Supporting Information

Boronic acids as phase-transfer reagents for Fischer glycosidations in low-polarity solvents

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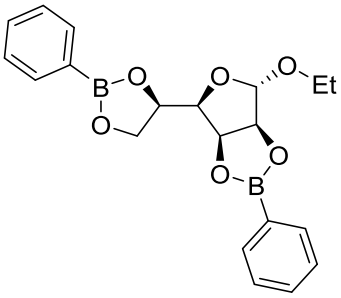
Details of computational studies

Electronic energies (hartree) and the number of imaginary frequencies are given, and the frequency (cm^{-1}) where applicable, for each structure. Total electronic energies for the structures were calculated using B3LYP/6-31+G(d,p) in the gas phase (indicated below). Energies for all possible boronic esters between phenylboronic acid and the *cis*-1,2- or 1,3-diol(s) of each monosaccharide was calculated for furanoside and pyranoside isomers. Only the lowest energy structures for each isomer are shown below.



Ethyl α-D-mannofuranoside (bis-boronate)

Energy: -1276.71041055
Imaginary Frequencies: 0

Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	0.018344	1.227902	0.040521
2	6	0	-1.918019	2.481427	-0.004777
3	6	0	-2.149366	1.461194	1.124300
4	6	0	-0.872897	0.565676	1.105900
5	1	0	0.675606	1.956910	0.536546
6	1	0	-2.796487	2.622702	-0.645175
7	1	0	-2.351213	1.963337	2.071825
8	1	0	-0.362626	0.469684	2.066243
9	8	0	-0.902199	1.915067	-0.826351
10	8	0	-1.518578	3.686361	0.593767
11	6	0	-1.345121	4.778809	-0.321192
12	1	0	-0.556212	4.532972	-1.042526
13	1	0	-2.281392	4.927121	-0.880825
14	6	0	-0.989093	6.018616	0.479739
15	1	0	-0.856337	6.873189	-0.192027
16	1	0	-1.780457	6.259792	1.195868
17	1	0	-0.057229	5.867927	1.033384
18	8	0	-3.230840	0.578281	0.808160
19	8	0	-1.348591	-0.728102	0.706863
20	6	0	0.867621	0.293647	-0.807492
21	1	0	0.235077	-0.500113	-1.215029
22	6	0	1.675722	1.013336	-1.917984
23	1	0	1.299468	0.798306	-2.920407
24	1	0	1.701347	2.099211	-1.775700
25	8	0	3.013920	0.496126	-1.791265
26	5	0	-2.715680	-0.675192	0.549154
27	8	0	1.872867	-0.313210	0.028178
28	5	0	3.087935	-0.220693	-0.619486
29	6	0	-3.583281	-1.893701	0.138767
30	6	0	-4.979259	-1.773694	0.001333
31	6	0	-2.995081	-3.150341	-0.100197
32	6	0	-5.762049	-2.870744	-0.362539
33	1	0	-5.450390	-0.811680	0.183234
34	6	0	-3.773744	-4.250068	-0.464887
35	1	0	-1.919355	-3.262069	0.004070
36	6	0	-5.159087	-4.110770	-0.596426
37	1	0	-6.838289	-2.761570	-0.463427
38	1	0	-3.304214	-5.213042	-0.645252
39	1	0	-5.766917	-4.965886	-0.879456
40	6	0	4.395992	-0.858819	-0.078315
41	6	0	4.390949	-1.624199	1.103197
42	6	0	5.617518	-0.689833	-0.757452
43	6	0	5.565071	-2.200403	1.591646
44	1	0	3.456178	-1.767755	1.638109
45	6	0	6.794241	-1.264246	-0.273241
46	1	0	5.639603	-0.103284	-1.671769
47	6	0	6.768885	-2.020509	0.902978
48	1	0	5.543376	-2.789119	2.504579
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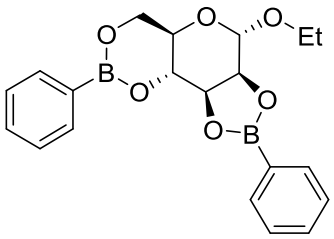

Ethyl α-D-mannopyranoside (bis-boronate)

Energy: -1276.70709953
Imaginary Frequencies: 0

Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	1.196424	-2.687916	-0.146628
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3	6	0	0.613707	-0.345837	0.911079
4	6	0	-0.383957	-0.226257	-0.241240
5	6	0	-0.842996	-1.607206	-0.705687
6	1	0	1.957339	-1.891747	1.680916
7	1	0	2.064834	-3.099660	-0.675593
8	1	0	0.065521	-0.442964	1.851760
9	1	0	0.115630	0.271585	-1.083043
10	1	0	-1.318961	-2.141923	0.128638
11	8	0	0.286285	-2.338379	-1.180625
12	8	0	0.649978	-3.629674	0.742949
13	6	0	0.403063	-4.923395	0.170602
14	1	0	1.337322	-5.300548	-0.272234
15	1	0	-0.338432	-4.837629	-0.633099
16	6	0	-0.087545	-5.844699	1.273153
17	1	0	-1.014863	-5.464700	1.712805
18	1	0	-0.283084	-6.842626	0.866945
19	1	0	0.659268	-5.933945	2.067841
20	8	0	2.771630	-0.830940	0.111857
21	8	0	1.443554	0.830301	0.972838
22	5	0	2.658495	0.516569	0.398128
23	6	0	3.767684	1.558024	0.099650
24	6	0	3.553726	2.927962	0.345272
25	6	0	5.012763	1.160232	-0.423765
26	6	0	4.548953	3.869249	0.076783
27	1	0	2.598470	3.251952	0.748939
28	6	0	6.010711	2.098092	-0.694105
29	1	0	5.195179	0.107077	-0.619012
30	6	0	5.779044	3.454474	-0.443625
31	1	0	4.368038	4.922678	0.271360
32	1	0	6.966111	1.775062	-1.098148
33	1	0	6.554788	4.185931	-0.653397
34	6	0	-1.841958	-1.451017	-1.844928
35	1	0	-2.297150	-2.410723	-2.104668
36	1	0	-1.334782	-1.056705	-2.733802
37	8	0	-2.892817	-0.559411	-1.461273
38	8	0	-1.506860	0.559364	0.159261
39	5	0	-2.713015	0.394550	-0.486997
40	6	0	-3.915985	1.308311	-0.089981
41	6	0	-3.767257	2.322906	0.874739
42	6	0	-5.179816	1.142712	-0.687659
43	6	0	-4.840724	3.141704	1.231066
44	1	0	-2.798778	2.468183	1.344893
45	6	0	-6.257057	1.957849	-0.334874
46	1	0	-5.313076	0.365953	-1.435298
47	6	0	-6.088413	2.959677	0.626282
48	1	0	-4.706435	3.920387	1.976954
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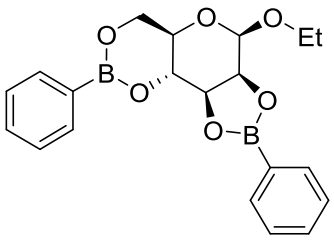

Ethyl β-D-mannopyranoside (bis-boronate)

Energy: -1276.70021333
Imaginary Frequencies: 0

Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	1.414494	-2.431769	0.642730
2	6	0	1.648620	-1.022834	1.202064
3	6	0	0.391867	-0.109175	1.218623
4	6	0	-0.563100	-0.385897	0.053007
5	6	0	-0.705005	-1.886349	-0.210130
6	1	0	2.041308	-1.144465	2.220566
7	1	0	0.891465	-3.016592	1.428095
8	1	0	-0.160899	-0.167686	2.160644
9	1	0	-0.143481	0.078072	-0.849344
10	1	0	-1.129660	-2.376472	0.684178
11	8	0	0.567680	-2.434898	-0.513063
12	8	0	2.627249	-3.007984	0.333539
13	6	0	2.574294	-4.414743	0.041931
14	1	0	1.980403	-4.576148	-0.864457
15	1	0	2.078098	-4.934929	0.876358
16	6	0	3.998042	-4.908613	-0.138904
17	1	0	4.585903	-4.745848	0.769469
18	1	0	3.995818	-5.980037	-0.365396
19	1	0	4.485243	-4.381212	-0.964243
20	8	0	2.602772	-0.258379	0.453586
21	8	0	0.955072	1.208902	1.088267
22	5	0	2.211195	1.062864	0.527266
23	6	0	3.080261	2.248260	0.035046
24	6	0	2.594005	3.568919	0.077717
25	6	0	4.378498	2.029782	-0.464473
26	6	0	3.377896	4.636563	-0.363205
27	1	0	1.593808	3.754647	0.459395
28	6	0	5.165250	3.094479	-0.907197
29	1	0	4.767667	1.016172	-0.504308
30	6	0	4.665071	4.399649	-0.856312
31	1	0	2.988500	5.650070	-0.323814
32	1	0	6.165032	2.909655	-1.290168
33	1	0	5.276459	5.229722	-1.199900
34	6	0	-1.646602	-2.103094	-1.388512
35	1	0	-1.893367	-3.161851	-1.505611
36	1	0	-1.170396	-1.753390	-2.312174
37	8	0	-2.869622	-1.389788	-1.182874
38	8	0	-1.842648	0.189656	0.316512
39	5	0	-2.947546	-0.300475	-0.346933
40	6	0	-4.330371	0.391912	-0.130009
41	6	0	-4.448062	1.533141	0.686077
42	6	0	-5.494709	-0.104813	-0.746176
43	6	0	-5.682594	2.155630	0.881158
44	1	0	-3.560323	1.933335	1.167612
45	6	0	-6.731898	0.513175	-0.554454
46	1	0	-5.423213	-0.983514	-1.380883
47	6	0	-6.827354	1.645481	0.260770
48	1	0	-5.753495	3.036355	1.513600
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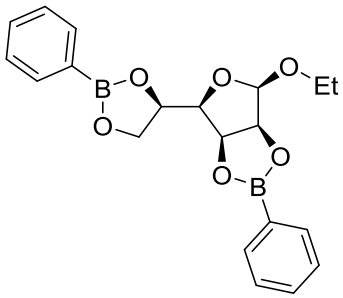

Ethyl β-D-mannofuranoside (bis-boronate)

Energy: -1276.69845028
Imaginary Frequencies: 0

Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	0.282317	1.338788	0.292408
2	6	0	-1.727749	2.433802	0.479721
3	6	0	-1.819725	1.250520	1.502201
4	6	0	-0.507548	0.447246	1.263109
5	1	0	0.901294	2.033255	0.887958
6	1	0	-1.429386	3.355665	1.018470
7	1	0	-1.950962	1.610102	2.526075
8	1	0	0.065875	0.208707	2.161811
9	8	0	-0.706262	2.069934	-0.433188
10	8	0	-2.865313	2.665441	-0.278292
11	6	0	-3.918973	3.335170	0.421399
12	1	0	-4.287955	2.698581	1.237248
13	1	0	-3.530804	4.268202	0.860581
14	6	0	-5.028968	3.628863	-0.572384
15	1	0	-5.855317	4.143435	-0.070866
16	1	0	-4.662417	4.264751	-1.383674
17	1	0	-5.410154	2.700088	-1.006550
18	8	0	-2.877649	0.347343	1.188815
19	8	0	-0.949334	-0.776136	0.660454
20	6	0	1.183125	0.623734	-0.704889
21	1	0	0.605570	-0.148606	-1.220006
22	6	0	1.894351	1.578316	-1.701055
23	1	0	1.552081	1.442288	-2.729251
24	1	0	1.774438	2.631557	-1.427192
25	8	0	3.289318	1.229142	-1.615416
26	5	0	-2.327716	-0.797424	0.648934
27	8	0	2.256511	-0.013027	0.014783
28	5	0	3.450692	0.337016	-0.582461
29	6	0	-3.164792	-1.989568	0.117342
30	6	0	-4.571429	-1.937557	0.106196
31	6	0	-2.536762	-3.155326	-0.360795
32	6	0	-5.326330	-3.011943	-0.367416
33	1	0	-5.072529	-1.045661	0.471762
34	6	0	-3.287336	-4.232265	-0.835746
35	1	0	-1.451845	-3.213955	-0.357367
36	6	0	-4.683995	-4.161135	-0.839357
37	1	0	-6.411333	-2.955530	-0.369941
38	1	0	-2.787107	-5.124533	-1.201712
39	1	0	-5.269936	-4.998382	-1.208778
40	6	0	4.828058	-0.218582	-0.128563
41	6	0	4.919628	-1.169182	0.905762
42	6	0	6.018556	0.214532	-0.742576
43	6	0	6.157131	-1.669815	1.314711
44	1	0	4.010588	-1.517597	1.388297
45	6	0	7.258439	-0.282812	-0.337066
46	1	0	5.966217	0.946194	-1.544063
47	6	0	7.328697	-1.226243	0.693017
48	1	0	6.209922	-2.403962	2.113938
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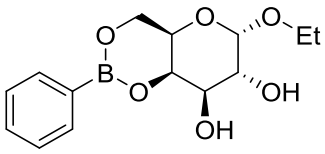
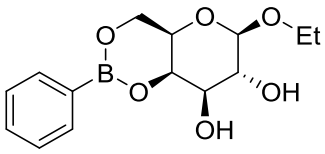


Ethyl α-D-galactopyranoside (mono-boronate 1,3-diol)

Energy: -981.961495900
Imaginary Frequencies: 0

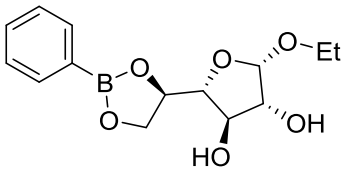
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	1.387438	-1.210929	0.767547
2	6	0	0.892749	0.130924	1.325359
3	6	0	1.796854	1.287791	0.885509
4	6	0	2.032281	1.233092	-0.627872
5	6	0	2.579990	-0.141246	-1.025603
6	8	0	1.638330	-1.145356	-0.642298
7	6	0	0.341177	-2.293127	0.993673
8	8	0	-0.438483	0.432429	0.874254
9	8	0	1.255571	2.551394	1.262648
10	8	0	2.924485	2.244045	-1.059292
11	8	0	3.828844	-0.334087	-0.424447
12	5	0	-1.318628	-0.570818	0.521633
13	8	0	-0.967750	-1.891940	0.587488
14	6	0	-2.756973	-0.189267	0.043447
15	6	0	-3.661144	-1.185412	-0.372003
16	6	0	-4.948699	-0.858513	-0.801350
17	6	0	-5.360281	0.477828	-0.821122
18	6	0	-4.479452	1.483098	-0.410483
19	6	0	-3.192758	1.148741	0.016200
20	6	0	4.595784	-1.397110	-0.985790
21	1	0	2.309906	-1.489617	1.295116
22	1	0	0.873065	0.082967	2.422200
23	1	0	2.762011	1.206272	1.394347
24	1	0	1.062469	1.336279	-1.136991
25	1	0	2.652845	-0.231435	-2.116550
26	1	0	0.603411	-3.185112	0.418532
27	1	0	0.312807	-2.558214	2.058047
28	1	0	0.305548	2.523335	1.068037
29	1	0	2.646164	3.068300	-0.633248
30	1	0	-3.344783	-2.224381	-0.357504
31	1	0	-5.630840	-1.642073	-1.119713
32	1	0	-6.362221	0.734492	-1.154316
33	1	0	-4.795811	2.522491	-0.423078
34	1	0	-2.515244	1.935719	0.335511
35	1	0	4.777071	-1.221327	-2.054700
36	1	0	4.096700	-2.365505	-0.859145
37	1	0	5.550281	-1.405212	-0.456620



Ethyl β -D-galactopyranoside (mono-boronate 1,3-diol)

Energy: -981.959087566
Imaginary Frequencies: 0

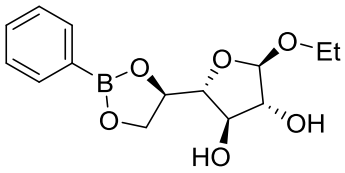
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	1.352180	0.879154	-1.439188
2	6	0	0.869707	-0.581193	-1.505191
3	6	0	1.917540	-1.496612	-0.870775
4	6	0	2.246718	-1.023572	0.542988
5	6	0	2.683853	0.442865	0.501275
6	8	0	1.669258	1.249164	-0.094660
7	6	0	0.254920	1.816490	-1.924933
8	8	0	-0.378279	-0.725173	-0.832885
9	8	0	1.466026	-2.836662	-0.897743
10	8	0	3.292167	-1.864548	1.025977
11	8	0	2.889285	0.861003	1.810400
12	6	0	3.487204	2.152421	1.943594
13	5	0	-1.276001	0.314316	-0.770560
14	8	0	-1.006828	1.543246	-1.321464
15	6	0	-2.648371	0.083144	-0.059894
16	6	0	-3.583725	1.126686	0.071469
17	6	0	-4.811188	0.920062	0.704241
18	6	0	-5.127497	-0.341616	1.218194
19	6	0	-4.212546	-1.392216	1.096688
20	6	0	-2.986209	-1.179302	0.463460
21	1	0	2.238764	1.002495	-2.083358
22	1	0	0.738979	-0.877548	-2.554822
23	1	0	2.835456	-1.400136	-1.477258
24	1	0	1.355050	-1.102146	1.176832
25	1	0	3.616843	0.547868	-0.087017
26	1	0	0.520417	2.849995	-1.684378
27	1	0	0.155552	1.725993	-3.014152
28	1	0	2.079531	-3.356183	-0.357816
29	1	0	3.480086	-1.613953	1.940969
30	1	0	2.818485	2.933842	1.570293
31	1	0	4.443244	2.194657	1.403427
32	1	0	3.666025	2.299797	3.009745
33	1	0	-3.340669	2.107648	-0.327127
34	1	0	-5.520128	1.738437	0.797031
35	1	0	-6.082520	-0.505335	1.710410
36	1	0	-4.456089	-2.373998	1.493793
37	1	0	-2.277569	-1.997120	0.367661



Ethyl α-D-galactofuranoside (mono-boronate)

Energy: -981.955387542
Imaginary Frequencies: 0

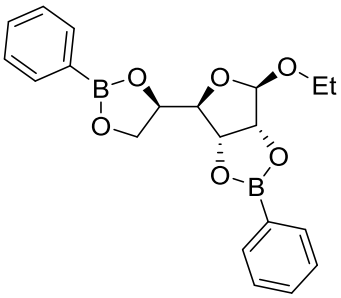
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	-1.447662	-0.388293	-0.526169
2	6	0	-2.725253	-1.154088	-0.150111
3	6	0	-3.834363	-0.281249	-0.761336
4	6	0	-3.256518	1.125192	-0.562573
5	8	0	-1.863011	0.982752	-0.739177
6	6	0	-0.346235	-0.446796	0.523566
7	8	0	-2.668844	-2.476779	-0.663289
8	8	0	-5.116771	-0.488196	-0.209086
9	8	0	-3.608506	1.520262	0.748757
10	8	0	0.817796	0.271621	0.075941
11	6	0	0.180041	-1.882351	0.800809
12	8	0	1.613005	-1.754316	0.802895
13	5	0	1.930019	-0.507046	0.314284
14	6	0	3.384439	-0.025574	0.060319
15	6	0	3.641553	1.271952	-0.421606
16	6	0	4.948172	1.707645	-0.650076
17	6	0	6.023627	0.849828	-0.398073
18	6	0	5.788480	-0.442981	0.080967
19	6	0	4.480063	-0.874442	0.306803
20	6	0	-3.239459	2.860171	1.080667
21	1	0	-1.057077	-0.775747	-1.475702
22	1	0	-2.860095	-1.173397	0.942116
23	1	0	-3.902351	-0.504024	-1.831542
24	1	0	-3.600707	1.879371	-1.281369
25	1	0	-0.706990	0.038305	1.439482
26	1	0	-3.502043	-2.919976	-0.450056
27	1	0	-5.166228	0.046446	0.599603
28	1	0	-0.113999	-2.590805	0.019907
29	1	0	-0.146707	-2.271578	1.768499
30	1	0	2.806987	1.939384	-0.617952
31	1	0	5.129481	2.711890	-1.023180
32	1	0	7.041340	1.187388	-0.574874
33	1	0	6.623056	-1.110647	0.276571
34	1	0	4.299438	-1.879460	0.678059
35	1	0	-3.710337	3.573124	0.390178
36	1	0	-2.152166	2.984629	1.048112
37	1	0	-3.602364	3.043502	2.093281



Ethyl β-D-galactofuranoside (mono-boronate)

Energy: -981.951826831
Imaginary Frequencies: 0

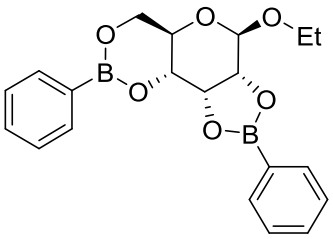
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	1.506916	-0.356730	0.063922
2	6	0	2.747017	-1.250973	-0.068013
3	6	0	3.874210	-0.262979	0.228446
4	6	0	3.320622	1.077210	-0.292041
5	8	0	1.934731	0.864888	-0.558082
6	6	0	0.262784	-0.863662	-0.645732
7	8	0	2.684810	-2.359778	0.814122
8	8	0	5.074250	-0.704623	-0.394229
9	8	0	3.537683	2.051392	0.695848
10	8	0	-0.832340	0.053149	-0.459764
11	6	0	-0.281304	-2.210335	-0.099256
12	8	0	-1.707627	-2.024035	-0.033124
13	5	0	-1.965420	-0.680020	-0.178232
14	6	0	-3.379924	-0.052935	-0.042747
15	6	0	-3.579275	1.326555	-0.240566
16	6	0	-4.849471	1.893705	-0.121055
17	6	0	-5.946275	1.086983	0.198470
18	6	0	-5.768538	-0.285803	0.398444
19	6	0	-4.496166	-0.848045	0.278946
20	6	0	3.114955	3.363290	0.320736
21	1	0	1.274278	-0.191588	1.126817
22	1	0	2.846445	-1.587553	-1.111690
23	1	0	4.002168	-0.184696	1.315703
24	1	0	3.782322	1.389460	-1.239637
25	1	0	0.473229	-0.916075	-1.721896
26	1	0	3.487781	-2.885859	0.698946
27	1	0	5.819616	-0.203184	-0.038772
28	1	0	0.095904	-2.435568	0.902503
29	1	0	-0.057352	-3.054597	-0.755238
30	1	0	-2.728388	1.954394	-0.490243
31	1	0	-4.986010	2.960330	-0.276865
32	1	0	-6.935904	1.526289	0.291224
33	1	0	-6.619725	-0.913825	0.646815
34	1	0	-4.360289	-1.914629	0.435402
35	1	0	2.034032	3.392884	0.150454
36	1	0	3.636862	3.696195	-0.587936
37	1	0	3.376770	4.022481	1.150060



Ethyl β-D-allofuranoside (bis-boronate)

Energy: -1237.38328141
Imaginary Frequencies: 0

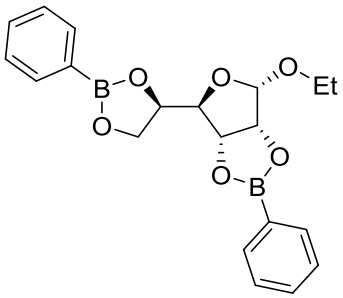
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	0.794703	0.422683	0.703633
2	6	0	-0.032996	0.874012	-0.509891
3	8	0	0.751967	1.902647	-1.146554
4	6	0	1.498792	2.595803	-0.181924
5	6	0	1.832601	1.565350	0.916943
6	6	0	-1.423707	1.409030	-0.149200
7	6	0	-2.231772	1.909069	-1.376623
8	8	0	-3.460206	1.157552	-1.346302
9	8	0	1.588655	-0.734159	0.397478
10	8	0	0.707854	3.656562	0.336900
11	8	0	3.109540	0.957051	0.694390
12	8	0	-2.212098	0.330119	0.392694
13	5	0	2.917687	-0.374838	0.382070
14	5	0	-3.390032	0.243273	-0.323376
15	6	0	-4.512484	-0.780688	-0.001965
16	6	0	-4.386965	-1.679537	1.074117
17	6	0	-5.395355	-2.600821	1.363043
18	6	0	-6.551350	-2.638606	0.576895
19	6	0	-6.694860	-1.753848	-0.496689
20	6	0	-5.683571	-0.834512	-0.781459
21	6	0	4.074422	-1.354777	0.055232
22	6	0	5.414157	-0.922371	0.072306
23	6	0	6.456703	-1.801878	-0.224571
24	6	0	6.175258	-3.133762	-0.545040
25	6	0	4.850843	-3.582513	-0.566648
26	6	0	3.811575	-2.699528	-0.268423
27	6	0	1.465601	4.731217	0.882052
28	1	0	0.168939	0.198635	1.569524
29	1	0	-0.134590	0.053766	-1.226740
30	1	0	2.397389	2.992800	-0.669847
31	1	0	1.818826	2.015549	1.912330
32	1	0	-1.335248	2.189086	0.613018
33	1	0	-1.716388	1.712329	-2.321920
34	1	0	-2.462729	2.975200	-1.318921
35	1	0	-3.489658	-1.652812	1.686181
36	1	0	-5.282091	-3.287611	2.197299
37	1	0	-7.337426	-3.354939	0.800083
38	1	0	-7.592262	-1.782288	-1.108539
39	1	0	-5.797179	-0.148782	-1.616522
40	1	0	5.635638	0.112050	0.320115
41	1	0	7.485203	-1.452207	-0.207517
42	1	0	6.985380	-3.819695	-0.777334
43	1	0	4.631025	-4.616899	-0.815659
44	1	0	2.783571	-3.050682	-0.285902
45	1	0	2.137782	5.161858	0.126525
46	1	0	2.061784	4.418489	1.750838
47	1	0	0.748485	5.489873	1.199956



Ethyl β-D-allopyranoside (bis-boronate)

Energy: -1237.38005772
Imaginary Frequencies: 0

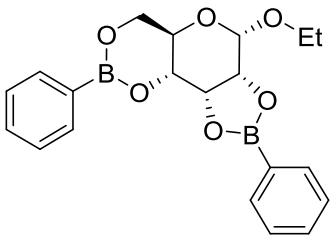
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	0.701012	1.270738	-0.902173
2	6	0	0.509946	1.972584	0.440081
3	8	0	-0.465874	2.993296	0.262456
4	6	0	-1.836543	1.531032	-1.189800
5	6	0	-0.593228	0.624139	-1.376557
6	8	0	1.760037	0.322646	-0.857563
7	6	0	3.989303	-0.500036	0.022902
8	6	0	1.826638	2.598397	0.879350
9	8	0	-2.664708	3.486986	-0.145476
10	8	0	-2.899241	0.578938	-0.999787
11	8	0	-0.939501	-0.559375	-0.632659
12	5	0	-2.318771	-0.599524	-0.564958
13	6	0	-3.124111	-1.820225	-0.052003
14	8	0	2.868729	1.619033	0.843409
15	5	0	2.817314	0.531912	0.002055
16	6	0	3.965474	-1.638632	-0.804679
17	6	0	5.011440	-2.563450	-0.788839
18	6	0	6.105834	-2.364941	0.058804
19	6	0	6.148925	-1.240235	0.888839
20	6	0	5.099900	-0.319060	0.868840
21	6	0	-2.468722	-3.005677	0.332889
22	6	0	-3.191411	-4.107360	0.793999
23	6	0	-4.586152	-4.042071	0.875008
24	6	0	-5.255199	-2.873959	0.495236
25	6	0	-4.528698	-1.773682	0.036936
26	6	0	-2.938635	4.275237	1.014830
27	1	0	0.952644	2.049099	-1.638509
28	1	0	0.178685	1.245248	1.197845
29	1	0	-2.052293	2.148393	-2.064786
30	1	0	-0.485326	0.333205	-2.429250
31	1	0	1.762541	2.979520	1.902017
32	1	0	2.083597	3.432160	0.214436
33	1	0	3.115689	-1.795849	-1.462764
34	1	0	4.974780	-3.436860	-1.434240
35	1	0	6.921139	-3.083326	0.072502
36	1	0	6.998013	-1.083633	1.548596
37	1	0	5.135815	0.553266	1.515245
38	1	0	-1.385474	-3.058681	0.267807
39	1	0	-2.671262	-5.014707	1.087971
40	1	0	-5.150241	-4.899381	1.232254
41	1	0	-6.338732	-2.823375	0.556501
42	1	0	-5.049966	-0.867255	-0.258461
43	1	0	-2.045491	4.813330	1.347720
44	1	0	-3.315908	3.644232	1.831209
45	1	0	-3.710861	4.988504	0.723281
46	6	0	-1.775518	2.447066	0.054525
47	1	0	-2.047145	1.862780	0.952979



Ethyl α-D-allofuranoside (bis-boronate)

Energy: -1237.37915829
Imaginary Frequencies: 0

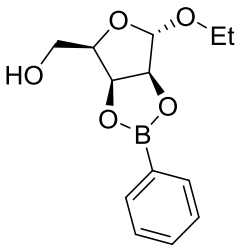
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	0.728600	0.954129	1.129407
2	6	0	-0.174418	1.706792	0.134450
3	8	0	0.453805	2.995443	-0.040277
4	6	0	1.847581	2.838134	0.050216
5	6	0	2.022923	1.809728	1.206953
6	6	0	-1.596161	1.975650	0.617066
7	6	0	-2.483562	2.707588	-0.427719
8	8	0	-3.522948	1.768536	-0.758626
9	8	0	1.175354	-0.320316	0.649519
10	8	0	2.334663	2.347188	-1.174579
11	8	0	3.095720	0.894162	1.008304
12	8	0	-2.261227	0.722925	0.847546
13	5	0	2.552750	-0.313167	0.602121
14	5	0	-3.358754	0.642663	0.012185
15	6	0	-4.302319	-0.588468	-0.044347
16	6	0	-4.064455	-1.720150	0.758446
17	6	0	-4.912503	-2.827944	0.707746
18	6	0	-6.016639	-2.822303	-0.150516
19	6	0	-6.269295	-1.707501	-0.956430
20	6	0	-5.418454	-0.602103	-0.902168
21	6	0	3.405762	-1.534824	0.170697
22	6	0	4.812154	-1.473121	0.171021
23	6	0	5.580443	-2.573351	-0.213774
24	6	0	4.951583	-3.758559	-0.608365
25	6	0	3.555398	-3.839814	-0.615066
26	6	0	2.791581	-2.737524	-0.227357
27	6	0	3.673712	2.726201	-1.484551
28	1	0	0.233170	0.805503	2.093003
29	1	0	-0.196226	1.162594	-0.818487
30	1	0	2.275342	3.825120	0.266487
31	1	0	2.154617	2.324685	2.162156
32	1	0	-1.551444	2.525019	1.564951
33	1	0	-1.930297	2.966807	-1.334563
34	1	0	-2.942088	3.614155	-0.022735
35	1	0	-3.205994	-1.728137	1.424323
36	1	0	-4.714436	-3.693692	1.333606
37	1	0	-6.677697	-3.683813	-0.191631
38	1	0	-7.126400	-1.702011	-1.624132
39	1	0	-5.615629	0.262609	-1.529709
40	1	0	5.303751	-0.554238	0.478737
41	1	0	6.665030	-2.509321	-0.206540
42	1	0	5.547532	-4.616051	-0.908963
43	1	0	3.065616	-4.760001	-0.921150
44	1	0	1.707176	-2.803392	-0.232572
45	1	0	4.389832	2.292148	-0.778244
46	1	0	3.776406	3.821061	-1.488917
47	1	0	3.877239	2.344606	-2.486483



Ethyl α-D-allopyranoside (bis-boronate)

Energy: -1237.37842059
Imaginary Frequencies: 0

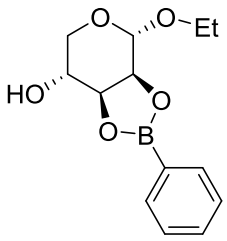
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	-0.804016	1.265853	1.060400
2	6	0	-0.654956	2.071077	-0.224491
3	8	0	0.255579	3.147265	0.027110
4	6	0	1.596260	2.696958	0.218207
5	6	0	1.690343	1.713935	1.427445
6	6	0	0.529915	0.693178	1.515397
7	8	0	-1.788343	0.247302	0.927827
8	6	0	-3.951181	-0.655460	-0.035537
9	6	0	-2.007016	2.644484	-0.623721
10	8	0	2.103172	2.068166	-0.920219
11	8	0	2.837301	0.869953	1.292587
12	8	0	1.009066	-0.398447	0.711795
13	6	0	2.356346	2.943169	-2.018428
14	5	0	2.388689	-0.305607	0.707469
15	6	0	3.328937	-1.408431	0.157720
16	8	0	-2.982679	1.598486	-0.670016
17	5	0	-2.854946	0.451304	0.078750
18	6	0	-3.844675	-1.856254	0.691618
19	6	0	-4.822969	-2.847735	0.593612
20	6	0	-5.931301	-2.655117	-0.237080
21	6	0	-6.055851	-1.469495	-0.968259
22	6	0	-5.073908	-0.482014	-0.866829
23	6	0	2.809888	-2.628543	-0.315537
24	6	0	3.654382	-3.624042	-0.810450
25	6	0	5.037093	-3.415865	-0.837509
26	6	0	5.571699	-2.210795	-0.370197
27	6	0	4.723192	-1.217619	0.122111
28	1	0	-1.124142	1.964913	1.848790
29	1	0	-0.270947	1.427731	-1.025461
30	1	0	2.158313	3.615162	0.434098
31	1	0	1.780437	2.307651	2.340945
32	1	0	0.427186	0.327105	2.545696
33	1	0	-1.966556	3.105673	-1.614249
34	1	0	-2.322875	3.406408	0.099745
35	1	0	3.060754	3.734688	-1.727698
36	1	0	1.432538	3.401001	-2.389604
37	1	0	2.803835	2.331015	-2.802814
38	1	0	-2.983698	-2.009228	1.336002
39	1	0	-4.722736	-3.768478	1.161897
40	1	0	-6.693984	-3.425398	-0.314585
41	1	0	-6.915690	-1.317354	-1.615037
42	1	0	-5.172599	0.437281	-1.437128
43	1	0	1.736048	-2.792502	-0.293919
44	1	0	3.237974	-4.559808	-1.172912
45	1	0	5.695991	-4.190237	-1.221095
46	1	0	6.645809	-2.048177	-0.390535
47	1	0	5.139779	-0.281418	0.483268



Ethyl α-D-lyxofuranoside (mono-boronate)

Energy: -867.421625926
Imaginary Frequencies: 0

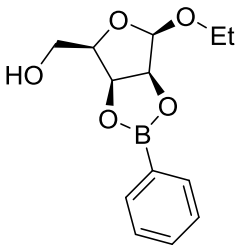
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	-2.107005	1.040310	0.374485
2	6	0	-1.085024	0.367676	1.306559
3	6	0	-1.111647	-1.131587	0.878669
4	6	0	-2.108139	-1.176154	-0.291662
5	8	0	-2.195309	0.157319	-0.767608
6	6	0	-1.759846	2.432499	-0.129932
7	5	0	0.978477	-0.268158	0.542387
8	8	0	0.264626	0.793073	1.056464
9	8	0	0.220234	-1.415655	0.438113
10	8	0	-3.327194	-1.651513	0.223528
11	6	0	-4.363261	-1.774972	-0.750069
12	8	0	-2.795200	2.960656	-0.952684
13	6	0	2.473143	-0.185242	0.136903
14	6	0	3.198522	1.011511	0.291654
15	6	0	4.544251	1.087986	-0.071425
16	6	0	5.189432	-0.035720	-0.597611
17	6	0	4.486167	-1.233812	-0.758493
18	6	0	3.140706	-1.305630	-0.393483
19	1	0	-3.083746	1.071034	0.876151
20	1	0	-1.313188	0.542319	2.360889
21	1	0	-1.395219	-1.834601	1.663801
22	1	0	-1.764218	-1.791045	-1.132083
23	1	0	-0.802529	2.403159	-0.662760
24	1	0	-1.659371	3.116058	0.718157
25	1	0	-4.051630	-2.441209	-1.566908
26	1	0	-4.638302	-0.799313	-1.164969
27	1	0	-5.221404	-2.210855	-0.235931
28	1	0	-2.894146	2.371038	-1.712891
29	1	0	2.700483	1.886116	0.700995
30	1	0	5.089565	2.019159	0.054463
31	1	0	6.236815	0.022042	-0.881148
32	1	0	4.986457	-2.107480	-1.166823
33	1	0	2.597000	-2.237871	-0.518946



Ethyl α-D-lyxopyranoside (mono-boronate)

Energy: -867.417730158
Imaginary Frequencies: 0

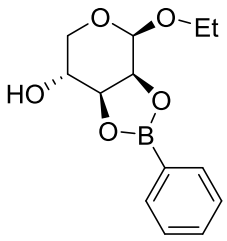
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	2.880837	1.086176	0.911824
2	6	0	1.550135	1.685402	0.470158
3	6	0	1.018622	0.941133	-0.761076
4	6	0	1.171244	-0.595048	-0.685353
5	6	0	2.352115	-1.112432	0.149458
6	8	0	2.676008	-0.290227	1.252140
7	8	0	-0.088527	-1.031034	-0.137251
8	8	0	3.429006	-1.244470	-0.752261
9	6	0	4.575806	-1.890038	-0.200814
10	8	0	-0.413678	1.127467	-0.852196
11	8	0	1.755074	3.068343	0.201869
12	5	0	-1.006048	-0.026672	-0.371737
13	6	0	-2.529557	-0.178908	-0.122928
14	6	0	-3.413996	0.890591	-0.360165
15	6	0	-4.785389	0.751653	-0.139318
16	6	0	-5.296908	-0.463799	0.326554
17	6	0	-4.434669	-1.537942	0.568771
18	6	0	-3.064404	-1.394879	0.343979
19	1	0	3.239894	1.578940	1.816864
20	1	0	3.639531	1.190494	0.126154
21	1	0	0.833373	1.555682	1.293313
22	1	0	1.487285	1.356002	-1.657735
23	1	0	1.269451	-1.023064	-1.688648
24	1	0	2.092442	-2.081902	0.594068
25	1	0	5.303228	-1.971341	-1.010205
26	1	0	4.318599	-2.895569	0.160785
27	1	0	5.004225	-1.311906	0.624889
28	1	0	0.902284	3.469265	-0.014617
29	1	0	-3.020045	1.835959	-0.723093
30	1	0	-5.454532	1.586293	-0.328992
31	1	0	-6.364011	-0.573618	0.499694
32	1	0	-4.830914	-2.482741	0.930254
33	1	0	-2.396649	-2.231226	0.531005



Ethyl β-D-lyxofuranoside (mono-boronate)

Energy: -867.412787227
Imaginary Frequencies: 0

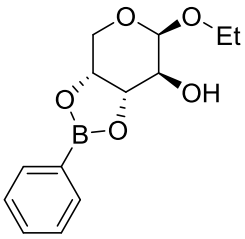
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	2.310137	-1.140967	0.379205
2	6	0	1.209637	-0.788837	1.396718
3	6	0	1.193428	0.772032	1.406305
4	6	0	2.266851	1.154139	0.359357
5	8	0	2.392664	0.001306	-0.485173
6	6	0	2.081248	-2.379448	-0.474025
7	5	0	-0.831048	-0.012919	0.711225
8	8	0	-0.100320	-1.160674	0.946071
9	8	0	-0.124470	1.132040	1.003404
10	8	0	3.185420	-2.626792	-1.337686
11	8	0	1.913489	2.270621	-0.363257
12	6	0	2.932257	2.750982	-1.241737
13	6	0	-2.294352	-0.013332	0.197930
14	6	0	-2.985681	-1.219786	-0.022181
15	6	0	-4.302627	-1.218902	-0.485117
16	6	0	-4.952204	-0.006198	-0.736729
17	6	0	-4.282063	1.202788	-0.523878
18	6	0	-2.965461	1.197131	-0.060122
19	1	0	3.265317	-1.253244	0.919650
20	1	0	1.386428	-1.252640	2.371096
21	1	0	1.405432	1.229534	2.376305
22	1	0	3.238308	1.308531	0.870118
23	1	0	1.148437	-2.267027	-1.038034
24	1	0	1.989450	-3.258171	0.171024
25	1	0	3.285193	-1.855646	-1.912874
26	1	0	3.126974	2.036047	-2.047775
27	1	0	3.863922	2.945405	-0.691535
28	1	0	2.558119	3.685693	-1.661953
29	1	0	-2.483716	-2.163652	0.172204
30	1	0	-4.822102	-2.158775	-0.650025
31	1	0	-5.977161	-0.003399	-1.097692
32	1	0	-4.785424	2.145393	-0.720154
33	1	0	-2.445209	2.136928	0.102288



Ethyl β-D-lyxopyranoside (mono-boronate)

Energy: -867.410896630
Imaginary Frequencies: 0

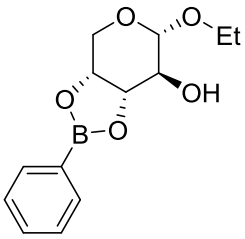
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	-2.952010	1.235937	-0.838268
2	6	0	-1.592457	1.835395	-0.482920
3	6	0	-1.052384	1.239961	0.828546
4	6	0	-1.272017	-0.284839	0.967664
5	6	0	-2.573914	-0.776543	0.328133
6	8	0	-2.826660	-0.179099	-0.938384
7	8	0	-0.081181	-0.841926	0.391072
8	8	0	0.387506	1.362386	0.842193
9	8	0	-1.745379	3.247973	-0.394147
10	8	0	-2.526993	-2.151426	0.198966
11	6	0	-3.764644	-2.752004	-0.184928
12	5	0	0.894066	0.129606	0.458481
13	6	0	2.388990	-0.126763	0.135701
14	6	0	3.335222	0.914146	0.194254
15	6	0	4.679819	0.680179	-0.099128
16	6	0	5.101237	-0.603880	-0.459273
17	6	0	4.176278	-1.650978	-0.523243
18	6	0	2.833112	-1.412853	-0.226856
19	1	0	-3.285838	1.599704	-1.811734
20	1	0	-3.708053	1.514758	-0.086143
21	1	0	-0.894865	1.574003	-1.290351
22	1	0	-1.463708	1.802200	1.672477
23	1	0	-1.298523	-0.576100	2.026303
24	1	0	-3.402720	-0.477703	1.006008
25	1	0	-0.872360	3.645548	-0.273681
26	1	0	-4.051796	-2.453476	-1.197601
27	1	0	-4.564962	-2.480044	0.518673
28	1	0	-3.603134	-3.830440	-0.148923
29	1	0	3.010943	1.912877	0.473867
30	1	0	5.397768	1.494070	-0.048441
31	1	0	6.147237	-0.787858	-0.689183
32	1	0	4.502845	-2.648744	-0.802763
33	1	0	2.115105	-2.226638	-0.276601



Ethyl β-D-arabinopyranoside (mono-boronate)

Energy: -867.417460806
Imaginary Frequencies: 0

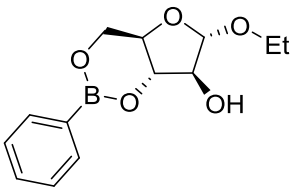
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	-0.994691	0.532489	0.846508
2	6	0	-0.886843	-1.009543	0.947033
3	6	0	-2.013040	-1.790082	0.285154
4	8	0	-2.482031	-1.215451	-0.938521
5	6	0	-2.881757	0.132966	-0.820801
6	6	0	-1.702685	1.032742	-0.429407
7	8	0	0.384038	0.954932	0.826436
8	8	0	0.402821	-1.293355	0.364305
9	5	0	1.143783	-0.129586	0.436322
10	8	0	-3.889542	0.331426	0.152036
11	8	0	-2.112533	2.386142	-0.322471
12	6	0	-5.169874	-0.190473	-0.206989
13	6	0	2.659431	-0.048538	0.115589
14	6	0	3.390363	-1.202543	-0.225379
15	6	0	4.754838	-1.130230	-0.511492
16	6	0	5.413838	0.102262	-0.458406
17	6	0	4.705264	1.259776	-0.120527
18	6	0	3.340477	1.182947	0.162852
19	1	0	-1.479511	0.964422	1.725805
20	1	0	-0.841095	-1.314648	2.001913
21	1	0	-1.663221	-2.791975	0.028072
22	1	0	-2.845164	-1.876833	0.995379
23	1	0	-3.257328	0.408436	-1.814476
24	1	0	-0.983466	0.996511	-1.252550
25	1	0	-2.919272	2.398840	0.214696
26	1	0	-5.131122	-1.276768	-0.344211
27	1	0	-5.533005	0.277171	-1.131927
28	1	0	-5.847991	0.052210	0.612963
29	1	0	2.880506	-2.161164	-0.266354
30	1	0	5.304320	-2.029943	-0.774309
31	1	0	6.476121	0.160479	-0.679923
32	1	0	5.216248	2.217692	-0.079366
33	1	0	2.791102	2.083305	0.423581



Ethyl α-D-arabinopyranoside (mono-boronate)

Energy: -867.416383276
Imaginary Frequencies: 0

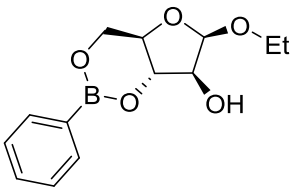
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	0.918664	0.426270	-1.260950
2	6	0	0.776556	-1.120047	-1.262869
3	6	0	1.950513	-1.884062	-0.658150
4	8	0	2.513356	-1.239127	0.477042
5	6	0	2.996349	0.055474	0.144455
6	6	0	1.815093	0.985003	-0.146382
7	8	0	-0.435190	0.881928	-1.073736
8	8	0	-0.450202	-1.350562	-0.542897
9	5	0	-1.164652	-0.169358	-0.556876
10	8	0	3.683638	0.591843	1.227877
11	8	0	2.260460	2.270327	-0.555823
12	6	0	-2.624923	-0.037202	-0.050245
13	6	0	-3.335777	-1.161615	0.410774
14	6	0	-4.650463	-1.043682	0.865242
15	6	0	-5.278790	0.205803	0.864637
16	6	0	-4.589369	1.334550	0.410060
17	6	0	-3.274387	1.211986	-0.042409
18	6	0	4.919726	-0.056199	1.534964
19	1	0	1.284812	0.806330	-2.219019
20	1	0	0.626109	-1.481449	-2.289592
21	1	0	1.615172	-2.869032	-0.326563
22	1	0	2.723667	-2.019161	-1.432964
23	1	0	3.665709	-0.022308	-0.735964
24	1	0	1.229913	1.046173	0.781324
25	1	0	2.801894	2.632275	0.159837
26	1	0	-2.849525	-2.133262	0.412181
27	1	0	-5.184975	-1.921184	1.218451
28	1	0	-6.302306	0.299589	1.217495
29	1	0	-5.076467	2.305712	0.409717
30	1	0	-2.739821	2.090056	-0.394099
31	1	0	5.591130	-0.043902	0.665060
32	1	0	4.751161	-1.088874	1.854957
33	1	0	5.371145	0.512876	2.349091



Ethyl α-D-arabinofuranoside (mono-boronate 1,3-diol)

Energy: -867.408831647
Imaginary Frequencies: 0

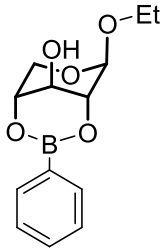
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	-1.435589	-0.996458	0.045291
2	6	0	-1.026237	0.336310	0.651692
3	6	0	-2.159851	1.241248	0.177457
4	6	0	-3.355000	0.253694	0.130995
5	8	0	-2.821345	-1.068383	0.369153
6	6	0	-0.558139	-2.089826	0.620626
7	8	0	0.295392	0.694743	0.273175
8	8	0	-2.480951	2.317614	1.045781
9	8	0	-3.957516	0.352242	-1.126540
10	8	0	0.809781	-1.662384	0.468168
11	5	0	1.198200	-0.357847	0.255299
12	6	0	2.706505	-0.057993	-0.017501
13	6	0	3.159376	1.260739	-0.212627
14	6	0	4.506489	1.532489	-0.459515
15	6	0	5.430762	0.484572	-0.514396
16	6	0	5.002168	-0.832685	-0.322090
17	6	0	3.653704	-1.097982	-0.076457
18	6	0	-5.167832	-0.394697	-1.253133
19	1	0	-1.298038	-0.963399	-1.047587
20	1	0	-1.083798	0.269012	1.747481
21	1	0	-1.960626	1.597463	-0.841175
22	1	0	-4.081039	0.446107	0.930296
23	1	0	-0.772712	-2.245120	1.684145
24	1	0	-0.661289	-3.043572	0.096418
25	1	0	-1.794819	2.993475	0.969204
26	1	0	2.444599	2.077681	-0.170428
27	1	0	4.836509	2.556993	-0.608455
28	1	0	6.479828	0.693489	-0.705973
29	1	0	5.718187	-1.648916	-0.363922
30	1	0	3.323462	-2.122008	0.072337
31	1	0	-5.905026	-0.069606	-0.505696
32	1	0	-4.983411	-1.468372	-1.139854
33	1	0	-5.553843	-0.191117	-2.253238



Ethyl β-D-arabinofuranoside (mono-boronate 1,3-diol)

Energy: -867.401038243
Imaginary Frequencies: 0

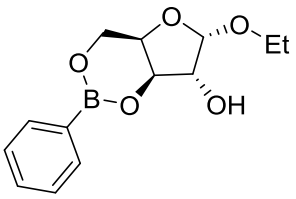
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	1.299672	1.190096	-0.596621
2	6	0	1.095715	-0.162242	0.064212
3	6	0	2.201642	-0.954148	-0.612134
4	6	0	3.355109	0.094753	-0.520948
5	8	0	2.714920	1.369594	-0.622851
6	6	0	0.493299	2.225750	0.163563
7	8	0	-0.244913	-0.604099	-0.101509
8	8	0	2.584939	-2.169778	-0.001523
9	8	0	4.019476	0.058525	0.710919
10	8	0	-0.852276	1.712471	0.257729
11	5	0	-1.196960	0.391307	0.076528
12	6	0	5.223231	-0.707412	0.735090
13	6	0	-2.709472	0.002071	0.070581
14	6	0	-3.112202	-1.340435	-0.062107
15	6	0	-4.463485	-1.691941	-0.066732
16	6	0	-5.442145	-0.701525	0.062542
17	6	0	-5.063789	0.638184	0.195960
18	6	0	-3.710972	0.983142	0.199855
19	1	0	0.914820	1.143310	-1.628444
20	1	0	1.327094	-0.102549	1.136029
21	1	0	1.942560	-1.113592	-1.670445
22	1	0	4.079642	-0.000395	-1.341347
23	1	0	0.895787	2.378628	1.170789
24	1	0	0.438579	3.190182	-0.348036
25	1	0	1.840128	-2.783617	-0.049794
26	1	0	5.912318	-0.375344	-0.054955
27	1	0	5.021142	-1.777384	0.623571
28	1	0	5.681794	-0.521736	1.708041
29	1	0	-2.355224	-2.113222	-0.161597
30	1	0	-4.754531	-2.733754	-0.169820
31	1	0	-6.494510	-0.972496	0.059707
32	1	0	-5.822108	1.409792	0.297039
33	1	0	-3.419482	2.024182	0.304937



Ethyl β-D-xylopyranoside (mono-boronate 1,3 diol)

Energy: -867.421734359
Imaginary Frequencies: 0

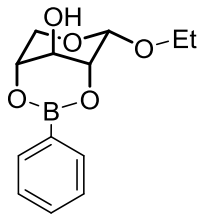
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	8	0	-1.677863	0.326922	-1.385199
2	6	0	-1.817211	-1.103231	-1.317461
3	6	0	-1.092688	-1.683313	-0.104398
4	6	0	-1.607937	-1.035441	1.194413
5	6	0	-1.335975	0.469871	1.038780
6	6	0	-2.037137	1.029630	-0.216905
7	6	0	2.375179	0.013141	0.082540
8	6	0	3.207427	-0.920690	-0.563323
9	8	0	0.316146	-1.437847	-0.215495
10	8	0	-2.962692	-1.350572	1.463053
11	8	0	0.068176	0.683253	0.897474
12	8	0	-3.431813	0.984986	0.041431
13	6	0	4.575579	-0.685970	-0.713184
14	5	0	0.845988	-0.257340	0.250394
15	6	0	5.139762	0.493458	-0.216847
16	6	0	4.330879	1.434251	0.428272
17	6	0	2.963213	1.193719	0.574487
18	6	0	-4.237662	1.648913	-0.937477
19	1	0	-2.876607	-1.387602	-1.286594
20	1	0	-1.375047	-1.478363	-2.242215
21	1	0	-1.238496	-2.767474	-0.076222
22	1	0	-1.019972	-1.415800	2.036734
23	1	0	-1.674756	1.027587	1.916068
24	1	0	-1.717680	2.061934	-0.404803
25	1	0	2.772298	-1.838199	-0.949181
26	1	0	-3.527340	-0.689466	1.027825
27	1	0	5.201482	-1.419074	-1.214746
28	1	0	6.204495	0.678195	-0.331686
29	1	0	4.766415	2.351340	0.815620
30	1	0	2.338173	1.926541	1.076924
31	1	0	-4.130279	1.181738	-1.921456
32	1	0	-3.958025	2.708150	-1.005063
33	1	0	-5.270807	1.567226	-0.596676



Ethyl α-D-xylofuranoside (mono-boronate 1,3 diol)

Energy: -867.416105211
Imaginary Frequencies: 0

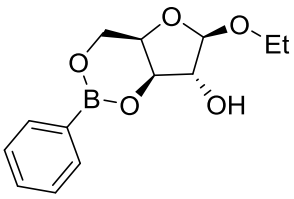
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	3.295636	-0.037544	0.539105
2	8	0	2.809743	1.245421	0.188989
3	6	0	1.491704	1.146025	-0.396508
4	6	0	1.102167	-0.345938	-0.333773
5	6	0	2.047952	-0.914009	0.742326
6	8	0	4.042301	-0.636162	-0.497718
7	6	0	-2.724227	0.057123	-0.059089
8	6	0	-3.146022	-1.279019	-0.196931
9	6	0	0.532365	2.014211	0.419917
10	8	0	-0.270786	-0.586526	-0.048921
11	8	0	2.293908	-2.297038	0.667181
12	8	0	-0.825973	1.739113	0.075954
13	5	0	-1.206787	0.420486	-0.012994
14	6	0	-4.502954	-1.606274	-0.231803
15	6	0	-5.466891	-0.597923	-0.132288
16	6	0	-5.068893	0.735895	0.003626
17	6	0	-3.710597	1.056773	0.041602
18	6	0	5.304999	-0.020874	-0.753439
19	1	0	3.924261	0.089823	1.429034
20	1	0	1.539505	1.507857	-1.429079
21	1	0	1.322039	-0.841997	-1.285271
22	1	0	1.618691	-0.719981	1.730638
23	1	0	-2.398803	-2.063814	-0.273597
24	1	0	0.715118	3.075451	0.235057
25	1	0	0.688810	1.822569	1.489136
26	1	0	2.958904	-2.432306	-0.025976
27	1	0	-4.809770	-2.643391	-0.336329
28	1	0	-6.523548	-0.850390	-0.159935
29	1	0	-5.815999	1.521086	0.081644
30	1	0	-3.403873	2.093225	0.150703
31	1	0	5.932193	-0.034242	0.148463
32	1	0	5.175515	1.012377	-1.092342
33	1	0	5.785920	-0.607833	-1.537540



Ethyl α-D-xylopyranoside (mono-boronate 1,3 diol)

Energy: -867.414020429
Imaginary Frequencies: 0

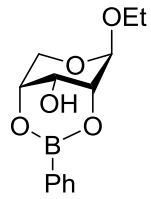
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	8	0	1.804082	0.381474	1.276287
2	6	0	1.969997	-1.018943	1.502546
3	6	0	1.253742	-1.831930	0.419337
4	6	0	1.787190	-1.455227	-0.969954
5	6	0	1.545683	0.059604	-1.121299
6	6	0	2.288137	0.805164	0.002109
7	6	0	-2.168518	-0.127793	-0.108755
8	6	0	-3.033042	-0.923779	0.665980
9	8	0	-0.148067	-1.555960	0.456442
10	8	0	3.166150	-1.810042	-1.031363
11	8	0	0.144324	0.299917	-1.052626
12	8	0	2.071491	2.165894	-0.138652
13	6	0	2.824172	2.979483	0.760969
14	6	0	-4.393871	-0.626552	0.764422
15	5	0	-0.647487	-0.464102	-0.223302
16	6	0	-4.917293	0.478967	0.086404
17	6	0	-4.074985	1.283740	-0.687254
18	6	0	-2.715154	0.981007	-0.782079
19	1	0	3.034988	-1.290691	1.522716
20	1	0	1.526229	-1.221098	2.479619
21	1	0	1.390142	-2.901777	0.605908
22	1	0	1.210558	-1.992292	-1.734448
23	1	0	1.898332	0.434895	-2.088359
24	1	0	3.366292	0.568795	-0.061616
25	1	0	-2.629365	-1.782543	1.194966
26	1	0	3.462113	-1.785673	-1.950374
27	1	0	3.900971	2.778454	0.661655
28	1	0	2.516360	2.812021	1.797589
29	1	0	2.622345	4.014124	0.478873
30	1	0	-5.045428	-1.253103	1.367611
31	1	0	-5.975974	0.712759	0.161606
32	1	0	-4.478273	2.144772	-1.213444
33	1	0	-2.062044	1.609170	-1.381038



Ethyl β-D-xylofuranoside (mono-boronate 1,3-diol)

Energy: -867.413656399
Imaginary Frequencies: 0

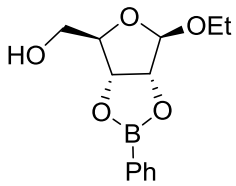
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	3.266614	-0.361498	-0.016754
2	8	0	2.927929	0.564007	-1.059941
3	6	0	1.506774	0.634855	-1.208395
4	6	0	1.025058	-0.776275	-0.840707
5	6	0	2.012953	-1.208554	0.257893
6	8	0	3.632734	0.292728	1.168243
7	6	0	-2.639062	0.120346	-0.003965
8	6	0	-3.254478	-1.145489	-0.030466
9	6	0	0.870215	1.688545	-0.295513
10	8	0	-0.336638	-0.852551	-0.428221
11	8	0	2.362432	-2.584722	0.219490
12	8	0	-0.554419	1.536235	-0.278279
13	5	0	-1.104136	0.279353	-0.249136
14	6	0	-4.625239	-1.286824	0.194685
15	6	0	-5.409952	-0.158067	0.451218
16	6	0	-4.818744	1.108952	0.481027
17	6	0	-3.447272	1.243329	0.256509
18	6	0	4.876323	0.988919	1.086765
19	1	0	4.100076	-0.969069	-0.391307
20	1	0	1.302017	0.879379	-2.255112
21	1	0	1.145301	-1.450675	-1.695570
22	1	0	1.614749	-0.936059	1.242828
23	1	0	-2.648200	-2.024390	-0.231006
24	1	0	1.089858	2.697005	-0.654620
25	1	0	1.260589	1.595167	0.724112
26	1	0	1.611142	-3.104122	0.535049
27	1	0	-5.082062	-2.272444	0.170090
28	1	0	-6.477007	-0.265362	0.626699
29	1	0	-5.426046	1.987734	0.680074
30	1	0	-2.990127	2.228392	0.281881
31	1	0	4.827769	1.801627	0.353765
32	1	0	5.689519	0.301359	0.815202
33	1	0	5.067674	1.399676	2.079470



Ethyl-β-D-ribopyranoside (mono-boronate 1,3-diol)

Energy: -867.421441473
Imaginary Frequencies: 0

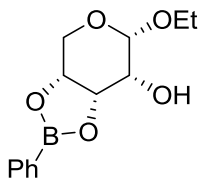
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	8	0	1.774384	0.731982	1.251291
2	6	0	1.917451	-0.643048	1.627580
3	6	0	1.194513	-1.570619	0.646150
4	6	0	1.749024	-1.349006	-0.765998
5	6	0	1.466054	0.120681	-1.096066
6	6	0	2.174292	1.033566	-0.074809
7	5	0	-0.724917	-0.280259	-0.113568
8	6	0	-2.243618	0.070383	-0.017685
9	8	0	-0.214675	-1.293982	0.666330
10	8	0	1.219995	-2.248850	-1.727015
11	8	0	0.059267	0.379719	-1.036546
12	8	0	3.556215	0.879757	-0.279836
13	6	0	4.361817	1.834400	0.412462
14	6	0	-3.086232	-0.598938	0.889992
15	6	0	-4.444544	-0.287646	0.976906
16	6	0	-4.987348	0.703367	0.152859
17	6	0	-4.167672	1.380102	-0.755925
18	6	0	-2.809957	1.064946	-0.837501
19	1	0	2.978576	-0.922161	1.681804
20	1	0	1.474933	-0.720664	2.622737
21	1	0	1.319654	-2.613079	0.955542
22	1	0	2.828817	-1.515332	-0.768928
23	1	0	1.802075	0.369712	-2.105188
24	1	0	1.867496	2.077319	-0.219582
25	1	0	0.259212	-2.144947	-1.772060
26	1	0	4.239336	1.747271	1.497563
27	1	0	4.106049	2.856521	0.101345
28	1	0	5.396912	1.621859	0.140128
29	1	0	-2.666904	-1.369153	1.531088
30	1	0	-5.079357	-0.814422	1.684141
31	1	0	-6.044286	0.947306	0.218641
32	1	0	-4.587033	2.150469	-1.397298
33	1	0	-2.175056	1.592466	-1.543676



Ethyl-β-D-ribofuranoside (mono-boronate)

Energy: -867.420218811
Imaginary Frequencies: 0

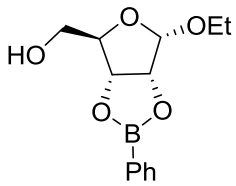
Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	1.026090	-0.986087	-0.619283
2	6	0	1.867170	-1.417818	0.592356
3	8	0	1.995678	-0.223547	1.405180
4	6	0	1.952217	0.924332	0.612569
5	6	0	1.105524	0.567026	-0.630237
6	6	0	3.230208	-2.008555	0.225656
7	8	0	3.934074	-1.267608	-0.759382
8	8	0	-0.369364	-1.275448	-0.425059
9	8	0	3.290332	1.280442	0.254843
10	8	0	-0.247127	1.014922	-0.481235
11	5	0	-1.065388	-0.090353	-0.347098
12	6	0	3.458594	2.643767	-0.125403
13	6	0	-2.600122	-0.002376	-0.139597
14	6	0	-3.250696	1.244044	-0.067443
15	6	0	-4.632149	1.323737	0.117060
16	6	0	-5.388907	0.153390	0.233045
17	6	0	-4.761035	-1.094348	0.163776
18	6	0	-3.379411	-1.168911	-0.021107
19	1	0	1.359967	-1.456833	-1.545452
20	1	0	1.315179	-2.140856	1.200872
21	1	0	1.505775	1.737720	1.197201
22	1	0	1.527910	0.990020	-1.544310
23	1	0	3.071969	-3.007387	-0.196386
24	1	0	3.820719	-2.118351	1.146381
25	1	0	4.061593	-0.361066	-0.427605
26	1	0	3.134730	3.314513	0.681749
27	1	0	2.901611	2.887769	-1.039998
28	1	0	4.524461	2.788322	-0.308450
29	1	0	-2.665659	2.155190	-0.157256
30	1	0	-5.118895	2.293580	0.170557
31	1	0	-6.464320	0.213546	0.376657
32	1	0	-5.347729	-2.004309	0.253612
33	1	0	-2.894013	-2.139405	-0.075214



Ethyl-α-D-ribopyranoside (mono-boronate)

Energy: -867.416638695
Imaginary Frequencies: 0

Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	-1.024271	1.727919	-0.529937
2	6	0	-1.733892	1.621843	0.829984
3	8	0	-3.052310	1.080850	0.702111
4	6	0	-3.062072	-0.257717	0.217017
5	6	0	-2.512466	-0.295093	-1.218405
6	6	0	-1.183196	0.453692	-1.388212
7	8	0	0.399400	1.796370	-0.303554
8	8	0	-2.313791	-1.135938	1.013299
9	5	0	0.897094	0.516832	-0.480224
10	6	0	-2.906045	-1.438537	2.276159
11	8	0	-2.445553	-1.607564	-1.735257
12	8	0	-0.045860	-0.348016	-0.998268
13	6	0	2.353030	0.105886	-0.137368
14	6	0	2.813505	-1.200289	-0.390867
15	6	0	4.123706	-1.572342	-0.084720
16	6	0	4.999579	-0.639585	0.479818
17	6	0	4.561755	0.663450	0.737570
18	6	0	3.249955	1.030121	0.431588
19	1	0	-1.340578	2.624773	-1.068789
20	1	0	-1.855330	2.607271	1.283879
21	1	0	-1.131109	0.998366	1.499716
22	1	0	-4.121419	-0.546047	0.219787
23	1	0	-3.251501	0.234138	-1.830148
24	1	0	-1.057981	0.686250	-2.453410
25	1	0	-3.899055	-1.888626	2.140858
26	1	0	-2.998914	-0.541531	2.899027
27	1	0	-2.246101	-2.157072	2.765094
28	1	0	-1.769120	-2.077840	-1.224439
29	1	0	2.136009	-1.926014	-0.832124
30	1	0	4.463255	-2.584482	-0.286395
31	1	0	6.020219	-0.927037	0.717520
32	1	0	5.241632	1.389044	1.175379
33	1	0	2.911922	2.042942	0.632753



Ethyl-α-D-ribofuranoside (mono-boronate)

Energy: -867.414944379
Imaginary Frequencies: 0

Center Number	Atomic Number	Atomic Type	Coordinates (Angstroms) X	Y	Z
1	6	0	-1.442700	-0.897531	0.517340
2	6	0	-2.455158	-0.713330	-0.628456
3	8	0	-3.003225	0.612454	-0.423069
4	6	0	-1.997697	1.442044	0.101551
5	6	0	-1.255353	0.520383	1.115383
6	6	0	-3.625184	-1.686010	-0.633257
7	8	0	-4.356424	-1.656378	0.586790
8	8	0	-0.131997	-1.268285	0.060514
9	8	0	-1.157407	1.860309	-0.946634
10	8	0	0.153519	0.730462	1.163628
11	5	0	0.760363	-0.297861	0.464043
12	6	0	2.286568	-0.363295	0.190965
13	6	0	3.149185	0.647248	0.656105
14	6	0	4.522796	0.588713	0.413663
15	6	0	5.058962	-0.486084	-0.302590
16	6	0	4.218674	-1.500464	-0.772562
17	6	0	2.846104	-1.438145	-0.525550
18	6	0	-0.546991	3.134270	-0.756513
19	1	0	-1.786763	-1.638630	1.242690
20	1	0	-1.928527	-0.753276	-1.590265
21	1	0	-2.490476	2.305531	0.566089
22	1	0	-1.676071	0.633658	2.117810
23	1	0	-3.248445	-2.706810	-0.748685
24	1	0	-4.277587	-1.462854	-1.488727
25	1	0	-4.694560	-0.756399	0.696496
26	1	0	2.736175	1.482990	1.214297
27	1	0	5.174390	1.376732	0.780972
28	1	0	6.127722	-0.533475	-0.493078
29	1	0	4.633809	-2.336639	-1.328319
30	1	0	2.195905	-2.228265	-0.890651
31	1	0	0.148466	3.127832	0.090186
32	1	0	-1.309542	3.911468	-0.601528
33	1	0	0.002729	3.352154	-1.673806

^{1}H, ^{13}C, and 2D NMR Spectra

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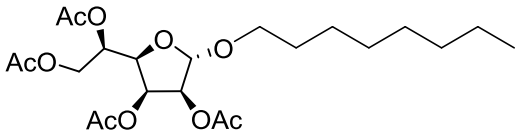
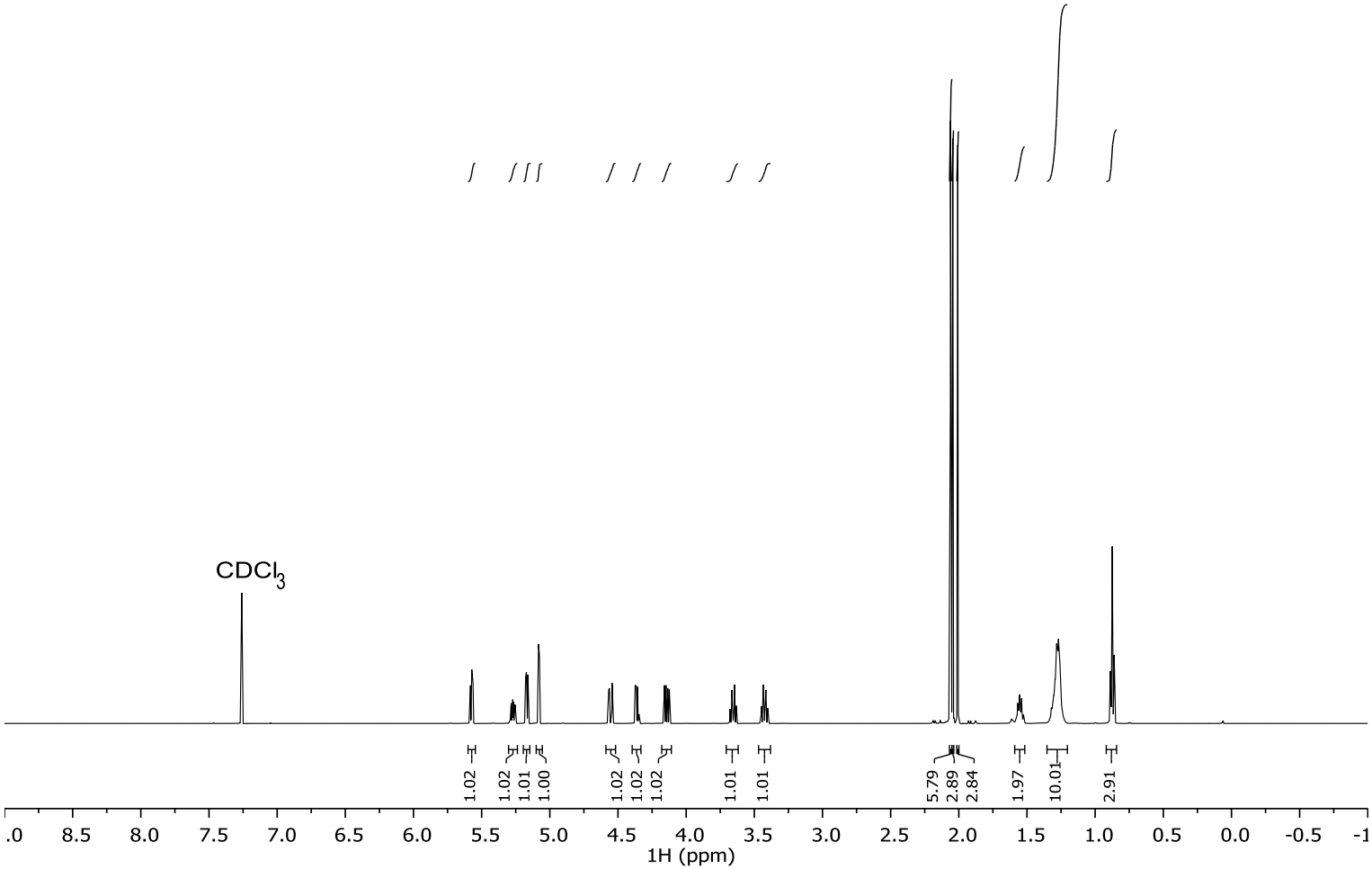
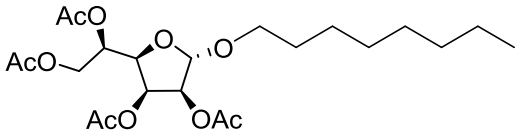
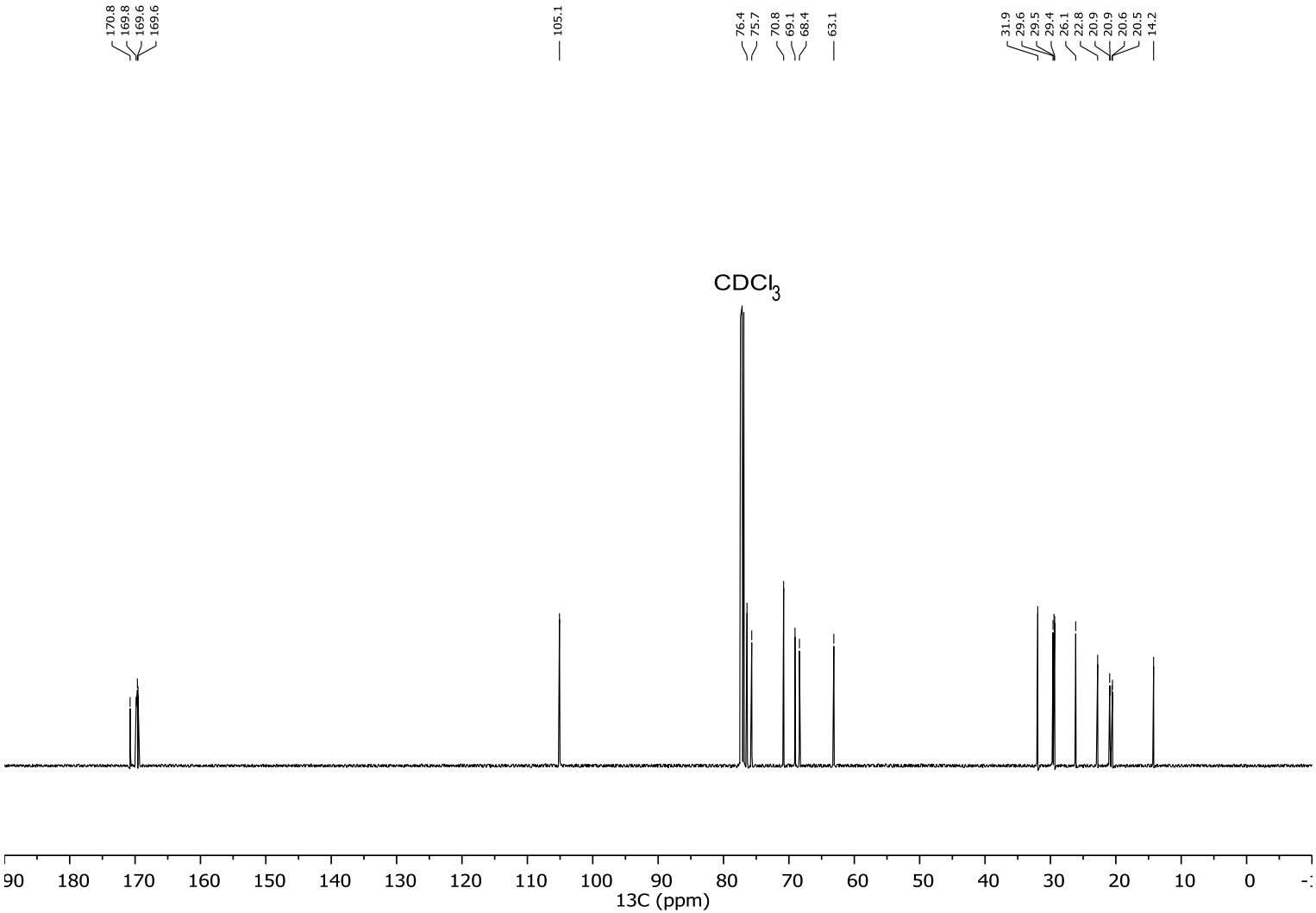
^{1}H NMR (500 MHz, $CDCl_3$) *n*-octyl-2,3,5,6-tetra-*O*-acetyl-α-D-mannofuranoside



