

Kadar Ekstraktif dan Ketahanan terhadap Jamur pada Kayu Jati Plus Perhutani
dengan Perlakuan Peneresan

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INTISARI

Pemanfaatan kayu jati muda menjadi meningkat disebabkan adanya kesenjangan permintaan dan ketersediaan bahan baku kayu. Kayu berumur muda diketahui banyak mengandung kayu juvenil dan gubal. Untuk menghadapi masalah tersebut dilakukan peneresan sebagai upaya peningkatan kualitas kayu jati muda. Perlakuan peneresan dilakukan untuk meningkatkan kualitas kayu muda. Pengujian kualitas kayu tersebut dilakukan dengan menguji kadar ekstraktif kayu dan ketahanan alami kayu. Tujuan dari penelitian ini untuk mengetahui variasi arah radial dan longitudinal pada kadar ekstraktif dan ketahanan alami kayu jati plus perhutani sebelum dan setelah dilakukan peneresan. Serta hubungan kadar ekstraktif dan ketahanan alami kayu JPP.

Sampel kayu JPP berumur 11 tahun yang diperoleh di daerah Ngawi, Indonesia. Faktor terdiri dari lama teresan (0, 6, 9, 12, 21 bulan); variasi aksial/longitudinal (pangkal, tengah, ujung); dan variasi radial (gubal, teras terluar, teras terdalam). Kayu diekstrak secara berurutan dengan menggunakan plearut (toluena, etanol, air panas). Pengujian kadar fenolat total, kadar polisakarida, dan kada pati menggunakan metode kolorimetrik. Pengujian ketahanan alami kayu berdasarkan persentase penurunan berat sampel setelah pengumpanan jamur *Phanerochaete crysosporium*.

Hasil menunjukkan bahwa setelah beri perlakuan teresan terjadi peningkatan kadar ekstraktif dan kadar fenolat terlarut etanol setelah teresan 21 bulan. Sebaliknya kadar ekstraktif terlarut air panas (KEAP) mengalami penurunan di teresan 21 bulan dimana polisakarida yang merupakan salah satu komponennya juga menurun setelah teresan 12 dan 21 bulan di bagian gubal. Kadar ekstraktif total terus meningkat seiring dengan peningkatan waktu teresan. Kadar pati setelah diberi perlakuan menunjukkan nilai yang berfluktuasi namun tetap menurun setelah teresan terutama di bagian pangkal dan tengah. Perlakuan peneresan tidak berpengaruh terhadap penurunan berat sampel setelah pengumpanan terhadap jamur *Phanerochaete crysosporium*. Faktor radial menunjukkan pengaruh yang nyata dimana penurunan sampel tertinggi (3,19%) di bagian gubal. KEAP memiliki tingkat hubungan yang paling besar dengan penurunan berat sampel baik di seluruh sampel maupun di bagian gubal. Kadar fenolat terlarut etanol menunjukkan hubungan negatif dengan penurunan berat sampel sebaliknya kadar fenolat terlarut menunjukkan hubungan positif.

Kata Kunci: *Tectona grandis*, peneresan, ekstraktif, *Phanerochaete crysosporium*, variasi radial.

Extractives Content and Natural Durability to Fungi of Superior Teakwood from Perhutani Stand with Girdling Treatment

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ABSTRACT

The utilization of young teak wood had increased due to the gap in demand and the availability of wood raw materials. Young wood was known to contain a lot of juvenile and sapwood wood. To deal with these problems, girdling treatment is carried out as an effort to improve the quality of young teak wood. Girdling treatment was applied as an effort to improve the quality of teakwood from young trees. As it related to the natural durability, the teak wood was tested for its extractives content and natural durability. The purpose of this study was to find out the effect of radial and longitudinal direction on extractives content and natural durability of superior teakwood (Jati Plus Perhutani) from Perhutani stand with girdling treatments. Furthermore, to find out the correlation of extractives content and natural durability of superior teakwood.

The samples (11 years) were located in Ngawi. The factors were girdling duration (0, 6, 9, 12, 21 months): axial (bottom, center, top) and radial (sapwood, outer heartwood, inner heartwood). Wood extracts were obtained by successive extraction (toluene, ethanol, and hot water). Total phenol content, non-structural carbohydrate content, and starch content were also determined by colorimetric method. The natural durability was determined by the percentage of weight loss after incubator method of *Phanerochaete crysosporium* fungi.

The results showed that the amount of ethanol extract and total phenol content were increase in 21 months girdling parts. On the other hand, the amount of hot water extract was decrease in the same parts, where non-structural carbohydrate content was one of its component also decrease in the sapwood parts (12 and 21 months girdling). The amount of total extract was increase as long as girdling time increase. The amount of starch content was fluctuated but its amount was decrease in girdling parts (bottom and center). The ANOVA of weight loss shows no significant girdling treatment after determined incubator method of *Phanerochaete crysosporium*. There is significant radial position ($P < 0.01$), where the amount percentage of weight loss was higher (3.19%) in the sapwood parts. Significantly, The correlation between the weight loss and hot water extract was higher ($r = 0,84$) in total sample and the sapwood parts. The correlation between the weight loss and ethanol total phenol content shows negative correlation ($r = -0,34$) in the sapwood parts. On the other hand, the correlation between the weight loss and toluene total phenol content shows positive correlation ($r = 0,31$) in the same parts.

Keywords: *Tectona grandis*, girdling, extractives, *Phanerochaete crysosporium*, radial direction