

Electronic Supporting Information

Catalytic etherification of glycerol with short chain alkyl alcohols in the presence of Lewis acids

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List of tested metal triflimidates that were found inefficient in the acid-catalyzed etherification of glycerol with n-butanol:

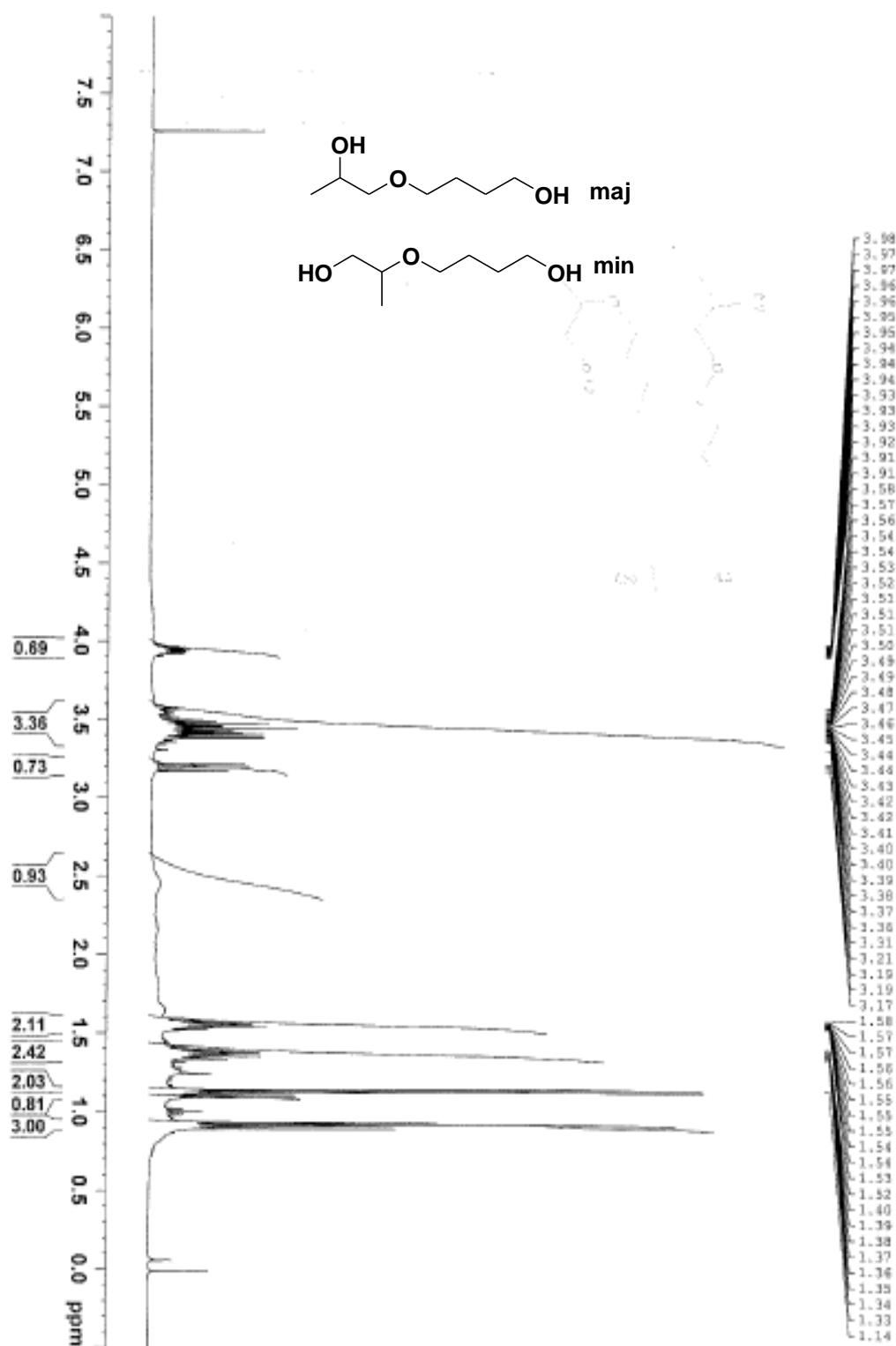
Li(TFSI), K(TFSI), Ca(TFSI)₂, Cu(TFSI)₂, Zn(TFSI)₂, Y(TFSI)₃, La(TFSI)₃, Ce(TFSI)₃, Ti(TFSI)₄

