Supporting Information

Amplification of Chirality in N,N'-1,2-ethanediylbisbenzamides: From Planar Sheets to Twisted Ribbons

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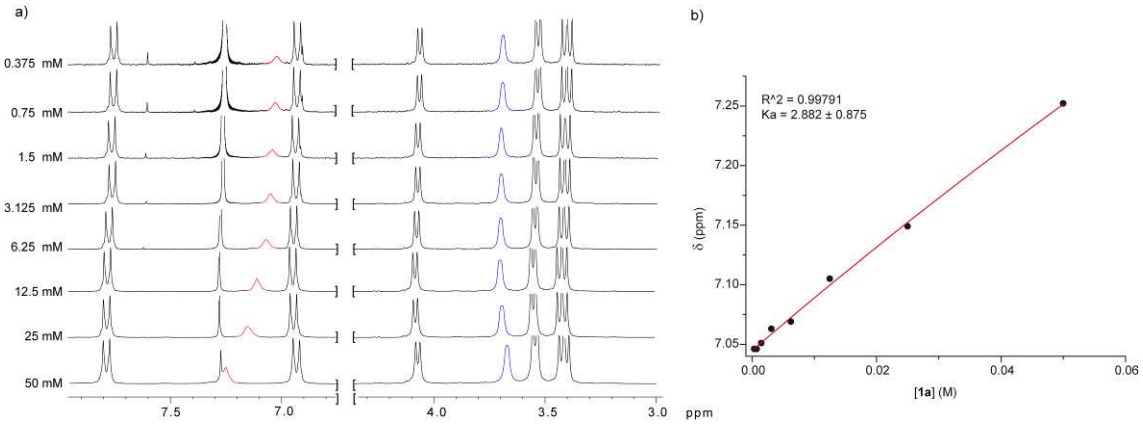


Figure S1. Partial ^{1}H NMR spectra (300 MHz, 298 K) of N,N'-1,2-ethanediylbisbenzamide **1a** at different concentrations in $CDCl_3$ (a) and the fit of the resonance corresponding to the N-H amide proton to the isodesmic model (b). The resonances in red and in blue in (a) correspond to the N-H and ethylene bridge, respectively.

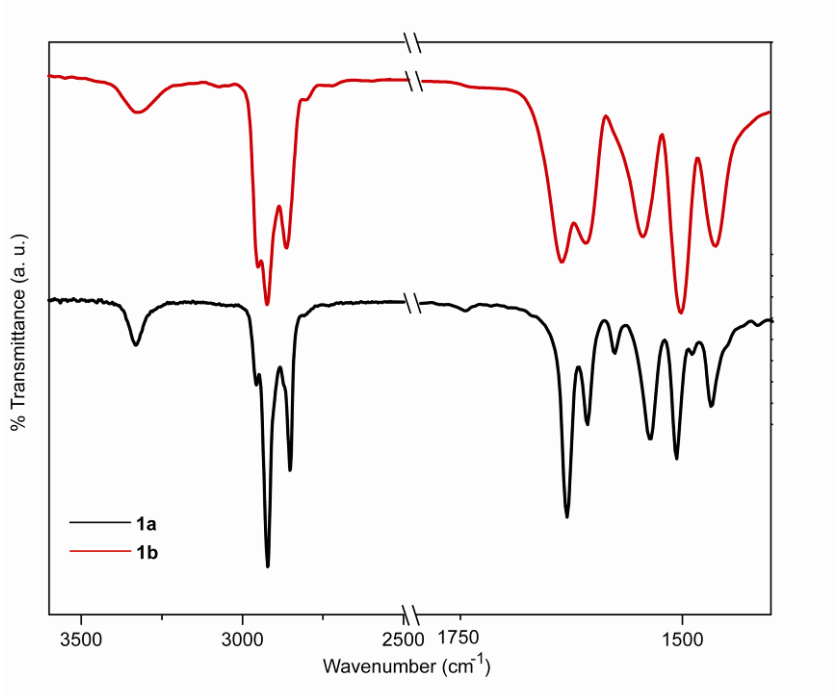


Figure S2. FTIR spectra (film) of bis-amides **1a** and **1b**.

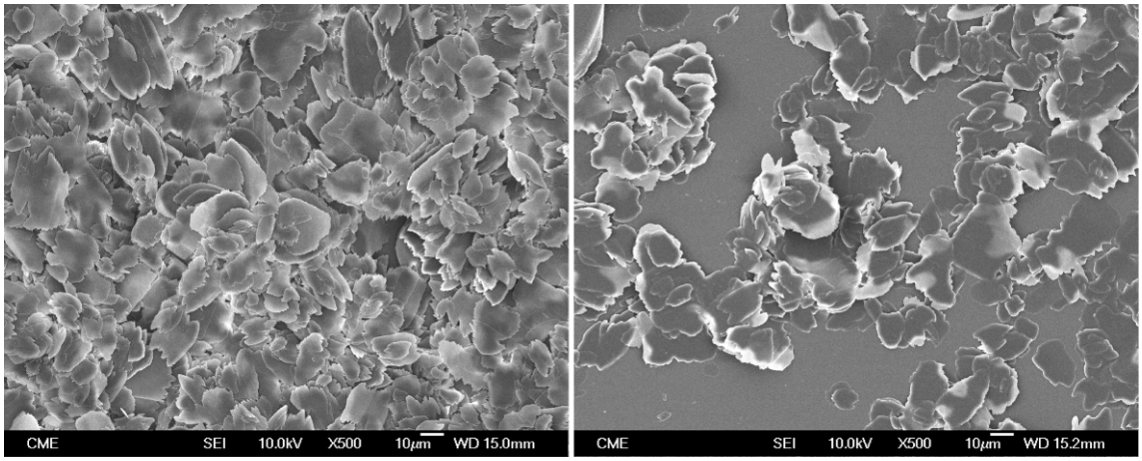


Figure S3. SEM images of the bis-amide **1a** (1 x 10^{-3} M, acetonitrile)

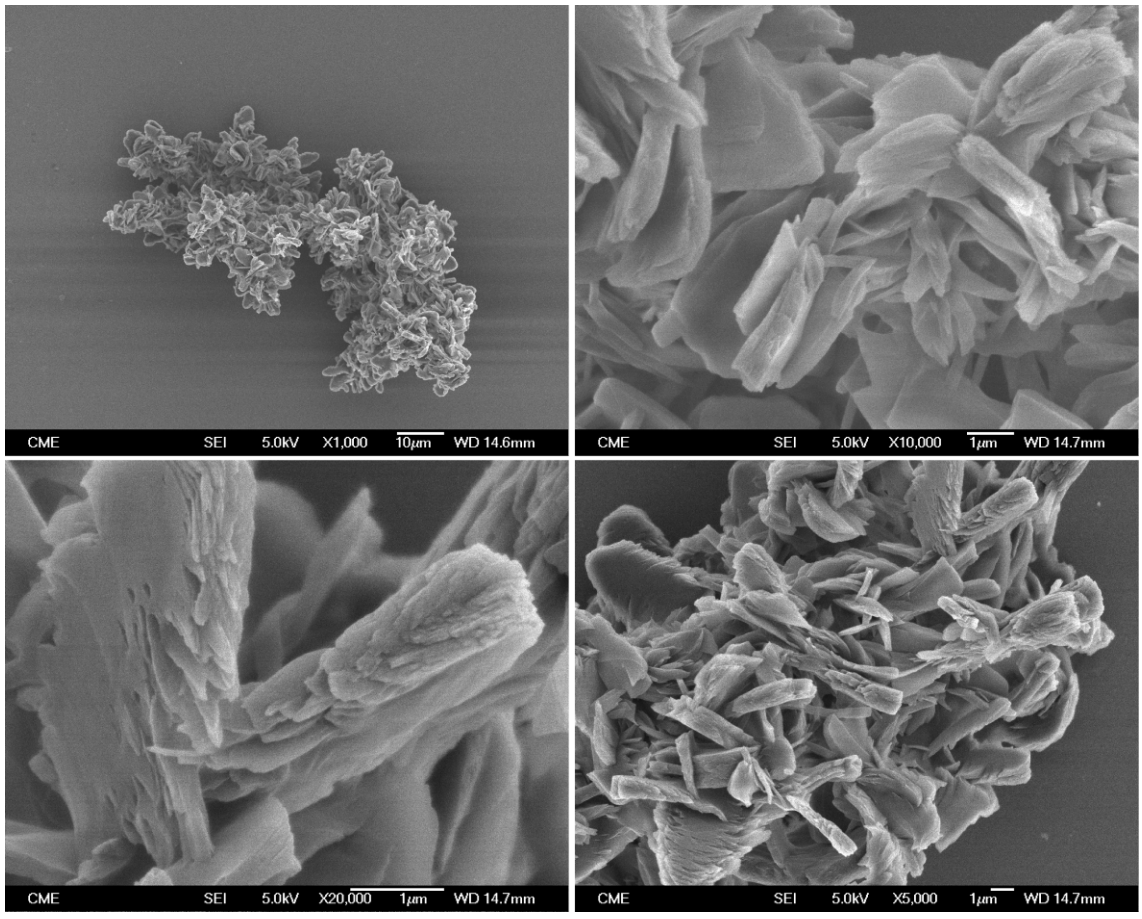


Figure S4. SEM images of the lamellae formed bis-amide **1a** (1 x 10^{-4} M, acetonitrile). Figure S4b corresponds to the SEM image shown in the inset of Figure 3b in the main text.

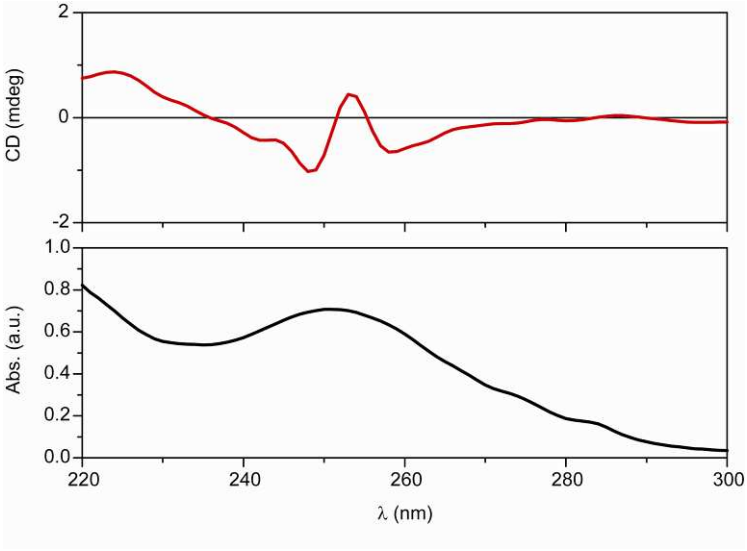


Figure S5. CD (top) and UV-Vis (bottom) spectra of bis-amide **1b** (1 x 10^{-3} M, methylcyclohexane, 298 K).

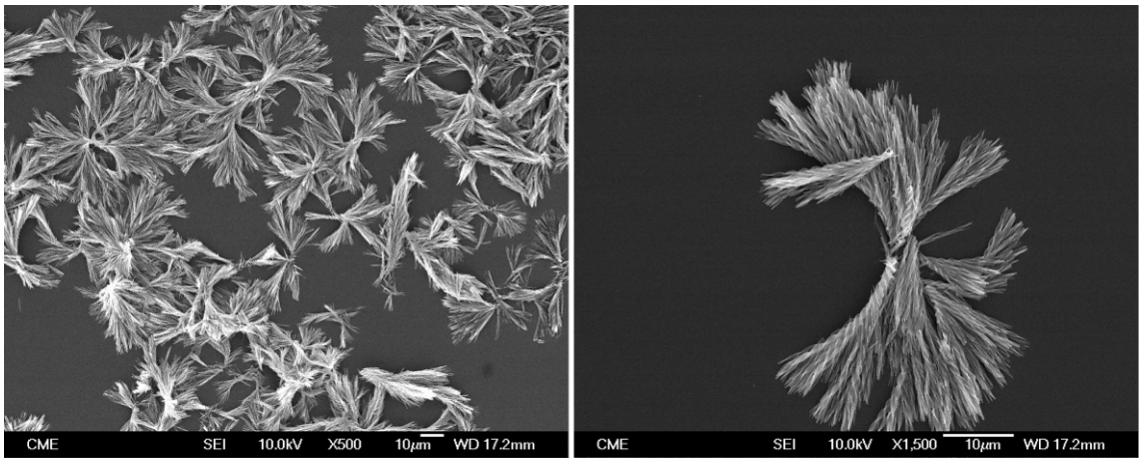


Figure S6. Large and expanded SEM images (acetonitrile,298 K) of a drop-cast of a 95/5 mixture of **1a** and **1b** (~1 x 10^{-4} M) on glass plate.

