PEMBUATAN TEPUNG PORANG (*Amorphophallus muelleri* Blume) SKALA *PILOT PLANT* DENGAN VARIASI BAHAN BAKU *CHIP* DAN KARAKTERISASI KUALITAS PRODUK

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INTISARI

Porang (*Amorphopallus muelleri* Blume) merupakan salah satu tanaman umbi-umbian yang terdapat di daerah tropis dan sub-tropis. Umbi porang memiliki banyak manfaat dalam industri pangan ataupun non pangan karena kandungan glukomanan yang tinggi. Umbi porang harus memerlukan pengolahan agar dapat dimanfaatkan, salah satunya menjadi tepung porang. *Chip* porang yang digunakan sebagai bahan baku pembuatan tepung porang merupakan penentu kualitas tepung porang yang dihasilkan. Penelitian ini bertujuan untuk mengkarakterisasi kualitas tepung porang dari *chip* porang dengan pengeringan menggunakan cabinet dryer dan penjemuran yang dilakukan di Koperasi Marta Agro Wonogiri yang dibandingkan dengan *chip* komersial.

Bahan baku *chip* porang yang digunakan berasal dari Koperasi Marta Agro, Wonogiri, Jawa Tengah dan *chip* porang komersial. *Chip* porang yang berasal dari Koperasi Marta Agro terdiri dari 3 jenis bahan baku yaitu *chip* porang yang dikeringkan menggunakan *cabinet dryer* (CMD), *chip* porang yang dikeringkan dengan penjemuran tanpa sulfur (CPN), dan *chip* porang yang dikeringkan dengan penjemuran dan penambahan sulfur (CPS). Adapun *chip* porang komersial terdiri dari 2 jenis bahan baku yaitu *chip* porang yang dikeringkan menggunakan *belt dryer* (CKD) dan *chip* porang yang dikeringkan dengan cara penjemuran (CKP). Proses penepungan *chip* porang dilakukan melalui beberapa tahapan yaitu pengecilan ukuran menggunakan *disc mill*, dilanjutkan penepungan menggunakan *hammer mill*, pengayakan menggunakan ayakan *tyler*, dan penghembusan menggunakan *cyclone separator* untuk menghilangkan kalsium oksalat dan komponen pengotor lainnya. Analisis kualitas *chip* porang sebelum ditepungkan meliputi kadar air, *whiteness index*, dan kadar abu. Hasil tepung porang dianalisis kualitasnya baik secara fisik maupun kimia meliputi *whiteness index*, kadar air, *fineness modulus*, densitas, viskositas, kadar abu, kadar glukomanan dan kadar kalsium oksalat.

Hasil penelitian menunjukkan bahwa bahan baku *chip* porang yang diperoleh dari beberapa produsen *chip* porang memiliki karakteristik dan kualitas yang berbeda. Kualitas bahan baku *chip* porang memiliki kadar air 10,81 – 12,28%, *whiteness index* 53,25 – 58,93, dan kadar abu 3,63% - 6,05%. Sedangkan karakterisasi kualitas tepung porang meliputi *fineness modulus* 3,58 - 3,77, kadar air 9,80 - 11,80%(w.b), *whiteness index* 61,41 – 68,06, *bulk density* 0,56 – 0,65 g/cm^3, viskositas 200 – 3640 m.Pas, kadar glukomanan 41,36% - 72,59%, kadar kalsium oksalat 0,198% - 0,802%, *water activity* 0,56 – 0,59, dan kadar abu 3,16% - 5,42%.

Kata kunci : *Chip* porang, *Hammer mill*, Tepung porang

PROCESSING OF PORANG FLOUR (*Amorphophallus muelleri* Blume) ON A PILOT PLANT SCALE WITH VARIATIONS IN *CHIP* RAW MATERIALS AND PRODUCT QUALITY CHARACTERIZATION

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ABSTRACT

Porang (*Amorphopallus muelleri* Blume) is one of the tuber crops found in tropical and subtropical regions. Porang tubers have many benefits in both food and non-food industries due to their high glucomannan content. Porang tubers require processing to be utilized, one of which is to turn them into porang flour. Porang chip used as raw material for making porang flour determine the quality of the resulting porang flour. This study aims to characterize the quality of porang flour from porang chip dried using a cabinet dryer and sun drying conducted at Marta Agro Cooperative, Wonogiri, compared to commercial porang chip.

The raw material for porang chip used comes from Marta Agro Cooperative, Wonogiri, Central Java, and commercial porang chip. Porang chip from Marta Agro Cooperative consist of three types of raw materials: porang chip dried using a cabinet dryer (CMD), porang chip dried by sun drying without sulfur (CPN), and porang chip dried by sun drying with the addition of sulfur (CPS). Meanwhile, commercial porang chip consist of two types of raw materials: porang chip dried using a belt dryer (CKD) and porang chip dried by sun drying (CKP). The grinding process of porang chip is carried out through several stages, including size reduction using a disc mill, followed by grinding using a hammer mill, sieving using a Tyler sieve, and blowing using a cyclone separator to remove calcium oxalate and other impurities. Analysis of the quality of porang chip before milling includes moisture content, whiteness index, and ash content. The quality of porang flour is analyzed both physically and chemically, including whiteness index, moisture content, fineness modulus, density, viscosity, ash content, glucomannan content, and calcium oxalate content.

The research results show that porang chip raw materials obtained from several chip producers have different characteristics and qualities. The quality of porang chip raw materials has a moisture content of 10.81% - 12.28%, whiteness index of 53.25% - 58.93%, and ash content of 3.63% - 6.05%. Meanwhile, the characterization of porang flour quality includes fineness modulus of 3.58 - 3.77, moisture content of 9.80% - 11.80% (w.b), whiteness index of 61.41% - 68.06%, bulk density of 0.56 - 0.65 g/cm3, viscosity of 200 - 3640 m.Pas, glucomannan content of 41.36% - 72.59%, calcium oxalate content of 0.198% - 0.802%, water activity of 0.56 - 0.59, and ash content of 3.16% - 5.42%.

Keywords: Chip porang, Hammer mill, Porang flour