

Supporting Information

for

Convergent synthesis of the tetrasaccharide repeating unit of the O-antigen of *Shigella boydii* type 9

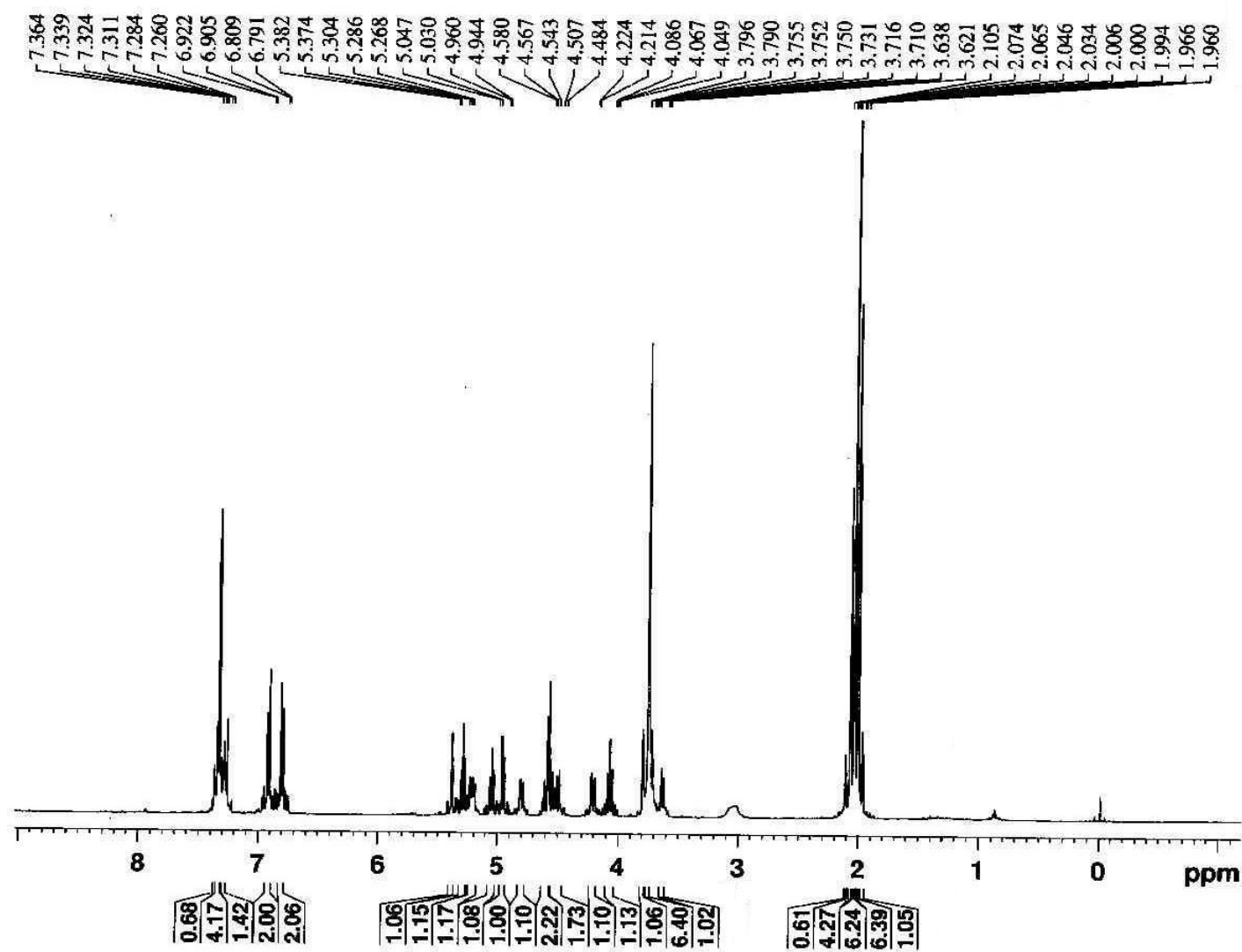
Abhishek Santra and Anup Kumar Misra*

Address: Bose Institute, Division of Molecular Medicine, P-1/12, C.I.T. Scheme VII-M, Kolkata-700054, India; Fax: 91-33-2355 3886

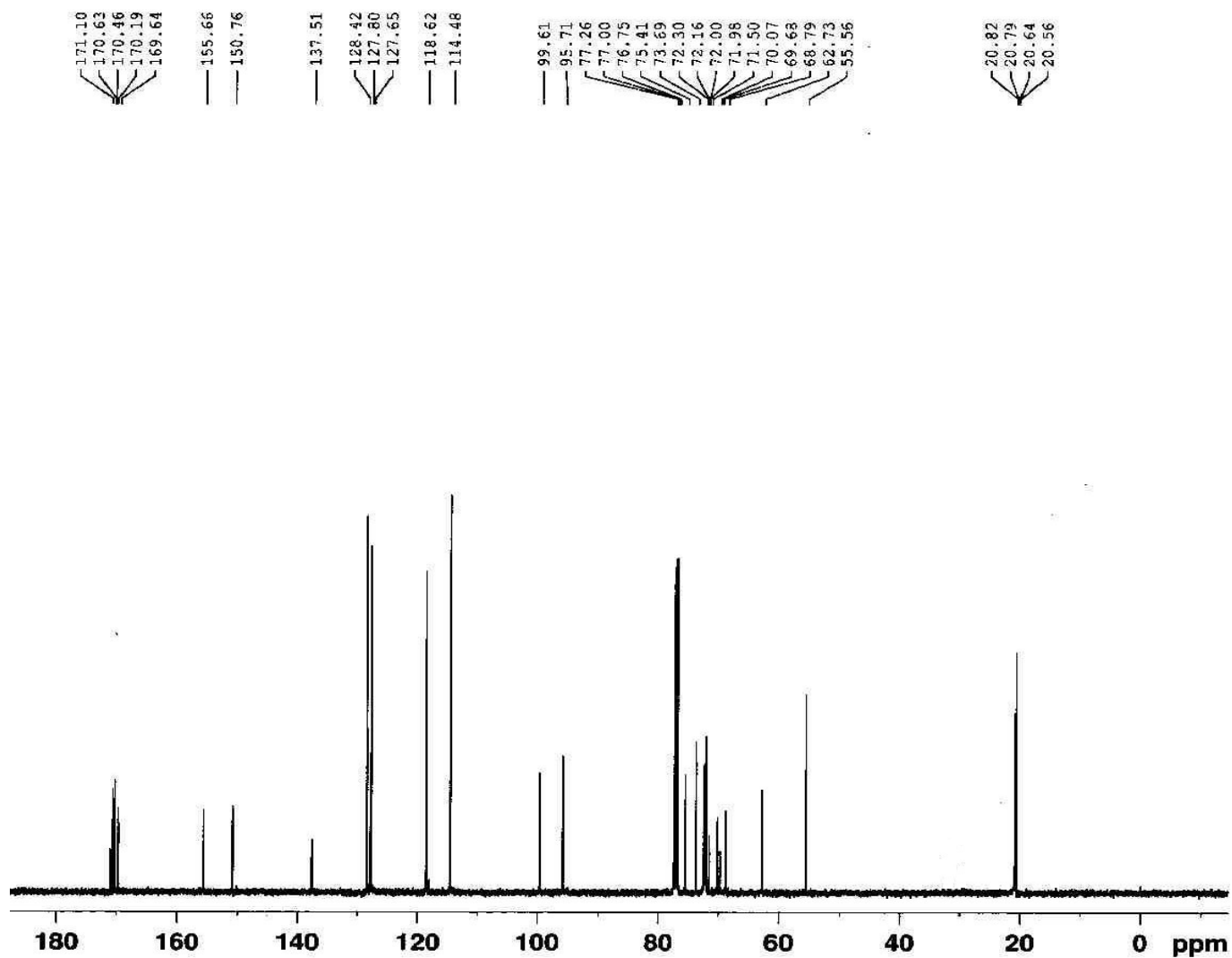
Email: Anup Kumar Misra* - akmisra69@gmail.com

* Corresponding author

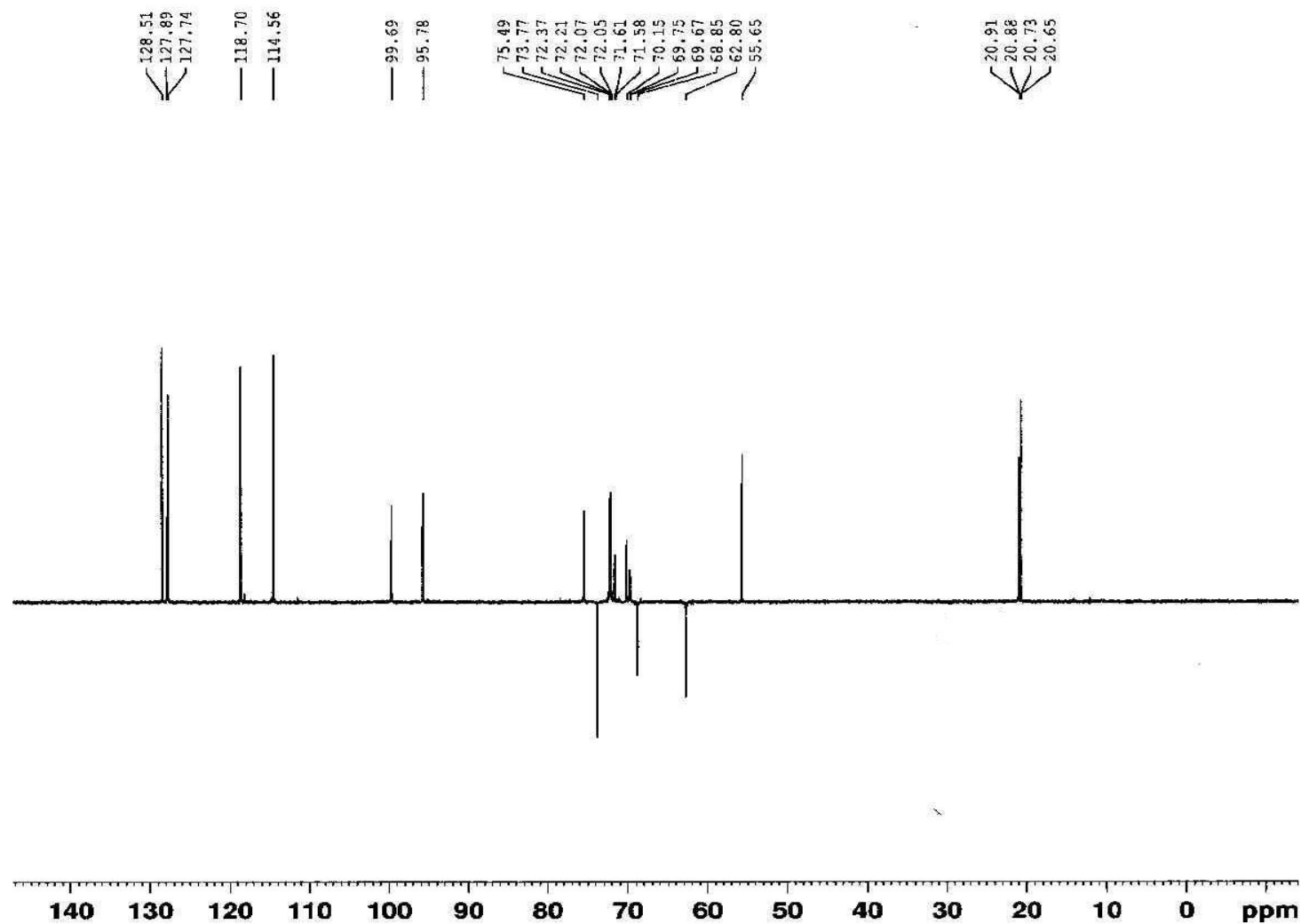
1D and 2D NMR spectra of compounds 2, 6, 7, 8 and 1



