Supporting Information

Hypervalent Iodine Mediated Synthesis of *C*-2 *deoxy* Glycosides and Amino acid Glycoconjugates

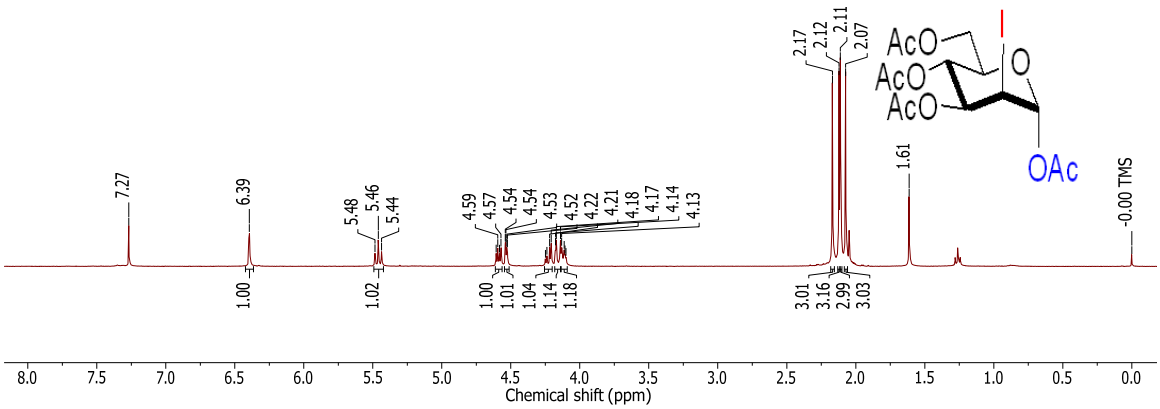
Maidul Islam, Nishanth D. Tirukoti, Shyamapada Nandi and Srinivas Hotha*

Department of Chemistry, Indian Institute of Science Education and Research, Pune – 411 008, India

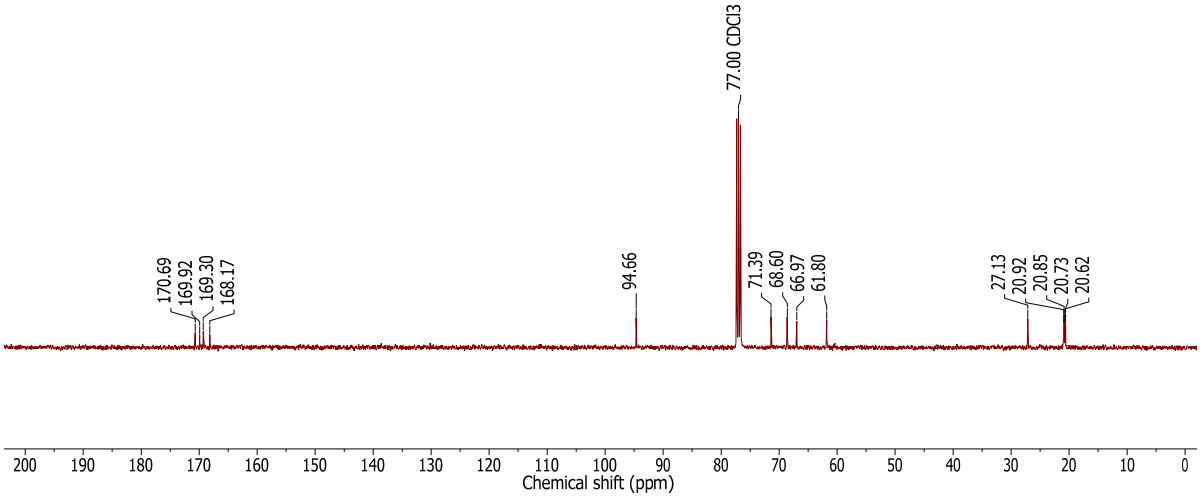
s.hotha@iiserpune.ac.in

Contents

^{1}H NMR Spectrum (399.78 MHz, $CDCl_3$) of Compound **2a**



^{13}C NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **2a**



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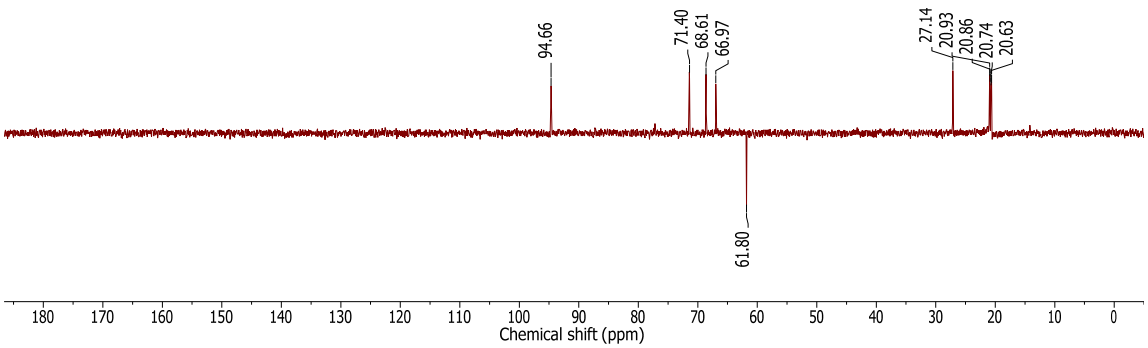
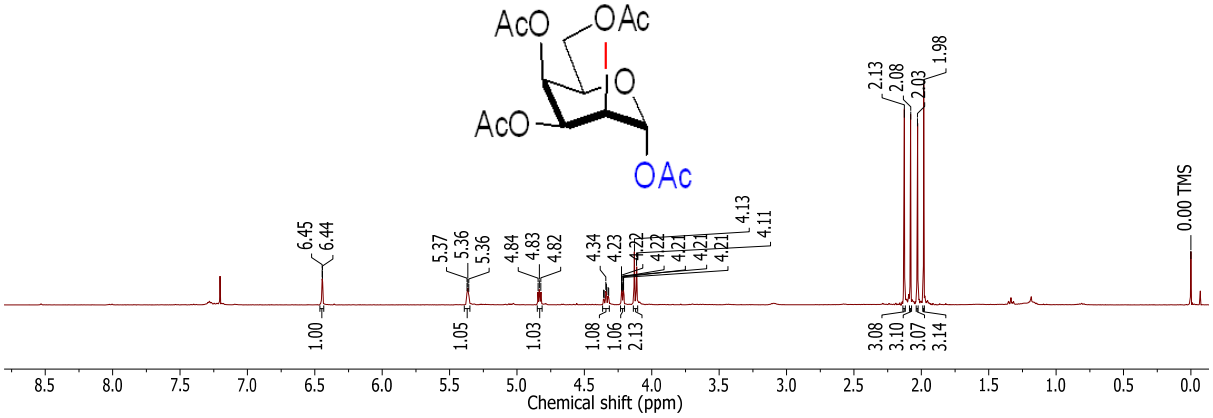


^{1}H NMR Spectrum (399.78 MHz, $CDCl_3$) of Compound **2b**



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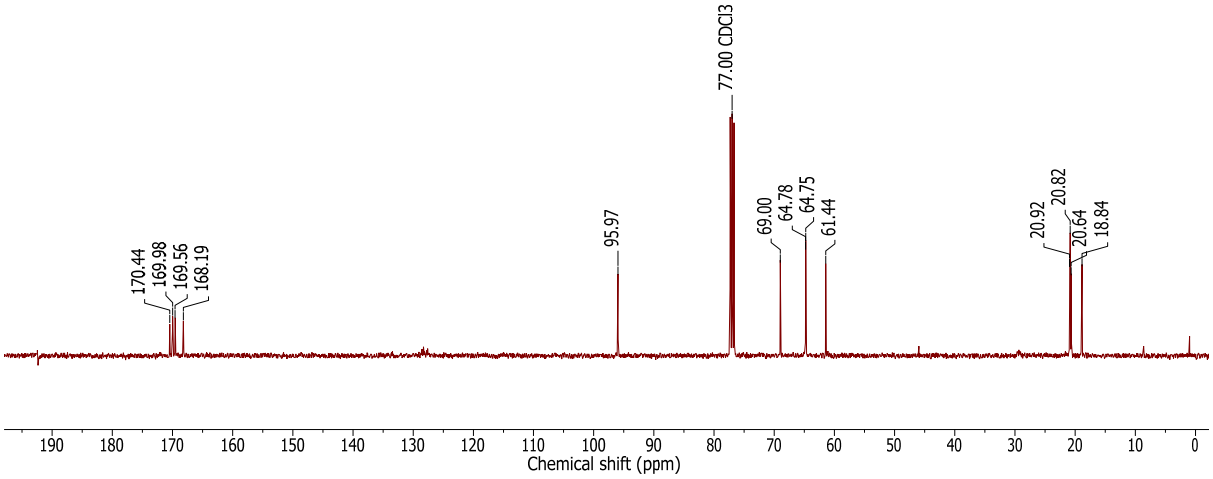

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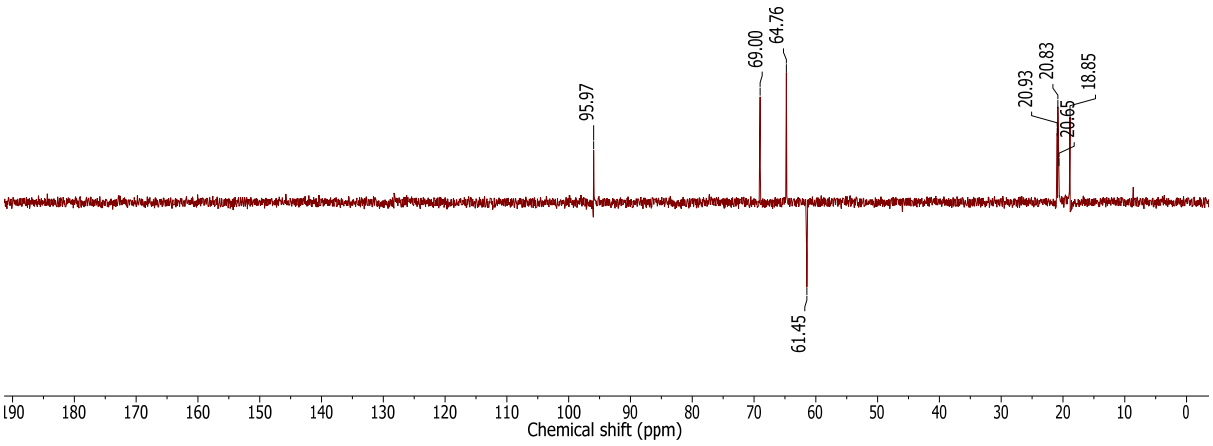

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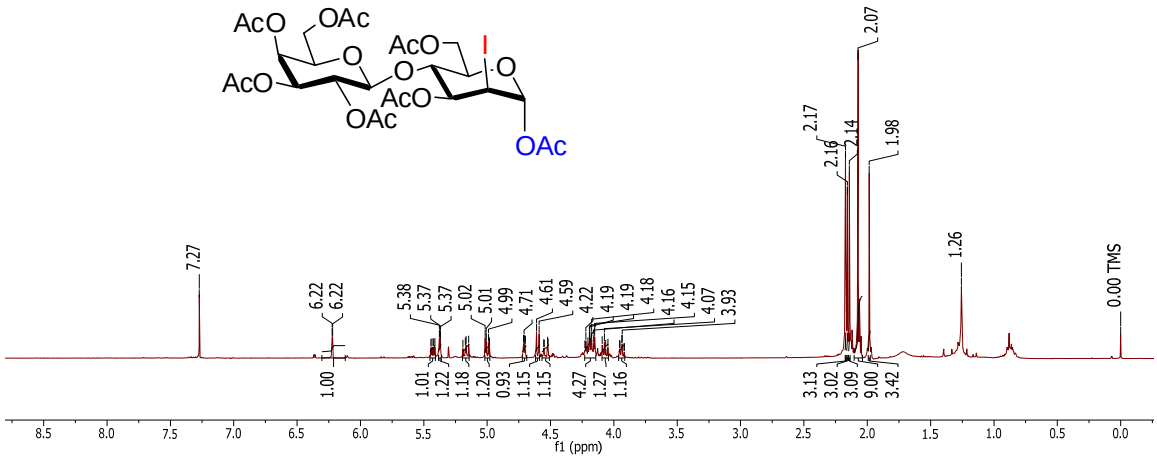

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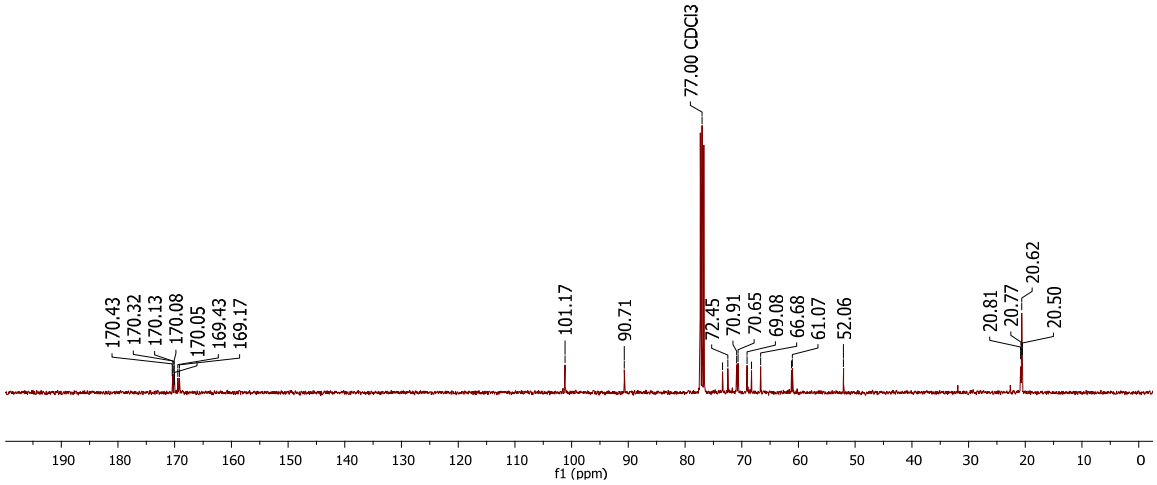

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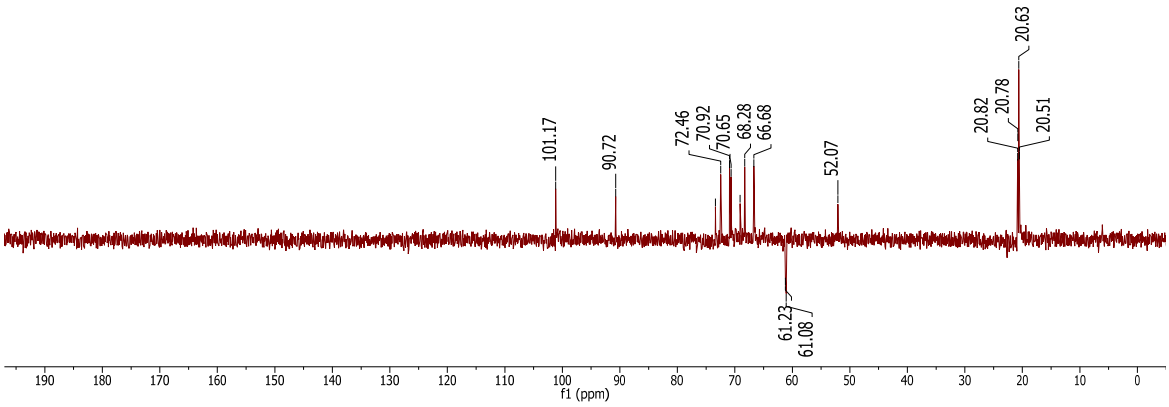
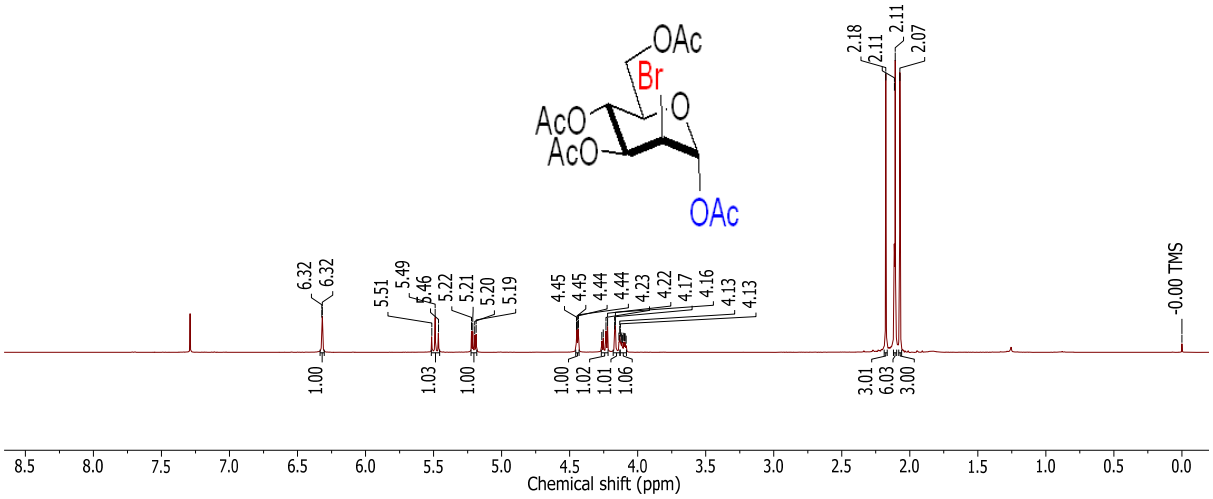


^{1}H NMR Spectrum (399.78 MHz, $CDCl_3$) of Compound **3a**



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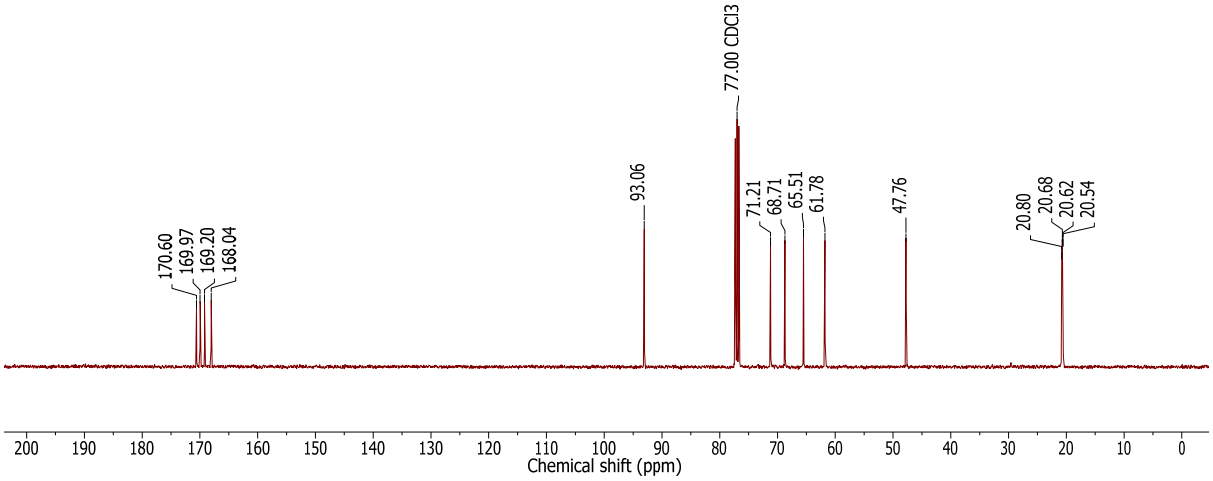

