PENENTUAN BATAS KAYU JUVENIL – DEWASA KESEMEK (*Diospyros kaki*) SERTA VARIASI SIFAT ANATOMINYA PADA ARAH AKSIAL

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INTISARI

Kayu kesemek (*Diospyros kaki)* merupakan tanaman penghasil buah yang memiliki corak kayu indah berwarna gelap. Sekarang ini, informasi mengenai batas antara kayu juvenil dan kayu dewasa serta variasi sifat anatomi pada *D. kaki* sangat terbatas. Penentuan batas kayu juvenil dan dewasa dilakukan dengan melihat variasi panjang serat kayu dari dekat hati hingga kulit. Penelitian ini bertujuan untuk mengetahui batas antara kayu juvenil dan kayu dewasa, struktur anatomi, dan variasi kayu pada arah aksial. Penelitian ini dilakukan dengan menggunakan tiga pohon yang ditanam di Kabupaten Karo, Sumatera Utara dengan tinggi rata-rata 6,3 m dan diameter setinggi dada (DBH) 15,28 cm. Penentuan batas kayu juvenil dan dewasa berdasarkan pertambahan panjang serat kayu dianalisis menggunakan ANOVA satu arah. Penelitian ini menggunakan rancangan acak lengkap dengan dua faktor yaitu: kategori kayu (kayu juvenil dan kayu dewasa) dan variasi aksial (pangkal, tengah, dan ujung) dengan tiga kali ulangan. Parameter yang diamati yaitu panjang serat, diameter serat, diameter lumen serat, tebal dinding sel, diameter pembuluh, frekuensi pembuluh, frekuensi parenkim jari-jari, tinggi parenkim jari-jari, proporsi serat, proporsi pembuluh, proporsi parenkim jari-jari, dan proporsi parenkim aksial.

Hasil penelitian menunjukkan batas kayu juvenil dan kayu dewasa berkisar 38 sampai 49 mm dari empulur. Faktor kategori kayu memberikan pengaruh pada diameter serat, proporsi serat, proporsi pembuluh, dan proporsi parenkim aksial. Kayu juvenil memiliki anatomi kayu yang lebih besar dibandingkan kayu dewasa seperti pada parameter diameter serat, diameter lumen serat, frekuensi pembuluh, tinggi parenkim jari-jari, dan proporsi parenkim aksial. Kayu dewasa memiliki anatomi kayu yang lebih besar diandingkan kayu juvenil pada tebal dinding serat, diameter pembuluh, frekuensi parenkim jari-jari, proporsi serat, proporsi pembuluh, dan proporsi parenkim jari-jari. Faktor variasi aksial memberikan pengaruh pada diameter pembuluh, frekuensi dan proporsi parenkim jari-jari.

Kata kunci: *D. kaki*, kayu juvenil, struktur anantomi, variasi aksial, dimensi sel, dan proporsi sel.

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DETERMINATION OF THE BOUNDARY BETWEEN JUVENILE – MATURE WOOD OF *Diospyros kaki* AND THEIR ANATOMICAL STRUCTURE AT THE AXIAL DIRECTION

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ABSTRACT

Persimmon wood (*Diospyros kaki*) is a fruit-producing plant that has beautiful dark wood patterns. Currently, the information of the boundaries between juvenile and mature wood, and also the anatomical characteristics of persimmon wood are still very limited. Determination of the boundaries between juvenile and mature wood can be done by looking at variations in the length of the fibers from the pith to the bark. This study aims to determine the boundaries between juvenile and mature wood, anatomical properties, and variations in an axial direction. This research was conducted by using three trees grown in Karo, North Sumatra with an average height of 6,3 m and Diameter at Breast Height (DBH) of 15,28 cm. The boundaries between juvenile and mature wood based on fiber length increment was analyzed by a one-way ANOVA. This research relied on a complete randomized design with two factorials: wood category (juvenile and mature wood) and axial variations (base, middle, and the top of the stem) with three replications. The observed parameters were length of the fiber, the diameter of the fiber, the diameter of the fiber's lumen, the thickness of the fiber's wall, the diameter of the vessel, the frequency of the vessel, the frequency of the ray parenchyma, the ray parenchyma height, the proportion of the fiber, the proportion of the vessel, the proportion of ray parenchyma, and the proportion of the parenchymal.

The results showed that the boundaries between juvenile and mature wood ranged from 38 to 49 mm from the pith. The wood category factors had a significant effect on the diameter of the fiber, proportion of the fiber, the proportion of the vessel, and the proportion of the parenchymal. Juvenile wood has larger wood anatomy than mature wood such as the diameter of the fiber, the diameter of the fiber's lumen, the frequency of the vessel, ray parenchyma height, and the proportion of the parenchymal. Mature wood had a greater wood anatomy than juvenile wood on the thickness of the fiber's wall, the diameter of the vessel, the frequency of the ray parenchyma, the proportion of the fiber, the proportion of the vessel, and the proportion of the parenchymal. The axial variations factor had a significant effect on the diameter of the vessels, the frequency of ray parenchyma, and the proportion of the ray parenchyma.

Keywords: *D. kaki*, juvenile wood, anatomy structures, axial variations, cell dimensions, dan cell proportions.

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