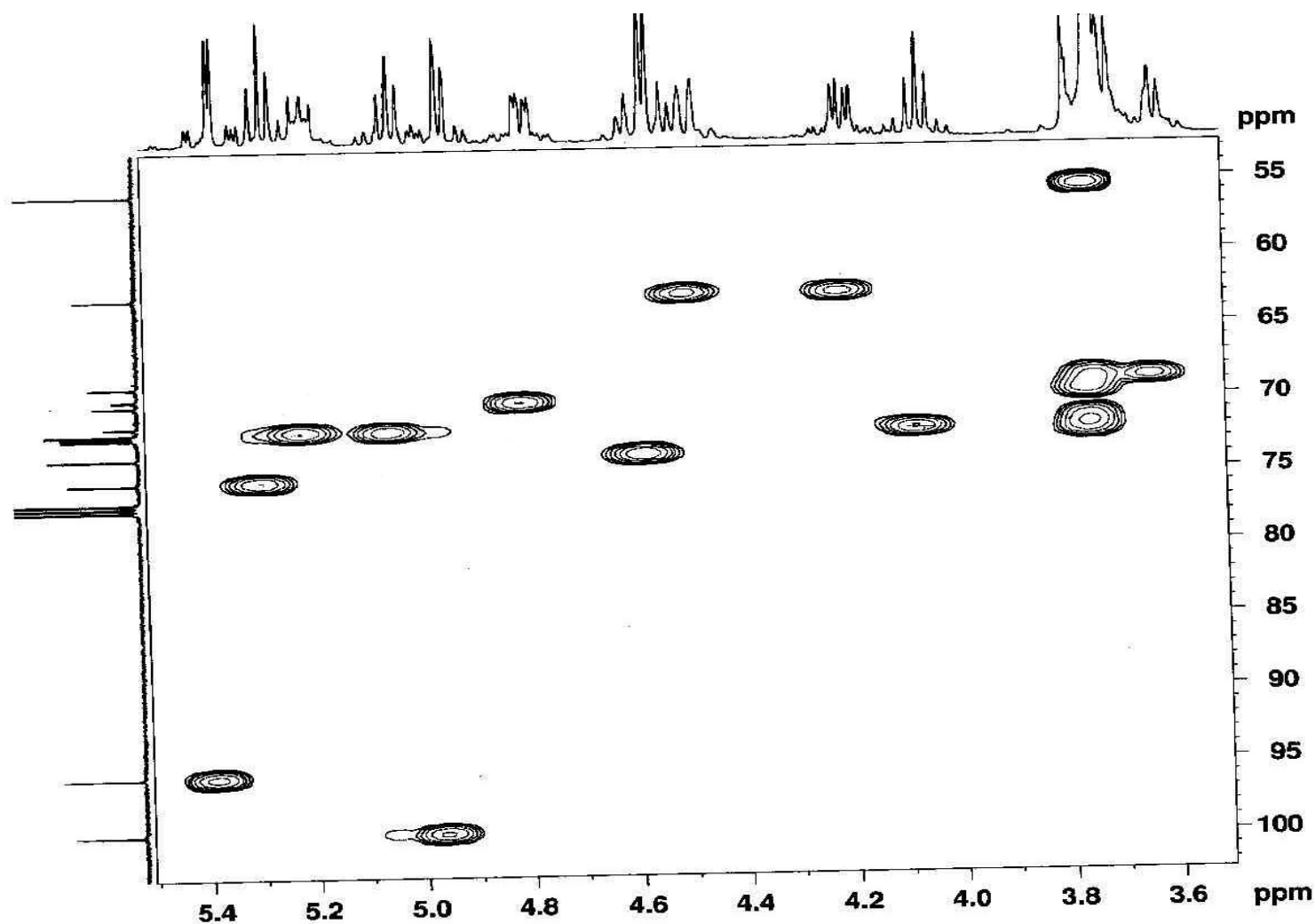
^1H NMR spectrum of 4-methoxyphenyl (2,3-di-O-acetyl-6-O-benzyl- α -D-glucopyranosyl)-(1 $\rightarrow$ 4)-2,3,6-tri-O-acetyl- β -D-glucopyranoside (2).



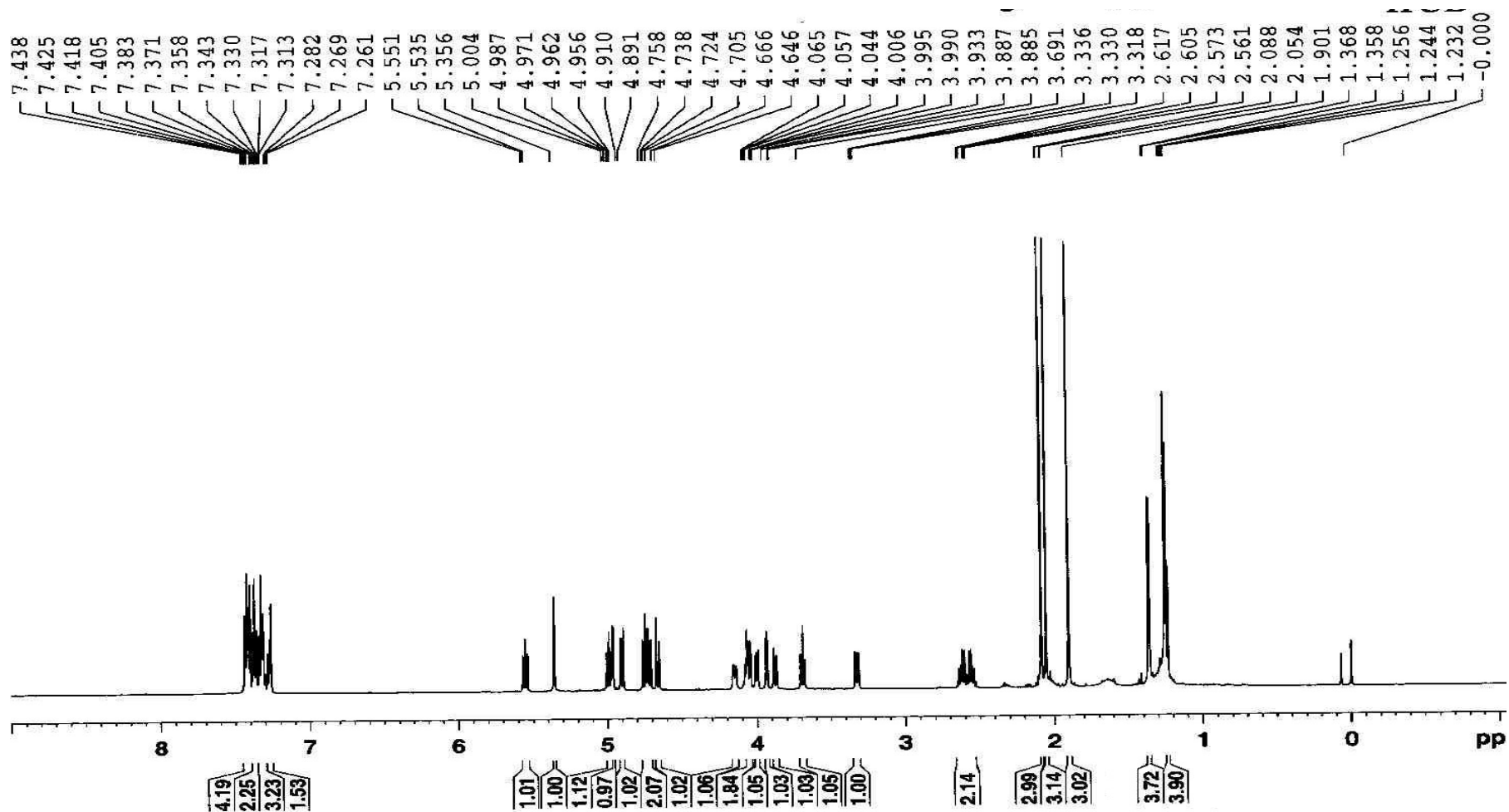
^{13}C NMR spectrum of 4-methoxyphenyl (2,3-di-*O*-acetyl-6-*O*-benzyl- α -D-glucopyranosyl)-(1 $\rightarrow$ 4)-2,3,6-tri-*O*-acetyl- β -D-glucopyranoside (**2**).