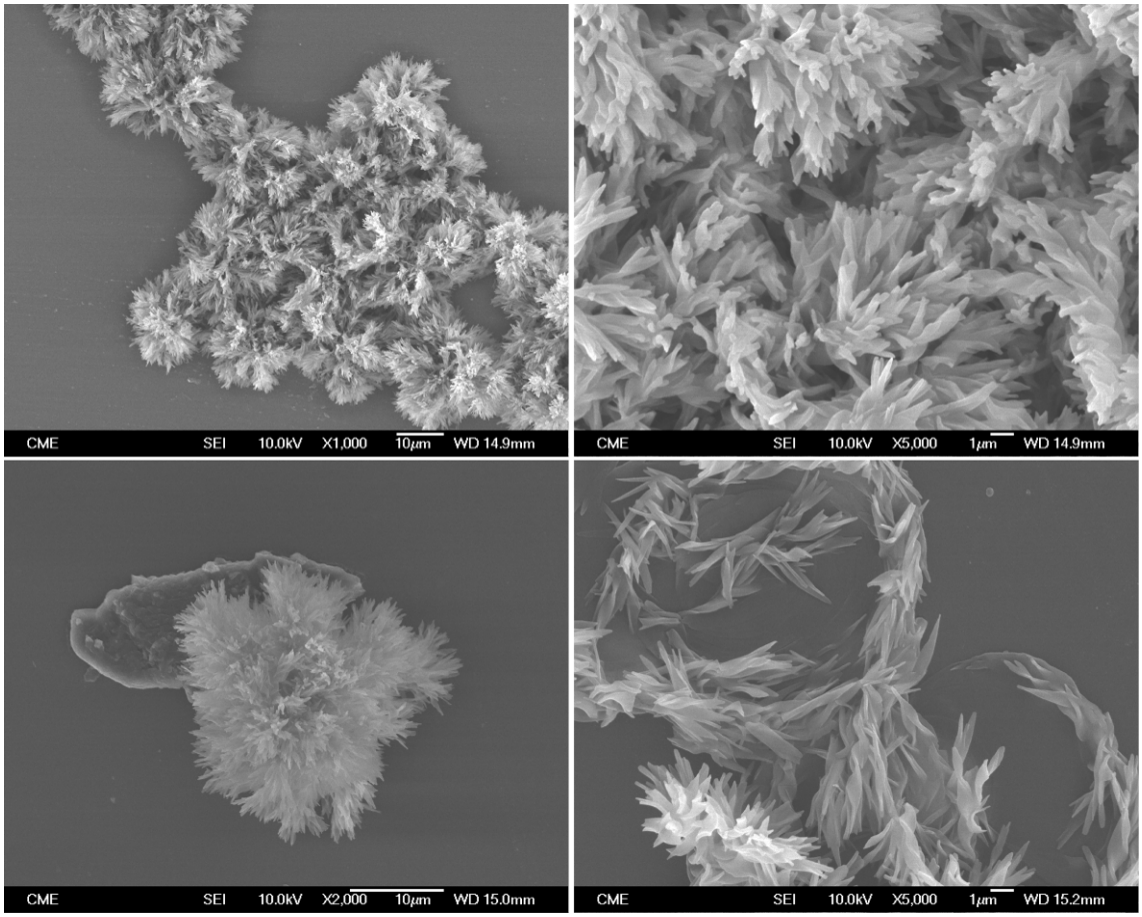


Figure S7. SEM images (acetonitrile,298 K) of a drop-cast of a 90/10 mixture of **1a** and **1b** (~1 x 10^{-4} M) on glass plate.

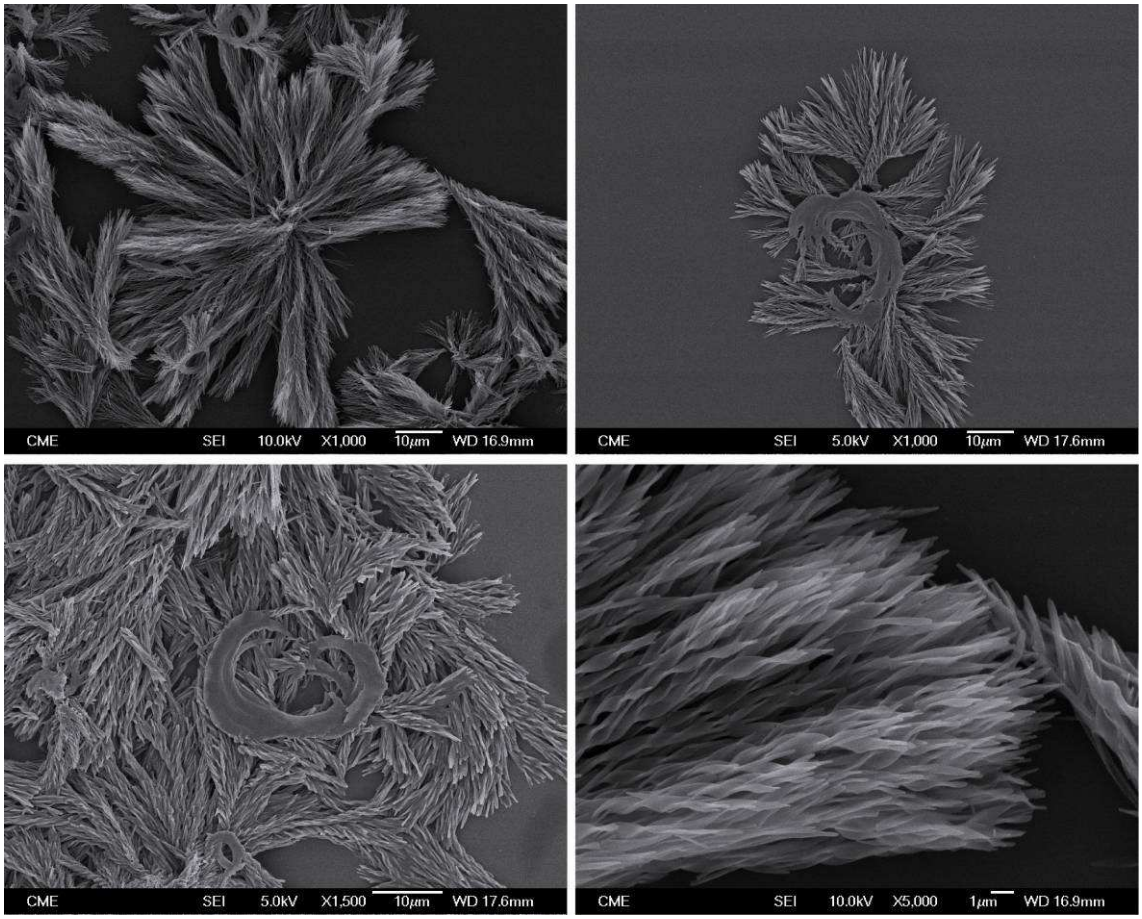
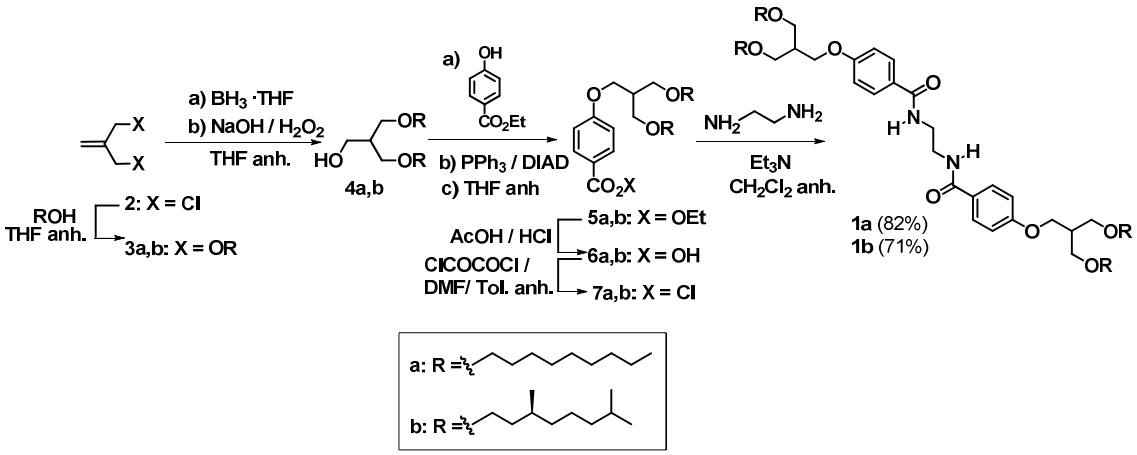


Figure S8. SEM images (acetonitrile,298 K) of a drop-cast of a 85/15 mixture of **1a** and **1b** (~1 x 10^{-4} M) on glass plate.

2. Experimental Section

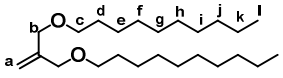
General. All solvents were dried according to standard procedures. Reagents were used as purchased. All air-sensitive reactions were carried out under argon atmosphere. Flash chromatography was performed using silica gel (Merck, Kieselgel 60, 230-240 mesh or Scharlau 60, 230-240 mesh). Analytical thin layer chromatography (TLC) was performed using aluminum coated Merck Kieselgel 60 F254 plates. NMR spectra were recorded on a Bruker Avance 300 (^{1}H: 300 MHz; ^{13}C: 75 MHz) spectrometer at 298 K using partially deuterated solvents as internal standards. Coupling constants (J) are denoted in Hz and chemical shifts (δ) in ppm. Multiplicities are denoted as follows: s = singlet, d = doublet, t = triplet, m = multiplet, br = broad. FT-IR spectra were recorded on a Bruker Tensor 27 (ATR device) spectrometer. UV-Vis spectra were recorded on a Varian Cary 50 spectrophotometer. Matrix Assisted Laser Desorption Ionization (coupled to a Time-Of-Flight analyzer) experiments (MALDI-TOF) were recorded on a Bruker REFLEX spectrometer. SEM images were obtained from on a JEOL JSM 6335F microscope working at 5kV. For the preparation of the samples for SEM imaging, a solution of the corresponding bis-amide in chloroform or in a mixture cholorofom/acetonitrile is deposited in the glass substrate and slowly evaporated. Circular dichroism (CD) measurements were performed on a Jasco-810 dichrograph. The spectra were recorded in the continuous mode between 400 and 200 nm, with a wavelength increment of 1 nm, a response time of 4 s, and a bandwidth of 1 nm. A 1 mm path length quartz cuvette (Hellma) was used. Spectra from three scans were averaged.

3. Synthetic details and characterization



Decan-1-ol was purchased from a commercial source with a 99% purity and (*S*)-3,7-dimethyloctan-1-ol was prepared according to previously reported synthetic procedures (see: Vera, F.; Tejedor, R. M.; Romero, P.; Barberá, J.; Ros, M. B.; Serrano, J. L.; Sierra, T. *Angew. Chem., Int. Ed.* **2007**, *46*, 1873-1877) and showed identical spectroscopic properties to those reported therein.

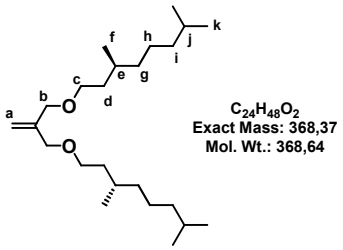
1-(2-((decyloxy)methyl)allyloxy)decane (3a)



$C_{24}H_{48}O_2$
Exact Mass: 368.3654
Mol. Wt.: 368.6367

3-chloro-2-(chloromethyl)prop-1-ene (4.98 g, 39.84 mmol) and decan-1-ol (19.00 g, 120 mmol) were added to a solution of NaH (4.80 g, 200 mmol) in dry THF (50 mL). The reaction mixture was stirred at room temperature under argon atmosphere overnight. The reaction mixture was washed with water, extracted with dichloromethane, and dried over $MgSO_4$. After evaporation of the solvent under reduced pressure, the residue was purified by column chromatography (silica gel, chloroform:hexane 4:6) affording **3a** as a yellow oil (10.39 g, 74%). ^{1}H NMR ($CDCl_3$, 300 MHz) δ 5.16 (2H, H_a, s); 3.96 (4H, H_b, s); 3.41 (4H, H_c, t, J = 6.5 Hz); 1.56 (4H, H_d ,m); 1.26 (28H, $H_{e+f+g+h+i+j+k}$, m); 0.87 (6H, H_l, t, J = 6.5 Hz); ^{13}C NMR ($CDCl_3$, 75 MHz) δ 143.6; 113.4; 71.7; 70.8; 32.1; 29.9; 29.7; 29.5; 26.4; 22.8; 14.5. FTIR (neat) 655, 721, 912, 1103, 1271, 1348, 1377, 1466, 1658, 2854, 2924 cm^{-1}.

(S)-1-(2-(((S)-3,7-dimethyloctyloxy)methyl)allyloxy)-3,7-dimethyloctane (3b)

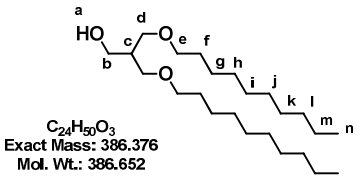


$C_{24}H_{48}O_2$
Exact Mass: 368,37
Mol. Wt.: 368,64

3-chloro-2-(chloromethyl)prop-1-ene (1.32 g, 10.53 mmol) and (*S*)-3,7-dimethyloctan-1-ol (5.00 g, 31.60 mmol) were added to a solution of NaH (0.76 g, 31.60 mmol) in dry THF (10 mL). The

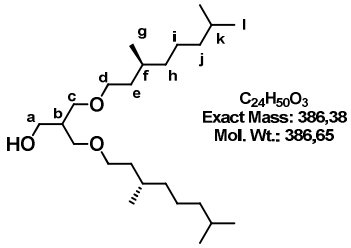
reaction mixture was stirred at room temperature under argon atmosphere overnight. The reaction mixture was washed with water, extracted with dichloromethane, and dried over $MgSO_4$. After evaporation of the solvent under reduced pressure, the residue was purified by column chromatography (silica gel, chloroform:hexane 2:8) affording **3b** as a yellow oil (2.73 g, 70%). ^{1}H NMR ($CDCl_3$, 300 MHz) δ 5.16 (2H, H_a, s); 3.95 (4H, H_b, s); 3.44 (4H, H_c, m); 1.69-1.46 (6H, H_{d+e}, br); 1.45-1.04 (14H, $H_{g+h+i+j}$, br); 0.88 (6H, H_f, d, J = 6.5 Hz); 0.86 (12H, H_k, d, J = 6.6 Hz); ^{13}C NMR ($CDCl_3$, 75 MHz) δ 143.6; 113.3; 71.7; 69.0; 39.4; 37.6; 36.9; 30.1; 28.1; 24.8; 22.8; 22.7; 19.8. FTIR (neat) 733, 849, 913, 1035, 1101, 1242, 1375, 1462, 1658, 1727, 2864, 2925, 2954 cm^{-1}.

