SUPPORTING INFORMATION

Switching the regioselectivity in the copper-catalyzed synthesis of iodoimidazo[1,2-*a*]pyridines

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Content **Page No.**

General Information: ^{1}H NMR spectra were determined on a 400 MHz and 300 MHzspectrometers as solutions in $CDCl_3$. Chemical shifts are expressed in parts per million (δ) and are referenced to tetramethylsilane (TMS) as internal standard and the signals were reported as s (singlet), d (doublet), t (triplet), m (multiplet) and coupling constants *J* were given in Hz. ^{13}C NMR spectra were recorded at 100 MHz and 75 MHz in $CDCl_3$ solution. HRMS analysis was performed on a Q-TOF mass analyzer using the ESI ionization method. TLC was done on silica gel coated glass slide. Silica gel (60-120 mesh) was used for column chromatography.Petroleum ether refers to the fraction boiling in the range of 60-80°C unless otherwise mentioned. All solvents were dried and distilled before use. Commercially available substrates were freshly distilled before the reaction. All reactions involving moisture sensitive reactants were executed using oven dried glassware.

Typical experimental procedure for 3: A mixture of 2-aminopyridine (**1**, 0.2 mmol), alkyne (**2**, 0.2 mmol) and molecular iodine (0.2 mmol) were taken in an oven dried 10 mL round bottom flask in presence of $Cu(OAc)_2.H_2O$ (10 mol%) in 1,2-DCB (2 mL) and was stirred at 120 °C for 3 h under open atmosphere. After completion of the reaction (TLC) the reaction was cooled to room temperature and extracted with dichloromethane. 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 petroleum ether and ethyl acetate (15:1) as an eluting solvent to afford the pure product. 2-Iodo-3-phenylimidazo[1,2-*a*]pyridine[1](**3aa**): White solid (52 mg, 82%), mp: 139-141 ^{o}C; ^{1}H NMR ($CDCl_3$, 400 MHz): δ 7.96 (d, *J* = 6.8 Hz, 1H), 7.51-7.37 (m, 6H), 7.10-7.06 (m, 1H), 6.66-6.63 (m, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 146.7, 129.9, 129.1, 129.0, 128.2, 126.8, 124.8, 123.0, 117.0, 112.7, 93.6; HRMS calcd for $C_{13}H_{10}IN_2$ $[M+H]^+$: 320.9889; found $[M+H]^+$: 320.9897.

Characterization data for the synthesized products:

2-Iodo-3-phenylimidazo[1,2-*a*]pyridine (3aa):[1] White solid (52 mg, 82%),mp: 139-141 ^{o}C; ^{1}H NMR ($CDCl_3$, 400 MHz): δ 7.96 (d, *J* = 6.8 Hz, 1H), 7.51-7.37 (m, 6H), 7.10-7.06 (m, 1H), 6.66-6.63 (m, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 146.7, 129.9, 129.1, 129.0, 128.2,

126.8, 124.8, 123.0, 117.0, 112.7, 93.6; HRMS calcd for $C_{13}H_{10}IN_2$ $[M+H]^+$: 320.9889; found $[M+H]^+$: 320.9897.

2-Iodo-8-methyl-3-phenylimidazo[1,2-*a*]pyridine (3ba):[1] White solid (52 mg, 79%),mp: 145-147 ^oC; ^1H NMR ($CDCl_3$, 400 MHz): δ7.80 (d, J = 6.8 Hz, 1H), 7.42-7.33 (m, 5H), 6.86-6.84 (m, 1H), 6.55-6.51 (m, 1H), 2.52 (s, 3H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 147.3, 130.0, 129.1, 129.0, 128.5, 127.2, 126.9, 123.7, 121.0, 112.8, 93.0, 17.0.

2-Iodo-7-methyl-3-phenylimidazo[1,2-*a*]pyridine (3ca):[1] Viscous liquid (52 mg, 78%);^1H NMR ($CDCl_3$, 400 MHz): δ7.86 (d, J = 7.2 Hz, 1H), 7.47-7.42 (m, 4H), 7.40-7.36 (m, 1H), 7.19 (s, 1H), 6.50 - 6.48 (m, 1H), 2.31 (s, 3H);^{13}C NMR ($CDCl_3$, 100 MHz): δ 147.4, 136.1, 130.0, 129.2, 129.0, 128.6, 126.4, 122.4, 115.5, 115.4, 93.2, 21.3.

2-Iodo-5-methyl-3-phenylimidazo[1,2-*a*]pyridine (3da): White solid (52 mg, 78%), mp: 66-67^oC; ^1H NMR ($CDCl_3$,400 MHz): δ 7.42-7.29 (m, 6H), 7.01-6.97 (t, J = 7.6 Hz, 1H), 6.37 (d, J = 6.0 Hz, 1H), 1.97 (s, 3H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 147.9, 135.7, 132.5, 131.7, 129.2, 127.9, 127.7, 124.9, 115.1, 113.5, 97.3, 21.4; HRMS calcd for $C_{14}H_{12}IN_2$ $[M+H]^+$: 335.0045; found $[M+H]^+$: 335.0055.

6-Chloro-2-iodo-3-phenylimidazo[1,2-*a*]pyridine (3ea):[1] White solid (52 mg, 74%), mp: 149-151^oC; ^1H NMR ($CDCl_3$, 400 MHz): δ 7.98 (s, 1H), 7.50-7.41(m, 6H), 7.06-7.03 (m, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ145.1, 129.8, 129.4, 129.3, 128.7, 127.6, 126.2, 121.3, 120.8, 117.3, 94.3; HRMS calcd for $C_{13}H_9ClIN_2$ $[M+H]^+$: 354.9499; found $[M+H]^+$: 354.9507.

6-Bromo-2-iodo-3-phenylimidazo[1,2-*a*]pyridine (3fa): White solid (56 mg, 71%), mp: 166-168 ^oC; ^1H NMR ($CDCl_3$, 400 MHz): δ 8.08 (s, 1H), 7.51-7.42 (m, 6H), 7.18-7.14 (m, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 145.2, 129.9, 129.5, 129.3, 128.2, 127.6, 127.3, 123.1,

117.7, 107.9, 94.3; Anal. Calcd for $C_{13}H_8BrIN_2$: C, 39.13; H, 2.02; N, 7.02 %; Found C, 39.02; H, 1.95; N, 7.18%.

2-Iodo-3-(*p*-tolyl)imidazo[1,2-*a*]pyridine (3ab): Viscous Liquid (54 mg, 81%); ^{1}H NMR ($CDCl_3$, 400 MHz): δ 7.94 (d, J = 7.2 Hz, 1H), 7.49 (d, J = 9.2 Hz, 1H), 7.32 (d, J = 6.8 Hz, 2H), 7.25 (d, J = 7.6 Hz, 2H), 7.08-7.04 (m, 1H), 6.64-6.61 (m, 1H), 2.35 (s, 3H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 146.7, 139.1, 129.8, 126.9, 125.1, 124.6, 123.1, 116.9, 112.5, 93.5, 21.3; Anal. Calcd for $C_{14}H_{11}IN_2$: C, 50.32; H, 3.32; N, 8.38%; Found C, 50.22; H, 3.16; N, 8.20%.

2-Iodo-7-methyl-3-(*p*-tolyl)imidazo[1,2-*a*]pyridine (3cb): White solid (53 mg, 77%), mp: 78-79^{o}C;^{1}H NMR ($CDCl_3$, 400 MHz): δ 7.83 (d, J = 6.8 Hz, 1H), 7.31 (d, J = 8.0 Hz, 2H), 7.26 (d, J =7.6, 3H), 6.48 (d, J = 6.8 Hz, 1H), 2.36 (s, 3H), 2.30 (s, 3H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 147.4, 138.9, 135.9, 131.6, 129.8, 126.3, 125.3, 122.3,115.3, 115.3, 92.8, 21.4, 21.2; Anal. Calcd for $C_{15}H_{13}IN_2$: C, 51.74; H, 3.76; N, 8.05%; Found C, 51.66; H, 3.68; N, 7.90%.

2-Iodo-3-(4-nitrophenyl)imidazo[1,2-*a*]pyridine (3ac): White solid (59 mg, 81%), mp: 132-133^{o}C; ^{1}H NMR ($CDCl_3$, 400 MHz): δ8.32 (d, J = 8.8 Hz, 2H), 8.07 (d, J = 6.8 Hz, 1H), 7.71 (d, J = 8.8 Hz, 2H), 7.57 (d, J = 8.8 Hz, 1H), 7.22-7.18 (m, 1H), 6.79 (t, J = 6.8 Hz, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 147.4, 134.9, 130.3, 128.8, 125.9, 124.7, 124.4, 122.7, 117.4, 113.6, 95.1; HRMS calcd for $C_{13}H_9IN_3O_2$ $[M+H]^+$: 365.9739; found $[M+H]^+$: 365.9743.

2-Iodo-3-(thiophen-3-yl)imidazo[1,2-*a*]pyridine (3ad): White solid (48 mg, 74%),mp: 44-46^{o}C;^{1}H NMR ($CDCl_3$, 400 MHz): δ 7.98 (d, J = 6.8 Hz, 1H), 7.50-7.42 (m, 3H), 7.21 (d, J = 5.2 Hz, 1H), 7.07 (d, J = 7.2 Hz, 1H), 6.67 (d, J = 6.8 Hz, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz):δ146.6, 130.3, 127.8, 127.5, 126.6, 126.0, 124.8, 123.1, 116.7, 112.8, 93.5; HRMS calcd for $C_{11}H_8IN_2S$ $[M+H]^+$: 326.9453; found $[M+H]^+$: 326.9465.

3-Butyl-2-iodoimidazo[1,2-*a*]pyridine (3ae):[1] Viscous Liquid (47 mg, 78%); ^{1}H NMR ($CDCl_3$, 400 MHz): δ 7.85 (s, 1H), 7.49 (d, J = 7.6 Hz, 1H), 7.07 (d, J = 6.8 Hz, 1H), 6.75 (d, J = 5.6 Hz, 1H), 2.85 (d, J = 5.2 Hz, 2H), 1.54 (t, J = 6.8 Hz, 2H), 1.36 (t, J = 6.8 Hz, 2H), 0.92 (t, J = 7.2 Hz, 3H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ146.5, 127.7, 123.7, 122.7, 117.1, 112.4, 93.5, 29.4, 24.3, 22.4, 13.9; HRMS calcd for $C_{11}H_{14}IN_2$ $[M+H]^+$: 301.0202; found $[M+H]^+$: 301.0218

3-Hexyl-2-iodoimidazo[1,2-*a*]pyridine (3af):[1] Viscous liquid (48 mg, 74%); ^{1}H NMR ($CDCl_3$, 400 MHz): δ 7.81 (d, J = 6.8 Hz, 1H), 7.45 (d, J = 9.2 Hz, 1H), 7.02 (t, J = 8.8 Hz, 1H), 6.70 (t, J = 6.8 Hz, 1H), 2.80 (t, J = 7.6 Hz, 2H), 1.56-1.48 (m, 2H), 1.31-1.21 (m, 6H), 0.80 (t, J = 7.2 Hz, 3H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 146.4, 126.5, 123.6, 122.6, 117.0, 112.3, 93.4, 31.4, 28.8, 27.1, 24.4, 22.5, 14.0; HRMS calcd for $C_{13}H_{18}IN_2$ $[M+H]^+$: 329.0515; found $[M+H]^+$: 329.0525.

3-(2-Iodoimidazo[1,2-*a*]pyridin-3-yl)propyl benzoate (3ag): White solid (66 mg, 81%), mp: 65-66 ^{o}C;^{1}H NMR ($CDCl_3$, 400 MHz): δ 7.93-7.90 (d,J = 8.0 Hz, 2H), 7.84 (d, J = 6.8 Hz, 1H), 7.47 (t, J = 8.0 Hz, 2H), 7.35 (t, J = 7.6 Hz, 2H), 7.03 (t,J= 8.4 Hz, 1H), 6.70 (t,J = 6.8 Hz, 1H), 4.28 (t,J = 6.0 Hz, 2H), 3.01 (t, J= 7.2 Hz, 2H), 2.06-2.00 (m, 2H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 166.3, 146.5, 132.9, 129.8, 129.4, 128.3, 125.0, 124.0, 122.4, 117.0, 112.7, 93.4, 63.6, 26.4, 21.2; HRMS calcd for $C_{17}H_{16}IN_2O_2$ $[M+H]^+$: 407.0256; found $[M+H]^+$: 407.0274.

3-(Hept-6-yn-1-yl)-2-iodo-8-methylimidazo[1,2-*a*]pyridine (3bh): Viscous Liquid (53 mg, 78%); ^{1}H NMR ($CDCl_3$, 400 MHz): δ 7.79 (d, J = 7.2 Hz, 1H), 6.95-6.93 (m, 1H), 6.81 (s, 1H), 6.75-6.72 (m, 1H), 2.93-2.88 (m, 2H), 2.59 (s, 3H), 2.59-2.49 (m, 2H), 1.68-1.61 (m, 2H), 1.57 (t, J = 7.6 Hz, 2H), 1.47-1.41 (m, 2H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ147.0, 127.1,

126.8, 123.2, 120.7, 112.9, 103.9, 68.6, 44.5, 27.9, 27.7, 27.2, 24.6, 17.2; Anal. Calcd for $C_{15}H_{17}IN_2$: C, 51.15; H, 4.87; N, 7.95%; Found C, 51.10; H, 4.65; N, 8.01%.

Typical Experimental Procedure for 5: A mixture of 2-aminobenzothiozole (4, 0.2 mmol), alkyne (2, 0.2 mmol) and molecular iodine (0.2 mmol) were taken in an oven dried 10 mL round bottom flask in presence of $Cu(OAc)_2.H_2O$ (10 mol%) in 1,2-DCB (2 mL) and was stirred at 120 °C for 2.5 h under open atmosphere. After completion of the reaction (TLC) the reaction was cooled to room temperature and extracted with dichloromethane. 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 petroleum ether and ethyl acetate (10:1) as an eluting solvent to afford the pure product.

Characterization data for the synthesized products:

2-Iodo-3-phenylbenzo[*d*]imidazo[2,1-*b*]thiazole (5aa): White solid (56 mg, 74%), mp: 144-146 ^oC; ^1H NMR ($CDCl_3$, 400 MHz): δ 7.56 (d, J = 8.0 Hz, 1H), 7.45 (d, J = 3.2 Hz, 5H), 7.19-7.16 (m, 1H), 7.09 (t, J = 7.6 Hz, 1H), 6.96 (d, J = 8.0 Hz, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 132.2, 130.8, 129.7, 129.5, 128.8, 125.8, 124.9, 124.2, 113.6; Anal. Calcd for $C_{15}H_9IN_2S$: C, 47.89; H, 2.41; N, 7.45%; Found C, 47.78; H, 2.52; N, 7.41%.

6-Chloro-2-iodo-3-phenylbenzo[*d*]imidazo[2,1-*b*]thiazole (5ba): White solid (53 mg, 65%),mp: 168-170 ^oC; ^1H NMR ($CDCl_3$, 400 MHz): δ 7.58 (s, 1H), 7.51-7.30 (m, 5H), 7.27-7.09 (m, 1H), 6.89 (d, J = 8.8 Hz, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 131.4, 131.0, 130.9, 130.6, 129.9, 129.1, 126.4, 124.0, 114.5; Anal. Calcd for $C_{15}H_8ClIN_2S$: C, 43.87; H, 1.96; N, 6.82%; Found C, 43.75; H, 2.02; N, 6.78%.

2-Iodo-3-(*p*-tolyl)benzo[*d*]imidazo[2,1-*b*]thiazole (5ab): White solid (53 mg, 68%), mp: 152-154 ^oC; ^1H NMR ($CDCl_3$, 400 MHz): δ 7.58 (d, J = 8.0 Hz, 1H), 7.34-7.28 (m, 4H), 7.19 (t,J = 7.2 Hz, 1H), 7.12 (t, J = 7.6 Hz, 1H), 7.00 (d, J = 8.0 Hz, 1H), 2.42 (s, 3H); ^{13}C NMR

($CDCl_3$, 100 MHz):δ139.7, 130.7, 129.7, 129.6, 125.8, 124.9, 124.1, 113.7, 21.5; Anal. Calcd for $C_{16}H_{11}IN_2S$: C, 49.25; H, 2.84; N, 7.18%; Found C, 49.12; H, 2.92; N, 7.12%.

Typical Experimental Procedure for 7: A mixture of 2-aminopyridine (**1**, 0.2 mmol), styrene (**6**, 0.2 mmol) and molecular iodine (0.3 mmol) were taken in an oven dried 10 mL round bottom flask in presence of $Cu(OAc)_2.H_2O$ (10 mol%) in 1,2-DCB (2 mL) and was stirred at 120 °C for 3 hours under open atmosphere. After completion of the reaction (TLC) the reaction was cooled to room temperature and extracted with dichloromethane. 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 petroleum ether and ethyl acetate (4:1) as an eluting solvent to afford the pure product.

Characterization data for the synthesized products:

3-Iodo-2-phenylimidazo[1,2-*a*]pyridine (7aa):[2] White solid (50 mg, 79%); ^{1}H NMR ($CDCl_3$, 400 MHz): δ 8.12 (d, J = 6.8 Hz, 1H), 7.97 (d, J = 7.2 Hz, 2H), 7.54 (d, J = 8.8 Hz,1H), 7.40 (t,J = 7.6 Hz, 2H), 7.33-7.28 (m, 1H), 7.19-7.14 (m, 1H), 6.83 (t, J = 7.2 Hz, 1H); ^{13}C NMR ($CDCl_3$,100 MHz): δ147.9, 147.8, 133.3, 128.5, 128.3, 126.5, 126.1, 125.6, 117.4, 113.2, 59.6; Anal. Calcd for $C_{13}H_9IN_2$: C, 48.77; H, 2.83; N, 8.75%; Found C, 48.65; H, 2.75; N, 8.65%.

3-Iodo-8-methyl-2-phenylimidazo[1,2-*a*]pyridine (7ba):[2] White solid (49 mg, 74%); ^{1}H NMR ($CDCl_3$, 400 MHz): δ 8.01-7.99 (m, 1H), 7.97-7.95 (m, 2H), 7.40 (t, J = 7.6 Hz, 2H), 7.30 (t, J = 7.6 Hz, 1H), 6.98-6.96 (m, 1H), 6.77-6.72 (m, 1H), 2.59 (s, 3H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 148.5, 147.7, 133.9, 128.8, 128.4, 128.3, 127.7, 124.5, 124.4, 113.1, 60.0, 16.7; Anal. Calcd for $C_{14}H_{11}IN_2$: C, 50.32; H, 3.32; N, 8.38%; Found C, 50.21; H, 3.22; N, 8.24%.

3-Iodo-7-methyl-2-phenylimidazo[1,2-*a*]pyridine (7ca):[2] White solid (51 mg, 76%); ^{1}H NMR ($CDCl_3$, 400 MHz): δ 7.97-7.94 (m, 3H), 7.37 (t, J = 8.0 Hz, 2H), 7.30-7.27 (m, 2H), 6.60 (d, J = 6.4 Hz, 1H), 2.31 (s, 3H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 148.2, 147.5, 136.5, 133.5, 128.3, 128.2, 128.1, 125.5, 115.8, 115.6, 58.1, 21.1; HRMS calcd for $C_{14}H_{12}IN_2$ [M +H]$^+$: 335.0045; found [M+H]$^+$: 335.0050.

Typical Experimental Procedure for 8: Solvent in vacuum and was purified by column chromatography on silica gel using a mixture petroleum ether and ethyl acetate (6:1) as an eluting solvent to afford the pure product.

Characterization data for the synthesized products:

2-Phenylimidazo[1,2-*a*]pyridine (8aa):[3] White Solid (29 mg, 76%), mp:132-134^{o}C; ^{1}H NMR ($CDCl_3$, 400 MHz): δ 8.09 (d, J = 6.8 Hz, 1H), 7.96-7.94 (m, 2H), 7.83 (s, 1H), 7.65 (d, J = 9.2 Hz, 1H), 7.44-7.40 (m, 2H), 7.34-7.30 (m, 1H), 7.18-7.14 (m, 1H), 6.77-6.74 (m, 1H);^{13}C NMR ($CDCl_3$, 100 MHz): δ 145.5, 133.5, 128.8, 128.1, 126.1, 125.7, 125.0, 117.4, 112.7, 108.2.

8-Methyl-2-phenylimidazo[1,2-*a*]pyridine (8ba):[3] White Solid (31 mg, 74%),mp:104-105 ^{o}C; ^{1}H NMR ($CDCl_3$, 400 MHz): δ 7.89-7.85 (m, 3H), 7.71 (s, 1H), 7.35-7.31 (m, 2H), 7.25-7.20 (m, 1H), 6.86-6.83 (m, 1H), 6.57 (t, J = 6.8 Hz, 1H), 2.58 (s, 3H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 146.2, 145.2, 134.0, 128.7, 127.8, 127.6, 126.2, 123.5, 112.5, 108.7, 17.2.

6-Chloro-2-phenylimidazo[1,2-*a*]pyridine (8ea):[3] White Solid (31 mg, 67%), mp: 200-202^{o}C; ^{1}H NMR ($CDCl_3$, 400 MHz): δ 8.07 (s, 1H), 7.85-7.83 (m, 2H), 7.73 (s, 1H), 7.51 (d, J = 9.6 Hz, 1H), 7.37-7.34 (m, 2H), 7.28-7.24 (m, 1H), 7.07-7.05 (m, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 146.4, 143.8, 132.9, 128.7, 128.3, 126.2, 126.0, 123.3, 120.6, 117.6, 108.4.

2-(*m*-Tolyl)imidazo[1,2-*a*]pyridine (8ab): White solid (33 mg, 79%), mp:138-140^{o}C; ^{1}H NMR ($CDCl_3$,400 MHz): δ 7.97-7.95 (m, 1H), 7.71 (d, J = 6.0 Hz, 2H), 7.61 (d, J = 7.6 Hz,

1H), 7.55 (d, J = 8.8 Hz, 1H), 7.22 (t, J = 7.6 Hz, 1H), 7.07-7.03 (m, 2H), 6.66-6.62 (m, 1H), 2.32 (s, 3H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 145.8, 145.6, 138.4, 133.5, 128.8, 128.6, 126.8, 125.6, 124.8, 123.2, 117.4, 112.5, 108.2, 21.5; Anal. Calcd for $C_{14}H_{12}N_2$: C, 80.74; H, 5.81; N, 13.45%; Found C, 80.61; H, 5.88; N, 13.40%.

2-(4-Methoxyphenyl)imidazo[1,2-*a*]pyridine (8ac):[3] White Solid (36 mg, 81%), mp:130-132^{o}C; ^{1}H NMR ($CDCl_3$, 300 MHz): δ 8.06-8.03 (m, 1H), 7.89-7.84 (m, 2H), 7.73 (s, 1H),7.60 (d, J = 8.0 Hz, 1H), 7.15-7.09 (m, 1H), 6.98-6.93 (m, 2H), 6.74-6.70 (m, 1H), 3.83 (s, 3H); ^{13}C NMR ($CDCl_3$, 75 MHz): δ 159.7, 145.7, 145.6, 127.4, 126.4, 125.5, 124.6, 117.3, 114.2, 112.4, 107.3, 55.4.

2-(4-Chlorophenyl)imidazo[1,2-*a*]pyridine (8ad):[3] White Solid (33 mg, 73%), mp:204-205^{o}C; ^{1}H NMR ($CDCl_3$, 300 MHz): δ 8.07-8.04 (m, 1H), 7.87-7.83 (m, 2H), 7.78 (s, 1H),7.60 (d, J = 8.4 Hz, 1H), 7.39-7.34 (m, 2H), 7.17-7.12 (m, 1H), 6.77-6.72 (m, 1H); ^{13}C NMR ($CDCl_3$, 75 MHz): δ 145.7, 144.6, 133.7, 132.3, 128.9, 127.3, 125.7, 125.0, 117.5, 112.7, 108.3.

2-(3-Nitrophenyl)imidazo[1,2-*a*]pyridine (8ae):[3] White Solid (32 mg, 68%), mp:206-208^{o}C; ^{1}H NMR ($CDCl_3$,400 MHz): δ 8.67 (s, 1H), 8.25 (d, J = 7.6 Hz, 1H), 8.10-8.08 (m, 2H), 7.91 (s, 1H), 7.59-7.51 (m, 2H), 7.19-7.14 (m, 1H), 6.79-6.75 (m, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 148.8, 146.0, 143.4, 135.7, 131.9, 129.8, 125.9, 125.6, 122.6, 120.9, 117.8, 113.2, 109.2.

Typical Experimental Procedure for 10: A mixture of 2-aminopyridine (**1**, 0.2 mmol) diarylacetylene (**9**, 0.2 mmol), and molecular iodine (0.2 mmol) were taken in oven dried 10 mL round bottom flask in presence of $Cu(OAc)_2.H_2O$ (10 mol%) in 1,2-DCB (2 mL) and was stirred at 120 °C for 2.5 h under open atmosphere. After completion of the reaction (TLC) the reaction was cooled to room temperature and extracted with dichloromethane. 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 petroleum ether and ethyl acetate (16:1) as an eluting solvent to afford the pure product.

Characterization data for the synthesized products:

2,3-Diphenylimidazo[1,2-*a*]pyridine (10aa):[3] White Solid (43 mg, 79%); ^{1}H NMR ($CDCl_3$, 400 MHz): δ 7.89-7.87 (m, 1H), 7.62-7.75 (m, 3H), 7.47-7.43 (m, 3H), 7.38-7.36 (m, 2H), 7.22-7.17 (m, 3H), 7.11-7.10 (m, 1H), 6.67-6.64 (m, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 144.8, 142.3, 134.1, 130.8, 129.9, 129.6, 129.0, 128.4, 128.2, 127.6, 124.9, 123.4, 121.2, 117.6, 112.4.

8-Methyl-2,3-diphenylimidazo[1,2-*a*]pyridine (10ba):[3] White Solid (43 mg, 75%); ^{1}H NMR ($CDCl_3$, 400 MHz): δ 7.84 (d, J = 6.8 Hz, 1H), 7.68-7.65 (m, 2H), 7.53-7.42 (m, 5H), 7.30-7.23 (m, 3H), 7.00-6.98 (m, 1H), 6.65 (t, J = 6.8 Hz, 1H), 2.70 (s, 3H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ145.2, 142.0, 134.4, 130.7, 130.2, 129.4, 128.6, 128.2, 128.2, 127.5, 127.2, 123.3, 121.4, 121.1, 112.2, 17.1.

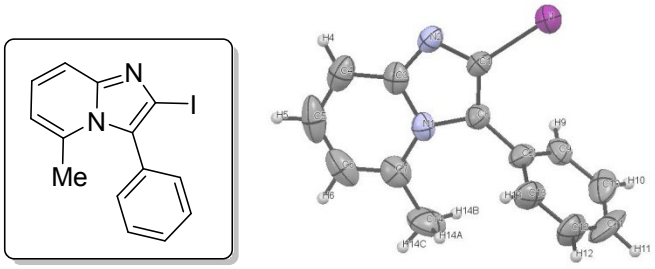
2,3-Bis(2-chlorophenyl)imidazo[1,2-*a*]pyridine (10ab): White Solid (45 mg, 67%),mp: 166-168 ^{o}C; ^{1}H NMR ($CDCl_3$, 400 MHz): δ 7.88-7.86 (m, 1H), 7.68-7.69 (m, 1H), 7.63-7.60 (m, 1H), 7.43-7.39 (m, 3H), 7.36-7.33 (m, 1H), 7.27-7.24 (m, 1H), 7.20-7.10 (m, 3H), 6.74-6.71 (m, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz): δ 147.1, 145.0, 135.6, 135.4, 134.4, 131.2, 130.9, 130.4, 129.5, 129.3, 129.0, 128.1, 127.7, 126.0, 125.3, 123.2, 117.7, 115.4, 112.8; Anal. Calcd for $C_{19}H_{12}Cl_2N_2$: C, 67.27; H, 3.57; N, 8.26%; Found C, 67.19; H, 3.61; N, 8.22%.

References:

1. Y. Gao, M. Yin, W. Wu, H. Huang and H. Jiang, *Adv. Synth. Catal*., 2013, **355**, 2263.
2. X. Meng, C. Yu, G. Chen and P. Zhao, *Catal. Sci. Technol.,* 2015, **5**, 372.
3. (*a*) A. K. Bagdi, M. Rahman, S. Santra, A. Majee and A. Hajra, *Adv. Synth. Catal*., 2013,**355**, 1741; (*b*) D.-J.Zhu, J.-X.Chen, M.-C.Liu, J.-C.Dinga and H.-Y. Wu, *J. Braz. Chem. Soc*., 2009, **20**, 482.

Structure Determination:

The white crystals of **3da** were obtained by crystallization from a solution in dichloromethane/ petroleum ether after purification by column chromatography. $C_{14}H_{11}IN_2$.

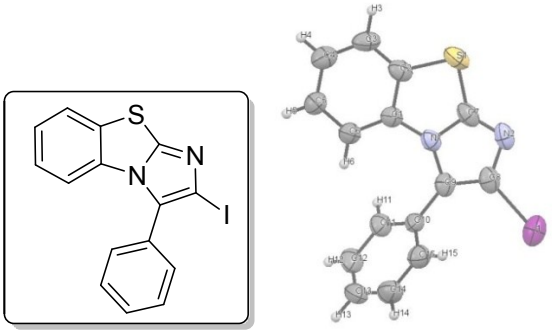


ORTEP (with 30% probability) diagram for the structure 2-Iodo-5-methyl-3-phenylimidazo[1,2-*a*]pyridine**(3da)**.

Wavelength	0.71073 Å	
Formula	C14 H11 I1 N2	
Crystal system	Triclinic	
Space group	P -1	
Unit cell dimensions	a = 9.7777(6) Å	α = 94.956(3)°
	b = 14.7275(9) Å	β = 98.625(3)°
	c = 18.3746(13) Å	γ = 90.324(3)°
Volume	2605.8(3) $Å^3$	
Z	8	
R-factor (%)	7.29	

The crystallographic data have been deposited with the Cambridge Crystallographic Data Centreas supplementary publication with a CCDC reference number CCDC 1474939.

The white crystals of **5aa** were obtained by crystallization from a solution in ethyl acetate/petroleum ether after purification by column chromatography. $C_{15}H_9I_1N_2S_1$.

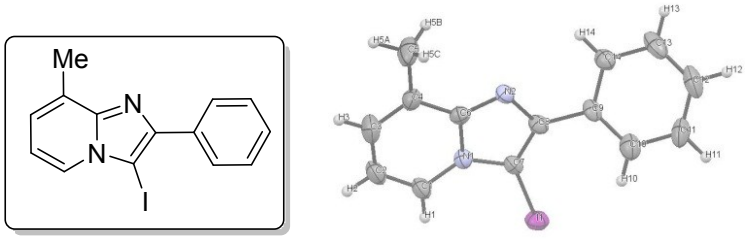


ORTEP (with 30% probability) diagram for the structure 2-iodo-3-phenylbenzo[*d*]imidazo[2,1-*b*]thiazole **(5aa)**.

Wavelength	0.71073 Å	
Formula	C15 H9 I1 N2 S1	
Crystal system	Triclinic	
Space group	P -1	
Unit cell dimensions	a = 10.5084(6) Å	α = 102.826° (4)
	b = 13.8935(9) Å	β = 105.411° (4)
	c = 14.8405(10) Å	γ = 94.441° (4)
Volume	2014.53 Å^3	
Z	6	
R-factor (%)	4.8	

The crystallographic data have been deposited with the Cambridge Crystallographic Data Centreas supplementary publication with a CCDC reference number CCDC 1477441.

The white crystals of **7ba** were obtained by crystallization from a solution in dichloromethane/ petroleum ether after purification by column chromatography. $C_{14}H_{11}IN_2$.

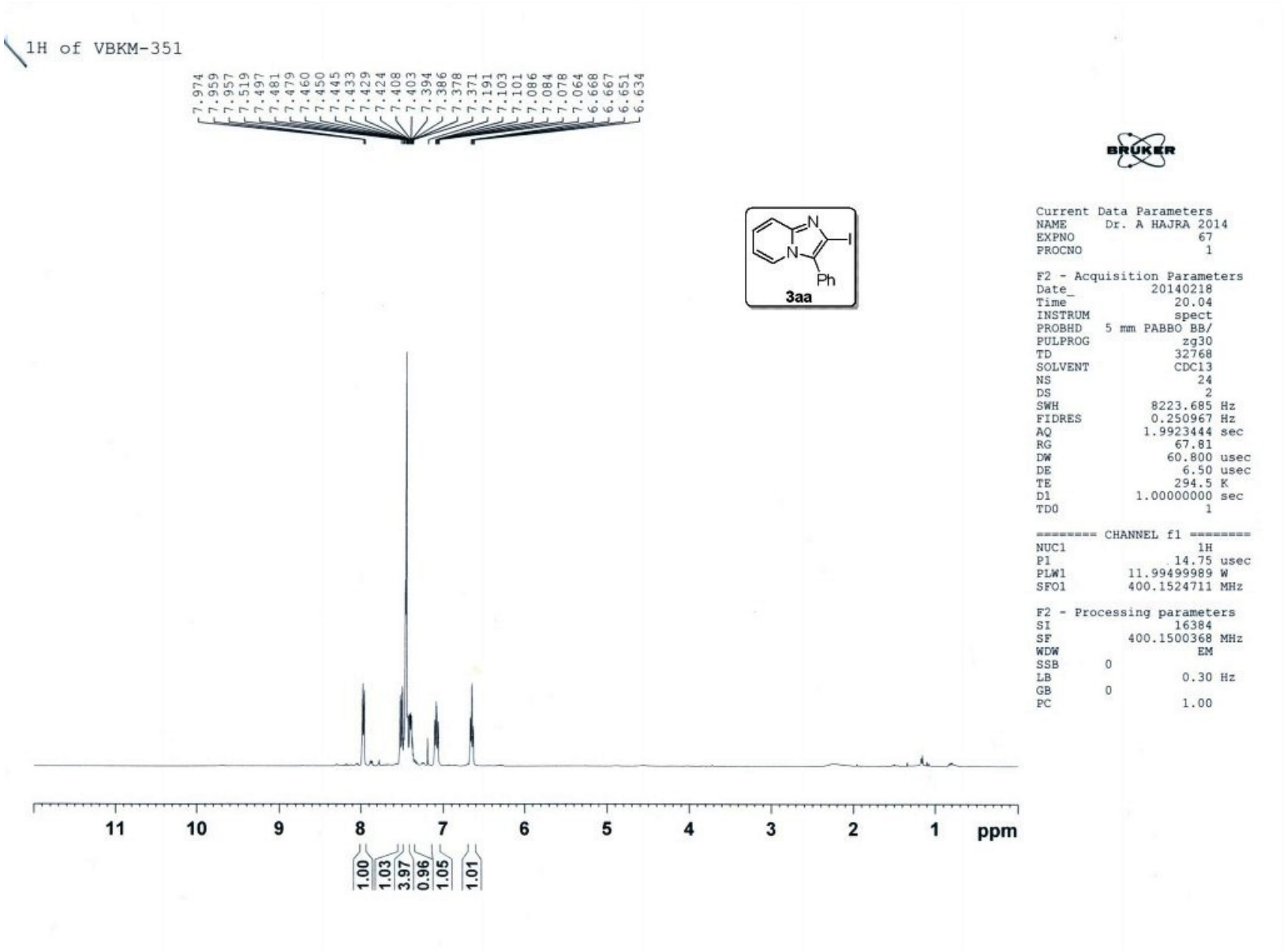


ORTEP (with 30% probability) diagram for the structure 3-Iodo-8-methyl-2-phenylimidazo[1,2-*a*]pyridine**(7ba)**.

