

## **Enhancing propagation of *Melia Volkensii* Gurke(MUKAU) to Increase tree cover in Mwingi District, Kenya**

*Mfahaya, Nafasi Wambui*

Kenya's arid and semi arid lands (ASALs) represent 80% of total area. The natural resources of ASALs are being degraded rapidly. The crisis has been aggravated over the last three decades by repeated drought and inappropriate land use practices, as a result of rapid population increase of people and livestock. This has resulted in clearing of forests for agricultural production and settlement, cutting of trees for charcoal production for both home and commercial purposes. Afforestation in ASALs has been emphasized to ensure a sustainable management system, which will contribute towards poverty alleviation. One of the highly valued multipurpose trees in ASALs, which has been recommended for planting in Kenya, is *Melia volkensii* Gurke (Meliaceae). The wood from the tree is durable and resistant to termite, the leaves and fruits are used as fodder for livestock in the dry season; the flowers also provide bee forage and are used as tick, flea and fly repellent. Branches act as a source of fuel. Propagation of *Melia volkensii* Gurke is difficult and requires careful handling for optimal germination in the nursery. Development of an appropriate vegetative propagation technique through use of cuttings is of highest priority for production of large amount of planting material. This research study was carried out at Nuu tree nursery in Mwingi district to investigate seed germination and rooting of cuttings. Seeds were subjected to different pretreatments against the control. Soaking seeds in 10% sulphuric acid for 10,30 and 60 minutes and nicking followed by soaking seeds in 10% sulphuric acid for 10,30 and 60 minutes respectively. Cuttings obtained from three different sections (bottom, middle and top) of the stem were subjected to different hormones concentrations 0.5% Indole butyric acid (IBA), 0.33% of IBA and 0.11% IBA. Seedlings were also subjected to different watering regimes so as to get the best quality seedlings. 100 seedlings were used per replicate for four watering regimes, normal watering, 2.5, 5 and 10 litres. Nicking followed by soaking in 10% sulphuric acid for 10 minutes gave the highest germination percent (53.33%) and soaking in 10% sulphuric acid for 60 minutes gave the lowest (6.67%). Cutting from the bottom section had the highest rooting percentage and use of 0.33% IBA was the best. Watering on alternate days using litres four times in a week gave the best quality seedlings. Success in nursery production through vegetative production will open an opportunity to successful plantation establishment of *M. volkensii*.