

## Oligosaccharide from hemicellulose

### ABSTRACT

Hemicellulose is known as the second most abundant carbohydrate material consisting of 25%–35% dry weight wood material. Many types of research have been performed toward exploiting hemicellulose from lignocellulosic biomass for use in beneficial products in various industries, such as fuel, food, pharmaceutical, and cosmetics. Autohydrolysis treatment is a physical approach which is an interesting and preferable pretreatment as it offers a green-approach technology that has a less pollutive effect on the environment and lower cost compared to other physical and chemical treatments. Autohydrolysis-assisted CO<sub>2</sub> and the subsequent enzymatic hydrolysis with xylanase represents a choice method for producing a wide range of xylooligosaccharides (XOS) with different degrees of polymerization and properties from different types of biomass sources. Different types of XOS can be produced from xylans, such as xylobiose (X2), xylotriose (X3), xylo-tetraose (X4), and xylopentaose (X5), depending on the pretreatment used. In the present chapter, the potential use of oil palm biomass as a feedstock source in XOS production is highlighted using current autohydrolysis technology and subsequent enzymatic saccharification.

**Keyword:** Biomass; Carbon dioxide assist; Hydrothermal; Pretreatment; Xylooligosaccharides