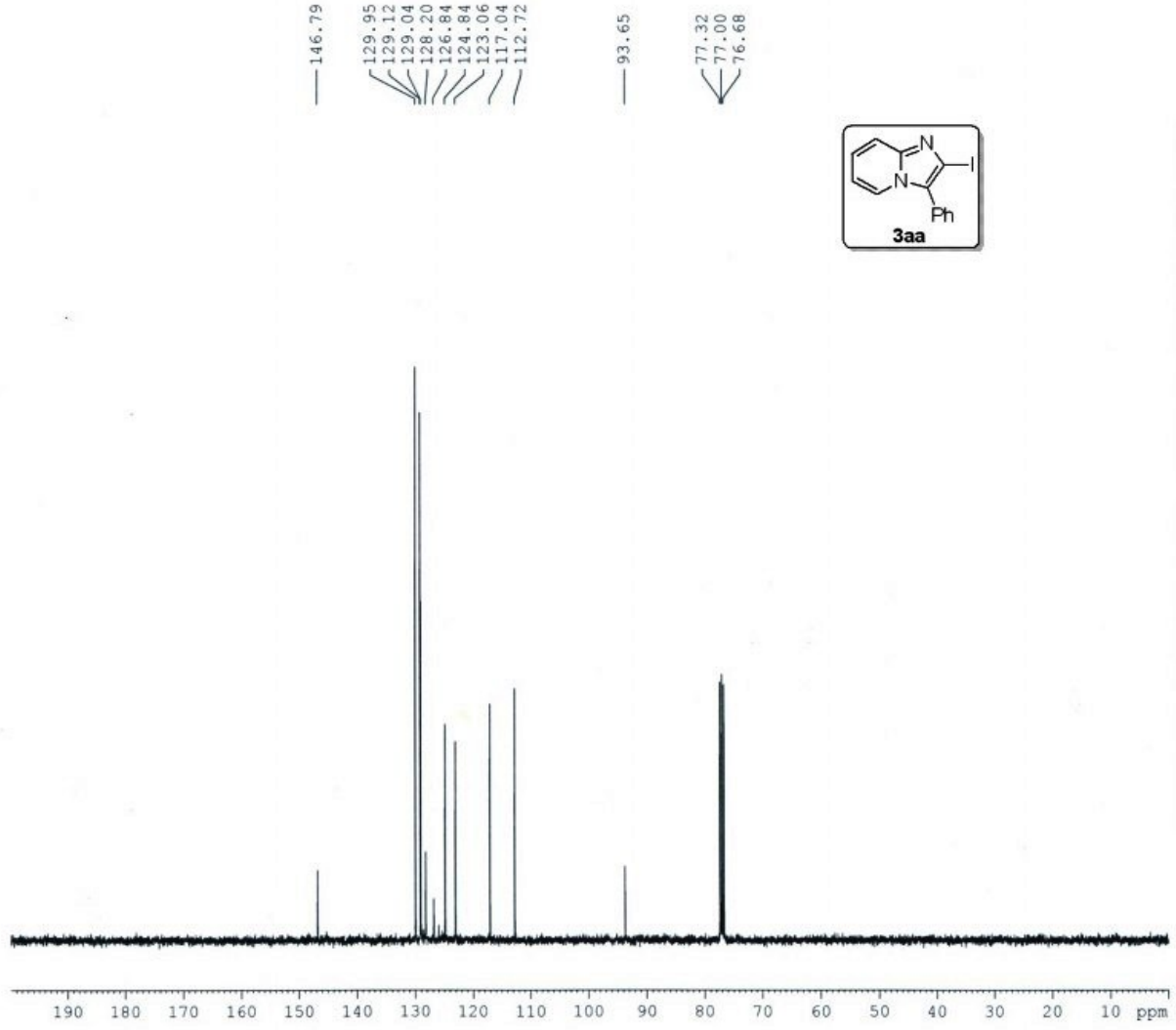
Wavelength	0.71073 Å	
Formula	C14 H11 I1 N2	
Crystal system	Orthorhombic	
Space group	P 21 21 21	
Unit cell dimensions	a=8.2657(4) Å	α = 90°
	b=14.1996(6) Å	β = 90°
	c=21.2896(9) Å	γ = 90°
Volume	2498.75(19) $Å^3$	
Z	8	
R-factor (%)	3.95	

The crystallographic data have been deposited with the Cambridge Crystallographic Data Centreas supplementary publication with a CCDC reference numberCCDC 1474941.

^{1}H and ^{13}C NMR spectra of Compounds


1H of VBKM-351
7.974
7.959
7.957
7.519
7.497
7.481
7.479
7.460
7.450
7.445
7.433
7.429
7.424
7.408
7.403
7.394
7.386
7.378
7.371
7.191
7.103
7.101
7.086
7.084
7.078
7.064
6.668
6.667
6.651
6.634
3aa
Current Data Parameters
NAME Dr. A HAJRA 2014
EXPNO 67
PROCNO 1
F2 - Acquisition Parameters
Date_ 20140218
Time 20.04
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 24
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 67.81
DW 60.800 usec
DE 6.50 usec
TE 294.5 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 16384
SF 400.1500368 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
11
10
9
8
7
6
5
4
3
2
1
ppm
1.00
1.03
3.97
0.96
1.05
1.01

13C of VBKM-351



BRUKER

```
Current Data Parameters
NAME      Dr. A HAJRA 2014
EXPNO                  68
PROCNO                  1

F2 - Acquisition Parameters
Date_            20140218
Time                20.14
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              0.6816244 sec
RG                 67.81
DW                20.800 usec
DE                 6.50 usec
TE                295.3 K
D1             2.00000000 sec
D11            0.03000000 sec
TD0                    1

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

======== CHANNEL f2 ========
CPDPRG2          waltz16
NUC2                  1H
PCPD2               80.00 usec
PLW2        12.00000000 W
PLW12        0.40792999 W
PLW13        0.26107001 W
SFO2       400.1516006 MHz

F2 - Processing parameters
SI                 16384
SF         100.6178084 MHz
WDW                   EM
SSB      0
LB                  1.00 Hz
GB       0
PC                  1.40
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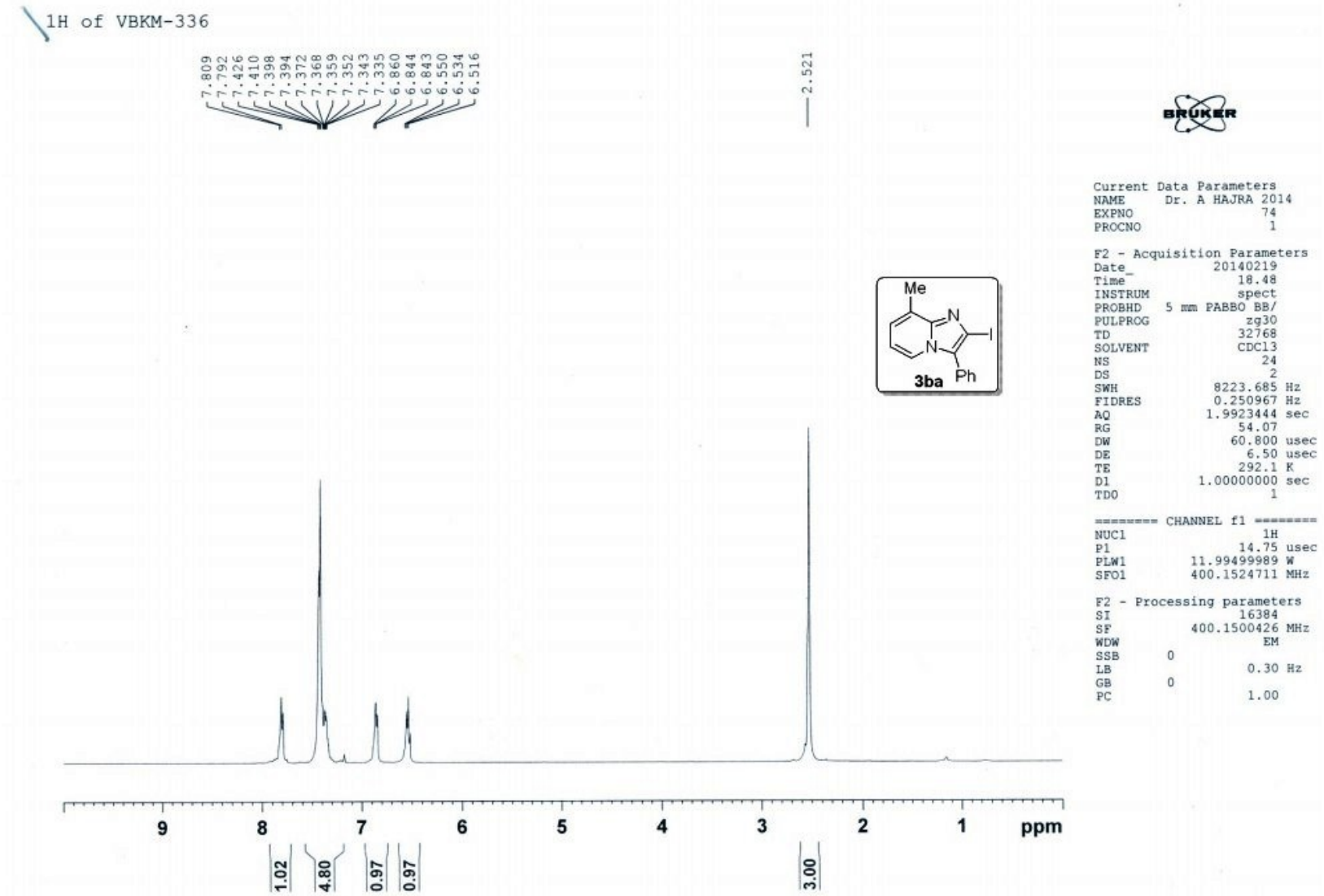
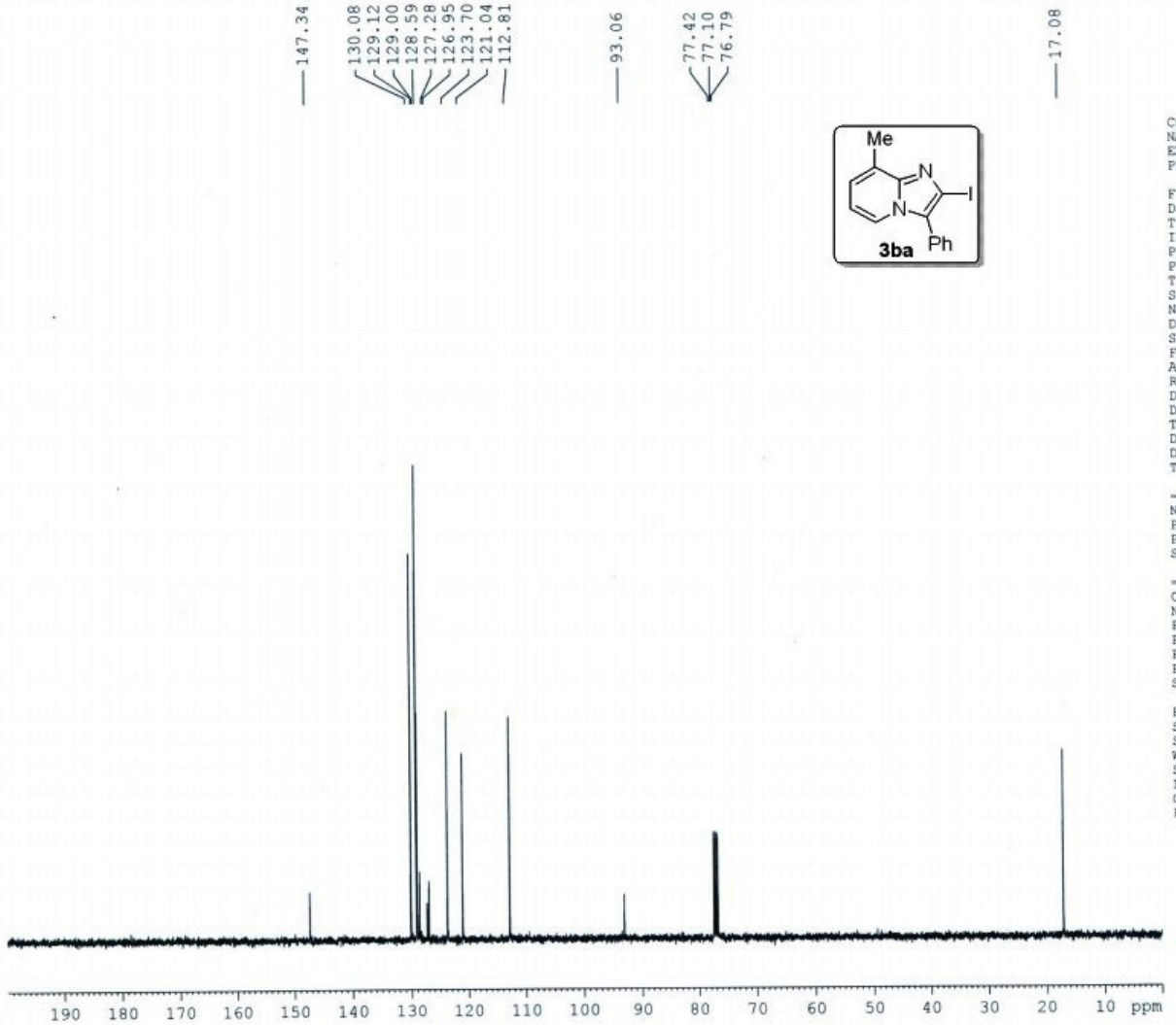

1H of VBKM-336
7.809
7.792
7.426
7.410
7.398
7.394
7.372
7.368
7.359
7.352
7.343
7.335
6.860
6.844
6.843
6.550
6.534
6.516
2.521
Me
N
N
I
Ph
3ba
9
8
7
6
5
4
3
2
1
ppm
1.02
4.80
0.97
0.97
3.00
BRUKER
Current Data Parameters
NAME Dr. A HAJRA 2014
EXPNO 74
PROCNO 1
F2 - Acquisition Parameters
Date_ 20140219
Time 18.48
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 24
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 54.07
DW 60.800 usec
DE 6.50 usec
TE 292.1 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 16384
SF 400.1500426 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

13C of VBKM-336



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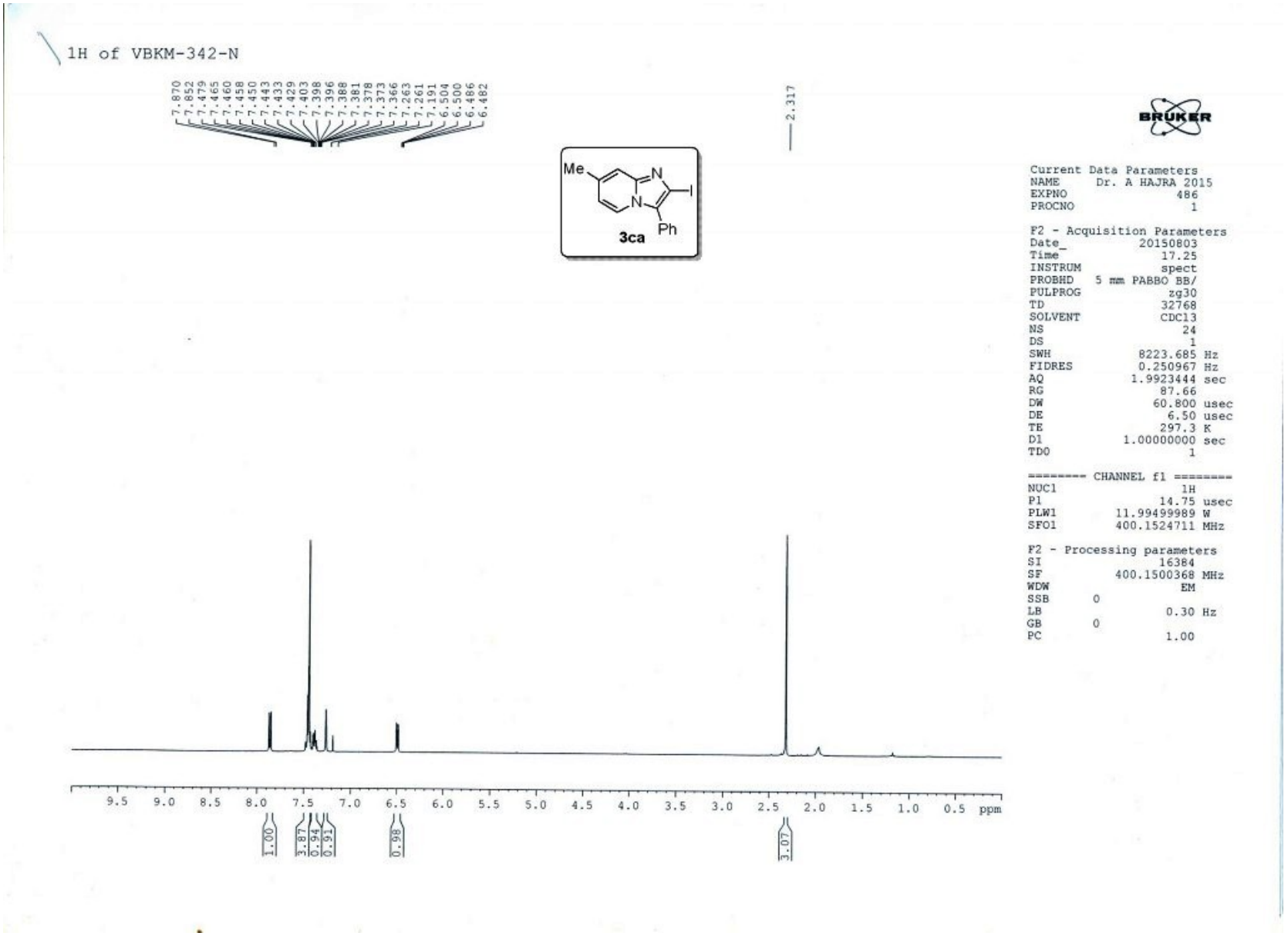
Current Data Parameters
NAME Dr. A HAJRA 2014
EXPNO 75
PROCNO 1

F2 - Acquisition Parameters
Date_ 20140219
Time 18.55
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 0.6816244 sec
RG 54.07
DW 20.800 usec
DE 6.50 usec
TE 293.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

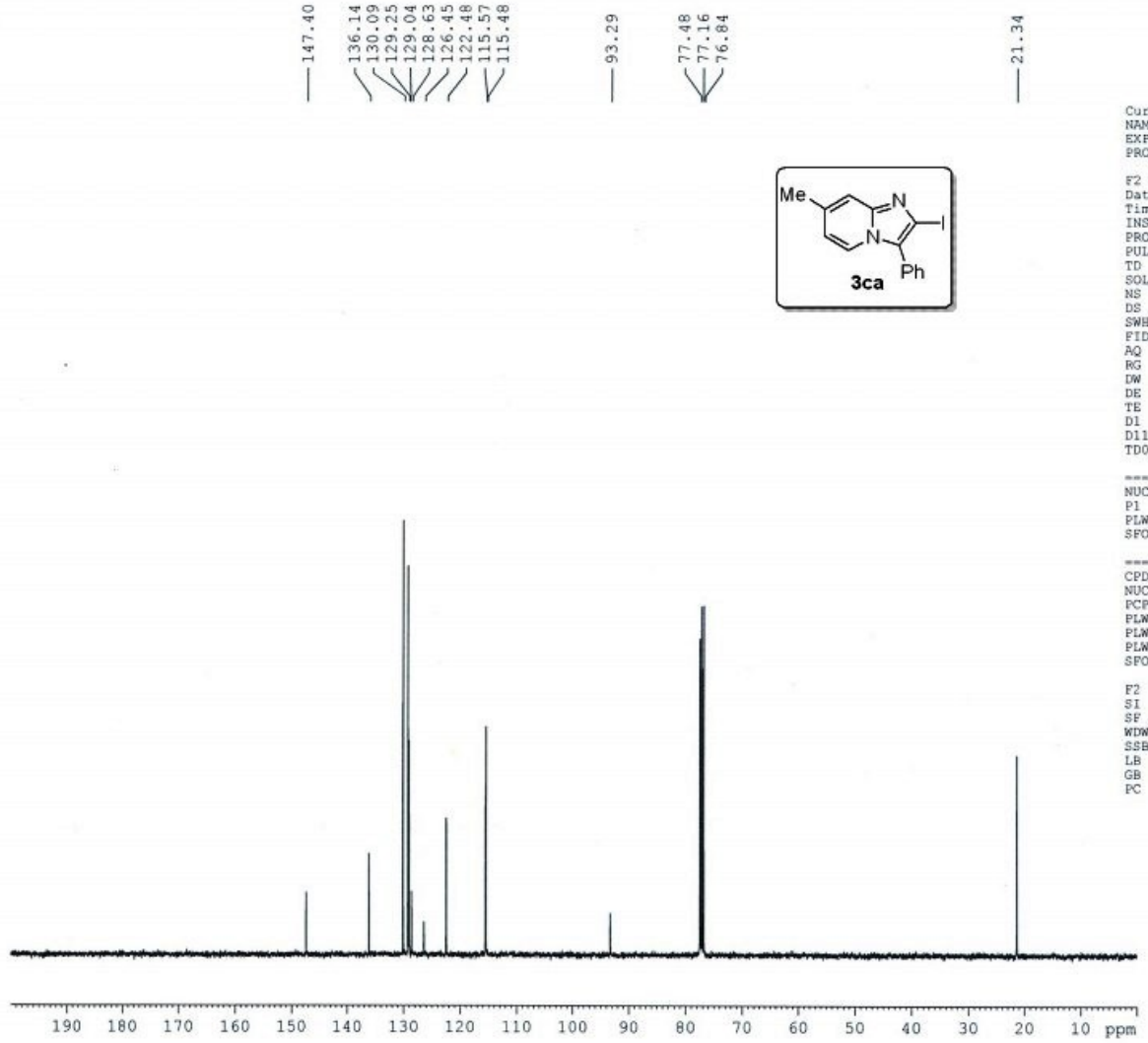
======== CHANNEL f1 ========
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W
SFO1 100.6278588 MHz

======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PLW2 12.00000000 W
PLW12 0.40792999 W
PLW13 0.26107001 W
SFO2 400.1516006 MHz

F2 - Processing parameters
SI 16384
SF 100.6178026 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40


1H of VBKM-342-N
7.870
7.852
7.479
7.465
7.460
7.458
7.450
7.443
7.433
7.429
7.403
7.398
7.396
7.388
7.381
7.378
7.373
7.366
7.263
7.261
7.191
6.504
6.500
6.486
6.482
2.317
Me
N
N
I
Ph
3ca
BRUKER
Current Data Parameters
NAME Dr. A HAJRA 2015
EXPNO 486
PROCNO 1
F2 - Acquisition Parameters
Date_ 20150803
Time 17.25
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 24
DS 1
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 87.66
DW 60.800 usec
DE 6.50 usec
TE 297.3 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 16384
SF 400.1500368 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 ppm
1.00
3.87
0.94
0.91
0.98
3.07

13C of VBKM-342 -N



BRUKER

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Current Data Parameters
NAME      Dr. A HAJRA 2015
EXPNO              490
PROCNO               1

F2 - Acquisition Parameters
Date_          20150803
Time             20.28
INSTRUM          spect
PROBHD   5 mm PABBO BB/
PULPROG        zgpg30
TD               32768
SOLVENT          CDCl3
NS                 512
DS                   2
SWH          24038.461 Hz
FIDRES        0.733596 Hz
AQ            0.6816244 sec
RG                87.66
DW               20.800 usec
DE                6.50 usec
TE               298.8 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                  1

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

======== CHANNEL f2 ========
CPDPRG2         waltz16
NUC2               1H
PCPD2            80.00 usec
PLW2        12.00000000 W
PLW12        0.40792999 W
PLW13        0.26107001 W
SFO2       400.1516006 MHz

F2 - Processing parameters
SI                16384
SF         100.6177880 MHz
WDW                EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```
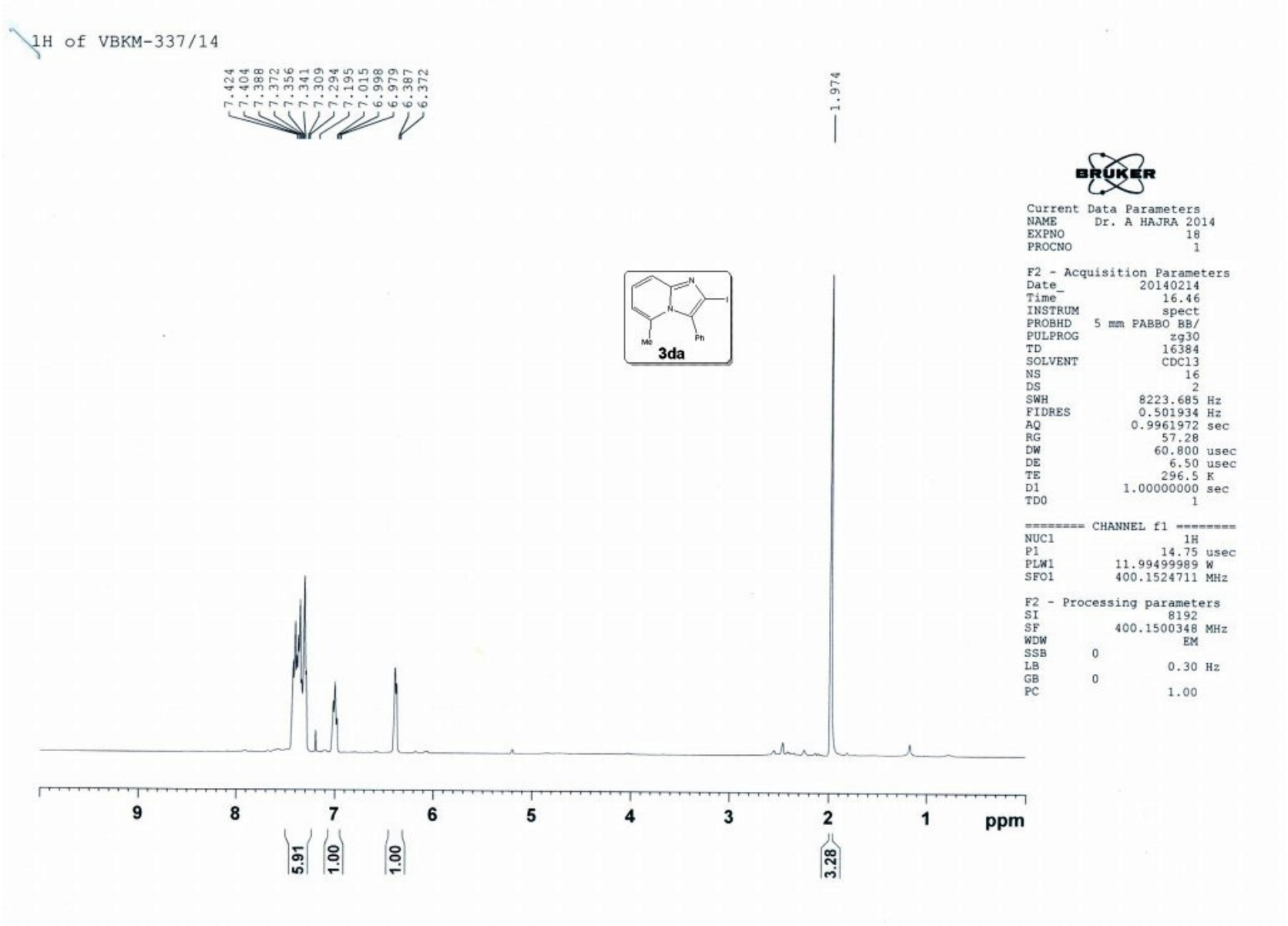
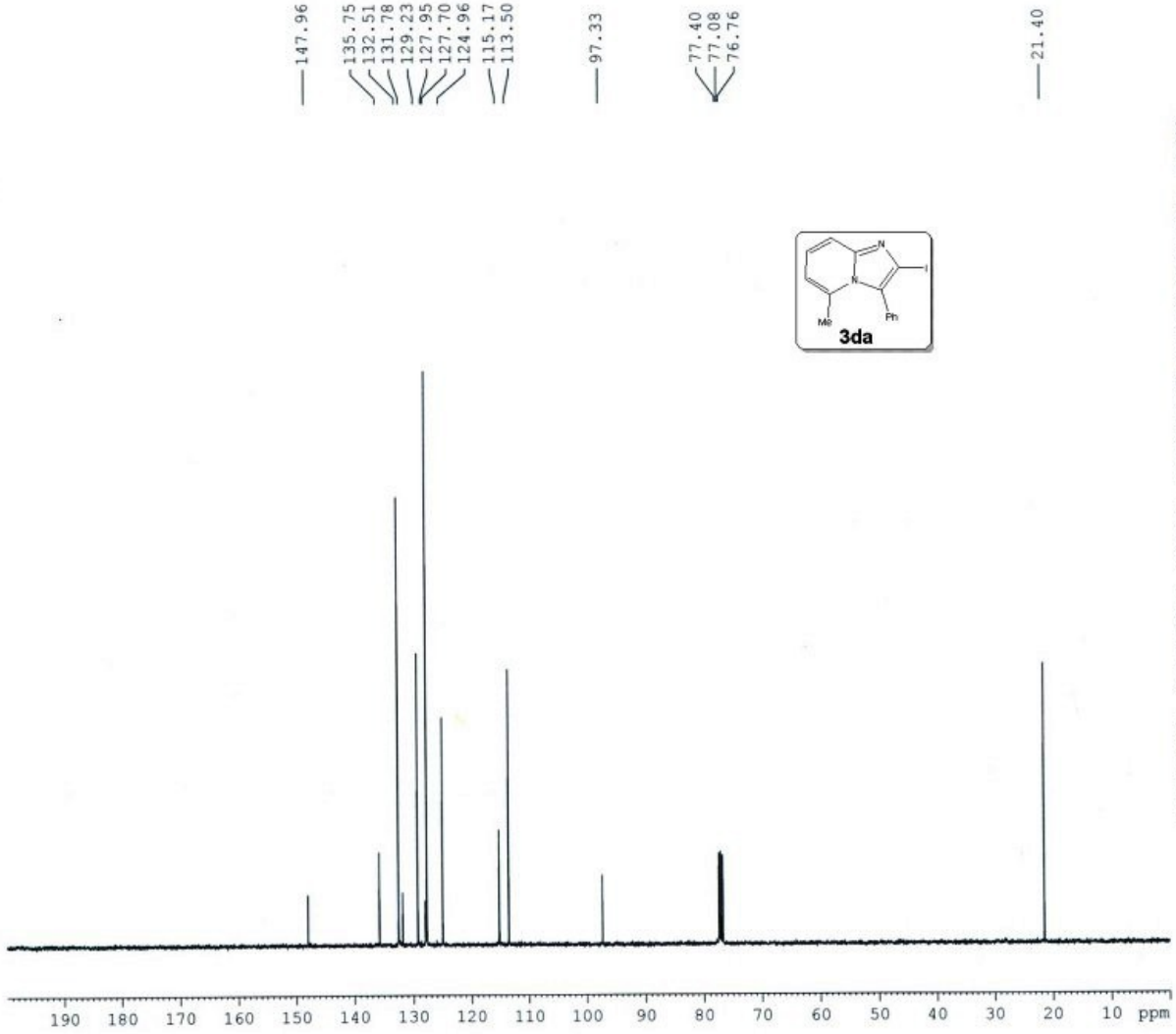


1H of VBKM-337/14
7.424
7.404
7.388
7.372
7.356
7.341
7.309
7.294
7.195
7.015
6.998
6.979
6.387
6.372
1.974
3da
Me
Ph
I
N
N
9
8
7
6
5
4
3
2
1
ppm
5.91
1.00
1.00
3.28
BRUKER
Current Data Parameters
NAME Dr. A HAJRA 2014
EXPNO 18
PROCNO 1
F2 - Acquisition Parameters
Date_ 20140214
Time 16.46
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 16384
SOLVENT CDCl3
NS 16
DS 2
SWH 8223.685 Hz
FIDRES 0.501934 Hz
AQ 0.9961972 sec
RG 57.28
DW 60.800 usec
DE 6.50 usec
TE 296.5 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 8192
SF 400.1500348 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

13C of VBKM-337/14



BRUKER

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Current Data Parameters
NAME      Dr. A HAJRA 2014
EXPNO                 18
PROCNO                 1

F2 - Acquisition Parameters
Date_           20140213
Time              18.48
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD              32768
SOLVENT           CDCl3
NS                  320
DS                    2
SWH           24038.461 Hz
FIDRES         0.733596 Hz
AQ             0.6816244 sec
RG                57.28
DW               20.800 usec
DE                6.50 usec
TE               298.5 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                    1

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

======== CHANNEL f2 ========
CPDPRG2          waltz16
NUC2                  1H
PCPD2               80.00 usec
PLW2         12.00000000 W
PLW12         0.40792999 W
PLW13         0.26107001 W
SFO2        400.1516006 MHz

F2 - Processing parameters
SI                 16384
SF          100.6178026 MHz
WDW                   EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
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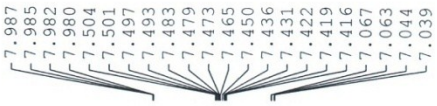
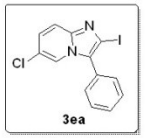
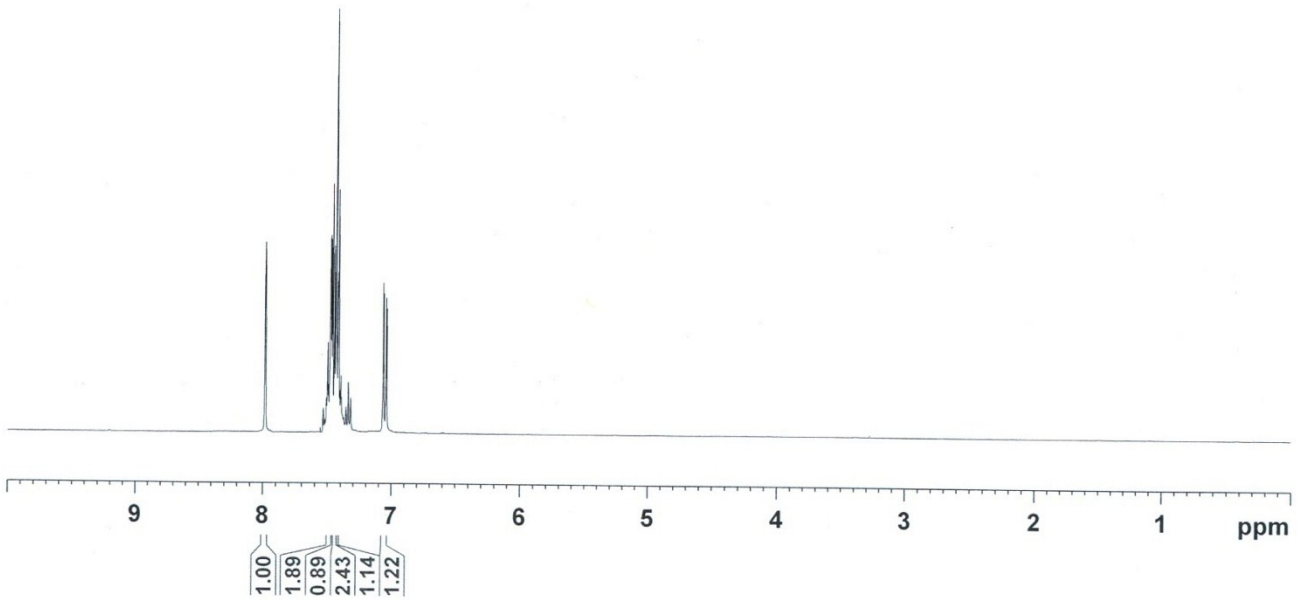
1H of VBKM-286







BRUKER

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Current Data Parameters
NAME      Dr. A HAJRA 2014
EXPNO                 57
PROCNO                 1

F2 - Acquisition Parameters
Date_           20140217
Time              17.32
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG           zg30
TD               32768
SOLVENT          CDCl3
NS                  16
DS                   2
SWH           8223.685 Hz
FIDRES        0.250967 Hz
AQ           1.9923444 sec
RG              62.69
DW             60.800 usec
DE              6.50 usec
TE             294.9 K
D1          1.00000000 sec
TD0                  1

======== CHANNEL f1 ========
NUC1                 1H
P1              14.75 usec
PLW1        11.99499989 W
SFO1       400.1524711 MHz

F2 - Processing parameters
SI                16384
SF         400.1500387 MHz
WDW                  EM
SSB       0
LB              0.30 Hz
GB        0
PC              1.00
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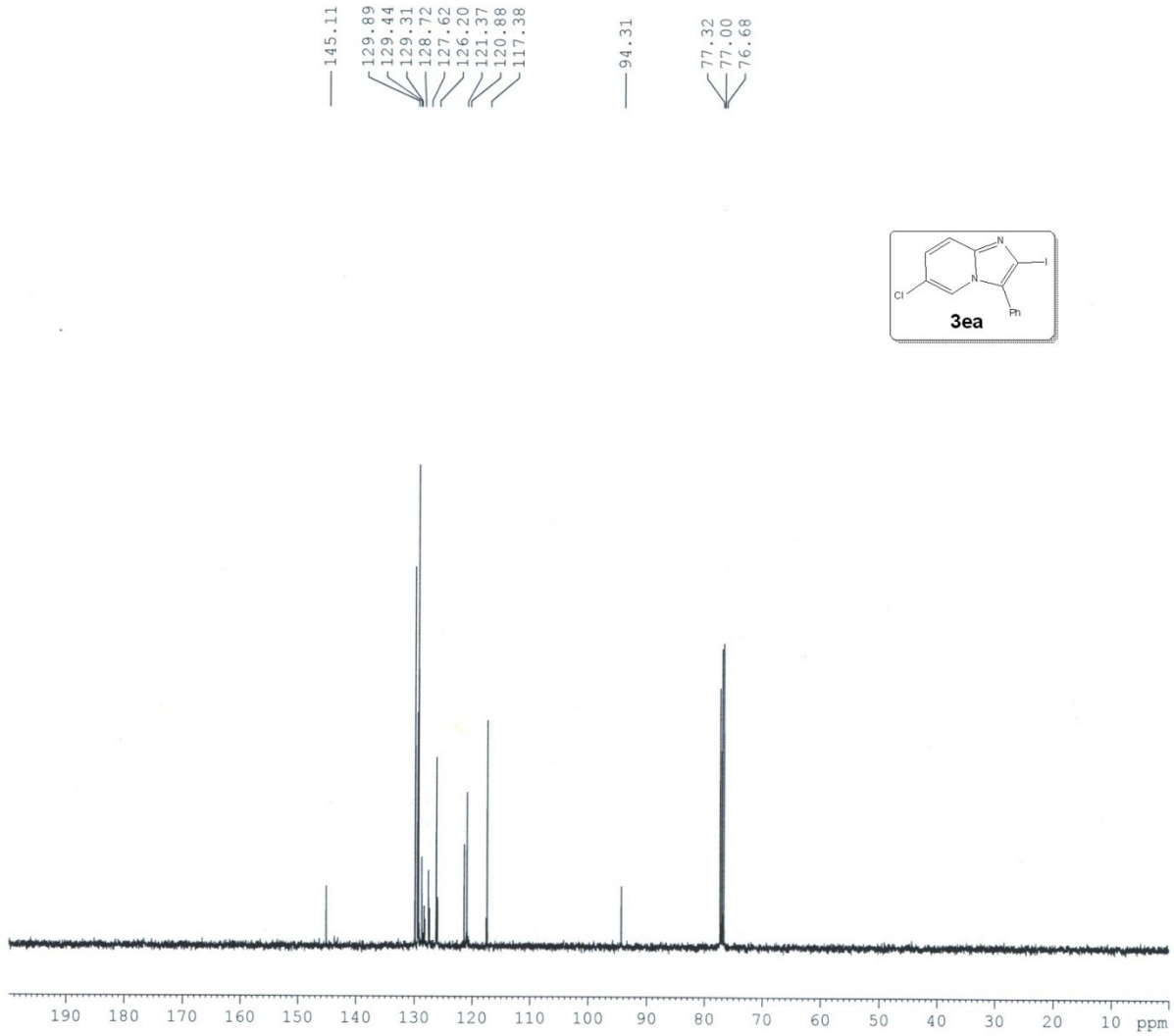
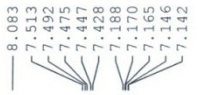
13C of VBKM-286

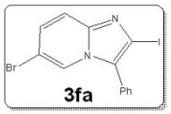


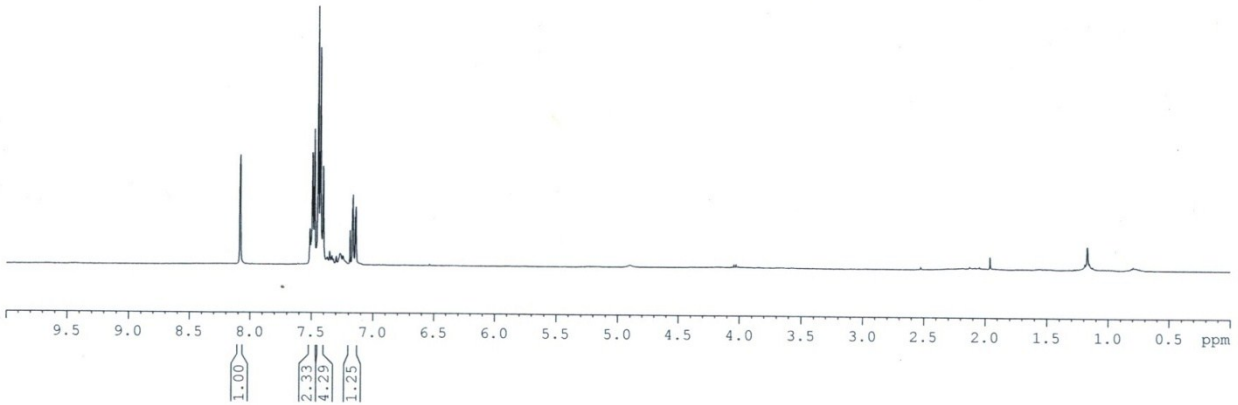
BRUKER

