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Genetic Transformation of *Aralia elata* SEEM. through *Agrobacterium rhizogenes*

Hyo Jin Kang, Jae Seon Yi, Yong Eui Choi

Division of Forest Resources, College of Forest Sciences, Kangwon National University, Chunchon 200-701, South Korea

Objectives

We have tried to produce transformed plants of *A. elata* which has not been reported yet via *Agrobacterium rhizogenes*. Moreover, we observed the growth characteristics of induced hairy roots and the morphological characteristics of the plantlets derived from hairy roots.

Material and Methods

1. Material

- Plant – *Aralia elata* 'KK1' were provided from the Plant Biotechnology Division, Korea Forest Research Institute.
- *Agrobacterium* strain – *A. rhizogenes* strain ATCC 15834

2. Methods

Hairy root lines were obtained from co-cultivated explants with *A. rhizogenes*, cultured in 30 ml of YEB liquid medium on a shaker (220rpm) at 28 °C. Transgenic lines were confirmed by PCR and RT-PCR.

Results and Discussion

Hairy roots induced from root explants after 30 days of inoculation with *Agrobacterium rhizogenes*. Introduction and expression of *rolC* genes into *A. elata* roots were confirmed by PCR and RT-PCR. Hairy roots exhibited active elongation with high branching of roots on growth regulator-free medium. Somatic embryos induced from hairy roots were developed through callus and embryogenic cells. Development of somatic embryos derived from transformed roots was slower than that of non-transformed roots. Shoots of plantlets derived from transformed roots were shorter than those from non-transformed roots. But roots of plantlet derived from transformed roots were longer than those from non-transformed roots. Lateral roots of plantlet derived from hairy roots were more numerous than non-transgenic roots. Plants derived from transformed roots showed quite often characteristic changes in morphology such as crinkling of leaves, fibrous roots with abundant lateral roots and short petioles compared to those derived from non-transformed roots.