3-(decyloxy)-2-((decyloxy)methyl)propan-1-ol (4a)



A solution of **3a** (10.39 g, 28.20 mmol) and borane-THF complex solution 1M (2.40 g, 27.92 mmol) in dry THF (28 mL) was stirred at 0ºC under argon atmosphere for three hours. Then, a solution of NaOH 3M (18 mL) was added portionwise and the reaction mixture was stirred for thirty minutes. Then, a solution of H_2O_2 (18 mL) was added and the reaction mixture was stirred at room temperature overnight. After evaporation of the solvent under reduced pressure the residue was washed with water, extracted with dichloromethane, and dried over $MgSO_4$. The solvent was removed under reduced pressure and the residue was purified by column chromatography (silica gel, chloroform:methanol 95:5) affording **4a** as a yellow oil (4.21 g, 95%). ^{1}H NMR ($CDCl_3$, 300 MHz) δ 3.76 (2H, H_b, d, J = 5.0 Hz); 3.52 (4H, H_d, m); 3.41 (4H, H_e, t, J = 6.5 Hz); 2.56 (1H, H_a, s); 2.10 (1H, H_c, m); 1.55 (4H, H_f, m); 1.26 (28H, $H_{g+h+i+j+k+l+m}$, m); 0.87 (6H, H_n, t, J = 6.5 Hz); ^{13}C NMR ($CDCl_3$, 75 MHz) δ 71.6; 71.0; 64.9; 41.3; 31.9; 29.6; 29.4; 29.3; 26.2; 22.7; 14.1. FTIR (neat) 722, 986, 1041, 1108, 1261, 1302, 1373, 1463, 1677, 2363, 2856, 2925, 3452 cm^{-1}.

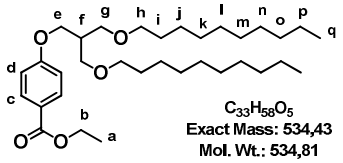
3-((S)-3,7-dimethyloctyloxy)-2-(((S)-3,7-dimethyloctyloxy)methyl)propan-1-ol (4b)



A solution of **3b** (2.07 g, 5.60 mmol) and borane-THF complex solution 1M (0.53 g, 6.16 mmol,) in dry THF (10 mL) was stirred at 0ºC under argon atmosphere for three hours. Then, a solution of NaOH 3M (4 mL) was added portionwise and the reaction mixture was stirred for thirty minutes. Then, a solution of H_2O_2 (4 mL) was added and the reaction mixture was stirred at room temperature overnight. After evaporation of the solvent under reduced pressure the residue was washed with water, extracted with dichloromethane, and dried over $MgSO_4$. The solvent was removed under reduced pressure and the residue was purified by column

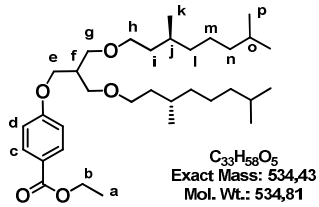
chromatography (silica gel, hexane) affording **4b** as a yellow oil (1.62 g, 75%). ^{1}H NMR ($CDCl_3$, 300 MHz) δ 3.76 (2H, H_a, d, J = 4.9 Hz); 3.52 (4H, H_c, m); 3.44 (4H, H_d, t, J = 6.6 Hz); 2.09 (1H, H_b, m); 1.67-1.45 (6H, H_{e+f}, br); 1.42-1.05 (14H, $H_{h+i+j+k}$, br); 0.87 (6H, H_g, d, J = 6.5 Hz); 0.86 (12H, H_l, d, J = 6.5 Hz); ^{13}C NMR ($CDCl_3$, 75 MHz) δ 71.3; 70.1; 65.1; 41,4; 39.4; 37.5; 36.8; 30.1; 28.1; 24.8; 22.8; 22.7; 19.8. FTIR (neat) 771, 833, 1041, 1106, 1221, 1373, 1463, 2866, 2924, 2953, 3438 cm^{-1}.

ethyl 4-(3-(decyloxy)-2-((decyloxy)methyl)propoxy)benzoate (5a)



Diisopropyl azodicarboxylate (DIAD) (1.26 g, 6.19 mmol) was added portionwise to a previously cooled solution (0 ºC) of **4a** (2 g, 5.16 mmol), 4-hydroxybenzoic acid (0.94 g, 5.67 mmol) and triphenilphosphine (1.62 g, 6.19 mmol) in dry THF (30 mL). The mixture was allowed to reach room temperature and stirred overnight. After evaporation of the solvent under reduced pressure, the triphenylphosphine oxide generated in the reaction was precipitated with a diethyl ether/hexane mixture (1:1) and the liquid residue was purified by column chromatography (silica gel, ethyl acetate:hexane 9:1) affording **5a** as a colourless oil (1.04 g, 40%). ^{1}H NMR ($CDCl_3$, 300 MHz) δ 7.97 (2H, H_c, d, J = 8.9 Hz); 6.92 (2H, H_d, d, J = 8.9 Hz); 4.34 (2H, H_b, q, J = 7.1 Hz); 4.09 (2H, H_e, d, J = 5.7 Hz); 3.53 (4H, H_g, d, J = 5.9 Hz); 3.40 (4H, H_h, t, J = 6.5 Hz); 2.37 (1H, H_f, m); 1.54 (4H, H_i, m); 1.37 (3H, H_a, t, J = 7.1 Hz); 1.21 (28H, $H_{j+k+l+m+n+o+p}$, m); 0.87 (6H, H_q, t, J = 6.5 Hz); ^{13}C NMR ($CDCl_3$, 75 MHz) δ 166.5; 163.1; 131.6; 123.0; 114.2; 71.5; 68.9; 66.6; 60.7; 40.2; 32.0; 29.7; 29.6; 29.5; 26.3; 22.8; 14.5; 14.2. FTIR (neat) 663, 698, 771, 1028, 1109, 1168, 1257, 1311, 1371, 1464, 1511, 1607, 1717, 2857, 2926 cm^{-1}.

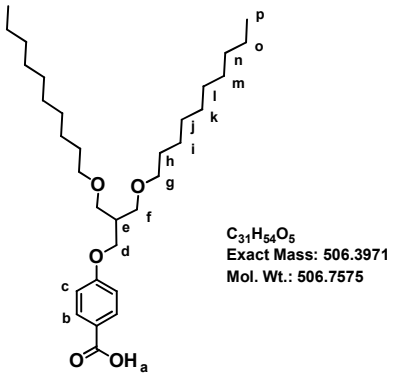
Ethyl 4-(3-((S)-3,7-dimethyloctyloxy)-2-(((S)-3,7-dimethyloctyloxy)methyl)propoxy)benzoate (5b)



Diisopropyl azodicarboxylate (DIAD) (1.26 g, 6.19 mmol) was added portionwise to a previously cooled solution (0 ºC) of **4b** (2 g, 5.16 mmol), 4-hydroxybenzoic acid (0.94 g, 5.67 mmol) and triphenilphosphine (1.62 g, 6.19 mmol) in dry THF (25 mL). The mixture was allowed to reach room temperature and stirred overnight. After evaporation of the solvent under reduced pressure, the triphenylphosphine oxide generated in the reaction was precipitated with a diethyl ether/hexane mixture (1:1) and the liquid residue was purified by column chromatography silica gel, ethyl acetate:hexane 98:2) affording **5b** as a colourless oil (0.89 g, 32%). ^{1}H NMR ($CDCl_3$, 300 MHz) δ 7.98 (2H, H_c, d, J = 9.0 Hz); 6.92 (2H, H_d, d, J = 9.0 Hz); 4.34 (2H, H_b, q, J = 7.1 Hz); 4.09 (2H, H_e, d, J = 5.7 Hz); 3.53 (4H, H_g, d, J = 6.0 Hz); 3.44 (4H, H_h, m); 2.36 (1H, H_f, m); 1.66-1.44 (6H, H_{i+j}, br); 1.37 (3H, H_a, t, J = 7.1 Hz); 1.41-1.03 (14H, $H_{l+m+n+o}$, br); 0.86 (18H,

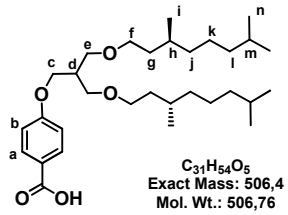
H_{k+p}, d, *J* = 6.7 Hz); ^{13}C NMR ($CDCl_3$, 75 MHz) δ 166.5; 163.0; 131.6; 122.9; 114.2; 69.8; 69.0; 66.6; 60.7; 40.2; 39.4; 37.5; 36.8; 30.1; 28.1; 24.8; 22.8; 22.7; 19.8; 14.5. FTIR (neat) 656, 695, 734, 770, 849, 1027, 1107, 1167, 1256, 1311, 1372, 1464, 1511, 1607, 1717, 2866, 2925 cm^{-1}.

4-(3-(decyloxy)-2-((decyloxy)methyl)propoxy)benzoic acid (6a)



Chlorhydric acid 35% (213 mL) and glacial acetic acid (85 mL) were added to a solution of **5a** (1.04 g, 1.91mmol) in dry toluene (10 mL). The reaction mixture was stirred overnight at 50ºC. The residue was washed with water, extracted with dichloromethane, and dried over $MgSO_4$. The solvent was removed under reduced pressure and the residue was purified by column chromatography (silica gel, chloroform) affording **6a** as a yellow oil (0.98 g, 95%). ^{1}H NMR ($CDCl_3$, 300 MHz) δ 12.25 (1H, H_a, s); 8.04 (2H, H_b, d, *J* = 8.9 Hz); 6.94 (2H, H_c, d, *J* = 8.9 Hz); 4.11 (2H, H_d, d, *J* = 5.7 Hz); 2.40 (1H, H_e, m); 3.55 (4H, H_f, d, *J* = 5.9 Hz); 3.42 (4H, H_g, t, *J* = 6.5 Hz); 1.55 (4H, H_h, m); 1.25 (28H, $H_{i+j+k+l+m+n+o}$, m); 0.87 (6H, H_p, t, *J* = 6.5 Hz). ^{13}C NMR ($CDCl_3$, 75 MHz) δ 171.7; 163.6; 132.3; 121.9; 114.3; 71.4; 68.7; 66.5; 40.1; 31.9; 29.7; 29.3; 29.5; 26.2; 22.7; 14.1. FTIR (neat) 644, 721, 774, 848, 1028, 1112, 1169, 1255, 1374, 1423, 1463, 1512, 1606, 1687, 2857, 2926 cm^{-1}.

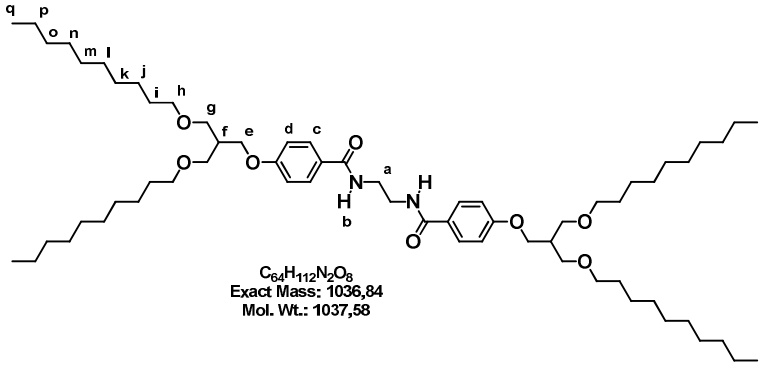
4-(3-((S)-3,7-dimethyloctyloxy)-2-(((S)-3,7-dimethyloctyloxy)methyl)propoxy)benzoic acid (6b)



Chlorhydric acid 35% (74 mL) and acetic acid glacial (185 mL) were added to a solution of **5b** (0.99 g, 1.85mmol) in dry toluene (5 mL). The reaction mixture was stirred overnight at 50ºC. The residue was washed with water, extracted with dichloromethane, and dried over $MgSO_4$. The solvent was removed under reduced pressure and the residue was purified by column chromatography (silica gel, hexane:ethyl acetate 9:1) affording **6b** as a yellow oil (0.48 g, 51%). ^{1}H NMR ($CDCl_3$, 300 MHz) δ 8.05 (2H, H_a, d, *J* = 8.9 Hz); 6.96 (2H, H_b, d, *J* = 8.9 Hz); 4.12 (2H, H_c, d, *J* = 5.3 Hz); 3.55 (4H, H_e, d, *J* = 5.9 Hz); 3.46 (4H, H_f, m); 2.40 (1H, H_d, m); 1.67-1.44 (6H, H_{g+h}, br); 1.43-1.03 (14H, $H_{j+k+l+m}$, br); 0.86 (18H, H_{i+n}, d, *J* = 6.6 Hz); ^{13}C NMR ($CDCl_3$, 75 MHz) δ 172.0; 163.8; 132.4; 121.7; 114.4; 69.9; 68.9; 66.7; 40.2; 39.4; 37.5; 36.8; 30.1; 28.1; 24.8;

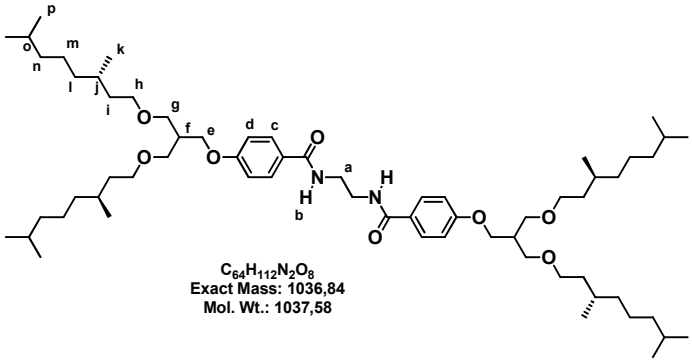
22.8; 22.7; 19.8. FTIR (neat) 647, 698, 734, 775, 847, 911, 1026, 1109, 1168, 1255, 1289, 1375, 1422, 1464, 1513, 1578, 1606, 1686, 2867, 2925, 2954 cm^{-1}.

