

**OPTIMASI KONDISI PROSES PRODUKSI TEPUNG PORANG
(*Amorphophallus muelleri* Blume) MENGGUNAKAN MESIN *MILL DRYER*
VERTICAL (MDV-50) DAN KARAKTERISASI KUALITAS PRODUK**

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INTISARI

Tepung porang merupakan produk olahan yang berasal dari umbi porang segar (*Amorphophallus muelleri* Blume). Kandungan utama glukomanan yang terdapat pada tepung porang sering dimanfaatkan dalam bidang industri kimia dan pangan. Tepung porang memiliki harga jual yang lebih tinggi dibandingkan umbi segar atau *chip*-nya. Permintaan pasar yang cukup tinggi baik nasional maupun internasional mendorong kelompok masyarakat dalam mengolah tepung porang, salah satunya Koperasi Produsen Marta Agro di Wonogiri, Jawa Tengah. Koperasi ini sudah mulai memproduksi tepung porang dari umbi porang segar, namun masih ditemukan beberapa permasalahan dalam menentukan metode dan mekanisme pengecilan ukuran yang tepat. Penelitian ini bertujuan untuk mengoptimasi metode produksi yang tepat dalam menghasilkan tepung porang berkualitas sesuai standar bahan pangan.

Chip porang yang digunakan terdiri dari 3 jenis bahan baku yang berturut-turut berasal dari penjemuran Madura, penjemuran Wonogiri *fresh*, dan komersial Jawa Barat. *Chip* dikecilkan ukuran menggunakan mesin *Mill Dryer Vertical* dengan 2 pengaturan *mesh* mesin, diayak menggunakan ayakan *tyler*, dan dilanjutkan proses penghambusan. Penentuan kualitas *chip* meliputi kadar air, kadar abu, dan derajat keputihan. Penentuan kualitas tepung porang meliputi kadar air, kadar abu, derajat keputihan, distribusi ukuran partikel, derajat kehalusan, diameter rerata geometris partikel, densitas, viskositas, aktivitas air, kadar glukomanan, dan kadar kalsium oksalat.

Hasil penelitian menunjukkan bahwa kualitas *chip* yang digunakan dapat mempengaruhi hasil tepung. Variasi pengaturan *mesh* mesin dan *mesh* ayakan berpengaruh terhadap karakterisasi kualitas tepung yang dihasilkan. Karakterisasi tepung porang meliputi kadar air berkisar 11,72 – 10,15%. Kadar abu 3,54 – 5,91%. Derajat keputihan 56,06 – 73,18. Derajat kehalusan 1,79 – 3,95. Rerata geometris partikel 0,22 – 0,39 mm. *Bulk density* 0,61 – 0,66 g/cm³. *Tapped density* 0,65 – 0,72 g/cm³. Viskositas 773,33 – 3933,33 m.Pa.s. Aktivitas air 0,55 – 0,64. Kadar glukomanan 42,79 – 86,85%. Dan kadar kalsium oksalat 0,23 – 0,79%.

Kata-kata kunci : Optimasi, pengecilan ukuran, dan tepung porang.
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**OPTIMIZATION OF PORANG FLOUR (*Amorphopallus muelleri* Blume)
PRODUCTION PROCESS CONDITIONS USING VERTICAL MILL
DRYER (MDV-50) AND PRODUCT QUALITY CHARACTERIZATION**

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ABSTRACT

Porang flour is a processed product derived from fresh porang tubers (*Amorphophallus muelleri* Blume). The main component of glucomannan found in porang flour is often utilized in the chemical and food industries. Porang flour commands a higher selling price compared to fresh tubers or chips. The high market demand, both nationally and internationally, has spurred community groups to engage in porang flour processing, such as the Marta Agro Producer Cooperative in Wonogiri, Central Java. Although this cooperative has initiated porang flour production from fresh porang tubers, there remain challenges in determining the optimal method and mechanism for size reduction. This study aims to optimize the production process to ensure the production of quality porang flour that meets food standards.

The porang chips used consist of three types of raw materials: Madura drying, fresh Wonogiri drying, and West Java commercial. These chips undergo a size reduction process using a Vertical Mill Dryer with two machine mesh arrangements, followed by sifting using a Tyler sieve and subsequent blowing. The determination of chip quality includes assessing moisture content, ash content, and whiteness index. Similarly, the evaluation of porang flour quality encompasses various parameters such as moisture content, ash content, whiteness index, particle size distribution, fineness modulus, geometric average diameter of particles, density, viscosity, water activity, glucomannan content, and calcium oxalate content.

The results showed that the quality of the chips used can affect the yield of flour. The variety of machine mesh and sieve mesh arrangements affects the characterization of the quality of the flour produced. The characterization of porang flour includes water content ranging from 11,72 – 10,15%. Ash content 3,54 – 5,91%. Whiteness index 56,06 – 73,18. Fineness modulus 1,79 – 3,95. The geometric mean of particles is 0,22 – 0,39 mm. Bulk density 0,61 – 0,66 g/cm³. Tapped density 0,65 – 0,72 g/cm³. Viscosity 773,33 – 3933,33 m.Pa.s. Water activity 0,55 – 0,64. Glucomannan content 42,79 – 86,85%. And calcium oxalate levels of 0,23 – 0,79%.

Keywords : Optimization, porang flour, and size reduction.

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