

SUPPORTING INFORMATION

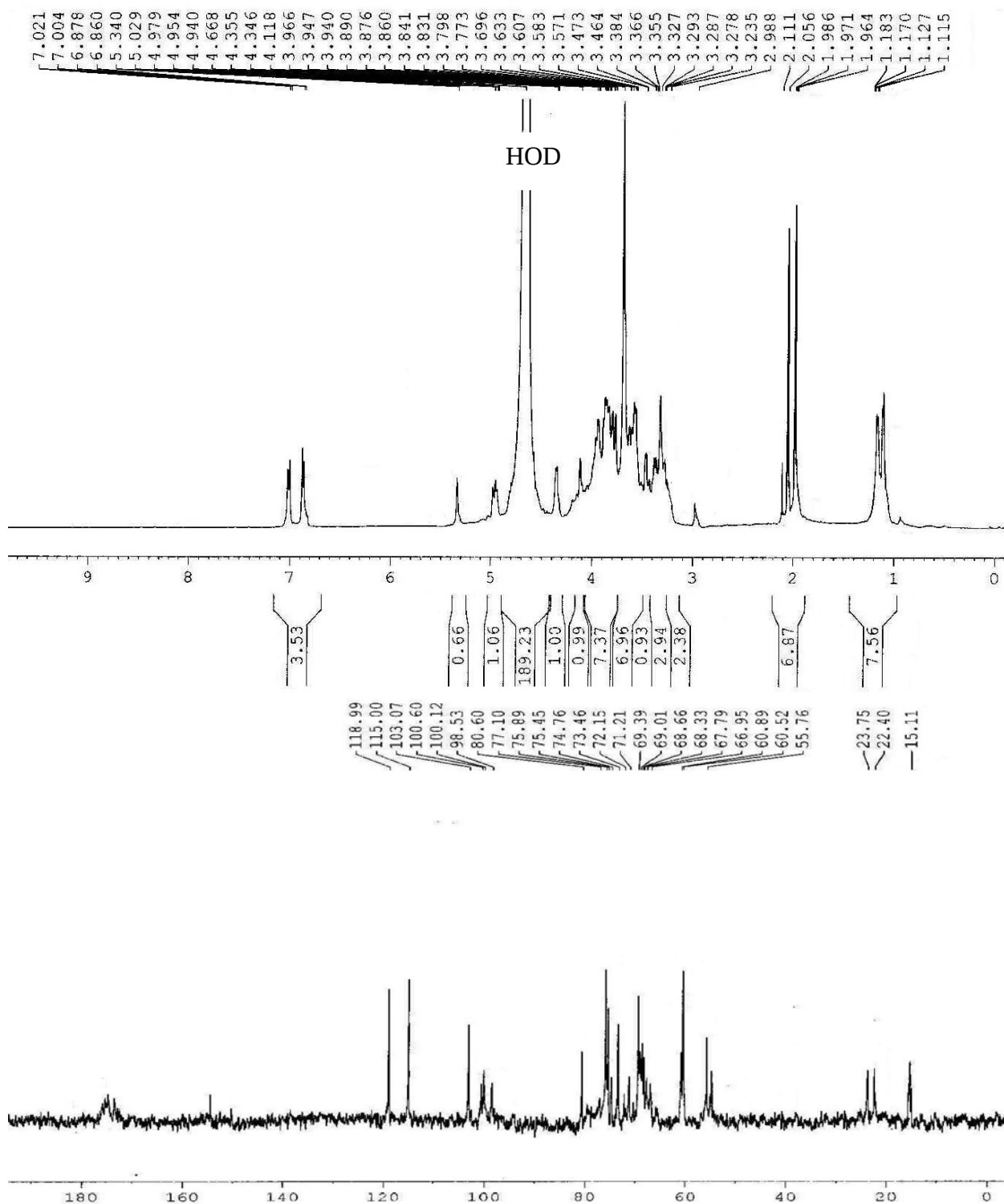
Convergent synthesis of a hexasaccharide corresponding to the cell wall O-antigen of *Escherichia coli* O41

Tamashree Ghosh, Abhishek Santra and Anup Kumar Misra*

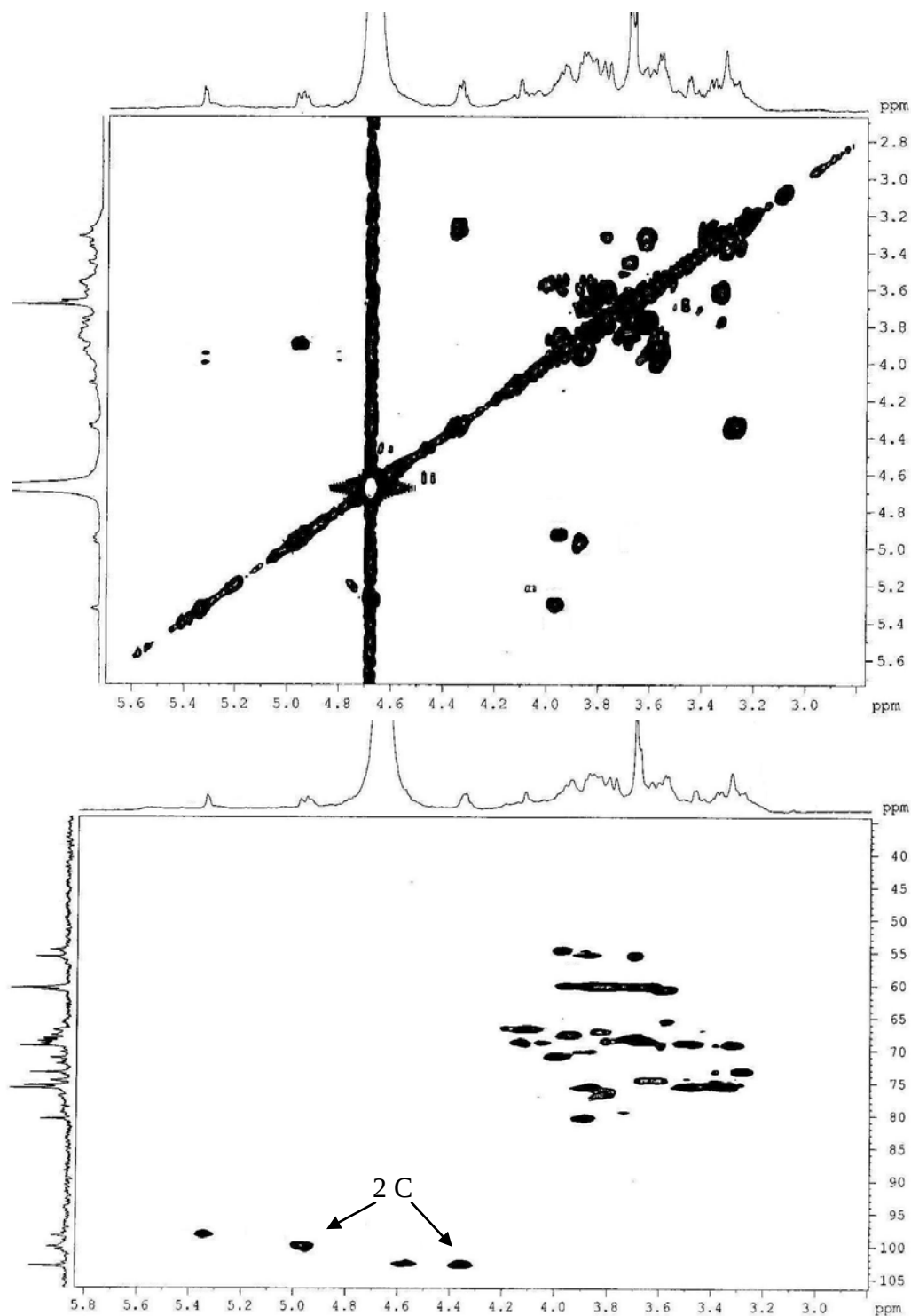
Bose Institute, Division of Molecular Medicine, P-1/12, C.I.T. Scheme VII-M, Kolkata-700054,
India

