

Use of Isomeric, Aromatic Dialdehydes in Synthesis of Photoactive, Positional Isomers of Higher Analogs of *o*-Bromo(hetero)acetaldehydes

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Experimental Section

General: The ^1H NMR (200 MHz) and ^{13}C NMR (50 MHz) spectra were recorded using a Bruker AV 200 spectrometer. The mass spectra of pure compounds were obtained using a Finigan Mat 95 spectrometer. Melting points were determined using Boetius apparatus. UV-visible absorption spectra were obtained with a Specord S600 diode array spectrophotometer in 5-cm cuvettes. Room-temperature emission spectra were acquired with a Perkin Elmer LS50 luminescence spectrometer. Quantum yields were calculated using quinine sulfate dihydrate in 0.1 *N* HClO_4 as the standard reference material ($\Phi=0.59$). Column chromatography was done using Merck silica gel (F₂₅₄ 60, 270-400 mesh). Organic solvents were purified by standard procedures. Aldehydes: 2,5-dibromobenzene-1,4-dicarbaldehyde and 2,4-dibromobenzene-1,5-dicarbaldehyde have been prepared according to the following procedure: M. C. Bonifacio, C. R. Robertson, J. Y. Jung, B. T. King, *J. Org. Chem.*, 2005, **70** 8522.

The stability of **6a** towards photooxidation was investigated by monitoring the absorbance as a function of time (0-100 minute range) decay of 10^{-6} M chlorobenzene solution in a quartz cuvette at room temperature, under ambient atmosphere and exposed under 9W UV/Vis lamp with broad band light with maximum at 370 nm (Fig.1.).

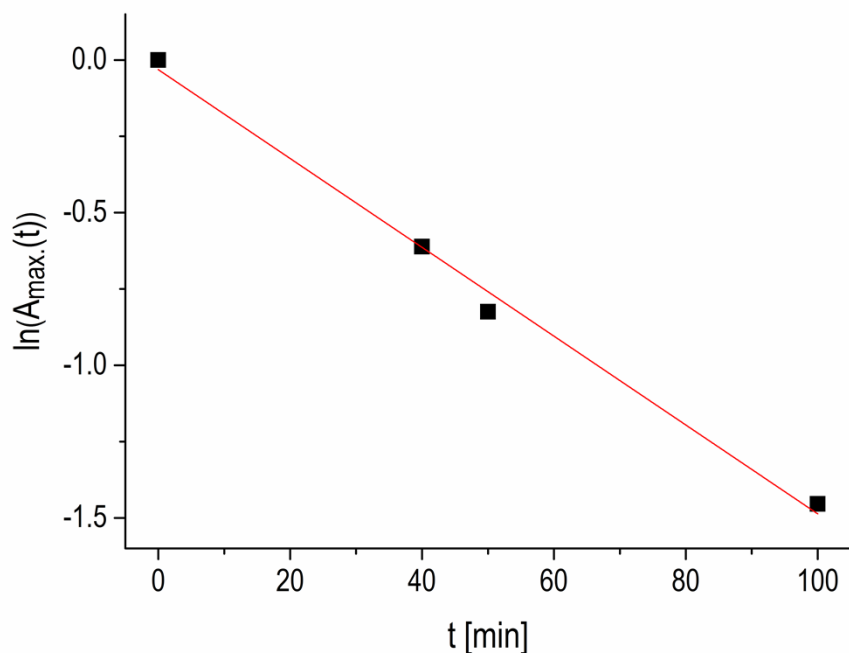
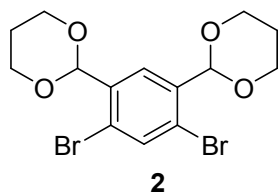
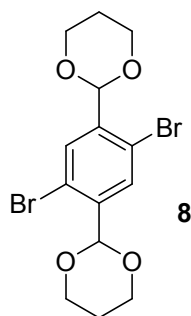


Fig. 1. Intensity decrease of the absorption band of 6a in chlorobenzene under UV/vis light exposure at room temperature under ambient atmosphere.

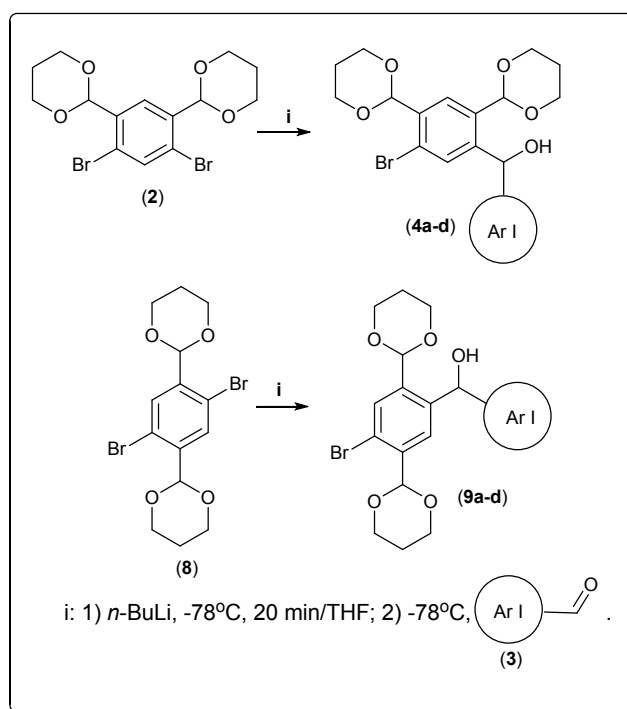
General procedure for synthesis of protected dibromo dialdehydes 2 and 8: To a solution of 2,5-dibromobenzene-1,4-dicarbaldehyde (**1**) or 2,4-dibromobenzene-1,5-dicarbaldehyde (**7**) (10 g, 34 mmol) in toluene (50 mL) were added *Amberlite IR 120* (as a catalyst) and 1,3-propanediol (4.9 mL, 68 mmol). The resulting mixture was refluxed for 6 h using a Dean-Stark trap for the azeotropic removal of water. After evaporation of the solvent, the residue was diluted with chloroform (100 mL), filtered off and organic layer was washed with water (50 mL), brine (50 mL) and again with water (3x50 mL). The organic layer was dried (MgSO₄) and then evaporated under vacuum to give corresponding diacetals (**2**) or (**8**) as crystals. All new compounds prepared by the above procedure were characterized spectroscopically as shown below.



Yield: 58 %; white crystals, mp 166-167°C; ¹H NMR (200MHz, C₆D₆, 25°C, TMS, δ): 0.57 (d, H_{eq}^{2,2'}, 2H), 1.65-1.82 (m, H_{ax}^{2,2'}, 2H), 3.37-3.49 (m, H_{eq}^{4,4',6,6'}, 4H), 3.75-3.83 (m, H_{ax}^{4,4',6,6'}, 4H), 5.61 (s, OCHO, 2H), 7.59 (s, Ar-H, 1H), 8.60 (s, Ar-H, 1H); ¹³C NMR (50MHz, C₆D₆, 25°C, TMS, δ): 26.31 (s, OCH₂CH₂CH₂O), 67.88 (s, OCH₂CH₂CH₂O), 101.22 (s, OCHO), 124.01 (s, C_{Ar}-H), 129.57 (s, C_{Ar}-H), 136.49 (s, C_{Ar}-Br), 138.71 (s, C_{Ar}-CHOC₃H₆O); MS (EI, 70eV): m/z (%): 408.9 (17.2) [M], 87.1 (100) [-C₄H₇O₂]; HR MS (EI, 70 eV): m/z calcd for C₁₄H₁₆Br₂O₄: 405.94155; found: 405.94202.

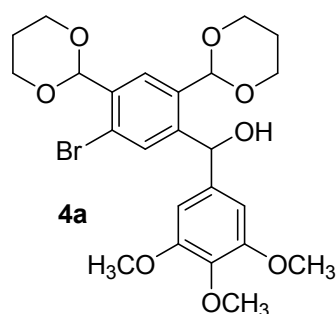


Yield: 78 %; white crystals, mp 230°C; ^1H NMR (200MHz, C_6D_6 , 25 °C, TMS, δ): 0.57 (d, $\text{H}_{\text{eq}}^{2,2'}$, 2H), 1.67-1.82 (m, $\text{H}_{\text{ax}}^{2,2'}$, 2H), 3.35-3.47 (m, $\text{H}_{\text{eq}}^{4,4',6,6'}$, 4H), 3.74-3.82 (m, $\text{H}_{\text{ax}}^{4,4',6,6'}$, 4H), 5.56 (s, OCHO, 2H), 8.24 (s, Ar-H, 1H); ^{13}C NMR (50MHz, C_6D_6 , 25 °C, TMS, δ): 26.33 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 67.88 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 100.91 (s, OCHO), 122.40 (s, $\text{C}_{\text{Ar-H}}$), 133.62 (s, $\text{C}_{\text{Ar-Br}}$), 140.95 (s, $\text{C}_{\text{Ar-CHOC}_3\text{H}_6\text{O}}$); MS (EI, 70eV): m/z (%) 408.9 (100) [M], 87.1 (12) [$-\text{C}_4\text{H}_7\text{O}_2$]; HR MS (EI, 70 eV): m/z calcd for $\text{C}_{14}\text{H}_{16}\text{Br}_2\text{O}_4$: 405.94155; found: 405.94488.

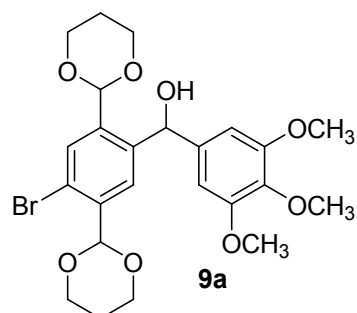


General procedure for synthesis of diarylmethanols 4a-d and 9a-d: The 1,5-dibromo-2,4-bis(1,3-dioxan-2-yl)-benzene (**2**) or 1,4-dibromo-2,5-bis(1,3-dioxan-2-yl)-benzene (**8**) (1 mmol) was dissolved in dry THF (50 mL), cooled to -78 °C and then *n*-BuLi in heptane (2.6 M, 1.2 mmol) was added. The resulting mixture was stirred for 40 min under argon atmosphere. The corresponding (hetero)aromatic aldehydes (**3**) (1.1 mmol) in dry THF (3 mL), was added at -78 °C and stirring was continued for 1.5 h from -78 °C to room temperature. Then saturated aqueous solution of NH_4Cl was added and the organic layer was evaporated. The residue was diluted with ethyl acetate (50 mL) and washed with water (3 x 20 mL). The organic layer was dried (MgSO_4) and then filtrated. The solvent was removed in vacuum and the residue purified by column chromatography (mixtures *n*-hexane/acetone) to give the corresponding

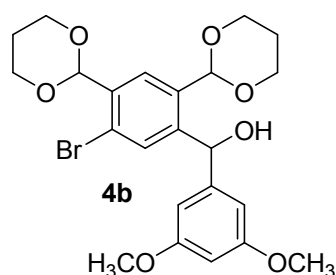
diarylmethanols (**4a-d**) and (**9a-d**) as solids. All new compounds prepared by the above procedure were characterized spectroscopically as shown below.



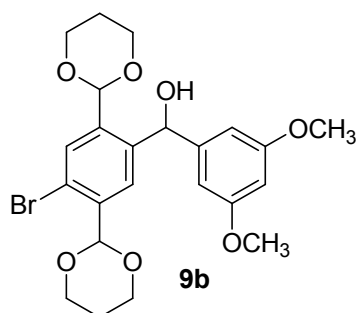
Yield: 31 %; yellow foam, mp 80-82°C; ¹H NMR (200MHz, C₆D₆, 25 °C, TMS, δ): 0.58 (d, H_{eq}^{5,5'}, 2H), 1.65-1.83 (m, H_{ax}^{5,5'}, 2H), 3.26-3.49 (m, H_{ax}^{4,4',6,6'}, 4H), 3.38 (s, *m*-ArOCH₃, 6H), 3.69-3.86 (m, H_{eq}^{4,4',6,6'}, 4H), 3.85 (s, *p*-ArOCH₃, 3H), 5.21 (s, OCHO, 1H), 5.52 (s, OCHO, 1H), 6.53 (s, CHO, 1H), 6.97 (s, *o*-Ar(OCH₃)₃, 2H), 7.82 (s, Ar-H, 1H), 7.84 (s, Ar-H, 1H); ¹³C NMR (50MHz, C₆D₆, 25 °C, TMS, δ): 26.30 (s, 2x OCH₂CH₂CH₂O), 56.40 (s, 2x *m*-Ar(OCH₃)₂), 61.18 (s, *p*-ArOCH₃), 67.98 (s, 2x OCH₂CH₂CH₂O), 73.00 (s, CHO), 101.95 (s, 2x OCHO), 105.16 (s, 2x *o*-C_{Ar}-H), 126.40 (s, C_{Ar}-H), 132.36 (s, C_{Ar}-H), 137.65 (s, C_{Ar}-CHOCH₂CH₂CH₂O), 138.12 (s, C_{Ar}-CHOCH₂CH₂CH₂O), 138.96 (s, 2x C_{Ar}-CHOH), 139.61 (s, *p*-C_{Ar}-OCH₃), 141.49 (s, C_{Ar}-Br), 143.06 (s, *ipso*-C_{Ar}Ar(OCH₃)₃), 154.65 (s, 2x *m*-C_{Ar}-OCH₃); MS (EI, 70eV): *m/z* (%) 524 (6.75) [M], 450 (57.49) [M, (-OC₃H₆O)], 370 (100) [M, (-HOC₃H₆OH, -OC₃H₆O)]; HR MS (EI, 70 eV): *m/z* calcd for C₂₄H₂₉BrO₈: 524.10253 ; found: 524.10186.



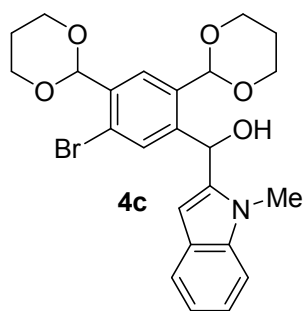
Yield: 60 %; yellow oil, ¹H NMR (200MHz, C₆D₆, 25 °C, TMS, δ): 0.55 (d, H_{eq}^{5,5'}, 2H), 1.66-1.85 (m, H_{ax}^{5,5'}, 2H), 3.24-3.66 (m, H_{ax}^{4,4',6,6'}, 4H), 3.34 (s, *m*-ArOCH₃, 6H), 3.72-3.88 (m, H_{eq}^{4,4',6,6'}, 4H), 3.84 (s, *p*-ArOCH₃, 3H), 5.39 (s, OCHO, 1H), 5.76 (s, OCHO, 1H), 6.35 (s, CHO, 1H), 6.86 (s, *o*-Ar(OCH₃)₃, 2H), 7.79 (s, Ar-H, 1H), 8.51 (s, Ar-H, 1H); ¹³C NMR (50MHz, C₆D₆, 25 °C, TMS, δ): 26.19 (s, OCH₂CH₂CH₂O), 26.49 (s, OCH₂CH₂CH₂O), 54.06 (s, 2x *m*-Ar(OCH₃)₂), 58.87 (s, *p*-ArOCH₃), 67.96 (s, 2x OCH₂CH₂CH₂O), 72.40 (s, CHO), 101.69 (s, 2x OCHO), 105.25 (s, 2x *o*-C_{Ar}-H), 124.46 (s, C_{Ar}-H), 133.98 (s, C_{Ar}-H), 136.86 (s, C_{Ar}-CHOCH₂CH₂CH₂O), 138.94 (s, 2x C_{Ar}-CHOH), 139.22 (s, *p*-C_{Ar}-OCH₃), 138.94 (s, C_{Ar}-Br), 146.22 (s, *ipso*-C_{Ar}Ar(OCH₃)₃), 154.85 (s, 2x *m*-C_{Ar}-OCH₃); MS (CI, isobutane): *m/z* (%) 525 (30) [M+1], 451 (100) [M+1 (-OC₃H₆O)]; HR MS (EI, 70 eV): *m/z* calcd for C₂₄H₂₉BrO₈: 524.10253; found: 524.10296.



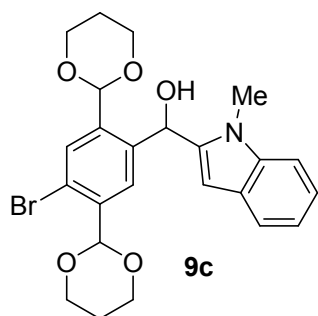
Yield: 76 %; yellow foam, mp 68-70 °C; ¹H NMR (200MHz, CDCl₃, 25 °C, TMS, δ): 1.42 (d, H_{eq}^{5,5'}, 2H), 2.10-2.23 (m, H_{ax}^{5,5'}, 2H), 3.71 (s, OH, 1H), 3.73 (s, *m*-ArOCH₃, 6H), 3.81-4.02 (m, H_{ax}^{4,4',6,6'}, 4H), 4.18-4.23 (m, H_{eq}^{4,4',6,6'}, 4H), 5.46 (s, OCHO, 1H), 5.68 (s, OCHO, 1H), 6.17 (s, CHOH, 1H), 6.35 (s, *p*-Ar-H, 1H), 6.51 (s, *o*-Ar-H, 2H), 7.33 (s, Ar-H, 1H), 7.83 (s, Ar-H, 1H); ¹³C NMR (50MHz, CDCl₃, 25 °C, TMS, δ): 25.58 (s, 2x OCH₂CH₂CH₂O), 34.02 (s, 2x OCH₂CH₂CH₂O), 55.56 [s, 2x *m*-Ar(OCH₃)₂], 62.07 (s, 2x OCH₂CH₂CH₂O), 67.51 (s, 2x OCH₂CH₂CH₂O), 84.44 (s, CHOH), 100.47 (s, OCHO), 100.54 (s, OCHO), 104.87 (s, C_{Ar}-H), 106.04 (s, C_{Ar}-H), 122.86 (s, C_{Ar}-H), 126.34 (s, C_{Ar}-H), 136.84 (s, C_{Ar}), 137.18 (s, C_{Ar}), 137.57 (s, C_{Ar}), 142.03 (s, C_{Ar}-H), 143.27 (s, C_{Ar}), 144.88 (s, C_{Ar}), 145.38 (s, C_{Ar}); MS (EI, 70eV): *m/z* (%) 494.9 (10) [M]; 420.0 (100) [M, (-(-O(CH₂)₃O-)]], 87.0 (31) [M, ((-CHO₂(CH₂)₃)]]; HR MS (EI, 70 eV): *m/z* calcd for C₂₃H₂₇BrO₇: 494.09235; found: 494.09299.



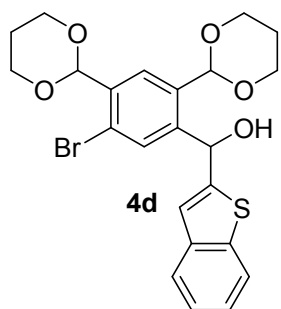
Yield: 63 %; yellow foam, mp 61-63 °C; ¹H NMR (200MHz, CDCl₃, 25 °C, TMS, δ): 1.34 (d, H_{eq}^{5,5'}, 2H), 2.01-2.13 (m, H_{ax}^{5,5'}, 2H), 3.66 (s, *m*-ArOCH₃, 6H), 3.80-4.00 (m, H_{ax}^{4,4',6,6'}, 4H), 4.06-4.15 (m, H_{eq}^{4,4',6,6'}, 4H), 5.31 (s, OCHO, 1H), 5.61 (s, OCHO, 1H), 9.92 (s, CHOH, 1H), 6.35 (s, *p*-Ar-H, 1H), 6.29 (s, *o*-Ar-H, 2H), 7.66 (s, Ar-H, 1H), 7.75 (s, Ar-H, 1H); ¹³C NMR (50MHz, CDCl₃, 25 °C, TMS, δ): 25.36 (s, 2x OCH₂CH₂CH₂O), 25.54 (s, 2x OCH₂CH₂CH₂O), 55.35 [s, 2x *m*-Ar(OCH₃)₂], 61.61 (s, 2x OCH₂CH₂CH₂O), 67.31 (s, 2x OCH₂CH₂CH₂O), 67.44 (s, 2x OCH₂CH₂CH₂O), 72.91 (s, CHOH), 98.66 (s, OCHO), 99.32 (s, OCHO), 100.54 (s, C_{Ar}-H), 104.38 (s, C_{Ar}-H), 121.65 (s, C_{Ar}-H), 128.97 (s, C_{Ar}-H), 131.07 (s, C_{Ar}), 137.79 (s, C_{Ar}), 138.00 (s, C_{Ar}), 140.93 (s, C_{Ar}-H), 143.63 (s, C_{Ar}), 145.17 (s, C_{Ar}), 150.98 (s, C_{Ar}); MS (EI, 70eV): *m/z* (%) 494,9 (2.76) [M]; 420,0 (43.60) [M, (-(-O(CH₂)₃O-)]], 87 (100) [M, (-CHO₂(CH₂)₃)]]; HR MS (EI, 70 eV): *m/z* calcd for C₂₃H₂₇BrO₇: 494.09235; found: 490.09260.



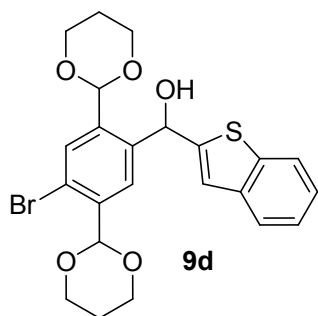
Yield: 71 %; yellow foam, mp 125 °C; ^1H NMR (200MHz, CDCl_3 , 25 °C, TMS, δ): 1.25-1.44 (m, $\text{H}_{\text{eq}}^{5,5'}$, 2H), 2.14-2.27 (m, $\text{H}_{\text{ax}}^{5,5'}$, 2H), 3.49 (s, CH_3 , 1H), 3.84-4.19 (m, $\text{H}_{\text{ax}}^{4,4',6,6'}$, 4H), 4.22-4.24 (m, $\text{H}_{\text{eq}}^{4,4',6,6'}$, 4H), 5.56 (s, OCHO, 1H), 5.75 (s, OCHO, 1H), 6.46 (s, CHOH, 1H), 6.52 (s, Ar-H, 1H), 7.22 (d, Ar-H, 1H), 7.29 (t, Ar-H, 2H), 7.46 (s, Ar-H, 1H), 7.61 (d, Ar-H, 1H), 7.92 (s, Ar-H, 1H); ^{13}C NMR (50MHz, C_6D_6 , 25 °C, TMS, δ): 25.31 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 26.41 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 29.87 (s, CH_3), 65.48 (s, CHOH), 67.11 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 67.15 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 67.30 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 100.33 (s, OCHO), 100.79 (s, OCHO), 101.24 (s, $\text{C}_{\text{Ar-H}}$), 108.79 (s, $\text{C}_{\text{Ar-H}}$), 119.13 (s, $\text{C}_{\text{Ar-H}}$), 120.99 (s, $\text{C}_{\text{Ar-H}}$), 121.21 (s, $\text{C}_{\text{Ar-H}}$), 127.23 (s, $\text{C}_{\text{Ar-H}}$), 131.91 (s, $\text{C}_{\text{Ar-H}}$), 121.66 (s, C_{Ar}), 135.08 (s, C_{Ar}), 136.92 (s, C_{Ar}), 137.75 (s, C_{Ar}), 139.88 (s, C_{Ar}), 142.38 (s, C_{Ar}), 155.86 (s, C_{Ar}); MS (EI, 70eV): m/z (%) 489 (24) [$\text{M}+1$], 412 (20) [$\text{M}+1$ ($\text{HOC}_3\text{H}_6\text{OH}$)]; HR MS (EI, 70 eV): m/z calcd for $\text{C}_{24}\text{H}_{26}\text{BrNO}_5$: 487.10253; found: 487.09829.



Yield: 60 %; yellow oil, ^1H NMR (200MHz, C_6D_6 , 25 °C, TMS, δ): 1.24-1.44 (m, $\text{H}_{\text{eq}}^{5,5'}$, 2H), 2.16-2.29 (m, $\text{H}_{\text{ax}}^{5,5'}$, 2H), 3.49 (s, CH_3 , 1H), 3.85-4.20 (m, $\text{H}_{\text{ax}}^{4,4',6,6'}$, 4H), 4.20-4.23 (m, $\text{H}_{\text{eq}}^{4,4',6,6'}$, 4H), 5.57 (s, OCHO, 1H), 5.70 (s, OCHO, 1H), 6.47 (s, CHOH, 1H), 6.55 (s, Ar-H, 1H), 7.26 (d, Ar-H, 1H), 7.28 (t, Ar-H, 2H), 7.48 (s, Ar-H, 1H), 7.92 (d, Ar-H, 1H), 7.97 (s, Ar-H, 1H); ^{13}C NMR (50MHz, C_6D_6 , 25 °C, TMS, δ): 25.33 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 26.43 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 29.88 (s, CH_3), 65.40 (s, CHOH), 67.10 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 67.22 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 67.29 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 100.35 (s, OCHO), 100.80 (s, OCHO), 101.26 (s, $\text{C}_{\text{Ar-H}}$), 108.81 (s, $\text{C}_{\text{Ar-H}}$), 119.10 (s, $\text{C}_{\text{Ar-H}}$), 120.99 (s, $\text{C}_{\text{Ar-H}}$), 122.20 (s, $\text{C}_{\text{Ar-H}}$), 127.20 (s, $\text{C}_{\text{Ar-H}}$), 131.90 (s, $\text{C}_{\text{Ar-H}}$), 121.60 (s, C_{Ar}), 134.04 (s, C_{Ar}), 137.92 (s, C_{Ar}), 135.75 (s, C_{Ar}), 138.81 (s, $\text{C}_{\text{Ar-Br}}$), 143.37 (s, C_{Ar}), 156.86 (s, C_{Ar}); MS (EI, 70 eV): m/z (%) 489 (30) [$\text{M}+1$], 412 (15) [$\text{M}+1$ ($\text{HOC}_3\text{H}_6\text{OH}$)]; HR MS (EI, 70 eV): m/z calcd for $\text{C}_{24}\text{H}_{26}\text{BrNO}_5$: 487.46780.10253; found: 487.100085.

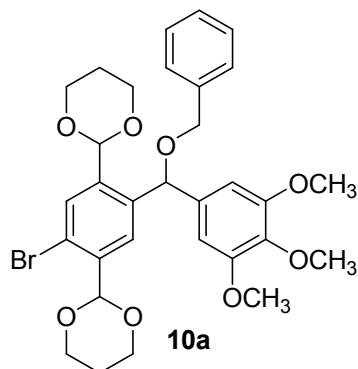


Yield: 63 %; white solid, mp 195-197 °C; ¹H NMR (200MHz, CDCl₃, 25 °C, TMS, δ): 1.37-1.49 (m, H_{eq}^{5,5'}, 2H), 2.13-2.37 (m, H_{ax}^{5,5'}, 2H), 3.81-4.01 (m, H_{ax}^{4,4',6,6'}, 4H), 4.21-4.32 (m, H_{eq}^{4,4',6,6'}, 4H), 5.55 (s, OCHO, 1H), 5.79 (s, OCHO, 1H), 6.51 (s, CHOH, 1H), 7.08 (s, Ar-H, 1H), 7.28-7.39 (m, Ar-H, 2H), 7.65 (s, Ar-H, 1H), 7.68-7.73 (m, Ar-H, 1H), 7.81-7.86 (m, Ar-H, 1H), 7.93 (s, Ar-H, 1H); ¹³C NMR (50MHz, CDCl₃, 25 °C, TMS, δ): 25.36 (s, OCH₂CH₂CH₂O), 25.59 (s, OCH₂CH₂CH₂O), 67.49 (s, 2x OCH₂CH₂CH₂O), 69.37 (s, CHOH), 100.49 (s, OCHO), 100.72 (s, OCHO), 121.06 (s, C_{Ar}-H), 122.27 (s, C_{Ar}-H), 123.15 (s, C_{Ar}-H), 123.46 (s, C_{Ar}-H), 123.92 (s, C_{Ar}-H), 124.14 (s, C_{Ar}-H), 127.28 (s, C_{Ar}-H), 132.82 (s, C_{Ar}), 135.24 (s, C_{Ar}), 137.23 (s, C_{Ar}), 139.64 (s, C_{Ar}), 139.68 (s, C_{Ar}), 143.17 (s, C_{Ar}), 147.31 (s, C_{Ar}); MS (EI, 70eV): m/z (%) 490 (15) [M]; 416 (100) [M, (-OC₃H₆O)], 414 (88) [M, (-HOC₃H₆OH)]; HR MS (EI, 70 eV): m/z calcd for C₂₃H₂₃BrO₅S: 490.04318, found: 490.04278.

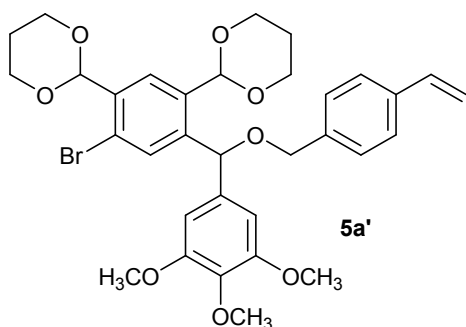


Yield: 62 %; colorless oil, ¹H NMR (200MHz, CDCl₃, 25 °C, TMS, δ): 1.39-1.50 (m, H_{eq}^{5,5'}, 2H), 2.12-2.35 (m, H_{ax}^{5,5'}, 2H), 3.80-4.00 (m, H_{ax}^{4,4',6,6'}, 4H), 4.20-4.30 (m, H_{eq}^{4,4',6,6'}, 4H), 5.58 (s, OCHO, 1H), 5.70 (s, OCHO, 1H), 6.53 (s, CHOH, 1H), 7.01 (s, Ar-H, 1H), 7.29-7.49 (m, Ar-H, 2H), 7.60 (s, Ar-H, 1H), 7.68-7.77 (m, Ar-H, 1H), 7.87-7.89 (m, Ar-H, 1H), 7.92 (s, Ar-H, 1H); ¹³C NMR (50MHz, CDCl₃, 25 °C, TMS, δ): 24.37 (s, OCH₂CH₂CH₂O), 26.50 (s, OCH₂CH₂CH₂O), 66.50 (s, 2x OCH₂CH₂CH₂O), 69.40 (s, CHOH), 100.50 (s, OCHO), 100.79 (s, OCHO), 121.16 (s, C_{Ar}-H), 122.17 (s, C_{Ar}-H), 123.25 (s, C_{Ar}-H), 123.46 (s, C_{Ar}-H), 123.99 (s, C_{Ar}-H), 124.14 (s, C_{Ar}-H), 128.29 (s, C_{Ar}-H), 132.91 (s, C_{Ar}), 135.34 (s, C_{Ar}), 137.42 (s, C_{Ar}), 139.68 (s, C_{Ar}), 140.08 (s, C_{Ar}), 144.07 (s, C_{Ar}), 146.33 (s, C_{Ar}); MS (EI, 70eV): m/z (%) 490 (20) [M]; 416 (100) [M, (-OC₃H₆O)], 414 (60) [M, (-HOC₃H₆OH)]; HR MS (EI, 70 eV): m/z calcd for C₂₃H₂₃BrO₅S: 490.05318; found: 490.04393.