Bis(4-(3-(decyloxi)-2-((decyloxi)metyl)propoxi)-N-ethylenbenzamide) (1a)



N,N-dimethylformamide (DMF) (7,93 µL) and a solution of oxalyl chloride (0,16 g, 1,26 mmol) in dry toluene (4 mL) were added to a solution of **6a** (0,45 g, 0,84 mmol) in dry toluene (3 mL) under argon atmosphere. The reaction mixture was stirred at 50ºC for three hours. The solvent an the excess of oxalyl chloride were removed under reduced pressure and the residue was dissolved in dry dichlorometane (2mL), added under argon atmosphere to a solution of ethane-1,2-diamine (0.53 g, 3.34 mmol) and triethylamine (117 µL) in dry dichlorometane (2 mL) and stirred overnight at 50ºC. After evaporation of the solvent under reduced pressure the residue was purified by precipitation in ethanol affording **1a** as a white solid (0.70 g, 82%). ^{1}H NMR ($CDCl_3$, 300 MHz) δ 7.76 (4H, H_c, d, J = 8.9 Hz); 7.04 (2H, H_b , s); 6.94 (4H, H_d, d, J = 8.9 Hz); 4.10 (4H, H_e, d, J = 5.7 Hz); 3.69 (4H, H_a, br); 3.53 (8H, H_g, d, J = 5.9 Hz); 3.41 (8H, H_h, t, J = 6.5 Hz); 2.36 (2H, H_f, m); 1.55 (8H, H_i , m); 1.25 (56H, $H_{j+k+l+m+n+o+p}$, m); 0.87 (12H, H_q, t, J = 6.5 Hz); ^{13}C NMR ($CDCl_3$, 75 MHz) δ 168.3; 162.0; 128.8; 126.1; 114.4; 71.4; 68.8; 66.6; 40.1; 31.9; 29.7; 29.6; 29.3; 26.2; 22.7; 14.1. FTIR (neat) 757, 802, 845, 885, 1024, 1110, 1180, 1256, 1336, 1372, 1465, 1505, 1538, 1574, 1630, 2855, 2923, 3331 cm^{-1}. HRMS: calcd. for $C_{64}H_{112}N_2O_8$ [M+1] 1037.84168; found, 1037.84915.

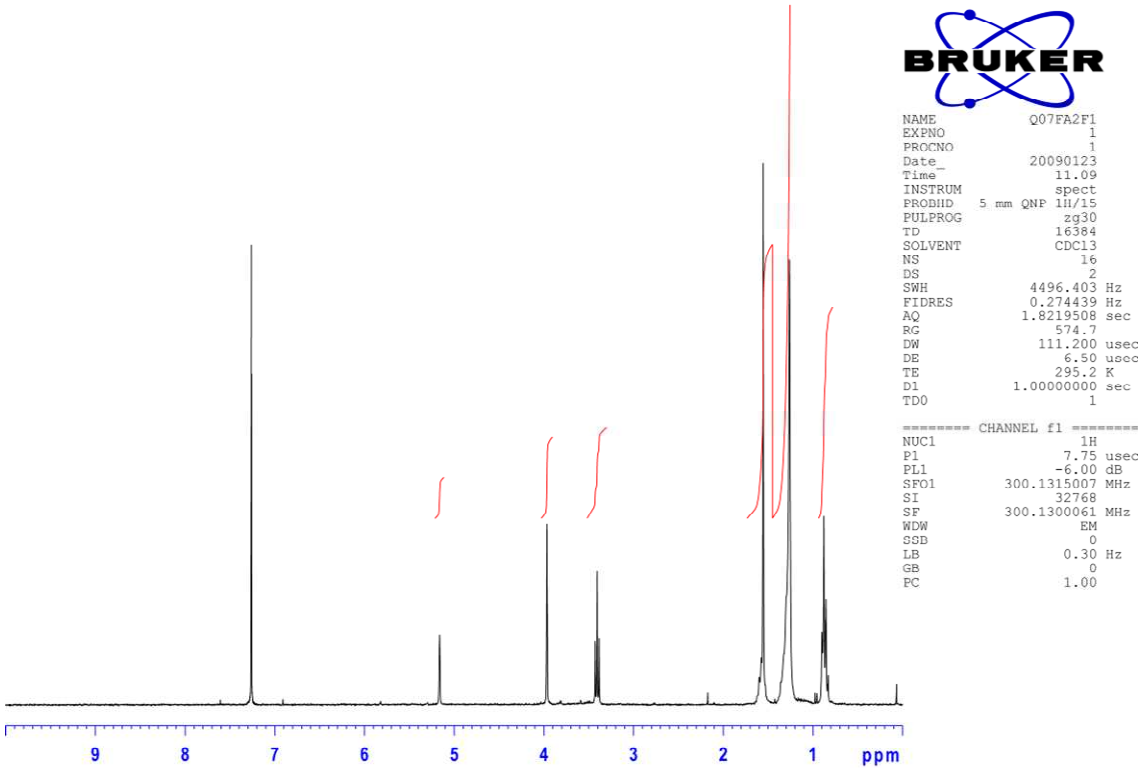
Bis (4-(3-((S)-3,7-dimethyloctyloxy)-2-(((*S*)-3,7-dimethyloctyloxy)methyl)propoxy)-N-ethylenbenzamide) (1b)



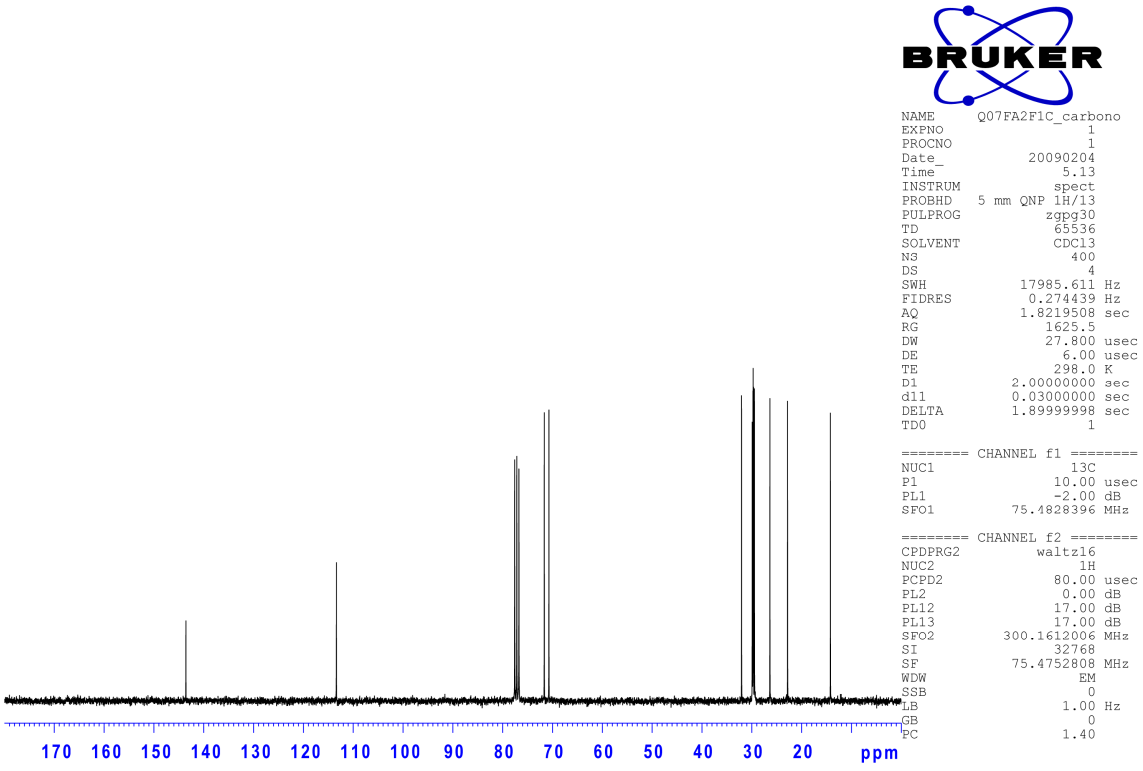
N,N-dimethylformamide (DMF) (3,33 µL) and a solution of oxalyl chloride (0,07 g, 0,56 mmol) in dry toluene (1 mL) were added to a solution of **6b** (0,19 g, 0,37 mmol) in dry toluene (2 mL) under argon atmosphere. The reaction mixture was stirred at 50ºC for three hours. The solvent an the excess of oxalyl chloride were removed under reduced pressure and the residue was

dissolved in dry dichlorometane (1 mL), added under argon atmosphere to a solution of ethane-1,2-diamine (0.02 g, 0.15 mmol) and triethylamine (0.05 mL) in dry dichlorometane (2 mL) and stirred overnight at 50ºC. After evaporation of the solvent under reduced pressure the residue was purified by column chromatography (silica gel, hexane:ethyl acetate 7:3) affording **1b** as a white solid (0.11g, 71%). ^{1}H NMR ($CDCl_3$, 300 MHz) δ 7.78 (4H, H_c, d, *J* = 8.8 Hz); 7.18 (2H, H_b, s); 6.94 (4H, H_d, d, *J* = 8.8 Hz); 4.07 (4H, H_e, d, *J* = 5.8 Hz); 3.68 (4H, H_a, s); 3.54 (8H, H_g, d, *J* = 6.0 Hz); 3.45 (8H, H_h, t, *J* = 6.0 Hz); 2.37 (2H, H_f, m); 1.66-1.44 (12H, H_{i+j}, br); 1.42-1.03 (28H, $H_{l+m+n+o}$, br); 0.86 (36H, H_{k+p}, d, J = 6.6 Hz); ^{13}C NMR ($CDCl_3$, 75 MHz) δ 168.5; 162.0; 129.0; 126.2; 114.4; 69.8; 69.0; 66.6; 41.1; 40.2; 39.4; 37.5; 36.8; 30.1; 28.1; 24.8; 22.8; 22.7; 19.8. FTIR (neat) 656, 766, 845, 1030, 1111, 1180, 1252, 1300, 1373, 1464, 1503, 1545, 1610, 1637, 2865, 2925, 2953, 3331 cm^{-1}. HRMS: calcd. for $C_{64}H_{112}N_2O_8$ [M+1] 1037.84168; found, 1037.84915.

