

NEO-AMYLOPECTINYL MODELS: SYNTHESIS OF COMPLEX BETA-BRANCHED MALTO-OLIGOSACCHARIDES IN SOLUBLE AND SOLID PHASE.

Christophe Bliard, Virginie Glaçon

FRE 2715 CNRS, Université de Reims, Moulin de la housse, URCA, BP 1039, 51097 Reims cedex 2, France.-

e-mail: christophe.bliard@univ-reims.fr

The branching pattern found in starch polysaccharides can reach extreme complexity. The determination of primary structures found in ubiquitous polysaccharidic families such as amylopectins can be a real challenge. Moreover, though the enzymes involved in starch synthesis have been well-described, no satisfactory in-vitro synthesis has been achieved to date, one of the reasons invoked being the lack of proper primer substrate.

We have initiated an investigation of such structural diversity by re-building well-defined branched malto-oligosaccharidic structures through chemical hemisynthesis, in order to obtain model substrates. Several beta-branched neo-amylopectinyl oligosaccharides having degrees of polymerisation (DP) 4 to 8, with well-defined structures, were obtained. The construction of these models was performed using chemically modified malto-oligosaccharides in solution. All structures were confirmed by long distance heteronuclear NMR spectroscopy. Using activated Wang resin, solid-phase supported oligosaccharides were synthesised and the structures analysed by HR-MAS NMR.

Key words: Amylopectin, oligosaccharides synthesis, solid-phase.