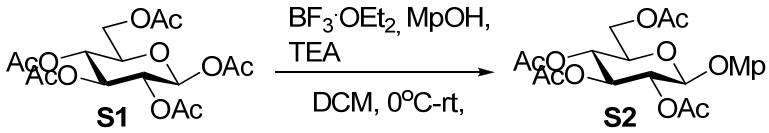
Supporting Information

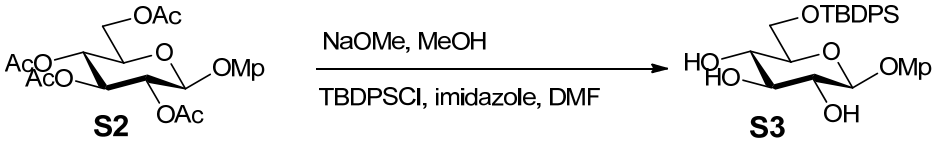
General procedures. Commercial reagents were used without further purification unless specialized. Solvents were dried and redistilled prior to use in the usual way. Thin layer chromatography (TLC) was performed on precoated plates of Silica Gel HF254 (0.2mm, Yantai, China). Flash column chromatography was performed on Silica Gel H (10–40μ, Yantai, China). Optical rotations were determined with a Perkin–Elmer Model 241 MC polarimeter. ^{1}H and ^{13}C NMR spectra were recorded on a Bruker AM 400 spectrometer with Me_4Si as the internal standard. Chemical shifts were recorded in δ values and J values were given in Hz. Mass spectra were obtained on a HP5989A or a VG Quatro mass spectrometer.

***p*-Methoxyphenyl 2,3,4,6-tetra-*O*-acetyl-β-D-glucopyranoside (S2)**[1]



To a solution of *p*-methoxyphenol (16.0 g, 128.9 mmol), *per*-*O*-acetyl-D-glucose **S1** (35. 0 g, 89.7 mmol) and triethylamine (6.5 mL, 46.6 mmol) in CH_2Cl_2 (250 mL) at 0 ^{o}C was added $BF_3{\cdot}Et_2O$ (28 mL, 221.9 mmol) over a period of 30 min under N_2. The reaction mixture was warmed to rt and stirred for 10 h. The mixture was washed with water, aq. $NaHCO_3$ and brine subsequently. The organic layer was dried and concentrated to give a pale yellow residue. The residue was subjected to chromatography on silica gel (petroleum ether/ethyl acetate, 6:1-3:1) to afford glucoside **S2** (39.9g, 98%) as a colorless crystal: δ_H (400 MHz, $CDCl_3$) 6.95 (d, J = 9.0 Hz, 2H), 6.82 (d, J = 9.0 Hz, 2H), 5.32 – 5.20 (m, 2H), 5.16 (t, J = 9.3 Hz, 1H), 4.96 (d, J = 7.4 Hz, 1H), 4.29 (dd, J = 12.3, 5.2 Hz, 1H), 4.17 (dd, J = 12.2, 2.1 Hz, 1H), 3.83–3.79 (m, 1H), 3.77 (s, 3H), 2.08 (s, 3H), 2.08 (s, 3H), 2.04 (s, 3H), 2.03 (s, 3H).

***p*-Methoxyphenyl 6-*O*-*tert*-butyldiphenylsiyl-β-D-glucopyranoside (S3)**[2]

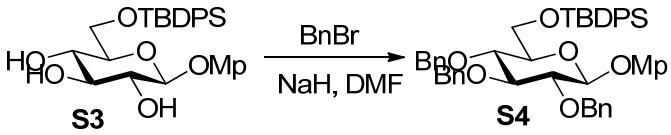


To a solution of tetraacetate **S2** (30.84 g, 67.87 mmol) in MeOH (500 mL) was added a catalytic amount of MeONa. The mixture was stirred at rt for 1 h. Amberlite IR-120 resin (H form) was added to neutralize the solution. Filtration and evaporation of the filtrate gave tetraol (19.41 g) as a white powder.

To a solution of the crude tetraol (6.29 g, 21.98 mmol) in dry DMF (110 mL) were added imidazole (4.50 g, 66.16 mmol) and TBPSCl (8.6 mL, 33.08 mmol) at rt. The mixture was stirred for 2 h. The mixture was quenched with aq. $NaHCO_3$ and extracted with CH_2Cl_2. The organic layer was washed with brine, dried over Na_2SO_4. Filtered and concentrated gave a residue, which was purified by flash column chromatography (CH_2Cl_2/MeOH, 20:1) to give triol **S3** (11.60 g, >99%) as a white solid: δ_H (400 MHz, CD_3OD) 7.65 (d, J = 7.5 Hz, 4H), 7.38–7.21 (m, 6H), 7.00 (d, J = 9.0 Hz, 2H), 6.68 (d, J = 9.0 Hz, 2H), 5.14 (br s, 1H), 4.75 (d, J = 7.0 Hz, 1H), 4.63 (br s, 1H), 4.28 (br s, 1H), 3.98 (dd, J = 11.6, 2.4 Hz, 1H), 3.81 (dd, J = 10.9, 5.4 Hz, 1H), 3.68 (s,

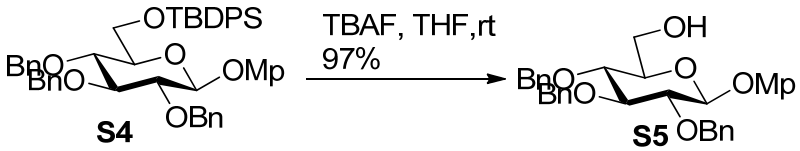
3H), 3.64–3.57 (m, 2H), 3.55–3.44 (m, 2H), 1.01 (s, 9H).

***p*-Methoxyphenyl 2,3,4-tri-*O*-benzyl-6-*O*-*tert*-butyldiphenylsiyl-β-D-glucopyranoside (S4)**[2]



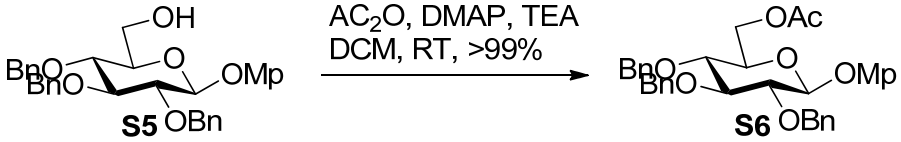
To a solution of triol **S3** (6.93 g, 13.21 mmol) in dry DMF (100 mL) were added 60% NaH (2.39 g, 59.75 mmol) and BnBr (5.5 mL, 46.30 mmol) at 0 °C. The mixture was gradually warmed to rt and stirred for 2 h. The mixture was quenched with triethylamine and brine, and extracted with CH_2Cl_2. The combined organic layer was washed with brine, dried over Na_2SO_4, filtered, and concentrated. The residue was purified by chromatography on silica gel (petroleum ether/ethyl acetate, 20:1) to afford **S4** (7.38 g, 70%) as a colorless syrup: δ_H (400 MHz, $CDCl_3$) 7.70 (dd, J = 12.6, 7.3 Hz, 4H), 7.43 – 7.13 (m, 21H), 7.08 (d, J = 8.9 Hz, 2H), 6.80 (d, J = 8.9 Hz, 2H), 5.10 (d, J = 10.9 Hz, 1H), 4.96 (d, J = 10.8 Hz, 1H), 4.92 – 4.86 (m, 3H), 4.84 (d, J = 4.8 Hz, 1H), 4.66 (d, J = 10.7 Hz, 1H), 3.96 (d, J = 11.0 Hz, 1H), 3.90 (dd, J = 11.2, 4.4 Hz, 1H), 3.76 (s, 3H), 3.74 (s, 3H), 3.48 (br s, 1H), 1.06 (s, 9H); δ_C (100 MHz, $CDCl_3$) 154.2, 150.6, 137.4, 137.0, 134.8, 134.5, 128.6, 127.4, 127.1, 127.0, 126.9, 126.8, 126.7, 126.6, 117.5, 113.5, 101.8, 83.7, 81.4, 76.5, 75.0, 74.9, 74.2, 74.1, 61.7, 54.6, 25.8, 18.2.

***p*-Methoxyphenyl 2,3,4-tri-*O*-benzyl-β-D-glucopyranoside (S5)**[2]



To a solution of **S4** (6.70 g, 8.43 mmol) in dry THF (80 mL) was added TBAF (1 M in THF, 17.0 mL, 17.0 mmol) at room rt. The stirring continued for another 1 h. The mixture was quenched with aq. $NaHCO_3$ and extracted with CH_2Cl_2. The combined organic layer was washed with brine, dried over Na_2SO_4, filtered and concentrated. The residue was purified by flash column chromatography (petroleum ether/ethyl acetate, 5:1-3:1) to give compound **S5** (4.57 g, 97%) as a white powder: δ_H (400 MHz, $CDCl_3$) 7.39 – 7.26 (m, 15H), 6.98 (d, J = 9.0 Hz, 2H), 6.84 (d, J = 9.0 Hz, 2H), 5.03 (d, J = 10.9 Hz, 1H), 4.97 (d, J = 2.4 Hz, 1H), 4.94 (s, 1H), 4.88 (d, J = 10.9 Hz, 1H), 4.86 – 4.79 (m, 2H), 4.66 (d, J = 10.9 Hz, 1H), 3.89 (d, J = 11.1 Hz, 1H), 3.78 (s, 3H), 3.75 – 3.60 (m, 4H), 3.49 – 3.44 (m, 1H).

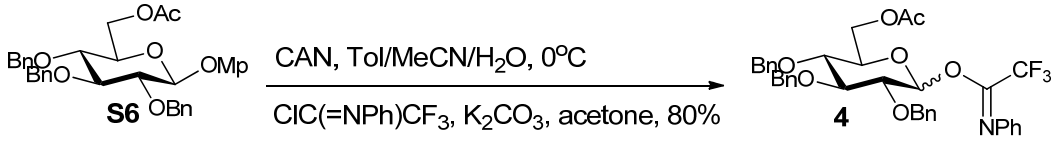
***p*-Methoxyphenyl 2,3,4-tri-*O*-benzyl-6-*O*-acetyl-β-D-glucopyranoside (S6)**[3]



To a solution of the alcohol **S5** (4.57 g, 7.63 mmol), DMAP (293 mg, 2.40 mmol) and triethylamine (4.6 mL, 32.77 mmol) in dry CH_2Cl_2 (60 mL) was added Ac_2O (1.6 mL, 16.93 mmol). The mixture was stirred for overnight and diluted with CH_2Cl_2. The organic layer was washed with aq. $NaHCO_3$ and brine, dried over Na_2SO_4, filtered and concentrated. The residue

was applied to silica gel column chromatography (petroleum ether/EtOAc, 6:1) to gave **S6** (4.92 g, >99%) as a white solid: δ_H (400 MHz, $CDCl_3$) 7.39 – 7.25 (m, 15H), 7.00 (d, J = 8.7 Hz, 2H), 6.83 (d, J = 8.7 Hz, 2H), 5.06 (d, J = 10.9 Hz, 1H), 4.97 (d, J = 10.8 Hz, 1H), 4.89 (d, J = 4.9 Hz, 1H), 4.87 – 4.79 (m, 3H), 4.59 (d, J = 10.9 Hz, 1H), 4.34 (d, J = 11.8 Hz, 1H), 4.25 (dd, J = 11.6, 2.5 Hz, 1H), 3.78 (s, 3H), 3.74 – 3.69 (m, 2H), 3.65 – 3.55 (m, 2H), 2.03 (s, 3H).

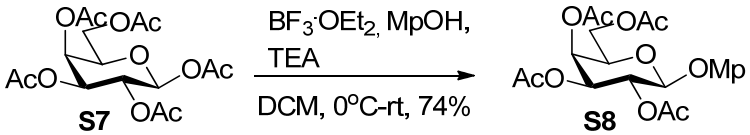
2,3,4-Tri-*O*-benzyl-6-*O*-acetyl-β-D-glucopyranosyl *N*-phenyltrifluoroacetimidate (4)



To a solution of **S6** (1.52 g, 2.54 mmol) in toluene/CH_3CN/H_2O (15 mL/25mL/15mL) was added CAN (3.17 g, 5.78 mmol) at 0°C. The stirring continued for another 1 h. The mixture was then poured into ice water and extracted with CH_2Cl_2. The organic layer was washed with aq. $NaHCO_3$ and brine, dried over Na_2SO_4, filtered and concentrated. The residue was purified by silica gel column chromatography (petroleum ether/EtOAc, 3:1) to give a yellow solid (1.02 g).[4-6]

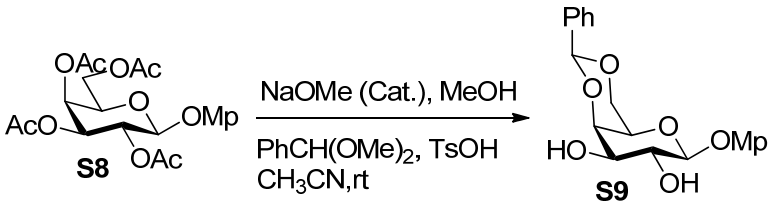
To a mixture of the yellow solid above (1.99 g, 4.04 mmol) and K_2CO_3 (1.39 g, 10.06 mmol) in acetone (40 mL), was added $ClC(=NPh)CF_3$ (0.8 mL, 7.27 mmol). After stirring for 3 h, the mixture was filtered through celite and concentrated. Purification of the crude product by flash column chromatography (petroleum ether/EtOAc/TEA, 6:1:0.07) yielded the desired imidate **4** as a colorless syrup (2.63 g, 80% from **S6**). Compound **4** was not characterized due to its poor stability.

***p*-Methoxyphenyl 2,3,4,6-tetra-*O*-acetyl-β-D-galactopyranoside (S8)**[7]



To a solution of *p*-methoxyphenol (16.5 g, 132.91 mmol), *per*-acetyl-D-galactose **S7** (35.3 g, 90.43 mmol) and triethylamine (6.5 mL, 46.51 mmol) in CH_2Cl_2 (250 mL) at 0°C was added $BF_3{\cdot}Et_2O$ (28.5 mL 225.90 mmol) over a period of 30 min under N_2. The mixture was warmed to rt and stirred for 10 h. The mixture was washed with water, aq. $NaHCO_3$ and brine. The organic phase was dried over Na_2SO_4 and concentrated to give a pale yellow residue. The residue was recrystallized from MeOH to afford galactoside **S8** (30.47 g, 74%) as a colorless crystal: δ_H (400 MHz, $CDCl_3$) 6.96 (d, J = 9.0 Hz, 2H), 6.82 (d, J = 9.0 Hz, 2H), 5.48 – 5.44 (m, 2H), 5.09 (dd, J = 10.5, 3.4 Hz, 1H), 4.92 (d, J = 8.0 Hz, 1H), 4.23 (dd, J = 11.2, 6.9 Hz, 1H), 4.16 (dd, J = 11.3, 6.5 Hz, 1H), 4.01 (t, J = 6.6 Hz, 1H), 3.78 (s, 3H), 2.18 (s, 3H), 2.09 (s, 3H), 2.06 (s, 3H), 2.01 (s, 3H).

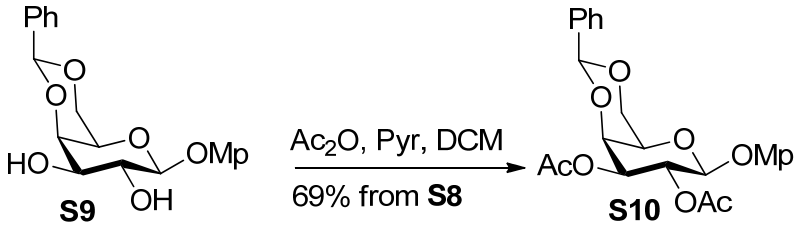
***p*-Methoxyphenyl 4,6-*O*-benzylidene-β-D-galactopyranoside (S9)**[8]



To a solution of the tetraacetate **S8** (28.85 g, 63.49 mmol) in MeOH (500 mL) was added a catalytic amount of sodium methoxide. The mixture was stirred at rt for 1 h. Amberlite IR-120 resin (H form) was added to neutralize the solution. Filtration and evaporation gave a tetraol (about 18 g) as a white powder.

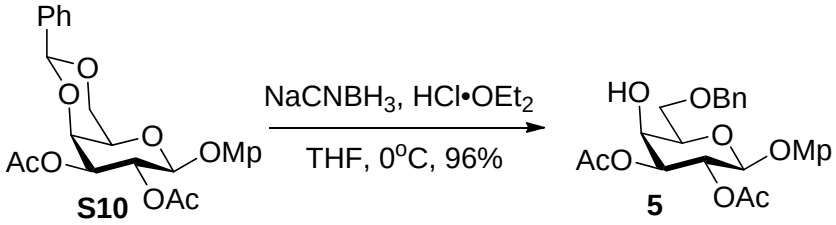
To a solution of the tetraol above and α,α-dimethoxytoluene (14.5 mL, 96.68 mmol) in CH_3CN (500 mL) was added *p*-toluenesulfonic acid monohydrate (0.64 g, 3.36 mmol) at rt. After stirring for 30 min, the reaction mixture was cooled and quenched with Et_3N (3 mL). Filtration and evaporation gave **S9** as a crystal: δ_H (400 MHz, $CDCl_3$) 7.52 (dd, J = 6.5, 2.9 Hz, 2H), 7.41 – 7.34 (m, 3H), 7.07 (d, J = 9.0 Hz, 2H), 6.83 (d, J = 9.0 Hz, 2H), 5.58 (s, 1H), 4.80 (d, J = 7.8 Hz, 1H), 4.37 (d, J = 12.5 Hz, 1H), 4.28 (d, J = 3.7 Hz, 1H), 4.11 (dd, J = 12.5, 1.6 Hz, 1H), 4.01 (t, J = 8.6 Hz, 1H), 3.83 – 3.72 (m, 1H), 3.78 (s, 3H), 3.59 (s, 1H), 2.67 – 2.51 (m, 2H).

***p*-Methoxyphenyl 2,3-*O*-acetyl-4,6-*O*-benzylidene-β-D-galactopyranoside (S10)**[9]



To a solution of diol **S9** in CH_2Cl_2/pyridine (300/100 mL) was added Ac_2O (18 mL, 190.42 mmol) at 0°C. The mixture was gradually warmed to rt and stirred for 10 h. The reaction was quenched by MeOH (30 mL). Concentration and recrystallization from petroleum ether/ethyl acetate afforded **S10** as a white solid (20.0 g, 69% from **S8**): δ_H (400 MHz, $CDCl_3$) 7.57 – 7.31 (m, 5H), 6.99 (d, J = 9.0 Hz, 2H), 6.81 (d, J = 9.0 Hz, 2H), 5.61 (dd, J = 10.4, 8.0 Hz, 1H), 5.52 (s, 1H), 5.03 (dd, J = 10.4, 3.6 Hz, 1H), 4.95 (d, J = 8.0 Hz, 1H), 4.43 (d, J = 3.5 Hz, 1H), 4.37 (d, J = 12.5 Hz, 1H), 4.09 (d, J = 12.5 Hz, 1H), 3.77 (s, 3H), 3.60 (s, 1H), 2.09 (s, 3H), 2.08 (s, 3H).

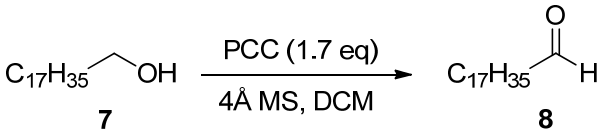
***p*-Methoxyphenyl 2,3-*O*-acetyl-6-*O*-benzyl-β-D-galactopyranoside (5)**[10]



To a mixture of compound **S10** (7.4g, 16.14 mmol), $NaCNBH_3$ (8.0 g, 120.58 mmol) and 4 Å molecular sieves (7 g) in dry THF (150 mL) was added dropwise a cold saturated solution of $HCl{\cdot}Et_2O$ until no more gas was bubbled. After stirring for 2 h, the reaction was quenched by adding solid $NaHCO_3$ (12 g). The mixture was diluted with CH_2Cl_2 (300 mL) and H_2O (100 mL),

and was then filtered through celite. The organic layer was washed with aq. $NaHCO_3$ (150 mL) and brine (150 mL), dried over Na_2SO_4, filtered and concentrated. The residue was purified by flash column chromatography (petroleum ether/ethyl acetate, 3:1) to give compound **5** (7.1 g, 96%) as a white powder: $[\alpha]^{27}_D = 4.78$ (c 1.01, $CHCl_3$); δ_H (400 MHz, $CDCl_3$) 7.40 – 7.27 (m, 5H), 6.97 (d, J = 8.9 Hz, 2H), 6.79 (d, J = 8.9 Hz, 2H), 5.51 (dd, J = 10.0, 8.2 Hz, 1H), 5.01 (dd, J = 10.2, 3.0 Hz, 1H), 4.91 (d, J = 7.9 Hz, 1H), 4.63 – 4.51 (m, 2H), 4.20 (s, 1H), 3.86 – 3.77 (m, 3H), 3.76 (s, 3H), 2.76 (d, J = 4.4 Hz, 1H), 2.12 (s, 3H), 2.07 (s, 3H); δ_C (100 MHz, $CDCl_3$) 170.2, 169.5, 155.3, 151.0, 137.6, 128.3, 127.7, 127.5, 118.4, 114.4, 100.6, 73.5, 73.5, 73.3, 69.2, 69.0, 67.6, 55.5, 20.7, 20.6.

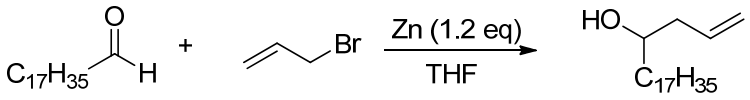
1-Octadecanal (8)[11]



7 **8**

To a mixture of PCC (4.83 g, 22.39 mmol) and molecular sieves 4Å (5.4 g) in CH_2Cl_2 (30 mL) was added 1-octadecanol **7** (3.62 g, 13.36 mmol) under N_2. The mixture was stirred at rt for 3 h, and was then concentrated. The resulting oil was applied to flash chromatography (petroleum ether/EtOAc, 20:1) to give 1-octadecanal **8** (2.23 g, 62%) as a white solid: δ_H (400 MHz, $CDCl_3$) 9.77 (t, J = 1.7 Hz, 1H), 2.42 (td, J = 7.4, 1.7 Hz, 2H), 1.67 – 1.60 (m, 2H), 1.25 (s, 34H), 0.88 (t, J = 6.7 Hz, 3H); δ_C (100 MHz, $CDCl_3$) δ 203.1, 44.0, 32.0, 29.72, 29.69, 29.6, 29.5, 29.4, 22.7, 22.1, 14.2.

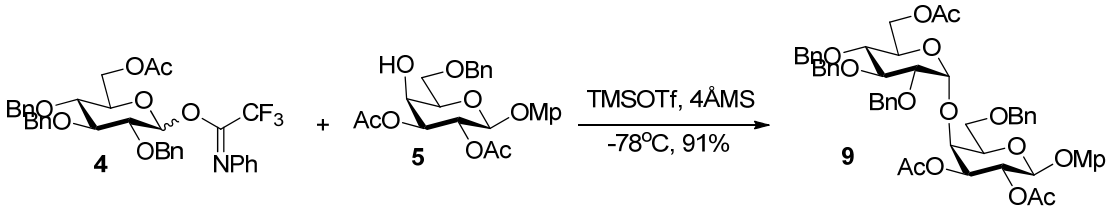
1-heneicosen-4-ol (6)[12]



8 **6**

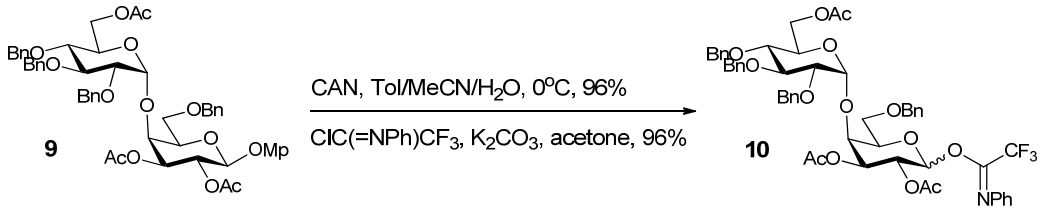
To a solution of octadecanal **8** (2.13 g, 7.93 mmol) in anhydrous THF under Ar were added allyl bromide (0.81 mL, 9.57 mmol) and zinc powder (623 mg, 9.52mmol). The mixture was stirred at rt for 16 hours, and then poured into saturated aq. NH_4Cl and extracted with CH_2Cl_2. The combined organic layer were dried over Na_2SO_4, filtered, and concentrated. The residue was purified by chromatography on silica gel (petroleum ether/ethyl acetate, 40:1) to afford **6** (1.87 g, 6.02 mmol, 76%) as a white solid: δ_H (400 MHz, $CDCl_3$) 5.95 – 5.73 (m, 1H), 5.15 (d, J = 2.9 Hz, 1H), 5.12 (s, 1H), 3.64 (d, J = 3.0 Hz, 1H), 2.36 – 2.22 (m, 1H), 2.19 – 2.07 (m, 1H), 1.62 – 1.55 (m, 1H), 1.47 (m, 2H), 1.25 (s, 30H), 0.88 (t, J = 6.8 Hz, 3H); δ_C (100 MHz, CDCl3) 135.0, 118.1, 70.7, 42.0, 36.8, 32.0, 29.73, 29.69, 29.6, 29.4, 25.7, 22.7, 14.2.

