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Plantlet Regeneration from Mature Seeds of *Stewartia koreana* Nakai via Somatic Embryogenesis

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Objectives

Stewartia koreana Nakai is one of the distinguished landscape trees because of its beautiful bark. Thus it is called as "silk tree" in eastern part of Asia. The wood is very compact and displays fine texture suitable for making furniture, deck and utensil. Seeding has been the main method of propagation. However, it takes two years to germinate due to double dormancy and still the rate of sound seed is low. The alternative method, i.e. cutting has such inherent problems as necrosis.

The present study deals with somatic embryogenesis from mature seeds. We investigated the effects of a couple of growth regulators on the initiation and maturation of somatic embryos using a few medium conditions.

Materials and Methods

1. Seed material: Mature seeds were collected from Hwasung, Kyonggi in Korea in October, 2002. The seeds were dipped in

70% EtOH for 1 minutes, surfaces sterilized in 2% NaClO for 15 minutes and 5% H₂O₂ for 3 minutes, then rinsed at least three times with sterile distilled water. The seeds were then cut open to extract cotyledons.

2. Media condition: Cotyledons obtained from the seeds were placed on MS media supplemented with 3% sucrose, 0.3% gelrite, and 0.1% glutamine and a couple of growth regulators. The pH was adjusted to 5.7 before autoclaving.

Results and Discussion

Several types of explants were observed. One noteworthy type was direct shoot via callus on MS medium supplemented with 1.0 mg/L thidiazuron (TDZ) and 0.2 mg/L NAA. Embryogenic callus was also visible on MS medium containing 1.0mg/L 2,4-D and 0.5 mg/L BA. Considerable somatic embryos were observed on MS medium containing 0.2 mg/L NAA. When thidiazuron (TDZ) was supplemented, various structural forms such as root-like were also obtained.

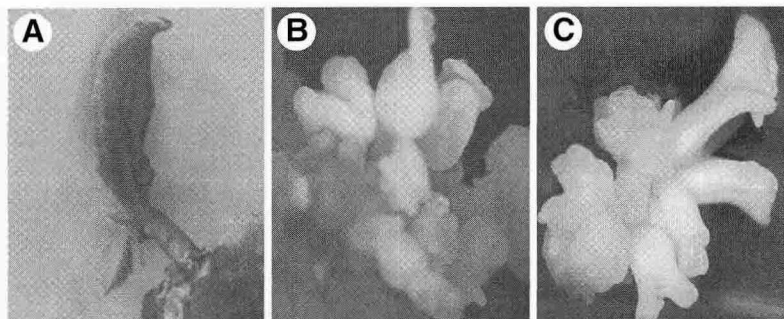


Figure 1. Several types of explants from mature seeds of *Stewartia koreana*. Direct shoot (A) when cultured on MS medium with 1.0 mg/L thidiazuron (TDZ) and 0.2 mg/L NAA, embryogenic calli (B) with 1.0 mg/L 2,4-D and 0.5 mg/L BA and varying developmental stages of somatic embryos (C) with 0.2 mg/L NAA.