



Supporting Information

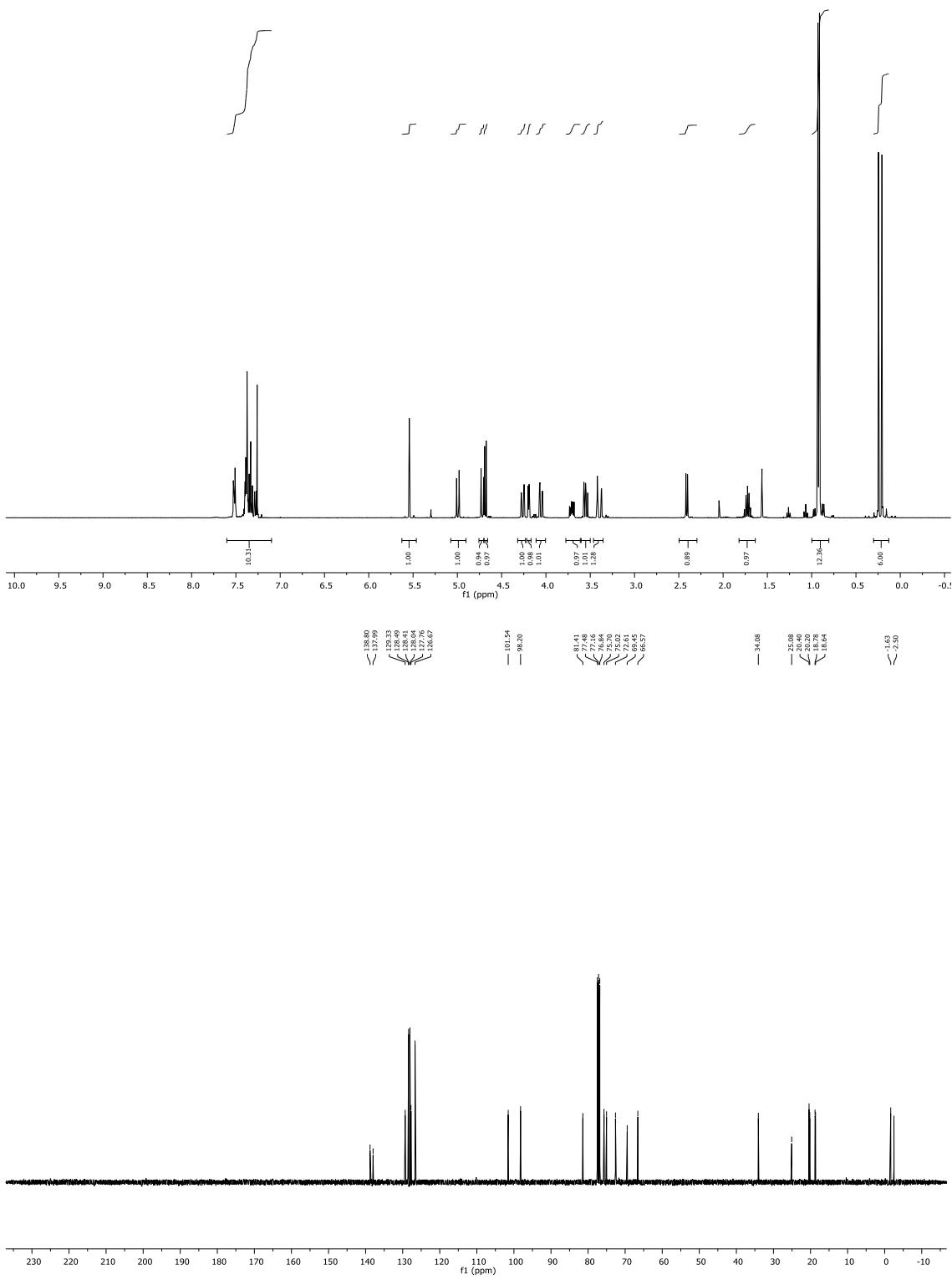
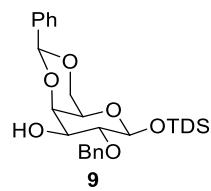
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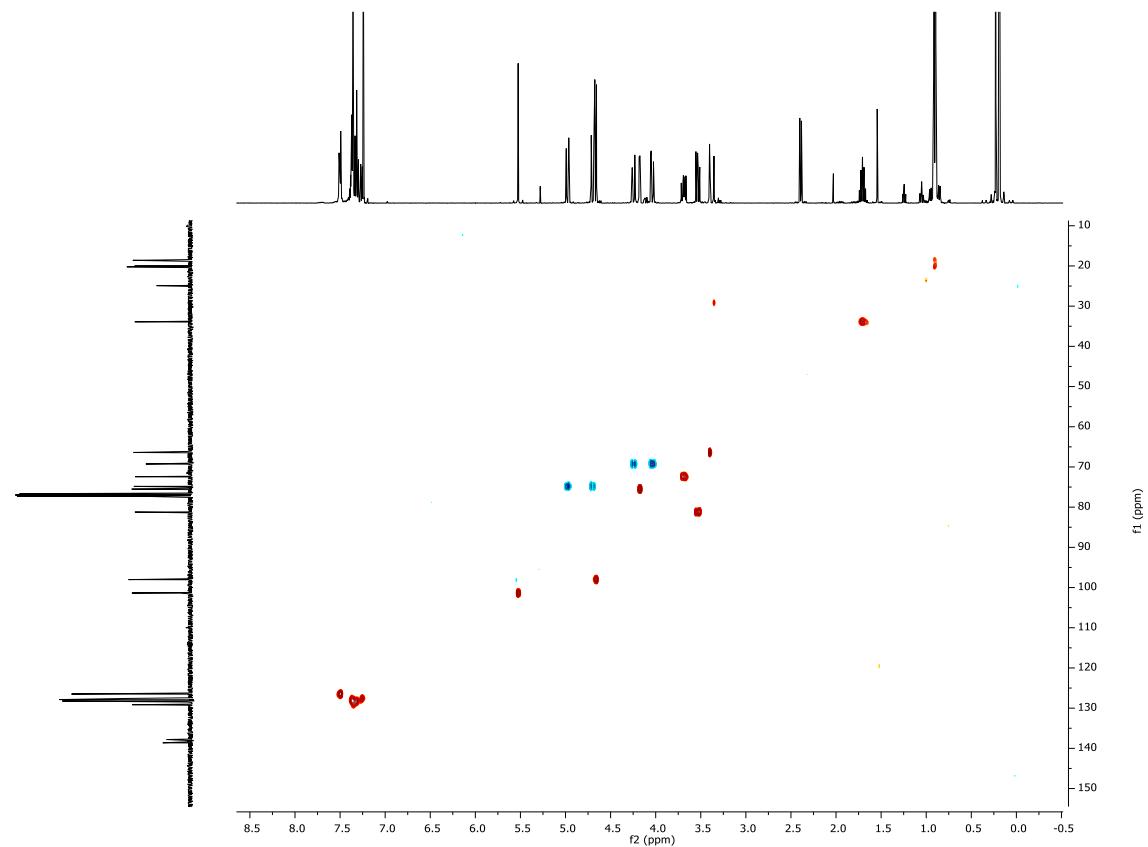
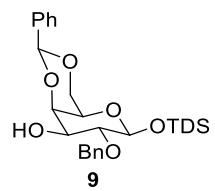
Synthesis of *Streptococcus pneumoniae* serotype 9V oligosaccharide antigens

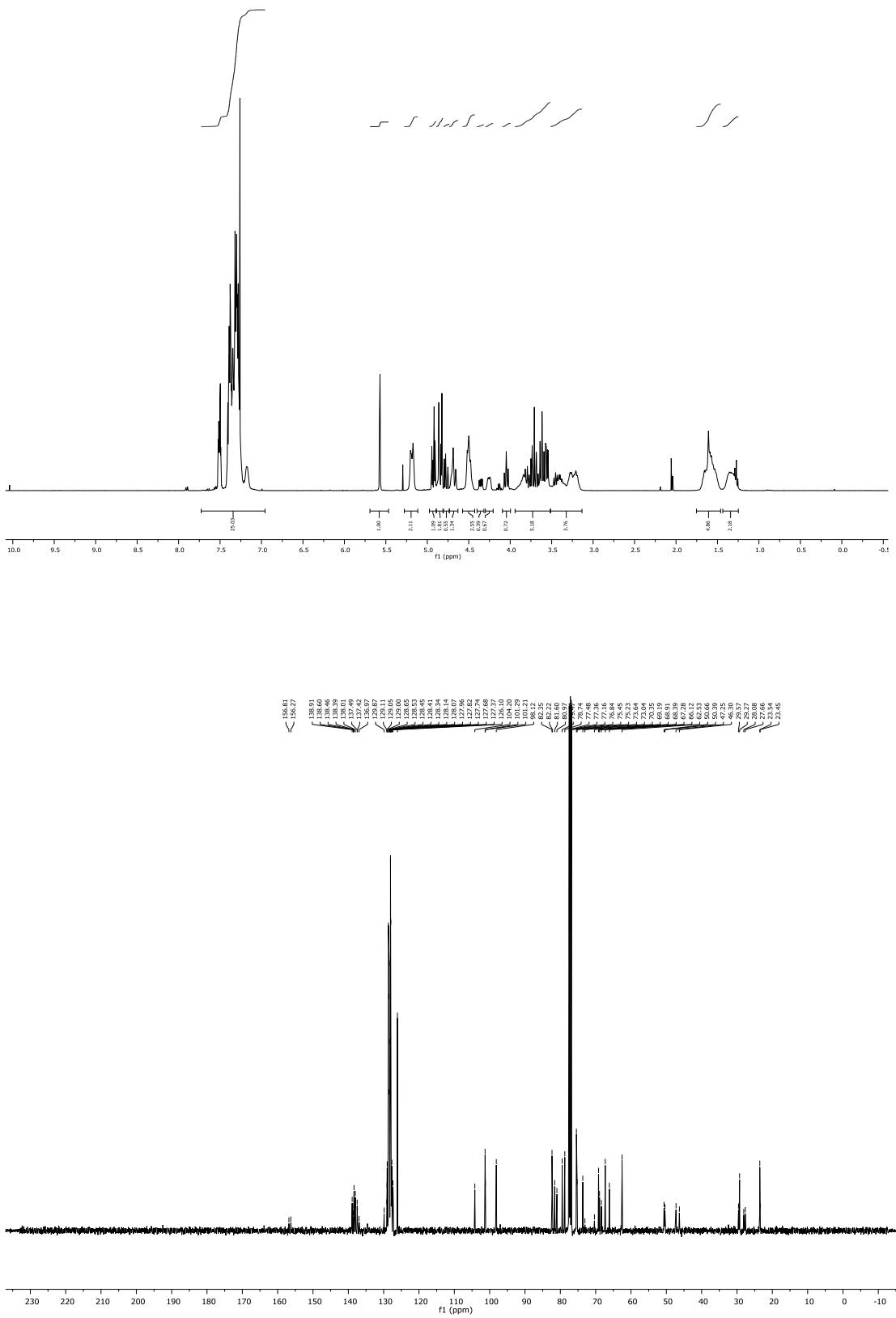
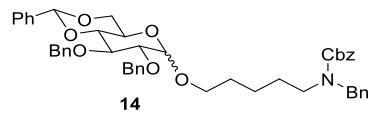
Sharavathi G. Parameswarappa, Claney L. Pereira and Peter H. Seeberger

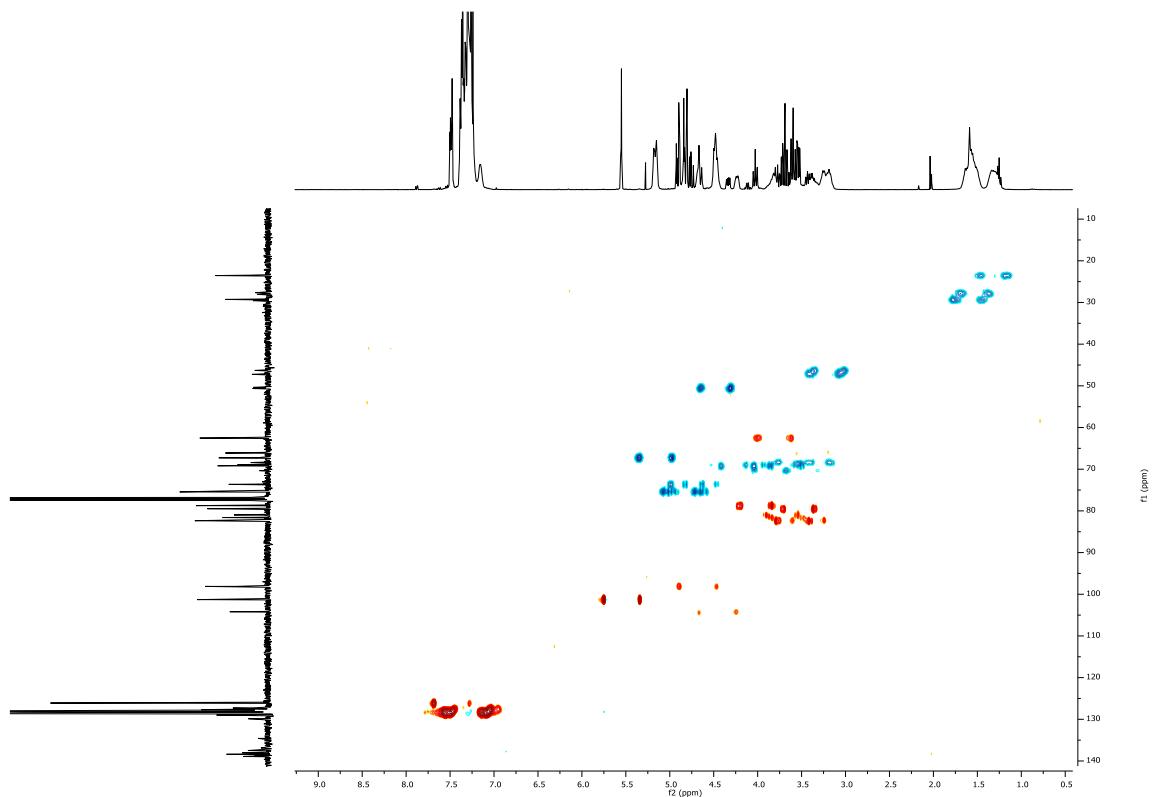
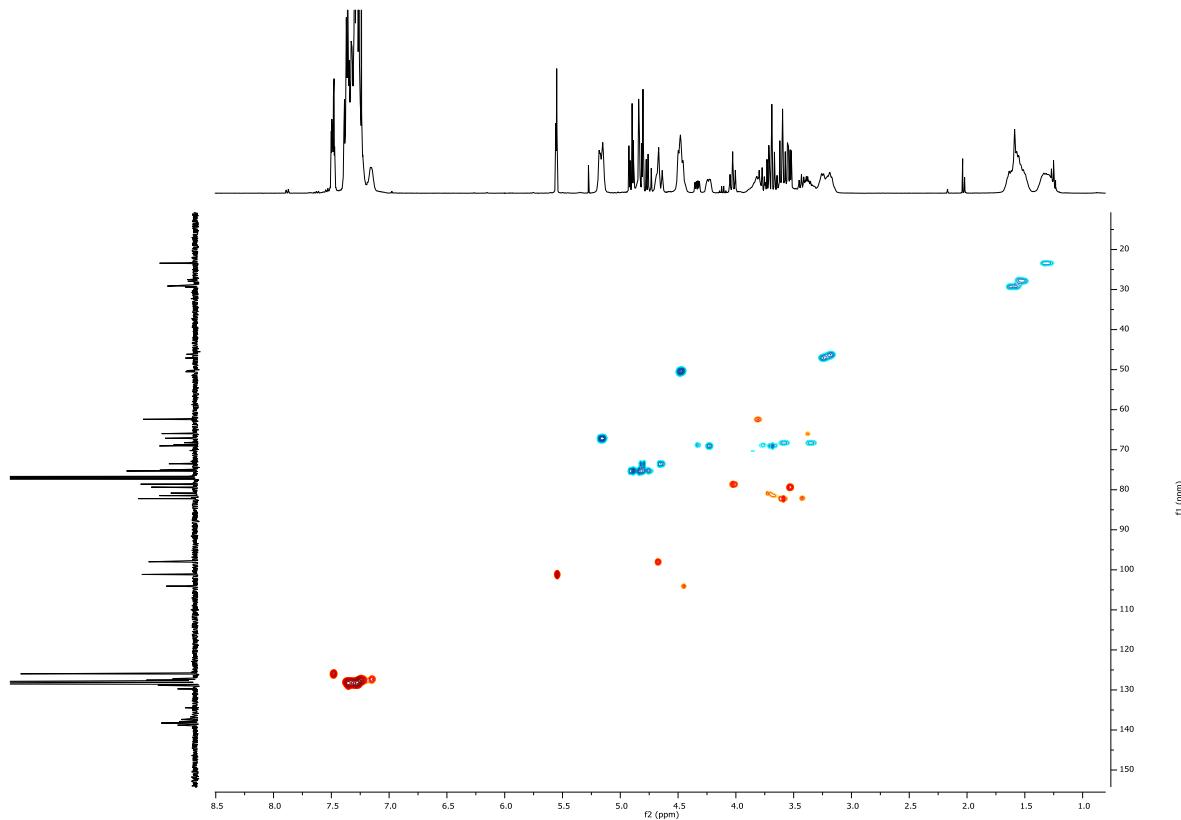
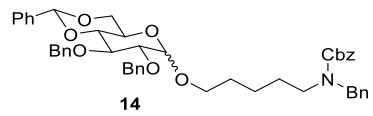
Beilstein J. Org. Chem. **2020**, *16*, 1693–1699. doi:10.3762/bjoc.16.140

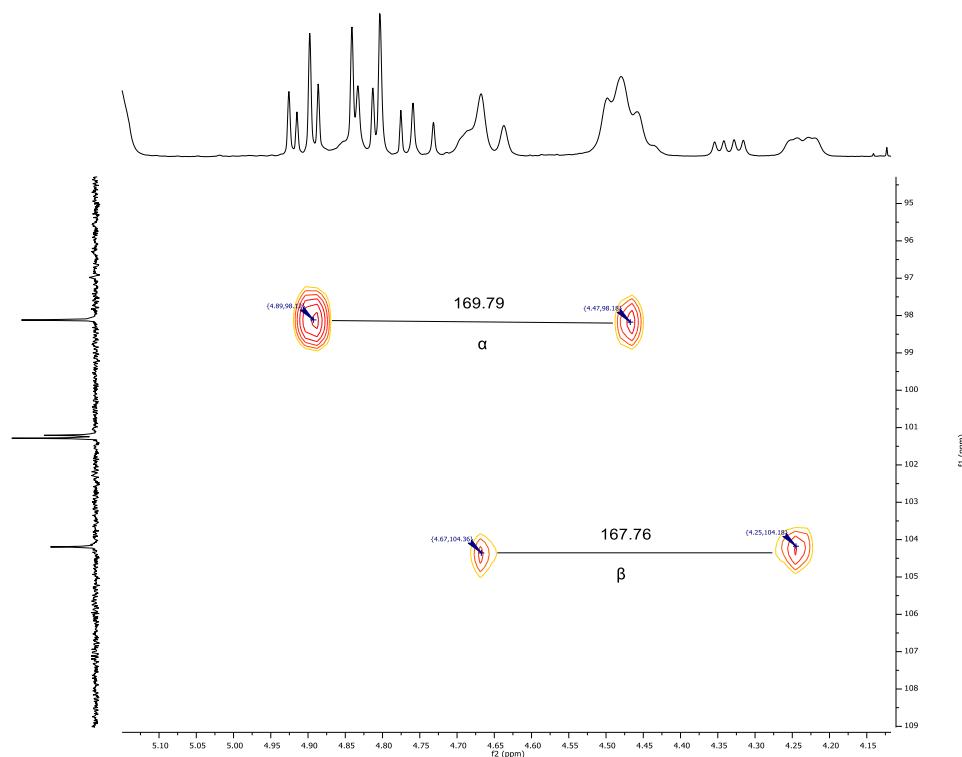
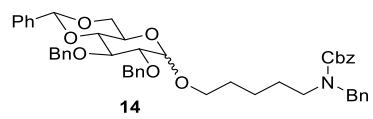
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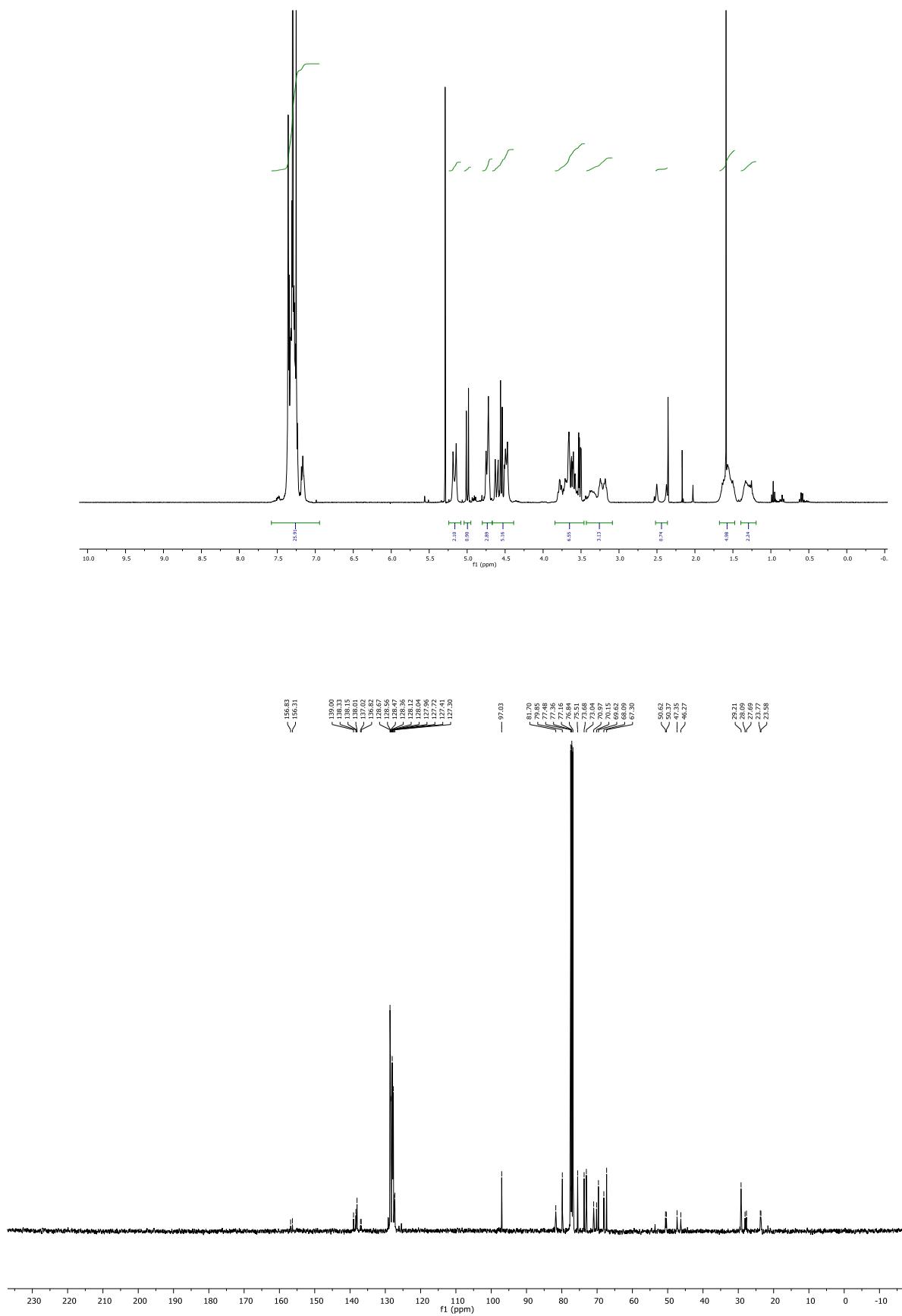
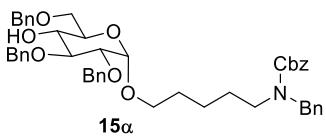


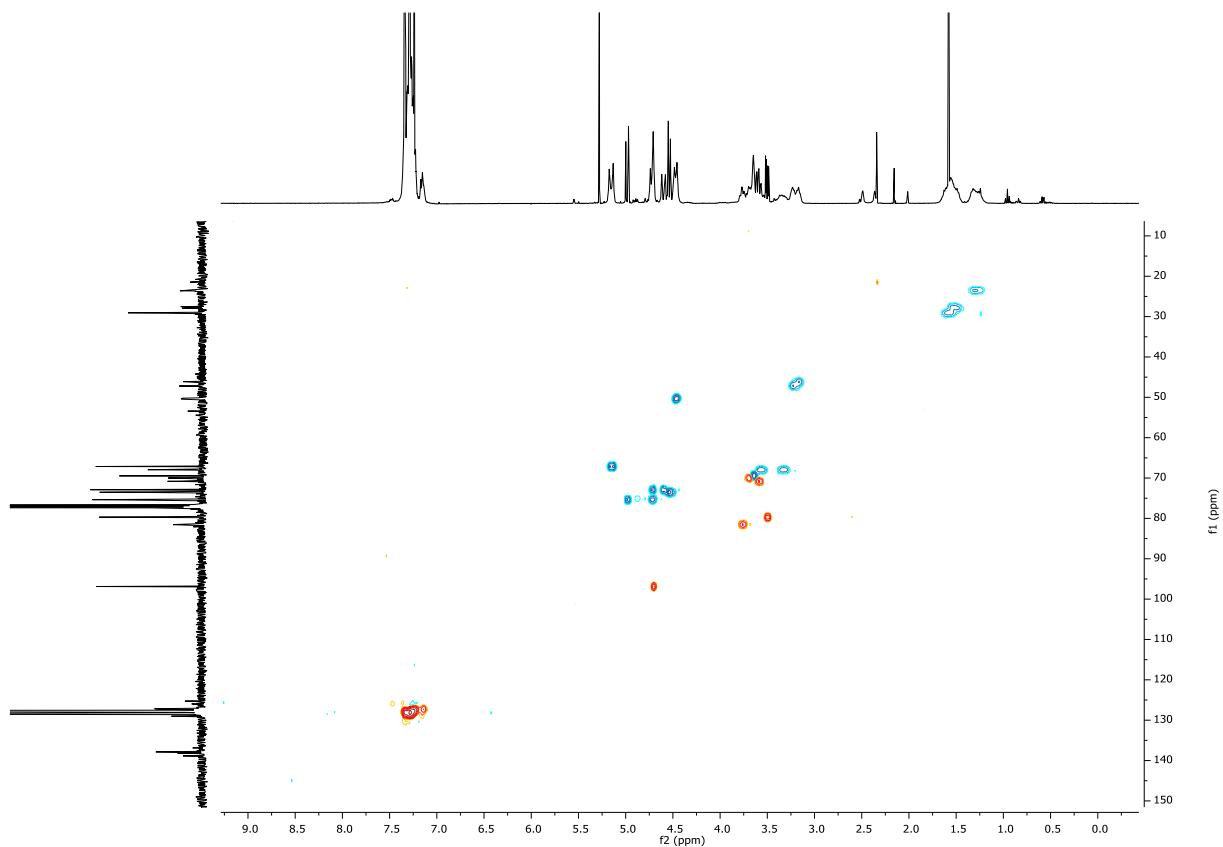
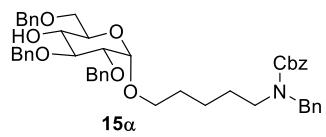


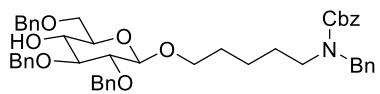




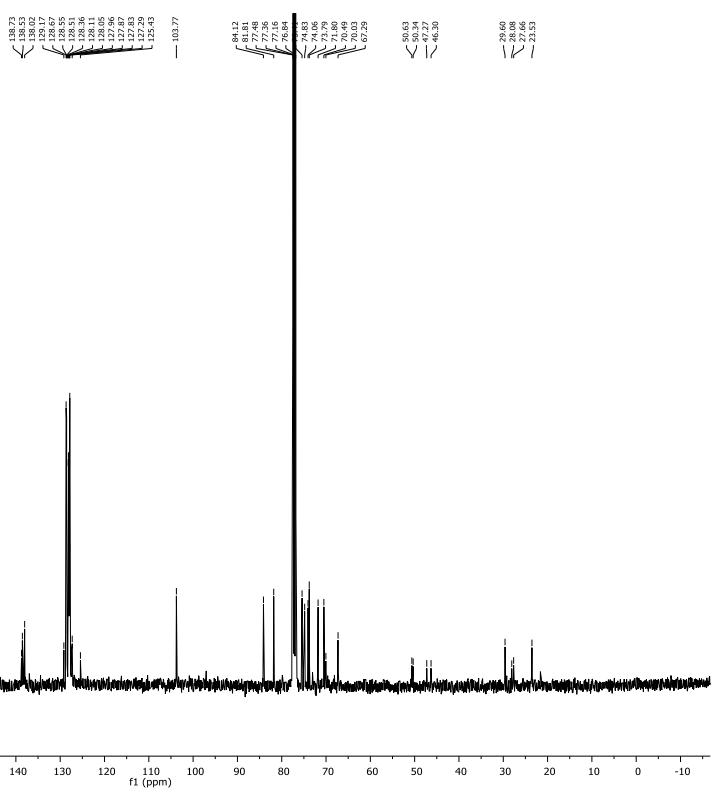
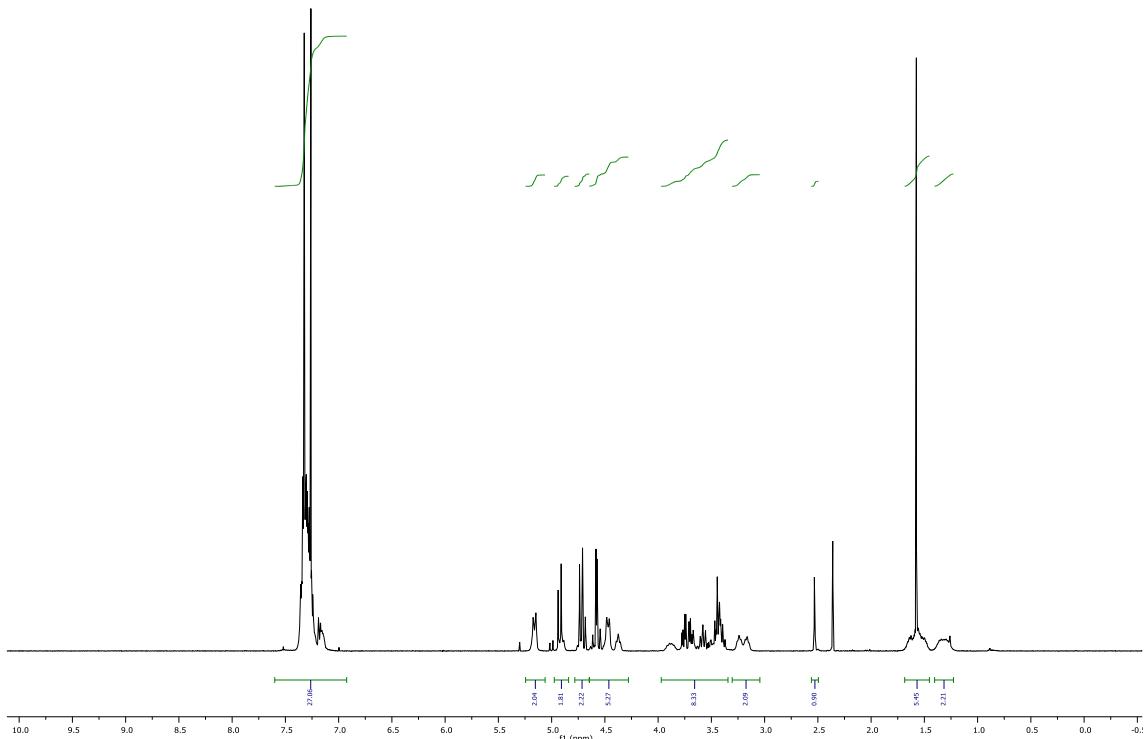


