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## Efficient Transformation System via *Agrobacterium* in the Monocot *Alstroemeria*

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### Objectives

For the improvement of *Alstroemeria* cultivar via genetic transformation, it is essential to establish regeneration system and transformation protocol with a high efficiency. We reports here the production of transgenic alstroemeria plants by means of *A. tumefaciens*.

### Materials and Methods

1. Plant materials : Butterfly type *Alstroemeria* cultivar VV024
2. Methods: somatic embryogenesis, *A. tumefaciens* (LBA4404: pTOK233, AGL0)

### Results and Discussion

We have demonstrated stable gene expression on embryogenic callus and somatic embryos of alstroemeria plants using *A. tumefaciens*. These transformed tissues were developed plantlets via somatic embryogenesis. As a result, 7 days of co-cultivation and 30 min infection time showed the best result in transient gene expression. This established protocol generated more than 450 transgenic callus lines from 6 independent experiments from 500 mg of friable embryogenic callus (FEC). Most of transgenic lines (>90%) were GUS positive and maintained by one-monthly subculture (Fig 1. left). The whole procedure from *Agrobacterium* infection to regeneration of plants took 6 months. The presence of transgene and expression of mRNA of transformants were confirmed by PCR and Northern blot analysis. Moreover, transgenic alstroemeria plants were produced via non-chemical based selection which use luciferase gene as a visual marker and transgenic liens showed luciferase positive with a high frequency (Fig 1. right).

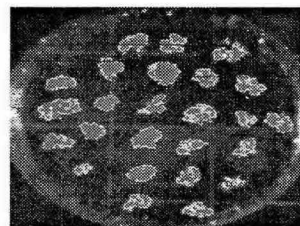
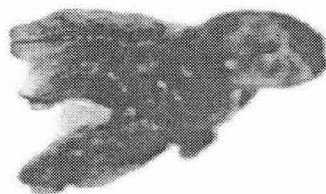


Fig. 1. Transient *GUS* and *luc* expression on transformed somatic embryos (left) and FEC lines (right) of *Alstroemeria* cultivar VV024.