

Electronic Supplementary Information for

**Cu(ClO₄)₂·6H₂O catalyzed solvent free per-*O*-acetylation and sequential one-pot conversions of
sugars to thioglycosides**

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Table of contents:

Fig. 1 ¹ H-NMR spectra (400 MHz, CDCl ₃) of 1,2,3,4,6-penta- <i>O</i> -acetyl- α -D-glucopyranoside (2a)	S4
Fig. 2 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of 1,2,3,4,6-penta- <i>O</i> -acetyl- α -D-glucopyranoside (2a)	S5
Fig. 3 ¹ H-NMR spectra (400 MHz, CDCl ₃) of 1,2,3,4,6-penta- <i>O</i> -acetyl- α -D-mannopyranoside (2b)	S6
Fig. 4 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of 1,2,3,4,6-penta- <i>O</i> -acetyl- α -D-mannopyranoside (2b)	S7
Fig. 5 ¹ H-NMR spectra (400 MHz, CDCl ₃) of 1,2,3,4,6-penta- <i>O</i> -acetyl-D-galactopyranoside (2c)	S8
Fig. 6 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of 1,2,3,4,6-penta- <i>O</i> -acetyl-D-galactopyranoside (2c)	S9
Fig. 7 ¹ H-NMR spectra (400 MHz, CDCl ₃) of 1,3,4,6-tetra- <i>O</i> -acetyl-2- <i>N</i> -acetyl- α -D-glucosamine (2d)	S10
Fig. 8 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of 1,3,4,6-tetra- <i>O</i> -acetyl-2- <i>N</i> -acetyl- α -D-glucosamine (2d)	S11
Fig. 9 ¹ H-NMR spectra (400 MHz, CDCl ₃) of 1,3,4,6-tetra- <i>O</i> -acetyl-2-phthalimido-2-deoxy- β -D-glucopyranoside (2e)	S12
Fig. 10 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of 1,3,4,6-tetra- <i>O</i> -acetyl-2-phthalimido-2-deoxy- β -D-glucopyranoside (2e)	S13
Fig. 11 ¹ H-NMR spectra (400 MHz, CDCl ₃) of 1,3,4,6-tetra- <i>O</i> -acetyl-2-azido-2-deoxy-D-glucopyranoside (2f)	S14
Fig. 12 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of 1,3,4,6-tetra- <i>O</i> -acetyl-2-azido-2-deoxy-D-glucopyranoside (2f)	S15
Fig. 13 ¹ H-NMR spectra (400 MHz, CDCl ₃) of 1,2,3,4-Tetra- <i>O</i> -acetyl-D-xylopyranoside (2g)	S16
Fig. 14 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of 1,2,3,4-Tetra- <i>O</i> -acetyl-D-xylopyranoside (2g)	S17
Fig. 15 ¹ H-NMR spectra (400 MHz, CDCl ₃) of 1- <i>O</i> -Methyl-2,3,4,6-tetra- <i>O</i> -acetyl- α -D-glucopyranoside (2h)	S18
Fig. 16 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of 1- <i>O</i> -Methyl-2,3,4,6-tetra- <i>O</i> -acetyl- α -D-glucopyranoside (2h)	S19
Fig.17 ¹ H-NMR spectra (400 MHz, CDCl ₃) of Hexa- <i>O</i> -acetyl- <i>myo</i> -inositol (2i)	S20
Fig. 18 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of Hexa- <i>O</i> -acetyl- <i>myo</i> -inositol (2i)	S21
Fig. 19 ¹ H-NMR spectra (400 MHz, CDCl ₃) of Hexa- <i>O</i> -acetyl-D-mannitol (2j)	S22
Fig. 20 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of Hexa- <i>O</i> -acetyl-D-mannitol (2j)	S23

Fig. 21 ¹ H-NMR spectra (400 MHz, CDCl ₃) of D-maltose octa- <i>O</i> -acetate (2k)	S24
Fig. 22 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of D-maltose octa- <i>O</i> -acetate (2k)	S25
Fig. 23 ¹ H-NMR spectra (400 MHz, CDCl ₃) of Sucrose octa- <i>O</i> -acetate (2l)	S26
Fig. 24 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of Sucrose octa- <i>O</i> -acetate (2l)	S27
Fig. 25 ¹ H-NMR spectra (400 MHz, CDCl ₃) of Per- <i>O</i> -acetylated β-cyclodextrin (2m)	S28
Fig. 26 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of Per- <i>O</i> -acetylated β-cyclodextrin (2m)	S29
Fig. 27 ¹ H-NMR spectra (400 MHz, CDCl ₃) of <i>p</i> -Tolyl 2,3,4,6- <i>O</i> -acetyl-1-thio-β-D-glucopyranoside (3a)	S30
Fig. 28 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of <i>p</i> -Tolyl 2,3,4,6- <i>O</i> -acetyl-1-thio-β-D-glucopyranoside (3a)	S31
Fig. 29 ¹ H-NMR spectra (400 MHz, CDCl ₃) of <i>p</i> -Tolyl 2,3,4,6-tetra- <i>O</i> -acetyl-1-thio-α-D-mannopyranoside (3b)	S32
Fig. 30 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of <i>p</i> -Tolyl 2,3,4,6-tetra- <i>O</i> -acetyl-1-thio-α-D-mannopyranoside (3b)	S33
Fig. 31 ¹ H-NMR spectra (400 MHz, CDCl ₃) of <i>p</i> -Tolyl 2,3,4,6-tetra- <i>O</i> -acetyl-1-thio-β-D-galactopyranoside (3c)	S34
Fig. 32 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of <i>p</i> -Tolyl 2,3,4,6-tetra- <i>O</i> -acetyl-1-thio-β-D-galactopyranoside (3c)	S35
Fig. 33 ¹ H-NMR spectra (400 MHz, CDCl ₃) of <i>p</i> -Tolyl 2-acetamido-3,4,6-tri- <i>O</i> -acetyl-2-deoxy-1-thio-β-D-glucopyranoside (3d)	S36
Fig. 34 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of <i>p</i> -Tolyl 2-acetamido-3,4,6-tri- <i>O</i> -acetyl-2-deoxy-1-thio-β-D-glucopyranoside (3d)	S37
Fig. 35 ¹ H-NMR spectra (400 MHz, CDCl ₃) of <i>p</i> -Tolyl 3,4,6-tri- <i>O</i> -acetyl-2-phthalimido-2-deoxy-1-thio-β-D-glucopyranoside (3e)	S38
Fig. 36 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of <i>p</i> -Tolyl 3,4,6-tri- <i>O</i> -acetyl-2-phthalimido-2-deoxy-1-thio-β-D-glucopyranoside (3e)	S39
Fig. 37 ¹ H-NMR spectra (500 MHz, CDCl ₃) of <i>p</i> -Tolyl 3,4,6-Tri- <i>O</i> -acetyl-2-azido-2-deoxy-1-thio-D-glucopyranoside (3f)	S40
Fig. 38 ¹³ C-NMR spectra (100 MHz, CDCl ₃) of <i>p</i> -Tolyl 3,4,6-Tri- <i>O</i> -acetyl-2-azido-2-deoxy-1-thio-D-glucopyranoside (3f)	S41

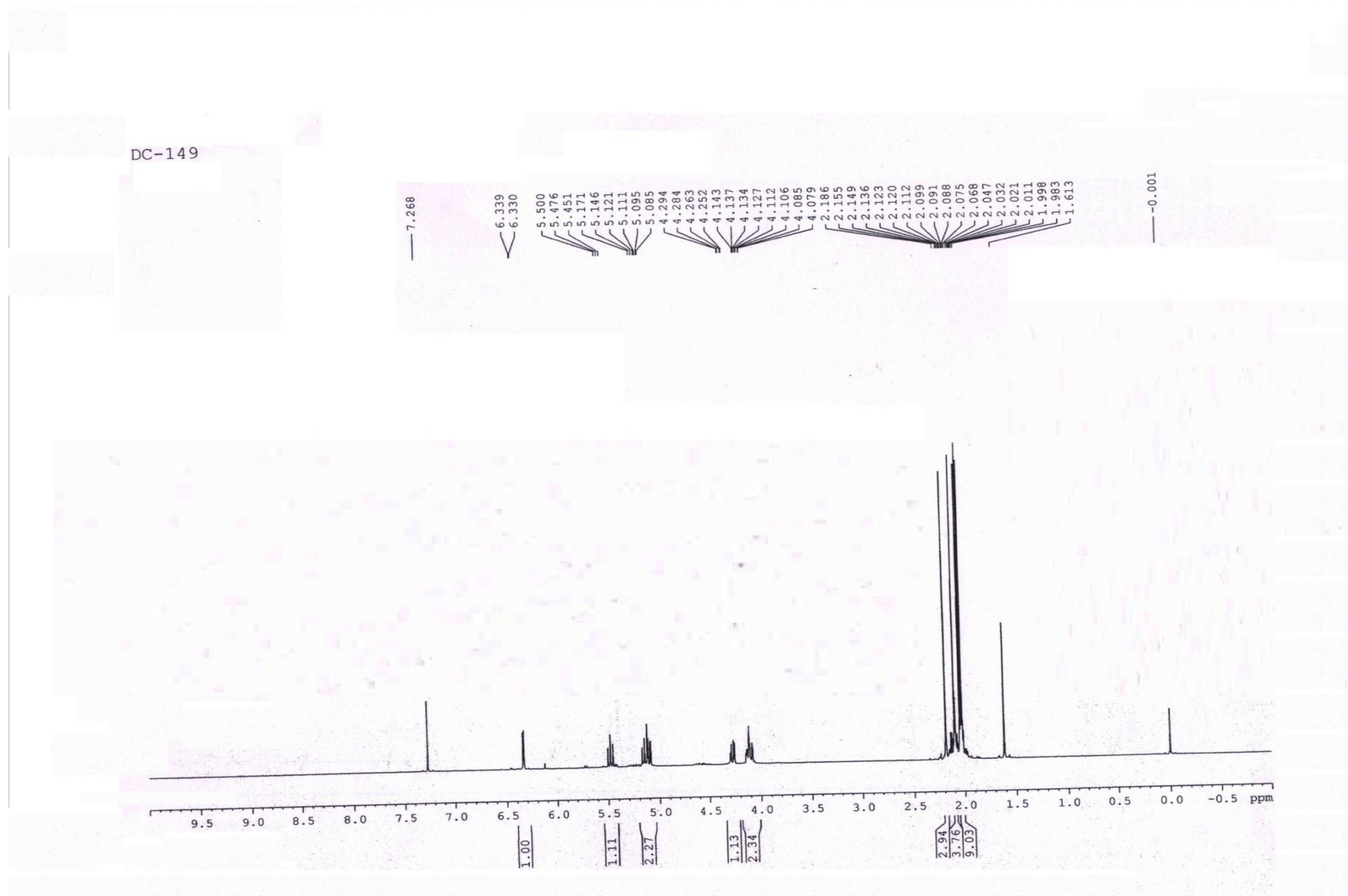


Fig. 1 $^1\text{H-NMR}$ spectra (400 MHz, CDCl_3) of 1,2,3,4,6-penta-*O*-acetyl- α -D-glucopyranoside (**2a**)

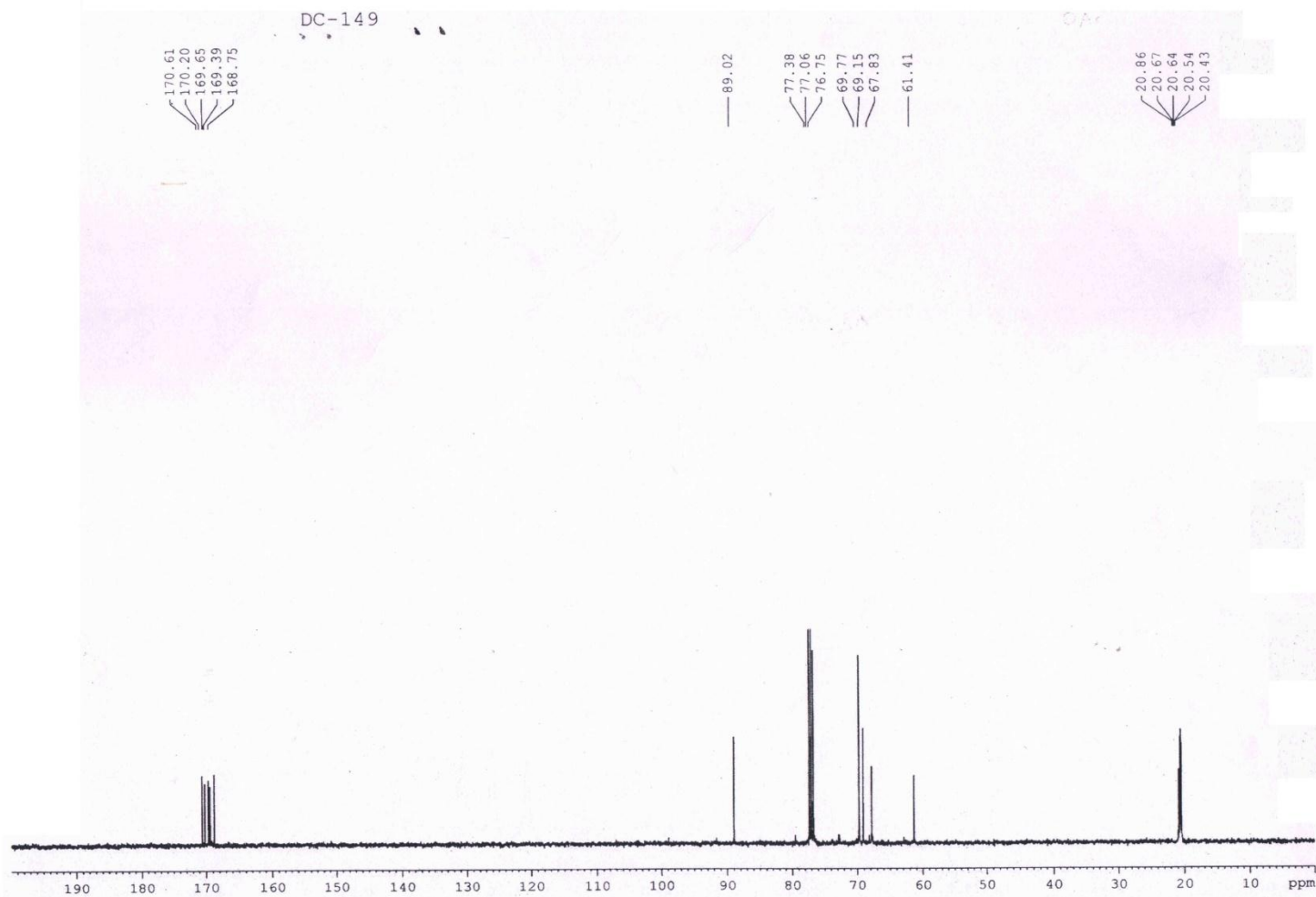


Fig. 2 ¹³C-NMR spectra (100 MHz, CDCl₃) of 1,2,3,4,6-penta-*O*-acetyl- α -D-glucopyranoside (**2a**)

DC - 163 (D)

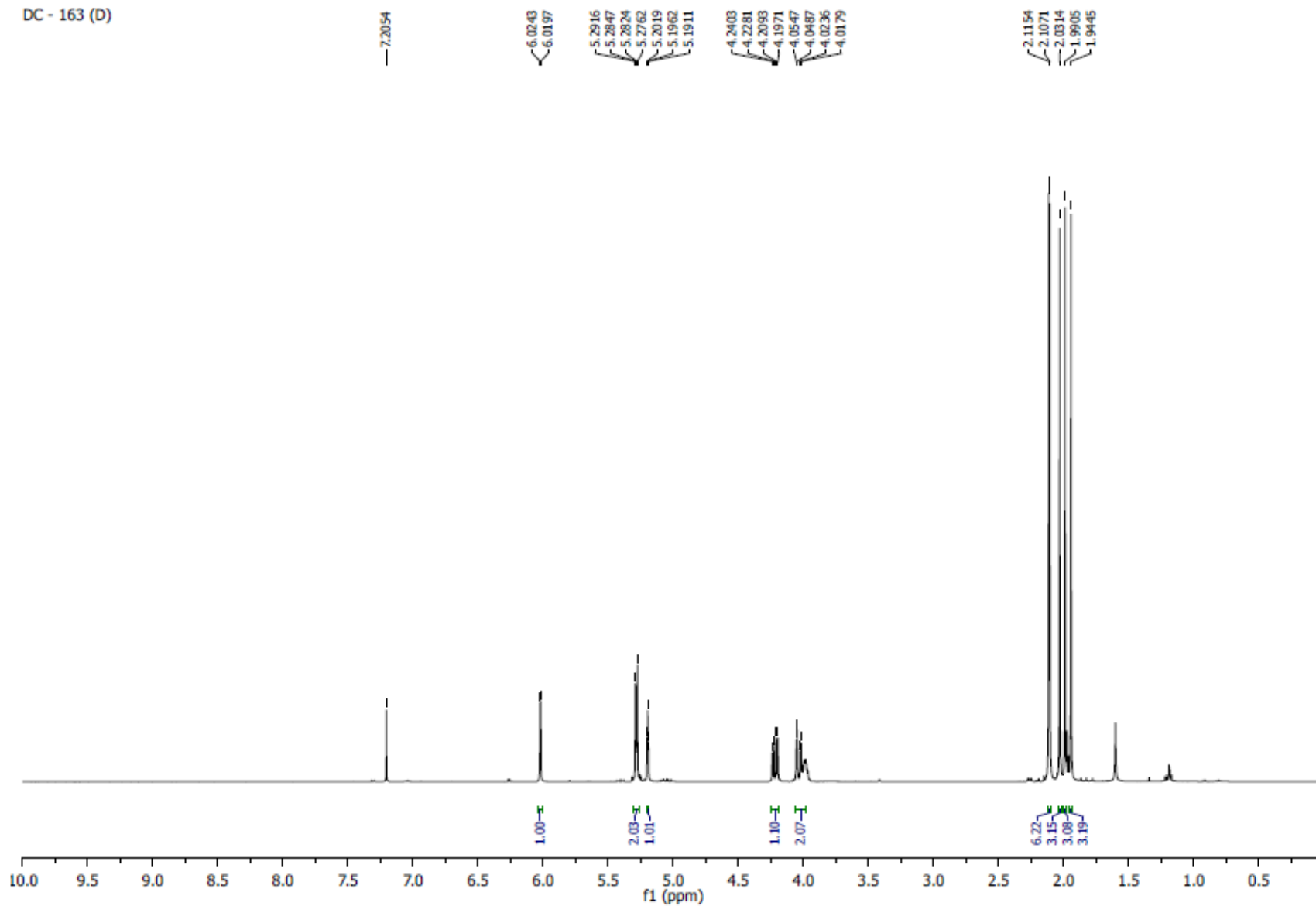


Fig. 3 $^1\text{H-NMR}$ spectra (400 MHz, CDCl_3) of 1,2,3,4,6-penta-*O*-acetyl- α -D-mannopyranoside (**2b**)

DC - 163 (D)

