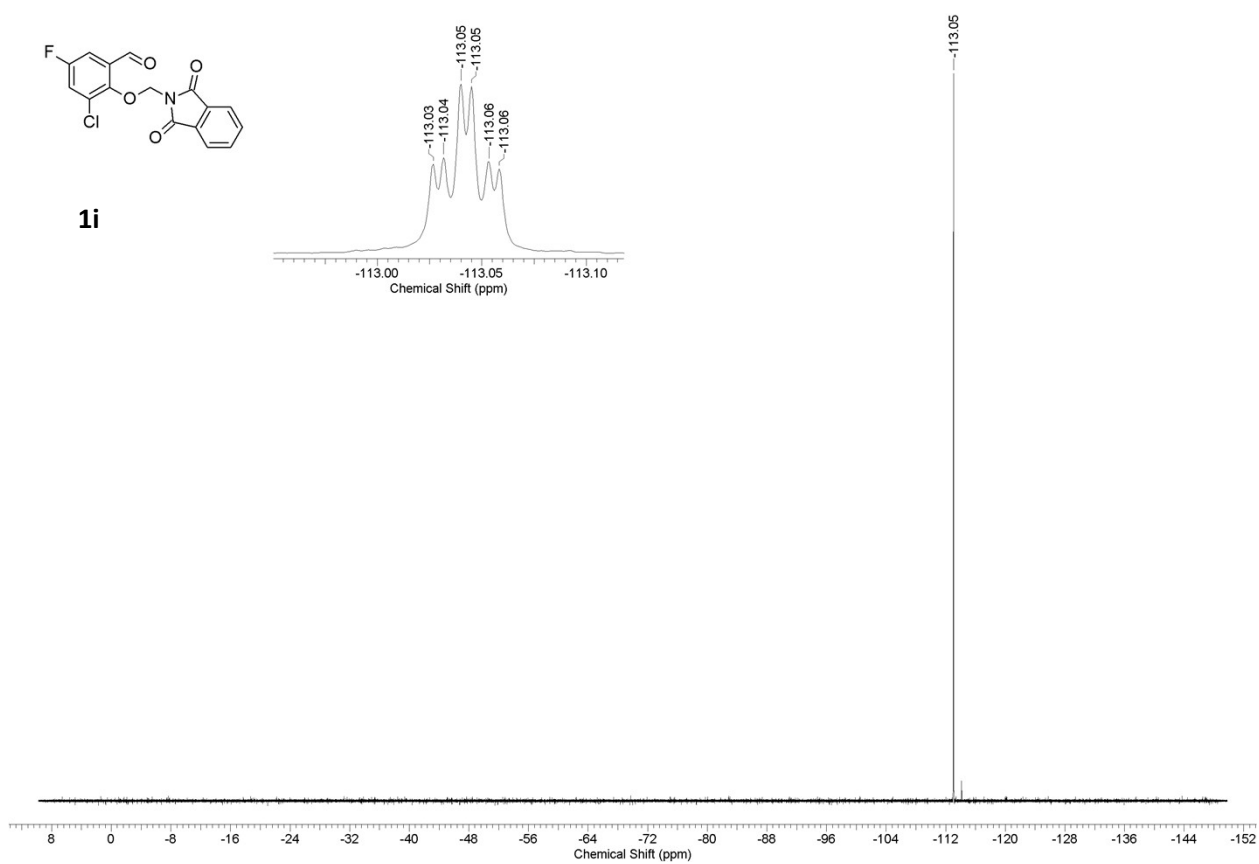


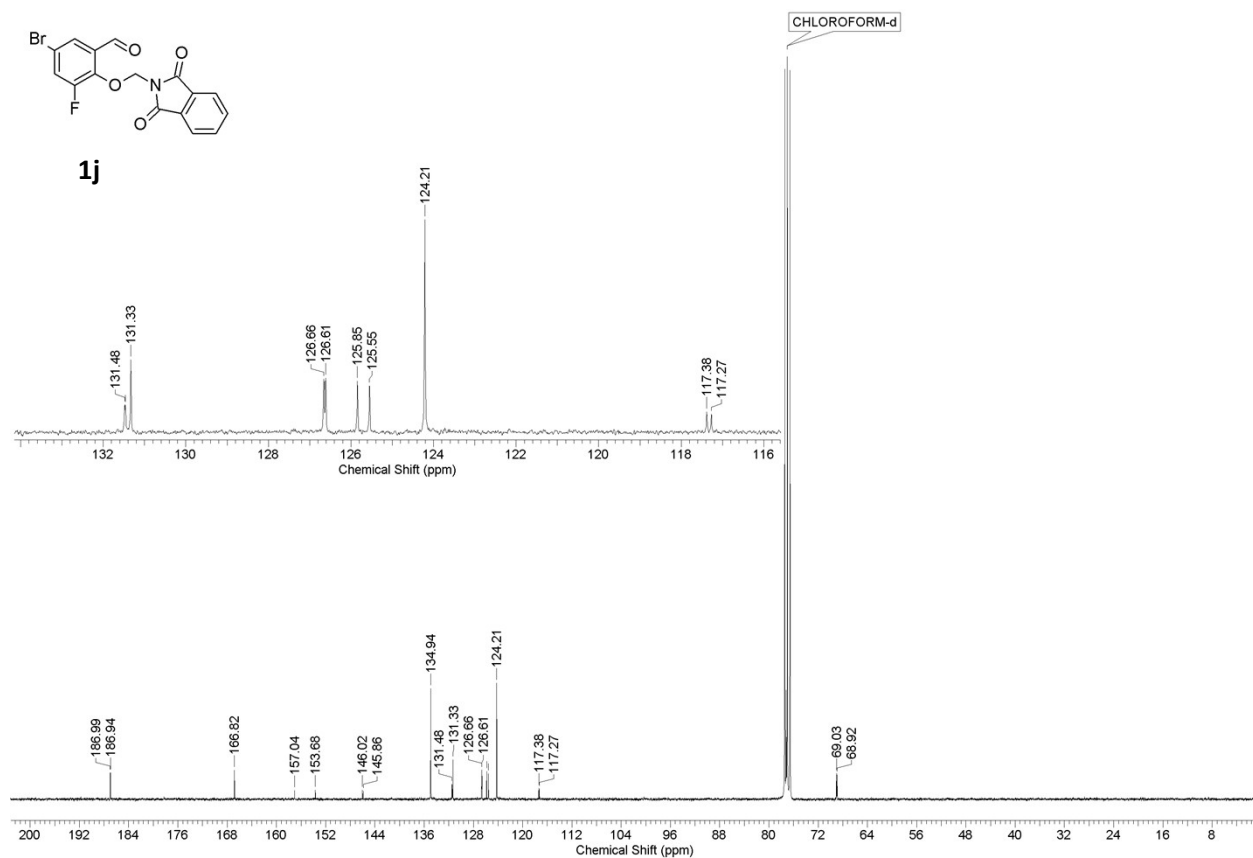
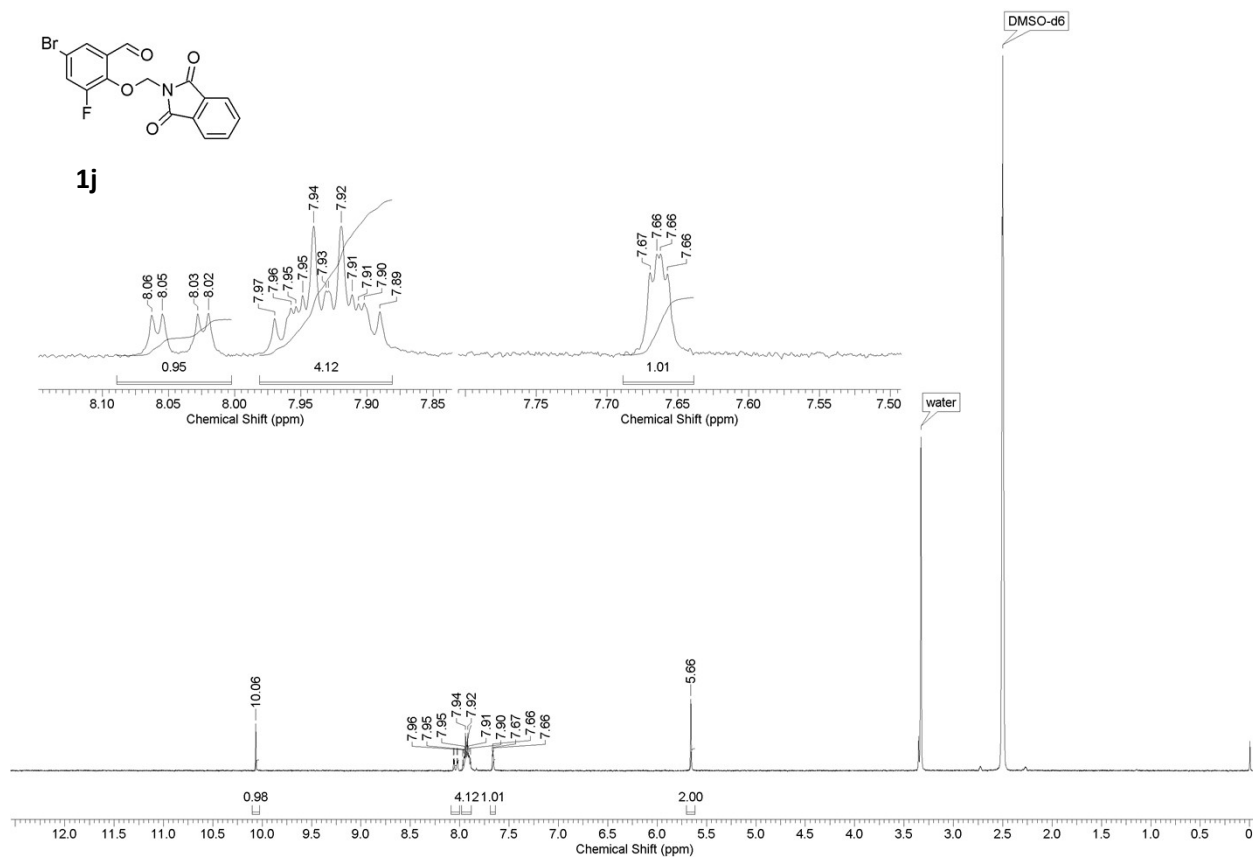


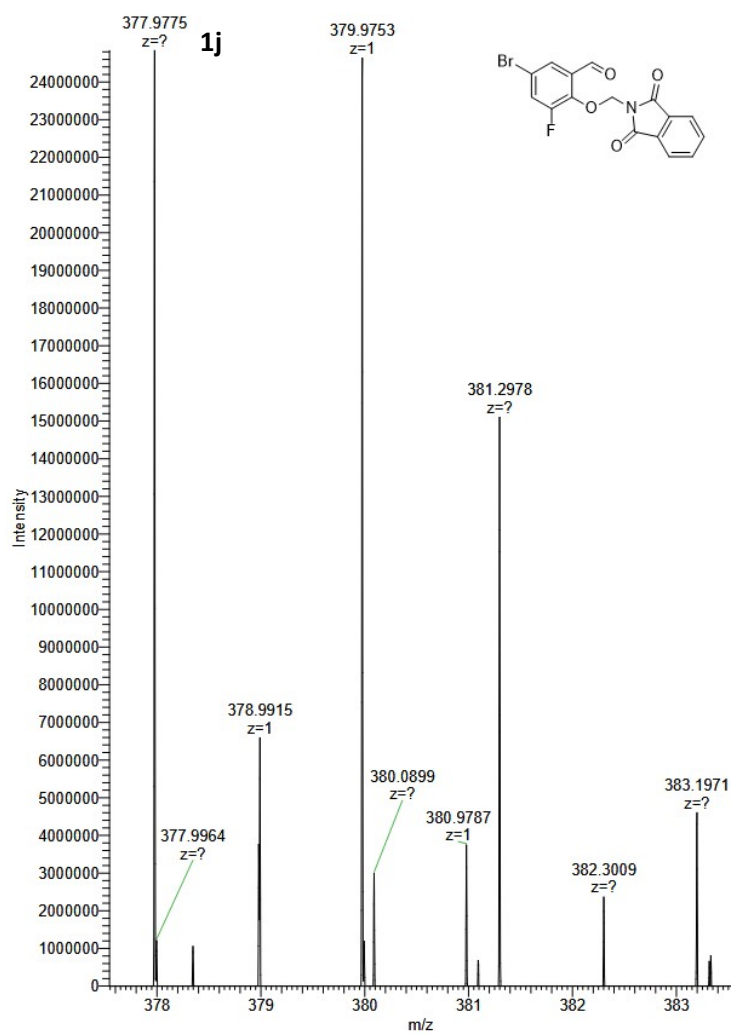
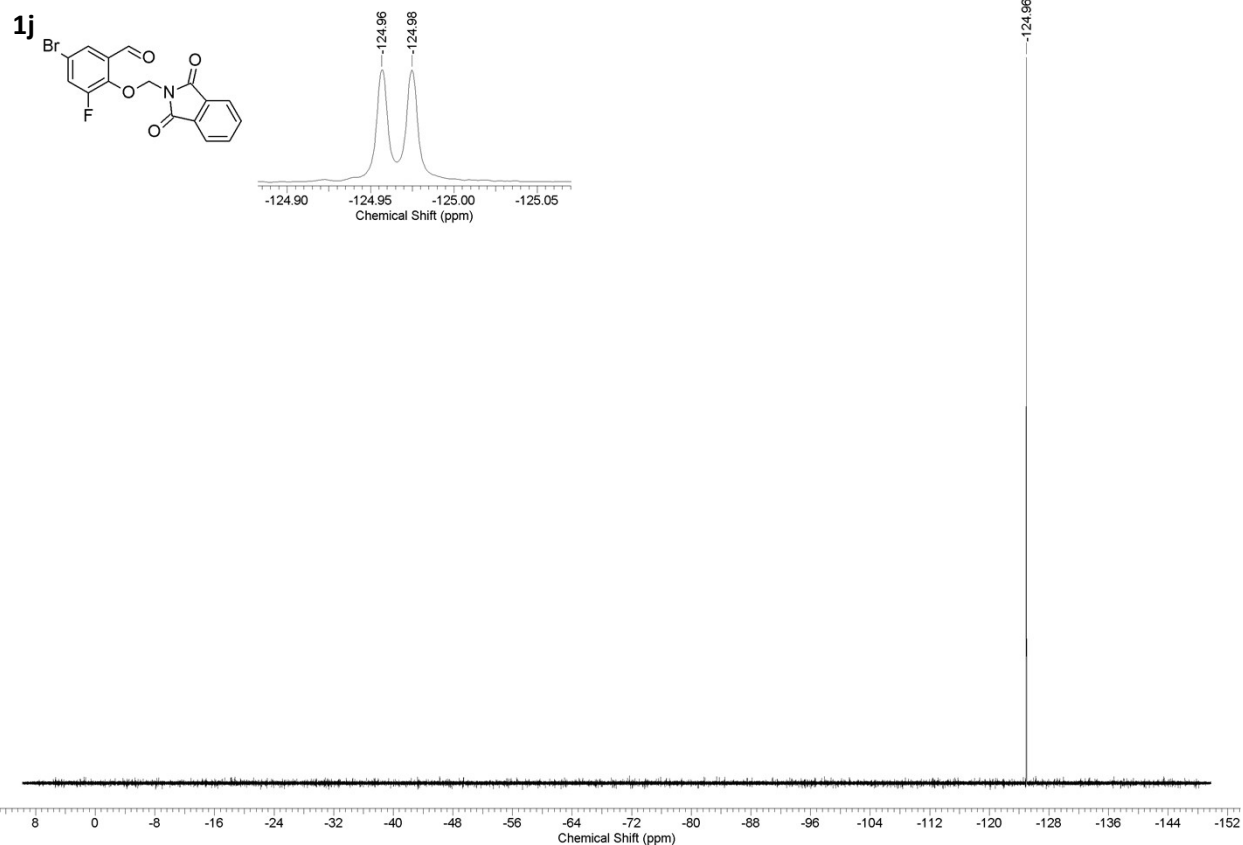


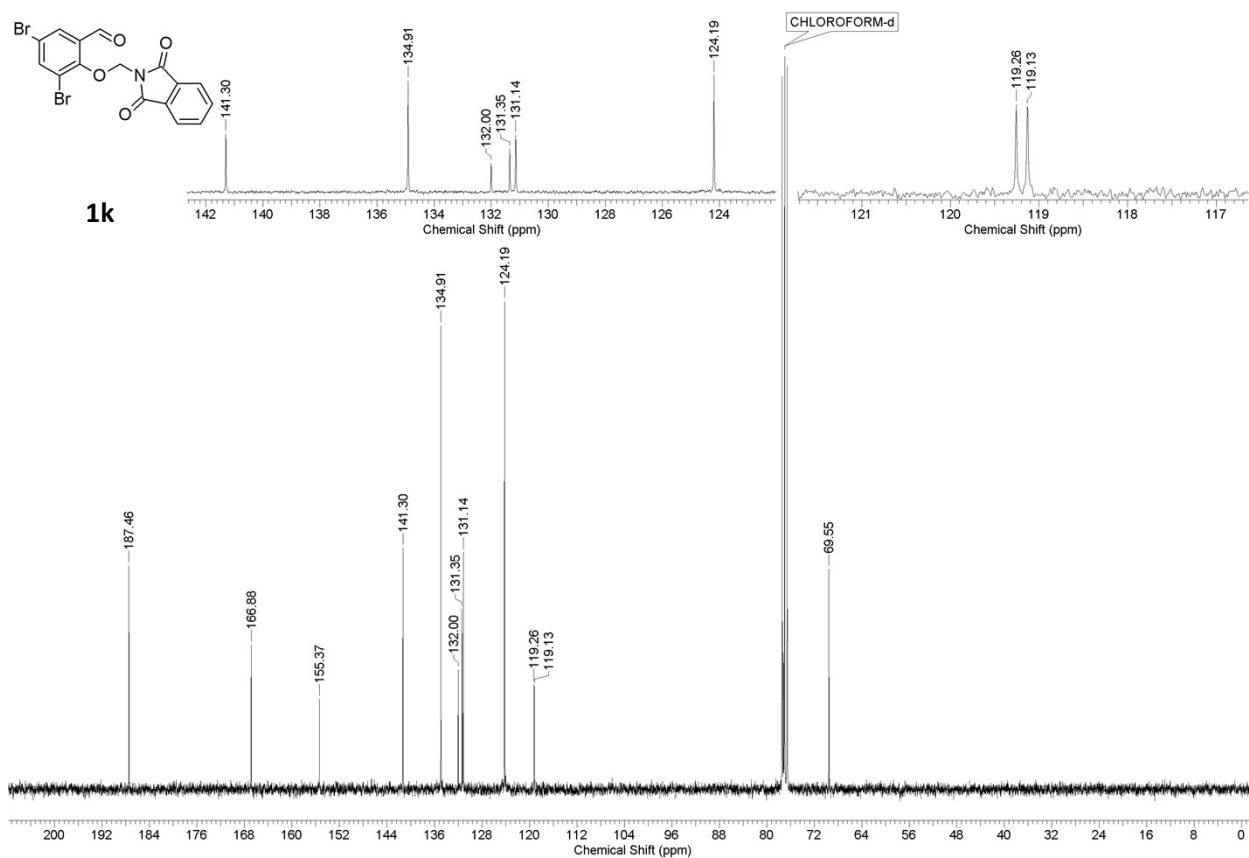
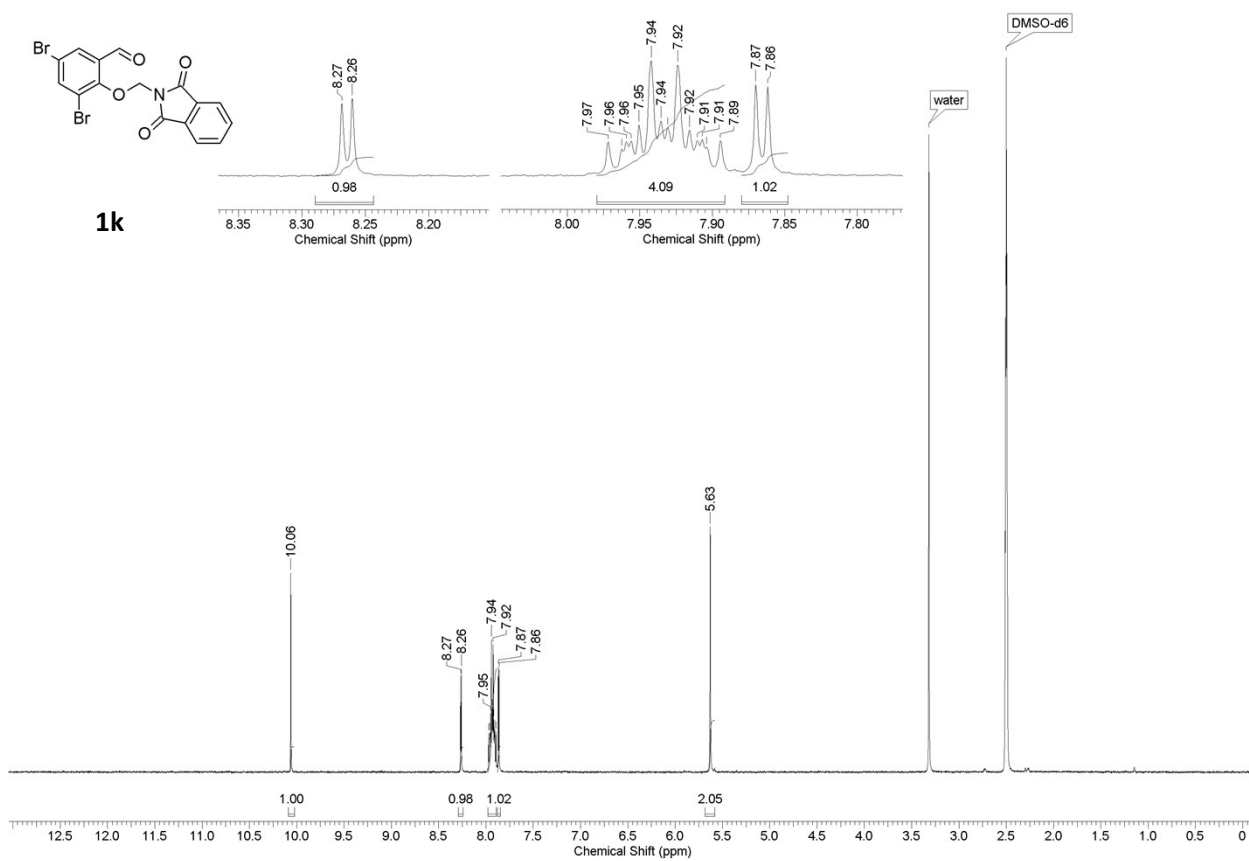


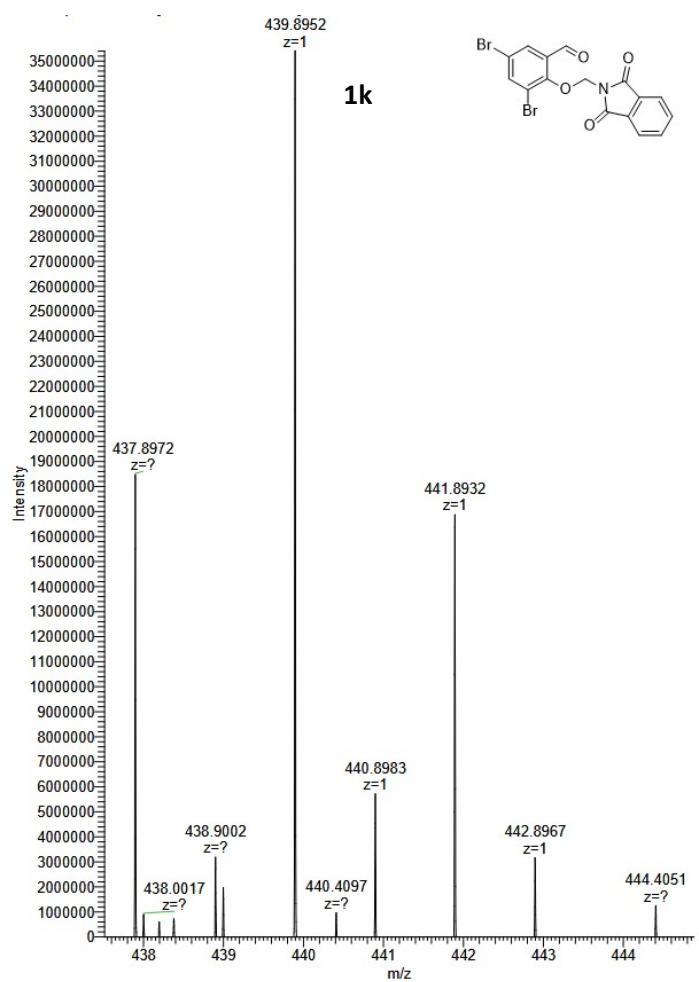


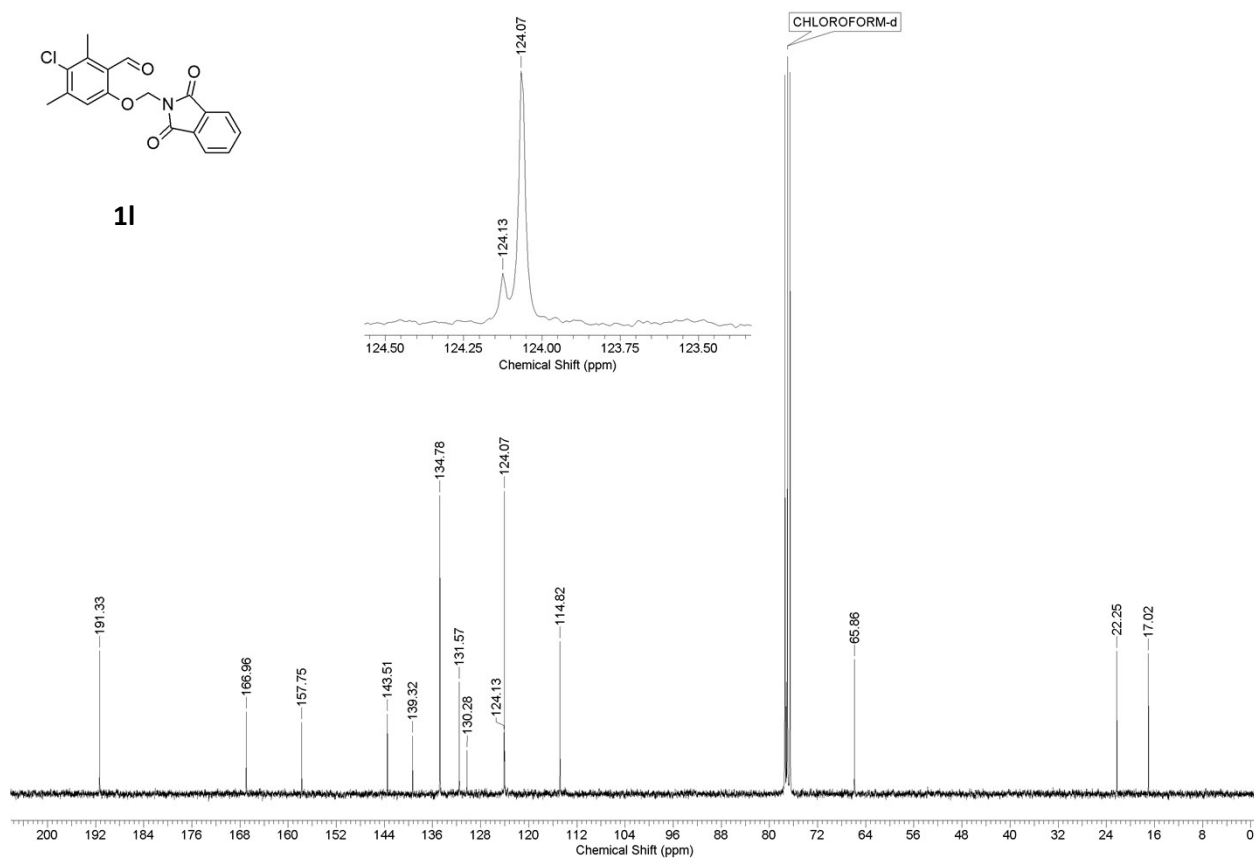
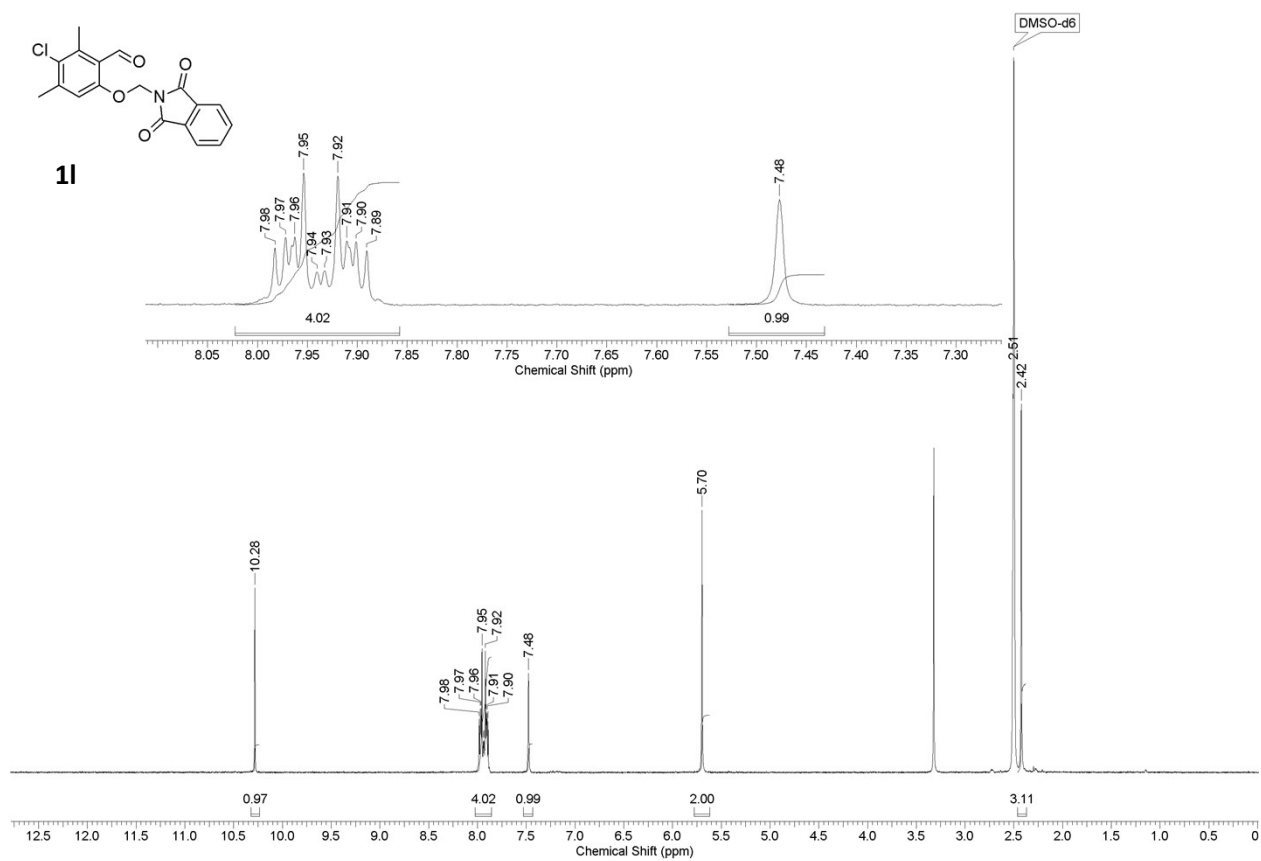


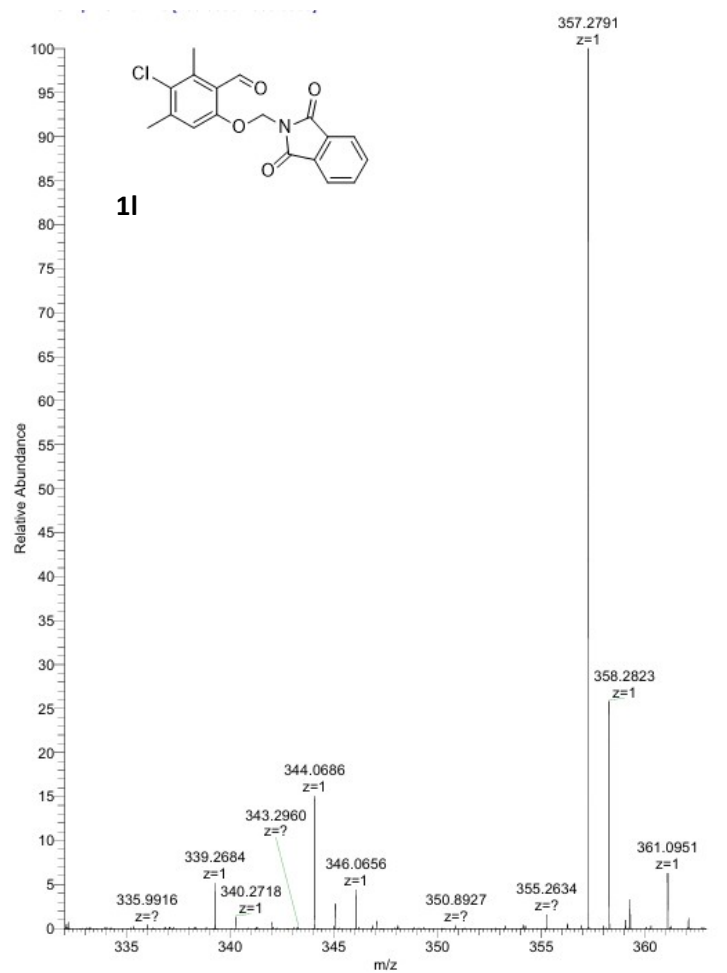


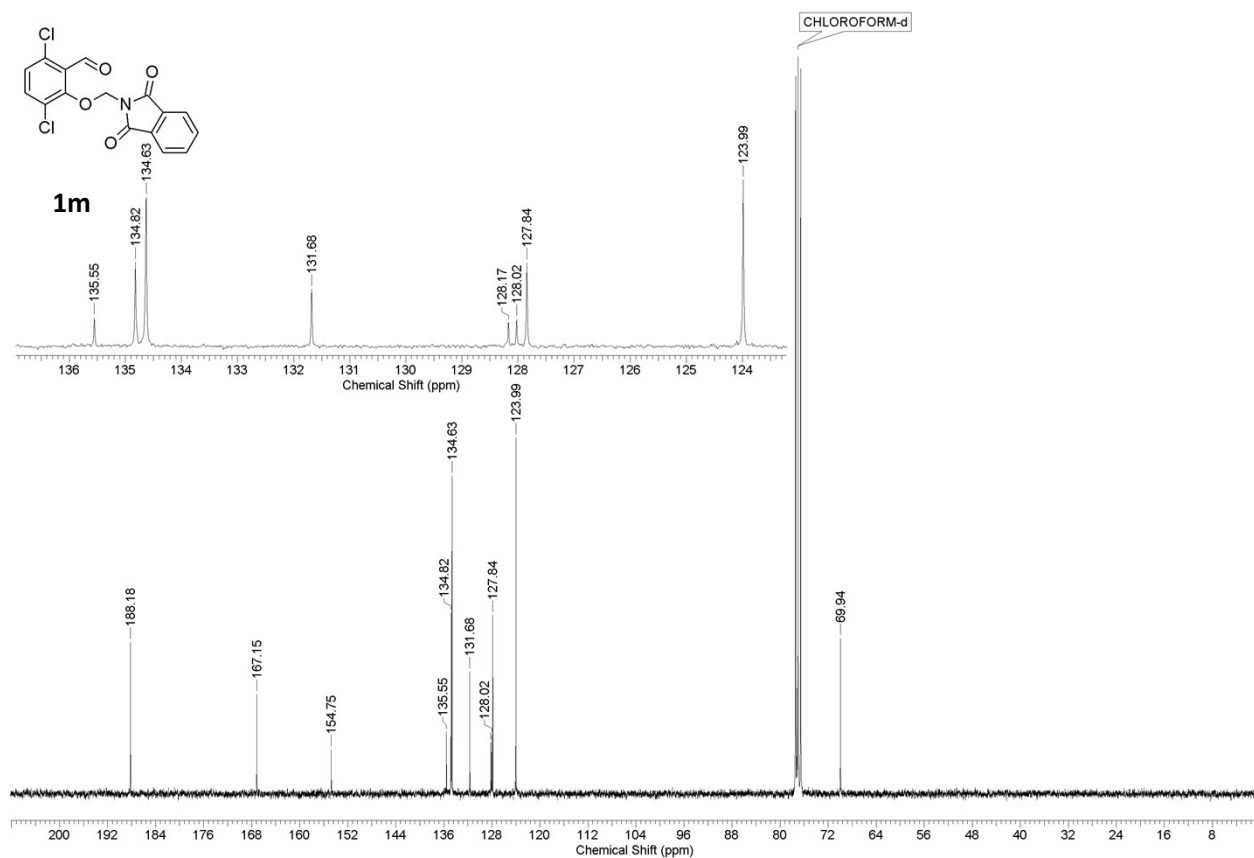
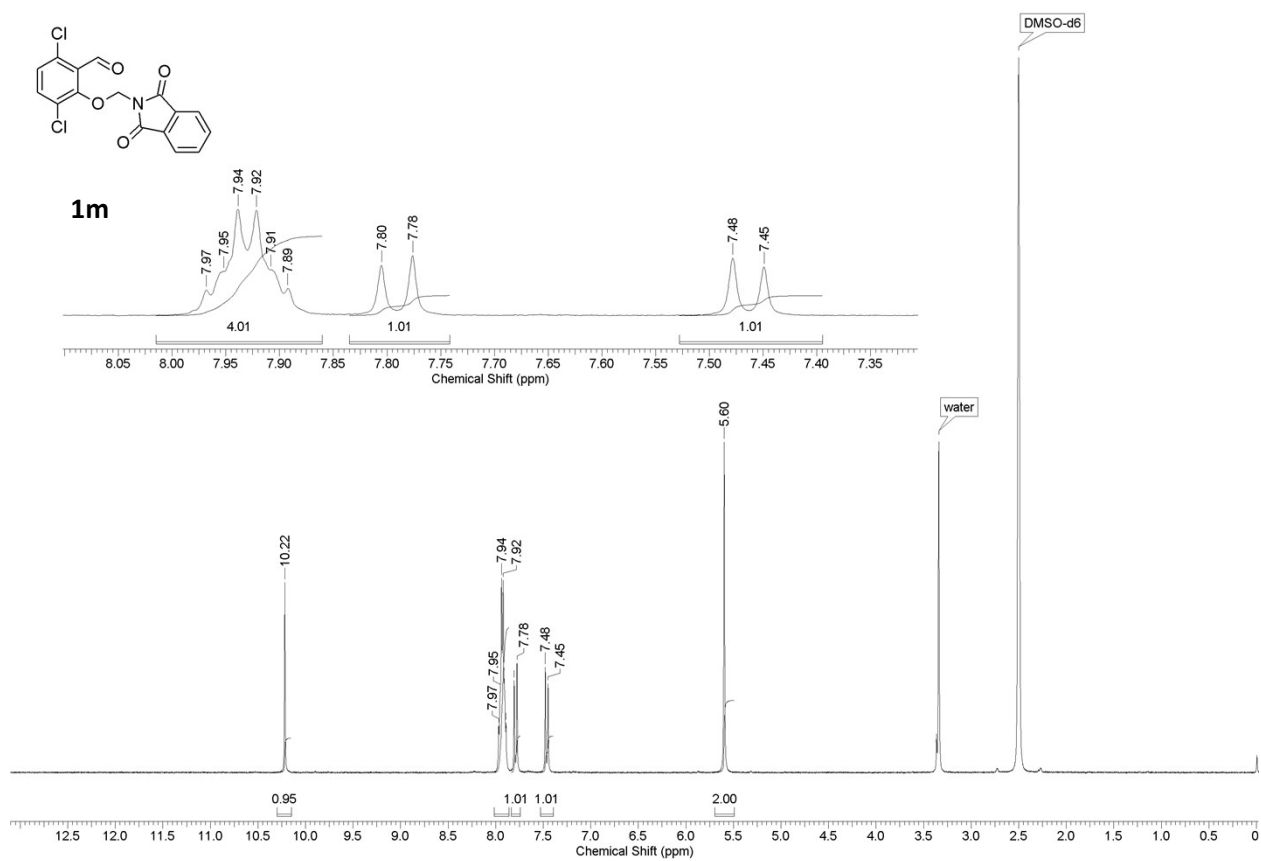




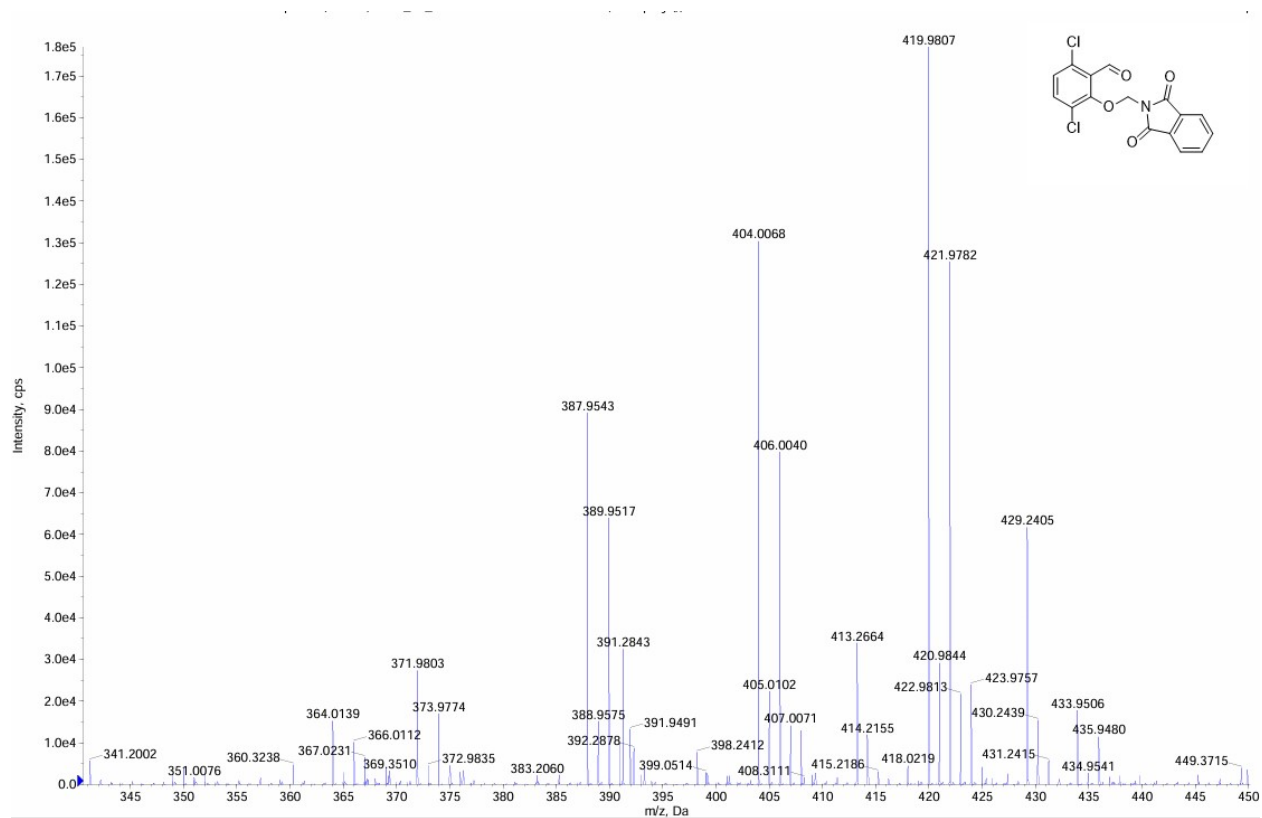


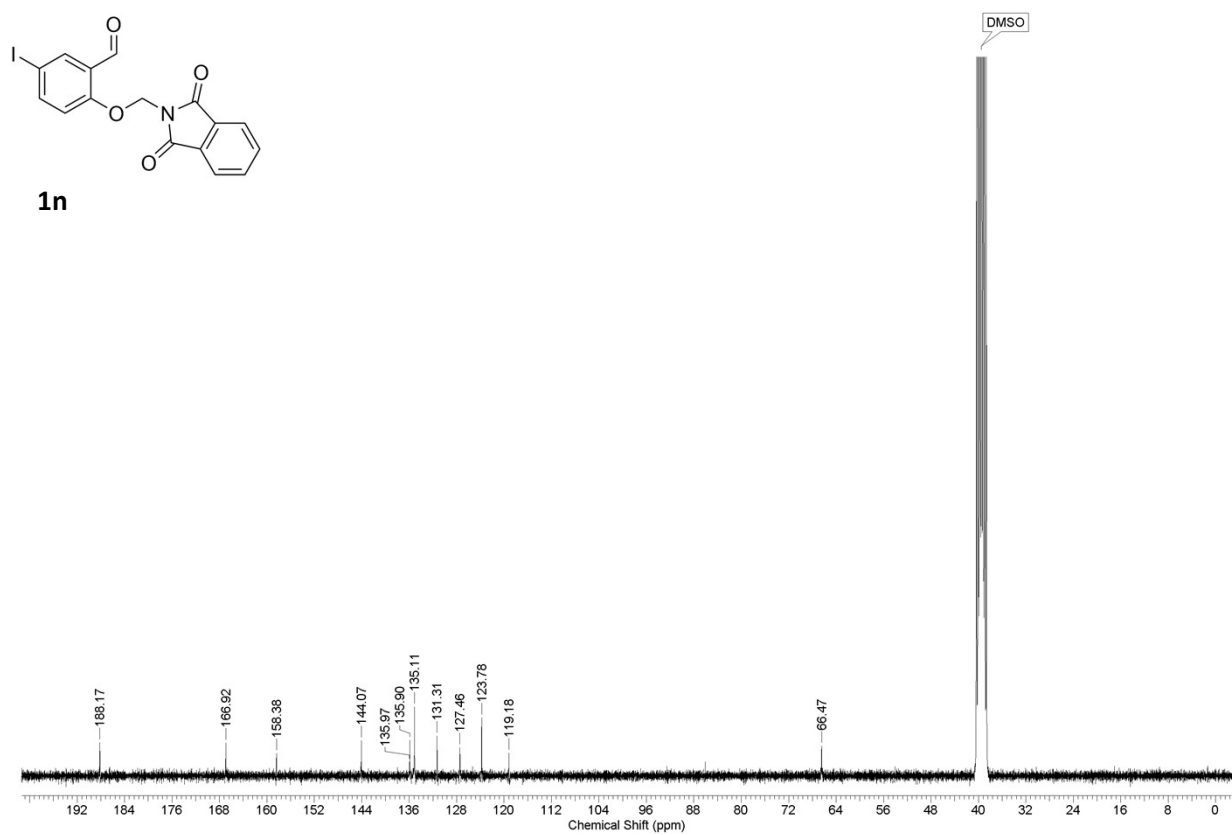
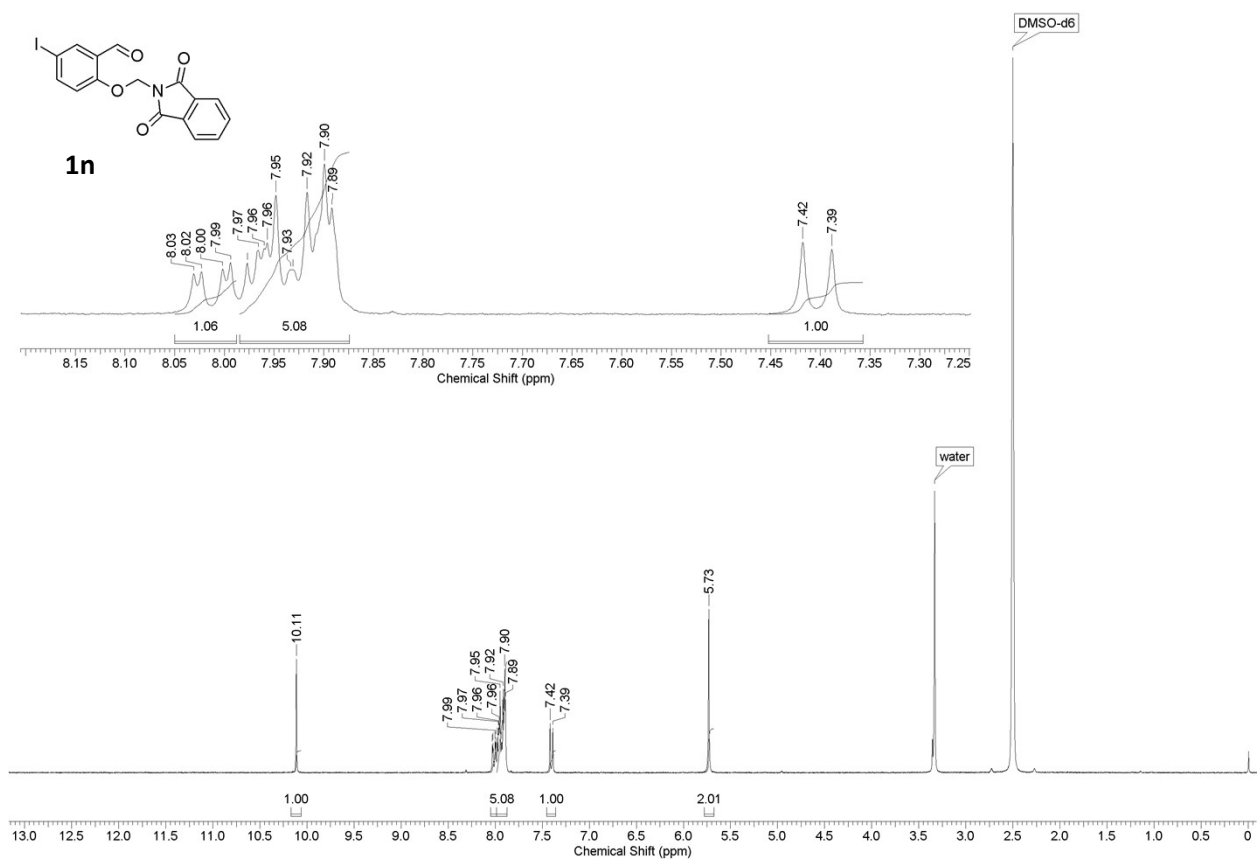


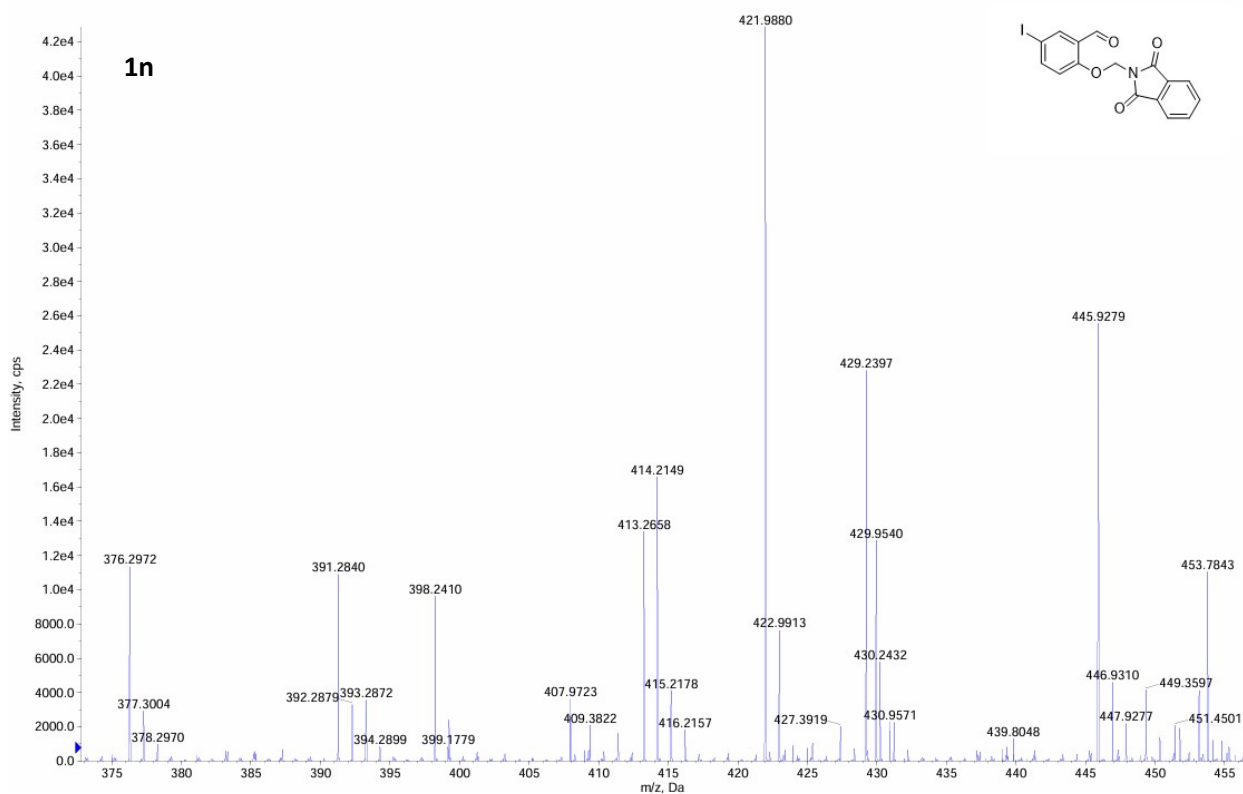


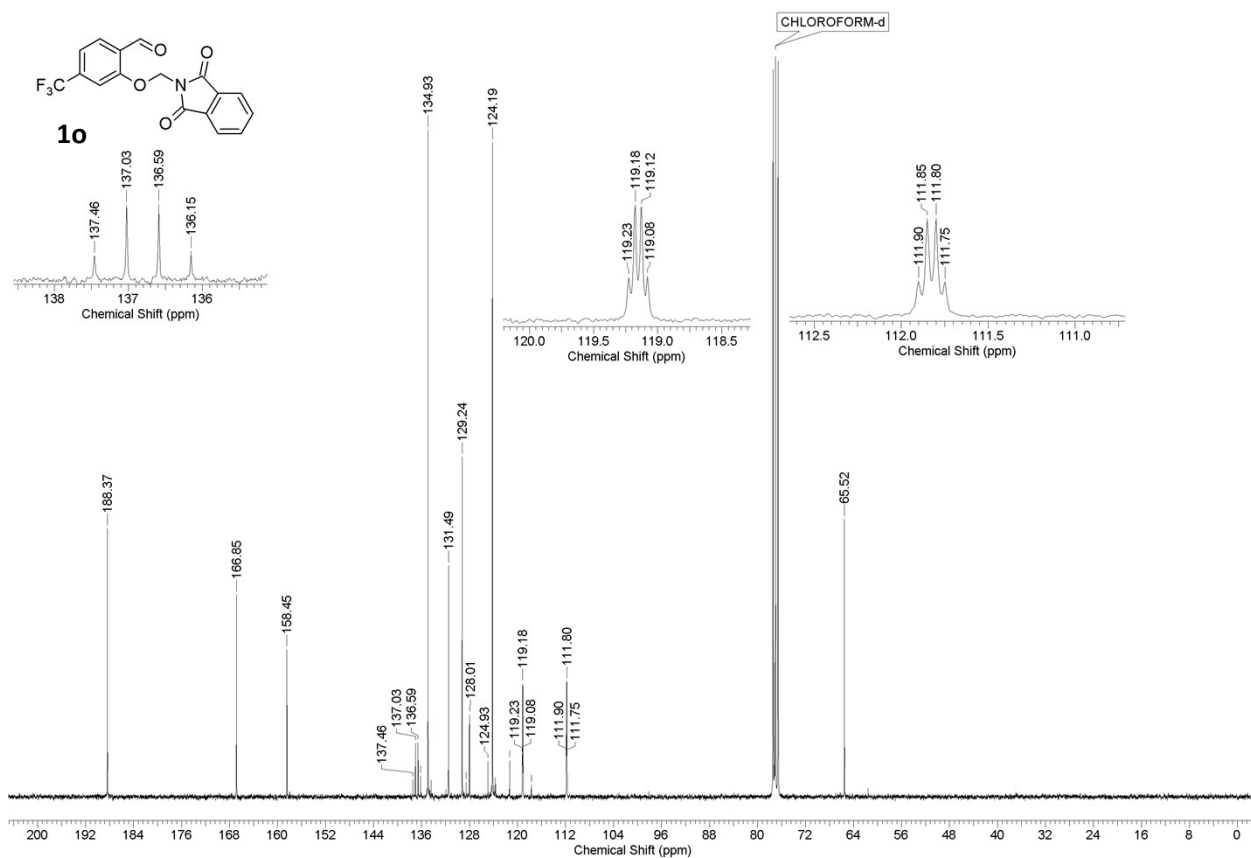
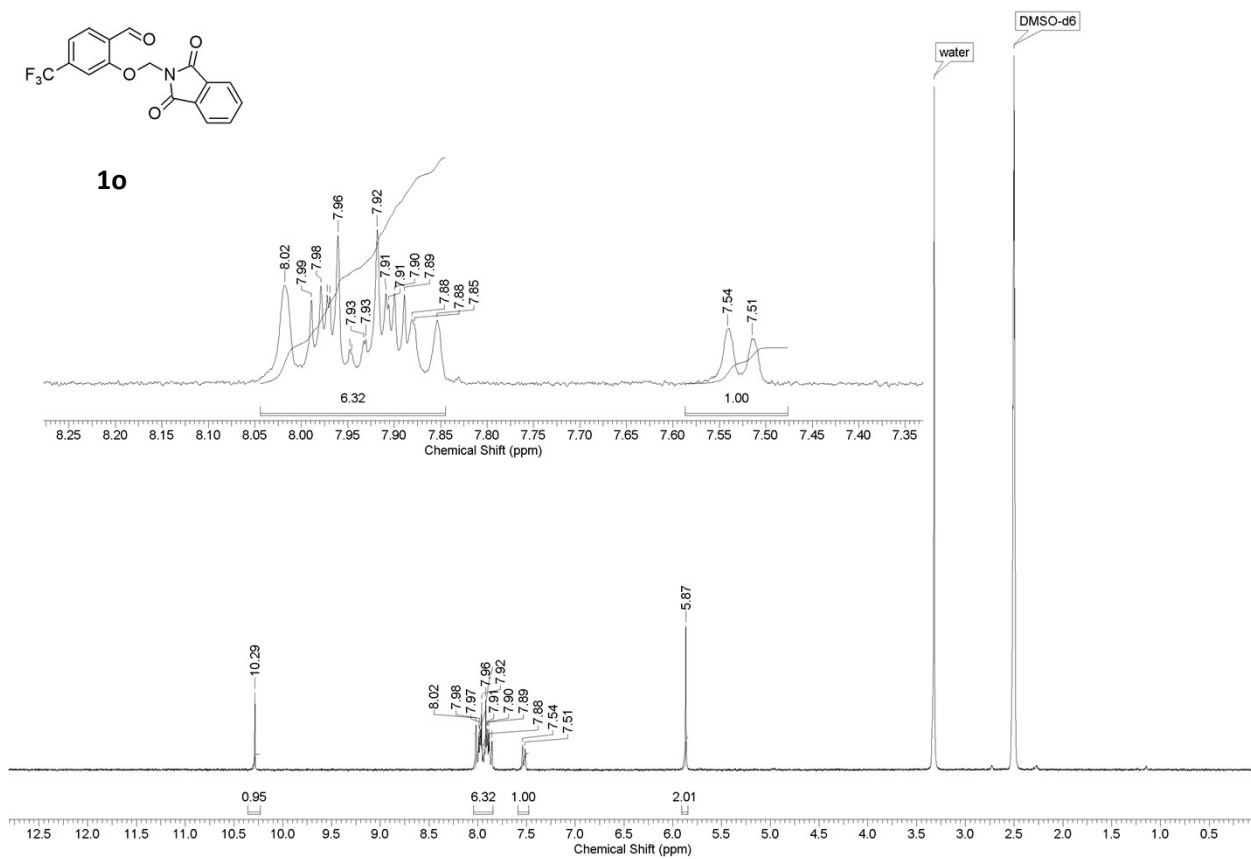


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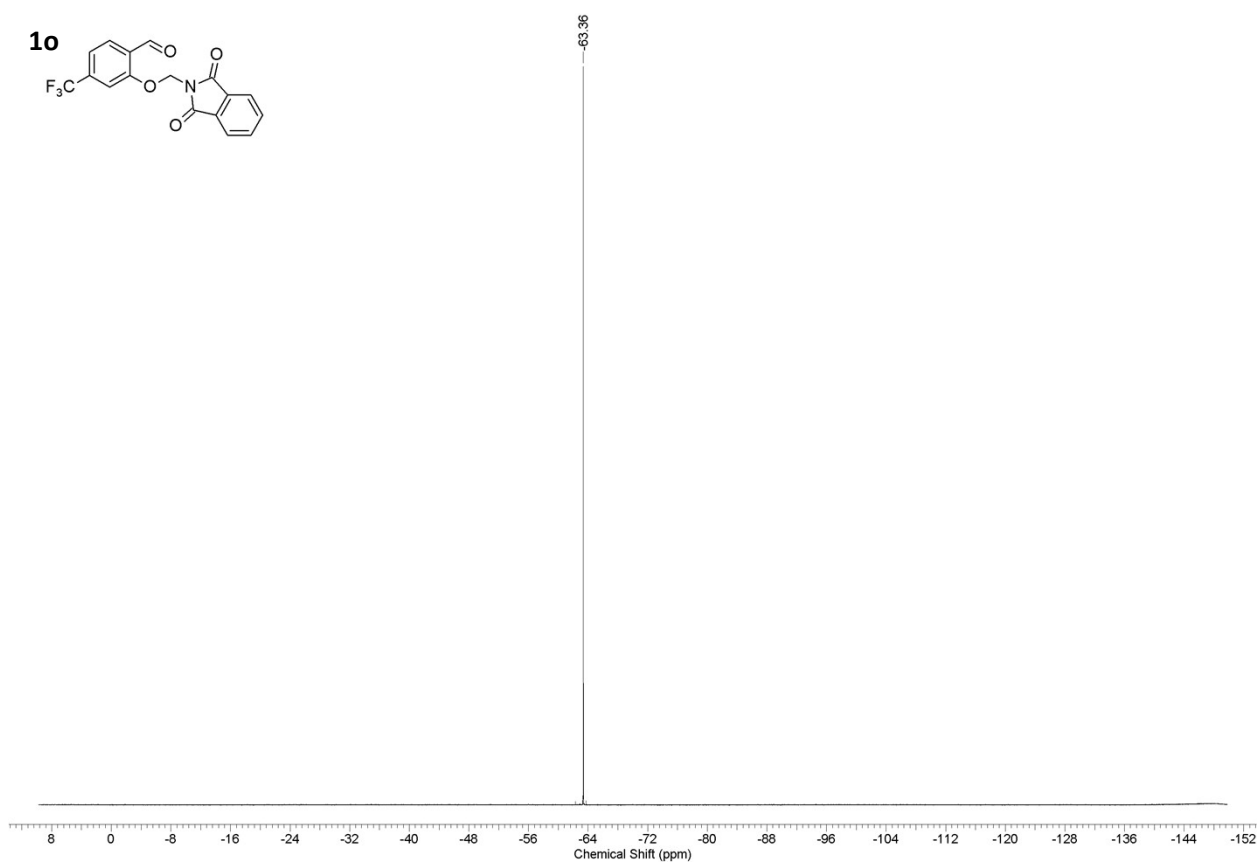
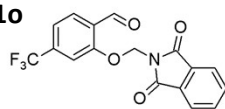




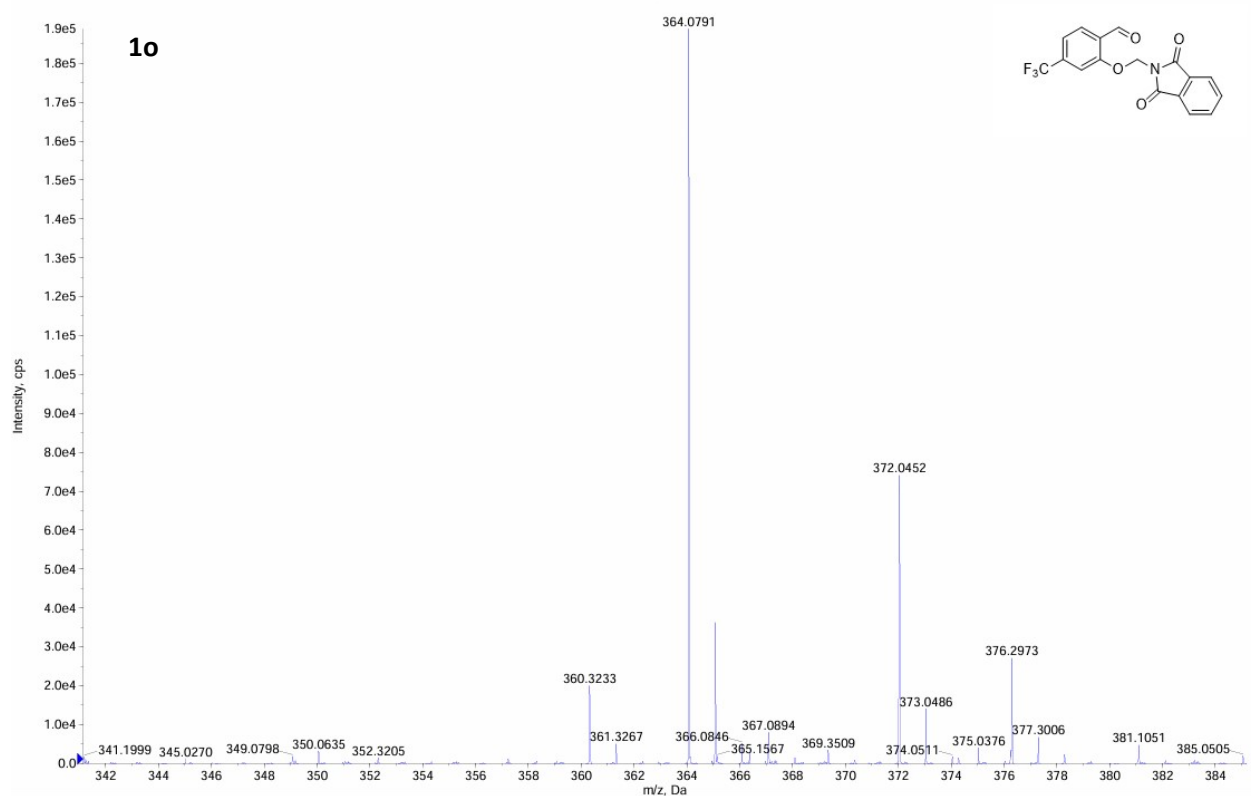
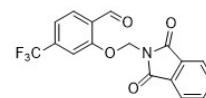


