

ANALISIS PROSES PRODUKSI TEPUNG GLUKOMANAN PORANG PADA SKALA *PILOT PLANT*

INTISARI

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Porang (*Amorphophallus muelleri* Blume) adalah salah satu sumber glukomanan potensial. Umbi porang yang diekstraksi menjadi tepung glukomanan murni memiliki nilai ekonomis yang tinggi. Hal tersebut merupakan peluang bagi industri untuk terjun ke pengolahan glukomanan porang. Sebelum memasuki skala industri, diperlukan transisi dari skala laboratorium ke skala *pilot plant* untuk menghasilkan *prototype* dan evaluasi proses produksi. Tujuan penelitian ini, yaitu menganalisis proses dan peralatan produksi tepung glukomanan porang pada skala *pilot plant*, menganalisis kualitas tepung glukomanan porang yang dihasilkan serta mengkaji kondisi proses produksi tepung glukomanan skala laboratorium ketika diterapkan pada skala *pilot plant*. Tahapan ekstraksi glukomanan dilakukan dalam skala laboratorium dan skala *pilot plant* yang meliputi pelarutan tepung porang dalam air kemudian diekstraksi menggunakan etanol untuk memisahkan glukomanan dari *impurities*. Proses produksi tepung glukomanan porang pada skala *pilot plant* menggunakan peralatan yang lebih besar daripada peralatan di skala laboratorium. Adapun karakteristik tepung glukomanan porang skala *pilot plant* yaitu memiliki kadar air 8,19%, kadar glukomanan 92,26%, kadar abu 0,68%, pH 5,49, residu sulfit 0 ppm, derajat putih 80,39%, dan viskositas 6.208 cP. Hasil penelitian menunjukkan, hampir semua karakteristik tepung glukomanan porang skala *pilot plant* tidak berbeda nyata dengan karakteristik tepung glukomanan porang skala laboratorium. Karakteristik kadar glukomanan, kadar abu, pH, serta residu sulfit tepung glukomanan porang skala *pilot plant* juga sudah sesuai dengan standar komersial. Namun, viskositas



dan derajat putih tepung glukomanan porang skala *pilot plant* menunjukkan hasil yang berbeda nyata.

Kata kunci: tepung glukomanan, umbi porang, *pilot plant*, *prototype*

ANALYSIS OF PORANG GLUCOMANNAN FLOUR PRODUCTION PROCESS ON PILOT PLANT SCALE

ABSTRACT

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Porang (*Amorphophallus muelleri* Blume) is one of the potential sources of glucomannan. Pure glucomannan flour extracted from porang tubers, has high economic value. This is an opportunity for the industry to get involved in the processing of porang glucomannan. Before entering the industrial scale, a transition from the laboratory scale to the pilot plant scale is required to produce prototypes and evaluate the production process. The aim of this research is to analyze the process and equipment for the production of porang glucomannan flour on a pilot plant scale, analyze the quality of the porang glucomannan flour produced, and determine the suitability of the conditions of the laboratory-scale glucomannan flour production process on a pilot plant scale. The glucomannan extraction stage is carried out on a laboratory and pilot plant scale, which includes dissolving porang flour in water and then extracting using ethanol to separate glucomannan from impurities. The porang glucomannan flour production process on a pilot plant scale uses equipment that is larger than equipment on a laboratory scale. The characteristics of pilot plant-scale porang glucomannan flour are that it has a water content of 8.19%, a glucomannan content of 92.26%, ash content of 0.68%, pH of 5.49, sulfite residue of 0 ppm, whiteness degree of 80,39%, and viscosity of 6,208 cP. The research results showed that almost all the characteristics of pilot plant-scale porang glucomannan flour were not significantly different from the characteristics of laboratory-scale porang glucomannan flour. The characteristics of glucomannan content, ash content, pH, and sulfite residue of pilot plant scale porang glucomannan flour also comply with



commercial standards. However, the viscosity and whiteness of porang glucomannan flour on a pilot plant scale showed significantly different results.

Key words: glucomannan flour, porang tubers, pilot plant, prototype