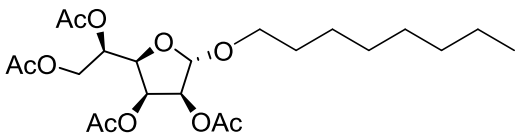


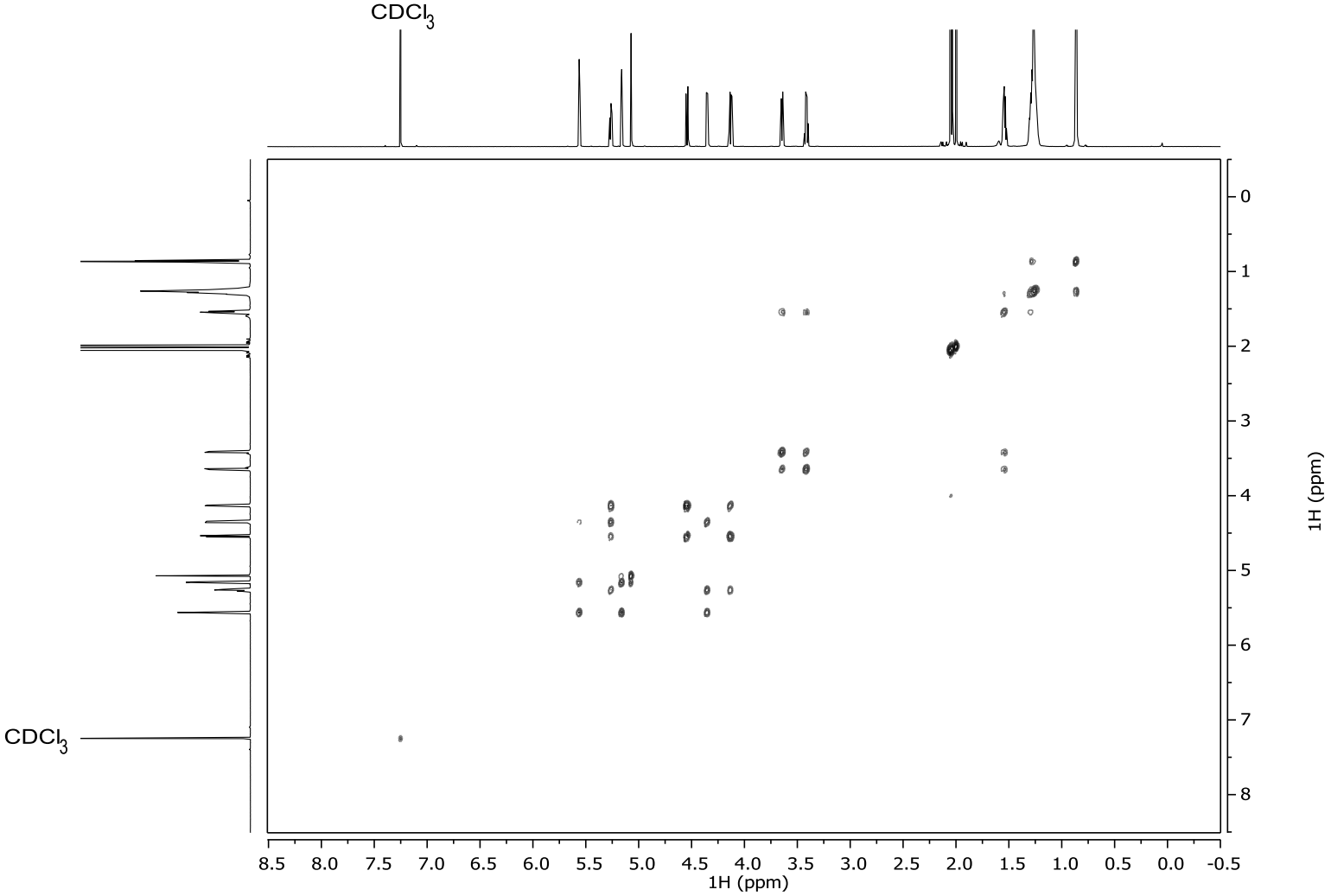
^{13}C NMR (125 MHz, $CDCl_3$) *n*-octyl-2,3,5,6-tetra-*O*-acetyl-α-D-mannofuranoside



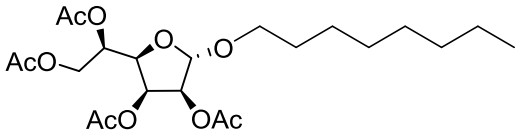


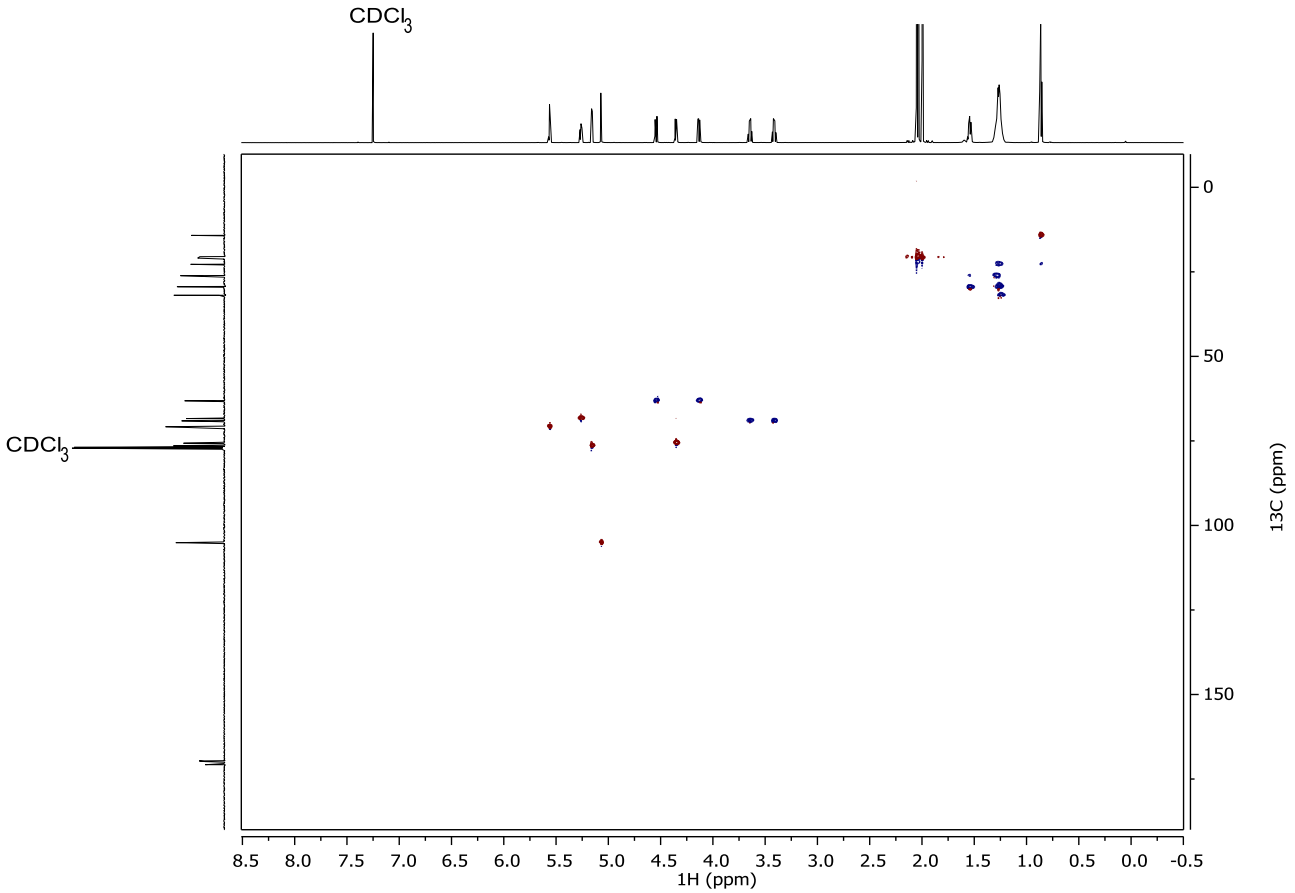
^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-octyl-2,3,5,6-tetra-*O*-acetyl-α-D-mannofuranoside



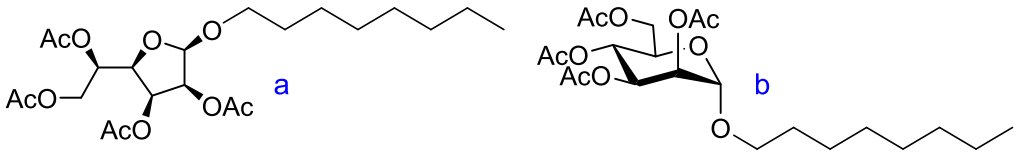


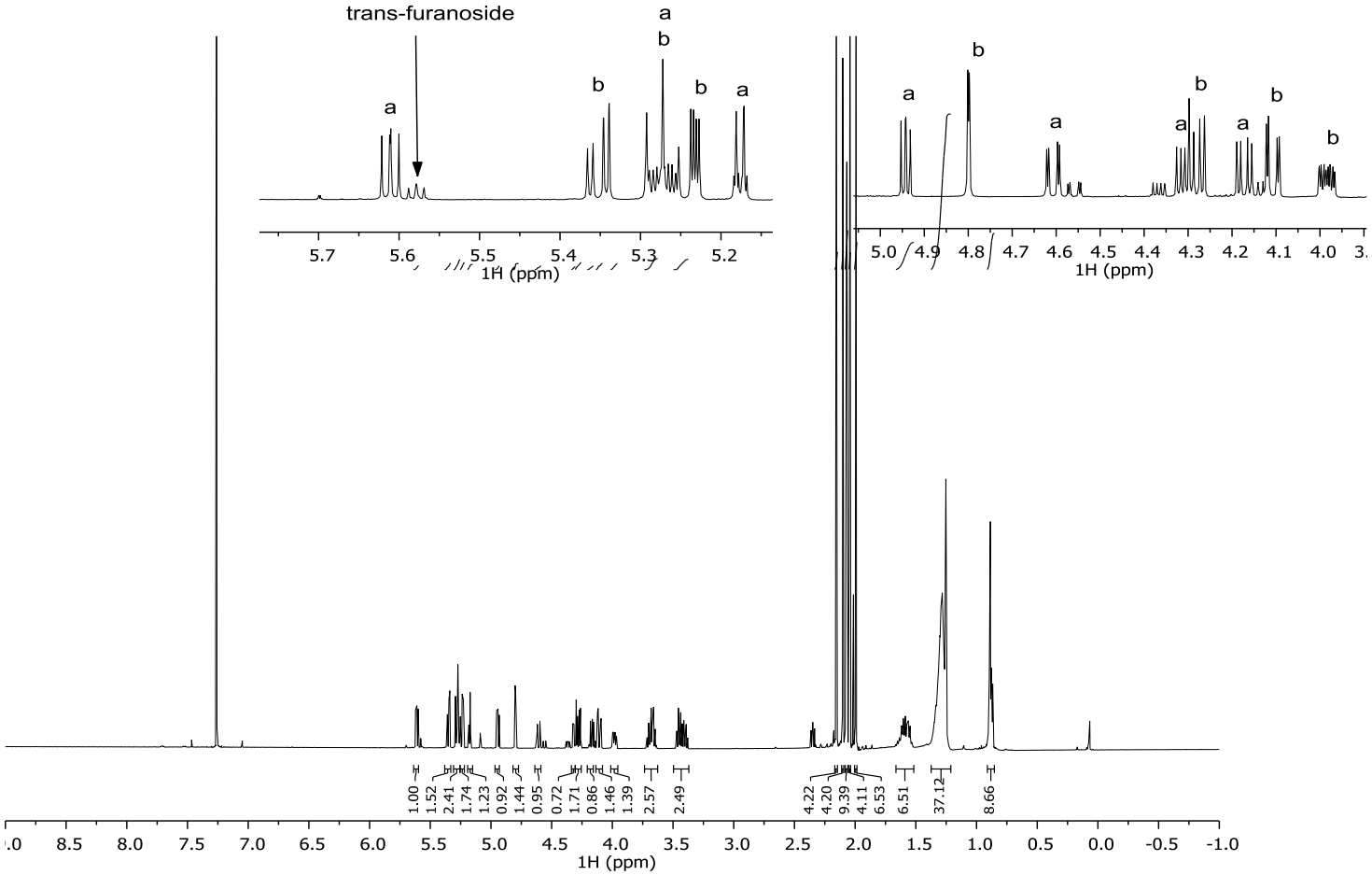
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-octyl-2,3,5,6-tetra-*O*-acetyl-α-D-mannofuranoside



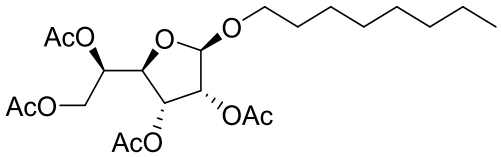


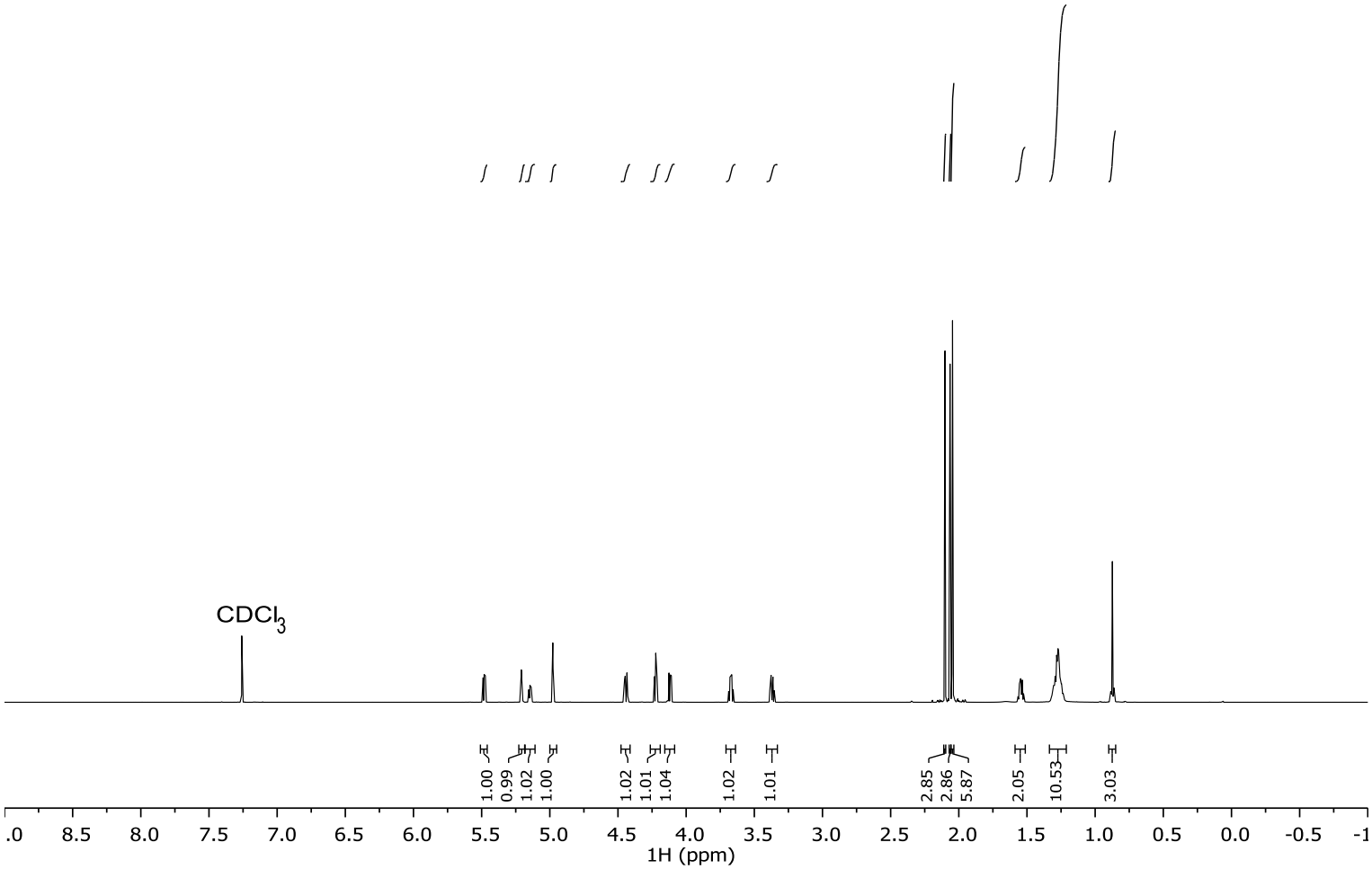
^{1}H NMR (500 MHz, $CDCl_3$) *mixture of minor products* **a** and **b**.
n-octyl 2,3,5,6-tetra-*O*-acetyl-β-D-mannofuranoside + *n*-octyl 2,3,5,6-tetra-*O*-acetyl-α-D-mannopyranoside



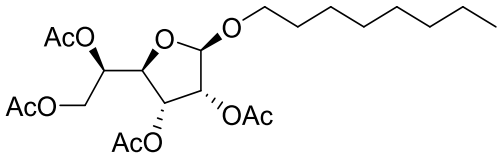


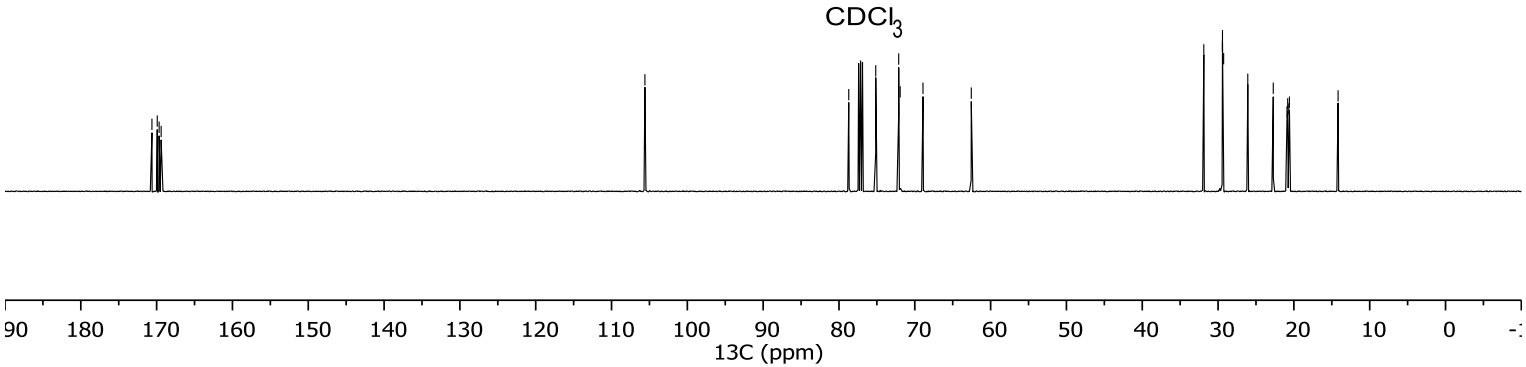
^{1}H NMR (700 MHz, $CDCl_3$) *n*-octyl-2,3,5,6-tetra-*O*-acetyl-β-D-allofuranoside



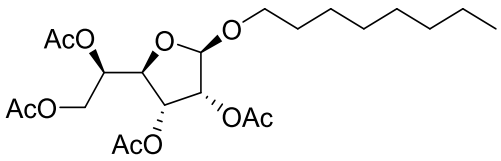


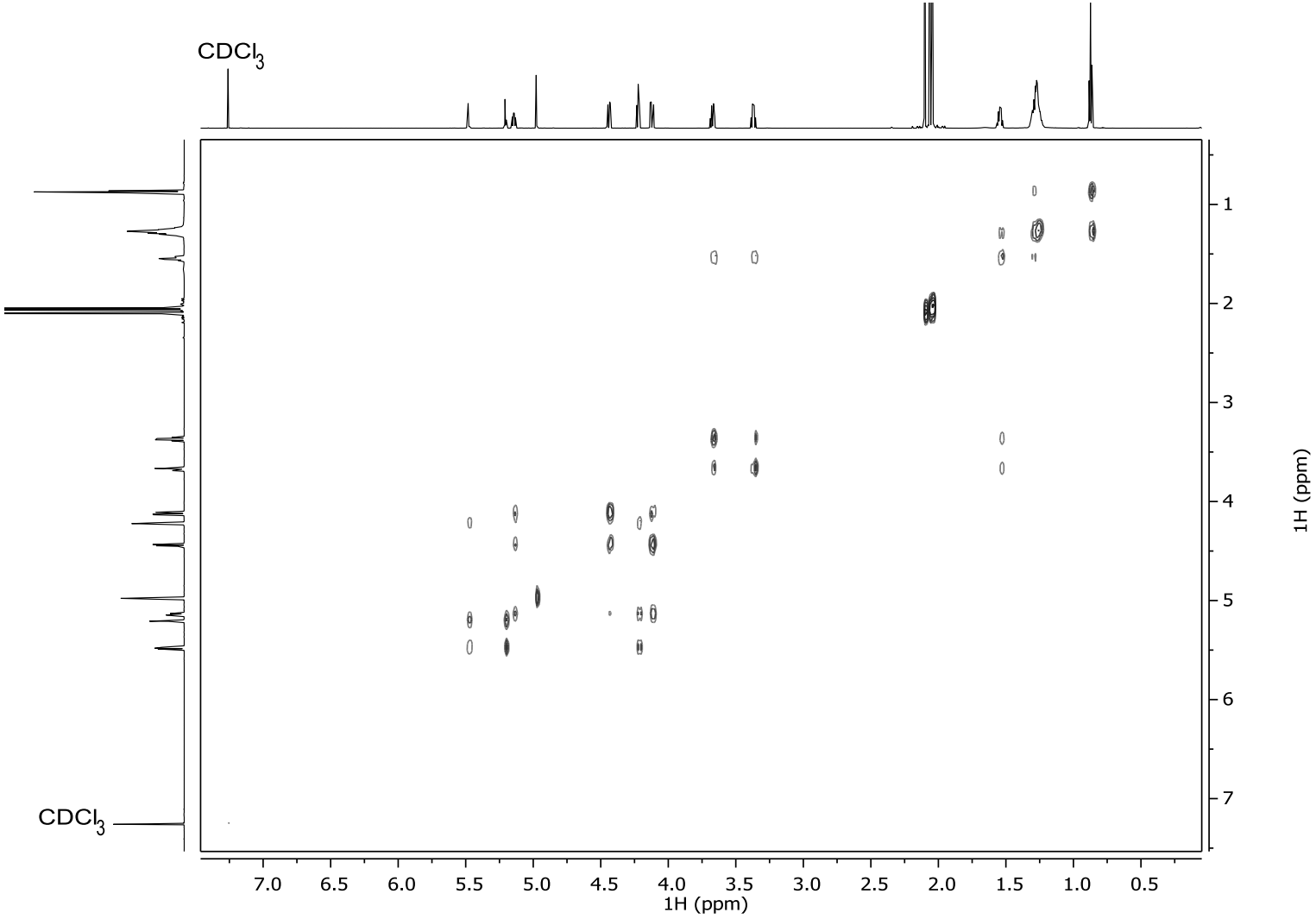
^{13}C NMR (126 MHz, $CDCl_3$) *n*-octyl-2,3,5,6-tetra-*O*-acetyl-β-D-allofuranoside



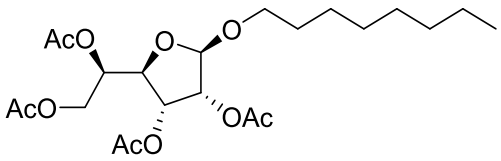


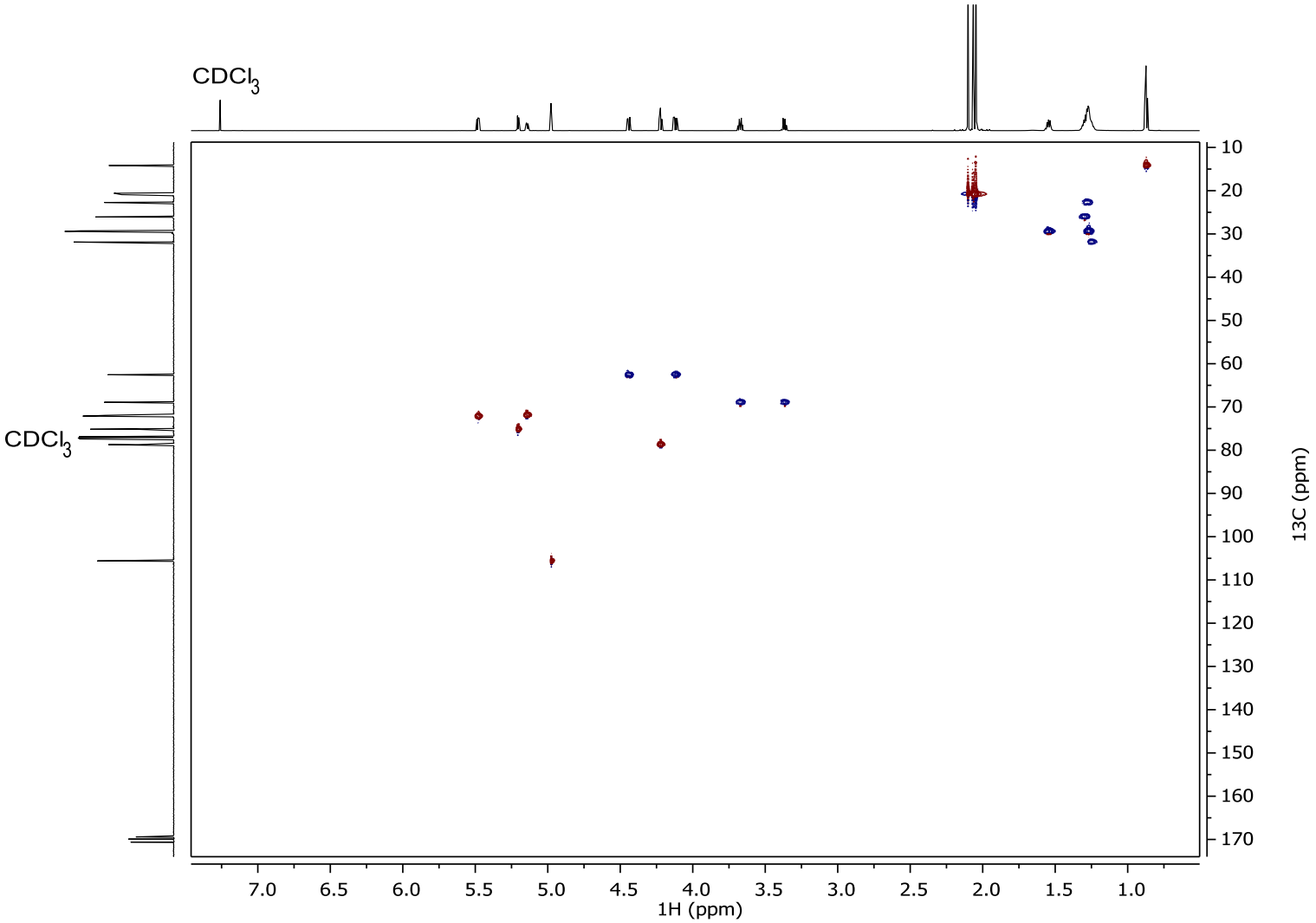
^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-octyl-2,3,5,6-tetra-*O*-acetyl-β-D-allofuranoside



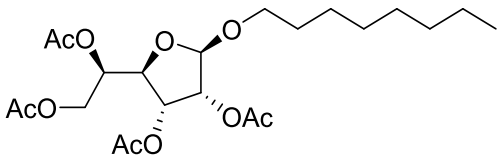


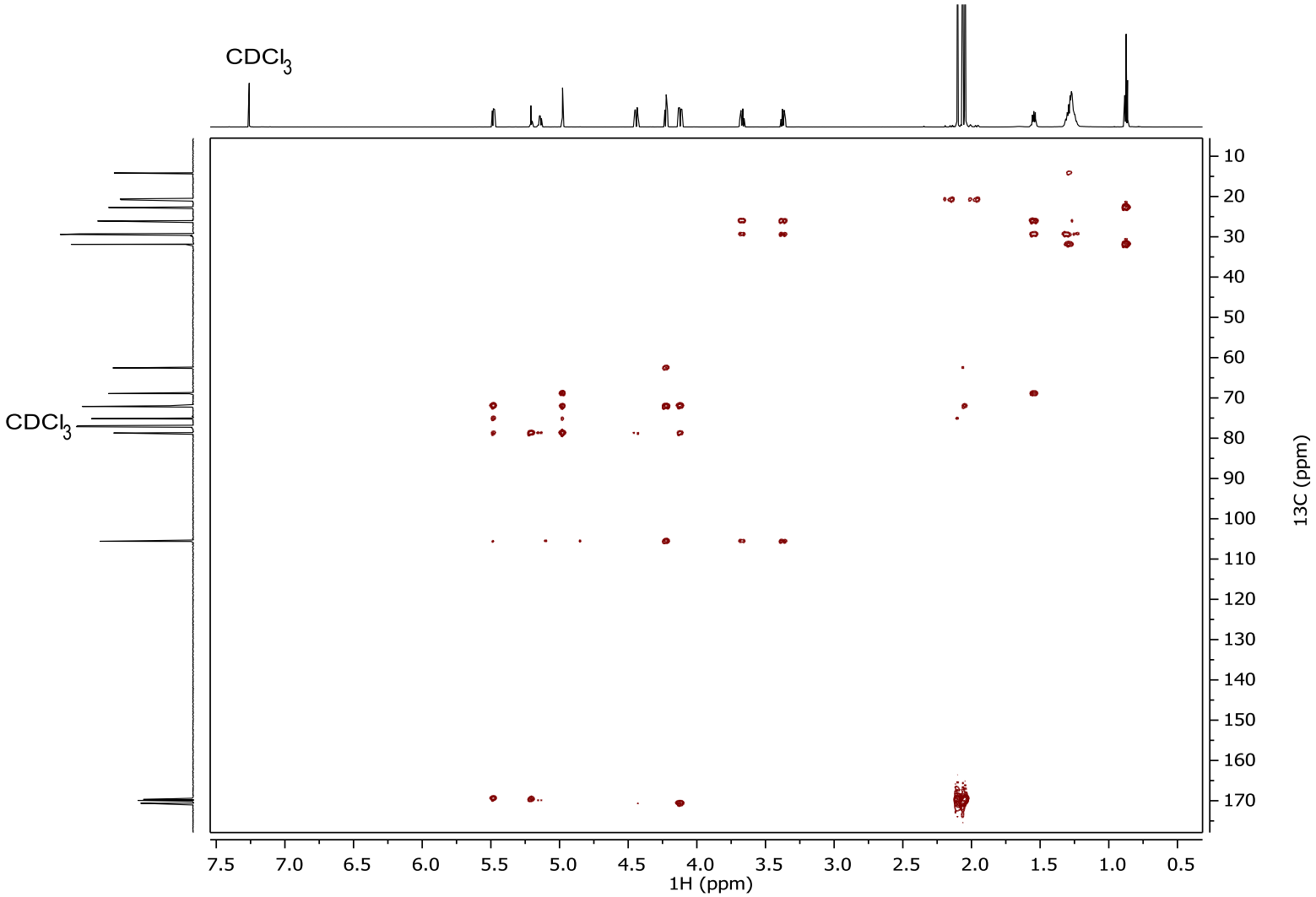
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-octyl-2,3,5,6-tetra-*O*-acetyl-β-D-allofuranoside



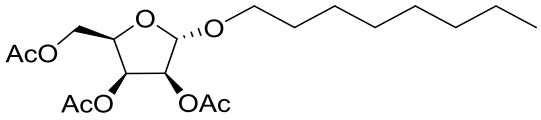


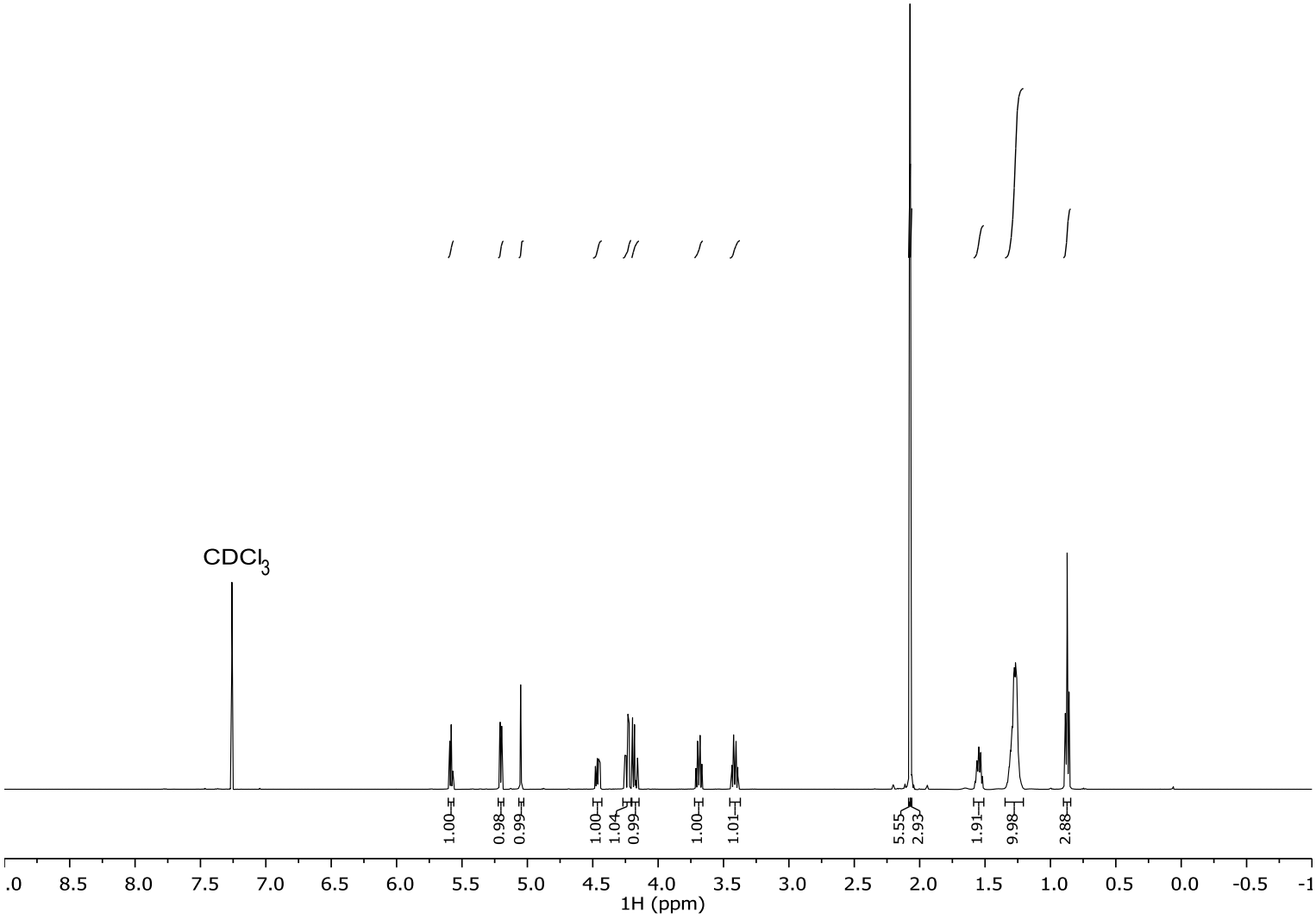
^{1}H-^{13}C HMBC NMR (700 MHz, $CDCl_3$) *n*-octyl-2,3,5,6-tetra-*O*-acetyl-β-D-allofuranoside



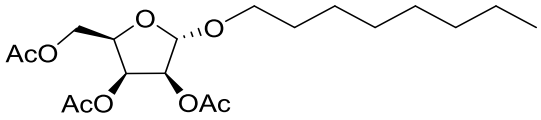


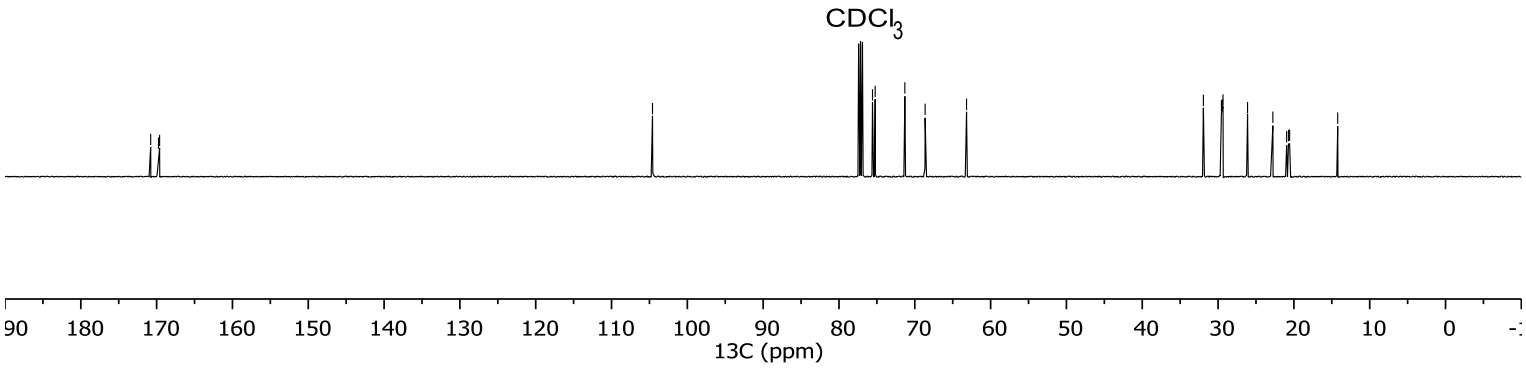
^{1}H NMR (500 MHz, $CDCl_3$) n-octyl 2,3,5-tri-*O*-acetyl-α-D-lyxofuranoside



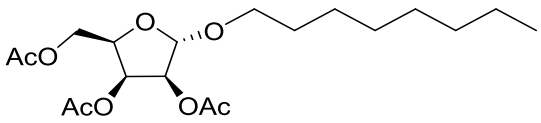


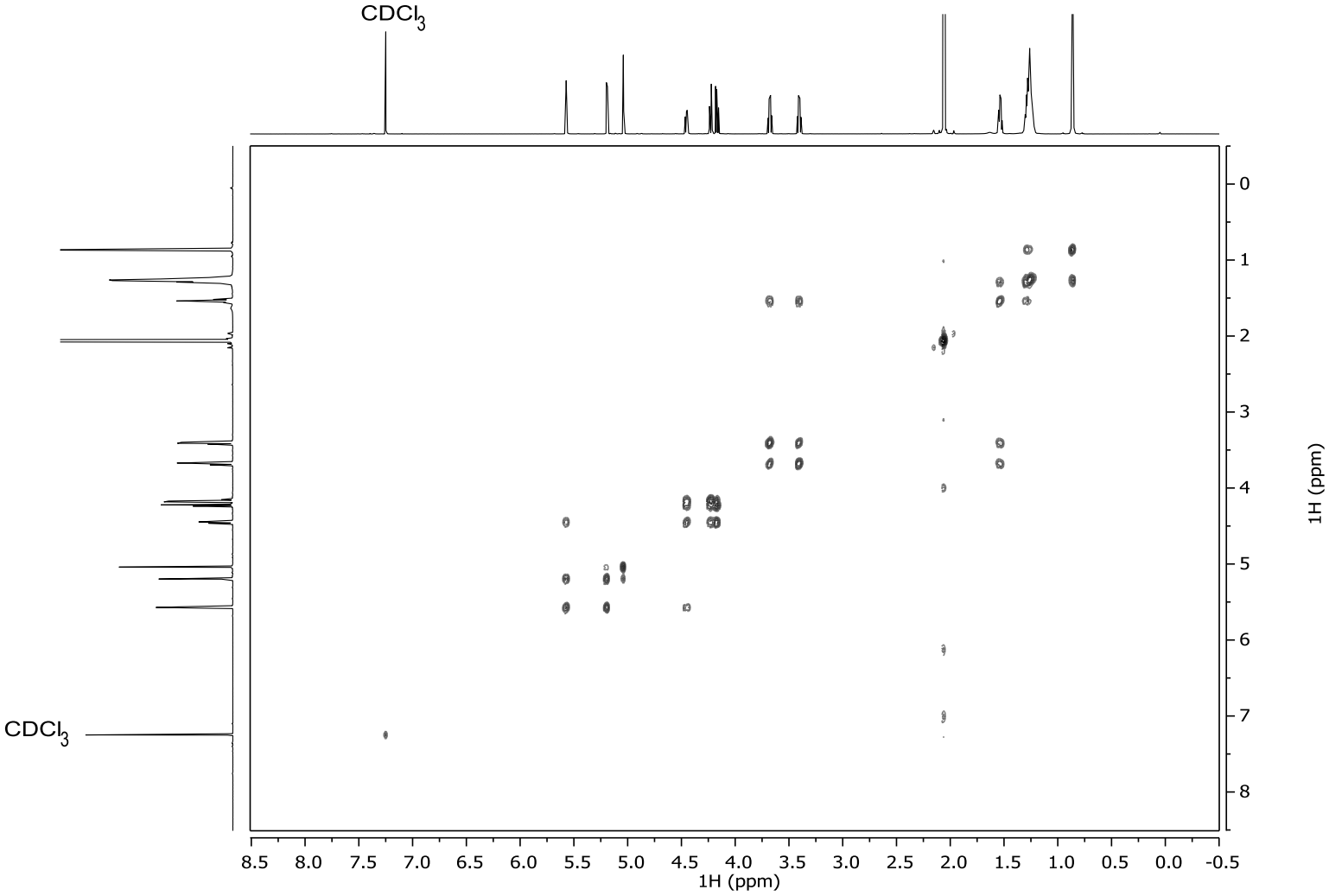
^{13}C NMR (126 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-α-D-lyxofuranoside



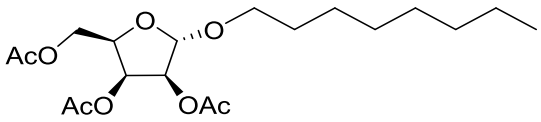


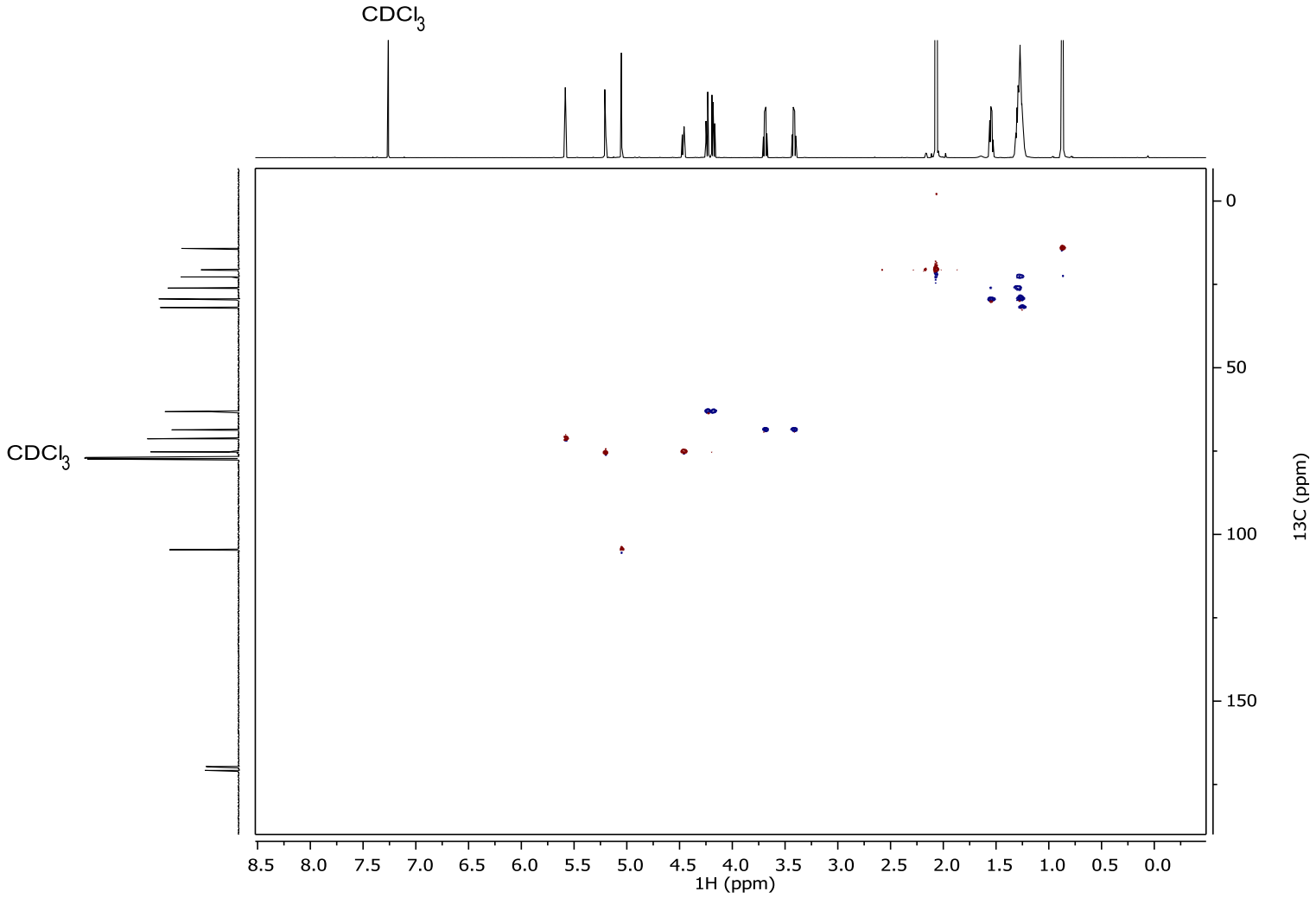
^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-α-D-lyxofuranoside



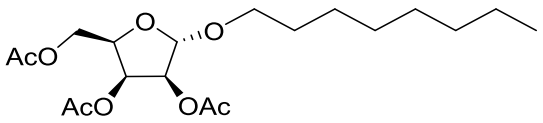


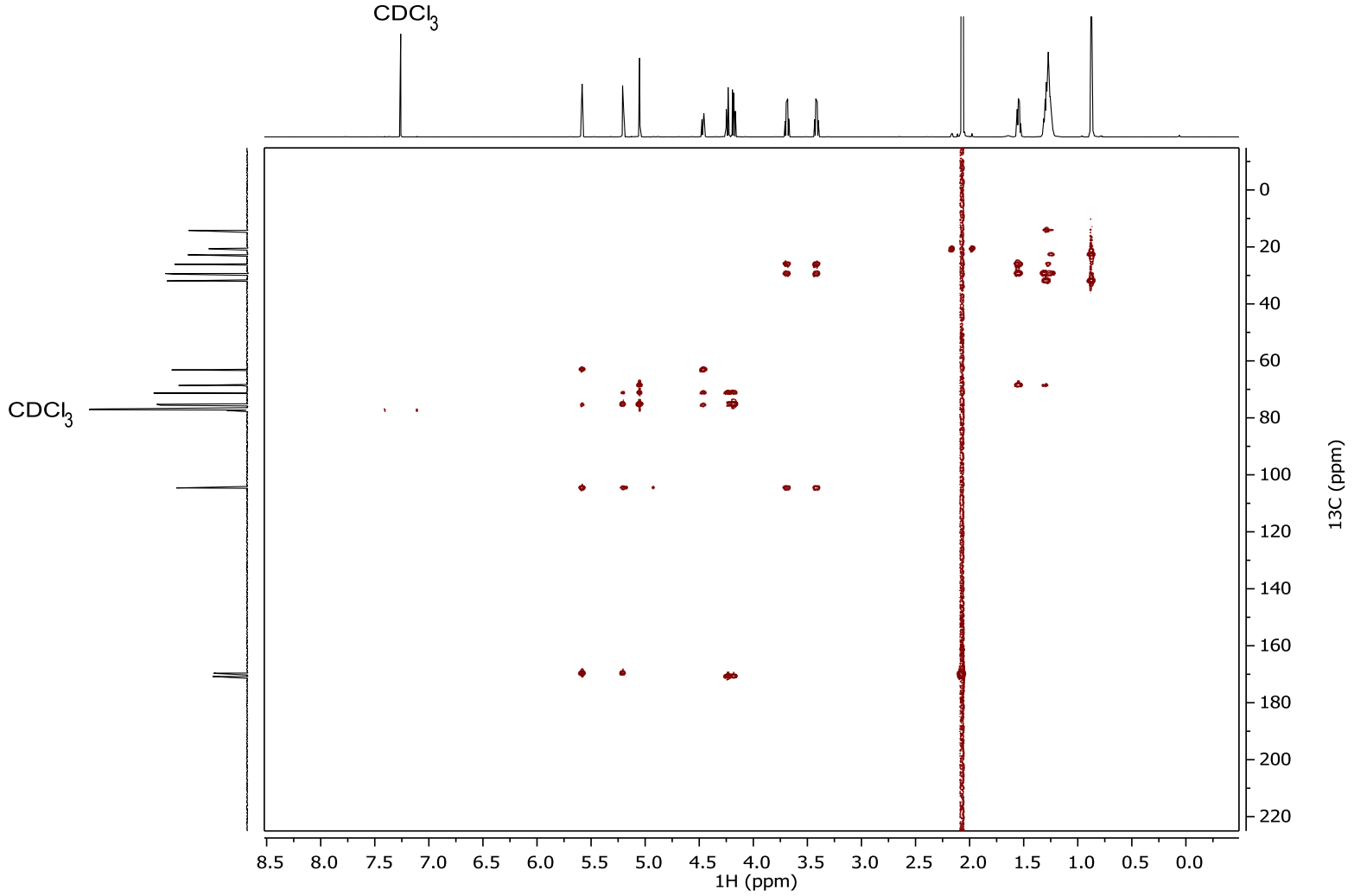
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-α-D-lyxofuranoside



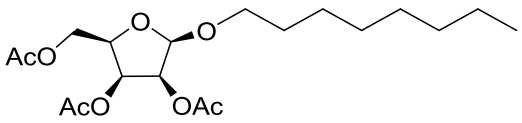


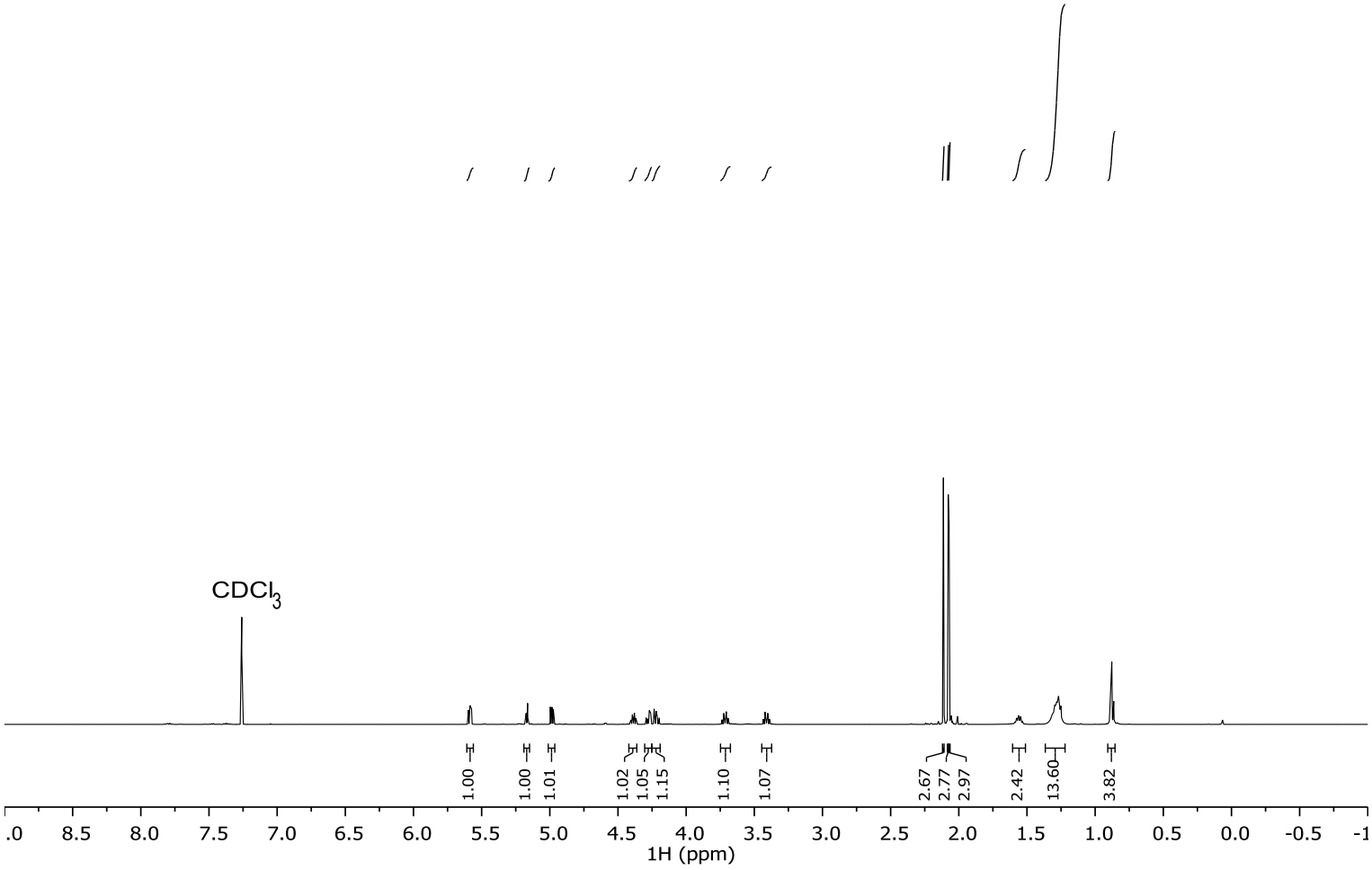
^{1}H-^{13}C HMBC NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-α-D-lyxofuranoside



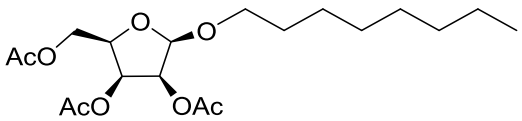


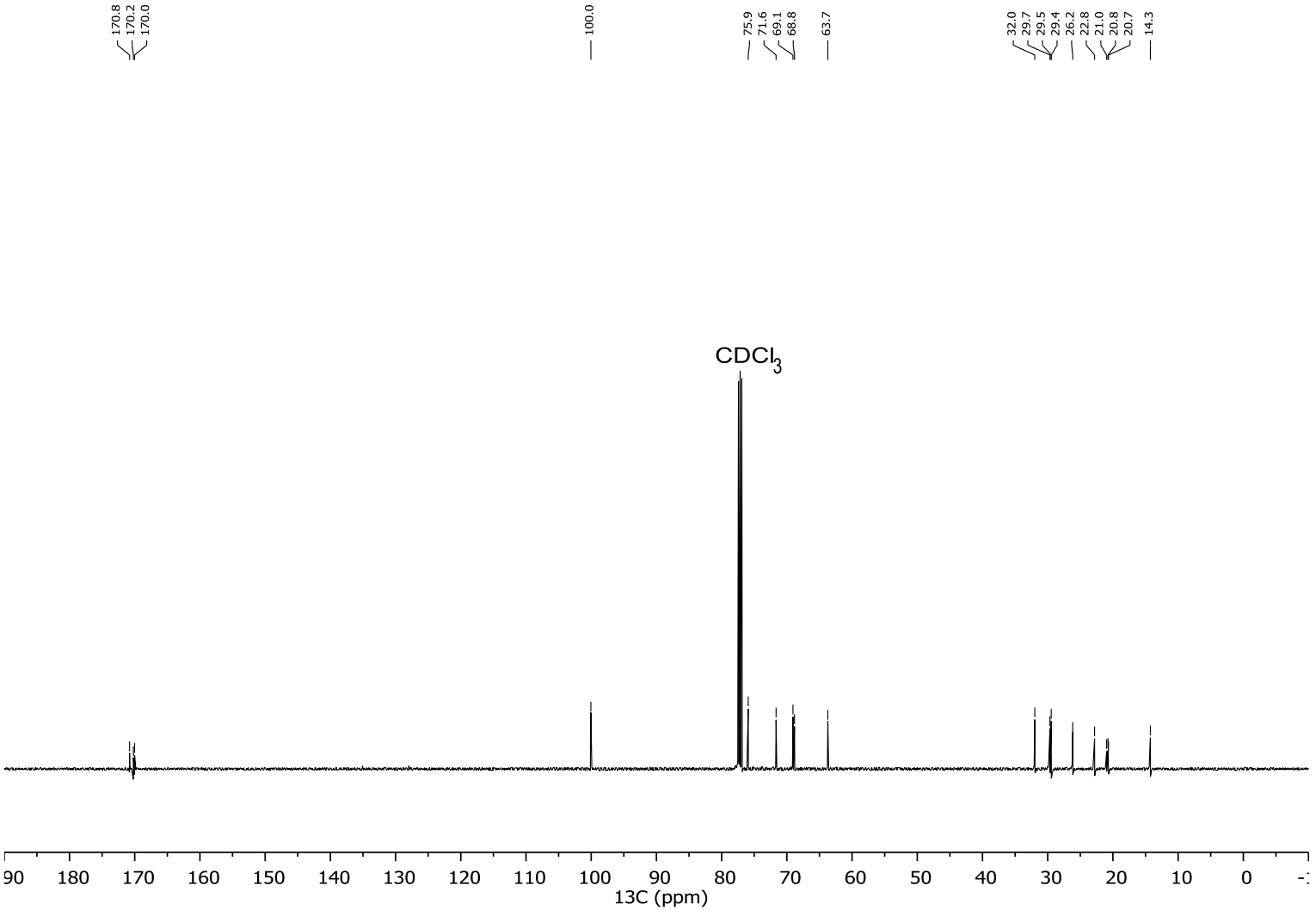
^{1}H NMR (500 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-β-D-lyxofuranoside



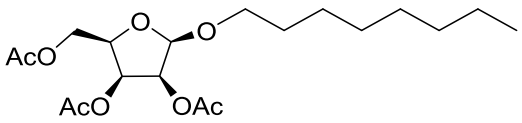


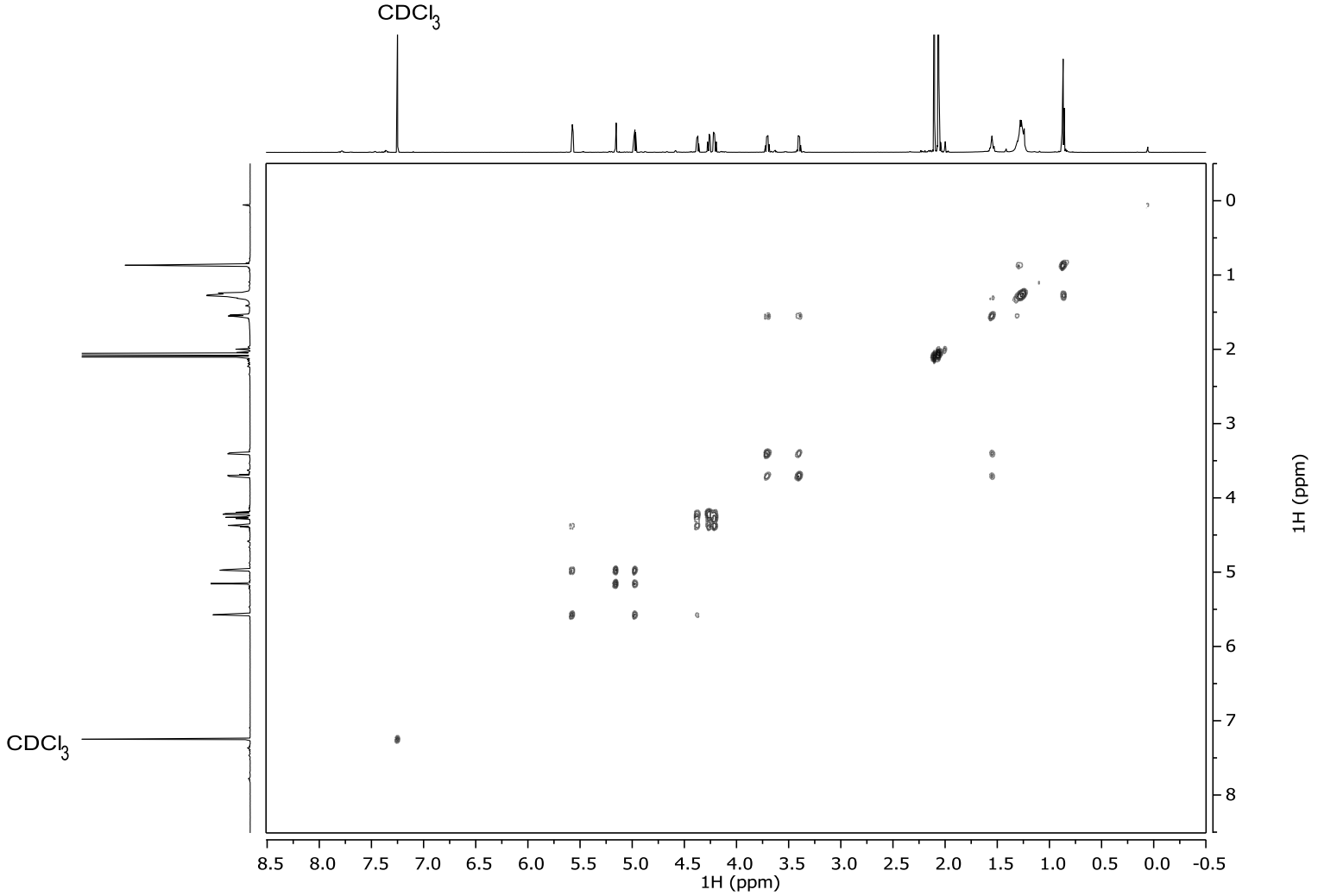
^{13}C NMR (126 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-β-D-lyxofuranoside



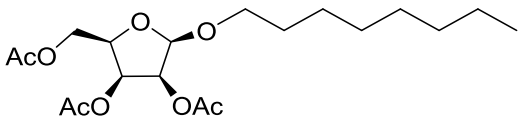


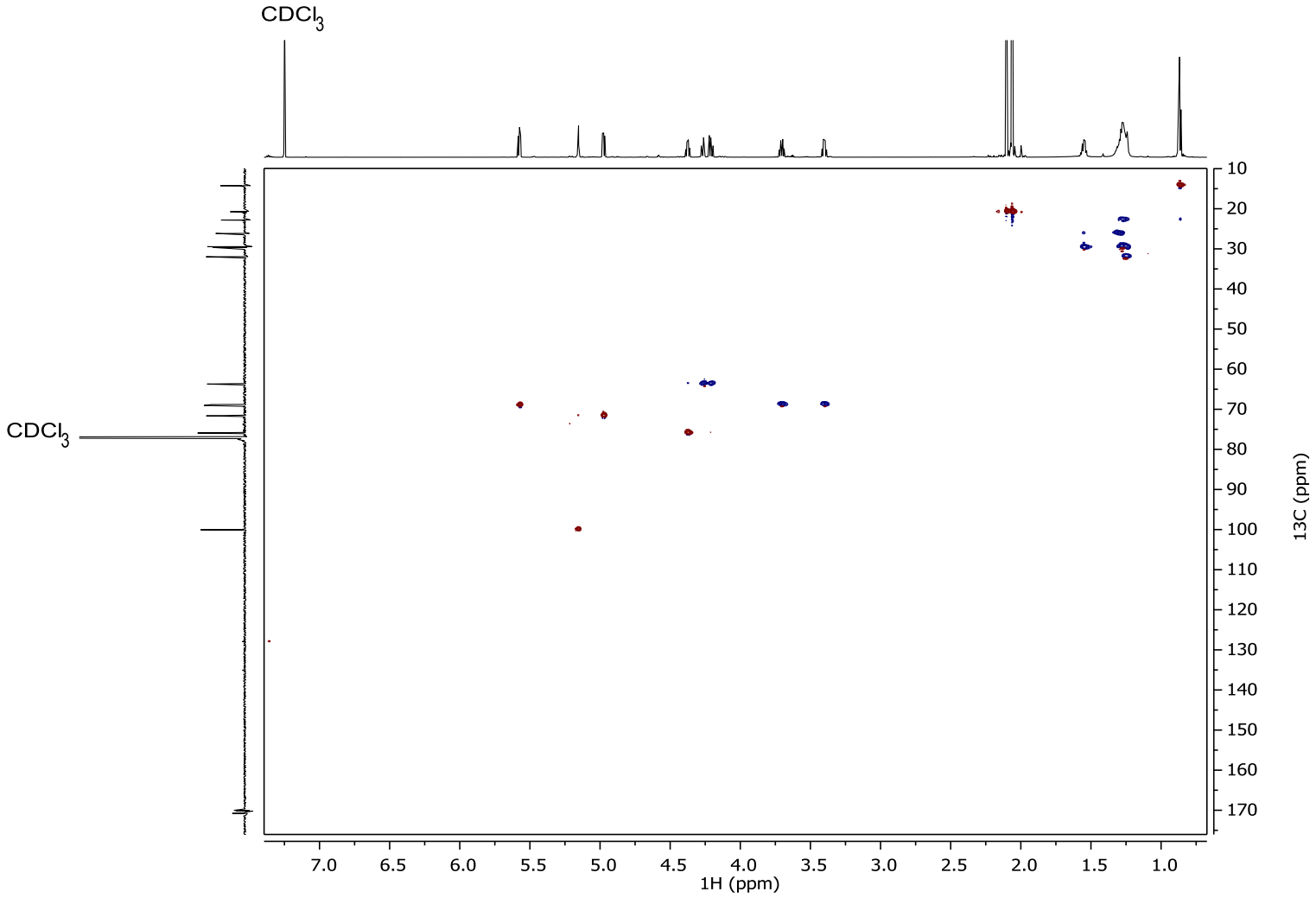
^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-β-D-lyxofuranoside



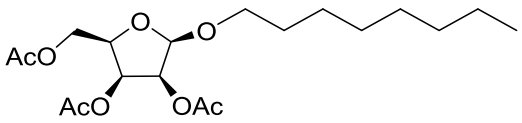


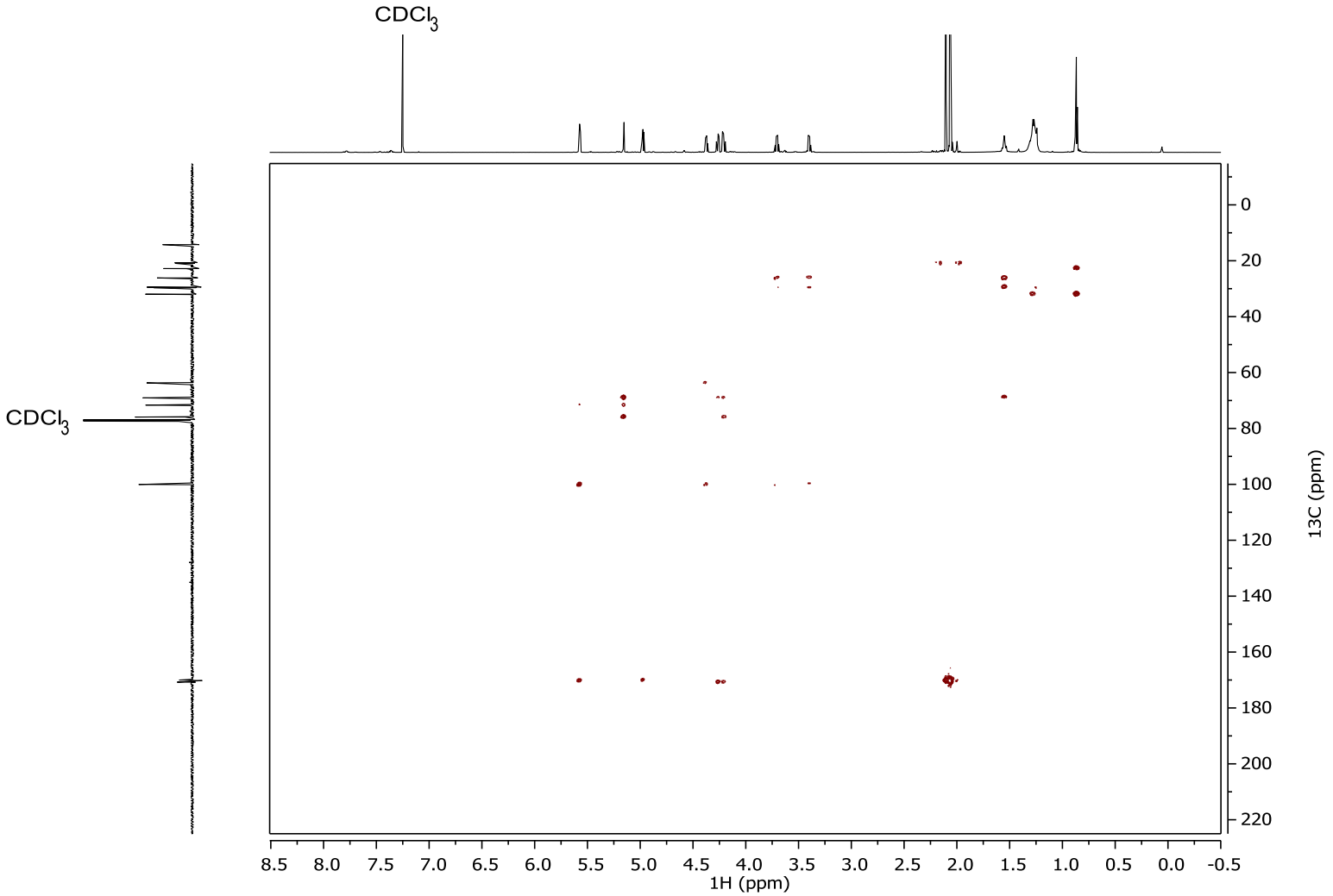
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-β-D-lyxofuranoside



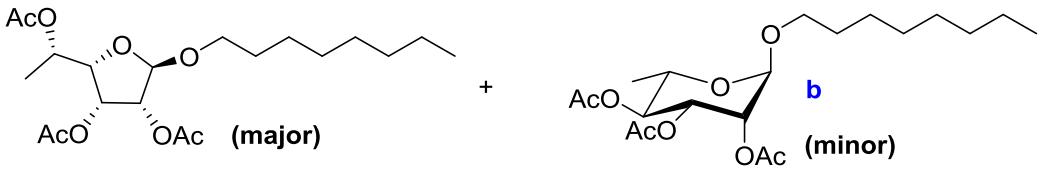


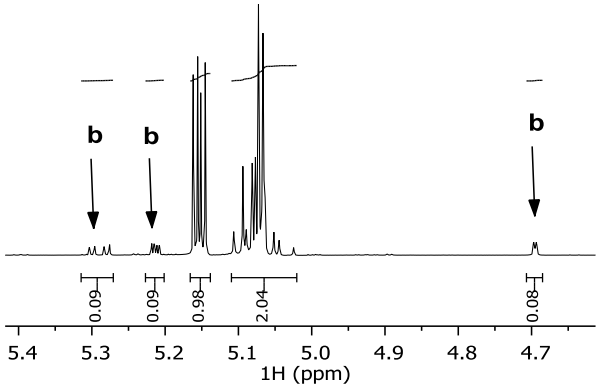
^{1}H-^{13}C HMBC NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-β-D-lyxofuranoside