C_{Ar}-H), 127.42 (s, *m*-Ph), 129.18 (s, *p*-Ph), 129.82 (s, *o*-Ph), 132.51 (s, C_{Ar}-H), 138.24 (s, 2x C_{Ar}-CHOCH₂CH₂CH₂O), 139.36 (s, C_{Ar}-CHOBn), 139.93 (s, *p*-C_{Ar}-OCH₃), 140.15 (s, C_{Ar}-Br), 140.42 (s, *ipso*-C_{Ar}Ar(OCH₃)₃), 154.73 (s, 2x *m*-C_{Ar}-OCH₃); MS (EI, 70eV): *m/z* (%) 614 (9.88) [M], 525 (100) [M, (-OC₃H₆O, -CH₃)], 91 (78.78) [M, (PhCH₂O)]; HR MS (EI, 70 eV): *m/z* calcd for C₃₁H₃₅BrO₈: 614.15074; found: 614.15014.

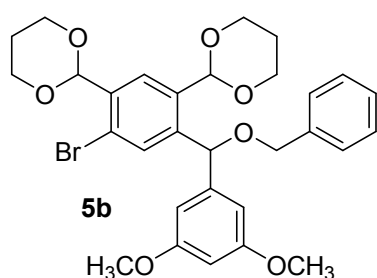


Yield: 30 %; yellow oil, ¹H NMR (200MHz, C₆D₆, 25°C, TMS, δ): 0.55 (d, H_{eq}^{5,5'}, 2H), 1.52-1.85 (m, H_{ax}^{5,5'}, 2H), 3.27-3.63 (m, H_{ax}^{4,4',6,6'}, 4H), 3.37 (s, *m*-ArOCH₃, 6H), 3.69-3.92 (m, H_{eq}^{4,4',6,6'}, 4H), 3.83 (s, *p*-ArOCH₃, 3H), 4.47 (d, CH_AH_BPh, 1H_A, ²J_{HH} = 0.06 Hz), 4.54 (d, CH_AH_BPh, 1H_B, ²J_{HH} = 0.06 Hz), 5.49 (s, OCHO, 1H), 5.78 (s, OCHO, 1H), 6.12 (s, CHOBn, 1H), 6.91 (s, *o*-Ar(OCH₃)₃, 2H), 6.98-7.02 (m, Ph, 5H), 7.12 (s, Ar-H, 1H), 7.30 (s, Ar-H, 1H); ¹³C NMR (50MHz, C₆D₆, 25°C, TMS, δ): 26.35 (s, OCH₂CH₂CH₂O), 26.35 (s, OCH₂CH₂CH₂O), 56.42 (s, 2x *m*-Ar(OCH₃)₂), 61.12 (s, *p*-ArOCH₃), 67.84 (s, 2x OCH₂CH₂CH₂O), 71.44 (s, OCH₂Ph), 78.06 (s, CHOBn), 100.88 (s, OCHO), 101.72 (s, OCHO), 105.88 (s, 2x *o*-C_{Ar}-H), 124.45 (s, C_{Ar}-H), 127.86 (s, *m*-Ph), 128.32 (s, *p*-Ph), 129.89 (s, *o*-Ph), 133.38 (s, C_{Ar}-H), 137.74 (s, 2x C_{Ar}-CHOCH₂CH₂CH₂O), 138.21 (s, C_{Ar}-CHOBn), 138.67 (s, *p*-C_{Ar}-OCH₃), 139.86 (s, C_{Ar}-Br), 143.58 (s, *ipso*-C_{Ar}Ar(OCH₃)₃), 154.84 (s, 2x *m*-C_{Ar}-OCH₃); MS (EI, 70eV): *m/z* (%) 614 (5.89) [M], 449 (73.93) [M, (-OC₃H₆O, PhCH₂O)], 91 (100) [M, (PhCH₂O)]; HR MS (EI, 70 eV): *m/z* calcd for C₃₁H₃₅BrO₈: 614.15074; found: 614.15001.

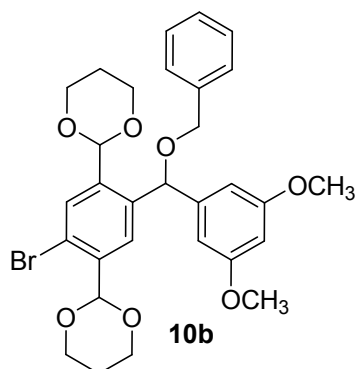


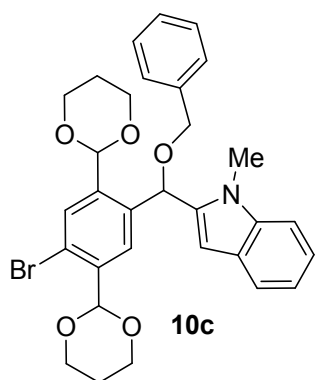
Yield: 96 %; yellow foam, mp 48-50 °C; ¹H NMR (200MHz, CDCl₃, 25 °C, TMS, δ): 0.83 (d, H_{eq}^{5,5'}, 2H), 1.71-2.50 (m, H_{ax}^{5,5'}, 2H), 3.75 (s, *m*-ArOCH₃, 6H), 3.80 (s, *p*-ArOCH₃, 3H), 3.91-4.14 (m, H_{ax}^{4,4',6,6'}, 4H), 4.49-3.52 (m, H_{eq}^{4,4',6,6'}, 4H), 4.25-4.72 (dd, CH_AH_BPh, 2H_A, ²J_{HH}=0.06 Hz), 5.17 (d-CH=CH₂, 1H); 5.40 (s, OCHO, 1H), 5.70 (d, -CH=CH₂, 1H); 5.94 (s, OCHO, 1H), 6.20 (s, CHOPh, 1H), 6.53-6.67 (q, -

CH=CH₂, 1H); 6.68 [s, *o*-Ar(OCH₃)₃, 2H], 7.29-7.34 (dd, Ph, 4H), 7.45 (s, Ar-H, 1H), 7.90 (s, Ar-H, 1H); ¹³C NMR (50MHz, CDCl₃, 25 °C, TMS, δ): 25.49 (s, 2x OCH₂CH₂CH₂O), 25.67 (s, 2x OCH₂CH₂CH₂O), 55.86 (s, 2x *m*-Ar(OCH₃)₂), 60.65 (s, *p*-ArOCH₃), 67.11 (s, 2x OCH₂CH₂CH₂O), 67.17 (s, 2x OCH₂CH₂CH₂O), 70.12 (s, OCH₂Ph), 75.93 (s, CHOBn), 99.76 (s, OCHO), 99.96 (s, OCHO), 103.53 (s, 2x *o*-C_{Ar}-H), 113.69 (s, -CH=CH₂), 122.96 (s, C_{Ar}-H), 126.03 (s, *m*-Ph), 126.37 (s, C_{Ar}-H), 126.68 (s, *o*-Ph), 132.23 (s, C_{Ar}-H), 135.90 (s, C_{Ar}-CHOBn), 136.45 (s, *p*-C_{Ar}-OCH₃), 136.53 (s, 2x C_{Ar}-CHOCH₂CH₂CH₂O), 136.72 (CHOCH₂-C_{Ar}), 136.82 (s, 2x C_{Ar}-CHOCH₂CH₂CH₂O), 136.82 (s, CH=CH₂), 137.08 (s, C-CH=CH₂), 137.84 (s, C_{Ar}-Br), 142.08 (s, *ipso*-C_{Ar}-Ar(OCH₃)₃), 154.90 (s, 2x *m*-C_{Ar}-OCH₃); MS (EI, 70eV): *m/z* (%) 642.2 (2) [M]; 445.2 (100) [M, (-CH₂C₆H₄CH=CH₂, -Br)], 117.2 (70) [CH₂C₆H₄CH=CH₂]; HR MS (EI, 70 eV): *m/z* calcd for C₃₃H₃₇BrO₈: 640.16698; found: 640.16714.

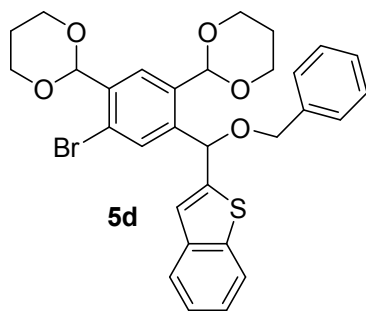


Yield: 46 %; yellow foam, mp 60-62 °C; ¹H NMR (200MHz, CDCl₃, 25 °C, TMS, δ): 1.26-1.49 (d, H_{eq}^{5,5'}, 2H), 2.03-2.26 (m, H_{ax}^{5,5'}, 2H), 3.71 (s, 2 x *m*-ArOCH₃, 6H), 3.93-4.05 (m, H_{ax}^{4,4',6,6'}, 4H), 4.09-4.22 (m, H_{eq}^{4,4',6,6'}, 4H), 4.49 (d, CH_AH_BPh, 1H_A, ²J_{HH} = 0,06 Hz), 4.51 (d, CH_AH_BPh, 1H_B, ²J_{HH} = 0,06 Hz), 5,39 (s, OCHO, 1H), 5.76 (s, OCHO, 1H), 5.90 (s, CHOBn, 1H), 6.32 (s, *o*-Ar(OCH₃)₃, 1H), 6.55 [s, *o*-Ar(OCH₃)₃, 2H], 7.30-7.33 (m, Ph, 5H), 7.64 (s, Ar-H, 1H), 7.86 (s, Ar-H, 1H); ¹³C NMR (50MHz, CDCl₃, 25 °C, TMS, δ): 25.63 (s, 2x OCH₂CH₂CH₂O), 55.26 [s, 2x *m*-Ar(OCH₃)₂], 67.17 (s, 2x OCH₂CH₂CH₂O), 67.24 (s, 2x OCH₂CH₂CH₂O), 67.51 (s, 2x OCH₂CH₂CH₂O), 70.43 (s, OCH₂Ph), 76.16 (s, CHOBn), 99.16 (s, OCHO), 99.90 (s, OCHO), 100.64 (s, C_{Ar}-H), 105.09 (s, C_{Ar}-H), 123.05 (s, C_{Ar}), 126.56 (s, C_{Ar}-H), 126.90 (s, C_{Ar}), 127.46 (s, C_{Ar}-H), 127.83 (s, C_{Ar}-H), 128.28 (s, C_{Ar}-H), 132.31 (s, C_{Ar}-H), 132.31 (s, C_{Ar}), 136.02 (s, C_{Ar}), 136.41 (s, C_{Ar}), 142.12 (s, C_{Ar}), 143.90 (s, C_{Ar}); MS (EI, 70eV): *m/z* (%) 585,1 (1) [M]; 487,1 (56) [M, (-OCH₂Ph)], 419 (100) [M, (-OCH₂Ph, 2 x -OCH₃)], 91 (86) [CH₂Ph]; HR MS (EI, 70 eV): *m/z* calcd for C₃₀H₃₃BrO₇: 585.13980; found: 585.13987.



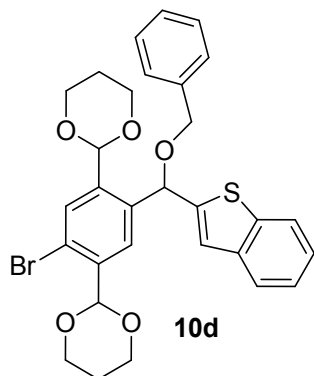


Yield: 30 %; yellow oil, ^1H NMR (200MHz, CDCl_3 , 25 °C, TMS, δ): 1.25-1.43 (m, $\text{H}_{\text{eq}}^{5,5'}$, 2H), 1.91-2.44 (m, $\text{H}_{\text{ax}}^{5,5'}$, 2H), 3.45 (s, CH_3 , 1H), 3.64-3.83 (m, $\text{H}_{\text{ax}}^{4,4',6,6'}$, 2H), 3.99-4.23 (m, $\text{H}_{\text{eq}}^{4,4',6,6'}$, 4H), 4.26-4.51 (m, $\text{H}_{\text{ax}}^{4, 4', 6, 6'}$, 2H), 4.54-4.76 (d, $\text{CH}_\text{A}\text{H}_\text{B}\text{Ph}$, 1 H_A , $^2\text{J}_{\text{HH}}=0.06$ Hz), 4.62-4.70 (d, $\text{CH}_\text{A}\text{H}_\text{B}\text{Ph}$, 1 H_B , $^2\text{J}_{\text{HH}}=0.06$ Hz), 5.55 (s, OCHO, 1H), 5.83 (s, OCHO, 1H), 6.35 (s, CHOBn, 1H), 7.00 (s, Ar-H, 1H), 7.30-7.40 (m, Ph, Ar-H, 7H), 7.71 (t, Ar-H, 1H), 7.81 (t, Ar-H, 1H), 7.99 (s, Ar-H, 1H), 8.01 (s, Ar-H, 1H); ^{13}C NMR (50MHz, CDCl_3 , 25 °C, TMS, δ): 26.83 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 27.16 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 30.08 (s, CH_3), 66.00 (s, CHOBn), 67.02 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 67.34 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 67.51 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 72.40 (s, OCH_2Ph), 100.25 (s, OCHO), 100.65 (s, OCHO), 101.13 (s, $\text{C}_{\text{Ar-H}}$), 106.54 (s, $\text{C}_{\text{Ar-H}}$), 118.19 (s, $\text{C}_{\text{Ar-H}}$), 121.34 (s, $\text{C}_{\text{Ar-H}}$), 123.24 (s, $\text{C}_{\text{Ar-H}}$), 126.21 (s, $\text{C}_{\text{Ar-H}}$), 128.16 (s, *m*-Ph), 128.42 (s, *p*-Ph), 130.90 (s, *o*-Ph), 132.91 (s, $\text{C}_{\text{Ar-H}}$), 134.60 (s, C_{Ar}), 134.71 (s, C_{Ar}), 135.22 (s, C_{Ar}), 135.75 (s, C_{Ar}), 138.91 (s, C_{Ar}), 139.09 (s, C_{Ar}), 142.69 (s, C_{Ar}), 157.16 (s, C_{Ar}); MS (EI, 70eV): *m/z* (%) 578 (10) [$\text{M}+1$], 413 (70) [M , (- $\text{OC}_3\text{H}_6\text{O}$, PhCH_2O)], 61 (100) [M , (PhCH_2)].

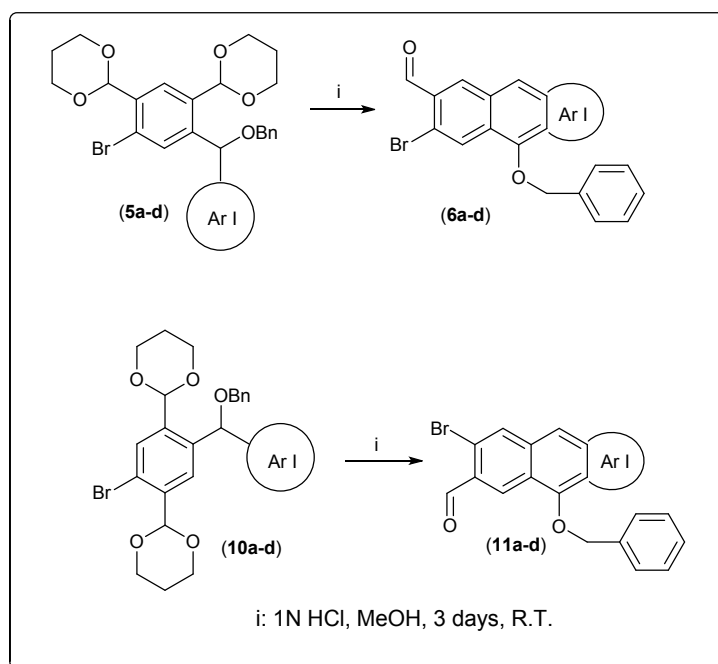


Yield: 40 %; yellow foam, mp 62-64 °C; ^1H NMR (200MHz, CDCl_3 , 25 °C, TMS, δ): 1.25-1.47 (m, $\text{H}_{\text{eq}}^{5,5'}$, 2H), 1.96-2.39 (m, $\text{H}_{\text{ax}}^{5,5'}$, 2H), 3.68-3.81 (m, $\text{H}_{\text{ax}}^{4,4',6,6'}$, 2H), 3.98-4.20 (m, $\text{H}_{\text{eq}}^{4,4',6,6'}$, 4H), 4.26-4.52 (m, $\text{H}_{\text{ax}}^{4,4',6,6'}$, 2H), 4.56-4.76 (d, $\text{CH}_\text{A}\text{H}_\text{B}\text{Ph}$, 1 H_A , $^2\text{J}_{\text{HH}}=0.05$ Hz), 4.62-4.70 (d, $\text{CH}_\text{A}\text{H}_\text{B}\text{Ph}$, 1 H_B , $^2\text{J}_{\text{HH}}=0.05$ Hz), 5.52 (s, OCHO, 1H), 5.81 (s, OCHO, 1H), 6.36 (s, CHOBn, 1H), 7.01 (s, Ar-H, 1H), 7.30-7.44 (m, Ph, Ar-H, 7H), 7.69 (t, Ar-H, 1H), 7.82 (t, Ar-H, 1H), 7.98 (s, Ar-H, 1H), 8.00 (s, Ar-H, 1H); ^{13}C NMR (50MHz, CDCl_3 , 25 °C, TMS, δ): 25.28 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 25.47 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 67.00 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 67.05 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 67.32 (s, $\text{OCH}_2\text{CH}_2\text{CH}_2\text{O}$), 70.43 (s, OCH_2Ph), 73.40 (s, CHOBn), 100.07 (s, OCHO), 100.40 (s, OCHO), 121.75 (s, $\text{C}_{\text{Ar-H}}$), 122.01 (s, $\text{C}_{\text{Ar-H}}$), 123.04 (s, $\text{C}_{\text{Ar-H}}$), 123.39 (s, $\text{C}_{\text{Ar-H}}$), 123.87 (s, $\text{C}_{\text{Ar-H}}$), 126.76 (s, $\text{C}_{\text{Ar-H}}$), 127.45 (s, *m*-Ph), 127.61 (s, *p*-Ph), 128.16 (s,

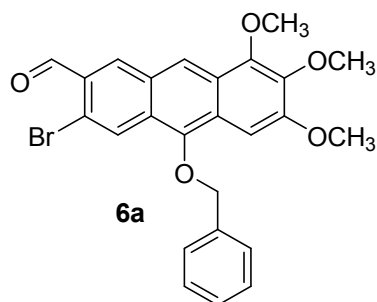
o-Ph), 128.57 (s, C_{Ar}-H), 132.06 (s, C_{Ar}), 136.00 (s, C_{Ar}), 137.04(s, C_{Ar}), 137.91 (s, C_{Ar}), 139.32 (s, C_{Ar}), 139,70 (s, C_{Ar}), 141,23 (s, C_{Ar}), 146.51(s, C_{Ar}); MS (EI, 70eV): *m/z* (%) 614 (8) [M+2], 431 (100) [M, (-OC₃H₆O-)], 91 (76) [(PhCH₂O)]; HR MS (EI, 70 eV): *m/z* calcd for C₃₀H₂₉BrO₅S: 580.09244, found: 580.09218.



Yield: 38 %; yellow oil, ¹H NMR (200MHz, CDCl₃, 25 °C, TMS, δ): 1.22-1.52 (m, H_{eq}^{5,5'}, 2H), 1.93-2.39 (m, H_{ax}^{5,5'}, 2H), 3.67-3.86 (m, H_{ax}^{4,4',6,6'}, 2H), 3.99-4.22 (m, H_{eq}^{4,4',6,6'}, 4H), 4.27-4.52 (m, H_{ax}^{4,4',6,6'}, 2H), 4.55-4,75 (d, CH_AH_BPh, 1H_A, ²J_{HH}=0.05 Hz), 4.64-4.72 (d, CH_AH_BPh, 1H_B, ²J_{HH}= 0.05 Hz), 5.53 (s, OCHO, 1H), 5.86 (s, OCHO, 1H), 6.37 (s, CHOBn, 1H), 7.09 (s, Ar-H, 1H), 7.31-7.45 (m, Ph, Ar-H, 7H), 7.70 (t, Ar-H, 1H), 7.84 (t, Ar-H, 1H), 7.99 (s, Ar-H, 1H), 8.02 (s, Ar-H, 1H); ¹³C NMR (50MHz, CDCl₃, 25 °C, TMS, δ): 25.31 (s, OCH₂CH₂CH₂O), 25.51 (s, OCH₂CH₂CH₂O), 67.07 (s, OCH₂CH₂CH₂O), 67.09 (s, OCH₂CH₂CH₂O), 67.41 (s, OCH₂CH₂CH₂O), 70.53 (s, OCH₂Ph), 73.40 (s, CHOBn), 100.11(s, OCHO), 100.45 (s, OCHO), 121.78 (s, C_{Ar}-H), 122.58 (s, C_{Ar}-H), 123.34 (s, C_{Ar}-H), 123.43 (s, C_{Ar}-H), 123.99 (s, C_{Ar}-H), 126.70 (s, C_{Ar}-H), 127.60 (s, *m*-Ph), 127.69 (s, *p*-Ph), 128.21(s, *o*-Ph), 128.69 (s, C_{Ar}-H), 132.13 (s, C_{Ar}), 136.59 (s, C_{Ar}), 136.89 (s, C_{Ar}), 137.97 (s, C_{Ar}), 139.34 (s, C_{Ar}), 139,79 (s, C_{Ar}), 142,22 (s, C_{Ar}), 146.58(s, C_{Ar}); MS (EI, 70eV): *m/z* (%) 614 (5) [M+2], 431 (100) [M, (-OC₃H₆O-)], 91 (66) [(PhCH₂O)]; HR MS (EI, 70 eV): *m/z* calcd for C₃₀H₂₉BrO₅S: 580.09244; found: 580.09249.

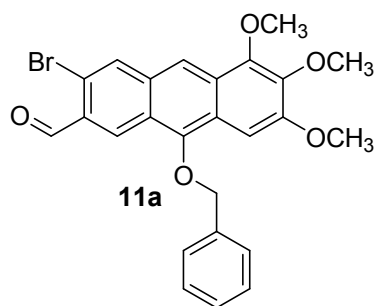


General procedure for synthesis of *o*-bromoacetaldehydes **6a-d and **11a-d**:** The *O*-protected diarylmethanol (**5a-d**) and (**10a-d**) (0.244 g, 0563 mmol) was dissolved in methanol (30 mL) and then an aqueous solution of 1 N HCl (17 mL) was added. The mixture was stirred at ambient temperature for 3 days. The reaction mixture was extracted with ethyl acetate (50 mL) and the organic layer was washed with water (20 mL), NaHCO₃ aq. (20 mL) and again with water (20 mL) and then dried (MgSO₄). The solvent was removed and the products (**6a-d**, **11a-d**) were purified with column chromatography (petroleum ether/acetone 10:1). All new compounds prepared by the above procedure were characterized spectroscopically as shown below.

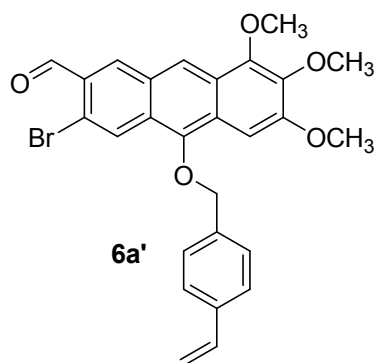


Yield: 99 %; orange solid, mp 155 °C; ¹H NMR (200MHz, C₆D₆, 25 °C, TMS, δ): 3.31 (s, OCH₃, 3H); 3.80 (s, OCH₃, 3H); 3.89 (s, OCH₃, 3H), 4.93 (s, OCH₂Ph, 2H); 7.06-7.30 (m, C₆H₅, 5H); 7.91 (s, Ar, 1H); 8.32 (s, Ar, 1H); 9.09 (s, Ar, 1H) 10.50 (s, CHO, 1H); ¹³C NMR (50MHz, C₆D₆, 25 °C, TMS, δ): 55.86 (s, OCH₃), 61.58 (s, OCH₃), 61.81 (s, OCH₃); 79.10 (s, OCH₂Ph), 97.18 (s, C_{Ar}H); 107.47 (s, C_{Ar}H); 116.55 (s, C_{Ar}H); 119.25 (s, C_{Ar}H), 123.70 (s, C_{Ar}-OMe), 124.51 (s, C_{Ar}-OMe), 125.83 (s, C_{Ar}-OMe), 128.21 (s, 2x *o*-Ph), 129.57 (s, *p*-Ph), 129.96 (s, 2x *m*-Ph), 130.76 (s, *ipso*-C₆H₅), 133.71 (s), 134.02 (s), 135.32 (s), 139.06 (s), 143.67 (s), 153.88 (s), 155.09 (s, C-OCH₂Ph), 191.32 (s, CHO), MS (EI,

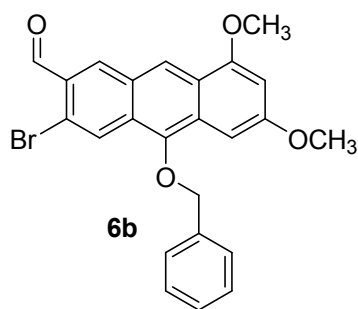
70eV): m/z (%) 480 (46) (M), 390 (100) (M(-Ph)); HR MS (EI, 70 eV): m/z calcd for $C_{25}H_{21}BrO_5$ calculated: 480.05636; found: 480.05838.



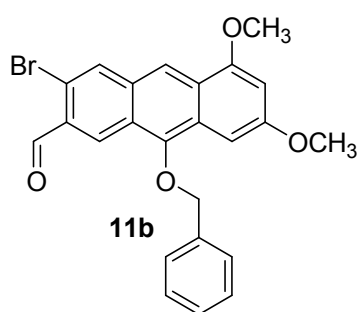
Yield: 79 %; orange solid mp 165 °C, 1H NMR (200MHz, C_6D_6 , 25 °C, TMS, δ): 3.31 (s, OCH_3 , 3H), 3.77 (s, OCH_3 , 3H), 3.88 (s, OCH_3 , 3H), 4.85 (s, OCH_2Ph , 2H), 7.06-7.34 (m, C_6H_5 , 5H), 8.50 (s, Ar, 1H), 8.55 (s, Ar, 1H), 8.59 (s, Ar), 10.50 (s, CHO, 1H); ^{13}C NMR (50MHz, C_6D_6 , 25 °C, TMS, δ): 55.81 (s, OCH_3), 61.55 (s, OCH_3), 61.88 (s, OCH_3), 78.10 (s, OCH_2Ph), 96.76 (s, C_{Ar-H}), 105.63 (s, C_{Ar-H}), 120.12 (s, C_{Ar-H}), 121.24 (s, C_{Ar-H}), 125.15 (s, C_{Ar-OMe}), 125.63 (s, C_{Ar-OMe}), 125.93 (s, C_{Ar-OMe}), 127.62 (s, $p-Ph$), 127.75 (s, 2x $o-Ph$), 129.57 (s, 2x $m-Ph$), 130.61 (s, $ipso-Ph$), 124.71 (s), 138.44 (s), 142.53 (s), 149.02 (s), 149.53 (s), 155.15 (s), 156.28 (s, C- OCH_2Ph), 191.22 (s, CHO), MS (EI, 70eV): m/z (%) 480 (2.58) [M]; 391 (100) [M(-Ph)]; HR MS (EI, 70 eV): m/z calcd for $C_{25}H_{21}BrO_5$: 480.05707; found: 480.05792.



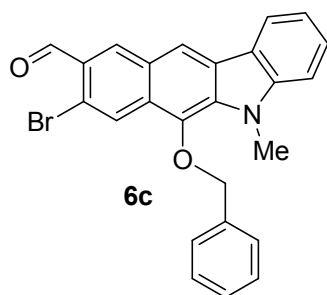
Yield: 99 %; orange solid, mp 142-145 °C; 1H NMR (200MHz, $CDCl_3$, 25 °C, TMS, δ): 3.86 (s, OCH_3 , 3H), 3.99 (s, OCH_3 , 3H), 4.11 (s, OCH_3 , 3H), 5.10 (s, OCH_2Ph , 2H), 5.30 (d, $-CH=CH_2$, 1H), 5.77 (d, $-CH=CH_2$, 1H), 6.66-6.68 (q, $-CH=CH_2$, 1H), 7.09 (s, Ar, 1H), 7.45 (s, Ar, 4H), 8.31 (s, Ar, 1H), 8.47 (s, Ar, 1H), 8.51 (s, Ar, 1H), 10.39 (s, CHO, 1H); ^{13}C NMR (50MHz, $CDCl_3$, 25 °C, TMS, δ): 55.57 (s, OCH_3), 61.27 (s, OCH_3), 61.53 (s, OCH_3), 95.55 (s, OCH_2Ph), 114.58 (s, $-CH=CH_2$), 118.88 (s, C_{ArH}), 120.17 (s, C_{ArH}), 125.29 (s, C_{ArH}), 126.29 (s, C), 126.58 (s, C_{ArH}), 126.65 (s, 2x $o-Ph$); 128.18 (s, C); 128.43 (s, 2x $m-Ph$); 129.17 (s, C_{Ar-OMe}); 134.28 (s, C_{Ar-OMe}); 136.26 (s, C_{Ar-OMe}), 136.45 (s, $-CH=CH_2$), 137.74 (s, C- $CH=CH_2$), 137.92 (s, $ipso-Ph$), 141.22 (s, C), 145.59 (s, C), 147.56 (s, C-CHO), 148.59 (s, C-Br), 154.95 (s, C- OCH_2Ph), 191.91 (s, CHO); MS (EI, 70eV): m/z (%) 508.0 (1.88) [M], 391.0 (100) [M, ($-CH_2C_6H_4CH=CH_2$)]; HR MS (EI, 70 eV): m/z calcd for $C_{27}H_{23}BrO_5$: 506.07167; found: 506.07350.