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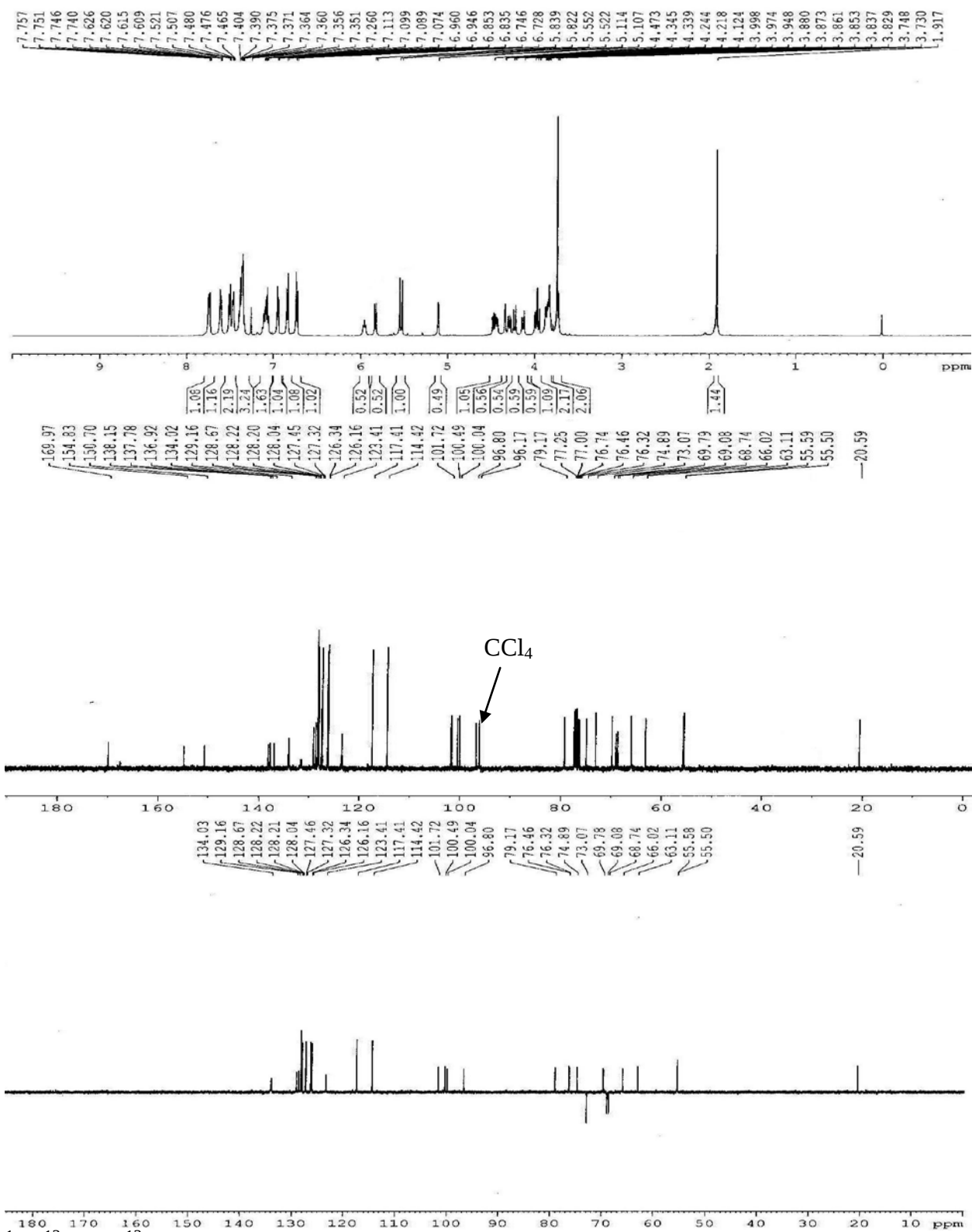
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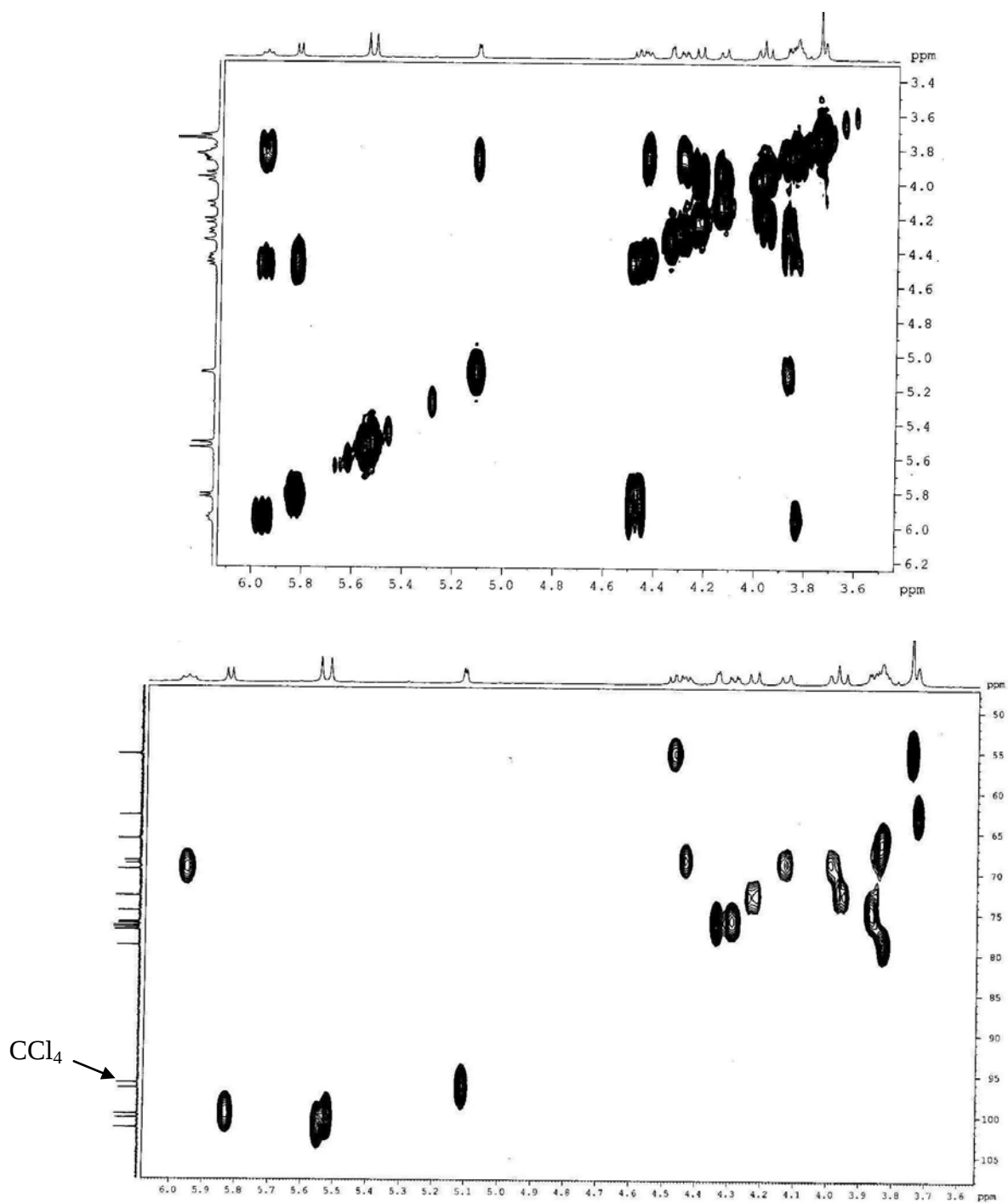
¹H, and ¹³C NMR spectra of *p*-methoxyphenyl (sodium β -D-glucopyranosyluronate)-(1 $\rightarrow$ 4)-(α -L-fucopyranosyl)-(1 $\rightarrow$ 4)-(2-acetamido-2-deoxy- β -D-glucopyranosyl)-(1 $\rightarrow$ 3)-(α -L-fucopyranosyl)-(1 $\rightarrow$ 3)-(2-acetamido-2-deoxy- β -D-glucopyranosyl)-(1 $\rightarrow$ 3)- α -D-galactopyranoside (**1**) (D₂O).



