Optimization of Xylitol Production with Various Substrate Concentration, Aeration, Metanol and Nitrogen Sources Addition Utilizing Oil Palm Empty Fruit Bunch Hydrolyzates by Debaryomyces hansenii UICC Y-276 (Poster Presentation) - International Conference on Medicinal Chemistry and Timmerman Award 2013 Universitas Indonesia, 28 - 29th October 2013

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Abstrak

ABSTRACT
Xylitol is five-carbon polyol sugar which widely used as a sweetener in food and pharmaceutical. Xylitol production by chemical procedures using high pressure and temperature also needed extensive purification are less cost-effective in production. Fermentation which has more advantages with lower cost due tocheaper substrate and the non-necessity of xylose purification. The purposes of this research were to find optimum condition for xylitol production with particular variable such as substrate concentration, aeration, methanol and nitrogen sources addition. Oil palm empty fruit bunch hydrolyzates containing xylose was fermented into xylitol by Debaryomyces hansenii UICC Y-276 at room temperature. Fermentation was carried out at 200 rpm for 72 hours. Then, xylose and xylitol were determined by HPLC with RI detector and LiChrosorb® NH2 (4 mm x 125,00 mm, 5μm) column. Acetonitrile-water was used as a solvent, 20 mL sample volume was injected at flow rate of 1,0 mL/min at room temperature. The optimum fermentation conditions was obtained in a state of semi-anaerobic condition (1 : 2.5) with 10,0 % (w/v) xylose concentration. Meanwhile with the addition of various concentration of methanol and nitrogen sources, it was obtained that 1,5 % methanol and 0,5 % ammonium sulfate gave high yield of xylitol production. The best result for yield xylitol production was 31,83 %.