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Opportunities for Domestication of the African Baobab Tree (*Adansonia digitata* L.) in Mali

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Abstract

Last decades, research on domestication of indigenous fruit and nut trees has been intensified in order to improve food security, nutritional status, household income, entrepreneurial opportunities and economic improvement of rural livelihoods. Up till now, most studies have focused on the humid tropics while semi-arid regions received much less attention. However, precisely this savannah environment is the habitat of the baobab tree (*Adansonia digitata* L.), a multipurpose, widely-used species with numerous medicinal and nutritional properties. Baobab trees remain underutilised, as production depends on unimproved, ‘wild’ plant material. Domestication, including the characterisation, propagation and dissemination of plant material with improved properties, will help to protect the baobab tree and the related food supply.

Baobab fruit pulp has been shown to be extremely rich in vitamin C. Therefore, baobab food products can improve food security in areas where people are still malnourished and suffer from an unbalanced diet. However, this vitamin C content seems to depend on genotype and location.

Therefore, in this study, we focused on pulp characterisation, in terms of mass and vitamin C content, as pulp is considered the most widely used and most valuable part of the fruit. 269 trees were sampled in ten provenances in Mali. From each tree, five fruits were harvested.

Across the study area, both pulp characteristics show a large variability, offering opportunities for selection of trees with improved properties. Within-provenances variability is significant, indicating that a restricted improvement in fruit properties is possible on a local scale. It seems feasible, however, to double mean pulp yield and vitamin C-content by selecting elite trees, which are only found in specific locations.

Our results show the potential for the identification of baobab trees with improved properties in Mali, offering great opportunities for cultivar selection. As a consequence, an interregional and/or internationally-coordinated approach will be needed for the development of superior cultivars, focusing on a combination of both high yield and vitamin C-content of the pulp. In the end, the implementation of these cultivars in farmers’ fields, should lead to socio-economic benefits, and thus an enhancement of West-African rural livelihoods.

Keywords: Food security, underutilised tree species, vitamin C

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