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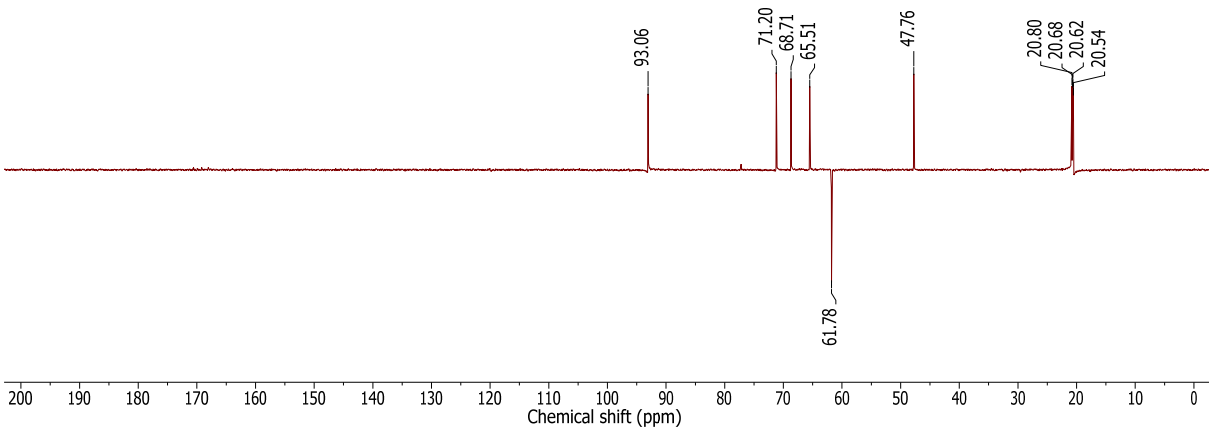

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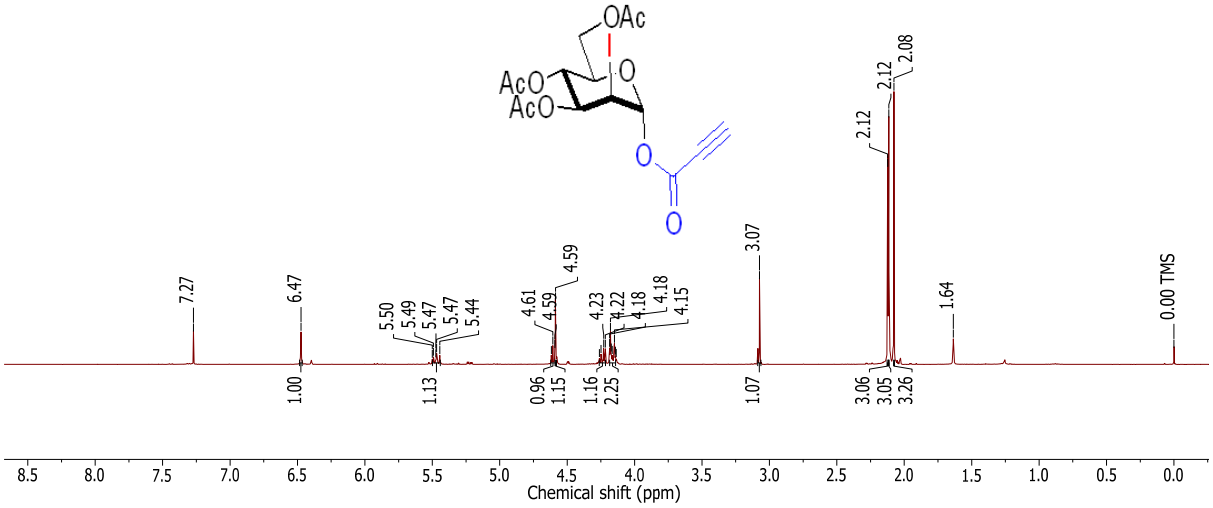

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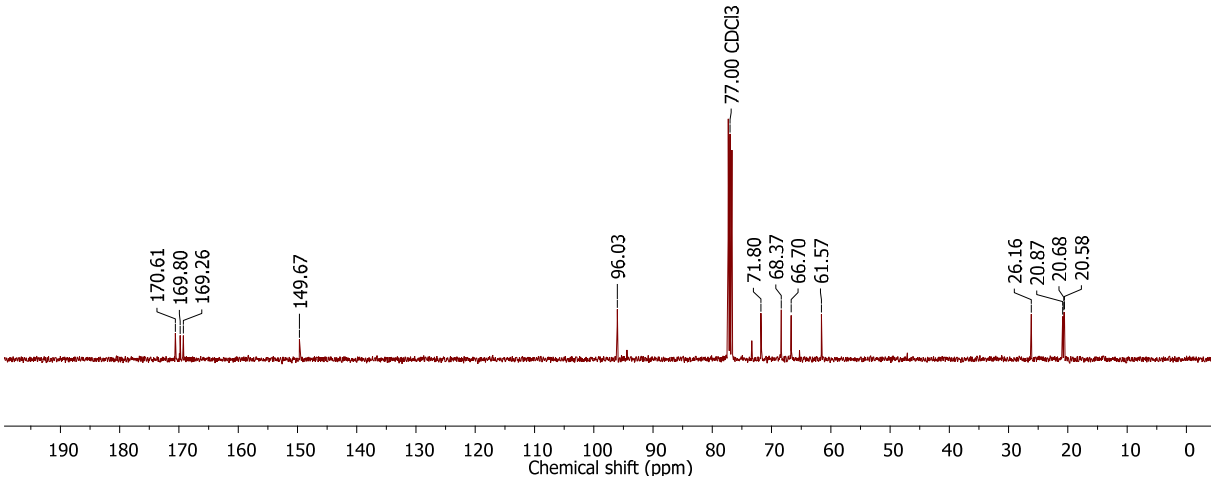

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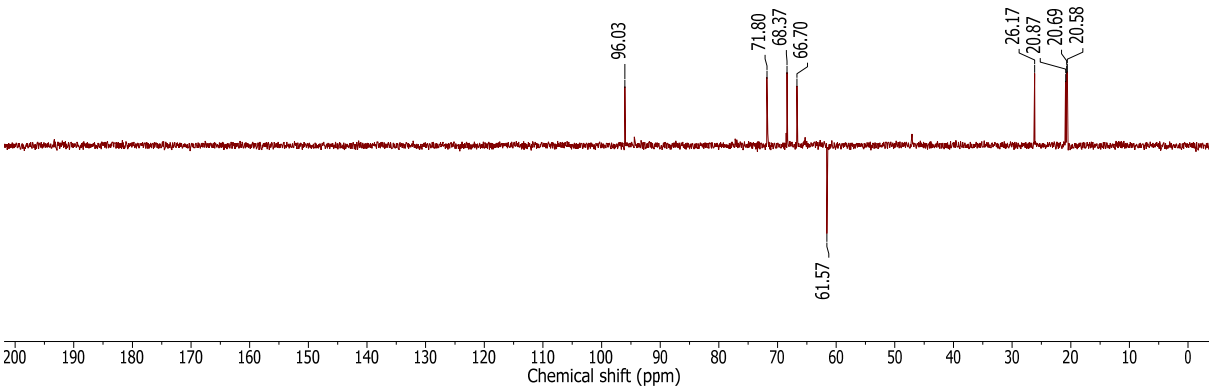

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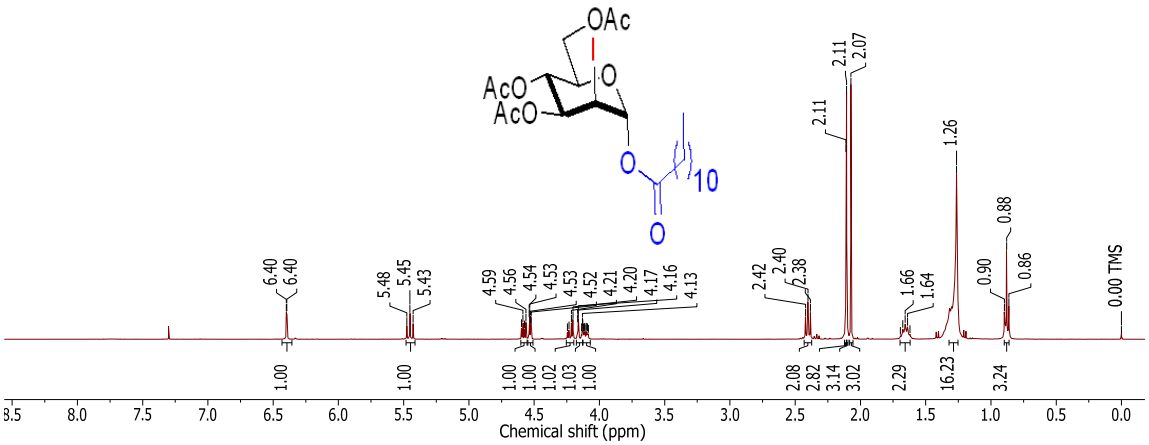

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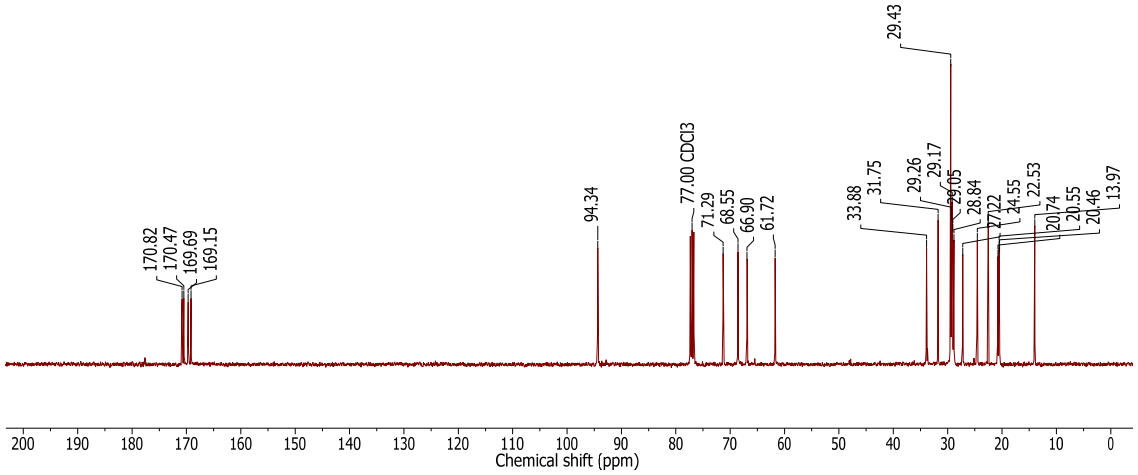

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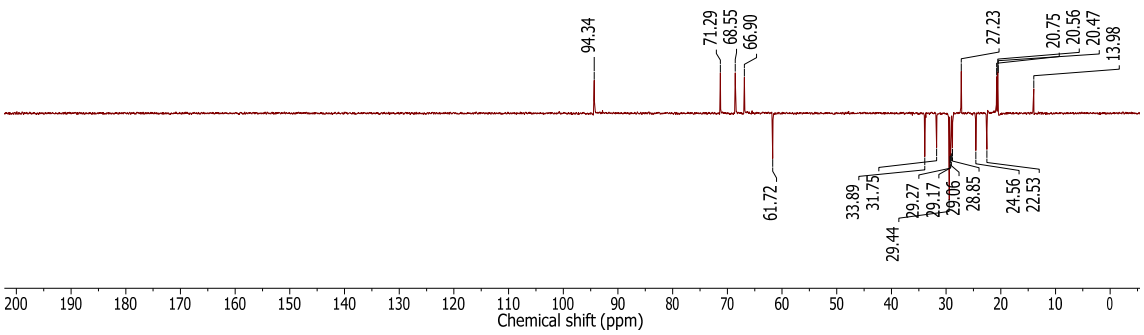

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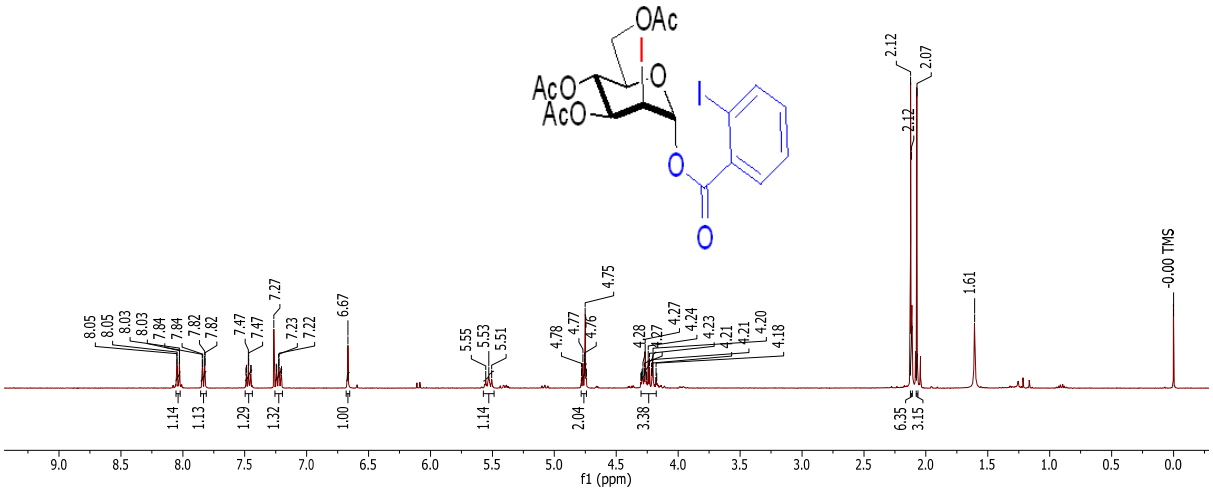

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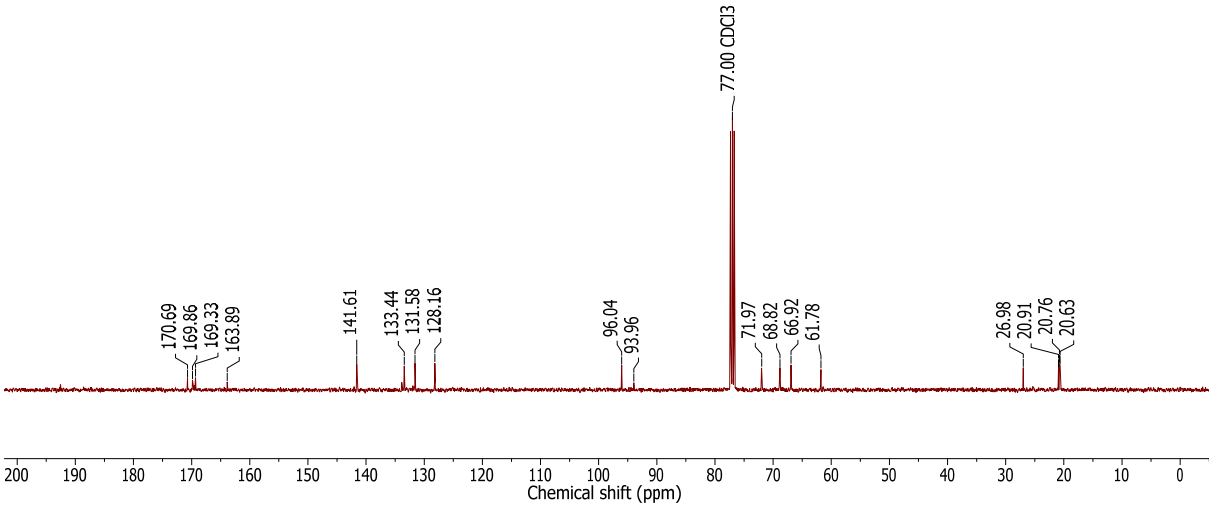

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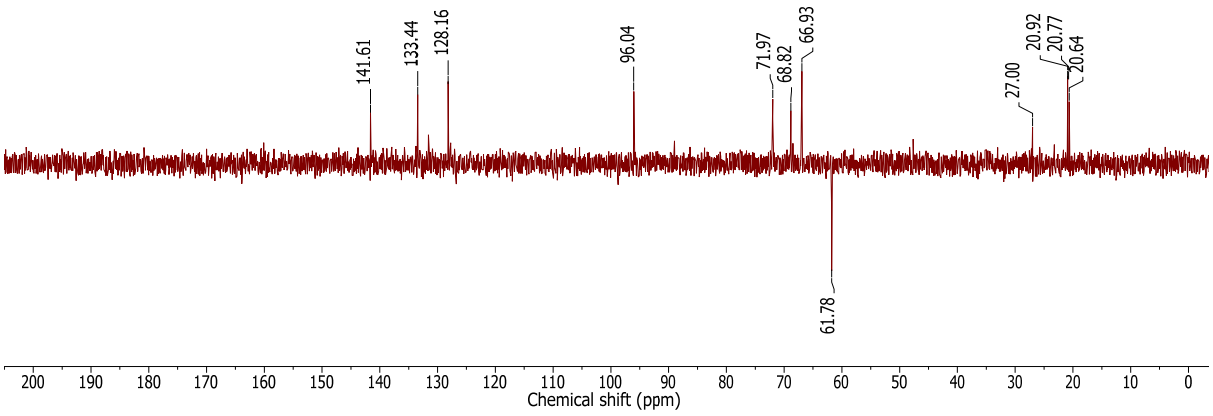

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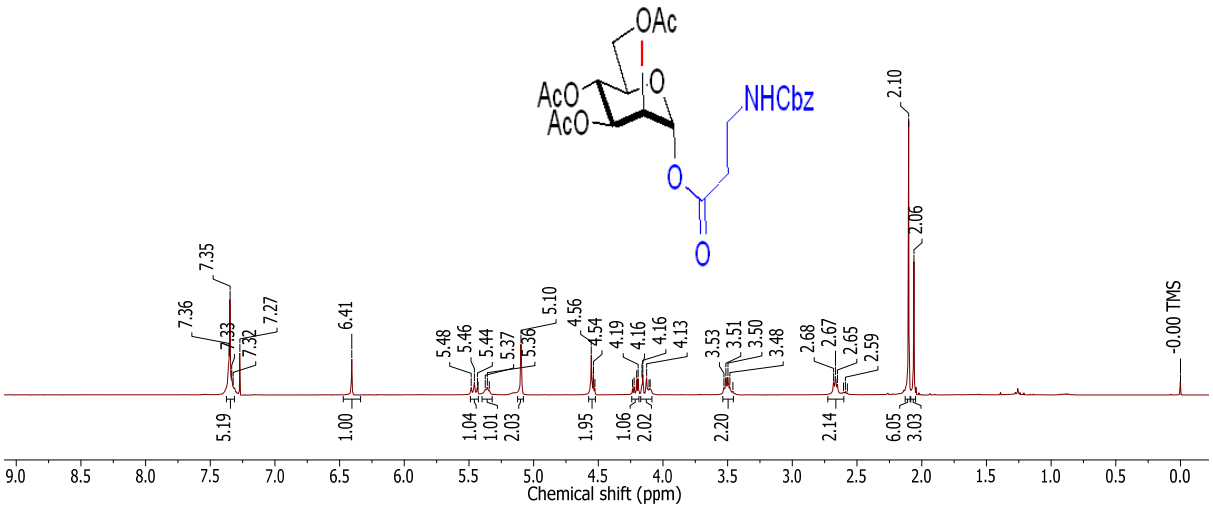

