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Carbohydrate
RESEARCH

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Contents

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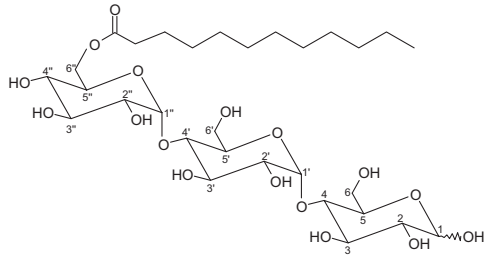
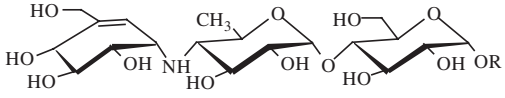
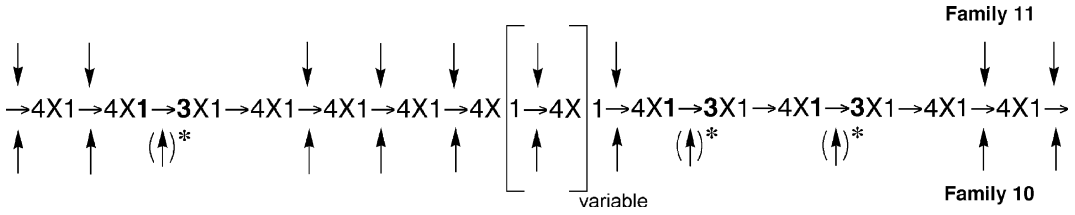


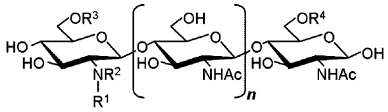


1, R= H; *2*, R= → 6)-D-Glc*p*

The K_i ratio of acarviosine–glucose (**1**) and isoacarbose (**2**), (K_i for **2**)/(K_i for **1**), were 21–440 and 1.0–1.8 for α-glucosidase family I and family II enzymes, respectively.

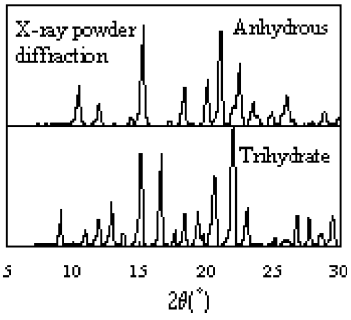
The *Pichia pastoris* expression system was constructed to gain the recombinant deglycosylated procarboxypeptidase Y. However, native-PAGE, MALDI-TOF mass spectrometry, dynamic light scattering, Con A chromatography, and chemical analysis by the phenol–sulfuric acid method revealed the secreted enzyme is a mixture of heterogeneously O-glycosylated proteins.



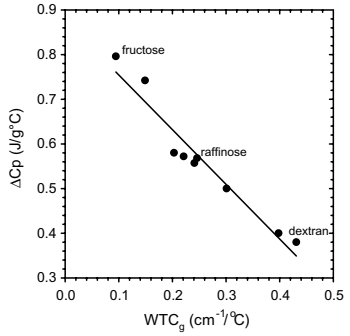


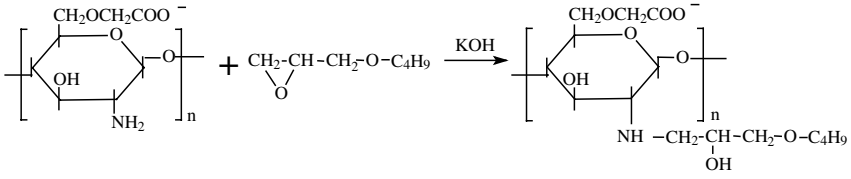
R^1 = C16:0, C16:1, C18:0, C18:1, (C18:1-Me, C18:2-OH, C19-cyclopropyl or C19:1) or (C18:0-Me, C18:1-OH or C19:0).
R^2 = Me or H.
R^3 = Cb or H.
R^4 = SO_3H or H.
n = 2 or 3.

Stable anhydrous lactulose was produced. It was characterized by an opaque white appearance, a coarse surface structure with random cracks, and a high degree of crystallization. Transformation was observed by X-ray powder diffraction spectra, DTA, DTG, SEM, light stereomicroscope and others. It was enhanced when the temperature of the fluidized-bed was over 40 °C.