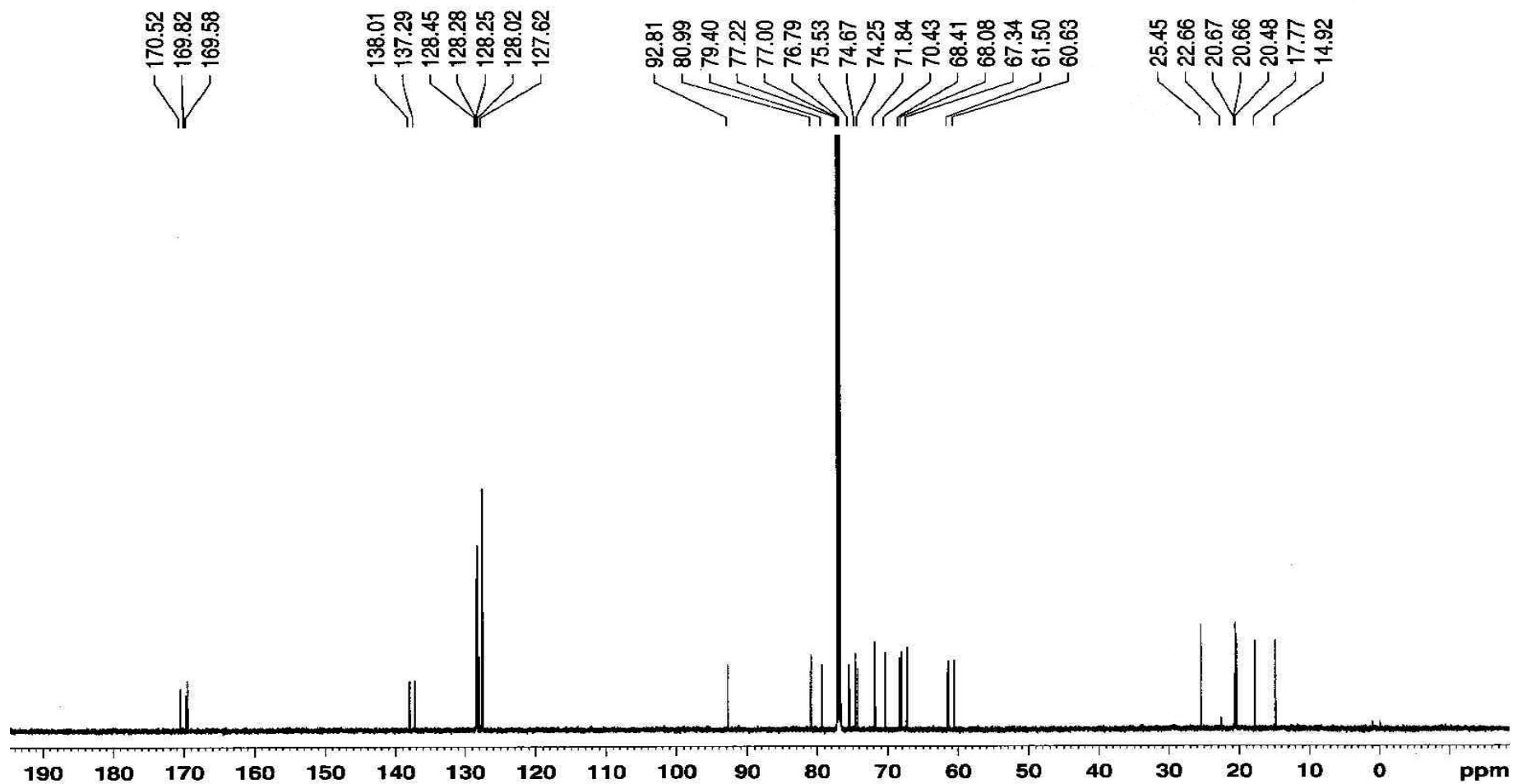
^{13}C DEPT 135 NMR spectrum of 4-methoxyphenyl (2,3-di-*O*-acetyl-6-*O*-benzyl- α -D-glucopyranosyl)-(1 $\rightarrow$ 4)-2,3,6-tri-*O*-acetyl- β -D-glucopyranoside (2).



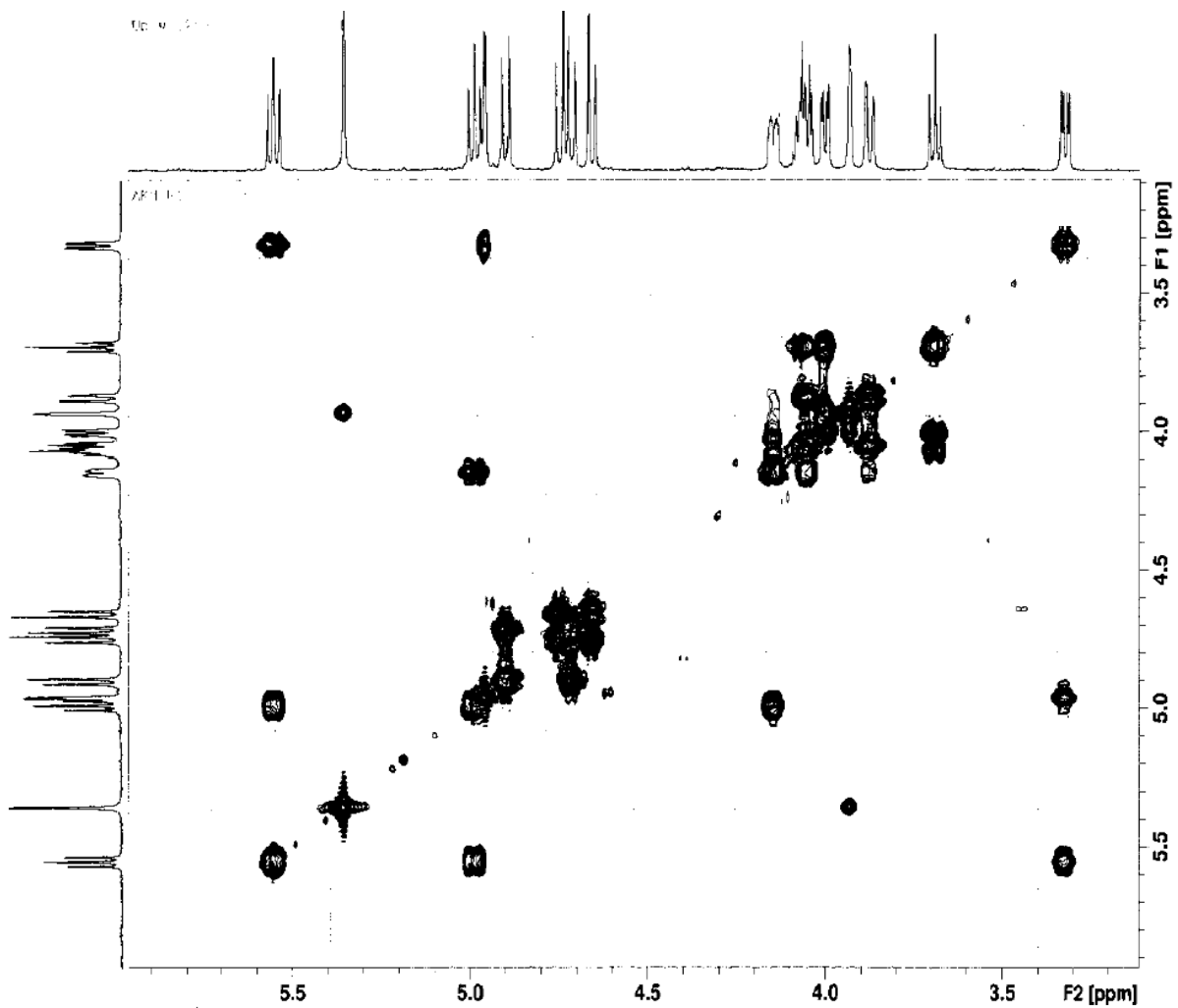
2D HMQC NMR spectrum of 4-methoxyphenyl (2,3-di-*O*-acetyl-6-*O*-benzyl- α -D-glucopyranosyl)-(1 $\rightarrow$ 4)-2,3,6-tri-*O*-acetyl- β -D-glucopyranoside (**2**) (expanded region).



