Glucose Plant from Breadfruit starch with Acid-Enzyme Hidrolysis Process

Nama / NRP : 1. Ferlyna Sari NRP. 2309 030 040
               2. SitiNurhajijah NRP. 2309 030 042
Progam Studi : DIII Teknik Kimia FTI – ITS
Dosen Pembimbing : Ir. Budi Setiawan, M.T

ABSTRACT

Glucose plant from starch breadfruit with acid enzymes process hidrolisa is built to fill the needs of food, beverage and sweetener pharmaceutical products. The capacity of glucose plant is 7700 tons/year. The location of the plant in Indramayu, West Java is selected on the basis of raw materials oriented, utilities and ease of transportation.

The glucose production process consists of four stages. The first stage is pretreatment, where breadfruit with levels starch 28,2 % made into a puree starch. The second stage is hydrolysis, where the starch is converted by using 3% HCl catalyst at 95°C becomes a dextrin and then hydrolyzed using glucoamylase enzyme catalyst at 60°C to obtain glucose. The third stage is purification, where glucose resulting in stage hydrolysis purified by means of filtering, decolorization and ionization to get pure glucose syrup. The fourth stage is crystallization, where the glucose syrup was concentrated to 78% and put into cristalyzer that operates at 20-40°C to obtain crystalline glucose.

The main raw material needed to reach the plant capacity of glucose in the amount 32547.25 tons / year with supporting materials HCl, NaOH, glucoamylase enzymes and activated carbon. The needs of utilities used for water sanitation; water cooling; feed water and process water.

Keyword: Glucose, Breadfruit, Hydrolysis