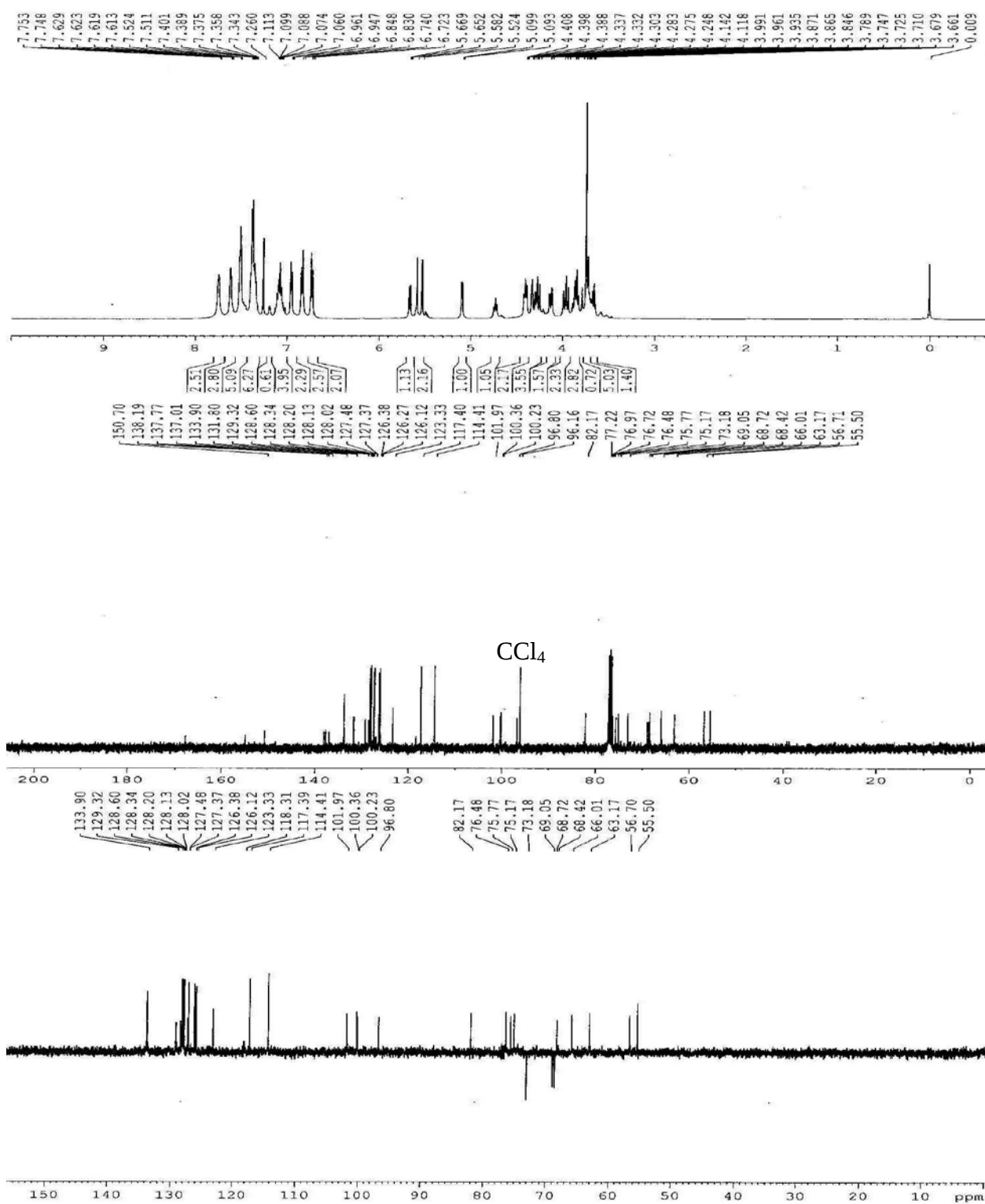
2D COSY and HSQC NMR spectra of *p*-methoxyphenyl (sodium β -D-glucopyranosyluronate)-(1 $\rightarrow$ 4)-(α -L-fucopyranosyl)-(1 $\rightarrow$ 4)-(2-acetamido-2-deoxy- β -D-glucopyranosyl)-(1 $\rightarrow$ 3)-(α -L-fucopyranosyl)-(1 $\rightarrow$ 3)-(2-acetamido-2-deoxy- β -D-glucopyranosyl)-(1 $\rightarrow$ 3)- α -D-galactopyranoside (**1**) (selected region) (D₂O).



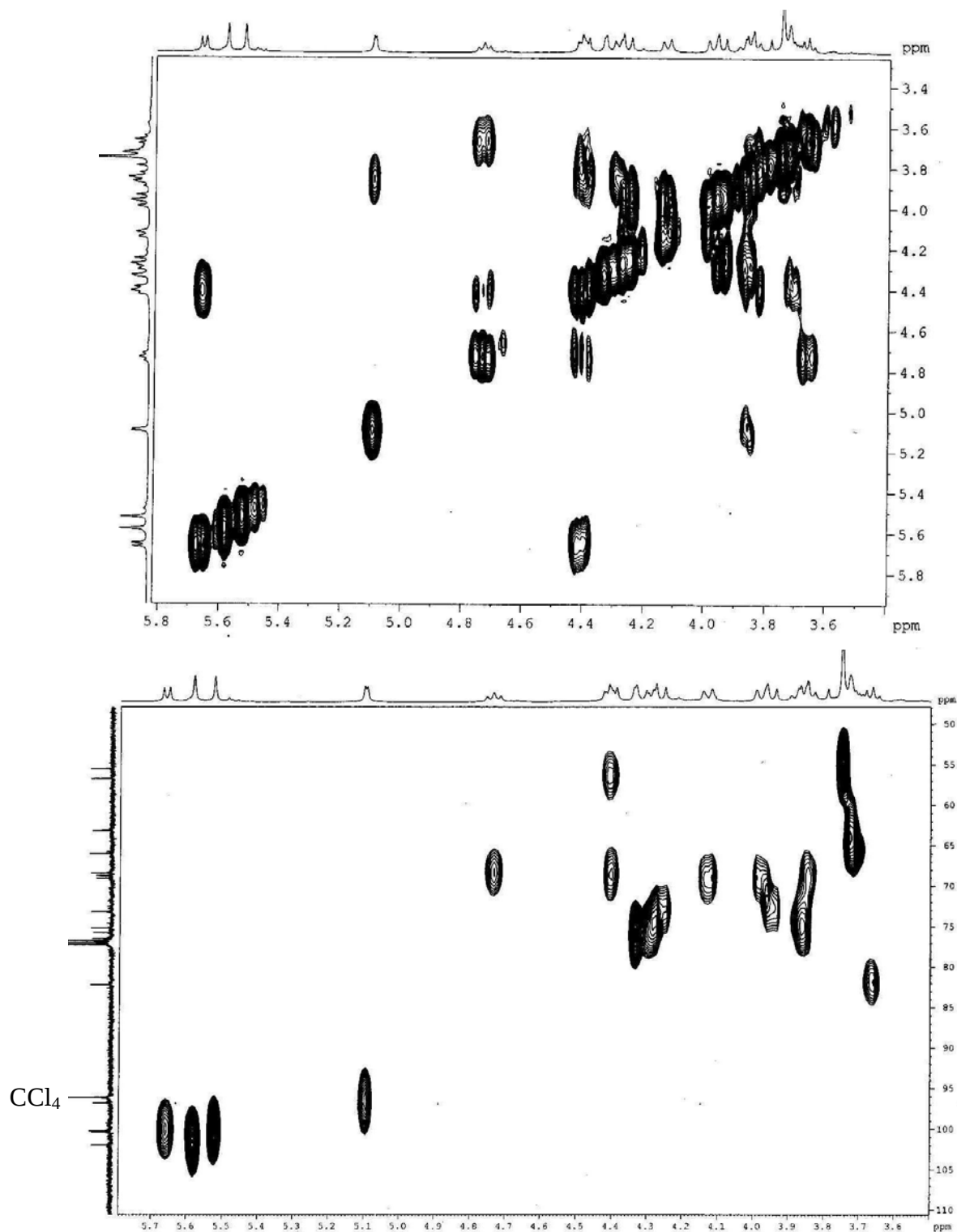
¹H, ¹³C and ¹³C DEPT 135 NMR spectra of *p*-methoxyphenyl (2-*O*-acetyl-4,6-*O*-benzylidene-2-deoxy-2-*N*-phthalimido-β-*D*-glucopyranosyl)-(1→3)-2-*O*-benzyl-4,6-*O*-benzylidene-α-*D*-galactopyranoside (**8**) (CDCl₃-CCl₄).