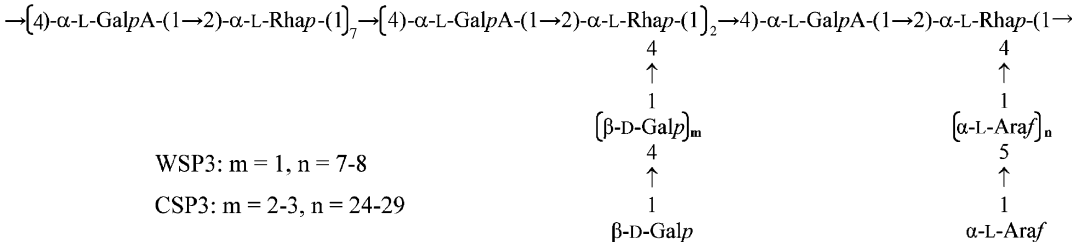


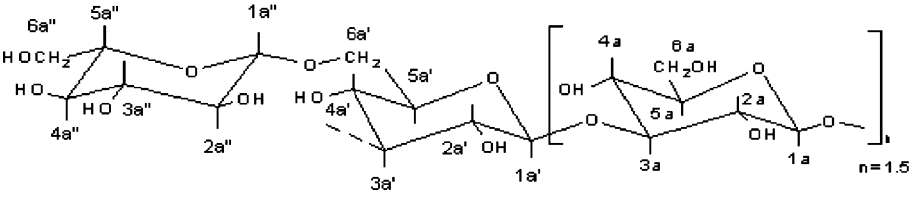
FTIR was used to study the hydrogen-bonding interactions that take place in vitrified carbohydrates of different chain lengths. DSC was used to measure the change in heat capacity (ΔC_p) that is associated with the glass transition. We found that with increasing T_g, the wavenumber–temperature coefficient of *v*OH in the glassy state, WTC_g, increases, whereas ΔC_p decreases. WTC_g and ΔC_p showed a negative linear correlation, indicating that the change in heat capacity during the glass transition is associated with the strength of the hydrogen-bonding network in the glassy state.

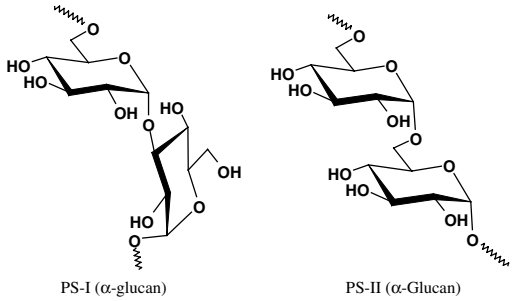


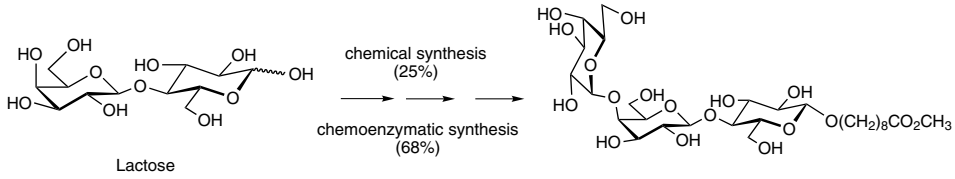


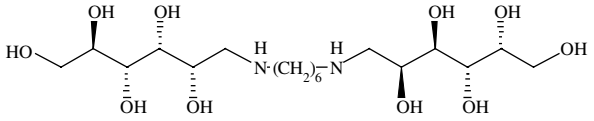
A group of (2-hydroxyl-3-butoxyl)propylcarboxymethylchitosans has been synthesized, and the surface and aggregate properties have been studied by means of surface tension, surface pressure and fluorescence measurements.





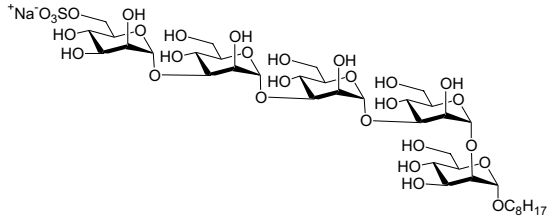


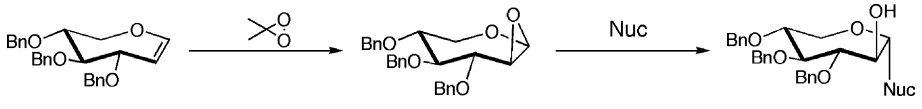


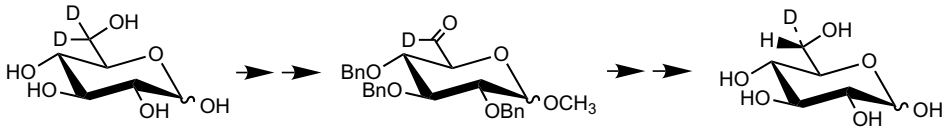


4a: D-glucose and D-galactose

A number of novel non-ionic bolaform amphiphiles with non-identical alditol head-groups e.g. 1-(1-deoxy-D-galactitol-1-ylamino)-6-(1-deoxy-D-glucitol-1-ylamino)hexane (**4a**), were synthesized by two successive reductive aminations involving 1,6-diaminohexane and the appropriate D-aldohexoses (D-glucose, D-mannose and D-galactose).







