

03 November 2023

To: The Director
University of Missouri South African Education Program (UMSAEP)
213 Hulston Hall
Columbia
MO 65211

Dear Prof. Uphoff,

REPORT 2021-2023 UMSAEP Award (R. den Haan)

This serves as a report of the activities associated

Project details:

Conversion of xylose derived from lignocellulosid biomass to xylitol.

Recently there has been increased interest in development of technologies to produce biochemicals from plant biomass for the valorization of waste material, or to broaden the product range of biorefineries. Xylitol, used as a low-calorie sweetener, is one product that has gained attention. Xylitol is available as a bulk commodity chemical, with established markets and a market price of US\$40 per tonne, and the market for xylitol has grown to over US\$1 billion p/a. Xylitol is produced in fermentation by yeasts including *Candida* spp. and recombinant *Saccharomyces cerevisiae* strains. An aspect we would like to discuss is the

Process development (MJ)

Aim:

Develop a cost-effective process for conversion of xylose and xyligosaccharides directly hydrolyzed from lignocellulosic biomass to xylitol using our engineering yeast strains

Objective:	Outcome:
Develop the pretreatment processes for producing xylose rich hydrolysates	When the real lignocellulosic hydrolysate was used for fermentation, dilute acetic acid pretreatment was effective for releasing fermentable xylose, and deacetylation was used for removing major inhibitors, especially acetic acid, which was the most significant

Projectoutputs (UWC):

1. MSc ThesisA. Maneveldt.

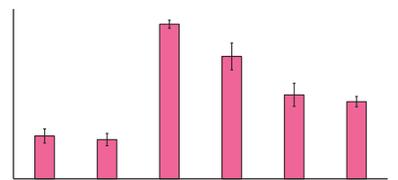
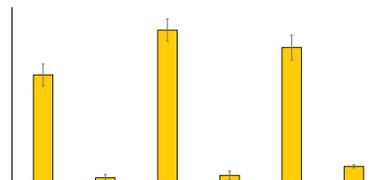
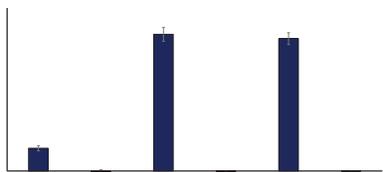
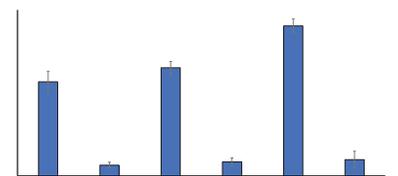
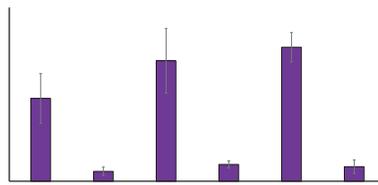
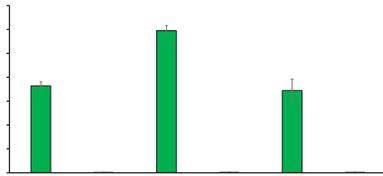


Figure 1	Figure 2	Figure 3	Figure 4	Figure 5	Figure 6
Figure 7	Figure 8	Figure 9	Figure 10	Figure 11	Figure 12
Figure 13	Figure 14	Figure 15	Figure 16	Figure 17	Figure 18
Figure 19	Figure 20	Figure 21	Figure 22	Figure 23	Figure 24
Figure 25	Figure 26				