Abstract

Studies on the *in-vitro* propagation of *Heliconia spp.*

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A simplified protocol with increased production rates has been developed for the *in vitro* propagation of *Heliconia* var 'Golden Torch'. The proliferation of buds from the apical meristem, and axillary bud production was achieved. Both were influenced by the growth regulator composition and the source of the explant (shoot-tips or axillary buds). A pre-treatment medium was formulated to reduce the incidence of contamination to 8% during the dry season. The modified Murashige and Skoog medium (1962) contained 100 mg l^{-1} inositol, 200 mg l^{-1} PVP (soluble), and 30 g l^{-1} sucrose. Shoot production was enhanced through calloid formation from the repetitive division of apical and axillary meristems of shoot-tip explants, on a liquid medium supplemented with 5 mg l^{-1} IBA plus 1 mg l^{-1} BA. Maximum shoot production was achieved through calloid formation in both shoot-tip and axillary bud explants, on a medium supplemented with 1 mg l^{-1} IBA plus 5 µM TDZ. Multiple bud formation was achieved from a thin wide zone of proliferating apical and axillary meristems. Growth of cultures was enhanced when explants were cultured at room temperature (32°C). The same culture medium was used for establishment, initiation and proliferation of buds. *In vitro* rooting of regenerated shoots occurred on a medium supplemented with 1 mg l^{-1} IAA or IBA. *Ex-vitro* rooting was also achieved on 2 rooting substrates; coconut husk fibres and Pro-mix™. Plantlets were successfully established under green-house conditions, 24-28 weeks after initiation of cultures. SDS-Polyacrylamide gel electrophoresis of cytosolic leaf fragments from plantlets and field grown plants, showed no difference in major banding patterns.