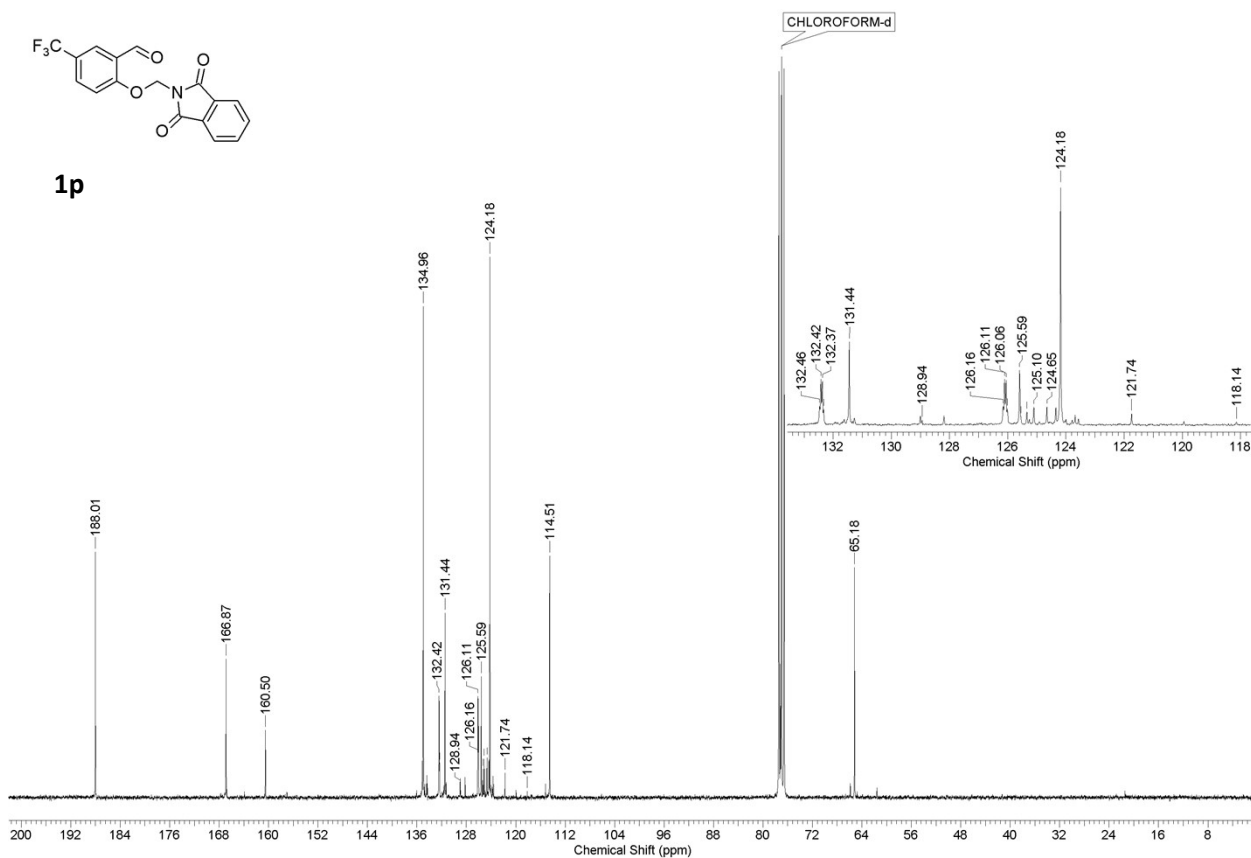
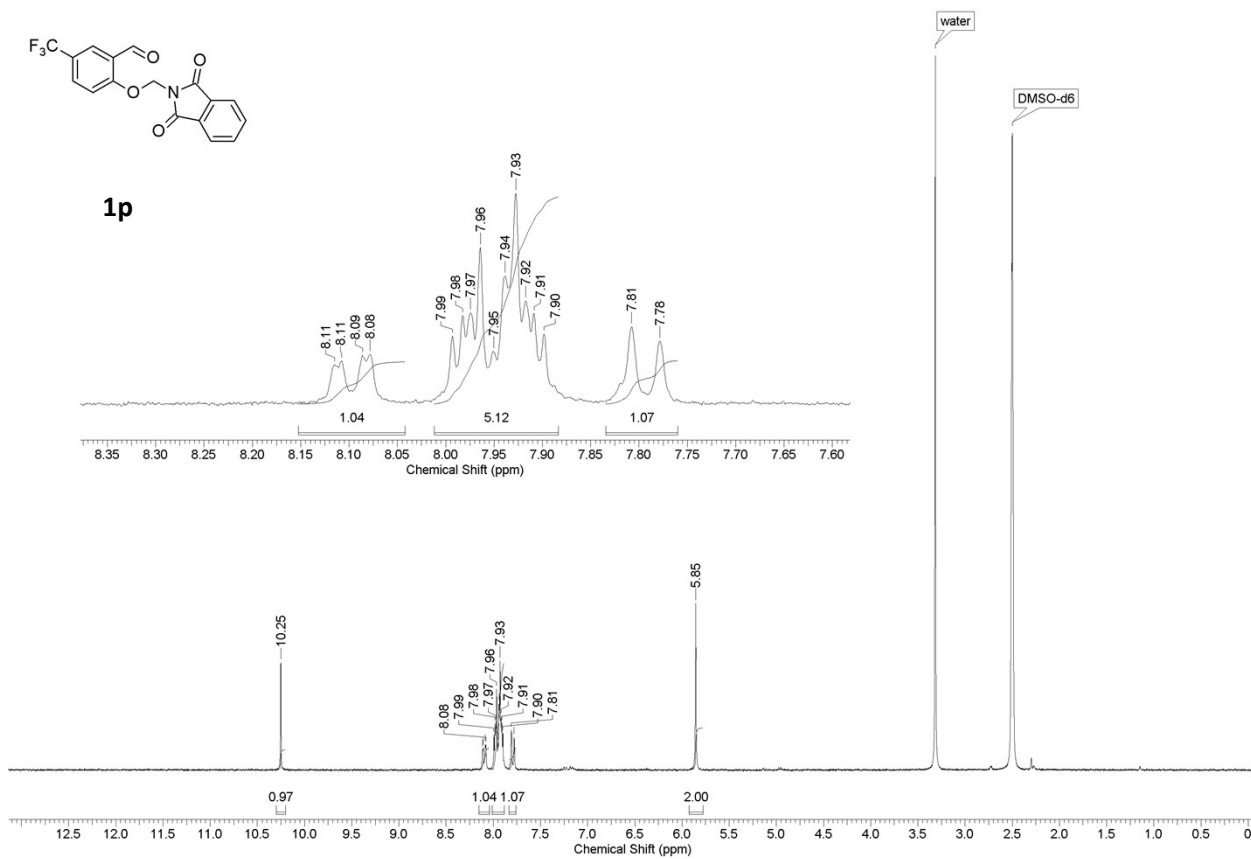


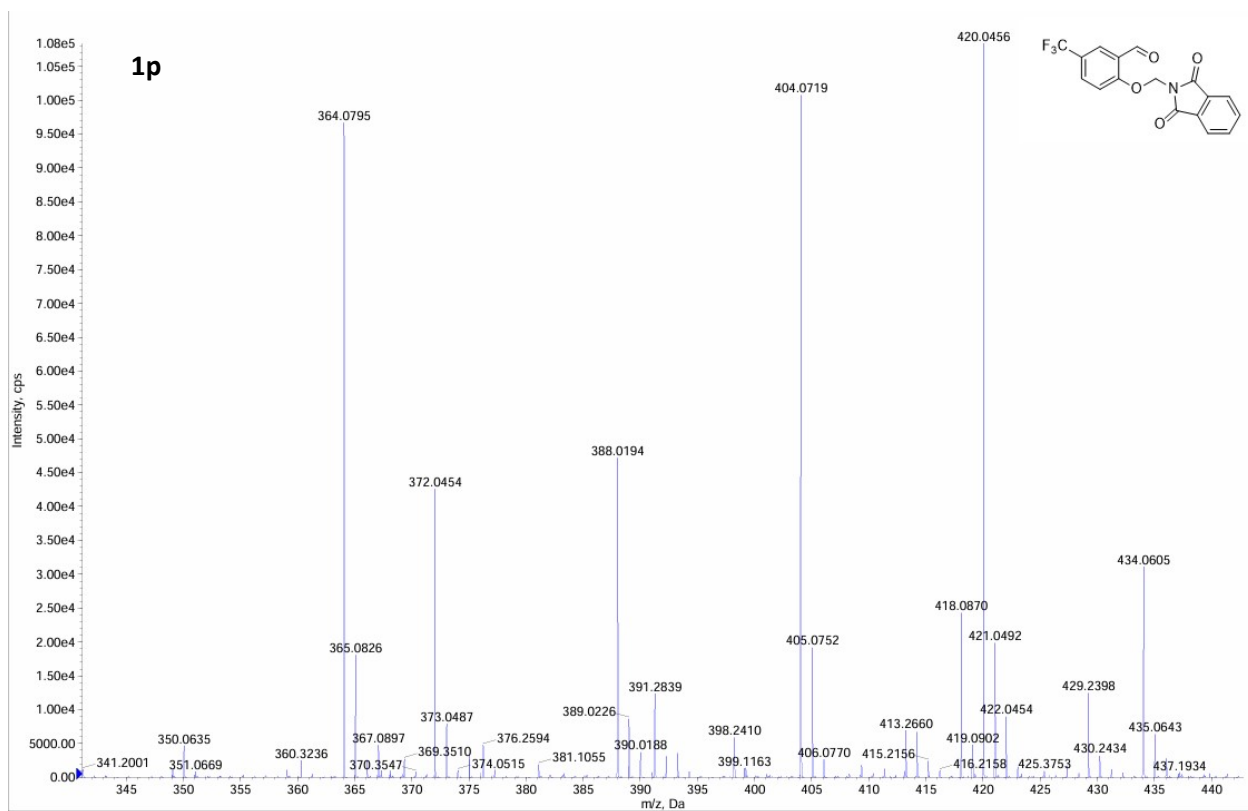
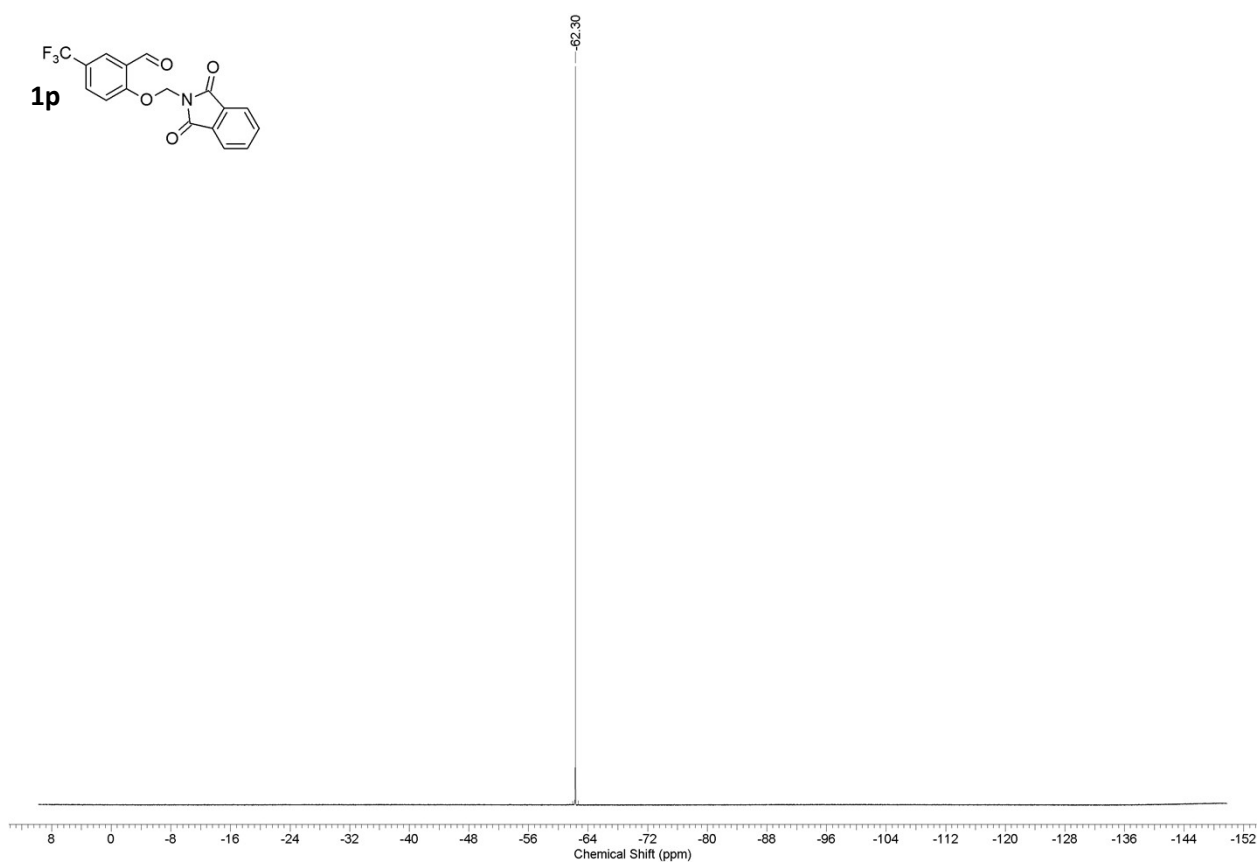
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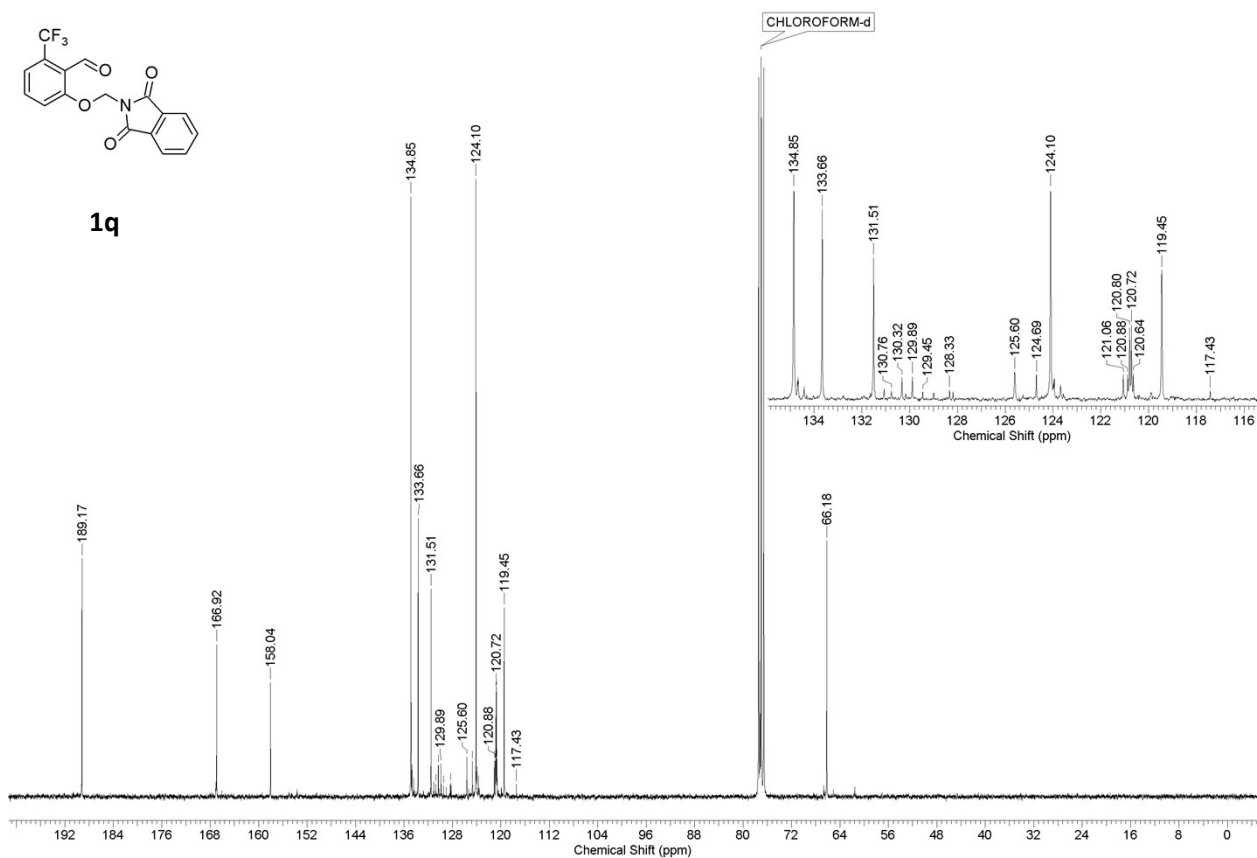
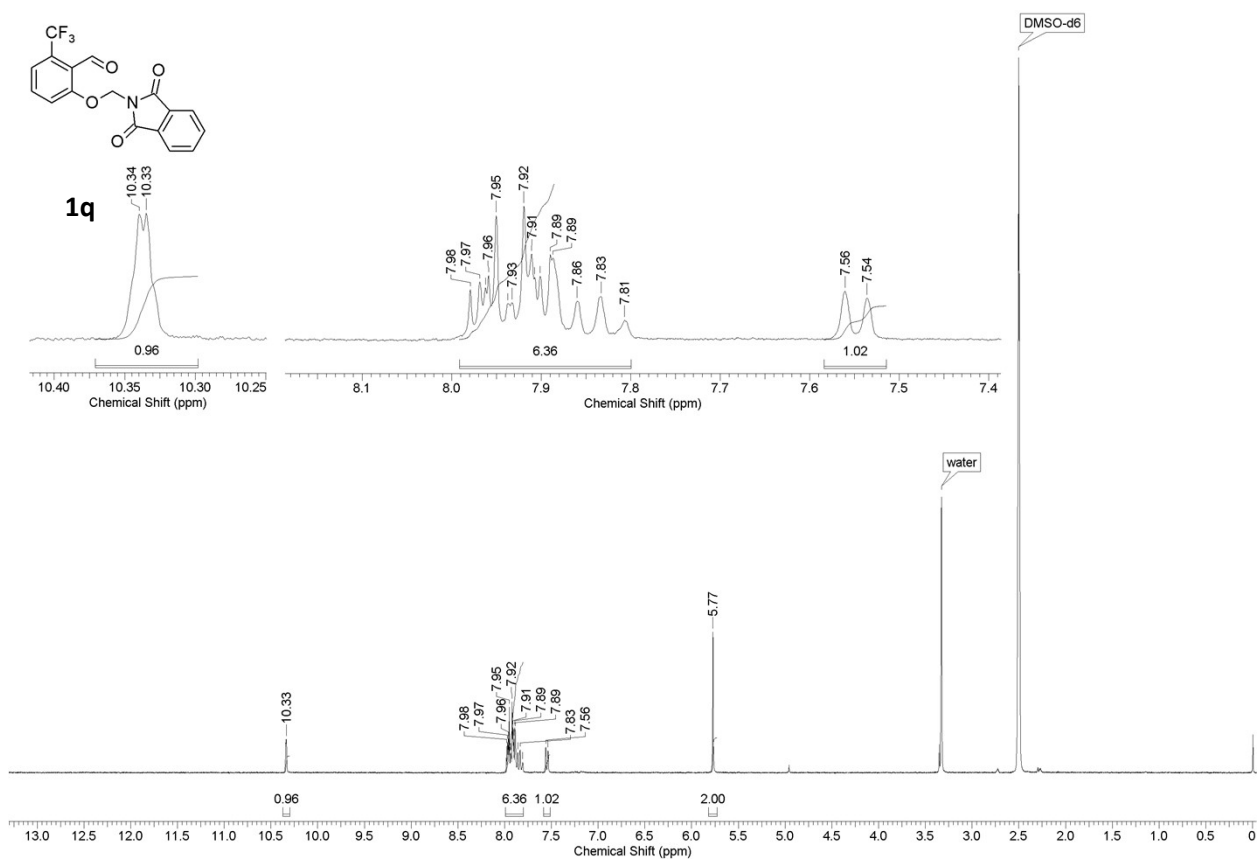


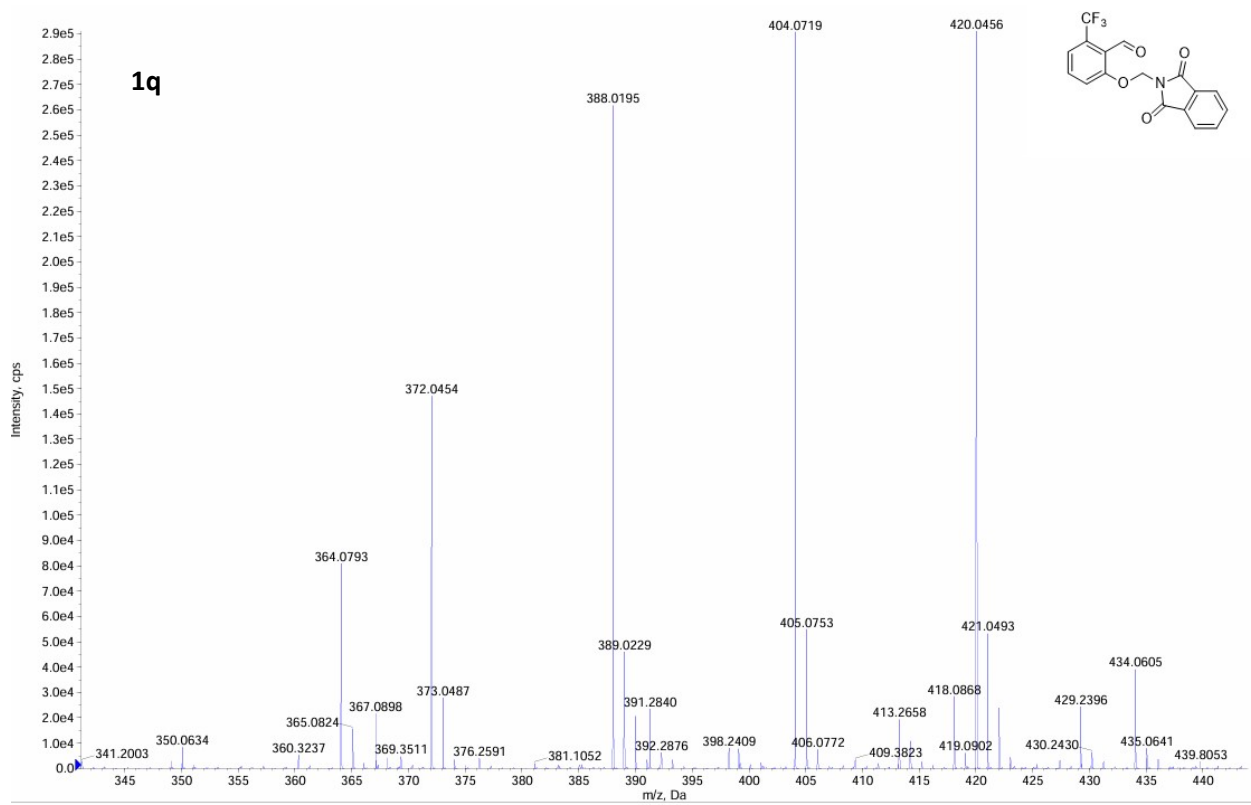
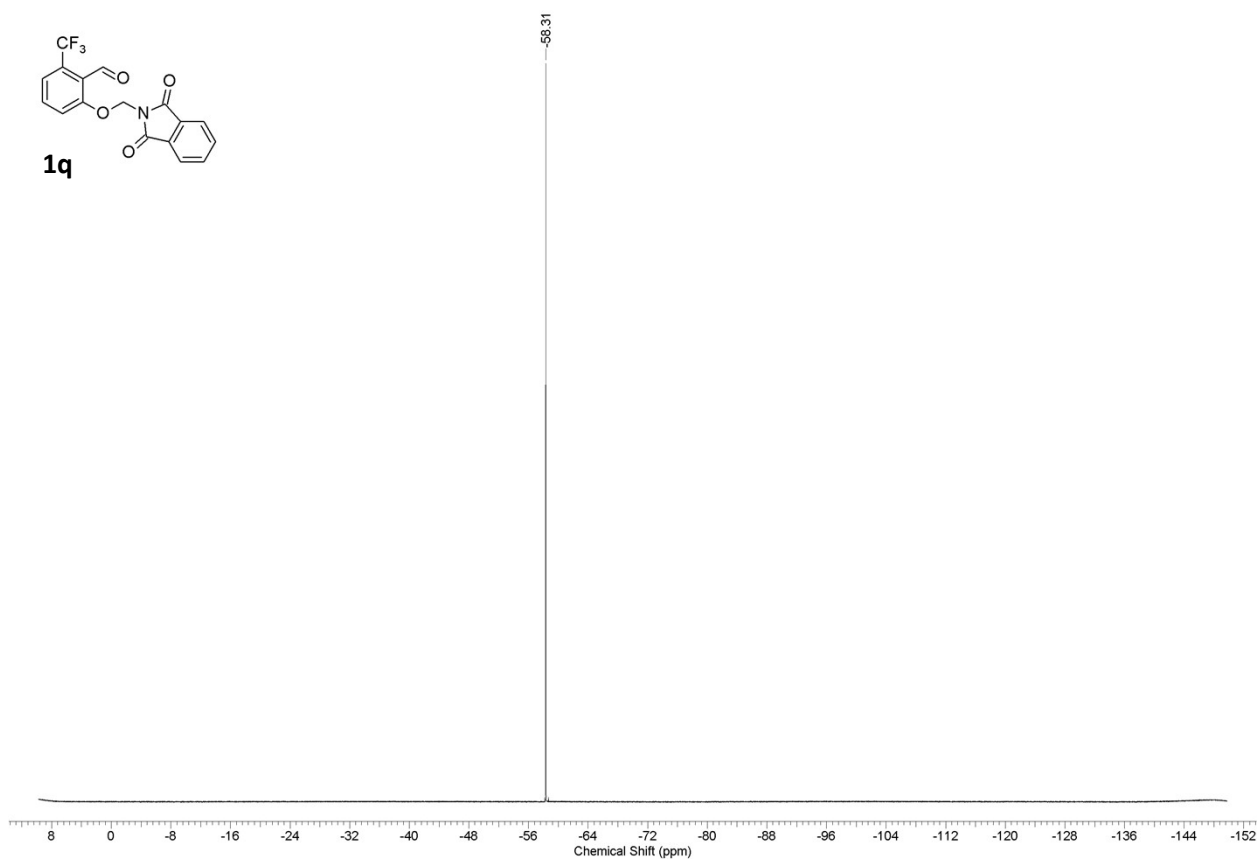
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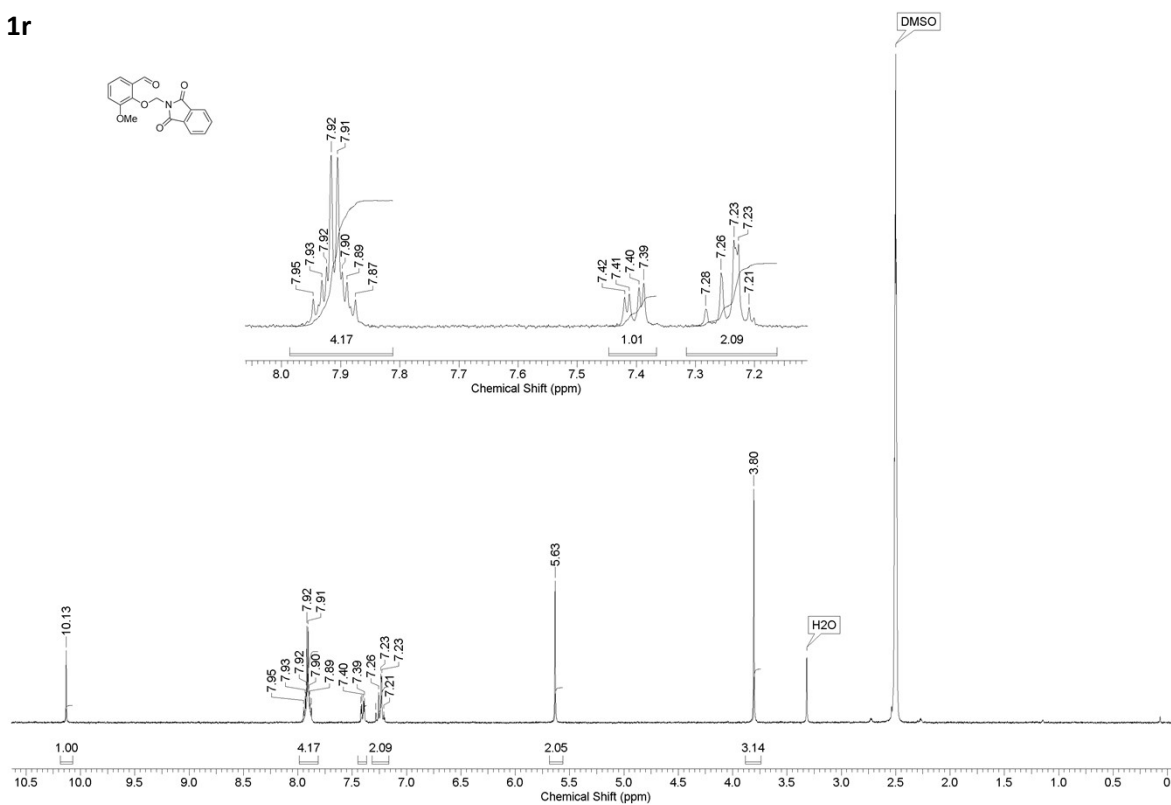




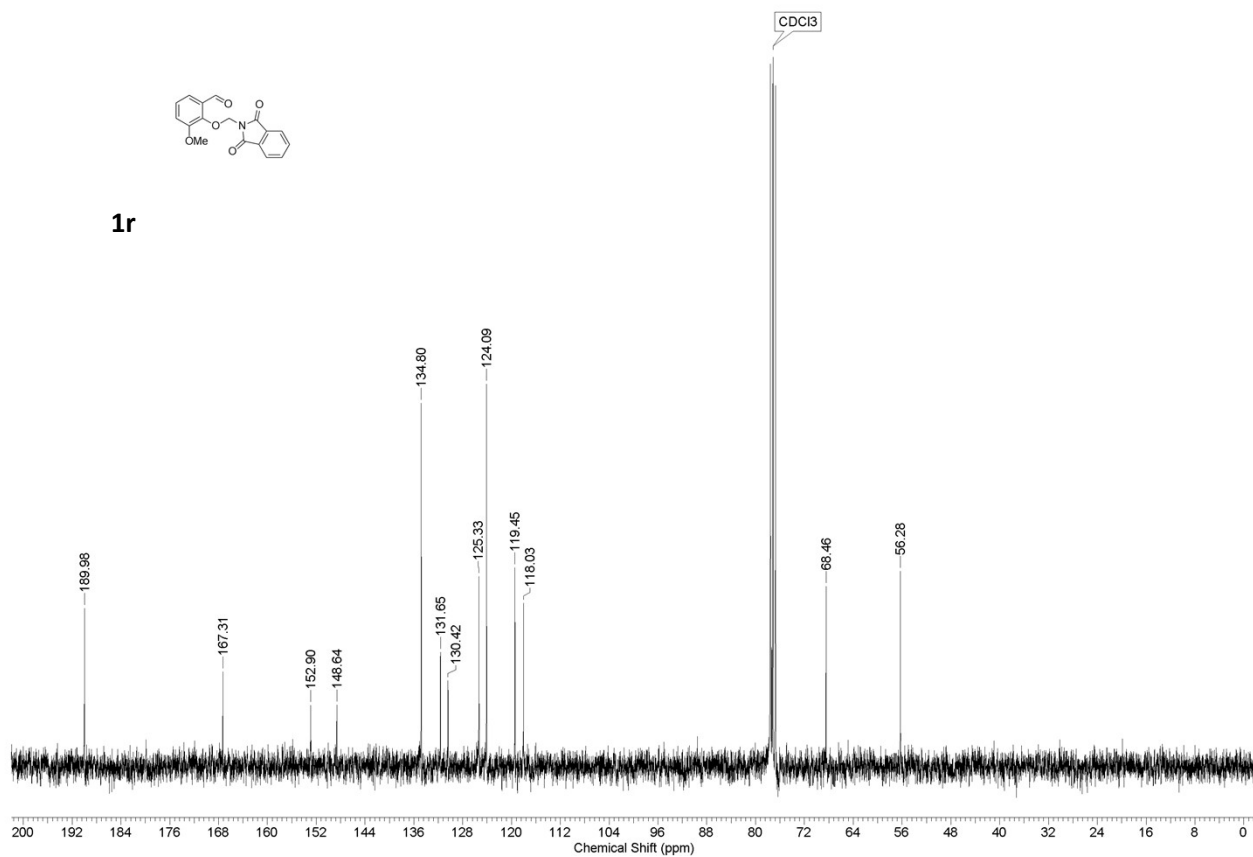


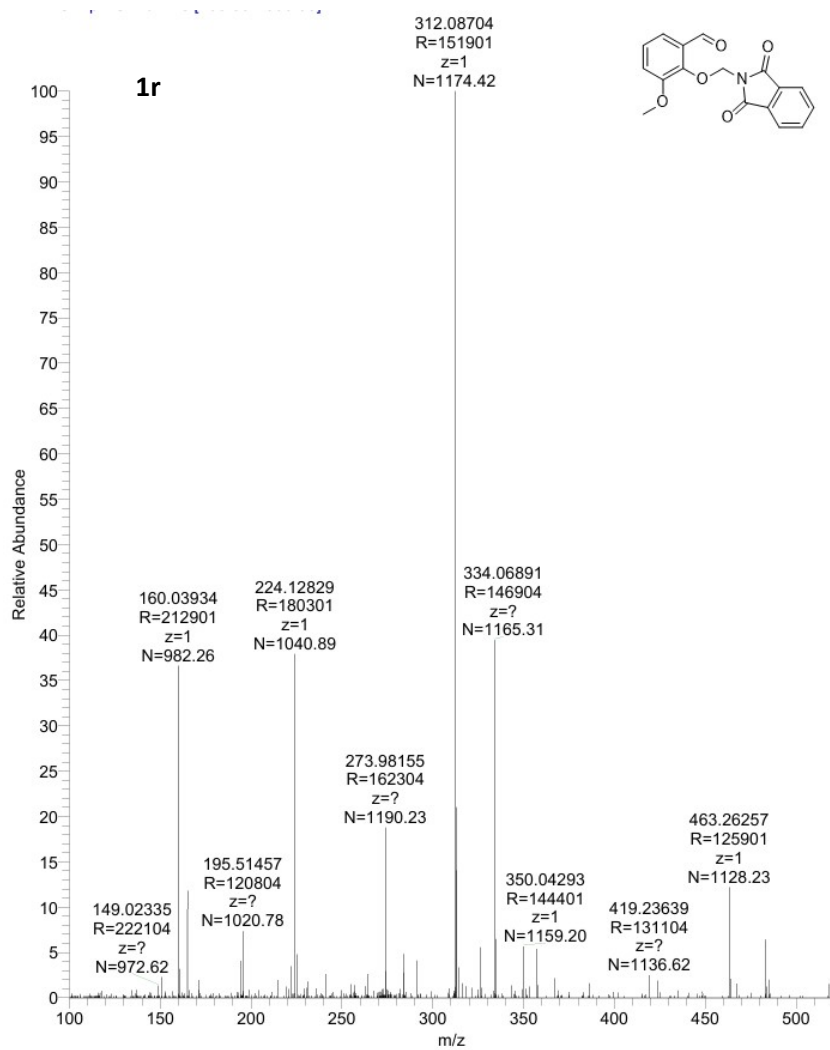


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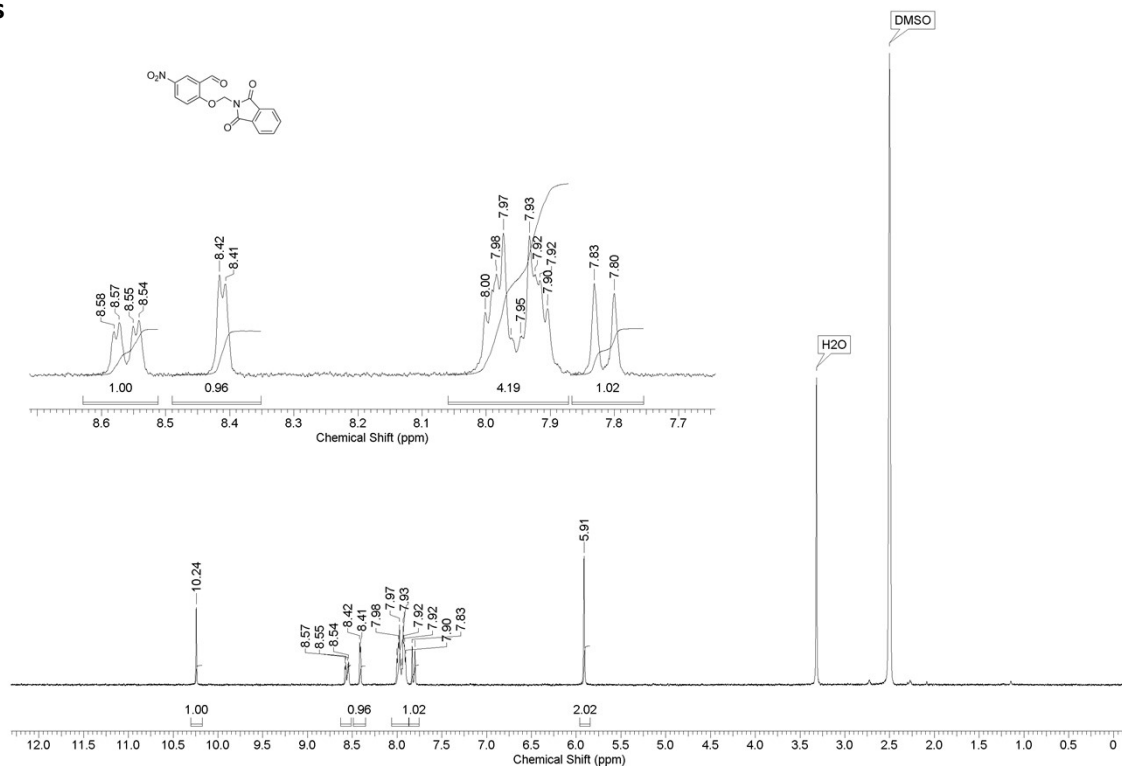


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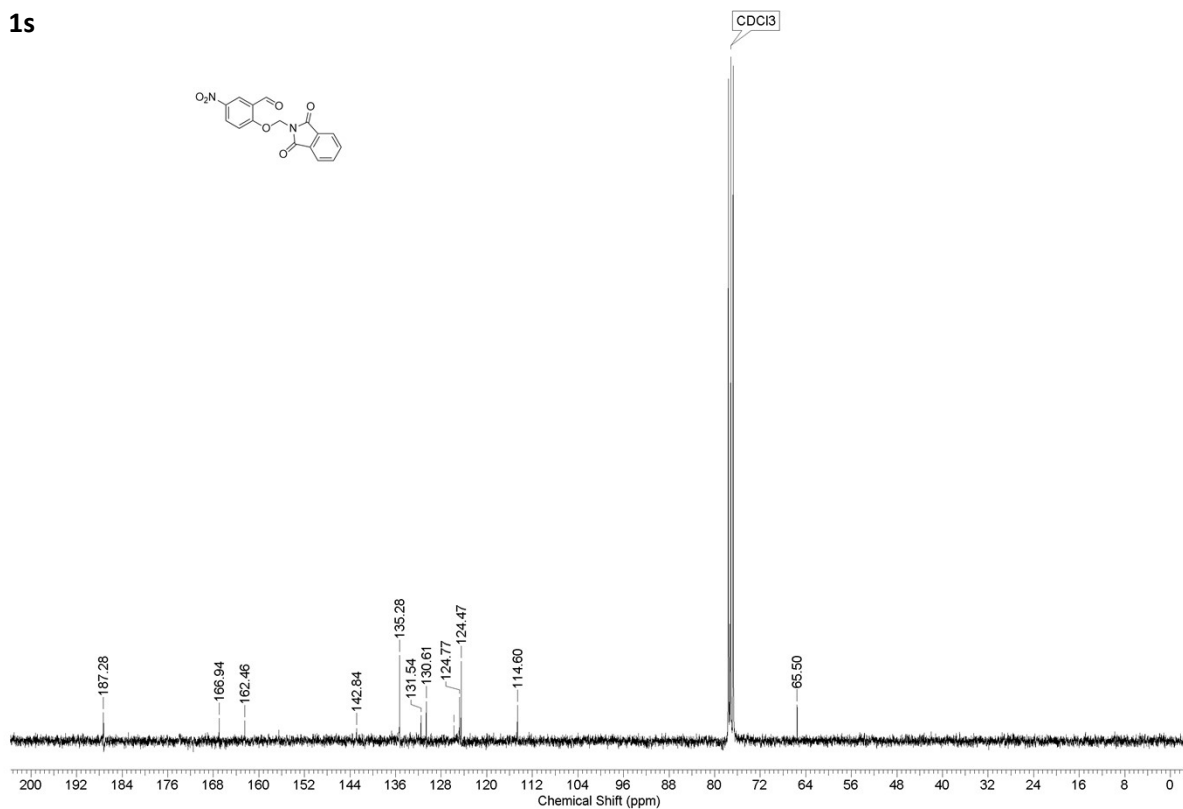


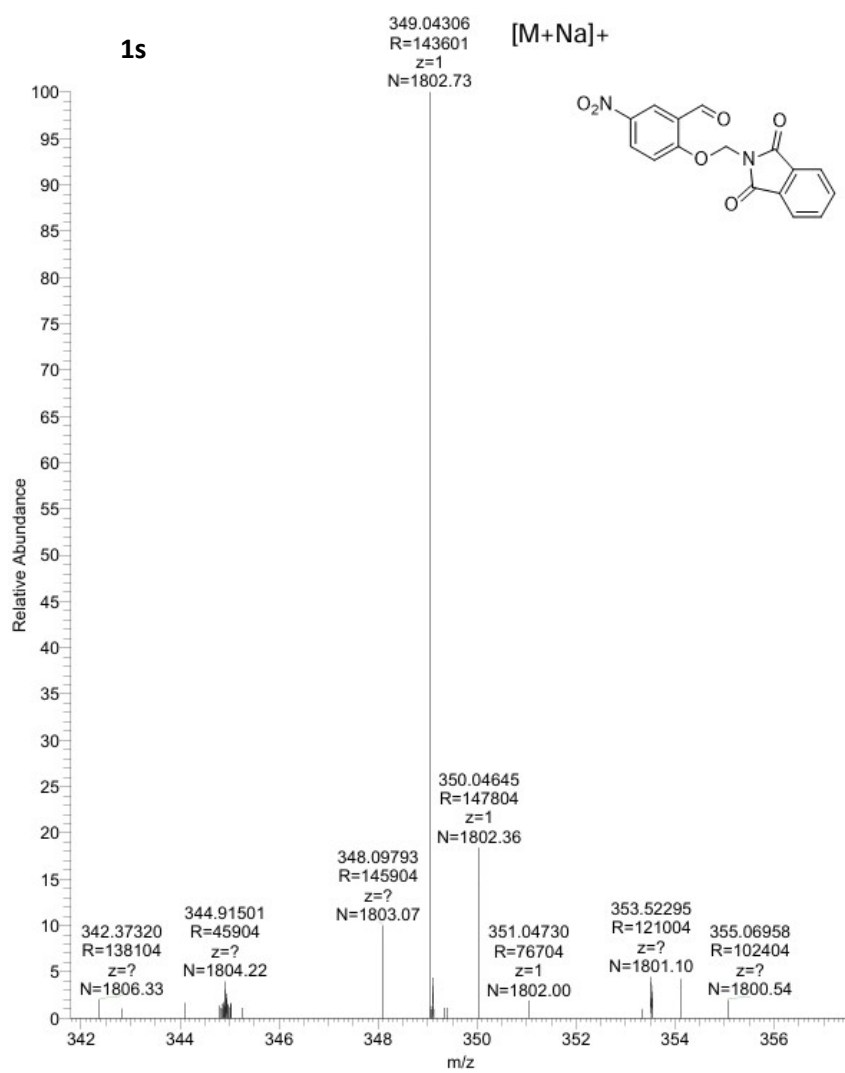


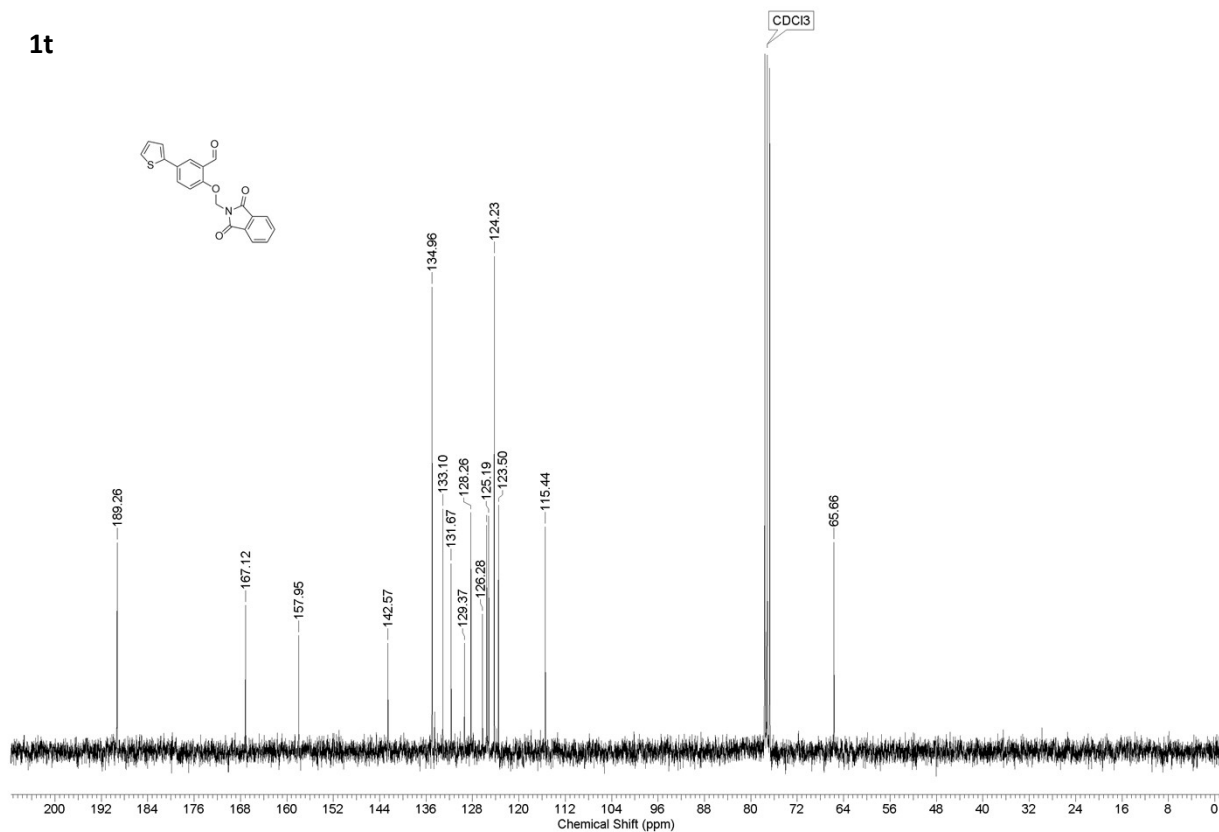
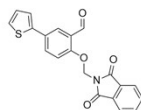
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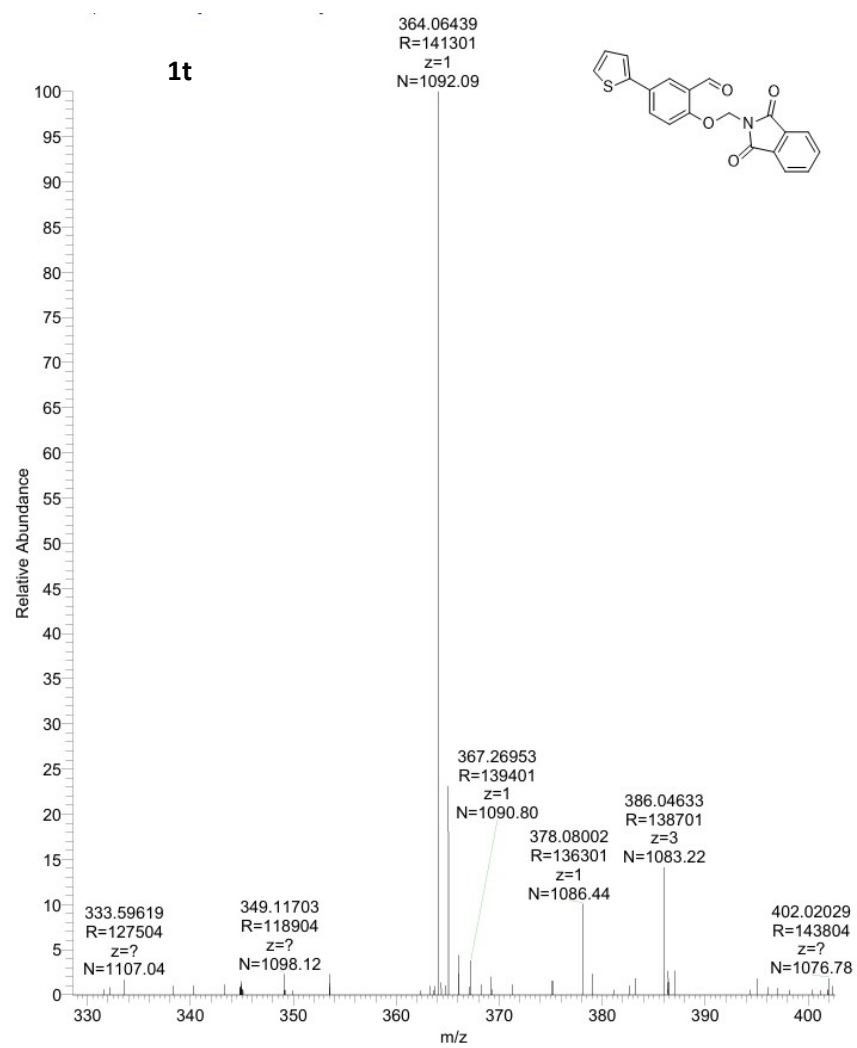


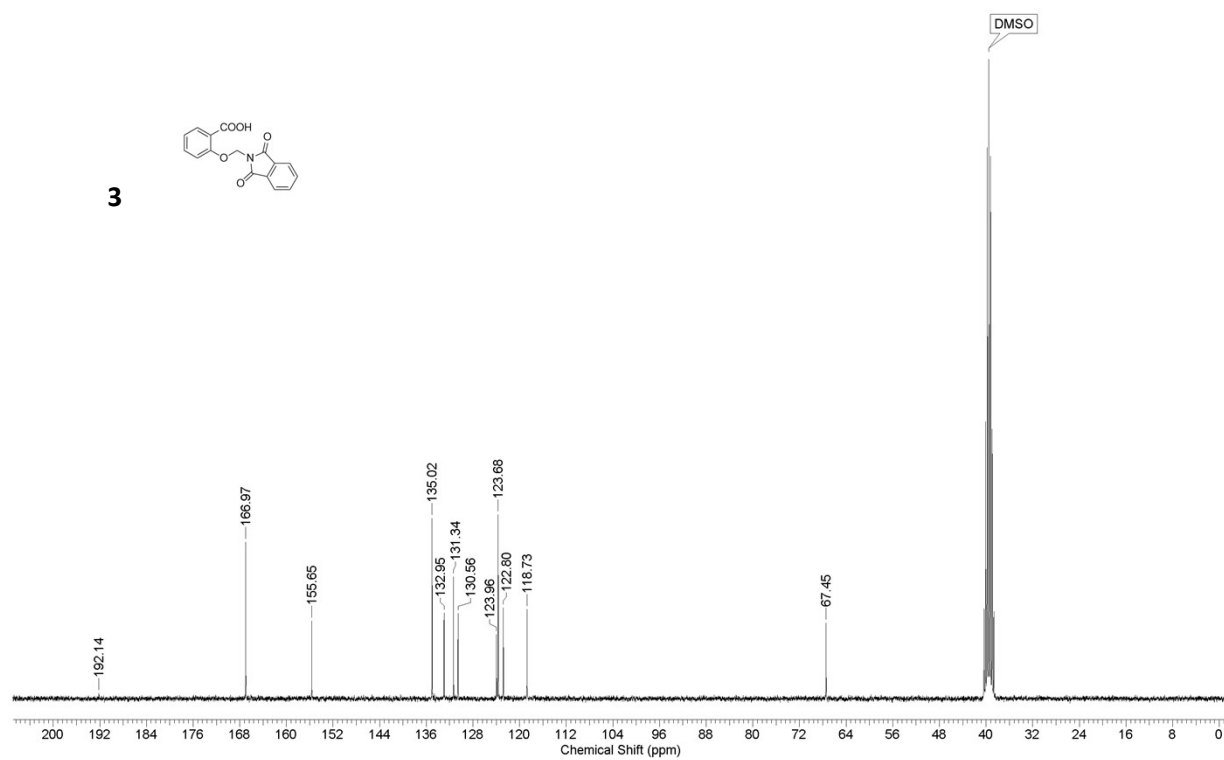
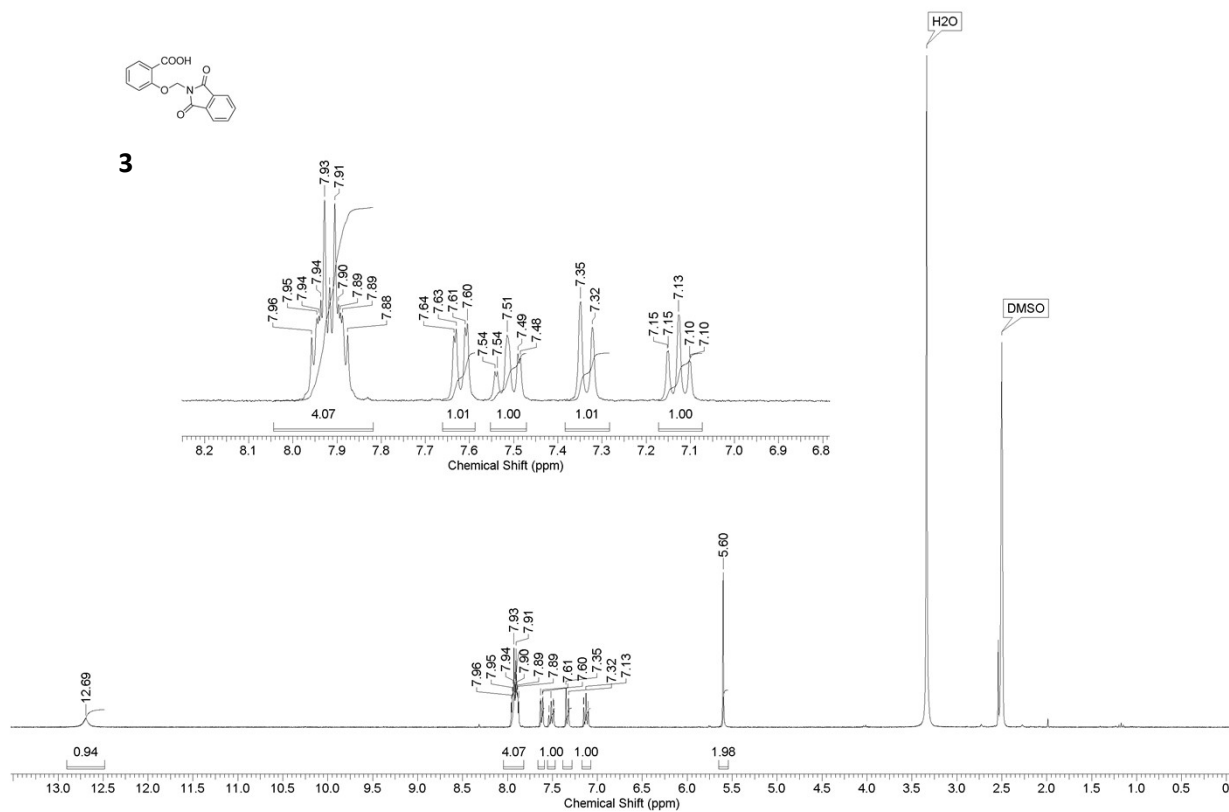
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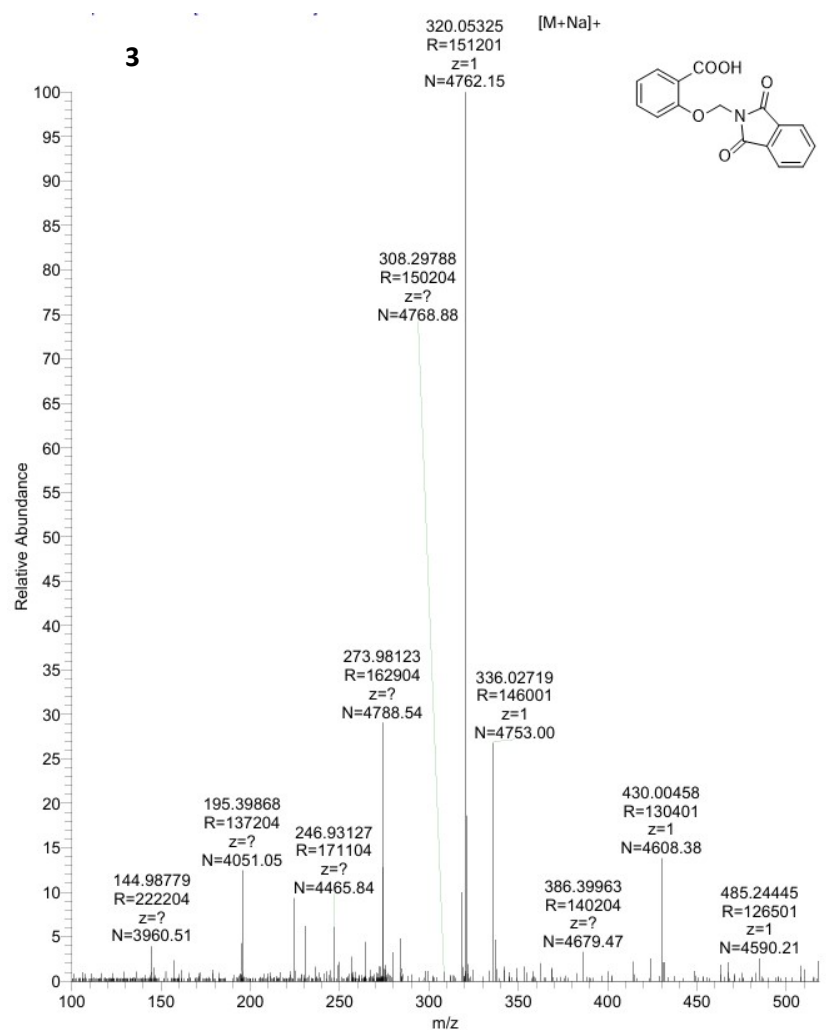


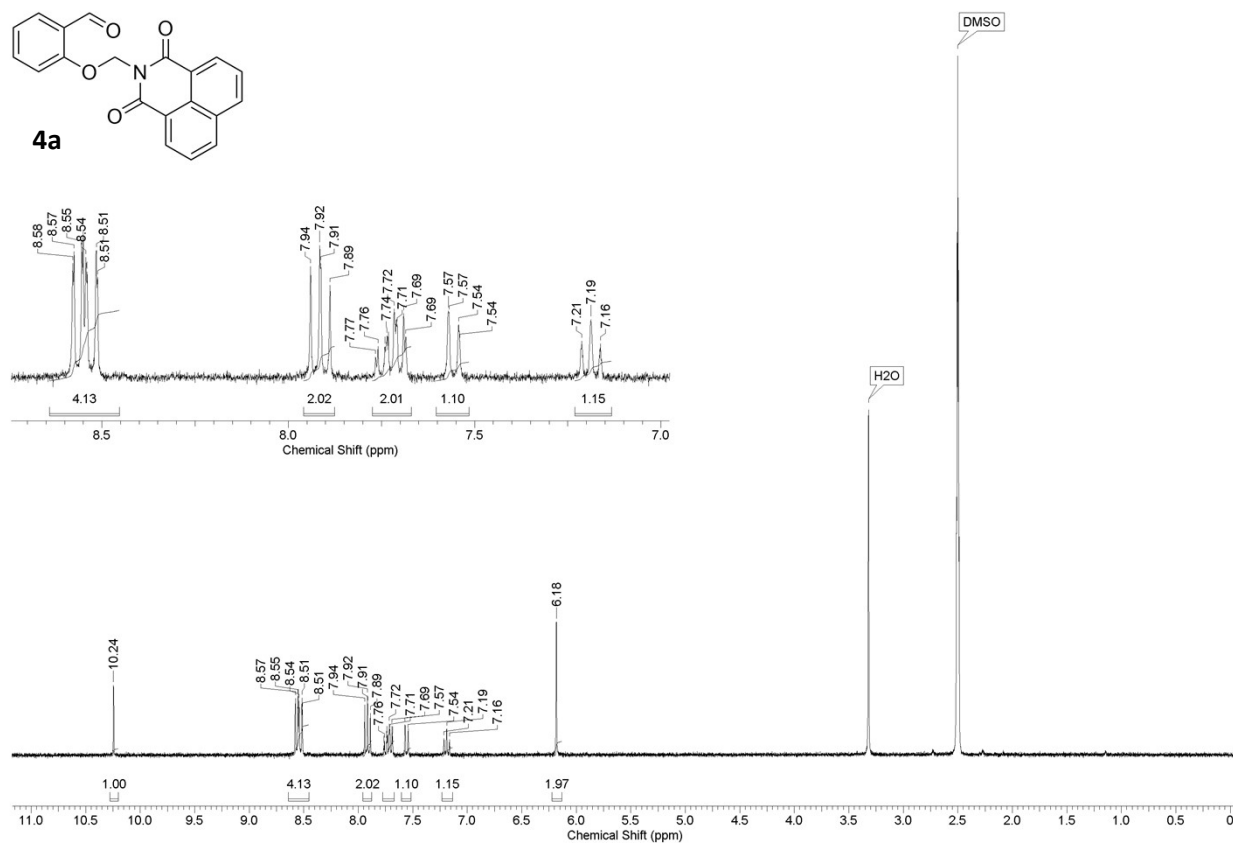
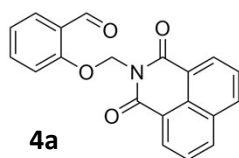


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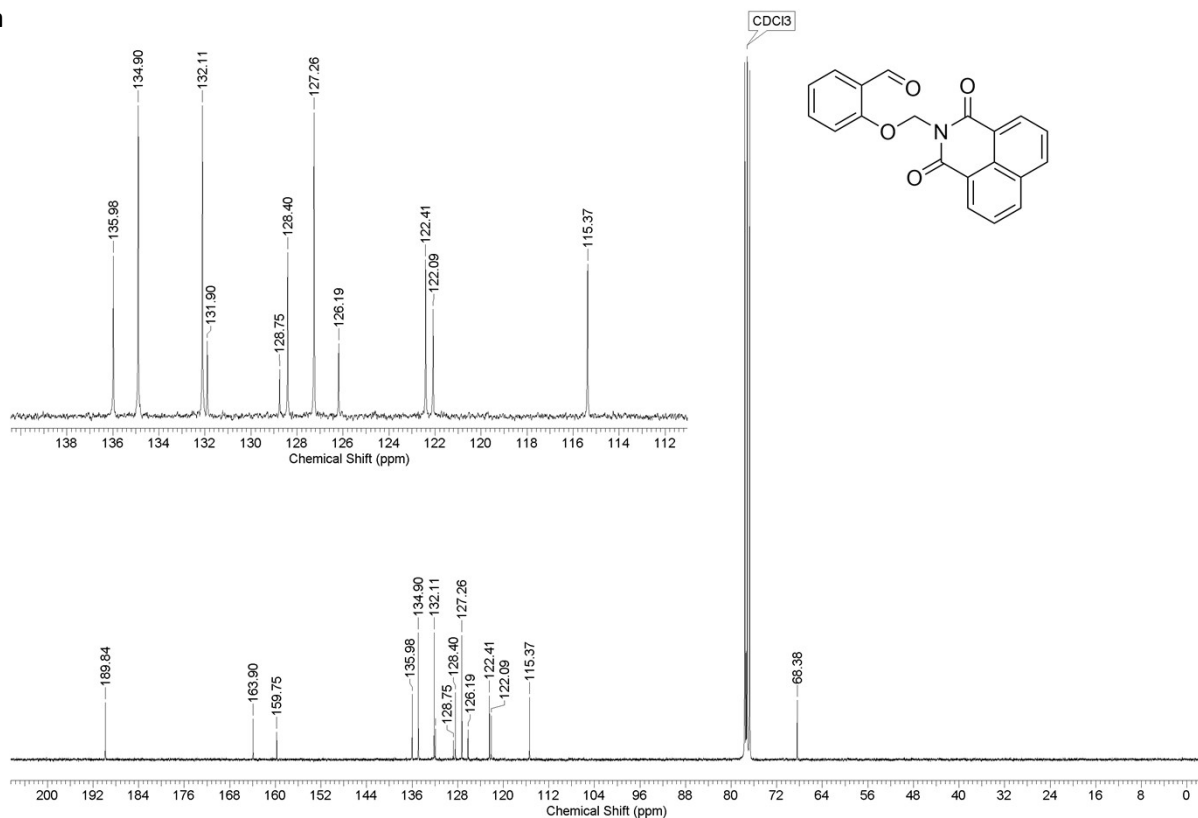