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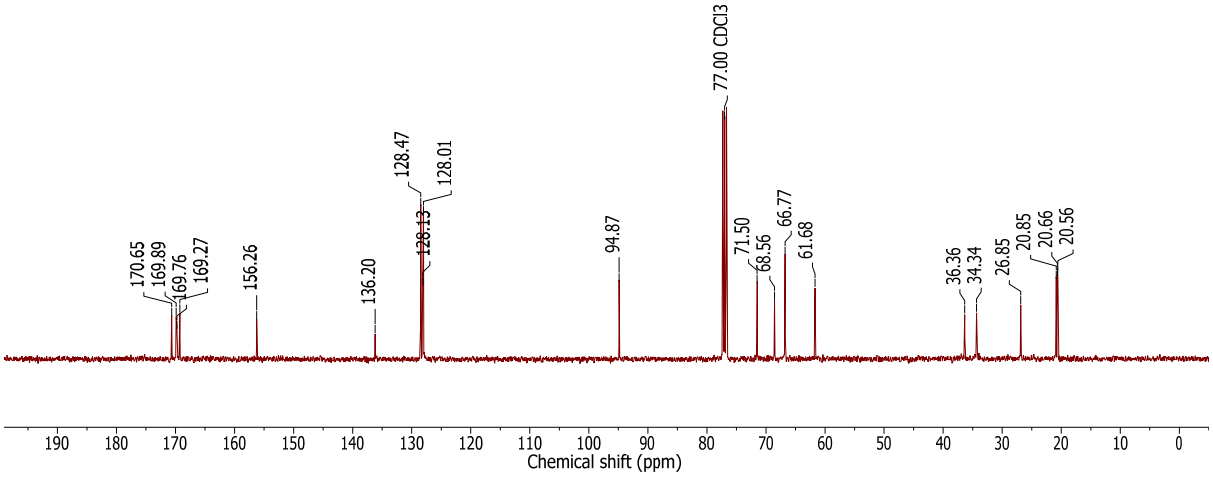

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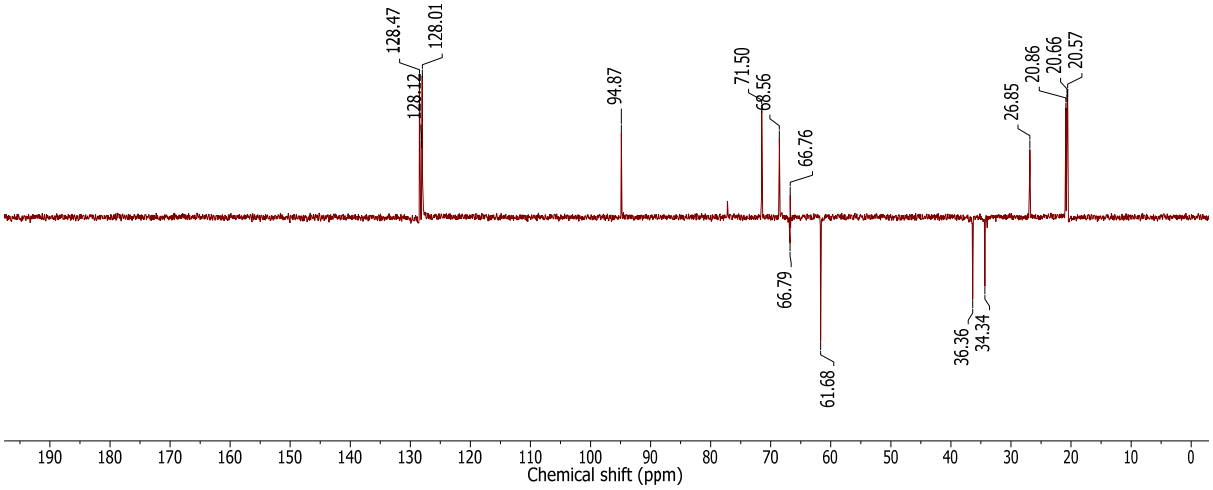

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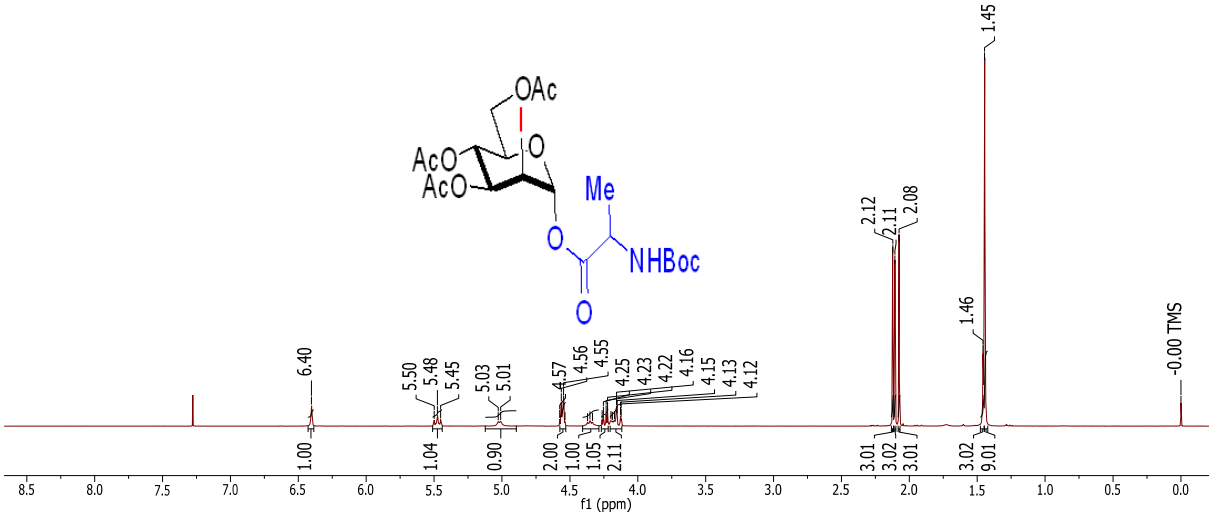

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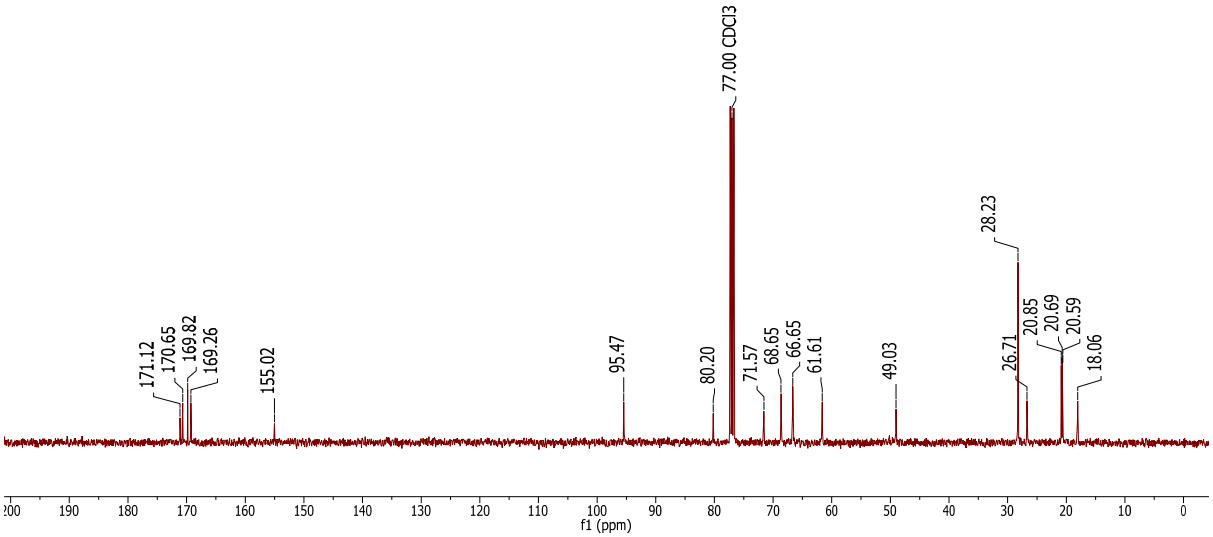

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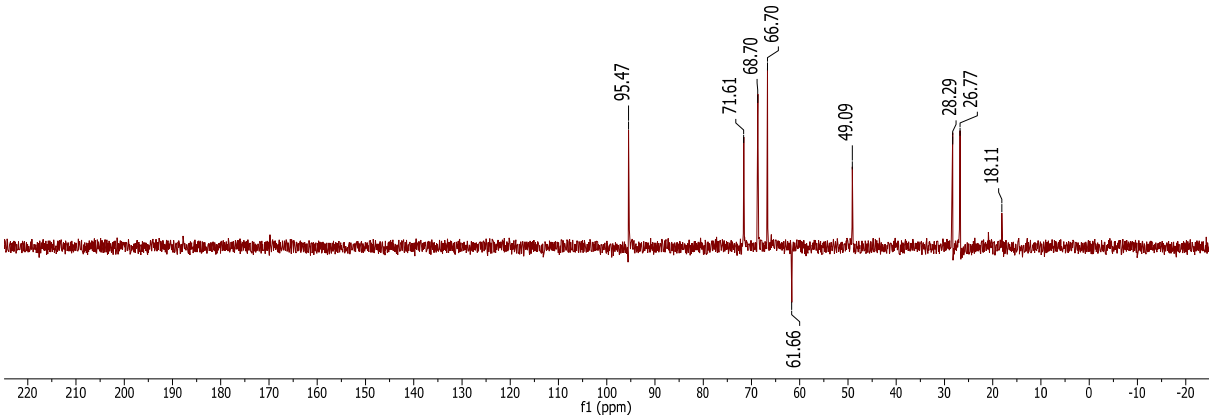

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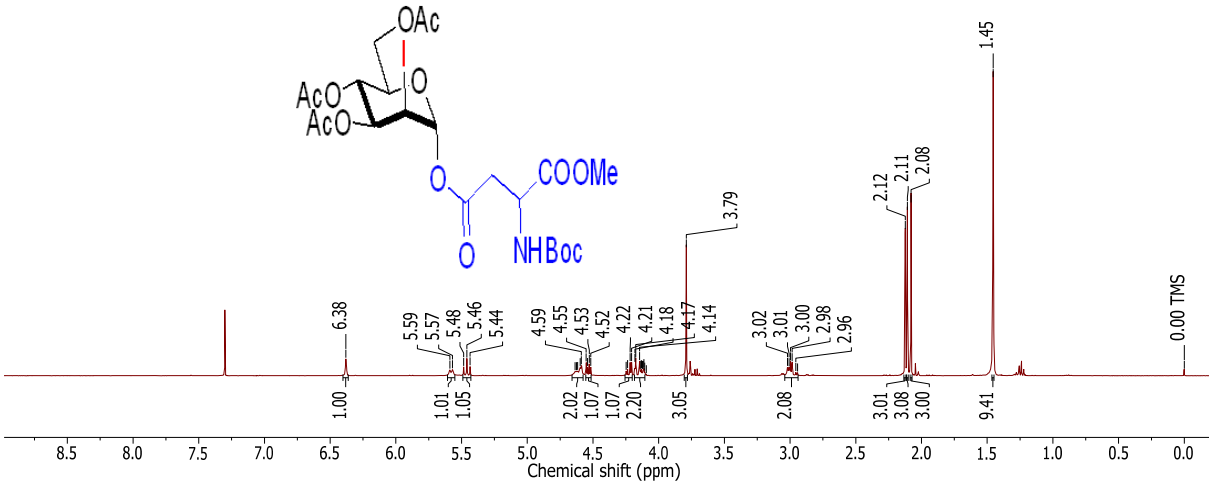
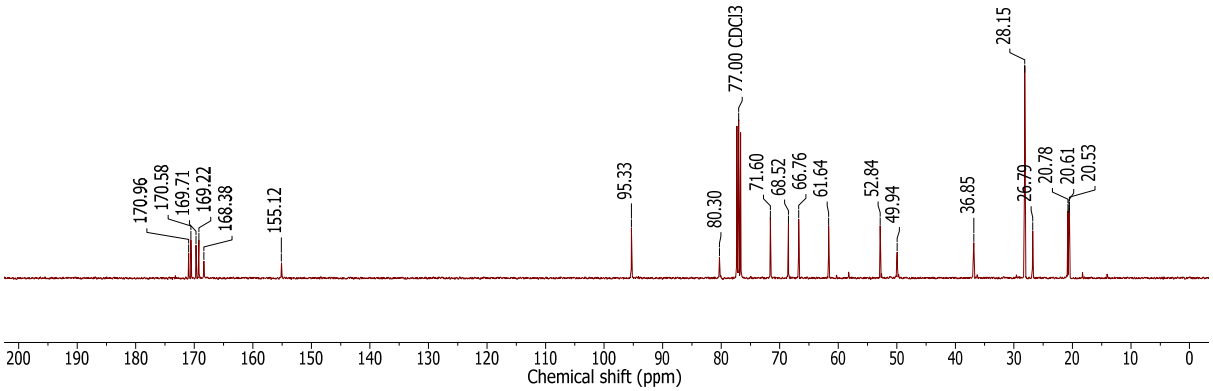


^{13}C NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **6f**



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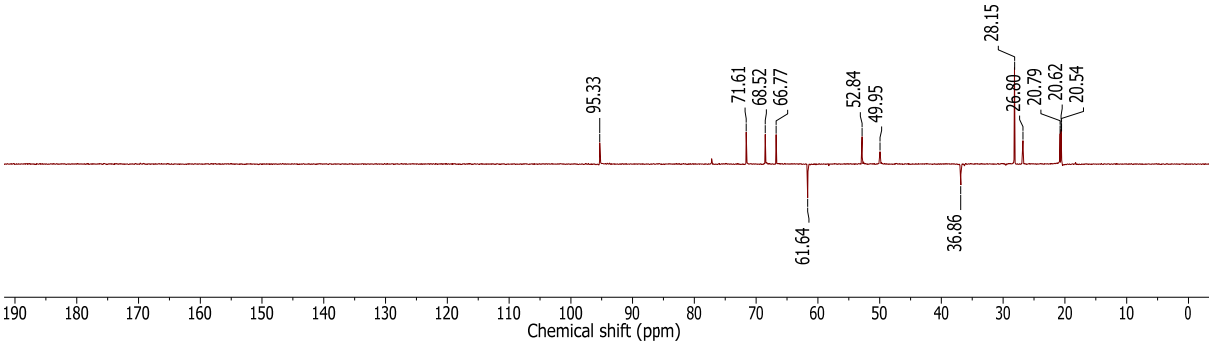
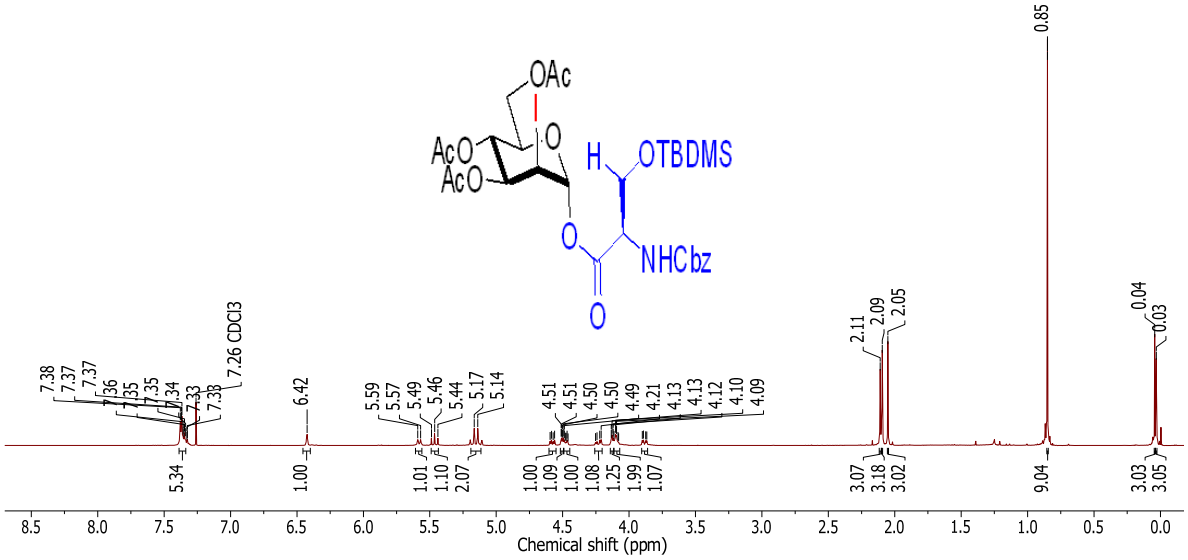
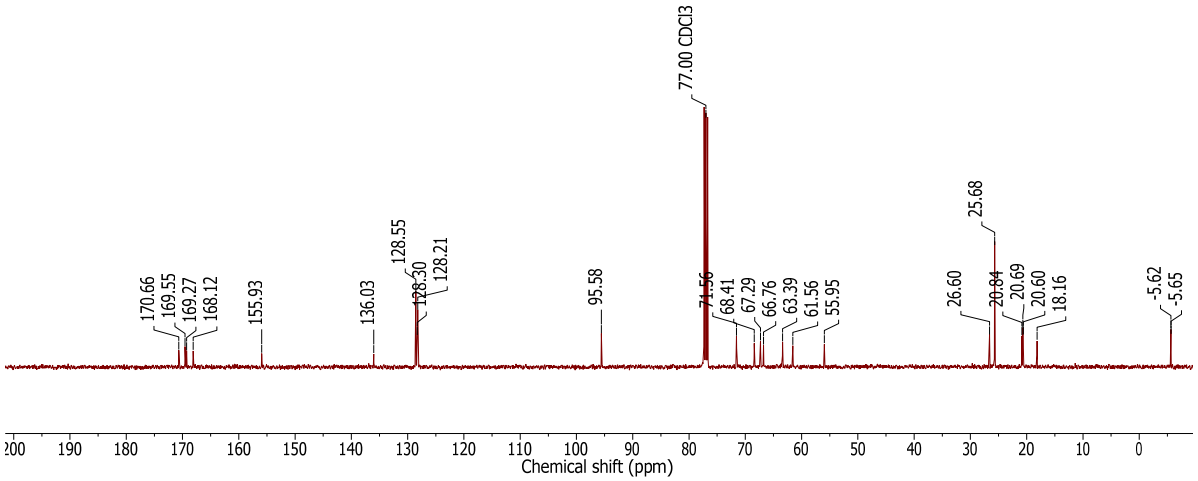


^{1}H NMR Spectrum (399.78 MHz, $CDCl_3$) of Compound **6g**



^{13}C NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **6g**



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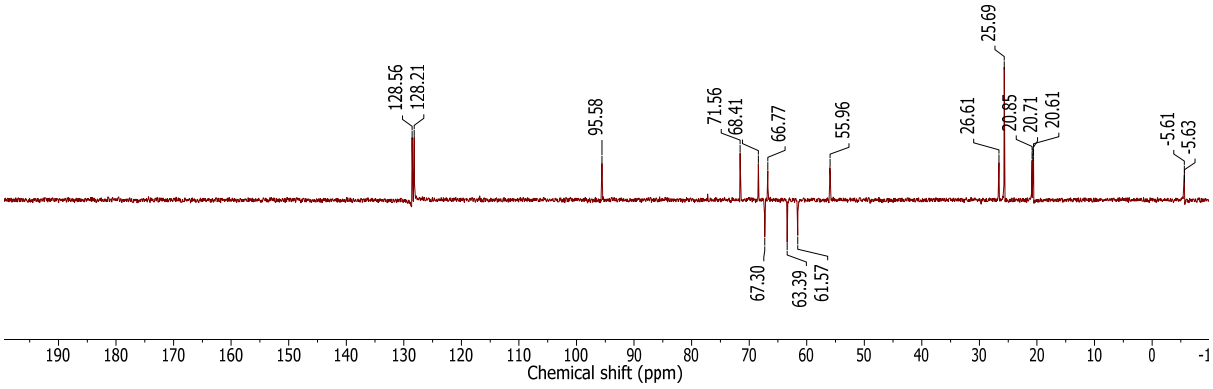

