



## Domestication of *Tetracarpidium conophorum* (Mull. Arg.) Hutch & Dalziel in the Western Highlands of Cameroon: propagation studies

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### ABSTRACT

**Objective:** As a contribution to the domestication of *Tetracarpidium conophorum* (African Walnut), the present study aimed at determining requirements for seed germination and stem cutting.

**Methodology and results:** Three accessions of seeds, three germination substrates [topsoil, sawdust and mixture of topsoil and sawdust in a 1/1 (v/v) ratio] and different levels of seeds dehydration (consisting of drying seeds at room temperature for 0, 1, 2, 3, 4 and 5 weeks) were tested for their effects on germination parameters. Furthermore, two propagation substrates (river sand and sawdust), five concentrations (0, 0.5, 1, 5 and 10 g/l) of exogenously applied indole-3-butyric acid (IBA) and three positions (apical, median and basal) from which cuttings were taken from the mother plant were tested for their effects on stem cutting parameters. The highest percentage germination combined with the shortest mean germination time was recorded on sawdust substrate. The seed storage behaviour was of intermediate type. *T. conophorum* is amenable to vegetative propagation through the rooting of stem cuttings with or without the use of exogenous growth hormone. The mortality rate of cuttings on sawdust substrate ( $37 \pm 2.4\%$ ) was higher than that recorded on river sand ( $6 \pm 1.9\%$ ). At eight weeks after planting, cuttings, which were still alive, had rooted at 100%. The highest mean number of roots per rooted cutting ( $40.2 \pm 1.54$ ) was recorded with the combination of fine river sand substrate and 5 g/l IBA.

**Conclusion and application of findings:** For propagating *T. conophorum* from seeds, it is recommended that fresh mature seeds be sown in sawdust substrate without any pre-germination treatment. For an efficient propagation of *T. conophorum* by stem cutting, fine river sand is recommended as propagation substrate and 5 g/l of exogenous IBA should be applied to cuttings, irrespective of the position from which cuttings are taken from the mother plant. These are valuable information to optimize both the sexual and the asexual propagation protocols for *T. conophorum*. This represents an important step in the domestication process of this valuable plant species that has been exploited in the wild. Researchers and farmers developing nurseries for the domestication of high-valued plant species could benefit from our findings.

**Keywords:** African walnut, *Tetracarpidium conophorum*, domestication, propagation, seed germination, stem cutting.