```
Current Data Parameters
NAME      Dr. A HAJRA 2014
EXPNO                 63
PROCNO                 1

F2 - Acquisition Parameters
Date_           20140217
Time                22.15
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              0.6816244 sec
RG                 62.69
DW                20.800 usec
DE                 6.50 usec
TE                296.8 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                    1

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

======== CHANNEL f2 ========
CPDPRG2          waltz16
NUC2                  1H
PCPD2              80.00 usec
PLW2        12.00000000 W
PLW12        0.40792999 W
PLW13        0.26107001 W
SFO2       400.1516006 MHz

F2 - Processing parameters
SI                 16384
SF         100.6178085 MHz
WDW                   EM
SSB       0
LB                  1.00 Hz
GB        0
PC                  1.40
```

1H of VBKM-339

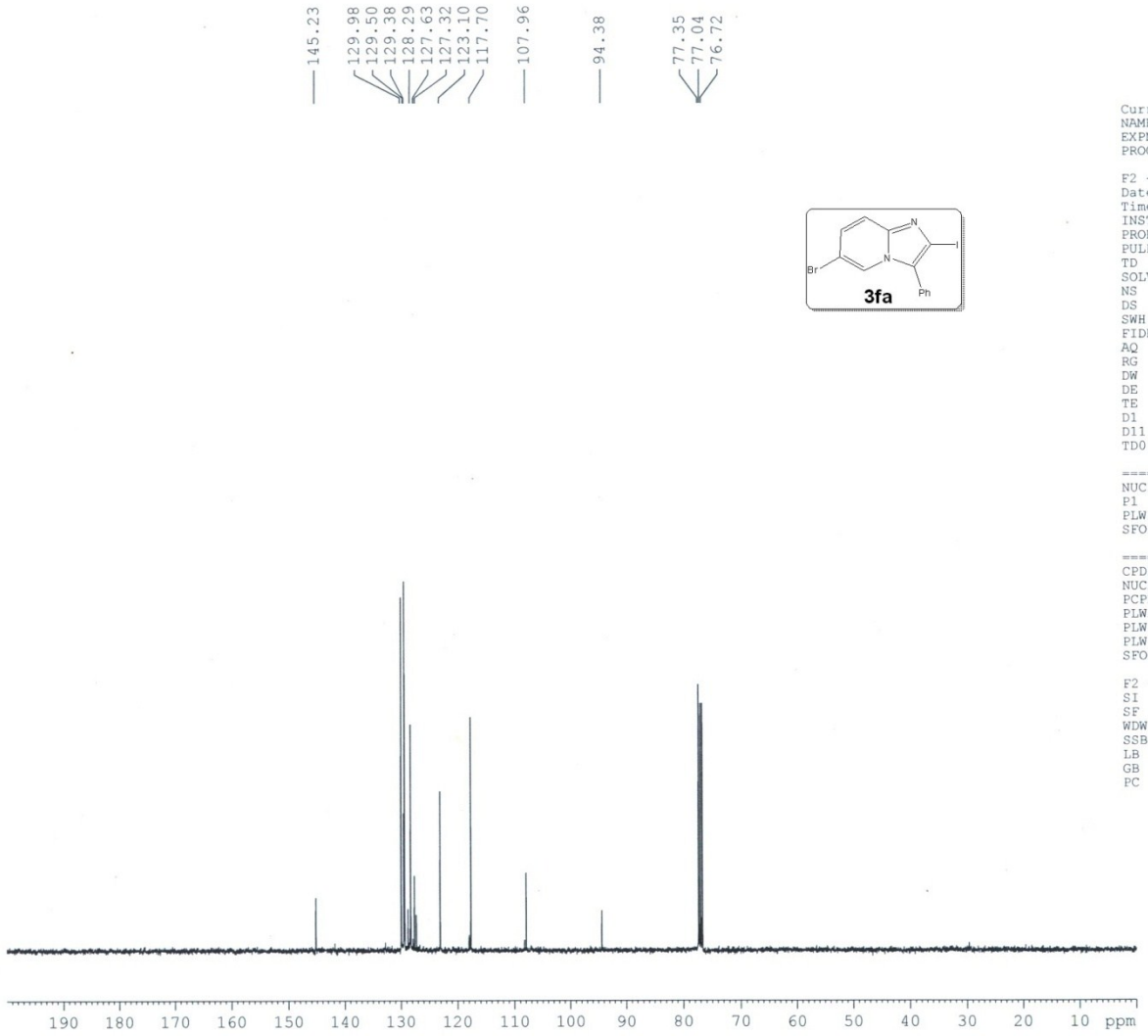







```
Current Data Parameters
NAME      Dr. A HAJRA 2014
EXPNO                  85
PROCNO                  1

F2 - Acquisition Parameters
Date_            20140220
Time                17.38
INSTRUM             spect
PROBHD   5 mm PABBO BB/
PULPROG             zg30
TD                 32768
SOLVENT            CDCl3
NS                    24
DS                     2
SWH             8223.685 Hz
FIDRES          0.250967 Hz
AQ              1.9923444 sec
RG                 77.59
DW                60.800 usec
DE                 6.50 usec
TE                295.9 K
D1             1.00000000 sec
TD0                    1

======== CHANNEL f1 ========
NUC1                  1H
P1                 14.75 usec
PLW1          11.99499989 W
SFO1          400.1524711 MHz

F2 - Processing parameters
SI                 16384
SF            400.1500378 MHz
WDW                   EM
SSB       0
LB                 0.30 Hz
GB        0
PC                 1.00
```

13C of VBKM-339



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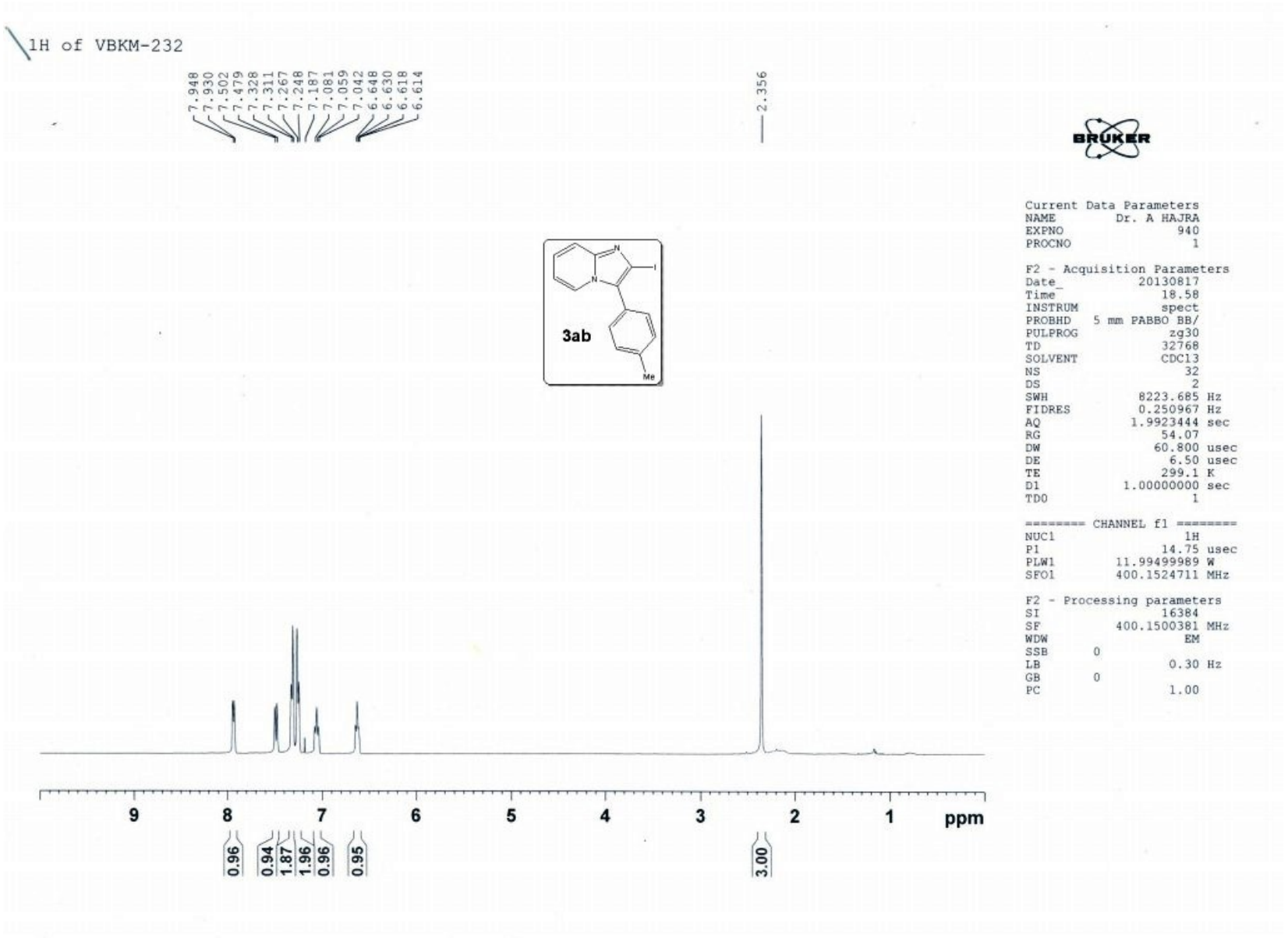
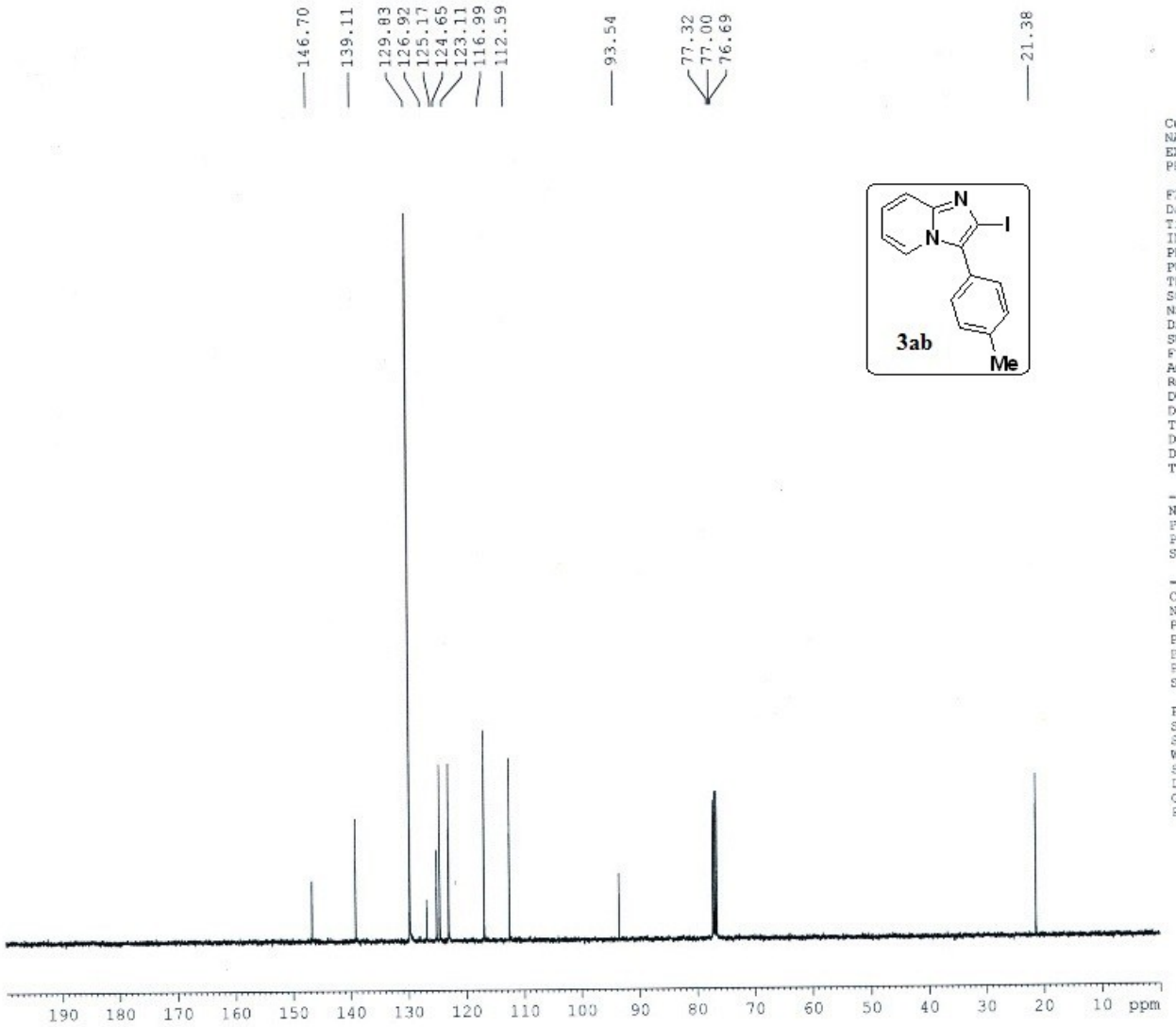
```
Current Data Parameters
NAME      Dr. A HAJRA 2014
EXPNO               87
PROCNO               1

F2 - Acquisition Parameters
Date_          20140220
Time              18.19
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD              32768
SOLVENT           CDCl3
NS                  320
DS                    2
SWH           24038.461 Hz
FIDRES         0.733596 Hz
AQ             0.6816244 sec
RG                77.59
DW                20.800 usec
DE                 6.50 usec
TE                297.1 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                   1

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

======== CHANNEL f2 ========
CPDPRG2          waltz16
NUC2                 1H
PCPD2               80.00 usec
PLW2         12.00000000 W
PLW12         0.40792999 W
PLW13         0.26107001 W
SFO2        400.1516006 MHz

F2 - Processing parameters
SI                16384
SF          100.6178026 MHz
WDW                  EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```


1H of VBKM-232
7.948
7.930
7.502
7.479
7.328
7.311
7.267
7.248
7.187
7.081
7.059
7.042
6.648
6.630
6.618
6.614
2.356
3ab
Me
9
8
7
6
5
4
3
2
1
ppm
0.96
0.94
1.87
1.96
0.96
0.95
3.00
Current Data Parameters
NAME Dr. A HAJRA
EXPNO 940
PROCNO 1
F2 - Acquisition Parameters
Date_ 20130817
Time 18.58
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDC13
NS 32
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 54.07
DW 60.800 usec
DE 6.50 usec
TE 299.1 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 16384
SF 400.1500381 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

13C of VBKM-232



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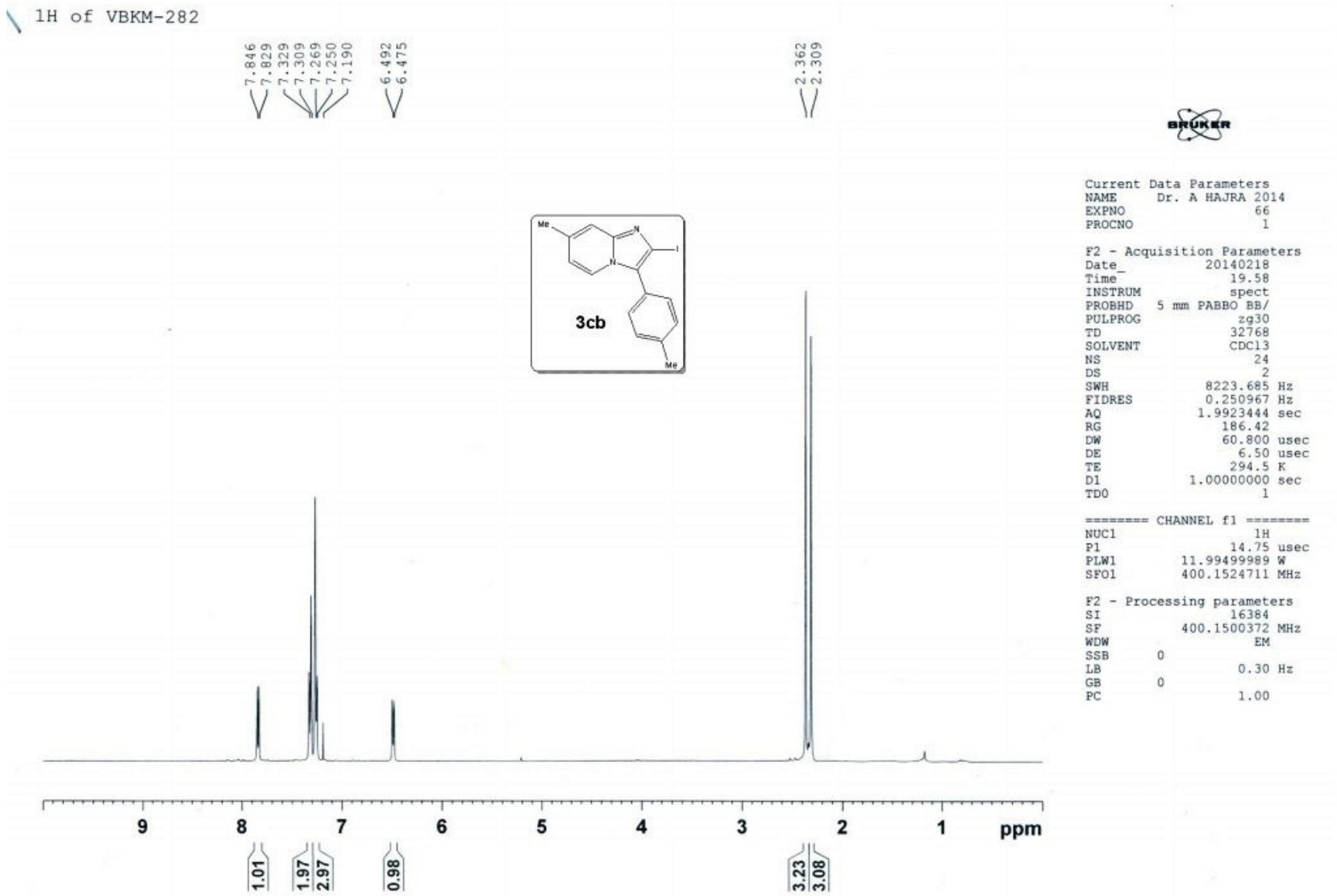
Current Data Parameters
NAME Dr. A HAJRA
EXPNO 941
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130817
Time 19.11
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 0.6816244 sec
RG 54.07
DW 20.800 usec
DE 6.50 usec
TE 300.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

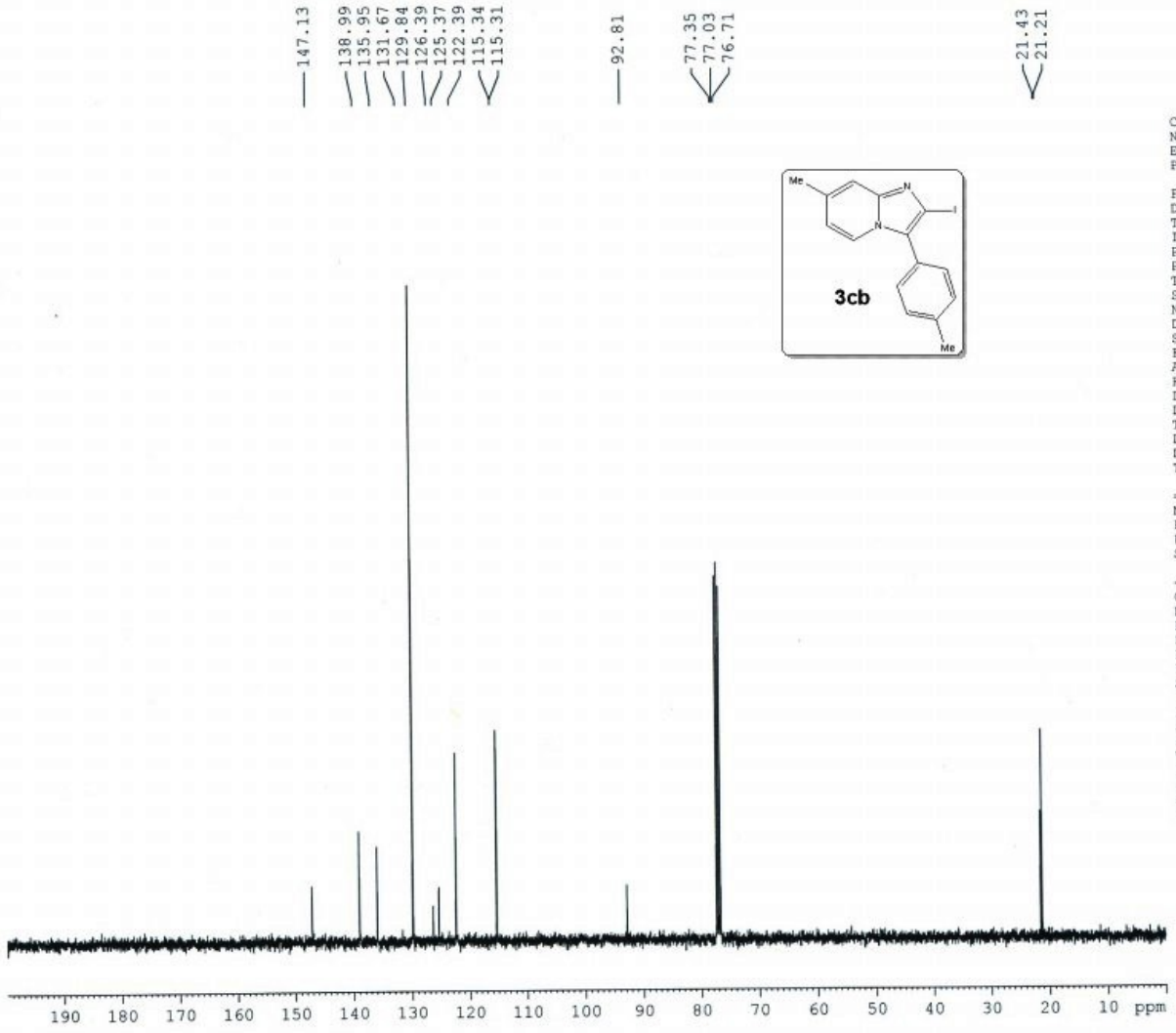
======== CHANNEL f1 ========
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W
SFO1 100.6278588 MHz

======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PLW2 12.00000000 W
PLW12 0.40792999 W
PLW13 0.26107001 W
SFO2 400.1516006 MHz

F2 - Processing parameters
SI 16384
SF 100.6178079 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40


1H of VBKM-282
7.846
7.829
7.329
7.309
7.269
7.250
7.190
6.492
6.475
2.362
2.309
Me
N
I
N
3cb
Me
9
8
7
6
5
4
3
2
1
ppm
1.01
1.97
2.97
0.98
3.23
3.08
BRUKER
Current Data Parameters
NAME Dr. A HAJRA 2014
EXPNO 66
PROCNO 1
F2 - Acquisition Parameters
Date_ 20140218
Time 19.58
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 24
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 186.42
DW 60.800 usec
DE 6.50 usec
TE 294.5 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 16384
SF 400.1500372 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

13C of VBKM-282



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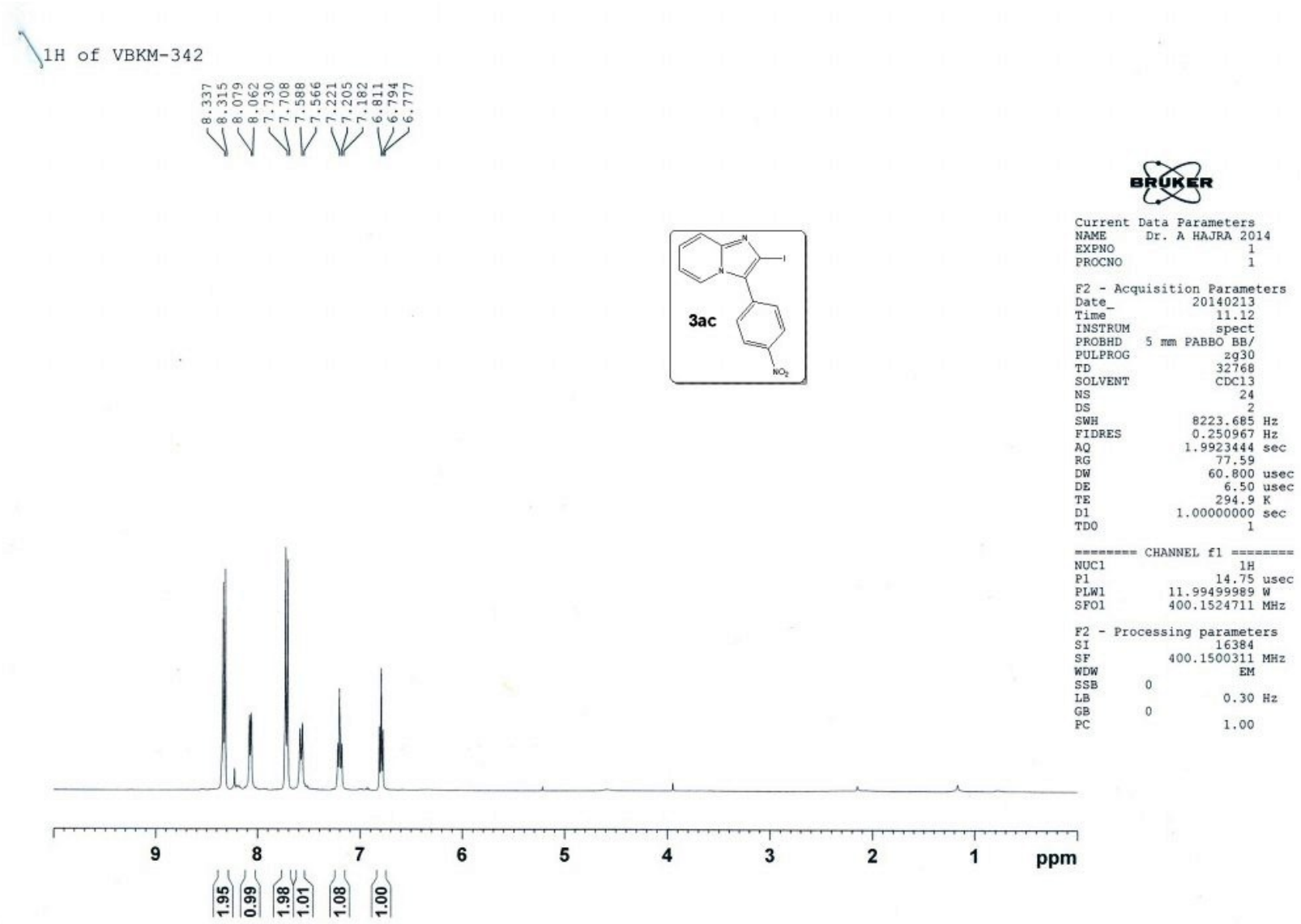
Current Data Parameters
NAME Dr. A HAJRA 2014
EXPNO 69
PROCNO 1

F2 - Acquisition Parameters
Date_ 20140218
Time 20.21
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 0.6816244 sec
RG 67.81
DW 20.800 usec
DE 6.50 usec
TE 295.4 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

