

Analisis Komponen Kimia Batang Pohon Jabon Putih (*Neolamarckia cadamba*) dan Jabon Merah (*Neolamarckia macrophyllus*) dari Wonogiri, Jawa Tengah.

Fatra Valahatul Ihda¹, Ganis Lukmandaru², Arif Nirsatmanto³

INTISARI

Jabon merupakan salah satu jenis pohon cepat tumbuh dan dibedakan atas dua jenis yaitu jabon putih dan jabon merah dimana kayu dan kulitnya dapat dimanfaatkan sebagai bahan baku berbagai olahan. Sifat kimia merupakan salah satu sifat dasar kayu yang penting untuk diketahui karena berpengaruh pada kualitas kayu untuk dijadikan pertimbangan dalam menentukan pemanfaatan dan pengolahannya. Penelitian ini bertujuan untuk mengetahui kadar ekstraktif n-heksana (KEH), metanol (KEM), air panas (KEAP), total (KET), kadar fenolat total (KFT), kadar flavonoid total (KVT), kadar komponen kimia penyusun dinding sel, komponen lipofilik dan komponen gula *non-structural carbohydrates* (NSC) pada bagian kayu dan kulit jabon putih berumur 10 tahun dengan nomor famili 23, 11 dan 6, serta jabon merah berumur 5 tahun dengan nomor famili 75, 85, dan 2 yang di tanam pada plot uji keturunan di Wonogiri, Jawa Tengah.

Pada jabon putih, nilai KEH 0,49-0,65% di bagian kayu dan 1,88-2,50% di bagian kulit. Nilai KEM 2,02-2,14% di bagian kayu dan 3,13-3,77% di bagian kulit. Nilai KEAP 1,27-1,72% di bagian kayu dan 4,48-4,96% di bagian kulit. Nilai KET 3,80-4,51% di bagian kayu dan 9,89-11,10% di bagian kulit. Nilai holoselulosa 73,63-75,75% di bagian kayu dan 62,66-66,38% di bagian kulit. Nilai alfa-selulosa 46,91-48,43% di bagian kayu dan 33,20-35,16% di bagian kulit. Nilai hemiselulosa 26,72-27,32% di bagian kayu dan 29,40-31,79% di bagian kulit. Nilai klason lignin 22,80-23,89% di bagian kayu dan 29,62-31,71% di bagian kulit.

Pada jabon merah, nilai KEH 0,52-0,65% di bagian kayu dan 1,15-1,57% di bagian kulit. Nilai KEM 2,78-3,36% di bagian kayu dan 12,02-14,03 di bagian kulit. Nilai KEAP 1,11-1,43% di bagian kayu dan 8,61-9,20% di bagian kulit. Nilai KET 4,41-5,32% di bagian kayu dan 22,21-24,73% di bagian kulit. Nilai holoselulosa 72,98-74,97% di bagian kayu dan 63,38-66,84% di bagian kulit. Nilai alfa-selulosa 46,12-47,94% di bagian kayu dan 32,42-33,93% di bagian kulit. Nilai hemiselulosa 26,18-27,02% di bagian kayu dan 30,12-34,42% di bagian kulit. Nilai klason lignin 25,68-26,18% di bagian kayu dan 33,70-35,10% di bagian kulit.

Pada metode derivatisasi, komponen lipofilik yang terdeteksi di jabon putih dan jabon merah terdapat 7 kelompok yaitu alkana, alkena, ester, aldehida, alkohol alifatik, asam lemak dan sterol. Komponen gula NSC terdeteksi 11 komponen yaitu kelompok monosakarida (fruktosa, glukosa, manosa, arabinosa, galaktosa dan xilosa), kelompok siklitol (myo-inositol dan pinitol) dan kelompok alditol (meso-eritritol, arabitol, dan manitol).

Kata kunci: jabon putih, jabon merah, batang pohon, komponen kimia

¹Mahasiswa Magister Ilmu Kehutanan, Universitas Gadjah Mada

²Dosen Fakultas Kehutanan, Universitas Gadjah Mada

³Peneliti Badan Riset dan Inovasi Nasional (BRIN)

Chemical Components Analysis of White Jabon (*N. cadamba*) and Red Jabon (*N. macrophyllus*) Stemwood from Wonogiri, Central Java

Fatra Valahatul Ihda¹, Ganis Lukmandaru², Arif Nirsatmanto³

ABSTRACT

Jabon is one of the fast growing timber which divided into white jabon and red jabon. Their wood and bark can be used as raw materials for various end products. Chemical properties are one of the basic properties that are important to affect the quality of the wood. Therefore, thus property should be taken into consideration in determining its utilization and processing. This study aims to determine the extractive contents of n-hexane (HEC), methanol (MEC), hot water (HWE), total (TEC), total phenolic contents (TPC), total flavonoid contents (TFC), cell wall components, lipophilic components and sugar components from non-structural carbohydrates (NSC) of wood and bark of 10-year-old white jabon (family numbers of 23, 11 and 6) and 5-year-old red jabon (family numbers of 75, 85, and 2). The trees were that planted in progeny test plot in Wonogiri, Central Java.

The result of white jabon, HEC were ranged 0.49-0.65% in wood and 1.88-2.50% in bark. MEC value is 2.02-2.14% in wood and 3.13-3.77% in bark. HWE were ranged 1.27-1.72% in wood and 4.48-4.96% in bark. TEC were ranged 3.80-4.51% in wood and 9.89-11.10% in bark. Holocellulose contents were ranged 73.63-75.75% in wood and 62.66-66.38% in bark. Alpha-cellulose contents were ranged 46.91-48.43% in wood and 33.20-35.16% in bark. Hemicellulose contents were ranged 26.72-27.32% in wood and 29.40-31.79% in bark. Klason lignin contents were ranged 22.80-23.89% in wood and 29.62-31.71% in bark.

The result of red jabon, HEC were ranged 0.52-0.65% in wood and 1.15-1.57% in bark. MEC were ranged 2.78-3.36% in wood and 12.02-14.03 in bark. HWE were ranged 1.11-1.43% in wood and 8.61-9.20% in bark. TEC were ranged 4.41-5.32% in wood and 22.21-24.73% in bark. Holocellulose contents were ranged 72.98-74.97% in wood and 63.38-66.84% in bark. Alpha-cellulose contents were ranged 46.12-47.94% in wood and 32.42-33.93% in bark. Hemicellulose contents were ranged 26.18-27.02% in wood and 30.12-34.42% in bark. Klason lignin contents were ranged 25.68-26.18% in wood and 33.70-35.10% in bark.

By the derivatization method, the lipophilic components were detected in white jabon and red jabon which contained 7 groups, namely alkanes, alkenes, esters, aldehydes, aliphatic alcohols, fatty acids and sterols. The GC-MS analysis detected 11 sugar components, including monosaccharides (fructose, glucose, mannose, arabinose, galactose and xylose), cyclitols (myo-inositol and pinitol) and alditols (meso-erythritol, arabitol, and mannitol).

Keywords: white jabon, red jabon, stemwood, chemical components

¹Student of Master in Forestry Science, Universitas Gadjah Mada

²Lecturer of Faculty of Forestry, Universitas Gadjah Mada

³Researcher of National Research and Innovation Agency