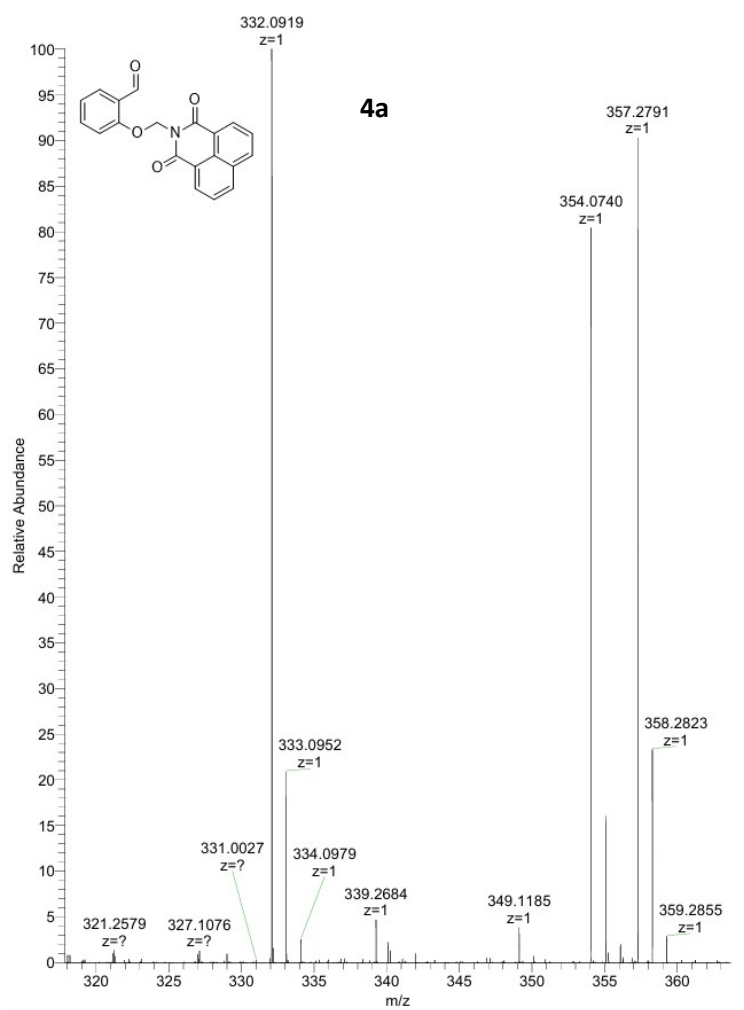


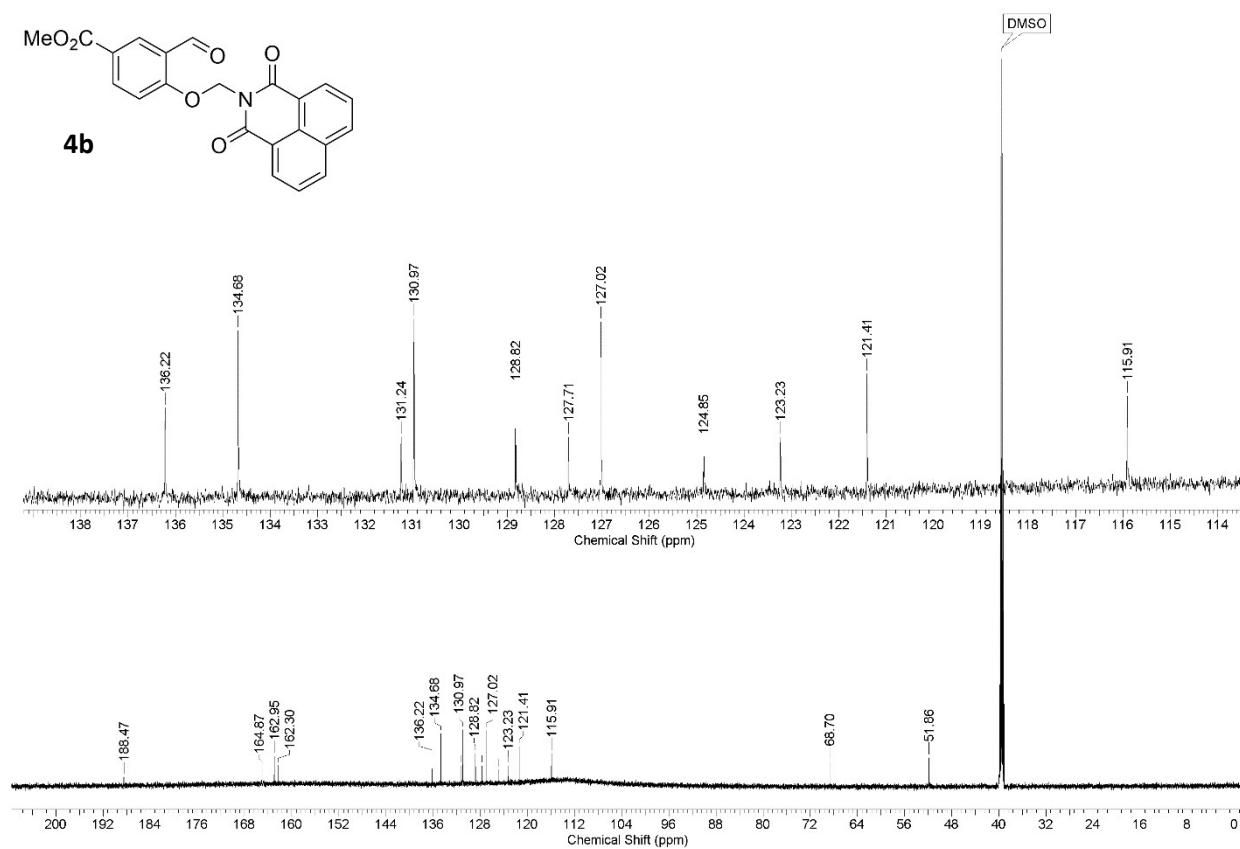
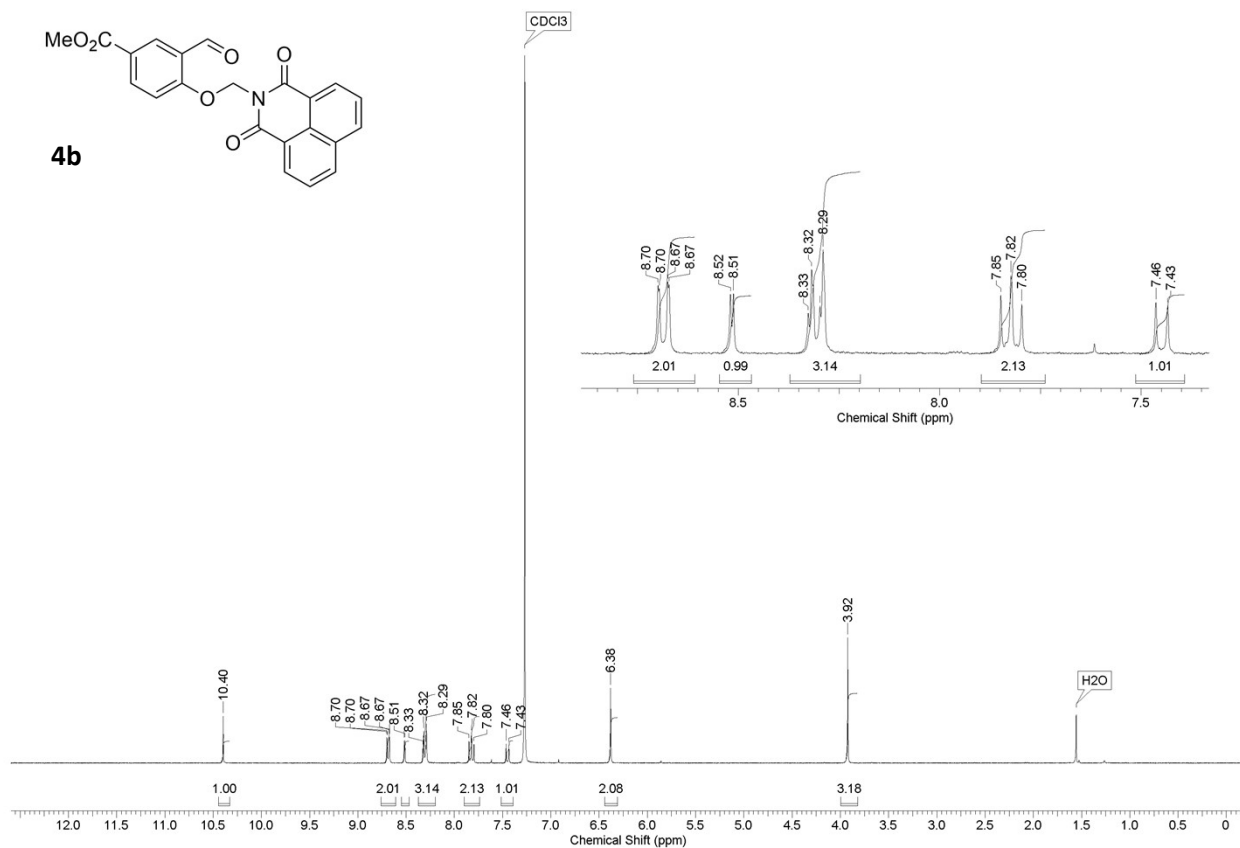


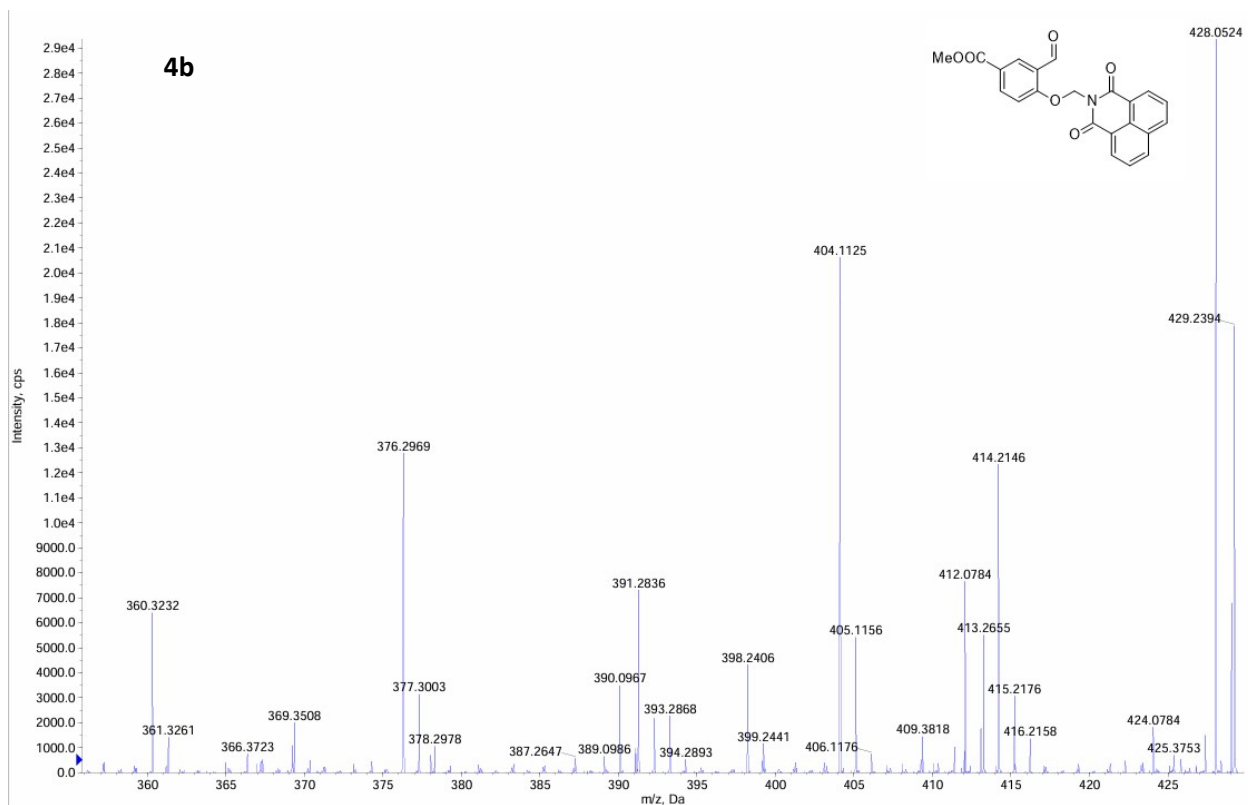


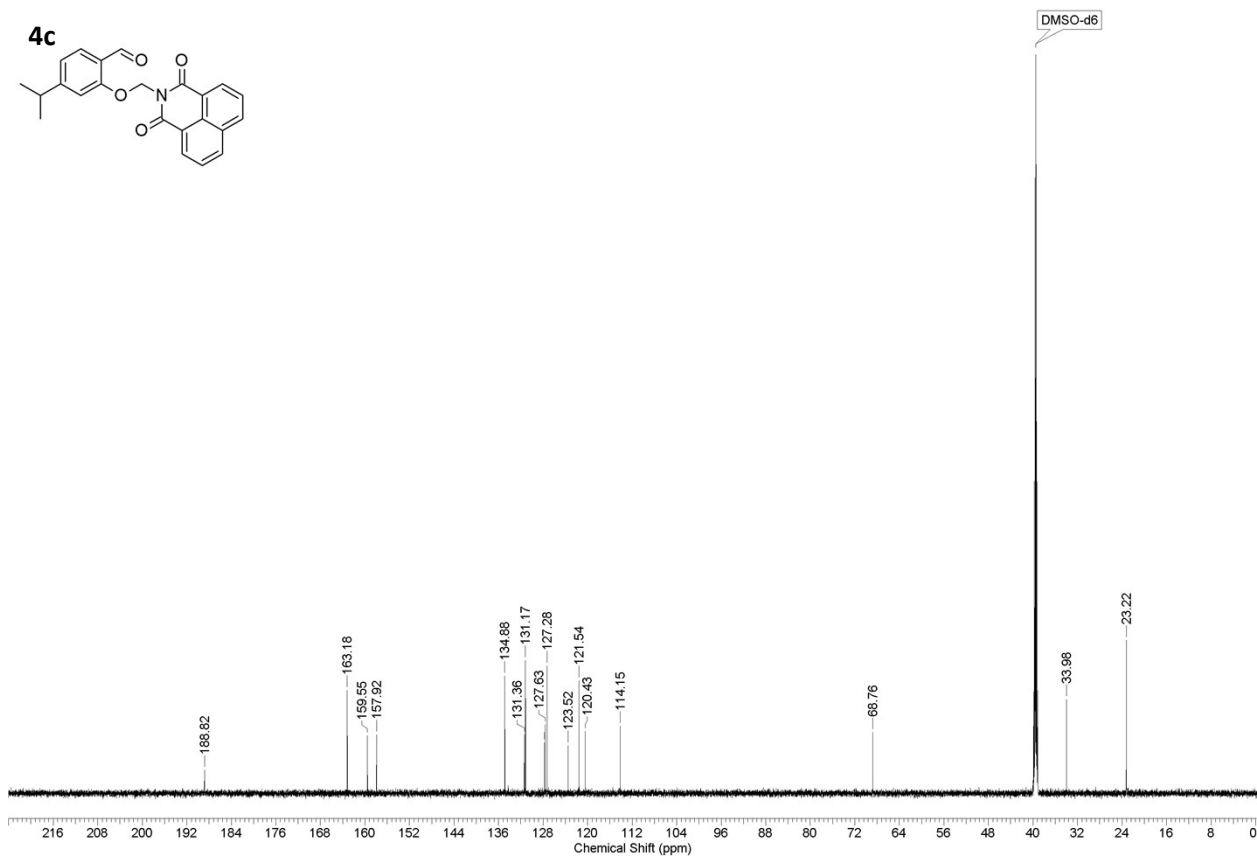
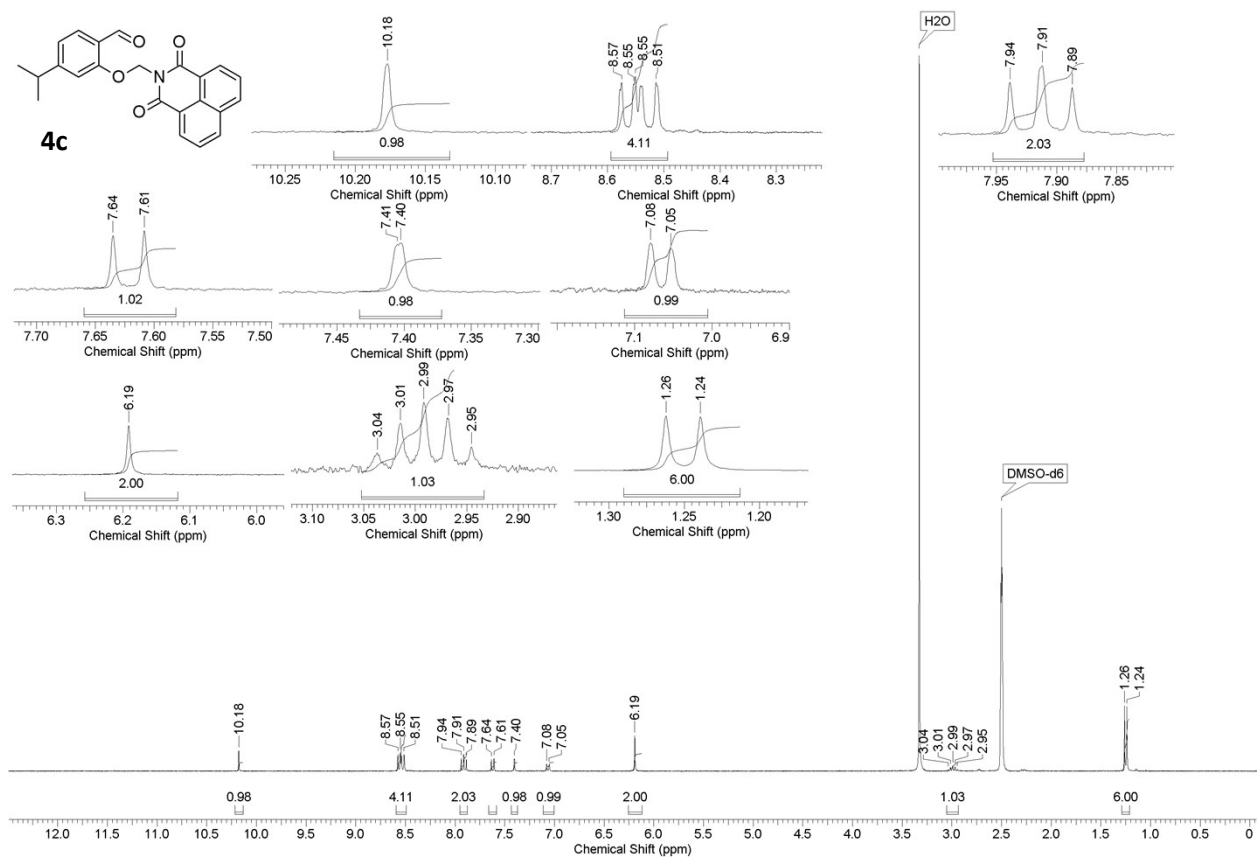
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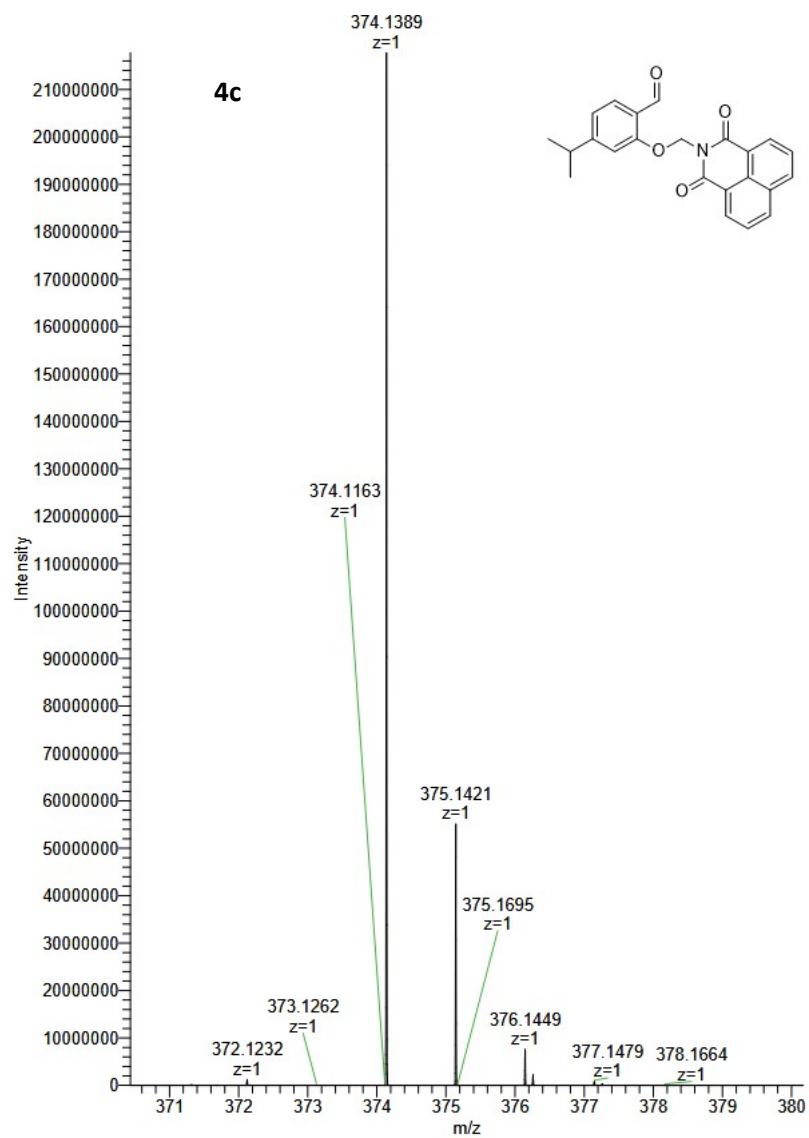


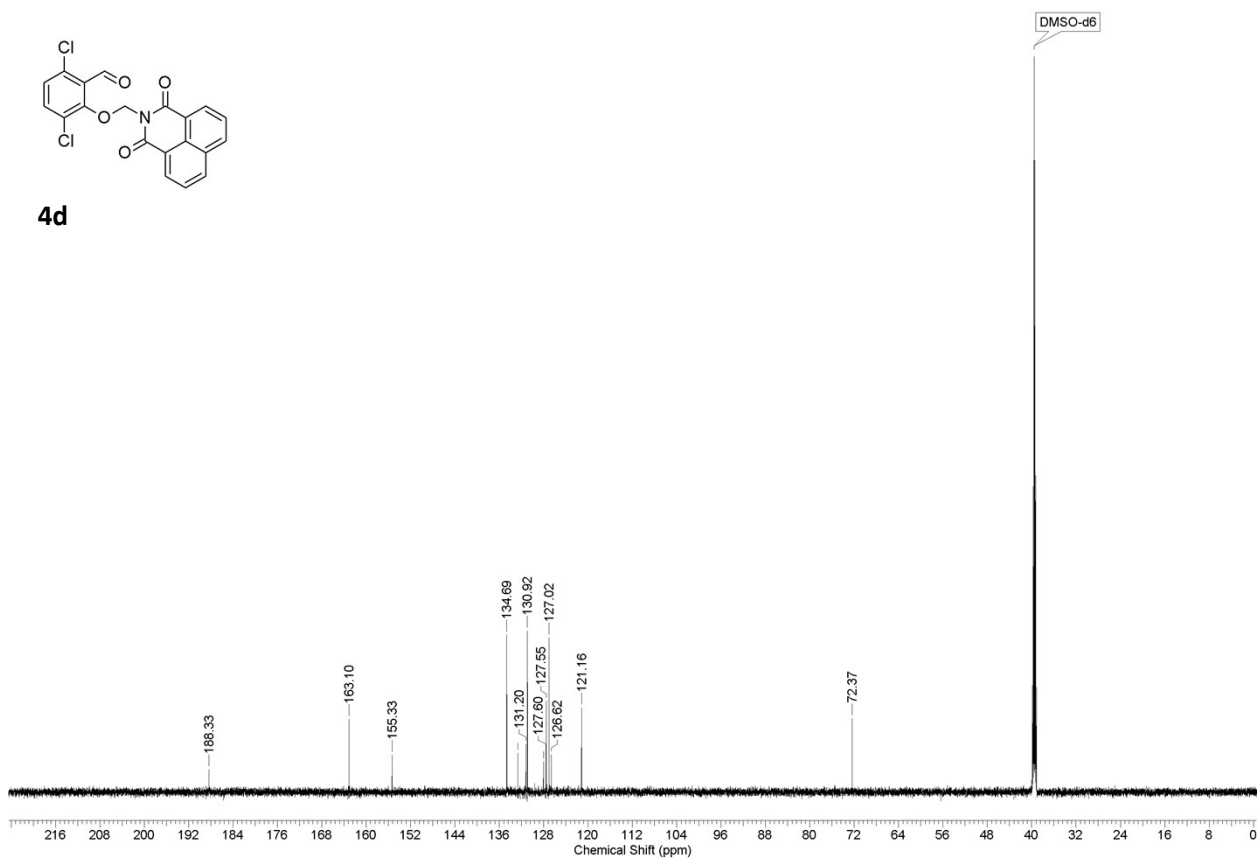
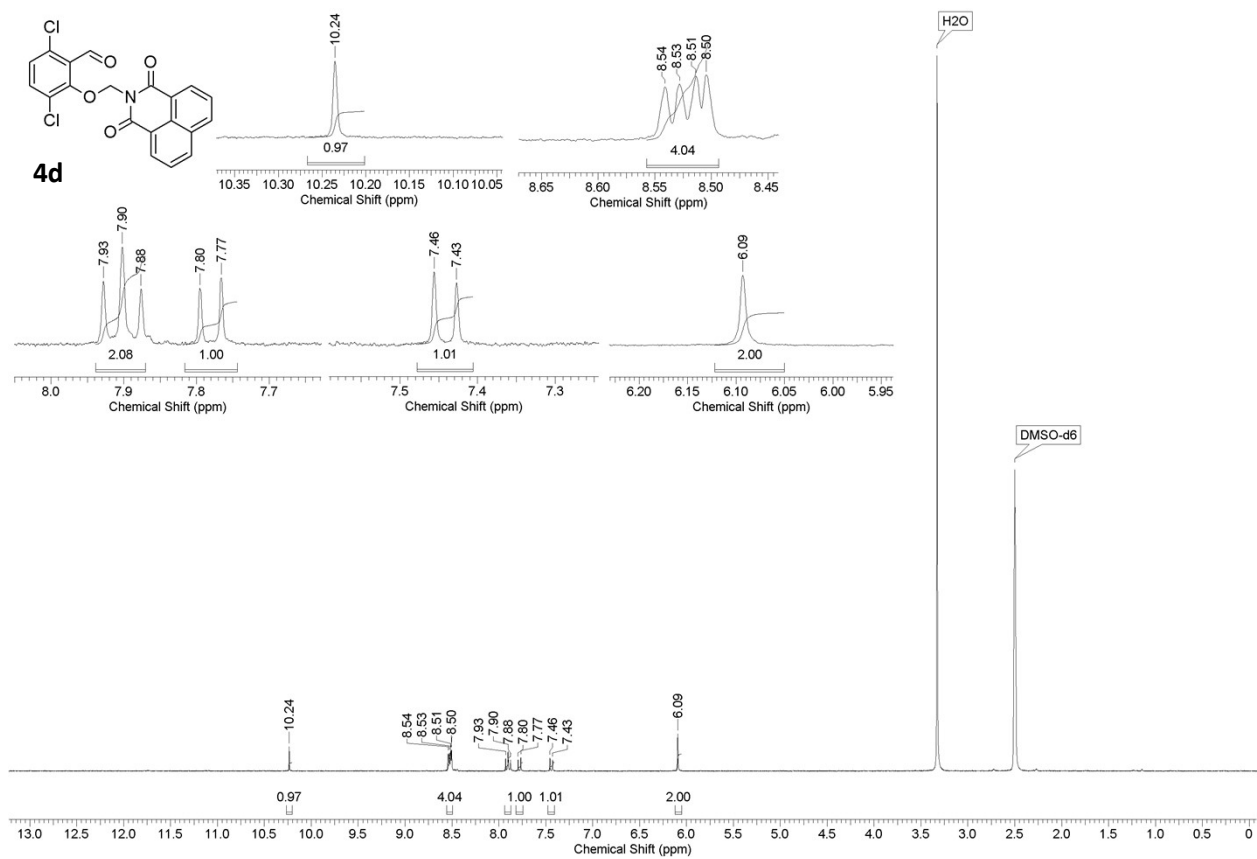


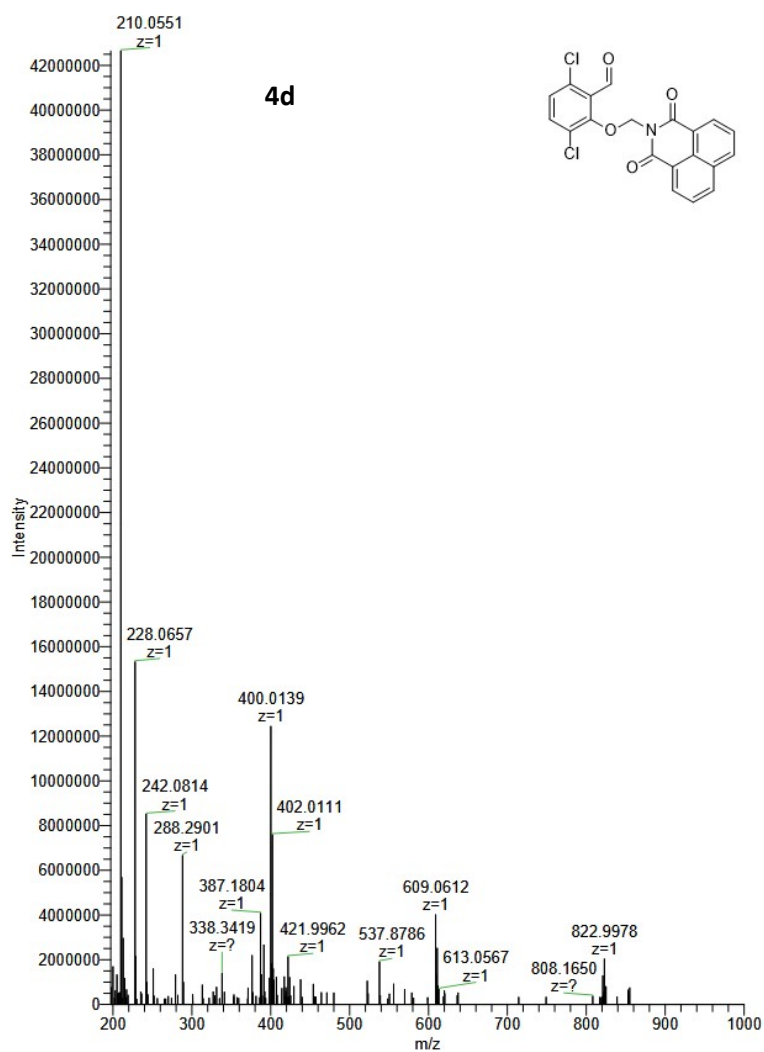


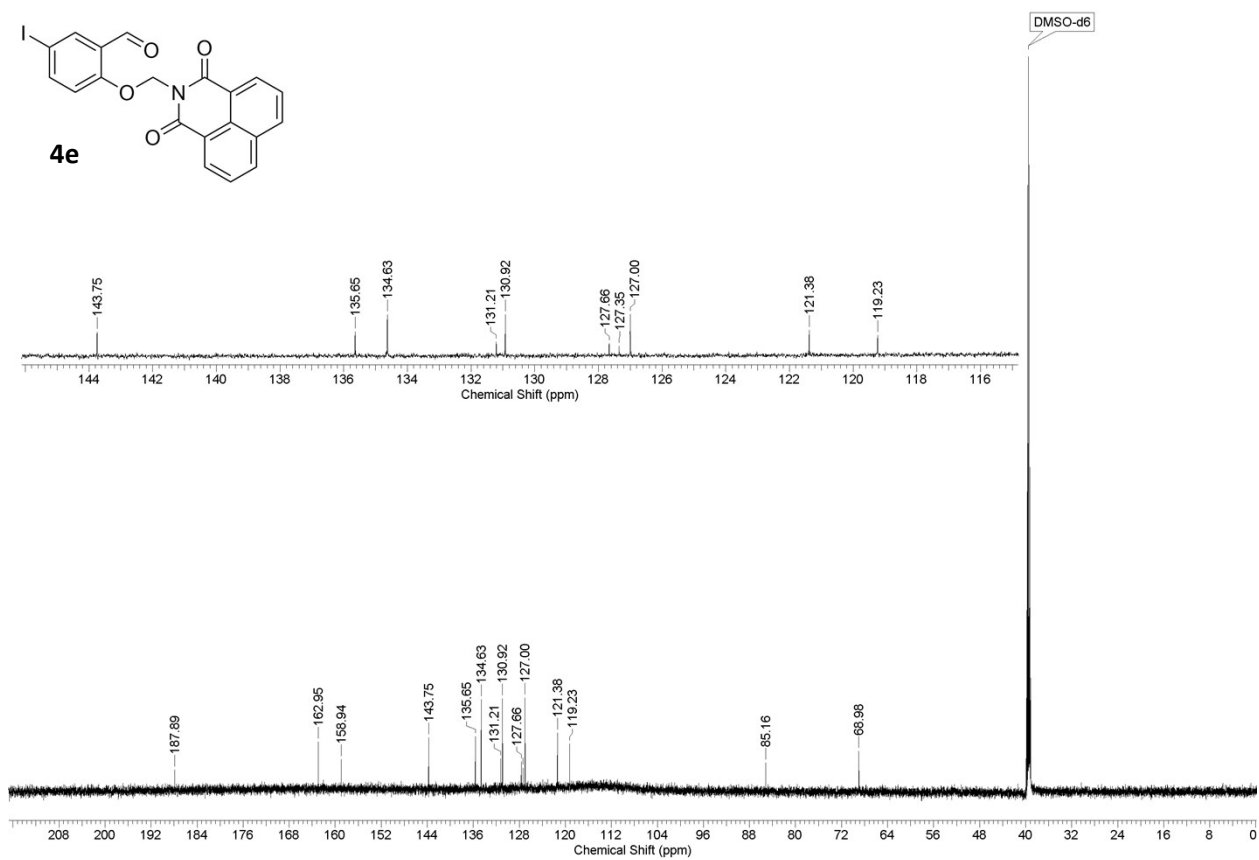
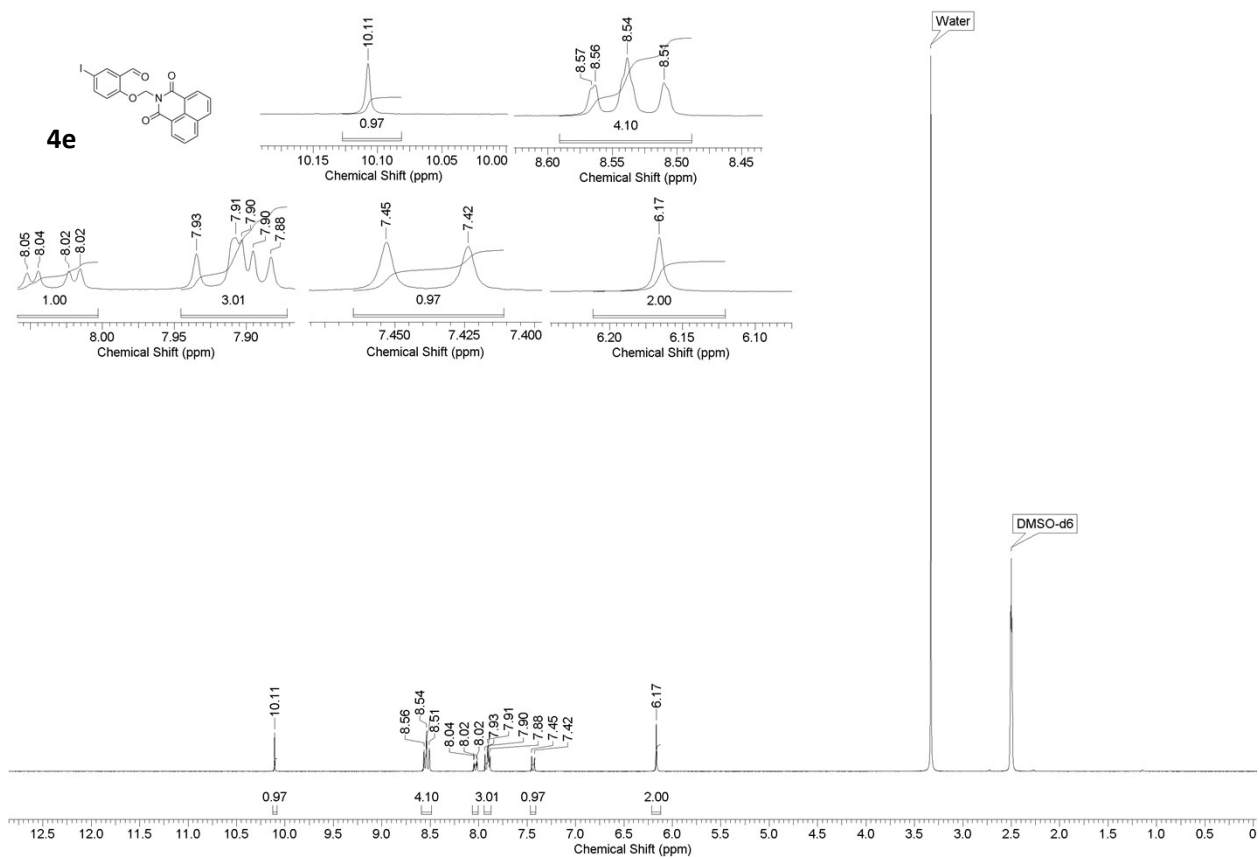


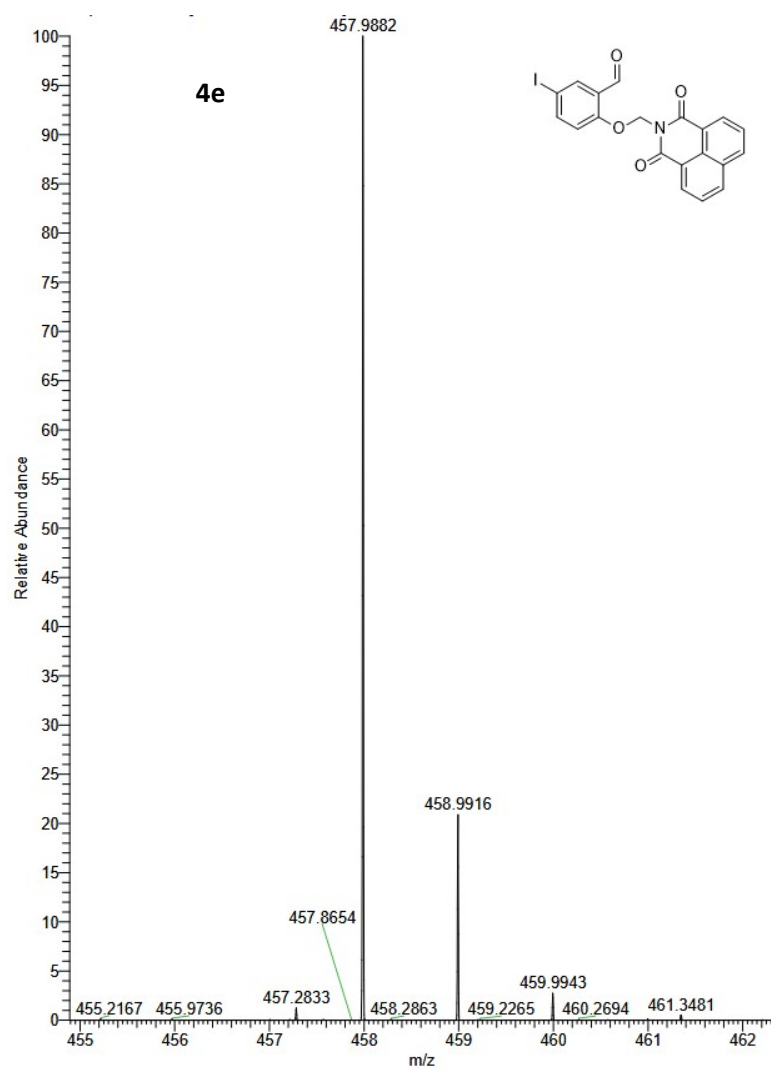


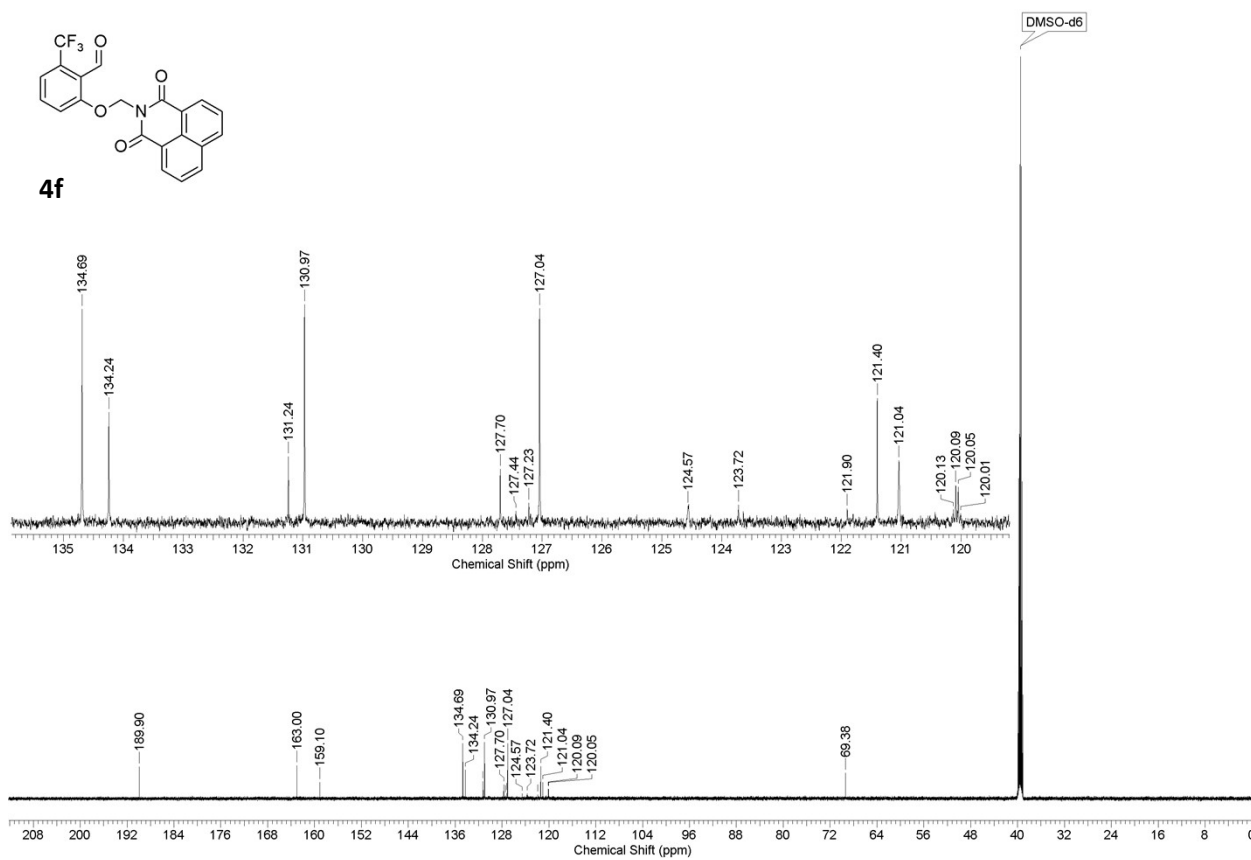
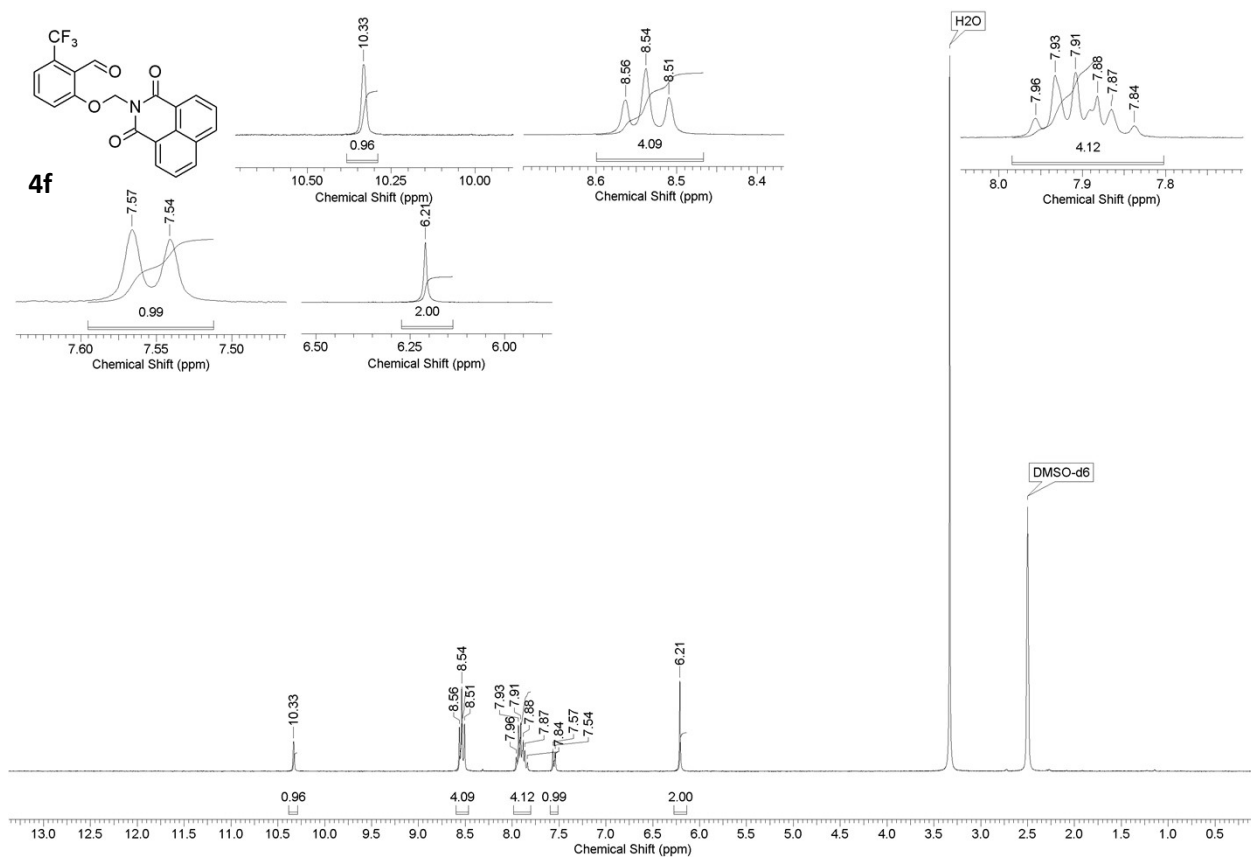


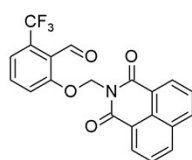




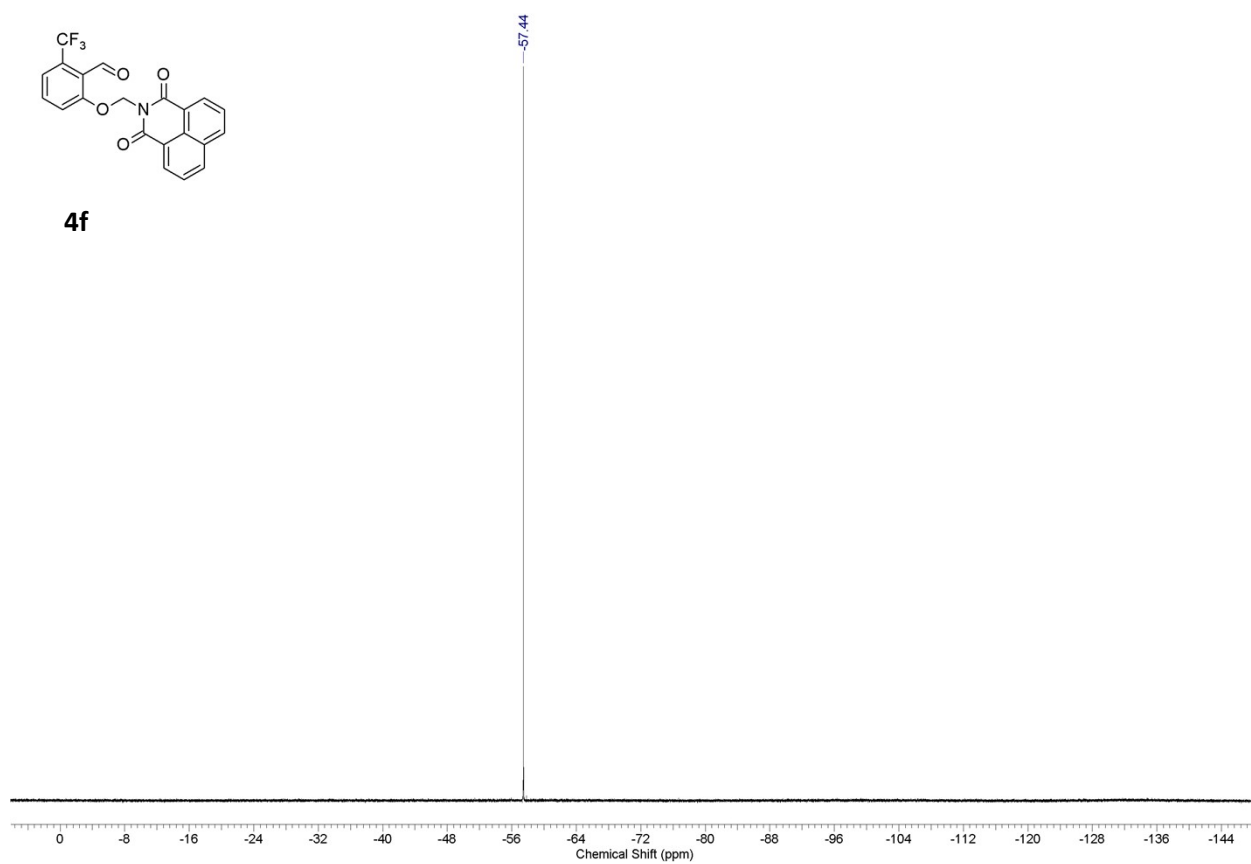


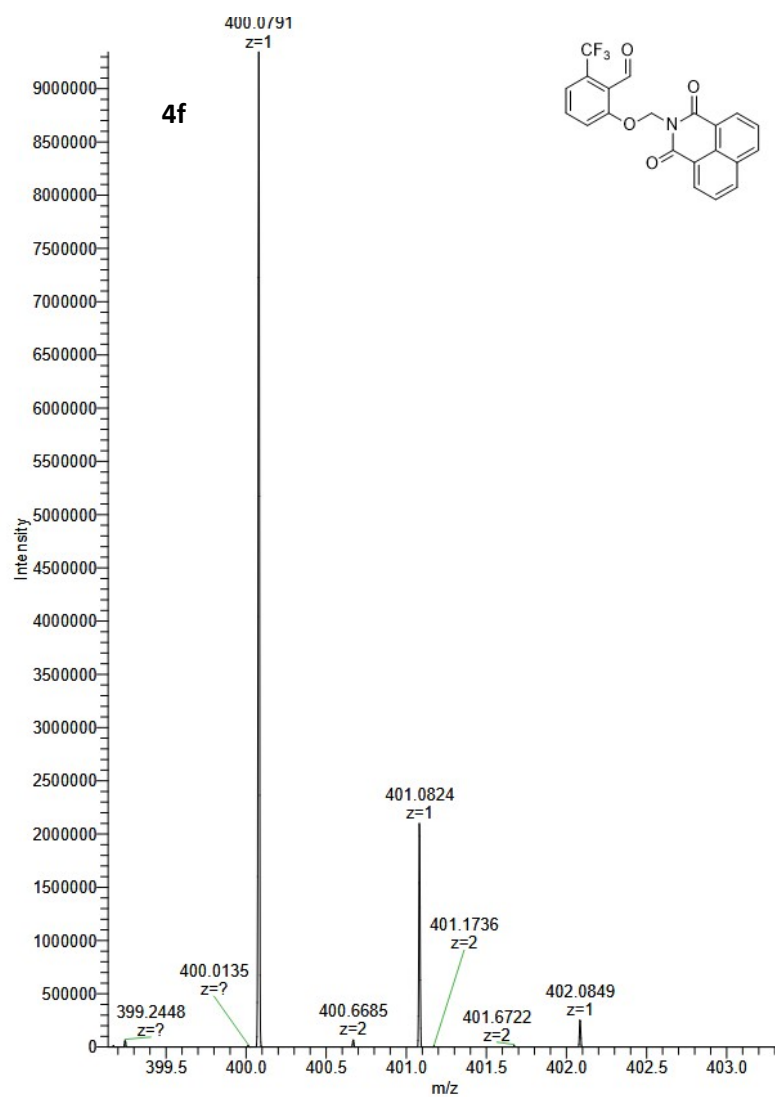


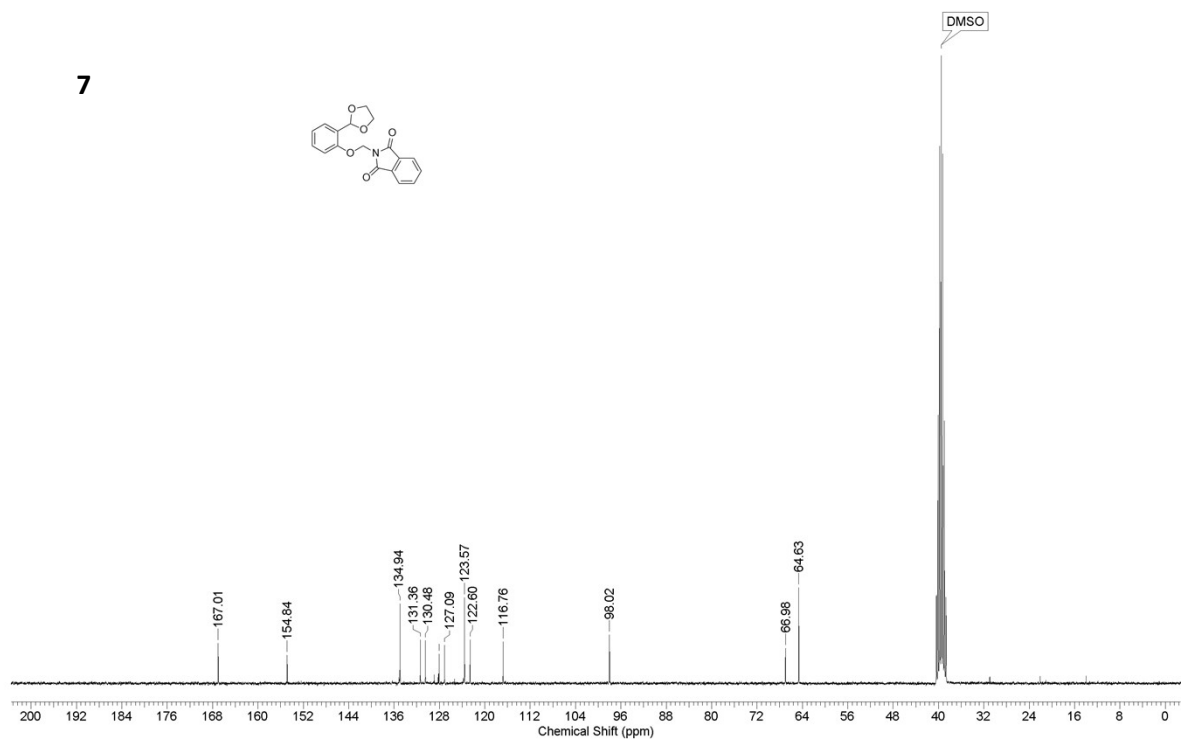
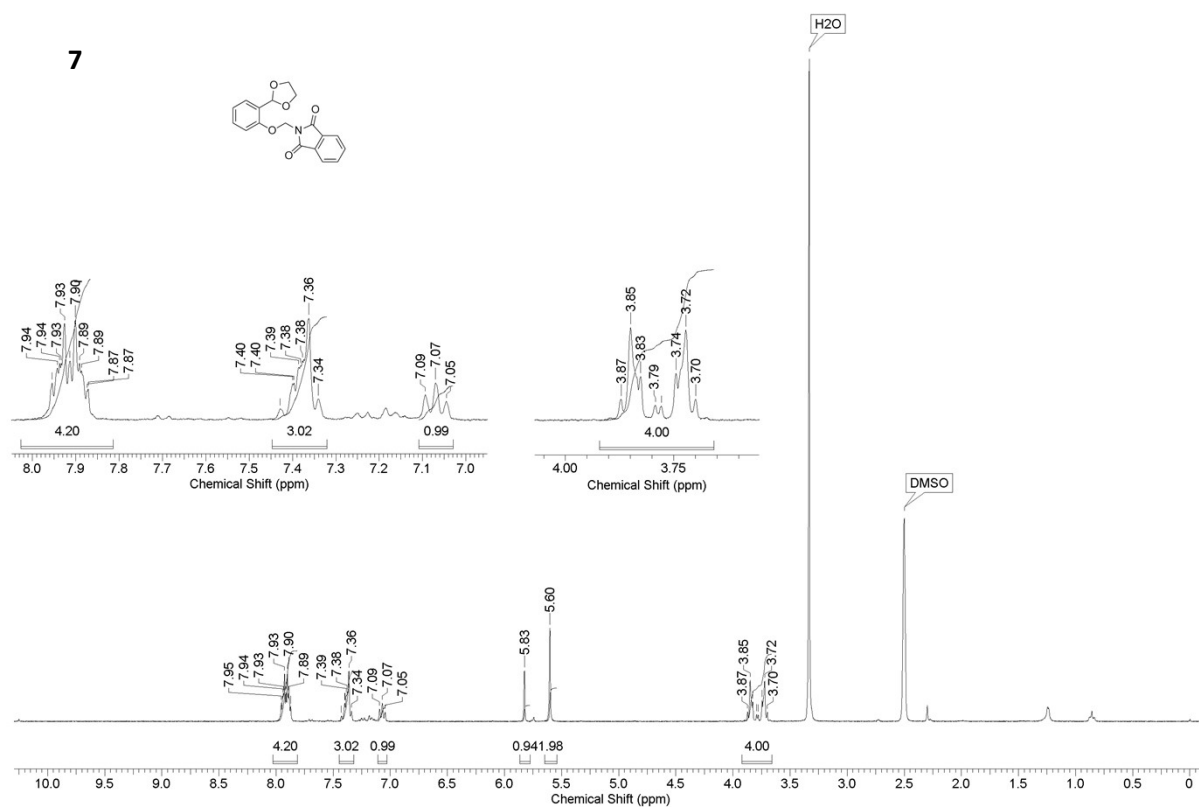


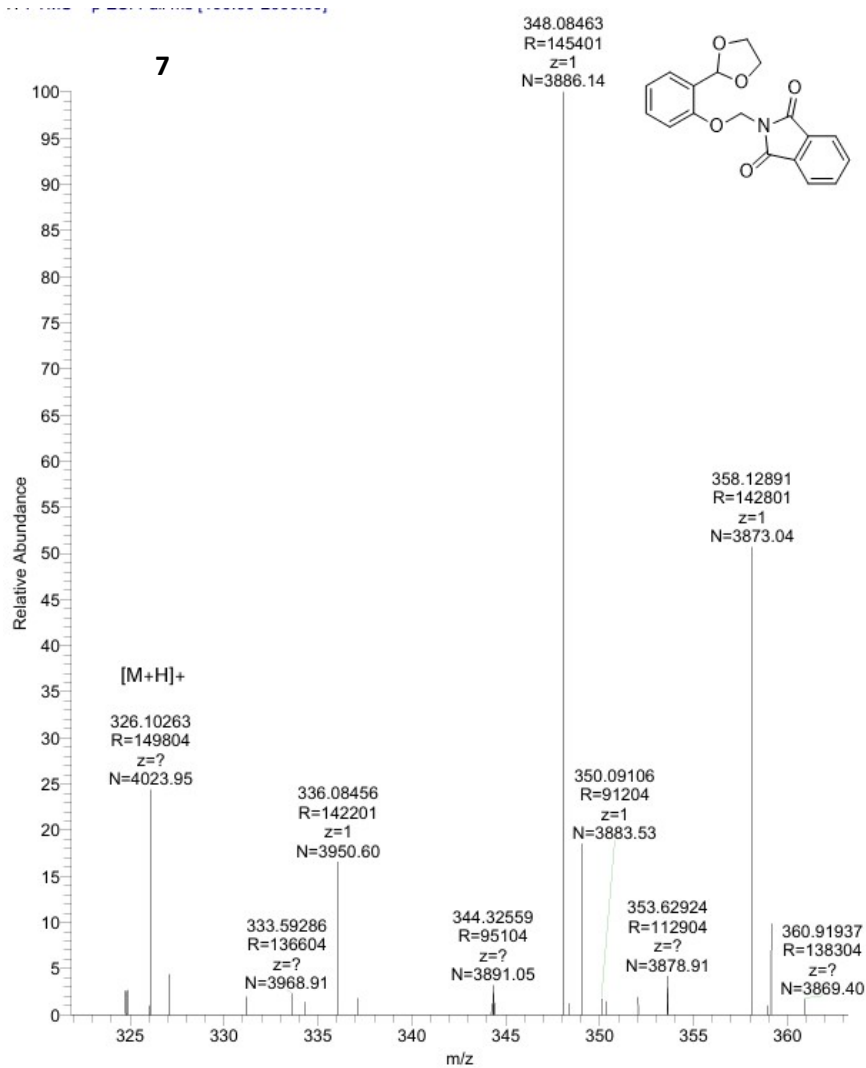


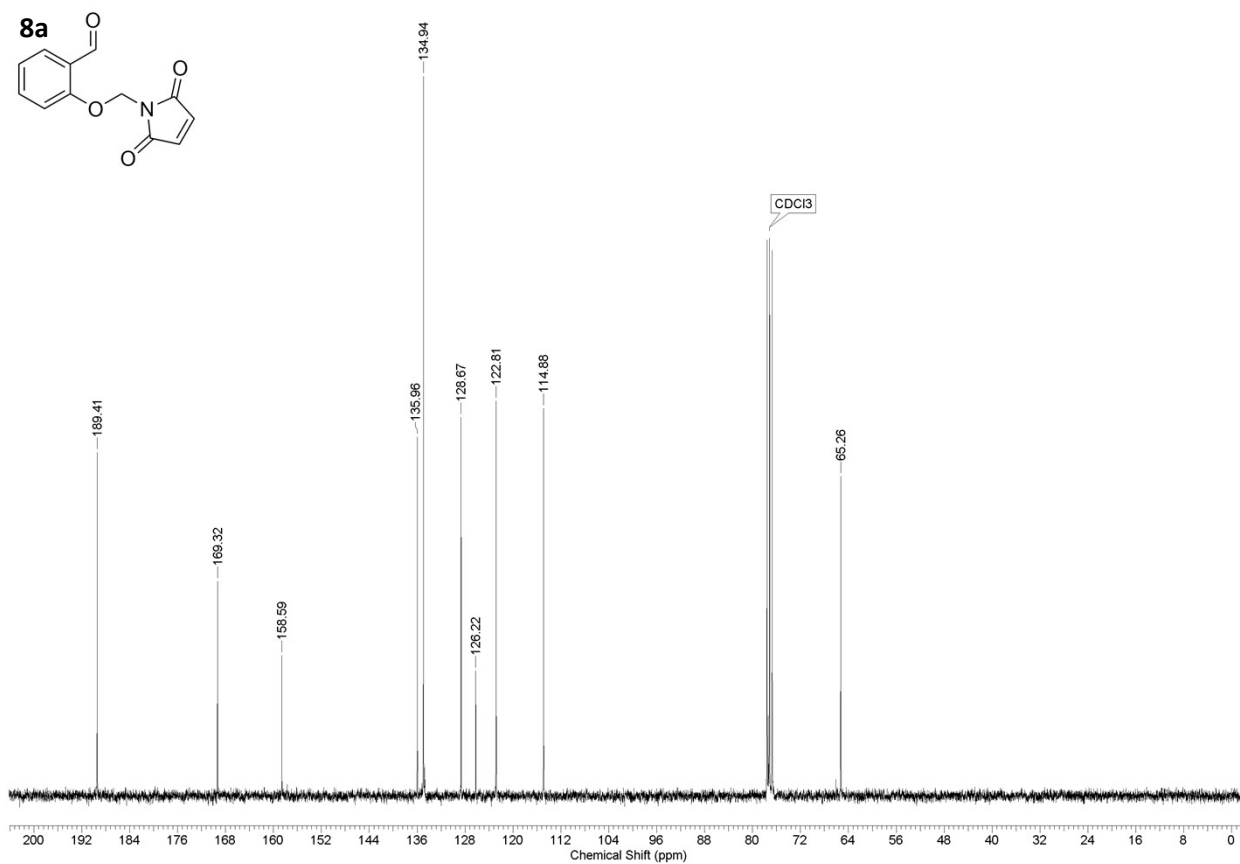
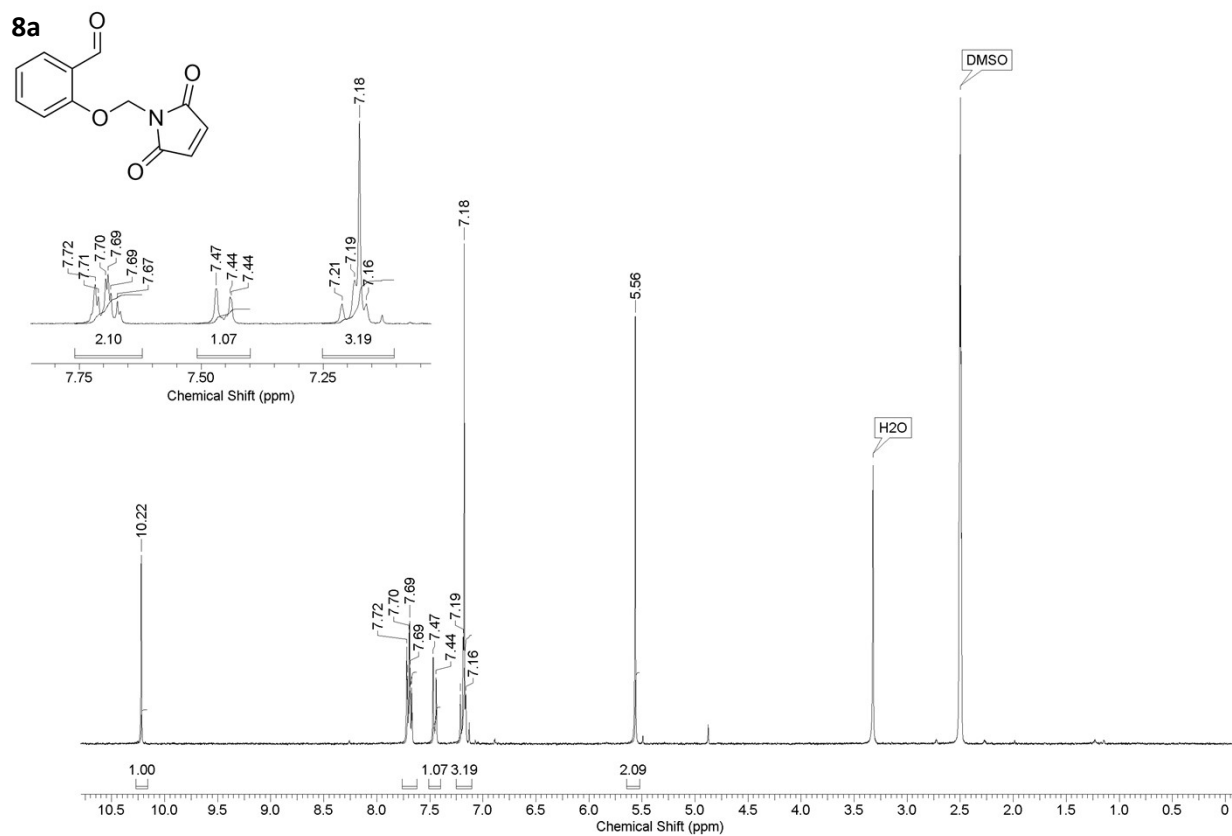
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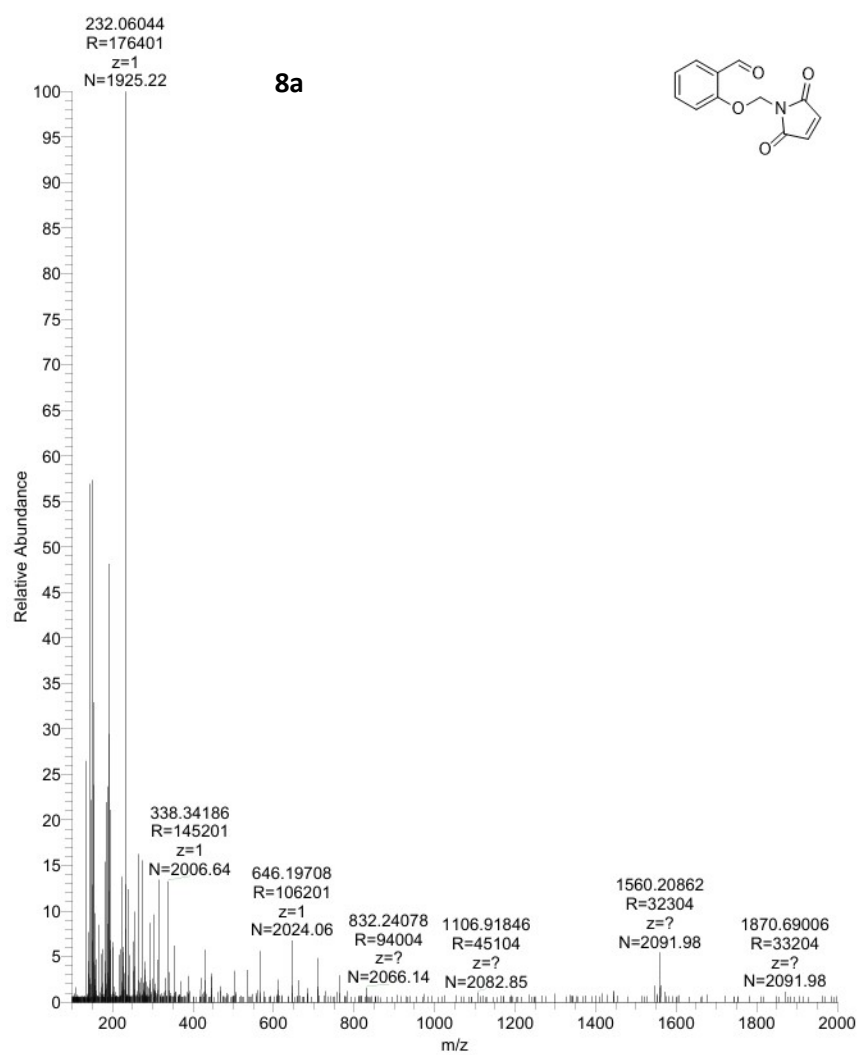