***p*-Methoxyphenyl**
2,3-*O*-acetyl-6-*O*-benzyl-4-*O*-(2,3,4-tri-*O*-benzyl-6-*O*-acetyl-β-D-glusopyranosyl)-β-D-galacto pyranoside (9)



To a stirred mixture of the donor **4** (2.03 g, 3.06 mmol), acceptor **5** (1.03 g, 2.24 mmol), and freshly activated 4 Å MS (3.5 g) in dry CH_2Cl_2 (55 mL) at -78 °C, was added TMSOTf (50 uL, 0.27 mmol) under Ar. After stirring for 2 h, the mixture was allowed to warm up gradually to rt. The mixture was quenched with Et_3N (0.2 mL), filtered, and concentrated in vacuo. The residue was purified by silica gel column chromatography (petroleum ether/EtOAc, 4:1) to afford **9** (1.87 g, 91%) as a white solid: $[\alpha]^{23}_D$ = 44.37 (c 0.92, $CHCl_3$); δ_H (400 MHz, $CDCl_3$) 7.37 – 7.16 (m, 20H), 7.00 (d, *J* = 8.9 Hz, 2H), 6.79 (d, *J* = 9.0 Hz, 2H), 5.47 (dd, *J* = 10.5, 7.9 Hz, 1H), 4.98 – 4.83 (m, 5H), 4.78 (d, *J* = 3.3 Hz, 1H), 4.76 (d, *J* = 12.1 Hz, 1H), 4.62 (dd, *J* = 11.4, 3.6 Hz, 2H), 4.34 (d, *J* = 1.3 Hz, 2H), 4.30 – 4.21 (m, 3H), 4.18 – 4.10 (m, 3H), 3.84 (t, *J* = 5.8 Hz, 2H), 3.75 (s, 3H), 3.58 (t, *J* = 9.6 Hz, 1H), 3.49 (dd, *J* = 9.8, 3.1 Hz, 1H), 2.08 (s, 3H), 2.07 (s, 3H), 2.01 (s, 3H); δ_C (100 MHz, $CDCl_3$) 170.8, 170.6, 169.2, 155.4, 151.2, 138.5, 138.1, 1378.0, 128.42, 128.40, 128.3, 128.0, 128.0, 127.7, 127.6, 127.5, 118.4, 114.5, 100.6, 100.2, 81.7, 80.4, 75.7, 74.9, 74.5, 73.7, 73.1, 73.0, 69.7, 62.7, 55.6, 21.0, 20.8, 20.7; HRMS(MALDI) calcd for $C_{53}H_{58}O_{15}Na$ $[M+Na]^+$ 957.3668, found 957.3660.

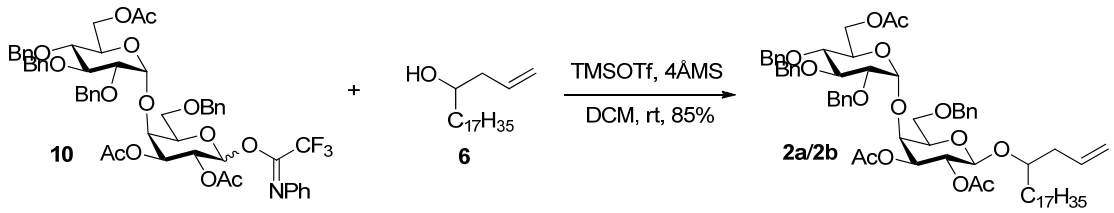
2,3-*O*-Acetyl-6-*O*-benzyl-4-*O*-(2,3,4-tri-*O*-benzyl-6-*O*-acetyl-β-D-glucopyranosyl)-β-D-galacto pyranosyl *N*-phenyltrifluoroacetimidate (10)



To a solution of **9** (2.09 g, 2.24 mmol) in toluene/CH_3CN/H_2O (25 mL/37mL/25mL) was added CAN (3.08 g, 5.62 mmol) at 0°C. After stirring for 1 h, the mixture was poured into ice water and extracted with CH_2Cl_2. The organic layer was washed with aq. $NaHCO_3$ and brine, dried over Na_2SO_4, filtered and concentrated. The residue was purified by silica gel column chromatography (petroleum ether/EtOAc, 1.5:1) to give the corresponding lactol (1.78 g, 96%) as a yellow solid.

To a solution of the crude lactol (1.73 g, 2.08 mmol) and K_2CO_3 (0.71 g, 5.17 mmol) in acetone (35 mL) was added $ClC(=NPh)CF_3$ (0.35 mL, 3.17 mmol). After stirring for 3 h, the mixture was filtered through celite and concentrated. Purification of the crude product by flash column chromatography (petroleum ether/EtOAc/TEA, 3:1:0.04) yielded **10** (2.00 g, 96% from **9**) as a colorless syrup. Compound **9** was used directly without further characterization due to its poor stability.

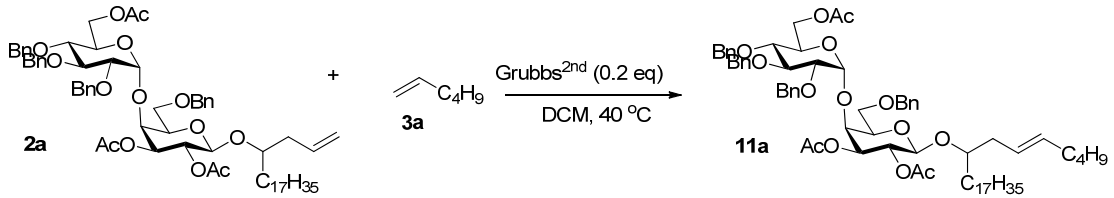
Compounds 2a/2b



To a stirred mixture of the donor **10** (2.00 g, 2.00 mmol), acceptor **6** (0.55 g, 1.77 mmol), and freshly activated 4 Å MS (3.1 g) in dry CH_2Cl_2 (50 mL) at 0 °C, was added TMSOTf (40 uL, 0.220 mmol) under argon. After stirring for 1 h, the reaction was allowed to warm to rt gradually and the stirring continued for another 1.5 h. The mixture was quenched with Et_3N (0.2 mL), filtered, and concentrated in vacuo. The residue was purified by silica gel column chromatography (petroleum ether/EtOAc, 5:1-3:1) to afford **2a**/**2b** (1.68 g, d.r. = 1.1:1, 85%). **2a** was obtained as a colorless syrup: $[\alpha]^{26}_D$ = 51.09 (*c* 1.08, $CHCl_3$); δ_H (400 MHz, $CDCl_3$) 7.39 – 7.06 (m, 20H), 5.91 – 5.81 (m, 1H), 5.21 (dd, *J* = 10.6, 7.9 Hz, 1H), 5.07 – 5.00 (m, 2H), 4.92 (t, *J* = 9.7 Hz, 2H), 4.88 – 4.82 (m, 2H), 4.77 (d, *J* = 3.2 Hz, 1H), 4.74 (d, *J* = 11.9 Hz, 1H), 4.60 (dd, *J* = 11.4, 2.5 Hz, 2H), 4.49 (d, *J* = 7.8 Hz, 1H), 4.36 – 4.22 (m, 4H), 4.21 – 4.03 (m, 3H), 3.83 (dd, *J* = 9.7, 5.6 Hz, 1H), 3.71 (t, *J* = 5.9 Hz, 1H), 3.65 – 3.52 (m, 3H), 3.46 (dd, *J* = 9.8, 3.3 Hz, 1H), 2.54 – 2.43 (m, 1H), 2.40 – 2.32 (m, 1H), 2.04 (s, 3H), 2.02 (s, 3H), 1.99 (s, 3H), 1.25 (s, 32H), 0.88 (t, *J* = 6.8 Hz, 3H); δ_C (100 MHz, $CDCl_3$) 170.7, 170.6, 169.1, 138.6, 138.2, 138.1, 138.0, 135.0, 128.4, 128.3, 128.1, 127.6, 127.4, 116.7, 101.7, 99.9, 81.5, 81.3, 80.5, 76.6, 75.6, 74.9, 73.9, 73.6, 73.1, 73.0, 69.7, 69.5, 68.7, 62.7, 34.0, 31.9, 29.8, 29.7, 29.3, 25.2, 22.7, 21.0, 20.8, 20.7, 14.1; HRMS (MALDI) calcd for $C_{67}H_{92}O_{14}Na$ $[M+Na]^+$ 1143.6379, found 1143.6370.

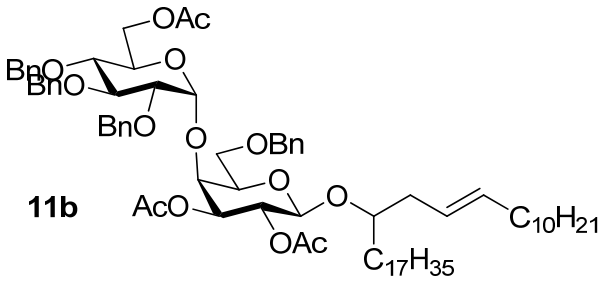
2b was obtained as a colorless syrup: $[\alpha]^{26}_D$ = 41.34 (*c* 0.92, $CHCl_3$); δ_H (400 MHz, $CDCl_3$) 1H NMR (400 MHz, $CDCl_3$) 7.43 – 7.10 (m, 20H), 5.89 – 5.69 (m, 1H), 5.19 (dd, *J* = 10.6, 7.9 Hz, 1H), 5.09 – 4.99 (m, 2H), 4.95 – 4.79 (m, 4H), 4.77 (d, *J* = 3.2 Hz, 1H), 4.73 (d, *J* = 11.9 Hz, 1H), 4.61 (s, 1H), 4.59 (s, 1H), 4.48 (d, *J* = 7.8 Hz, 1H), 4.36 – 4.01 (m, 7H), 3.84 (dd, *J* = 9.8, 5.7 Hz, 1H), 3.70 (t, *J* = 6.0 Hz, 1H), 3.64 – 3.60 (m, 2H), 3.54 (t, *J* = 9.5 Hz, 1H), 3.46 (dd, *J* = 9.8, 3.3 Hz, 1H), 2.24 (t, *J* = 5.8 Hz, 2H), 2.04 (s, 3H), 2.02 (s, 3H), 1.99 (s, 3H), 1.23 (d, *J* = 12.7 Hz, 32H), 0.88 (t, *J* = 6.8 Hz, 3H); δ_C (100 MHz, $CDCl_3$) 170.8, 170.6, 169.1, 138.6, 138.3, 138.1, 138.0, 134.6, 128.40, 128.39, 128.3, 127.6, 127.4, 117.0, 100.8, 99.9, 81.6, 80.5, 80.3, 75.7, 74.9, 74.0, 73.5, 73.2, 73.1, 69.6, 62.7, 38.5, 34.6, 31.9, 29.7, 29.3, 25.2, 22.7, 21.0, 20.8, 14.1; HRMS (MALDI) calcd for $C_{67}H_{92}O_{14}Na$ $[M+Na]^+$ 1143.6379, found 1143.6381.

Compound **11a**

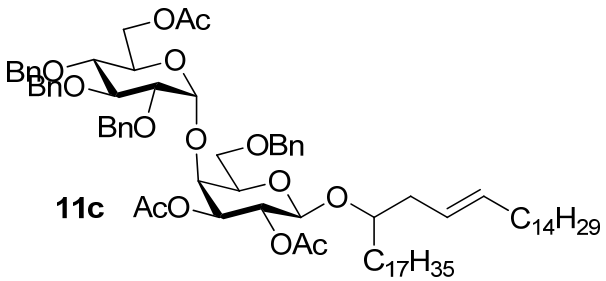


To a solution of compound **2a** (91 mg, 0.081 mmol) and 1-hexene **3a** (90 uL, 0.725 mmol, 9 equiv.) in CH_2Cl_2 (3 mL) was added Grubb's 2nd catalyst (7 mg, 0.0082 mmol, 0.1 equiv.). The mixture was heated to reflux. After 6 h, another 0.1 equiv. of the catalyst was added. The reaction was cooled to rt after another 6 h. Concentrated and purification by silica gel chromatography (petroleum ether/EtOAc, 6:1) afforded **11a** (82 mg, 86%) as a colorless syrup: $[\alpha]^{25}_D$ = 45.78 (*c*

2.07, $CHCl_3$); δ_H (400 MHz, $CDCl_3$) 7.44 – 7.08 (m, 20H), 5.43 (s, 2H), 5.21 (dd, *J* = 10.4, 7.8 Hz, 1H), 4.95 – 4.84 (m, 4H), 4.77 (d, *J* = 2.9 Hz, 1H), 4.74 (d, *J* = 12.0 Hz, 1H), 4.62 (s, 1H), 4.59 (s, 1H), 4.46 (dd, *J* = 15.9, 7.7 Hz, 1H), 4.36 – 4.23 (m, 4H), 4.21 – 4.07 (m, 3H), 3.85 (dd, *J* = 9.4, 5.6 Hz, 1H), 3.75 – 3.68 (m, 1H), 3.64 (dd, *J* = 9.5, 6.8 Hz, 1H), 3.55 (t, *J* = 9.3 Hz, 2H), 3.46 (dd, *J* = 9.7, 2.7 Hz, 1H), 2.62 – 2.35 (m, 1H), 2.35 – 2.17 (m, 1H), 2.04 (s, 3H), 2.02 (s, 3H), 1.99 (s, 3H), 1.47 – 1.14 (m, 40H), 0.88 (t, *J* = 6.6 Hz, 6H); δ_C NMR (100 MHz, $CDCl_3$) 170.7, 170.6, 169.1, 138.6, 138.2, 138.1, 138.0, 138.0, 128.4, 128.3, 128.0, 128.0, 127.7, 127.6, 127.5, 127.5, 127.4, 101.8, 99.9, 81.9, 81.6, 80.4, 75.6, 74.8, 73.5, 73.0, 69.7, 69.5, 62.7, 31.9, 29.8, 29.7, 29.3, 25.2, 22.7, 21.0, 20.8, 20.7, 14.1; HRMS (MALDI) calcd for $C_{71}H_{100}O_{14}Na$ $[M+Na]^+$ 1199.7005, found 1199.7031.

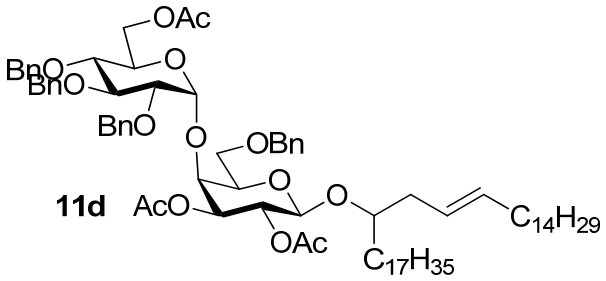


A similar procedure as used for the preparation of **11a** was employed. Thus, **11b** (73 mg, 78%) was obtained as a colorless syrup: $[\alpha]^{25}_D$ = 43.48 (*c* 2.22, $CHCl_3$); δ_H (400 MHz, $CDCl_3$) 7.37 – 7.15 (m, 20H), 5.42 (d, *J* = 3.0 Hz, 2H), 5.21 (dd, *J* = 10.4, 8.0 Hz, 1H), 4.97 – 4.81 (m, 4H), 4.77 (d, *J* = 2.9 Hz, 1H), 4.74 (d, *J* = 12.0 Hz, 1H), 4.62 (s, 1H), 4.59 (s, 1H), 4.48 (d, *J* = 7.8 Hz, 1H), 4.38 – 4.21 (m, 4H), 4.20 – 4.05 (m, 3H), 3.84 (dd, *J* = 9.5, 5.5 Hz, 1H), 3.71 (t, *J* = 2.0 Hz, 1H), 3.64 (dd, *J* = 9.6, 6.6 Hz, 1H), 3.59 – 3.49 (m, 2H), 3.46 (dd, *J* = 9.7, 2.9 Hz, 1H), 2.52 – 2.41 (m, 1H), 2.31 – 2.24 (m, 1H), 2.04 (s, 3H), 2.02 (s, 3H), 1.99 (s, 3H), 1.25 (s, 54H), 0.86 (t, *J* = 6.8 Hz, 6H); δ_C (100 MHz, $CDCl_3$) 170.8, 170.6, 169.1, 138.6, 138.3, 138.1, 138.0, 133.2, 128.4, 128.3, 128.1, 128.0, 127.7, 127.6, 127.5, 127.4, 125.9, 101.9, 99.9, 82.0, 81.6, 80.5, 75.6, 74.9, 73.5, 73.1, 73.1, 69.7, 69.5, 62.7, 38.8, 31.9, 29.8, 29.7, 29.64, 29.55, 29.3, 29.2, 22.7, 21.0, 20.8, 20.7, 14.1; MALDI-MS: m/z 1283.8 $[M + Na]^+$; HRMS (MALDI) calcd for $C_{77}H_{112}O_{14}Na$ $[M+Na]^+$ 1283.7944, found 1283.7967.

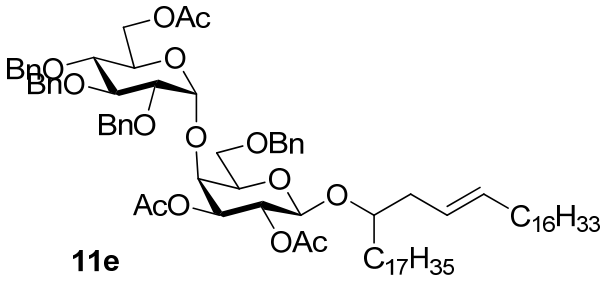


A similar procedure as used for the preparation of **11a** was employed. Thus, **11c** (69 mg, 80%) was obtained as a colorless syrup: $[\alpha]^{26}_D$ = 44.15 (*c* 2.23, $CHCl_3$); δ_H (400 MHz, $CDCl_3$) 7.38 – 7.15 (m, 20H), 5.48 – 5.34 (m, 2H), 5.21 (dd, *J* = 10.6, 7.9 Hz, 1H), 4.97 – 4.81 (m, 4H), 4.77 (d, *J* = 3.2 Hz, 1H), 4.74 (d, *J* = 11.9 Hz, 1H), 4.60 (d, *J* = 11.1 Hz, 2H), 4.49 (dd, *J* = 7.7, 3.5 Hz, 1H), 4.36 – 4.23 (m, 4H), 4.18 (d, *J* = 10.0 Hz, 1H), 4.15 – 4.05 (m, 2H), 3.84 (dd, *J* = 9.7, 5.6 Hz, 1H), 3.71 (t, *J* = 5.9 Hz, 1H), 3.64 (dd, *J* = 9.7, 6.6 Hz, 1H), 3.58 – 3.50 (m, 2H), 3.46 (dd, *J* = 9.8, 3.2 Hz, 1H), 2.52 – 2.41 (m, 1H), 2.34 – 2.22 (m, 1H), 2.04 (s, 3H), 2.02 (s, 3H), 1.98 (s, 3H), 1.50 –

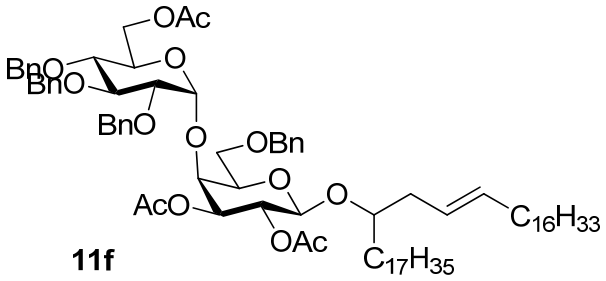
1.15 (m, 61H), 0.88 (t, J = 6.7 Hz, 6H); δ_C NMR (100 MHz, $CDCl_3$) 170.7, 170.6, 169.1, 138.6, 138.3, 138.1, 138.0, 133.1, 128.4, 128.3, 128.04, 128.01, 127.7, 127.59, 127.56, 127.5, 127.4, 125.9, 101.8, 99.9, 82.0, 81.6, 80.4, 75.6, 74.8, 73.9, 73.5, 73.0, 69.7, 62.7, 38.8, 31.9, 29.8, 29.7, 29.6, 29.6, 29.3, 29.2, 22.7, 20.8, 20.7, 14.1; HRMS (MALDI) calcd for $C_{81}H_{120}O_{14}Na$ $[M+Na]^+$ 1339.8570, found 1339.8531.



A similar procedure as used for the preparation of **11a** was employed. Thus, **11d** (106 mg, 75%) was obtained from **2b** as a colorless syrup: $[\alpha]^{26}_D$ = 39.27 (*c* 1.12, $CHCl_3$); δ_H (400 MHz, $CDCl_3$) 7.38 – 7.14 (m, 20H), 5.51 – 5.40 (m, 1H), 5.39 – 5.29 (m, 1H), 5.19 (dd, J = 10.5, 8.0 Hz, 1H), 4.96 – 4.80 (m, 4H), 4.77 (d, J = 3.1 Hz, 1H), 4.73 (d, J = 11.9 Hz, 1H), 4.62 (s, 1H), 4.59 (s, 1H), 4.48 (d, J = 7.8 Hz, 1H), 4.38 – 4.23 (m, 4H), 4.18 (d, J = 10.0 Hz, 1H), 4.13 – 4.09 (m, 2H), 3.85 (dd, J = 9.7, 5.7 Hz, 1H), 3.70 (t, J = 5.8 Hz, 1H), 3.64 – 3.52 (m, 3H), 3.46 (dd, J = 9.8, 3.2 Hz, 1H), 2.17 (t, J = 5.6 Hz, 2H), 2.04 (s, 3H), 2.03 (s, 3H), 1.98 (s, 3H), 1.35 – 1.20 (br s, 56H), 0.88 (t, J = 6.7 Hz, 6H); δ_C (100 MHz, $CDCl_3$) 170.7, 170.6, 169.1, 138.6, 138.2, 138.1, 138.0, 133.3, 128.4, 128.3, 128.1, 128.0, 127.7, 127.59, 127.57, 127.5, 127.4, 125.4, 100.6, 99.9, 81.6, 80.44, 80.38, 76.6, 75.6, 74.9, 73.9, 73.5, 73.2, 73.0, 69.6, 69.5, 68.6, 62.7, 37.2, 34.2, 32.7, 31.9, 29.8, 29.6, 29.6, 29.5, 29.3, 29.2, 25.2, 22.7, 21.0, 20.80, 20.76, 14.1; HRMS (MALDI) calcd for $C_{81}H_{120}O_{14}Na$ $[M+Na]^+$ 1339.8570, found 1339.8561.

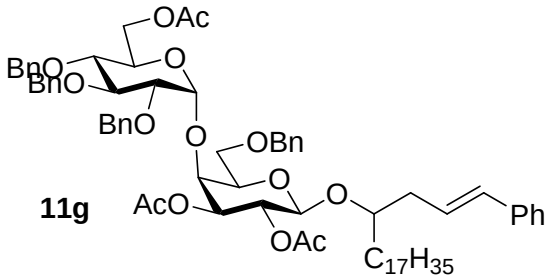


A similar procedure as used for the preparation of **11a** was employed. Thus, **11e** (50 mg, 76%) was obtained as a colorless syrup: $[\alpha]^{25}_D$ = 41.53 (*c* 2.01, $CHCl_3$); δ_H (400 MHz, $CDCl_3$) 7.31 – 7.03 (m, 21H), 5.42 (d, J = 3.0 Hz, 2H), 5.21 (dd, J = 10.3, 8.0 Hz, 1H), 5.01 – 4.80 (m, 4H), 4.77 (d, J = 2.7 Hz, 1H), 4.74 (d, J = 12.0 Hz, 1H), 4.62 (s, 1H), 4.59 (s, 1H), 4.48 (d, J = 7.8 Hz, 1H), 4.38 – 4.21 (m, 4H), 4.20 – 4.01 (m, 3H), 3.84 (dd, J = 9.3, 5.4 Hz, 1H), 3.71 (t, J = 5.7 Hz, 1H), 3.64 (dd, J = 9.4, 6.7 Hz, 1H), 3.60 – 3.48 (m, 2H), 3.46 (dd, J = 9.7, 2.8 Hz, 1H), 2.56 – 2.36 (m, 1H), 2.36 – 2.21 (m, 1H), 2.04 (s, 3H), 2.02 (s, 3H), 1.99 (s, 3H), 1.48 – 1.15 (m, 63H), 0.88 (t, J = 6.5 Hz, 6H); δ_C (100 MHz, $CDCl_3$) 170.8, 170.6, 169.1, 138.6, 138.3, 138.0, 133.2, 128.4, 128.3, 128.1, 128.0, 127.7, 127.61, 127.58, 127.5, 127.4, 125.9, 101.9, 100.0, 82.0, 81.6, 80.5, 75.7, 74.9, 73.5, 73.15, 73.07, 69.7, 68.7, 62.7, 38.9, 31.9, 29.7, 29.7, 29.6, 29.3, 25.2, 22.7, 21.0, 20.8, 20.7, 14.1; HRMS (MALDI) calcd for $C_{83}H_{124}O_{14}Na$ $[M+Na]^+$ 1367.8883, found 1367.8875.



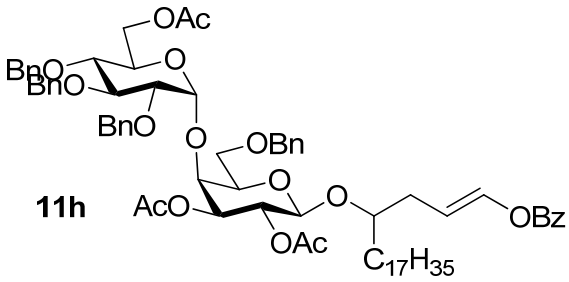
11f

A similar procedure as used for the preparation of **11a** was employed. Thus, **11f** (87 mg, 79%) was obtained from **2b** as a colorless syrup: $[\alpha]^{27}_{D}$ = 36.66 (*c* 1.43, $CHCl_3$); δ_H (400 MHz, $CDCl_3$) 7.32 – 7.18 (m, 21H), 5.46 – 5.33 (m, 2H), 5.23 – 5.14 (m, 1H), 4.95 – 4.83 (m, 4H), 4.77 (d, *J* = 3.1 Hz, 1H), 4.73 (d, *J* = 11.9 Hz, 1H), 4.62 (s, 1H), 4.59 (s, 1H), 4.47 (dd, *J* = 10.2, 8.1 Hz, 1H), 4.34 – 4.25 (m, 4H), 4.18 (d, *J* = 10.0 Hz, 1H), 4.13 – 4.09 (m, 2H), 3.85 (dd, *J* = 9.7, 5.8 Hz, 1H), 3.70 (t, *J* = 5.8 Hz, 1H), 3.64 – 3.52 (m, 3H), 3.46 (dd, *J* = 9.8, 3.2 Hz, 1H), 2.17 (t, *J* = 5.7 Hz, 1H), 2.04 (s, 3H), 2.03 (s, 3H), 1.98 (s, 3H), 2.00 – 1.92 (m, 1H), 1.24 (d, *J* = 13.7 Hz, 67H), 0.88 (t, *J* = 6.7 Hz, 6H); δ_C (100 MHz, $CDCl_3$) 170.7, 170.6, 169.1, 138.6, 138.2, 138.1, 138.0, 133.3, 130.9, 128.4, 128.3, 128.1, 128.0, 127.7, 127.63, 127.58, 127.6, 127.5, 127.4, 125.4, 100.6, 99.9, 81.6, 80.4, 75.6, 74.9, 73.9, 73.5, 73.2, 73.0, 69.5, 62.7, 32.7, 32.6, 31.9, 29.7, 29.6, 29.5, 29.3, 29.2, 25.3, 25.2, 22.7, 21.0, 20.8, 20.7, 14.1; HRMS (MALDI) calcd for $C_{83}H_{124}O_{14}Na$ $[M+Na]^+$ 1367.8883, found 1367.8854.

