

International Symposium
of the Institute of Forest Science

New Multidisciplinary Perspectives of Forest and Environmental Resources



Date

October 20 (Thu), 2016

Venue

College of Forest and Environmental Sciences at Kangwon National University

Organizer

The Institute of Forest Science at Kangwon National University

College of Forest and Environmental Sciences at Kangwon National University

Sponsor

Korean Federation of Science and Technology Societies

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High Quality Bamboo Oriented Strand Board Prepared from Modified Steamed Strand

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Abstract

During steam treatment, free sugars in woody materials can be converted into furan intermediates, which can be further converted into furan resins (Rowell *et al.* 2002). In this study we modified the steam process by washing the bamboo strands with distilled water and NaOH 1% solution after the steam process to remove extractives and to facilitate better contact between strands and resin during Bamboo oriented strand board (BOSB) manufacturing. The effect of modified steamed strands on the strength, dimensional stability and durability properties of BOSB prepared from betung bamboo (*Dendrocalamus asper*) was investigated and using less resin concentration (8%). Modified steamed process (i.e. steamed followed by washing with distilled water and NaOH 1% solution) reduced the cell wall chemical component and extractives of bamboo, increase pH and improve the hydrophobicity of bamboo strands. BOSB prepared from modified steamed strands bonded with 8% PF resin has superior strength, dimensional stability and durability against termites compared to OSB prepared from control and steamed strands. Strength (MOR and MOE parallel to the grain direction) of BOSB prepared are two times higher compared to OSB prepared from wood strands.

Key words: species composition, stand structure, root system