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Preconditioning for Cryopreservation of *in vitro* Grown Bulblets of Lily using Droplet-Vitrification

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This study was conducted to improve and supplement the system of cryopreservation for adventitious bulbs induced by tissue cultured bulb-scales of lily (*Lilium* spp.) cvs. 'MilkyWay'. The explants, bulblets and bulb-scale-bulblets, were treated to low temperature (4℃) for 7 days prior to the pre-culture. The adventitious bulbs were pre-cultured in Murashige and Skoog (MS) liquid medium supplemented with sucrose (0.3 and 0.7M). The pre-cultured adventitious bulbs were treated to loading solution (LS1 or LS2, C4 or C6) containing 35% of PVS3 (LS1, C4) or 40% of PVS3 (LS2, C6) for 40 min and exposed to dehydration solution (PVS3, B1) containing 50% glycerol and 50% sucrose for 60 min at 25℃. The adventitious bulbs were moved onto droplets containing 3 μl PVS3 on sterilized aluminum foils, and then soaked into liquid nitrogen (LN) for 60 min. The result of highest regrowth rate as 65.7% was obtained in cold treatment (4℃), osmoprotected with LS1 solution, and cultured in PCM3 medium by using bulb-scale-bulblet for cryopreservation. This result shows that droplet-vitrification could be used as a promising method for long-term storage of lily genetic resource.

Key words: Bulb, Cryopreservation, Droplet-vitrification, *Lilium*, Regrowth

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