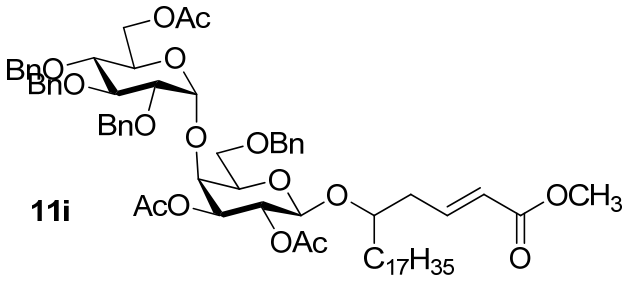


11g

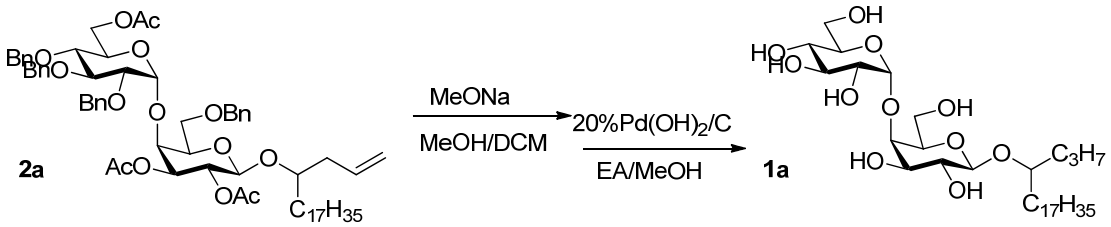
A similar procedure as used for the preparation of **11a** was employed. Thus, **11g** (54 mg, >99%) was obtained as a colorless syrup: $[\alpha]^{26}_{D}$ = 39.94 (*c* 1.92, $CHCl_3$); δ_H (400 MHz, $CDCl_3$) 7.34 – 7.14 (m, 25H), 6.45 (dd, *J* = 44.2, 15.9 Hz, 1H), 6.27 (dt, *J* = 24.8, 8.0 Hz, 1H), 5.24 (dd, *J* = 10.6, 8.0 Hz, 1H), 4.95 – 4.84 (m, 4H), 4.77 (d, *J* = 3.3 Hz, 1H), 4.73 (d, *J* = 11.9 Hz, 1H), 4.63 (d, *J* = 2.0 Hz, 1H), 4.60 (s, 1H), 4.52 (d, *J* = 7.8 Hz, 1H), 4.33 (s, 2H), 4.28 – 4.07 (m, 5H), 3.85 (dd, *J* = 9.8, 5.5 Hz, 1H), 3.73 (t, *J* = 5.9 Hz, 1H), 3.67 – 3.63 (m, 2H), 3.56 (t, *J* = 9.5 Hz, 1H), 3.47 (dd, *J* = 9.9, 3.2 Hz, 1H), 2.64 (dt, *J* = 11.3, 5.5 Hz, 1H), 2.51 (dt, *J* = 14.0, 7.0 Hz, 1H), 2.05 (s, 3H), 2.02 (s, 3H), 1.99 (s, 3H), 1.49 (br s, 2H), 1.25 (d, *J* = 3.8 Hz, 31H), 0.88 (t, *J* = 6.8 Hz, 3H); δ_C (100 MHz, $CDCl_3$) δ 170.8, 170.6, 169.1, 138.6, 138.2, 138.1, 138.0, 137.7, 131.9, 128.4, 128.3, 128.1, 128.0, 127.8, 127.7, 127.6, 127.5, 127.4, 126.9, 126.0, 101.9, 100.0, 81.7, 81.6, 80.4, 76.8, 75.6, 74.9, 74.0, 73.5, 73.2, 73.1, 69.7, 69.5, 68.8, 62.7, 39.3, 34.2, 31.9, 29.7, 29.7, 29.3, 25.3, 22.7, 21.0, 20.8, 20.7, 14.1; HRMS (MALDI) calcd for $C_{73}H_{96}O_{14}Na$ $[M+Na]^+$ 1219.6692, found 1219.6653.



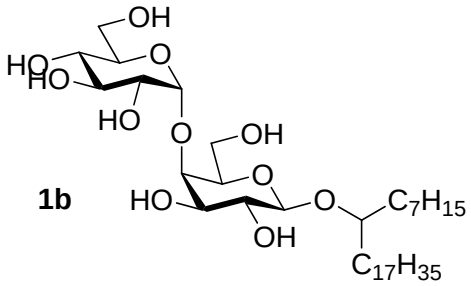
A similar procedure as used for the preparation of **11a** was employed. Thus, **11h** (38 mg, 63%) was obtained as a colorless syrup: $[\alpha]^{26}_{D}$ = 48.36 (*c* 1.05, $CHCl_3$); δ_H (400 MHz, $CDCl_3$) 8.02 (d, *J* = 7.3 Hz, 2H), 7.55 – 7.16 (m, 25H), 5.95 – 5.79 (m, 1H), 5.77 – 5.68 (m, 1H), 5.21 (dd, *J* = 10.5, 8.0 Hz, 1H), 4.97 – 4.72 (m, 8H), 4.60 (d, *J* = 10.7 Hz, 2H), 4.48 (d, *J* = 7.9 Hz, 1H), 4.35 – 4.22 (m, 4H), 4.18 – 4.08 (m, 3H), 3.82 (dd, *J* = 9.6, 5.3 Hz, 1H), 3.72 (t, *J* = 5.6 Hz, 1H), 3.67 – 3.53 (m, 3H), 3.46 (dd, *J* = 9.8, 3.2 Hz, 1H), 2.54 – 2.36 (m, 2H), 2.05 (s, 3H), 2.02 (s, 3H), 1.99 (s, 3H), 1.26 (t, *J* = 9.0 Hz, 32H), 0.88 (t, *J* = 6.7 Hz, 3H); δ_C (100 MHz, $CDCl_3$) 170.8, 170.7, 169.1, 166.3, 138.6, 138.2, 138.0, 132.8, 132.5, 130.3, 129.6, 128.4, 128.32, 128.28, 128.1, 128.0, 127.8, 127.62, 127.58, 127.4, 126.3, 101.9, 99.9, 81.6, 81.3, 80.5, 75.6, 74.9, 73.9, 73.6, 73.1, 69.6, 69.5, 68.8, 65.6, 62.7, 38.5, 34.0, 31.9, 29.7, 29.3, 25.2, 22.7, 21.0, 20.8, 20.7, 14.1; HRMS (MALDI) calcd for $C_{75}H_{98}O_{16}Na$ $[M+Na]^+$ 1277.6747, found 1277.6733.



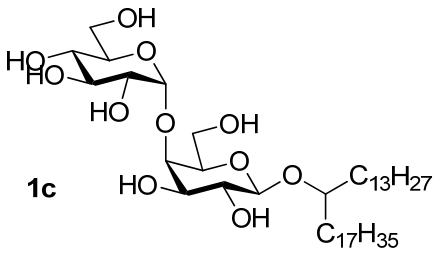
A similar procedure as used for the preparation of **11a** was employed. Thus, **11i** (56 mg, 92%) was obtained as a colorless syrup: $[\alpha]^{26}_{D}$ = 47.29 (*c* 1.02, $CHCl_3$); δ_H (400 MHz, $CDCl_3$) 7.35 – 7.17 (m, 21H), 6.98 – 6.85 (dt, *J* = 15.7, 7.6 Hz 1H), 5.86 (d, *J* = 15.7 Hz, 1H), 5.20 (dd, *J* = 10.6, 7.9 Hz, 1H), 4.93 – 4.82 (m, 4H), 4.76 (d, *J* = 3.3 Hz, 1H), 4.72 (d, *J* = 11.9 Hz, 1H), 4.61 (s, 1H), 4.59 (d, *J* = 1.9 Hz, 1H), 4.48 (d, *J* = 7.8 Hz, 1H), 4.36 – 4.25 (m, 4H), 4.17 (d, *J* = 10.0 Hz, 1H), 4.09 (t, *J* = 9.4 Hz, 2H), 3.83 (dd, *J* = 9.8, 5.6 Hz, 1H), 3.74 – 3.69 (m, 2H), 3.71 (s, 3H) 3.63 (dd, *J* = 9.8, 6.4 Hz, 1H), 3.55 (t, *J* = 9.5 Hz, 1H), 3.46 (dd, *J* = 9.8, 3.3 Hz, 1H), 2.47 – 2.29 (m, 2H), 2.05 (s, 3H), 2.04 (s, 3H), 1.99 (s, 3H), 1.67 (br s, 1H), 1.51 (br s, 1H), 1.23 (d, 32H), 0.88 (t, *J* = 6.7 Hz, 3H); δ_C (100 MHz, $CDCl_3$) 170.7, 170.6, 169.2, 166.6, 145.1, 138.5, 138.2, 138.0, 137.9, 128.38, 128.36, 128.3, 128.1, 128.0, 127.8, 127.6, 127.6, 127.5, 127.4, 123.2, 100.5, 99.9, 81.6, 80.4, 78.9, 77.2, 75.6, 74.9, 73.9, 73.5, 73.1, 73.0, 69.5, 69.4, 68.6, 62.6, 51.4, 36.7, 34.8, 31.9, 29.7, 29.6, 29.3, 25.2, 22.6, 21.0, 20.8, 20.6, 14.1; HRMS (MALDI) calcd for $C_{69}H_{94}O_{16}Na$ $[M+Na]^+$ 1201.6434, found 1201.6447.



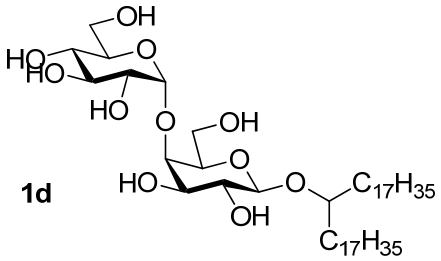
To a solution of triacetate **2a** (27 mg, 0.024 mmol) in CH_2Cl_2/MeOH (2 mL/2 mL) was added a catalytic amount of MeONa. The mixture was stirred at rt for 3 h. Amberlite IR-120 resin (H form) was added to neutralize the solution. Filtration and evaporation gave a residue. To a solution of the above residue in ethyl acetate/MeOH (3 mL/2 mL) was added 20% $Pd(OH)_2/C$ (35 mg) at rt. After stirring under H_2 (1 atm) for 5 h, the mixture was filtered and concentrated. The residue was purified by thin layer chromatography on silica gel ($CHCl_3$/MeOH, 11:1) to afford **1a** (11 mg, 66%) as a white powder: $[\alpha]^{25}_D$ = 18.86 (*c* 0.38, $CHCl_3$/MeOH, 3:1); δ_H (400 MHz, pyridine-d_5) 5.78 (d, *J* = 3.6 Hz, 1H), 4.92 – 4.88 (m, 1H), 4.79 (d, *J* = 7.5 Hz, 1H), 4.71 (d, *J* = 2.1 Hz, 1H), 4.56 (t, *J* = 9.8 Hz, 1H), 4.56 (t, *J* = 9.2 Hz, 1H), 4.46 (dd, *J* = 11.2, 1.6 Hz, 1H), 4.35 – 4.26 (m, 3H), 4.19 – 4.14 (m, 3H), 4.10(t, *J* = 7.2 Hz, 1H), 3.92 – 3.87 (m, 1H), 1.75 – 1.42 (m, 9H), 1.28 (s, 38H), 0.86 (t, *J* = 6.0 Hz, 6H); δ_C (100 MHz, pyridine-d_5) 104.6, 102.6, 79.7, 79.5, 75.4, 75.1, 74.9, 74.7, 74.2, 72.9, 72.1, 62.4, 60.5, 37.6, 34.6, 32.0, 30.2, 29.9, 29.8, 29.5, 25.3, 22.8, 18.8, 14.3, 14.2; HRMS (MALDI) calcd for $C_{33}H_{64}O_{11}Na$ $[M+Na]^+$ 659.4341, found 659.4345.



A similar procedure as used for the preparation of **1a** was employed. Thus, **1b** (22 mg, 61%) was obtained as a white powder: $[\alpha]^{27}_D$ = 30.06 (*c* 0.26, $CHCl_3$/MeOH, 3:1); δ_H (400 MHz, pyridine-d_5) 5.79 (d, *J* = 3.5 Hz, 1H), 4.91 – 4.88 (m, 1H), 4.82 (d, *J* = 6.1 Hz, 1H), 4.73 (s, 1H), 4.68 (t, *J* = 9.3 Hz, 1H), 4.56 (t, *J* = 9.2 Hz, 1H), 4.46 (dd, *J* = 11.3, 1.8 Hz, 1H), 4.37 – 4.28 (m, 3H), 4.19 – 4.13 (m, 4H), 3.93 (br s, 1H), 1.80 – 1.60 (m, 6H), 1.28 (s, 29H), 0.86 (t, *J* = 6.6 Hz, 6H); δ_C (100 MHz, pyridine-d_5) 104.6, 102.6, 79.9, 79.7, 75.5, 75.1, 74.9, 74.7, 74.2, 72.9, 72.1, 62.4, 60.4, 35.4, 34.6, 32.0, 30.2, 29.9, 29.8, 29.5, 25.3, 22.8, 14.2; HRMS (MALDI) calcd for $C_{37}H_{72}O_{11}Na$ $[M+Na]^+$ 715.4967, found 715.4974.

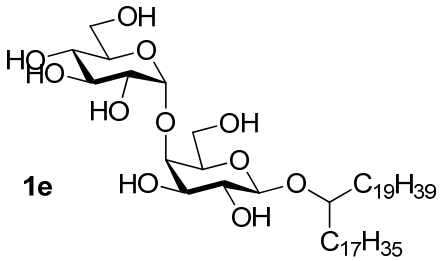


A similar procedure as used for the preparation of **1a** was employed. Thus, **1c** (26 mg, 83%) was obtained as a white powder: $[\alpha]^{25}_{D}$ = 15.26 (*c* 0.15, $CHCl_3$/MeOH, 3:1); δ_H (400 MHz, pyridine-d_5) 5.79 (d, *J* = 3.1 Hz, 1H), 4.89 (s, 1H), 4.83 (d, *J* = 7.4 Hz, 1H), 4.73 (s, 1H), 4.66 (t, *J* = 9.6 Hz, 1H), 4.55 (t, *J* = 9.2 Hz, 1H), 4.46 (d, *J* = 10.2 Hz, 1H), 4.41 – 4.35 (m, 1H), 4.30 – 4.26 (m, 2H), 4.18 – 4.12 (m, 4H), 3.95 (t, *J* = 5.2 Hz, 1H), 1.87 – 1.45 (m, 12H), 1.26 (d, *J* = 14.1 Hz, 61H), 0.86 (t, *J* = 6.1 Hz, 8H); δ_C (100 MHz, pyridine-d_5) 104.6, 102.6, 80.0, 79.7, 75.5, 75.1, 74.9, 74.7, 74.1, 72.9, 72.1, 62.4, 60.5, 35.5, 34.5, 32.0, 30.3, 30.1, 29.92, 29.89, 29.8, 29.5, 25.6, 25.3, 22.8, 14.2; HRMS (MALDI) calcd for $C_{43}H_{84}O_{11}Na$ $[M+Na]^+$ 799.5906, found 799.5928.



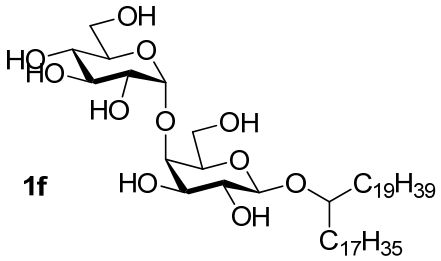
1d

A similar procedure as used for the preparation of **1a** was employed. Thus, **1d** (26 mg, 91%) was obtained as a white powder: $[\alpha]^{26}_{D}$ = 6.38 (*c* 0.11, $CHCl_3$/MeOH, 3:1); δ_H (400 MHz, pyridine-d_5) 5.80 (d, *J* = 3.7 Hz, 1H), 4.92 – 4.89 (m, 1H), 4.84 (d, *J* = 7.5 Hz, 1H), 4.74 (d, *J* = 2.1 Hz, 1H), 4.69 ((t, *J* = 9.8 Hz, 1H), 4.56 (t, *J* = 9.2 Hz, 1H), 4.46 (dd, *J* = 11.3, 2.0 Hz, 1H), 4.36 (dd, *J* = 9.6, 7.6 Hz, 1H), 4.34 – 4.28 (m, 2H), 4.19 – 4.12 (m, 4H), 3.98 – 3.93 (m, 1H), 1.84 – 1.60 (m, 10H), 1.27 (d, 61H), 0.87 (t, *J* = 6.6 Hz, 6H); δ_C (100 MHz, pyridine-d_5) 104.6, 102.6, 79.9, 79.7, 75.5, 75.1, 74.9, 74.7, 74.1, 72.9, 72.1, 62.4, 60.5, 35.5, 34.5, 32.0, 30.3, 30.1, 29.9, 29.8, 29.5, 25.6, 25.3, 22.8, 14.2; HRMS (MALDI) calcd for $C_{47}H_{92}O_{11}Na$ $[M+Na]^+$ 855.6532, found 855.6536.



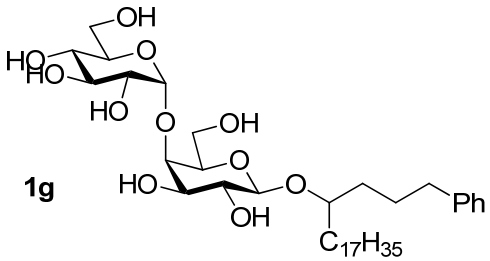
1e

A similar procedure as used for the preparation of **1a** was employed. Thus, **1e** (25 mg, 85%) was obtained as a white powder: $[\alpha]^{26}_{D}$ = 8.13 (*c* 0.15, MeOH, 3:1); δ_H (400 MHz, pyridine-d_5) 5.79 (d, *J* = 3.0 Hz, 1H), 4.91 – 4.88 (br s, 1H), 4.83 (d, *J* = 7.5 Hz, 1H), 4.73 (s, 1H), 4.68 (t, *J* = 9.6 Hz, 1H), 4.56 (t, *J* = 9.1 Hz, 1H), 4.46 (d, *J* = 10.3 Hz, 1H), 4.38 – 4.28 (m, 3H), 4.19 – 4.12 (m, 4H), 3.96 (t, *J* = 4.2 Hz, 1H), 1.82 – 1.66 (m, 8H), 1.30 (s, 86H), 0.88 (t, *J* = 6.3 Hz, 6H); δ_C (100 MHz, pyridine-d_5) 104.5, 102.6, 79.9, 79.6, 75.4, 75.0, 74.8, 74.6, 74.0, 72.8, 72.0, 62.3, 60.4, 35.4, 34.4, 32.0, 30.2, 29.8, 29.8, 29.4, 25.5, 25.2, 22.8, 14.1; HRMS (MALDI) calcd for $C_{49}H_{96}O_{11}Na$ $[M+Na]^+$ 883.6845, found 883.6856.



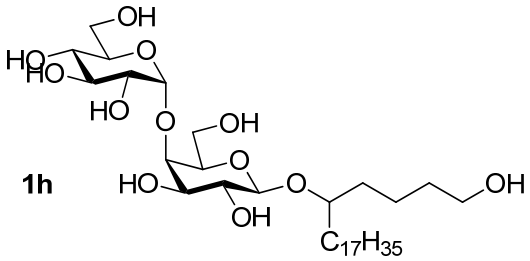
1f

A similar procedure as used for the preparation of **1a** was employed. Thus, **1f** (21 mg, 90%) was obtained as a white powder: $[\alpha]^{26}_{D}$ = 17.78 (*c* 0.13, $CHCl_3$/MeOH, 3:1); δ_H (400 MHz, pyridine-d_5) 5.79 (d, *J* = 2.8 Hz, 1H), 4.91 (br, 1H), 4.84 (d, *J* = 7.4 Hz, 1H), 4.73 (br s, 1H), 4.68 (t, *J* = 9.6 Hz, 1H), 4.56 (t, *J* = 9.2 Hz, 1H), 4.46 (d, *J* = 10.4 Hz, 1H), 4.36 (t, *J* = 9.2 Hz, 1H), 4.34 – 4.29 (m, 2H), 4.19 – 4.10 (m, 4H), 3.97 (t, *J* = 4.2 Hz, 1H), 1.83 – 1.60 (m, 8H), 1.29 (s, 76H), 0.88 (t, *J* = 6.3 Hz, 6H); δ_C (100 MHz, pyridine-d_5) 104.6, 102.6, 79.9, 79.7, 75.5, 75.1, 74.9, 74.7, 74.1, 72.9, 72.1, 62.4, 60.5, 35.5, 34.5, 32.0, 29.9, 29.8, 29.5, 25.6, 25.3, 22.8, 14.2; HRMS (MALDI) calcd for $C_{49}H_{96}O_{11}Na$ $[M+Na]^+$ 883.6845, found 883.6849.



1g

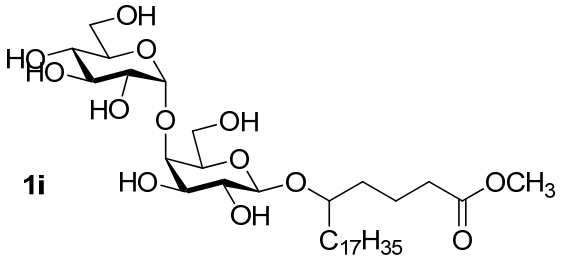
A similar procedure as used for the preparation of **1a** was employed. Thus, **1g** (21 mg, 67%) was obtained as a white powder: $[\alpha]^{24}_{D}$ = 29.71 (*c* 0.36, $CHCl_3$/MeOH, 3:1); δ_H (400 MHz, pyridine-d_5) 7.39 – 7.21 (m, 5H), 5.79 (d, *J* = 3.1 Hz, 1H), 4.90 (br s, 1H), 4.80 (d, *J* = 7.4 Hz, 1H), 4.73 (s, 1H), 4.66 (t, *J* = 9.2 Hz, 1H), 4.57 (t, *J* = 9.2 Hz, 1H), 4.46 (d, *J* = 10.0 Hz, 1H), 4.37 – 4.27 (m, 3H), 4.19 – 4.09 (m, 4H), 3.94 (br, 1H), 2.63 – 2.53 (m, 2H), 1.80 – 1.53 (m, 9H), 1.27 (d, *J* = 4.7 Hz, 37H), 0.85 (t, *J* = 6.7 Hz, 6H).; δ_C (100 MHz, pyridine-d_5) 143.1, 128.8, 128.6, 125.9, 104.4, 102.6, 79.7, 79.4, 75.5, 75.1, 74.9, 74.7, 74.2, 72.9, 72.1, 62.4, 60.5, 36.0, 34.8, 34.6, 32.0, 29.9, 29.8, 29.5, 27.3, 25.3, 22.8, 14.2; HRMS (MALDI) calcd for $C_{39}H_{68}O_{11}Na$ $[M+Na]^+$ 735.4654, found 735.4648.



1h

A similar procedure as used for the preparation of **1a** was employed. Thus, **1h** (5 mg, 32%) was obtained as a white solid: $[\alpha]^{26}_{D}$ = 19.70 (*c* 0.18, $CHCl_3$/MeOH, 3:1); δ_H (400 MHz, pyridine-d_5) 5.79 (d, *J* = 3.5 Hz, 1H), 4.93 (d, *J* = 6.2 Hz, 1H), 4.83 (d, *J* = 7.4 Hz, 1H), 4.73 (s, 1H), 4.65 (t, *J* = 9.6 Hz, 1H), 4.59 (t, *J* = 9.2 Hz, 1H), 4.49 (d, *J* = 9.6 Hz, 1H), 4.38 – 4.30 (m, 3H), 4.21 – 4.17

(m, 3H), 4.12 (t, J = 6.8 Hz, 1H), 3.96 (br s, 1H), 3.84 (t, J = 5.7 Hz, 2H), 1.70 (m, 9H), 1.29 (s, 33H), 0.88 (t, J = 6.4 Hz, 3H); δ_C (100 MHz, pyridine-d_5) 104.5, 102.6, 79.8, 79.7, 75.6, 75.1, 74.9, 74.7, 74.2, 72.9, 72.1, 62.4, 62.0, 60.5, 35.2, 34.6, 33.7, 32.0, 30.3, 29.9, 29.8, 29.5, 25.4, 22.8, 22.1, 14.2; HRMS (MALDI) calcd for $C_{34}H_{66}O_{12}Na$ $[M+Na]^+$ 689.4446, found 689.4459.