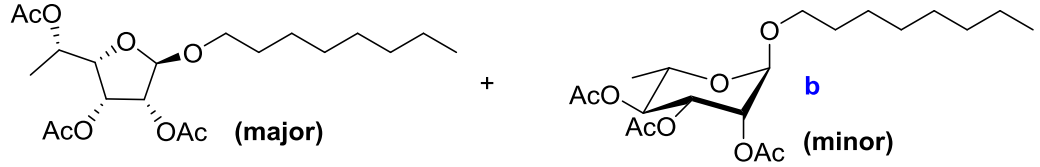


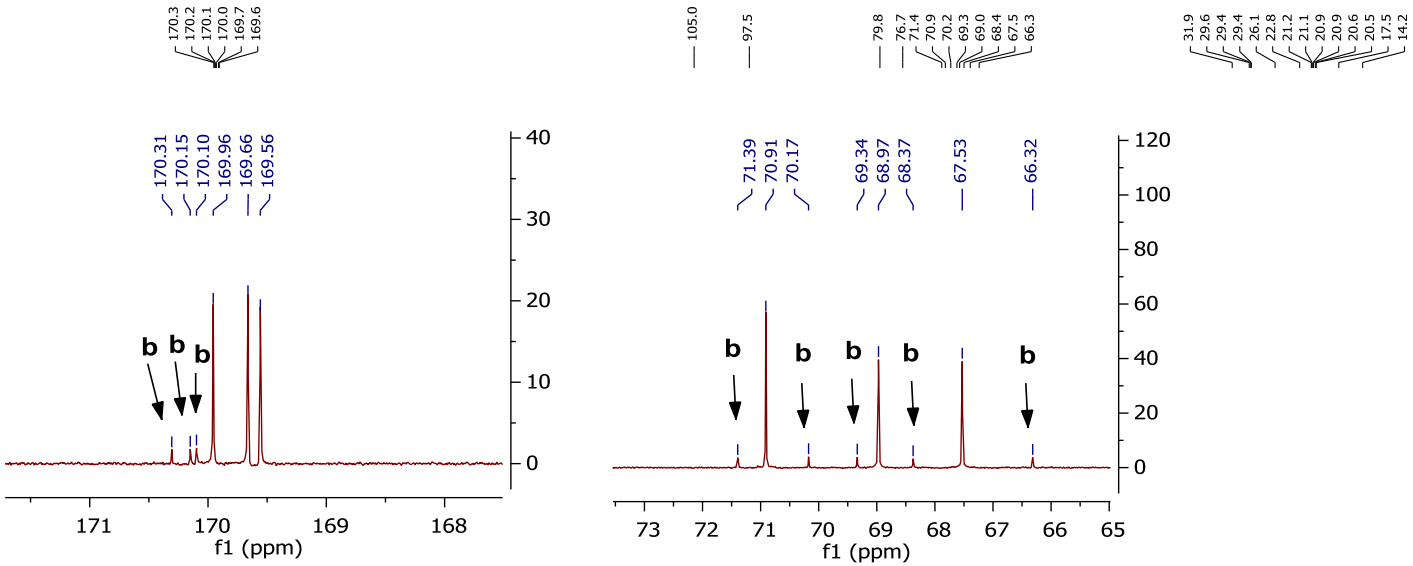
^{1}H NMR (500 MHz, $CDCl_3$) Mixture of *n*-octyl 2,3,5-tri-*O*-acetyl-α-L-rhamnofuranoside & *n*-octyl 2,3,4-tri-*O*-acetyl-α-L-rhamnopyranoside (**b**)

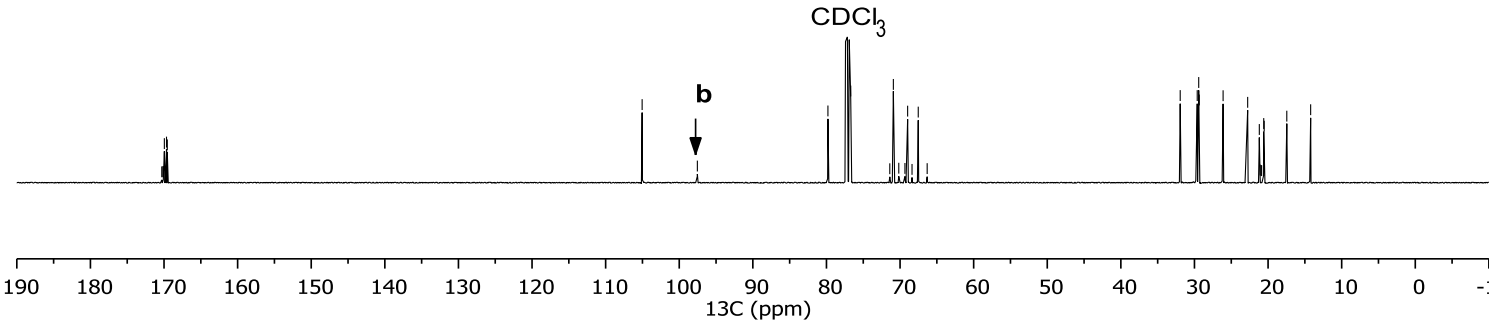




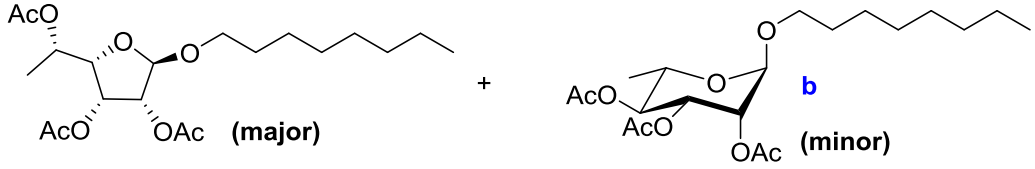
^{13}C NMR (126 MHz, $CDCl_3$) Mixture of *n*-octyl 2,3,5-tri-*O*-acetyl-α-L-rhamnofuranoside & *n*-octyl 2,3,4-tri-*O*-acetyl-α-L-rhamnopyranoside (**b**)

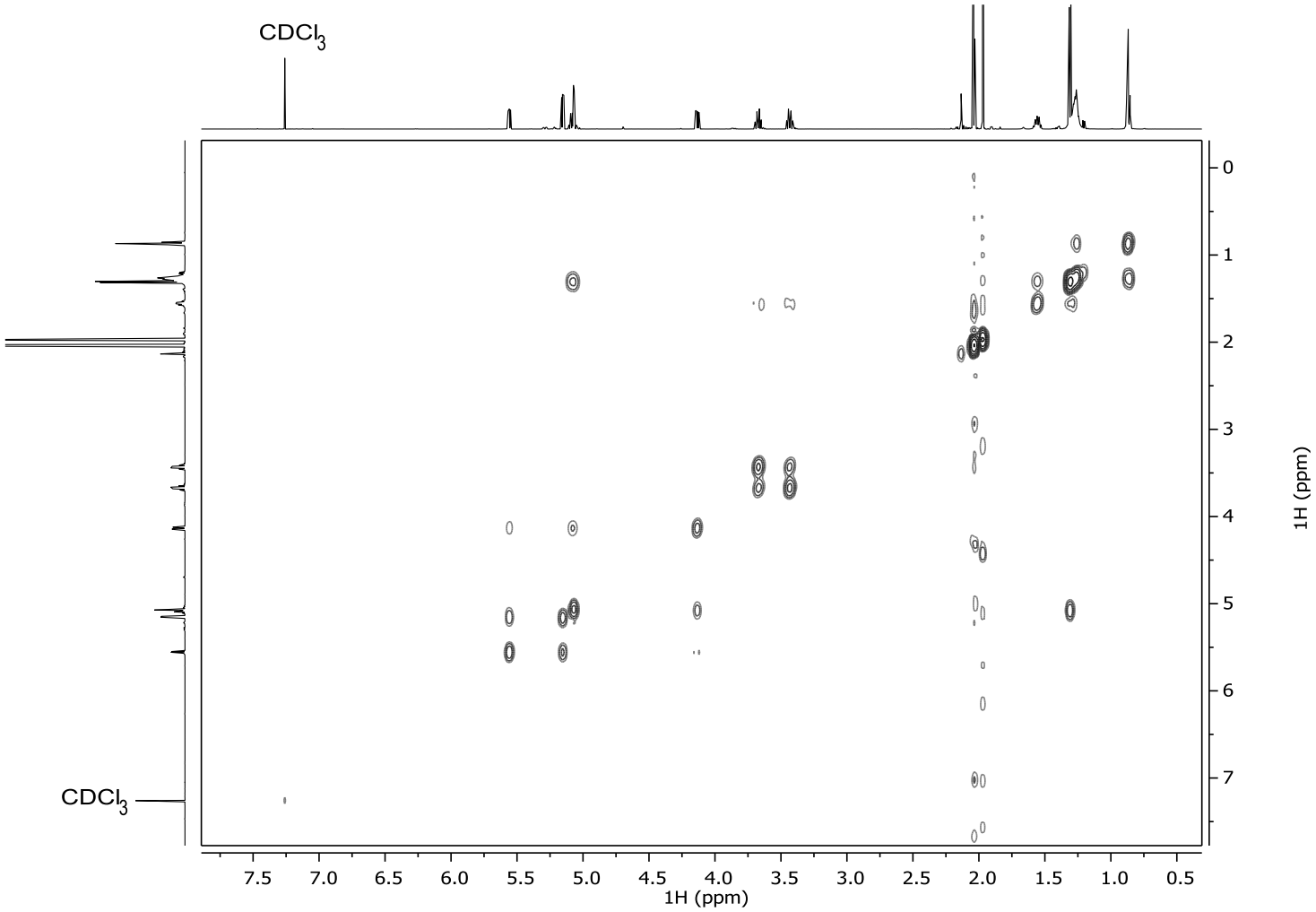




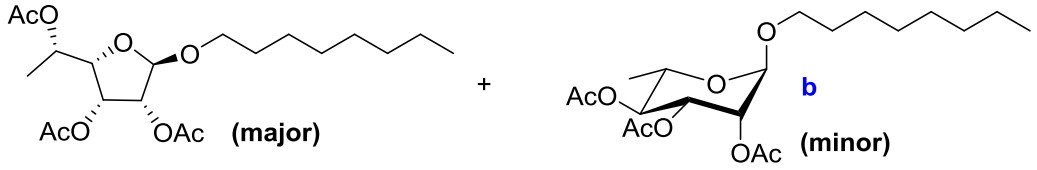


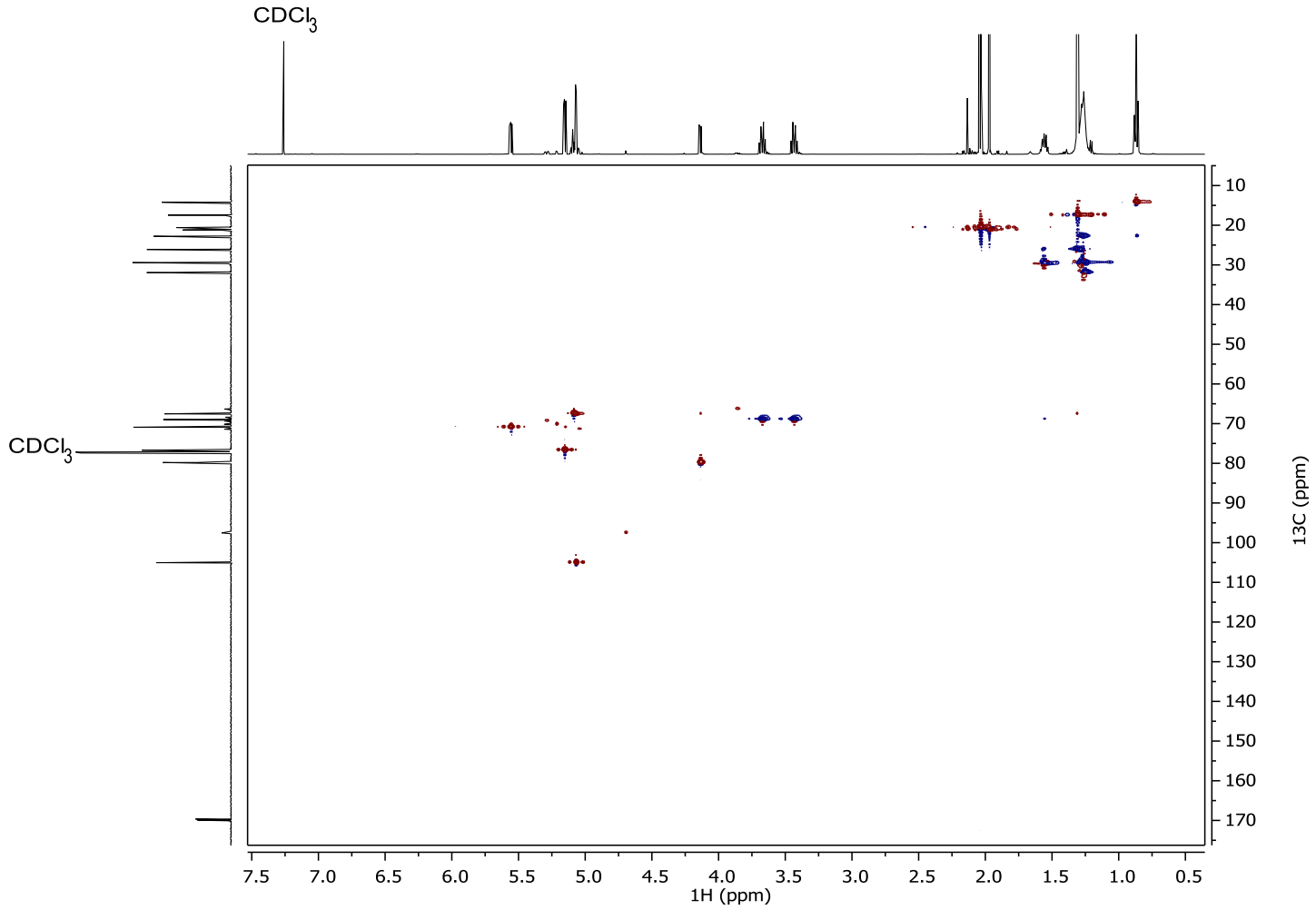
^{1}H-^{1}H COSY NMR (500 MHz, $CDCl_3$) Mixture of *n*-octyl 2,3,5-tri-*O*-acetyl-α-L-rhamnofuranoside & *n*-octyl 2,3,4-tri-*O*-acetyl-α-L-rhamnopyranoside (**b**)



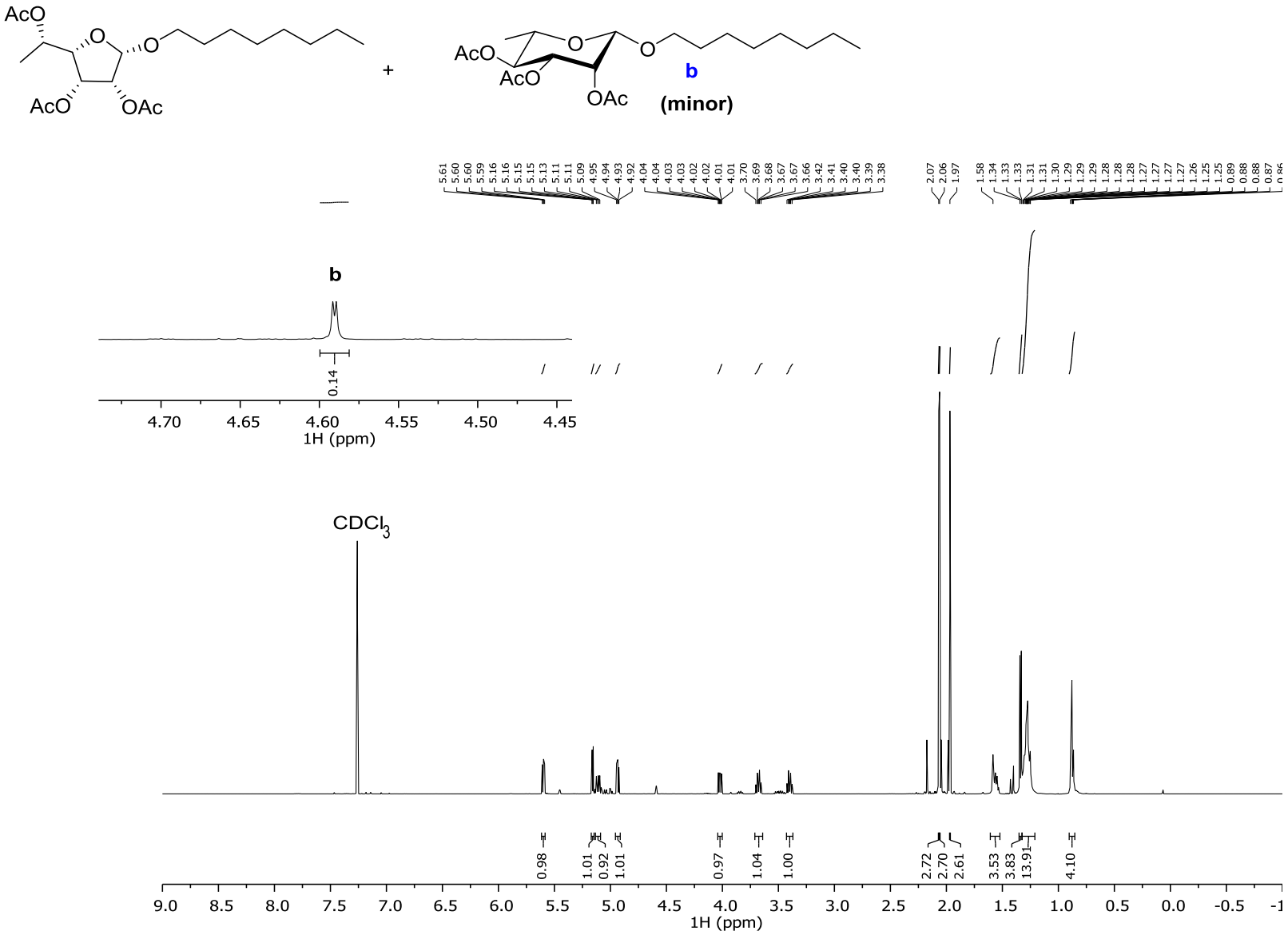


^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) Mixture of *n*-octyl 2,3,5-tri-*O*-acetyl-α-L-rhamnofuranoside & *n*-octyl 2,3,4-tri-*O*-acetyl-α-L-rhamnopyranoside (**b**)

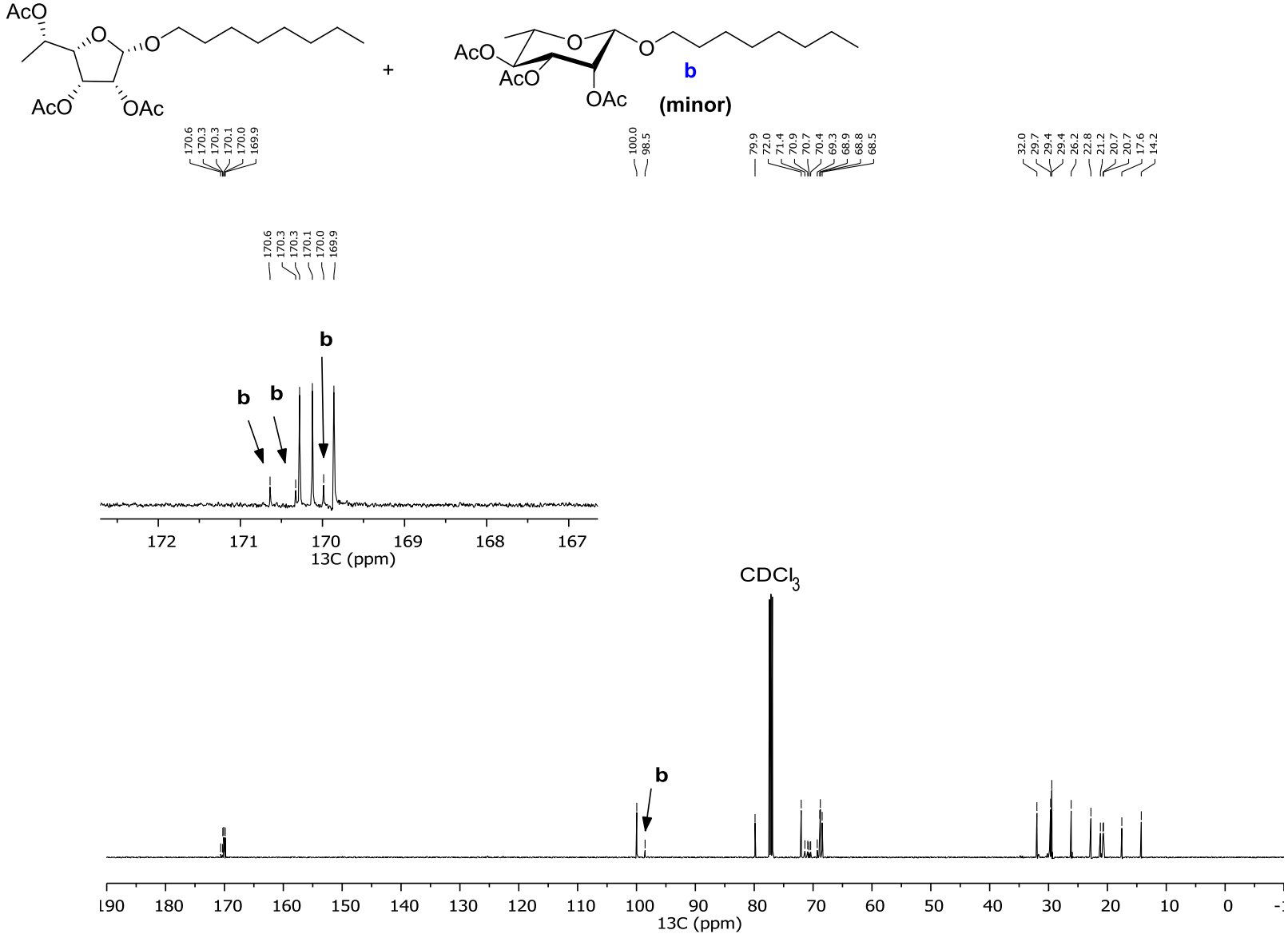




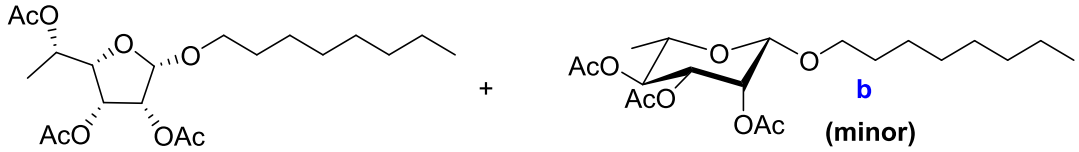
^{1}H NMR (500 MHz, $CDCl_3$) Mixture of *n*-octyl 2,3,5-tri-*O*-acetyl-β-L-rhamnofuranoside + *n*-octyl 2,3,4-tri-*O*-acetyl-β-L-rhamnopyranoside (**b**)

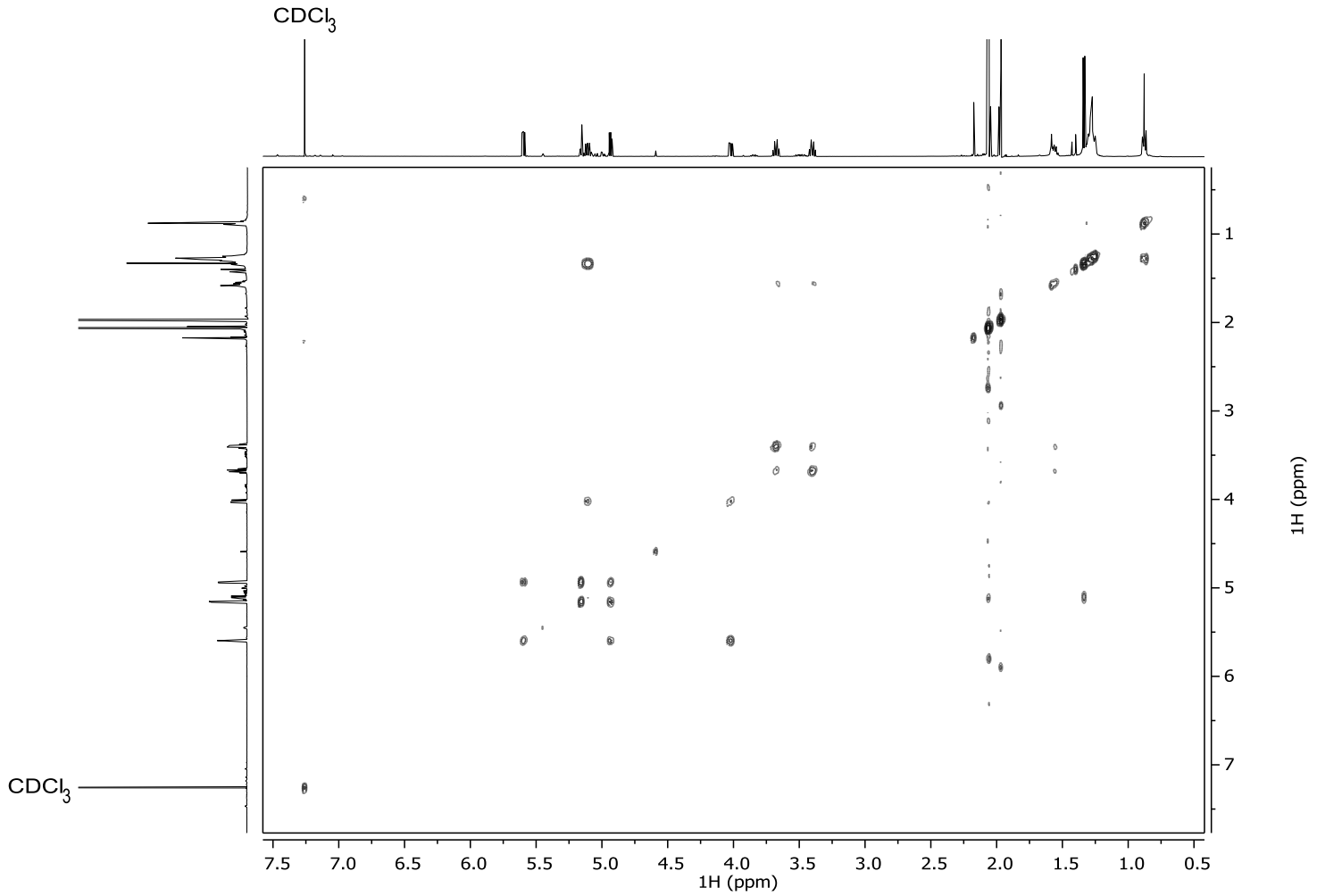


^{13}C NMR (126 MHz, $CDCl_3$) Mixture of *n*-octyl 2,3,5-tri-*O*-acetyl-β-L-rhamnofuranoside + *n*-octyl 2,3,4-tri-*O*-acetyl-β-L-rhamnopyranoside (**b**)

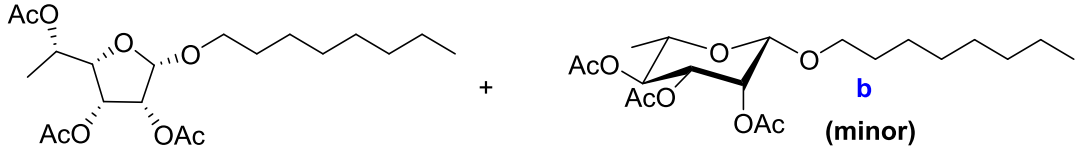


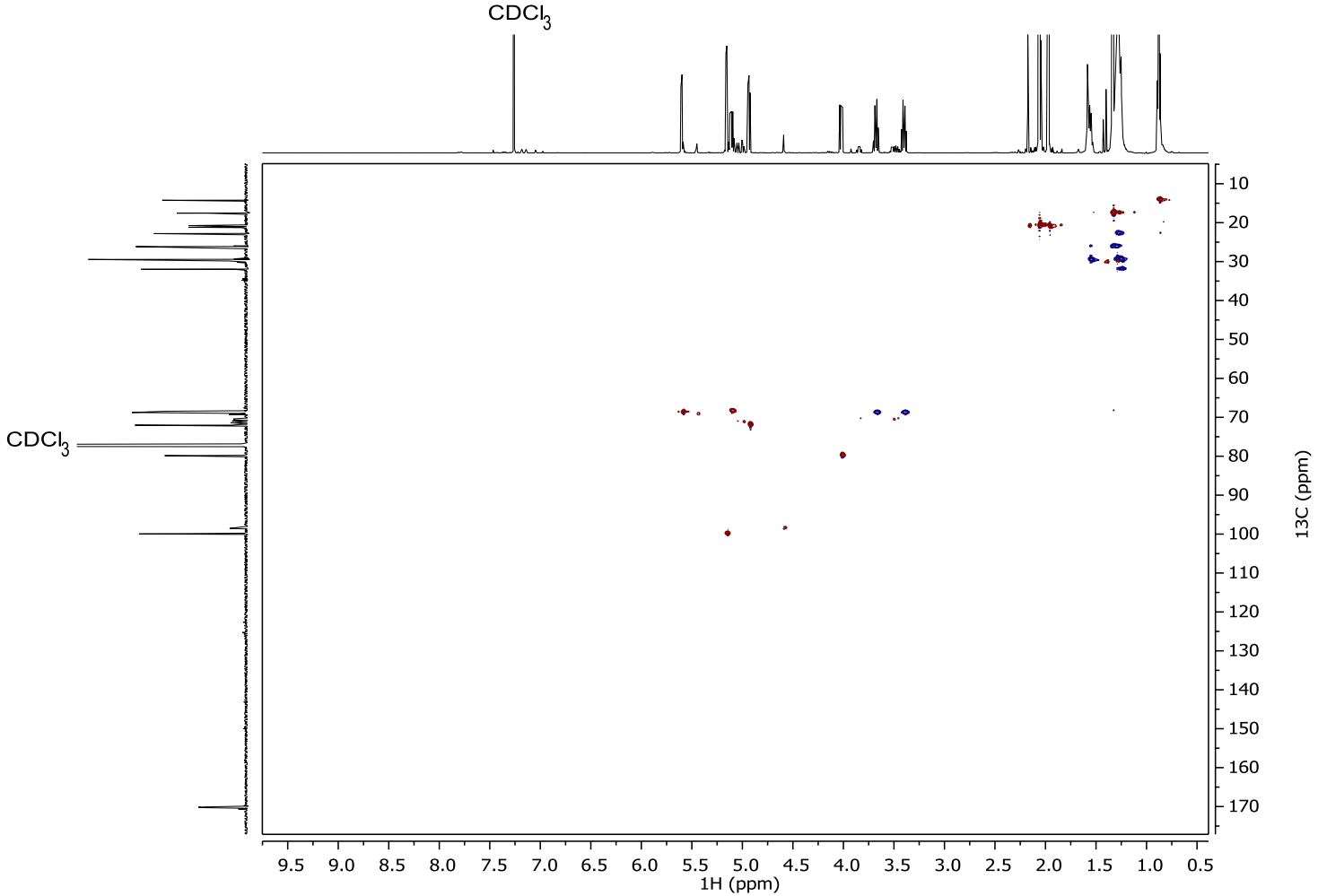
^{1}H-^{1}H COSY NMR (500 MHz, $CDCl_3$) Mixture of *n*-octyl 2,3,5-tri-*O*-acetyl-β-L-rhamnofuranoside + *n*-octyl 2,3,4-tri-*O*-acetyl-β-L-rhamnopyranoside (**b**)



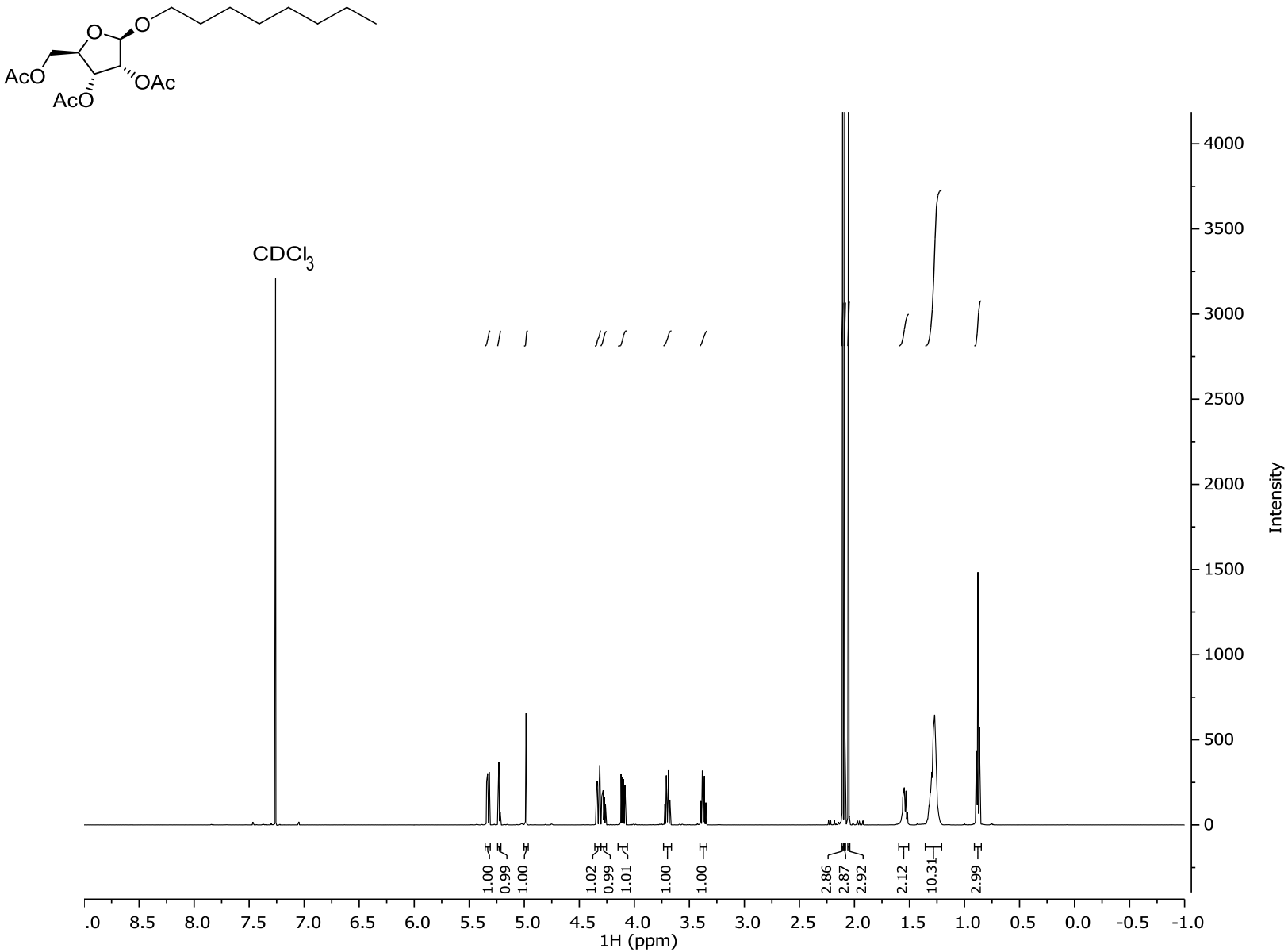


^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) Mixture of *n*-octyl 2,3,5-tri-*O*-acetyl-β-L-rhamnofuranoside + *n*-octyl 2,3,4-tri-*O*-acetyl-β-L-rhamnopyranoside (**b**)

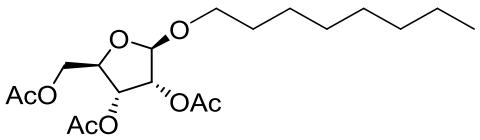


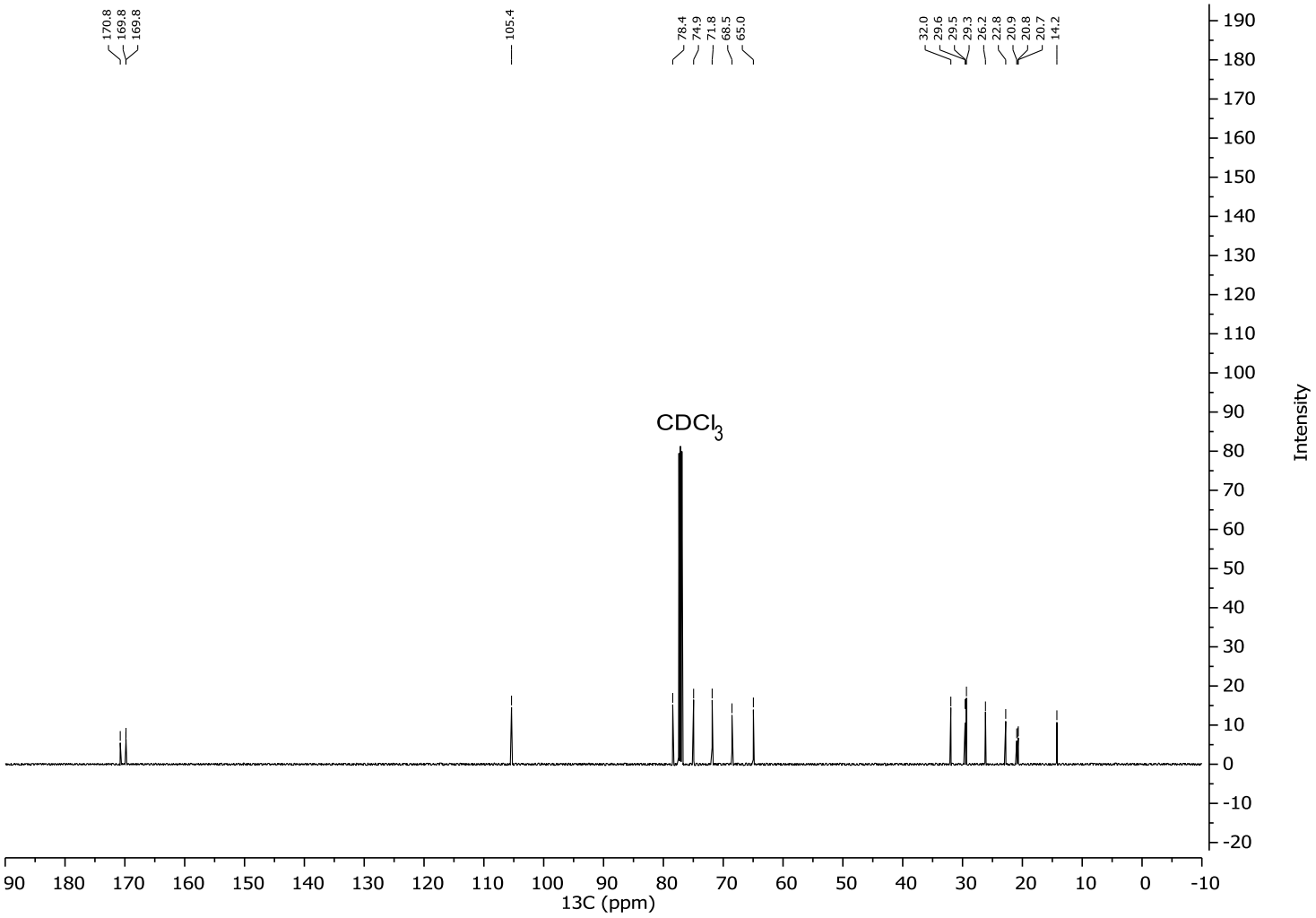


^{1}H NMR (500 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-β-D-ribofuranoside

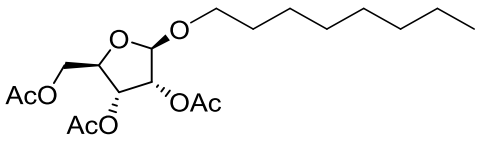


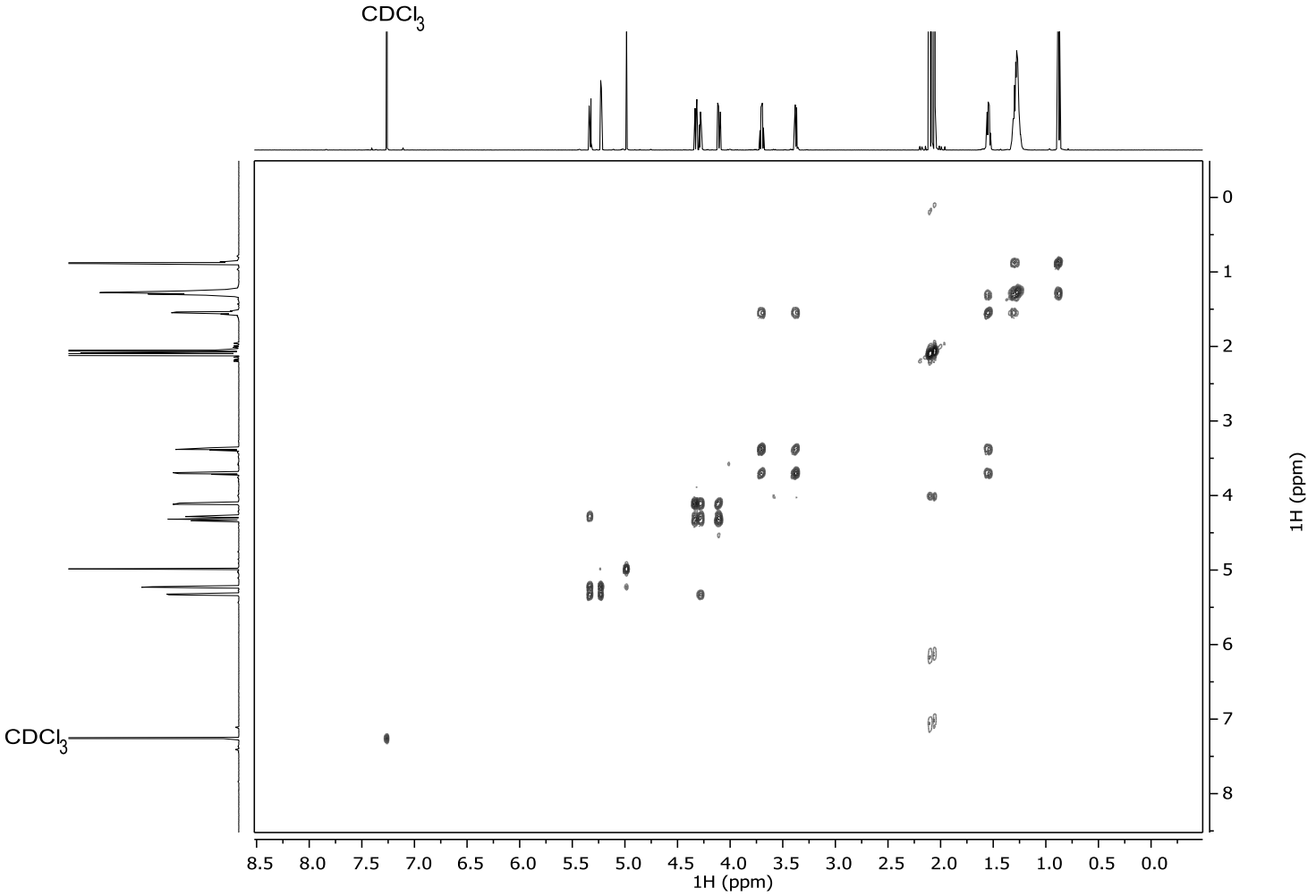
^{13}C NMR (126 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-β-D-ribofuranoside



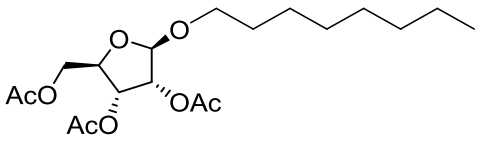


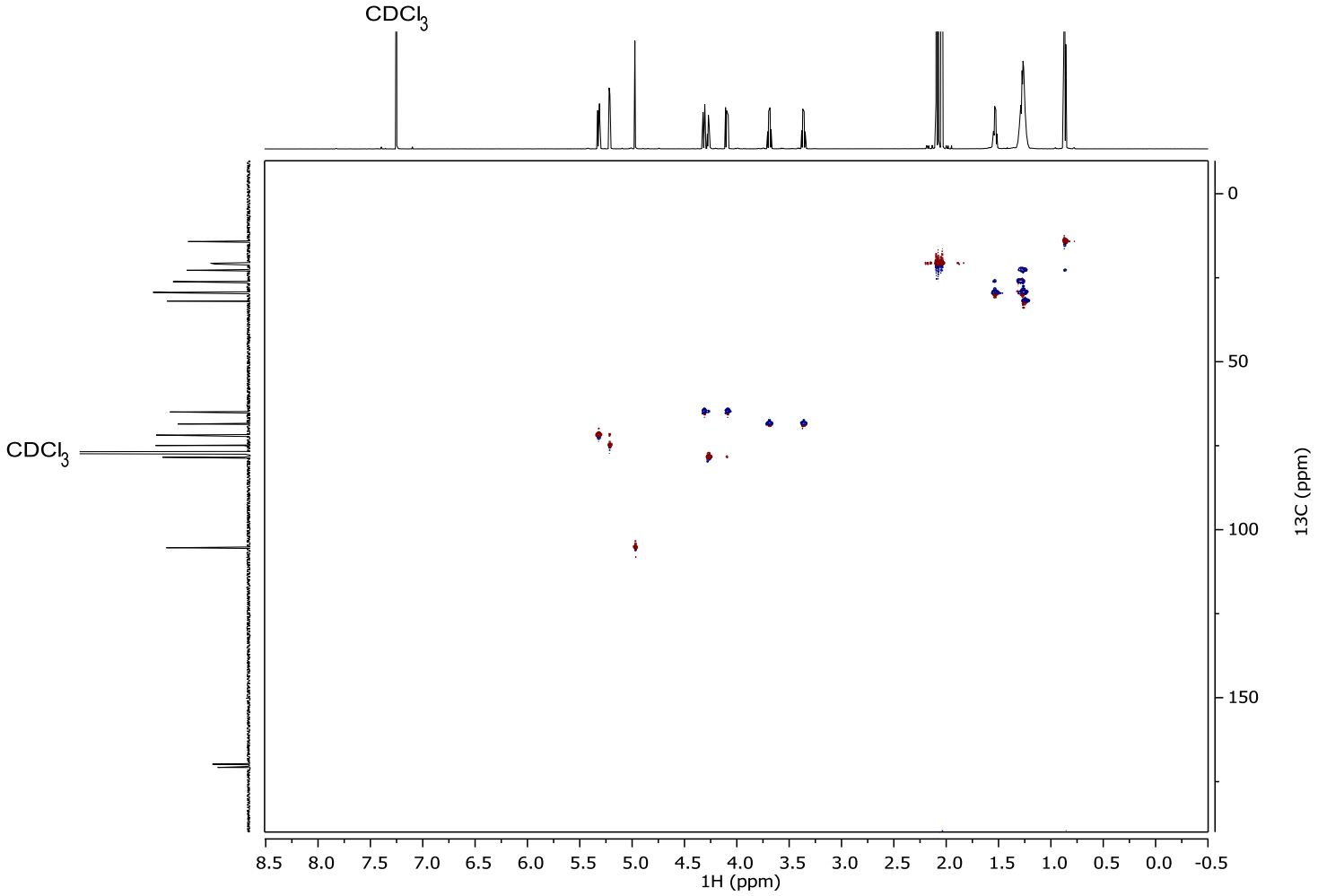
^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-β-D-ribofuranoside



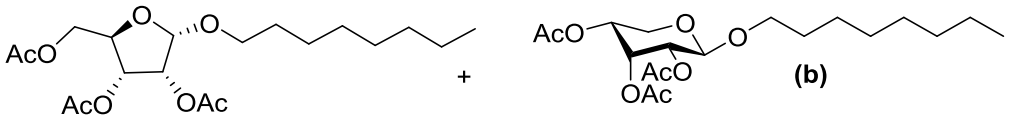


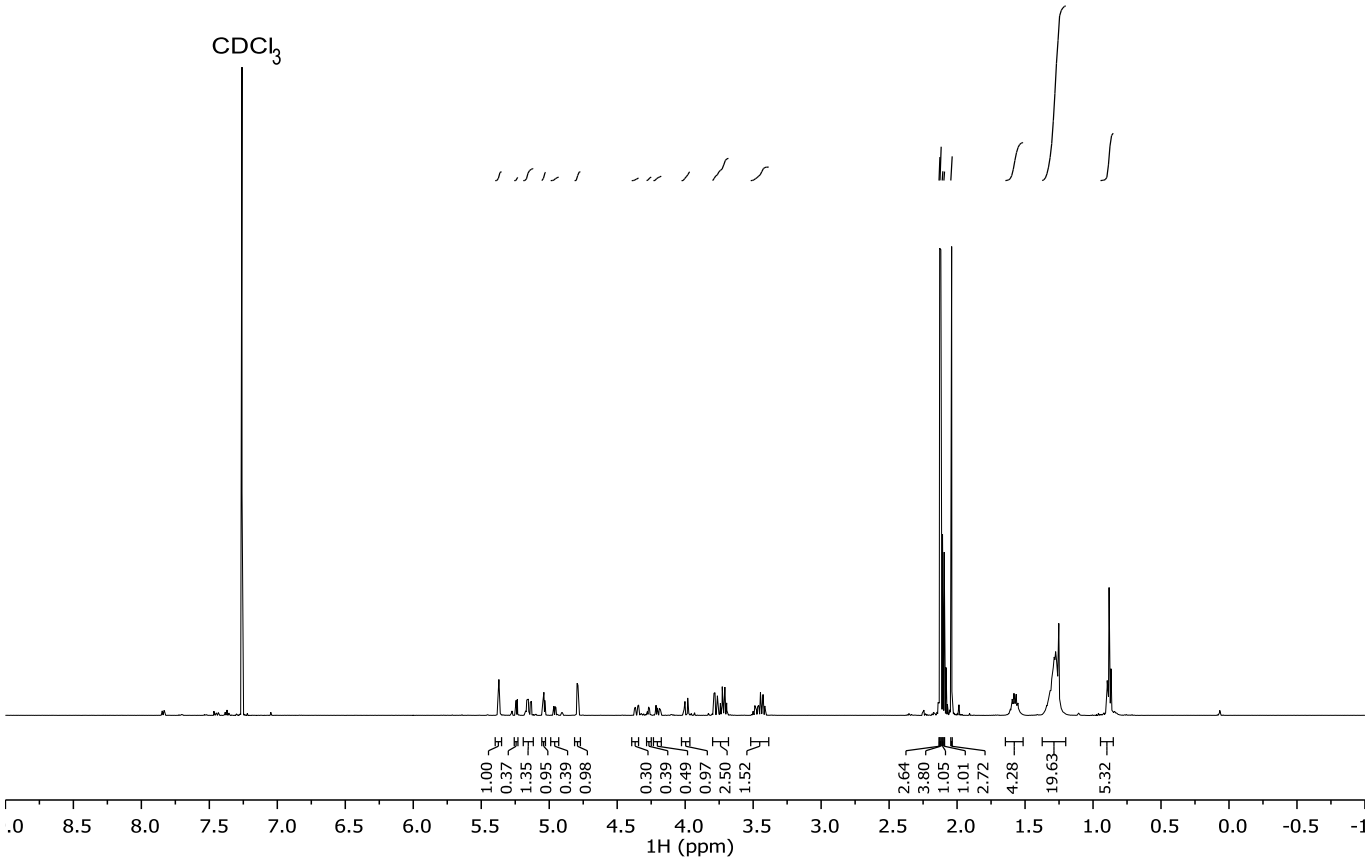
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-β-D-ribofuranoside



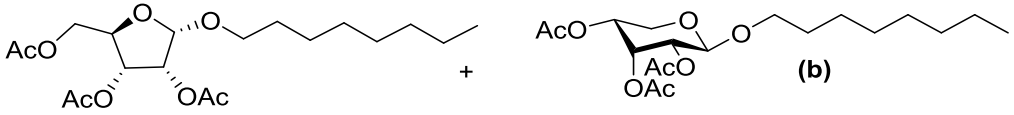


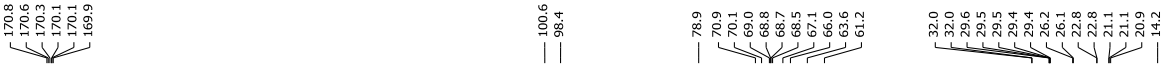
^{1}H NMR (500 MHz, $CDCl_3$) Mixture of *n*-octyl 2,3,5-tri-*O*-acetyl-α-D-ribofuranoside + *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-ribopyranoside **(b)**

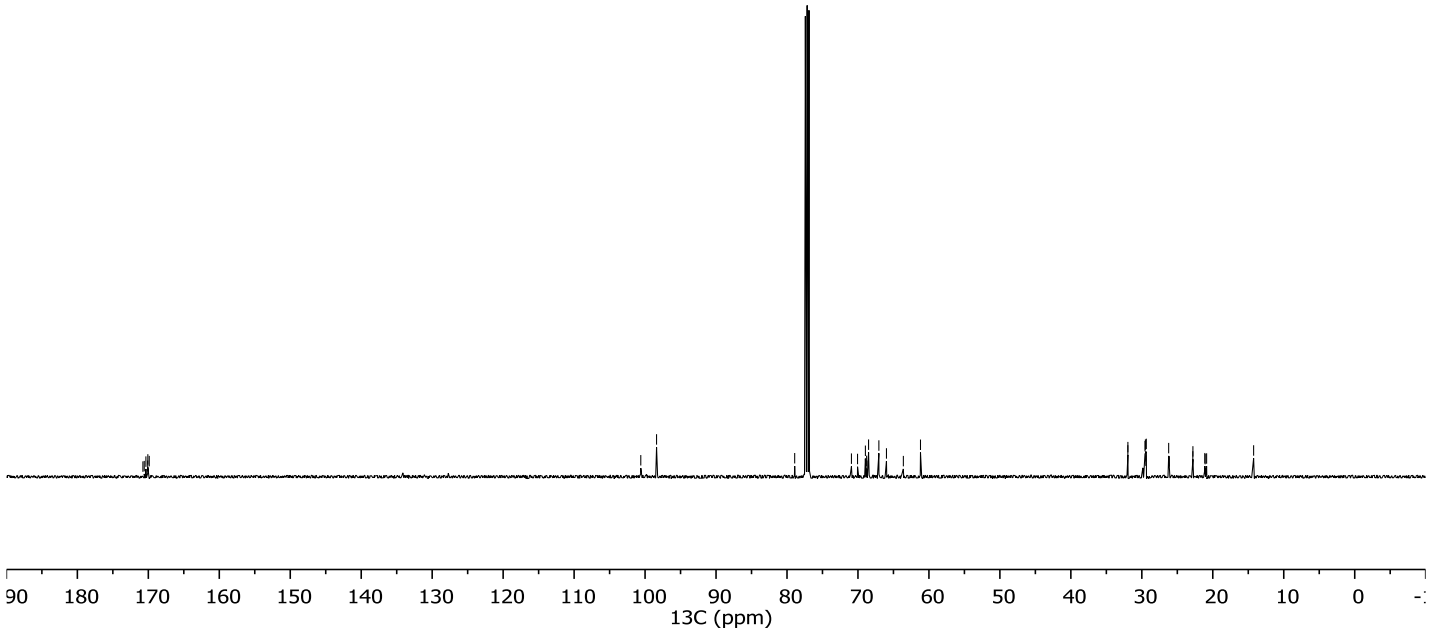




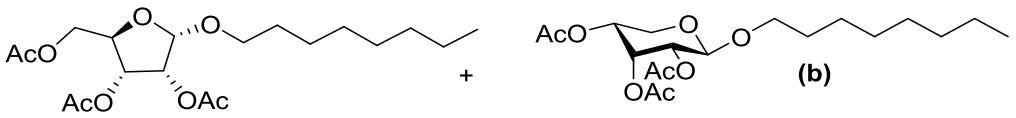
^{13}C NMR (126 MHz, $CDCl_3$) Mixture of *n*-octyl 2,3,5-tri-*O*-acetyl-α-D-ribofuranoside + *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-ribopyranoside **(b)**

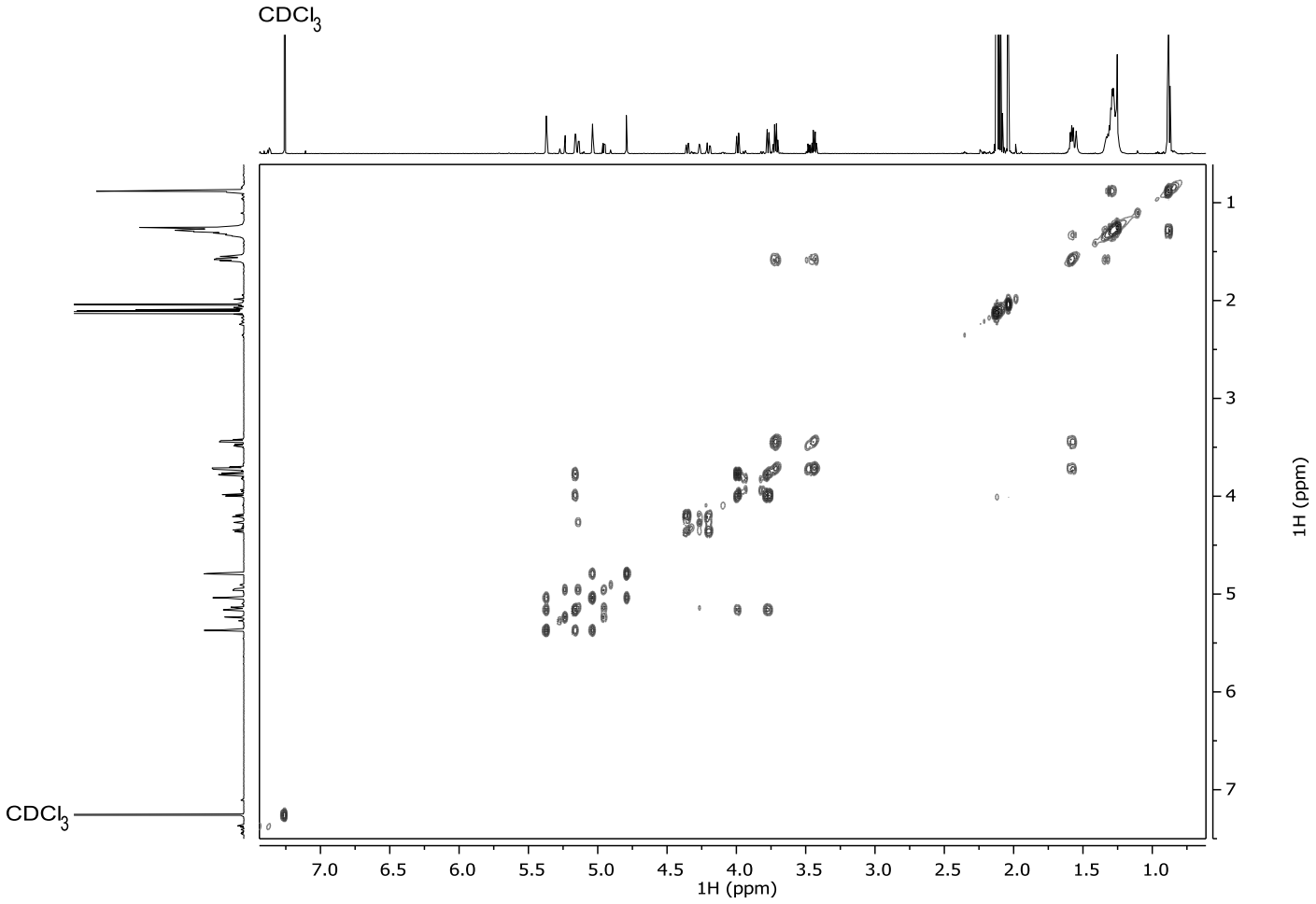




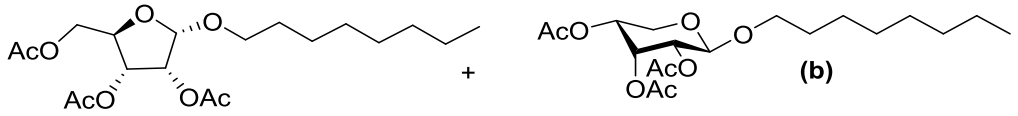


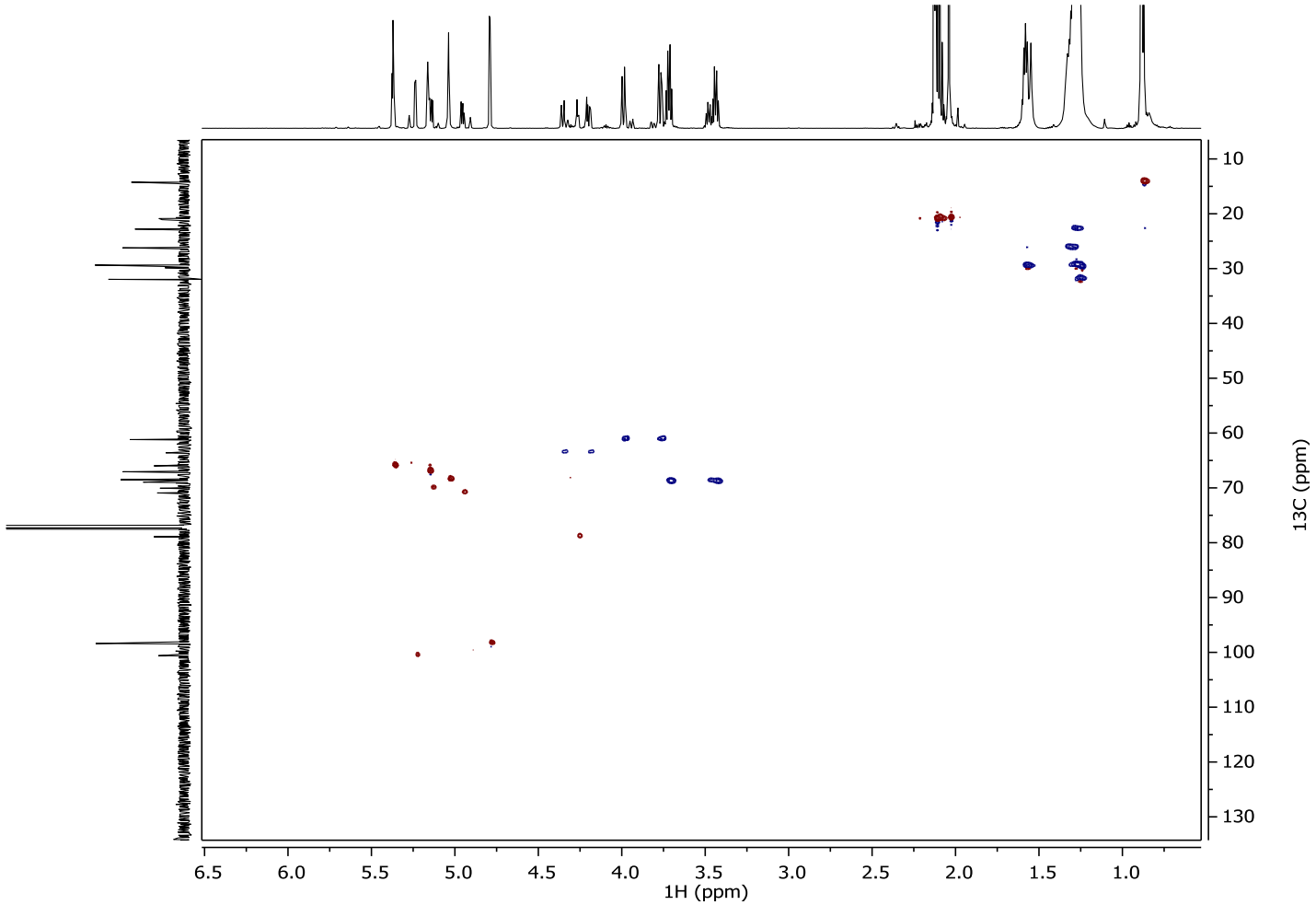
^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) Mixture of *n*-octyl 2,3,5-tri-*O*-acetyl-α-D-ribofuranoside + *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-ribopyranoside **(b)**



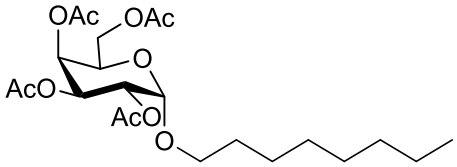


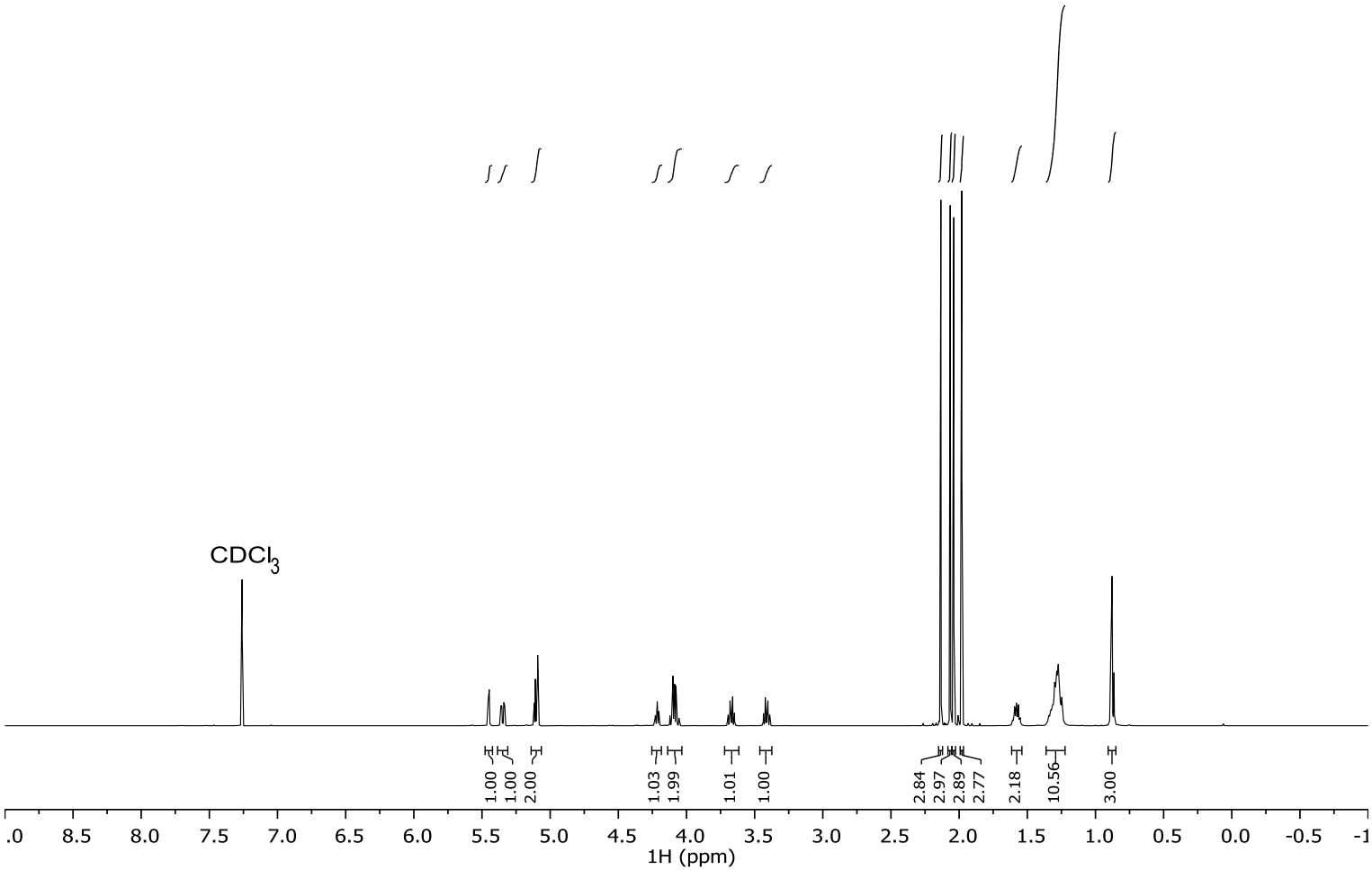
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) Mixture of *n*-octyl 2,3,5-tri-*O*-acetyl-α-D-ribofuranoside + *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-ribopyranoside **(b)**



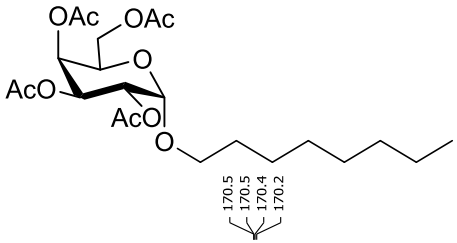


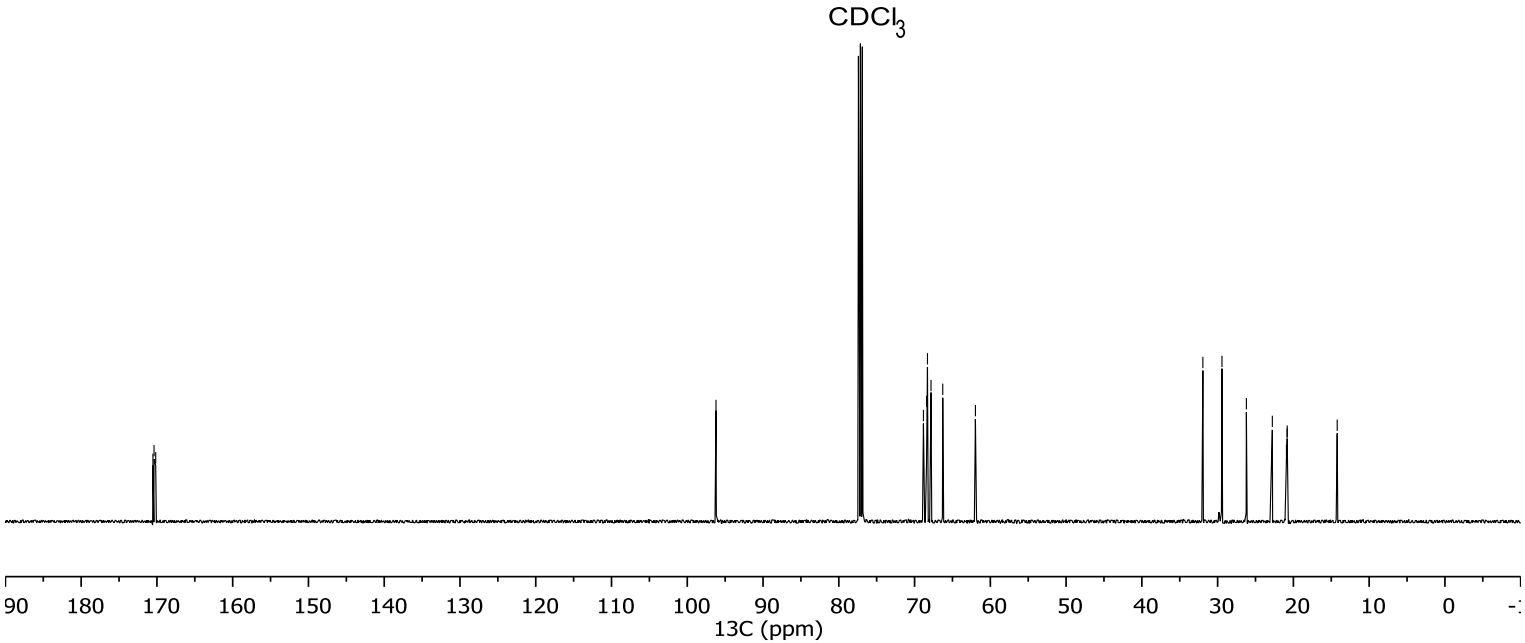
^{1}H NMR (500 MHz, $CDCl_3$) n-octyl 2,3,4,6-tetra-*O*-acetyl-α-D-galactopyranoside



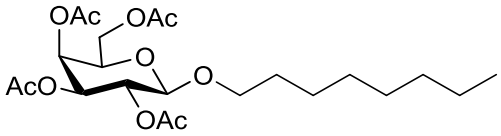


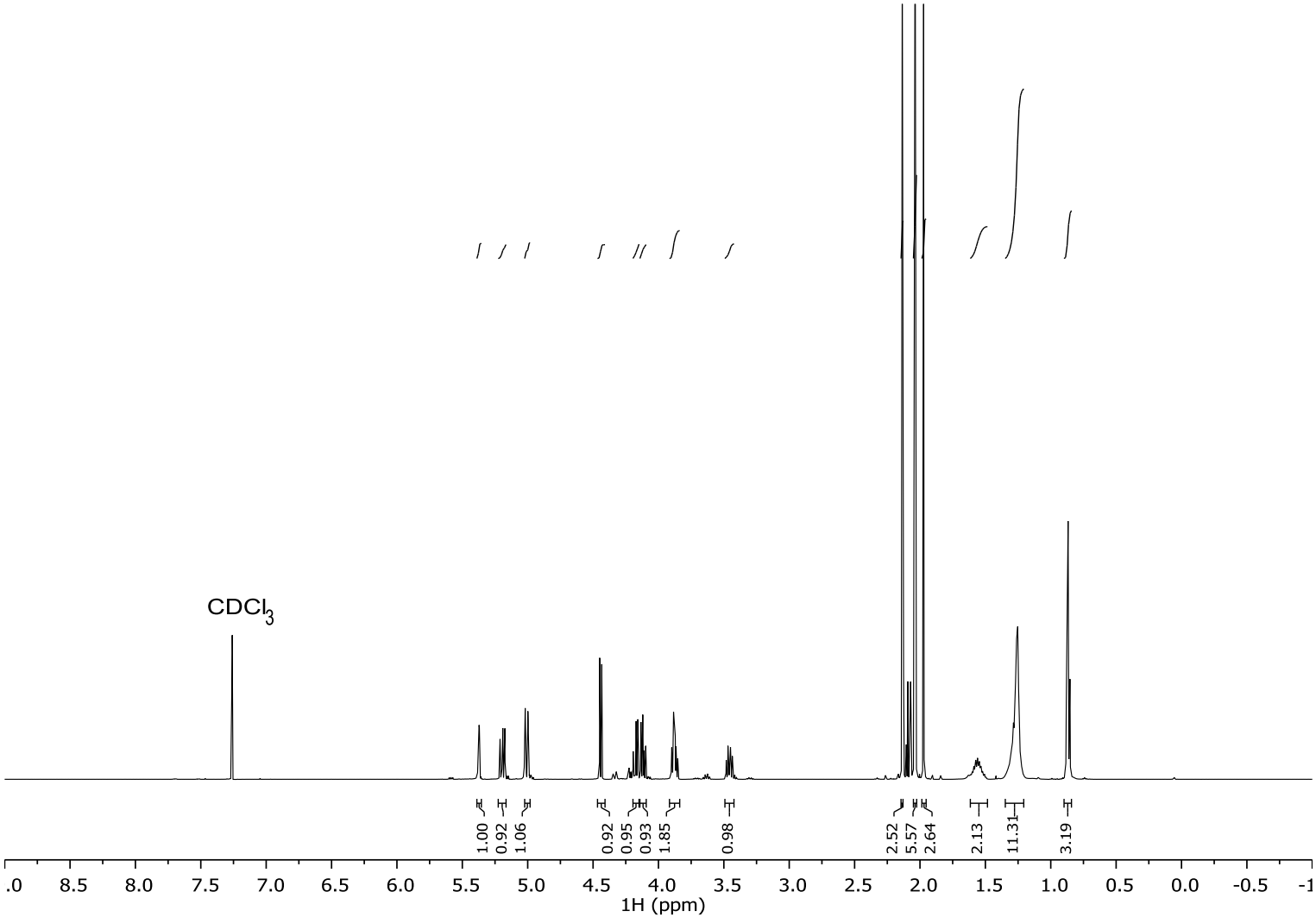
^{13}C NMR (126 MHz, $CDCl_3$) *n*-octyl 2,3,4,6-tetra-*O*-acetyl-α-D-galactopyranoside