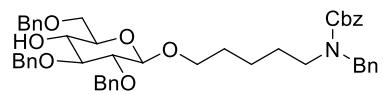




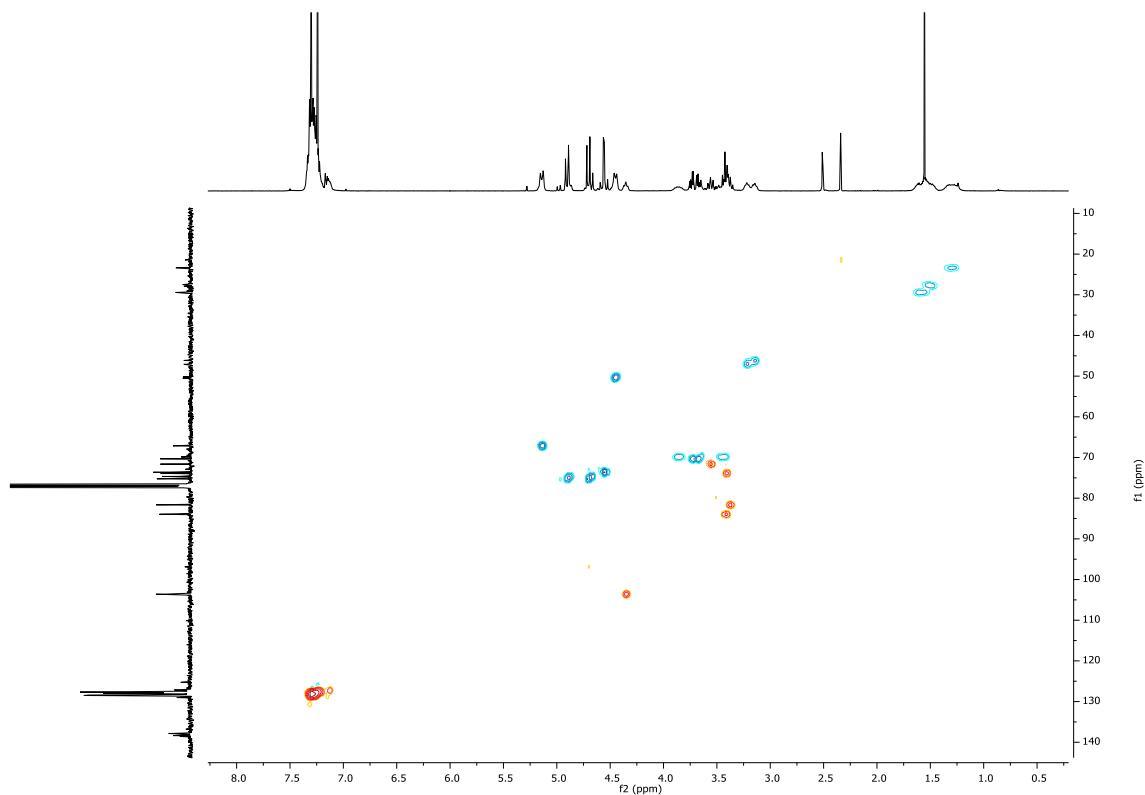


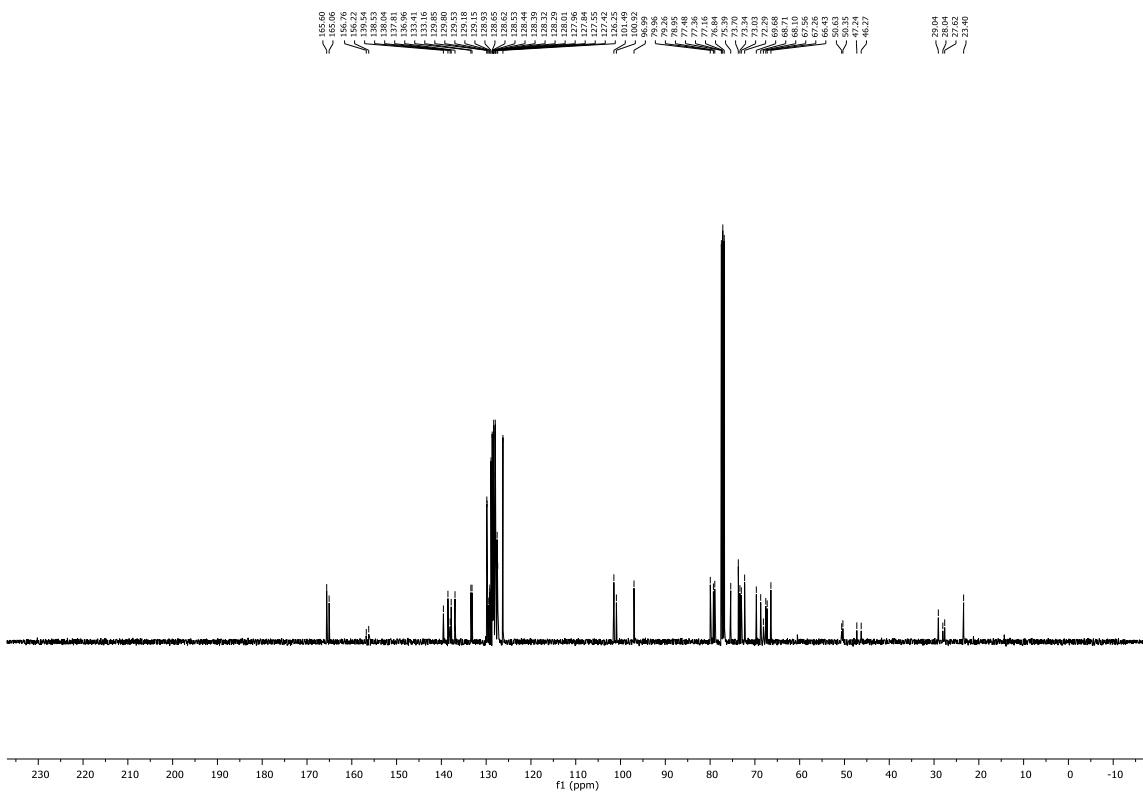
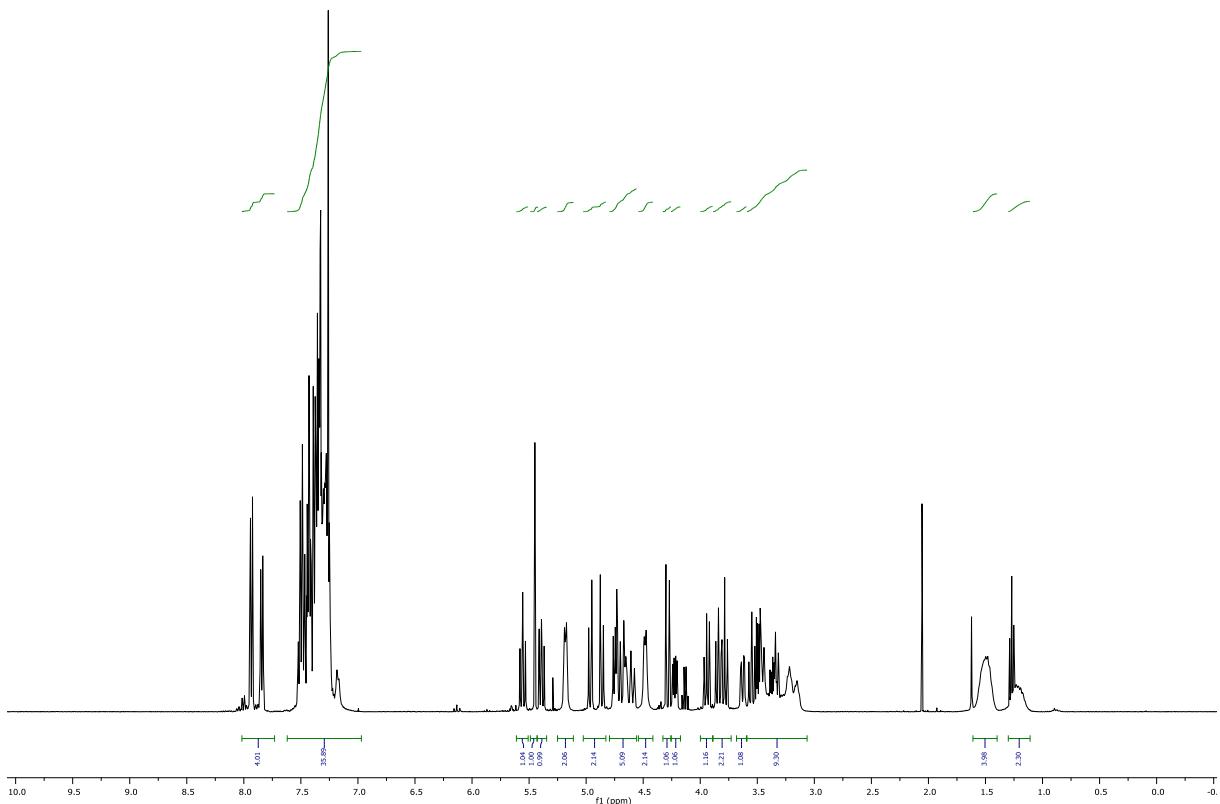
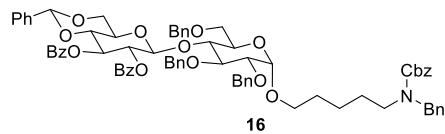
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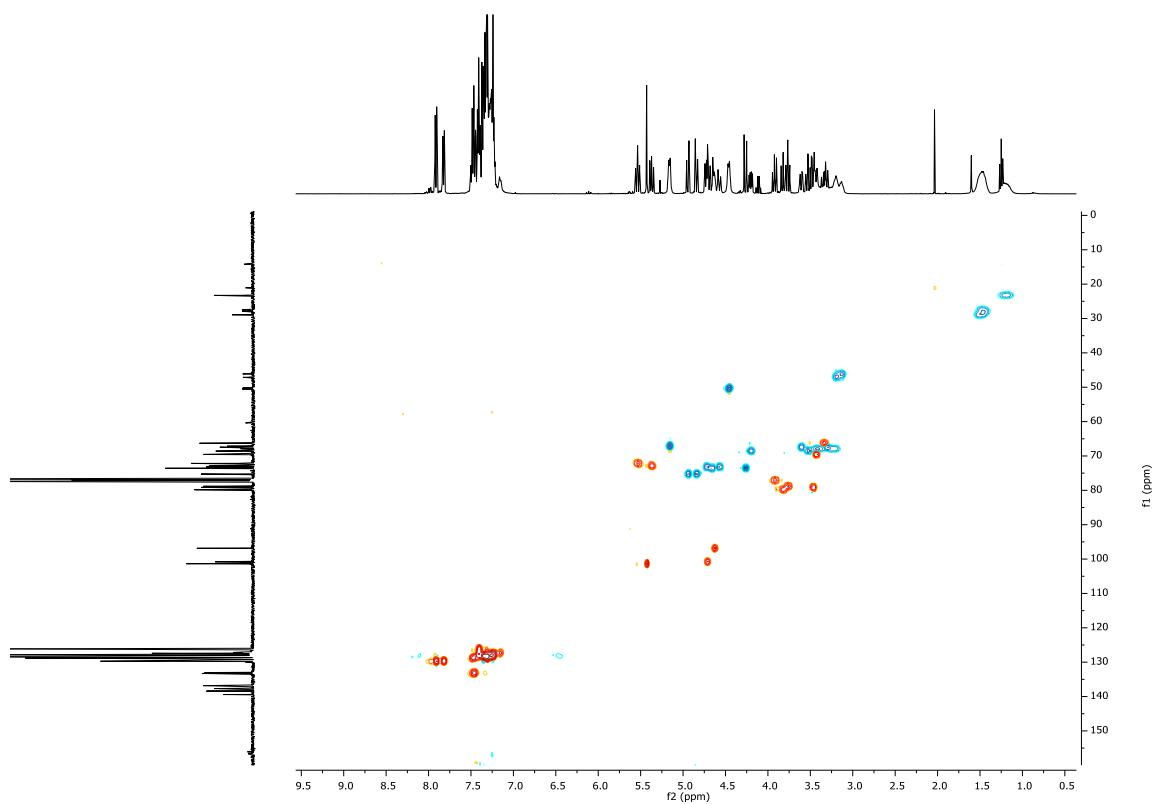
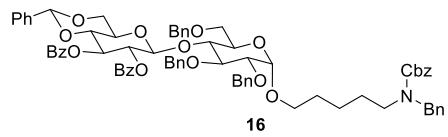


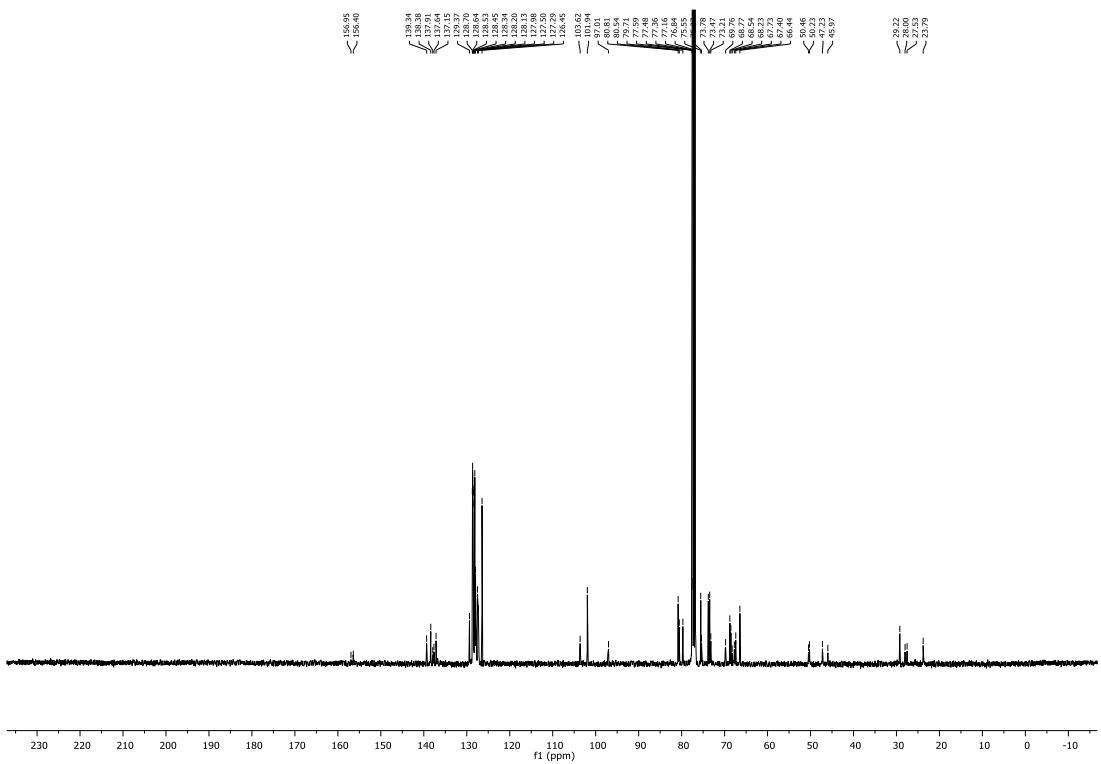
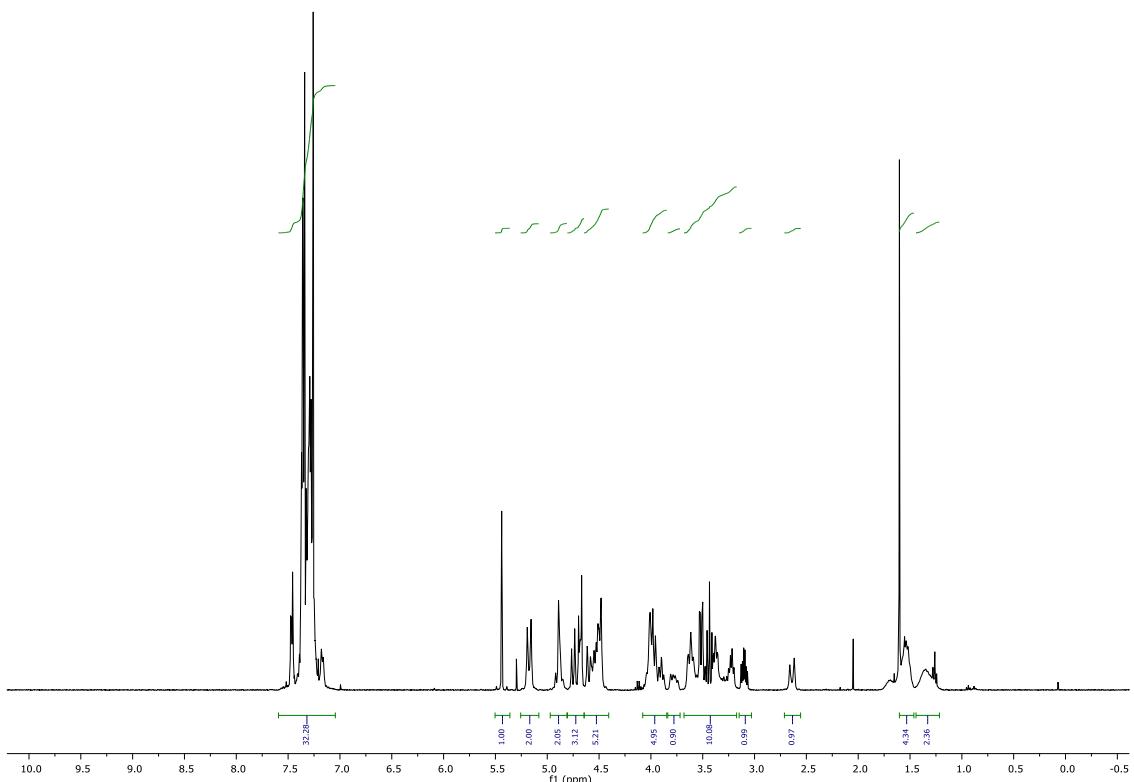
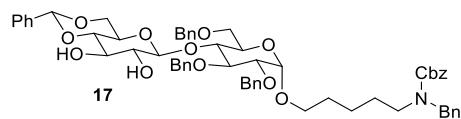


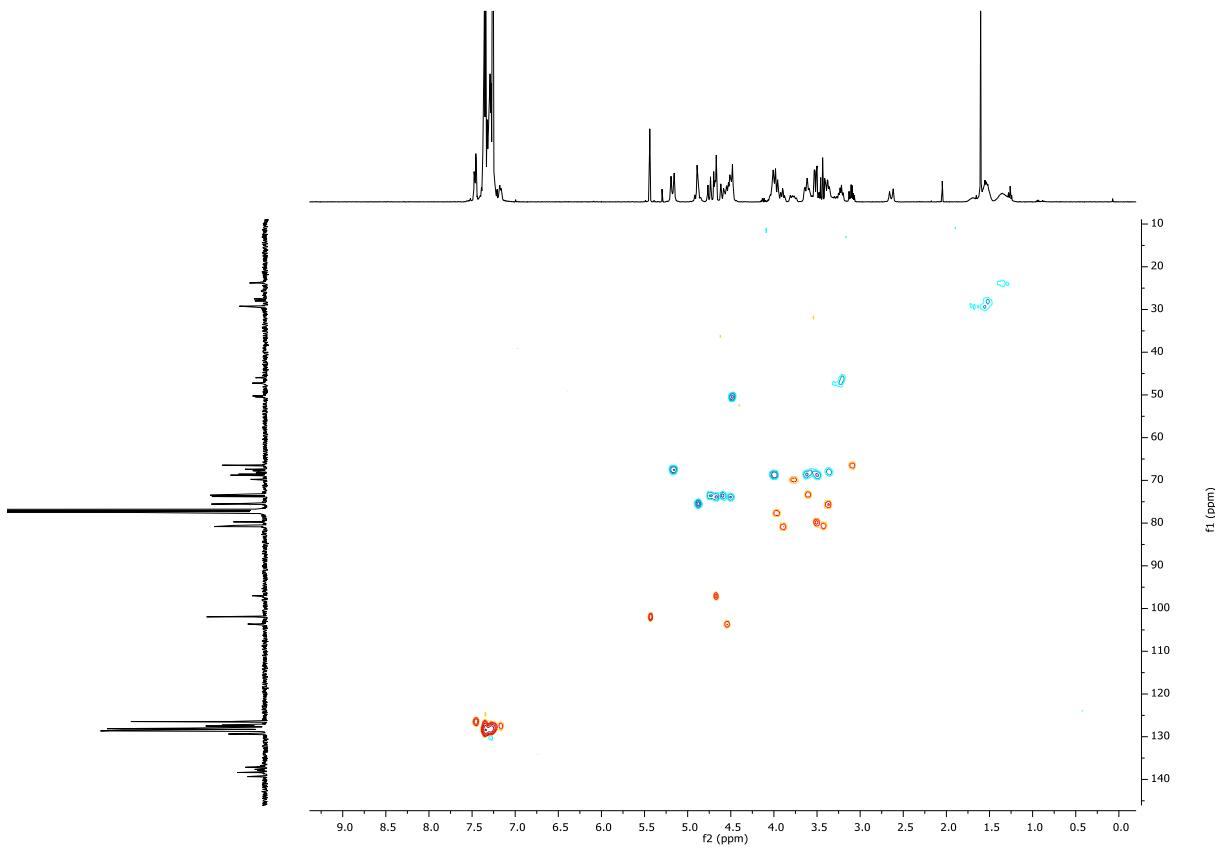
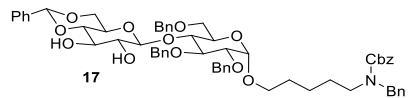
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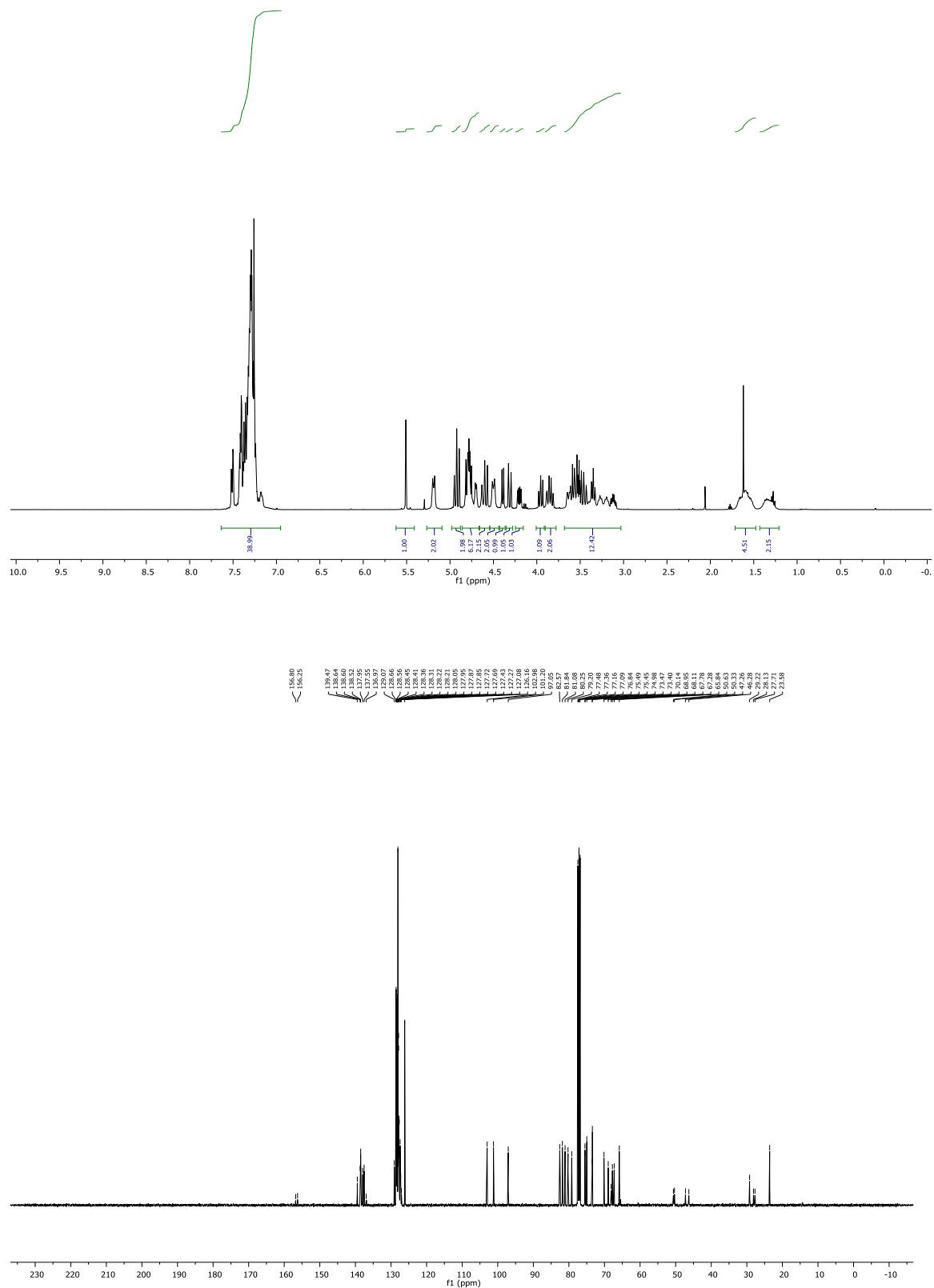
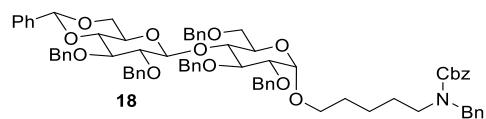


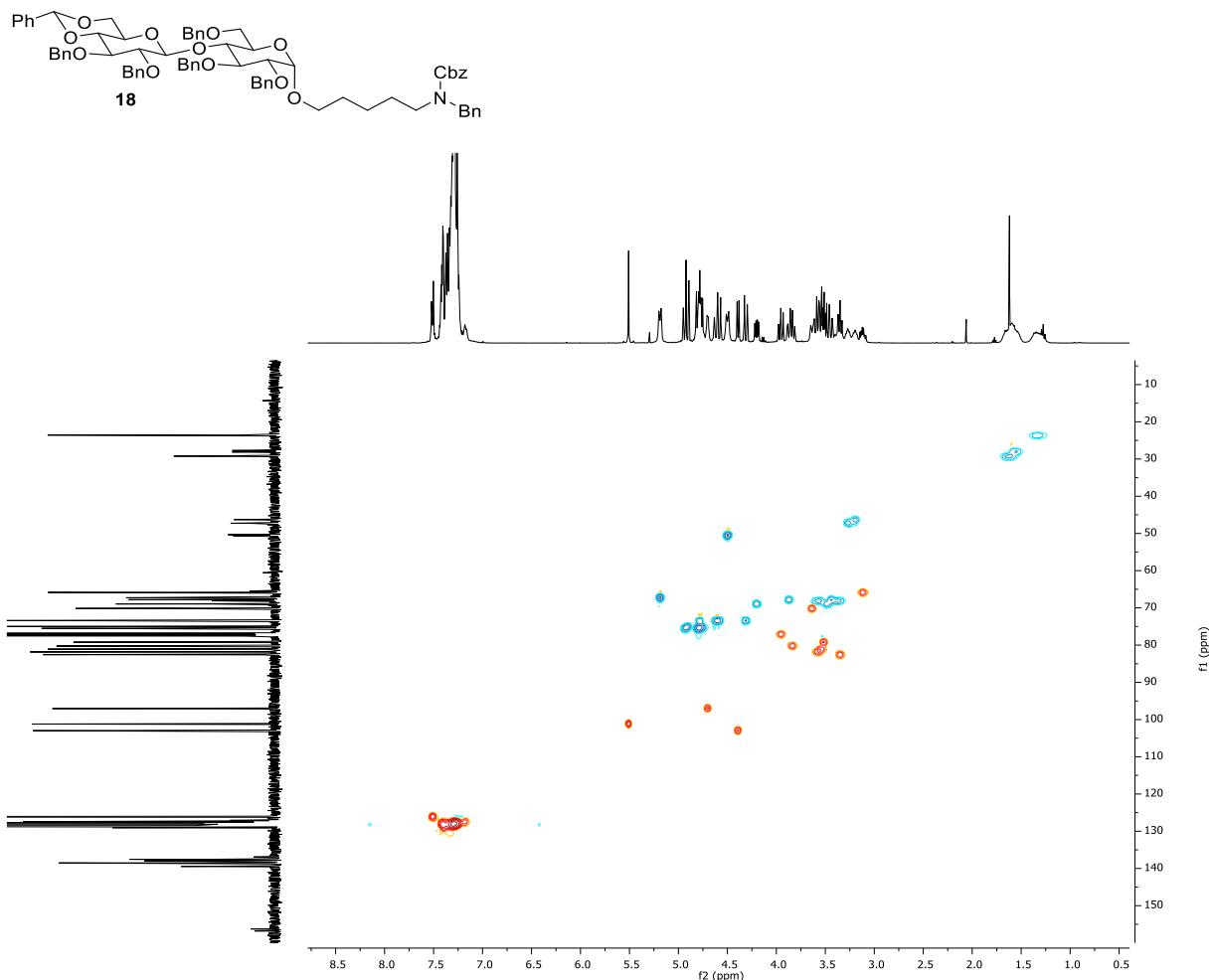


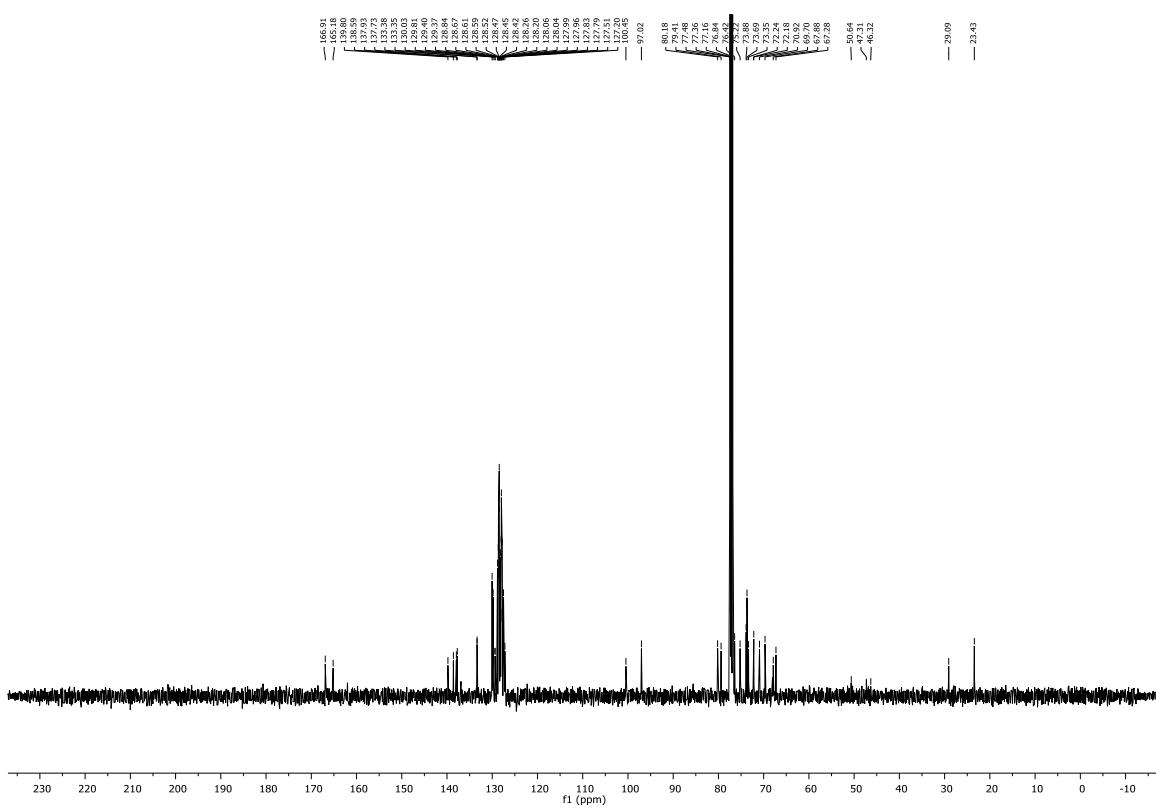
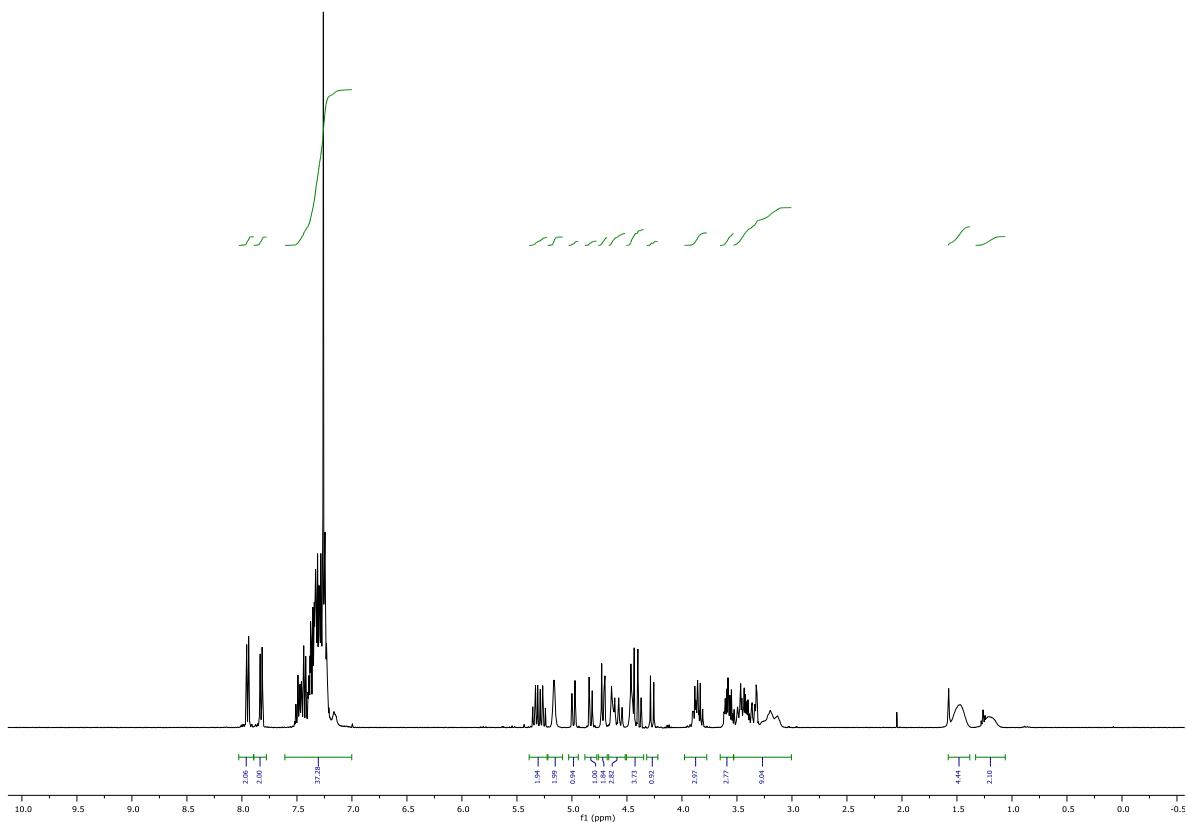
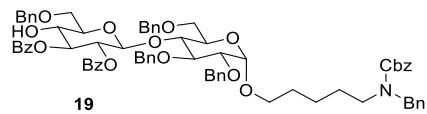