A similar procedure as used for the preparation of **1a** was employed. Thus, **1i** (18 mg, 99%) was obtained as a white solid: $[\alpha]^{26}_D$ = 27.95 (*c* 0.42, $CHCl_3$/MeOH, 3:1); δ_H (400 MHz, pyridine-d_5) 5.80 (d, J = 3.6 Hz, 1H), 4.94 – 4.90 (m, 1H), 4.79 (d, J = 7.5 Hz, 1H), 4.73 (d, J = 2.2 Hz, 1H), 4.68 (t, J = 9.6 Hz, 1H), 4.58 (t, J = 9.2 Hz, 1H), 4.48 (dd, J = 11.3, 1.9 Hz, 1H), 4.40 – 4.29 (m, 3H), 4.20 – 4.10 (m, 4H), 3.93 (t, J = 4.2 Hz, 1H), 3.61 (s, 3H), 2.41 (t, J = 7.3 Hz, 2H), 2.02 – 1.60 (m, 6H), 1.29 (s, 29H), 0.87 (t, J = 6.6 Hz, 3H). δ_C (100 MHz, pyridine-d_5) 173.8, 104.6, 102.6, 98.9, 79.7, 79.6, 75.5, 75.1, 74.9, 74.7, 74.1, 72.8, 72.1, 62.4, 60.4, 51.1, 34.2, 32.0, 29.9, 29.8, 29.5, 25.6, 22.8, 20.7, 14.2; HRMS (MALDI) calcd for $C_{35}H_{66}O_{13}Na$ $[M+Na]^+$ 717.4396, found 717.4392.

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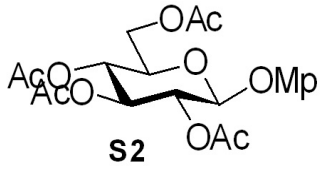

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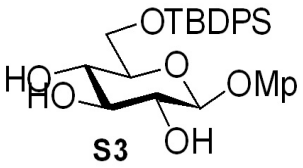

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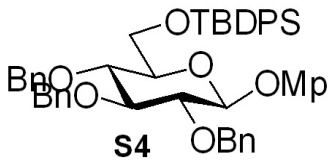

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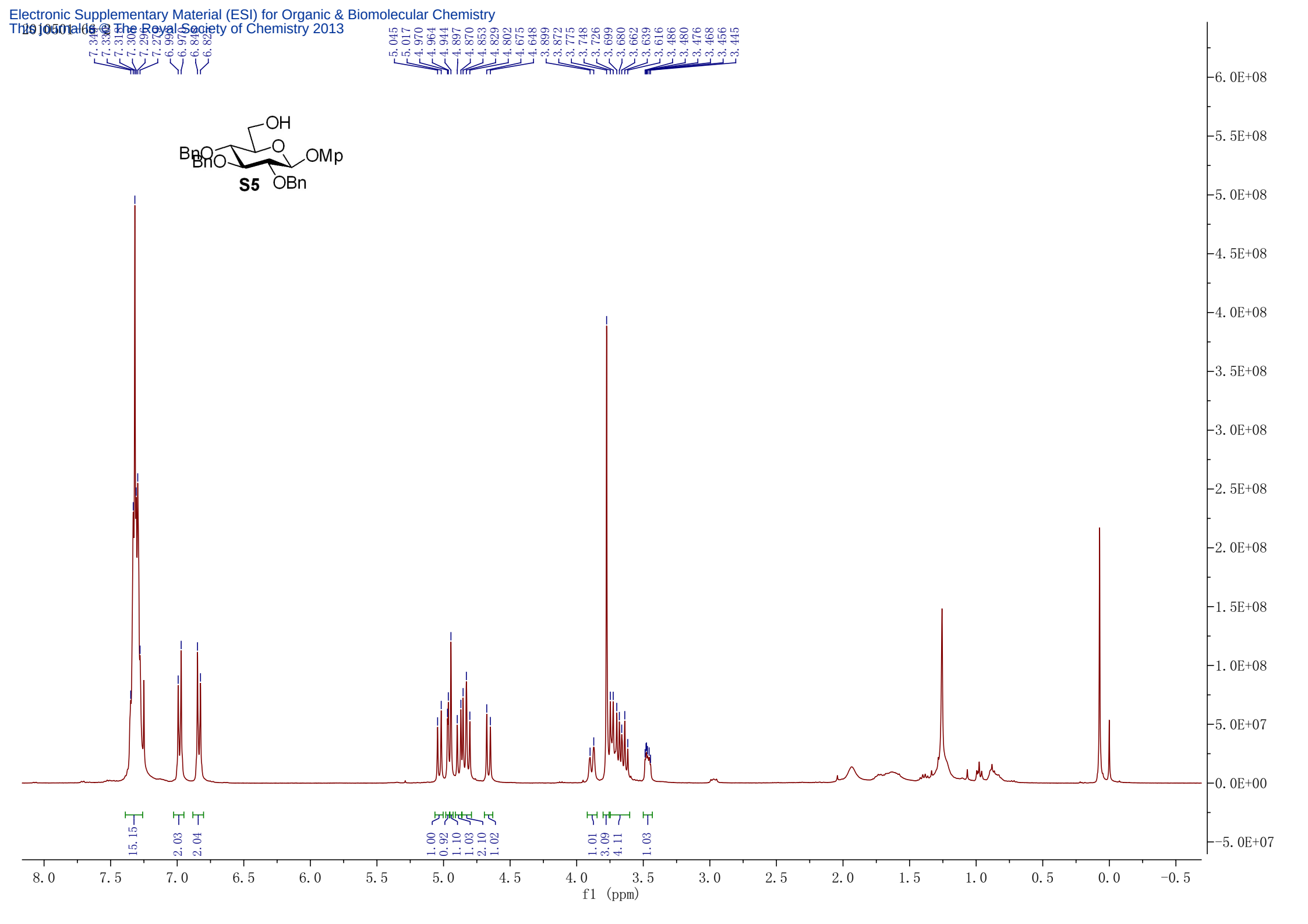

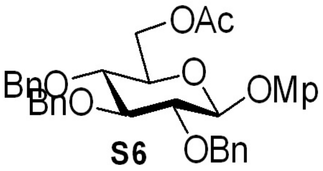

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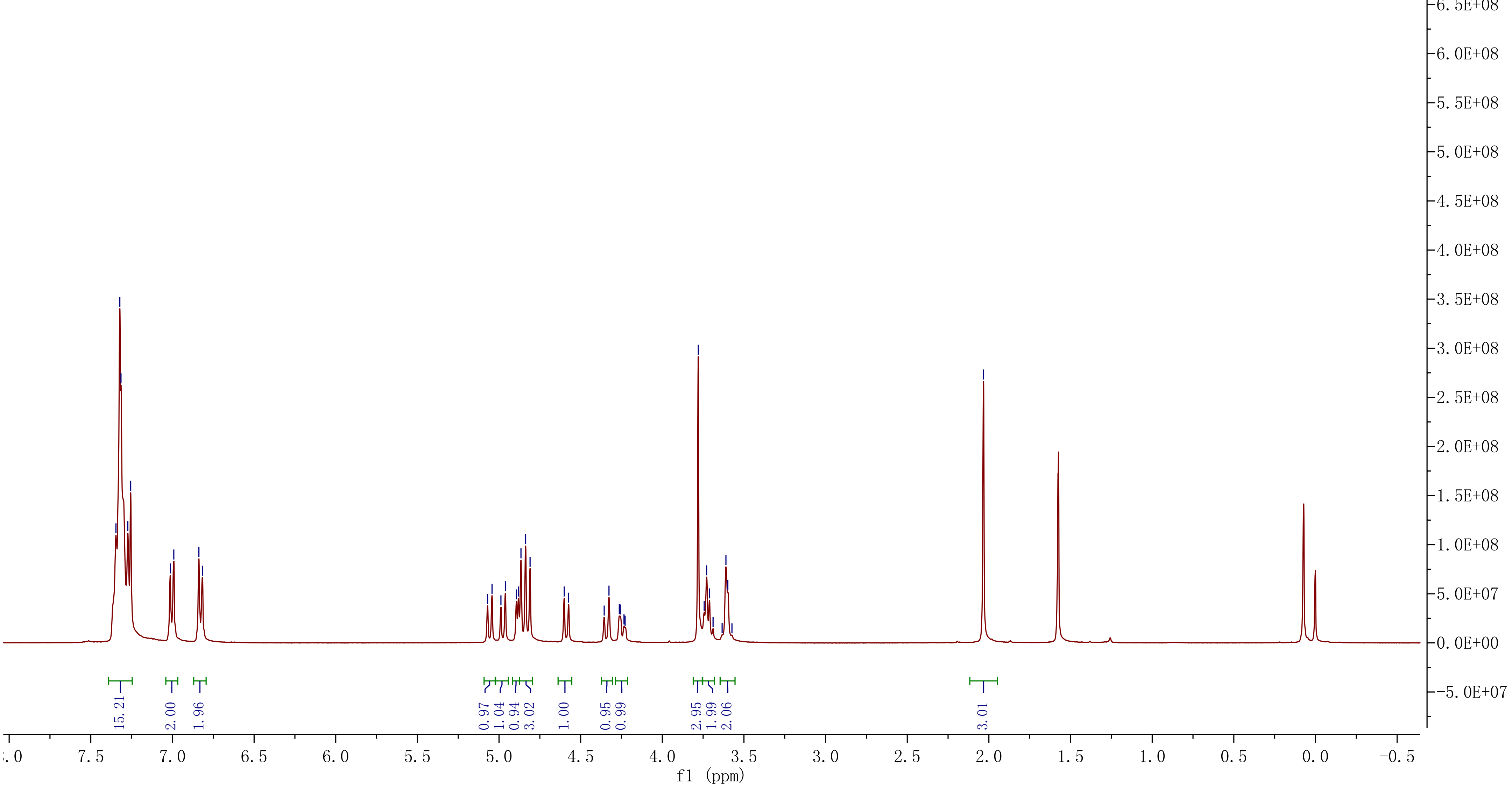
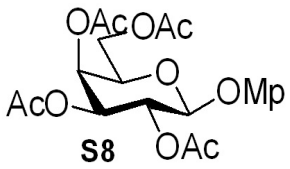
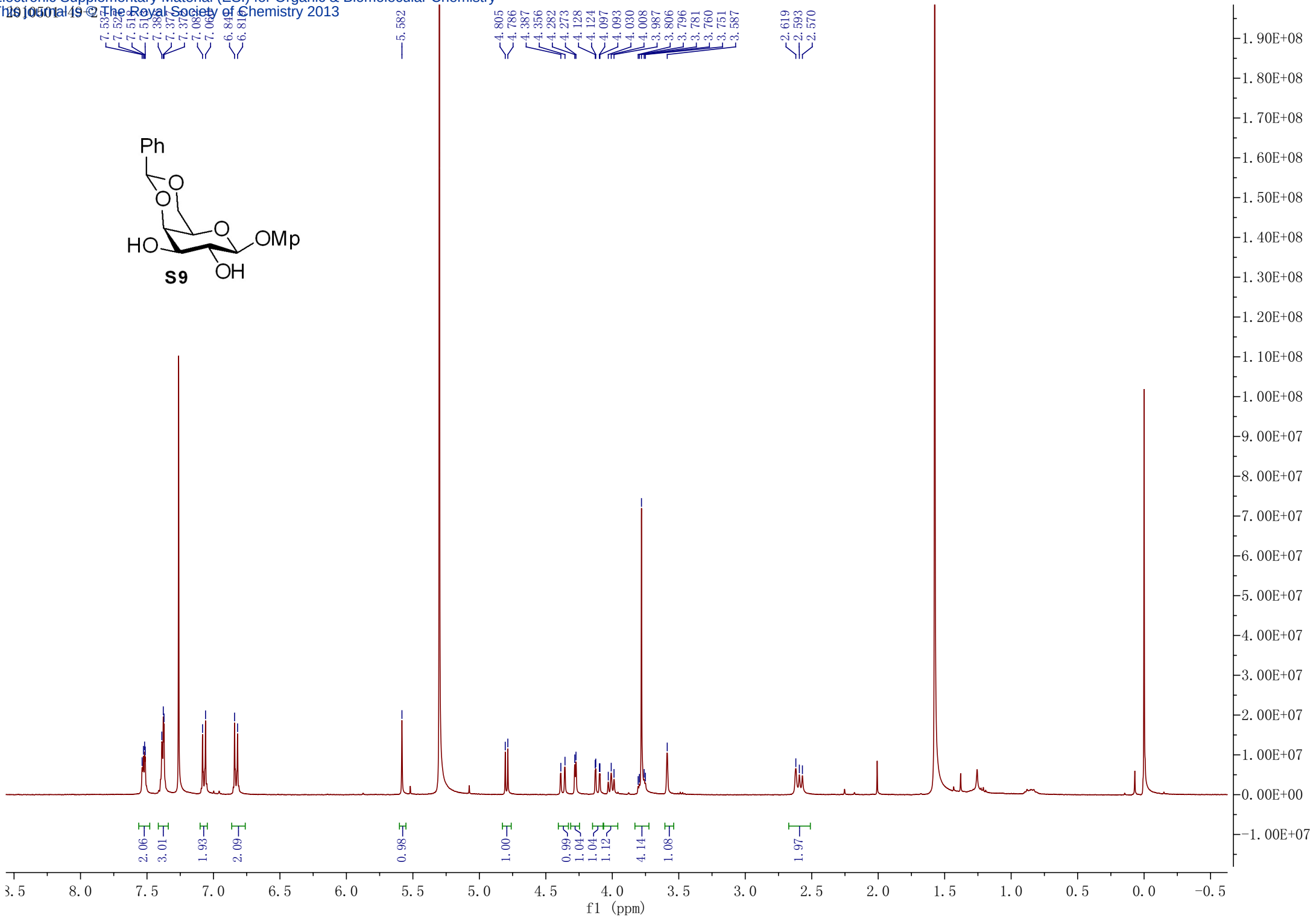
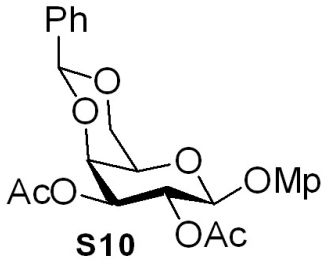




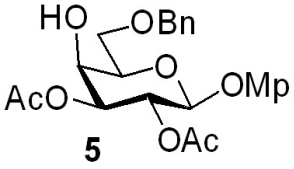
S8

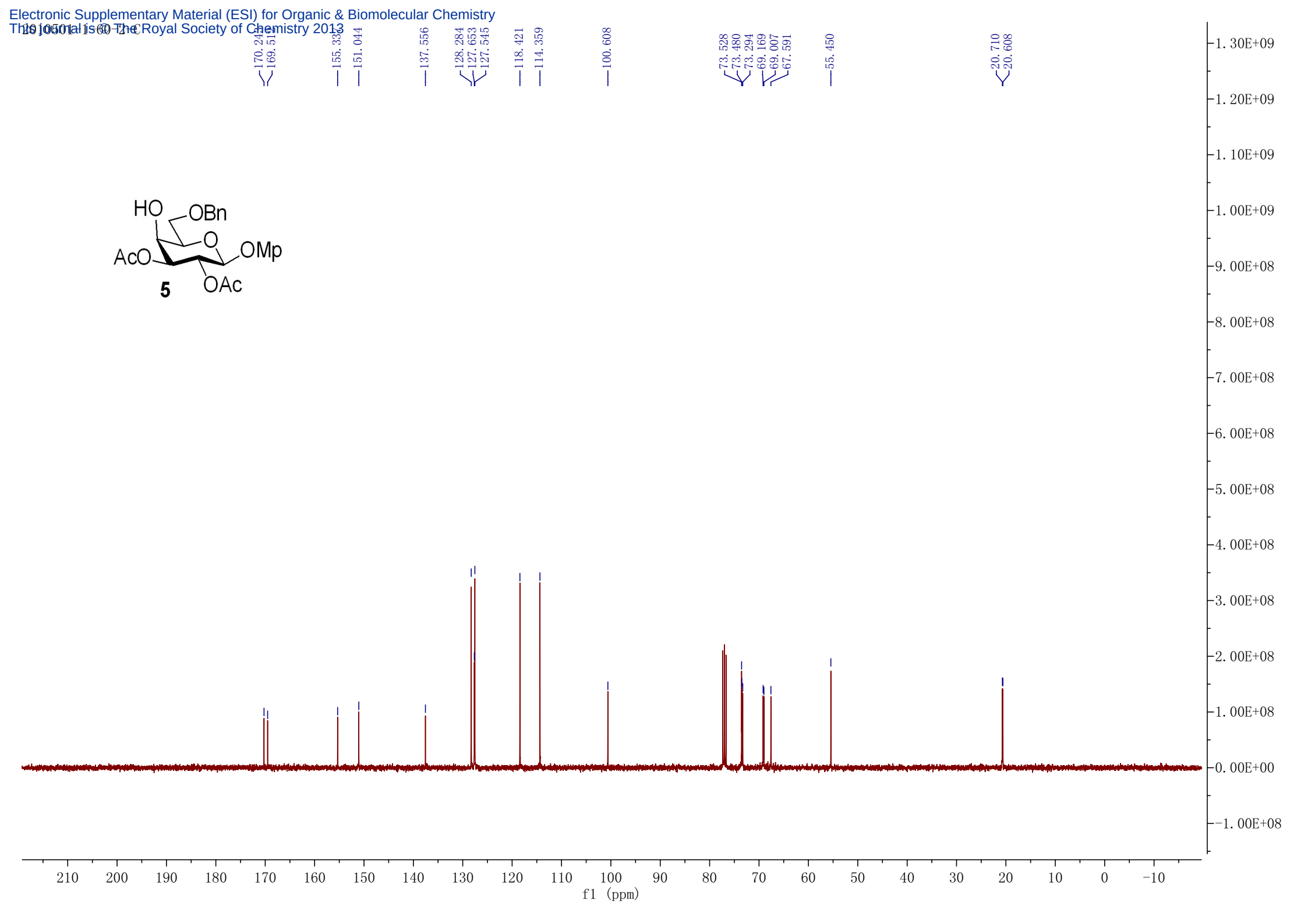


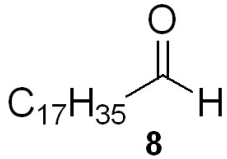


S10

f1 (ppm)







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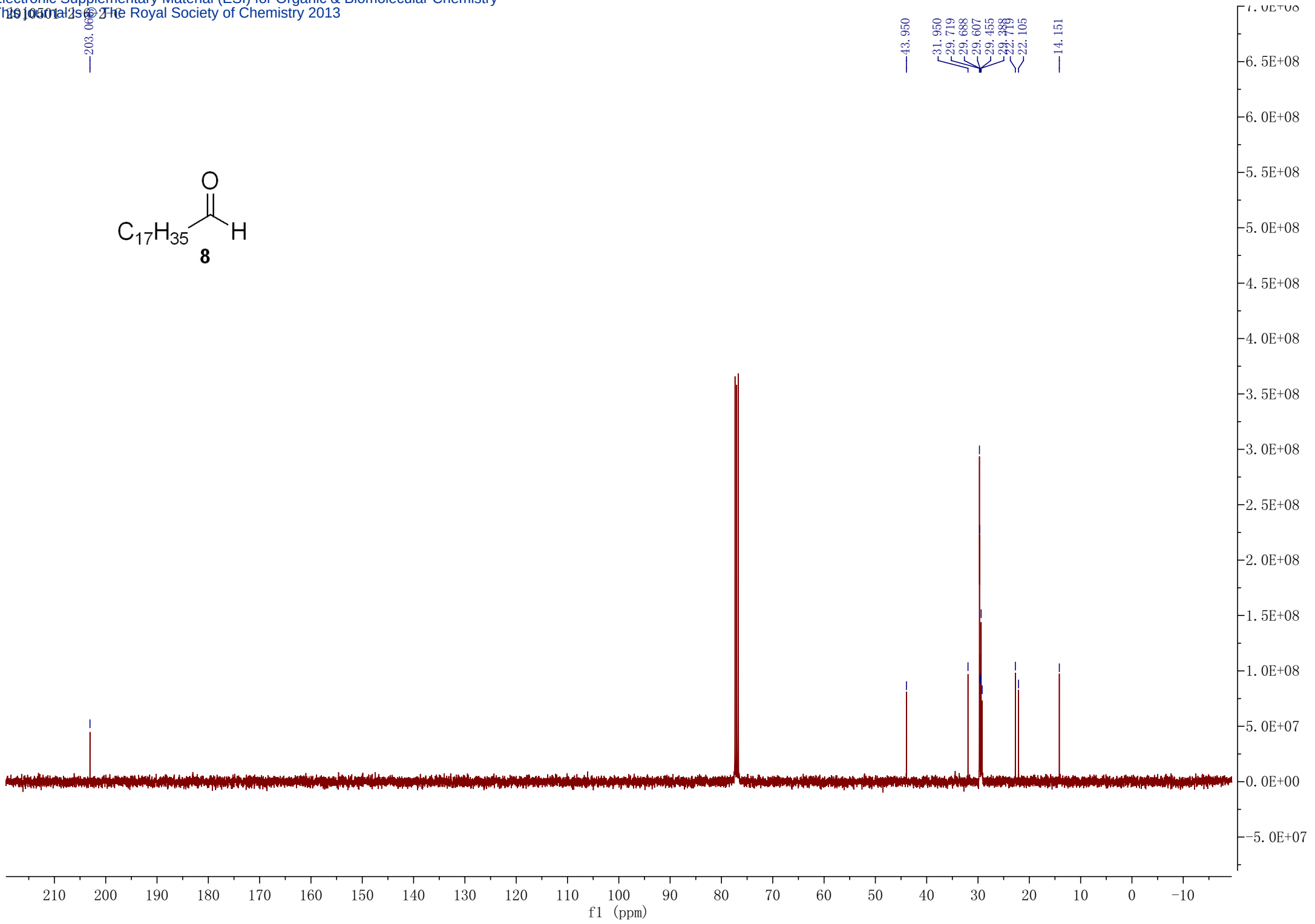

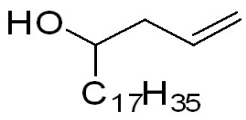

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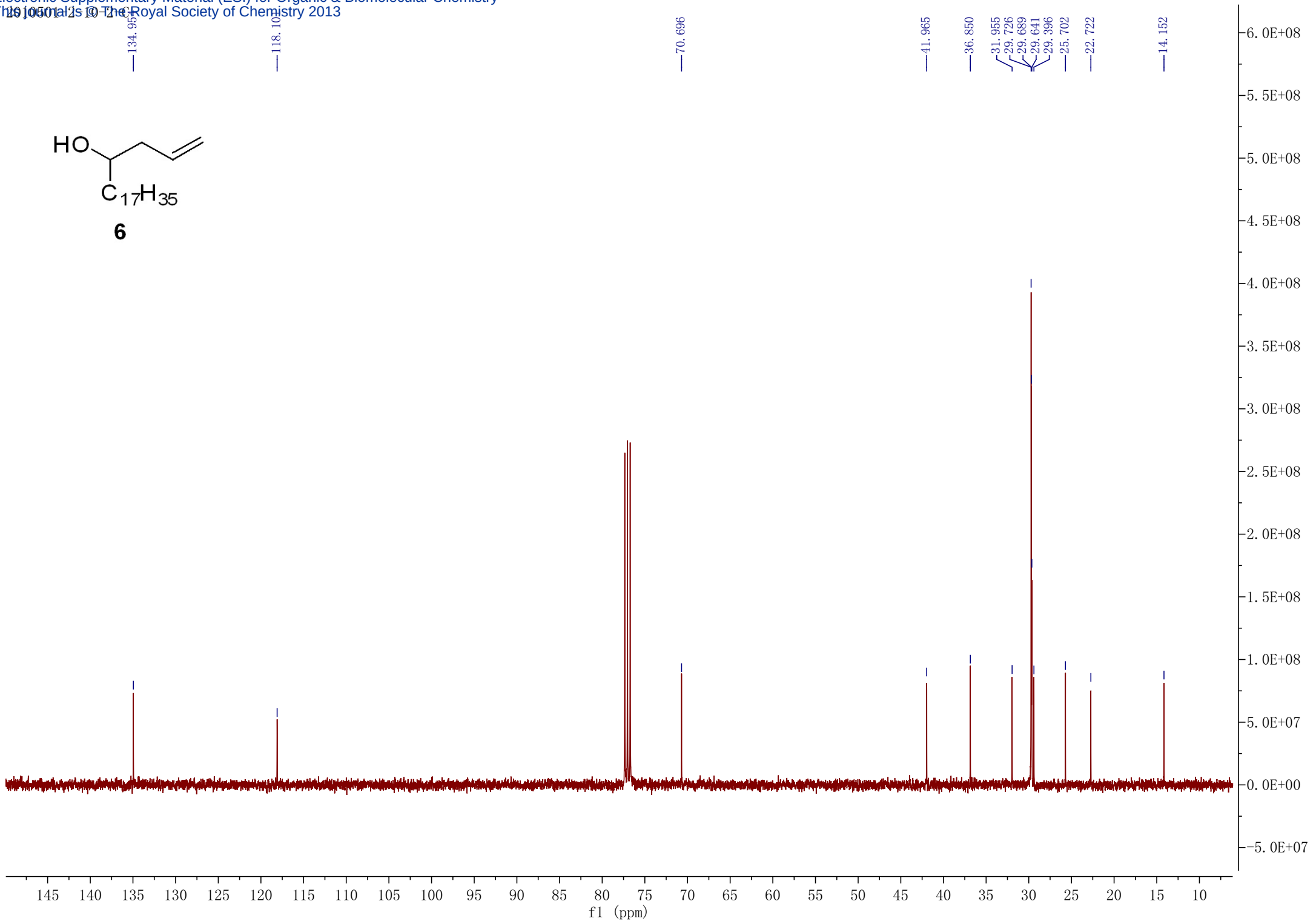
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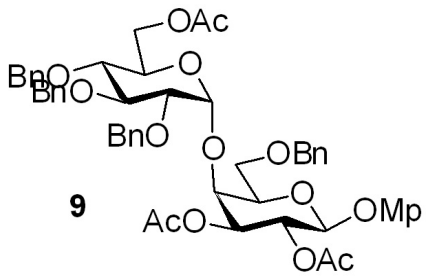
118.103
70.696
41.965
36.850
31.955
29.726
29.689
29.641
29.396
25.702
22.722
14.152
HO
C17H35
6
6.0E+08
5.5E+08
5.0E+08
4.5E+08
4.0E+08
3.5E+08
3.0E+08
2.5E+08
2.0E+08
1.5E+08
1.0E+08
5.0E+07
0.0E+00
-5.0E+07
145 140 135 130 125 120 115 110 105 100 95 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10
f1 (ppm)



