

PIDA-Mediated Oxidative Ring-Opening of 2*H*-Indazoles with *N*-Hydroxyphthalimide

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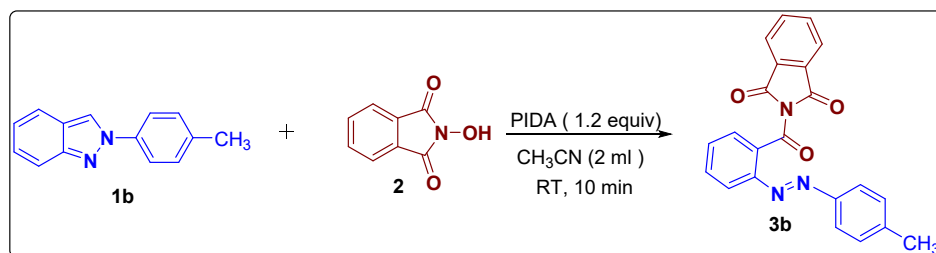
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1. General Information:

All reagents were purchased from commercial sources and used without further purification. ^1H NMR spectra were determined on 400 MHz spectrometer as solutions in CDCl_3 . Chemical shifts are expressed in parts per million (δ) and the signals were reported as s (singlet), d (doublet), t (triplet), m (multiplet) and coupling constants (J) were given in Hz. $^{13}\text{C}\{^1\text{H}\}$ NMR spectra were recorded at 100 MHz in CDCl_3 solution. Chemical shifts as internal standard is referenced to CDCl_3 ($\delta = 7.26$ for ^1H and $\delta = 77.16$ for $^{13}\text{C}\{^1\text{H}\}$ NMR) for as internal standard. Thin-layer chromatography (TLC) was performed on Merck pre-coated silica gel 60 F254 aluminum sheets with detection under UV light at 254 nm. Chromatographic separations were carried out on silica gel (60-120 mesh or 100–200 mesh). All 2-arylidazoles¹ were prepared by the reported methods. All solvents were dried and distilled before use. Commercially available solvents were freshly distilled before the reaction. All reactions involving moisture sensitive reactants were executed using oven dried glassware. Melting points (M.p.) were determined after recrystallization of solid compounds from a solution of dichloromethane/petroleum ether (1:3).

2. Experimental Procedures:

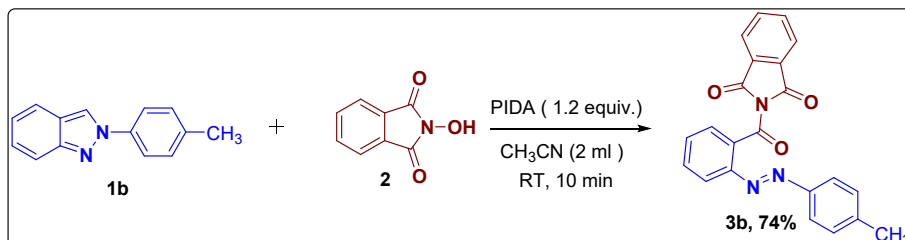
2.1. Typical Experimental Procedure for 3b:



A mixture of 2-(*p*-tolyl)-2*H*-indazole (**1b**) (0.25 mmol, 52.0 mg), *N*-hydroxyphthalimide (**2**) (0.30 mmol, 48.9 mg) together with PIDA [(diacetoxyiodo)benzene] (0.30 mmol, 96.7 mg) in 2 ml of CH_3CN was taken in an oven-dried reaction vessel (tube) at room temperature with a magnetic stirrer for 10 min under open atmosphere. The progress of the reaction was monitored by TLC, the reaction was cooled to room temperature and extracted with ethyl acetate. The organic phase was dried over anhydrous Na_2SO_4 . The crude residue was obtained after evaporating the solvent in vacuum and was purified by column chromatography on silica gel using a mixture of petroleum ether and ethyl acetate.

3. Gram-Scale Preparations:

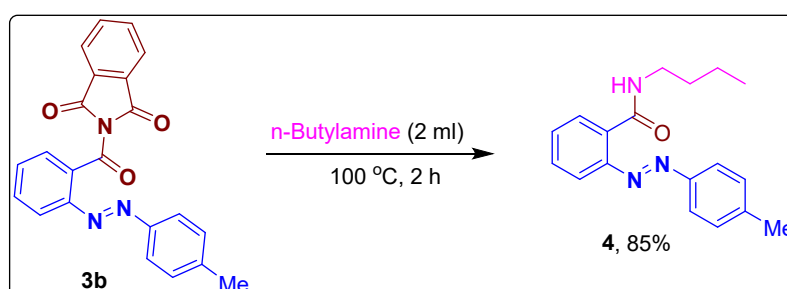
3.1. Synthesis of **3b** on 5.0 mmol Scale:



A mixture of 2-(*p*-tolyl)-2*H*-indazole (**1b**) (5.0 mmol, 1.04 g), *N*-hydroxyphthalimide (**2**) (6.0 mmol, 0.97 g) together with PIDA [(diacetoxyiodo)benzene] (6.0 mmol, 1.93 g) in 2 ml of CH₃CN was taken in an oven-dried reaction vessel (tube) at room temperature with a magnetic stirrer for 10 min under open atmosphere. The progress of the reaction was monitored by TLC, the reaction was cooled to room temperature and extracted with ethyl acetate. The organic phase was dried over anhydrous Na₂SO₄. The crude residue was obtained after evaporating the solvent in vacuum and was purified by column chromatography on silica gel using a mixture of petroleum ether and ethyl acetate as an eluting solvent to afford the pure product **3b** (1.36 gm, 74%) as a yellow solid.

4. Synthetic Transformations:

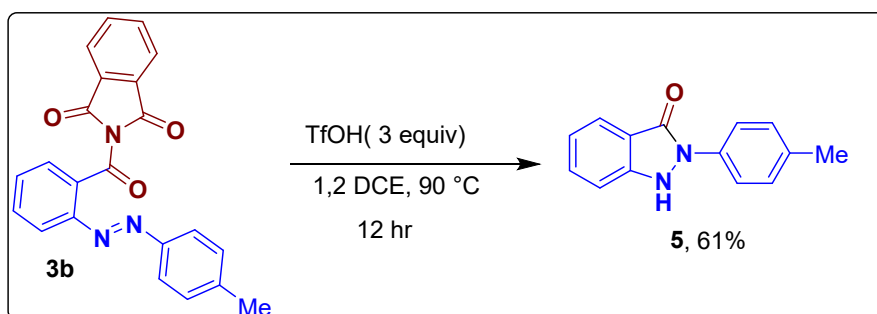
4.1: Synthesis of (*E*)-5-(butylamino)-2-(*p*-tolylidiazenyl)benzaldehyde:²



In a flame dried reaction tube (*E*)-2-(2-(*p*-tolylidiazenyl)benzoyl)isoindoline-1,3-dione (**3b**, 0.2 mmol, 74 mg) was added in *n*-BuNH₂ (2 mL) and heated at 100 °C in an oil bath for 2 h. Then the product formation of the reaction was monitored by TLC. After the reaction was completed, the reaction mixture was diluted with ethyl acetate and washed with brine. The organic layer was dried over anhydrous Na₂SO₄, concentrated and the crude mixture was purified by a flash column chromatography on silica gel (100-200 mesh) using 40% ethyl

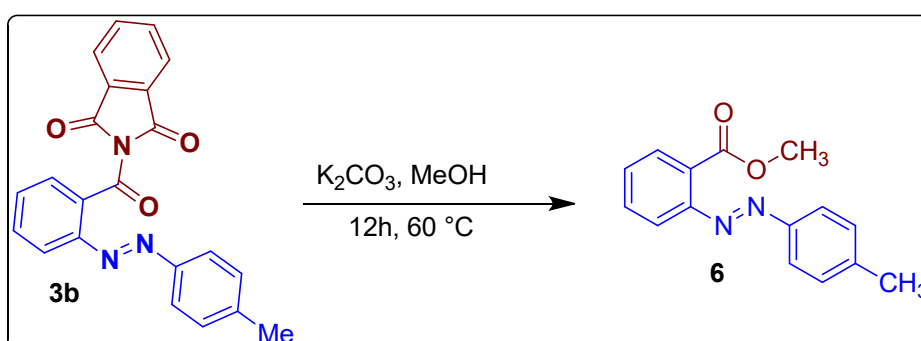
acetate in hexane on silica gel to afford the corresponding product **4** (50.17 mg, 85%) as yellowish white solid.

4.2: Synthesis of 2-(*p*-tolyl)-1,2-dihydro-3H-indazol-3-one (**5**):³



(*E*)-2-(2-(*p*-tolyl)diazenyl)benzoylisoindoline-1,3-dione (**3b**, 74 mg, 0.2 mmol) and triflic acid (CF₃SO₃H) (3.0 equiv., 53 μl) in 1,2-DCE (2 mL) as a solvent were taken in a flame dried reaction tube and stirred at 90 °C for 12 hrs in open atmosphere. Then the product formation of the reaction was monitored by TLC. After the reaction was completed, the reaction mixture was diluted with DCM and water. The organic layer was dried over anhydrous Na₂SO₄, concentrated and the crude mixture was purified by a flash column chromatography on silica gel (60–120 mesh) using 18% ethyl acetate in hexane on silica gel to furnish the indazolone product **5** (27.4 mg, 61%) as a grey solid.

4.3: Synthesis of methyl (*E*)-2-(*p*-tolyl)diazenylbenzoate (**6**):⁴

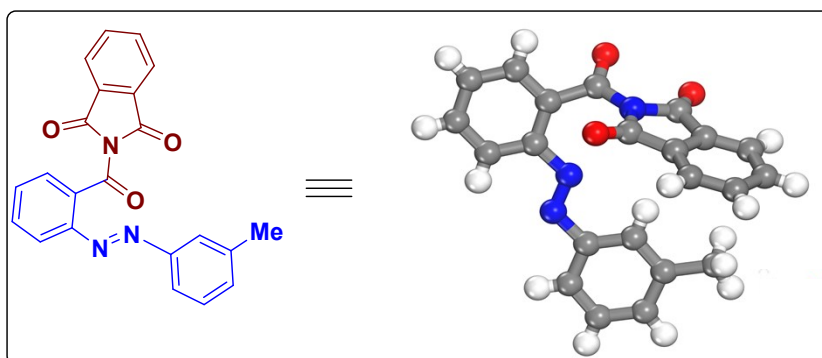


In a round-bottom flask (*E*)-2-(2-(*p*-tolyl)diazenyl)benzoylisoindoline-1,3-dione (**3b**, 74 mg, 0.2 mmol), K₂CO₃ (0.4 mmol, 55.2 mg) was added and MeOH (3 mL) was taken as solvent at 60°C 12 h. Then the product formation of the reaction was monitored by TLC. After the reaction was completed, the reaction mixture was diluted with DCM and water. The organic layer was dried over anhydrous Na₂SO₄, concentrated and the crude mixture was purified by

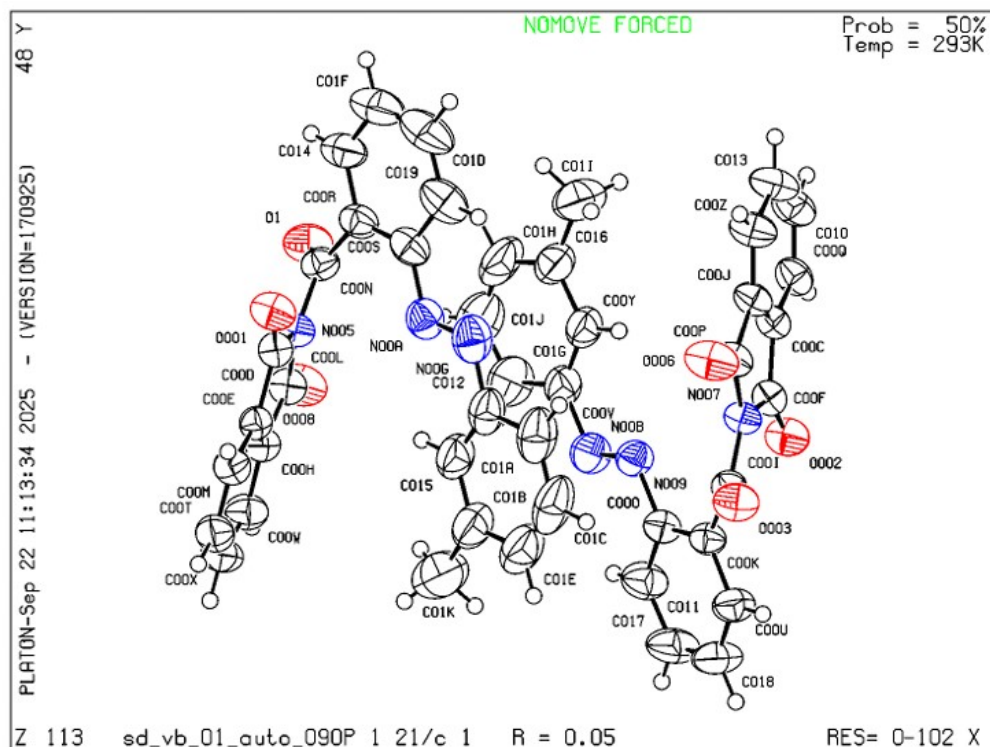
a column chromatography on silica gel (60–120 mesh) using 16% ethyl acetate in hexane on silica gel to furnish the product **6** (34.5 mg, 68%) as a dark orange.

5. Structure determination (X-ray crystallographic data for **3j**):

The Orange crystal of **3j** was obtained by crystallization from a solution in dichloromethane/petroleum ether after purification by column chromatography. Chemical Formula: $C_{22}H_{15}N_3O_3$



Datablock sd_vb_01_auto_090925 - ellipsoid plot



View of ORTEP (with 50% probability) diagram for the structure (*E*)-2-(2-(m-tolyldiazenyl)benzoyl)isoindoline-1,3-dione (**3j**).

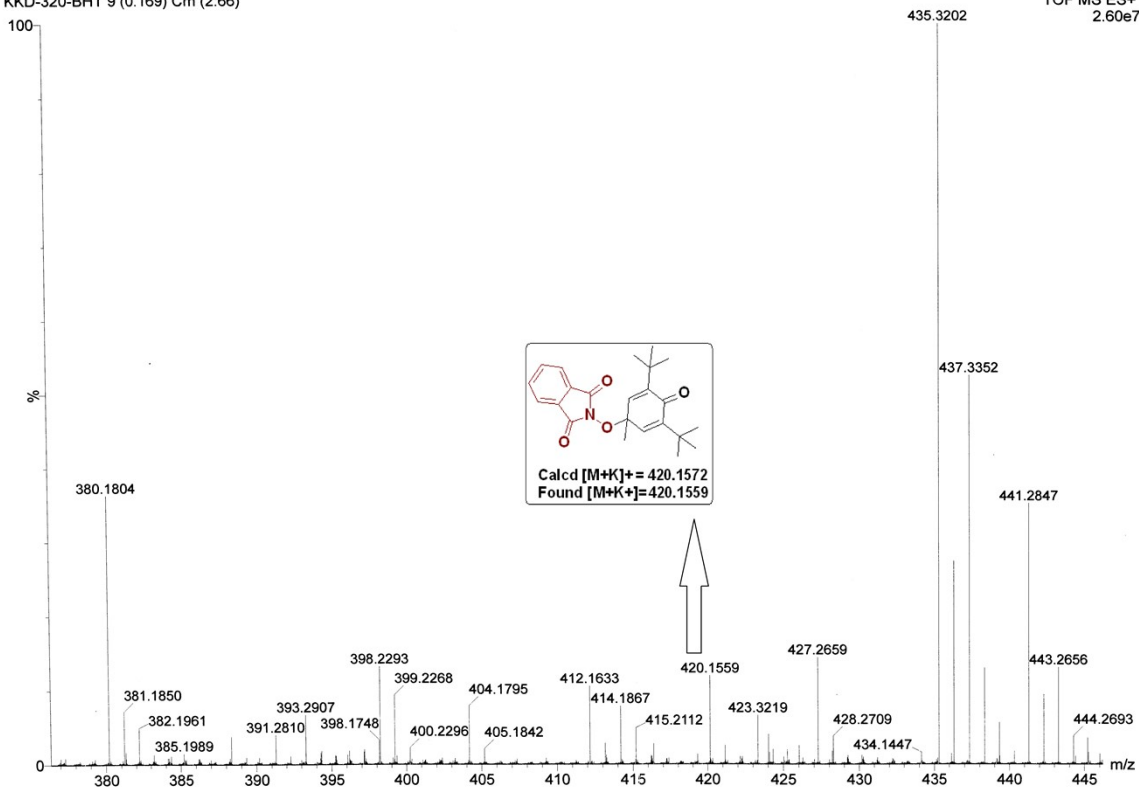
Wavelength	=0.71073Å	
Formula	C ₂₂ H ₁₅ N ₃ O ₃	
Crystal system	Monoclinic	
Space group	P 21/c	
Unit cell dimensions	a = 8.7305(2) Å	α = 90.0°
	b = 17.1804(3) Å	β = 99.034(2)°
	c = 25.2425(5) Å	γ = 90.0°
Volume	3739.24 Å ³	
Z	8	
R factor (%)	4.61 %	

The crystallographic data have been deposited with the Cambridge Crystallographic Data centre as a supplementary publication with a CCDC reference number 2496070.

6. Radical Trapping Experiment & Reaction intermediate:

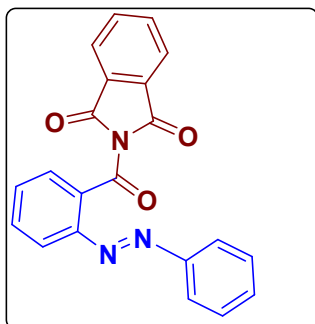
6.1 Radical Trapping Experiment:

A mixture of 2-(*p*-tolyl)-2*H*-indazole (**1b**) (0.25 mmol, 52.0 mg), *N*-hydroxyphthalimide (**2**) (0.30 mmol, 48.9 mg) together with 1.2 equiv. PIDA [(diacetoxyiodo)benzene] (0.30 mmol, 96.7 mg) as an oxidant with radical trapper BHT (3.0 equiv., 165 mg) in 2 ml of CH₃CN was taken in an oven-dried reaction vessel (tube) at room temperature with a magnetic stirrer for 10 min under open atmosphere. The progress of the reaction was monitored by TLC, the reaction was cooled to room temperature and extracted with ethyl acetate. The organic phase was dried over anhydrous Na₂SO₄. The crude residue was obtained after evaporating the solvent in vacuum and was purified by column chromatography on silica gel using a mixture of petroleum ether and ethyl acetate to furnish the product **7** (85%, 81.85 mg) as a Lime greenish solid. BHT formed an adduct (**7**) with radical species generated from the *N*-hydroxyphthalimide, which was detected by NMR & HRMS. The spectra of HRMS (ESI-TOF) *m/z*: [M + K]⁺ Calcd for [C₂₃H₂₇NO₄K]⁺: 420.1572; found: 420.1559.

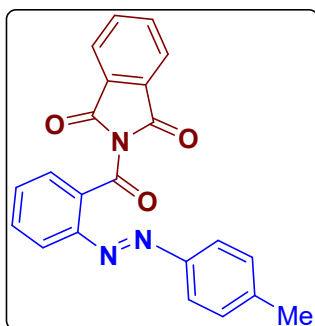


HRMS spectra of BHT adduct

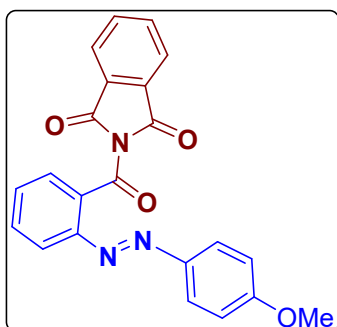
7. Characterization Data for the Synthesized Products:



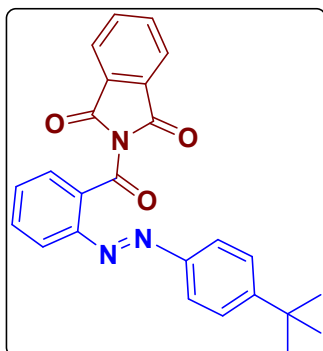
(E)-2-(2-(phenyldiazenyl)benzoyl)isoindoline-1,3-dione (3a): Orange red solid(82%, 72.8 mg); $R_f = 0.50$ (PE/EA = 70:30), M.p. 140-141 °C; ^1H NMR (400 MHz, CDCl_3): δ 7.83-7.79 (m, 3H), 7.77-7.75 (m, 1H), 7.73-7.70 (m, 2H), 7.69-7.66 (m, 1H), 7.64-7.60 (m, 1H), 7.53-7.51 (m, 2H), 7.32-7.28 (m, 1H), 7.24-7.20 (m, 2H) ; $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 166.2, 164.7, 151.8, 149.7, 135.3, 132.4, 131.6, 131.26, 131.23, 131.1, 129.9, 128.9, 124.3, 122.8, 119.1; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{21}\text{H}_{14}\text{N}_3\text{O}_3]^+$: 356.1030 found: 356.1035 .



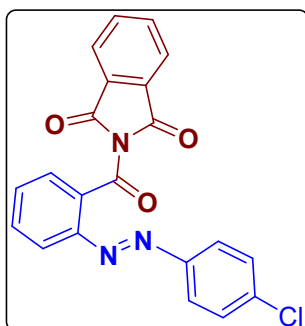
(E)-2-(2-(p-tolyldiazenyl)benzoyl)isoindoline-1,3-dione (3b): Orange-red solid (86%, 79.3 mg); $R_f = 0.50$ (PE/EA = 68:32), M.p. 143-145 °C; ^1H NMR (400 MHz, CDCl_3): δ 7.84-7.80 (m, 3H), 7.78-7.76 (m, 1H), 7.74-7.71 (m, 2H), 7.70-7.65 (m, 1H), 7.62-7.58 (m, 1H), 7.42 (d, $J = 8.4$ Hz, 2H), 7.01 (d, $J = 8.0$ Hz, 2H), 2.29 (s, 3H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 166.4, 164.8, 150.1, 149.9, 142.5, 135.3, 132.5, 131.5, 131.3, 130.8, 129.9, 129.6, 124.4, 123.0, 119.2, 21.5; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{22}\text{H}_{16}\text{N}_3\text{O}_3]^+$: 370.1187 ; found:370.1169 .



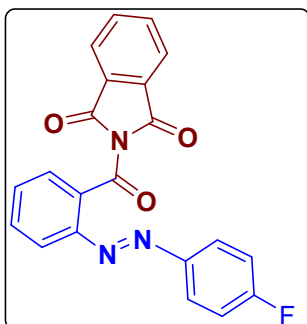
(E)-2-(2-((4-methoxyphenyl)diazenyl)benzoyl)isoindoline-1,3-dione (3c): Yellow solid (83%, 79.9 mg); $R_f = 0.50$ (PE/EA = 66:34), M.p. 113-114 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.82-7.79 (m, 2H), 7.77-7.74 (m, 2H), 7.73-7.69 (m, 2H), 7.68-7.64 (m, 1H), 7.59-7.55 (m, 1H), 7.53-7.49 (m, 2H), 6.70 (d, $J = 8.8$ Hz, 2H), 3.78 (s, 3H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 166.4, 164.8, 162.6, 150.1, 146.4, 135.3, 132.5, 131.3, 131.1, 130.4, 130.0, 125.0, 124.4, 119.3, 114.1, 55.6; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{22}\text{H}_{16}\text{N}_3\text{O}_4]^+$: 386.1136; found: 386.1122.



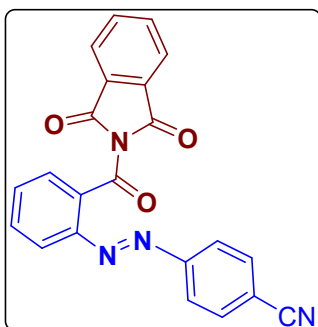
(E)-2-(2-((4-(tert-butyl)phenyl)diazenyl)benzoyl)isoindoline-1,3-dione (3d): Orange solid (71%, 72.9 mg); $R_f = 0.50$ (PE/EA = 76:24), M.p. 148-149 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.82-7.77 (m, 4H), 7.71-7.65 (m, 3H), 7.62-7.58 (m, 1H), 7.45 (d, $J = 8.8$ Hz, 2H), 7.21 (d, $J = 8.8$ Hz, 2H), 1.25 (s, 9H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 166.3, 164.8, 155.4, 150.1, 150.0, 135.2, 132.6, 131.4, 130.8, 130.0, 125.8, 124.4, 123.7, 122.7, 119.2, 35.0, 31.1; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{25}\text{H}_{13}\text{N}_3\text{O}_3]^+$: 412.1656; found: 412.1609.



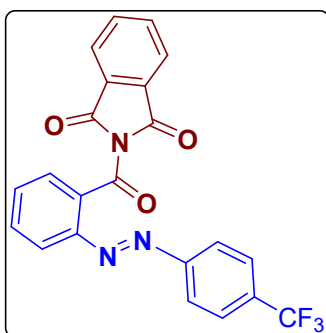
(E)-2-(2-((4-chlorophenyl)diazenyl)benzoyl)isoindoline-1,3-dione (3e): Orange solid (73%, 71 mg); $R_f = 0.50$ (PE/EA = 75:25), M.p. 178-180 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.85-7.81 (m, 3H), 7.78-7.74 (m, 3H), 7.71-7.67 (m, 1H), 7.65-7.61 (m, 1H), 7.50-7.48 (m, 2H), 7.22-7.19 (m, 2H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 166.1, 164.8, 150.4, 149.7, 137.8, 135.5, 132.5, 131.9, 131.5, 131.3, 130.0, 129.3, 124.5, 124.2, 119.3; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{21}\text{H}_{13}\text{ClN}_3\text{O}_3]^+$: 390.0640; found: 390.0663.



(E)-2-(2-((4-fluorophenyl)diazenyl)benzoyl)isoindoline-1,3-dione (3f):⁵ Orange solid (78%, 72.75 mg); $R_f = 0.50$ (PE/EA = 73:27), M.p. 172-173 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.85-7.82 (m, 2H), 7.80-7.78 (m, 1H), 7.76-7.72 (m, 3H), 7.71-7.67 (m, 1H), 7.64-7.60 (m, 1H), 7.59-7.54 (m, 2H), 6.94-6.88 (m, 2H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 166.2, 164.8, 164.6 (C-F, $^1J_{\text{C-F}} = 253.0$ Hz), 149.7, 148.55, 148.52, 135.5, 132.5, 131.6, 131.2, 130.0, 125.1 (C-F, $^3J_{\text{C-F}} = 9.0$ Hz), 124.4, 119.3, 116.0 (C-F, $^2J_{\text{C-F}} = 23.0$ Hz); HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{21}\text{H}_{13}\text{FN}_3\text{O}_3]^+$: 374.0936; found: 374.0954.

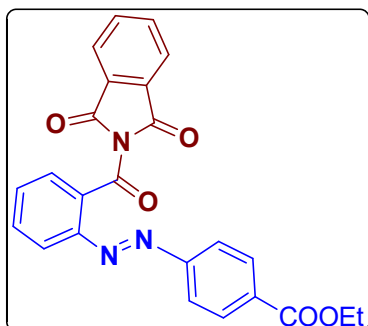


(E)-4-((2-(1,3-dioxisoindoline-2-carbonyl)phenyl)diazenyl)benzonitrile (3g): Orange-red solid (58%, 55.11 mg); $R_f = 0.50$ (PE/EA = 73:27), M.p. 200-202 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.88-7.83 (m, 3H), 7.81-7.77 (m, 3H), 7.74-7.68 (m, 2H), 7.65 (d, $J = 8.4$ Hz, 2H), 7.56 (d, $J = 8.4$ Hz, 2H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 165.9, 164.7, 153.8, 149.4, 135.7, 133.1, 132.59, 132.53, 132.4, 131.2, 129.9, 124.6, 123.4, 119.4, 118.2, 114.6; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{22}\text{H}_{13}\text{N}_4\text{O}_3]^+$: 381.0983; found: 381.0967.

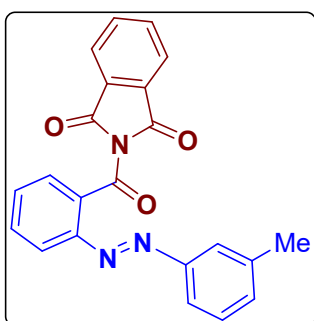


(E)-2-(2-((4-(trifluoromethyl)phenyl)diazenyl)benzoyl)isoindoline-1,3-dione (3h):⁶ Orange solid (79%, 83.56 mg); $R_f = 0.50$ (PE/EA = 70:30), M.p. 178-180 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.85-7.78 (m, 4H), 7.75-7.72 (m, 2H), 7.71-7.66 (m, 2H), 7.63 (d, $J = 8.4$ Hz, 2H), 7.49 (d, $J = 8.4$ Hz, 2H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 166.0, 164.8, 153.7, 149.4, 135.5, 132.8, 132.5, 132.2, 132.0, 131.1, 130.0, 126.2 (q, $J = 5.0$ Hz), 124.4, 123.6 (d, $J =$

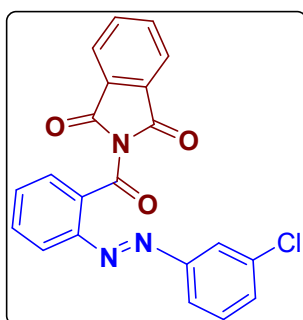
271.0 Hz), 123.0, 119.2; HRMS (ESI-TOF) m/z : $[M + H]^+$ Calcd for $[C_{22}H_{13}F_3N_3O_3]^+$: 424.0904; found: 424.0866.



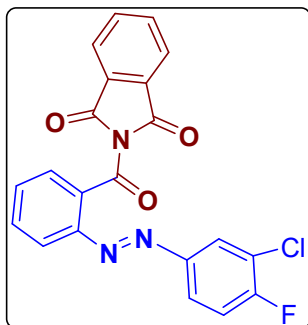
Ethyl(E)-4-((2-(1,3-dioxoisindoline-2-carbonyl)phenyl)diazinyl)benzoate (3i): Brownish orange solid (66%, 70.4 mg); $R_f = 0.50$ (PE/EA = 72:28), M.p. 130-131 °C; 1H NMR (400 MHz, $CDCl_3$): δ 7.91 (d, $J = 8.4$ Hz, 2H), 7.87- 7.81 (m, 3H), 7.79-7.77 (m, 1H), 7.76-7.73 (m, 2H), 7.71-7.64 (m, 2H), 7.57 (d, $J = 8.4$ Hz, 2H), 4.38-4.33 (m, 2H), 1.38 (t, $J = 7.2$ Hz, 3H); $^{13}C\{^1H\}$ NMR (100 MHz, $CDCl_3$): δ 166.1, 165.8, 164.8, 154.3, 149.6, 135.6, 132.7, 132.5, 132.2, 131.9, 131.2, 130.4, 130.0, 124.5, 122.7, 119.3, 61.5, 14.4; HRMS (ESI-TOF) m/z : $[M + H]^+$ Calcd for $[C_{24}H_{18}N_3O_5]^+$: 428.1241; found: 428.1231.



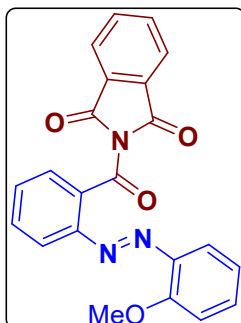
(E)-2-(2-(m-tolyldiazinyl)benzoyl)isoindoline-1,3-dione (3j): Orange solid (94%, 86.74 mg); $R_f = 0.50$ (PE/EA = 74:26), M.p. 138-140 °C; 1H NMR (400 MHz, $CDCl_3$): δ 7.94-7.89 (m, 4H), 7.84-7.80 (m, 2H), 7.77 (d, $J = 8.0$ Hz, 1H), 7.72 (t, $J = 7.6$ Hz, 1H), 7.48 (d, $J = 6.8$ Hz, 1H), 7.37 (s, 1H), 7.25-7.21 (m, 2H), 2.27 (s, 3H); $^{13}C\{^1H\}$ NMR (100 MHz, $CDCl_3$): δ 166.3, 164.8, 152.0, 149.8, 138.8, 135.3, 132.5, 131.8, 131.27, 131.23, 131.0, 130.0, 128.7, 124.3, 122.2, 121.4, 118.7, 21.1; HRMS (ESI-TOF) m/z : $[M + H]^+$ Calcd for $[C_{22}H_{16}N_3O_3]^+$: 370.1187; found: 370.1223.



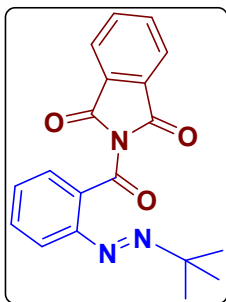
(E)-2-(2-((3-chlorophenyl)diazenyl)benzoyl)isoindoline-1,3-dione (3k): Bright orange solid (90%, 87.53 mg); $R_f = 0.50$ (PE/EA=74:26), M.p. 139-140 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.83-7.76 (m, 4H), 7.73-7.71 (m, 2H), 7.68-7.60 (m, 2H), 7.50 (d, $J = 7.2$ Hz, 1H), 7.35 (s, 1H), 7.26-7.18 (m, 2H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 166.0, 164.8, 152.7, 149.4, 135.5, 135.0, 132.6, 132.2, 131.7, 131.4, 131.2, 130.17, 130.12, 124.5, 123.3, 120.9, 118.8; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{21}\text{H}_{13}\text{ClN}_3\text{O}_3]^+$: 390.0640; found: 390.0683.



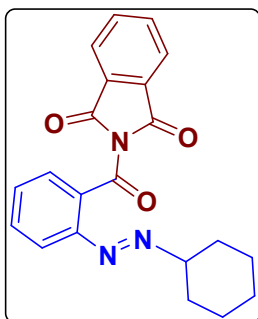
(E)-2-(2-((3-chloro-4-fluorophenyl)diazenyl)benzoyl)isoindoline-1,3-dione (3l):⁵ Orange solid (72%, 73.26 mg); $R_f = 0.50$ (PE/EA = 76:24), M.p. 170-172 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.87-7.84 (m, 2H), 7.81-7.74 (m, 4H), 7.71-7.63 (m, 2H), 7.60-7.56 (m, 1H), 7.52-7.50 (m, 1H), 7.07 (t, $J = 8.8$ Hz, 1H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 166.0, 164.8, 159.8 (C-F, $^1J_{\text{C-F}} = 255.0$ Hz), 149.4, 148.6, 135.6, 132.6, 132.1, 131.7, 131.2, 130.1, 125.2 (C-F, $^3J_{\text{C-F}} = 9.0$ Hz), 124.5, 123.3, 122.2 (C-F, $^2J_{\text{C-F}} = 19.0$ Hz), 119.0, 116.9 (C-F, $^2J_{\text{C-F}} = 23.0$ Hz); HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{21}\text{H}_{12}\text{ClFN}_3\text{O}_3]^+$: 408.0546; found: 408.0594.



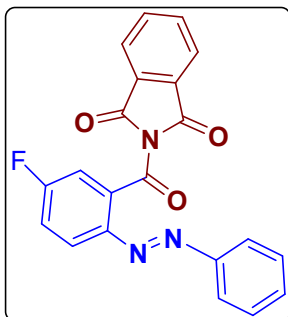
(E)-2-(2-((2-methoxyphenyl)diazenyl)benzoyl)isoindoline-1,3-dione (3l'): Orange solid (65%, 62.58 mg); $R_f = 0.50$ (PE/EA = 80:20), M.p. 168-170 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.91 (d, $J = 8.0$ Hz, 1H), 7.87-7.85 (m, 2H), 7.76-7.74 (m, 2H), 7.68-7.63 (m, 2H), 7.59-7.55 (m, 1H), 7.29-7.22 (m, 2H), 6.89 (d, $J = 8.4$ Hz, 1H), 6.65 (t, $J = 7.6$ Hz, 1H), 3.73 (s, 3H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 166.5, 164.9, 157.6, 150.1, 141.3, 135.3, 133.4, 131.9, 131.5, 130.8, 130.3, 128.8, 124.3, 122.4, 120.4, 116.6, 112.7, 55.9; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{22}\text{H}_{16}\text{N}_3\text{O}_4]^+$: 386.1135; found: 386.1136.



(E)-2-(2-(tert-butylidiazenyl)benzoyl)isoindoline-1,3-dione (3m): Yellow solid (81%, 67.86 mg); $R_f = 0.50$ (PE/EA = 75:25), M.p. 161-163 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.92-7.89 (m, 1H), 7.86-7.73 (m, 3H), 7.67 (d, $J = 7.6$ Hz, 1H), 7.63-7.59 (m, 1H), 7.55 (t, $J = 8.0$ Hz, 2H), 0.99 (s, 9H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 166.4, 164.7, 149.1, 135.5, 134.4, 132.4, 130.4, 129.4, 124.4, 123.6, 118.3, 68.6, 26.6; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{19}\text{H}_{18}\text{N}_3\text{O}_3]^+$: 336.1343; found: 336.1288.

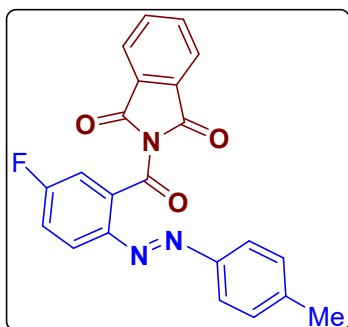


(E)-2-(2-(cyclohexyldiazenyl)benzoyl)isoindoline-1,3-dione (3n): Pale orange solid (75%, 67.71 mg); $R_f = 0.50$ (PE/EA = 75:25), M.p. 187-188 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.93-7.91 (m, 1H), 7.87-7.81 (m, 3H), 7.76-7.70 (m, 2H), 7.63-7.57 (m, 1H), 7.55-7.52 (m, 1H), 3.27-3.19 (m, 1H), 1.73-1.53 (m, 3H), 1.46-1.38 (m, 4H), 1.13-1.05 (m, 3H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 168.1, 166.3, 164.9, 149.1, 135.4, 134.4, 131.5, 130.6, 129.6, 124.5, 123.7, 118.9, 76.9, 30.5, 25.4, 24.2; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{21}\text{H}_{20}\text{N}_3\text{O}_3]^+$: 362.1500; found: 362.1450.

