

**Title** *Agrobacterium tumefaciens*-mediated transformation to alter ethylene and cytokinin biosynthesis in broccoli

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**Citation** Plant Cell, Tissue and Organ Culture 70 (1): 41-50. 2002.

**Keywords** *Agrobacterium tumefaciens*; brassica; cotyledonary petiole; hypocotyl; postharvest; senescence; transformation

### **Abstract**

Broccoli (*Brassica oleracea* var. *italica*) deteriorates rapidly following harvest. Postharvest treatment of broccoli with 6-benzylaminopurine delays senescence, whilst exogenous ethylene has been shown to accelerate this process following harvest. To alter ethylene biosynthesis, broccoli was transformed, using *Agrobacterium tumefaciens*-mediated transformation, with an antisense ACC oxidase gene from broccoli driven by the asparagine synthetase promoter from asparagus. In addition, broccoli was transformed with the chimeric gene construct SAG12-IPT to alter cytokinin biosynthesis during harvest-induced senescence. Transformation was achieved using both hypocotyl and cotyledonary petiole explants. The presence of an antisense ACC oxidase gene enhanced transformation efficiency, but Ag<sup>+</sup> incorporated into the medium did not. The transgenic nature of these plants was confirmed by PCR and Southern analyses.