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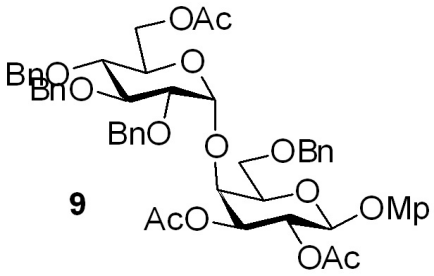

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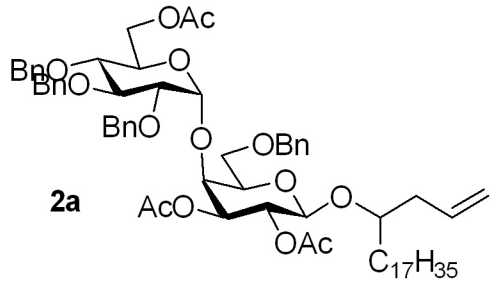
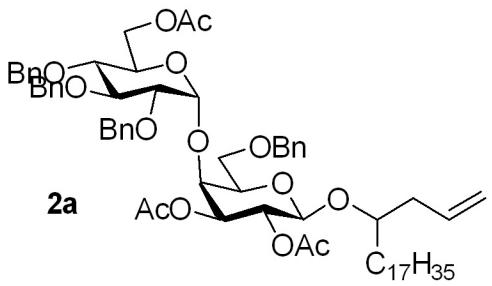
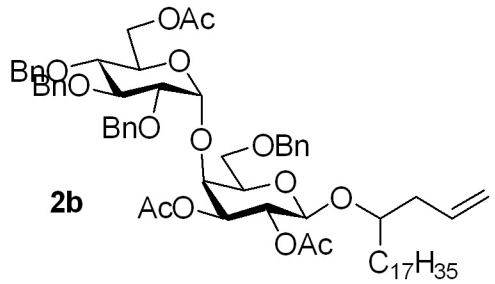


2a

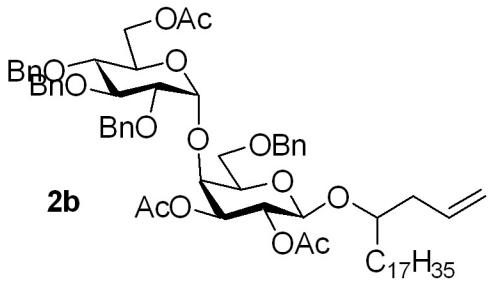
f1 (ppm)



2a

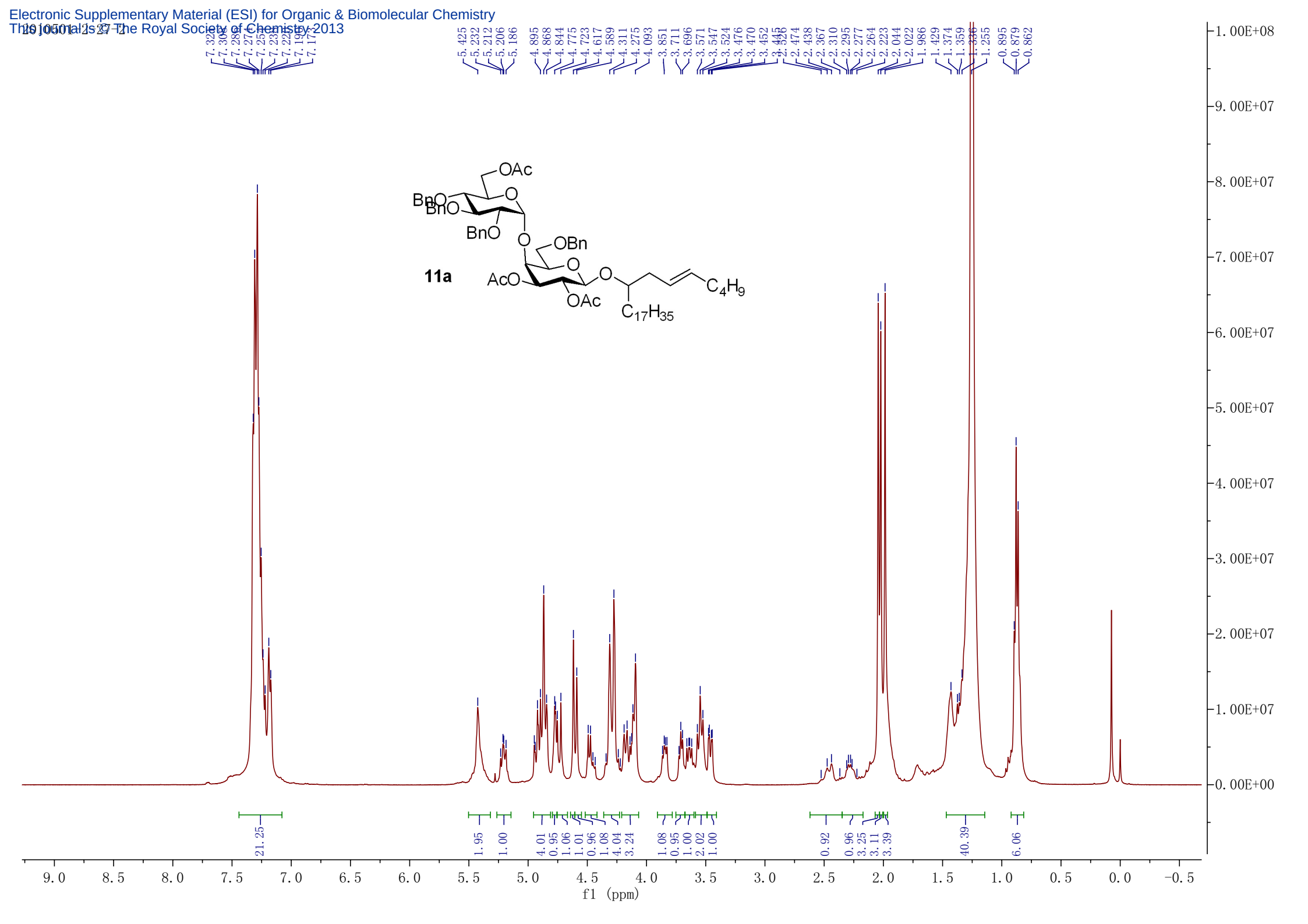


2b


OAc
BnO
BnO
BnO
O
O
OBn
O
AcO
O
OAc
$C_{17}H_{35}$

2b

170.755
170.639
169.142
138.568
138.254
138.102
137.985
134.578
128.399
128.386
128.317
127.591
127.497
116.953
100.843
99.904
81.575
80.454
80.273
77.318
77.000
76.683
75.656
74.888
73.957
73.529
73.153
73.055
69.618
62.731
38.515
34.570
31.911
29.697
29.346
25.234
22.676
21.046
20.827
14.104
3.6E+08
3.4E+08
3.2E+08
3.0E+08
2.8E+08
2.6E+08
2.4E+08
2.2E+08
2.0E+08
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
-2.0E+07
-4.0E+07
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)


11a
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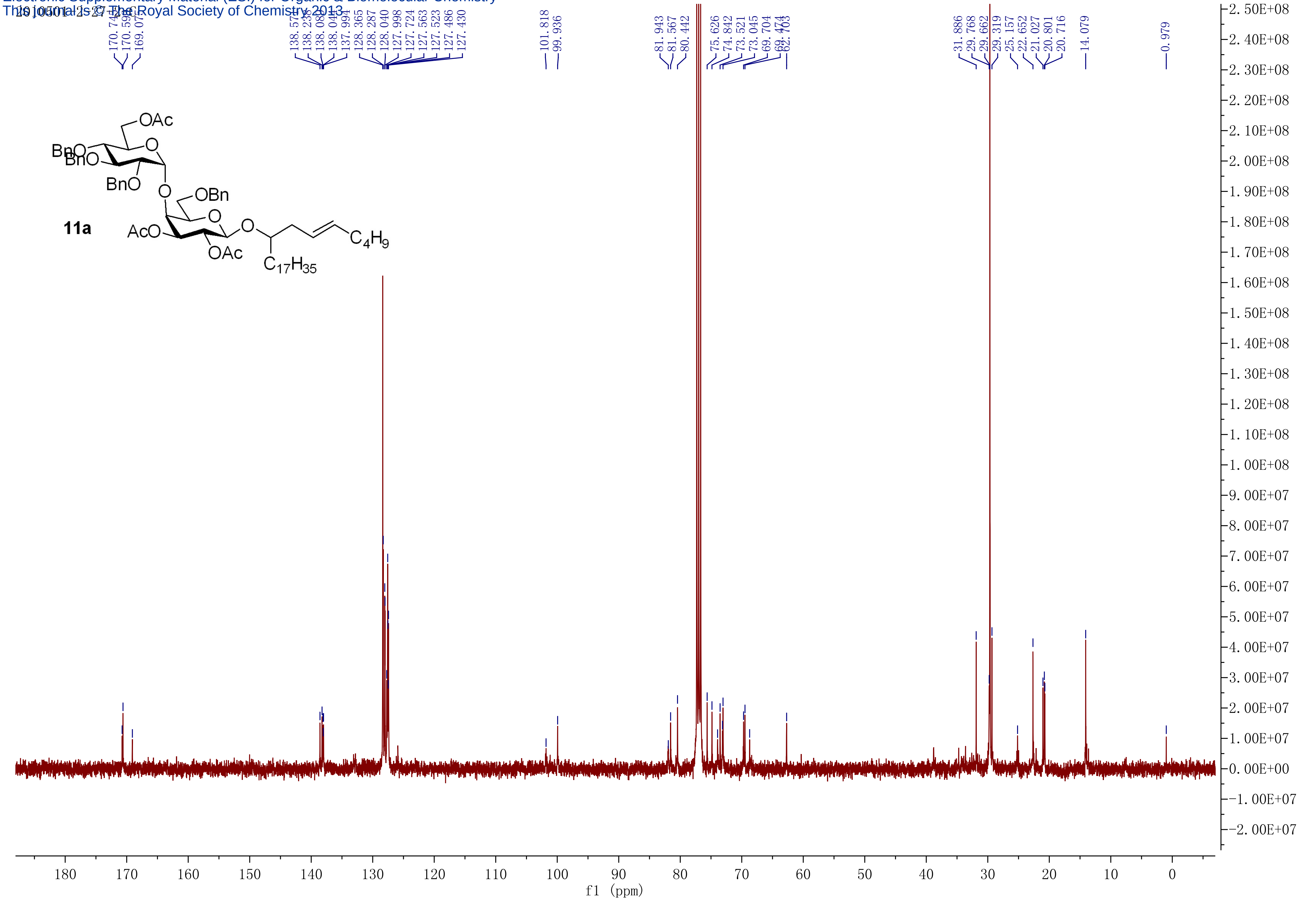
BnO
BnO
BnO
O
OBn
AcO
OAc
C17H35
C4H9
f1 (ppm)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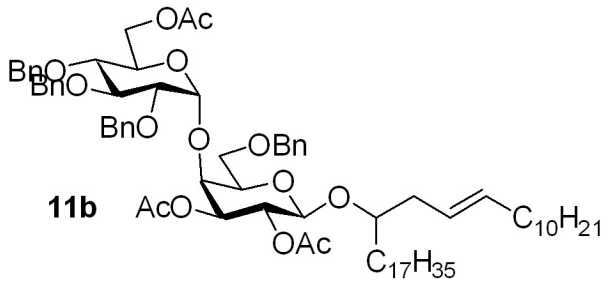
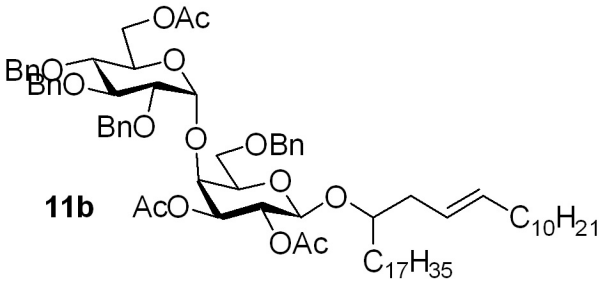
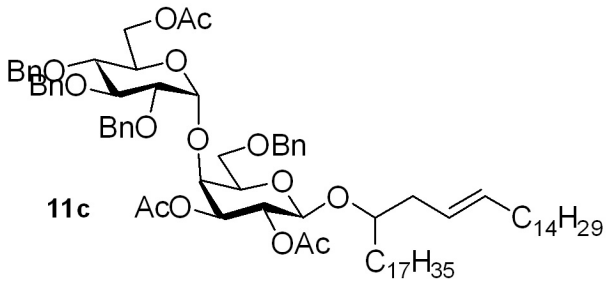
169.077
138.575
138.238
138.082
138.041
137.994
128.365
128.287
128.040
127.998
127.724
127.563
127.523
127.486
127.430
101.818
99.936
81.943
81.567
80.442
75.626
74.842
73.521
73.045
69.704
69.474
62.703
31.886
29.768
29.662
29.319
25.157
22.652
21.027
20.801
20.716
14.079
0.979
OAc
BnO
BnO
O
BnO
O
OBn
O
AcO
OAc
O
C4H9
C17H35
11a
f1 (ppm)



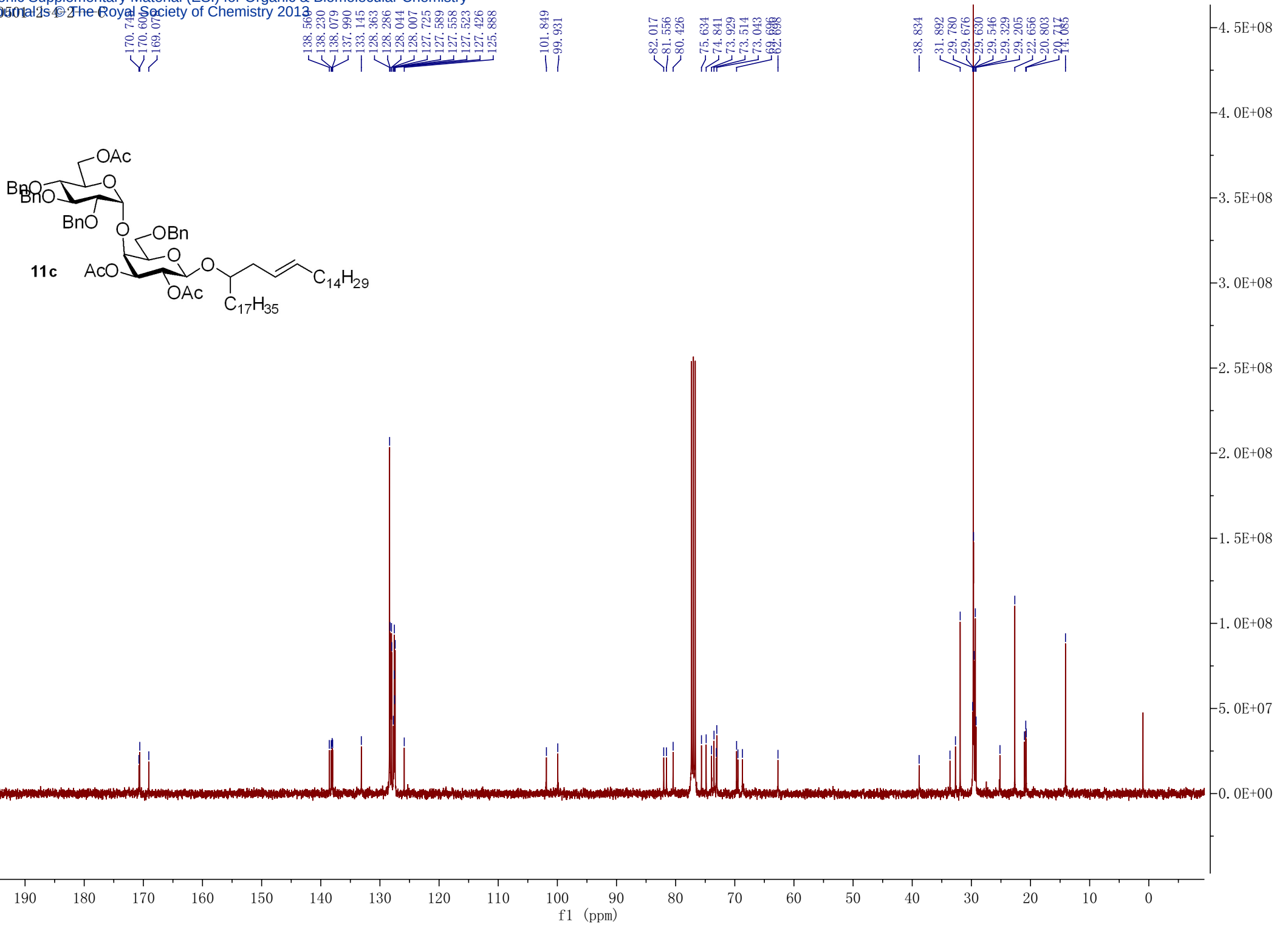

OAc
BnO
BnO
BnO
O
OBn
O
O
AcO
OAc
$C_{10}H_{21}$
$C_{17}H_{35}$

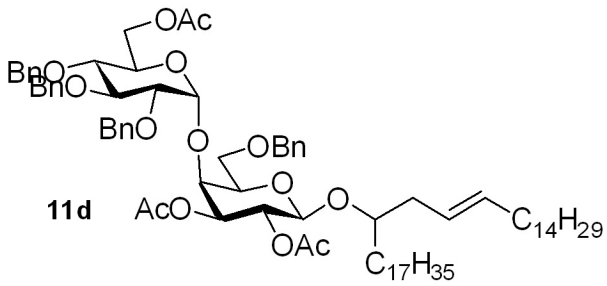
11b

170.754
170.619
169.084
138.588
138.254
138.106
138.015
133.154
128.378
128.300
128.051
128.017
127.734
127.576
127.534
127.439
125.907
101.860
99.945
82.022
81.572
80.458
75.645
74.853
73.531
73.145
73.065
69.722
69.492
62.725
38.843
31.899
29.798
29.684
29.638
29.552
29.337
29.212
22.665
21.038
20.815
14.090
0.991
5.0E+08
4.5E+08
4.0E+08
3.5E+08
3.0E+08
2.5E+08
2.0E+08
1.5E+08
1.0E+08
5.0E+07
0.0E+00
-5.0E+07
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
f1 (ppm)

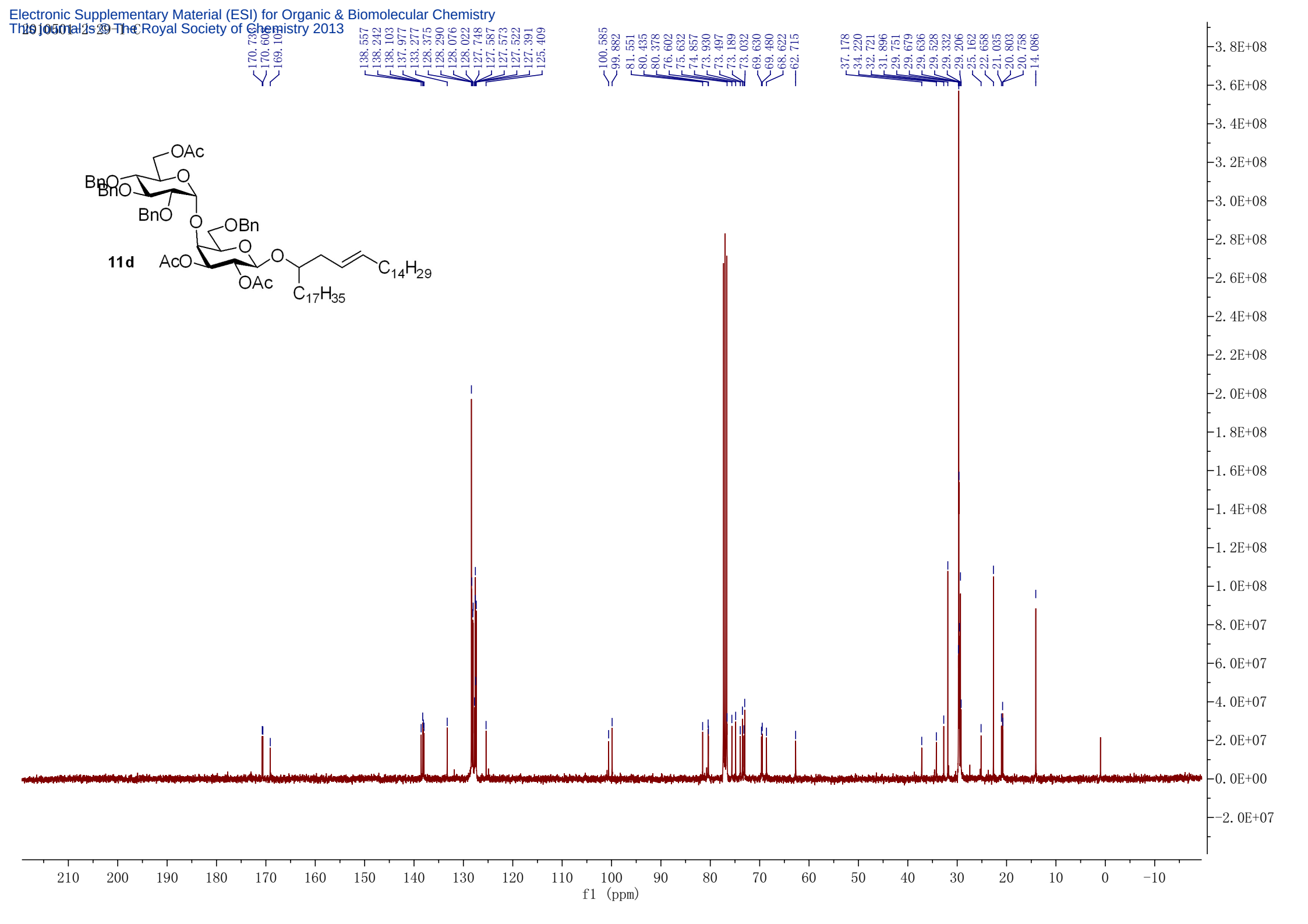


11c





11d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138.557
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138.103
137.977
133.277
128.375
128.290
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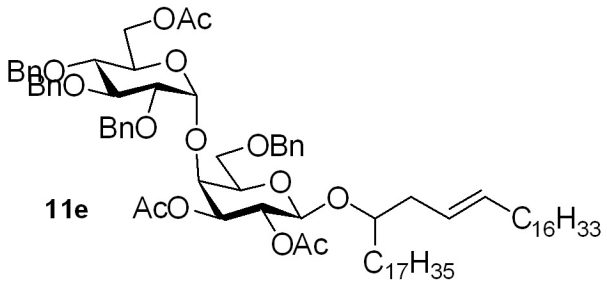
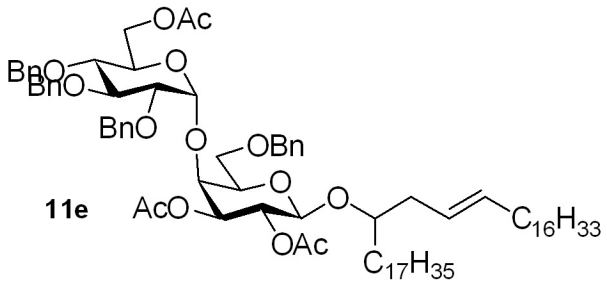
128.022
127.748
127.587
127.573
127.522
127.391
125.409
100.585
99.882
81.551
80.435
80.378
76.602
75.632
74.857
73.930
73.497
73.189
73.032
69.630
69.480
68.622
62.715
37.178
34.220
32.721
31.896
29.751
29.679
29.636
29.528
29.332
29.206
25.162
22.658
21.035
20.803
20.758
14.086
OAc
BnO
BnO
BnO
O
OBn
O
O
AcO
OAc
C14H29
C17H35
11d
3.8E+08
3.6E+08
3.4E+08
3.2E+08
3.0E+08
2.8E+08
2.6E+08
2.4E+08
2.2E+08
2.0E+08
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
-2.0E+07
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)

