Xylitol production by Debaryomyces hansenii and Candida guilliermondii from rapeseed straw hemicellulosic hydrolysate - DTU Orbit (31/12/2018)

This study evaluated the possibility of using rapeseed straw hemicellulosic hydrolysate as a fermentation medium for xylitol production. Two yeast strains, namely Debaryomyces hansenii and Candida guilliermondii, were used for this bioconversion process and their performance to convert xylose into xylitol was compared. Additionally, different strategies were evaluated for the hydrolysate detoxification before its use as a fermentation medium. Assays in semi-defined media were also performed to verify the influence of hexose sugars on xylose metabolism by the yeasts. C. guilliermondii exhibited higher tolerance to toxic compounds than D. hansenii. Not only the toxic compounds present in the hydrolysate affected the yeast's performance, but glucose also had a negative impact on their performance. It was not necessary to completely eliminate the toxic compounds to obtain an efficient conversion of xylose into xylitol, mainly by C. guilliermondii (YP/S = 0.55 g/g and 0.45 g/g for C. guilliermondii and D. hansenii, respectively).