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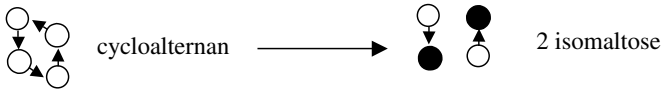
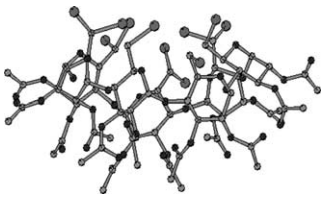
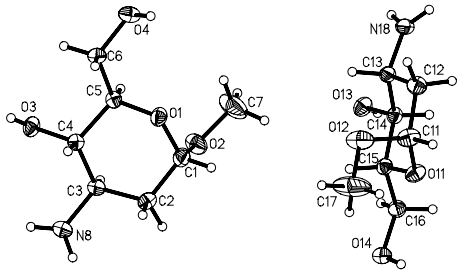


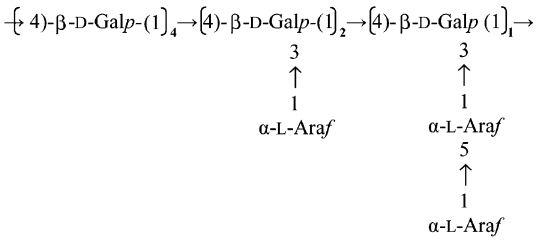
(1*S*)-D-Gal*a*NAc-(1→4,6)-α-D-Gal*p*-(1→6)-α-D-Gal*p*-(1→3)-D-Gal

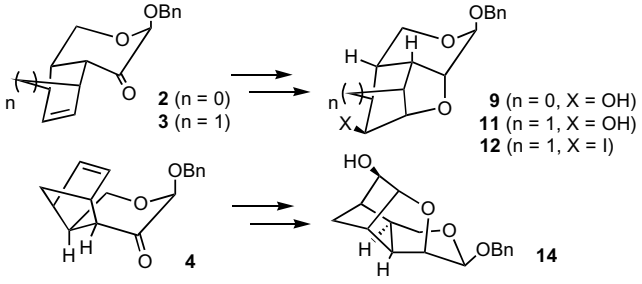


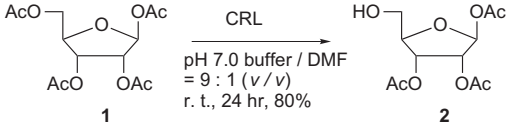
Structural characterization of heptakis(2,3-di-*O*-acetyl-6-bromo-6-deoxy)cyclomaltoheptaose, studied in solution by NMR spectroscopy and in the solid state as a methanol complex by X-ray crystallography. Unusual glucopyranose conformations in the crystal.



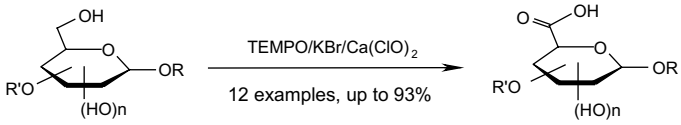
In the unit cell of this crystalline structure, eight molecules (with two molecules in the asymmetric unit) are present. Moreover, medium-strength N–H···O and O–H···O hydrogen bonds, which stabilize the 3-D structure of the title compound, can be observed.



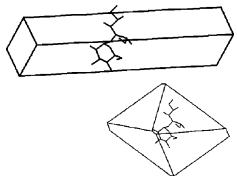




CRL = lipase from *Candida rugosa* (formerly *Candida cylindracea*)
(type VII, Sigma L 1754)



Addition of solid $Ca(OCl)_2$ as the terminal oxidant in the TEMPO-mediated selective oxidation has the benefit of easier operation. A variety of partially protected saccharide derivatives have been successfully converted into the corresponding uronate derivatives, including disaccharide building blocks for GAG fragments and precursors to saponins.



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*Corresponding author
ⓘ+ Supplementary data available via ScienceDirect

COVER

Well-defined glycoforms of glycoproteins can easily be obtained by oxidative coupling of synthetic thioaldoses with proteins that have a cysteine moiety in lieu of an asparagine residue carrying natural N-linked oligosaccharides. In vitro glycosylation offers several advantages such as quantitative conjugation, incorporation of oligosaccharides that display high bioactivities and the possibility of using convenient bacterial or yeast protein expression systems. The figure is related to Geert-Jan Boons' *Carbohydrate Research Award* paper, Carbohydr. Res., **2004**, *339*, 181–193.

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