KETEGUHAN LENTUR STATIS BALOK LAMINA DARI TIGA JENIS KAYU LIMBAH PEMBALAKAN HUTAN TANAMAN
(Static Bending of Laminated Wood Wood Assembled from Three Species Plantation Forest-Procured Wood Waste)

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Abstract

This research aims to know the static bending (MOE and MOR) of gluelaminated beam assembled from plantation forest-procured wood waste using three glue types, i.e. lignin resorcinol formaldehyde (LRF), tannin resorcinol formaldehyde (TRF) and phenol resorcinol formaldehyde (PRF). The wood waste consisted of three species, i.e. pine (Pinus merkusii), agatis (Agathis sp.) and gmelina (Gmelina arborea). The wood portion (laminates) that made up three-ply laminated wood could be merely a single as well as combination of those three species.Result indicated that compression duration for 8 hour brought about laminated wood with higher MOE value than that for 15 hour. Conversely, laminated wood with 15-hour compression duration yielded higher MOR value than the one with 8-hour duration. The best wood composition in the assembling of three-ply laminated wood based on MOE and MOR value was single species of agatis-agatis-agatis laminates, employing 8-hour compression duration. Those three wood waste species afforded satisfactory gluing characteristics and therefore were appropriately manufactured into 2reconstituted wood products, particularly exterior-type laminated wood for structural purposes.

Keywords: static bending, MOE and MOR, laminated wood beam, wood waste

Abstrak

Penelitian ini bertujuan untuk mengetahui sifat keteguhan lentur dan patah (MOE dan MOR) balok lamina dari kayu limbah pembalakan hutan tanaman dengan menggunakan tiga jenis perekat yaitu lignin resorsinol formaldehida (LRF), tanin resorsinol formaldehida (TRF) dan phenol resorsinol formaldehida (PRF). Kayu lamina dibuat dari komposisi tiga jenis kayu yaitu tusam (Pinus merkusii), damar (Agathis sp.) dan gmelina (Gmelina arborea). Hasil penelitian menunjukkan bahwa masa kempa 8 jam menghasilkan nilai MOE lebih besar sedangkan masa kempa 12 jam meningkatkan MOR. Komposisi jenis terbaik dari kayu lamina berdasarkan nilai MOE dan MORnya adalah agatis-agatis-agatis pada masa kempa 8 jam. Ketiga jenis kayu limbah pembalakan memiliki sifat perekatan yang baik dan cocok dibuat produk kayu rekonstitusi khususnya kayu lamina tipe eksterior untuk keperluan struktural.

Kata kunci: keteguhan lentur, MOE dan MOR, balok lamina, kayu limbah pembalakan