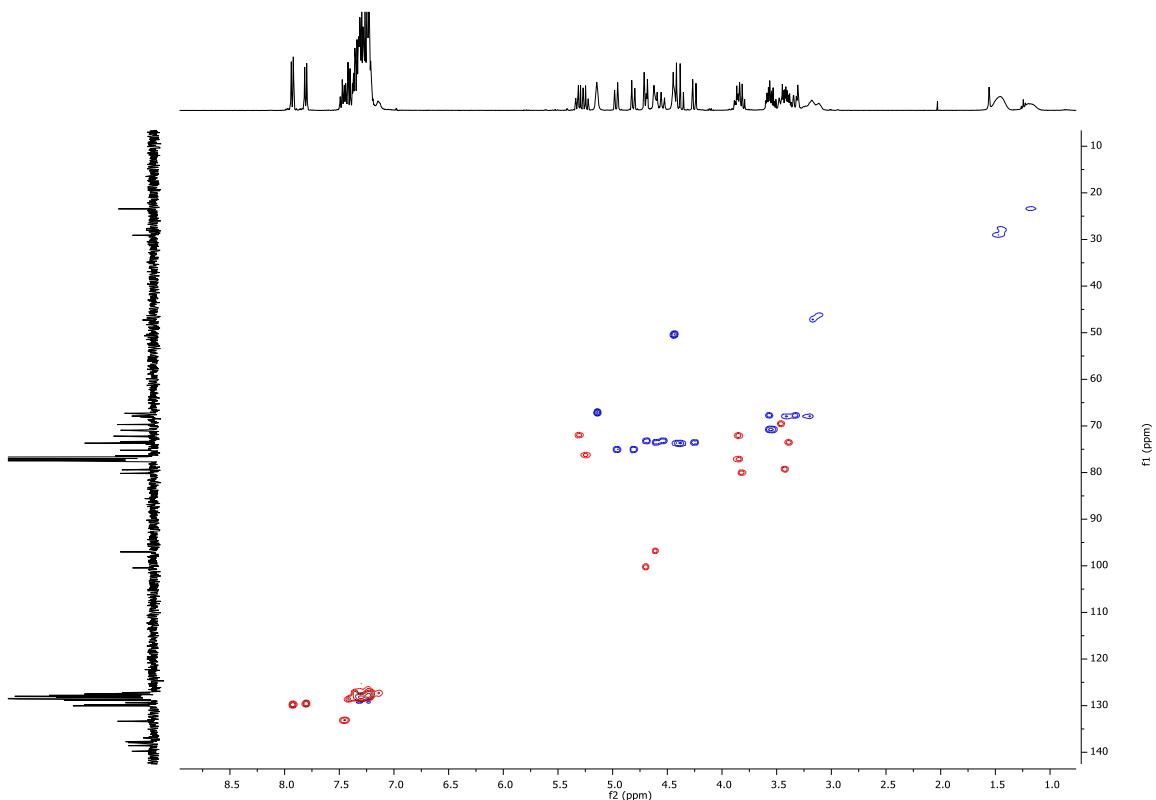
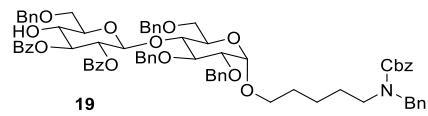


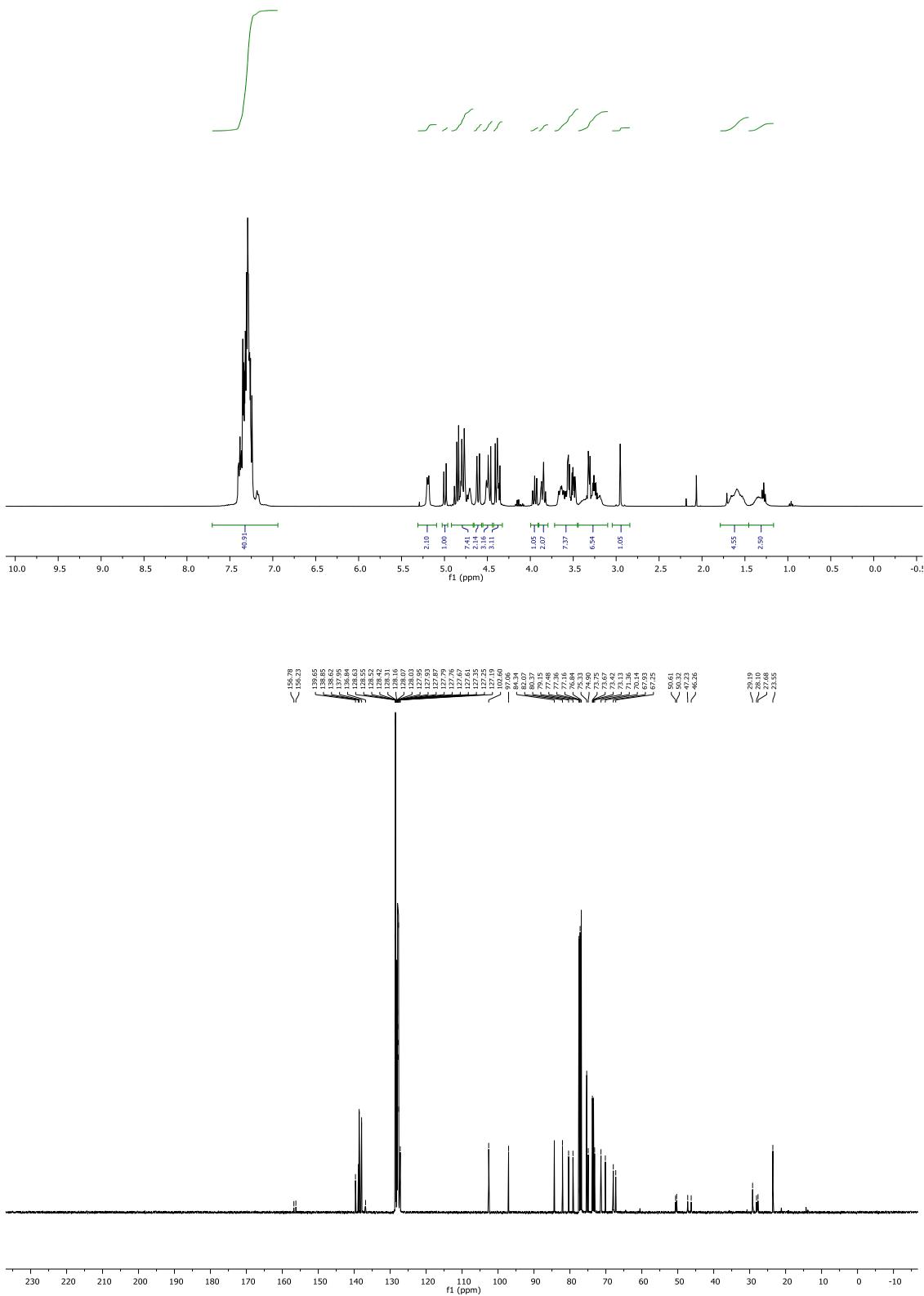
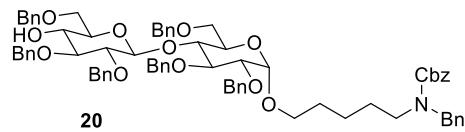


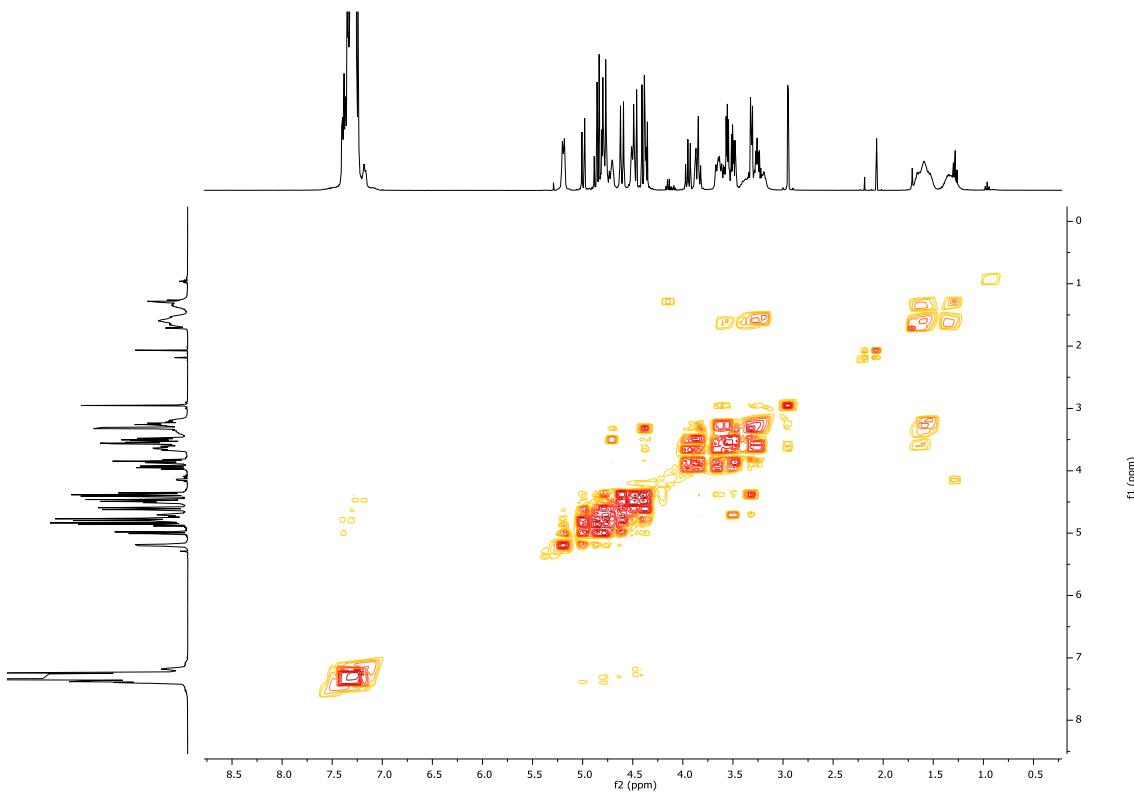
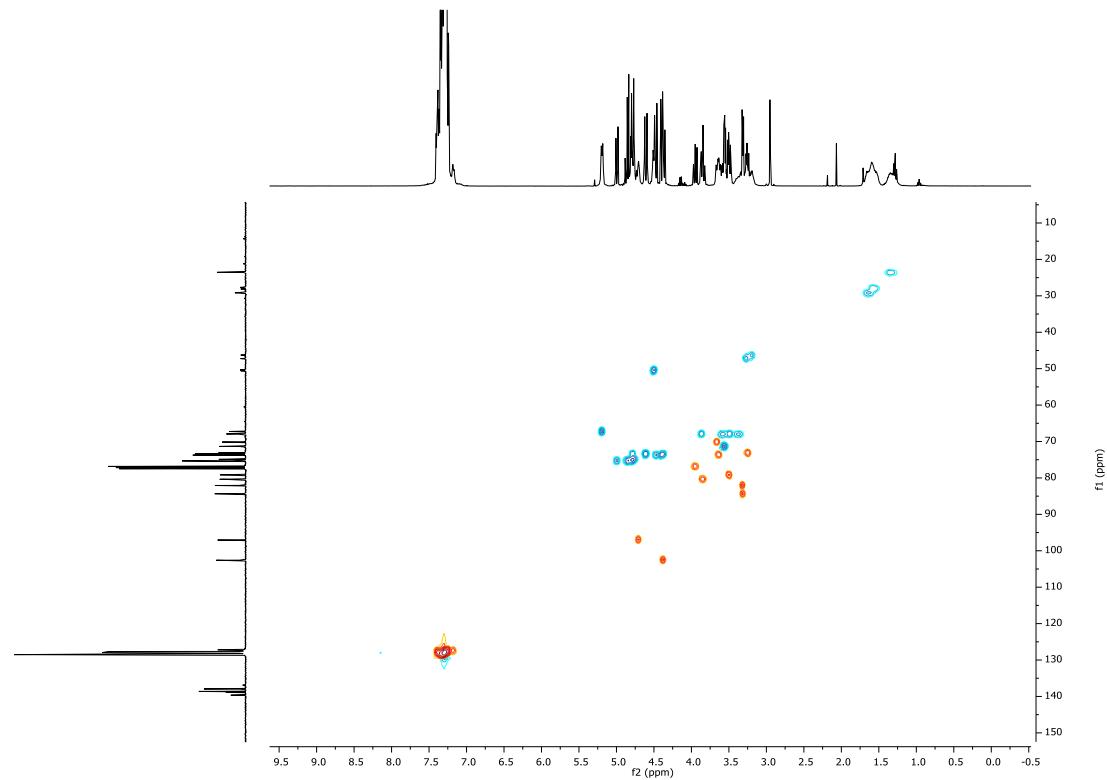
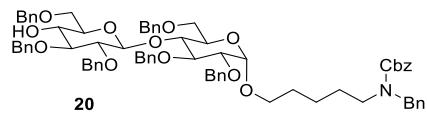


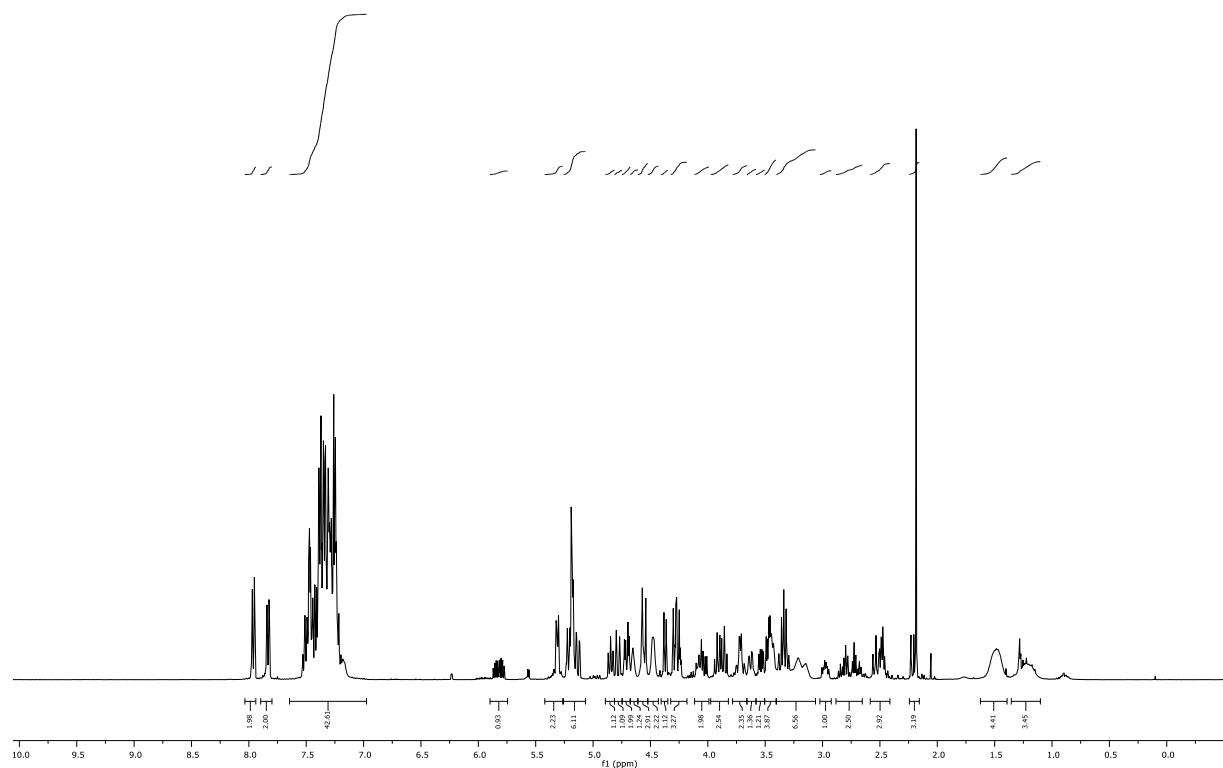
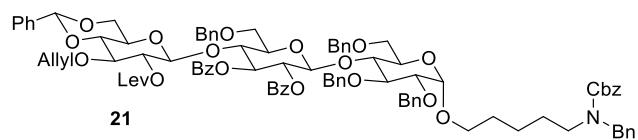


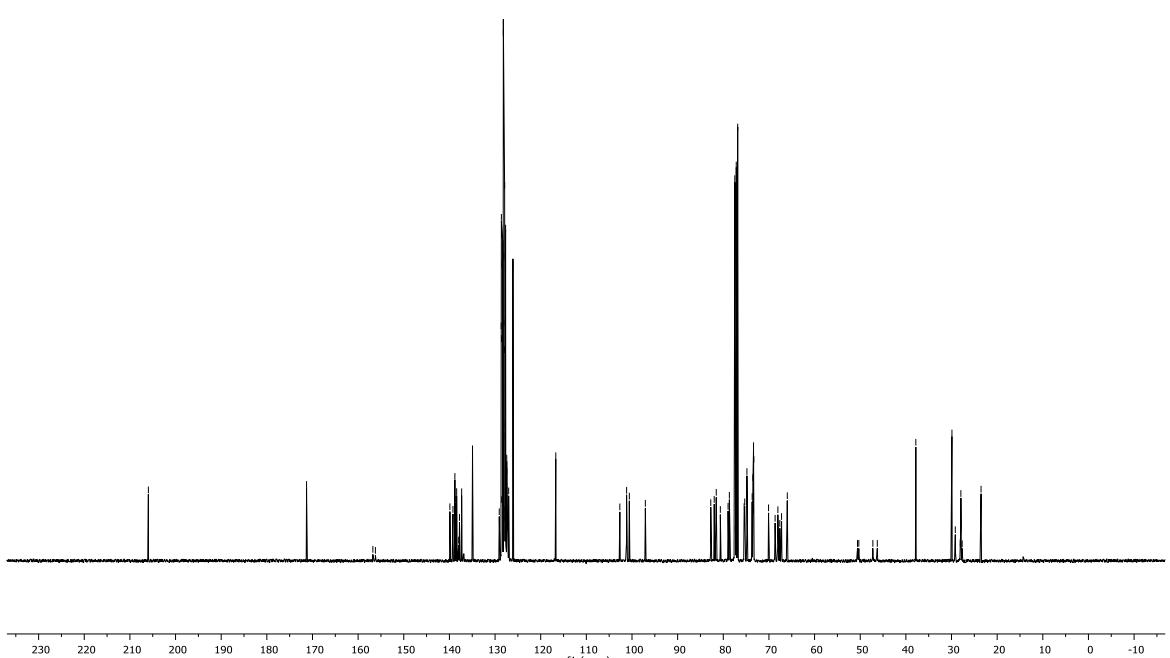
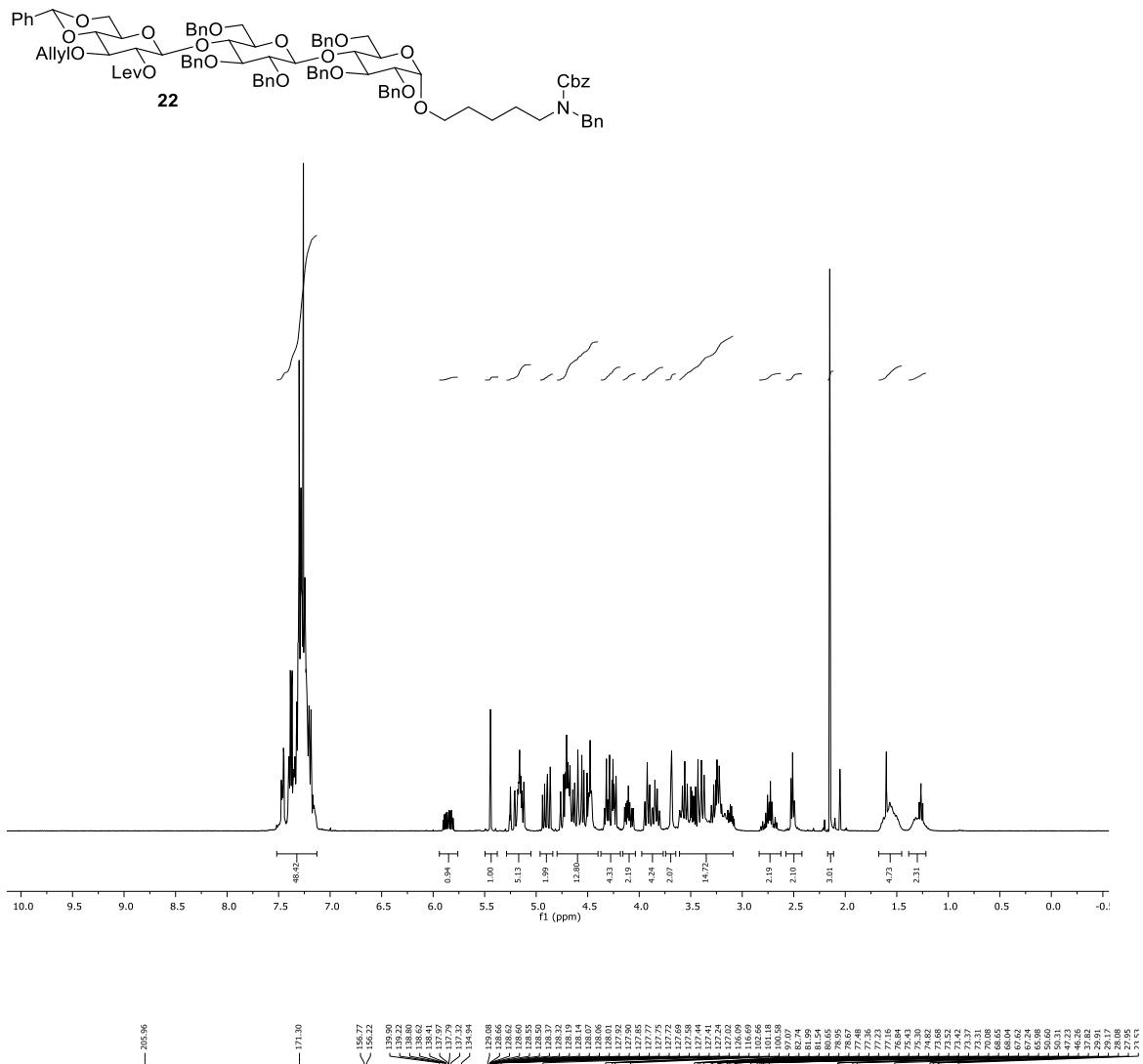


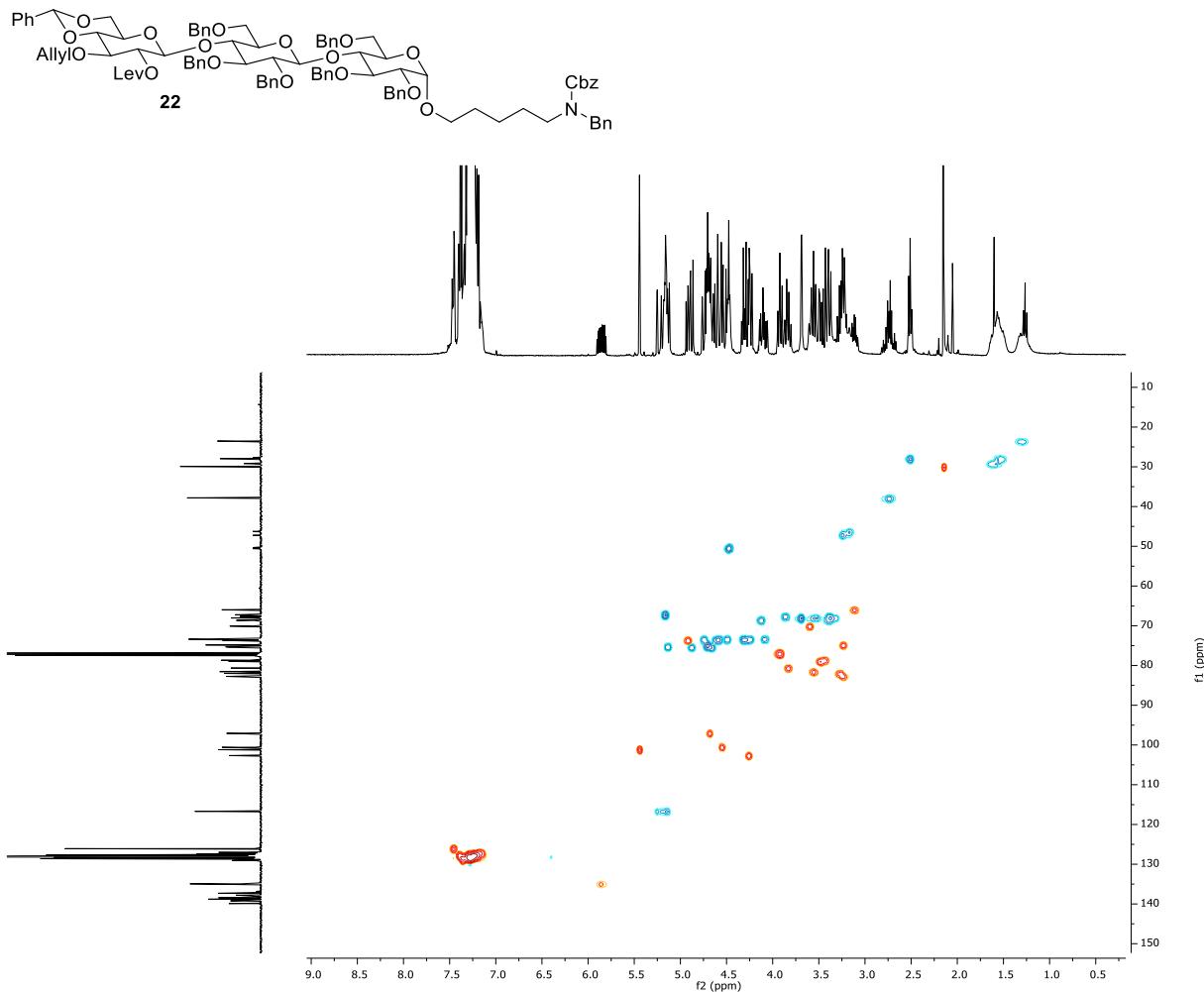


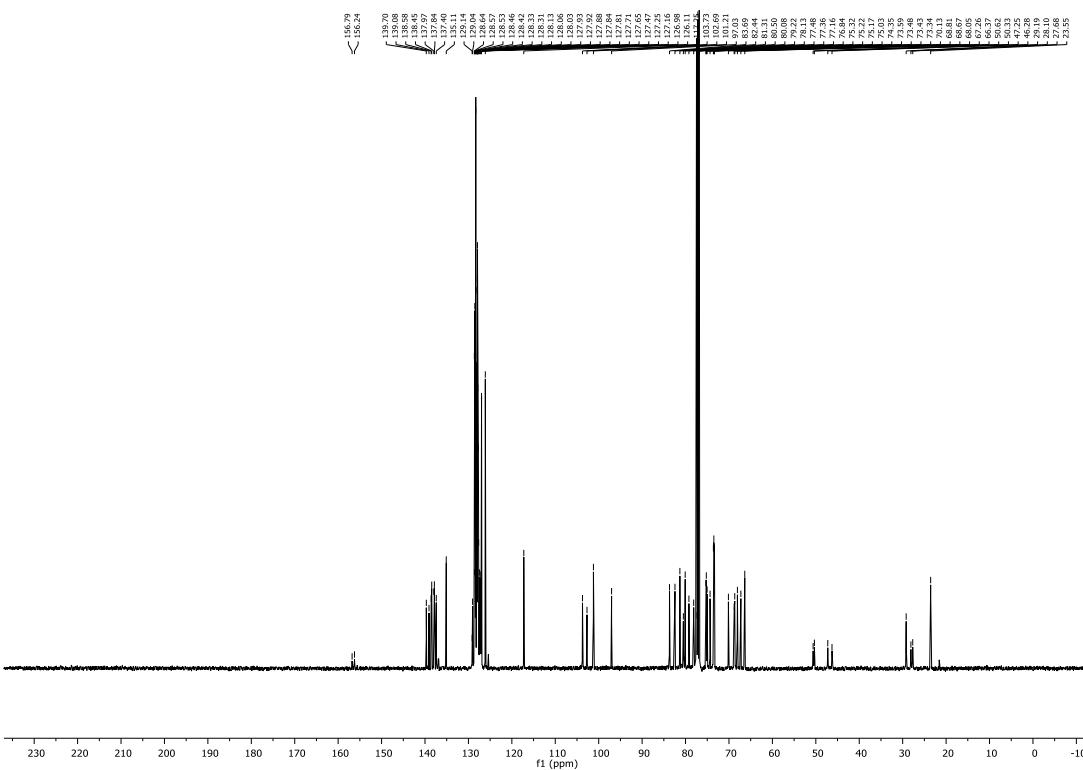
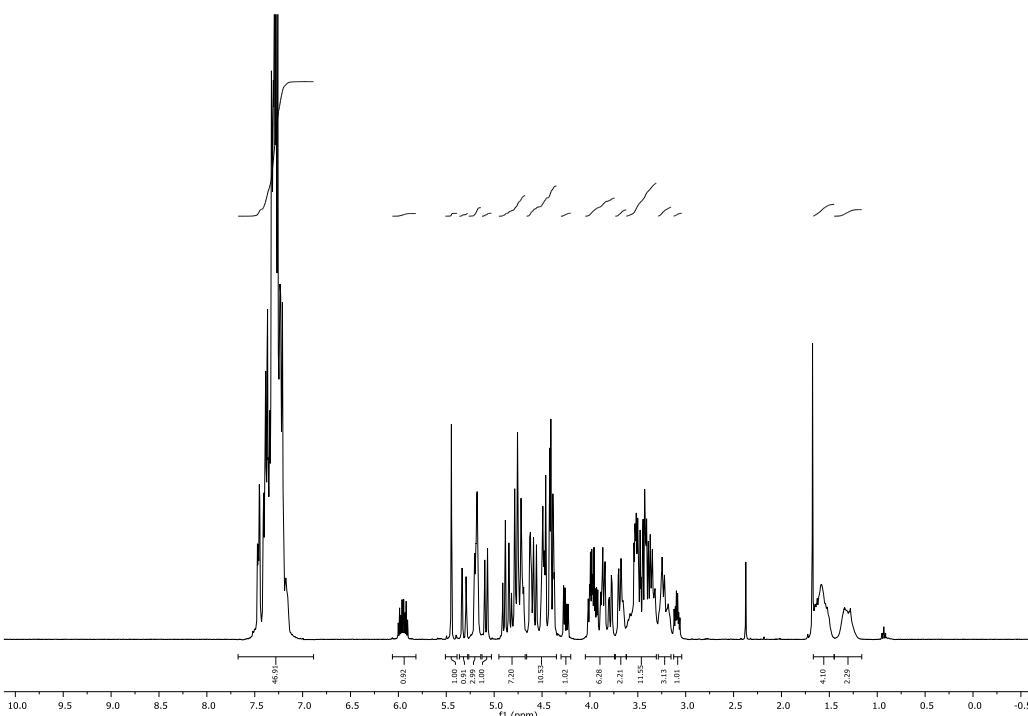
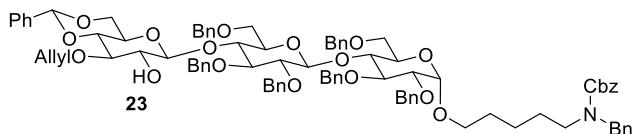


