

**Title** Depression of enzyme activities and gene expression of ACC synthase and ACC oxidase in cut carnation flowers under high-temperature conditions

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#### **Abstract**

High-temperature depression of ethylene production in cut carnation flowers cv. 'Excerea' can occur because of inhibition of ACC synthase (ACS) and ACC oxidase (ACO) activities in flowers. Large differences were apparent between ACS activity in petals at 24°C and 32°C. These ACC-accumulation-related activities were markedly decreased in petals at 32°C, indicating that a low ACS activity and ACC accumulation in petals are a factor of ethylene biosynthesis inhibition under high-temperature conditions. In addition, the respective expressions of *DC-ACO1* and *DC-ACS1* were low in both gynoecia and petals of flowers kept at 32°C. Results indicate that low ACS and ACO activities under high-temperature conditions were transcriptionally regulated.