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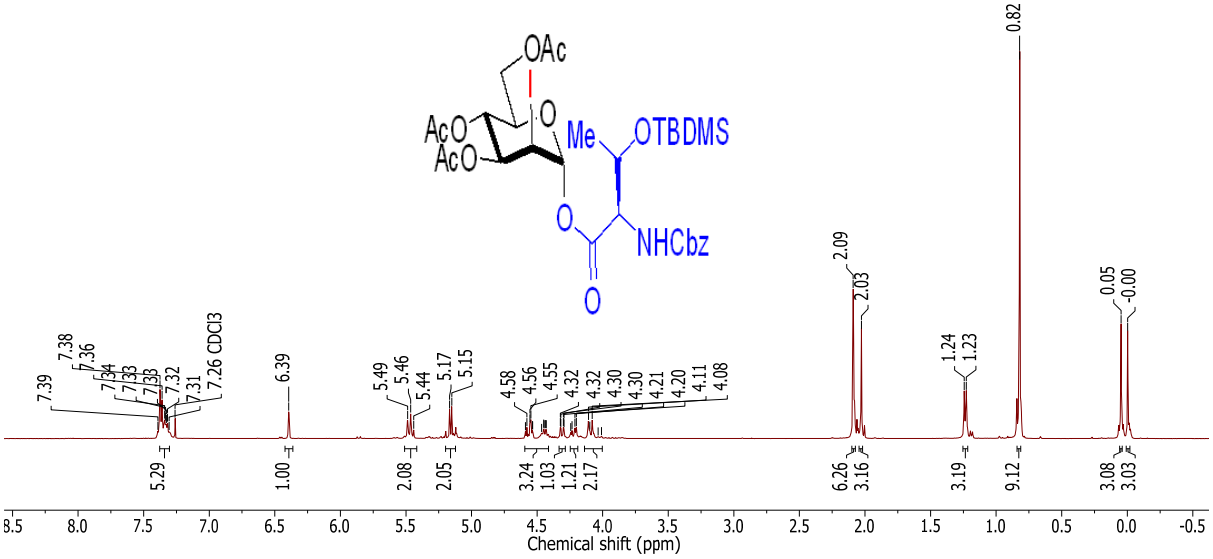

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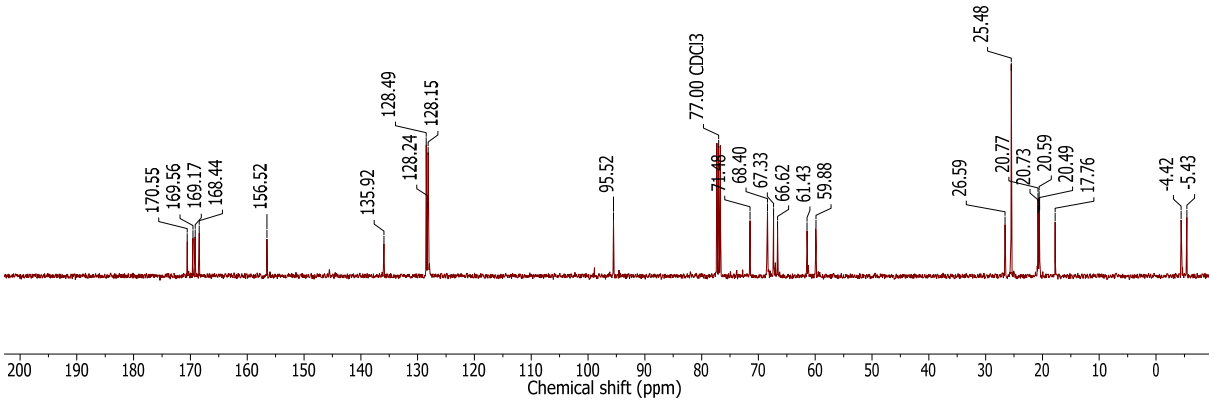

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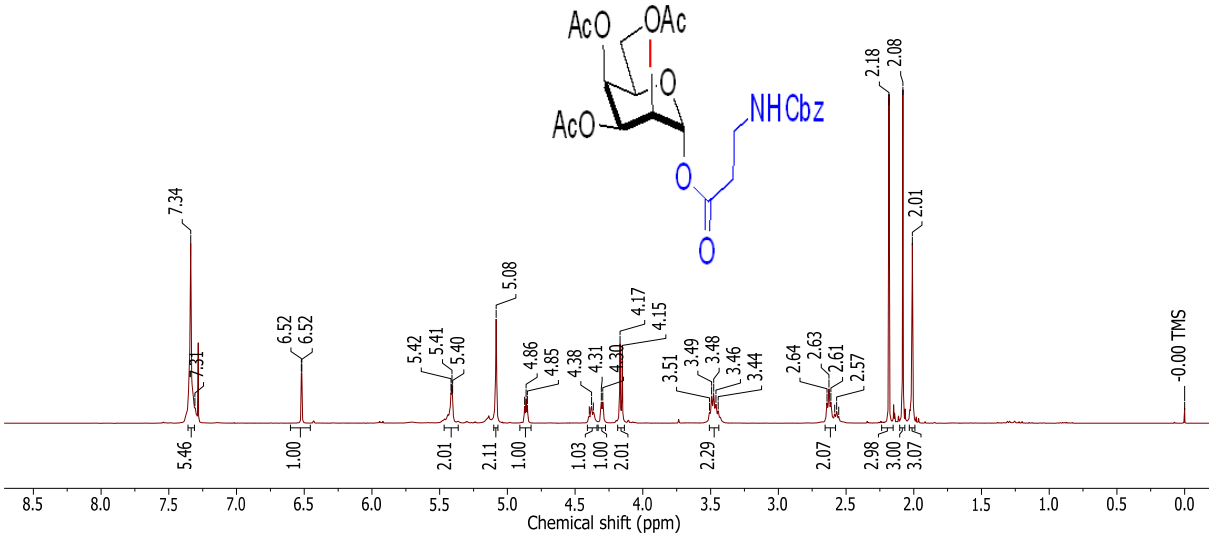

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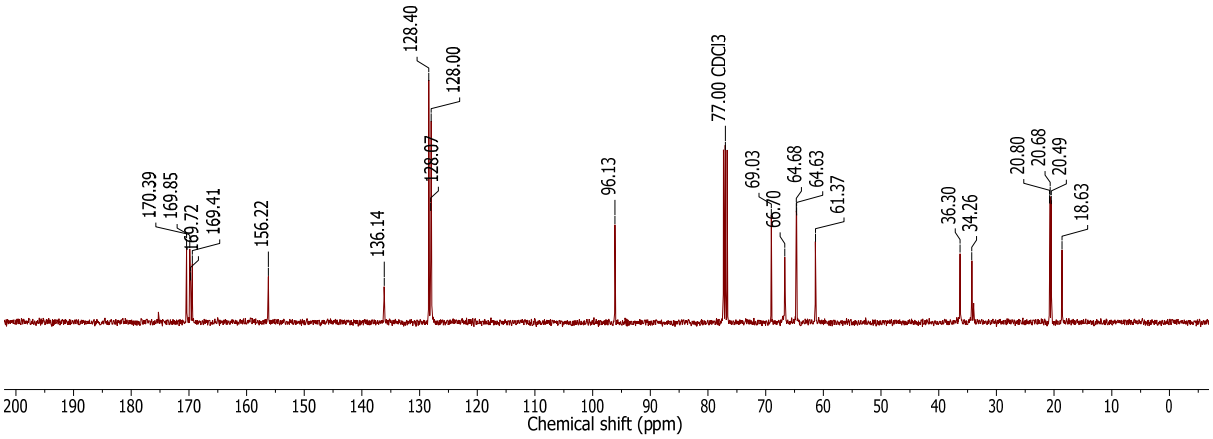

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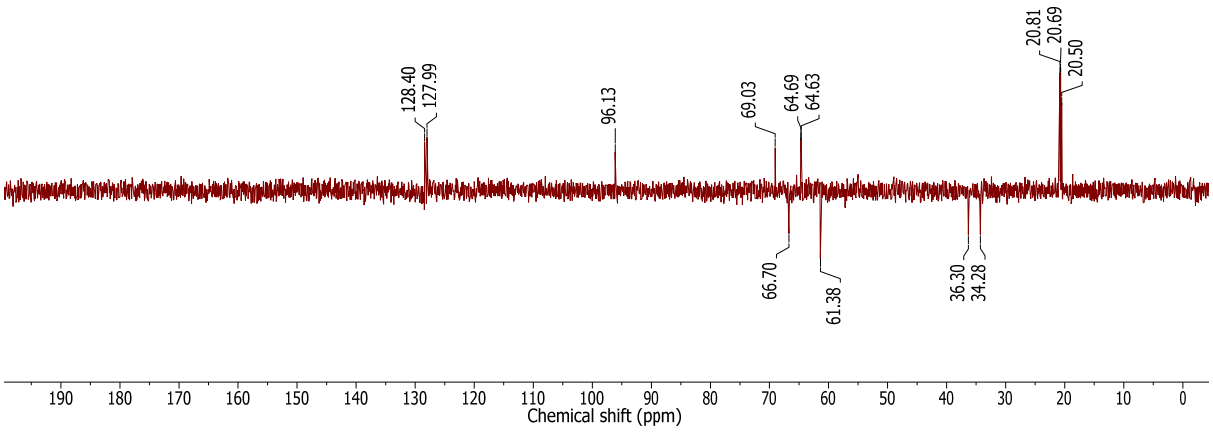

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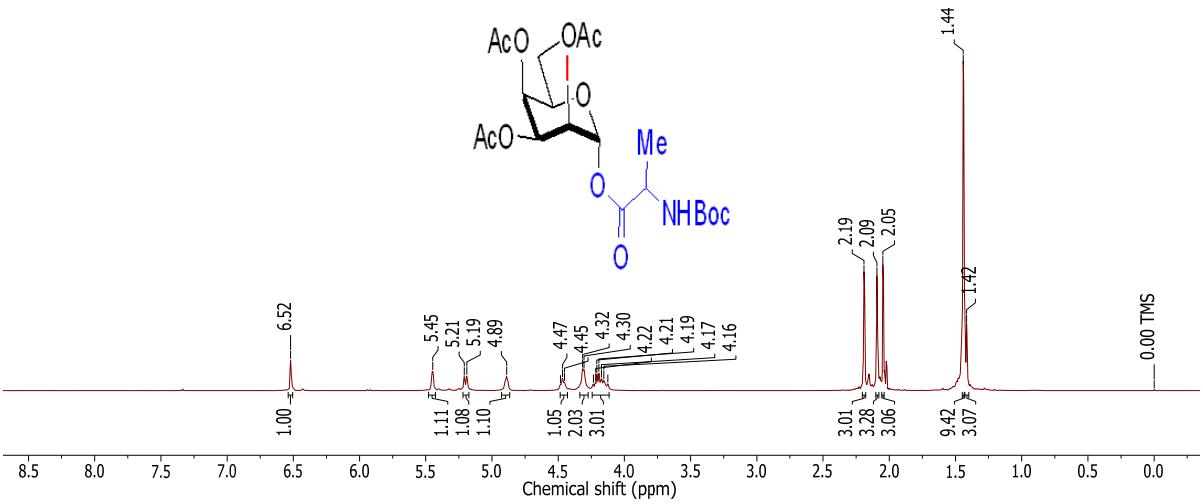

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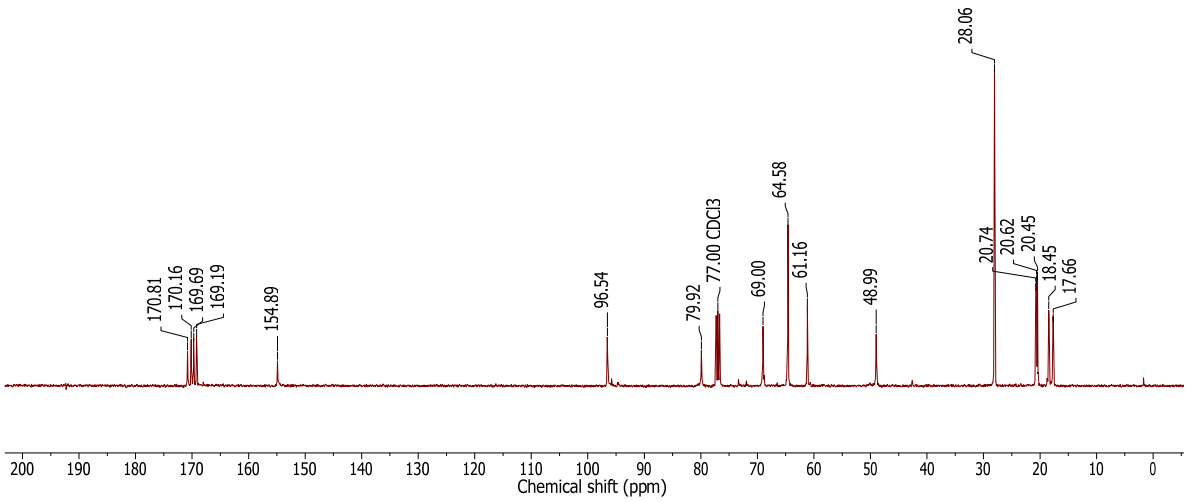

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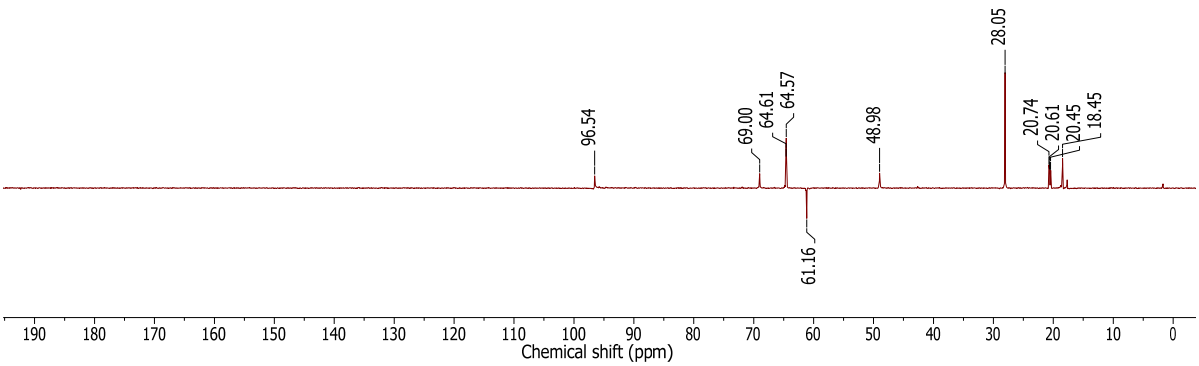

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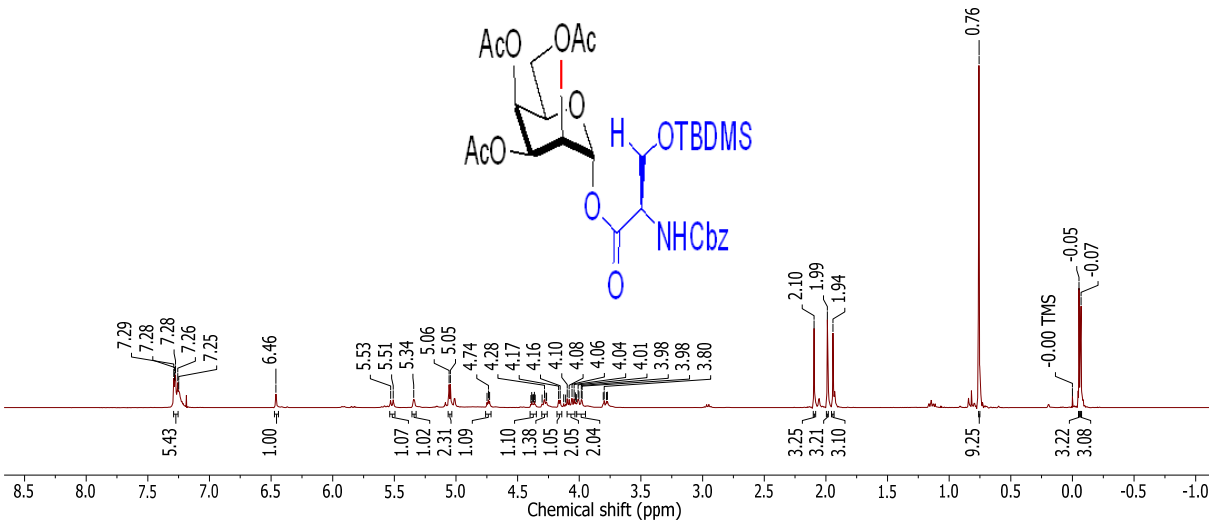

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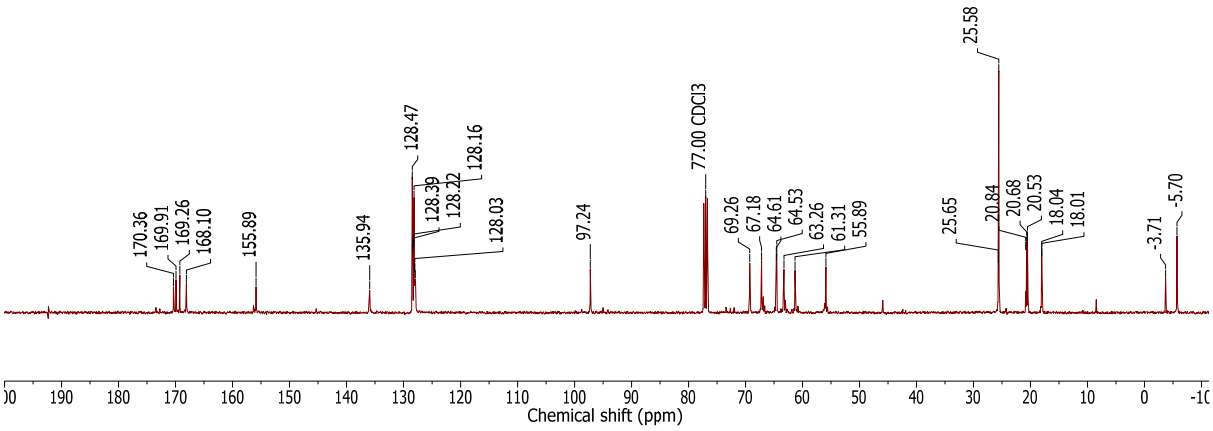

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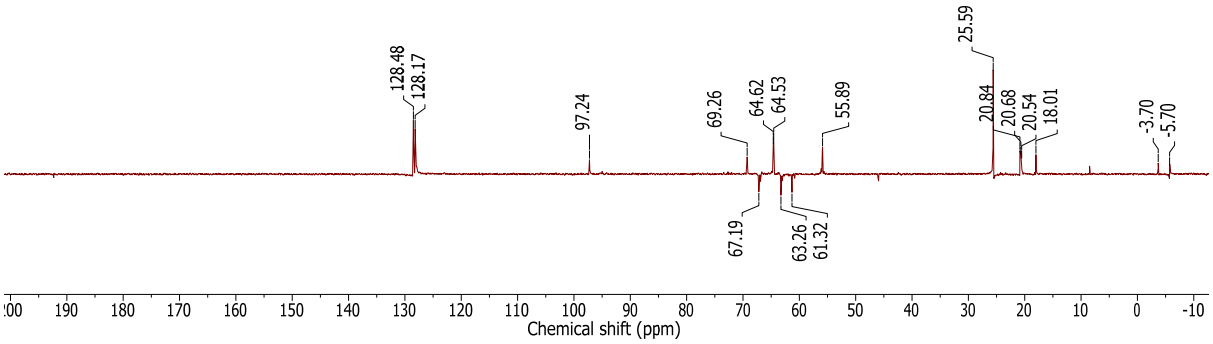