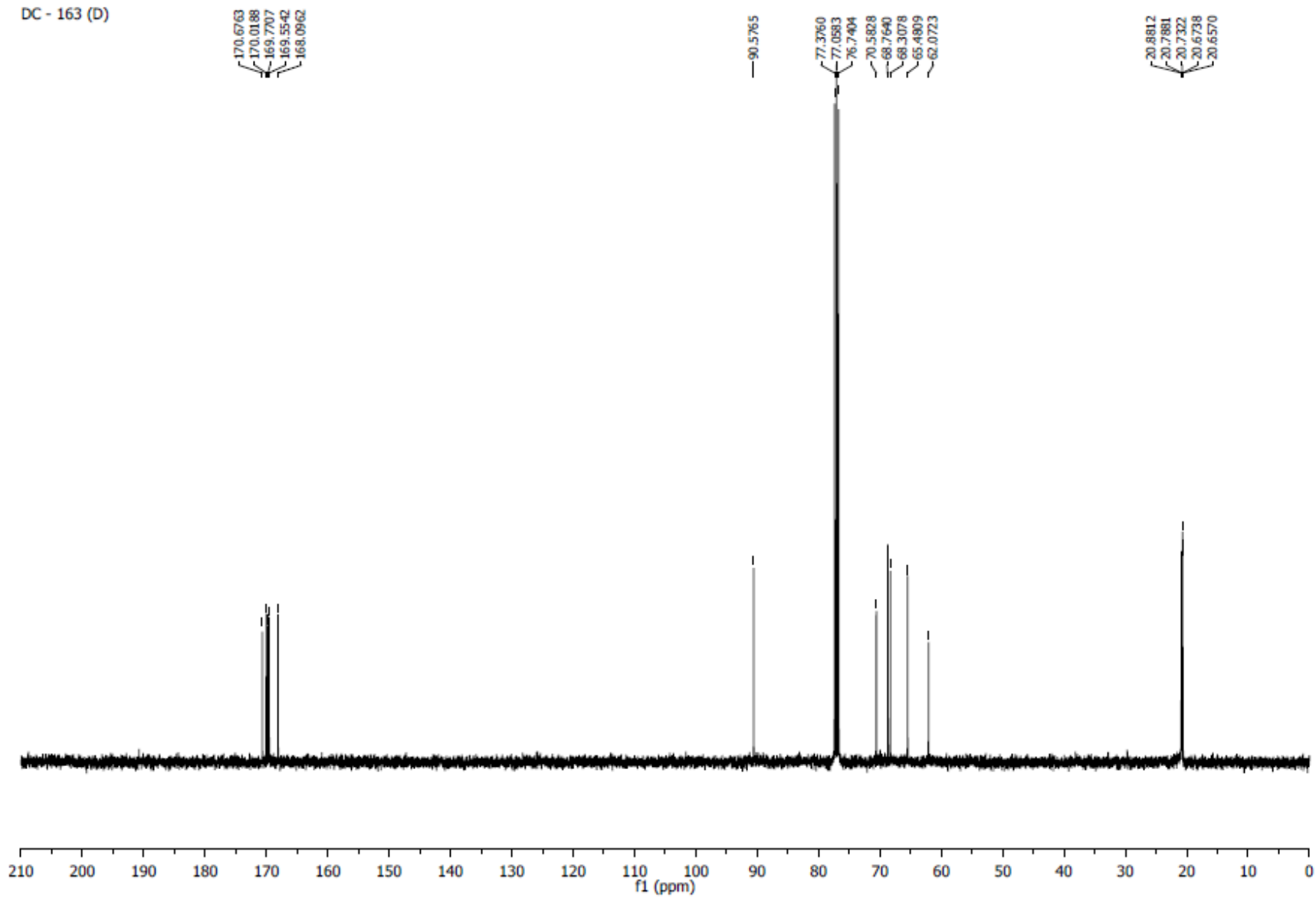


Fig. 4 ^{13}C -NMR spectra (100 MHz, CDCl_3) of 1,2,3,4,6-penta-*O*-acetyl- α -D-mannopyranoside (**2b**)

DC - 144

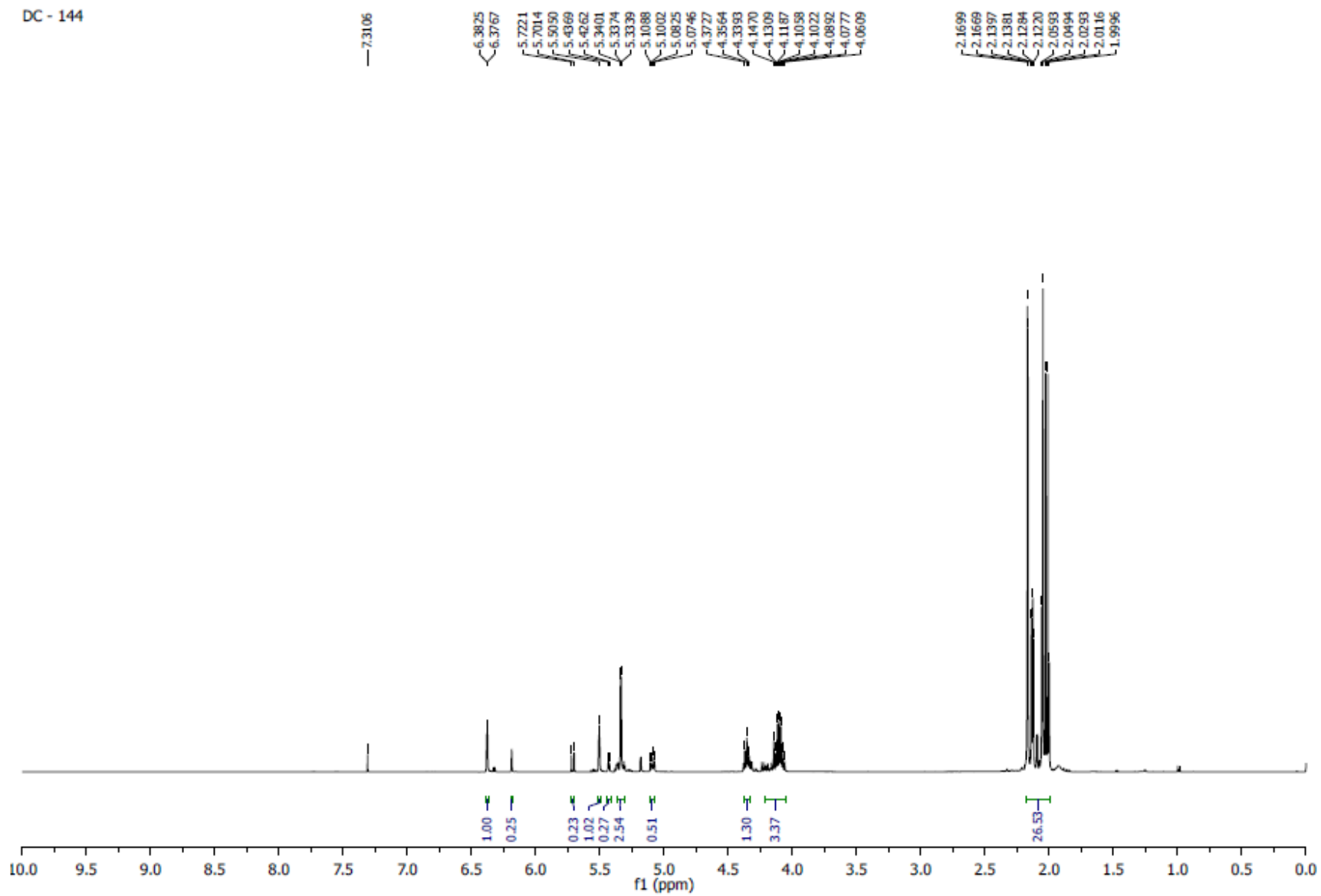


Fig. 5 ¹H-NMR spectra (400 MHz, CDCl₃) of 1,2,3,4,6-penta-*O*-acetyl-D-galactopyranoside (**2c**)

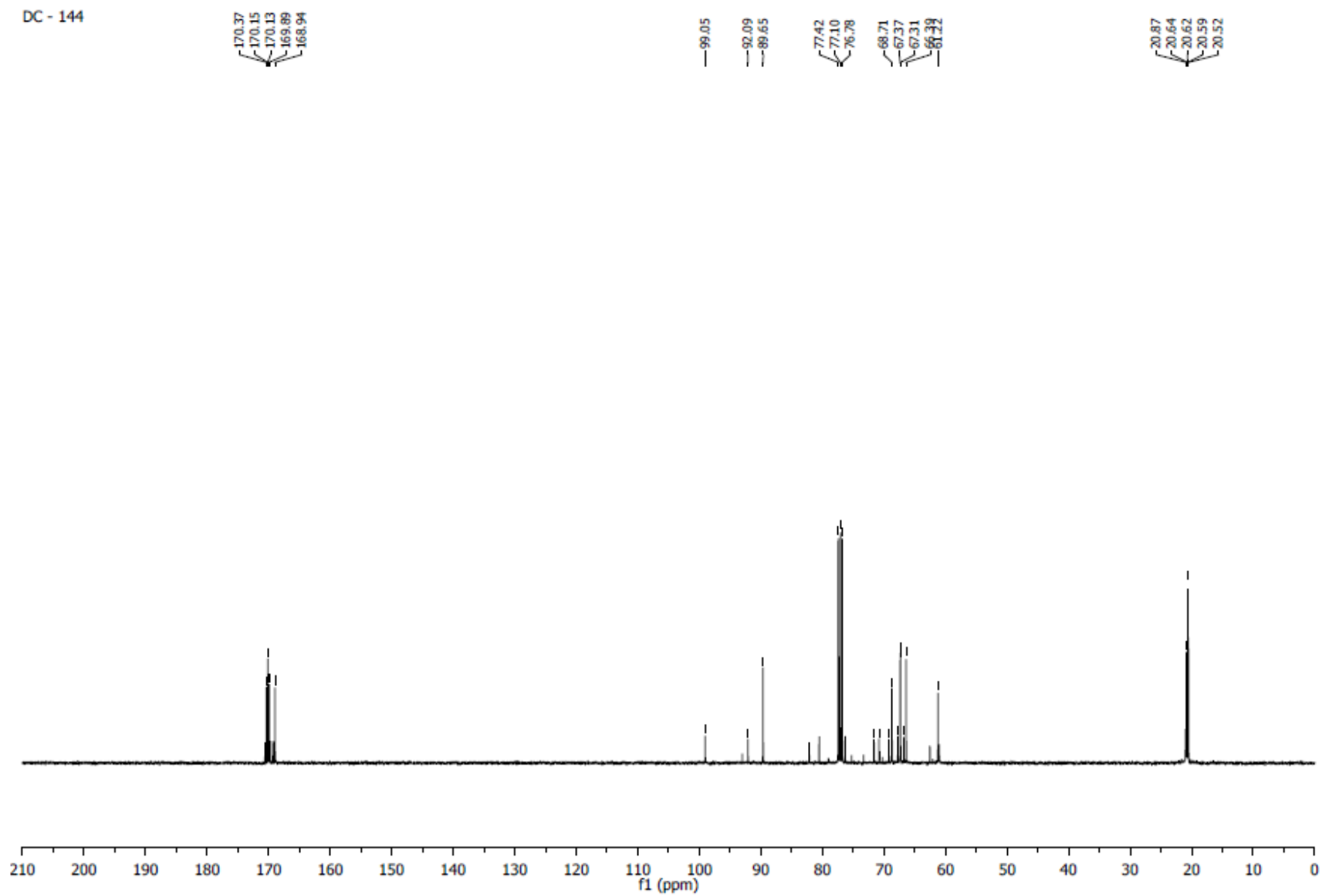


Fig. 6 ^{13}C -NMR spectra (100 MHz, CDCl_3) of 1,2,3,4,6-penta-*O*-acetyl-*D*-galactopyranoside (**2c**)

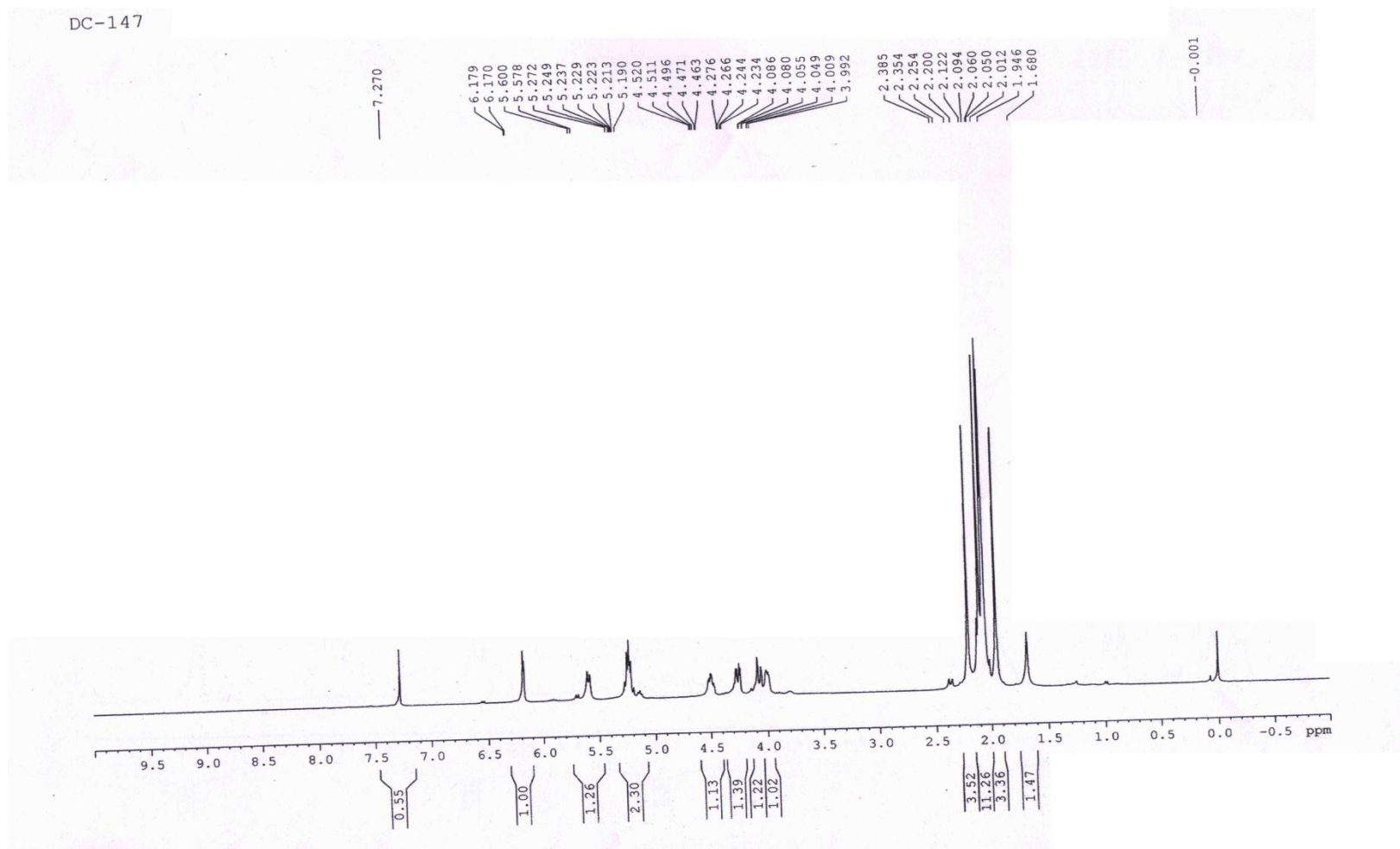


Fig. 7 $^1\text{H-NMR}$ spectra (400 MHz, CDCl_3) of 1,3,4,6-tetra-*O*-acetyl-2-*N*-acetyl- α -D-glucosamine (**2d**)

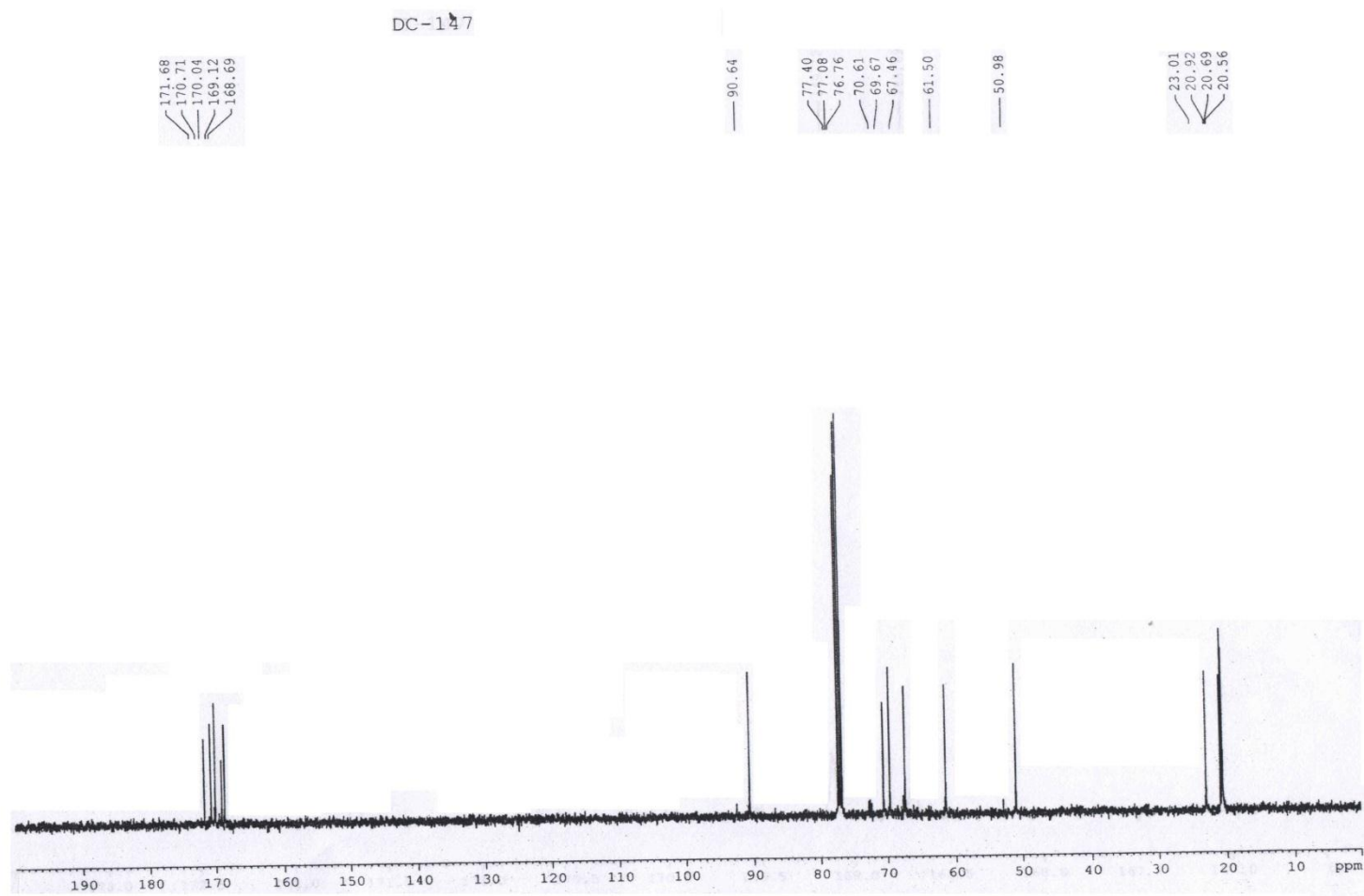


Fig. 8 ^{13}C -NMR spectra (100 MHz, CDCl_3) of 1,3,4,6-tetra-*O*-acetyl-2-*N*-acetyl- α -*D*-glucosamine (**2d**)