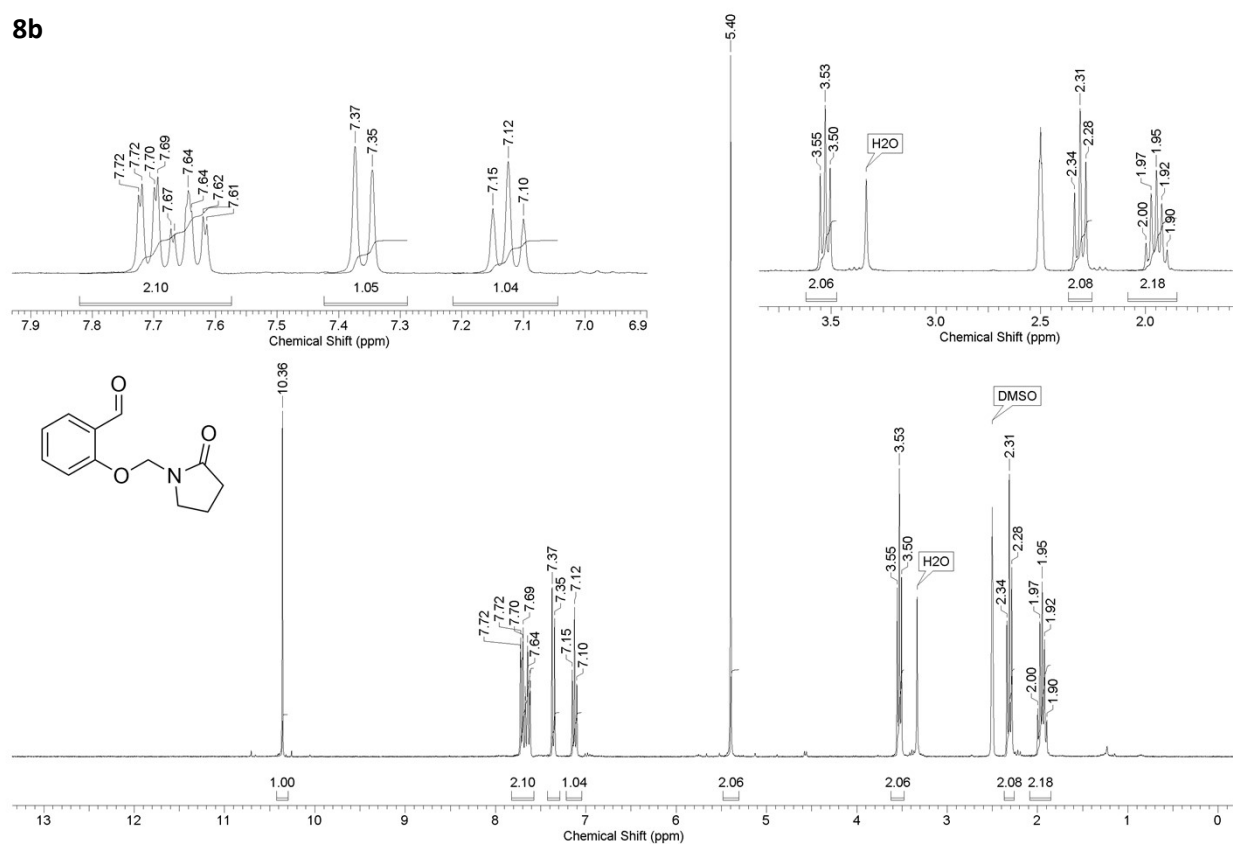




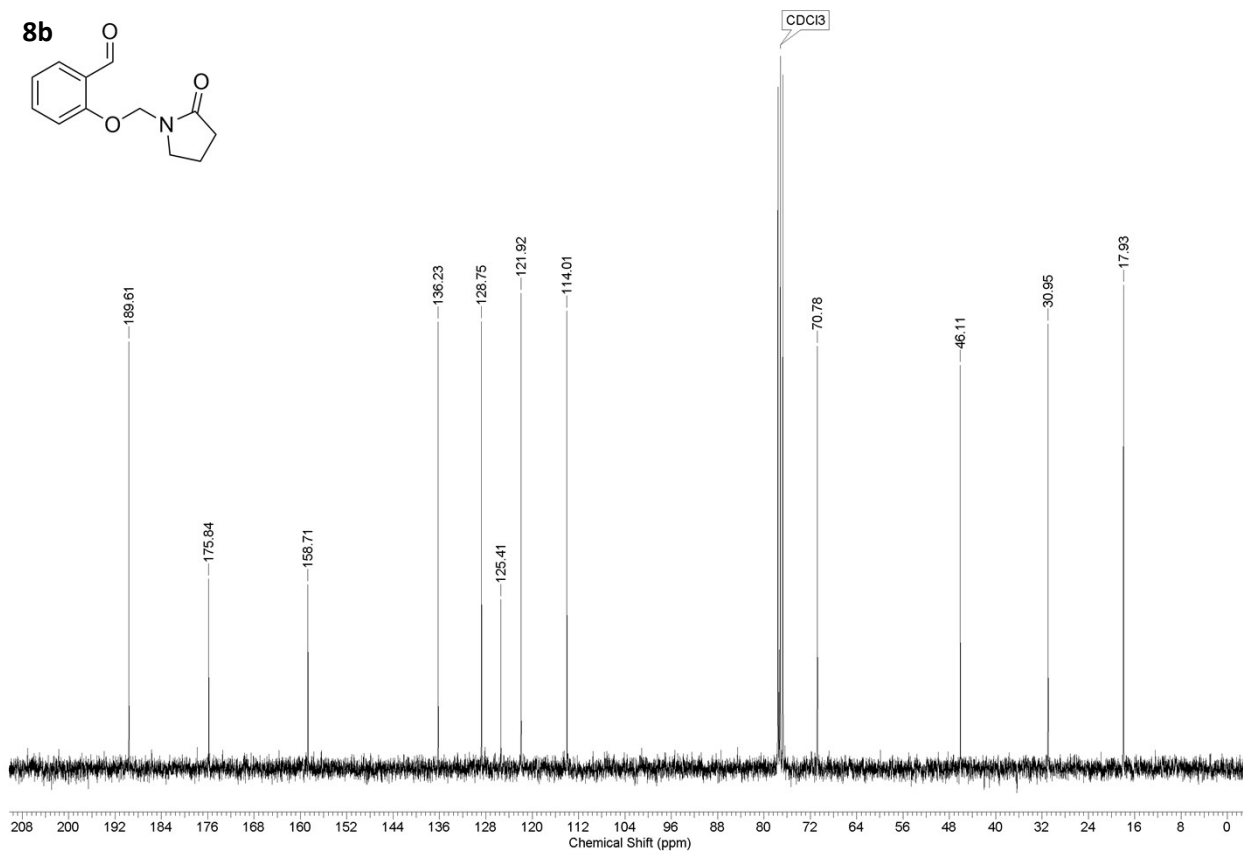


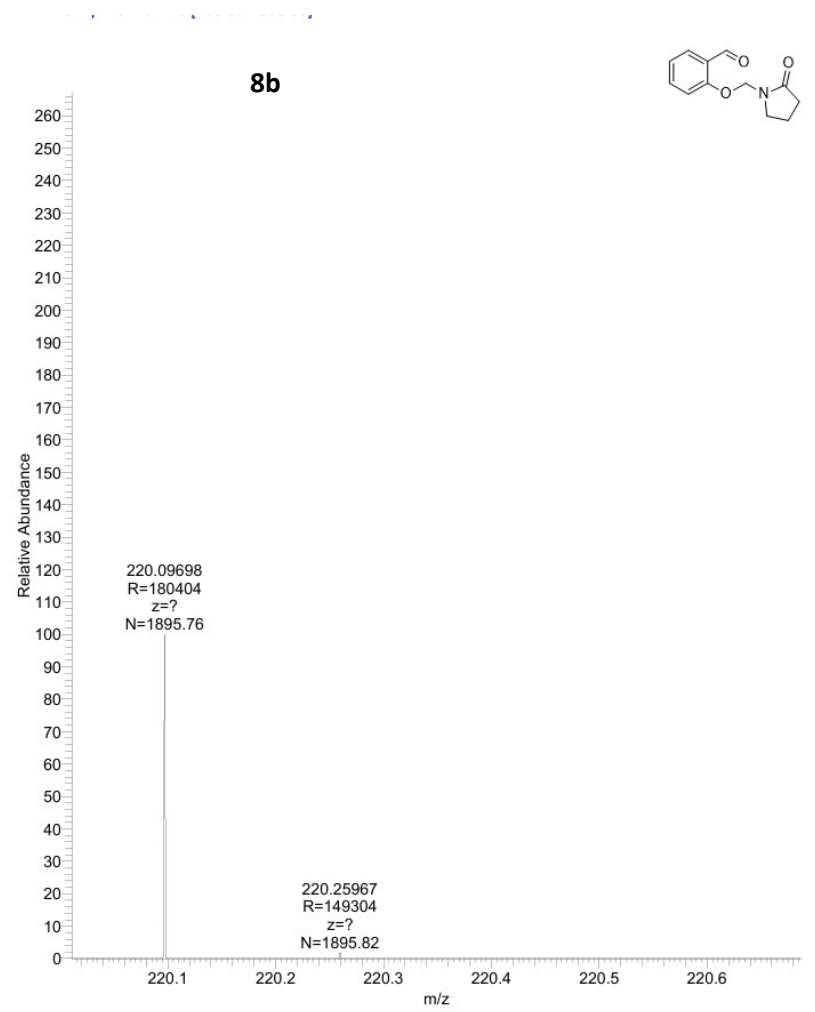


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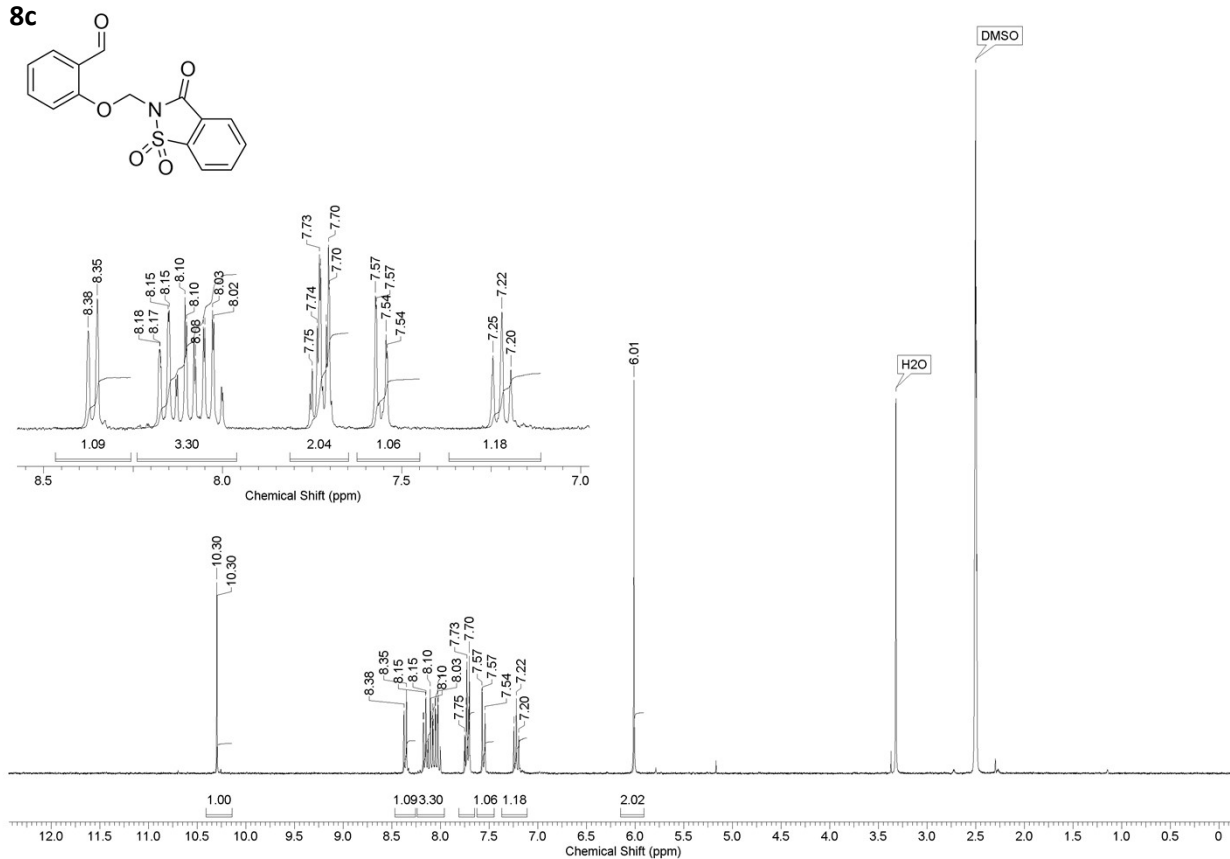


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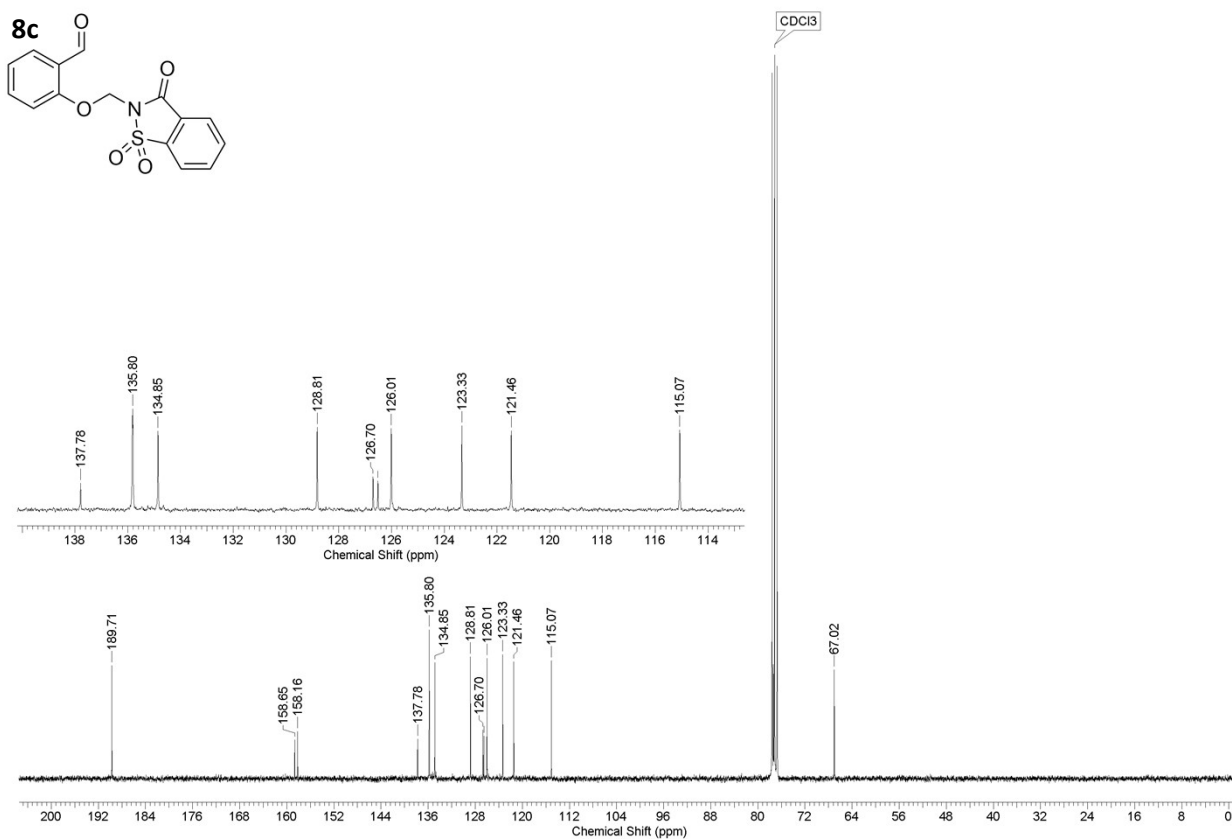


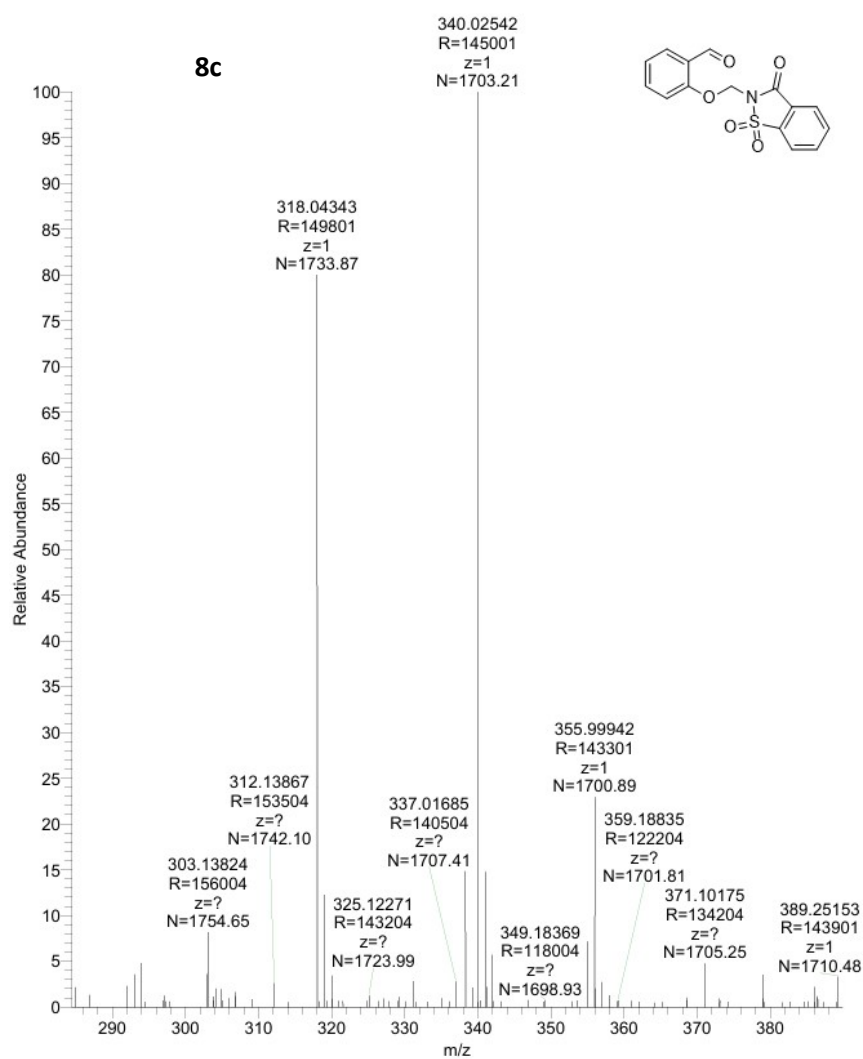


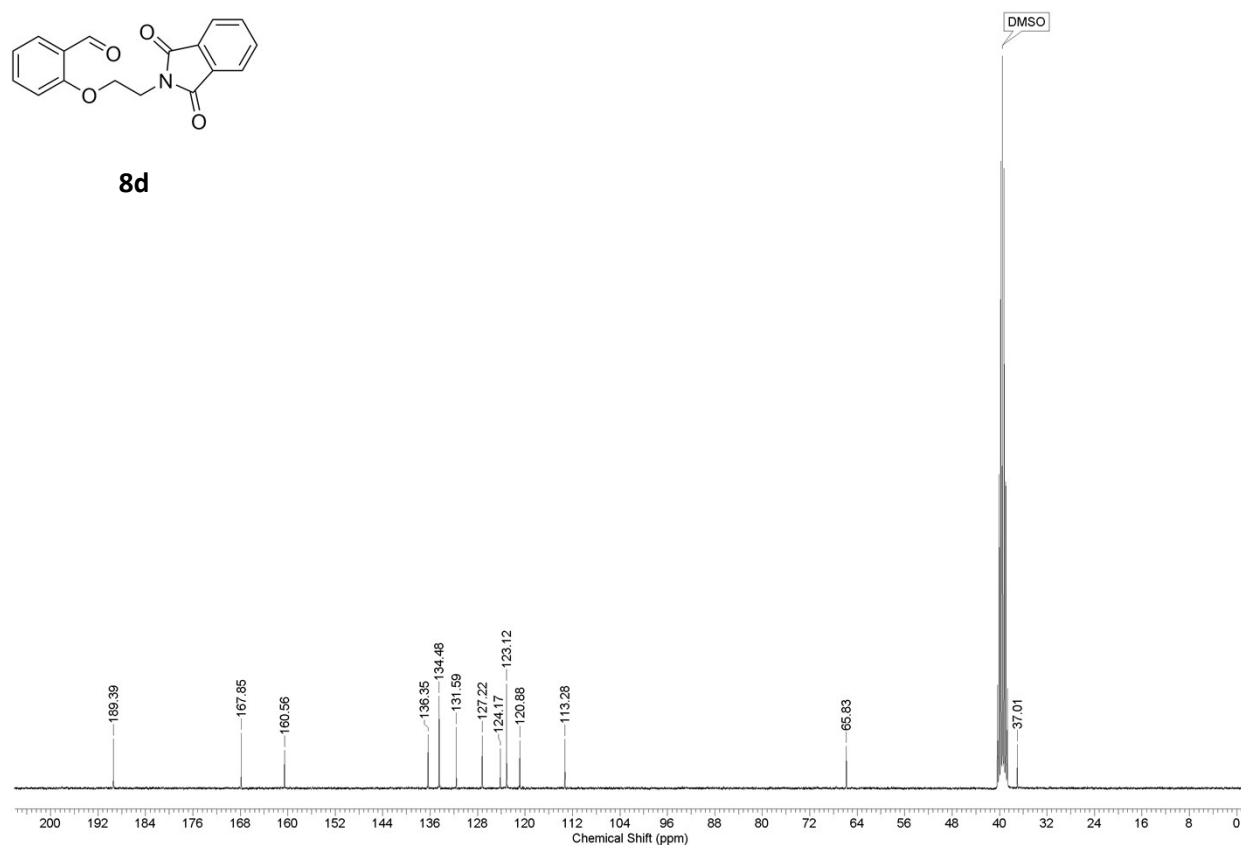
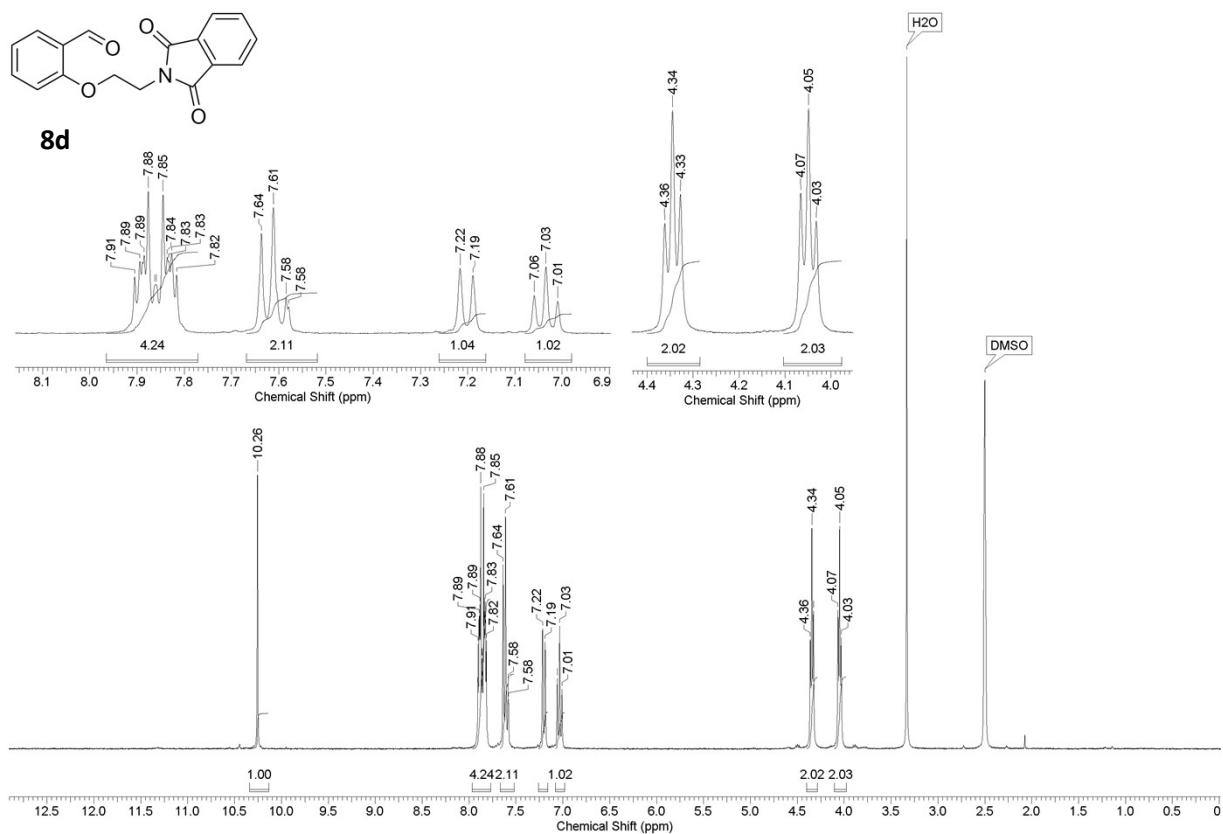
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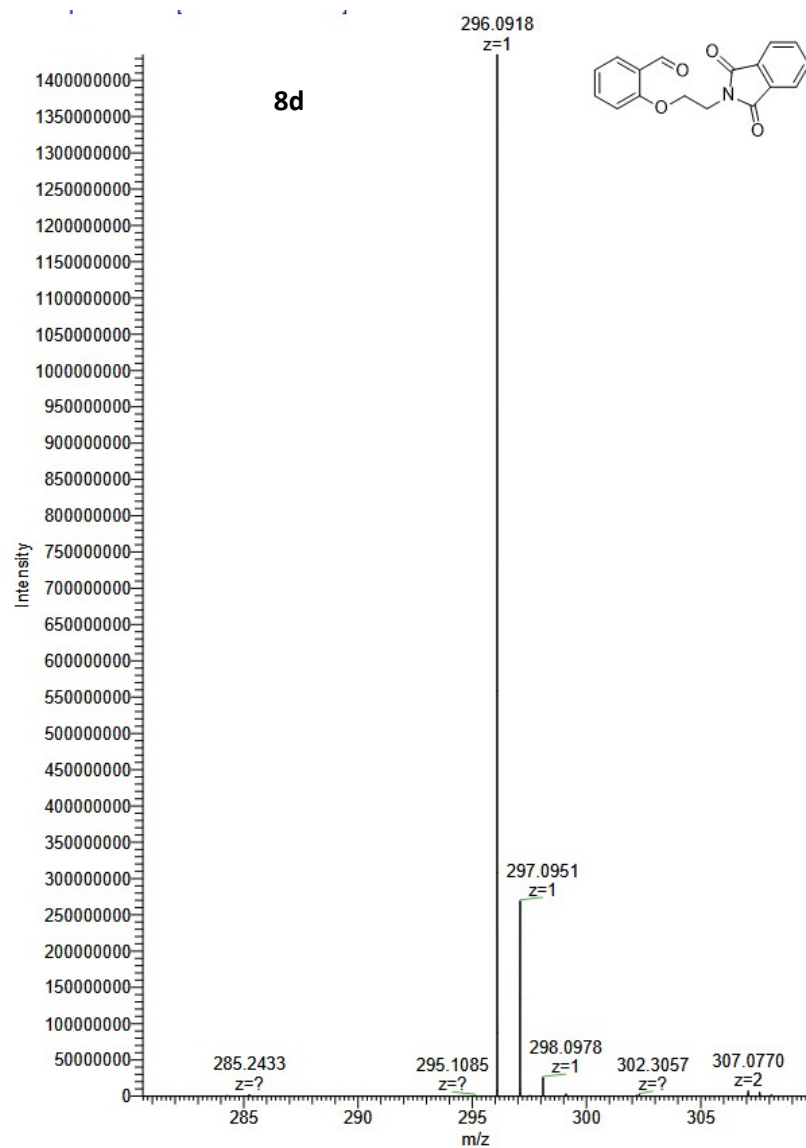


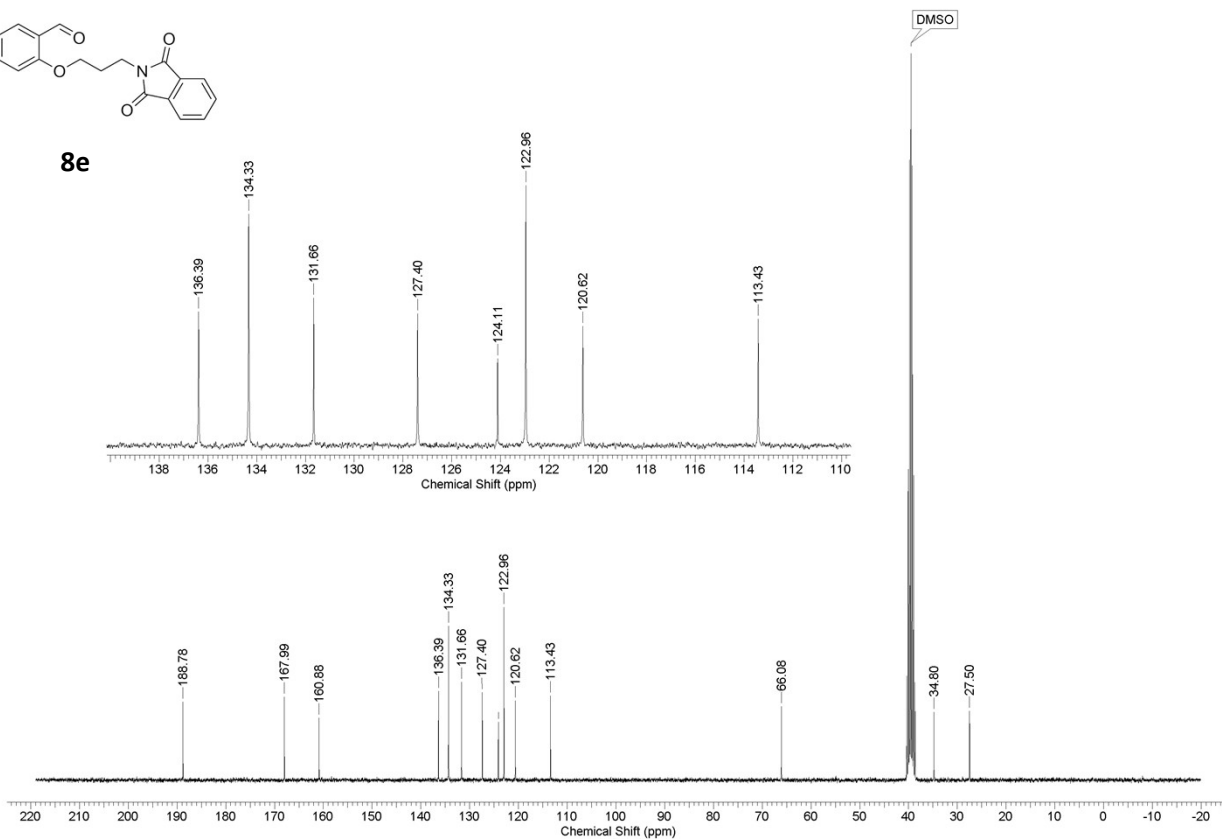
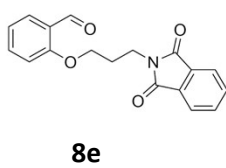
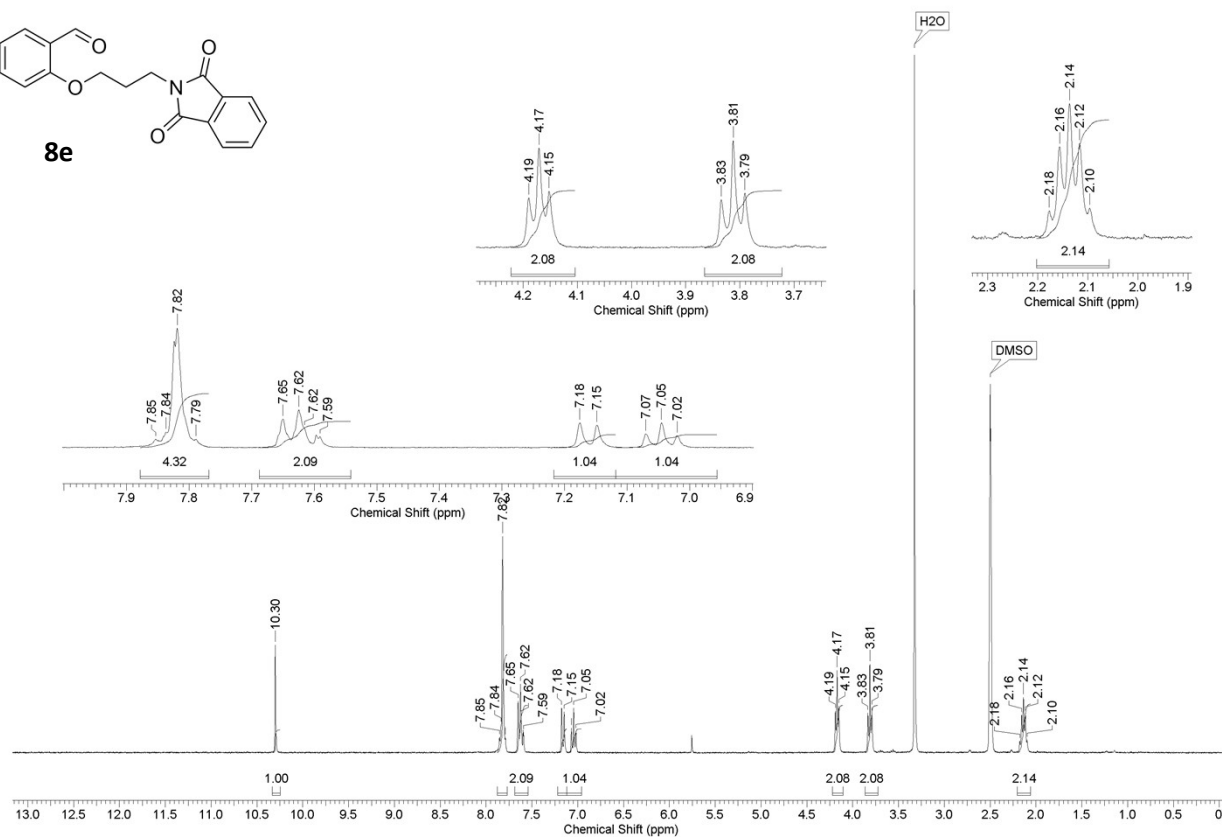
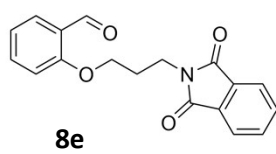
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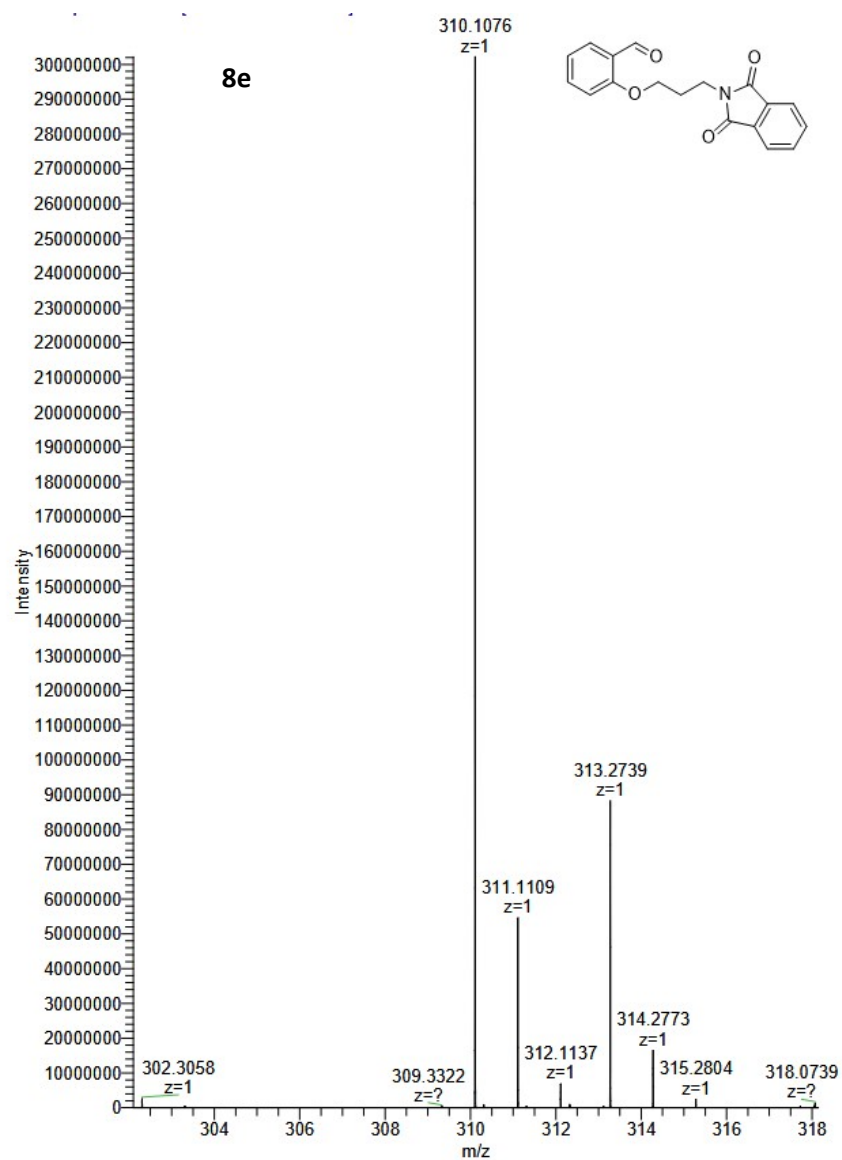


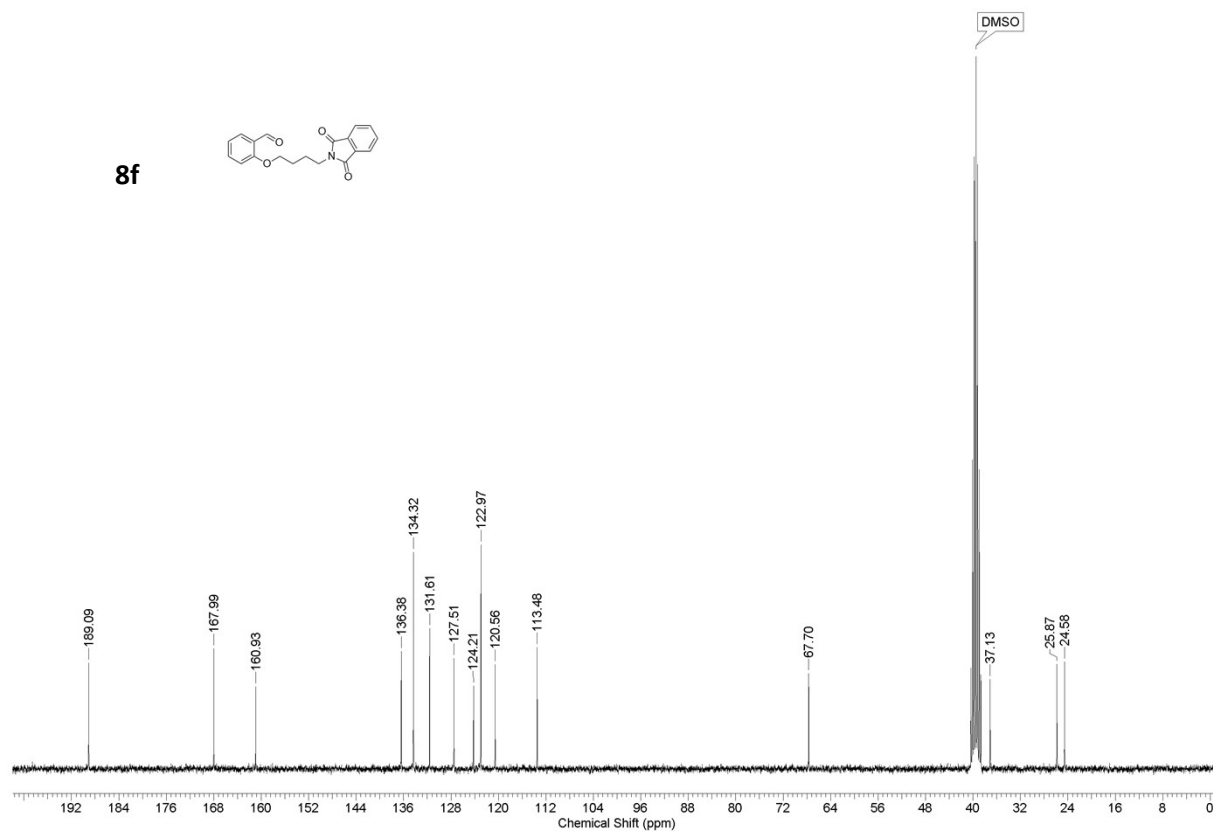
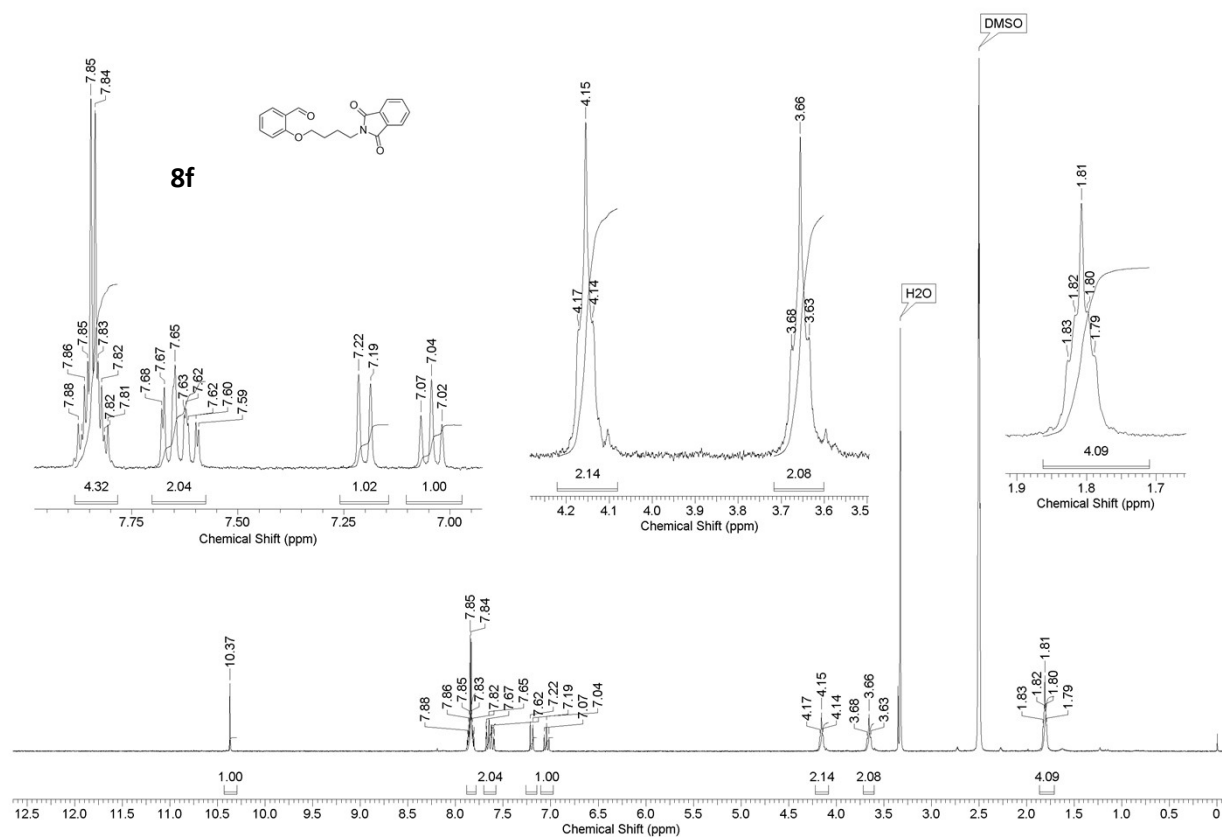


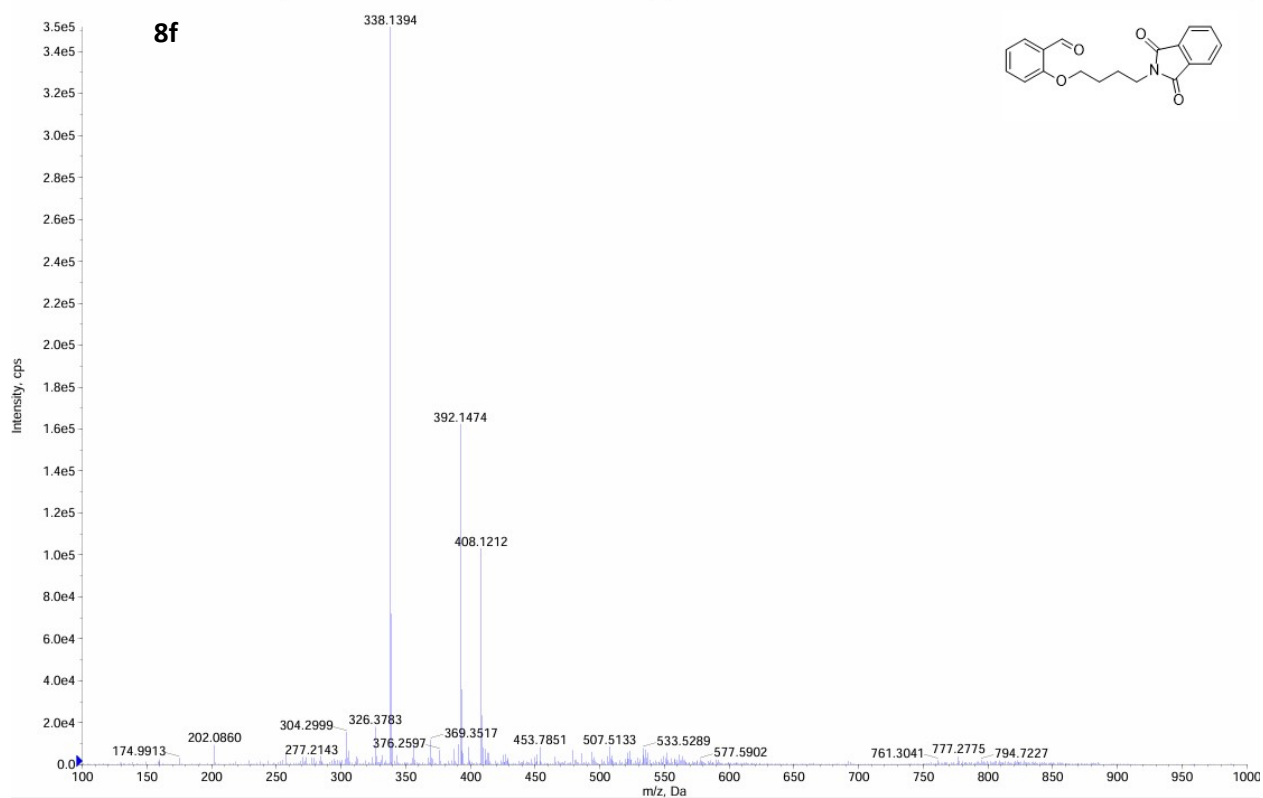


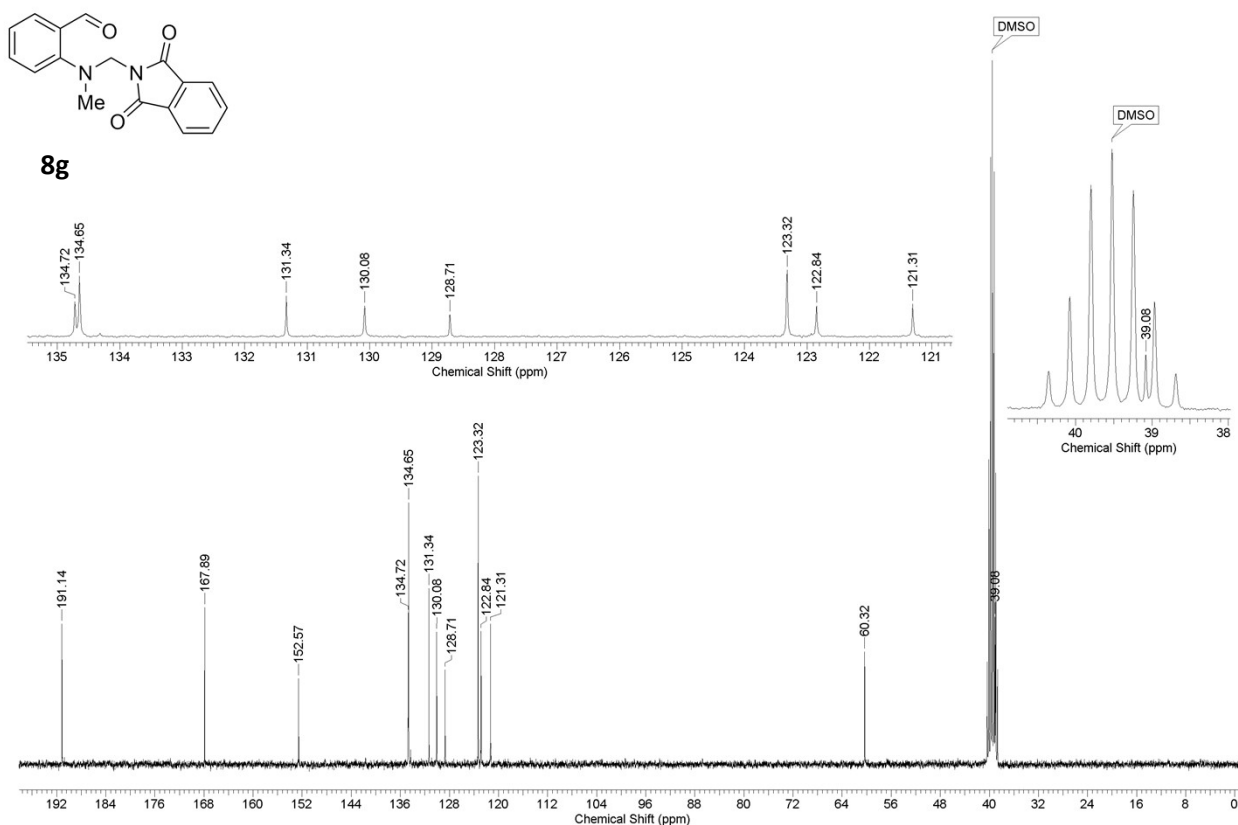
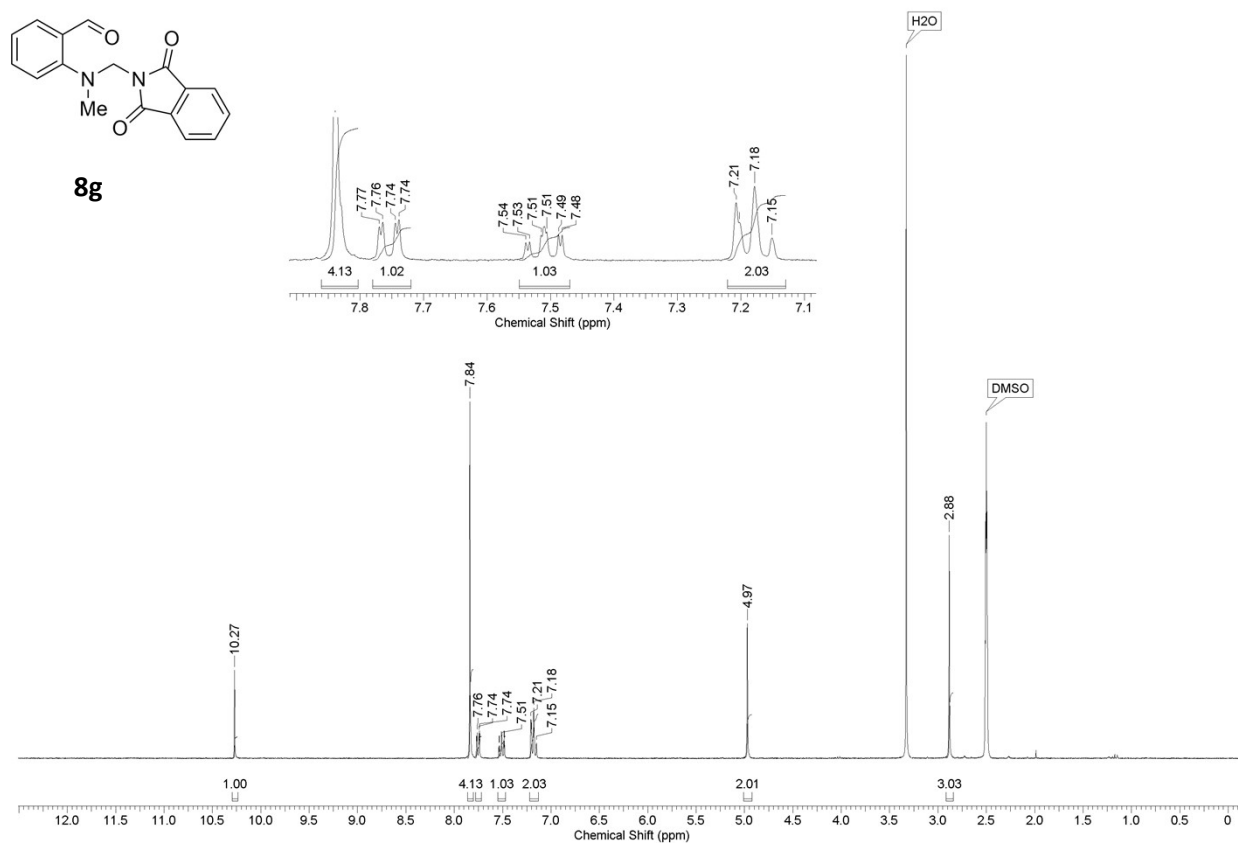


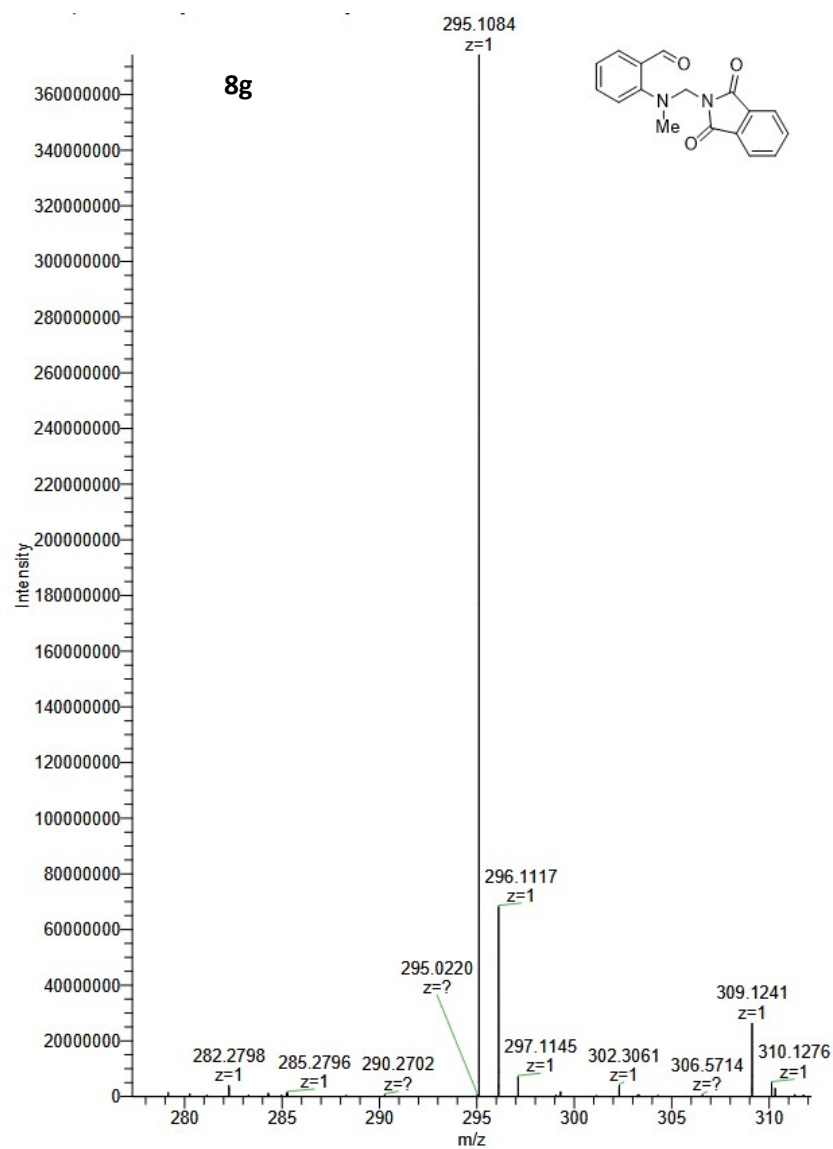


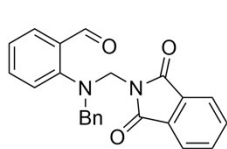




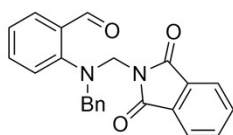
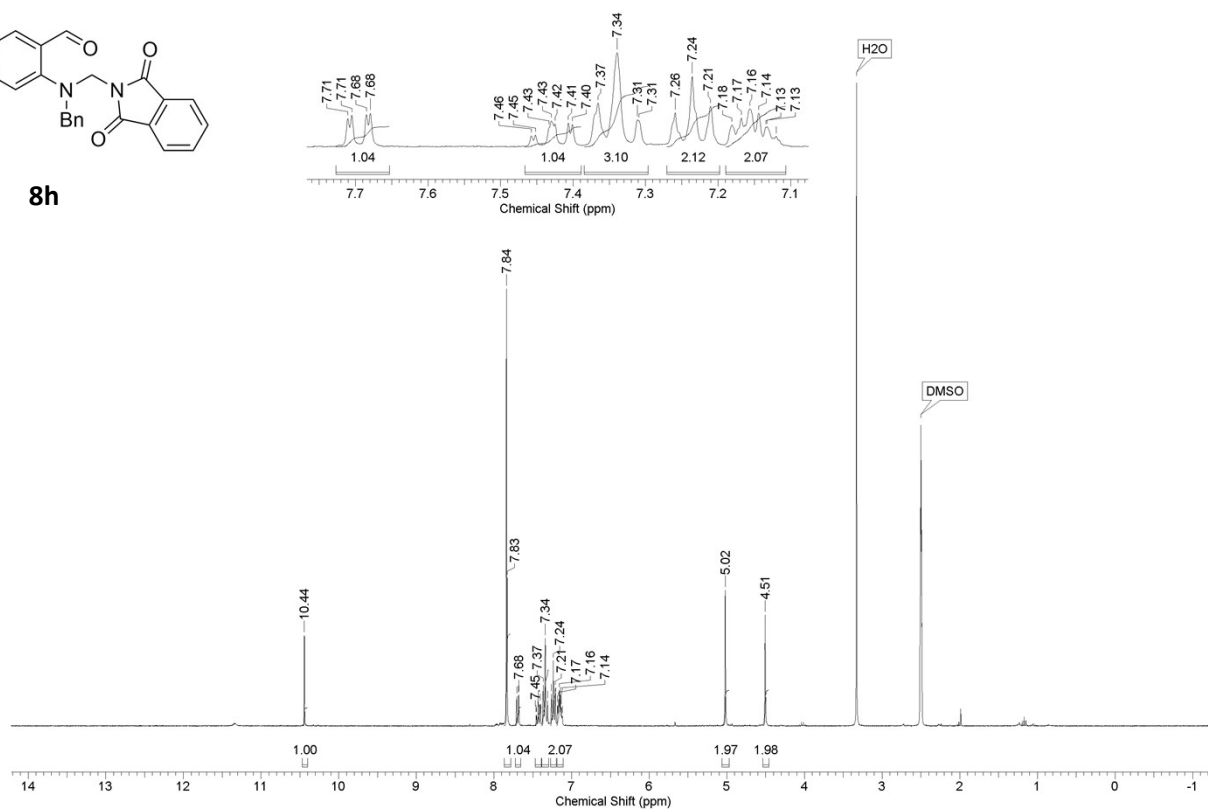




