## E222 Effect of Malformin on the Ethylene Production and Auxin Transport in the Primary Roots of *Zea mays* L.

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Malformin is a highly active plant growth regulator produced by the fungus *Aspergillus niger*. 1-aminocyclopropane-1-carboxylic acid (ACC)- and indole 3-acetic acid (IAA)-induced ethylene production was measured in the primary root of maize in the presence of malformin. ACC-dependent ethylene production was stimulated by the treatment of $10^{-6}$ M malformin within 2 h. The increased ethylene production maintained until 24 h. IAA-induced ethylene production was not stimulated within 4 h by the treatment of same concentration of malformin, but this ethylene production slightly stimulated and maintained until 24 h. In the presence of ACC, $Co^{2+}$ inhibited the ethylene production, but this inhibition did not observed within 4 h by the treatment of malformin. Malformin ($10^{-6}$ M) inhibited the auxin transport at the 2.5 h in the horizontal position. This result suggest that malformin stimulates ethylene production, and increased ethylene in the root tissue might inhibit the auxin transport. (This study is supported by a grant from KOSEF)

## E223 Stimulation and Inhibition of *Arabidopsis* Pollen Tube Growth by Phenolic Compounds

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*Arabidopsis* mutants deficient in flavonoid and sinapate ester (tt4 and fah1-7, respectively) were evaluated *in vivo* and *in vitro* to study the possible role of flavonoid compounds in pollen tube growth. *In vivo*, we investigated pollen tube growth in the pistils of the mutants and wild type (LER). The growth of pollen tubes was significantly different among the three genotypes. In the fah1-7 pistils, the tubes grew to a greater length relative to those of others. To examine *in vitro* pollen tube growth, the growth response of pollen tubes to phenolic compounds was examined in the medium containing caffeic acid, ferulic acid, kaempherol, quercetin or sinapinic acid in various concentrations. Caffeic acid, kaempherol and quercetin enhance both germination and tube growth regardless the genotypes, especially in caffeic acid and ferulic acid. In contrast, pollen germination was completely inhibited by adding 25 $\mu$M of sinapinic acid. The results show that related phenolic compounds have effect on both pollen germination and elongation in *Arabidopsis*.