DC - 184

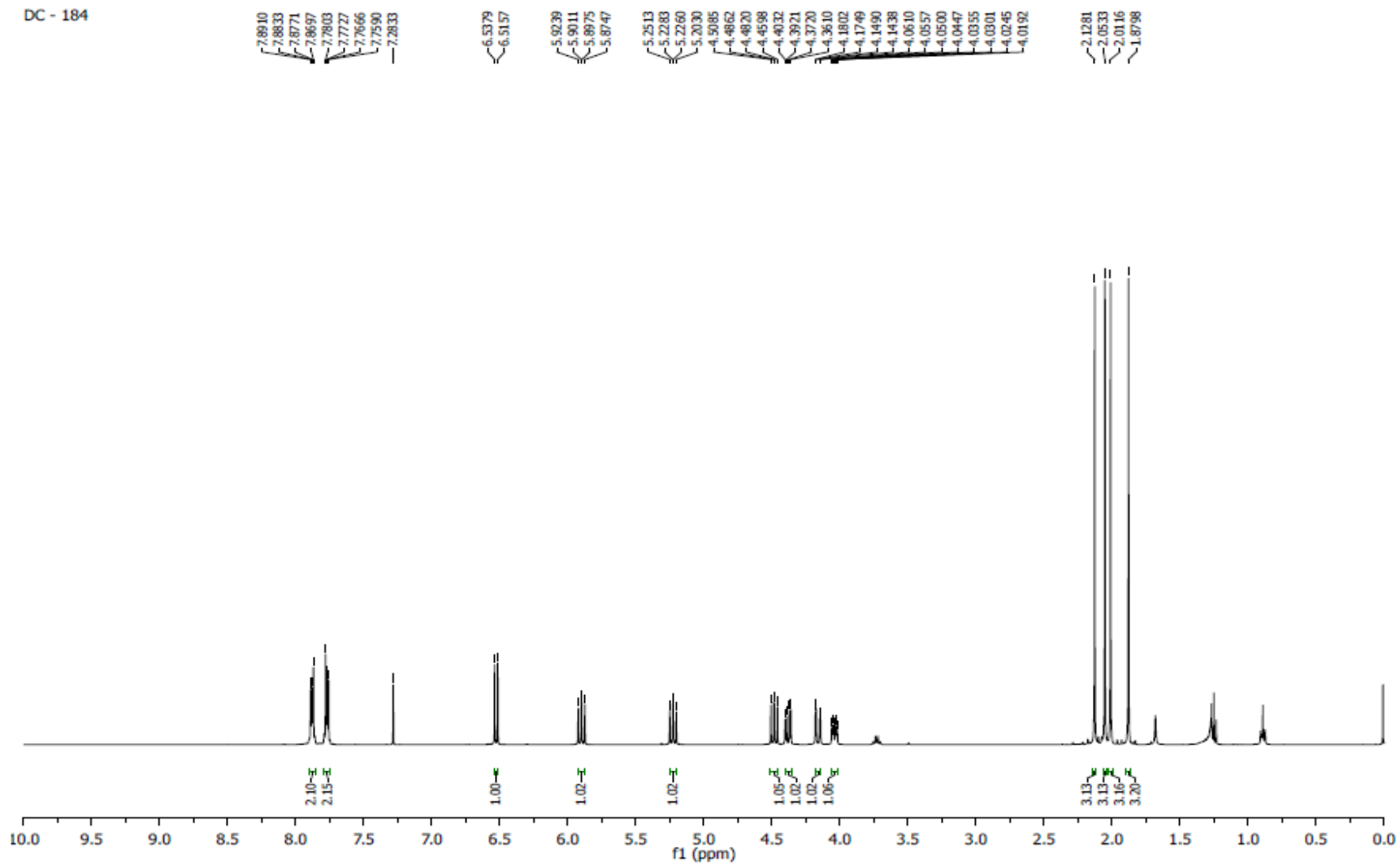


Fig. 9 ¹H-NMR spectra (400 MHz, CDCl₃) of 1,3,4,6-tetra-*O*-acetyl-2-phthalimido-2-deoxy-β-D-glucopyranoside (**2e**)

DC - 184

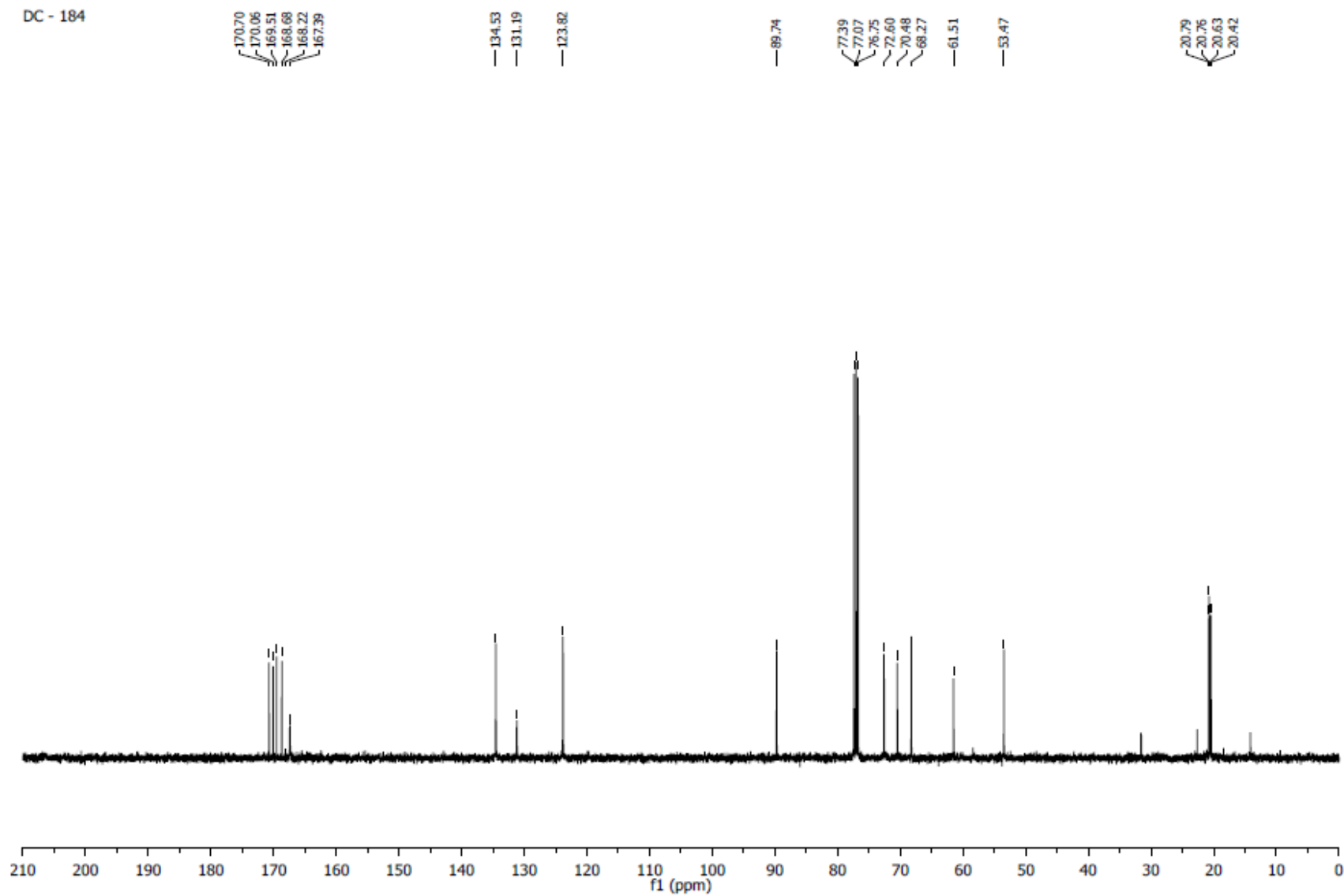


Fig. 10 ^{13}C -NMR spectra (100 MHz, CDCl_3) of 1,3,4,6-tetra-*O*-acetyl-2-phthalimido-2-deoxy- β -D-glucopyranoside (**2e**)

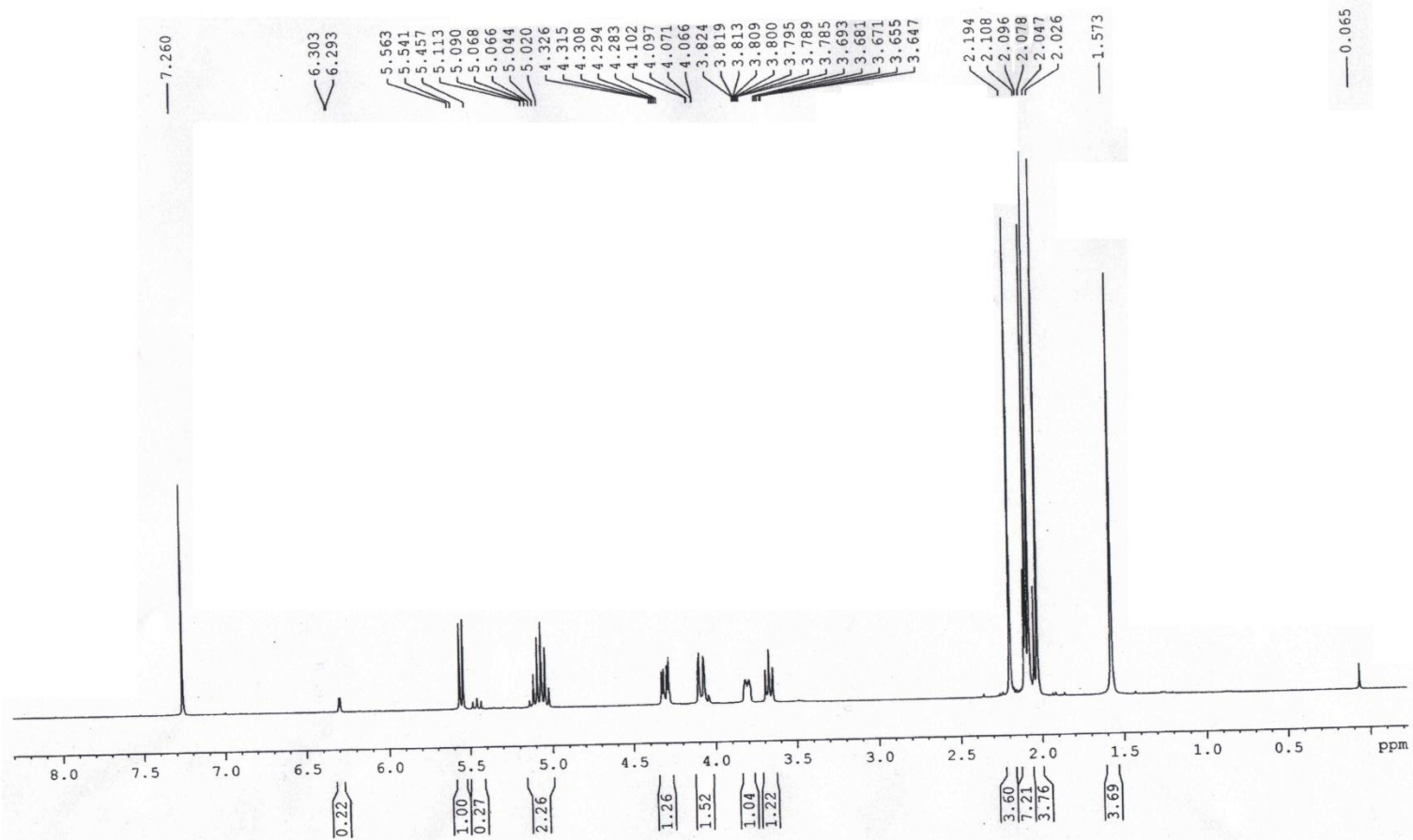


Fig. 11 $^1\text{H-NMR}$ spectra (400 MHz, CDCl_3) of 1,3,4,6-tetra-*O*-acetyl-2-azido-2-deoxy-*D*-glucopyranoside (**2f**)

DC - 176

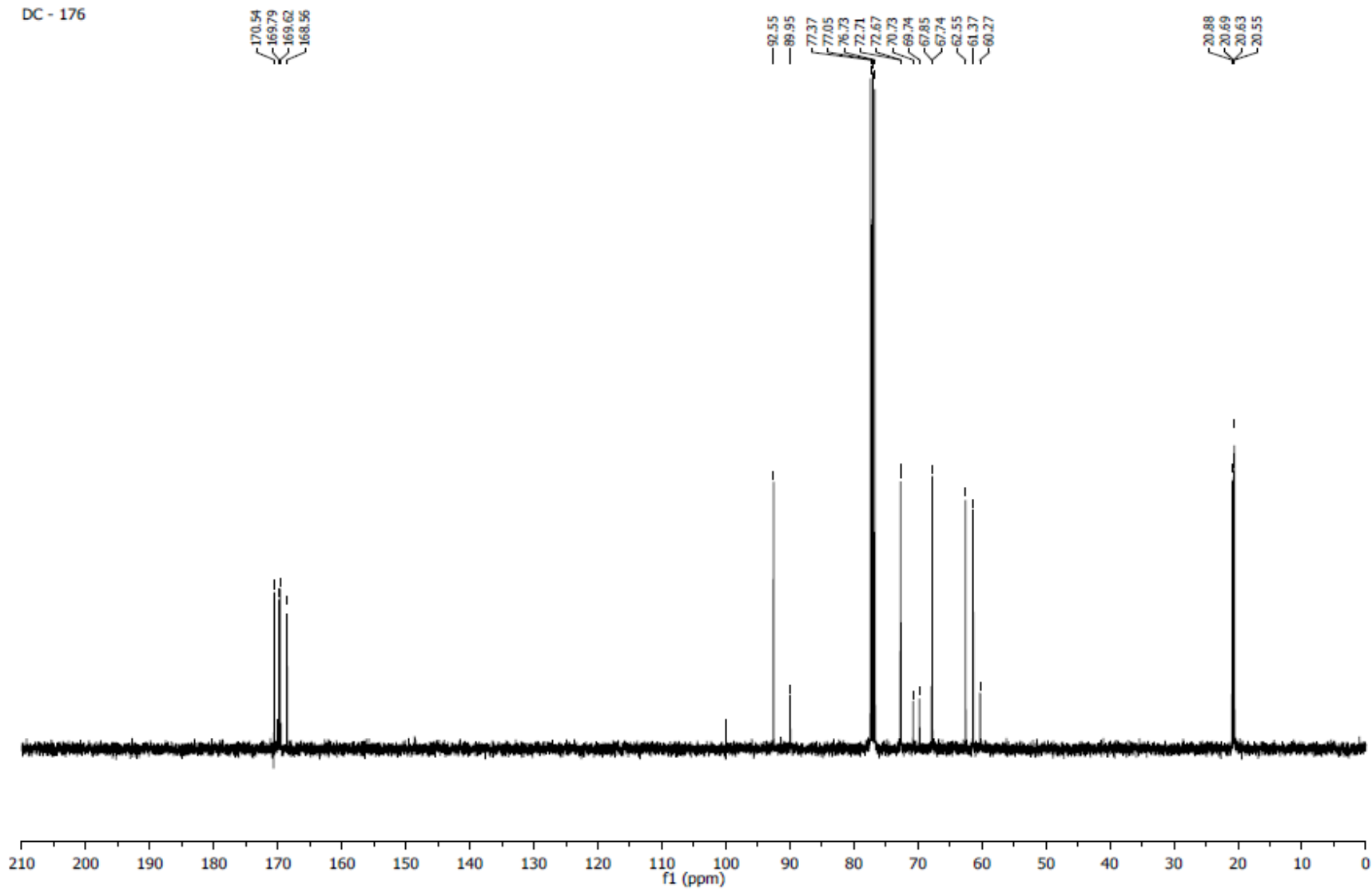


Fig. 12 ¹³C-NMR spectra (100 MHz, CDCl₃) of 1,3,4,6-tetra-*O*-acetyl-2-azido-2-deoxy-D-glucopyranoside (**2f**)

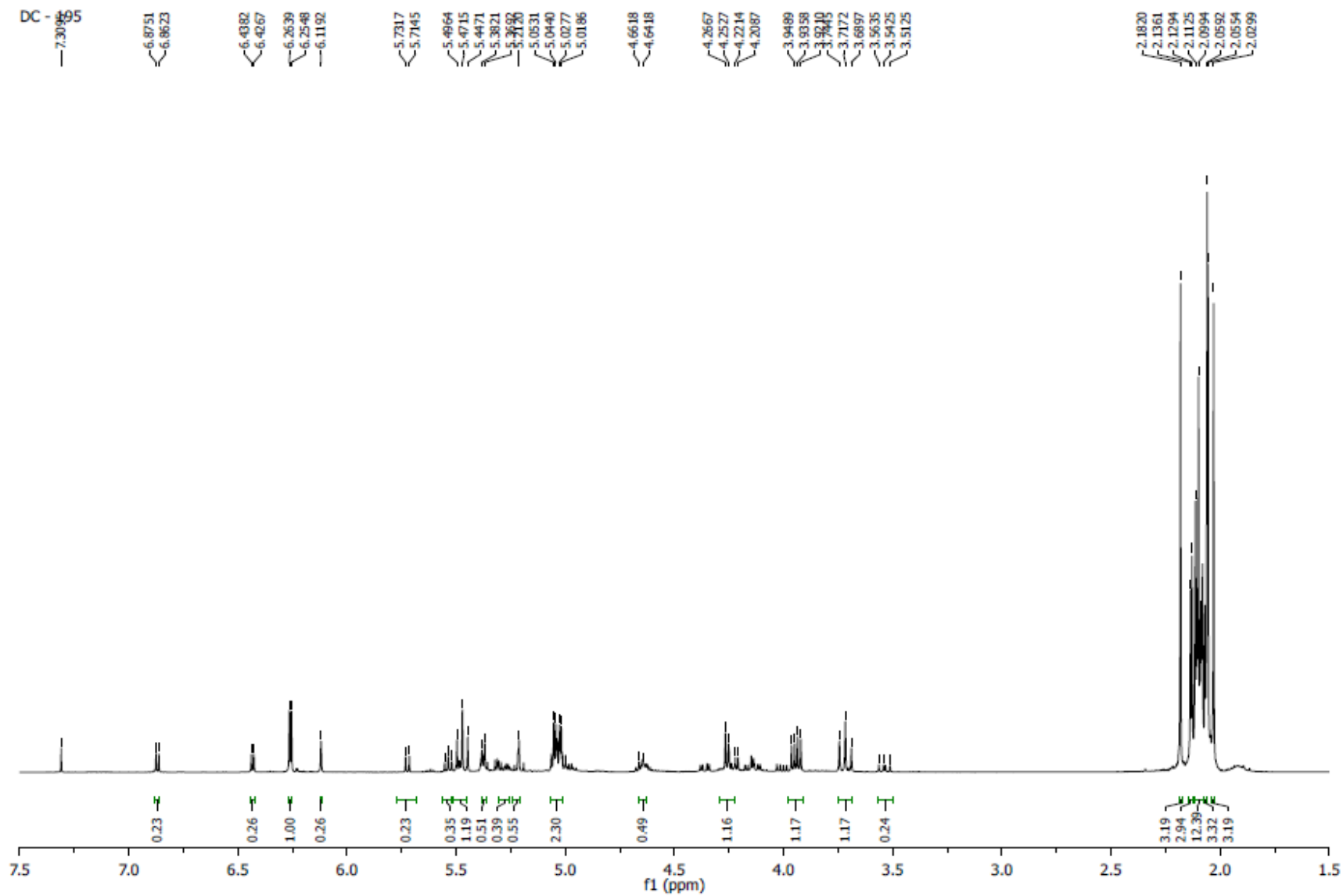


Fig. 13 $^1\text{H-NMR}$ spectra (400 MHz, CDCl_3) of 1,2,3,4-Tetra-*O*-acetyl-D-xylopyranoside (**2g**)

