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 report of the activities associated

Projectdetails:

Conversionof xylosederivedfrom lignocellulosicbiomassto xylitol.

Recently there has been increased interest in thedevelopment of technologies to produce biochemicals from plant biomassfor the valorizationof wastematerial,or to broadenthe productrangeof biorefineries.Xylitol,usedasa low-calorie sweetener, is one product that has gained attention. Xylitol is a-valuehigh bulk commodity chemical, with established markets and a market price of US$4 per tonne, and the market for xylitol has grown to over US$1 billion p/a. Xylitol is produced in fermentation by yeasts includingCandidaspp. and recombinantSaccharomyces cerevisiaestrains. An aspect we would

Process development (MU)

Aim:

Develop a cost-effective process for conversion of xylose and xylo-oligosaccharides 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 ac pretreatment was effective for releasing fermentable xylose, and deacetylation used for removing major inhibitors, especially acetic acid, which was the most significa

Projectoutputs (UWC):

1. MSc Thesis A. Maneveldt.