

Pengaruh Perbedaan Suhu dan Lama Pengempaan Terhadap Sifat Fisis dan Mekanis Papan Partikel dari Tongkol Jagung (*Zea mays*, L.) Berperekat Gambir

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh perbedaan suhu dan lama pengempaan terhadap sifat fisis dan mekanis papan partikel dari tongkol jagung berperekat gambir. Penelitian ini menggunakan Rancangan Acak Lengkap (RAL) 2 faktor perlakuan dan 2 kali ulangan. Data dianalisa secara statistik dengan menggunakan ANOVA dan dilanjutkan dengan uji Duncan's New Multiple Range Test (DNMRT) pada taraf 5%. Perlakuan pada penelitian ini adalah perbedaan suhu 130 °C, 140 °C, 150 °C, 160 °C, 170 °C dan lama pengempaan 10, 15, dan 20 menit. Pengamatan pada papan partikel berbahan tongkol jagung gambir yang dihasilkan adalah pengamatan sifat fisis yaitu uji kadar air, kerapatan, daya serap air, pengembangan tebal, sedangkan pengamatan sifat mekanis yang diamati antara lain Modulus of Rupture (MOR), Internal Bonding (IB), keteguhan tekan sejajar permukaan. Hasil penelitian menunjukkan bahwa perbedaan suhu dan lama pengempaan berpengaruh nyata terhadap kadar air, kerapatan, daya serap air, pengembangan tebal, keteguhan patah, keteguhan rekat internal, keteguhan tekan sejajar permukaan. Papan partikel terbaik berdasarkan uji mekanis adalah pada perlakuan A3B1 (suhu 150 °C dan lama pengempaan 10 menit) dengan nilai rata – rata, Modulus of Rupture (MOR) yaitu 47,65 kg/cm², Internal Bonding (IB) yaitu 5,82 kg/cm², dan tekan sejajar permukaan 59,62 kg/cm². Sedangkan hasil pengamatan sifat fisis papan partikel perlakuan A3B1 (suhu 150 °C dan lama pengempaan 10 menit) dengan nilai rata-rata, kadar air 9,52%, kerapatan 1,02%, daya serap air 256,04%, pengembangan tebal 112,78%.

Kata Kunci – Suhu, Lama Pengempaan, Papan Partikel, Tongkol Jagung, Perekat Gambir



The Effect of The Difference Temperature and Duration Press Toward Physical and Mechanical Properties of Particle Board Made of Corn Cobs (*Zea mays, L.*) and Adhesive Gambier

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This research was aimed to learn the effect of temperature difference and duration of press toward the physical and mechanical properties of particle board made of corn cobs and Adhesive gambier. This research used Completely Randomized Designed (CRD) which consist of 2 factors and 2 repetitions. Data were analized statistically by using ANOVA continued by Duncan's New Multiple Range Test (DNMRT) at 5%. The treatment in this research is the temperature difference of 130 °C, 140 °C, 150 °C, 160 °C, 170 °C and the duration of press of 10, 15, and 20 minutes. The observation on the particle board made of a mixture of corn cobs and Adhesive gambier include the physical properties observation that are water content test, density, water absorption, thickness swelling, while the observation on mechanical properties include Modulus of Rupture (MOR), Internal Bonding (IB), strength of surface parallel press.. The result showed that temperature difference and the duration of press significantly affect the water content, density, water absorption, thickness swelling, fracture strength, internal bonding strength, strength of surface parallel press. The best particle board based on properties tests in treatment A3BI (temperature 150 °C and 10 minutes duration of press) with average Modulus of Rupture 47,65 kg/cm², Internal Bonding (IB) is 5,82 kg/cm², and parallel press to the surface 59,62 kg/cm². Where as observations of physical properties of particle board treatment A3BI (temperature 150 °C and 10 minutes of press) with average, 9,52% water content, 1,02% density, 256,04% water absorption, 112,78% thickness swelling.

Key words : Temperature, Duration of pressing, Particle board, Corn cobs, Adhesive Gambier

