KARAKTERISASI TEPUNG PORANG YANG DIPROSES MENGGUNAKAN METODE FISIK PADA LINI PRODUKSI *AGROFORESTRY* PERHUTANI JAWA TIMUR

STELLA MARIA DYAH CAHYARANI
20/460600/TP/12810

INTISARI

Porang adalah tanaman umbi-umbian dengan kandungan glukomanan tinggi yang memiliki potensi ekonomi besar. Tepung porang yang dihasilkan dari penggilingan chip umbi porang memiliki kandungan glukomanan tinggi, menjadikannya bahan pangan fungsional. Penelitian ini bertujuan untuk mengevaluasi kualitas tepung porang yang dihasilkan dengan lini produksi di *Agroforestry* Perum Perhutani yang terdiri atas penepung tipe hammer mill yang dilengkapi dengan cyclone dan ayakan.

Pengujian kualitas tepung porang dilakukan pada tiga jenis bahan baku: chip dengan perlakuan pengasapan sulfur, chip tanpa perlakuan pengasapan (non-sulfur), dan chip komersial dari Jawa Barat. Metode yang digunakan adalah penepungan dengan mesin tipe hammer mill yang dilengkapi cyclone separator dan dua tipe rangkaian ayakan, yaitu tipe getaran dan hentakan. Kualitas tepung dinilai berdasarkan karakteristik fisik (kadar air, kadar abu, viskositas, densitas, dan warna) dan kimia (kandungan glukomanan, kadar kalsium oksalat, dan residu sulfur).

Hasil penelitian menunjukkan bahwa variasi bahan baku (chip porang) dan ayakan mempengaruhi kualitas tepung yang dihasilkan. Chip dengan pengasapan sulfur memiliki nilai lightness dan whiteness index yang lebih tinggi dibandingan variasi tanpa pengasapan sulfur. Tepung dengan pengasapan sulfur memiliki kandungan glukomanan yang lebih rendah yang berdampak pada nilai viskositas. Namun, perbedaan kandungan glukomanan dalam ketiga variasi tepung porang tidak terlalu signifikan. Tepung dengan pengasapan sulfur memiliki karakteristik yang hampir sama dengan tepung komersial yang diproduksi oleh industry di Jawa Barat. Hasil karakterisasi kualitas tepung porang meliputi kadar air (8,914-11,293 %wb), kadar abu (4,112-6,862 %), viskositas (411,11-33.200,00 mPa.s), bulk density (0,7349-0,8129 g/mL), tapped density (0,8238-0,8956 g/mL), lightness (70,66-82,95), whiteness index (34,27-44,38), kandungan glukomanan (28,72-57,68 %), kadar kalsium oksalat (0,215-1,076 %), dan residu sulfur (180,602-263,021 ppm) dan ukuran partikel rata-rata (0,1237 – 0,7109 mm).

Kata-kata kunci : tepung porang, kualitas fisik, kualitas kimiawi
Dosen pembimbing : Hanim Zuhrotul Amanah, S.T.P., M.P., Ph.D., IPM., Dr. Sri Rahayoe, S.T.P., M.P.

CHARACTERIZATION OF PORANG FLOUR PROCESSED USING PHYSICAL METHODS ON THE PRODUCTION LINE OF AGROFORESTRY PERHUTANI EAST JAVA

STELLA MARIA DYAH CAHYARANI
20/460600/TP/12810

ABSTRACT

Porang is a tuberous plant with high glucomannan content and significant economic potential. The porang flour produced from milling porang tuber chips also contains high levels of glucomannan, making it a functional food ingredient. This research aims to evaluate the quality of porang flour resulting from the production line at Agroforestry Perum Perhutani, which includes a hammer mill equipped with a cyclone separator and sieves.

Quality testing of porang flour was conducted on three variations of raw materials: chips with sulfur fumigation treatment, chips without sulfur fumigation treatment (non-sulfur), and commercial chips from West Java. The milling method used was a hammer mill equipped with a cyclone separator and two types of sieves, that is vibratory and impact. The quality of the flour was assessed based on physical characteristics (moisture content, ash content, viscosity, density, and color) and chemical characteristics (glucomannan content, calcium oxalate content, and sulfur residue).

The research findings indicate that variations in raw materials (porang chips) and sieving affect the quality of the resulting flour. Chips with sulfur fumigation exhibit higher lightness and whiteness index values than those without sulfur fumigation. Flour with sulfur fumigation has a lower glucomannan content, which impacts its viscosity. However, the differences in glucomannan content among the three porang flour variations are not particularly significant. The flour with sulfur fumigation has characteristics nearly identical to the commercial flour produced by industries in West Java. The characterization results of the porang flour quality included moisture content (8.914-11.293 %wb), ash content (4.112-6.862 %), viscosity (411.11-33,200.00 mPa.s), bulk density (0.7349-0.8129 g/mL), tapped density (0.8238-0.8956 g/mL), lightness (70.66-82.95), whiteness index (34.27-44.38), glucomannan content (28.72-57.68 %), calcium oxalate content (0.215-1.076 %), and sulfur residue (180.602-263.021 ppm), average particle size (0,1237 – 0,7109 mm).

Keywords : porang flour, physical quality, chemical quality
Supervisors : Hanim Zuhrotul Amanah, S.T.P., M.P., Ph.D., IPM., Dr. Sri Rahayoe, S.T.P., M.P.