DC - 195

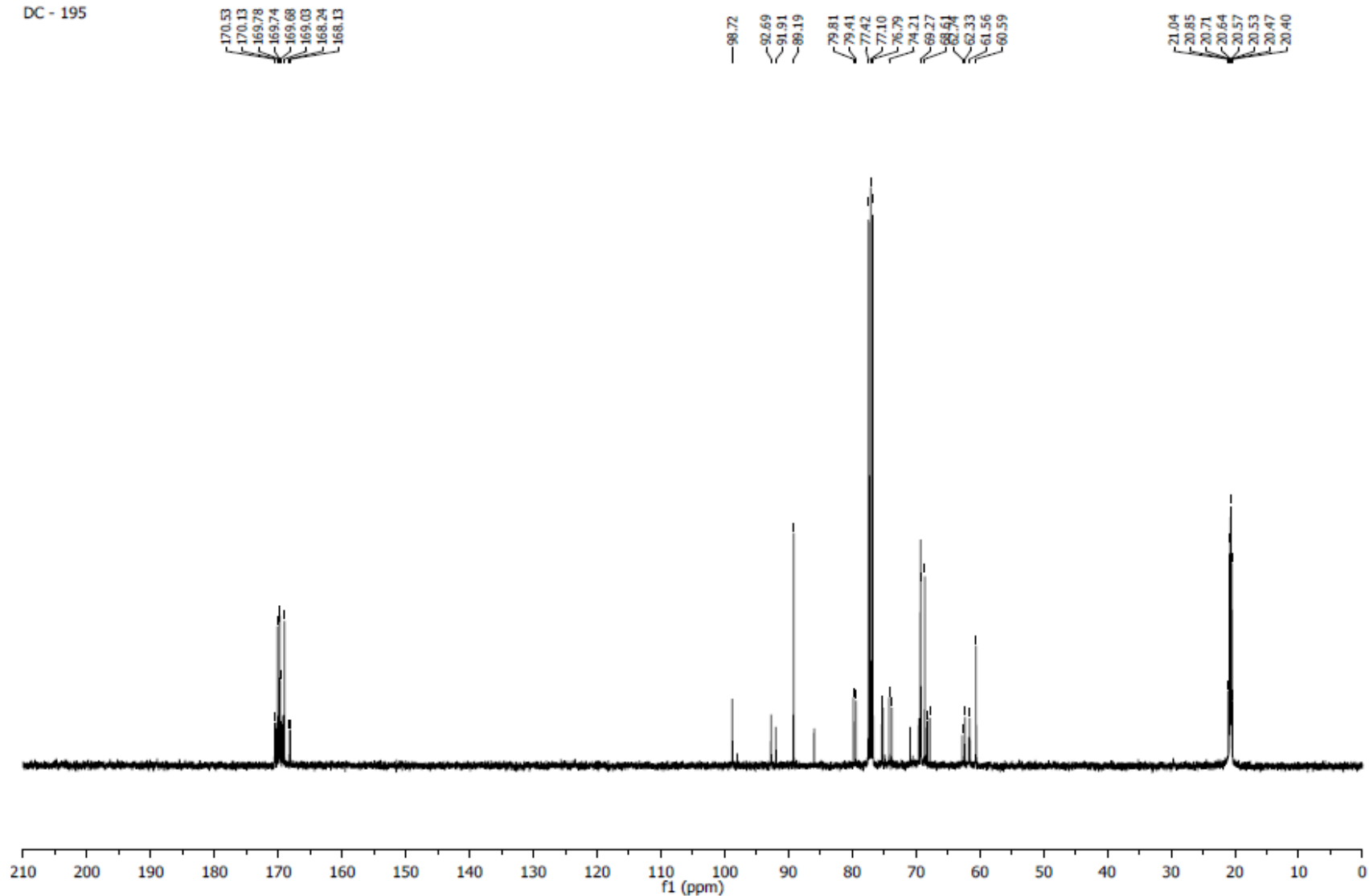


Fig. 14 ^{13}C -NMR spectra (100 MHz, CDCl_3) of 1,2,3,4-Tetra-*O*-acetyl-D-xylopyranoside (**2g**)

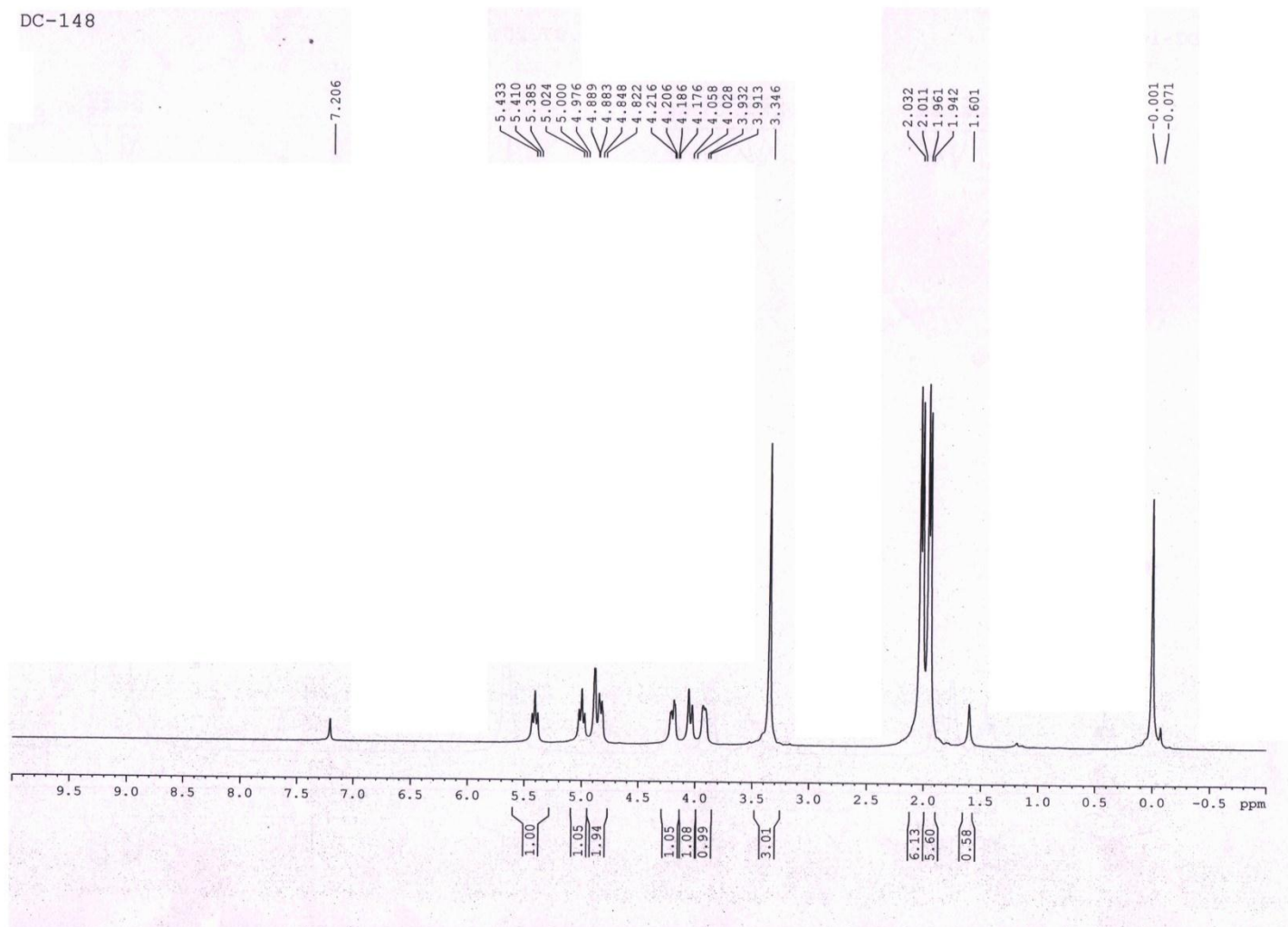


Fig. 15 $^1\text{H-NMR}$ spectra (400 MHz, CDCl_3) of 1-*O*-Methyl-2,3,4,6-tetra-*O*-acetyl- α -D-glucopyranoside (**2h**)

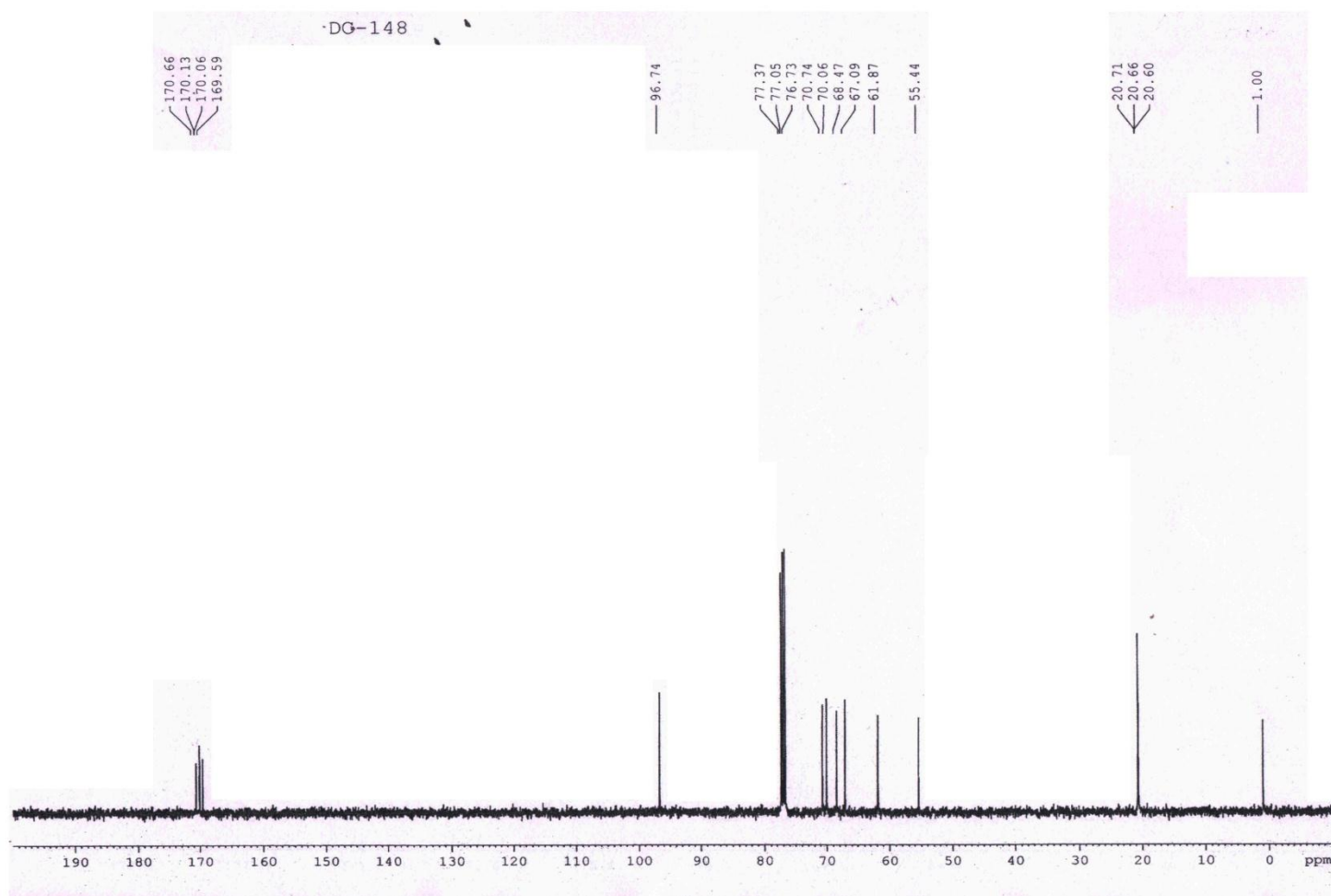


Fig. 16 ^{13}C -NMR spectra (100 MHz, CDCl_3) of 1-*O*-Methyl-2,3,4,6-tetra-*O*-acetyl- α -D-glucopyranoside (**2h**)

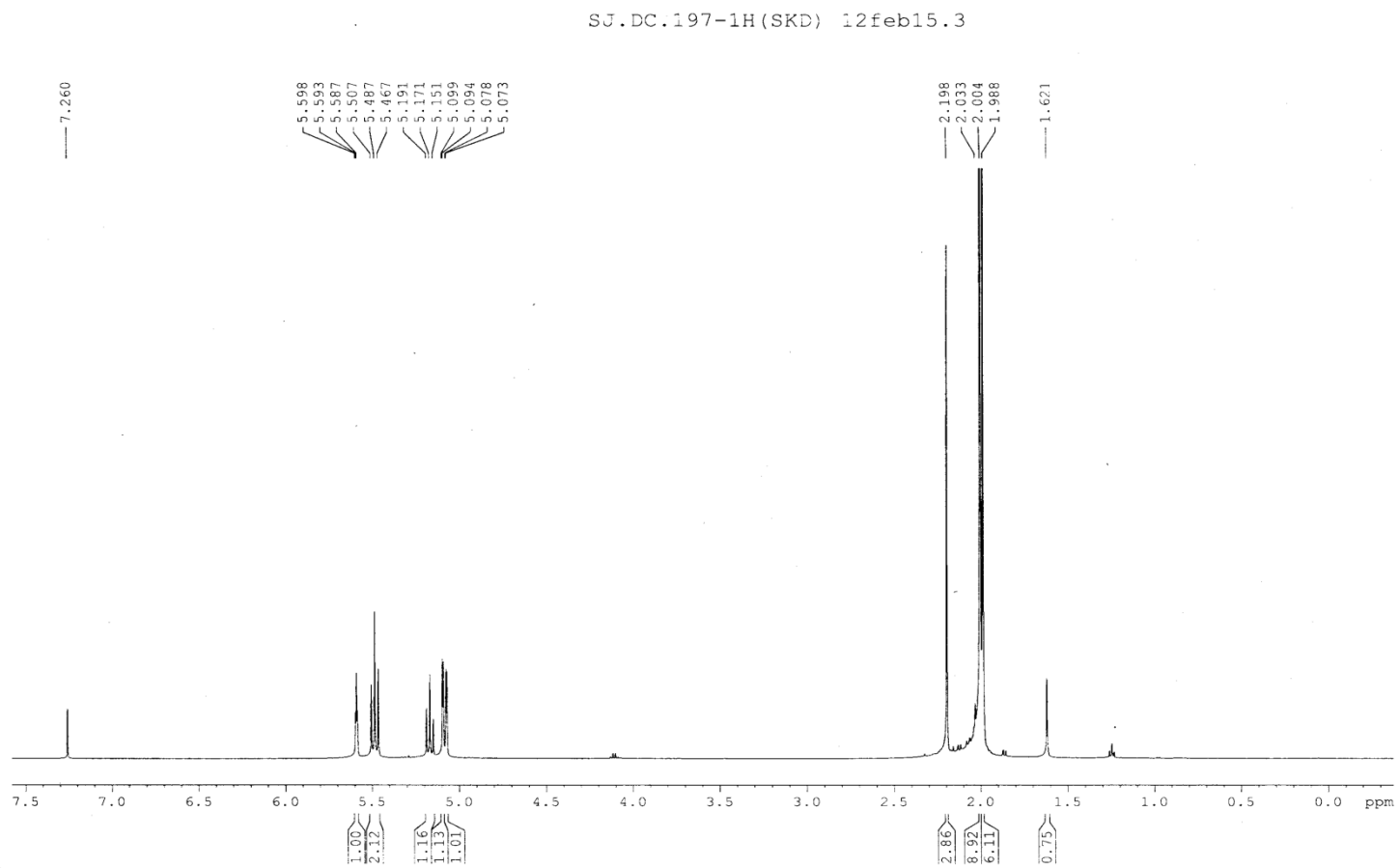


Fig. 17 ¹H-NMR spectra (400 MHz, CDCl₃) of Hexa-*O*-acetyl-*myo*-inositol (**2i**)

DC - 197

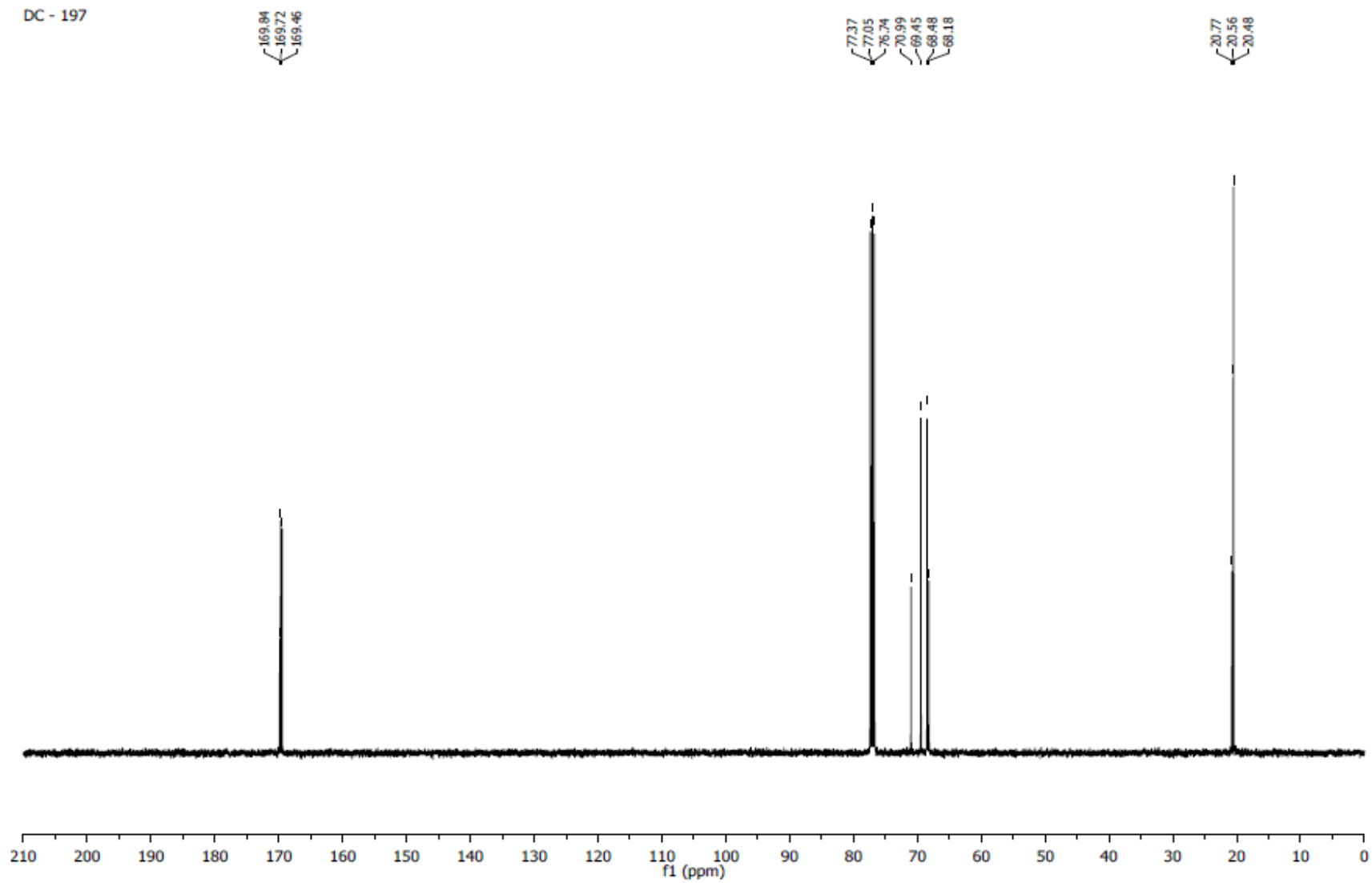


Fig. 18 ¹³C-NMR spectra (100 MHz, CDCl₃) of Hexa-*O*-acetyl-*myo*-inositol (**2i**)