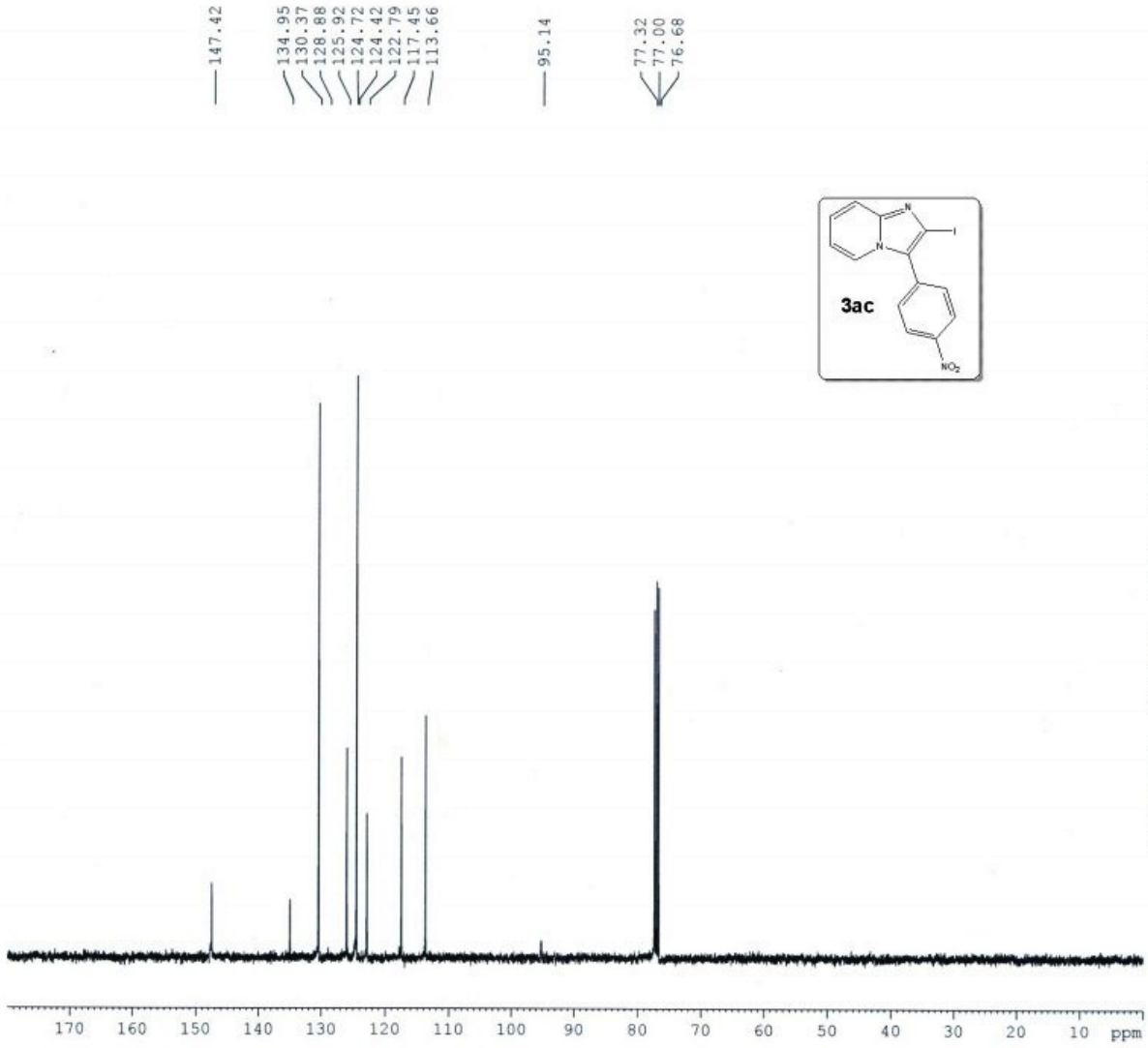
======== CHANNEL f1 ========
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W
SFO1 100.6278588 MHz

======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PLW2 12.00000000 W
PLW12 0.40792999 W
PLW13 0.26107001 W
SFO2 400.1516006 MHz

F2 - Processing parameters
SI 16384
SF 100.6178026 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40


1H of VBKM-342
8.337
8.315
8.079
8.062
7.730
7.708
7.588
7.566
7.221
7.205
7.182
6.811
6.794
6.777
3ac
Current Data Parameters
NAME Dr. A HAJRA 2014
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20140213
Time 11.12
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 24
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 77.59
DW 60.800 usec
DE 6.50 usec
TE 294.9 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 16384
SF 400.1500311 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9
8
7
6
5
4
3
2
1
ppm
1.95
0.99
1.98
1.01
1.08
1.00

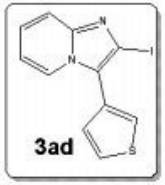
13C of VBKM-342/14

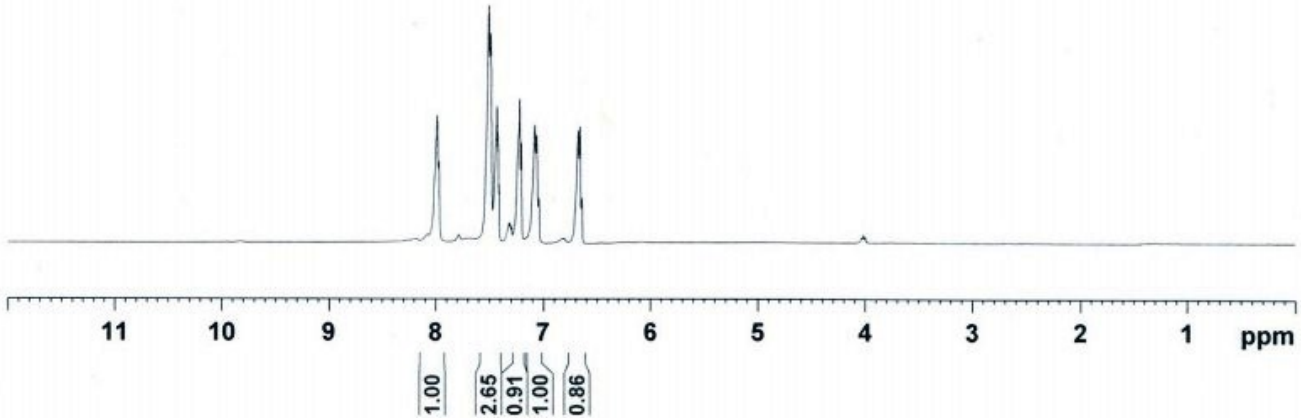


BRUKER

```
Current Data Parameters
NAME      Dr. A HAJRA 2014
EXPNO                   2
PROCNO                  1

F2 - Acquisition Parameters
Date_            20140213
Time                11.22
INSTRUM             spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                 32768
SOLVENT            CDCl3
NS                   160
DS                     2
SWH            24038.461 Hz
FIDRES          0.733596 Hz
AQ              0.6816244 sec
RG                 47.25
DW                20.800 usec
DE                 6.50 usec
TE                296.0 K
D1             2.00000000 sec
D11            0.03000000 sec
TD0                    1

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

======== CHANNEL f2 ========
CPDPRG2          waltz16
NUC2                  1H
PCPD2             80.00 usec
PLW2         12.00000000 W
PLW12         0.40792999 W
PLW13         0.26107001 W
SFO2        400.1516006 MHz

F2 - Processing parameters
SI                 16384
SF          100.6178084 MHz
WDW                   EM
SSB      0
LB                 1.00 Hz
GB       0
PC                 1.40
```

1H of VBKM-340





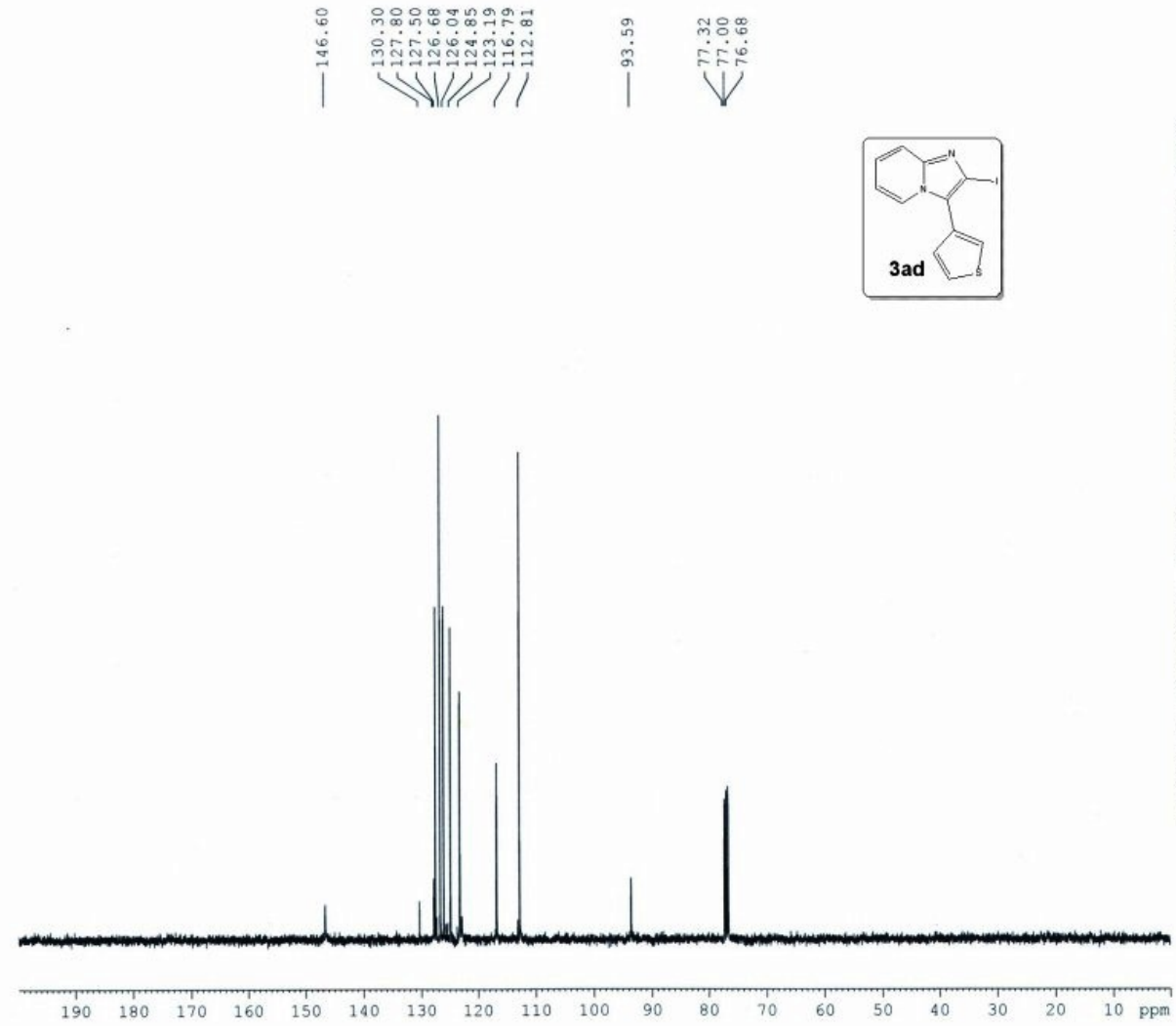
Current Data Parameters
NAME Dr. A HAJRA 2014
EXPNO 76
PROCNO 1

F2 - Acquisition Parameters
Date_ 20140219
Time 19.03
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 20
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 47.25
DW 60.800 usec
DE 6.50 usec
TE 292.6 K
D1 1.00000000 sec
TD0 1

======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz

F2 - Processing parameters
SI 16384
SF 400.1500317 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

13C of VBKM-340



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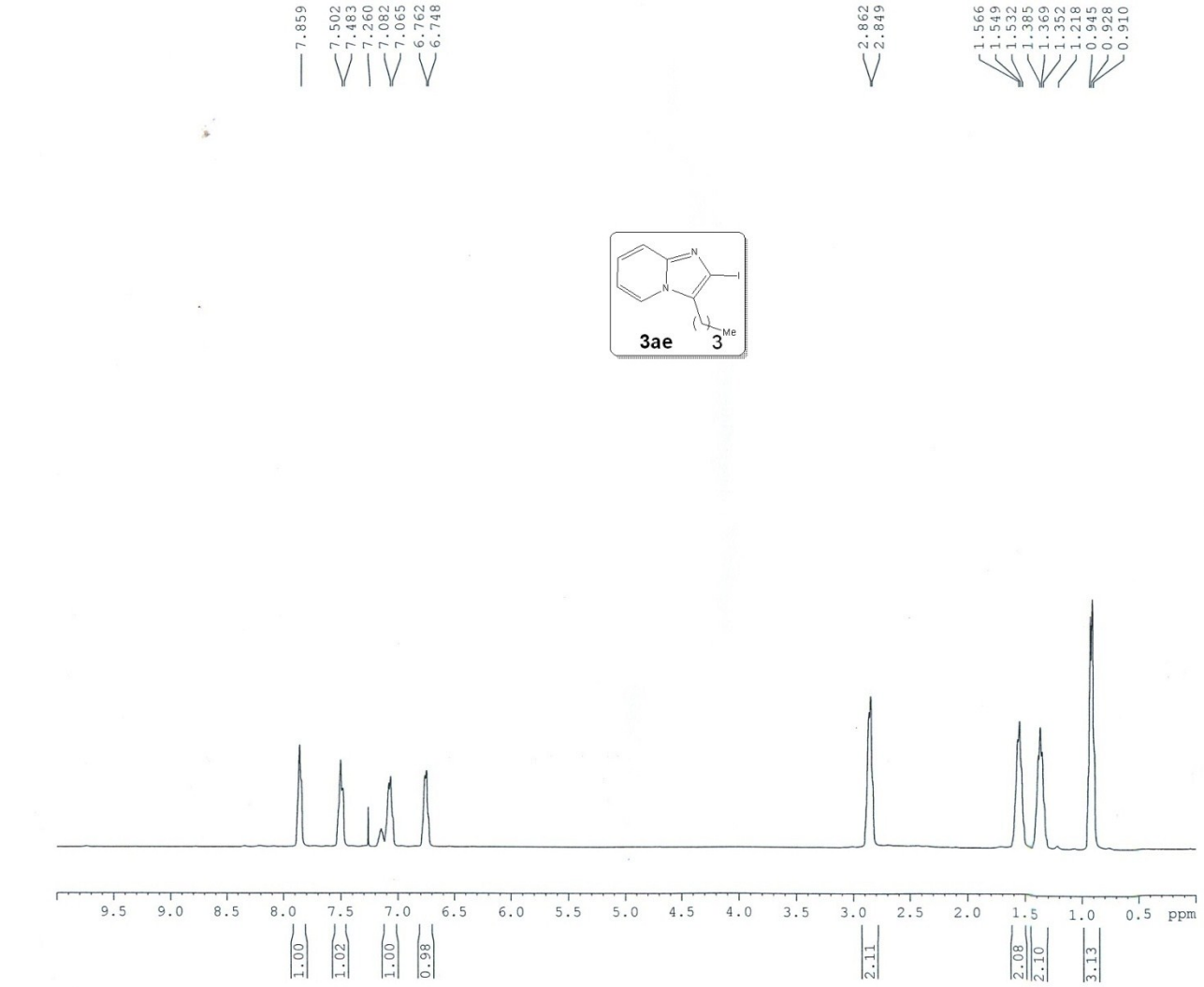
```
Current Data Parameters
NAME      Dr. A HAJRA 2014
EXPNO                 77
PROCNO                 1

F2 - Acquisition Parameters
Date_           20140219
Time              19.07
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             0.6816244 sec
RG                47.25
DW               20.800 usec
DE                6.50 usec
TE               293.1 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                   1

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

======== CHANNEL f2 ========
CPDPRG2          waltz16
NUC2                 1H
PCPD2             80.00 usec
PLW2        12.00000000 W
PLW12        0.40792999 W
PLW13        0.26107001 W
SFO2       400.1516006 MHz

F2 - Processing parameters
SI                16384
SF         100.6178179 MHz
WDW                  EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```

1H of VBKM-344



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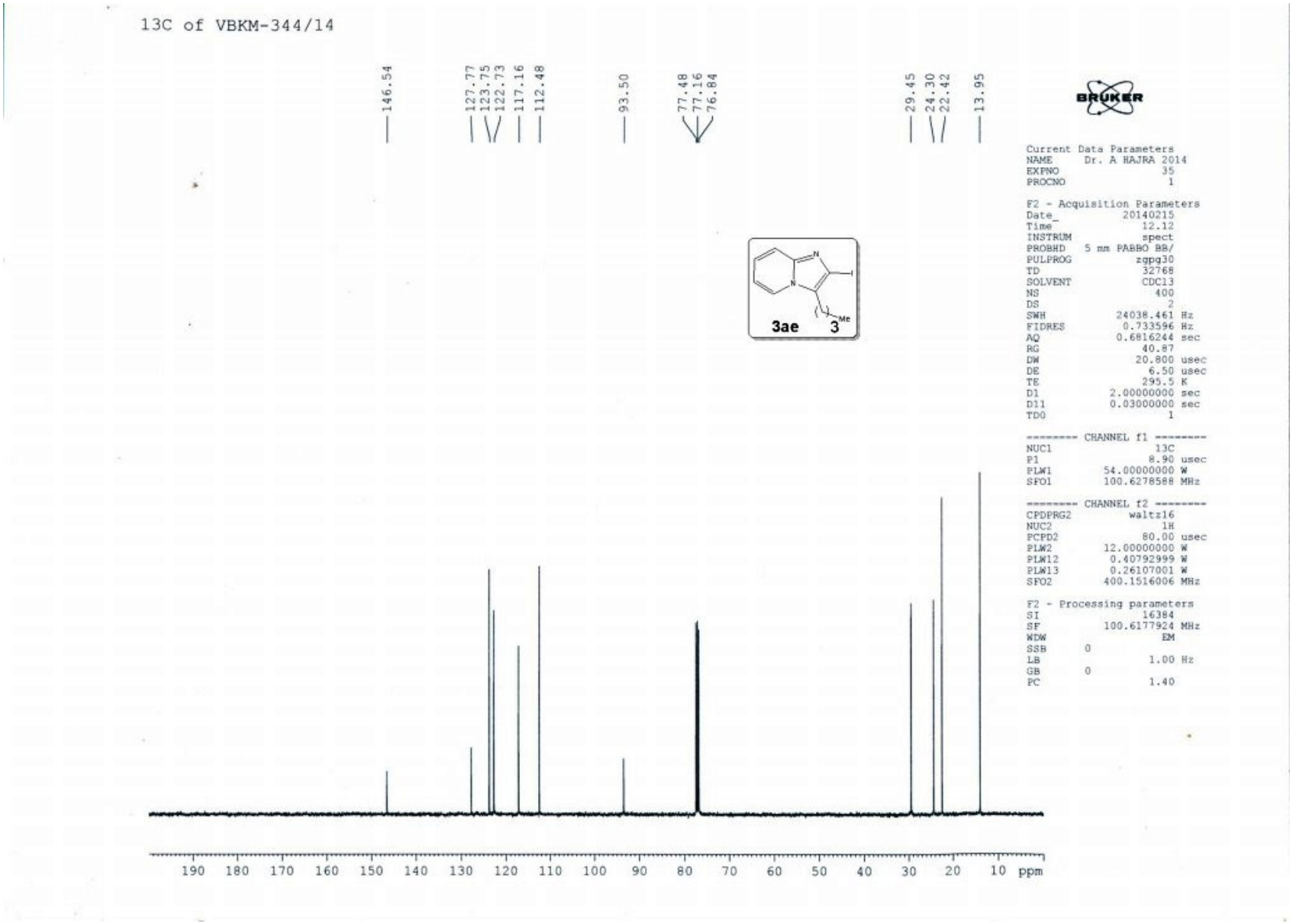
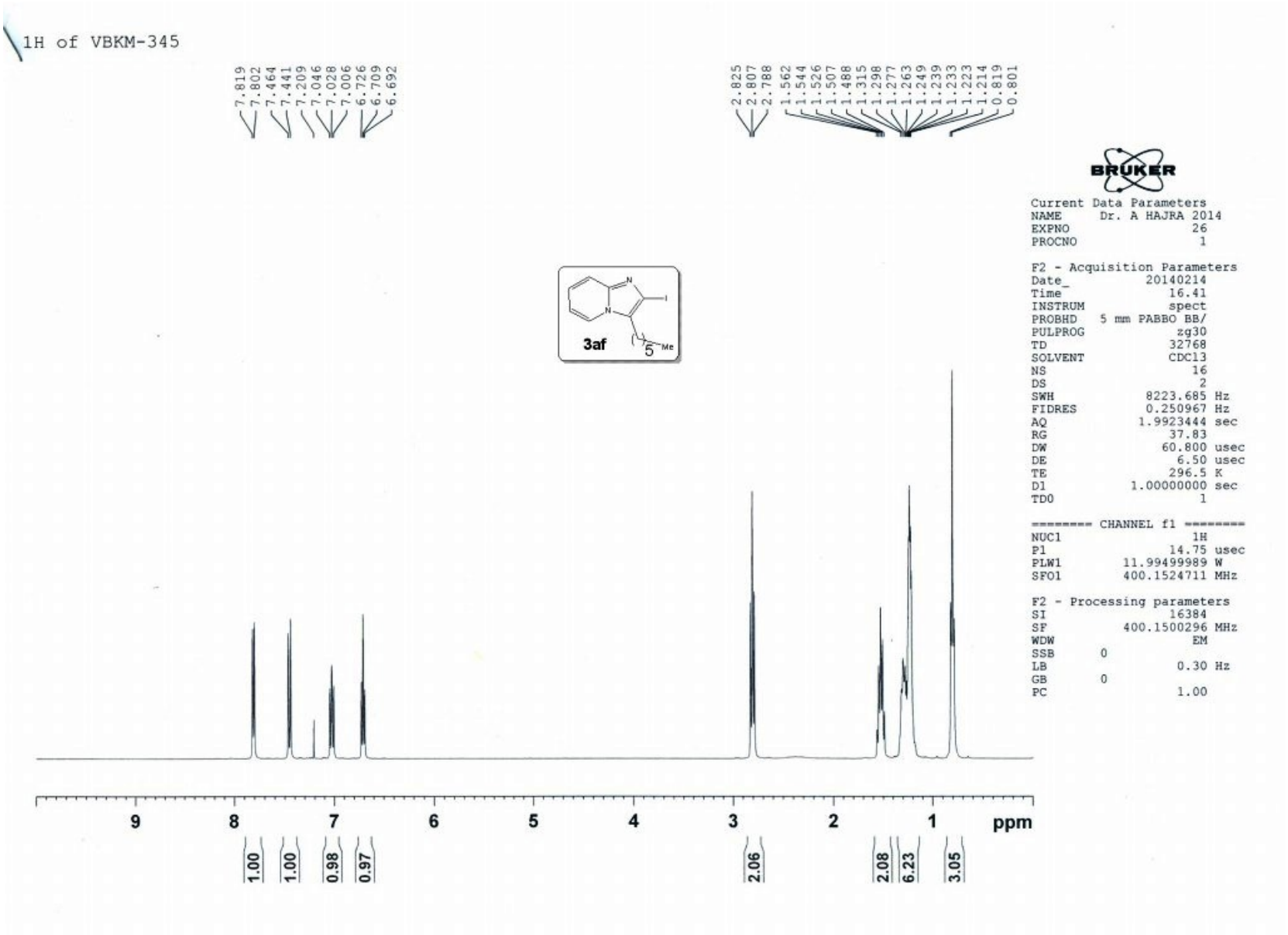
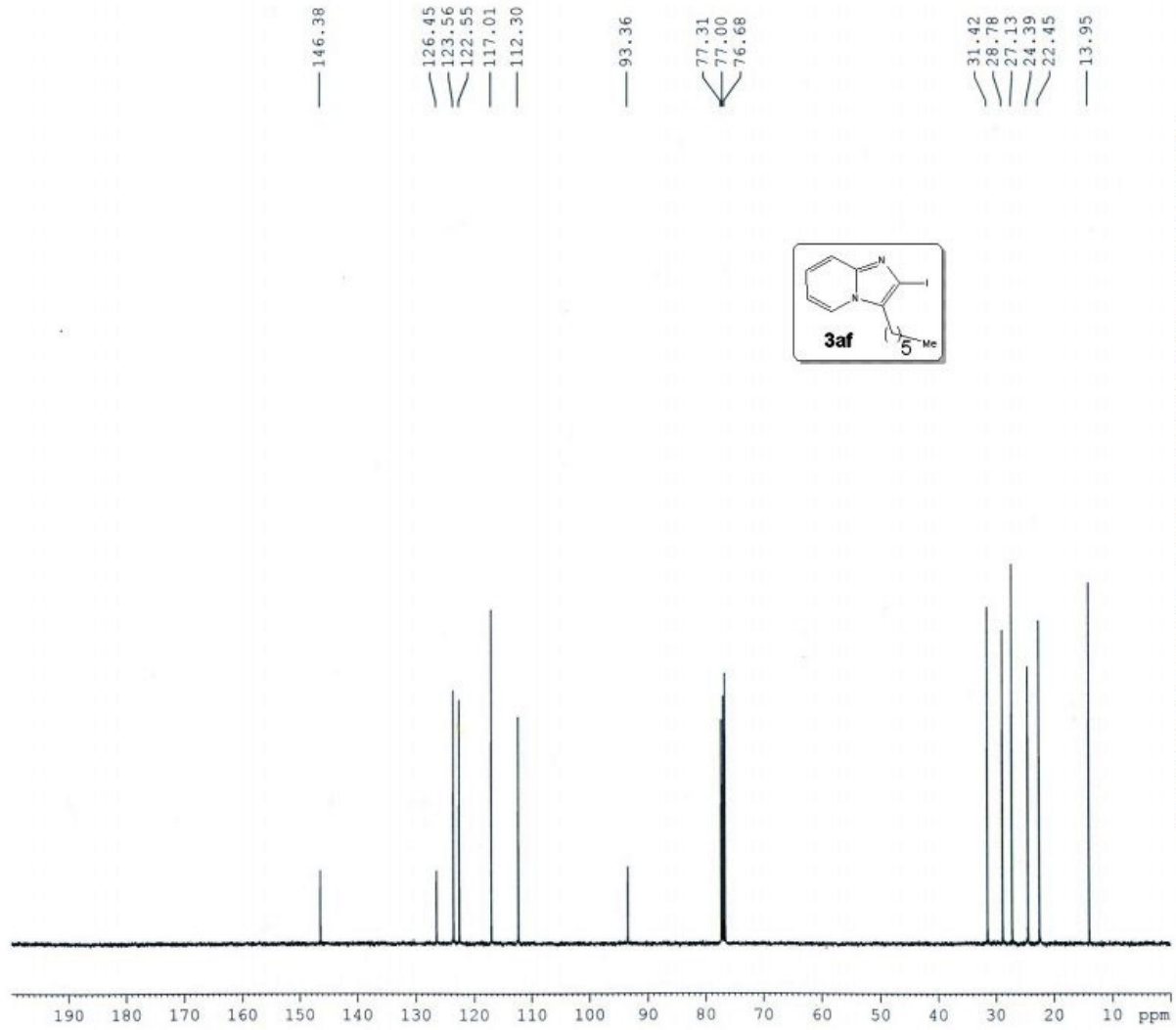
```
Current Data Parameters
NAME      Dr. A HAJRA 2014
EXPNO                 25
PROCNO                 1

F2 - Acquisition Parameters
Date_           20140214
Time              16.37
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG            zg30
TD                32768
SOLVENT           CDCl3
NS                   16
DS                    2
SWH            8223.685 Hz
FIDRES        0.250967 Hz
AQ            1.9923444 sec
RG                40.87
DW               60.800 usec
DE                6.50 usec
TE               296.4 K
D1            1.00000000 sec
TD0                   1

======== CHANNEL f1 ========
NUC1                  1H
P1                14.75 usec
PLW1        11.99499989 W
SFO1        400.1524711 MHz

