Micropropagation of *allanblackia stuhlmannii* 'clusiaceae', an economically important wild tree species

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ABSTRACT

Allanblackia stuhlmannii is an endangered forest tree valued for its edible nut oil which has high potential for commercialization. This tree grows naturally in the Eastern Arc Mountains of Tanzania. Regeneration of *A. stuhlmannii via* seed is slow and low. Rooting of cuttings is poor, while survival rate of grafted materials is dismal. The limited regenerative potential of *A. stuhlmannii* hinders sustainable nut harvesting from the wild to meet market demand. A private-public partnership known as '*Novella Africa*' is engaged in the domestication of members of *Allanblackia spp*. for commercial oil production. To achieve mass production, the amenability of *A. stuhlmannii* to micropropagation technique was examined in this study. A series of sterilization and micropropagtion experiments were conducted on plant material collected from Amani Nature Reserve in Tanzania. Sodium hypochlorite, formaldehyde and Redomil® were the reagents used in the sterilization protocol. Explants were best surface sterilized after subjection to 2% Redomil® solution and exposure to 8% sodium hypochlorite solution for 10 minutes. Eight basal media were tested for their suitability in micropropagation of *A. stuhlmannii*. McCown's WPM which had 88.89% explants survival rate was selected for micropropagation of *A. stuhlmannii*. Microshoots were induced from shoot tips and internodal explants of *A. stuhlmannii* cultured on WPM fortified with different treatments of PGRs, ($P<0.05$). All responding explants produced a single microshoot. Treatments $1.2mgl^{-1}$BAP and $1.2mgl^{-1}$KIN had explants with the highest mean shoot length, ($P<0.05$). Prolonged culture or subculture on the same medium did not promote further shoot production. Callus was induced from leaf discs cultured on McCown's basal medium supplemented with Gamborg's vitamins, 3% (w/v) sucrose, $1mgl^{-1}$ KIN combined with $1.25mgl^{-1}$2,4-D, however no somatic embryos emerged from the callus. Success in shoot proliferation and callus induction forms a basis for further research geared to regenerating *A. stuhlmannii* clonal plantlets through micropropagtion.