The Influence of Growth Hormones and Cocos nucifera Water on the In Vitro Propagation of Irvingia gabonensis (Aubry-Lecomte ex O'Rorke) Baill.

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Abstract:
Irvingia gabonensis fruit has high nutritional, therapeutic and commercial value. Despite its economic importance, this plant is threatened in Nigeria due to over collection in the wild and its very slow growth via natural method of propagation. In view of this, the in vitro culture of I. gabonensis was studied to promote its conservation and sustainable use in Nigeria. Embryos from fresh and ripe seeds of I. gabonensis were cultured aseptically on MS-basal media supplemented with varied concentration of four different growth hormones and Cocos nucifera (coconut) water. The development of I. gabonensis in culture was evaluated using standard growth parameters: viability; number of shoot; shoot length; number of root; root length; number of leaf primordial; and % callus formation. Data were analysed statistically. Irvingia gabonensis demonstrated varied growth patterns in cultures. Medium IG02 (1/4MS + 0.05mg/L NAA + 20.0% coconut water) gave the highest viability (60%) and best enhanced root formation (1.67 roots). Medium IG05 (1/4MS + 0.05mg/L BAP + 0.05mg/L KIN + 0.05 mg/L IBA + 10.0% coconut water) supported shoot (2.17 shoots) and leaf (6.00 leaves) formation. The least growth of I. gabonensis was recorded on the control medium (1/4MS only), although it best supported root elongation (58.67 mm). The experiments are easily reproducible and generated prototypes of the parent plant. It was concluded that pathogen-free I. gabonensis plantlets could be produced via tissue culture to supplement natural propagation. The improved variety of the plant could be produced from wild varieties via in vitro propagation and biotechnology to combat the slow growth of naturally propagated germplasms.

Key Word:
Irvingia gabonensis, embryo, tissue culture experiment, growth hormones, Cocos nucifera water, Nigeria.