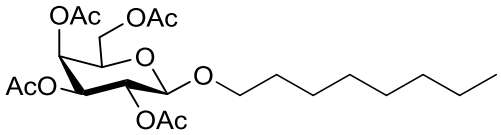


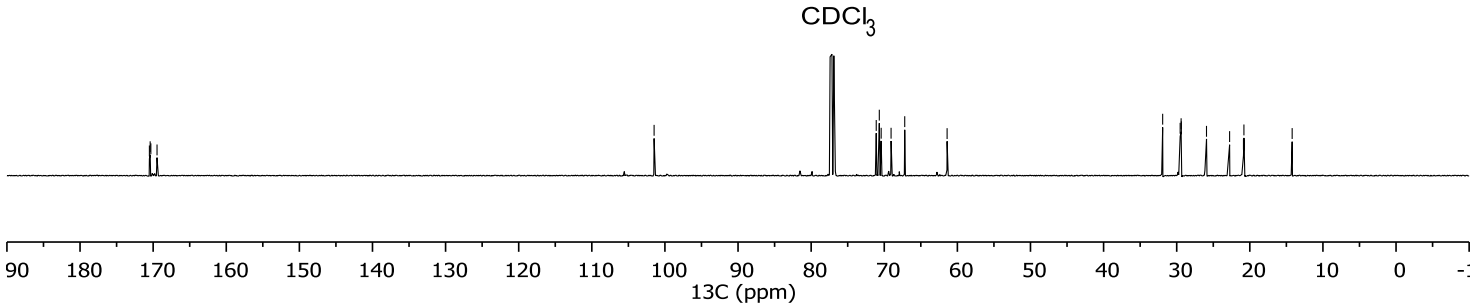
^{1}H NMR (500 MHz, $CDCl_3$) *n*-octyl 2,3,4,6-tetra-*O*-acetyl-β-D-galactopyranoside



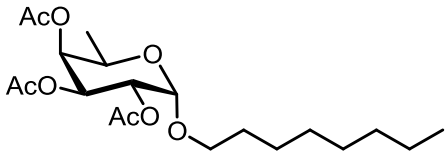


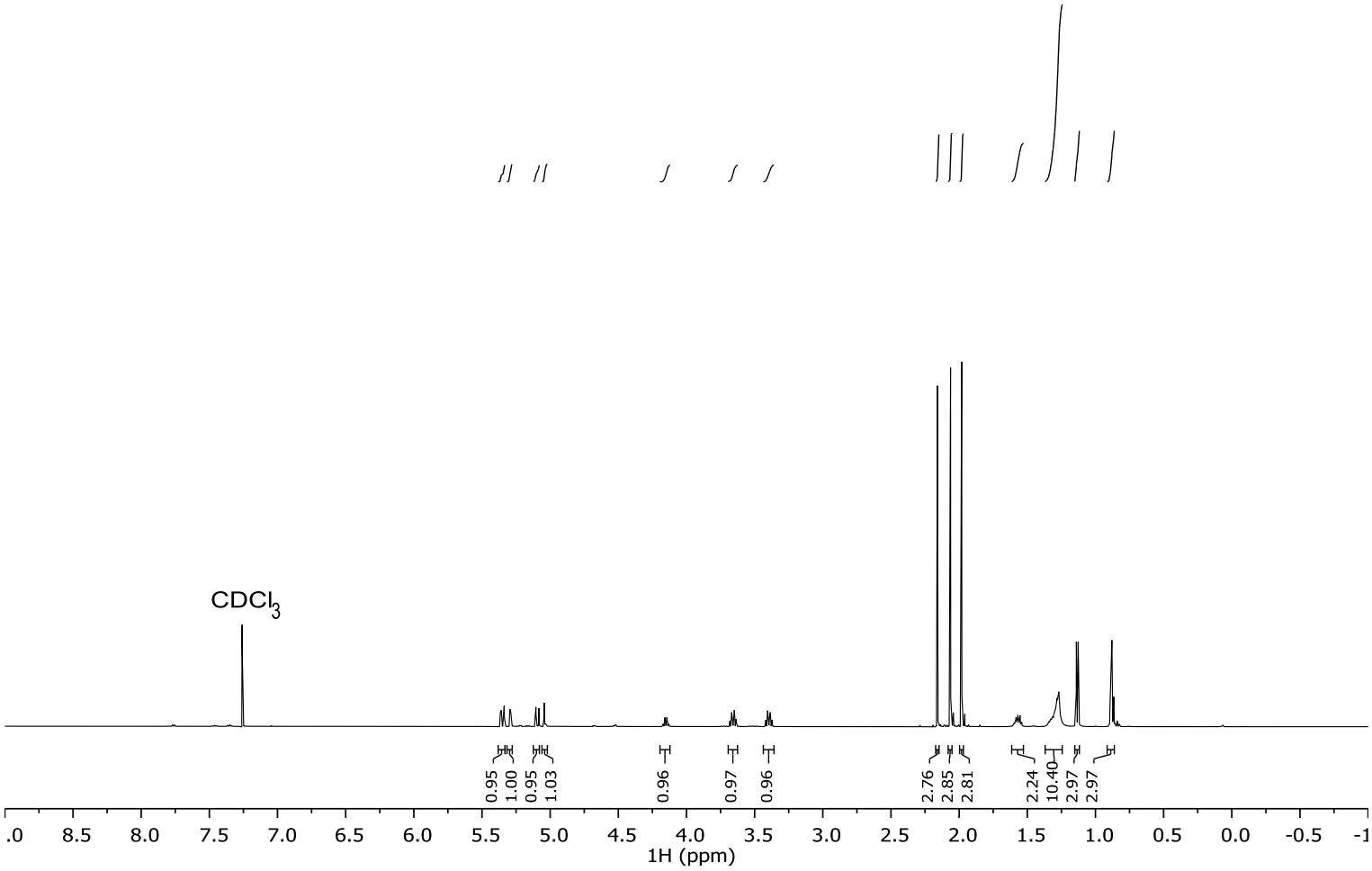
^{13}C NMR (126 MHz, $CDCl_3$) *n*-octyl 2,3,4,6-tetra-*O*-acetyl-β-D-galactopyranoside



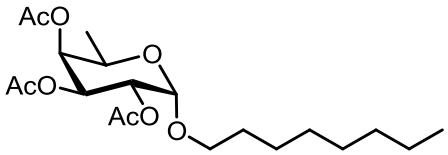


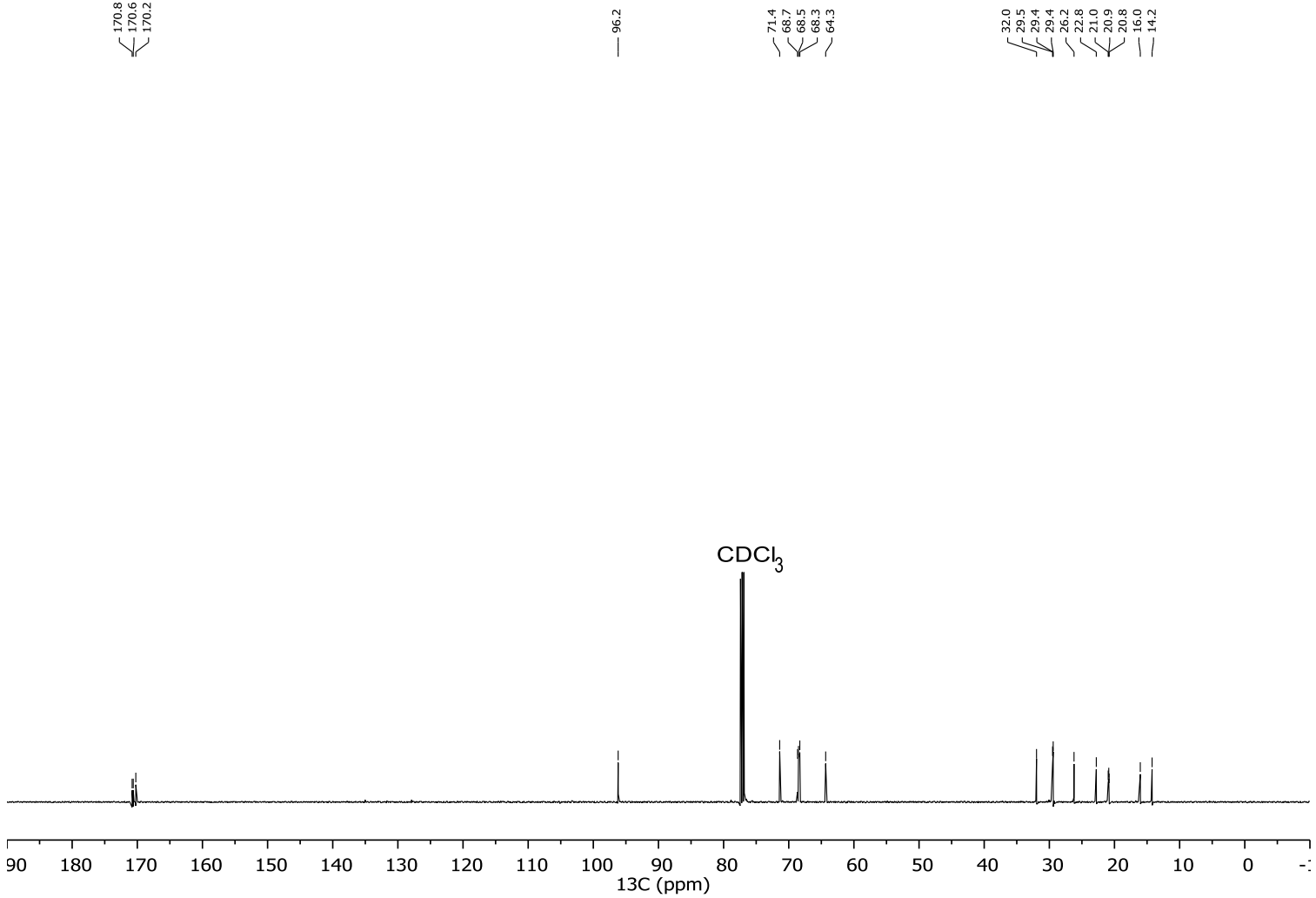
^{1}H NMR (500 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-α-D-fucopyranoside



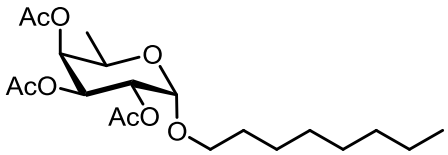


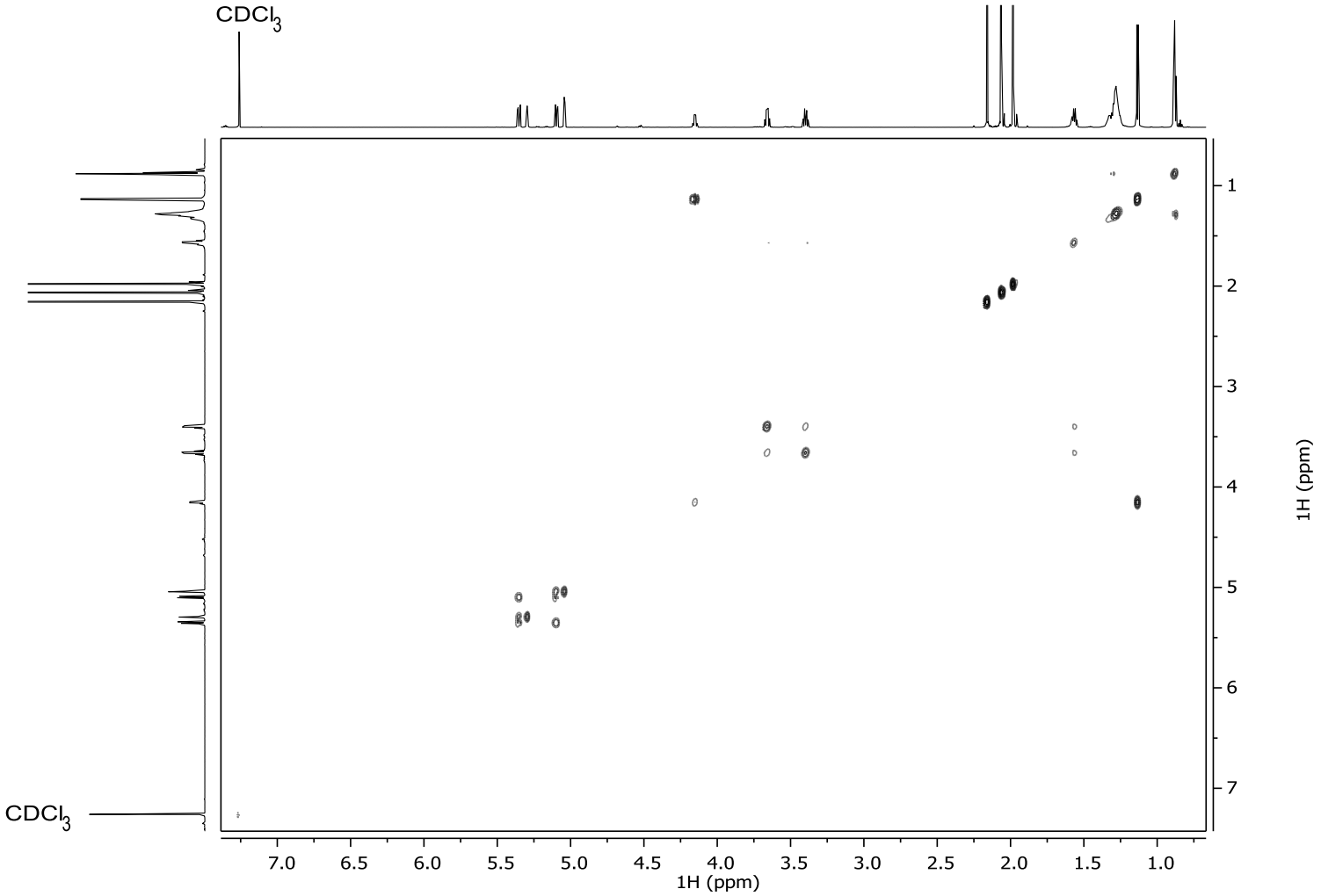
^{13}C NMR (126 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-α-D-fucopyranoside



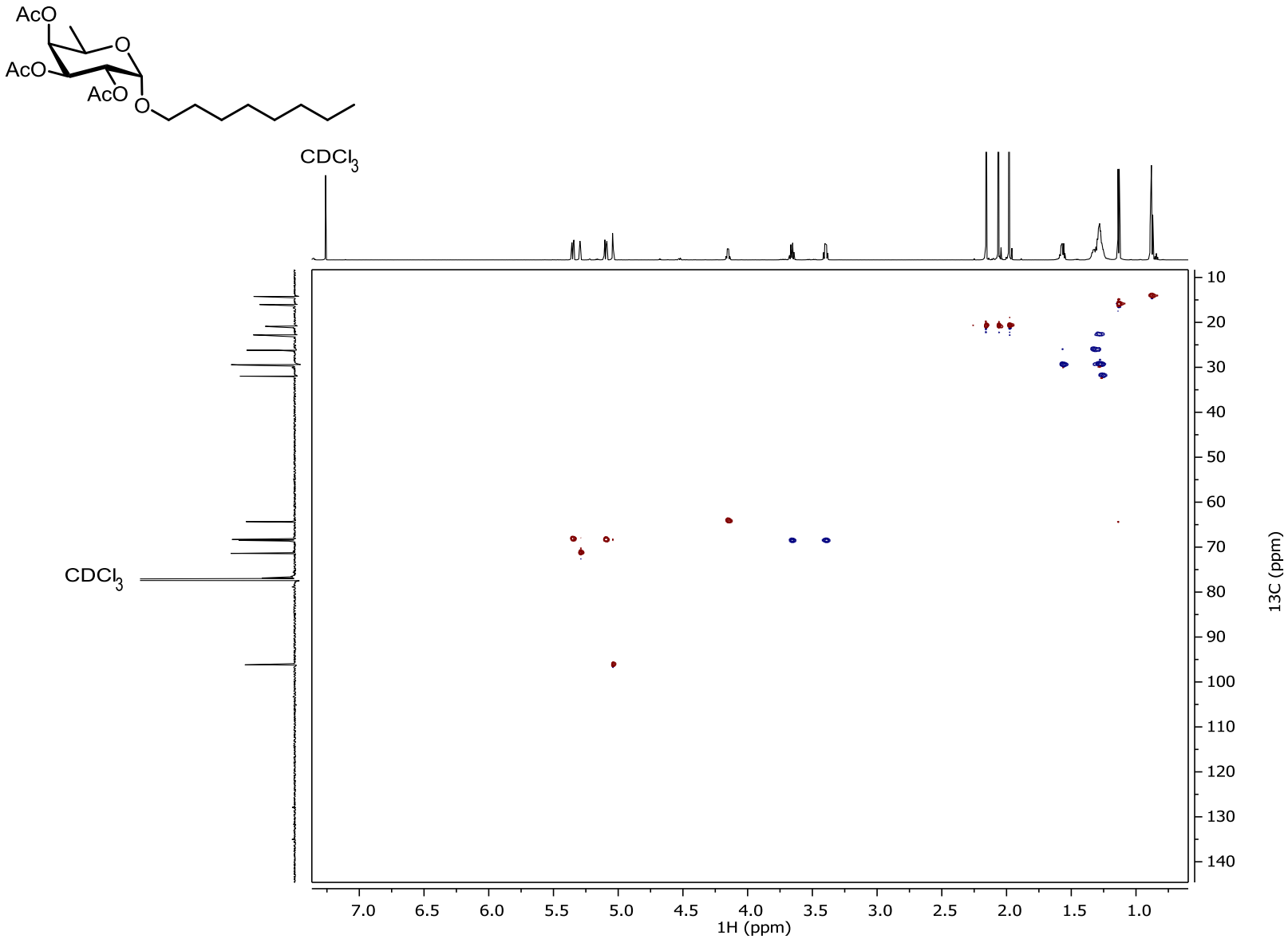


^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-α-D-fucopyranoside

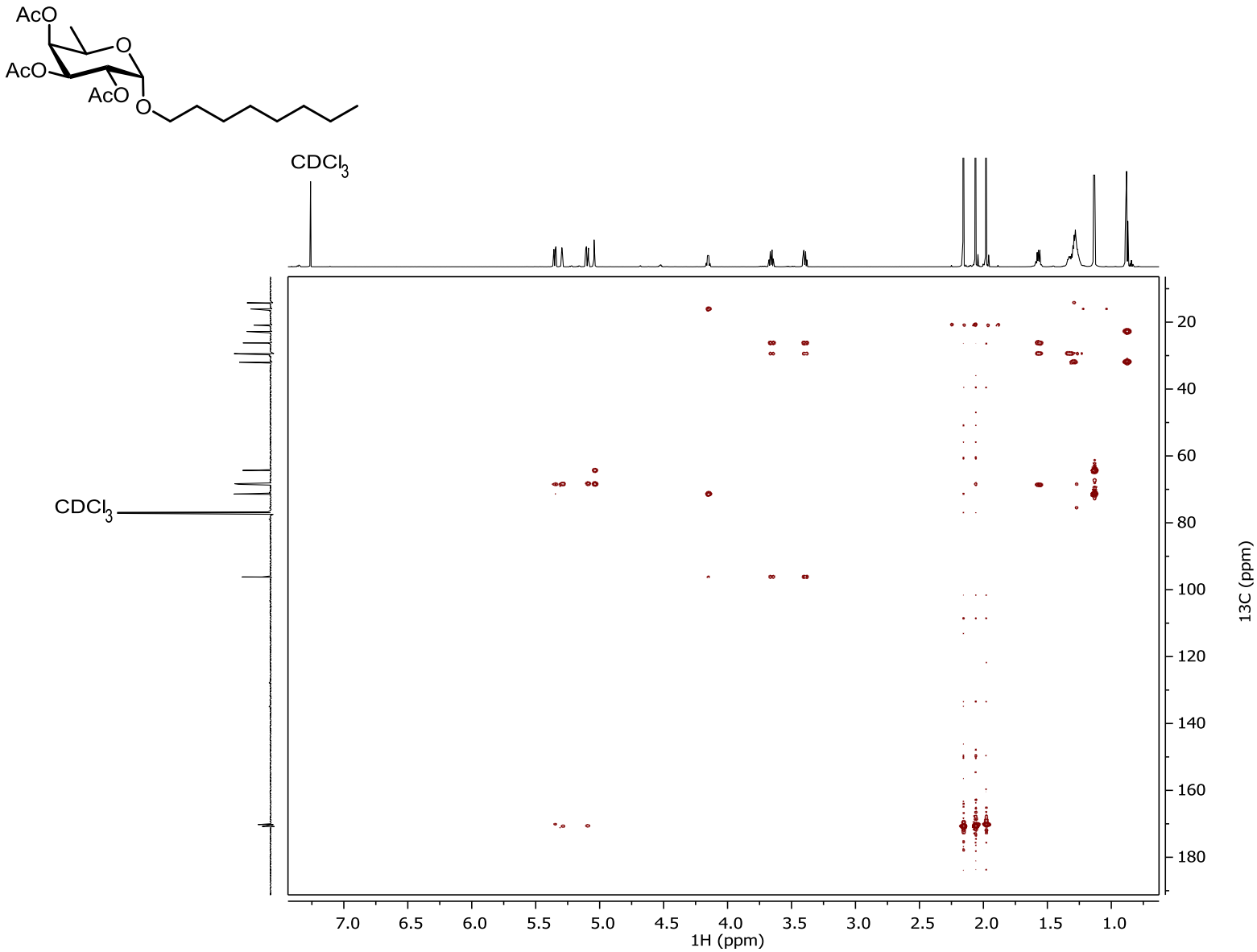




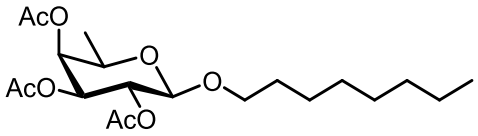
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-α-D-fucopyranoside

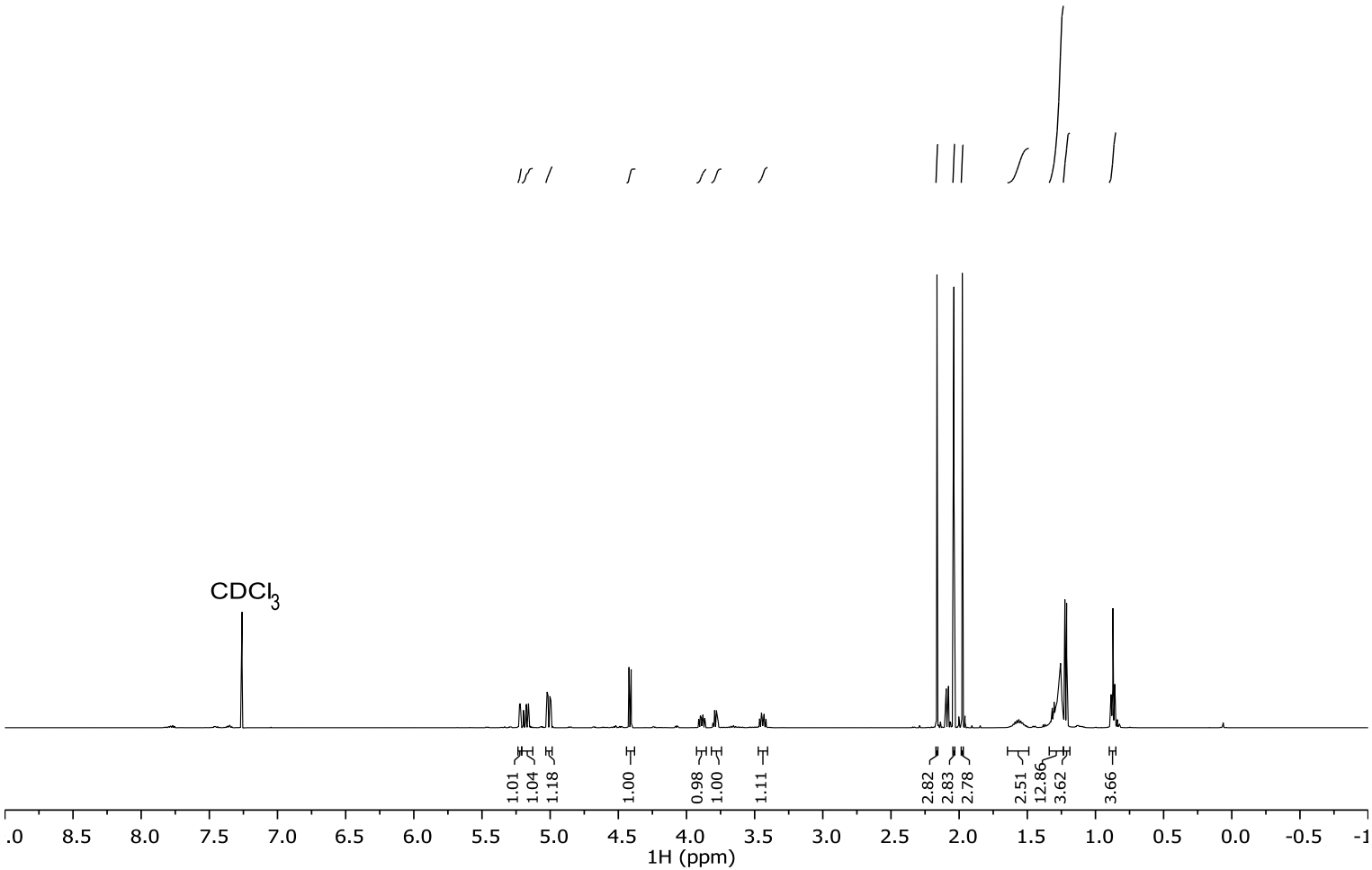


^{1}H-^{13}C HMBC NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-α-D-fucopyranoside

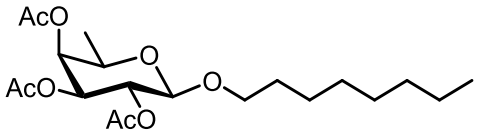


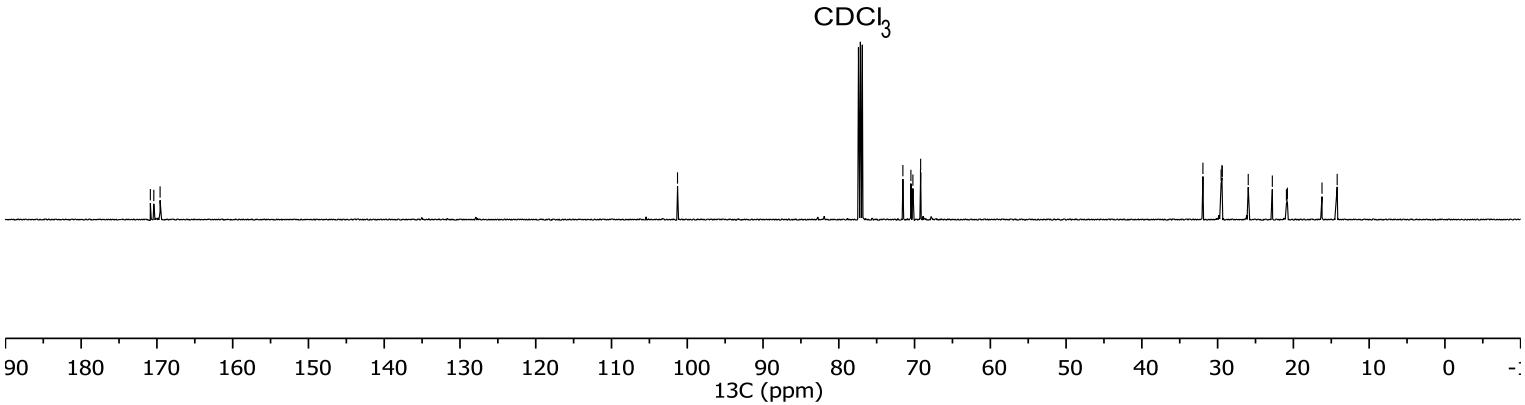
^{1}H NMR (500 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-fucopyranoside



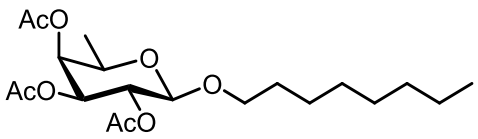


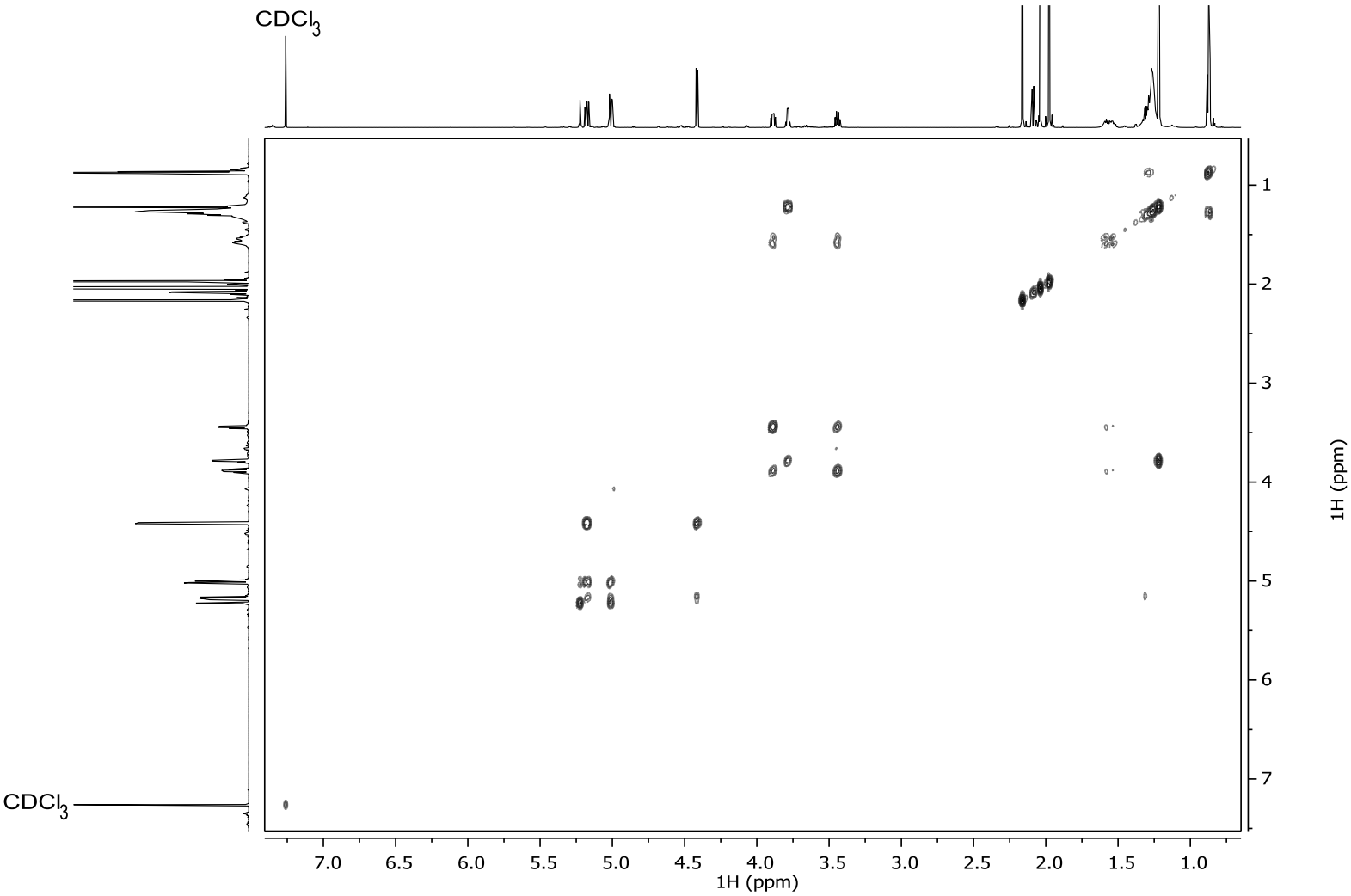
^{13}C NMR (126 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-fucopyranoside



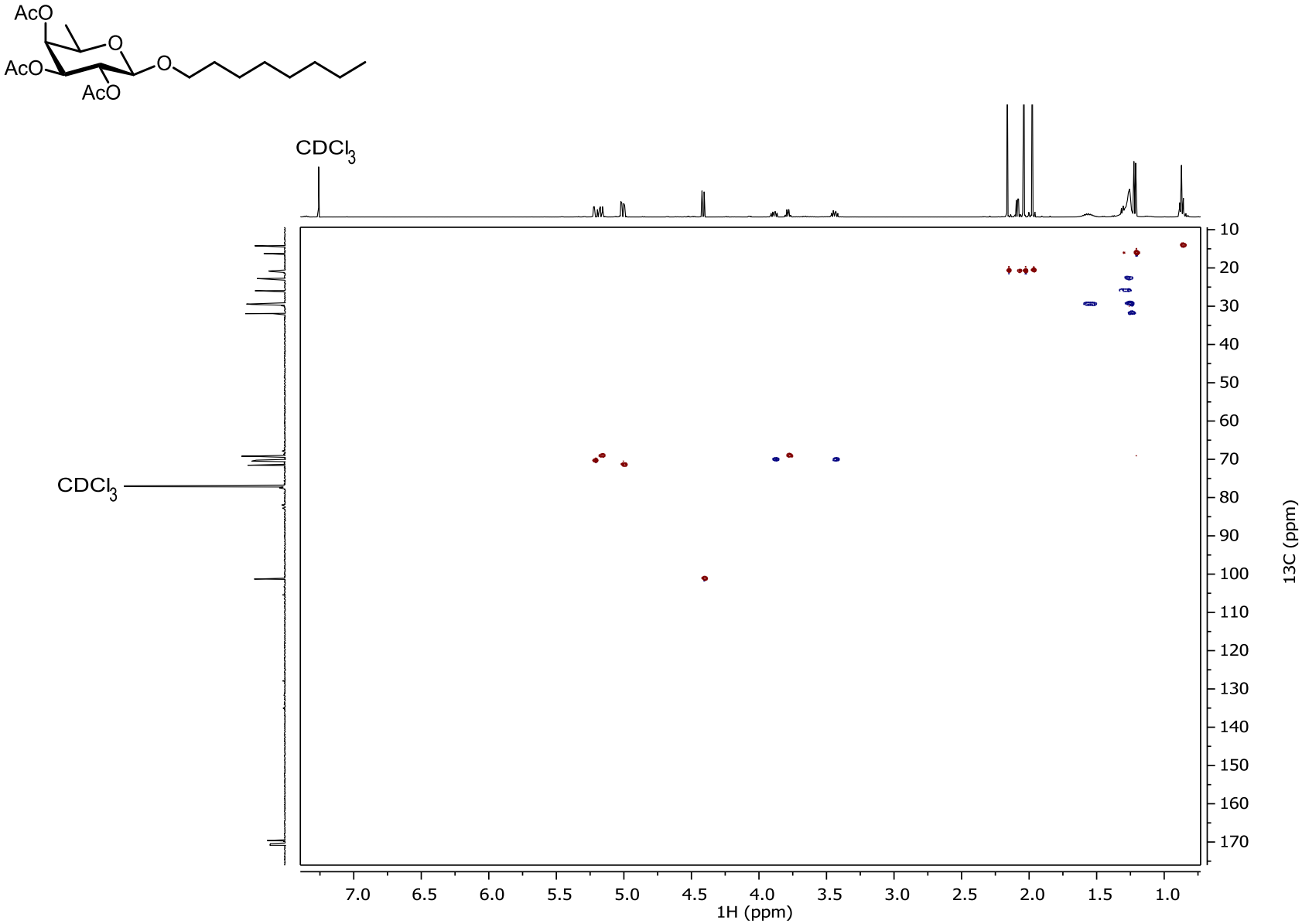


^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-fucopyranoside

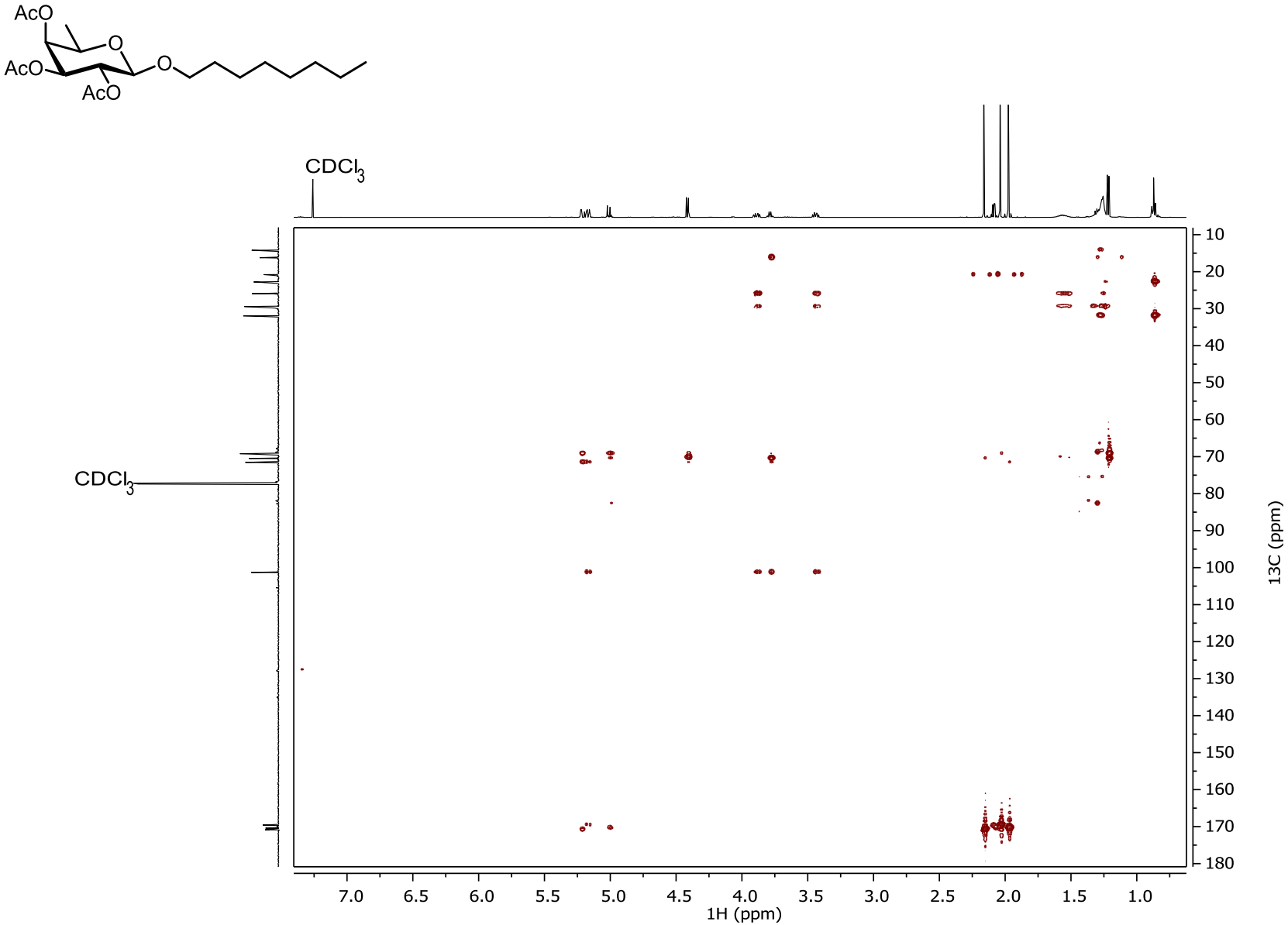




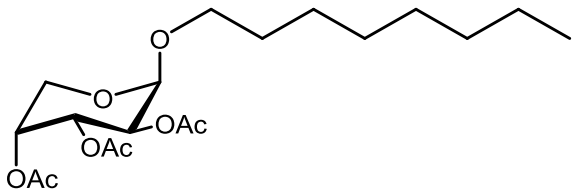
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-fucopyranoside

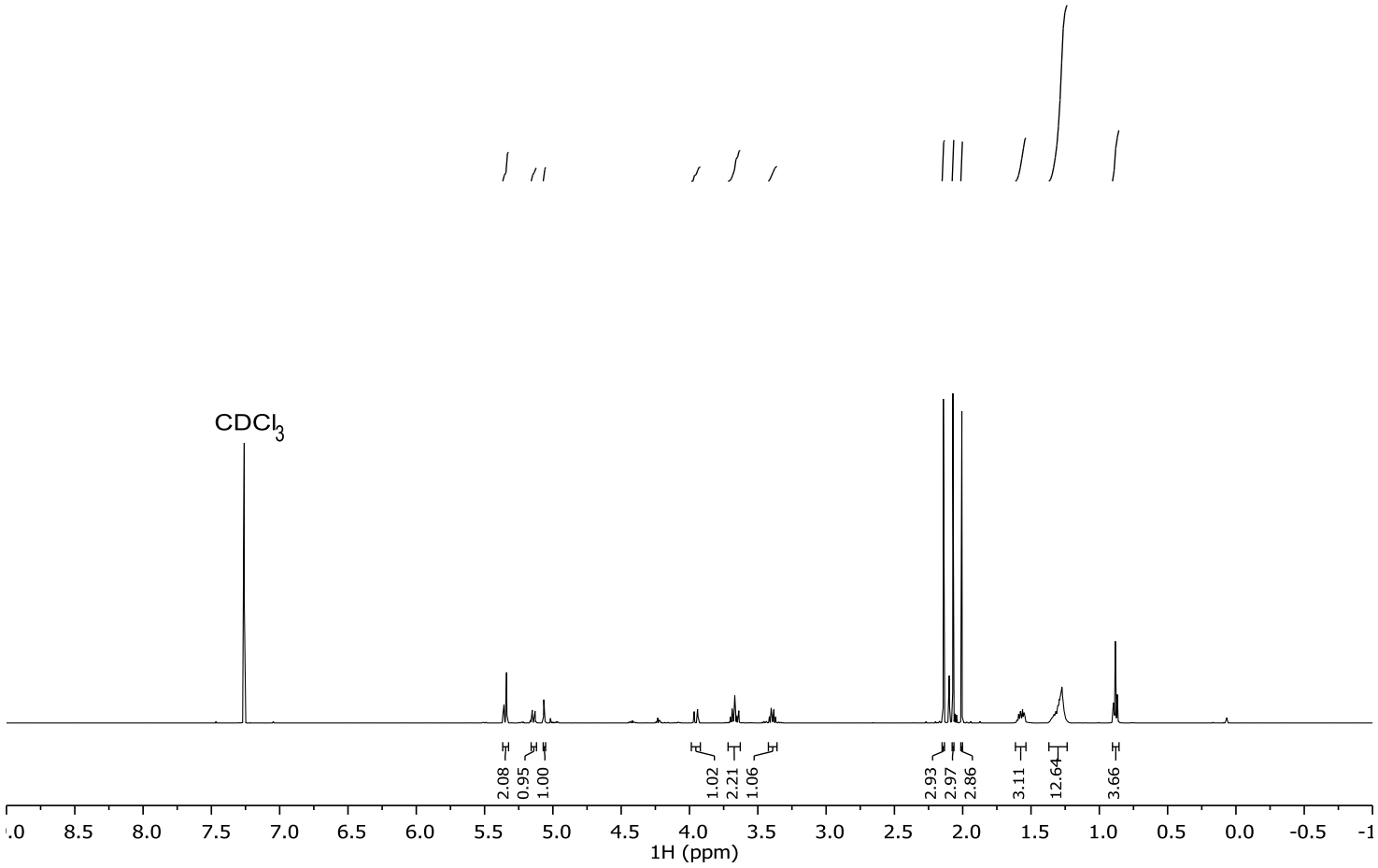


^{1}H-^{13}C HMBC NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-fucopyranoside

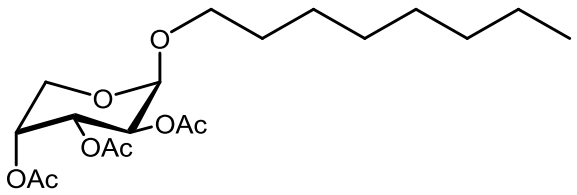


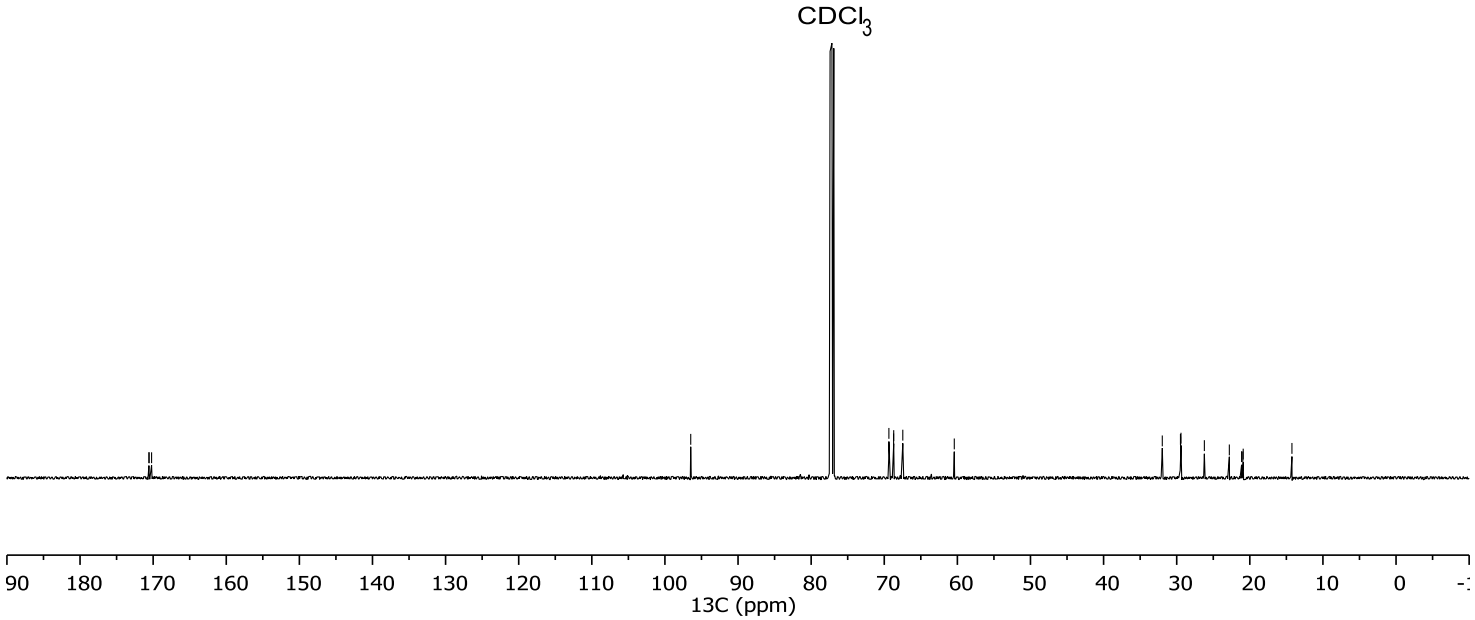
^{1}H NMR (500 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-arabinopyranoside



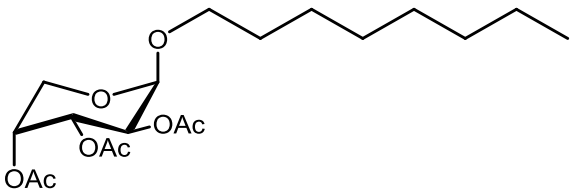


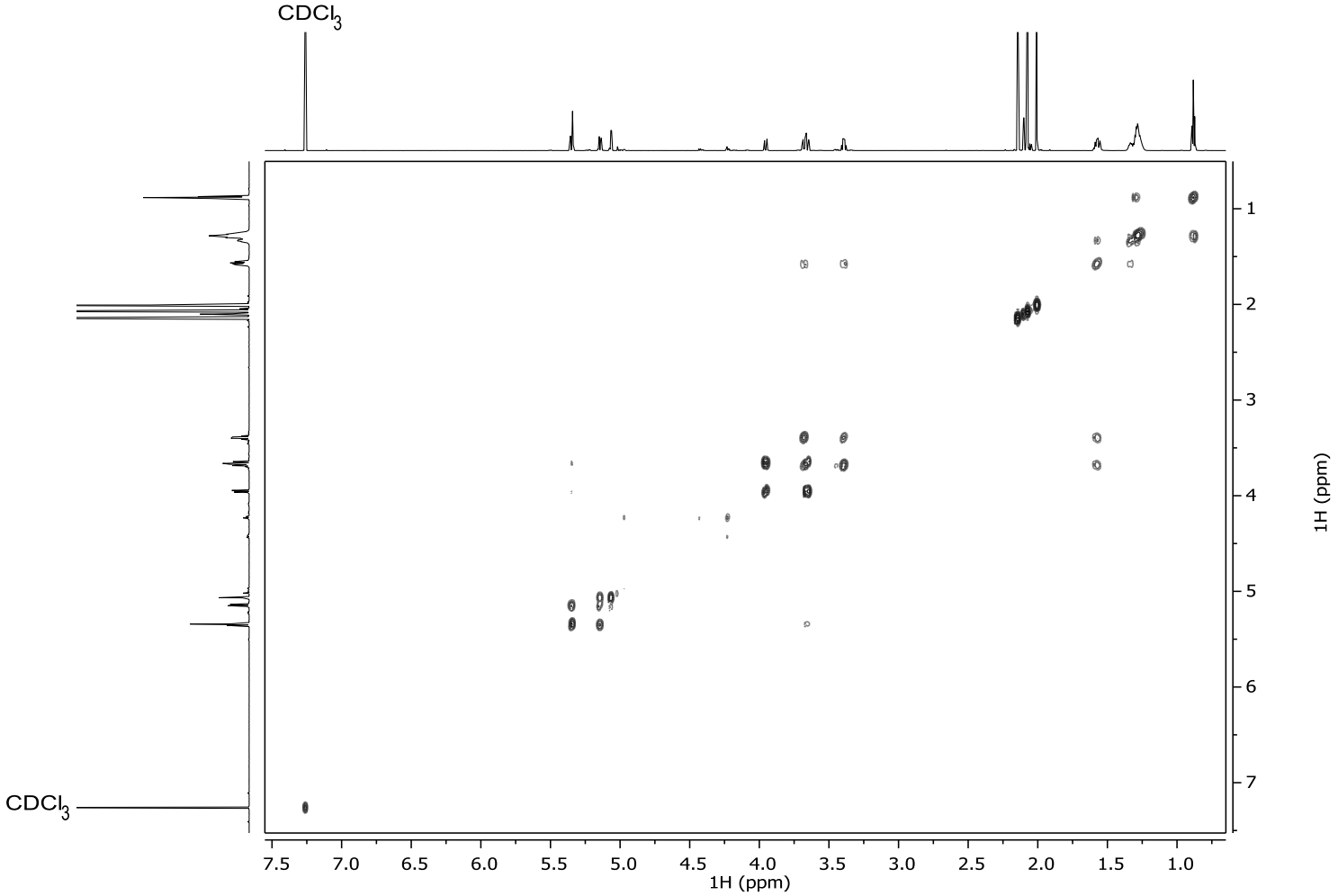
^{13}C NMR (126 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-arabinopyranoside



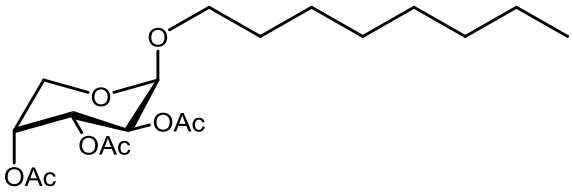


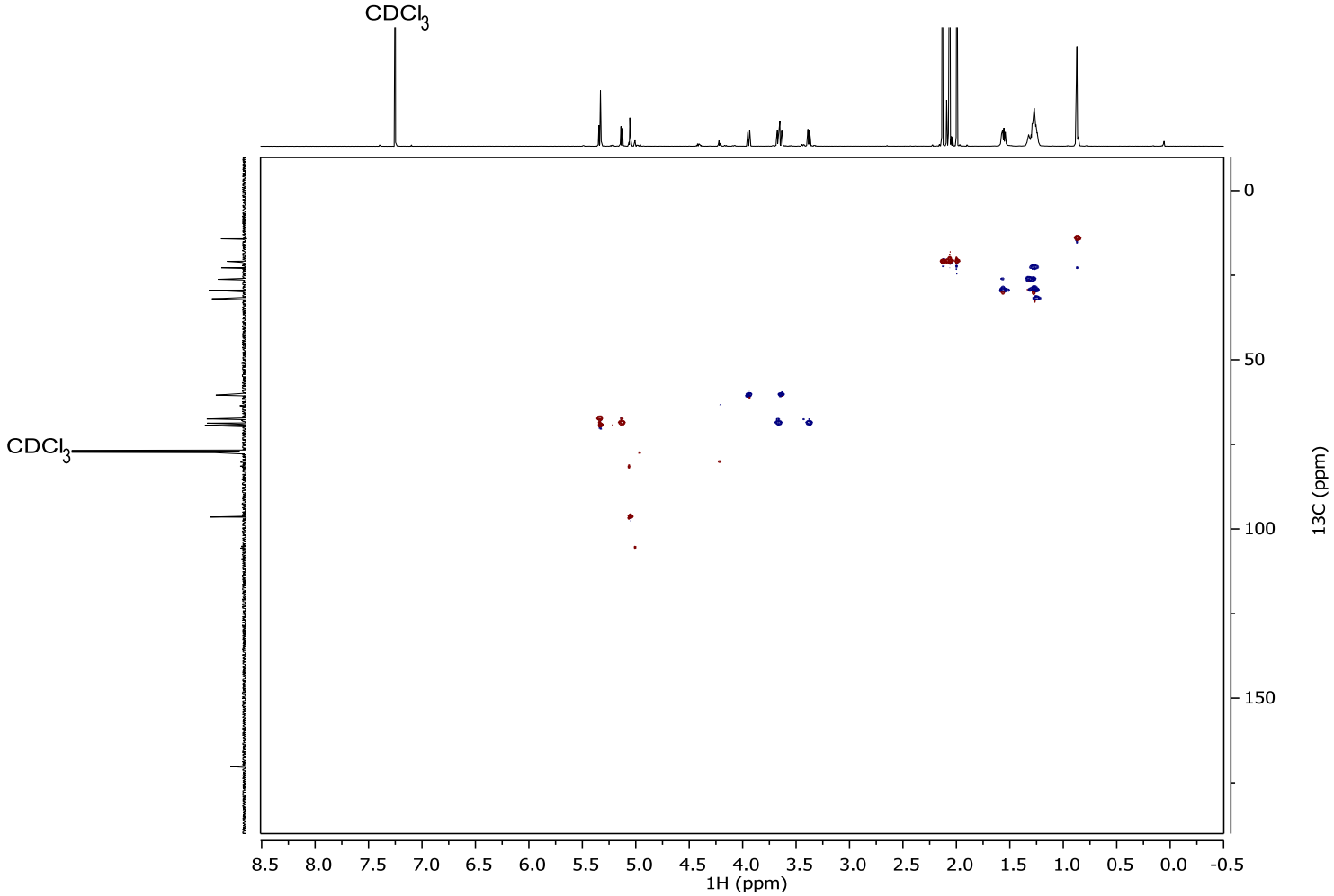
^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-arabinopyranoside



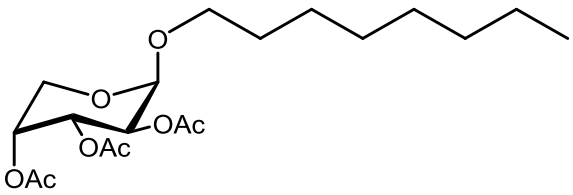


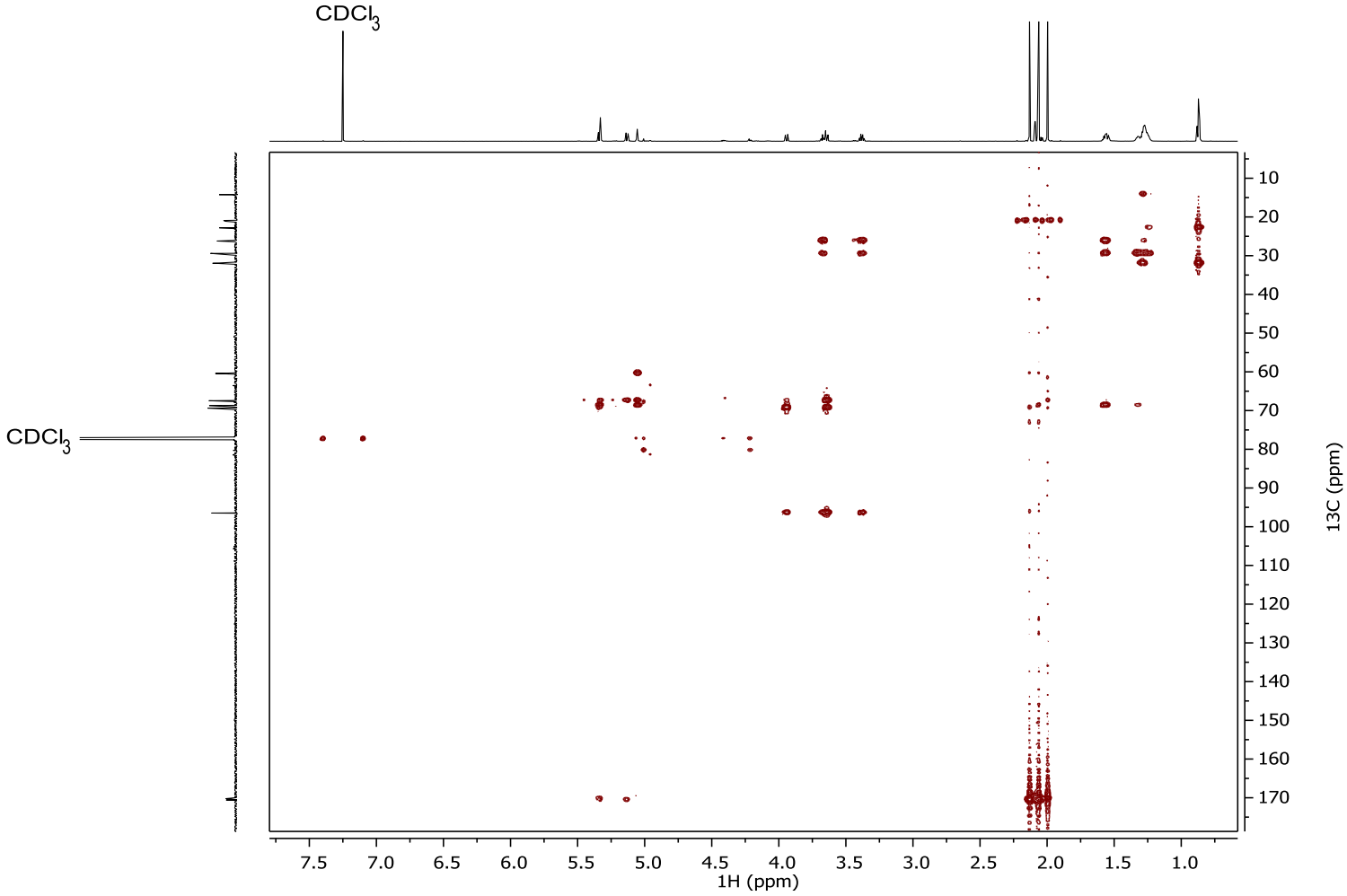
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-arabinopyranoside



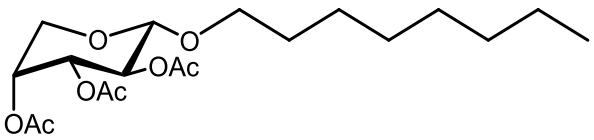


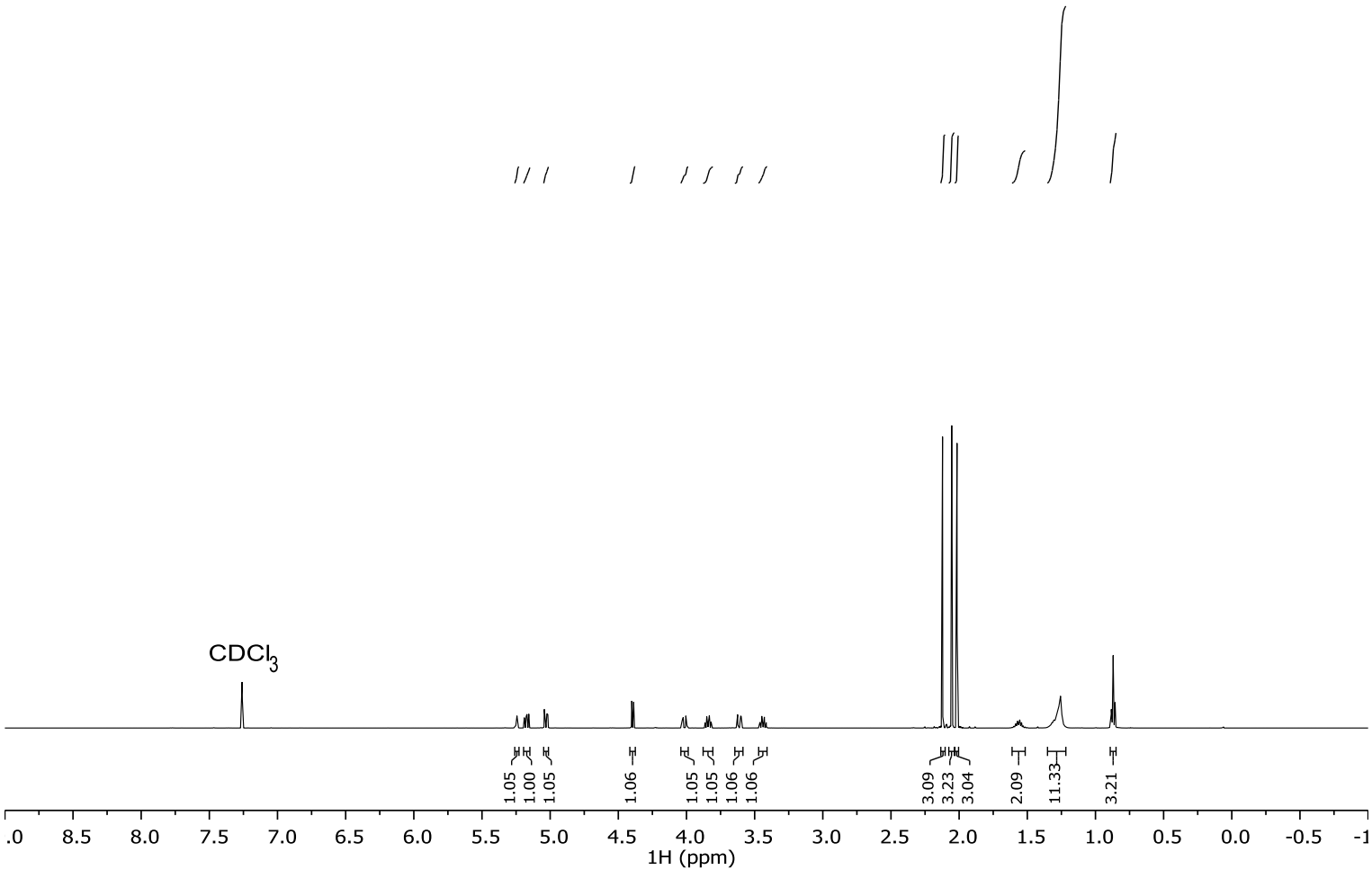
^{1}H-^{13}C HMBC NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-arabinopyranoside



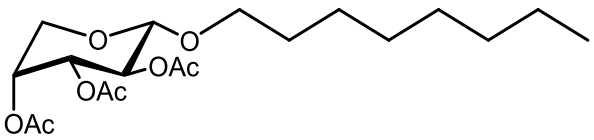


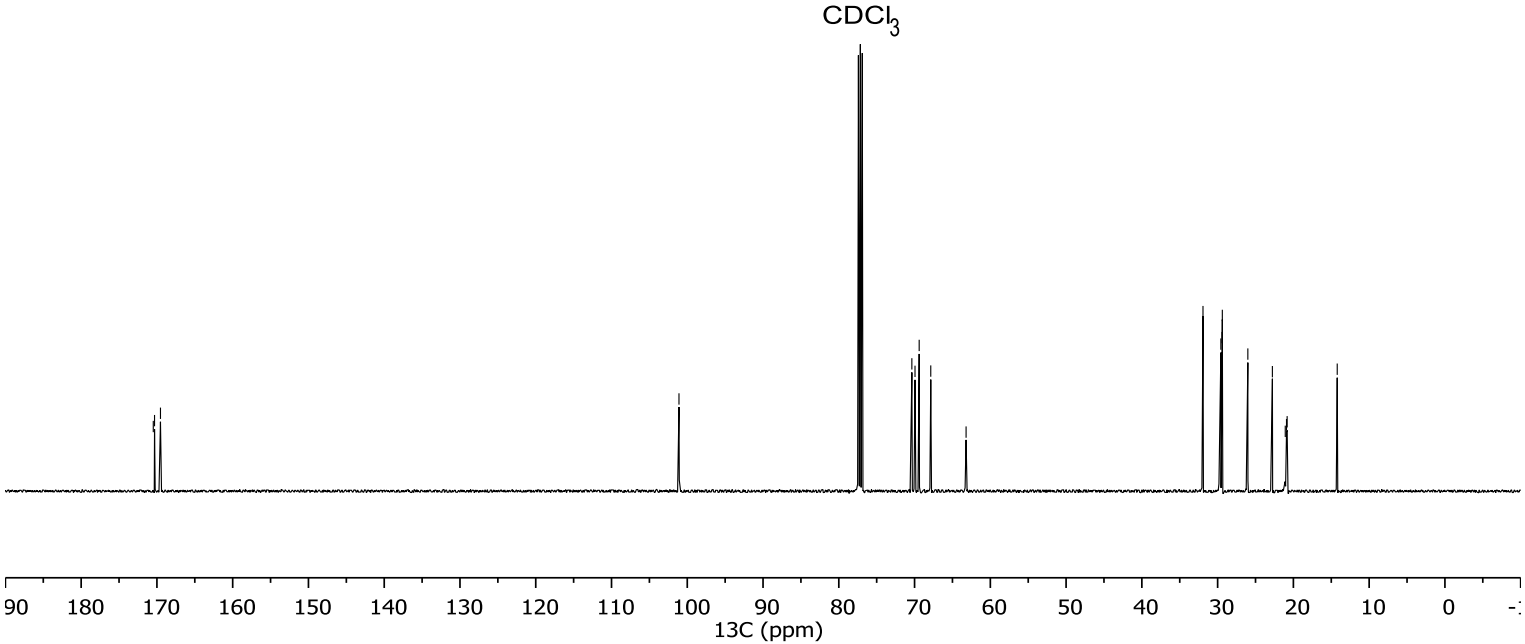
^{1}H NMR (500 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-α-D-arabinopyranoside



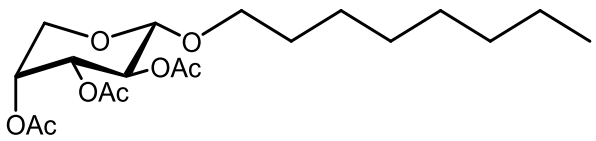


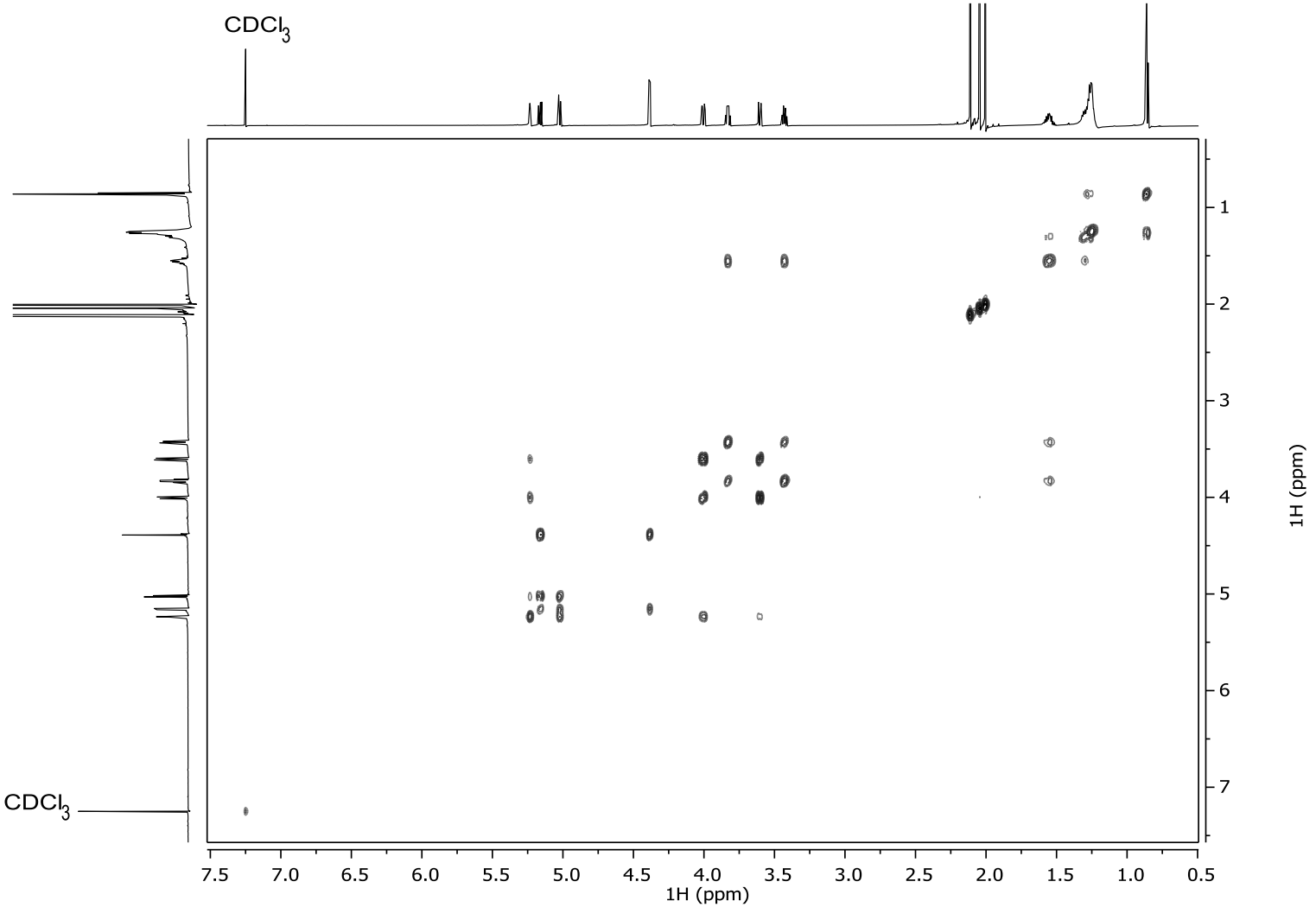
^{13}C NMR (126 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-α-D-arabinopyranoside