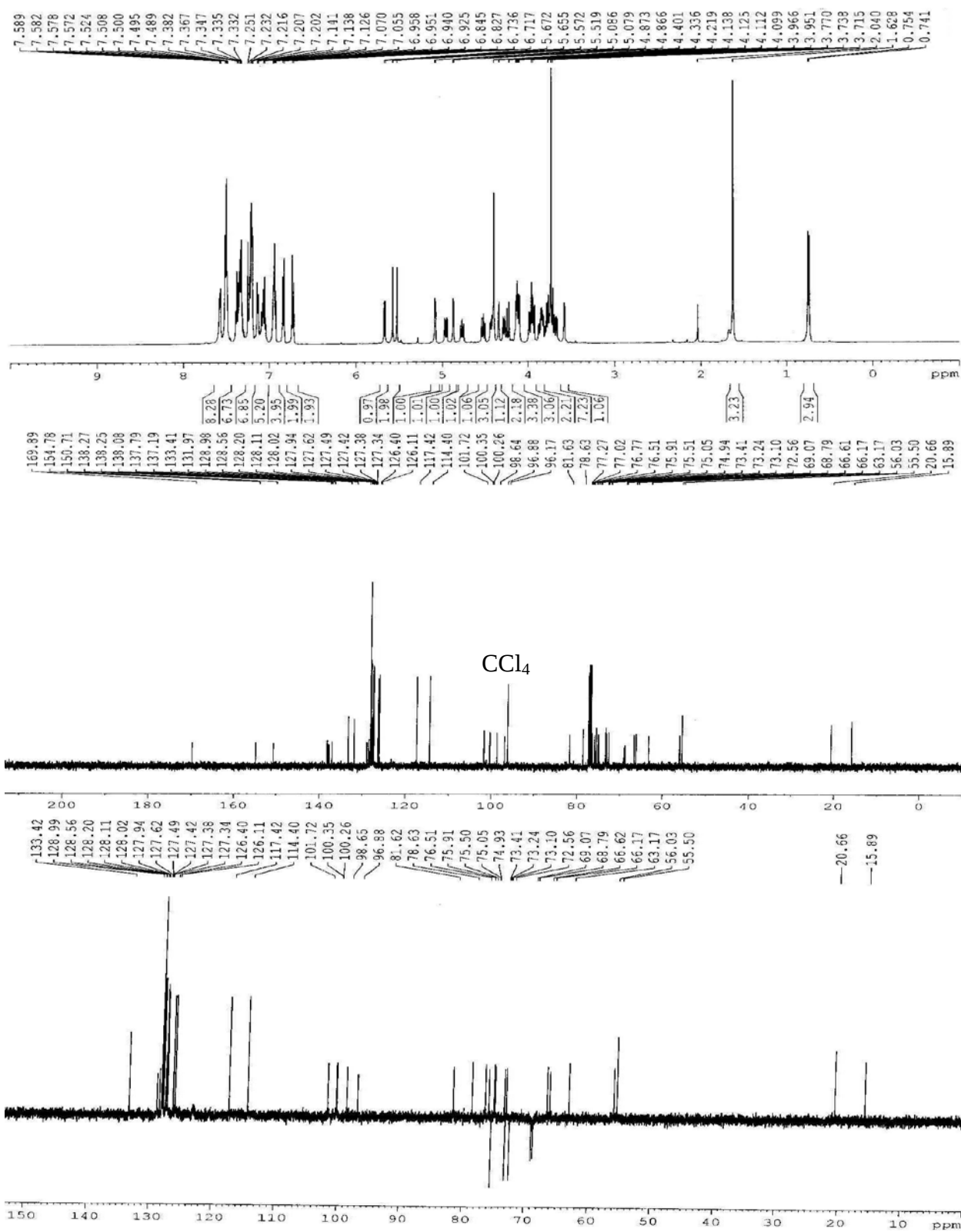
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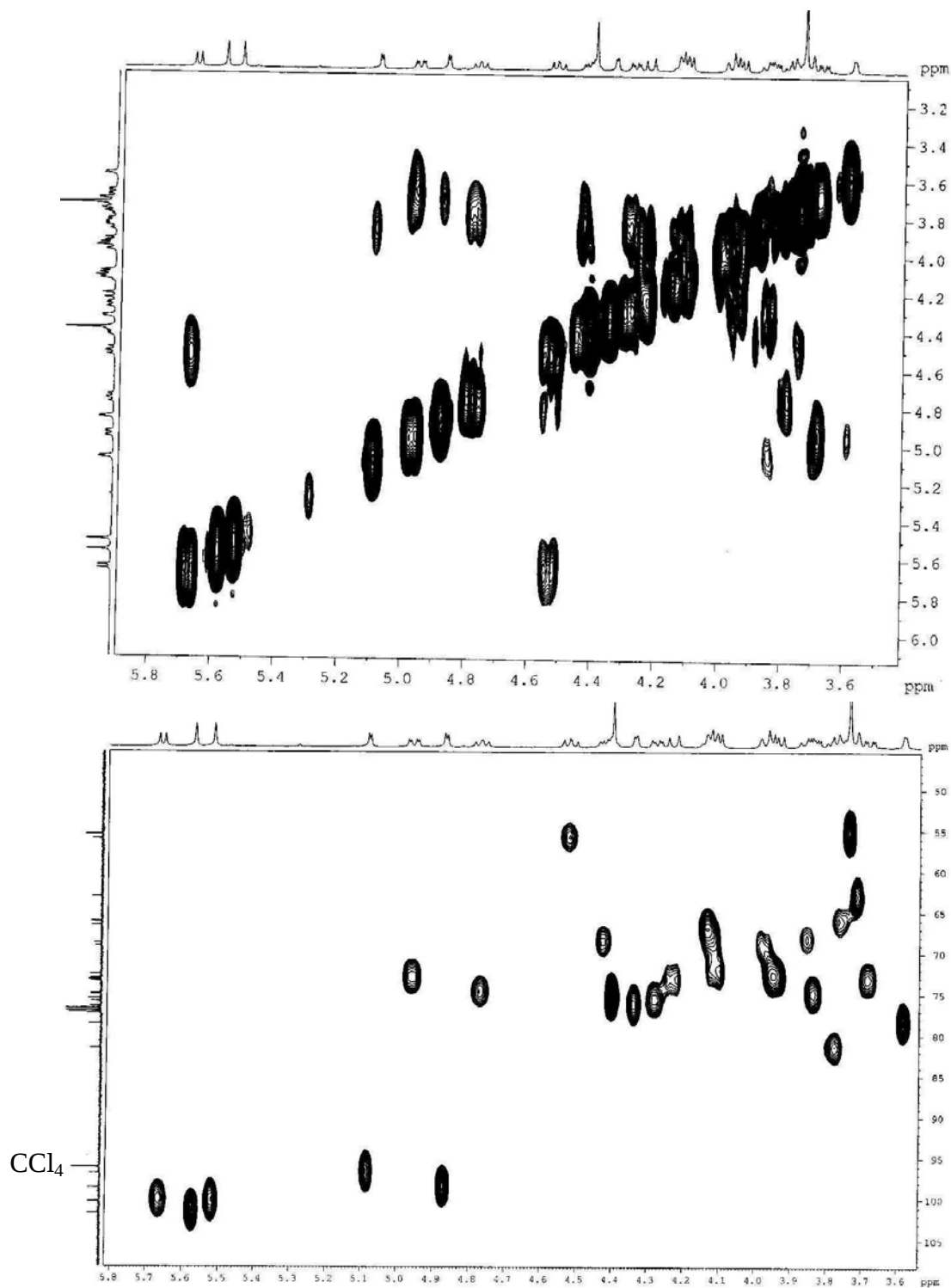
¹H, ¹³C and ¹³C DEPT 135 NMR spectra of *p*-methoxyphenyl (4,6-*O*-benzylidene-2-deoxy-2-*N*-phthalimido-β-*D*-glucopyranosyl)-(1→3)-2-*O*-benzyl-4,6-*O*-benzylidene-α-*D*-galactopyranoside (**9**) (CDCl₃-CCl₄).



