

**STRENGTH PROPERTIES OF OIL PALM LUMBER (*Elaeis  
Guineensis*) WITH DIFFERENT MOISTURE EXTRACTION METHODS**

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## **CANDIDATE'S DECLARATION**

I declare that the work in this thesis was carried out in accordance with the regulations of University Technology MARA. It's original and the result of my own work, unless otherwise indicated or acknowledge as reference work. This thesis has not been submitted to any other academic institution or non-academic institution for any other degree or qualification.

In the event that my thesis is found to violet the conditions mentioned above, I voluntarily waive the right of conferment of my degree and agree to subject to the disciplinary rules and regulation of University Technology MARA

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## **ABSTRACT**

### **STRENGTH PROPERTIES OF OIL PALM LUMBER WITH DIFFERENT MOISTURE EXTRACTION METHODS**

This study was to determine the strength properties of oil palm lumber with two variables is treatments (acetone, ethanol, & control) and portions (bottom outer, bottom inner, middle outer, & middle inner) of the tree. The treatment is selected to use which method is suitable and effective to be used in the drying process to increase the strength properties of oil palm lumber (OPL). The sample size was 20mmx20mmx300mm and tested using bending testing method to determine the strength properties. The test was conducted in accordance to ASTM D4761-13:2012. Showed, the Modulus of Elasticity (MOE), Modulus of Rupture (MOR) and density of OPL are discovered. Result show, treatment by acetone is higher than other treatment with the mean value of MOE is 539.50MPa and mean value of MOR is 5.12MPa. While the result studied on different portions showed the bottom outer part is highest and the lowest is middle inner part. The suitable treatment that can be applied in drying process for OPL is with acetone and the suitable portion that can use is the outer part, due to the higher number of vascular bundle that can give high density and more strength.

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