

Radial Variation of Anatomical Characteristics in Three Native Fast-Growing Species Growing in South Kalimantan, Indonesia

Authors : Wiwin Tyas Istikowati, Futoshi Ishiguri, Haruna Aisho, Budi Sutiya, Imam Wahyudi, Kazuya Iizuka, Shinso Yokota

Abstract : The objective of this study was to investigate the anatomical characteristics of three native fast-growing species, terap (*Artocarpus elasticus* Reinw. ex Blume), medan (*Neolitsea latifolia* (Blume) S. Moore), and balik angin (*Alphitonia excelsa* (Fenzl) Reissek ex Benth) growing in the secondary forest in South Kalimantan, Indonesia for evaluating the possibility of tree breeding for wood quality. Cell lengths were investigated for 5 trees in each species at several different height positions (1.0, 3.0, 5.0, 7.0, 9.0, and 11.0 m above the ground). The mean values of fiber and vessel element lengths in terap, medan, and balik angin were 1.52 and 0.44, 1.16 and 0.53, and 1.02 and 0.49 mm, respectively. Fiber length in terap and balik angin gradually increased from pith to bark, whereas it increased up to 2 cm and then became nearly constant to the bark in medan. Vessel element length was almost constant from pith to bark in terap and balik angin, while slightly increased from pith to bark in medan. Fiber length in terap has a fluctuation pattern from ground level to top of the tree. It decreased up to 3 m above the ground, increased up to 5 m, and then decreased to the top of the tree. On the other hand, vessel element length slightly increased up to 5 m above the ground, and then decreased to the top of the tree. Both fiber and vessel element lengths in medan were almost constant from ground level to top of the tree, whereas decreased from ground level to top of the tree in balik angin. Significant difference at 1% level among trees was found in both fiber and vessel element length in both radial and longitudinal directions for terap and medan. Based on obtained results, it is concluded that the wood quality in fiber and vessel element lengths of terap and medan can be improved by tree breeding programs.

Keywords : anatomical properties, fiber length, vessel elements length, fast-growing species

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