

SIFAT ANATOMI KAYU PANGGAL BUAYA
(*Zanthoxylum rhetsa* (Roxb.) DC.) DARI KHDTK WANAGAMA
PADA ARAH AKSIAL DAN RADIAL

Oleh:

Muhammad Habib Ilman Badawi¹, Widyanto Dwi Nugroho²

INTISARI

Panggal buaya (*Zanthoxylum rhetsa* (Roxb.) DC.) merupakan jenis tumbuhan berkayu yang sering digunakan sebagai bahan baku industri kerajinan di Bali. Informasi ciri mikroskopis kayu panggal buaya untuk identifikasi pada basis data Insidewood masih belum tersedia serta sifat anatomi kayu panggal buaya masih terbatas. Penelitian ini bertujuan untuk memberikan informasi mengenai sifat anatomi kayu panggal buaya yang meliputi ciri anatomi, dimensi dan proporsi sel serta variasinya pada arah aksial, radial dan interaksi antara arah aksial dan radial agar dapat mengetahui pemanfaatannya yang optimal.

Sampel kayu panggal buaya yang digunakan berasal dari 3 pohon yang berada pada plot uji keturunan KHDTK Wanagama. Pengambilan sampel dilakukan pada 9 letak kedudukan pohon pada arah aksial dan radial dalam bentuk sampel irisan dan maserasi. Analisis deskriptif ciri mikroskopis kayu panggal buaya dilakukan dengan mengacu pada IAWA *Committee* (1989). Analisis variasi dimensi dan proporsi sel dilakukan menggunakan metode *Two-way ANOVA* dengan uji lanjut Tukey HSD.

Hasil penelitian menunjukkan bahwa kayu panggal buaya berdasarkan IAWA *Committee* (1989) memiliki ciri yang ternotasi 1, 5, 9, 10, 13, 22, 30, 41, 49, 61, 65, 66, 68, 72, 78, 97, 103, 104, 107, dan 115. Hasil pengukuran rerata dimensi sel meliputi; panjang serat 0,90 mm, diameter serat 13,52 μm , diameter lumen 9,48 μm , tebal dinding sel 2,10 μm , diameter pembuluh 66,98 μm , frekuensi pembuluh 70 pembuluh/ mm^2 , dan frekuensi jari – jari 6 jari – jari/mm. Hasil pengukuran rerata proporsi sel meliputi; proporsi serat 64,04%, proporsi pembuluh 23,23%, proporsi jari-jari 12,19%, dan proporsi parenkim aksial 0,53%. Letak aksial memberikan pengaruh terhadap panjang serat, diameter pembuluh, frekuensi pembuluh, proporsi serat, dan proporsi jari – jari kayu panggal buaya. Letak radial memberikan pengaruh terhadap panjang serat, diameter pembuluh, frekuensi jari – jari, proporsi serat, proporsi pembuluh, dan proporsi jari – jari kayu panggal buaya. Interaksi antara letak aksial dan radial memberikan pengaruh nyata terhadap frekuensi pembuluh dan proporsi pembuluh kayu panggal buaya.

Kata kunci : *Zanthoxylum rhetsa*, Aksial, Radial, Dimensi Sel, Proporsi Sel, Anatomi kayu

¹ Mahasiswa Fakultas Kehutanan, Universitas Gadjah Mada, Yogyakarta

² Staf Pengajar Fakultas Kehutanan, Universitas Gadjah Mada, Yogyakarta

THE ANATOMICAL PROPERTIES OF PANGGAL BUAYA (*Zanthoxylum rhetsa* (Roxb.) DC.) WOOD FROM KHDTK WANAGAMA IN THE AXIAL AND RADIAL POSITION

By:

Muhammad Habib Ilman Badawi¹, Widyanto Dwi Nugroho²

ABSTRACT

Panggal buaya (*Zanthoxylum rhetsa* (Roxb.) DC) is a woody plant which is commonly used as the raw material on crafting industries in Bali. The microscopic features about panggal buaya wood for identification on Insidewood database is not yet available and the anatomical properties about panggal buaya wood is still limited. This research aims to provide information about the anatomical properties of panggal buaya wood which consists of anatomical properties, cell dimension and proportion as well as their axial and radial variation, and the interaction between axial and radial position to determine the suitable utilization.

The wood sample was taken from 3 tree individual at KHDTK Wanagama progeny test plot. Sampling was conducted from 9 positions on the tree in the axial and radial direction and were divided to sliced samples and maseration samples. The microscopic features analysis was conducted based on the IAWA Committee (1989). Cell dimension and proportion variations were analysed by using the Two-way ANOVA method and then tested further using Tukey HSD method.

The results show that panggal buaya wood based on IAWA Committee (1989) has some characteristics which were notated as follow; 1, 5, 9, 10, 13, 22, 30, 41, 49, 61, 65, 66, 68, 72, 78, 97, 103, 104, 107, and 115. Furthermore, the average value of cell dimensions were as follow; fiber length 0.90 mm, fiber diameter 13.52 μm , lumen diameter 9.48 μm , cell wall thickness 2.10 μm , vessel diameter 66.98 μm , vessel frequency 70 vessels/ mm^2 , and ray frequency 6 rays/mm. The average value results of cell proportions were as follow; 64.04% fiber proportion, 23.23% vessel proportion, 12.19% ray proportion, and 0.53% axial parenchyma proportion. Axial position influences fiber length, vessel diameter, vessel frequency, fiber proportion, and ray proportion. Radial position influenced fiber length, vessel diameter, ray frequency, fiber proportion, vessel proportion, and ray proportion. The interaction between axial and radial position influenced the vessel frequency and vessel proportion.

Keywords: *Zanthoxylum rhetsa*, Cell dimensions, Cell proportions, Axial, Radial, Wood anatomy

¹ Student of Faculty of Forestry Universitas Gadjah Mada, Yogyakarta

² Lecturer of Faculty of Forestry Universitas Gadjah Mada, Yogyakarta