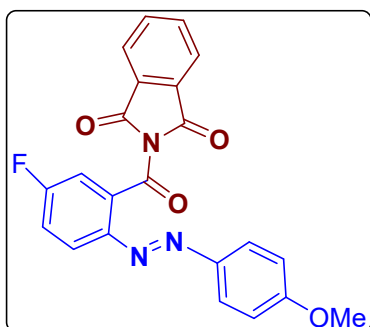


(E)-2-(5-fluoro-2-(phenyldiazenyl)benzoyl)isoindoline-1,3-dione (3o): Yellow solid (87%, 81.14 mg); $R_f = 0.50$ (PE/EA = 75:25), M.p. 168-170 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.91-7.87 (m, 1H), 7.85-7.82 (m, 2H), 7.76-7.72 (m, 2H), 7.51 (d, $J = 7.6$ Hz, 2H), 7.45-7.43 (m, 1H), 7.38-7.32 (m, 1H), 7.29 (d, $J = 7.2$ Hz, 1H), 7.24-7.20 (m, 2H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 165.2, 164.6, 163.8 (C-F, $^1J_{\text{C-F}} = 230.0$ Hz), 151.8, 146.1, 135.5, 133.8 (C-F, $^3J_{\text{C-F}} = 8.0$ Hz), 131.7, 131.2, 129.0, 124.5, 122.9, 121.6 (C-F, $^3J_{\text{C-F}} = 9.0$ Hz), 119.3 (C-F,

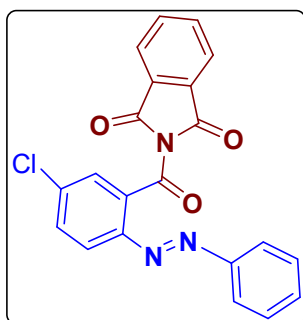
$^2J_{\text{C-F}} = 23.0$ Hz), 116.7 (C-F, $^2J_{\text{C-F}} = 24.0$ Hz); HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{21}\text{H}_{13}\text{FN}_3\text{O}_3]^+$: 374.0936; found: 374.0894.



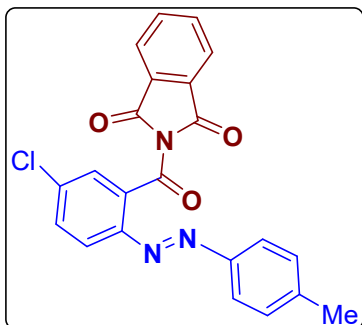
(E)-2-(5-fluoro-2-(p-tolyldiazenyl)benzoyl)isoindoline-1,3-dione (3p): Yellow solid (82%, 79.35mg); $R_f = 0.50$ (PE/Ea=76:24), M.p. 160-162 °C; ^1H NMR (400 MHz, CDCl_3): δ 7.89-7.82 (m, 3H), 7.76-7.72 (m, 2H), 7.44-7.39 (m, 3H), 7.36-7.31 (m, 1H), 7.01 (d, $J = 8.0$ Hz, 2H), 2.29 (s, 3H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 165.1, 164.6, 163.8 (C-F, $^1J_{\text{C-F}} = 253.0$ Hz), 150.0, 146.3, 142.6, 135.5, 133.5 (C-F, $^3J_{\text{C-F}} = 9.0$ Hz), 131.3, 129.7, 124.5, 122.9, 121.6 (C-F, $^3J_{\text{C-F}} = 8.0$ Hz), 119.3 (C-F, $^2J_{\text{C-F}} = 23.0$ Hz), 116.7 (C-F, $^2J_{\text{C-F}} = 25.0$ Hz), 21.5; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{22}\text{H}_{15}\text{FN}_3\text{O}_3]^+$: 388.1092; found: 388.1037.



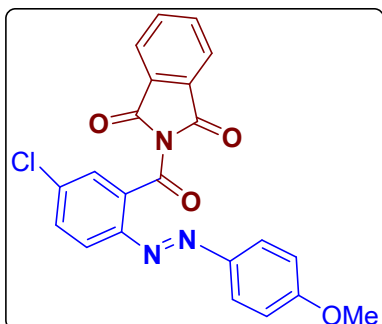
(E)-2-(5-fluoro-2-((4-methoxyphenyl)diazenyl)benzoyl)isoindoline-1,3-dione (3q): Orange solid (85%, 85.6 mg); $R_f = 0.50$ (PE/Ea=74:26), M.p. 188-189 °C; ^1H NMR (400 MHz, CDCl_3): δ 7.86-7.81 (m, 3H), 7.76-7.73 (m, 2H), 7.49 (d, $J = 8.8$ Hz, 2H), 7.43-7.40 (m, 1H), 7.35-7.30 (m, 1H), 6.70 (d, $J = 9.2$ Hz, 2H), 3.78 (s, 3H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 165.1, 164.6, 163.5 (C-F, $^1J_{\text{C-F}} = 252.0$ Hz), 162.6, 146.4, 146.3, 135.5, 133.0 (C-F, $^3J_{\text{C-F}} = 8.0$ Hz), 131.2, 125.0, 124.5, 121.6 (C-F, $^3J_{\text{C-F}} = 9.0$ Hz), 119.3 (C-F, $^2J_{\text{C-F}} = 23.0$ Hz), 116.7 (C-F, $^2J_{\text{C-F}} = 25.0$ Hz), 114.1, 55.6; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{22}\text{H}_{15}\text{FN}_3\text{O}_4]^+$: 404.1042; found: 404.1055.



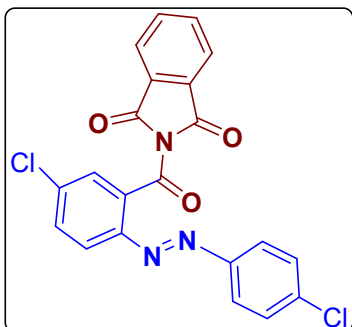
(E)-2-(5-chloro-2-(phenyldiazenyl)benzoyl)isoindoline-1,3-dione (3r): Orange-red solid (81%, 78.8 mg); $R_f = 0.50$ (PE/EA = 78:22), M.p. 152-155 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.83-7.79 (m, 3H), 7.75-7.70 (m, 3H), 7.62-7.59 (m, 1H), 7.51-7.49 (m, 2H), 7.30 (t, $J = 7.2$ Hz, 1H), 7.21 (t, $J = 8.0$ Hz, 2H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 164.9, 164.6, 151.7, 147.9, 137.3, 135.6, 133.0, 132.3, 132.0, 131.1, 129.6, 129.0, 124.5, 123.0, 120.7; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{21}\text{H}_{13}\text{ClN}_3\text{O}_3]^+$: 390.0640; found: 390.0663.



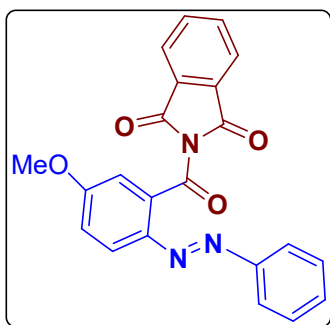
(E)-2-(5-chloro-2-(p-tolyldiazenyl)benzoyl)isoindoline-1,3-dione (3s): Yellow solid (59%, 59.4 mg); $R_f = 0.50$ (PE/EA=77:23), M.p. 165-166°C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.88-7.83 (m, 2H), 7.80 (d, $J = 8.8$ Hz, 1H), 7.77-7.73 (m, 2H), 7.70 (d, $J = 2.4$ Hz, 1H), 7.63-7.60 (m, 1H), 7.42 (d, $J = 8.4$ Hz, 2H), 7.02 (d, $J = 8.4$ Hz, 2H), 2.30 (s, 3H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 165.1, 164.7, 150.0, 148.1, 142.9, 137.0, 135.5, 132.8, 132.4, 131.2, 129.76, 129.70, 124.6, 123.1, 120.8, 21.6; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{22}\text{H}_{15}\text{ClN}_3\text{O}_3]^+$: 404.0797; found: 404.0778.



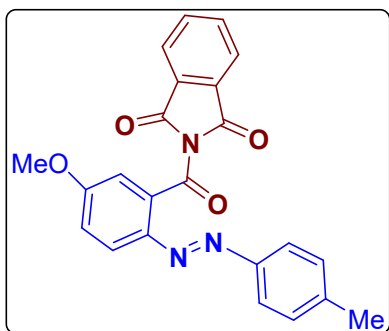
(E)-2-(5-chloro-2-((4-methoxyphenyl)diazenyl)benzoyl)isoindoline-1,3-dione (3t): Dark orange solid (76%, 79.6 mg); $R_f = 0.50$ (PE/EA=76:24), mp. 180-181 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.85-7.82 (m, 2H), 7.79-7.73 (m, 3H), 7.69 (d, $J = 2.0$ Hz, 1H), 7.61-7.59 (m, 1H), 7.50 (d, $J = 9.2$ Hz, 2H), 6.71 (d, $J = 9.2$ Hz, 2H), 3.79 (s, 3H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 165.2, 164.6, 162.8, 148.3, 146.2, 136.4, 135.5, 132.43, 132.40, 131.2, 129.7, 125.2, 124.5, 120.9, 114.2, 55.6; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{22}\text{H}_{15}\text{ClN}_3\text{O}_4]^+$: 420.0746; found: 420.0778.



(E)-2-(5-chloro-2-((4-chlorophenyl)diazenyl)benzoyl)isoindoline-1,3-dione (3u): Orange solid (77%, 81.5 mg); $R_f = 0.50$ (PE/EA = 76:24), M.p. 209-210 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.86-7.83 (m, 2H), 7.82-7.76 (m, 3H), 7.70 (d, $J = 2.0$ Hz, 1H), 7.64-7.61 (m, 1H), 7.49-7.46 (m, 2H), 7.25-7.20 (m, 2H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 164.8, 164.6, 150.2, 147.8, 138.1, 137.6, 135.7, 133.1, 132.4, 131.1, 129.7, 129.4, 124.6, 124.2, 120.8; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{21}\text{H}_{12}\text{Cl}_2\text{N}_3\text{O}_3]^+$: 424.0251; found: 424.0201.

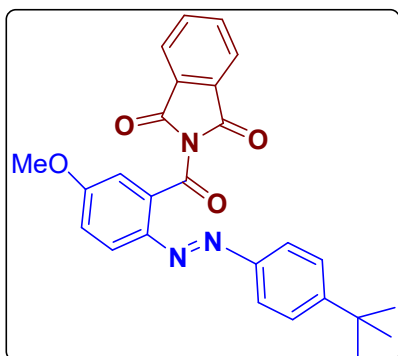


(E)-2-(5-methoxy-2-(phenyldiazenyl)benzoyl)isoindoline-1,3-dione (3v): Orange solid (63%, 60.6 mg); $R_f = 0.50$ (PE/EA = 73:27), M.p. 161-162 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.87 (d, $J = 8.8$ Hz, 1H), 7.84-7.81 (m, 2H), 7.74-7.71 (m, 2H), 7.46 (d, $J = 7.6$ Hz, 2H), 7.27-7.23 (m, 2H), 7.21-7.16 (m, 3H), 3.95 (s, 3H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 166.2, 164.8, 162.0, 152.0, 143.8, 135.4, 133.6, 131.3, 131.0, 128.9, 124.5, 122.6, 121.1, 118.4, 114.1, 56.0; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{22}\text{H}_{16}\text{N}_3\text{O}_4]^+$: 386.1136; found: 386.1118.

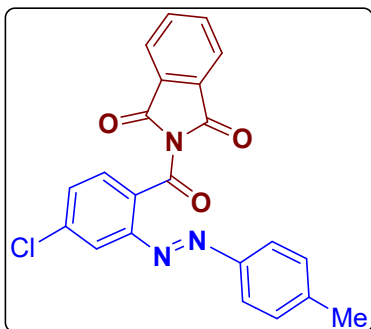


(E)-2-(5-methoxy-2-(p-tolyldiazenyl)benzoyl)isoindoline-1,3-dione (3w): Orange solid (65%, 64.8 mg); $R_f = 0.50$ (PE/EA = 75:25), M.p. 109-110 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.86-7.82 (m, 3H), 7.75-7.72 (m, 2H), 7.37 (d, $J = 8.0$ Hz, 2H), 7.22 (d, $J = 2.8$ Hz, 1H), 7.18-7.15 (m, 1H), 6.98 (d, $J = 8.0$ Hz, 2H), 3.94 (s, 3H), 2.28 (s, 3H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 166.3, 164.8, 161.8, 150.2, 144.0, 141.7, 135.3, 133.3, 131.4, 129.5, 124.5, 122.6,

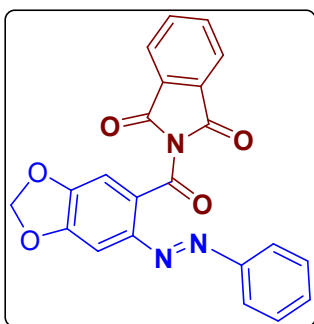
121.1, 118.4, 114.0, 56.0, 21.5; HRMS (ESI-TOF) m/z : $[M + H]^+$ Calcd for $[C_{23}H_{18}N_3O_4]^+$: 400.1292; found: 400.1308.



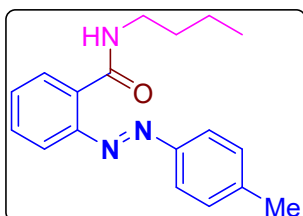
(E)-2-(2-((4-(tert-butyl)phenyl)diazenyl)-5-methoxybenzoyl)isoindoline-1,3-dione (3x): Dark orange solid (86%, 94.85 mg); $R_f = 0.50$ (PE/EA=78:22), M.p. 169-170 °C; 1H NMR (400 MHz, $CDCl_3$): δ 7.74-7.68 (m, 3H), 7.60-7.57 (m, 2H), 7.29 (d, $J = 8.8$ Hz, 2H), 7.15-7.13 (m, 1H), 7.10-7.04 (m, 3H), 3.83 (s, 3H), 1.14 (s, 9H); $^{13}C\{^1H\}$ NMR (100 MHz, $CDCl_3$): δ 166.2, 164.8, 161.7, 154.6, 150.0, 144.1, 135.2, 133.2, 131.4, 125.7, 124.4, 122.3, 121.0, 118.3, 114.1, 55.9, 34.9, 31.1; HRMS (ESI-TOF) m/z : $[M + H]^+$ Calcd for $[C_{26}H_{24}N_3O_4]^+$: 442.1762; found: 442.1751.



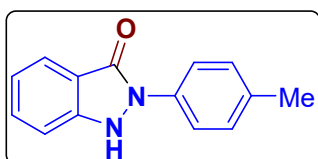
(E)-2-(4-chloro-2-(p-tolyldiazenyl)benzoyl)isoindoline-1,3-dione (3y): Yellow solid (67%, 67.5 mg); $R_f = 0.50$ (PE/EA=71:29), M.p. 180-182 °C; 1H NMR (400 MHz, $CDCl_3$): δ 7.85-7.83 (m, 2H), 7.79 (d, $J = 2.0$ Hz, 1H), 7.76-7.73 (m, 3H), 7.58-7.55 (m, 1H), 7.40 (d, $J = 8.0$ Hz, 2H), 7.00 (d, $J = 8.4$ Hz, 2H), 2.30 (s, 3H); $^{13}C\{^1H\}$ NMR (100 MHz, $CDCl_3$): δ 165.4, 164.7, 150.5, 150.0, 143.2, 139.0, 135.4, 131.35, 131.32, 130.7, 130.4, 129.7, 124.5, 123.2, 118.5, 21.6; HRMS (ESI-TOF) m/z : $[M + H]^+$ Calcd for $[C_{22}H_{15}ClN_3O_3]^+$: 404.0797; found: 404.0789.



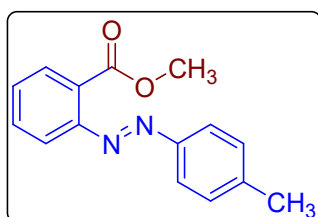
(E)-2-(6-(phenyldiazenyl)benzo[d][1,3]dioxole-5-carbonyl)isoindoline-1,3dione (3z): Orange solid (69%, 68.8 mg); $R_f = 0.50$ (PE/EA = 70:30), M.p. 210-215 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.84-7.82 (m, 2H), 7.72-7.70 (m, 2H), 7.39 (d, $J = 7.2$ Hz, 2H), 7.33 (s, 1H), 7.27-7.22 (m, 2H), 7.14 (t, $J = 7.6$ Hz, 2H), 6.15 (s, 2H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 165.5, 164.9, 152.0, 151.8, 150.4, 146.8, 135.3, 131.5, 131.2, 129.2, 128.9, 124.4, 122.7, 109.4, 102.9, 96.6; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{22}\text{H}_{14}\text{N}_3\text{O}_5]^+$: 400.0928; found: 400.0955.



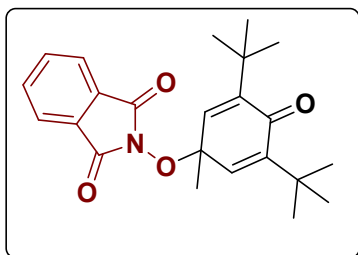
(E)-N-butyl-2-(p-tolyldiazenyl)benzamide (4): Dark orange solid (85%, 50.17 mg); $R_f = 0.50$ (PE/EA = 60:40), M.p. 183-184 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 9.06 (s, 1H), 7.87 (d, $J = 8.8$ Hz, 1H), 7.62 (d, $J = 8.0$ Hz, 2H), 7.57 (d, $J = 2.0$ Hz, 1H), 7.29 (d, $J = 8.0$ Hz, 2H), 6.74-6.71 (m, 1H), 6.11 (s, 1H), 3.26 (t, $J = 7.2$ Hz, 2H), 2.43 (s, 3H), 1.68-1.61 (m, 2H), 1.49-1.39 (m, 2H), 0.96 (t, $J = 7.2$ Hz, 3H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 168.4, 151.2, 151.0, 141.4, 140.9, 132.3, 130.0, 122.5, 117.9, 115.2, 113.8, 43.2, 31.4, 21.5, 20.2, 13.9; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{18}\text{H}_{22}\text{N}_3\text{O}]^+$: 296.1758; found: 296.1783.



2-(p-tolyl)-1,2-dihydro-3H-indazol-3-one (5): White yellowish solid (61%, 27.34 mg); $R_f = 0.50$ (PE/EA = 82:18), M.p. 196-197 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.84 (d, $J = 7.6$ Hz, 1H), 7.69 (d, $J = 8.0$ Hz, 2H), 7.54 (t, $J = 7.6$ Hz, 1H), 7.49 (s, 1H), 7.27 (d, $J = 9.2$ Hz, 1H), 7.24-7.18 (m, 3H), 2.33 (s, 3H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 161.3, 146.7, 135.6, 134.9, 132.5, 129.9, 124.4, 123.3, 120.2, 120.0, 112.8, 21.2; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{14}\text{H}_{13}\text{N}_2\text{O}]^+$: 225.1023; found: 225.1002.



Methyl(E)-2-(p-tolyldiazenyl)benzoate (6): Dark orange solid (68%, 34.55 mg); $R_f = 0.50$ (PE/EA = 84 : 16), M.p. 172-175 °C; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.84-7.80 (m, 3H), 7.63-7.56 (m, 2H), 7.49-7.45 (m, 1H), 7.31 (d, $J = 8.4$ Hz, 2H), 3.90 (s, 3H), 2.43 (s, 3H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 168.1, 152.1, 150.8, 142.2, 132.0, 129.9, 129.8, 129.6, 128.4, 123.3, 119.0, 52.5, 21.6; HRMS (ESI-TOF) m/z : $[\text{M} + \text{H}]^+$ Calcd for $[\text{C}_{15}\text{H}_{15}\text{N}_2\text{O}_2]^+$: 255.1129; found: 255.1098.

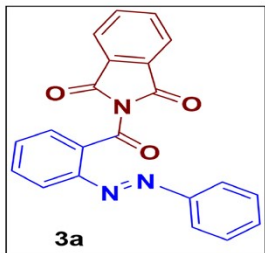
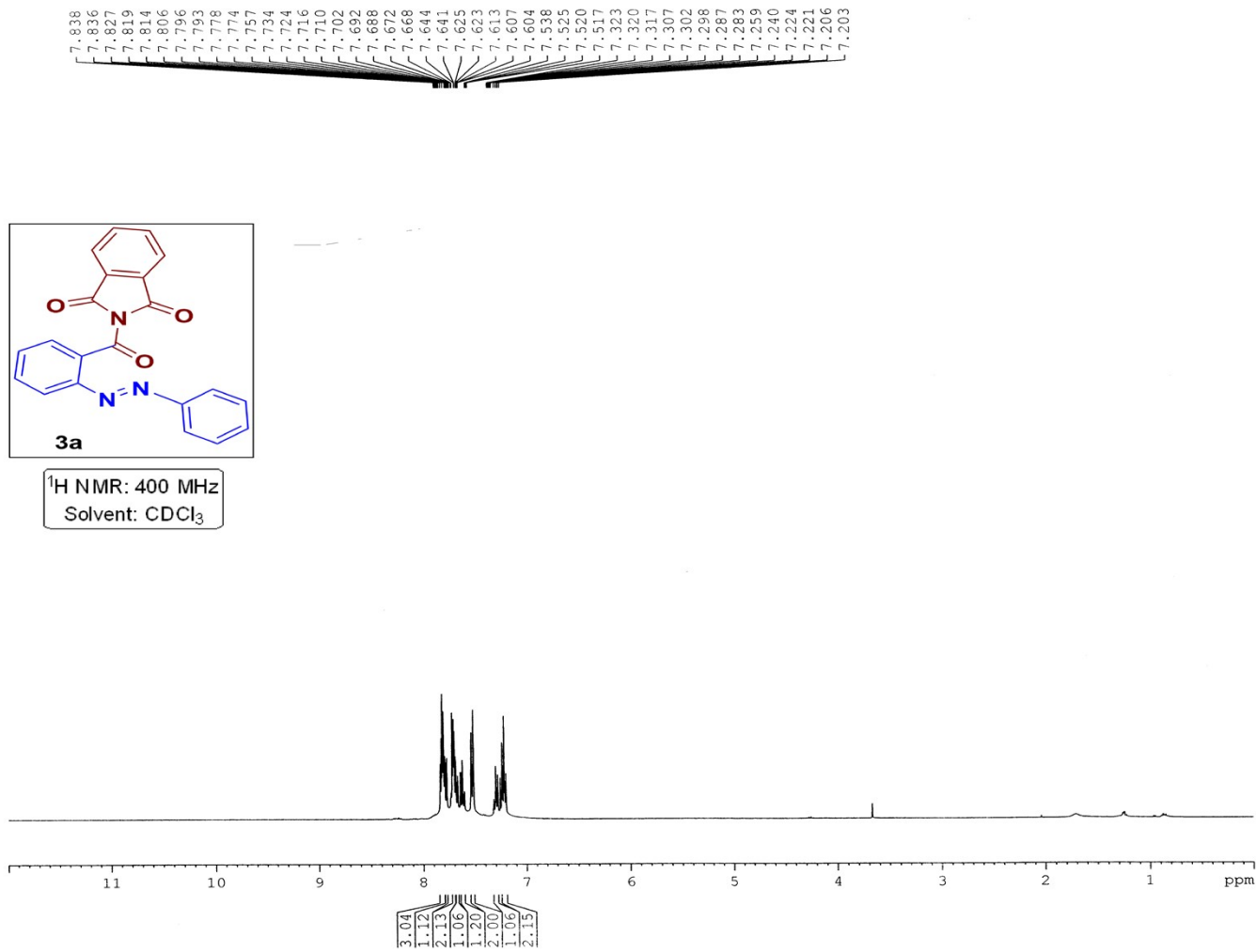


2-((2,6-di-tert-butyl-1-methyl-4-oxocyclohexa-2,5-dien-1-yl)oxy)isoindoline-1,3-dione (7): Lime greenish solid (85%, 81mg); $R_f = 0.50$ (PE/EA = 90:10), M.p. 181-182 °C; ^1H NMR (400 MHz, CDCl_3): δ 7.75-7.73 (m, 2H), 7.72-7.68 (m, 2H), 6.74 (s, 2H), 1.69 (s, 3H), 1.12 (s, 18H); $^{13}\text{C}\{^1\text{H}\}$ NMR (100 MHz, CDCl_3): δ 185.7, 164.5, 148.9, 138.6, 134.7, 128.6, 123.4, 83.0, 34.8, 29.1, 24.2; HRMS (ESI-TOF) m/z : $[\text{M} + \text{K}]^+$ Calcd for $[\text{C}_{23}\text{H}_{27}\text{NO}_4\text{K}]^+$: 420.1572; found: 420.1559.

8. References:

- (1) (a) M. R. Kumar, A. Park, N. Park and S. Lee, *Org. Lett.*, 2011, **13**, 3542–3545.
(b) G. Bogonda, H. Y. Kim and K. Oh, *Org. Lett.*, 2018, **20**, 2711–2715.
- (2) D. Maiti, K. Mahanty and S. De Sarkar, *Org. Lett.*, 2021, **23**, 1742–1747.
- (3) S. Bhattacharjee and A. Hajra, *Org. Lett.*, 2023, **25**, 4183–4187.
- (4) F. Péron, C. Fossey, T. Cailly and F. Fabis, *Org. Lett.*, 2012, **14**, 1827–1829.
- (5) (a) P. Ghosh and A. Hajra, *J. Org. Chem.*, 2021, **86**, 10883–10888.
(b) S. Laru, S. Bhattacharjee and A. Hajra, *Chem. Commun.*, 2022, **58**, 13604–13607.
- (6) K. K. Das and A. Hajra, *Chem. Commun.*, 2024, **60**, 10402–10405.

9. NMR Spectra for the Synthesized Products



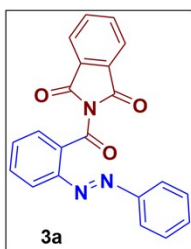
¹H NMR: 400 MHz
Solvent: CDCl₃

Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 110
PROCNO 1

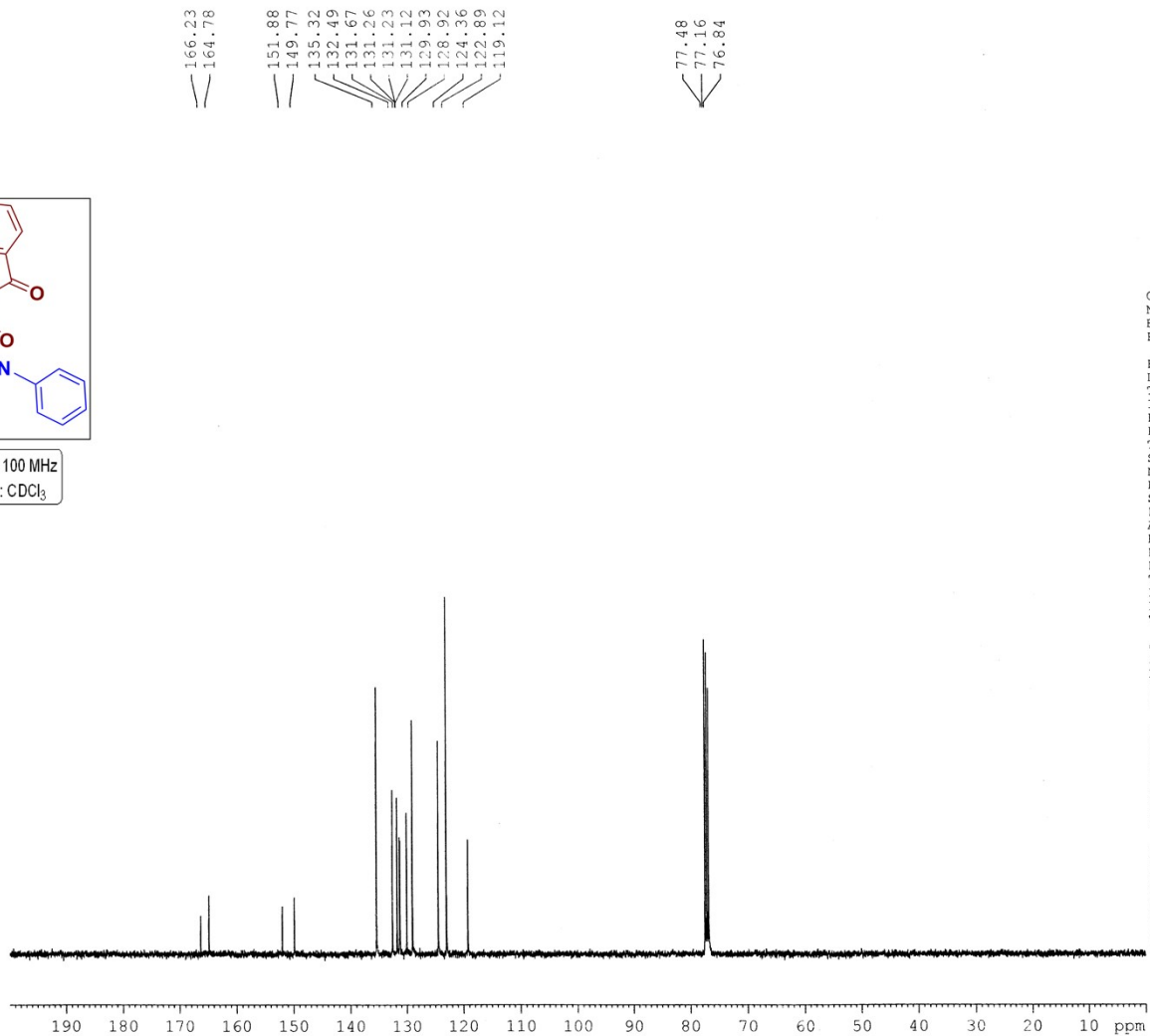
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Time 20.17
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 77.59
DW 60.800 usec
DE 6.50 usec
TE 292.3 K
D1 1.00000000 sec
TD0 1

==== CHANNEL f1 =====
SF01 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500097 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



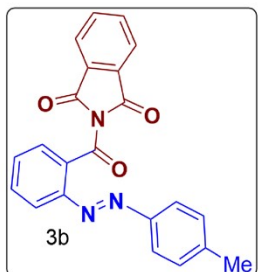
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NAME Dr. A HAJRA-2025-13C
EXPNO 63
PROCNO 1

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Time 20.34
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PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl₃
NS 340
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 293.7 K
D1 2.0000000 sec
D11 0.0300000 sec
TDO 1

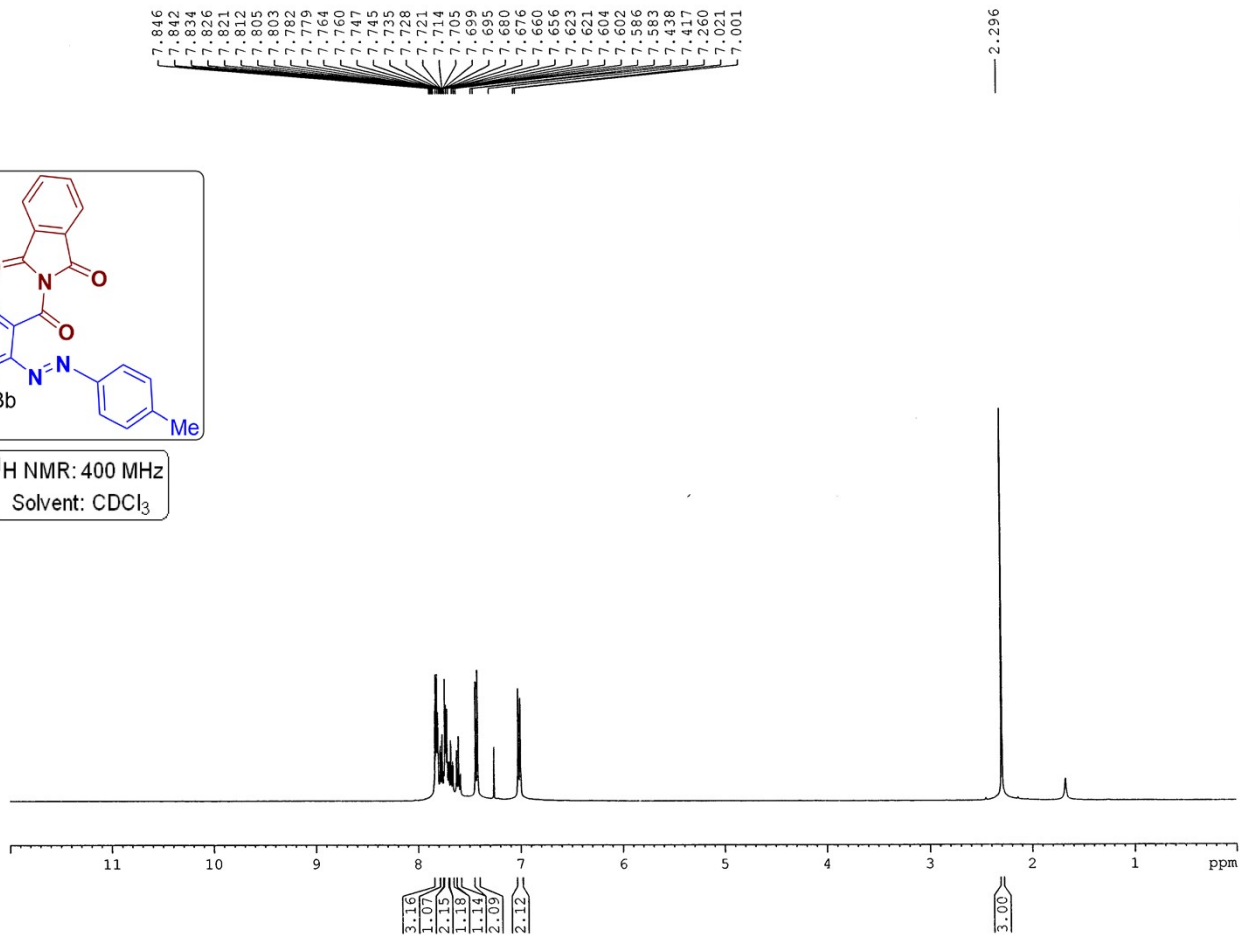
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SFO1 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.0000000 W

----- CHANNEL f2 -----
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 12.0000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
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WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃

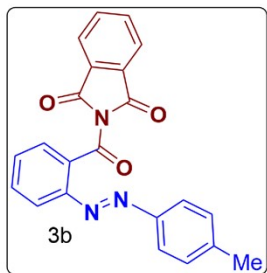


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NAME Dr. A HAJRA 2025 1H
EXPNO 649
PROCNO 1

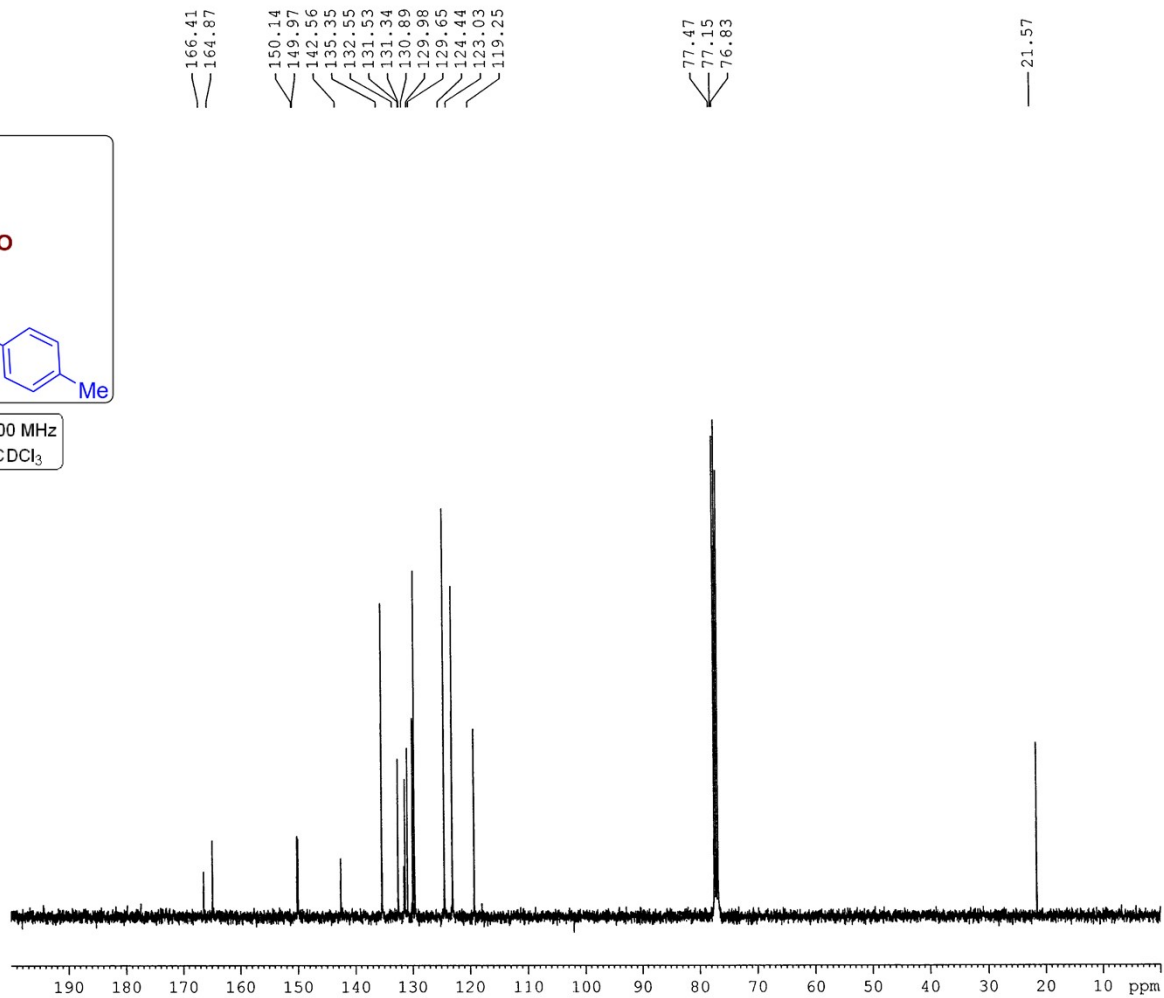
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Time 9.39
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 87.66
DW 60.800 usec
DE 6.50 usec
TE 291.7 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SF01 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500097 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



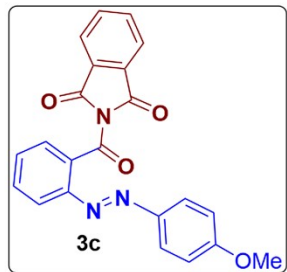
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NAME Dr. A HAJRA-2025-13C
EXPNO 376
PROCNO 1

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PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 200
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 292.3 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