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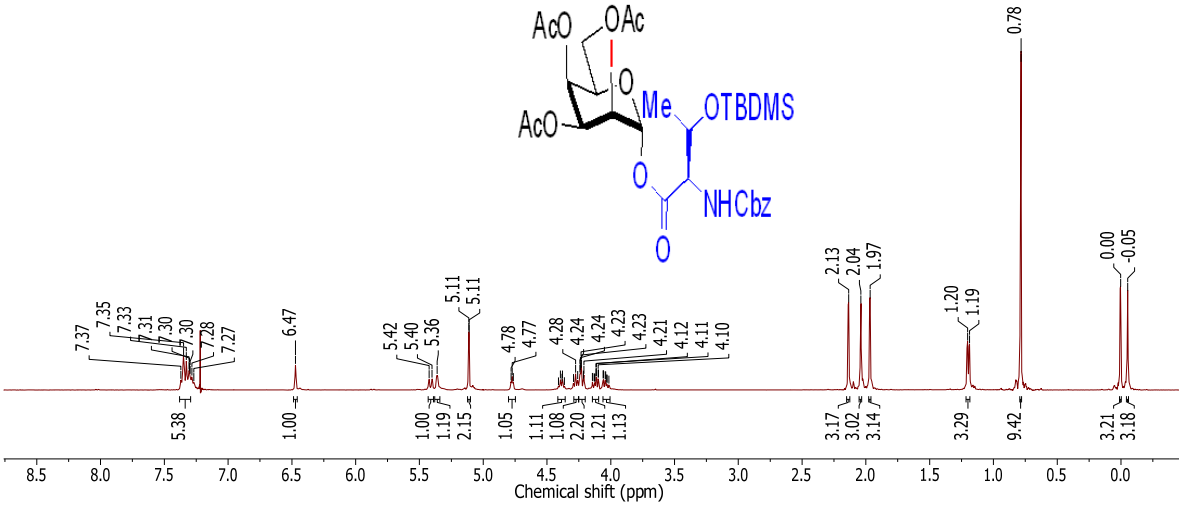

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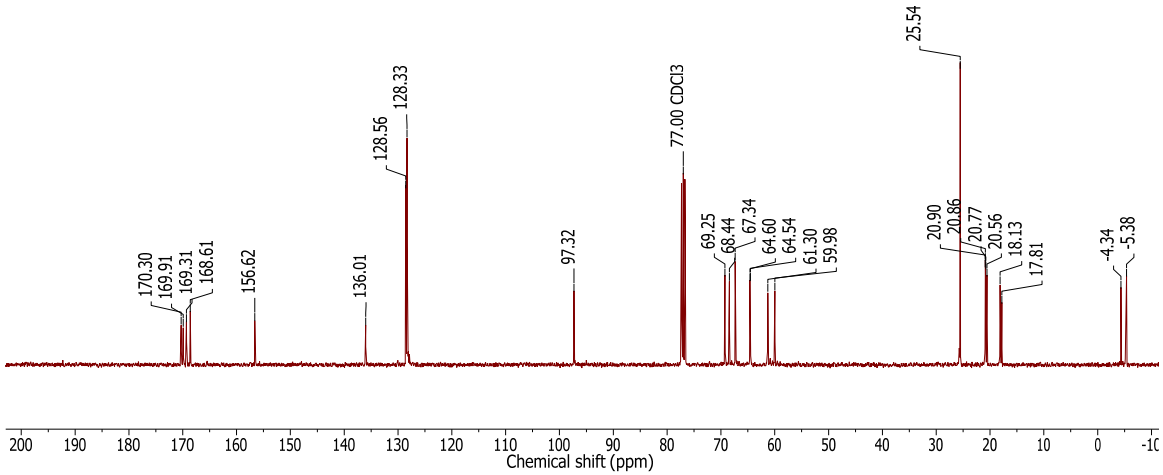

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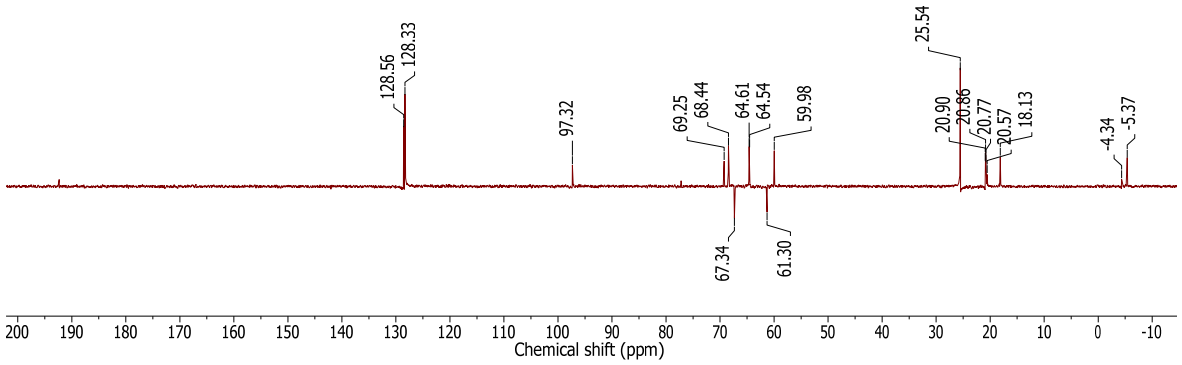
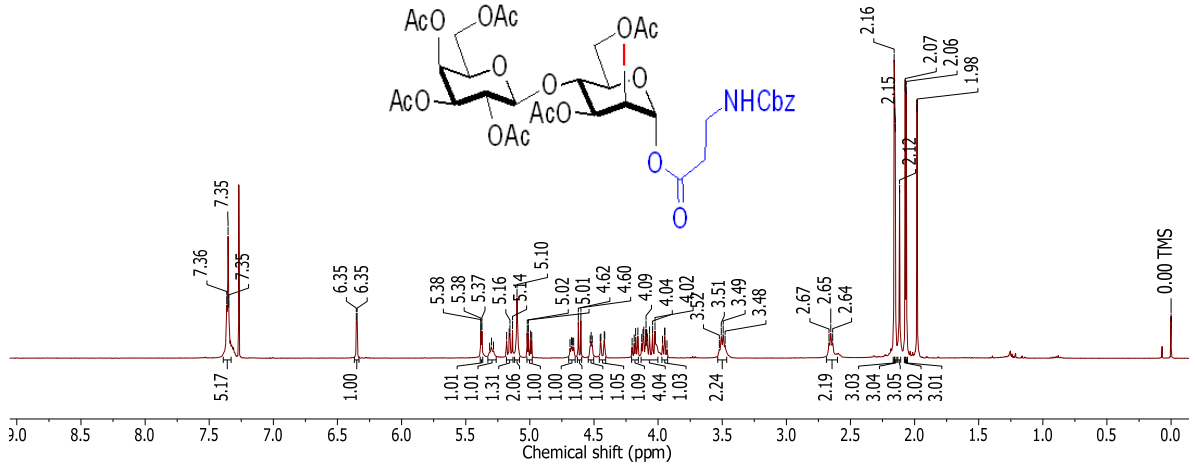


^{1}H NMR Spectrum (399.78 MHz, $CDCl_3$) of Compound **8a**



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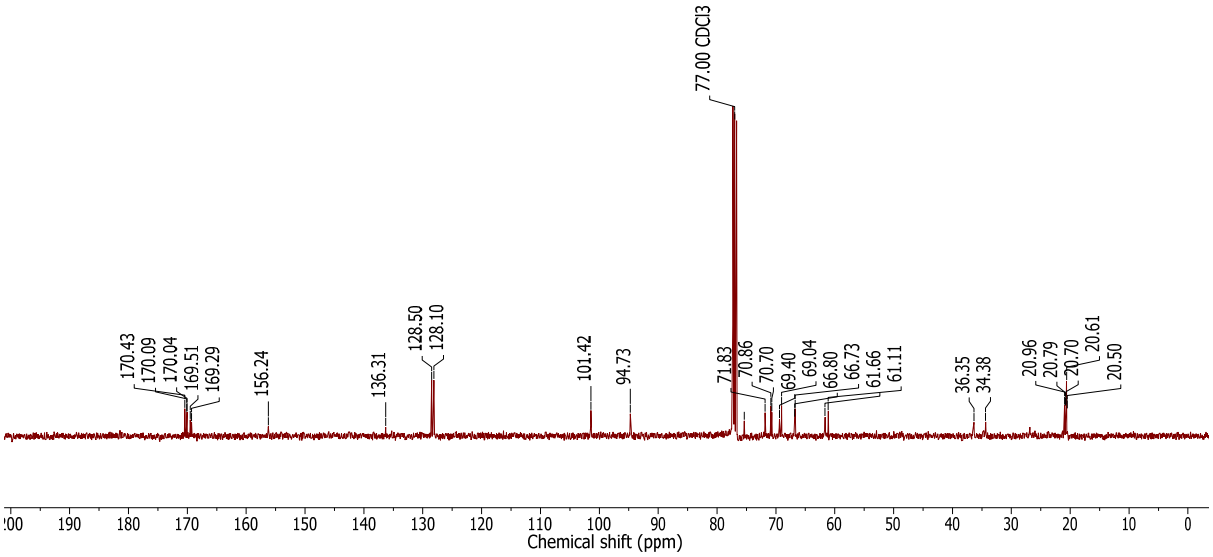

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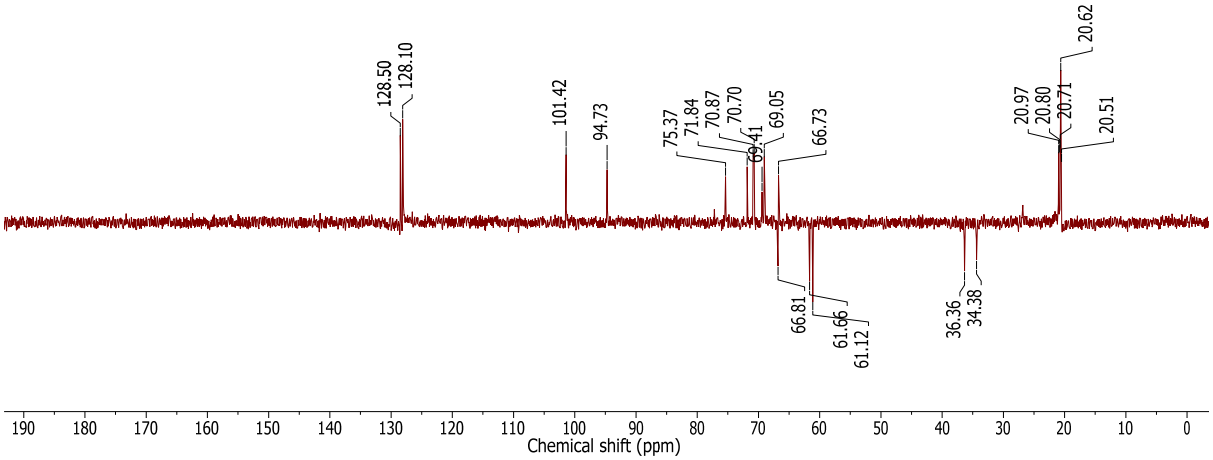

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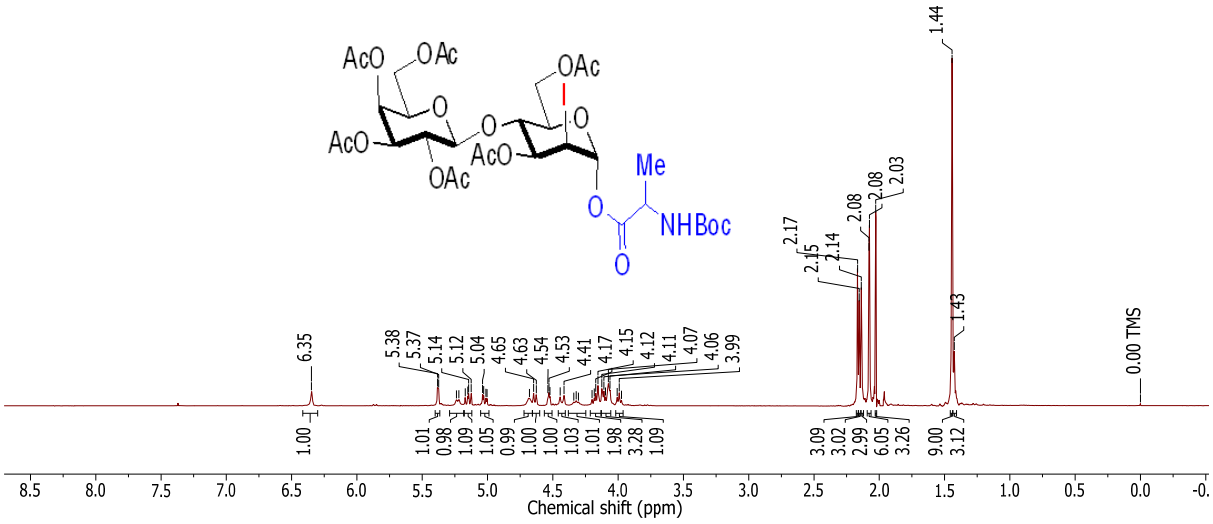

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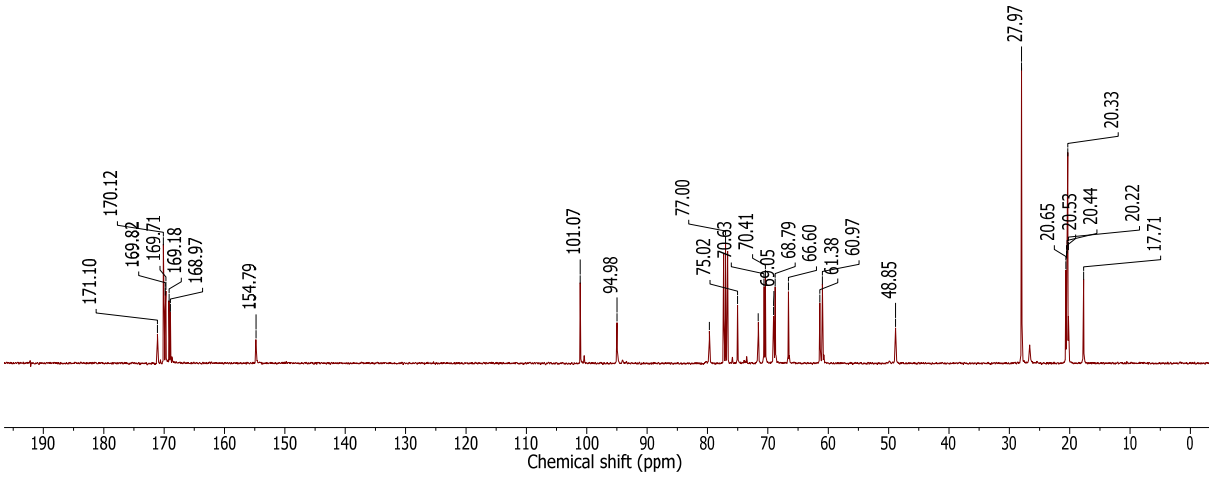
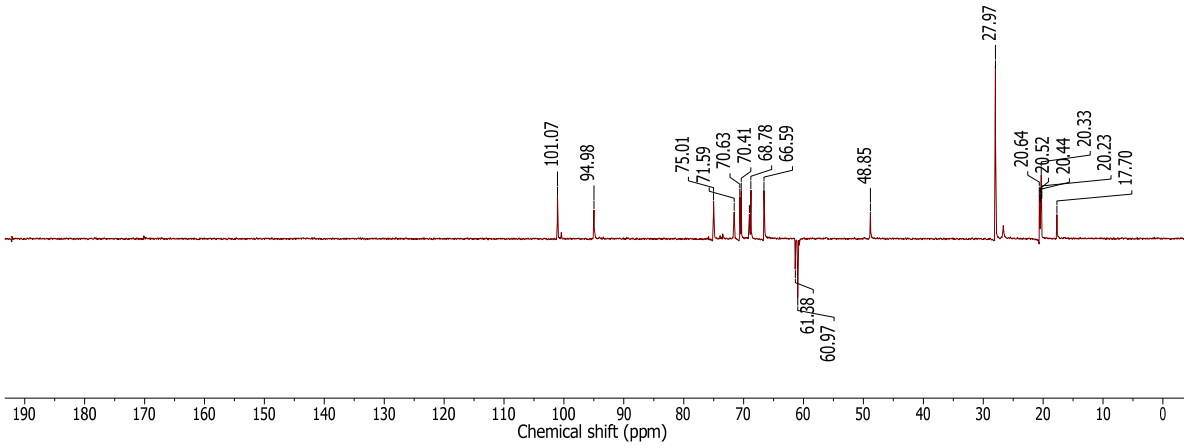
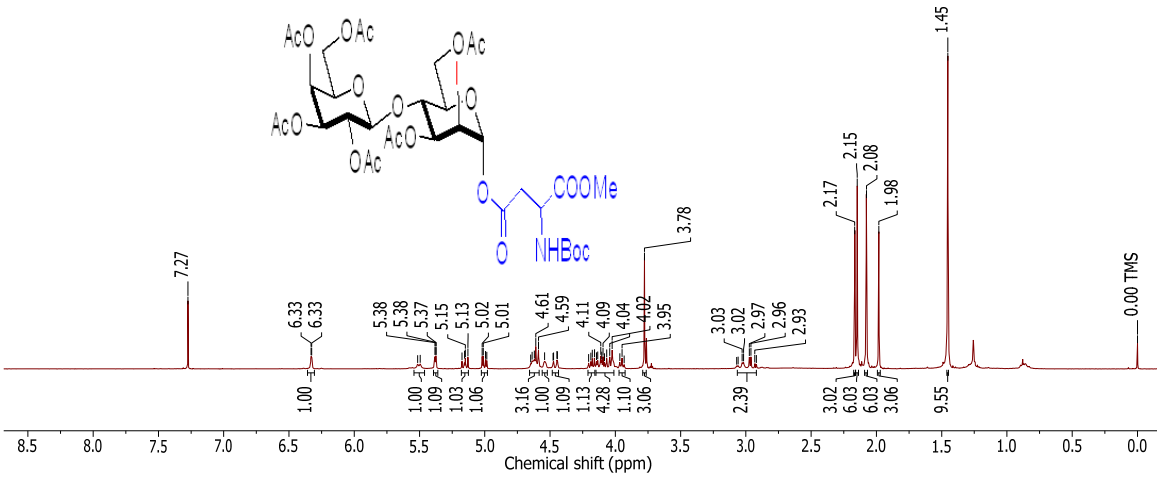


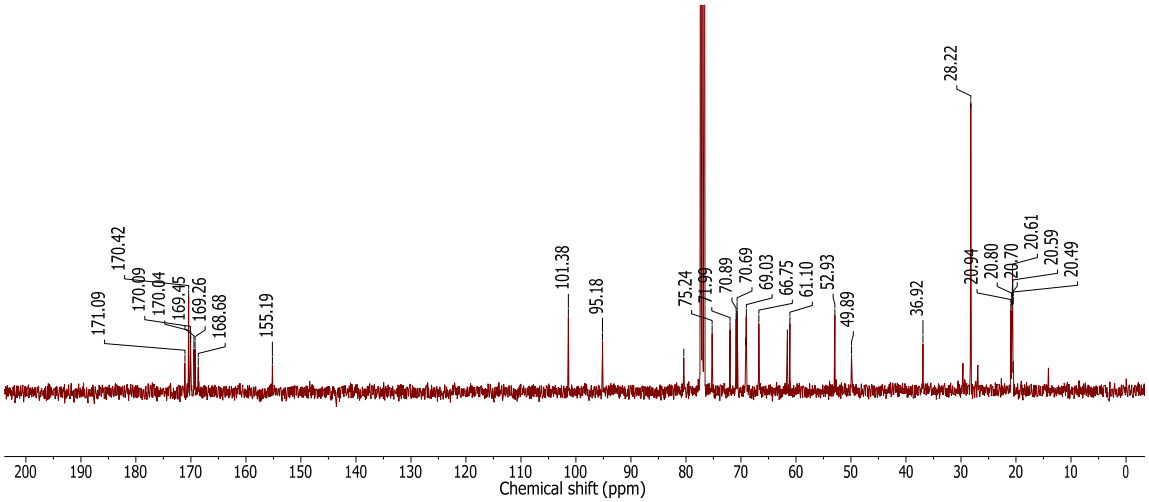
DEPT NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **8b**



