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Rapid synthesis of N-glycan oxazolines from locust bean gum *via* the Lafont rearrangement

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Highlights

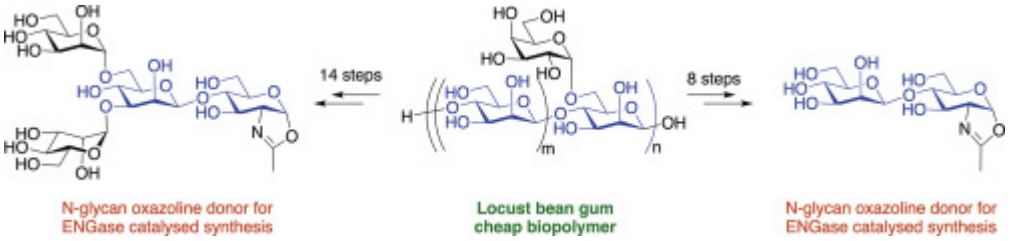
- Enzymatic degradation of the cheap biopolymer locust bean gum and conversion to a glycal.
- Use of the Lafont rearrangement to produce a Manβ(1–4)GlcNAc disaccharide.
- Conversion into an N-glycan disaccharide oxazoline.
- Elaboration into an N-glycan tetrasaccharide oxazoline.

Abstract

Enzymatic degradation of locust bean gum provides a Manβ(1→4)Man disaccharide, which may be converted into the core Manβ(1→4)GlcNAc disaccharide unit of all N-glycans *via* conversion to

a 2-iodo-glycosyl azide, and Lafont rearrangement. The Manβ(1→4)GlcNAc disaccharide may be used as a key intermediate for elaboration into more complex N-glycan structures providing a route to N-glycan oxazolines as donor substrates for ENGase enzymes that is considerably shorter than those reported previously.

Graphical abstract



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Keywords

Carbohydrates; Oxazolines; N-glycans; Locust bean gum; Lafont intermediate; Lafont rearrangement

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