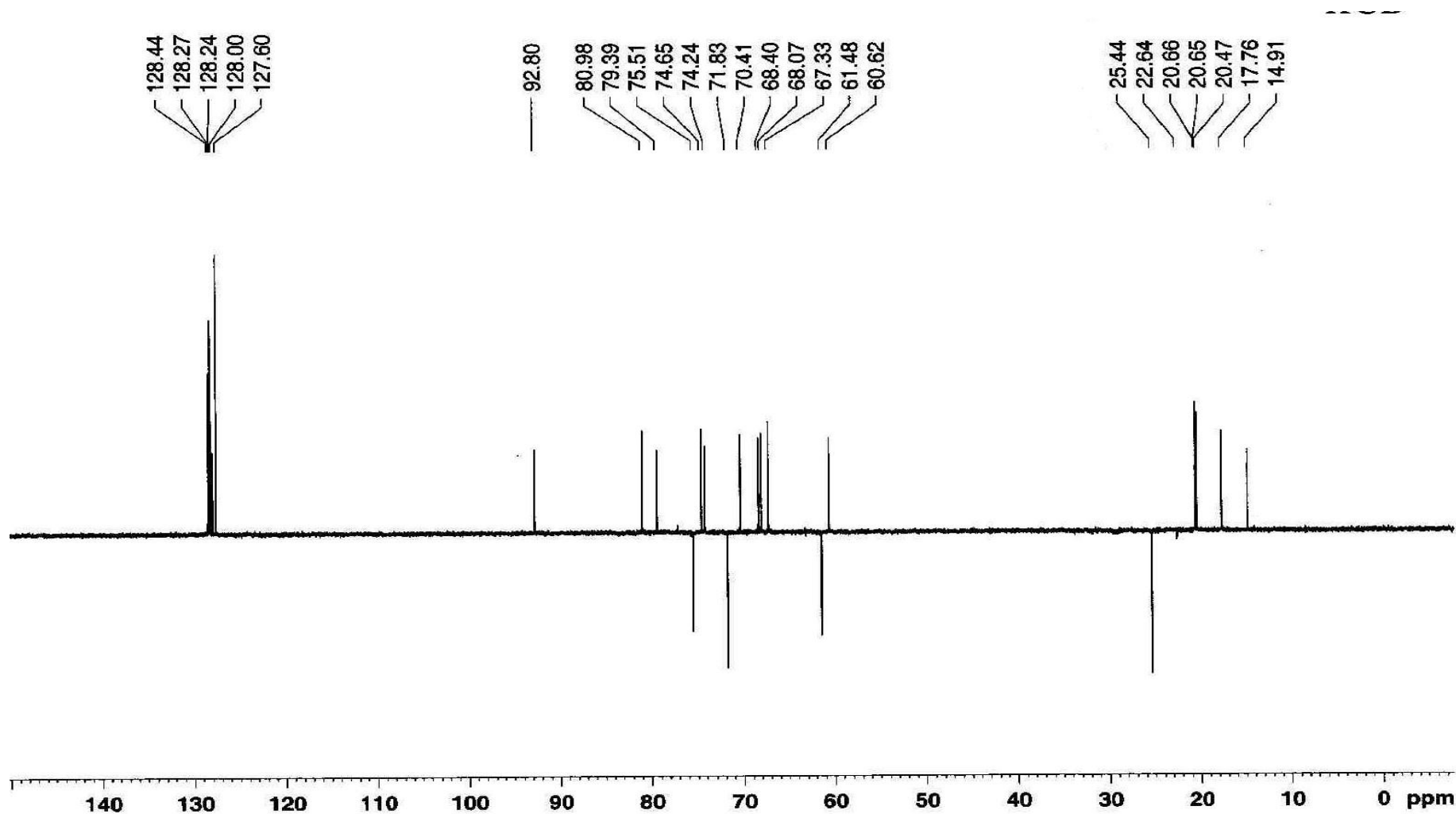
^1H NMR spectrum of ethyl (3,4,6-tri-*O*-acetyl-2-azido-2-deoxy- α -D-glucopyranosyl)-(1 $\rightarrow$ 3)-2,4-di-*O*-benzyl-1-thio- α -L-rhamnopyranoside (**6**).



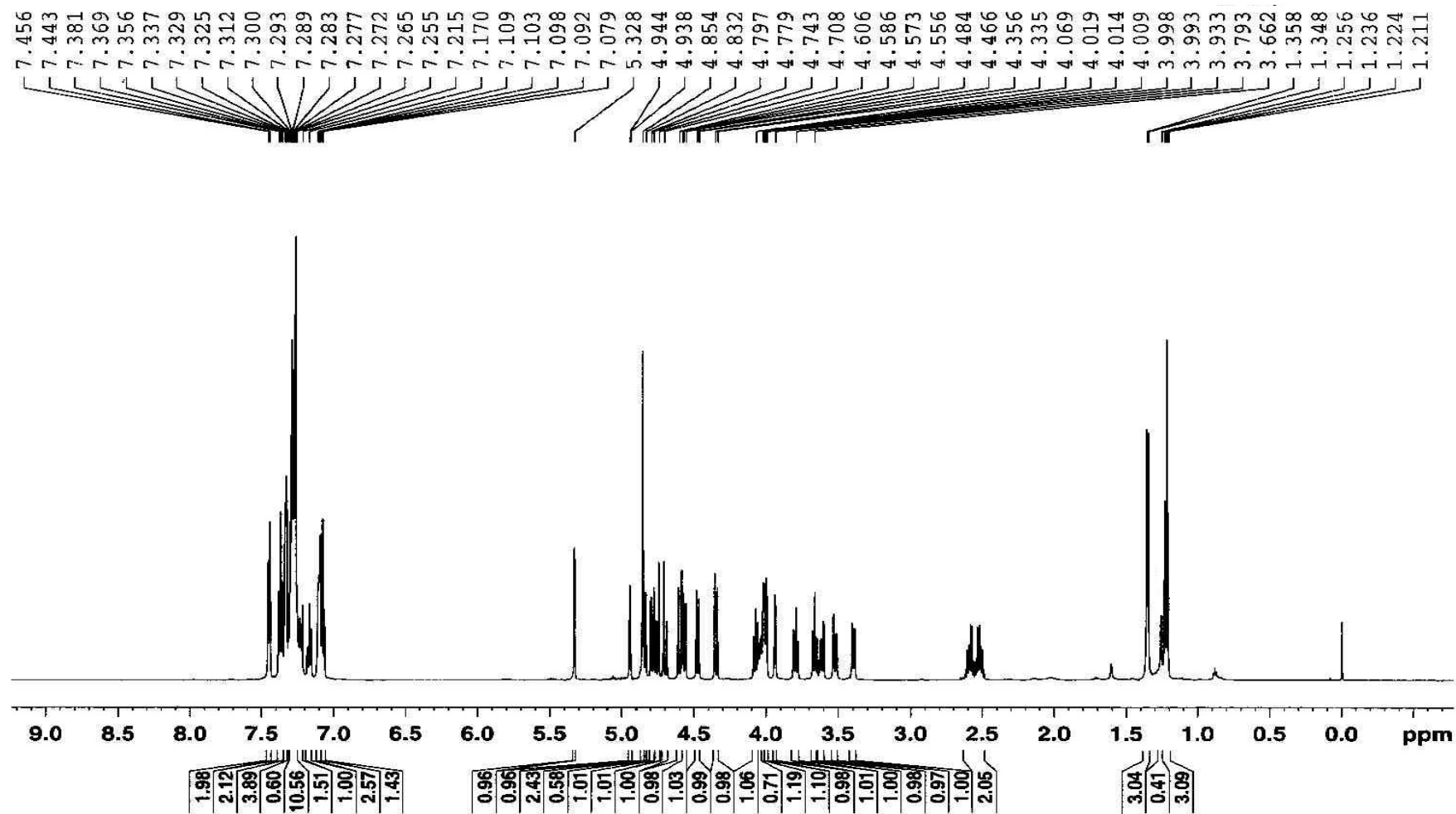
^{13}C NMR spectrum of ethyl (3,4,6-tri-*O*-acetyl-2-azido-2-deoxy- α -D-glucopyranosyl)-(1 $\rightarrow$ 3)-2,4-di-*O*-benzyl-1-thio- α -L-rhamnopyranoside (**6**).



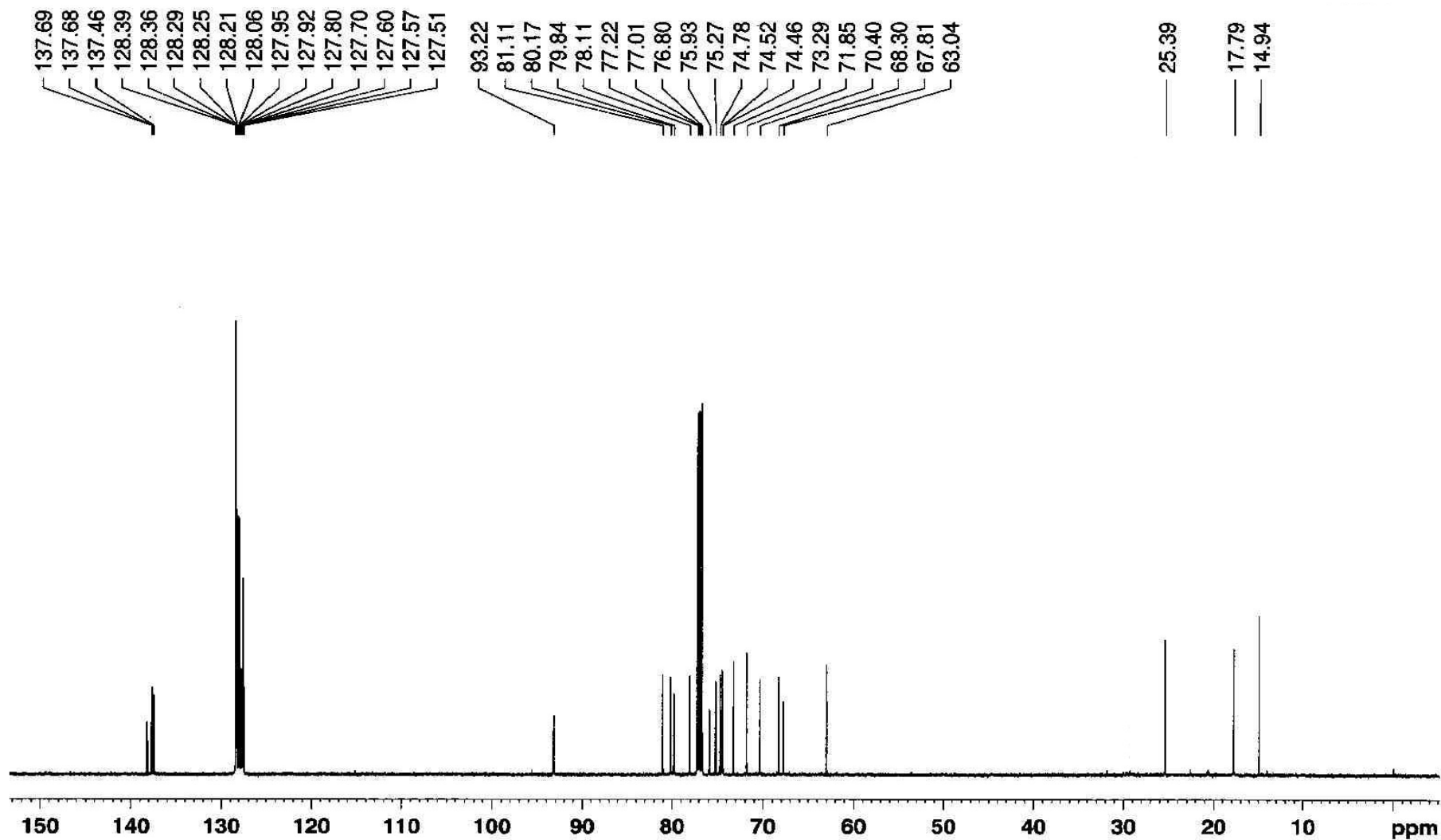
2D COSY NMR spectrum of ethyl (3,4,6-tri-*O*-acetyl-2-azido-2-deoxy- α -D-glucopyranosyl)-(1 $\rightarrow$ 3)-2,4-di-*O*-benzyl-1-thio- α -L-rhamnopyranoside (**6**) (expanded region).