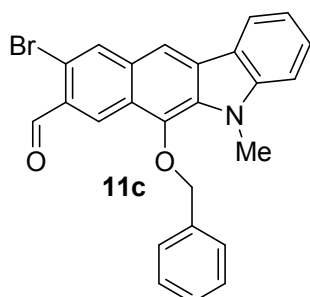
Yield: 89 %; orange solid, mp 130-132 °C; ^1H NMR (200MHz, CDCl_3 , 25 °C, TMS, δ): 3.82 (s, OCH_3 , 3H), 4.01 (s, OCH_3 , 3H), 5.16 (s, OCH_2Ph , 2H), 6.44 (s, Ar, 1H), 6.93 (s, Ar, 1H), 7.30-7.41 (m, C_6H_5 , 5H), 8.62 (s, Ar, 1H), 8.57 (s, Ar, 1H), 8.37 (s, Ar, 1H), 10.44 (s, CHO, 1H); ^{13}C NMR (50MHz, CDCl_3 , 25 °C, TMS, δ): 53.81 (s, OCH_3), 55.23 (s, OCH_3), 90.99 (s, OCH_2Ph), 97.87 (s, $\text{C}_{\text{Ar}}\text{-H}$), 98.33 (s, $\text{C}_{\text{Ar}}\text{-H}$), 102.77 (s, $\text{C}_{\text{Ar}}\text{-H}$), 118.33 (s, $\text{C}_{\text{Ar}}\text{-H}$), 119.56 (s, $\text{C}_{\text{Ar}}\text{-H}$), 123.89 (s, C_{Ar}), 125.84 (s, C_{Ar}), 127.57 (s, $\text{C}_{\text{Ar}}\text{-H}$), 128.14 (s, $\text{C}_{\text{Ar}}\text{-H}$), 128.33 (s, $\text{C}_{\text{Ar}}\text{-H}$), 131.58 (s, C_{Ar}), 134.57 (s, C_{Ar}), 137.07 (s, C_{Ar}), 148.08 (s, C_{Ar}), 156.99 (s, C_{Ar}), 157.26 (s, C_{Ar}), 158.41 (s, C_{Ar}), 159.83 (s, C_{Ar}), 191.80 (s, CHO); MS (EI, 70eV): m/z (%) 452,1 (5) [M]; 361 (100) [M, (- CH_2Ph)]; HR MS (EI, 70 eV): m/z calcd for $\text{C}_{24}\text{H}_{19}\text{BrO}_4$: 450.04780; found: 450.04778.



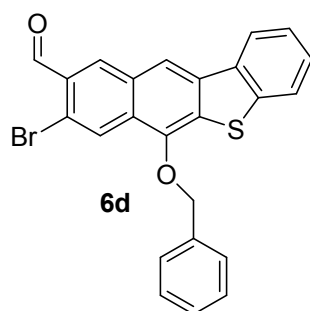
Yield: 90 %; orange solid, mp 136-138 °C; ^1H NMR (200MHz, CDCl_3 , 25 °C, TMS, δ): 3.84 (s, OCH_3 , 3H), 4.09 (s, OCH_3 , 3H), 5.14 (s, OCH_2Ph , 2H), 6.55 (s, Ar, 1H), 6.99 (s, Ar, 1H), 7.31-7.48 (m, C_6H_5 , 5H), 8.68 (s, Ar, 1H), 8.60 (s, Ar, 1H), 8.40 (s, Ar, 1H), 10.49 (s, CHO, 1H); ^{13}C NMR (50MHz, CDCl_3 , 25 °C, TMS, δ): 53.90 (s, OCH_3), 56.29 (s, OCH_3), 91.90 (s, OCH_2Ph), 98.80 (s, $\text{C}_{\text{Ar}}\text{-H}$), 98.20 (s, $\text{C}_{\text{Ar}}\text{-H}$), 103.70 (s, $\text{C}_{\text{Ar}}\text{-H}$), 119.20 (s, $\text{C}_{\text{Ar}}\text{-H}$), 120.55 (s, $\text{C}_{\text{Ar}}\text{-H}$), 124.90 (s, C_{Ar}), 126.87 (s, C_{Ar}), 127.17 (s, $\text{C}_{\text{Ar}}\text{-H}$), 129.70 (s, $\text{C}_{\text{Ar}}\text{-H}$), 129.38 (s, $\text{C}_{\text{Ar}}\text{-H}$), 132.58 (s, C_{Ar}), 135.55 (s, C_{Ar}), 137.15 (s, C_{Ar}), 149.99 (s, C_{Ar}), 157.99 (s, C_{Ar}), 158.26 (s, C_{Ar}), 159.49 (s, C_{Ar}), 160.10 (s, C_{Ar}), 192.12 (s, CHO); MS (EI, 70eV): m/z (%) 452,1 (3) [M]; 361 (100) [M, (- CH_2Ph)]; HR MS (EI, 70 eV): m/z calcd for $\text{C}_{24}\text{H}_{19}\text{BrO}_4$: 450.04778; found: 450.047802.



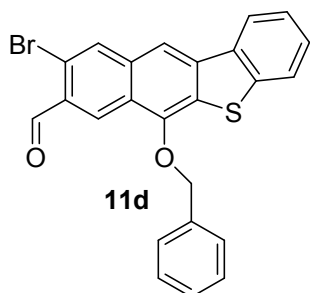
Yield: 89 %; yellow solid, mp 169-170 °C; ¹H NMR (200MHz, CDCl₃, 25 °C, TMS, δ): 4.11 (s, CH₃, 3H), 5.17 (s, OCH₂Ph, 2H), 7.06-7.30 (m, C₆H₅, Ar-H, 8H), 8.42 (d, Ar-H, 1H), 8.46 (d, Ar-H, 2H), 8.65 (s, Ar, 1H), 10.48 (s, CHO, 1H); ¹³C NMR (50MHz, CDCl₃, 25 °C, TMS, δ): 31.47 (s, CH₃), 79.10 (s, OCH₂Ph), 108.75 (s, C_{Ar}H), 117.71 (s, C_{Ar}H), 119.50 (s, C_{Ar}H), 120.23 (s, C_{Ar}H), 121.11 (s, C_{Ar}H), 122.52 (s, C_{Ar}H), 125.35 (s, C_{Ar}H), 126.35 (s, C_{Ar}), 127.67 (s, C_{Ar}), 127.94 (s, C_{Ar}), 128.32 (s, C_{Ar}), 128.36 (s, C_{Ar}), 128.61 (s, 2x *o*-Ph), 128.70 (s, *p*-Ph), 128.84 (s, 2x *m*-Ph), 129.88 (s, C_{Ar}-Br), 133.23 (s, *ipso*-C₆H₅), 136.09 (s, C_{Ar}), 136.35 (s, C_{Ar}), 144.30 (s, C-OCH₂Ph), 191.91 (s, CHO); MS (EI, 70eV): *m/z* (%) 443 (20) [M]; 353 (100) [M(-CH₂Ph)]. HR MS (EI, 70 eV): *m/z* calcd for C₂₅H₁₈BrNO₂: 444.34689; found: 444.34805.



Yield: 79 %; light yellow solid, mp 172-174 °C; ¹H NMR (200MHz, CDCl₃, 25 °C, TMS, δ): 4.10 (s, CH₃, 3H), 5.20 (s, OCH₂Ph, 2H), 7.04-7.30 (m, C₆H₅, Ar-H, 8H), 8.44 (d, Ar, 1H), 8.46 (d, Ar, 2H), 8.67 (s, Ar, 1H), 10.50 (s, CHO, 1H); ¹³C NMR (50MHz, CDCl₃, 25 °C, TMS, δ): 31.45 (s, CH₃), 80.10 (s, OCH₂Ph), 109.15 (s, C_{Ar}H), 116.81 (s, C_{Ar}H), 118.90 (s, C_{Ar}H), 120.23 (s, C_{Ar}H), 121.15 (s, C_{Ar}H), 123.02 (s, C_{Ar}H), 126.35 (s, C_{Ar}H), 127.30 (s, C_{Ar}), 127.68 (s, C_{Ar}), 127.96 (s, C_{Ar}), 127.28 (s, C_{Ar}), 127.33 (s, C_{Ar}), 128.61 (s, 2x *o*-Ph), 128.70 (s, *p*-Ph), 129.84 (s, 2x *m*-Ph), 129.81 (s, C_{Ar}-Br), 137.28 (s, *ipso*-C₆H₅), 136.07 (s, C_{Ar}), 138.38 (s, C_{Ar}), 145.31 (s, C-OCH₂Ph), 192.92 (s, CHO); MS (EI, 70eV): *m/z* (%) 443 (25) [M]; 353 (100) [M(PhCH₂)]. HR MS (EI, 70 eV): *m/z* calcd for C₂₅H₁₈BrNO₂: 444.34689; found: 444.34834.

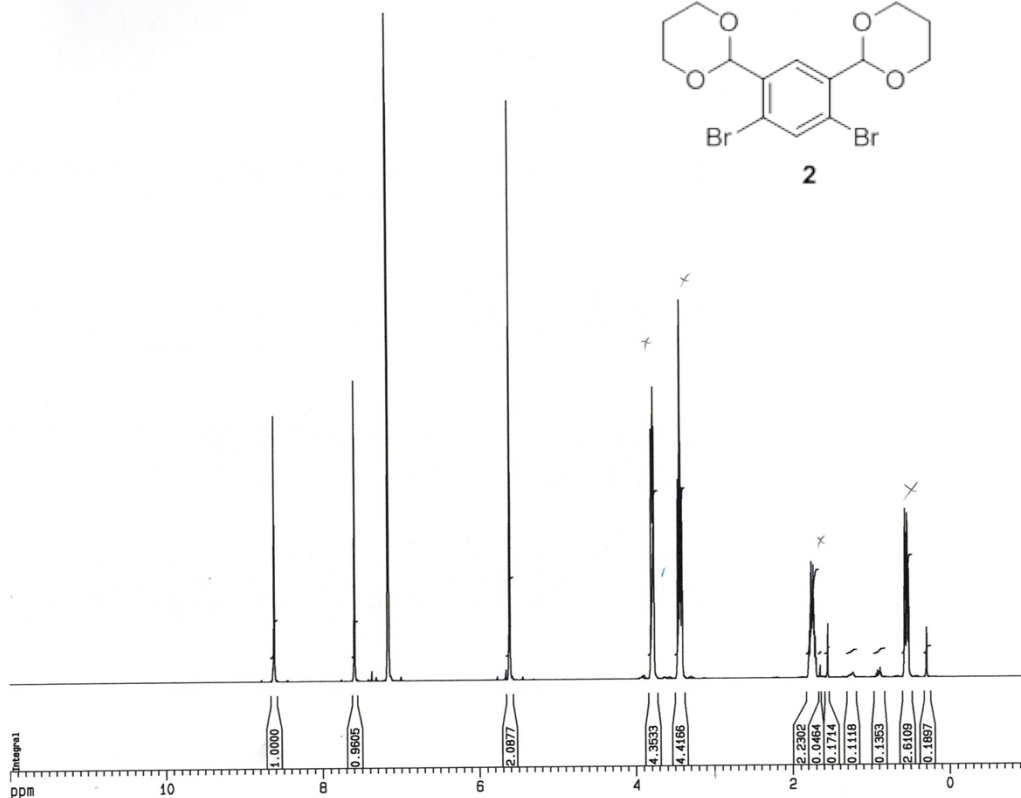
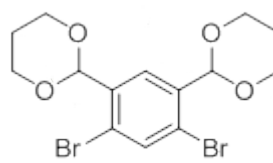


Yield: 15 %; yellow solid, mp 182-184 °C, ¹H NMR (200MHz, CDCl₃, 25 °C, TMS, δ): 5.37 (s, OCH₂Ph, 2H), 7.49 (d, Ar, 2H), 7.49-7.70 (m, C₆H₅, 5H), 7.89 (m, Ar, 1H), 8.23 (m, Ar, 1H), 8.45 (s, Ar, 1H), 8.49 (s, Ar, 1H), 8.70 (s, Ar, 1H), 10.60 (s, CHO, 1H); ¹³C NMR (50MHz, CDCl₃, 25 °C, TMS, δ): 75.34 (s, OCH₂Ph), 118.11 (s, C_{Ar}H), 120.21 (s, C_{Ar}H), 122.44 (s, C_{Ar}H), 123.04 (s, C_{Ar}H), 125.20 (s, C_{Ar}H), 126.26 (s, C_{Ar}H), 128.50 (s, 2x *o*-Ph), 128.74 (s, *p*-Ph), 129.88 (s, 2x *m*-Ph), 130.76 (s, C_{Ar}), 133.71 (s, C_{Ar}), 134.02 (s, C_{Ar}), 135.32 (s, C_{Ar}), 139.06 (s, C_{Ar}), 143.67 (s, C_{Ar}), 146.45 (s, C_{Ar}), 149.55 (s, C_{Ar}), 153.88 (s, C_{Ar}), 155.09 (s, C_{Ar}), 191.89 (s, CHO), MS (EI, 70eV): *m/z* (%) 382 (33) [M]; 305.9 (100) [M(-Ph)]; HR MS (EI, 70 eV): *m/z* calcd for C₂₄H₁₅BrO₂S: 445.99720; found: 445.99805.



Yield: 18 %; yellow solid, mp 193-195 °C; ¹H NMR (200MHz, CDCl₃, 25 °C, TMS, δ): 5.35 (s, OCH₂Ph, 2H), 7.44 (d, Ar, 2H), 7.50-7.78 (m, C₆H₅, 5H), 7.88 (m, Ar, 1H), 8.25 (m, Ar, 1H), 8.42 (s, Ar, 1H), 8.51 (s, Ar, 1H), 8.65 (s, Ar, 1H), 10.52 (s, CHO, 1H); ¹³C NMR (50MHz, CDCl₃, 25 °C, TMS, δ): 75.34 (s, OCH₂Ph), 118.11 (s, C_{Ar}H), 120.21 (s, C_{Ar}H), 122.44 (s, C_{Ar}H), 123.04 (s, C_{Ar}H), 125.20 (s, C_{Ar}H), 126.26 (s, C_{Ar}H), 128.50 (s, 2x *o*-Ph), 128.74 (s, *p*-Ph), 129.88 (s, 2x *m*-Ph), 130.76 (s, C_{Ar}), 133.71 (s, C_{Ar}), 134.02 (s, C_{Ar}), 135.32 (s, C_{Ar}), 139.06 (s, C_{Ar}), 140.33 (s, C_{Ar}), 142.11 (s, C_{Ar}), 143.67 (s, C_{Ar}), 153.88 (s, C_{Ar}), 155.09 (s, C_{Ar}), 191.89 (s, CHO); MS (EI, 70eV): *m/z* (%) 382 (26) [M]; 305.9 (100) [M, (-Ph)] HR MS (EI, 70 eV): *m/z* calcd for C₂₄H₁₅BrO₂S: 445.99720; found: 445.99650.

*** NMR LAB ***
 AVANCE DRX500
 Tel: 042 6803 307



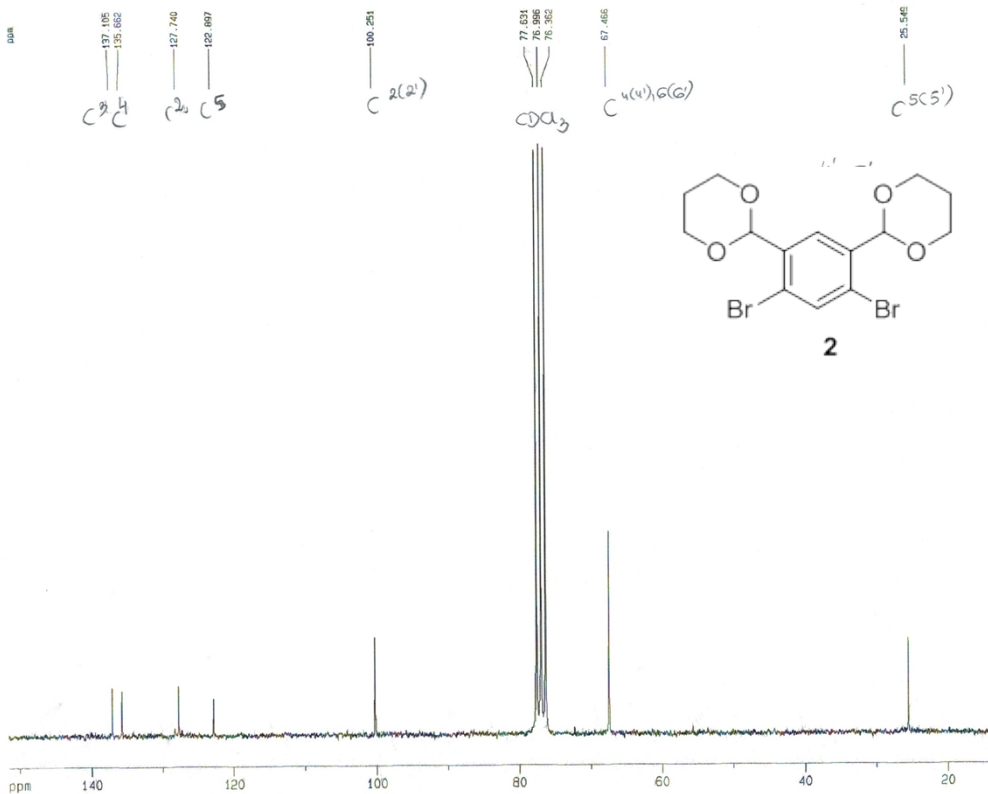
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 AQ 1.4549491 sec
 DW 44.400 usec
 DE 15.00 usec
 TE 295.0 K
 D1 1.00000000 sec

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 F1P 12.000 ppp
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 F2P -1.000 ppp
 F2 -500.13 Hz
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 HZCM 302.40417 Hz/



*** NMR LAB ***
 ** AVANCE AV 200 **
 Tel: 0426803 226

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 PROCNO 1
 DU C/u
 USER service Gwnt

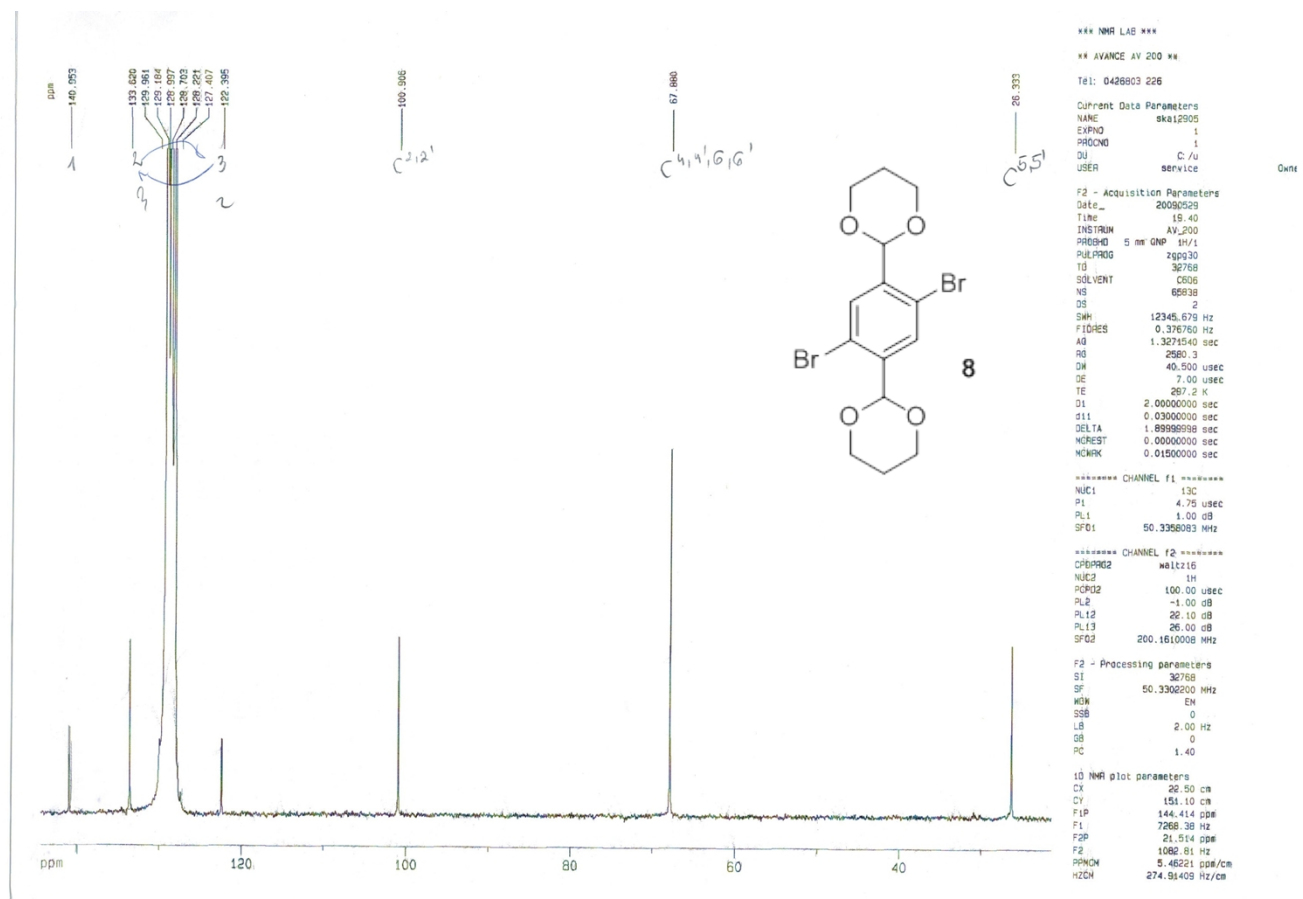
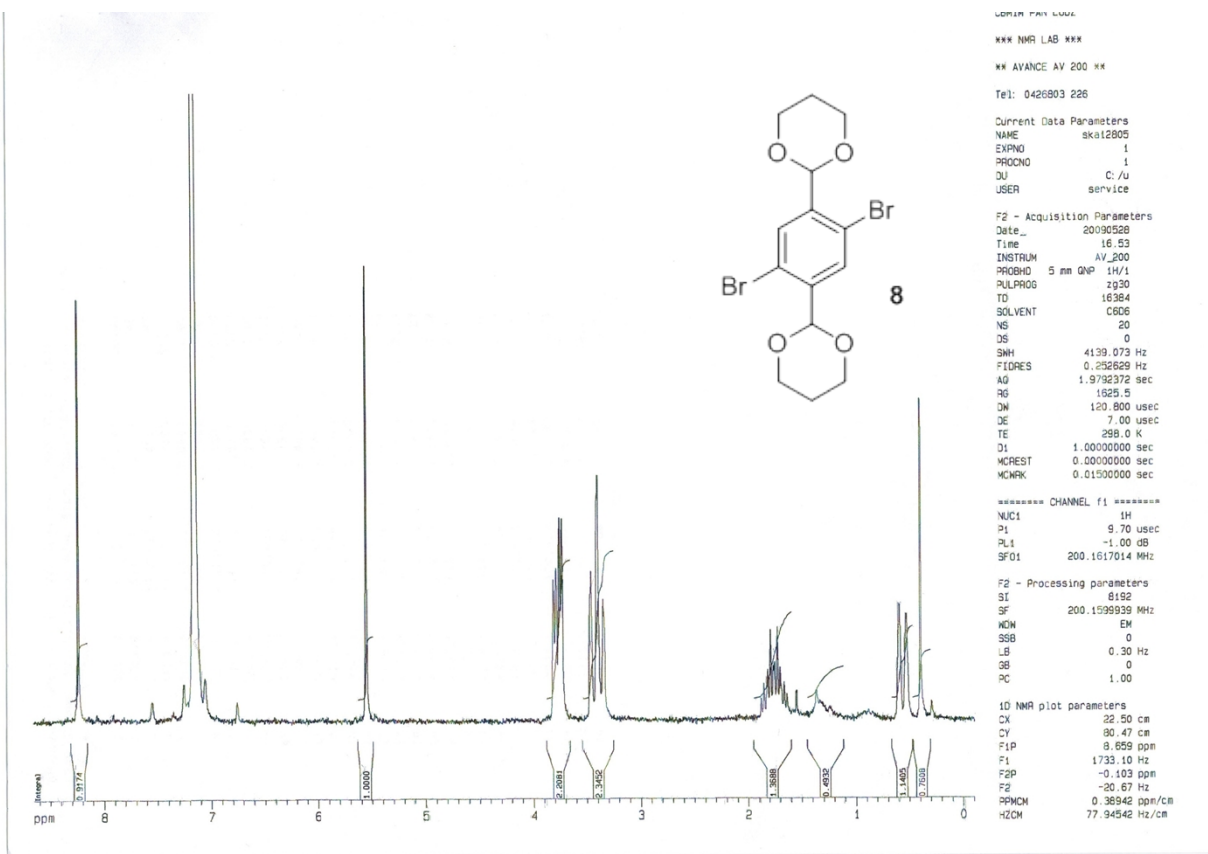
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 DW 40.500 usec
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 NUC1 13C
 P1 4.75 usec
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===== CHANNEL f2 =====
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 NUC2 1H
 P1P2 100.00 usec
 PL2 -1.00 dB
 PL12 22.10 dB
 PL13 26.00 dB
 SFO2 200.1610008 MHz

F2 - Processing parameters
 SI 32768
 SF 50.3302736 MHz
 WDW EN
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 22.50 cm
 CY 13.50 cm
 F1P 161.582 ppp
 F1 7629.15 Hz
 F2P 13.680 ppp
 F2 688.54 Hz
 PPMCM 6.12894 ppp/cm
 HZCM 308.47137 Hz/cm



CBMIM PAN L002

*** NMR LAB ***

** AVANCE AV 200 **

Tel: 0426803 226

Current Data Parameters

NAME sk10411
 EXPNO 2
 PROCNO 1
 DU C:/u
 USER service

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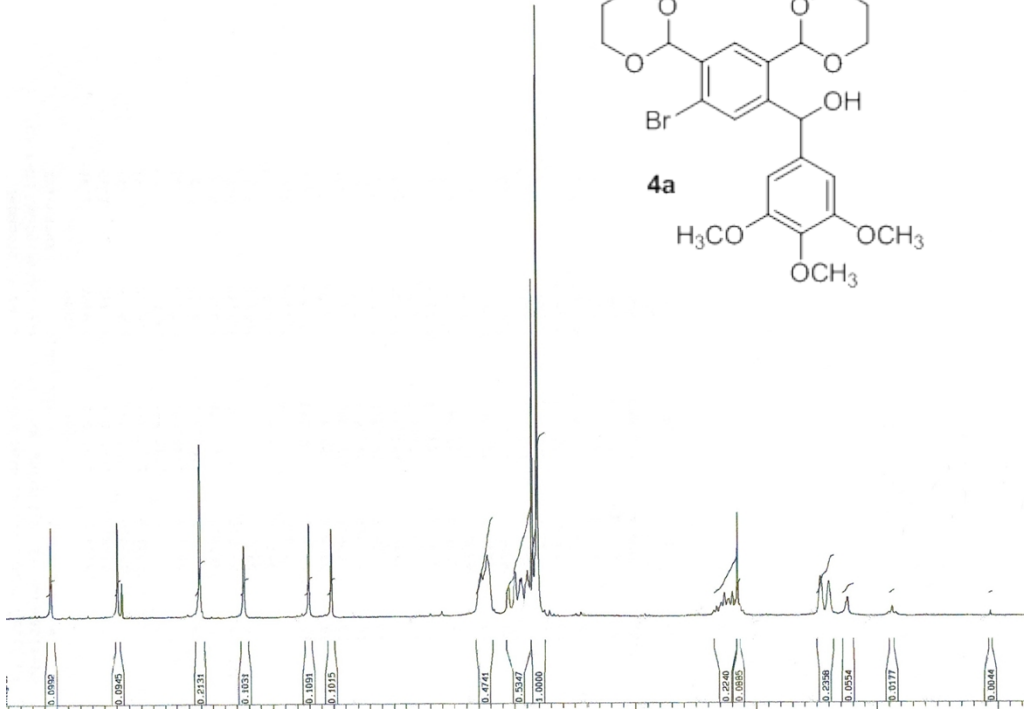
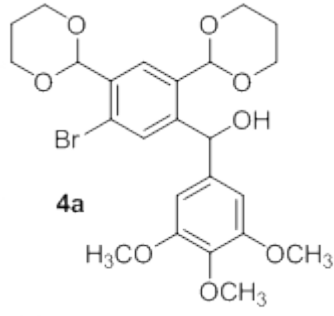
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1D NMR plot parameters

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 F1 1655.07 Hz
 F2P -0.245 ppm
 F2 -48.98 Hz
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CBMIM PAN L002

*** NMR LAB ***

** AVANCE AV 200 **

Tel: 0426803 226

Current Data Parameters

NAME sk11008
 EXPNO 6
 PROCNO 1
 DU C:/u
 USER service

F2 - Acquisition Parameters

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***** CHANNEL f2 *****

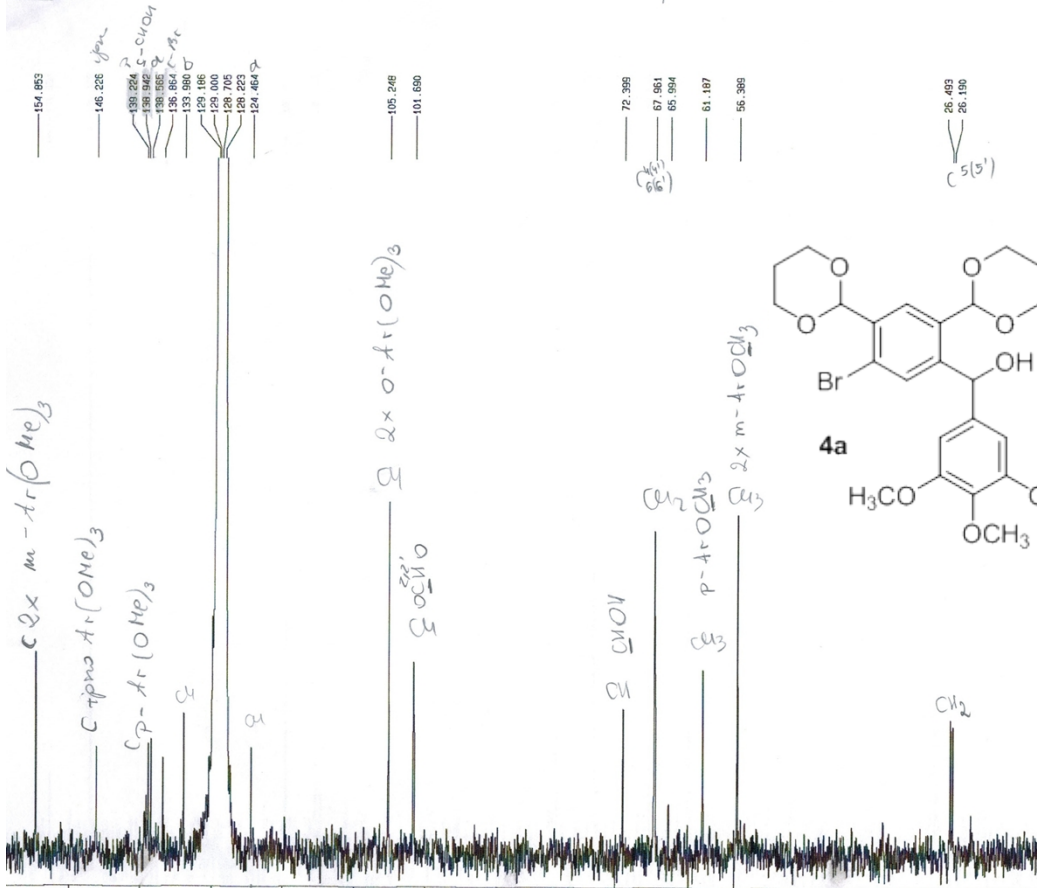
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F2 - Processing parameters

