

PC 7 - Synthesis of Partially Acetylated Chitotetraoses

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Chitooligosaccharides are $\beta(1\rightarrow4)$ linked homo- or hetero-oligomers of 2-acetamido-2-deoxy-D-glucose (GlcNAc) and/or 2-amino-2-deoxy-D-glucose (GlcN). They are of interest due to their intriguing biological activities. Enzymatic degradation of chitosan yields mixtures of hetero-chitooligomers which are difficult to separate. On the other hand, chemical synthesis affords pure compounds with defined sequences of GlcNAc and GlcN monomers.

We report on the synthesis of the protected tetrasaccharides:

- benzyl 3,4,6-tri-O-acetyl-2-deoxy-2-dimethylmaleimido- β -D-glucopyranosyl-(1 \rightarrow 4)-3,6-di-O-benzyl-2-deoxy-2-dimethylmaleimido- β -D-glucopyranosyl-(1 \rightarrow 4)-3,6-di-O-benzyl-2-deoxy-2-phthalimido- β -D-glucopyranosyl-(1 \rightarrow 4)-3,6-di-O-benzyl-2-deoxy-2-phthalimido- β -D-glucopyranoside,
- benzyl 3,4,6-tri-O-acetyl-2-deoxy-2-dimethylmaleimido- β -D-glucopyranosyl-(1 \rightarrow 4)-3,6-di-O-benzyl-2-deoxy-2-phthalimido- β -D-glucopyranosyl-(1 \rightarrow 4)-3,6-di-O-benzyl-2-deoxy-2-phthalimido- β -D-glucopyranosyl-(1 \rightarrow 4)-3,6-di-O-benzyl-2-deoxy-2-dimethylmaleimido- β -D-glucopyranoside, and
- benzyl 3,4,6-tri-O-acetyl-2-deoxy-2-phthalimido- β -D-glucopyranosyl-(1 \rightarrow 4)-3,6-di-O-benzyl-2-deoxy-2-dimethylmaleimido- β -D-glucopyranosyl-(1 \rightarrow 4)-3,6-di-O-benzyl-2-deoxy-2-phthalimido- β -D-glucopyranosyl-(1 \rightarrow 4)-3,6-di-O-benzyl-2-deoxy-2-dimethylmaleimido- β -D-glucopyranoside by using N-phthaloyl and N-dimethylmaleoyl protecting groups.