RECOVERY OF YELLOW-POPLAR *(Liriodendron tulipifera)* EMBRYOGENIC MATERIAL FOLLOWING CRYOPRESERVATION

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Abstract. Recovery of yellow-poplar proembryogenic masses (PEMS) after freezing in liquid nitrogen was tested. In preliminary experiments, six treatments were used to determine the optimum combination of pretreatments and cryoprotectants for recovery of PEMs after cryopreservation. Pretreatments consisted of transferring sample material to normal induction medium supplemented with 0.4 M sucrose or a control that was transferred to normal induction medium (0.12 M sucrose) for 24 hours. For cryoprotection, samples were immersed in induction medium with either 0%, 5%, or 10% DMSO before freezing. Samples were slowly frozen at a rate of -1°C min-^{1} to -700C using Nalgene^{Tm} 1 ^{0}C Freezing Containers and then plunged directly into liquid nitrogen (-196°C) where they remained for over 80 days. They were thawed in a 40^{0}C water bath for 20 minutes and washed with fresh induction medium before re-suspension in normal culture conditions. Recovery and growth was measured every three weeks by packed cell volume.

Keywords: *Liriodendron tulipifera,* cryopreservation, tissue culture, somatic embryogenesis, long term storage.