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 PC 1.40

1D NMR plot parameters

CX 22.50 cm
 CY 597.61 cm
 F1P 161.759 ppm
 F1 8141.36 Hz
 F2P 13.382 ppm
 F2 273.44 Hz



xmje na afunije

CBMIM PAN LOZ

*** NMR LAB ***

** AVANCE AV 200 **

Tel: 0426803 226

Current Data Parameters

NAME skai0406
EXPNO 1
PROCNO 1
DU C:/u
USER service

F2 - Acquisition Parameters

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RG 574.7
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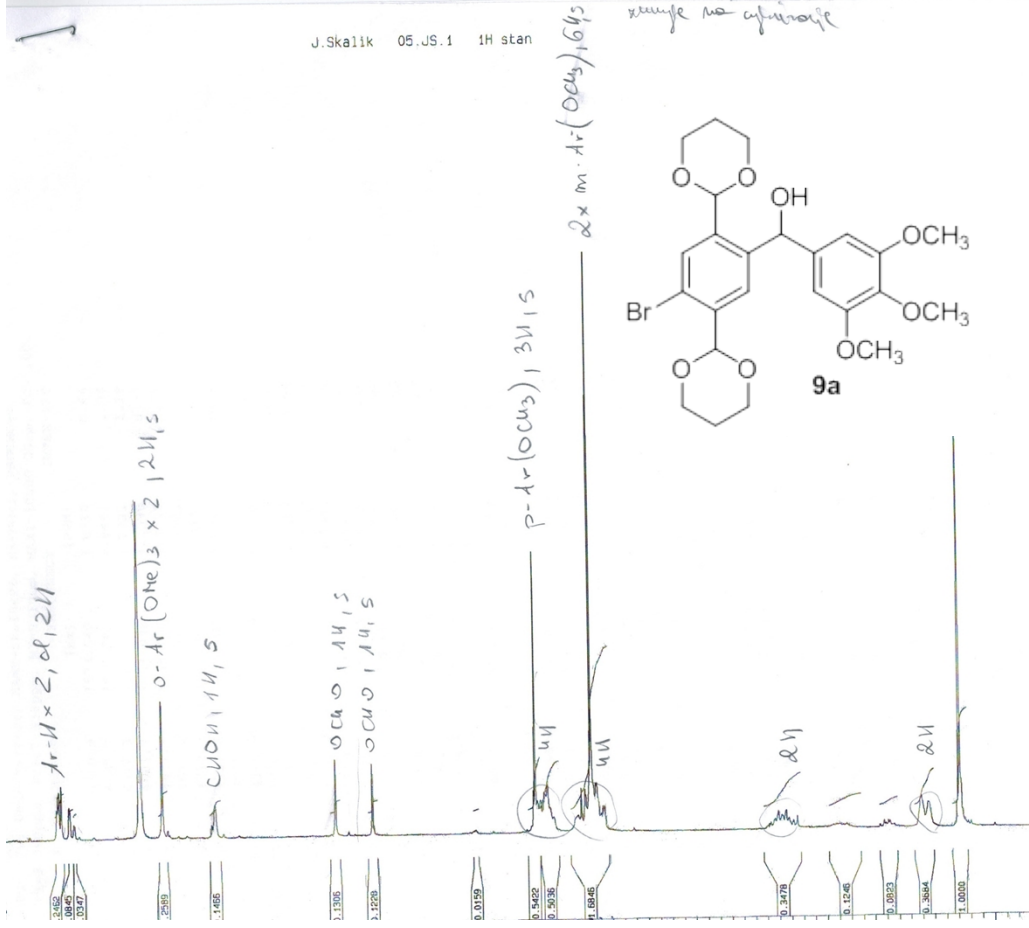
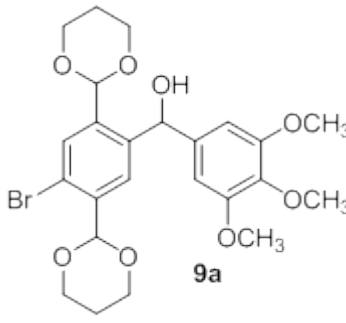
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ID NMR plot parameters

CX 22.50 cm
CY 13.50 cm
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F2P -0.336 ppm
F2 -67.61 Hz
PPMCH 0.36657 ppm/cm



*** NMR LAB ***

** AVANCE AV 200 **

Tel: 0426803 226

Current Data Parameters

NAME skai0506
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PROCNO 1
DU C:/u
USER service

F2 - Acquisition Parameters

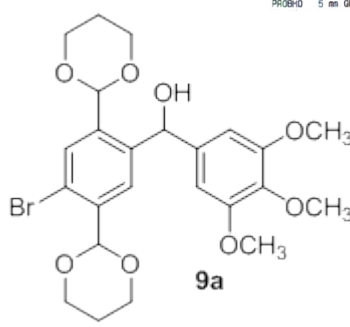
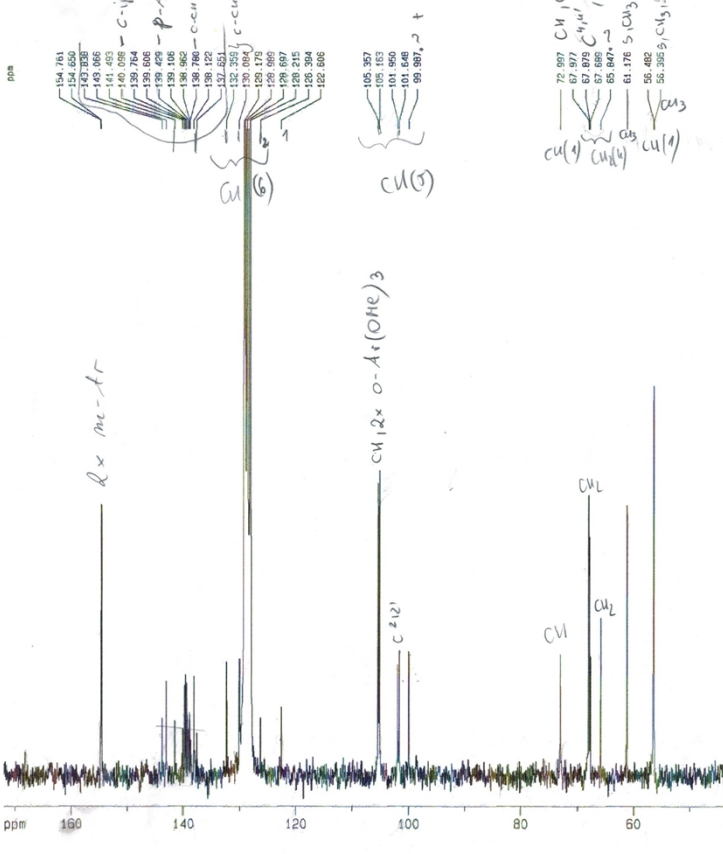
Date_ 20090616
Time 15.31
INSTRUM AV_200
PROBHD 5 mm QNP 1H/1
169630
32768
C506
1246
2
15.679 Hz
176760 Hz
174540 sec
1896.3
10.550 usec
7.00 usec
297.0 K
100000 sec
100000 sec
100000 sec
100000 sec

F2 - Processing parameters

SI 32768
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WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.40

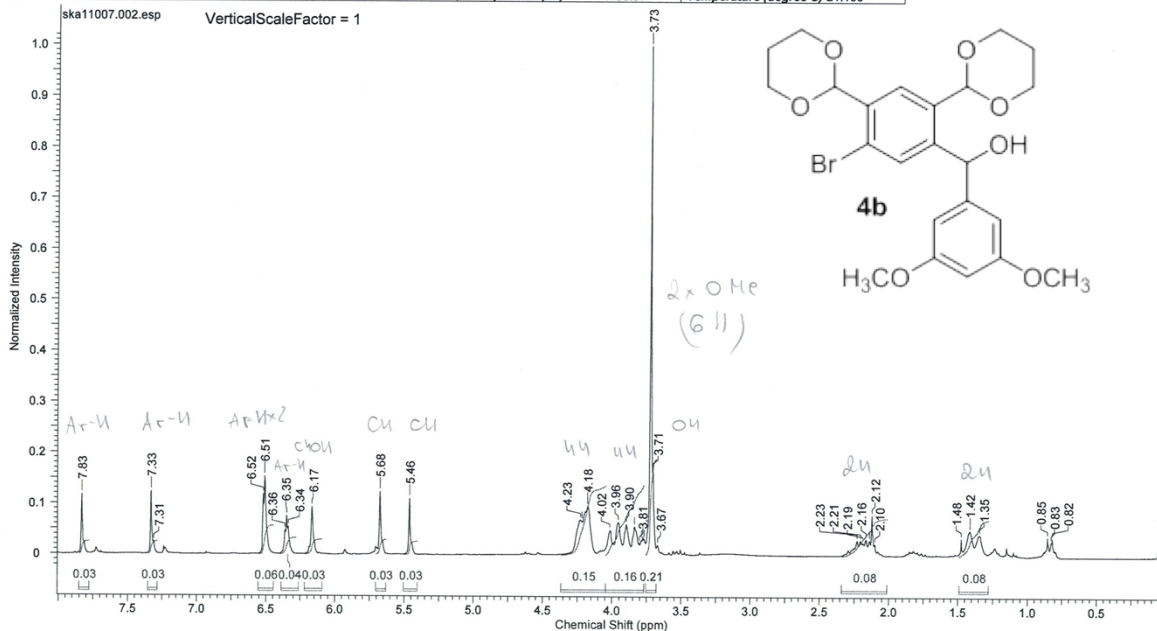
ID NMR plot parameters

CX 22.50 cm
CY 110.04 cm
F1P 171.588 ppm
F1 8656.18 Hz
F2P -2.989 ppm
F2 -149.42 Hz
PPMCH 7.77584 ppm/cm
HZCM 391.35689 Hz/cm

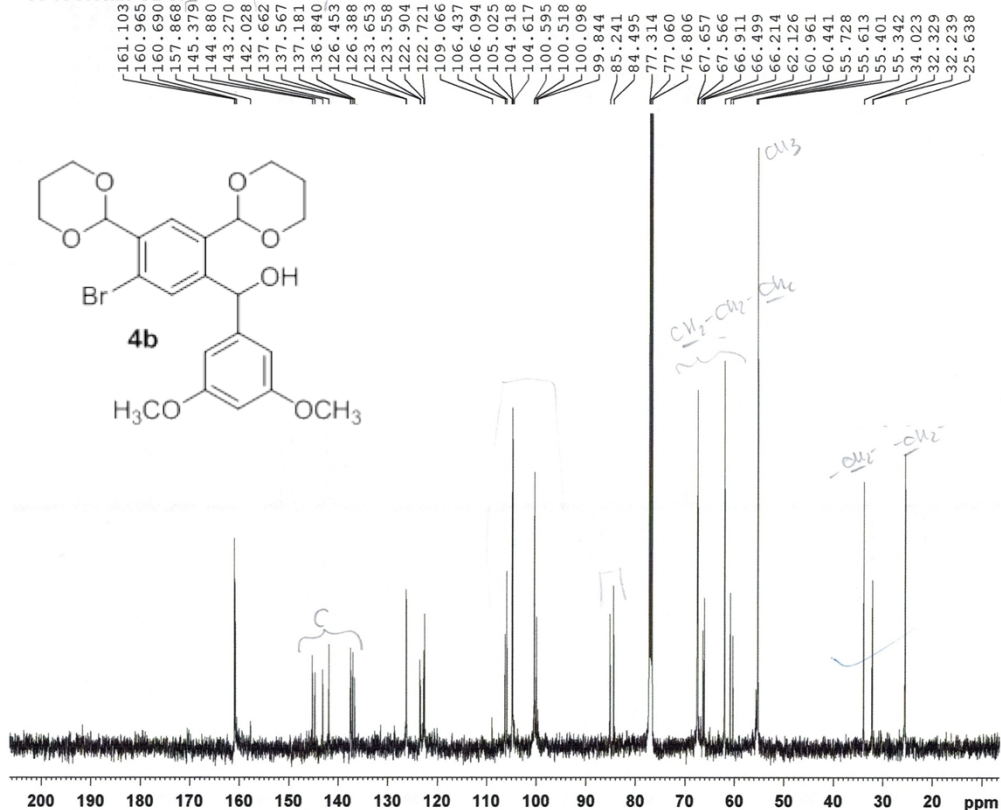


7/11/2012 2:20:37 PM

Acquisition Time (sec)	1.9792	Comment	Skalik Joanna 2 z kolumny dimetoksy	Date	11 Jul 2012 13:58:56	
Date Stamp	11 Jul 2012 13:58:56	File Name	C:\Users\User\Desktop\186.JS	Frequency (MHz)	200.16	
Nucleus	¹ H	Number of Transients	16	Original Points Count	8192	
Points Count	8192	Pulse Sequence	zg30	Receiver Gain	228.10	
Spectrum Offset (Hz)	1696.7002	Spectrum Type	STANDARD	SW(cyclical) (Hz)	4139.07	
			Sweep Width (Hz)	4138.57	Temperature (degree C)	21.100
					Owner	root
					Solvent	CHLOROFORM-d



j. skalik = 186.JS =
A-13C.stan CDCl3



***CBMIM PAN LODZ**
**** NMR LAB ****
AV III 500 MHz
Tel:042 6803 307

Current Data Parameters
DATEPATH C:\NMR_Data\Service\CBM_2012
NAME skal1607
EXENO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120716
Time 15.27
INSTRUM AV III 500
PROBHD 5 mm Multinucl
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 2560
DS 4
SWH 36057.691 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 1620
DW 13.867 usec
DE 6.50 usec
TE 295.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TDO 10

==== CHANNEL f1 =====
NUC1 ¹³C
P1 11.00 usec
PLW1 160.0000000 W
SFO1 125.7728788 MHz

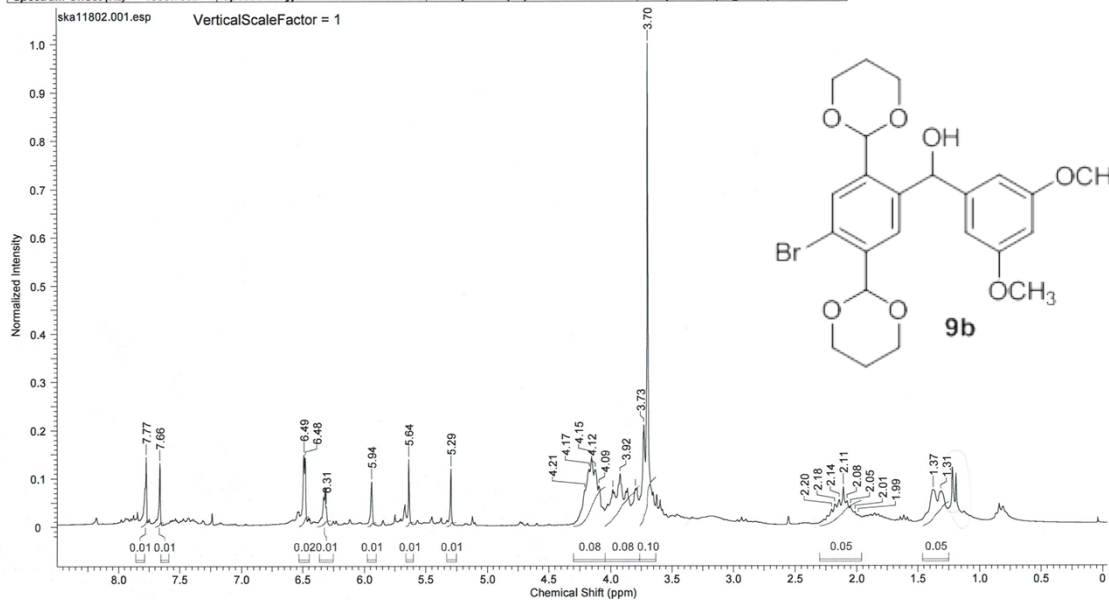
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CPDPRG2 waltz16
NUC2 ¹H
PCPD2 100.00 usec
PLW2 10.00000000 W
PLW12 0.08556300 W
PLW13 0.08556300 W
SFO2 500.1324005 MHz

F2 - Processing parameters
SI 32768
SF 125.7577911 MHz
WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.40
SR 2.14 Hz

This report was created by ACD/NMR Processor Academic Edition. For more information go to www.acdlabs.com/nmrproc/
alkohol p- z dimetoksybenzaldehydem

2/18/2013 3:15:02 PM

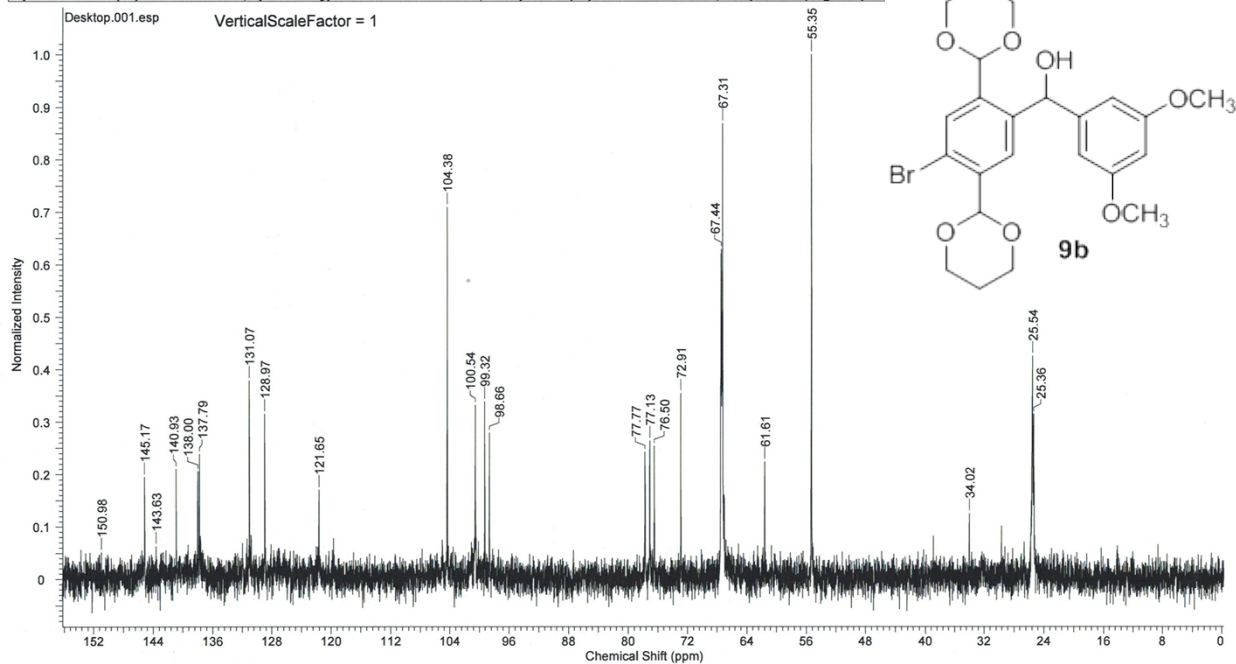
Acquisition Time (sec)	1.9792	Comment	JS litowanie p- z dimetoksy	Date	18 Feb 2013 11:01:36
Date Stamp	18 Feb 2013 11:01:36	File Name	C:\Users\User\Desktop\lka11802\1\fid	Frequency (MHz)	200.16
Nucleus	1H	Number of Transients	64	Origin	spect
Points Count	8192	Pulse Sequence	zgpg30	Receiver Gain	181.00
Spectrum Offset (Hz)	1696.7002	Spectrum Type	STANDARD	SW(cyclical) (Hz)	4139.07
				Temperature (degree C)	18.100



This report was created by ACD/NMR Processor Academic Edition. For more information go to www.acdlabs.com/nmrproc/
alkohol p- z dimetoksybenzaldehydem 13C

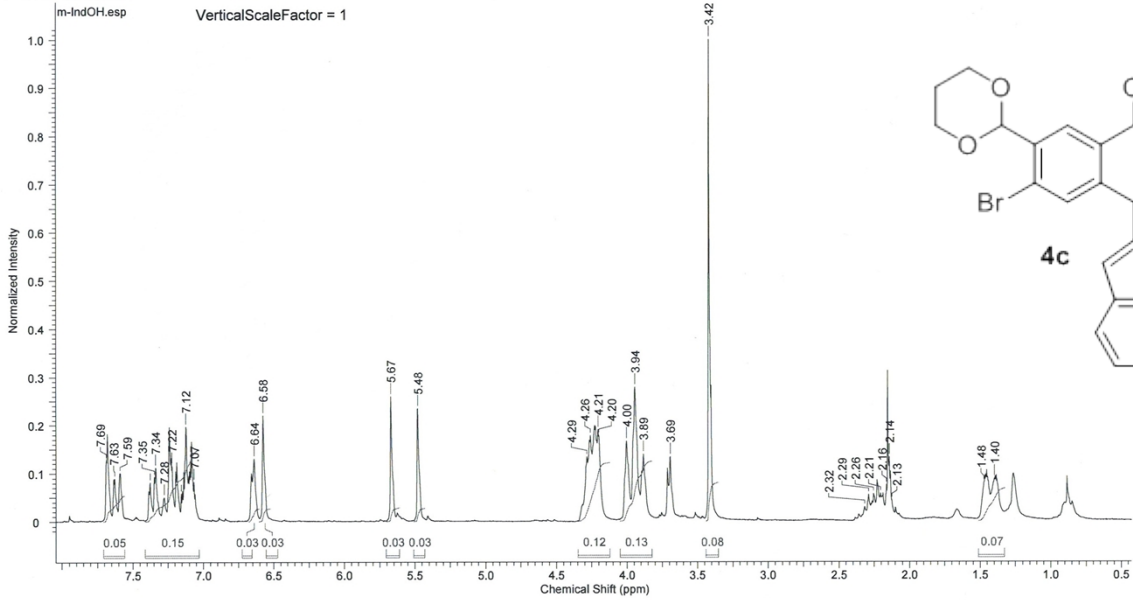
2/19/2013 12:13:20 PM

Acquisition Time (sec)	1.3271	Comment	5 mm QNP 1H/13C/31P/19F Z3183/005	Date	19 Feb 2013 11:33:36
Date Stamp	19 Feb 2013 11:33:36	File Name	C:\Users\User\Desktop\1\fid	Frequency (MHz)	50.34
Nucleus	13C	Number of Transients	512	Origin	spect
Points Count	16384	Pulse Sequence	zgpg30	Receiver Gain	4096.00
Spectrum Offset (Hz)	5536.0000	Spectrum Type	STANDARD	SW(cyclical) (Hz)	12245.00
				Temperature (degree C)	19

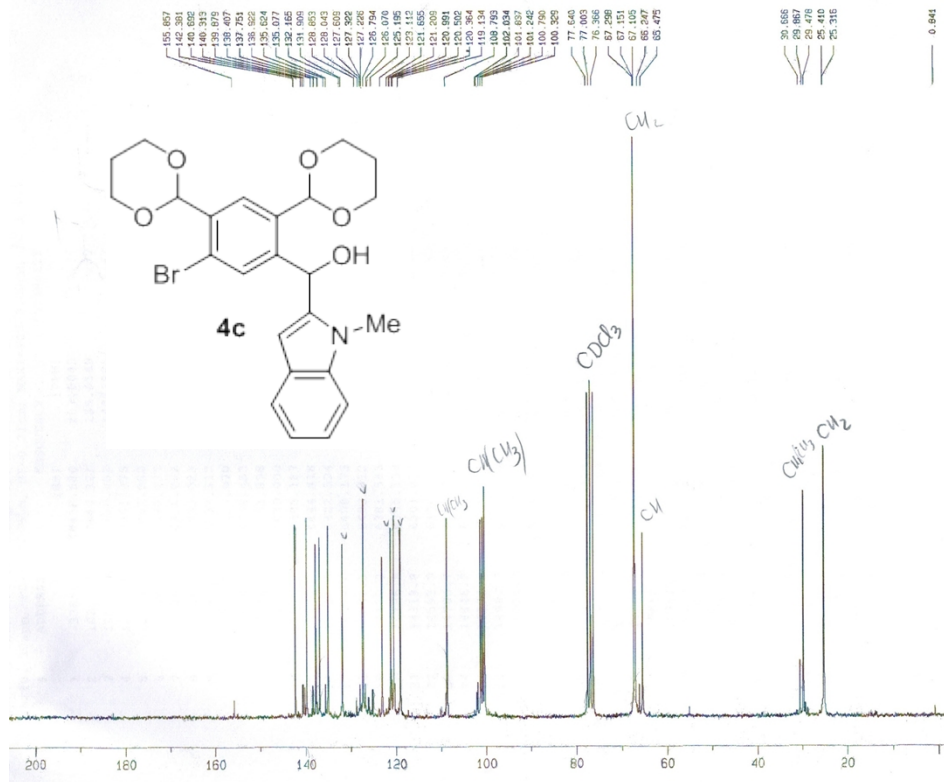


10/1/2013 9:07:51 AM
 Skalik J. m-Indoh

Acquisition Time (sec)	1.9792	Comment	Skalik J. m-Indoh	Date	30 Sep 2013 15:52:00
Date Stamp	30 Sep 2013 15:52:00	File Name	C:\Users\User\Desktop\m-IndOH\fid	Frequency (MHz)	200.16
Nucleus	¹ H	Number of Transients	32	Origin	spect
Points Count	8192	Pulse Sequence	zg30	Receiver Gain	406.40
Spectrum Offset (Hz)	1696.7002	Spectrum Type	STANDARD	SW(cyclical) (Hz)	4139.07
				Solvent	CHLOROFORM-d
				Sweep Width (Hz)	4138.57
				Temperature (degree C)	19.400



J.Skalik 55.5S ¹³C stan



CSHIN PAN LOOZ

*** NMR LAB ***

** AVANCE AV 200 **

Tel: 0426603 226

Current Data Parameters

NAME sk21003

EXPNO 1

PROBHD 1H/1

PULPROG zgpg30

TD 32768

SOLVENT CDCl3

NS 11801

DS 2

SWH 12345.678 Hz

FIDRES 0.376760 Hz

AQ 1.3271540 sec

RG 13004

DA 40.500 usec

DE 7.00 usec

TE 297.7 K

D1 2.0000000 sec

d11 0.0300000 sec

DELTA 1.8999998 sec

WCHEST 0.0000000 sec

NCMR 0.0150000 sec

***** CHANNEL f1 *****

NUC1 ¹³C

P1 4.75 usec

PL1 1.00 dB

SFO1 50.3308083 MHz

***** CHANNEL f2 *****

CPDPRG2 waltz16

NUC2 ¹H

PCPD2 100.00 usec

PL2 -1.00 dB

PL12 22.10 dB

PL13 26.00 dB

SFO2 200.1610008 MHz

F2 - Processing parameters

SF 32768

SF 50.3308072 MHz

MCW EN

SSB 0

LB 2.00 Hz

GB 0

PC 1.40

LD NMR plot parameters

CX 22.50 cm

CY 13.50 cm

F1P 210.830 ppm

F1 10601.06 Hz

F2P -2.226 ppm

F2 -112.02 Hz

PCWD 8.48225 ppm/cm

HZCM 476.13998 Hz/cm

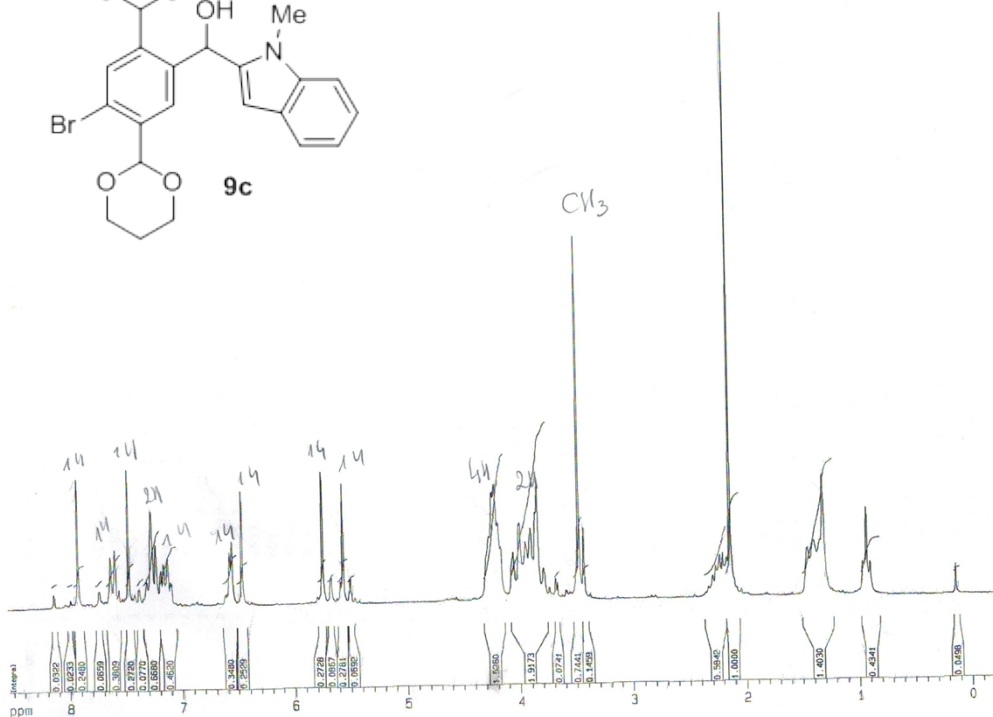
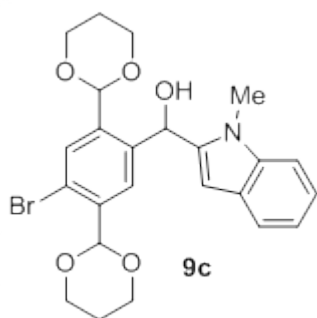
Current Data Parameters
 NAME skai0803
 EXPNO 1
 PROCNO 1
 DU C:/u
 USER service