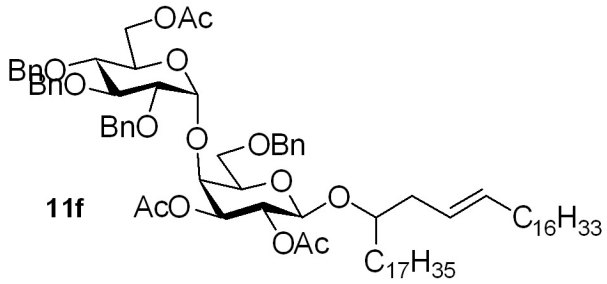


11e


OAc
BnO
BnO
BnO
O
OBn
O
AcO
O
OAc
$C_{16}H_{33}$
$C_{17}H_{35}$

11e

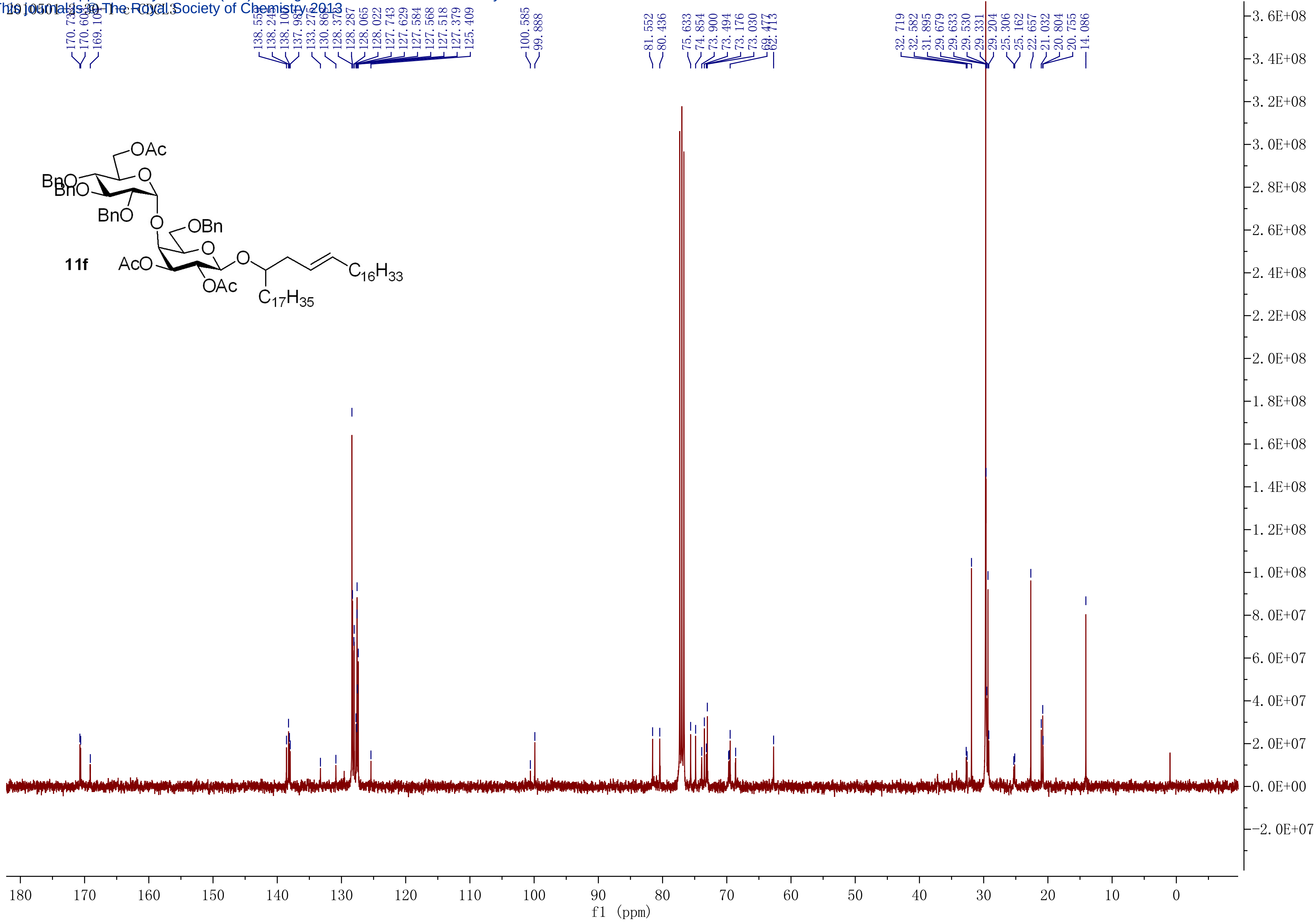
170.762
170.622
169.098
138.587
138.252
138.027
133.161
128.388
128.308
128.058
128.027
127.742
127.610
127.578
127.544
127.447
125.908
101.871
99.956
82.037
81.581
80.457
75.654
74.865
73.534
73.147
73.072
69.722
68.747
62.727
38.852
31.912
29.698
29.649
29.574
25.184
22.675
21.049
20.824
20.736
14.099
4.0E+08
3.8E+08
3.6E+08
3.4E+08
3.2E+08
3.0E+08
2.8E+08
2.6E+08
2.4E+08
2.2E+08
2.0E+08
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
−2.0E+07
−4.0E+07
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
f1 (ppm)

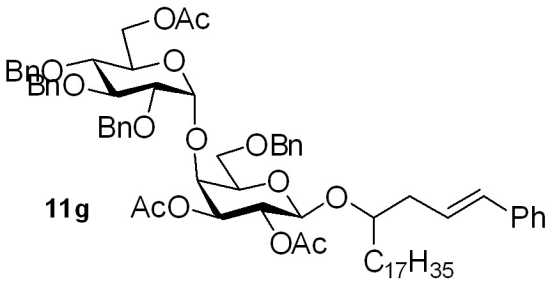


11f

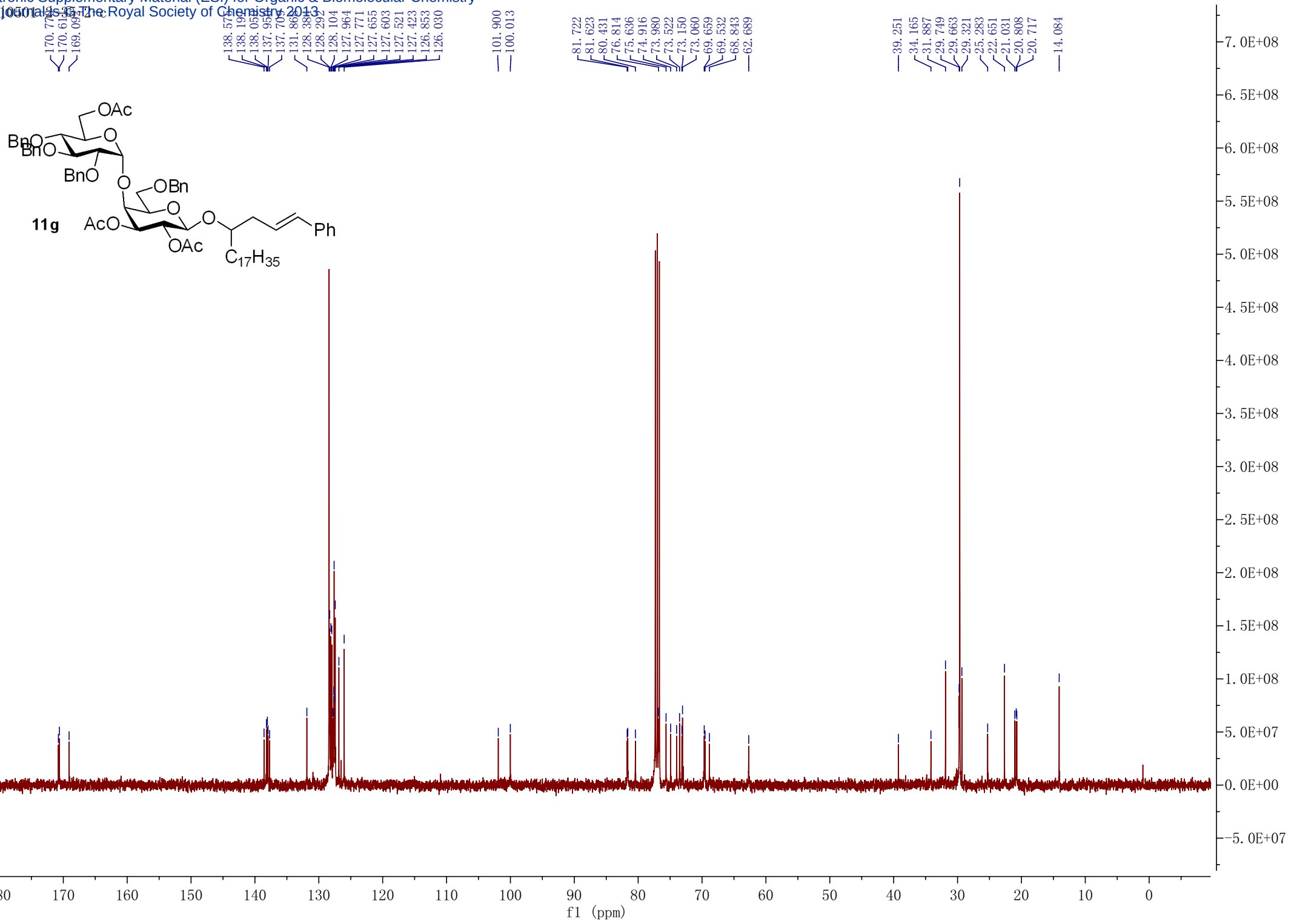
f1 (ppm)

Electronic Supplementary Material (ESI) for Organic & Biomolecular Chemistry





f1 (ppm)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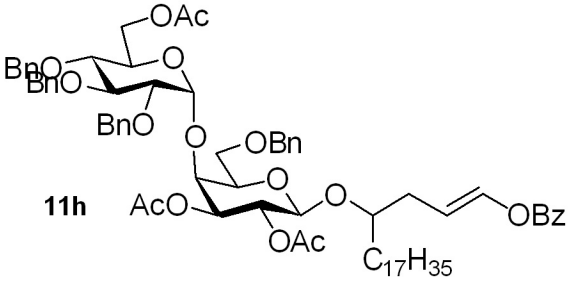
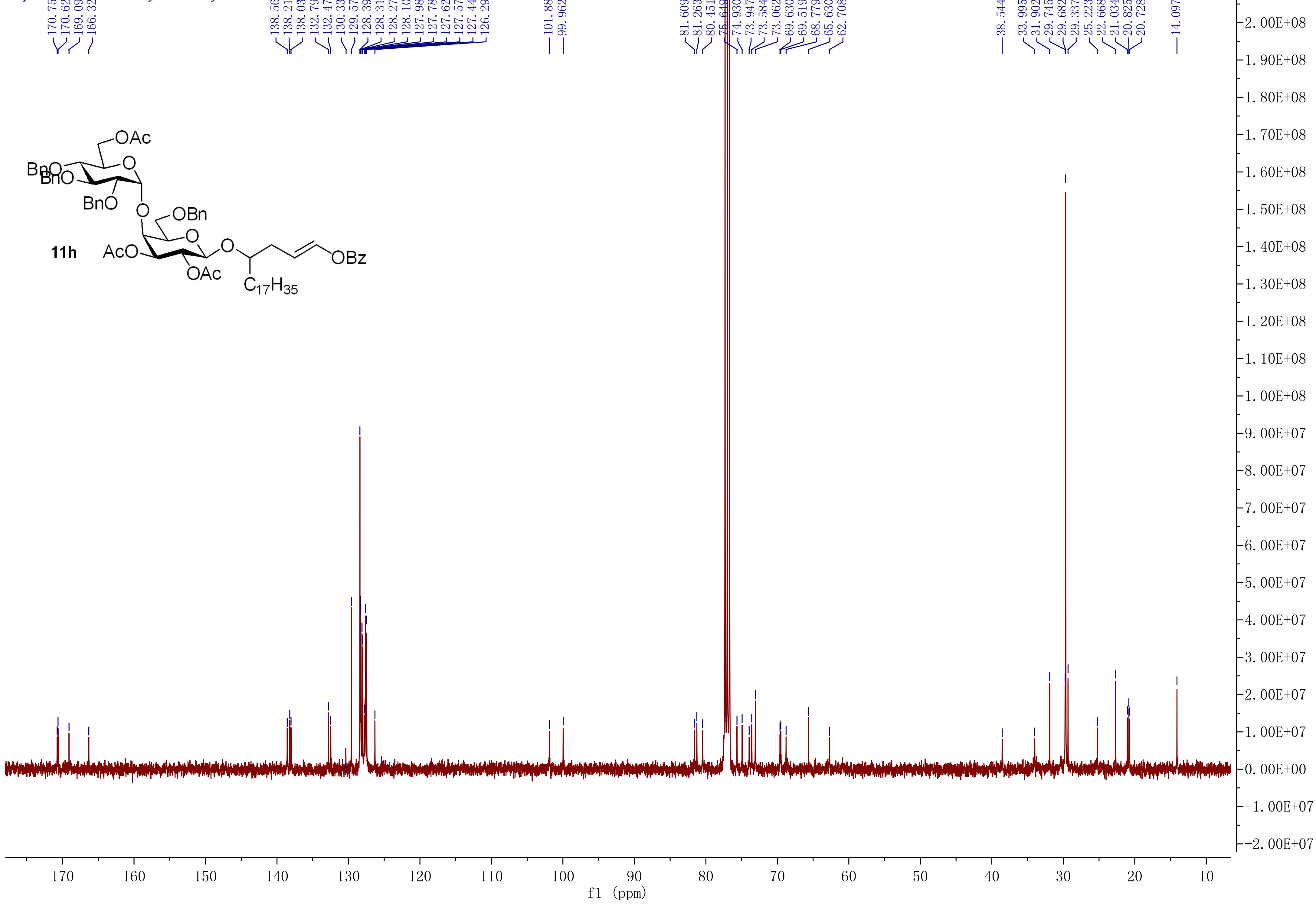
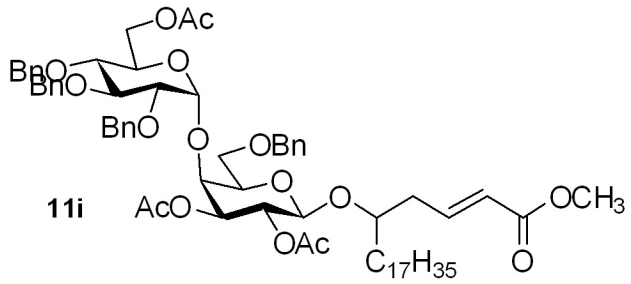
170.618
169.097
138.576
138.192
138.050
137.952
137.705
131.867
128.389
128.292
128.104
127.964
127.771
127.655
127.603
127.521
127.423
126.853
126.030
101.900
100.013
81.722
81.623
80.431
76.814
75.636
74.916
73.980
73.522
73.150
73.060
69.659
69.532
68.843
62.689
39.251
34.165
31.887
29.749
29.663
29.321
25.283
22.651
21.031
20.808
20.717
14.084
OAc
BnO
BnO
BnO
O
OBn
O
AcO
O
OAc
Ph
$C_{17}H_{35}$
11g
7.0E+08
6.5E+08
6.0E+08
5.5E+08
5.0E+08
4.5E+08
4.0E+08
3.5E+08
3.0E+08
2.5E+08
2.0E+08
1.5E+08
1.0E+08
5.0E+07
0.0E+00
-5.0E+07
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
f1 (ppm)


OAc
BnO
BnO
BnO
O
OBn
O
AcO
O
OBz
OAc
$C_{17}H_{35}$

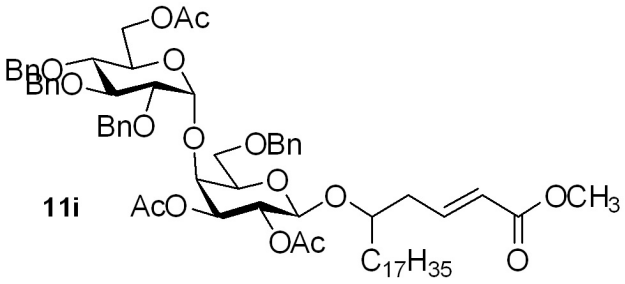
11h

f1 (ppm)
2.01
25.28
1.05
1.00
1.00
8.36
2.06
1.08
4.35
3.23
1.03
1.10
3.16
1.06
2.18
2.93
2.99
3.05
32.12
3.47


170.753
170.625
169.093
166.320
138.563
138.215
138.035
132.795
132.476
130.333
129.577
128.396
128.315
128.275
128.104
127.989
127.789
127.622
127.576
127.445
126.296
101.886
99.962
81.609
81.263
80.451
75.649
74.930
73.947
73.584
73.062
69.630
69.519
68.779
65.630
62.708
38.544
33.995
31.902
29.745
29.682
29.337
25.223
22.668
21.034
20.825
20.728
14.097
OAc
BnO
BnO
O
BnO
O
OBn
O
11h
AcO
OAc
O
OBz
$C_{17}H_{35}$
f1 (ppm)