F2 - Processing parameters
SI                16384
SF          400.1500090 MHz
WDW                  EM
SSB       0
LB                0.30 Hz
GB        0
PC                1.00
```


13C of VBKM-344/14
146.54
127.77
123.75
122.73
117.16
112.48
93.50
77.48
77.16
76.84
29.45
24.30
22.42
13.95
3ae
Current Data Parameters
NAME Dr. A HAJRA 2014
EXPNO 35
PROCNO 1
F2 - Acquisition Parameters
Date_ 20140215
Time 12.12
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 400
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 40.87
DW 20.800 usec
DE 6.50 usec
TE 295.5 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
CHANNEL f1
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W
SFO1 100.6278588 MHz
CHANNEL f2
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PLW2 12.00000000 W
PLW12 0.40792999 W
PLW13 0.26107001 W
SFO2 400.1516006 MHz
F2 - Processing parameters
SI 16384
SF 100.6177924 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm

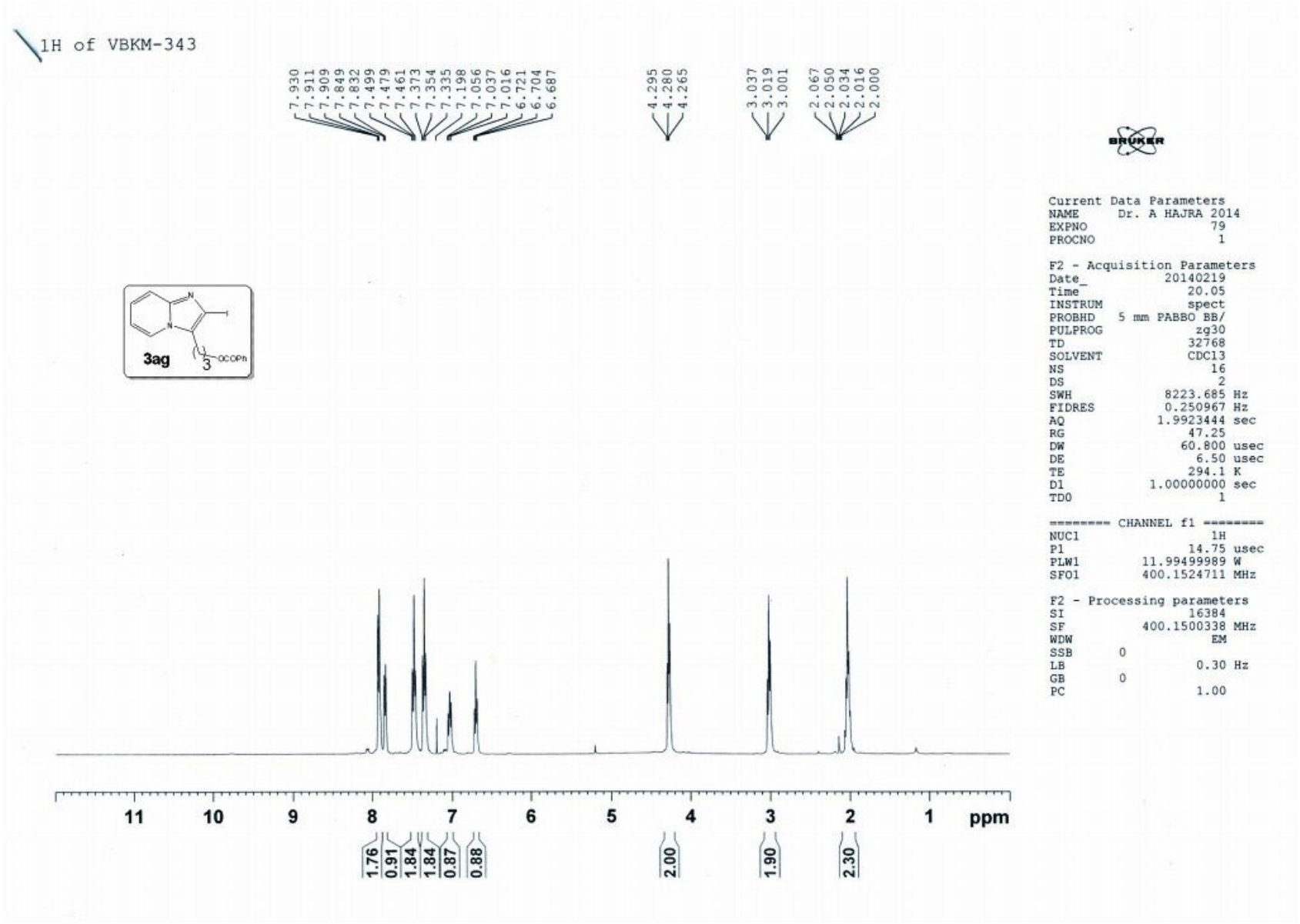

1H of VBKM-345
7.819
7.802
7.464
7.441
7.209
7.046
7.028
7.006
6.726
6.709
6.692
2.825
2.807
2.788
1.562
1.544
1.526
1.507
1.488
1.315
1.298
1.277
1.263
1.249
1.239
1.233
1.223
1.214
0.819
0.801
3af
Current Data Parameters
NAME Dr. A HAJRA 2014
EXPNO 26
PROCNO 1
F2 - Acquisition Parameters
Date_ 20140214
Time 16.41
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 16
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 37.83
DW 60.800 usec
DE 6.50 usec
TE 296.5 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 16384
SF 400.1500296 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9
8
7
6
5
4
3
2
1
ppm
1.00
1.00
0.98
0.97
2.06
2.08
6.23
3.05

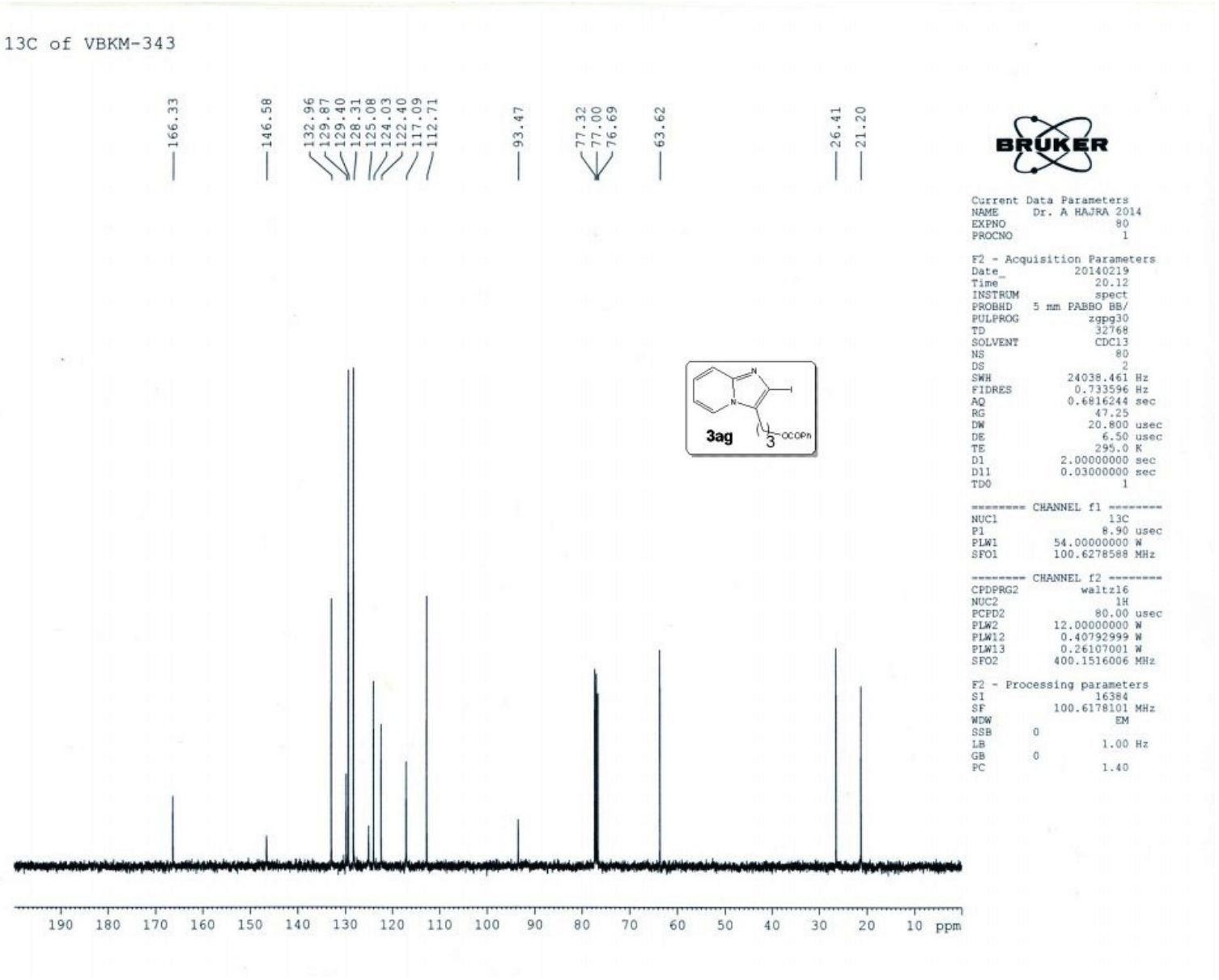
13C of VBKM-345/14

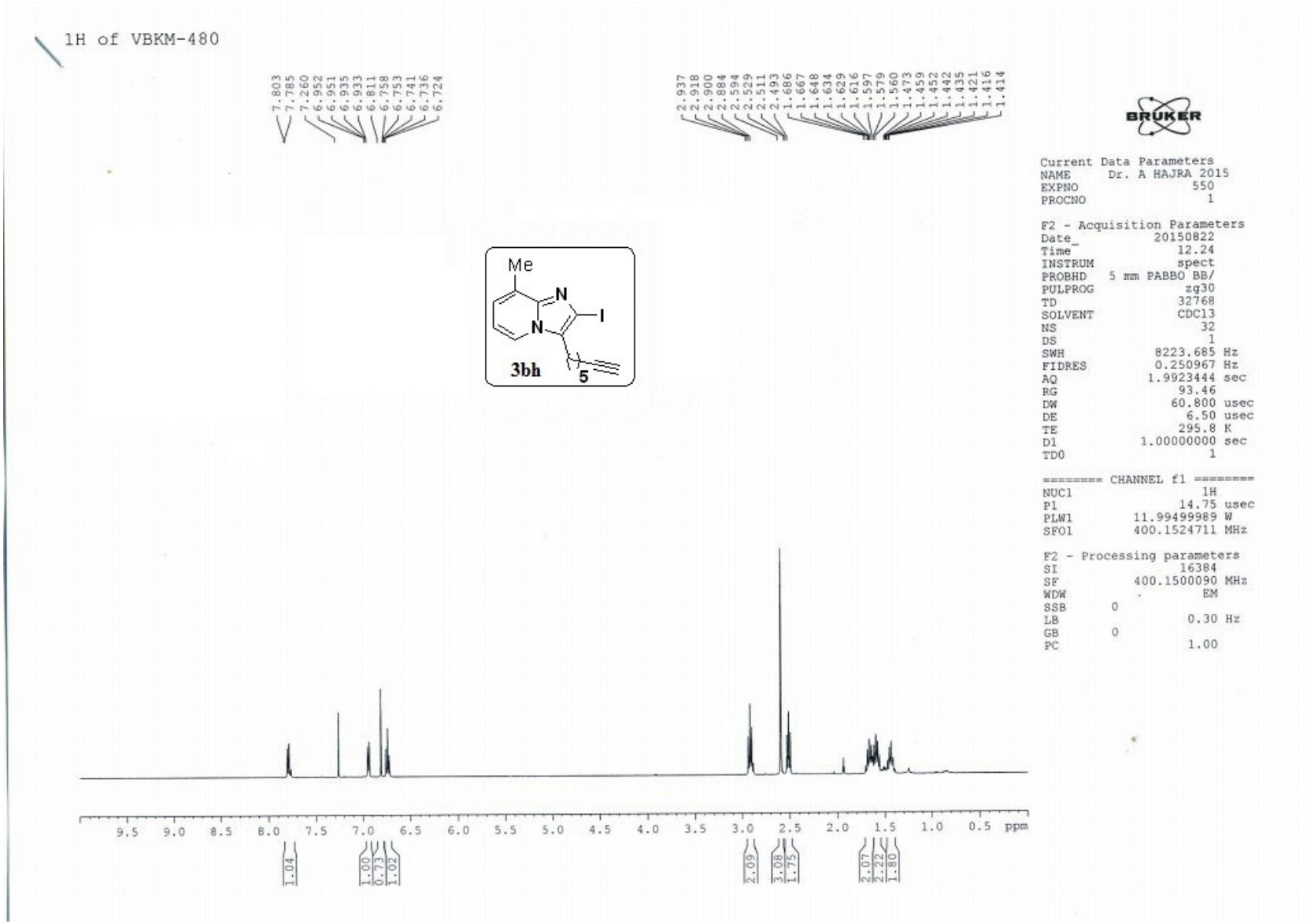


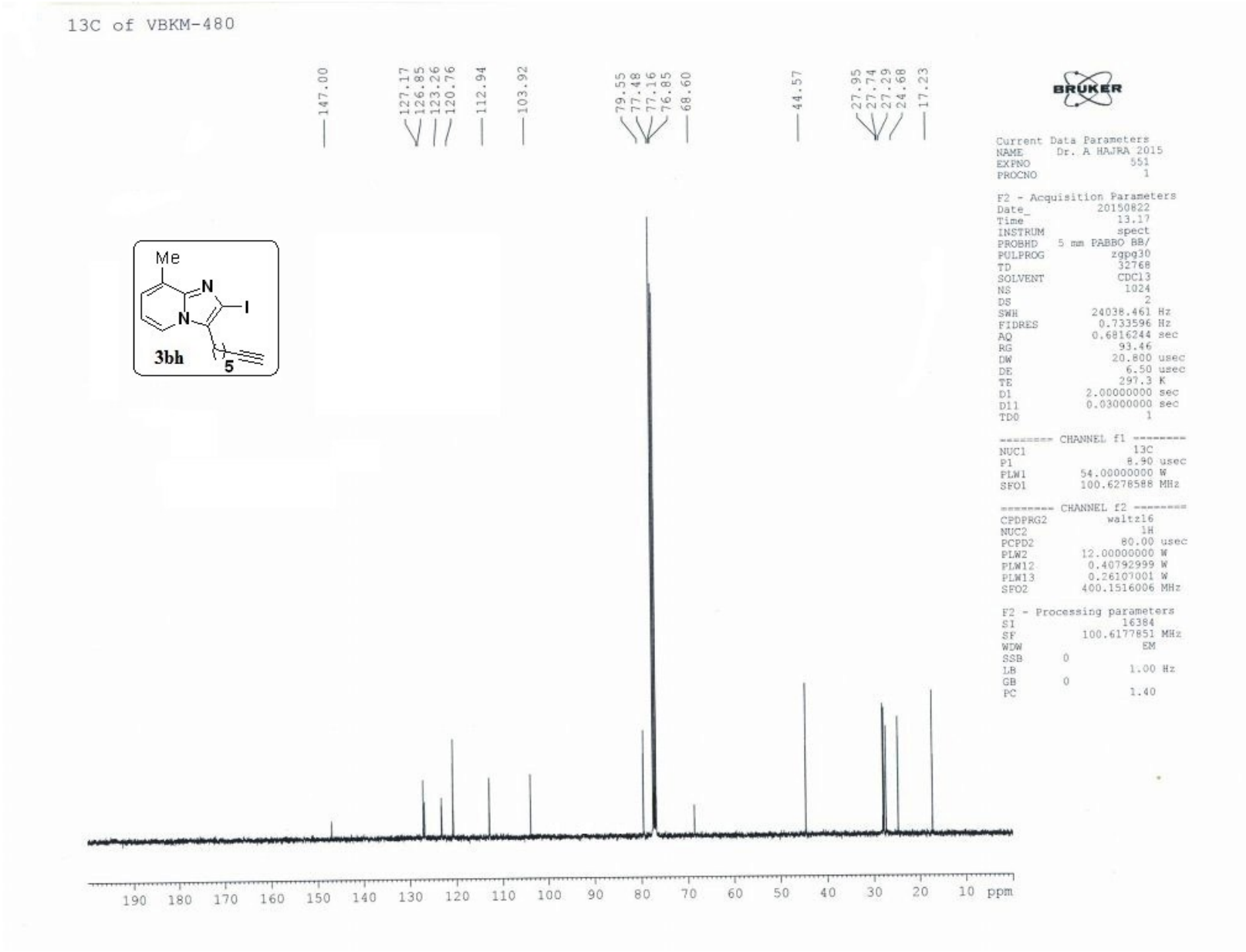
BRUKER

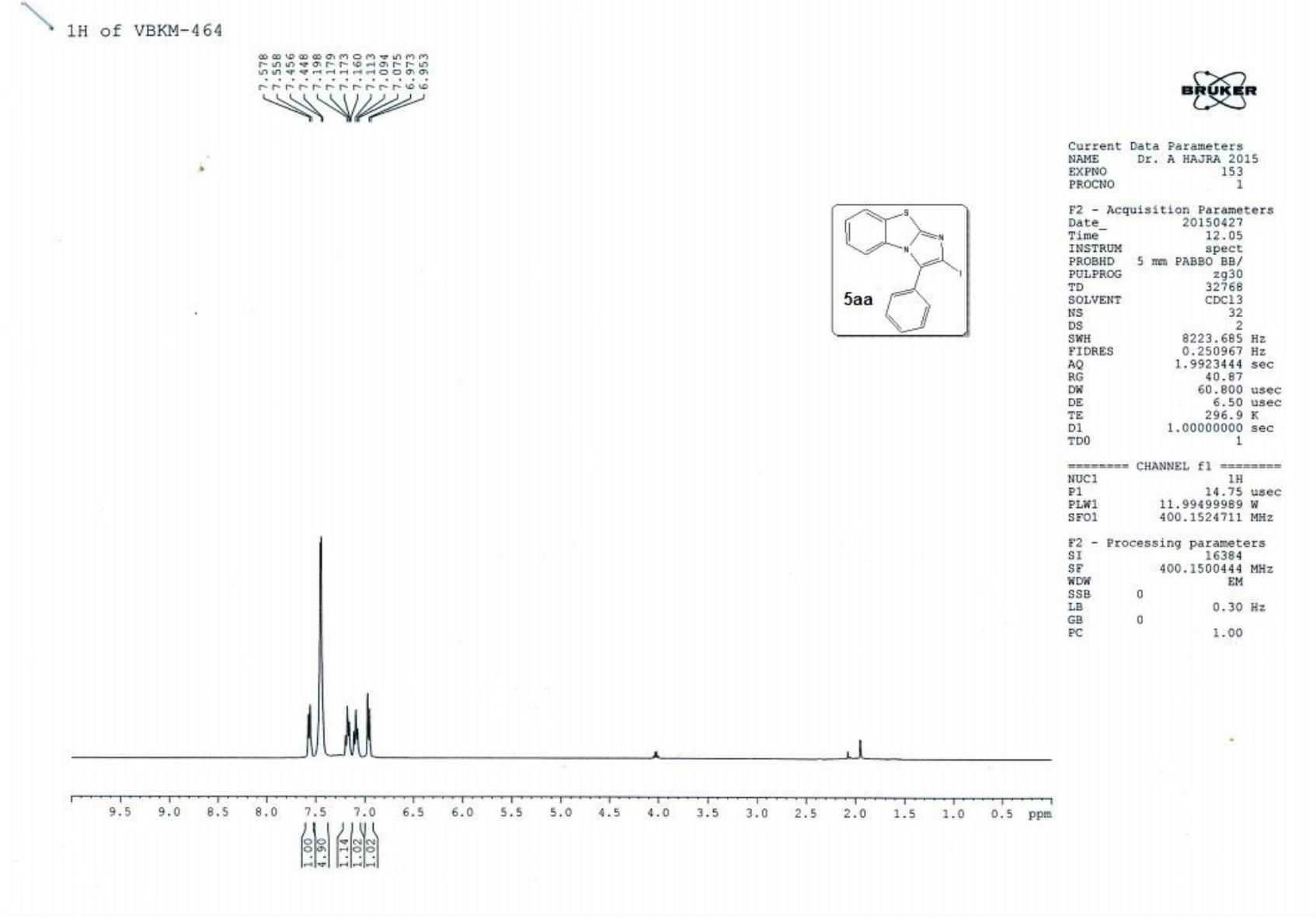
```
Current Data Parameters
NAME      Dr. A HAJRA 2014
EXPNO                  36
PROCNO                  1

F2 - Acquisition Parameters
Date_            20140215
Time                12.27
INSTRUM             spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                 32768
SOLVENT            CDCl3
NS                   400
DS                     2
SWH          24038.461 Hz
FIDRES        0.733596 Hz
AQ            0.6816244 sec
RG                37.83
DW               20.800 usec
DE                6.50 usec
TE               295.1 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                    1

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

======== CHANNEL f2 ========
CPDPRG2          waltz16
NUC2                 1H
PCPD2             80.00 usec
PLW2        12.00000000 W
PLW12        0.40792999 W
PLW13        0.26107001 W
SFO2       400.1516006 MHz

F2 - Processing parameters
SI                 16384
SF         100.6178085 MHz
WDW                   EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
```


1H of VBKM-343
7.930
7.911
7.909
7.849
7.832
7.499
7.479
7.461
7.373
7.354
7.335
7.198
7.056
7.037
7.016
6.721
6.704
6.687
4.295
4.280
4.265
3.037
3.019
3.001
2.067
2.050
2.034
2.016
2.000
3ag
OCOPh
Current Data Parameters
NAME Dr. A HAJRA 2014
EXPNO 79
PROCNO 1
F2 - Acquisition Parameters
Date_ 20140219
Time 20.05
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 16
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 47.25
DW 60.800 usec
DE 6.50 usec
TE 294.1 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 16384
SF 400.1500338 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
11
10
9
8
7
6
5
4
3
2
1
ppm
1.76
0.91
1.84
1.84
0.87
0.88
2.00
1.90
2.30

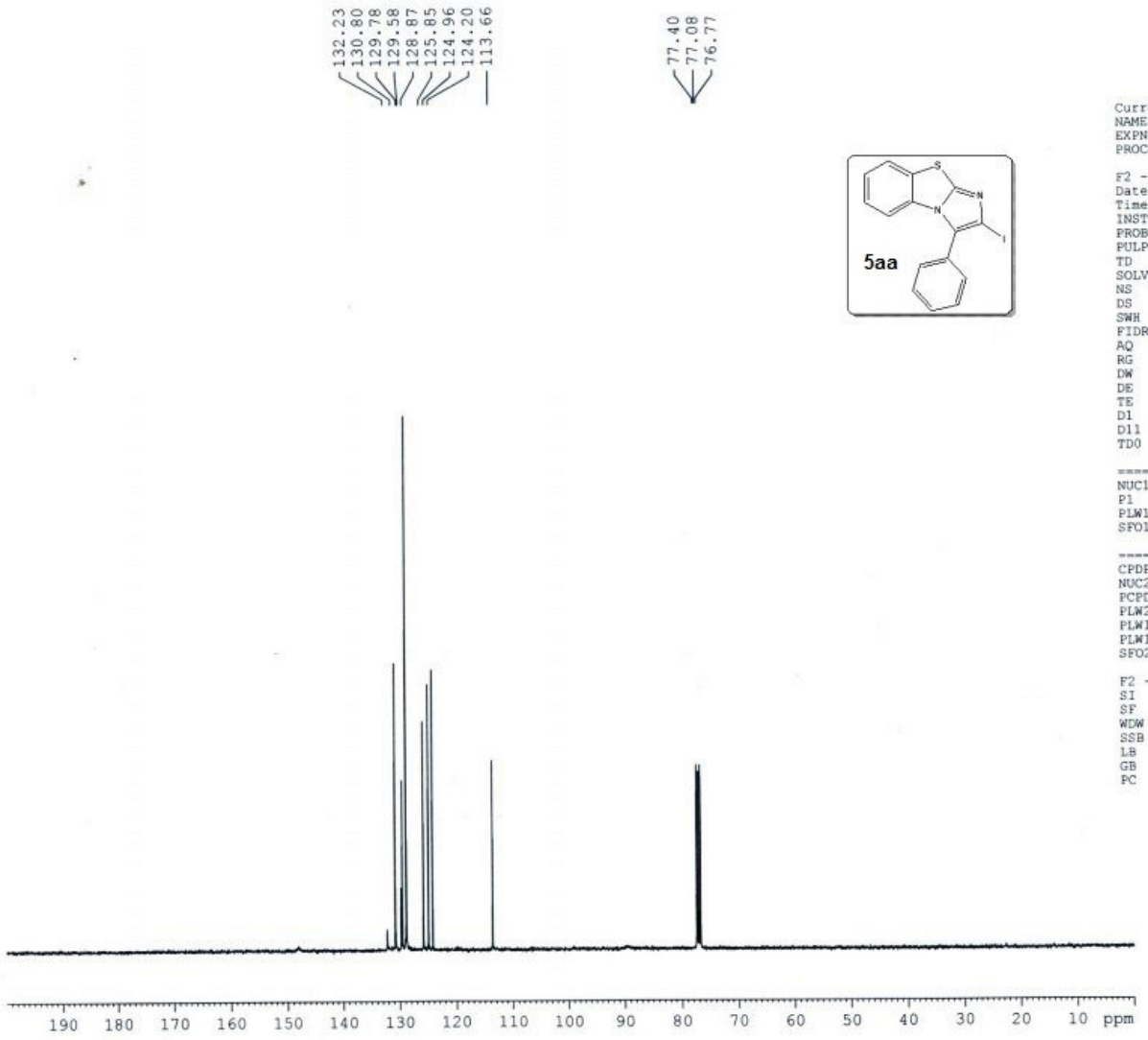

13C of VBKM-343
166.33
146.58
132.96
129.87
129.40
128.31
125.08
124.03
122.40
117.09
112.71
93.47
77.32
77.00
76.69
63.62
26.41
21.20
3ag
OCOPh
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm
BRUKER
Current Data Parameters
NAME Dr. A HAJRA 2014
EXPNO 80
PROCNO 1
F2 - Acquisition Parameters
Date_ 20140219
Time 20.12
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 0.6816244 sec
RG 47.25
DW 20.800 usec
DE 6.50 usec
TE 295.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W
SFO1 100.6278588 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PLW2 12.00000000 W
PLW12 0.40792999 W
PLW13 0.26107001 W
SFO2 400.1516006 MHz
F2 - Processing parameters
SI 16384
SF 100.6178101 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40


1H of VBKM-480
7.803
7.785
7.260
6.952
6.951
6.935
6.933
6.811
6.758
6.753
6.741
6.736
6.724
2.937
2.918
2.900
2.884
2.594
2.529
2.511
2.493
1.686
1.667
1.648
1.634
1.629
1.616
1.597
1.579
1.560
1.473
1.459
1.452
1.442
1.435
1.421
1.416
1.414
Me
N
N
I
3bh
5
BRUKER
Current Data Parameters
NAME Dr. A HAJRA 2015
EXPNO 550
PROCNO 1
F2 - Acquisition Parameters
Date_ 20150822
Time 12.24
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 1
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 93.46
DW 60.800 usec
DE 6.50 usec
TE 295.8 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 16384
SF 400.1500090 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 ppm
1.04
1.00
0.73
1.02
2.09
3.08
1.75
2.07
2.22
1.80


13C of VBKM-480
147.00
127.17
126.85
123.26
120.76
112.94
103.92
79.55
77.48
77.16
76.85
68.60
44.57
27.95
27.74
27.29
24.68
17.23
Me
N
N
I
3bh
5
BRUKER
Current Data Parameters
NAME Dr. A HAJRA 2015
EXPNO 551
PROCNO 1
F2 - Acquisition Parameters
Date_ 20150822
Time 13.17
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 1024
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 93.46
DW 20.800 usec
DE 6.50 usec
TE 297.3 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
CHANNEL f1
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W
SFO1 100.6278588 MHz
CHANNEL f2
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PLW2 12.00000000 W
PLW12 0.40792999 W
PLW13 0.26107001 W
SFO2 400.1516006 MHz
F2 - Processing parameters
SI 16384
SF 100.6177851 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm


1H of VBKM-464
7.578
7.558
7.456
7.448
7.198
7.179
7.173
7.160
7.113
7.094
7.075
6.973
6.953
5aa
Current Data Parameters
NAME Dr. A HAJRA 2015
EXPNO 153
PROCNO 1
F2 - Acquisition Parameters
Date_ 20150427
Time 12.05
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 40.87
DW 60.800 usec
DE 6.50 usec
TE 296.9 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 16384
SF 400.1500444 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 ppm
1.00
4.90
1.14
1.02
1.02

13C of VBKM-464



BRUKER

Current Data Parameters
NAME Dr. A HAJRA 2015
EXPNO 154
PROCNO 1

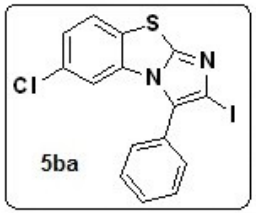
F2 - Acquisition Parameters
Date_ 20150427
Time 12.26
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 512
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 40.87
DW 20.800 usec
DE 6.50 usec
TE 297.9 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

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

======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PLW2 12.00000000 W
PLW12 0.40792999 W
PLW13 0.26107001 W
SFO2 400.1516006 MHz

F2 - Processing parameters
SI 16384
SF 100.6178026 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1H of VBKM-467

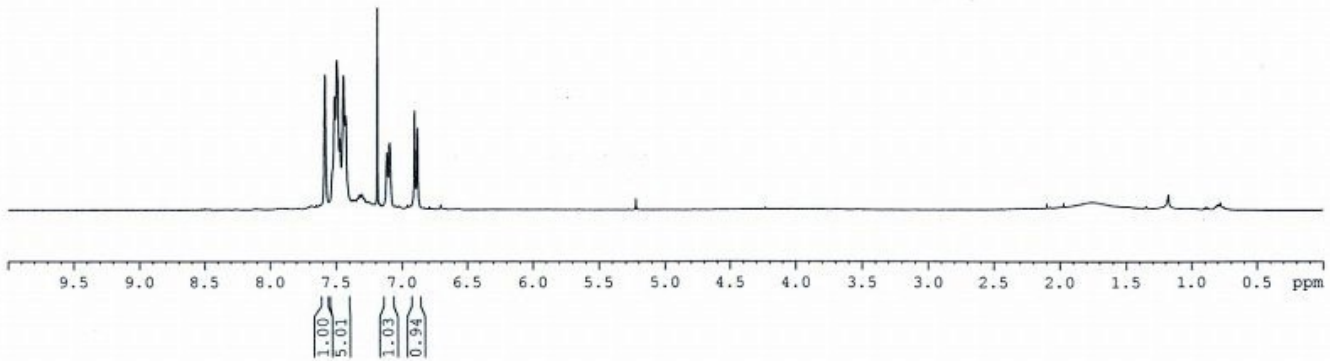


Current Data Parameters
NAME Dr. A HAJRA 2015
EXPNO 188
PROCNO 1

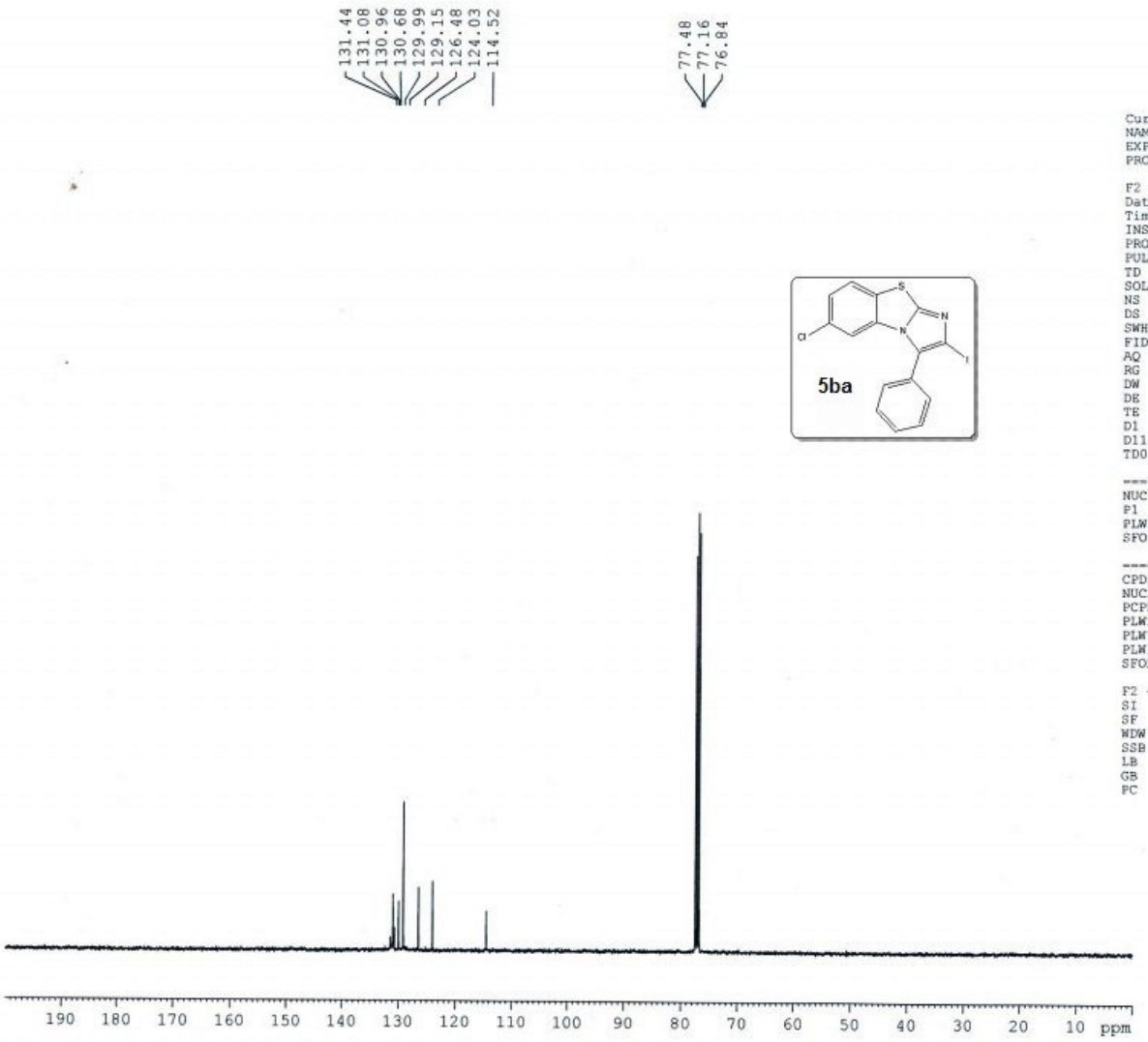
F2 - Acquisition Parameters
Date_ 20150504
Time 17.29
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 120.16
DW 60.800 usec
DE 6.50 usec
TE 296.1 K
D1 1.00000000 sec
TD0 1

======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz

F2 - Processing parameters
SI 16384
SF 400.1500377 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

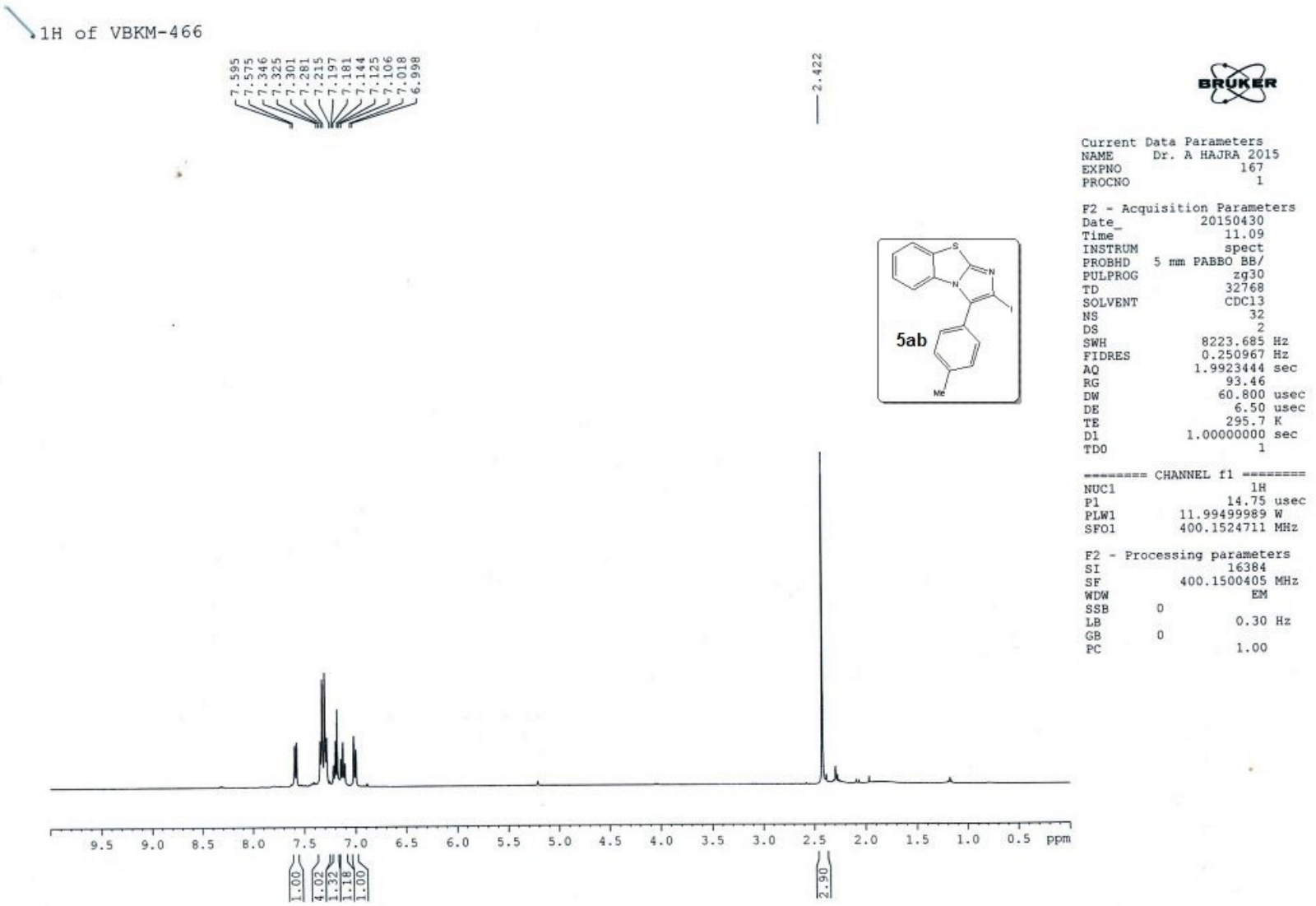


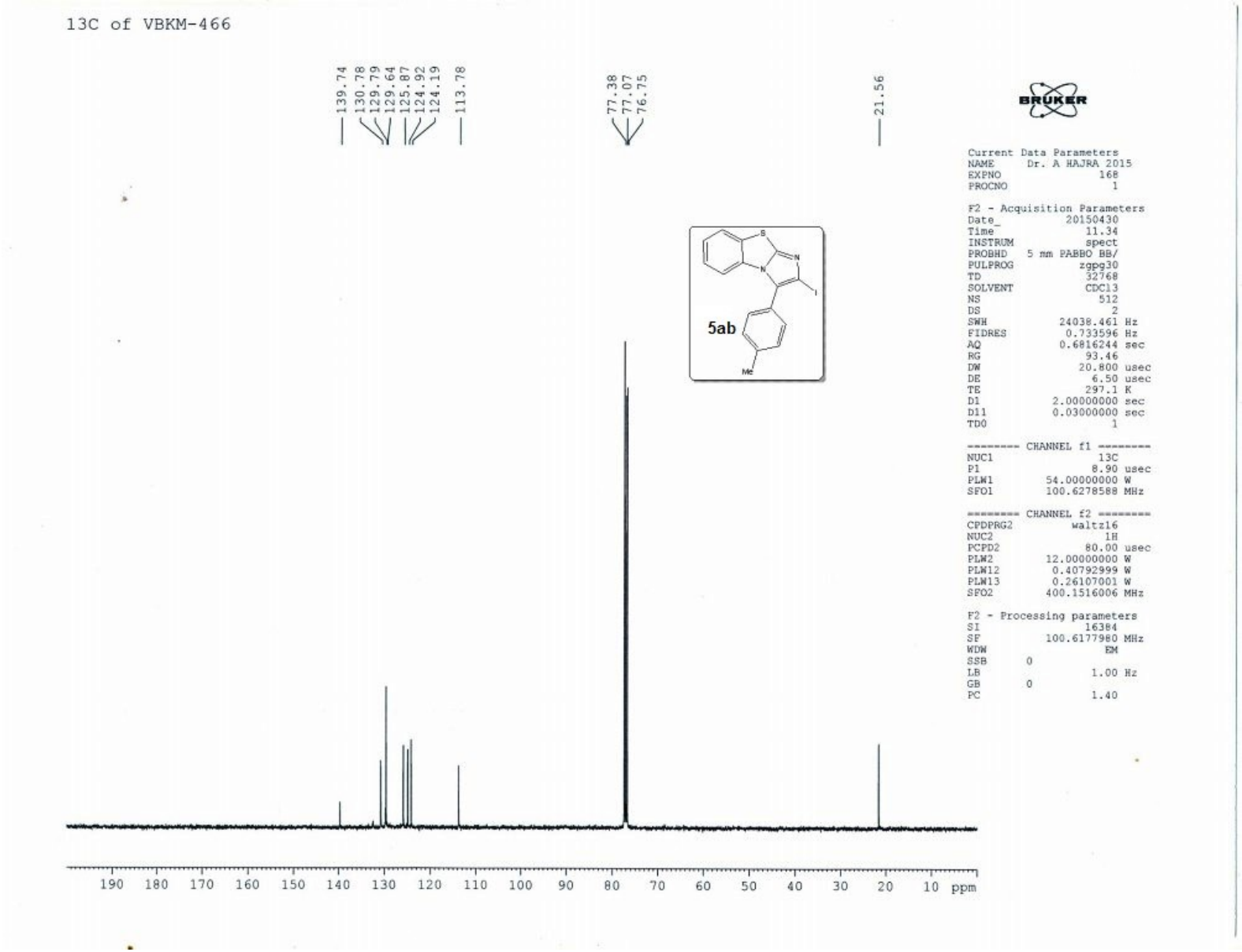
13C of VBKM-467/15

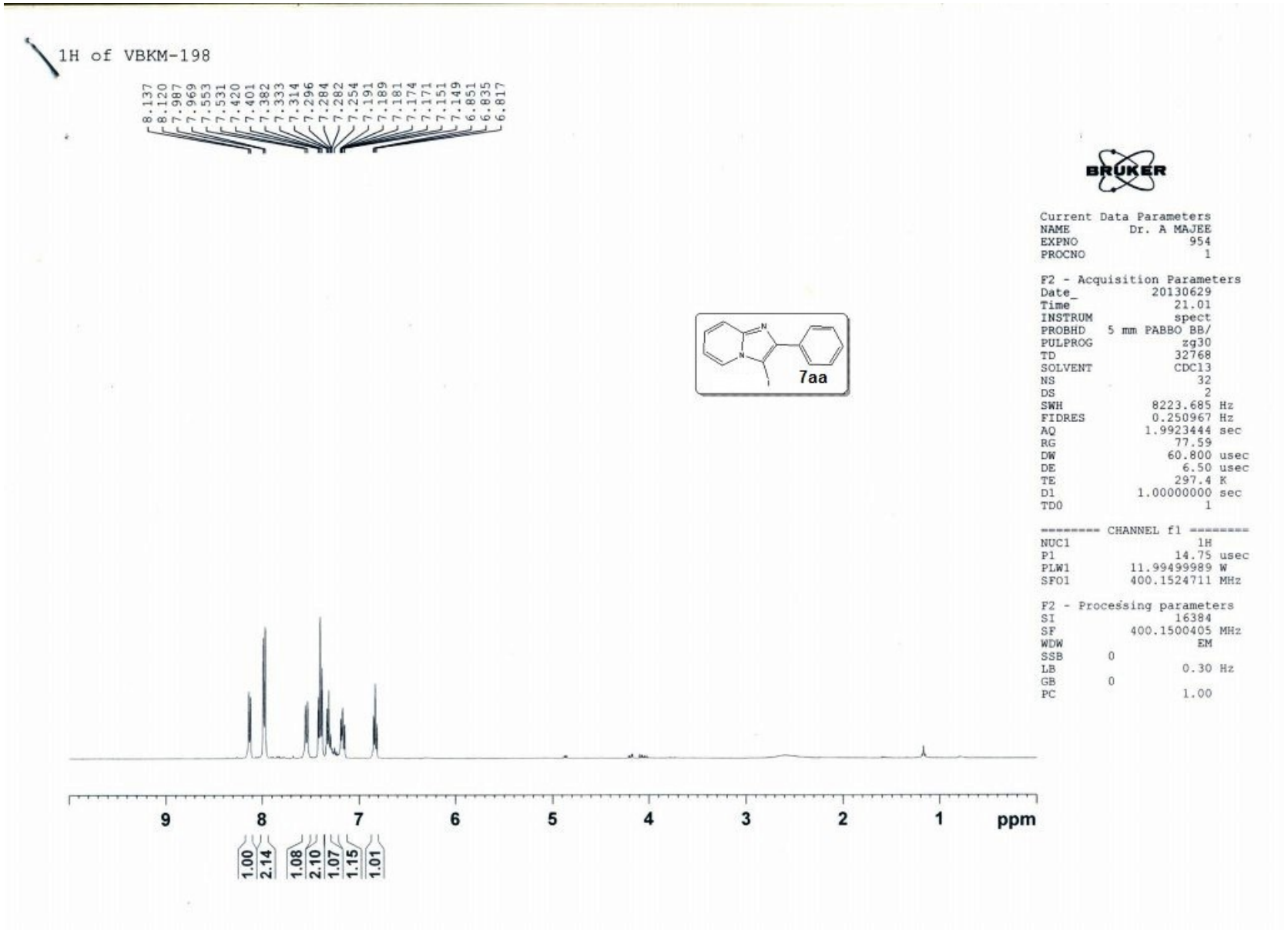


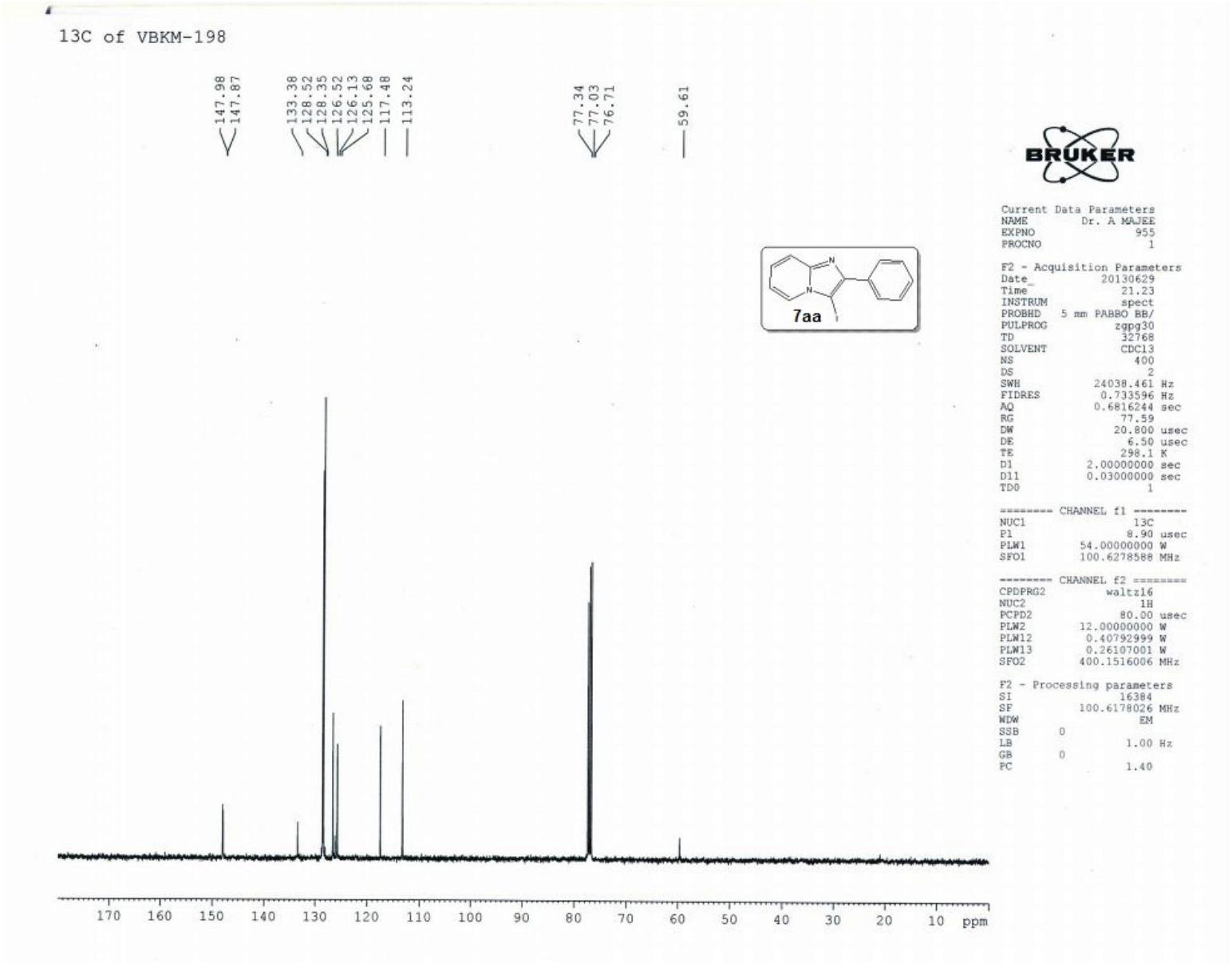
BRUKER

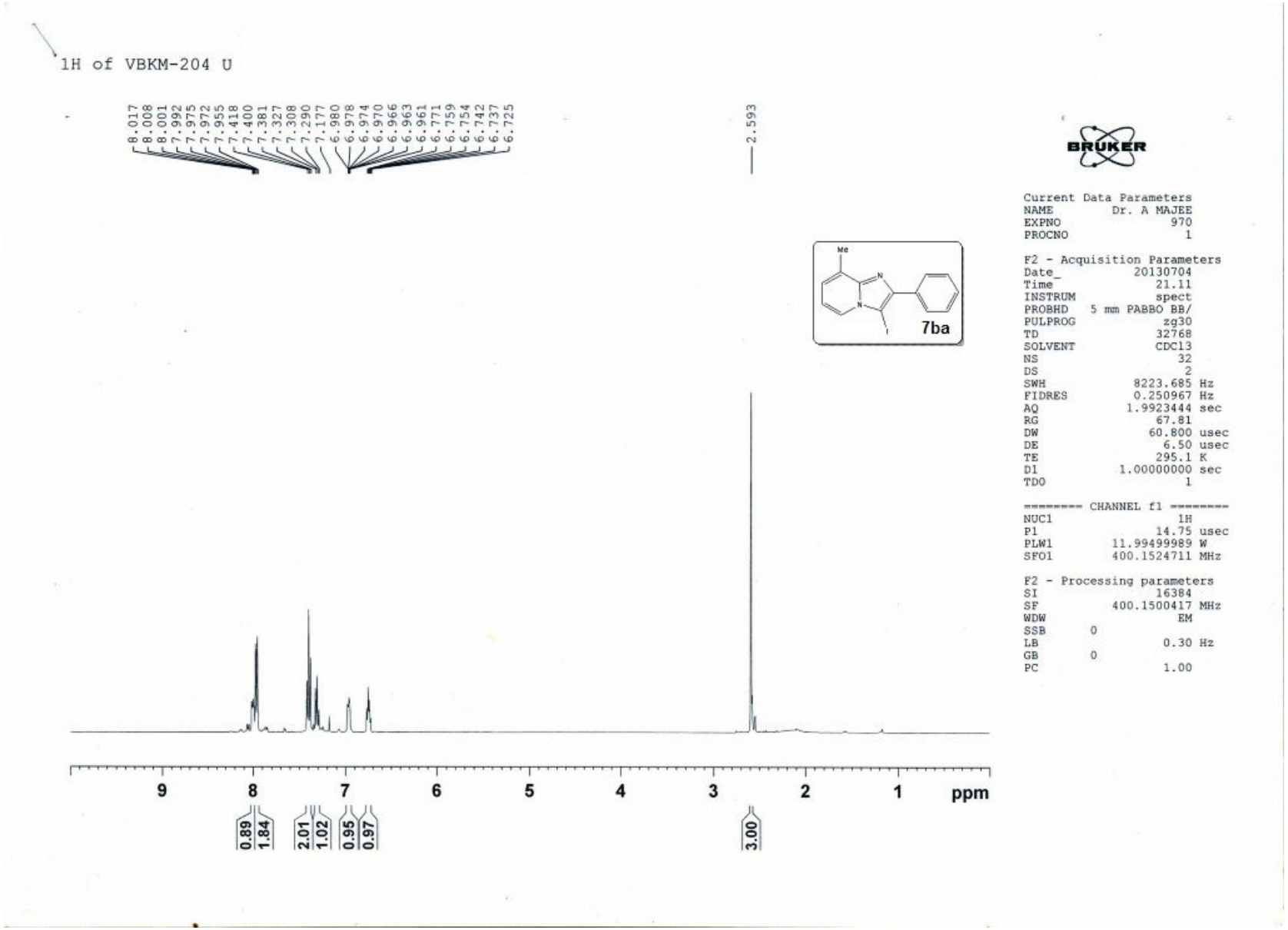
```
Current Data Parameters
NAME      Dr. A HAJRA 2015
EXPNO              207
PROCNO               1