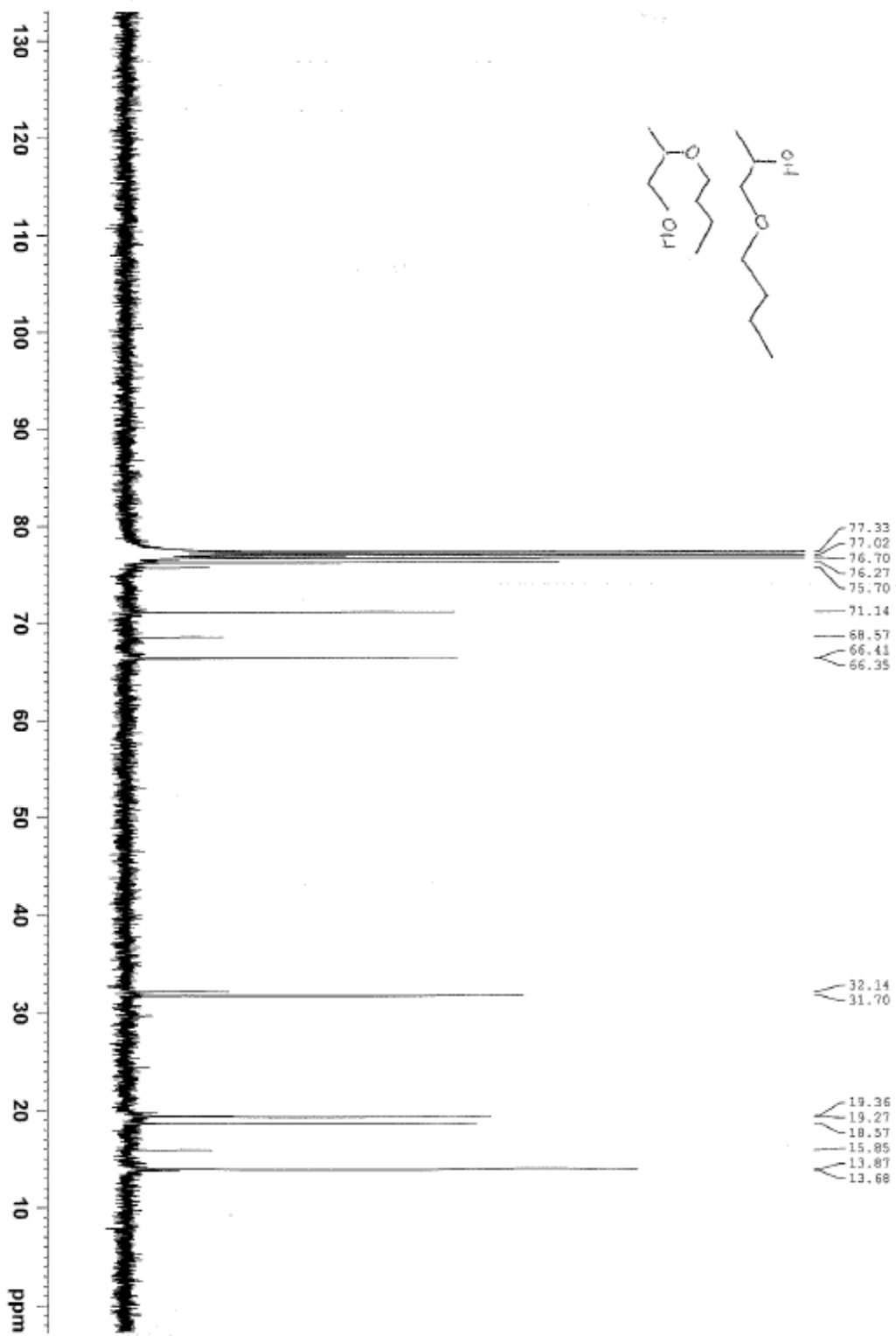
Catalysis in the presence of basic catalysts:

Conditions: glycerol/*n*-butanol molar ratio = 4, 150°C, 6.5 mol% of catalyst, 24h

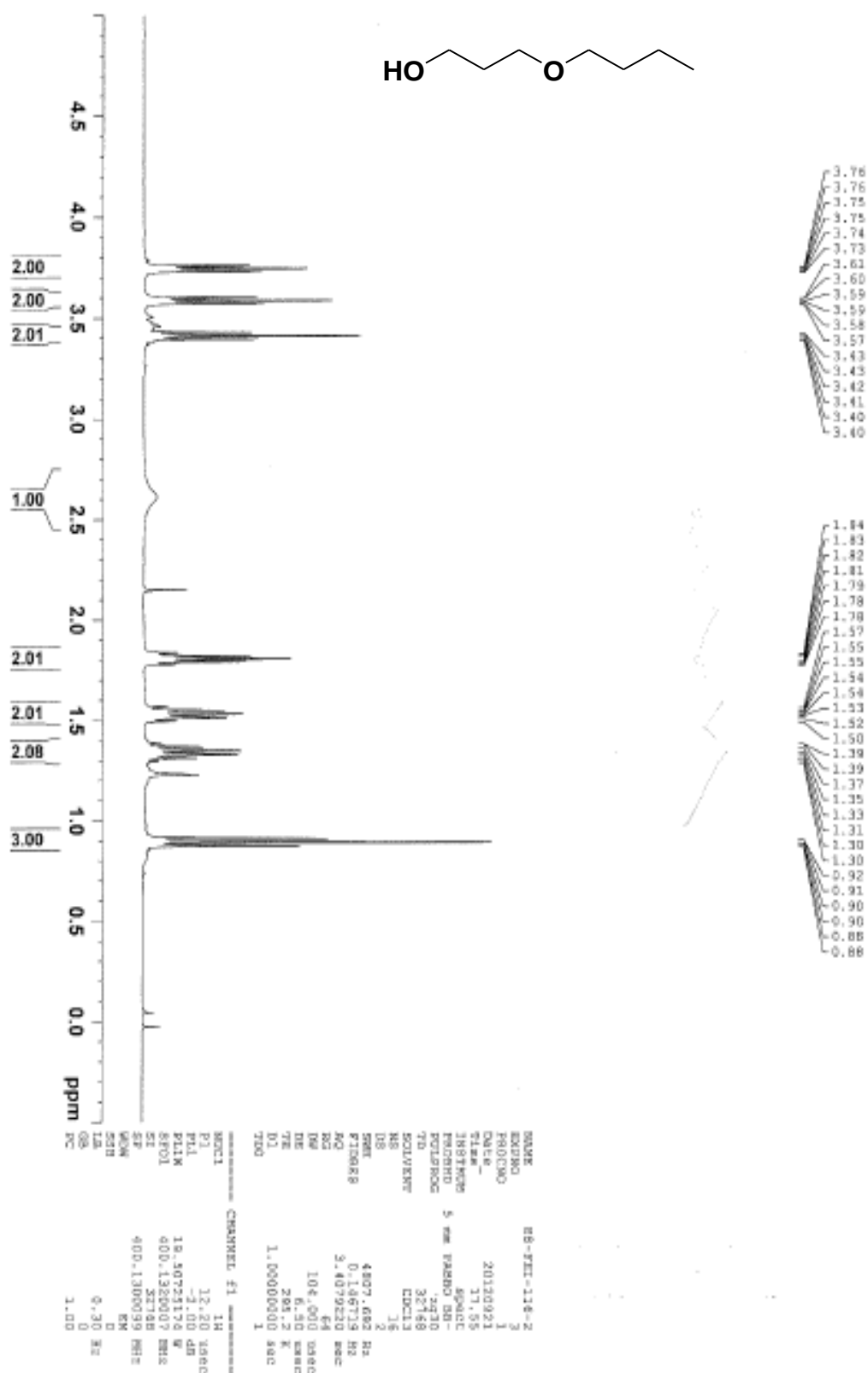
Result: Although glycerol was converted with 50%, 12% and 1% in the presence of NaOH, K₂CO₃ and 1,5,7-Triazabicyclo[4.4.0]dec-5-ene, respectively, *n*-butanol was not converted and only formation glycerol-derived unidentified product was observed.