F2 - Acquisition Parameters
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 Time 16.33
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 PROBHD 5 mm QNP 1H/1
 PULPROG zgpg30
 TD 16384
 SOLVENT CDCl3
 NS 20
 DS 0
 SWH 4139.073 Hz
 FIDRES 0.252629 Hz
 AQ 1.9792372 sec
 RG 80.6
 DM 120.600 usec
 DE 7.00 usec
 TE 295.7 K
 D1 1.00000000 sec
 MCREST 0.00000000 sec
 MCMRK 0.01500000 sec

===== CHANNEL f1 =====
 NUC1 13C
 P1 9.70 usec
 PL1 -1.00 dB
 SFO1 200.1617014 MHz

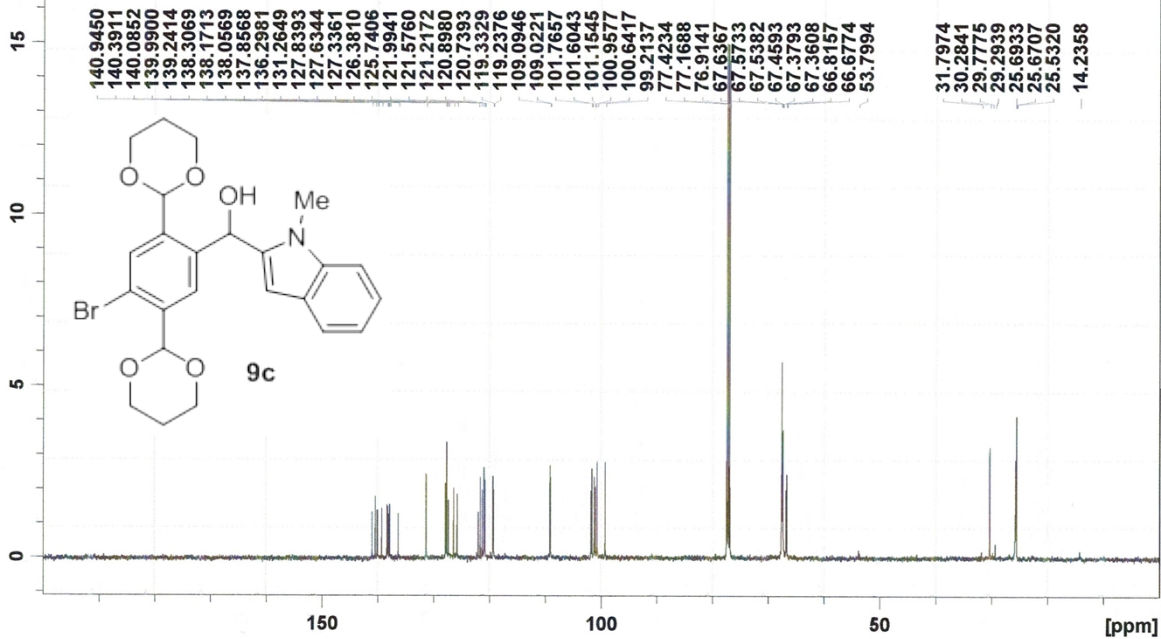
F2 - Processing parameters
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 WMW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

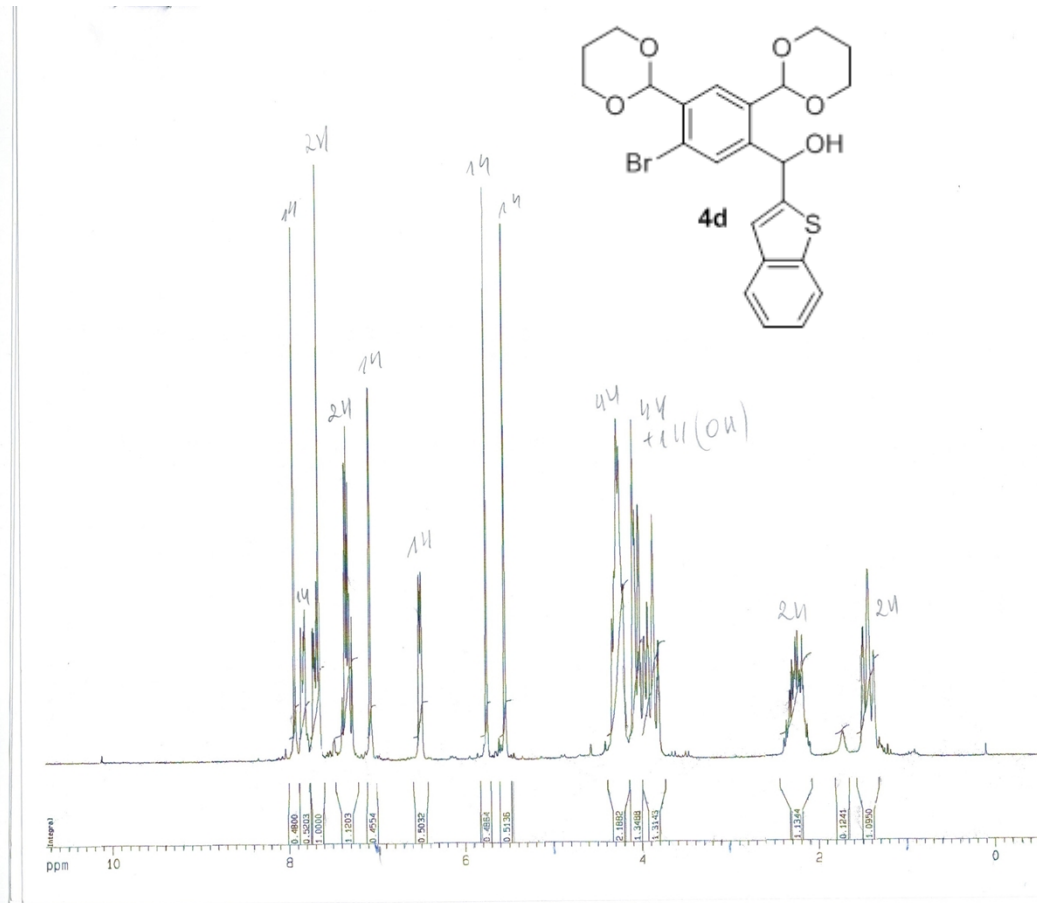
ID NMR plot parameters
 CX 22.50 cm
 CY 13.50 cm
 FIP 8.549 ppm
 F1 1711.11 Hz
 F2 -43.36 Hz
 PPMCM 0.38957 ppm/cm
 HZCM 77.97657 Hz/cm



skai2309 2 1 C:\NMR_Data\Service\CBMM

j. skali =p-indoh= A-13C.stan CDCl3





CBM1N PAN L002
 *** NMR LAB ***
 ** AVANCE AV 200 **
 Tel: 0426803 226

Current Data Parameters
 NAME skat1204
 EXPNO 3
 PROCNO 1
 DU C:/u
 USER service

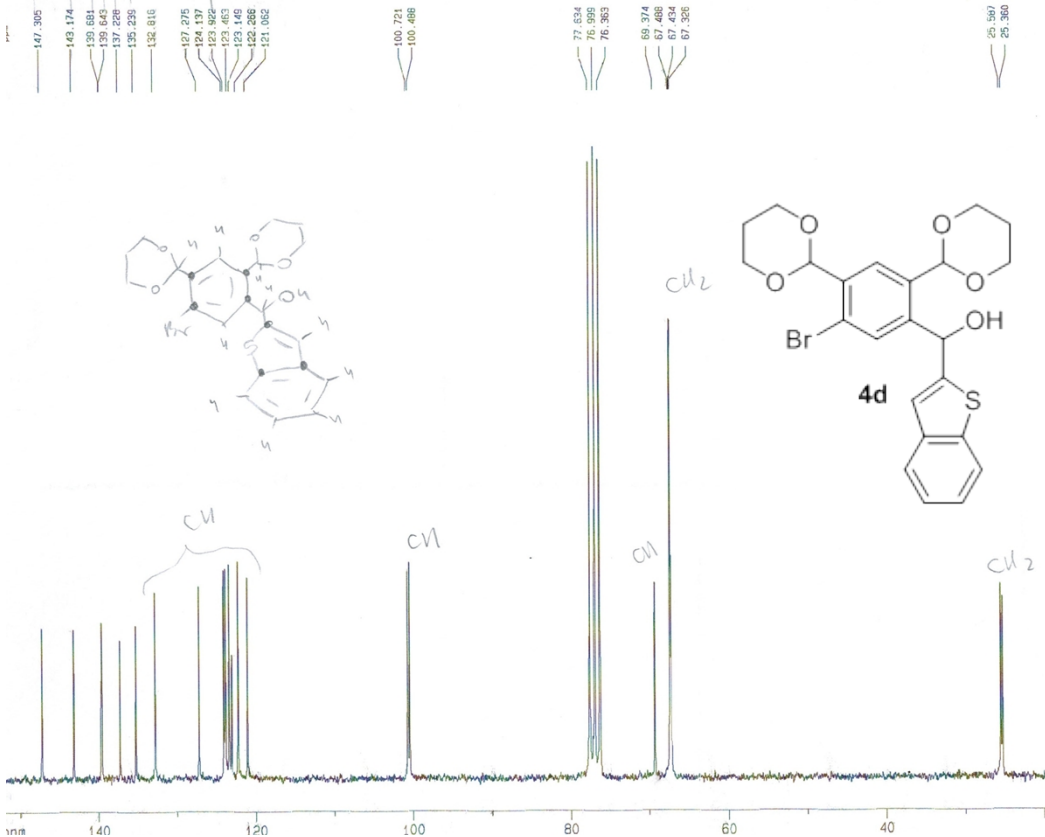
F2 - Acquisition Parameters
 Date_ 20100412
 Time 17.12
 INSTRUM AV_200
 PROBHD 5 mm QNP 1H/1
 PULPROG zg30
 TD 16384
 SOLVENT CDCl3
 NS 16
 DS 0
 SWH 4139.073 Hz
 FIDRES 0.252629 Hz
 AQ 1.9792372 sec
 RG 362
 DW 120.800 usec
 DE 7.00 usec
 TE 296.0 K
 D1 1.0000000 sec
 MCREST 0.0000000 sec
 MCWRR 0.0150000 sec

===== CHANNEL f1 =====
 NUC1 1H
 P1 9.70 usec
 PL1 -1.00 dB
 SFO1 200.1617014 MHz

F2 - Processing parameters
 SI 8192
 SF 200.1600000 MHz
 NDM EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 22.50 cm
 CY 13.50 cm
 F1P 10.760 ppm
 F1 2153.67 Hz
 F2P -0.516 ppm
 F2 -103.62 Hz
 PPHCM 0.50122 ppm/cm
 HZCM 100.32391 Hz/cm

j.skalik 62 JS k 13C stan



CBM1N PAN L002
 *** NMR LAB ***
 ** AVANCE AV 200 **
 Tel: 0426803 226

Current Data Parameters
 NAME skat1304
 EXPNO 4
 PROCNO 1
 DU C:/u
 USER service

F2 - Acquisition Parameters
 Date_ 20100414
 Time 1.12
 INSTRUM AV_200
 PROBHD 5 mm QNP 1H/1
 PULPROG zgpg30
 TD 32768
 SOLVENT CDCl3
 NS 8725
 DS 2
 SWH 12345.679 Hz
 FIDRES 0.376760 Hz
 AQ 1.3271540 sec
 RG 8192
 DW 40.500 usec
 DE 7.00 usec
 TE 297.1 K
 D1 2.0000000 sec
 d11 0.0300000 sec
 DELTA 1.8999999 sec
 MCREST 0.0000000 sec
 MCWRR 0.0150000 sec

===== CHANNEL f1 =====
 NUC1 13C
 P1 4.75 usec
 PL1 1.00 dB
 SFO1 50.3358693 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 100.00 usec
 PL2 -1.00 dB
 PL12 22.10 dB
 PL13 26.00 dB
 SFO2 200.1610008 MHz

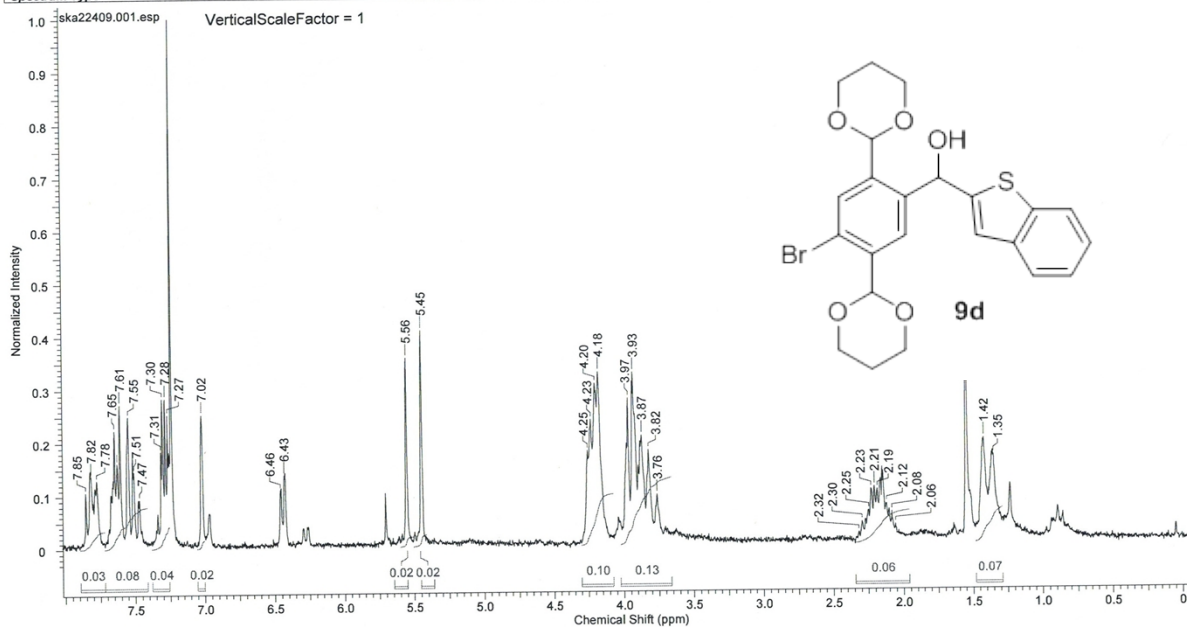
F2 - Processing parameters
 SI 32768
 SF 50.3302767 MHz
 NDM EM
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 22.50 cm
 CY 13.50 cm
 F1P 152.931 ppm
 F1 7669.89 Hz
 F2P 19.376 ppm
 F2 975.22 Hz
 PPHCM 5.91177 ppm/cm
 HZCM 287.54077 Hz/cm

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p-BTFOH

9/24/2013 12:54:41 PM
p-BTFOH

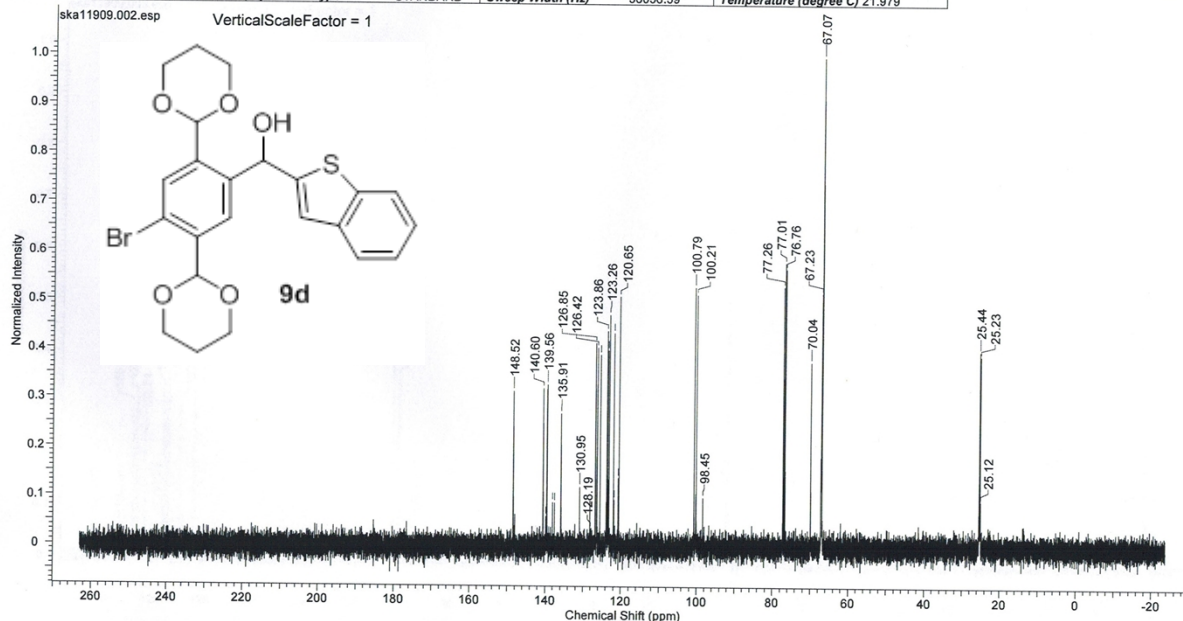
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File Name	C:\Users\User\Desktop\ska22409\11fid	Frequency (MHz)	200.16	Nucleus	1H	Number of Transients	64
Origin	spect	Original Points Count	8192	Owner	root	Points Count	8192
Receiver Gain	2298.80	SW(cyclical) (Hz)	4139.07	Solvent	CHLOROFORM-d	Pulse Sequence	zg30
Spectrum Type	STANDARD	Sweep Width (Hz)	4138.57	Temperature (degree C)	19.200	Spectrum Offset (Hz)	1696.7002

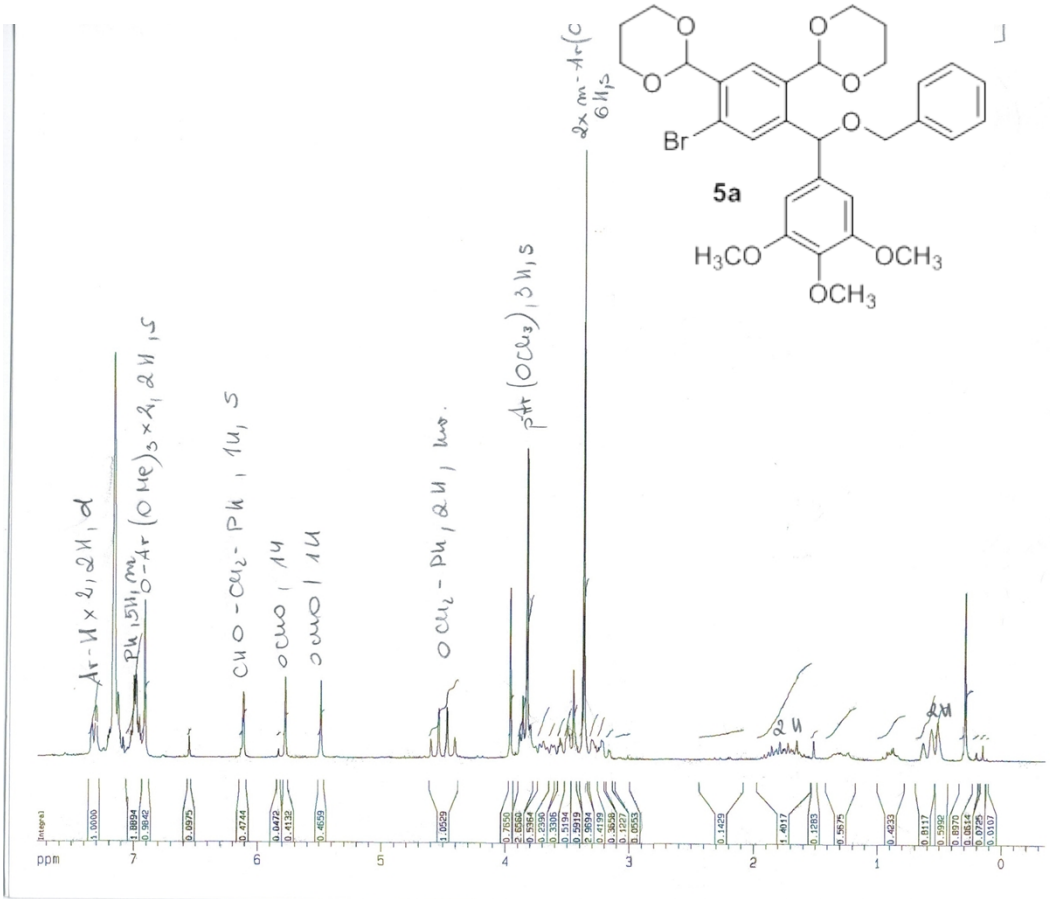


This report was created by ACD/NMR Processor Academic Edition. For more information go to www.acdlabs.com/nmrproc/
1

9/20/2013 11:16:56 AM
j. skalik =p-btfoh= 13C(1H)

Acquisition Time (sec)	0.9088	Comment	j. skalik =p-btfoh= 13C(1H)	Date	19 Sep 2013 10:44:48
Date Stamp	19 Sep 2013 10:44:48	File Name	C:\Users\User\Desktop\ska11909\2fid	Frequency (MHz)	125.76
Nucleus	13C	Number of Transients	128	Origin	AV_III_500
Points Count	32768	Pulse Sequence	zgpg30	Receiver Gain	2050.00
Spectrum Offset (Hz)	15052.7930	Spectrum Type	STANDARD	SW(cyclical) (Hz)	36057.69
		Sweep Width (Hz)	36056.59	Temperature (degree C)	21.979





*** NMR LAB ***
 ** AVANCE AV 200 **
 Tel: 0426803 226

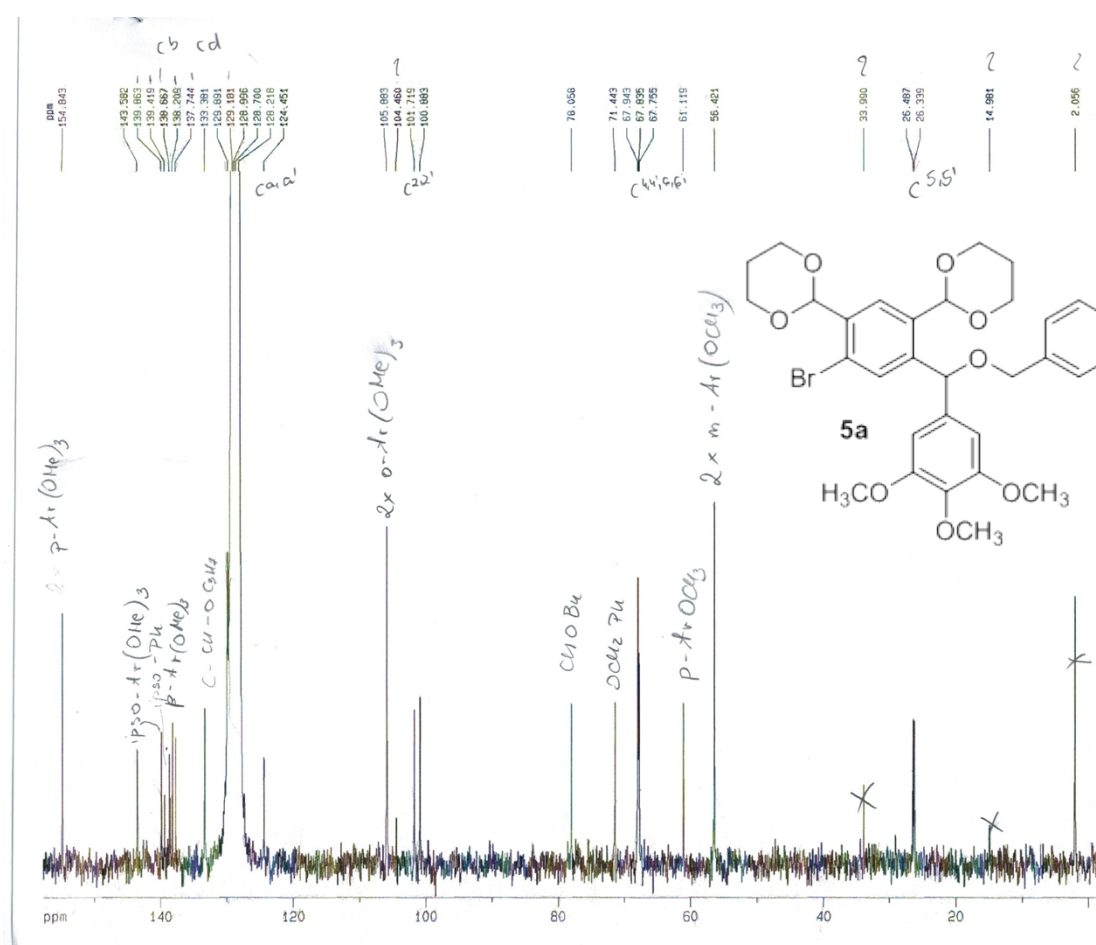
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 NAME skat10406
 EXPNO 4
 PROCNO 1
 DU C/u
 USER service

F2 - Acquisition Parameters
 Date_ 20090604
 Time 18.20
 INSTRUM AV_200
 PROBD 5 mm QNP 1H/1
 PULPROG zgpg30
 TD 16384
 SOLVENT CDCl3
 NS 34
 DS 0
 SWH 4139.073 Hz
 FIDRES 0.252629 Hz
 AQ 1.9792372 sec
 RG 645.1
 DM 120.800 usec
 DE 7.00 usec
 TE 298.2 K
 D1 1.00000000 sec
 MCREST 0.00000000 sec
 MCNRK 0.01500000 sec

***** CHANNEL f1 *****
 NUC1 1H
 P1 9.70 usec
 PL1 -1.00 dB
 SFO1 200.1617014 MHz

F2 - Processing parameters
 SI 8192
 SF 200.1599339 MHz
 MDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 22.50 cm
 CY 13.50 cm
 F1P 7.775 ppm
 F1 1556.24 Hz
 F2P -0.352 ppm
 F2 -70.38 Hz
 PPMCM 0.36116 ppm/cm
 HZCM 72.29410 Hz/cm



*** NMR LAB ***
 ** AVANCE AV 200 **
 Tel: 0426803 226

Current Data Parameters
 NAME skat1706
 EXPNO 1
 PROCNO 1
 DU C/u
 USER service

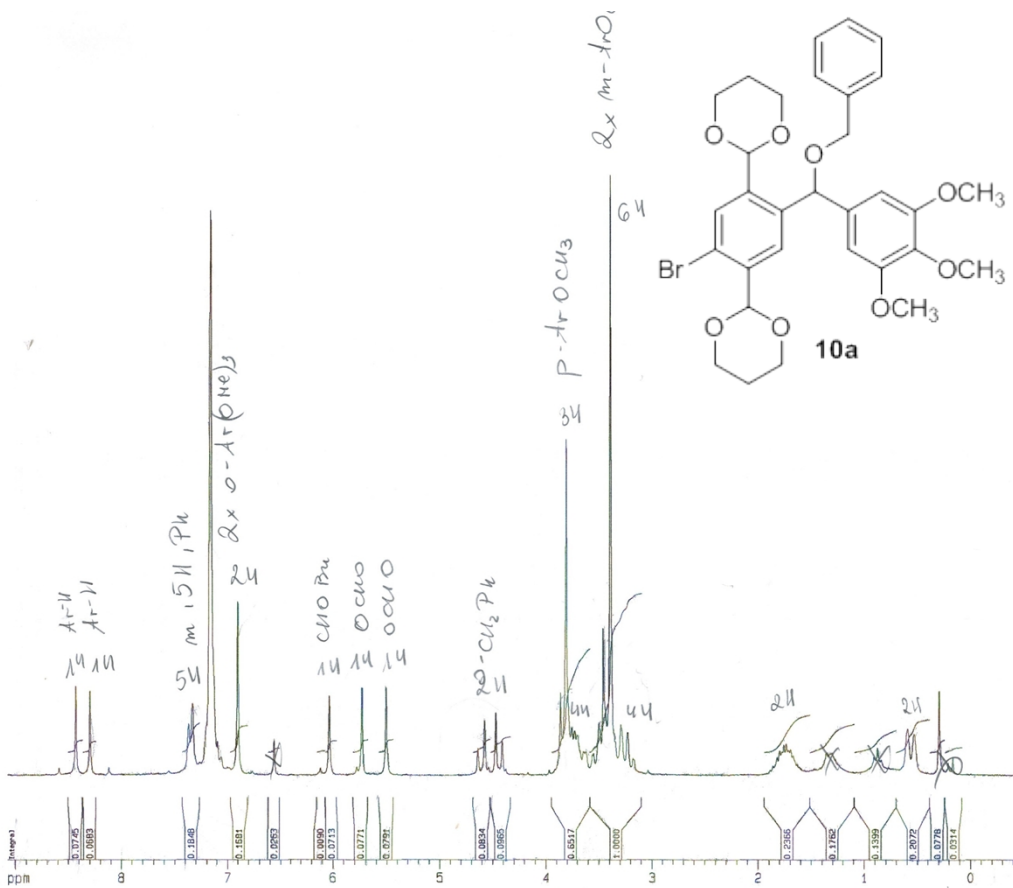
F2 - Acquisition Parameters
 Date_ 20090617
 Time 21.14
 INSTRUM AV_200
 PROBD 5 mm QNP 1H/1
 PULPROG zgpg30
 TD 32768
 SOLVENT CDCl3
 NS 12417
 DS 2
 SWH 12345.679 Hz
 FIDRES 0.376750 Hz
 AQ 1.3271540 sec
 RG 4597.6
 DM 40.500 usec
 DE 7.00 usec
 TE 298.2 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999999 sec
 MCREST 0.00000000 sec
 MCNRK 0.01500000 sec

***** CHANNEL f1 *****
 NUC1 13C
 P1 4.75 usec
 PL1 1.00 dB
 SFO1 50.3368083 MHz

***** CHANNEL f2 *****
 CPDPRG2 waltz16
 NUC2 1H
 PCH2 100.00 usec
 PL2 -1.00 dB
 PL12 22.10 dB
 PL13 26.00 dB
 SFO2 200.1610008 MHz

F2 - Processing parameters
 SI 32768
 SF 50.3302200 MHz
 MDW EM
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 22.50 cm
 CY 454.34 cm
 F1P 157.733 ppm
 F1 7938.73 Hz
 F2P -1.536 ppm
 F2 -77.31 Hz
 PPMCM 7.07951 ppm/cm
 HZCM 396.26810 Hz/cm