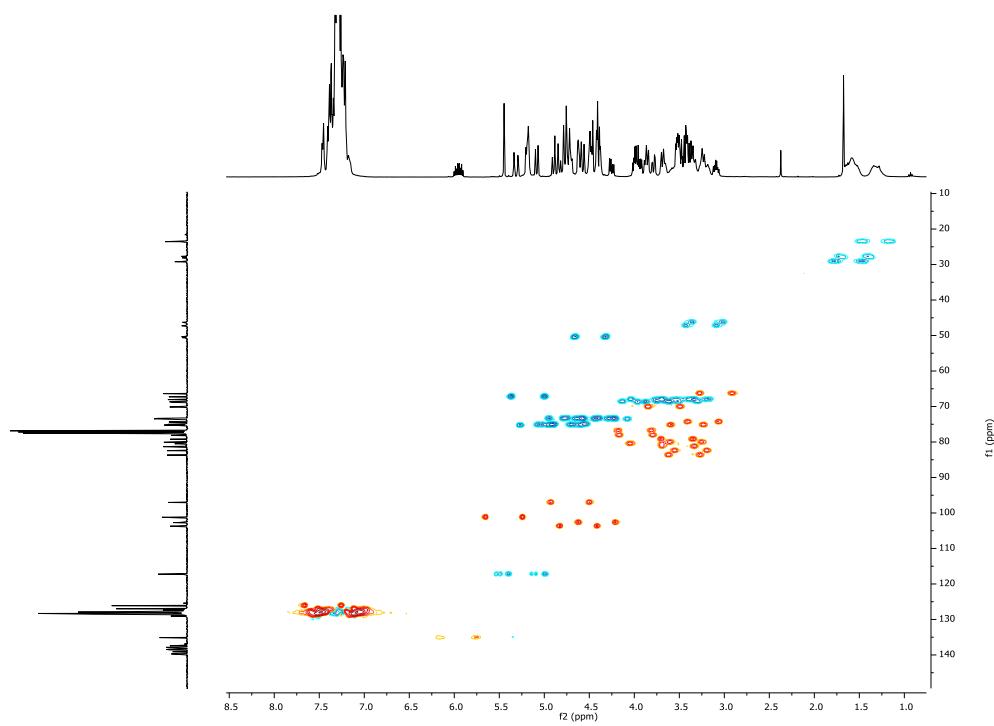
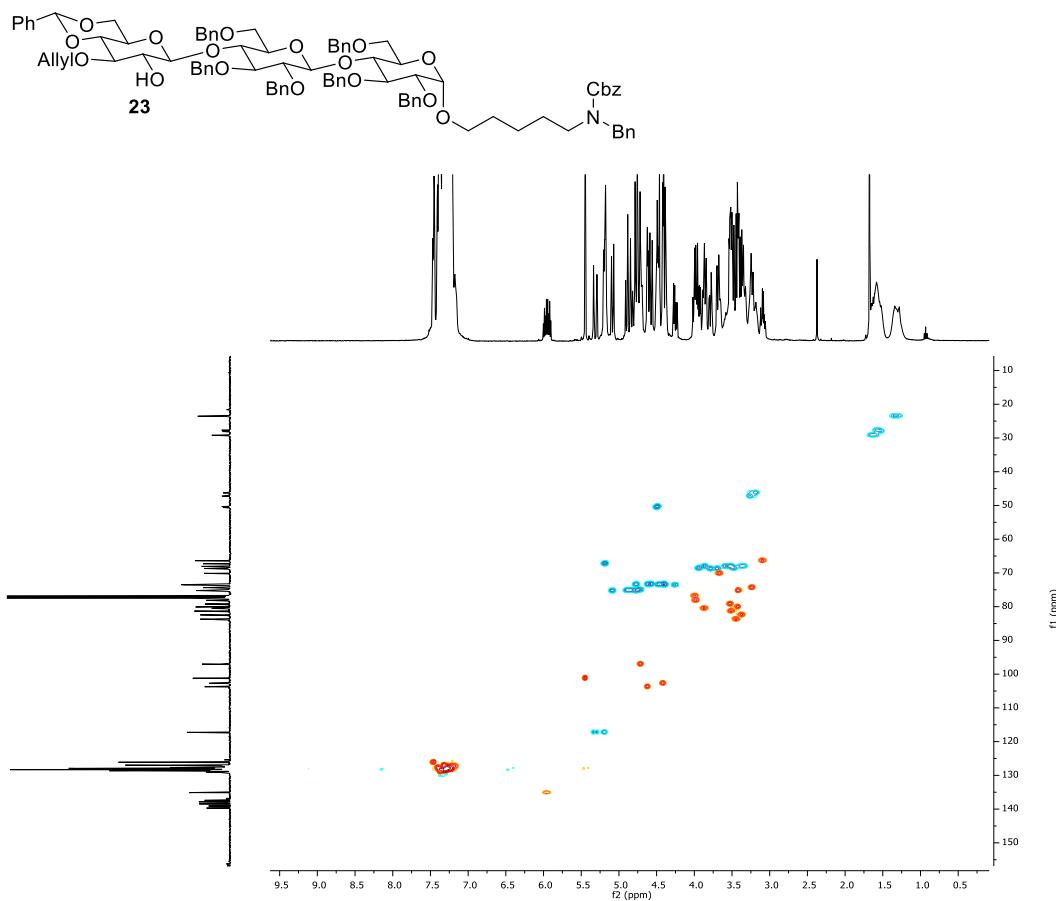


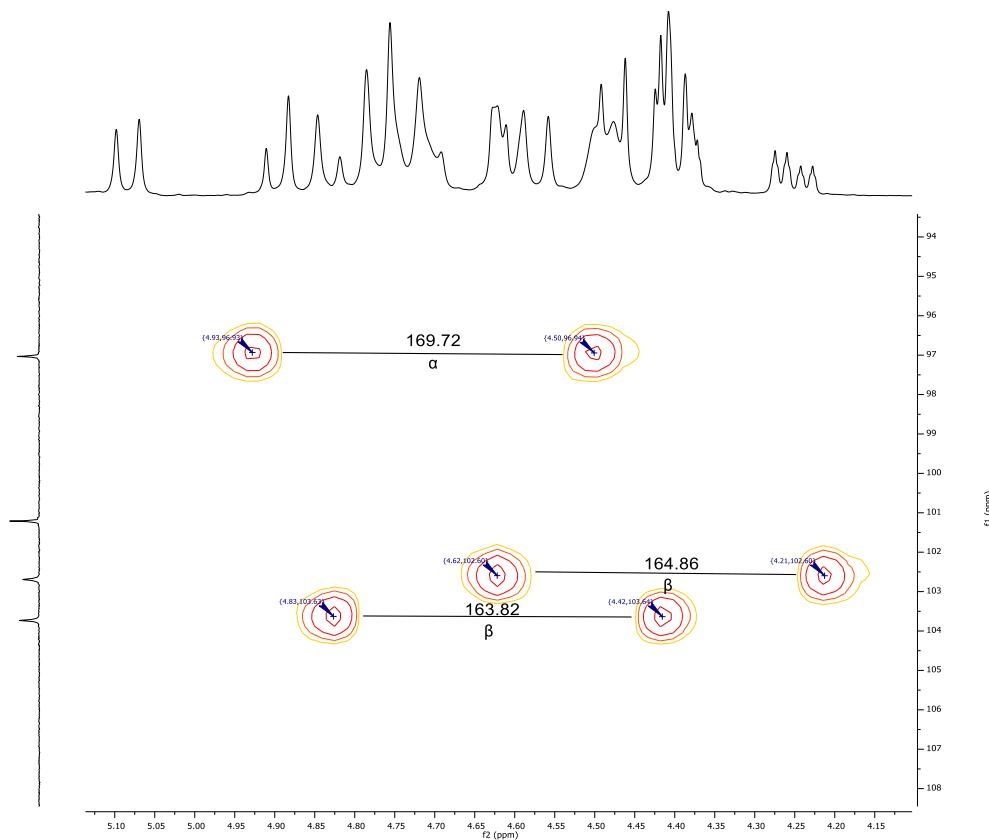
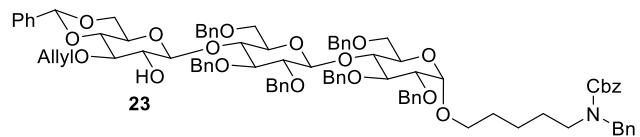


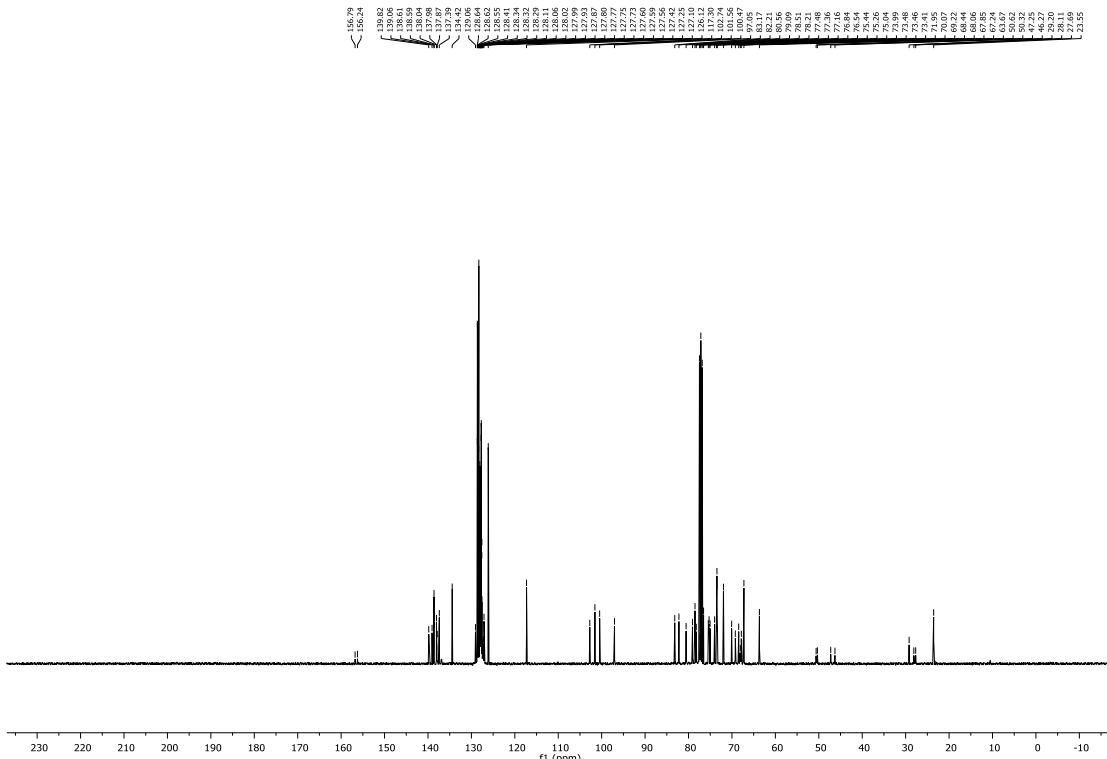
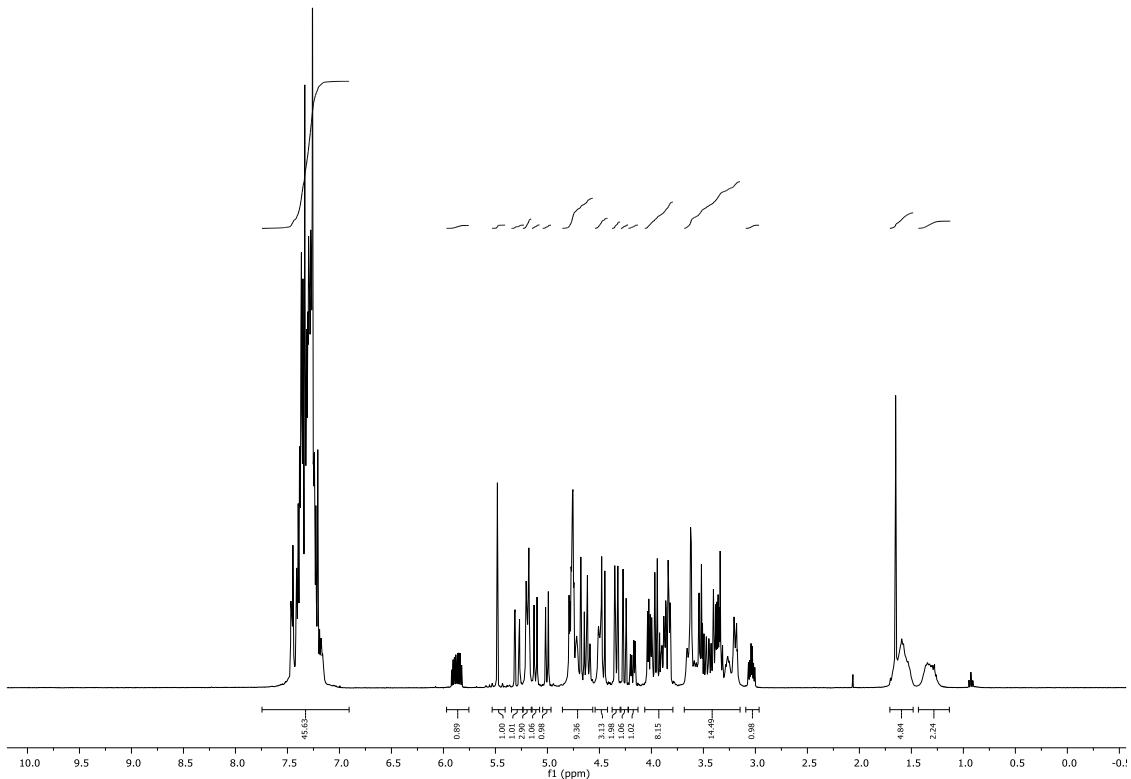
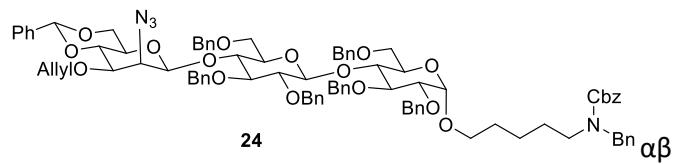


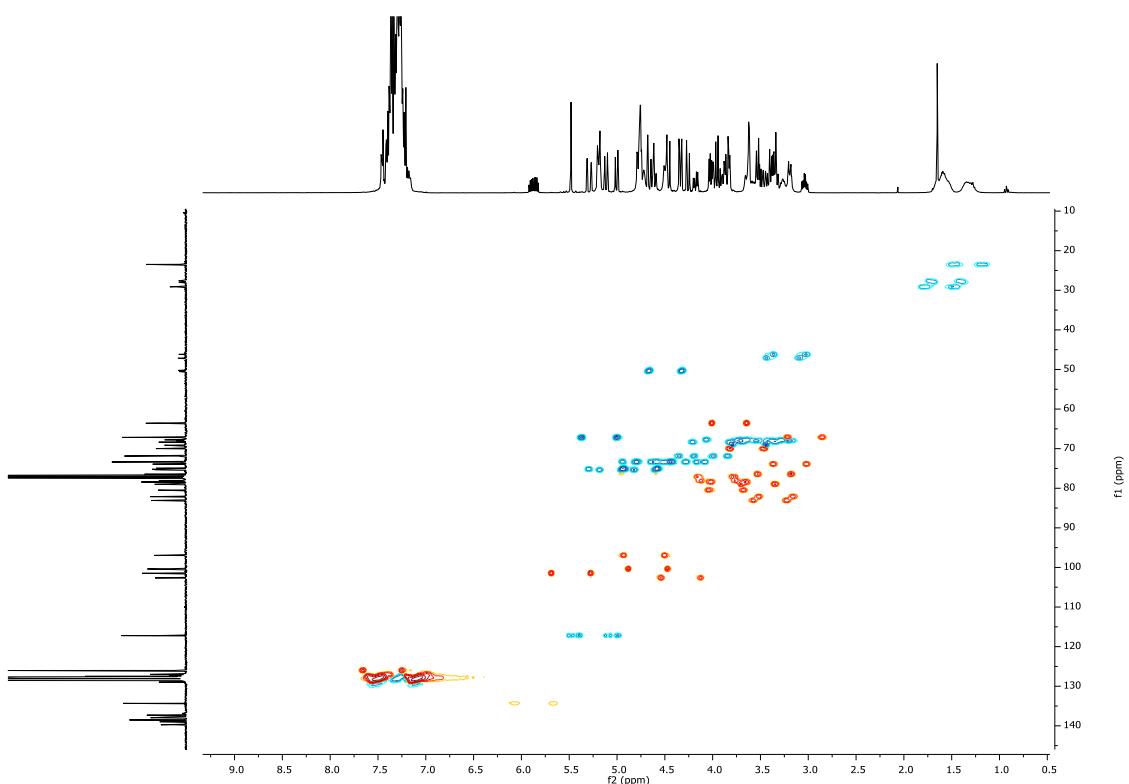
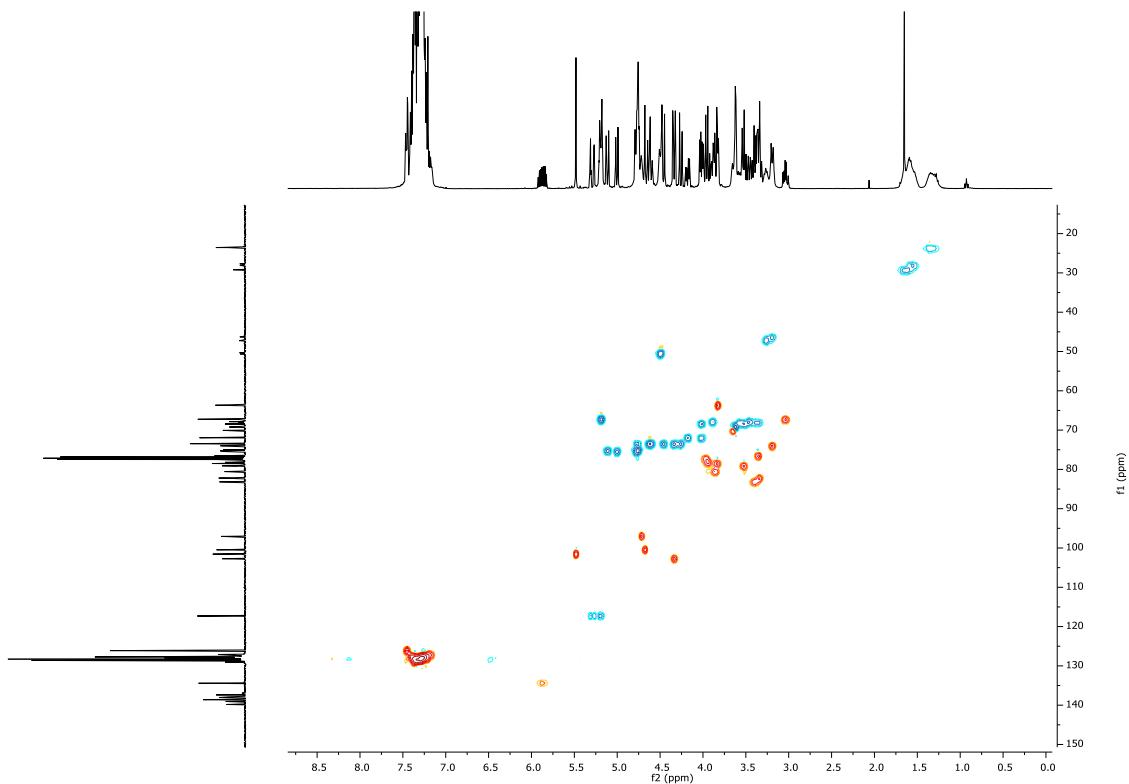
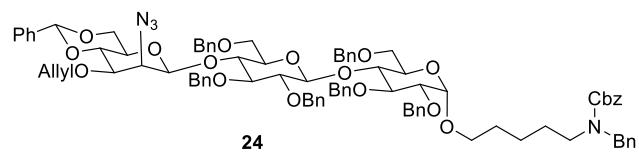


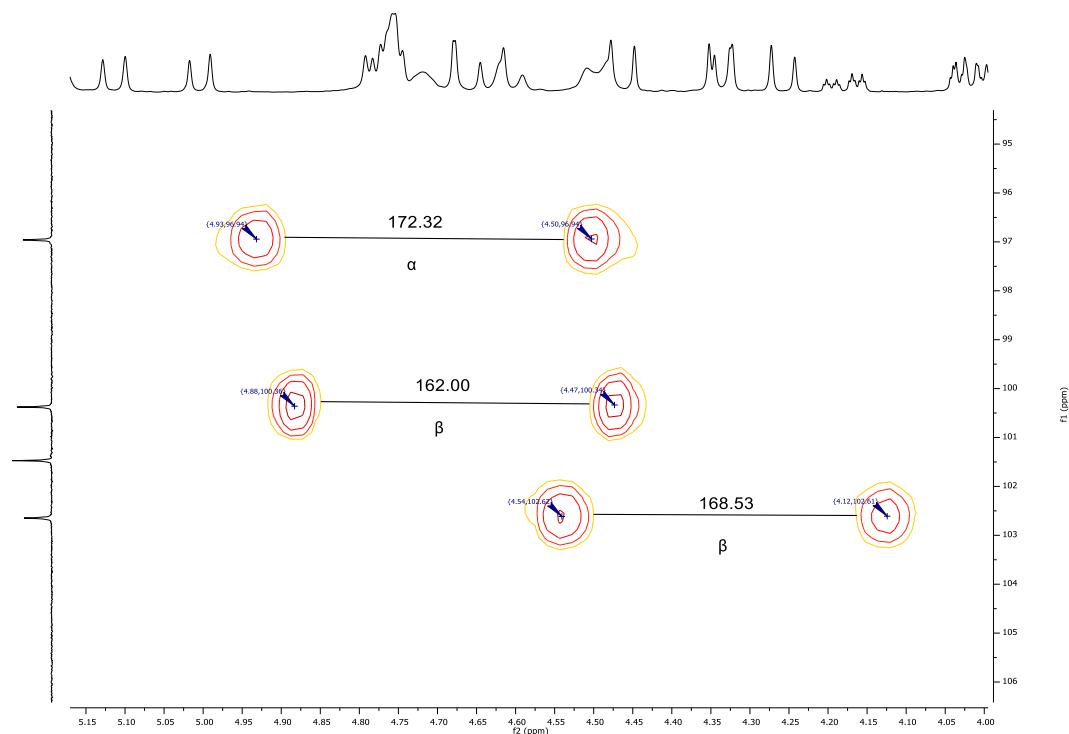
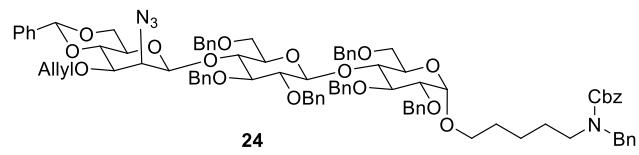


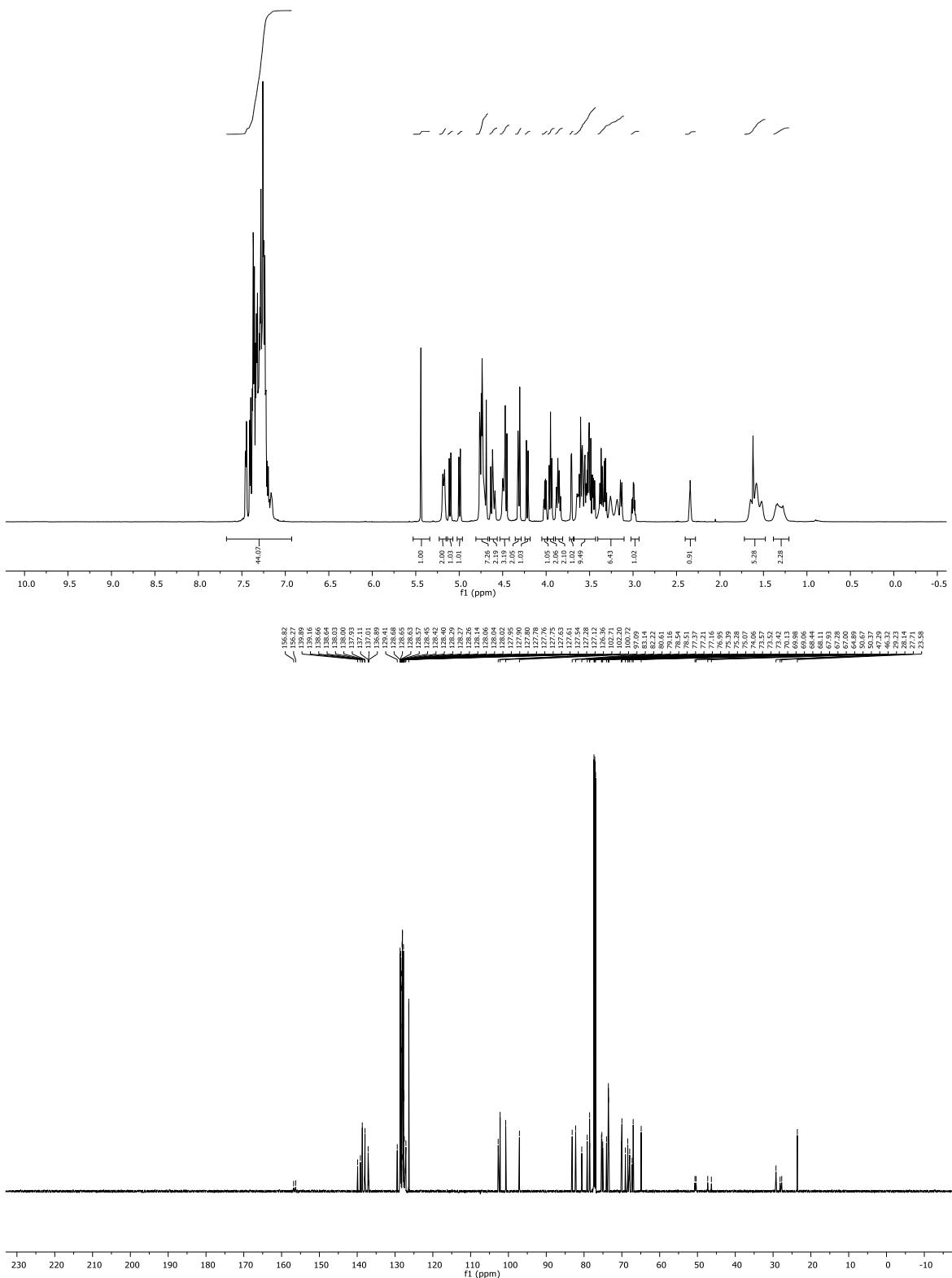
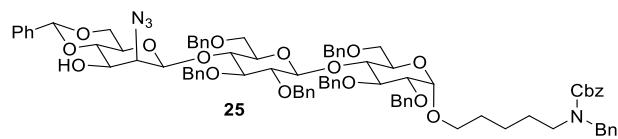


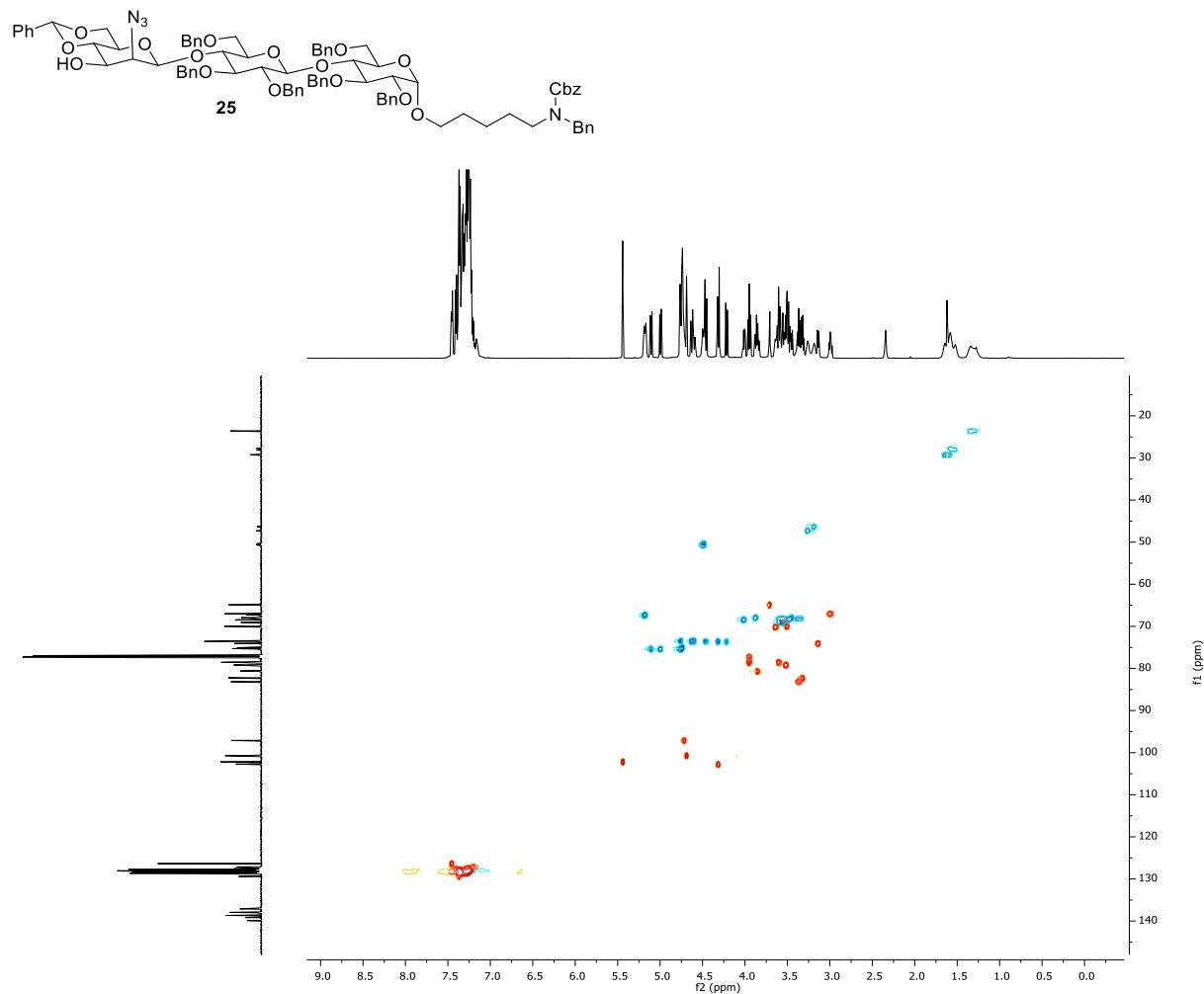


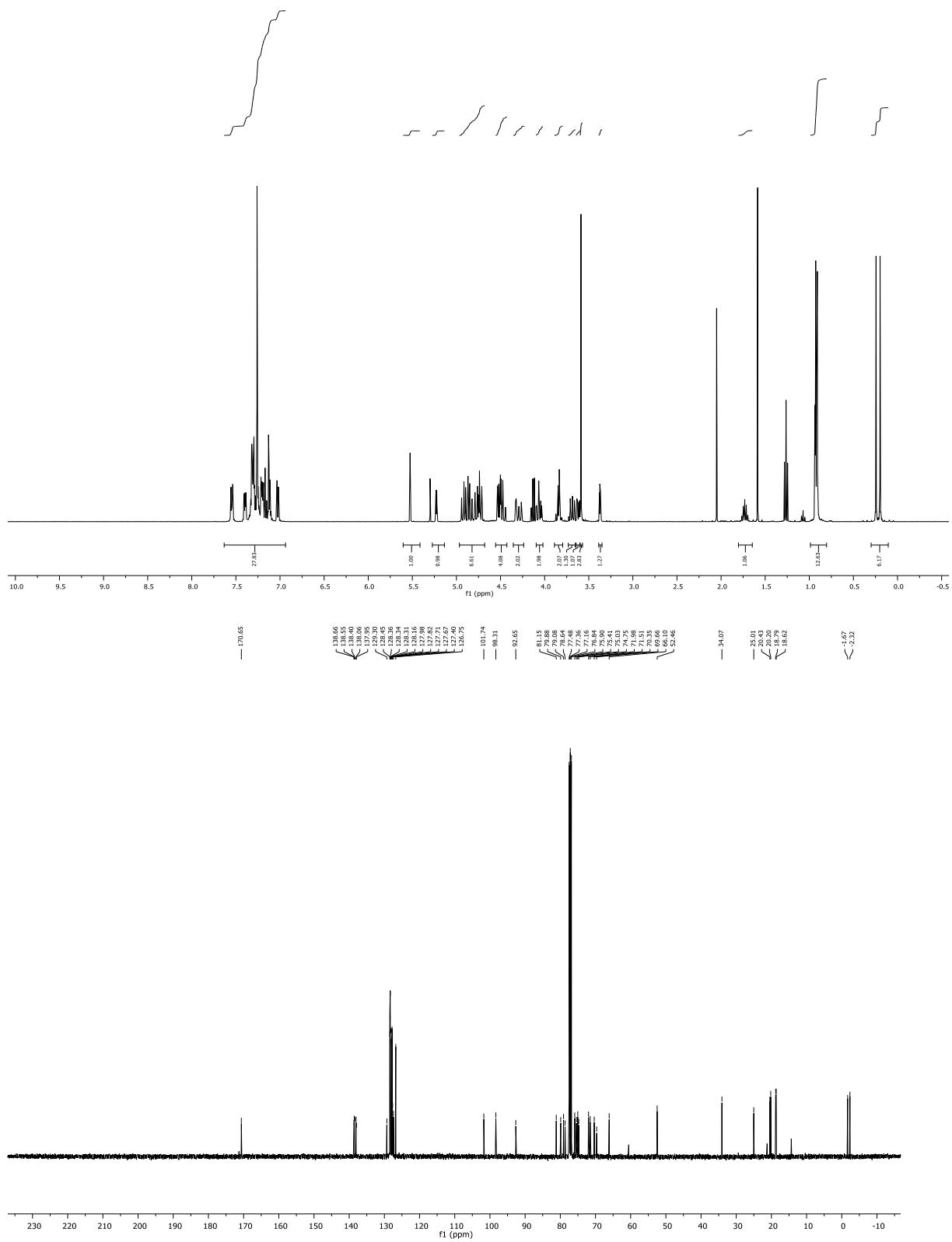
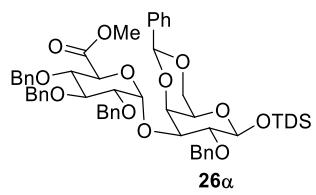