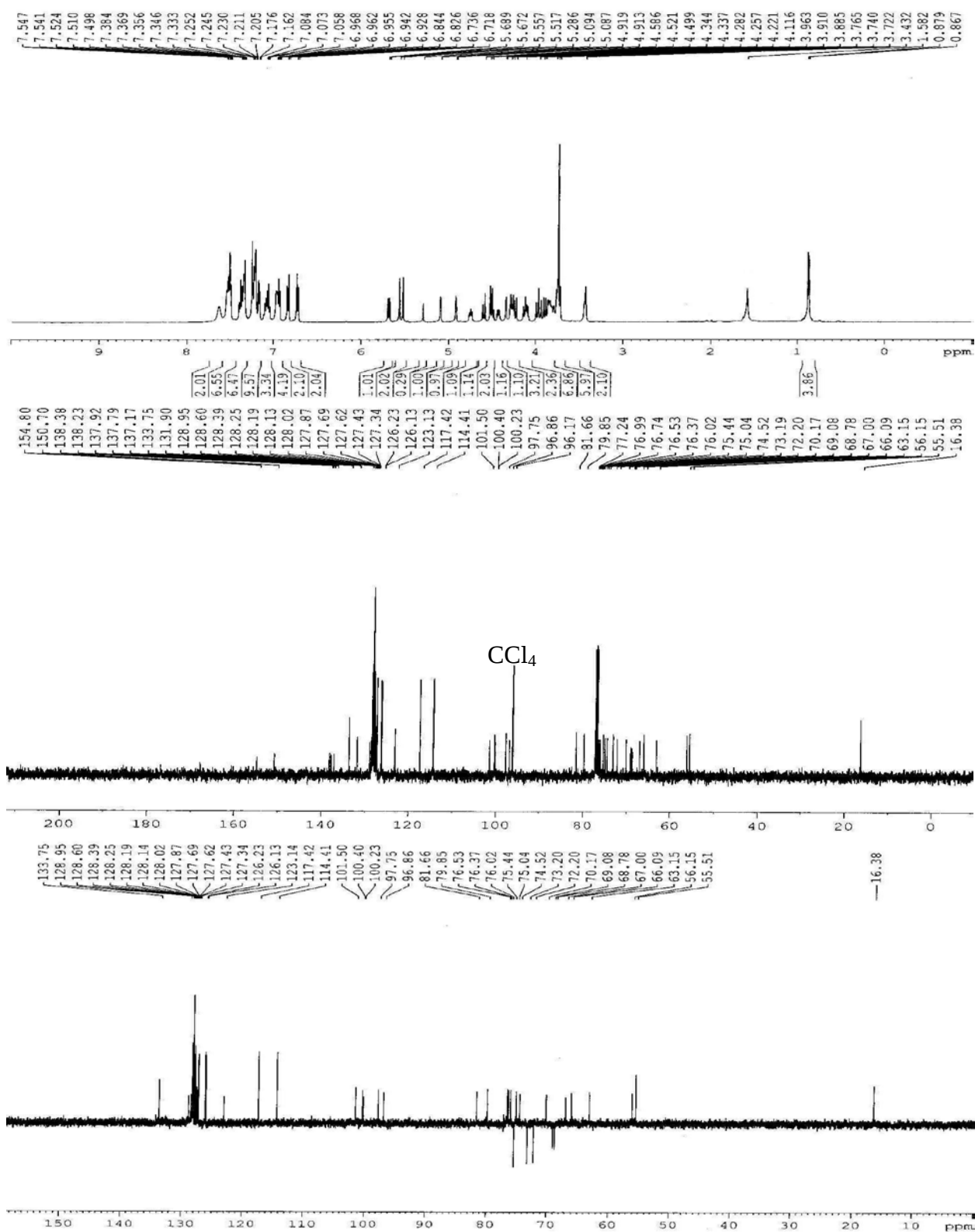
2D COSY and HSQC NMR spectra of *p*-methoxyphenyl (4,6-*O*-benzylidene-2-deoxy-2-*N*-phthalimido- β -D-glucopyranosyl)-(1 $\rightarrow$ 3)-2-*O*-benzyl-4,6-*O*-benzylidene- α -D-galactopyranoside (**9**) (selected regions) (CDCl₃-CCl₄).



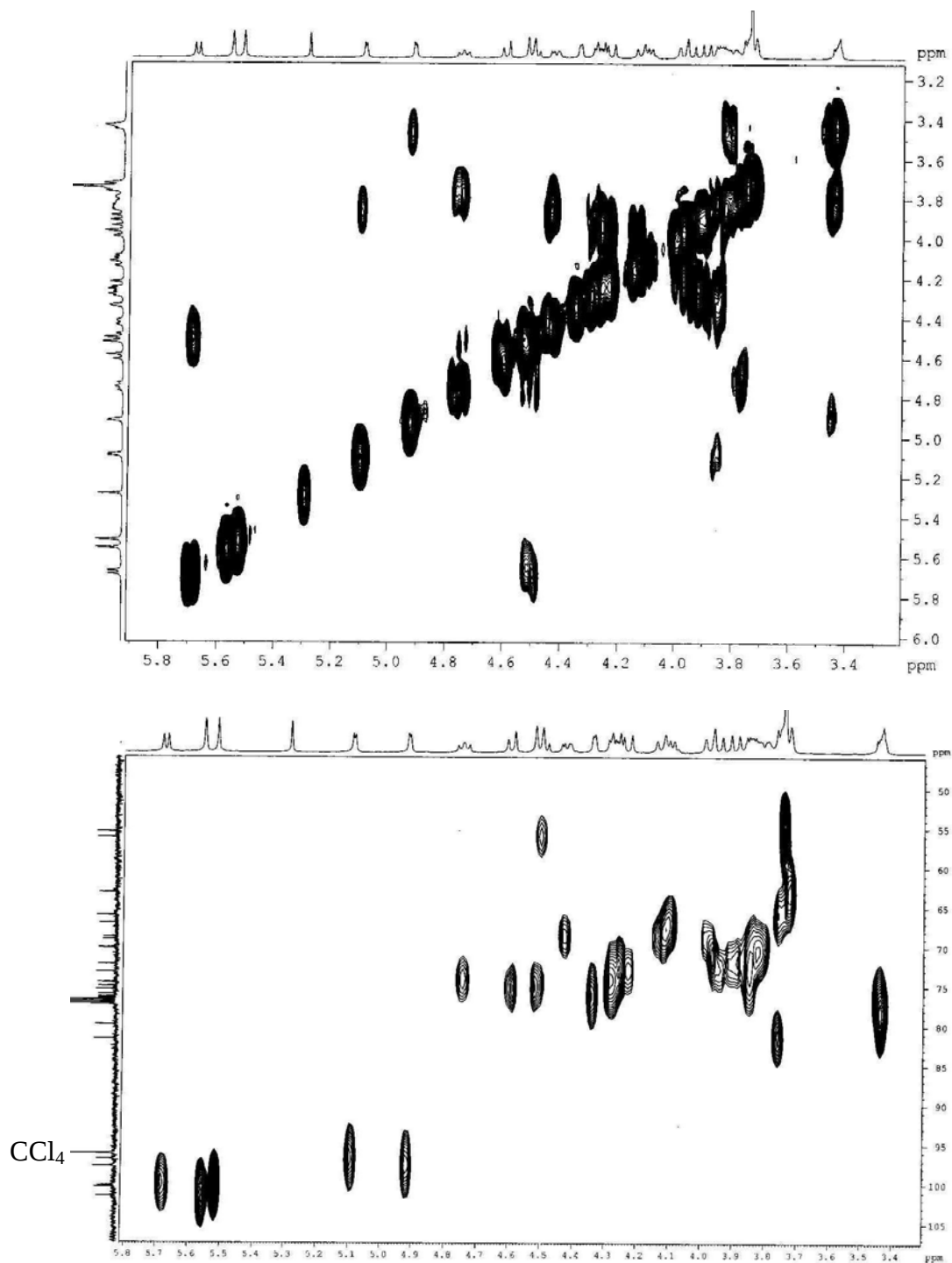
¹H, ¹³C NMR and ¹³C DEPT 135 NMR spectra of *p*-methoxyphenyl (3-*O*-acetyl-2,4-di-*O*-benzyl- α -L-fucopyranosyl)-(1 $\rightarrow$ 3)-(4,6-*O*-benzylidene-2-deoxy-2-*N*-phthalimido- β -D-glucopyranosyl)-(1 $\rightarrow$ 3)-2-*O*-benzyl-4,6-*O*-benzylidene- α -D-galactopyranoside (**10**) (CDCl₃-CCl₄).



