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## Synthesis of mixed-linked xylans for enzyme characterization

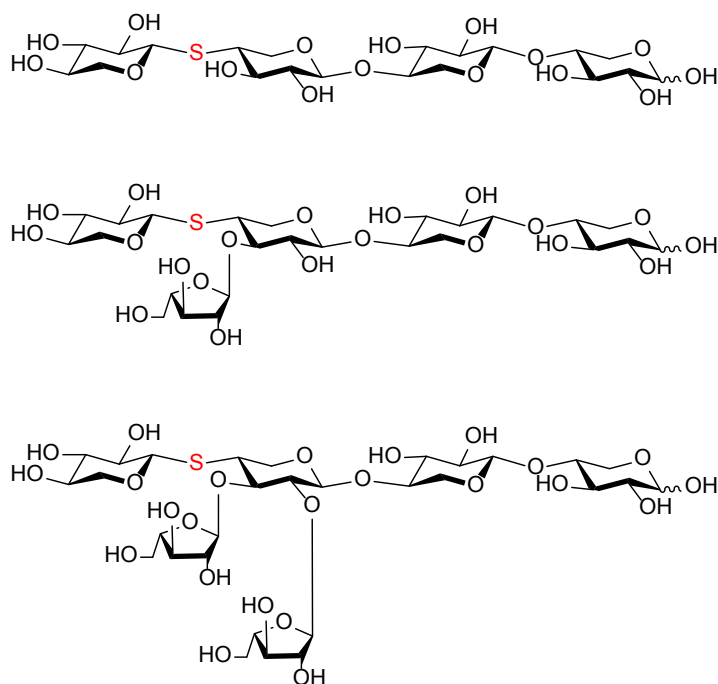
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The study of plant cell wall polysaccharides and their corresponding interactions with proteins is vital to get new insights into plant development [1]. Moreover, these polysaccharides are of interest in biotechnological research, due to their use in numerous industrial applications such as food, health care and sustainable biofuel production. A major class of hemicellulose is arabinoxylan that is an important polysaccharide component of lignocellulosic biomass [2]. To underpin the full commercial exploitation of these glycan polymers, it is necessary to learn more about the enzymatic hydrolysis of arabinoxylans. This can be achieved by chemical synthesis of well-defined oligosaccharides as models for the more complex macromolecules. Moreover, the utilization of enzyme resistant substrates can support the mapping of the active site of glycosyl-hydrolases.

The talk will highlight the synthesis of mixed *O*- and *S*-linked tetraxylans (figure 1) as possible interesting candidates for the investigation and characterization of arabinoxylan degrading enzymes [3].



**Figure 1.** Target structures

- [1] a) R. A. Burton, M. J. Gidley, G. B. Fincher, Heterogeneity in the chemistry, structure and function of plant cell walls, *Nat. Chem. Biol.* **2010**, *6*, 724.  
 b) K. H. Caffall, D. Mohnen, The structure, function, and biosynthesis of plant cell wall pectic polysaccharides, *Carbohydr. Res.* **2009**, *344*, 1879.
- [2] B. C. Saha, Hemicellulose bioconversion, *J. Ind. Microbiol. Biotechnol.* **2003**, *30*, 279.
- [3] B. Bonora, I. Boos, M. H. Clausen, Convergent strategy for the synthesis of S-linked oligoxylans, submitted to *Carbohydr. Res.*