

Evaluation of physical, mechanical and anatomical properties of *Melia volkensii* – a fast maturing species grown in drylands of Kenya

T2.8 Fast-Growing Trees for a Greener Future: Global Applications of Nature-Based Solutions

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Abstract

Melia volkensii an indigenous tree species growing in arid and semi arid areas in Kenya has shown promise as a fast-maturing species. Its timber is highly valued for furniture, joinery and interior panelling. This study investigated the wood quality of 10, 12 and 14- year-old *Melia volkensii* trees grown at Tiva, Kitui. Height and diameter at breast height were taken before the trees were felled. The wood properties studied were basic density and the stem analysis which comprised of; the ring width, heartwood/sapwood ratio, roundness and decentering. The variation of mean tree height and basic density against age was not significant with the mean height being 9.86m and basic density ranging between 341-561 Kg/m³. However, the difference in diameter at breast height was significant where the maximum and minimum was 25.9 cm and 16.7 cm. The volume of wood was notable and significant with age – the older the tree the higher the volume. At 14 years the average volume was over 40% more than at 10 years. The heartwood ratio was highest at age 14 at 79±5 % indicating its high marketability with over 75% heartwood. The percentage decentering was lowest at age 14 years at 116±7 %. Generally, a negative correlation was found between pilodyn and basic density of 0.54 which was consistent with the gradual increase of basic density across the grains from pith to bark. This study has shown that *Melia volkensii* is not only fast maturing but has great potential to offer nature based solutions in the drylands of Kenya