VARIASI SIFAT ANATOMI KAYU *Eucalyptus pellita* F. Muell DARI KHDTK WONOGIRI PADA ARAH AKSIAL DAN RADIAL

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INTISARI

Eucalyptus pellita F. Muell merupakan salah satu tanaman *fast growing* yang saat ini sudah banyak dikembangkan melalui berbagai program pemuliaan, salah satunya adalah uji keturunan. Benih dari hasil uji keturunan perlu dilakukan pengujian peningkatan genetik guna memverifikasi peningkatan genetik yang diprediksi. Salah satu peningkatan genetik yang dapat terjadi yakni sifat anatomi kayunya. Oleh karena itu, perlu dilakukan penelitian mengenai variasi sifat anatomi pada arah aksial dan radial kayu *E. pellita* yang berasal dari hasil pemuliaan uji keturunan di KHDTK Wonogiri.

Metode yang digunakan pada penelitian ini yakni Rancangan Acak Lengkap (RAL) yang terdiri dari 2 faktor, yaitu arah aksial (pangkal, tengah, dan ujung) dan arah radial (dekat hati, tengah, dan dekat kulit) dengan 3 kali ulangan. Parameter yang diamati yaitu dimensi dan proporsi dengan standar *International Association of Wood Anatomists* (IAWA) meliputi panjang serat, diameter serat, diameter lumen serat, tebal dinding serat, diameter pembuluh, proporsi pembuluh, proporsi jari-jari, proporsi parenkim, dan proporsi serat.

Hasil penelitian menunjukkan bahwa kayu *E. pellita* memiliki lingkar tumbuh yang kurang jelas, memiliki pori tata baur, terdapat tilosis, memiliki parenkim aksial paratrakeal unilateral dan vasisentrik. Hasil penelitian menunjukkan bahwa kayu *E. pellita* memiliki rerata panjang serat 0,95 ±0,08 mm; diameter serat 12,62 ±0,97 µm; diameter lumen serat 5,88 ±1,22 µm; tebal dinding serat 3,37 ±0,59 µm; diameter pembuluh 101,17 ±14,01 µm. Nilai rerata proporsi pembuluh 15,11 ±3,3%; proporsi jari-jari 15,78 ±2,07%; proporsi parenkim 11,45 ±1,87%; dan proporsi serat 57,67 ±4,12%. Faktor arah radial memberikan pengaruh nyata terhadap panjang serat, tebal dinding serat, diameter pembuluh, proporsi pembuluh, proporsi parenkim, proporsi jari-jari, dan proporsi serat. Faktor aksial memberikan pengaruh nyata pada diameter pembuluh dan proporsi serat. Sementara interaksi antara kedua faktor tersebut tidak memberikan pengaruh nyata terhadap dimensi dan proporsi sel.

Kata kunci: *Eucalyptus pellita* F. Muell, proporsi sel, dimensi sel, arah aksial, arah radial.

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VARIATIONS IN ANATOMICAL PROPERTIES OF *Eucalyptus pellita* F. Muell FROM KHDTK WONOGIRI IN AXIAL AND RADIAL DIRECTIONS

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ABSTRACT

Eucalyptus pellita F. Muell is a fast growing species which has now been developed through breeding programs, one of which is through progeny testing. Seeds from progeny test results need to passed genetic gain testing to verify the predicted genetic gained. One of the genetic improvements that can occur is anatomical characteristics of the wood. Therefore, it is necessary to conduct research on variations in anatomical properties in the axial and radial directions of *E. pellita* wood which comes from breeding results of progeny testing at KHDTK Wonogiri.

The method used in this research is Completely Randomized Design (CRD) with 2 factors, those were axial direction (base, middle, and top of the stem) and radial direction (near the pith, between the pith-bark and near the bark) with 3 replications. The parameters observed were the dimensions and proportions with standards *International Association of Wood Anatomists* (IAWA) includes fiber length, fiber diameter, fiber lumen diameter, fiber wall thickness, vessel diameter, vessel proportion, ray proportion, parenchyma proportion, and fiber proportion.

The results show that *E. pellita* wood has an indistinct growth rings, has diffuse porous vessel type, has tylosis, has axial parenchyma unilateral paratracheal and vasicentric. The research results show that *E. pellita* wood has an average fiber length of 0.95 ±0.08 mm; fiber diameter 12.62 ±0.97 µm; fiber lumen diameter 5.88 ±1.22 µm; fiber wall thickness 3.37 ± 0.59 µm; vessel diameter 101.17 ±14.01 µm. The average value of vessel proportion 15.11 ± 3.3%; ray proportion 15.78 ±2.07%; parenchyma proportion 11.45 ±1.87%; and fiber proportion 57.67 ±4.12%. Radial direction factor has significant effect on fiber length, fiber wall thickness, vessel diameter, vessel proportion, parenchyma proportion, ray proportion, and fiber proportion. Axial direction factor has significant effect on vessel diameter and fiber proportion. Meanwhile, the interaction between these two factors haves no significant effect to cell dimensions and proportions.

Keywords: *Eucalyptus pellita* F. Muell, cell proportions, cell dimensions, axial direction, radial direction.

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