



Synthesis of plant cell wall oligosaccharides

Clausen, Mads Hartvig

Publication date:
2017

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):
Clausen, M. H. (2017). Synthesis of plant cell wall oligosaccharides. Abstract from 19th European Carbohydrate Symposium, Barcelona, Spain.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.



SYNTHESIS OF PLANT CELL WALL OLIGOSACCHARIDES

Mads H. Clausen¹

¹ Center for Nanomedicine and Theranostics & Department of Chemistry, Technical University of Denmark, Kemitorvet 207, 2800 Kgs. Lyngby, Denmark
e-mail: mhc@kemi.dtu.dk

Plant cell walls are structurally complex and contain a large number of diverse carbohydrate polymers. These plant fibers are a highly valuable bio-resource and the focus of food, energy and health research. We are interested in studying the interplay of plant cell wall carbohydrates with proteins such as enzymes [1-2], cell surface lectins, and antibodies [3-4]. However, detailed molecular level investigations of such interactions are hampered by the heterogeneity and diversity of the polymers of interest. To circumvent this, we target well-defined oligosaccharides with representative structures [5-6] that can be used for characterizing protein-carbohydrate binding. The presentation will highlight chemical syntheses of plant cell wall oligosaccharides from the group and provide examples from studies of their interactions with proteins.

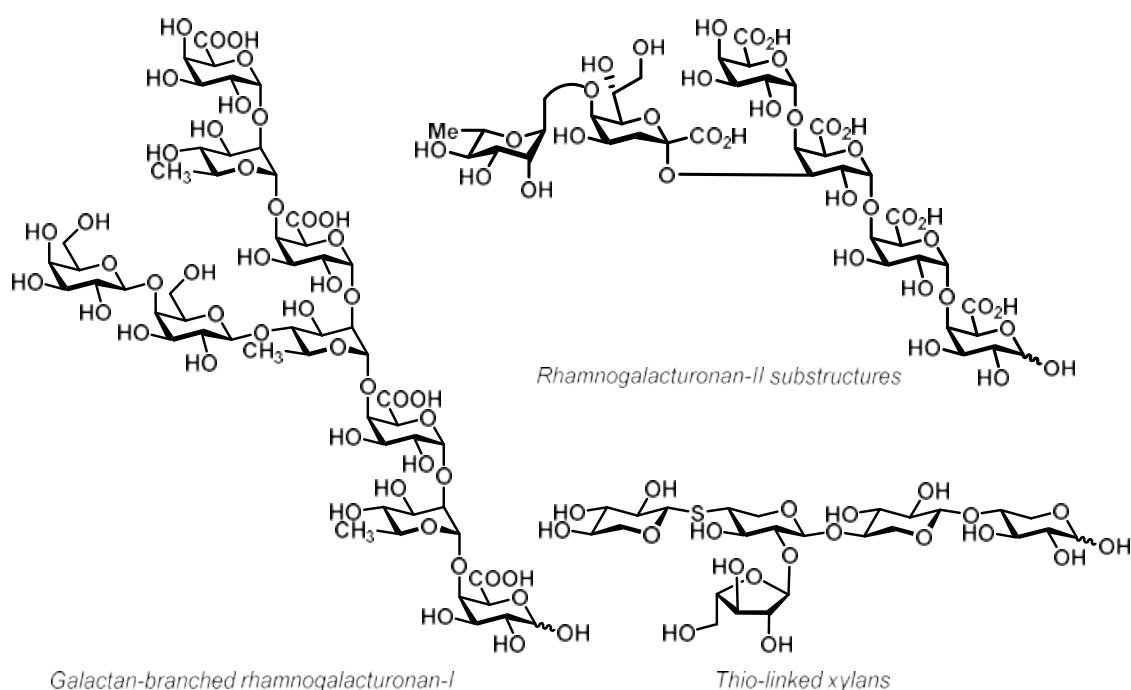


Figure 1. Examples of synthetic targets.

- [1] Seyedarabi, A.; To, T. T.; Ali, S.; Hussain, S.; Fries, M.; Madsen, R.; Clausen, M. H.; Teixeira, S.; Brocklehurst, K.; Pickersgill, R. *Biochemistry* **2010**, *49*, 539-546.
- [2] Liwanag, A. J. M.; Ebert, B.; Verhertbruggen, Y.; Rennie, E. A.; Rautengarten, C.; Oikawa, A.; Andersen, M. C. F.; Clausen, M. H.; Scheller, H. *Plant Cell*, **2012**, *24*, 5024-5036.
- [3] Pedersen, H. L.; Fangel, J. U.; McCleary, B.; Ruzanski, C.; Ralet, M.-C.; Farkas, V.; von Schantz, L.; Marcus, S. E.; Andersen, M. C. F.; Field, R.; Ohlin, M.; Knox, J. P.; Clausen, M. H.; Willats, W. G. T. *J. Biol. Chem.* **2012**, *287*, 39429-39438.
- [4] Andersen, M. C. F.; Boos, I.; Marcus, S. E.; Kracun, S. K.; Rydahl, M. G.; Willats, W. G. T.; Knox J.P.; Clausen, M. H. *Carbohydr. Res.* **2016**, *426*, 36-40.
- [5] Zakharova, A. K.; Madsen, R.; Clausen, M. H. *Org. Lett.* **2013**, *15*, 1826-1829.
- [6] Andersen, M. C. F.; Kracun, S. K.; Rydahl, M. G.; Willats, W. G. T.; Clausen, M. H. *Chem. Eur. J.* **2016**, *22*, 11543-11548.