

E213 Regulation of Arginine Decarboxylase Gene Expression of
Carnation Leaves in the Wounding Stress.

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Arginine decarboxylase(ADC) is one of the key enzymes in the synthesis of putrescine in plants and it has been well known that the ADC activity is regulated depending on the physiological conditions. For example, ADC activity increases during cell elongation and in various stress condition such as acid stress, anaerobic stress, osmotic stress and deficiency of K⁺ ion. To study the regulatory mechanism of ADC activity in carnation (*Dianthus caryophyllus* L), we isolated cDNA clones and genomic clones of ADC from carnation. Upon wounding stress in leaves of carnation, the mRNA and enzyme activity of ADC accumulated at 4 hr and then declines. The wound-induced ADC transcript and enzyme activity increased in abundance after treating the leaves with methyl jasmonate. But, salicylic acid did not increase the enzyme activity of ADC. The transcript of ADC is detectable as early as 1 hr in presence of H₂O₂ after wounding, indicating that H₂O₂ may play a role in signaling. We made three construct in which the various length of 5'-flanking regions of genomic ADC gene were fused GUS reporter gene and these constructs were transformed into tobacco using *Agrobacterium*. The GUS activity of tobacco transformed with the only construct containing 2.57 kbp of promoter(Del-1) was expressed in leaf disks which were wounded.

E214 Identification of Castasterone from Primary Roots of *Zea mays* L.

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Brassinosteroids (BRs) are steroidal plant hormones which are essential for normal plant growth. In a plant body, the presence of BRs in all aerial organs has been already demonstrated, but not in an underground organ, the root. Previously we demonstrated that exogenously applied BR activated a gravitropic curvature of maize primary roots. This led us investigate the presence of BRs in maize primary roots. After being purified by various column chromatographies, active compound in ethyl acetate soluble fraction was analyzed by a capillary GC-MS as a bismethaneboronate derivative. Castasterone, a 6-ketonic BR, was identified as an endogenous BR in the roots. The level calculated by [²H₆]-castasterone added as an internal standard was 0.3ng/g.fr.wt which is sufficient amount to activate gravitropic curvature of maize roots. In the presentation, identification of castasterone and its gravitropic activity in maize primary roots are reported.