

**VARIASI ANATOMI KAYU JABON MERAH**  
**(*Anthocephalus macrophyllus* (Roxb.) Havil) UMUR 5 TAHUN**  
**PADA ARAH AKSIAL DAN RADIAL**  
**DARI WONOGIRI, JAWA TENGAH**

Oleh:  
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**INTISARI**

Indonesia merupakan salah satu penyuplai pulp dan kertas terbesar di dunia. Oleh karena itu, diperlukan kayu *fast growing species* sebagai alternatif pemenuhan kebutuhan bahan baku pulp dan kertas, salah satunya Jabon merah (*Anthocephalus macrophyllus* (Roxb.) Havil). Pulp dan kertas erat kaitannya dengan sifat anatomi kayu seperti proporsi sel, dimensi serat dan turunan dimensi serat karena akan berpengaruh terhadap pulp dan kertas yang dihasilkan. Penelitian ini membahas mengenai anatomi, variasi proporsi dan variasi dimensi serat pada arah aksial dan radial kayu Jabon merah dari Wonogiri, Jawa Tengah. Diharapkan dengan mengetahui variasi anatomi aksial dan radialnya, kayu Jabon merah dapat dimanfaatkan lebih optimal.

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 tiga kali ulangan. Parameter yang diamati yaitu proporsi sel (serat, pembuluh, parenkim longitudinal, parenkim jari-jari) dimensi serat (panjang serat, diameter serat, diameter lumen serat, tebal dinding serat) dan turunan dimensi serat (bilangan Runkel, bilangan Muhlsteph, daya tenun, bilangan fleksibilitas, koefisien kekakuan).

Faktor arah aksial pangkal, tengah, dan ujung batang memberikan pengaruh yang nyata terhadap proporsi serat, proporsi pembuluh, panjang serat dan daya tenun. Faktor arah radial dekat hati, tengah, dan dekat kulit tidak memberikan pengaruh yang nyata terhadap proporsi sel dan dimensi serat. Interaksi kedua faktor juga tidak memberikan pengaruh yang nyata terhadap proporsi dan dimensi seratnya. Hasil pengamatan menunjukkan nilai rerata ( $\pm$  standar deviasi) sifat kayu sebagai berikut: proporsi sel serabut  $50\% \pm 5,8$ ; proporsi sel pembuluh  $20,9\% \pm 5,2$ ; proporsi sel parenkim longitudinal  $17,8\% \pm 3,3$ ; proporsi parenkim jari-jari  $11,4\% \pm 1,9$ ; panjang serat  $1.797,5 \mu\text{m} \pm 359,08$ ; diameter sel serat  $27,32 \mu\text{m} \pm 2,73$ ; diameter lumen serat  $22,5 \mu\text{m} \pm 2,64$ ; tebal dinding sel  $2,39 \mu\text{m} \pm 0,33$ ; bilangan Runkel  $0,22 \pm 0,04$ ; perbandingan Muhlsteph  $32,1 \pm 4,52$ ; daya tenun  $66,1 \pm 12,88$ ; perbandingan fleksibilitas  $0,82 \pm 0,03$ ; koefisien kekakuan  $0,09 \pm 0,014$ . Berdasarkan hasil penelitian ini sifat kayu Jabon merah diprediksi sangat baik sebagai bahan baku pulp dan kertas.

Kata kunci: *Anthocephalus macrophyllus*, arah aksial, arah radial, proporsi sel, dimensi serat

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**WOOD ANATOMICAL VARIATION OF 5-YEAR-OLD  
JABON MERAH (*Anthocephalus macrophyllus* (Roxb.) Havil)  
IN AXIAL AND RADIAL POSITION  
FROM WONOGIRI, CENTRAL JAVA**

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**ABSTRACT**

Indonesia is one of the largest suppliers of pulp and paper in the world. Therefore, a fast growing species of wood is needed as an alternative to meet the demand of pulp and paper raw materials, one of which is Jabon Merah (*Anthocephalus macrophyllus* (Roxb.) Havil). Pulp and paper are closely related to the anatomical properties of wood such as the cell proportion, fiber dimensions and fiber derive values that can affect the produced of pulp and paper. This study discusses the anatomy, variation of cell proportions and fibers dimensions in the axial and radial position of the Jabon merah wood from Wonogiri, Central Java. It is expected that by examining the axial and radial anatomical variation, the characteristics of Jabon merah 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 three times repetition. The parameters observed were cell proportions (fiber, vessel, longitudinal parenchyma, and rays parenchyma), fiber dimensions (length, cell diameter, lumen diameter, and cell wall thickness), and fiber derived values (Runkel ratio, Muhlsteph ratio, felting power, flexibility ratio, and coefficient of rigidity).

The axial position of the base, middle, and end of the stem had a significant effect on the fibers proportion, vessels proportion, fibers length and the felting power. The radial position near the pith, between the pith and bark, and near the bark did not have a significant effect on the cell proportions and fibers dimensions. The interaction of the two factors also has no real effect. Observations results showed that the mean ( $\pm$  standard deviation) of wood characteristics was as follows: fiber cells proportion was  $50\% \pm 5,8$ ; vessel cells proportion  $20,9\% \pm 5,2$ ; proportion of longitudinal parenchyma cells  $17,8\% \pm 3,3$ ; proportion of rays parenchyma  $11,4\% \pm 1,9$ ; fiber length  $1,797.5 \mu\text{m} \pm 359.08$ ; fiber cell diameter  $27.32 \mu\text{m} \pm 2.73$ ; fiber lumen diameter  $22.5 \mu\text{m} \pm 2.64$ ; fiber cell wall thickness  $2.39 \mu\text{m} \pm 0.33$ ; Runkel ratio  $0.22 \pm 0.04$ ; Muhlsteph ratio  $32.1 \pm 4.52$ ; felting power  $66.1 \pm 12.88$ ; flexibility ratio  $0.82 \pm 0.03$ ; coefficient of rigidity  $0.09 \pm 0.014$ . Based on this results, Jabon merah wood properties in this study is predicted to be very good as raw material for pulp and paper.

**Keywords:** *Anthocephalus macrophyllus*, axial position, radial position, cell proportions, fiber dimensions

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