F2 - Acquisition Parameters
Date_          20150508
Time              15.31
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD              32768
SOLVENT           CDCl3
NS                  640
DS                    2
SWH           24038.461 Hz
FIDRES        0.733596 Hz
AQ            0.6816244 sec
RG                87.66
DW               20.800 usec
DE                6.50 usec
TE               302.1 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                  1

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

======== CHANNEL f2 ========
CPDPRG2         waltz16
NUC2                1H
PCPD2            80.00 usec
PLW2         12.00000000 W
PLW12         0.40792999 W
PLW13         0.26107001 W
SFO2        400.1516006 MHz

F2 - Processing parameters
SI                 16384
SF          100.6177851 MHz
WDW                   EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
```

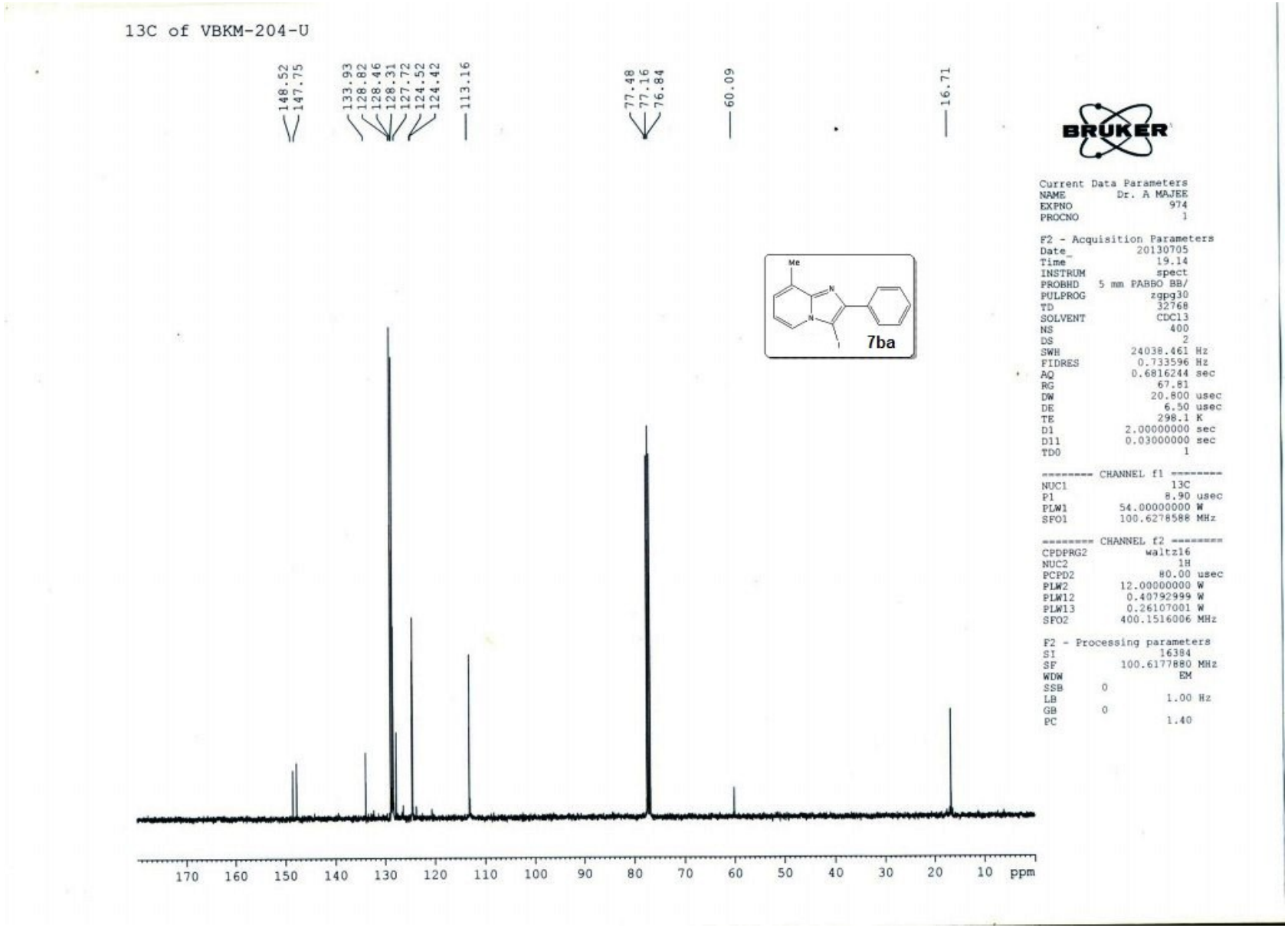

1H of VBKM-466
7.595
7.575
7.346
7.325
7.301
7.281
7.215
7.197
7.181
7.144
7.125
7.106
7.018
6.998
2.422
5ab
Me
Current Data Parameters
NAME Dr. A HAJRA 2015
EXPNO 167
PROCNO 1
F2 - Acquisition Parameters
Date_ 20150430
Time 11.09
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 93.46
DW 60.800 usec
DE 6.50 usec
TE 295.7 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 16384
SF 400.1500405 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 ppm
1.00
4.02
1.32
1.18
1.00
2.90

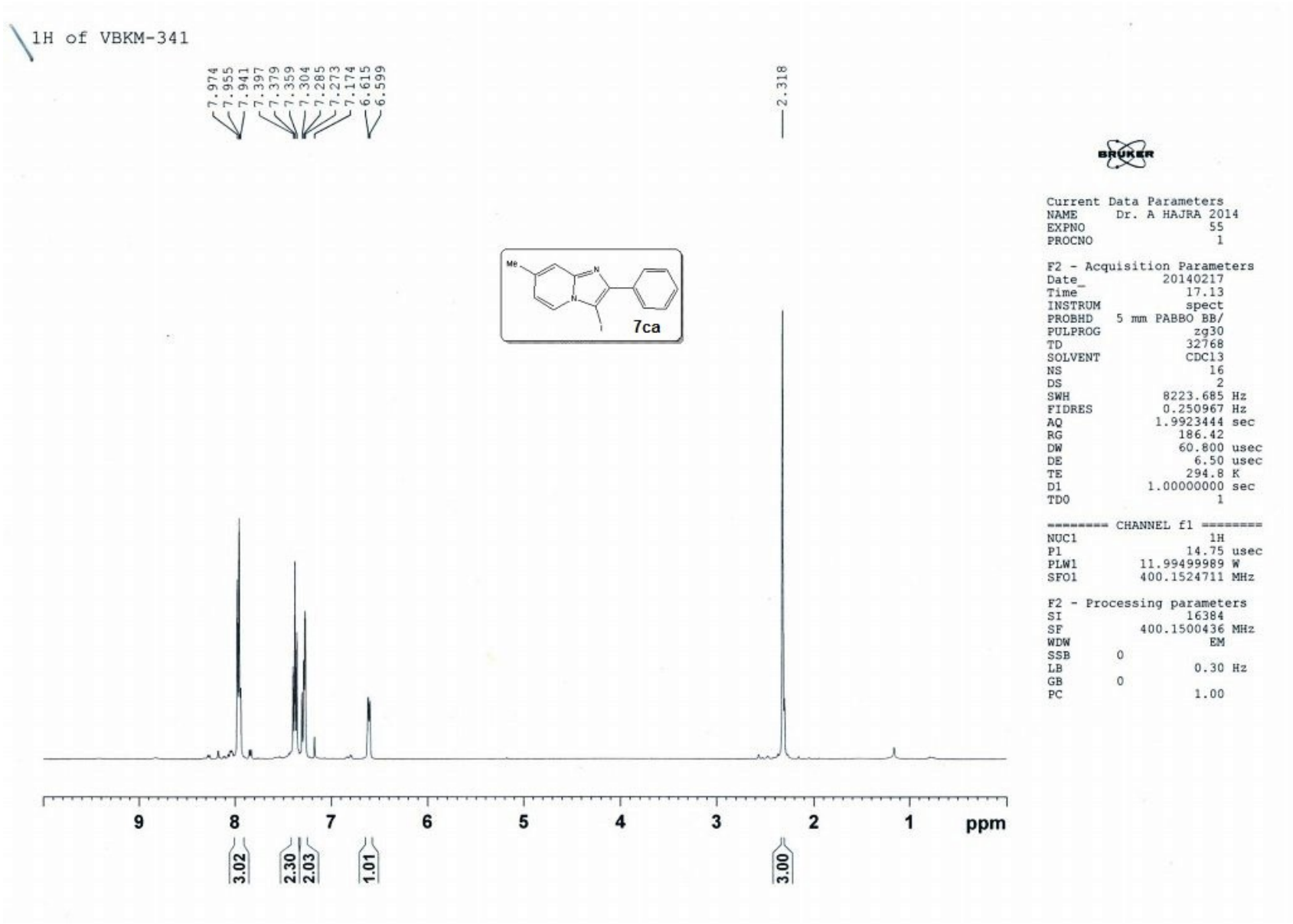

13C of VBKM-466
139.74
130.78
129.79
129.64
125.87
124.92
124.19
113.78
77.38
77.07
76.75
21.56
5ab
Me
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm
Current Data Parameters
NAME Dr. A HAJRA 2015
EXPNO 168
PROCNO 1
F2 - Acquisition Parameters
Date_ 20150430
Time 11.34
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 512
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 93.46
DW 20.800 usec
DE 6.50 usec
TE 297.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
CHANNEL f1
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W
SFO1 100.6278588 MHz
CHANNEL f2
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PLW2 12.00000000 W
PLW12 0.40792999 W
PLW13 0.26107001 W
SFO2 400.1516006 MHz
F2 - Processing parameters
SI 16384
SF 100.6177980 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40


1H of VBKM-198
8.137
8.120
7.987
7.969
7.553
7.531
7.420
7.401
7.382
7.333
7.314
7.296
7.284
7.282
7.254
7.191
7.189
7.181
7.174
7.171
7.151
7.149
6.851
6.835
6.817
7aa
Current Data Parameters
NAME Dr. A MAJEE
EXPNO 954
PROCNO 1
F2 - Acquisition Parameters
Date_ 20130629
Time 21.01
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 77.59
DW 60.800 usec
DE 6.50 usec
TE 297.4 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 16384
SF 400.1500405 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9
8
7
6
5
4
3
2
1
ppm
1.00
2.14
1.08
2.10
1.07
1.15
1.01

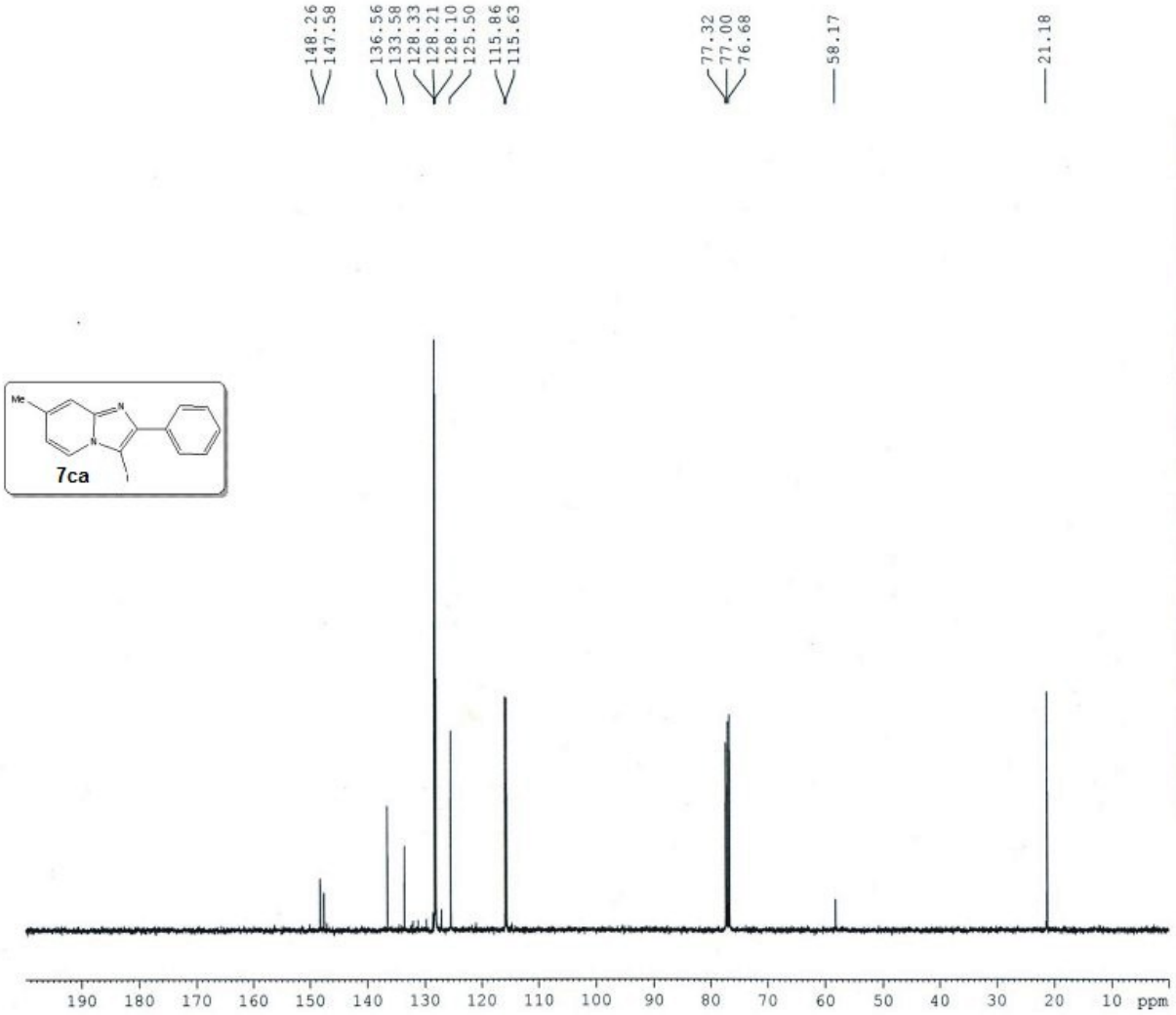

13C of VBKM-198
147.98
147.87
133.38
128.52
128.35
126.52
126.13
125.68
117.48
113.24
77.34
77.03
76.71
59.61
7aa
BRUKER
Current Data Parameters
NAME Dr. A MAJEE
EXPNO 955
PROCNO 1
F2 - Acquisition Parameters
Date_ 20130629
Time 21.23
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 400
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 77.59
DW 20.800 usec
DE 6.50 usec
TE 298.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W
SFO1 100.6278588 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PLW2 12.00000000 W
PLW12 0.40792999 W
PLW13 0.26107001 W
SFO2 400.1516006 MHz
F2 - Processing parameters
SI 16384
SF 100.6178026 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm


1H of VBKM-204 U
8.017
8.008
8.001
7.992
7.975
7.972
7.955
7.418
7.400
7.381
7.327
7.308
7.290
7.177
6.980
6.978
6.974
6.970
6.966
6.963
6.961
6.771
6.759
6.754
6.742
6.737
6.725
2.593
Me
N
N
I
7ba
9
8
7
6
5
4
3
2
1
ppm
0.89
1.84
2.01
1.02
0.95
0.97
3.00
BRUKER
Current Data Parameters
NAME Dr. A MAJEE
EXPNO 970
PROCNO 1
F2 - Acquisition Parameters
Date_ 20130704
Time 21.11
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 67.81
DW 60.800 usec
DE 6.50 usec
TE 295.1 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 16384
SF 400.1500417 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00


13C of VBKM-204-U
148.52
147.75
133.93
128.82
128.46
128.31
127.72
124.52
124.42
113.16
77.48
77.16
76.84
60.09
16.71
Me
N
N
I
7ba
170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm
BRUKER
Current Data Parameters
NAME Dr. A MAJEE
EXPNO 974
PROCNO 1
F2 - Acquisition Parameters
Date_ 20130705
Time 19.14
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 400
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 67.81
DW 20.800 usec
DE 6.50 usec
TE 298.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W
SFO1 100.6278588 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PLW2 12.00000000 W
PLW12 0.40792999 W
PLW13 0.26107001 W
SFO2 400.1516006 MHz
F2 - Processing parameters
SI 16384
SF 100.6177880 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40


1H of VBKM-341
7.974
7.955
7.941
7.397
7.379
7.359
7.304
7.285
7.273
7.174
6.615
6.599
2.318
Me
N
N
I
7ca
9
8
7
6
5
4
3
2
1
ppm
3.02
2.30
2.03
1.01
3.00
BRUKER
Current Data Parameters
NAME Dr. A HAJRA 2014
EXPNO 55
PROCNO 1
F2 - Acquisition Parameters
Date_ 20140217
Time 17.13
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 16
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 186.42
DW 60.800 usec
DE 6.50 usec
TE 294.8 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 16384
SF 400.1500436 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

13C of VBKM-341



BRUKER

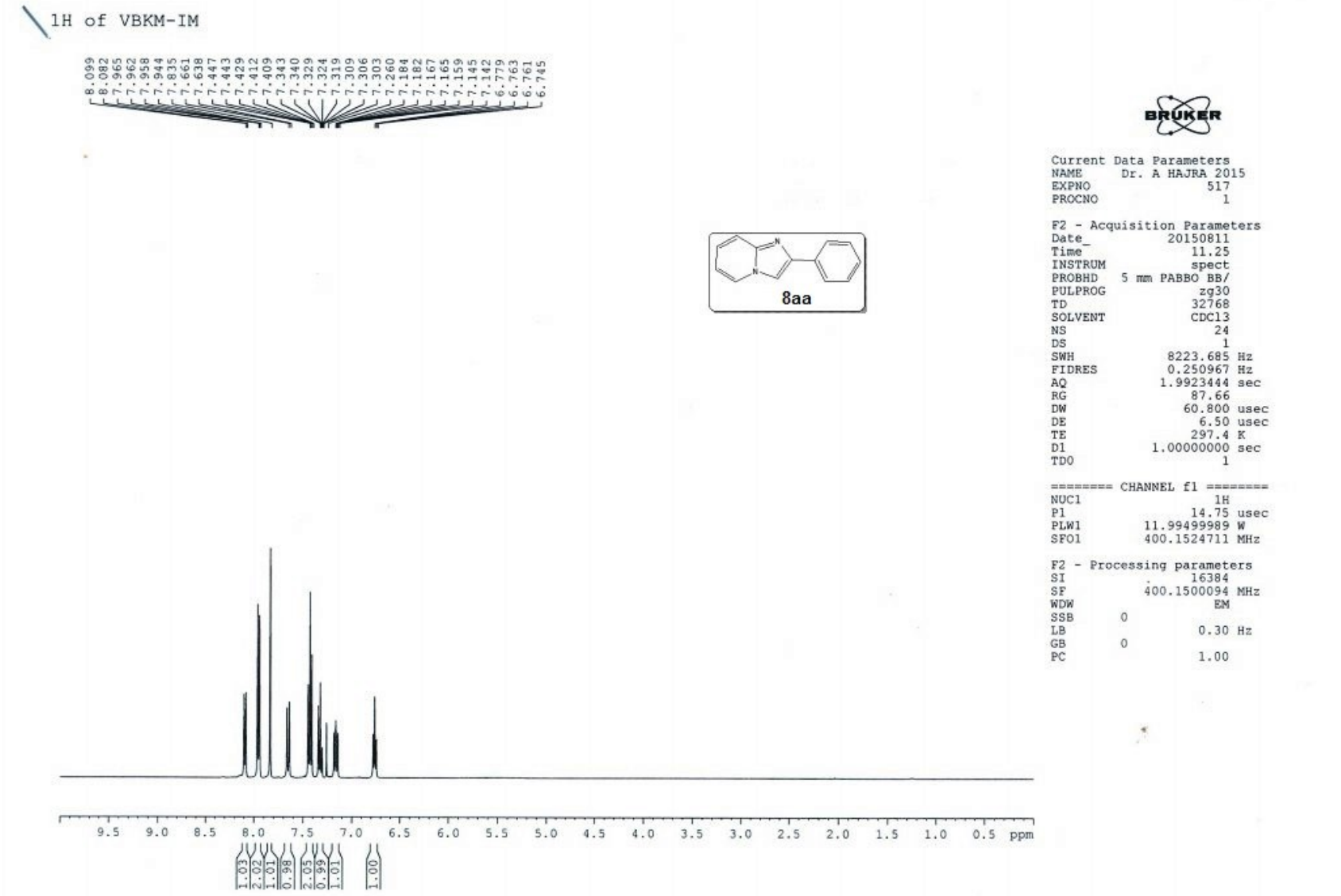
Current Data Parameters
NAME Dr. A HAJRA 2014
EXPNO 59
PROCNO 1

F2 - Acquisition Parameters
Date_ 20140217
Time 17.49
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 160
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 54.07
DW 20.800 usec
DE 6.50 usec
TE 295.4 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

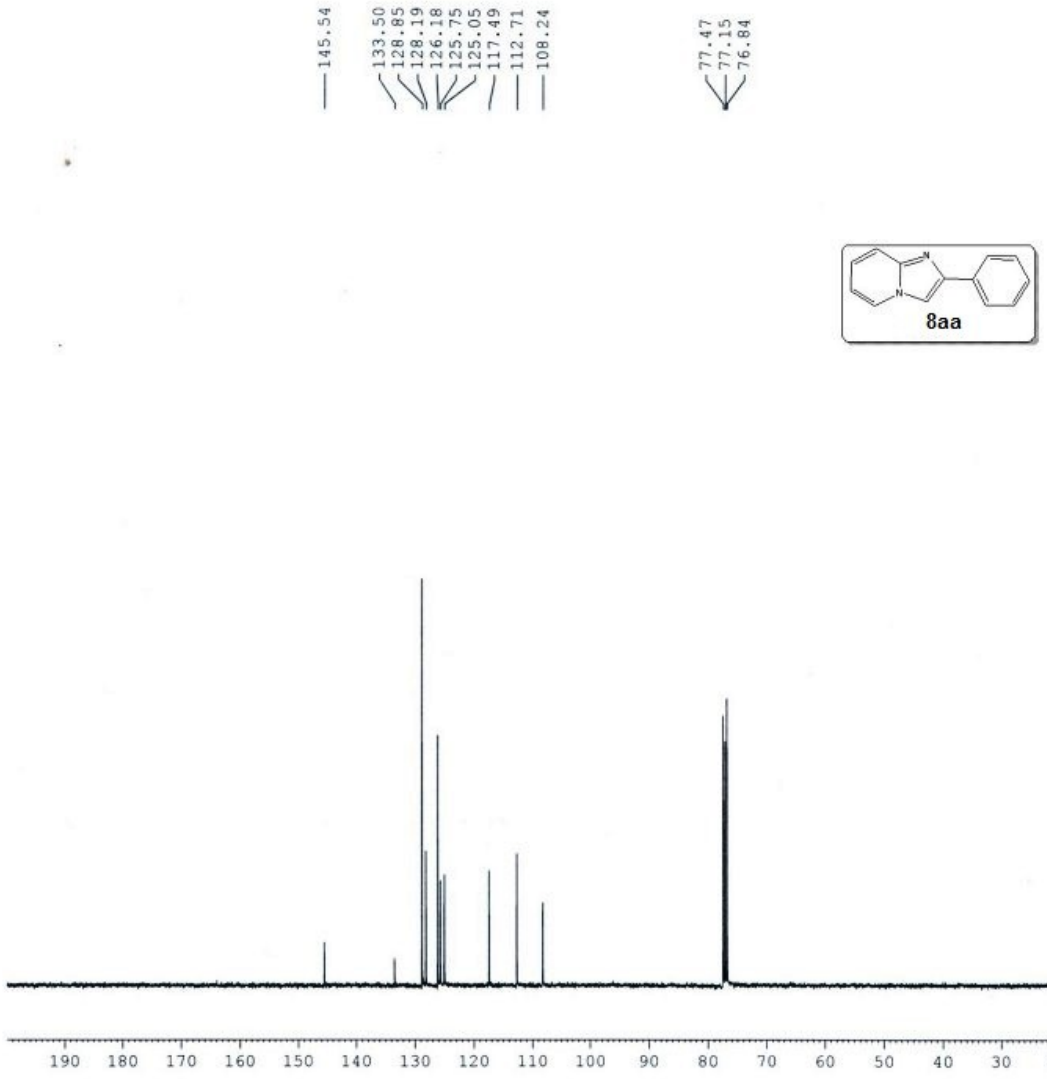
======== CHANNEL f1 ========
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W
SFO1 100.6278588 MHz

======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PLW2 12.00000000 W
PLW12 0.40792999 W
PLW13 0.26107001 W
SFO2 400.1516006 MHz

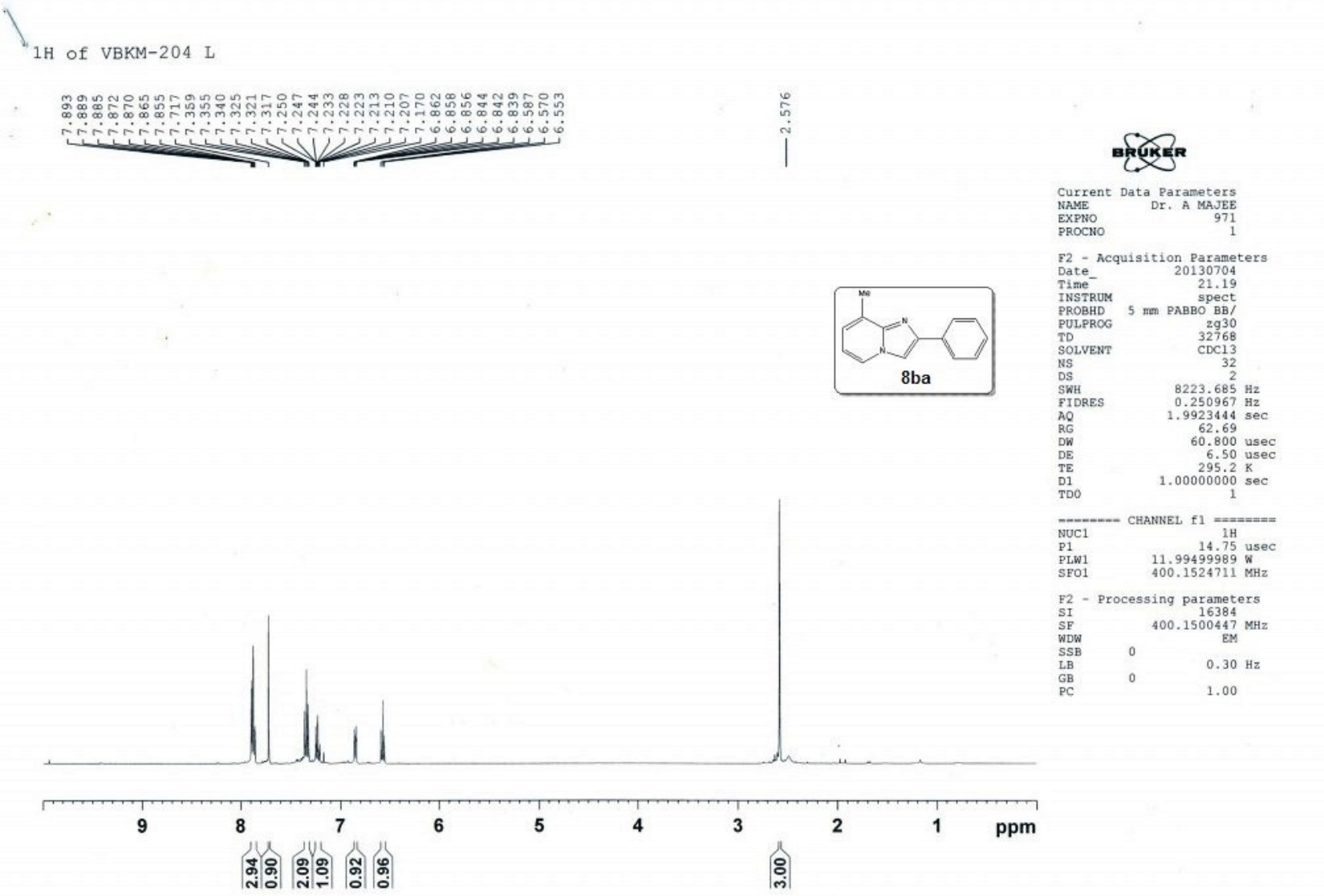
F2 - Processing parameters
SI 16384
SF 100.6178097 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

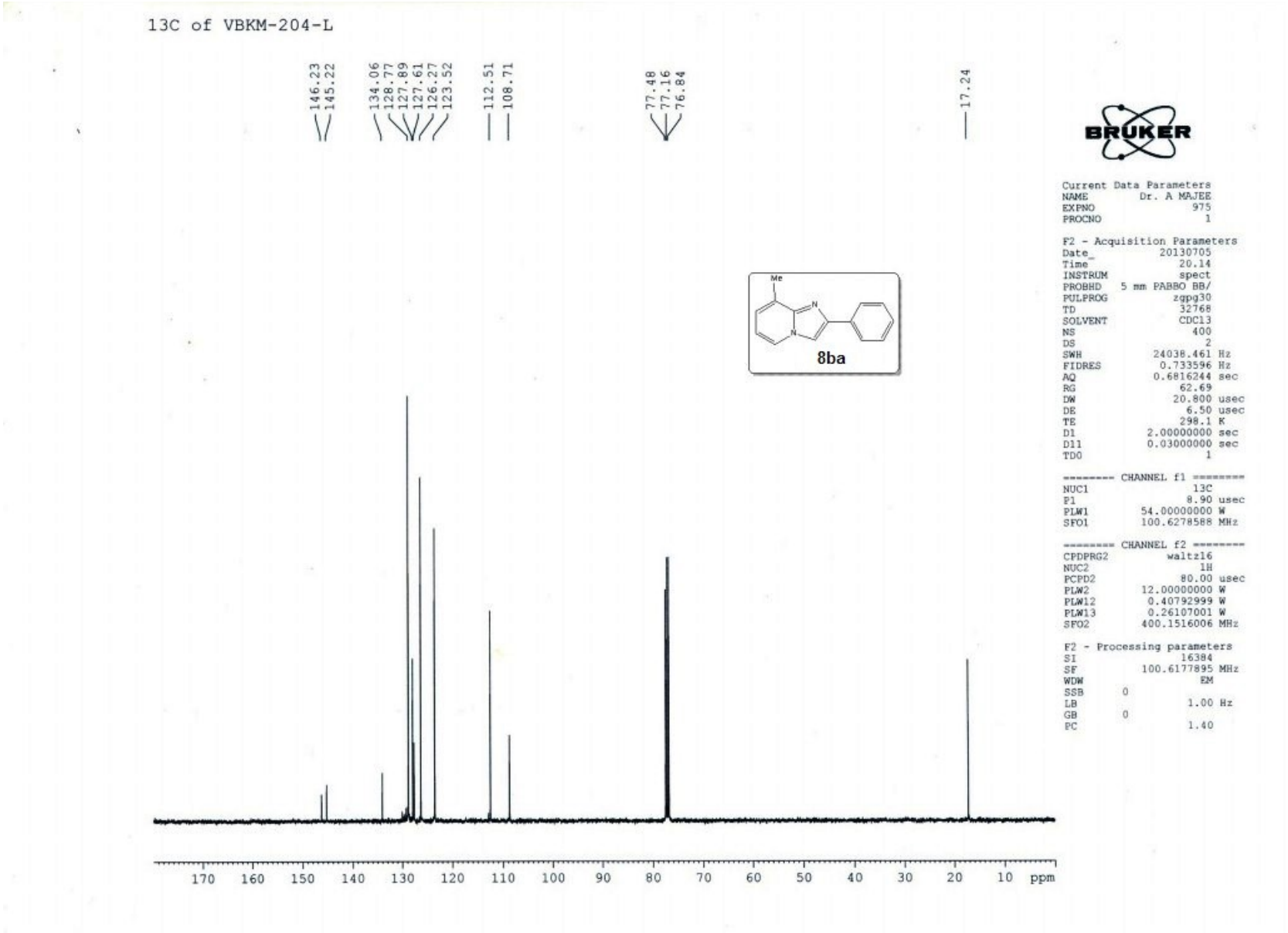

1H of VBKM-IM
8.099
8.082
7.965
7.962
7.958
7.944
7.835
7.661
7.638
7.447
7.443
7.429
7.412
7.409
7.343
7.340
7.329
7.324
7.319
7.309
7.306
7.303
7.260
7.184
7.182
7.167
7.165
7.159
7.145
7.142
6.779
6.763
6.761
6.745
8aa
BRUKER
Current Data Parameters
NAME Dr. A HAJRA 2015
EXPNO 517
PROCNO 1
F2 - Acquisition Parameters
Date_ 20150811
Time 11.25
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 24
DS 1
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 87.66
DW 60.800 usec
DE 6.50 usec
TE 297.4 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 16384
SF 400.1500094 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 ppm
1.03
2.02
1.01
0.98
2.05
0.99
1.01
1.00

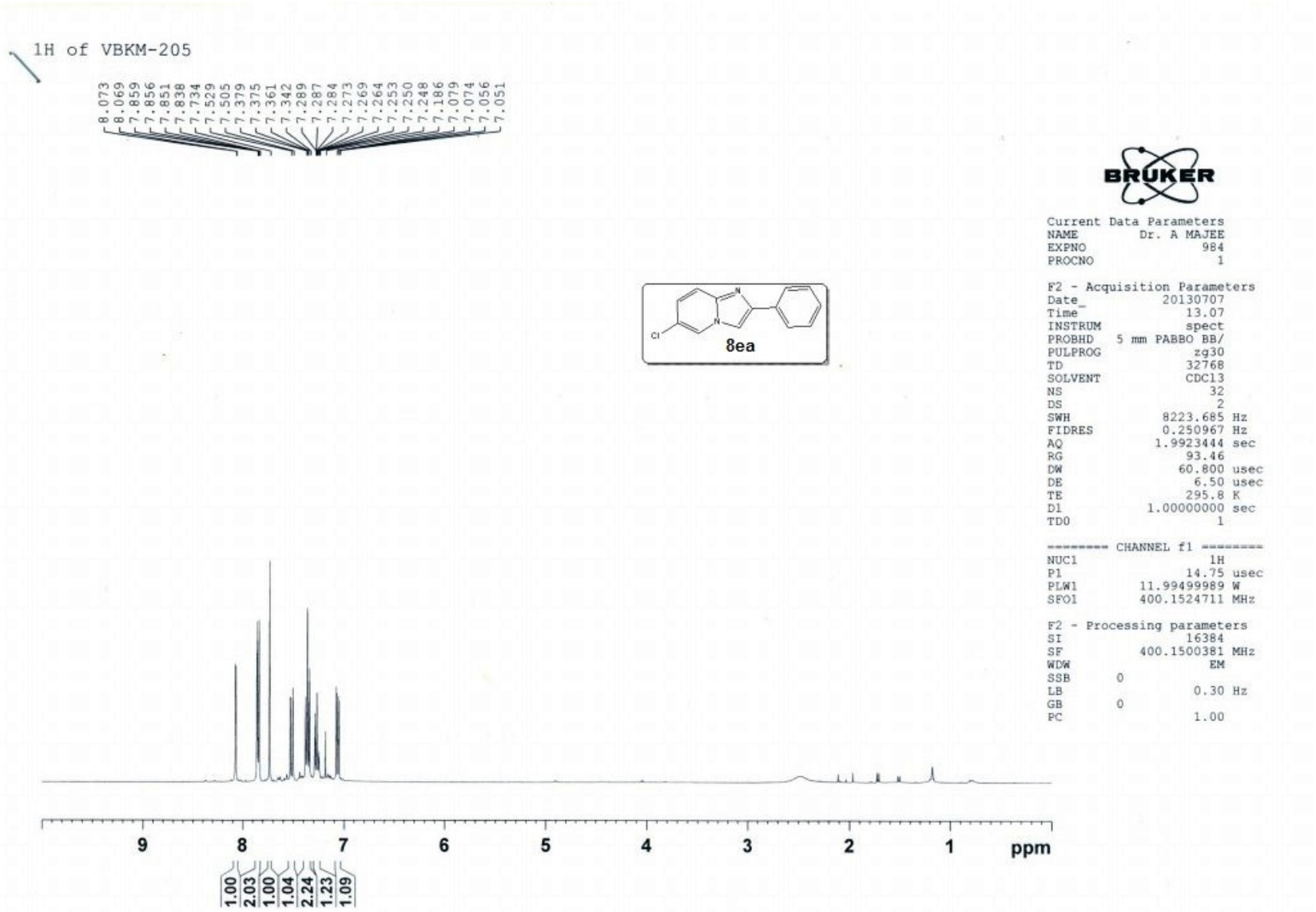
13C of VBKM-IM

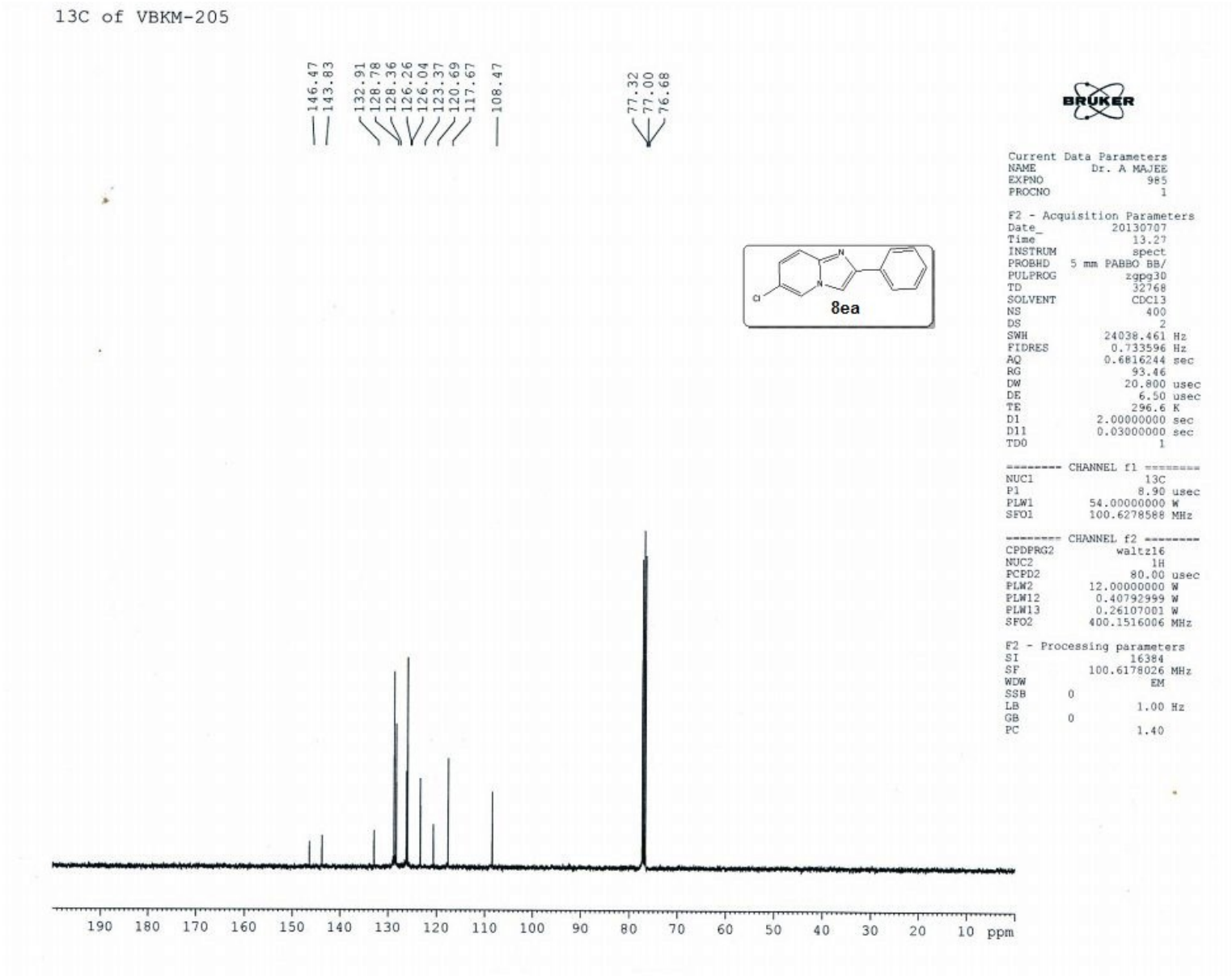