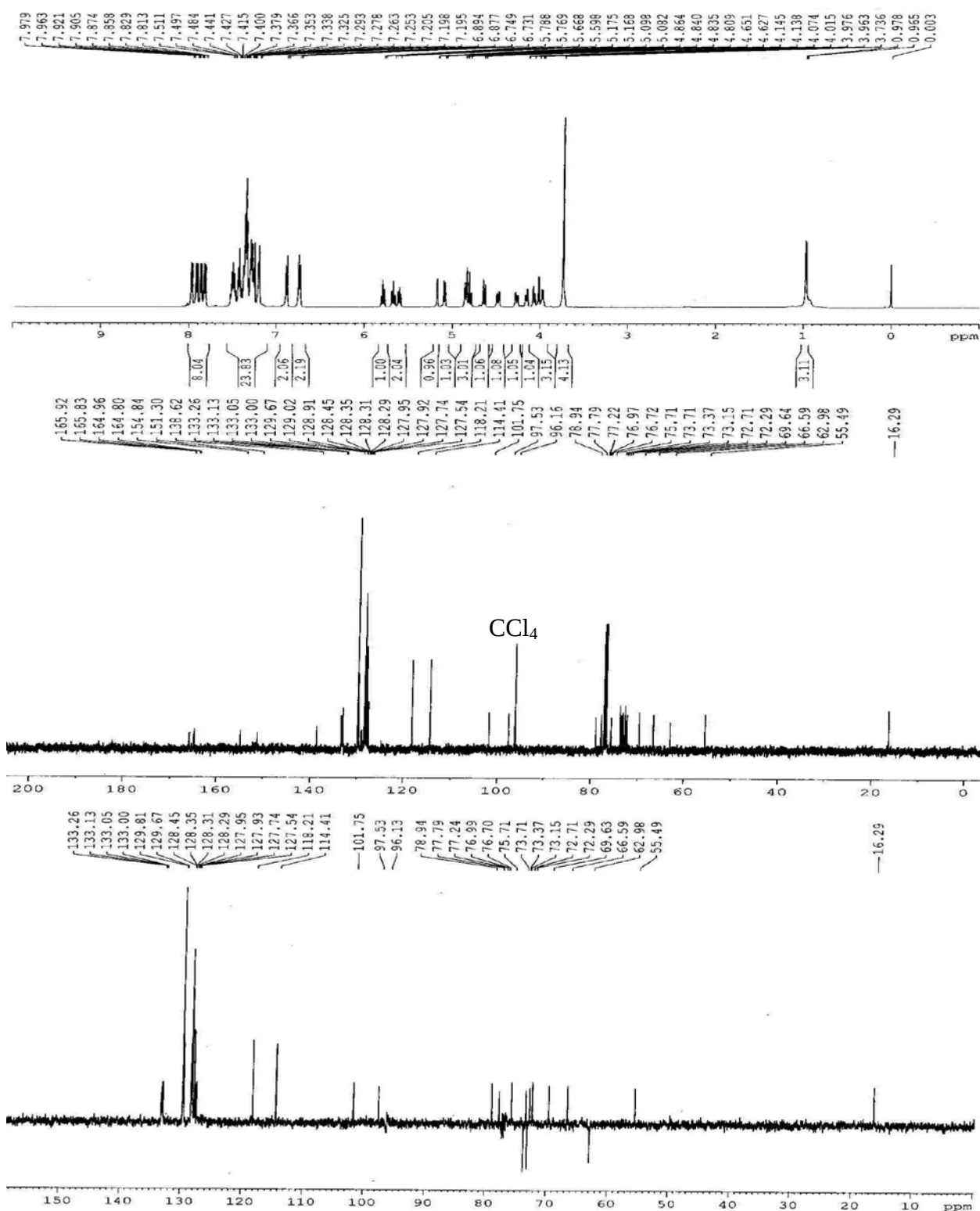
2D COSY and HSQC NMR spectra of *p*-methoxyphenyl (3-*O*-acetyl-2,4-di-*O*-benzyl- α -L-fucopyranosyl)-(1 $\rightarrow$ 3)-(4,6-*O*-benzylidene-2-deoxy-2-*N*-phthalimido- β -D-glucopyranosyl)-(1 $\rightarrow$ 3)-2-*O*-benzyl-4,6-*O*-benzylidene- α -D-galactopyranoside (**10**) (selected regions) (CDCl₃-CCl₄).



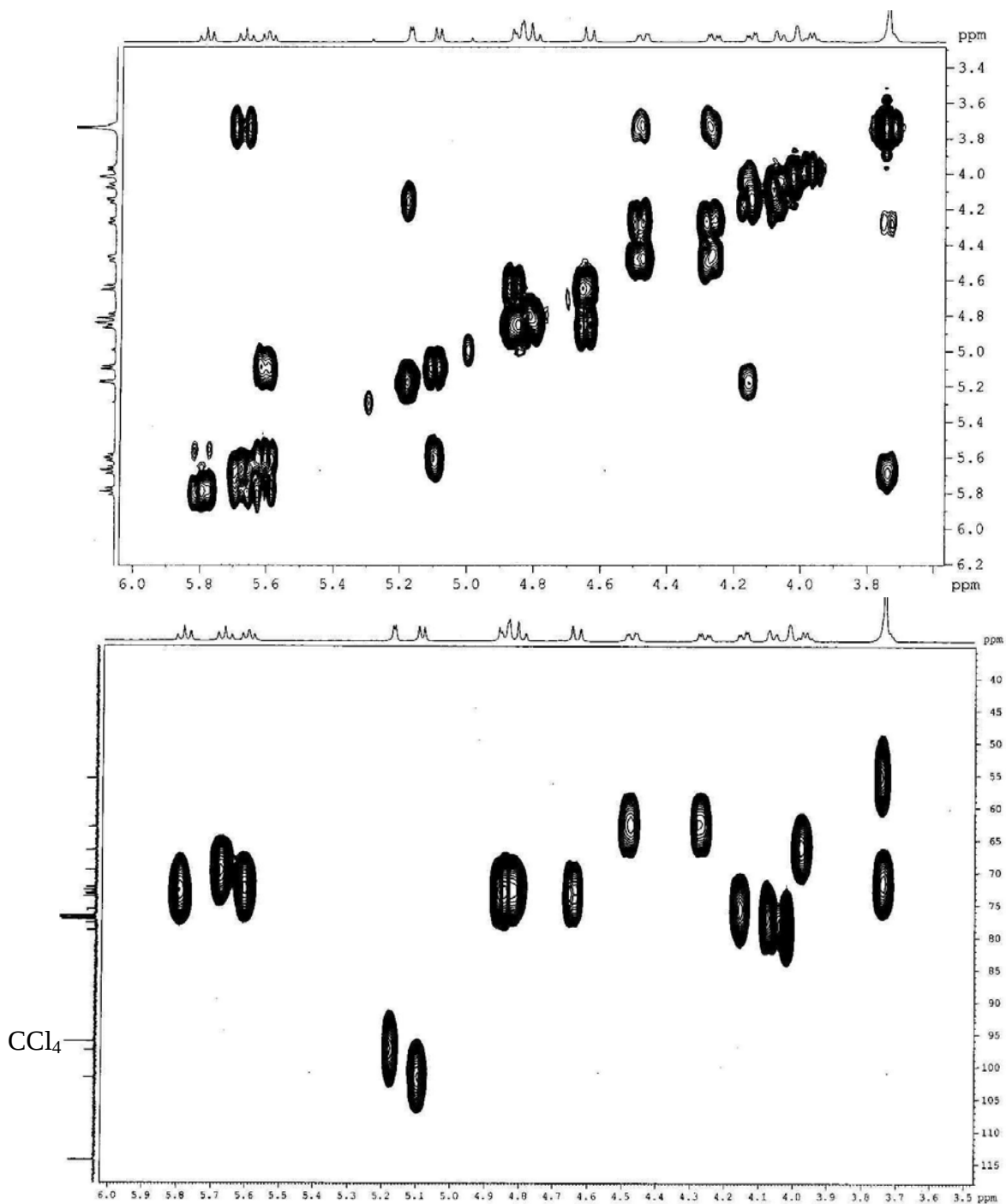
¹H, ¹³C and DEPT 135 NMR spectra of *p*-methoxyphenyl (2,4-di-*O*-benzyl- α -L-fucopyranosyl)-(1 $\rightarrow$ 3)-(4,6-*O*-benzylidene-2-deoxy-2-*N*-phthalimido- β -D-glucopyranosyl)-(1 $\rightarrow$ 3)-2-*O*-benzyl-4,6-*O*-benzylidene- α -D-galactopyranoside (**11**) (CDCl₃-CCl₄).



