The effects of nodes and resin on the mechanical properties of laminated bamboo timber produced from Gigantochloa scortechinii

ABSTRACT

The objective of this work was to evaluate the mechanical properties of laminated bamboo timber (LBT) manufactured from bamboo (Gigantochloa scortechinii). Bamboo strips containing nodes were used to produce laminated samples. Each bamboo mat was arranged with 5 cm intervals ranging from 0 cm to 15 cm between the nodes in successive laminae. Phenol formaldehyde (PF) and polyvinyl acetate (PVAc) were used at two spread rates of 200 g/m2 and 250 g/m2. The best mechanical properties were found in samples without nodes. Increasing intervals also resulted in increasing strengths. In all the mechanical properties studied, PF had higher strength with 200 g/m2 spread rate except for shear where PVAc had similar values with PF. It appears that interval levels in the joints influenced the overall mechanical properties of the samples.

Keyword: Laminated bamboo timber; Mechanical properties; Nodes; Phenol formaldehyde; Polyvinyl acetate