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DNA Yields and Optimization of RAPD Patterns Using Spruce Embryogenic Lines, Seedlings, and Needles

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Abstract. Genetic analysis of plants relies on high yields of pure DNA samples. In conifers, such DNA samples are usually derived from tissue cultures. However, it is labourious to use embryogenic cultures for projects that require large sample numbers because the starting material has to be initiated from the seed *in vitro*. As an alternative, we have used seedlings as source material for DNA extraction and have obtained yields and purities comparable to embryogenic cultures. RAPD profiles obtained with DNA from embryogenic cultures and seedlings were similar and highly reproducible. Efficient and consistent amplification was achieved using primer concentrations ranging from 1.6 and 6.4 μ M with 0.1 to 1.0 μ g of template DNA. The intensity and resolution of faint bands resulting from non-optimized conditions were easily improved through further rounds of synthesis in a fresh PCR with amplified DNA diluted 500-fold.

Contents: This manuscript contains: Introduction, Materials and Methods, Results and Discussion, nineteen references, and two illustrations.

Illustrations:

Figure 1. RAPD amplification patterns from black spruce embryogenic lines and seedlings. Embryogenic lines and seedlings show similar RAPD profiles.

Figure 2. Band intensity of amplification patterns from spruce spp. was improved by an additional 42 sequential cycles of denaturation, annealing, and primer extension.

Full text location:** <http://www.chemweb.com/library/kluwer/pmbrdisplay.exe?jcode=pnbr>

Key words: spruce, embryogenic cultures, seedlings, randomly amplified polymorphic DNA

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**Editor's note: While the scientific content of this paper has been reviewed, the full text WEB document has not been edited in detail.