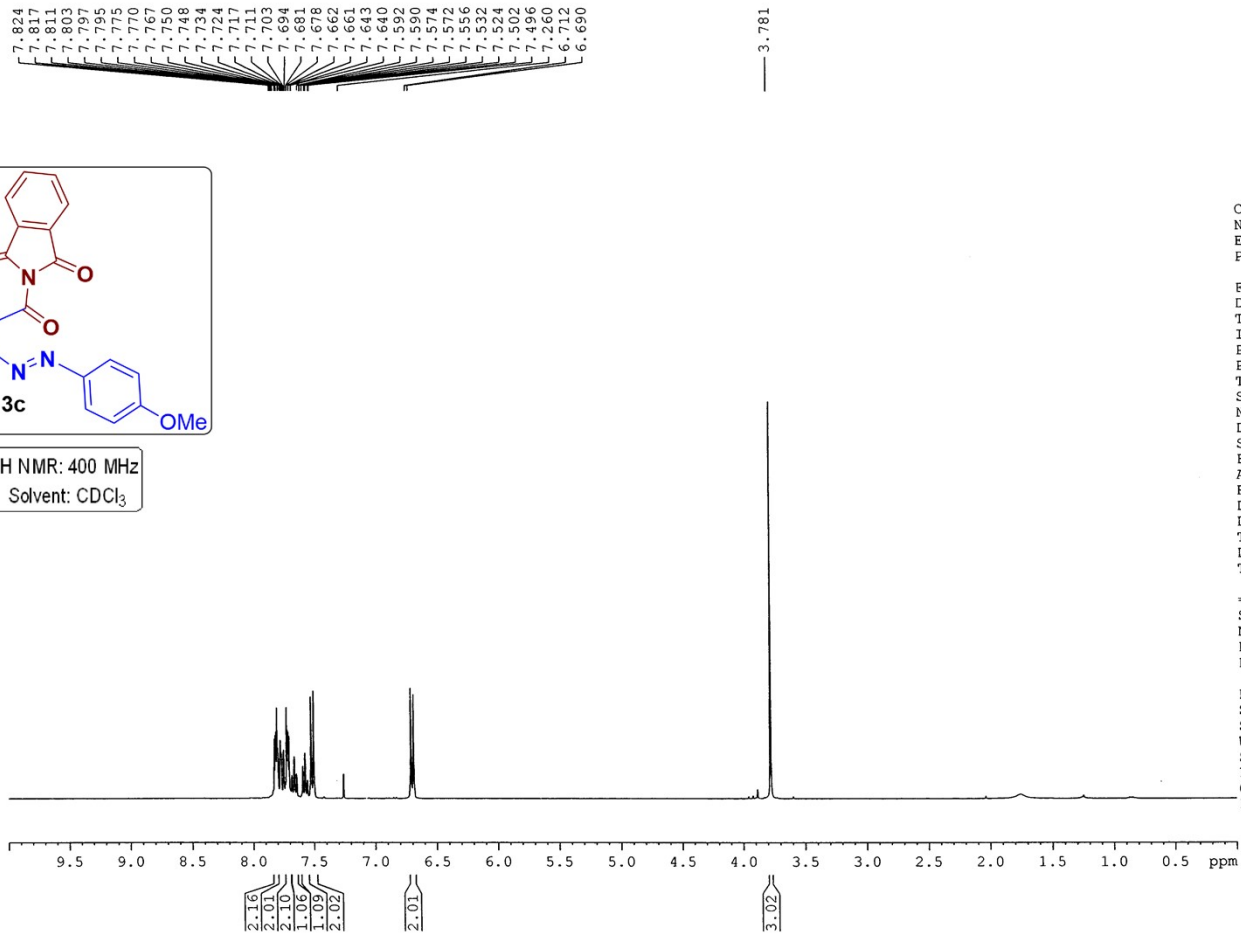
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SFO1 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W

===== CHANNEL f2 =====
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
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WDW EM
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LB 1.00 Hz
GB 0
PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃

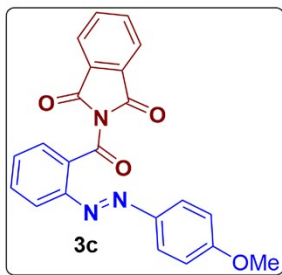


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 269
PROCNO 1

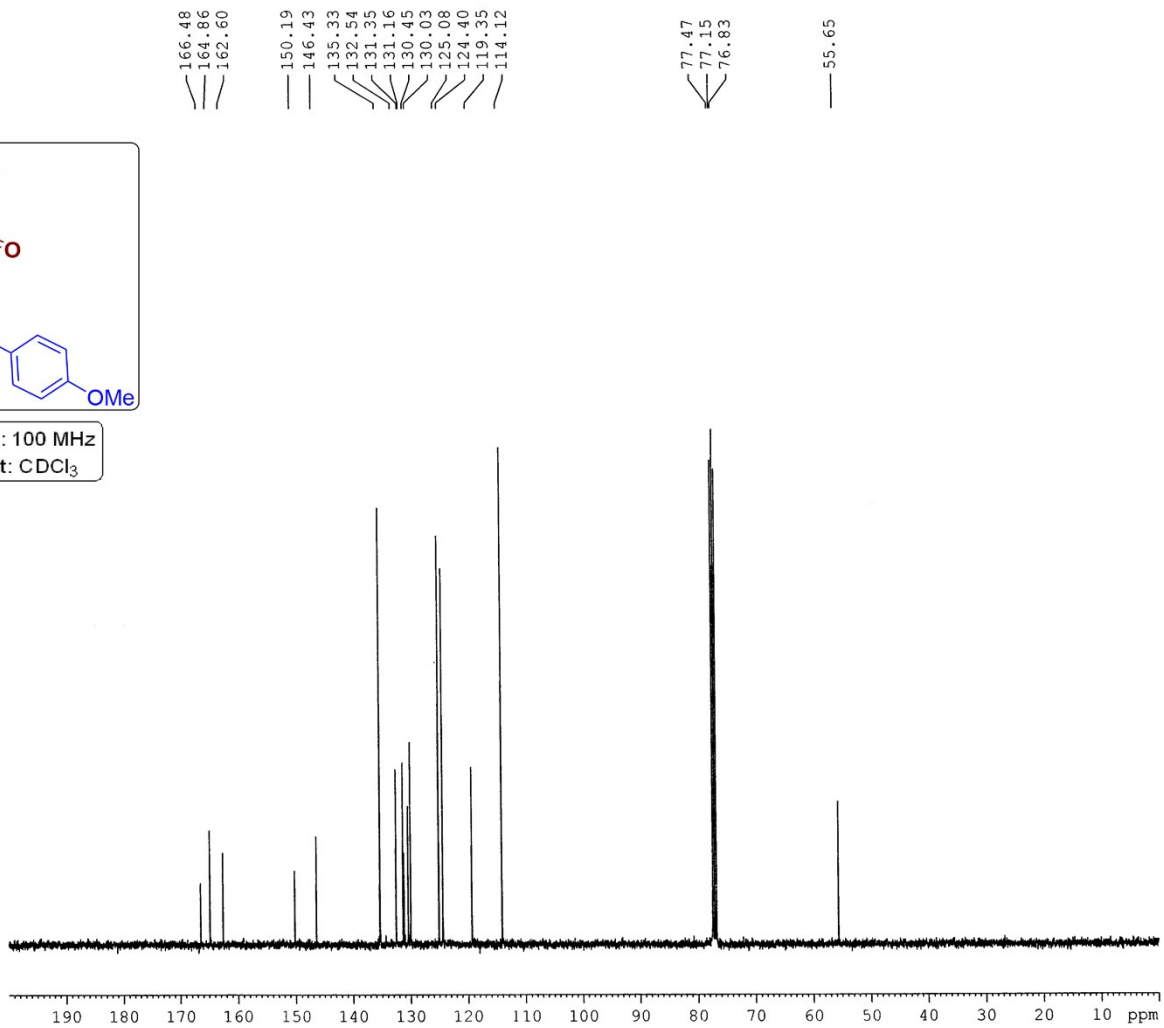
F2 - Acquisition Parameters
Date_ 20250510
Time 10.42
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PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 106.66
DW 60.800 usec
DE 6.50 usec
TE 294.5 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SF01 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
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WDW EM
SSB 0
LB 0.30 Hz
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PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃

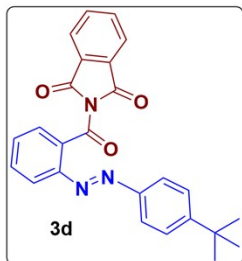


Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 161
PROCNO 1

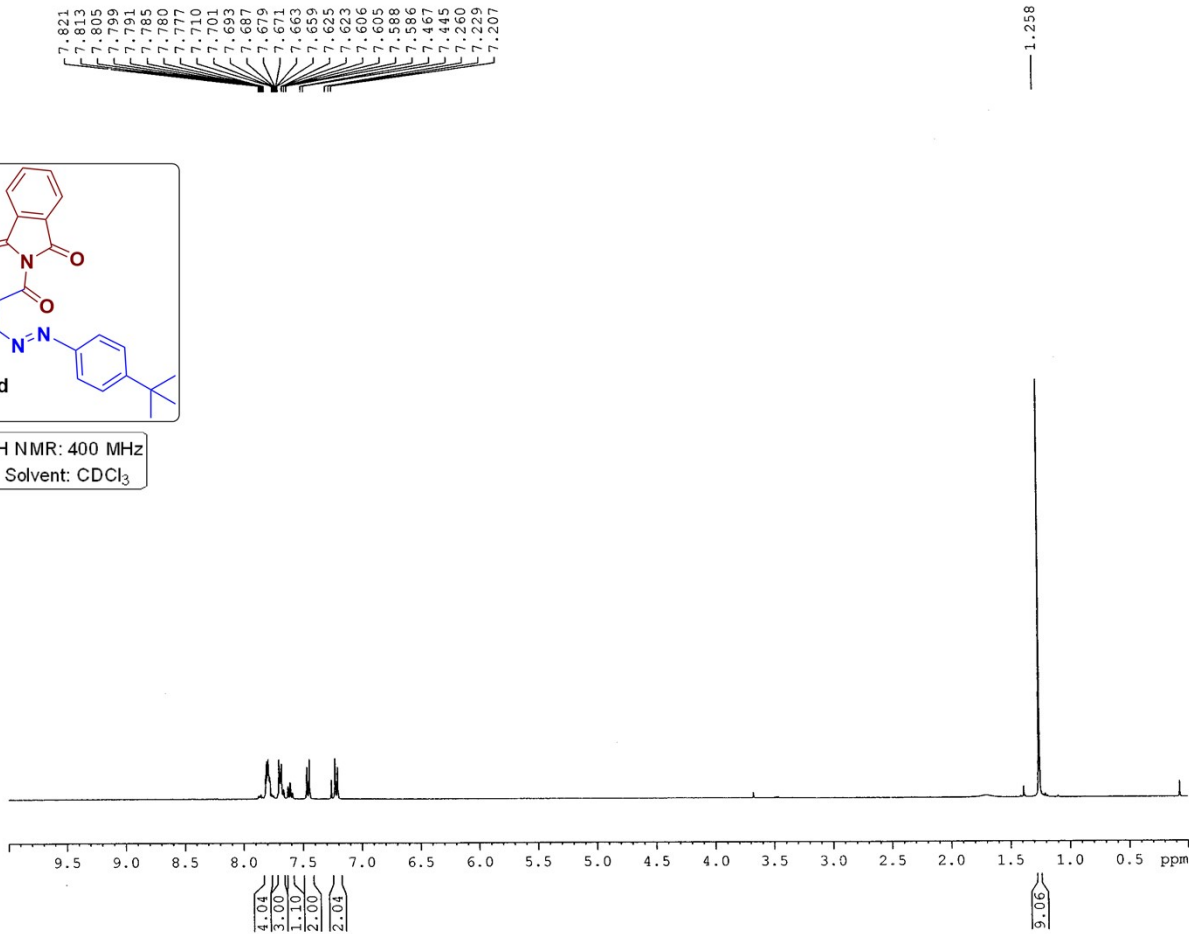
F2 - Acquisition Parameters
Date_ 20250510
Time 11.01
INSTRUM spect
PROBHD 5 mm FABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 260
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 295.4 K
D1 2.00000000 sec
D11 0.03000000 sec
TDO 1

----- CHANNEL f1 -----
SFO1 100.6278598 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W
----- CHANNEL f2 -----
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
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WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃

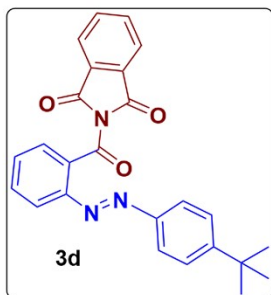


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 268
PROCNO 1

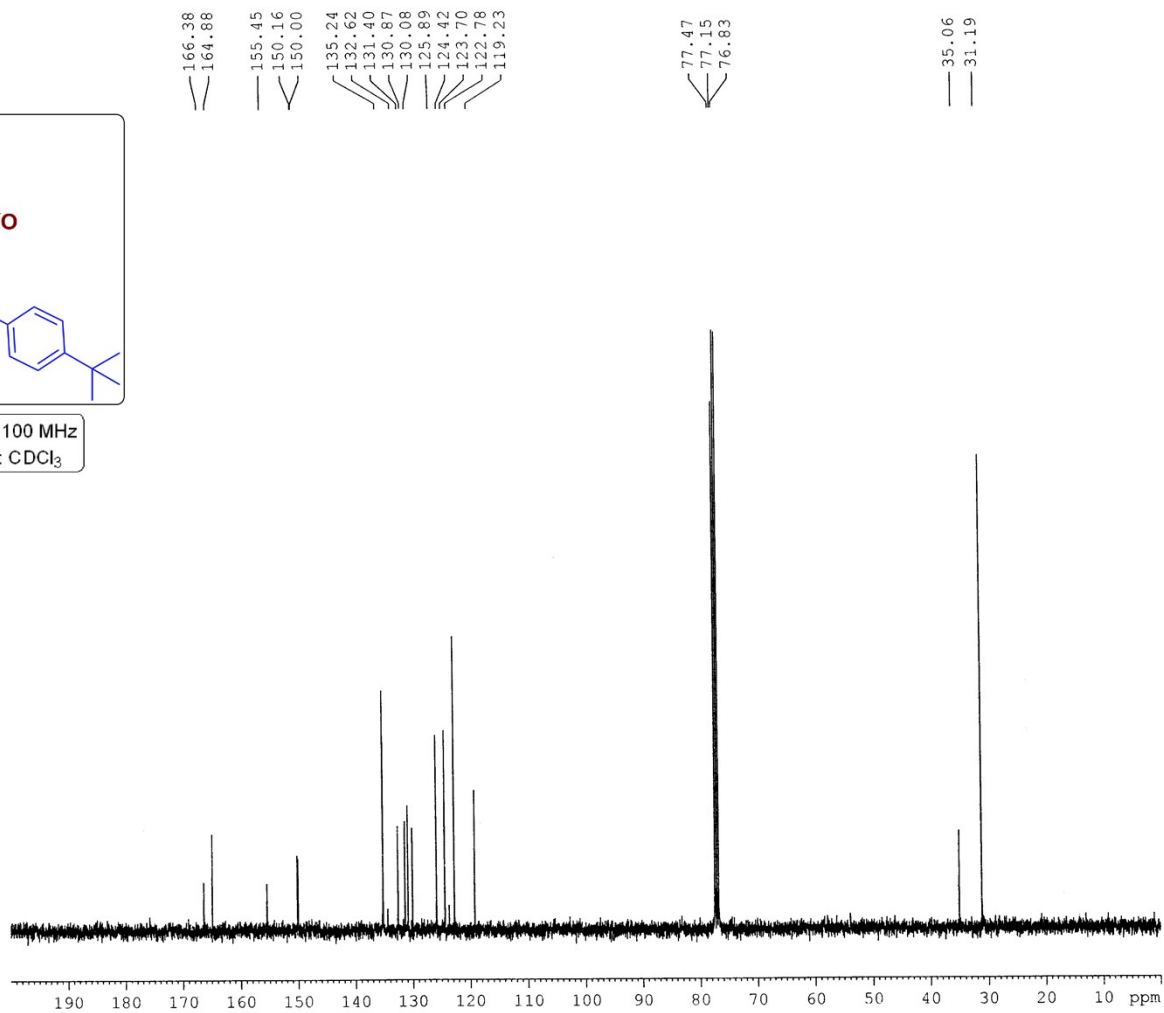
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Time_ 10.12
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PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 106.66
DW 60.800 usec
DE 6.50 usec
TE 293.5 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500097 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 189
PROCNO 1

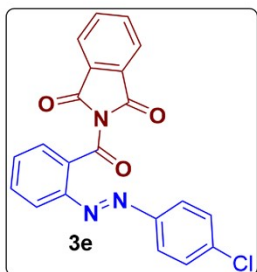
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Time 18.51
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PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 115
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.600 usec
DE 6.50 usec
TE 293.5 K
D1 2.0000000 sec
D11 0.03000000 sec
TDO 1

===== CHANNEL f1 =====
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NUC1 13C
P1 8.90 usec
PLW1 54.0000000 W

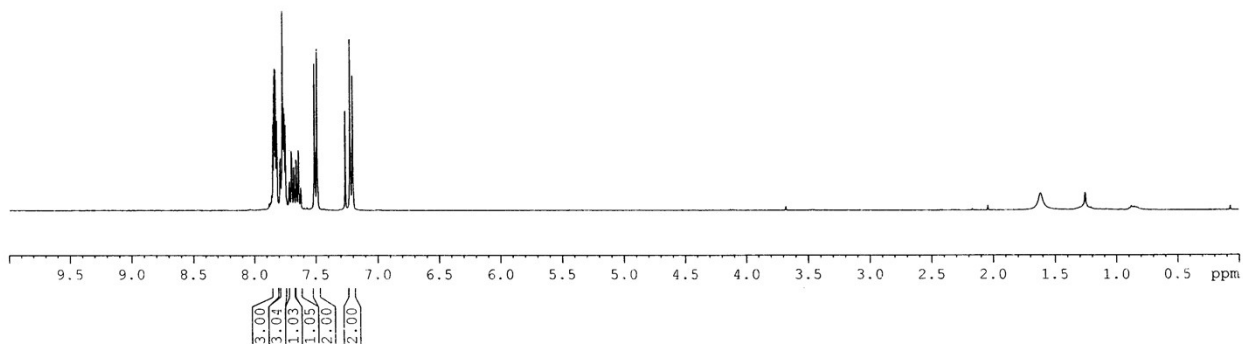
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PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177888 MHz
WDW EM
SSB 0
LE 1.00 Hz
GB 0
PC 1.40

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¹H NMR: 400 MHz
Solvent: CDCl₃

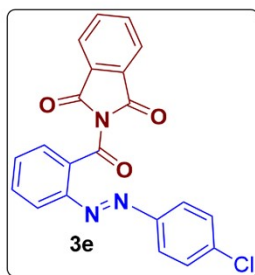


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NAME Dr. A HAJRA 2025 1H
EXPNO 153
PROCNO 1

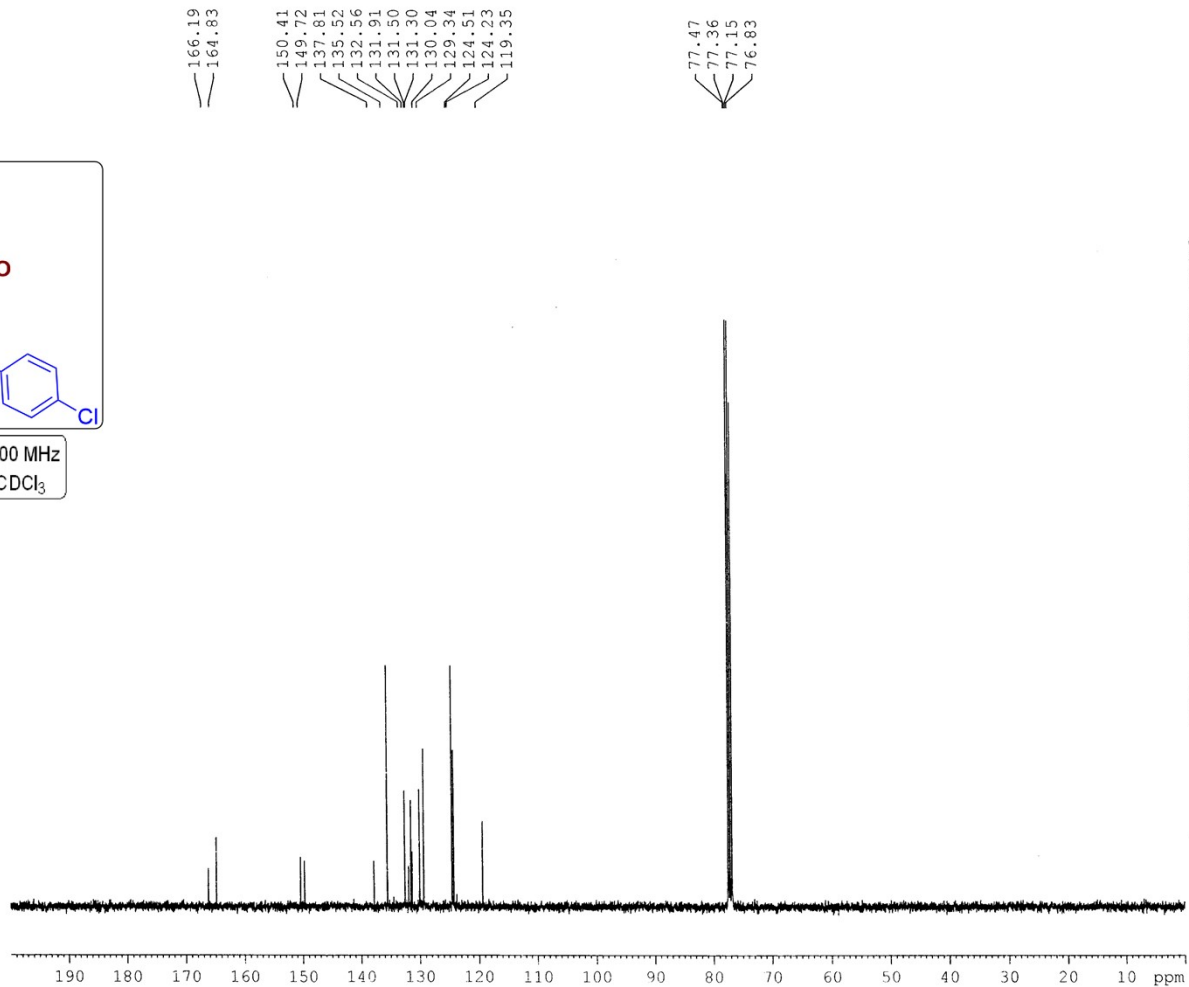
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Time_ 10.45
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 135.7
DW 60.800 usec
DE 6.50 usec
TE 295.7 K
D1 1.00000000 sec
TD0 1

==== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500097 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



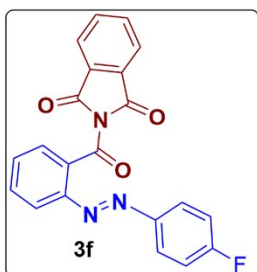
Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXFNO 113
PROCNO 1

F2 - Acquisition Parameters
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Time 11.05
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PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 360
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 295.9 K
D1 2.00000000 sec
D11 0.03000000 sec
TDO 1

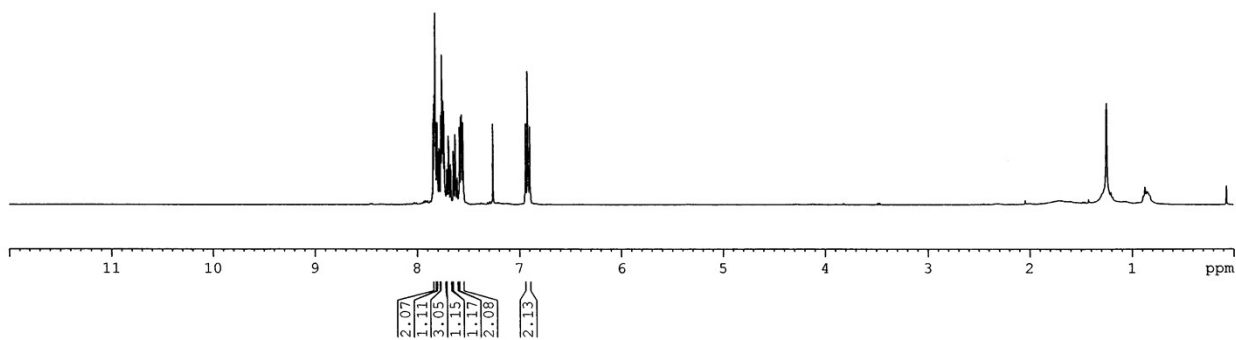
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PLW1 54.00000000 W

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NUC2 1H
CPDPRG12 waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
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SF 100.6177859 MHz
WDW EM
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LB 1.00 Hz
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PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃



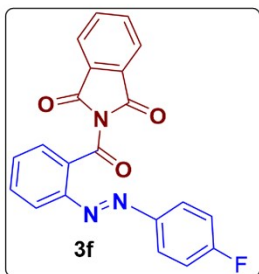
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Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 663
PROCNO 1

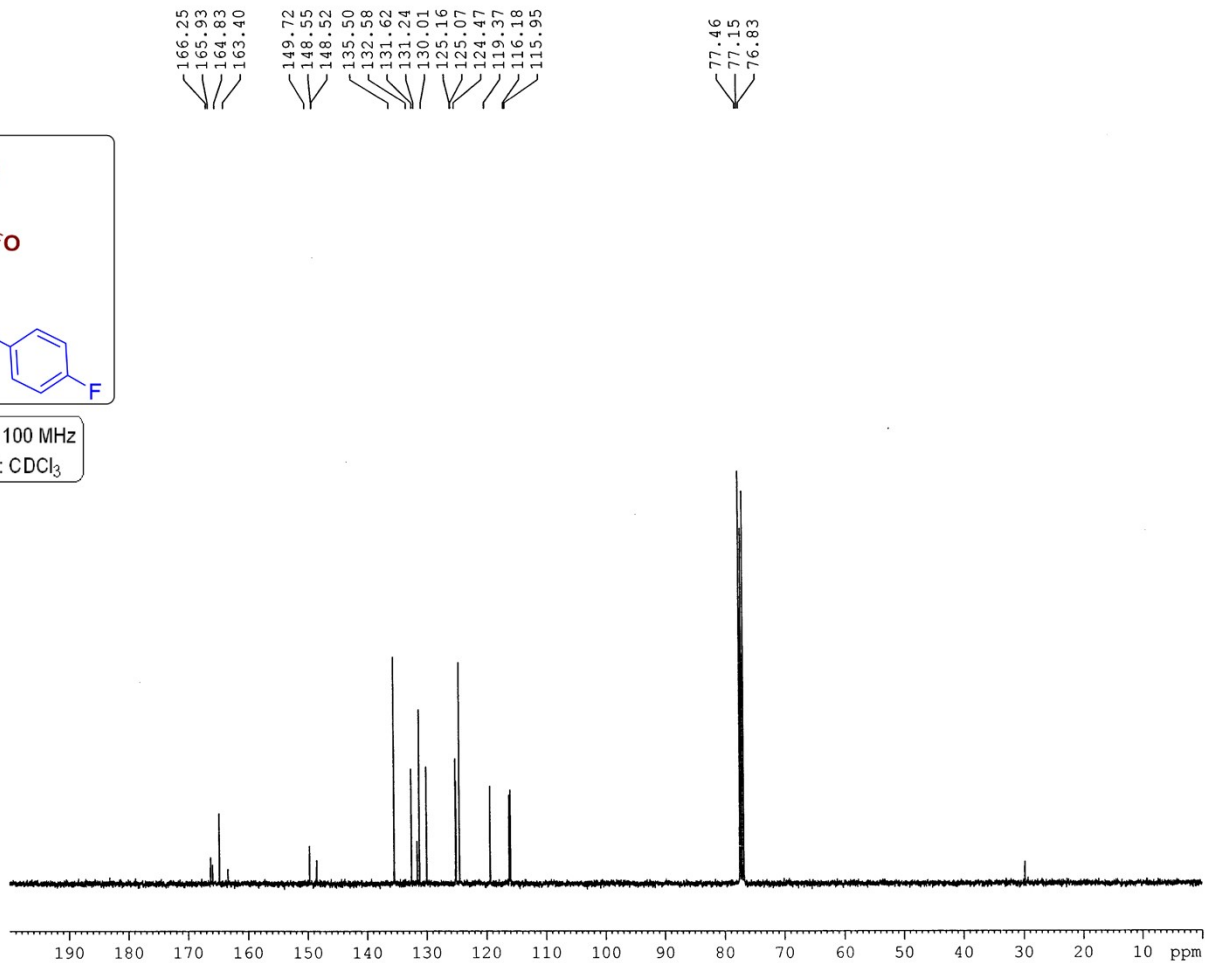
F2 - Acquisition Parameters
Date_ 20251113
Time 18.11
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PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 87.66
DW 60.800 usec
DE 6.50 usec
TE 288.9 K
D1 1.00000000 sec
TD0 1

----- CHANNEL f1 -----
SF01 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500097 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



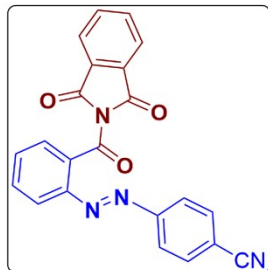
Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 385
PROCNO 1

F2 - Acquisition Parameters
Date_ 20251113
Time 19.32
INSTRUM spect
PROBHD 5 mm FAPBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 340
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 290.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

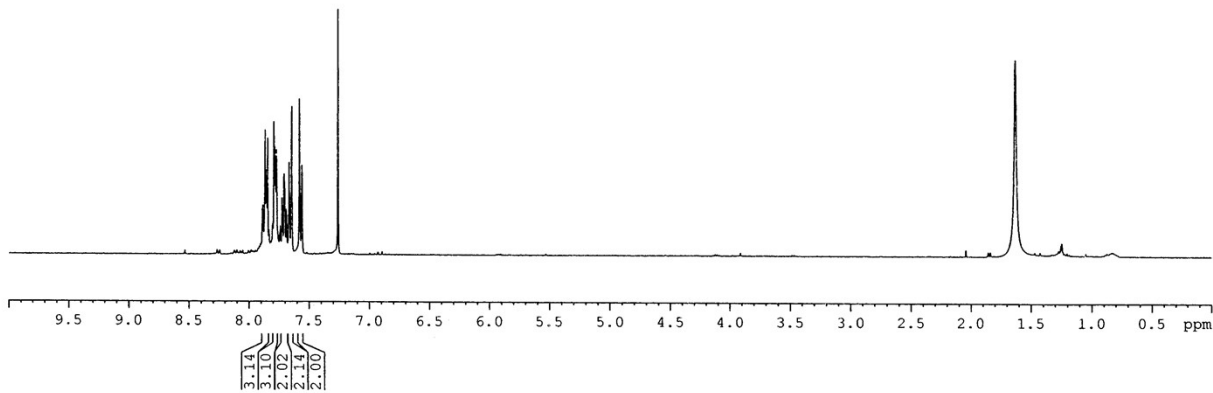
===== CHANNEL f1 =====
SFO1 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W

===== CHANNEL f2 =====
SFO2 400.1516006 MHz
NUC2 1H
CPOPRG(2) waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177895 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃



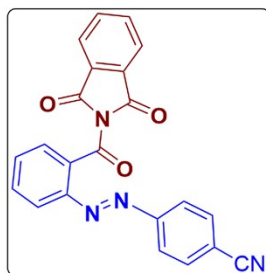
7.889
7.884
7.866
7.859
7.853
7.845
7.835
7.812
7.803
7.793
7.785
7.779
7.771
7.745
7.740
7.726
7.721
7.708
7.705
7.691
7.688
7.666
7.645
7.580
7.559
7.559

Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 453
PROCNO 1

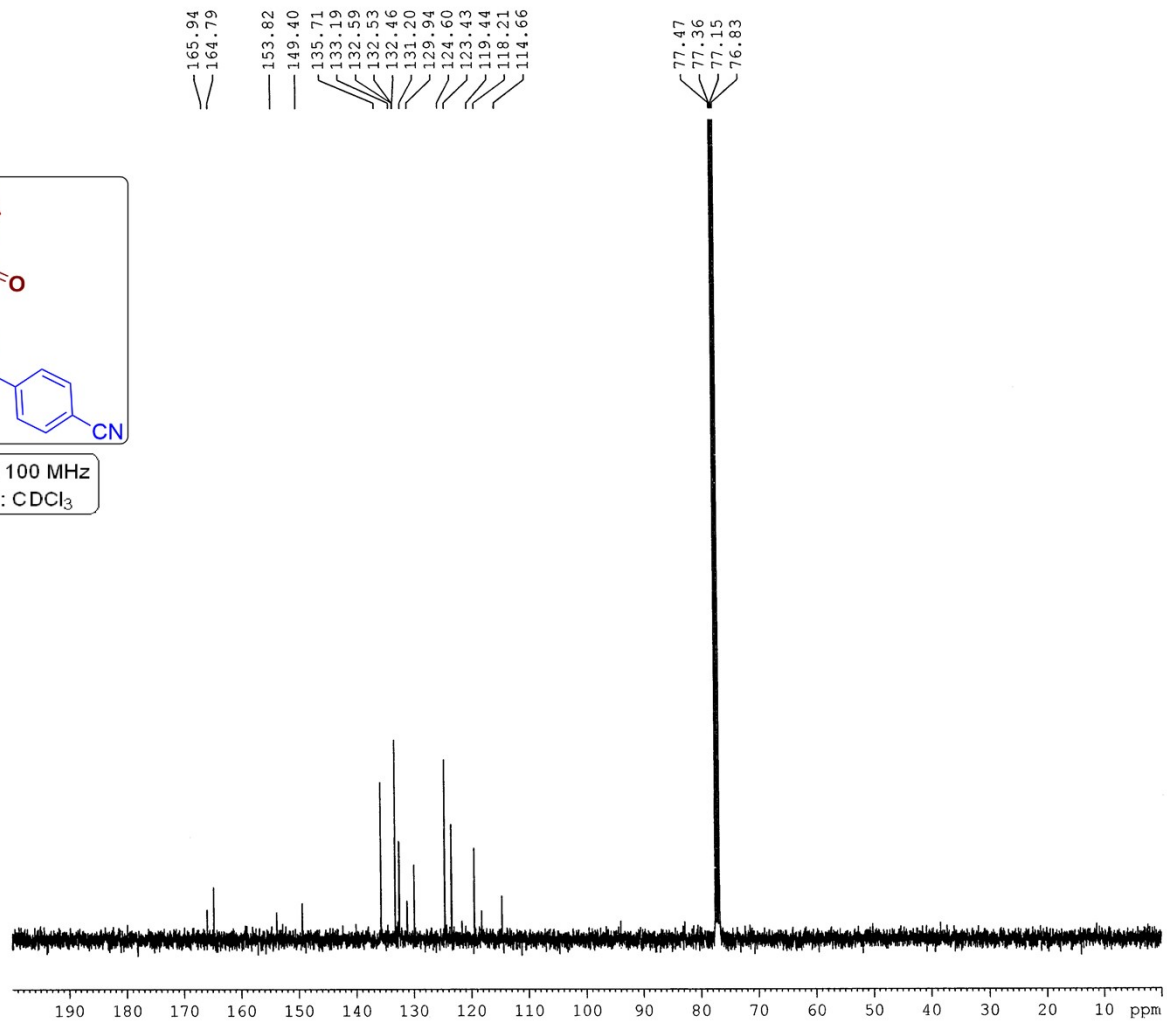
F2 - Acquisition Parameters
Date_ 20250729
Time_ 10.18
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 135.7
DW 60.800 usec
DE 6.50 usec
TE 293.3 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500098 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



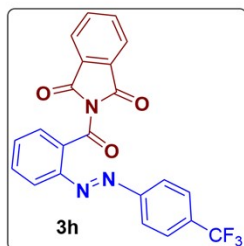
Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXFNO 262
PROCNO 1

F2 - Acquisition Parameters
Date_ 20250729
Time 10.48
INSTRUM spect
PROBHD 5 mm FAPBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 570
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 294.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

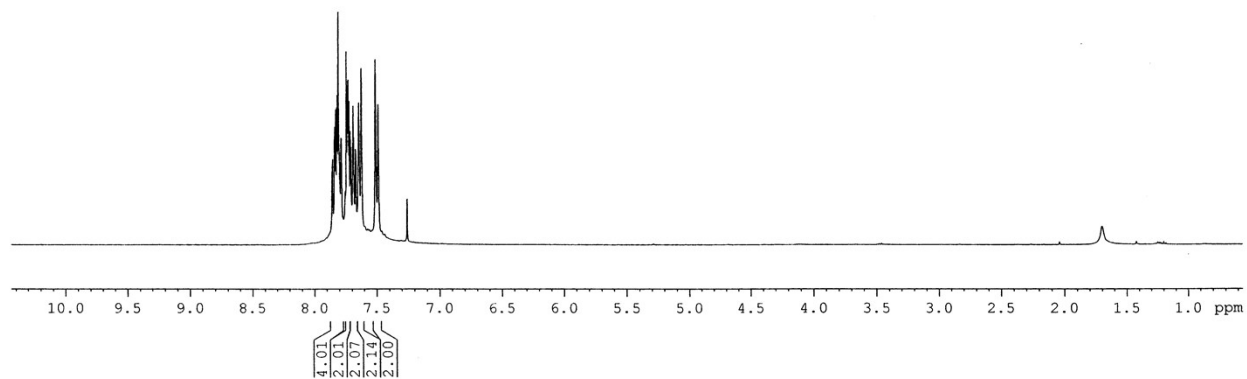
===== CHANNEL f1 =====
SFO1 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W

===== CHANNEL f2 =====
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPDZ 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177858 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃



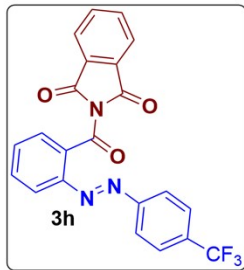
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7.821
7.814
7.806
7.787
7.783
7.752
7.743
7.735
7.729
7.721
7.712
7.707
7.693
7.688
7.685
7.670
7.667
7.643
7.622
7.506
7.488
7.259

Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 705
PROCNO 1

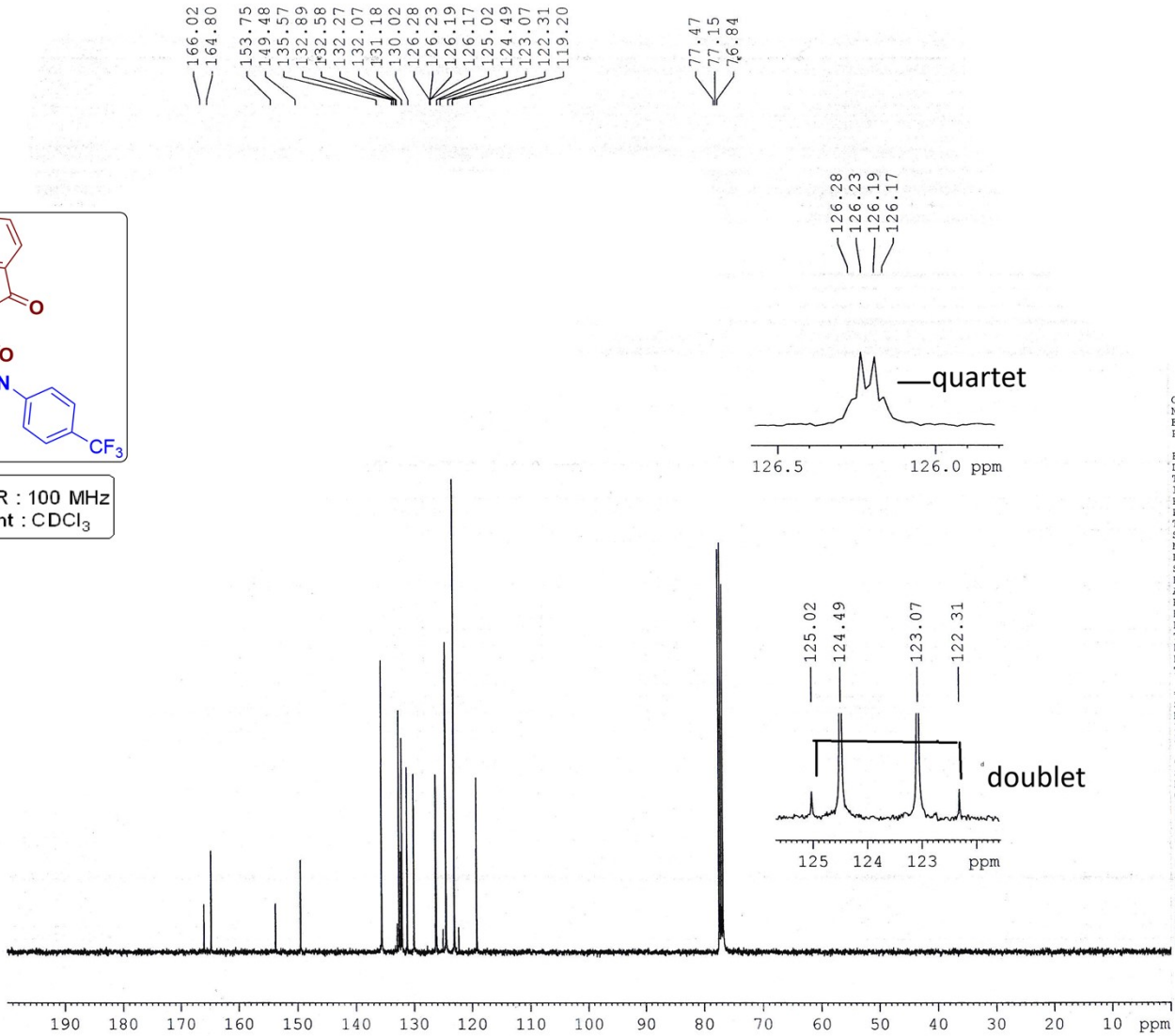
F2 - Acquisition Parameters
Date_ 20251204
Time 11.26
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 77.59
DW 60.800 usec
DE 6.50 usec
TE 290.3 K
D1 1.00000000 sec
TDO 1

===== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500098 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



^{13}C NMR : 100 MHz
Solvent : CDCl_3



```

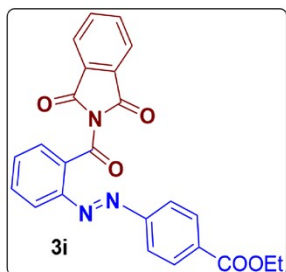
Current Data Parameters
NAME      Dr. A HAJRA-2025-13C
EXPNO     411
PROCNO    1

F2 - Acquisition Parameters
Date_     20251204
Time      12.03
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zgpg30
TD         32768
SOLVENT   CDCl3
NS         690
DS         2
SWH       24038.461 Hz
FIDRES    0.733596 Hz
AQ         0.6815744 sec
RG         186.42
DW         20.800 usec
DE         6.50 usec
TE         291.2 K
D1         2.0000000 sec
D11        0.0300000 sec
TDO        1

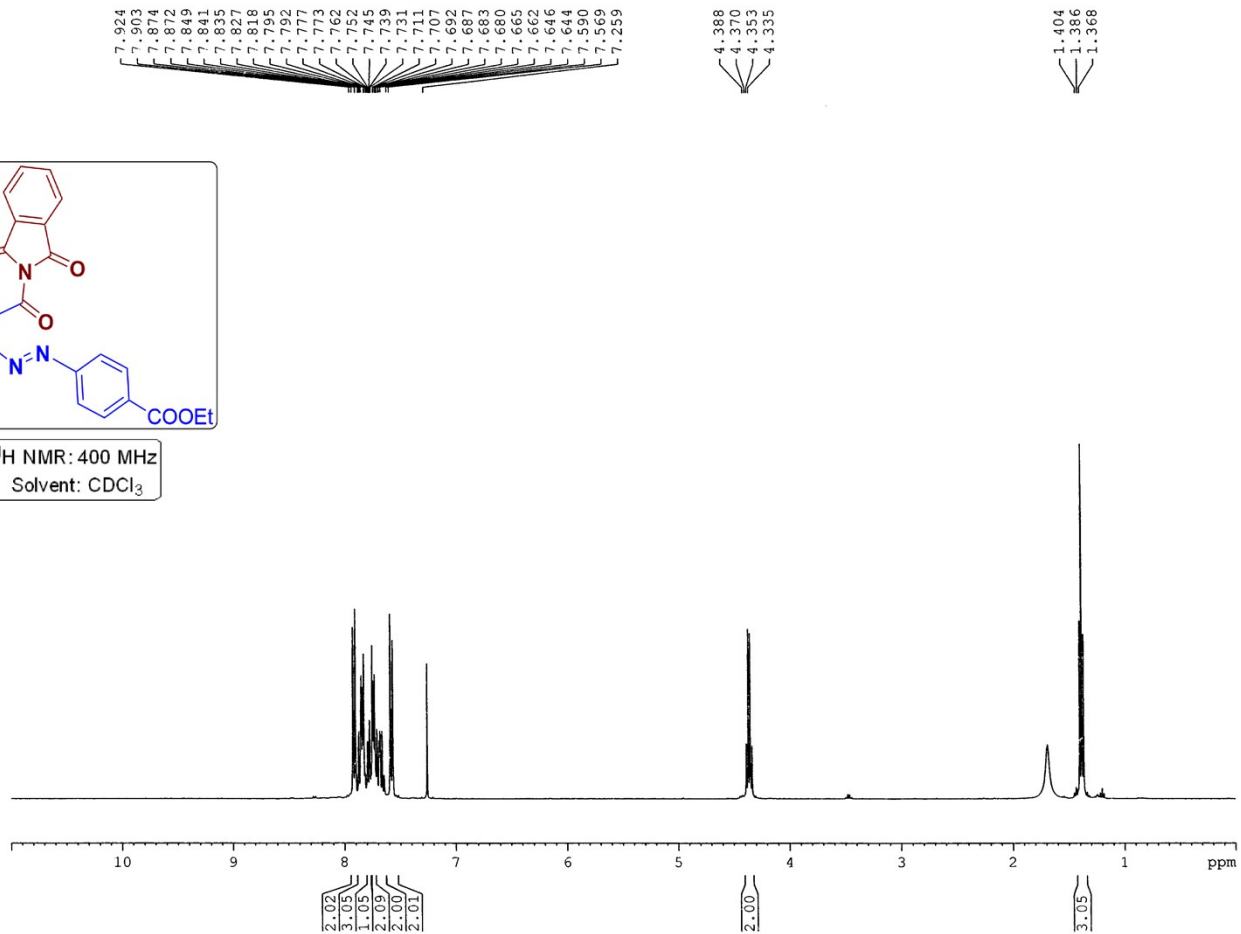
===== CHANNEL f1 =====
SFO1      100.6278588 MHz
NUC1       13C
P1         8.90 usec
PLW1       54.0000000 W

===== CHANNEL f2 =====
SFO2      400.1516006 MHz
NUC2       1H
CPDPRG2   waltz16
PCPD2     90.00 usec
PLW2      12.0000000 W
PLW12     0.32231000 W
PLW13     0.16212000 W

F2 - Processing parameters
SI         16384
SF         100.6177902 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
  
```



¹H NMR: 400 MHz
Solvent: CDCl₃

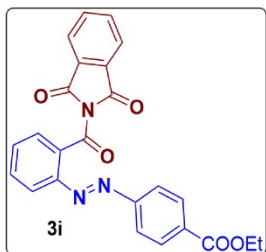


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 423
PROCNO 1

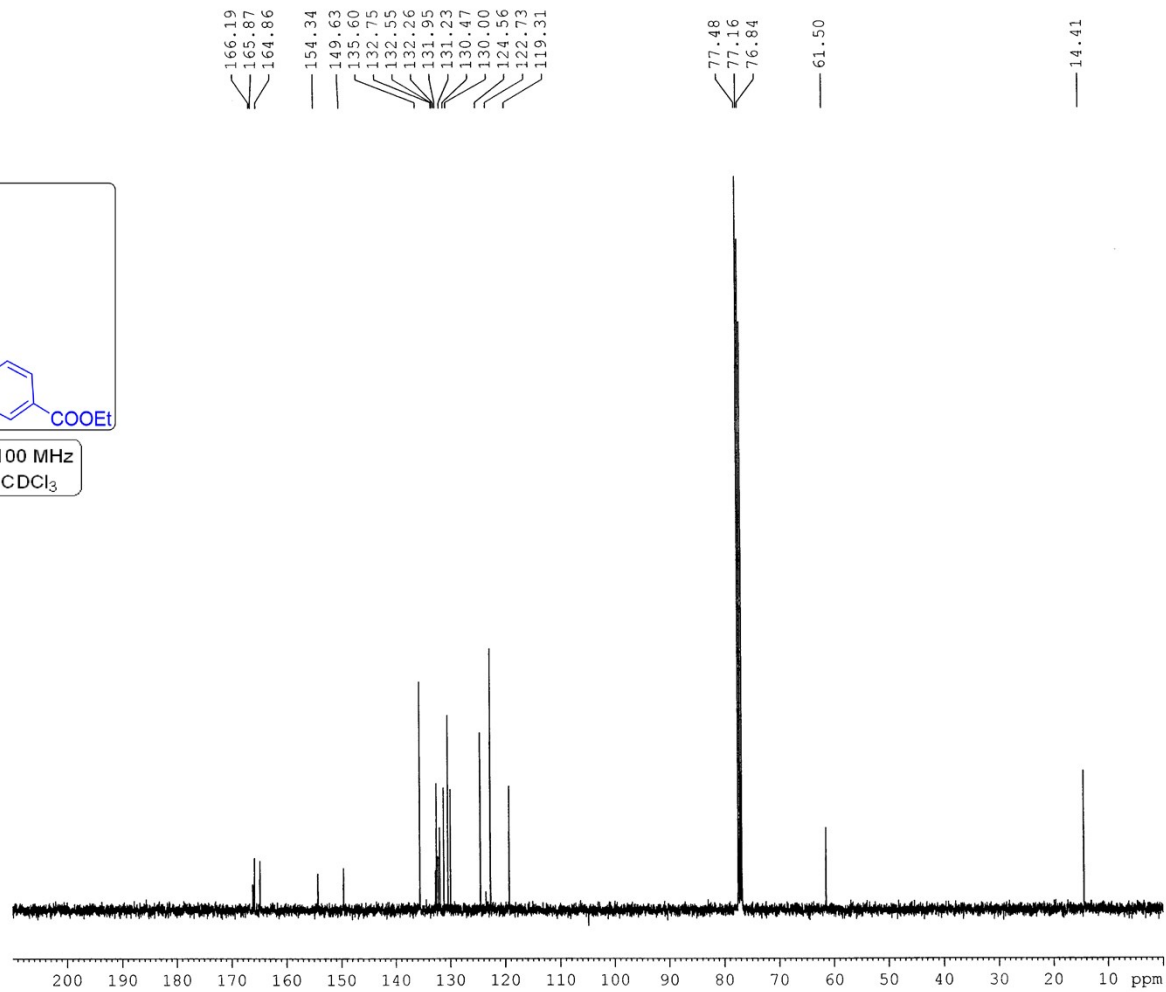
F2 - Acquisition Parameters
Date_ 20250721
Time_ 19.12
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 148.91
DW 60.800 usec
DE 6.50 usec
TE 291.2 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500098 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



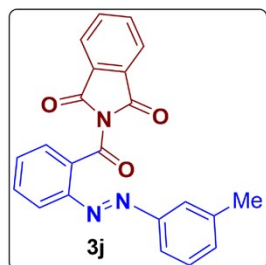
Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 249
PROCNO 1

F2 - Acquisition Parameters
Date_ 20250721
Time_ 19.31
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 310
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 291.9 K
D1 2.00000000 sec
D11 0.03000000 sec
TDO 1

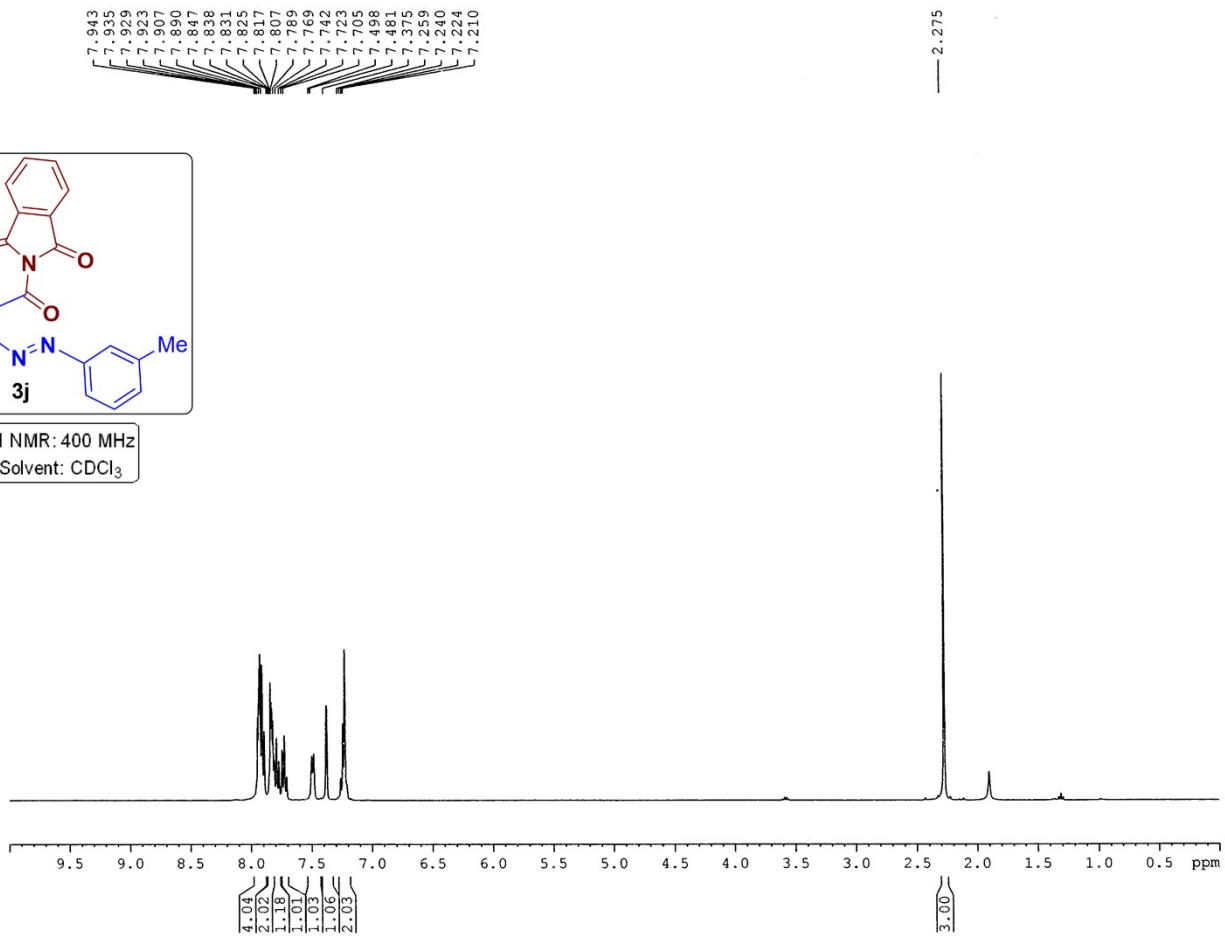
----- CHANNEL f1 -----
SF01 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W

----- CHANNEL f2 -----
SF02 400.1516006 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177869 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃

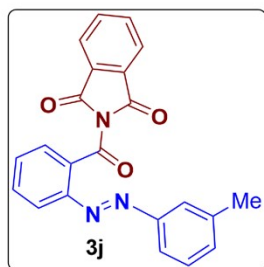


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 407
PROCNO 1

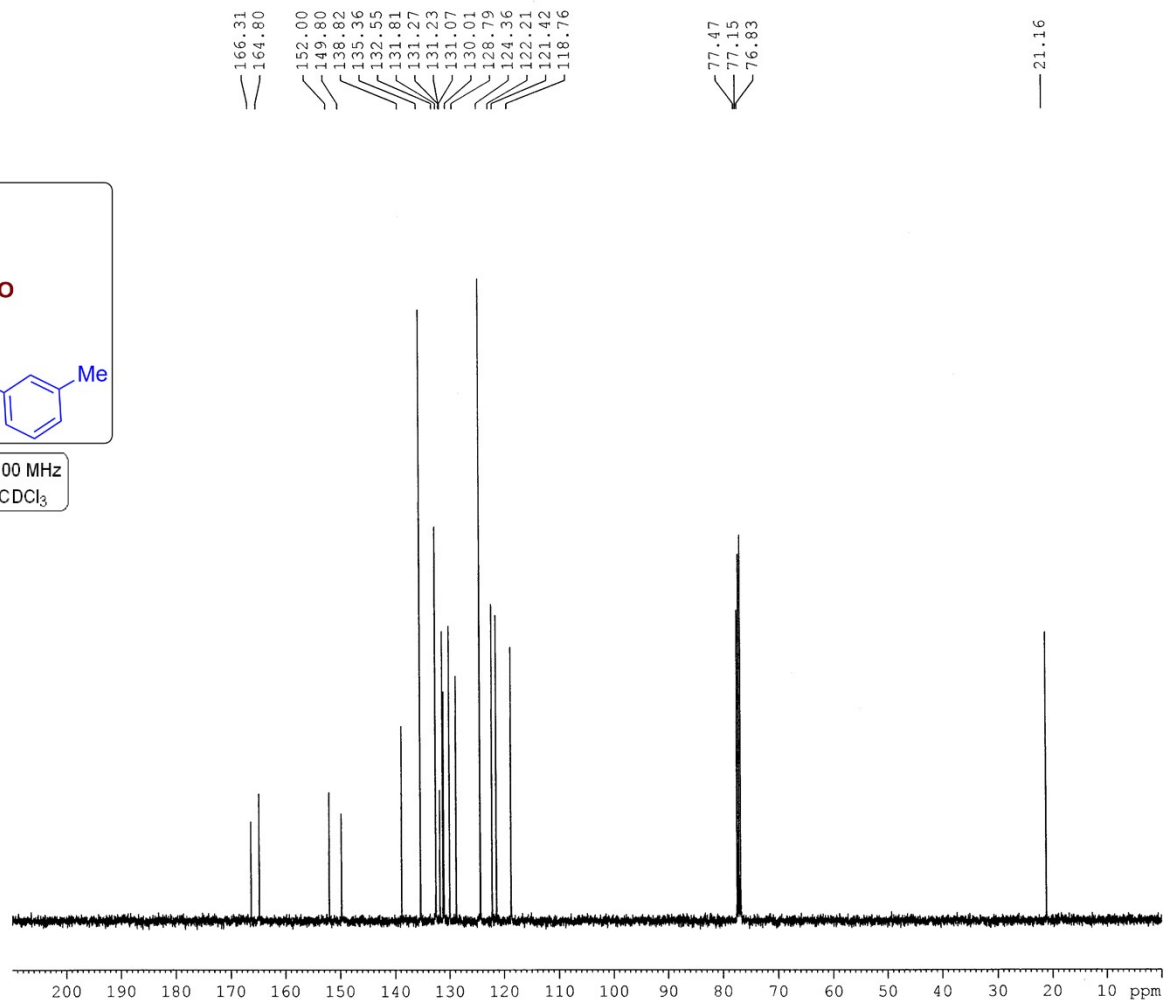
F2 - Acquisition Parameters
Date_ 20250718
Time_ 12.55
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 57.28
DW 60.800 usec
DE 6.50 usec
TE 292.1 K
D1 1.0000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.0000000 W

F2 - Processing parameters
SI 16384
SF 400.1499646 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 234
PROCNO 1

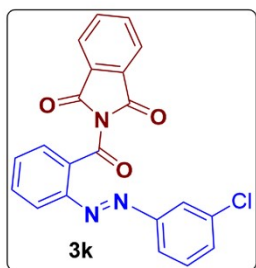
F2 - Acquisition Parameters
Date_ 20250718
Time 12.15
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 120
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 292.7 K
D1 2.0000000 sec
D11 0.03000000 sec
TDO 1

===== CHANNEL f1 =====
SFO1 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W

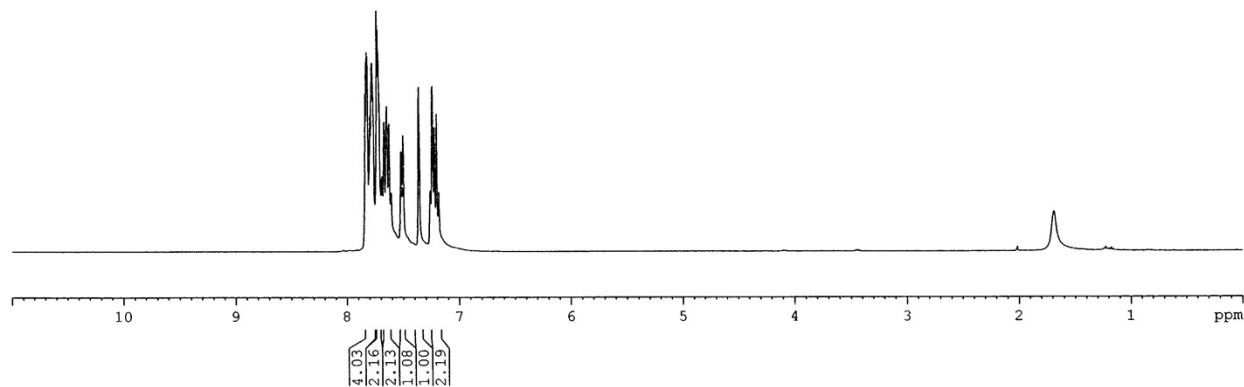
===== CHANNEL f2 =====
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177960 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

7.825
7.828
7.822
7.815
7.792
7.777
7.774
7.766
7.731
7.723
7.718
7.710
7.687
7.670
7.649
7.644
7.623
7.606
7.518
7.500
7.359
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7.358
7.353
7.240
7.237
7.220
7.201
7.181



¹H NMR: 400 MHz
Solvent: CDCl₃

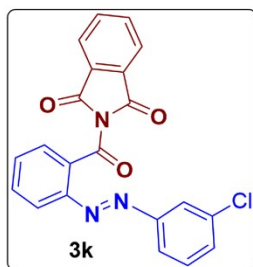


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 383
PROCNO 1

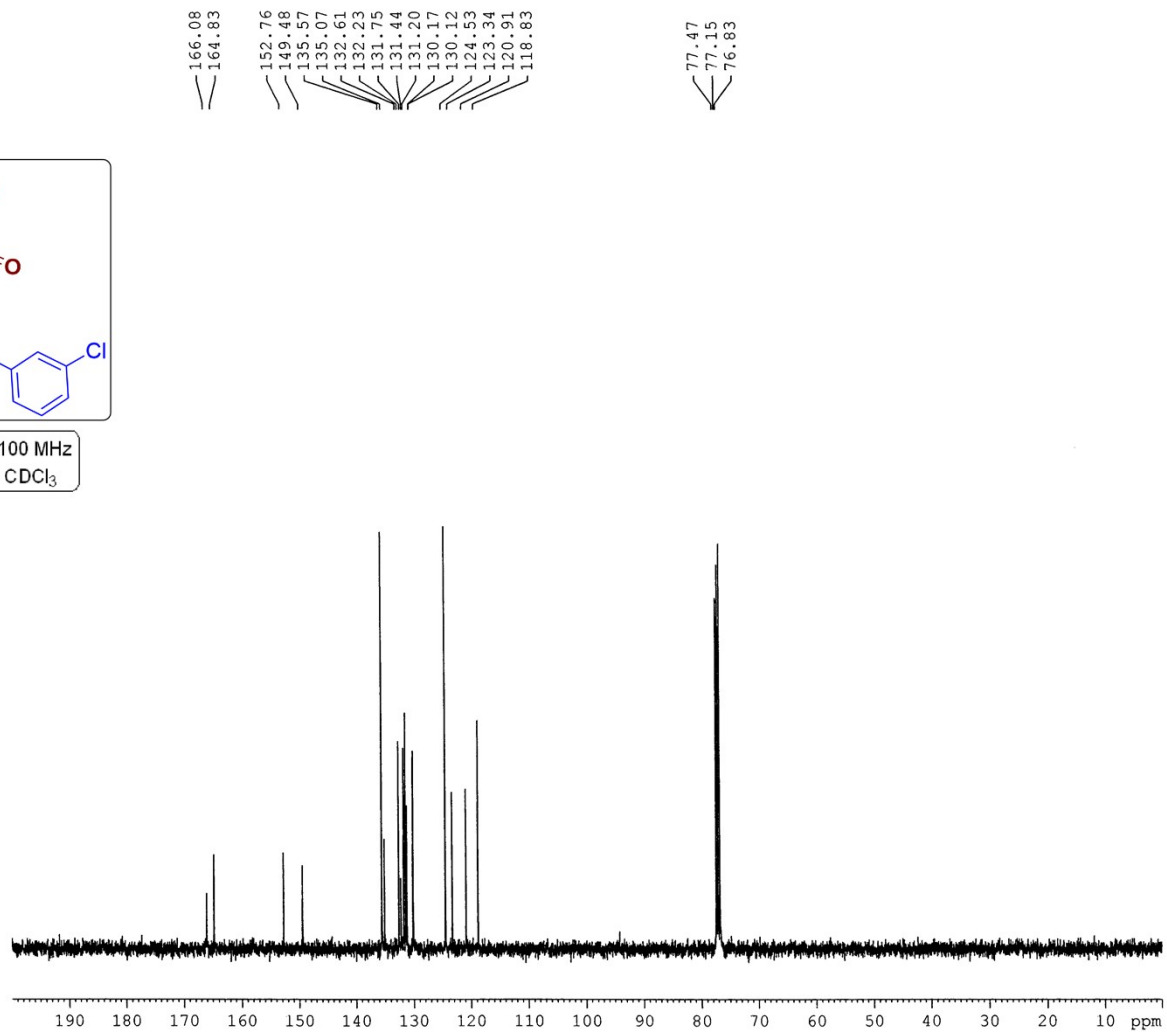
F2 - Acquisition Parameters
Date_ 20250709
Time 10.32
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 93.46
DW 60.800 usec
DE 6.50 usec
TE 295.3 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500189 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



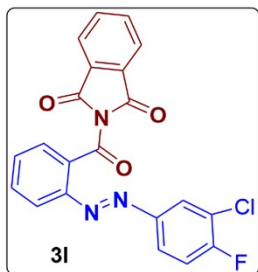
Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 220
PROCNO 1

F2 - Acquisition Parameters
Date_ 20250709
Time 10.43
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 134
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 295.4 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

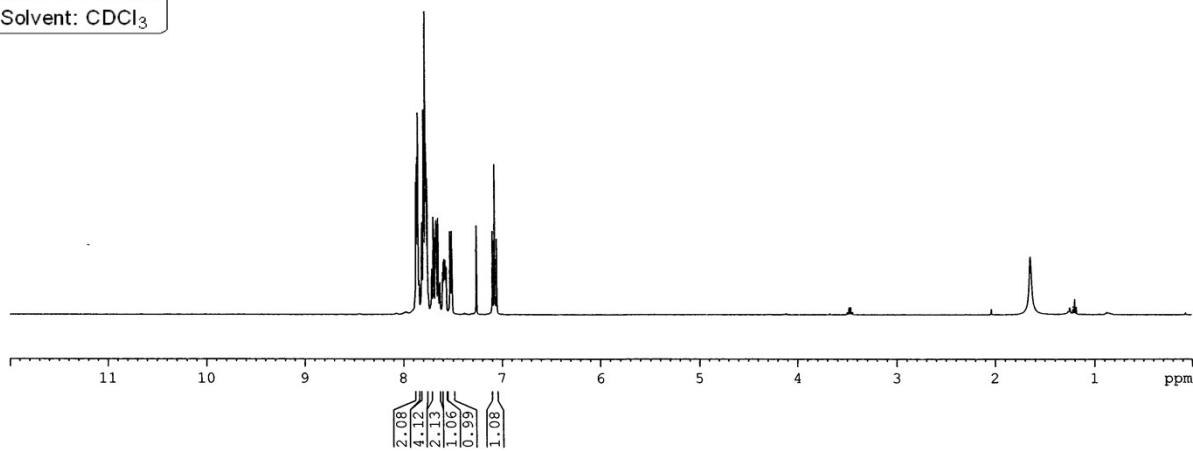
===== CHANNEL f1 =====
SFO1 100.6278568 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W

===== CHANNEL f2 =====
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177901 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃



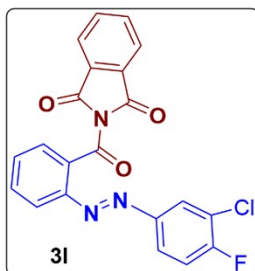
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7.749
7.715
7.712
7.697
7.693
7.678
7.673
7.669
7.666
7.650
7.648
7.631
7.630
7.604
7.598
7.593
7.586
7.582
7.576
7.571
7.565
7.565
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7.053

Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 391
PROCNO 1

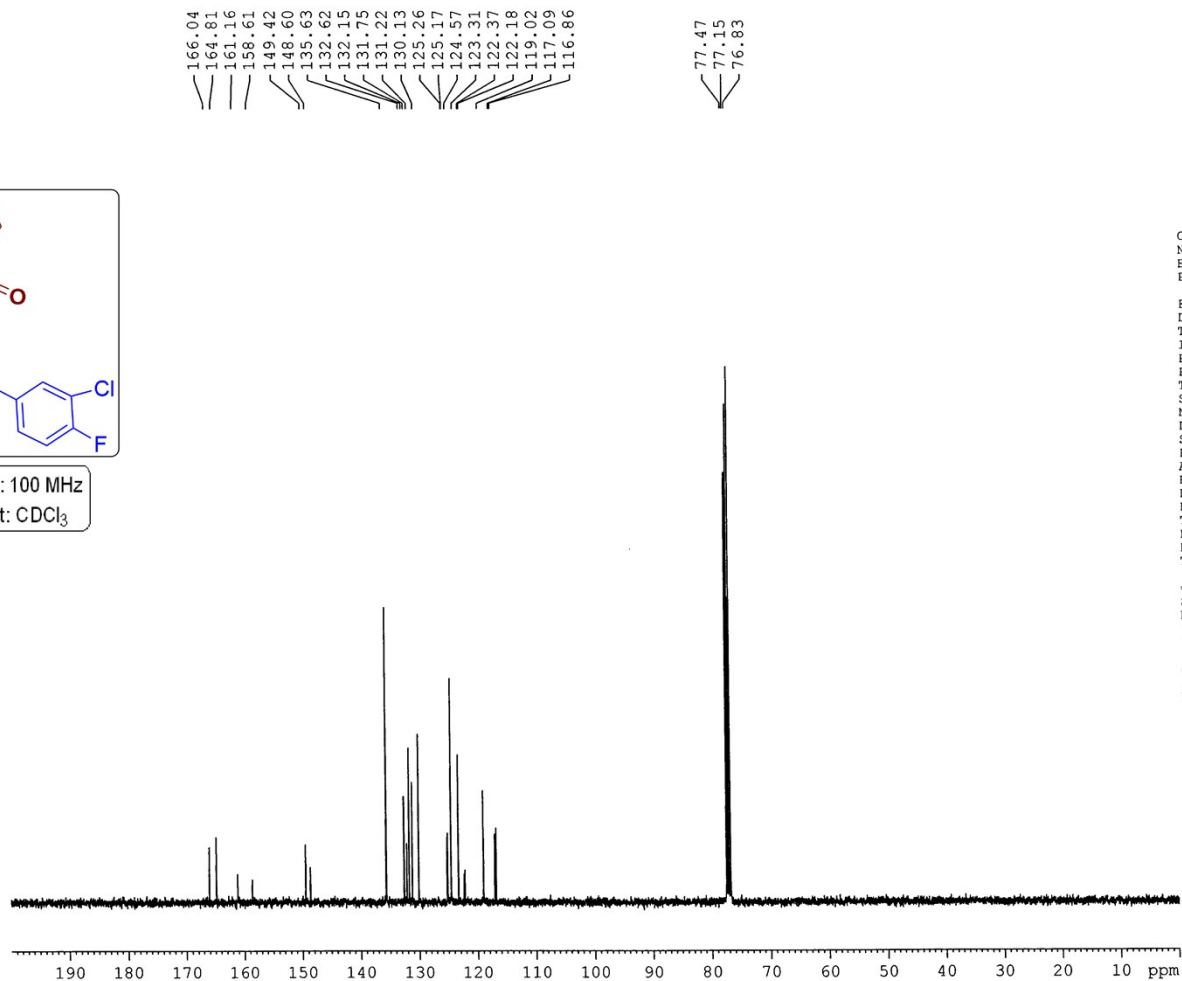
F2 - Acquisition Parameters
Date_ 20250712
Time_ 19.50
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 135.7
DW 60.800 usec
DE 6.50 usec
TE 295.8 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500098 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



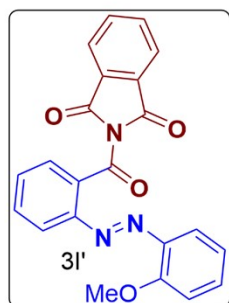
Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 226
PROCNO 1

F2 - Acquisition Parameters
Date_ 20250712
Time 20.16
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDC13
NS 440
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 296.9 K
D1 2.00000000 sec
D11 0.03000000 sec
TDO 1

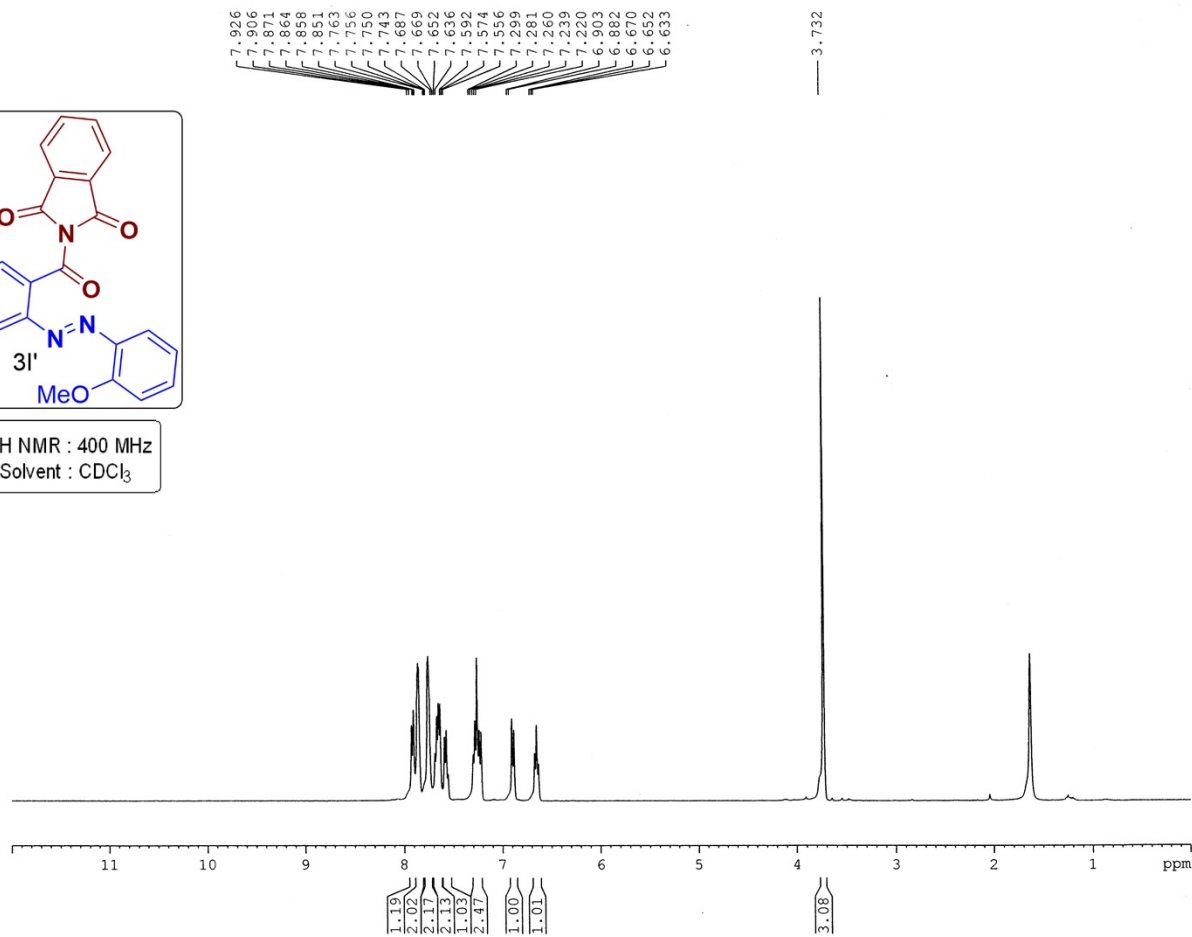
===== CHANNEL f1 =====
SFO1 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W