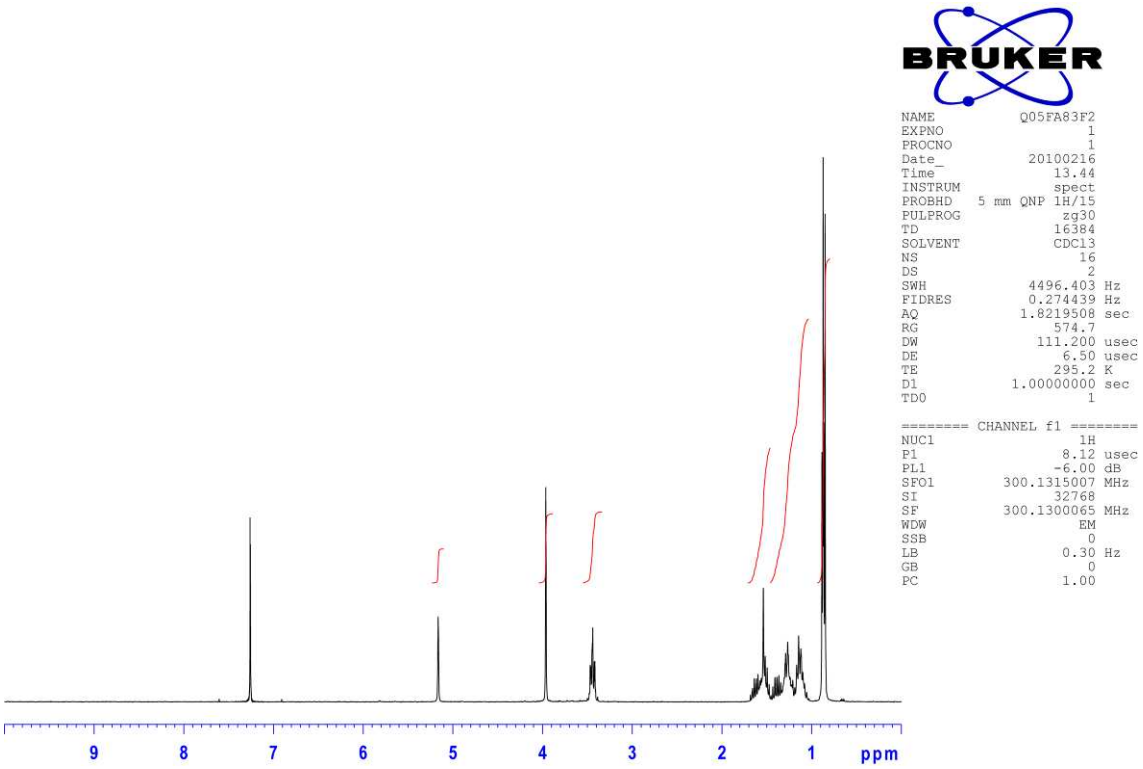
4. Collection of spectra



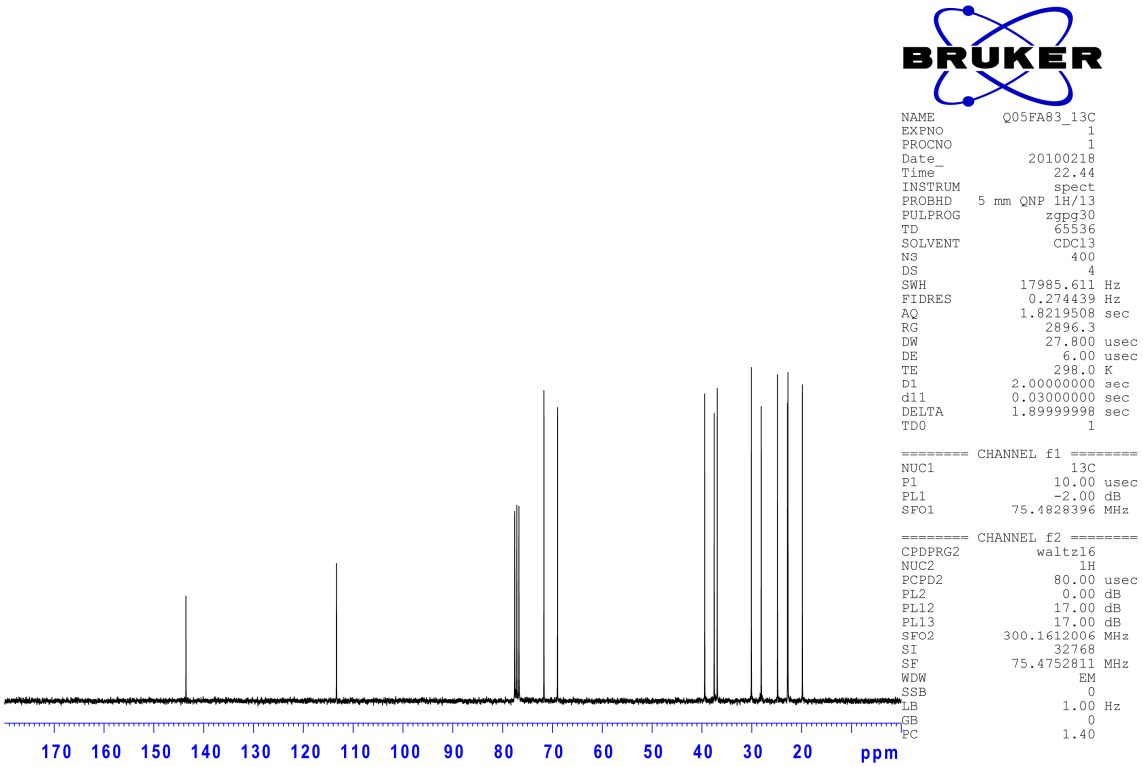
^{1}H NMR ($CDCl_3$, 75 MHz, 298 K) of compound **3a.**



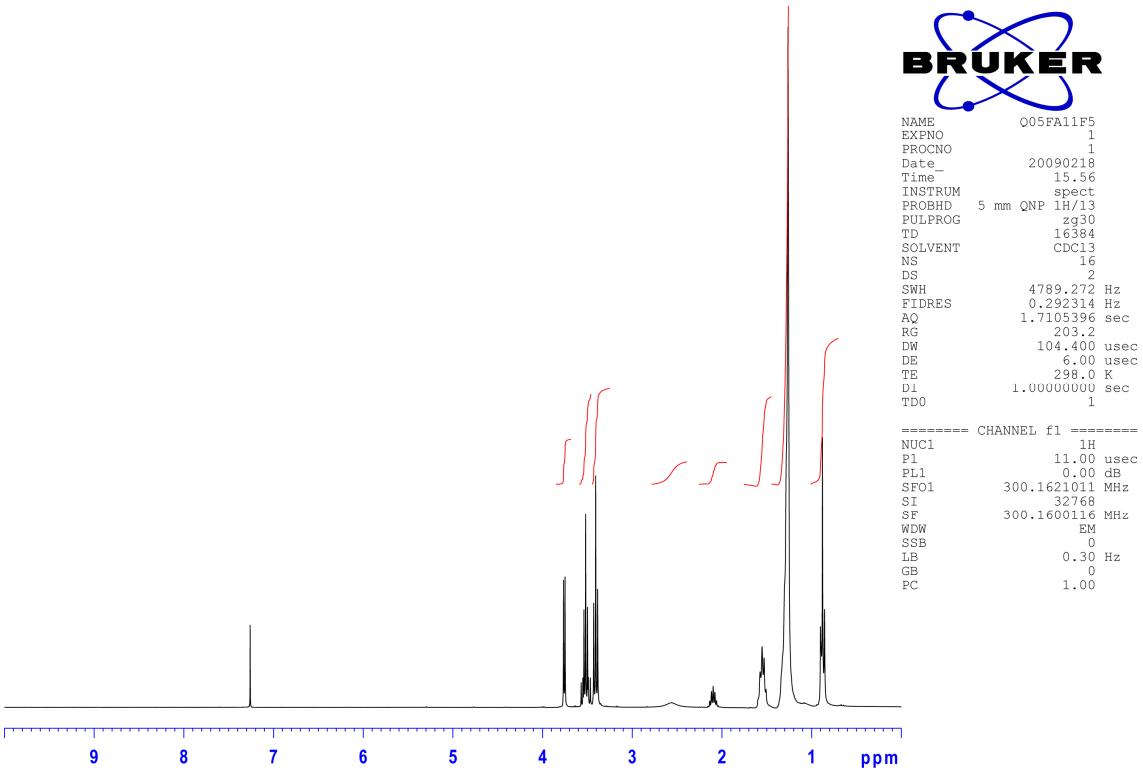
^{13}C NMR ($CDCl_3$, 75 MHz, 298 K) of compound **3a.**



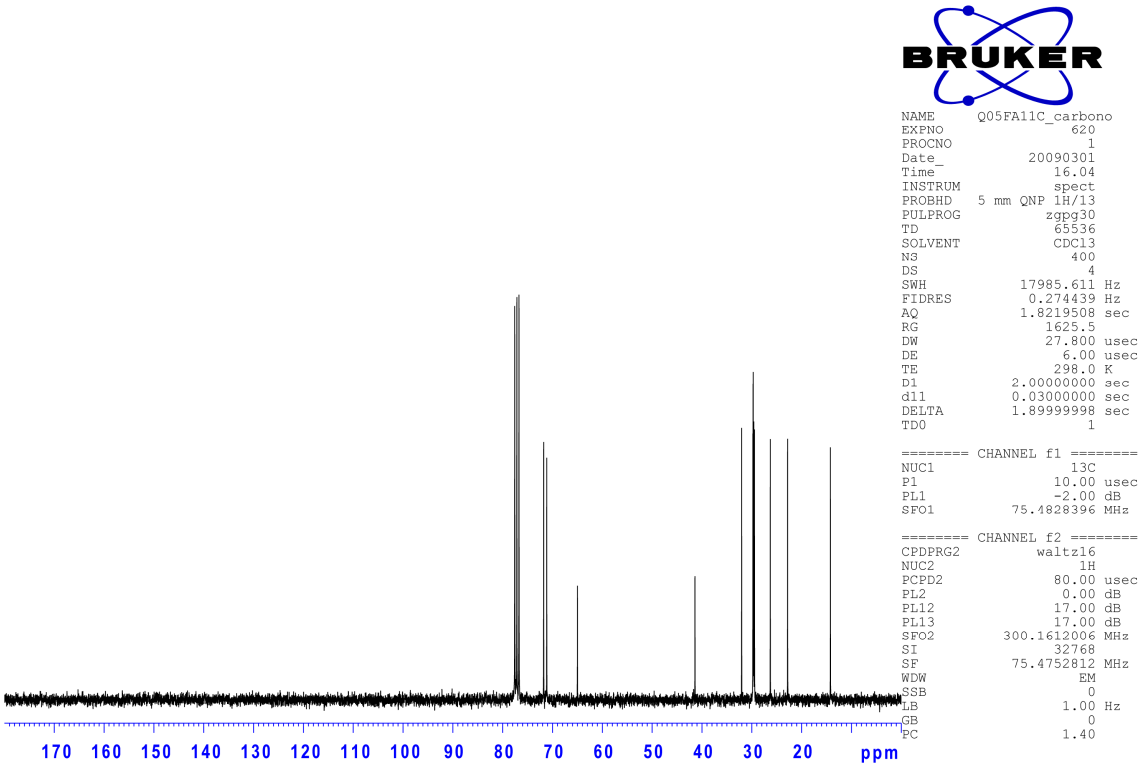
^{1}H NMR ($CDCl_3$, 75 MHz, 298 K) of compound **3b.**



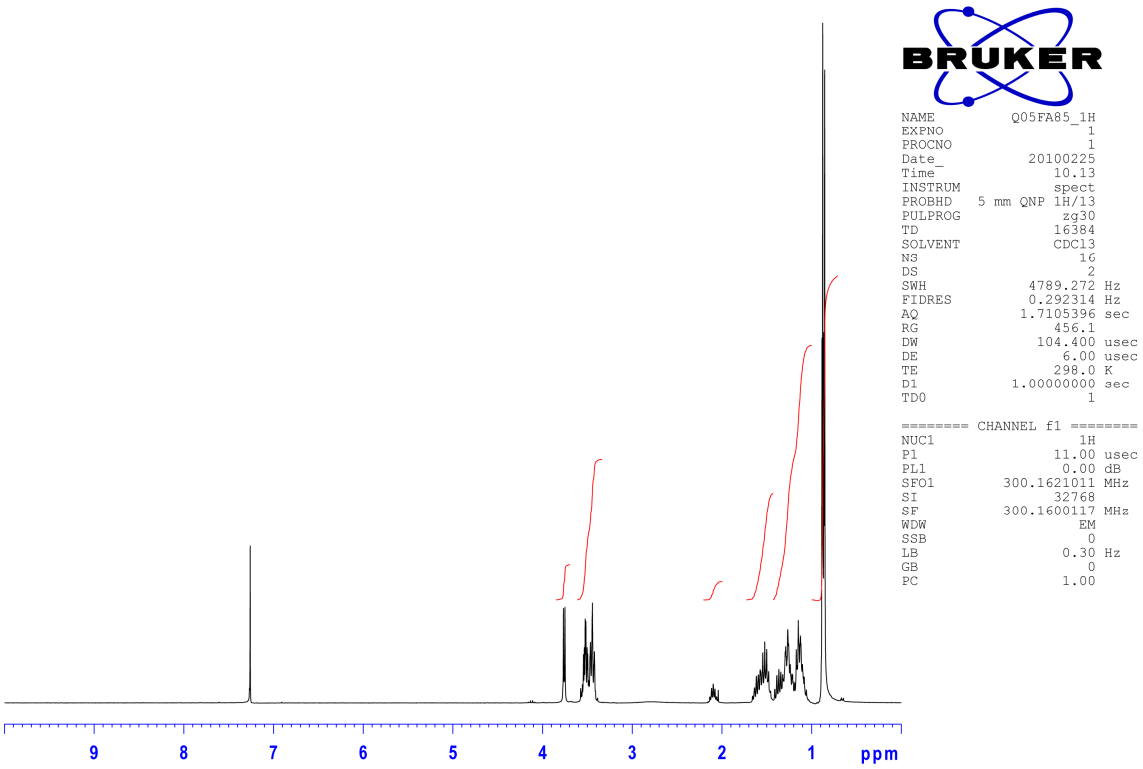
^{13}C NMR ($CDCl_3$, 75 MHz, 298 K) of compound **3b.**



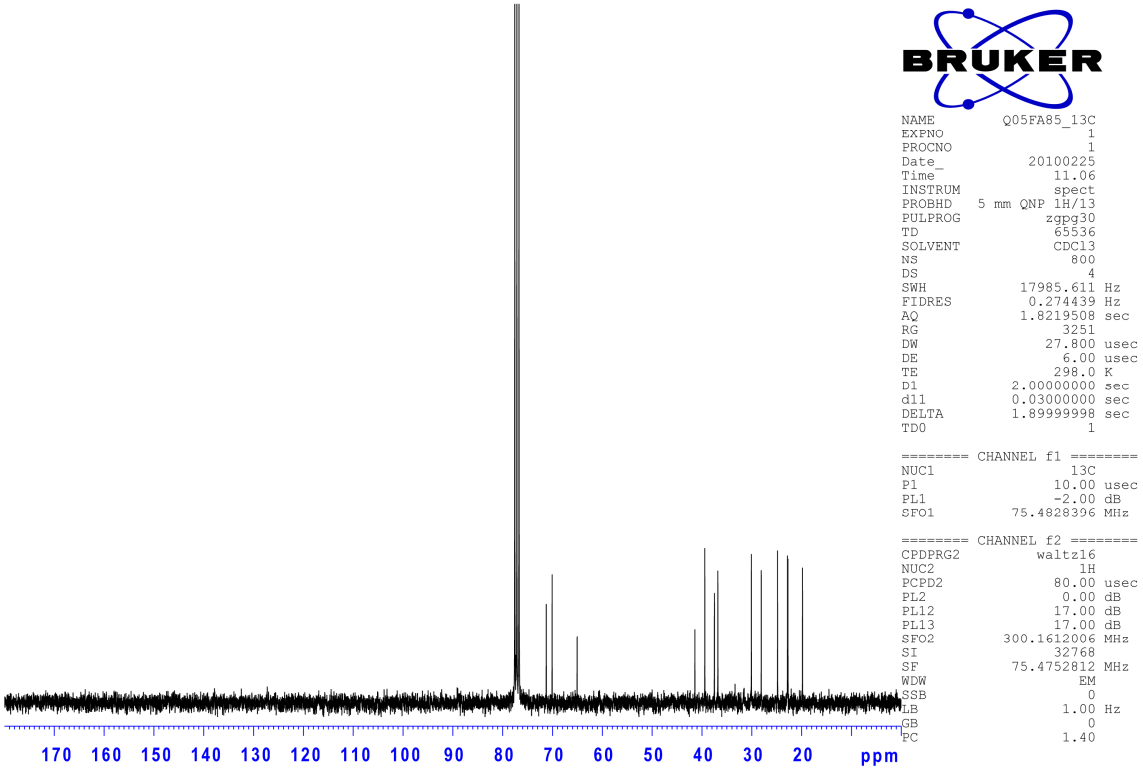
^{1}H NMR ($CDCl_3$, 75 MHz, 298 K) of compound **4a.**