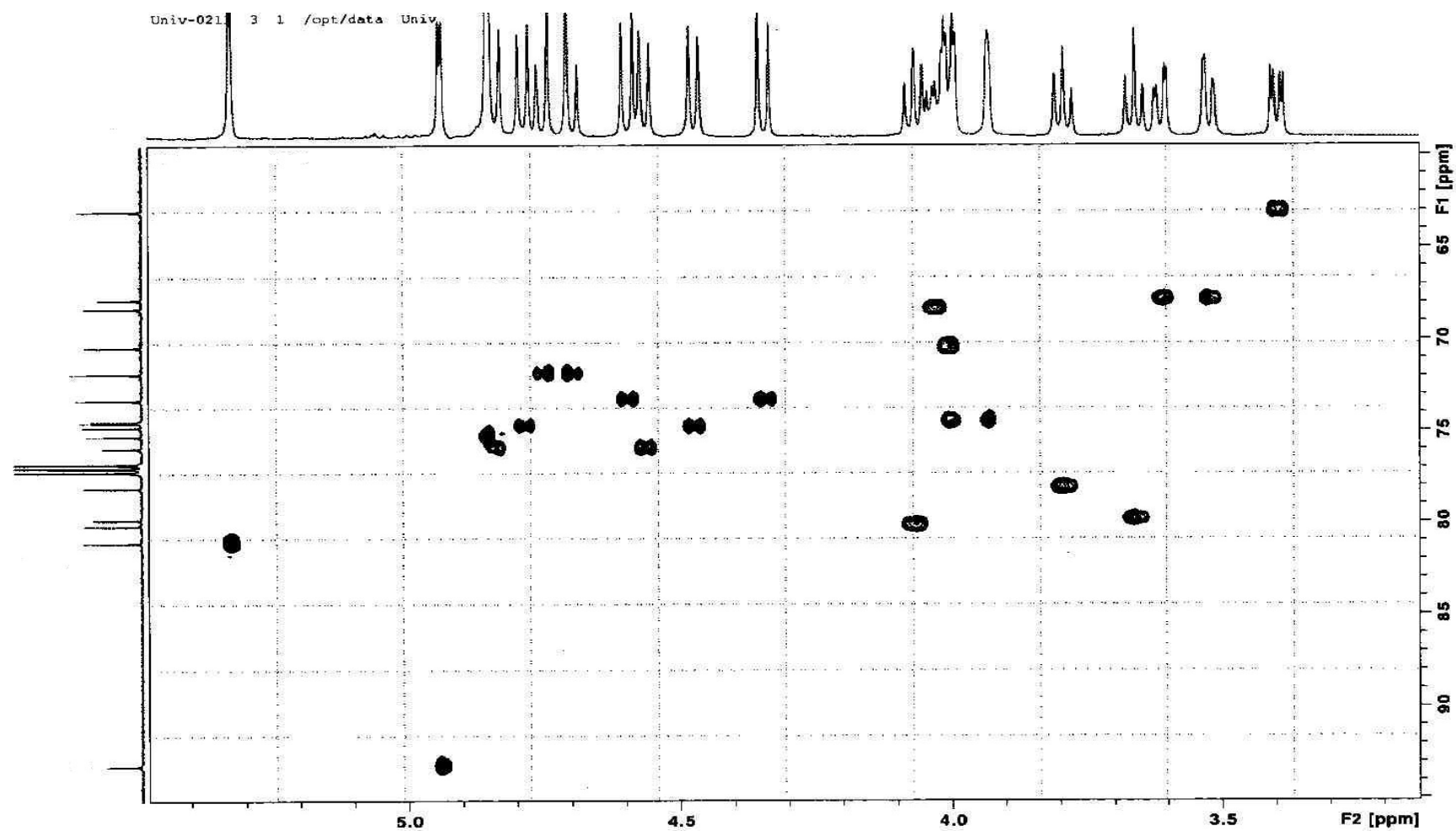
^{13}C DEPT 135 NMR spectrum of ethyl (3,4,6-tri-*O*-acetyl-2-azido-2-deoxy- α -D-glucopyranosyl)-(1 $\rightarrow$ 3)-2,4-di-*O*-benzyl-1-thio- α -L-rhamnopyranoside (**6**).



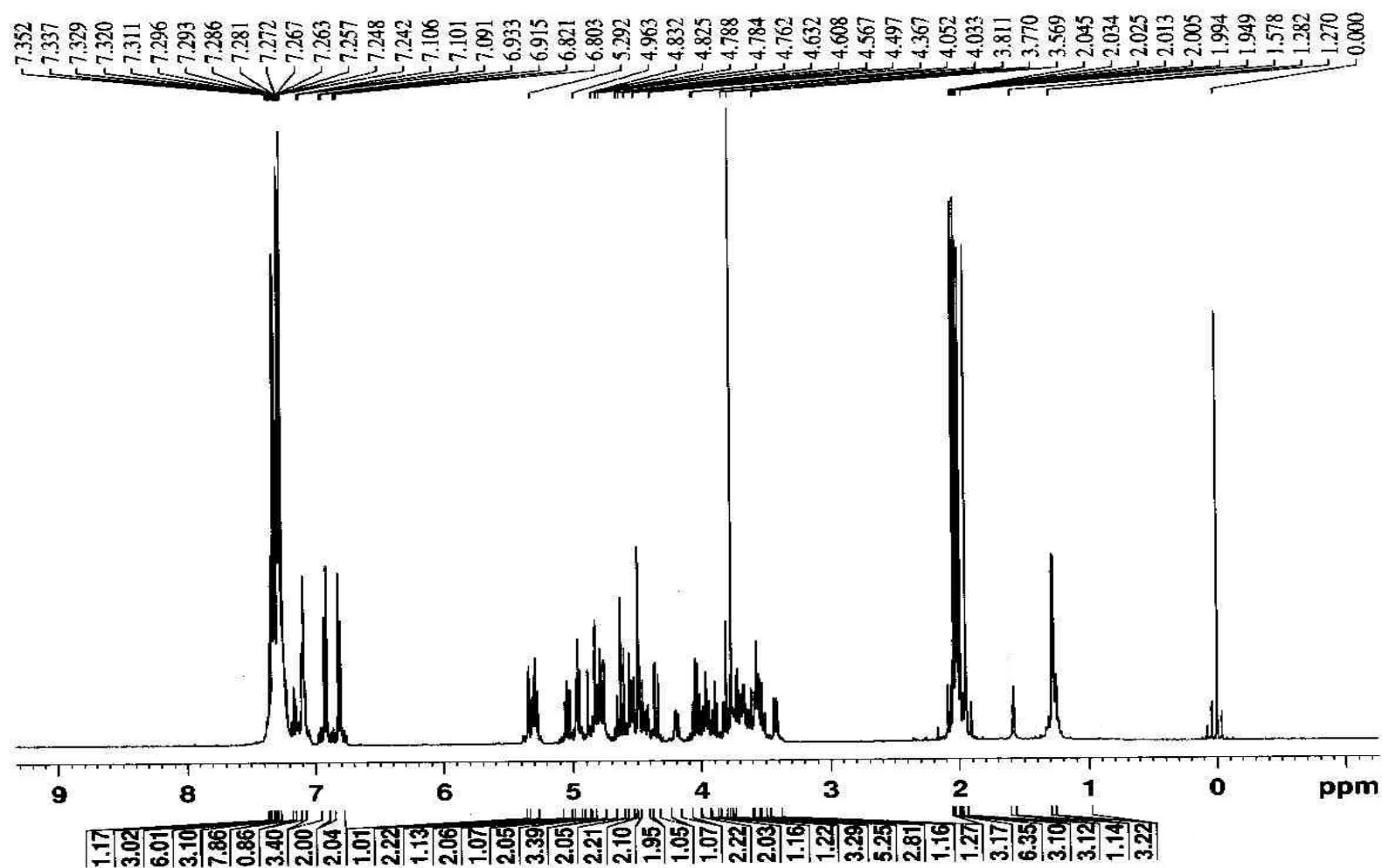
¹H NMR spectrum of ethyl (2-azido-3,4,6-tri-*O*-benzyl-2-deoxy- α -D-glucopyranosyl)-(1 $\rightarrow$ 3)-2,4-di-*O*-benzyl-1-thio- α -L-rhamnopyranoside (7).