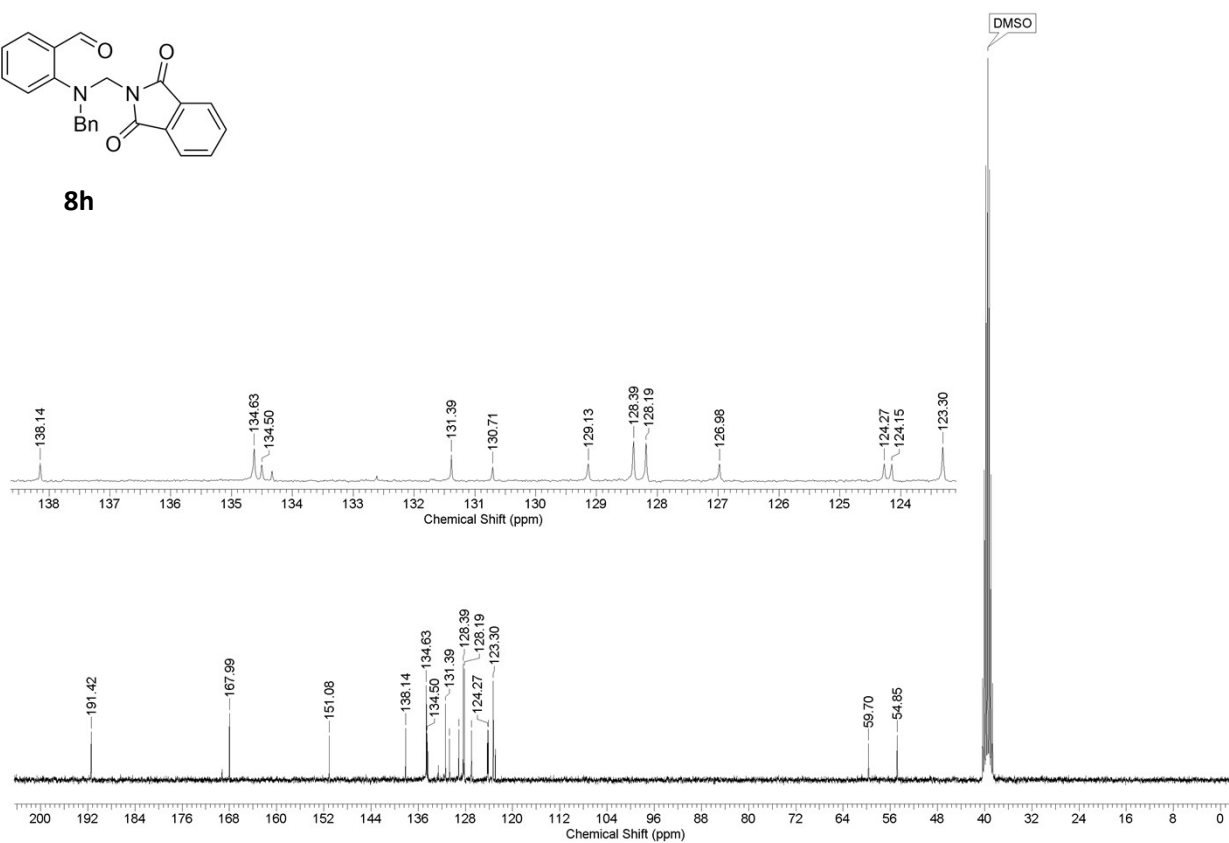


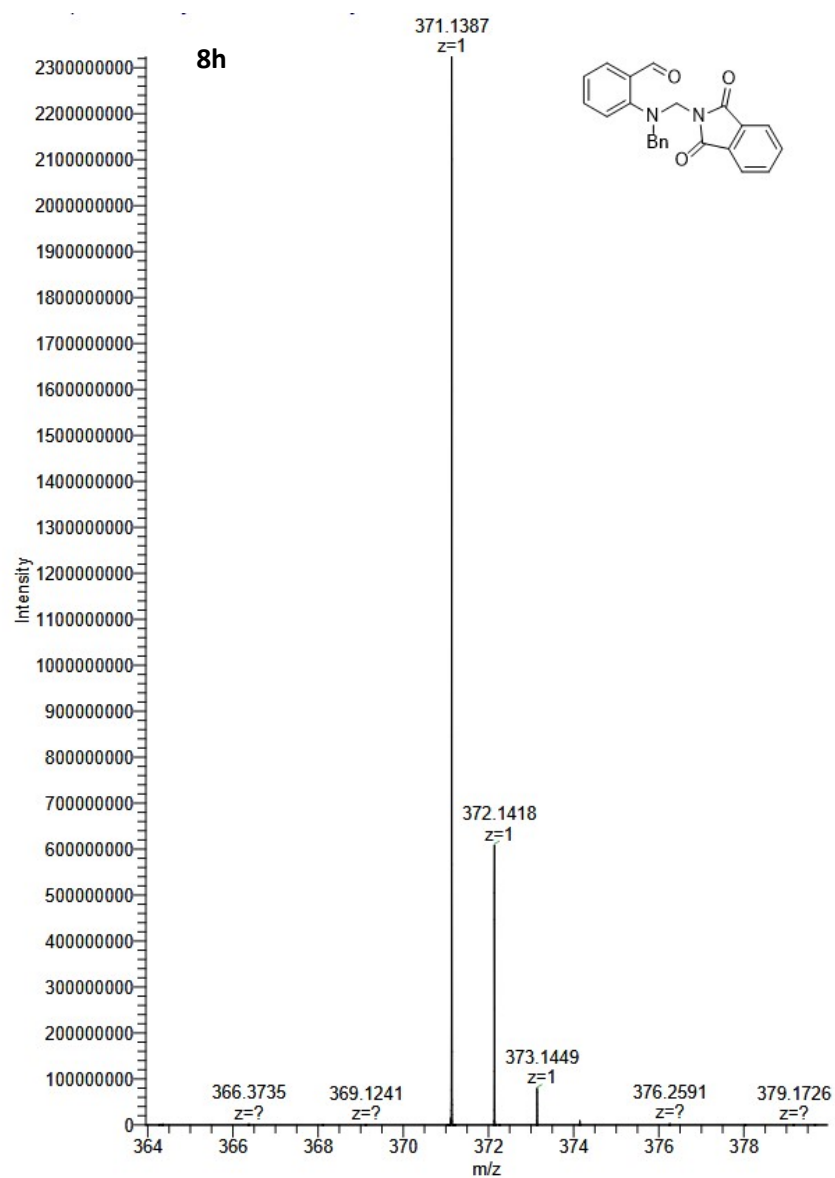


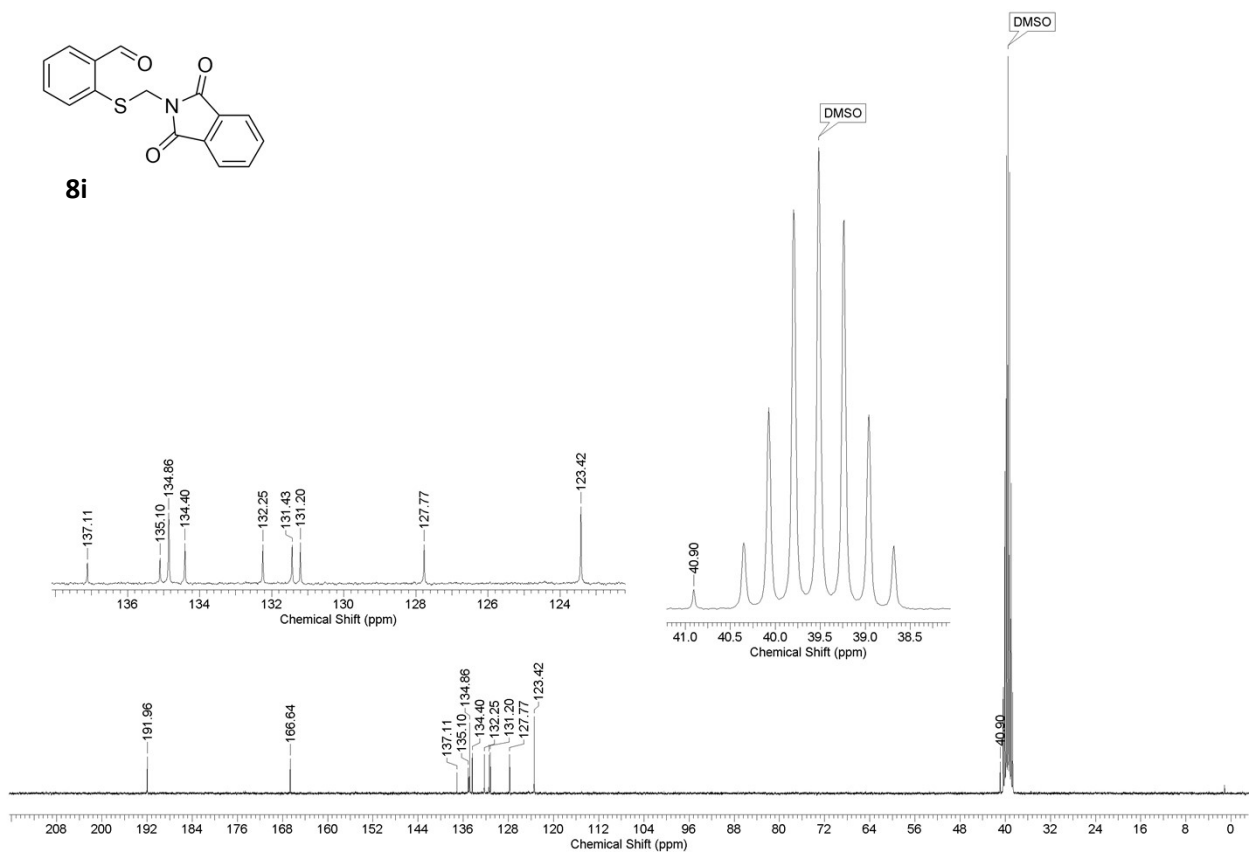
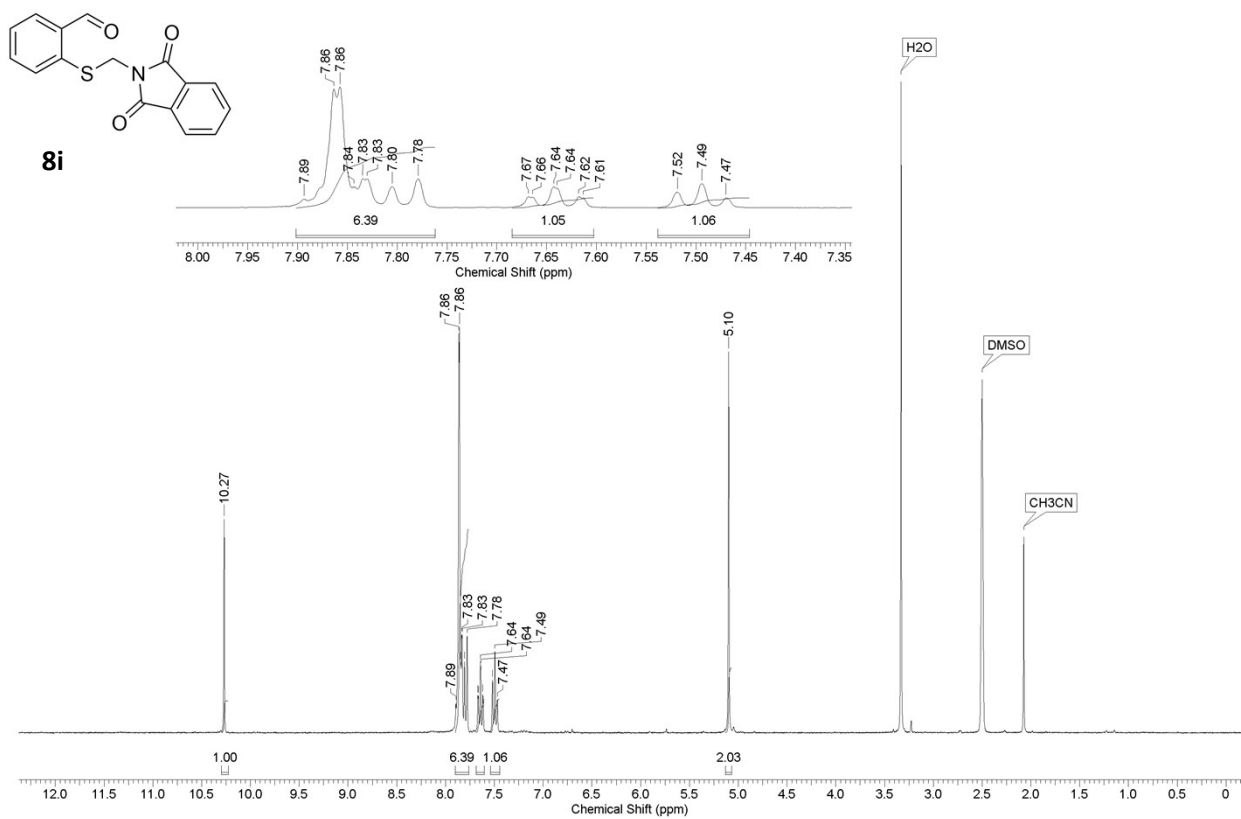
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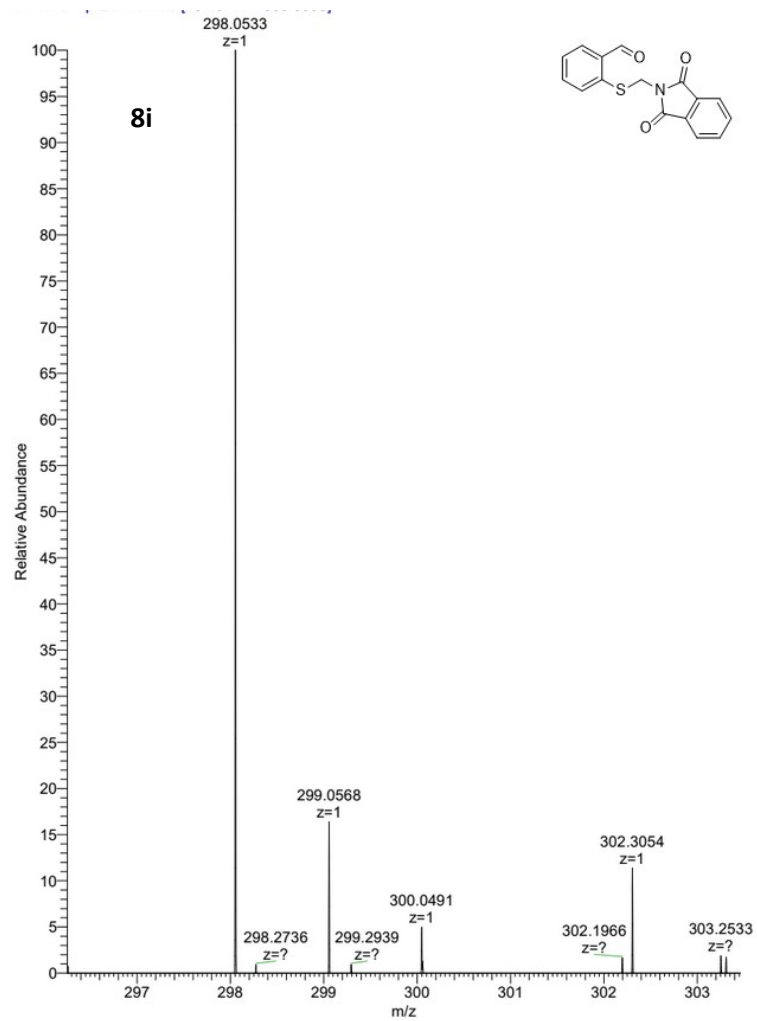


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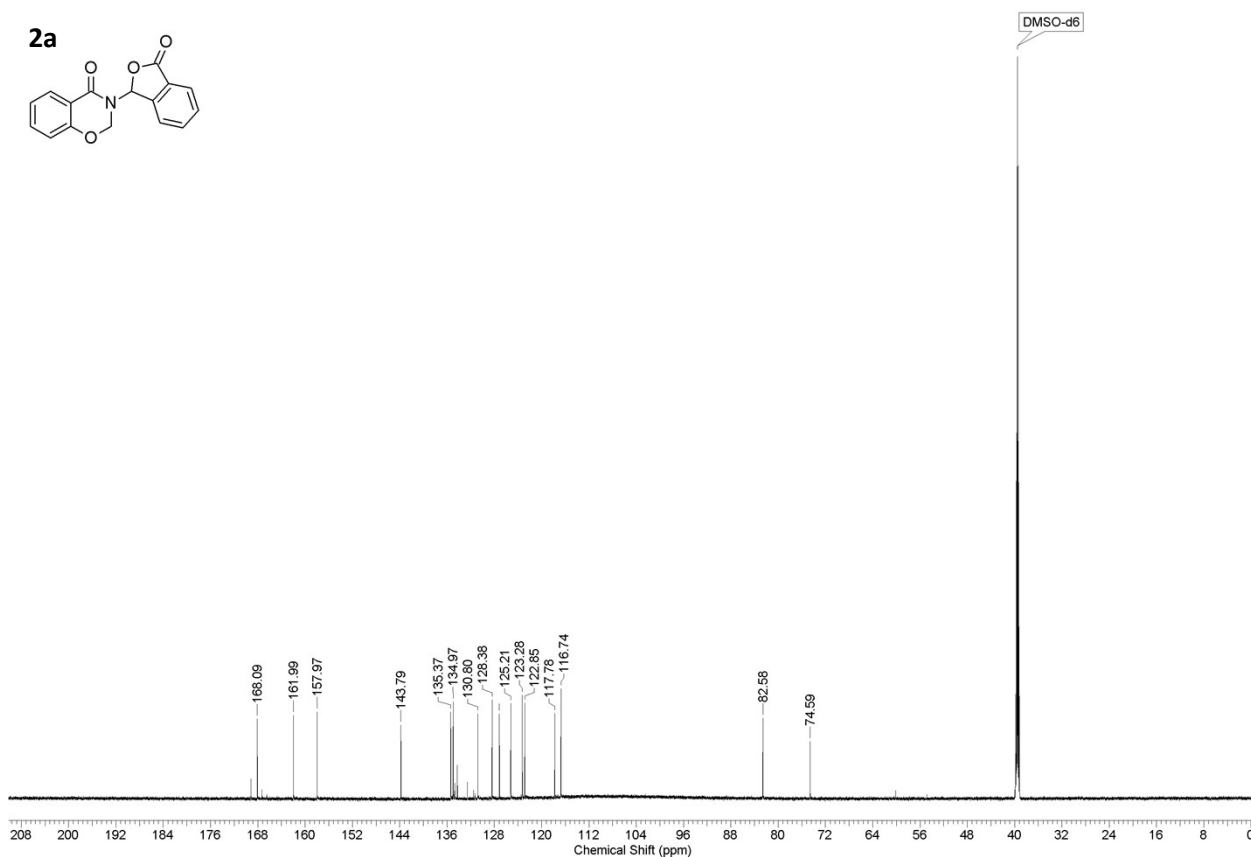
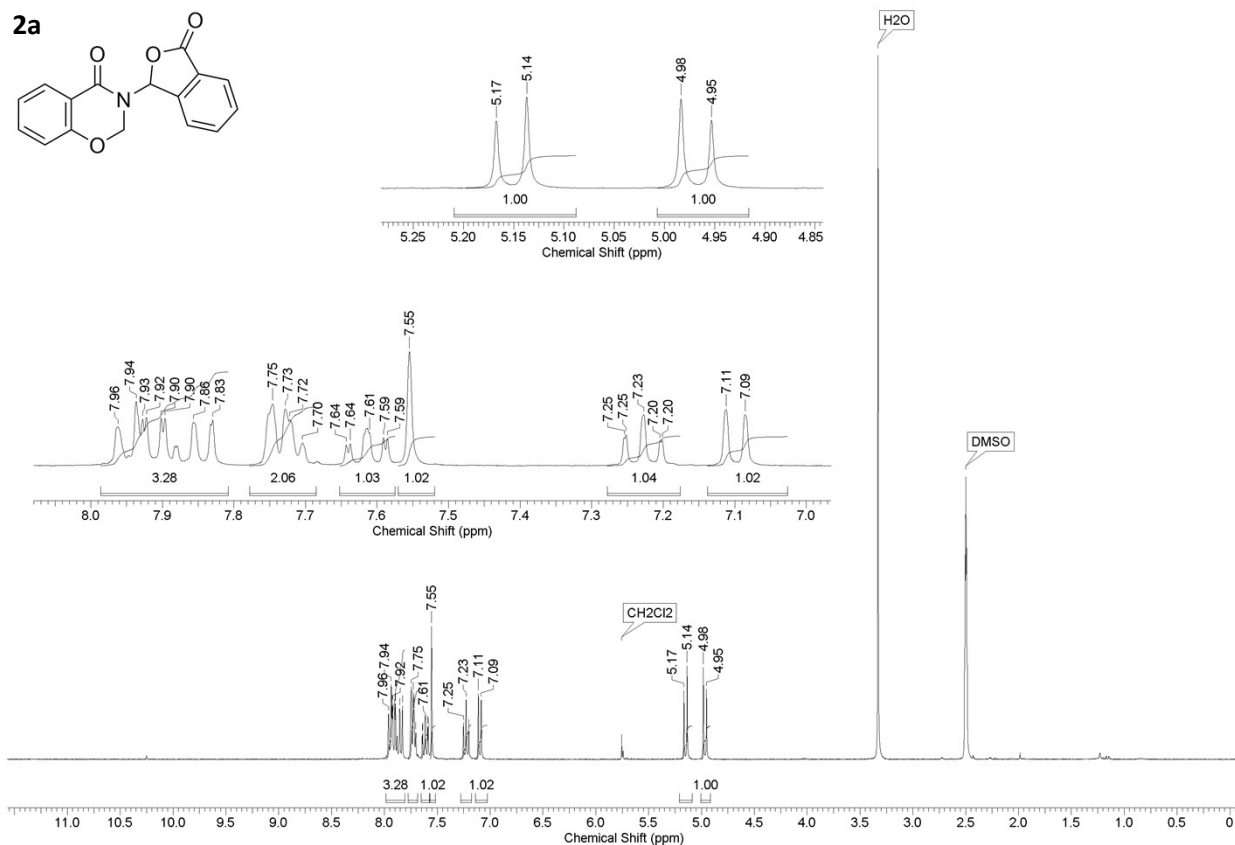




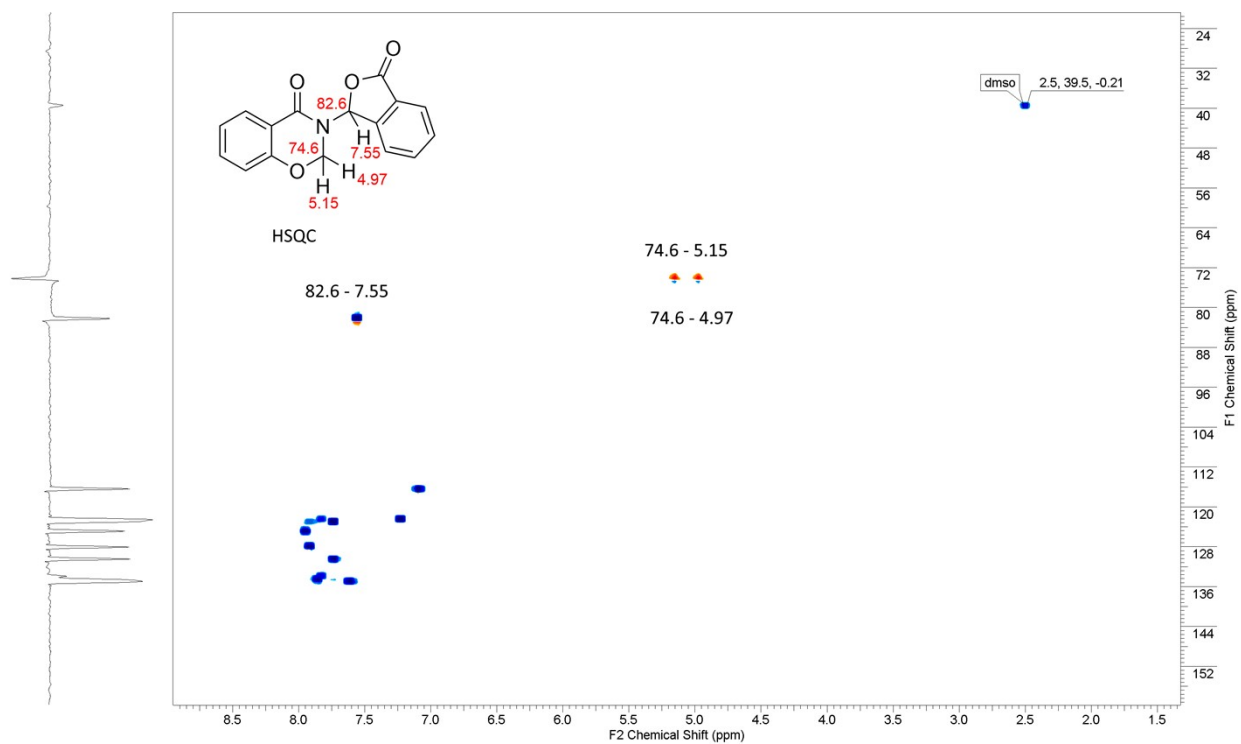


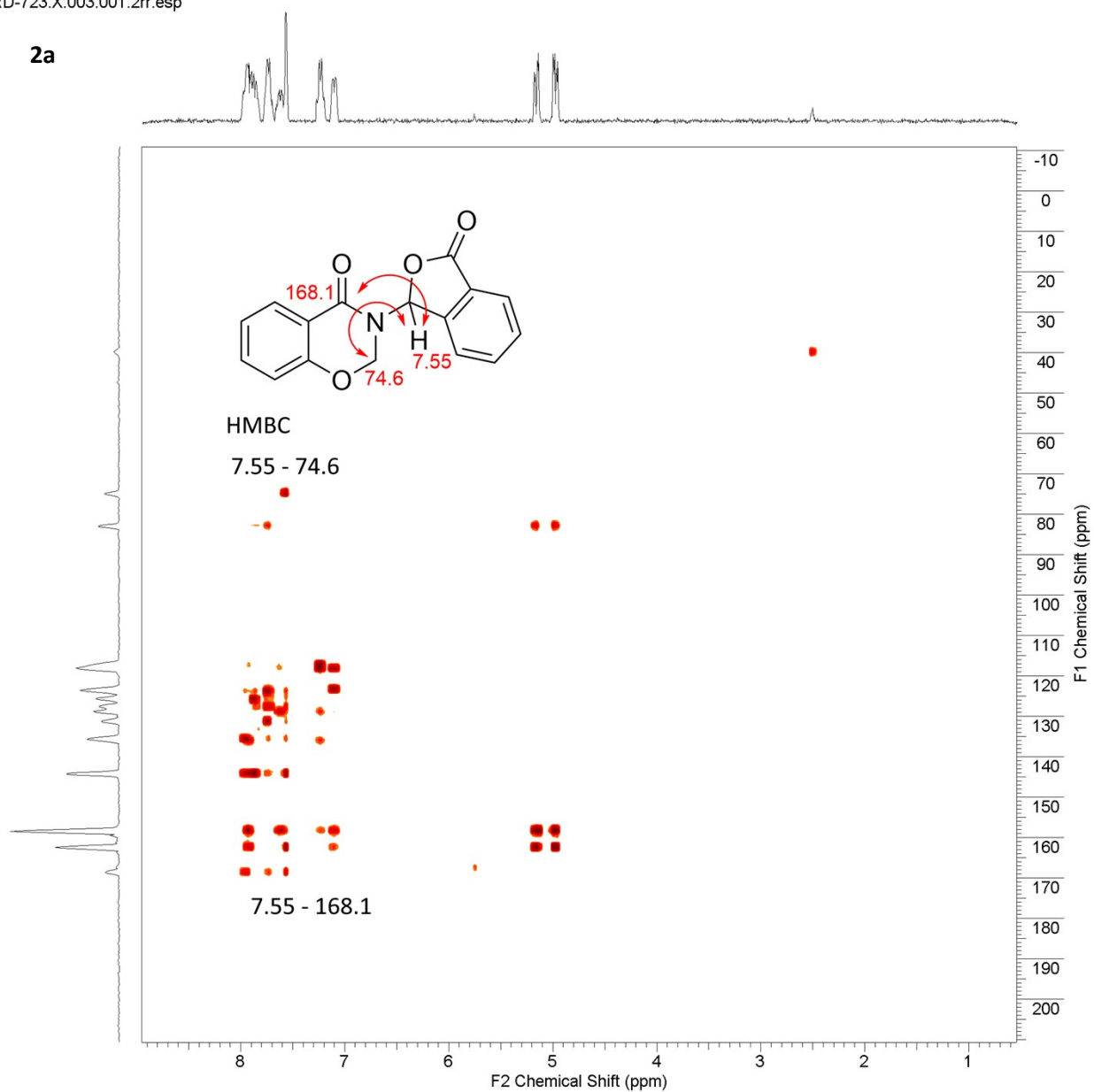


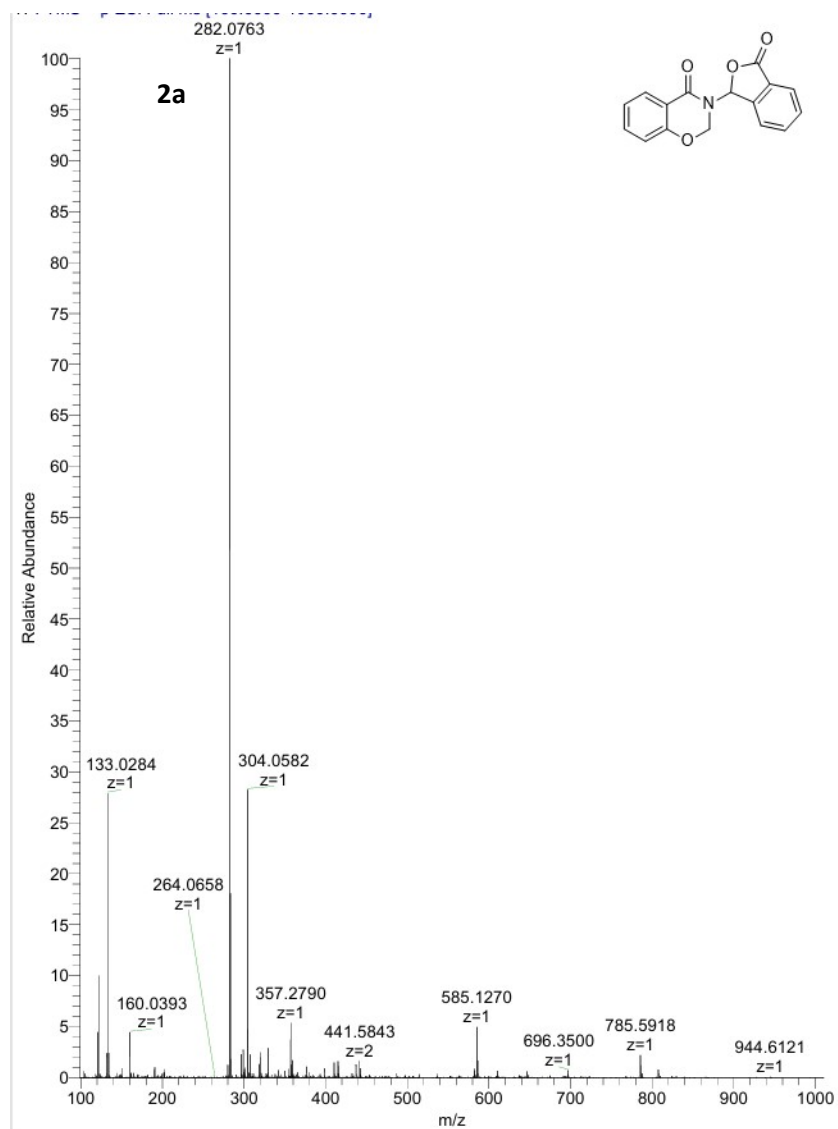
15. Copies of NMR and HRMS spectra for products 2, 5, 6q, 9i, 10i

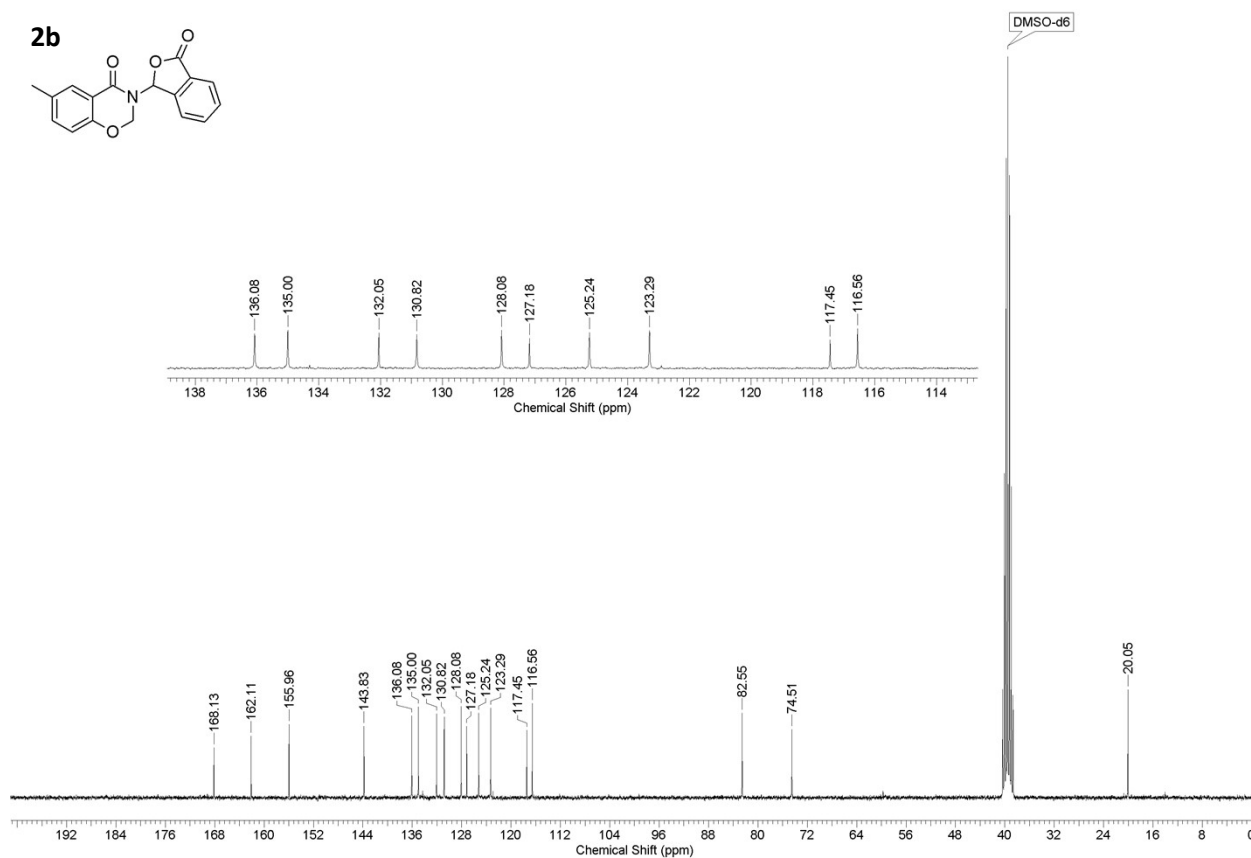
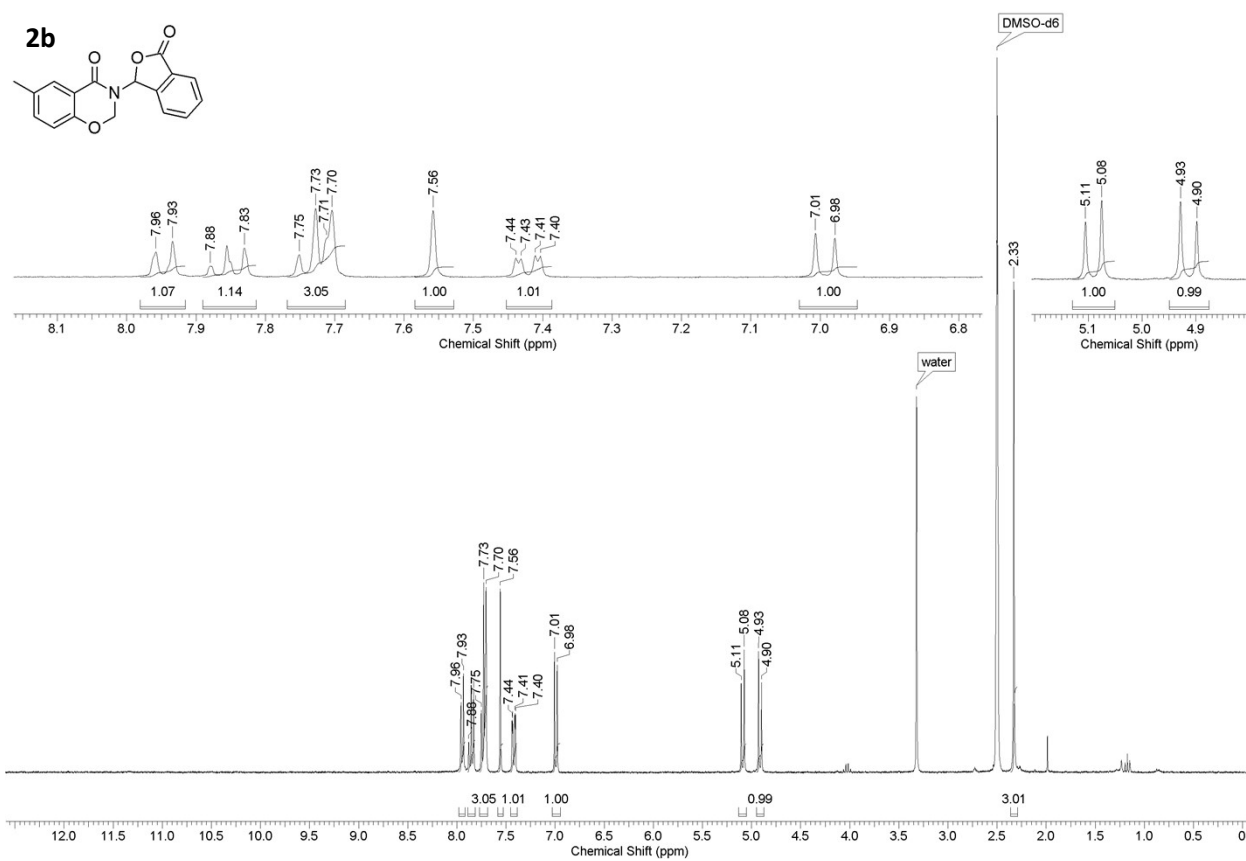


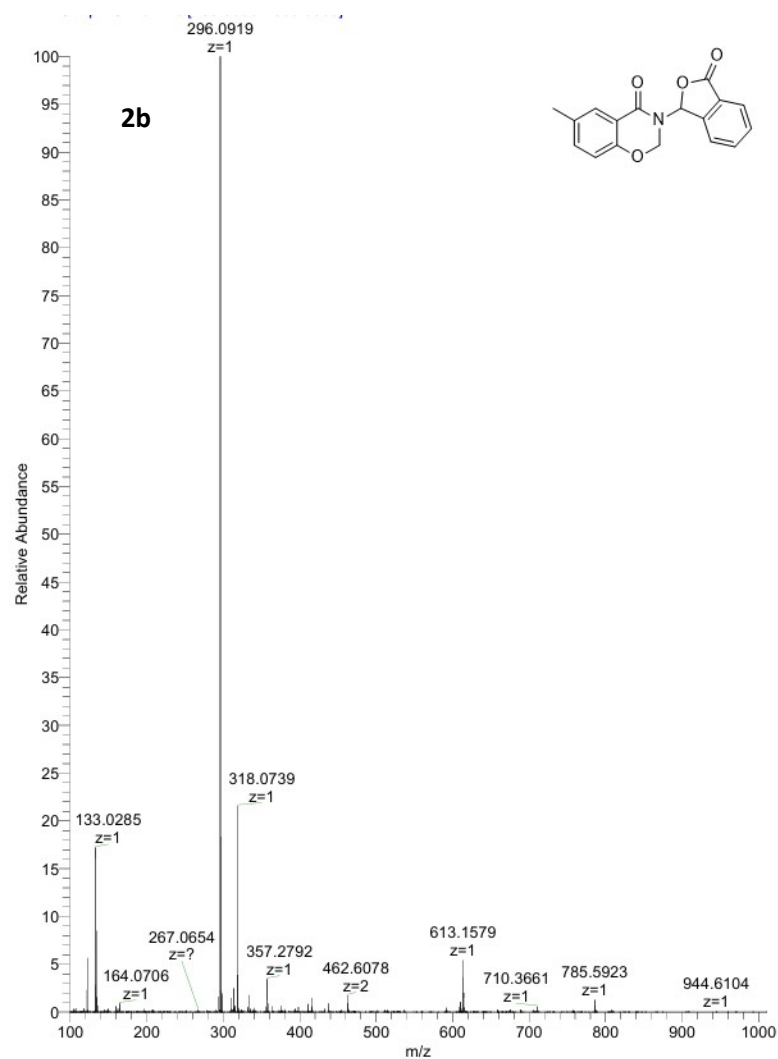
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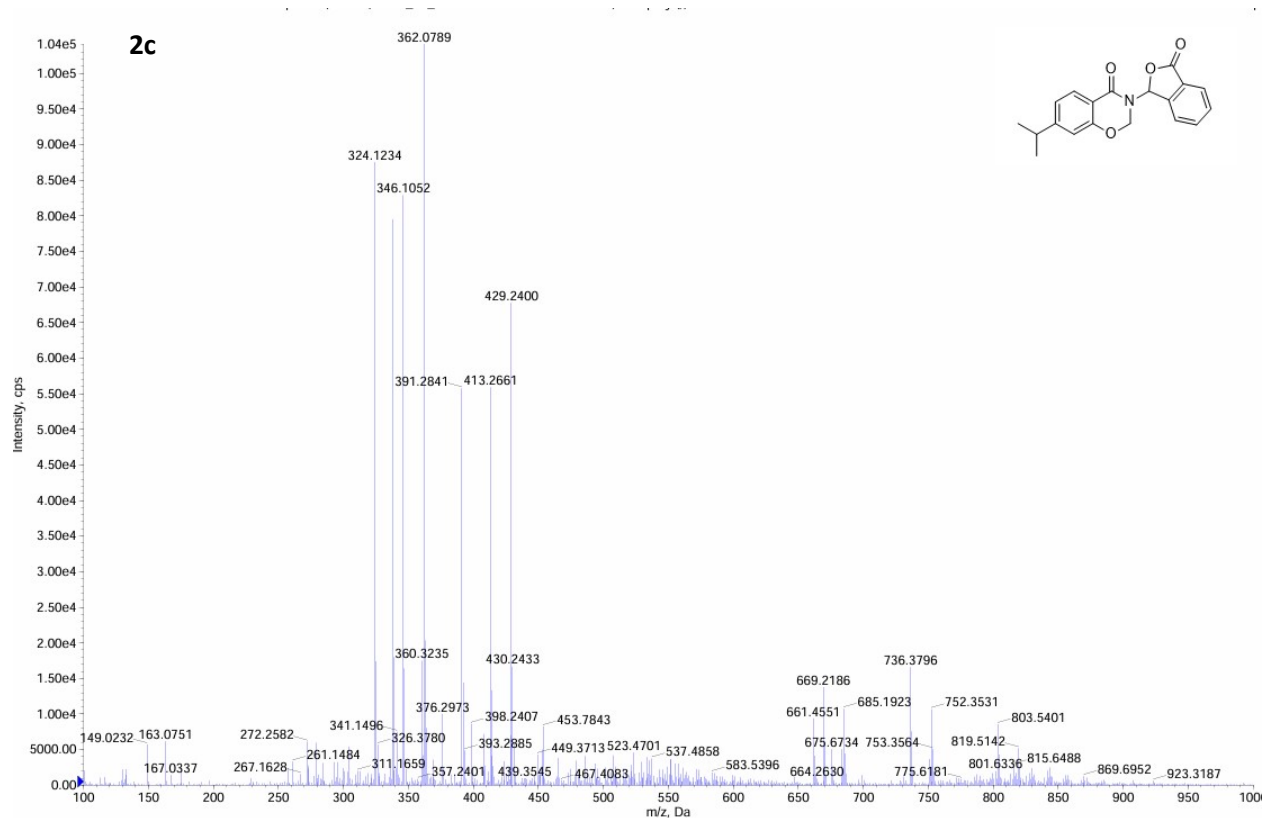


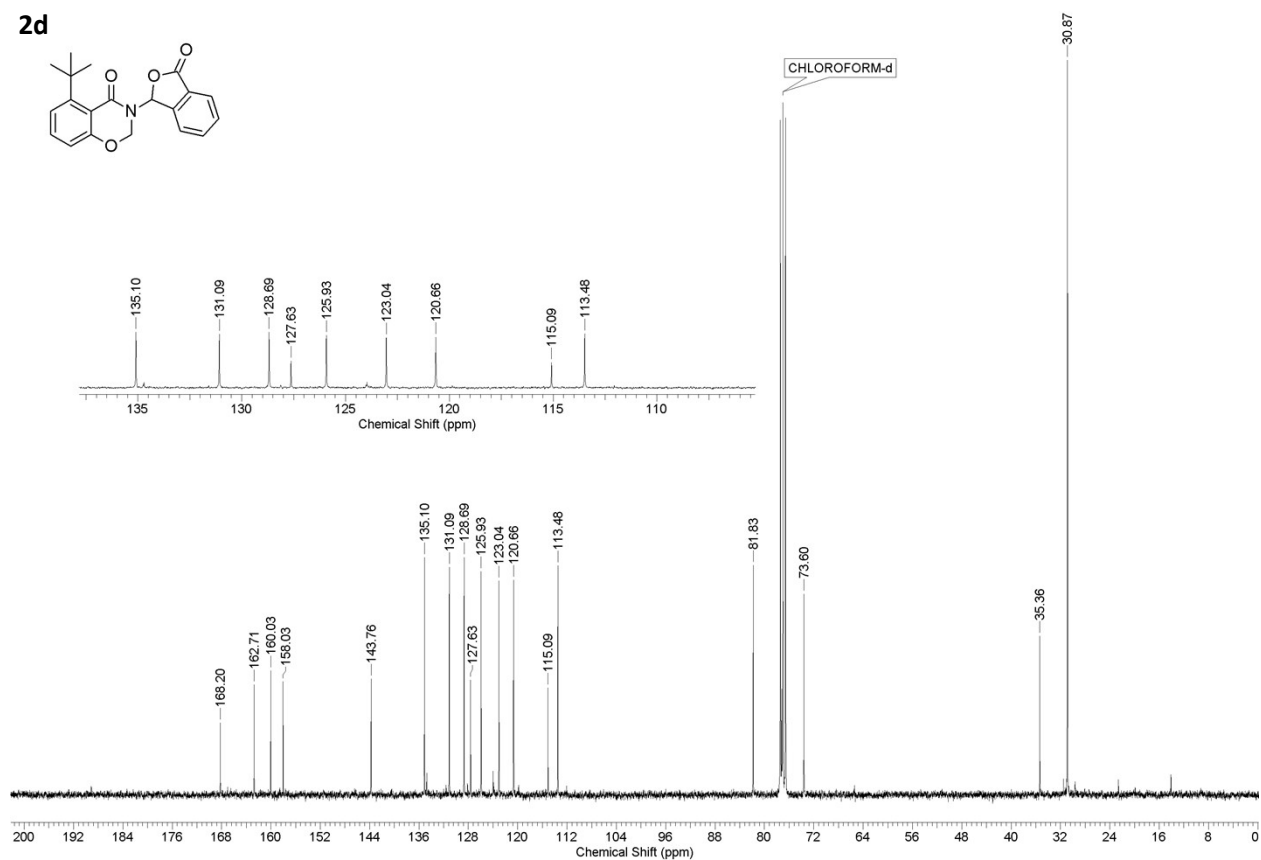
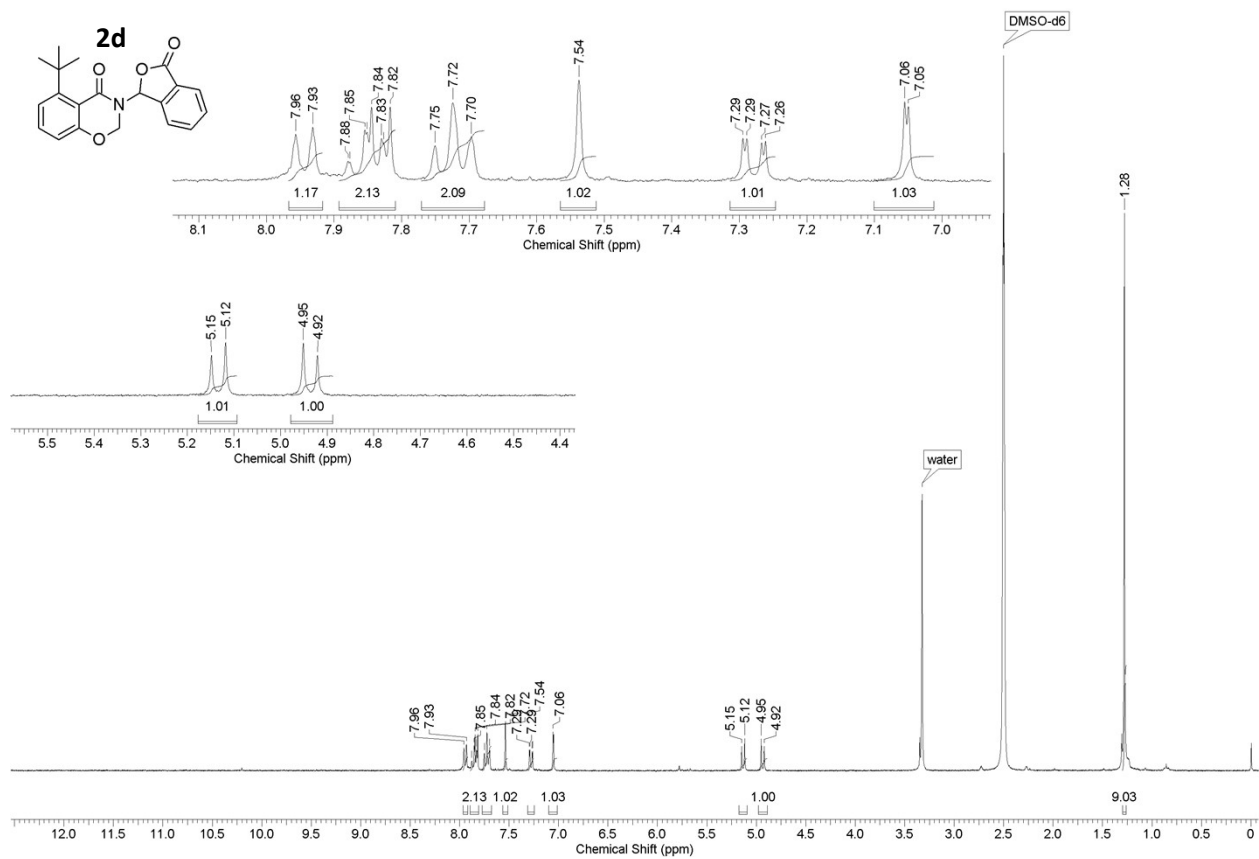
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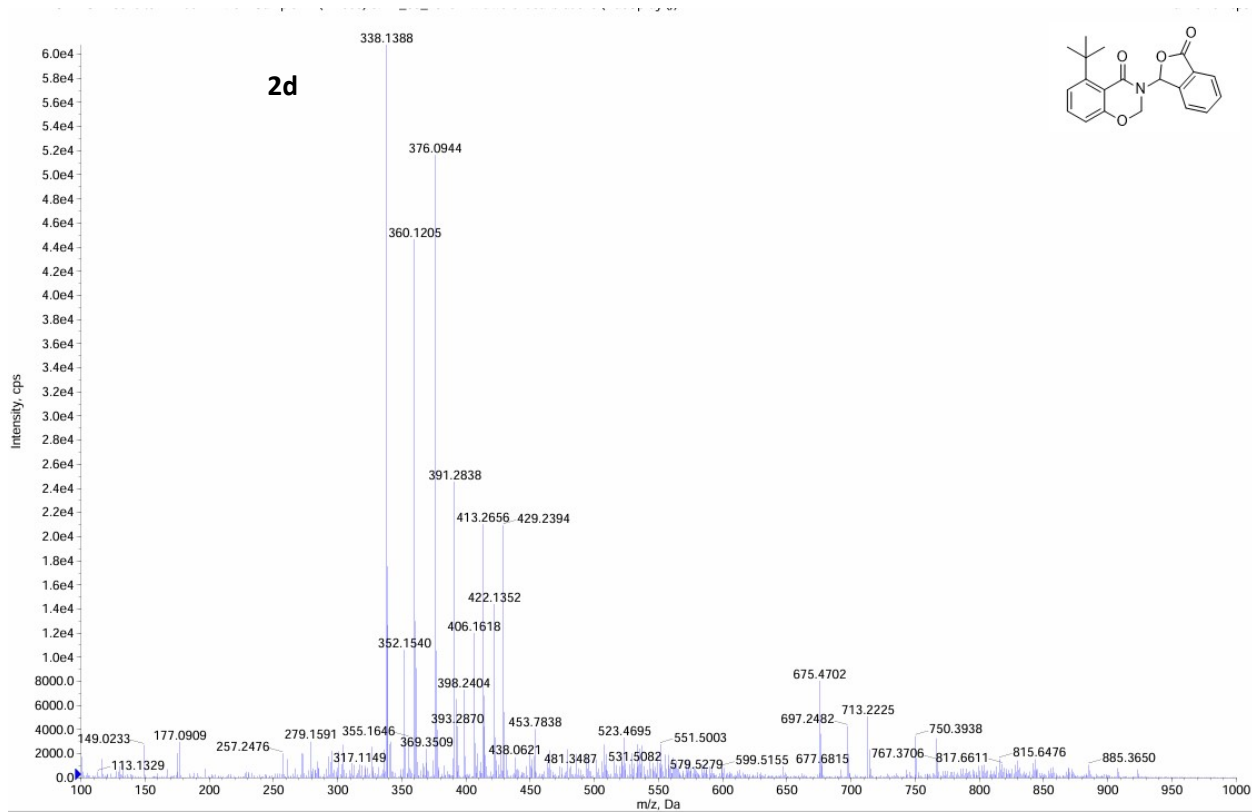


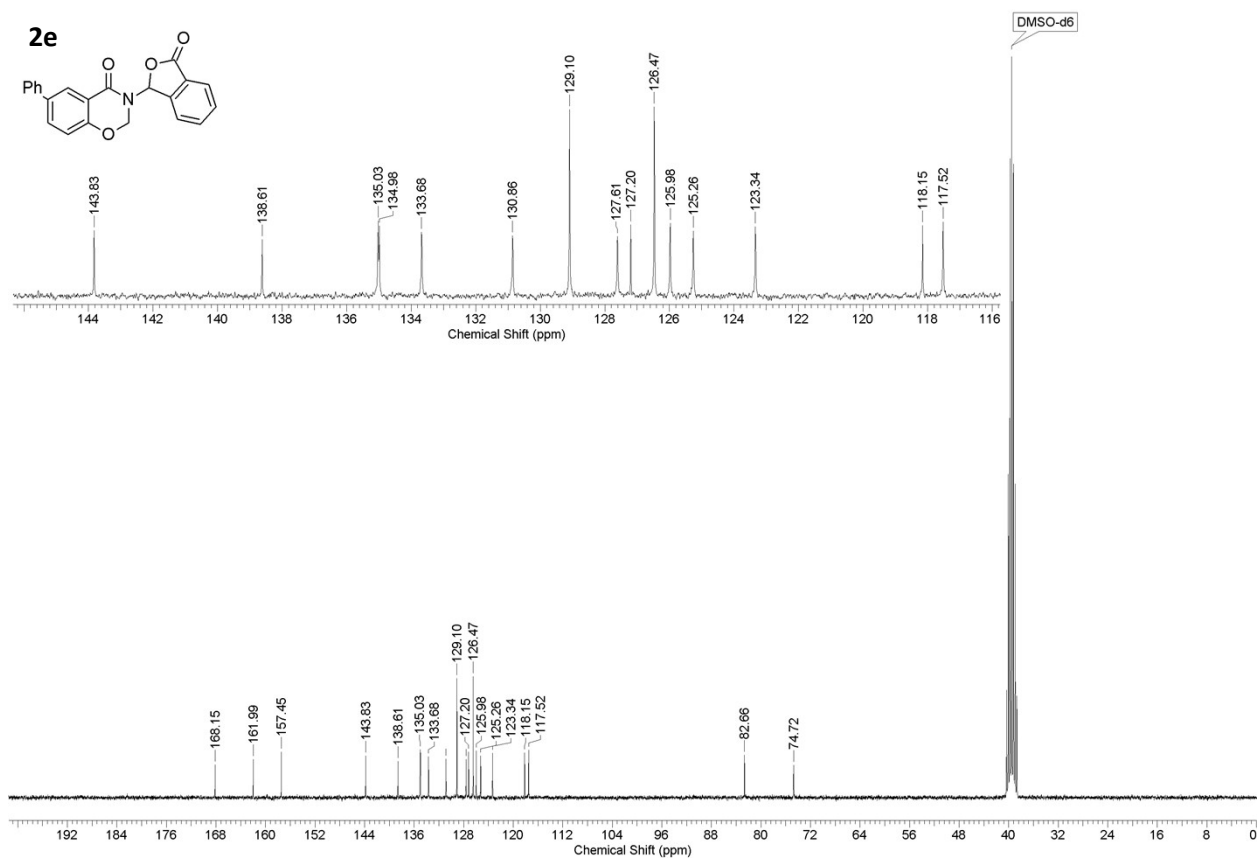
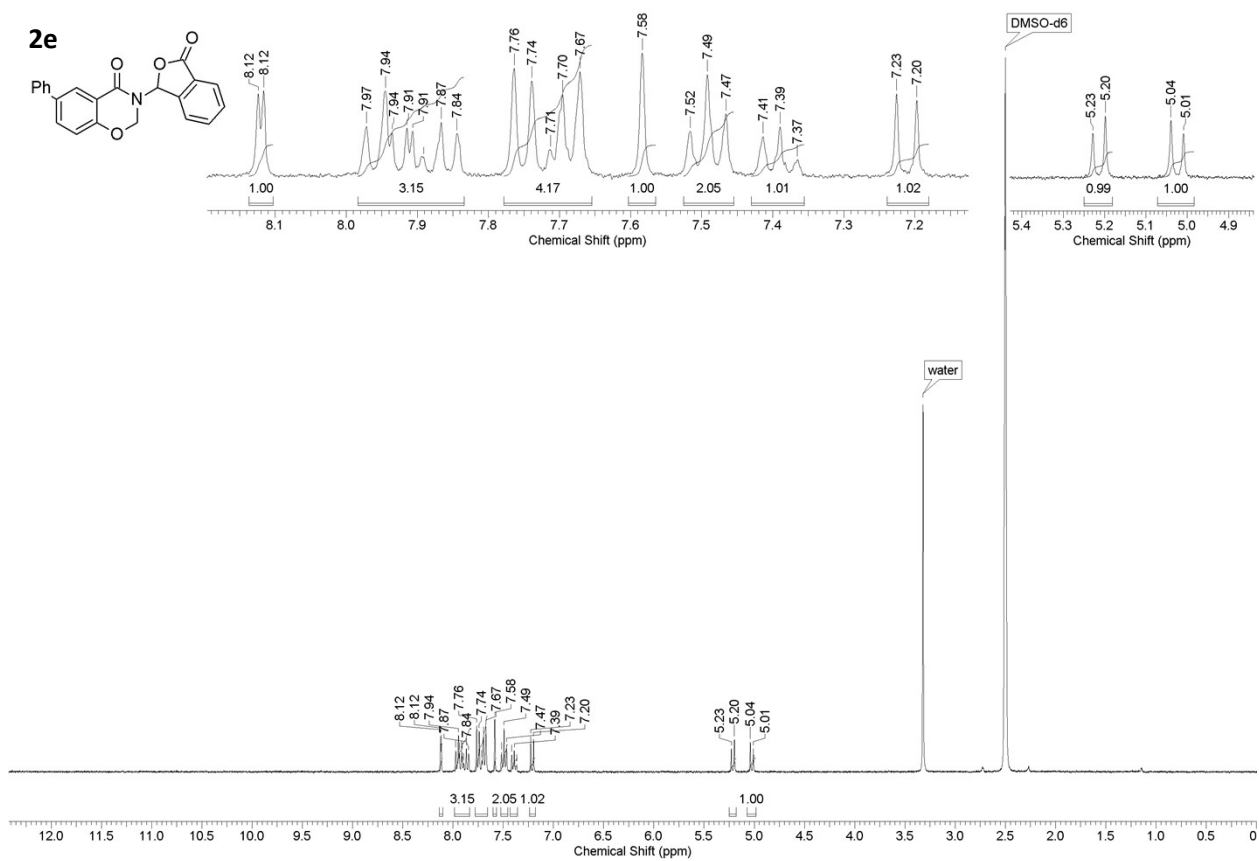


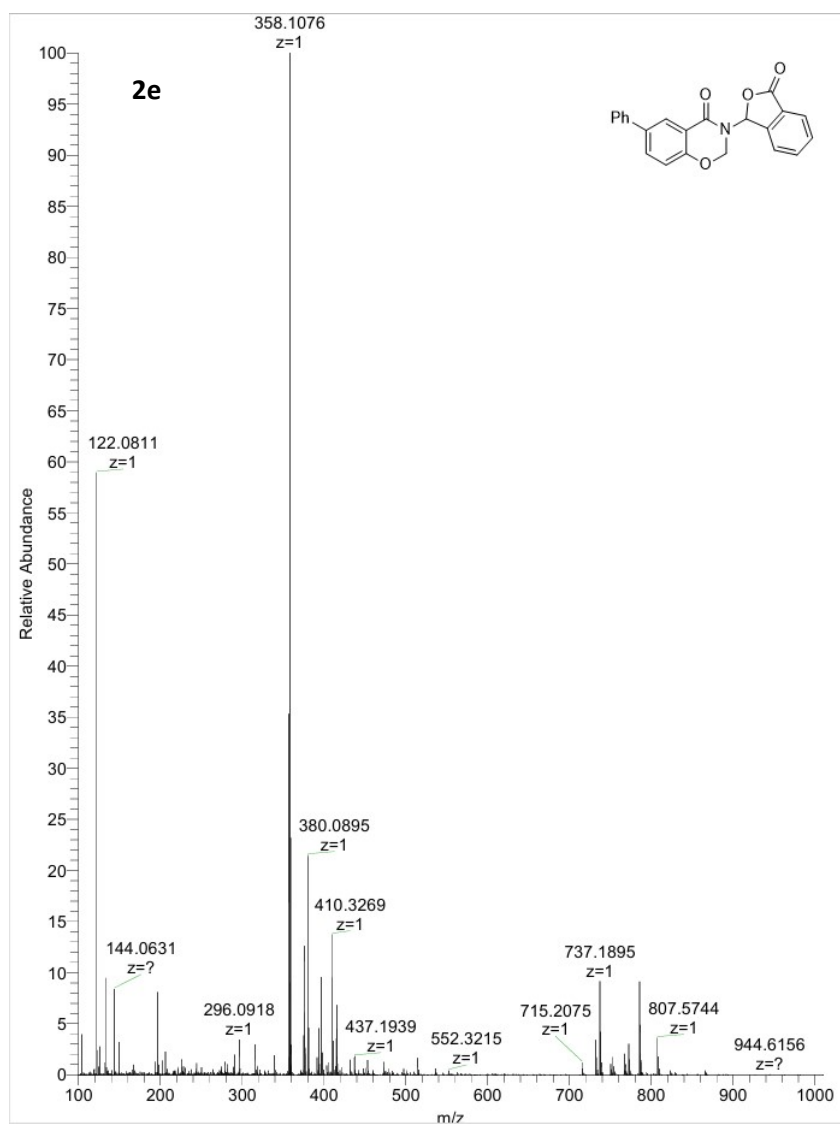


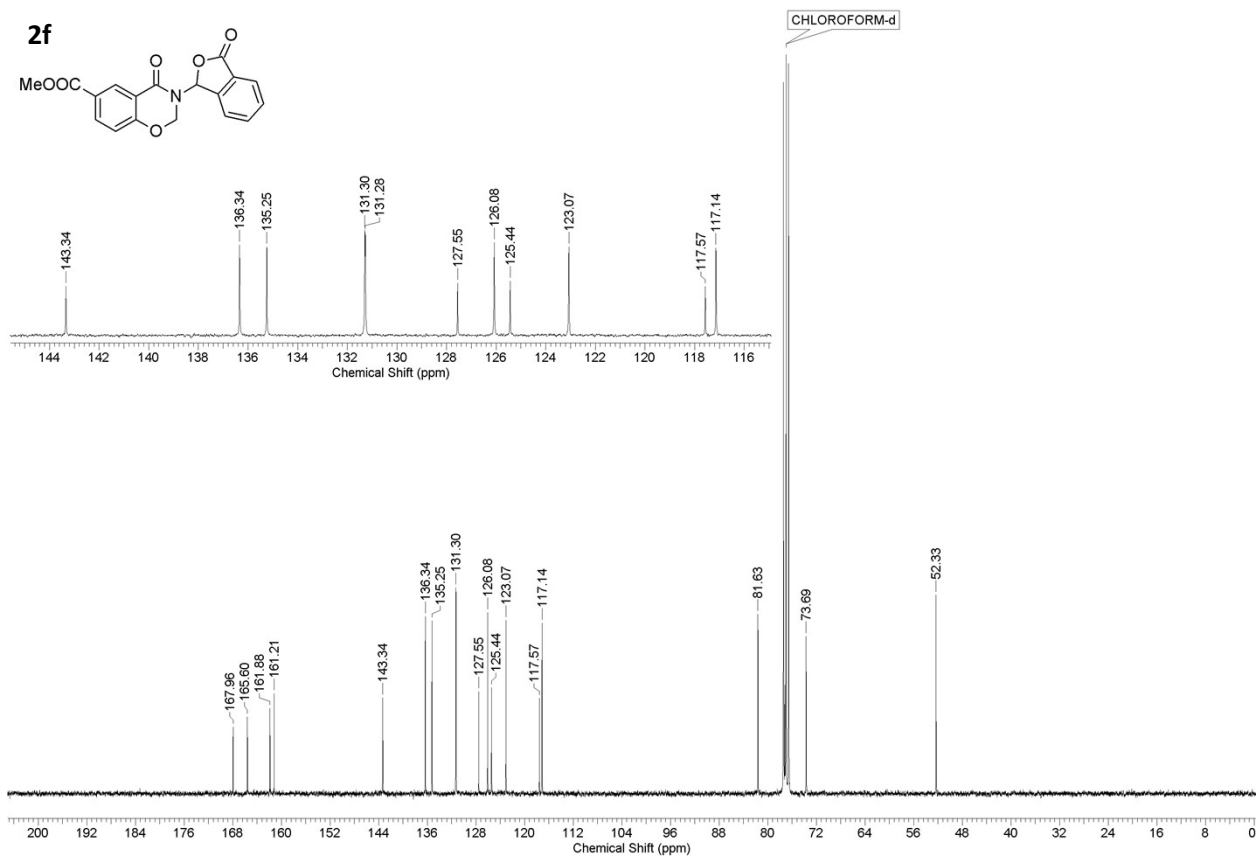
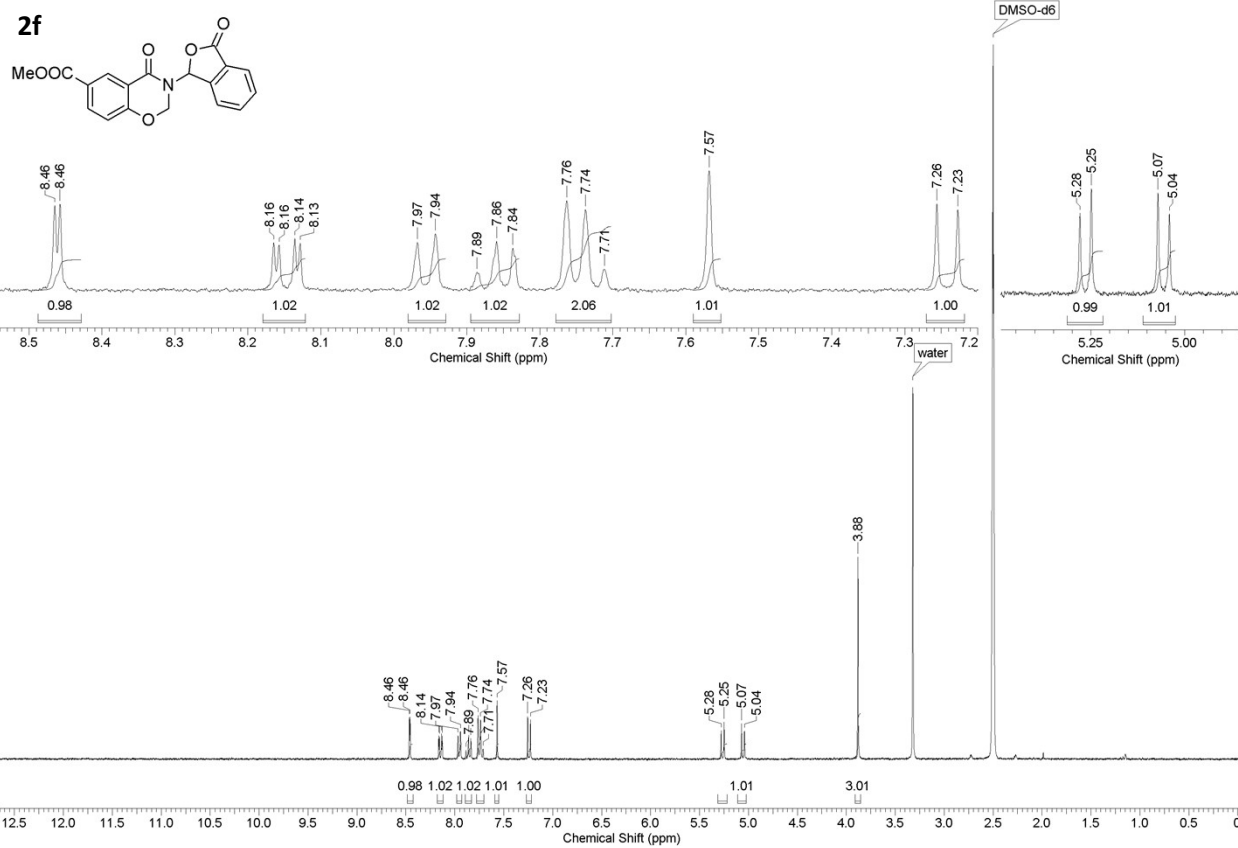