DC - 196

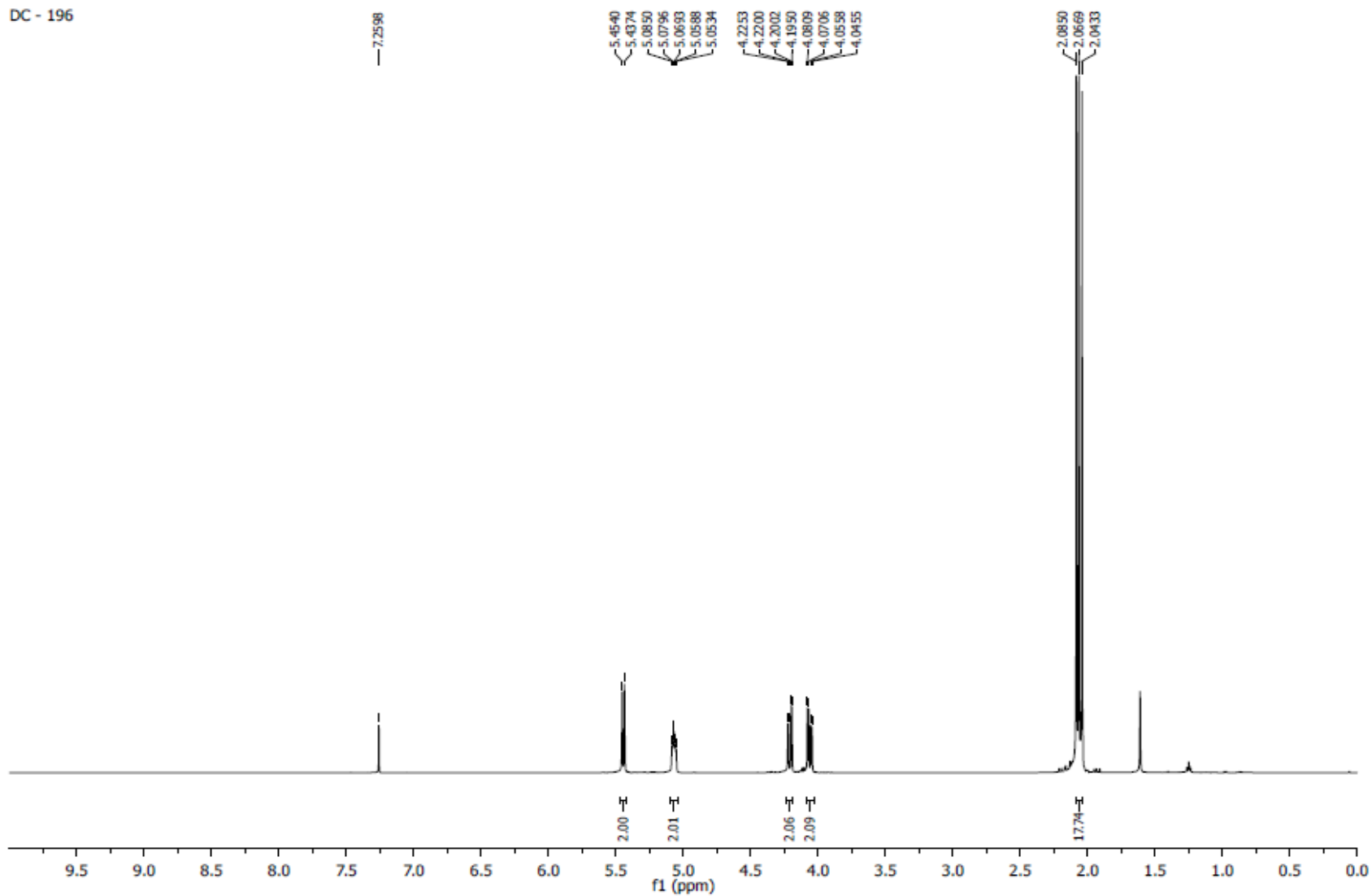


Fig. 19 ¹H-NMR spectra (400 MHz, CDCl₃) of Hexa-*O*-acetyl-D-mannitol (2j)

DC - 196

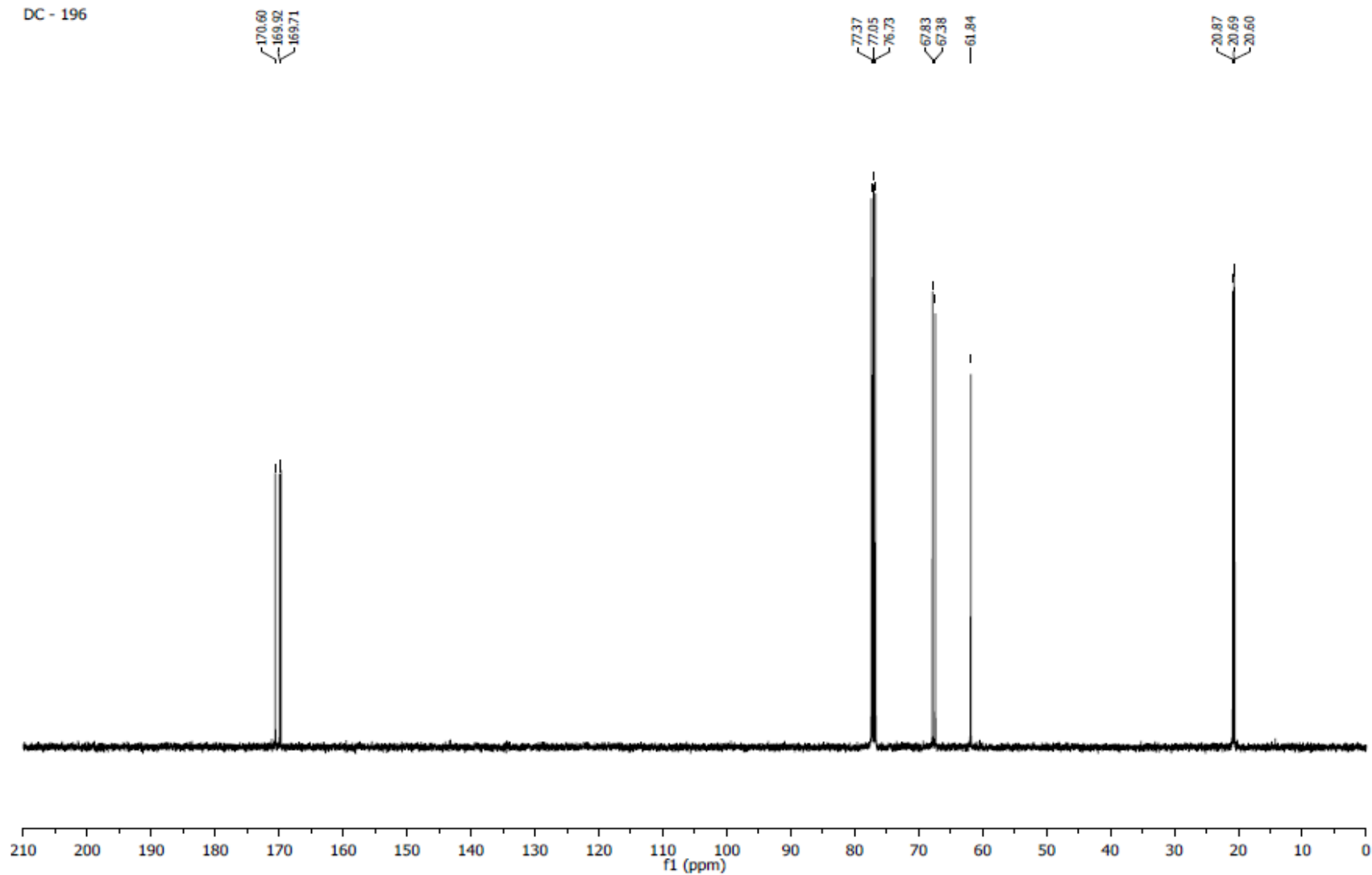


Fig. 20 ^{13}C -NMR spectra (100 MHz, CDCl_3) of Hexa-*O*-acetyl-D-mannitol (**2j**)

DC - 155 (A)

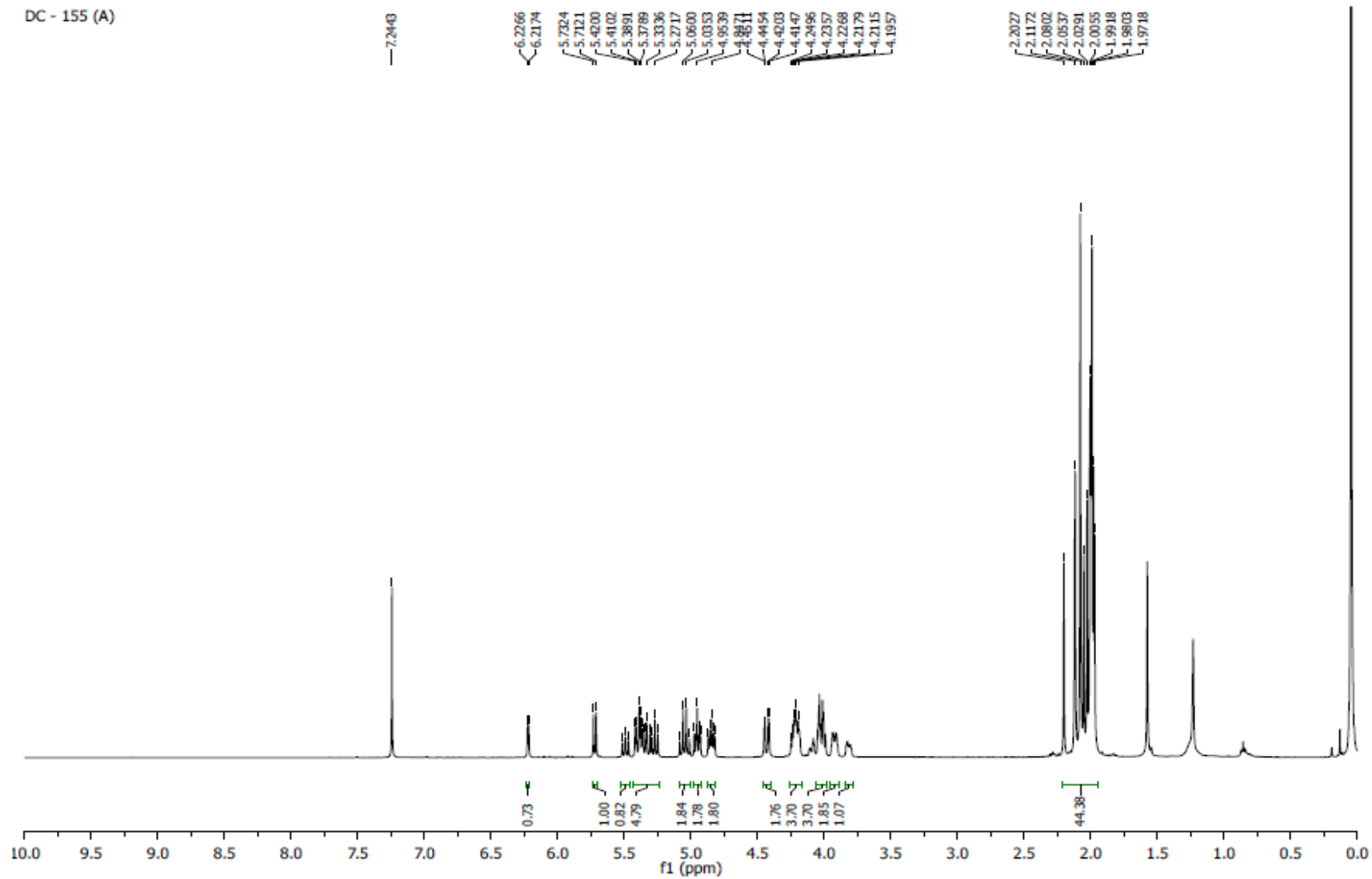


Fig. 21 ¹H-NMR spectra (400 MHz, CDCl₃) of D-maltose octa-O-acetate (2k)

DC - 155

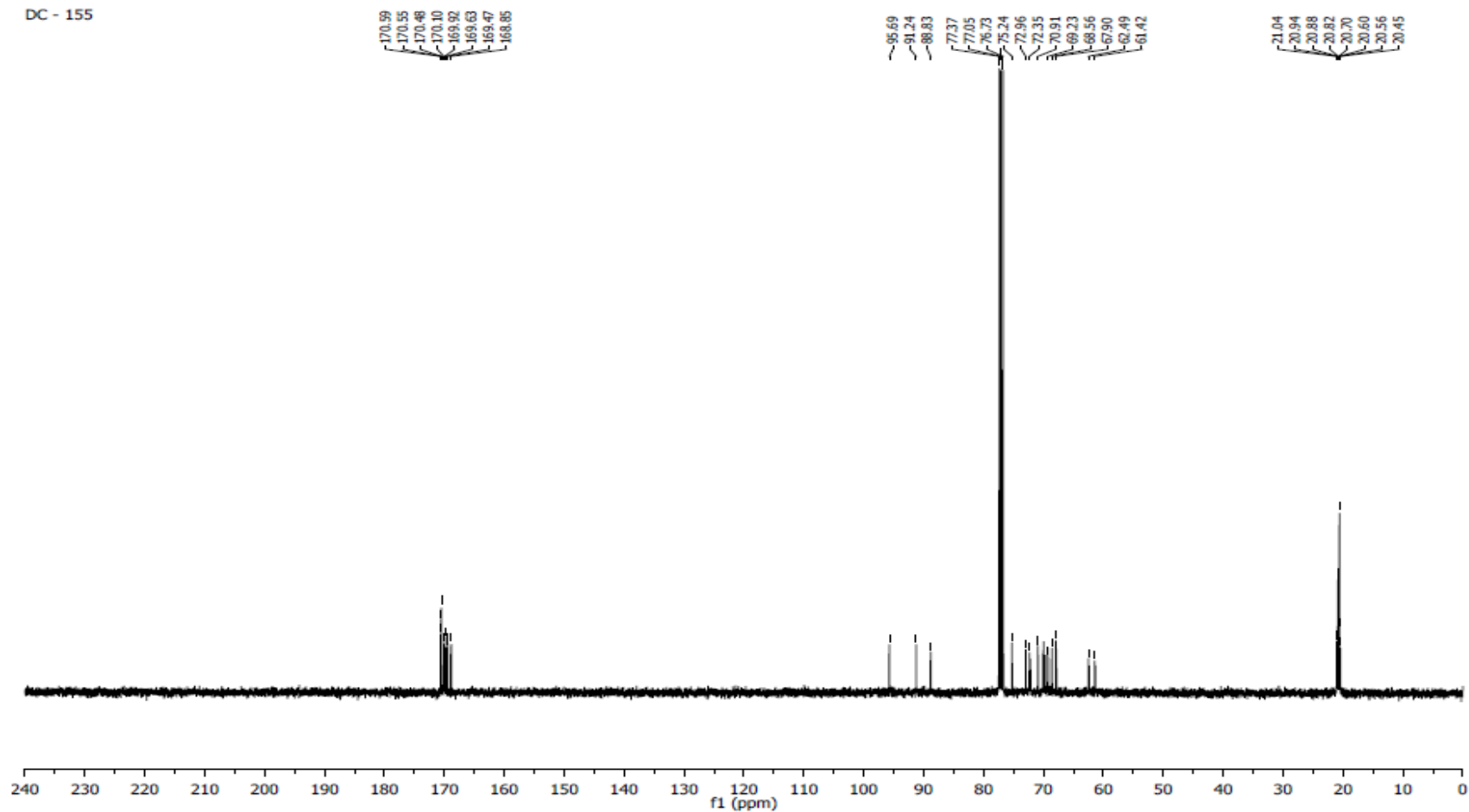


Fig. 22 ^{13}C -NMR spectra (100 MHz, CDCl_3) of D-maltose octa-*O*-acetate (2k)

DC - 156 (B)

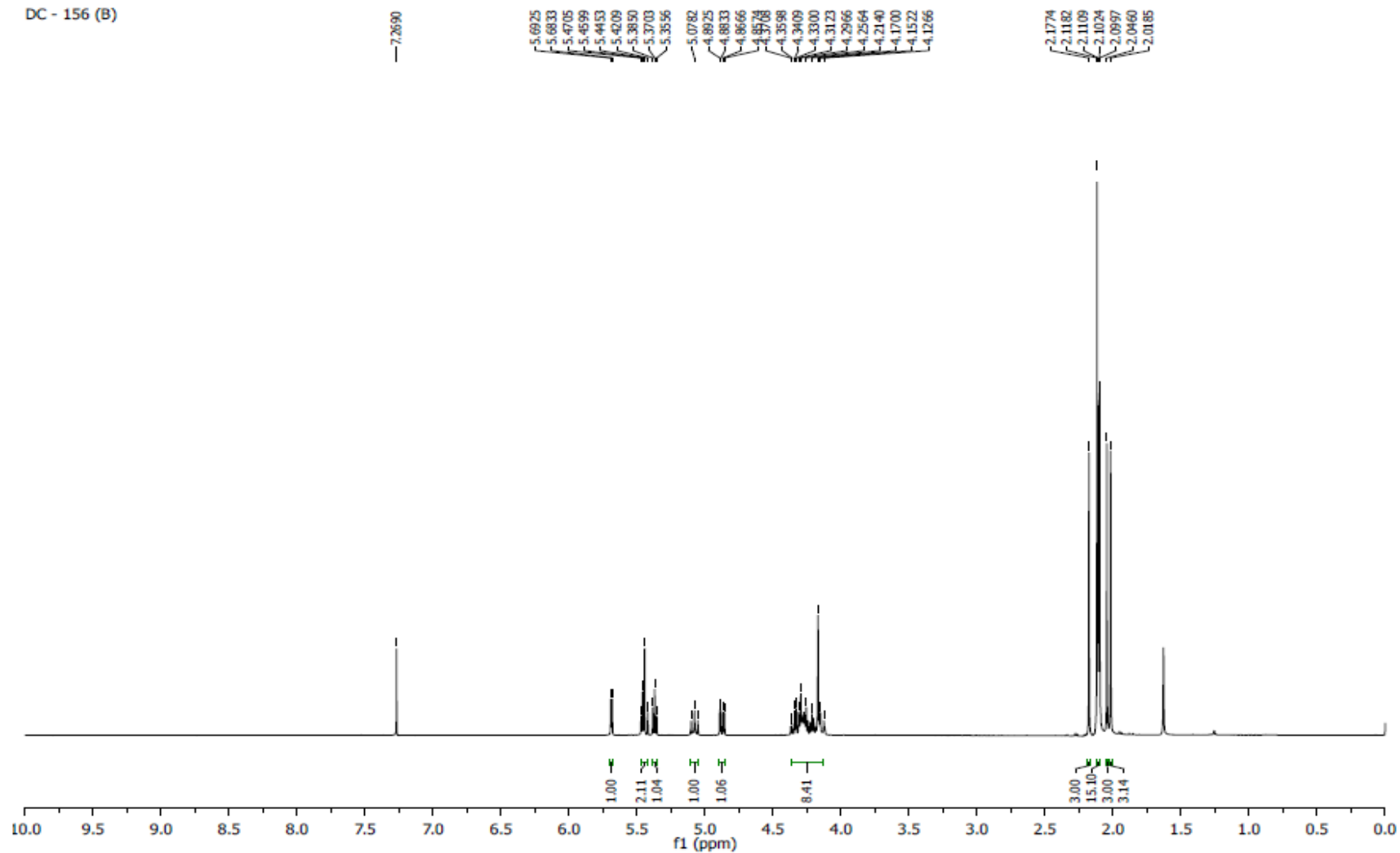


Fig. 23 ¹H-NMR spectra (400 MHz, CDCl₃) of Sucrose octa-*O*-acetate (2I)

