

Effect of Pretreatments on Seed Viability During Fruit Development of Two Varieties of *Irvingia gabonensis*

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Abstract

Studies to identify the stage at which developing fruits of *Irvingia gabonensis* (var. *excelsa* and var. *gabonensis*), picked from standing trees and/or forest floors, attain maximum viability and germinability were conducted in two harvesting seasons in 2000 and 2001. Some pretreatment methods were used as a means of stimulating expression of maximum germinability as source of seeds for seedling production. The moisture contents of whole seeds decreased steadily and significantly ($P = 0.05$) throughout the developmental stages of both varieties and in both harvests. Seeds harvested from standing trees and forest floors, pretreated by steeping in water for 24 h at 26 °C and sown in sawdust and petri dishes on moist filter paper, gave 80% germination in variety *gabonensis*, 20 weeks after fruiting. Germination potentials of seeds in both harvests were enhanced significantly ($P = 0.05$) with seeds pretreated by steeping in water for 24 h at 26 °C, and sown in sawdust and petri dishes on moist filter paper by as much as 60% and 80% for var. *excelsa* and var. *gabonensis*, respectively, in the developmental stages, 14–20 weeks after fruiting with significant ($P = 0.05$) decrease in germination time to 21 and 15 days, respectively. There was also significant ($P = 0.05$) relationship between viability and germination in both harvests and in the two varieties throughout the developmental stages. Potassium nitrate (KNO_3) significantly ($P = 0.05$) enhanced germination potentials of the seeds over the control when soaked in 1.5 g/l concentration in both varieties and in the two harvests (18–20 WAF) by 80%. Mannitol significantly ($P = 0.05$) reduced germination potential (40%) of the seeds with increased germination time in both harvests and in the two varieties throughout the developmental stages. There was a high significant ($P = 0.05$) increase in germination potential (60%) of seeds treated with polyethylene glycol (PEG) when soaked in concentration of 10 g/l for 48 and 72 h in both varieties and in the two harvests (18–20 WAF). The study shows that the fruits of *I. gabonensis* assume ripening characteristics (yellowing) and that the viable seeds can be obtained from standing trees and/or picked from forest floors from the 12th to 20th week after fruiting.