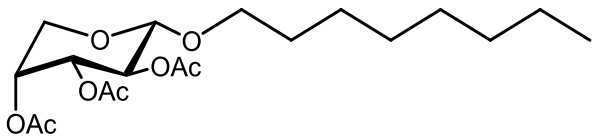


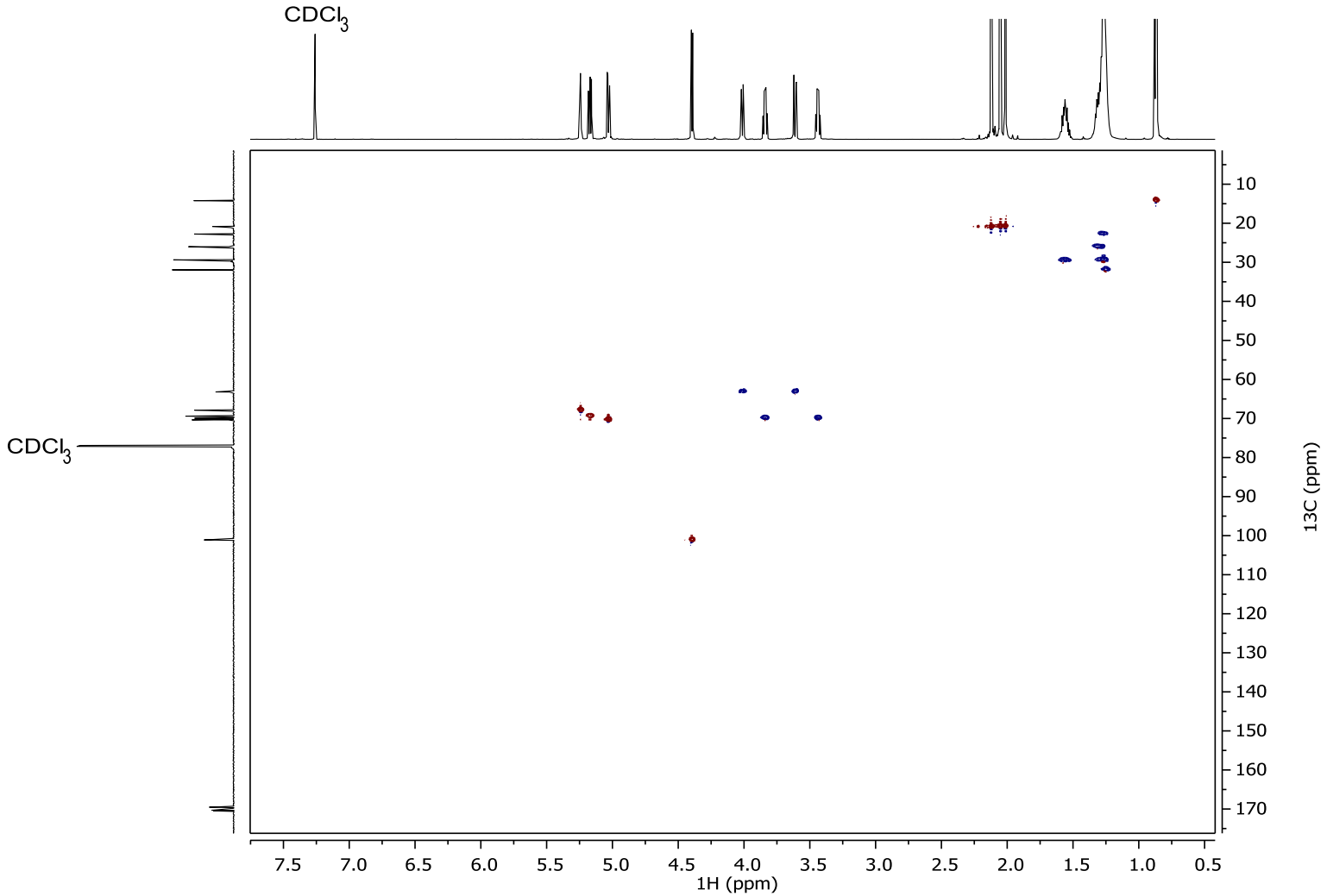
^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-α-D-arabinopyranoside



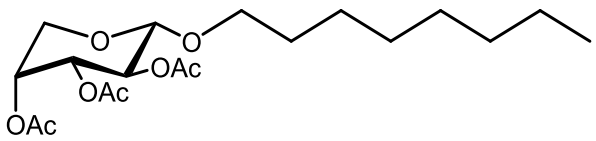


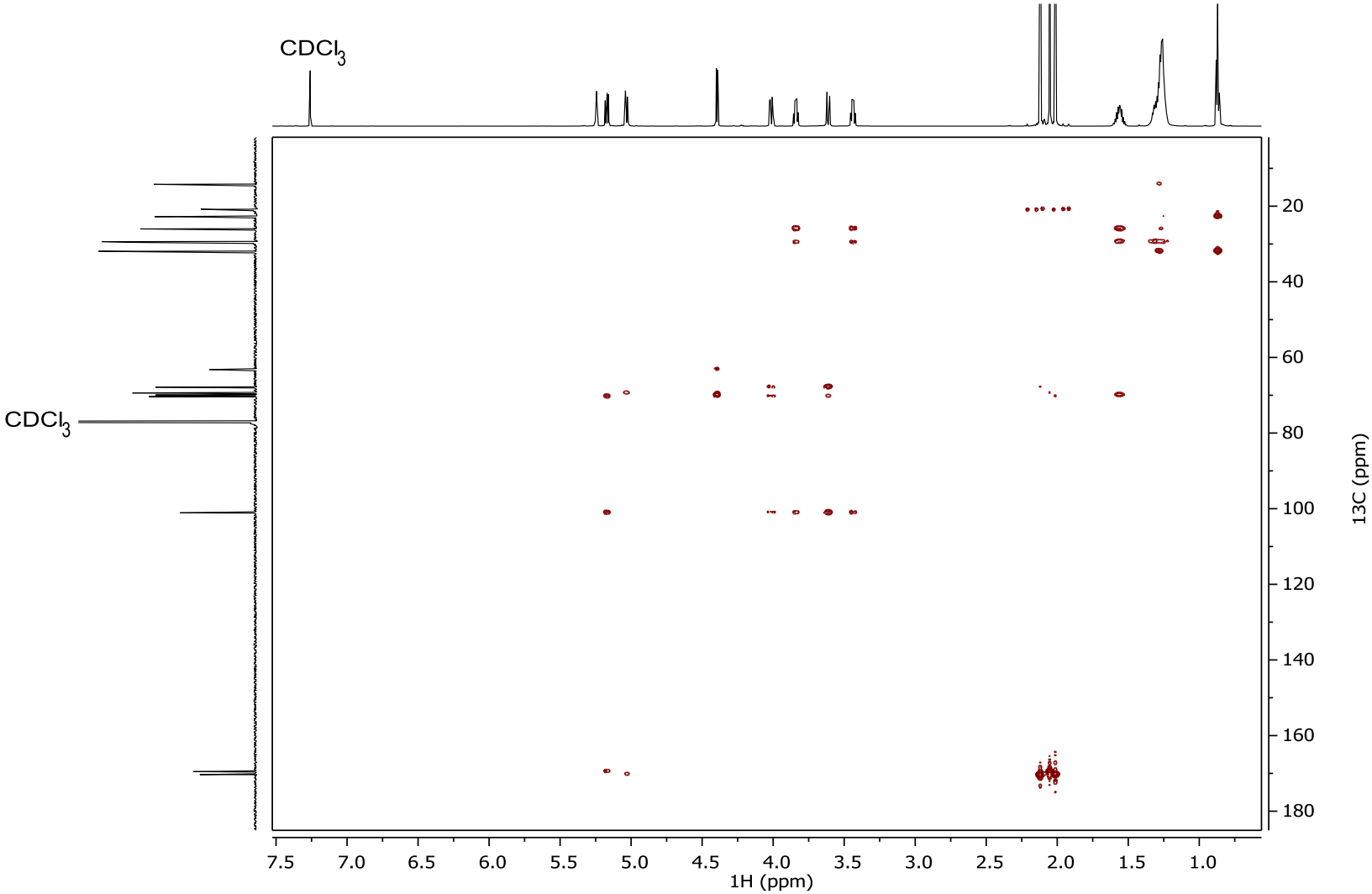
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-α-D-arabinopyranoside



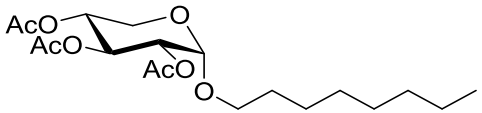


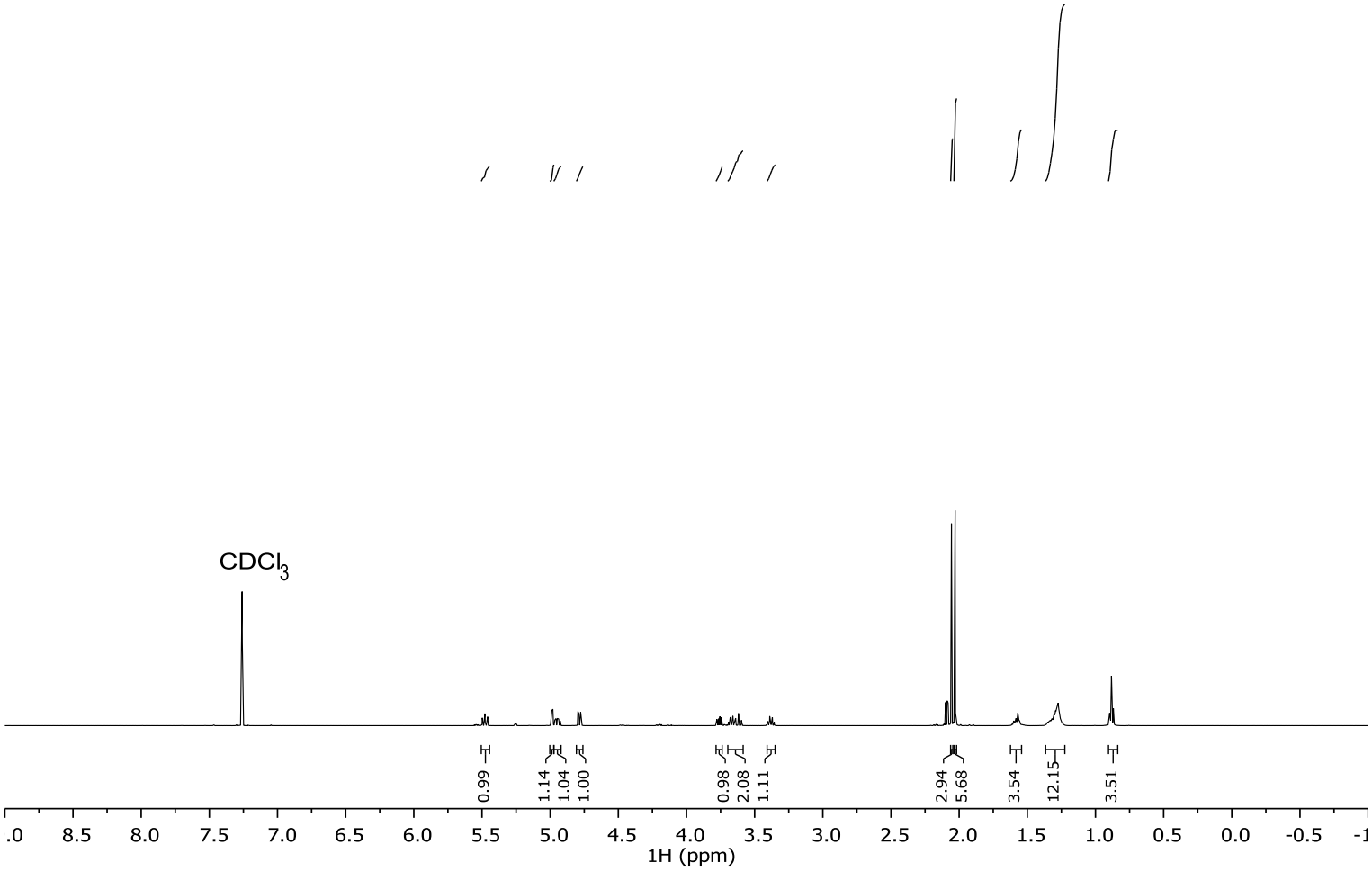
^{1}H-^{13}C HMBC NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-α-D-arabinopyranoside



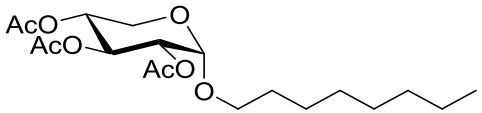


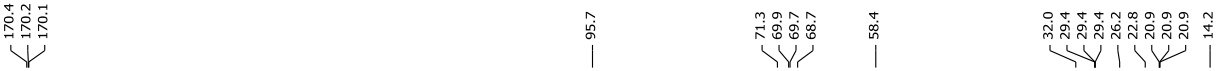
^{1}H NMR (500 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-α-D-xylopyranoside

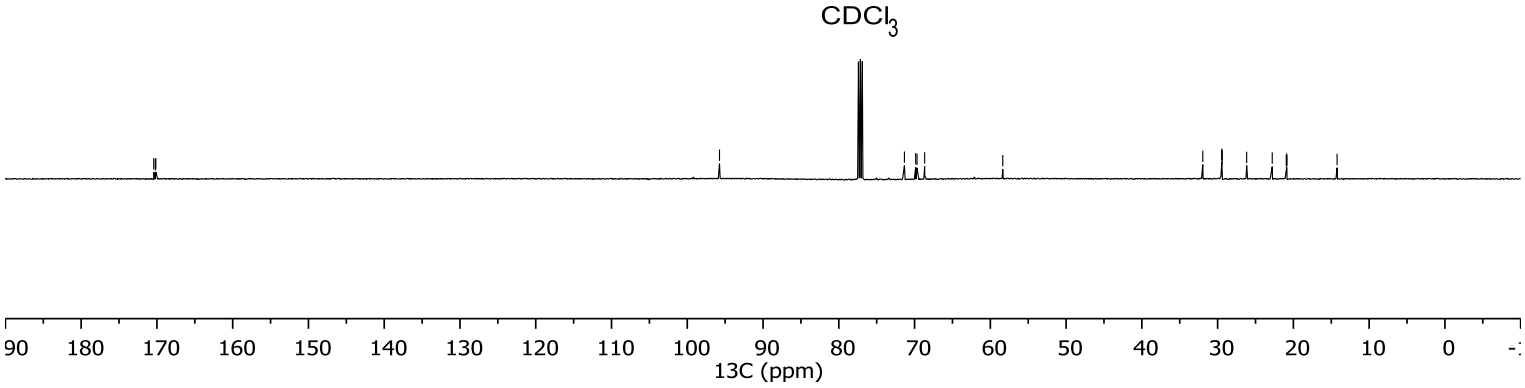




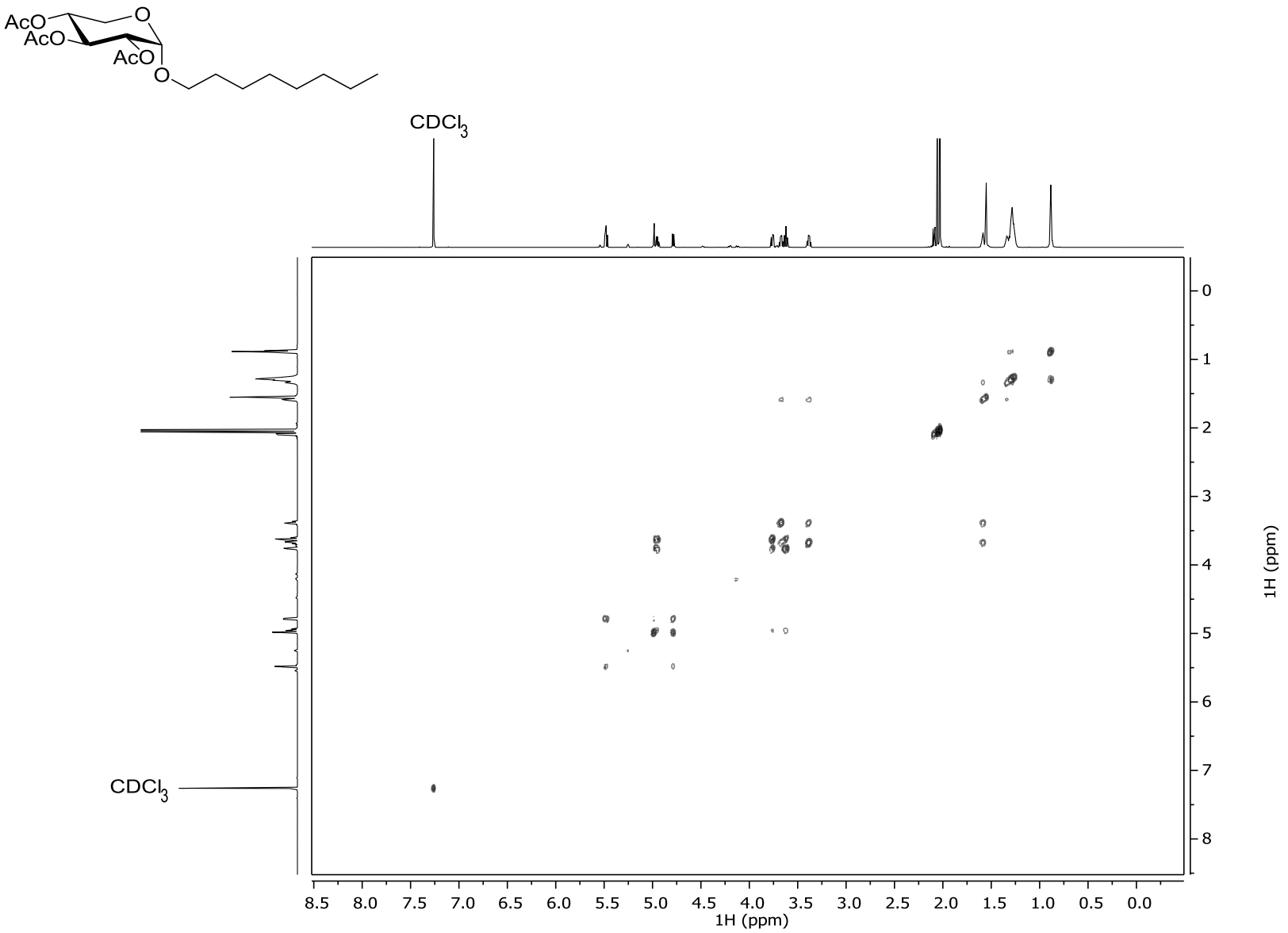
^{13}C NMR (126 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-α-D-xylopyranoside



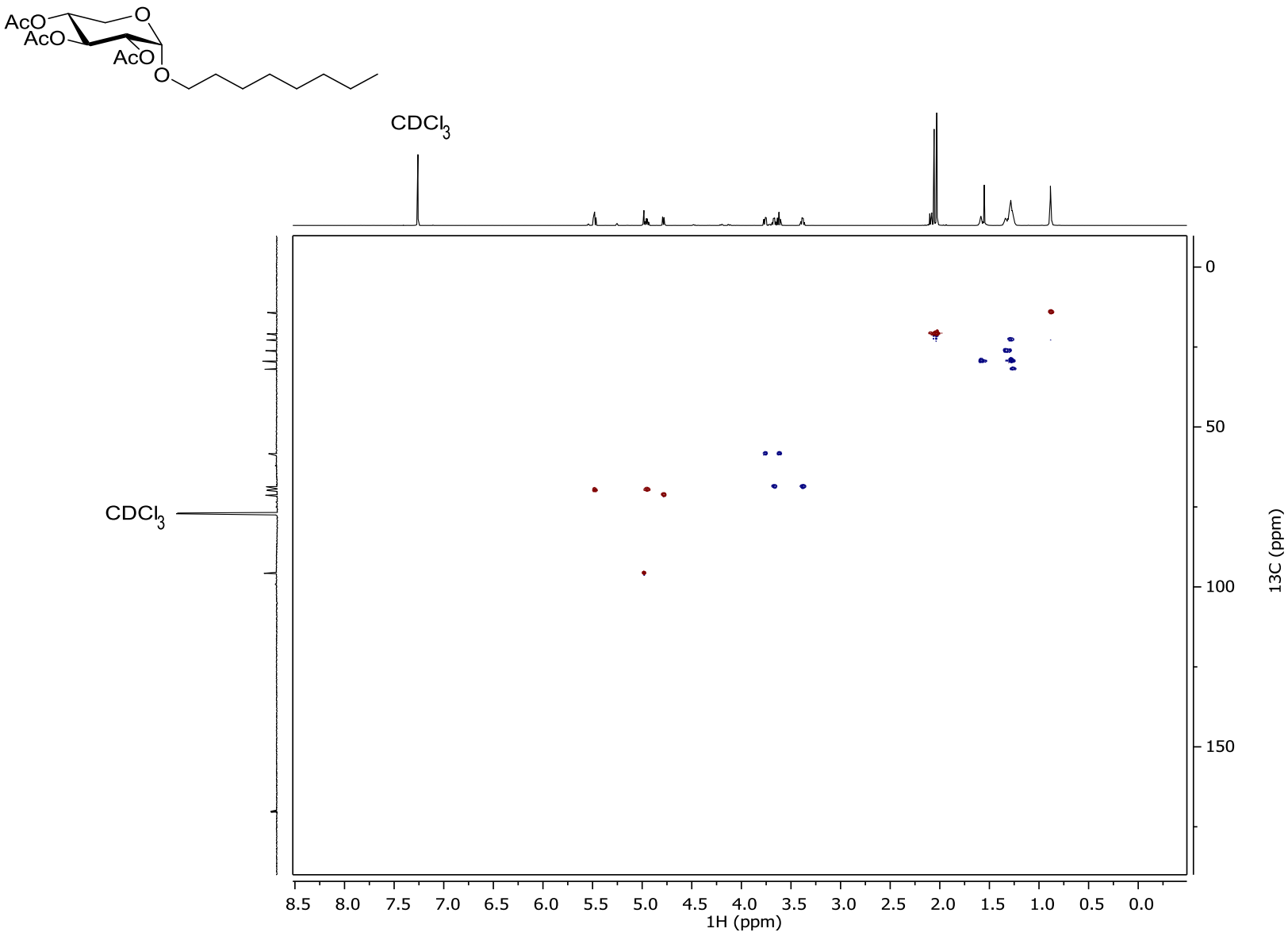




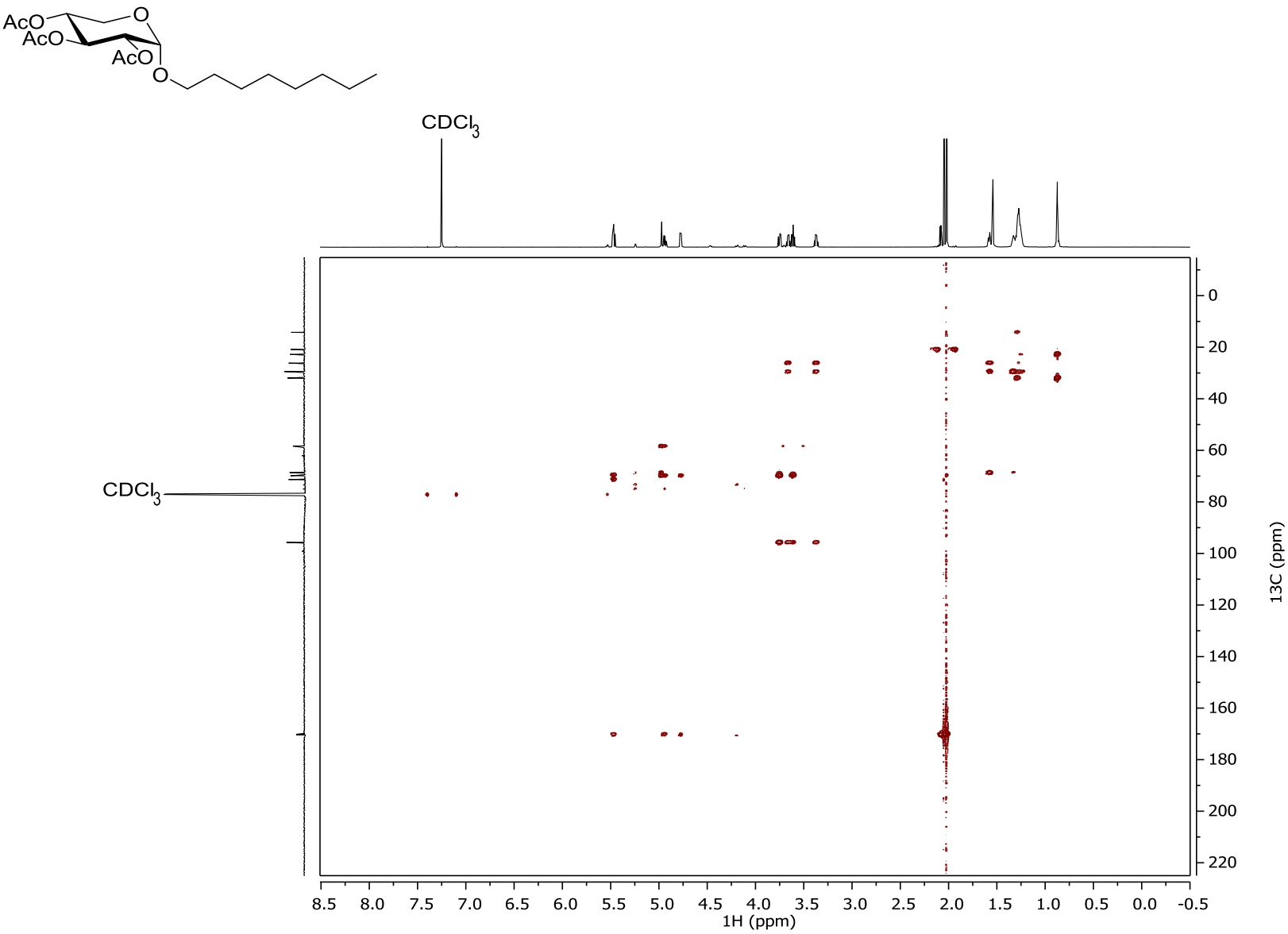
^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-α-D-xylopyranoside



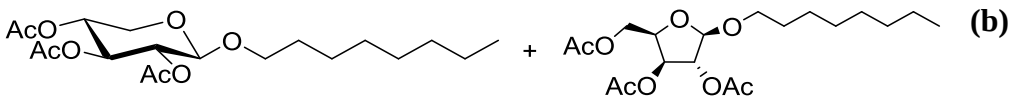
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-α-D-xylopyranoside



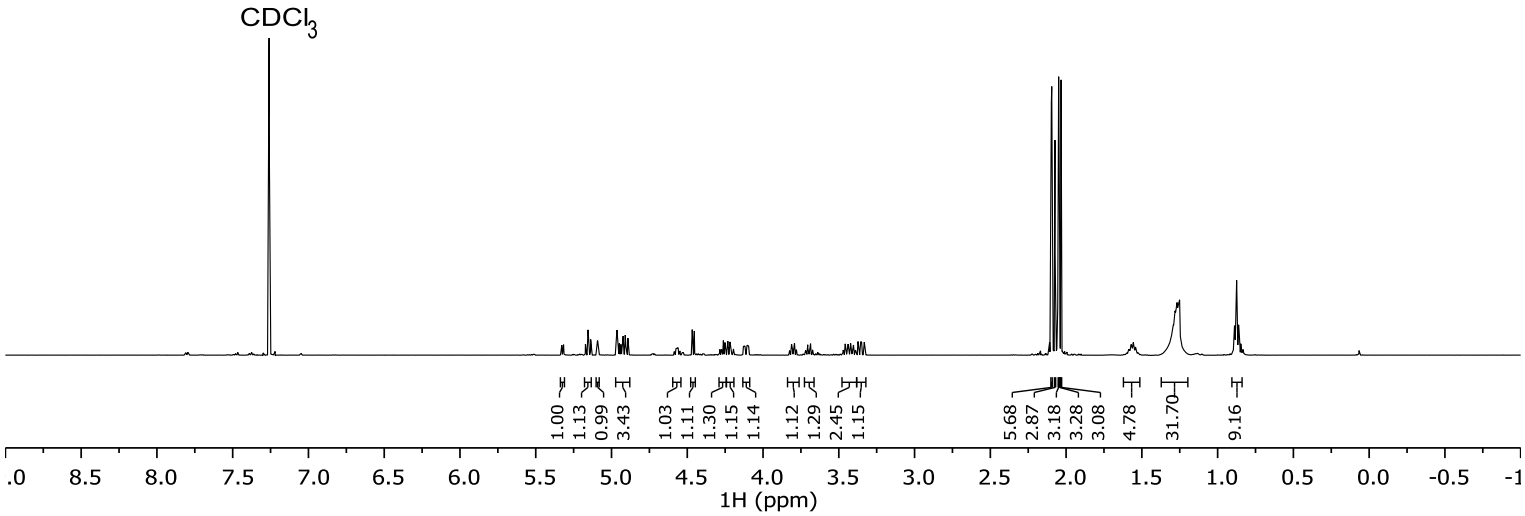
^{1}H-^{13}C HMBC NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,4-tri-*O*-acetyl-α-D-xylopyranoside



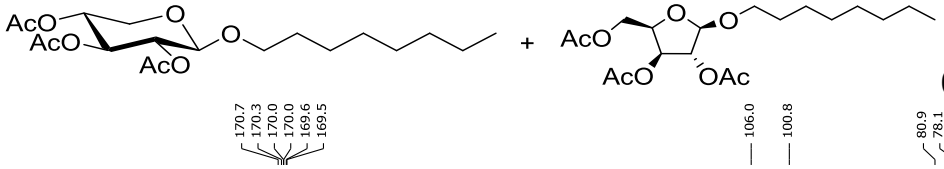
^{1}H NMR (500 MHz, $CDCl_3$) Mixture of *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-xylopyranoside + *n*-octyl 2,3,5-tri-*O*-acetyl-β-D-xylofuranoside **(b)**



(b)

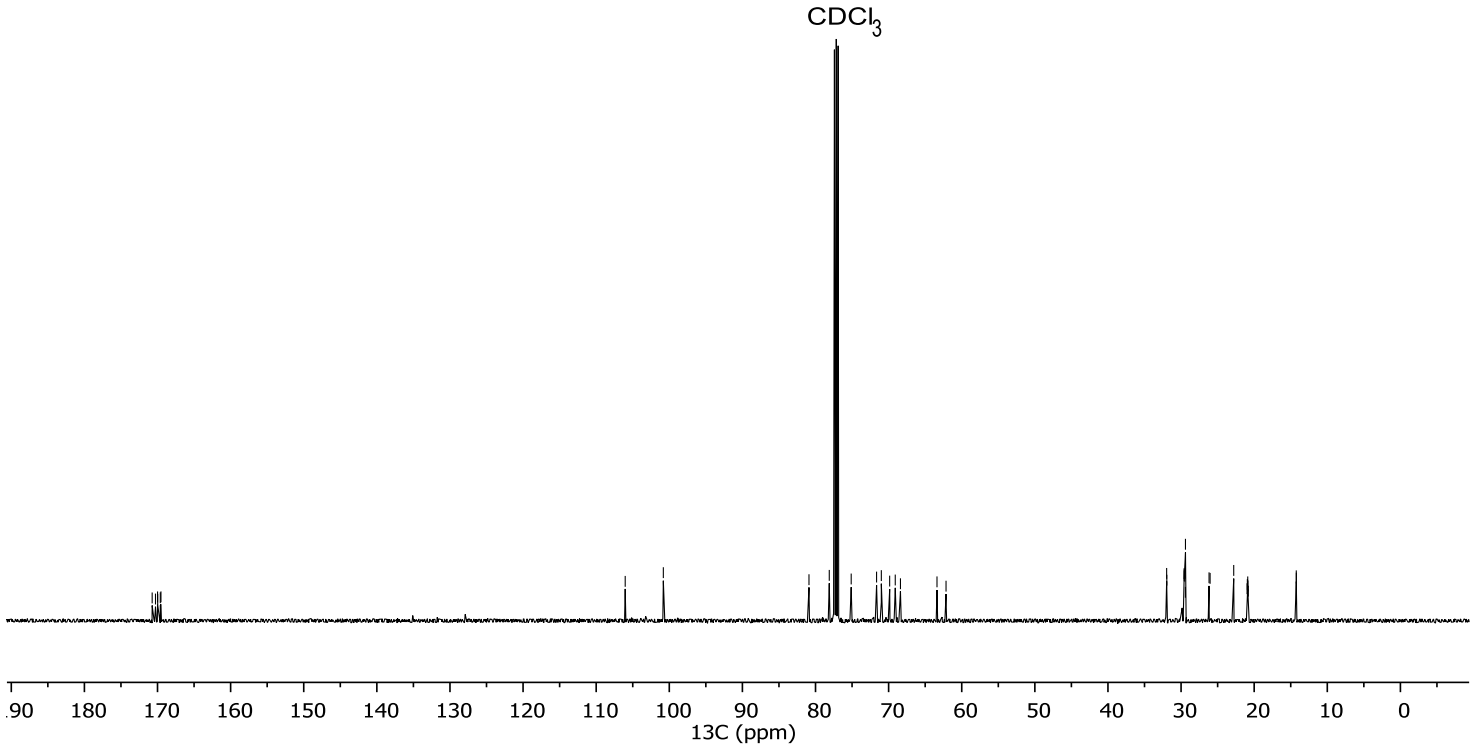


^{13}C NMR (126 MHz, $CDCl_3$) Mixture of *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-xylopyranoside + *n*-octyl 2,3,5-tri-*O*-acetyl-β-D-xylofuranoside **(b)**

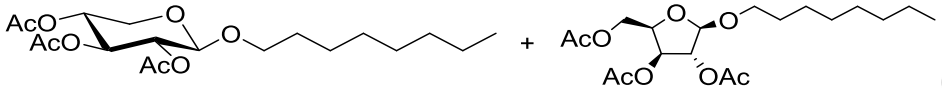


(b)

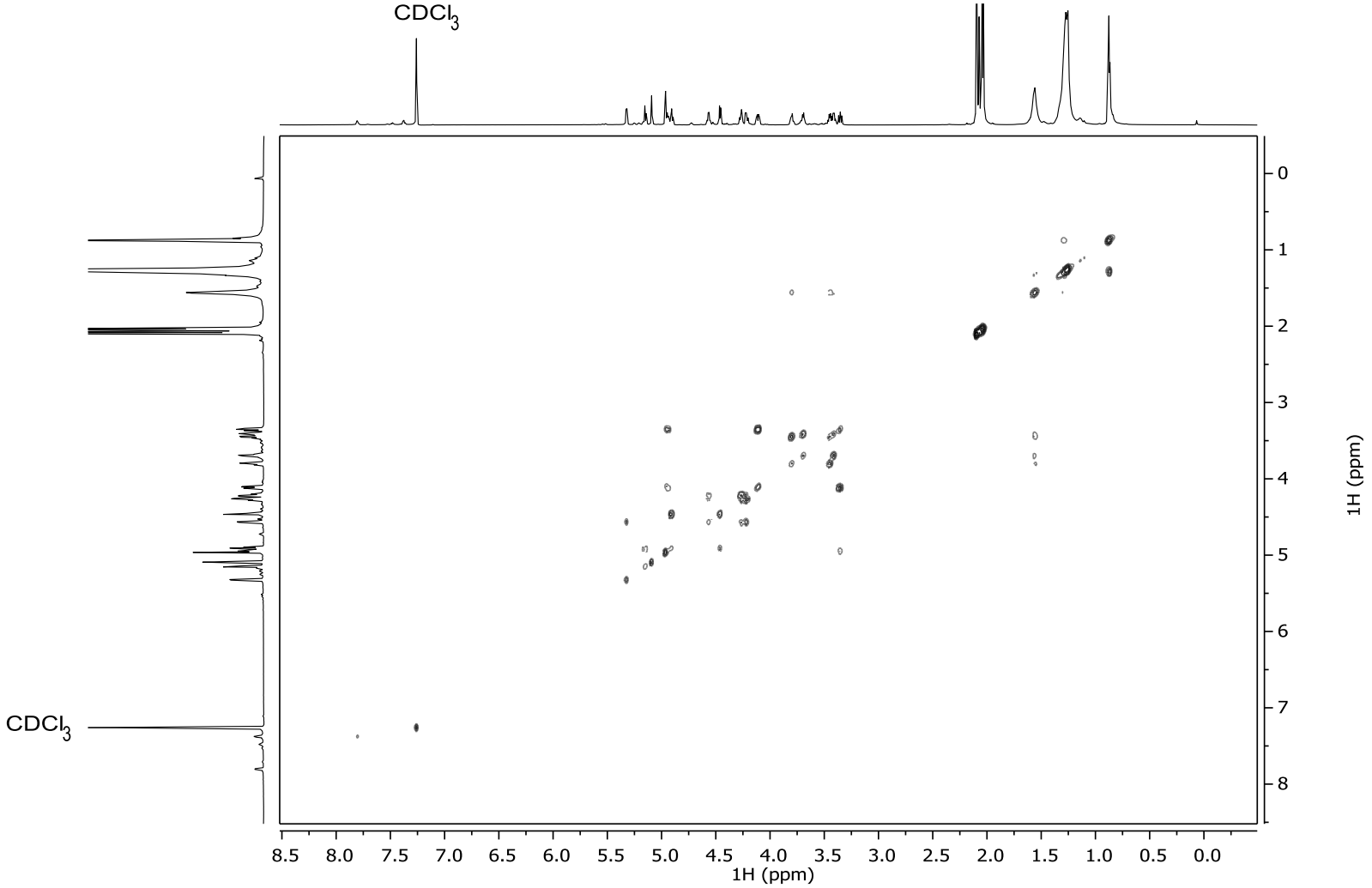
170.7 170.3 170.0 170.0 169.6 169.5 106.0 100.8 80.9 78.1 75.1 71.6 71.0 69.9 69.1 68.4 63.4 62.1 32.0 32.0 29.6 29.6 29.5 29.4 29.4 29.4 26.2 26.0 22.8 21.0 20.9 20.9 20.9 20.9 20.8 14.2 14.2



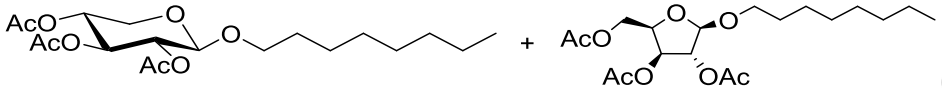
^{1}H-^{1}H COSY NMR (126 MHz, $CDCl_3$) Mixture of *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-xylopyranoside + *n*-octyl 2,3,5-tri-*O*-acetyl-β-D-xylofuranoside **(b)**



(b)



^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) Mixture of *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-xylopyranoside + *n*-octyl 2,3,5-tri-*O*-acetyl-β-D-xylofuranoside **(b)**



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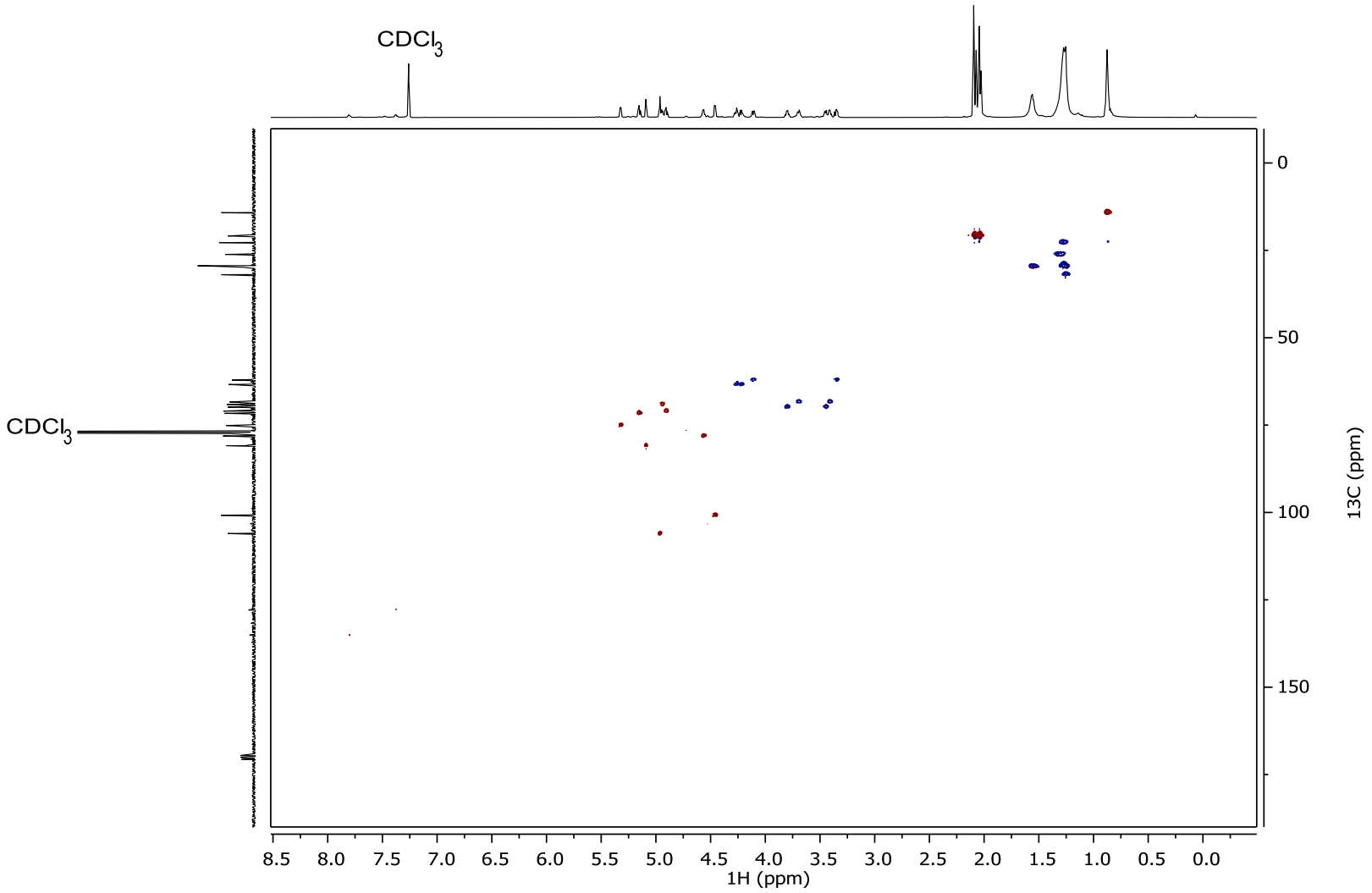
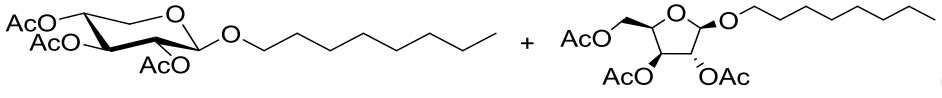
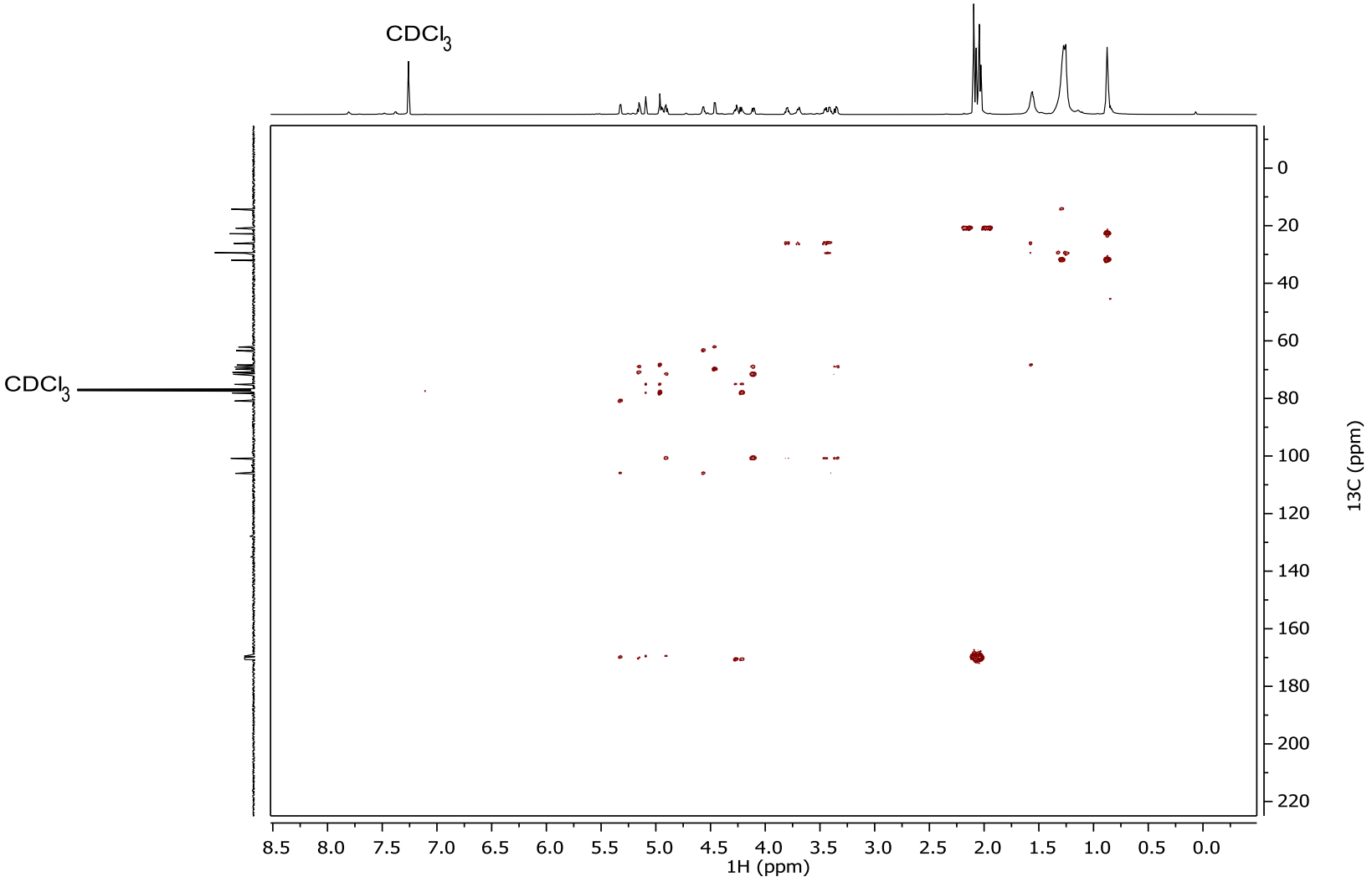


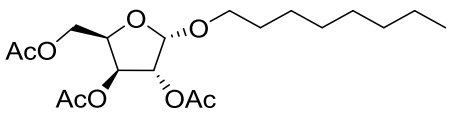
^{1}H-^{13}C HMBC NMR (700 MHz, $CDCl_3$) Mixture of *n*-octyl 2,3,4-tri-*O*-acetyl-β-D-xylopyranoside + *n*-octyl 2,3,5-tri-*O*-acetyl-β-D-xylofuranoside **(b)**



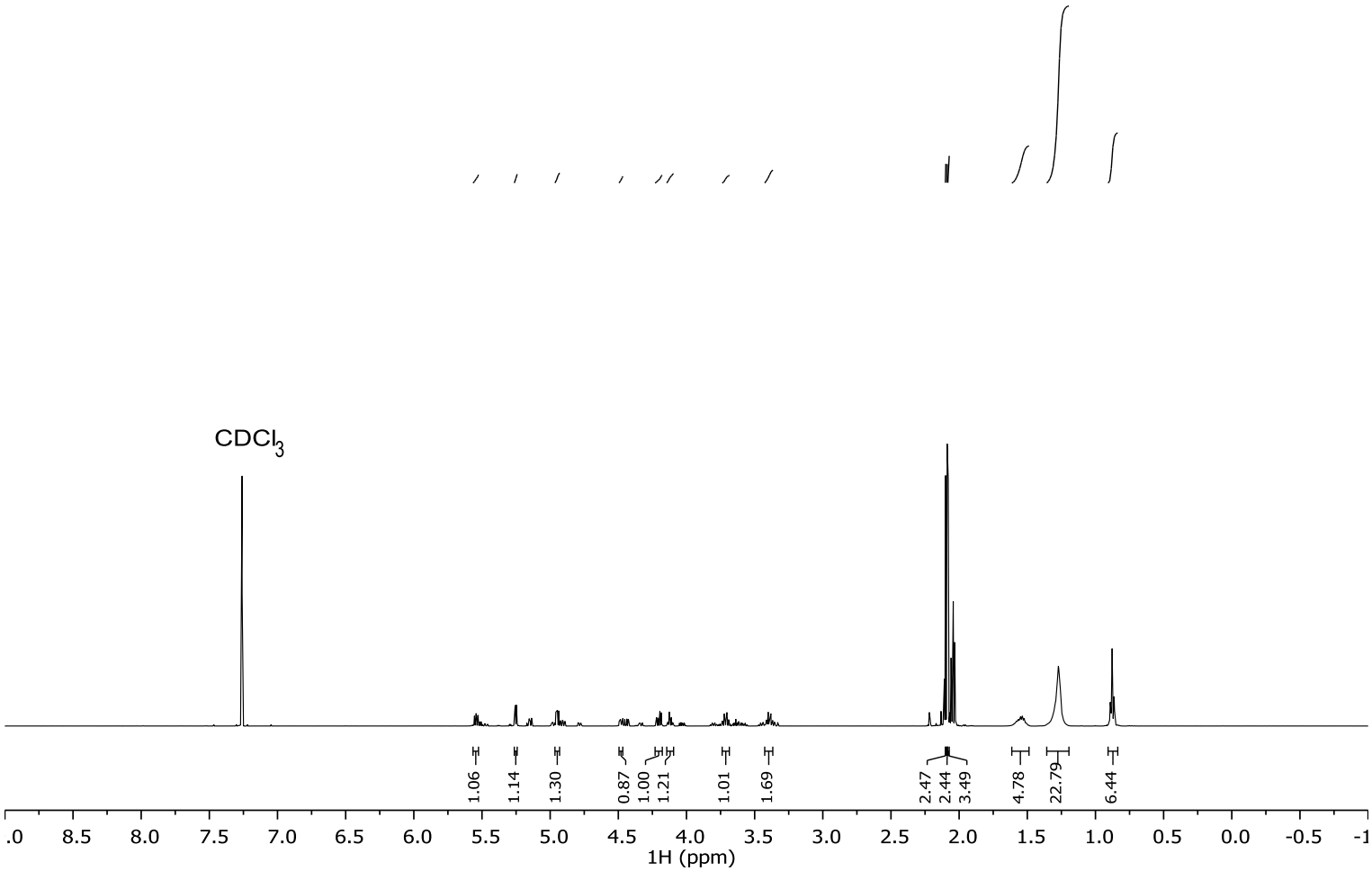
(b)



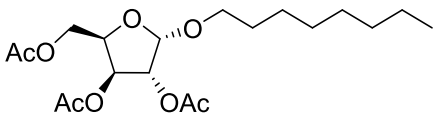
^{1}H NMR (500 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-α-D-xylofuranoside



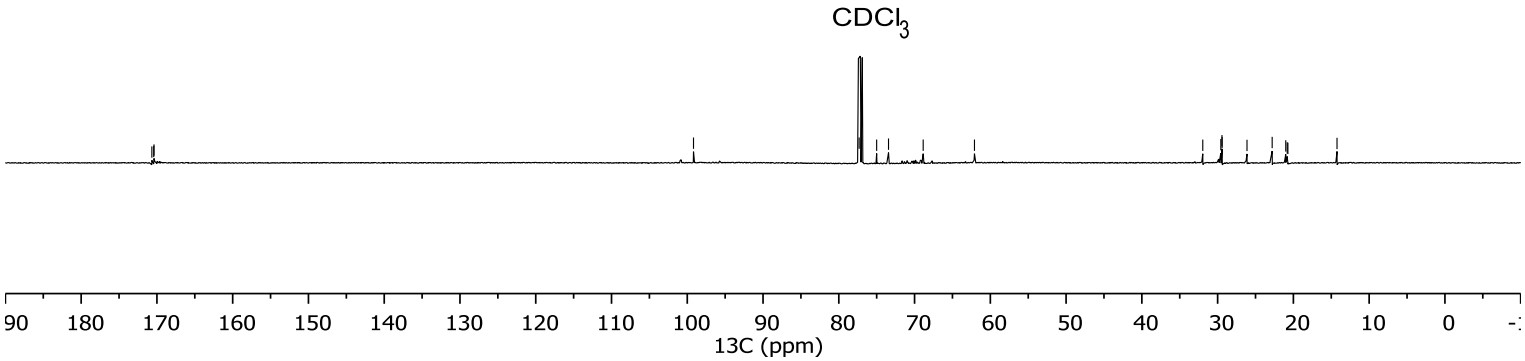
(major product amongst a mixture of isomers)



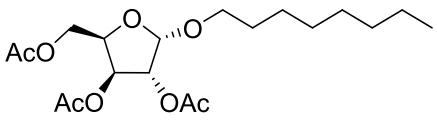
^{13}C NMR (126 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-α-D-xylofuranoside



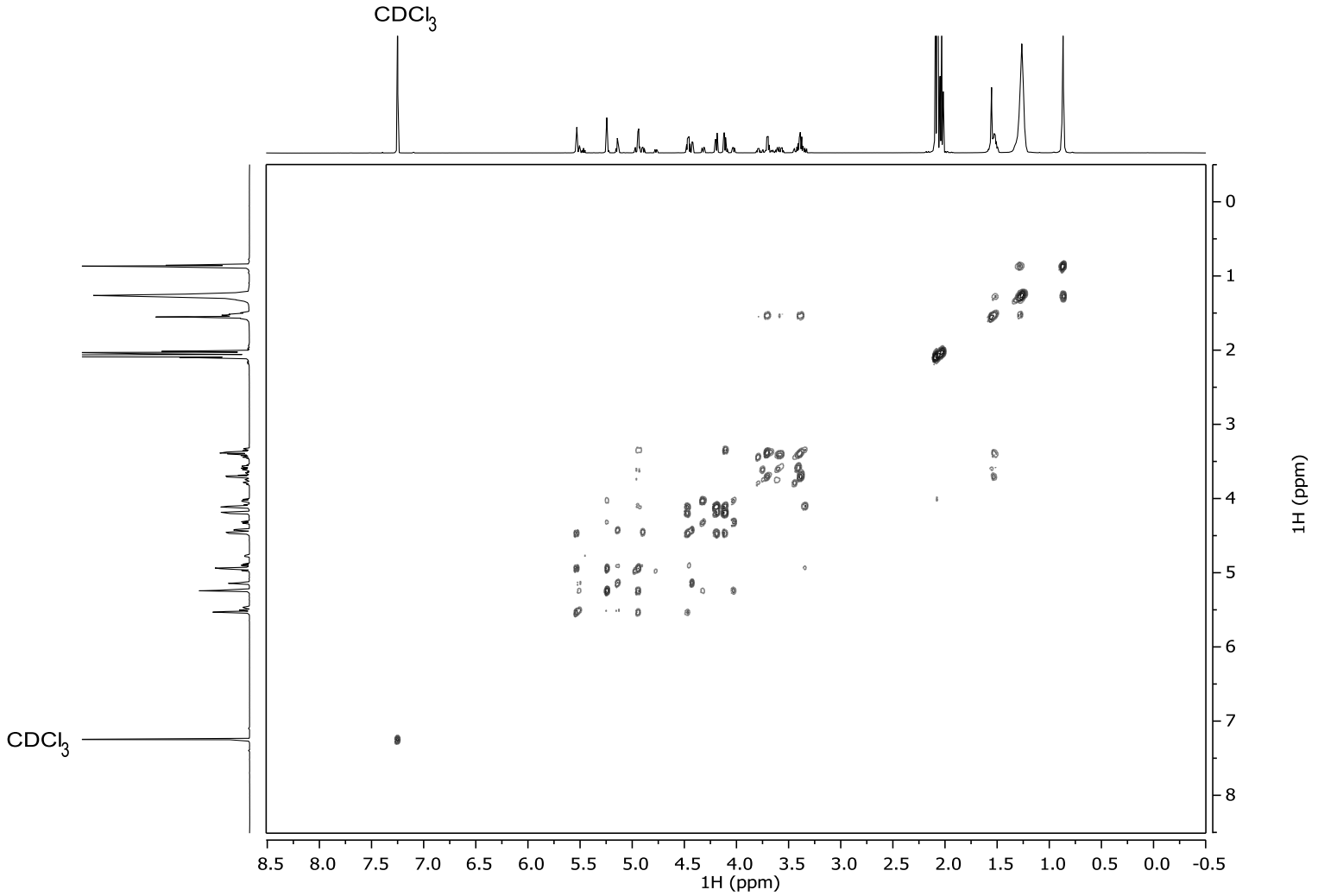
(major product amongst mixture of isomers)



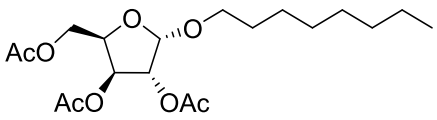
^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-α-D-xylofuranoside



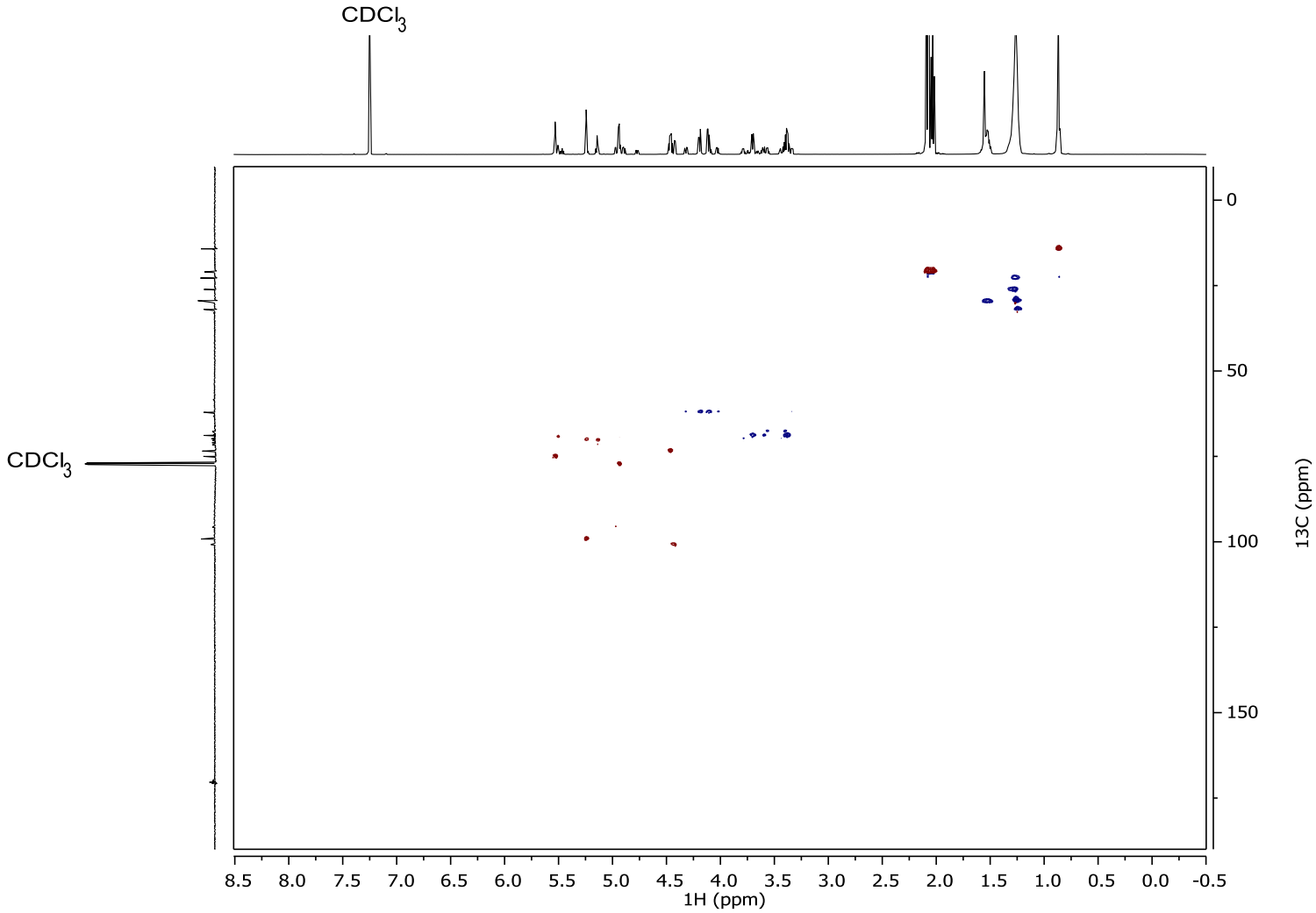
(major product amongst a mixture of isomers)



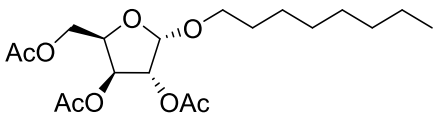
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-α-D-xylofuranoside



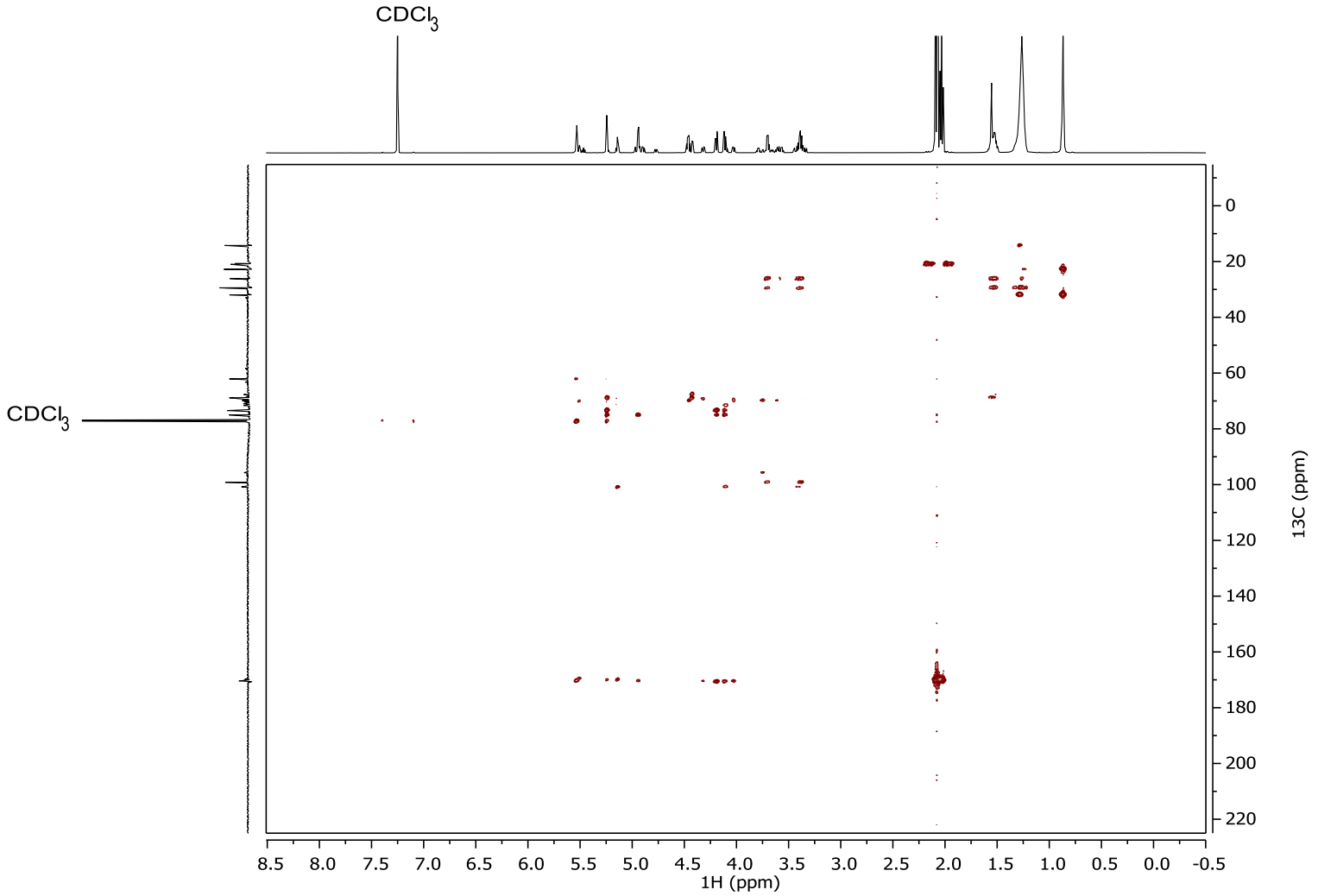
(major product amongst a mixture of isomers)



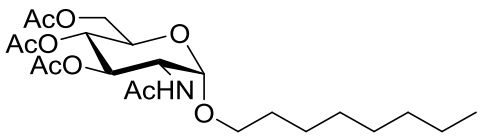
^{1}H-^{13}C HMBC NMR (700 MHz, $CDCl_3$) *n*-octyl 2,3,5-tri-*O*-acetyl-α-D-xylofuranoside

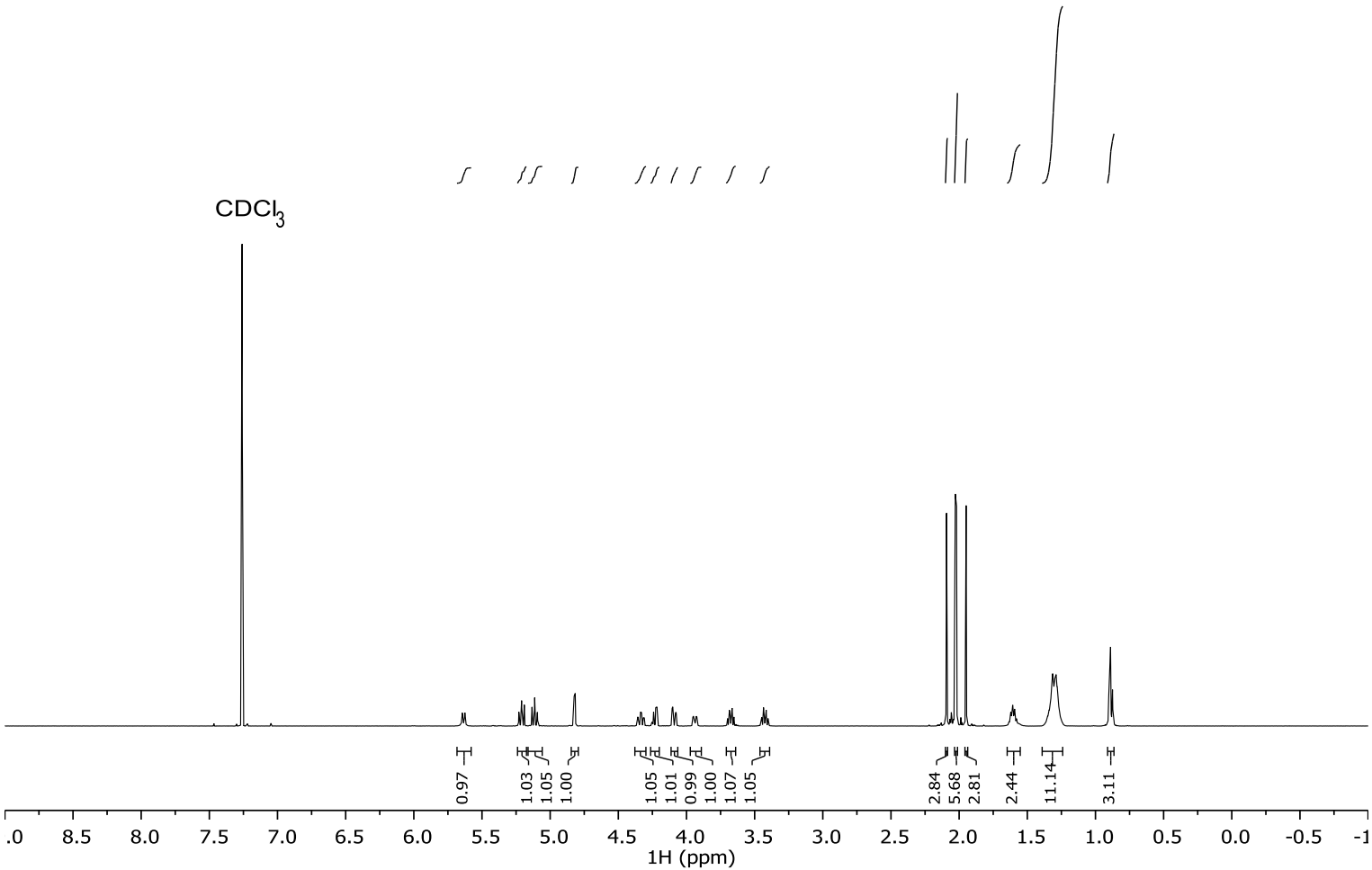


(major product amongst a mixture of isomers)

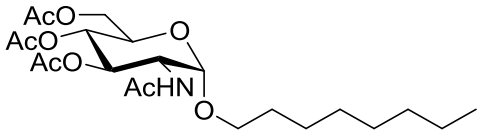


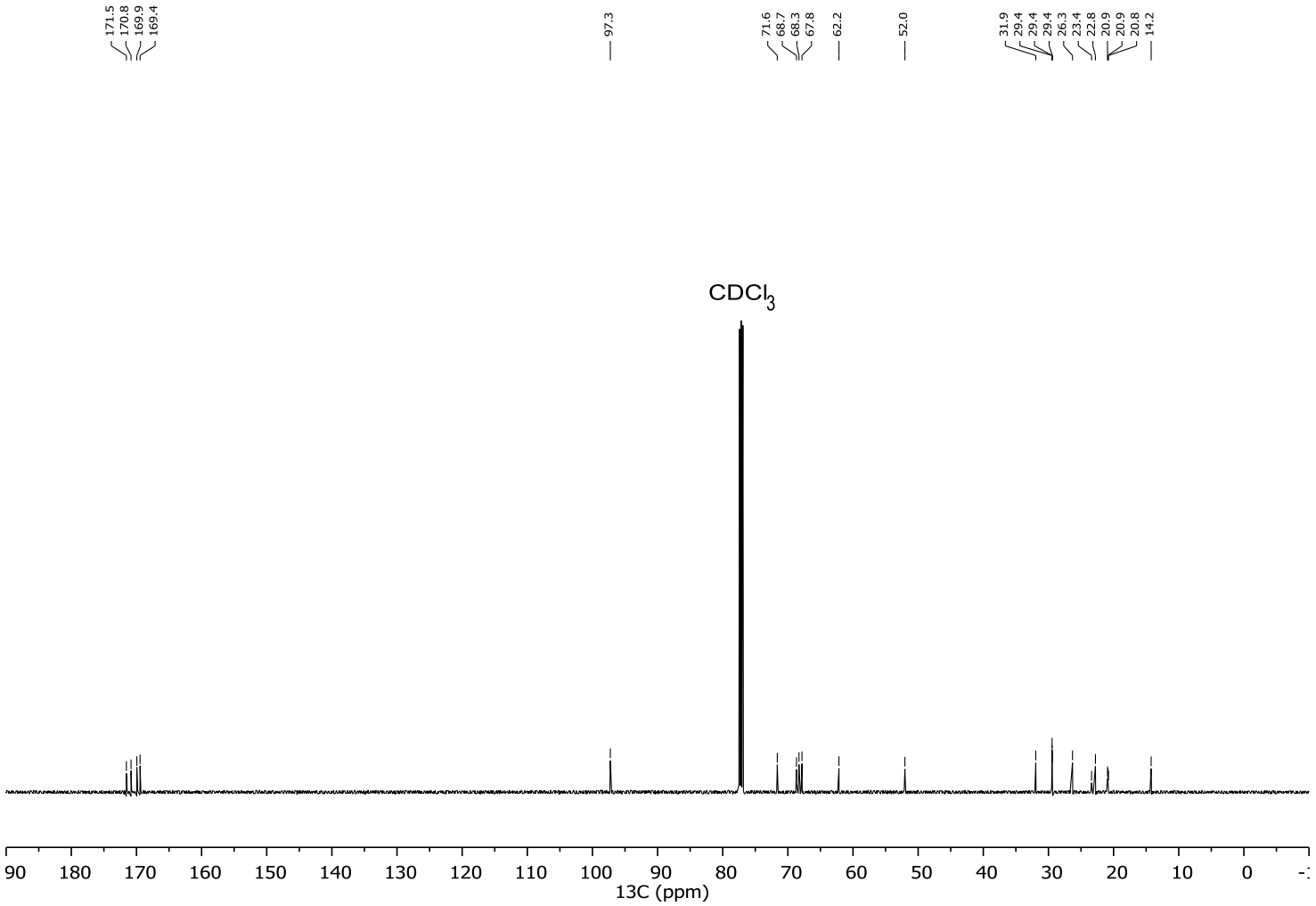
^{1}H NMR (500 MHz, $CDCl_3$) *n*-octyl-2-acetamido-2-deoxy-3,4,6-tri-*O*-acetyl-α-D-glucopyranoside