```
Current Data Parameters
NAME      Dr. A HAJRA 2015
EXPNO                 518
PROCNO                  1

F2 - Acquisition Parameters
Date_          20150811
Time              11.44
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD              32768
SOLVENT           CDCl3
NS                  400
DS                    2
SWH           24038.461 Hz
FIDRES        0.733596 Hz
AQ            0.6816244 sec
RG                87.66
DW              20.800 usec
DE               6.50 usec
TE              298.4 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

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

======== CHANNEL f2 ========
CPDPRG2         waltz16
NUC2                1H
PCPD2           80.00 usec
PLW2        12.00000000 W
PLW12        0.40792999 W
PLW13        0.26107001 W
SFO2       400.1516006 MHz

F2 - Processing parameters
SI                 16384
SF         100.6177880 MHz
WDW                   EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```

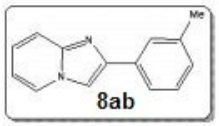

1H of VBKM-204 L
7.893
7.889
7.885
7.872
7.870
7.865
7.855
7.717
7.359
7.355
7.340
7.325
7.321
7.317
7.250
7.247
7.244
7.233
7.228
7.223
7.213
7.210
7.207
7.170
6.862
6.858
6.856
6.844
6.842
6.839
6.587
6.570
6.553
2.576
Me
8ba
BRUKER
Current Data Parameters
NAME Dr. A MAJEE
EXPNO 971
PROCNO 1
F2 - Acquisition Parameters
Date_ 20130704
Time 21.19
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 62.69
DW 60.800 usec
DE 6.50 usec
TE 295.2 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 16384
SF 400.1500447 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9
8
7
6
5
4
3
2
1
ppm
2.94
0.90
2.09
1.09
0.92
0.96
3.00

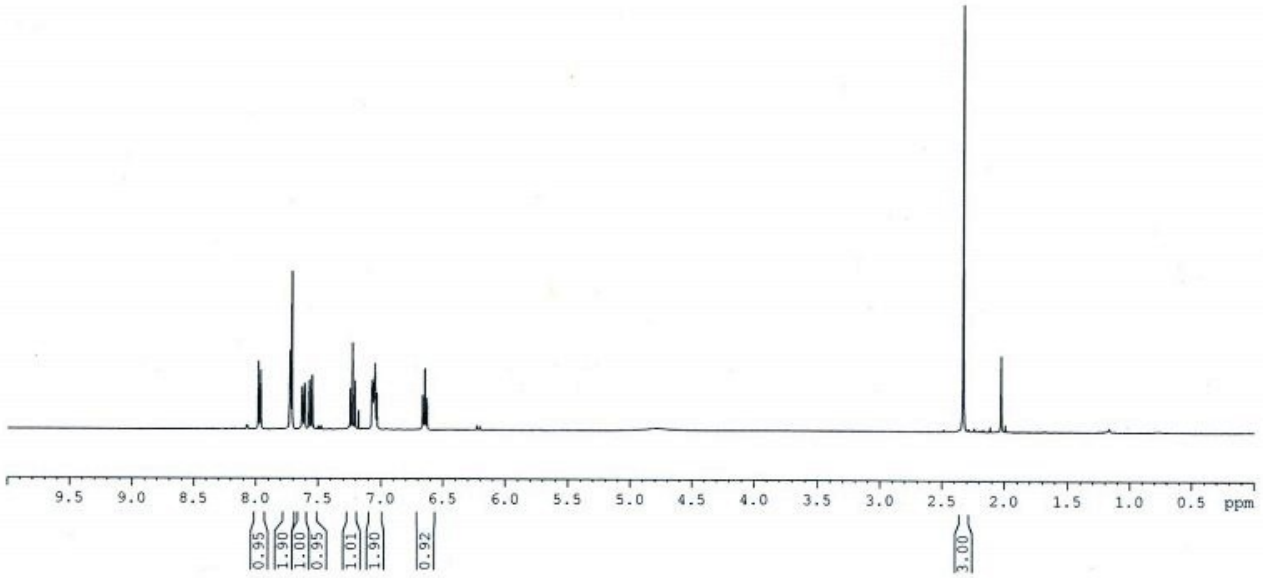

13C of VBKM-204-L
146.23
145.22
134.06
128.77
127.89
127.61
126.27
123.52
112.51
108.71
77.48
77.16
76.84
17.24
Me
N
N
8ba
170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm
BRUKER
Current Data Parameters
NAME Dr. A MAJEE
EXPNO 975
PROCNO 1
F2 - Acquisition Parameters
Date_ 20130705
Time 20.14
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 400
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 62.69
DW 20.800 usec
DE 6.50 usec
TE 298.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W
SFO1 100.6278588 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PLW2 12.00000000 W
PLW12 0.40792999 W
PLW13 0.26107001 W
SFO2 400.1516006 MHz
F2 - Processing parameters
SI 16384
SF 100.6177895 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40


1H of VBKM-205
8.073
8.069
7.859
7.856
7.851
7.838
7.734
7.529
7.505
7.379
7.375
7.361
7.342
7.289
7.287
7.284
7.273
7.269
7.264
7.253
7.250
7.248
7.186
7.079
7.074
7.056
7.051
Cl
8ea
BRUKER
Current Data Parameters
NAME Dr. A MAJEE
EXPNO 984
PROCNO 1
F2 - Acquisition Parameters
Date_ 20130707
Time 13.07
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 93.46
DW 60.800 usec
DE 6.50 usec
TE 295.8 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz
F2 - Processing parameters
SI 16384
SF 400.1500381 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9
8
7
6
5
4
3
2
1
ppm
1.00
2.03
1.00
1.04
2.24
1.23
1.09


13C of VBKM-205
146.47
143.83
132.91
128.78
128.36
126.26
126.04
123.37
120.69
117.67
108.47
77.32
77.00
76.68
8ea
Current Data Parameters
NAME Dr. A MAJEE
EXPNO 985
PROCNO 1
F2 - Acquisition Parameters
Date_ 20130707
Time 13.27
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 400
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 93.46
DW 20.800 usec
DE 6.50 usec
TE 296.6 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
CHANNEL f1
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W
SFO1 100.6278588 MHz
CHANNEL f2
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PLW2 12.00000000 W
PLW12 0.40792999 W
PLW13 0.26107001 W
SFO2 400.1516006 MHz
F2 - Processing parameters
SI 16384
SF 100.6178026 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm

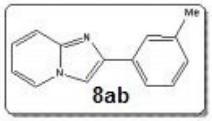
1H of VBKM-224

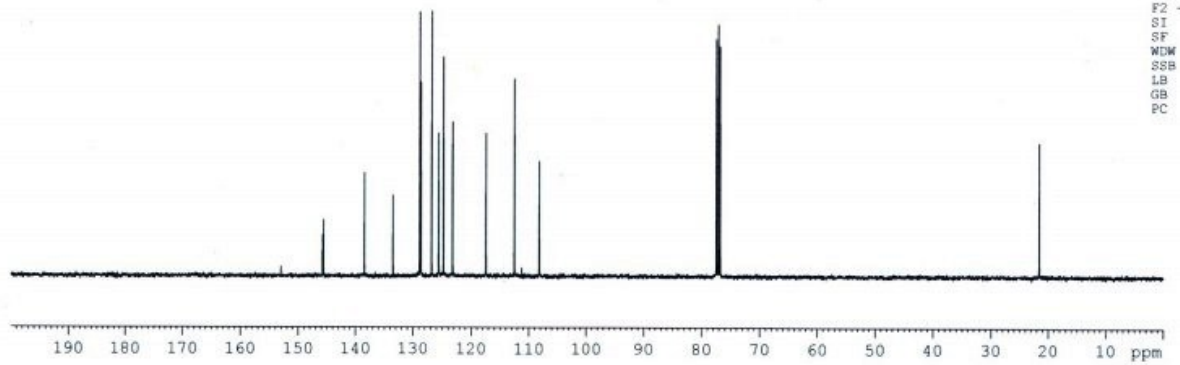





```
Current Data Parameters
NAME          Dr. A HAJRA
EXPNO                 901
PROCNO                  1

F2 - Acquisition Parameters
Date_          20130804
Time              13.15
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG           zg30
TD                32768
SOLVENT           CDCl3
NS                   24
DS                    2
SWH            8223.685 Hz
FIDRES        0.250967 Hz
AQ            1.9923444 sec
RG                57.28
DW               60.800 usec
DE                6.50 usec
TE               297.2 K
D1            1.00000000 sec
TD0                   1

======== CHANNEL f1 ========
NUC1                  1H
P1                14.75 usec
PLW1         11.99499989 W
SFO1         400.1524711 MHz

F2 - Processing parameters
SI                16384
SF          400.1500412 MHz
WDW                   EM
SSB       0
LB                0.30 Hz
GB        0
PC                1.00
```

13C of VBKM-224





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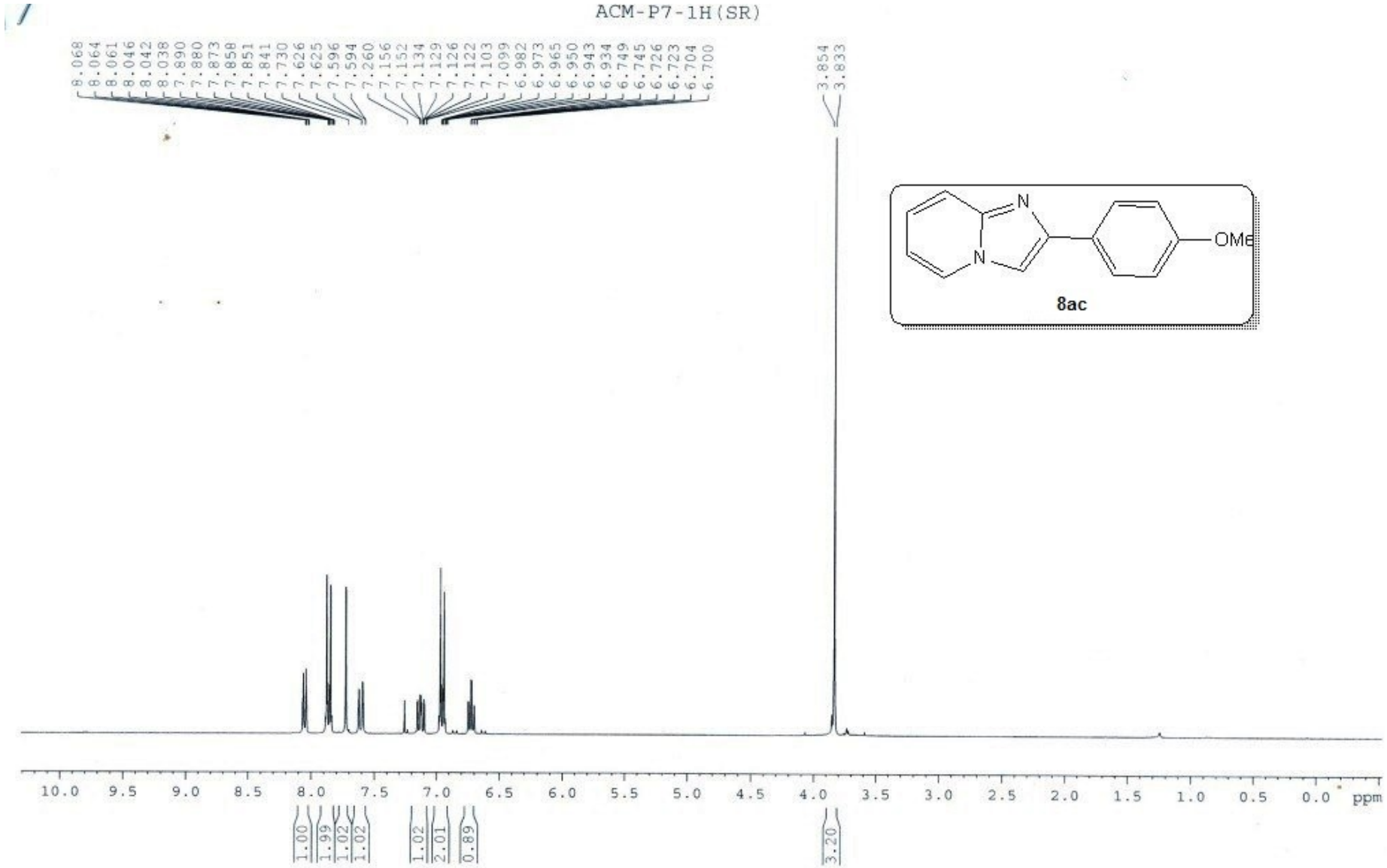
Current Data Parameters
NAME Dr. A HAJRA
EXPNO 902
PROCNO 1

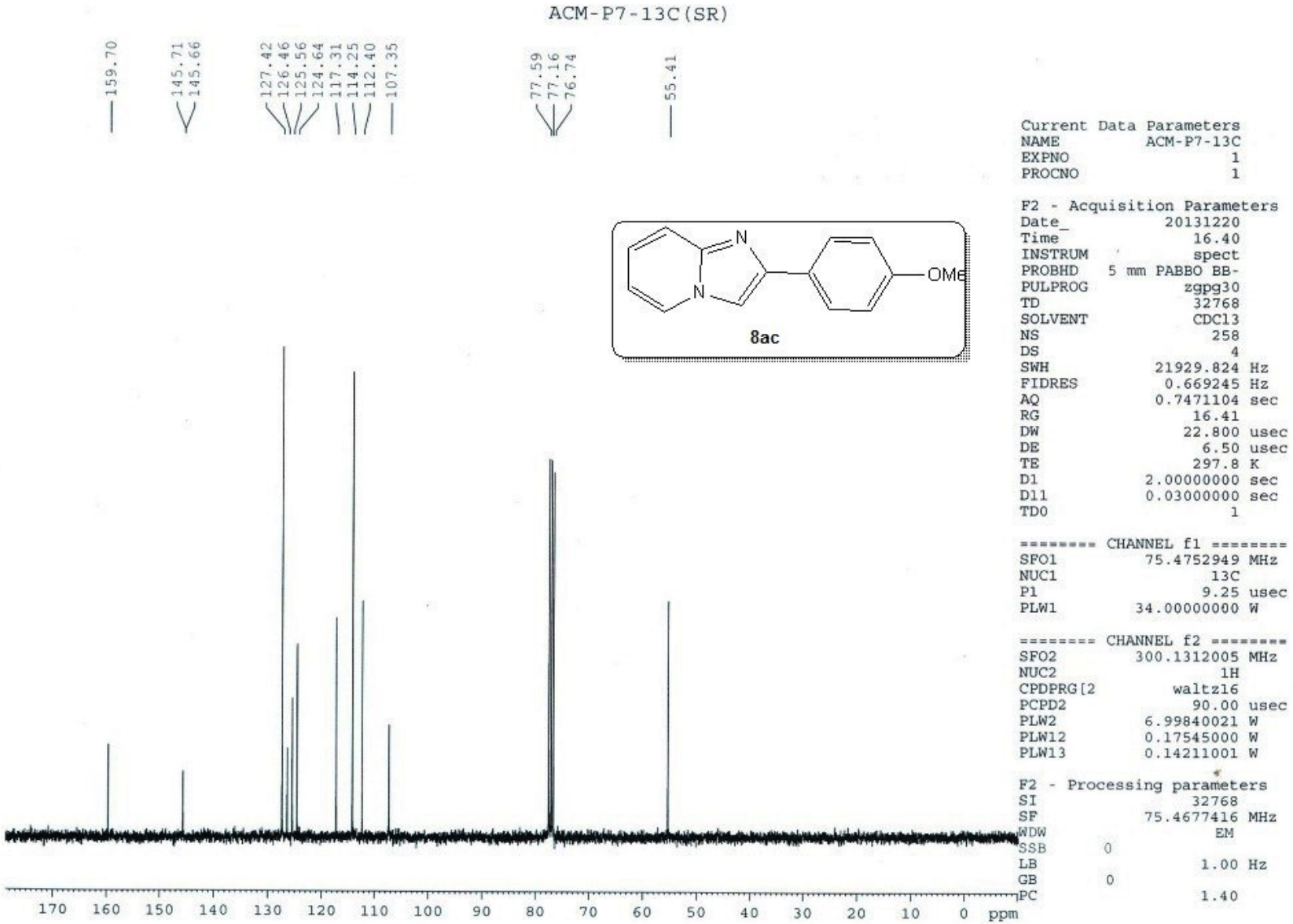
F2 - Acquisition Parameters
Date_ 20130804
Time 13.34
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 320
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 57.28
DW 20.800 usec
DE 6.50 usec
TE 298.2 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

