

## **Improvement in Durability of Oil Heat Treated 16-Year-Old *Acacia mangium* in Laboratory Tests**

### **ABSTRACT**

Improvement in the durability of oil heat treated *Acacia mangium* through accelerated laboratory tests was studied. *A. mangium* logs of 16-year-old harvested and segregated into the bottom, middle, and top portions. These were oil-heat treated in a stainless-steel tank with oil palm oil as a heating medium at temperatures 180, 200 and 220 °C for the duration of 30, 60 and 90 minutes respectively. The wood samples dried and grounded into sawdust, air-dried again before undergoing durability tests. Accelerated 12 weeks laboratory durability studies conducted on the treated *A. mangium*. Fungi of *Pycnoporus sanguineus*, *Gloeophyllum trabeum* and *Coriolus versicolors* inoculated on the woods. Untreated samples used as controls. The results showed that durability of the wood improved with an increase in temperature and duration of the treatment. The oil heat treatment process reduced the attack of *G. trabeum* from 5.02%, 4.41% and 4.38% in the control samples to 0.54-4.55%, 0.91-4.41% and 1.08-4.38% at the bottom, middle and top portions, respectively. The attack of *C. versicolors* reduced from 11.48%, 14.27% and 15.68% in the control samples to 1.87-10.19%, 3.10-12.69 and 4.78-15.10% at the bottom, middle and top portions. However, the attacked of *P. sanguineus* were less effective with 31.42%, 18.24% and 10.53% in control samples to 3.71-10.18%, 5.74-14.59% and 4.37-17.08% at the bottom, middle and top portions. Heavy colonization of mycelia occurs in vessels of the untreated *A. mangium* wood in comparison to the oil heat treated wood observed through scanning electron microscope.