

Relationship between cell lumen area and lignin content of alkaline-treated densified timber of *Paraserianthes falcataria*

ABSTRACT

In this study, low-density plantation timber, *Paraserianthes falcataria* was pretreated with 3%, 6% and 9% NaOH before densification process. Alkaline pretreatment leads to lignin reductions and cell wall structure becomes more porous. Densification was done by crushing the cell wall with hot-press machine, resulting in reduction of thickness to about 60%. Scanning electron microscopy images were captured and processed through ImageJ software. As to support the data, lignin content determination was conducted according to TAPPI T222 and the correlation coefficient between cell lumen areas and lignin content were studied statistically.