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

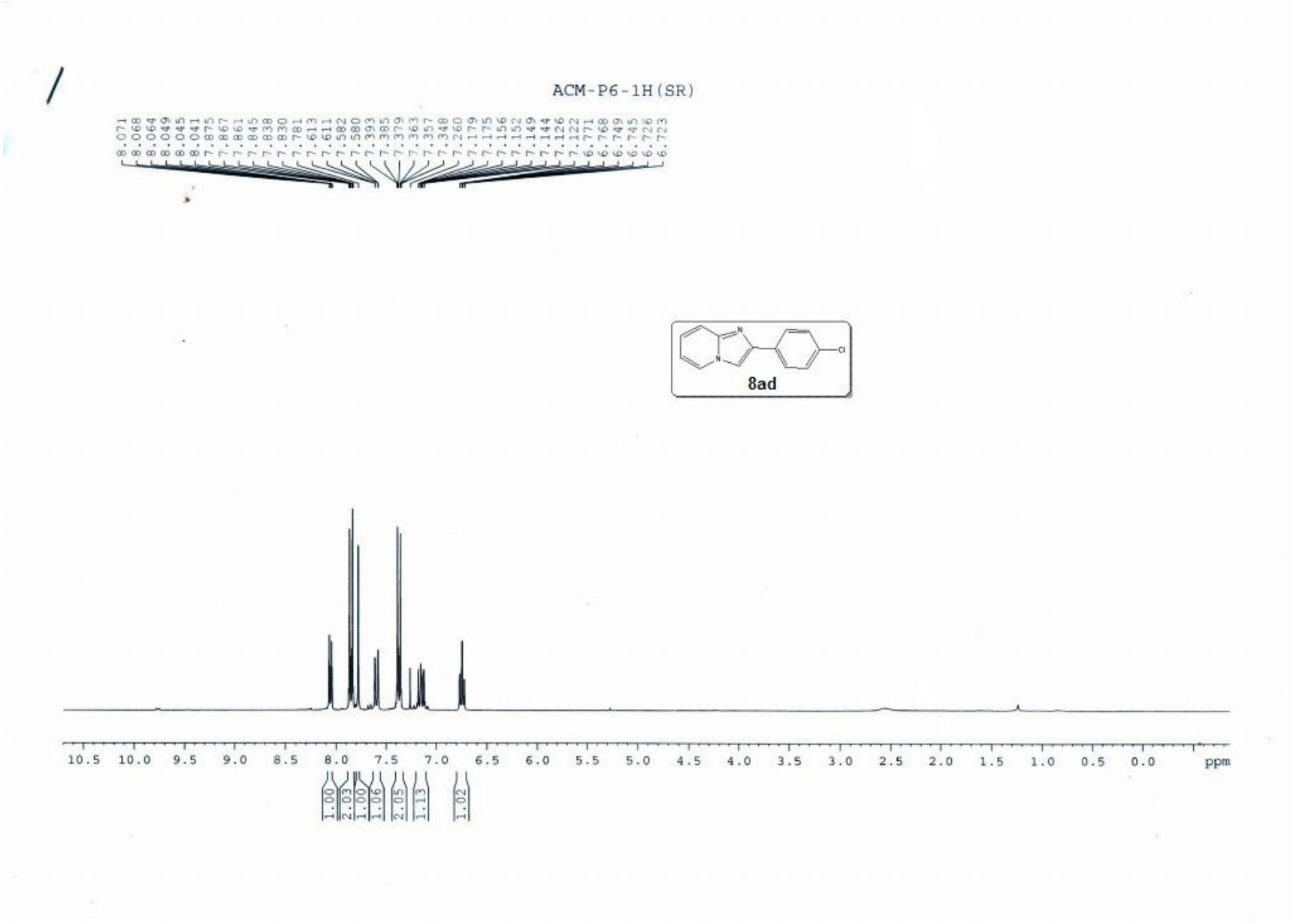
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PLW2 12.00000000 W
PLW12 0.40792999 W
PLW13 0.26107001 W
SFO2 400.1516006 MHz

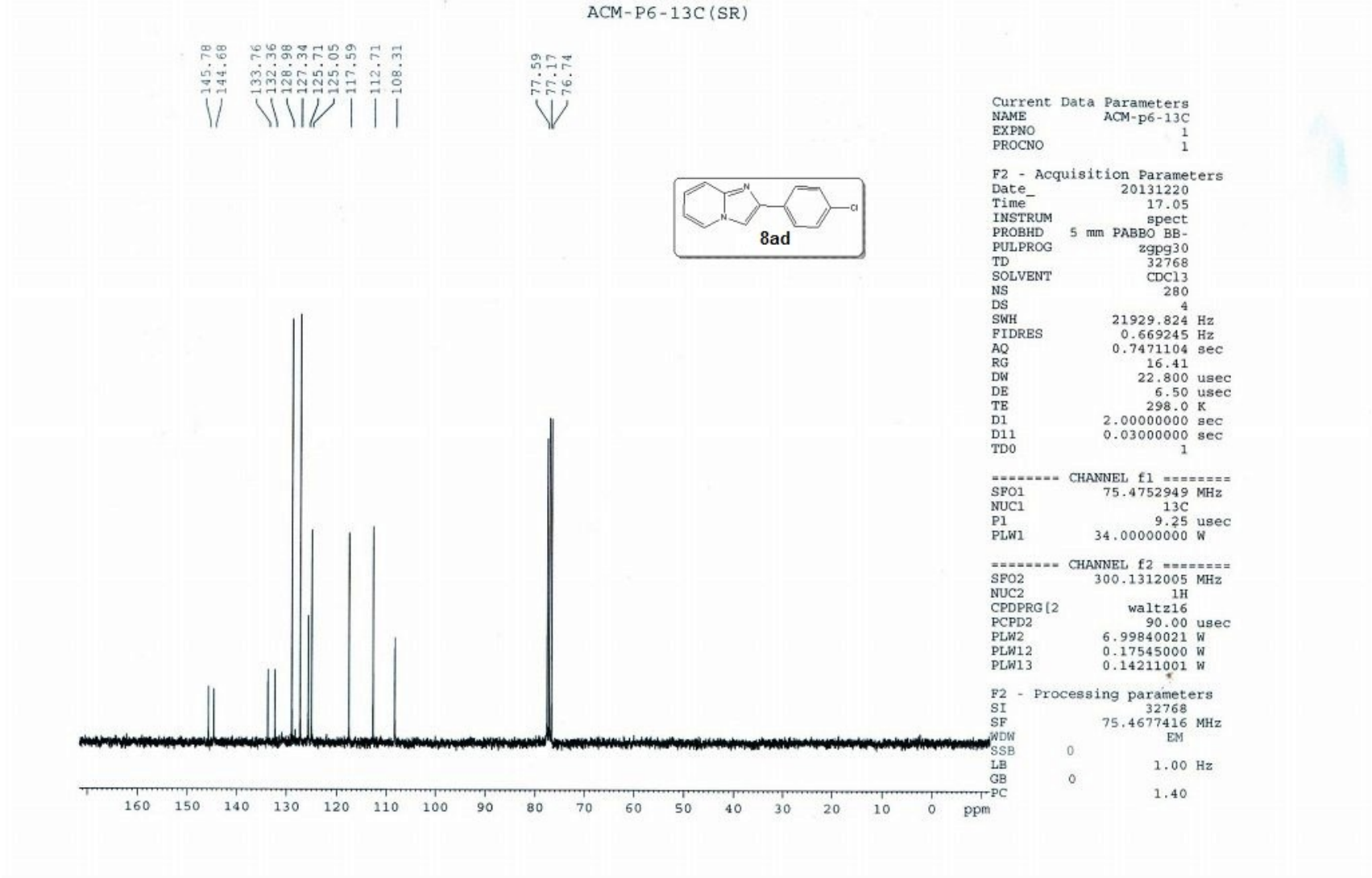
F2 - Processing parameters
SI 16384
SF 100.6177909 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40


ACM-P7-1H(SR)
8.068
8.064
8.061
8.046
8.042
8.038
7.890
7.880
7.873
7.858
7.851
7.841
7.730
7.626
7.625
7.596
7.594
7.260
7.156
7.152
7.134
7.129
7.126
7.122
7.103
7.099
6.982
6.973
6.965
6.950
6.943
6.934
6.749
6.745
6.726
6.723
6.704
6.700
3.854
3.833
N
N
OMe
8ac
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
ppm
1.00
1.99
1.02
1.02
1.02
2.01
0.89
3.20



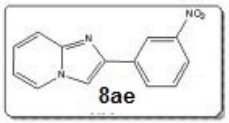

```
Current Data Parameters
NAME                 ACM-P7-13C
EXPNO                         1
PROCNO                        1

F2 - Acquisition Parameters
Date_                  20131220
Time                      16.40
INSTRUM                   spect
PROBHD   5 mm PABBO BB-
PULPROG                 zgpg30
TD                       32768
SOLVENT                  CDCl3
NS                         258
DS                           4
SWH                  21929.824 Hz
FIDRES                0.669245 Hz
AQ                    0.7471104 sec
RG                        16.41
DW                       22.800 usec
DE                        6.50 usec
TE                       297.8 K
D1                   2.00000000 sec
D11                  0.03000000 sec
TD0                           1

======== CHANNEL f1 ========
SFO1                 75.4752949 MHz
NUC1                        13C
P1                        9.25 usec
PLW1                34.00000000 W

======== CHANNEL f2 ========
SFO2                300.1312005 MHz
NUC2                        1H
CPDPRG[2                waltz16
PCPD2                    90.00 usec
PLW2                 6.99840021 W
PLW12                0.17545000 W
PLW13                0.14211001 W

F2 - Processing parameters
SI                        32768
SF                   75.4677416 MHz
WDW                          EM
SSB                   0
LB                        1.00 Hz
GB                    0
PC                        1.40
```


ACM-P6-1H(SR)
8.071
8.068
8.064
8.049
8.045
8.041
7.875
7.867
7.861
7.845
7.838
7.830
7.781
7.613
7.611
7.582
7.580
7.393
7.385
7.379
7.363
7.357
7.348
7.260
7.179
7.175
7.156
7.152
7.149
7.144
7.126
7.122
7.771
6.768
6.749
6.745
6.726
6.723
N
N
Cl
8ad
10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 ppm
1.00
2.03
1.00
1.06
2.05
1.13
1.02

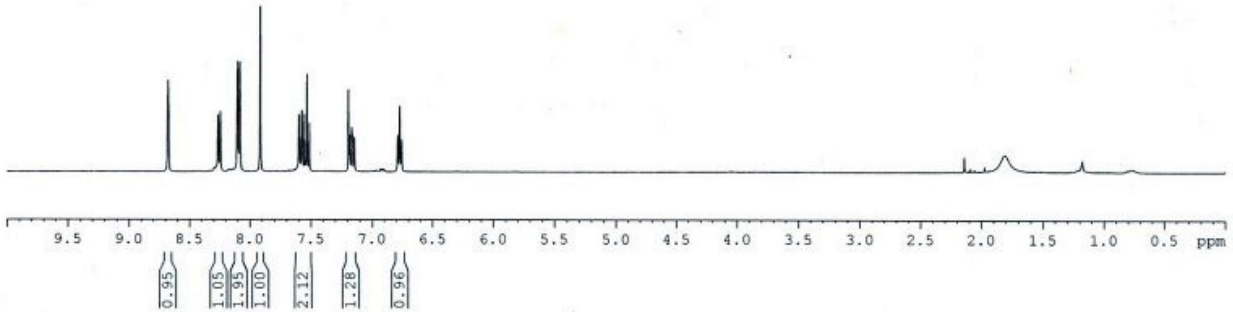

ACM-P6-13C(SR)
145.78
144.68
133.76
132.36
128.98
127.34
125.71
125.05
117.59
112.71
108.31
77.59
77.17
76.74
8ad
Current Data Parameters
NAME ACM-p6-13C
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20131220
Time 17.05
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 280
DS 4
SWH 21929.824 Hz
FIDRES 0.669245 Hz
AQ 0.7471104 sec
RG 16.41
DW 22.800 usec
DE 6.50 usec
TE 298.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 75.4752949 MHz
NUC1 13C
P1 9.25 usec
PLW1 34.00000000 W
======== CHANNEL f2 ========
SFO2 300.1312005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 6.99840021 W
PLW12 0.17545000 W
PLW13 0.14211001 W
F2 - Processing parameters
SI 32768
SF 75.4677416 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppm

1H of VBKM-218-L/13

8.683
8.679
8.675
8.265
8.246
8.103
8.086
8.083
7.917
7.599
7.577
7.555
7.535
7.515
7.195
7.188
7.185
7.170
7.168
7.162
7.148
7.146
6.791
6.775
6.774
6.759
6.757



8ae



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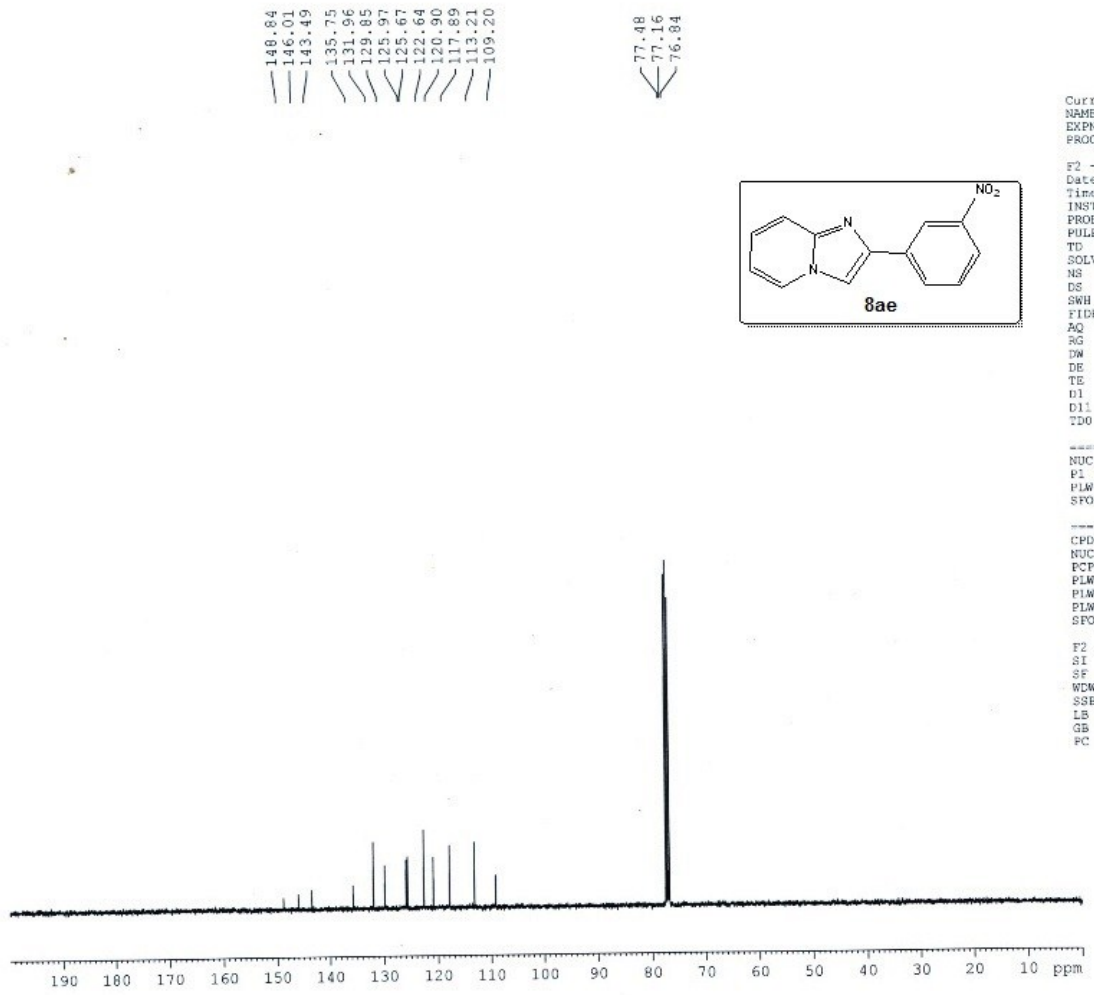
```
Current Data Parameters
NAME         Dr. A HAJRA
EXPNO                863
PROCNO                 1

F2 - Acquisition Parameters
Date_           20130728
Time               17.45
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG            zg30
TD                32768
SOLVENT           CDCl3
NS                   32
DS                    2
SWH           8223.685 Hz
FIDRES        0.250967 Hz
AQ            1.9923444 sec
RG                87.66
DW               60.800 usec
DE                6.50 usec
TE                294.2 K
D1           1.00000000 sec
TD0                   1

======== CHANNEL f1 ========
NUC1                  1H
P1                14.75 usec
PLW1         11.99499989 W
SFO1         400.1524711 MHz

F2 - Processing parameters
SI                16384
SF          400.1500346 MHz
WDW                  EM
SSB       0
LB                0.30 Hz
GB        0
PC                1.00
```

13C of VBKM-218-L



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Current Data Parameters
NAME Dr. A HAJRA
EXPNO 864
PROCNO 1

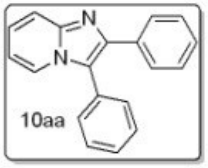
F2 - Acquisition Parameters
Date_ 20130728
Time 18.06
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 400
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 87.66
DW 20.800 usec
DE 6.50 usec
TE 295.8 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

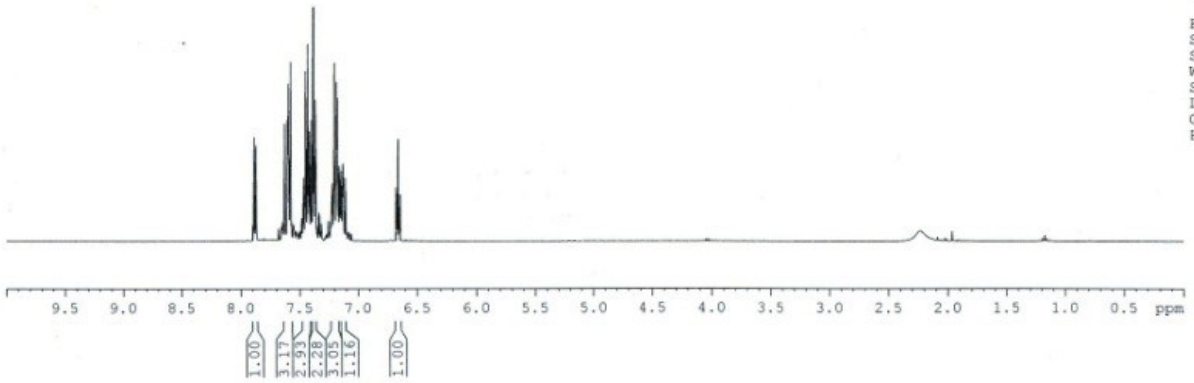
======== CHANNEL f1 ========
NUC1 13C
P1 8.90 usec
PLW1 54.00000000 W
SFO1 100.6278588 MHz

======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PLW2 12.00000000 W
PLW12 0.40792999 W
PLW13 0.26107001 W
SFO2 400.1516006 MHz

F2 - Processing parameters
SI 16384
SF 100.6177851 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

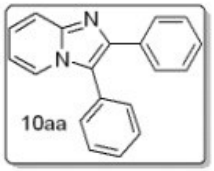
1H of VBKM-472



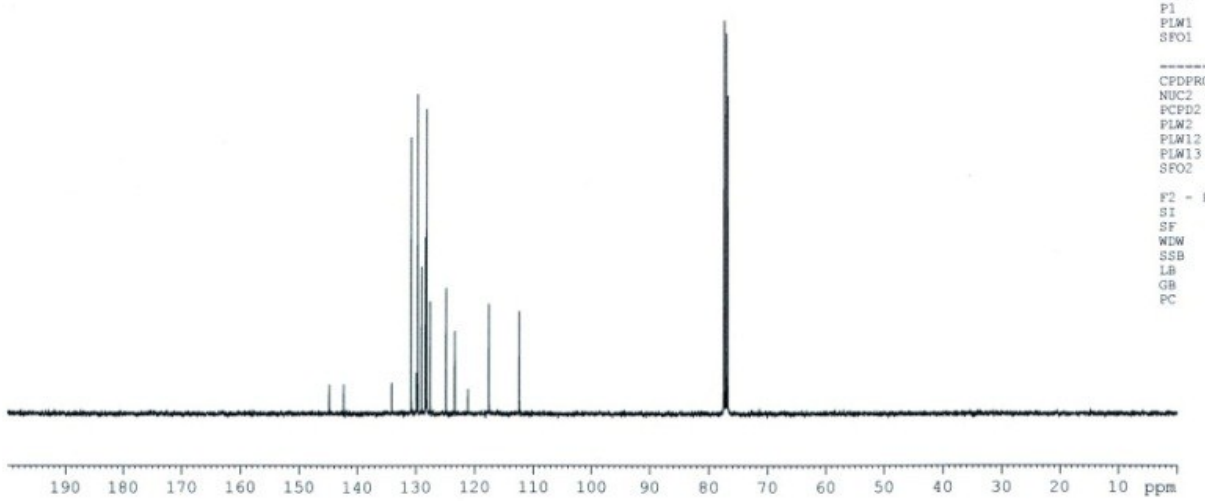



```
Current Data Parameters
NAME         Dr. A MAJEE
EXPNO                 18
PROCNO                 1

F2 - Acquisition Parameters
Date_           20150111
Time               12.42
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG             zg30
TD                 32768
SOLVENT            CDCl3
NS                    32
DS                     2
SWH             8223.685 Hz
FIDRES          0.250967 Hz
AQ              1.9923444 sec
RG                 87.66
DW                60.800 usec
DE                 6.50 usec
TE                292.5 K
D1             1.00000000 sec
TD0                    1

======== CHANNEL f1 ========
NUC1                  1H
P1                 14.75 usec
PLW1          11.99499989 W
SFO1         400.1524711 MHz

F2 - Processing parameters
SI                 16384
SF           400.1500405 MHz
WDW                   EM
SSB       0
LB                 0.30 Hz
GB        0
PC                 1.00
```

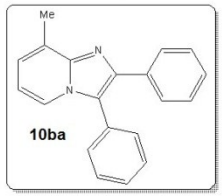
13C of KM-472

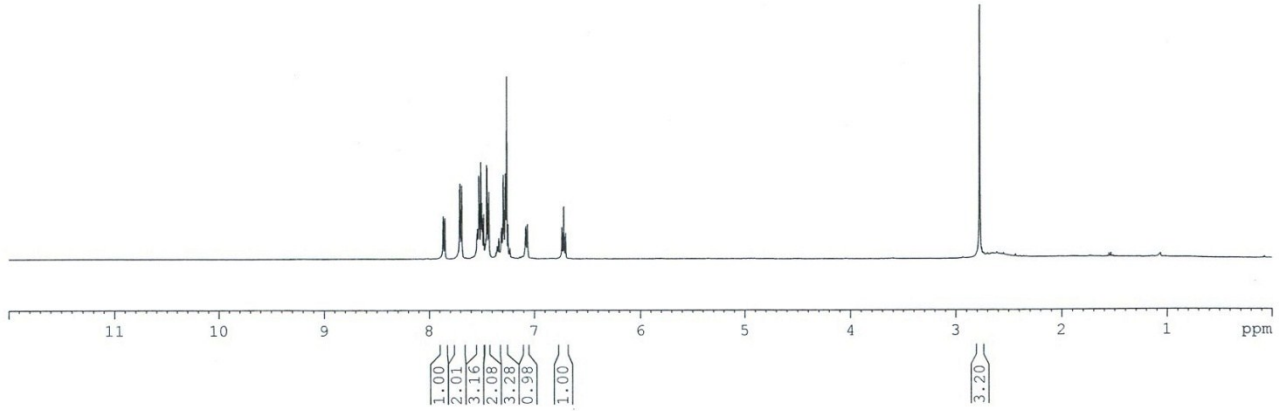



```
Current Data Parameters
NAME          Dr. A MAJEE
EXPNO                  24
PROCNO                  1

F2 - Acquisition Parameters
Date_            20150111
Time                20.46
INSTRUM             spect
PROBHD    5 mm PABBO BB/
PULPROG          zgpg30
TD                 32768
SOLVENT            CDCl3
NS                   480
DS                     2
SWH           24038.461 Hz
FIDRES         0.733596 Hz
AQ             0.6816244 sec
RG                 77.59
DW                20.800 usec
DE                 6.50 usec
TE                295.1 K
D1             2.00000000 sec
D11            0.03000000 sec
TD0                    1

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

======== CHANNEL f2 ========
CPDPRG2           waltz16
NUC2                  1H
PCPD2              80.00 usec
PLW2        12.00000000 W
PLW12         0.40792999 W
PLW13         0.26107001 W
SFO2        400.1516006 MHz

F2 - Processing parameters
SI                 16384
SF          100.6177866 MHz
WDW                   EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
```



1H of VBKM-479





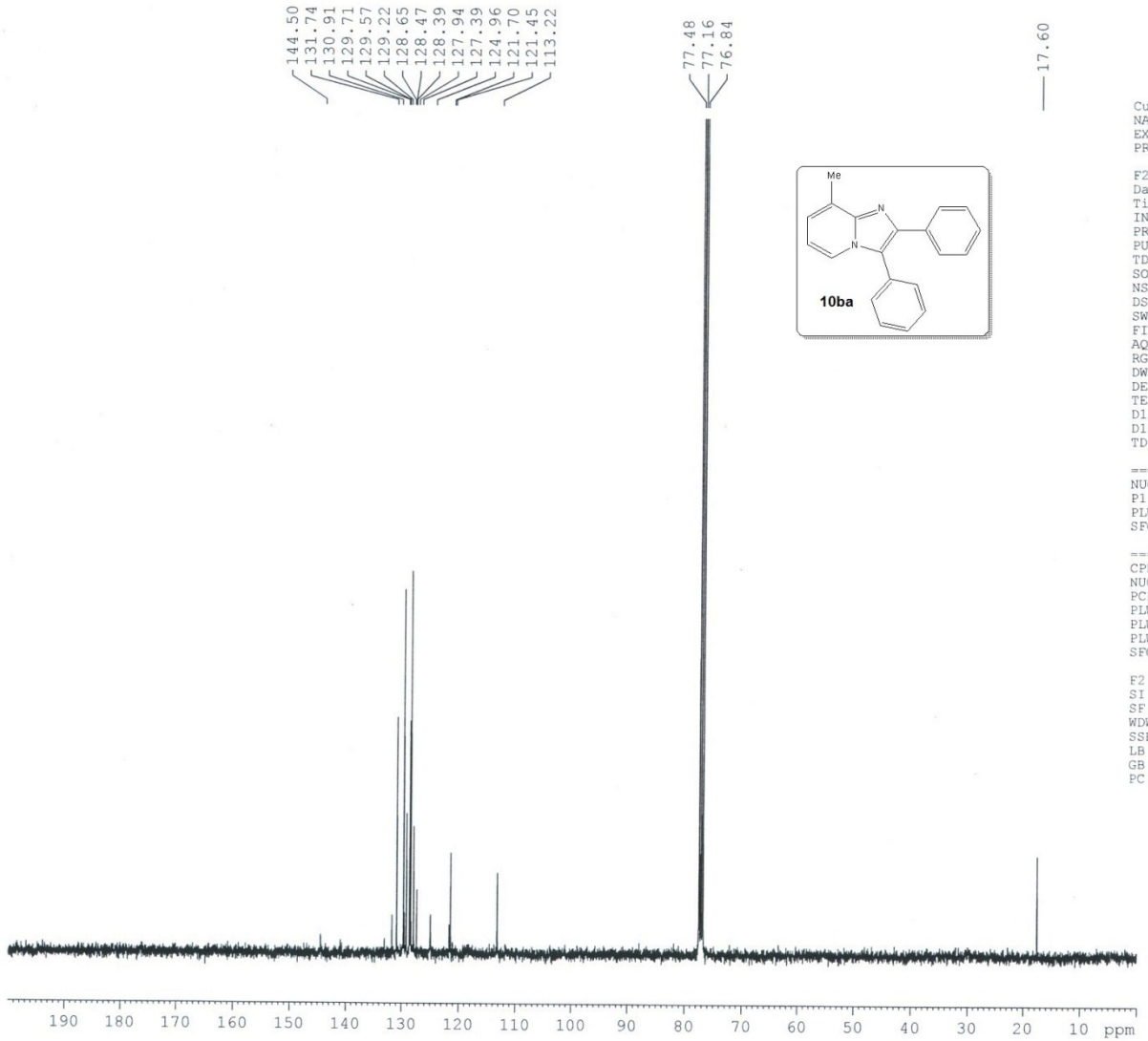
Current Data Parameters
NAME Dr. A HAJRA 2015
EXPNO 537
PROCNO 1

F2 - Acquisition Parameters
Date_ 20150816
Time 11.41
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 1
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 106.66
DW 60.800 usec
DE 6.50 usec
TE 298.3 K
D1 1.00000000 sec
TD0 1

======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz

F2 - Processing parameters
SI 16384
SF 400.1500090 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

13C of VBKM-479



BRUKER

Current Data Parameters
NAME Dr. A HAJRA 2015
EXPNO 539
PROCNO 1

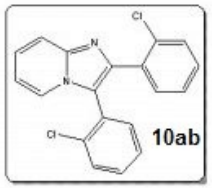
F2 - Acquisition Parameters
Date_ 20150816
Time 13.23
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 1024
DS 2
SWH 24038.461 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 106.66
DW 20.800 usec
DE 6.50 usec
TE 299.5 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

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

======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PLW2 12.00000000 W
PLW12 0.40792999 W
PLW13 0.26107001 W
SFO2 400.1516006 MHz

F2 - Processing parameters
SI 16384
SF 100.6177836 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1H of VBKM-485 up

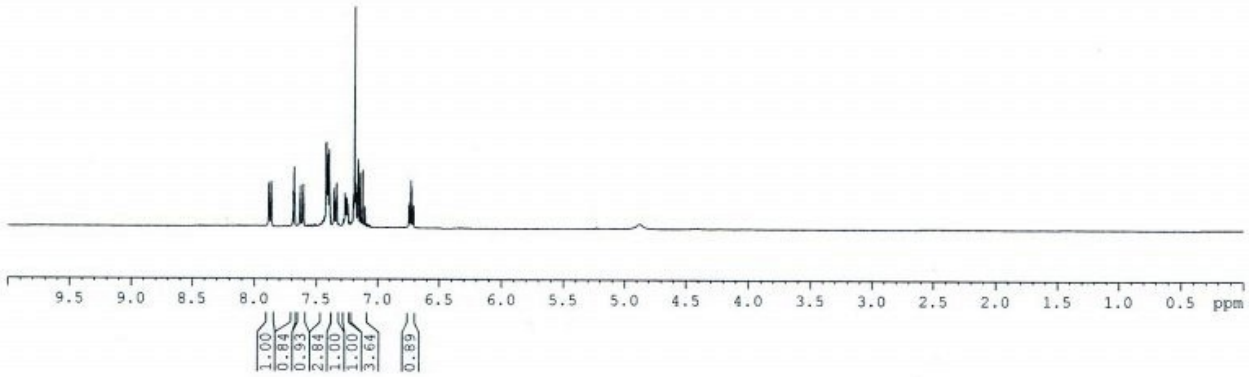


Current Data Parameters
NAME Dr. A HAJRA 2015
EXPNO 631
PROCNO 1

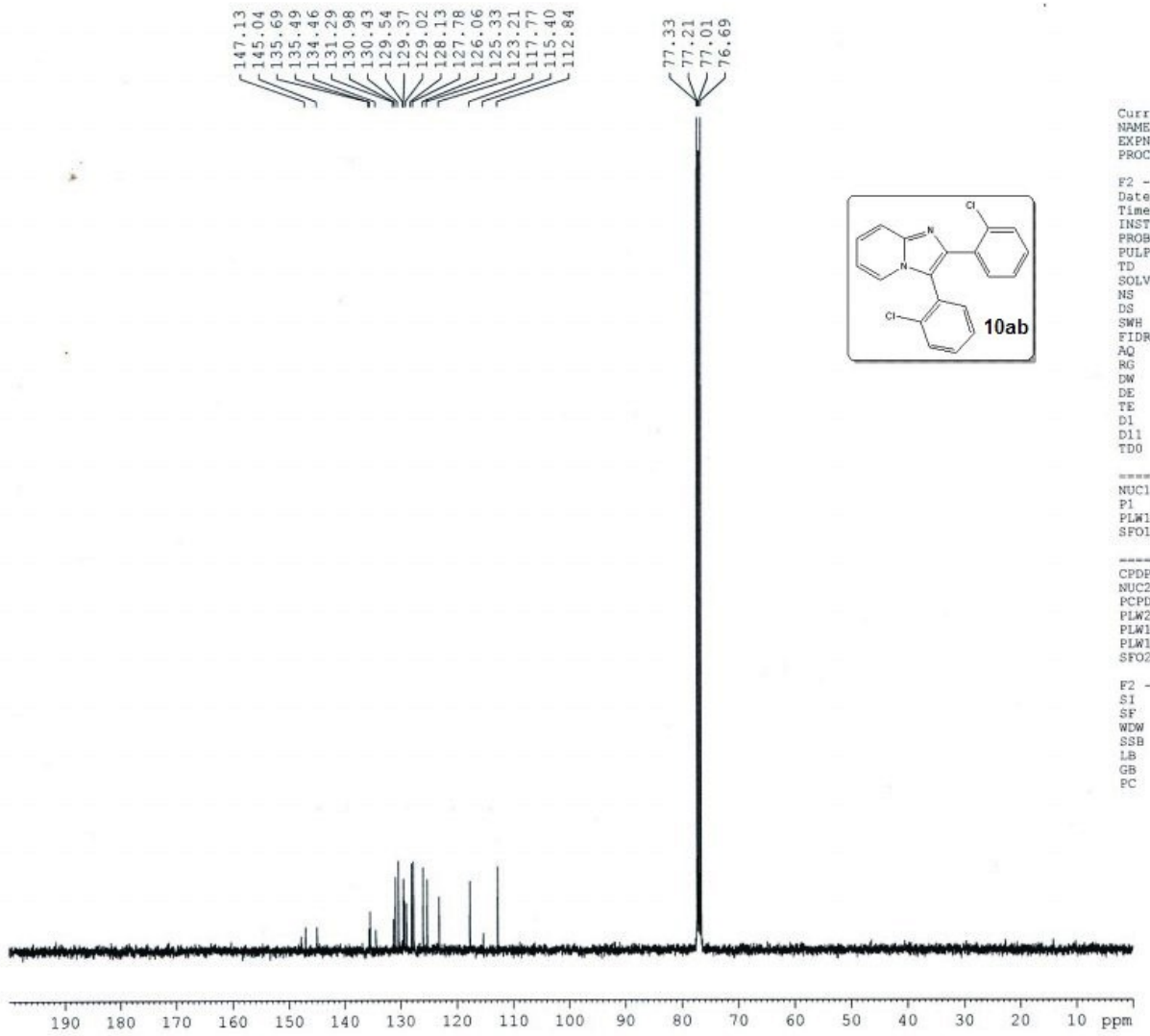
F2 - Acquisition Parameters
Date_ 20150920
Time 18.08
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 1
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 135.7
DW 60.800 usec
DE 6.50 usec
TE 298.2 K
D1 1.00000000 sec
TD0 1

======== CHANNEL f1 ========
NUC1 1H
P1 14.75 usec
PLW1 11.99499989 W
SFO1 400.1524711 MHz

F2 - Processing parameters
SI 16384
SF 400.1500364 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



13C of VBKM-485 up



BRUKER

```
Current Data Parameters
NAME      Dr. A HAJRA 2015
EXPNO                 633
PROCNO                  1

F2 - Acquisition Parameters
Date_           20150920
Time                19.22
INSTRUM             spect
PROBHD   5 mm PABBO BB/
PULPROG           zgpg30
TD                 32768
SOLVENT            CDCl3
NS                  1024
DS                     2
SWH           24038.461 Hz
FIDRES         0.733596 Hz
AQ             0.6816244 sec
RG                 135.7
DW                20.800 usec
DE                 6.50 usec
TE                 299.4 K
D1             2.00000000 sec
D11            0.03000000 sec
TD0                    1

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

======== CHANNEL f2 ========
CPDPRG2          waltz16
NUC2                  1H
PCPD2              80.00 usec
PLW2         12.00000000 W
PLW12         0.40792999 W
PLW13         0.26107001 W
SFO2        400.1516006 MHz

F2 - Processing parameters
SI                 16384
SF          100.6177980 MHz
WDW                   EM
SSB      0
LB                 1.00 Hz
GB       0
PC                 1.40
```