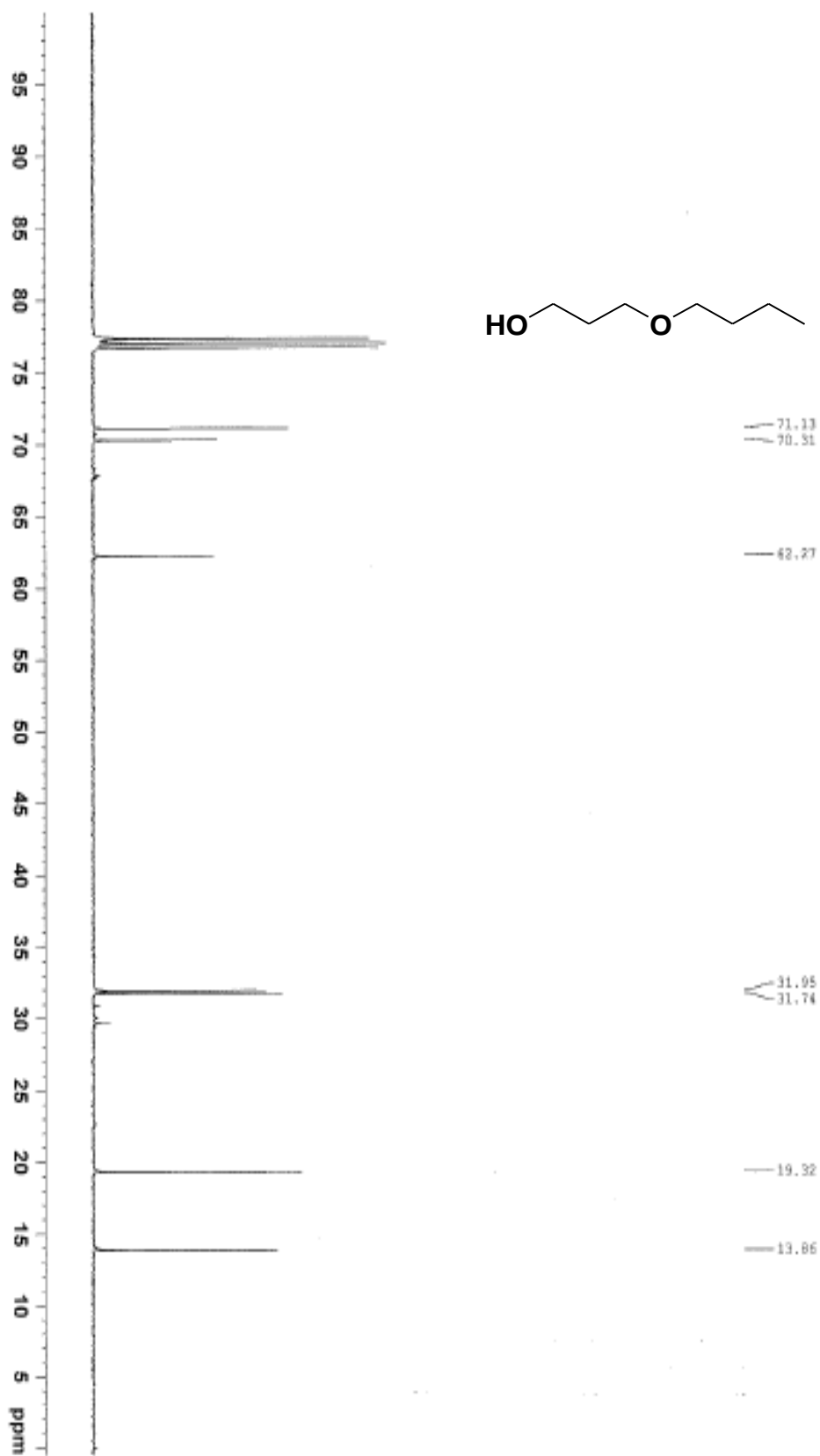
Mono ethers obtained from 1,2-propylene glycol (mixture of regioisomer)



