

Desiccation tolerance in *Phaleria macrocarpa* embryonic axes

ABSTRACT

Phaleria macrocarpa seeds are rapidly killed with desiccation to moisture content (MC) below 20%. Desiccation tolerance of their embryonic axes was studied for storage and germplasm conservation purposes. Embryonic axes were extracted aseptically from fresh seeds obtained from fully ripe fruits in a horizontal laminar air flow cabinet. They were then desiccated under aseptic condition for periods ranging from 0-8 h. For each desiccation treatment, embryonic axes were drawn randomly for the determination of MC according to ISTA, electrolyte leakage and proliferation on Murashige and Skoog (MS) media supplemented with 1 mg/l 6-benzylaminopurine (BAP) and 1 mg/l 2,4-dichlorophenoxyacetic acid (2,4-D). The results obtained from this study indicated that the embryonic axes could tolerate dehydration down to 13.6% with desiccation for 8 h while retaining relatively high viability of 76.7%. This was supported by only gradual increment of electrolyte leakage with the desiccated embryonic axes. All non-desiccated embryonic axes with MC of 52.5% were capable to grow into normal plantlets in vitro but dehydration to MC of 36.0% and further down to 13.6% generally resulted in callus formation with up to 16.7% of the embryonic axes while at least 60.0% of the other embryonic axes were still capable to proliferate as normal plantlets in vitro.

Keyword: Callus; Electrolyte leakage; Moisture content; Seed; Survival