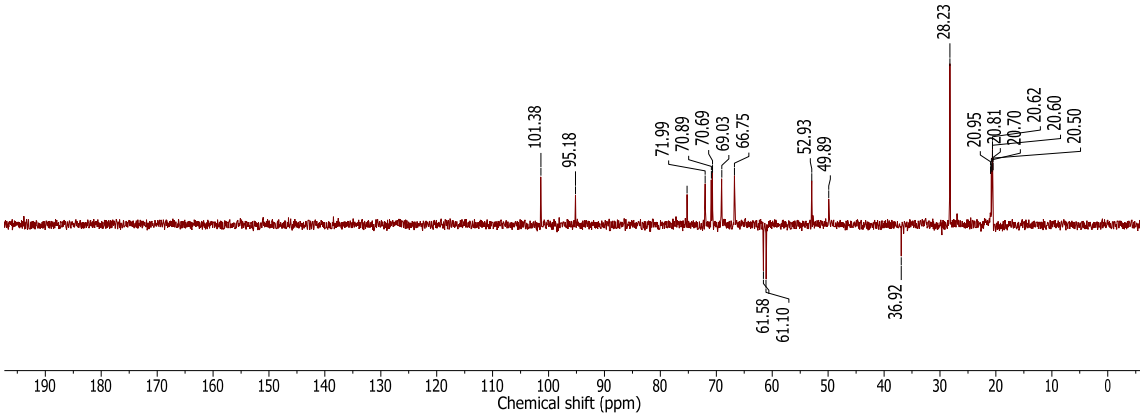
^{1}H NMR Spectrum (399.78 MHz, $CDCl_3$) of Compound **8c**



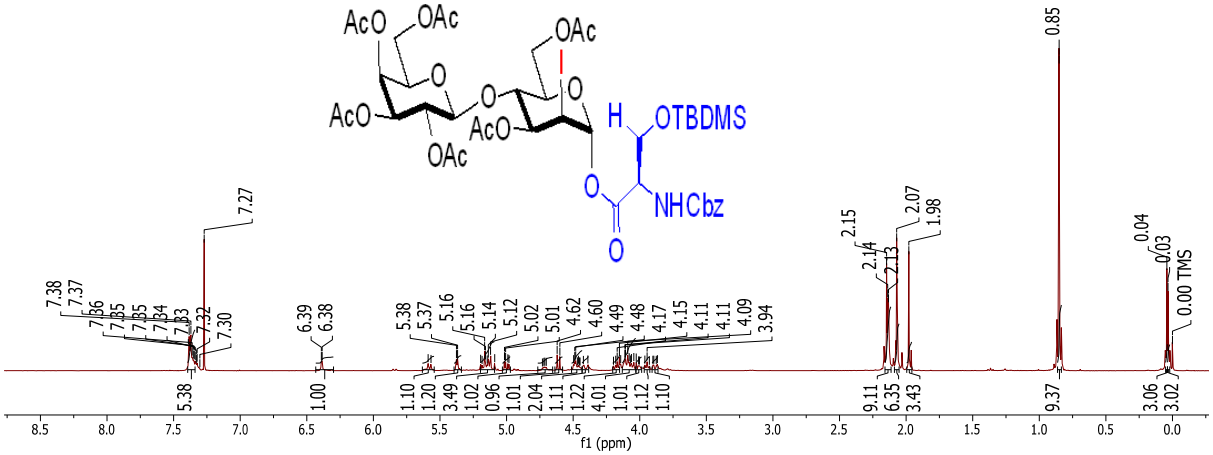
^{13}C NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **8c**



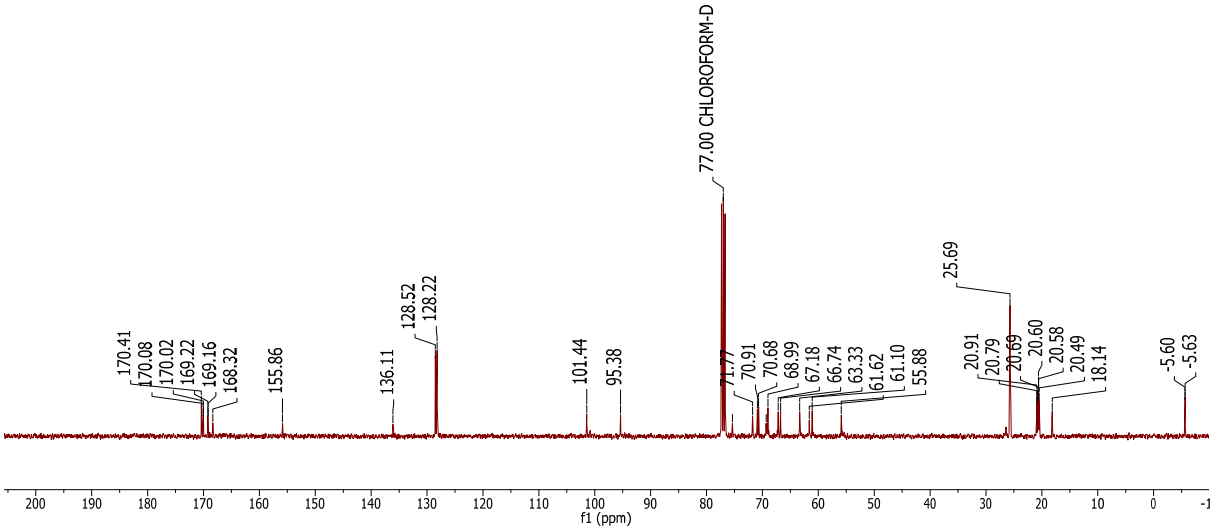
DEPT NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **8c**



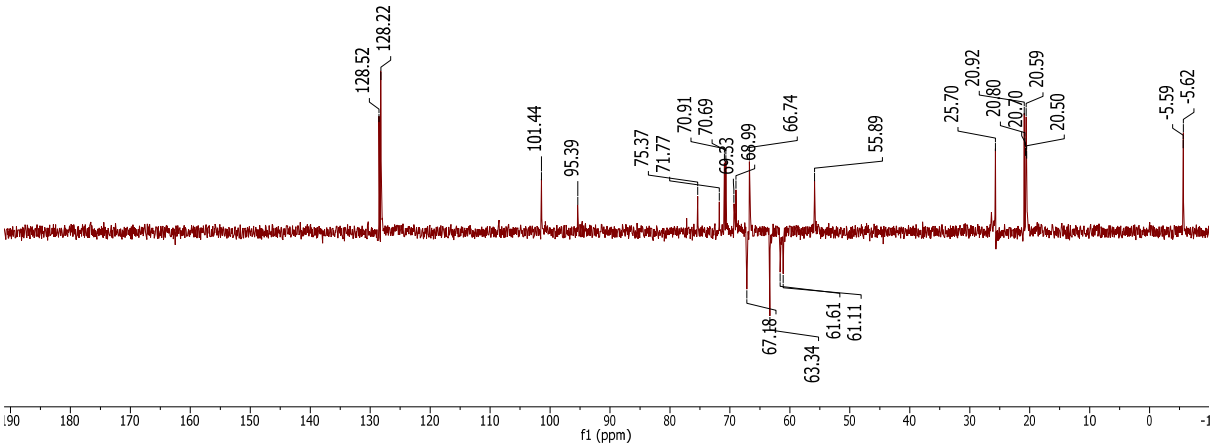
^{1}H NMR Spectrum (399.78 MHz, $CDCl_3$) of Compound **8d**



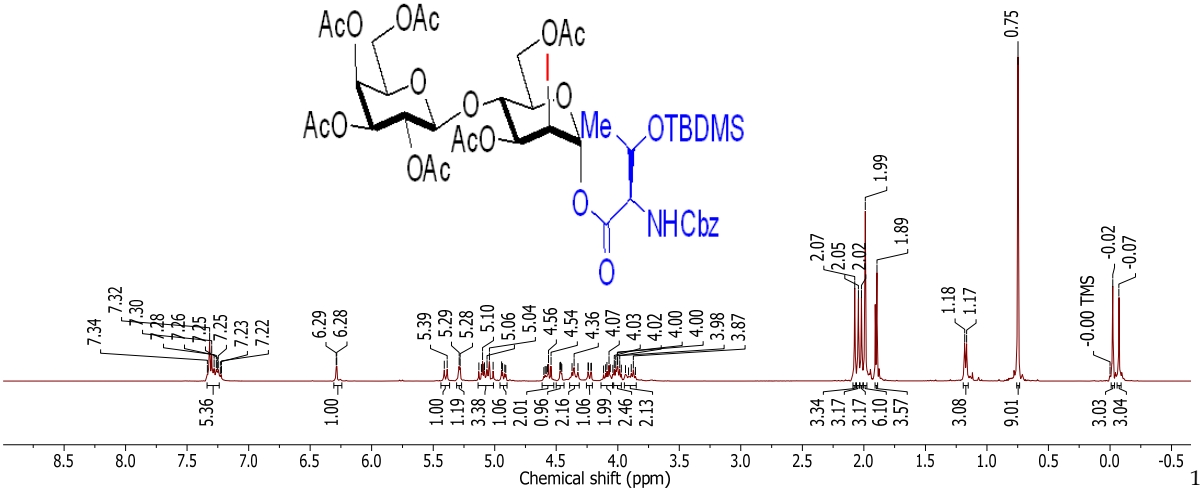
^{13}C NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **8d**



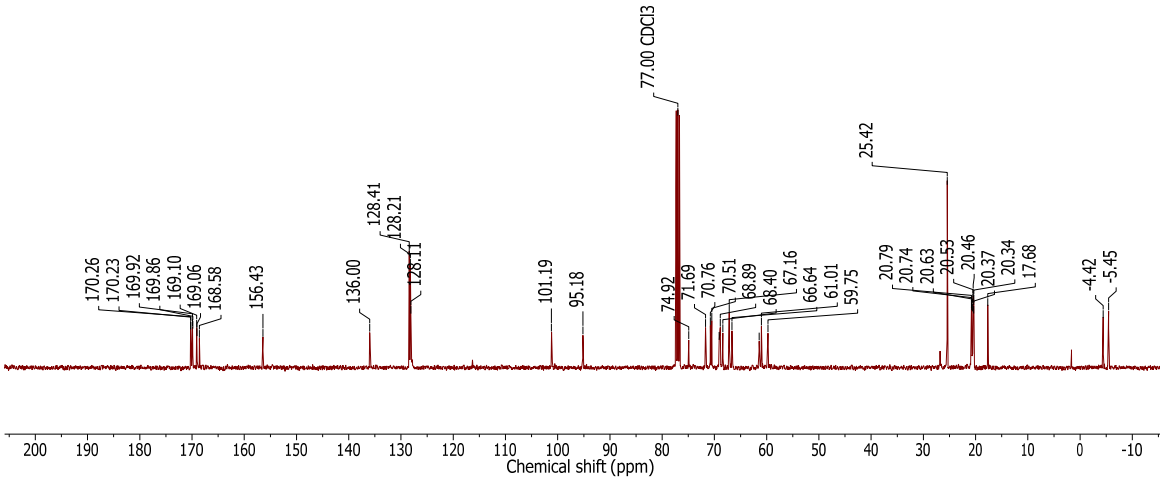
DEPT NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **8d**



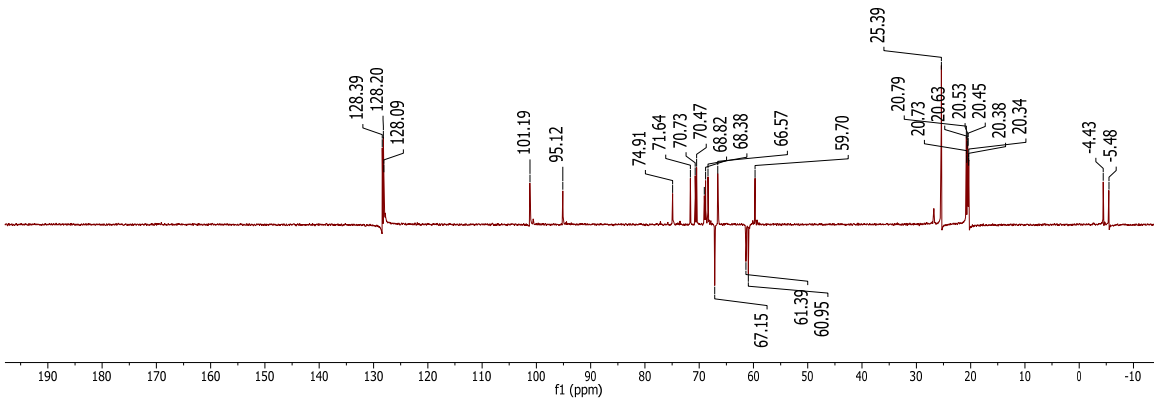
^{1}H NMR Spectrum (399.78 MHz, $CDCl_3$) of Compound **8e**



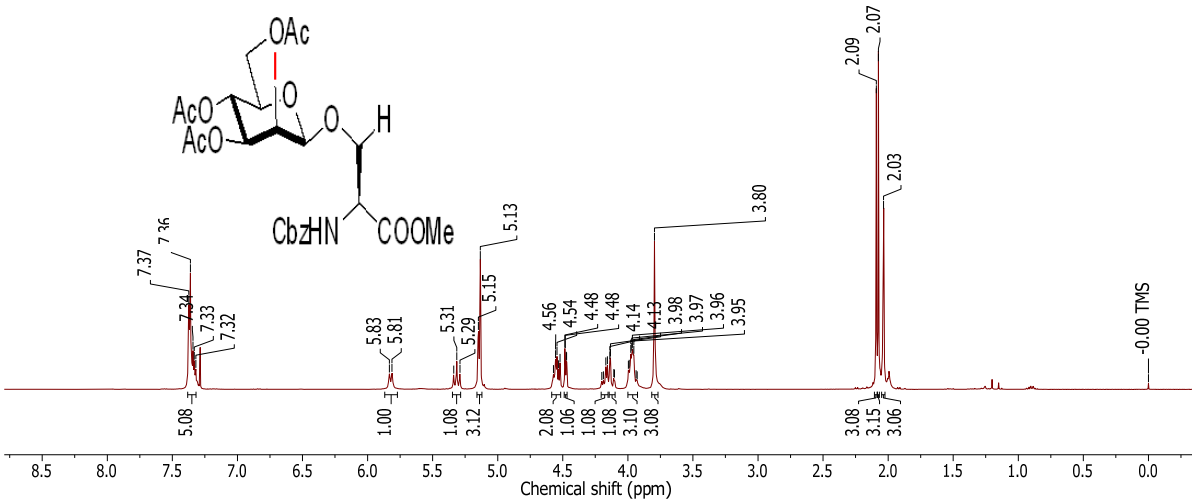
^{3}C NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **8e**



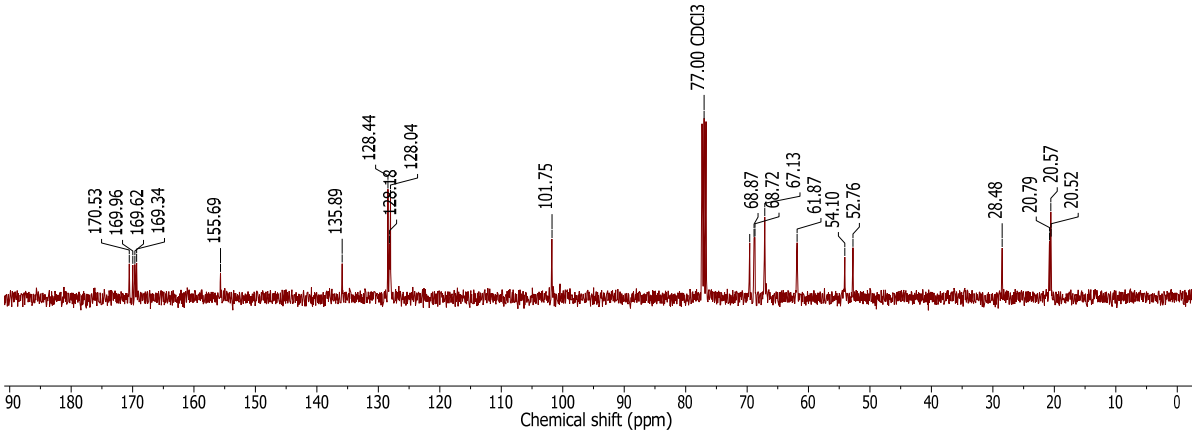
DEPT NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **8e**



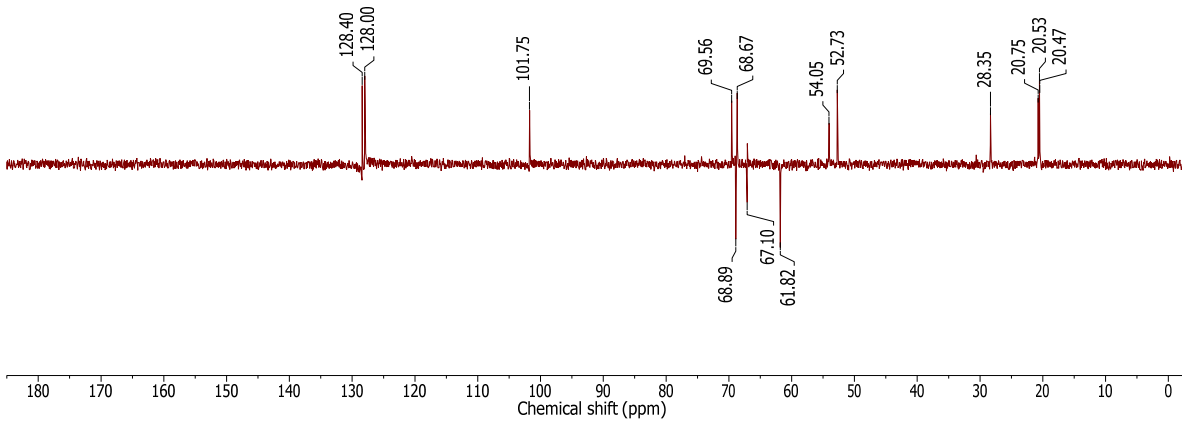
^{1}H NMR Spectrum (399.78 MHz, $CDCl_3$) of Compound **9a**



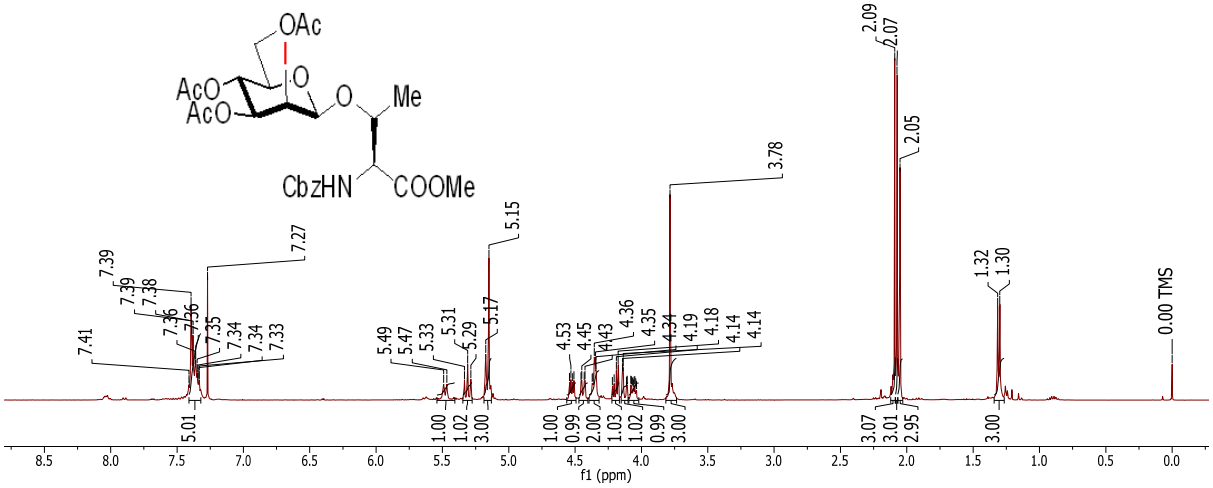
^{13}C NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **9a**



