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Diversity and Size Class Distribution of Baobab (*Adansonia digitata*) in Kordofan, Sudan

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Abstract

Indigenous wild fruit trees (IFTs) are of great importance in arid and semi-arid Africa, where other fruit species cannot easily be cultivated. Recognised as Africa's ‘upside-down tree’, the majestic baobab (*Adansonia digitata* L., Malvaceae, subfamily Bombacoideae) is a fascinating tree. The edible leaves, pulp and seeds are identified as good sources of vitamins and minerals. Recently, baobab fruit pulp has been approved for sale in the EU and USA, and has thus entered the formal international food market.

Within the baobab, there is evidence indicating the existence of a number of local forms differing in habit, vigour, and fruit and leaf morphology. However, little is known about morphological fruit diversity in Sudan. Furthermore, several authors have observed a lack of natural regeneration in different countries indicating a general senescing of baobab populations in Africa.

The morphological variation in fruits of selected baobab trees in Kordofan, Sudan, was evaluated by sampling fruits and assessing their characteristics. Furthermore, locations and stem diameter at breast height of 240 baobabs were mapped for a stand in Kordofan.

Our preliminary results indicated a high diversity in fruit phenotypes. Ventricose, crescent-shaped, globose and fusiform fruit types were identified. Fruit shape varied between trees but was consistent within each individual tree. Percentage of fruit pulp varied between the different fruit types with 14, 15, 18, and 21 % recorded for ventricose, fusiform, crescent-shaped and globose fruits, respectively. Interesting was also the observation of baobab morphotypes that retained leaves during the dry season. Variation in leaf morphology could also be recognised. Measurements of baobab trees revealed a density of 0.72 individuals ha⁻¹. Stem diameters ranged from 0.06 to 4.77 m. The size class distribution (SCD) showed an inverse J-shaped curve with a SCD slope of -0.57 which indicates a viable regenerating population.

Based on the results recorded, enhancement of scientific research activities on the almost unstudied baobabs in Kordofan, Sudan is highly recommended.

Keywords: *Adansonia digitata*, baobab, domestication, fruit characteristics, population structure, regeneration