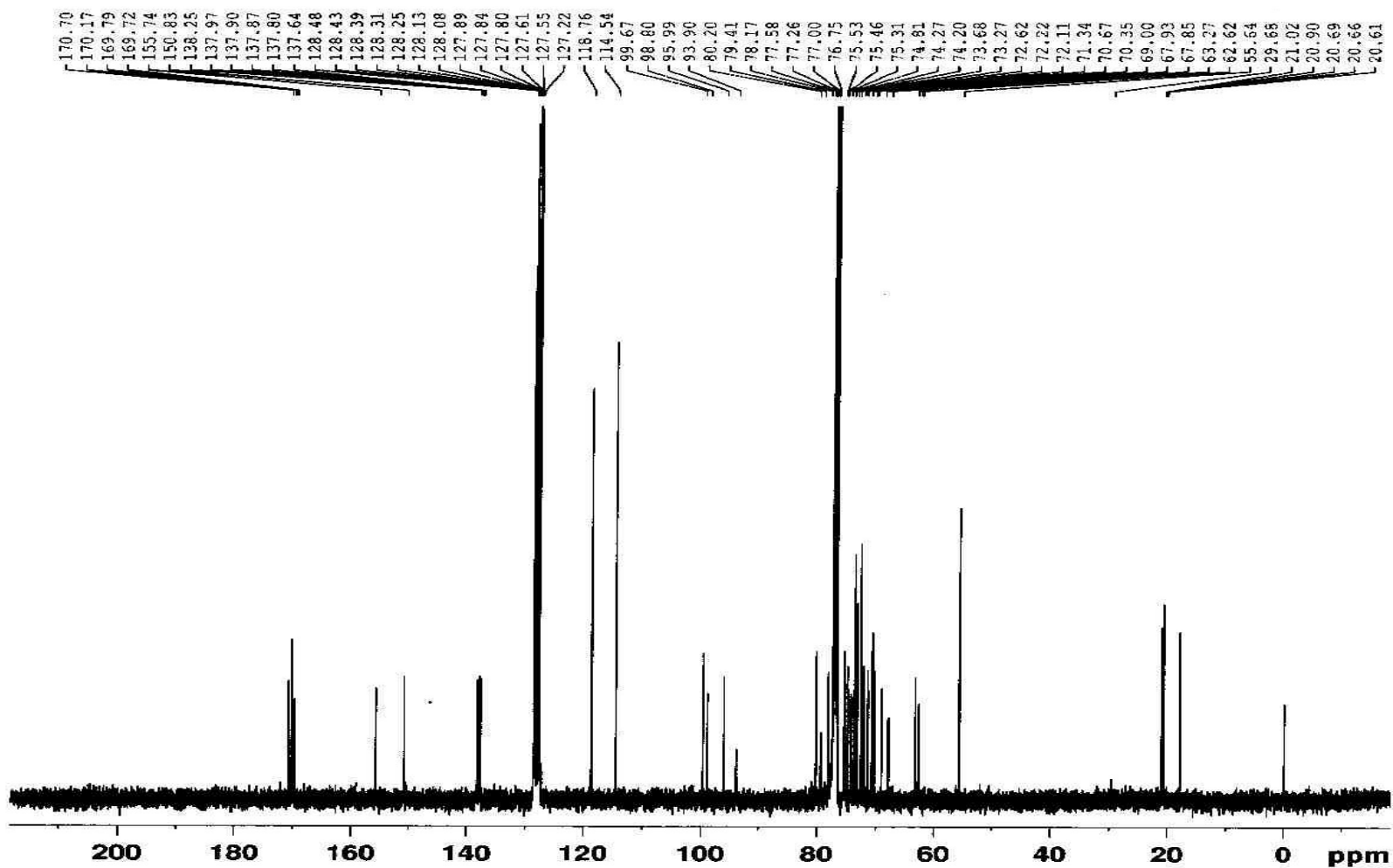
^{13}C NMR spectrum of ethyl (2-azido-3,4,6-tri-*O*-benzyl-2-deoxy- α -D-glucopyranosyl)-(1 $\rightarrow$ 3)-2,4-di-*O*-benzyl-1-thio- α -L-rhamnopyranoside (7).



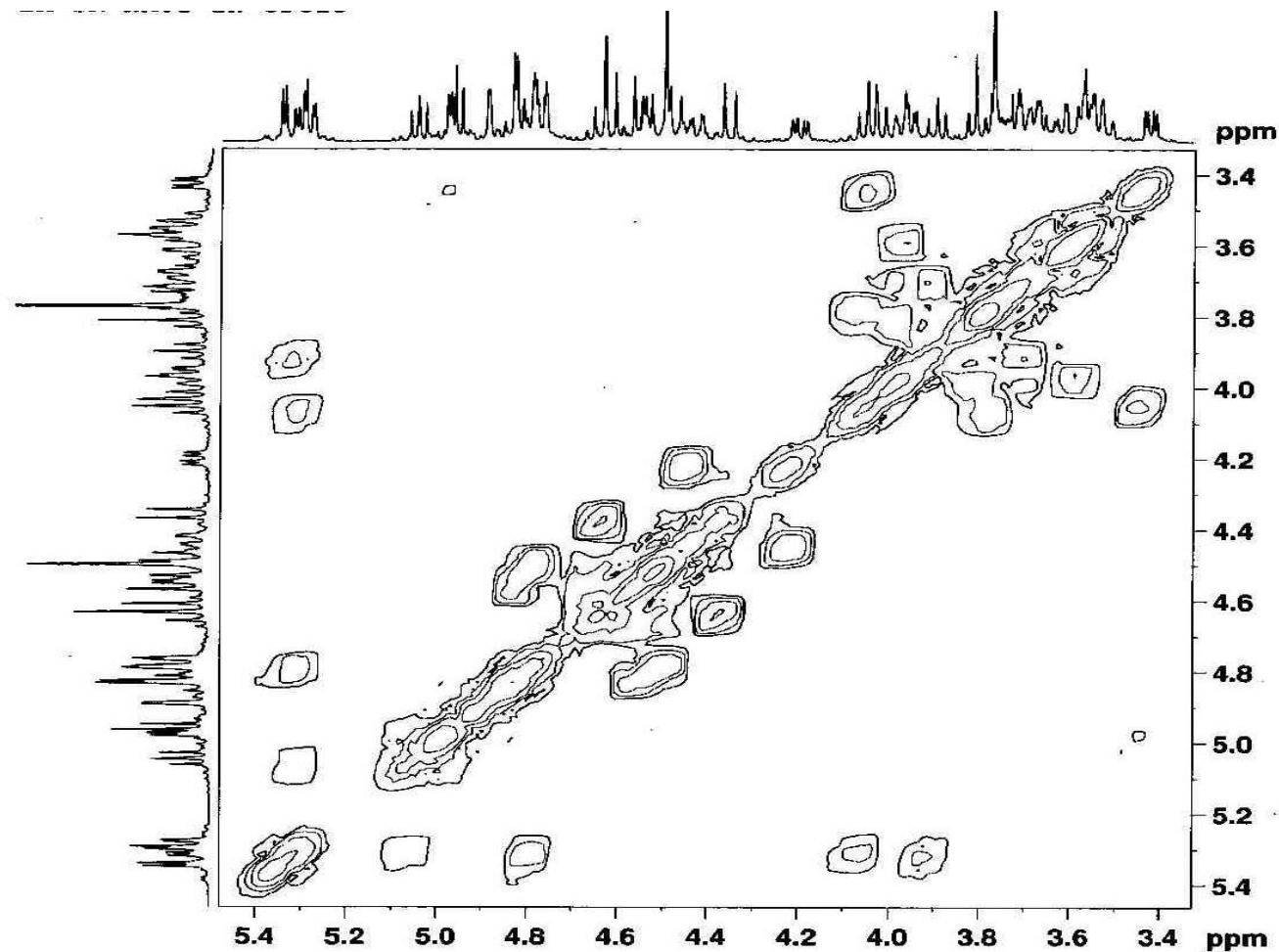
2D HMQC NMR spectrum of ethyl (2-azido-3,4,6-tri-*O*-benzyl-2-deoxy- α -D-glucopyranosyl)-(1 $\rightarrow$ 3)-2,4-di-*O*-benzyl-1-thio- α -L-rhamnopyranoside (7) (expanded region).



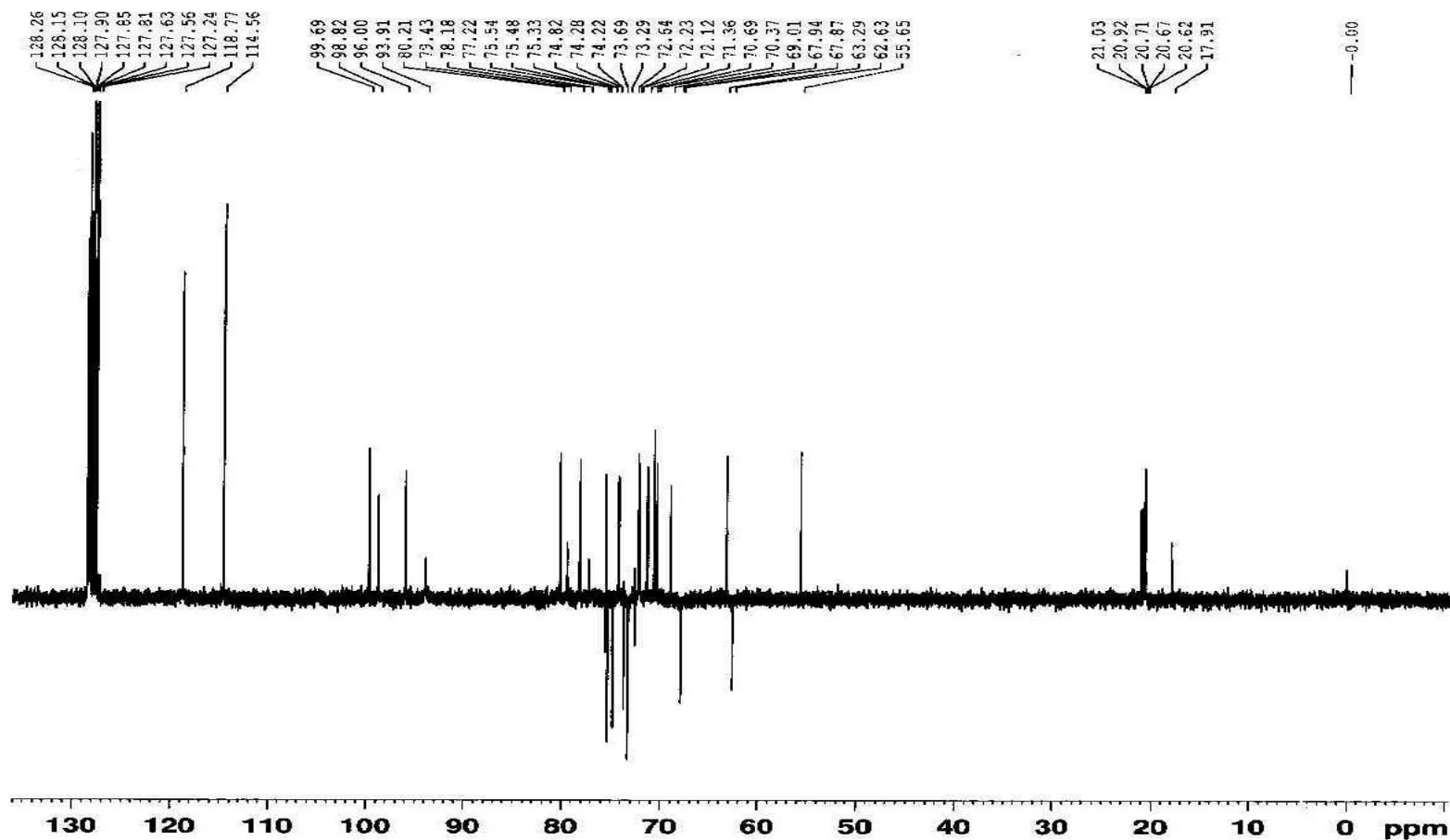
^1H NMR spectrum of 4-methoxyphenyl (2-azido-3,4,6-tri-*O*-benzyl-2-deoxy- α -D-glucopyranosyl)-(1 $\rightarrow$ 3)-(2,4-di-*O*-benzyl- α -L-rhamnopyranosyl)-(1 $\rightarrow$ 4)-(2,3-di-*O*-acetyl-6-*O*-benzyl- α -D-glucopyranosyl)-(1 $\rightarrow$ 4)-2,3,6-tri-*O*-acetyl- β -D-glucopyranoside (**8**).