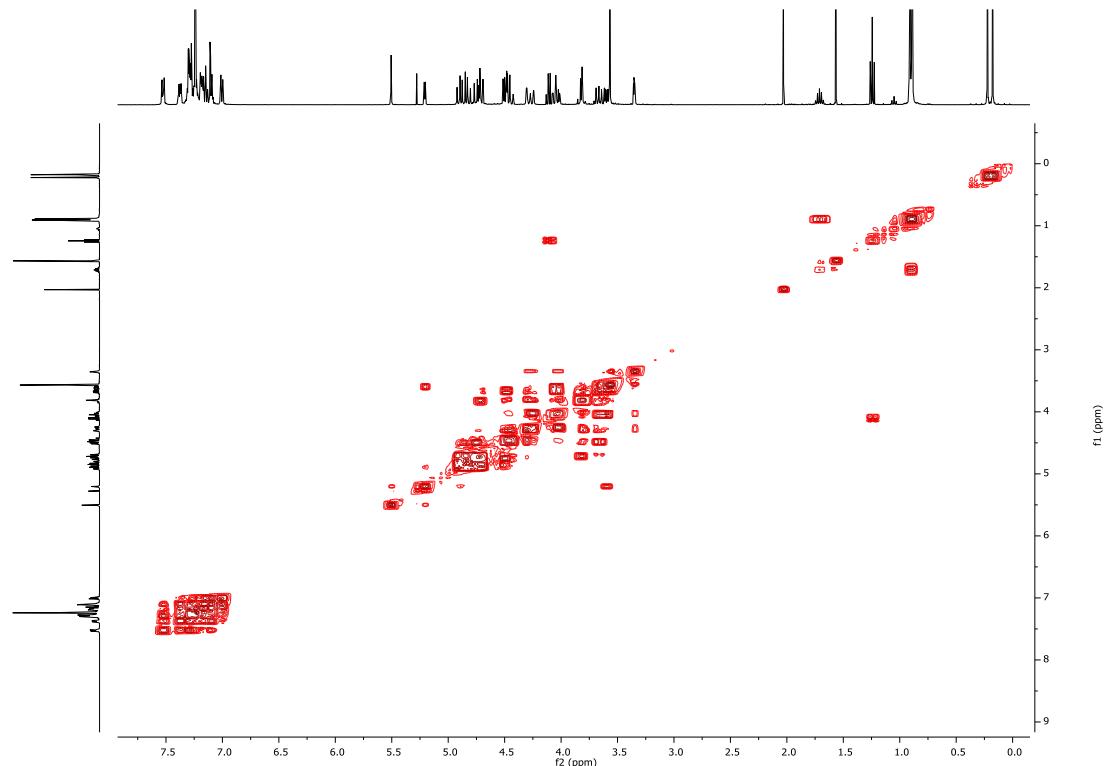
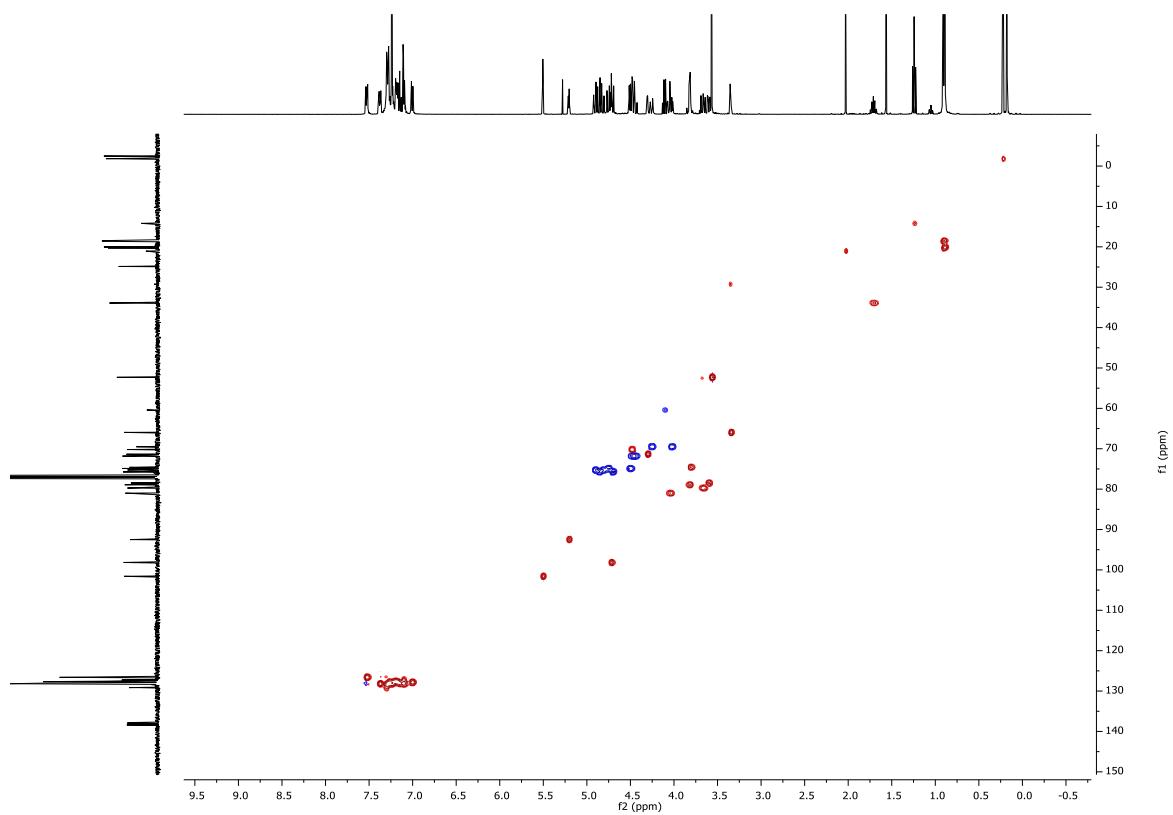
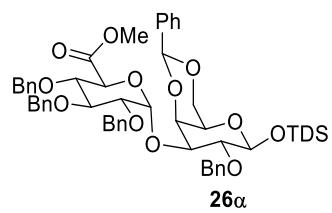


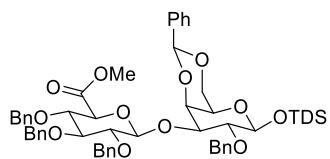




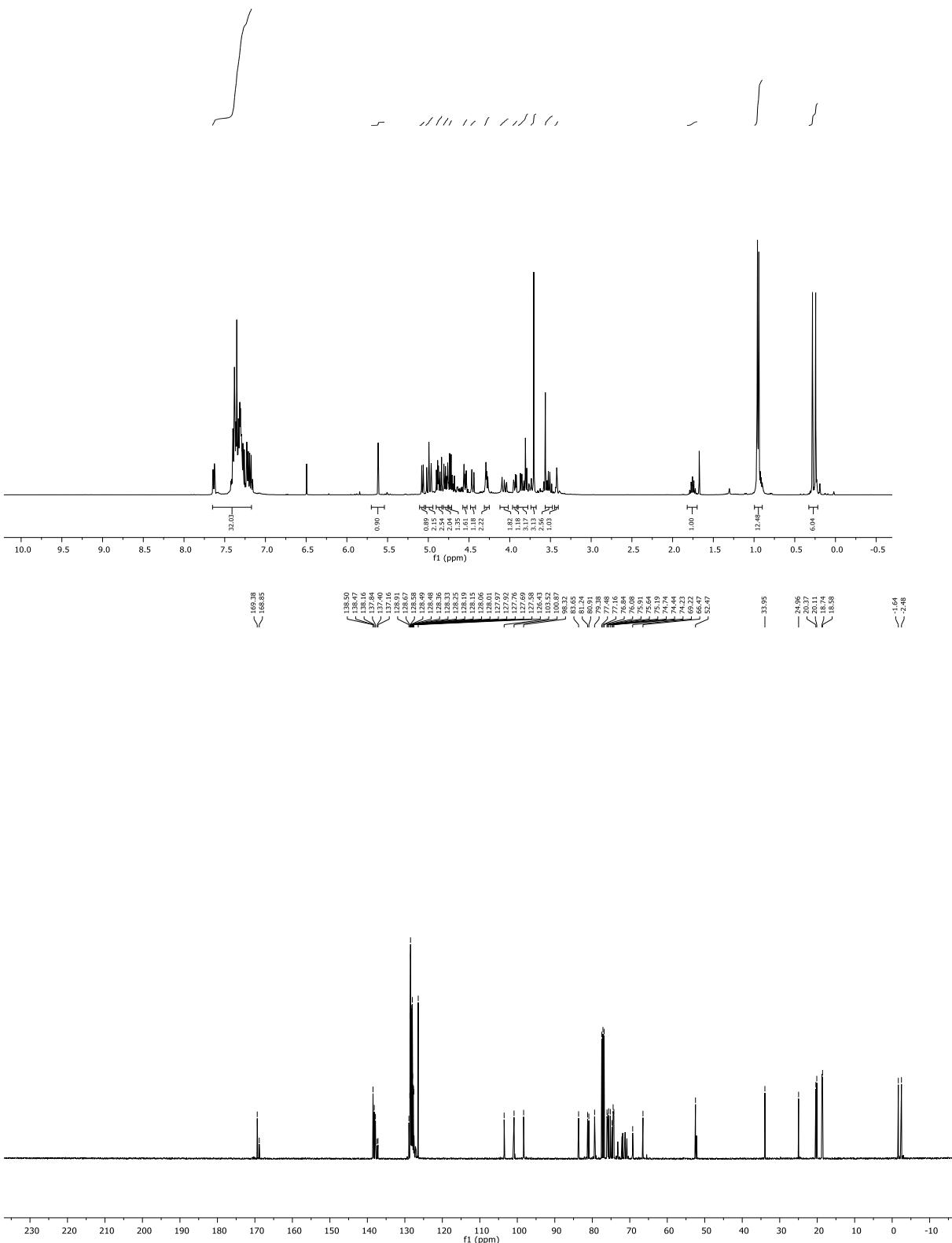


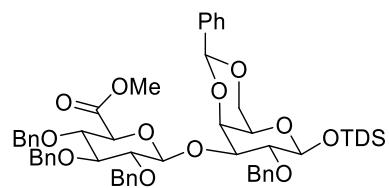




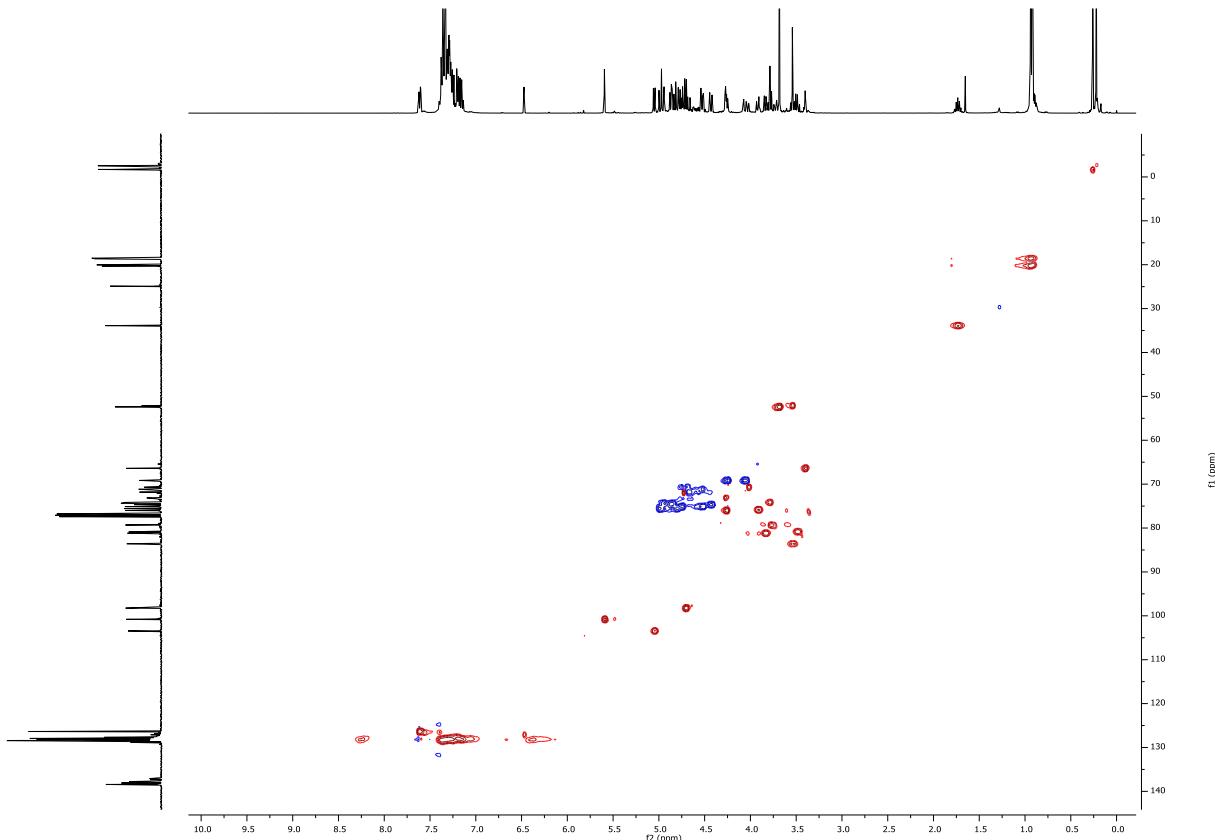


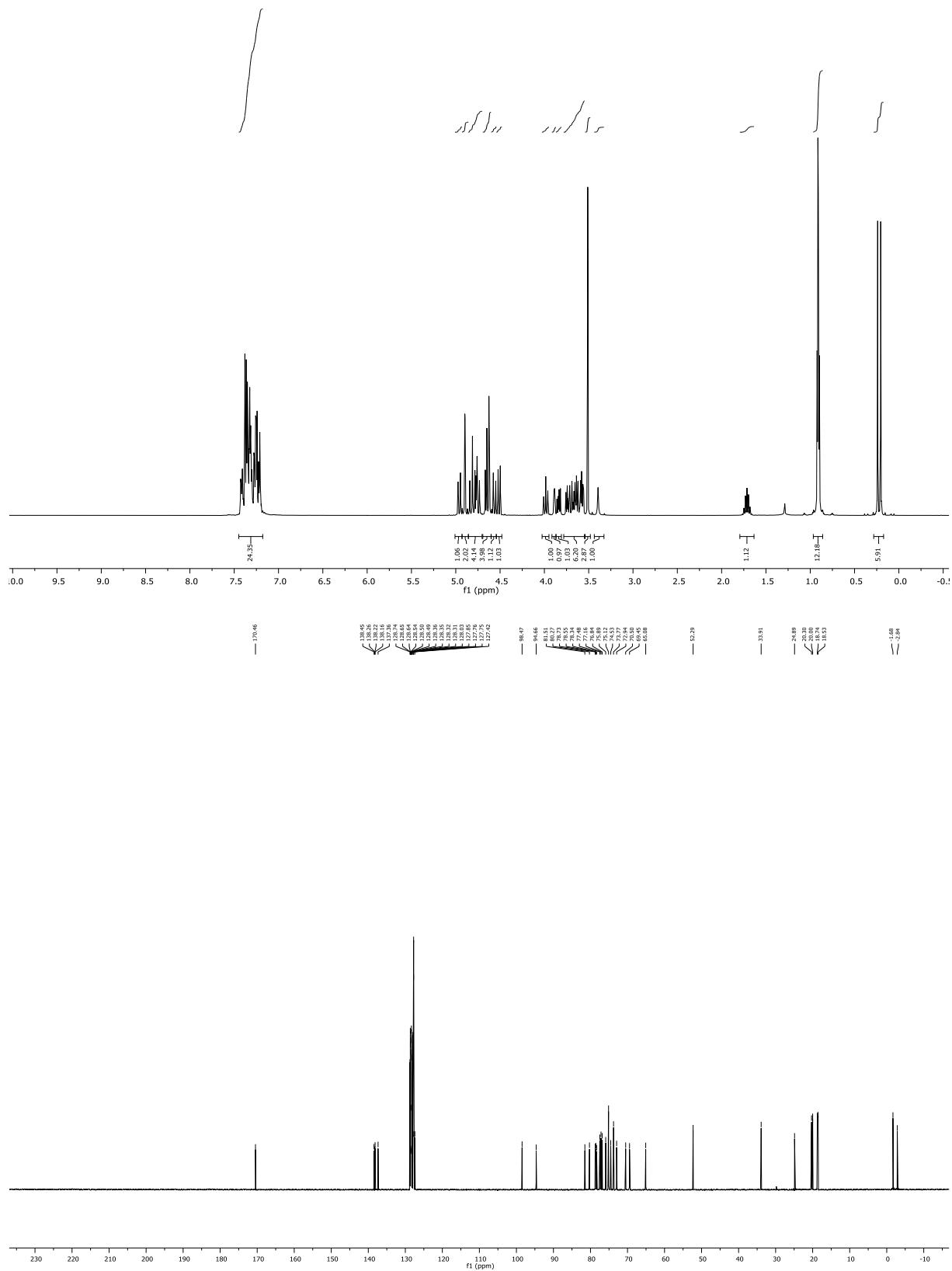
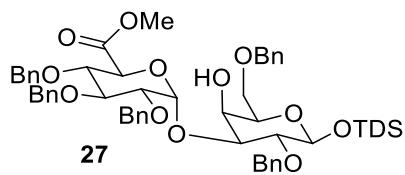
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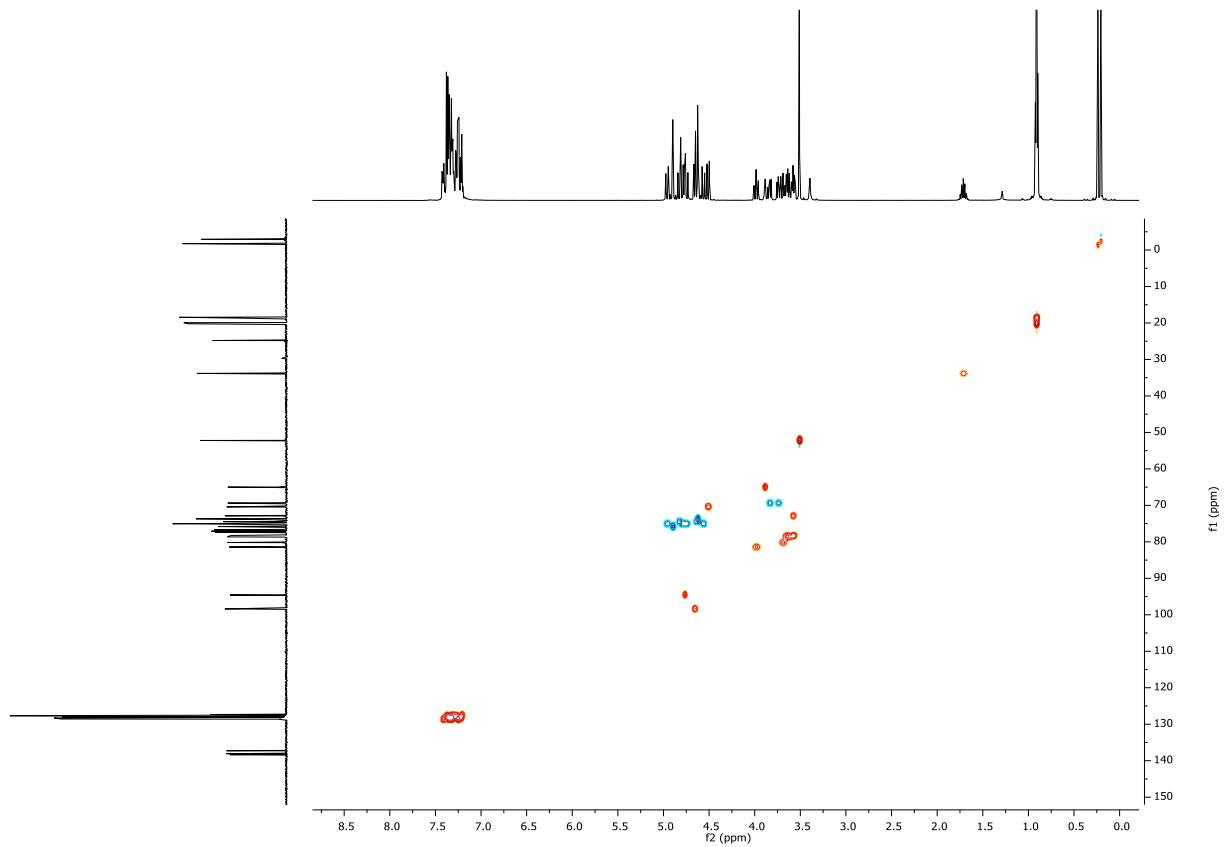
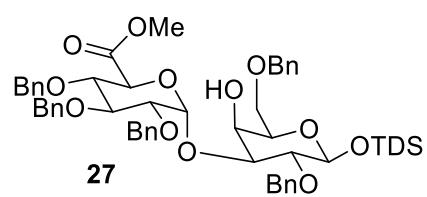


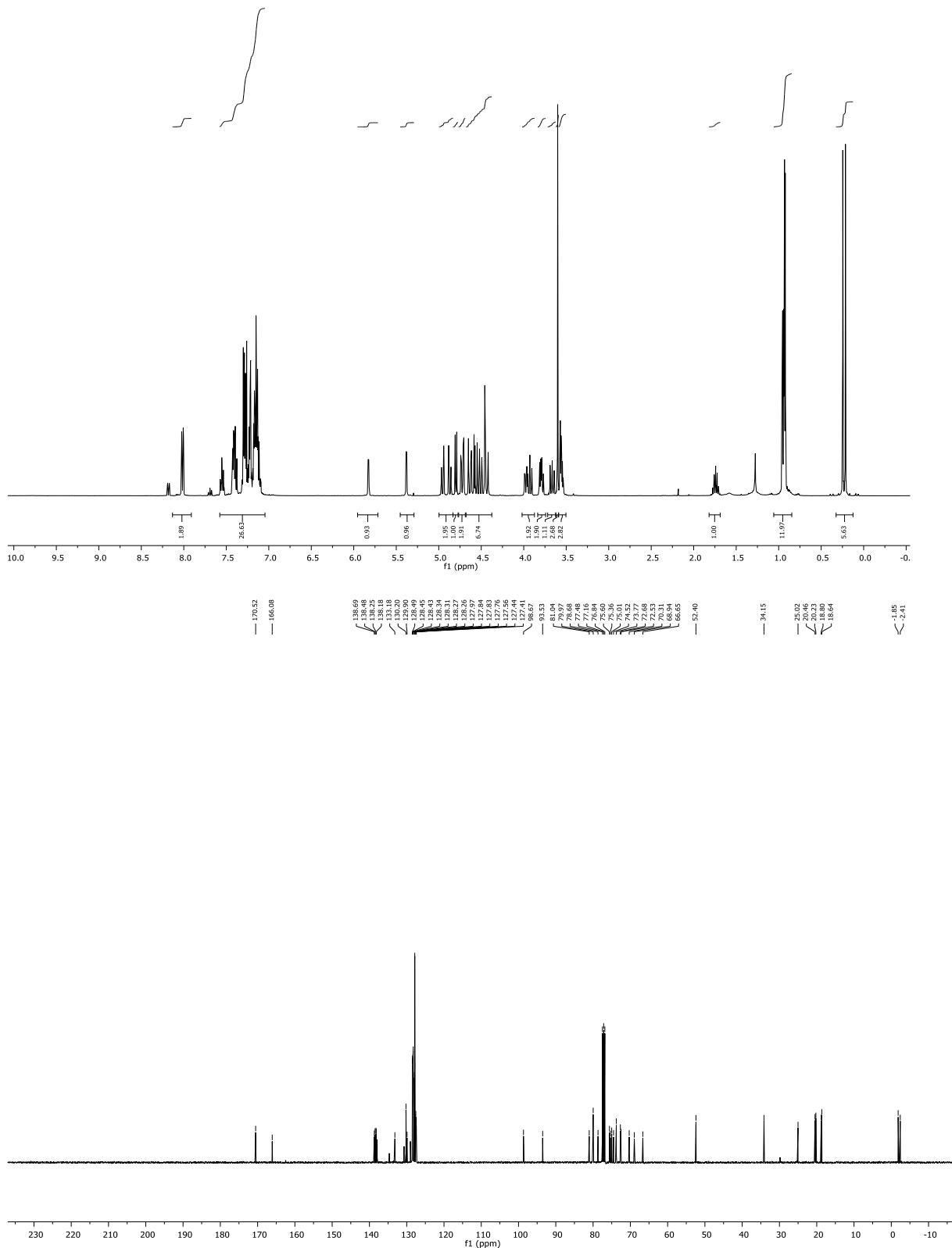
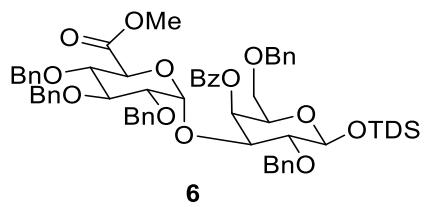


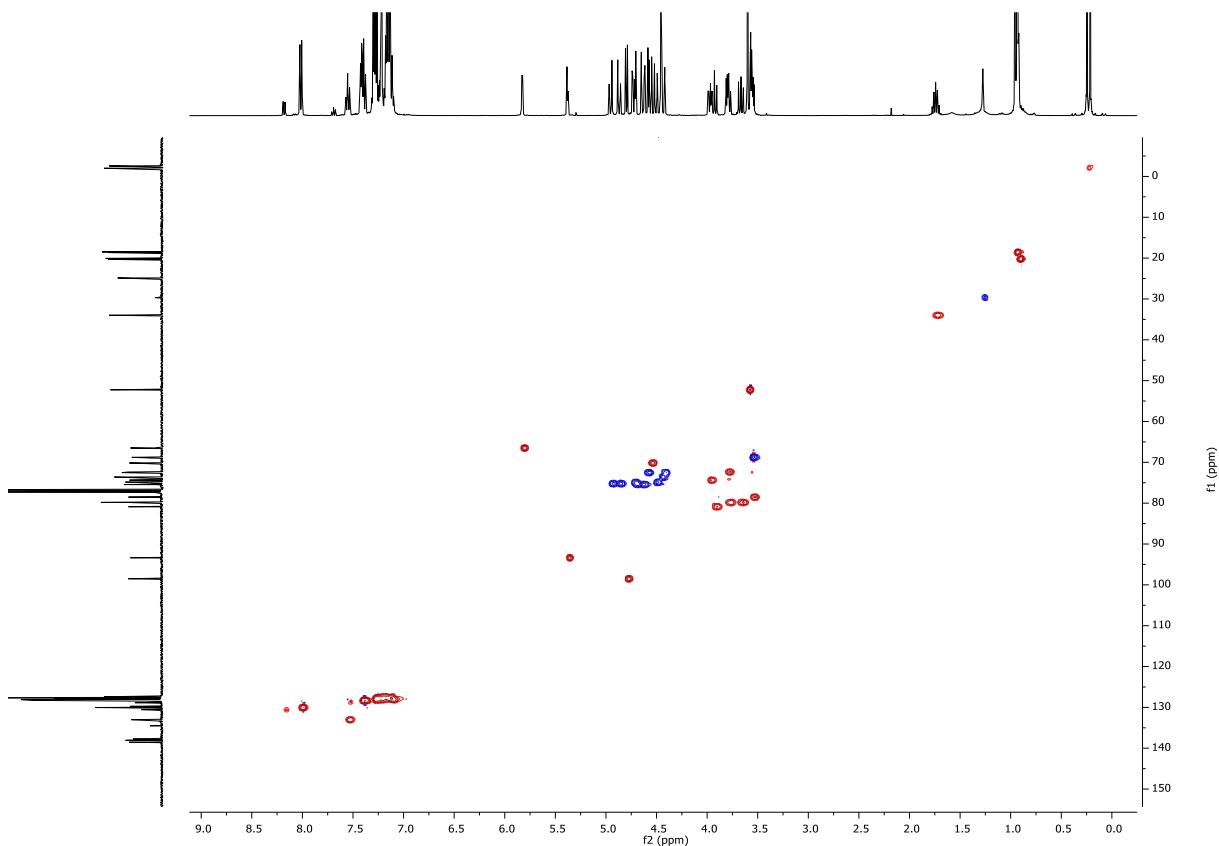
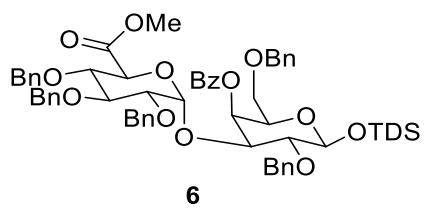
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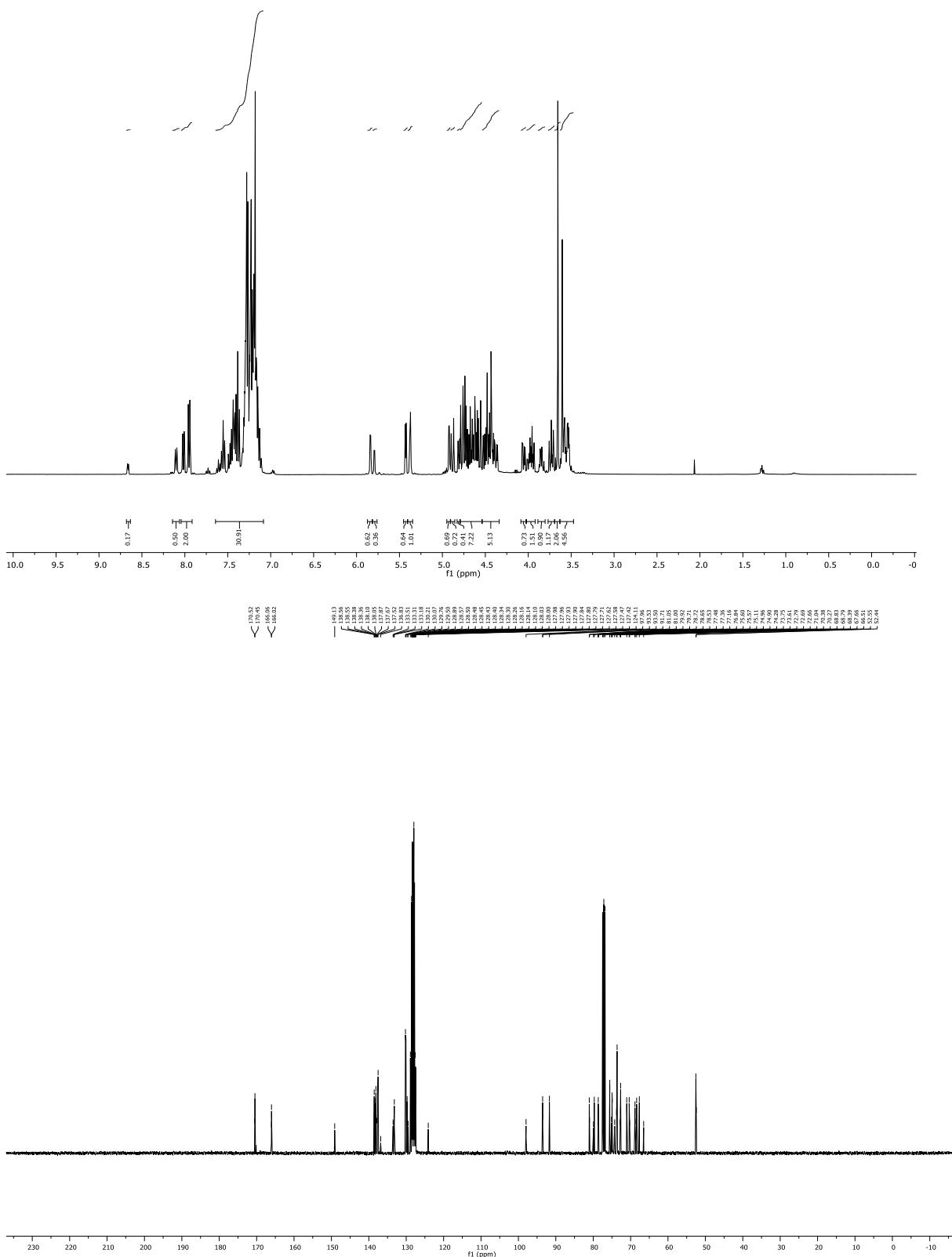
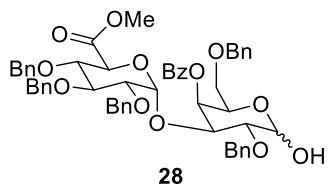


