



# Effects of Radial Growth Rate on Wood Quality Parameters of Superior Teakwood from Muna Island, Indonesia

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## A. INTRODUCTION

Supply of teakwood as raw material for wooden industry in Indonesia decreases year by year. To solve the problem, many faster grown teak species had been established, including the superior Muna teakwood. In order to guaranty the product produced using this species, several studies have been carried out.

## B. OBJECTIVE

To analyze effect of radial growth rate on several wood quality parameters of this superior teak.

## C. RESEARCH METHODOLOGY

- ✓ 9 healthy trees of 8-year-old with three categories of diameter at the breast height from single area of man-made forest areas in Muna Island, Indonesia have been selected.
- ✓ Smaller tree has 21.8 cm of diameter, medium 26.4 cm, while the bigger one is 32.5 cm.
- ✓ Fiber dimension (Fig.1B&D) was measured through macerated specimen, while released strain by strain gauge method.
- ✓ Physical properties i.e. wood density, specific gravity, and T/R-ratio (Fig.1F), as well as the mechanical properties i.e. MOR and MOE (Fig.1E) were measured following the BS 373.1957.

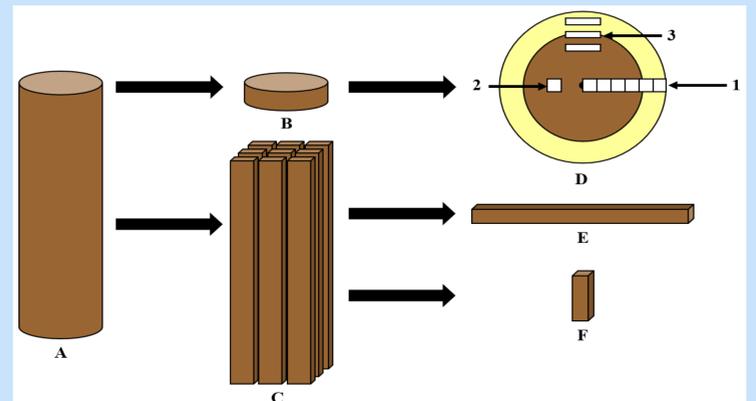


Fig.1 Sample preparation

## D. RESULTS

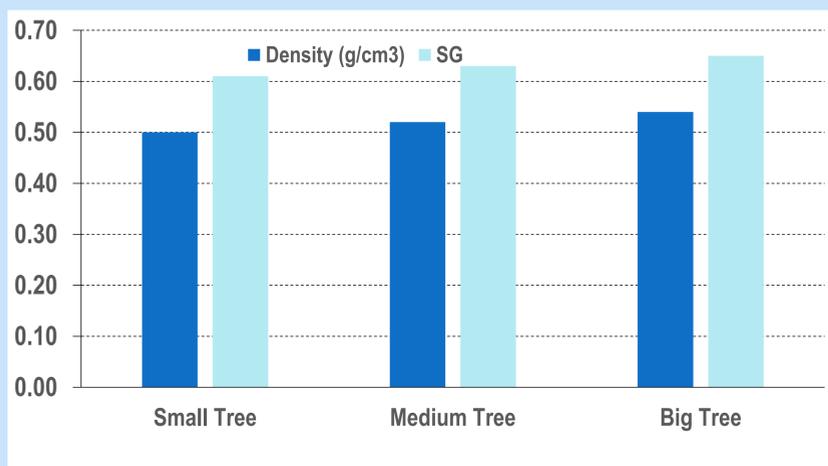


Fig.2 Density and specific gravity

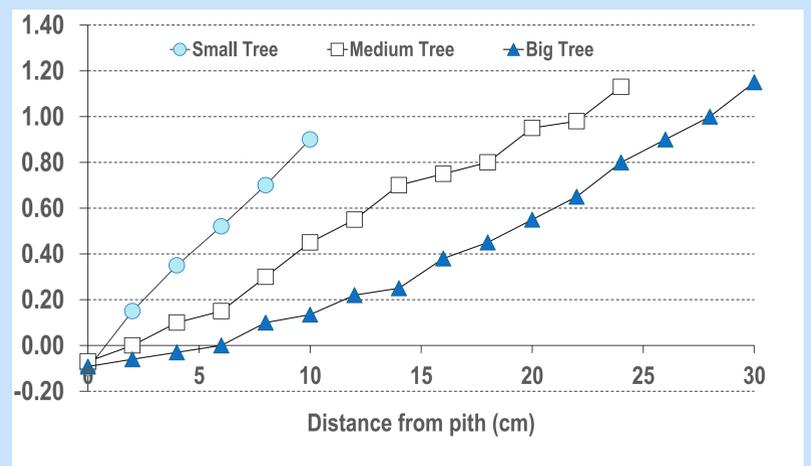


Fig.3 Residual stress (%)



Fig.4 T/R-ratio in each tree

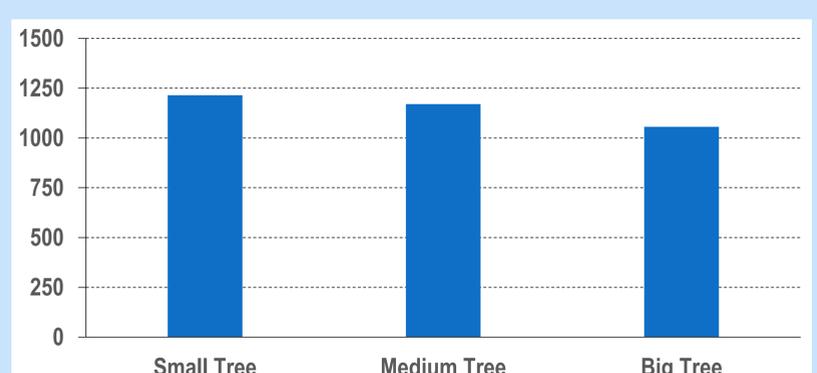


Fig.5 Fiber length in each tree

## E. CONCLUSION

- ✓ Radial growth rate did not significantly affect the longitudinal released strain of the surface growth stresses, wood color, wood grain, wood density, specific gravity, and dimensional stability. However, it affected wood figure and texture.
- ✓ Higher radial growth rate tends to promote more distinct wood figure, higher density, smoother wood texture, and lower absolute values of the released strain.
- ✓ Smaller diameter trees tend to produce longer fiber length and higher portion of tension wood.
- ✓ In general, the superior Muna teakwood produced from bigger and medium diameter trees are suitable as raw material for wooden furniture manufacturing.

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