

**PENGARUH PENERESAN TERHADAP SIFAT KAYU  
DAN TEGANGAN PERTUMBUHAN KAYU SENGON (*Falcataria  
moluccana* (Miq.) Barneby & J.W. Grimes) DARI HUTAN RAKYAT**

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**INTISARI**

*Falcataria moluccana* (sengon) merupakan salah satu spesies utama yang dibudidayakan di hutan rakyat Pulau Jawa, namun pemanfaatannya menghadapi permasalahan akibat tingginya nilai tegangan pertumbuhan. Peneresan merupakan salah satu usaha untuk mengurangi nilai tegangan pertumbuhan yang tinggi. Penelitian ini dilakukan untuk mengamati pengaruh peneresan dan kedudukan radial pengamatan terhadap sifat kayu dan tegangan pertumbuhan kayu sengon berumur 7 tahun yang ditanam di hutan rakyat Purworejo, Jawa Tengah, Indonesia. Metode *strain gauge* digunakan untuk mengamati pelepasan regangan permukaan longitudinal (PRL), dan tangensial (PRT), serta pelepasan regangan internal sisa (PRI). Hasil penelitian menunjukkan nilai PRL berkisar antara -739 hingga -248  $\mu\epsilon$ , PRT sebesar -1.251  $\mu\epsilon$  hingga 304  $\mu\epsilon$ , dan PRI sebesar -956 hingga 1.406  $\mu\epsilon$ . Peneresan berpengaruh signifikan terhadap nilai diameter dan tebal dinding serat, kadar air, berat jenis, penyusutan tangensial, serta modulus patah (MOR). Sementara itu, pengamatan pada kedudukan radial yang berbeda memberikan pengaruh signifikan terhadap nilai panjang serat, diameter serat, kadar air segar, berat jenis, penyusutan pada arah tangensial dan radial, rasio T/R, modulus elastisitas (MOE), dan MOR. Peneresan selama 3 bulan menurunkan selisih antar puncak PRI hingga 19,3%, sedangkan peneresan selama 12 bulan sebesar 25,5%. Hasil pengamatan menunjukkan peneresan 12 bulan menghasilkan penurunan nilai tegangan pertumbuhan yang lebih besar, namun hasil ini diikuti dengan peningkatan kerentanan pohon terhadap serangan hama pengerek batang.

**Kata Kunci:** *Falcataria moluccana*, peneresan, tegangan pertumbuhan, sifat-sifat kayu.

**THE EFFECTS OF GIRDLING ON WOOD PROPERTIES AND  
GROWTH STRESS OF SENGON (*Falcataria moluccana* (Miq.) Barneby &  
J.W. Grimes) FROM COMMUNITY FOREST**

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**ABSTRACT**

*Falcataria moluccana* (Sengon) is one of the main species cultivated in community forests in Java, but its utilization faces problems due to high growth stress values. This research aims to observe the effects of different girdling times and radial positions on wood properties and growth stress of 7-year-old sengon wood grown in the community forest of Purworejo, Central Java, Indonesia. The strain gauge method was used to measure surface-released strain in longitudinal (LRS) and tangential direction (TRS), as well as internal residual strain (IRS). The results showed that LRS values ranged from -739 to -248  $\mu\epsilon$ , TRS from -1,251  $\mu\epsilon$  to 304  $\mu\epsilon$ , and IRS from -956 to 1,406  $\mu\epsilon$ . Girdling treatment had a significant effect on the values of fiber diameter and wall thickness, moisture content, specific gravity, tangential shrinkage, and modulus of rupture (MOR). Meanwhile, observation at different radial positions significantly affected the values of fiber length, fiber diameter, green moisture content, specific gravity, tangential and radial shrinkage, T/R ratio, modulus of elasticity (MOE), and MOR. The 3-month girdling treatment reduced the difference between IRS peaks by 19.3%, while the 12-month treatment by 25.5%. Observations showed that the 12-month girdling resulted in a greater reduction of growth stress, but this result was followed by an increase in the tree's susceptibility to stem borer attack.

**Keywords:** *Falcataria moluccana*, girdling, growth stress, wood properties.