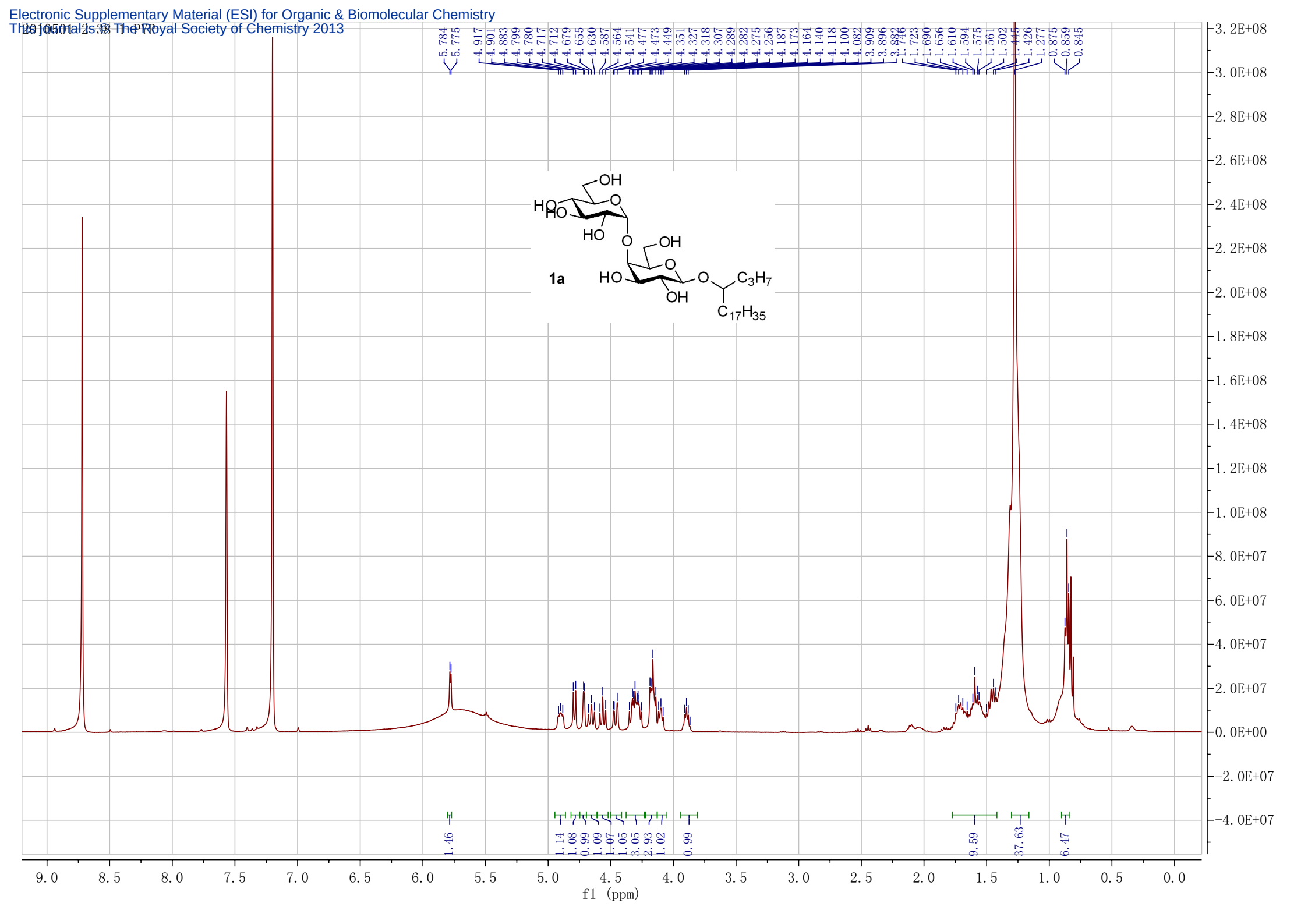


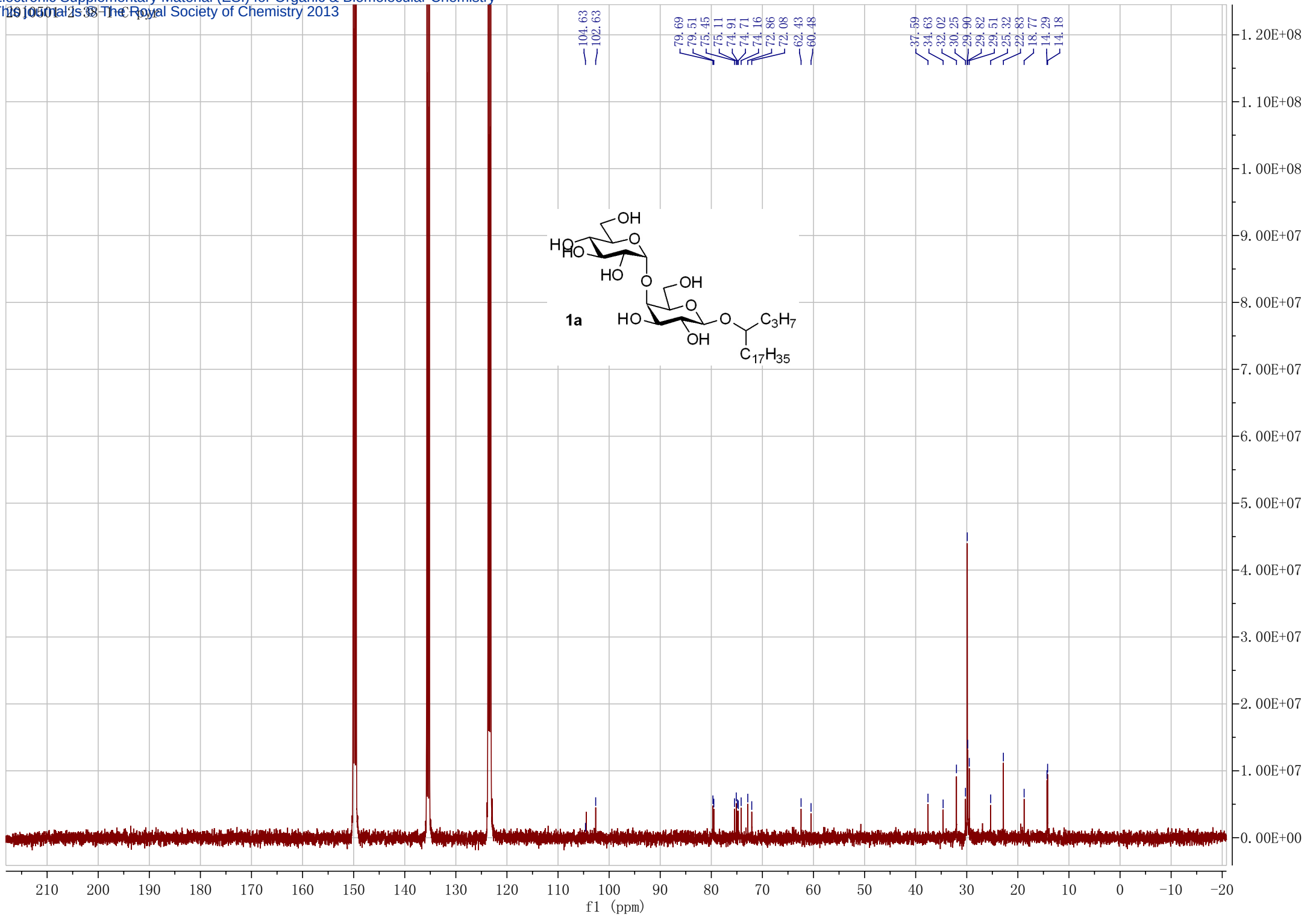
11i

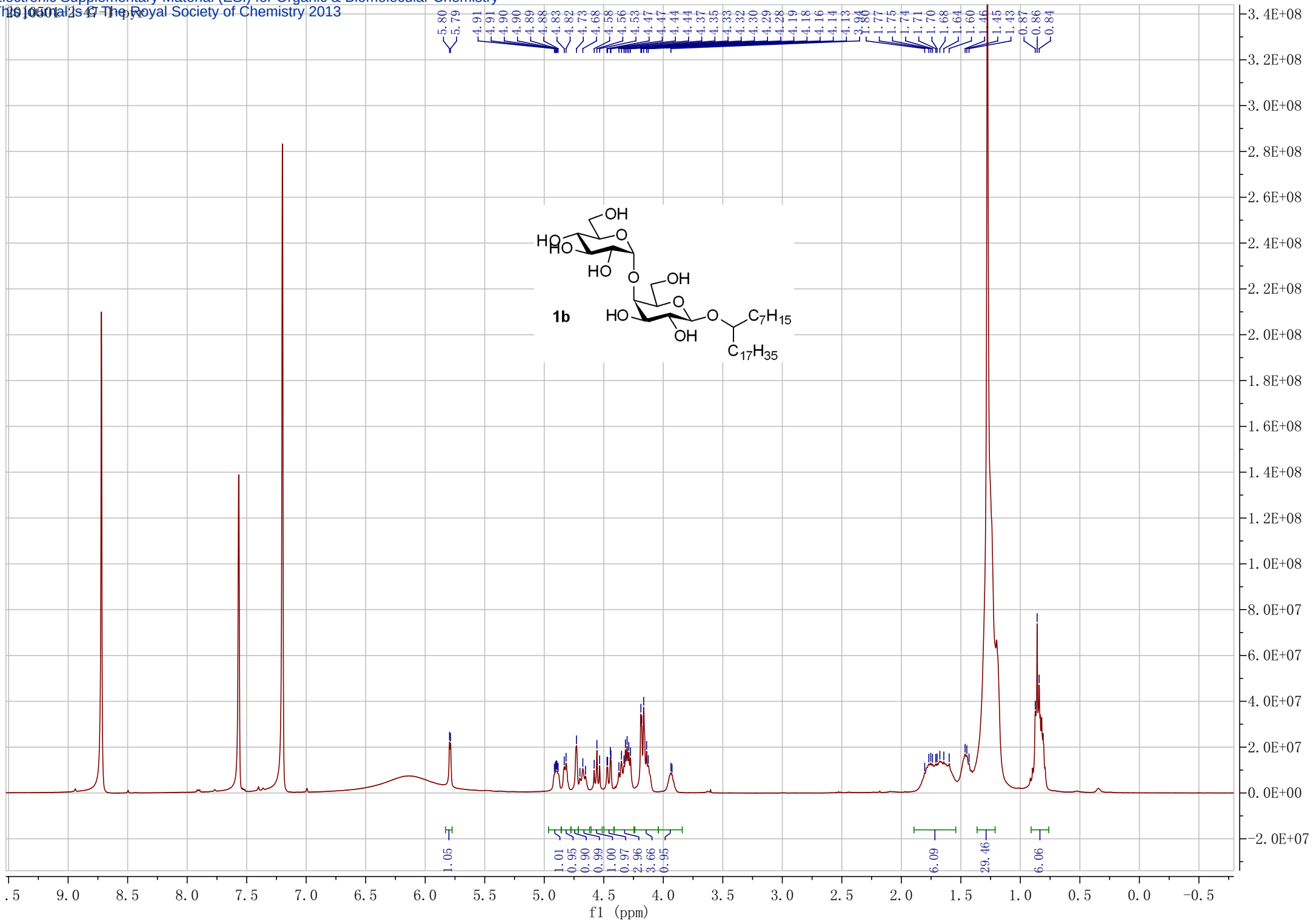

OAc
BnO
BnO
BnO
O
OBn
O
AcO
O
OCH3
OAc
C17H35
O

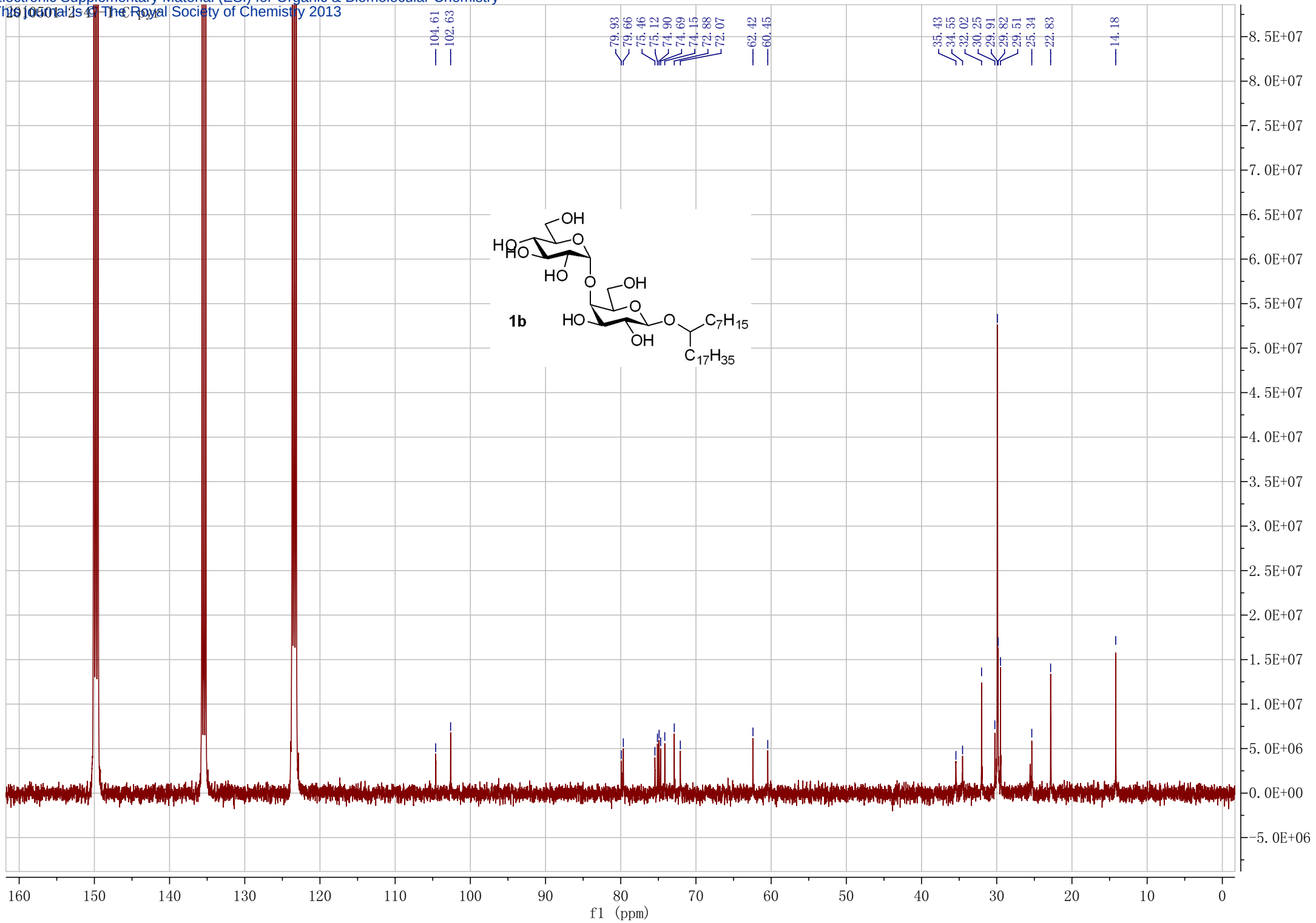
11i

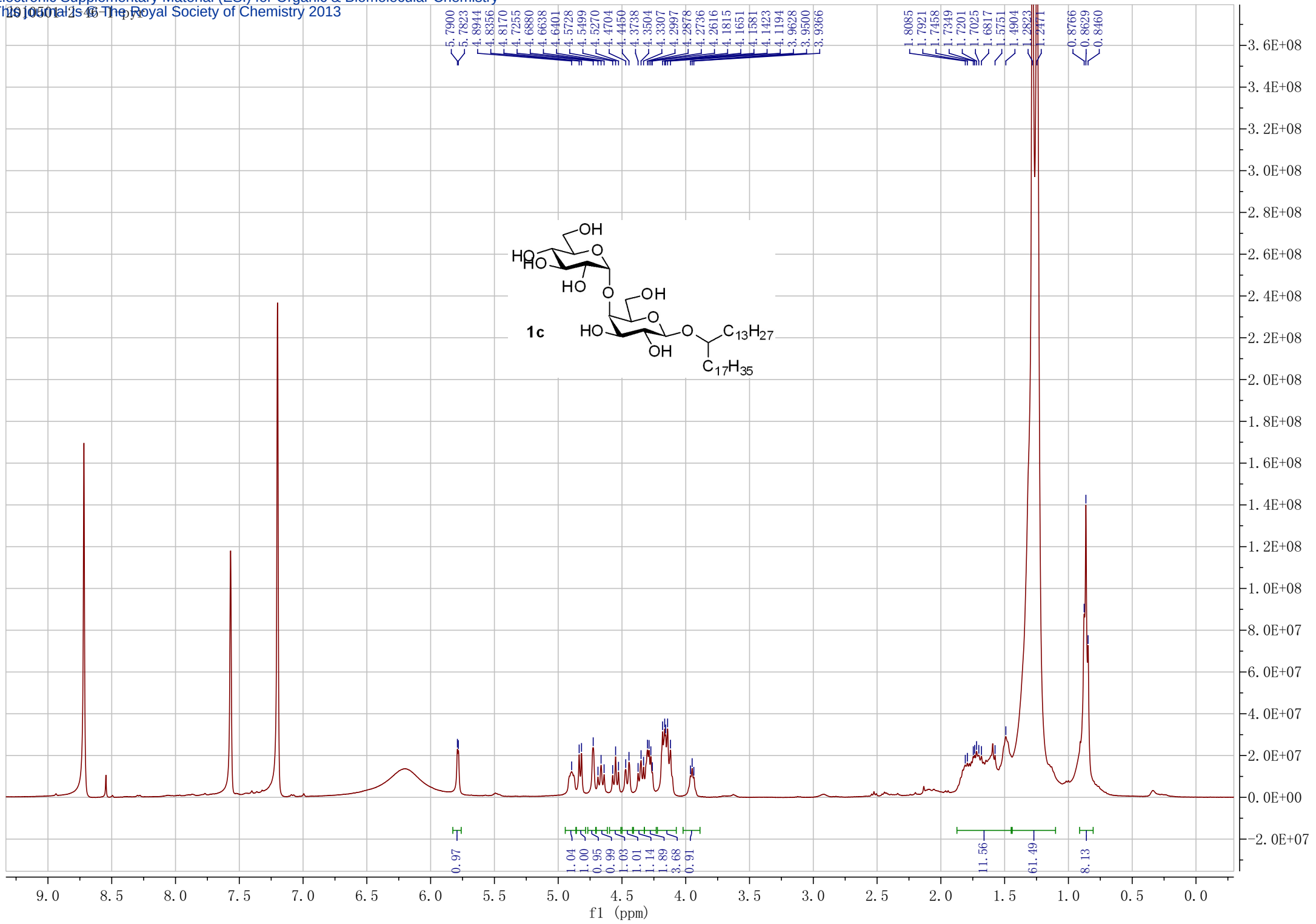
170.715
170.596
169.201
166.558
145.053
138.492
138.185
138.012
137.888
128.379
128.358
128.287
128.103
127.987
127.780
127.612
127.562
127.537
127.352
123.173
100.479
99.928
81.569
80.401
78.909
77.201
75.628
74.896
73.944
73.493
73.147
72.993
69.500
69.356
68.633
62.645
51.367
36.668
34.843
31.875
29.663
29.611
29.312
25.198
22.644
21.005
20.801
20.560
14.085
4.0E+08
3.5E+08
3.0E+08
2.5E+08
2.0E+08
1.5E+08
1.0E+08
5.0E+07
0.0E+00
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)

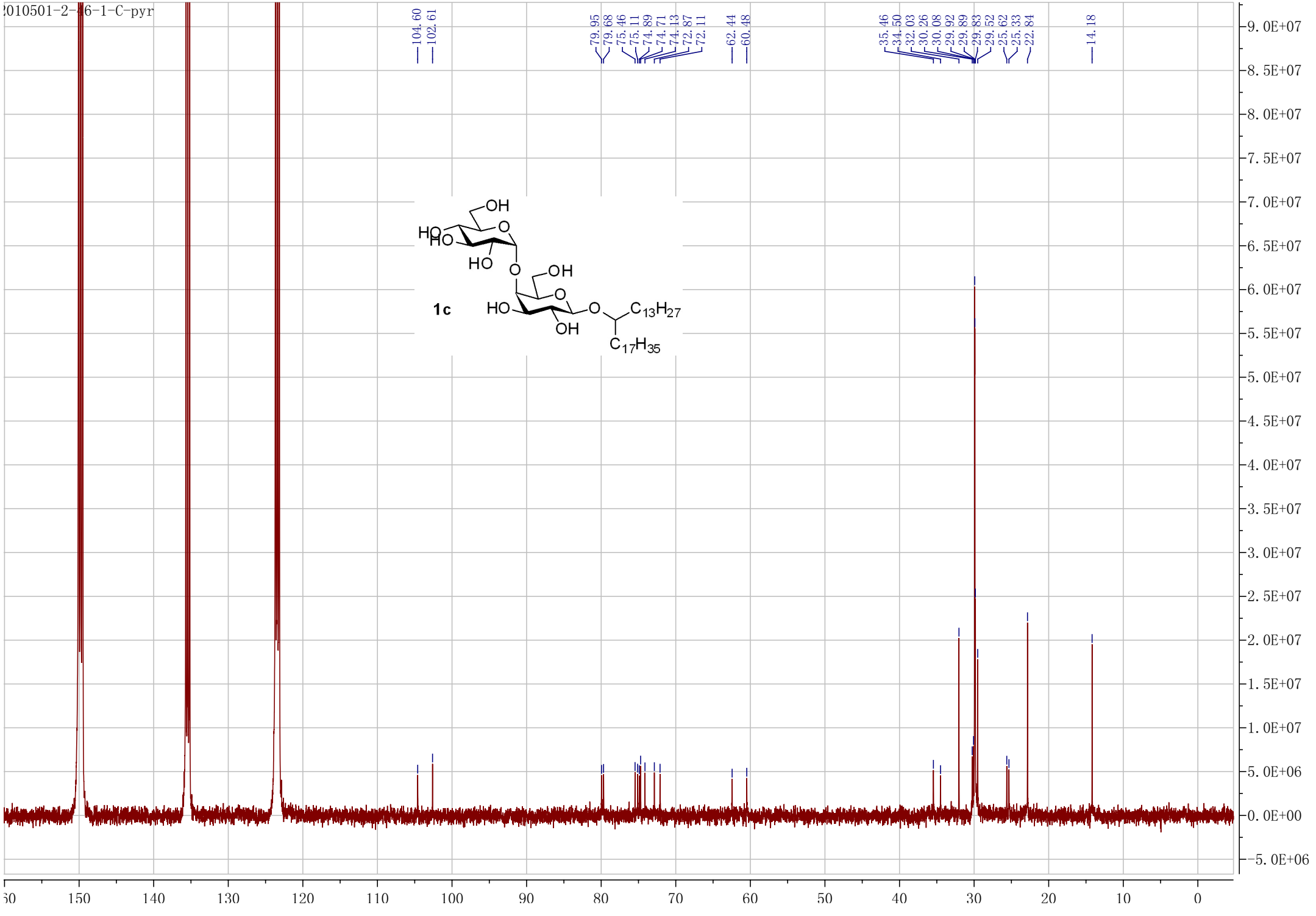


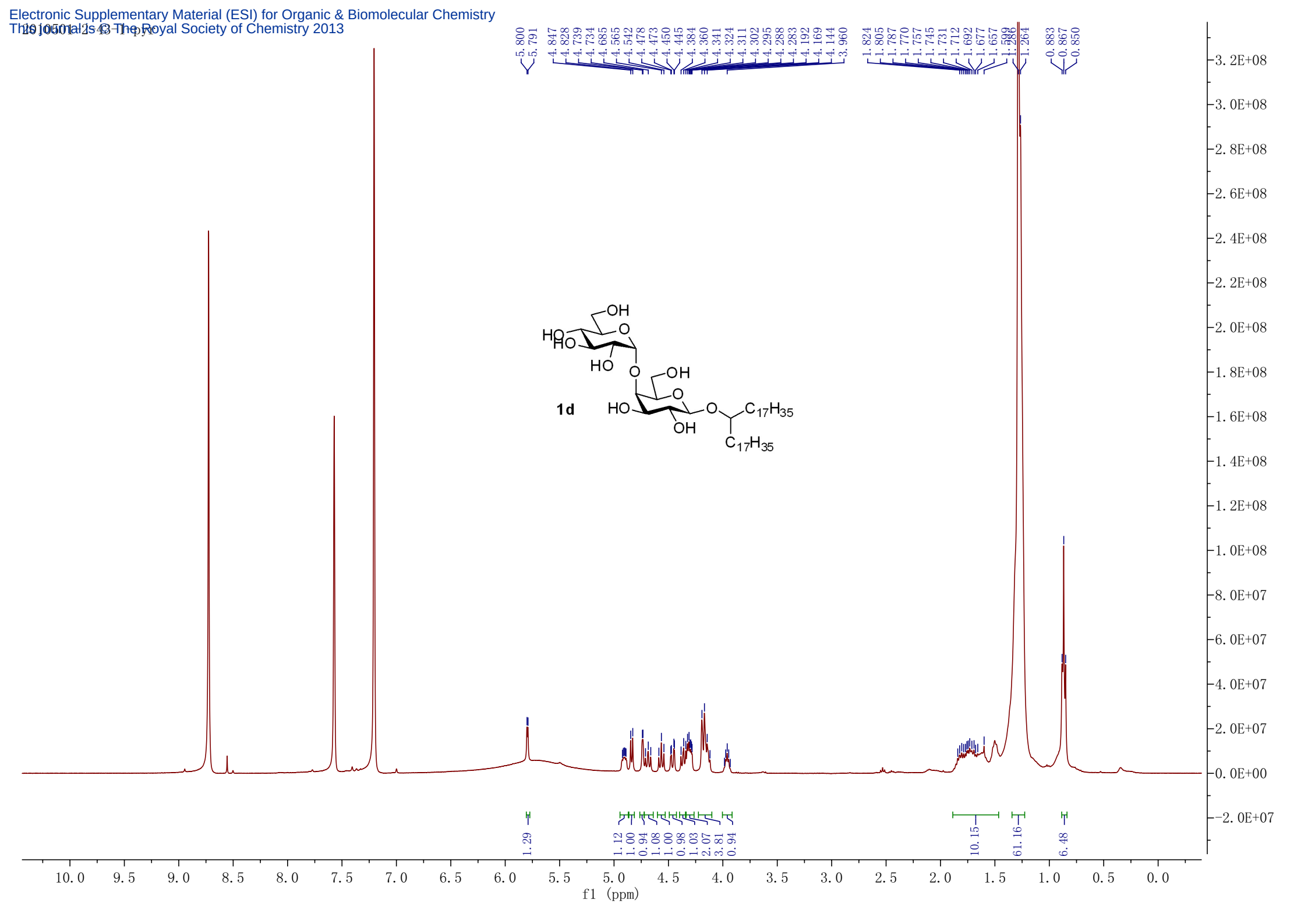


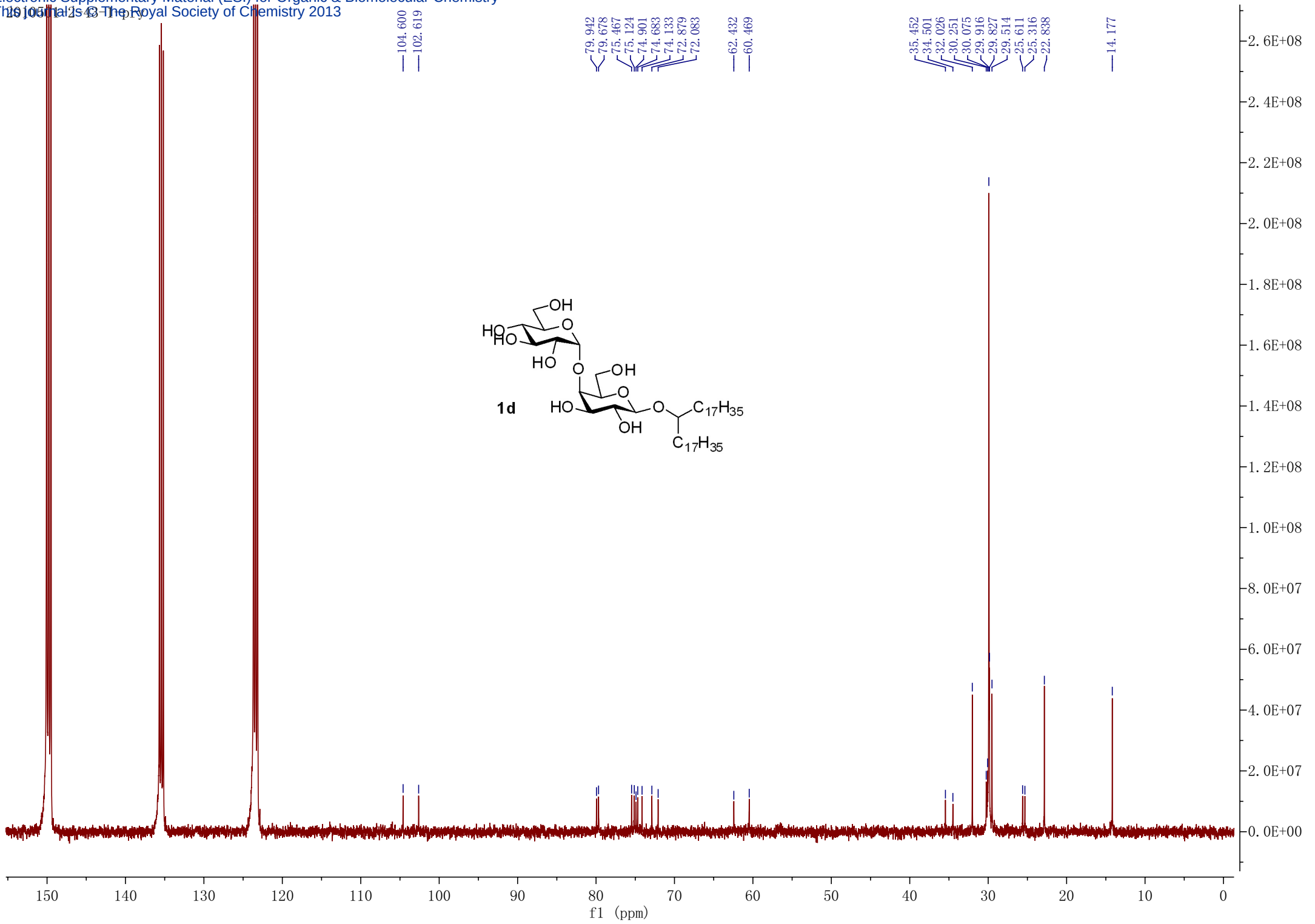


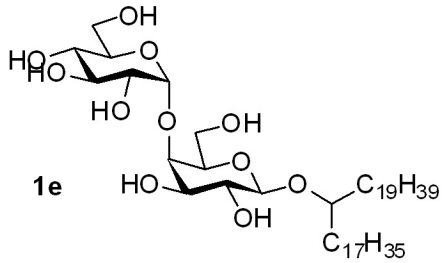






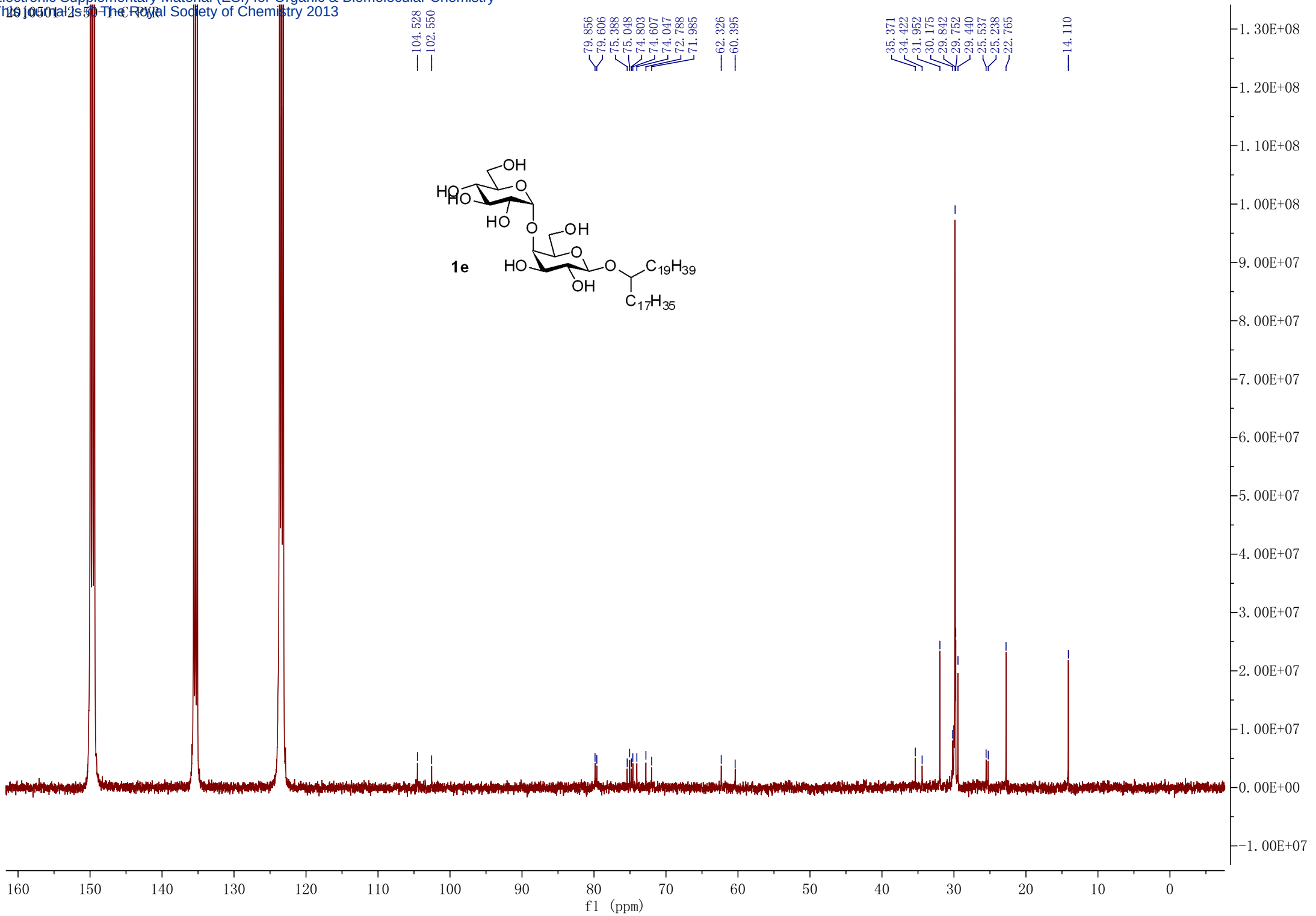

5.800
5.791
4.847
4.828
4.739
4.734
4.685
4.565
4.542
4.478
4.473
4.450
4.445
4.384
4.360
4.341
4.324
4.311
4.302
4.295
4.288
4.283
4.192
4.169
4.144
3.960
1.824
1.805
1.787
1.770
1.757
1.745
1.731
1.712
1.692
1.677
1.657
1.264
0.883
0.867
0.850
1d
OH
HO
HO
HO
O
OH
O
HO
O
C17H35
OH
C17H35
1.29
1.12
1.00
0.94
1.08
1.00
0.98
1.03
2.07
3.81
0.94
10.15
61.16
6.48
3.2E+08
3.0E+08
2.8E+08
2.6E+08
2.4E+08
2.2E+08
2.0E+08
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
-2.0E+07
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)