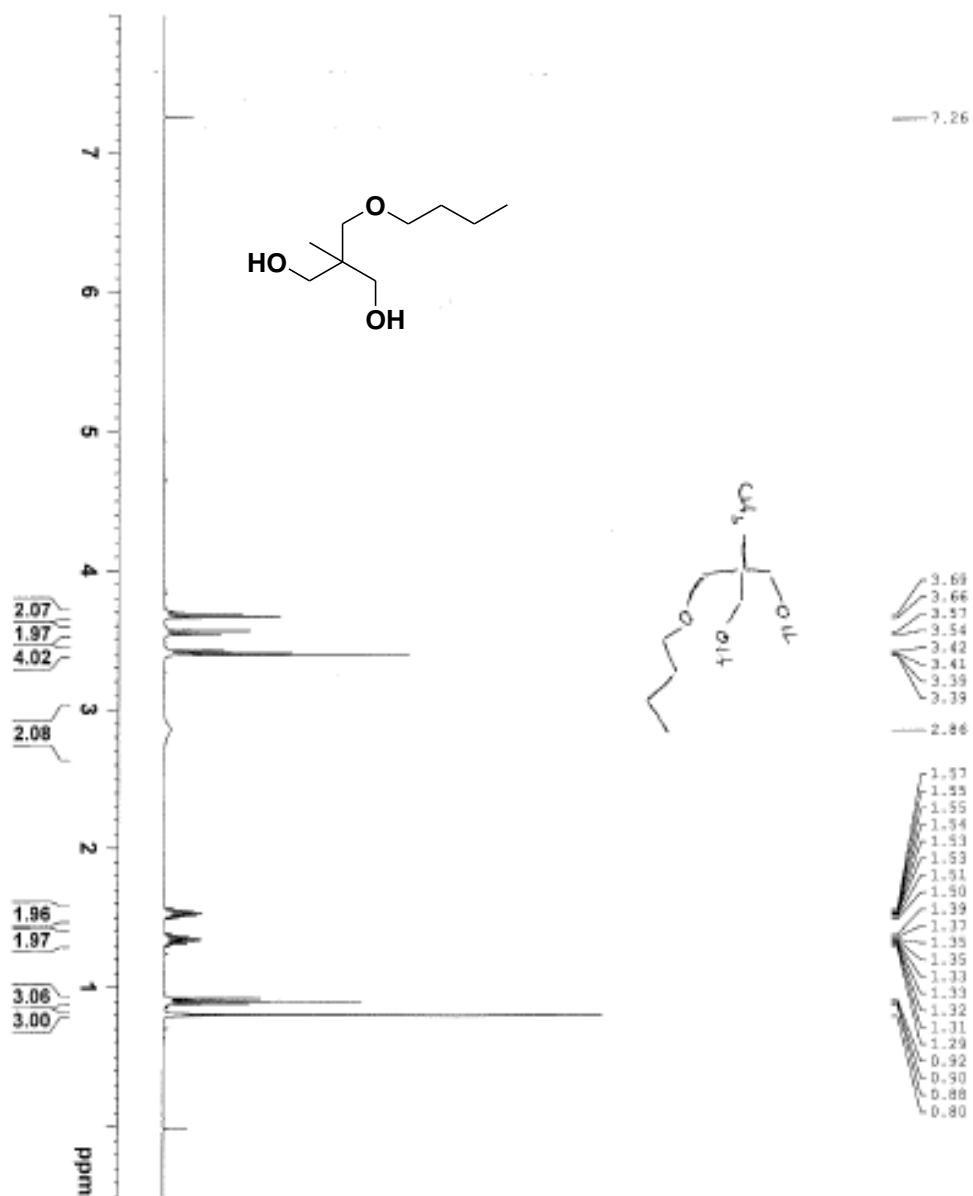


Mono ethers obtained from 1,3-propanediol:



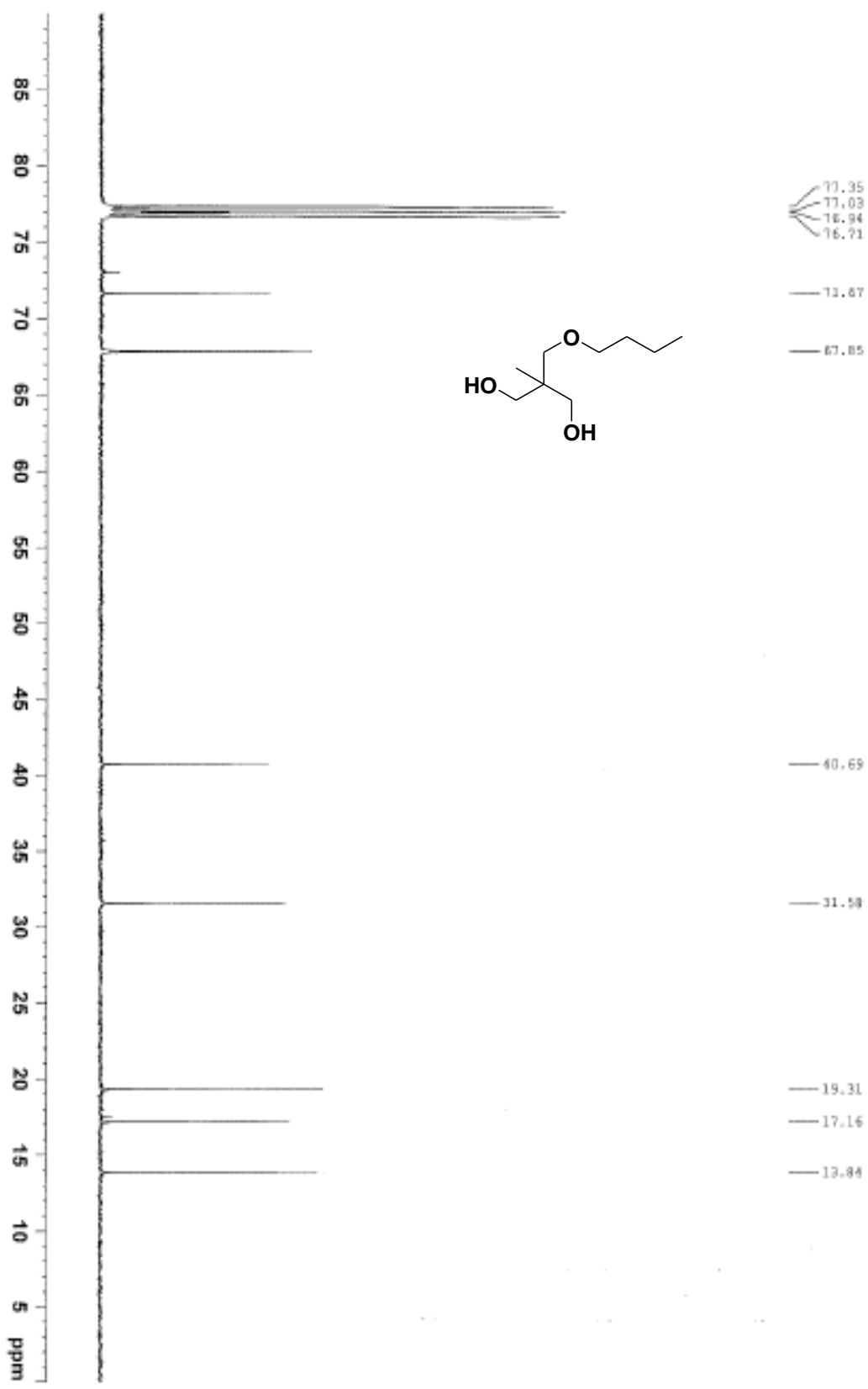


Mono ethers obtained from tris(hydroxymethyl)ethane:

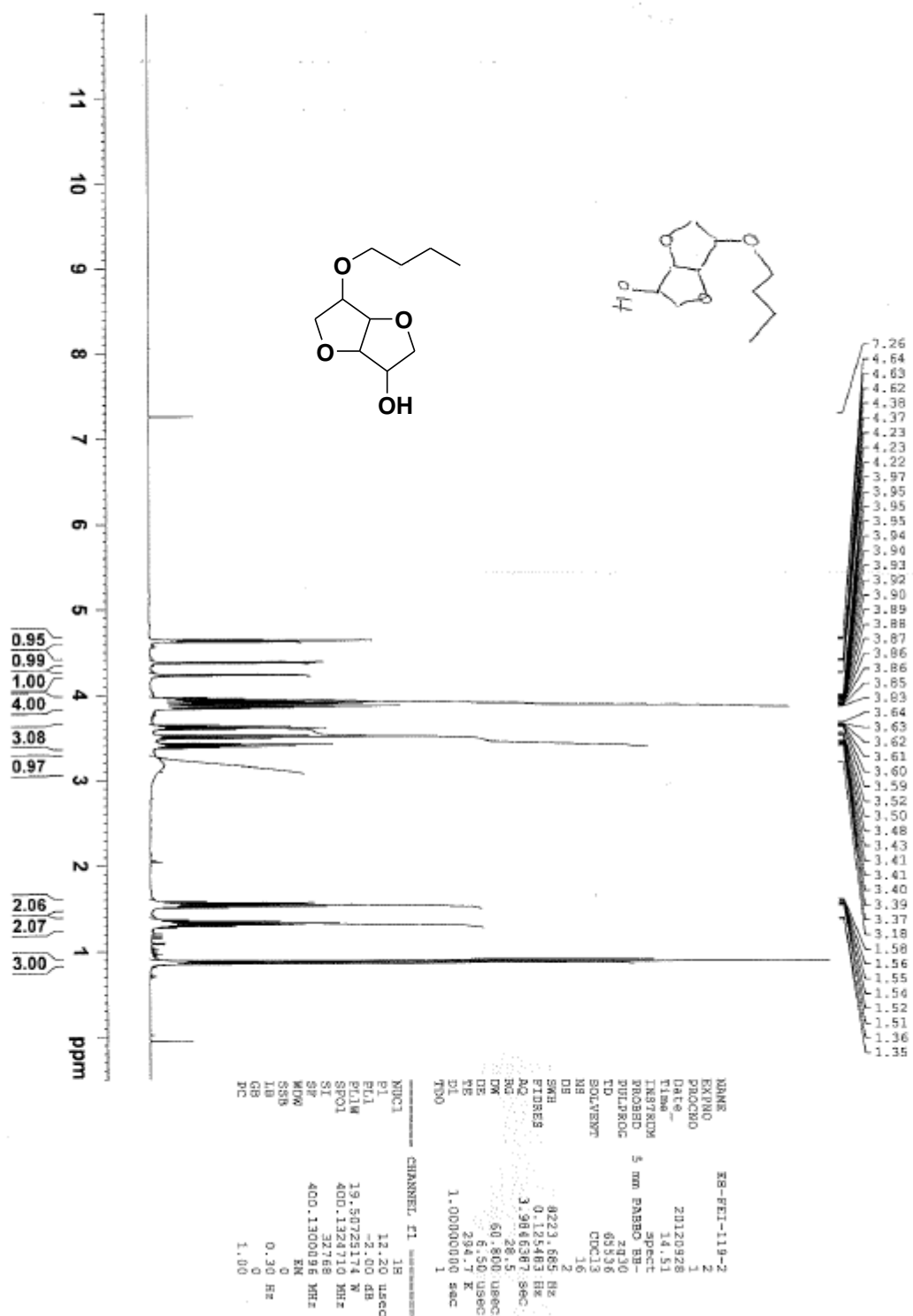


NAME R8-FRI-TRIS
 EXPNO 1
 PROCNO 1
 DATE_ 20121008
 TIME 10.37
 INSTRUM spect
 F2PROC5 5 (NO F2PROC)
 PULPROG zgpg30
 TD 32768
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 4801.502 MHz
 FIDRES 0.146719 MHz
 AQ 3.4019220 sec
 RG 60.5
 DW 104.000 usec
 DE 8.50 usec
 TE 298.2 K
 D1 1.00000000 sec
 TDO 1

NAME CHANNEL F1
 NUC1 1H
 P1 12.20 usec
 PL1 -2.20 dB
 PL2 19.50725174 dB
 SFO1 400.1320001 MHz
 RT 32758
 SF 400.1320000 MHz
 XN1 0
 XN2 0
 XN3 0
 XN4 0
 XN5 0
 XN6 0
 XN7 0
 XN8 0
 XN9 0
 XN10 0
 XN11 0
 XN12 0
 XN13 0
 XN14 0
 XN15 0
 XN16 0
 XN17 0
 XN18 0
 XN19 0
 XN20 0
 FREQ 0.30 MHz
 CH 0
 CB 0
 PC 1.00



Mono ethers obtained from isosorbide



7.26
4.64
4.63
4.62
4.38
4.37
4.23
