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A STUDY ON THE VARIATION OF GRAIN ANGLE IN
Pinus caribaea AND *Eucalyptus grandis*.

By

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Abstract

Grain angle refers to the direction of the wood elements such as fibers relative to the axis of the tree or longitudinal edges of individual pieces of timber. Grain has shown to affect strength properties and therefore it affects the utilization of timber for structural applications.

Experiments were carried out to investigate within tree and between tree variations of grain angles in *Pinus caribaea* and *Eucalyptus grandis*.

Five trees of similar aged *Pinus caribaea* planted in 1980 and *Eucalyptus grandis* planted at 1965 were selected. Specimens were taken from pith to bark at breast height, 20% of the total height, 40% of the total height, 60% of the total height, 80% of the total height both in *Pinus caribaea* and *Eucalyptus grandis*. Grain angle and the specific gravity of the samples were measured. Grain angle was measured using grain scribe; when the needle of the equipment is pulled along a timber piece, it followed the direction of the grain.

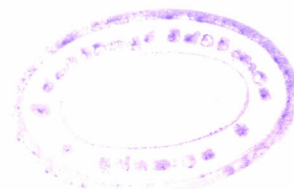
Grain angle values varied at a broader range (2.0° - 3.5°) in *Pinus caribaea* compared with *Eucalyptus grandis* (2.2° - 2.8°), indicating the prominent grain angle variation in softwood timber. Grain angle varied significantly ($p \leq 0.05$) between different height levels in both *Pinus caribaea* and *Eucalyptus grandis*. However the variation of the grain angle between trees of both *Pinus caribaea* and *Eucalyptus grandis* was not significant ($p \leq 0.05$).

Grain angles of all the trees in both in *Pinus caribaea* and *Eucalyptus grandis* varied only at a narrower range (2.0° - 3.5°). This indicates that utilization of these tree species is not affected by the grain angle variation.

Grain angle increased from pith towards the bark, and this radial variation pattern was consistent for all trees of *Pinus caribaea* and *Eucalyptus grandis*. This suggest that there is an inherent of this property that can be associated with cambial aging.

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