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Improved triterpene biosynthesis in transgenic *Platycodon grandiflorum* by using squalene epoxidase gene

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Objectives

We have tried to make transformation of *Platycodon grandiflorum* by squalene epoxidase gene derived from ginseng for improving triterpen biosynthesis through *Agrobacterium tumefaciens* and successfully obtainedtransgenic *Platycodon grandiflorum* by tissue culture system.

Materials and Methods

1. Material

Plant - *Platycodon grandiflorum* cultured *in vitro*.

Agrobacterium strain - GV3101/pRD400-SE.

Gene SE (squalene epoxidase derived from ginseng plant).

2. Methods

Transgenic shoots were obtained directly from leaf explants of *Platycodon grandiflorum* cultured *in vitro* on the MS media containing phytohormone (2 mg/L Naphthaleneacetic acid, 2mg/L benzyladenine, kanamycin 100 mg/L and cefotaxim 250 mg/L)

Results and Discussion

In ginseng (*Panax ginseng* C.A. Meyer), triterpenes share the common biosynthetic intermediate, 2,3-oxidosqualene. This investigate the regulatory role of *P, ginseng* squalene epoxidase(*PgSE*) on the biosynthesis of triterpene saponins in the transgenic *Platycodon grandiflorum*. *PgSE* of 35S-35S-AMV-*PgSE*-Tnos, has been concentructed which were mobilized into *Agrobacterium tumerfaciens* strain MP 90 disarmed Ti-plasmid. *PgSE* gene was introduced into the binary vector pRD 400. Introduce of gene connected with disease and transformation system of *P. grandiflorum*, *PgSE* gene cloned from and disease resistant gene carried out for expression and transformation of plant using *Agrobacterium*. Seven hundred bases paired PCR products, indicating the presence of *PgSE* gene, were found in the transformations by PCR analysis using *PgSS* primers. Kanamycin resistance assay showed that transgenes were stably inherited to next generation. The overexpression of the *PgSE* gene resulted in detected in the transgenic plants. This means that enhanced dammarene-type triterpene saponin might be converted in biosyntesis metabolism with the aid of silent gene in the host.

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