

## VARIASI DIMENSI DAN PROPORSI SEL PADA ARAH AKSIAL DAN RADIAL KAYU ASAM-ASAM (*Tristiropsis* sp.)

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### Abstrak

Kebutuhan kayu sangat beragam, salah satunya yaitu sebagai bahan baku pulp dan kertas yang erat kaitannya dengan sifat anatomi kayu seperti proporsi dan dimensi sel karena akan berpengaruh terhadap pulp dan kertas yang dihasilkan. Di sisi lain, sifat-sifat kayu lainnya juga ditentukan oleh sifat anatomi kayunya. Penelitian ini membahas mengenai variasi dimensi dan proporsi sel pada arah aksial dan radial kayu asam-asam (*Tristiropsis* sp.) yang berasal dari Kalimantan Timur. Kayu asam-asam masuk kedalam kategori kelas kuat II dengan berat jenis 0,62. Diharapkan dengan mengetahui variasi aksial dan radial, karakteristik kayu asam-asam dapat diketahui dan dapat lebih optimal dalam pemanfaatannya.

Penelitian ini menggunakan rancangan acak lengkap dengan dua faktor yaitu arah aksial (pangkal, tengah, dan ujung batang) dan faktor arah radial (dekat hati, tengah, dan dekat kulit) dengan empat kali ulangan. Parameter yang diamati yaitu panjang serat, diameter serat, diameter lumen serat, tebal dinding serat, diameter pembuluh, frekuensi pembuluh, proporsi serat, proporsi pembuluh, proporsi jari-jari, dan proporsi parenkim.

Interaksi antara faktor arah aksial dan radial tidak memberikan pengaruh yang nyata terhadap dimensi dan proporsi sel. Faktor arah aksial pangkal, tengah, dan ujung batang memberikan pengaruh yang nyata terhadap proporsi pembuluh dengan nilai rata-rata yaitu 7,3 %, 8,7 %, 10,1 %. Pada faktor arah radial dekat hati, tengah, dan dekat kulit memberikan pengaruh yang nyata terhadap diameter serat (16,8  $\mu\text{m}$ , 15,2  $\mu\text{m}$ , 15,1  $\mu\text{m}$ ), tebal dinding serat (2,2  $\mu\text{m}$ , 2,6  $\mu\text{m}$ , 2,6  $\mu\text{m}$ ), dan proporsi parenkim jari-jari (14,2 %, 16 %, 18,3 %). Memberikan pengaruh yang sangat nyata terhadap panjang serat (1 mm, 1,2 mm, 1,2 mm), diameter lumen serat (12,5  $\mu\text{m}$ , 10,1  $\mu\text{m}$ , 10  $\mu\text{m}$ ), dan frekuensi pembuluh (3,8 per  $\text{mm}^2$ , 2,8 per  $\text{mm}^2$ , 2,4 per  $\text{mm}^2$ ).

Kata kunci: *Tristiropsis* sp., Arah Aksial, Arah Radial, Dimensi Sel, Proporsi sel

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**VARIATION OF CELL DIMENSION AND PROPORTION ON  
AXIAL AND RADIAL POSITION OF ASAM-ASAM WOOD  
(*Tristiropsis* sp.)**

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**Abstract**

Wood is essentially used for various purposes, including as the raw material of pulp and paper which is related to its anatomical properties such as cells proportion and dimension that can affect the produced pulp and paper. In other hand, other wood properties also determine by its anatomical features. This research discussed the variation of cells dimension and proportion on axial and radial position of *Tristiropsis* sp., known as Kayu Asam-Asam in Indonesia, which originally grows in East Kalimantan. The wood is categorized into the strength class II with the specific gravity of 0.62. It is expected that by examining the axial and radial variation, the characteristics of *Tristiropsis* sp. can be found and optimized in its utilization.

This research was conducted using Completely Randomized Design with two factors, those were axial position (base, middle, and top stem) and radial position (near the pith, between the pith and bark, and near the bark), with four times repetition. Parameters observed were fiber length, fiber diameter, lumen diameter, cell wall thickness, vessel diameter, vessel frequency, fiber proportion, vessel proportion, ray parenchyma proportion, and axial parenchyma proportion.

The interaction between axial position and radial position factors did not result a significant effect to the cell dimension and proportion. The factor of base, middle, and top stem axial position gave a significant effect to the vessel proportion with average value of 7.3 %, 8.7 %, 10.1 %. The factor of near the pith, between the pith and bark, and near the bark radial position gave a significant effect to the fiber diameter (16.8  $\mu$ m, 15.2  $\mu$ m, 15.1  $\mu$ m), cell wall thickness (2.2  $\mu$ m, 2.6  $\mu$ m, 2.6  $\mu$ m), and ray parenchyma proportion (14.2 %, 16 %, 18.3 %). A very significant effect was also given to the fiber length (1 mm, 1.2 mm, 1.2 mm), lumen diameter (12.5  $\mu$ m, 10.1  $\mu$ m, 10  $\mu$ m), and vessel frequency (3.8 per mm<sup>2</sup>, 2.8 per mm<sup>2</sup>, 2.4 per mm<sup>2</sup>).

Keywords: *Tristiropsis* sp., Axial Position, Radial Position, Cell Dimension, Cell Proportion

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