PREBIOTIC ACTIVITY OF XYLOOLIGOSACCHARIDES FROM EUCALYPTUS SAWDUST HYDROLIZATE

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Lignocellulosic biomass is a renewable and inexpensive resource that can be used for production of high commercial value products. Prebiotics are defined as non-digestible oligosaccharides, that are selectively fermentable by some beneficial bacteria like some species of *Lactobacillus* and *Bifidobacterium* situated in the gastrointestinal tract and have positive effect on the host.

The aim of this work was to study the prebiotic effect of XOS obtained from the hemicelluslosic fraction of pretreated eucalyptus sawdust. For this purpose, *Lactobacillus rhamnosus* (NRRL B - 445) and *Lactobacillus acidophilus* (NRRL B - 4495) were growth in anaerobic cultures at 37°C and 150 rpm for 48 h on modified MRS broth, replacing the carbon source by XOS (20 g/L). The prebiotic potential of XOS was also compared with a commercial prebiotic supplement based on inulin (Prebiotic, Deli for Life®) on modified MRS replacing glucose by 20 g/L of the solid supplement. Cultures on MRS broth were used as control. Assays were also carried out with a non-pathogenic *Escherichia coli* strain, to estimate growth of bacterial pathogens. Molecular weight of XOS and their antioxidant activity by DPPH method were determined.

The results obtained showed that *Lactobacillus* strains were capable of growth in all the media tested. The strains presented the highest growth in modified MRS broth supplemented with XOS, and the lowest were achieved on MRS broth. These results shows that XOS produced from the hemicellulosic fraction of eucalyptus sawdust hydrolysate could be a promising source of prebiotics.