

# Isopentenyl transferase gene expression offers the positive selection of marker-free transgenic plant of *Kalanchoe blossfeldiana*

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## Abstract

The technologies allowing the production of transgenic plants without selectable marker genes, is of great interest in public and environmental safety. For generating such marker-free transgenic plants, possibility has been offered by Multi-Auto-Transformation [MAT] vector system, which combines positive selection, using the isopentenyl transferase (*ipt*) gene, with a site-specific recombination that generates marker-free plants. In this study *Agrobacterium tumefaciens* strain EHA105 harboring an *ipt*-type MAT vector, pMAT21, containing *lacZ*, *gus* genes and the removable cassette in the T-DNA region was used to produce marker-free transgenic *Kalanchoe blossfeldiana* Poelln., employing *ipt* gene as the selectable marker gene. Co-cultivated explants were cultured on hormone- and selective agent-free MS medium, and 85% of the regenerated shoots showed *ipt*-shooty phenotype with GUS expression. Forty-one morphologically normal shoots were produced during the subculture. More than ninety percent of the normal shoots were *ipt*<sup>-</sup>, *gus*<sup>-</sup> but *lacZ*<sup>+</sup> as determined by PCR analyses. These results indicate that the *ipt* phenotype was clearly distinguishable from non-transgenic as well as transgenic marker-free shoots. This study opens interesting perspective for the generation of marker-free transgenic *K. blossfeldiana* with objective useful transgene.

## Author keywords

Excision; Multi-auto-transformation (MAT) vector; Removable cassette; Selectable marker; Site-specific recombination

## Indexed keywords

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