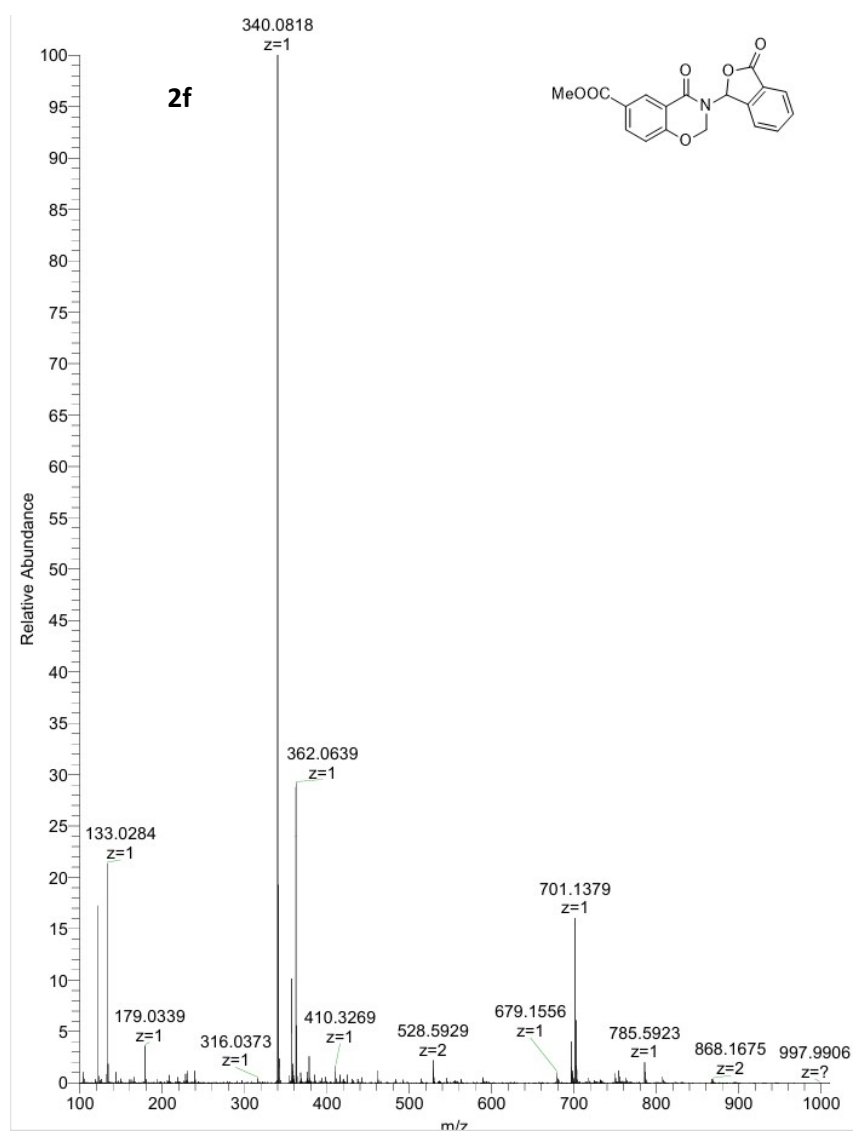


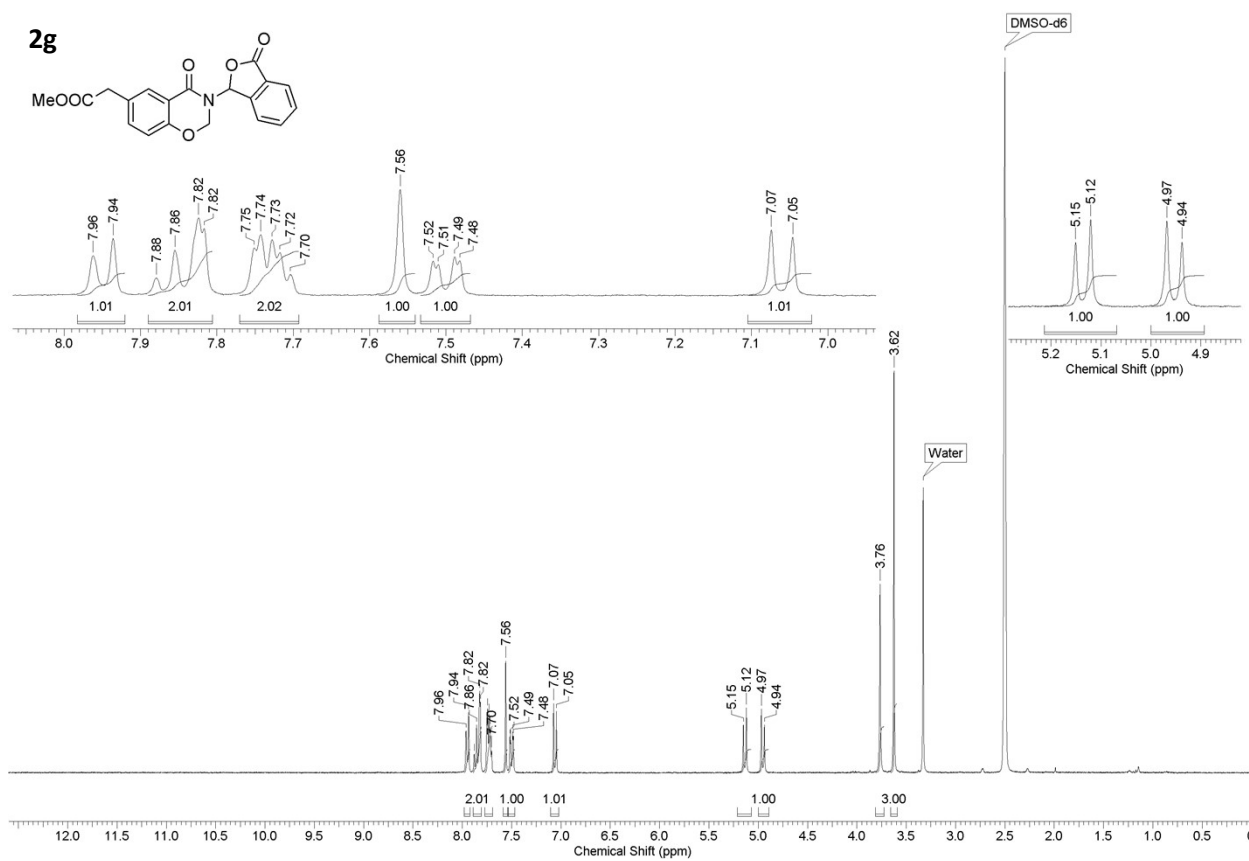
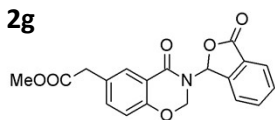
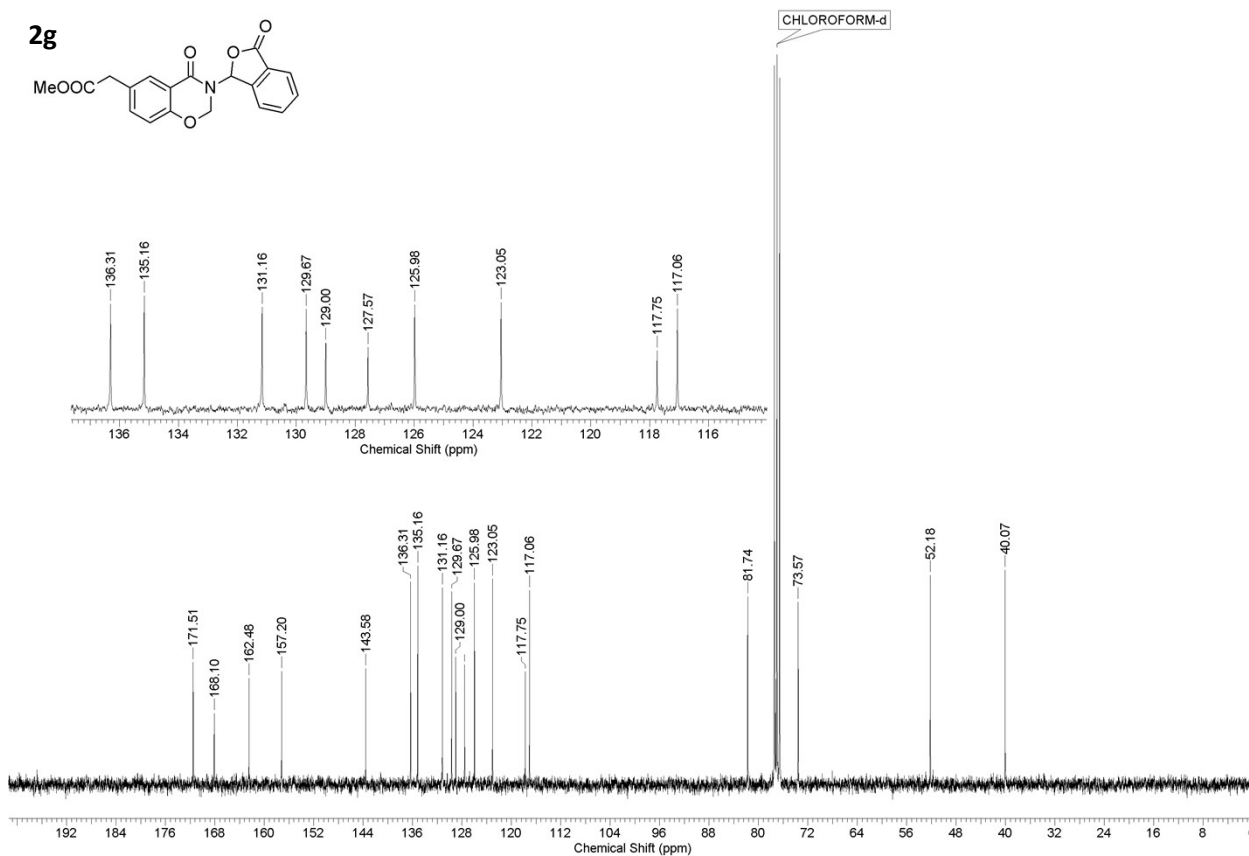
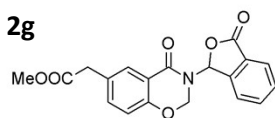


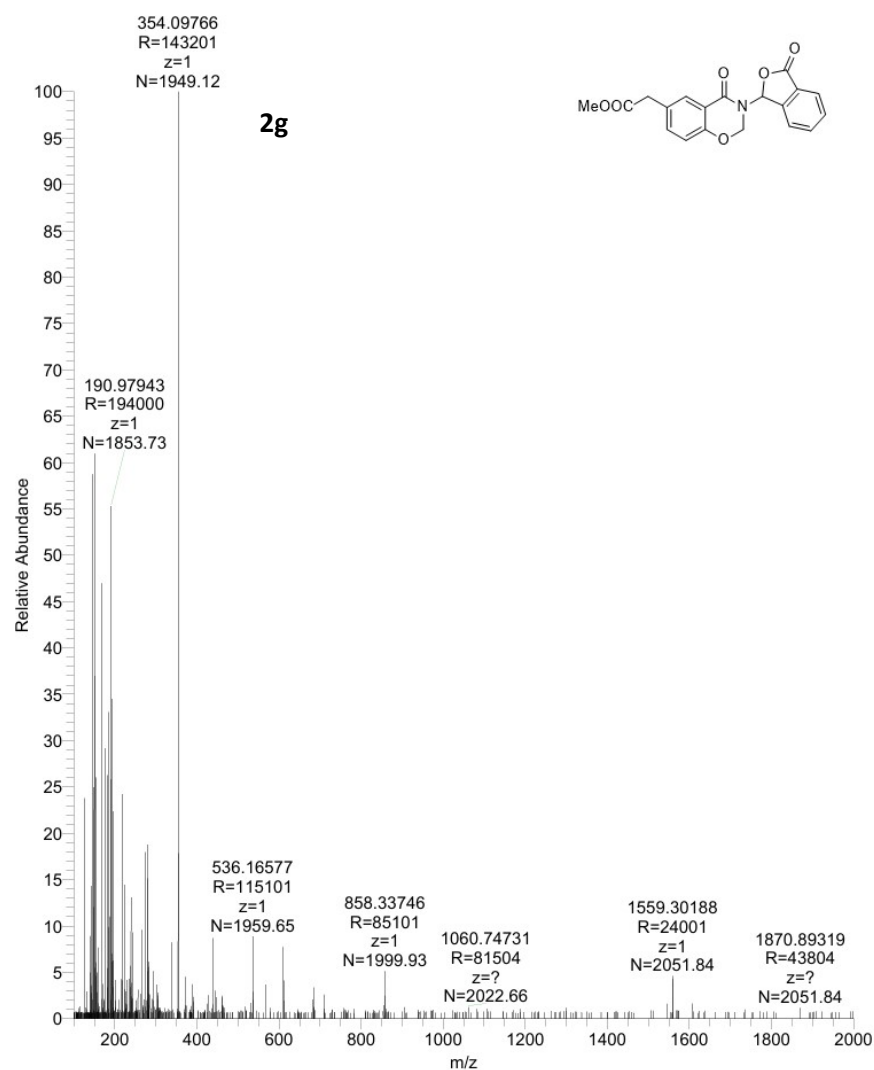


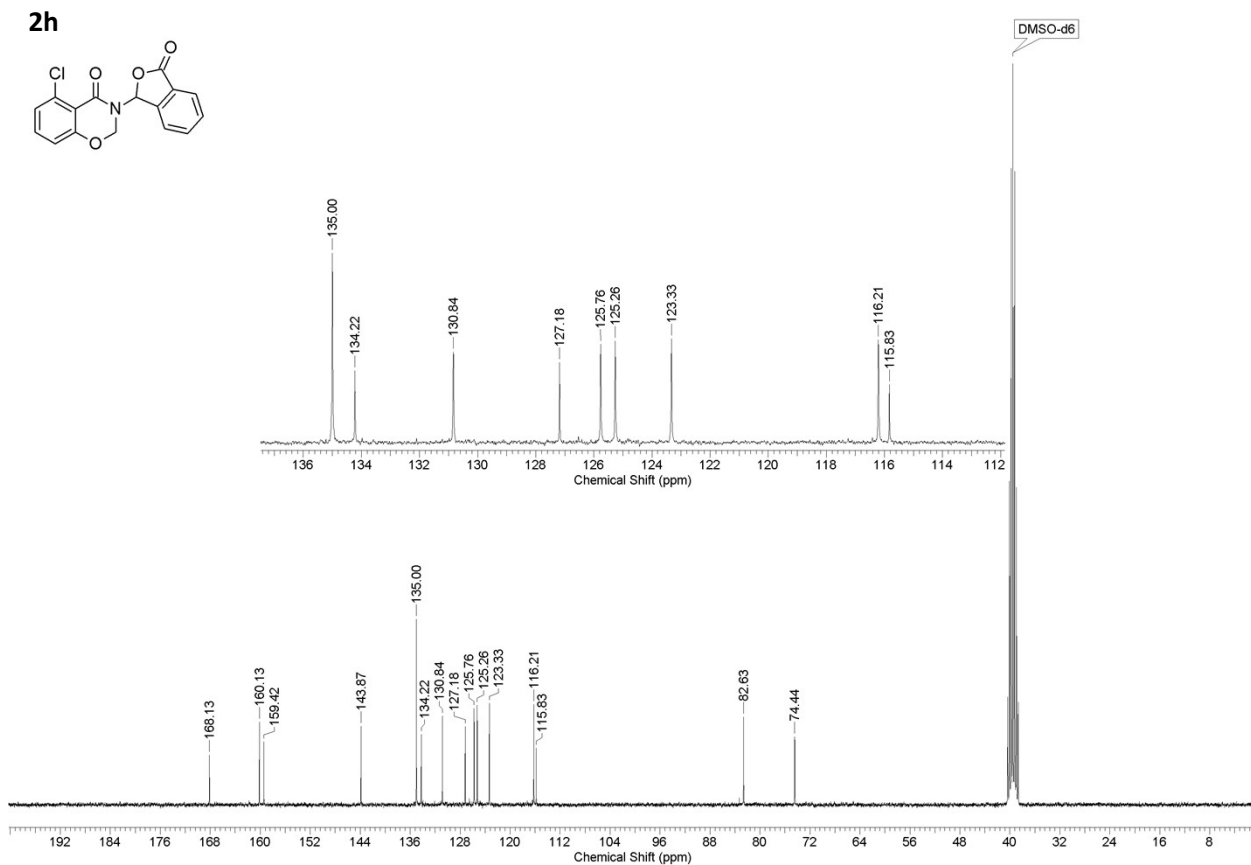
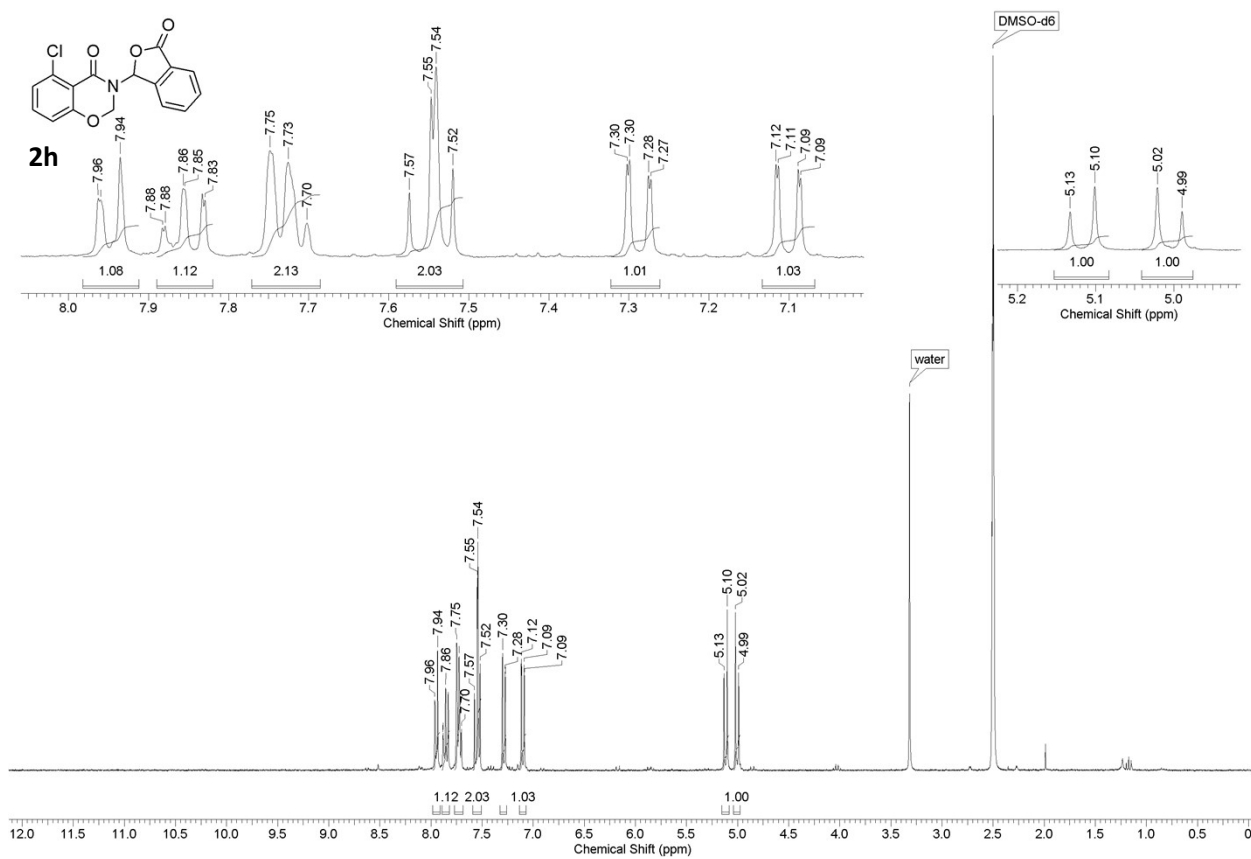


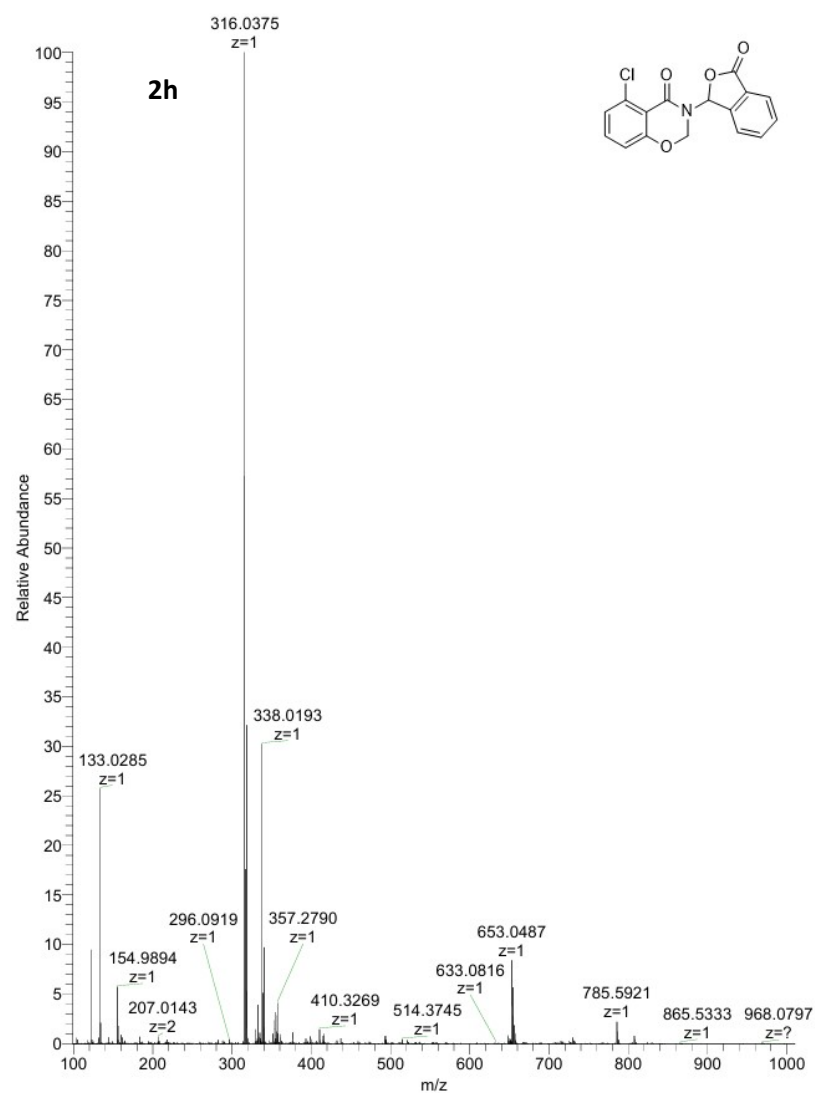


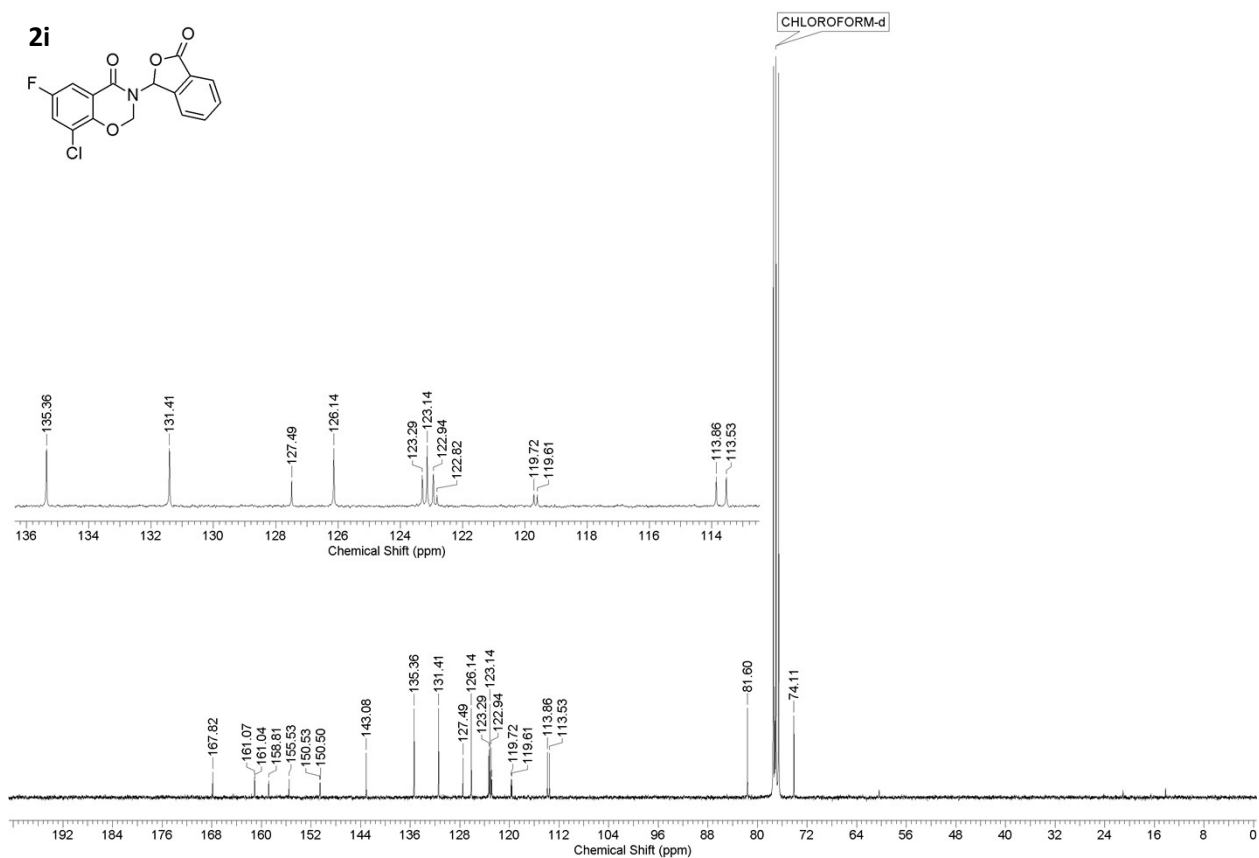
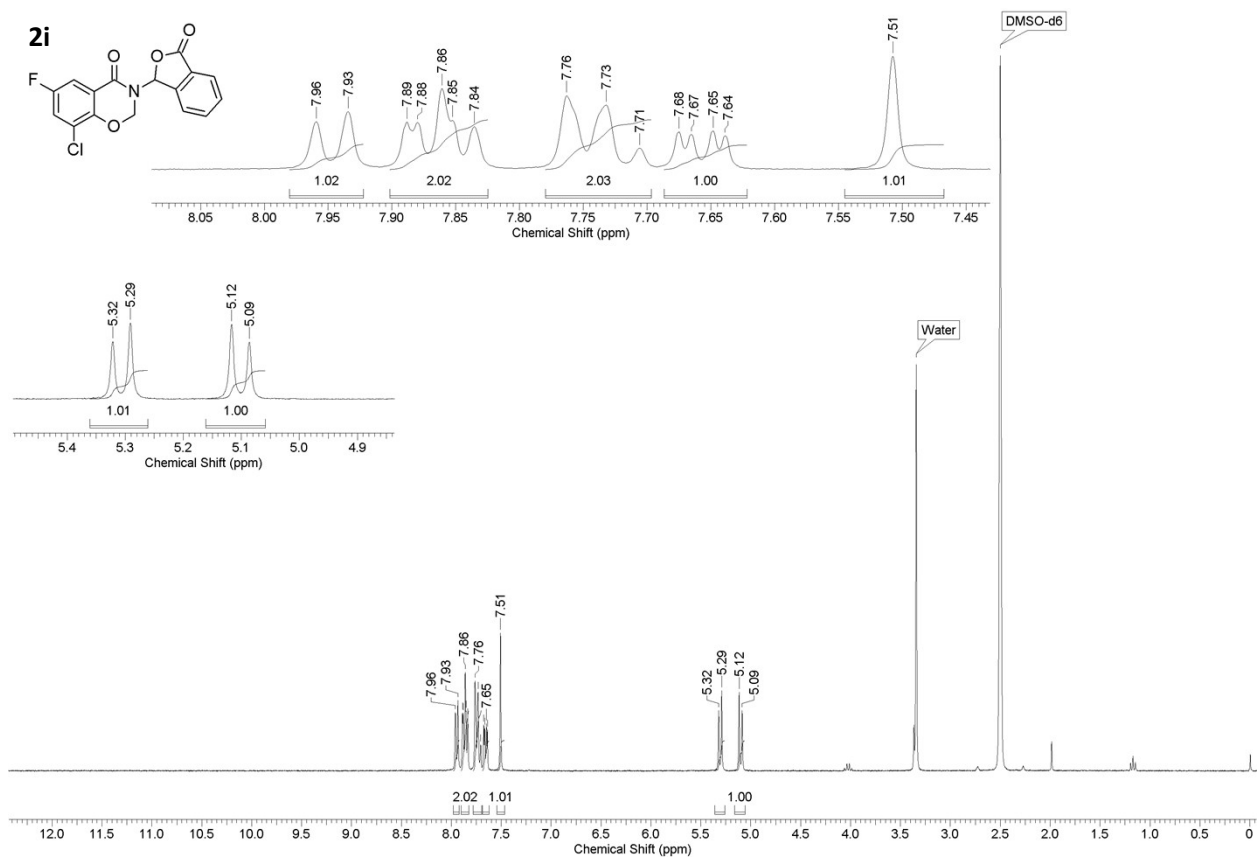


2g**2g**

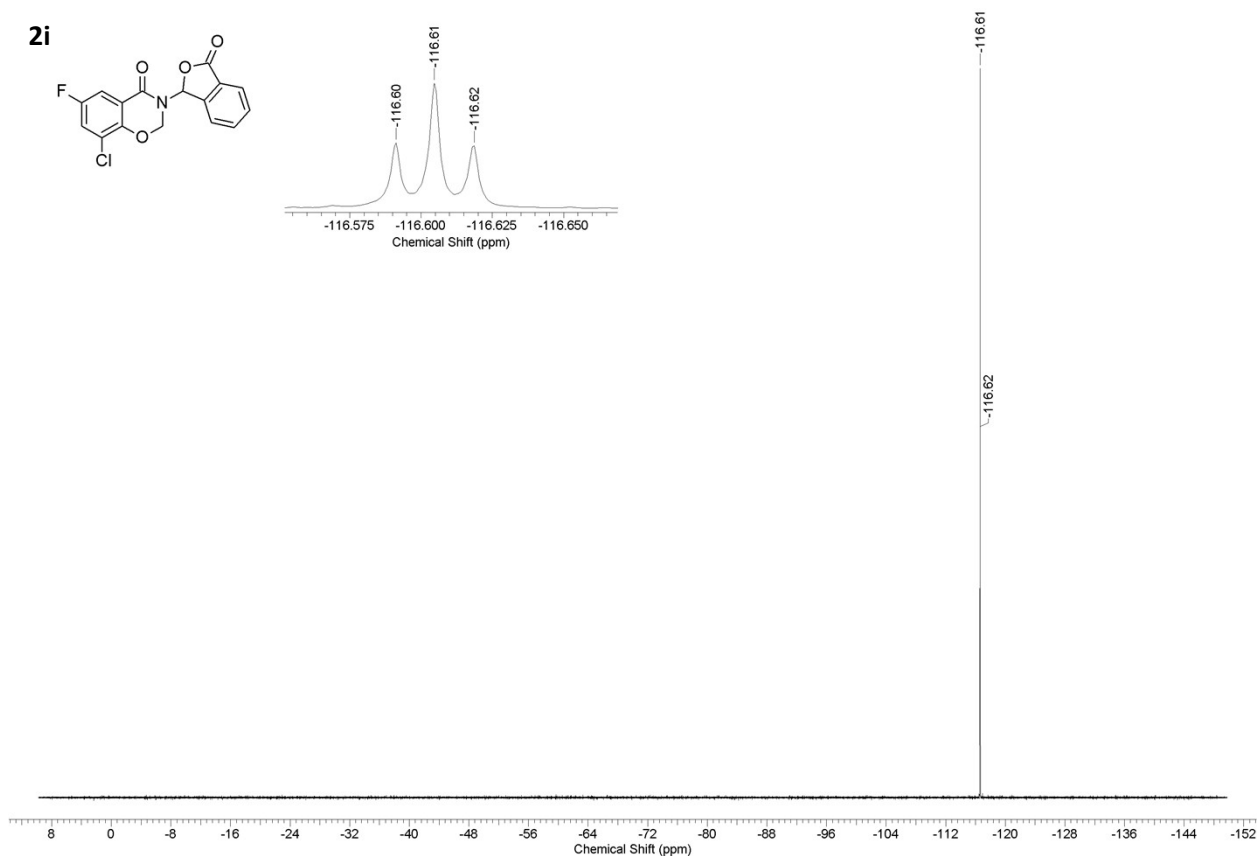
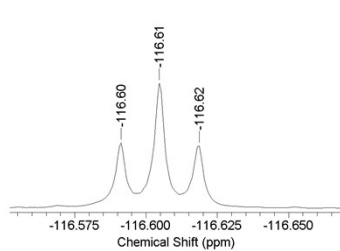
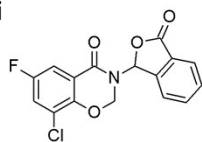




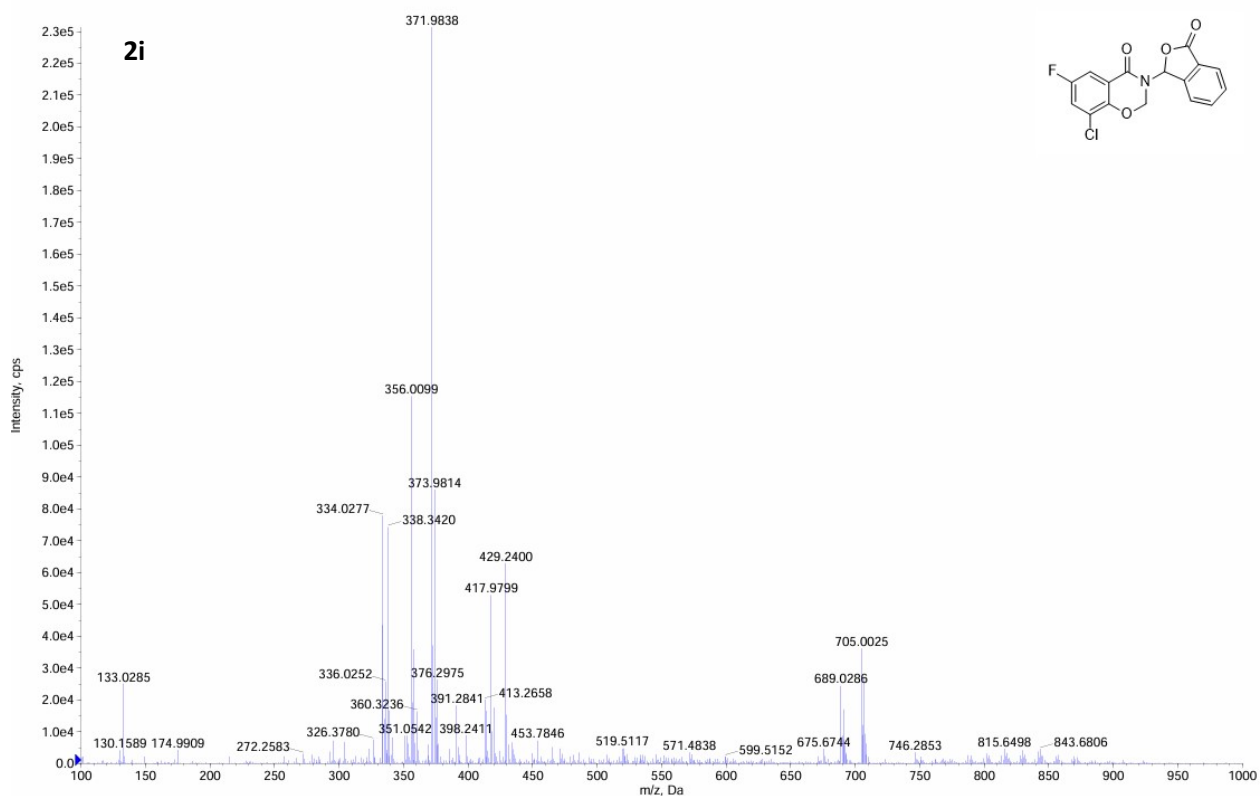
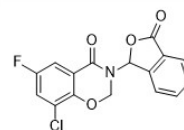


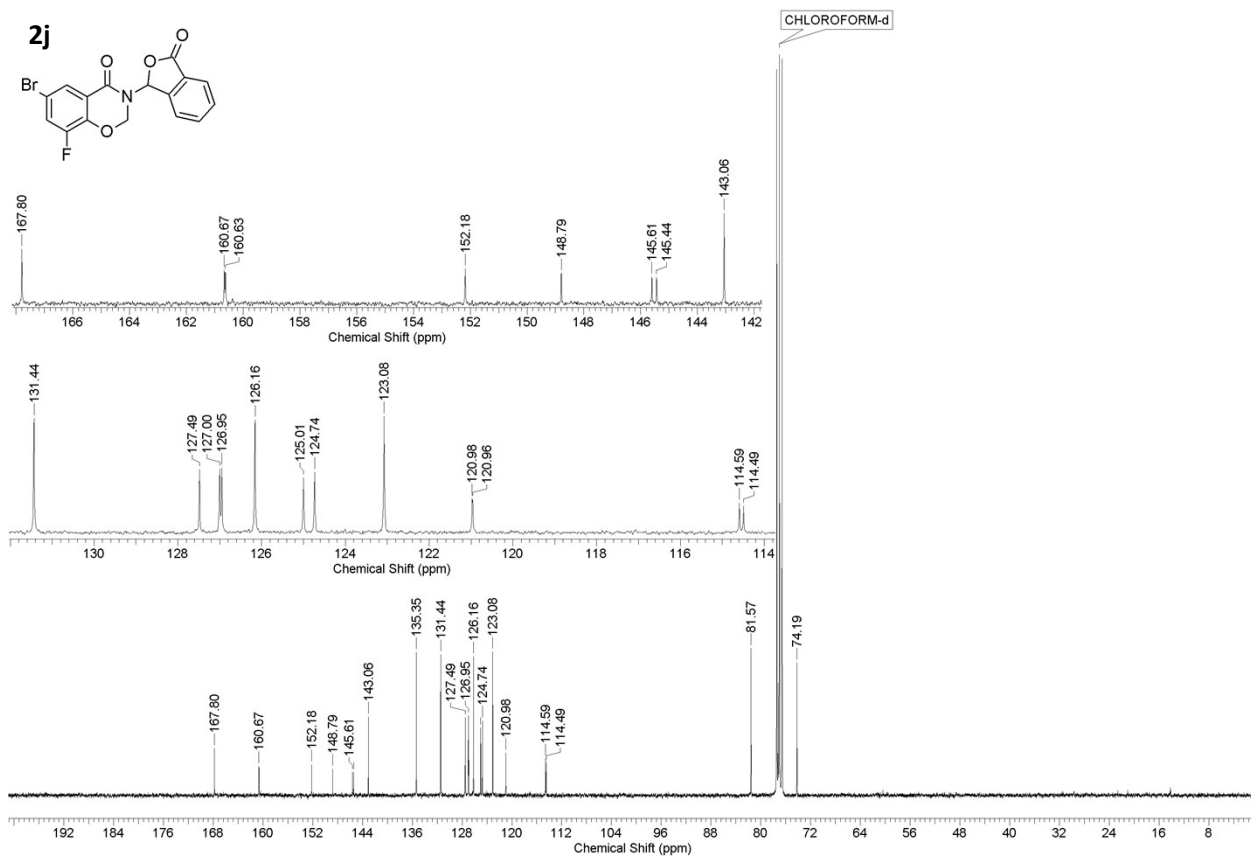
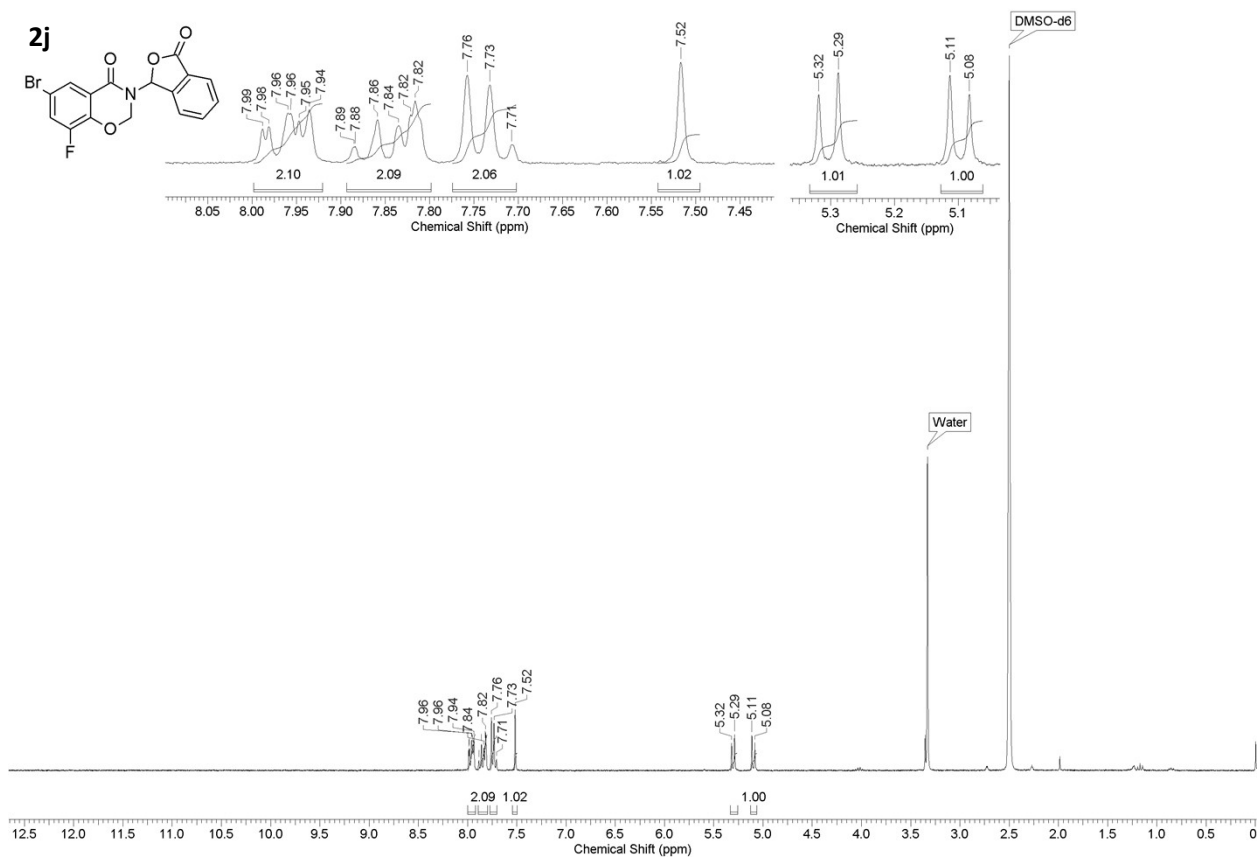


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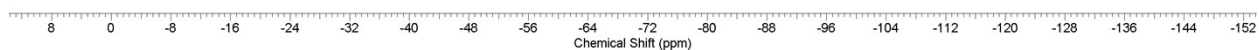
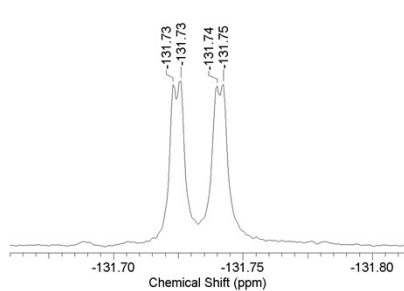
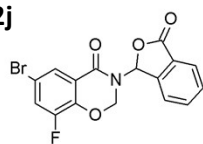


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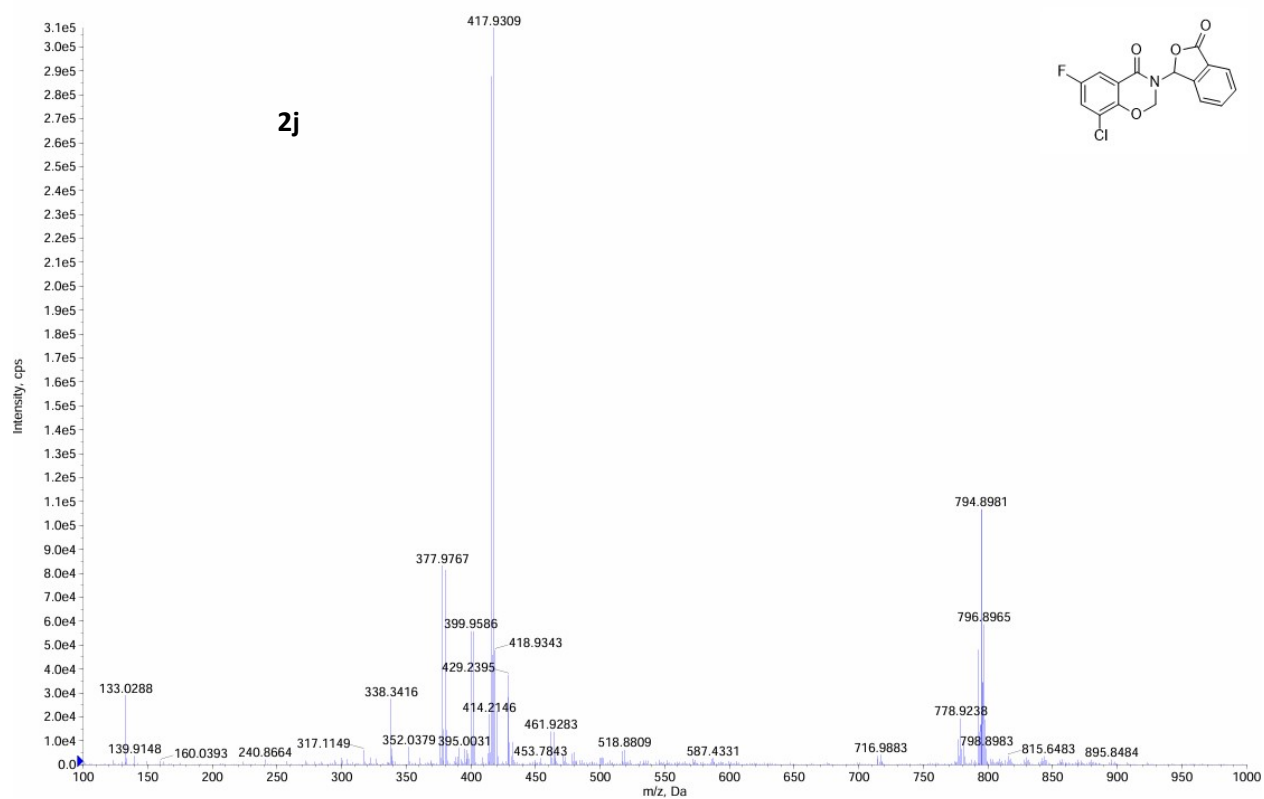
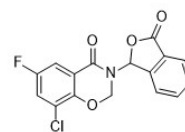


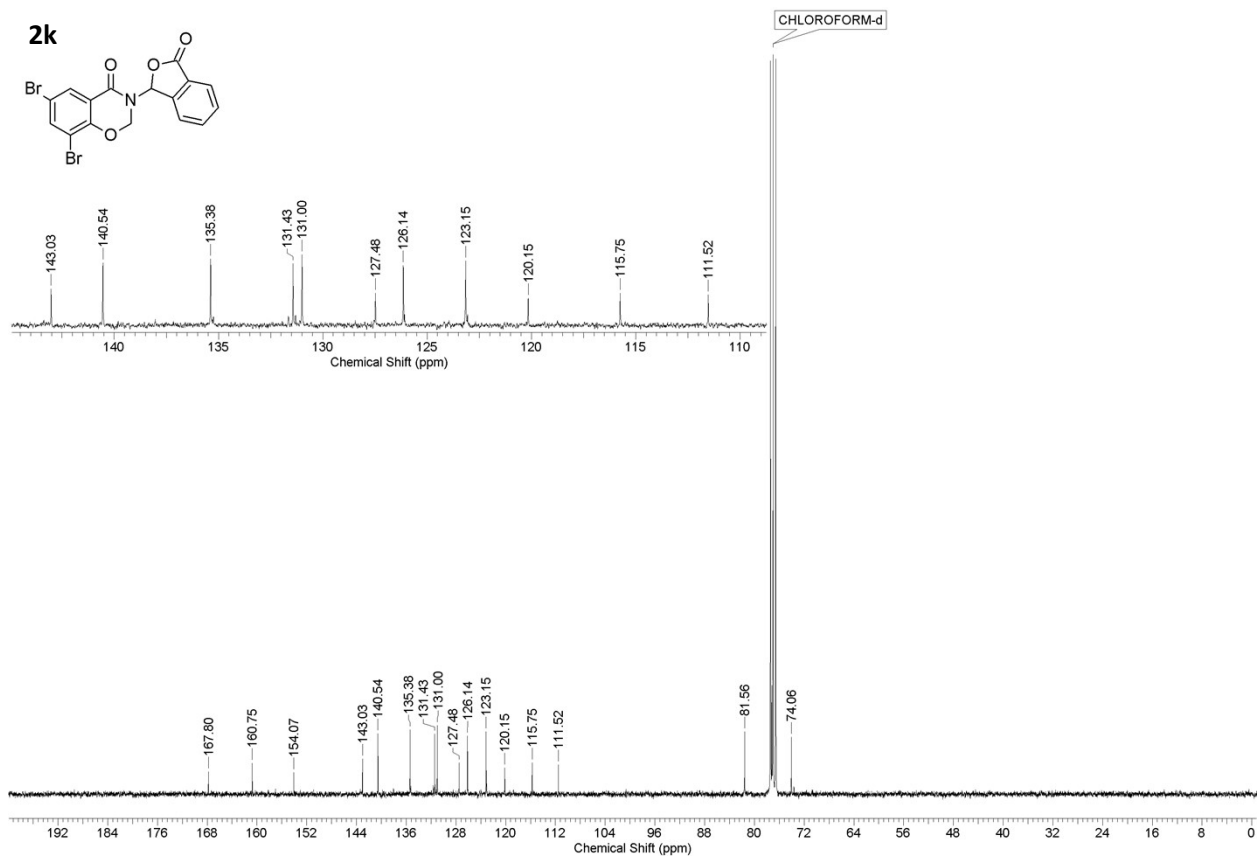
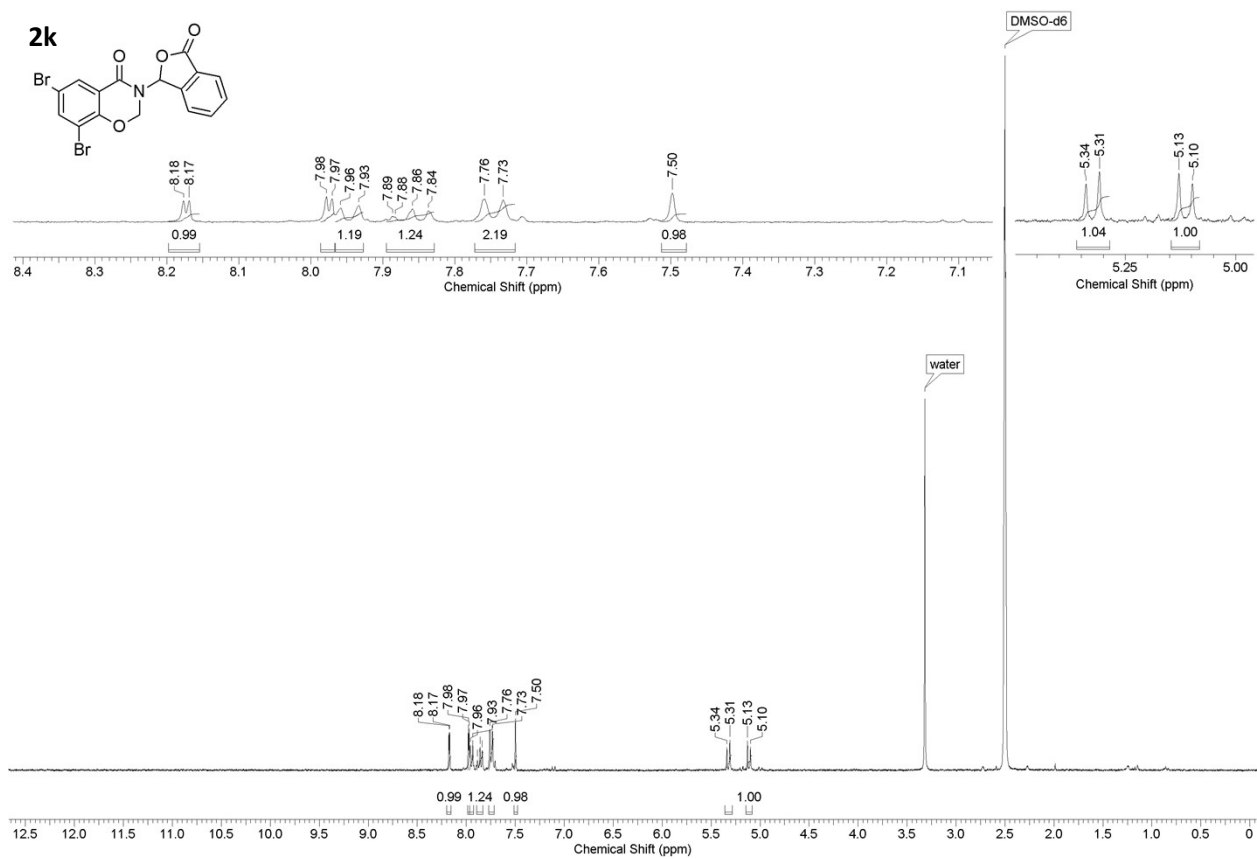


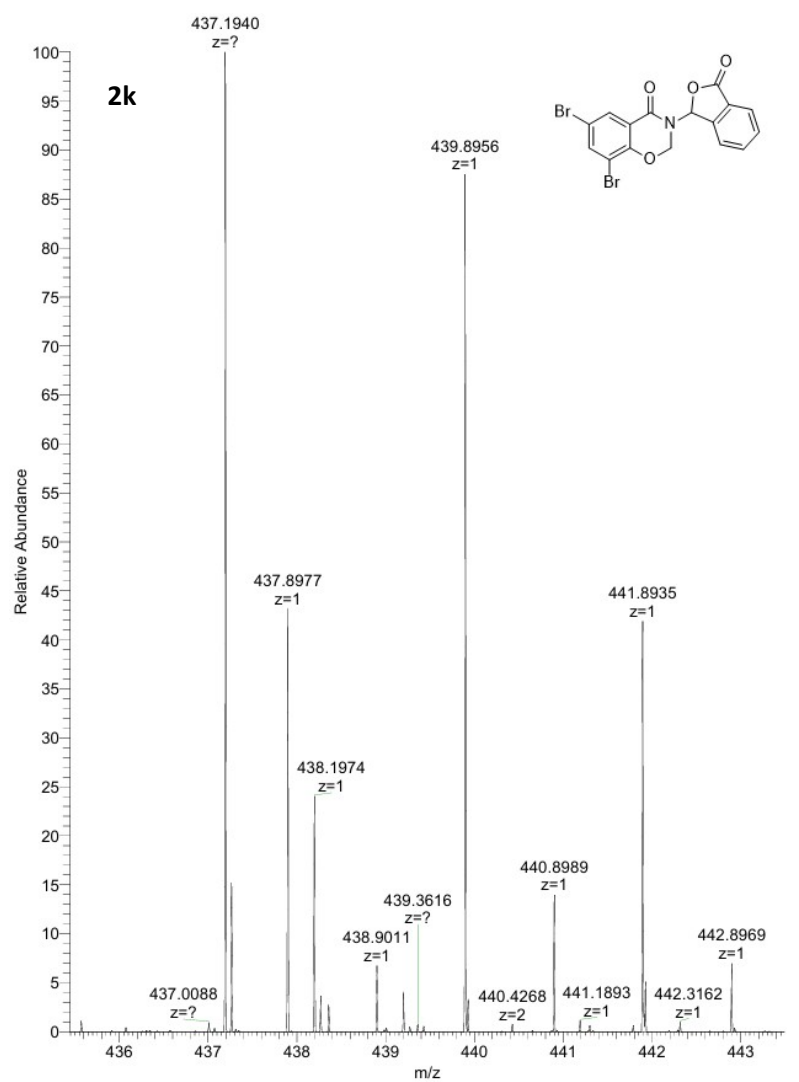
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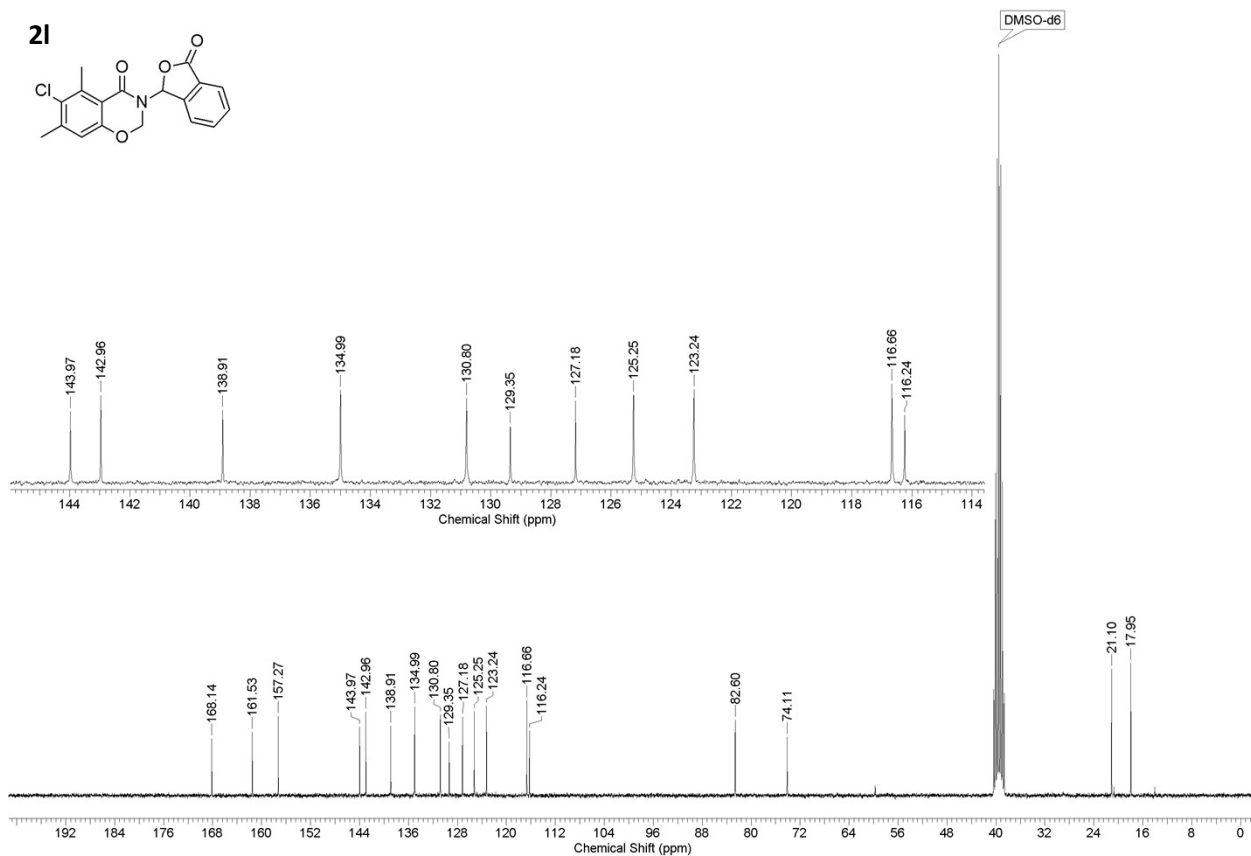
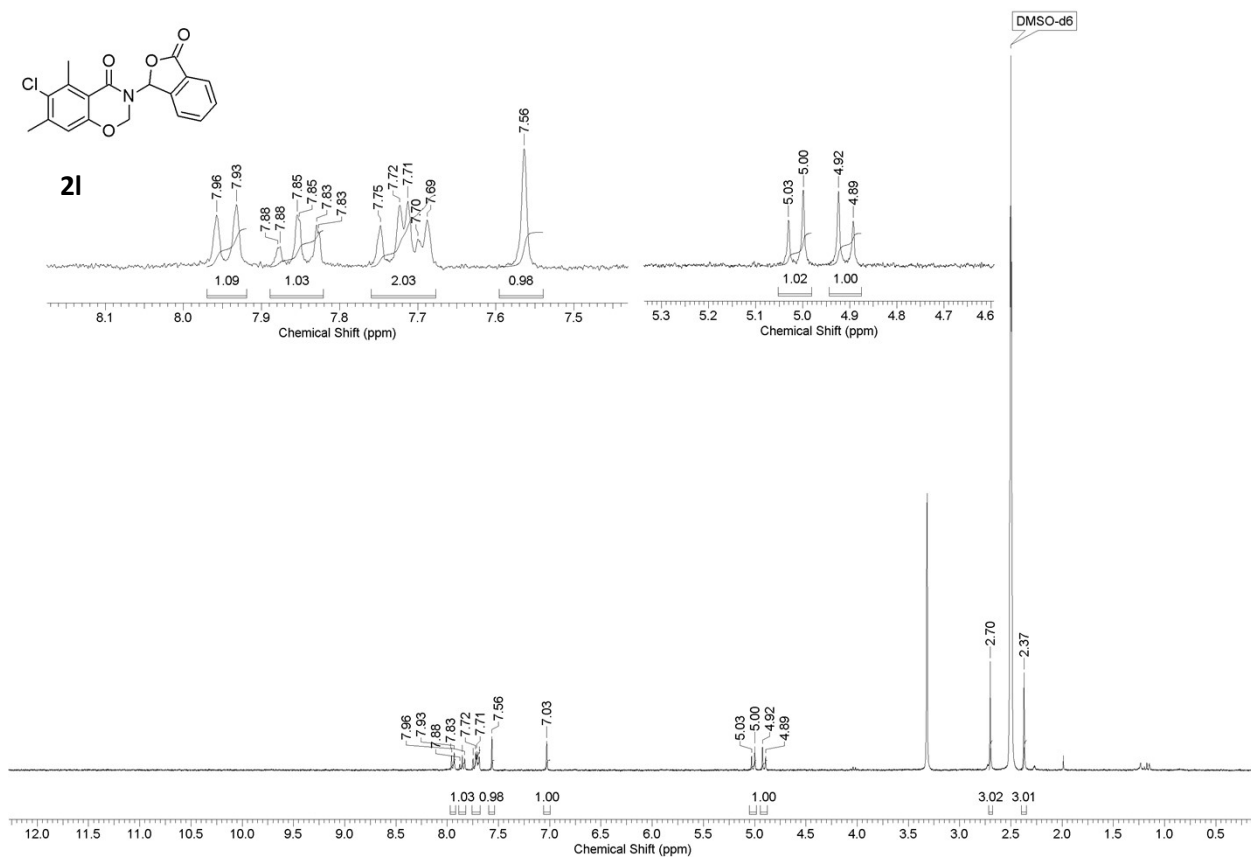


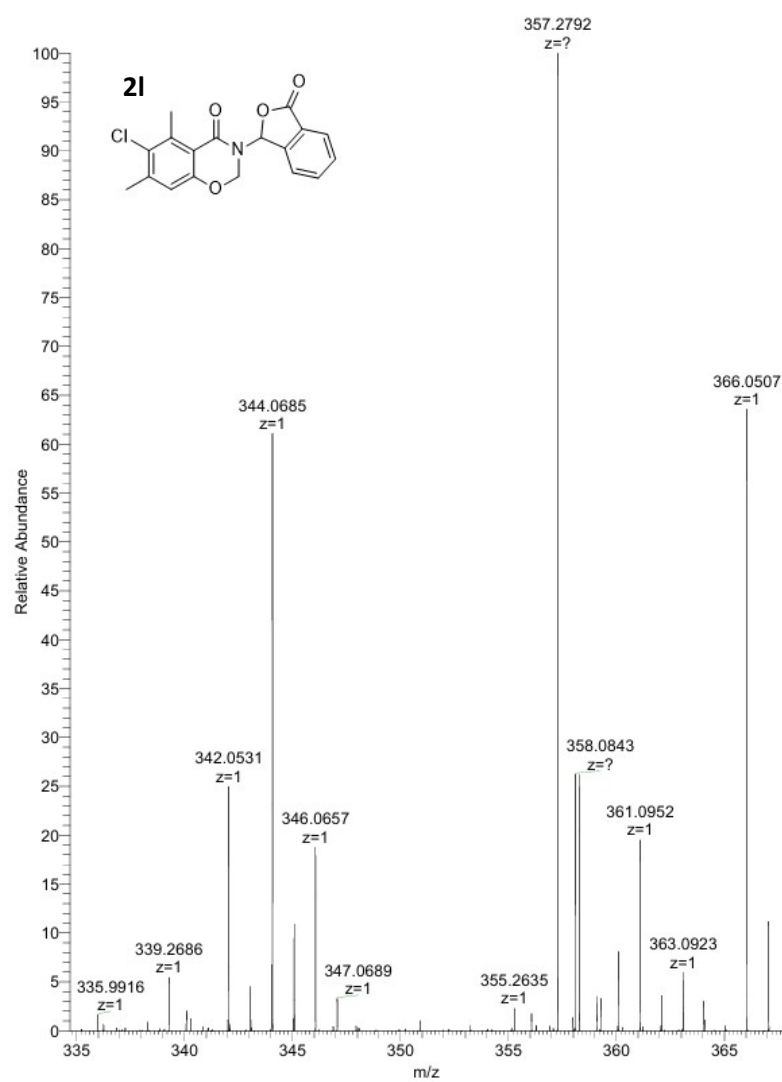
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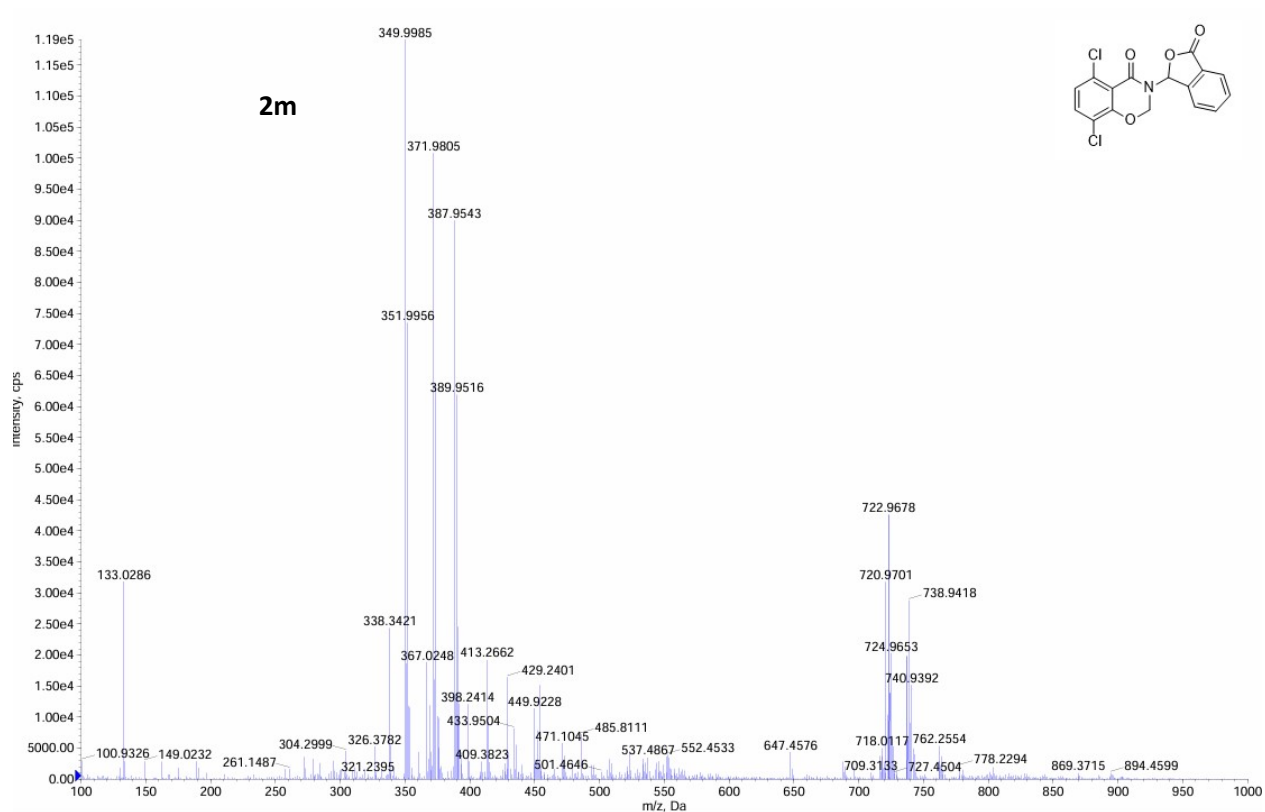


