

**ANALISIS SIFAT FISIS DAN MEKANIS PAPAN PARTIKEL
DARI SERBUK KAYU SENGON DAN SERBUK KULIT
DURIAN BERTULANG ANYAMAN BAMBU**

SKRIPSI



**DEPARTEMEN FISIKA
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
UNIVERSITAS ANDALAS
PADANG**

2023

ANALISIS SIFAT FISIS DAN MEKANIS PAPAN PARTIKEL DARI SERBUK KAYU SENGON DAN SERBUK KULIT DURIAN BERTULANG ANYAMAN BAMBU

ABSTRAK

Telah dilakukan penelitian untuk menganalisis pengaruh komposisi serbuk kayu sengon dan serbuk kulit durian terhadap sifat fisis dan mekanis papan partikel bertulang anyaman bambu. Sifat fisis yang diuji meliputi densitas, kadar air dan daya serap air sedangkan sifat mekanis yang diuji meliputi *Modulus of Elasticity* (MOE) dan *Modulus of Rupture* (MOR). Ukuran partikel yang digunakan adalah lolos ayakan 30 mesh. Perbandingan komposisi filler serbuk kayu sengon dan serbuk kulit durian yang digunakan yaitu 50%:20%, 40%:30%, 35%:35%, 30%:40%, 20%:50% dengan komposisi resin epoksi yang konstan sebesar 30%. Pembuatan papan partikel dilakukan dengan pencampuran bahan, resin epoksi dan anyaman bambu sebagai pembatas melalui proses pengempaan panas dengan beban 7000 kg selama 1 menit. Hasil sifat fisis yang didapatkan yaitu densitas sebesar $0,847 \text{ g/cm}^3$ - $0,89 \text{ g/cm}^3$, nilai kadar air sebesar 0,7% - 1,05% dan daya serap air sebesar 10,98% - 12,65% dan sudah memenuhi standar SNI 03-2105-2006. Sedangkan hasil sifat mekanis yang didapatkan yaitu nilai MOE sebesar $3221,72 \text{ kg/cm}^2$ - $7065,14 \text{ kg/cm}^2$ dan nilai MOR sebesar $82,36 \text{ kg/cm}^2$ - $144,63 \text{ kg/cm}^2$. Nilai MOE secara keseluruhan belum memenuhi standar SNI 03-2105-2006 sedangkan untuk nilai MOR pada semua variasi sudah memenuhi standar SNI 03-2105-2006.

Kata kunci: epoksi, kayu sengon, kulit durian, papan partikel, MOE, MOR



ANALYSIS OF PHYSICAL AND MECHANICAL PROPERTIES OF PARTICLE BOARDS MADE OF SENGON SAWDUST AND DURIAN BARK REINFORCED BAMBOO WOVEN

ABSTRACT

This research aims to analyze the effect of the composition sengon sawdust particles and durian bark particles on the physical and mechanical characteristics of particle board reinforced woven bamboo. The physical characteristics tested included density, moisture content and water absorption while the mechanical characteristics tested included modulus of elasticity (MOE) and modulus of rupture (MOR). The particle size used was through a 30 mesh sieve. Comparison of the filler composition of sengon sawdust particle and durian bark particle used was 50%:20%, 40%:30%, 35%:35%, 30%:40%, and 20%:50% with a constant epoxy resin composition of 30 %. The manufacture of particle board is carried out by mixing the material, epoxy resin and woven bamboo as a barrier through a hot pressing process with a load of 7000 kg for 1 minute. The results of the physical characteristics obtained were a density of 0.82 g/cm³- 0.89 g/cm³, a water content value of 0.7% - 1.05% and a water absorption capacity of 10.98% - 12.63% and already qualified SNI 03-2105-2006 standards. While the mechanical characteristics obtained were MOE values of 3221.72 kg/cm² – 7065.14 kg/cm² and MOR values of 82.36 kg/cm² – 144.63 kg/cm². The overall MOE value didn't qualify for the SNI 03-2105-2006 standard, while the MOR value for all variations qualified for the SNI 03-2105-2006 standard.

Keywords: epoxy, sengon sawdust, durian bark, particle board, MOE, MOR