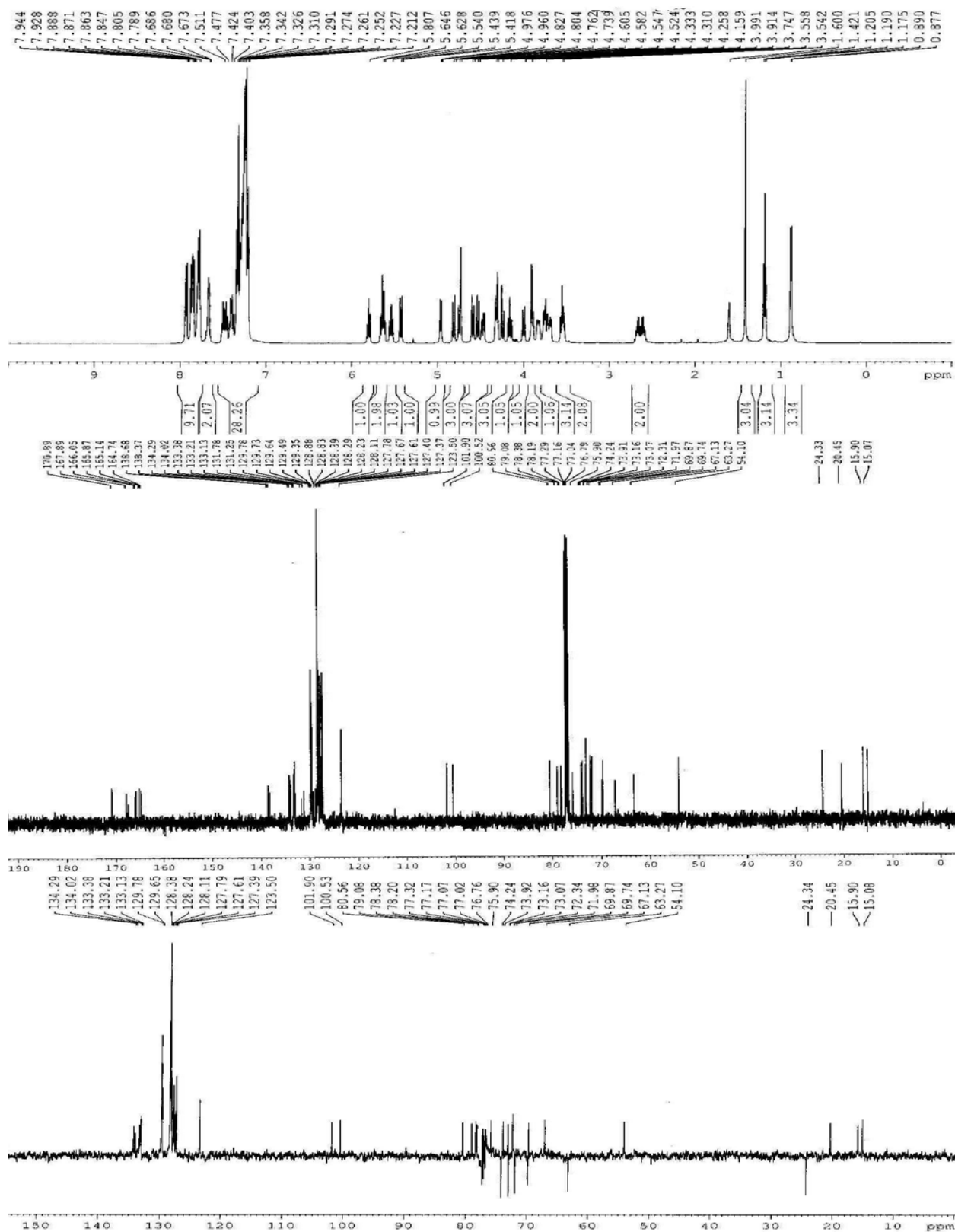
2D COSY and HSQC NMR spectrum of *p*-methoxyphenyl (2,4-di-*O*-benzyl- α -L-fucopyranosyl)-(1 $\rightarrow$ 3)-(4,6-*O*-benzylidene-2-deoxy-2-*N*-phthalimido- β -D-glucopyranosyl)-(1 $\rightarrow$ 3)-2-*O*-benzyl-4,6-*O*-benzylidene- α -D-galactopyranoside (**11**) (selected regions) (CDCl₃-CCl₄).



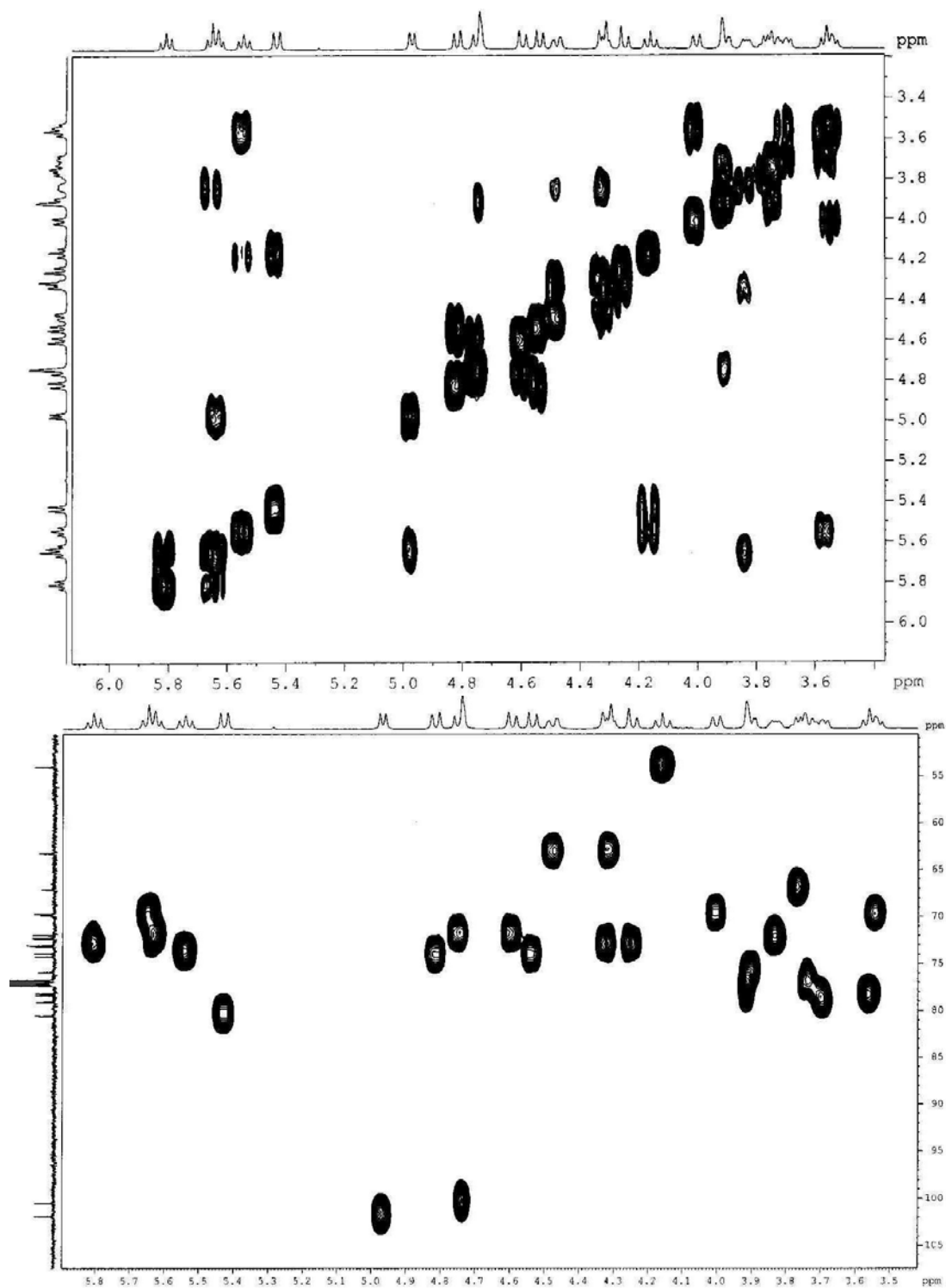
¹H, ¹³C and DEPT 135 NMR spectra of *p*-methoxyphenyl (2,3,4,6-tetra-*O*-benzoyl-β-D-glucopyranosyl)-(1→4)-2,3-di-*O*-benzyl-α-L-fucopyranoside (**12**) (CDCl₃-CCl₄).



