Journal of Applied Biosciences 174: 18103 – 18112
ISSN 1997-5902

Propagation of agroforestry tree species by air-layering: a case study of *Canarium schweinfurthii* Engl. in the Western Highlands of Cameroon

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Submitted on 9th May 2022. Published online at www.m.elewa.org/journals/ on 30th June 2022 **https://doi.org/10.35759/JABs.174.6**

ABSTRACT

Objective: As a contribution to the domestication of *Canarium schweinfurthii* (Black olive tree), the present study examined its potential for clonal propagation by air-layering.

Methodology and Results: Three substrates Topsoil, Sawdust and mixture of Sawdust and Topsoil in a 1:1 (v/v) ratio] and five concentrations (0, 1, 2.5, 5 and 10 g/l) of exogenously applied indole butyric acid (IBA) were tested for their effects on the rooting of air-layers. Results showed that the percentage of rooted layers and the mean number of roots per rooted layer were significantly ($p < 0.001$) influenced by substrate and IBA concentration, whereas the layers' mortality rate was influenced only by substrate ($p < 0.001$). The highest percentage of rooted layers (78.57 ± 7.78%) was recorded with the combination of Sawdust substrate and 5 g/l IBA. The same treatment combination resulted in the highest mean number of roots per rooted layer (34.95 ± 0.76). The lowest mortality rate of layers (6 ± 1.94%) was recorded with Sawdust substrate.

Conclusion and application of findings: *C. schweinfurthii* is amenable to vegetative propagation through air-layering technique. For prolific rooting of air-layers, Sawdust substrate and application of 5 g/l IBA are recommended. With the increasing demand for *C. schweinfurthii* fruits, these study findings would contribute to rapid and mass propagation of this multifunctional indigenous tree species which have suffered neglect in research. Selecting trees with desirable traits and propagating them asexually using simple and inexpensive method as described in this work would improve establishment of this plant whose fruits trade raises the living standard of many populations in Western and Central Africa.

Keywords: *Canarium schweinfurthii*, Domestication, Non-timber forest products, Vegetative propagation, Western Highlands of Cameroon