Properties of Binderless Particleboard Made from Branches Waste of Several Community Forest Species

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ABSTRACT

Using branches waste as raw material of particleboard is one way to utilize whole parts of tree harvested. This research aimed to analyze physical and mechanical properties of binderless particleboard made from branches waste of several fast growing species from community forest. There were three species used in this study, namely, jabon (*Antocephalus cadamba*), lento-lento (*Arthrophyllum diversifolium*) and pulai (*Alstonia spp*). Binderless particleboard with a target density of 0.75 g cm$^{-3}$ were manufactured through particle activation with hydrogen peroxide and catalyst. The boards were hot pressed at 180$^\circ$C for 12 minutes. Physical and Mechanical properties of boards were determined based on Japanese Industrial Standard (JIS) A5908 2003. The results showed that only modulus of rapture of boards made from jabon and pulai, and internal bond of jabon boards met with JIS standard. There were no boards of lento-lento that fulfilled the standard. In general, the boards made from branches waste did not satisfy mechanical properties and dimensional stability according to JIS.

Keywords: branches waste, binderless particleboard, jabon, pulai, lento-lento