===== CHANNEL f2 =====
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177873 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H NMR : 400 MHz
Solvent : CDCl₃

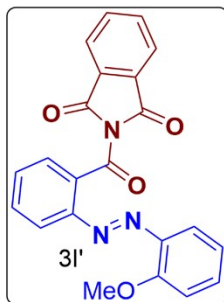


Current Data Parameters
NAME Dr. A HAJRA 2026 1H
EXPNO 245
PROCNO 1

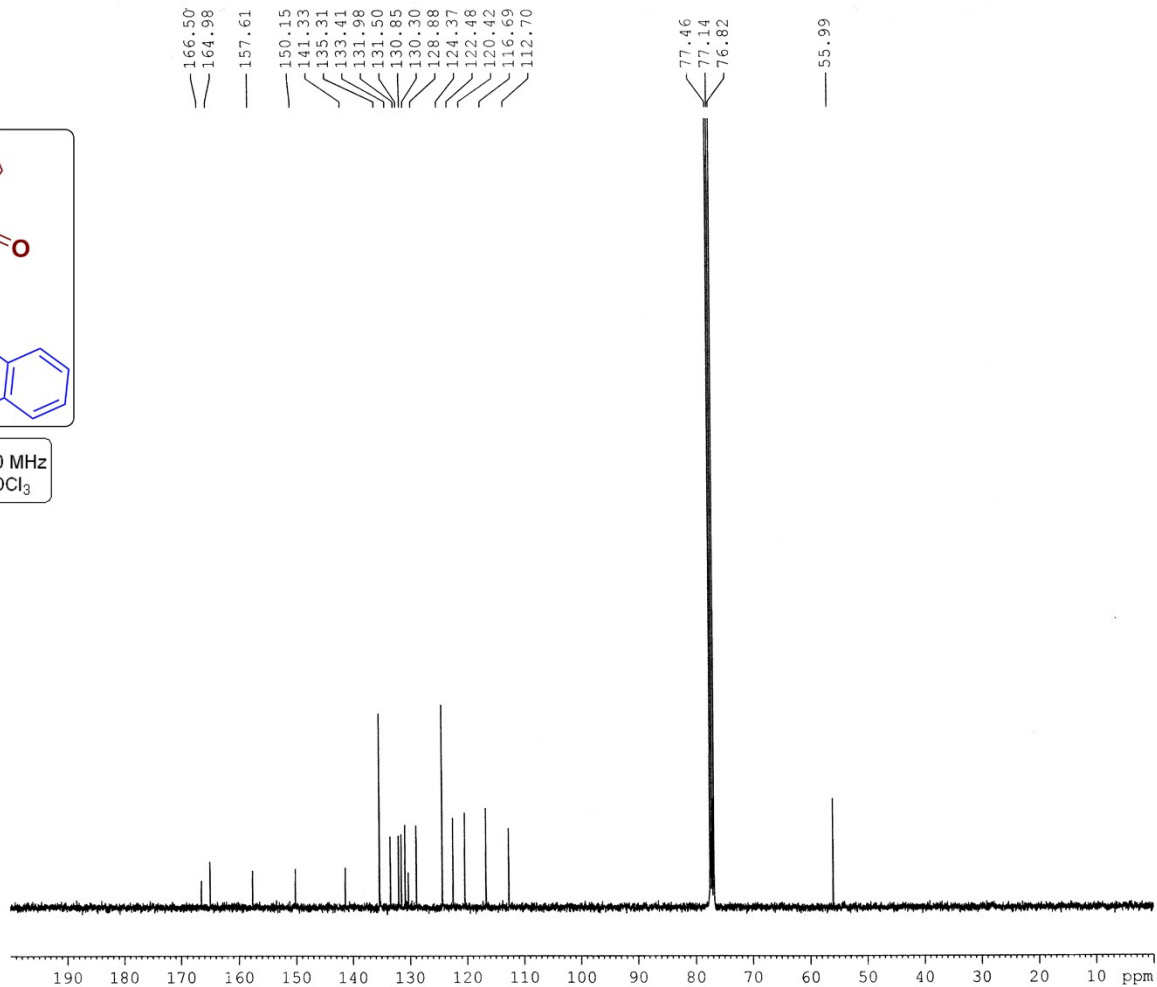
F2 - Acquisition Parameters
Date_ 20260409
Time 20.38
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 168.31
DW 60.800 usec
DE 6.50 usec
TE 293.8 K
D1 1.00000000 sec
TDO 1

===== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500102 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent : CDCl₃



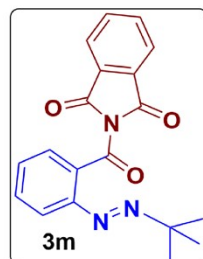
Current Data Parameters
 NAME Dr. A HAJRA-2026-13C
 EXPNO 137
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20260409
 Time 21:27
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zgpg30
 TD 32768
 SOLVENT CDCl3
 NS 1000
 DS 2
 SWH 24038.461 Hz
 FIDRES 0.733596 Hz
 AQ 0.6815744 sec
 RG 186.42
 DW 20.800 usec
 DE 6.50 usec
 TE 293.4 K
 D1 2.00000000 sec
 D11 0.03000000 sec
 TDO 1

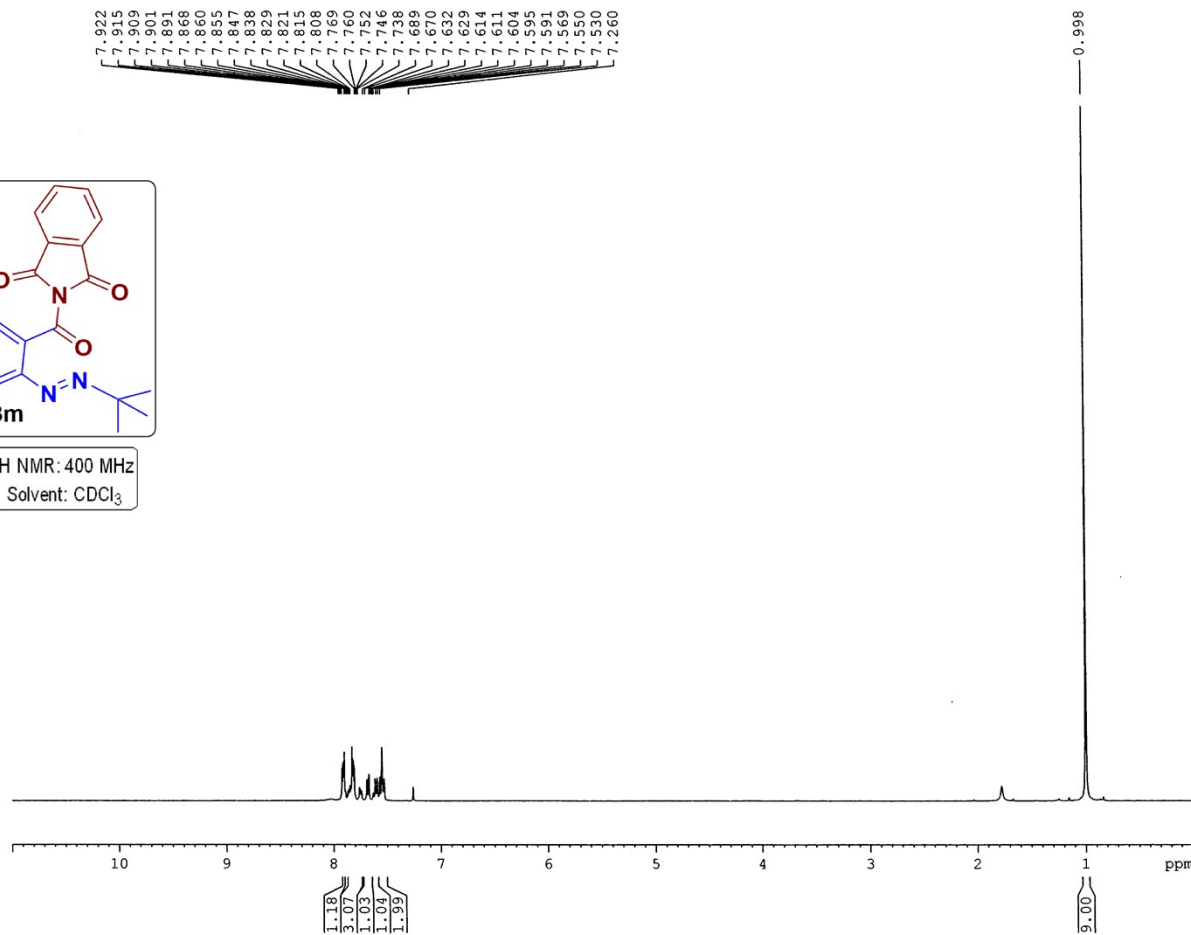
===== CHANNEL f1 =====
 SFO1 100.6278588 MHz
 NUC1 13C
 P1 8.90 usec
 PLW1 54.00000000 W

===== CHANNEL f2 =====
 SFO2 400.1516006 MHz
 NUC2 1H
 CPDPRG[2] waltz16
 PCPD2 90.00 usec
 PLW2 12.00000000 W
 PLW12 0.32231000 W
 PLW13 0.16212000 W

F2 - Processing parameters
 SI 16384
 SF 100.6177883 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃

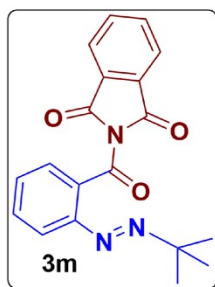


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 565
PROCNO 1

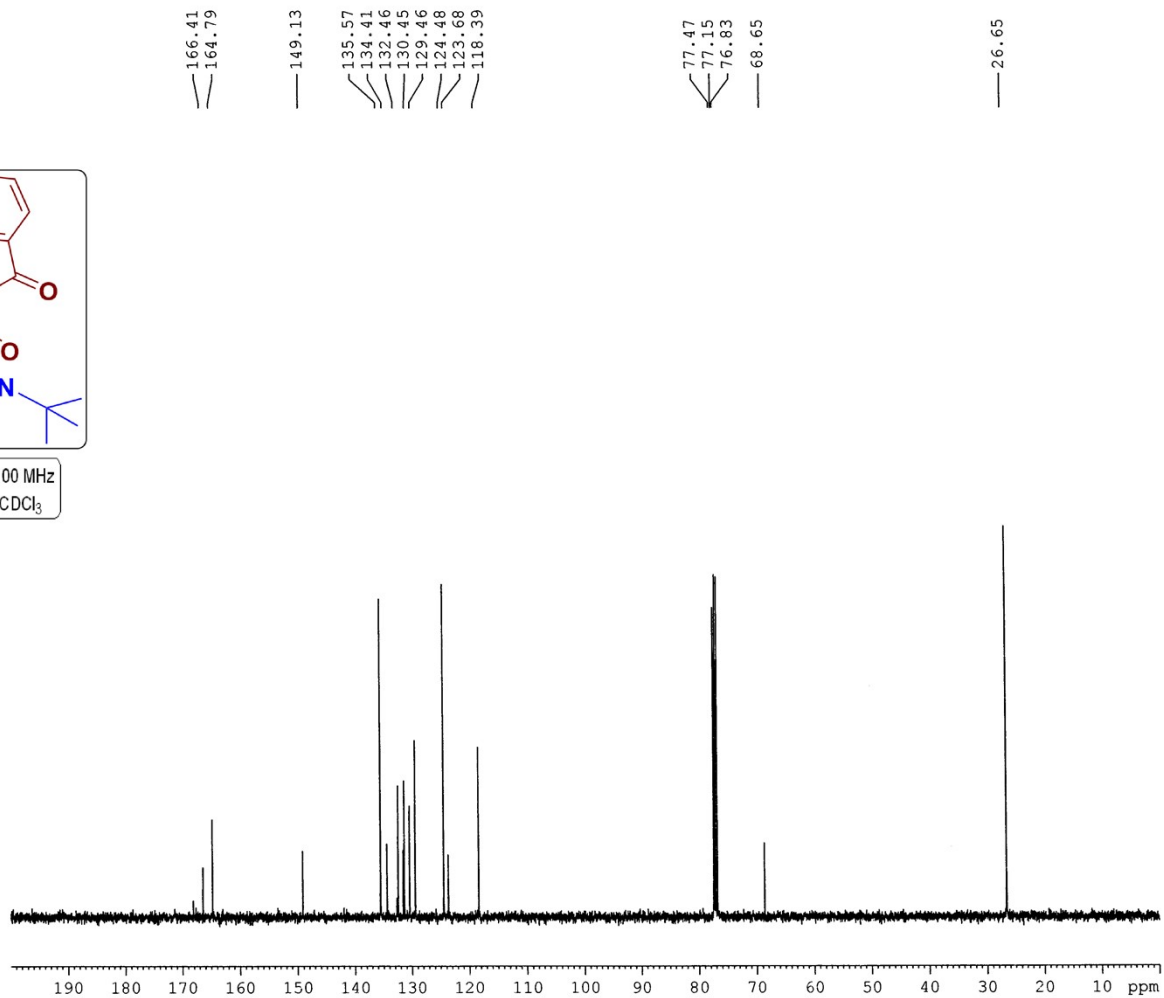
F2 - Acquisition Parameters
Date_ 20250920
Time_ 9.26
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 93.46
DW 60.800 usec
DE 6.50 usec
TE 291.7 K
D1 1.00000000 sec
TD0 1

==== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500097 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



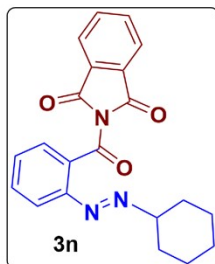
Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 324
PROCNO 1

F2 - Acquisition Parameters
Date_ 20250920
Time_ 9.34
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zpgg30
TD 32768
SOLVENT CDCl3
NS 130
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 292.3 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1

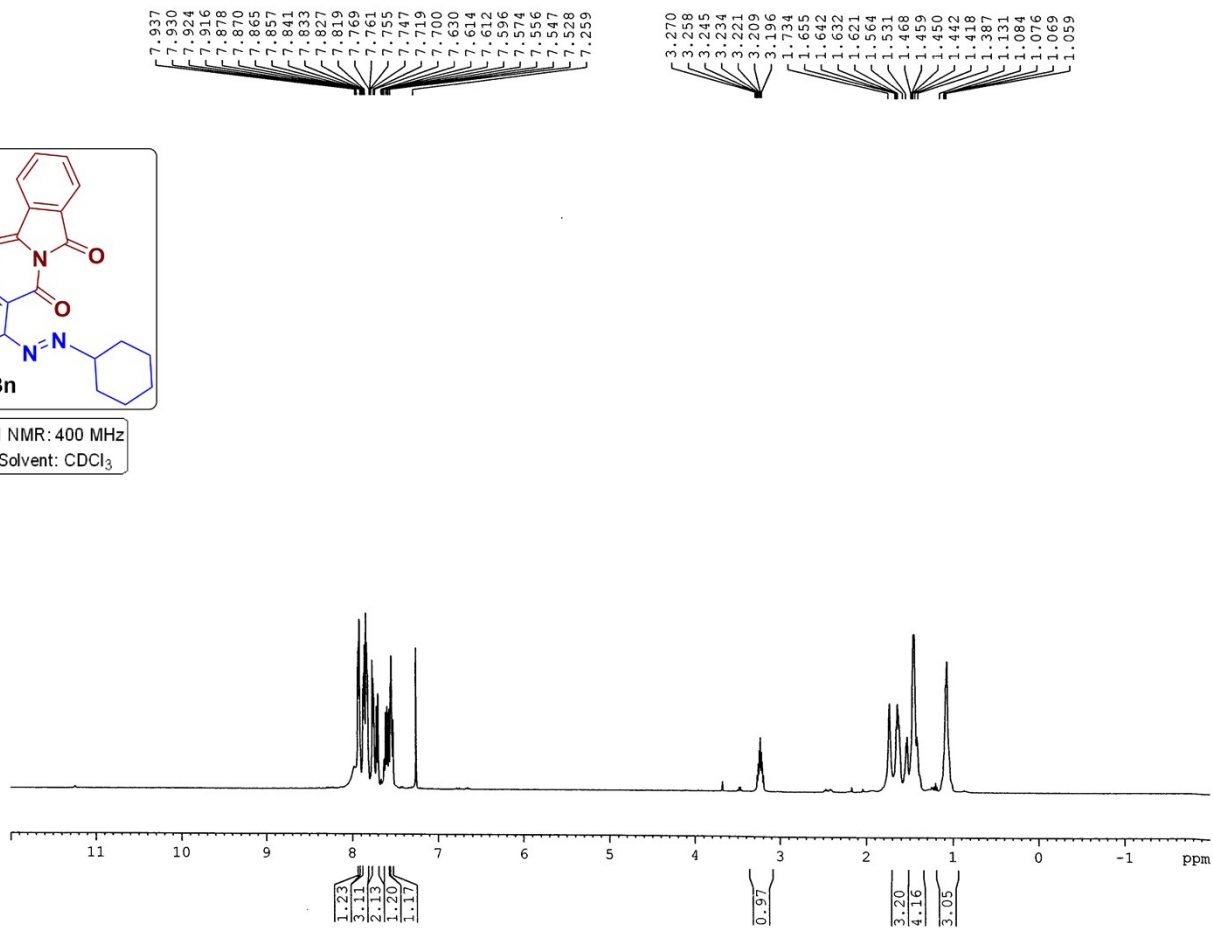
===== CHANNEL f1 =====
SFO1 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W

===== CHANNEL f2 =====
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG12 waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177905 MHz
WDSW EM
SSB 0
LB 1.00 Hz
GB 0
FC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃

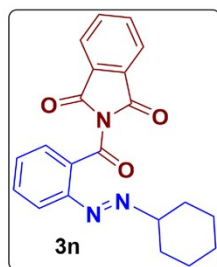


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 612
PROCNO 1

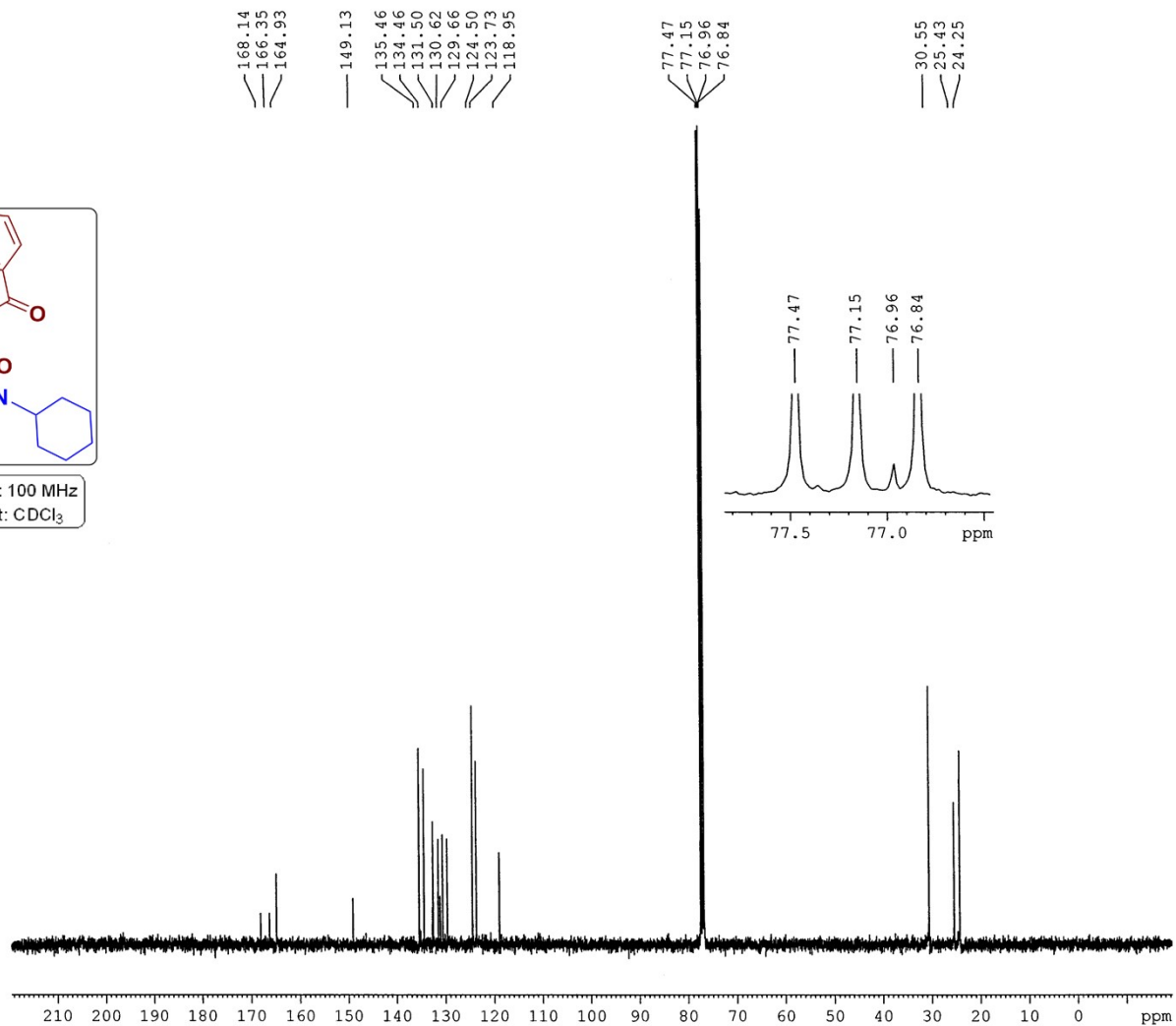
F2 - Acquisition Parameters
Date_ 20251017
Time 21.17
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 106.66
DW 60.800 usec
DE 6.50 usec
TE 289.7 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SF01 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500097 MHz
WDW EM
SSB 0
LB 0.30 Hz
CB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 347
PROCNO 1

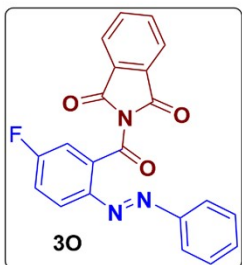
F2 - Acquisition Parameters
Date_ 20251017
Time 21.40
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 260
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 291.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TDO 1

----- CHANNEL f1 -----
SFO1 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W

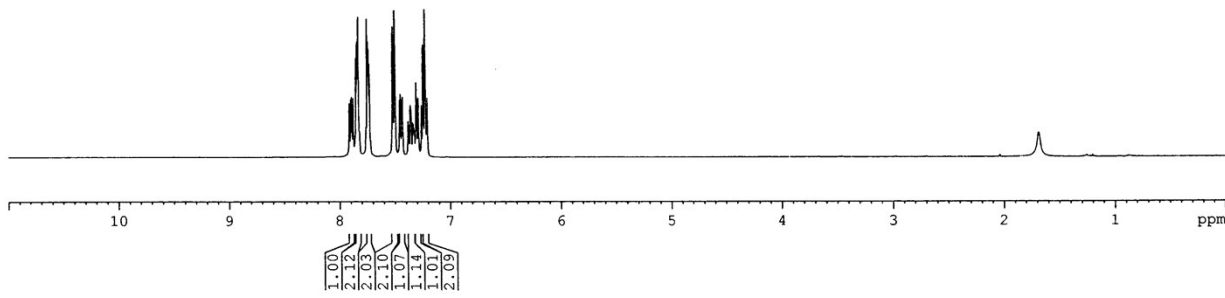
----- CHANNEL f2 -----
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177887 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

7.912
7.899
7.889
7.877
7.851
7.843
7.837
7.829
7.820
7.760
7.750
7.743
7.737
7.729
7.520
7.501
7.457
7.451
7.437
7.431
7.381
7.374
7.359
7.355
7.339
7.332
7.325
7.307
7.289
7.260
7.245
7.225
7.207



¹H NMR: 400 MHz
Solvent: CDCl₃

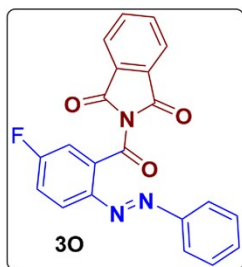


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 390
PROCNO 1

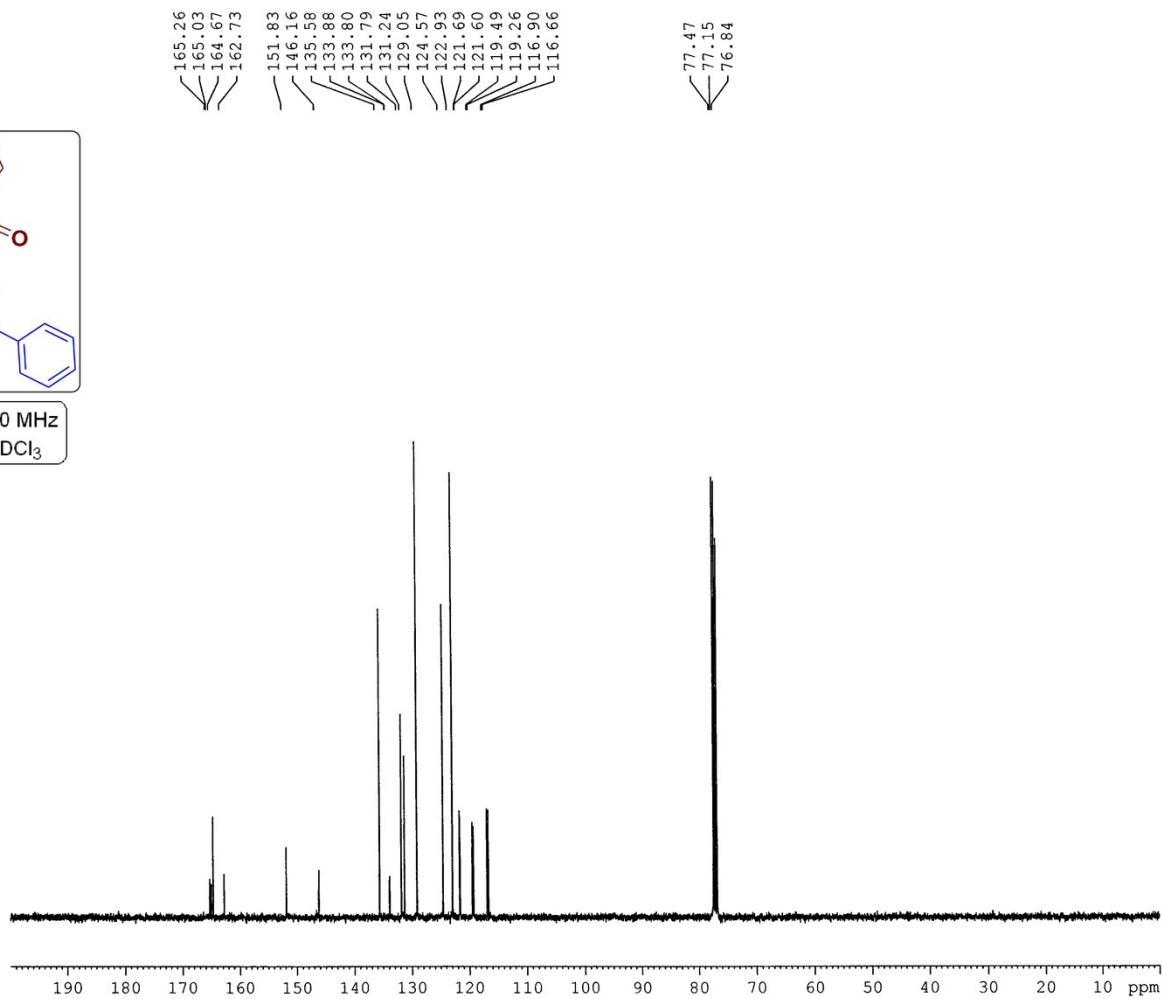
F2 - Acquisition Parameters
Date_ 20250712
Time_ 19.15
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 87.66
DW 60.800 usec
DE 6.50 usec
TE 295.4 K
D1 1.00000000 sec
TD0 1

==== CHANNEL f1 =====
SF01 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500098 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



^{13}C NMR : 100 MHz
Solvent: CDCl_3



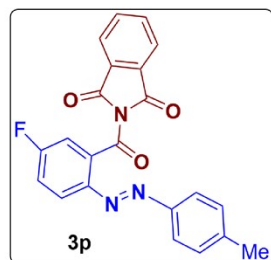
Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 225
PROCNO 1

F2 - Acquisition Parameters
Date_ 20250712
Time 19.35
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 310
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 296.3 K
D1 2.00000000 sec
D11 0.03000000 sec
TDO 1

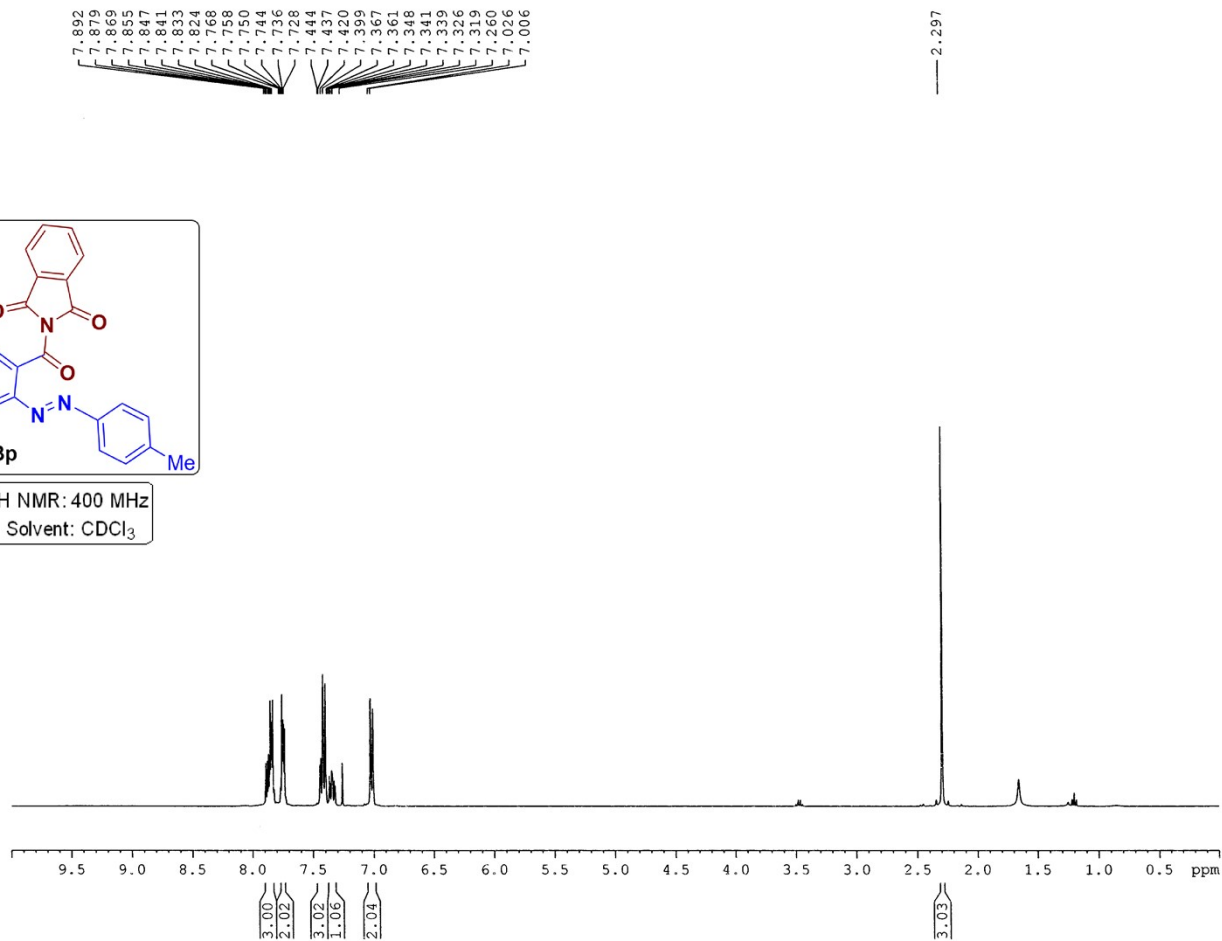
===== CHANNEL f1 =====
SFO1 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W

===== CHANNEL f2 =====
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG12 waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177887 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃

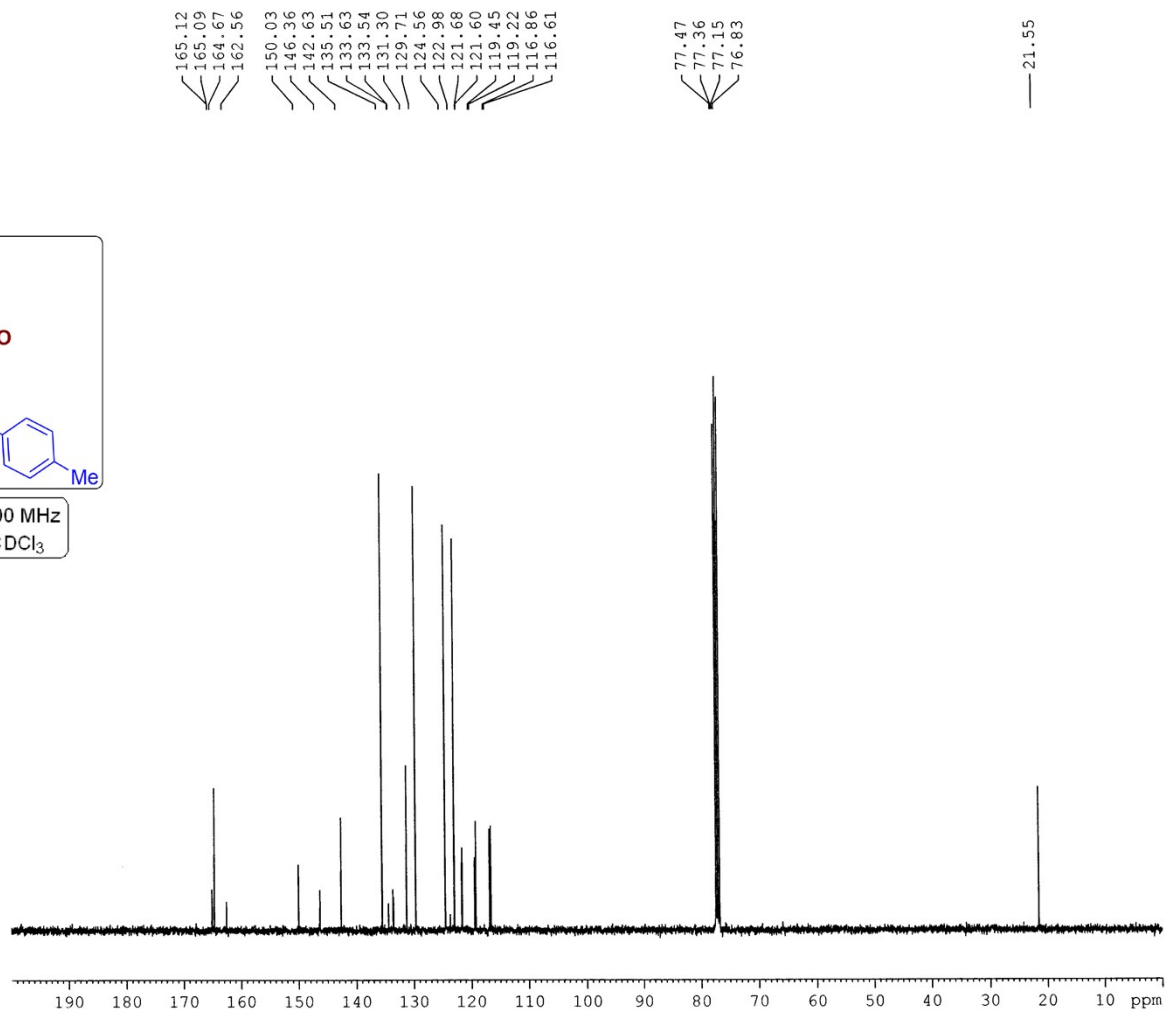
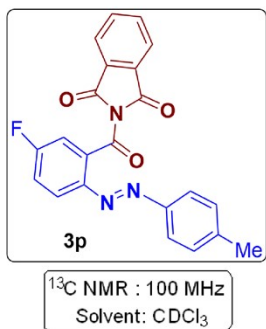


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 264
PROCNO 1

F2 - Acquisition Parameters
Date_ 20250506
Time 10.13
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 87.66
DW 60.800 usec
DE 6.50 usec
TE 298.3 K
D1 1.00000000 sec
TD0 1

==== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500097 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



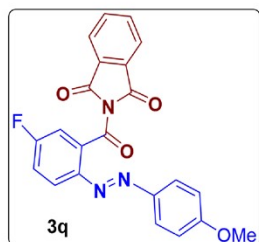
Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 157
PROCNO 1

F2 - Acquisition Parameters
Date_ 20250506
Time 10.56
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 450
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 298.4 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