CBM1M PAN LOOZ
 *** NMR LAB ***
 ** AVANCE AV 200 **
 Tel: 0426803 226

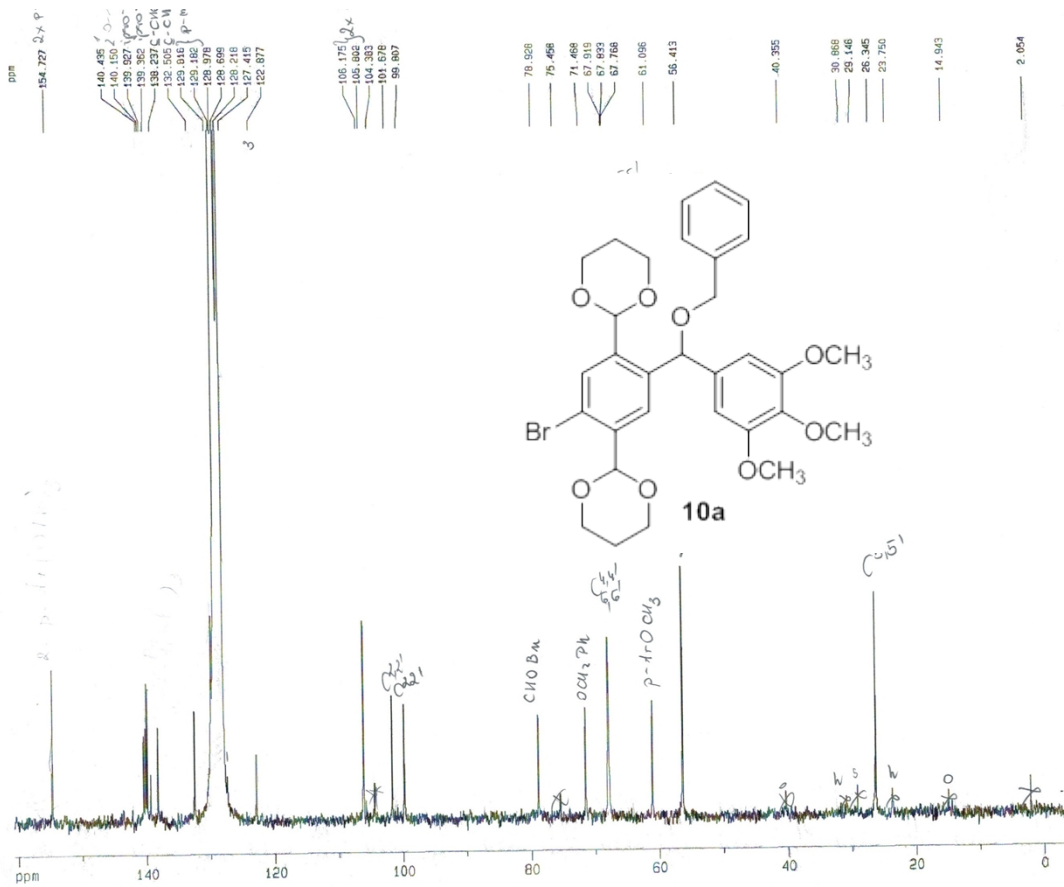
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 EXPNO 1
 PROCNO 1
 DU C /u
 USER service

F2 - Acquisition Parameters
 Date_ 20090525
 Time 20.46
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 PROBHD 5 mm QNP 1H/1
 PULPROG zg30
 TO 16364
 SOLVENT C6D6
 NS 24
 DS 0
 SWH 4139.073 Hz
 FIDRES 0.252629 Hz
 AQ 1.972372 sec
 RG 574.7
 DW 120.800 usec
 DE 7.00 usec
 TE 298.0 K
 D1 1.00000000 sec
 MCREST 0.00000000 sec
 MCWFK 0.01500000 sec

***** CHANNEL f1 *****
 NUC1 1H
 P1 9.70 usec
 PL1 -1.00 dB
 SFO1 200.1517014 MHz

F2 - Processing parameters
 SI 8192
 SF 200.1599268 MHz
 MDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 22.50 cm
 CY 13.50 cm
 F1P 9.074 ppm
 F1 1816.34 Hz
 F2P -0.457 ppm
 F2 -91.45 Hz
 PPMCM 0.42261 ppm/cm
 HZCM 84.79063 Hz/cm



** AVANCE AV 200 **
 Tel: 0426803 226

Current Data Parameters
 NAME skai2506
 EXPNO 2
 PROCNO 1
 DU C /u
 USER service

F2 - Acquisition Parameters
 Date_ 20090525
 Time 21.18
 INSTRUM AV_200
 PROBHD 5 mm QNP 1H/1
 PULPROG zgpg30
 TO 32768
 SOLVENT C6D6
 NS 13301
 DS 2
 SWH 12345.678 Hz
 FIDRES 0.376760 Hz
 AQ 1.3271540 sec
 RG 2580.3
 DW 40.500 usec
 DE 7.00 usec
 TE 298.2 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.99999999 sec
 MCREST 0.00000000 sec
 MCWFK 0.01500000 sec

***** CHANNEL f1 *****
 NUC1 13C
 P1 4.75 usec
 PL1 1.00 dB
 SFO1 50.3368083 MHz

***** CHANNEL f2 *****
 CPDPRG2 waltz16
 NUC2 1H
 P2P2 100.00 usec
 PL2 -1.00 dB
 PL12 22.10 dB
 PL13 26.00 dB
 SFO2 200.1610008 MHz

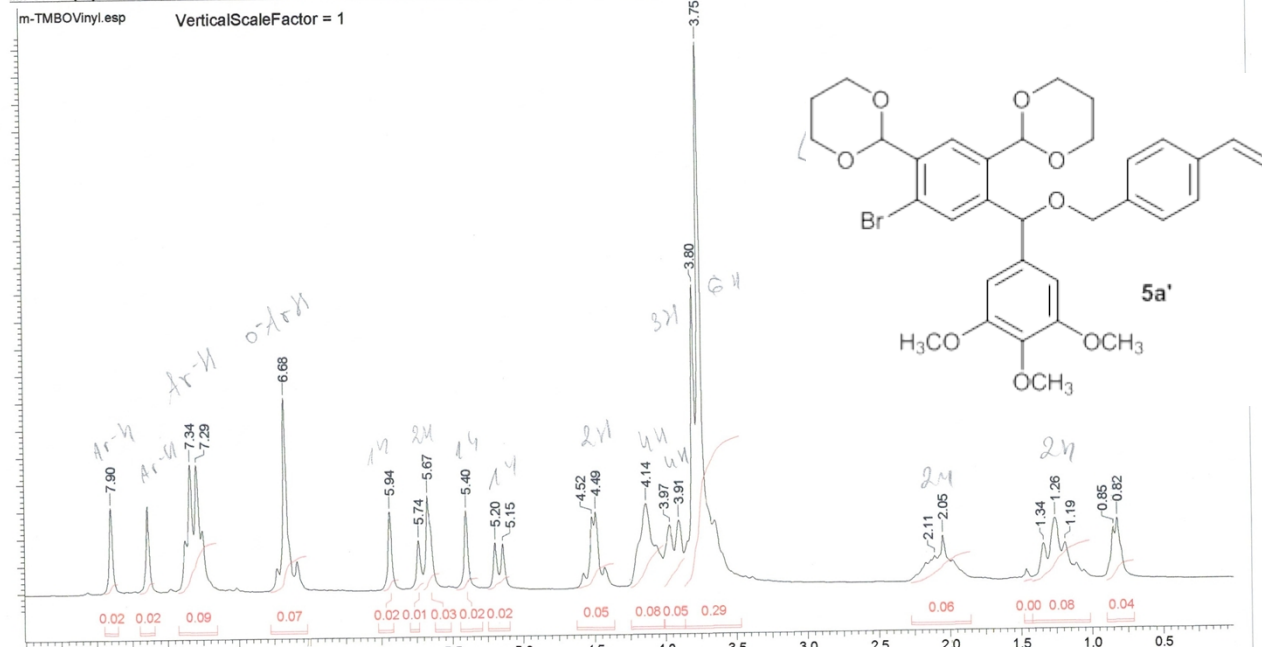
F2 - Processing parameters
 SI 32768
 SF 50.3368083 MHz
 MDW EM
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 22.50 cm
 CY 165.55 cm
 F1P 160.676 ppm
 F1 8066.79 Hz
 F2P -3.756 ppm
 F2 -189.02 Hz
 PPMCM 7.30601 ppm/cm
 HZCM 367.61376 Hz/cm

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m-TMBOBnVinyl

12/14/2011 9:58:48 AM
 m-TMBOBnVinyl

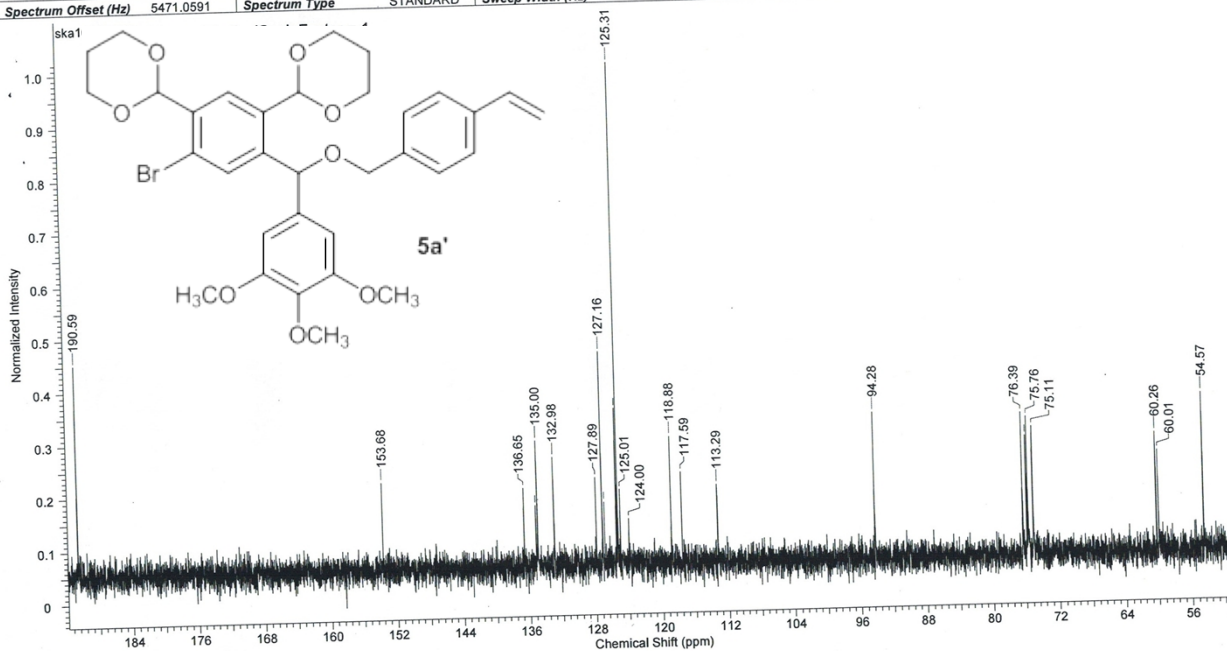
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File Name	C:\Users\Asia\Desktop\Wydruk\m-TMBOVinyl\fid	Original Points Count	8192	Owner	root
File Origin	spect	SW(cyclical) (Hz)	4139.07	Solvent	CHLOROFORM-d
File Receiver Gain	22.60	Spectrum Type	STANDARD	Temperature (degree C)	19.500
File Sweep Width (Hz)	4138.57				
File Spectrum Offset (Hz)	1696.7002				



This report was created by ACD/NMR Processor Academic Edition. For more information go to www.acdlabs.com/nmrproc/
m-TMBOBnVinylC13

12/14/2011 10:28:05 AM
 m-TMBOBnVinylC13

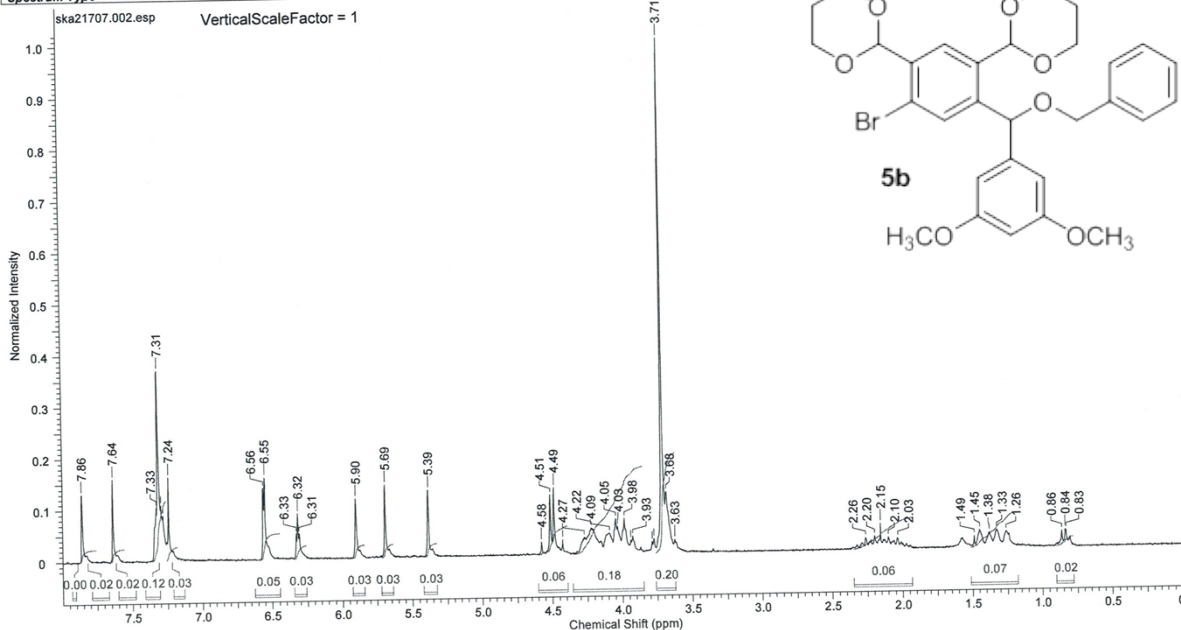
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Date Stamp	09 Dec 2011 14:41:20	File Name	C:\Users\Asia\Desktop\Wydruk\skala1091212\fid	Frequency (MHz)	50.33
Nucleus	13C	Origin	spect	Original Points Count	16384
Points Count	16384	Receiver Gain	1290.20	SW(cyclical) (Hz)	12345.68
Spectrum Offset (Hz)	5471.0591	Spectrum Type	STANDARD	Temperature (degree C)	19.700
		Sweep Width (Hz)	12344.92		



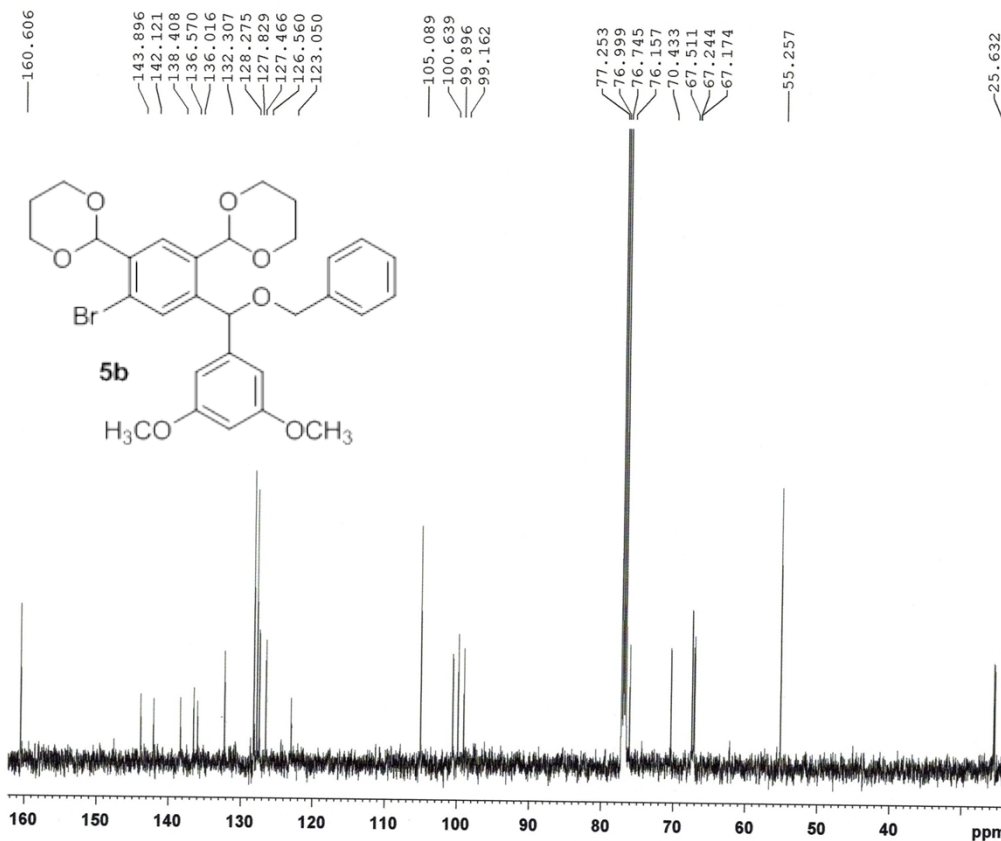
194.JS

7/18/2012 1:51:38 PM

Acquisition Time (sec)	1.9792	Comment	J. Skalik 2	Date	17 Jul 2012 15:37:04	Date Stamp	17 Jul 2012 15:37:04		
File Name	C:\Users\User\Desktop\194js\194js.fid		Frequency (MHz)	200.16	Nucleus	1H	Number of Transients	16	
Origin	spect	Original Points Count	8192	Owner	root	Points Count	8192	Pulse Sequence	zg30
Receiver Gain	812.70	SW(cyclical) (Hz)	4139.07	Solvent	CHLOROFORM-d	Spectrum Offset (Hz)	1696.7002		
Spectrum Type	STANDARD		Sweep Width (Hz)	4138.57	Temperature (degree C)				



j. skalik 194js 13C{1H}



```

**CBM1M PAN LODZ**
**** NMR LAB ****
**AV III 500 MHz**
Tel:042 6803 307

Current Data Parameters
DATPATH C:\NMR_Data\Service\CBMM_2012
NAME Skali1307
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120719
Time 11.32
INSTRUM AV III 500
PROBHD 5 mm Multinucl
PULPROG zgpg30
TD 65336
SOLVENT CDCl3
NS 512
DS 4
SWH 36057.691 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 2050
DM 13.867 usec
DE 6.50 usec
TE 295.0 K
D1 2.0000000 sec
D11 0.0300000 sec
TDO 1

===== CHANNEL f1 =====
NUC1 13C
P1 11.00 usec
PLW1 160.0000000 W
SFO1 125.7728788 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PLM2 10.0000000 W
PLW2 0.08556300 W
PLM13 0.08556300 W
SFO2 500.1324905 MHz

F2 - Processing parameters
SI 32768
SF 125.7577975 MHz
WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.40
SR 8.55 Hz
    
```


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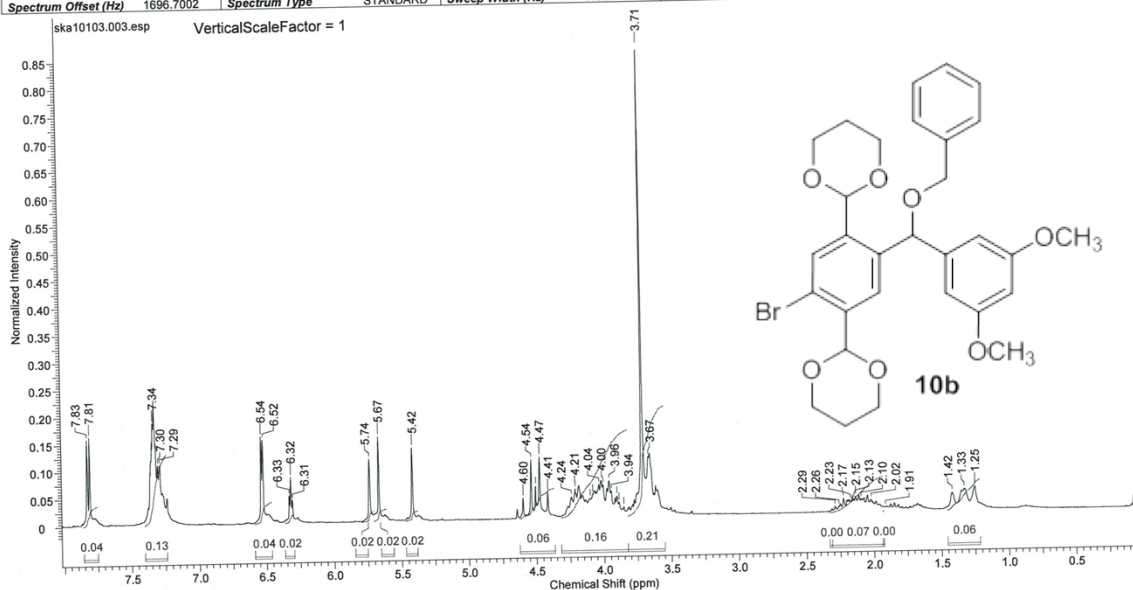
benzylowy alkohol p-dimetoksy

3/1/2013 9:29:12 AM

2

JS para dimetoksy benzylowy alkohol

Acquisition Time (sec)	Comment	File Name	Date	Frequency (MHz)
1.9792	JS para dimetoksy benzylowy alkohol	C:\Users\User\Desktop\ska10103\3\fid	01 Mar 2013 09:02:08	200.16
01 Mar 2013 09:02:08				
1H	Number of Transients 64	Origin spect	Original Points Count 8192	Owner root
8192	Pulse Sequence zg30	Receiver Gain 322.50	SW(cyclical) (Hz) 4139.07	Solvent CHLOROFORM-d
1696.7002	Spectrum Type STANDARD	Sweep Width (Hz) 4139.57	Temperature (degree C) 18.500	



This report was created by ACD/NMR Processor Academic Edition. For more information go to www.acdlabs.com/nmrproc/

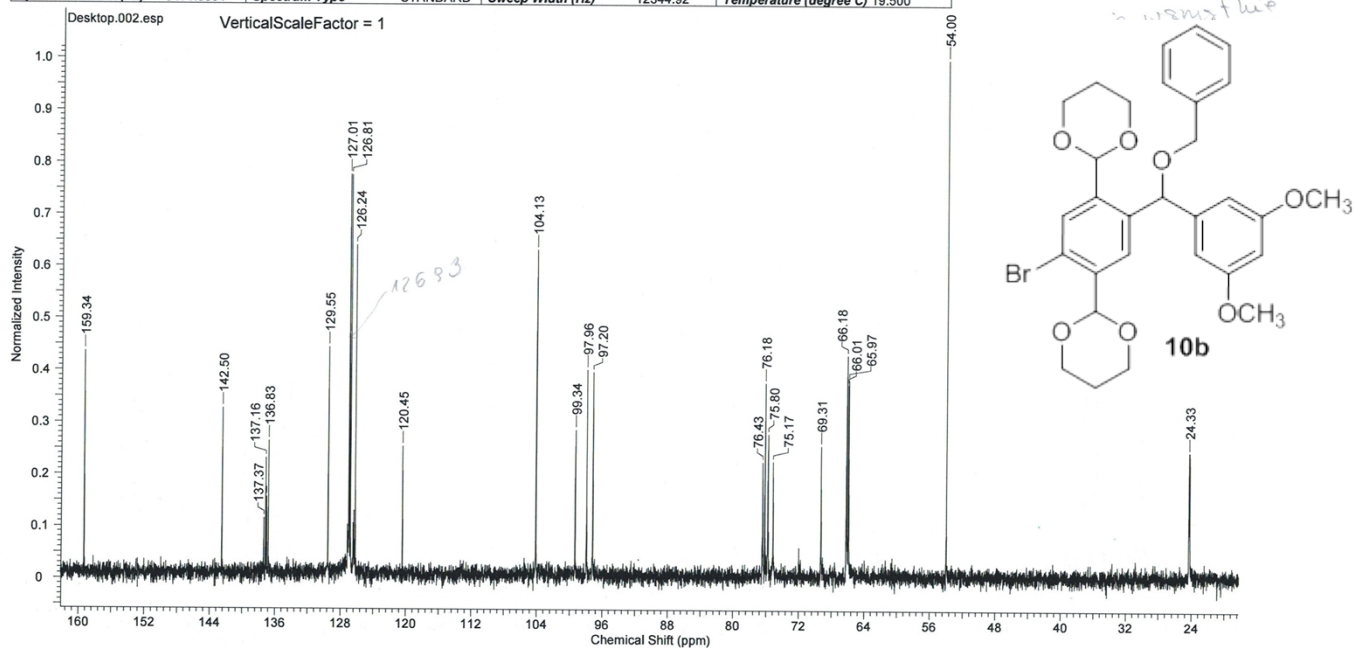
benzylowy alkohol p-dimetoksy

2/28/2013 4:06:44 PM

2

benzylowy p-dimetoksy

Acquisition Time (sec)	Comment	File Name	Date	Frequency (MHz)
1.3271	benzylowy p-dimetoksy	C:\Users\User\Desktop\2\fid	28 Feb 2013 15:58:08	50.33
28 Feb 2013 15:58:08				
13C	Number of Transients 1024	Origin spect	Original Points Count 16384	Owner root
16384	Pulse Sequence zgpg30	Receiver Gain 7298.20	SW(cyclical) (Hz) 12345.68	Solvent CHLOROFORM-d
5471.0591	Spectrum Type STANDARD	Sweep Width (Hz) 12344.92	Temperature (degree C) 19.500	

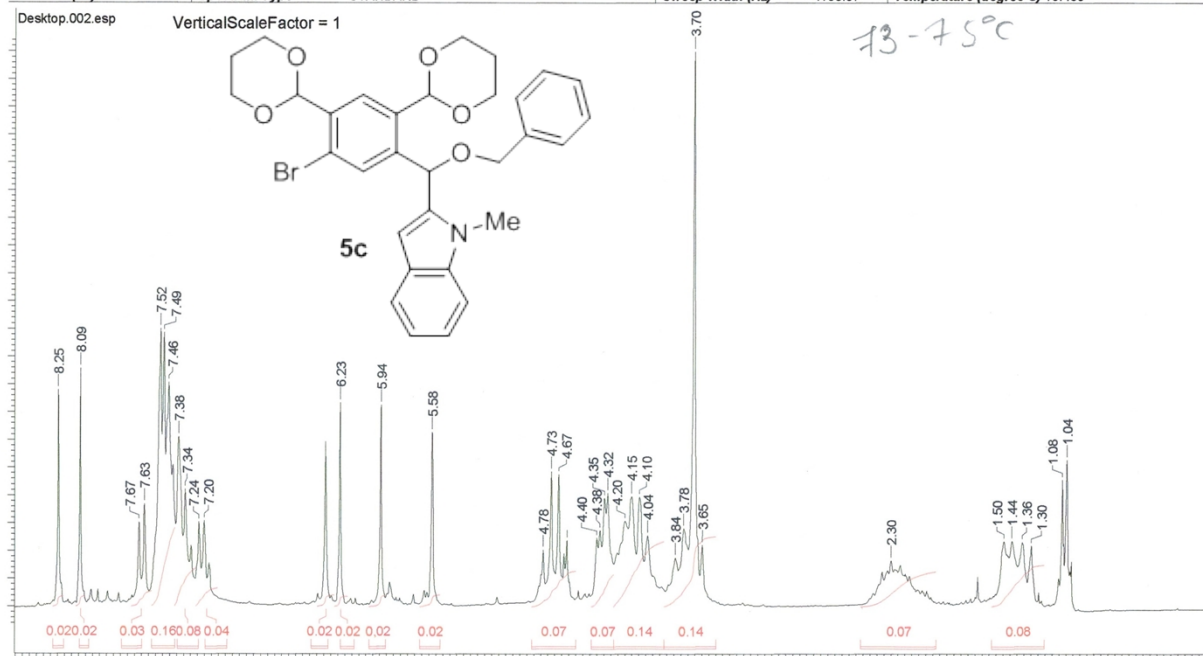


This report was created by ACD/NMR Processor Academic Edition. For more information go to www.acdlabs.com/nmrproc/

benzylowany monoalkohol meta indole

12/7/2011 9:59:28 AM

Acquisition Time (sec)	1.9792	Comment	Skalik J. IndBn2	Date	06 Dec 2011 14:26:24
Sample Name	06 Dec 2011 14:26:24	File Name	C:\Users\Asia\Desktop\2\fid	Frequency (MHz)	200.16
Number of Transients	32	Origin	spect	Original Points Count	8192
Pulse Sequence	zg30	Receiver Gain	22.60	SW(cyclical) (Hz)	4139.07
Spectrum Type	STANDARD	Sweep Width (Hz)	4138.57	Temperature (degree C)	19.400