DC - 156

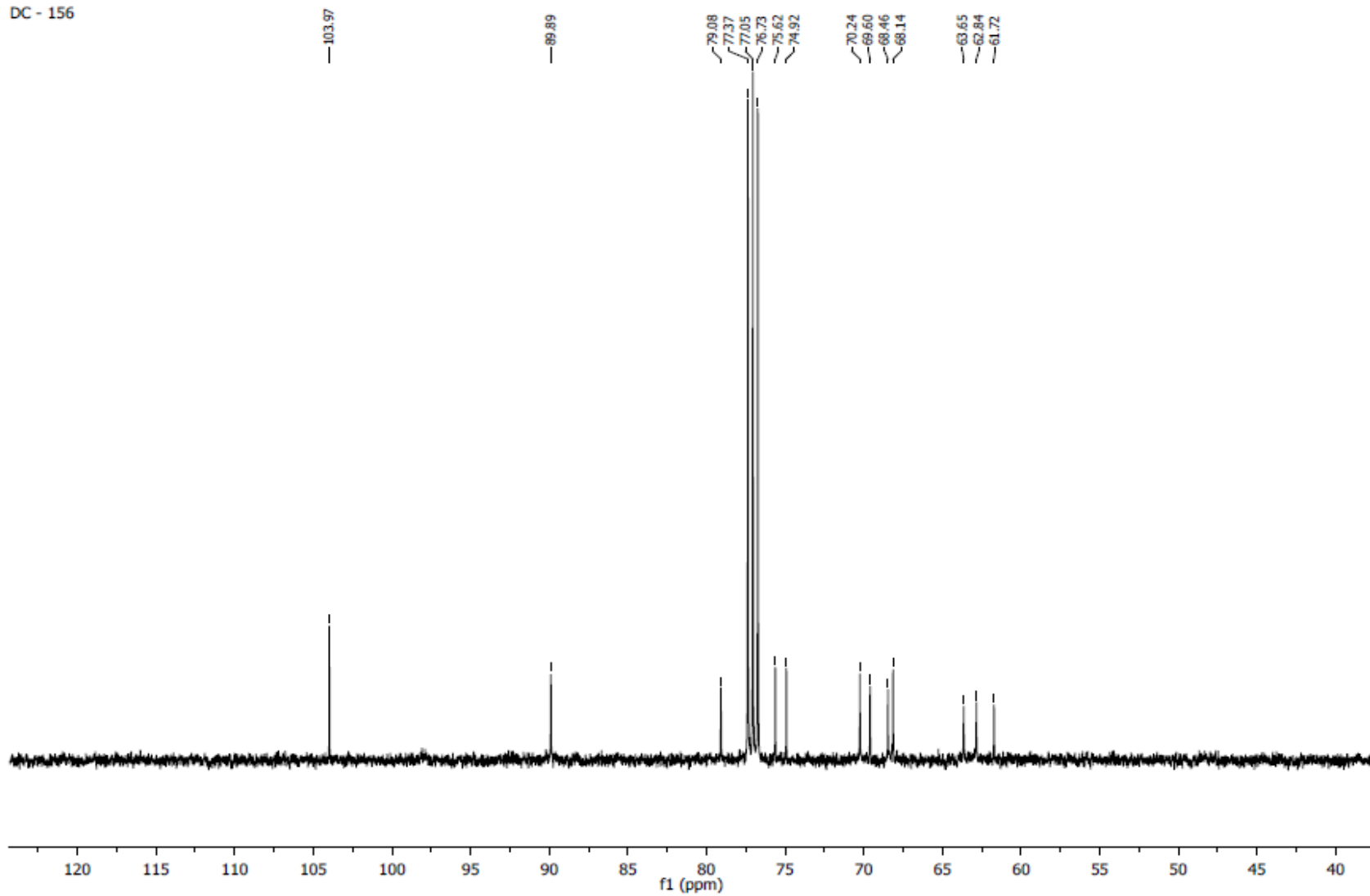


Fig. 24 ¹³C-NMR spectra (100 MHz, CDCl₃) of Sucrose octa-*O*-acetate (21)

DC - 157

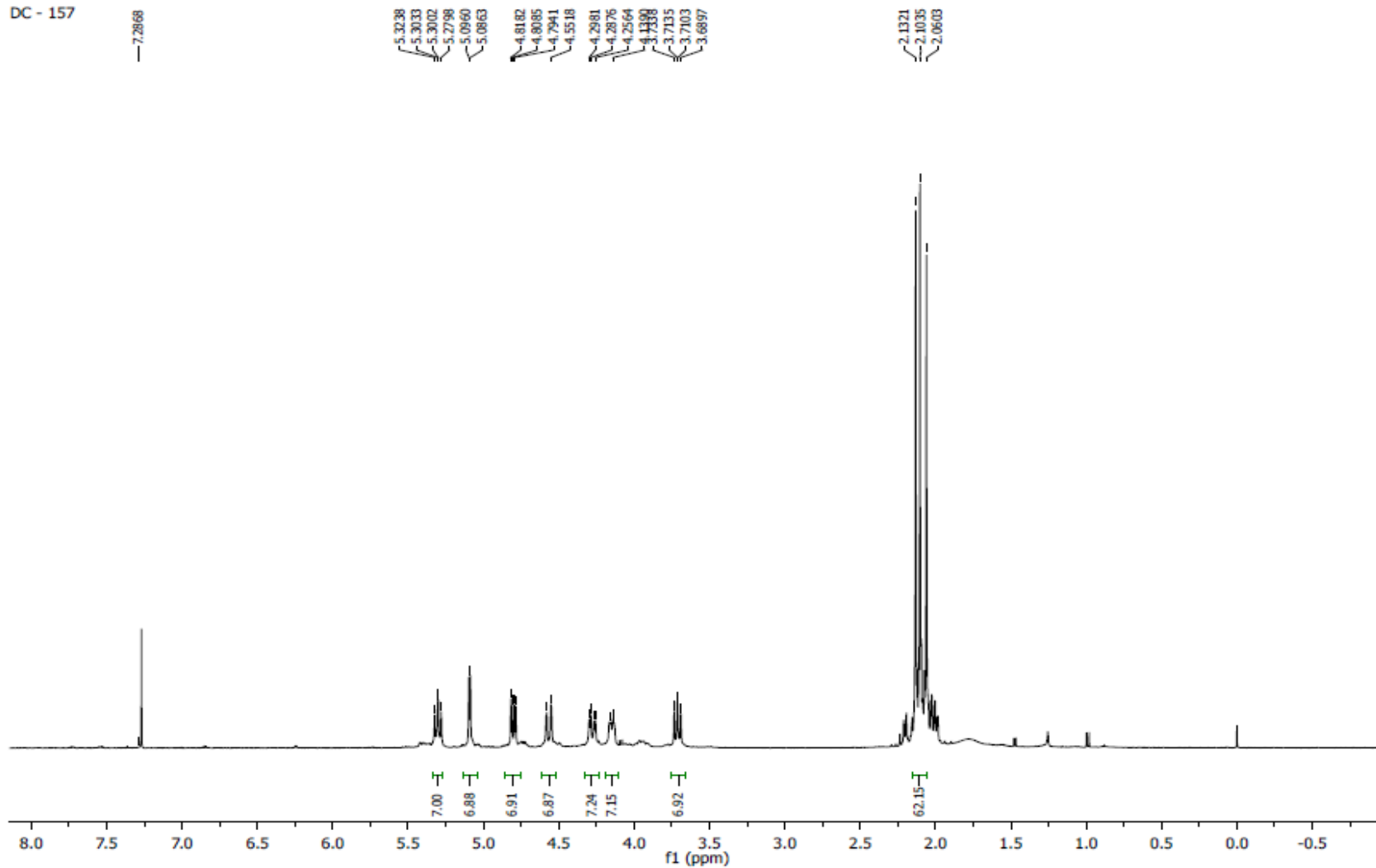


Fig. 25 ¹H-NMR spectra (400 MHz, CDCl₃) of Per-O-acetylated β-cyclodextrin (2m)

DC - 157

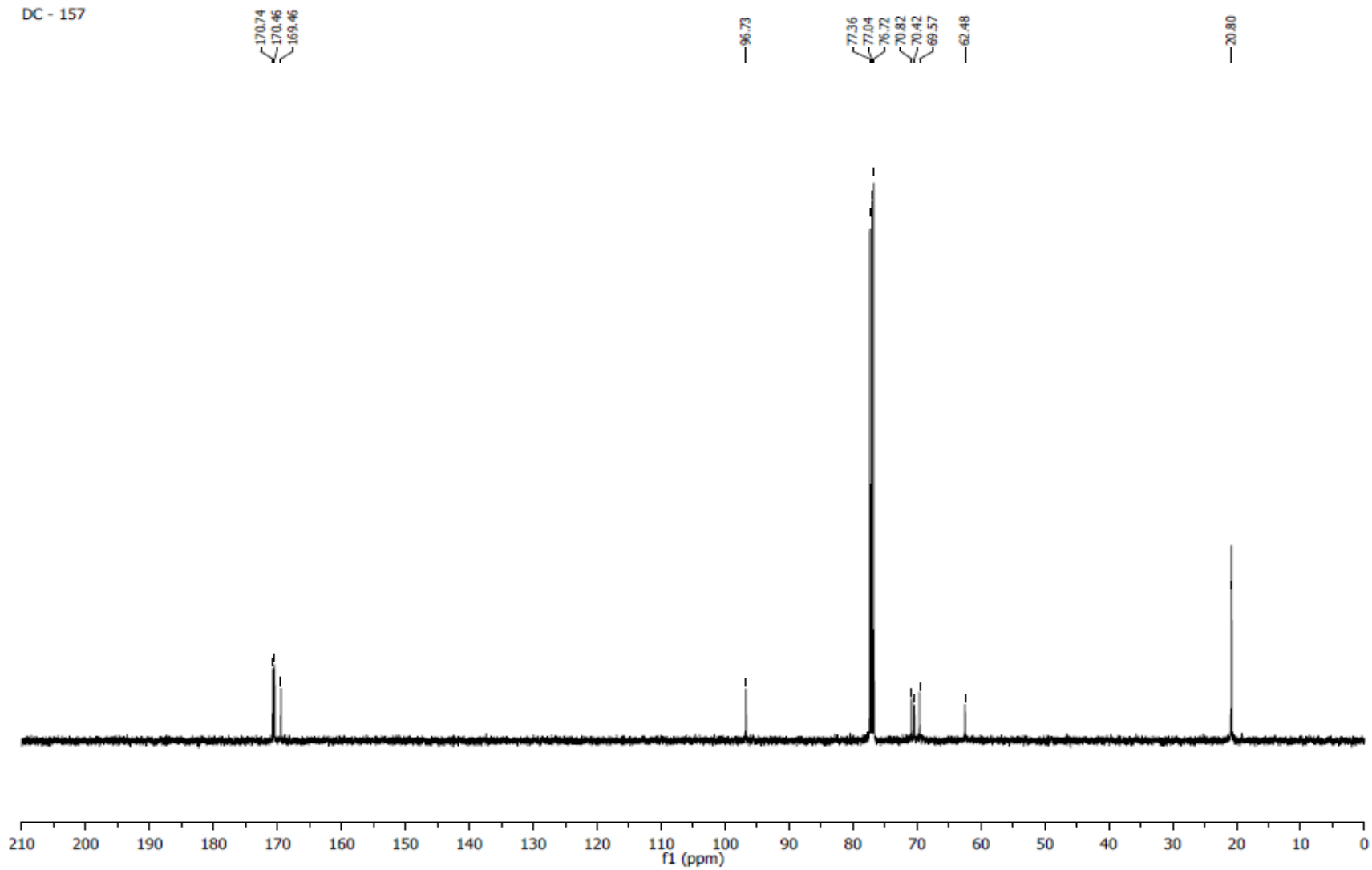


Fig. 26 ^{13}C -NMR spectra (100 MHz, CDCl_3) of Per-*O*-acetylated β -cyclodextrin (**2m**)

DC-141B

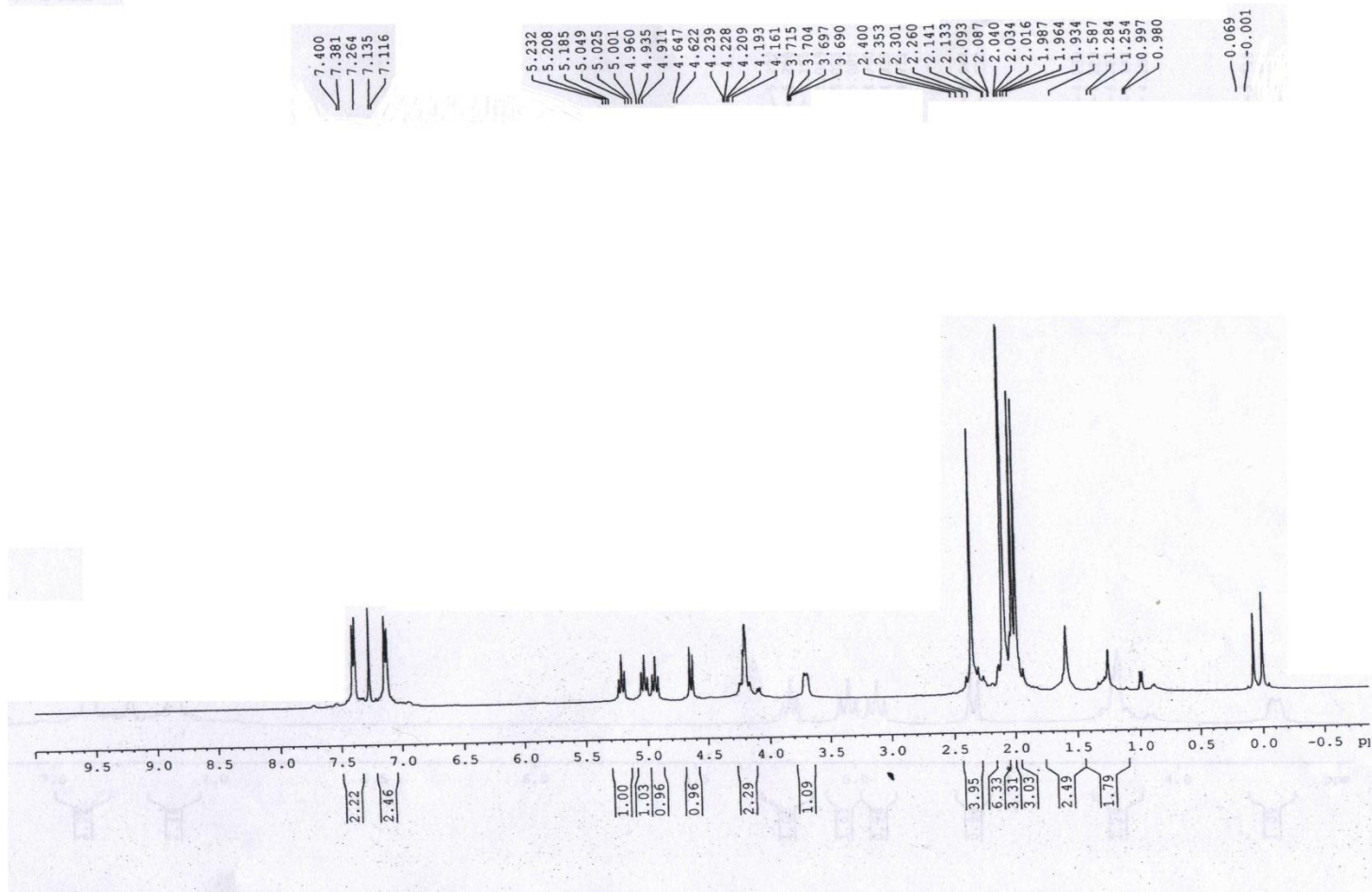


Fig. 27 ¹H-NMR spectra (400 MHz, CDCl₃) of *p*-Tolyl 2,3,4,6-*O*-acetyl-1-thio-β-D-glucopyranoside (**3a**)

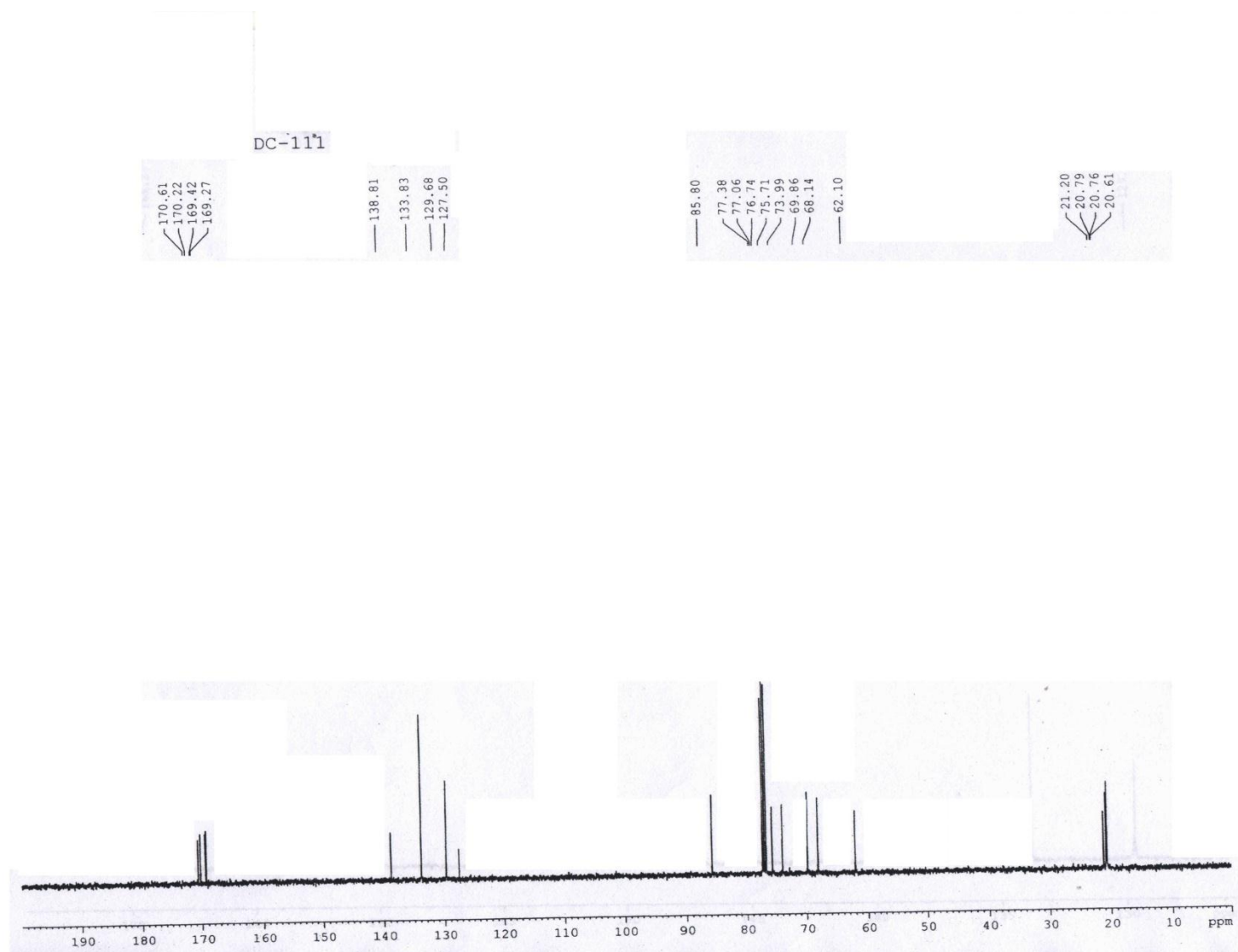


Fig. 28 ¹³C-NMR spectra (100 MHz, CDCl₃) of *p*-Tolyl 2,3,4,6-*O*-acetyl-1-thio-β-D-glucopyranoside (**3a**)

DC - 163 (B)

