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Testing of Different Propagation Methods for the Baobab (*Adansonia Digitata* L.) in Kenya

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Abstract

Baobab (*Adansonia digitata* L.) is an important indigenous wild fruit tree in sub-Saharan Africa. Domestication and planting of the species could help to satisfy increasing international demand for the fruit pulp and address the decreasing abundance of wild baobab trees. However, baobab seeds are dormant and first fruit harvests start late due to long juvenile periods. Different methods for seed treatments and grafting are reported to address the mentioned challenges in baobab propagation, but studies from Kenya are rare. Therefore, this study had the objectives; (i) to determine the effect of different baobab seed pre-treatments on seedling emergence and (ii) to determine the success of two grafting methods. Ten treatments within four treatment groups were applied each to 25 seeds of 22 baobab accessions from Kilifi County; (i) soaking in sulphuric acid (98 %) for 30, 45 or 60 min; (ii) boiling in water for 10 minutes followed by soaking in cold water for 2, 4 and 6 days; (iii) nicking followed by soaking in cold water for 0, 1 or 2 days and (iv) control with no treatment. Pre-treated seeds were germinated in trays on sterilized sand and seedling emergence recorded after four weeks. Separately 30 baobab seedlings were grafted using cleft (24) and approach grafting (6).

Seed emergence after four weeks was zero for the control and highly variable for the other nine treatments, ranging from a median of only 6 % in the nicked treatment with 2 days soaking to 42 % in the 60 min acid treatment. Except for these two, all other treatments were not significantly different from each other, but only from the control apart from the treatments 'nicked plus 2 days soaking' and 'boiled plus 6 days soaking'. However, within each treatment huge differences among the accessions were recorded, ranging e.g. from 0–88 % in both the 60 min and 45 min acid treatment groups. Grafting was very effective with 83 % successful cleft and 100 % approach grafts after 22 weeks. Overall, seed pre-treatment with sulfuric acid for 60 minutes increased emergence rate, but protocols should be improved to further raise the rates to mass-produce seedlings for grafting

Keywords: Domestication, grafting, indigenous fruit tree, seed dormancy, seed pre-treatment

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