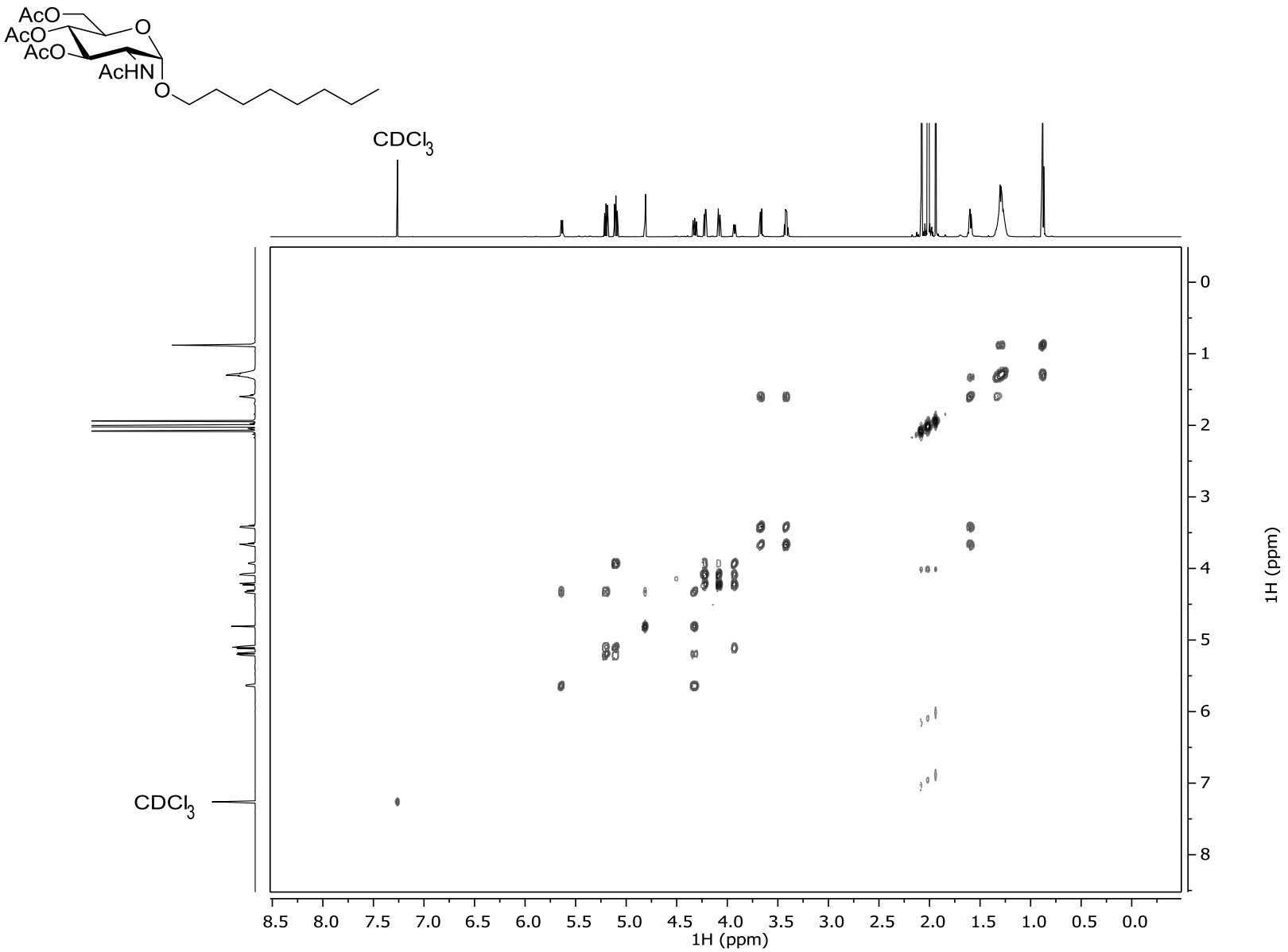


^{13}C NMR (126 MHz, $CDCl_3$) *n*-octyl-2-acetamido-2-deoxy-3,4,6-tri-*O*-acetyl-α-D-glucopyranoside

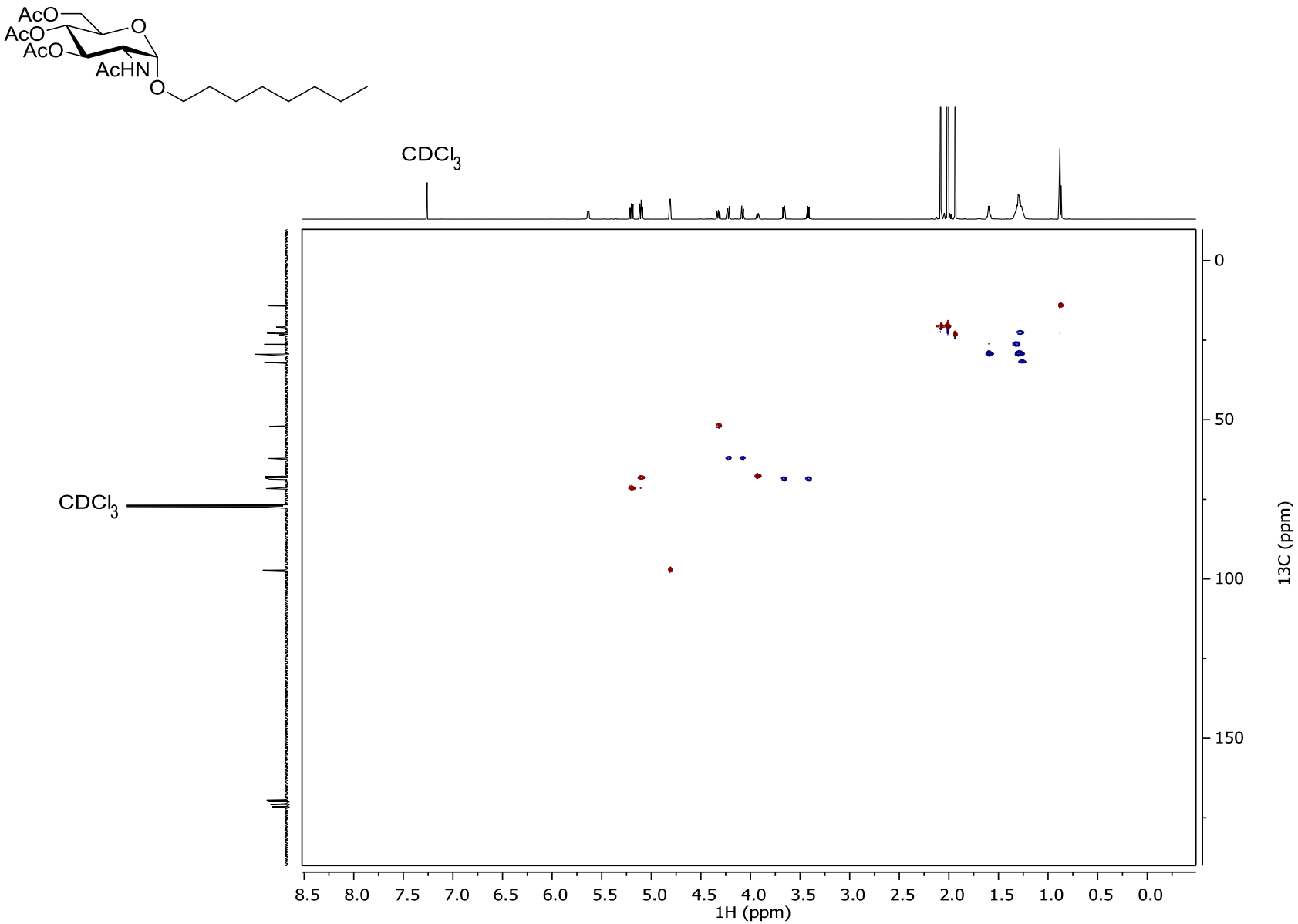




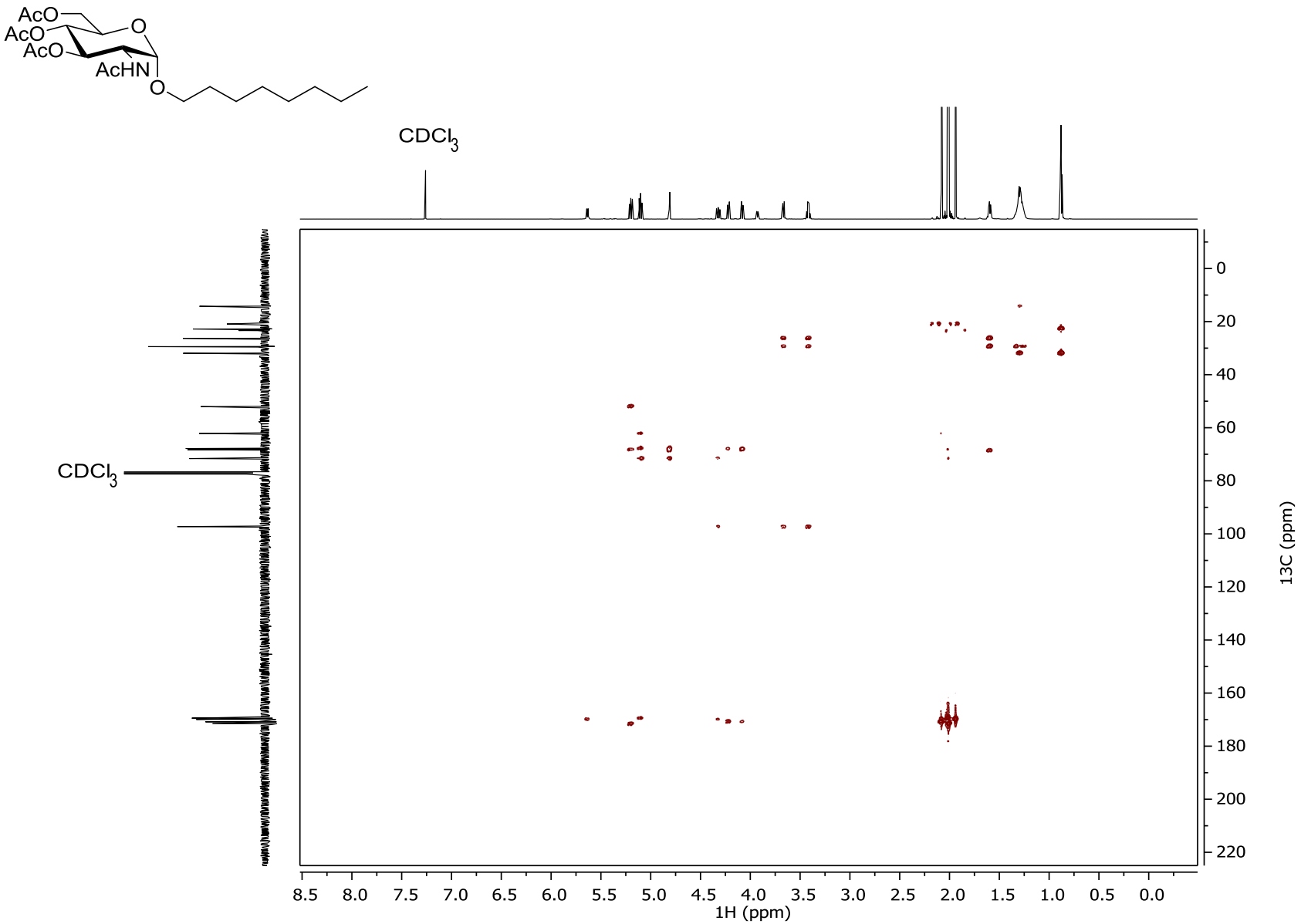
^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-octyl-2-acetamido-2-deoxy-3,4,6-tri-*O*-acetyl-α-D-glucopyranoside



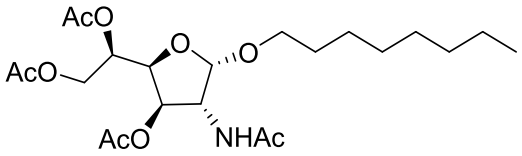
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-octyl-2-acetamido-2-deoxy-3,4,6-tri-*O*-acetyl-α-D-glucopyranoside

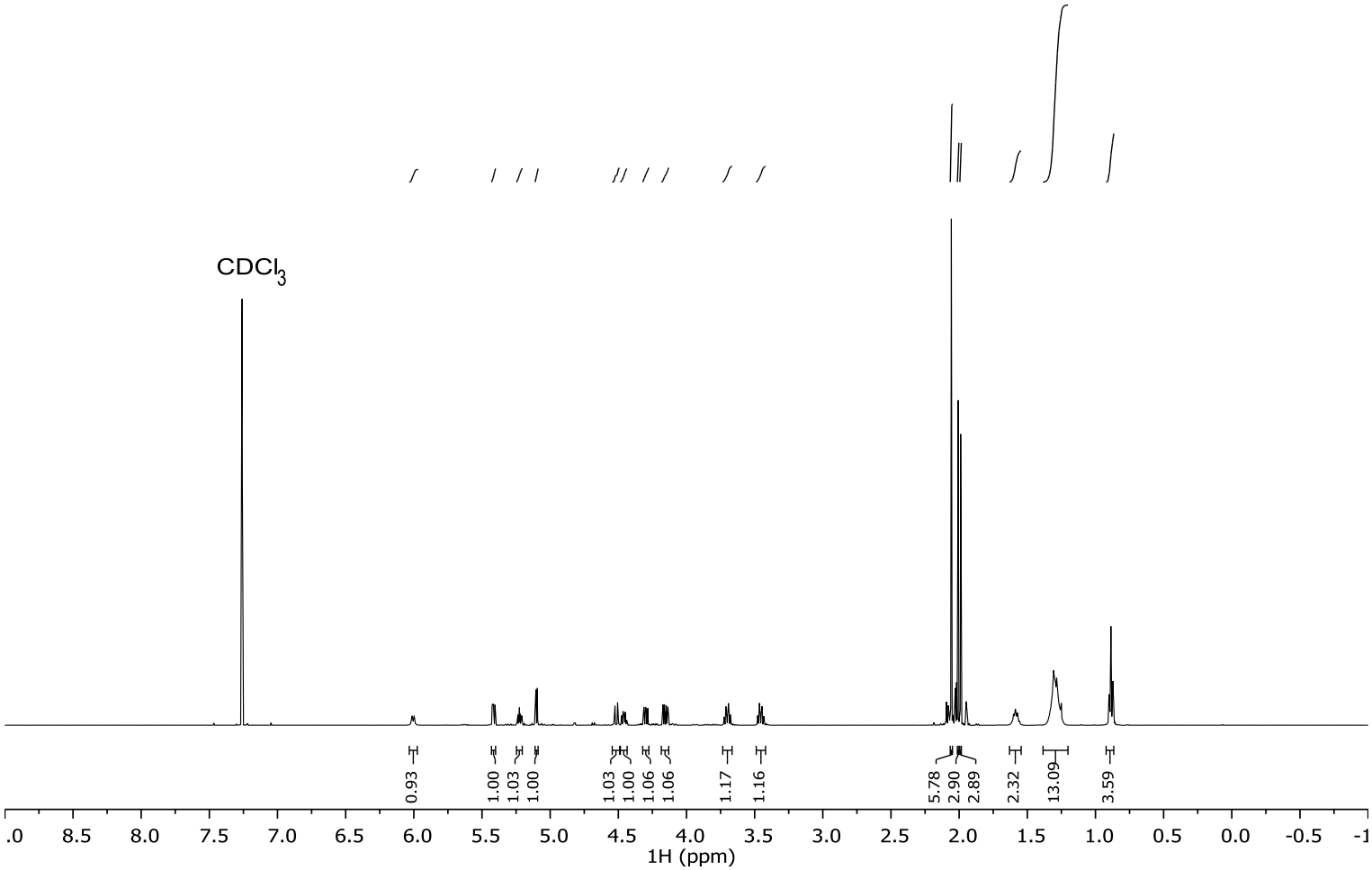


^{1}H-^{13}C HMBC NMR (700 MHz, $CDCl_3$) *n*-octyl-2-acetamido-2-deoxy-3,4,6-tri-*O*-acetyl-α-D-glucopyranoside

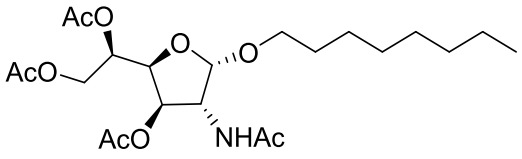


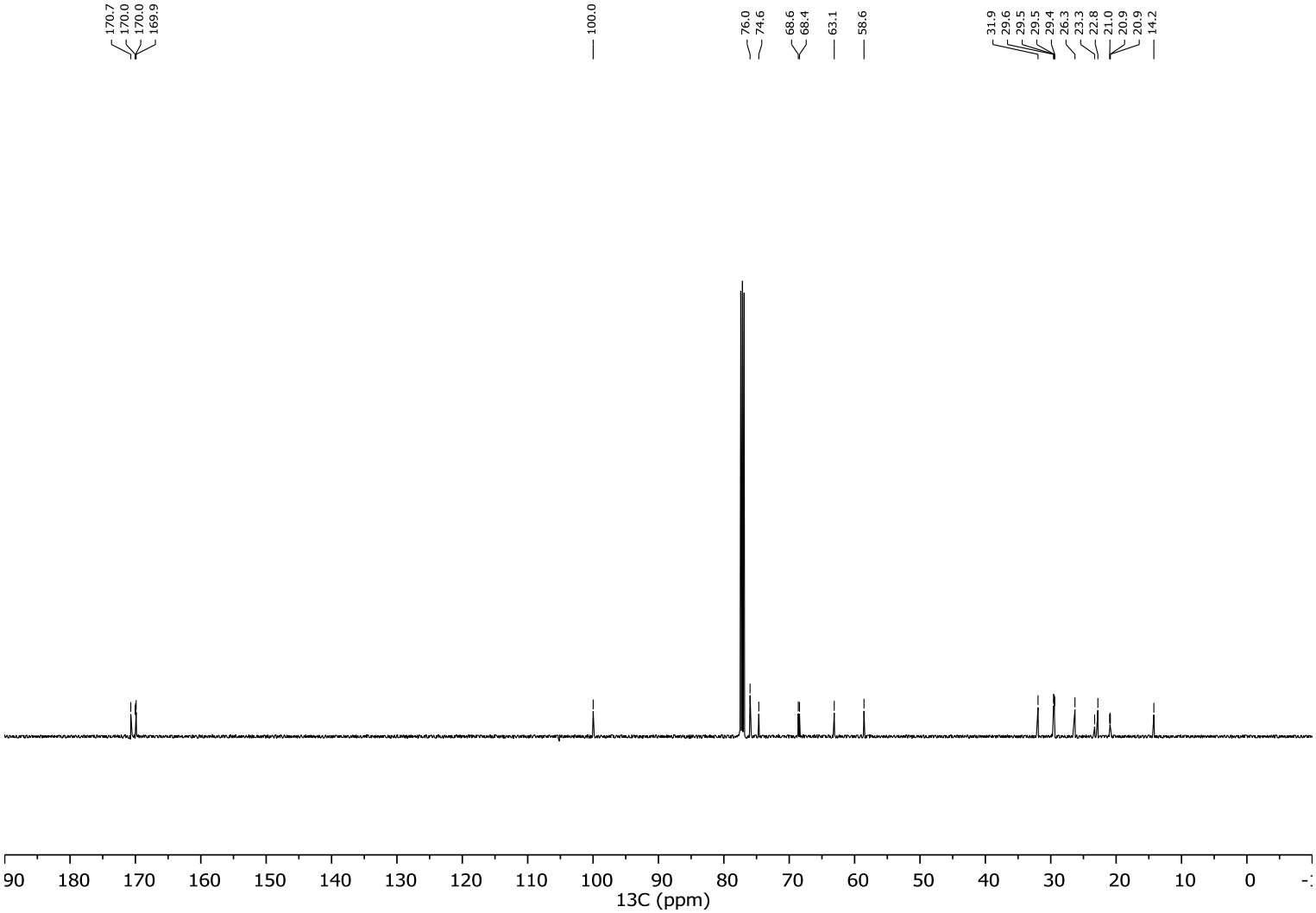
^{1}H NMR (500 MHz, $CDCl_3$) *n*-octyl-2-acetamido-2-deoxy-3,5,6-tri-*O*-acetyl-α-D-glucofuranoside



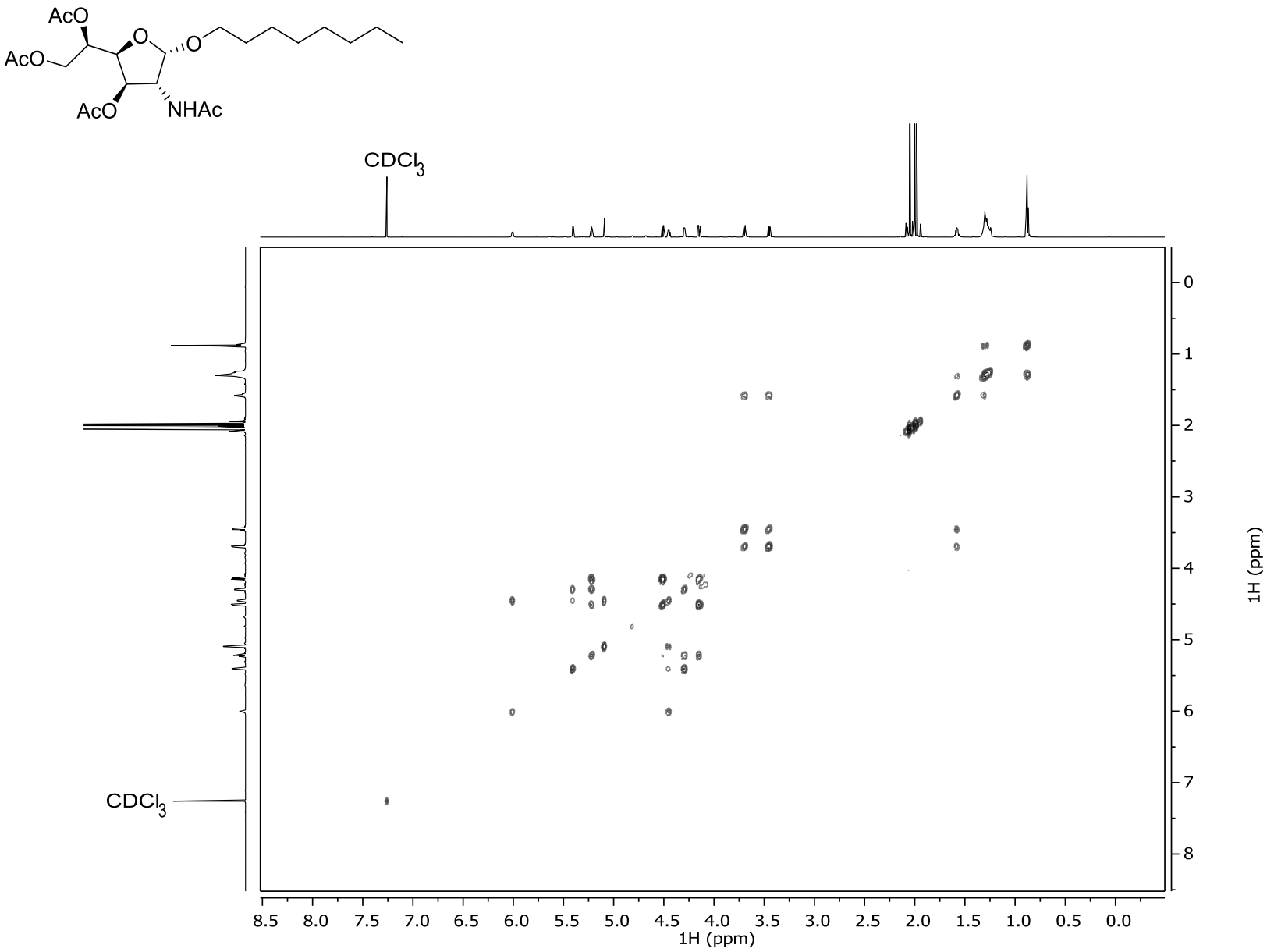


^{13}C NMR (126 MHz, $CDCl_3$) *n*-octyl-2-acetamido-2-deoxy-3,5,6-tri-*O*-acetyl-α-D-glucofuranoside

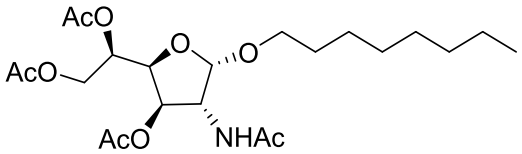


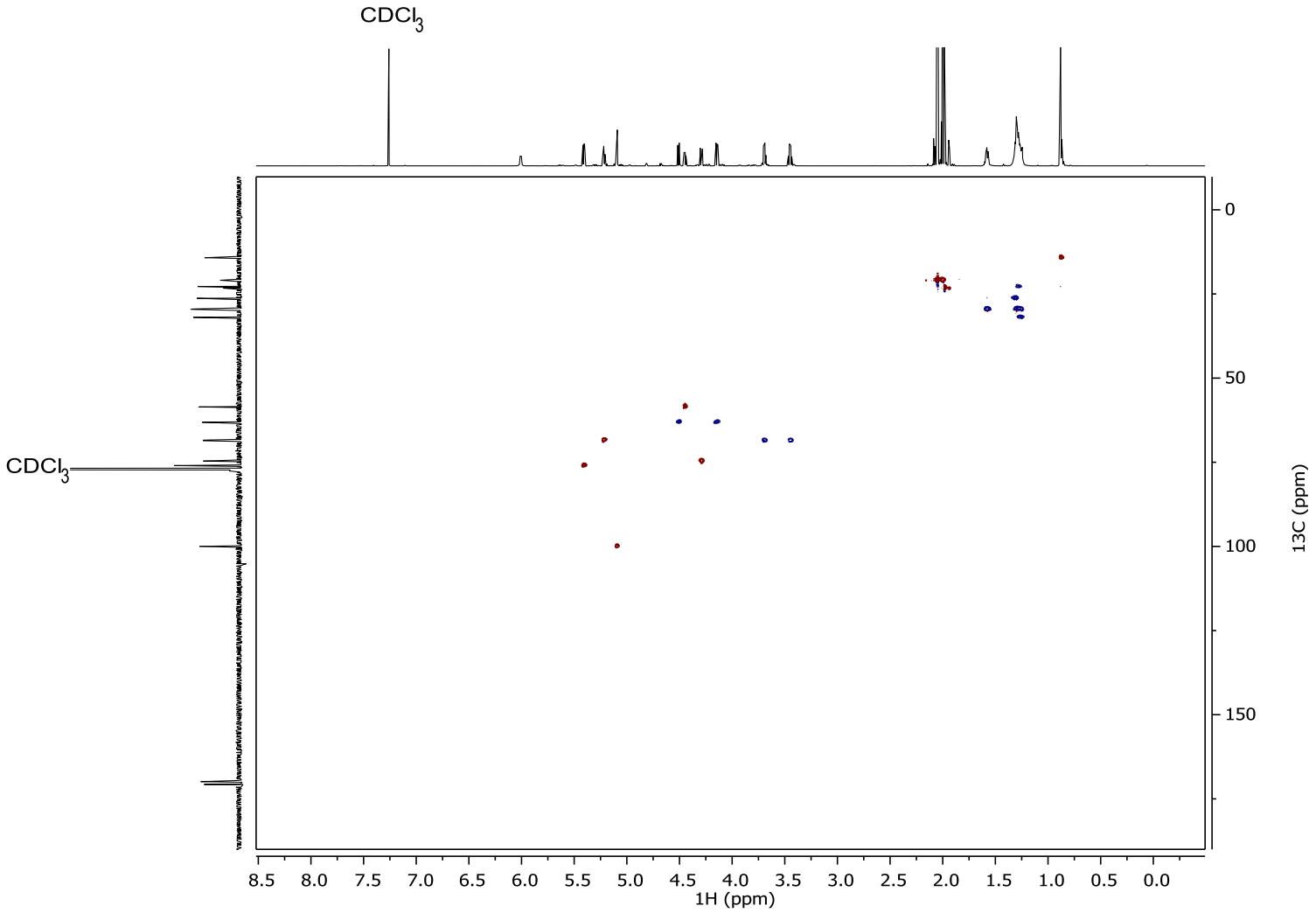


^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-octyl-2-acetamido-2-deoxy-3,5,6-tri-*O*-acetyl-α-D-glucofuranoside

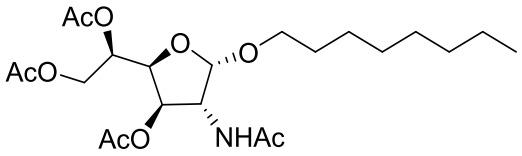


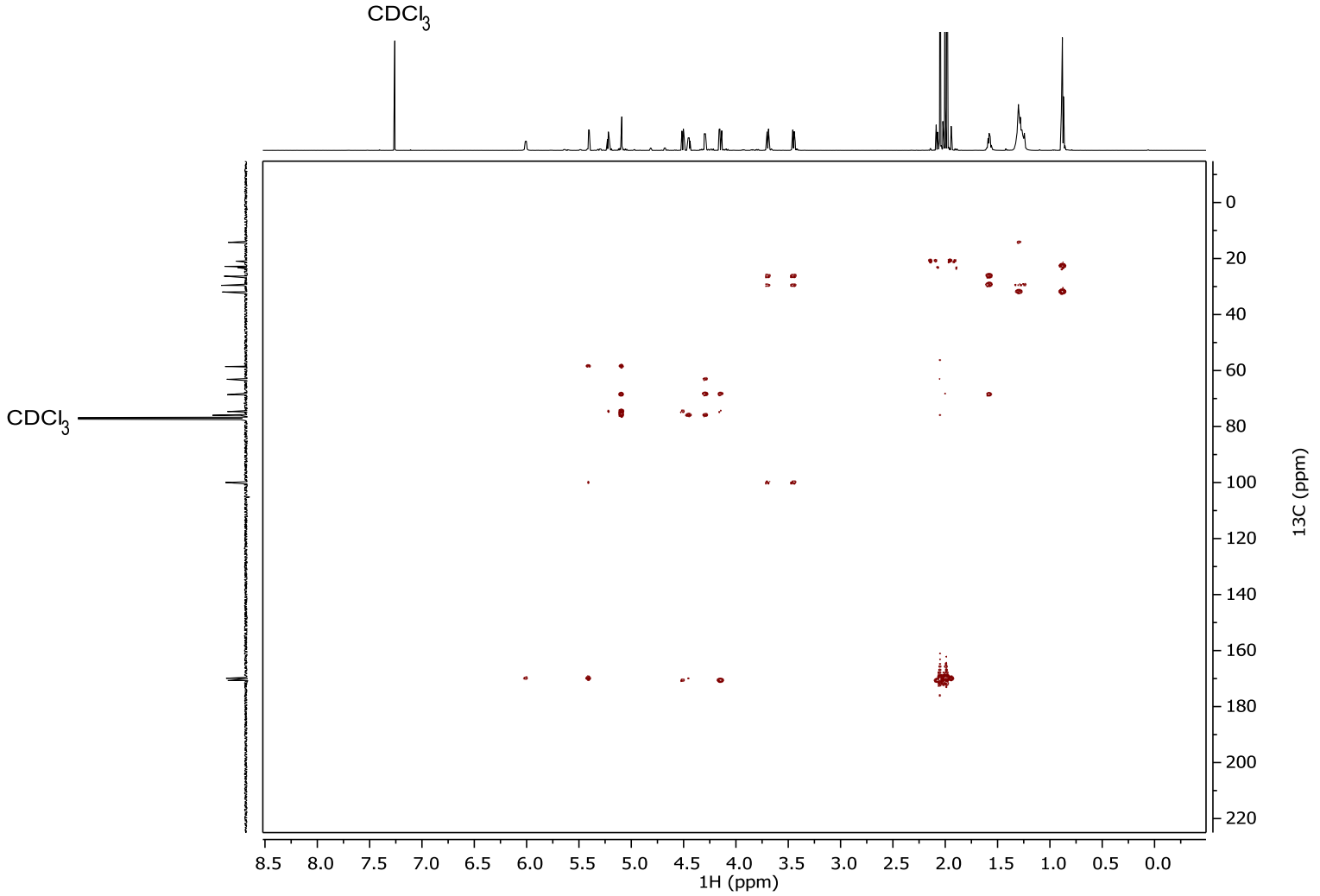
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-octyl-2-acetamido-2-deoxy-3,5,6-tri-*O*-acetyl-α-D-glucofuranoside



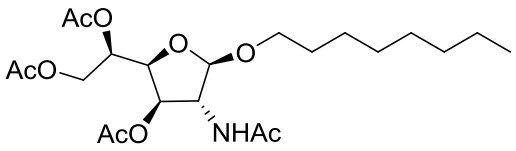


^{1}H-^{13}C HMBC NMR (700 MHz, $CDCl_3$) *n*-octyl-2-acetamido-2-deoxy-3,5,6-tri-*O*-acetyl-α-D-glucofuranoside

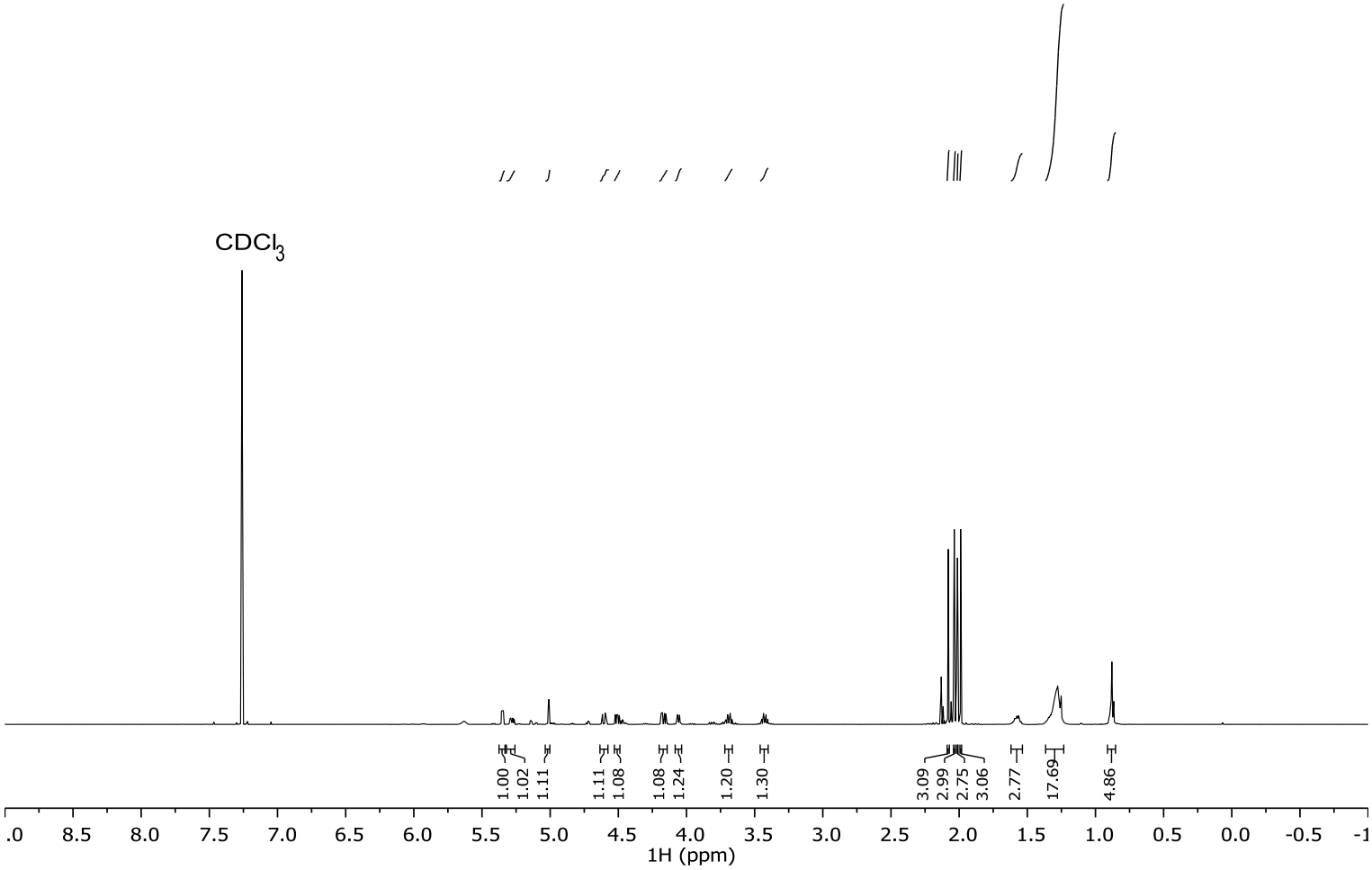




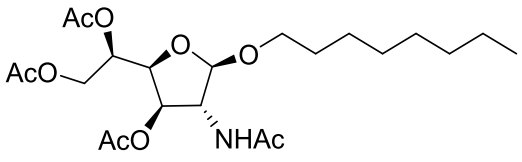
^{1}H NMR (500 MHz, $CDCl_3$) *n*-octyl-2-acetamido-2-deoxy-3,5,6-tri-*O*-acetyl-β-D-glucofuranoside



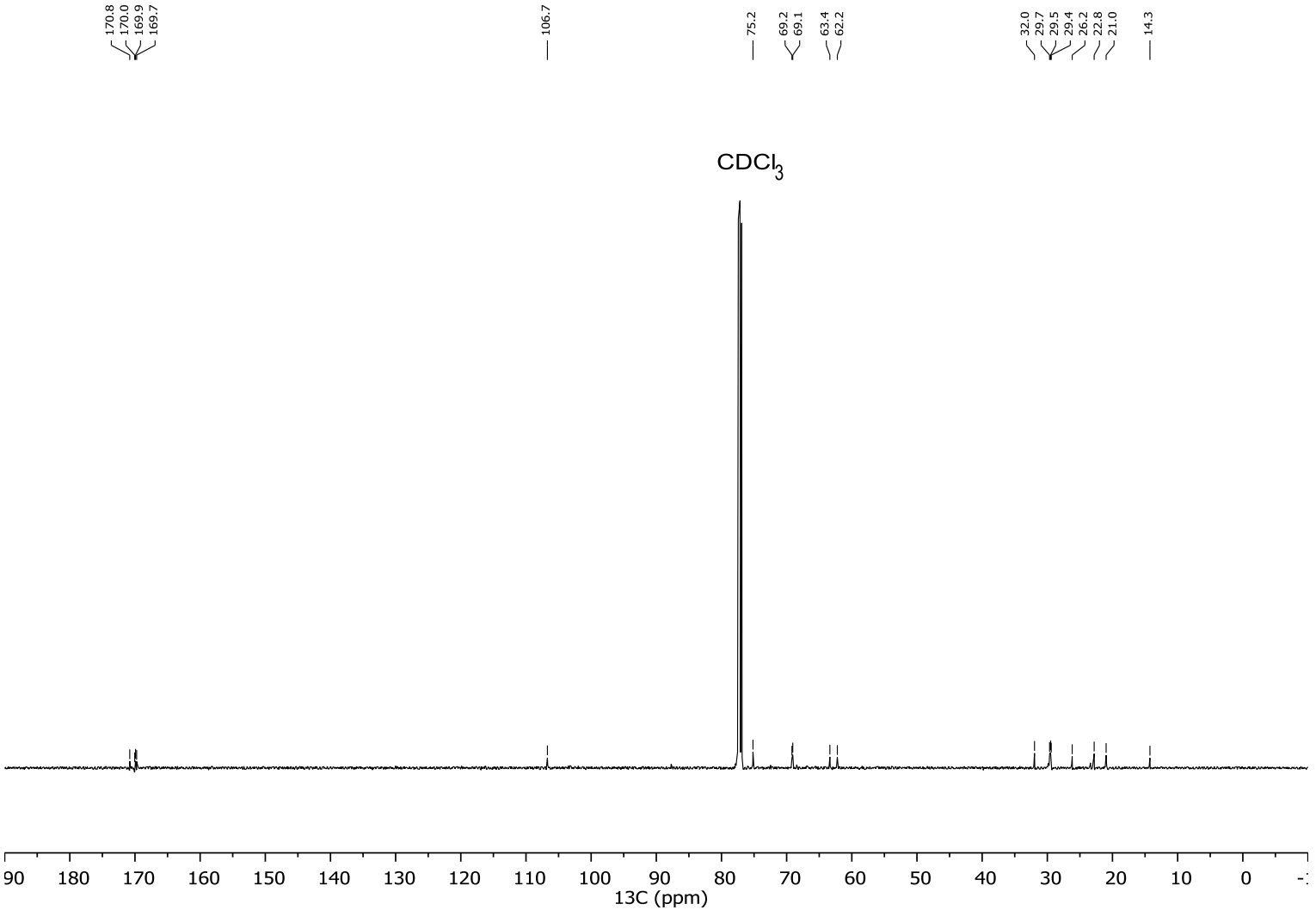
(major product amongst a mixture of isomers)



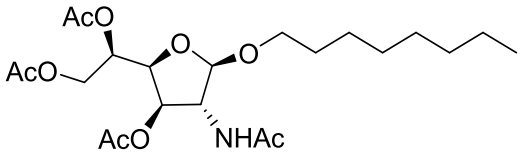
^{13}C NMR (126 MHz, $CDCl_3$) *n*-octyl-2-acetamido-2-deoxy-3,5,6-tri-*O*-acetyl-β-D-glucofuranoside



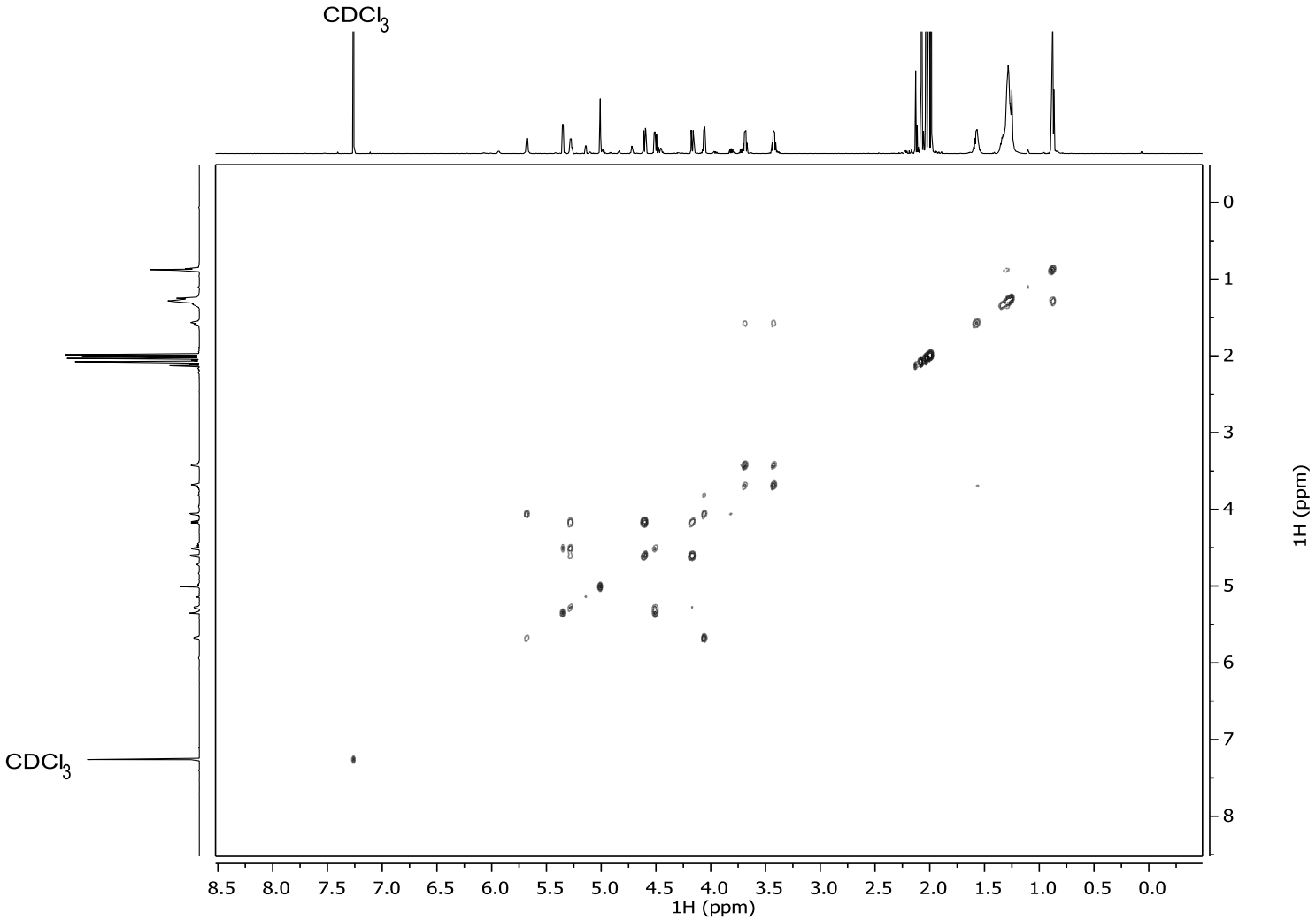
(major product amongst a mixture of isomers)



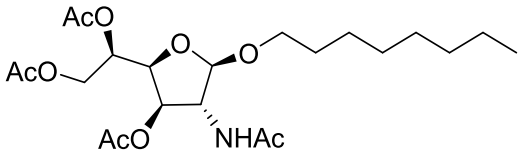
^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-octyl-2-acetamido-2-deoxy-3,5,6-tri-*O*-acetyl-β-D-glucofuranoside



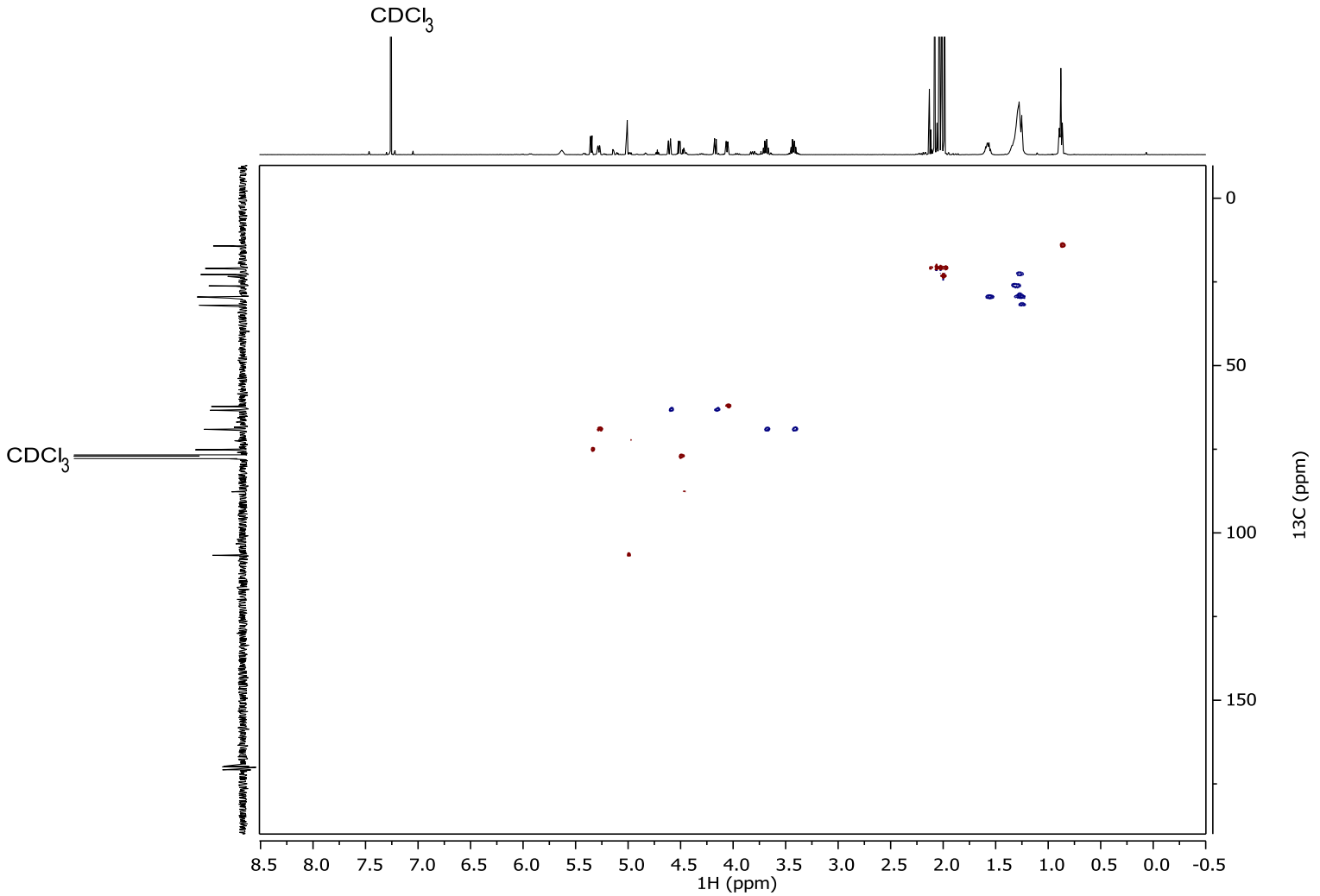
(major product amongst a mixture of isomers)



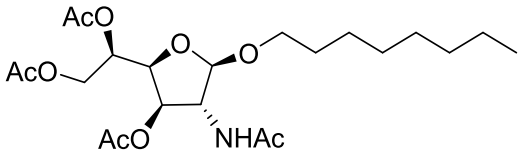
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-octyl-2-acetamido-2-deoxy-3,5,6-tri-*O*-acetyl-β-D-glucofuranoside



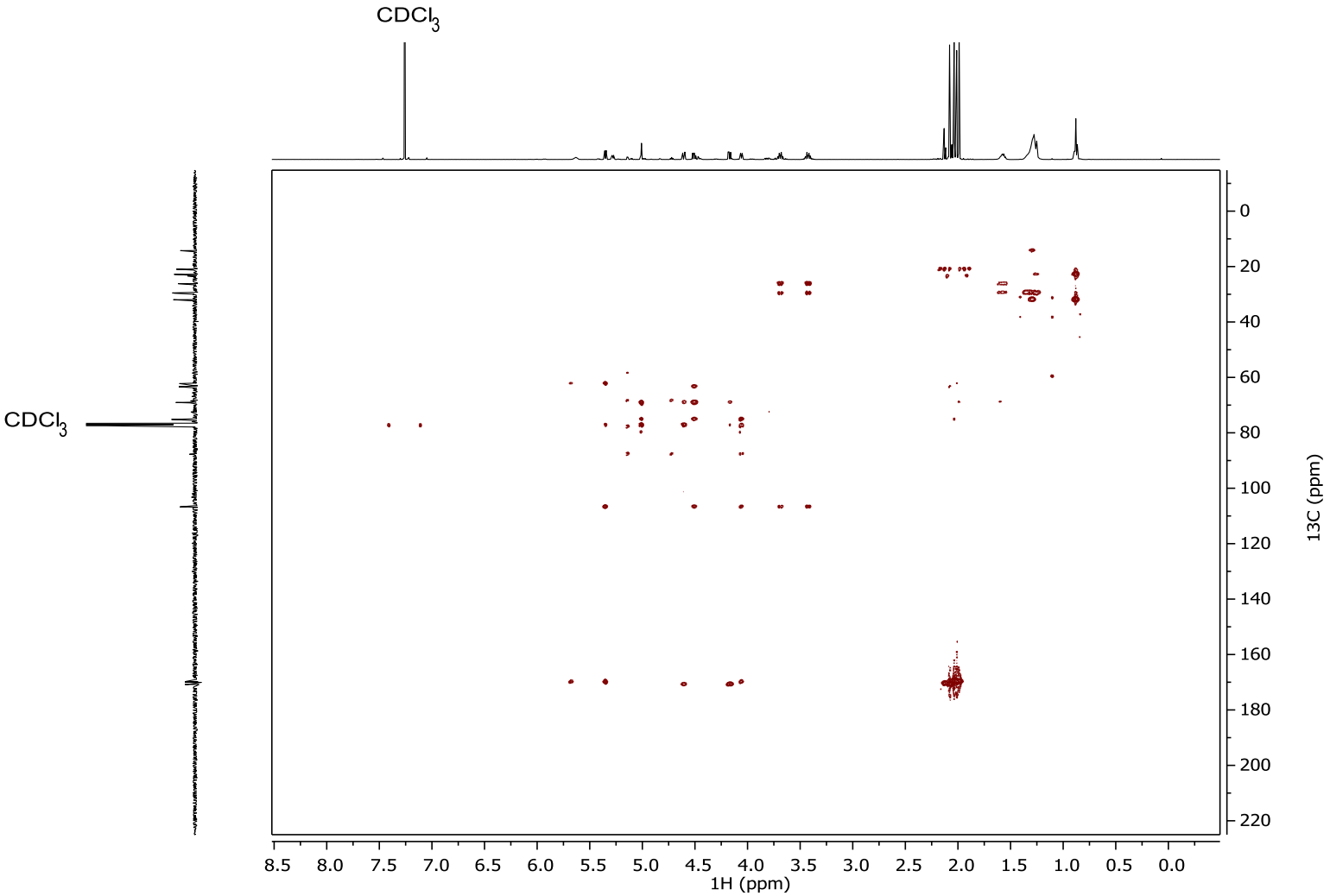
(major product amongst a mixture of isomers)



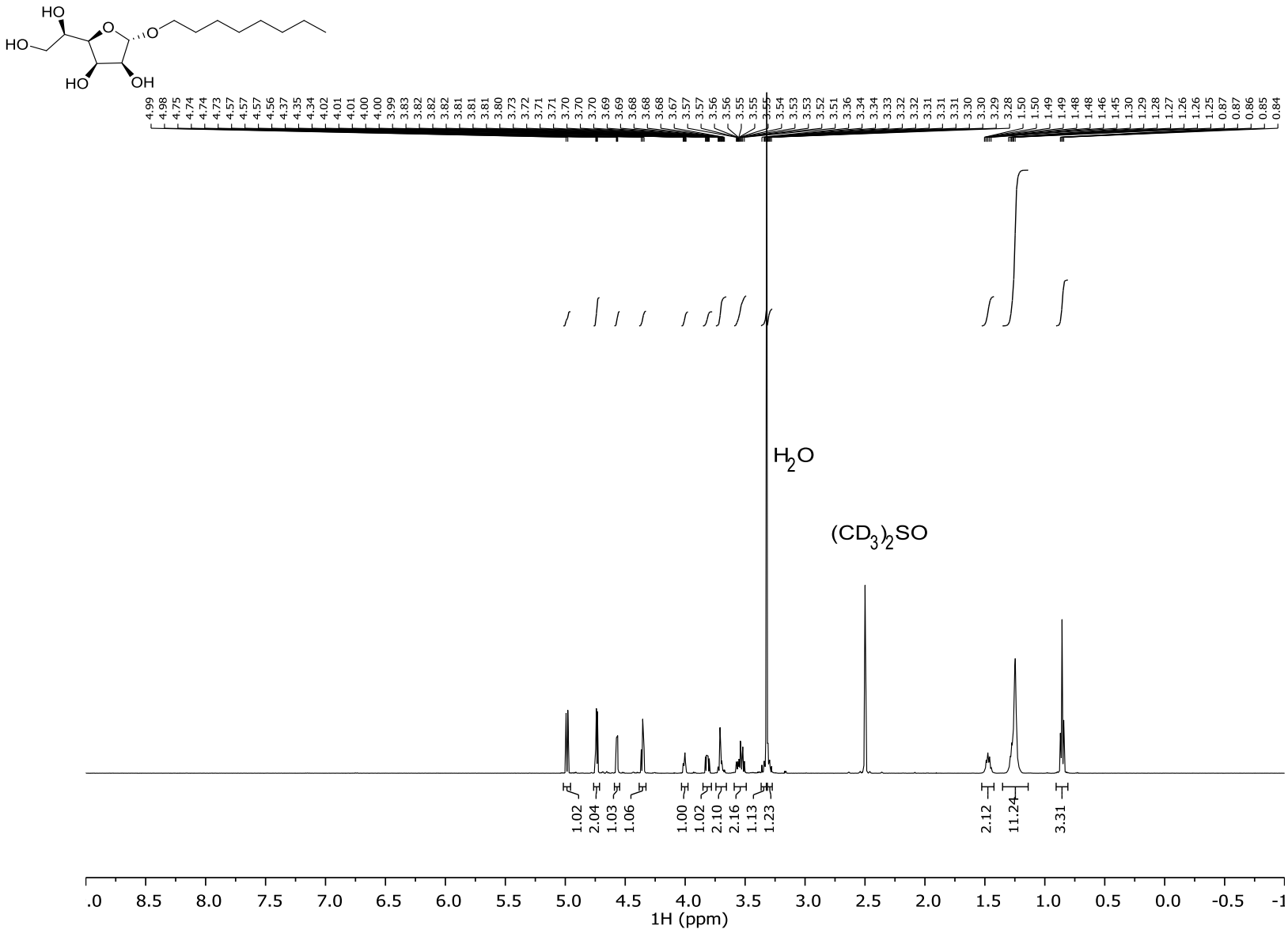
^{1}H-^{13}C HMBC NMR (700 MHz, $CDCl_3$) *n*-octyl-2-acetamido-2-deoxy-3,5,6-tri-*O*-acetyl-β-D-glucofuranoside



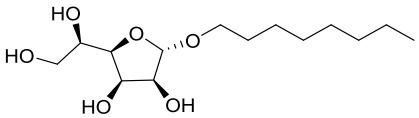
(major product amongst a mixture of isomers)

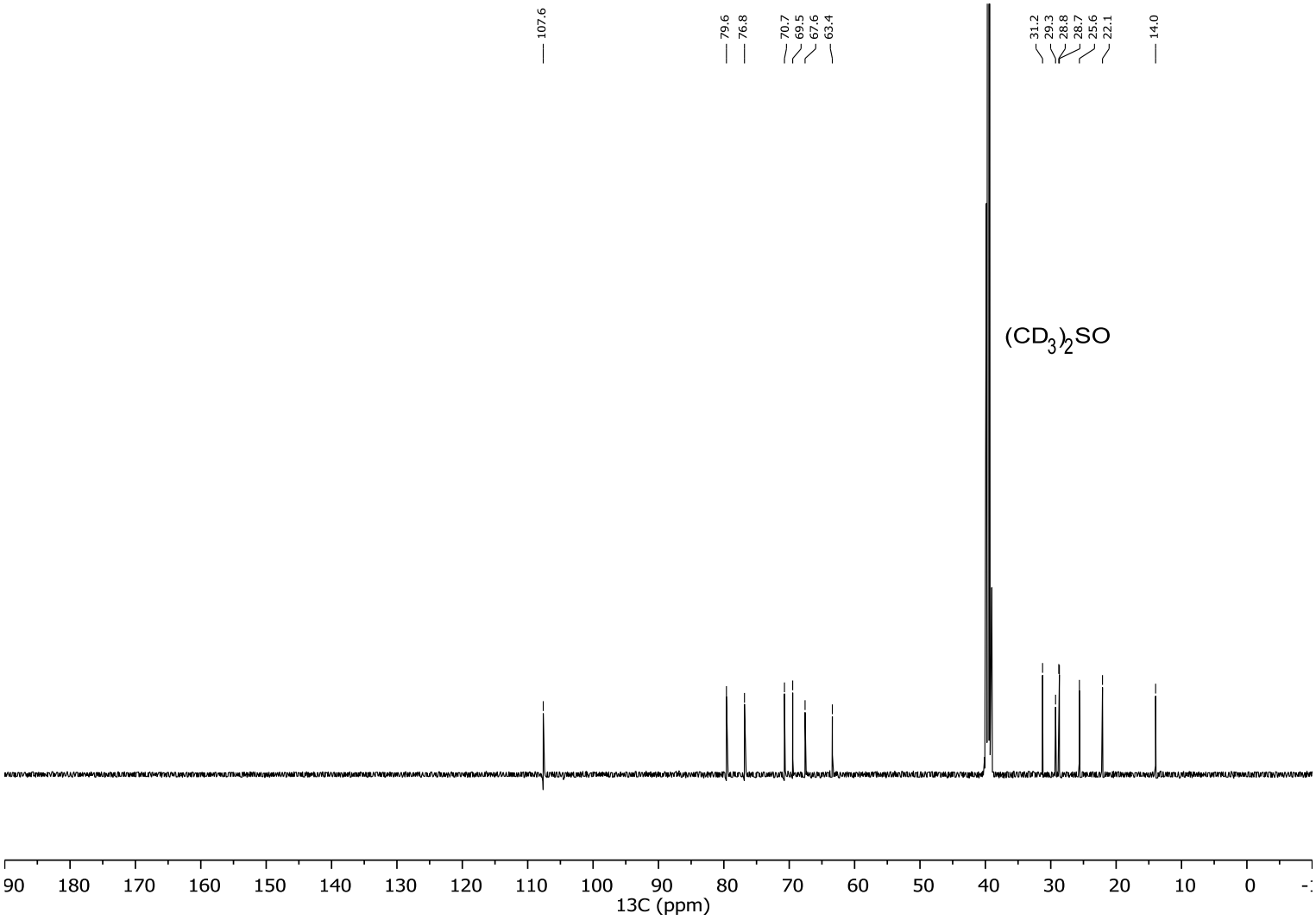


^{1}H NMR (500 MHz, DMSO-d_6) *n*-octyl-α-D-mannofuranoside (3a)

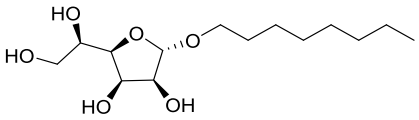


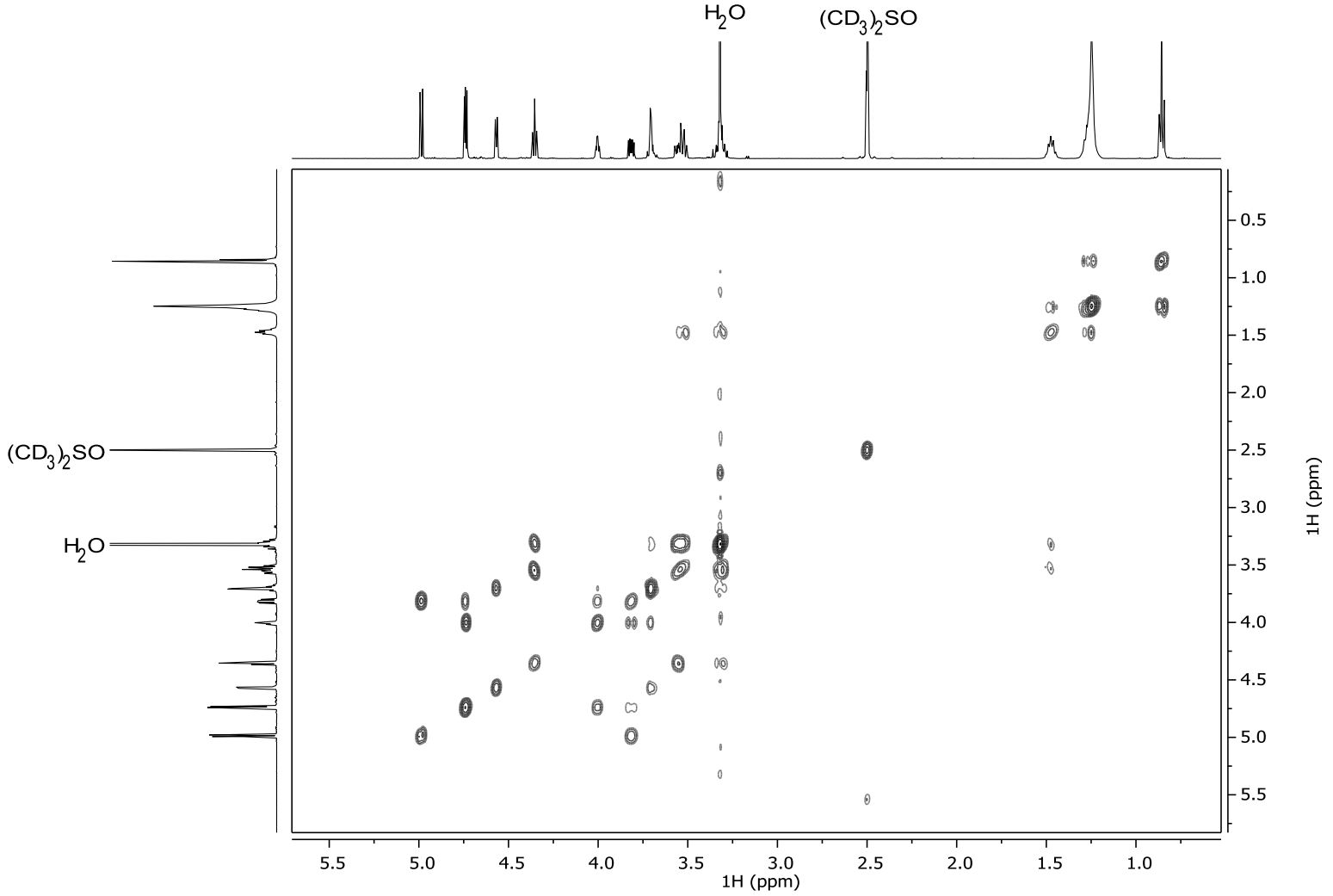
^{13}C NMR (125 MHz, DMSO-d_6) *n*-octyl-α-D-mannofuranoside (3a)



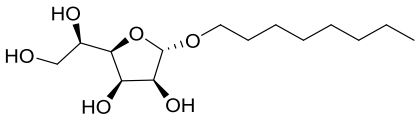


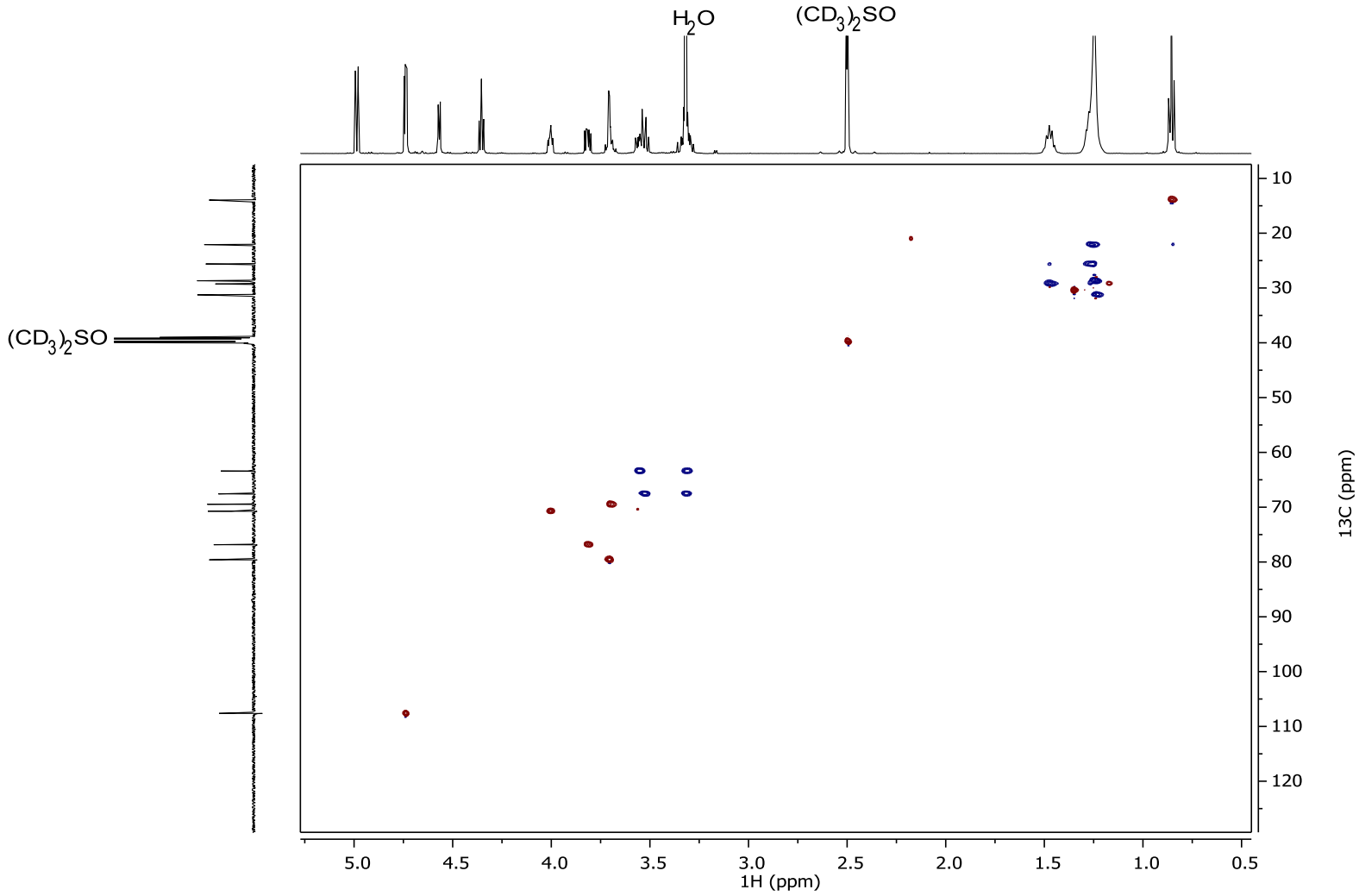
^{1}H-^{1}H COSY NMR (500 MHz, DMSO-d_6) *n*-octyl-α-D-mannofuranoside (3a)



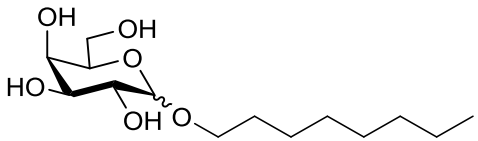


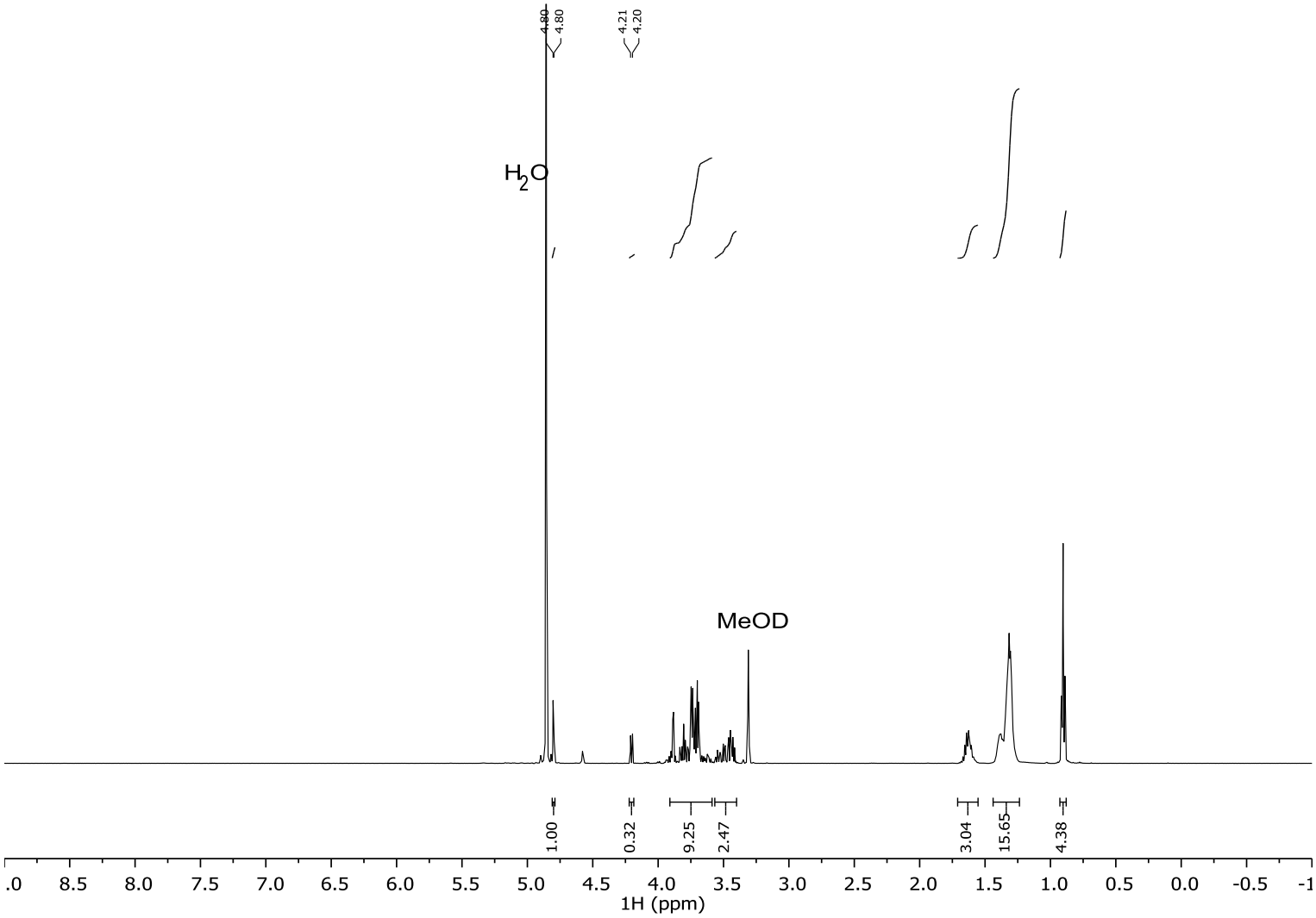
^{1}H-^{13}C HSQC NMR (700 MHz, DMSO-d$_6$) *n*-octyl-α-D-mannofuranoside (3a)