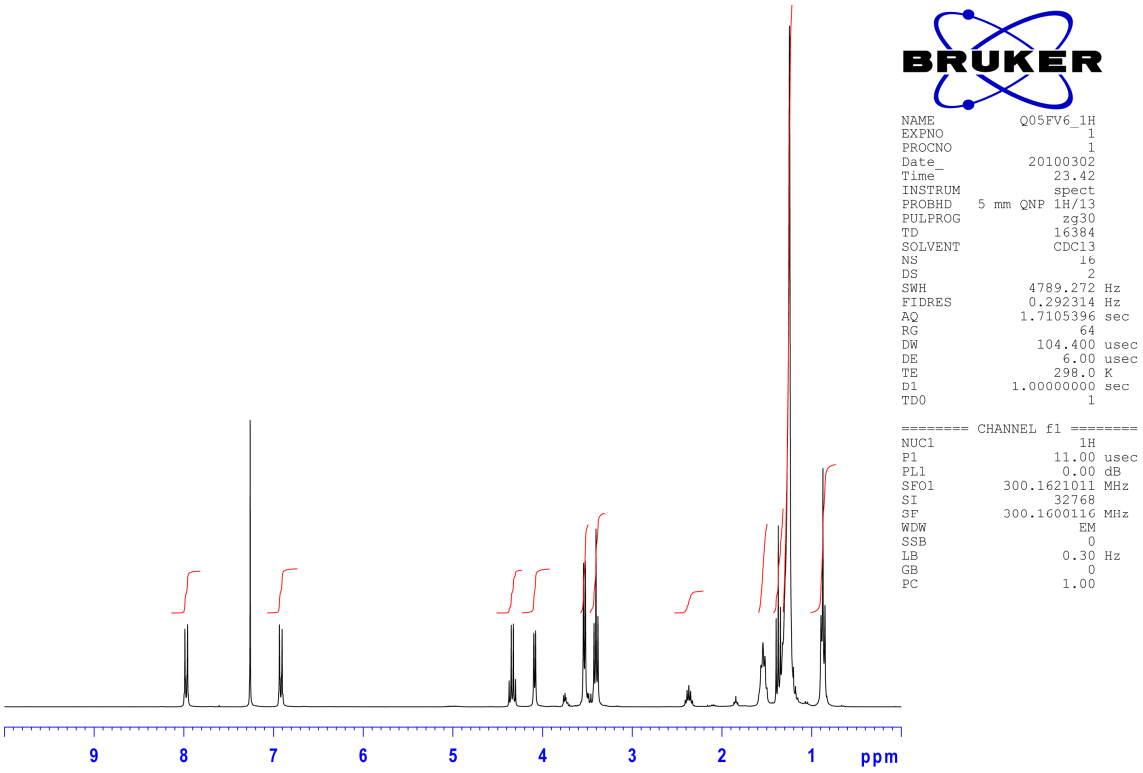
^{13}C NMR ($CDCl_3$, 75 MHz, 298 K) of compound **4a.**



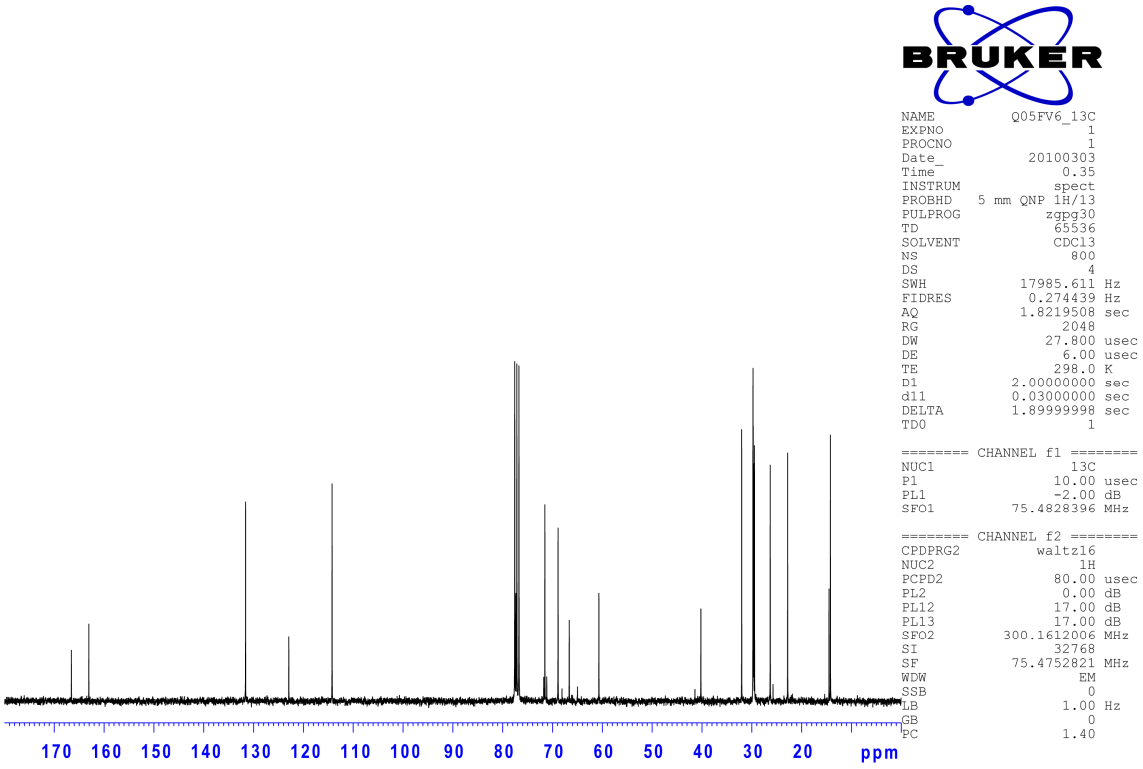
^{1}H NMR ($CDCl_3$, 75 MHz, 298 K) of compound **4b.**



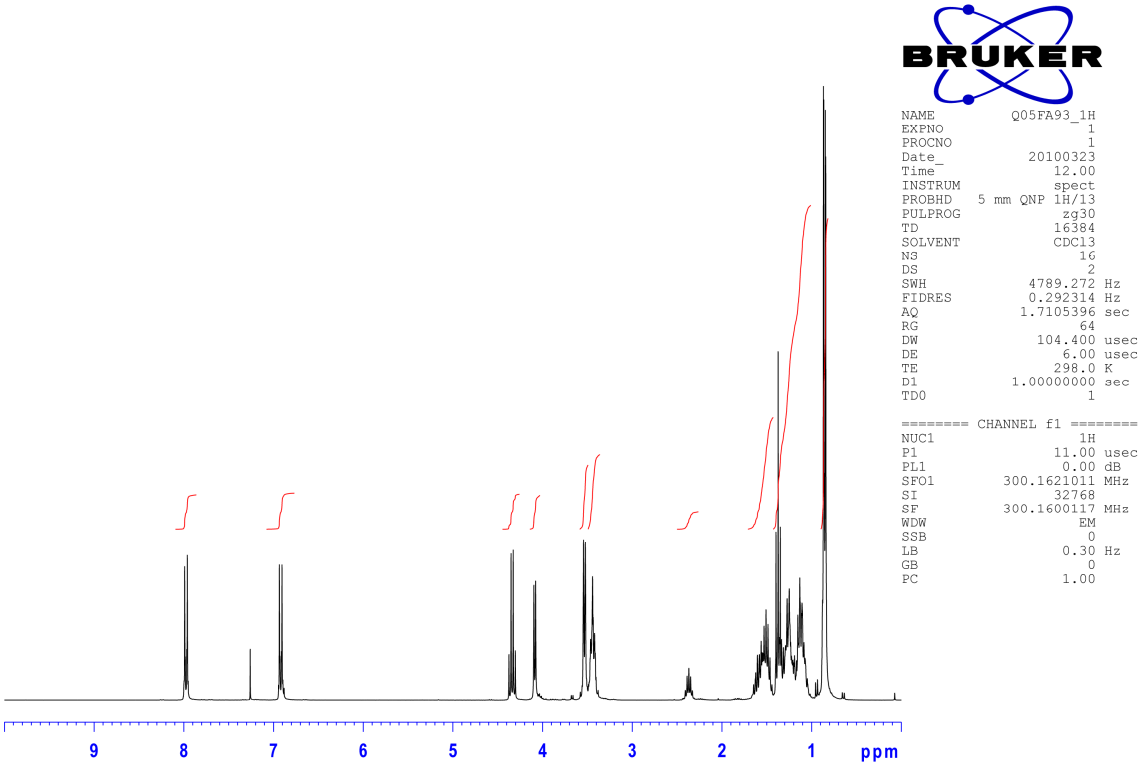
^{13}C NMR ($CDCl_3$, 75 MHz, 298 K) of compound **4b.**



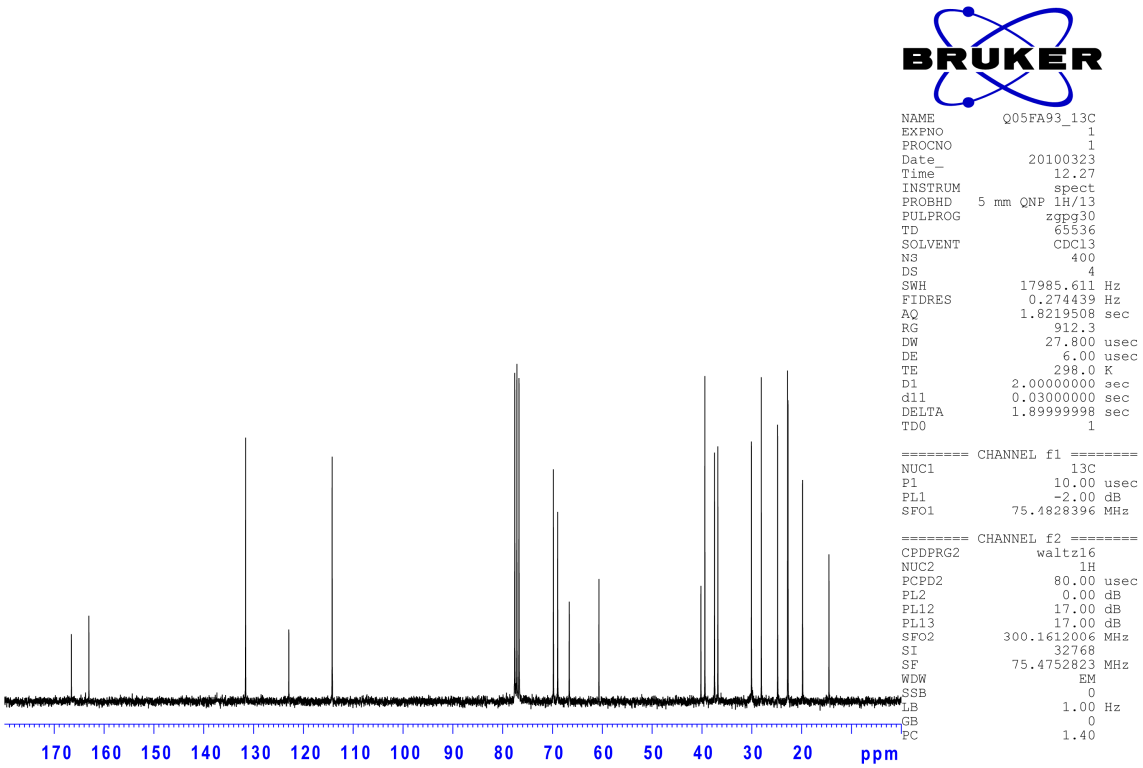
^{1}H NMR ($CDCl_3$, 75 MHz, 298 K) of compound **5a.**



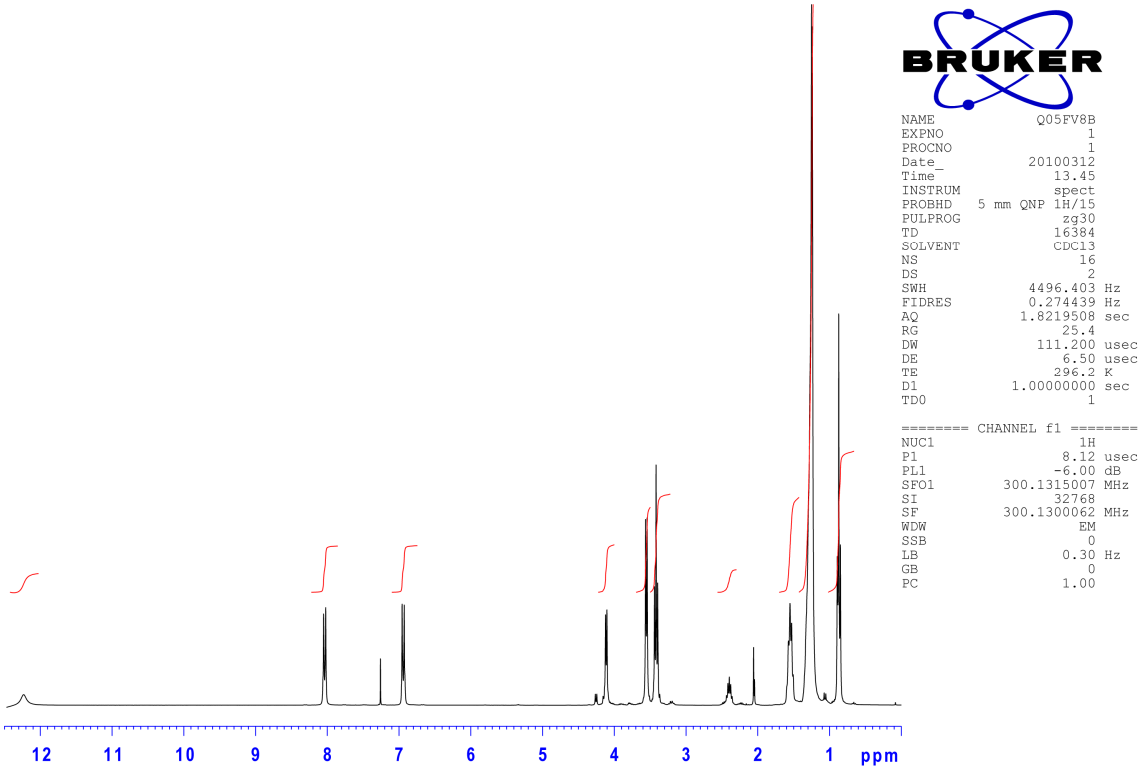
^{13}C NMR ($CDCl_3$, 75 MHz, 298 K) of compound **5a.**



