

Effect of Oil Heat Treatment on Chemical Constituents of Semantan Bamboo (*Gigantochloa scortechinii* Gamble)

ABSTRACT

Effect of oil heat treatment on chemical constituents of 3 years old *Gigantochloa scortechinii* Gamble bamboo was investigated. The bamboo splits within epidermis were heat-treated using crude palm oil at temperature 140°C, 180°C and 220°C for duration 30 and 60 min. After removed the epidermis, the samples were then grind to pass a BS 40-mesh sieve and retained on a BS 60-mesh sieve. The sawdust was air dried for several days before conducted to chemical analyses (cellulose, hemicellulose and lignin) based on TAPPI Standard Methods. The colorimetric method devised by Humprey and Kelly (1960) was adapted to analysis starch in bamboo. Reading was obtained through Baush Lomb UV Spectrophotometer at 650 µm calculated by standard reference using A.R. potato starch. Control was used as comparison for each type of test conducted. There was no significant different between control and condition at 140°C for 60 min (81.4%) of holocellulose content. The value was decreased by 2.1 to 10.7% (79.7 to 72.7%) after heating at 180 to 220°C for 30 to 60 min. The hemicellulose content of bamboo was ranged 24.1 to 27.8% after heating at 140-220°C for 30 to 60 min. The cellulose content of heat-treated bamboo was ranged 47.4 to 55.2% after reduced about 2 to 14%. Lignin content increased about 16% (26%) at 220°C/60 min after reduced approximately 1 to 5% at 140 to 180°C for 30 to 60 min. Starch content was largely reduced about 2 to 54% (4 to 1.9%) at 140 to 180°C for 30 to 60 min of treatment. The results indicated that degradation of cellulose and hemicellulose of heat-treated bamboo was attributed to plasticization of lignin during heating in the same time hydrolysed the starch content.