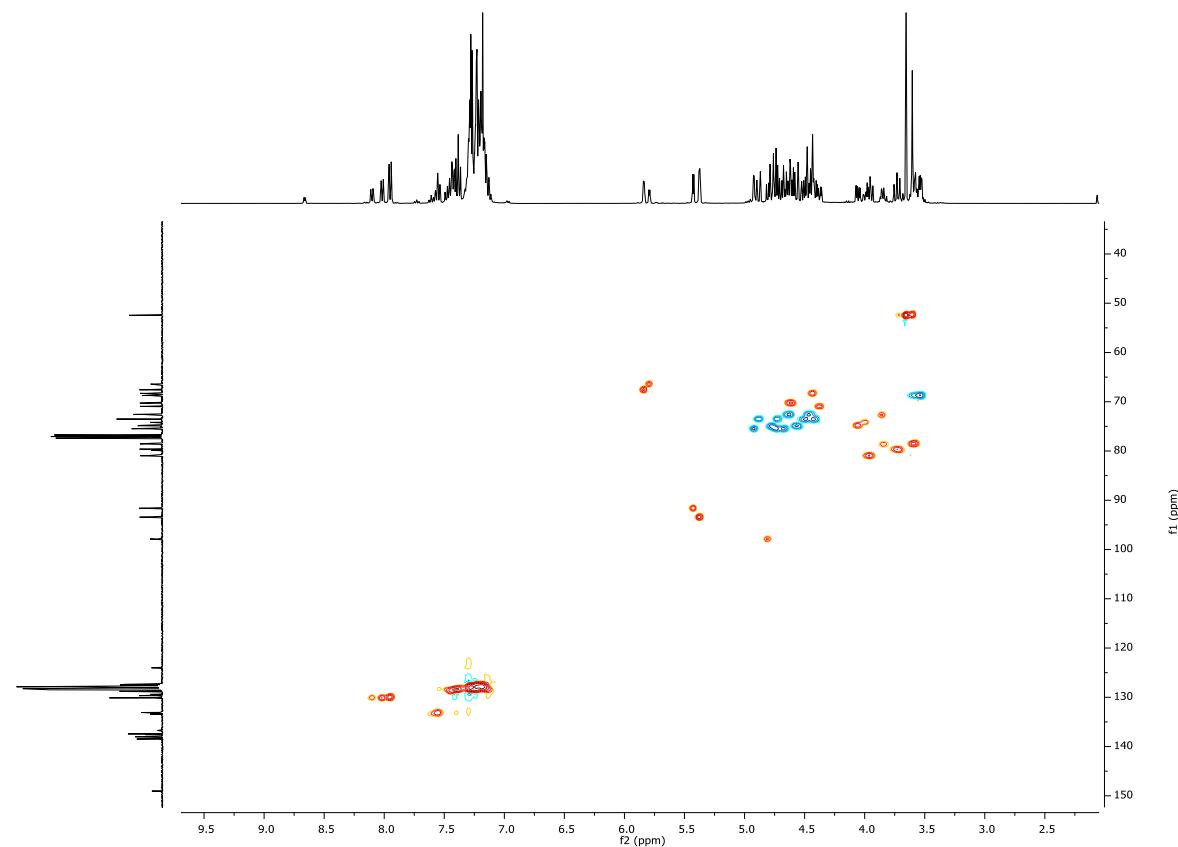
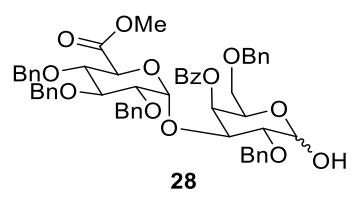


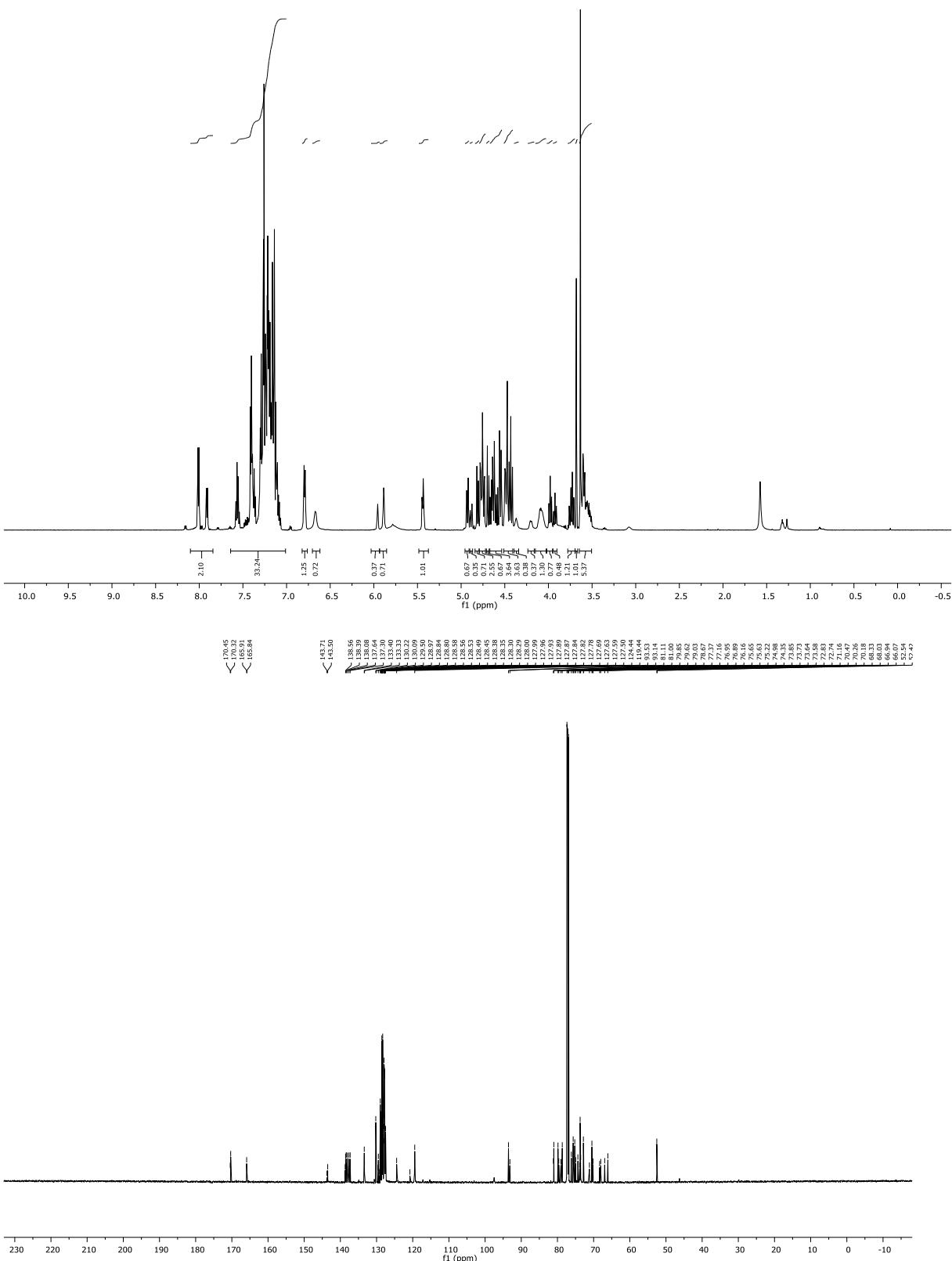
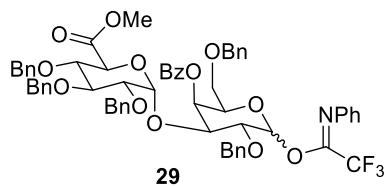


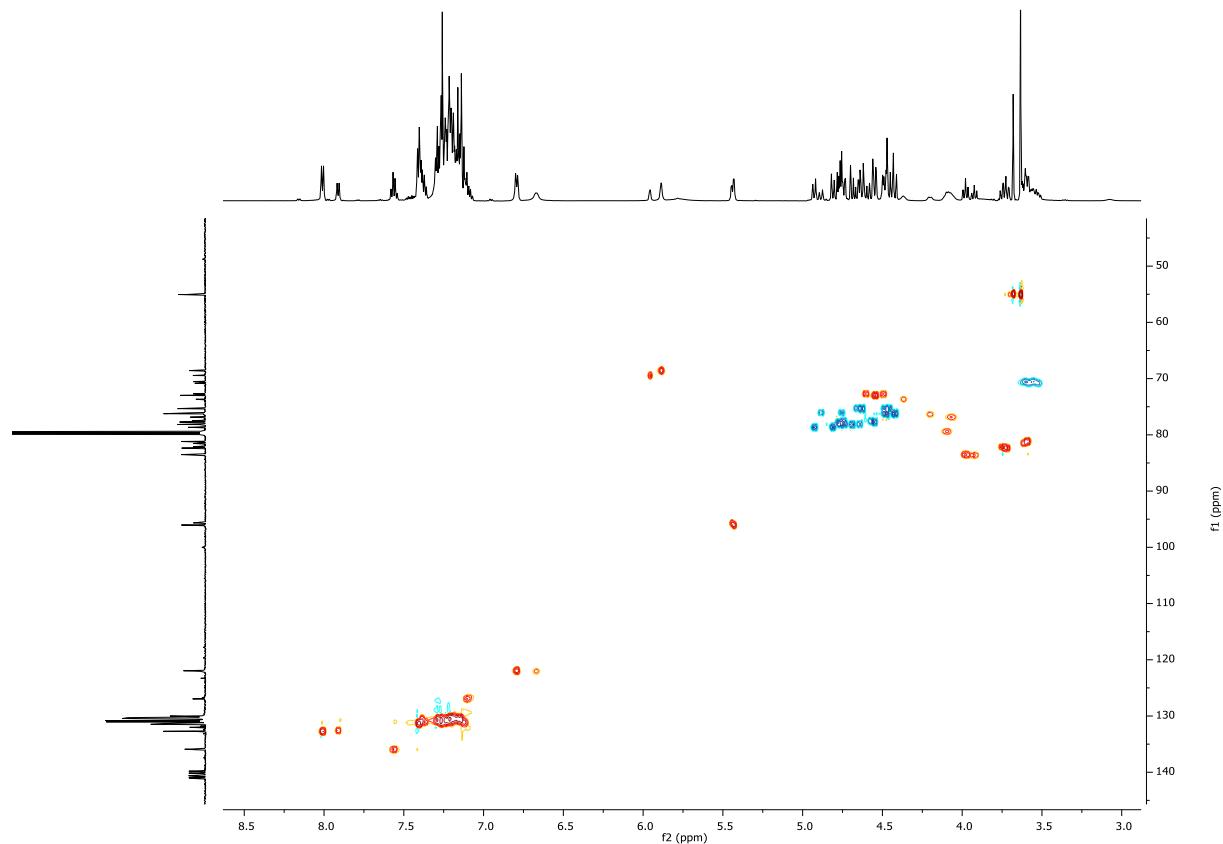
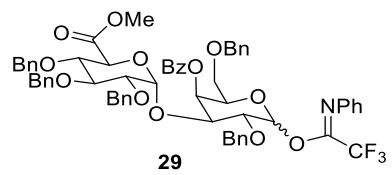


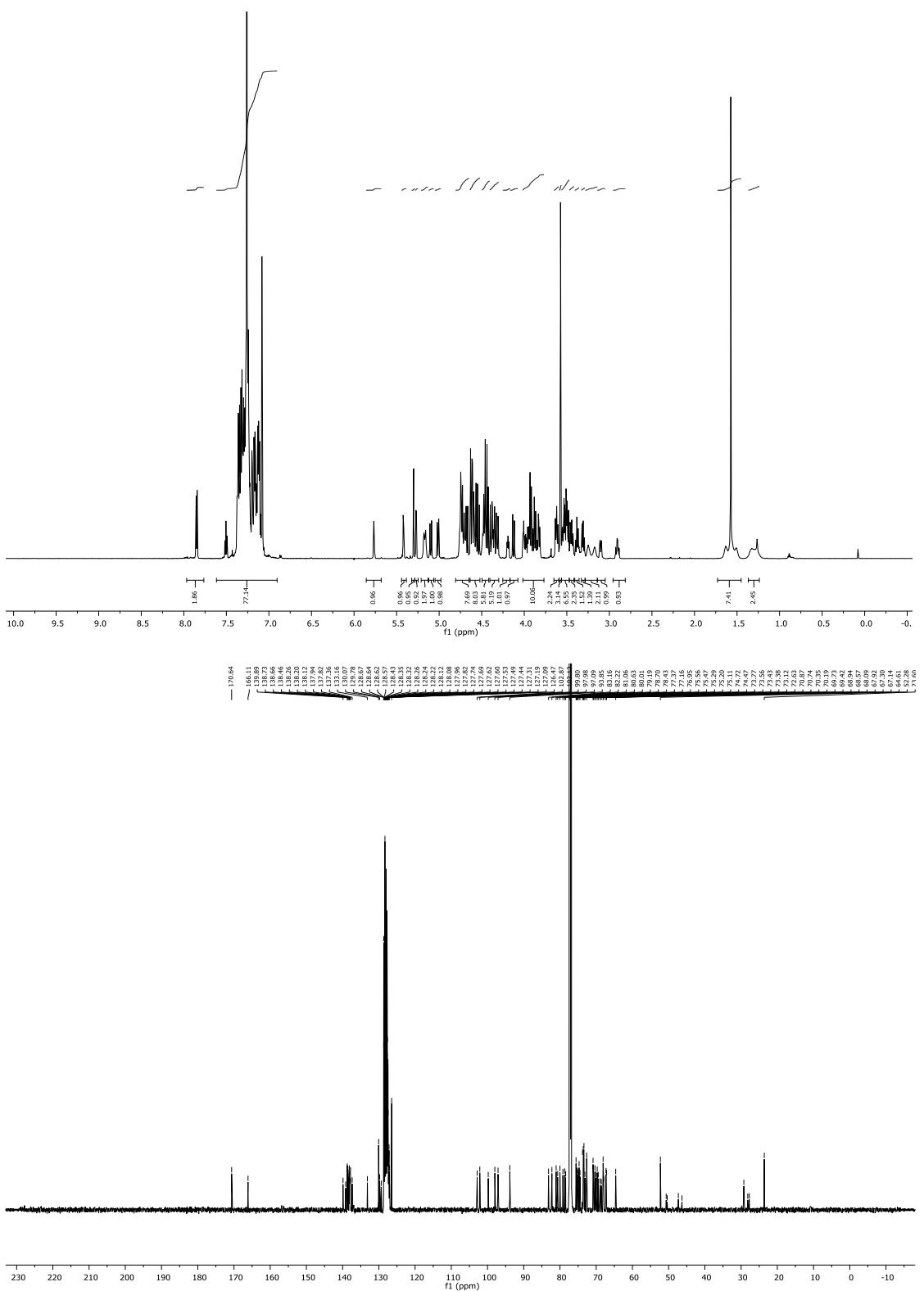
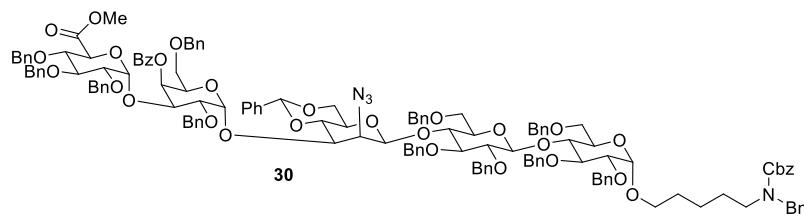


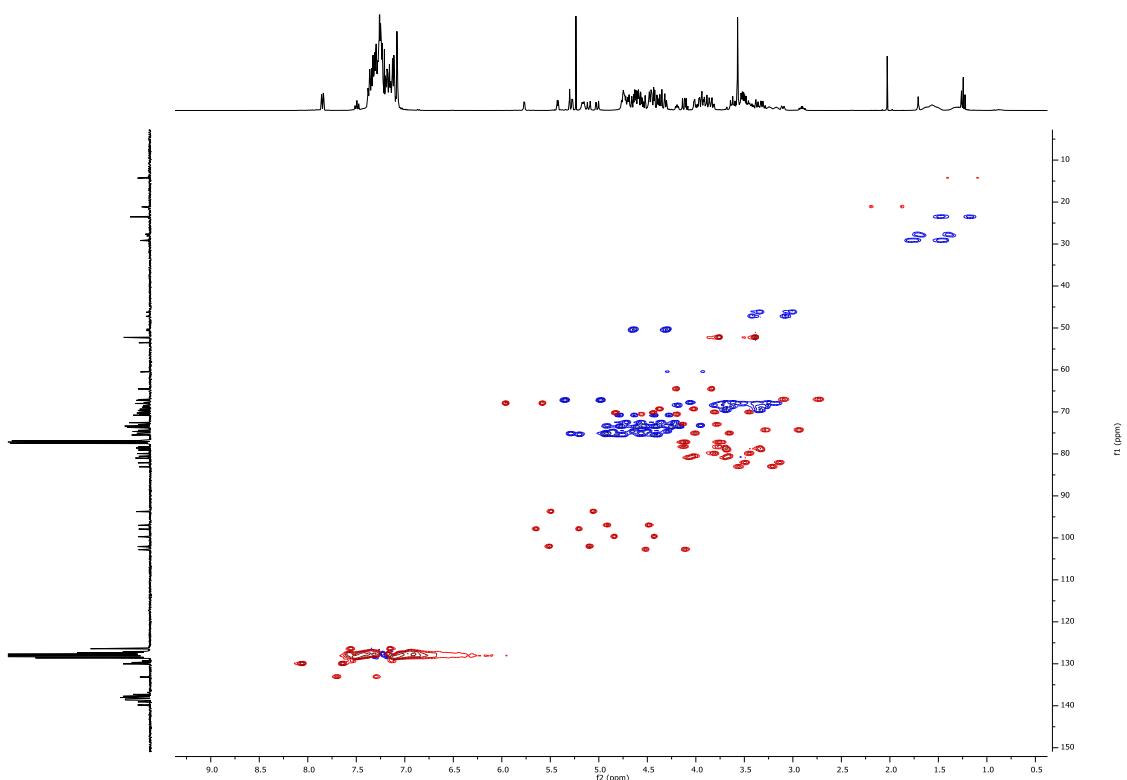
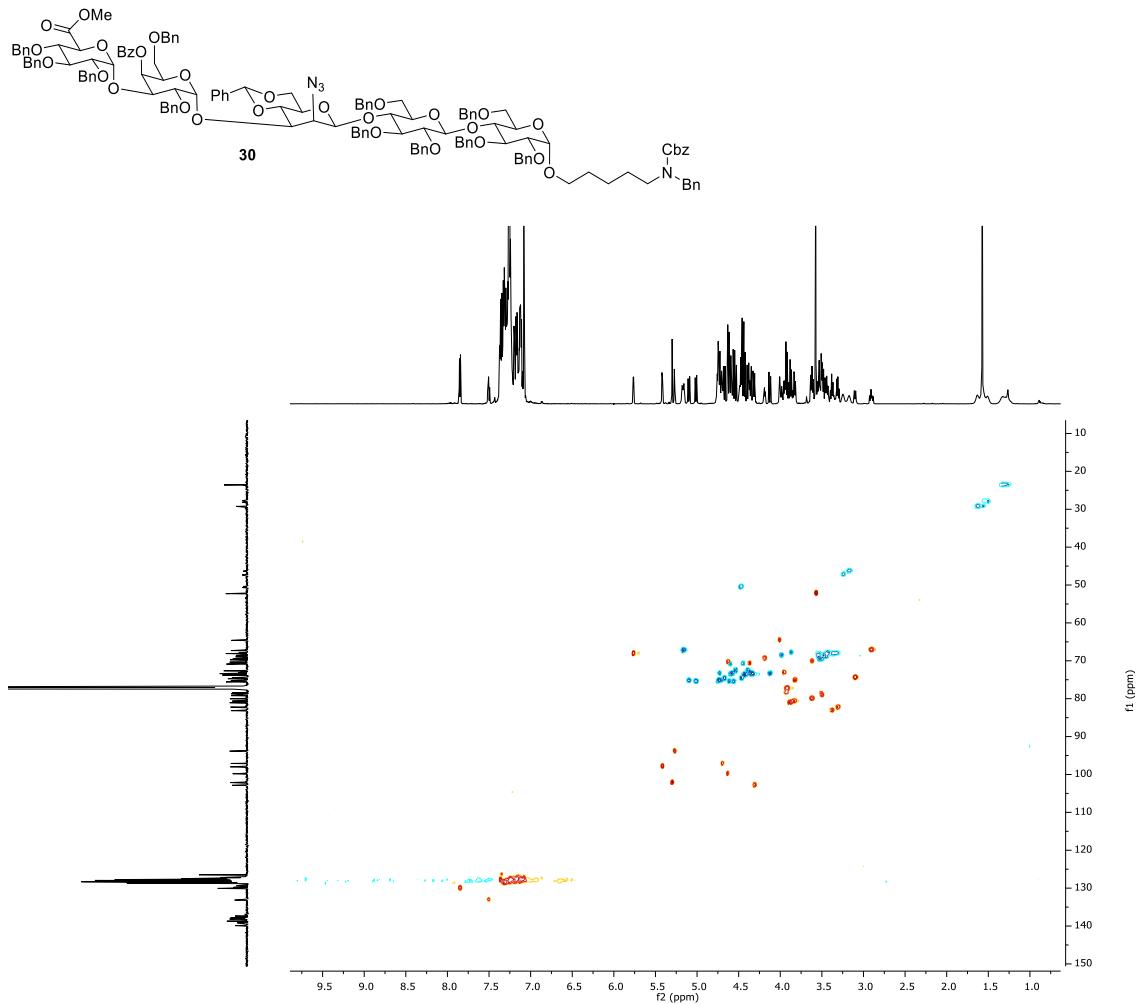


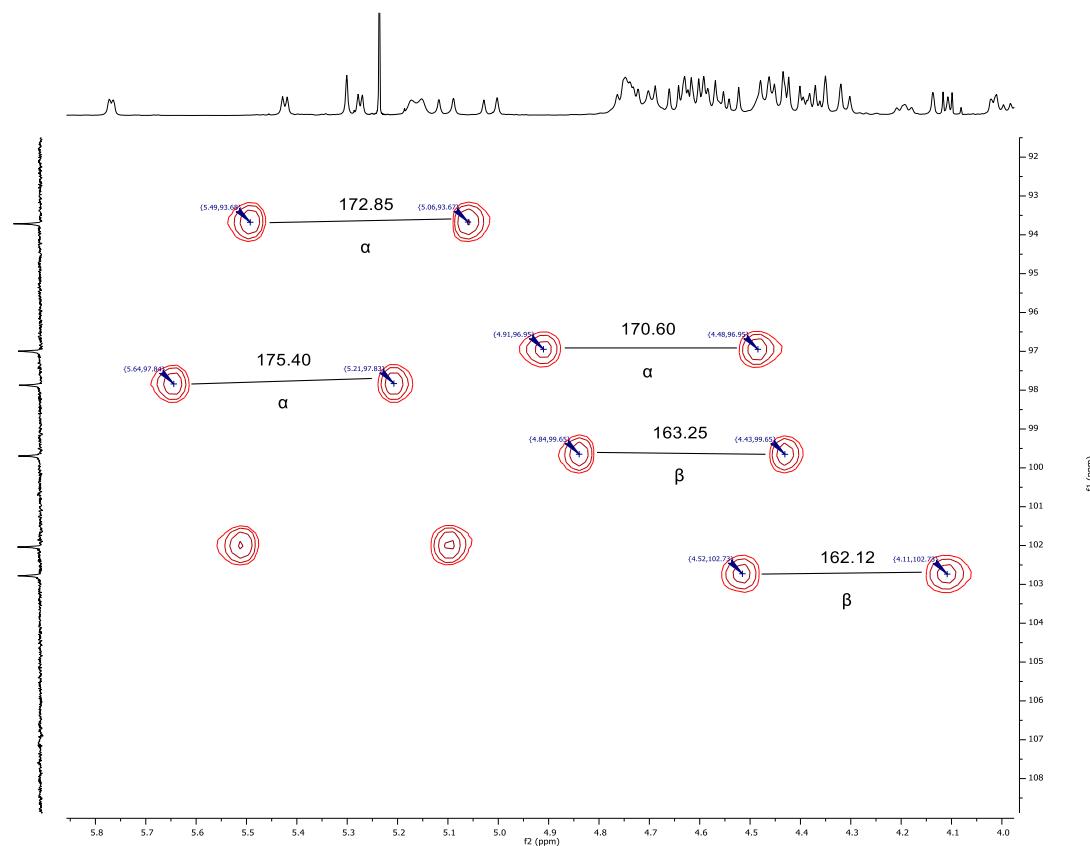
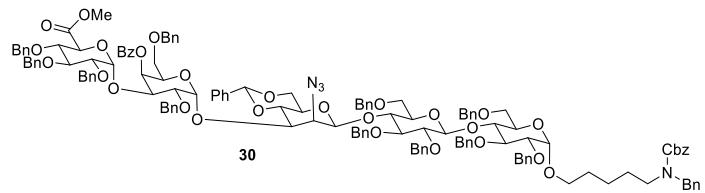


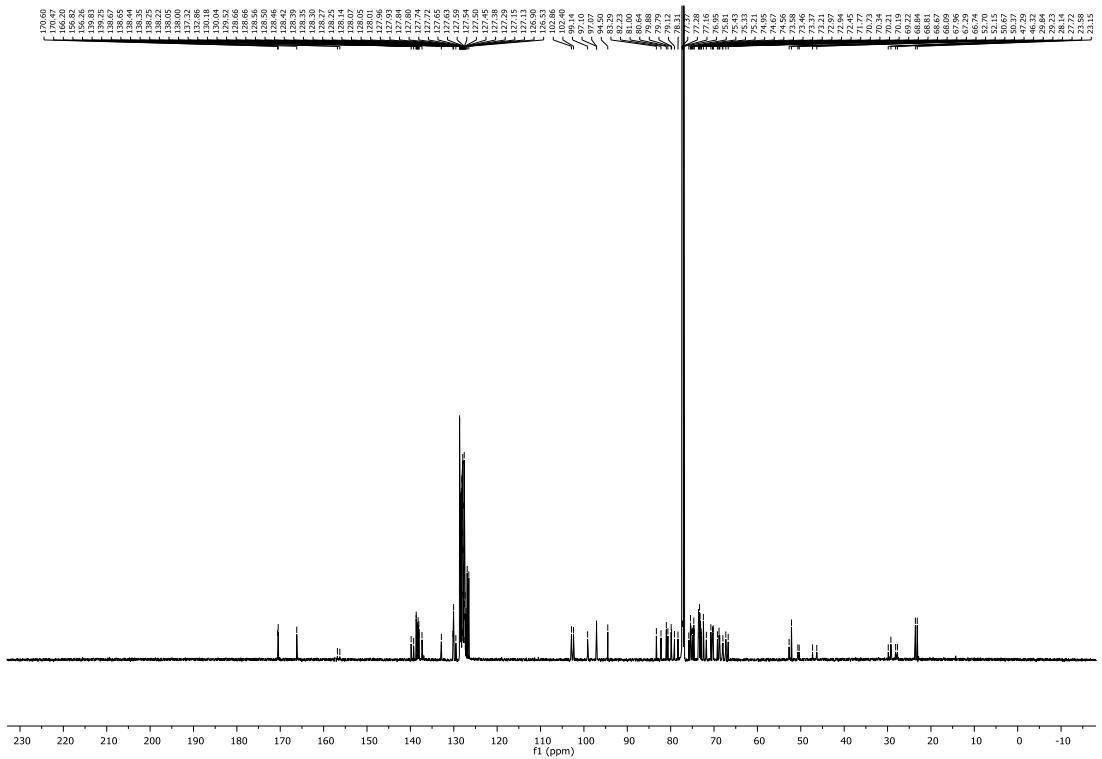
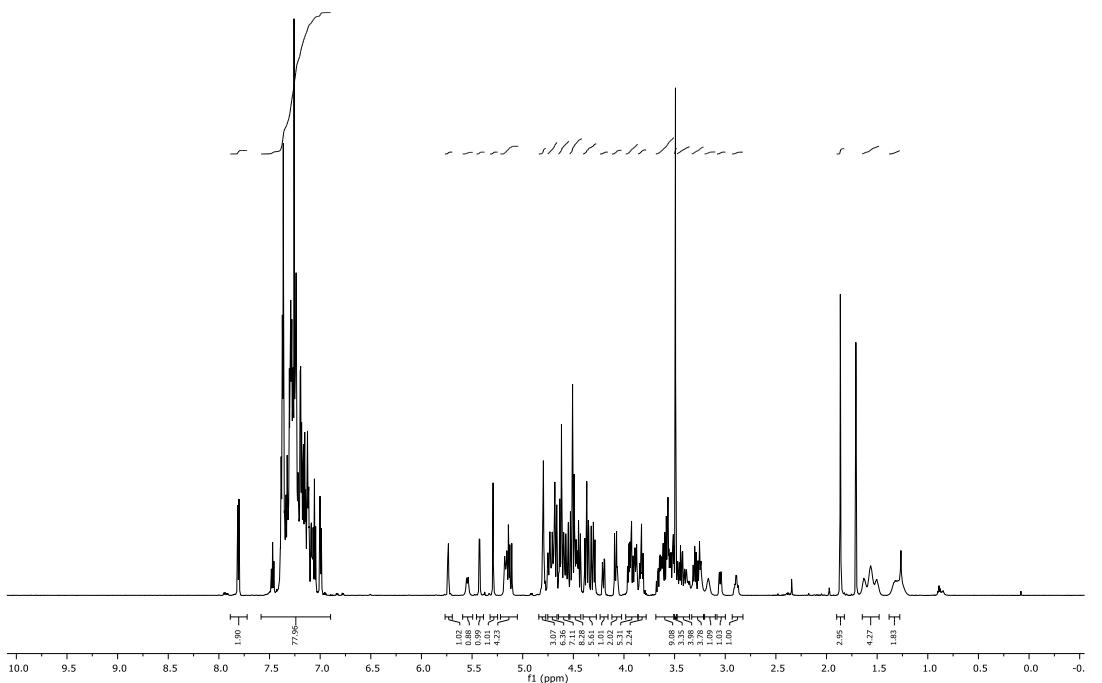
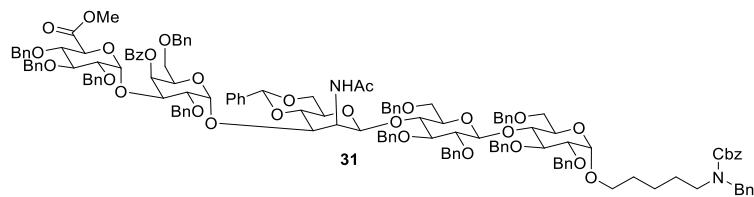


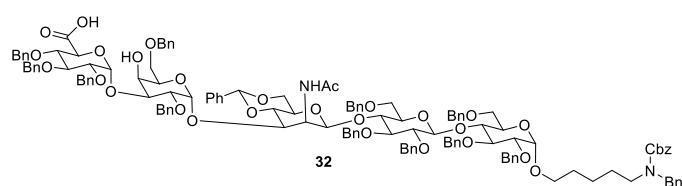
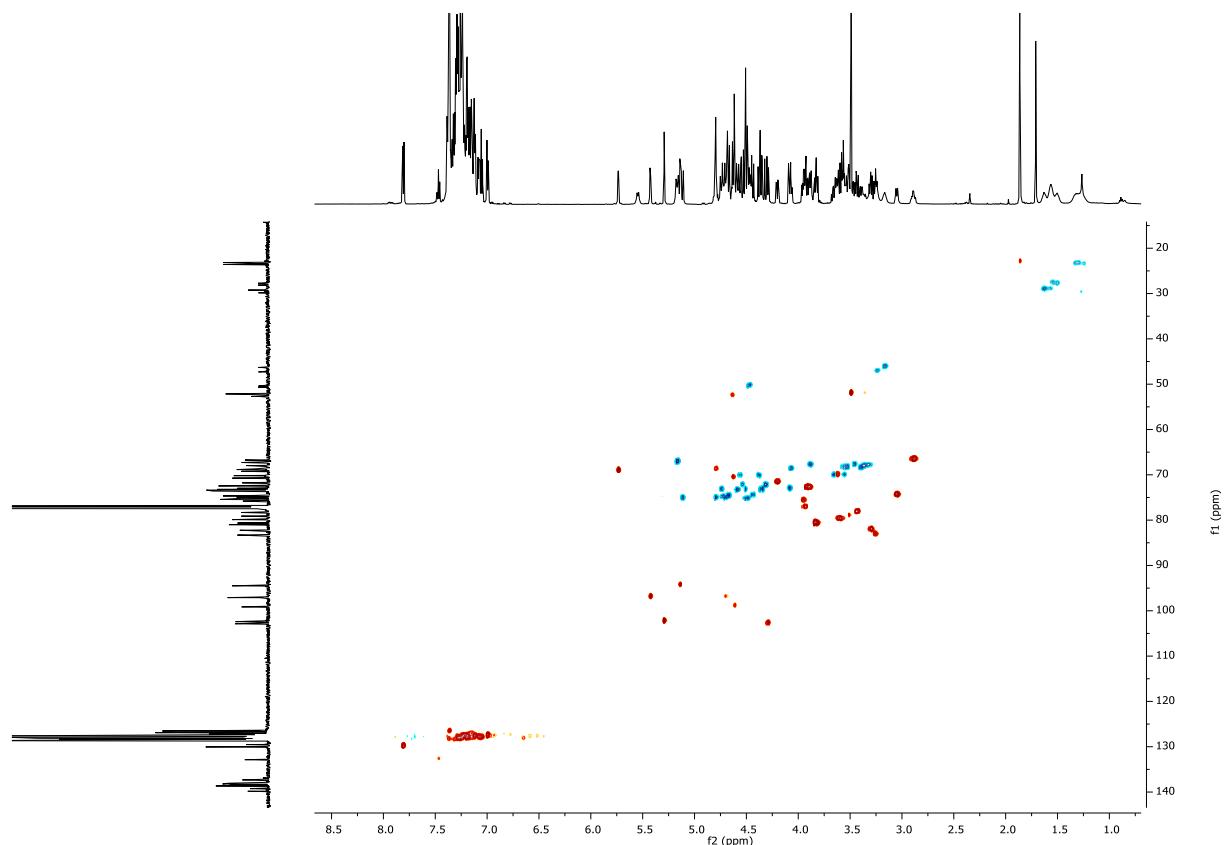
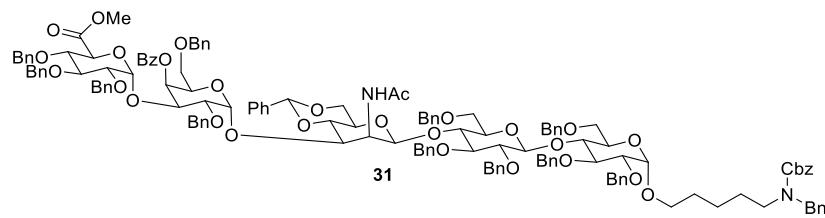


