

SIFAT MAKROSKOPIS DAN MIKROSKOPIS PADA LETAK AKSIAL DAN RADIAL KAYU MANGIUM (*Acacia mangium*) DARI ALAS KETU, KHDTK WONOGIRI, JAWA TENGAH

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INTISARI

Tanaman mangium (*Acacia mangium*) merupakan tanaman cepat tumbuh yang dapat digunakan sebagai bahan baku pembuatan pulp. Melihat besarnya potensi serta kebutuhan terhadap kayu *Acacia mangium* maka diperlukan penelitian yang mendalam mengenai sifat makroskopis dan mikroskopisnya khususnya pada variasi arah aksial dan radial terhadap jenis kayu *Acacia mangium* dari KHDTK Wonogiri, Jawa Tengah. Penelitian ini bertujuan untuk mengetahui sifat makroskopis dan mikroskopis kayu *Acacia mangium* asal KHDTK Wonogiri pada letak aksial dan radial.

Desain penelitian ini menggunakan Rancangan Acak Lengkap dengan pengamatan arah aksial dan arah radial masing-masing diulang sebanyak 3 kali. Perlakuan yang diamati adalah ciri makroskopis dan mikroskopis kayu *Acacia mangium*. Parameter uji yang diamati pada ciri mikroskopis adalah proporsi sel (pembuluh, parenkim, jari-jari dan serabut) dan dimensi serat (panjang serat, diameter serat, diameter lumen dan tebal dinding serat). Hasil pengamatan kemudian dianalisis menggunakan program statistik SPSS.

Hasil pengamatan menunjukkan bahwa ciri anatomi kayu *Acacia mangium* bertekstur halus atau sedang, arah serat lurus dan tidak terlihat adanya lingkaran tahun. Diameter pembuluh berkisar 115,43-226,68 μm dengan frekuensi 5-7/mm² dan penyebarannya tunggal-ganda radial. Jari-jari multiseriat dengan tinggi 148,39 – 247,76 μm dan persebaran parenkimnya paratrakeal sebagian. Rerata persentase proporsi sel sebesar 9,29% pada sel pembuluh, 8,17% pada sel parenkim, 8,21% pada sel jari-jari, dan 74,29% pada sel serabut. Pada parameter dimensi serat diperoleh rerata panjang serat 0,86 mm, diameter serat 17,07 μm , diameter lumen 13,3 μm , dan tebal dinding serat 1,89 μm . Berdasarkan hasil penelitian, kayu *Acacia mangium* pada umur empat tahun masih dalam periode juvenil. Faktor letak aksial berpengaruh nyata terhadap nilai panjang serat dan tebal dinding sel. Faktor letak radial berpengaruh nyata terhadap panjang serat, diameter serat, diameter lumen, dan proporsi sel serabut.

Kata kunci : akasia mangium, arah aksial, arah radial, dimensi serat, proporsi sel

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MACROSCOPIC AND MICROSCOPIC CHARACTERISTIC ON AXIAL AND RADIAL POSITION OF MANGIUM (*Acacia mangium*) WOOD GROWN IN KETU FOREST, KHDTK WONOGIRI, CENTRAL JAVA

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ABSTRACT

Mangium (*Acacia mangium*) is one of the fast growing species which used as raw material of pulp and paper industry. In order to increase its potential of *Acacia mangium* as industrial raw materials, it's needed to study about macroscopic and microscopic characteristic especially on the variation of axial and radial direction. The objectives of this research were to know the macroscopic and microscopic characteristic on axial and radial position of *Acacia mangium* wood grown in KHDTK Wonogiri, Central Java.

Design used in this study was Completely Randomized Design (CRD) using treatment on axial direction and radial direction of observation. The parameters to be observed were macroscopic and microscopic characteristic of *Acacia mangium* wood including cell proportion (vessel, parenchyma, ray and fiber) and fiber dimension (fiber length, fiber diameter, lumen diameter and fiber wall thickness). The results were analyzed using the SPSS statistical program.

The results showed that the macroscopic characteristic of *Acacia mangium* wood were fine and moderate texture; straight grain; and the growth ring was not appear. Vessel diameter about 115.43-226.68 μm with 5-7/mm² frequency and the arrangement was solitary – radial multiple. Multiseriate ray, height about 148.39 – 247.76 μm and axial parenchyma was partially paratracheal. The average percentage of cell proportion were 9.29% on vessel cell, 8.17% on parenchyma cell, 8.21% on ray cell, and 74.29% on fiber cell. The result of fiber dimension measurement were 0.86 mm on fiber length, 17.07 μm on fiber diameter, 13.3 μm on lumen diameter, and 1.89 μm on fiber wall thickness. Based on this research, four years old *Acacia mangium* is still in the juvenile wood. Axial direction factor was significantly affected on the value of fiber length and fiber wall thickness. Radial direction factor was significantly affected on the value of fiber length, fiber diameter, lumen diameter, and fiber cell proportion.

Keywords : *acacia mangium*, axial direction, radial direction, fiber dimension, cell proportion

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