Tropentag, September 17-19, 2018, Ghent

"Global food security and food safety:
The role of universities"

Assessment of Spatial Distribution and Population Health of Baobab (*Adansonia digitata*) in Kilifi and Kitui Counties, Kenya

Justine Nyamweya[1], John Bosco Mukundi[1], Aggrey Adimo[1], Fredah Karambu Rimberia[1], Monica A. Omondi[1], Jens Gebauer[2], Katja Kehlenbeck[2]

[1] *Jomo Kenyatta University of Agriculture and Technology, Horticulture, Kenya*
[2] *Rhine-Waal University of Applied Sciences, Fac. of Life Sciences, Germany*

Abstract

Baobab (*Adansonia digitata* L.) is a noteworthy African tree species with multiple uses. In Kenya, local communities in drylands mainly harvest the highly nutritious baobab fruits for home consumption and sale, which contribute to nutritional security and income particularly for women. The escalating international demand of baobab pulp may threaten baobab resources since the species is not domesticated. In Kenya, little is known on abundance and stand structures of baobab. Within the frame of the BAOFOOD project funded by the German BMEL, this study assessed baobab populations in randomly selected quadrats of 0.5 × 3 km each along one transect from Mavueni to Mariakani (Kilifi County) and one from Kitui to Kibwezi (Kitui County), covering different agro-ecological zones. All baobabs within the quadrats were recorded by their position, height and diameter at breast height (DBH). Size class distribution (SCD) curves based on DBH were developed to assess population health. U-tests were performed to identify significant differences between the two transects. In total, 558 baobab trees were recorded in the 11 quadrats in Kilifi and 450 trees in the seven quadrats in Kitui (survey of further quadrats still ongoing). Median tree number per quadrat in Kilifi was 33 (range 9–140 per quadrat) and in Kitui 65 (range 20–133), resulting in median tree densities of 0.22 and 0.43 trees ha^{-1}, respectively, with no significant differences between the regions. Median DBH per quadrat was similar (1.4 m) in Kilifi and Kitui, however, with high variability among quadrats and individual trees (maximum 4.97 m). Regarding the SCD curves, a higher total proportion of young trees (DBH<100 cm) was found in Kitui (58 % of all trees) than in Kilifi (38 %) where, however, a higher proportion of old trees (DBH≥200 cm) was recorded (24 %) as compared to Kitui (13 %). The surveyed area in Kitui shows therefore a more promising regenerating population but data to be collected from the remaining quadrats will give a more conclusive comparison of the tree populations in the two counties. Results of this study can contribute to develop more sustainable utilisation and conservation strategies of baobab in the two counties of Kenya.

Keywords: Conservation, diameter at breast height, size distribution, tree densities

Contact Address: Justine Nyamweya, Jomo Kenyatta University of Agriculture and Technology, Horticulture, 62000, 00200 Nairobi, Kenya, e-mail: justinenyamweya@gmail.com