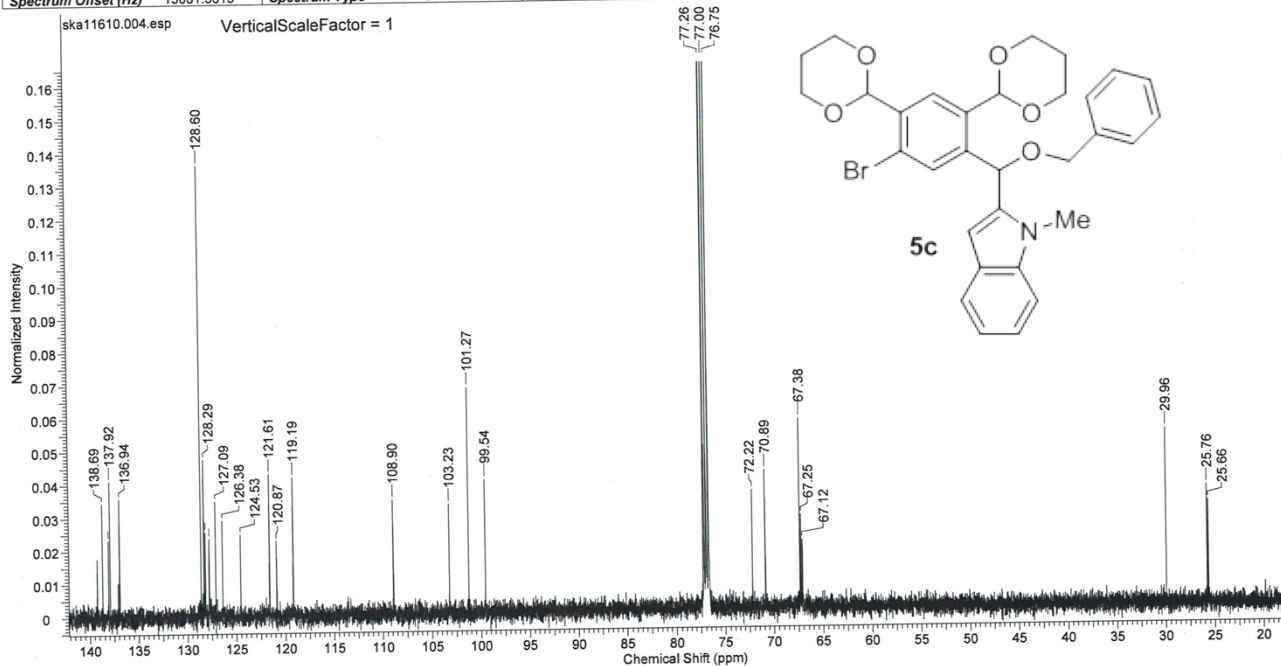


This report was created by ACD/NMR Processor Academic Edition. For more information go to www.acdlabs.com/nmrproc/

m-IndOBn

10/25/2013 2:46:46 PM
j. skalik =p-indobu /9/= 13C{1H}

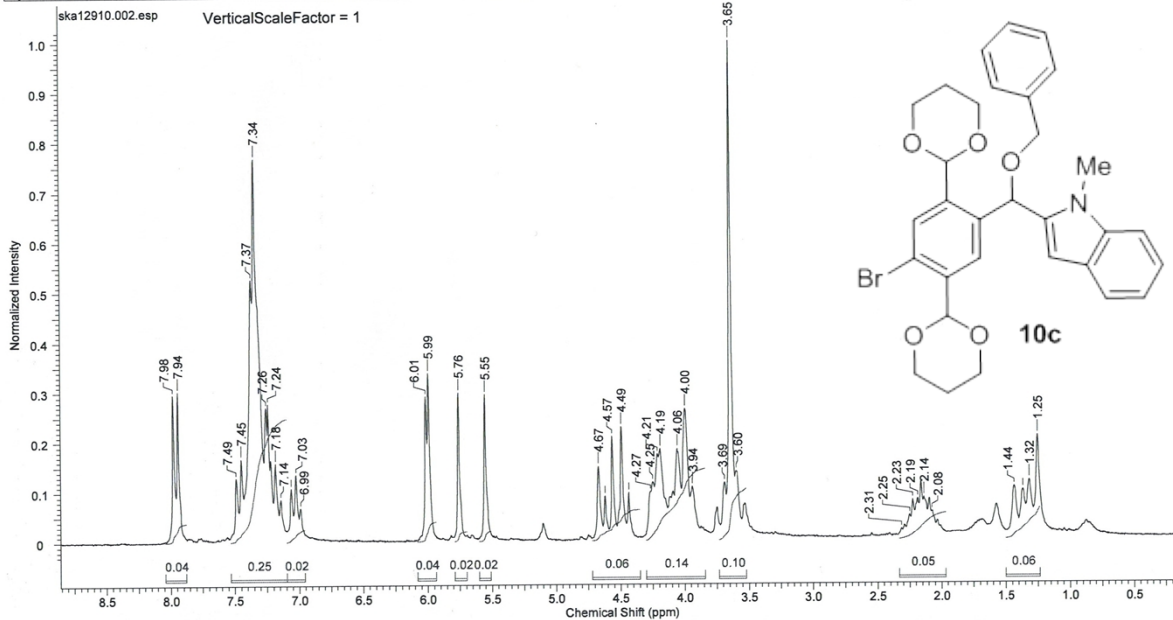
Acquisition Time (sec)	0.9088	Comment	j. skalik =p-indobu /9/= 13C{1H}	Date	17 Oct 2013 03:10:24
Date Stamp	17 Oct 2013 03:10:24	File Name	C:\Users\User\Desktop\Nowy folder\ska11610\4\fid	Frequency (MHz)	125.76
Nucleus	13C	Number of Transients	6776	Origin	AV_III_500
Original Points Count	32768	Owner	nmsu	Points Count	32768
Pulse Sequence	zgpg30	Receiver Gain	2050.00	SW(cyclical) (Hz)	36057.69
Solvent	CHLOROFORM-d	Spectrum Type	STANDARD	Sweep Width (Hz)	36056.59
Temperature (degree C)	22.001	Spectrum Offset (Hz)	15081.5615		



This report was created by ACD/NMR Processor Academic Edition. For more information go to www.acdlabs.com/nmrproc/
p-IndOBn

10/30/2013 11:23:12 AM
 Skalik J. p-IndOBn

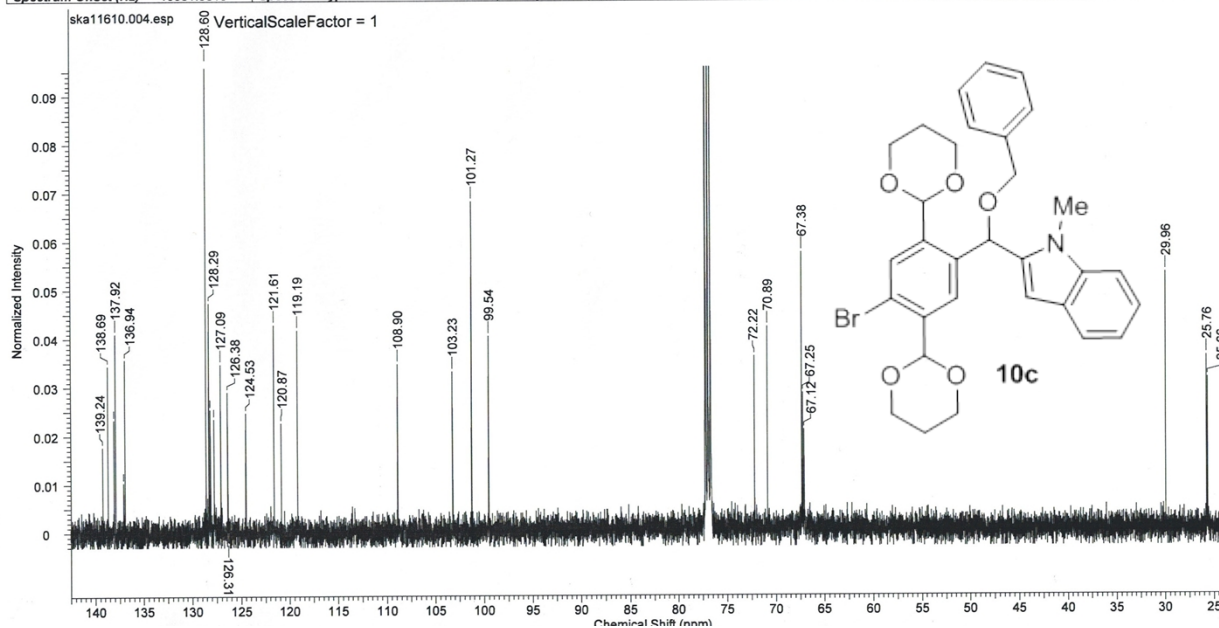
Acquisition Time (sec)	Comment	Skalik J. p-IndOBn	Date	29 Oct 2013 15:49:36	
Date Stamp	29 Oct 2013 15:49:36	File Name	C:\Users\User\Desktop\sk129102\fid	Frequency (MHz)	200.16
Nucleus	1H	Number of Transients	64	Origin	spect
Points Count	8192	Pulse Sequence	zg30	Receiver Gain	645.10
Spectrum Offset (Hz)	1696.7002	Spectrum Type	STANDARD	SW(cyclical) (Hz)	4139.07
		Sweep Width (Hz)	4138.57	Temperature (degree C)	19.900
				Owner	root
				Solvent	CHLOROFORM-d



This report was created by ACD/NMR Processor Academic Edition. For more information go to www.acdlabs.com/nmrproc/
p-IndOBn

10/30/2013 11:52:16 AM
 j. skalik -p-indobu /9/= 13C{1H}

Acquisition Time (sec)	Comment	j. skalik -p-indobu /9/= 13C{1H}	Date	17 Oct 2013 03:10:24	
Date Stamp	17 Oct 2013 03:10:24	File Name	C:\Users\User\Desktop\PRACA\sk116104\fid		
Frequency (MHz)	125.76	Nucleus	13C	Number of Transients	6776
Original Points Count	32768	Owner	nimsu	Points Count	32768
Receiver Gain	2050.00	SW(cyclical) (Hz)	35057.69	Pulse Sequence	zgpg30
Spectrum Offset (Hz)	15081.5615	Spectrum Type	STANDARD	Solvent	CHLOROFORM-d
		Sweep Width (Hz)	36056.59	Temperature (degree C)	22.001

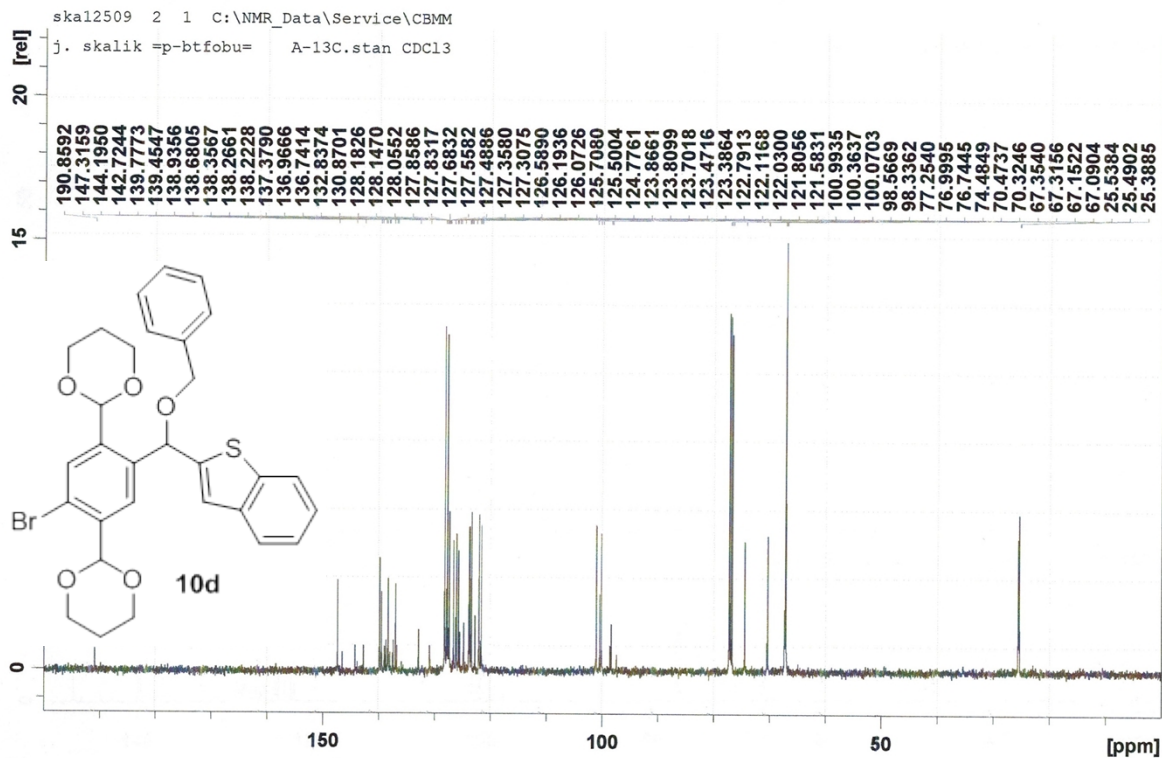
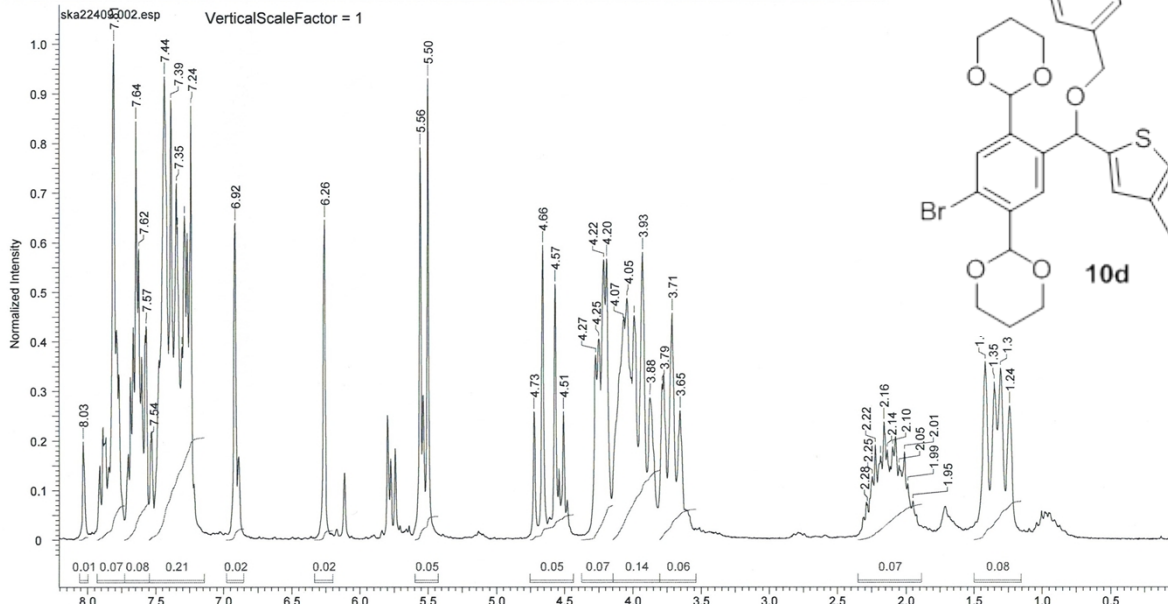


This report was created by ACD/NMR Processor Academic Edition. For more information go to www.acdlabs.com/nmrproc/

p-BTFOBn

9/24/2013 1:18:17 PM
p-BTFOBn

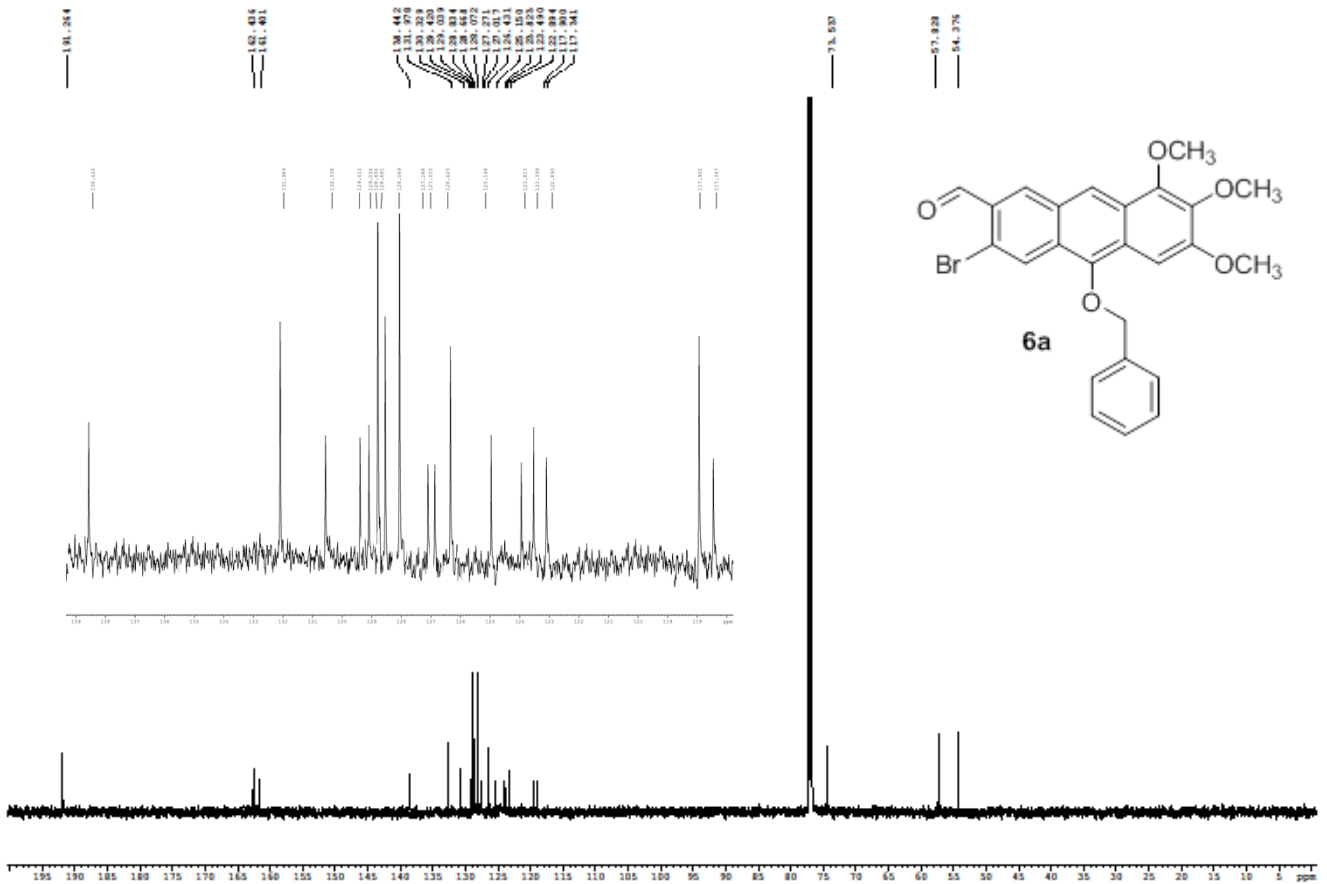
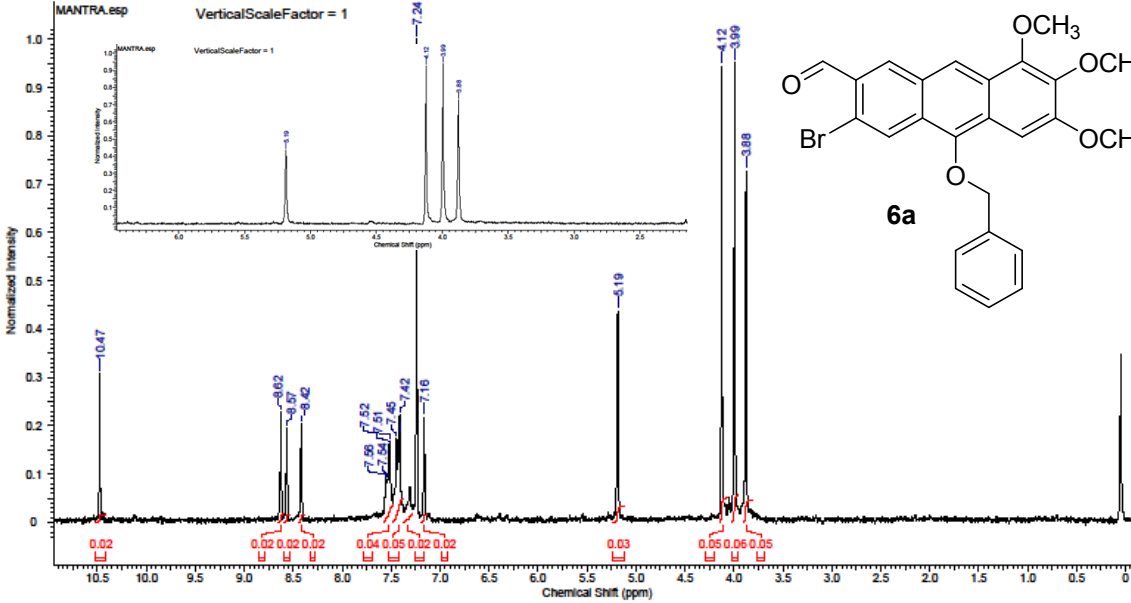
Acquisition Time (sec)	1.9792	Comment	p-BTFOBn	Date	24 Sep 2013 12:48:32	Date Stamp	24 Sep 2013 12:48:32
File Name	C:\Users\User\Desktop\sk22409\2\fid	Original Points Count	8192	Frequency (MHz)	200.16	Nucleus	¹ H
Origin	spect	SW(cyclical) (Hz)	4139.07	Owner	root	Points Count	8192
Receiver Gain	181.00	Solvent	CHLOROFORM-d	Sweep Width (Hz)	4138.57	Temperature (degree C)	19.200
Spectrum Type	STANDARD					Puls	
						Spec	



MANTRA

2/23/2015 5:23:28 PM

Acquisition Time (sec)	1.9792	Comment	MANTRA 2	Date	23 Jan 2015 15:49:36
Date Stamp	23 Jan 2015 15:49:36	File Name	C:\USERS\ASIA\DESKTOP\MISTPOPRAWK\IMANTRA\FID		
Frequency (MHz)	200.16	Nucleus	¹ H	Number of Transients	32
Owner	root	Points Count	8192	Pulse Sequence	zg30
Solvent	CHLOROFORM-d	Receiver Gain	1824.60	SW(cyclical) (Hz)	4139.07
Temperature (degree C)	19.500	Spectrum Offset (Hz)	1626.7002	Spectrum Type	STANDARD
		Sweep Width (Hz)			4138.57

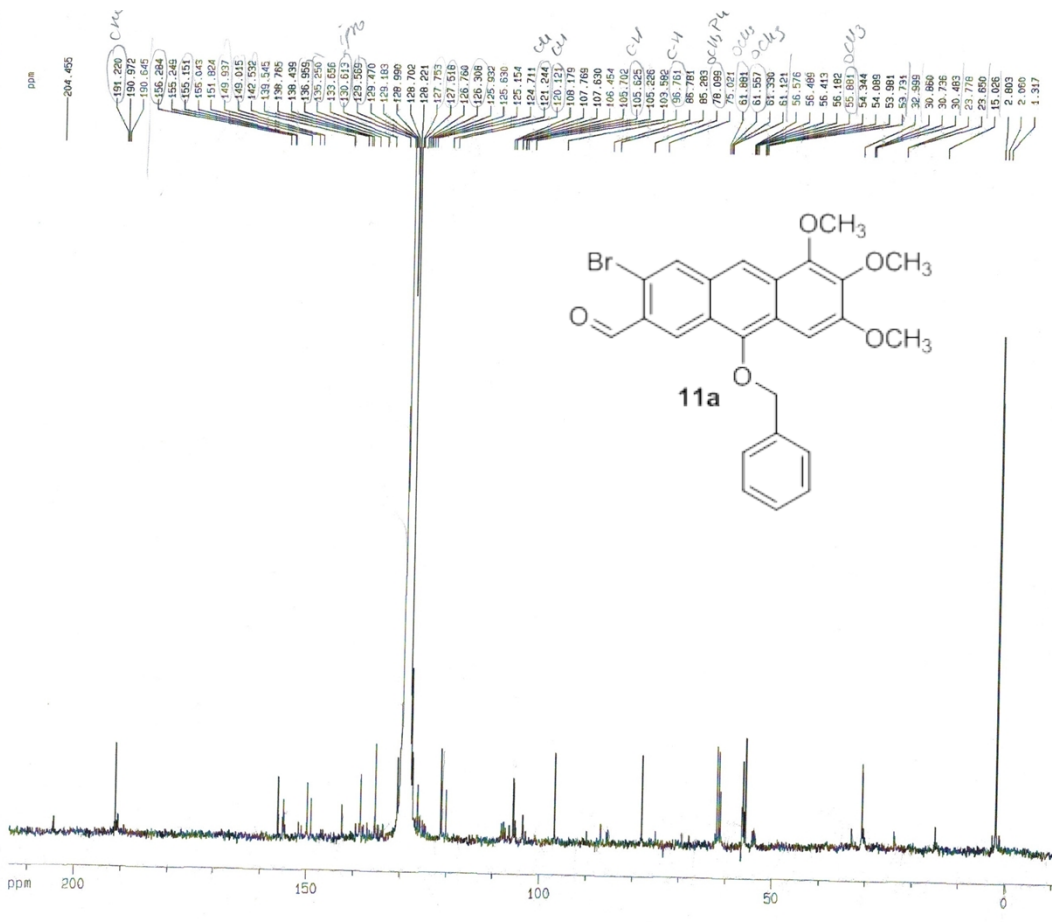
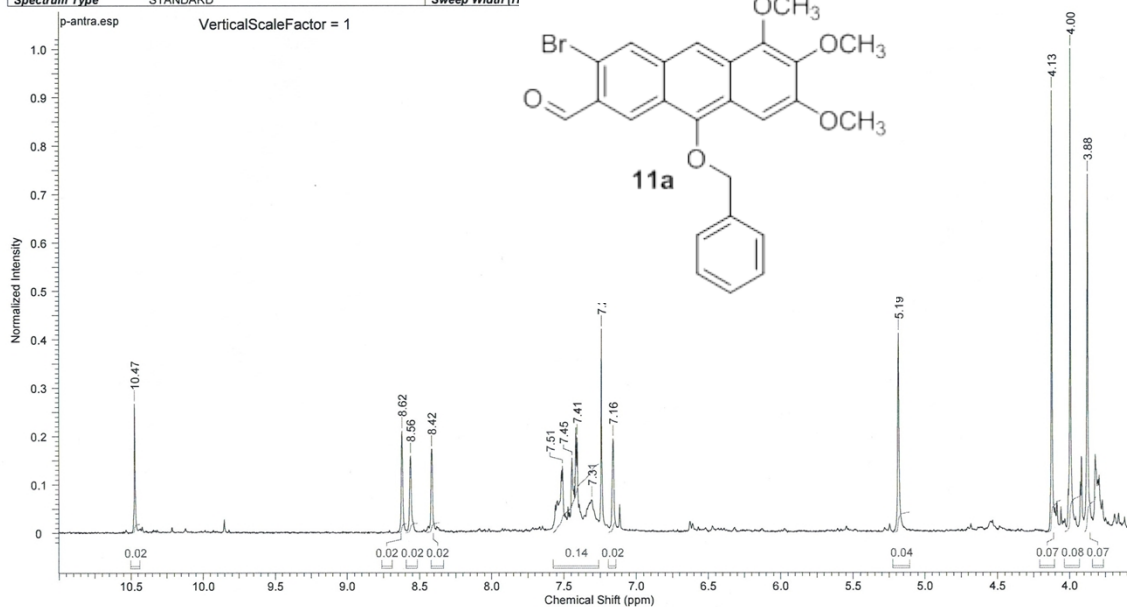


