

PENGARUH PERLAKUAN PANAS TERHADAP KUALITAS KAYU JATI CEPAT TUMBUH

Gian Adhi Darmawan¹ dan Tomy Listyanto²

INTISARI

Perum Perhutani telah mengembangkan suatu jenis varietas jati yaitu jati cepat tumbuh, salah satunya adalah Jati Plus Perhutani (JPP). Pada umur yang sama, diameter batang Jati Plus Perhutani hampir dua kali lebih besar dari diameter batang pohon jati konvensional. Namun, sifat dan karakteristik kayu dari tegakan muda lebih inferior terutama dalam hal kekuatan, keawetan, dan kestabilan dimensi. Salah satu upaya yang dapat dilakukan untuk memperbaiki sifat-sifat kayu JPP yaitu dengan proses perlakuan panas. Tujuan penelitian ini untuk menguji pengaruh suhu dan lama waktu pemanasan terhadap kualitas kayu cepat tumbuh, yaitu sifat fisika (kadar air, berat jenis dan stabilitas dimensi), sifat perubahan warna, sifat mekanika (MoE dan MoR) dan sifat keawetan kayu.

Bahan penelitian adalah log kayu JPP umur 12 tahun dari KPH Pemalang berdiameter antara 20-25 cm. Penelitian ini menggunakan rancangan acak lengkap dengan faktor suhu (190°C, 200°C dan 210°C) dan lama waktu pemanasan (4, 8, 12 dan 16 jam) sebanyak 3 ulangan dan kontrol sehingga total sampel uji sebanyak 45. Parameter yang diamati antara lain sifat fisika (kadar air dan stabilitas dimensi), sifat perubahan warna, sifat mekanika (MoE dan MoR) dan sifat keawetan kayu. Pengamatan sifat warna kayu dilakukan mengacu standar CIELab spektrofotometer, sedangkan pengamatan sifat keawetan kayu dilakukan dengan mengacu pada SNI 21-2707-2006. Pengamatan sifat fisika kayu (stabilitas dimensi) dan sifat mekanika kayu dilakukan dengan mengacu pada British Standar 373 1957. Analisis data menggunakan program SPSS 25 *for Windows* sehingga diperoleh analisis variannya.

Berdasarkan hasil penelitian menunjukkan bahwa faktor suhu berpengaruh nyata pada kadar air kayu, stabilitas dimensi, dan sifat mekanika kayu (MoR), sifat keawetan dan perubahan warna kayu. Faktor lama waktu berpengaruh nyata terhadap kadar air, stabilitas dimensi, dan perubahan warna kayu. Interaksi antara kedua faktor berpengaruh nyata terhadap sifat mekanika kayu (MoE), sifat keawetan dan perubahan warna kayu. Perlakuan panas pada suhu 210°C selama 6 jam memberikan hasil yang terbaik pada peningkatan beberapa parameter sifat kayu.

Kata kunci: kayu JPP, modifikasi kayu, sifat fisika, sifat perubahan warna, sifat mekanika, sifat keawetan kayu

¹Mahasiswa Fakultas Kehutanan Universitas Gadjah Mada

²Staf Pengajar pada Departemen Teknologi Hasil Hutan, Fakultas Kehutanan Universitas Gadjah Mada

EFFECT OF HEAT TREATMENT ON THE WOOD QUALITY OF FAST GROWING TEAK

Gian Adhi Darmawan¹ dan Tomy Listyanto²

ABSTRACT

Perum Perhutani has developed of teak variety, namely fast growing teak, one of which is Perhutani Superior Teak (JPP). At the same age, the stem diameter of Superior Teak is almost twice as large as the stem diameter of conventional teak trees. However, the wood properties and characteristics of young stands are inferior especially in terms of strength, durability and dimensional stability. One of the efforts that can be made to improve the quality of Superior Teak is the Heat Treatment process. The aim was to investigate the effect of temperature, duration and the their interaction to quality of the fast growing species, which were physical properties (moisture content, specific gravity and dimensional stability), color change properties, mechanical properties (MoE and MoR) and wood durability.

The research materials were 12 year old Superior Teak logs from KPH Pemalang with diameter between 20-25 cm. This study used a completely randomized design with a temperature factor (190° C, 200° C and 210°C) and heating time (4, 8, 12 and 16 hours) of 3 replications and control so that the total sample test was 45. Observed parameters include physical properties (moisture content and dimensional stability), color change properties, mechanical properties (MoE and MoR) and wood durability. Observation of wood color properties was followed by CIELab spectrophotometer standard, while observations of the durability of wood based on SNI 21-2707-2006. Observation of the physical properties of wood (dimensional stability) and the mechanical properties of wood was followed by British Standard 373 1957. Data analysis used the SPSS 25 for Windows program so that analysis of variants was obtained.

The results showed that the temperature factor had a significant effect on wood moisture content, dimensional stability, and wood mechanical properties (MoR), durability and color change of wood. The heating time factor has a significant effect on moisture content, dimensional stability, and color change of wood. The interaction between two factors has a significant effect on the mechanical properties of wood (MoE), durability and color change of wood. Modification with a temperature of 210°C for 16 hours give the best result to improvement on the wood properties.

Keywords: superior teak wood, wood modification, physical properties, colour change properties, mechanical properties, durability properties

¹Student of Faculty of Forestry Universitas Gadjah Mada

²Lecturer of Faculty of Forestry Universitas Gadjah Mada