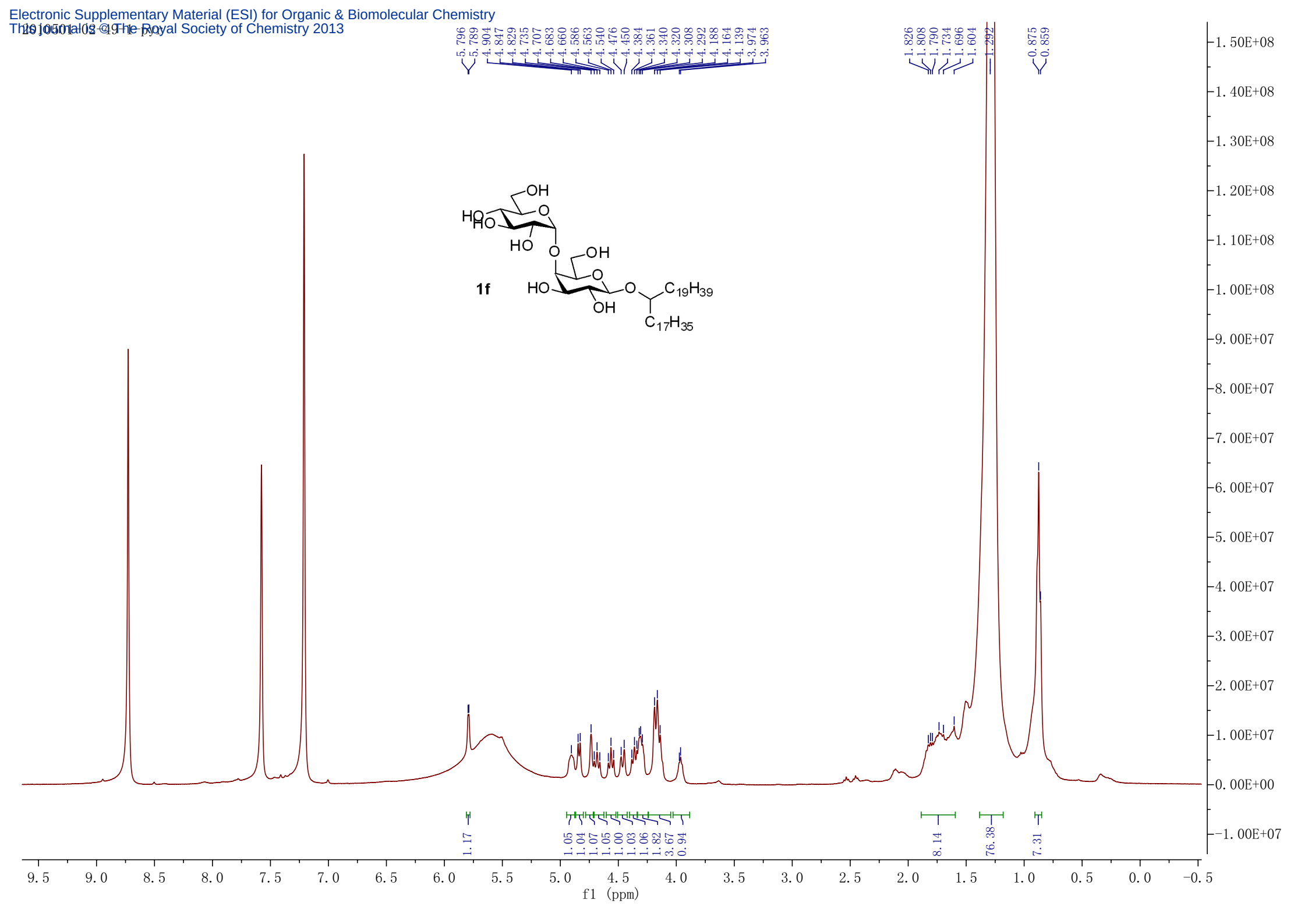

104.600
102.619
79.942
79.678
75.467
75.124
74.901
74.683
74.133
72.879
72.083
62.432
60.469
35.452
34.501
32.026
30.251
30.075
29.916
29.827
29.514
25.611
25.316
22.838
14.177
OH
HO
HO
O
HO
O
OH
O
HO
O
C17H35
OH
C17H35
1d
2.6E+08
2.4E+08
2.2E+08
2.0E+08
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
f1 (ppm)



1e

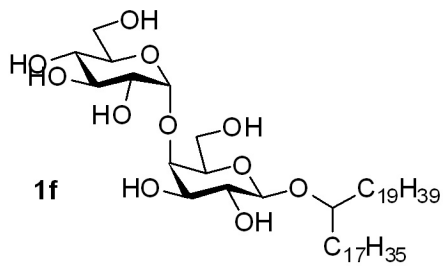
f1 (ppm)





最终产物

104.610
102.622
79.939
79.660
75.483
75.129
74.909
74.684
74.149
72.886
72.084
62.427
60.472
35.453
34.498
32.027
29.920
29.829
29.516
25.616
25.322
22.840
14.182

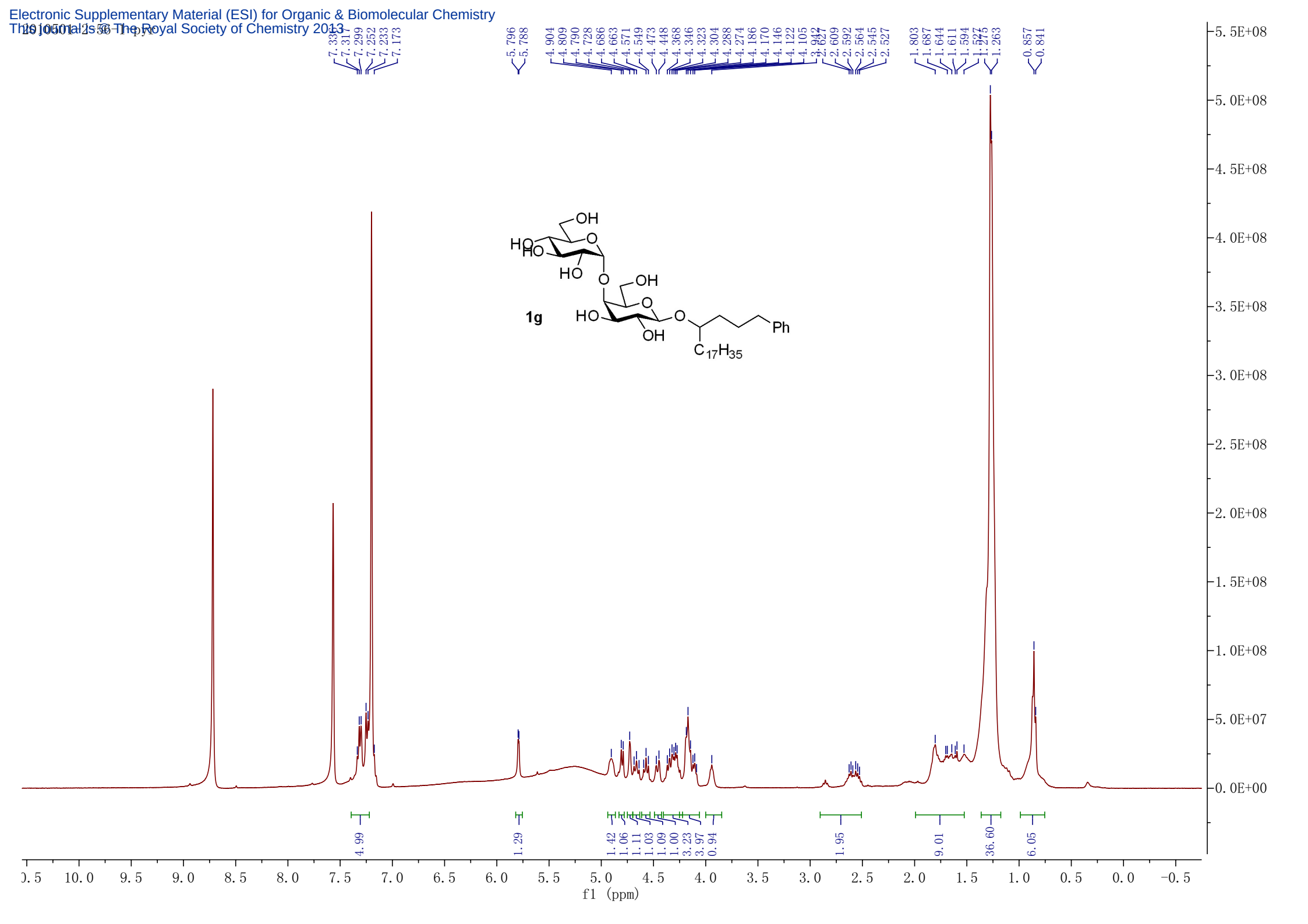


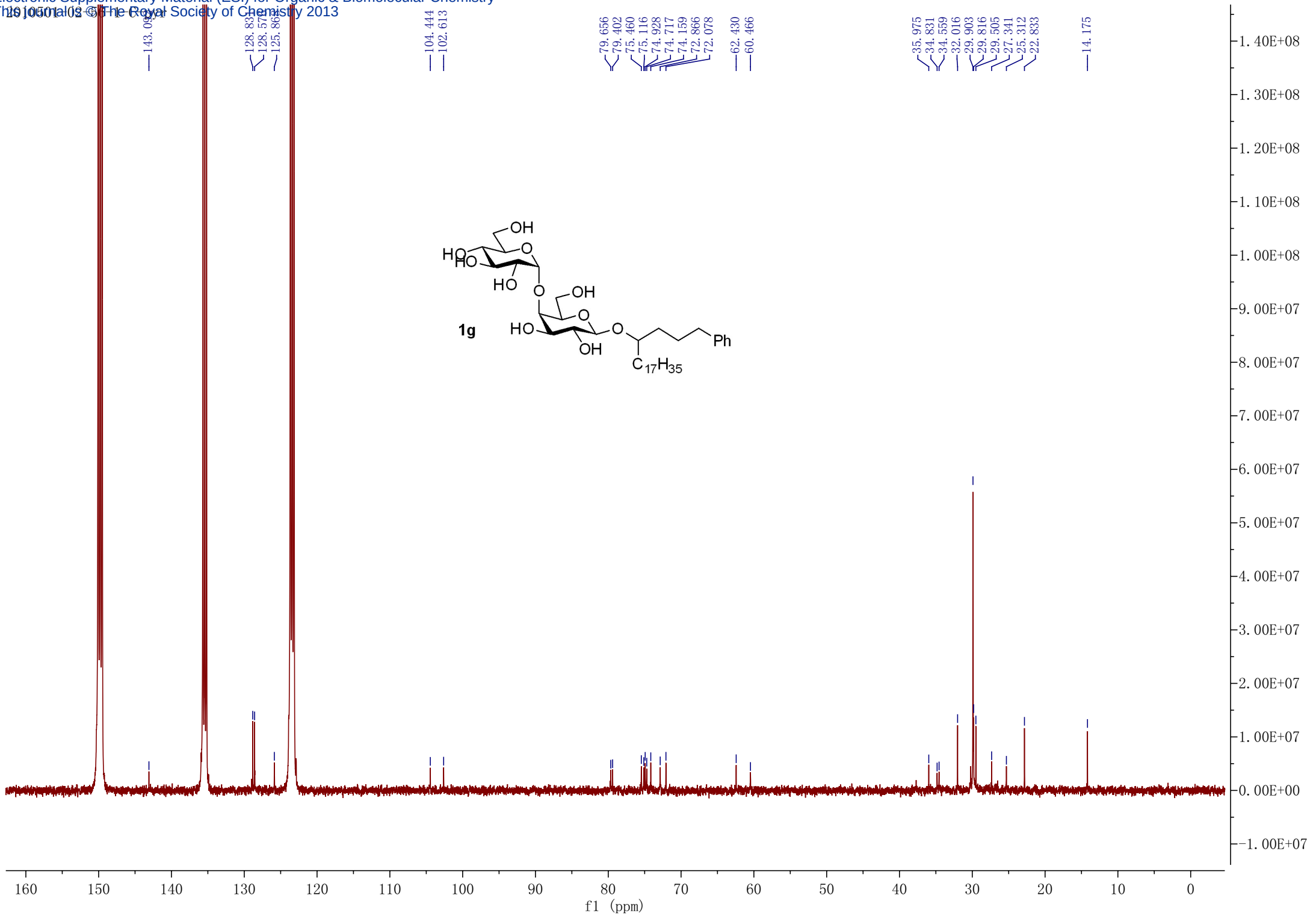
1f

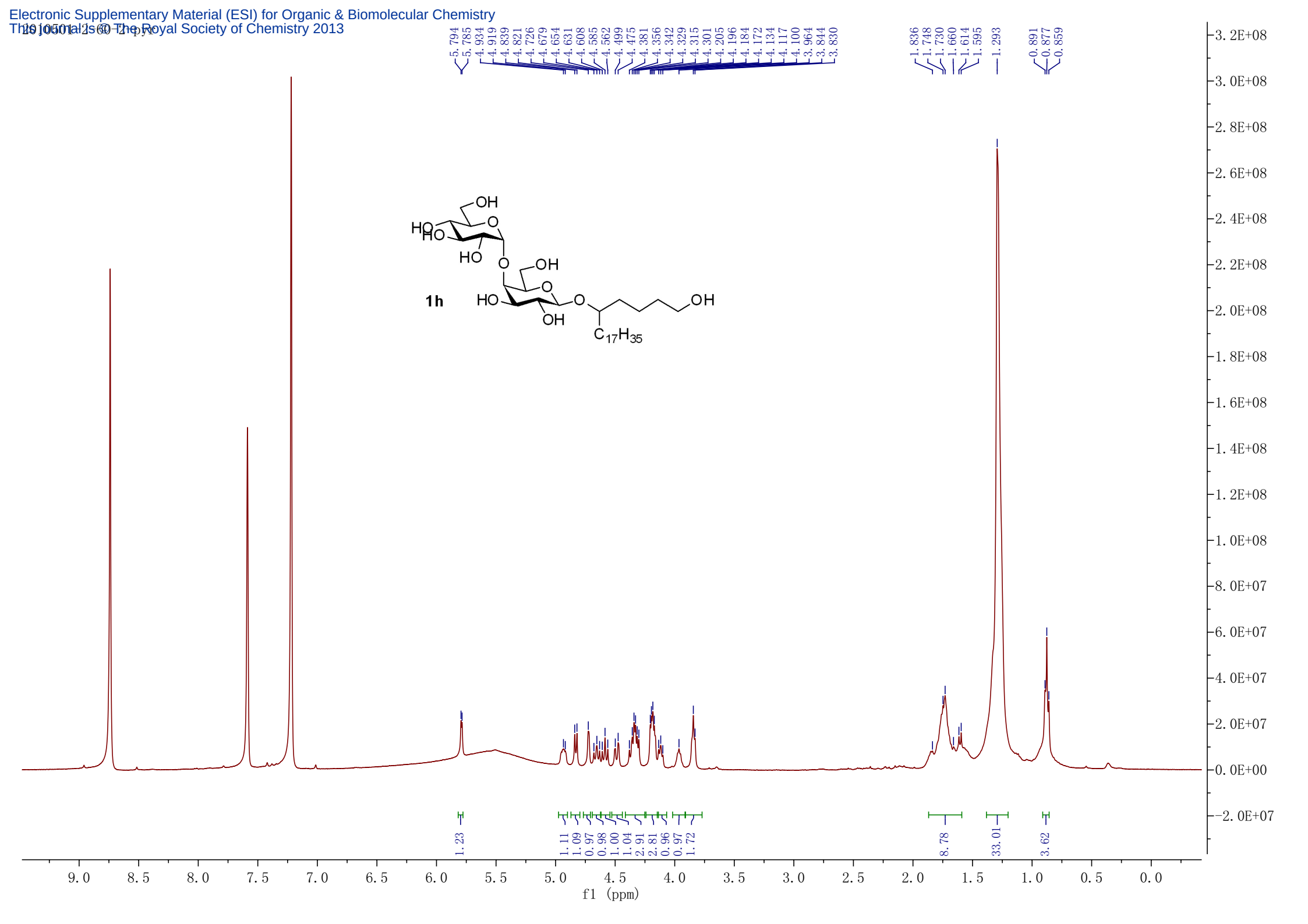
1.00E+08
9.00E+07
8.00E+07
7.00E+07
6.00E+07
5.00E+07
4.00E+07
3.00E+07
2.00E+07
1.00E+07
0.00E+00
-1.00E+07

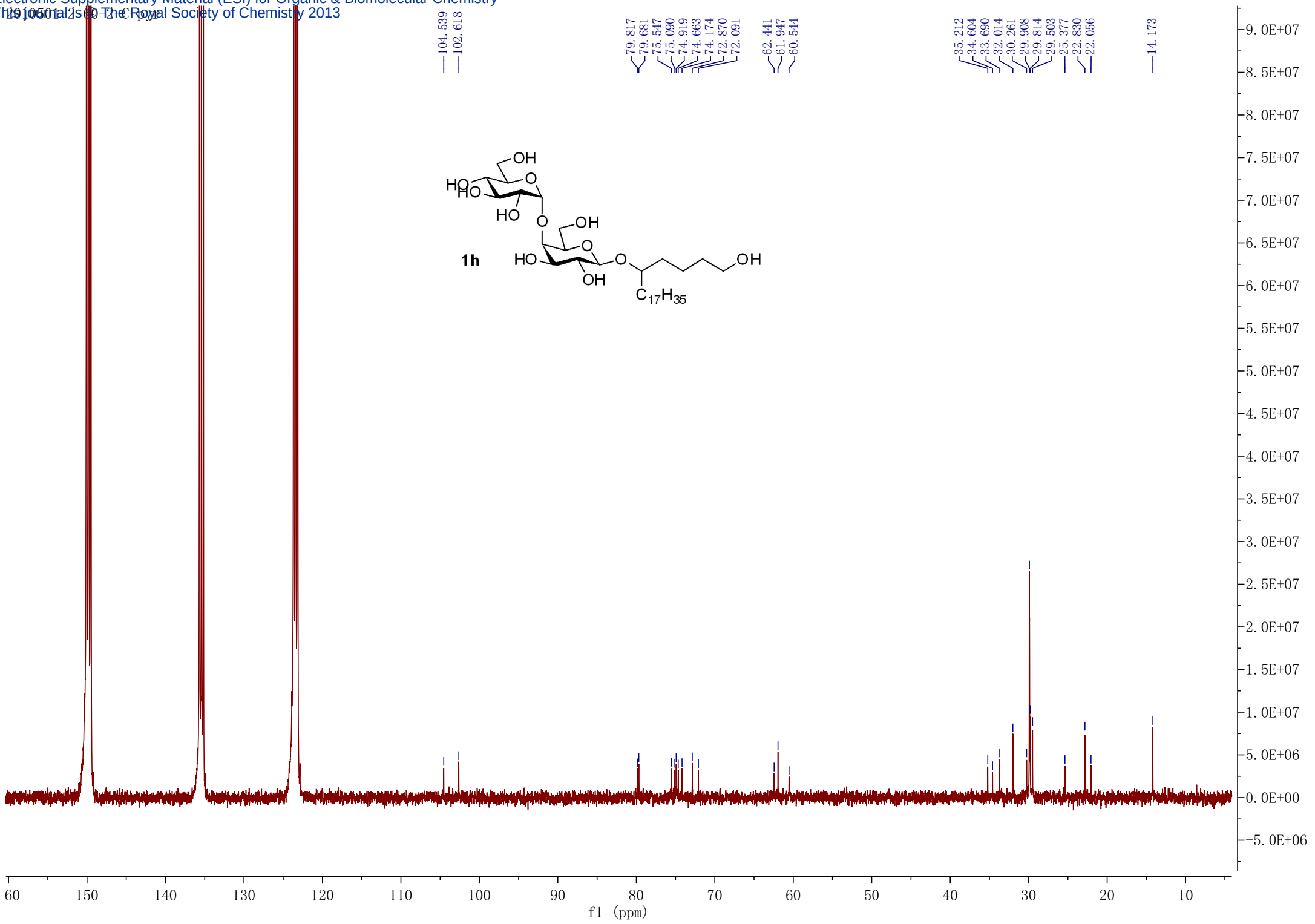
60 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0

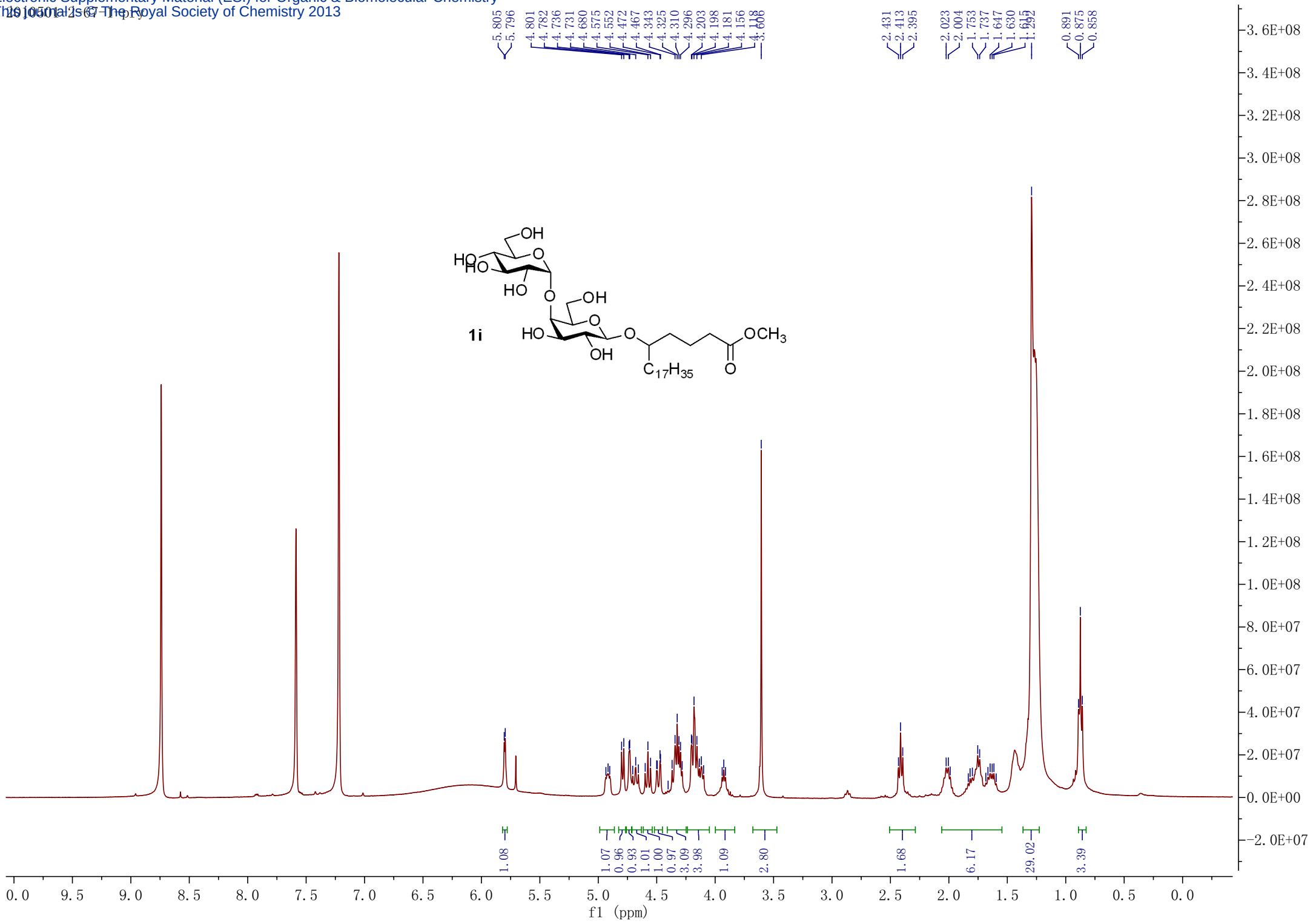
f1 (ppm)


7.337
7.317
7.299
7.252
7.233
7.173
5.796
5.788
4.904
4.809
4.790
4.728
4.686
4.663
4.571
4.549
4.473
4.448
4.368
4.346
4.323
4.304
4.288
4.274
4.186
4.170
4.146
4.122
4.105
2.627
2.609
2.592
2.564
2.545
2.527
1.803
1.687
1.644
1.611
1.594
1.263
0.857
0.841
OH
HO
HO
HO
O
OH
O
HO
O
Ph
OH
C17H35
1g
4.99
1.29
1.42
1.06
1.11
1.03
1.09
1.00
3.23
3.97
0.94
1.95
9.01
36.60
6.05
f1 (ppm)




5.794
5.785
4.934
4.919
4.839
4.821
4.726
4.679
4.654
4.631
4.608
4.585
4.562
4.499
4.475
4.381
4.356
4.342
4.329
4.315
4.301
4.205
4.196
4.184
4.172
4.134
4.117
4.100
3.964
3.844
3.830
1.836
1.748
1.730
1.660
1.614
1.595
1.293
0.891
0.877
0.859
OH
HO
HO
HO
O
O
OH
O
HO
O
OH
OH
1h
C17H35
1.23
1.11
1.09
0.97
0.98
1.00
1.04
2.91
2.81
0.96
0.97
1.72
8.78
33.01
3.62
f1 (ppm)




5.805
5.796
4.801
4.782
4.736
4.731
4.680
4.575
4.552
4.472
4.467
4.343
4.325
4.310
4.296
4.203
4.198
4.181
4.156
4.118
3.608
2.431
2.413
2.395
2.023
2.004
1.753
1.737
1.647
1.630
1.615
1.292
0.891
0.875
0.858
1i
OH
HO
HO
HO
O
OH
O
HO
O
OH
OCH3
C17H35
O
1.08
1.07
0.96
0.93
1.01
1.00
0.97
3.09
3.98
1.09
2.80
1.68
6.17
29.02
3.39
3.6E+08
3.4E+08
3.2E+08
3.0E+08
2.8E+08
2.6E+08
2.4E+08
2.2E+08
2.0E+08
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
-2.0E+07
0.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)