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Effect of mechanical scarification and gibberellins (GA₃) on seed germination and growth of *Garcinia kola* (Heckel)

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ABSTRACT

Objective: Garcinia kola (Heckel) in general has been shown to have a low germination and this constitutes a real obstacle to any domestication initiative. The experiment was conducted in an attempt to improve seeds germination.

Methodology and results: Scarification in combination with Gibberellins (GA₃) application and soaking in distillated water was carried out on fresh seeds and sown in two types of soil substrate: sandy topsoil (1/1) and 100 % topsoil. Parameters related to seed germination and seedlings vigour was evaluated. Results indicated that substrate do not affect seed germination and plant vigour. However, the percentage of germination (92.33±3.19) and germination rate (0.013 ±0.00) were highest when scarified seeds were soaked in increasing concentrations of GA₃ (10⁻⁴ to 10⁻² g L⁻¹). In addition, scarified seeds soaked in distillated water have improved percentage of seed germination. Concerning plants vigour, GA₃ application increased significantly plant height (11.22±4.31 cm) and plant wingspan (13.35±6.36 cm) against 9.19±4.17 cm and 11.67±6.78 cm for plant height and wingspan in the control.

Conclusion and applications of findings: Results suggest that *G. kola* seeds present seed coat dormancy. Scarification and GA₃ application offer possibly an alternative methodology to improve seed germination and seedling vigour for a large-scale production of *G. kola* seedlings, a prior step of plant species domestication process.

Keywords: Garcinia kola, seed coat dormancy, mechanical scarification, GA3, seed germination