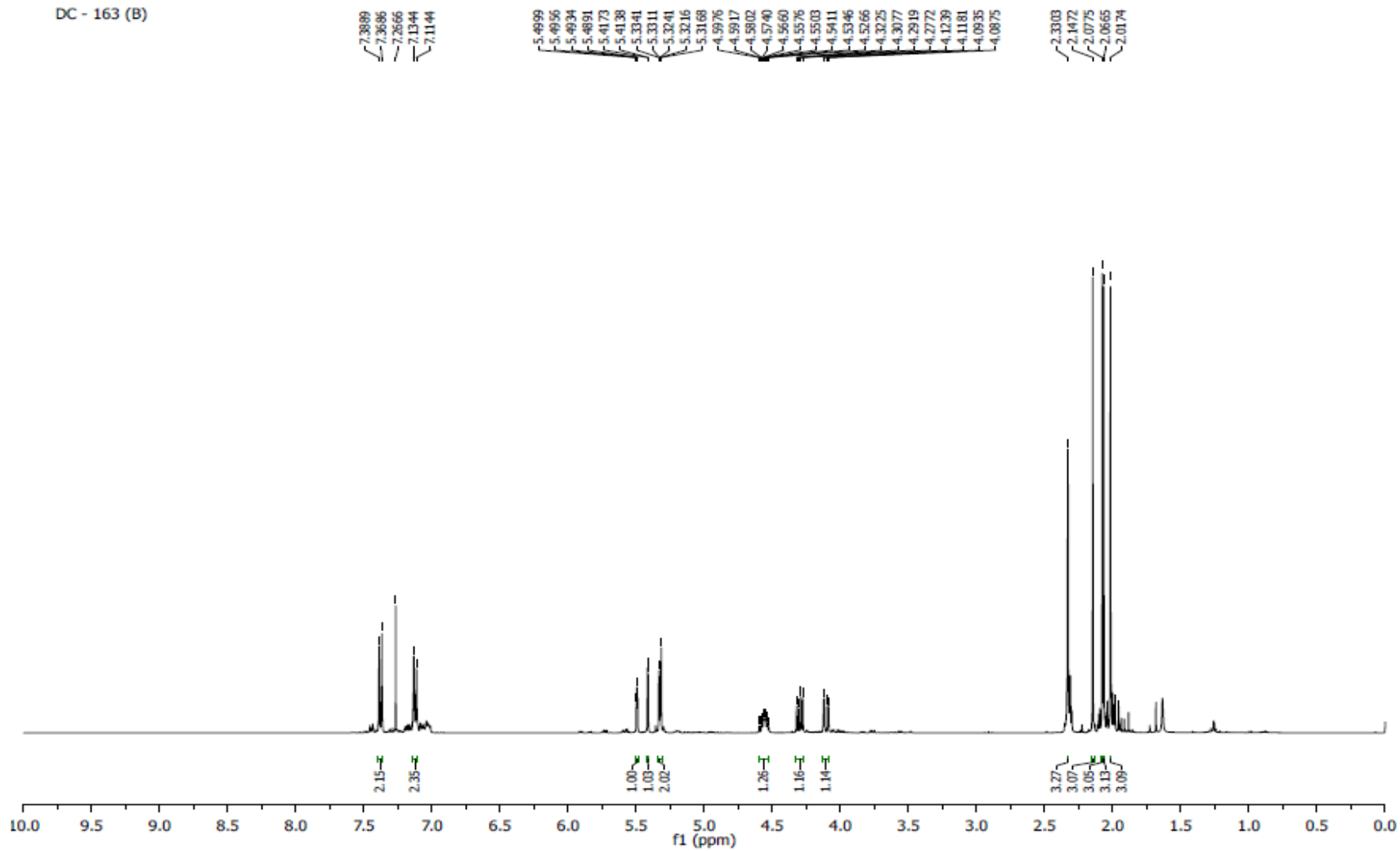


Fig. 29 $^1\text{H-NMR}$ spectra (400 MHz, CDCl_3) of *p*-Tolyl 2,3,4,6-tetra-*O*-acetyl-1-thio- α -D-mannopyranoside (**3b**)

DC - 163 (B)

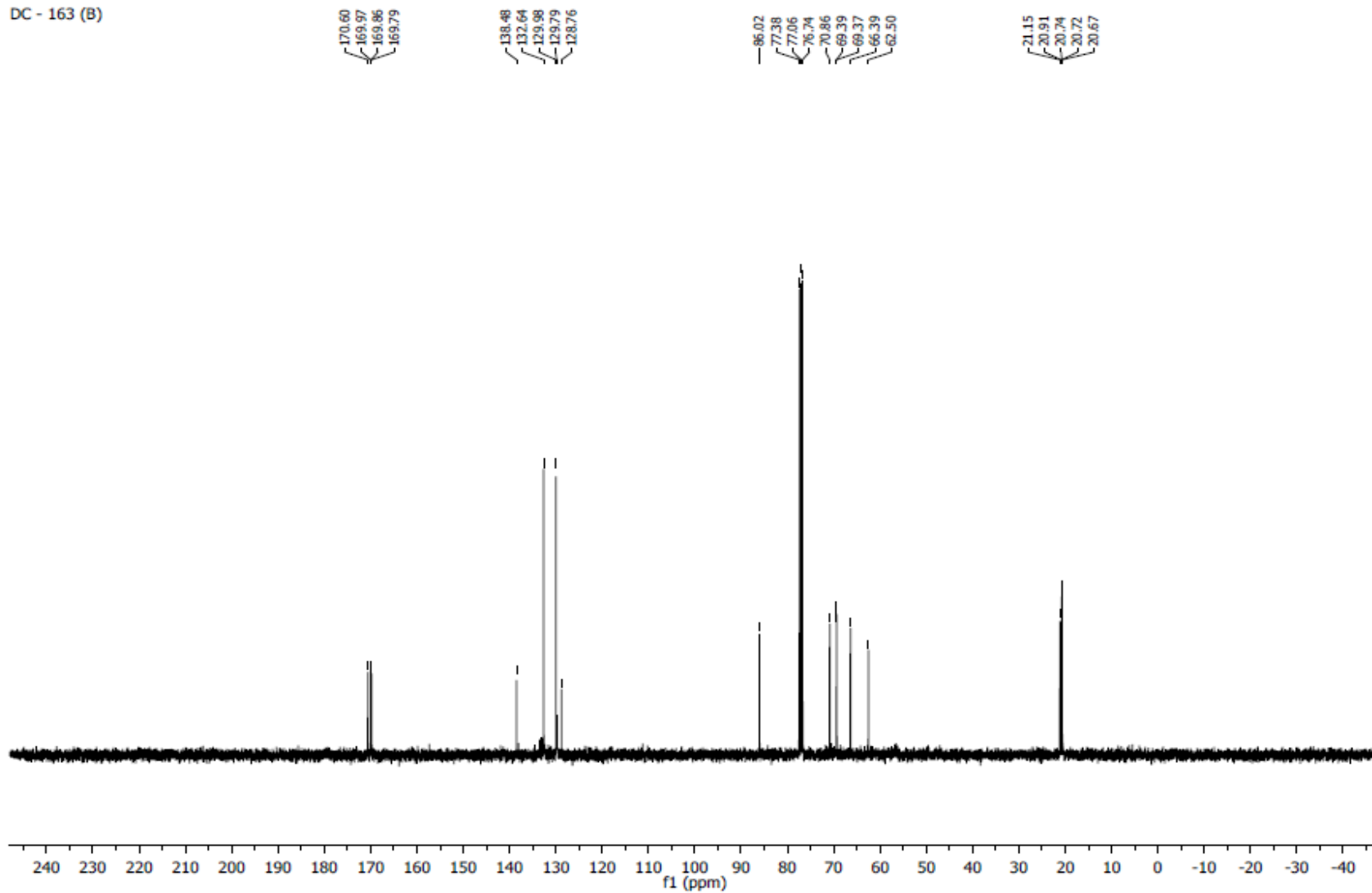


Fig. 30 ^{13}C -NMR spectra (100 MHz, CDCl_3) of *p*-Tolyl 2,3,4,6-tetra-*O*-acetyl-1-thio- α -D-mannopyranoside (**3b**)

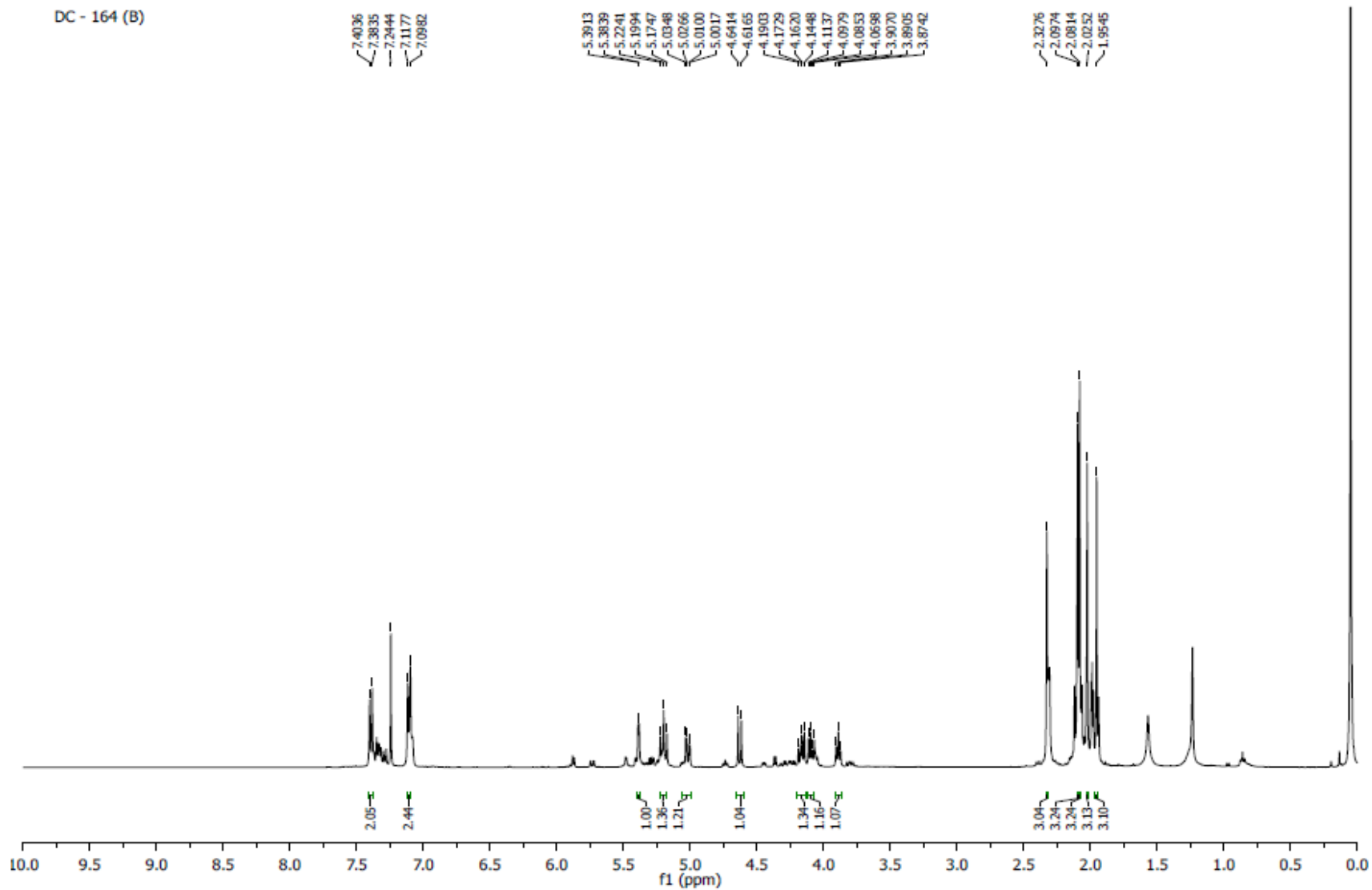


Fig. 31 $^1\text{H-NMR}$ spectra (400 MHz, CDCl_3) of *p*-Tolyl 2,3,4,6-tetra-*O*-acetyl-1-thio- β -D-galactopyranoside (**3c**)

DC - 164 B

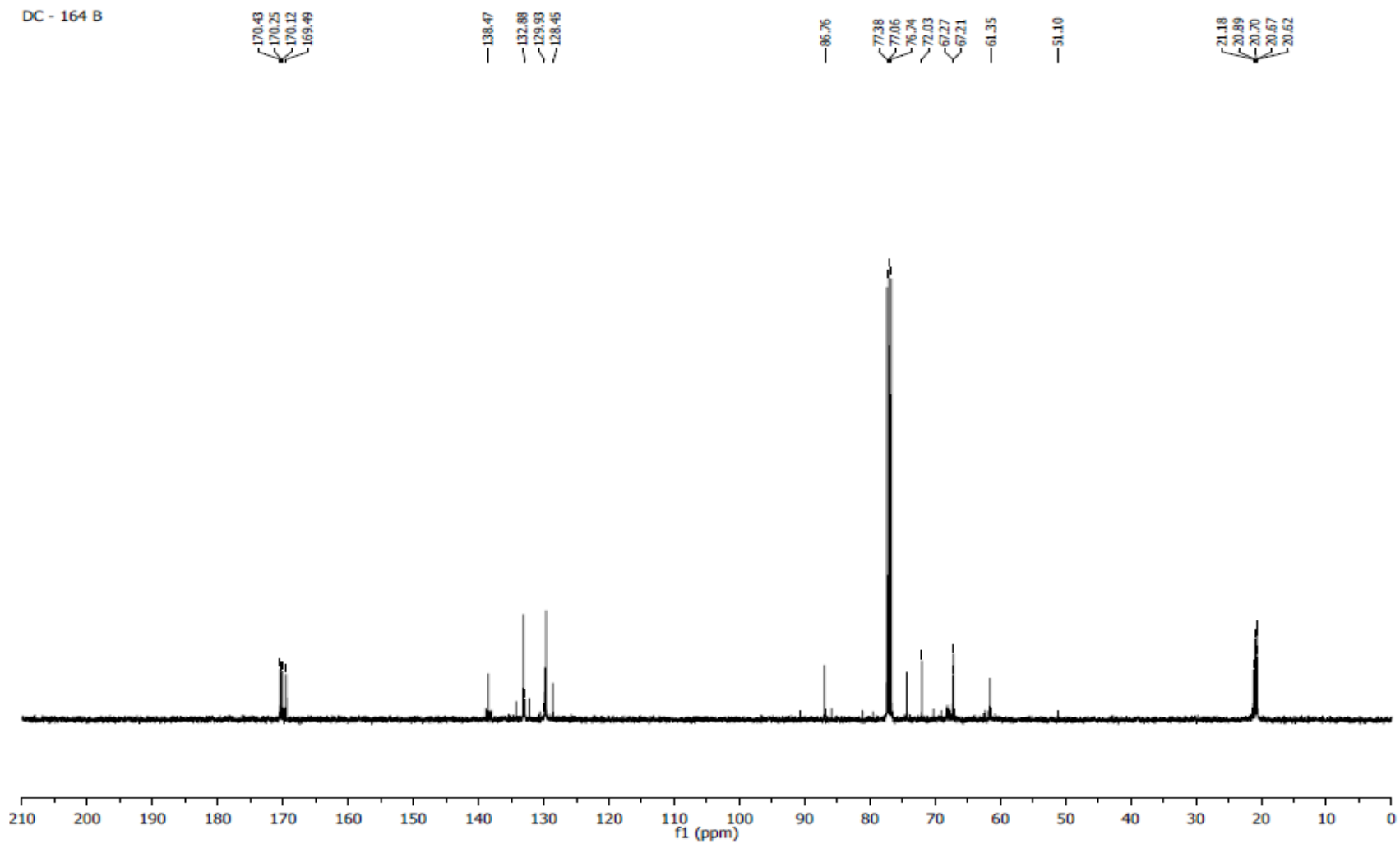


Fig. 32 ¹³C-NMR spectra (100 MHz, CDCl₃) of *p*-Tolyl 2,3,4,6-tetra-*O*-acetyl-1-thio-β-D-galactopyranoside (**3c**)

DC - 151

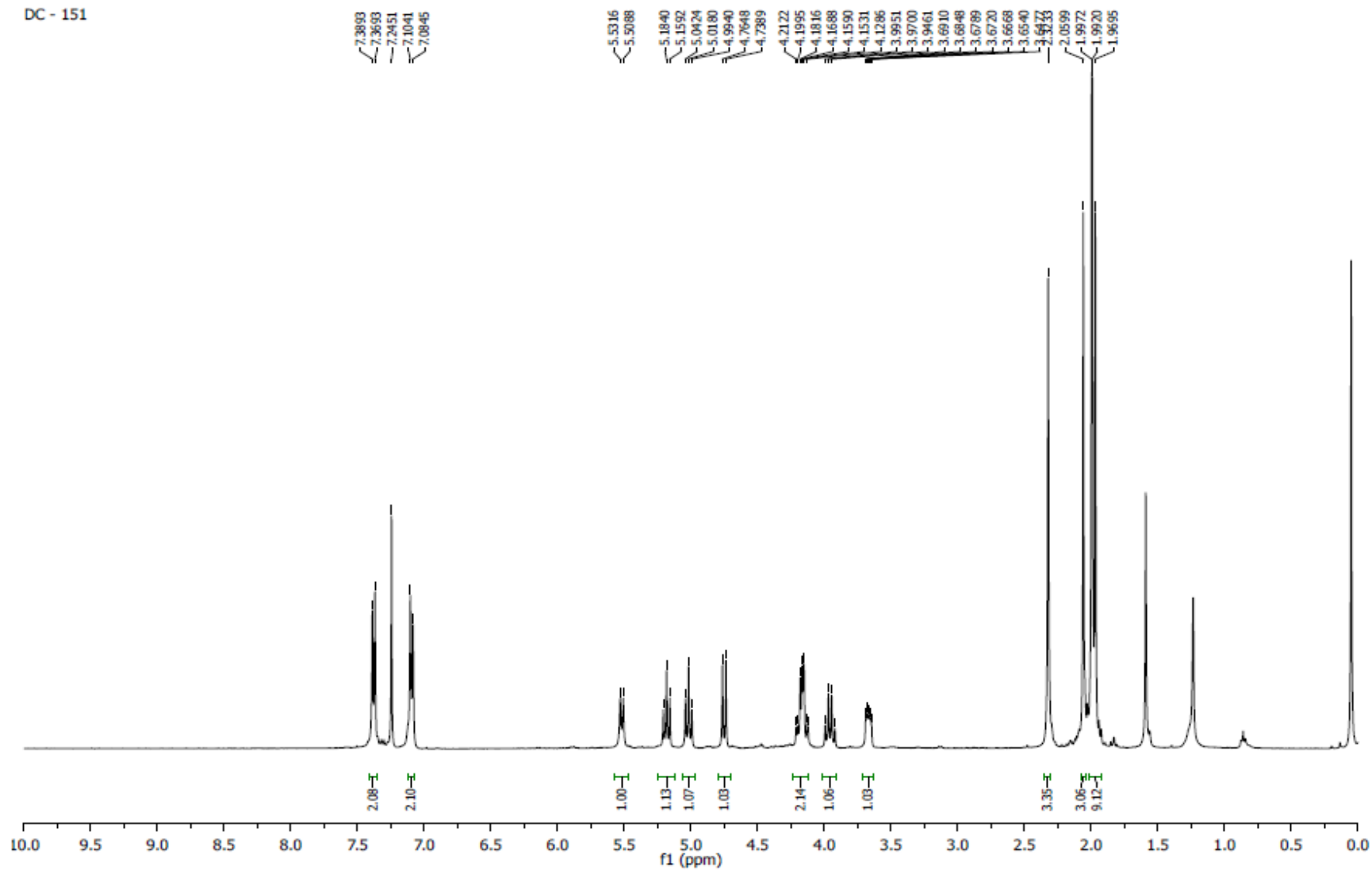


Fig. 33 $^1\text{H-NMR}$ spectra (400 MHz, CDCl_3) of *p*-Tolyl 2-acetamido-3,4,6-tri-*O*-acetyl-2-deoxy-1-thio- β -D-glucopyranoside (**3d**)

