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Re-Induction of Embryogenic Tissue from the Cryopreserved Somatic Embryo in Japanese Larch (*Larix leptolepis* Gordon) Tree

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Objectives

The present study aimed to develop a cryopreservation method for long-term storage using mature somatic embryo of Japanese larch tree. In this study, we compared some treatments (kinds of solutes, temperature & storage duration) to obtain the highest rate of re-induction of embryogenic tissue from somatic embryos which preserved in low-temperature including LN_2.

Materials and Methods

Materials - Plant : Mature somatic embryos of Japanese larch tree

Methods - Dehydation, cryopreservation & thawing, re-induction of embryogenic tissue

Results and Discussion

The re-induction rate of embryogenic tissue from cryopreserved somatic embryo was influenced by kinds of solutes used to dehydrate somatic embryos before put them into liquid nitrogen (-196 ℃). The best re-initiation rate (43.5 %) from somatic embryo was recorded when dehydrated with solutions of $(NH_4)_2SO_4$ (RH 79%). Both Na_2HPO_4 (RH 97 %) and Na_2CO_3 (RH 88 %) were showed the similar rate, however the lowest rate (19.6 %) was observed in distilled water (RH 100 %). For the temperature and duration on dehydration, the most effective treatment was shown in 4 ℃ for 2 (56.3 %) or 3 days (56.4 %) dehydration in terms of re-initiation of embryogenic tissue. In comparison of the various storage temperature & duration, the highest rate (66.9 %) of re-initiation was appeared when somatic embryos were cryopreserved into nitrogen for one day. However, the rate was gradually decreased as the time length of storage increased. None of embryogenic tissue re-initiated when stored at 4 ℃ for 84 days.

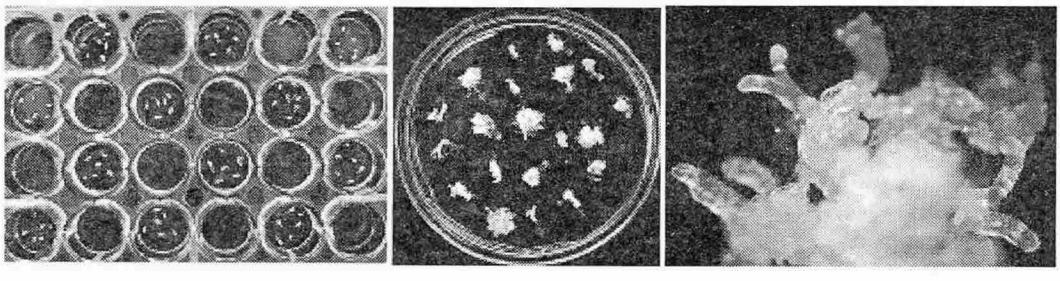

Fig. 1. Cryopreservation of somatic embryos in *Larix leptolepis*. **Left:** Dehydrated somatic embryos in the multi-wells prior to cryopreservation. **Middle:** Re-induction of embryogenic tissue from the cryopreserved somatic embryos. **Right:** Close-up of the embryogenic tissue showing grows vigorously.

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