

PENGARUH KOMPOSISI SUKROSA-AMONIUM DIHIDROGEN FOSFAT DAN SUHU PENGEMPAAN TERHADAP KARAKTERISTIK TPAPAN PARTIKEL AMPAS SAGU (*Metroxylon sagu*)

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INTISARI

Ampas sagu merupakan limbah dari hasil proses ekstraksi pati pohon sagu yang berpotensi dijadikan sebagai bahan baku papan partikel. Penggunaan perekat alami seperti sukrosa diharapkan dapat menggantikan perekat berbasis formaldehida. Penambahan amonium dihidrogen fosfat (ADF) dapat memperbaiki sifat sukrosa yang mudah menyerap air. Faktor komposisi perekat dan suhu pengempaan diduga dapat meningkatkan kualitas papan partikel. Oleh karena itu penelitian ini bertujuan untuk mengetahui pengaruh interaksi komposisi dan suhu pengempaan terhadap sifat papan partikel ampas sagu.

Papan partikel ampas sagu dibuat menggunakan ukuran 25,5 cm × 25,5 cm × 1 cm dengan target kerapatan 0,8 g/cm³. Faktor komposisi perekat menggunakan tiga aras yaitu 95/5 g/g%, 90/10 g/g% dan 85/15 g/g%, sedangkan faktor suhu pengempaan menggunakan dua aras yaitu 180 °C dan 200 °C. Pengempaan panas dilakukan selama 10 menit dengan tekanan 3 MPa menggunakan metode *three step*. Pengujian papan partikel mengacu pada *Japanese Industrial Standards A 5908* (2015) dan *FAO* (1996). Analisis data penelitian menggunakan analisis varian (ANOVA) dua arah kemudian diuji lanjut menggunakan *Honestly Significant Difference* (HSD).

Hasil penelitian menunjukkan bahwa interaksi komposisi sukrosa-ADF berpengaruh signifikan terhadap nilai keteguhan rekat internal. Komposisi sukrosa-ADF berpengaruh signifikan terhadap nilai keteguhan rekat internal, modulus patah, modulus elastisitas dan pengembangan tebal, suhu pengempaan berpengaruh signifikan terhadap nilai keteguhan rekat internal, modulus patah, modulus elastisitas dan pengembangan tebal. Sifat papan partikel ampas sagu terbaik diperoleh dengan perlakuan komposisi sukrosa-ADF 90/10 g/g% dan suhu kempa 180 °C, dengan nilai hasil pengujian sifat fisika dan mekanika sebagai berikut : kerapatan 0,712 g/cm³, pengembangan tebal 4,462%, penyerapan air 45,511%, kadar air papan 11,51% keteguhan rekat internal 0,166 MPa, modulus elastisitas 0,363 GPa, modulus patah 1,387 MPa.

Kata Kunci: Ampas sagu, sukrosa, amonium dihidrogen fosfat, suhu pengempaan

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**EFFECT OF SUCROSE-AMMONIUM DIHYDROGEN PHOSPHATE
COMPOSITION AND PRESSING TEMPERATURE ON THE
CHARACTERISTICS OF PARTICLEBOARD MADE FROM SAGO
(*Metroxylon sago*) DREGS**

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ABSTRACT

Sago dregs is one of the solid wastes from the industry of sago starch, which has potential to be raw material for particleboard production. Utilization of sucrose is supposed to be an alternative as natural adhesive. On the other hand, the addition of ammonium dihydrogen phosphate (ADF) is believed to improve the water absorption properties of sucrose. This study aims to investigate the effect of interaction between composition and curing temperature on the properties of particleboard made from sago dregs.

The particleboards were produced using a size of 25.5 cm × 25.5 cm × 1 cm with a target density of 0.8 g/cm³. The composition factors used were sucrose-ADF ratios of 95/5 g/g%, 90/10 g/g%, and 85/15 g/g%, while the curing temperature factors were 180 °C and 200 °C. The curing process was carried out at a pressure of 3 MPa for 10 minutes using a three-step method. The particleboards were tested according to *Japanese Industrial Standards A 5908* (2015) and *FAO* (1996). Data analysis was performed using analysis of variance (ANOVA) followed by *Honestly Significant Difference* (HSD) testing.

The results showed that the interaction between sucrose-ADF composition had a significant effect on internal bond strength. The sucrose-ADF composition had a significant effect on internal bond strength, modulus of rupture, modulus of elasticity and thickness swelling and curing temperature had a significant effect on internal bond strength, modulus of rupture, modulus of elasticity and thickness swelling. The best properties for particleboards made from sago dregs were obtained with the treatment of sucrose-ADF composition at 90/10 g/g% and pressing temperature at 180 °C. The obtained physical and mechanical as follows: density was 0.712 g/cm³, thickness swelling was 4.462%, water absorption was 45.511%, moisture content in board was 11.51%, internal bond strength was 0.166 MPa, modulus of elasticity was 0.363 GPa, and modulus of rupture was 1.387 MPa.

Keywords: Sago dregs, sucrose, ammonium dihydrogen phosphate, pressing temperature

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