

## 5 Conclusion and Recommendation

Currently, the peach palm is planted primarily for the extraction of fruit and heart or palm. However, indigenous and others communities take advantage of the trunk as structural material. This presents that the peach palm satisfies the basic sustainability and life cycle principle of modern engineering as these houses have been built and are used for many years.

In the meso-structural part, the image was acquired by a conventional scanner and with the aid of digital image processing was set varying the volume fraction of the fibres through the cross section of the palm stem.

The term moisture content when used with wood-based materials can be misleading since untreated wood frequently contains varying amounts of volatile compounds (extractives which are evaporated when determining moisture content). Definition of the moisture content of wood is further complicated when determined by a thermal method because of thermal degradation, which causes the final moisture-free mass to decrease from small but continuous losses.

By definition, the accuracy of measurement has been set equal to the determined precision of test measurement, that is, there is no assumed bias of measurement due to the inability to accurately assess moisture content. With this approach the actual accuracy may be poorer than the stated accuracy. At this time, no data is available from which to report typical variances in ovens or from specimen material.

The obtained results show that combining parametric and non-parametric method allows to identify which is the more appropriate probability distribution. More accurate parameters become possible mainly of the characteristic value that is the fundamental importance in wood and wood products area. Moreover, with the presented methods is possible to estimate a confidence intervals for this value.

The results of the macro-structure were obtained comparing the standards ISO314 with the methods specified in the applicable ASTM D3039 for fibrous composites. The final report shows of the properties of the material, with the age of 20 years as optimum for structural use, and using as the RVE cross section found in this study.

This is one of the first works where the palm is characterized at micro-structural, meso-structural and macro-structural levels, recommending future work thermophysical, chemical and dielectric properties, compression test in complete trunk (circular sections), dynamic tests in laminar sections and checks the experimental tests in finite element models.