This report was created by ACD/NMR Processor Academic Edition. For more information go to www.acdlabs.com/nmrproc/

p-ANTRA

10/11/2013 1:11:43 PM
p-Antra

Acquisition Time (sec)	1.9792	Comment	p-Antra	Date	10 Oct 2013 15:13:36	Date Stamp	10 Oct 2013 15:13:36
File Name	C:\Users\User\Desktop\p-antra\fid	Original Points Count	8192	Frequency (MHz)	200.16	Nucleus	1H
Origin	spect	SW(cyclical) (Hz)	4139.07	Owner	root	Points Count	8192
Receiver Gain	1290.20	Solvent	CHLOROFORM-d	Sweep Width (Hz)		Pulse Sequence	zg30
Spectrum Type	STANDARD					Spectrum Offset (Hz)	1696.7002



```

*** NMR LAB ***
** AVANCE AV 200 **
Tel: 0426803 226

Current Data Parameters
NAME          ska20010
EXPNO        2
PROCNO       1
DU           C:/u
USER         service

F2 - Acquisition Parameters
Date_        20131009
Time         19.45
INSTRUM     AV_200
PROBHD      5 mm QNP 1H/1
PULPROG     zgpg30
TD          32768
SOLVENT     CDCl3
NS          (65548)
DS          2
SWH         12345.679 Hz
FIDRES     0.337650 Hz
AQ         1.3271540 sec
RG         5190.6
DW         40.500 usec
DE         7.00 usec
TE         300.2 K
D1         2.0000000 sec
d11        0.0300000 sec
DELTA      1.8999999 sec
NCREST     0.0000000 sec
NCHW       0.0150000 sec

===== CHANNEL f1 =====
NUC1        13C
P1          4.75 usec
PL1         1.00 dB
SFO1       50.3359083 MHz

===== CHANNEL f2 =====
CHOPROG     waltz16
NUC2         1H
PCPD2       100.00 usec
PL2         -1.00 dB
PL12        22.10 dB
PL13        26.00 dB
SFO2       200.1610008 MHz

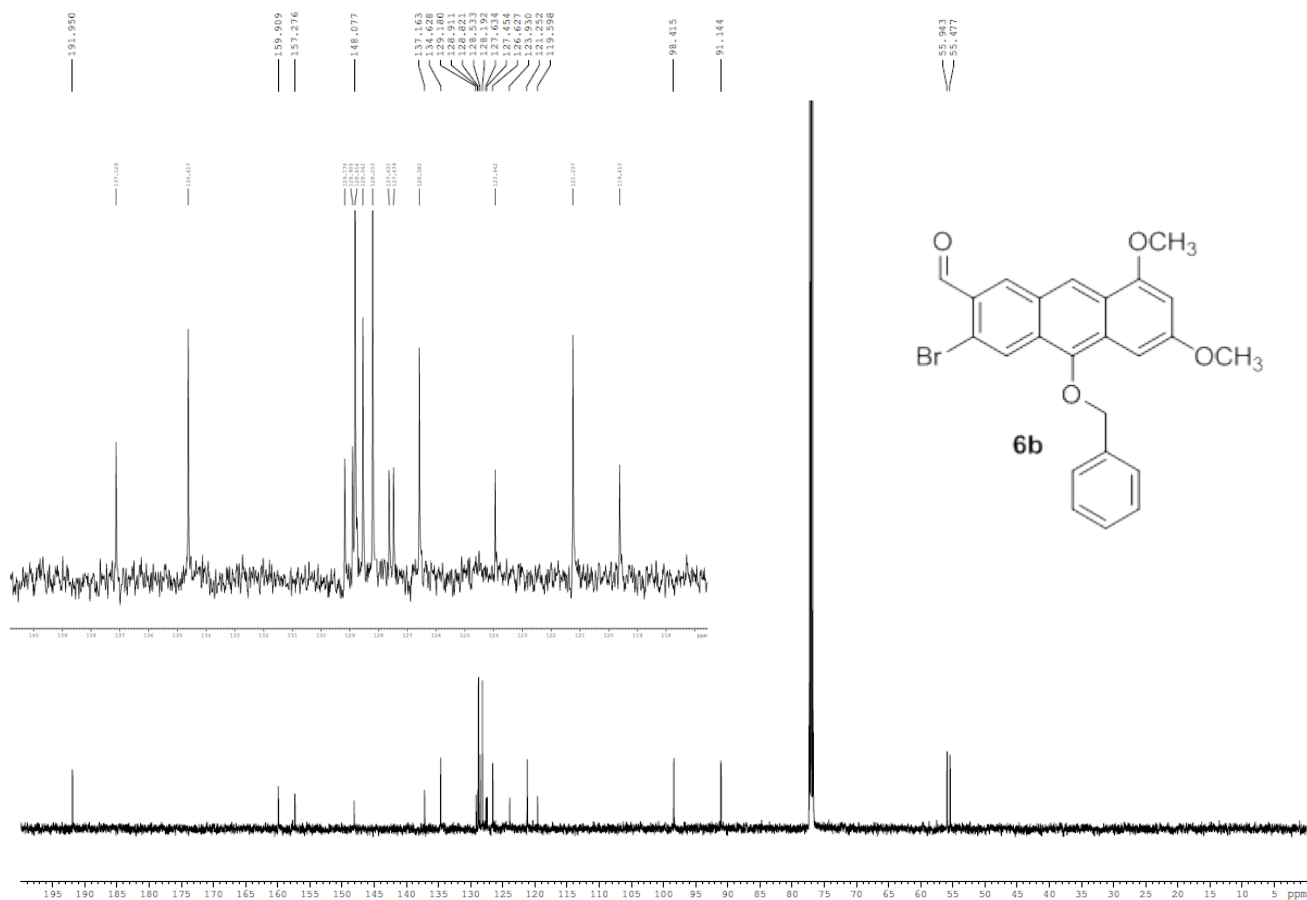
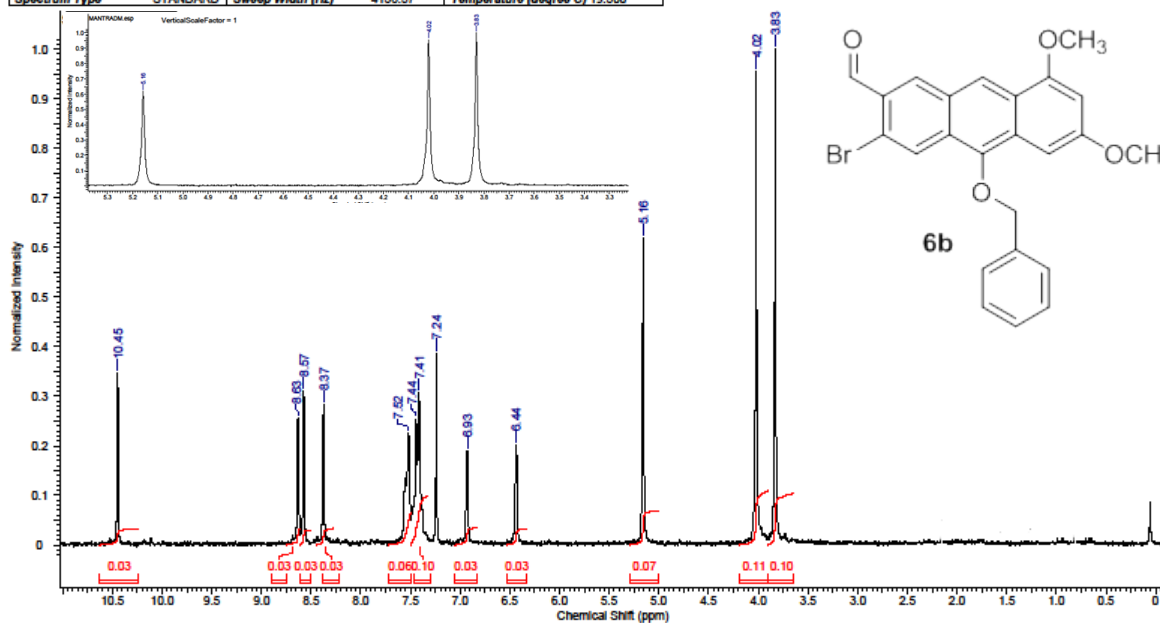
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SI          32768
SF          50.3302200 MHz
RGW         EM
SSB         0
LB          2.00 Hz
GB          0
PC          1.40

1D NMR plot parameters
CX          22.50 cm
CY          212.10 cm
F1P         213.905 ppm
F1          10765.91 Hz
F2          -12.216 ppm
F2          -614.85 Hz
P1MCH      10.04886 ppm/cm
H2CN       505.81152 Hz/cm
    
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MANTRADM

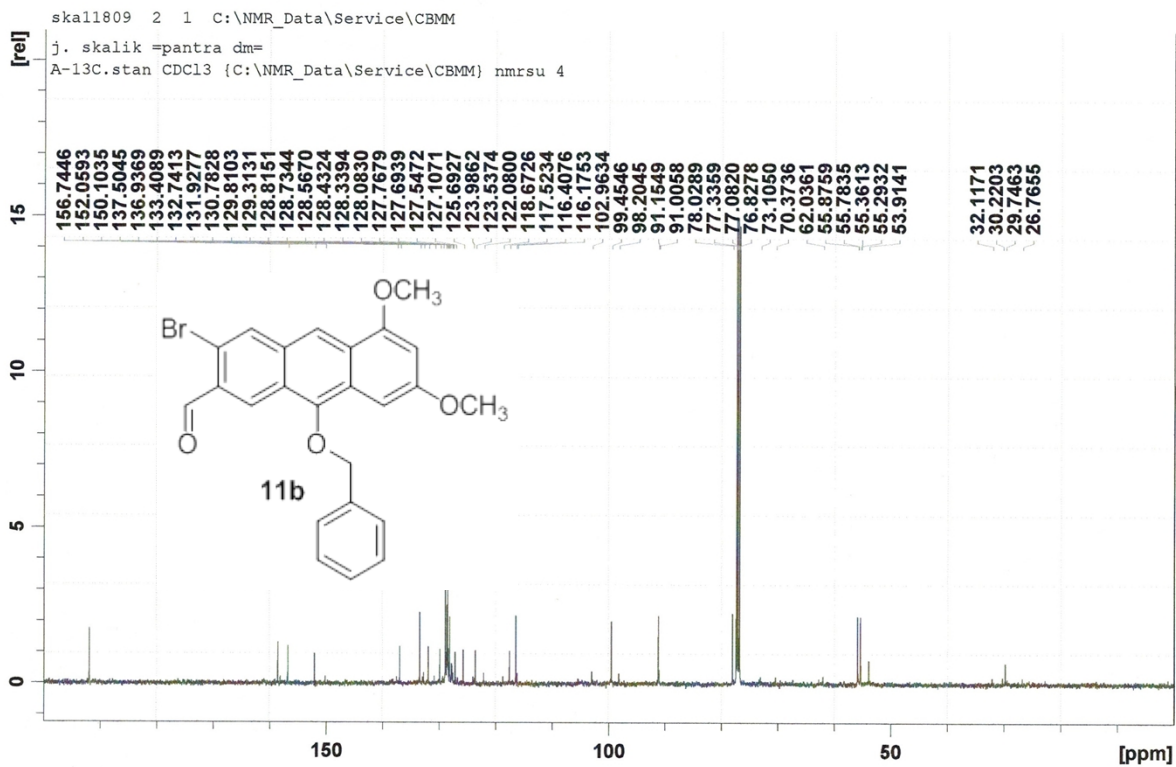
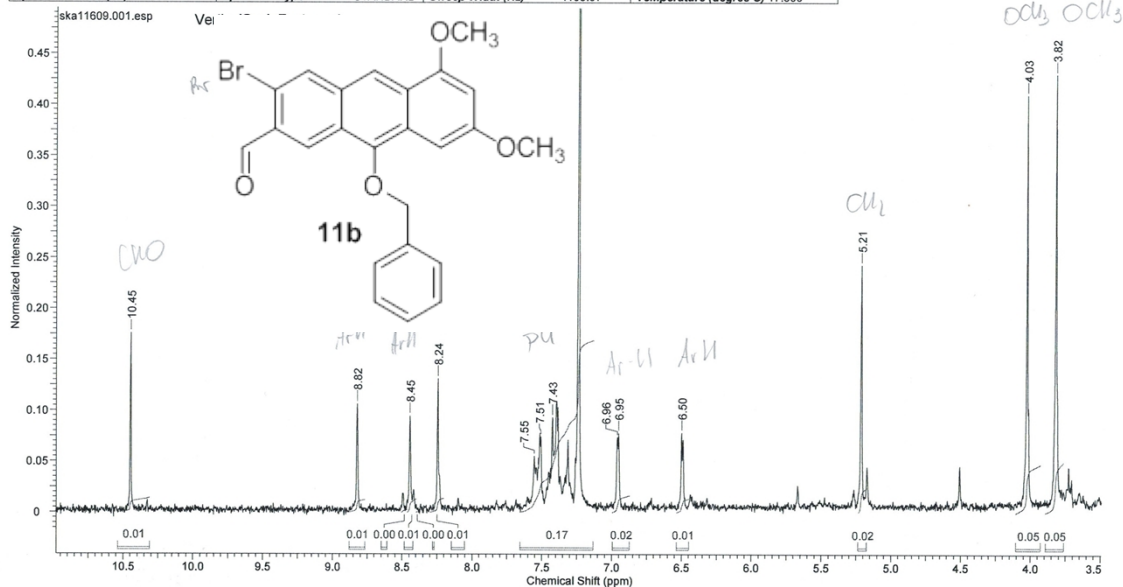
1/20/2015 3:50:15 PM
3

Acquisition Time (sec)	1.9792	Comment	3	Date	16 Jan 2015 14:43:28	Date Stamp	16 Jan 2015 14:43:28
File Name	C:\USERS\USER\DESKTOP\NEWSKA215013\FID	Frequency (MHz)	200.16	Nucleus	¹ H	Number of Transients	16
Origin	AV-200	Original Points Count	8192	Owner	root	Points Count	8192
Receiver Gain	1290.20	SWH (Hz)	4139.07	Solvent	CHLOROFORM-d	Pulse Sequence	zg30
Spectrum Type	STANDARD	Sweep Width (Hz)	4136.57	Temperature (degree C)	19.500	Spectrum Offset (Hz)	1696.7002



9/16/2013 12:50:05 PM
 cyklizacja p dimet

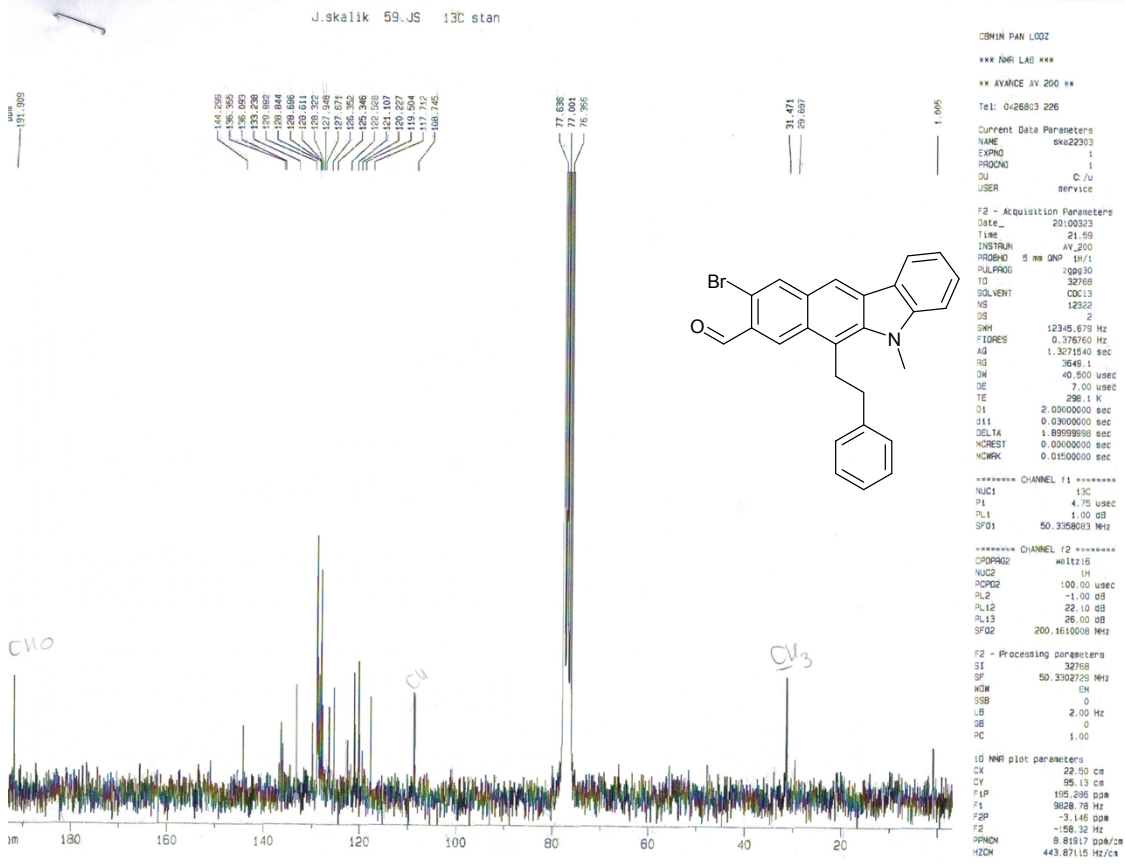
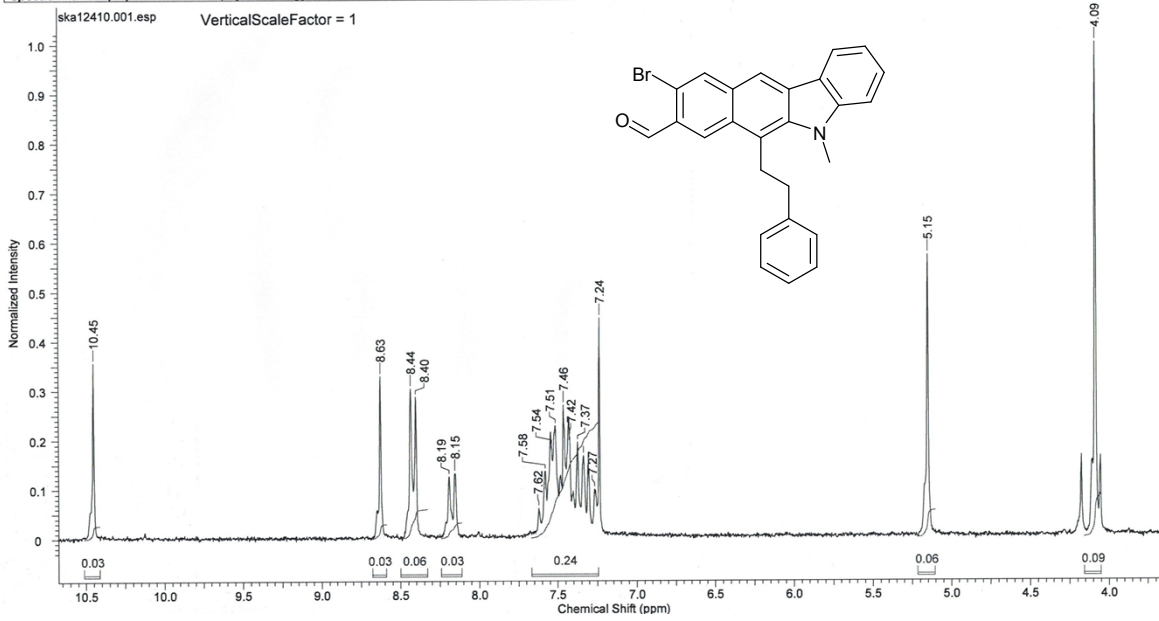
Acquisition Time (sec)	1.9792	Comment	cyklizacja p dimet	Date	16 Sep 2013 12:35:44	
Date Stamp	16 Sep 2013 12:35:44	File Name	C:\Users\User\Desktop\sk11609\11f.d	Frequency (MHz)	200.16	
Nucleus	¹ H	Number of Transients	128	Origin	spect	
Points Count	8192	Pulse Sequence	zg30	Receiver Gain	2298.80	
Spectrum Offset (Hz)	1696.7002	Spectrum Type	STANDARD	SW(cyclical) (Hz)	4139.07	
			Sweep Width (Hz)	4138.57	Temperature (degree C)	17.300



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p-IND

10/25/2013 9:50:29 AM
 J. Skalik p-IND

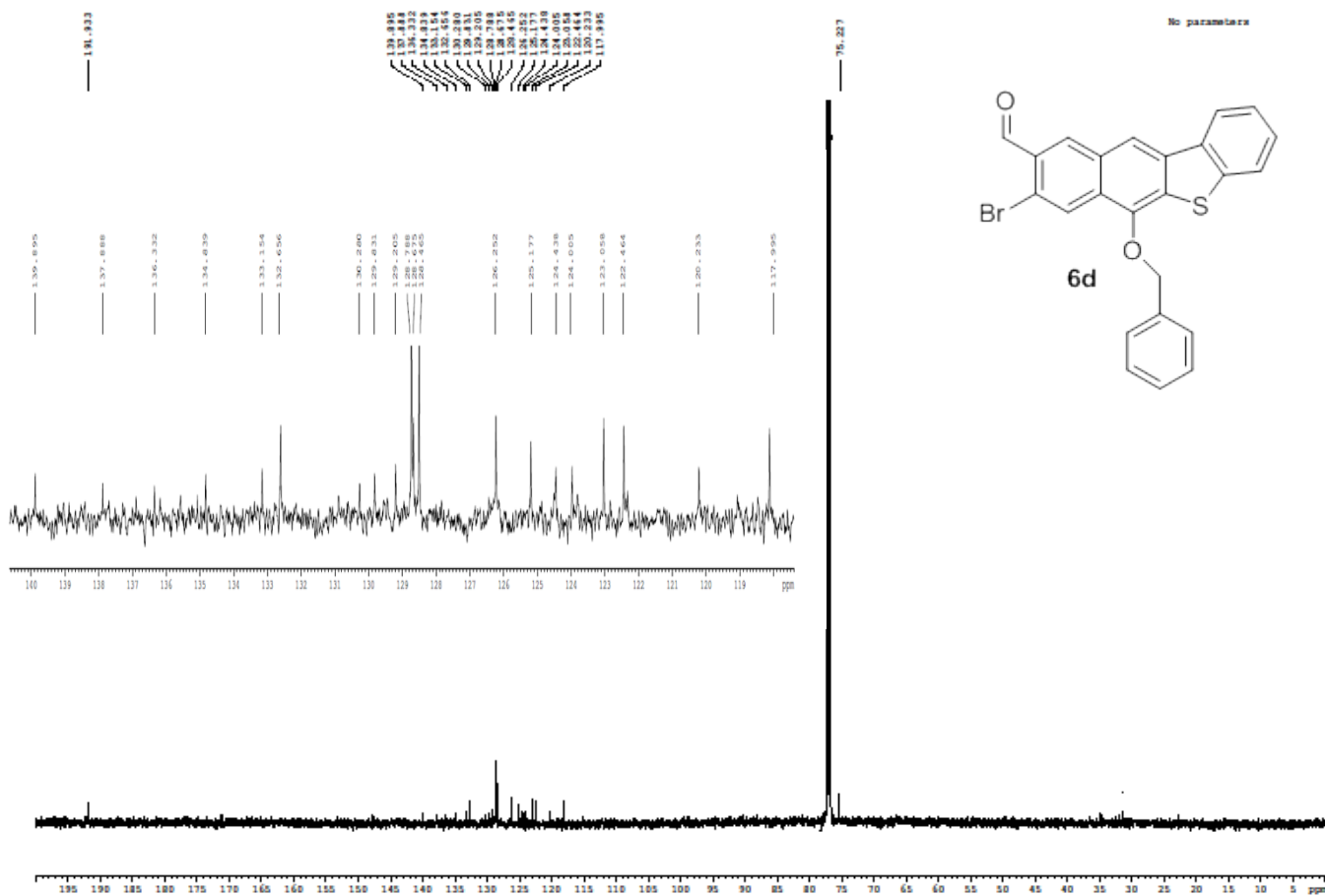
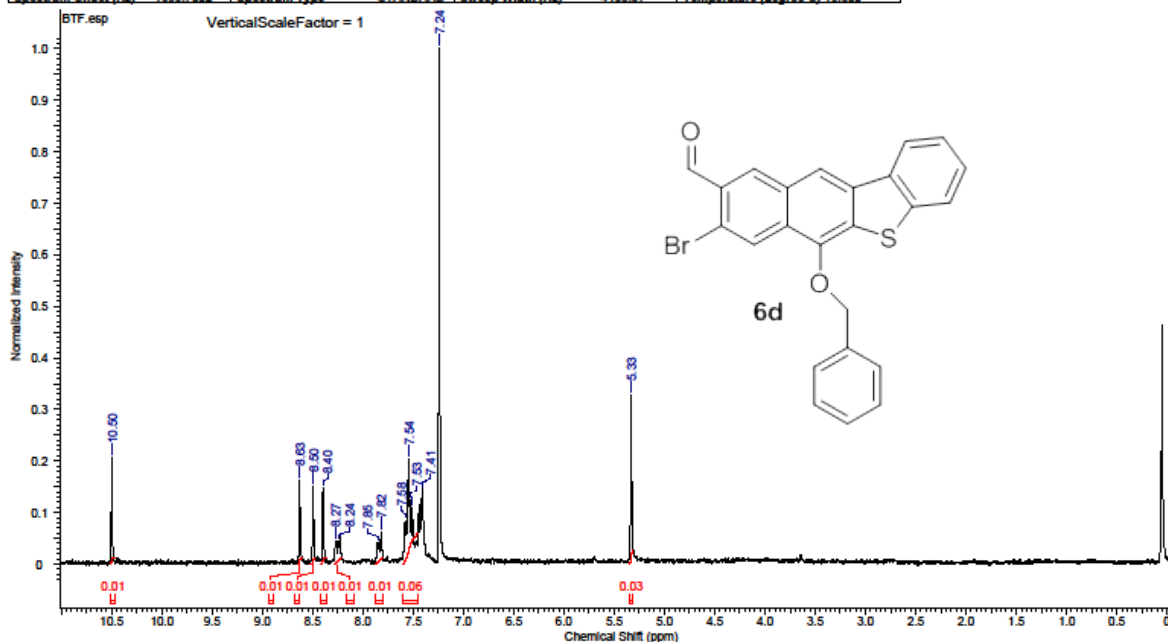
Acquisition Time (sec)	Comment	J. Skalik p-IND	Date	24 Oct 2013 13:54:40	
Date Stamp	24 Oct 2013 13:54:40	File Name	C:\Users\User\Desktop\ska12410\1\fid	Frequency (MHz)	200.16
Nucleus	1H	Number of Transients	32	Origin	spect
Points Count	8192	Pulse Sequence	zg30	Receiver Gain	1824.60
Spectrum Offset (Hz)	1696.7002	Spectrum Type	STANDARD	SW(cyclical) (Hz)	4139.07
		Sweep Width (Hz)	4138.57	Temperature (degree C)	19.900
				Owner	root
				Solvent	CHLOROFORM-d



MBTF

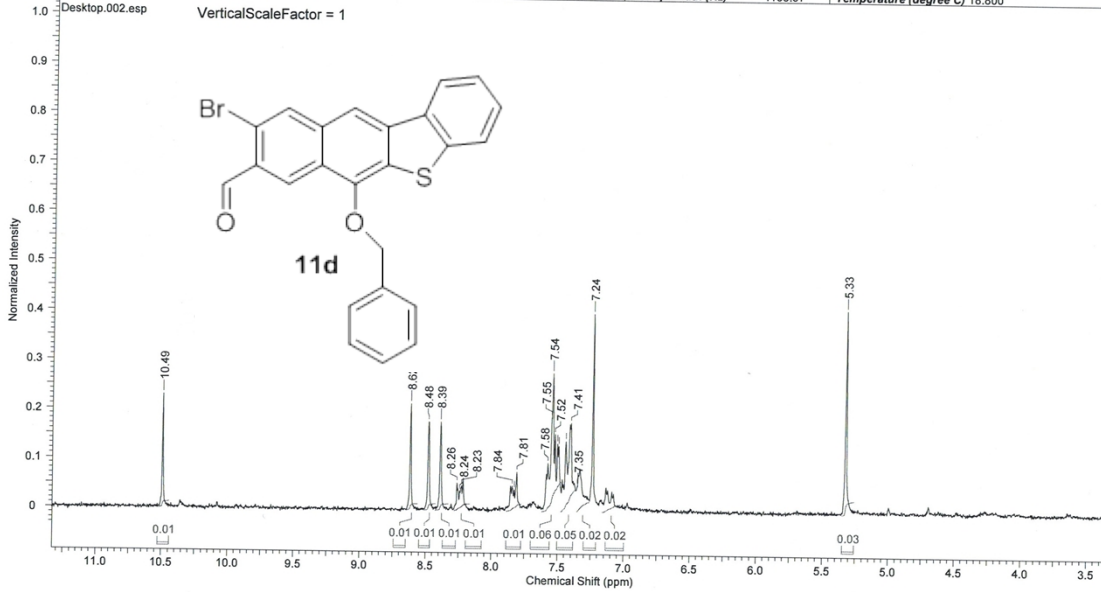
2/23/2015 5:14:37 PM

Acquisition Time (sec)	Comment	bif	Date	20 Feb 2015 14:13:36	Date Stamp	20 Feb 2015 14:13:36	
File Name	C:\USERS\ASIA\DESKTOP\MISTPO\RAWKIBTFID			Frequency (MHz)	200.16	Nucleus	¹ H
Number of Transients	64	Origin	AV-200	Original Points Count	8192	Owner	root
Pulse Sequence	zg30	Receiver Gain	2048.00	SW(cyclical) (Hz)	4139.07	Solvent	CHLOROFORM-d
Spectrum Offset (Hz)	1696.7002	Spectrum Type	STANDARD	Sweep Width (Hz)	4138.57	Temperature (degree C)	19.300

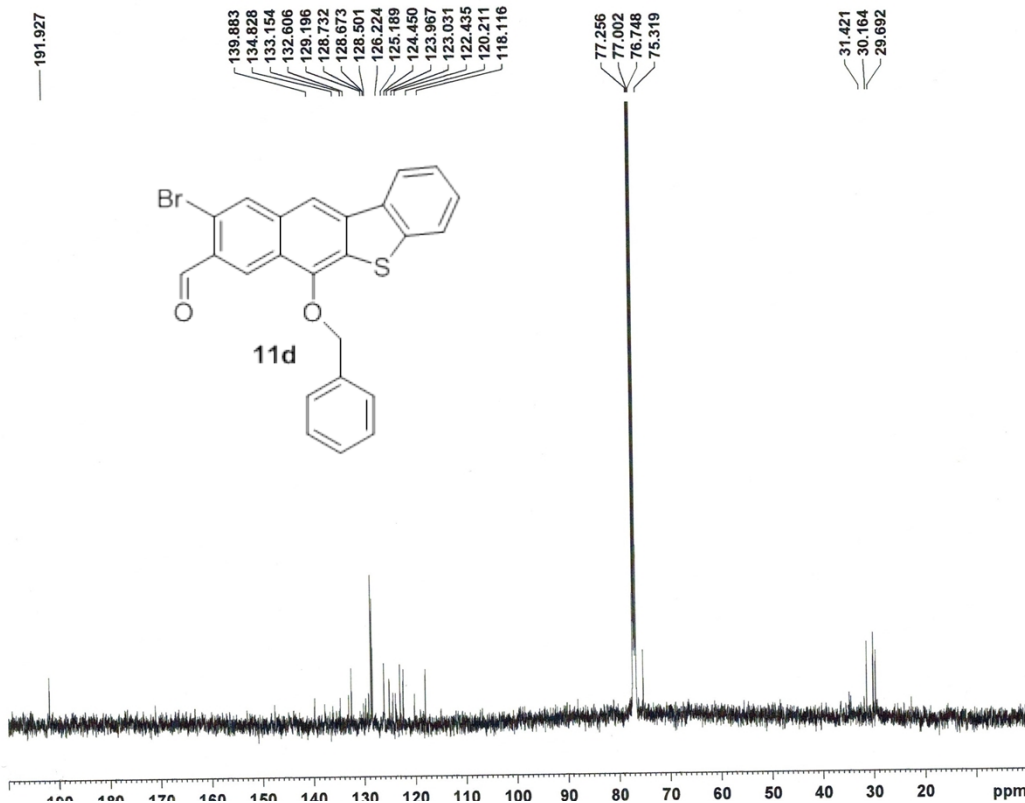


This report was created by ACD/NMR Processor Academic Edition. For more information go to www.acdlabs.com/nmrproc/
p-BTF

Acquisition Time (sec)	1.9792	Comment	Skalik J. p-BTF	Date	02 Oct 2013 08:51:44
Date Stamp	02 Oct 2013 08:51:44	File Name	C:\Users\User\Desktop\2\fid	Frequency (MHz)	200.16
Nucleus	1H	Number of Transients	32	Origin	spect
Points Count	8192	Pulse Sequence	zg30	Receiver Gain	1625.50
Spectrum Offset (Hz)	1696.7002	Spectrum Type	STANDARD	SW(cyclical) (Hz)	4139.07
				Sweep Width (Hz)	4138.57
				Temperature (degree C)	18.800



j. skalik =p-btf= 13C{1H}



***CBMIM PAN LODZ**
 **** NMR LAB ****
 AV III 500 MHz
 Tel:042 6803 307

Current Data Parameters
 DATPATH C:\NMR_Data\Service\CBMM
 NAME skat0210
 EXPNO 2
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20131002
 Time 9.50
 INSTRUM AV III 500
 PROBHD 5 mm TXI 31P Z
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 3072
 DS 4
 SWH 36057.891 Hz
 FIDRES 0.550197 Hz
 AQ 0.9087659 sec
 RG 2050
 DW 13.867 usec
 DE 6.50 usec
 TE 295.0 K
 D1 2.0000000 sec
 D11 0.0300000 sec
 TD0 6

===== CHANNEL f1 =====
 SF01 125.7728788 MHz
 NUC1 13C
 P1 11.50 usec
 PLW1 226.0000000 W

===== CHANNEL f2 =====
 SF02 500.1324005 MHz
 NUC2 1H
 CPDPRG2 waltz16
 PCPD2 100.00 usec
 PLW2 9.0000000 W
 PLW12 0.08398400 W
 PLW13 0.08398400 W

F2 - Processing parameters
 SI 32768
 SF 125.7577956 MHz
 WDW EM
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.40
 SR 6.61 Hz