INTISARI

Teknologi perekatan kayu merupakan salah satu teknologi yang berperan dalam peningkatan sifat permukaan kayu dan perbaikan sifat fisik dan mekanik kayu. Beberapa factor yang berpengaruh dalam teknologi perekatan kayu adalah jenis perekat, nisbah mol dan waktu kempa. Penelitian ini bertujuan untuk mengetahui pengaruh nisbah mol komponen perekat berbahan dasar lignin dan waktu kempa dalam pembuatan kayu lamina *Maesopsis eminii* Engl.

Perekat berbahan dasar lignin dibuat dari lignin, resorsinol dan formaldehida. Perekat tersebut diteliti secara kuantitatif yang meliputi kandungan lignin, kadar abu, keasaman lignin , kadar metoksil berdasarkan metode ASTM (1970), penetapan bobot ekuivalen dengan metode Beckman (1990), dan kadar lignin murni dengan metode Browning (1967). Untuk kualitas kayu, yang diteliti meliputi kadar air, kerapatan, keteguhan geser (kondisi kering dan basah), MOE dan MOR kayu lamina.

Hasil penelitian menunjukkan bahwa penambahan nisbah mol resorsinol ke dalam komponen perekat berbahan dasar lignin berpengaruh positif terhadap karakteristik lignin yaitu menyebabkan reaksi kondensasi antara lignin, resorsinol dan formaldehida berlangsung semakin sempurna sehingga tercipta keteguhan rekat yang lebih baik. Rata- rata kadar padatan tertinggi sebesar 52,78%, pH 9,85 dan viskositas 1,2 poise diperoleh pada penambahan resorsinol sebesar 0,9 mol. Interaksi antara nisbah mol dan waktu kempa diperoleh hanya pada kadar air dan MOR. Kadar air terendah diperoleh pada nisbah mol resorsinol sebesar 0,5 dan waktu kempa 6 jam, sedangkan MOR tertinggi diperoleh pada nisbah mol resorsinol 0,9 dan waktu kempa 12 jam. Faktor tunggal nisbah mol berpengaruh nyata terhadap kadar air, kerapatan, keteguhan geser kering dan basah, MOE dan MOR kayu lamina. Faktor tunggal waktu kempa berpengaruh nyata terhadap kadar air, keteguhan geser kering dan MOR. Peningkatan kualitas kayu *Maesopsis eminii* Engl dapat dilihat dari meningkatnya kerapatan kayu lamina dari 0,39 g/cm^3 ke 0,43 g/cm^3, MOE dari 56.387,72 kg/cm^2 ke 57.084 kg/cm^2 dan MOR dari 462,57 kg/cm^2 ke 495,42 kg/cm^2.

Kata kunci nisbah mol, waktu kempa, perekat berbahan dasar lignin, kualitas kayu lamina, kayu *Maesopsis eminii* Engl

ABSTRACT

The wood adhesion technology is one of technology which has an important role in increasing the quality of wood surface and improving physical and mechanical wood. Some factors affecting the adhesion technology are adhesive type, mole ratio and pressing time. For that reason the objective of this research is to study the effect of mole ratio and pressing time of the lignin based adhesive quality on *Maesopsis eminii* Engl wood.

Lignin based adhesive was made of lignin, resorsinol, and formaldehyde. It was quantitatively analyzed on lignin contents, methoxyl contents, lignin acidity, and ash contents according to ASTM method (1970), equivalent weight by Beckman method (1990), and pure lignin contents by Browning (1967).The wood adhesion quality of laminated timber was tested in term of moisture contents (MC), density, dry and wet shear strength, MOE and MOR.

The result showed that the addition of resorcinol produced a better condensation products.The average of solid contents of 52.70%, pH 9.85 and viscosity 1.2 poise was obtained by 0,9 mole resorcinol addition. The interaction was detected only on MC and MOR. The lowest MC was produced by combination of 0.5 mole resorcinol and 6 hours pressing time, the highest MOR was produced by 0.9 mole resorcinol and 12 hours pressing time. The single factor of mole ratio effect was significantly on MC, density, dry and wet shear strength, MOE and MOR. The pressing time factor affected significantly on MC, dry shear strength and MOR. The quality improvement of *Maesopsis eminii* Engl wood was indicated by increasing of wood density from 0.39 g/cm^3 to 0.43 g/cm^3 , MOE from 56,387.72 kg/cm^2 to 57,084.00 kg/cm^2 and MOR from 462.57 kg/cm^2 to 495.00 kg/cm^2.

Keywords : mole ratio, pressing time, lignin based adhesive, laminated timber quality, *Maesopsis eminii* wood