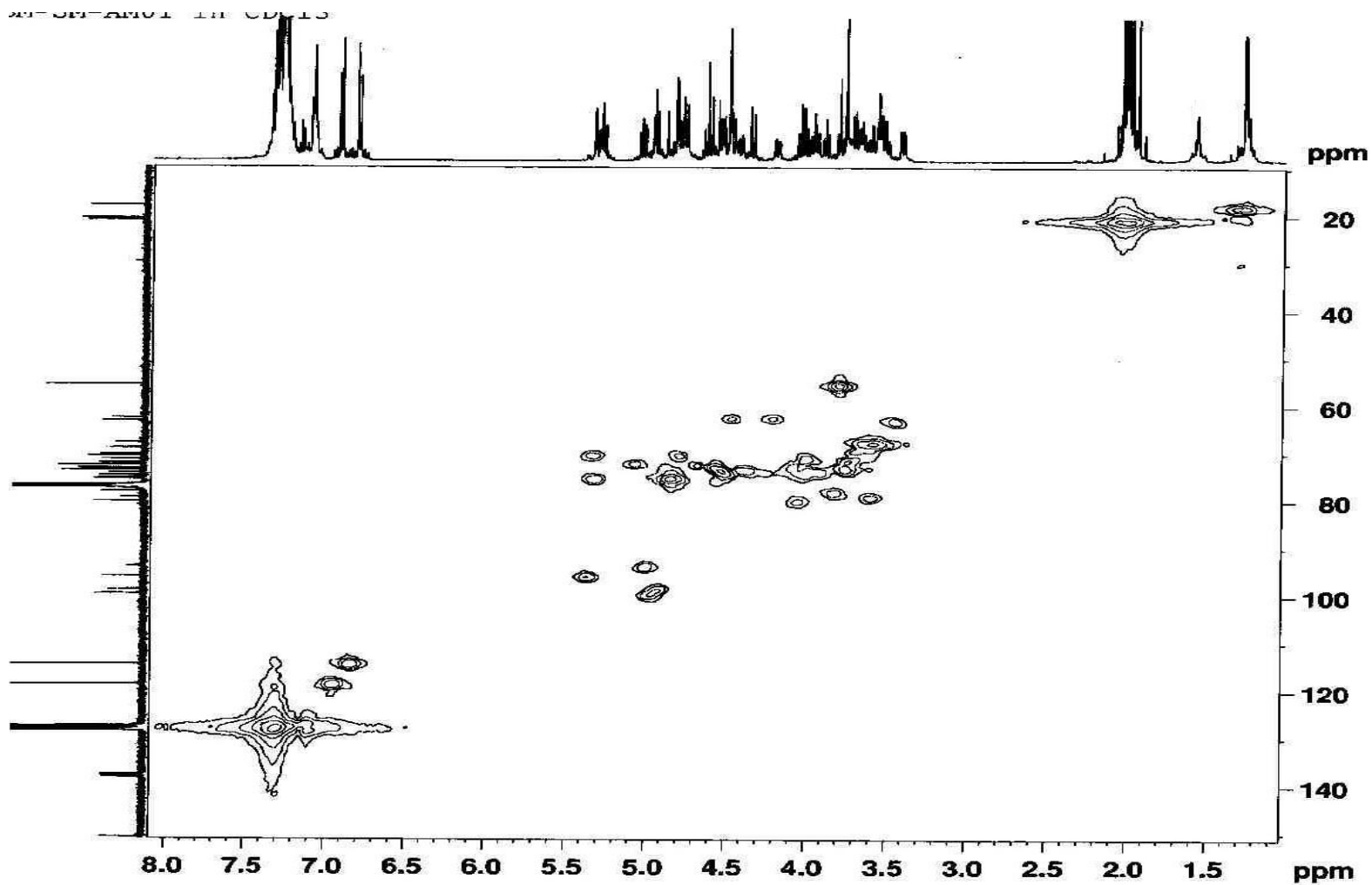
^{13}C NMR spectrum of 4-methoxyphenyl (2-azido-3,4,6-tri-*O*-benzyl-2-deoxy- α -D-glucopyranosyl)-(1 $\rightarrow$ 3)-(2,4-di-*O*-benzyl- α -L-rhamnopyranosyl)-(1 $\rightarrow$ 4)-(2,3-di-*O*-acetyl-6-*O*-benzyl- α -D-glucopyranosyl)-(1 $\rightarrow$ 4)-2,3,6-tri-*O*-acetyl- β -D-glucopyranoside (**8**).



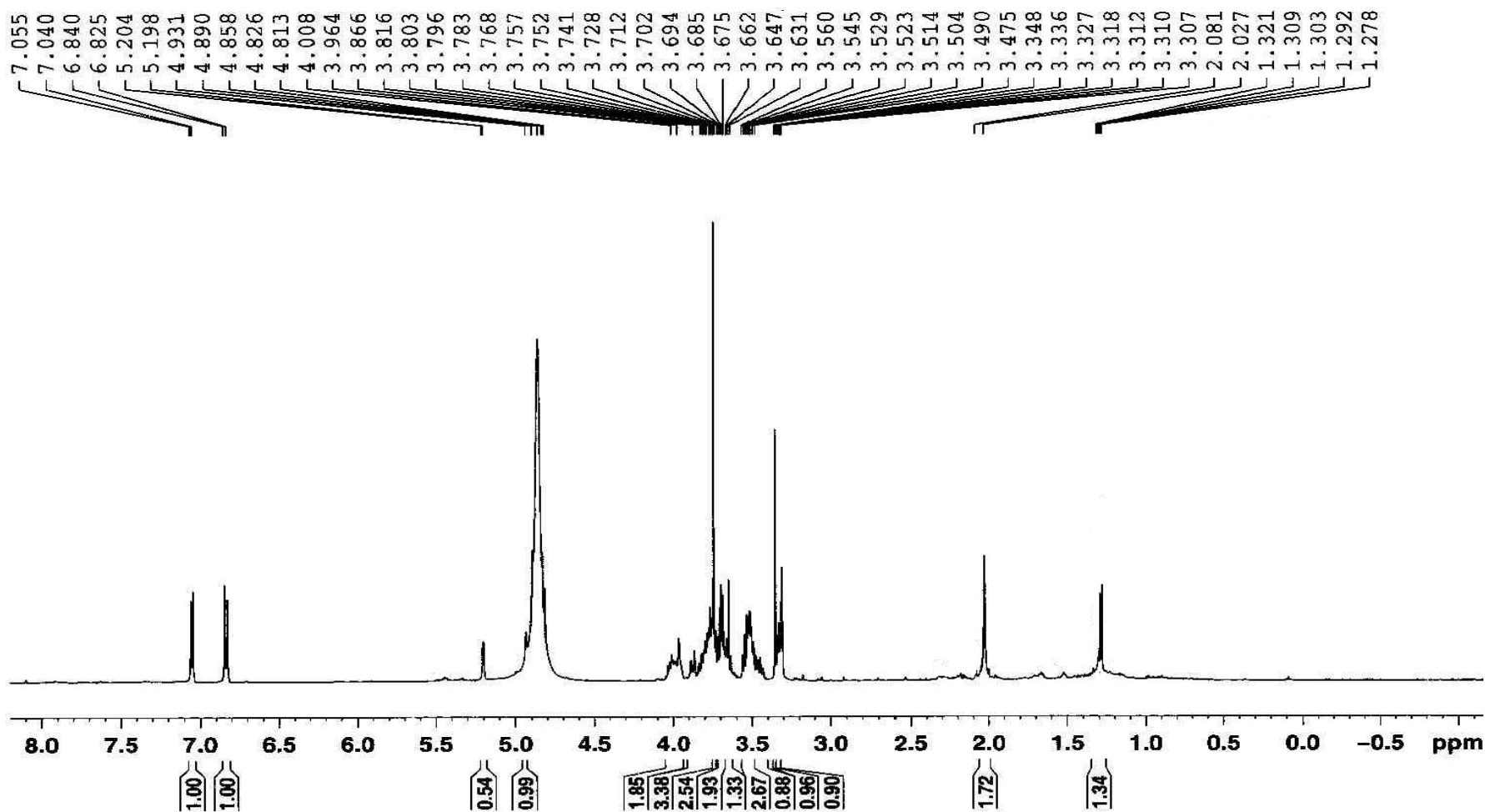
2D COSY NMR spectrum of 4-methoxyphenyl (2-azido-3,4,6-tri-*O*-benzyl-2-deoxy- α -D-glucopyranosyl)-(1 $\rightarrow$ 3)-(2,4-di-*O*-benzyl- α -L-rhamnopyranosyl)-(1 $\rightarrow$ 4)-(2,3-di-*O*-acetyl-6-*O*-benzyl- α -D-glucopyranosyl)-(1 $\rightarrow$ 4)-2,3,6-tri-*O*-acetyl- β -D-glucopyranoside (**8**) (expanded region).