4.23
4.22
3.97
3.95
3.95
3.95
3.94
3.94
3.90
3.93
3.92
3.90
3.89
3.88
3.87
3.86
3.86
3.85
3.83
3.64
3.63
3.62
3.61
3.60
3.59
3.52
3.50
3.48
3.43
3.41
3.41
3.40
3.39
3.37
3.18
1.58
1.56
1.55
1.54
1.52
1.51
1.36
1.35

0.95
0.99
1.00
4.00
3.08
0.97
2.06
2.07
3.00

NAME: ER-FEI-119-2
 EXPNO: 2
 PROCNO: 1
 Date_: 20120928
 Time: 14.51
 INSTRUM: spect
 PROBRD: 5 mm FNBBO BB-
 PULPROG: zg30
 TD: 65536
 SFO: 400.132710 MHz
 SOLVENT: CDCl3
 NS: 16
 DS: 2
 SWH: 8223.685 Hz
 FIDRES: 0.125483 Hz
 AQ: 3.9846387 sec
 RG: 38.5
 DW: 60.800 usec
 DE: 5.50 usec
 TE: 298.2 K
 D1: 1.00000000 sec
 TDO: 1

CHANNEL f1
 NUC1: 1H
 P1: 12.20 usec
 PL1: -2.00 dB
 F1: 19.50725174 MHz
 SFO1: 400.132710 MHz
 SI: 32768
 SF: 400.130096 MHz
 MDW: 0
 SSB: 0
 GB: 0
 PC: 1.00

