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Fruit Morphological Diversity and Productivity of Baobab (*Adansonia digitata* L.) Trees from Kilifi County, Kenya

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Abstract

Baobab (*Adansonia digitata* L.) is an indigenous wild fruit tree of great importance in African drylands due to its nutritional and health benefits and contributions to food security and income of local communities. In Kenya, however, the species' potential is not fully utilised and domestication could help in increasing its use. To select superior baobab mother trees for domestication, evaluation of phenotypic diversity is needed. This study aimed at assessing the variability in morphological fruit traits and productivity of baobab trees in Kilifi County, Kenya. Within the frame of the BAOFOOD project funded by the German BMEL, 33 fruiting baobab trees were studied along a transect from Mavueni to Mariakani in Kilifi County. All fruits per tree were counted and 10 fruits each collected for assessment of morphological characteristics including fruit shape, weight and length as well as proportions of pulp. Productivity per tree was calculated and correlation analyses between selected fruit traits were performed.

There was high variation among the surveyed 33 trees in all measured productivity and morphological traits. Median fruit number per tree was 223 (range 118–309 per accession) resulting in a median productivity of 92.6 kg fruits per tree (range 26–160 kg tree^{-1}). Median fruit length was 22 cm (range 18–49 cm), while median fruit weight was 376 g (range 220–696 g). Median pulp weight per fruit was 64 g (range 40–142 g), while median pulp proportion from whole fruit weight was 17 % (range 13–24 %). The most frequent fruit shape was ellipsoid (61 % of all accessions), followed by obovate (33 %). As expected, strong positive correlations were observed between fruit length and fruit weight (r=0.670***) and between fruit weight and pulp weight (r=0.844***), but not between fruit weight and pulp proportion (r=0.063, not significant). The large variations might be due to genotypic differences between the trees, but further fruit samples will be collected from Kitui area and analysed and latest results presented at the conference. The present study will contribute to select high yielding baobab mother trees with better fruit quality characteristics and will thus enable domestication and increased utilisation of this important indigenous fruit tree in Kenya.

Keywords: Domestication, fruit size, indigenous fruit tree, pulp proportion, superior mother tree

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