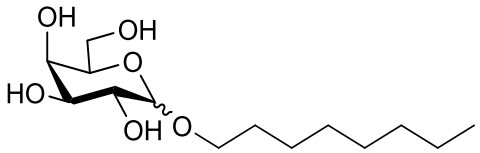


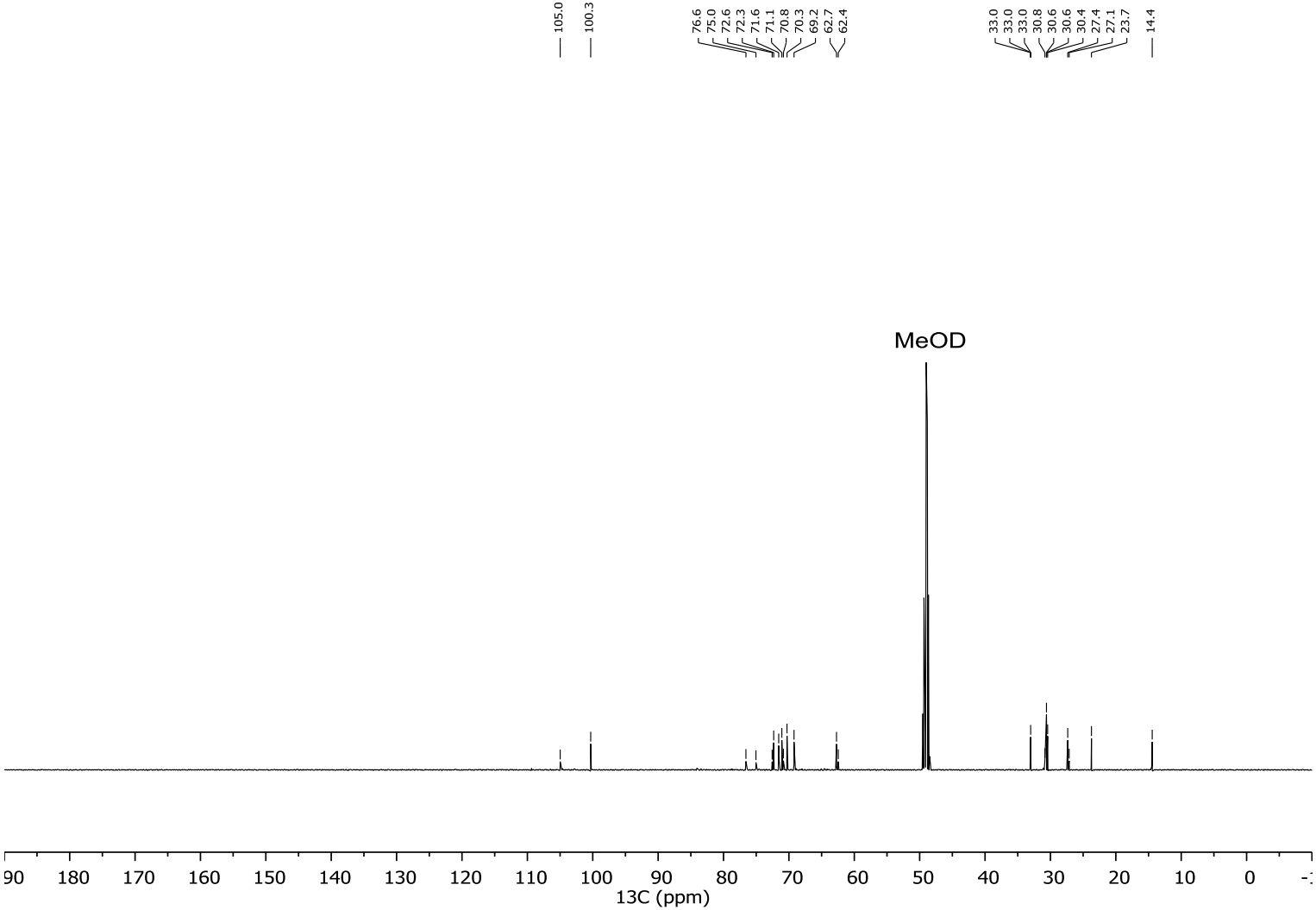
^{1}H NMR (500 MHz, Methanol-d4) *n*-octyl-D-galactopyranoside (4a)



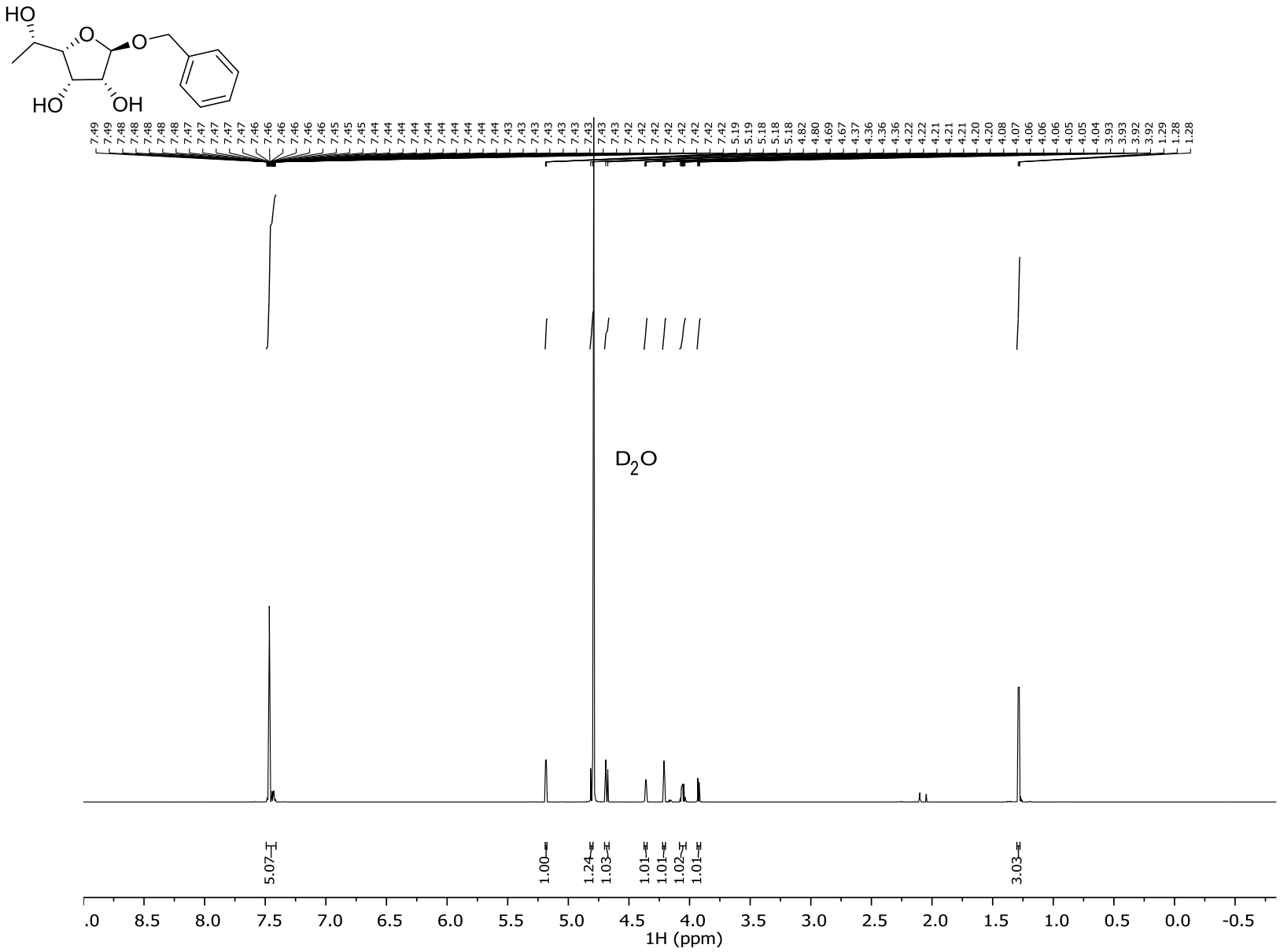


^{13}C NMR (125 MHz, Methanol-d4**)** *n*-octyl-D-galactopyranoside (4a)

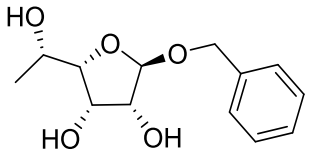


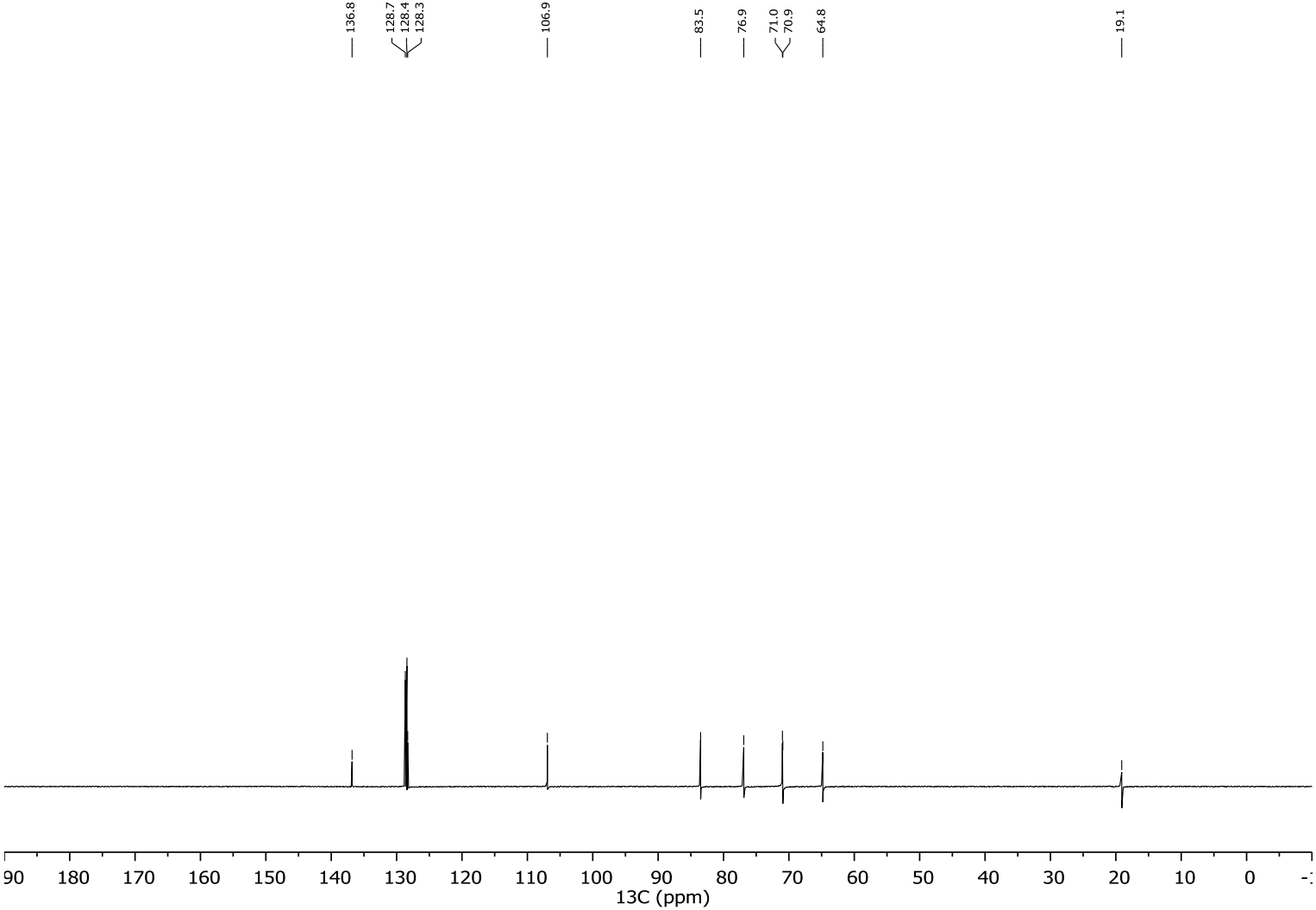


^{1}H NMR (700 MHz, D_2O) Benzyl α-L-rhamnofuranoside (3c)

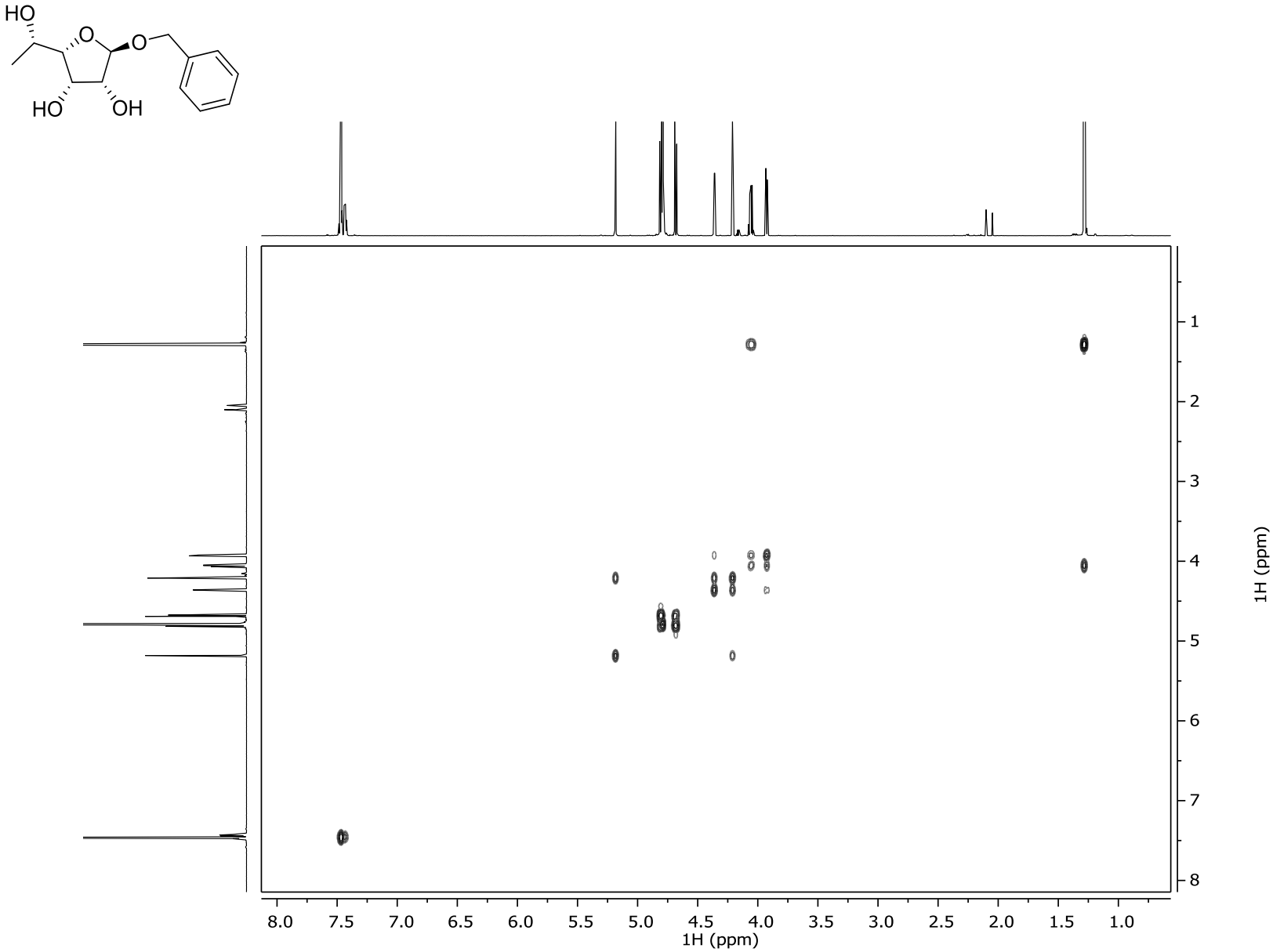


^{13}C NMR (125 MHz, D_2O) Benzyl α-L-rhamnofuranoside (3c)

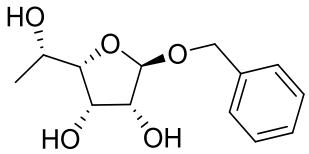


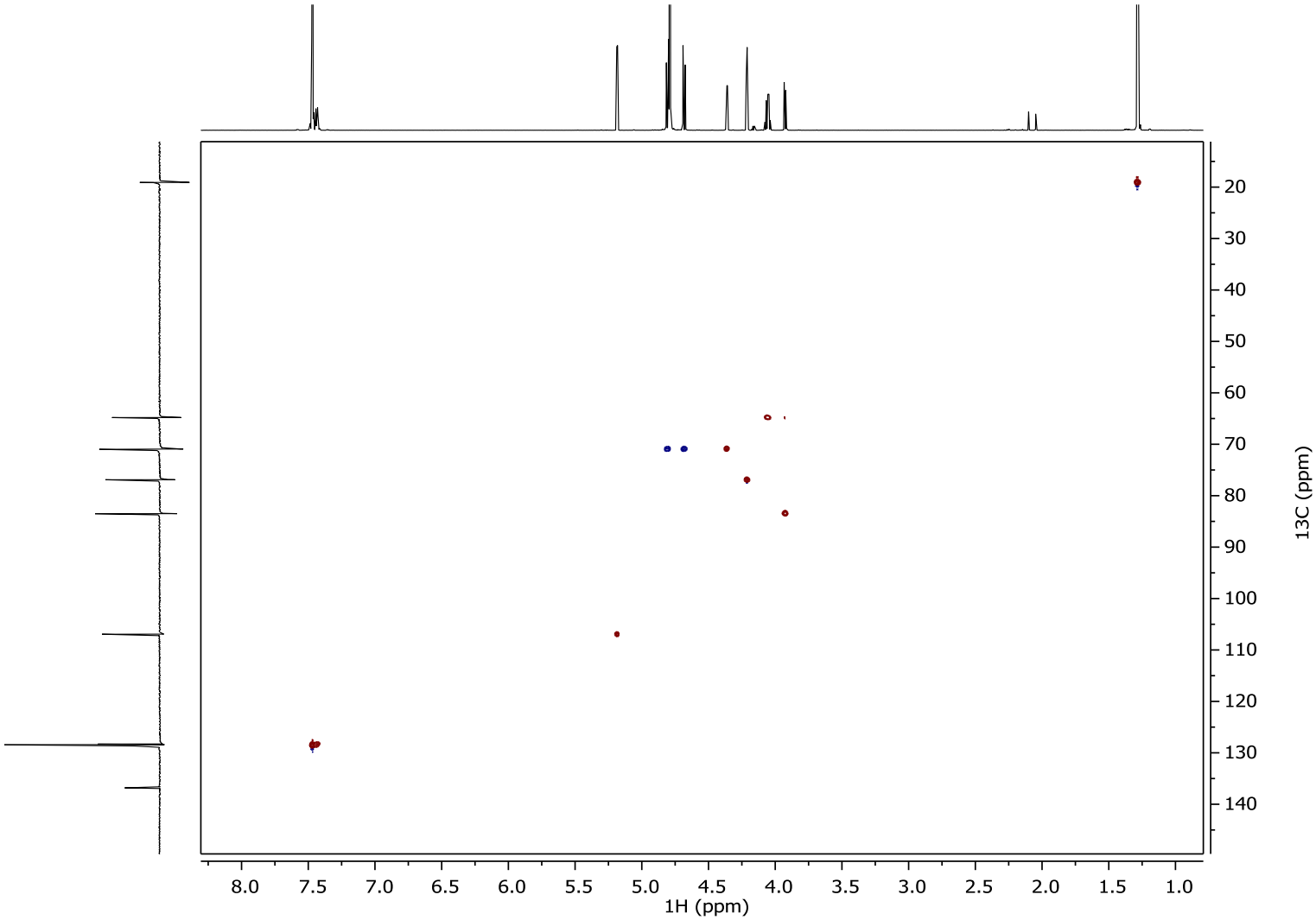


^{1}H-^{1}H COSY NMR (700 MHz, D_2O) Benzyl α-L-rhamnofuranoside (3c)

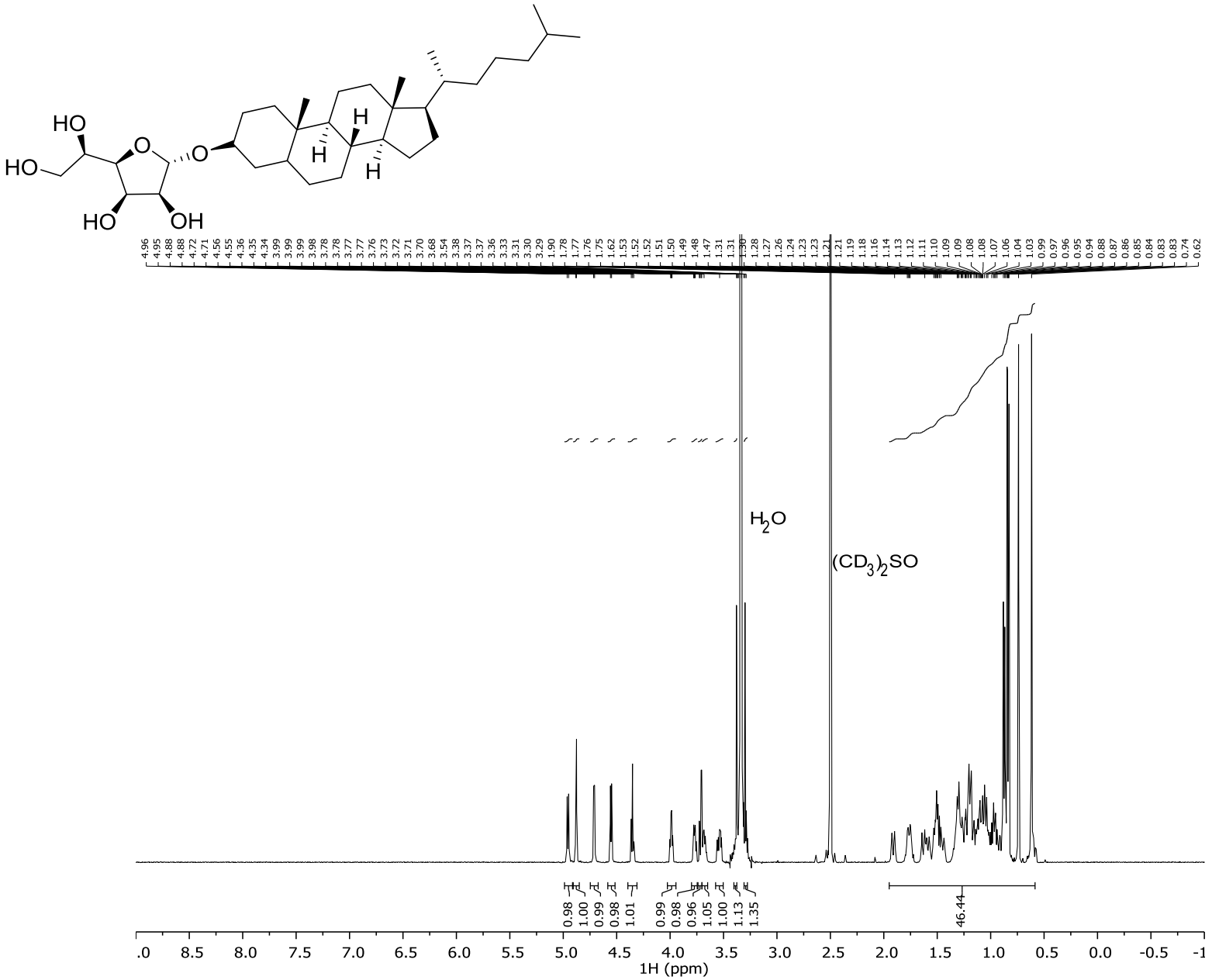


^{1}H-^{13}C HSQC NMR (700 MHz, D_2O) Benzyl α-L-rhamnofuranoside (3c)

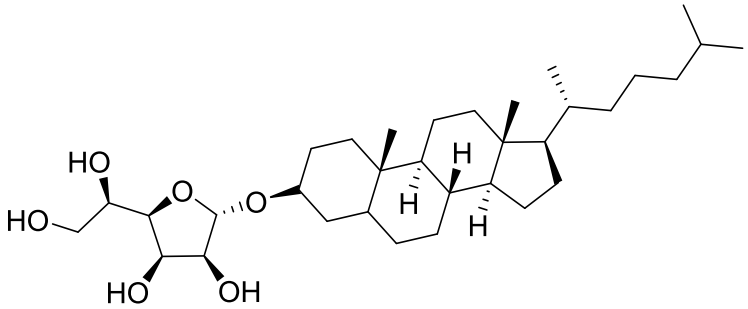


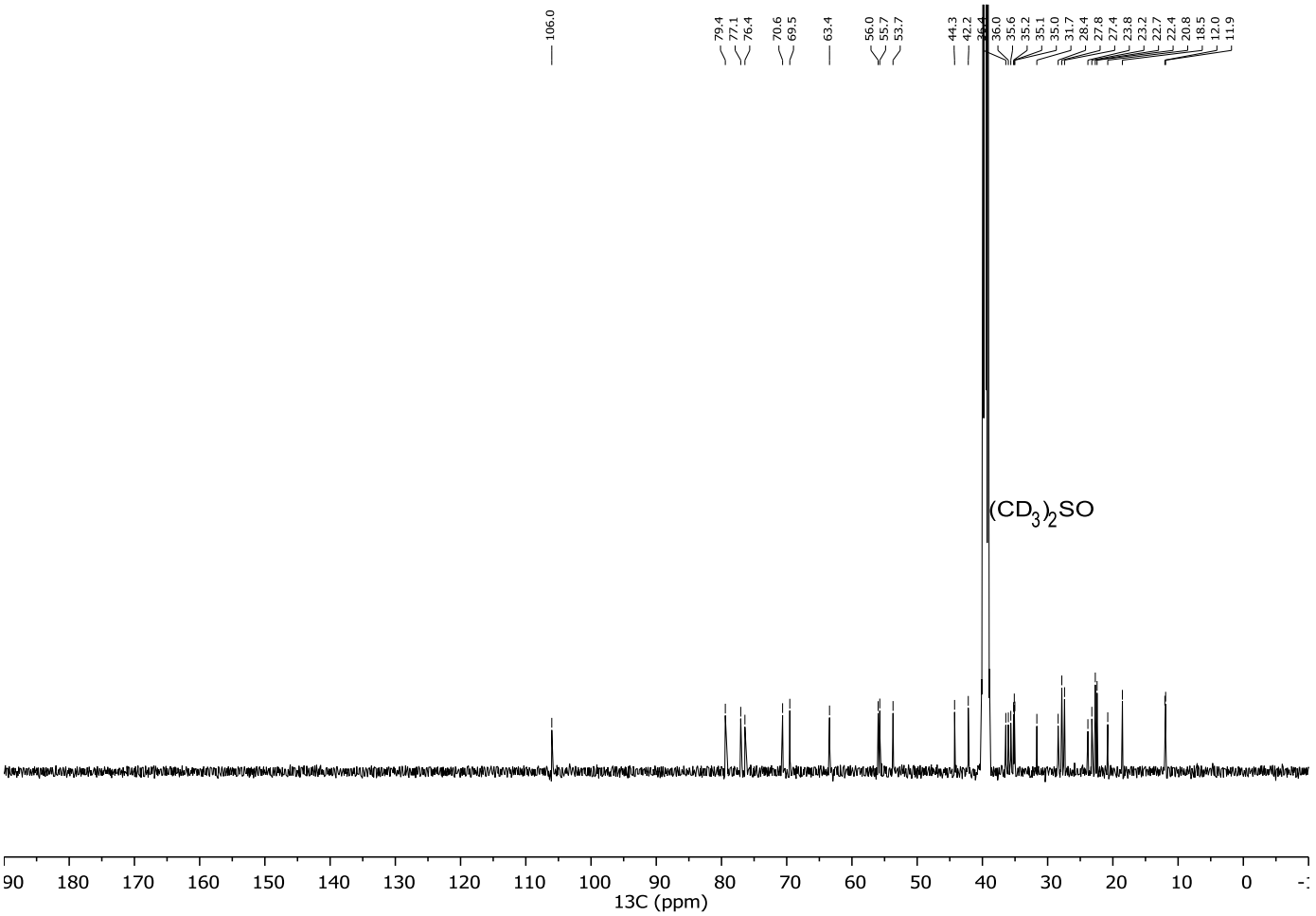


^{1}H NMR (500 MHz, DMSO-d_6) Dihydrocholesteroyl-α-D-mannofuranoside (3b)

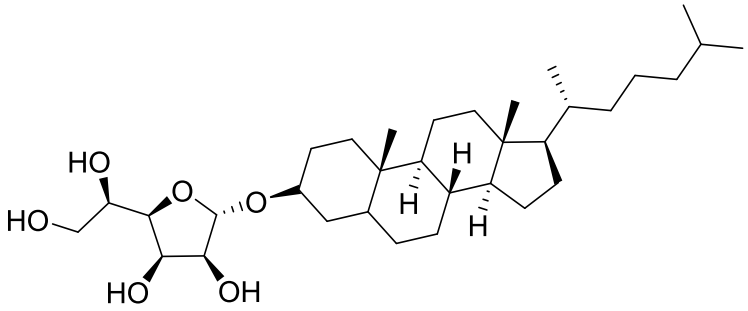


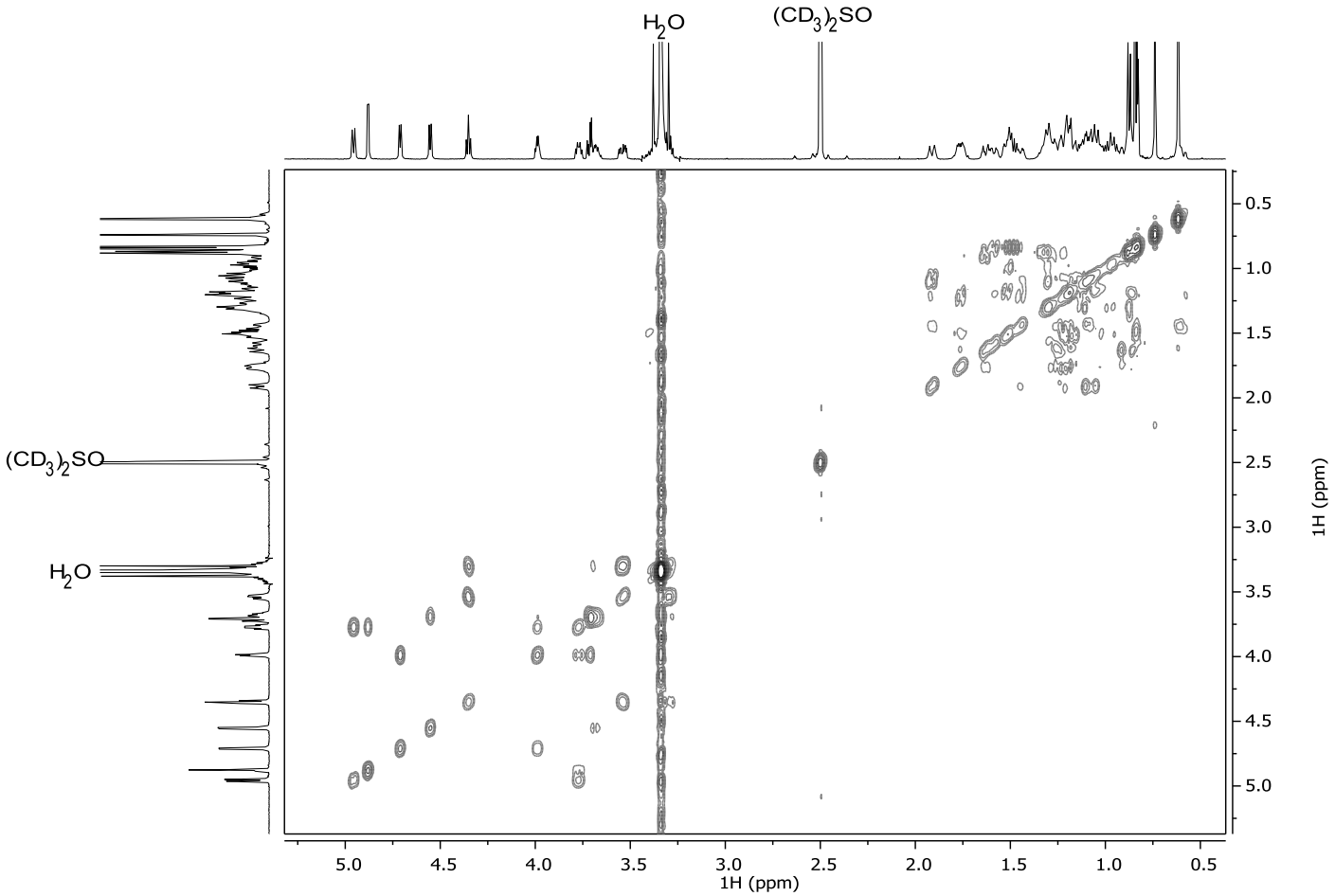
^{13}C NMR (125 MHz, DMSO-d6) Dihydrocholesteroyl-α-D-mannofuranoside (3b)



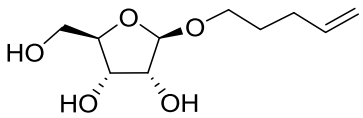


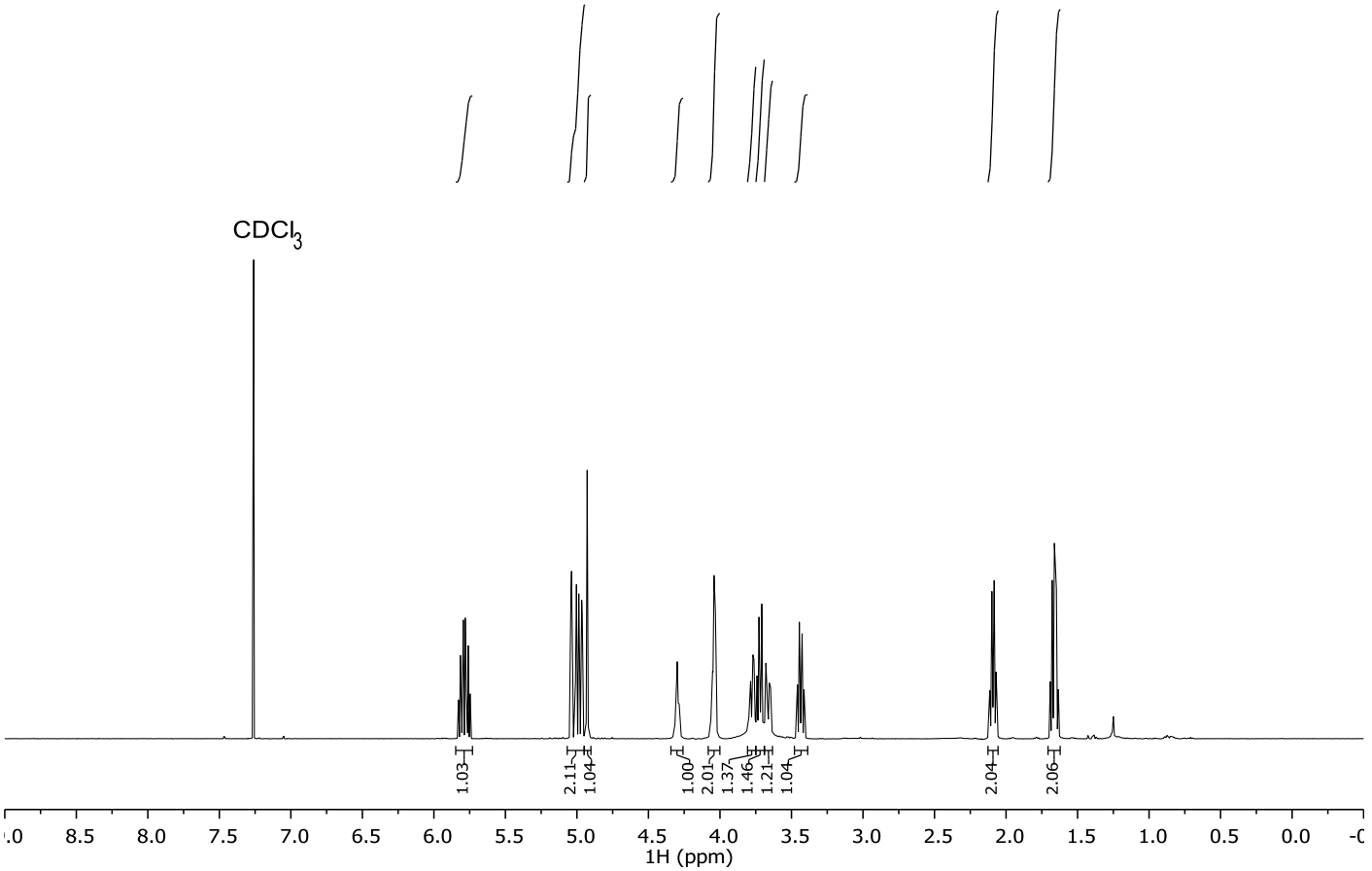
^{1}H-^{1}H COSY NMR (500 MHz, DMSO-d6) Dihydrocholesteroyl-α-D-mannofuranoside (3b)



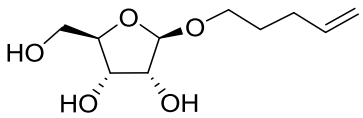


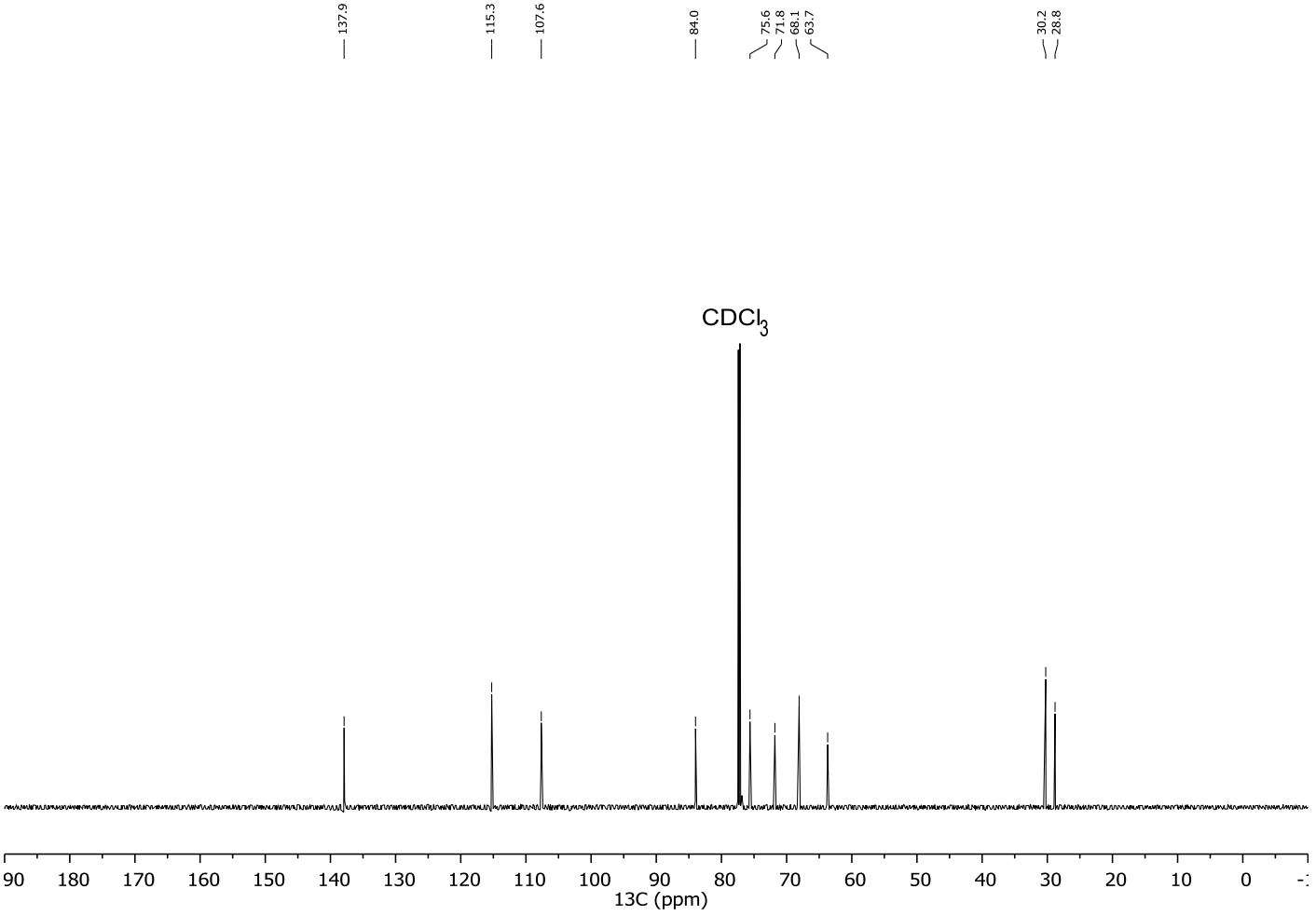
^{1}H NMR (500 MHz, $CDCl_3$) *n*-pentenyl-β-D-ribofuranoside (3d)



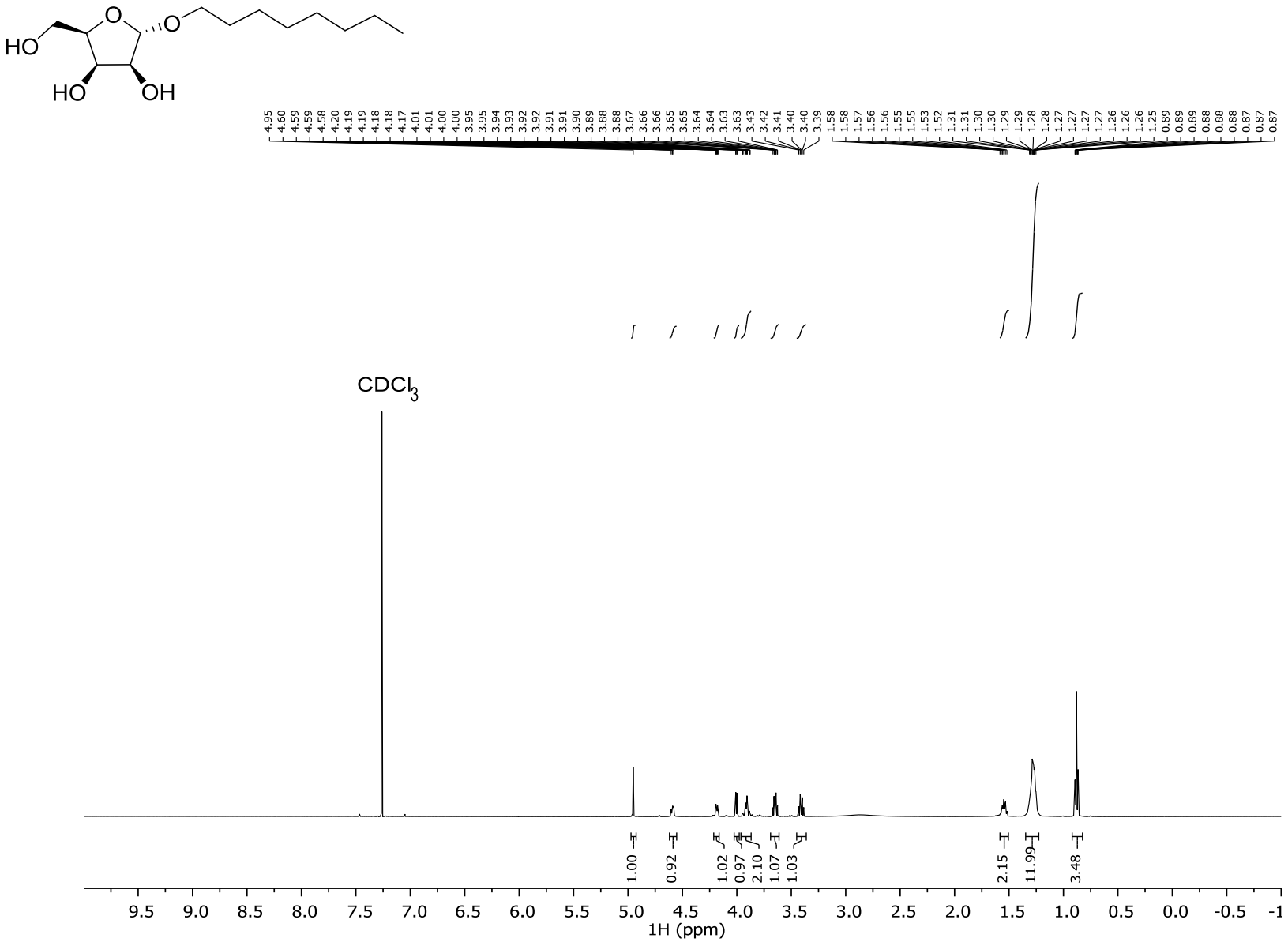


^{13}C NMR (126 MHz, $CDCl_3$) *n*-pentenyl-β-D-ribofuranoside (3d)

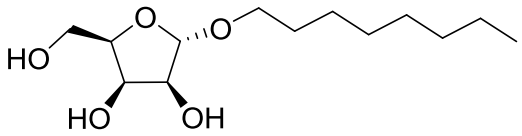


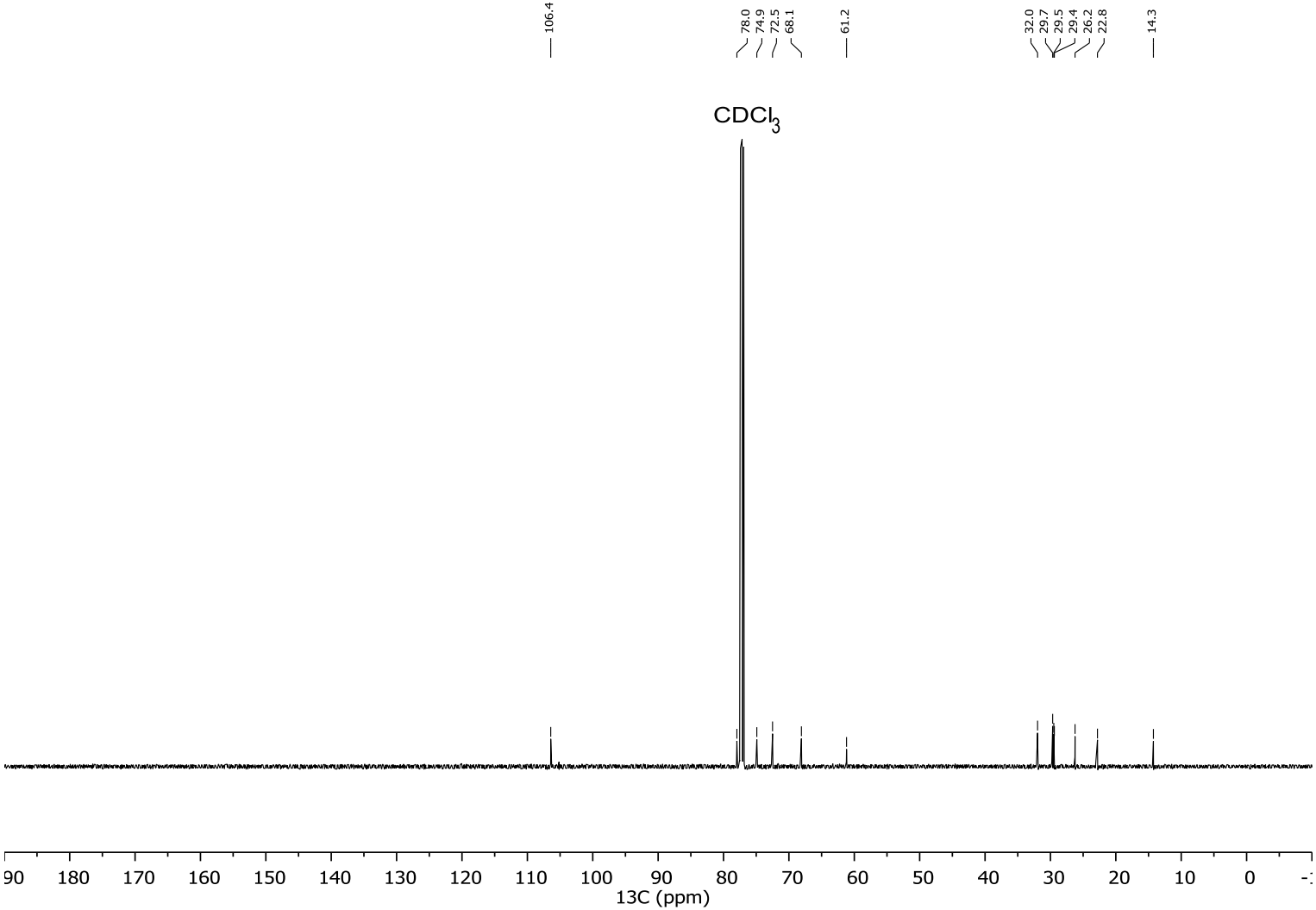


^{1}H NMR (700 MHz, $CDCl_3$) *n*-octyl-α-D-lyxofuranoside (3e)

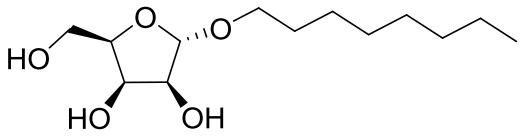


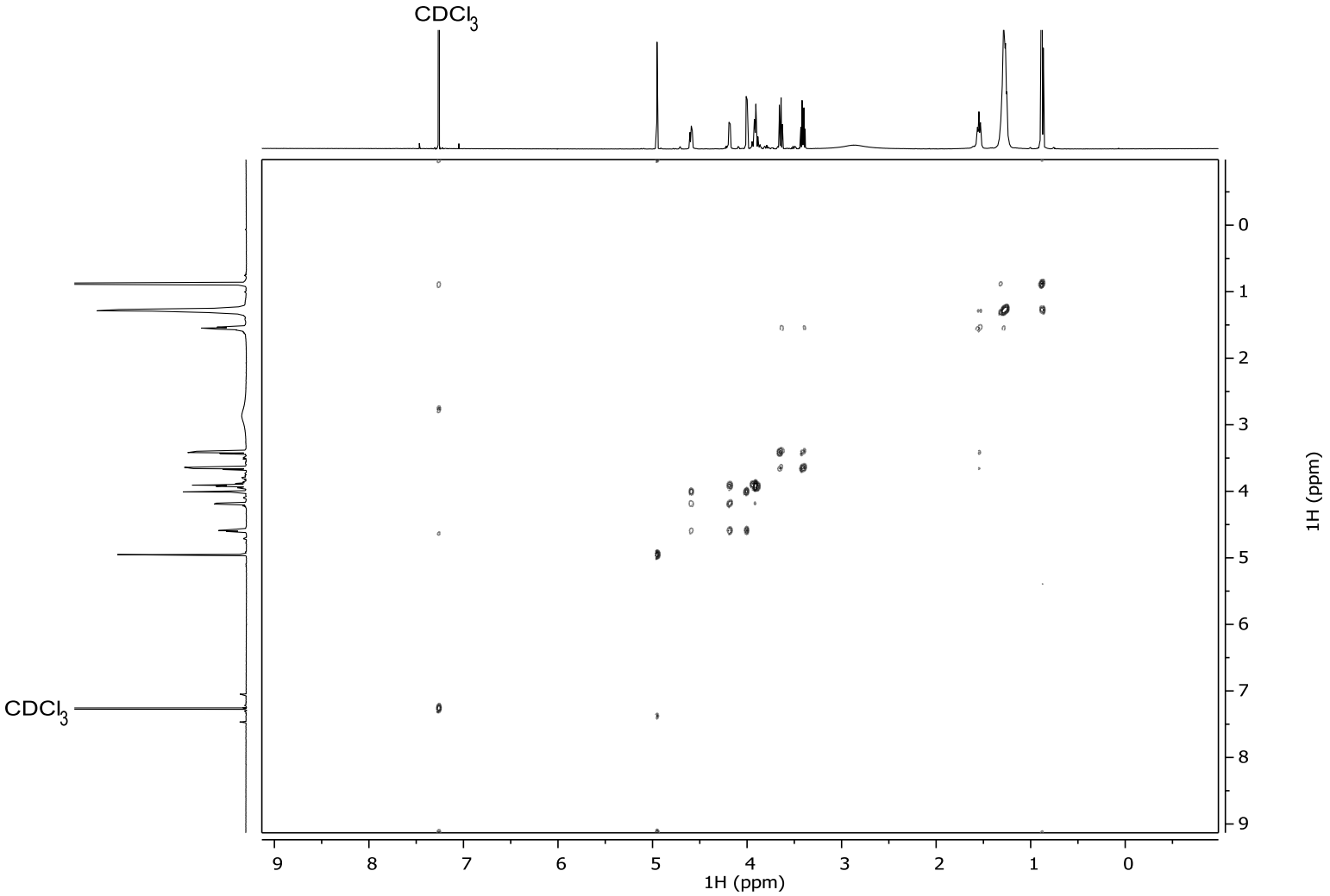
^{13}C NMR (125 MHz, $CDCl_3$) *n*-octyl-α-D-lyxofuranoside (3e)



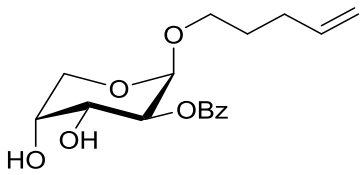


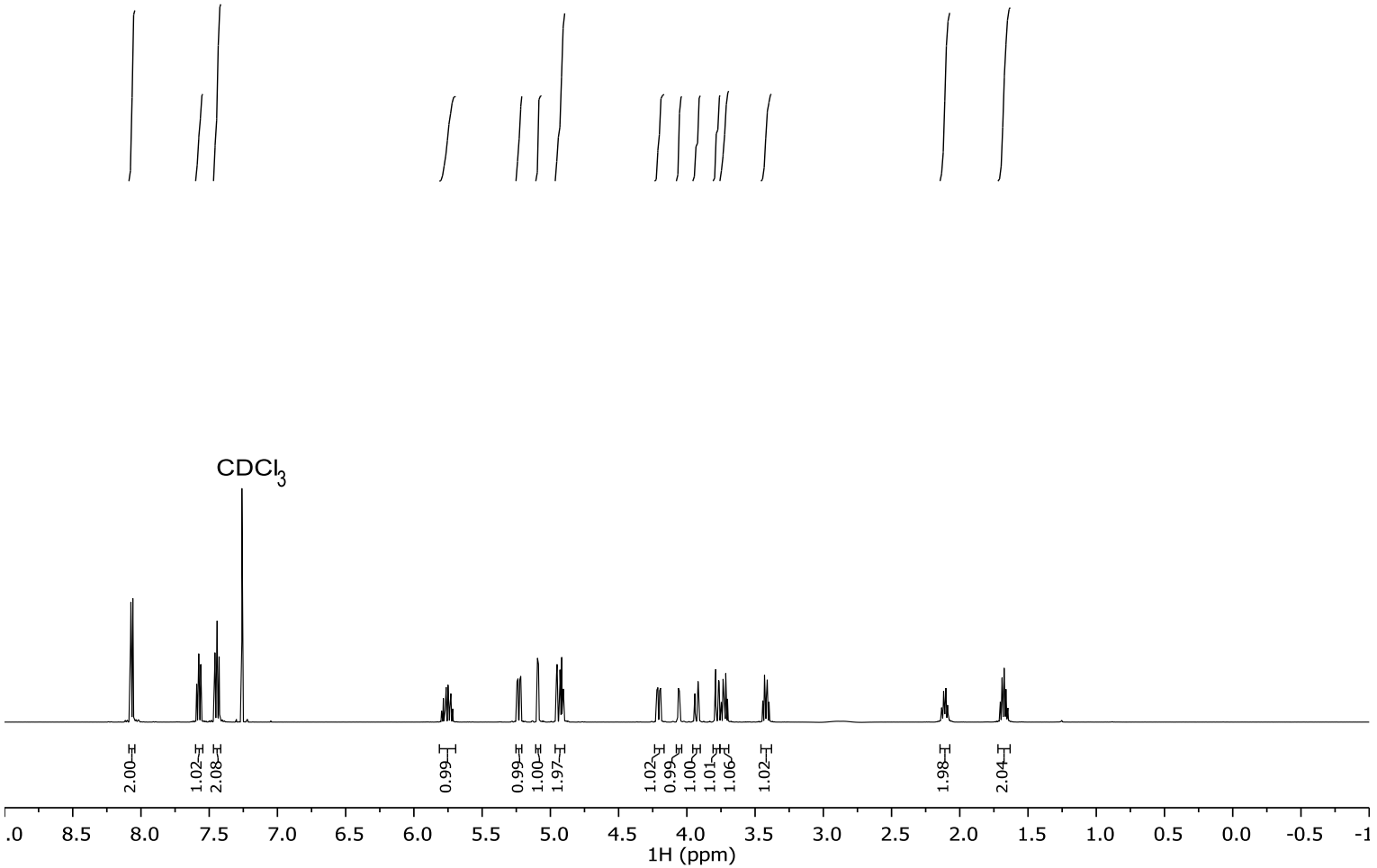
^{1}H-^{1}H COSY NMR (700MHz, $CDCl_3$) *n*-octyl-α-D-lyxofuranoside (3e)



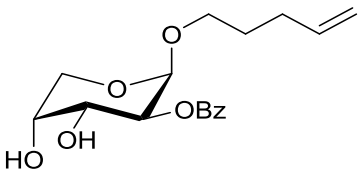


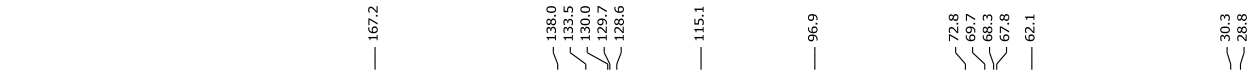
^{1}H NMR (500 MHz, $CDCl_3$) *n*-pentenyl 2-*O*-benzoyl-β-D-arabinopyranoside (β-6d)

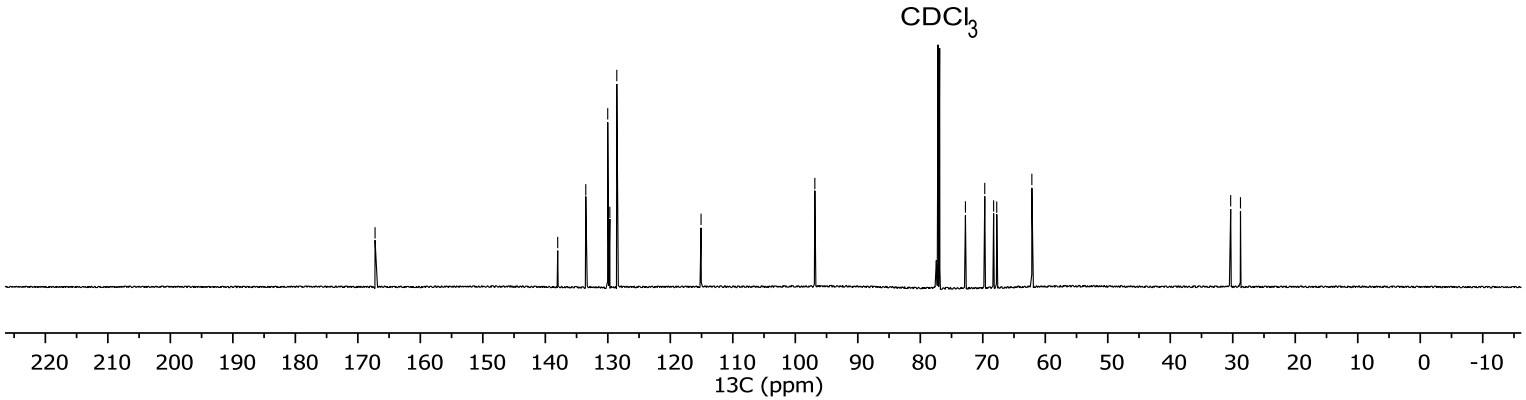




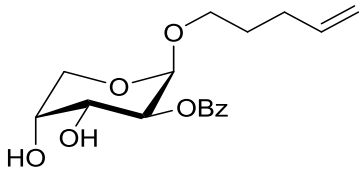
^{13}C NMR (126 MHz, $CDCl_3$) *n*-pentenyl 2-*O*-benzoyl-β-D-arabinopyranoside (β-6d)

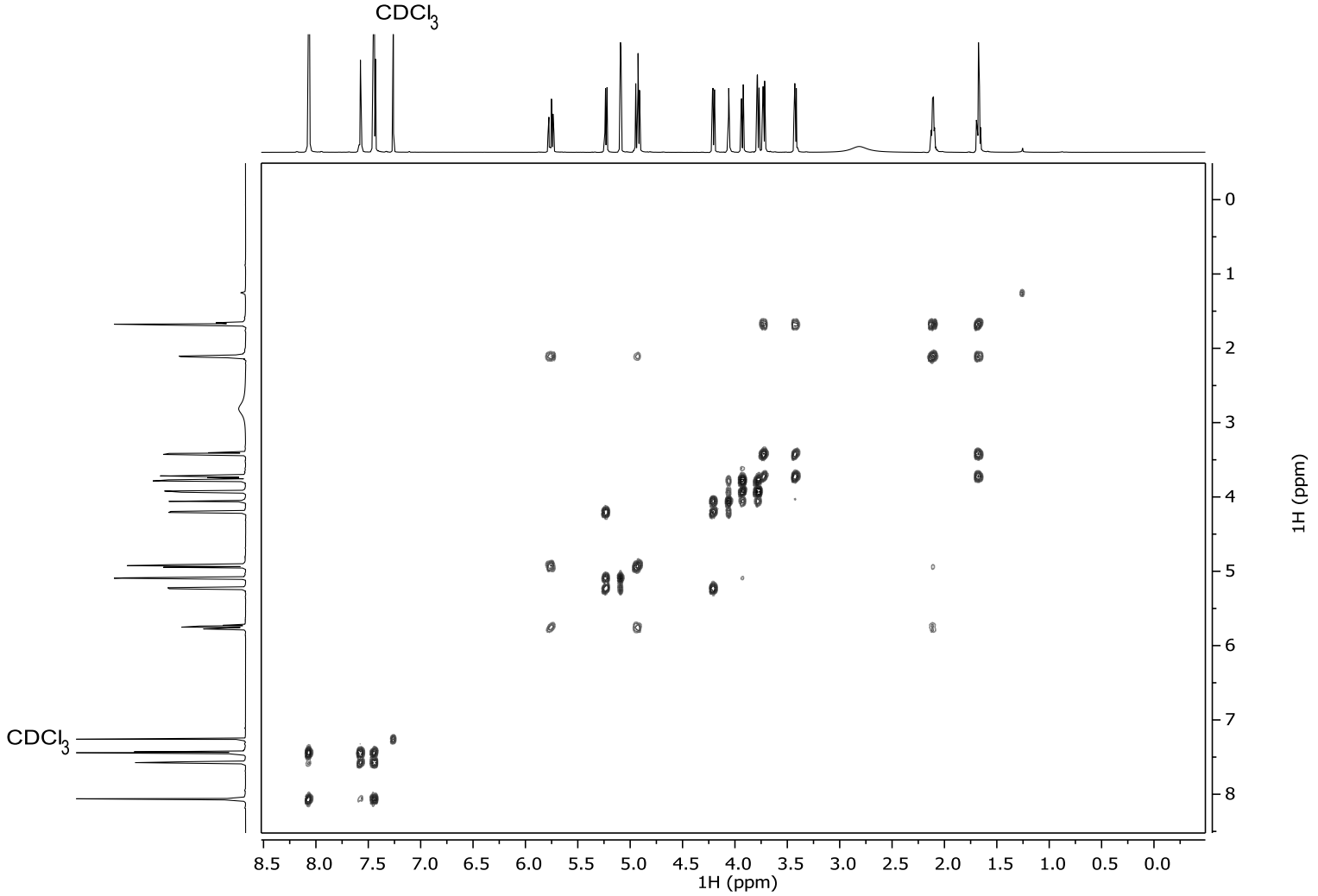




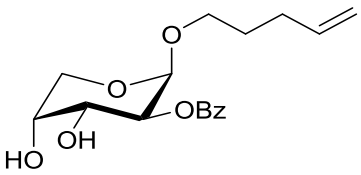


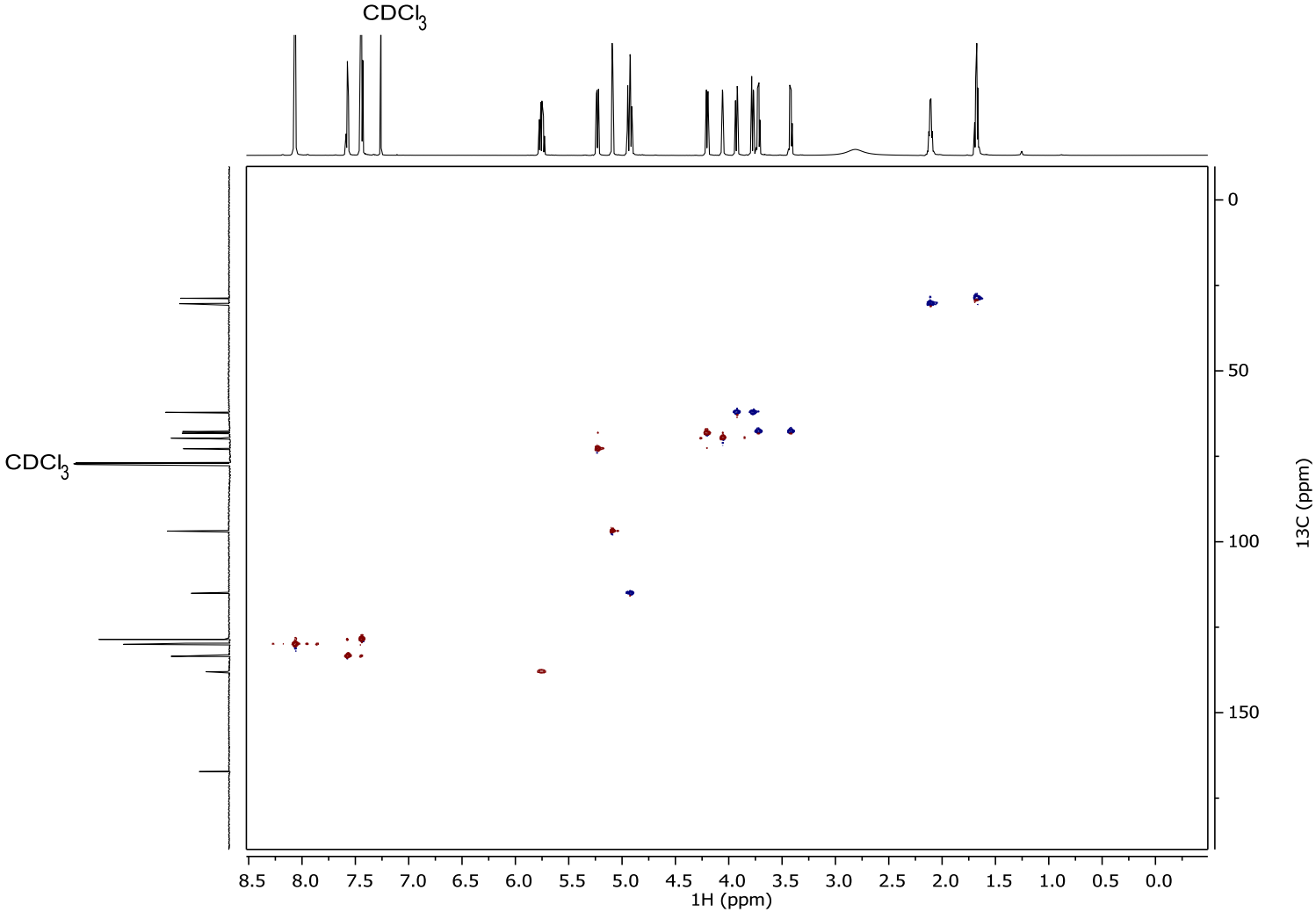
^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-pentenyl 2-*O*-benzoyl-β-D-arabinopyranoside (β-6d)



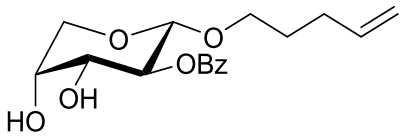


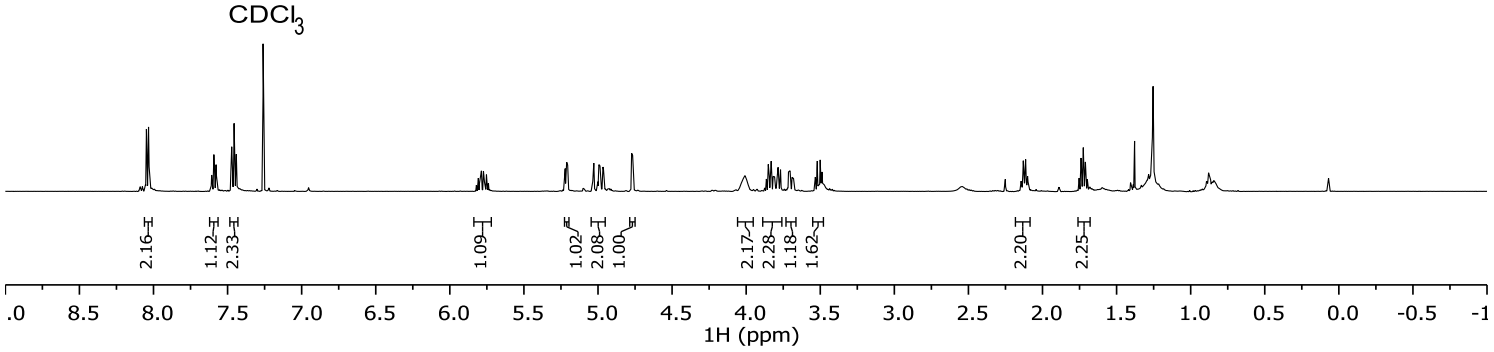
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-pentenyl 2-*O*-benzoyl-β-D-arabinopyranoside (β-6d)



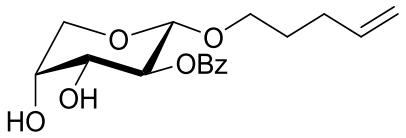


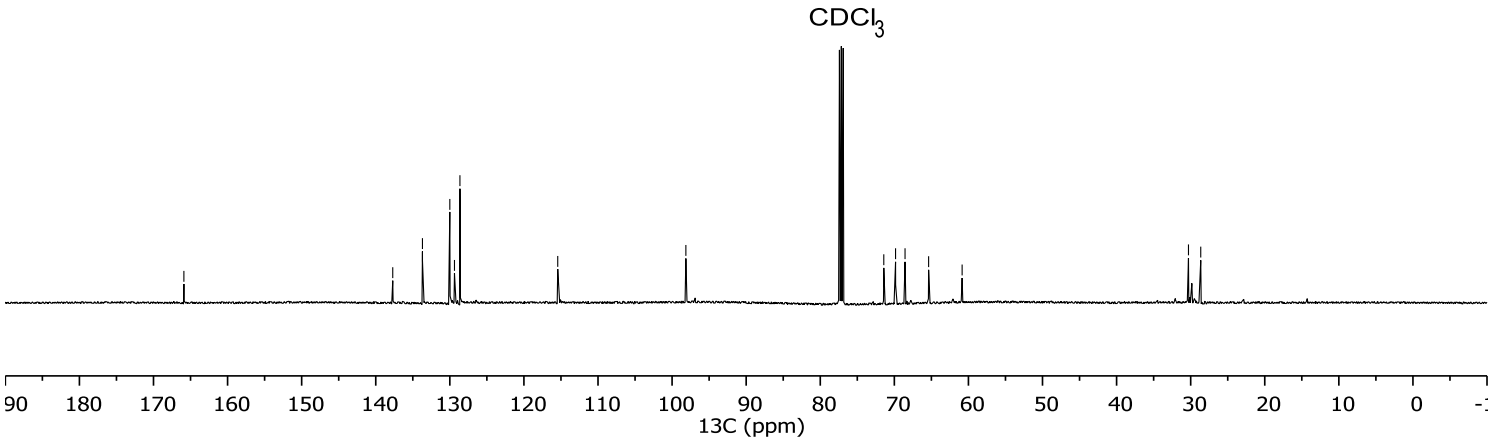
^{1}H NMR (500 MHz, $CDCl_3$) *n*-pentenyl 2-*O*-benzoyl-α-D-arabinopyranoside (α-6d)



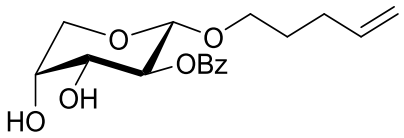


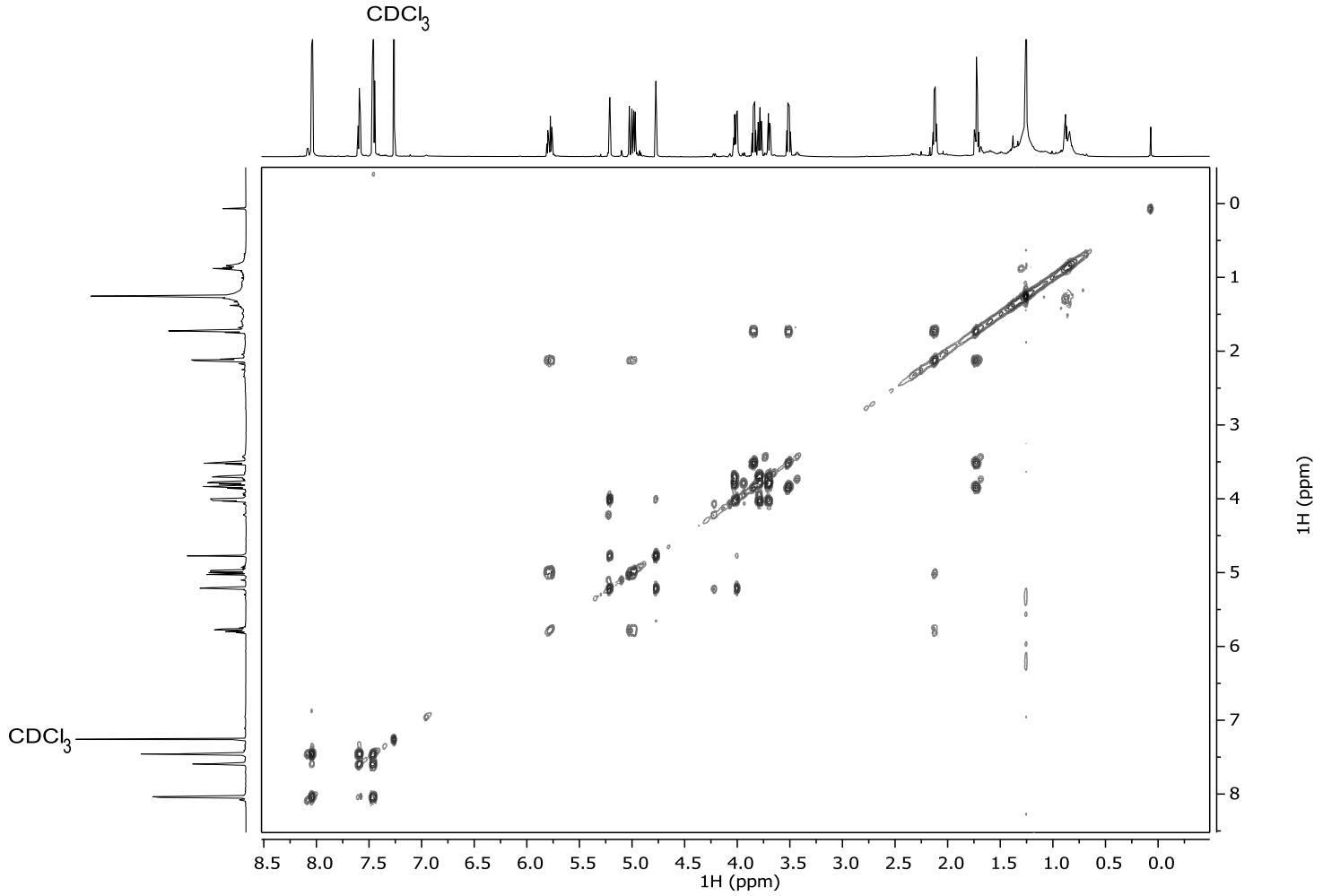
^{13}C NMR (126 MHz, $CDCl_3$) *n*-pentenyl 2-*O*-benzoyl-α-D-arabinopyranoside (α-6d)