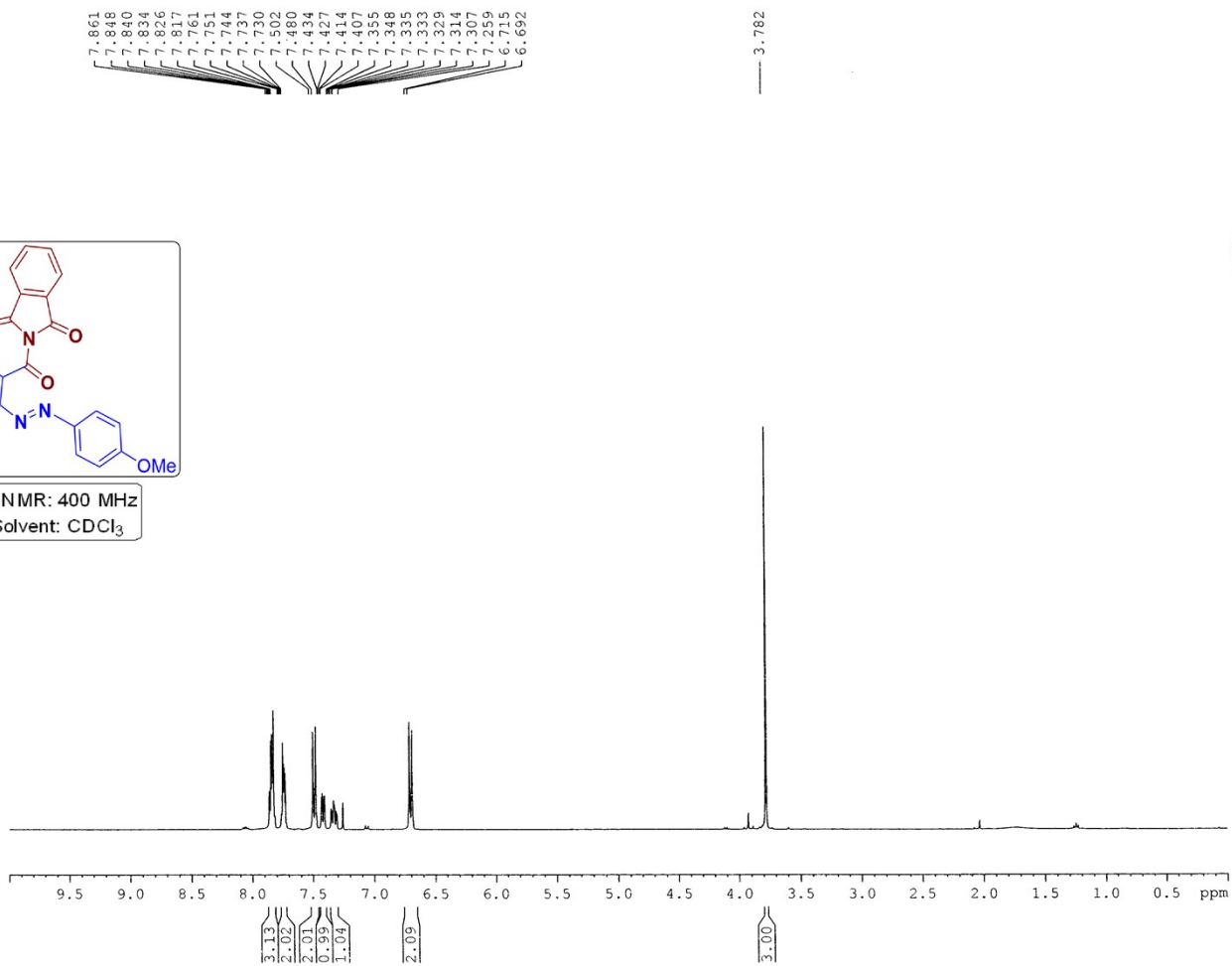
===== CHANNEL f1 =====
SFO1 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W

===== CHANNEL f2 =====
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG12 waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177873 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃

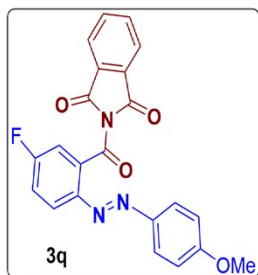


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 141
PROCNO 1

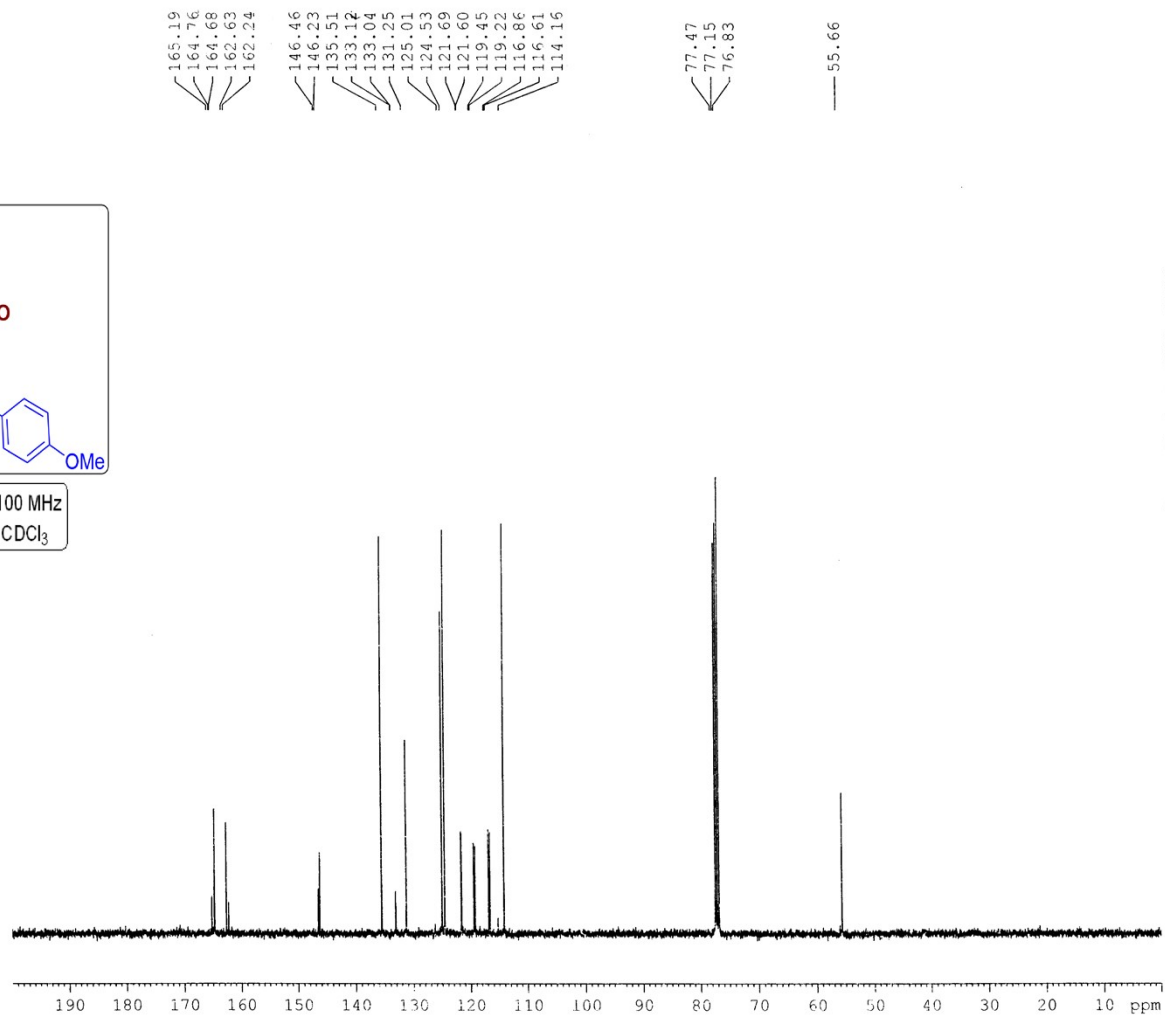
F2 - Acquisition Parameters
Date_ 20250225
Time 12.39
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 77.59
DW 60.800 usec
DE 6.50 usec
TE 294.2 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SF01 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500098 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



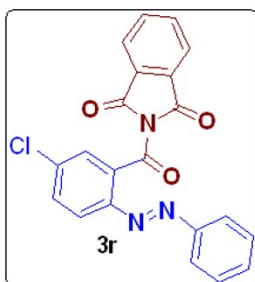
Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 111
PROCNO 1

F2 - Acquisition Parameters
Date_ 20250225
Time_ 12.55
INSTRUM spect
PROBHD 5 mm PABBO BE/
PULPROG zgpg30
TE 327.66
SOLVENT CDCl3
NS 270
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6615744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 294.7 K
D1 2.0000000 sec
D11 0.0300000 sec
TDC 1

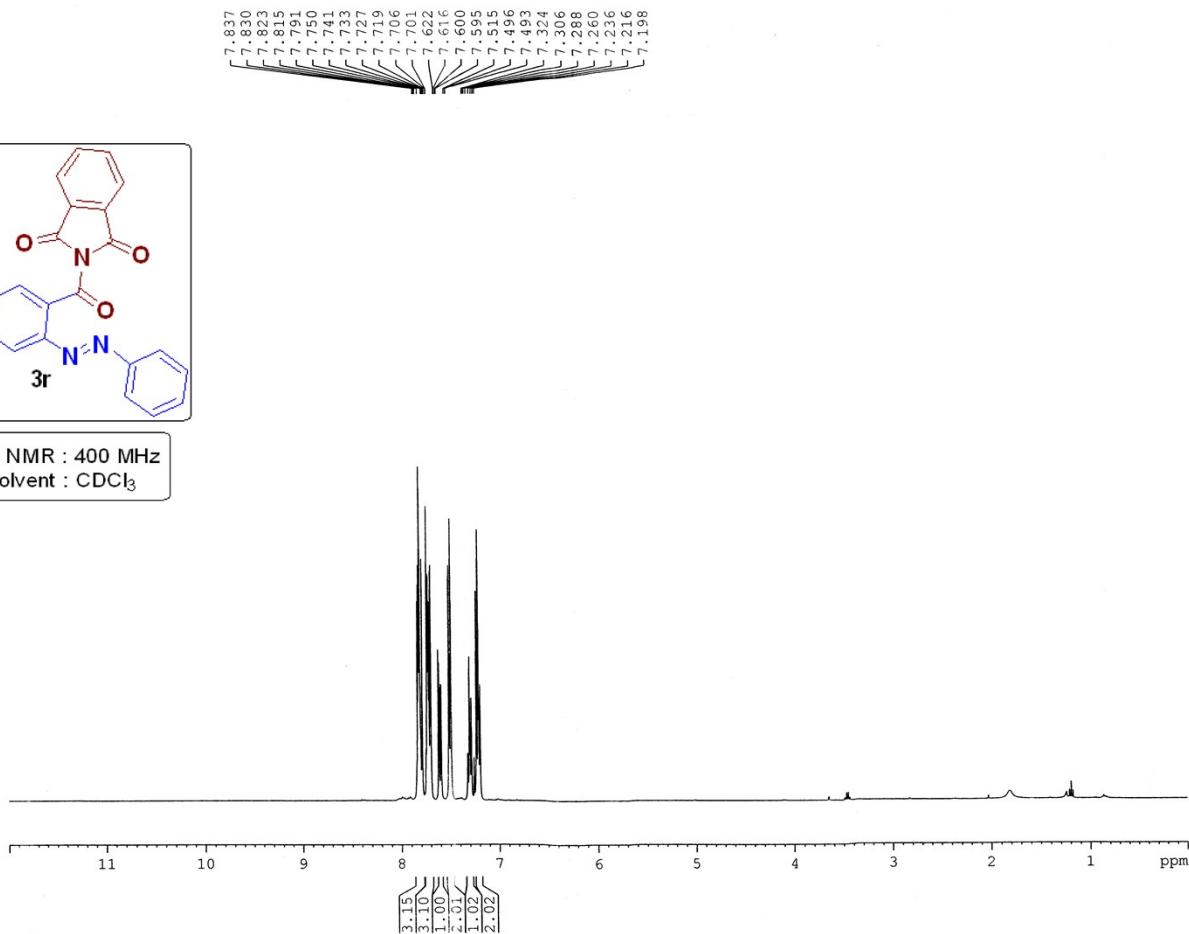
===== CHANNEL f1 =====
SFO1 100.6278586 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00060000 W

===== CHANNEL f2 =====
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG1? waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177901 MHz
WDW EM
SCB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H NMR : 400 MHz
Solvent : CDCl₃



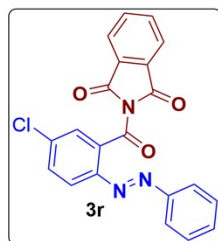
7.837
7.830
7.823
7.815
7.791
7.750
7.741
7.733
7.727
7.719
7.706
7.701
7.622
7.616
7.600
7.595
7.515
7.496
7.493
7.324
7.306
7.288
7.260
7.236
7.216
7.196

Current Data Parameters
NAME Dr. A HAJRA 2026 1H
EXPNO 240
PROCNO 1

F2 - Acquisition Parameters
Date_ 20260407
Time_ 20.00
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 67.81
DW 60.800 usec
DE 6.50 usec
TE 292.0 K
D1 1.00000000 sec
TDO 1

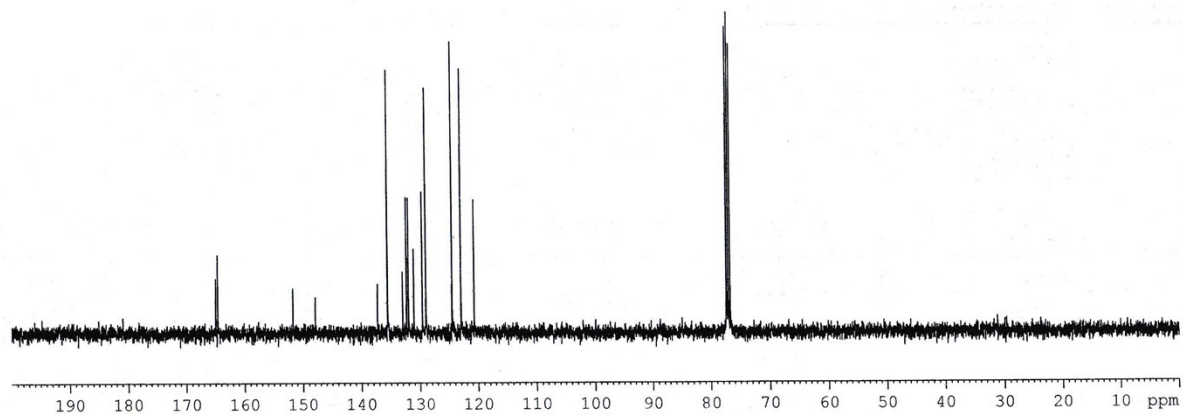
===== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500097 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent : CDCl₃

164.98
164.64
151.75
147.92
137.30
135.60
133.03
132.39
132.02
131.12
129.66
129.06
124.56
123.00
120.74
77.47
77.15
76.83



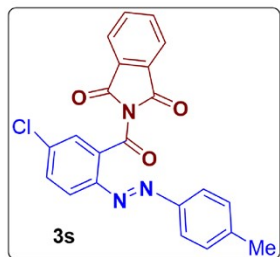
Current Data Parameters
NAME Dr. A HAJRA-2026-13C
EXPNO 151
PROCNO 1

F2 - Acquisition Parameters
Date_ 20260501
Time 17.18
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 30
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 290.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

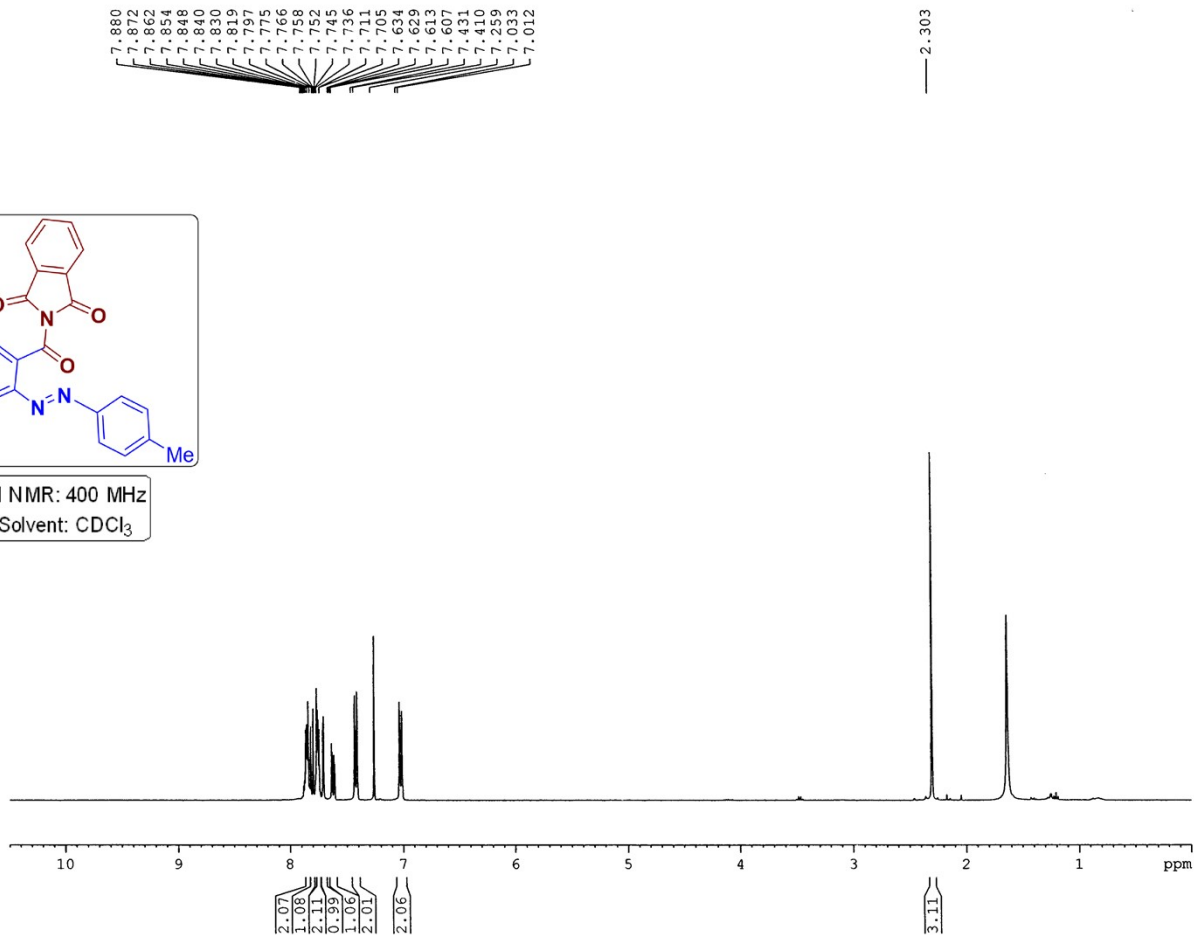
===== CHANNEL f1 =====
SFO1 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W

===== CHANNEL f2 =====
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177932 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃

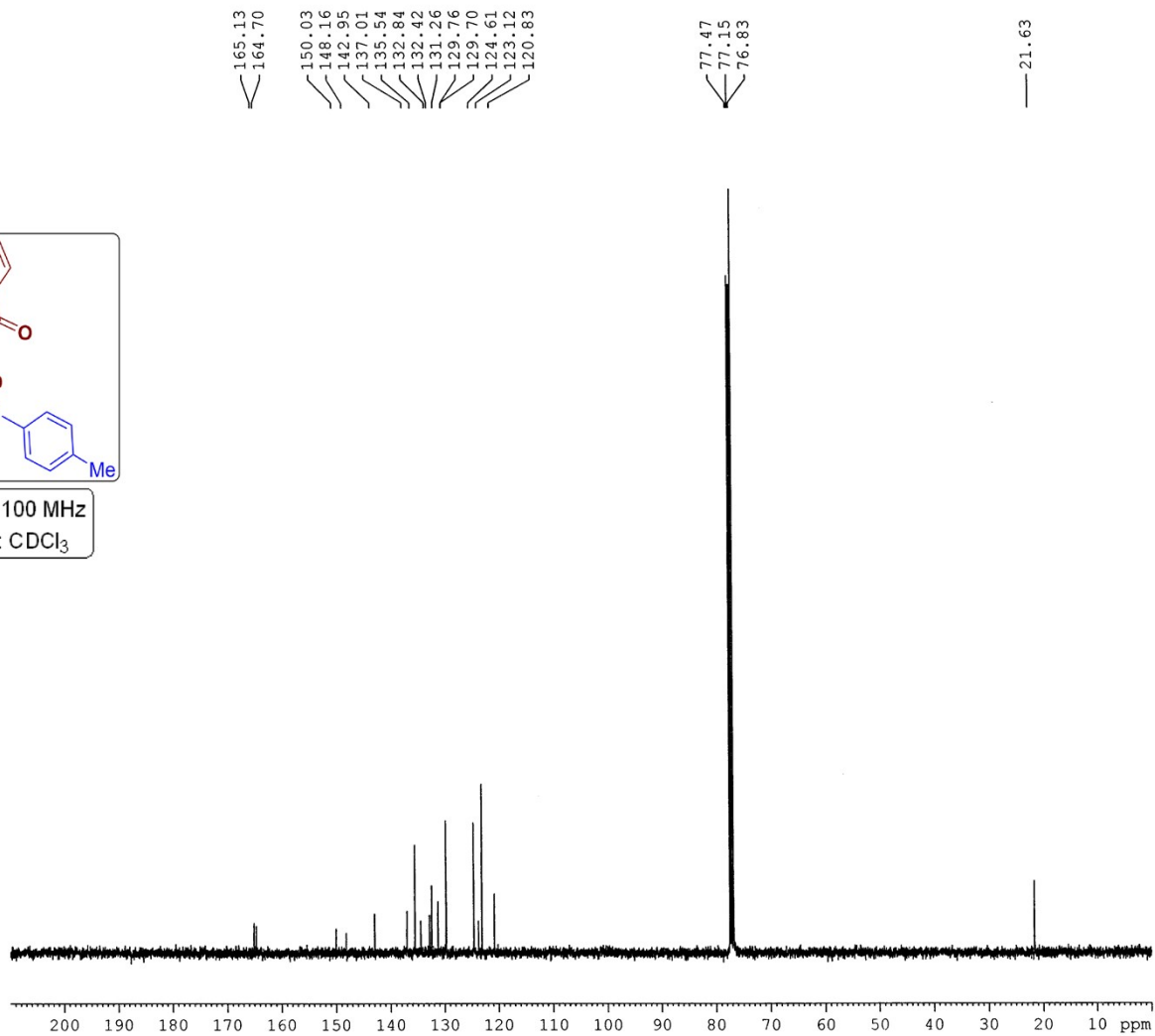
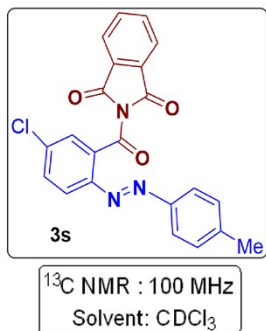


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 466
PROCNO 1

F2 - Acquisition Parameters
Date_ 20250802
Time 11.19
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 168.31
DW 60.800 usec
DE 6.50 usec
TE 291.8 K
D1 1.00000000 sec
TD0 1

----- CHANNEL f1 -----
SF01 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500099 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



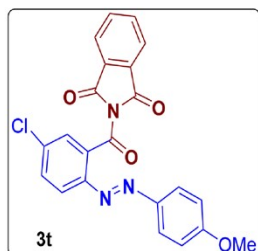
Current Data Parameters
 NAME Dr. A HAJRA-2025-13C
 EXPNO 269
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20250802
 Time 11.47
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zgpg30
 TD 32768
 SOLVENT CDCl3
 NS 490
 DS 2
 SWH 24038.461 Hz
 FIDRES 0.733596 Hz
 AQ 0.6815744 sec
 RG 186.42
 DW 20.800 usec
 DE 6.50 usec
 TE 292.2 K
 D1 2.0000000 sec
 D11 0.03000000 sec
 TDO 1

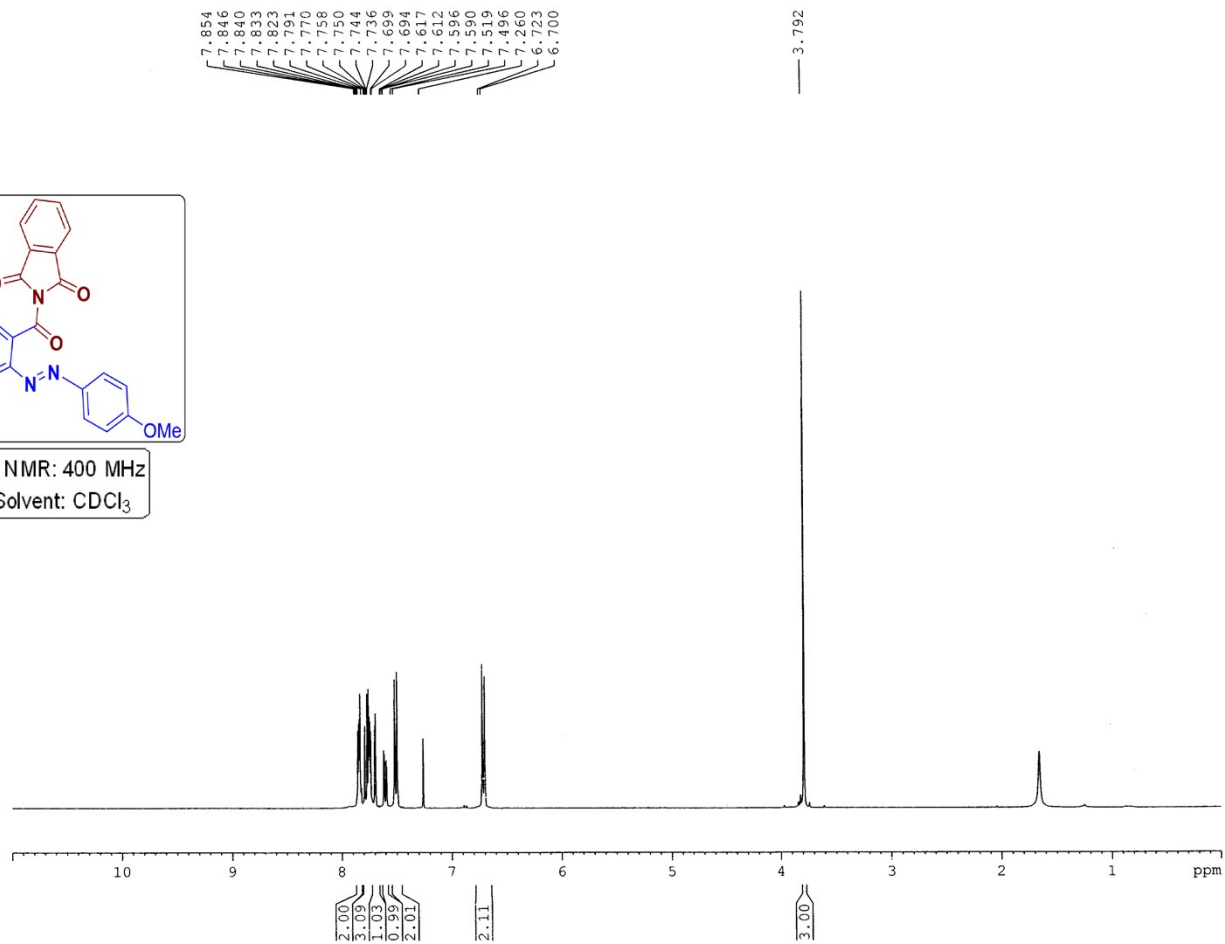
----- CHANNEL f1 -----
 SFO1 100.6278588 MHz
 NUC1 13C
 P1 8.90 usec
 PLW1 54.00000000 W

----- CHANNEL f2 -----
 SFO2 400.1516006 MHz
 NUC2 1H
 CPDPRG2 waltz16
 PCPD2 90.00 usec
 PLW2 12.00000000 W
 PLW12 0.32231000 W
 PLW13 0.16212000 W

F2 - Processing parameters
 SI 16384
 SF 100.6177870 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃

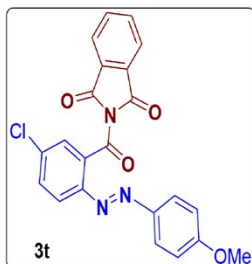


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 439
PROCNO 1

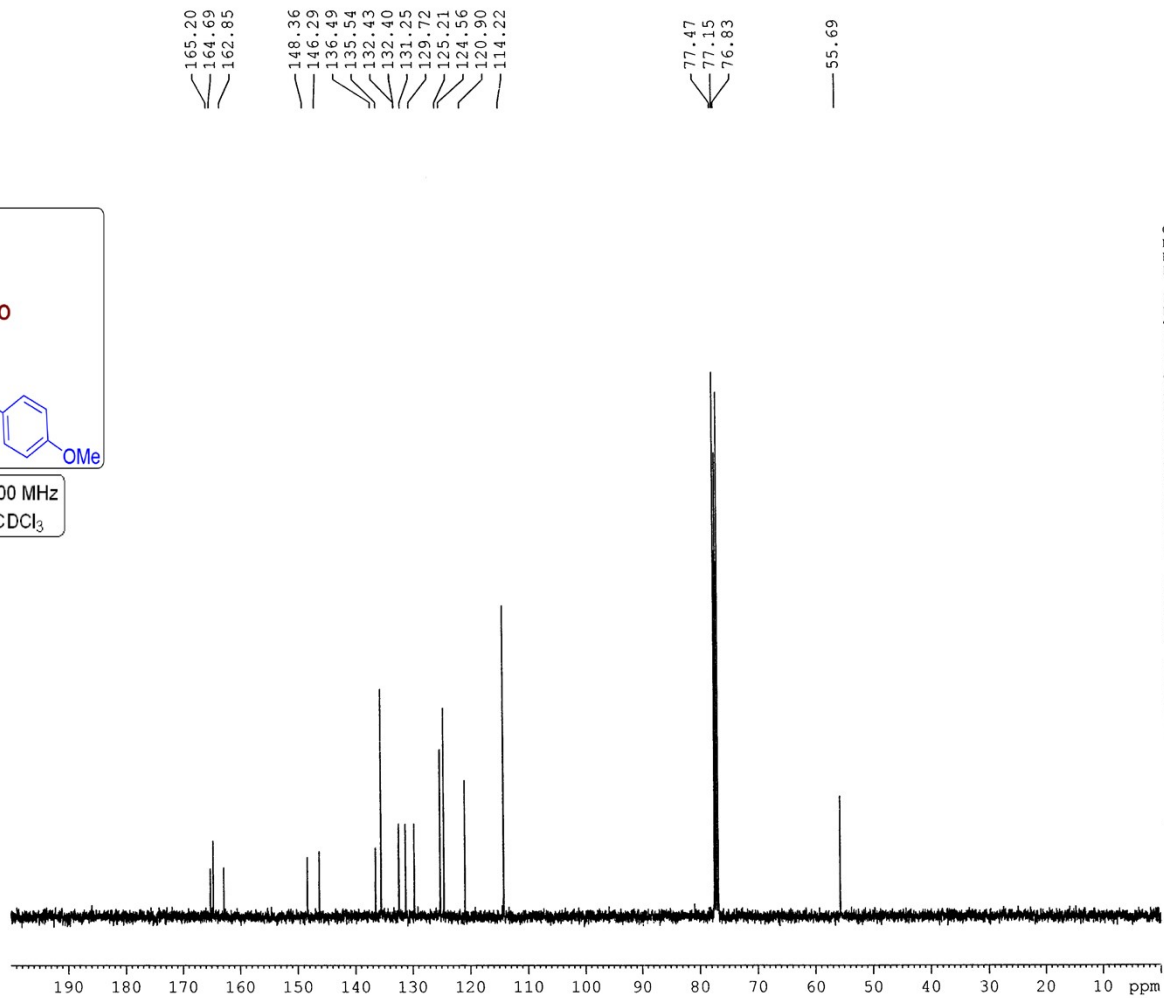
F2 - Acquisition Parameters
Date_ 20250724
Time 19.25
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 135.7
DW 60.800 usec
DE 6.50 usec
TE 292.2 K
D1 1.00000000 sec
TDO 1

===== CHANNEL f1 =====
SF01 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500097 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



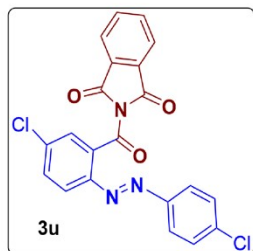
Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 255
PROCNO 1

F2 - Acquisition Parameters
Date 20250724
Time 19.40
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 190
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6915744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 292.7 K
D1 2.0000000 sec
D11 0.0300000 sec
TDO 1

----- CHANNEL f1 -----
SFO1 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.0000000 W

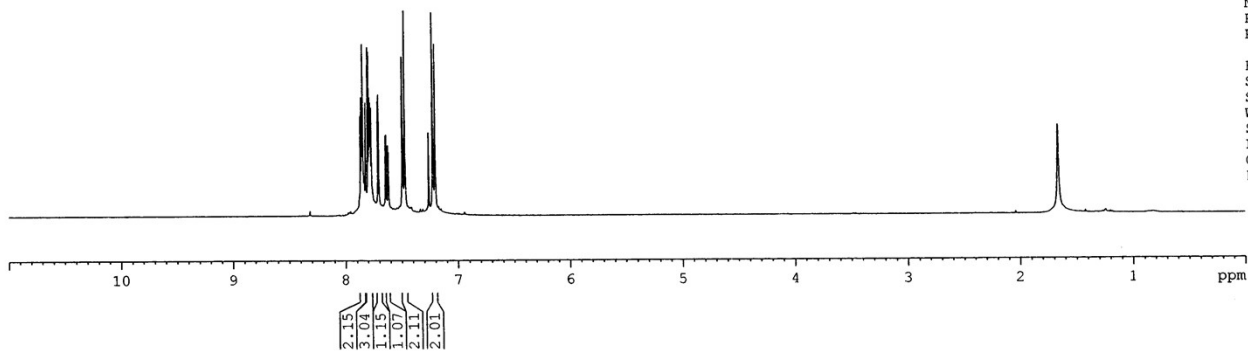
----- CHANNEL f2 -----
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 12.0000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177883 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃

7.866
7.858
7.852
7.845
7.835
7.821
7.800
7.790
7.782
7.776
7.768
7.760
7.710
7.705
7.643
7.638
7.622
7.616
7.499
7.493
7.489
7.476
7.471
7.465
7.259
7.229
7.224
7.219
7.207
7.202

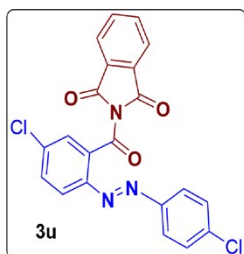


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 449
PROCNO 1

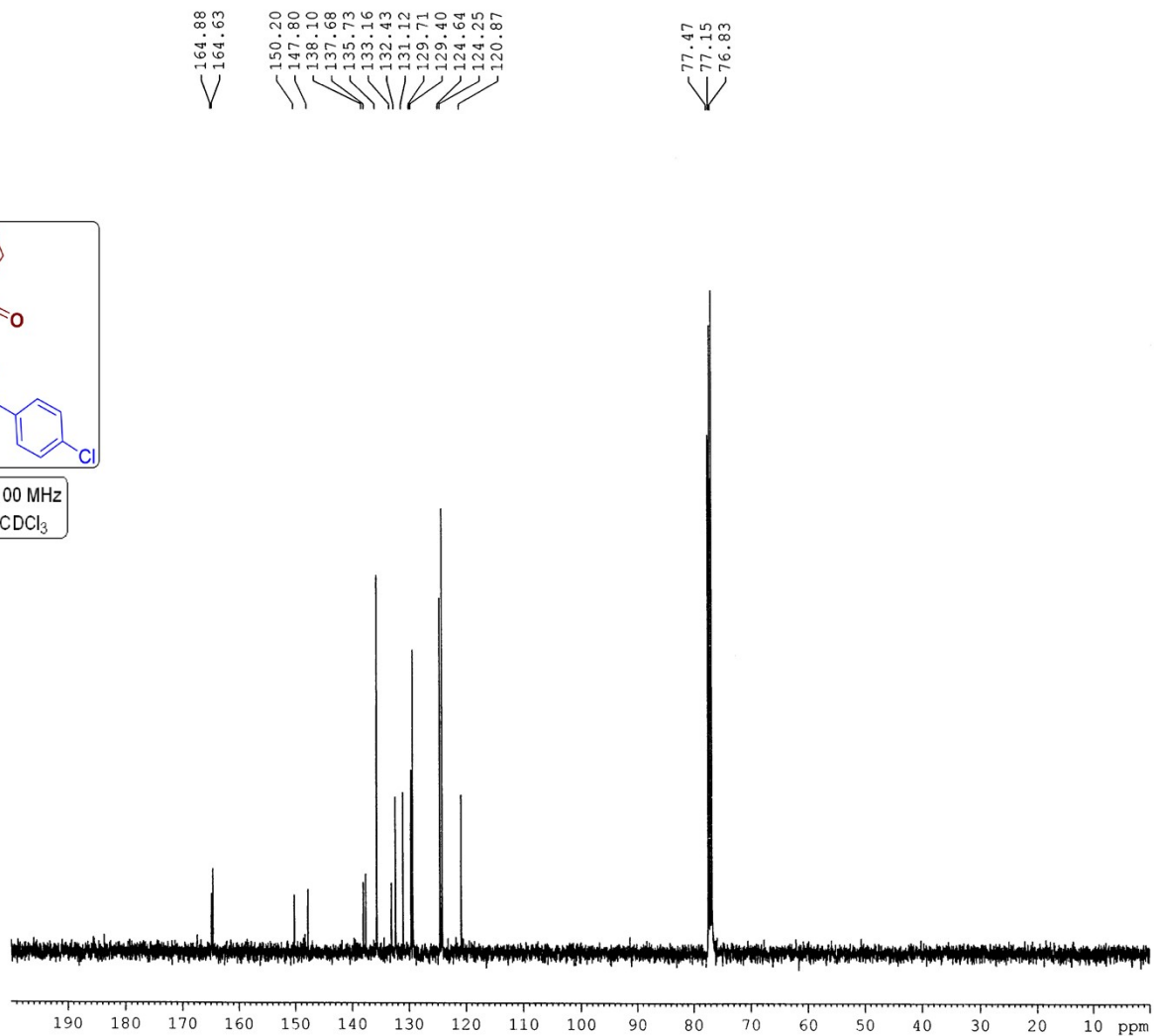
F2 - Acquisition Parameters
Date_ 20250726
Time 19.02
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 135.7
DW 60.800 usec
DE 6.50 usec
TE 290.9 K
D1 1.0000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.0000000 W