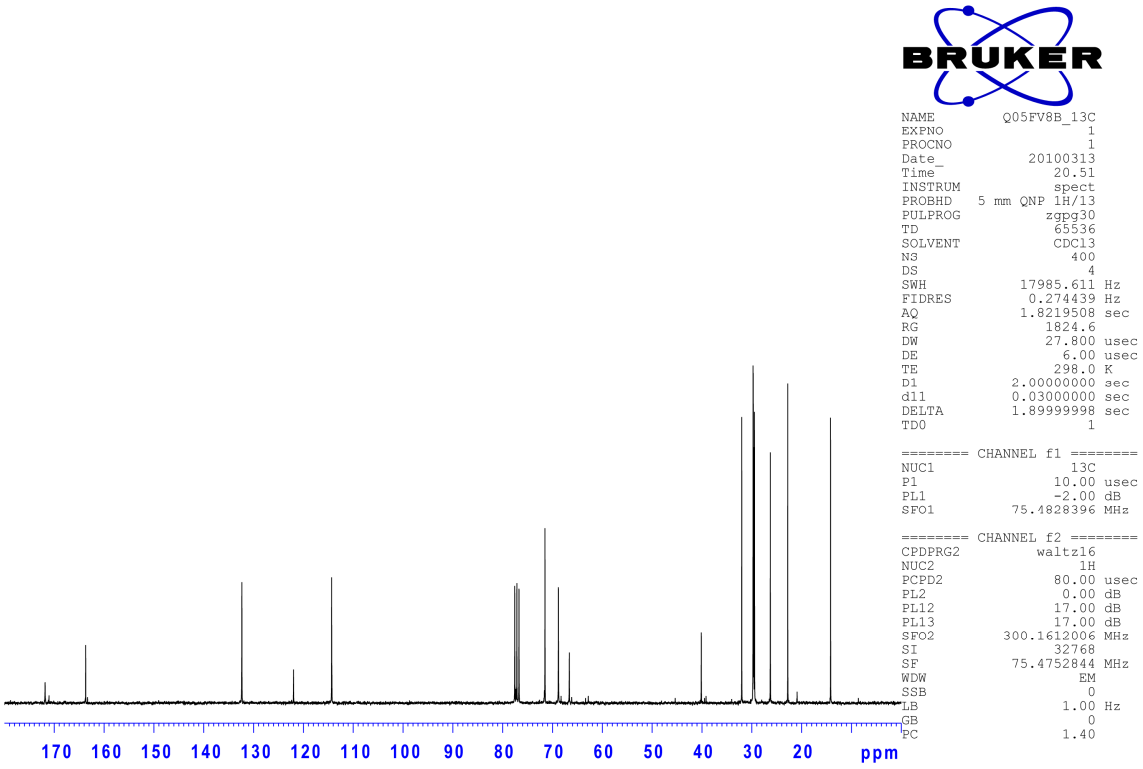
^{1}H NMR ($CDCl_3$, 75 MHz, 298 K) of compound **5b.**



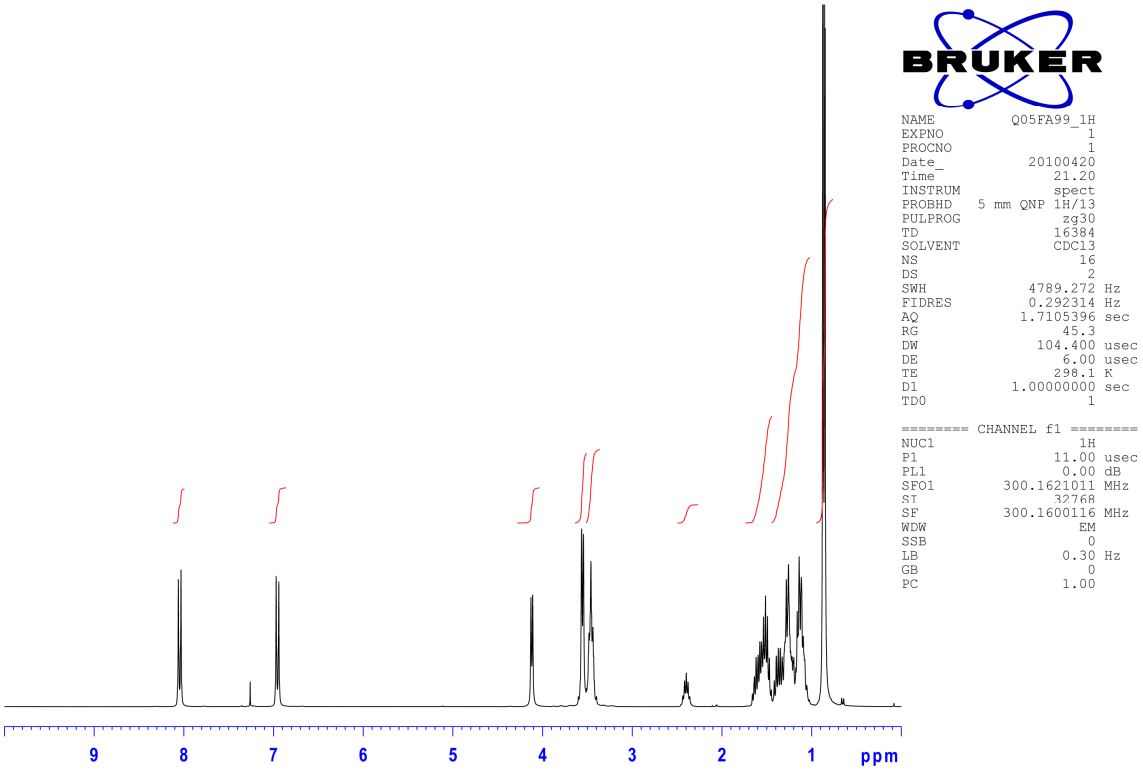
^{13}C NMR ($CDCl_3$, 75 MHz, 298 K) of compound **5b.**



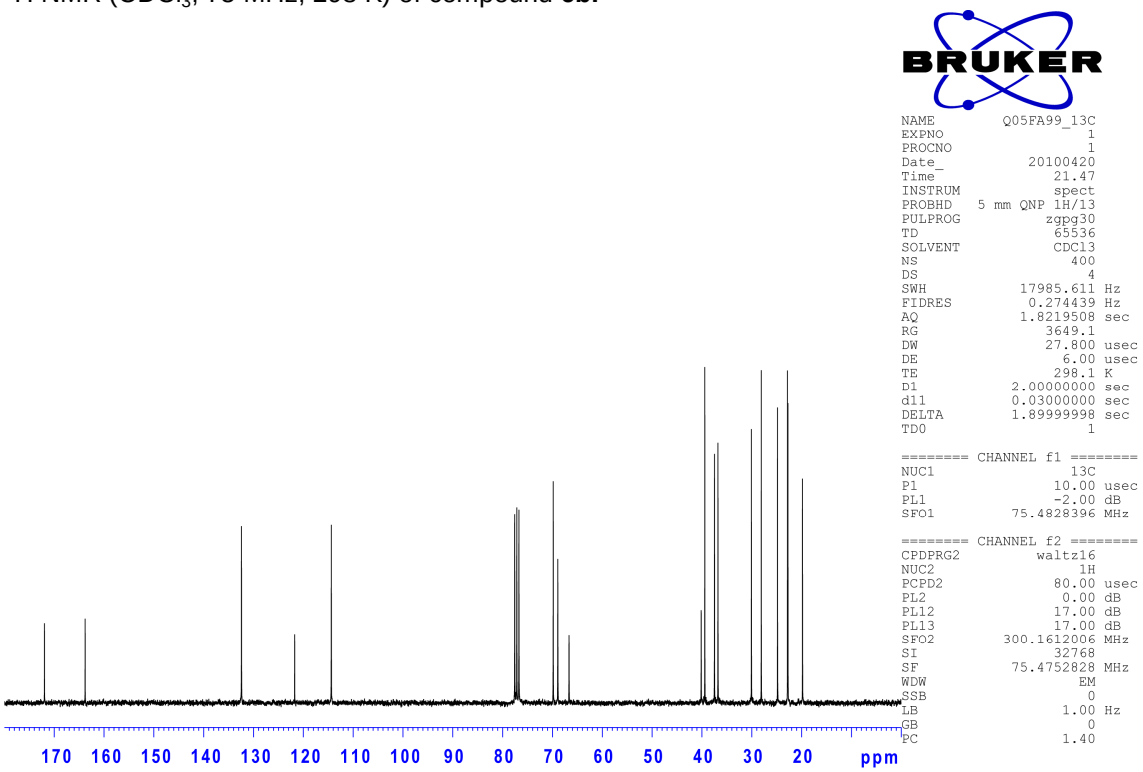
^{1}H NMR ($CDCl_3$, 75 MHz, 298 K) of compound **6a.**



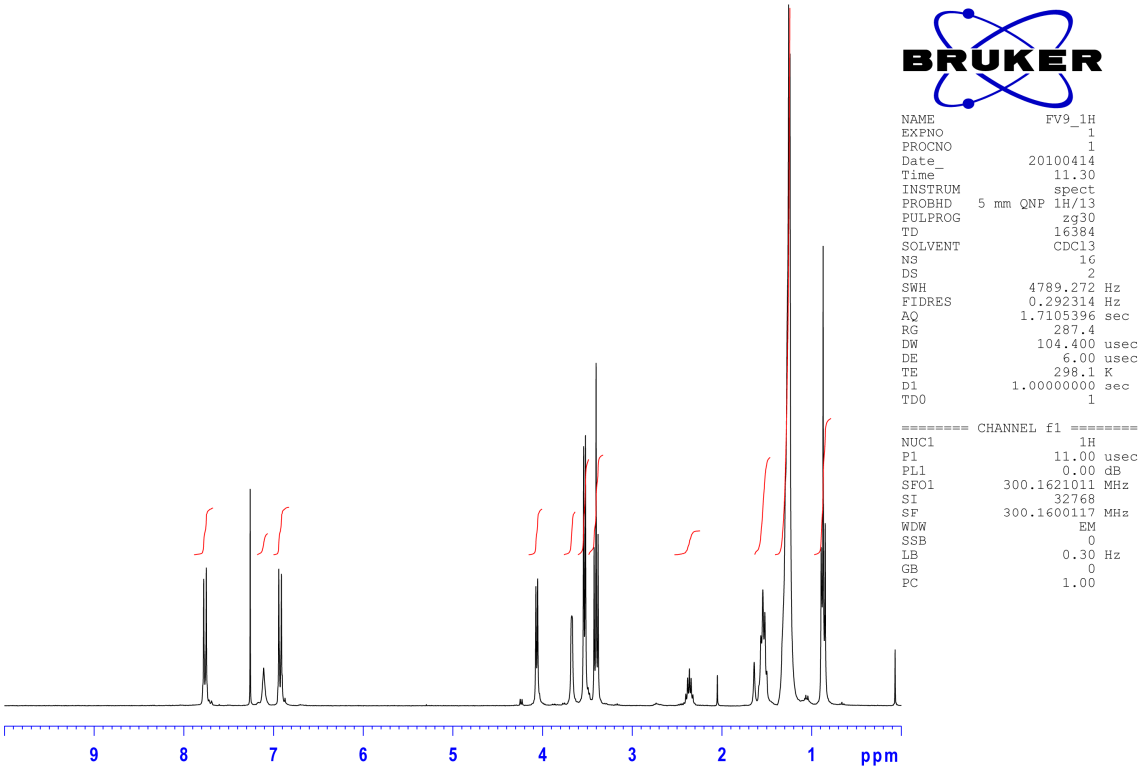
^{13}C NMR ($CDCl_3$, 75 MHz, 298 K) of compound **6a.**