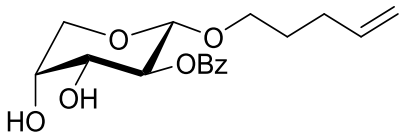


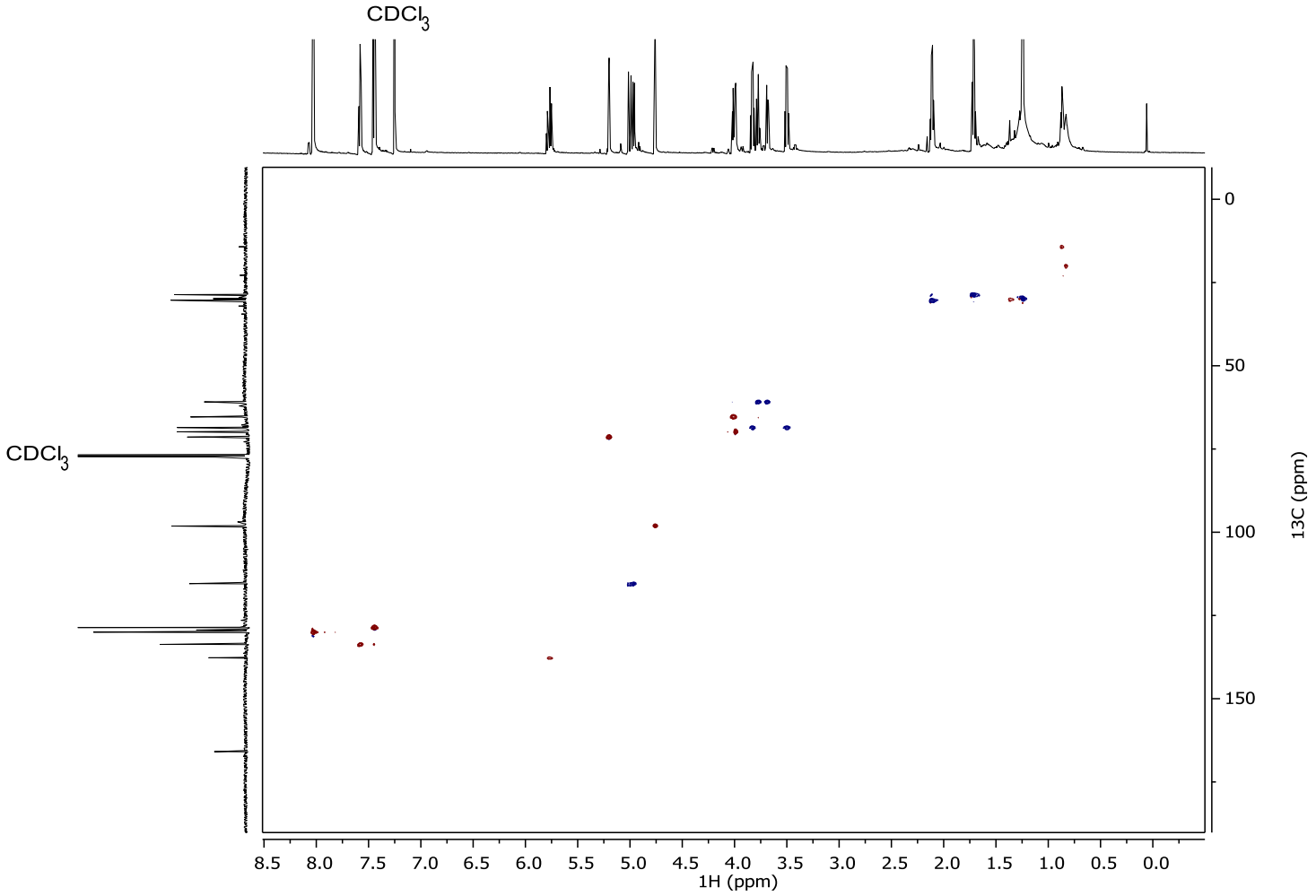
^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-pentenyl 2-*O*-benzoyl- α-D-arabinopyranoside (α-6d)



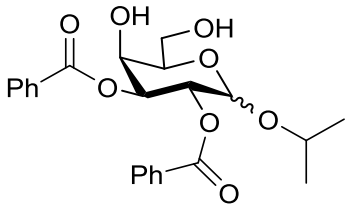


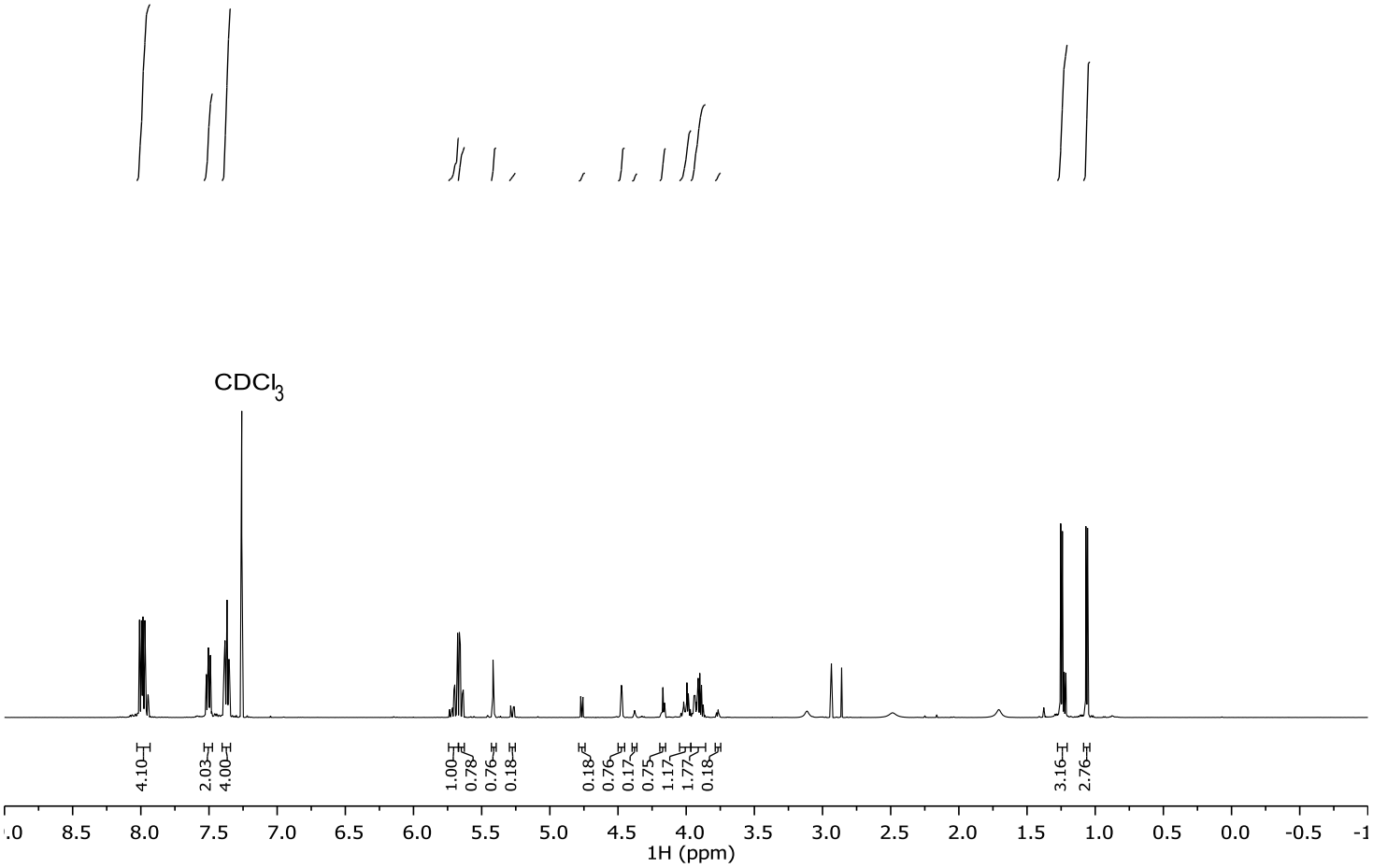
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-pentenyl 2-*O*-benzoyl- α-D-arabinopyranoside (α-6d)



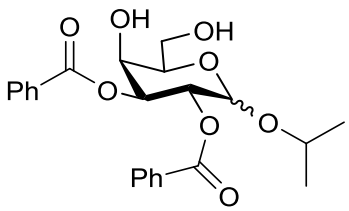


^{1}H NMR (500 MHz, $CDCl_3$) Isopropyl 2,3-di-*O*-benzoyl-D-galactopyranoside (6a)
α+β peak normalized to 1 proton

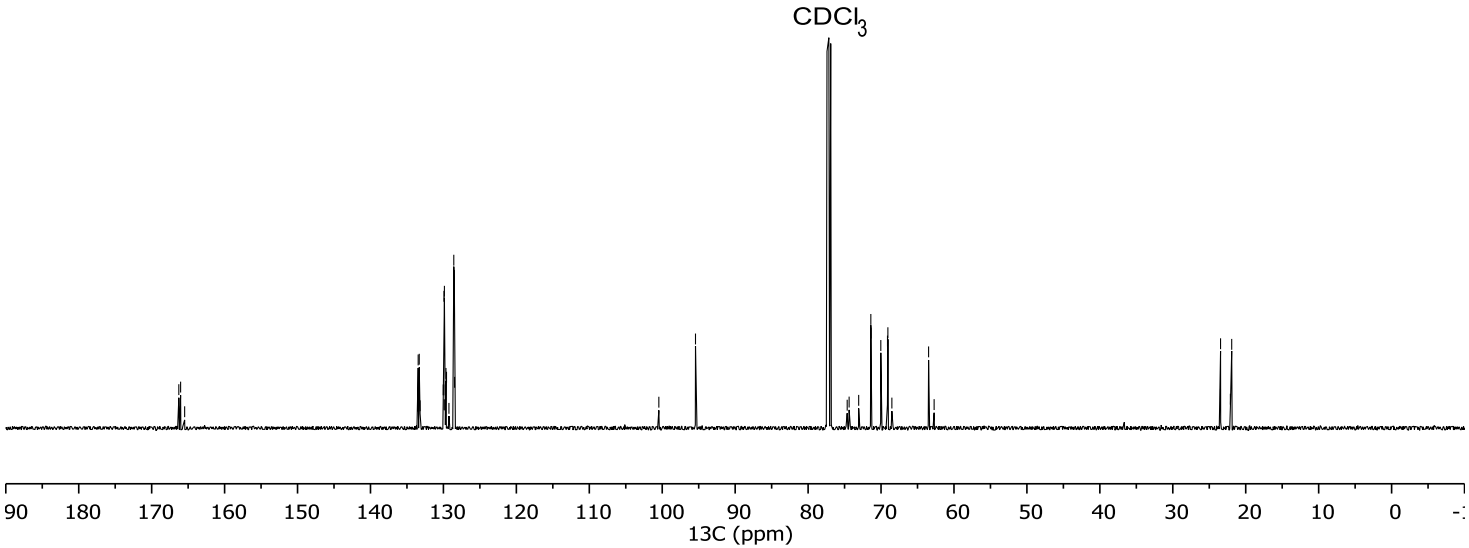




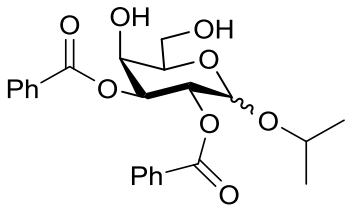
^{13}C NMR (126 MHz, $CDCl_3$) Isopropyl 2,3-di-*O*-benzoyl-D-galactopyranoside (6a)

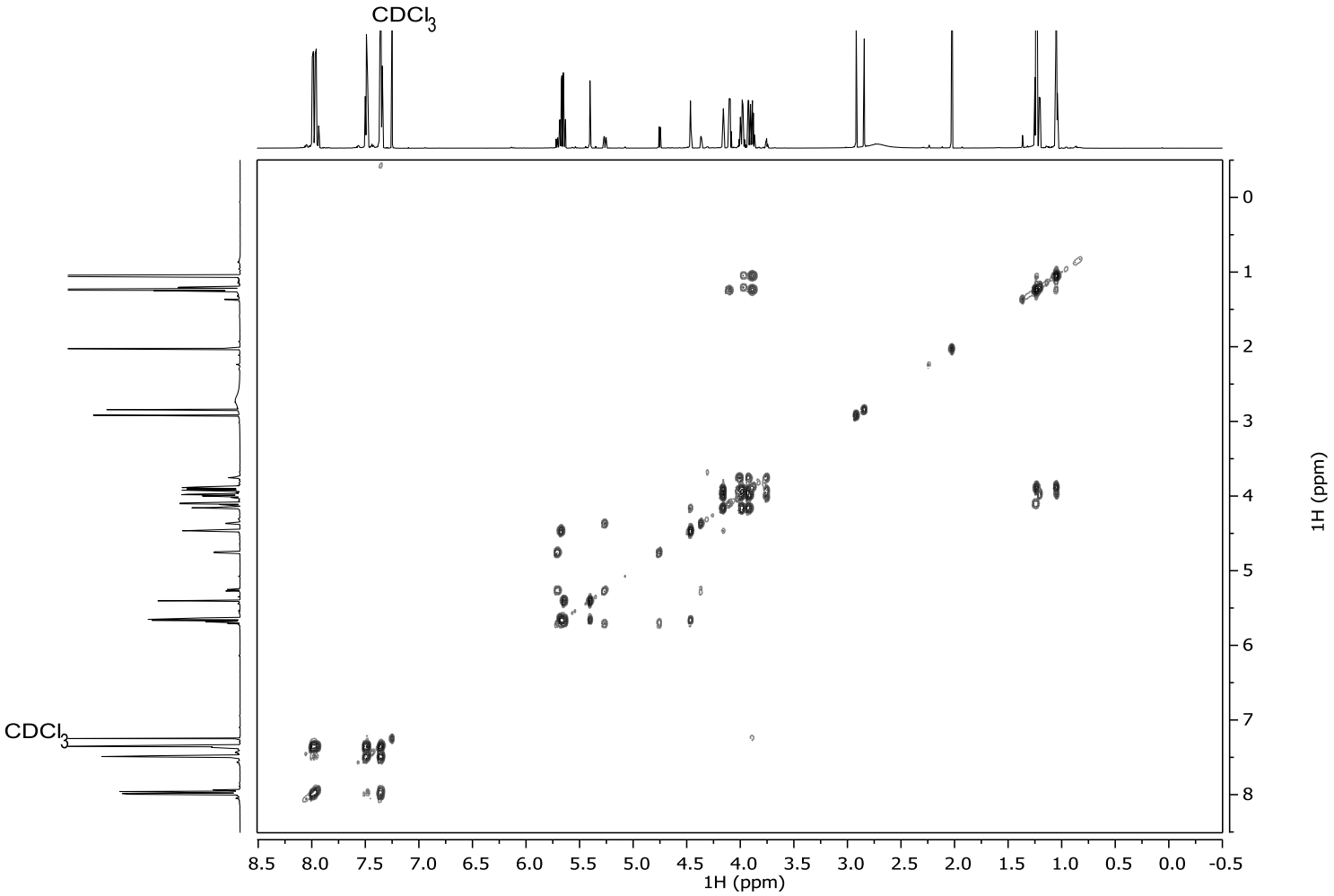


166.3 166.1 166.0 165.5 133.5 133.5 133.3 133.2 130.0 129.9 129.9 129.9 129.8 129.8 129.7 129.6 129.2 128.6 128.5 128.5 100.5 95.4 74.6 74.4 73.1 71.4 71.4 70.0 70.0 69.1 69.1 68.5 63.5 62.7 23.5 23.4 22.1 21.9

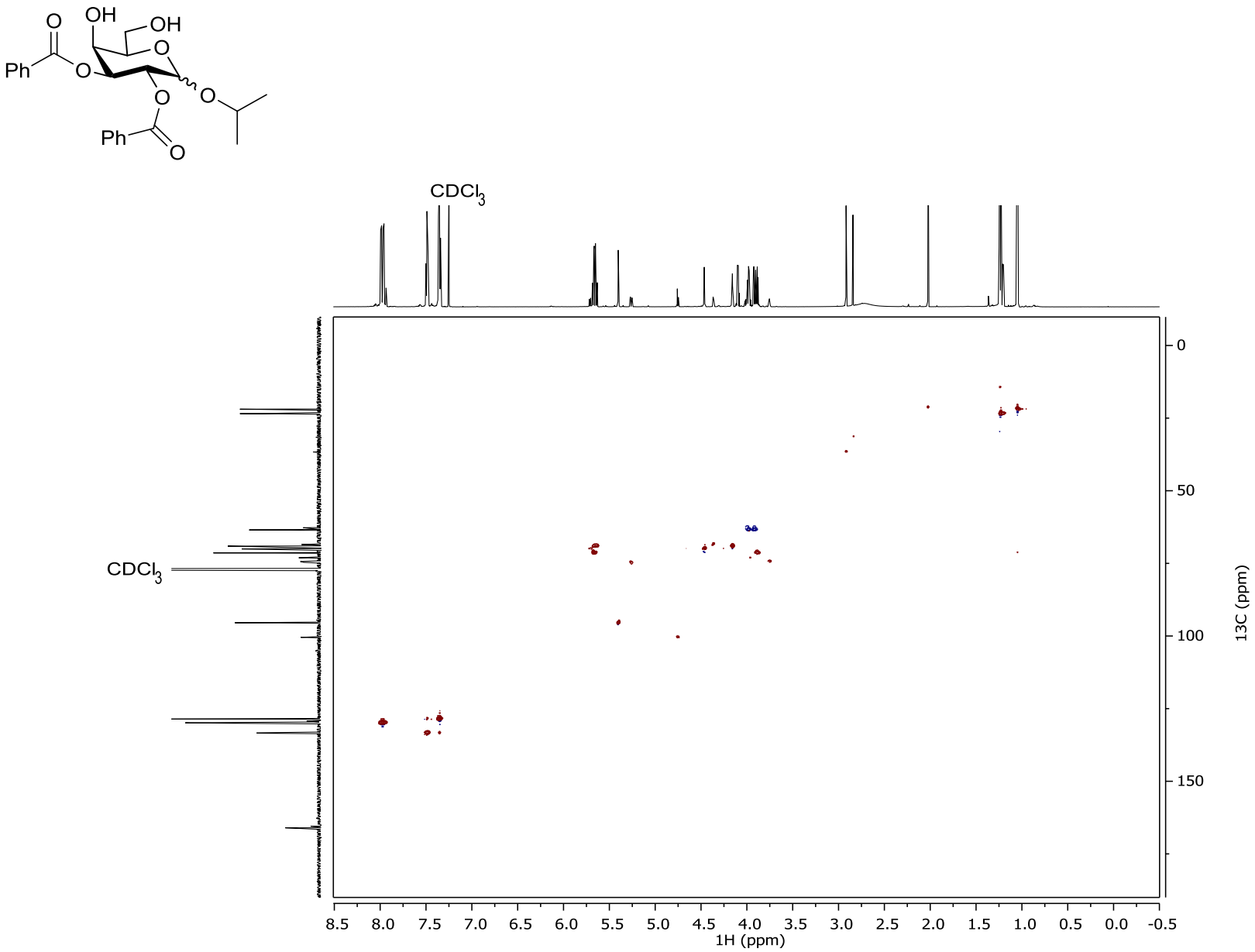


^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) Isopropyl 2,3-di-*O*-benzoyl-D-galactopyranoside (6a)

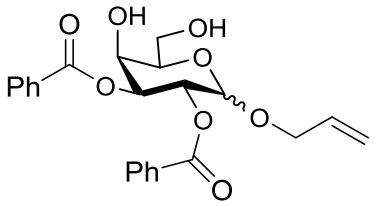


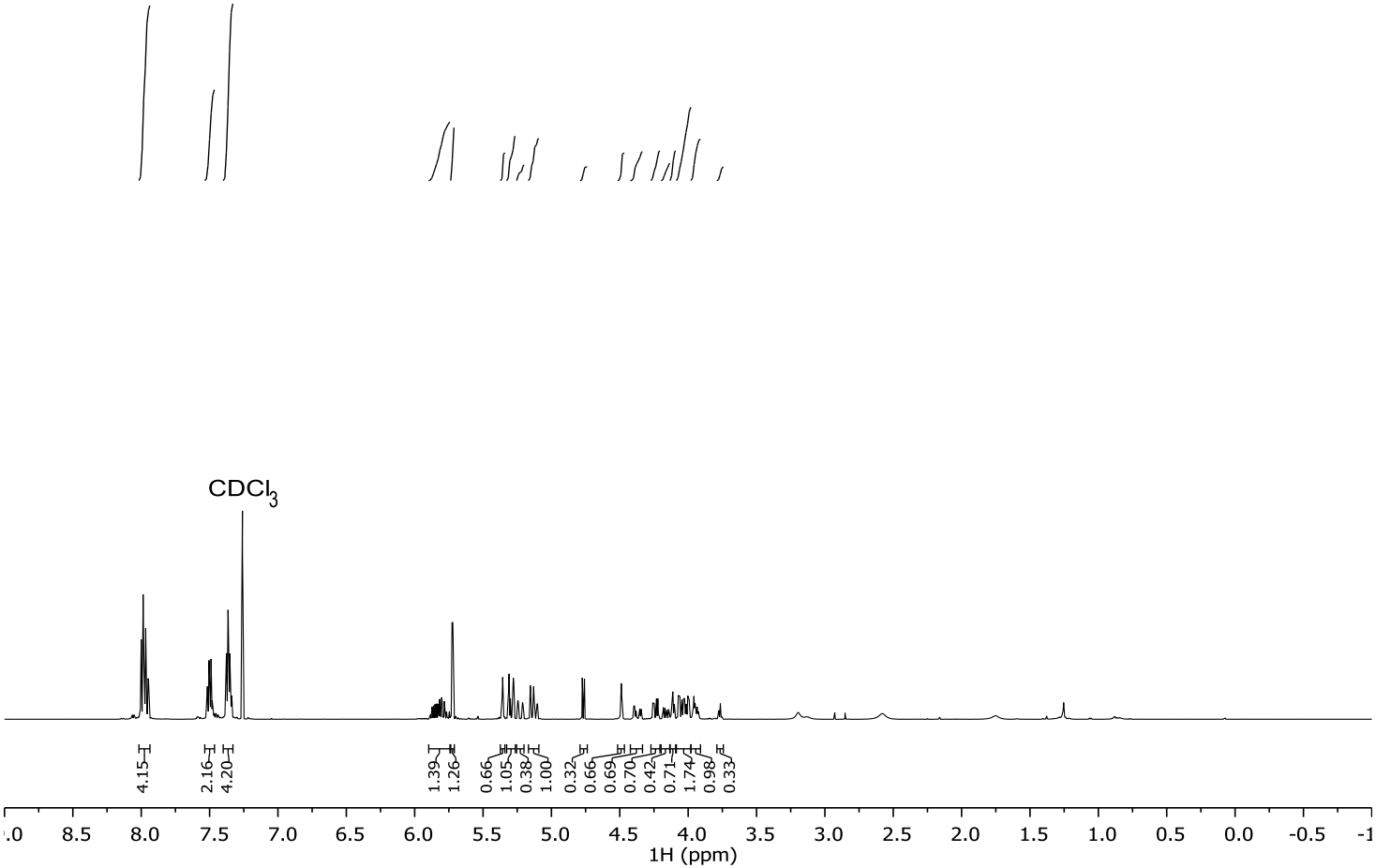


^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) Isopropyl 2,3-di-*O*-benzoyl-D-galactopyranoside (6a)

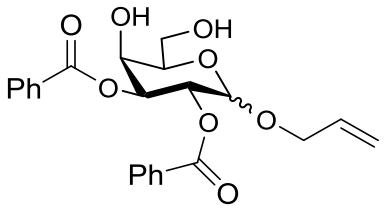


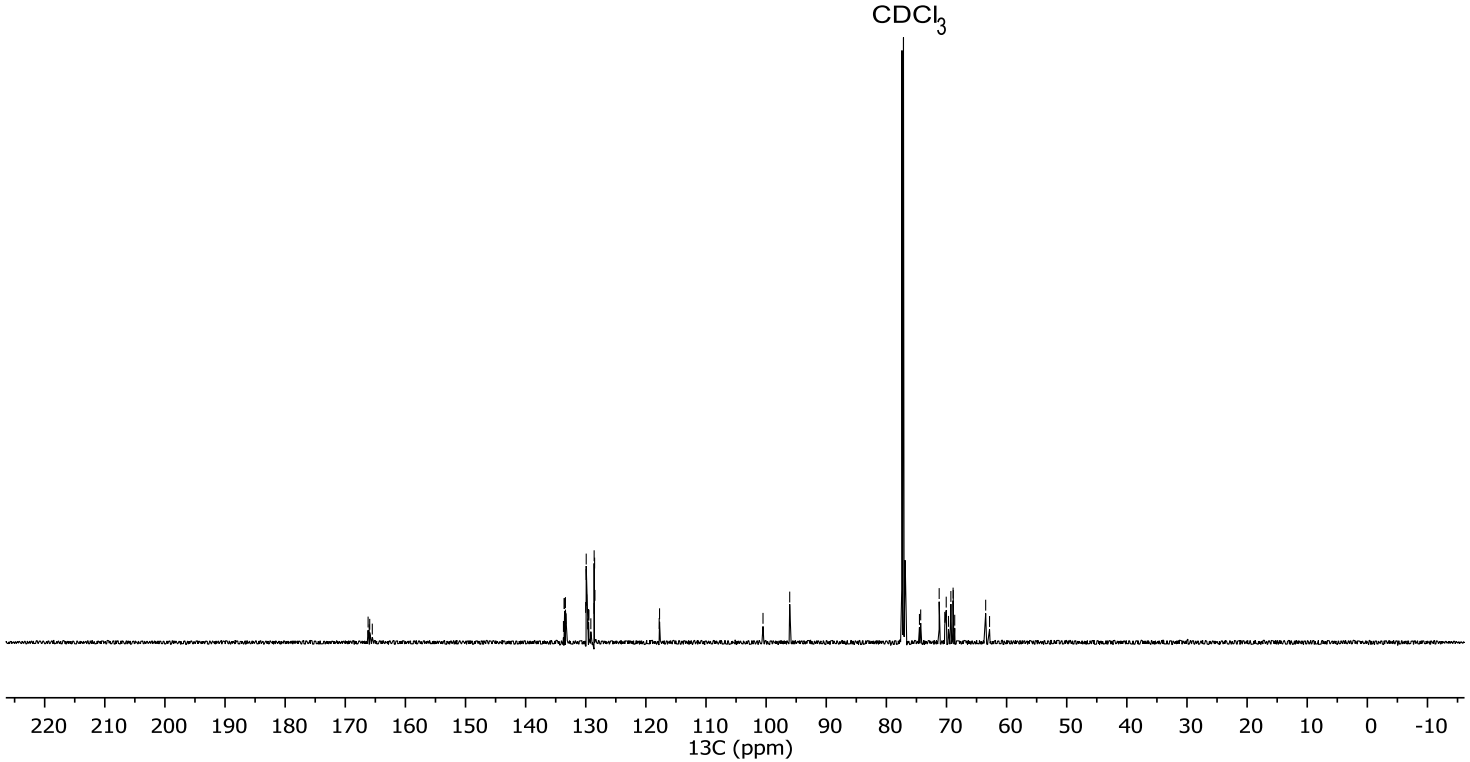
^{1}H NMR (500 MHz, $CDCl_3$) Allyl 2,3-di-*O*-benzoyl-D-galactopyranoside (6b)
α+β peak normalized to 1 proton



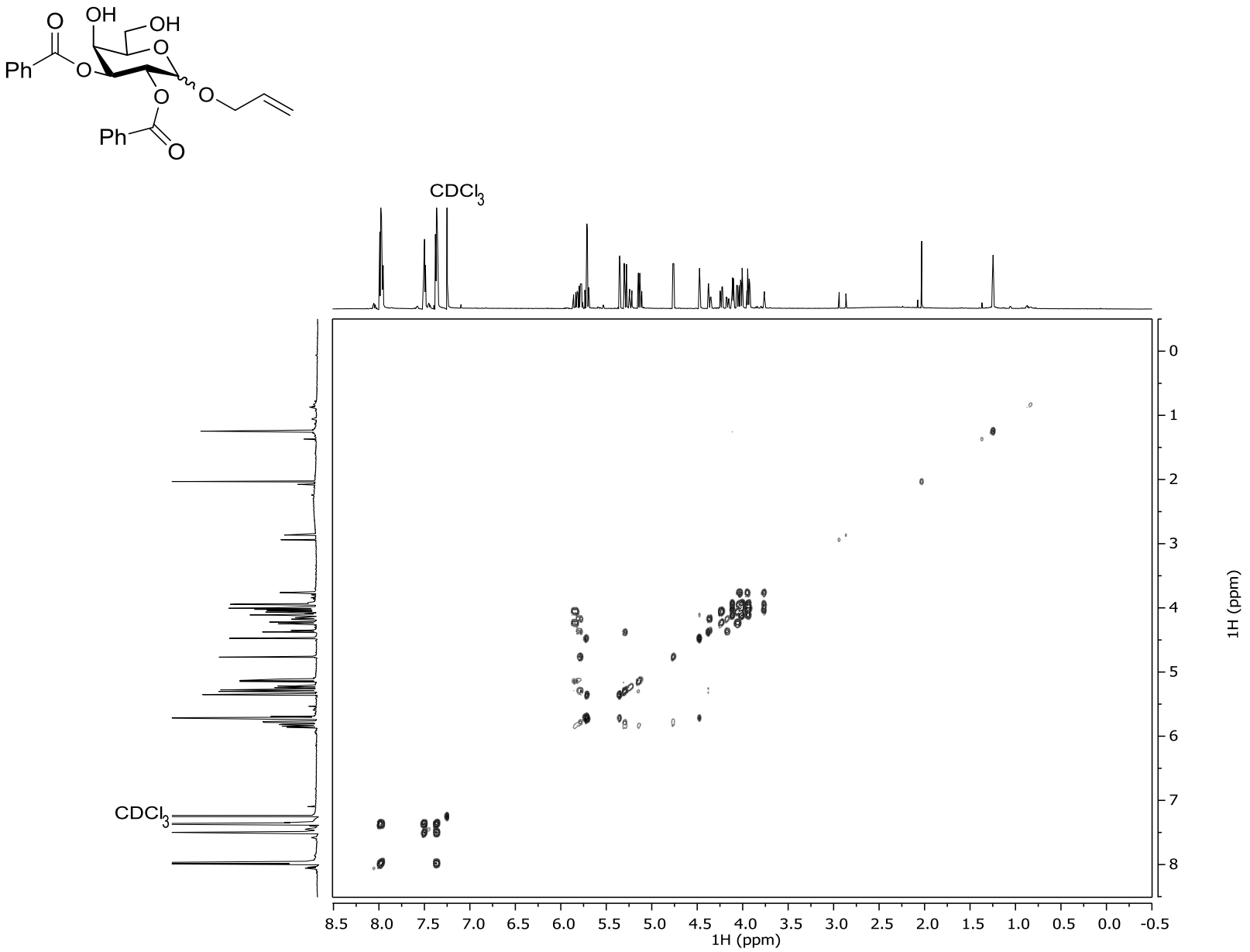


^{13}C NMR (125 MHz, $CDCl_3$) Allyl 2,3-di-*O*-benzoyl-D-galactopyranoside (6b)

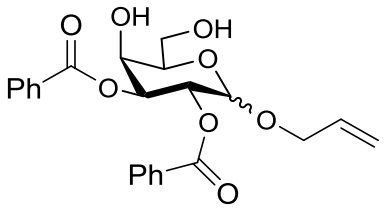


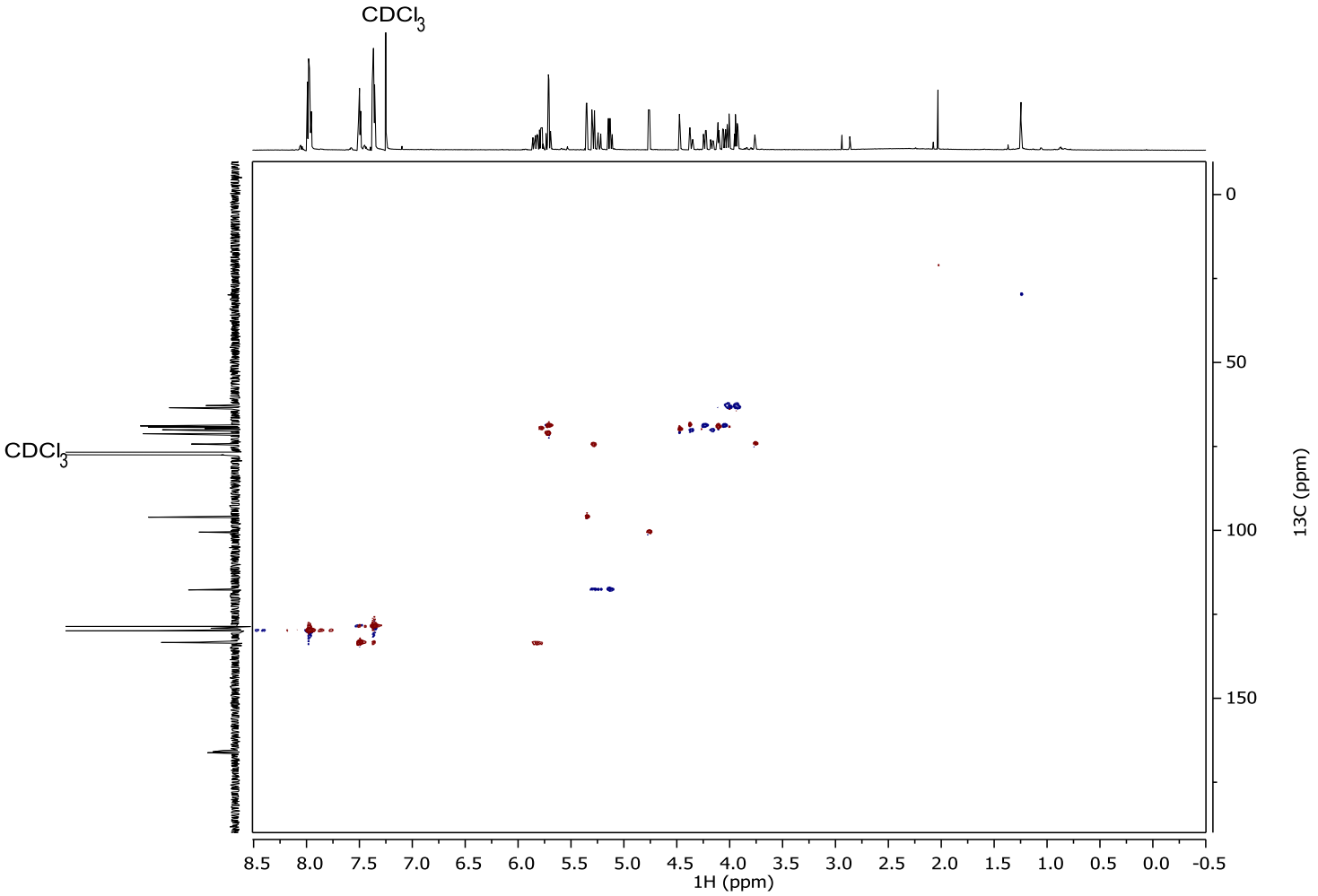


^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) Allyl 2,3-di-*O*-benzoyl-D-galactopyranoside (6b)

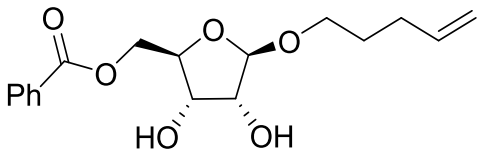


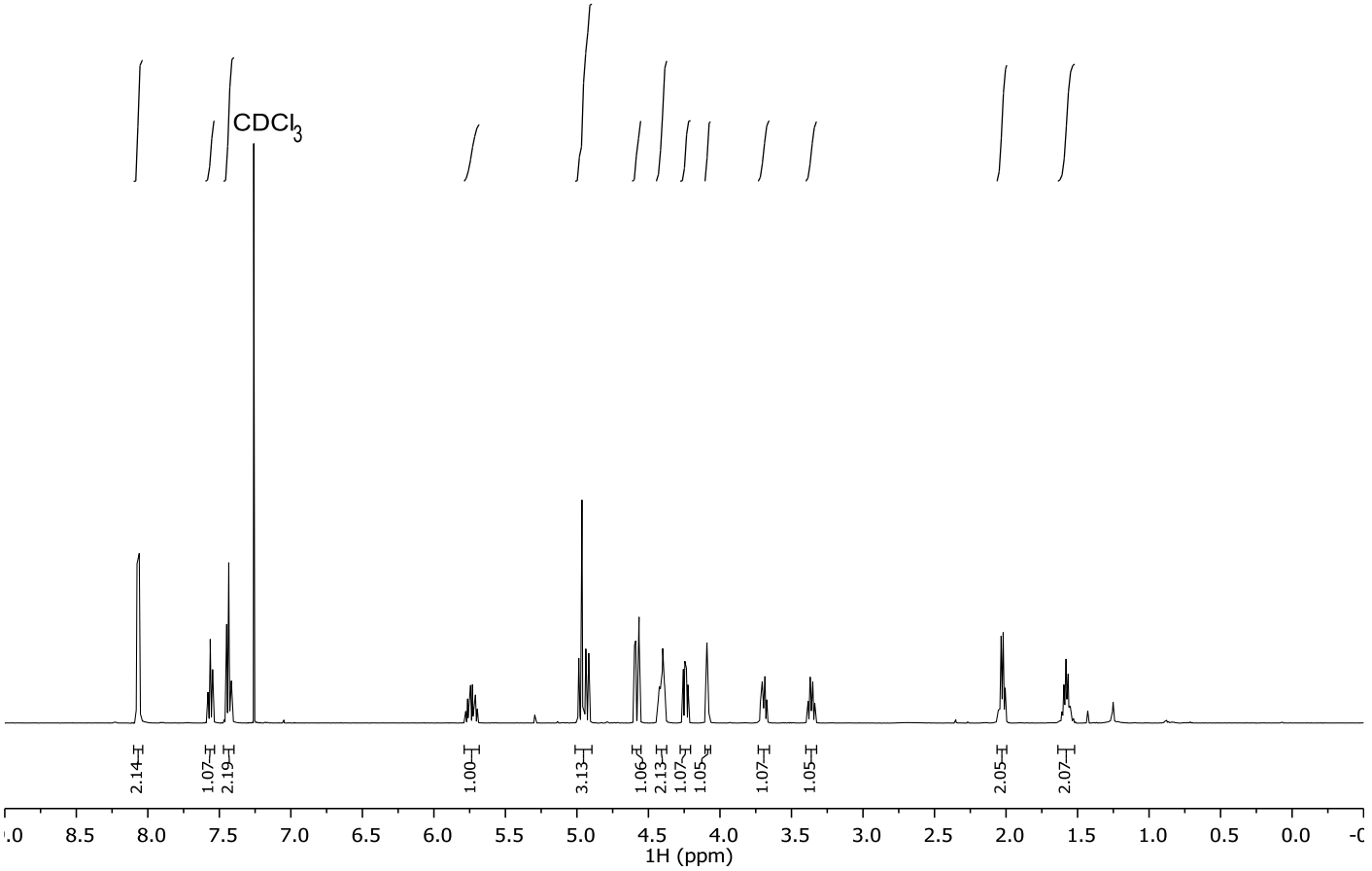
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) Allyl 2,3-di-*O*-benzoyl-D-galactopyranoside (6b)



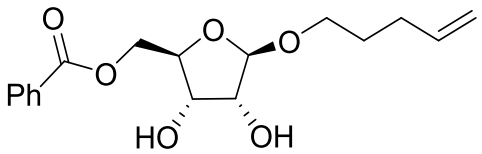


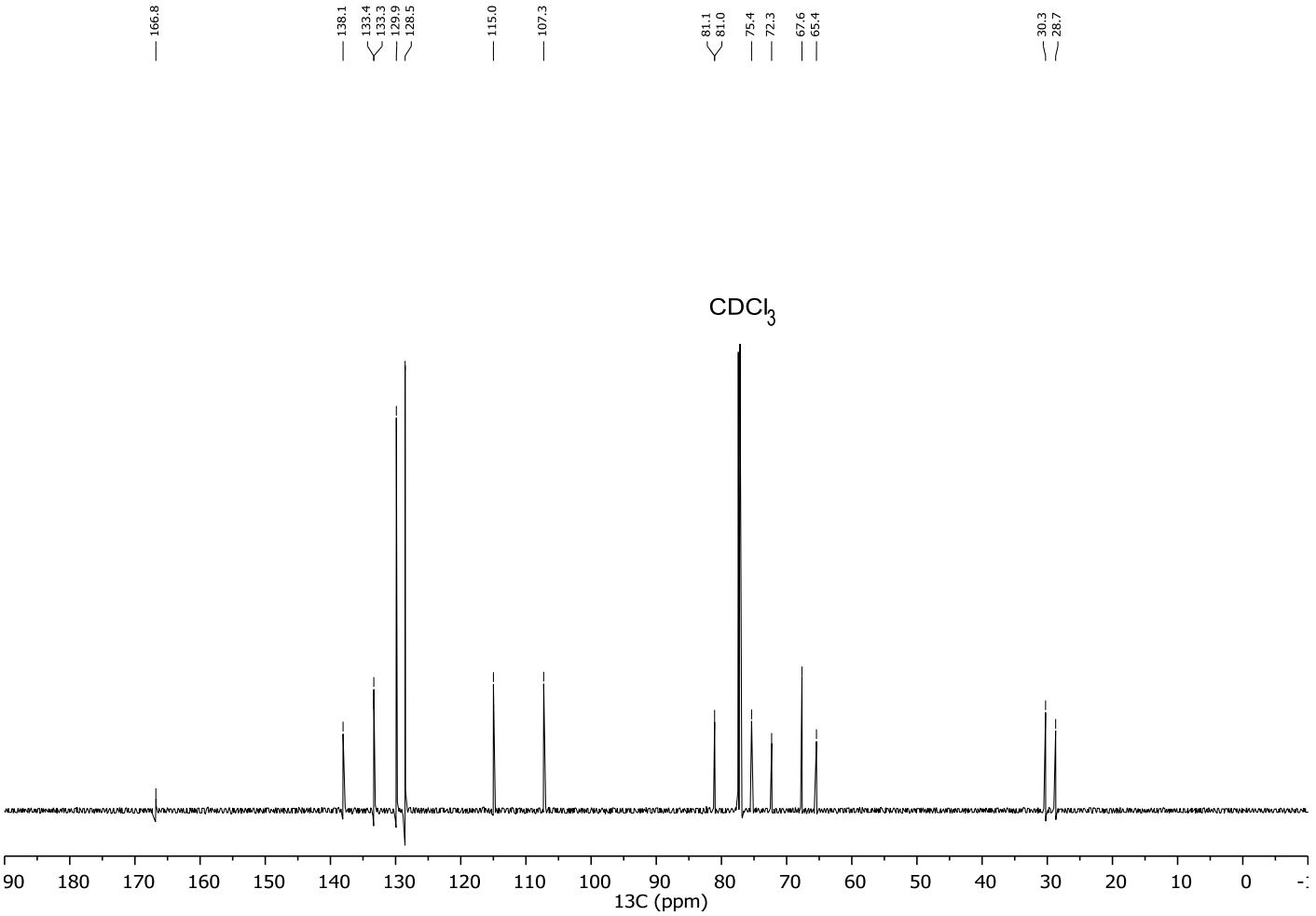
^{1}H NMR (500 MHz, $CDCl_3$) *n*-pentenyl 5-*O*-benzoyl-β-D-ribofuranoside (5)



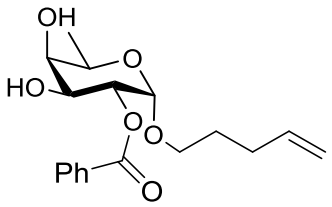


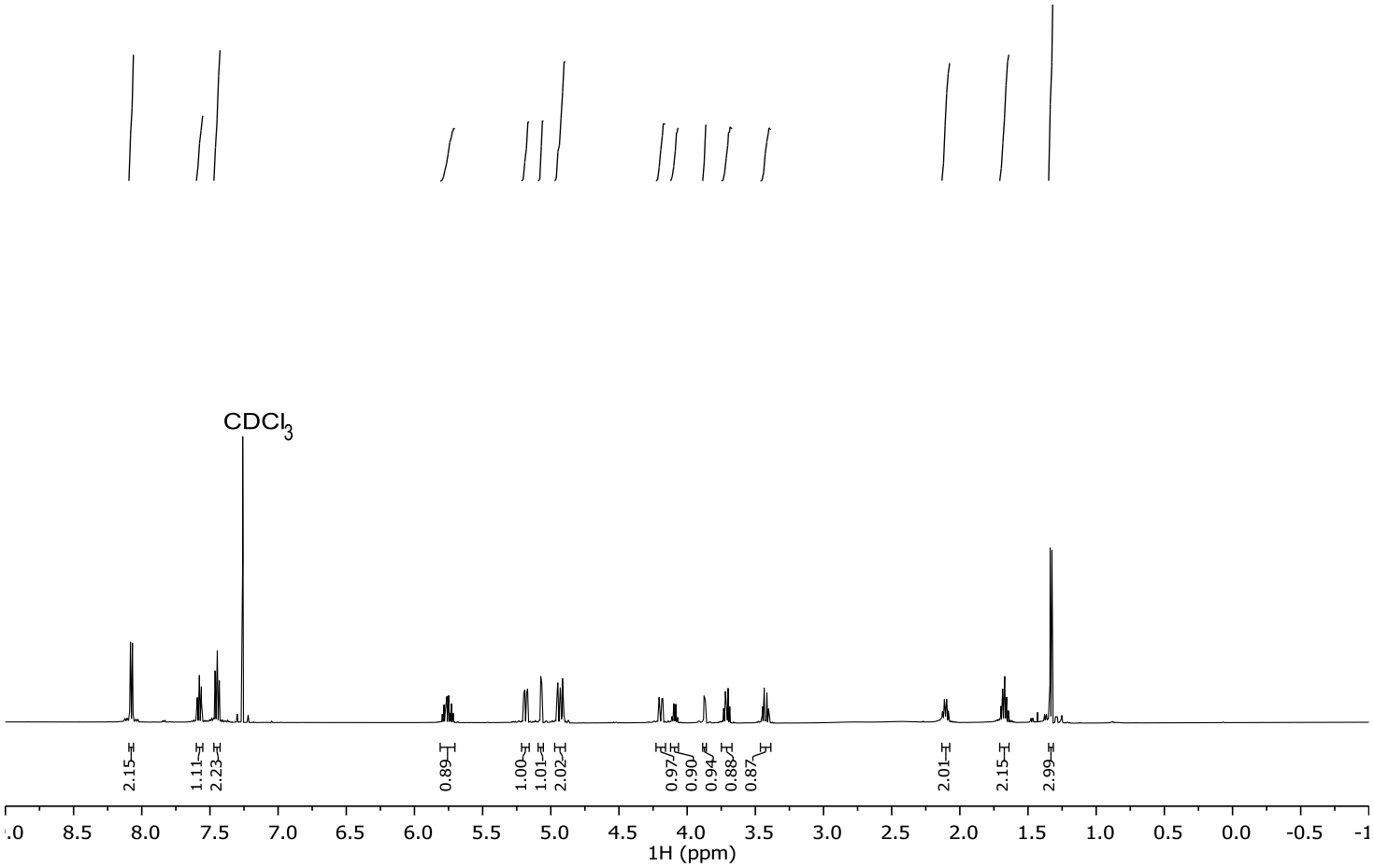
^{13}C NMR (126 MHz, $CDCl_3$) *n*-pentenyl 5-*O*-benzoyl-β-D-ribofuranoside (5)



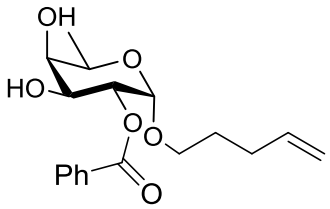


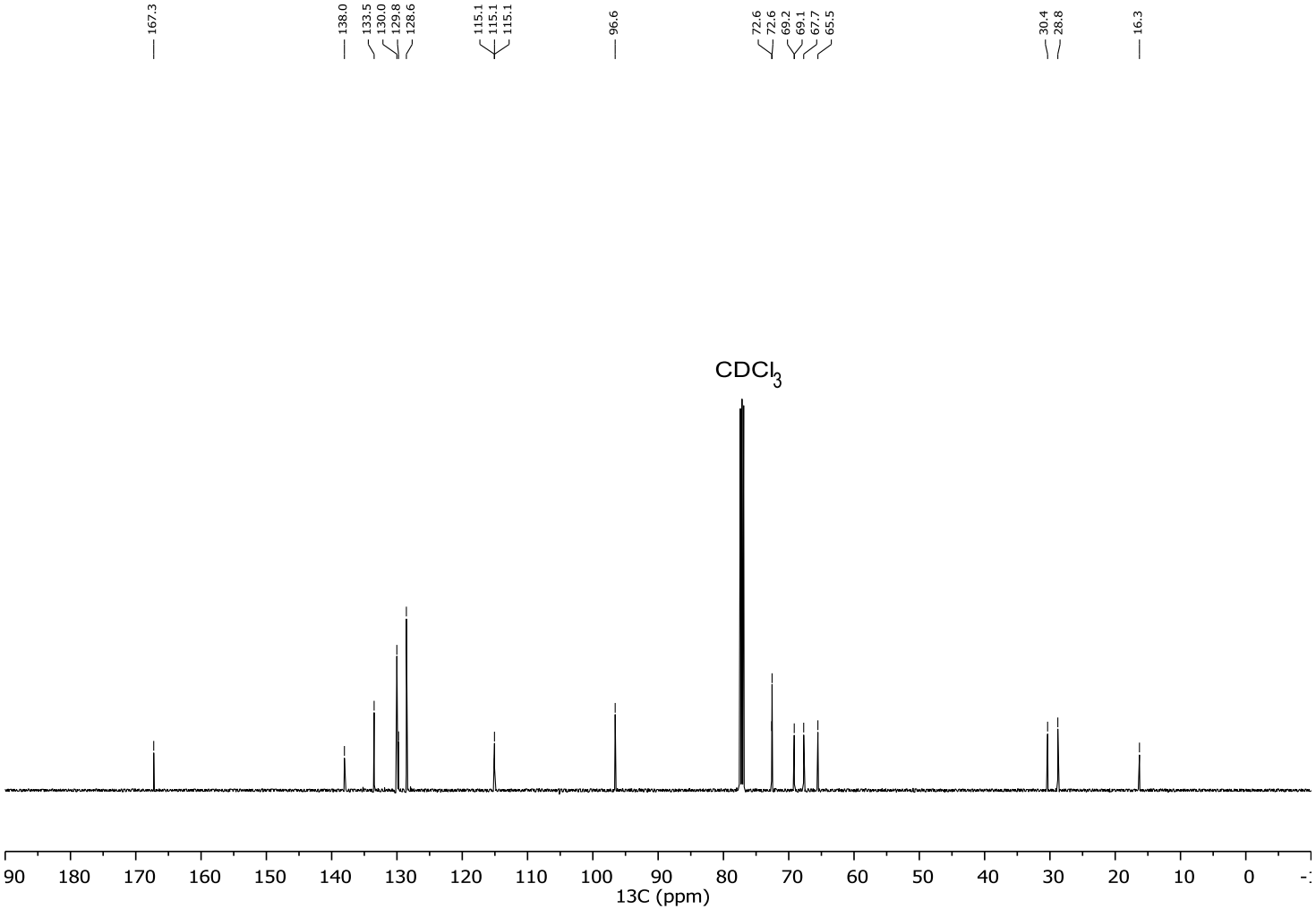
^{1}H NMR (500 MHz, $CDCl_3$) *n*-pentenyl 2-O-benzoyl-α-D-fucopyranoside (α-6c)



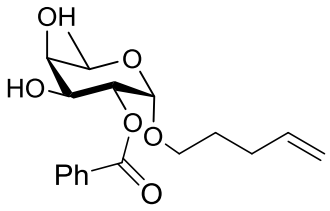


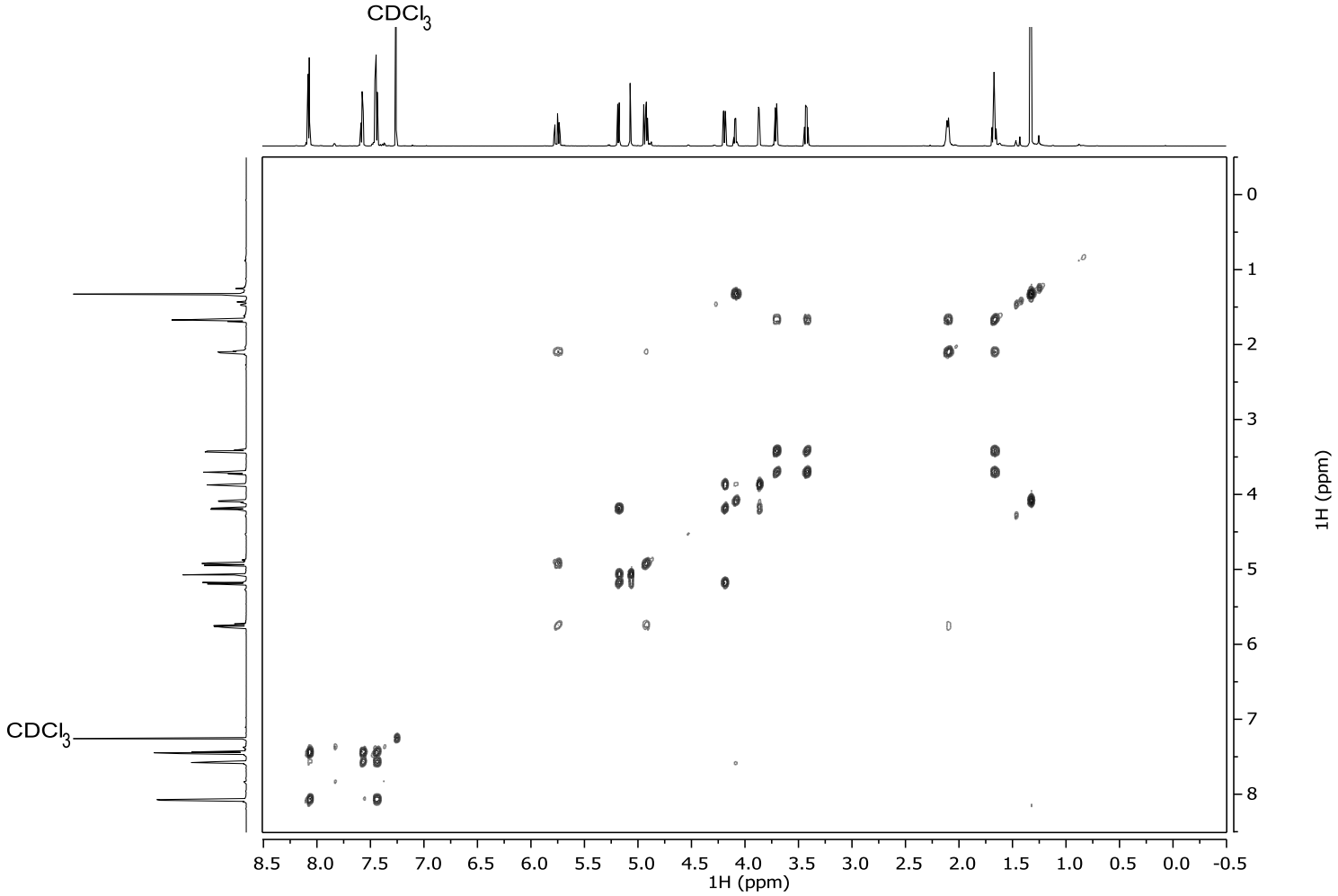
^{13}C NMR (126 MHz, $CDCl_3$) *n*-pentenyl 2-O-benzoyl-α-D-fucopyranoside (α-6c)



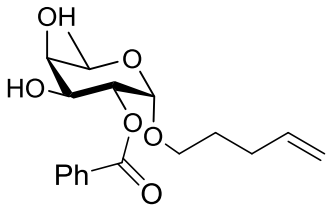


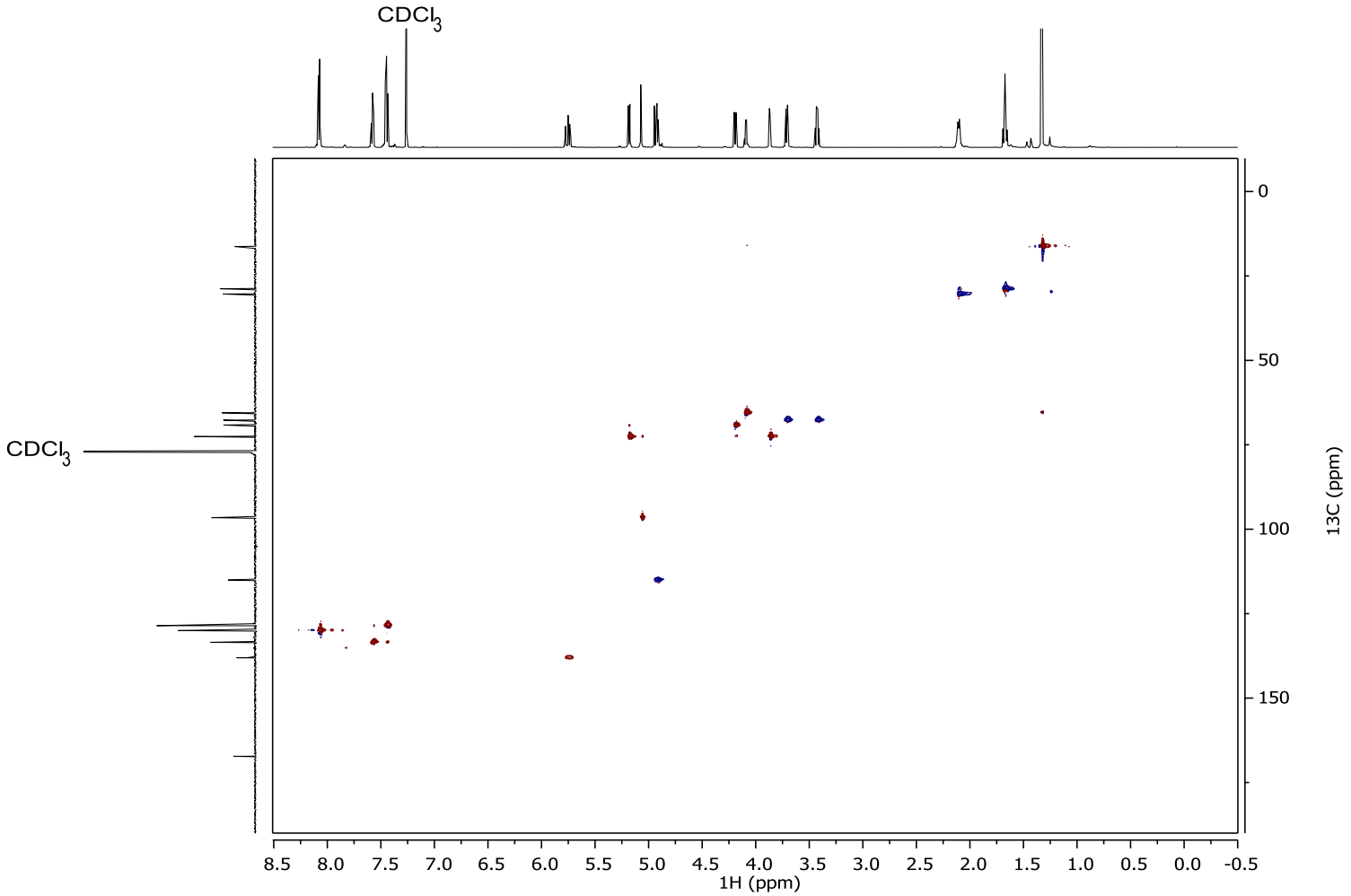
^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-pentenyl 2-O-benzoyl-α-D-fucopyranoside (α-6c)



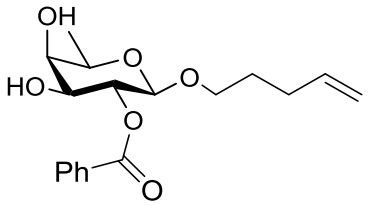


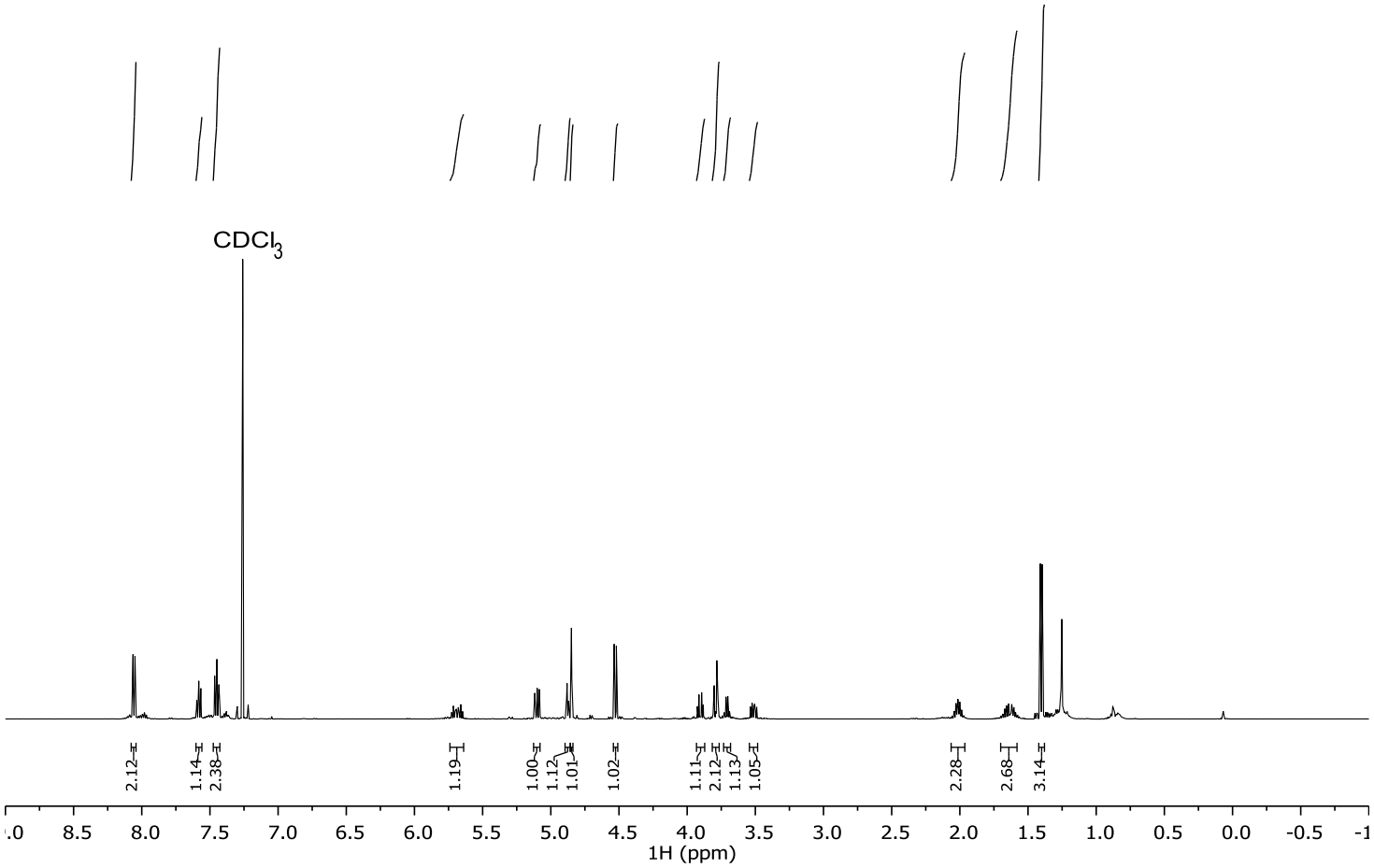
^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-pentenyl 2-O-benzoyl-α-D-fucopyranoside (α-6c)



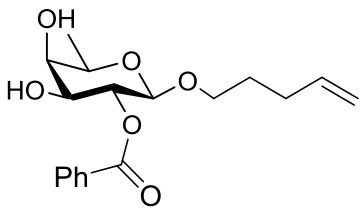


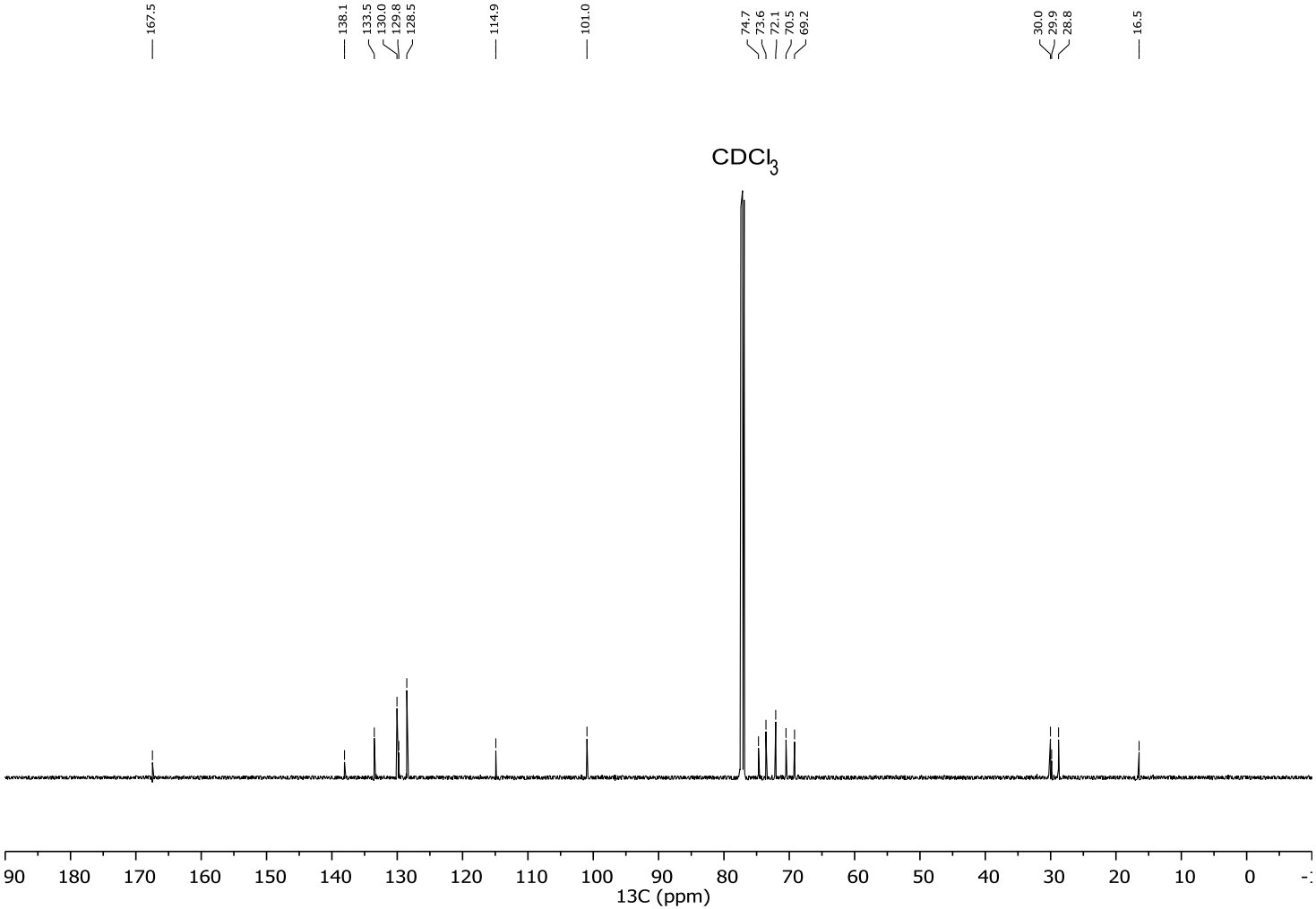
^{1}H NMR (500 MHz, $CDCl_3$) *n*-pentenyl 2-O-benzoyl-β-D-fucopyranoside (β-6c)



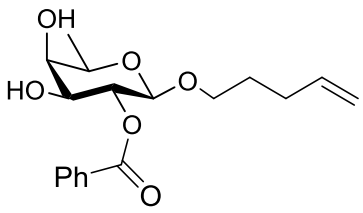


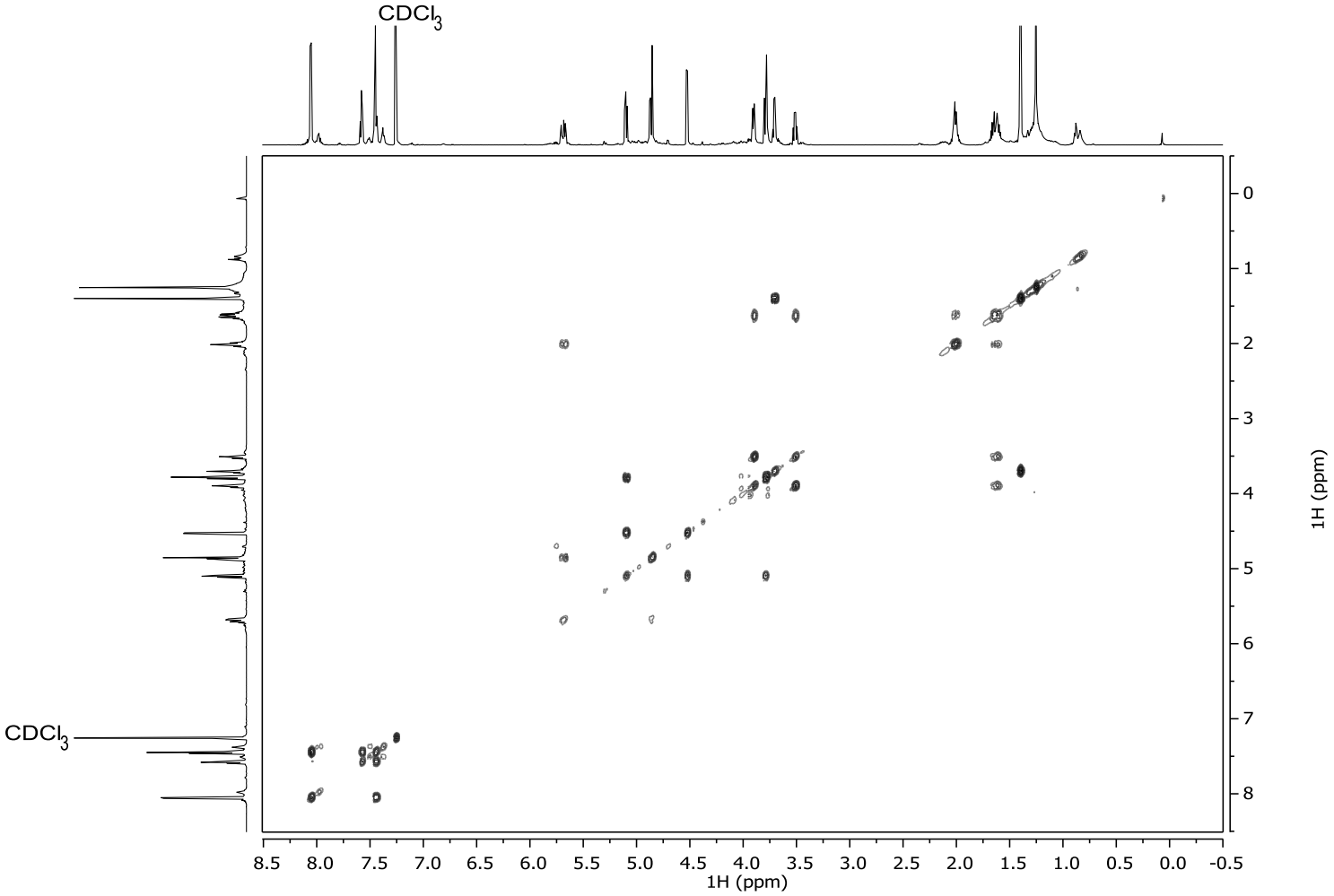
^{13}C NMR (126 MHz, $CDCl_3$) *n*-pentenyl 2-O-benzoyl-β-D-fucopyranoside (β-6c)





^{1}H-^{1}H COSY NMR (700 MHz, $CDCl_3$) *n*-pentenyl 2-O-benzoyl-β-D-fucopyranoside (β-6c)





^{1}H-^{13}C HSQC NMR (700 MHz, $CDCl_3$) *n*-pentenyl 2-O-benzoyl-β-D-fucopyranoside (β-6c)