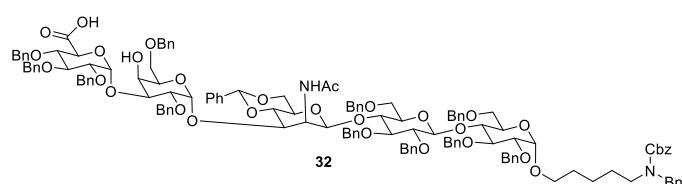
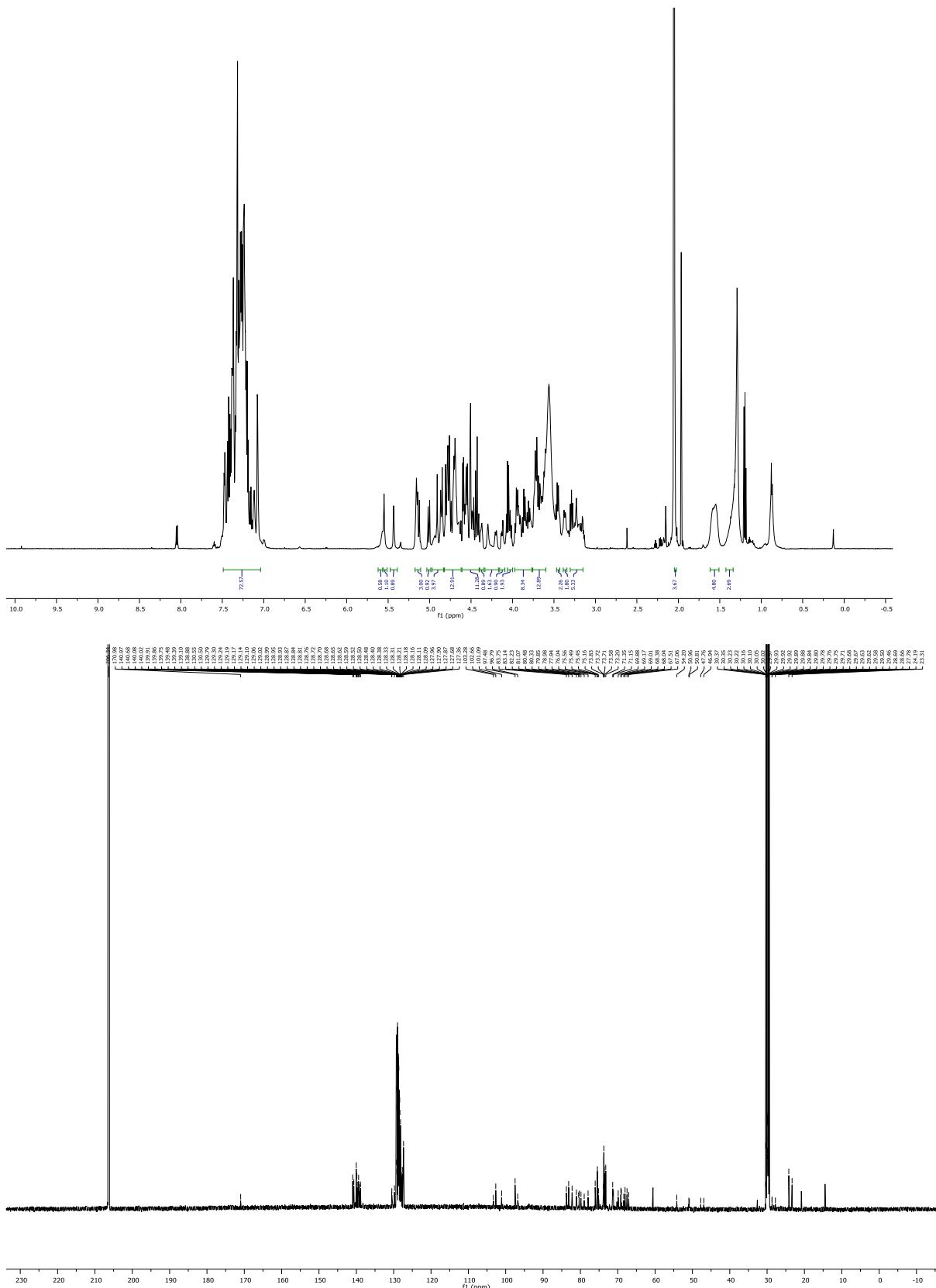


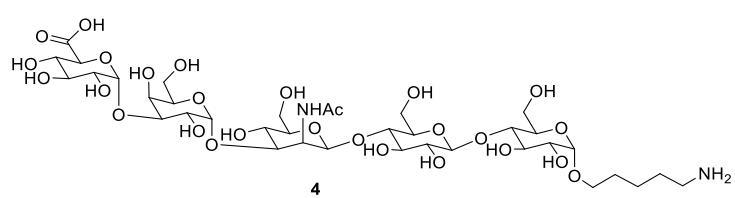
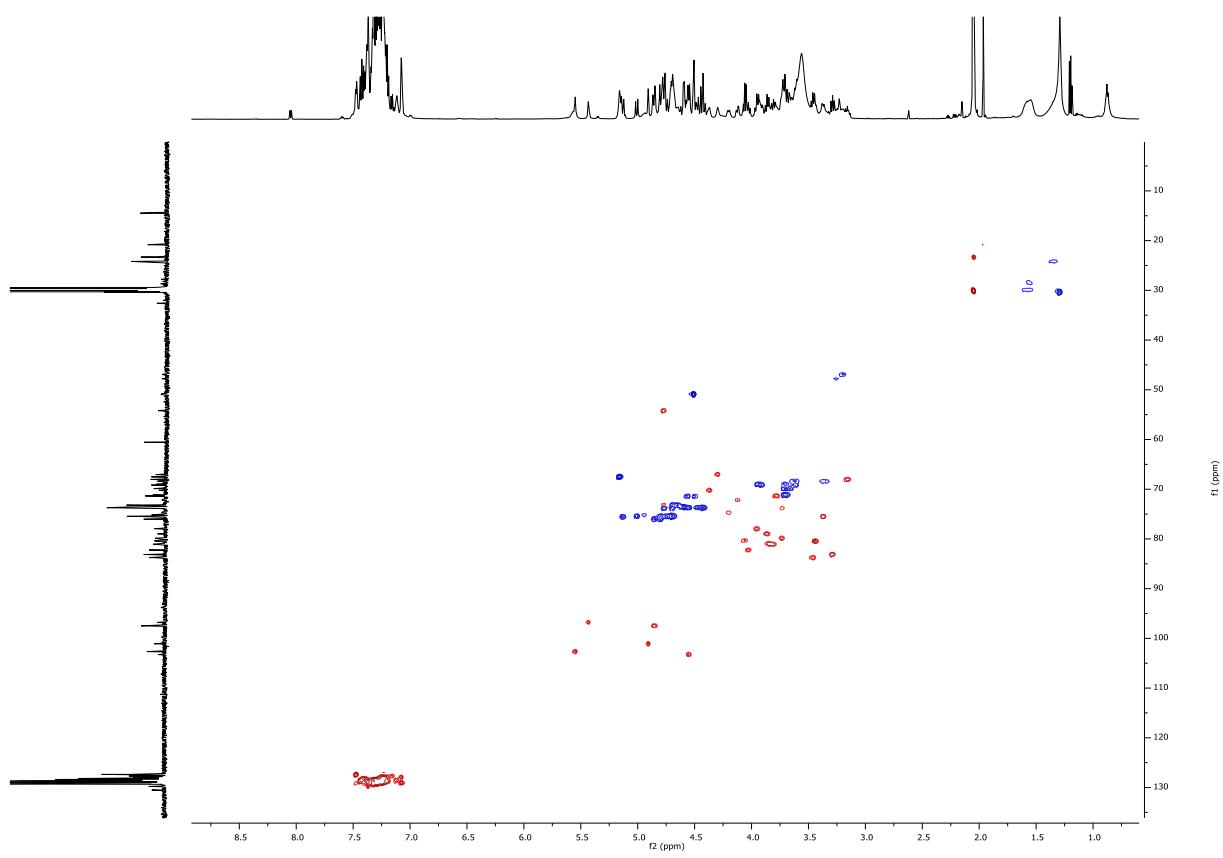


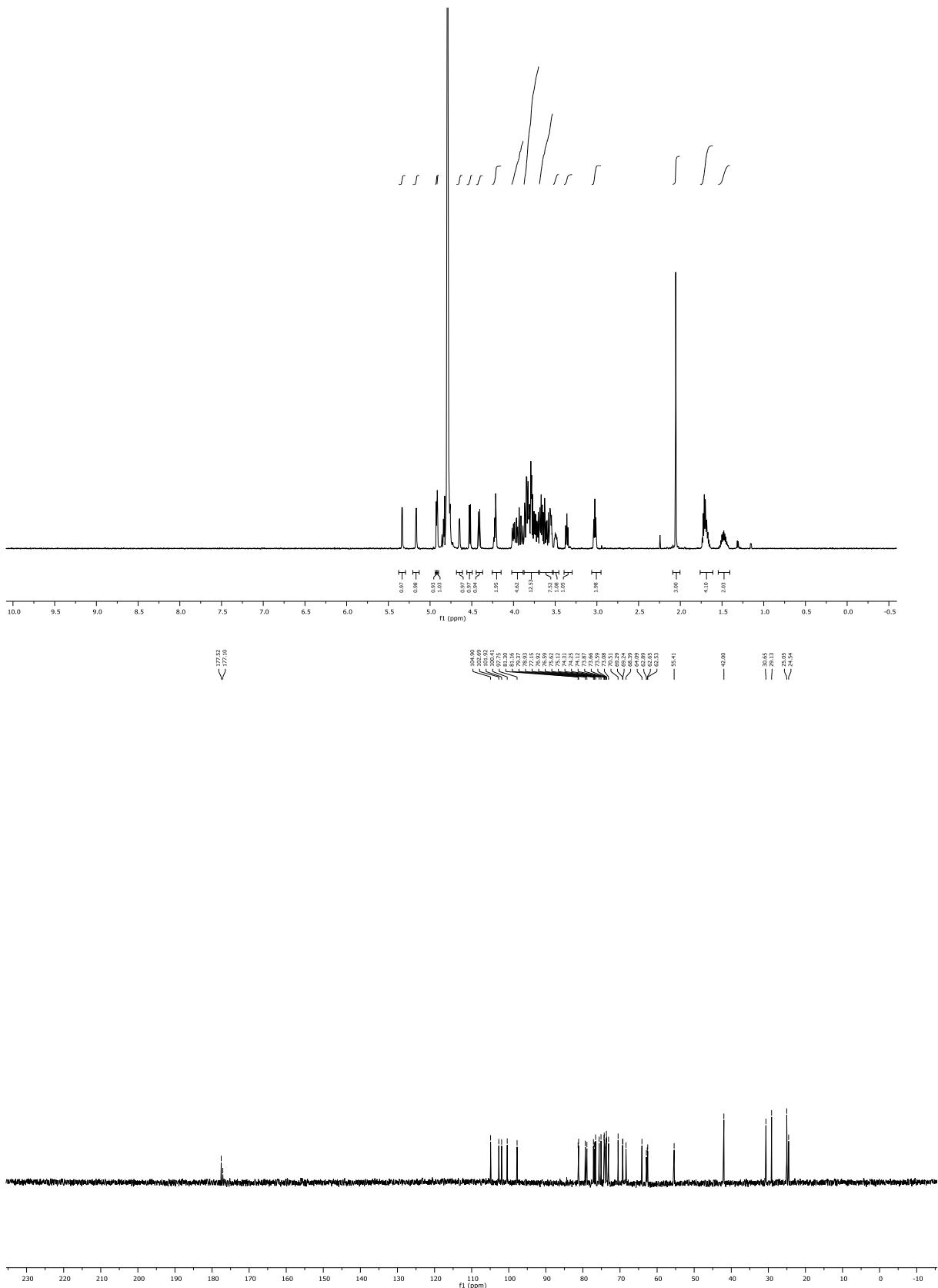


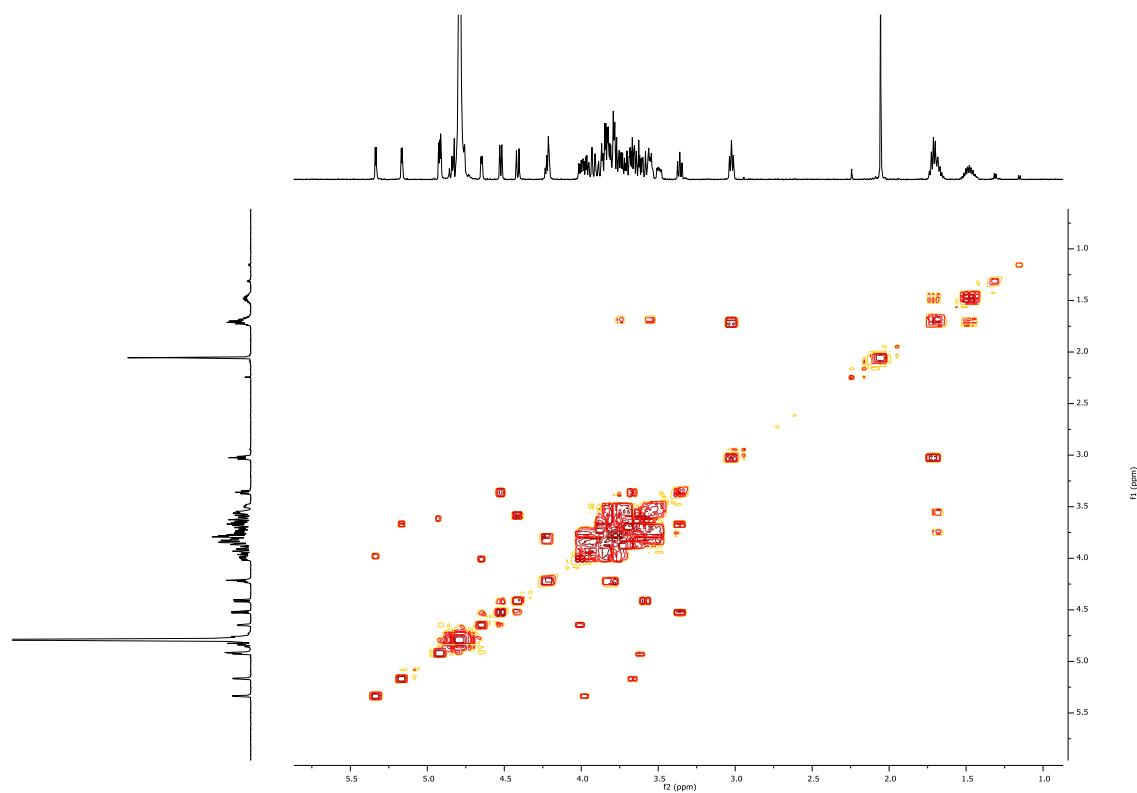
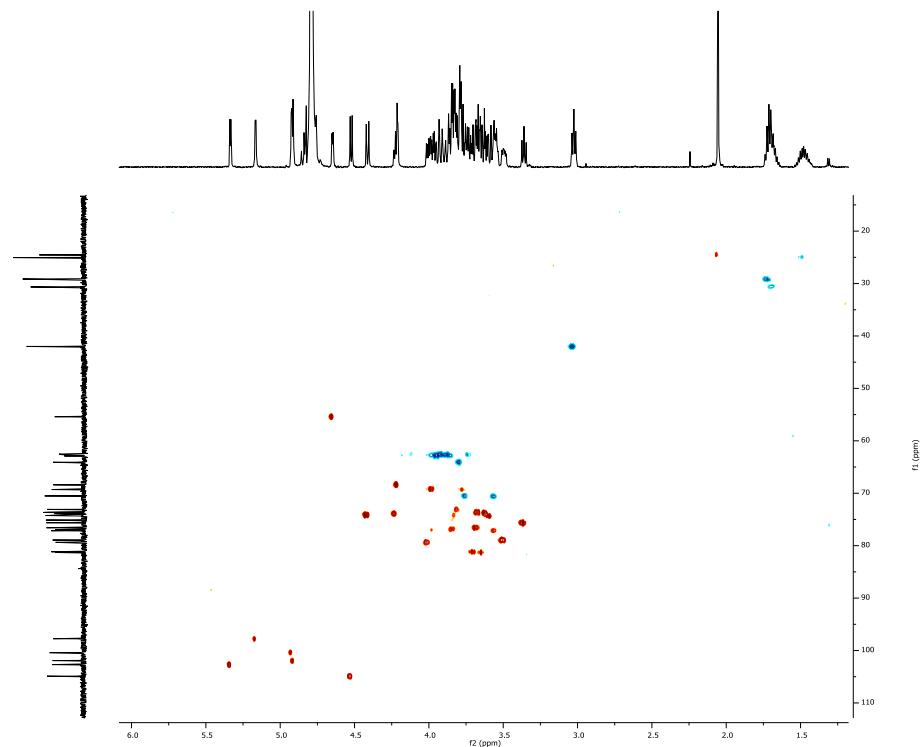
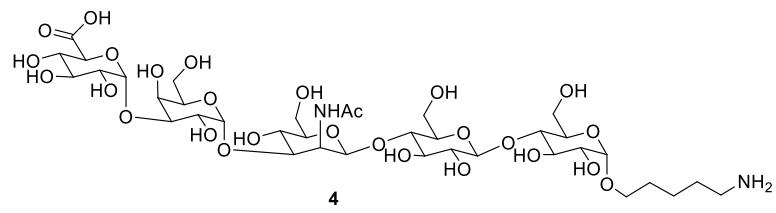


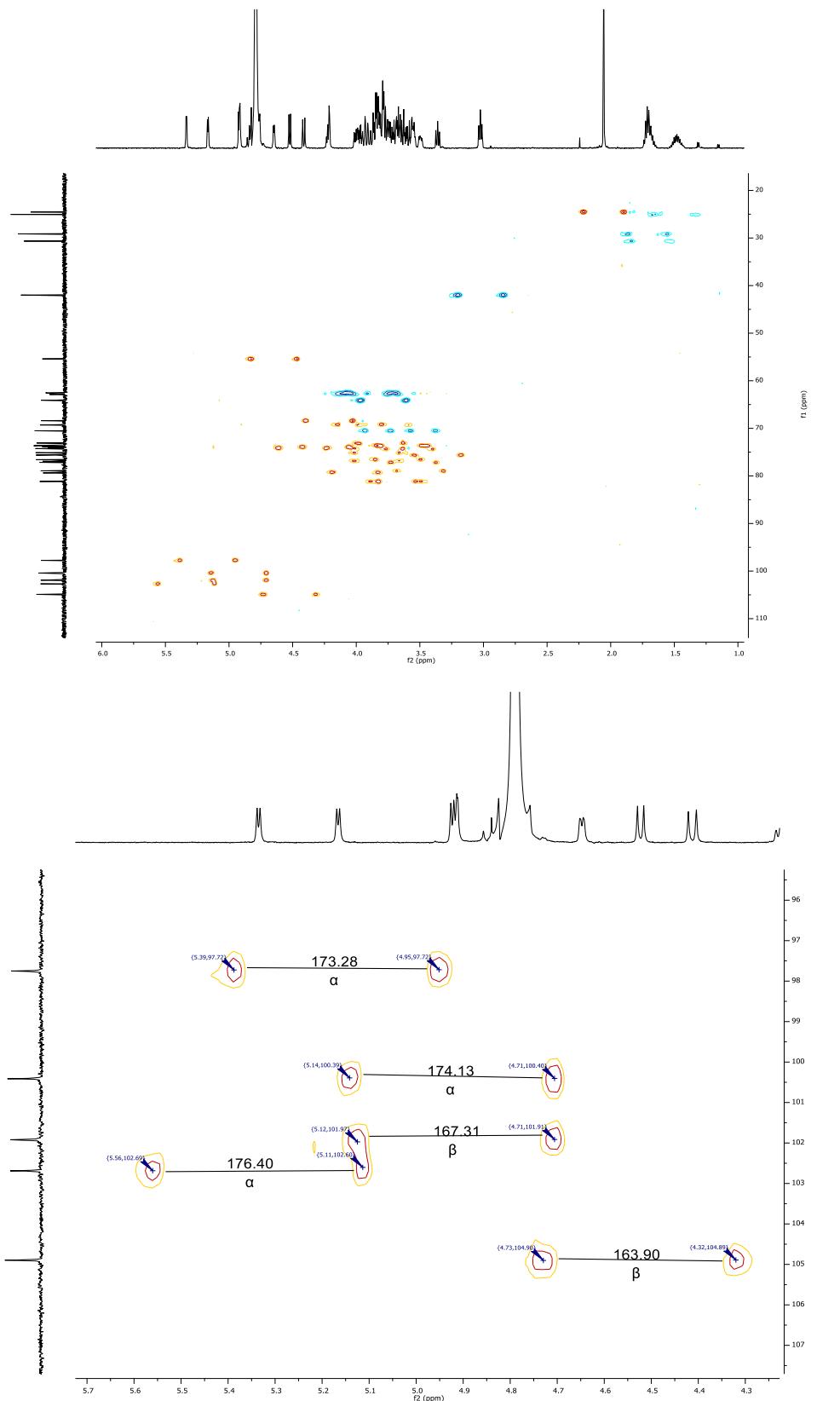
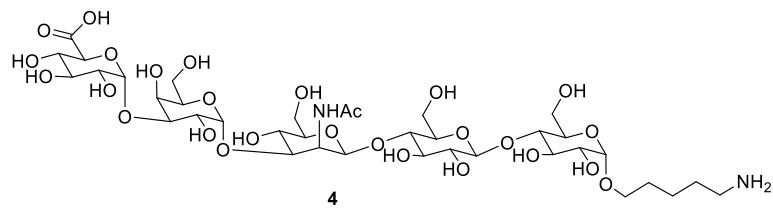


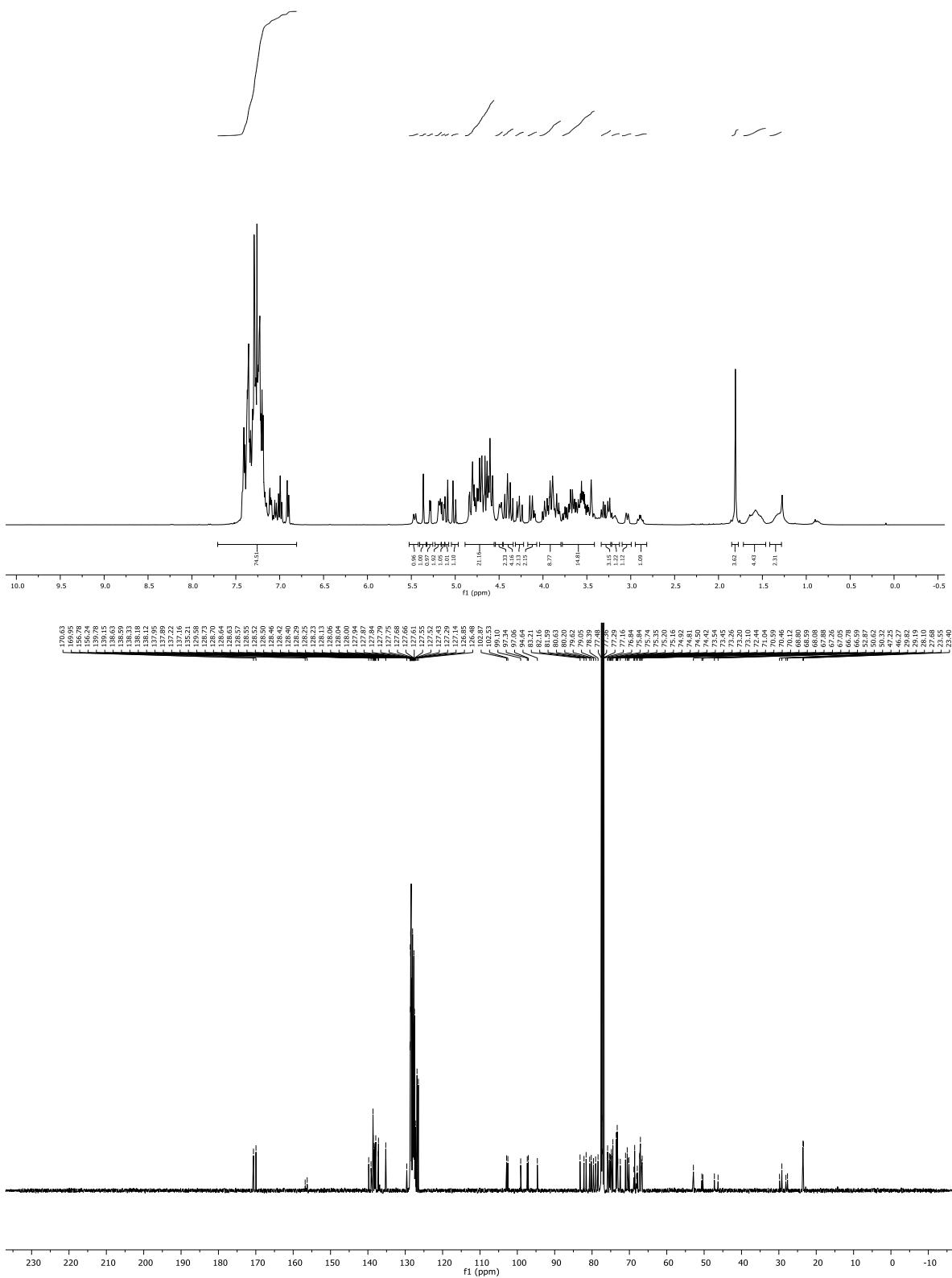
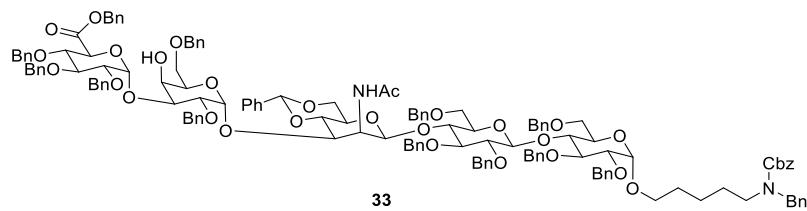


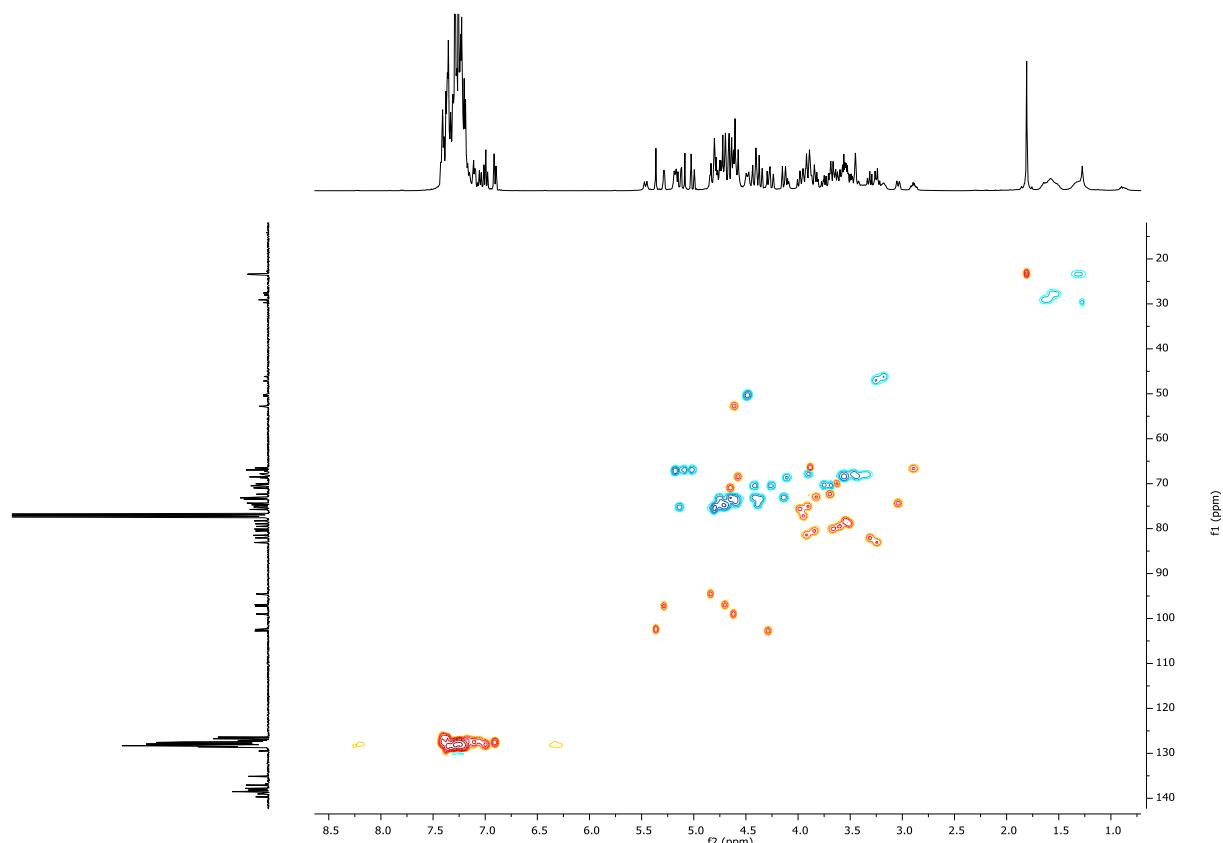
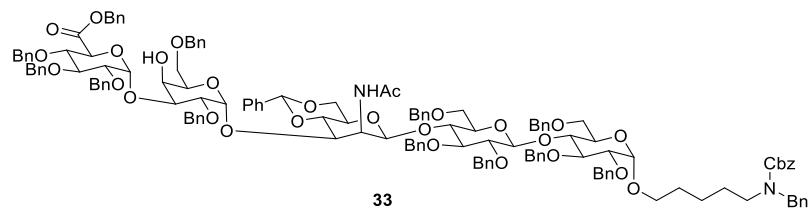


