Use of unfertilized ovary as a source of explant for coconut (*Cocos nucifera* L.) *in vitro* culture

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Coconut *(Cocos nucifera* L.), an out-breeding plant that is propagated only by seeds, exhibits great variability in selected characters. Vegetative propagation of superior palms through tissue culture is a promising possibility for increasing production and homogeneity in coconut lands. Even though various explants of coconut (immature inflorescence, tender leaf, shoot tip and zygotic embryo) have been used for *in vitro* plant regeneration, success is quite limited and no reliable protocol is still available for clonal propagation of coconut. Thus, it is pertinent to look for other suitable explants for *in vitro* culture with the view of developing a reliable *in vitro* plant regeneration protocol for coconut. The present study was undertaken to test the suitability of using isolated ovaries (excised from immature female flowers) as a source of explants for *in vitro* culture and attempts were made to develop suitable culture conditions for callogenesis in these explants.

A factorial experiment was conducted to determine suitable culture conditions for callusing. Ovaries of 3 maturity stages (obtained from unopened inflorescences of -4, -5 and -6 stages in decreasing order of maturity; i.e. considering the youngest open inflorescence as 0 stage and the next one to be opened as -1 stage) were used for culture. Three different levels of 2,4-D (50,100 and 200 µM) in combination with 3 levels of activated charcoal (0.1, 0.25 and 0.3%) were tested for callus induction in ovary explants. Callus obtained from above experiments were sub-cultured into somatic embryogenesis induction medium containing 5 µM ABA and 10 µM $AgNO_3$.

The best treatment for callusing was shown to be 0.1% activated charcoal in combination with 100 μM 2,4-D that gave rise to 30 % callus production in ovaries of -4 stage. In regard to the maturity stage of ovaries, -4 stage was shown to be the most suitable stage for callus induction when compared to the other 2 stages tested. Preliminary results also indicated that some of the callus tissues derived form ovary explants could form complete somatic embryos when sub-cultured to somatic embryogenesis induction medium. Thus, the results of this preliminary study indicated the possibility of using unfertilized ovary as an explant for *in vitro* plant regeneration in coconut.

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