PENGARUH PERSENTASE KOMPOSISI SERBUK KULIT KAKAO DENGAN BAHAN PENGISI LIDAH MERTUA TERHADAP SIFAT FISIS DAN MEKANIK PAPAN PARTIKEL

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh komposisi serbuk kulit kakao dengan lidah mertua terhadap sifat fisis dan mekanis. Dalam penelitian ini digunakan perbandingan komposisi bahan pengisi dengan jumlah perekat yang tetap. Variasi komposisi bahan yang digunakan partikel serbuk kulit kakao dan serat lidah mertua adalah (70:0)%, (50:20)%, (35:35)%, (20:50)%, (0:70)%. Kadar perekat resin epoksi yang digunakan adalah 30%. Ukuran partikel yang digunakan adalah lolos ayakan 50 mesh. Parameter yang diukur adalah densitas, kadar air dan daya serap air, *Modulus of Elasticity* (MOE), *Modulus of Rupture* (MOR) dan kuat tekan sejajar. Hasil pengujian didapatkan nilai densitas terendah 0,71 g/cm^3 pada komposisi (20:50)% dan densitas tertinggi 1,26 g/cm^3 pada komposisi (70:0)%. Nilai kadar air papan terendah 1,29 % pada komposisi 20:50% dan nilai tertinggi 2,43 % pada komposisi (50:20)%. Nilai daya serap air terendah 1,97 % pada komposisi (35:35)% sedangkan nilai daya serap air tertinggi 11,8 % pada komposisi (0:70)%. Hasil uji sifat mekanis diperoleh nilai MOE terendah didapat sebesar 1115,56 kg/cm^2 pda komposisi (0:70)% dan nilai MOE tertinggi sebesar 1830,17 kg/cm^2 pada komposisi (35:35)%., Nilai MOR terendah 30,303 kg/cm^2 pada komposisi (70:0)% sedangkan MOR tertinggi 49,342 kg/cm^2 pada komposisi (20:50)%. Nilai kuat tekan sejajar terendah 22,46 kg/cm^2 pada komposisi (0:70)% sedangkan kuat tekan sejajar tertinggi 36,18 kg/cm^2 pada komposisi (35:35)%. Hasil penelitian menunjukkan bahwa sifat fisis dan mekanis papan partikel yang didapatkan pada pengujian telah memenuhi standar mutu SNI 03-2105-2006 kecuali untuk pengujian MOE dan MOR. Berdasarkan persentase densitas papan partikel maka papan partikel yang dihasilkan termasuk jenis papan partikel berkerapatan tinggi.

Kata kunci: serbuk kulit kakao, lidah mertua, MOE, MOR, kuat tekan sejajar, papan partikel.

THE EFFECT OF COMPOSITION PERCENTAGE OF COCOA SKIN POWDER WITH THE MATERIAL SANSEVERIA OF THE PHYSICAL AND MECHANICAL PROPERTIES OF PARTICLE BOARDS

ABSTRACT

The purpose of this research is to know the effect of composition cocoa skin powder and sansevieria to physical and mechanical properties of particle board. This research used composition ratio of materials and the fixed adhesives amount. The composition variation of the ingredients between cocoa skin powder and filler sansevieria that used were (70:0)%, (50:20)%, (35:35)%, (20:50)%, (0:70)%. The epoxy resin adhesive content that used was 30%. The particle size that use in this research to pass the strain is 50 mesh. Parameter that researcher measured were density, moisture content, water absorption, Modulus of Elasticity (MOE), Modulus of Rupture (MOR), parallel compressive strength. The physical characteristics experiment result has showed that the lowest density is 0.71 g/cm^3 on ratio (20:50)% and the highest density is 1.26 g/cm^3 on ratio (70:0)%. The water content has showed that the lowest is 1.29% on ratio (20:50)% and the highest water content is 2.43% on ratio (50:20)%. The lowest water absorption is 1.97% on ratio (35:35)% while the highest water absorption is 11.8% on ratio (0:70)%. The result of mechanical characteristics that shown the lowest MOE value is 1115.56 kg/cm^2 on raito (0:70)% and the highest value is 1830.17 kg/cm^2 on ratio (35:35)%. The lowest MOR value is 30.303 kg/cm^{2}on ratio (70:0)% while the highest MOR value is 49.342 kg/cm^2 on ratio (20:50)%. The lowest parallel compressive strength value is 22.46 kg/cm^2 on ratio (0:70)% while the highest parallel compressive strength value is 36.18 kg/cm^2 on ratio (35:35)%. The physical and mechanical characteristic of the particel board obtained in the test have qualified from the requirement of SNI 03-2105-2006 quality standar except for MOE and MOR test. Based on the percentage of particle board density, the result of particle board is including in to the type of high density particle board.

Keywords: cocoa skin powder ,sansevieria, MOE, MOR, parallel compressive strength, particle board.