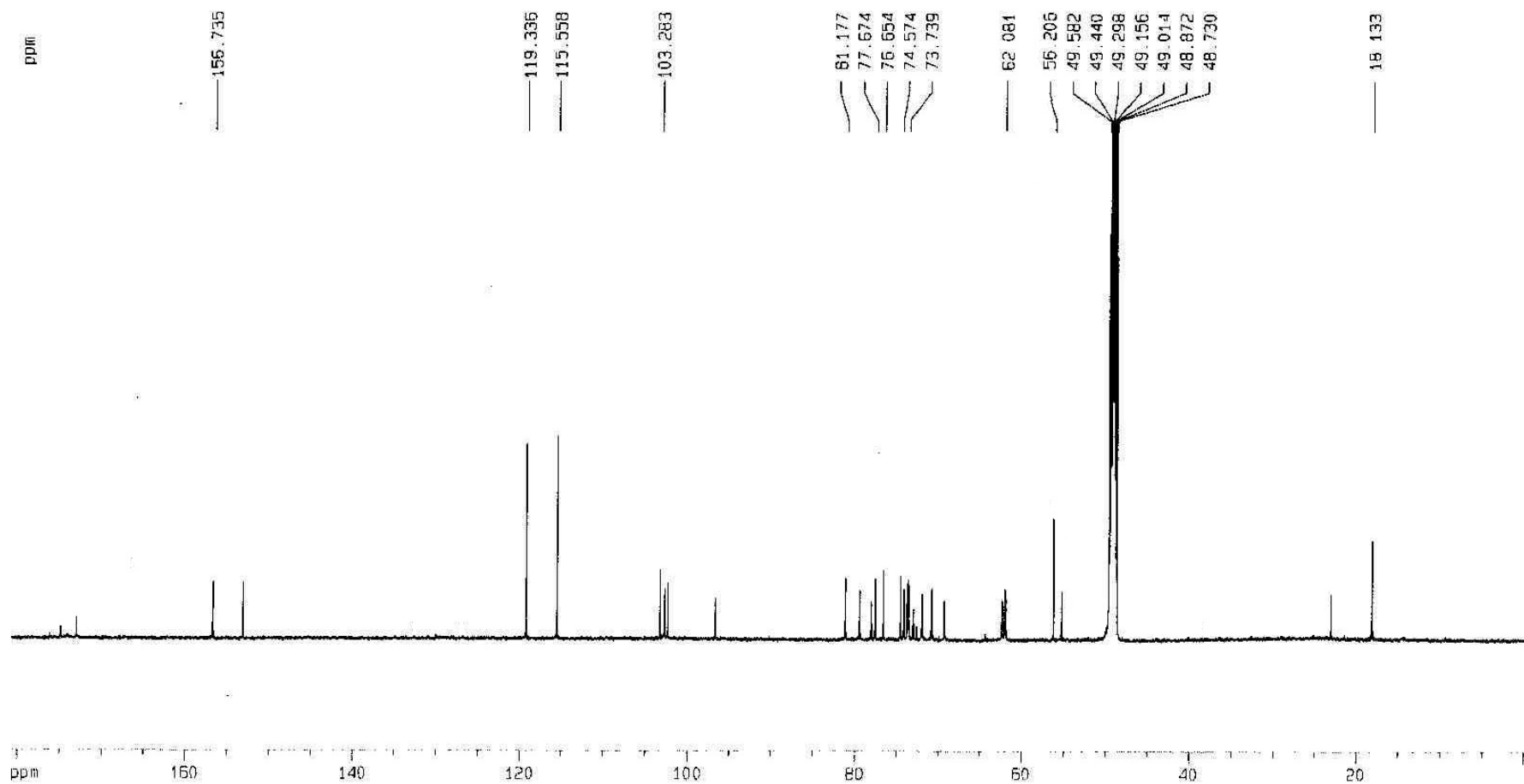
^{13}C DEPT 135 NMR spectrum of 4-methoxyphenyl (2-azido-3,4,6-tri-*O*-benzyl-2-deoxy- α -D-glucopyranosyl)-(1 $\rightarrow$ 3)-(2,4-di-*O*-benzyl- α -L-rhamnopyranosyl)-(1 $\rightarrow$ 4)-(2,3-di-*O*-acetyl-6-*O*-benzyl- α -D-glucopyranosyl)-(1 $\rightarrow$ 4)-2,3,6-tri-*O*-acetyl- β -D-glucopyranoside (**8**).



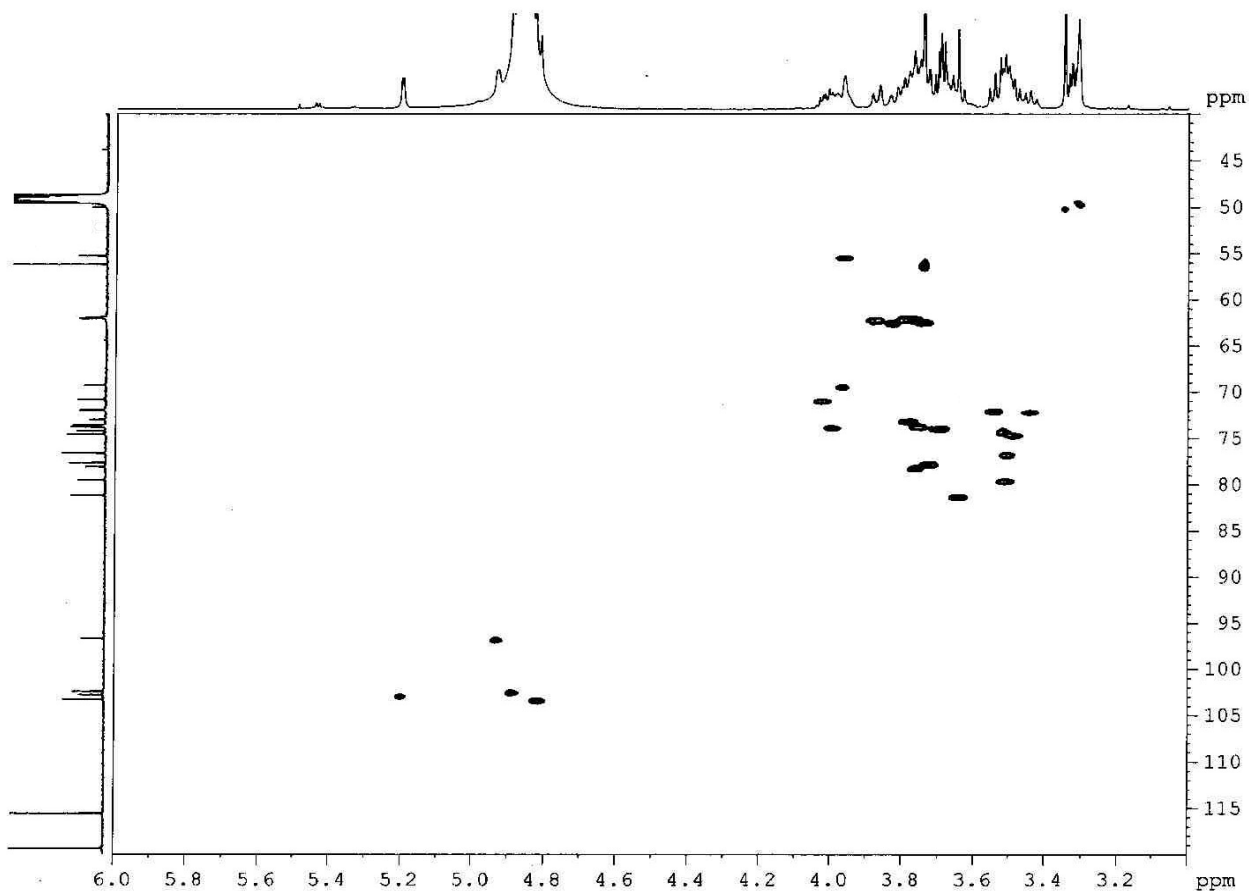
2D HMQC NMR spectrum of 4-methoxyphenyl (2-azido-3,4,6-tri-*O*-benzyl-2-deoxy- α -D-glucopyranosyl)-(1 $\rightarrow$ 3)-(2,4-di-*O*-benzyl- α -L-rhamnopyranosyl)-(1 $\rightarrow$ 4)-(2,3-di-*O*-acetyl-6-*O*-benzyl- α -D-glucopyranosyl)-(1 $\rightarrow$ 4)-2,3,6-tri-*O*-acetyl- β -D-glucopyranoside (**8**).



^1H NMR spectrum of 4-methoxyphenyl (2-acetamido-2-deoxy- α -D-glucopyranosyl)-(1 $\rightarrow$ 3)-(α -L-rhamnopyranosyl)-(1 $\rightarrow$ 4)-(α -D-glucopyranosyl)-(1 $\rightarrow$ 4)-sodium β -D-glucopyranosiduronate (**1**) (CD_3OD).



^{13}C NMR spectrum of 4-methoxyphenyl (2-acetamido-2-deoxy- α -D-glucopyranosyl)-(1 $\rightarrow$ 3)-(α -L-rhamnopyranosyl)-(1 $\rightarrow$ 4)-(α -D-glucopyranosyl)-(1 $\rightarrow$ 4)-sodium β -D-glucopyranosiduronate (**1**) (CD_3OD).



2D HMQC NMR spectrum of 4-methoxyphenyl (2-acetamido-2-deoxy- α -D-glucopyranosyl)-(1 $\rightarrow$ 3)-(α -L-rhamnopyranosyl)-(1 $\rightarrow$ 4)-(α -D-glucopyranosyl)-(1 $\rightarrow$ 4)-sodium β -D-glucopyranosiduronate (**1**) (CD₃OD) (expanded region).