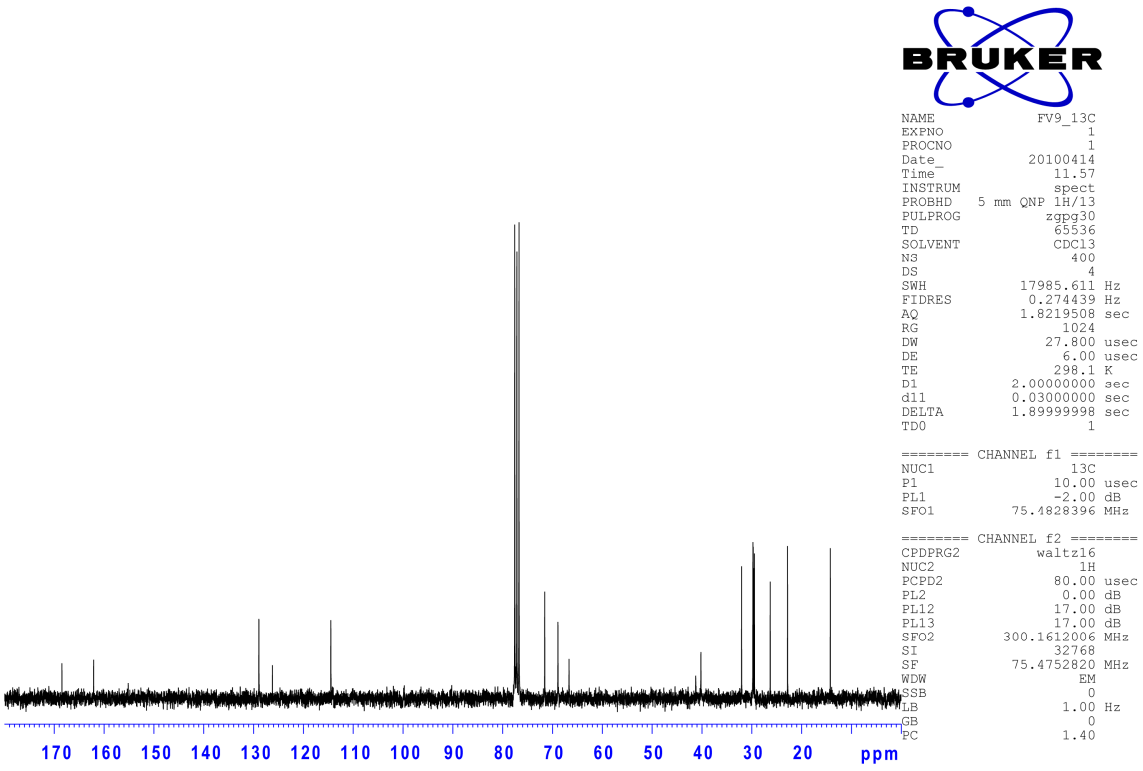
^{1}H NMR ($CDCl_3$, 75 MHz, 298 K) of compound **6b.**



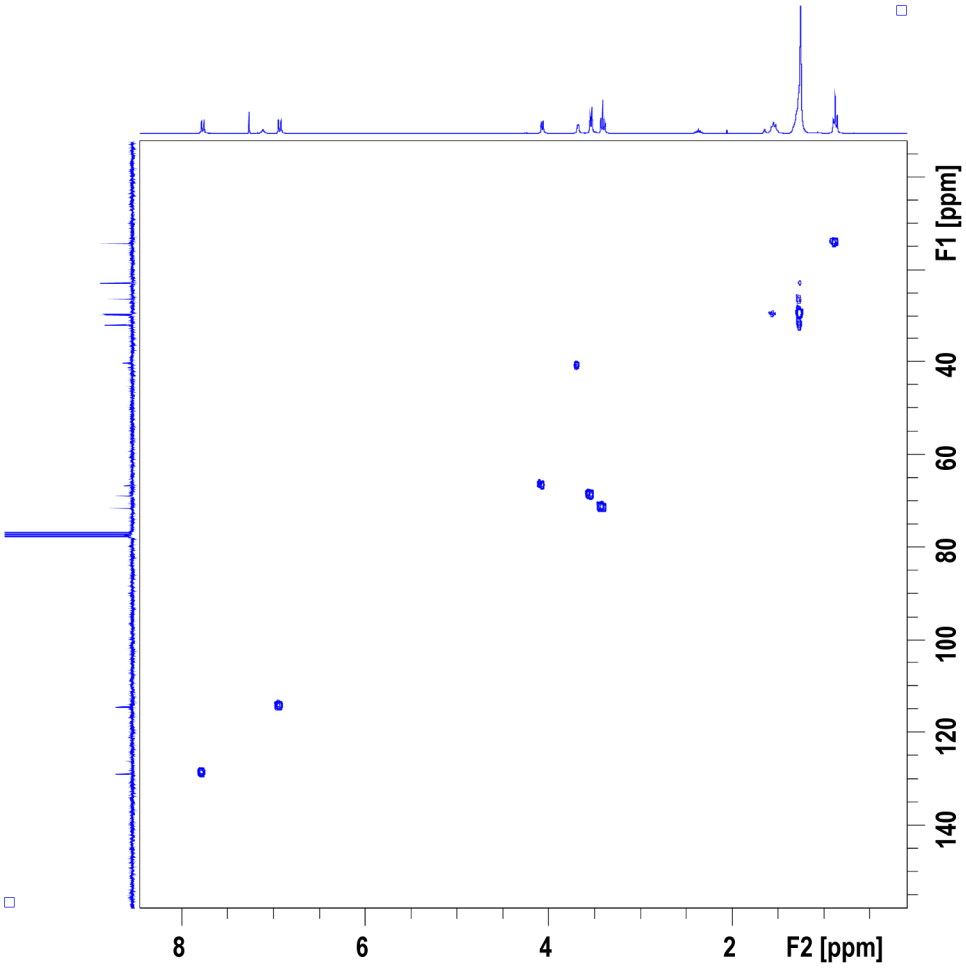
^{13}C NMR ($CDCl_3$, 75 MHz, 298 K) of compound **6b.**



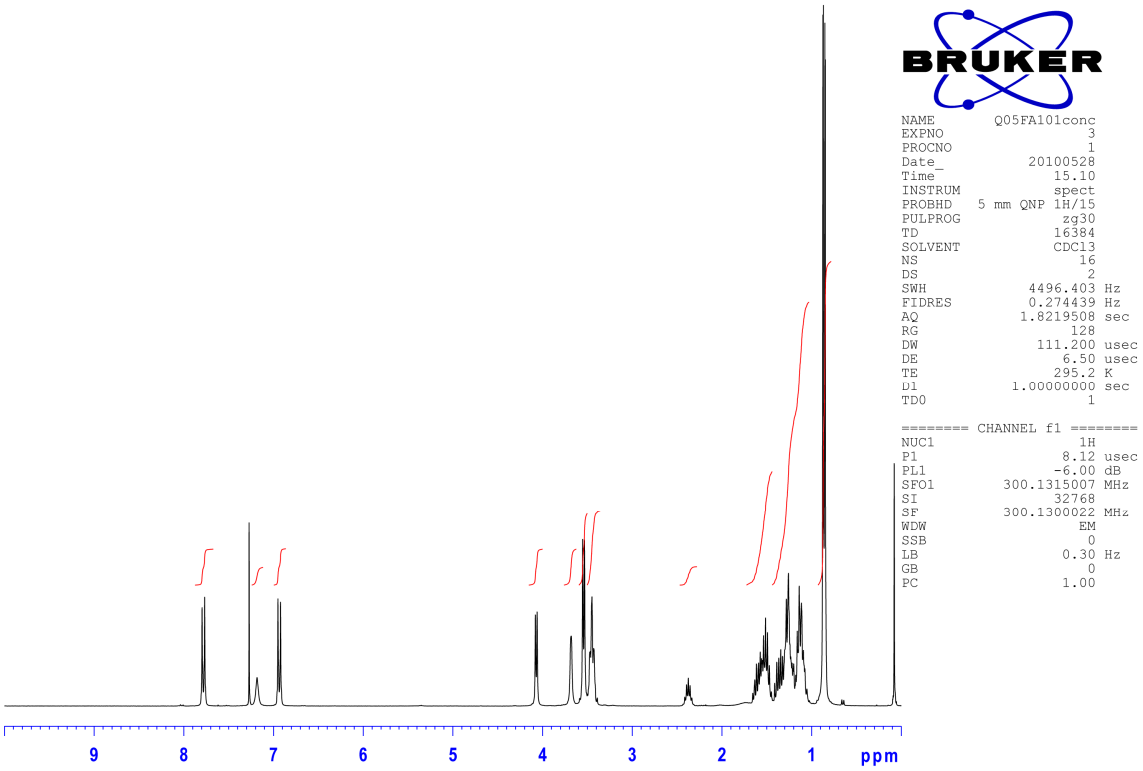
^{1}H NMR ($CDCl_3$, 75 MHz, 298 K) of compound **1a.**



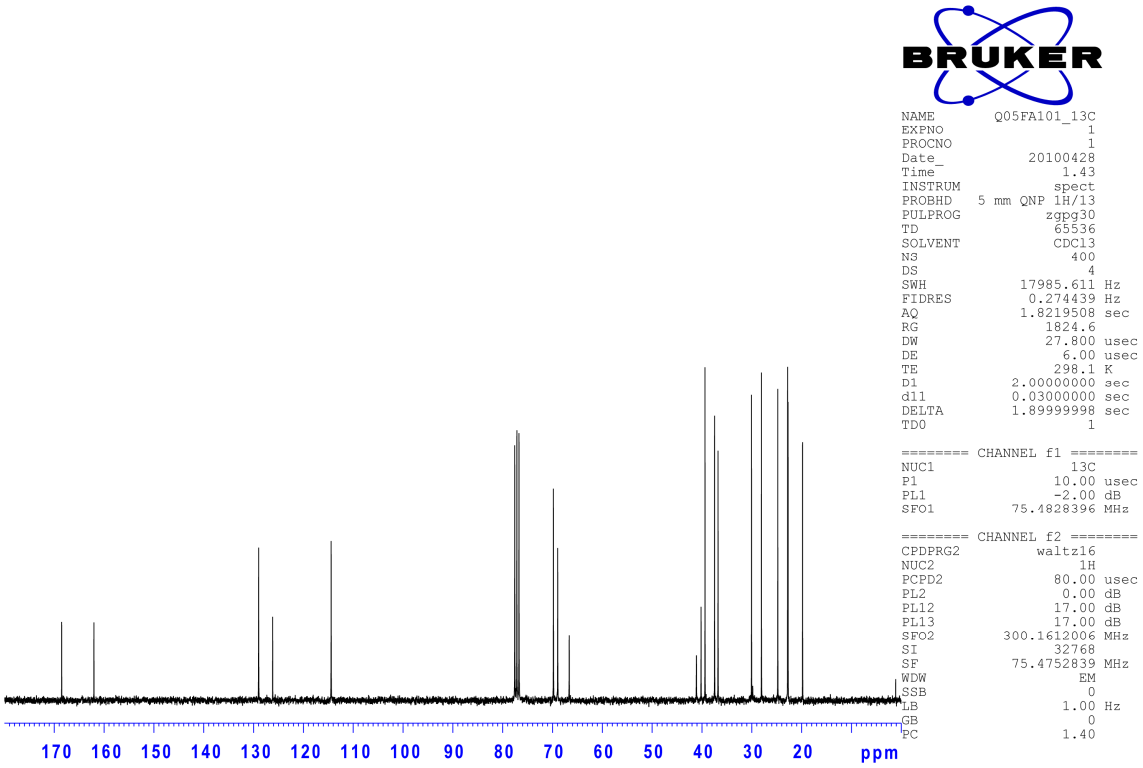
^{13}C NMR ($CDCl_3$, 75 MHz, 298 K) of compound **1a.**



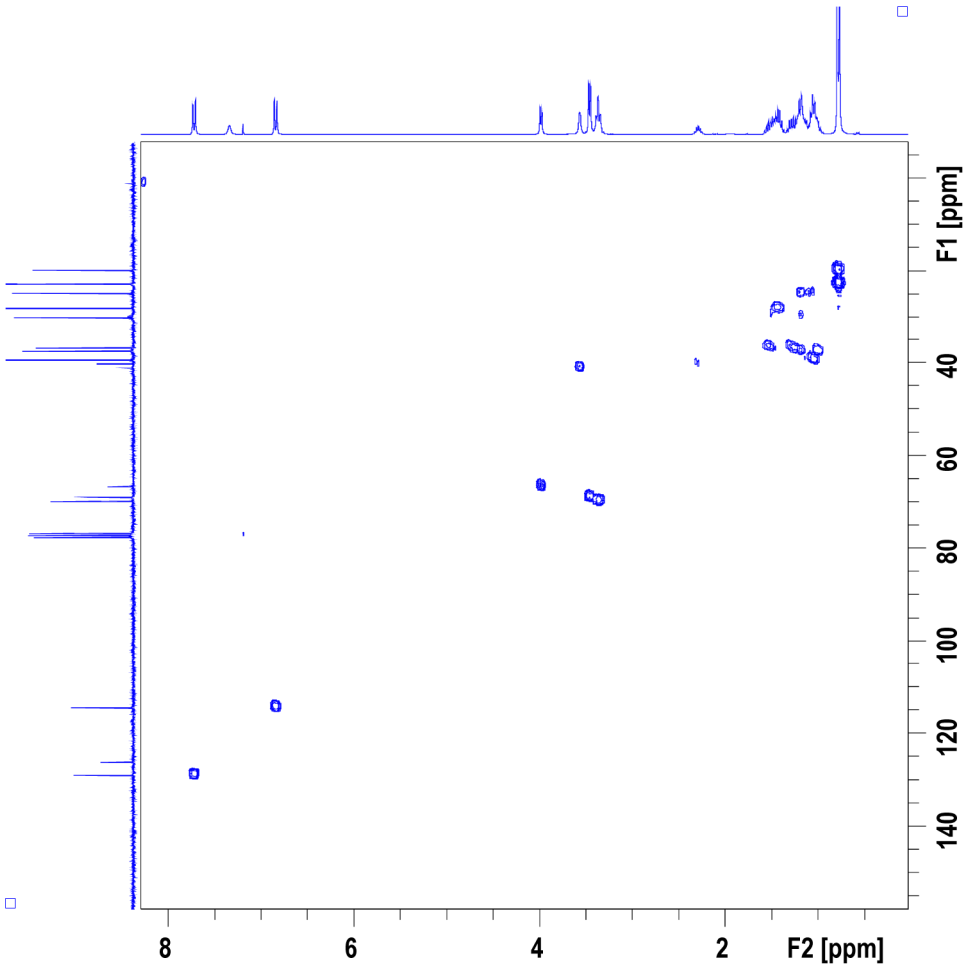
^{1}H, ^{13}C-HMQC spectrum ($CDCl_3$, 298 K) of compound **1a.**



^{1}H NMR ($CDCl_3$, 75 MHz, 298 K) of compound **1b.**



^{13}C NMR ($CDCl_3$, 75 MHz, 298 K) of compound **1b.**



^{1}H, ^{13}C-HMQC spectrum ($CDCl_3$, 298 K) of compound **1b.**