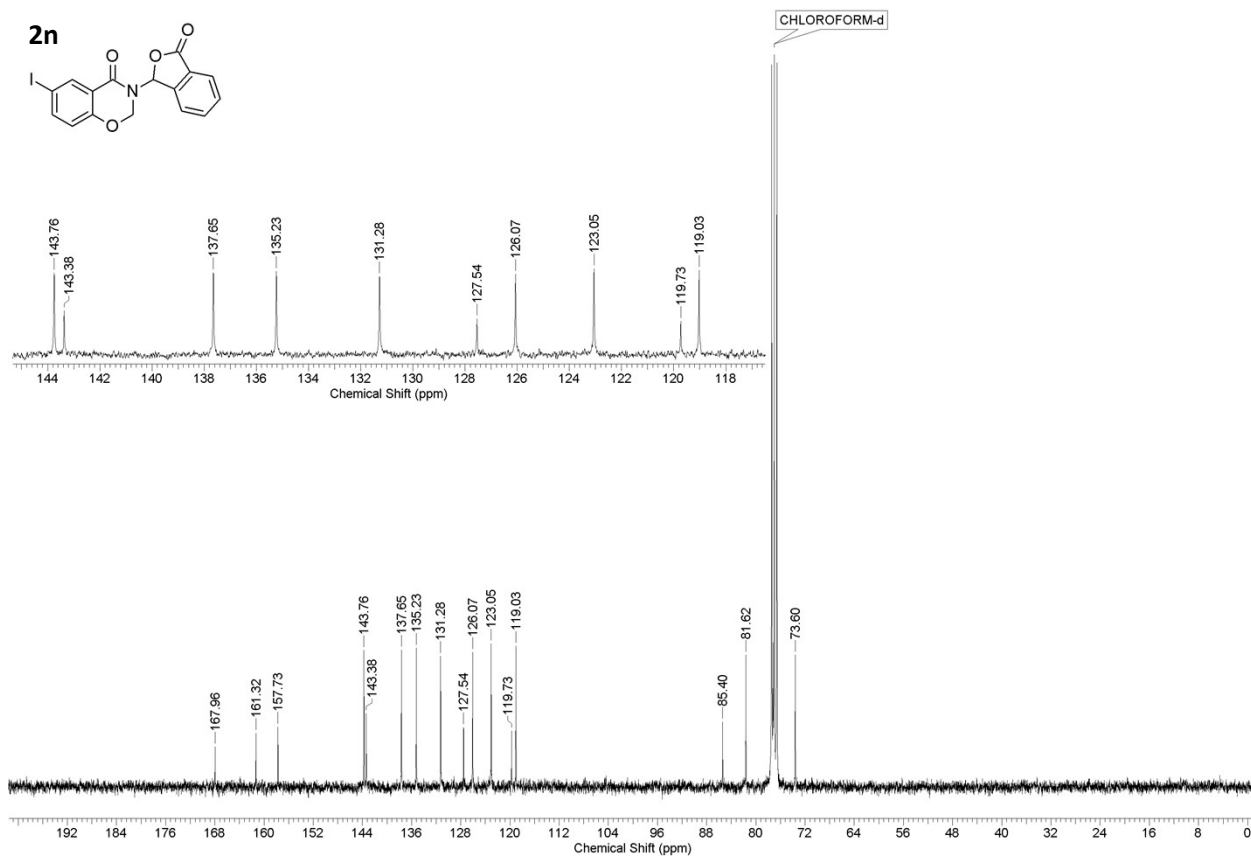
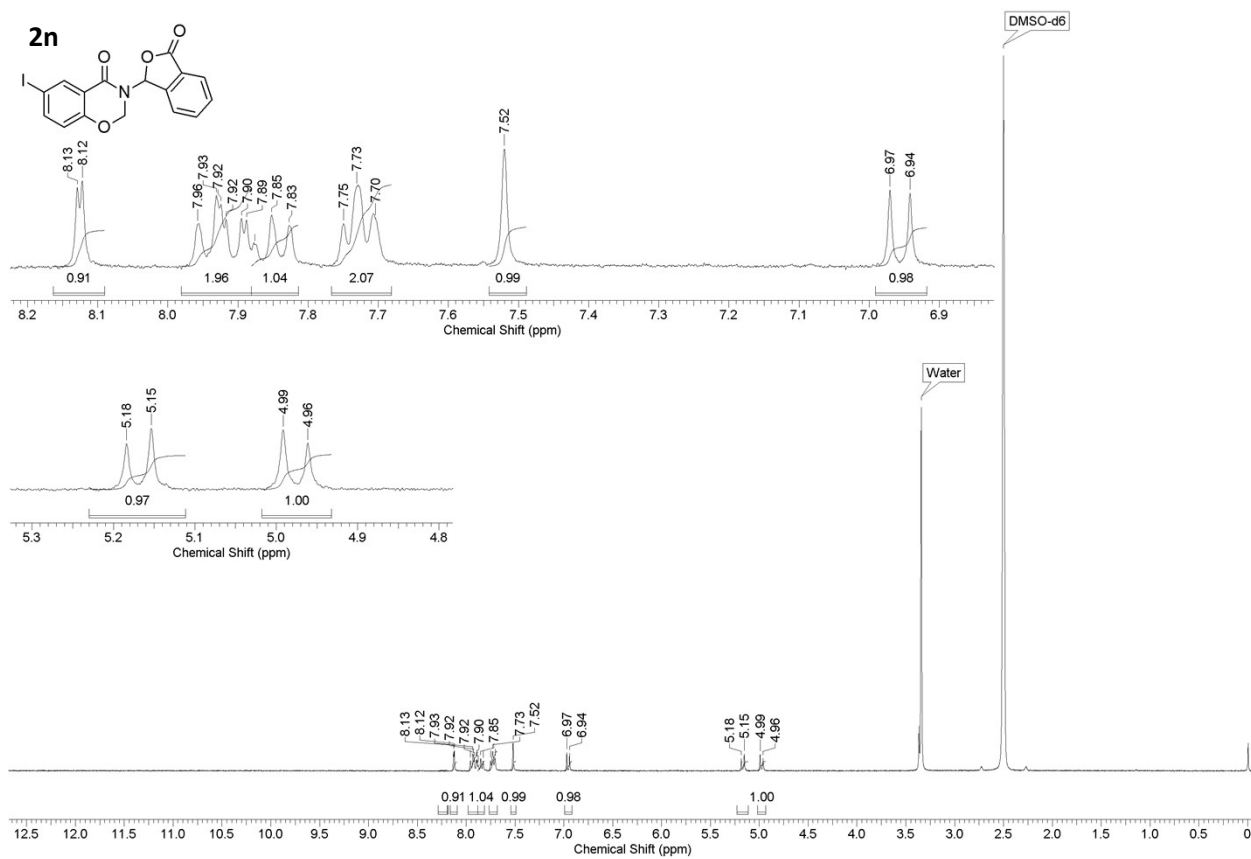


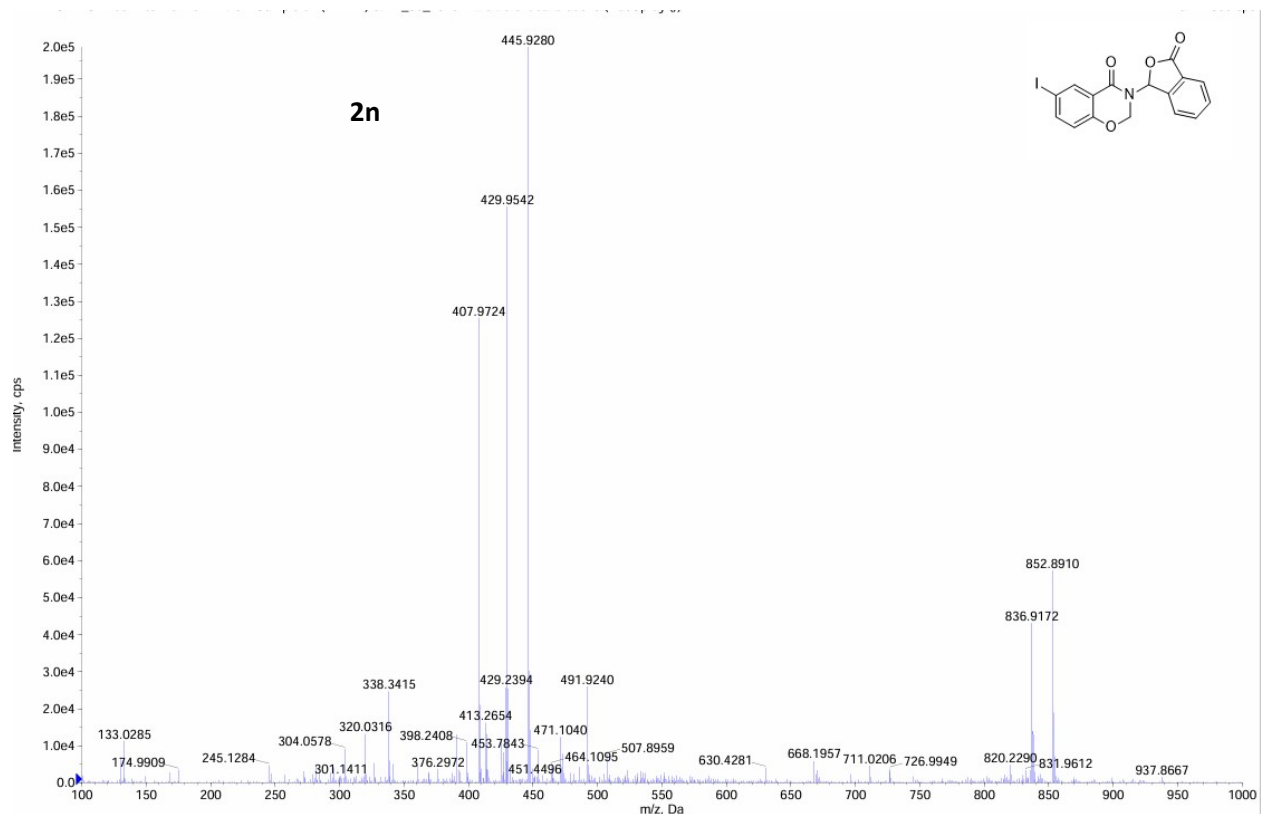


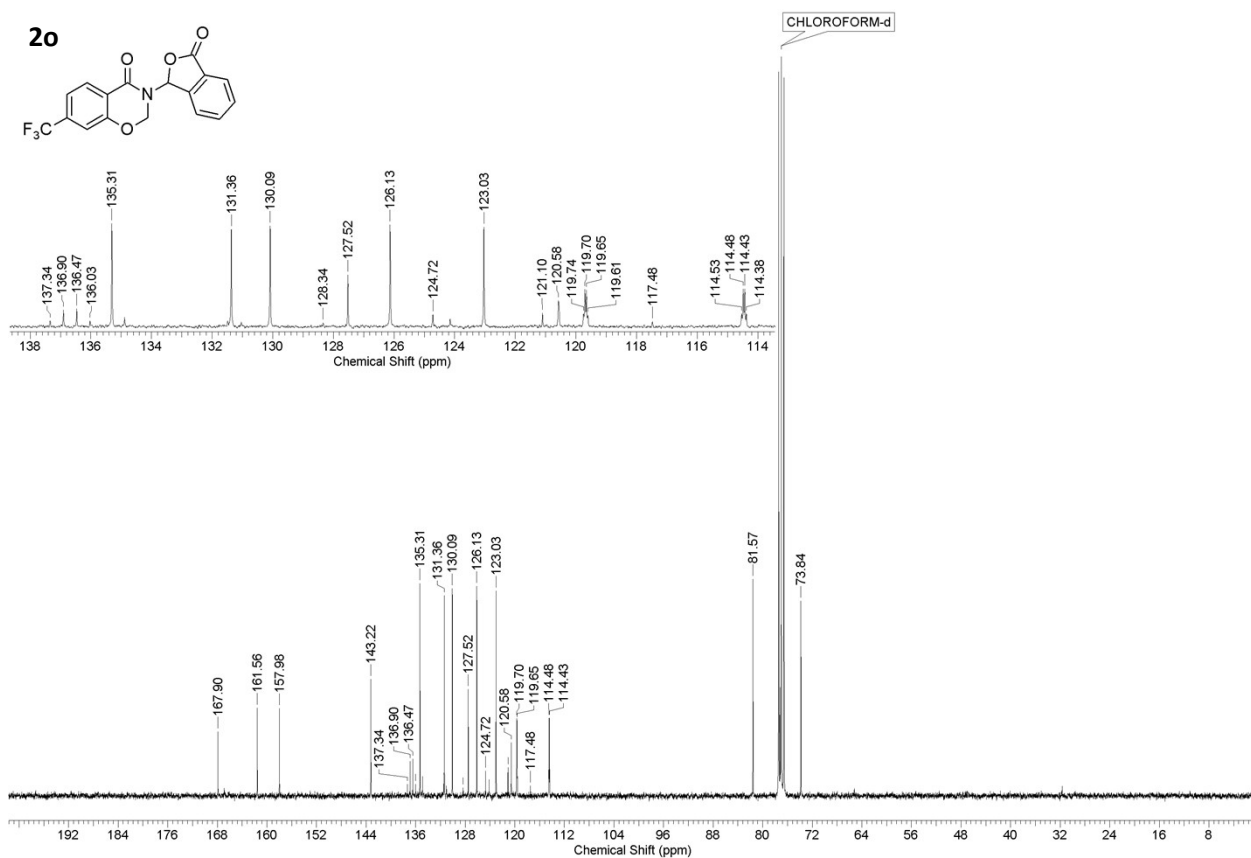
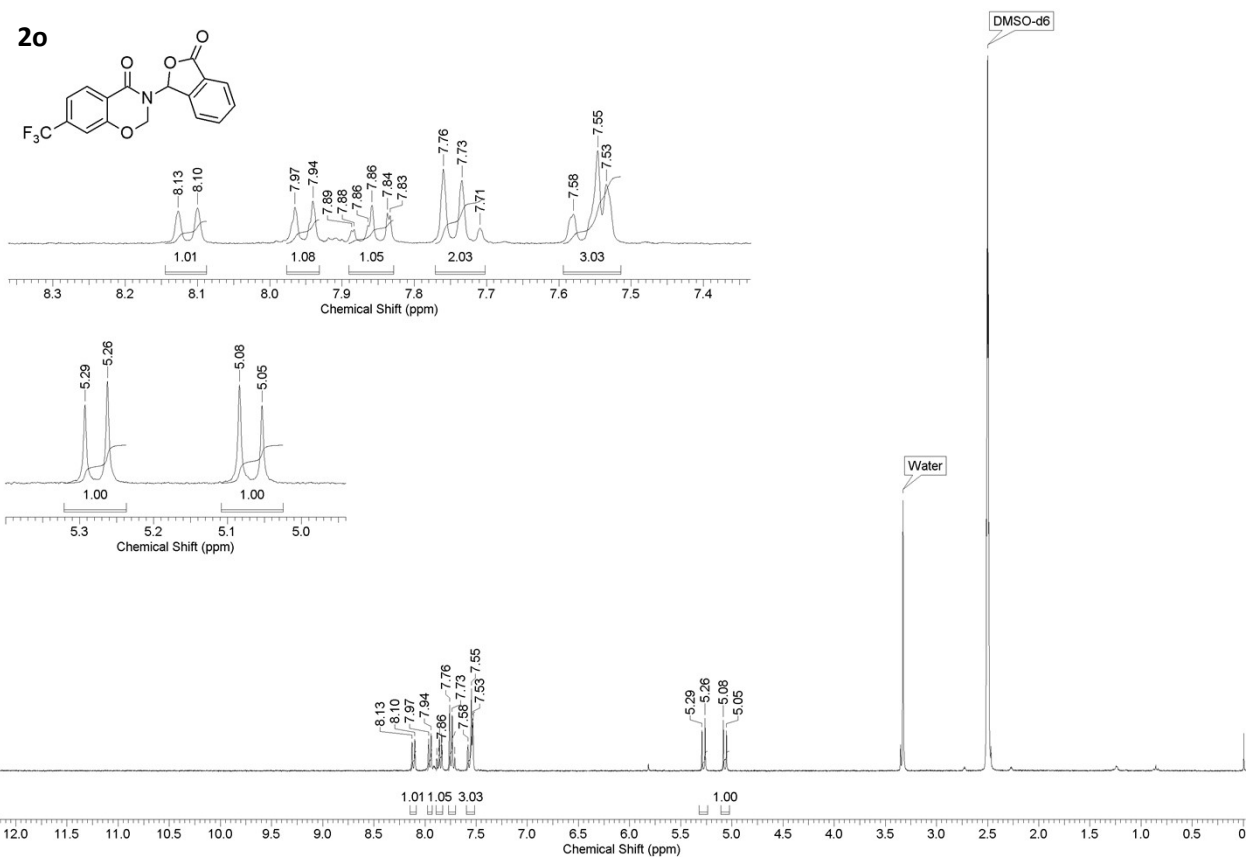




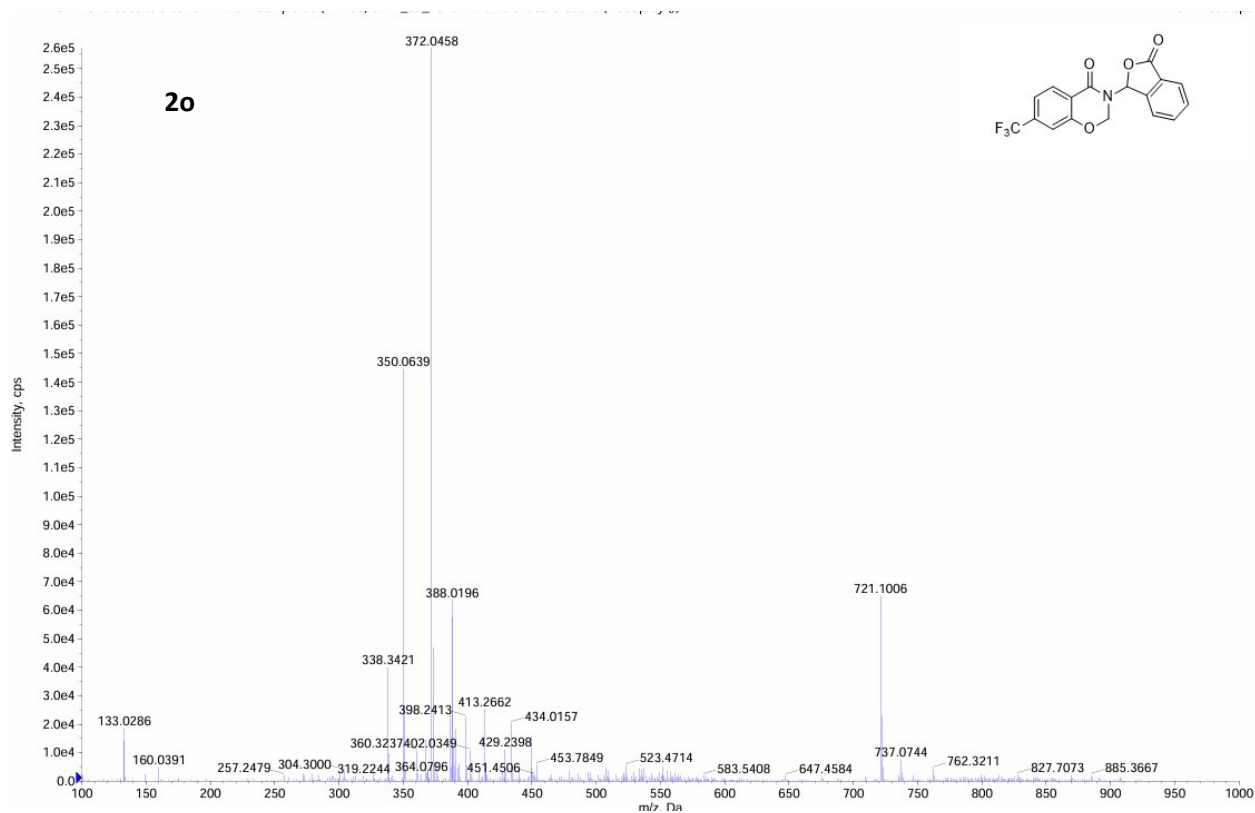
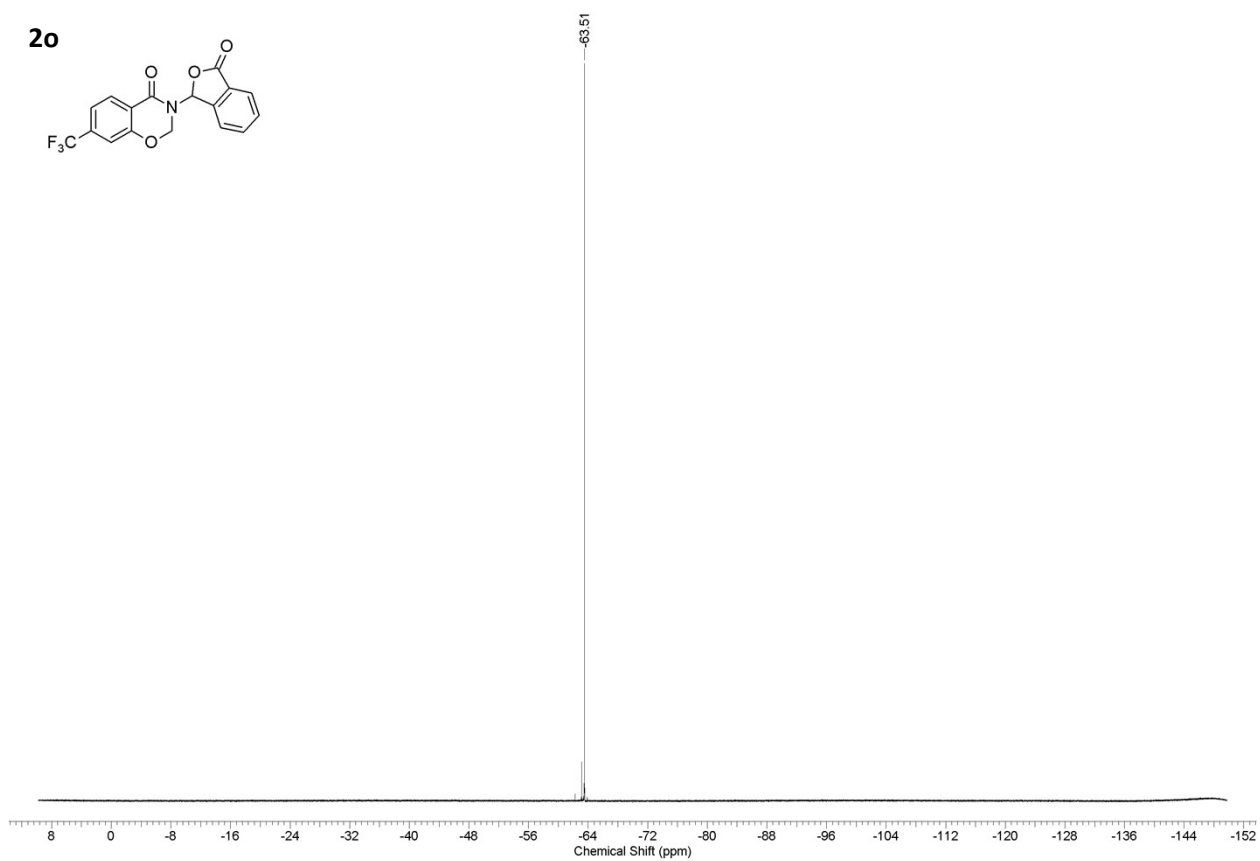
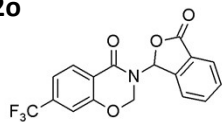


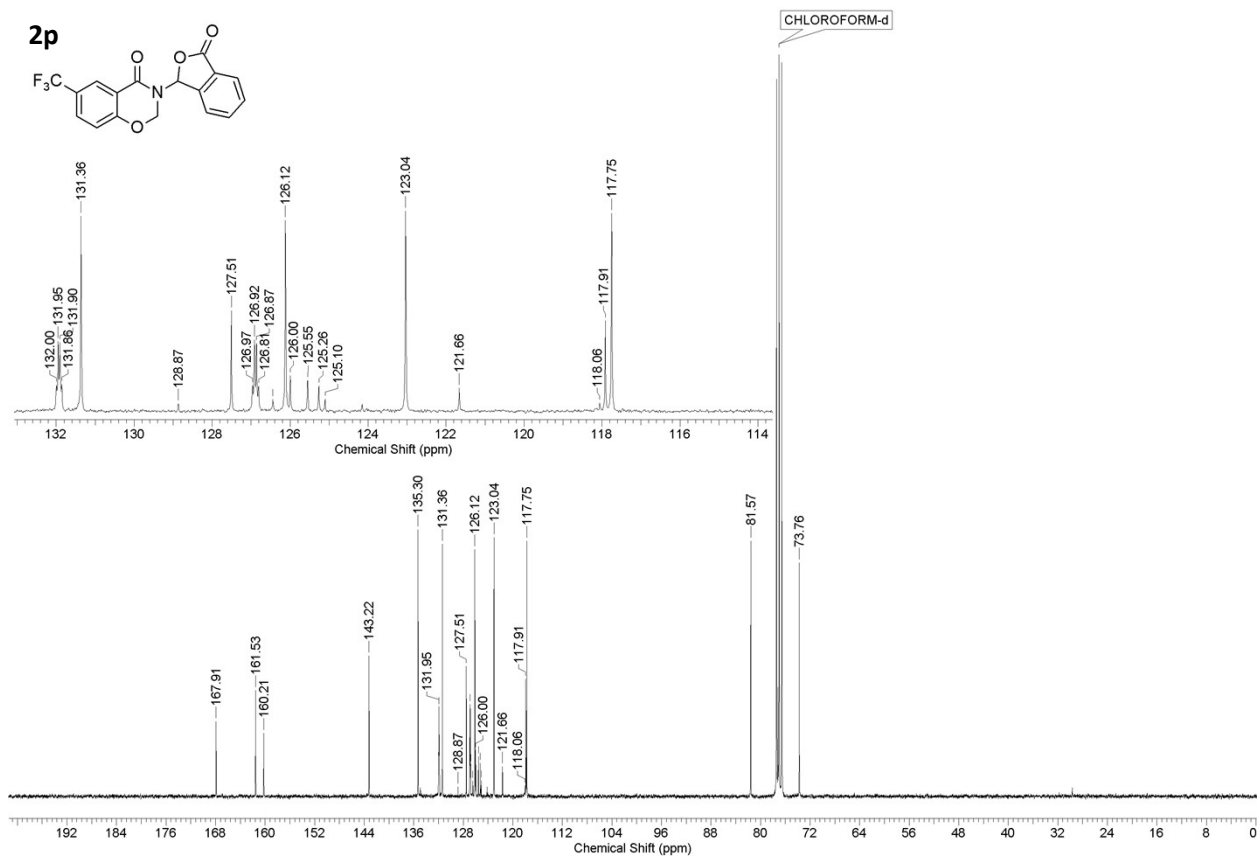
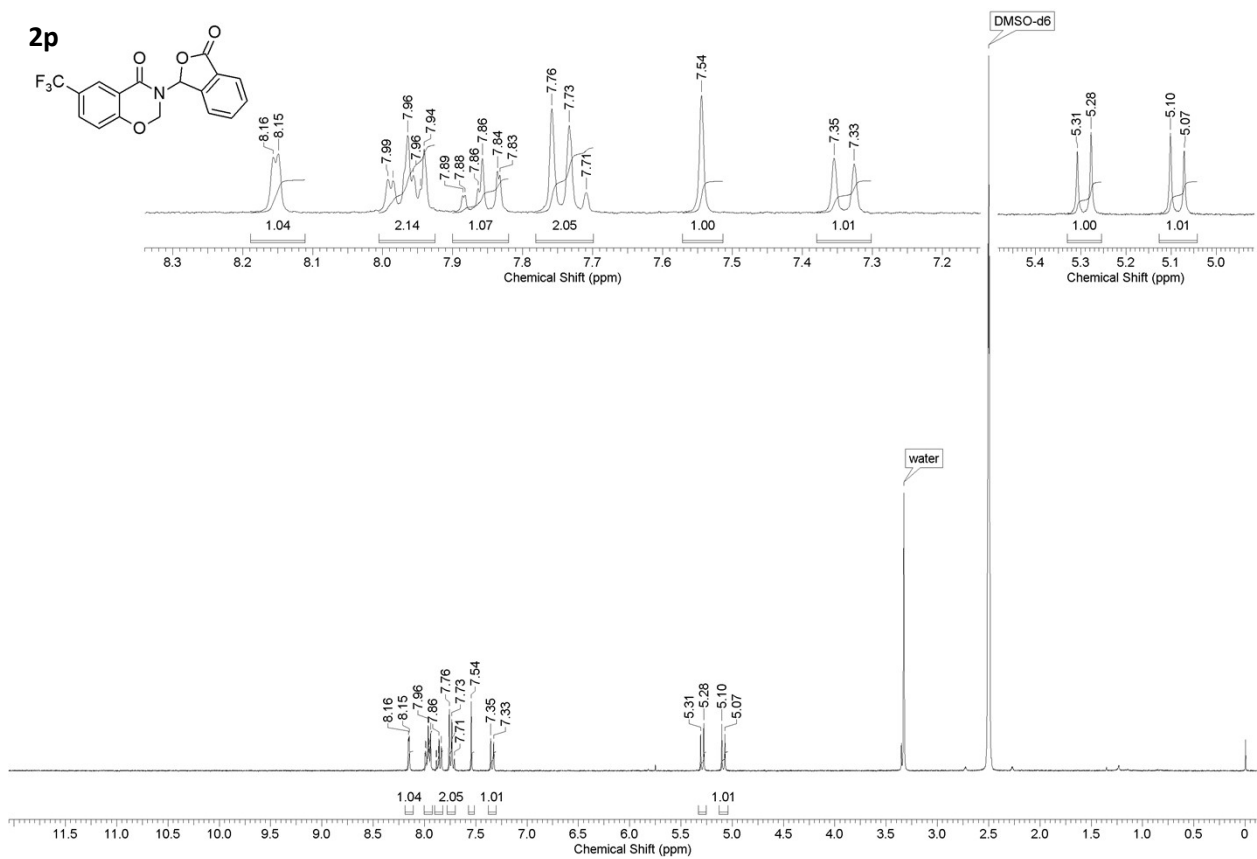




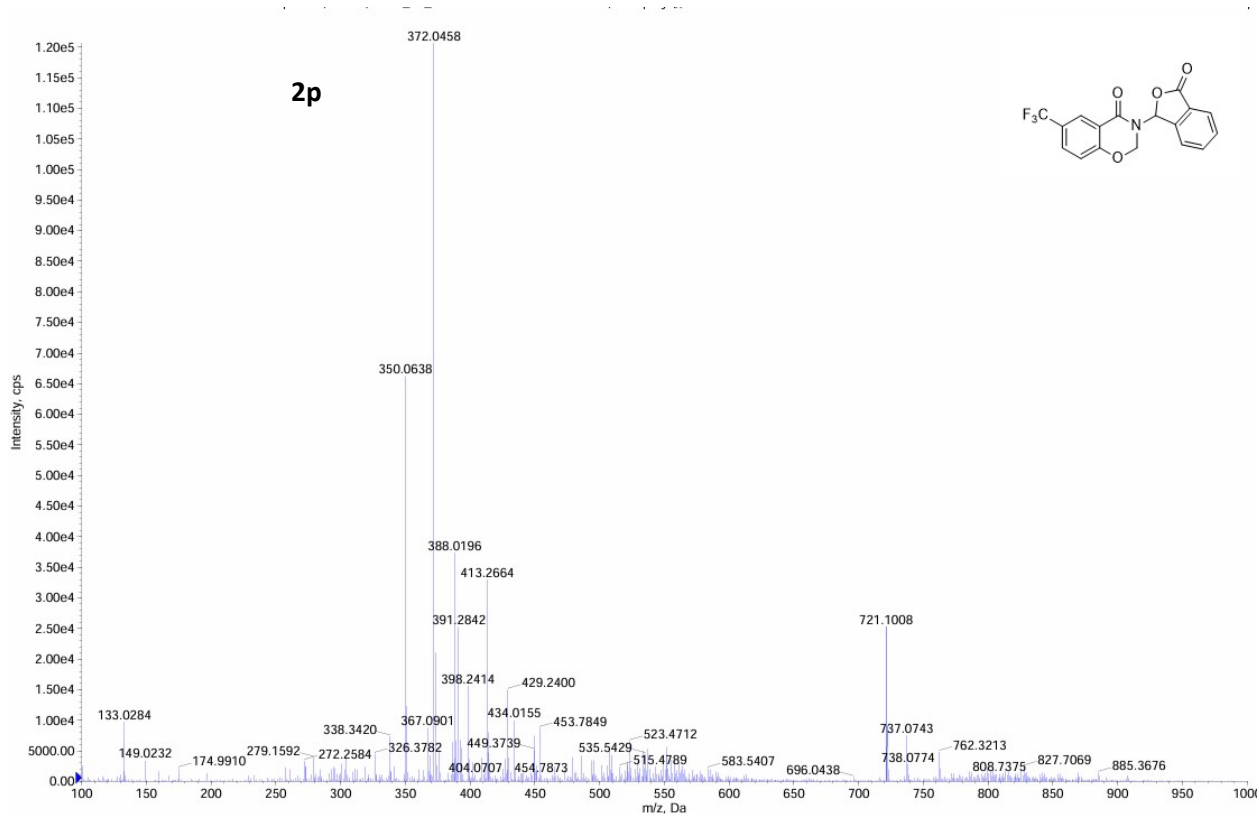
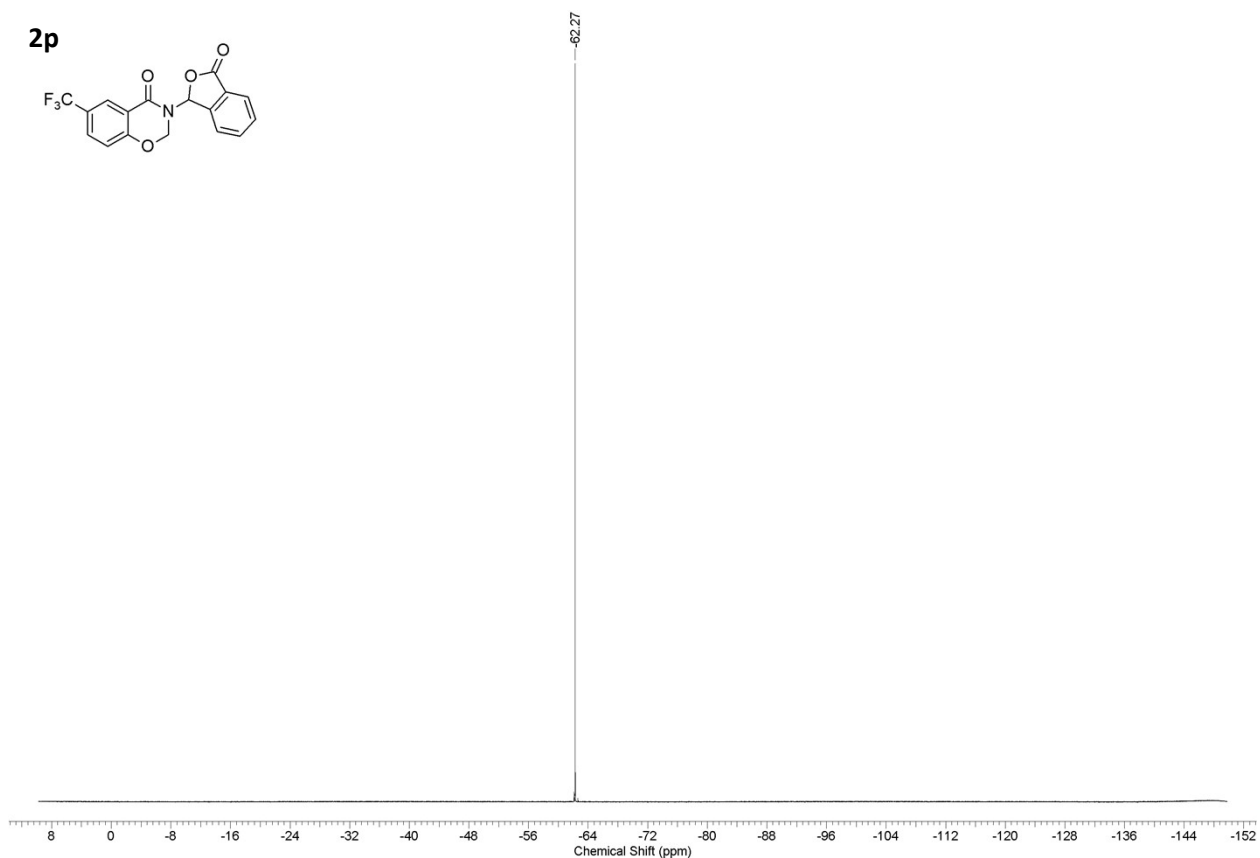
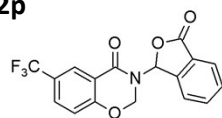


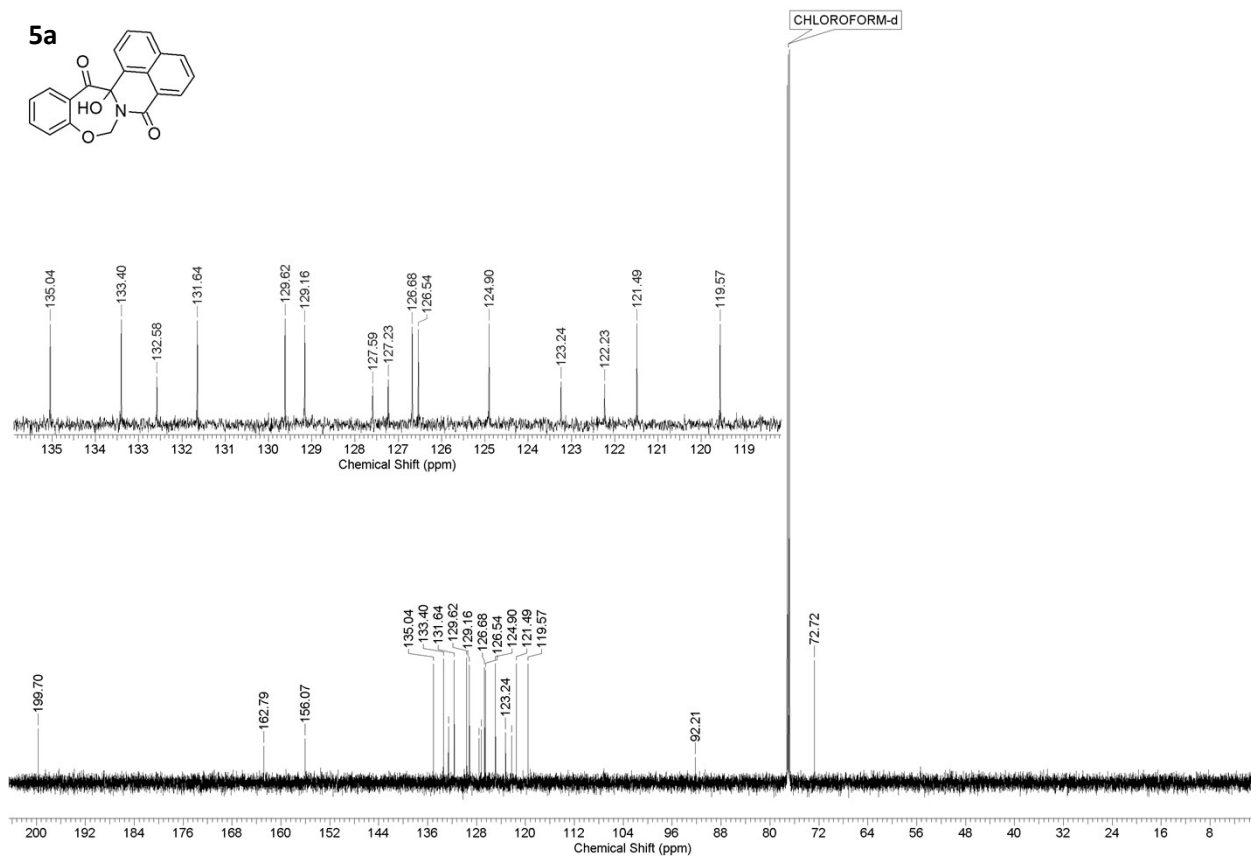
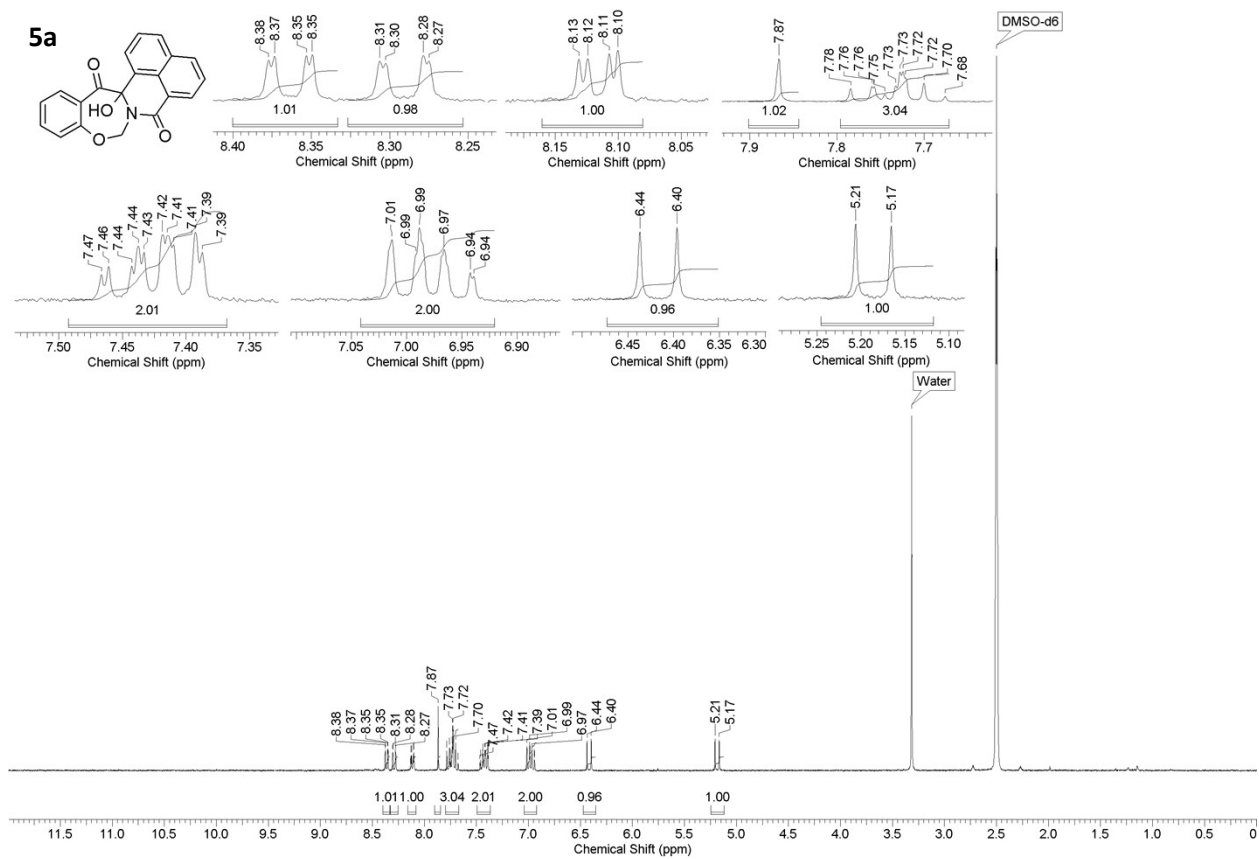
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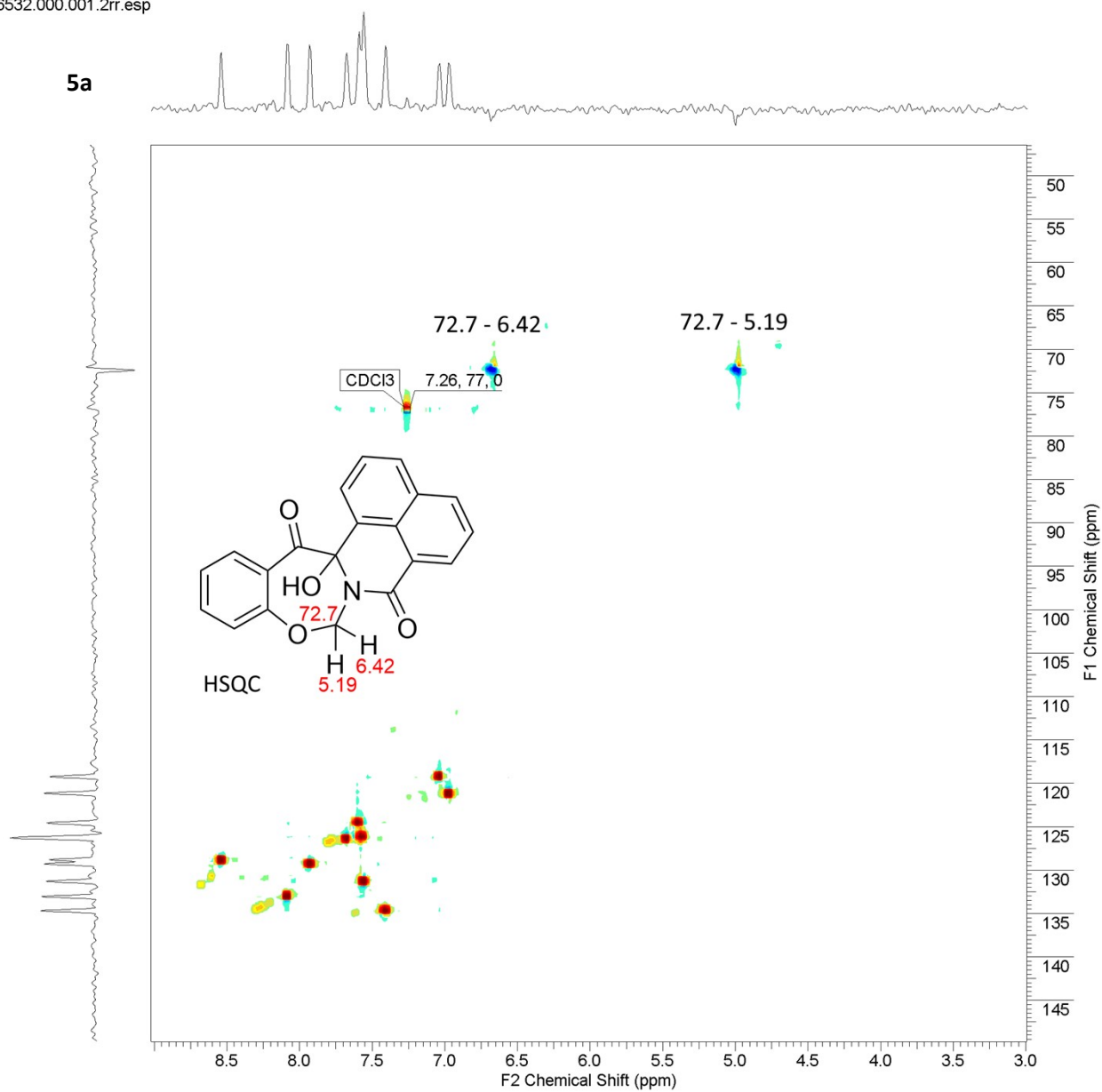


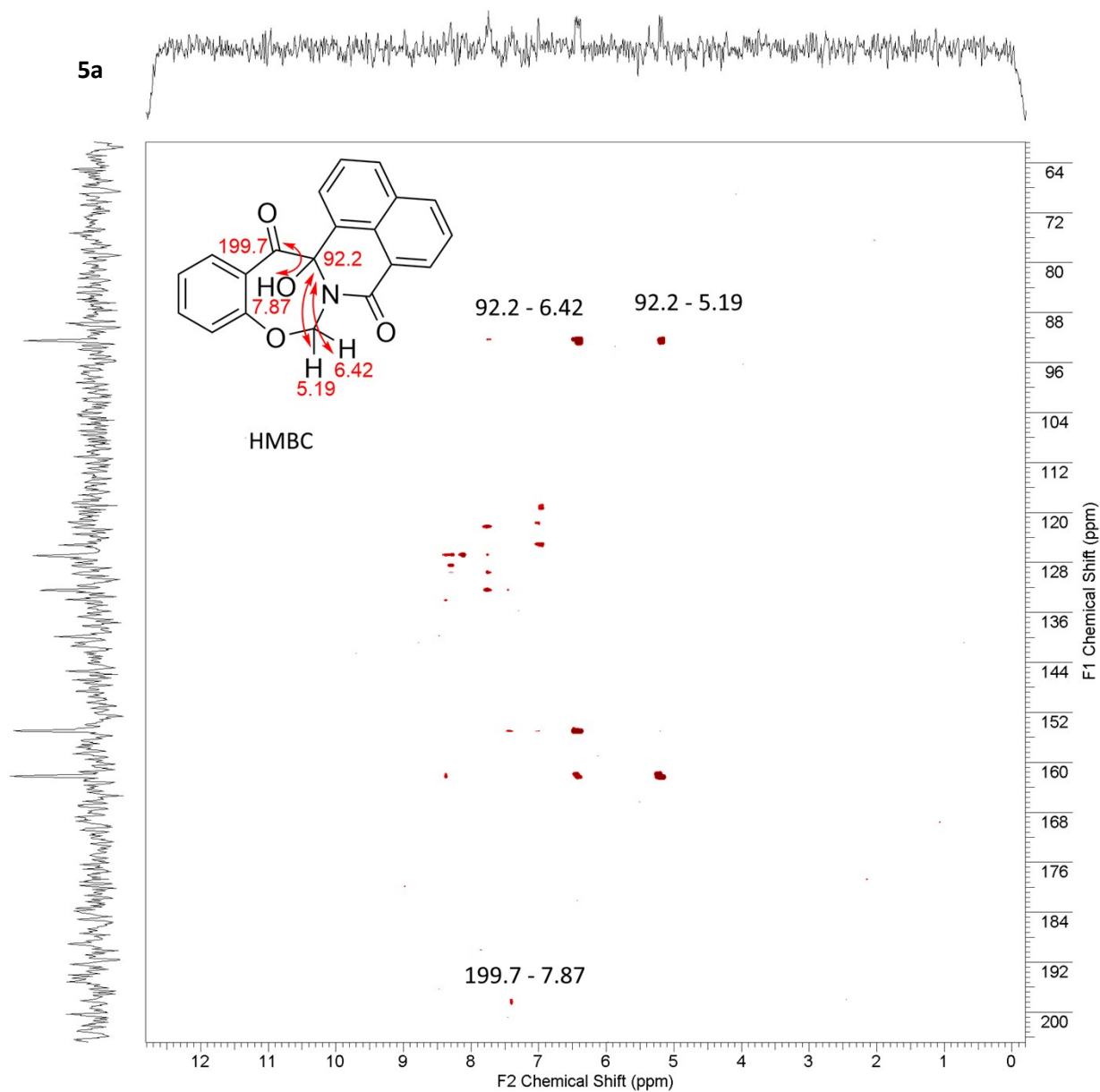
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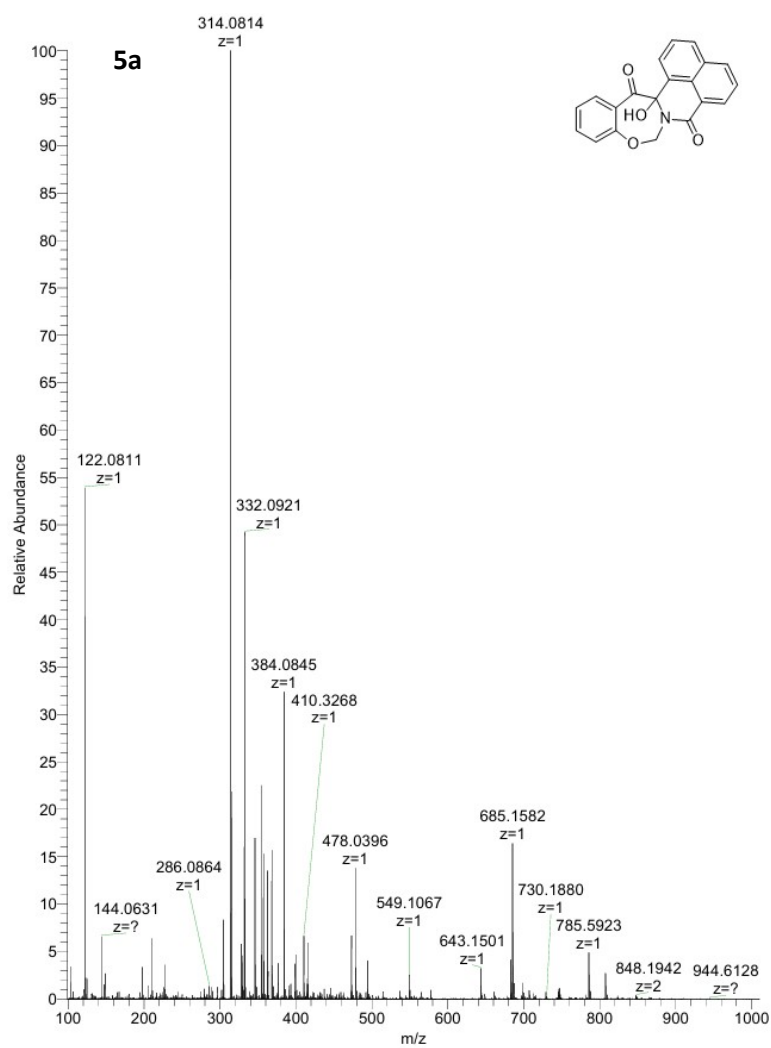


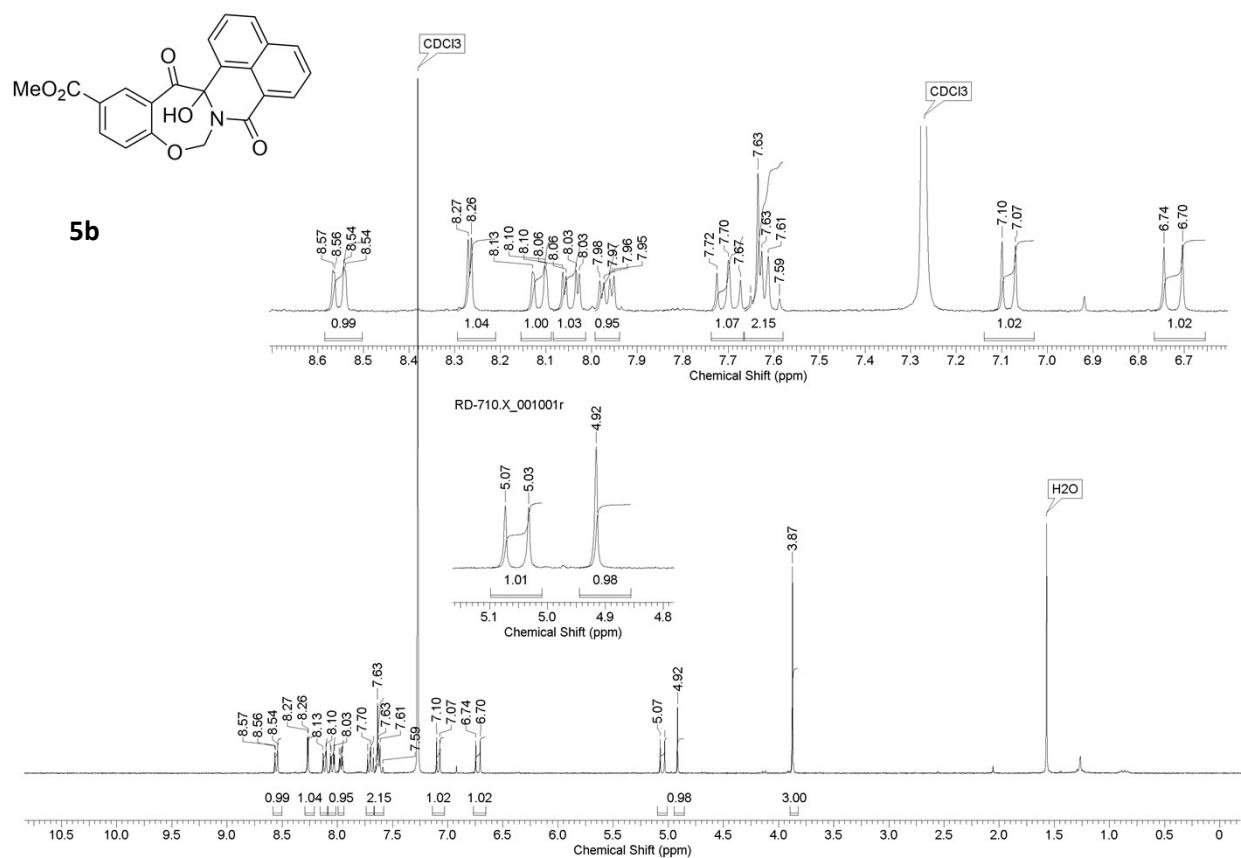
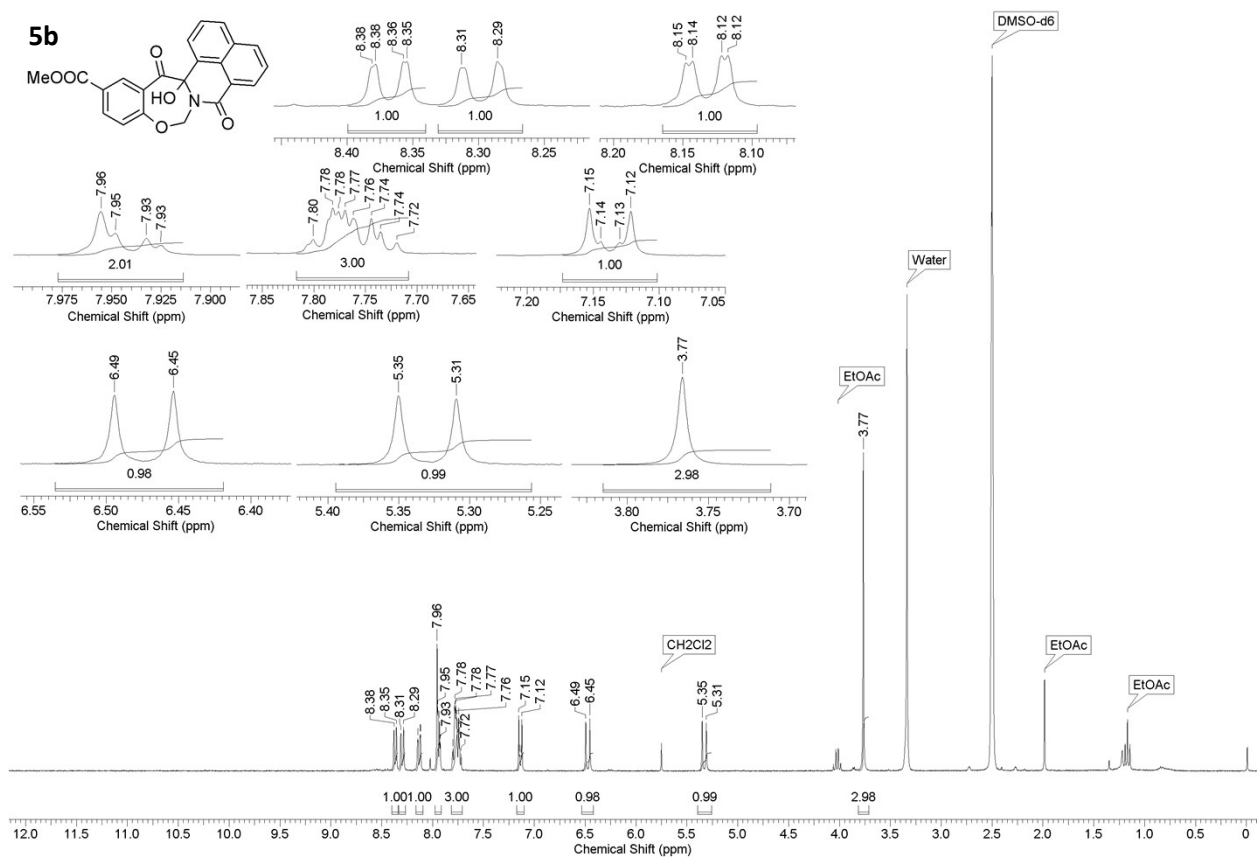


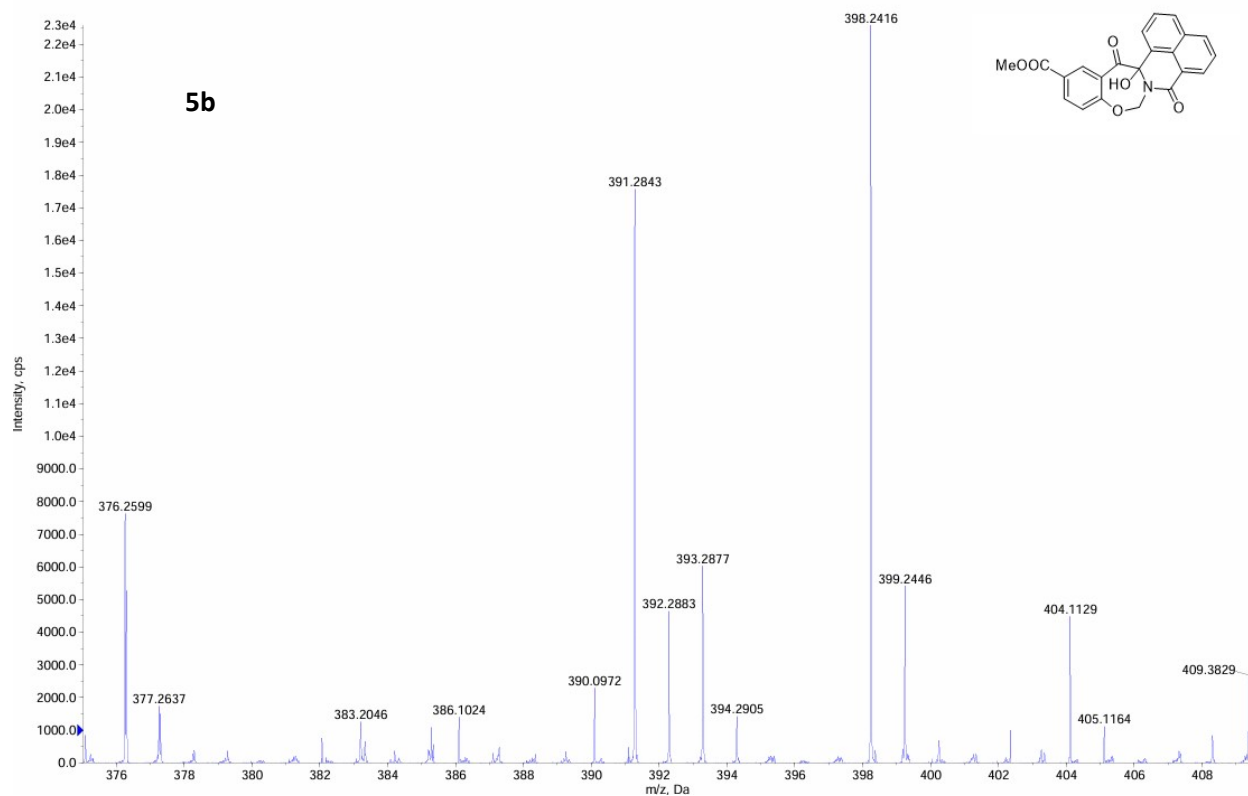
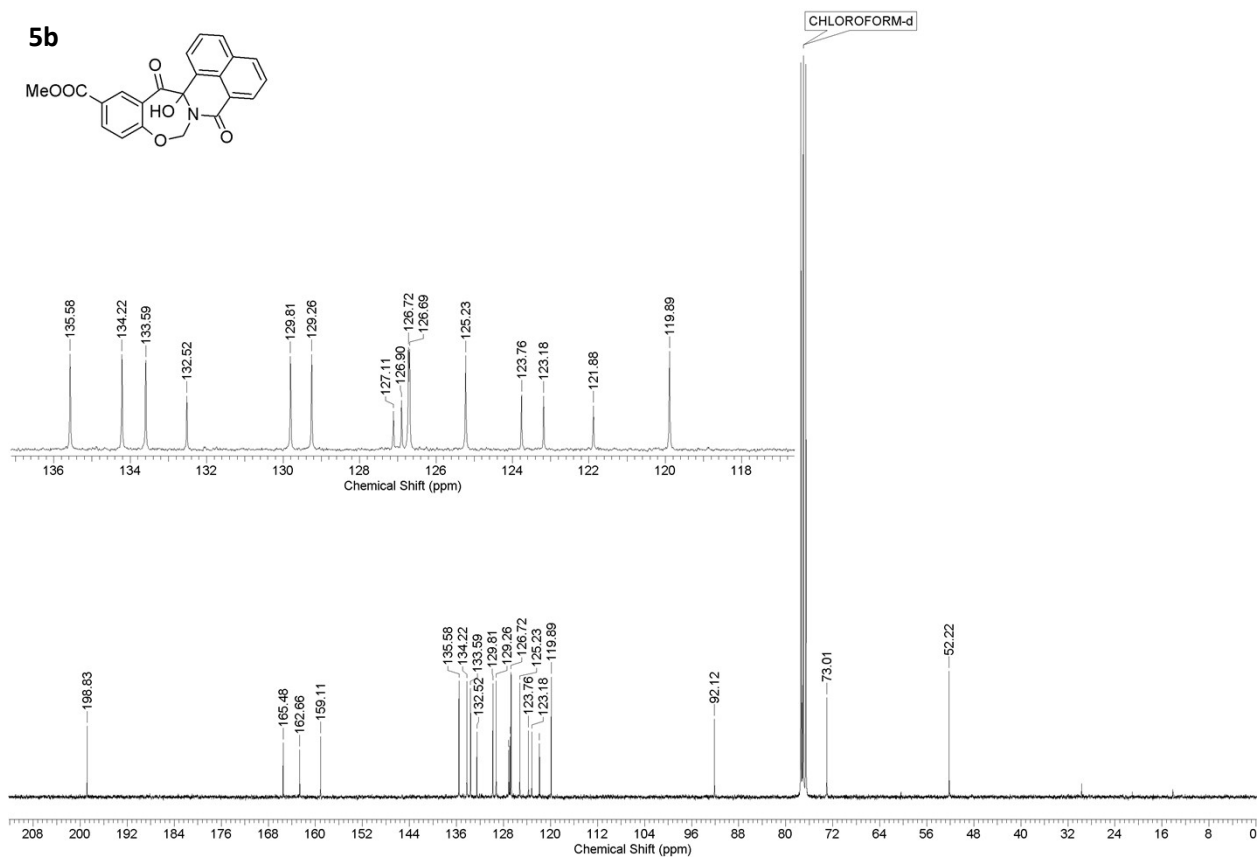
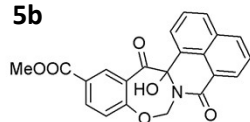
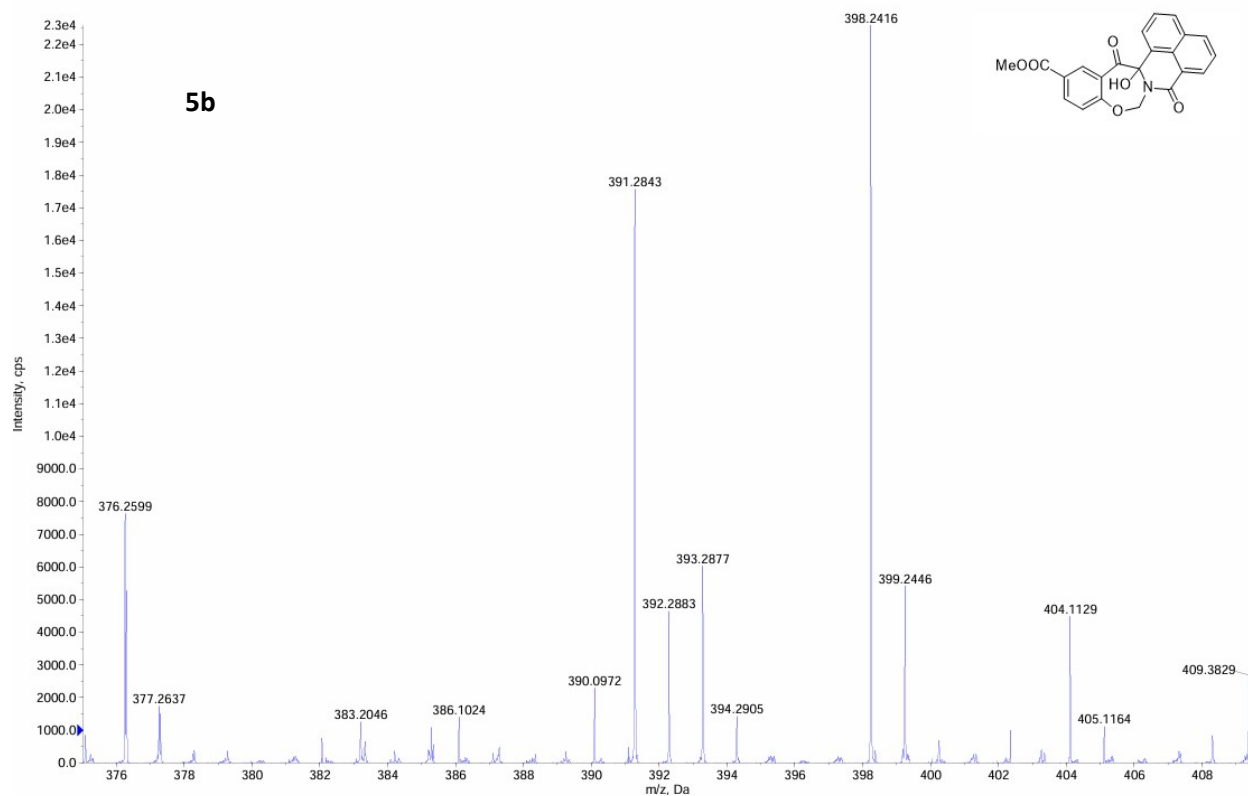
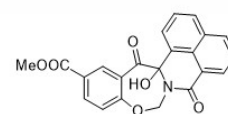
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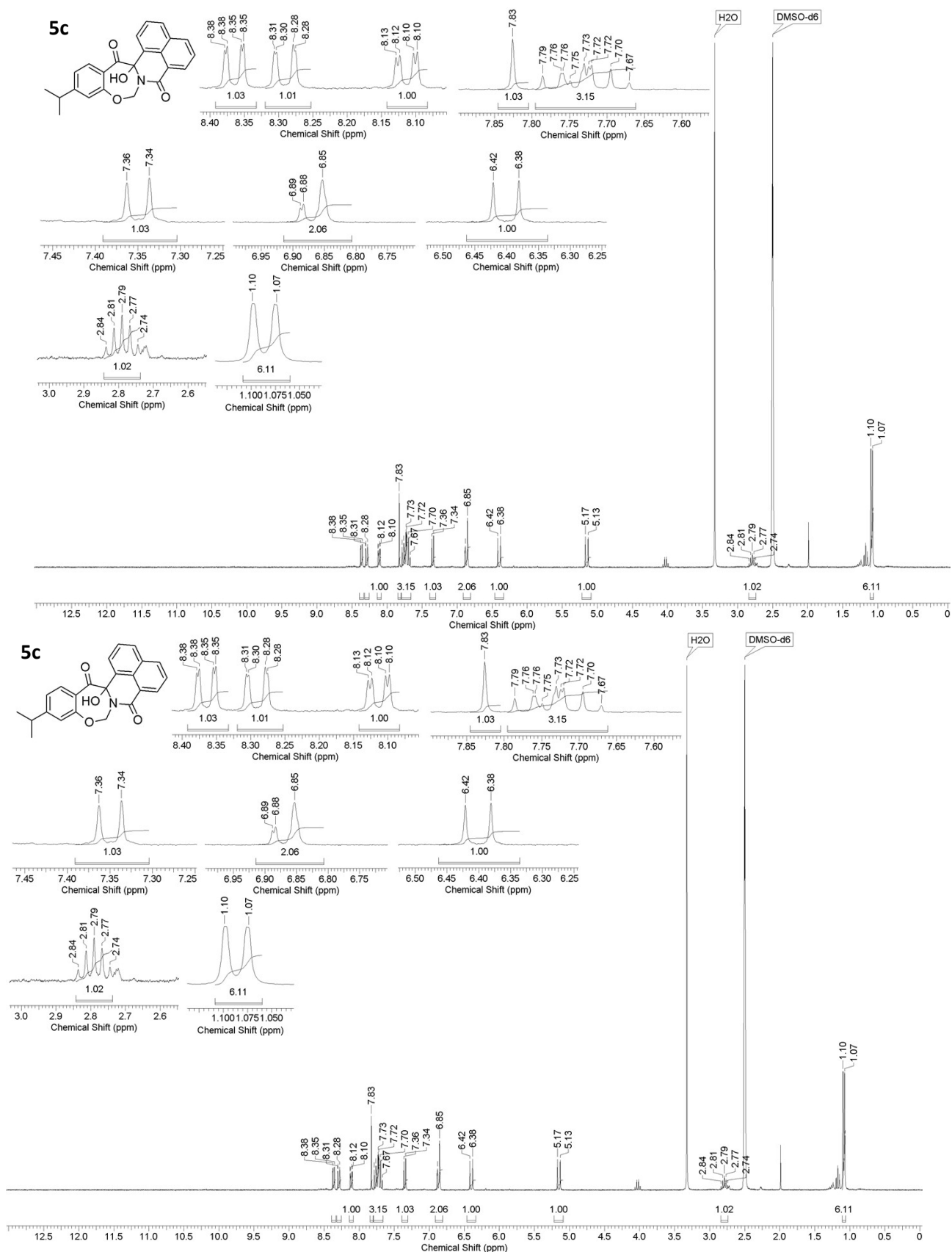