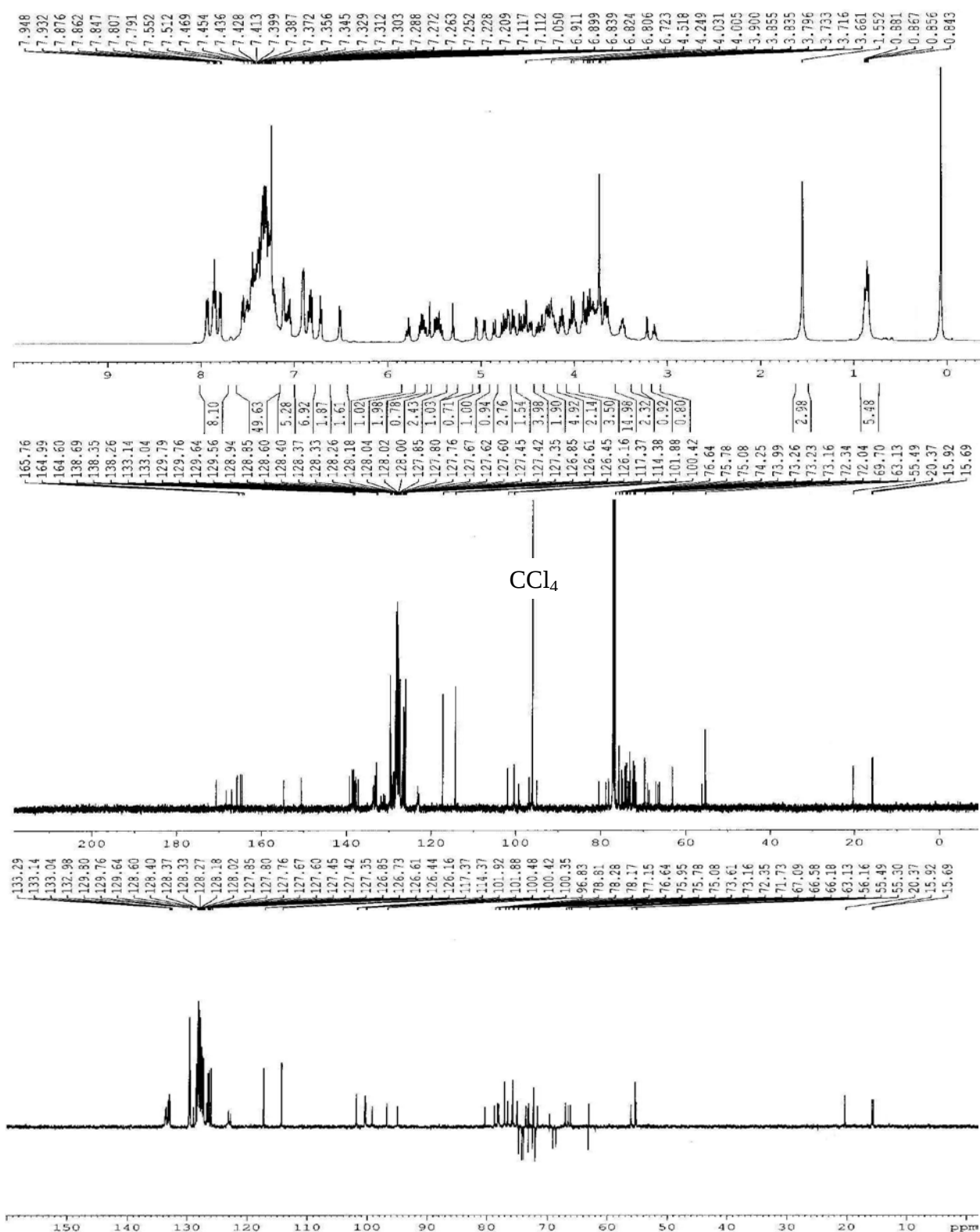
2D COSY and HSQC NMR spectra of *p*-methoxyphenyl (2,3,4,6-tetra-*O*-benzoyl- β -D-glucopyranosyl)-(1 $\rightarrow$ 4)-2,3-di-*O*-benzyl- α -L-fucopyranoside (**12**) (selected regions) (CDCl_3 - CCl_4).



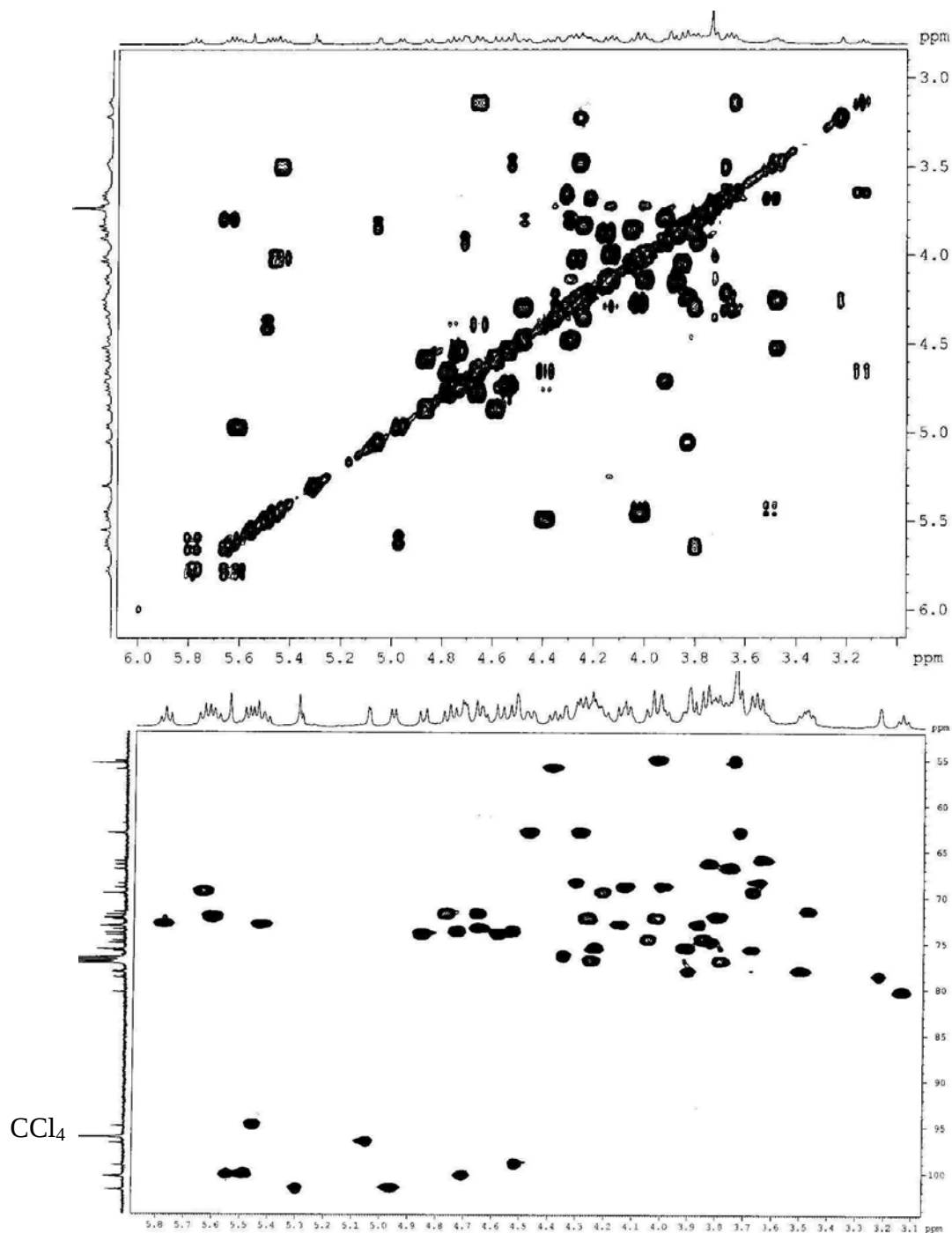
¹H, ¹³C and DEPT 135 NMR spectra of ethyl (2,3,4,6-tetra-O-benzoyl-β-D-glucopyranosyl)-(1→4)-(2,3-di-O-benzyl-α-L-fucopyranosyl)-(1→4)-3-O-acetyl-6-O-benzyl-2-deoxy-2-N-phthalimido-1-thio-β-D-glucopyranoside (**14**) (CDCl₃).



2D COSY and HSQC NMR spectra of ethyl (2,3,4,6-tetra-*O*-benzoyl- β -D-glucopyranosyl)-(1 $\rightarrow$ 4)-(2,3-di-*O*-benzyl- α -L-fucopyranosyl)-(1 $\rightarrow$ 4)-3-*O*-acetyl-6-*O*-benzyl-2-deoxy-2-*N*-phthalimido-1-thio- β -D-glucopyranoside (**14**) (selected regions) (CDCl₃).



^1H , ^{13}C and DEPT 135 NMR spectra of *p*-methoxyphenyl (2,3,4,6-tetra-*O*-benzoyl- β -D-glucopyranosyl)-(1 $\rightarrow$ 4)-(2,3-di-*O*-benzyl- α -L-fucopyranosyl)-(1 $\rightarrow$ 4)-(3-*O*-acetyl-6-*O*-benzyl-2-deoxy-2-*N*-phthalimido- β -D-glucopyranosyl)-(1 $\rightarrow$ 3)-(2,4-di-*O*-benzyl- α -L-fucopyranosyl)-(1 $\rightarrow$ 3)-(4,6-*O*-benzylidene-2-deoxy-2-*N*-phthalimido- β -D-glucopyranosyl)-(1 $\rightarrow$ 3)-2-*O*-benzyl-4,6-*O*-benzylidene- α -D-galactopyranoside (**15**) (CDCl_3 - CCl_4).



2D COSY and HSQC NMR spectra of *p*-methoxyphenyl (2,3,4,6-tetra-*O*-benzoyl- β -D-glucopyranosyl)-(1 $\rightarrow$ 4)-(2,3-di-*O*-benzyl- α -L-fucopyranosyl)-(1 $\rightarrow$ 4)-(3-*O*-acetyl-6-*O*-benzyl-2-deoxy-2-*N*-phthalimido- β -D-glucopyranosyl)-(1 $\rightarrow$ 3)-(2,4-di-*O*-benzyl- α -L-fucopyranosyl)-(1 $\rightarrow$ 3)-(4,6-*O*-benzylidene-2-deoxy-2-*N*-phthalimido- β -D-glucopyranosyl)-(1 $\rightarrow$ 3)-2-*O*-benzyl-4,6-*O*-benzylidene- α -D-galactopyranoside (**15**) (selected regions) (CDCl₃-CCl₄).