ABSTRAK

Tujuan dari penelitian ini adalah untuk mengetahui pengaruh pH dan rasio enzim selulase (*Trichoderma reesei* dan *Aspergillus niger*) terhadap karakteristik sirup glukosa dari jerami nangka. Manfaat dari penelitian ini adalah untuk mengangkat bahan baku lokal yang belum dimanfaatkan sehingga memiliki nilai tambah, serta memberikan informasi mengenai pembuatan glukosa dari jerami nangka secara enzimatis.

Penelitian ini meliputi penelitian pendahuluan dan penelitian utama.penelitian pendahuluan dilakukan untuk preparasi sampel, isolasi enzim (*Trichoderma reesei* dan *Aspergillus niger*) dan penentuan waktu hidrolisis. Pada penelitian utama dilakukan Rancangan Acak Kelompok (RAK) dengan pola factorial 3x5 dengan 2 kali ulangan. Rancangan fakorial yang dilakukan pada penelitian ini terdiri dari dua faktor yaitu faktor pH 4 (p1), pH 5 (p2), dan pH 6 (p3), serta faktor rasio enzim (*Trichoderma reesei* dan *Aspergillus niger*) ysitu rasio 0:1 (r1), 1:0 (r2), 1:1 (r3), 1:2 (r4), 2:1 (r5). Respon yang diukur dalam penelitian ini adalah respon kimia terhadap kadar air, kadar gula pereduksi dan kadar abu, serta respon fisika terhadap rendemen, derajat brix, dan viskositas, dan respon organileptik terhadap atribut warna dan aroma.

Berdasarkan hasil penelitian, didapatkan hasil bahwa nilai pH dan rasio enzim selulase (*Trichoderma reesei* dan *Aspergillus niger*) berpengaruh terhadap respon kimia (kadar air, kadar gula pereduksi dan kadar abu), respon fisika (rendemen, derajat brix, dan viskositas), serta respon organoleptik (warna dan aroma). Hasil analisis sampel terpilih didapatkan bahwa hasil pemurnian menggunakan karbon aktif diperoleh kadar pati 0.24%, kadar gula pereduksi 35.62%, dan kadar air 63%. Sementara dengan menggunakan Bentonit diperoleh kadar pati 0.3%, kadar gula pereduksi 44.2%, dan kadar air 52.2%.

Kata kunci: jerami nangka, pH, rasio enzim, *Trichoderma reesei*, *Aspergillus niger*, sirup glukosa, gula pereduksi, derajat brix.

ABSTRACT

The purpose of this research was to know the impact of the pH and rasio of cellulase enzyme to the characteristic of glucose syrup from jackfruit straw. The benefits of this research are to lift local foodstuff that has no benefits to has added value, and to inform the making of glucose from jackfruit straw with the enzymatic method.

The research includes preliminary research and primary research. Preliminary research aims to preparasion the sample, isolation of cellulase enzymes (*Trichoderma reesei and Aspergillus niger), and determine the time of hydrolysis.Main research is using Randomize Block Design (RBD) with factorial pattern (3x5) with 2 repetitions. Treatment design of this studi was cinsisted of two factors. The first factor was the value of pH, pH 4 (p1,) pH 5 (p2) dan pH 6 (p3). The second factor is rasio of cellulase enzymes* (*Trichoderma reesei and Aspergillus niger*) *that is rasio 0:1 (r1), 1:0 (r2), 1:1 (r3), 1:2 (r4), 2:1 (r5). Response that measure in this study is chemical response including analysisof water, reducing sugar and ash. The physical response including rendemen,brix degree, and viscocity, and the organoleptic response to color and smell.*

From the results of the study obtained that the value of pH and rasio of enzyme (Trichoderma reesei and Aspergillus niger) has effect to the chemical response (total water, reducing sugar and ash), physical response (rendemen, brix degree and viscocity), and the organoleptic response (color and smell). The result of selected sample analysis showed that the purification result using activated carbon was obtained by starch 0.24%, reducing sugar content 35.62%, and moisture content 63%. Meanwhile, by using Bentonit obtained starch 0.3%, reducing sugar content 44.2%, and moisture content 52.2%.

Keywords: jackfruit straw, pH, rasio of enzyme, Trichoderma reesei, Aspergillus niger, glucose syrup, reducing sugar, brix degree.