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The Influence of Pre-Treatment Methods for Baobab (*Adansonia digitata*) Seed Germination

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Abstract

Adansonia digitata L., the baobab tree native to drylands of sub-Saharan Africa, is an indigenous, multipurpose species with edible fruit pulp, seeds and leaves and several other non-food uses e.g. fodder, fibre, oil, tannin, medicine. Despite its importance, it has been recognised that there is a lack of natural regeneration in most of baobab populations related to severe drought events, over-exploitation, grazing and rapid shifts in land use patterns and deforestation. Therefore, is necessary to identify suitable cultivation methods of baobab to satisfy future local and international demand and reduce the pressure on natural baobab populations. This study aimed at characterising the best pre-treatment methods of seed scarification. Samples were collected from 48 baobab trees from four populations defined by geographical distance in South-eastern Kenya in 2015. The experiment was conducted in a greenhouse of the Czech University of Life Sciences Prague in 2017. Four seed pre-treatment methods were applied: mechanical scarification by sandpaper, boiling in water for 5 seconds, soaking in 96 % sulfuric acid and the control treatment. The germination rate for mechanical scarification was 55 %, for boiling in water 32 %, for soaking in sulfuric acid 80 % and control only 0.2 %. The most effective scarification method was sulfuric acid treatment. However, sulfuric acid is strong acid and not always easily accessible in rural areas of Africa. Therefore, we recommend mechanical scarification as alternative method, as it gives also substantial high germination rates. Our experiment also showed that our seeds that were two years old are capable to survive long term storing without reducing the germination capacity.

Keywords: *Adansonia digitata*, Africa, germination, scarification, seed domrancy

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