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Changes of Plasma Membrane Proteins during Chilling Temperature Acclimation in Cucumber and Pumpkin

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Changes in gene expression during cold acclimation are apparently required for most temperate plants to survive in low temperature. It is known that cold acclimation is a highly complex metabolic phenomenon including the plant growth regulator(mainly abscisic acid) action. We try to invesigate an alternation of the protein pattern at the cell membrane, because the alternation in the H^+-ATPase activity is suggested to be resulted after cold acclimation, and mechanisms by which the functions of the ATPase and related specific transport proteins could alter is not known. Plasma membrane vesicles are obtained by phase partitioning from cold intolerant cucumber (*Cucumis sativus L.*) and cold tolerant pumpkin (*Cucurbita ficifolia Bouche*). While the protein pattern of the root plasma membrane is apparently changed after cold treatment(12℃) in case of pumpkin, the pattern of cucumber is not changed much. Also the protein profile of leaf membrane is not noticibly changed in both of case.

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Increase in arginase activity with exogenous arginine in excised hypocotyls of *Glycine max* L.

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The effect of exogenous arginine on the arginase activity was investigated by incubating the excised hypocotyls of *Glycine max* L. for 1 day in darkness. Arginase activity increased linear up to 50 mM of exogenous arginine, and was leveling off between 50 and 100 mM at the incubation medium adjusted to pH 7.0. The growth of the excised hypocotyls was maintained at arginine concentrations within 100 mM. Growth was maximum at 1 mM of arginine, and decreasing gradually at higher concentrations than 1 mM of arginine. When incubation medium was adjusted to pH 9.0, near isoelectric point of arginine, the increase in arginase activity was greatest at 1 mM of arginine: Arginase activity increased 2 fold at 1mM of arginine. However, growth was inhibited completely in the whole arginine concentrations between 1 and 100 mM. Also we have examined the effect of polyamins and nitrogen compounds on the increase in arginase activity, which might elucidate the regulatory effect of these compounds on the arginase.