F2 - Processing parameters
SI 16384
SF 400.1500100 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



```

Current Data Parameters
NAME      Dr. A HAJRA-2025-13C
EXPNO    260
PROCNO   1

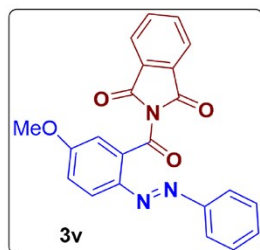
F2 - Acquisition Parameters
Date_    20250726
Time     19.18
INSTRUM  spect
PROBHD   5 mm PABBO BB/
PULPROG  zgpg30
TD       32768
SOLVENT  CDCl3
NS       230
DS       2
SWH      24038.461 Hz
FIDRES   0.733596 Hz
AQ       0.6815744 sec
RG       186.42
DW       20.800 usec
DE       6.50 usec
TE       292.0 K
D1       2.0000000 sec
D11      0.0300000 sec
TD0      1

===== CHANNEL f1 =====
SFO1     100.6278588 MHz
NUC1     13C
P1       8.90 usec
PLW1     54.0000000 W

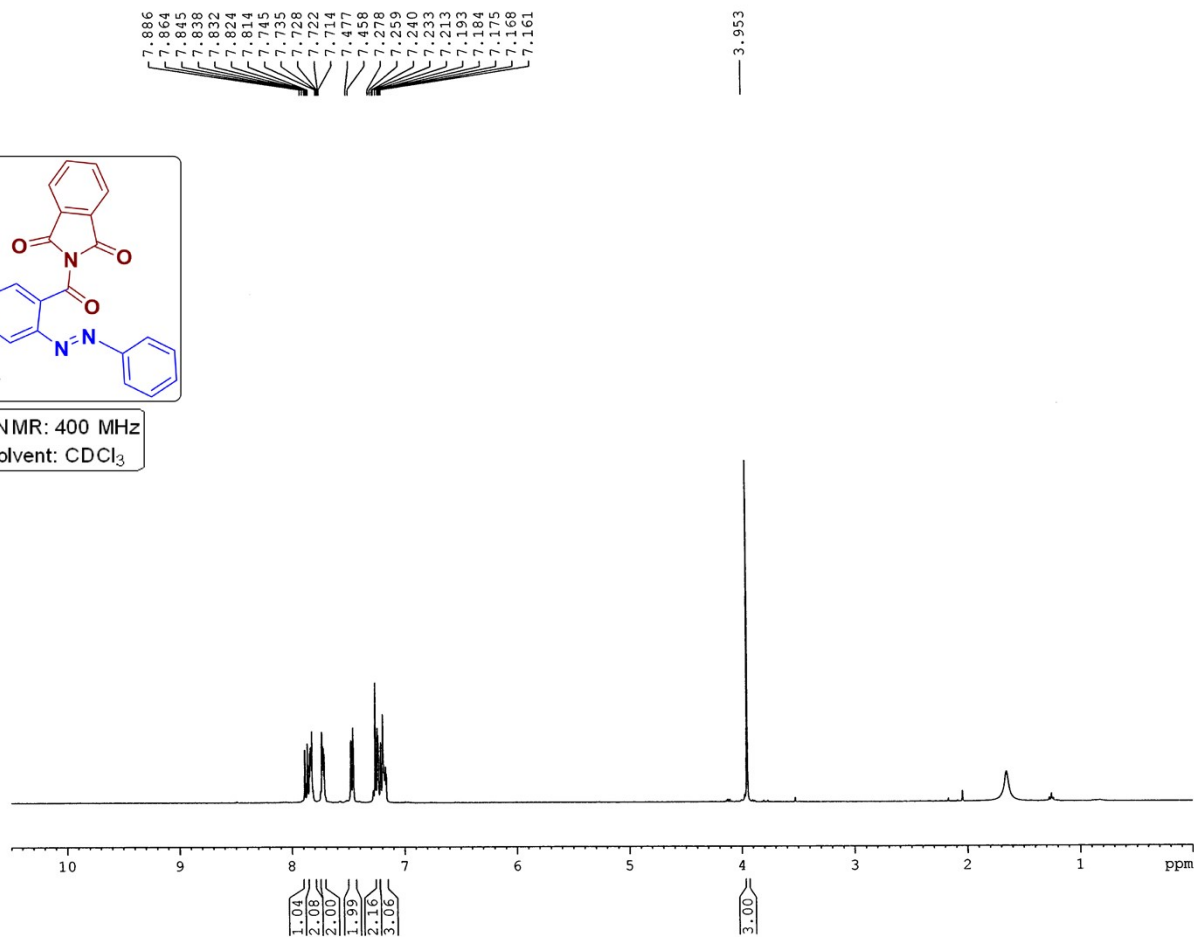
===== CHANNEL f2 =====
SFO2     400.1516006 MHz
NUC2     1H
CPDPRGf2  waltz16
PCPD2    90.00 usec
PLW2     12.0000000 W
PLW12    0.3223100 W
PLW13    0.1621200 W

F2 - Processing parameters
SI       16384
SF       100.6177889 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40

```



¹H NMR: 400 MHz
Solvent: CDCl₃

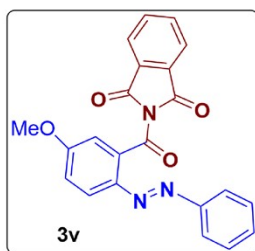


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 465
PROCNO 1

F2 - Acquisition Parameters
Date_ 20250802
Time_ 10.53
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 168.31
DW 60.800 usec
DE 6.50 usec
TE 292.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SF01 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500098 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

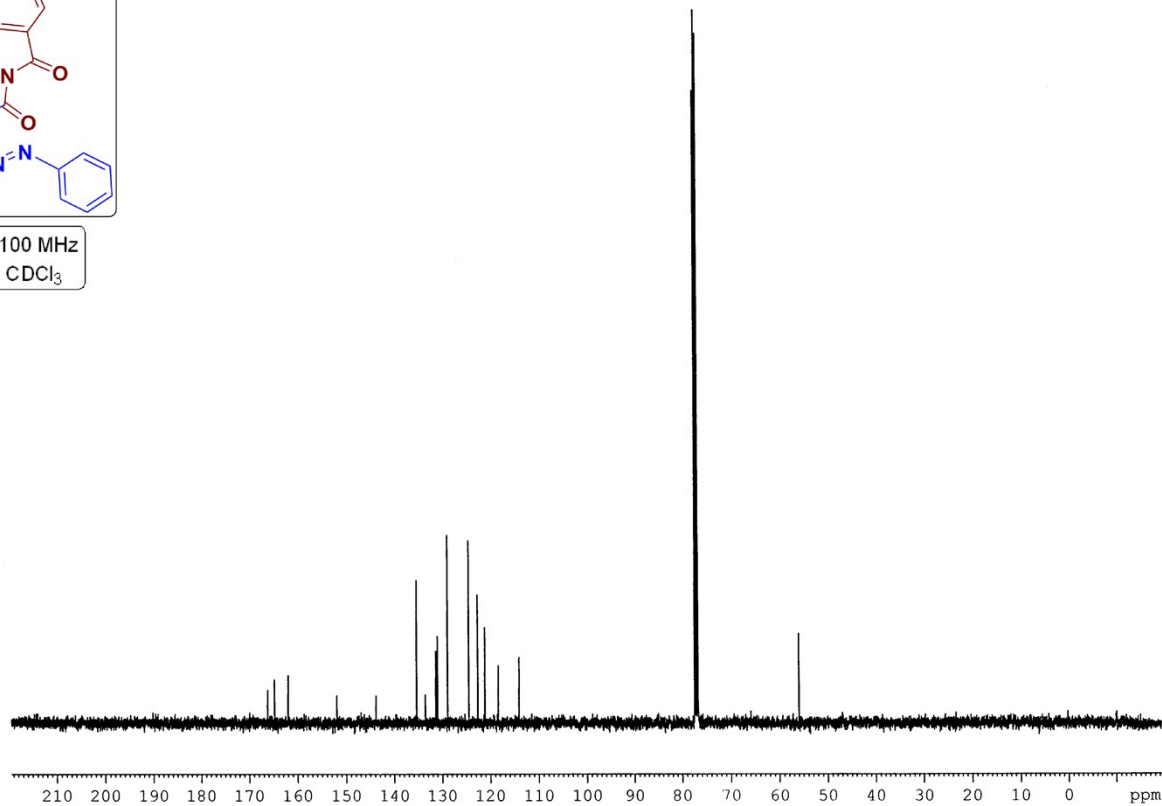


¹³C NMR : 100 MHz
Solvent: CDCl₃

166.29
164.88
162.05
152.04
143.89
135.42
133.62
131.38
131.05
128.93
124.50
122.65
121.19
118.44
114.11

77.47
77.15
76.83

56.04



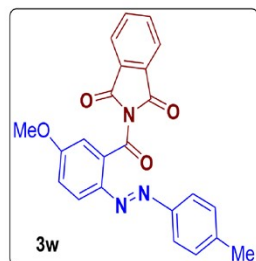
Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 268
PROCNO 1

F2 - Acquisition Parameters
Date 20250802
Time 11.10
INSTRUM spect
PROBHD 5 mm PABBO BB/
FULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 260
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 292.3 K
D1 2.0000000 sec
D11 0.03000000 sec
TDO 1

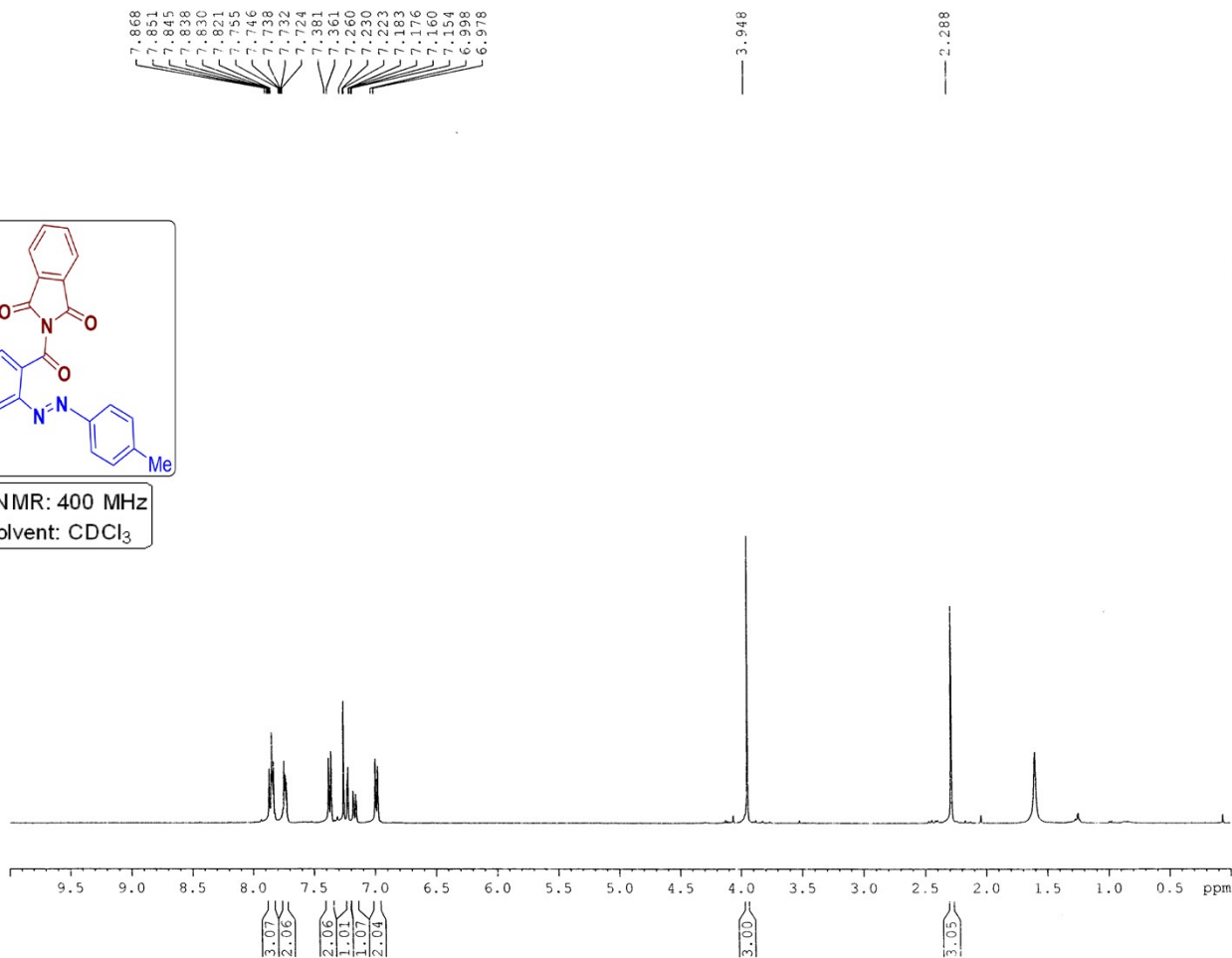
===== CHANNEL f1 =====
SFO1 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W

===== CHANNEL f2 =====
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG2 waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177873 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃

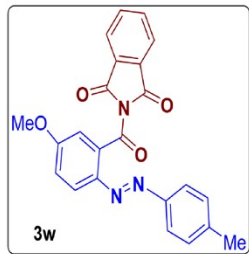


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 139
PROCNO 1

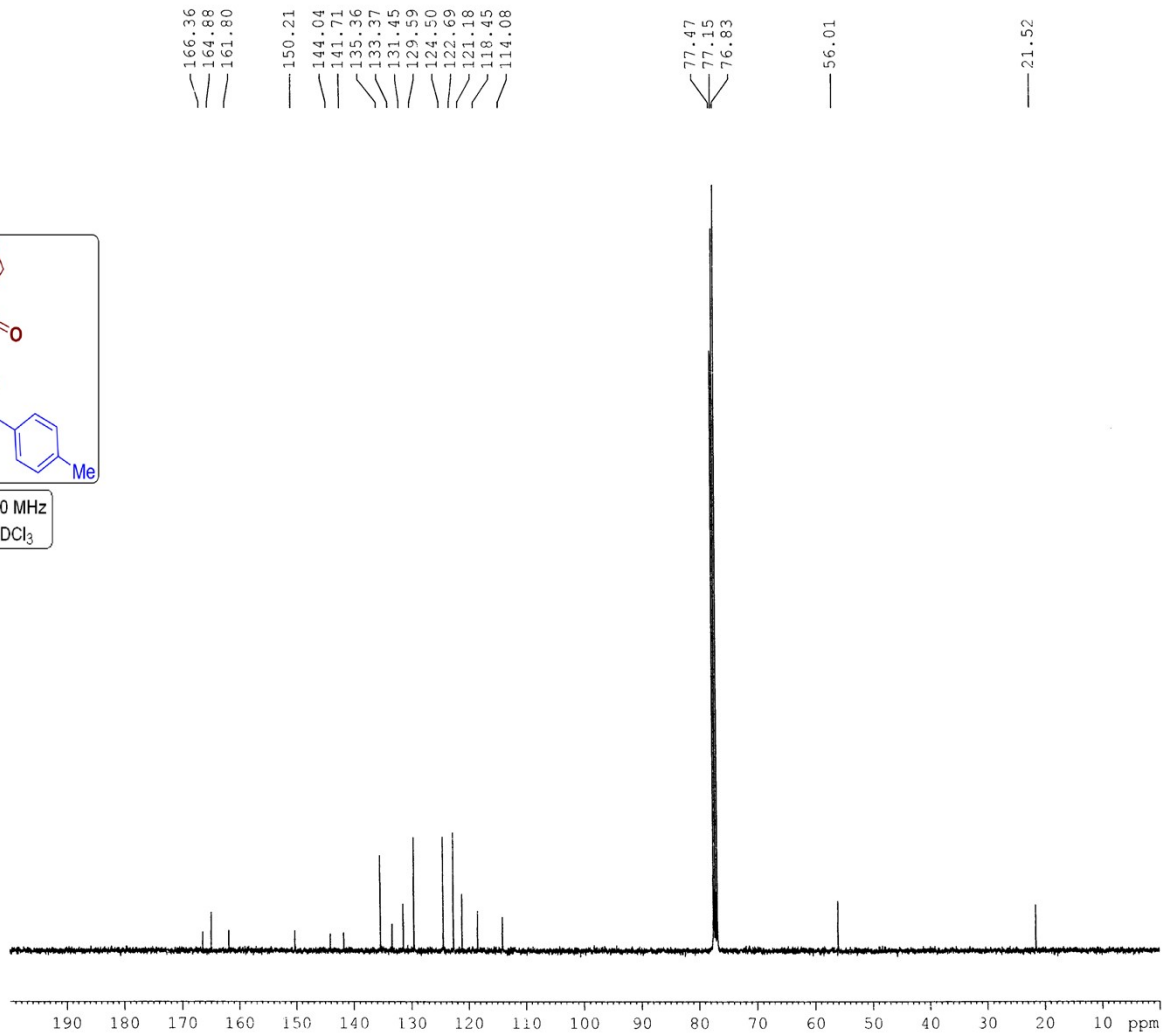
F2 - Acquisition Parameters
Date_ 20250225
Time 11.14
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 186.42
DW 60.800 usec
DE 6.50 usec
TE 295.0 K
D1 1.00000000 sec
TDO 1

==== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500097 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



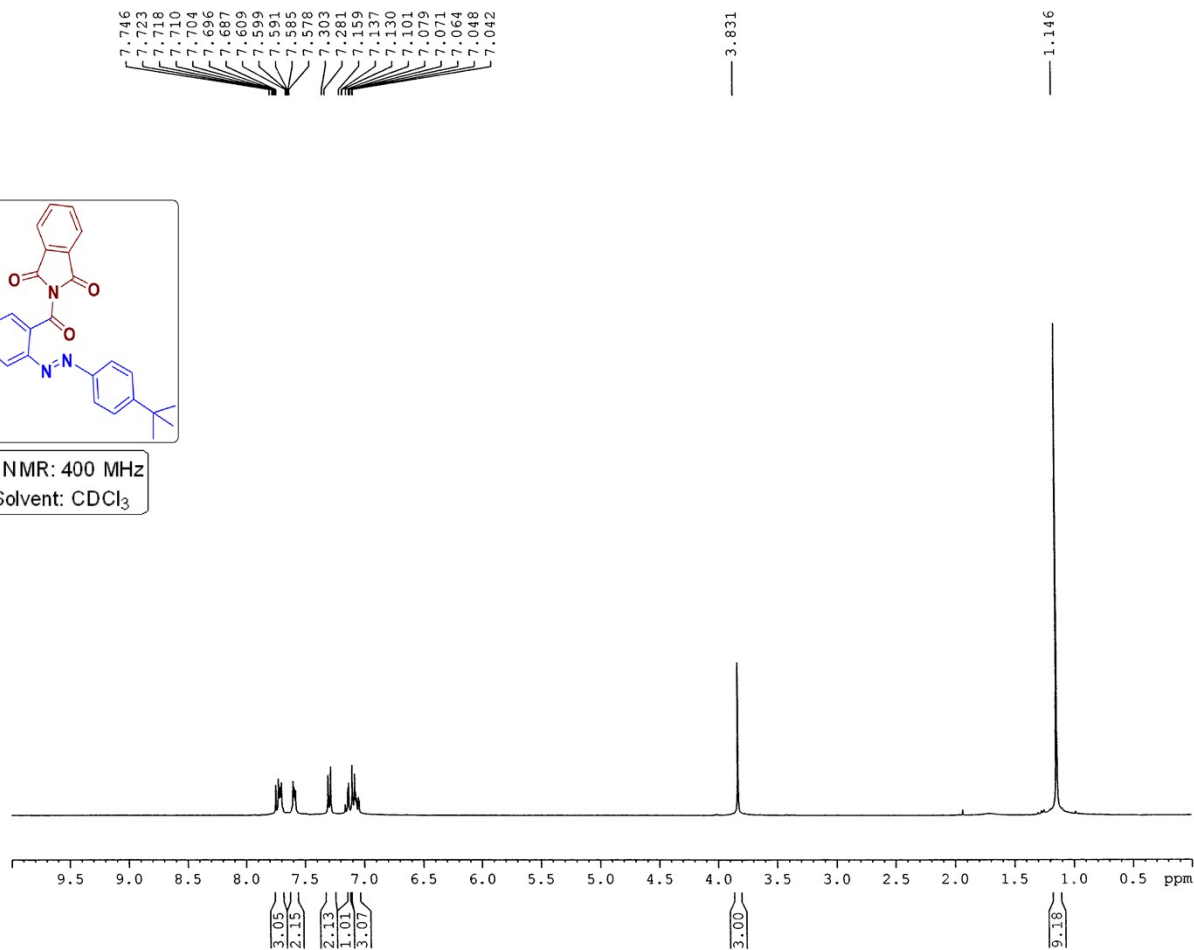
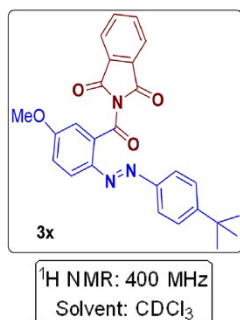
Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 110
PROCNO 1

F2 - Acquisition Parameters
Date_ 20250725
Time 12.31
INSTRUM spect
PROBHD 5 mm PABRO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 1405
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 294.8 K
D1 2.00000000 sec
D11 0.03000000 sec
TDO 1

===== CHANNEL f1 =====
SFO1 100.6278582 MHz
NUC1 13C
P1 6.90 usec
PLW1 54.00000000 W

===== CHANNEL f2 =====
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG12 waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32210000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177658 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

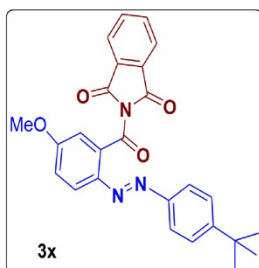


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 393
PROCNO 1

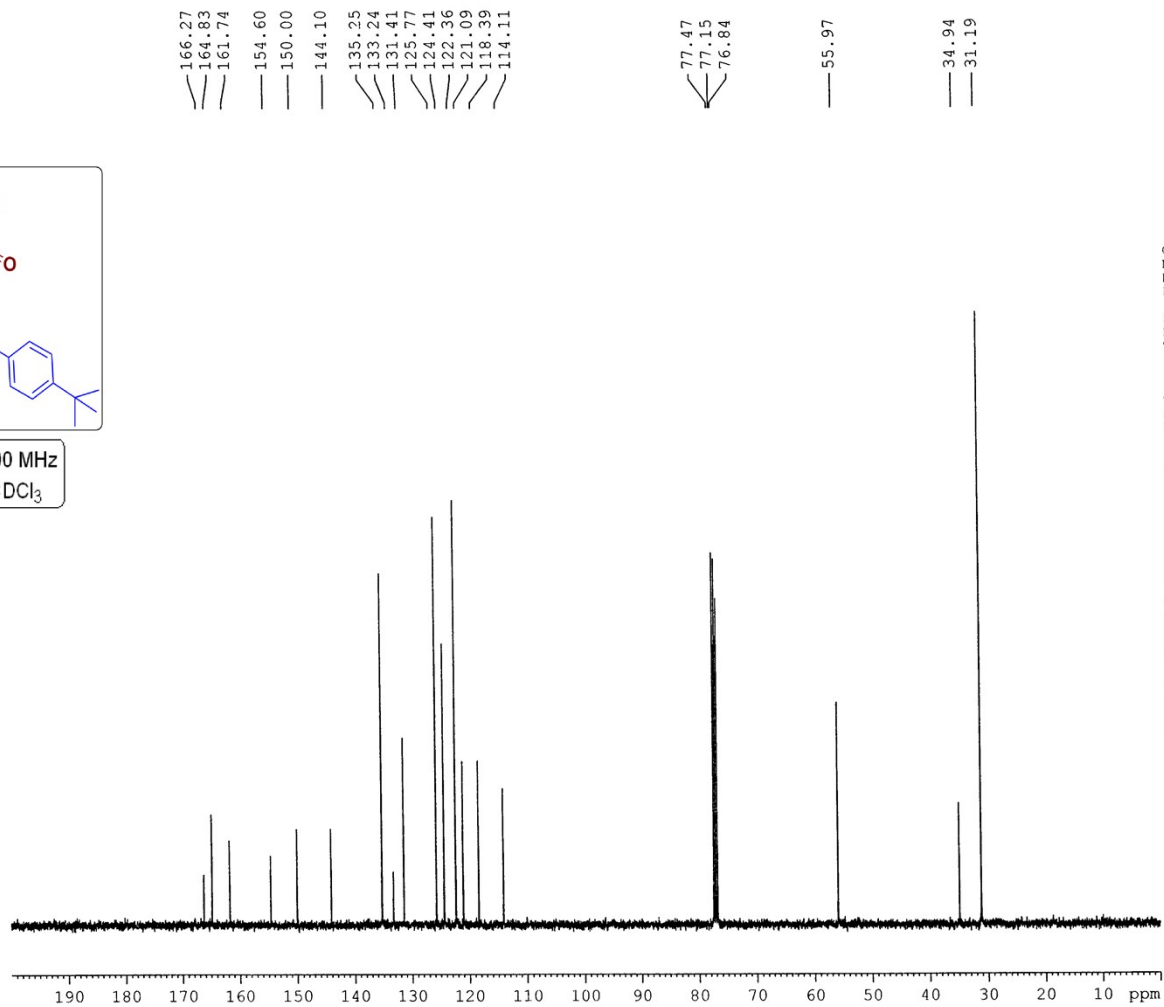
F2 - Acquisition Parameters
Date_ 20250714
Time_ 10.45
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 47.25
DW 60.800 usec
DE 6.50 usec
TE 296.4 K
D1 1.0000000 sec
TD0 1

===== CHANNEL f1 =====
SF01 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.0000000 W

F2 - Processing parameters
SI 16384
SF 400.1500496 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



```

Current Data Parameters
NAME      Dr. A HAJRA-2025-13C
EXPNO    223
PROCNO    1

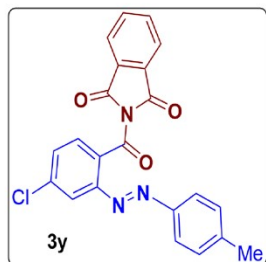
F2 - Acquisition Parameters
Date_     20250714
Time      10.58
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zgpg30
TD        32768
SOLVENT   CDCl3
NS        110
DS        2
SWH       24038.461 Hz
FIDRES    0.733596 Hz
AQ        0.6815744 sec
RG        186.42
DW        20.800 usec
DE        6.50 usec
TE        296.6 K
D1        2.00000000 sec
D11       0.03000000 sec
TD0       1

----- CHANNEL f1 -----
SFO1      100.6278588 MHz
NUC1      13C
P1        8.90 usec
PLW1      54.00000000 W

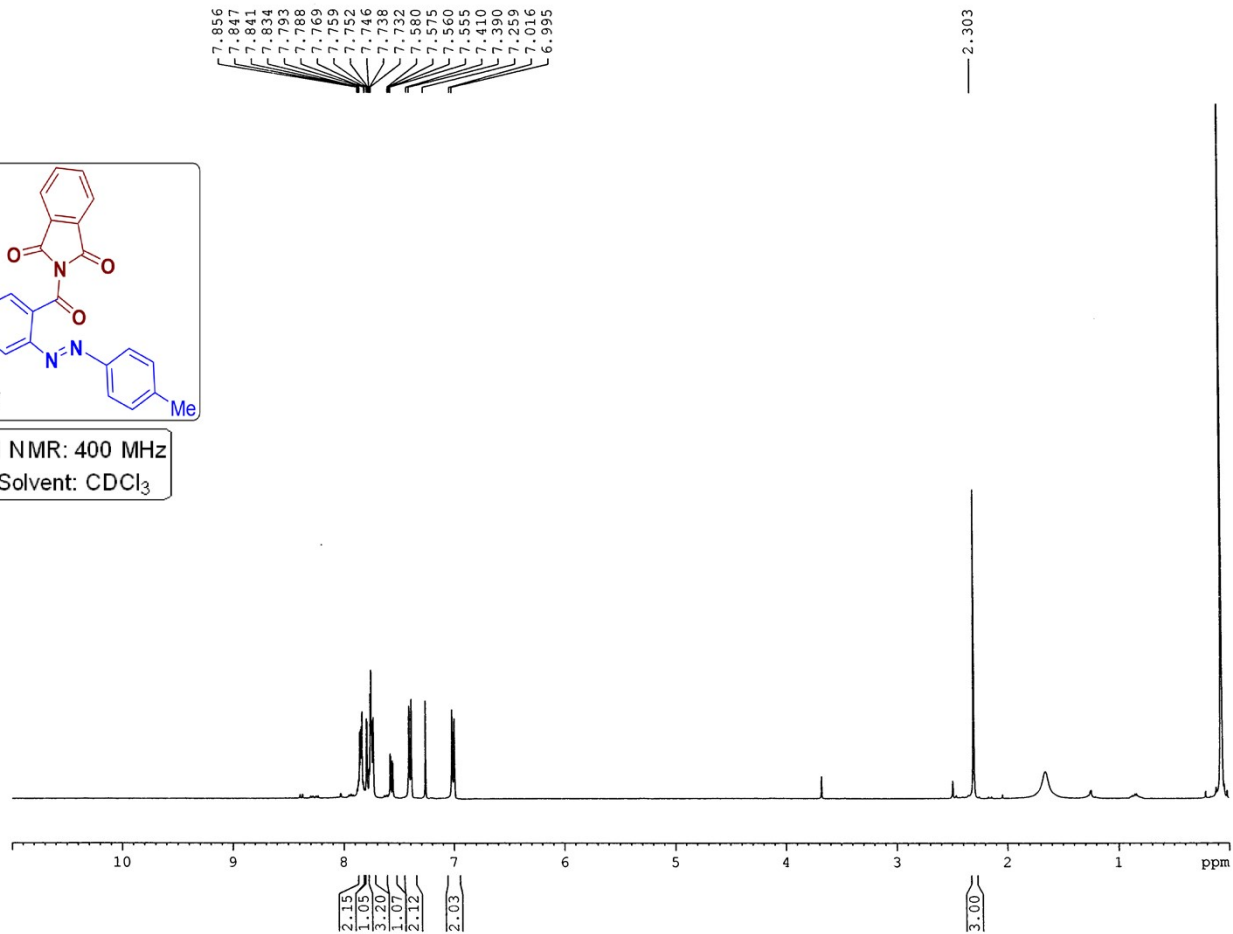
----- CHANNEL f2 -----
SFO2      400.1516006 MHz
NUC2      1H
CPDPRG2   waltz16
PCPD2     90.00 usec
PLW2      12.00000000 W
PLW12     0.32231000 W
PLW13     0.16212000 W

F2 - Processing parameters
SI        16384
SF        100.6177916 MHz
WDW       EM
SSB       0
LB        1.00 Hz
GB        0
PC        1.40

```



¹H NMR: 400 MHz
Solvent: CDCl₃

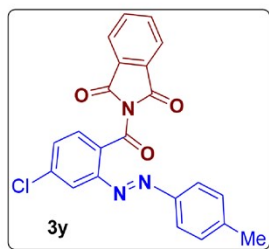


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 406
PROCNO 1

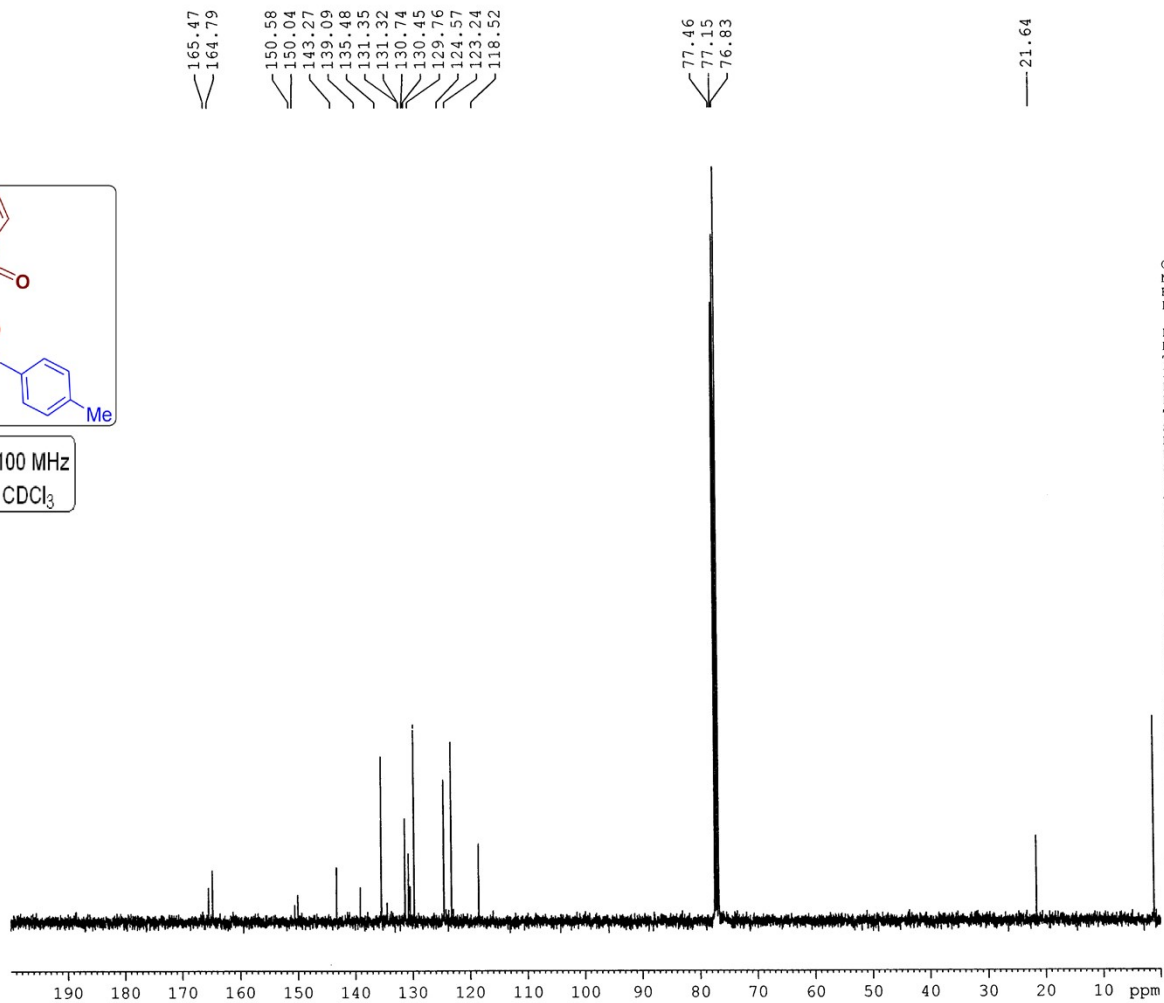
F2 - Acquisition Parameters
Date_ 20250718
Time_ 12.23
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 135.7
DW 60.800 usec
DE 6.50 usec
TE 292.2 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500100 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



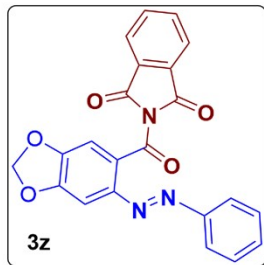
Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 235
PROCNO 1

F2 - Acquisition Parameters
Date_ 20250718
Time 12.46
INSTRUM spect
PROBHD 5 mm FAPBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 360
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 292.6 K
D1 2.00000000 sec
D11 0.02000000 sec
TDO 1

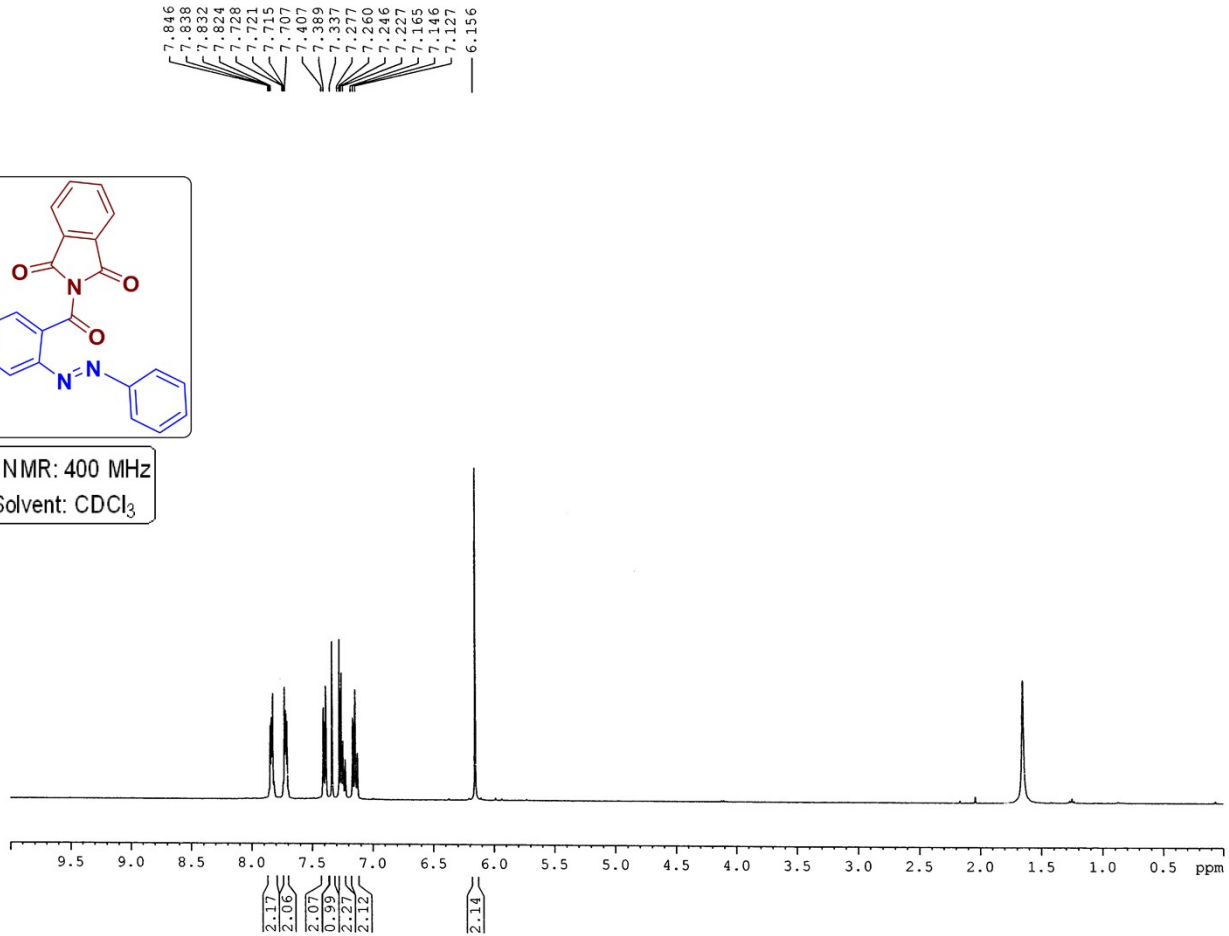
----- CHANNEL f1 -----
SFO1 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W

----- CHANNEL f2 -----
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177874 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃

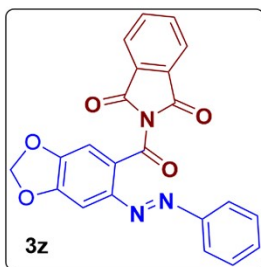


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 418
PROCNO 1

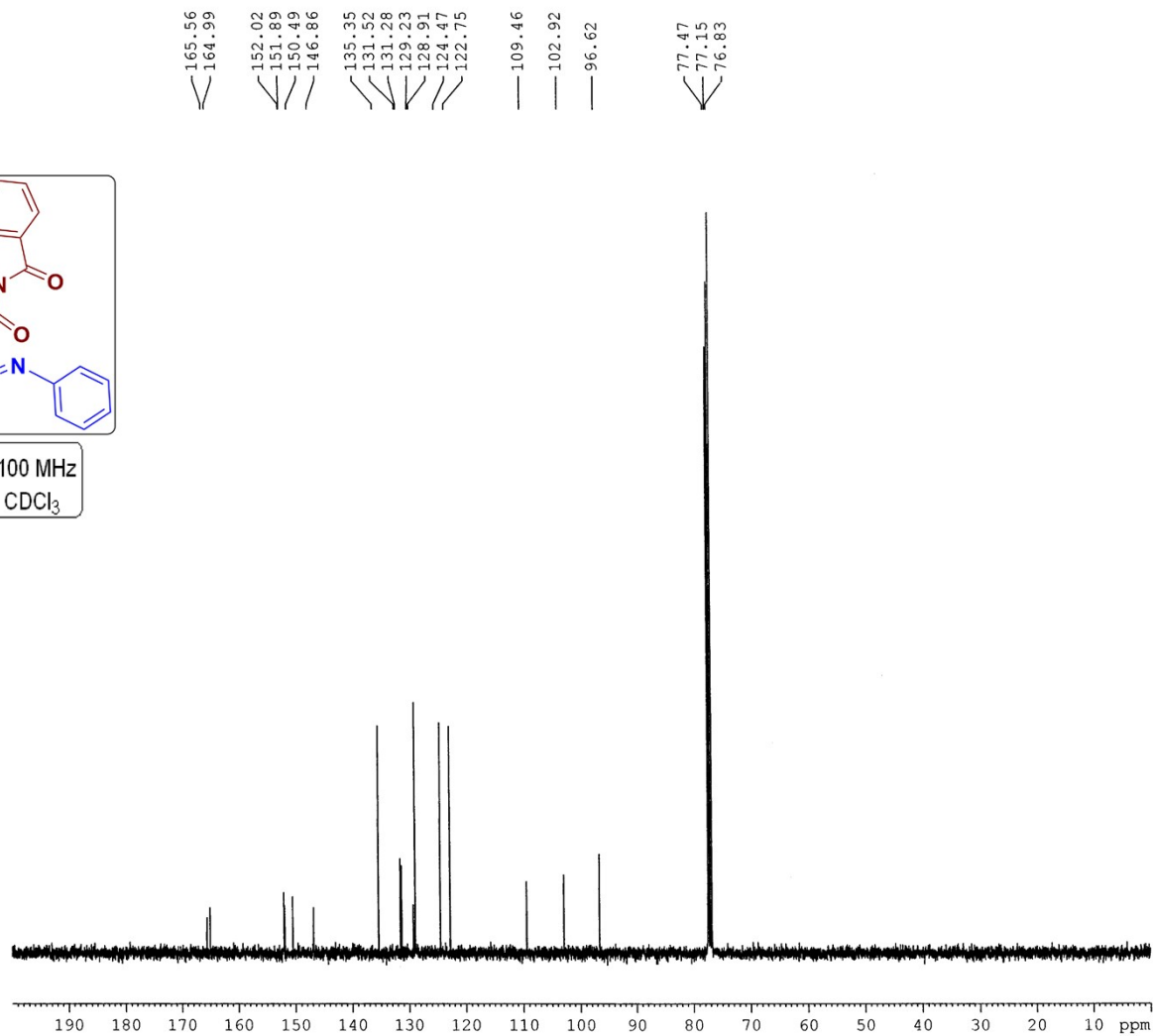
F2 - Acquisition Parameters
Date_ 20250720
Time_ 12.17
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 186.42
DW 60.800 usec
DE 6.50 usec
TE 293.1 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500097 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



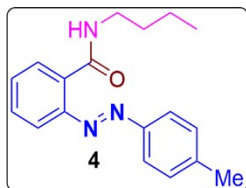
Current Data Parameters
NAME Dr. A HARA-2025-13C
EXNO 244
PROCNO 1

F2 - Acquisition Parameters
Date_ 20250720
Time 12.36
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 310
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 293.3 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

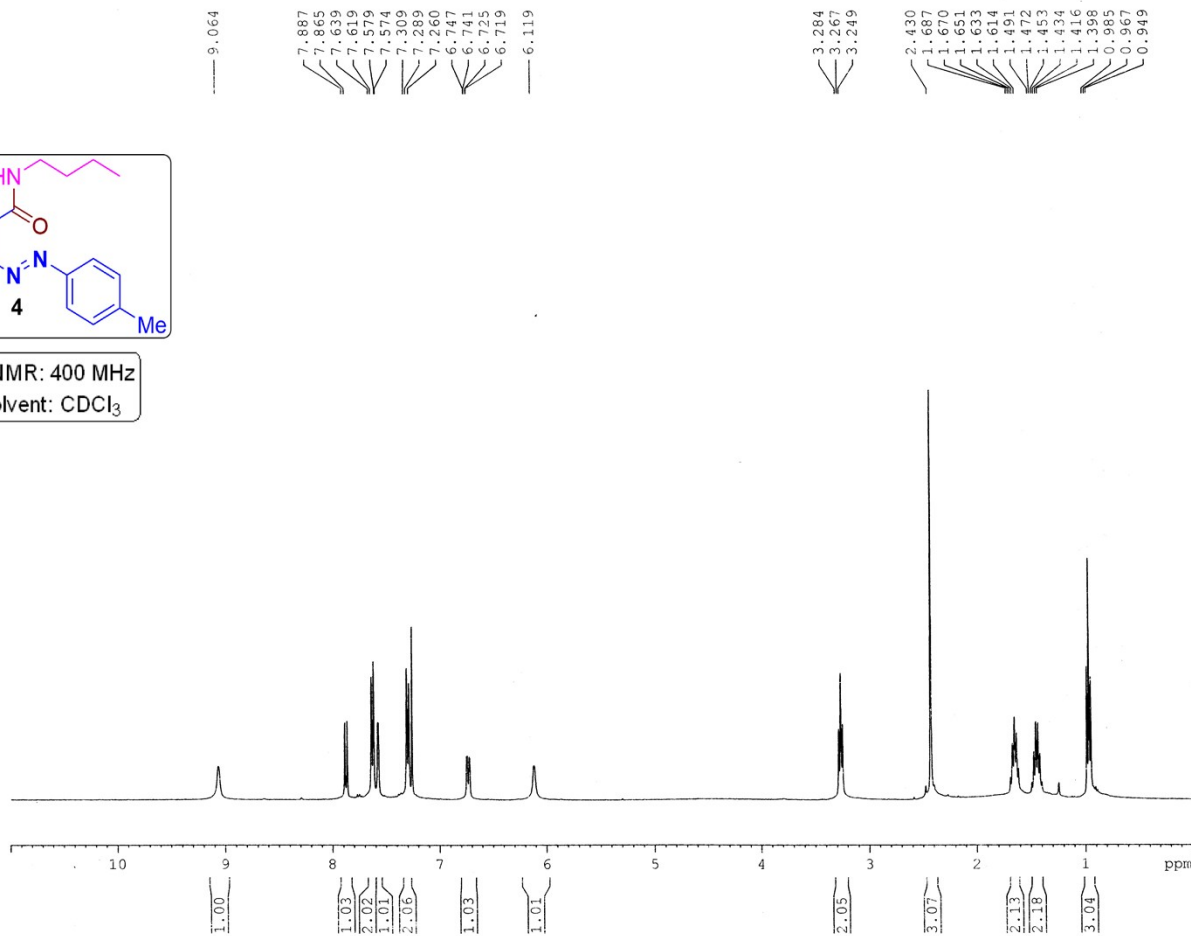
===== CHANNEL f1 =====
SFO1 100.6278588 MHz
NUC1 13C
F1 8.90 usec
PLW1 54.00000000 W

===== CHANNEL f2 =====
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177871 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃

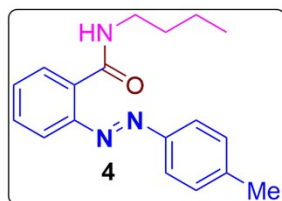


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 773
PROCNO 1

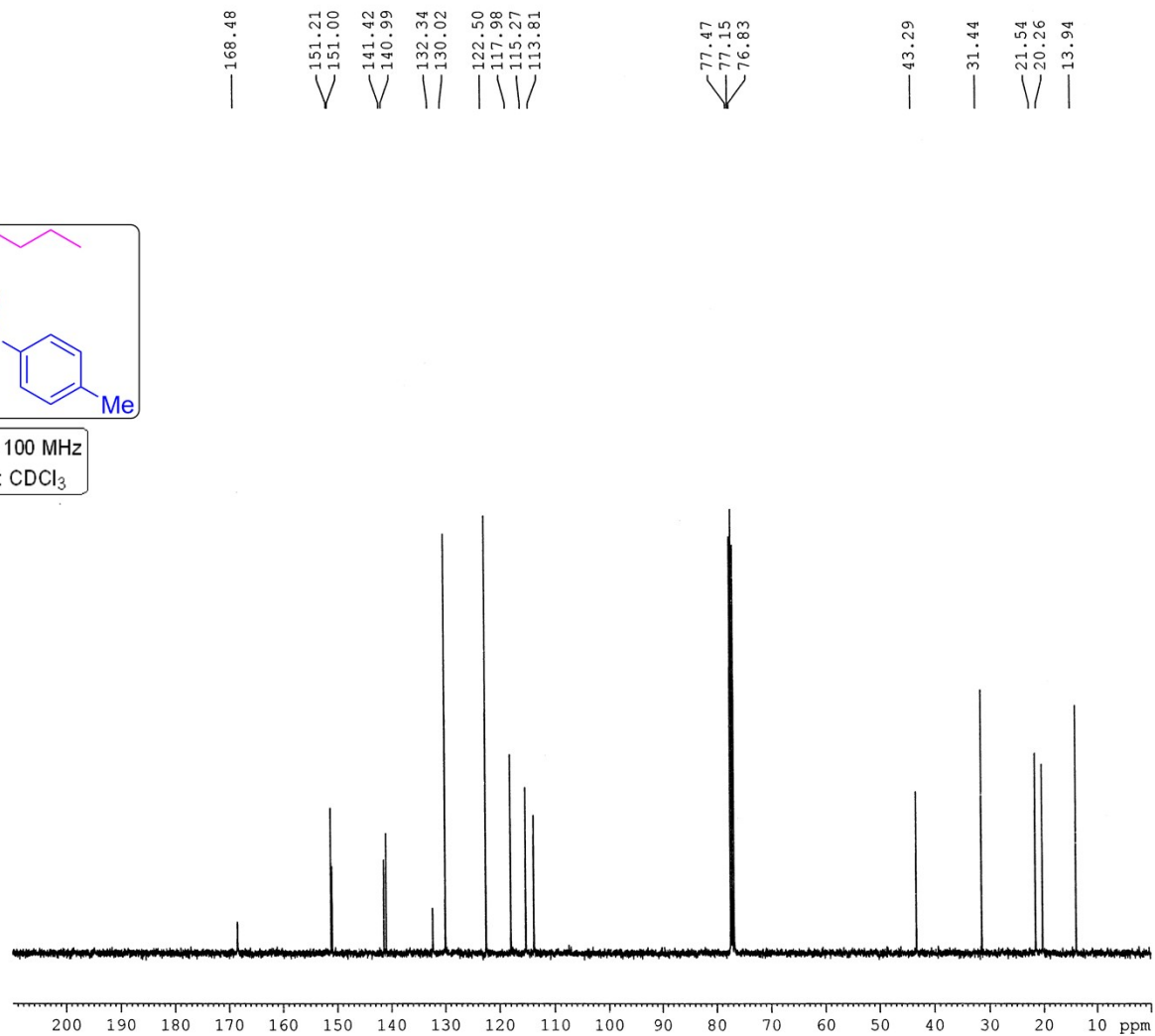
F2 - Acquisition Parameters
Date_ 20251230
Time 17.32
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl₃
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 186.42
DW 60.800 usec
DE 6.50 usec
TE 287.3 K
D1 1.00000000 sec
TDO 1

===== CHANNEL f1 =====
SF01 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500097 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



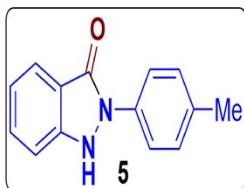
Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 300
PROCNO 1

F2 - Acquisition Parameters
Date_ 20250826
Time 19.54
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 200
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 291.3 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

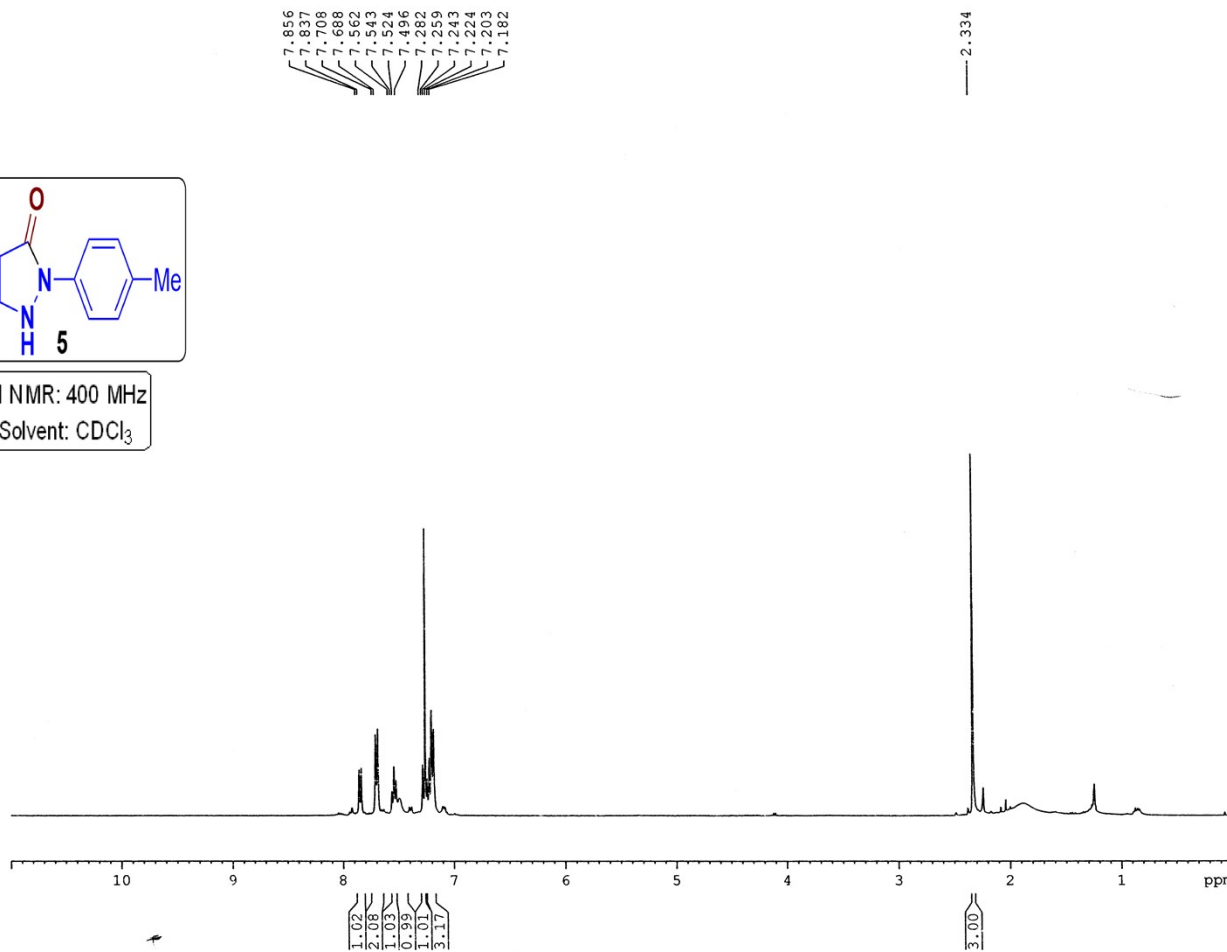
----- CHANNEL f1 -----
SFO1 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W

----- CHANNEL f2 -----
SFO2 400.1516006 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177931 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃

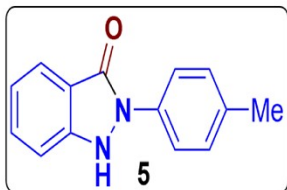


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 645
PROCNO 1

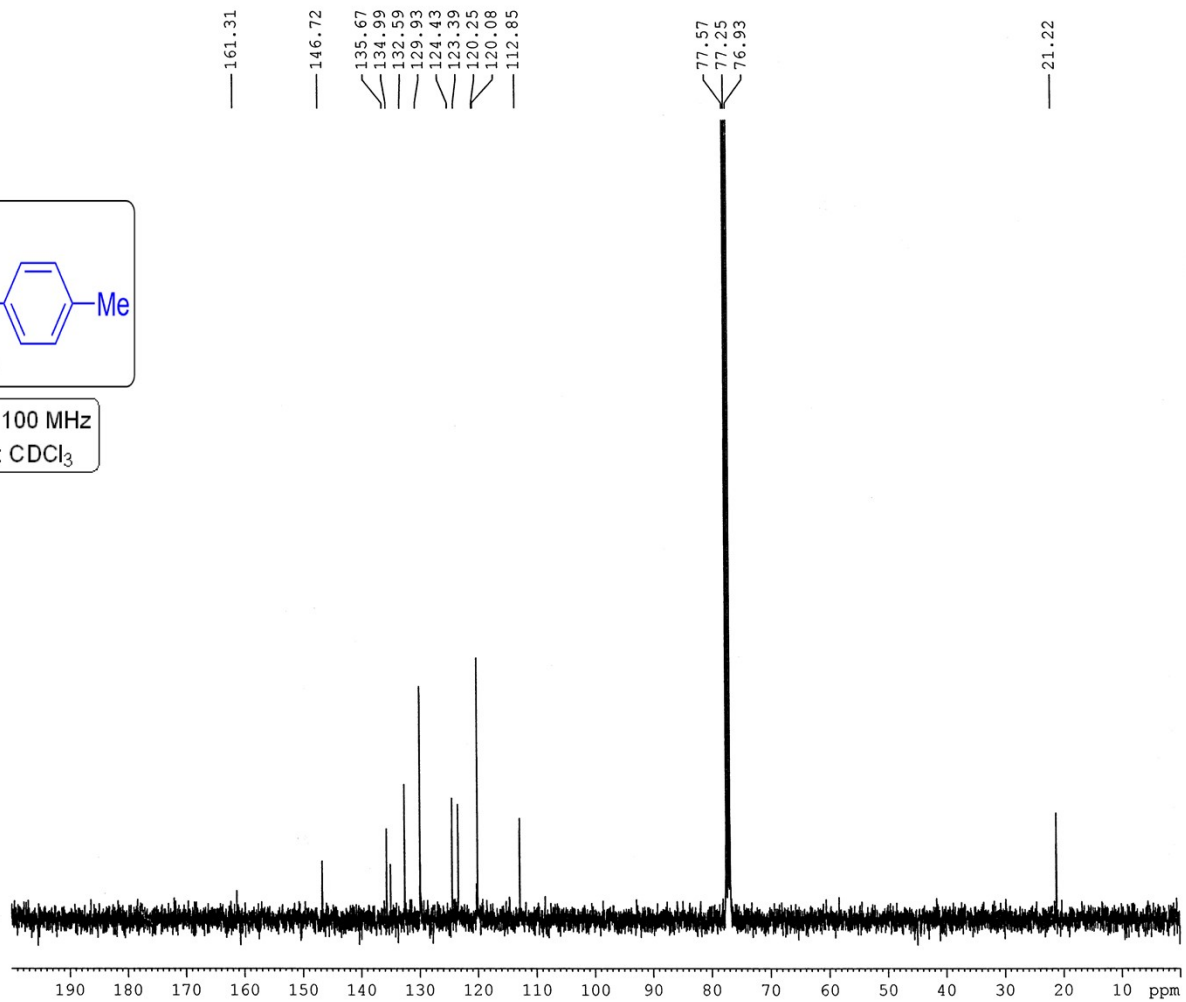
F2 - Acquisition Parameters
Date_ 20251102
Time 11.12
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 186.42
DW 60.800 usec
DE 6.50 usec
TE 291.3 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500098 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



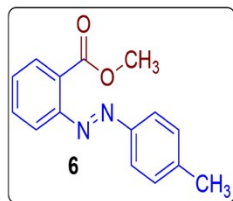
Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 374
PROCNO 1

F2 - Acquisition Parameters
Date_ 20251102
Time 11.54
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 825
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 291.4 K
D1 2.0000000 sec
D11 0.0300000 sec
TDO 1

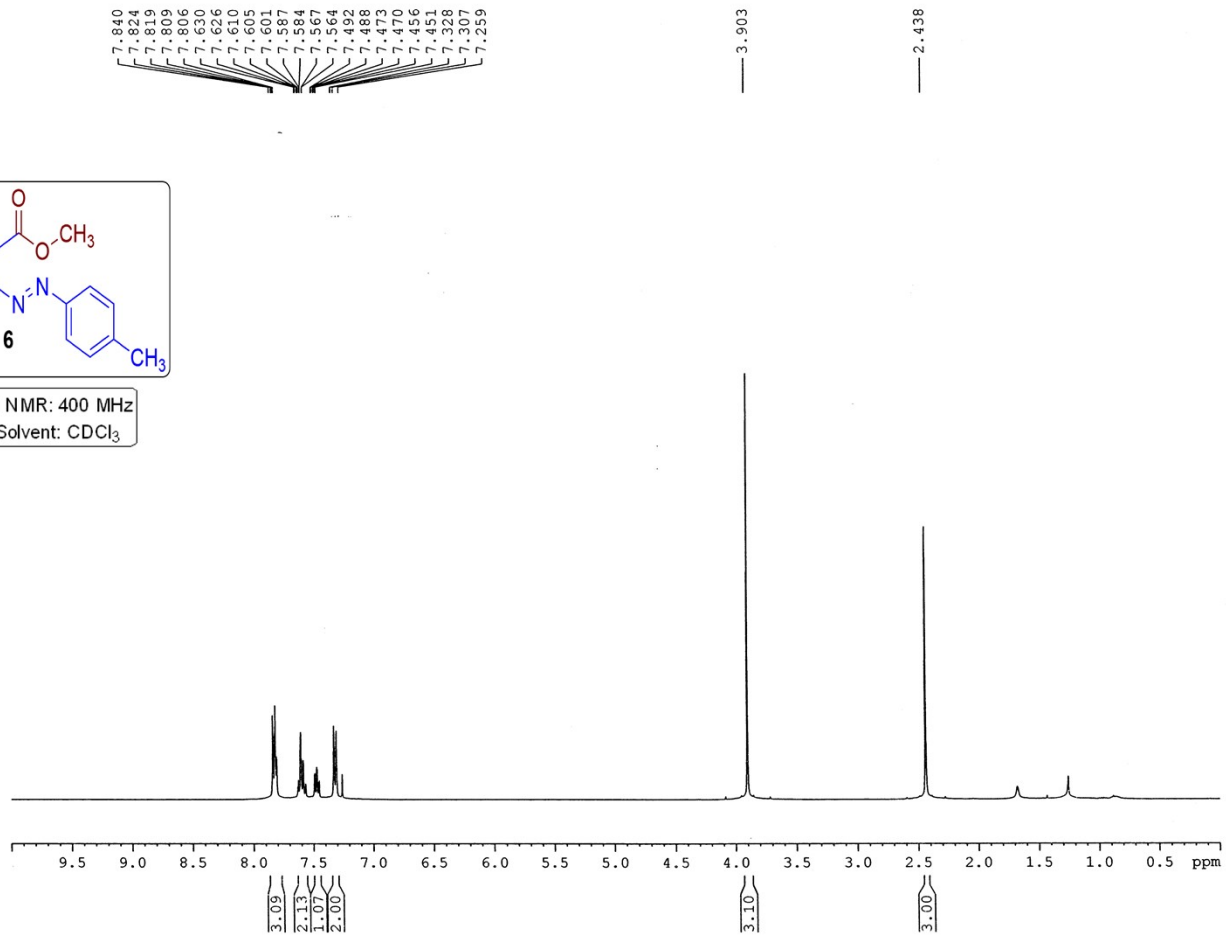
----- CHANNEL f1 -----
SFO1 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W

----- CHANNEL f2 -----
SFO2 400.1516006 MHz
NUC2 1H
CFDPRG[2] waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177773 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
FC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃

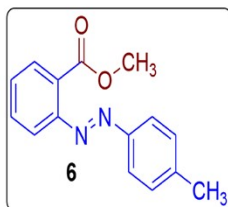


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 656
PROCNO 1

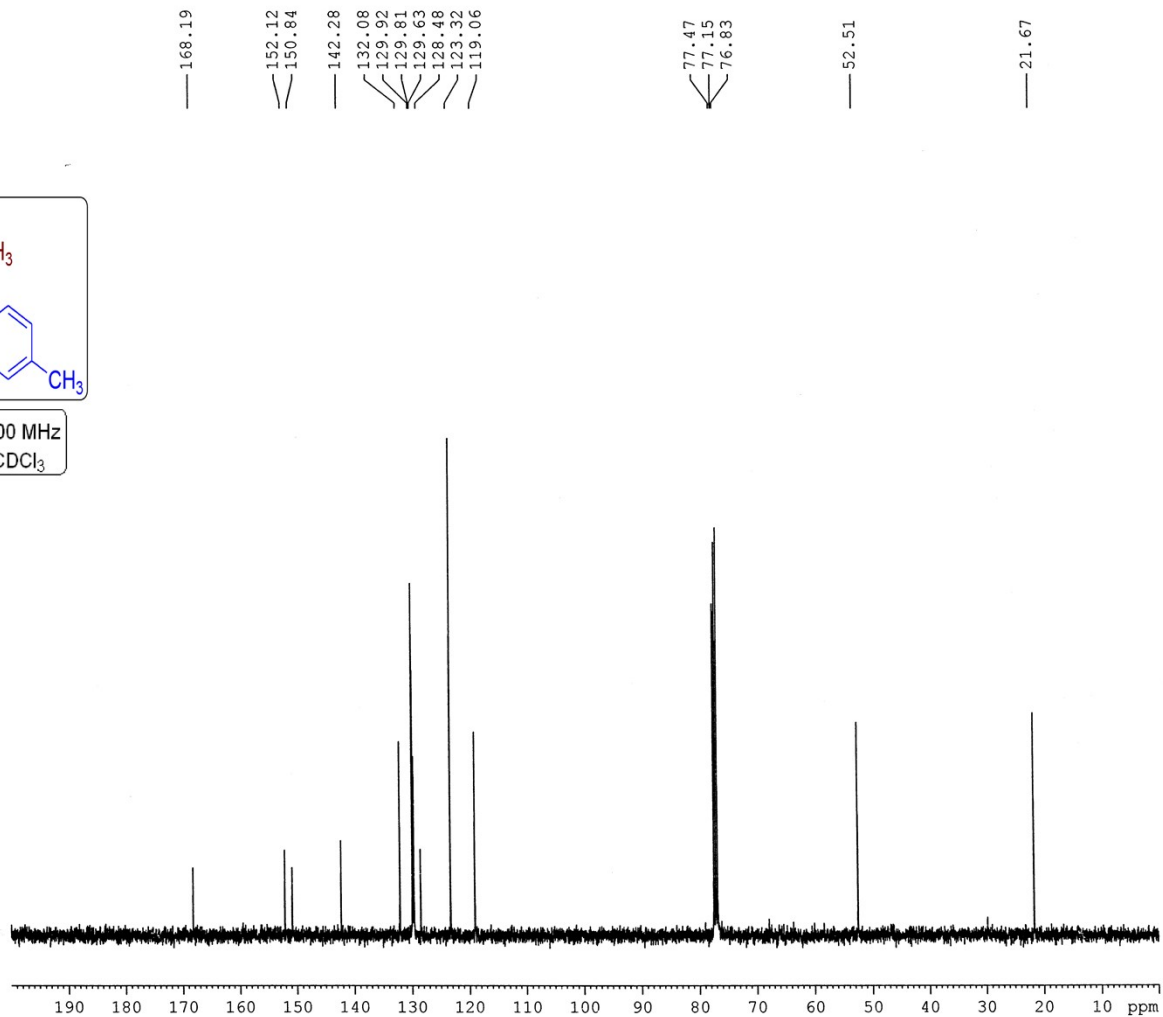
F2 - Acquisition Parameters
Date_ 20251106
Time 10.16
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 87.65
DW 60.800 usec
DE 6.50 usec
TE 291.8 K
D1 1.00000000 sec
TDO 1

===== CHANNEL f1 =====
SF01 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500097 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



^{13}C NMR : 100 MHz
Solvent: CDCl_3



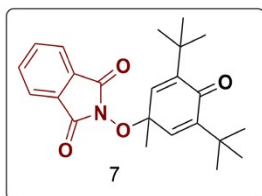
Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 379
PROCNO 1

F2 - Acquisition Parameters
Date_ 20251106
Time 10.24
INSTRUM spect
PROBHD 5 mm FAPBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl_3
NS 90
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 291.9 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

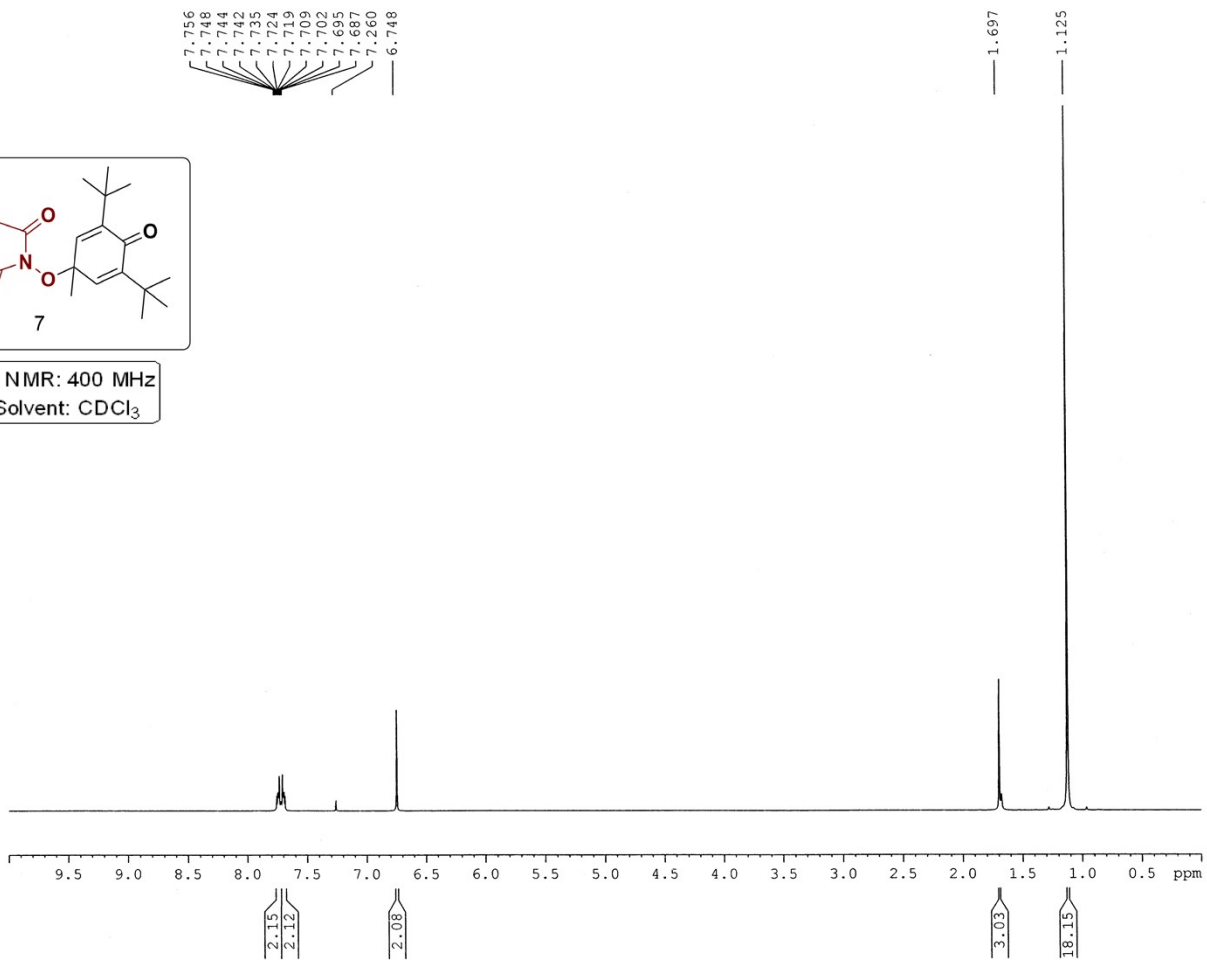
===== CHANNEL f1 =====
SFO1 100.6278585 MHz
NUC1 ^{13}C
P1 8.90 usec
PLW1 54.00000000 W

===== CHANNEL f2 =====
SFO2 400.1516006 MHz
NUC2 ^1H
CPCPRG[2] waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177901 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H NMR: 400 MHz
Solvent: CDCl₃

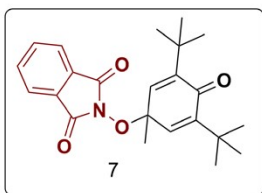


Current Data Parameters
NAME Dr. A HAJRA 2025 1H
EXPNO 544
PROCNO 1

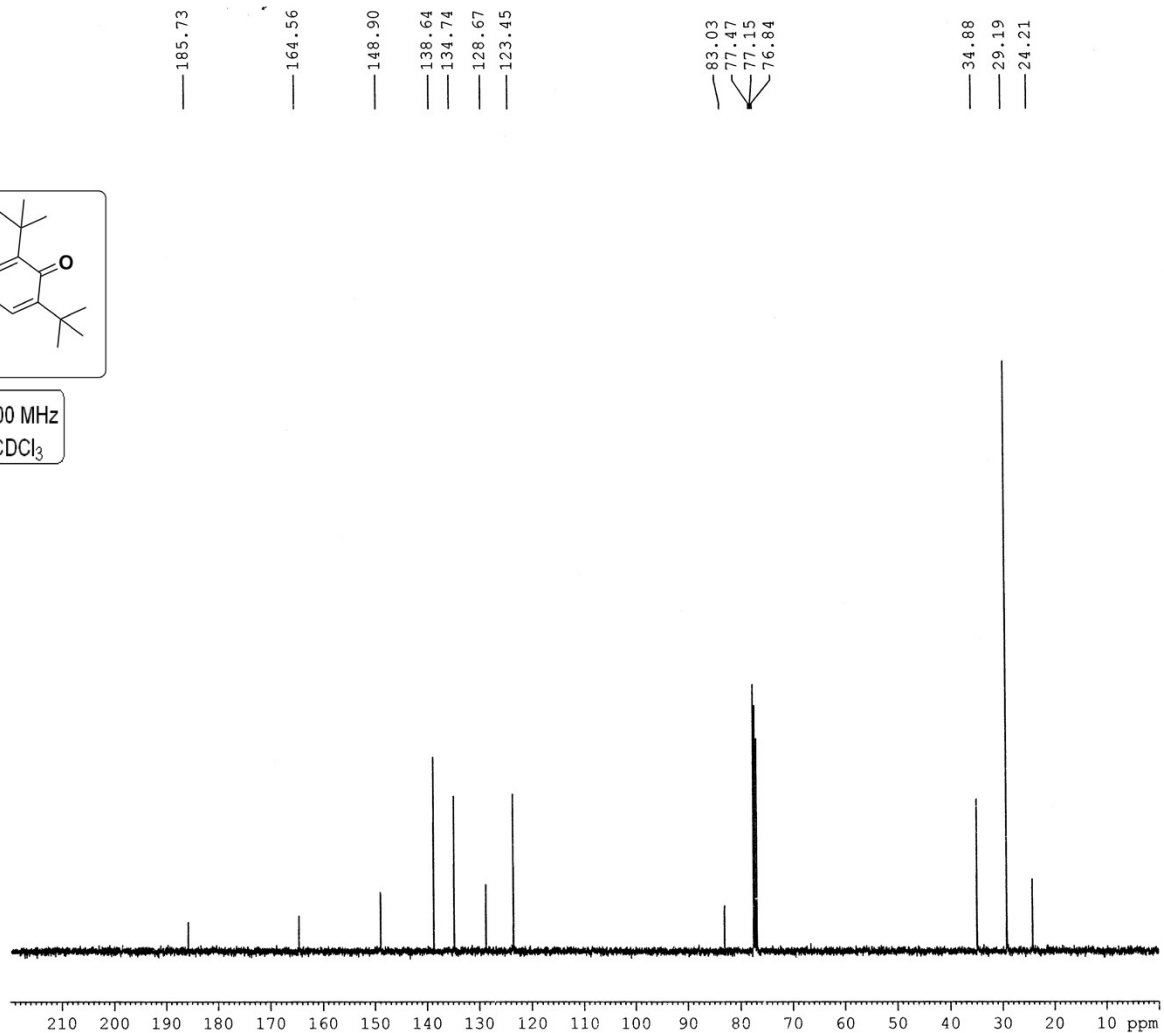
F2 - Acquisition Parameters
Date_ 20250910
Time 10.05
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9922944 sec
RG 62.69
DW 60.800 usec
DE 6.50 usec
TE 293.9 K
D1 1.0000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 400.1524711 MHz
NUC1 1H
P1 14.75 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 16384
SF 400.1500095 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



¹³C NMR : 100 MHz
Solvent: CDCl₃



Current Data Parameters
NAME Dr. A HAJRA-2025-13C
EXPNO 311
PROCNO 1

F2 - Acquisition Parameters
Date_ 20250910
Time 10.14
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 80
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6815744 sec
RG 186.42
DW 20.800 usec
DE 6.50 usec
TE 294.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 100.6278588 MHz
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W

===== CHANNEL f2 =====
SFO2 400.1516006 MHz
NUC2 1H
CFDPRG2 waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.32231000 W
PLW13 0.16212000 W

F2 - Processing parameters
SI 16384
SF 100.6177859 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40