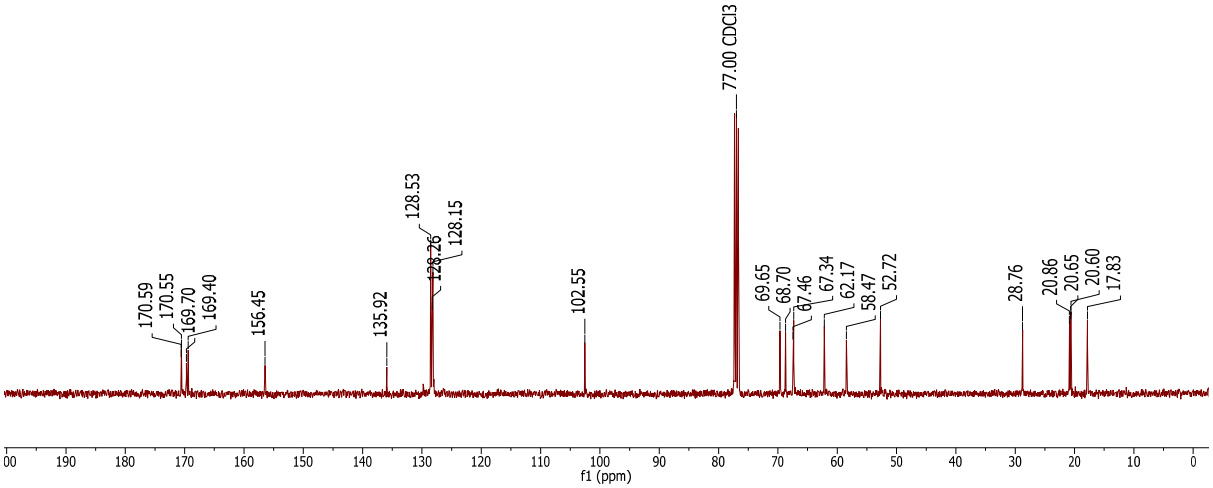
DEPT NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **9a**



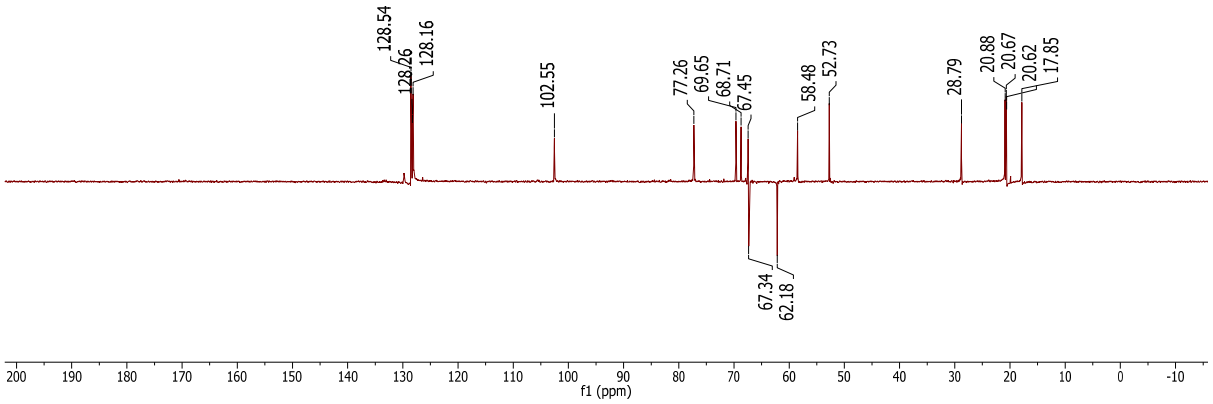
^{1}H NMR Spectrum (399.78 MHz, $CDCl_3$) of Compound **9b**



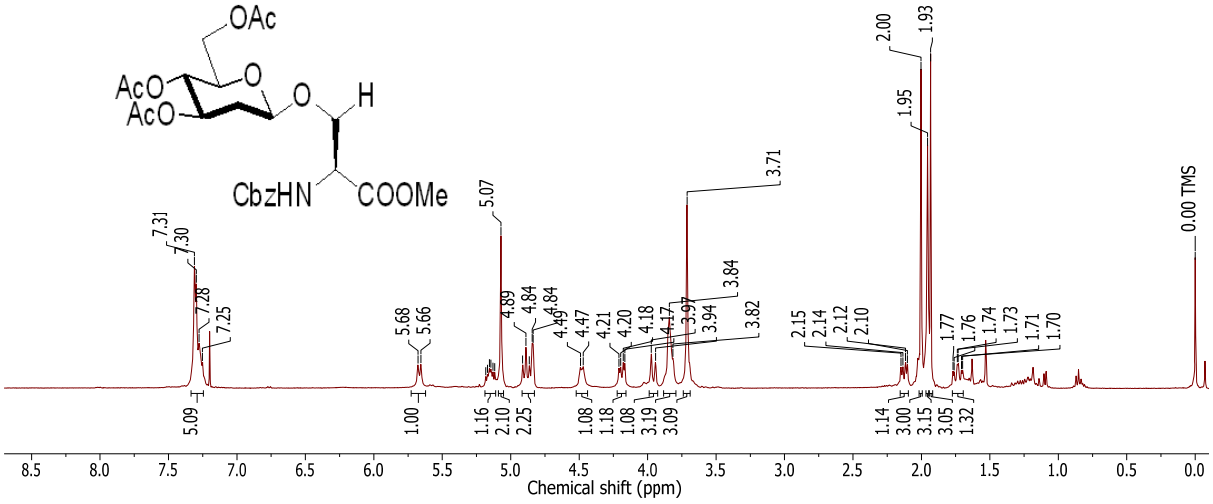
^{13}C NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **9b**



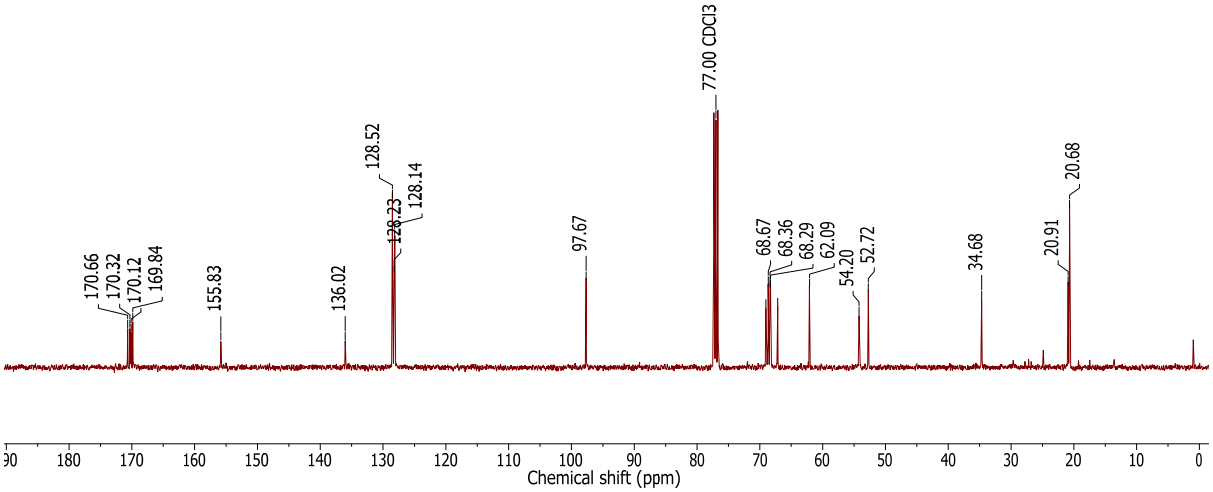
DEPT NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **9b**



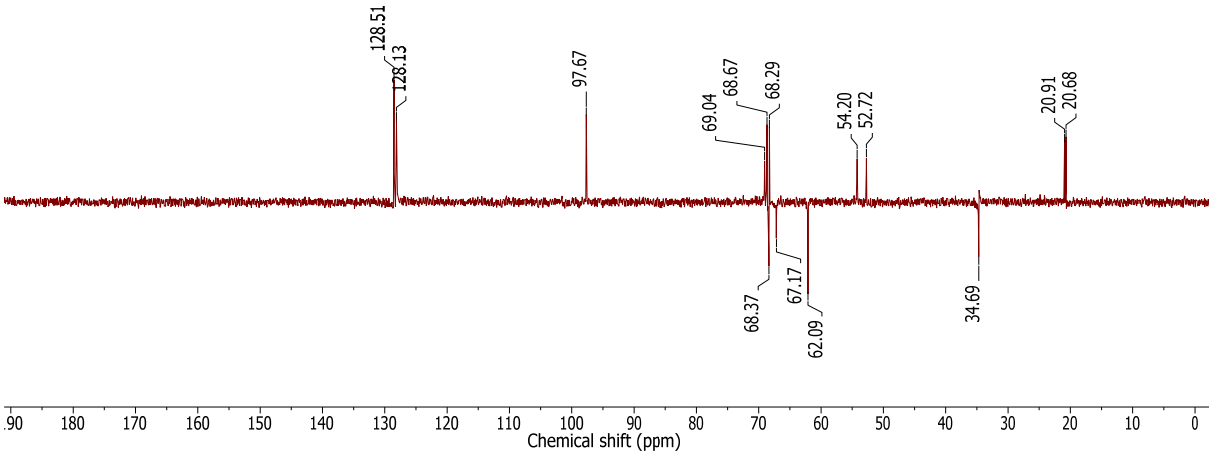
^{1}H NMR Spectrum (399.78 MHz, $CDCl_3$) of Compound **10a**



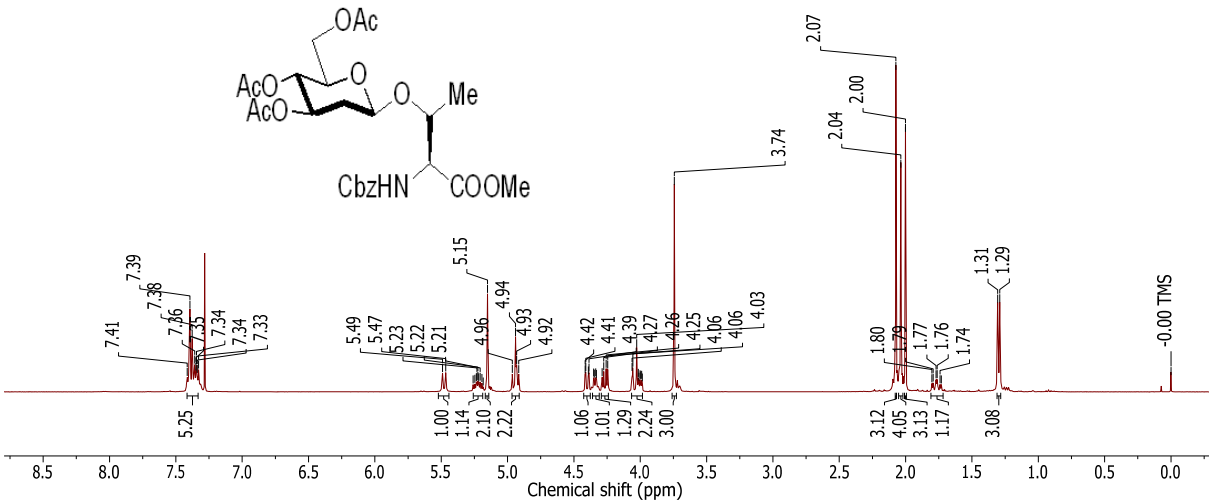
^{13}C NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **10a**



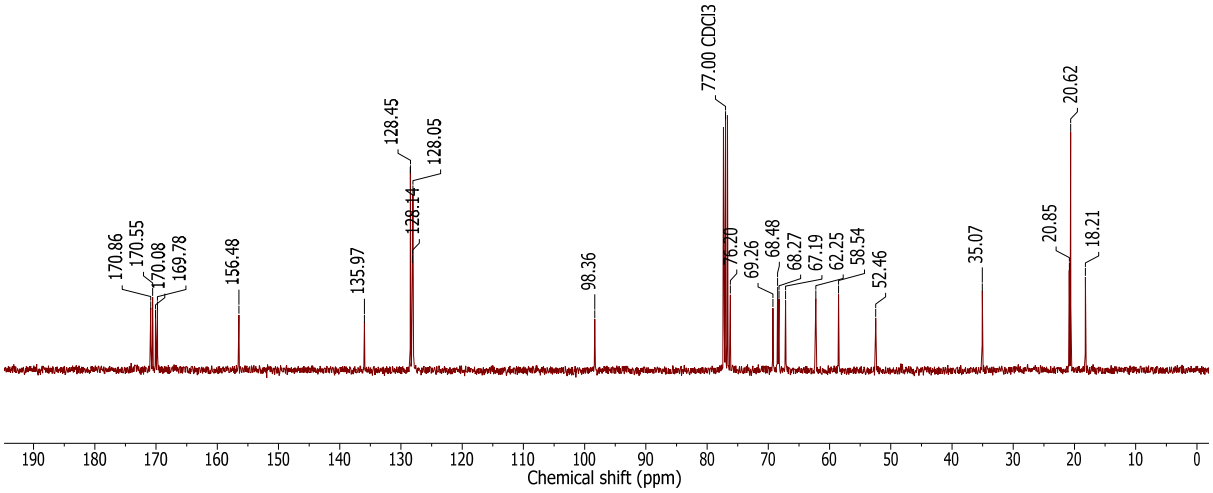
DEPT NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **10a**



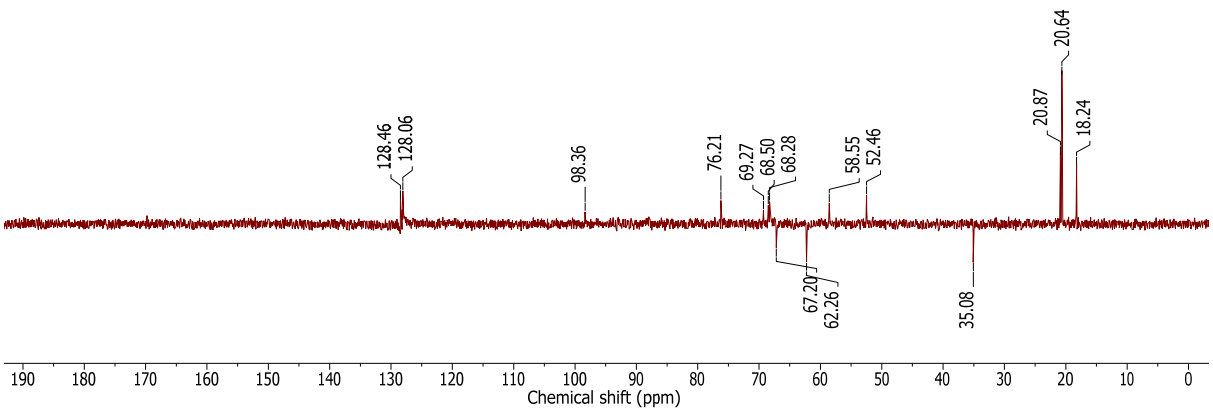
^{1}H NMR Spectrum (399.78 MHz, $CDCl_3$) of Compound **10b**



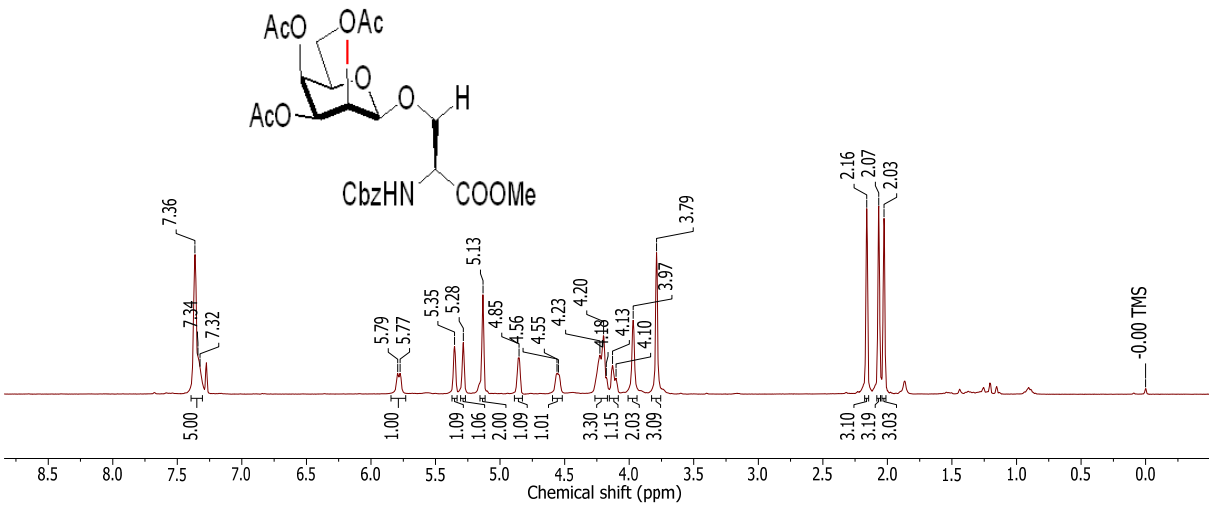
^{13}C NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **10b**



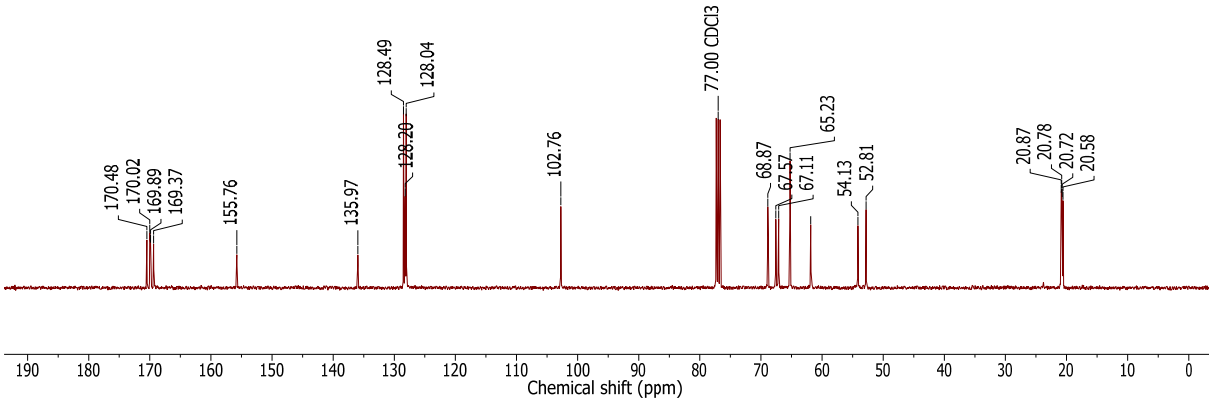
DEPT NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **10b**



