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Somatic Embryogenesis by Developmental Stages of Seeds in Japanese Red Pine (*Pinus densiflora* Sieb. ET Zucc.)

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Objectives

Zygotic embryos of *Pinus densiflora* at different developmental stages were tested for their potential in the initiation of embryogenic tissue line using immature seeds

Materials and Methods

1. Material

Plant -immature seeds of Japanese red pine

2. Methods:

Immature seeds were collected from late May to July in 2004 and embryogenic tissues are initiated on P6 solid medium with 2,4-D and BA. In addition, histological analysis was performed to investigated zygotic embryo development by different collection dates in connection with embryogenic tissue initiation rate.

Results and Discussion

From over 5,700 seeds cultured, only 10 embryogenic tissue lines (0.17 %) were obtained. However, only six (0.10 %) survived on maintenance medium. The highest tissue initiation (0.36 %) was observed with the seeds collected on July 5. However, the seeds collected during the period of May 31 to June 7 did not produce any embryogenic tissue lines. Those seeds did not have zygotic embryos yet but showed archegonia. No embryogenic tissue lines were obtained with the seeds collected on June 14 or July 13 either. The seeds collected on June 14 showed a zygotic embryo with a distinct embryo head, suspensor and developing corrosion cavity near micropyle end. In the seeds collected on July 13, one dominant zygotic embryo remained with all other developing zygotic embryos degenerated.

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