

Title An antisense *ETR1* cDNA from rose can reduce the ethylene sensitivity of petunias
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Abstract

The plant expression vector of antisense *ETR1* cDNA from *Rosa* 'Texas', pBinETR1D3 was constructed, Some leaf discs of *Petunia hybrida* was transformed by pBinETR1D3 through *Agrobacterium tumefaciens* strain LBA4404, and 10 transgenic petunias were obtained, of which the transformation frequency is 0.53%. The positive transgenic plants were confirmed by PCR in which the percentage is 91%, and in such a way the integration of *ETR1* cDNA into the genomes of transgenic petunia was confirmed. The transcription of *ETR1* cDNA in transgenic petunia plants was confirmed by RT-PCR and electrophoresis. Treated with 10, 20, 30 ppm ethylene for 24 hours, the leaves of wild type petunia withered after 2 day's culture. The symptoms were more serious with the increased concentration of ethylene, and the whole plant withered with 30 ppm ethylene. While the transgenic petunia does not wither after treatment of ethylene, the ethylene sensitivity of transgenic petunia plants decreased when compared to the wild type. This study demonstrated that antisense *ETR1* cDNA from *Rosa* 'Texas' can be constructed and transferred into petunias creating transgenic plants that are less sensitive to ethylene, which opens the possibility to obtain ethylene insensitive cut rose cultivars through molecular breeding.