

Chemical attributes of *Gigantochloa scortechinii* bamboo rhizome in relation with hydraulic conductance

Chemical changes during the maturation period of bamboo are believed to affect its conductance ability. However, prior studies on the bamboo's chemical changes were inconclusive in implying that the maturation period affects the rhizome's conductance ability. The rhizome's conductivity is crucial to rapidly grow a new bamboo sprout. The aim of this study was to determine the variation of chemical attributes among study sites during the maturation period of bamboo rhizome (*Gigantochloa scortechinii*), and investigate the possibility of a relationship between the chemical attributes and hydraulic conductance. Destructive sampling was conducted using the selective random sampling method on four consecutive rhizomes. The chemical attributes were determined according to the TAPPI standard methods, except for the holocellulose. The results indicated that the ash content, alcohol-acetone solubility, and holocellulose were significantly different ($p < 0.01$) among the three study sites. In addition, the results indicated that decreasing ash content with age could not be used as a determinant factor for the decrease in the hydraulic conductance. However, increasing the hot water solubility, alcohol-acetone solubility, lignin, and holocellulose with the rhizome age were suggested to be related to decreasing the rhizome's hydraulic conductance.

Keyword: Age-related; Bamboo; Rhizome; Chemical attributes; Hydraulic conductance