

## **Identification of Optimum Preculture Conditions Prior to Cryopreservation of *Innala* (*Solenostemon rotundifolius* (Poir.) J.K. Morton)**

Madhuwanthi M.L.D.I.<sup>1</sup>, Eeswara J.P.<sup>1</sup>, Edirisinghe E.S.C.<sup>2\*</sup>

<sup>1</sup>*Department of Crop Science, Faculty of Agriculture, University of Peradeniya, Peradeniya,, Sri Lanka*

<sup>2</sup>*Plant Genetic Resources Centre, Gannoruwa, Peradeniya, Sri Lanka*

*Innala* (*Solenostemon rotundifolius* (Poir.) J.K. Morton) is an important crop that needs to be conserved due to increased risk of cultivar loss in Sri Lanka. In case of long-term conservation, it can be effectively conserved via cryopreservation, as other *ex-situ* conservation measures are less effective for *innala*. The aim of this study was to develop a vitrification-based cryopreservation protocol for two *innala* accessions (TJ01 and TJ04) while assessing the effect of preculture medium and preculture duration on moisture content of tissue cultured samples and viability of cryopreserved samples of *innala*. Murashige and Skoog medium supplemented with three sucrose concentrations (0M, 0.3M, and 0.4M) for three durations (1, 2 and 4 week) were used for preculturing of *in vitro* grown *innala* shoots with 94.5-95 g/100g initial moisture content. After preculturing the excised shoots were dipped in loading solution, followed by ice-cooled ½PVS2 (plant vitrification solution 2), each for 15 minutes. Then shoots were directly plunged in liquid nitrogen for 24 hours and were soaked in unloading solution for 15 minutes subsequent to thawing at 40 °C. Finally, they were observed for 10-weeks after transferring to the regeneration medium. The viability of cultured shoots was tested using 2,3,5-Triphenyl tetrazolium (TTC). The highest moisture reduction in both accessions (18-23 g/100g) was resulted in 0.4M medium, for 4-week duration. It can be concluded that preculturing of shoots of accession TJ01 for 1-week in 0.3M medium as the most optimum combination exhibiting average of 57.58% viability for cryopreserved shoots and 80-100% survival for non-cryopreserved shoots.

**Key words:** *Accession, cryopreservation, innala, moisture content, Solenostemon rotundifolius*

**Acknowledgements:** Special thanks to the staff of the *in vitro* conservation laboratory at the biotechnology division, Plant Genetic Resources Centre, Gannoruwa.

\*Corresponding author: [srinachandi@gmail.com](mailto:srinachandi@gmail.com)