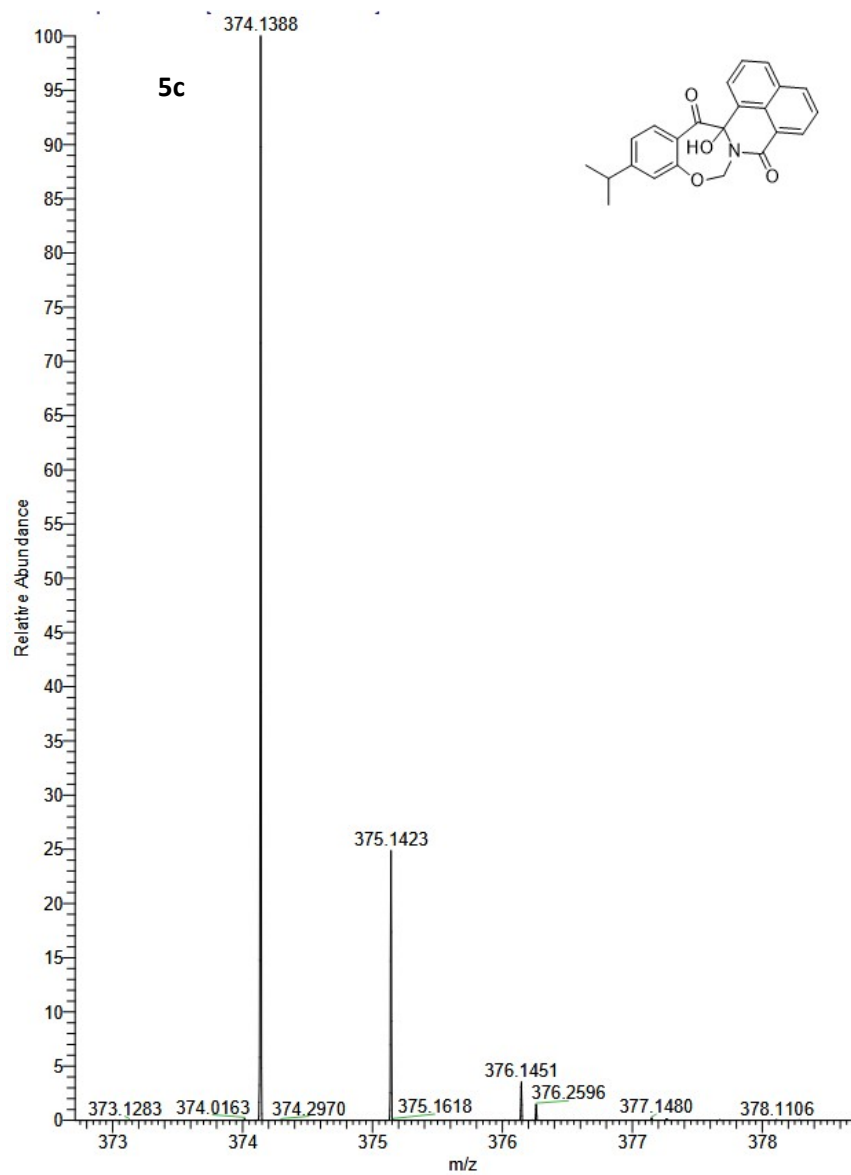


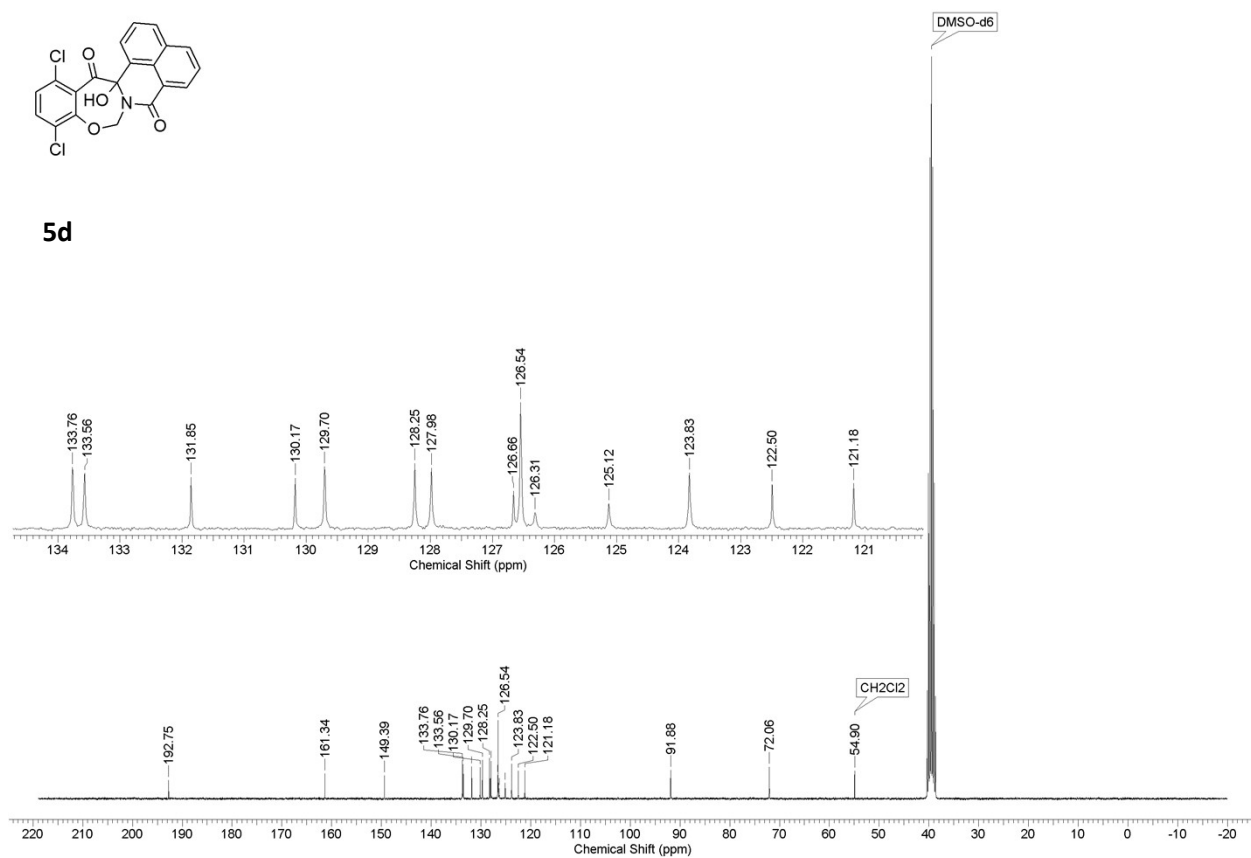
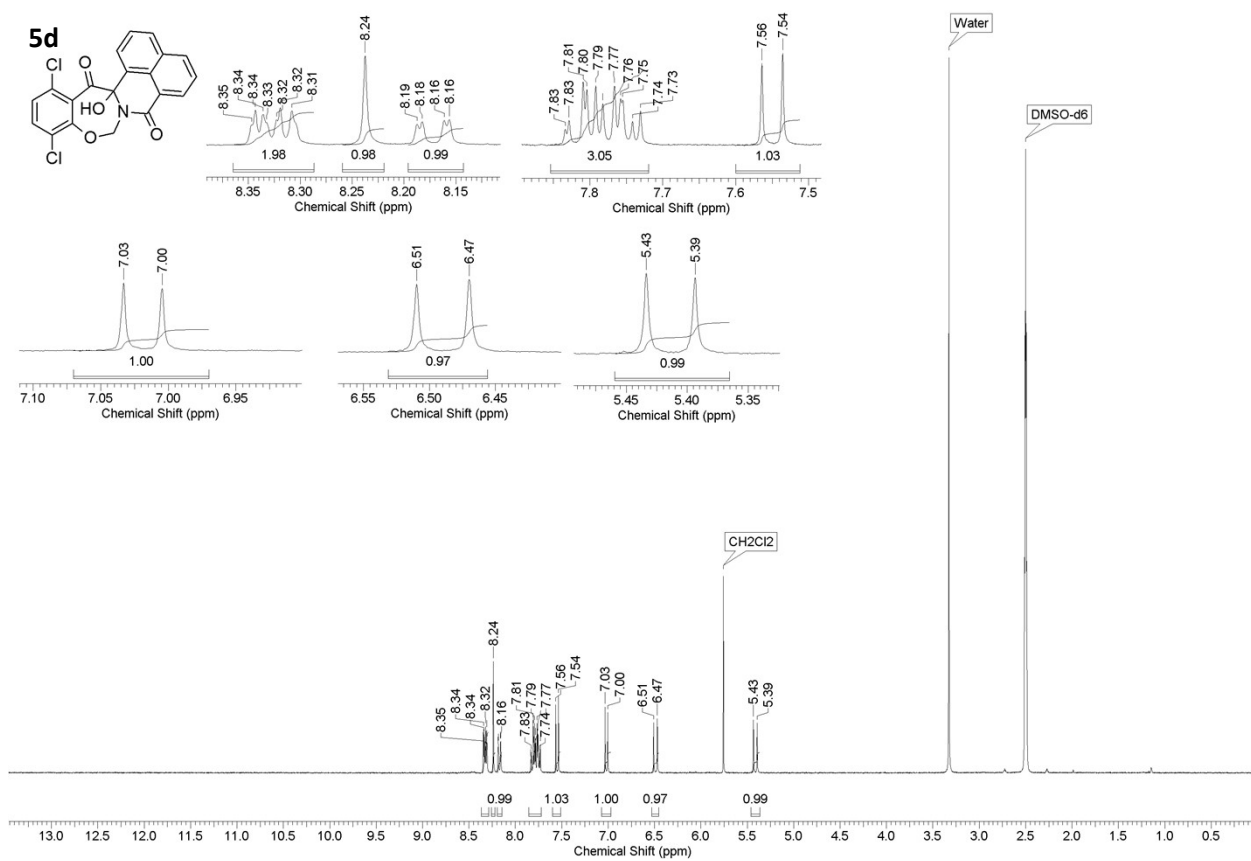


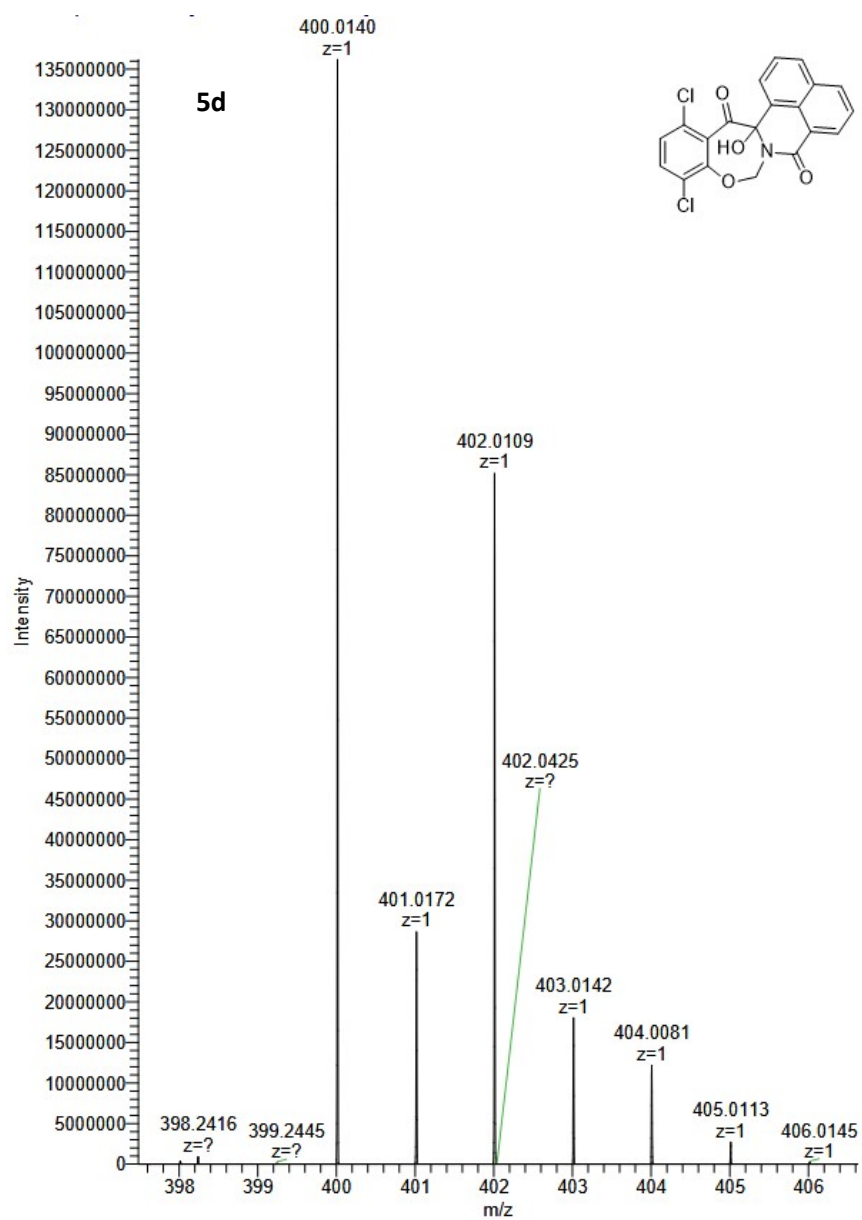


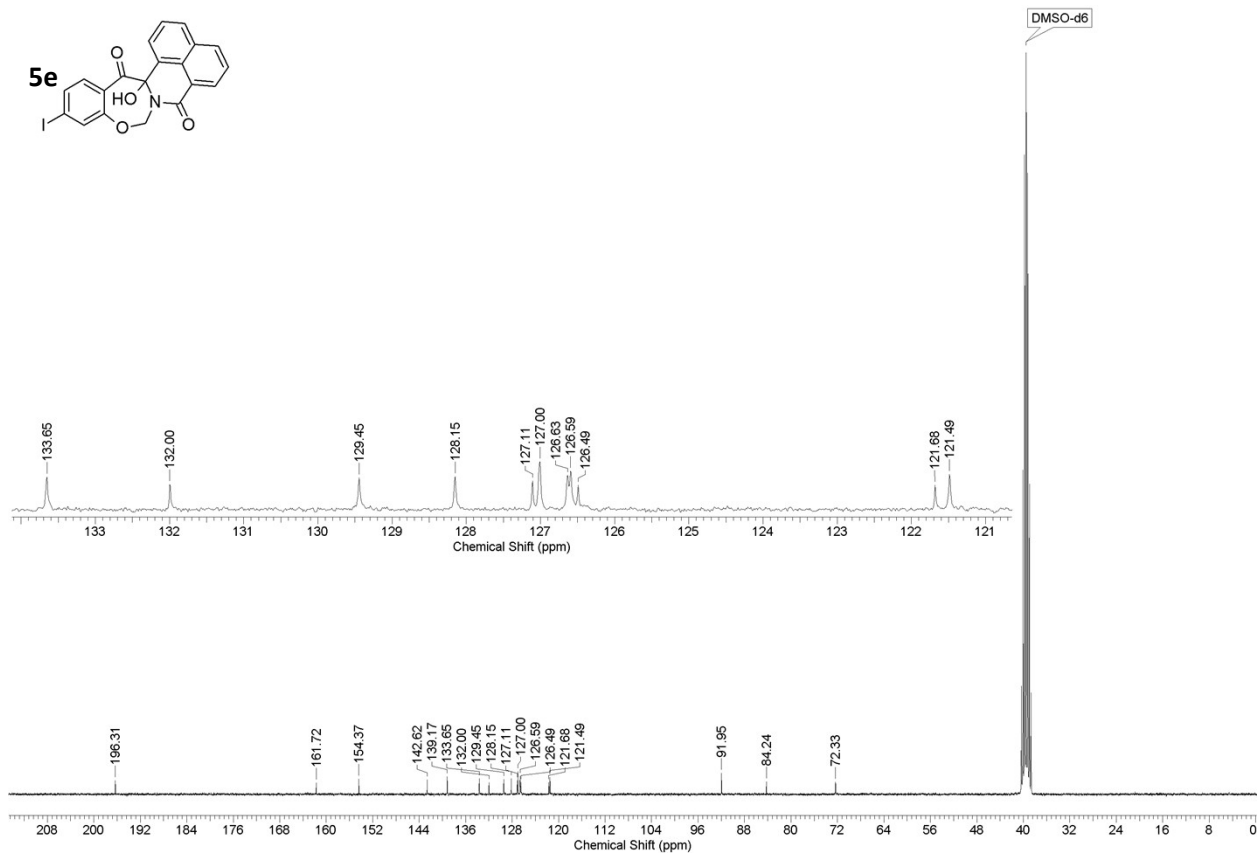
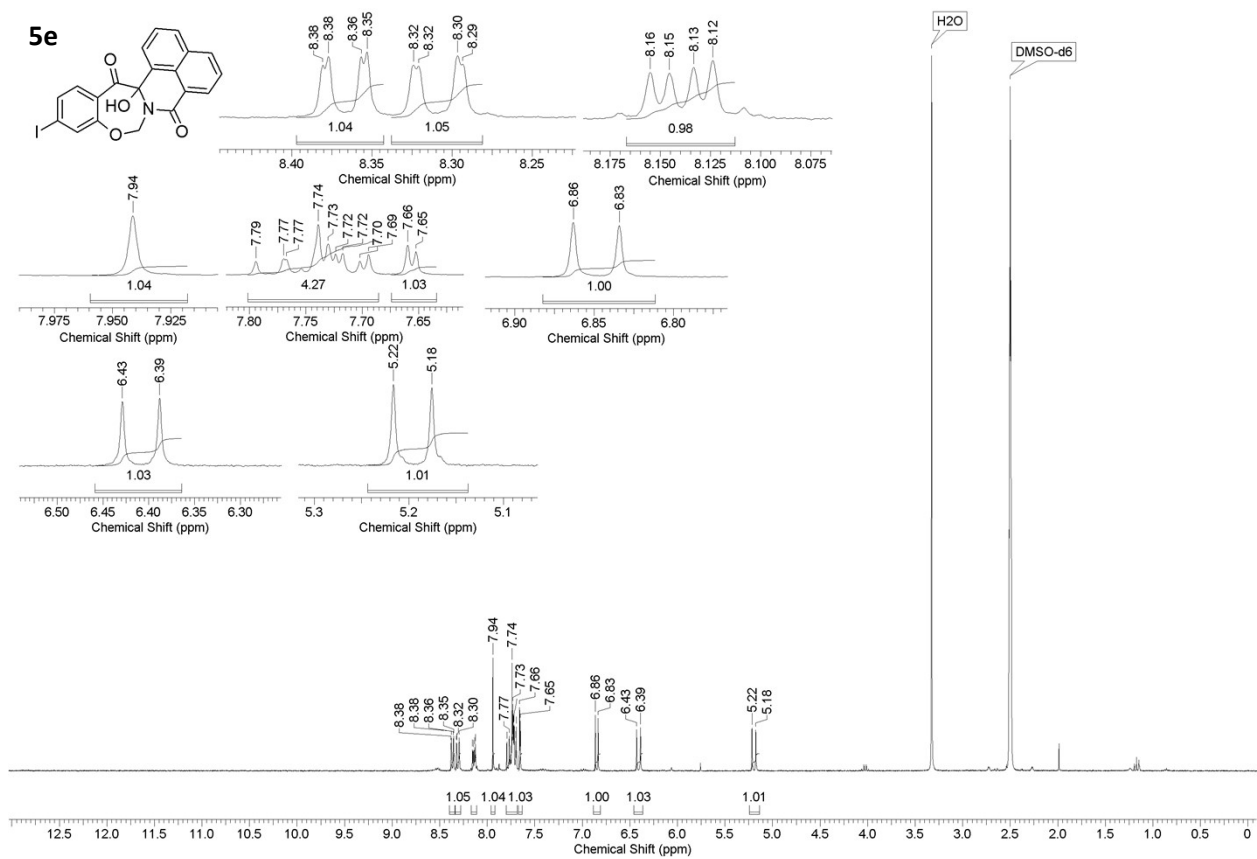
5b**5b**

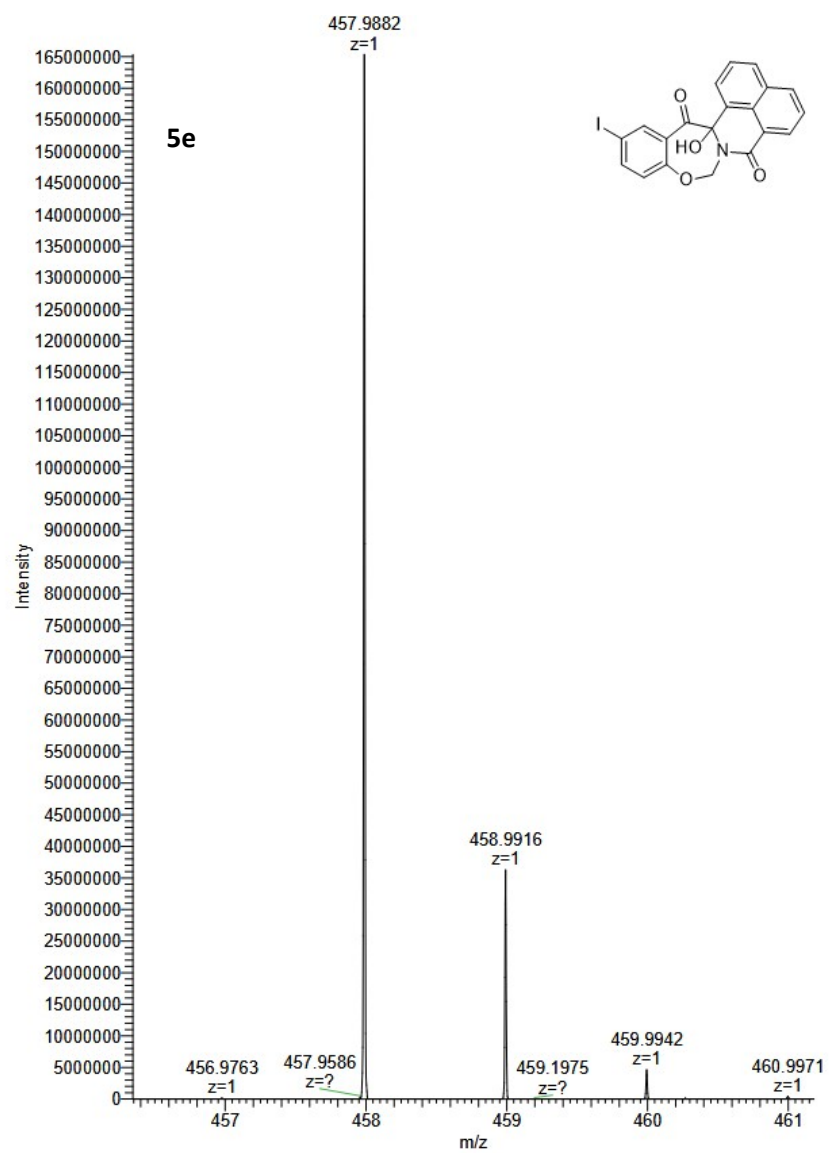


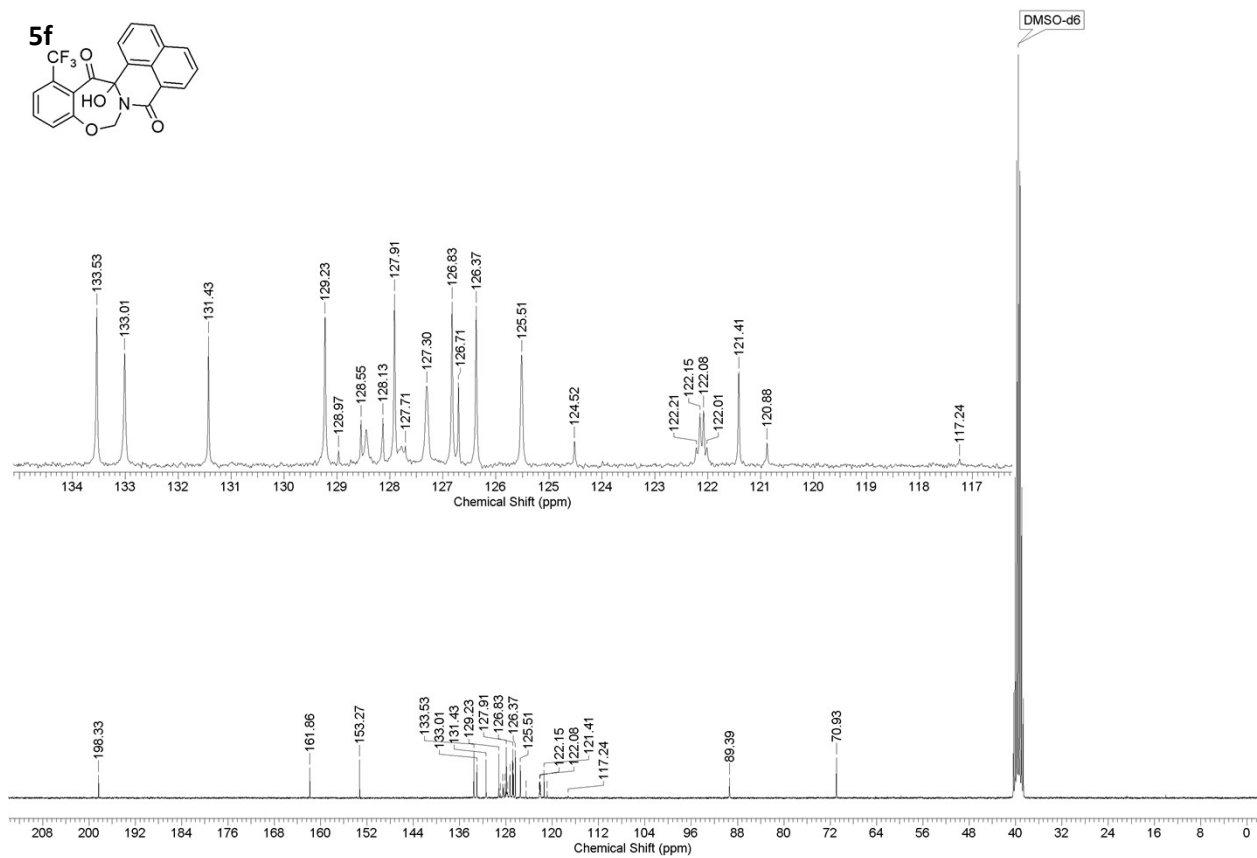
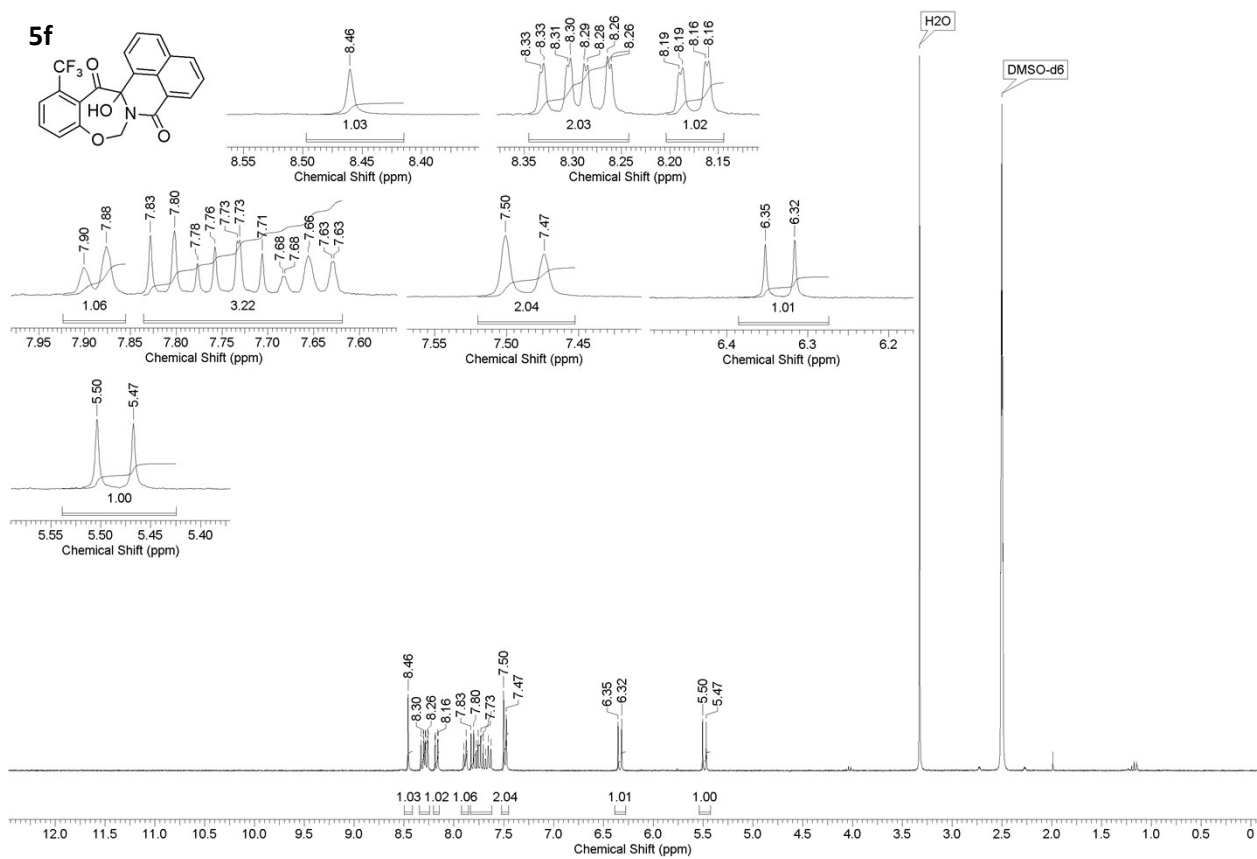




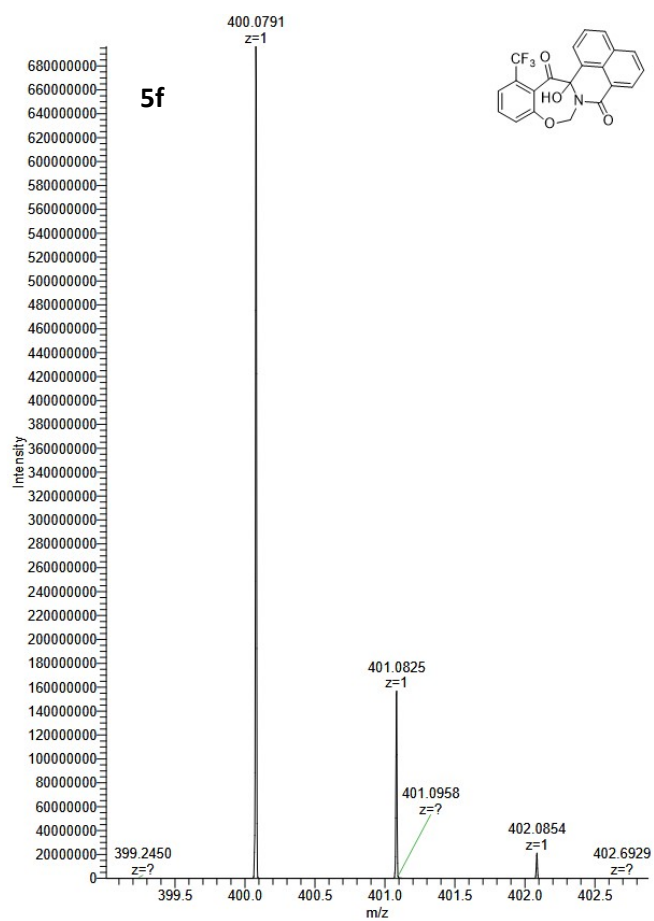
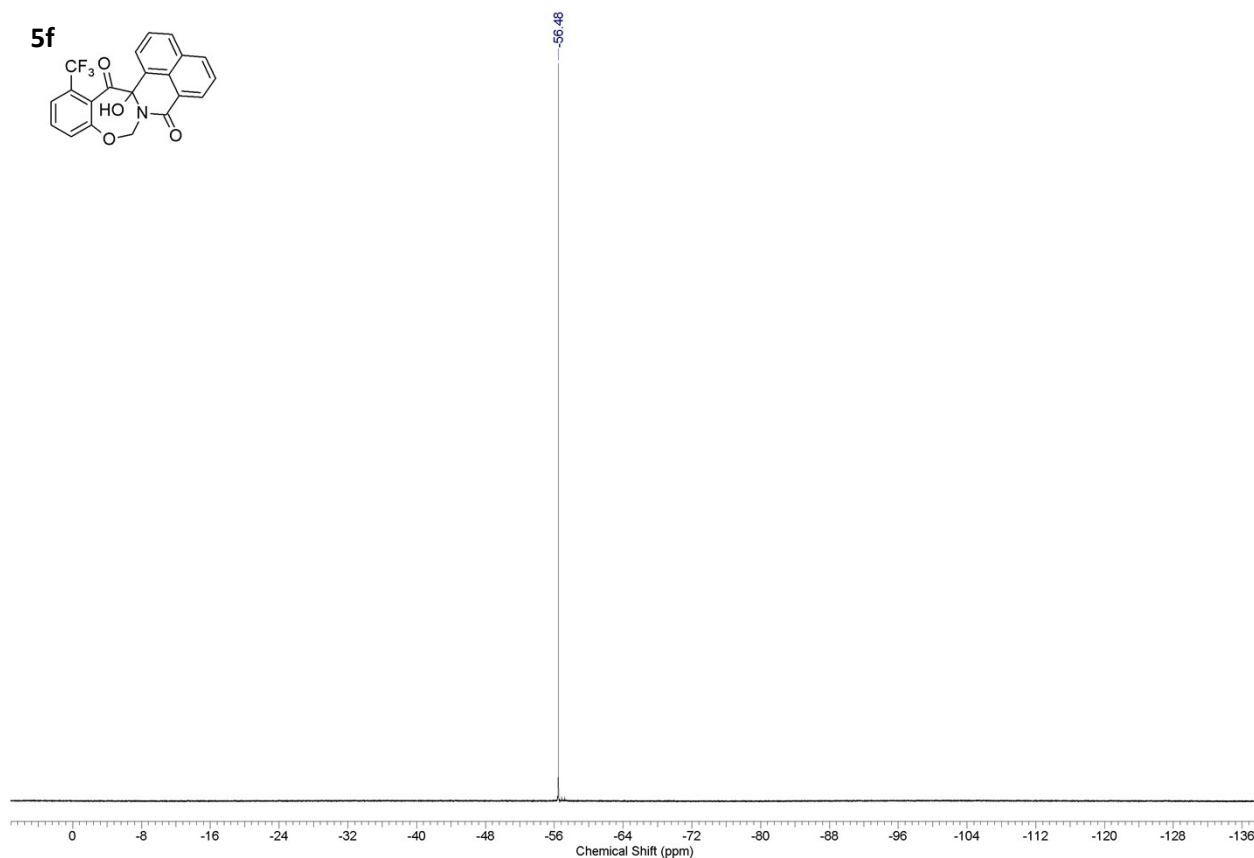
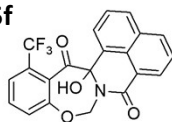


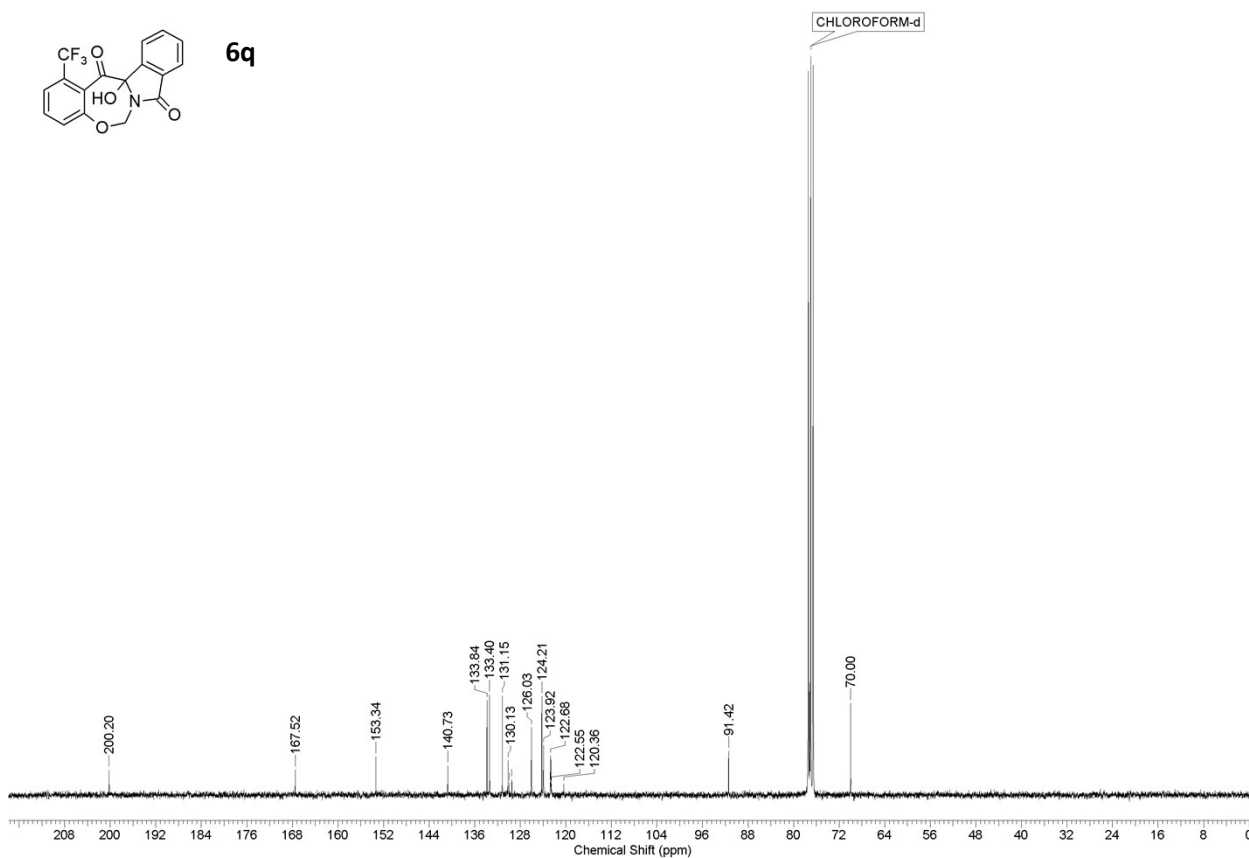
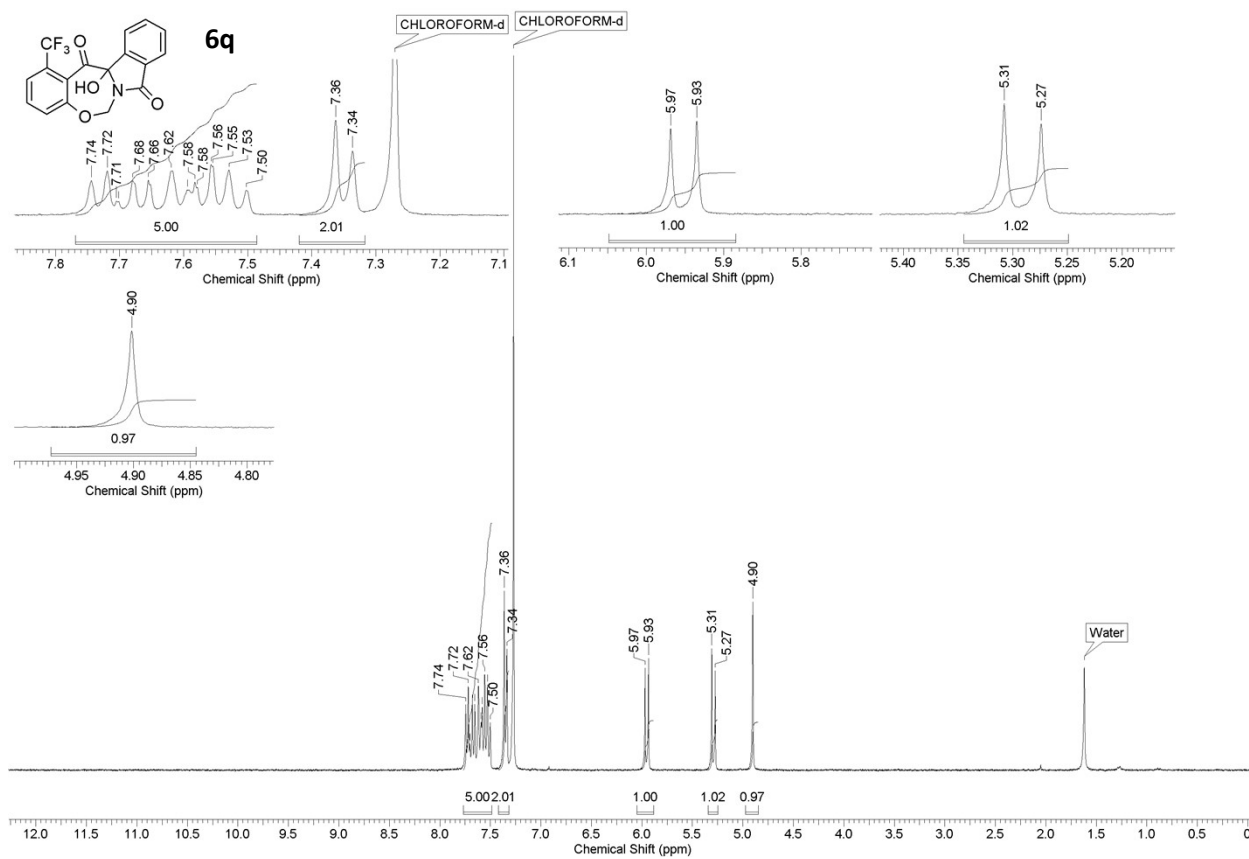


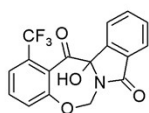




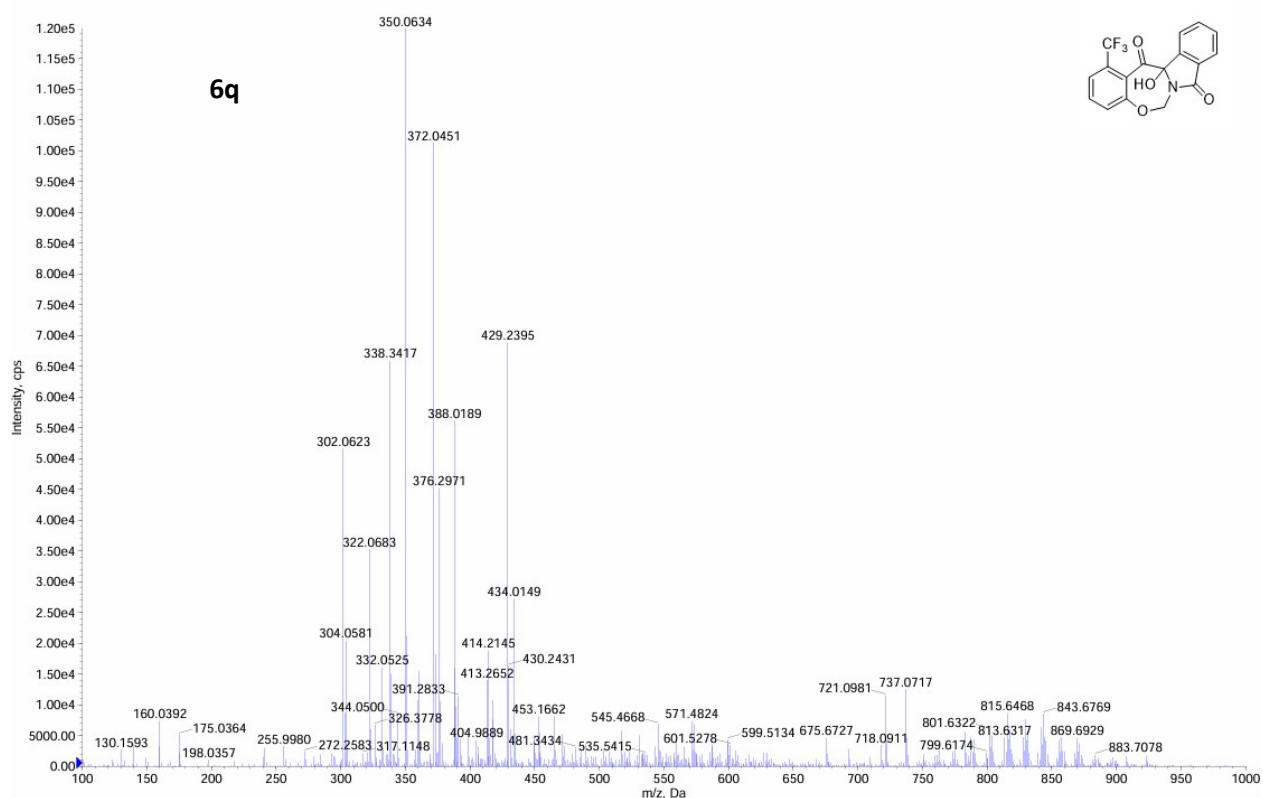
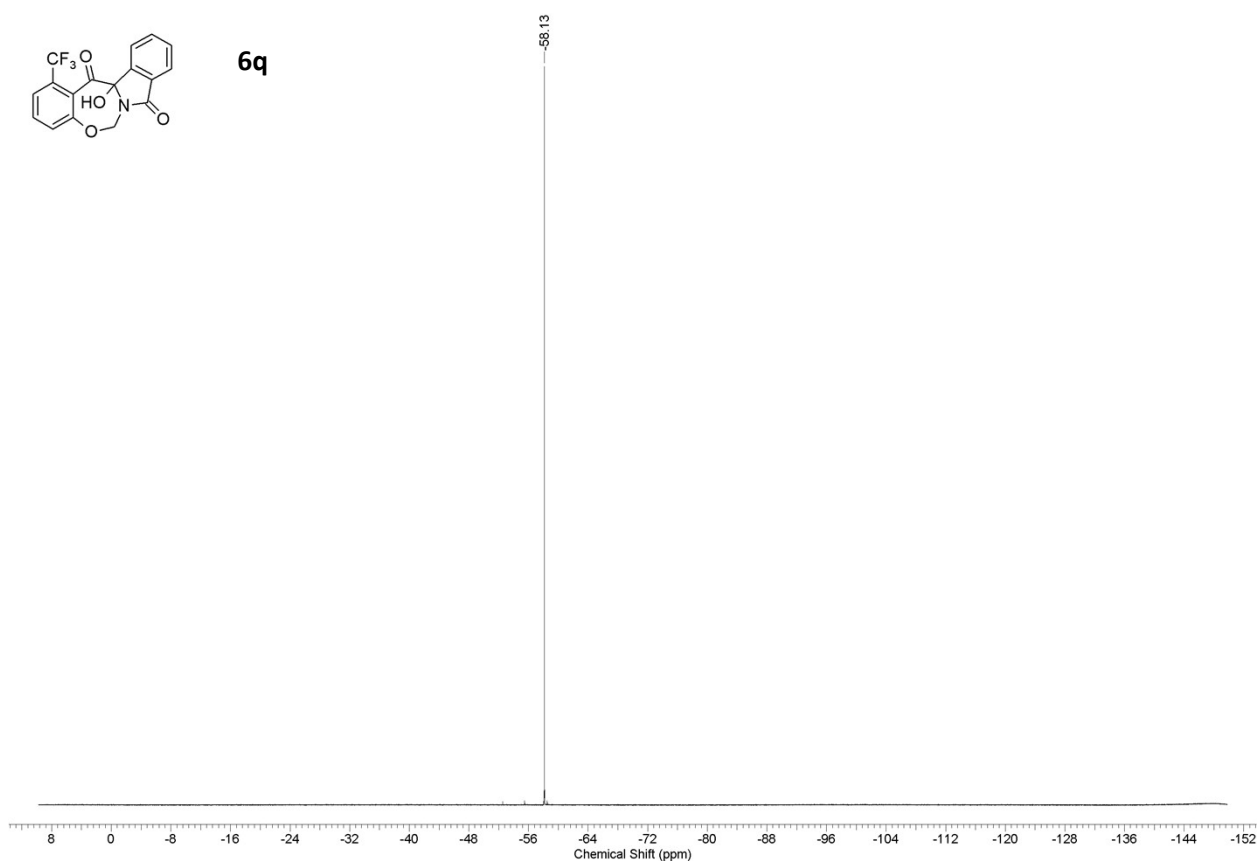
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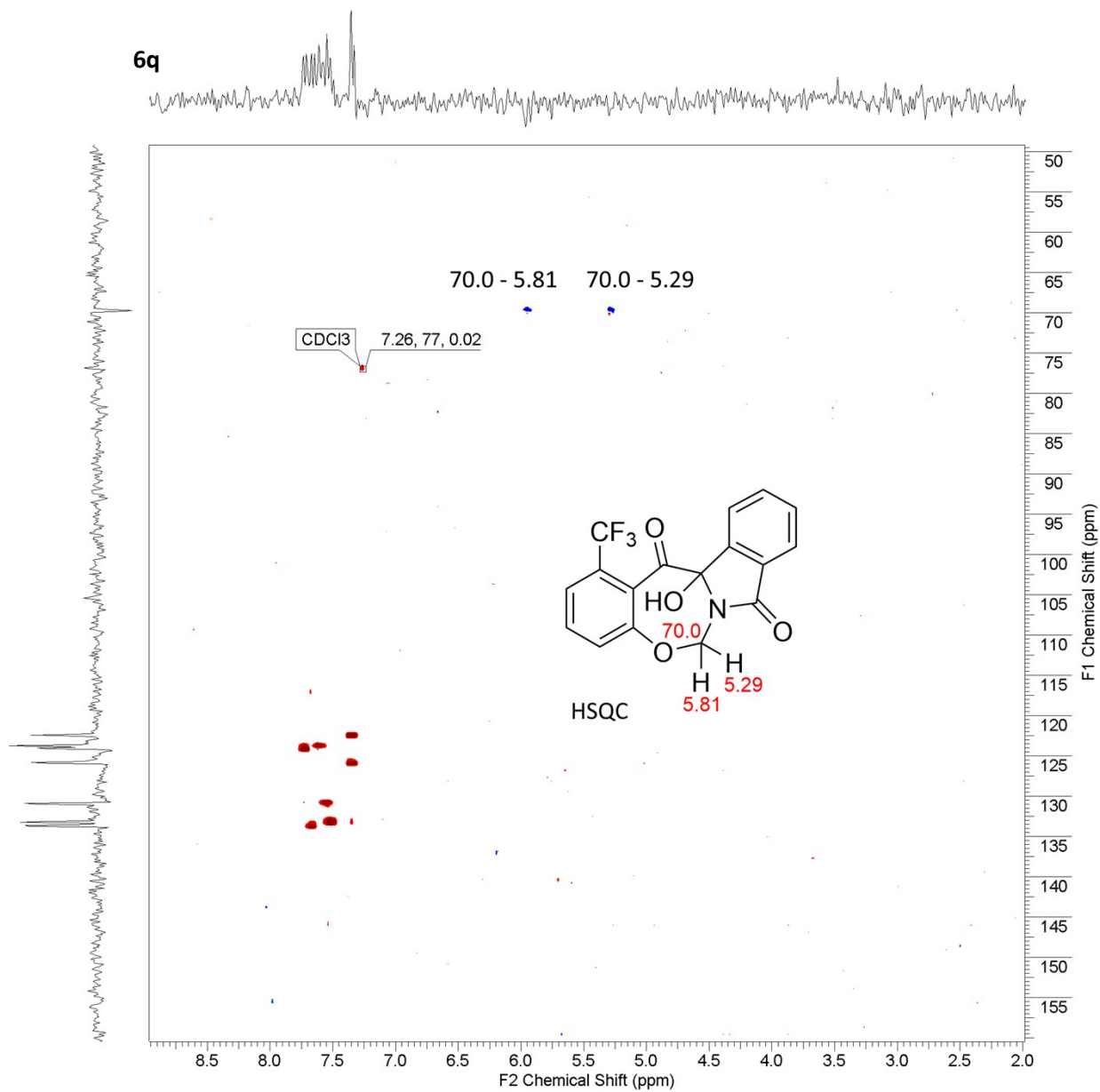




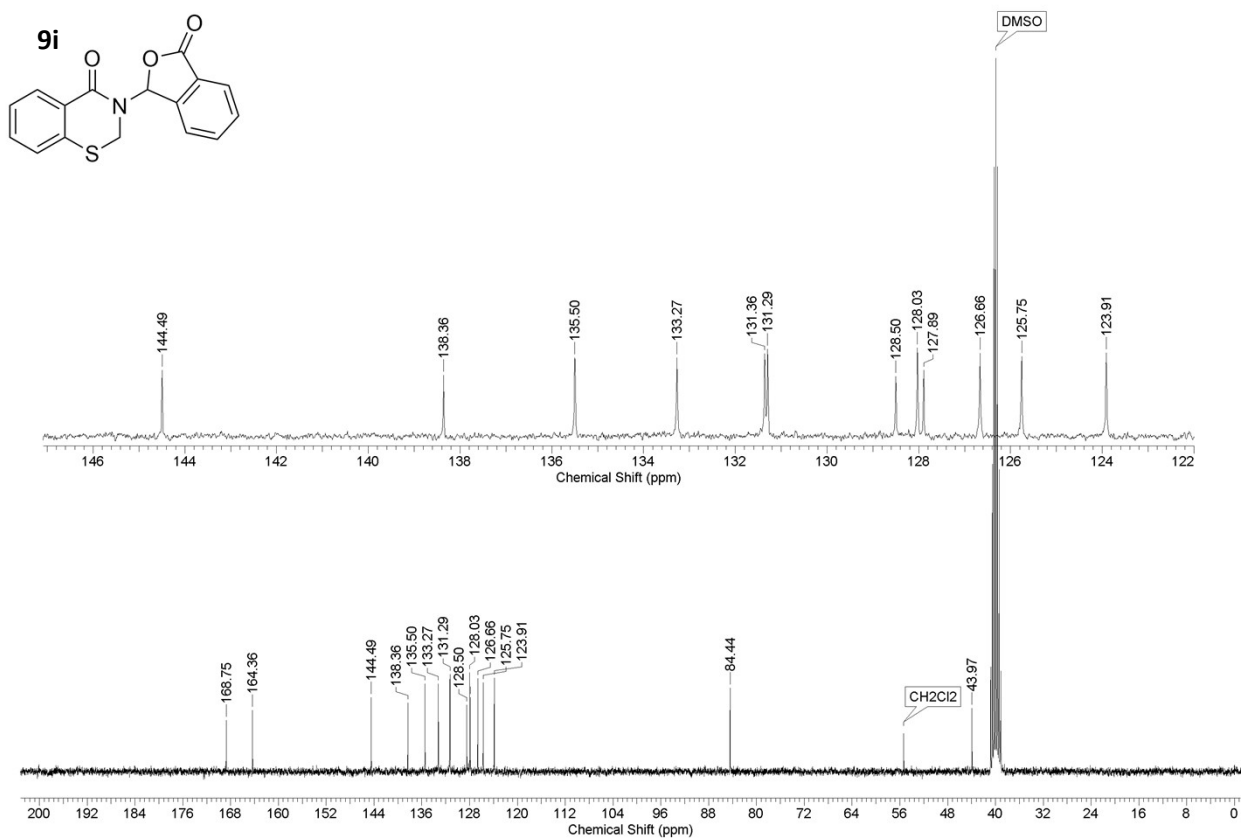
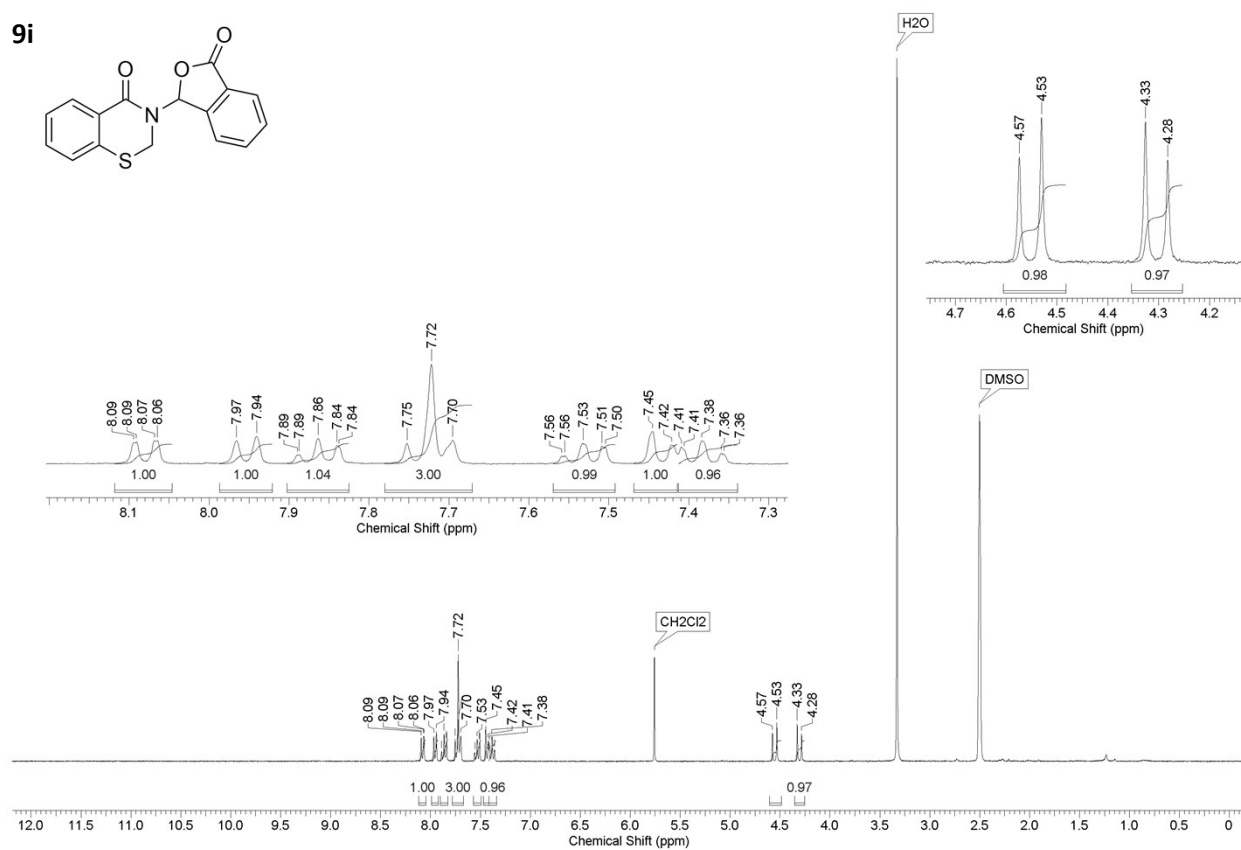
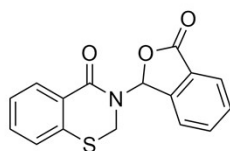
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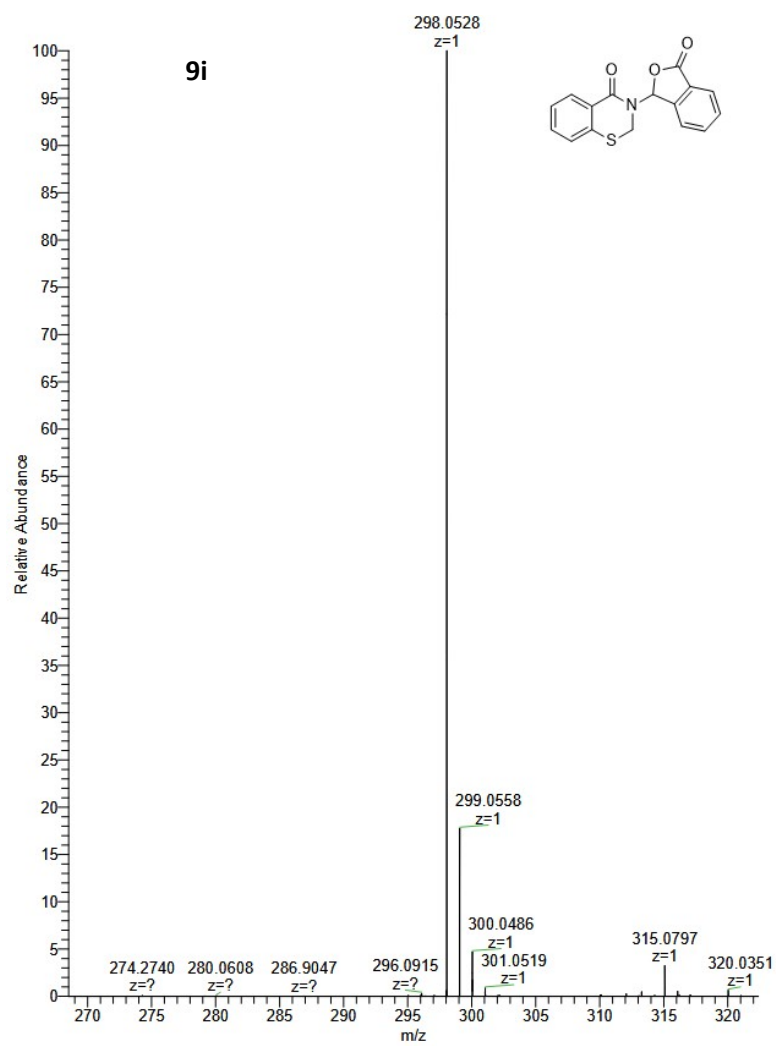


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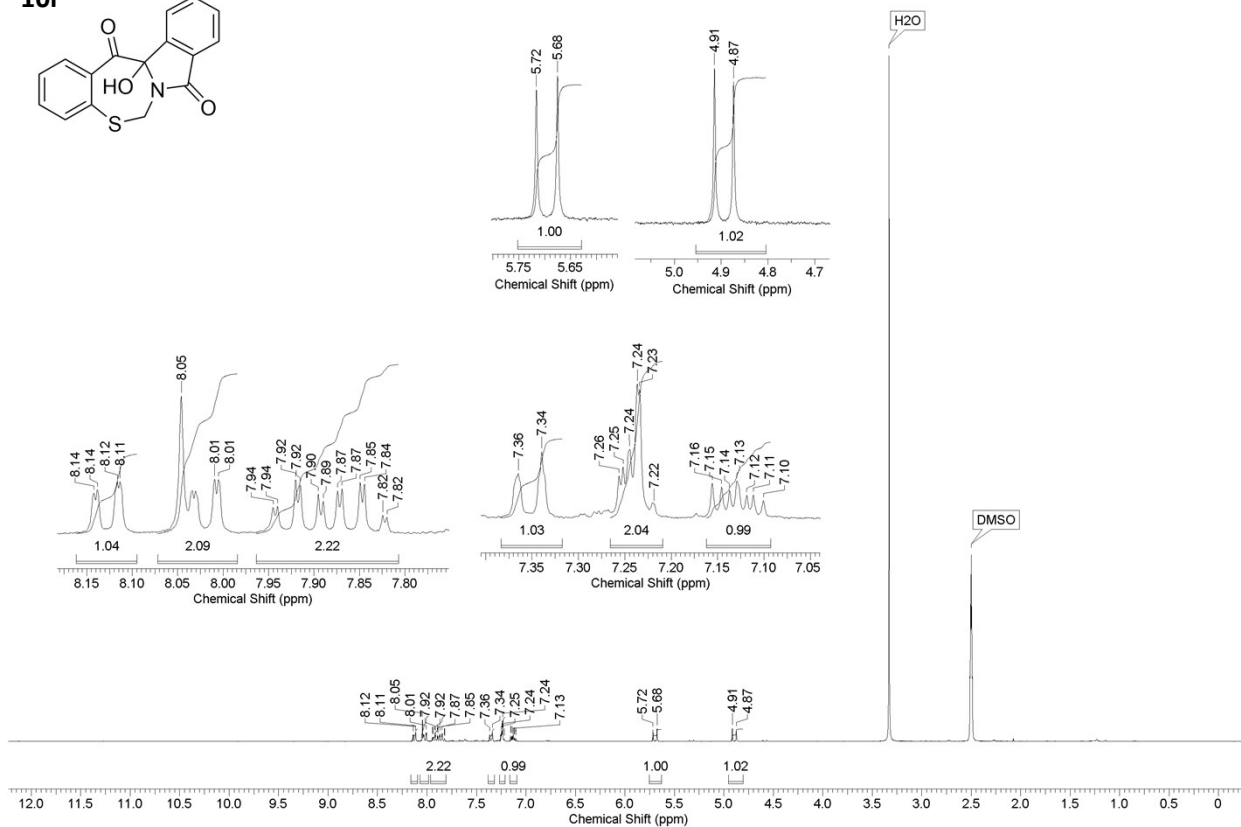
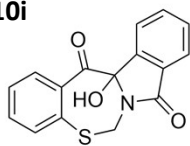


9i





10i



10i

