

DEVELOPMENT OF A PROTOCOL FOR SURFACE STERILIZATION AND CALLUS INDUCTION OF BANANA TYPE 'KOLIKUTTU'

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Banana is one of the most widely cultivated crops in the world. Low seed set and low germination rate have become a bottleneck for banana breeding. To overcome these problems micro propagation of banana plants was attempted with the objective to develop an efficient protocol for surface sterilization and callus induction using different explant types. Complete Randomized Design was used as the experiment design and banana male bud parts, leaf segments and bract parts were used as explants. Different clorox concentrations of 15%, 20% and 30% and different soaking times of 10, 15 and 25 minutes were experimented to select the best surface sterilization method. Sterilized explants were cultured on Murushige and Skoog (MS) medium, supplemented with different auxin and cytokinin hormone concentrations and combinations. NAA (Naphthalene Acetic Acid) with BAP (6- Benzyl Amino Purine), NAA with TDZ (Thidiazuron), 2, 4-D (Dichloro Phenoxy Acetic Acid) with BAP and 2, 4-D with TDZ were the hormone combinations used to investigate the effect on callus induction. Auxin concentrations used were 2.5, 5.0 and 7.5 mg/l and the cytokinin concentrations used were 0.5, 1.0 and 1.5 mg/l. Cultures were maintained at 25±2 °C temperature under dark conditions in a culture room. Results revealed the highest survival rates in 30% concentration in 20 minutes in bracts, 20% concentration in 25 minutes in male buds and 15% concentration in 15 minutes in leaves. Out of the tested hormone combinations 2.5 mg/l of 2, 4-D with 1.5 mg/l TDZ concentration was recorded as the highest callus induction hormone combination in bracts and male buds. Among the tested explants, the highest percentage of callus formation was observed in bract pieces (11.11%), followed by male bud (6.81%) and leaf pieces (0%). In conclusion, the bract explants sterilized using 30% Clorox for 20 minutes followed by culturing in 2.5 mg/l 2, 4-D and 1.5 mg/l TDZ was turned to be the best protocol for banana (*Kolikuttu*) callus induction. This study can be further developed up to plant regeneration through embryogenic callus.

Keywords: Banana callus induction, BAP, 2, 4-D, NAA, Surface sterilization, TDZ