

Fatigue strength and design stress of oil palm wood for furniture application.

ABSTRACT

Oil palm wood (OPW) and oil palm empty fruit bunches based particleboard (OPEFBP) furniture components were tested on edge in order to determine their resistance to fatigue. Tests were carried out at selected stress levels that corresponded to specific percentages of the material's ultimate strength (modulus of rupture - MOR). Generally, the materials fatigue life decreased as the levels of stress increased, and the allowable design stresses for the OPW and OPEFBP furniture components could be set at 40% of their respective MOR. The study also showed that OPW does not perform as well as solid Rubberwood in cyclic loading, but the OPEFBP showed similar fatigue performance to the conventional Rubberwood-based particleboard.

Keyword: Fatigue; Design stress; Oil palm wood.