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Expression Pattern of 3 Chimeric Genes in Transgenic Poplars

Ji Hee Lee, Young Im Choi, Eun Woon Noh*, Hak Tae Lim¹

Biotechnology Division, Korea Forest Research Institute, Suwon, 441-350, Korea

¹Department of Biotechnology, Kangwon National University, Chuncheon, 200-701, Korea

Objectives

In this study, two transgenic poplars carrying bacterial *PAT* gene were analyzed with regard to the stability of transgene expression after 7 year growth in the nursery.

Materials and Methods

1. Material

Seven year old transgenic poplars (*Populus alba* x *P. glandulosa* No. 3) grown in the nursery.

2. Methods

PCR confirmation of the presence of the transgene, *In vivo* Basta application, GUS assay, *In vitro* tolerance assay against Kanamycin and Basta, RT-PCR confirmation of the expression of the transgene.

Results and Discussion

1. The presence of *PAT* gene in the transgenic poplars were confirmed by PCR.
2. The transgenic poplars exhibited resistance to herbicide Basta at the concentration up to 3.0% (Figure A).
3. Histological GUS analysis using various tissues at different developmental stages showed that the activity varies with plants and tissues. Whereas all the tissues(leaves, stems and roots) of the transgenic plants were positive in GUS activity, younger tissues tended to have higher activity than did older tissues.
4. *In vitro* culture using different tissues at different developmental stages of the field grown transgenic plants showed that younger tissues had higher gene expression so that they displayed higher tolerance to both antibiotics kanamycin and herbicide Basta than did older tissues (Figure B).
5. RT-PCR analysis also showed higher gene expression in younger tissues than the older tissues.

