

PENGARUH METODE PENGEMPAAN DAN JUMLAH PEREKAT SUKROSA-AMONIUM DIHIDROGEN FOSFAT TERHADAP SIFAT FISIKA DAN MEKANIKA PAPAN KOMPOSIT SERAT RAMI (*Boehmeria nivea*)

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INTISARI

Penelitian papan komposit berbasis lignoselulosa non-kayu banyak dikembangkan, salah satunya adalah serat rami. Rami berpotensi dimanfaatkan sebagai bahan baku papan komposit karena memiliki kadar selulosa yang relatif tinggi dan masa panen yang relatif singkat. Kadar air mat dipengaruhi oleh banyaknya jumlah perekat sukrosa-ADF. Jika kadar air terlalu tinggi dapat menyebabkan delaminasi. Oleh karena itu, pemilihan metode pengempaan panas merupakan hal yang penting untuk dilakukan. Penelitian ini bertujuan untuk mengetahui pengaruh interaksi metode pengempaan dan jumlah perekat terhadap sifat fisika dan mekanika papan komposit serat rami.

Penelitian ini menggunakan rancangan acak lengkap (RAL) dengan dua faktor yaitu, metode pengempaan (*single step* dan *three step*) dan jumlah perekat (10%, 15%, dan 20%). Perekat yang digunakan adalah sukrosa-amonium dihidrogen fosfat (sukrosa-ADF). Papan komposit dibuat dengan ukuran 25,5 cm x 25,5 cm x 1 cm dengan target kerapatan 0,80 g/cm³. Suhu pengempaan yang digunakan yaitu 200°C dengan waktu pengempaan total selama 10 menit. Standar pengujian yang digunakan mangacu SNI 03-2105 (2006) dan FAO (1996). Data hasil pengujian dianalisis menggunakan analisis varians (ANOVA) dan pengujian lanjut *Honestly Significant Difference* (HSD).

Hasil penelitian menunjukkan faktor interaksi metode pengempaan dan jumlah perekat sukrosa-ADF tidak memberikan pengaruh yang signifikan terhadap seluruh parameter. Faktor metode pengempaan memberikan pengaruh yang signifikan terhadap nilai kadar air papan sedangkan faktor jumlah perekat tidak memberikan pengaruh yang signifikan terhadap seluruh parameter. Sifat terbaik papan komposit serat rami diperoleh dari perlakuan metode pengempaan *three step* dan jumlah perekat sukrosa-ADF 20% dengan nilai kerapatan 0,60 g/cm³, kadar air 10,81%, penyerapan air 130,22%, pengembangan tebal 23,17%, modulus patah 15,54 Kgf/cm² dan modulus elastisitas 2.090 Kgf/cm².

Kata Kunci: sukrosa, amonium dihidrogen fosfat, metode pengempaan, jumlah perekat, serat rami.

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***THE EFFECT OF PRESSING METHODS AND AMOUNT OF
SUCROSE-AMMONIUM DIHYDROGEN PHOSPHATE
ADHESIVES ON THE PHYSICAL AND MECHANICAL
PROPERTIES OF RAMIE COMPOSITE BOARDS
(*Boehmeria nivea*)***

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ABSTRACT

Researches on non-wood lignocellulosic based composite boards have been developed. Ramie has the potential to be used as a raw material for composite boards due to its relatively high cellulose content and short harvesting time. Basically, the moisture content of the mat is also affected by the amount of sucrose-ADP adhesive. If the moisture content is too high, the delamination may occur. Therefore, it is important to select the right hot pressing method. This study aims to determine the interaction effect of the pressing method and the amount of adhesive on the physical and mechanical properties of ramie fiber composite boards.

This study used a completely randomized design (CRD) with two factors, namely, the pressing method (single step and three steps) and the amount of adhesive (10%, 15%, and 20%). The adhesive used is sucrose-ammonium dihydrogen phosphate (sucrose-ADP). Composite boards are made with a size of 25.5 cm x 25.5 cm x 1 cm with a target density of 0.80 g/cm³. The pressing temperature used was 200°C with a total pressing time of 10 minutes. The test standard used refers to SNI 03-2105 (2006) and FAO (1996). The test data were analyzed using analysis of variance (ANOVA) and further testing Honestly Significant Difference (HSD).

The results showed that the interaction factor of the pressing method and the amount of sucrose-ADF adhesive did not have a significant effect on all parameters. The pressing method factor has a significant effect on the board's moisture content value, while the adhesive amount factor does not have a significant effect on all parameters. The best properties of ramie fiber composite board were obtained from the treatment of the three-step pressing method and the amount of 20% sucrose-ADF adhesive with a density value of 0.60 g/cm³, 10.81% moisture content, 130.22% water absorption, 23.17% thickness swelling, the modulus of fracture was 15.54 Kgf/cm² and the modulus of elasticity was 2,090 Kgf/cm².

Keywords: sucrose, ammonium dihydrogen phosphate, pressing method, amount of adhesive, ramie fiber.

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