Effect of PVS2 vitrification on Brassidium shooting star orchid using protocorm-like bodies (PLBs)

ABSTRACT

A cryopreservation procedure was developed to preserve protocorm-like bodies (PLBs) of Brassidium Shooting Star using the PVS2 vitrification technique. The optimised protocol involved the preculture of 3-4mm PLBs in half-strength Murashige and Skoog (MS) semi-solid medium supplemented with 0.8M sucrose, followed by dehydration in PVS2 solution for 20 minutes at 0°C, prior to storage in liquid nitrogen. The viability of non-cryopreserved and cryopreserved PLBs was determined by the 2,3,5-triphenyltetrazolium chloride (TTC) assay, after two weeks of recovery. The chlorophyll contents, total soluble protein and peroxidase activities of both non-cryopreserved and cryopreserved PLBs were assayed after three weeks of recovery. The results from the biochemical analyses indicated that control PLBs produced the highest viability, followed by treatment on non-cryopreserved PLBs (-LN) and cryostored PLBs (+LN), except in the peroxidase activity assay. The peroxidase activity was detected as the highest in cryostored PLBs followed by treated but non-cryopreserved PLBs, and control PLBs.

Keyword: Cryopreservation; Orchid; Protocorm-like bodies; PVS2; Vitrification