

## Gluability of *Bambusa balcooa* and *Bambusa vulgaris* for Development of Laminated Panels

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**Abstract :** The development of value added composite products from bamboo with the application of gluing technology can play a vital role in economic development and also in forest resource conservation of any country. In this study, the gluability of *Bambusa balcooa* and *Bambusa vulgaris*, two locally grown bamboo species of Bangladesh was assessed. As the culm wall thickness of bamboos decreases from bottom to top, a culm portion of up to 5.4 m and 3.6 m were used from the base of *B. balcooa* and *B. vulgaris*, respectively, to get rectangular strips of uniform thickness. The color of the *B. vulgaris* strips was yellowish brown and that of *B. balcooa* was reddish brown. The strips were treated in borax-boric, bleaching and carbonization for extending the service life of the laminates. The preservative treatments changed the color of the strips. Borax-boric acid treated strips were reddish brown. When bleached with hydrogen peroxide, the color of the strips turned into whitish yellow. Carbonization produced dark brownish strips having coffee flavor. Chemical constituents for untreated and treated strips were determined. *B. vulgaris* was more acidic than *B. balcooa*. Then the treated strips were used to develop three-layered bamboo laminated panel. Urea formaldehyde (UF) and polyvinyl acetate (PVA) were used as binder. The shear strength and abrasive resistance of the panel were evaluated. It was found that the shear strength of the UF-panel was higher than the PVA-panel for all treatments. Between the species, gluability of *B. vulgaris* was better and in some cases better than hardwood species. The abrasive resistance of *B. balcooa* is slightly higher than *B. vulgaris*; however, the latter was preferred as it showed well gluability. The panels could be used as structural panel, floor tiles, flat pack furniture component, and wall panel etc. However, further research on durability and creep behavior of the product in service condition is warranted.

**Keywords :** *Bambusa balcooa*, *Bambusa vulgaris*, polyvinyl acetate, urea formaldehyde

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