DC - 151

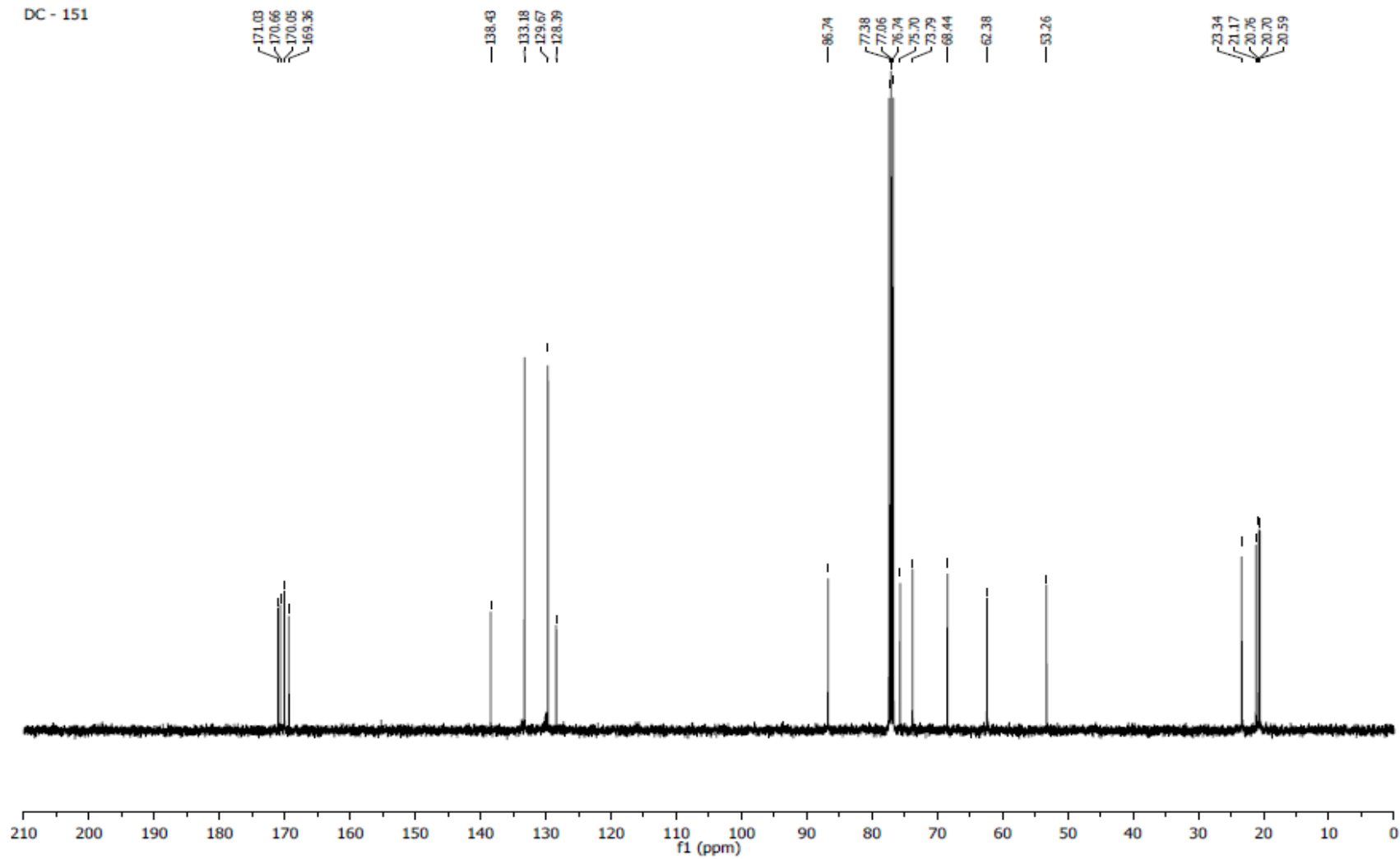


Fig. 34 ¹³C-NMR spectra (100 MHz, CDCl₃) of *p*-Tolyl 2-acetamido-3,4,6-tri-*O*-acetyl-2-deoxy-1-thio-β-D-glucopyranoside (**3d**)

DC - 182

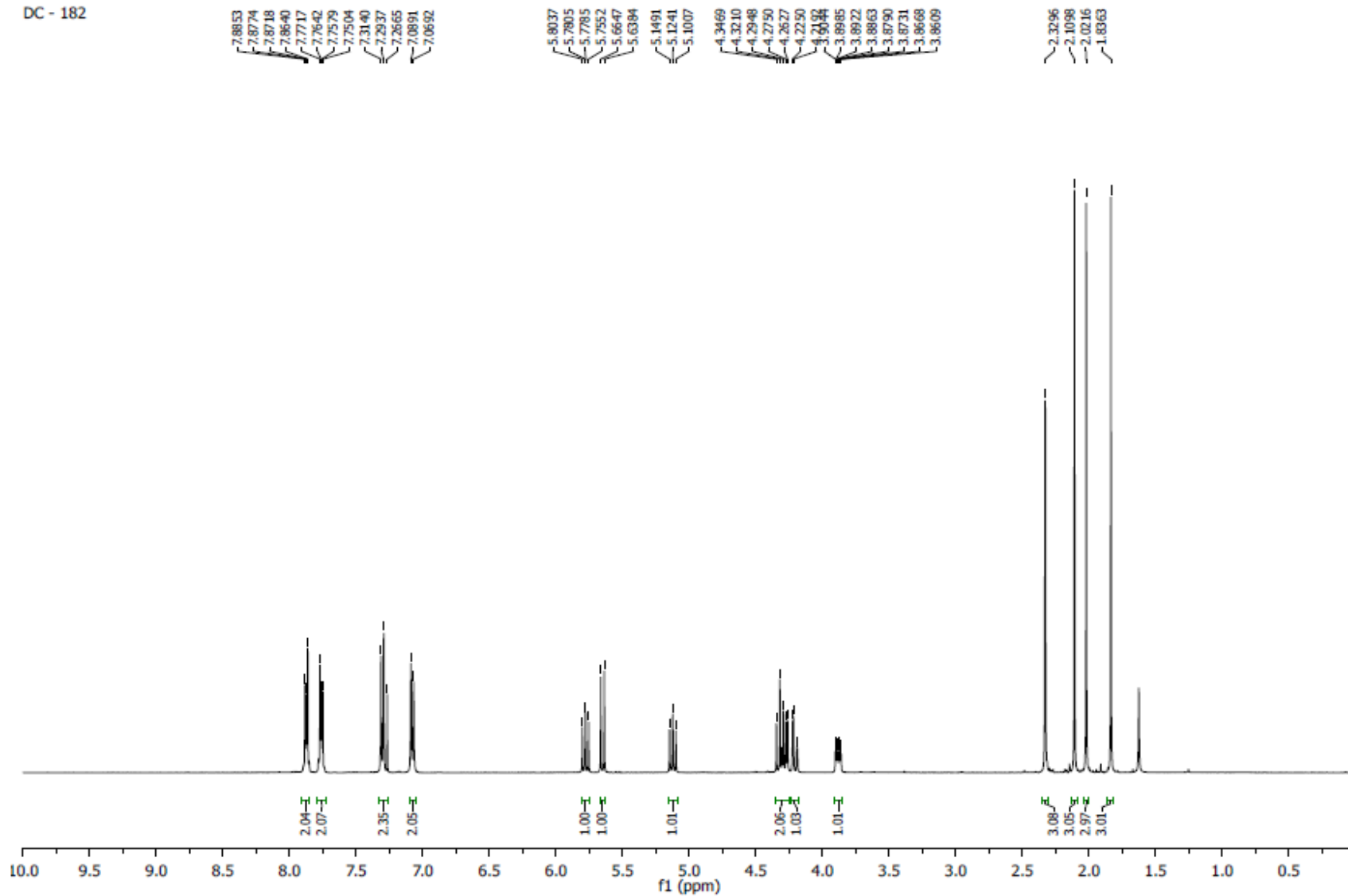


Fig. 35 ¹H-NMR spectra (400 MHz, CDCl₃) of *p*-Tolyl 3,4,6-tri-*O*-acetyl-2-phthalimido-2-deoxy-1-thio-β-D-glucopyranoside (**3e**)

DC - 182

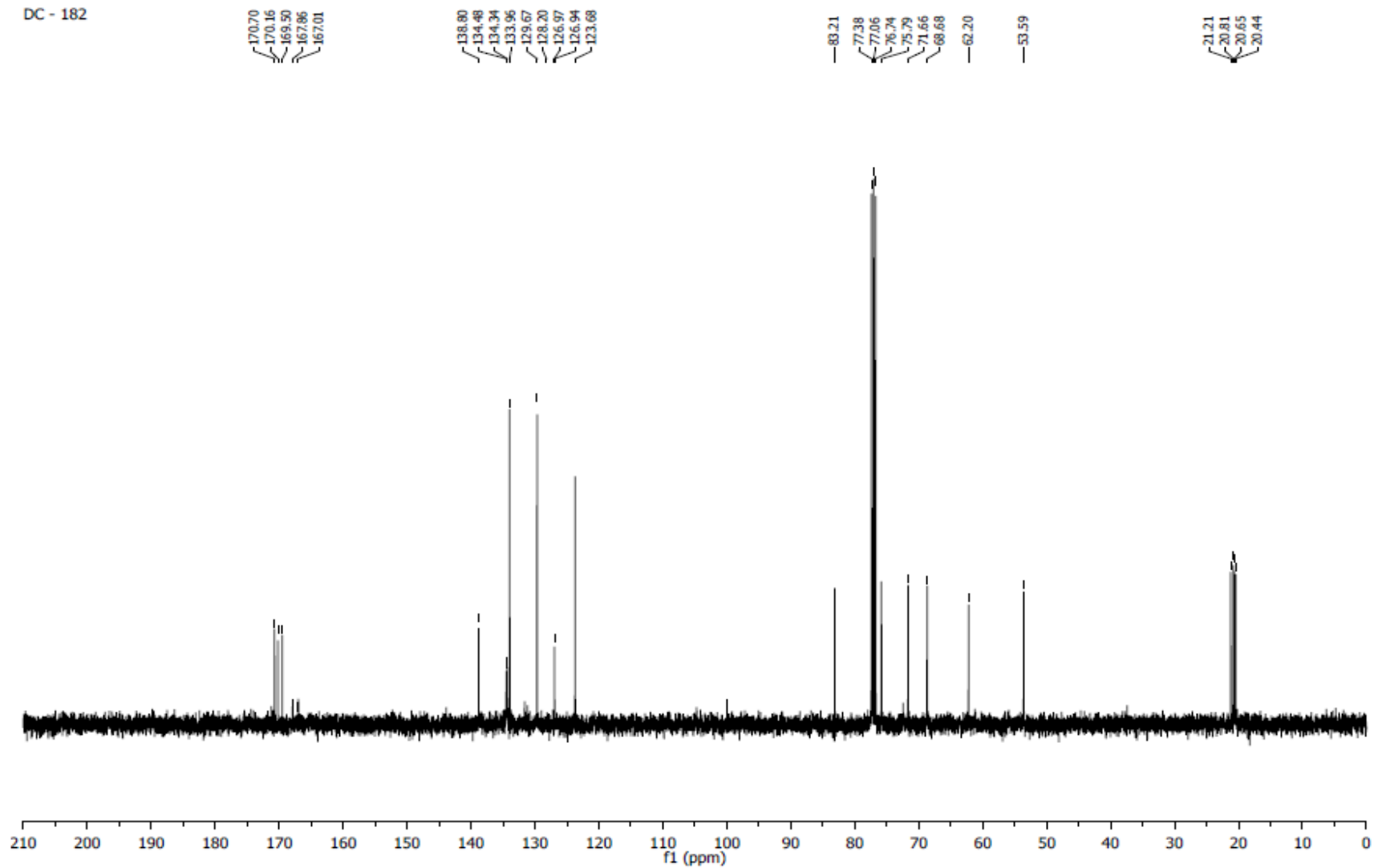


Fig. 36 ^{13}C -NMR spectra (100 MHz, CDCl_3) of *p*-Tolyl 3,4,6-tri-*O*-acetyl-2-phthalimido-2-deoxy-1-thio- β -D-glucopyranoside (**3e**)

DC - 138

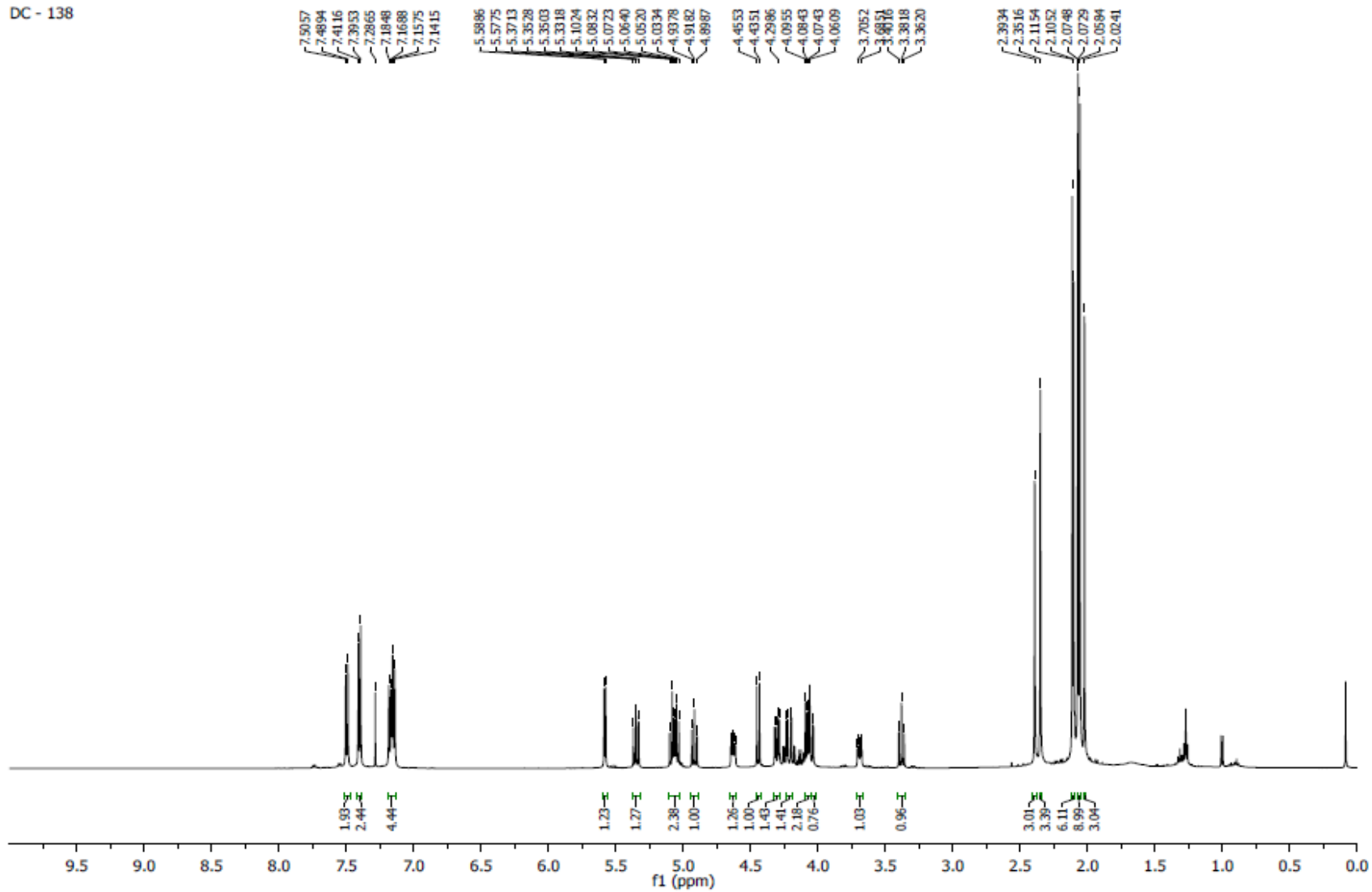


Fig. 37 $^1\text{H-NMR}$ spectra (500 MHz, CDCl_3) of *p*-Tolyl 3,4,6-Tri-*O*-acetyl-2-azido-2-deoxy-1-thio-*D*-glucopyranoside (**3f**)

DC - 138

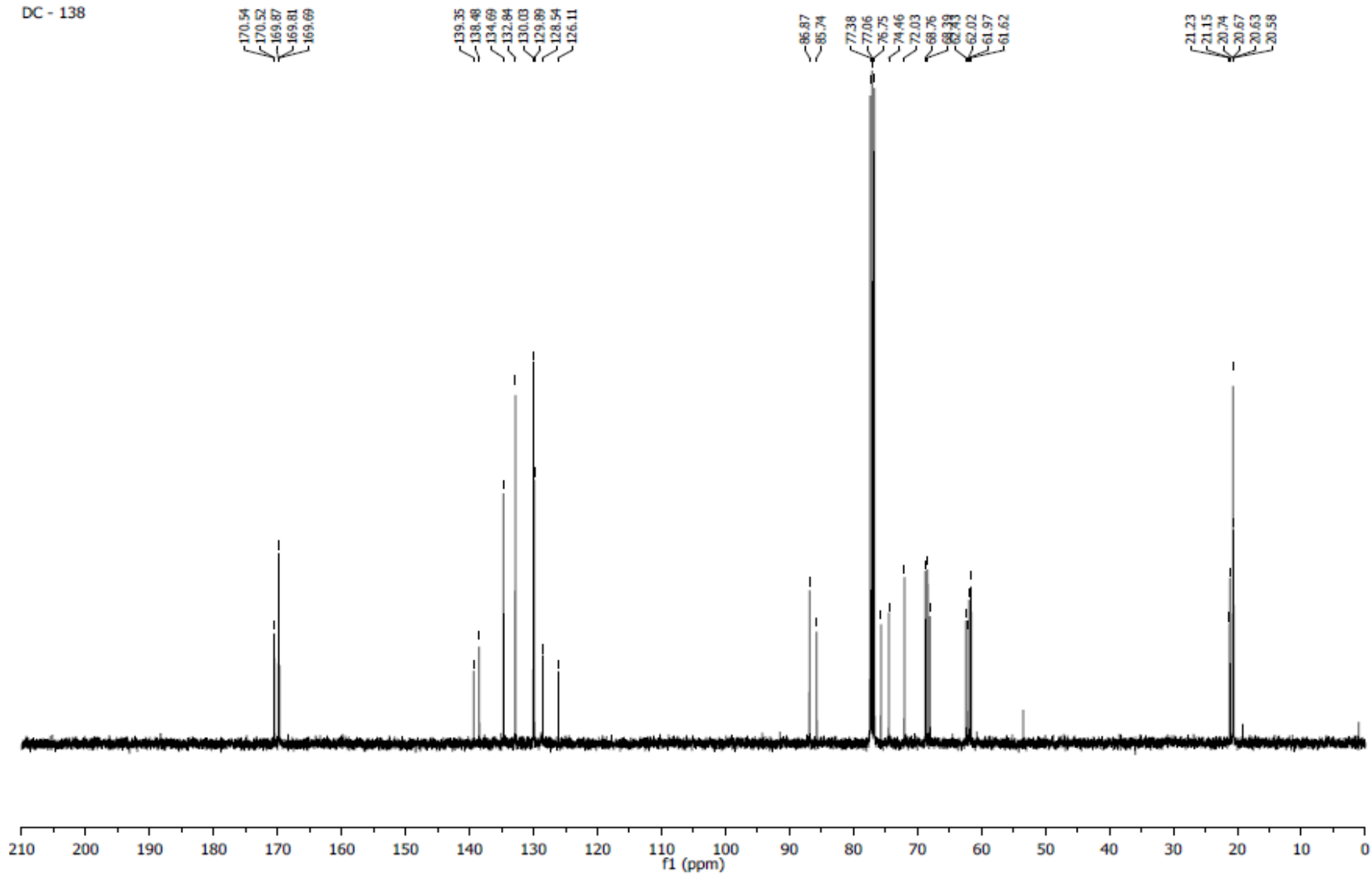


Fig. 38 ^{13}C -NMR spectra (100 MHz, CDCl_3) of *p*-Tolyl 3,4,6-Tri-*O*-acetyl-2-azido-2-deoxy-1-thio-D-glucopyranoside (**3f**)