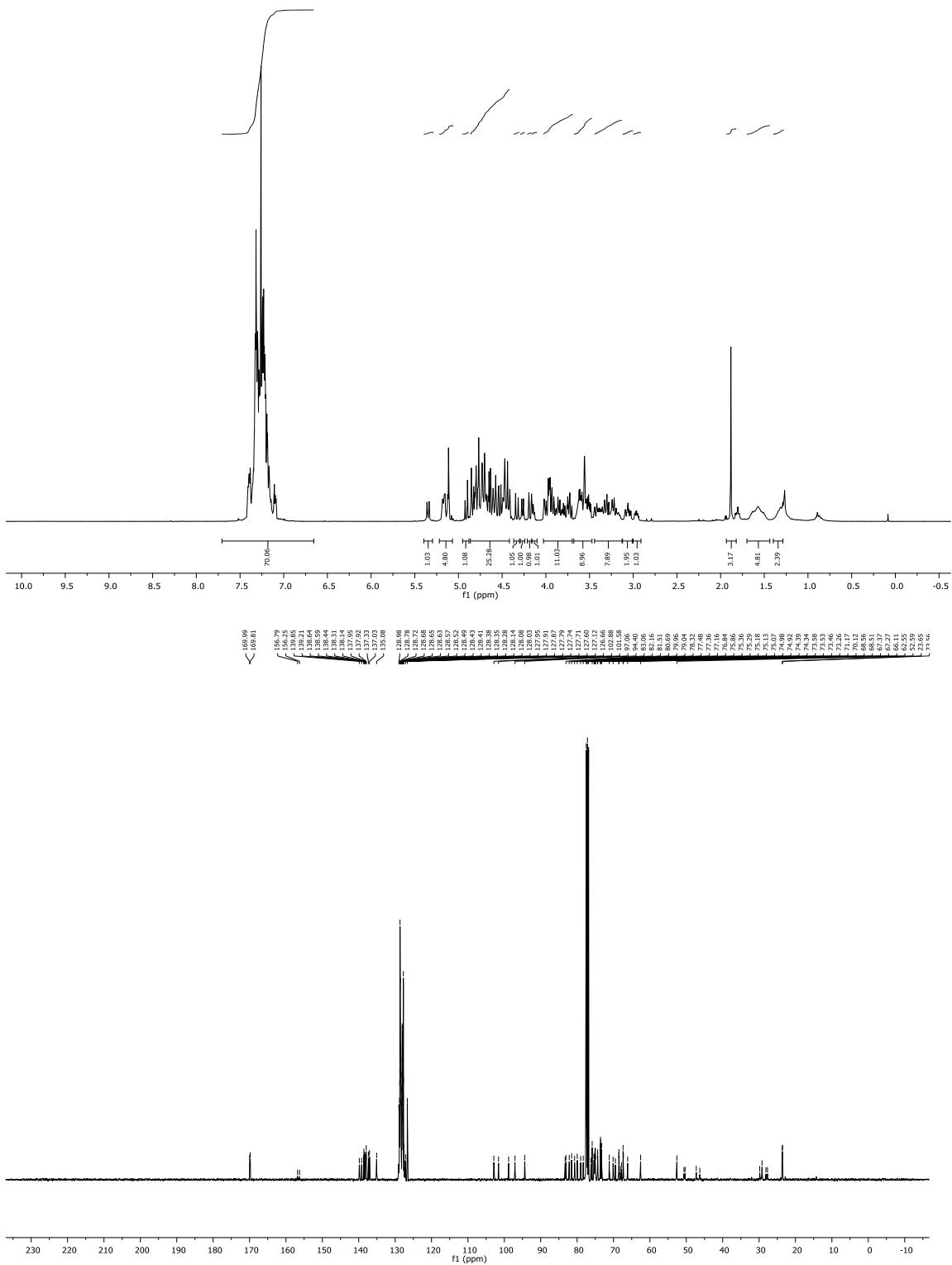
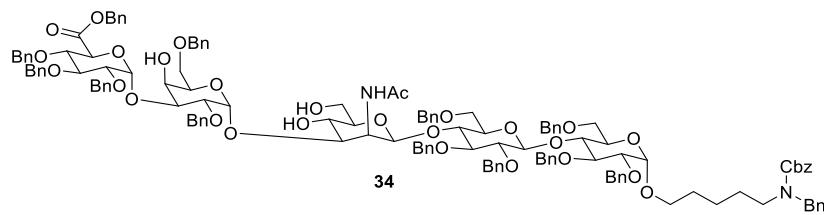


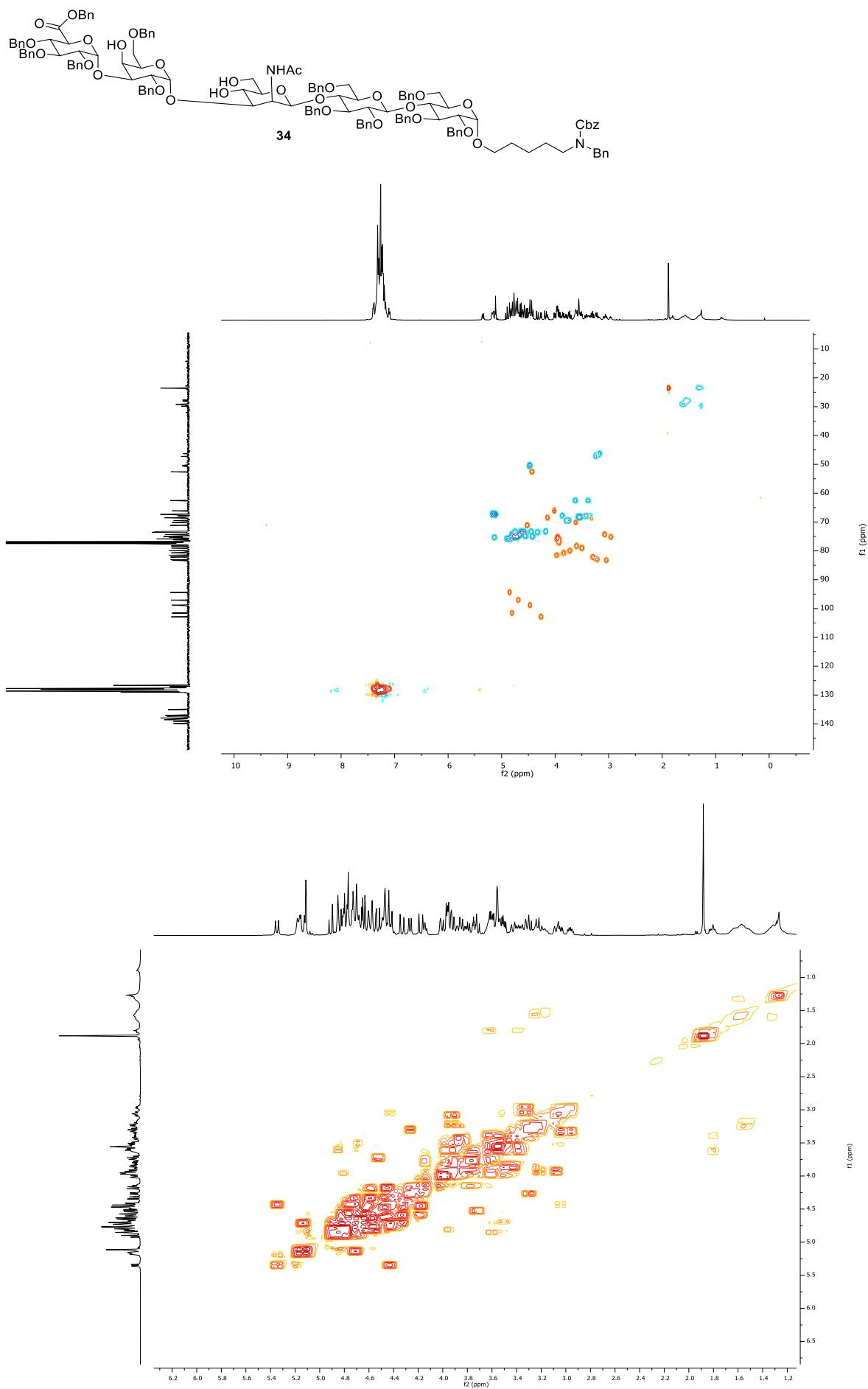


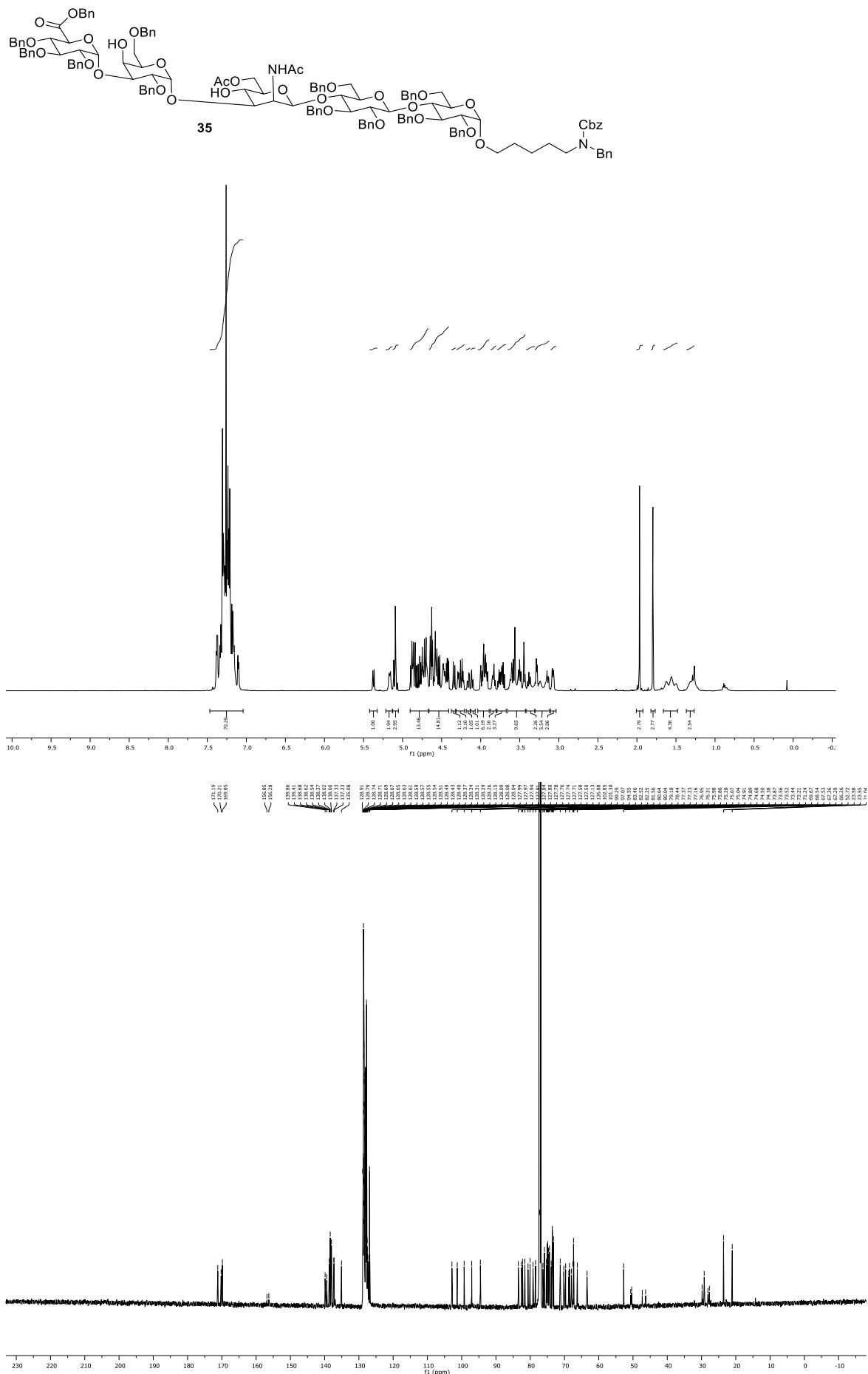


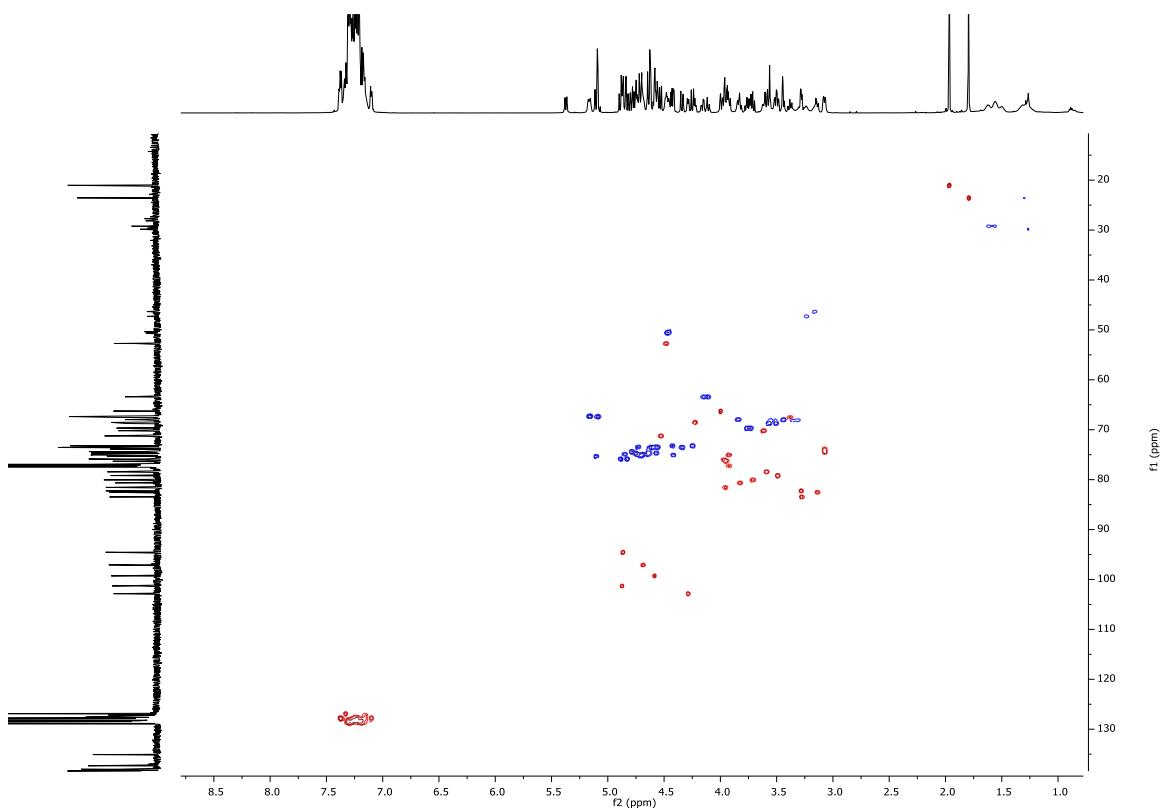
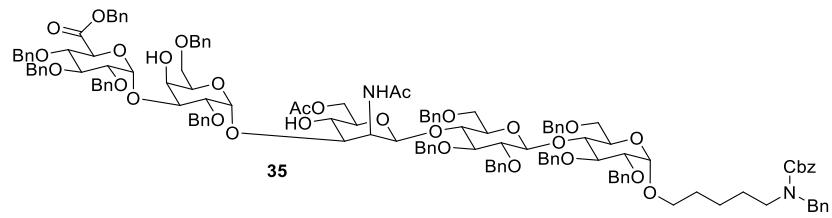


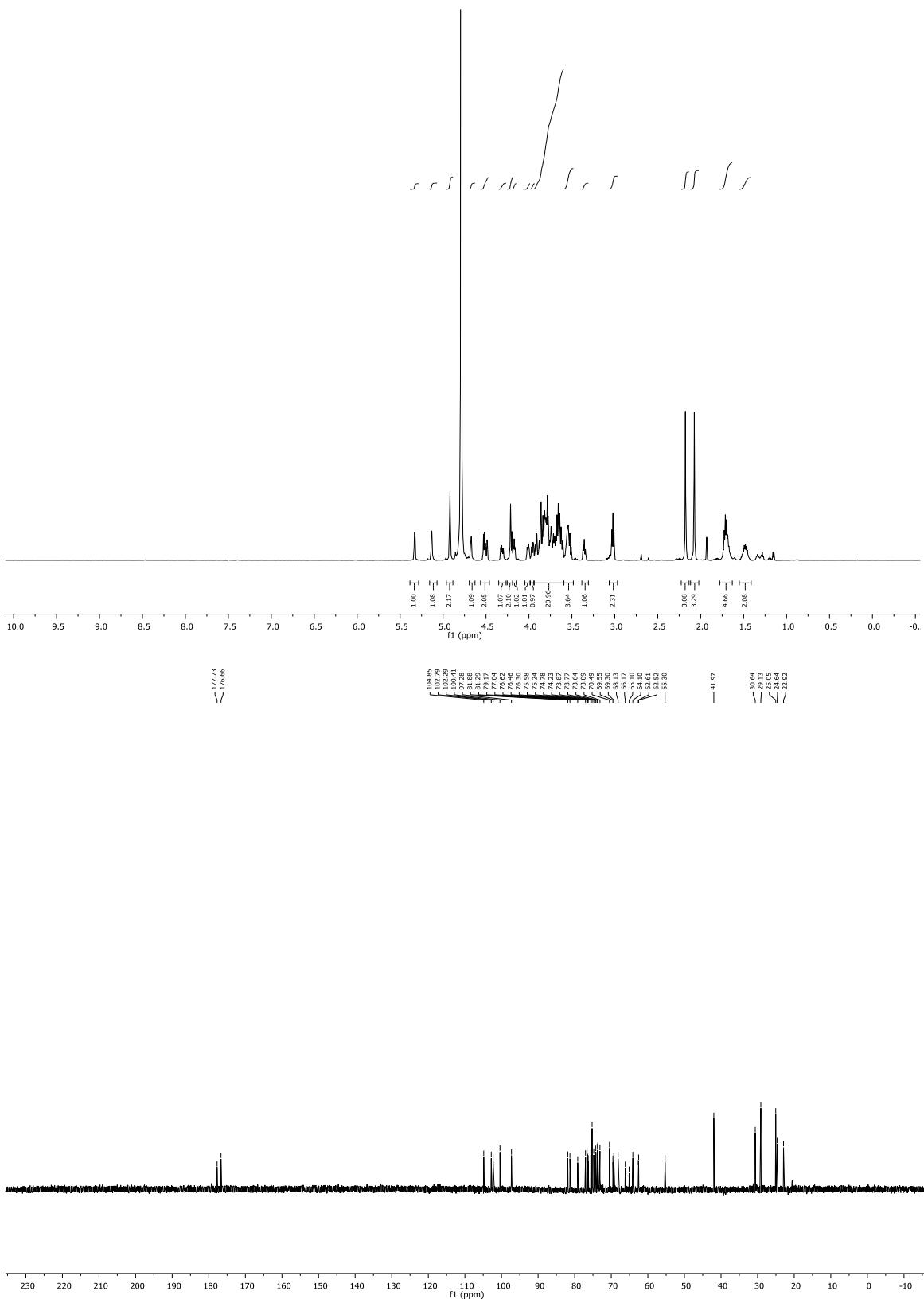
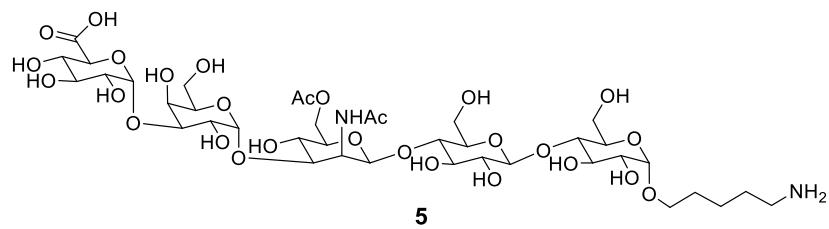


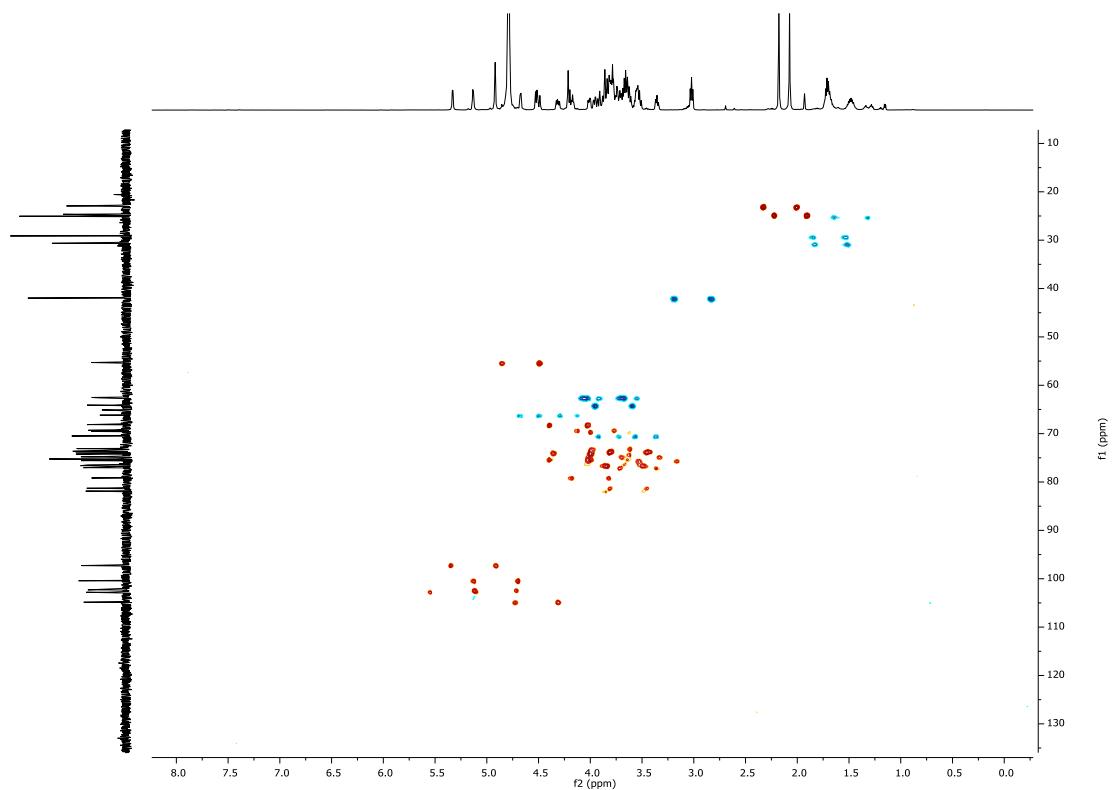
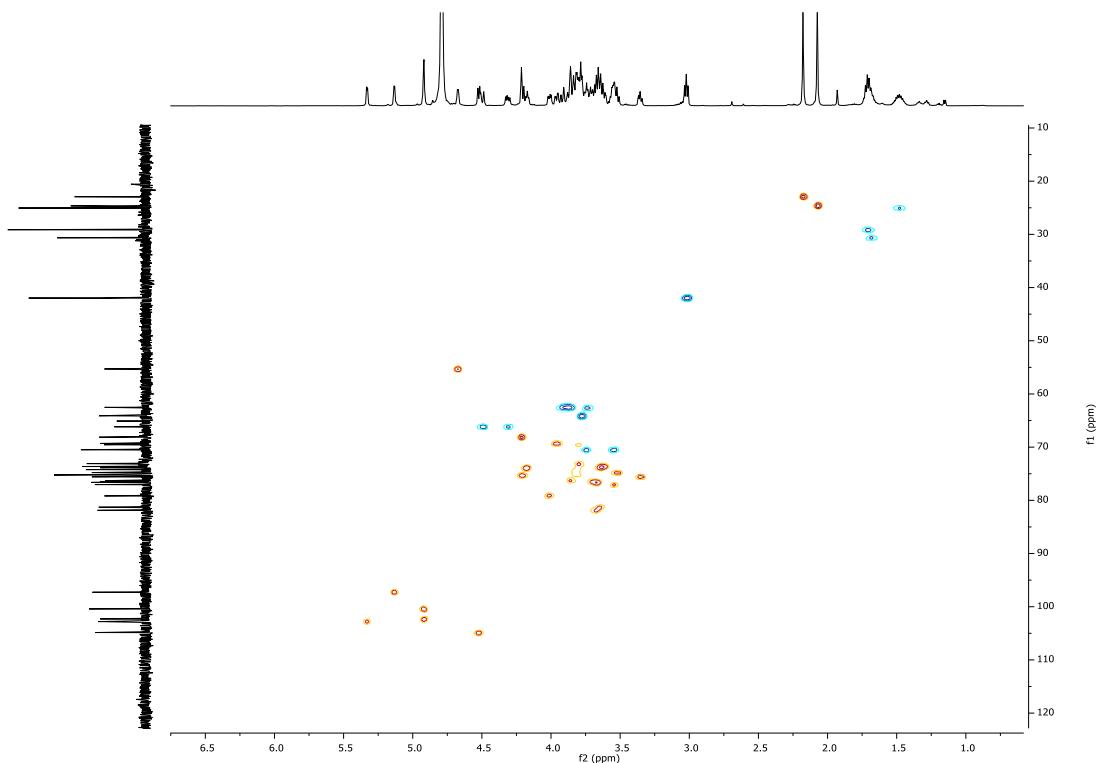
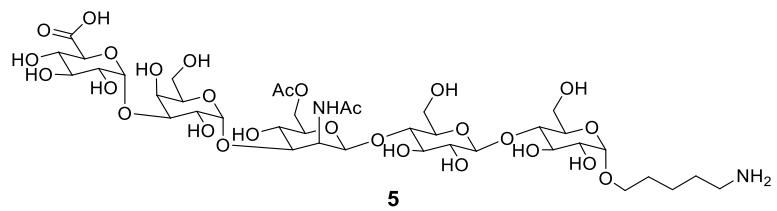


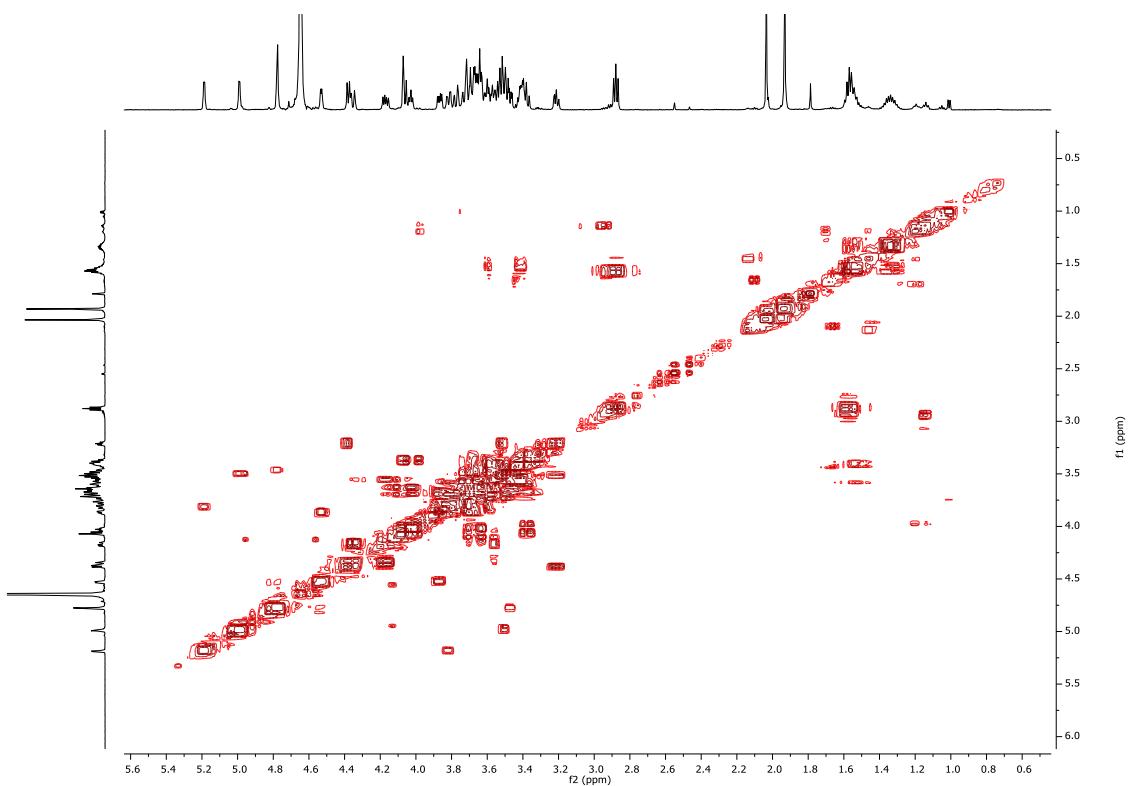
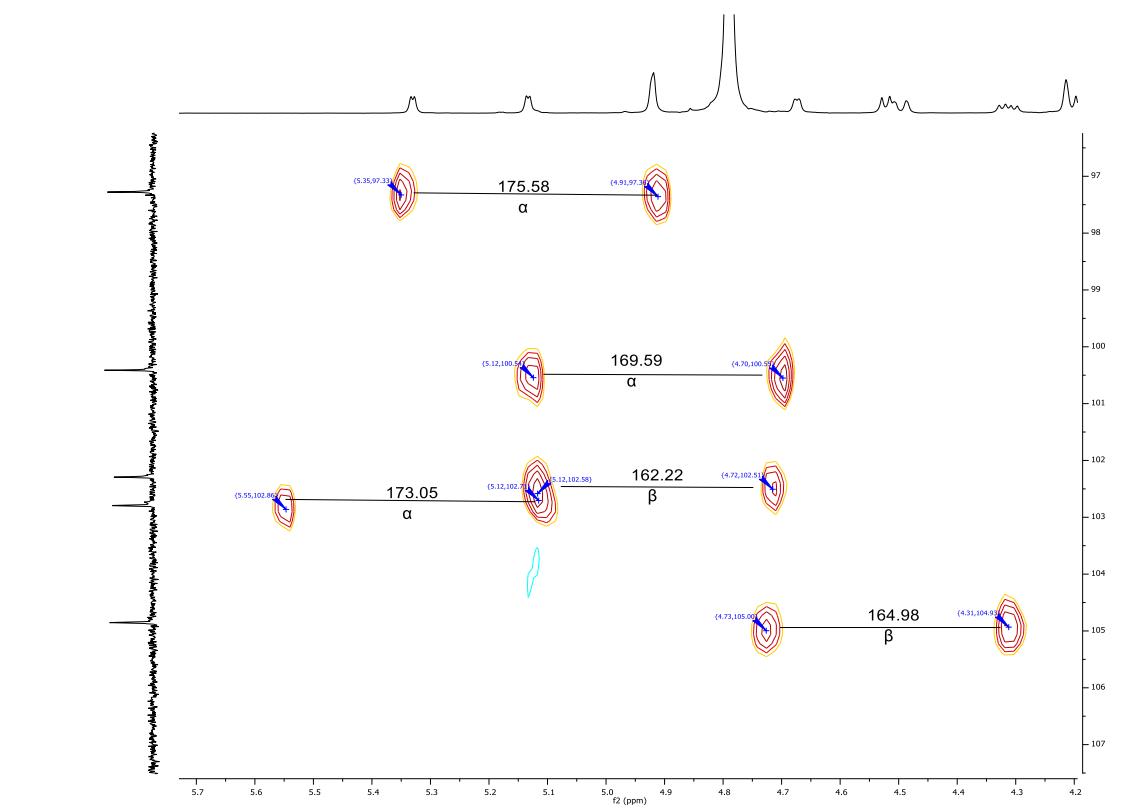
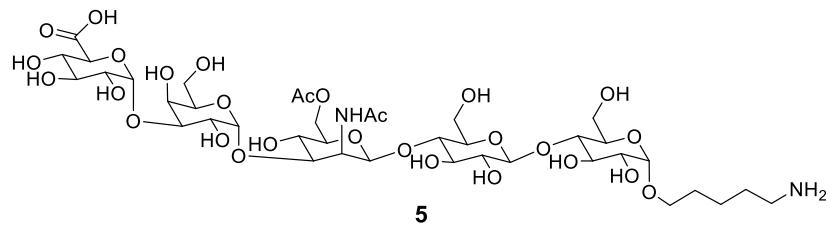






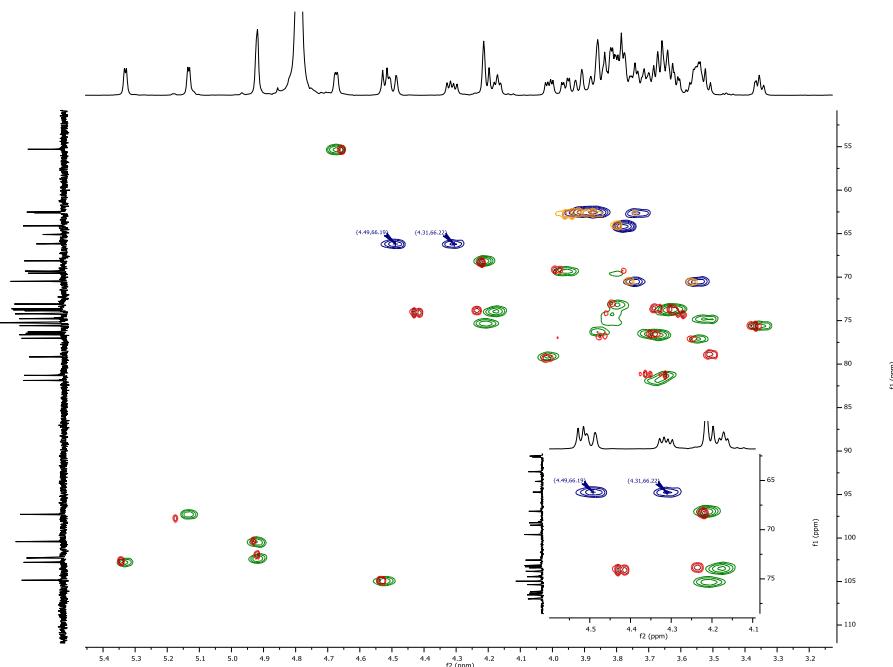






Confirmation of ManNAc-6-OAc:

The HSQC spectra clearly shows the presence of methylene C6 peaks at 4.49 and 4.31 ppm in the case of **5** (blue) which in the case of **4** are present between 3.86–3.94 ppm (orange). Also the new acetyl peak is seen at 2.18 ppm (an overlay of the HSQC's of **4** and **5** is shown below).



A comparison below of the ^1H NMR spectrum with the literature reported confirms the C6 acylation (denoted by # at 4.49 and 4.31 ppm). For further details, please refer to Moon H. Nahm, et. al. *J. Biol. Chem.* **2012**, 287, 13996-14003 (Supporting Information Figure S3).

