Journal

J. Biol. Chem. Environ. Sci., 2017, Vol. 12(3): 567-581
http://biochemv.blogspot.com.eg/

GERMINATION OF BAOBAB *(ADANSONIA DIGITATA L.)* TREE SEEDS

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ABSTRACT

This investigation was carried out under shade at the nursery of Orman Botanical Garden, Giza, Egypt during 2015 and 2016 seasons in order to study the effect of some pre-sowing treatments; i.e. seeds without any treatment (control), soaking in tap water for 24 h. at the room temperature, soaking in hot water (85 - 90C) for 24 h., soaking in ethanol for 1 h., rasping the seeds with a file+ soaking in tap water for 2 h. at the room temperature and soaking in concentrated sulfuric acid (98.5 %) for either 15 or 30 minutes on germination characteristics of baobab tree (*Adansonia digitata* L.) seeds, as well as growth and chemical composition of the resulted seedlings.

The results of this experiment have shown that germination percentage was improved with various significant levels compared to control by some of the used treatments to reach the maximal percent by the combined treatment of rasping + soaking in tap water for 2 h, which elevated the mean of this parameter to 90.76 and 92.50 % versus 20% only for control in the first and second seasons, respectively. The 2nd rank was occupied by chemical scarification with 98.5% H_2SO_4 for either 15 or 30 min. treatments, that increased the average of such trait to 80% in the two seasons. Soaking the seeds in ethanol for 1 h. improved germination percentage to 50% in the first season or little more in the second one, while soaking in tap water for 24 h. gave only 20% germination as the control in both seasons. The seeds soaked in hot water for 24 h. failed to germinate in the two seasons. The shortest period needed for scoring either the maximum germination (G.V.) or 50% germination (MGR) was also recorded in both seasons by the previously mentioned combined treatment, while the means of germination rate index (GRI) were not affected by any treatment used. On the other hand, the means of vigour index (VI), seed viability (SV), plumule length (cm) and the means of seedling growth parameters; expressed as seedling length (cm), No. leaves/seedling, leaf area (cm^2), root length (cm), as well as aerial parts and roots fresh and dry weights (g) were improved in response to most of the pre-sowing treatments used in this study, with the dominance of rasping and soaking in tap water for 2 h. combined treatment that recorded the utmost high means in all aforenamed criteria in both seasons. A similar trend was also attained regarding chlorophyll a content in the leaves of the resulted seedlings, while chlorophyll b and carotenoids content were greatly decreased. However, the best pigments content was also achieved by the combined treatment mentioned before. The percent of total indoles in the leaves was unaffected by either treatments used, whereas total phenols content was greatly declined by these treatments, especially by the mechanical and chemical

scarification ones, with the excellence of combined treatment which caused the greatest reduction in such constituent at all.

Hence, it is recommended to rasping the seeds of baobab tree with a file plus soaking them in tap water for 2 h. before sowing to get the highest percent and acceleratest germination corresponding with the best growth and quality for the produced seedlings.

Key words: *Adansonia digitata* L.,Baobab, germination percentage, germination velocity, seed germination, seedling growth.