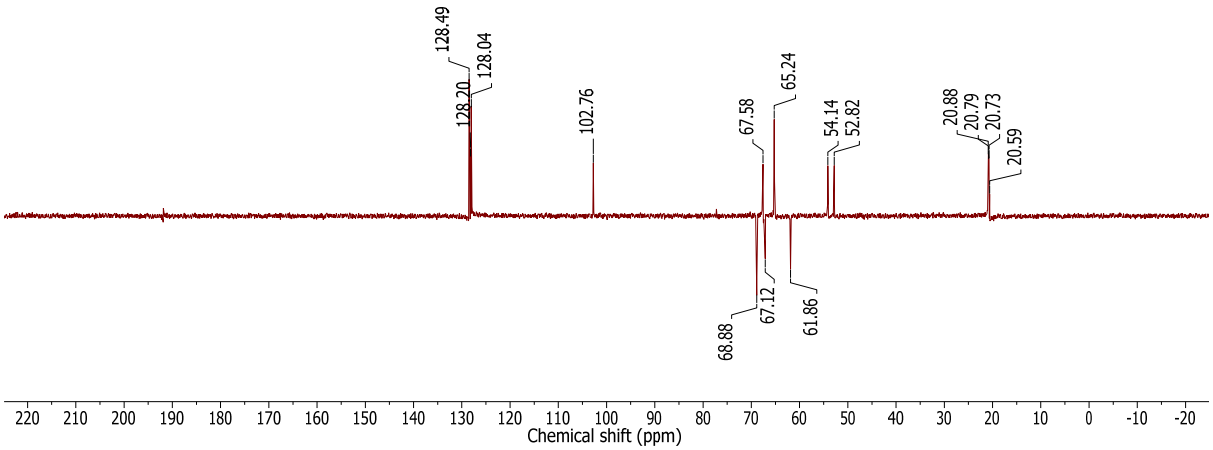
^{1}H NMR Spectrum (399.78 MHz, $CDCl_3$) of Compound **11a**



^{13}C NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **11a**



DEPT NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **11a**



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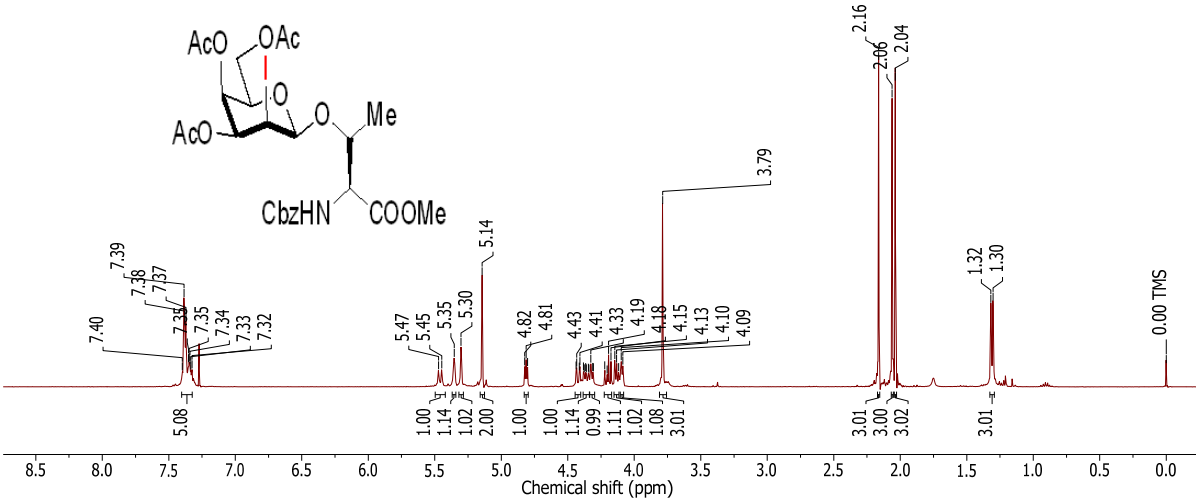

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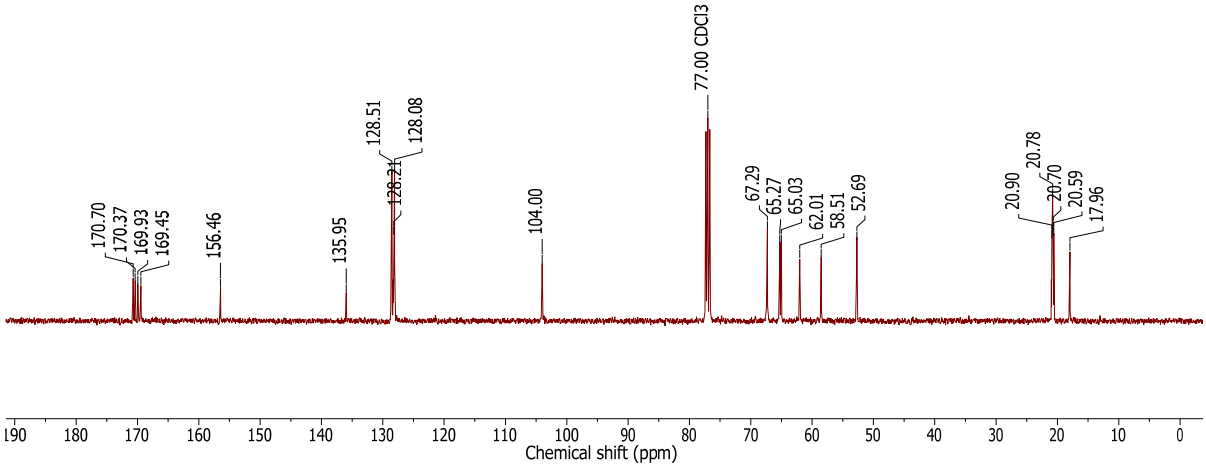
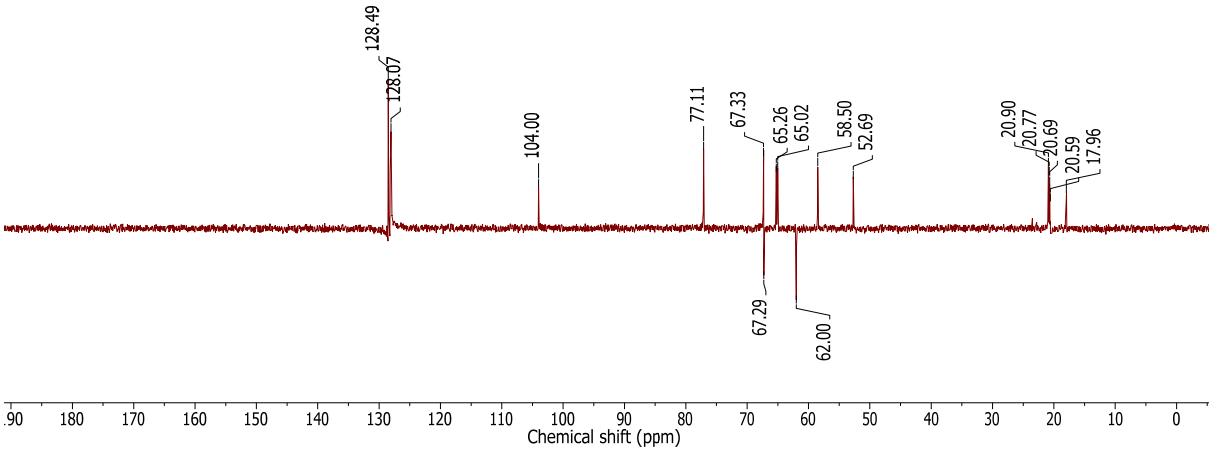
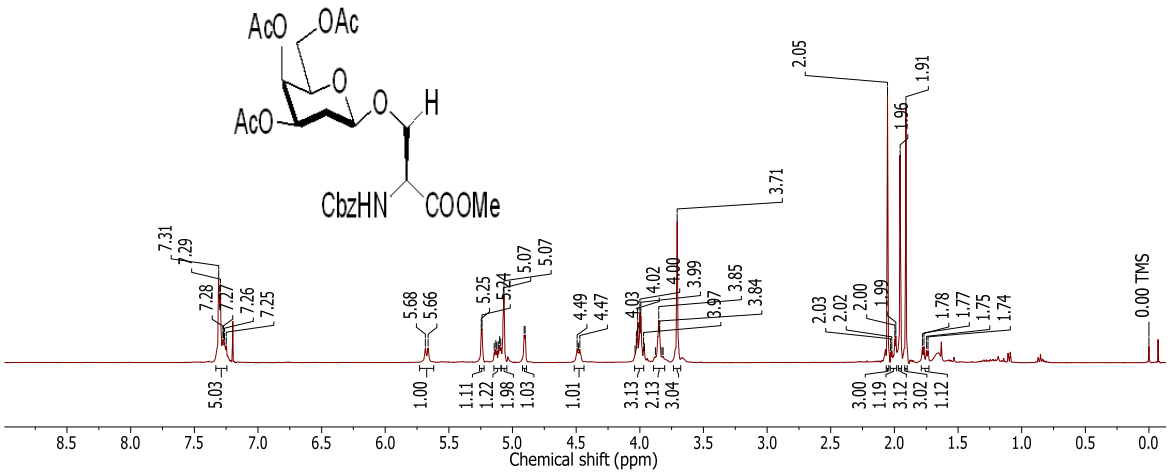


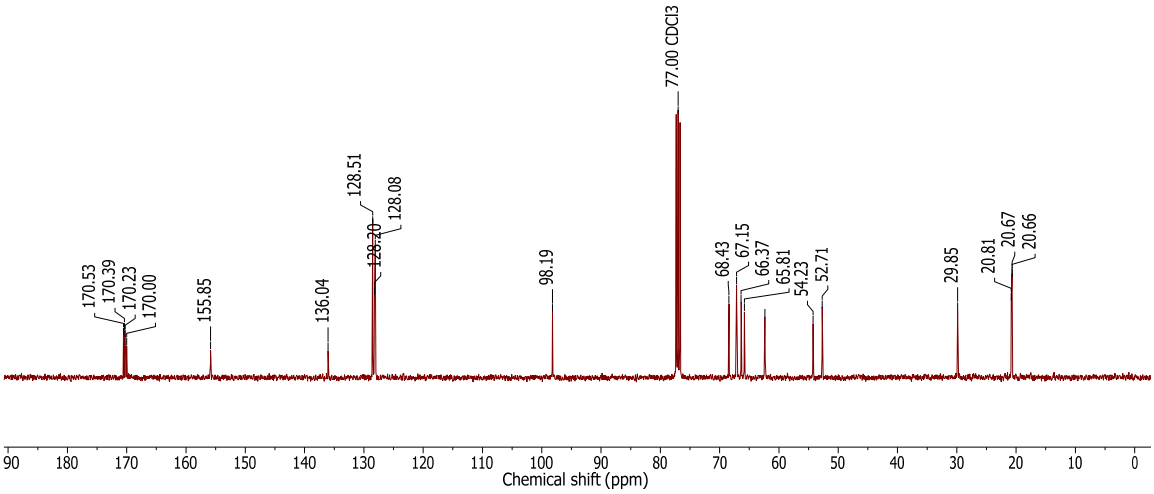
DEPT NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **11b**



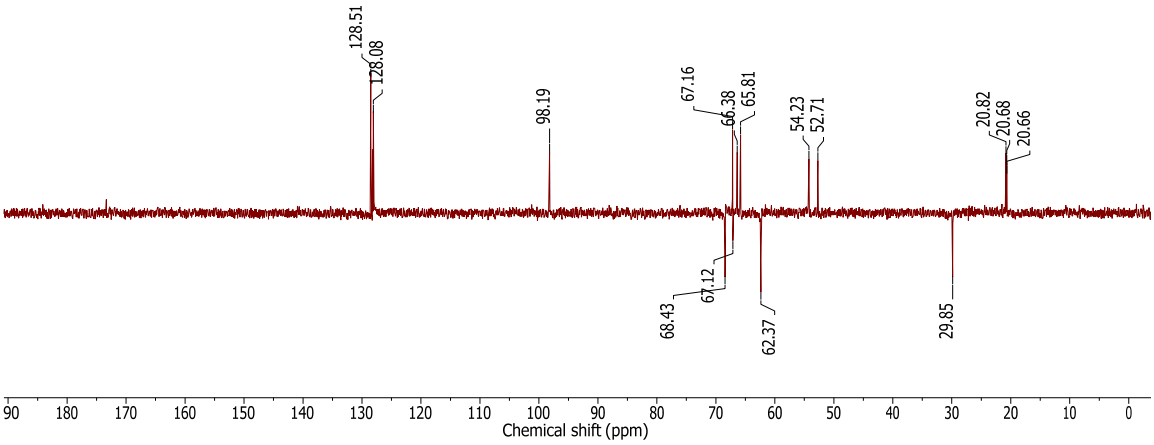
^{1}H NMR Spectrum (399.78 MHz, $CDCl_3$) of Compound **12a**



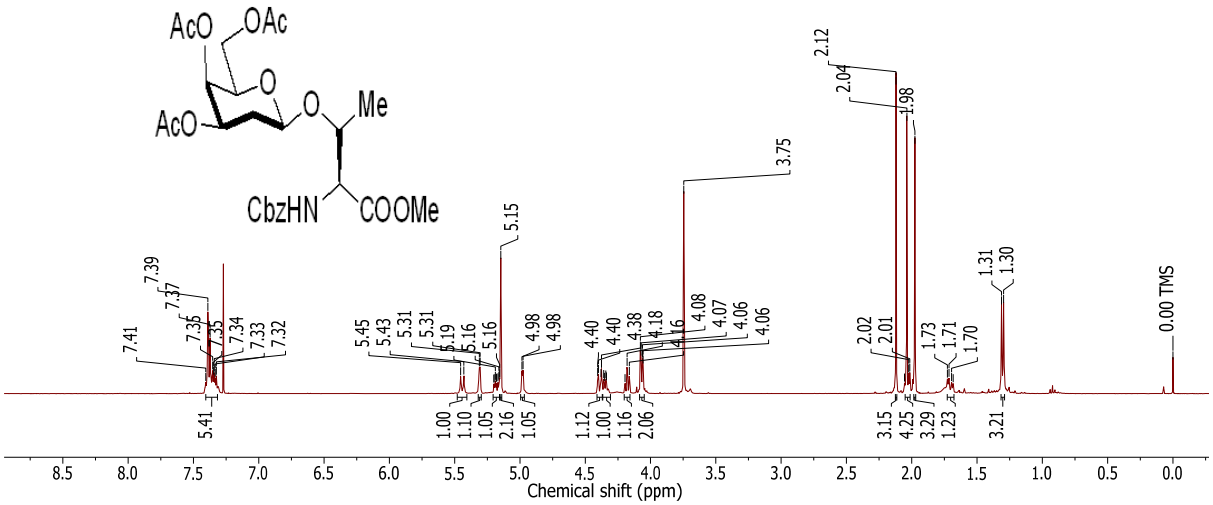
^{13}C NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **12a**



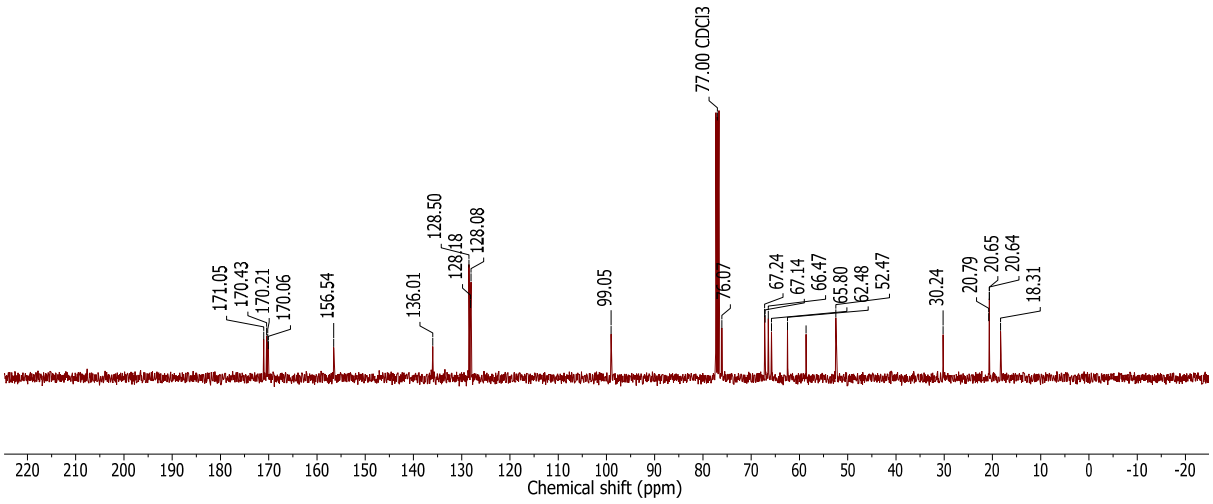
DEPT NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **12a**



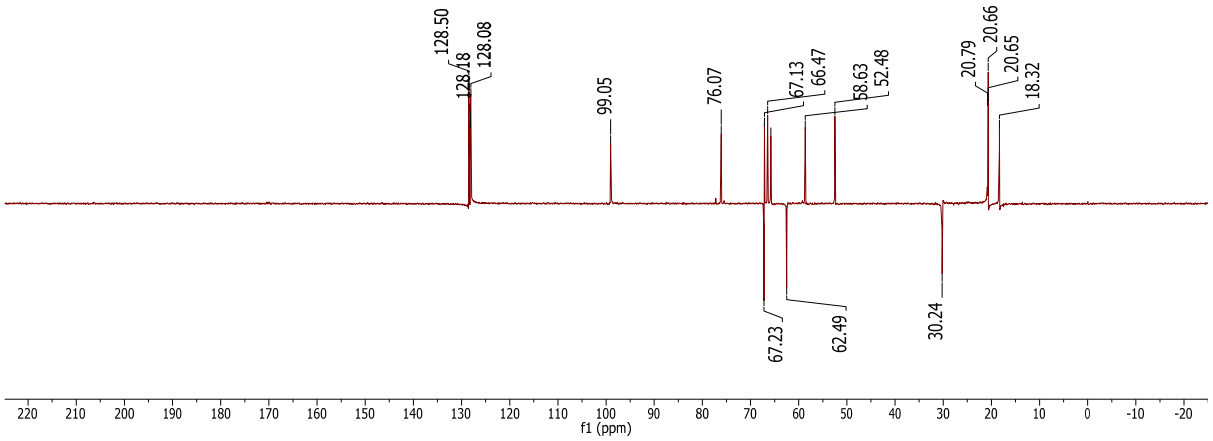
^{1}H NMR Spectrum (399.78 MHz, $CDCl_3$) of Compound **12b**



^{13}C NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **12b**



DEPT NMR Spectrum (100.53 MHz, $CDCl_3$) of Compound **12b**



Single Crystal Structure Determination

Single-crystal data was collected on a four-circle diffractometer equipped with a Cu Kα radiation (1.5418 Å). The incident X-ray beam was focused and monochromated using Microfocus (mirrors). Crystal of Compound **6e** was mounted on nylon cryo loops with Paratone-*N* oil. Data was integrated using SAINT software and was corrected for absorption using SADABS. Space group determinations and tests for merohedral twinning were carried out using XPREP. Structure was solved by Intrinsic Phasing module of the direct methods and refined using the SHELXTL 97 software suite. Atoms were located from iterative examination of difference F-maps following which the structure was refined using least-squares method. Hydrogen atoms were placed in a riding mode. Data was collected at 173(2) K for the Compound **6e**. The structure was examined using the ADDSYM subroutine of PLATON to assure that no additional symmetry could be applied to the models. All ellipsoids in ORTEP diagrams are displayed at the 50% probability level.

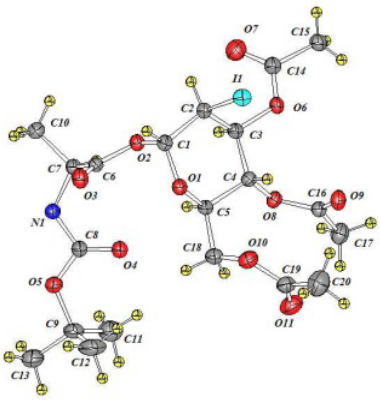


Figure 1. ORTEP diagram of compound **6e** (CCDC 978459)

FE-SEM Images of Glucal/KI/PhI$(OAc)_2$/CTAB/CH_2Cl_2 Reaction Mixture